Computer algebra independent integration tests

1_Algebraic_functions/1.1_Binomial_products/1.1.1Linear/1.1.1.3(a+bx)^m(c+dx)^n(e+f

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Contents

1 Introduction

This report gives the result of running the computer algebra independent integration problems. The listing of the problems are maintained by and can be downloaded from Albert Rich Rubi web site.

1.1 Listing of CAS systems tested

The following systems were tested at this time.

1. Mathematica 11.3 (64 bit).
2. Rubi 4.15.2 in Mathematica 11.3.
3. Rubi in Sympy (Version 1.3) under Python 3.7.0 using Anaconda distribution.
4. Maple 2018.1 (64 bit).
5. Maxima 5.41 Using Lisp ECL 16.1.2.
6. Fricas 1.3.4.
7. Sympy 1.3 under Python 3.7.0 using Anaconda distribution.
8. Giac/Xcas 1.4.9.

Maxima, Fricas and Giac/Xcas were called from inside SageMath version 8.3. This was done using SageMath integrate command by changing the name of the algorithm to use the different CAS systems.

Sympy was called directly using Python. Rubi in Sympy was also called directly using sympy 1.3 in python.

1.2 Design of the test system

The following diagram gives a high level view of the current test build system.

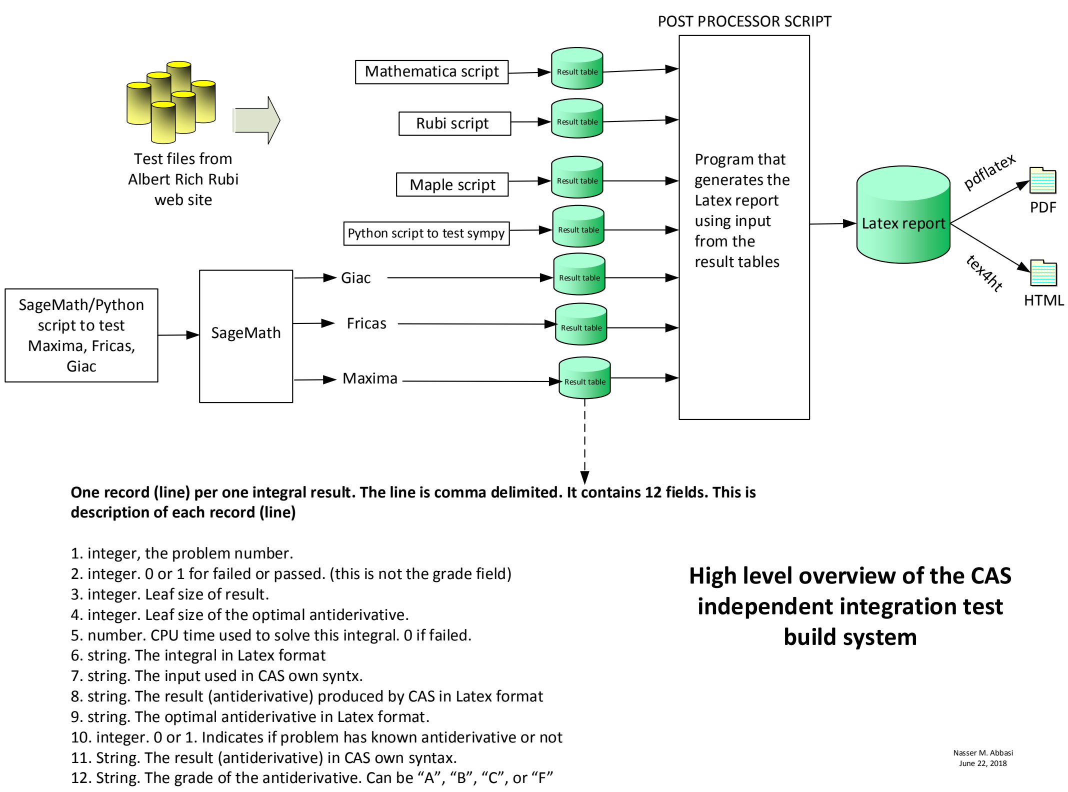

1.3 Timing

The command `AboluteTiming[]` was used in Mathematica to obtain the elapsed time for each integrate call. In Maple, the command `Usage` was used as in the following example

```
cpu_time := Usage(assign ('result_of _int',int(expr,x)),output='realtime'
```

For all other CAS systems, the elapsed time to complete each integral was found by taking the difference between the time after the call has completed from the time before the call was made. This was done using Python's `time.time()` call.

All elapsed times shown are in seconds. A time limit of 3 minutes was used for each integral. If the integrate command did not complete within this time limit, the integral was aborted and considered to have failed and assigned an F grade. The time used by failed integrals due to time out is not counted in the final statistics.

1.4 Verification

A verification phase was applied on the result of integration for Rubi and Mathematica. Future version of this report will implement verification for the other CAS systems. For the integrals whose result was not run through a verification phase, it is assumed that the antiderivative produced was correct.

Verification phase has 3 minutes time out. An integral whose result was not verified could still be correct. Further investigation is needed on those integrals which failed verifications. Such integrals are marked in the summary table below and also in each integral separate section so they are easy to identify and locate.

1.5 Important notes about some of the results

Important note about Maxima results Since these integrals are run in a batch mode, using an automated script, and by using sagemath (SageMath uses Maxima), then any integral where Maxima needs an interactive response from the user to answer a question during evaluation of the integral in order to complete the integration, will fail and is counted as failed.

The exception raised is `ValueError`. Therefore Maxima result below is lower than what could result if Maxima was run directly and each question Maxima asks was answered correctly.

The percentage of such failures were not counted for each test file, but for an example, for the Timofeev test file, there were about 30 such integrals out of total 705, or about 4 percent. This pecrentage can be higher or lower depending on the specific input test file.

Such integrals can be indentified by looking at the output of the integration in each section for Maxima. If the output was an exception `ValueError` then this is most likely due to this reason.

Maxima integrate was run using SageMath with the following settings set by default

```
'besselexpand : true'
'display2d : false'
'domain : complex'
'keepfloat : true'
'load(to_poly_solve)'
'load(simplify_sum)'
'load(abs_integrate)' 'load(diag)'
```

SageMath loading of Maxima `abs_integrate` was found to cause some problem. So the following code was added to disable this effect.

```
from sage.interfaces.maxima_lib import maxima_lib
maxima_lib.set('extra_definite_integration_methods', '[]')
maxima_lib.set('extra_integration_methods', '[]')
```

See `https://ask.sagemath.org/question/43088/integrate-results-that-are-different-from-using-maxima/` for reference.

Important note about FriCAS and Giac/XCAS results There are Few integrals which failed due to SageMath not able to translate the result back to SageMath syntax and not because these CAS system were not able to do the integrations.

These will fail With error `Exception raised: NotImplementedError`

The number of such cases seems to be very small. About 1 or 2 percent of all integrals.

Hopefully the next version of SageMath will have complete translation of FriCAS and XCAS syntax and I will re-run all the tests again when this happens.

Important note about finding leaf size of antiderivative For Mathematica, Rubi and Maple, the buildin system function `LeafSize` is used to find the leaf size of each antiderivative.

The other CAS systems (SageMath and Sympy) do not have special buildin function for this purpose at this time. Therefore the leaf size is determined as follows.

For Fricas, Giac and Maxima (all called via sagemath) the following code is used

```
#see https://stackoverflow.com/questions/25202346/how-to-obtain-leaf-count-express

def tree(expr):
    if expr.operator() is None:
       return expr
    else:
       return [expr.operator()]+map(tree, expr.operands())

try:
    # 1.35 is a fudge factor since this estimate of leaf count is bit lower than
    #what it should be compared to Mathematica's
    leafCount = round(1.35*len(flatten(tree(anti))))
except Exception as ee:
    leafCount =1
```

For Sympy, called directly from Python, the following code is used

```
try:
  # 1.7 is a fudge factor since it is low side from actual leaf count
  leafCount = round(1.7*count_ops(anti))

  except Exception as ee:
         leafCount =1
```

When these cas systems implement a buildin function to find the leaf size of expressions, it will be used instead, and these tests run again.

1.6 Grading of results

The table below summarizes the grading of each CAS system.

Important note: A number of problems in this test suite have no antiderivative in closed form. This means the antiderivative of these integrals can not be expressed in terms of elementary, special functions or `Hypergeometric2F1` functions. `RootSum` and `RootOf` are not allowed.

If a CAS returns the above integral unevaluated within the time limit, then the result is counted as passed and assigned an A grade.

However, if CAS times out, then it is assigned an F grade even if the integral is not integrable, as this implies CAS could not determine that the integral is not integrable in the time limit.

If a CAS returns an antiderivative to such an integral, it is assigned an A grade automatically and this special result is listed in the introduction section of each individual test report to make it easy to identify as this can be important result to investigate.

The results given in in the table below reflects the above.

System	solved	Failed
Rubi	% 100. (3173)	% 0. (0)
Rubi in Sympy	% 84.12 (2669)	% 15.88 (504)
Mathematica	% 99.78 (3166)	% 0.22 (7)
Maple	% 90.01 (2856)	% 9.99 (317)
Maxima	% 59.31 (1882)	% 40.69 (1291)
Fricas	% 80.08 (2541)	% 19.92 (632)
Sympy	% 45.26 (1436)	% 54.74 (1737)
Giac	% 73.87 (2344)	% 26.13 (829)

The table below gives additional break down of the grading of quality of the antiderivatives generated by each CAS. The grading is given using the letters A,B,C and F with A being the best quality. The grading is accomplished by comparing the antiderivative generated with the optimal antiderivatives included in the test suite. The following table describes the meaning of these grades.

grade	description
A	Integral was solved and antiderivative is optimal in quality and leaf size.
B	Integral was solved and antiderivative is optimal in quality but leaf size is larger than twice the optimal antiderivatives leaf size.
C	Integral was solved and antiderivative is non-optimal in quality. This can be due to one or more of the following reasons 1. antiderivative contains a hypergeometric function and the optimal antiderivative does not. 2. antiderivative contains a special function and the optimal antiderivative does not. 3. antiderivative contains the imaginary unit and the optimal antiderivative does not.
F	Integral was not solved. Either the integral was returned unevaluated within the time limit, or it timed out, or CAS hanged or crashed or an exception was raised.

Grading is currently implemented only for for Mathematica, Rubi and Maple results. For all other CAS systems (Maxima, Fricas, Sympy, Giac, Rubi in sympy), the grading function is not yet implemented. For these systems, a grade of A is assigned if the integrate command completes successfully and a grade of F otherwise.

Based on the above, the following table summarizes the grading for this test suite.

System	% A grade	% B grade	% C grade	% F grade
Rubi	99.94	0.03	0.03	0.
Rubi in Sympy	84.12	0.	0.	15.88
Mathematica	89.03	4.79	6.18	0.22
Maple	56.79	22.69	10.53	9.99
Maxima	59.31	0.	0.	40.69
Fricas	80.08	0.	0.	19.92
Sympy	45.26	0.	0.	54.74
Giac	73.87	0.	0.	26.13

The following is a Bar chart illustration of the data in the above table.

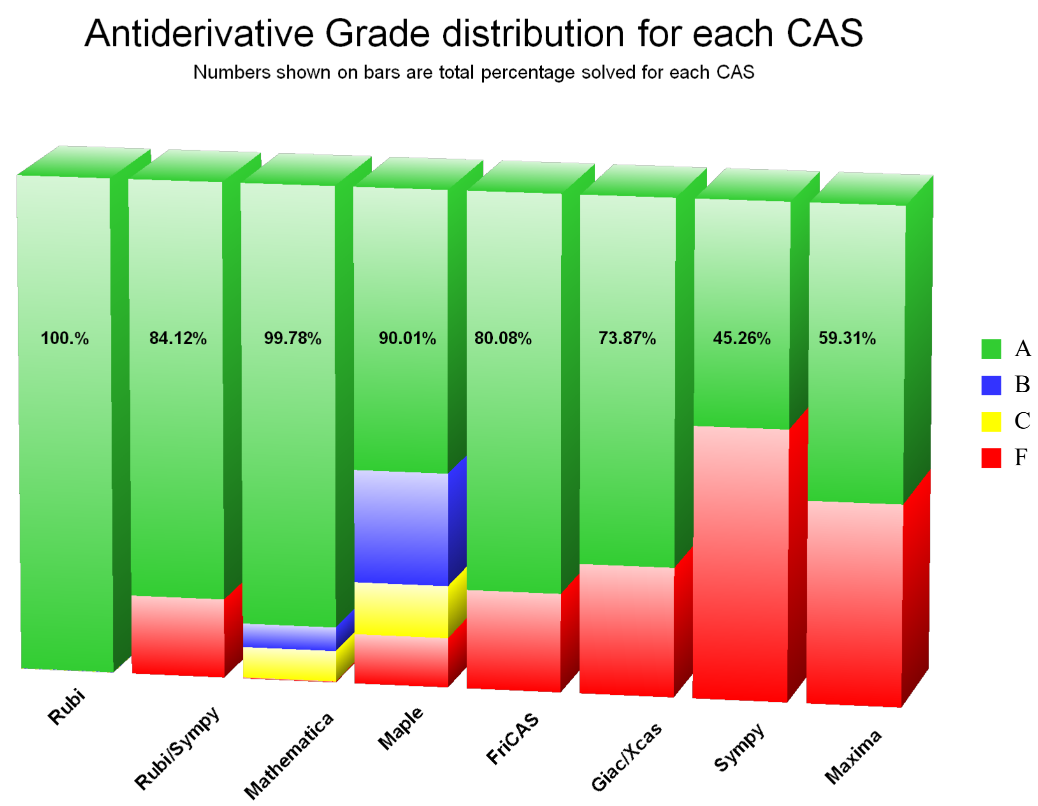

The figure below compares the CAS systems for each grade level.

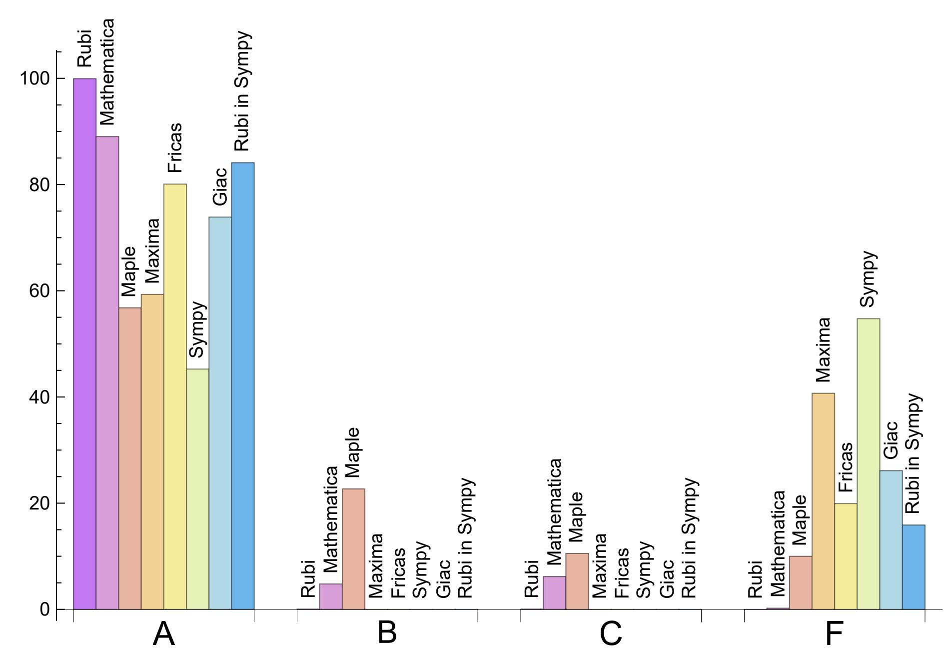

1.7 Performance

The table below summarizes the performance of each CAS system in terms of CPU time and leaf size of results.

System	Mean time (sec)	Mean size	Normalized mean	Median size	Normalized median
Rubi	0.32	130.4	1.	108.	1.
Rubi in Sympy	27.56	116.77	0.89	102.	0.89
Mathematica	0.62	287.22	1.44	83.	0.86
Maple	0.02	241.12	1.55	104.	1.06
Maxima	1.41	210.99	1.67	100.	1.23
Fricas	0.62	200.3	1.5	97.	1.21
Sympy	13.55	329.72	2.99	80.	1.13
Giac	0.29	186.81	1.74	116.	1.44

1.8 list of integrals that has no closed form antiderivative

{}

1.9 list of integrals not solved by each system

Not solved by Rubi {}

Not solved by Rubi in Sympy {2, 5, 7, 17, 18, 19, 20, 21, 31, 33, 35, 36, 52, 53, 54, 55, 63, 65, 66, 67, 78, 79, 80, 81, 94, 95, 96, 97, 98, 99, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 143, 144, 145, 146, 147, 153, 154, 155, 156, 162, 163, 164, 174, 175, 176, 177, 182, 183, 184, 185, 186, 191, 192, 193, 194, 195, 196, 201, 202, 203, 204, 211, 212, 213, 220, 221, 228, 229, 230, 231, 232, 238, 239, 240, 241, 242, 243, 249, 250, 251, 259, 260, 261, 271, 272, 273, 274, 279, 280, 287, 288, 354, 553, 563, 594, 611, 651, 657, 659, 660, 686, 780, 790, 800, 801, 803, 810, 997, 998, 999, 1000, 1010, 1011, 1012, 1024, 1026, 1027, 1034, 1035, 1036, 1043, 1045, 1046, 1048, 1049, 1055, 1056, 1057, 1058, 1059, 1060, 1061, 1062, 1063, 1064, 1065, 1066, 1067, 1072, 1073, 1074, 1075, 1076, 1077, 1078, 1079, 1080, 1081, 1082, 1091, 1092, 1093, 1094, 1095, 1096, 1097, 1098, 1099, 1108, 1109, 1115, 1118, 1119, 1125, 1130, 1131, 1132, 1133, 1134, 1135, 1136, 1145, 1146, 1147, 1148, 1149, 1150, 1151, 1152, 1161, 1162, 1163, 1164, 1165, 1166, 1167, 1168, 1169, 1170, 1176, 1177, 1178, 1179, 1180, 1181, 1182, 1190, 1191, 1192, 1193, 1194, 1195, 1196, 1205, 1206, 1207, 1208, 1209, 1210, 1223, 1224, 1225, 1226, 1227, 1228, 1229, 1230, 1239, 1240, 1241, 1242, 1243, 1244, 1245, 1246, 1247, 1248, 1257, 1258, 1259, 1260, 1261, 1262, 1263, 1264, 1265, 1266, 1267, 1268, 1272, 1273, 1274, 1275, 1276, 1277, 1278, 1279, 1280, 1288, 1289, 1290, 1291, 1292, 1293, 1294, 1295, 1304, 1305, 1306, 1307, 1308, 1309, 1310, 1311, 1324, 1325, 1326, 1327, 1328, 1329, 1330, 1331, 1332, 1333, 1340, 1341, 1342, 1343, 1344, 1345, 1346, 1347, 1348, 1349, 1350, 1351, 1355, 1356, 1357, 1358, 1359, 1360, 1361, 1362, 1363, 1364, 1365, 1366, 1367, 1368, 1371, 1372, 1373, 1374, 1375, 1376, 1377, 1378, 1379, 1386, 1387, 1388, 1389, 1390, 1391, 1392, 1393, 1401, 1402, 1403, 1404, 1405, 1406, 1407, 1408, 1417, 1418, 1419, 1420, 1421, 1422, 1423, 1424, 1425, 1434, 1435, 1436, 1437, 1438, 1439, 1440, 1441, 1442, 1443, 1451, 1452, 1453, 1454, 1455, 1456, 1457, 1458, 1459, 1460, 1467, 1468, 1469, 1470, 1471, 1472, 1473, 1474, 1484, 1485, 1486, 1487, 1488, 1489, 1499, 1500, 1501, 1502, 1503, 1513, 1514, 1515, 1521, 1522, 1523, 1524, 1525, 1526, 1527, 1528, 1537, 1538, 1539, 1540, 1541, 1542, 1543, 1544, 1545, 1554, 1555, 1556, 1557, 1558, 1559, 1560, 1561, 1562, 1563, 1571, 1572, 1573, 1574, 1575, 1576, 1586, 1587, 1588, 1589, 1590, 1600, 1601, 1602, 1603, 1613, 1614, 1615, 1616, 1617, 1618, 1619, 1628, 1629, 1630, 1631, 1632, 1633, 1634, 1642, 1643, 1644, 1645, 1646, 1647, 1648, 1654, 1655, 1656, 1657, 1658, 1667, 1668, 1669, 1670, 1680, 1681, 1682, 1683, 1694, 1696, 1698, 1699, 1772, 2624, 2625, 2627, 2841, 2997, 2998, 3004, 3005, 3006, 3010, 3011, 3012, 3013, 3020, 3026, 3027, 3028, 3051, 3060, 3061, 3069, 3077, 3084, 3085, 3088, 3089, 3090, 3093, 3095, 3104, 3106, 3115, 3116, 3123, 3130, 3173}

Not solved by Mathematica {933, 934, 935, 3158, 3171, 3172, 3173}

Not solved by Maple {345, 346, 347, 349, 350, 351, 352, 353, 354, 358, 359, 360, 364, 365, 366, 371, 372, 373, 374, 451, 452, 552, 575, 624, 631, 672, 681, 750, 758, 785, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 901, 902, 903, 904, 905, 909, 910, 914, 915, 916, 917, 921, 922, 923, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 2296, 2357, 2366, 2423, 2434, 2506, 2516, 2526, 2576, 2585, 2984, 2985, 2986, 2987, 2988, 2989, 2990, 2991, 2992, 2993, 2994, 2995, 2996, 2997, 2998, 2999, 3000, 3001, 3002, 3003, 3004, 3005, 3006, 3007, 3008, 3009, 3010, 3011, 3012, 3013, 3015, 3016, 3017, 3018, 3019, 3020, 3021, 3022, 3023, 3024, 3025, 3026, 3027, 3028, 3029, 3030, 3031, 3032, 3036, 3037, 3038, 3042, 3043, 3044, 3045, 3046, 3047, 3048, 3049, 3050, 3051, 3052, 3053, 3054, 3055, 3056, 3057, 3058, 3059, 3060, 3061, 3062, 3063, 3064, 3065, 3067, 3068, 3069, 3070, 3071, 3072, 3073, 3076, 3077, 3078, 3079, 3080, 3084, 3085, 3086, 3087, 3088, 3093, 3094, 3095, 3096, 3097, 3098, 3099, 3100, 3101, 3102, 3103, 3104, 3105, 3106, 3107, 3108, 3109, 3110, 3111, 3112, 3113, 3114, 3115, 3116, 3117, 3118, 3119, 3120, 3121, 3122, 3123, 3126, 3127, 3128, 3129, 3130, 3131, 3132, 3133, 3134, 3135, 3136, 3137, 3138, 3139, 3140, 3141, 3142, 3143, 3144, 3145, 3146, 3147, 3148, 3149, 3150, 3151, 3157, 3158, 3162, 3163, 3164, 3165, 3166, 3167, 3168, 3169, 3170, 3171, 3172, 3173}

Not solved by Maxima {314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 380, 381, 382, 383, 384, 385, 391, 392, 393, 394, 395, 396, 397, 403, 404, 405, 406, 407, 408, 409, 410, 416, 417, 418, 419, 420, 421, 427, 428, 429, 430, 431, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 532, 533, 534, 535, 536, 537, 538, 539, 540, 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Not solved by Giac {201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 345, 346, 347, 349, 350, 351, 352, 353, 354, 358, 359, 360, 364, 365, 366, 371, 372, 373, 374, 451, 452, 467, 468, 469, 472, 478, 479, 480, 481, 482, 483, 484, 490, 491, 492, 493, 494, 495, 496, 502, 503, 504, 505, 541, 542, 543, 544, 551, 552, 553, 561, 562, 563, 569, 570, 571, 572, 577, 578, 584, 585, 592, 593, 594, 602, 603, 612, 613, 619, 620, 621, 626, 627, 628, 633, 634, 642, 643, 652, 661, 668, 669, 675, 676, 677, 683, 684, 685, 686, 691, 692, 693, 699, 700, 701, 708, 709, 710, 716, 717, 718, 719, 720, 727, 728, 734, 735, 742, 743, 746, 752, 753, 754, 761, 762, 763, 770, 779, 787, 788, 789, 790, 808, 812, 813, 814, 821, 822, 823, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 909, 910, 914, 915, 916, 917, 921, 922, 923, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 1467, 1697, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 2681, 2682, 2683, 2684, 2685, 2686, 2687, 2688, 2689, 2690, 2691, 2692, 2693, 2694, 2695, 2696, 2697, 2698, 2699, 2700, 2702, 2703, 2704, 2705, 2706, 2707, 2708, 2709, 2710, 2711, 2712, 2713, 2714, 2715, 2716, 2717, 2718, 2719, 2720, 2721, 2722, 2723, 2724, 2725, 2726, 2727, 2728, 2729, 2730, 2731, 2732, 2733, 2734, 2735, 2736, 2737, 2738, 2739, 2740, 2741, 2742, 2743, 2744, 2745, 2746, 2748, 2749, 2750, 2751, 2752, 2753, 2754, 2755, 2756, 2757, 2759, 2760, 2761, 2762, 2763, 2764, 2765, 2766, 2767, 2768, 2769, 2770, 2771, 2772, 2773, 2774, 2775, 2776, 2777, 2778, 2779, 2780, 2781, 2782, 2783, 2784, 2785, 2786, 2787, 2788, 2789, 2790, 2791, 2792, 2793, 2794, 2795, 2796, 2797, 2798, 2799, 2800, 2801, 2802, 2803, 2804, 2805, 2806, 2807, 2808, 2809, 2810, 2811, 2812, 2813, 2814, 2815, 2816, 2817, 2818, 2819, 2820, 2821, 2822, 2823, 2824, 2825, 2826, 2827, 2828, 2829, 2830, 2831, 2832, 2833, 2834, 2835, 2836, 2837, 2838, 2839, 2840, 2841, 2842, 2843, 2844, 2845, 2846, 2847, 2848, 2849, 2850, 2851, 2852, 2853, 2854, 2855, 2856, 2857, 2858, 2859, 2860, 2861, 2862, 2863, 2864, 2865, 2866, 2867, 2868, 2869, 2870, 2871, 2872, 2873, 2874, 2875, 2876, 2877, 2878, 2879, 2880, 2881, 2882, 2883, 2884, 2885, 2886, 2887, 2888, 2889, 2890, 2891, 2892, 2893, 2894, 2895, 2896, 2897, 2898, 2899, 2900, 2901, 2902, 2903, 2904, 2905, 2906, 2907, 2908, 2909, 2910, 2911, 2912, 2913, 2914, 2915, 2916, 2917, 2918, 2919, 2920, 2921, 2922, 2923, 2924, 2925, 2926, 2927, 2928, 2929, 2930, 2931, 2932, 2933, 2934, 2935, 2936, 2937, 2938, 2939, 2940, 2941, 2942, 2943, 2944, 2945, 2946, 2947, 2948, 2949, 2950, 2951, 2952, 2953, 2954, 2955, 2956, 2957, 2958, 2959, 2960, 2961, 2962, 2963, 2964, 2965, 2966, 2967, 2968, 2969, 2970, 2971, 2972, 2973, 2974, 2975, 2976, 2977, 2978, 2979, 2980, 2981, 2982, 2983, 2984, 2985, 2986, 2987, 2991, 2992, 2993, 2994, 2995, 2996, 2997, 2998, 2999, 3000, 3001, 3002, 3003, 3004, 3005, 3006, 3007, 3008, 3009, 3010, 3011, 3012, 3013, 3014, 3015, 3016, 3017, 3018, 3019, 3020, 3021, 3022, 3023, 3024, 3025, 3026, 3027, 3028, 3029, 3030, 3031, 3032, 3034, 3035, 3036, 3037, 3038, 3040, 3041, 3042, 3043, 3044, 3045, 3046, 3047, 3048, 3049, 3050, 3051, 3052, 3053, 3054, 3055, 3056, 3057, 3058, 3059, 3060, 3061, 3062, 3063, 3064, 3065, 3066, 3067, 3068, 3069, 3070, 3071, 3072, 3073, 3074, 3075, 3076, 3077, 3078, 3079, 3080, 3081, 3082, 3083, 3084, 3085, 3086, 3087, 3088, 3089, 3090, 3091, 3092, 3093, 3094, 3095, 3096, 3097, 3098, 3099, 3100, 3101, 3102, 3103, 3104, 3105, 3106, 3107, 3108, 3109, 3110, 3111, 3112, 3113, 3114, 3115, 3116, 3117, 3118, 3119, 3120, 3121, 3122, 3123, 3124, 3125, 3126, 3127, 3128, 3129, 3130, 3131, 3132, 3133, 3134, 3135, 3136, 3137, 3138, 3139, 3140, 3141, 3142, 3143, 3144, 3145, 3146, 3147, 3148, 3149, 3150, 3151, 3157, 3158, 3162, 3163, 3164, 3165, 3166, 3167, 3168, 3169, 3170, 3171, 3172, 3173}

1.10 list of integrals solved by CAS but has no known antiderivative

Rubi {}

Rubi in Sympy {}

Mathematica {}

Maple {}

Maxima {}

Fricas {}

Sympy {}

Giac {}

1.11 list of integrals solved by CAS but failed verification

The following are integrals solved by CAS but the verification phase failed to verify the anti-derivative produced is correct. This does not mean necessarily that the anti-derivative is wrong, as additional methods of verification might be needed, or more time is needed (3 minutes time limit was used). These integrals are listed here to make it easier to do further investigation to determine why it was not possible to verify the result produced.

Rubi {863, 864, 865, 866, 867, 869, 870, 989, 2833, 2835, 3005, 3006, 3007, 3008, 3010, 3011, 3012, 3013, 3015}

Mathematica {353, 354, 360, 365, 366, 451, 452, 716, 717, 718, 719, 720, 746, 821, 822, 823, 836, 853, 854, 855, 859, 868, 869, 870, 875, 876, 877, 878, 879, 883, 884, 885, 886, 887, 892, 893, 894, 895, 930, 931, 932, 938, 939, 942, 943, 944, 946, 947, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 962, 963, 964, 965, 966, 967, 968, 970, 971, 972, 973, 981, 982, 983, 984, 985, 986, 988, 989, 2834, 2987, 2988, 2994, 3009, 3010, 3011, 3016, 3017, 3018, 3019, 3023, 3027, 3028, 3030, 3036, 3042, 3043, 3044, 3045, 3046, 3048, 3050, 3051, 3052, 3053, 3054, 3055, 3058, 3059, 3060, 3061, 3062, 3063, 3064, 3067, 3068, 3069, 3070, 3071, 3073, 3076, 3077, 3078, 3079, 3080, 3084, 3085, 3086, 3087, 3088, 3093, 3094, 3095, 3096, 3097, 3098, 3099, 3100, 3101, 3102, 3103, 3104, 3105, 3106, 3107, 3108, 3109, 3110, 3111, 3112, 3114, 3115, 3116, 3117, 3118, 3119, 3120, 3122, 3123, 3124, 3125, 3126, 3127, 3129, 3130, 3131, 3132, 3133, 3135, 3136, 3137, 3138, 3139, 3140, 3141, 3142, 3143, 3144, 3145, 3146, 3147, 3148, 3149, 3150, 3151}

Maple Verification phase not implemented yet.

Maxima Verification phase not implemented yet.

Fricas Verification phase not implemented yet.

Sympy Verification phase not implemented yet.

Giac Verification phase not implemented yet.

Rubi in Sympy Verification phase not implemented yet.

2 detailed summary tables of results

2.1 Detailed conclusion table per each integral for all CAS systems

Detailed conclusion table per each integral is given by table below. The elapsed time is in seconds. For failed result it is given as F(-1) if the failure was due to timeout. It is given as F(-2) if the failure was due to an exception being raised, which could indicate a bug in the system. If the failure was due to integral not being evaluated within the time limit, then it is given just an F.

In this table,the column **normalized size** is defined as $\frac{\text{antiderivative leaf size}}{\text{optimal antiderivative leaf size}}$

Problem 1	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	55	55	47	48	63	1	49	63	49
normalized size	1	1.	0.85	0.87	1.15	0.02	0.89	1.15	0.89
time (sec)	N/A	0.097	0.006	0.001	1.354	0.182	0.064	0.324	22.334

Problem 2	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	55	55	47	48	63	1	53	63	0
normalized size	1	1.	0.85	0.87	1.15	0.02	0.96	1.15	0.
time (sec)	N/A	0.08	0.004	0.001	1.348	0.18	0.071	0.245	0.

Problem 3	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	38	38	40	45	59	1	44	59	27
normalized size	1	1.	1.05	1.18	1.55	0.03	1.16	1.55	0.71
time (sec)	N/A	0.039	0.003	0.	1.35	0.182	0.067	0.248	17.104

Problem 4	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	47	47	48	44	58	58	48	59	48
normalized size	1	1.	1.02	0.94	1.23	1.23	1.02	1.26	1.02
time (sec)	N/A	0.048	0.021	0.005	1.345	0.201	0.584	0.234	18.102

Problem 5	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	47	47	39	46	61	65	44	62	0
normalized size	1	1.	0.83	0.98	1.3	1.38	0.94	1.32	0.
time (sec)	N/A	0.065	0.011	0.008	1.348	0.201	0.65	0.239	0.

Problem 6	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	18	18	41	38	62	61	46	62	15
normalized size	1	1.	2.28	2.11	3.44	3.39	2.56	3.44	0.83
time (sec)	N/A	0.017	0.01	0.007	1.349	0.196	0.696	0.327	7.248

Problem 7	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	37	44	61	65	44	62	0
normalized size	1	1.	0.82	0.98	1.36	1.44	0.98	1.38	0.
time (sec)	N/A	0.065	0.011	0.008	1.347	0.207	0.794	0.325	0.

Problem 8	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	50	50	42	47	63	66	49	65	48
normalized size	1	1.	0.84	0.94	1.26	1.32	0.98	1.3	0.96
time (sec)	N/A	0.059	0.01	0.009	1.346	0.207	0.86	0.301	18.631

Problem 9	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	50	50	42	39	63	63	49	63	44
normalized size	1	1.	0.84	0.78	1.26	1.26	0.98	1.26	0.88
time (sec)	N/A	0.066	0.009	0.009	1.339	0.201	0.967	0.257	19.344

Problem 10	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	55	55	47	40	63	63	49	63	53
normalized size	1	1.	0.85	0.73	1.15	1.15	0.89	1.15	0.96
time (sec)	N/A	0.068	0.01	0.007	1.347	0.199	0.929	0.24	19.627

Problem 11	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	55	55	47	40	63	63	49	63	49
normalized size	1	1.	0.85	0.73	1.15	1.15	0.89	1.15	0.89
time (sec)	N/A	0.066	0.01	0.007	1.347	0.196	0.968	0.271	19.558

Problem 12	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	87	87	87	76	101	1	82	101	82
normalized size	1	1.	1.	0.87	1.16	0.01	0.94	1.16	0.94
time (sec)	N/A	0.141	0.007	0.002	1.349	0.186	0.075	0.246	35.191

Problem 13	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	87	87	87	76	101	1	85	101	85
normalized size	1	1.	1.	0.87	1.16	0.01	0.98	1.16	0.98
time (sec)	N/A	0.129	0.005	0.002	1.343	0.178	0.075	0.241	34.388

Problem 14	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	80	80	87	76	101	1	85	101	85
normalized size	1	1.	1.09	0.95	1.26	0.01	1.06	1.26	1.06
time (sec)	N/A	0.131	0.005	0.001	1.343	0.182	0.075	0.22	33.526

Problem 15	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	59	59	85	76	101	1	80	101	51
normalized size	1	1.	1.44	1.29	1.71	0.02	1.36	1.71	0.86
time (sec)	N/A	0.095	0.004	0.001	1.374	0.187	0.074	0.233	30.447

Problem 16	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	38	38	68	73	97	1	82	97	29
normalized size	1	1.	1.79	1.92	2.55	0.03	2.16	2.55	0.76
time (sec)	N/A	0.039	0.004	0.	1.346	0.183	0.079	0.262	20.531

Problem 17	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	76	76	70	71	95	95	78	96	0
normalized size	1	1.	0.92	0.93	1.25	1.25	1.03	1.26	0.
time (sec)	N/A	0.076	0.031	0.004	1.337	0.204	0.638	0.241	0.

Problem 18	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	73	73	73	72	96	103	71	97	0
normalized size	1	1.	1.	0.99	1.32	1.41	0.97	1.33	0.
time (sec)	N/A	0.095	0.014	0.009	1.381	0.208	0.691	0.246	0.

Problem 19	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	78	78	78	73	99	104	78	100	0
normalized size	1	1.	1.	0.94	1.27	1.33	1.	1.28	0.
time (sec)	N/A	0.093	0.013	0.009	1.34	0.201	0.752	0.293	0.

Problem 20	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	78	78	78	73	99	104	78	100	0
normalized size	1	1.	1.	0.94	1.27	1.33	1.	1.28	0.
time (sec)	N/A	0.097	0.012	0.01	1.328	0.203	0.87	0.239	0.

Problem 21	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	72	72	72	71	96	104	75	97	0
normalized size	1	1.	1.	0.99	1.33	1.44	1.04	1.35	0.
time (sec)	N/A	0.095	0.013	0.01	1.363	0.212	0.989	0.274	0.

Problem 22	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	79	79	79	74	100	104	78	101	78
normalized size	1	1.	1.	0.94	1.27	1.32	0.99	1.28	0.99
time (sec)	N/A	0.088	0.012	0.01	1.351	0.21	1.226	0.266	29.525

Problem 23	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	41	41	85	62	101	101	82	101	36
normalized size	1	1.	2.07	1.51	2.46	2.46	2.	2.46	0.88
time (sec)	N/A	0.048	0.012	0.007	1.345	0.199	2.149	0.239	11.496

Problem 24	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	84	84	84	61	101	101	82	101	80
normalized size	1	1.	1.	0.73	1.2	1.2	0.98	1.2	0.95
time (sec)	N/A	0.1	0.012	0.007	1.339	0.202	2.36	0.258	30.436

Problem 25	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	87	87	87	62	101	101	82	101	85
normalized size	1	1.	1.	0.71	1.16	1.16	0.94	1.16	0.98
time (sec)	N/A	0.097	0.013	0.007	1.417	0.197	2.532	0.259	30.519

Problem 26	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	87	87	73	76	101	1	87	101	87
normalized size	1	1.	0.84	0.87	1.16	0.01	1.	1.16	1.
time (sec)	N/A	0.141	0.006	0.004	1.383	0.18	0.157	0.262	36.313

Problem 27	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	87	87	73	76	101	1	87	101	87
normalized size	1	1.	0.84	0.87	1.16	0.01	1.	1.16	1.
time (sec)	N/A	0.135	0.005	0.001	1.393	0.182	0.152	0.242	35.002

Problem 28	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	80	80	68	75	100	1	78	100	78
normalized size	1	1.	0.85	0.94	1.25	0.01	0.98	1.25	0.98
time (sec)	N/A	0.132	0.005	0.001	1.348	0.181	0.158	0.255	34.032

Problem 29	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	59	59	73	76	101	1	87	101	51
normalized size	1	1.	1.24	1.29	1.71	0.02	1.47	1.71	0.86
time (sec)	N/A	0.101	0.004	0.003	1.349	0.184	0.157	0.234	31.481

Problem 30	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	38	38	64	73	97	1	78	97	27
normalized size	1	1.	1.68	1.92	2.55	0.03	2.05	2.55	0.71
time (sec)	N/A	0.039	0.004	0.001	1.343	0.186	0.157	0.249	20.95

Problem 31	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	79	79	75	72	96	96	82	97	0
normalized size	1	1.	0.95	0.91	1.22	1.22	1.04	1.23	0.
time (sec)	N/A	0.079	0.021	0.004	1.382	0.206	1.312	0.248	0.

Problem 32	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	75	75	61	72	96	104	75	97	75
normalized size	1	1.	0.81	0.96	1.28	1.39	1.	1.29	1.
time (sec)	N/A	0.098	0.011	0.01	1.339	0.205	1.43	0.32	28.586

Problem 33	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	82	82	68	75	101	104	82	103	0
normalized size	1	1.	0.83	0.91	1.23	1.27	1.	1.26	0.
time (sec)	N/A	0.1	0.012	0.012	1.431	0.206	1.677	0.24	0.

Problem 34	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	18	18	63	60	99	99	76	99	15
normalized size	1	1.	3.5	3.33	5.5	5.5	4.22	5.5	0.83
time (sec)	N/A	0.018	0.011	0.007	1.35	0.197	1.681	0.223	8.114

Problem 35	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	80	80	66	73	99	104	78	100	0
normalized size	1	1.	0.82	0.91	1.24	1.3	0.98	1.25	0.
time (sec)	N/A	0.101	0.011	0.01	1.341	0.204	1.914	0.244	0.

Problem 36	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	75	75	61	72	99	104	76	100	0
normalized size	1	1.	0.81	0.96	1.32	1.39	1.01	1.33	0.
time (sec)	N/A	0.1	0.011	0.01	1.338	0.209	2.198	0.244	0.

Problem 37	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	82	82	68	75	101	104	80	103	82
normalized size	1	1.	0.83	0.91	1.23	1.27	0.98	1.26	1.
time (sec)	N/A	0.089	0.012	0.01	1.349	0.209	2.518	0.241	30.935

Problem 38	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	41	41	66	61	101	101	80	101	36
normalized size	1	1.	1.61	1.49	2.46	2.46	1.95	2.46	0.88
time (sec)	N/A	0.048	0.011	0.008	1.352	0.2	2.563	0.255	11.677

Problem 39	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	65	65	73	62	101	101	80	101	60
normalized size	1	1.	1.12	0.95	1.55	1.55	1.23	1.55	0.92
time (sec)	N/A	0.073	0.011	0.008	1.342	0.205	2.696	0.24	17.045

Problem 40	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	82	82	68	61	101	101	80	101	78
normalized size	1	1.	0.83	0.74	1.23	1.23	0.98	1.23	0.95
time (sec)	N/A	0.1	0.011	0.007	1.353	0.205	2.855	0.237	32.17

Problem 41	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	87	87	73	62	101	101	80	101	87
normalized size	1	1.	0.84	0.71	1.16	1.16	0.92	1.16	1.
time (sec)	N/A	0.1	0.011	0.007	1.367	0.197	3.054	0.246	32.079

Problem 42	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	87	87	73	62	101	101	80	101	87
normalized size	1	1.	0.84	0.71	1.16	1.16	0.92	1.16	1.
time (sec)	N/A	0.099	0.01	0.008	1.356	0.193	3.171	0.238	32.021

Problem 43	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	113	113	113	102	138	142	109	139	116
normalized size	1	1.	1.	0.9	1.22	1.26	0.96	1.23	1.03
time (sec)	N/A	0.134	0.018	0.009	1.371	0.212	2.932	0.268	42.72

Problem 44	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	41	41	112	83	139	139	112	139	36
normalized size	1	1.	2.73	2.02	3.39	3.39	2.73	3.39	0.88
time (sec)	N/A	0.049	0.013	0.009	1.349	0.203	3.283	0.243	11.56

Problem 45	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	65	65	116	83	139	139	112	139	60
normalized size	1	1.	1.78	1.28	2.14	2.14	1.72	2.14	0.92
time (sec)	N/A	0.073	0.012	0.007	1.368	0.204	3.946	0.25	16.999

Problem 46	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	89	89	119	84	139	139	112	139	83
normalized size	1	1.	1.34	0.94	1.56	1.56	1.26	1.56	0.93
time (sec)	N/A	0.097	0.014	0.009	1.355	0.2	3.715	0.238	24.738

Problem 47	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	114	114	114	83	139	139	112	139	112
normalized size	1	1.	1.	0.73	1.22	1.22	0.98	1.22	0.98
time (sec)	N/A	0.141	0.012	0.007	1.349	0.197	3.712	0.248	43.773

Problem 48	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	119	119	119	84	139	139	112	139	121
normalized size	1	1.	1.	0.71	1.17	1.17	0.94	1.17	1.02
time (sec)	N/A	0.137	0.013	0.01	1.342	0.198	3.971	0.248	43.796

Problem 49	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	33	33	33	28	36	1	29	39	29
normalized size	1	1.	1.	0.85	1.09	0.03	0.88	1.18	0.88
time (sec)	N/A	0.081	0.008	0.002	1.342	0.177	0.082	0.237	10.048

Problem 50	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	33	33	33	28	36	1	29	39	29
normalized size	1	1.	1.	0.85	1.09	0.03	0.88	1.18	0.88
time (sec)	N/A	0.075	0.007	0.002	1.353	0.182	0.085	0.23	10.189

Problem 51	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	33	33	33	28	36	1	29	39	29
normalized size	1	1.	1.	0.85	1.09	0.03	0.88	1.18	0.88
time (sec)	N/A	0.063	0.007	0.001	1.351	0.178	0.077	0.28	10.068

Problem 52	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	33	33	29	28	36	1	29	39	0
normalized size	1	1.	0.88	0.85	1.09	0.03	0.88	1.18	0.
time (sec)	N/A	0.052	0.008	0.002	1.335	0.182	0.085	0.23	0.

Problem 53	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	28	28	28	25	32	1	26	35	0
normalized size	1	1.	1.	0.89	1.14	0.04	0.93	1.25	0.
time (sec)	N/A	0.036	0.008	0.001	1.345	0.18	0.068	0.26	0.

Problem 54	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	24	24	24	22	30	30	22	30	0
normalized size	1	1.	1.	0.92	1.25	1.25	0.92	1.25	0.
time (sec)	N/A	0.03	0.008	0.003	1.349	0.203	1.12	0.288	0.

Problem 55	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	22	22	22	23	30	35	19	31	0
normalized size	1	1.	1.	1.05	1.36	1.59	0.86	1.41	0.
time (sec)	N/A	0.039	0.014	0.008	1.347	0.201	1.326	0.285	0.

Problem 56	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	27	27	28	28	34	39	26	35	22
normalized size	1	1.	1.04	1.04	1.26	1.44	0.96	1.3	0.81
time (sec)	N/A	0.039	0.017	0.007	1.349	0.201	1.537	0.279	9.03

Problem 57	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	31	31	28	28	36	36	31	36	27
normalized size	1	1.	0.9	0.9	1.16	1.16	1.	1.16	0.87
time (sec)	N/A	0.042	0.015	0.007	1.346	0.195	1.79	0.317	9.645

Problem 58	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	33	33	29	28	36	36	31	36	31
normalized size	1	1.	0.88	0.85	1.09	1.09	0.94	1.09	0.94
time (sec)	N/A	0.044	0.014	0.007	1.348	0.194	2.022	0.376	9.421

Problem 59	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	33	33	31	28	36	36	31	36	31
normalized size	1	1.	0.94	0.85	1.09	1.09	0.94	1.09	0.94
time (sec)	N/A	0.042	0.016	0.007	1.357	0.195	2.327	0.27	9.589

Problem 60	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	55	55	55	52	69	1	54	72	49
normalized size	1	1.	1.	0.95	1.25	0.02	0.98	1.31	0.89
time (sec)	N/A	0.13	0.012	0.001	1.39	0.177	0.111	0.25	22.221

Problem 61	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	55	55	55	52	69	1	54	72	49
normalized size	1	1.	1.	0.95	1.25	0.02	0.98	1.31	0.89
time (sec)	N/A	0.107	0.011	0.001	1.343	0.178	0.11	0.279	20.8

Problem 62	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	55	55	50	52	69	1	54	72	49
normalized size	1	1.	0.91	0.95	1.25	0.02	0.98	1.31	0.89
time (sec)	N/A	0.104	0.018	0.002	1.348	0.181	0.108	0.3	19.222

Problem 63	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	55	55	50	52	69	1	54	72	0
normalized size	1	1.	0.91	0.95	1.25	0.02	0.98	1.31	0.
time (sec)	N/A	0.082	0.015	0.002	1.333	0.176	0.124	0.342	0.

Problem 64	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	38	38	46	49	65	1	49	66	31
normalized size	1	1.	1.21	1.29	1.71	0.03	1.29	1.74	0.82
time (sec)	N/A	0.056	0.017	0.001	1.333	0.179	0.115	0.291	15.817

Problem 65	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	40	40	43	46	62	62	46	62	0
normalized size	1	1.	1.08	1.15	1.55	1.55	1.15	1.55	0.
time (sec)	N/A	0.037	0.025	0.003	1.33	0.2	1.238	0.254	0.

Problem 66	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	44	44	43	46	62	70	42	62	0
normalized size	1	1.	0.98	1.05	1.41	1.59	0.95	1.41	0.
time (sec)	N/A	0.075	0.038	0.008	1.35	0.205	1.427	0.27	0.

Problem 67	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	44	44	43	48	62	72	44	63	0
normalized size	1	1.	0.98	1.09	1.41	1.64	1.	1.43	0.
time (sec)	N/A	0.071	0.04	0.01	1.356	0.201	1.993	0.261	0.

Problem 68	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	49	49	48	52	68	72	51	69	44
normalized size	1	1.	0.98	1.06	1.39	1.47	1.04	1.41	0.9
time (sec)	N/A	0.061	0.041	0.008	1.339	0.205	2.77	0.287	15.46

Problem 69	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	44	44	47	48	69	69	54	69	48
normalized size	1	1.	1.07	1.09	1.57	1.57	1.23	1.57	1.09
time (sec)	N/A	0.053	0.025	0.007	1.337	0.195	3.345	0.306	15.518

Problem 70	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	55	55	50	48	69	69	54	69	51
normalized size	1	1.	0.91	0.87	1.25	1.25	0.98	1.25	0.93
time (sec)	N/A	0.074	0.024	0.009	1.329	0.197	4.001	0.265	16.055

Problem 71	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	55	55	50	48	69	69	54	69	51
normalized size	1	1.	0.91	0.87	1.25	1.25	0.98	1.25	0.93
time (sec)	N/A	0.071	0.025	0.007	1.364	0.2	4.947	0.265	16.011

Problem 72	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	55	55	50	48	69	69	54	69	51
normalized size	1	1.	0.91	0.87	1.25	1.25	0.98	1.25	0.93
time (sec)	N/A	0.07	0.025	0.008	1.351	0.196	5.578	0.253	16.397

Problem 73	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	75	75	75	76	99	1	82	104	70
normalized size	1	1.	1.	1.01	1.32	0.01	1.09	1.39	0.93
time (sec)	N/A	0.157	0.017	0.003	1.34	0.182	0.14	0.294	28.061

Problem 74	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	75	75	75	76	99	1	80	104	68
normalized size	1	1.	1.	1.01	1.32	0.01	1.07	1.39	0.91
time (sec)	N/A	0.139	0.015	0.001	1.331	0.179	0.136	0.255	26.738

Problem 75	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	75	75	75	76	99	1	82	104	70
normalized size	1	1.	1.	1.01	1.32	0.01	1.09	1.39	0.93
time (sec)	N/A	0.128	0.015	0.	1.354	0.18	0.153	0.275	25.31

Problem 76	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	61	61	69	76	99	1	80	103	53
normalized size	1	1.	1.13	1.25	1.62	0.02	1.31	1.69	0.87
time (sec)	N/A	0.11	0.021	0.002	1.337	0.18	0.156	0.263	24.086

Problem 77	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	38	38	67	73	93	1	73	97	31
normalized size	1	1.	1.76	1.92	2.45	0.03	1.92	2.55	0.82
time (sec)	N/A	0.043	0.016	0.	1.324	0.178	0.122	0.297	17.051

Problem 78	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	54	54	63	70	92	92	73	95	0
normalized size	1	1.	1.17	1.3	1.7	1.7	1.35	1.76	0.
time (sec)	N/A	0.05	0.042	0.005	1.332	0.199	1.335	0.262	0.

Problem 79	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	65	65	67	71	93	101	70	96	0
normalized size	1	1.	1.03	1.09	1.43	1.55	1.08	1.48	0.
time (sec)	N/A	0.104	0.042	0.008	1.342	0.201	1.583	0.28	0.

Problem 80	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	65	65	62	71	93	100	66	93	0
normalized size	1	1.	0.95	1.09	1.43	1.54	1.02	1.43	0.
time (sec)	N/A	0.111	0.044	0.01	1.354	0.205	2.145	0.236	0.

Problem 81	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	64	64	67	72	93	101	70	95	0
normalized size	1	1.	1.05	1.12	1.45	1.58	1.09	1.48	0.
time (sec)	N/A	0.102	0.061	0.01	1.348	0.207	3.391	0.293	0.

Problem 82	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	59	59	70	76	97	101	75	99	56
normalized size	1	1.	1.19	1.29	1.64	1.71	1.27	1.68	0.95
time (sec)	N/A	0.068	0.041	0.01	1.348	0.206	4.639	0.282	14.451

Problem 83	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	44	44	66	66	99	99	78	101	65
normalized size	1	1.	1.5	1.5	2.25	2.25	1.77	2.3	1.48
time (sec)	N/A	0.055	0.033	0.007	1.351	0.197	5.714	0.414	21.342

Problem 84	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	75	75	69	66	99	99	78	101	71
normalized size	1	1.	0.92	0.88	1.32	1.32	1.04	1.35	0.95
time (sec)	N/A	0.105	0.032	0.009	1.348	0.2	7.483	0.296	21.875

Problem 85	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	75	75	69	66	99	99	78	101	71
normalized size	1	1.	0.92	0.88	1.32	1.32	1.04	1.35	0.95
time (sec)	N/A	0.097	0.033	0.009	1.354	0.197	8.855	0.245	21.549

Problem 86	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	75	75	69	66	99	99	78	101	70
normalized size	1	1.	0.92	0.88	1.32	1.32	1.04	1.35	0.93
time (sec)	N/A	0.097	0.031	0.009	1.359	0.198	11.209	0.34	21.698

Problem 87	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	75	75	69	66	99	99	78	101	71
normalized size	1	1.	0.92	0.88	1.32	1.32	1.04	1.35	0.95
time (sec)	N/A	0.094	0.034	0.009	1.352	0.195	13.206	0.329	22.119

Problem 88	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	117	117	117	124	161	1	133	167	112
normalized size	1	1.	1.	1.06	1.38	0.01	1.14	1.43	0.96
time (sec)	N/A	0.261	0.029	0.003	1.354	0.179	0.225	0.272	48.426

Problem 89	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	117	117	117	124	161	1	136	169	114
normalized size	1	1.	1.	1.06	1.38	0.01	1.16	1.44	0.97
time (sec)	N/A	0.228	0.027	0.002	1.369	0.182	0.17	0.287	46.957

Problem 90	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	112	112	117	124	161	1	134	167	114
normalized size	1	1.	1.04	1.11	1.44	0.01	1.2	1.49	1.02
time (sec)	N/A	0.23	0.025	0.003	1.358	0.181	0.197	0.306	45.115

Problem 91	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	87	87	114	124	159	1	133	167	78
normalized size	1	1.	1.31	1.43	1.83	0.01	1.53	1.92	0.9
time (sec)	N/A	0.2	0.026	0.001	1.373	0.182	0.169	0.412	41.549

Problem 92	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	61	61	115	124	161	1	134	169	53
normalized size	1	1.	1.89	2.03	2.64	0.02	2.2	2.77	0.87
time (sec)	N/A	0.154	0.026	0.002	1.352	0.186	0.166	0.365	32.556

Problem 93	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	38	38	109	121	155	1	129	163	31
normalized size	1	1.	2.87	3.18	4.08	0.03	3.39	4.29	0.82
time (sec)	N/A	0.05	0.026	0.003	1.35	0.18	0.175	0.257	24.628

Problem 94	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	80	80	108	118	154	154	126	159	0
normalized size	1	1.	1.35	1.48	1.92	1.92	1.58	1.99	0.
time (sec)	N/A	0.079	0.053	0.004	1.374	0.202	1.668	0.271	0.

Problem 95	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	105	105	107	119	155	163	121	161	0
normalized size	1	1.	1.02	1.13	1.48	1.55	1.15	1.53	0.
time (sec)	N/A	0.187	0.072	0.01	1.353	0.2	1.821	0.258	0.

Problem 96	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	108	108	106	120	157	163	121	161	0
normalized size	1	1.	0.98	1.11	1.45	1.51	1.12	1.49	0.
time (sec)	N/A	0.167	0.064	0.01	1.356	0.203	2.671	0.256	0.

Problem 97	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	108	108	109	120	158	163	119	159	0
normalized size	1	1.	1.01	1.11	1.46	1.51	1.1	1.47	0.
time (sec)	N/A	0.17	0.044	0.01	1.347	0.202	4.084	0.248	0.

Problem 98	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	107	107	106	119	157	163	117	157	0
normalized size	1	1.	0.99	1.11	1.47	1.52	1.09	1.47	0.
time (sec)	N/A	0.181	0.07	0.011	1.345	0.208	5.693	0.313	0.

Problem 99	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	104	104	106	120	155	163	117	157	0
normalized size	1	1.	1.02	1.15	1.49	1.57	1.12	1.51	0.
time (sec)	N/A	0.163	0.076	0.012	1.345	0.202	9.492	0.282	0.

Problem 100	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	85	85	109	124	159	163	122	161	85
normalized size	1	1.	1.28	1.46	1.87	1.92	1.44	1.89	1.
time (sec)	N/A	0.09	0.067	0.012	1.363	0.203	12.541	0.295	24.719

Problem 101	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	44	44	104	104	161	161	126	166	37
normalized size	1	1.	2.36	2.36	3.66	3.66	2.86	3.77	0.84
time (sec)	N/A	0.057	0.048	0.009	1.365	0.196	16.218	0.263	9.114

Problem 102	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	70	70	107	104	161	161	126	166	63
normalized size	1	1.	1.53	1.49	2.3	2.3	1.8	2.37	0.9
time (sec)	N/A	0.098	0.048	0.008	1.395	0.195	19.248	0.274	13.371

Problem 103	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	115	115	107	104	161	161	126	166	112
normalized size	1	1.	0.93	0.9	1.4	1.4	1.1	1.44	0.97
time (sec)	N/A	0.19	0.049	0.008	1.36	0.195	26.059	0.284	33.968

Problem 104	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	117	117	107	104	161	161	126	166	116
normalized size	1	1.	0.91	0.89	1.38	1.38	1.08	1.42	0.99
time (sec)	N/A	0.175	0.05	0.009	1.343	0.196	33.83	0.278	33.438

Problem 105	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	117	117	107	104	161	161	126	166	116
normalized size	1	1.	0.91	0.89	1.38	1.38	1.08	1.42	0.99
time (sec)	N/A	0.164	0.05	0.009	1.359	0.195	38.647	0.316	33.787

Problem 106	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	229	229	229	244	328	1	269	331	236
normalized size	1	1.	1.	1.07	1.43	0.	1.17	1.45	1.03
time (sec)	N/A	0.599	0.056	0.003	1.331	0.183	0.256	0.441	115.112

Problem 107	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	231	231	231	244	328	1	269	331	240
normalized size	1	1.	1.	1.06	1.42	0.	1.16	1.43	1.04
time (sec)	N/A	0.57	0.051	0.001	1.369	0.179	0.258	0.307	110.447

Problem 108	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	240	240	229	244	328	1	264	329	238
normalized size	1	1.	0.95	1.02	1.37	0.	1.1	1.37	0.99
time (sec)	N/A	0.606	0.054	0.002	1.34	0.181	0.262	0.235	102.554

Problem 109	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	215	215	227	244	328	1	262	329	209
normalized size	1	1.	1.06	1.13	1.53	0.	1.22	1.53	0.97
time (sec)	N/A	0.568	0.052	0.001	1.361	0.178	0.263	0.274	105.856

Problem 110	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	228	244	327	1	264	331	185
normalized size	1	1.	1.19	1.28	1.71	0.01	1.38	1.73	0.97
time (sec)	N/A	0.542	0.054	0.003	1.341	0.181	0.252	0.282	90.779

Problem 111	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	163	163	229	244	328	1	265	331	155
normalized size	1	1.	1.4	1.5	2.01	0.01	1.63	2.03	0.95
time (sec)	N/A	0.481	0.051	0.002	1.355	0.18	0.291	0.255	81.417

Problem 112	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	139	139	231	244	328	1	269	331	131
normalized size	1	1.	1.66	1.76	2.36	0.01	1.94	2.38	0.94
time (sec)	N/A	0.457	0.05	0.001	1.349	0.183	0.253	0.299	71.386

Problem 113	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	112	112	231	244	328	1	265	331	104
normalized size	1	1.	2.06	2.18	2.93	0.01	2.37	2.96	0.93
time (sec)	N/A	0.415	0.051	0.003	1.394	0.18	0.252	0.291	60.253

Problem 114	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	87	87	226	244	327	1	262	331	78
normalized size	1	1.	2.6	2.8	3.76	0.01	3.01	3.8	0.9
time (sec)	N/A	0.389	0.051	0.001	1.343	0.183	0.266	0.319	50.2

Problem 115	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	61	61	218	244	328	1	262	331	53
normalized size	1	1.	3.57	4.	5.38	0.02	4.3	5.43	0.87
time (sec)	N/A	0.333	0.07	0.003	1.351	0.179	0.26	0.276	40.558

Problem 116	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	38	38	198	241	324	1	248	325	31
normalized size	1	1.	5.21	6.34	8.53	0.03	6.53	8.55	0.82
time (sec)	N/A	0.053	0.102	0.003	1.349	0.181	0.257	0.295	32.738

Problem 117	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	148	148	208	238	321	321	246	321	0
normalized size	1	1.	1.41	1.61	2.17	2.17	1.66	2.17	0.
time (sec)	N/A	0.143	0.095	0.004	1.342	0.203	2.643	0.281	0.

Problem 118	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	217	217	209	239	323	331	248	323	0
normalized size	1	1.	0.96	1.1	1.49	1.53	1.14	1.49	0.
time (sec)	N/A	0.473	0.268	0.01	1.378	0.201	2.787	0.294	0.

Problem 119	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	216	216	206	240	324	331	246	324	0
normalized size	1	1.	0.95	1.11	1.5	1.53	1.14	1.5	0.
time (sec)	N/A	0.464	0.201	0.012	1.347	0.206	3.494	0.296	0.

Problem 120	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	216	216	208	240	325	331	246	325	0
normalized size	1	1.	0.96	1.11	1.5	1.53	1.14	1.5	0.
time (sec)	N/A	0.471	0.206	0.013	1.363	0.208	4.77	0.262	0.

Problem 121	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	215	215	210	240	324	331	243	325	0
normalized size	1	1.	0.98	1.12	1.51	1.54	1.13	1.51	0.
time (sec)	N/A	0.469	0.188	0.011	1.411	0.21	6.985	0.255	0.

Problem 122	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	218	218	210	240	325	331	243	325	0
normalized size	1	1.	0.96	1.1	1.49	1.52	1.11	1.49	0.
time (sec)	N/A	0.476	0.133	0.013	1.361	0.21	9.8	0.25	0.

Problem 123	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	218	218	210	240	325	331	245	325	0
normalized size	1	1.	0.96	1.1	1.49	1.52	1.12	1.49	0.
time (sec)	N/A	0.491	0.138	0.013	1.554	0.205	14.827	0.261	0.

Problem 124	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	216	216	210	240	325	331	243	325	0
normalized size	1	1.	0.97	1.11	1.5	1.53	1.12	1.5	0.
time (sec)	N/A	0.486	0.167	0.014	1.353	0.199	20.842	0.324	0.

Problem 125	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	216	216	208	240	325	331	240	325	0
normalized size	1	1.	0.96	1.11	1.5	1.53	1.11	1.5	0.
time (sec)	N/A	0.488	0.165	0.014	1.377	0.219	30.839	0.321	0.

Problem 126	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	215	215	206	239	324	331	238	324	0
normalized size	1	1.	0.96	1.11	1.51	1.54	1.11	1.51	0.
time (sec)	N/A	0.493	0.172	0.013	1.368	0.21	43.066	0.285	0.

Problem 127	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	216	216	209	240	323	331	236	324	0
normalized size	1	1.	0.97	1.11	1.5	1.53	1.09	1.5	0.
time (sec)	N/A	0.473	0.156	0.014	1.376	0.21	63.423	0.319	0.

Problem 128	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	153	153	212	244	327	331	241	328	160
normalized size	1	1.	1.39	1.59	2.14	2.16	1.58	2.14	1.05
time (sec)	N/A	0.187	0.221	0.013	1.445	0.202	89.541	0.363	48.573

Problem 129	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	44	44	199	208	328	328	245	328	37
normalized size	1	1.	4.52	4.73	7.45	7.45	5.57	7.45	0.84
time (sec)	N/A	0.065	0.13	0.01	1.391	0.196	173.961	0.318	8.612

Problem 130	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	72	72	202	208	328	328	0	328	66
normalized size	1	1.	2.81	2.89	4.56	4.56	0.	4.56	0.92
time (sec)	N/A	0.099	0.103	0.01	1.388	0.195	0.	0.276	12.788

Problem 131	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	101	101	202	208	328	328	0	328	95
normalized size	1	1.	2.	2.06	3.25	3.25	0.	3.25	0.94
time (sec)	N/A	0.129	0.108	0.01	1.35	0.196	0.	0.287	18.042

Problem 132	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	130	130	202	208	328	328	0	328	124
normalized size	1	1.	1.55	1.6	2.52	2.52	0.	2.52	0.95
time (sec)	N/A	0.163	0.104	0.01	1.367	0.196	0.	0.242	25.256

Problem 133	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	159	159	222	208	328	328	0	328	153
normalized size	1	1.	1.4	1.31	2.06	2.06	0.	2.06	0.96
time (sec)	N/A	0.2	0.121	0.009	1.365	0.198	0.	0.265	32.482

Problem 134	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	188	188	222	208	328	328	0	328	182
normalized size	1	1.	1.18	1.11	1.74	1.74	0.	1.74	0.97
time (sec)	N/A	0.241	0.123	0.009	1.364	0.201	0.	0.274	41.348

Problem 135	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	229	229	222	208	328	328	0	328	238
normalized size	1	1.	0.97	0.91	1.43	1.43	0.	1.43	1.04
time (sec)	N/A	0.503	0.128	0.01	1.36	0.196	0.	0.282	78.133

Problem 136	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	227	227	220	208	328	328	0	328	236
normalized size	1	1.	0.97	0.92	1.44	1.44	0.	1.44	1.04
time (sec)	N/A	0.495	0.128	0.01	1.362	0.197	0.	0.371	77.59

Problem 137	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	229	229	222	208	328	328	0	328	240
normalized size	1	1.	0.97	0.91	1.43	1.43	0.	1.43	1.05
time (sec)	N/A	0.491	0.122	0.01	1.358	0.195	0.	0.265	77.391

Problem 138	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	114	114	359	388	522	1	422	525	104
normalized size	1	1.	3.15	3.4	4.58	0.01	3.7	4.61	0.91
time (sec)	N/A	0.765	0.12	0.003	1.356	0.18	0.558	0.331	85.822

Problem 139	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	88	88	355	388	522	1	413	525	78
normalized size	1	1.	4.03	4.41	5.93	0.01	4.69	5.97	0.89
time (sec)	N/A	0.722	0.116	0.003	1.362	0.179	0.56	0.334	75.107

Problem 140	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	62	62	347	388	522	1	408	525	53
normalized size	1	1.	5.6	6.26	8.42	0.02	6.58	8.47	0.85
time (sec)	N/A	0.665	0.12	0.003	1.357	0.178	0.546	0.302	65.075

Problem 141	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	38	38	342	385	518	1	393	520	31
normalized size	1	1.	9.	10.13	13.63	0.03	10.34	13.68	0.82
time (sec)	N/A	0.06	0.099	0.003	1.36	0.18	0.548	0.3	56.772

Problem 142	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	12	12	42	37	49	1	37	49	8
normalized size	1	1.	3.5	3.08	4.08	0.08	3.08	4.08	0.67
time (sec)	N/A	0.009	0.003	0.002	1.35	0.175	0.104	0.28	4.68

Problem 143	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	108	108	100	124	157	158	99	161	0
normalized size	1	1.	0.93	1.15	1.45	1.46	0.92	1.49	0.
time (sec)	N/A	0.213	0.064	0.004	1.353	0.197	2.535	0.267	0.

Problem 144	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	87	87	80	100	124	127	78	127	0
normalized size	1	1.	0.92	1.15	1.43	1.46	0.9	1.46	0.
time (sec)	N/A	0.148	0.048	0.004	1.343	0.197	2.45	0.276	0.

Problem 145	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	66	66	61	76	95	96	58	96	0
normalized size	1	1.	0.92	1.15	1.44	1.45	0.88	1.45	0.
time (sec)	N/A	0.111	0.035	0.004	1.353	0.201	2.273	0.317	0.

Problem 146	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	41	52	61	63	37	61	0
normalized size	1	1.	0.91	1.16	1.36	1.4	0.82	1.36	0.
time (sec)	N/A	0.075	0.021	0.003	1.347	0.2	2.11	0.28	0.

Problem 147	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	25	25	25	32	35	34	20	36	0
normalized size	1	1.	1.	1.28	1.4	1.36	0.8	1.44	0.
time (sec)	N/A	0.045	0.012	0.003	1.351	0.201	1.936	0.264	0.

Problem 148	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	30	30	29	32	39	38	41	42	22
normalized size	1	1.	0.97	1.07	1.3	1.27	1.37	1.4	0.73
time (sec)	N/A	0.052	0.016	0.008	1.377	0.209	2.013	0.328	12.098

Problem 149	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	43	43	42	51	58	55	95	69	34
normalized size	1	1.	0.98	1.19	1.35	1.28	2.21	1.6	0.79
time (sec)	N/A	0.075	0.027	0.011	1.374	0.206	3.006	0.412	15.746

Problem 150	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	62	62	58	75	85	93	131	101	53
normalized size	1	1.	0.94	1.21	1.37	1.5	2.11	1.63	0.85
time (sec)	N/A	0.101	0.052	0.012	1.395	0.213	3.587	0.31	20.462

Problem 151	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	86	86	81	101	120	127	165	134	73
normalized size	1	1.	0.94	1.17	1.4	1.48	1.92	1.56	0.85
time (sec)	N/A	0.125	0.085	0.013	1.362	0.216	4.095	0.279	25.912

Problem 152	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	106	106	100	125	151	158	189	165	92
normalized size	1	1.	0.94	1.18	1.42	1.49	1.78	1.56	0.87
time (sec)	N/A	0.153	0.114	0.014	1.374	0.209	4.64	0.302	31.394

Problem 153	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	113	113	107	133	166	221	114	236	0
normalized size	1	1.	0.95	1.18	1.47	1.96	1.01	2.09	0.
time (sec)	N/A	0.261	0.116	0.012	1.329	0.205	3.956	0.256	0.

Problem 154	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	90	90	87	109	136	189	90	194	0
normalized size	1	1.	0.97	1.21	1.51	2.1	1.	2.16	0.
time (sec)	N/A	0.183	0.097	0.013	1.325	0.202	3.587	0.333	0.

Problem 155	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	69	69	66	84	100	153	66	150	0
normalized size	1	1.	0.96	1.22	1.45	2.22	0.96	2.17	0.
time (sec)	N/A	0.134	0.091	0.01	1.352	0.201	3.307	0.259	0.

Problem 156	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	41	61	72	97	44	108	0
normalized size	1	1.	0.91	1.36	1.6	2.16	0.98	2.4	0.
time (sec)	N/A	0.09	0.042	0.009	1.338	0.207	2.878	0.26	0.

Problem 157	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	32	32	31	39	46	50	27	77	26
normalized size	1	1.	0.97	1.22	1.44	1.56	0.84	2.41	0.81
time (sec)	N/A	0.05	0.018	0.007	1.337	0.202	2.25	0.288	13.015

Problem 158	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	42	42	38	46	59	84	32	74	34
normalized size	1	1.	0.9	1.1	1.4	2.	0.76	1.76	0.81
time (sec)	N/A	0.068	0.042	0.013	1.332	0.208	2.801	0.27	16.302

Problem 159	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	65	65	56	78	90	144	128	116	54
normalized size	1	1.	0.86	1.2	1.38	2.22	1.97	1.78	0.83
time (sec)	N/A	0.117	0.067	0.016	1.346	0.21	3.867	0.322	23.258

Problem 160	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	85	85	85	107	134	203	184	176	80
normalized size	1	1.	1.	1.26	1.58	2.39	2.16	2.07	0.94
time (sec)	N/A	0.164	0.131	0.016	1.339	0.213	4.589	0.424	30.171

Problem 161	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	113	113	106	134	173	242	219	217	105
normalized size	1	1.	0.94	1.19	1.53	2.14	1.94	1.92	0.93
time (sec)	N/A	0.219	0.177	0.017	1.335	0.212	5.104	0.262	39.689

Problem 162	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	116	116	108	142	180	266	131	169	0
normalized size	1	1.	0.93	1.22	1.55	2.29	1.13	1.46	0.
time (sec)	N/A	0.273	0.126	0.017	1.337	0.202	5.732	0.247	0.

Problem 163	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	94	94	86	117	146	231	105	135	0
normalized size	1	1.	0.91	1.24	1.55	2.46	1.12	1.44	0.
time (sec)	N/A	0.204	0.09	0.013	1.336	0.201	5.205	0.29	0.

Problem 164	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	71	71	75	94	115	181	83	97	0
normalized size	1	1.	1.06	1.32	1.62	2.55	1.17	1.37	0.
time (sec)	N/A	0.149	0.045	0.01	1.343	0.205	4.422	0.254	0.

Problem 165	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	55	55	54	70	88	109	63	73	48
normalized size	1	1.	0.98	1.27	1.6	1.98	1.15	1.33	0.87
time (sec)	N/A	0.094	0.027	0.01	1.359	0.202	3.218	0.279	21.846

Problem 166	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	28	28	26	35	51	51	39	32	22
normalized size	1	1.	0.93	1.25	1.82	1.82	1.39	1.14	0.79
time (sec)	N/A	0.02	0.015	0.006	1.326	0.199	2.732	0.292	5.514

Problem 167	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	57	57	53	59	92	147	63	80	48
normalized size	1	1.	0.93	1.04	1.61	2.58	1.11	1.4	0.84
time (sec)	N/A	0.088	0.076	0.011	1.335	0.209	3.467	0.286	21.553

Problem 168	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	88	88	81	105	135	252	168	134	75
normalized size	1	1.	0.92	1.19	1.53	2.86	1.91	1.52	0.85
time (sec)	N/A	0.165	0.08	0.016	1.35	0.211	4.838	0.256	29.391

Problem 169	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	110	110	102	138	177	304	219	167	104
normalized size	1	1.	0.93	1.25	1.61	2.76	1.99	1.52	0.95
time (sec)	N/A	0.216	0.176	0.017	1.351	0.209	5.598	0.263	39.579

Problem 170	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	140	140	129	168	221	354	262	213	134
normalized size	1	1.	0.92	1.2	1.58	2.53	1.87	1.52	0.96
time (sec)	N/A	0.287	0.239	0.017	1.364	0.215	6.196	0.361	53.551

Problem 171	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	177	177	589	622	833	1	697	902	168
normalized size	1	1.	3.33	3.51	4.71	0.01	3.94	5.1	0.95
time (sec)	N/A	1.27	0.232	0.003	1.36	0.184	0.713	0.276	150.826

Problem 172	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	137	137	585	622	833	1	682	902	124
normalized size	1	1.	4.27	4.54	6.08	0.01	4.98	6.58	0.91
time (sec)	N/A	1.194	0.184	0.003	1.367	0.186	0.715	0.314	133.247

Problem 173	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	98	98	583	622	833	1	682	902	87
normalized size	1	1.	5.95	6.35	8.5	0.01	6.96	9.2	0.89
time (sec)	N/A	1.124	0.171	0.004	1.366	0.183	0.71	0.283	113.429

Problem 174	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	87	87	80	100	126	127	78	128	0
normalized size	1	1.	0.92	1.15	1.45	1.46	0.9	1.47	0.
time (sec)	N/A	0.167	0.047	0.005	1.346	0.198	2.343	0.262	0.

Problem 175	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	66	66	61	76	93	96	58	95	0
normalized size	1	1.	0.92	1.15	1.41	1.45	0.88	1.44	0.
time (sec)	N/A	0.115	0.035	0.004	1.346	0.204	2.288	0.245	0.

Problem 176	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	41	52	62	63	37	62	0
normalized size	1	1.	0.91	1.16	1.38	1.4	0.82	1.38	0.
time (sec)	N/A	0.073	0.021	0.004	1.352	0.206	2.14	0.25	0.

Problem 177	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	25	25	25	32	34	32	20	35	0
normalized size	1	1.	1.	1.28	1.36	1.28	0.8	1.4	0.
time (sec)	N/A	0.042	0.012	0.	1.343	0.203	1.96	0.293	0.

Problem 178	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	30	30	29	32	41	39	41	43	22
normalized size	1	1.	0.97	1.07	1.37	1.3	1.37	1.43	0.73
time (sec)	N/A	0.051	0.016	0.007	1.346	0.208	2.097	0.264	11.836

Problem 179	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	43	43	42	51	58	55	95	69	34
normalized size	1	1.	0.98	1.19	1.35	1.28	2.21	1.6	0.79
time (sec)	N/A	0.074	0.027	0.012	1.345	0.209	3.068	0.307	15.311

Problem 180	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	62	62	58	75	85	92	131	101	53
normalized size	1	1.	0.94	1.21	1.37	1.48	2.11	1.63	0.85
time (sec)	N/A	0.1	0.052	0.013	1.358	0.209	3.711	0.296	19.638

Problem 181	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	86	86	81	101	120	127	165	134	73
normalized size	1	1.	0.94	1.17	1.4	1.48	1.92	1.56	0.85
time (sec)	N/A	0.128	0.078	0.013	1.351	0.209	4.061	0.269	26.407

Problem 182	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	117	117	112	192	228	230	148	244	0
normalized size	1	1.	0.96	1.64	1.95	1.97	1.26	2.09	0.
time (sec)	N/A	0.236	0.206	0.006	1.351	0.208	3.001	0.262	0.

Problem 183	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	94	94	103	152	178	181	112	188	0
normalized size	1	1.	1.1	1.62	1.89	1.93	1.19	2.	0.
time (sec)	N/A	0.177	0.062	0.004	1.353	0.203	2.847	0.295	0.

Problem 184	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	71	71	74	110	131	132	76	134	0
normalized size	1	1.	1.04	1.55	1.85	1.86	1.07	1.89	0.
time (sec)	N/A	0.114	0.046	0.003	1.348	0.204	2.664	0.285	0.

Problem 185	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	49	49	43	74	82	85	44	81	0
normalized size	1	1.	0.88	1.51	1.67	1.73	0.9	1.65	0.
time (sec)	N/A	0.052	0.027	0.	1.356	0.199	2.419	0.281	0.

Problem 186	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	42	42	42	61	72	72	73	74	0
normalized size	1	1.	1.	1.45	1.71	1.71	1.74	1.76	0.
time (sec)	N/A	0.072	0.03	0.009	1.369	0.212	5.573	0.267	0.

Problem 187	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	51	51	51	73	86	89	141	89	42
normalized size	1	1.	1.	1.43	1.69	1.75	2.76	1.75	0.82
time (sec)	N/A	0.093	0.038	0.011	1.35	0.209	5.551	0.263	21.307

Problem 188	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	67	67	60	110	119	126	187	136	58
normalized size	1	1.	0.9	1.64	1.78	1.88	2.79	2.03	0.87
time (sec)	N/A	0.114	0.089	0.013	1.336	0.212	4.885	0.282	25.529

Problem 189	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	90	90	99	153	170	177	240	186	78
normalized size	1	1.	1.1	1.7	1.89	1.97	2.67	2.07	0.87
time (sec)	N/A	0.139	0.078	0.014	1.353	0.212	5.723	0.298	32.209

Problem 190	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	114	114	127	193	221	228	287	235	100
normalized size	1	1.	1.11	1.69	1.94	2.	2.52	2.06	0.88
time (sec)	N/A	0.171	0.172	0.013	1.354	0.21	6.466	0.392	40.865

Problem 191	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	152	152	145	302	359	360	231	386	0
normalized size	1	1.	0.95	1.99	2.36	2.37	1.52	2.54	0.
time (sec)	N/A	0.322	0.151	0.006	1.35	0.202	3.625	0.262	0.

Problem 192	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	129	129	124	244	289	292	180	306	0
normalized size	1	1.	0.96	1.89	2.24	2.26	1.4	2.37	0.
time (sec)	N/A	0.234	0.127	0.006	1.349	0.2	3.396	0.319	0.

Problem 193	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	106	106	115	186	221	223	129	230	0
normalized size	1	1.	1.08	1.75	2.08	2.1	1.22	2.17	0.
time (sec)	N/A	0.171	0.071	0.004	1.35	0.203	3.189	0.261	0.

Problem 194	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	73	73	74	133	154	157	82	155	0
normalized size	1	1.	1.01	1.82	2.11	2.15	1.12	2.12	0.
time (sec)	N/A	0.075	0.046	0.001	1.36	0.202	2.891	0.358	0.

Problem 195	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	64	64	59	103	123	131	112	123	0
normalized size	1	1.	0.92	1.61	1.92	2.05	1.75	1.92	0.
time (sec)	N/A	0.111	0.044	0.009	1.329	0.211	7.534	0.281	0.

Problem 196	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	61	61	66	102	120	132	196	123	0
normalized size	1	1.	1.08	1.67	1.97	2.16	3.21	2.02	0.
time (sec)	N/A	0.112	0.053	0.013	1.338	0.217	8.196	0.289	0.

Problem 197	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	85	85	78	132	151	167	257	161	78
normalized size	1	1.	0.92	1.55	1.78	1.96	3.02	1.89	0.92
time (sec)	N/A	0.137	0.143	0.014	1.359	0.223	8.343	0.264	36.004

Problem 198	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	103	103	93	188	211	217	289	228	94
normalized size	1	1.	0.9	1.83	2.05	2.11	2.81	2.21	0.91
time (sec)	N/A	0.161	0.107	0.013	1.357	0.218	7.561	0.27	41.818

Problem 199	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	124	124	137	246	281	288	355	297	114
normalized size	1	1.	1.1	1.98	2.27	2.32	2.86	2.4	0.92
time (sec)	N/A	0.189	0.214	0.015	1.337	0.213	8.851	0.27	49.283

Problem 200	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	150	150	188	305	352	359	418	366	136
normalized size	1	1.	1.25	2.03	2.35	2.39	2.79	2.44	0.91
time (sec)	N/A	0.235	0.171	0.016	1.352	0.22	9.91	0.283	59.464

Problem 201	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	F(-2)	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	145	145	133	175	217	201	298	0	0
normalized size	1	1.	0.92	1.21	1.5	1.39	2.06	0.	0.
time (sec)	N/A	0.298	0.101	0.012	1.354	0.223	11.127	0.	0.

Problem 202	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	F(-2)	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	109	109	105	116	153	165	252	0	0
normalized size	1	1.	0.96	1.06	1.4	1.51	2.31	0.	0.
time (sec)	N/A	0.18	0.086	0.01	1.354	0.216	9.233	0.	0.

Problem 203	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	F(-2)	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	77	77	74	80	104	128	219	0	0
normalized size	1	1.	0.96	1.04	1.35	1.66	2.84	0.	0.
time (sec)	N/A	0.131	0.059	0.009	1.369	0.222	7.824	0.	0.

Problem 204	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	F(-2)	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	56	56	56	57	81	88	190	0	0
normalized size	1	1.	1.	1.02	1.45	1.57	3.39	0.	0.
time (sec)	N/A	0.092	0.042	0.009	1.356	0.222	6.216	0.	0.

Problem 205	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	44	44	38	45	59	51	138	0	32
normalized size	1	1.	0.86	1.02	1.34	1.16	3.14	0.	0.73
time (sec)	N/A	0.061	0.026	0.009	1.329	0.216	2.935	0.	18.212

Problem 206	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	36	36	26	37	49	35	128	0	26
normalized size	1	1.	0.72	1.03	1.36	0.97	3.56	0.	0.72
time (sec)	N/A	0.026	0.017	0.002	1.339	0.211	1.564	0.	9.636

Problem 207	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	53	53	48	54	72	68	583	0	39
normalized size	1	1.	0.91	1.02	1.36	1.28	11.	0.	0.74
time (sec)	N/A	0.086	0.036	0.01	1.378	0.305	92.477	0.	24.834

Problem 208	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	76	76	78	82	108	119	0	0	63
normalized size	1	1.	1.03	1.08	1.42	1.57	0.	0.	0.83
time (sec)	N/A	0.136	0.062	0.019	1.355	0.349	0.	0.	32.893

Problem 209	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	107	107	106	117	143	163	0	0	95
normalized size	1	1.	0.99	1.09	1.34	1.52	0.	0.	0.89
time (sec)	N/A	0.19	0.083	0.014	1.343	2.665	0.	0.	43.833

Problem 210	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	144	144	139	179	211	201	0	0	128
normalized size	1	1.	0.97	1.24	1.47	1.4	0.	0.	0.89
time (sec)	N/A	0.272	0.1	0.016	1.355	3.851	0.	0.	55.601

Problem 211	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	147	147	147	169	259	455	461	332	0
normalized size	1	1.	1.	1.15	1.76	3.1	3.14	2.26	0.
time (sec)	N/A	0.34	0.27	0.019	1.355	0.219	18.68	0.284	0.

Problem 212	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	110	110	107	131	204	385	425	250	0
normalized size	1	1.	0.97	1.19	1.85	3.5	3.86	2.27	0.
time (sec)	N/A	0.227	0.399	0.016	1.363	0.216	15.53	0.282	0.

Problem 213	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	91	91	87	108	184	311	400	188	0
normalized size	1	1.	0.96	1.19	2.02	3.42	4.4	2.07	0.
time (sec)	N/A	0.176	0.208	0.017	1.475	0.225	12.315	0.315	0.

Problem 214	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	77	77	77	97	162	200	333	154	66
normalized size	1	1.	1.	1.26	2.1	2.6	4.32	2.	0.86
time (sec)	N/A	0.141	0.077	0.013	1.367	0.223	8.921	0.281	36.912

Problem 215	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	61	61	60	61	132	144	238	115	48
normalized size	1	1.	0.98	1.	2.16	2.36	3.9	1.89	0.79
time (sec)	N/A	0.087	0.052	0.013	1.349	0.224	5.067	0.305	25.265

Problem 216	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	56	56	53	58	122	124	233	104	46
normalized size	1	1.	0.95	1.04	2.18	2.21	4.16	1.86	0.82
time (sec)	N/A	0.068	0.038	0.	1.352	0.216	4.952	0.265	23.58

Problem 217	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	87	87	83	105	173	279	0	381	71
normalized size	1	1.	0.95	1.21	1.99	3.21	0.	4.38	0.82
time (sec)	N/A	0.155	0.181	0.018	1.349	0.986	0.	0.327	44.429

Problem 218	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	110	110	111	133	239	387	0	203	99
normalized size	1	1.	1.01	1.21	2.17	3.52	0.	1.85	0.9
time (sec)	N/A	0.229	0.16	0.02	1.365	4.391	0.	0.312	53.615

Problem 219	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	144	144	143	171	331	473	0	285	134
normalized size	1	1.	0.99	1.19	2.3	3.28	0.	1.98	0.93
time (sec)	N/A	0.304	1.109	0.02	1.37	6.411	0.	0.275	69.598

Problem 220	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	161	161	161	213	392	782	745	339	0
normalized size	1	1.	1.	1.32	2.43	4.86	4.63	2.11	0.
time (sec)	N/A	0.399	0.351	0.02	1.371	0.256	26.557	0.297	0.

Problem 221	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	140	140	138	191	367	676	719	306	0
normalized size	1	1.	0.99	1.36	2.62	4.83	5.14	2.19	0.
time (sec)	N/A	0.279	0.288	0.017	1.373	0.233	21.176	0.276	0.

Problem 222	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	128	128	134	180	350	498	653	292	116
normalized size	1	1.	1.05	1.41	2.73	3.89	5.1	2.28	0.91
time (sec)	N/A	0.248	0.099	0.016	1.371	0.224	14.544	0.319	69.906

Problem 223	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	100	100	99	118	304	375	408	254	85
normalized size	1	1.	0.99	1.18	3.04	3.75	4.08	2.54	0.85
time (sec)	N/A	0.193	0.105	0.014	1.361	0.208	7.901	0.273	47.905

Problem 224	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	85	85	85	84	281	329	400	223	70
normalized size	1	1.	1.	0.99	3.31	3.87	4.71	2.62	0.82
time (sec)	N/A	0.131	0.079	0.013	1.353	0.209	7.387	0.265	23.901

Problem 225	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	82	82	67	81	273	327	381	223	68
normalized size	1	1.	0.82	0.99	3.33	3.99	4.65	2.72	0.83
time (sec)	N/A	0.099	0.078	0.	1.36	0.21	7.566	0.298	21.905

Problem 226	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	134	134	116	184	359	683	0	316	117
normalized size	1	1.	0.87	1.37	2.68	5.1	0.	2.36	0.87
time (sec)	N/A	0.241	0.468	0.018	1.362	7.679	0.	0.279	45.609

Problem 227	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	160	160	163	216	477	845	0	452	148
normalized size	1	1.	1.02	1.35	2.98	5.28	0.	2.82	0.92
time (sec)	N/A	0.353	0.282	0.021	1.37	10.264	0.	0.331	55.834

Problem 228	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	165	165	183	247	290	386	201	378	0
normalized size	1	1.	1.11	1.5	1.76	2.34	1.22	2.29	0.
time (sec)	N/A	0.424	0.188	0.014	1.334	0.215	5.638	0.387	0.

Problem 229	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	136	136	149	205	236	332	167	319	0
normalized size	1	1.	1.1	1.51	1.74	2.44	1.23	2.35	0.
time (sec)	N/A	0.31	0.146	0.013	1.337	0.215	5.08	0.268	0.

Problem 230	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	104	104	114	164	186	273	122	254	0
normalized size	1	1.	1.1	1.58	1.79	2.62	1.17	2.44	0.
time (sec)	N/A	0.242	0.143	0.012	1.352	0.216	4.791	0.283	0.

Problem 231	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	77	77	81	124	134	205	90	201	0
normalized size	1	1.	1.05	1.61	1.74	2.66	1.17	2.61	0.
time (sec)	N/A	0.151	0.085	0.011	1.349	0.206	4.058	0.266	0.

Problem 232	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	51	51	47	86	90	124	60	132	0
normalized size	1	1.	0.92	1.69	1.76	2.43	1.18	2.59	0.
time (sec)	N/A	0.081	0.061	0.003	1.346	0.201	3.422	0.301	0.

Problem 233	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	58	58	60	81	105	144	107	146	48
normalized size	1	1.	1.03	1.4	1.81	2.48	1.84	2.52	0.83
time (sec)	N/A	0.101	0.084	0.013	1.35	0.213	5.532	0.283	17.658

Problem 234	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	73	73	67	106	126	201	173	150	63
normalized size	1	1.	0.92	1.45	1.73	2.75	2.37	2.05	0.86
time (sec)	N/A	0.127	0.128	0.015	1.342	0.217	5.444	0.295	17.039

Problem 235	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	103	103	109	158	182	281	262	224	90
normalized size	1	1.	1.06	1.53	1.77	2.73	2.54	2.17	0.87
time (sec)	N/A	0.188	0.172	0.017	1.352	0.216	6.477	0.351	22.869

Problem 236	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	132	132	142	205	239	342	326	319	119
normalized size	1	1.	1.08	1.55	1.81	2.59	2.47	2.42	0.9
time (sec)	N/A	0.261	0.255	0.017	1.355	0.221	7.559	0.293	29.426

Problem 237	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	167	167	182	249	301	408	377	382	155
normalized size	1	1.	1.09	1.49	1.8	2.44	2.26	2.29	0.93
time (sec)	N/A	0.34	0.317	0.019	1.362	0.222	8.388	0.273	39.026

Problem 238	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	200	200	190	378	436	568	308	544	0
normalized size	1	1.	0.95	1.89	2.18	2.84	1.54	2.72	0.
time (sec)	N/A	0.538	0.115	0.016	1.359	0.211	7.076	0.256	0.

Problem 239	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	164	164	160	318	365	494	248	460	0
normalized size	1	1.	0.98	1.94	2.23	3.01	1.51	2.8	0.
time (sec)	N/A	0.406	0.097	0.014	1.352	0.21	6.729	0.286	0.

Problem 240	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	136	136	130	260	297	424	199	386	0
normalized size	1	1.	0.96	1.91	2.18	3.12	1.46	2.84	0.
time (sec)	N/A	0.295	0.081	0.013	1.361	0.207	6.109	0.281	0.

Problem 241	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	103	103	100	205	224	332	146	312	0
normalized size	1	1.	0.97	1.99	2.17	3.22	1.42	3.03	0.
time (sec)	N/A	0.2	0.122	0.013	1.336	0.21	5.394	0.319	0.

Problem 242	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	75	75	72	149	159	234	100	225	0
normalized size	1	1.	0.96	1.99	2.12	3.12	1.33	3.	0.
time (sec)	N/A	0.127	0.089	0.001	1.351	0.206	4.567	0.271	0.

Problem 243	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	74	74	74	128	150	224	153	207	0
normalized size	1	1.	1.	1.73	2.03	3.03	2.07	2.8	0.
time (sec)	N/A	0.133	0.1	0.015	1.352	0.214	9.544	0.289	0.

Problem 244	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	87	87	79	141	178	267	250	223	78
normalized size	1	1.	0.91	1.62	2.05	3.07	2.87	2.56	0.9
time (sec)	N/A	0.167	0.125	0.017	1.353	0.214	9.808	0.269	25.999

Problem 245	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	97	97	93	186	220	336	291	262	88
normalized size	1	1.	0.96	1.92	2.27	3.46	3.	2.7	0.91
time (sec)	N/A	0.177	0.186	0.017	1.352	0.213	8.947	0.27	25.565

Problem 246	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	132	132	126	256	296	435	386	378	117
normalized size	1	1.	0.95	1.94	2.24	3.3	2.92	2.86	0.89
time (sec)	N/A	0.244	0.105	0.02	1.344	0.216	10.19	0.269	32.666

Problem 247	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	162	162	155	320	371	516	466	504	151
normalized size	1	1.	0.96	1.98	2.29	3.19	2.88	3.11	0.93
time (sec)	N/A	0.328	0.133	0.019	1.368	0.219	11.725	0.301	43.524

Problem 248	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	199	199	189	382	448	591	530	589	182
normalized size	1	1.	0.95	1.92	2.25	2.97	2.66	2.96	0.91
time (sec)	N/A	0.432	0.156	0.022	1.347	0.217	13.219	0.309	55.507

Problem 249	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	179	179	179	222	474	945	768	698	0
normalized size	1	1.	1.	1.24	2.65	5.28	4.29	3.9	0.
time (sec)	N/A	0.476	0.379	0.023	1.379	0.273	35.792	0.326	0.

Problem 250	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	142	142	142	181	419	841	726	560	0
normalized size	1	1.	1.	1.27	2.95	5.92	5.11	3.94	0.
time (sec)	N/A	0.357	0.273	0.022	1.349	0.235	28.268	0.288	0.

Problem 251	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	124	124	123	160	398	725	694	421	0
normalized size	1	1.	0.99	1.29	3.21	5.85	5.6	3.4	0.
time (sec)	N/A	0.285	0.246	0.023	1.38	0.232	22.192	0.279	0.

Problem 252	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	112	112	105	149	383	551	627	273	100
normalized size	1	1.	0.94	1.33	3.42	4.92	5.6	2.44	0.89
time (sec)	N/A	0.235	0.287	0.019	1.354	0.218	15.173	0.3	37.936

Problem 253	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	91	91	71	92	327	409	437	207	76
normalized size	1	1.	0.78	1.01	3.59	4.49	4.8	2.27	0.84
time (sec)	N/A	0.149	0.258	0.017	1.364	0.21	8.598	0.275	24.483

Problem 254	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	88	88	75	118	294	382	483	225	73
normalized size	1	1.	0.85	1.34	3.34	4.34	5.49	2.56	0.83
time (sec)	N/A	0.146	0.096	0.017	1.359	0.211	8.678	0.323	24.575

Problem 255	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	81	81	66	82	281	325	405	207	70
normalized size	1	1.	0.81	1.01	3.47	4.01	5.	2.56	0.86
time (sec)	N/A	0.102	0.105	0.002	1.346	0.21	7.978	0.268	21.792

Problem 256	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	123	123	120	158	382	707	0	269	107
normalized size	1	1.	0.98	1.28	3.11	5.75	0.	2.19	0.87
time (sec)	N/A	0.248	0.339	0.022	1.35	5.003	0.	0.297	43.19

Problem 257	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	144	144	145	185	504	882	0	747	133
normalized size	1	1.	1.01	1.28	3.5	6.12	0.	5.19	0.92
time (sec)	N/A	0.33	0.31	0.023	1.451	14.789	0.	0.301	52.734

Problem 258	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	178	178	176	223	637	1013	0	620	172
normalized size	1	1.	0.99	1.25	3.58	5.69	0.	3.48	0.97
time (sec)	N/A	0.43	0.321	0.024	1.396	30.926	0.	0.314	68.242

Problem 259	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	231	231	230	304	788	1621	1221	1004	0
normalized size	1	1.	1.	1.32	3.41	7.02	5.29	4.35	0.
time (sec)	N/A	0.717	0.574	0.026	1.391	0.369	67.736	0.347	0.

Problem 260	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	198	198	198	264	738	1459	1182	838	0
normalized size	1	1.	1.	1.33	3.73	7.37	5.97	4.23	0.
time (sec)	N/A	0.538	0.461	0.026	1.405	0.294	54.444	0.271	0.

Problem 261	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	173	173	172	242	711	1324	1161	670	0
normalized size	1	1.	0.99	1.4	4.11	7.65	6.71	3.87	0.
time (sec)	N/A	0.428	0.409	0.023	1.388	0.291	42.754	0.396	0.

Problem 262	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	164	164	162	231	699	1076	1083	419	150
normalized size	1	1.	0.99	1.41	4.26	6.56	6.6	2.55	0.91
time (sec)	N/A	0.354	0.397	0.02	1.387	0.248	27.159	0.333	63.301

Problem 263	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	129	129	130	147	625	838	717	311	114
normalized size	1	1.	1.01	1.14	4.84	6.5	5.56	2.41	0.88
time (sec)	N/A	0.274	0.287	0.019	1.386	0.222	14.131	0.281	48.077

Problem 264	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	124	124	123	154	567	833	787	335	107
normalized size	1	1.	0.99	1.24	4.57	6.72	6.35	2.7	0.86
time (sec)	N/A	0.237	0.241	0.017	1.377	0.222	13.262	0.283	40.811

Problem 265	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	121	121	111	170	548	791	770	344	105
normalized size	1	1.	0.92	1.4	4.53	6.54	6.36	2.84	0.87
time (sec)	N/A	0.221	0.167	0.019	1.401	0.224	13.247	0.263	38.841

Problem 266	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	110	110	97	108	521	668	632	293	97
normalized size	1	1.	0.88	0.98	4.74	6.07	5.75	2.66	0.88
time (sec)	N/A	0.16	0.167	0.002	1.377	0.219	11.828	0.305	36.316

Problem 267	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	172	172	173	242	697	1409	0	419	155
normalized size	1	1.	1.01	1.41	4.05	8.19	0.	2.44	0.9
time (sec)	N/A	0.373	0.477	0.023	1.383	14.986	0.	0.382	84.507

Problem 268	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	195	195	193	266	863	1638	0	698	184
normalized size	1	1.	0.99	1.36	4.43	8.4	0.	3.58	0.94
time (sec)	N/A	0.476	0.47	0.027	1.417	54.922	0.	0.362	107.153

Problem 269	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	228	228	230	307	1017	1758	0	1168	223
normalized size	1	1.	1.01	1.35	4.46	7.71	0.	5.12	0.98
time (sec)	N/A	0.617	0.557	0.027	1.409	65.159	0.	0.31	154.082

Problem 270	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	21	21	27	28	31	46	20	46	12
normalized size	1	1.	1.29	1.33	1.48	2.19	0.95	2.19	0.57
time (sec)	N/A	0.029	0.019	0.014	1.336	0.208	0.347	0.33	4.665

Problem 271	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	196	196	207	335	374	574	277	374	0
normalized size	1	1.	1.06	1.71	1.91	2.93	1.41	1.91	0.
time (sec)	N/A	0.509	0.275	0.016	1.368	0.218	10.555	0.262	0.

Problem 272	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	156	156	160	280	306	487	230	300	0
normalized size	1	1.	1.03	1.79	1.96	3.12	1.47	1.92	0.
time (sec)	N/A	0.368	0.145	0.014	1.363	0.209	9.424	0.277	0.

Problem 273	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	114	114	165	222	235	370	173	225	0
normalized size	1	1.	1.45	1.95	2.06	3.25	1.52	1.97	0.
time (sec)	N/A	0.241	0.102	0.013	1.349	0.205	7.876	0.285	0.

Problem 274	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	78	78	114	160	169	254	128	151	0
normalized size	1	1.	1.46	2.05	2.17	3.26	1.64	1.94	0.
time (sec)	N/A	0.128	0.071	0.002	1.347	0.206	6.433	0.312	0.

Problem 275	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	93	93	88	150	193	286	209	180	80
normalized size	1	1.	0.95	1.61	2.08	3.08	2.25	1.94	0.86
time (sec)	N/A	0.172	0.143	0.015	1.358	0.228	9.339	0.282	28.973

Problem 276	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	112	112	106	176	221	383	262	217	100
normalized size	1	1.	0.95	1.57	1.97	3.42	2.34	1.94	0.89
time (sec)	N/A	0.209	0.164	0.017	1.364	0.22	9.8	0.258	33.471

Problem 277	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	137	137	138	238	293	520	371	296	124
normalized size	1	1.	1.01	1.74	2.14	3.8	2.71	2.16	0.91
time (sec)	N/A	0.285	0.281	0.02	1.36	0.22	11.594	0.253	34.165

Problem 278	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	193	193	202	326	378	657	505	374	178
normalized size	1	1.	1.05	1.69	1.96	3.4	2.62	1.94	0.92
time (sec)	N/A	0.393	0.251	0.02	1.356	0.222	13.315	0.281	49.855

Problem 279	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	F(-2)	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	245	245	241	347	1135	2115	1737	0	0
normalized size	1	1.	0.98	1.42	4.63	8.63	7.09	0.	0.
time (sec)	N/A	0.776	0.814	0.031	1.421	0.367	109.558	0.	0.

Problem 280	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	F(-2)	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	222	222	221	324	1104	1967	1685	0	0
normalized size	1	1.	1.	1.46	4.97	8.86	7.59	0.	0.
time (sec)	N/A	0.596	0.636	0.026	1.426	0.344	81.831	0.	0.

Problem 281	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	213	213	213	315	1098	1710	1622	0	199
normalized size	1	1.	1.	1.48	5.15	8.03	7.62	0.	0.93
time (sec)	N/A	0.535	0.633	0.023	1.415	0.274	47.773	0.	135.958

Problem 282	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	169	169	171	204	999	1330	1046	0	151
normalized size	1	1.	1.01	1.21	5.91	7.87	6.19	0.	0.89
time (sec)	N/A	0.402	0.438	0.02	1.4	0.23	23.254	0.	97.355

Problem 283	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	155	155	153	190	921	1338	1112	0	138
normalized size	1	1.	0.99	1.23	5.94	8.63	7.17	0.	0.89
time (sec)	N/A	0.357	0.54	0.022	1.403	0.233	19.845	0.	78.825

Problem 284	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	180	180	168	272	872	1337	1299	0	162
normalized size	1	1.	0.93	1.51	4.84	7.43	7.22	0.	0.9
time (sec)	N/A	0.367	0.268	0.022	1.413	0.237	19.178	0.	86.818

Problem 285	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	157	157	142	226	846	1203	1047	0	141
normalized size	1	1.	0.9	1.44	5.39	7.66	6.67	0.	0.9
time (sec)	N/A	0.312	0.26	0.02	1.39	0.23	18.596	0.	77.571

Problem 286	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	143	143	128	140	802	1026	881	0	128
normalized size	1	1.	0.9	0.98	5.61	7.17	6.16	0.	0.9
time (sec)	N/A	0.222	0.173	0.001	1.373	0.227	16.597	0.	73.834

Problem 287	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	F(-2)	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	221	221	218	322	1085	2201	0	0	0
normalized size	1	1.	0.99	1.46	4.91	9.96	0.	0.	0.
time (sec)	N/A	0.528	0.637	0.025	1.432	48.92	0.	0.	0.

Problem 288	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	F(-2)	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	242	242	241	349	1264	2427	0	0	0
normalized size	1	1.	1.	1.44	5.22	10.03	0.	0.	0.
time (sec)	N/A	0.662	0.75	0.029	1.425	80.052	0.	0.	0.

Problem 289	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	39	39	31	28	36	43	46	39	41
normalized size	1	1.	0.79	0.72	0.92	1.1	1.18	1.	1.05
time (sec)	N/A	0.046	0.02	0.005	1.328	0.208	17.772	0.252	5.259

Problem 290	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	39	39	31	28	36	43	46	39	41
normalized size	1	1.	0.79	0.72	0.92	1.1	1.18	1.	1.05
time (sec)	N/A	0.044	0.016	0.006	1.331	0.21	7.431	0.261	5.211

Problem 291	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	39	39	33	28	36	43	46	39	41
normalized size	1	1.	0.85	0.72	0.92	1.1	1.18	1.	1.05
time (sec)	N/A	0.043	0.017	0.006	1.321	0.204	4.635	0.29	5.313

Problem 292	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	39	39	33	28	36	41	37	39	41
normalized size	1	1.	0.85	0.72	0.92	1.05	0.95	1.	1.05
time (sec)	N/A	0.042	0.016	0.006	1.353	0.206	4.204	0.249	5.177

Problem 293	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	37	37	31	28	36	36	44	39	39
normalized size	1	1.	0.84	0.76	0.97	0.97	1.19	1.05	1.05
time (sec)	N/A	0.042	0.015	0.006	1.329	0.207	5.044	0.262	5.318

Problem 294	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	35	35	29	28	36	35	41	39	36
normalized size	1	1.	0.83	0.8	1.03	1.	1.17	1.11	1.03
time (sec)	N/A	0.044	0.018	0.004	1.344	0.209	5.132	0.253	5.39

Problem 295	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	35	35	28	27	36	36	41	36	36
normalized size	1	1.	0.8	0.77	1.03	1.03	1.17	1.03	1.03
time (sec)	N/A	0.043	0.015	0.006	1.341	0.206	3.645	0.258	5.218

Problem 296	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	37	37	30	28	36	36	46	36	41
normalized size	1	1.	0.81	0.76	0.97	0.97	1.24	0.97	1.11
time (sec)	N/A	0.05	0.016	0.006	1.333	0.207	7.602	0.262	5.3

Problem 297	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	63	63	51	52	69	76	80	72	63
normalized size	1	1.	0.81	0.83	1.1	1.21	1.27	1.14	1.
time (sec)	N/A	0.088	0.032	0.007	1.339	0.205	22.65	0.254	9.282

Problem 298	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	63	63	52	52	69	76	80	72	63
normalized size	1	1.	0.83	0.83	1.1	1.21	1.27	1.14	1.
time (sec)	N/A	0.083	0.027	0.008	1.334	0.207	10.322	0.27	9.151

Problem 299	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	63	63	52	52	69	76	80	72	63
normalized size	1	1.	0.83	0.83	1.1	1.21	1.27	1.14	1.
time (sec)	N/A	0.081	0.028	0.007	1.347	0.207	5.061	0.251	9.017

Problem 300	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	63	63	52	52	69	73	66	72	63
normalized size	1	1.	0.83	0.83	1.1	1.16	1.05	1.14	1.
time (sec)	N/A	0.077	0.027	0.007	1.356	0.209	4.234	0.248	9.027

Problem 301	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	61	61	51	52	69	69	78	72	61
normalized size	1	1.	0.84	0.85	1.13	1.13	1.28	1.18	1.
time (sec)	N/A	0.077	0.027	0.009	1.362	0.206	7.034	0.26	8.989

Problem 302	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	59	59	49	52	69	69	75	72	60
normalized size	1	1.	0.83	0.88	1.17	1.17	1.27	1.22	1.02
time (sec)	N/A	0.079	0.024	0.007	1.35	0.207	7.094	0.273	8.929

Problem 303	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	59	59	47	51	69	68	73	69	60
normalized size	1	1.	0.8	0.86	1.17	1.15	1.24	1.17	1.02
time (sec)	N/A	0.081	0.027	0.007	1.363	0.21	4.175	0.28	8.931

Problem 304	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	59	59	47	52	70	69	75	70	60
normalized size	1	1.	0.8	0.88	1.19	1.17	1.27	1.19	1.02
time (sec)	N/A	0.078	0.028	0.009	1.388	0.206	8.608	0.262	8.958

Problem 305	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	85	85	69	76	99	105	114	104	85
normalized size	1	1.	0.81	0.89	1.16	1.24	1.34	1.22	1.
time (sec)	N/A	0.11	0.042	0.008	1.374	0.208	30.643	0.252	12.369

Problem 306	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	85	85	71	76	99	105	114	104	85
normalized size	1	1.	0.84	0.89	1.16	1.24	1.34	1.22	1.
time (sec)	N/A	0.108	0.041	0.007	1.39	0.206	8.013	0.259	12.44

Problem 307	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	85	85	71	76	99	105	114	104	85
normalized size	1	1.	0.84	0.89	1.16	1.24	1.34	1.22	1.
time (sec)	N/A	0.105	0.036	0.007	1.345	0.209	5.273	0.278	12.515

Problem 308	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	85	85	71	76	99	103	95	104	85
normalized size	1	1.	0.84	0.89	1.16	1.21	1.12	1.22	1.
time (sec)	N/A	0.103	0.035	0.009	1.353	0.206	4.608	0.283	12.466

Problem 309	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	83	83	70	76	99	99	110	104	82
normalized size	1	1.	0.84	0.92	1.19	1.19	1.33	1.25	0.99
time (sec)	N/A	0.103	0.036	0.007	1.375	0.208	10.344	0.272	12.505

Problem 310	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	79	79	67	76	99	99	105	104	80
normalized size	1	1.	0.85	0.96	1.25	1.25	1.33	1.32	1.01
time (sec)	N/A	0.106	0.033	0.007	1.391	0.205	10.393	0.255	12.423

Problem 311	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	81	81	66	76	99	99	105	101	80
normalized size	1	1.	0.81	0.94	1.22	1.22	1.3	1.25	0.99
time (sec)	N/A	0.106	0.034	0.009	1.325	0.21	10.962	0.255	12.453

Problem 312	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	81	81	65	76	100	99	105	103	80
normalized size	1	1.	0.8	0.94	1.23	1.22	1.3	1.27	0.99
time (sec)	N/A	0.106	0.037	0.008	1.384	0.206	9.847	0.256	12.742

Problem 313	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	44	58	38	33	43	50	39	43	54
normalized size	1	1.32	0.86	0.75	0.98	1.14	0.89	0.98	1.23
time (sec)	N/A	0.081	0.037	0.018	1.572	0.213	26.867	0.27	11.661

Problem 314	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	136	136	120	150	0	1	0	188	128
normalized size	1	1.	0.88	1.1	0.	0.01	0.	1.38	0.94
time (sec)	N/A	0.212	0.182	0.013	0.	0.222	0.	0.26	23.759

Problem 315	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	113	113	101	126	0	1	162	155	105
normalized size	1	1.	0.89	1.12	0.	0.01	1.43	1.37	0.93
time (sec)	N/A	0.143	0.12	0.01	0.	0.221	52.326	0.257	18.837

Problem 316	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	90	90	81	102	0	1	128	123	83
normalized size	1	1.	0.9	1.13	0.	0.01	1.42	1.37	0.92
time (sec)	N/A	0.116	0.116	0.012	0.	0.22	28.225	0.264	14.525

Problem 317	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	69	69	63	78	0	1	131	86	63
normalized size	1	1.	0.91	1.13	0.	0.01	1.9	1.25	0.91
time (sec)	N/A	0.085	0.067	0.01	0.	0.224	7.22	0.272	10.914

Problem 318	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	49	49	49	53	0	1	202	53	44
normalized size	1	1.	1.	1.08	0.	0.02	4.12	1.08	0.9
time (sec)	N/A	0.06	0.056	0.009	0.	0.221	13.734	0.23	7.961

Problem 319	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	49	49	49	53	0	1	0	53	46
normalized size	1	1.	1.	1.08	0.	0.02	0.	1.08	0.94
time (sec)	N/A	0.07	0.052	0.013	0.	0.223	0.	0.213	8.357

Problem 320	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	69	69	64	78	0	1	0	74	65
normalized size	1	1.	0.93	1.13	0.	0.01	0.	1.07	0.94
time (sec)	N/A	0.102	0.081	0.016	0.	0.221	0.	0.214	11.572

Problem 321	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	90	90	83	102	0	1	0	108	85
normalized size	1	1.	0.92	1.13	0.	0.01	0.	1.2	0.94
time (sec)	N/A	0.127	0.113	0.017	0.	0.219	0.	0.215	15.048

Problem 322	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	113	113	103	126	0	1	0	140	107
normalized size	1	1.	0.91	1.12	0.	0.01	0.	1.24	0.95
time (sec)	N/A	0.159	0.141	0.017	0.	0.223	0.	0.214	19.592

Problem 323	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	136	136	122	150	0	1	0	173	129
normalized size	1	1.	0.9	1.1	0.	0.01	0.	1.27	0.95
time (sec)	N/A	0.191	0.175	0.017	0.	0.225	0.	0.219	24.444

Problem 324	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	154	154	128	163	0	1	0	197	143
normalized size	1	1.	0.83	1.06	0.	0.01	0.	1.28	0.93
time (sec)	N/A	0.207	0.173	0.02	0.	0.233	0.	0.22	26.378

Problem 325	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	130	130	110	139	0	1	563	165	119
normalized size	1	1.	0.85	1.07	0.	0.01	4.33	1.27	0.92
time (sec)	N/A	0.167	0.147	0.019	0.	0.232	150.419	0.212	21.169

Problem 326	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	108	108	88	113	0	1	461	128	97
normalized size	1	1.	0.81	1.05	0.	0.01	4.27	1.19	0.9
time (sec)	N/A	0.135	0.164	0.02	0.	0.229	45.855	0.221	16.927

Problem 327	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	85	85	67	87	0	1	428	88	73
normalized size	1	1.	0.79	1.02	0.	0.01	5.04	1.04	0.86
time (sec)	N/A	0.101	0.095	0.018	0.	0.221	17.539	0.214	13.137

Problem 328	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	63	63	64	69	0	1	532	81	53
normalized size	1	1.	1.02	1.1	0.	0.02	8.44	1.29	0.84
time (sec)	N/A	0.079	0.061	0.017	0.	0.229	69.538	0.236	9.645

Problem 329	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	88	88	67	87	0	1	0	81	73
normalized size	1	1.	0.76	0.99	0.	0.01	0.	0.92	0.83
time (sec)	N/A	0.111	0.076	0.022	0.	0.231	0.	0.237	12.998

Problem 330	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	107	107	90	113	0	1	0	115	97
normalized size	1	1.	0.84	1.06	0.	0.01	0.	1.07	0.91
time (sec)	N/A	0.139	0.159	0.024	0.	0.236	0.	0.235	16.824

Problem 331	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	131	131	112	139	0	1	0	149	119
normalized size	1	1.	0.85	1.06	0.	0.01	0.	1.14	0.91
time (sec)	N/A	0.169	0.177	0.026	0.	0.221	0.	0.225	21.189

Problem 332	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	153	153	131	163	0	1	0	184	143
normalized size	1	1.	0.86	1.07	0.	0.01	0.	1.2	0.93
time (sec)	N/A	0.208	0.171	0.027	0.	0.223	0.	0.218	27.014

Problem 333	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	169	169	129	178	0	1	0	197	160
normalized size	1	1.	0.76	1.05	0.	0.01	0.	1.17	0.95
time (sec)	N/A	0.207	0.199	0.022	0.	0.221	0.	0.214	26.753

Problem 334	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	147	147	110	152	0	1	0	161	136
normalized size	1	1.	0.75	1.03	0.	0.01	0.	1.1	0.93
time (sec)	N/A	0.171	0.194	0.022	0.	0.225	0.	0.215	21.783

Problem 335	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	123	123	91	125	0	1	5435	117	109
normalized size	1	1.	0.74	1.02	0.	0.01	44.19	0.95	0.89
time (sec)	N/A	0.137	0.136	0.022	0.	0.227	77.014	0.216	17.584

Problem 336	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	100	100	85	94	0	1	643	111	85
normalized size	1	1.	0.85	0.94	0.	0.01	6.43	1.11	0.85
time (sec)	N/A	0.115	0.15	0.018	0.	0.226	29.418	0.219	14.276

Problem 337	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	100	100	86	95	0	1	0	111	85
normalized size	1	1.	0.86	0.95	0.	0.01	0.	1.11	0.85
time (sec)	N/A	0.113	0.127	0.019	0.	0.23	0.	0.212	14.177

Problem 338	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	126	126	93	125	0	1	0	116	109
normalized size	1	1.	0.74	0.99	0.	0.01	0.	0.92	0.87
time (sec)	N/A	0.143	0.116	0.024	0.	0.228	0.	0.214	17.605

Problem 339	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	147	147	112	152	0	1	0	146	133
normalized size	1	1.	0.76	1.03	0.	0.01	0.	0.99	0.9
time (sec)	N/A	0.179	0.176	0.027	0.	0.226	0.	0.216	21.365

Problem 340	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	169	169	133	178	0	1	0	182	156
normalized size	1	1.	0.79	1.05	0.	0.01	0.	1.08	0.92
time (sec)	N/A	0.214	0.192	0.027	0.	0.224	0.	0.215	26.377

Problem 341	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	125	125	115	722	0	819	3417	1	117
normalized size	1	1.	0.92	5.78	0.	6.55	27.34	0.01	0.94
time (sec)	N/A	0.185	0.171	0.008	0.	0.225	6.973	0.219	22.225

Problem 342	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	96	96	88	454	0	512	2018	909	87
normalized size	1	1.	0.92	4.73	0.	5.33	21.02	9.47	0.91
time (sec)	N/A	0.134	0.115	0.007	0.	0.223	4.773	0.22	17.451

Problem 343	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	71	71	65	246	0	290	1020	513	63
normalized size	1	1.	0.92	3.46	0.	4.08	14.37	7.23	0.89
time (sec)	N/A	0.098	0.074	0.007	0.	0.222	3.045	0.216	12.852

Problem 344	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	41	98	0	124	389	225	37
normalized size	1	1.	0.91	2.18	0.	2.76	8.64	5.	0.82
time (sec)	N/A	0.055	0.043	0.004	0.	0.22	1.641	0.214	7.917

Problem 345	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	A	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	56	56	45	0	0	0	136	0	41
normalized size	1	1.	0.8	0.	0.	0.	2.43	0.	0.73
time (sec)	N/A	0.075	0.058	0.061	0.	0.	6.21	0.	7.434

Problem 346	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	A	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	73	73	60	0	0	0	639	0	56
normalized size	1	1.	0.82	0.	0.	0.	8.75	0.	0.77
time (sec)	N/A	0.084	0.064	0.052	0.	0.	11.479	0.	8.76

Problem 347	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	A	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	81	81	60	0	0	0	1680	0	63
normalized size	1	1.	0.74	0.	0.	0.	20.74	0.	0.78
time (sec)	N/A	0.1	0.07	0.067	0.	0.	16.486	0.	8.919

Problem 348	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	231	231	217	2058	0	2191	10401	1	226
normalized size	1	1.	0.94	8.91	0.	9.48	45.03	0.	0.98
time (sec)	N/A	0.338	0.328	0.011	0.	0.231	15.536	0.215	52.872

Problem 349	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	A	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	127	171	113	0	0	0	303	0	144
normalized size	1	1.35	0.89	0.	0.	0.	2.39	0.	1.13
time (sec)	N/A	0.251	0.227	0.056	0.	0.	10.908	0.	39.294

Problem 350	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	A	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	99	99	84	0	0	0	219	0	80
normalized size	1	1.	0.85	0.	0.	0.	2.21	0.	0.81
time (sec)	N/A	0.138	0.13	0.053	0.	0.	8.121	0.	22.224

Problem 351	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	A	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	56	56	45	0	0	0	136	0	41
normalized size	1	1.	0.8	0.	0.	0.	2.43	0.	0.73
time (sec)	N/A	0.073	0.053	0.042	0.	0.	5.927	0.	7.416

Problem 352	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	A	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	82	82	65	0	0	0	102	0	60
normalized size	1	1.	0.79	0.	0.	0.	1.24	0.	0.73
time (sec)	N/A	0.092	0.066	0.062	0.	0.	5.455	0.	11.775

Problem 353	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	125	125	142	0	0	0	0	0	100
normalized size	1	1.	1.14	0.	0.	0.	0.	0.	0.8
time (sec)	N/A	0.291	0.349	0.085	0.	0.	0.	0.	50.224

Problem 354	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	F(-1)
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	206	206	142	0	0	0	0	0	0
normalized size	1	1.	0.69	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.685	0.376	0.129	0.	0.	0.	0.	0.

Problem 355	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	156	156	100	631	0	694	4136	1	141
normalized size	1	1.	0.64	4.04	0.	4.45	26.51	0.01	0.9
time (sec)	N/A	0.204	0.091	0.011	0.	0.219	9.3	0.212	36.862

Problem 356	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	116	116	72	340	0	389	1928	817	104
normalized size	1	1.	0.62	2.93	0.	3.35	16.62	7.04	0.9
time (sec)	N/A	0.138	0.059	0.01	0.	0.22	5.127	0.213	28.098

Problem 357	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	76	76	116	143	0	176	668	352	66
normalized size	1	1.	1.53	1.88	0.	2.32	8.79	4.63	0.87
time (sec)	N/A	0.082	0.056	0.008	0.	0.218	2.496	0.217	17.789

Problem 358	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	A	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	86	86	52	0	0	0	337	0	63
normalized size	1	1.	0.6	0.	0.	0.	3.92	0.	0.73
time (sec)	N/A	0.127	0.056	0.069	0.	0.	7.677	0.	14.598

Problem 359	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	A	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	86	86	83	0	0	0	1972	0	63
normalized size	1	1.	0.97	0.	0.	0.	22.93	0.	0.73
time (sec)	N/A	0.131	0.078	0.092	0.	0.	14.518	0.	14.648

Problem 360	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	A	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	86	86	120	0	0	0	5872	0	63
normalized size	1	1.	1.4	0.	0.	0.	68.28	0.	0.73
time (sec)	N/A	0.126	0.304	0.138	0.	0.	29.81	0.	14.529

Problem 361	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	197	197	124	786	0	1161	4888	1	184
normalized size	1	1.	0.63	3.99	0.	5.89	24.81	0.01	0.93
time (sec)	N/A	0.358	0.119	0.011	0.	0.223	10.616	0.22	74.583

Problem 362	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	143	143	90	422	0	641	2320	1067	133
normalized size	1	1.	0.63	2.95	0.	4.48	16.22	7.46	0.93
time (sec)	N/A	0.221	0.076	0.01	0.	0.221	5.88	0.219	53.062

Problem 363	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	85	85	58	172	0	238	768	412	75
normalized size	1	1.	0.68	2.02	0.	2.8	9.04	4.85	0.88
time (sec)	N/A	0.117	0.048	0.008	0.	0.219	2.761	0.212	24.257

Problem 364	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	A	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	98	98	67	0	0	0	440	0	80
normalized size	1	1.	0.68	0.	0.	0.	4.49	0.	0.82
time (sec)	N/A	0.179	0.077	0.076	0.	0.	9.515	0.	25.291

Problem 365	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	A	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	98	98	144	0	0	0	2717	0	80
normalized size	1	1.	1.47	0.	0.	0.	27.72	0.	0.82
time (sec)	N/A	0.182	0.283	0.099	0.	0.	17.332	0.	25.322

Problem 366	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	A	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	98	98	144	0	0	0	8284	0	80
normalized size	1	1.	1.47	0.	0.	0.	84.53	0.	0.82
time (sec)	N/A	0.178	0.364	0.145	0.	0.	35.39	0.	25.339

Problem 367	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	145	145	228	424	0	644	2338	1069	136
normalized size	1	1.	1.57	2.92	0.	4.44	16.12	7.37	0.94
time (sec)	N/A	0.23	0.191	0.01	0.	0.224	5.725	0.232	52.452

Problem 368	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	94	94	112	175	0	282	838	456	85
normalized size	1	1.	1.19	1.86	0.	3.	8.91	4.85	0.9
time (sec)	N/A	0.142	0.084	0.008	0.	0.224	3.539	0.214	31.366

Problem 369	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	93	93	110	174	0	279	821	454	82
normalized size	1	1.	1.18	1.87	0.	3.	8.83	4.88	0.88
time (sec)	N/A	0.134	0.078	0.009	0.	0.223	2.755	0.215	29.906

Problem 370	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	42	42	31	47	0	68	141	99	34
normalized size	1	1.	0.74	1.12	0.	1.62	3.36	2.36	0.81
time (sec)	N/A	0.057	0.031	0.003	0.	0.22	1.301	0.211	14.679

Problem 371	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	A	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	55	55	33	0	0	0	129	0	37
normalized size	1	1.	0.6	0.	0.	0.	2.35	0.	0.67
time (sec)	N/A	0.069	0.04	0.045	0.	0.	7.227	0.	10.375

Problem 372	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	A	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	66	66	103	0	0	0	799	0	49
normalized size	1	1.	1.56	0.	0.	0.	12.11	0.	0.74
time (sec)	N/A	0.084	0.12	0.047	0.	0.	13.154	0.	12.345

Problem 373	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	A	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	36	36	38	0	0	0	377	0	27
normalized size	1	1.	1.06	0.	0.	0.	10.47	0.	0.75
time (sec)	N/A	0.032	0.03	0.065	0.	0.	28.457	0.	5.273

Problem 374	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	A	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	36	36	38	0	0	0	541	0	27
normalized size	1	1.	1.06	0.	0.	0.	15.03	0.	0.75
time (sec)	N/A	0.06	0.019	0.185	0.	0.	33.829	0.	8.94

Problem 375	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	151	151	106	119	166	193	150	236	150
normalized size	1	1.	0.7	0.79	1.1	1.28	0.99	1.56	0.99
time (sec)	N/A	0.194	0.103	0.009	1.373	0.213	3.752	0.211	27.962

Problem 376	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	122	122	87	95	135	161	121	194	119
normalized size	1	1.	0.71	0.78	1.11	1.32	0.99	1.59	0.98
time (sec)	N/A	0.161	0.069	0.009	1.339	0.204	3.495	0.21	22.437

Problem 377	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	95	95	65	71	104	128	92	154	92
normalized size	1	1.	0.68	0.75	1.09	1.35	0.97	1.62	0.97
time (sec)	N/A	0.125	0.069	0.009	1.364	0.208	3.211	0.213	17.159

Problem 378	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	67	67	49	47	73	96	63	105	63
normalized size	1	1.	0.73	0.7	1.09	1.43	0.94	1.57	0.94
time (sec)	N/A	0.082	0.043	0.006	1.346	0.208	2.997	0.238	11.807

Problem 379	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	42	42	30	27	45	62	36	55	37
normalized size	1	1.	0.71	0.64	1.07	1.48	0.86	1.31	0.88
time (sec)	N/A	0.044	0.03	0.006	1.331	0.207	2.516	0.226	7.591

Problem 380	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	54	54	53	46	0	1	110	74	49
normalized size	1	1.	0.98	0.85	0.	0.02	2.04	1.37	0.91
time (sec)	N/A	0.068	0.072	0.009	0.	0.218	6.188	0.228	7.613

Problem 381	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	71	71	52	50	0	1	267	82	63
normalized size	1	1.	0.73	0.7	0.	0.01	3.76	1.15	0.89
time (sec)	N/A	0.105	0.065	0.017	0.	0.219	13.513	0.226	9.452

Problem 382	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	82	82	68	75	0	1	428	149	70
normalized size	1	1.	0.83	0.91	0.	0.01	5.22	1.82	0.85
time (sec)	N/A	0.114	0.095	0.02	0.	0.221	26.864	0.271	9.826

Problem 383	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	112	112	91	91	0	1	666	173	99
normalized size	1	1.	0.81	0.81	0.	0.01	5.95	1.54	0.88
time (sec)	N/A	0.156	0.166	0.019	0.	0.221	31.164	0.228	13.505

Problem 384	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	146	146	110	121	0	1	1001	238	134
normalized size	1	1.	0.75	0.83	0.	0.01	6.86	1.63	0.92
time (sec)	N/A	0.199	0.175	0.018	0.	0.224	58.362	0.238	17.66

Problem 385	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	177	177	132	142	0	1	1416	281	165
normalized size	1	1.	0.75	0.8	0.	0.01	8.	1.59	0.93
time (sec)	N/A	0.242	0.261	0.022	0.	0.222	76.384	0.214	22.724

Problem 386	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	151	151	103	119	166	225	355	506	150
normalized size	1	1.	0.68	0.79	1.1	1.49	2.35	3.35	0.99
time (sec)	N/A	0.191	0.118	0.009	1.351	0.207	5.919	0.217	27.544

Problem 387	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	122	122	87	95	135	193	298	427	119
normalized size	1	1.	0.71	0.78	1.11	1.58	2.44	3.5	0.98
time (sec)	N/A	0.155	0.084	0.008	1.352	0.208	5.393	0.217	21.957

Problem 388	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	95	95	68	71	104	162	240	344	92
normalized size	1	1.	0.72	0.75	1.09	1.71	2.53	3.62	0.97
time (sec)	N/A	0.124	0.082	0.009	1.459	0.204	5.133	0.214	16.815

Problem 389	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	67	67	49	47	73	128	178	255	63
normalized size	1	1.	0.73	0.7	1.09	1.91	2.66	3.81	0.94
time (sec)	N/A	0.082	0.053	0.006	1.374	0.206	4.689	0.212	11.907

Problem 390	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	42	42	30	27	45	93	146	153	37
normalized size	1	1.	0.71	0.64	1.07	2.21	3.48	3.64	0.88
time (sec)	N/A	0.045	0.038	0.004	1.419	0.205	1.888	0.209	7.372

Problem 391	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	69	69	73	58	0	1	128	97	65
normalized size	1	1.	1.06	0.84	0.	0.01	1.86	1.41	0.94
time (sec)	N/A	0.087	0.136	0.01	0.	0.227	11.227	0.21	9.352

Problem 392	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	95	95	71	77	0	1	314	126	87
normalized size	1	1.	0.75	0.81	0.	0.01	3.31	1.33	0.92
time (sec)	N/A	0.136	0.1	0.017	0.	0.222	23.367	0.213	11.595

Problem 393	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	107	107	72	84	0	1	541	161	95
normalized size	1	1.	0.67	0.79	0.	0.01	5.06	1.5	0.89
time (sec)	N/A	0.138	0.146	0.019	0.	0.233	49.6	0.229	11.737

Problem 394	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	112	112	93	96	0	1	862	196	97
normalized size	1	1.	0.83	0.86	0.	0.01	7.7	1.75	0.87
time (sec)	N/A	0.15	0.134	0.019	0.	0.222	78.317	0.235	12.752

Problem 395	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	146	146	110	119	0	1	1278	238	133
normalized size	1	1.	0.75	0.82	0.	0.01	8.75	1.63	0.91
time (sec)	N/A	0.194	0.183	0.019	0.	0.225	132.397	0.233	16.718

Problem 396	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	172	172	128	129	0	1	0	259	158
normalized size	1	1.	0.74	0.75	0.	0.01	0.	1.51	0.92
time (sec)	N/A	0.234	0.21	0.021	0.	0.23	0.	0.215	22.613

Problem 397	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	208	208	148	161	0	1	0	324	194
normalized size	1	1.	0.71	0.77	0.	0.	0.	1.56	0.93
time (sec)	N/A	0.287	0.275	0.021	0.	0.23	0.	0.216	27.431

Problem 398	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	151	151	106	119	166	259	586	1	150
normalized size	1	1.	0.7	0.79	1.1	1.72	3.88	0.01	0.99
time (sec)	N/A	0.185	0.133	0.008	1.354	0.214	9.33	0.218	28.897

Problem 399	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	122	122	87	95	135	225	496	702	119
normalized size	1	1.	0.71	0.78	1.11	1.84	4.07	5.75	0.98
time (sec)	N/A	0.157	0.095	0.009	1.361	0.207	8.728	0.25	27.153

Problem 400	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	95	95	68	71	104	193	292	582	92
normalized size	1	1.	0.72	0.75	1.09	2.03	3.07	6.13	0.97
time (sec)	N/A	0.124	0.099	0.007	1.354	0.204	12.375	0.226	18.356

Problem 401	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	67	67	49	47	73	159	245	451	63
normalized size	1	1.	0.73	0.7	1.09	2.37	3.66	6.73	0.94
time (sec)	N/A	0.084	0.066	0.006	1.364	0.209	9.543	0.218	12.859

Problem 402	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	42	42	30	27	45	126	194	308	37
normalized size	1	1.	0.71	0.64	1.07	3.	4.62	7.33	0.88
time (sec)	N/A	0.045	0.049	0.006	1.344	0.208	6.382	0.213	7.923

Problem 403	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	86	86	91	72	0	1	144	119	82
normalized size	1	1.	1.06	0.84	0.	0.01	1.67	1.38	0.95
time (sec)	N/A	0.107	0.136	0.01	0.	0.224	18.322	0.215	13.07

Problem 404	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	118	118	93	104	0	1	379	169	110
normalized size	1	1.	0.79	0.88	0.	0.01	3.21	1.43	0.93
time (sec)	N/A	0.16	0.145	0.018	0.	0.227	30.808	0.236	16.945

Problem 405	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	133	133	91	110	0	1	600	209	124
normalized size	1	1.	0.68	0.83	0.	0.01	4.51	1.57	0.93
time (sec)	N/A	0.166	0.148	0.019	0.	0.223	59.387	0.225	14.973

Problem 406	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	139	139	96	108	0	1	989	204	126
normalized size	1	1.	0.69	0.78	0.	0.01	7.12	1.47	0.91
time (sec)	N/A	0.173	0.179	0.02	0.	0.222	90.737	0.226	15.562

Problem 407	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	142	142	111	118	0	1	1481	239	129
normalized size	1	1.	0.78	0.83	0.	0.01	10.43	1.68	0.91
time (sec)	N/A	0.186	0.186	0.02	0.	0.219	159.828	0.216	16.324

Problem 408	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	177	177	129	140	0	1	0	281	162
normalized size	1	1.	0.73	0.79	0.	0.01	0.	1.59	0.92
time (sec)	N/A	0.234	0.226	0.02	0.	0.22	0.	0.22	20.869

Problem 409	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	208	208	148	161	0	1	0	324	192
normalized size	1	1.	0.71	0.77	0.	0.	0.	1.56	0.92
time (sec)	N/A	0.28	0.248	0.023	0.	0.22	0.	0.218	26.078

Problem 410	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	232	232	167	169	0	1	0	346	216
normalized size	1	1.	0.72	0.73	0.	0.	0.	1.49	0.93
time (sec)	N/A	0.326	0.282	0.023	0.	0.224	0.	0.238	32.706

Problem 411	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	149	149	106	119	166	162	362	236	148
normalized size	1	1.	0.71	0.8	1.11	1.09	2.43	1.58	0.99
time (sec)	N/A	0.187	0.084	0.009	1.371	0.204	35.186	0.218	26.566

Problem 412	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	120	120	87	95	135	130	301	194	117
normalized size	1	1.	0.72	0.79	1.12	1.08	2.51	1.62	0.98
time (sec)	N/A	0.156	0.065	0.01	1.35	0.204	28.53	0.209	21.247

Problem 413	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	93	93	68	71	104	97	240	155	90
normalized size	1	1.	0.73	0.76	1.12	1.04	2.58	1.67	0.97
time (sec)	N/A	0.122	0.057	0.009	1.352	0.205	20.107	0.231	16.418

Problem 414	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	65	65	48	47	73	65	182	103	61
normalized size	1	1.	0.74	0.72	1.12	1.	2.8	1.58	0.94
time (sec)	N/A	0.08	0.039	0.006	1.365	0.206	13.033	0.228	11.403

Problem 415	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	40	40	29	26	53	34	121	53	36
normalized size	1	1.	0.72	0.65	1.32	0.85	3.02	1.32	0.9
time (sec)	N/A	0.043	0.024	0.006	1.35	0.21	4.542	0.219	7.388

Problem 416	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	40	40	40	35	0	1	129	49	36
normalized size	1	1.	1.	0.88	0.	0.02	3.22	1.22	0.9
time (sec)	N/A	0.052	0.04	0.01	0.	0.23	8.59	0.215	5.694

Problem 417	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	49	49	51	42	0	1	165	78	42
normalized size	1	1.	1.04	0.86	0.	0.02	3.37	1.59	0.86
time (sec)	N/A	0.074	0.066	0.016	0.	0.232	26.16	0.214	6.978

Problem 418	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	84	84	70	81	0	1	156	150	75
normalized size	1	1.	0.83	0.96	0.	0.01	1.86	1.79	0.89
time (sec)	N/A	0.114	0.128	0.016	0.	0.227	55.001	0.215	9.278

Problem 419	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	115	115	93	104	0	1	245	194	105
normalized size	1	1.	0.81	0.9	0.	0.01	2.13	1.69	0.91
time (sec)	N/A	0.152	0.155	0.017	0.	0.23	90.487	0.214	12.766

Problem 420	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	146	146	112	125	0	1	303	238	141
normalized size	1	1.	0.77	0.86	0.	0.01	2.08	1.63	0.97
time (sec)	N/A	0.192	0.213	0.019	0.	0.232	146.252	0.212	17.239

Problem 421	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	177	177	131	146	0	1	0	281	173
normalized size	1	1.	0.74	0.82	0.	0.01	0.	1.59	0.98
time (sec)	N/A	0.24	0.244	0.02	0.	0.226	0.	0.212	22.24

Problem 422	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	147	147	106	119	177	162	10953	224	146
normalized size	1	1.	0.72	0.81	1.2	1.1	74.51	1.52	0.99
time (sec)	N/A	0.181	0.097	0.008	1.33	0.218	46.172	0.214	26.996

Problem 423	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	116	116	86	95	146	130	5149	181	114
normalized size	1	1.	0.74	0.82	1.26	1.12	44.39	1.56	0.98
time (sec)	N/A	0.151	0.077	0.009	1.339	0.217	25.541	0.215	21.753

Problem 424	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	91	91	67	71	115	97	2077	138	88
normalized size	1	1.	0.74	0.78	1.26	1.07	22.82	1.52	0.97
time (sec)	N/A	0.12	0.063	0.008	1.326	0.214	16.746	0.224	16.153

Problem 425	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	63	63	47	46	82	63	576	93	60
normalized size	1	1.	0.75	0.73	1.3	1.	9.14	1.48	0.95
time (sec)	N/A	0.079	0.045	0.006	1.34	0.21	10.791	0.229	11.689

Problem 426	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	38	38	27	26	50	34	60	46	36
normalized size	1	1.	0.71	0.68	1.32	0.89	1.58	1.21	0.95
time (sec)	N/A	0.044	0.027	0.006	1.336	0.205	2.215	0.25	7.575

Problem 427	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	50	50	50	46	0	1	162	66	44
normalized size	1	1.	1.	0.92	0.	0.02	3.24	1.32	0.88
time (sec)	N/A	0.065	0.079	0.013	0.	0.23	11.183	0.234	6.933

Problem 428	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	73	73	63	67	0	1	224	117	66
normalized size	1	1.	0.86	0.92	0.	0.01	3.07	1.6	0.9
time (sec)	N/A	0.11	0.118	0.021	0.	0.234	23.839	0.216	9.819

Problem 429	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	112	112	88	101	0	1	185	169	104
normalized size	1	1.	0.79	0.9	0.	0.01	1.65	1.51	0.93
time (sec)	N/A	0.148	0.159	0.02	0.	0.233	38.271	0.219	12.899

Problem 430	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	143	143	112	126	0	1	246	223	138
normalized size	1	1.	0.78	0.88	0.	0.01	1.72	1.56	0.97
time (sec)	N/A	0.192	0.213	0.024	0.	0.228	55.845	0.217	17.223

Problem 431	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	174	174	131	147	0	1	301	266	170
normalized size	1	1.	0.75	0.84	0.	0.01	1.73	1.53	0.98
time (sec)	N/A	0.24	0.294	0.026	0.	0.233	81.554	0.215	22.321

Problem 432	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	147	147	106	119	174	176	10594	212	146
normalized size	1	1.	0.72	0.81	1.18	1.2	72.07	1.44	0.99
time (sec)	N/A	0.183	0.117	0.008	1.352	0.216	47.306	0.215	26.968

Problem 433	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	118	118	86	95	143	143	3624	169	116
normalized size	1	1.	0.73	0.81	1.21	1.21	30.71	1.43	0.98
time (sec)	N/A	0.154	0.091	0.007	1.341	0.215	24.013	0.219	21.948

Problem 434	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	91	91	63	70	109	109	299	124	88
normalized size	1	1.	0.69	0.77	1.2	1.2	3.29	1.36	0.97
time (sec)	N/A	0.121	0.07	0.009	1.344	0.211	4.331	0.234	16.64

Problem 435	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	63	63	46	47	78	78	211	74	60
normalized size	1	1.	0.73	0.75	1.24	1.24	3.35	1.17	0.95
time (sec)	N/A	0.082	0.053	0.006	1.34	0.214	4.08	0.213	11.982

Problem 436	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	40	40	29	26	38	47	124	38	39
normalized size	1	1.	0.72	0.65	0.95	1.18	3.1	0.95	0.98
time (sec)	N/A	0.043	0.03	0.005	1.359	0.212	3.787	0.208	7.507

Problem 437	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	67	67	63	59	0	1	714	82	61
normalized size	1	1.	0.94	0.88	0.	0.01	10.66	1.22	0.91
time (sec)	N/A	0.081	0.174	0.014	0.	0.236	19.287	0.21	9.372

Problem 438	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	98	98	86	88	0	1	1520	122	90
normalized size	1	1.	0.88	0.9	0.	0.01	15.51	1.24	0.92
time (sec)	N/A	0.144	0.134	0.023	0.	0.231	39.613	0.217	13.106

Problem 439	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	140	140	107	122	0	1	1287	201	129
normalized size	1	1.	0.76	0.87	0.	0.01	9.19	1.44	0.92
time (sec)	N/A	0.183	0.172	0.024	0.	0.236	58.805	0.218	16.91

Problem 440	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	171	171	130	147	0	1	1001	270	165
normalized size	1	1.	0.76	0.86	0.	0.01	5.85	1.58	0.96
time (sec)	N/A	0.233	0.207	0.026	0.	0.239	86.152	0.219	22.384

Problem 441	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	202	202	151	168	0	1	1137	301	197
normalized size	1	1.	0.75	0.83	0.	0.	5.63	1.49	0.98
time (sec)	N/A	0.28	0.415	0.029	0.	0.242	121.471	0.221	27.922

Problem 442	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	71	71	62	63	0	1	192	100	60
normalized size	1	1.	0.87	0.89	0.	0.01	2.7	1.41	0.85
time (sec)	N/A	0.133	0.105	0.018	0.	0.231	70.955	0.215	12.662

Problem 443	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	209	209	196	384	0	1	347	412	197
normalized size	1	1.	0.94	1.84	0.	0.	1.66	1.97	0.94
time (sec)	N/A	0.427	0.306	0.017	0.	0.229	75.569	0.319	54.057

Problem 444	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	169	169	159	331	0	1	304	340	156
normalized size	1	1.	0.94	1.96	0.	0.01	1.8	2.01	0.92
time (sec)	N/A	0.314	0.231	0.015	0.	0.251	57.737	0.325	45.757

Problem 445	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	135	135	131	291	0	1	267	286	122
normalized size	1	1.	0.97	2.16	0.	0.01	1.98	2.12	0.9
time (sec)	N/A	0.22	0.172	0.013	0.	0.248	43.58	0.257	30.395

Problem 446	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	112	112	108	263	0	1	240	231	99
normalized size	1	1.	0.96	2.35	0.	0.01	2.14	2.06	0.88
time (sec)	N/A	0.146	0.124	0.007	0.	0.239	28.575	0.221	23.365

Problem 447	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	118	118	107	237	0	1	294	208	105
normalized size	1	1.	0.91	2.01	0.	0.01	2.49	1.76	0.89
time (sec)	N/A	0.442	0.282	0.018	0.	0.401	48.92	0.234	45.333

Problem 448	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	128	128	115	249	0	1	860	205	114
normalized size	1	1.	0.9	1.95	0.	0.01	6.72	1.6	0.89
time (sec)	N/A	0.547	0.143	0.027	0.	0.397	113.063	0.218	52.246

Problem 449	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	151	151	131	321	0	1	0	267	139
normalized size	1	1.	0.87	2.13	0.	0.01	0.	1.77	0.92
time (sec)	N/A	0.475	0.185	0.023	0.	0.403	0.	0.223	51.207

Problem 450	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	207	207	178	461	0	1	0	405	199
normalized size	1	1.	0.86	2.23	0.	0.	0.	1.96	0.96
time (sec)	N/A	0.8	0.315	0.025	0.	0.581	0.	0.226	88.988

Problem 451	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F(-1)	F	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	199	199	147	0	0	0	0	0	49
normalized size	1	1.	0.74	0.	0.	0.	0.	0.	0.25
time (sec)	N/A	0.263	0.233	0.082	0.	0.	0.	0.	10.034

Problem 452	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F(-1)	F	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	143	143	148	0	0	0	0	0	48
normalized size	1	1.	1.03	0.	0.	0.	0.	0.	0.34
time (sec)	N/A	0.876	0.236	0.072	0.	0.	0.	0.	10.636

Problem 453	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	140	140	119	167	0	1	1114	224	124
normalized size	1	1.	0.85	1.19	0.	0.01	7.96	1.6	0.89
time (sec)	N/A	0.481	0.345	0.029	0.	0.289	154.485	0.236	53.979

Problem 454	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	115	115	111	194	0	1	1192	194	100
normalized size	1	1.	0.97	1.69	0.	0.01	10.37	1.69	0.87
time (sec)	N/A	0.296	0.384	0.02	0.	0.282	97.406	0.231	32.317

Problem 455	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	149	149	140	237	0	1	0	266	129
normalized size	1	1.	0.94	1.59	0.	0.01	0.	1.79	0.87
time (sec)	N/A	0.563	0.414	0.026	0.	0.286	0.	0.226	57.627

Problem 456	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	220	220	223	415	0	1	0	436	218
normalized size	1	1.	1.01	1.89	0.	0.	0.	1.98	0.99
time (sec)	N/A	0.609	0.419	0.028	0.	0.304	0.	0.233	61.17

Problem 457	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	204	204	186	377	0	1	0	385	184
normalized size	1	1.	0.91	1.85	0.	0.	0.	1.89	0.9
time (sec)	N/A	0.552	0.29	0.026	0.	0.301	0.	0.243	50.325

Problem 458	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	178	178	141	348	0	1	1846	324	162
normalized size	1	1.	0.79	1.96	0.	0.01	10.37	1.82	0.91
time (sec)	N/A	0.283	0.32	0.023	0.	0.273	160.4	0.245	38.331

Problem 459	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	110	110	104	258	0	1	1622	244	97
normalized size	1	1.	0.95	2.35	0.	0.01	14.75	2.22	0.88
time (sec)	N/A	0.153	0.182	0.007	0.	0.262	109.835	0.219	22.7

Problem 460	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	142	142	125	284	0	1	0	261	126
normalized size	1	1.	0.88	2.	0.	0.01	0.	1.84	0.89
time (sec)	N/A	0.484	0.22	0.024	0.	0.409	0.	0.224	51.261

Problem 461	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	147	159	132	313	0	1	0	351	138
normalized size	1	1.08	0.9	2.13	0.	0.01	0.	2.39	0.94
time (sec)	N/A	0.567	0.294	0.027	0.	0.407	0.	0.23	56.954

Problem 462	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	219	219	164	403	0	1	0	358	206
normalized size	1	1.	0.75	1.84	0.	0.	0.	1.63	0.94
time (sec)	N/A	0.753	0.38	0.028	0.	0.435	0.	0.227	93.077

Problem 463	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	284	284	223	545	0	1	0	500	267
normalized size	1	1.	0.79	1.92	0.	0.	0.	1.76	0.94
time (sec)	N/A	1.148	0.483	0.029	0.	0.565	0.	0.231	131.717

Problem 464	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	164	164	132	202	0	1	0	319	141
normalized size	1	1.	0.8	1.23	0.	0.01	0.	1.95	0.86
time (sec)	N/A	0.58	0.513	0.026	0.	0.942	0.	0.217	60.437

Problem 465	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	216	216	164	229	0	1	0	456	194
normalized size	1	1.	0.76	1.06	0.	0.	0.	2.11	0.9
time (sec)	N/A	0.918	0.95	0.033	0.	0.846	0.	0.228	99.56

Problem 466	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	277	277	200	280	0	1	0	635	252
normalized size	1	1.	0.72	1.01	0.	0.	0.	2.29	0.91
time (sec)	N/A	1.321	1.469	0.039	0.	2.699	0.	0.26	145.029

Problem 467	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	F(-1)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	192	192	139	260	0	1	0	0	182
normalized size	1	1.	0.72	1.35	0.	0.01	0.	0.	0.95
time (sec)	N/A	0.236	0.166	0.021	0.	0.246	0.	0.	21.606

Problem 468	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	F(-1)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	159	159	119	218	0	1	1527	0	150
normalized size	1	1.	0.75	1.37	0.	0.01	9.6	0.	0.94
time (sec)	N/A	0.181	0.126	0.027	0.	0.248	81.579	0.	16.769

Problem 469	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	F(-1)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	126	126	99	176	0	1	673	0	112
normalized size	1	1.	0.79	1.4	0.	0.01	5.34	0.	0.89
time (sec)	N/A	0.14	0.102	0.016	0.	0.245	41.088	0.	12.548

Problem 470	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	93	93	78	136	0	1	568	4	80
normalized size	1	1.	0.84	1.46	0.	0.01	6.11	0.04	0.86
time (sec)	N/A	0.105	0.073	0.015	0.	0.241	25.678	12.802	8.701

Problem 471	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	82	82	61	118	0	1	116	4	78
normalized size	1	1.	0.74	1.44	0.	0.01	1.41	0.05	0.95
time (sec)	N/A	0.108	0.069	0.019	0.	0.237	22.412	12.658	8.963

Problem 472	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	69	69	67	103	0	1	114	0	65
normalized size	1	1.	0.97	1.49	0.	0.01	1.65	0.	0.94
time (sec)	N/A	0.072	0.098	0.019	0.	0.246	70.487	0.	7.379

Problem 473	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	53	53	36	31	0	69	0	107	49
normalized size	1	1.	0.68	0.58	0.	1.3	0.	2.02	0.92
time (sec)	N/A	0.067	0.048	0.007	0.	0.229	0.	0.237	5.321

Problem 474	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	84	84	57	53	0	103	0	154	82
normalized size	1	1.	0.68	0.63	0.	1.23	0.	1.83	0.98
time (sec)	N/A	0.101	0.065	0.009	0.	0.229	0.	0.224	7.744

Problem 475	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	117	117	73	77	0	136	0	201	116
normalized size	1	1.	0.62	0.66	0.	1.16	0.	1.72	0.99
time (sec)	N/A	0.141	0.081	0.008	0.	0.229	0.	0.228	11.324

Problem 476	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	150	150	95	101	0	169	0	248	150
normalized size	1	1.	0.63	0.67	0.	1.13	0.	1.65	1.
time (sec)	N/A	0.181	0.103	0.008	0.	0.235	0.	0.233	15.057

Problem 477	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	183	183	114	125	0	201	0	296	184
normalized size	1	1.	0.62	0.68	0.	1.1	0.	1.62	1.01
time (sec)	N/A	0.226	0.116	0.008	0.	0.239	0.	0.239	19.579

Problem 478	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	F(-1)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	225	225	157	302	0	1	0	0	214
normalized size	1	1.	0.7	1.34	0.	0.	0.	0.	0.95
time (sec)	N/A	0.285	0.197	0.02	0.	0.244	0.	0.	26.756

Problem 479	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	F(-1)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	192	192	137	260	0	1	0	0	177
normalized size	1	1.	0.71	1.35	0.	0.01	0.	0.	0.92
time (sec)	N/A	0.228	0.155	0.017	0.	0.246	0.	0.	22.375

Problem 480	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	F(-1)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	159	159	119	218	0	1	298	0	150
normalized size	1	1.	0.75	1.37	0.	0.01	1.87	0.	0.94
time (sec)	N/A	0.182	0.125	0.017	0.	0.233	80.472	0.	17.111

Problem 481	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	126	126	100	176	0	1	0	0	109
normalized size	1	1.	0.79	1.4	0.	0.01	0.	0.	0.87
time (sec)	N/A	0.139	0.099	0.017	0.	0.248	0.	0.	11.793

Problem 482	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	115	115	82	158	0	1	0	0	107
normalized size	1	1.	0.71	1.37	0.	0.01	0.	0.	0.93
time (sec)	N/A	0.146	0.141	0.02	0.	0.247	0.	0.	11.533

Problem 483	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	117	117	79	151	0	1	168	0	112
normalized size	1	1.	0.68	1.29	0.	0.01	1.44	0.	0.96
time (sec)	N/A	0.143	0.115	0.019	0.	0.249	170.571	0.	11.872

Problem 484	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	89	89	89	143	0	1	0	0	85
normalized size	1	1.	1.	1.61	0.	0.01	0.	0.	0.96
time (sec)	N/A	0.09	0.146	0.02	0.	0.248	0.	0.	9.426

Problem 485	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	53	53	36	31	0	100	0	113	49
normalized size	1	1.	0.68	0.58	0.	1.89	0.	2.13	0.92
time (sec)	N/A	0.067	0.069	0.007	0.	0.234	0.	0.246	5.292

Problem 486	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	84	84	57	53	0	135	0	161	82
normalized size	1	1.	0.68	0.63	0.	1.61	0.	1.92	0.98
time (sec)	N/A	0.101	0.086	0.007	0.	0.225	0.	0.231	7.628

Problem 487	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	117	117	76	77	0	170	0	208	116
normalized size	1	1.	0.65	0.66	0.	1.45	0.	1.78	0.99
time (sec)	N/A	0.138	0.103	0.007	0.	0.234	0.	0.239	10.989

Problem 488	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	150	150	95	101	0	201	0	255	150
normalized size	1	1.	0.63	0.67	0.	1.34	0.	1.7	1.
time (sec)	N/A	0.177	0.118	0.009	0.	0.229	0.	0.249	14.964

Problem 489	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	183	183	111	125	0	234	0	302	184
normalized size	1	1.	0.61	0.68	0.	1.28	0.	1.65	1.01
time (sec)	N/A	0.214	0.146	0.01	0.	0.231	0.	0.246	20.09

Problem 490	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	F(-1)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	225	225	157	302	0	1	0	0	214
normalized size	1	1.	0.7	1.34	0.	0.	0.	0.	0.95
time (sec)	N/A	0.268	0.195	0.02	0.	0.243	0.	0.	26.238

Problem 491	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	F(-1)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	192	192	138	260	0	1	0	0	182
normalized size	1	1.	0.72	1.35	0.	0.01	0.	0.	0.95
time (sec)	N/A	0.217	0.167	0.017	0.	0.247	0.	0.	20.55

Problem 492	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	159	159	119	218	0	1	0	0	143
normalized size	1	1.	0.75	1.37	0.	0.01	0.	0.	0.9
time (sec)	N/A	0.176	0.138	0.019	0.	0.238	0.	0.	15.421

Problem 493	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	144	144	105	202	0	1	0	0	138
normalized size	1	1.	0.73	1.4	0.	0.01	0.	0.	0.96
time (sec)	N/A	0.177	0.176	0.021	0.	0.245	0.	0.	14.856

Problem 494	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	152	152	101	196	0	1	0	0	148
normalized size	1	1.	0.66	1.29	0.	0.01	0.	0.	0.97
time (sec)	N/A	0.173	0.164	0.02	0.	0.229	0.	0.	14.919

Problem 495	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	150	150	100	193	0	1	0	0	146
normalized size	1	1.	0.67	1.29	0.	0.01	0.	0.	0.97
time (sec)	N/A	0.171	0.176	0.02	0.	0.238	0.	0.	15.321

Problem 496	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	111	111	107	185	0	1	0	0	107
normalized size	1	1.	0.96	1.67	0.	0.01	0.	0.	0.96
time (sec)	N/A	0.108	0.217	0.021	0.	0.229	0.	0.	12.146

Problem 497	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	53	53	36	31	0	132	0	116	49
normalized size	1	1.	0.68	0.58	0.	2.49	0.	2.19	0.92
time (sec)	N/A	0.065	0.092	0.008	0.	0.23	0.	0.246	5.315

Problem 498	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	84	84	57	53	0	166	0	163	82
normalized size	1	1.	0.68	0.63	0.	1.98	0.	1.94	0.98
time (sec)	N/A	0.1	0.107	0.009	0.	0.227	0.	0.247	7.724

Problem 499	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	117	117	76	77	0	201	0	211	116
normalized size	1	1.	0.65	0.66	0.	1.72	0.	1.8	0.99
time (sec)	N/A	0.136	0.125	0.007	0.	0.266	0.	0.241	11.033

Problem 500	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	150	150	95	101	0	234	0	258	150
normalized size	1	1.	0.63	0.67	0.	1.56	0.	1.72	1.
time (sec)	N/A	0.18	0.145	0.008	0.	0.235	0.	0.246	15.092

Problem 501	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	183	183	114	125	0	267	0	305	184
normalized size	1	1.	0.62	0.68	0.	1.46	0.	1.67	1.01
time (sec)	N/A	0.229	0.166	0.009	0.	0.233	0.	0.252	19.699

Problem 502	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	F(-1)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	192	192	139	260	0	1	0	0	189
normalized size	1	1.	0.72	1.35	0.	0.01	0.	0.	0.98
time (sec)	N/A	0.247	0.182	0.027	0.	0.25	0.	0.	22.29

Problem 503	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	F(-1)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	159	159	120	218	0	1	0	0	155
normalized size	1	1.	0.75	1.37	0.	0.01	0.	0.	0.97
time (sec)	N/A	0.187	0.14	0.022	0.	0.238	0.	0.	17.047

Problem 504	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	F(-1)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	126	126	101	176	0	1	245	0	117
normalized size	1	1.	0.8	1.4	0.	0.01	1.94	0.	0.93
time (sec)	N/A	0.143	0.111	0.022	0.	0.24	99.921	0.	12.681

Problem 505	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	F(-1)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	93	93	79	136	0	1	156	0	85
normalized size	1	1.	0.85	1.46	0.	0.01	1.68	0.	0.91
time (sec)	N/A	0.104	0.084	0.017	0.	0.238	20.975	0.	8.872

Problem 506	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	56	56	59	101	0	1	73	4	51
normalized size	1	1.	1.05	1.8	0.	0.02	1.3	0.07	0.91
time (sec)	N/A	0.07	0.054	0.02	0.	0.242	17.087	12.746	6.007

Problem 507	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	50	50	53	73	0	1	44	4	46
normalized size	1	1.	1.06	1.46	0.	0.02	0.88	0.08	0.92
time (sec)	N/A	0.056	0.049	0.023	0.	0.237	19.289	12.743	5.456

Problem 508	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	53	53	35	30	0	41	66	107	49
normalized size	1	1.	0.66	0.57	0.	0.77	1.25	2.02	0.92
time (sec)	N/A	0.067	0.044	0.007	0.	0.242	49.404	0.222	5.319

Problem 509	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	84	84	56	53	0	72	0	154	82
normalized size	1	1.	0.67	0.63	0.	0.86	0.	1.83	0.98
time (sec)	N/A	0.104	0.061	0.006	0.	0.229	0.	0.221	7.761

Problem 510	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	117	117	76	77	0	105	0	201	116
normalized size	1	1.	0.65	0.66	0.	0.9	0.	1.72	0.99
time (sec)	N/A	0.139	0.078	0.007	0.	0.234	0.	0.225	11.125

Problem 511	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	150	150	95	101	0	138	0	248	150
normalized size	1	1.	0.63	0.67	0.	0.92	0.	1.65	1.
time (sec)	N/A	0.178	0.092	0.009	0.	0.223	0.	0.224	15.065

Problem 512	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	183	183	114	125	0	170	0	296	184
normalized size	1	1.	0.62	0.68	0.	0.93	0.	1.62	1.01
time (sec)	N/A	0.225	0.111	0.007	0.	0.235	0.	0.232	19.875

Problem 513	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	216	216	133	149	0	203	0	343	218
normalized size	1	1.	0.62	0.69	0.	0.94	0.	1.59	1.01
time (sec)	N/A	0.267	0.129	0.01	0.	0.233	0.	0.236	26.081

Problem 514	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	200	200	138	330	0	1	0	340	194
normalized size	1	1.	0.69	1.65	0.	0.	0.	1.7	0.97
time (sec)	N/A	0.238	0.235	0.033	0.	0.253	0.	0.275	24.749

Problem 515	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	167	167	119	288	0	1	0	293	160
normalized size	1	1.	0.71	1.72	0.	0.01	0.	1.75	0.96
time (sec)	N/A	0.19	0.191	0.027	0.	0.247	0.	0.263	19.209

Problem 516	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	134	134	96	244	0	1	182	244	126
normalized size	1	1.	0.72	1.82	0.	0.01	1.36	1.82	0.94
time (sec)	N/A	0.149	0.168	0.024	0.	0.242	174.608	0.249	14.465

Problem 517	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	98	98	71	201	0	1	122	194	92
normalized size	1	1.	0.72	2.05	0.	0.01	1.24	1.98	0.94
time (sec)	N/A	0.112	0.114	0.021	0.	0.25	28.406	0.247	10.863

Problem 518	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	60	60	63	121	0	1	68	131	53
normalized size	1	1.	1.05	2.02	0.	0.02	1.13	2.18	0.88
time (sec)	N/A	0.062	0.081	0.025	0.	0.241	37.256	0.235	6.44

Problem 519	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	49	49	33	30	74	41	0	126	46
normalized size	1	1.	0.67	0.61	1.51	0.84	0.	2.57	0.94
time (sec)	N/A	0.065	0.045	0.007	1.344	0.234	0.	0.234	5.249

Problem 520	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	83	83	54	52	0	70	0	200	78
normalized size	1	1.	0.65	0.63	0.	0.84	0.	2.41	0.94
time (sec)	N/A	0.097	0.066	0.007	0.	0.218	0.	0.241	8.098

Problem 521	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	114	114	75	77	0	104	0	236	110
normalized size	1	1.	0.66	0.68	0.	0.91	0.	2.07	0.96
time (sec)	N/A	0.133	0.089	0.008	0.	0.238	0.	0.251	10.878

Problem 522	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	147	147	94	101	0	136	0	304	144
normalized size	1	1.	0.64	0.69	0.	0.93	0.	2.07	0.98
time (sec)	N/A	0.17	0.112	0.01	0.	0.234	0.	0.257	14.928

Problem 523	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	180	180	114	125	0	170	0	328	178
normalized size	1	1.	0.63	0.69	0.	0.94	0.	1.82	0.99
time (sec)	N/A	0.215	0.135	0.008	0.	0.238	0.	0.269	19.536

Problem 524	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	213	213	133	149	0	203	0	406	212
normalized size	1	1.	0.62	0.7	0.	0.95	0.	1.91	1.
time (sec)	N/A	0.264	0.164	0.009	0.	0.235	0.	0.308	24.993

Problem 525	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	200	200	136	406	0	1	0	516	194
normalized size	1	1.	0.68	2.03	0.	0.	0.	2.58	0.97
time (sec)	N/A	0.234	0.189	0.031	0.	0.249	0.	0.306	24.757

Problem 526	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	169	169	115	362	0	1	0	467	162
normalized size	1	1.	0.68	2.14	0.	0.01	0.	2.76	0.96
time (sec)	N/A	0.192	0.187	0.024	0.	0.249	0.	0.287	19.044

Problem 527	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	133	133	93	315	0	1	729	417	126
normalized size	1	1.	0.7	2.37	0.	0.01	5.48	3.14	0.95
time (sec)	N/A	0.152	0.146	0.023	0.	0.242	140.069	0.274	14.819

Problem 528	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	82	82	76	182	0	1	376	300	75
normalized size	1	1.	0.93	2.22	0.	0.01	4.59	3.66	0.91
time (sec)	N/A	0.082	0.188	0.023	0.	0.24	77.847	0.25	9.173

Problem 529	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	65	65	35	30	0	57	0	176	56
normalized size	1	1.	0.54	0.46	0.	0.88	0.	2.71	0.86
time (sec)	N/A	0.07	0.044	0.007	0.	0.222	0.	0.232	6.801

Problem 530	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	81	81	54	53	0	82	0	285	76
normalized size	1	1.	0.67	0.65	0.	1.01	0.	3.52	0.94
time (sec)	N/A	0.097	0.066	0.006	0.	0.234	0.	0.25	8.004

Problem 531	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	113	113	70	76	176	117	0	409	105
normalized size	1	1.	0.62	0.67	1.56	1.04	0.	3.62	0.93
time (sec)	N/A	0.131	0.093	0.007	1.335	0.234	0.	0.28	11.511

Problem 532	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	144	144	94	101	0	157	0	444	139
normalized size	1	1.	0.65	0.7	0.	1.09	0.	3.08	0.97
time (sec)	N/A	0.166	0.12	0.008	0.	0.244	0.	0.297	14.412

Problem 533	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	177	177	114	125	0	190	0	513	173
normalized size	1	1.	0.64	0.71	0.	1.07	0.	2.9	0.98
time (sec)	N/A	0.208	0.152	0.01	0.	0.235	0.	0.314	19.269

Problem 534	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	210	210	127	149	0	223	0	537	207
normalized size	1	1.	0.6	0.71	0.	1.06	0.	2.56	0.99
time (sec)	N/A	0.253	0.175	0.009	0.	0.238	0.	0.338	24.615

Problem 535	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	302	302	264	942	0	1	0	491	301
normalized size	1	1.	0.87	3.12	0.	0.	0.	1.63	1.
time (sec)	N/A	0.595	0.257	0.024	0.	0.3	0.	0.242	50.424

Problem 536	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	237	237	208	686	0	1	0	386	219
normalized size	1	1.	0.88	2.89	0.	0.	0.	1.63	0.92
time (sec)	N/A	0.472	0.195	0.022	0.	0.272	0.	0.234	39.736

Problem 537	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	163	163	145	472	0	1	0	259	141
normalized size	1	1.	0.89	2.9	0.	0.01	0.	1.59	0.87
time (sec)	N/A	0.235	0.119	0.017	0.	0.278	0.	0.231	23.935

Problem 538	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	116	116	110	305	0	1	0	189	97
normalized size	1	1.	0.95	2.63	0.	0.01	0.	1.63	0.84
time (sec)	N/A	0.121	0.069	0.	0.	0.256	0.	0.23	15.534

Problem 539	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	110	110	153	244	0	1	0	246	102
normalized size	1	1.	1.39	2.22	0.	0.01	0.	2.24	0.93
time (sec)	N/A	0.265	0.167	0.016	0.	0.55	0.	0.236	22.755

Problem 540	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	115	115	170	250	0	1	0	4	104
normalized size	1	1.	1.48	2.17	0.	0.01	0.	0.03	0.9
time (sec)	N/A	0.253	0.129	0.017	0.	0.393	0.	0.538	25.954

Problem 541	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	122	122	136	305	0	1	0	0	102
normalized size	1	1.	1.11	2.5	0.	0.01	0.	0.	0.84
time (sec)	N/A	0.209	0.106	0.018	0.	0.311	0.	0.	16.683

Problem 542	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	172	172	184	485	0	1	0	0	150
normalized size	1	1.	1.07	2.82	0.	0.01	0.	0.	0.87
time (sec)	N/A	0.32	0.18	0.021	0.	0.41	0.	0.	25.573

Problem 543	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	256	256	262	705	0	1	0	0	228
normalized size	1	1.	1.02	2.75	0.	0.	0.	0.	0.89
time (sec)	N/A	0.71	0.249	0.023	0.	0.772	0.	0.	96.585

Problem 544	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	345	345	332	967	0	1	0	0	306
normalized size	1	1.	0.96	2.8	0.	0.	0.	0.	0.89
time (sec)	N/A	1.055	0.331	0.029	0.	2.875	0.	0.	171.808

Problem 545	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	315	315	258	942	0	1	0	887	301
normalized size	1	1.	0.82	2.99	0.	0.	0.	2.82	0.96
time (sec)	N/A	0.676	0.243	0.023	0.	0.29	0.	0.283	56.641

Problem 546	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	221	221	194	686	0	1	0	655	199
normalized size	1	1.	0.88	3.1	0.	0.	0.	2.96	0.9
time (sec)	N/A	0.322	0.192	0.02	0.	0.27	0.	0.264	34.853

Problem 547	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	151	151	140	459	0	1	0	458	129
normalized size	1	1.	0.93	3.04	0.	0.01	0.	3.03	0.85
time (sec)	N/A	0.169	0.12	0.	0.	0.256	0.	0.255	22.913

Problem 548	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	165	165	188	388	0	1	0	346	151
normalized size	1	1.	1.14	2.35	0.	0.01	0.	2.1	0.92
time (sec)	N/A	0.461	0.313	0.02	0.	2.058	0.	0.264	40.136

Problem 549	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	144	144	180	347	0	1	0	4	133
normalized size	1	1.	1.25	2.41	0.	0.01	0.	0.03	0.92
time (sec)	N/A	0.416	0.357	0.021	0.	0.919	0.	0.601	47.717

Problem 550	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	170	170	222	401	0	1	0	4	156
normalized size	1	1.	1.31	2.36	0.	0.01	0.	0.02	0.92
time (sec)	N/A	0.417	0.296	0.021	0.	0.944	0.	0.63	66.199

Problem 551	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	163	163	171	485	0	1	0	0	138
normalized size	1	1.	1.05	2.98	0.	0.01	0.	0.	0.85
time (sec)	N/A	0.288	0.183	0.021	0.	0.558	0.	0.	24.924

Problem 552	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	233	233	234	0	0	1	0	0	211
normalized size	1	1.	1.	0.	0.	0.	0.	0.	0.91
time (sec)	N/A	0.421	0.256	180.	0.	0.743	0.	0.	37.181

Problem 553	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	340	340	319	967	0	1	0	0	0
normalized size	1	1.	0.94	2.84	0.	0.	0.	0.	0.
time (sec)	N/A	1.055	0.342	0.03	0.	2.792	0.	0.	0.

Problem 554	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	376	376	320	1240	0	1	0	1	360
normalized size	1	1.	0.85	3.3	0.	0.	0.	0.	0.96
time (sec)	N/A	0.819	0.318	0.032	0.	0.286	0.	0.332	75.121

Problem 555	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	268	268	243	942	0	1	0	1	241
normalized size	1	1.	0.91	3.51	0.	0.	0.	0.	0.9
time (sec)	N/A	0.405	0.238	0.023	0.	0.26	0.	0.289	47.37

Problem 556	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	186	186	181	641	0	1	0	852	167
normalized size	1	1.	0.97	3.45	0.	0.01	0.	4.58	0.9
time (sec)	N/A	0.226	0.161	0.007	0.	0.247	0.	0.28	32.323

Problem 557	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	219	219	232	583	0	1	0	448	199
normalized size	1	1.	1.06	2.66	0.	0.	0.	2.05	0.91
time (sec)	N/A	0.721	0.158	0.02	0.	5.968	0.	0.299	63.057

Problem 558	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	198	198	214	503	0	1	0	4	182
normalized size	1	1.	1.08	2.54	0.	0.01	0.	0.02	0.92
time (sec)	N/A	0.657	0.554	0.023	0.	2.897	0.	0.596	69.755

Problem 559	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	211	211	236	512	0	1	0	4	194
normalized size	1	1.	1.12	2.43	0.	0.	0.	0.02	0.92
time (sec)	N/A	0.664	0.612	0.023	0.	2.326	0.	0.626	88.634

Problem 560	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	227	227	283	601	0	1	0	4	212
normalized size	1	1.	1.25	2.65	0.	0.	0.	0.02	0.93
time (sec)	N/A	0.668	0.541	0.024	0.	2.258	0.	0.675	101.529

Problem 561	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	204	204	216	705	0	1	0	0	178
normalized size	1	1.	1.06	3.46	0.	0.	0.	0.	0.87
time (sec)	N/A	0.399	0.251	0.026	0.	0.716	0.	0.	35.212

Problem 562	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	283	283	291	967	0	1	0	0	257
normalized size	1	1.	1.03	3.42	0.	0.	0.	0.	0.91
time (sec)	N/A	0.538	0.34	0.029	0.	2.81	0.	0.	50.357

Problem 563	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	436	436	384	1271	0	1	0	0	0
normalized size	1	1.	0.88	2.92	0.	0.	0.	0.	0.
time (sec)	N/A	1.469	0.456	0.046	0.	5.655	0.	0.	0.

Problem 564	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	251	251	219	574	0	1	0	393	250
normalized size	1	1.	0.87	2.29	0.	0.	0.	1.57	1.
time (sec)	N/A	0.446	0.208	0.034	0.	0.28	0.	0.26	36.363

Problem 565	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	160	395	0	1	0	289	178
normalized size	1	1.	0.84	2.07	0.	0.01	0.	1.51	0.93
time (sec)	N/A	0.399	0.131	0.031	0.	0.252	0.	0.243	26.765

Problem 566	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	125	125	115	250	0	1	0	193	109
normalized size	1	1.	0.92	2.	0.	0.01	0.	1.54	0.87
time (sec)	N/A	0.166	0.089	0.021	0.	0.242	0.	0.233	15.552

Problem 567	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	73	73	88	107	0	1	0	131	63
normalized size	1	1.	1.21	1.47	0.	0.01	0.	1.79	0.86
time (sec)	N/A	0.08	0.076	0.006	0.	0.231	0.	0.23	9.388

Problem 568	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	85	85	124	133	0	1	0	197	80
normalized size	1	1.	1.46	1.56	0.	0.01	0.	2.32	0.94
time (sec)	N/A	0.161	0.084	0.028	0.	0.331	0.	0.232	14.26

Problem 569	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	77	77	117	147	0	1	0	0	65
normalized size	1	1.	1.52	1.91	0.	0.01	0.	0.	0.84
time (sec)	N/A	0.13	0.091	0.029	0.	0.269	0.	0.	10.197

Problem 570	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	131	131	159	258	0	1	0	0	114
normalized size	1	1.	1.21	1.97	0.	0.01	0.	0.	0.87
time (sec)	N/A	0.223	0.192	0.031	0.	0.293	0.	0.	17.034

Problem 571	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	190	190	211	408	0	1	0	0	175
normalized size	1	1.	1.11	2.15	0.	0.01	0.	0.	0.92
time (sec)	N/A	0.498	0.185	0.036	0.	0.418	0.	0.	59.52

Problem 572	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	279	279	285	593	0	1	0	0	269
normalized size	1	1.	1.02	2.13	0.	0.	0.	0.	0.96
time (sec)	N/A	0.778	0.254	0.04	0.	0.74	0.	0.	129.182

Problem 573	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	189	189	139	456	0	1	0	346	173
normalized size	1	1.	0.74	2.41	0.	0.01	0.	1.83	0.92
time (sec)	N/A	0.443	0.123	0.043	0.	0.368	0.	0.257	33.218

Problem 574	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	127	127	95	264	0	1	0	255	110
normalized size	1	1.	0.75	2.08	0.	0.01	0.	2.01	0.87
time (sec)	N/A	0.178	0.134	0.029	0.	0.305	0.	0.237	18.668

Problem 575	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	66	66	78	0	0	1	0	130	60
normalized size	1	1.	1.18	0.	0.	0.02	0.	1.97	0.91
time (sec)	N/A	0.072	0.057	0.	0.	0.284	0.	0.238	10.624

Problem 576	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	66	66	93	143	0	1	0	176	60
normalized size	1	1.	1.41	2.17	0.	0.02	0.	2.67	0.91
time (sec)	N/A	0.119	0.121	0.035	0.	0.283	0.	0.236	9.966

Problem 577	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	113	113	119	267	0	1	0	0	114
normalized size	1	1.	1.05	2.36	0.	0.01	0.	0.	1.01
time (sec)	N/A	0.216	0.242	0.038	0.	0.304	0.	0.	18.976

Problem 578	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	171	171	173	467	0	1	0	0	155
normalized size	1	1.	1.01	2.73	0.	0.01	0.	0.	0.91
time (sec)	N/A	0.517	0.209	0.045	0.	0.383	0.	0.	73.024

Problem 579	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	218	218	164	986	0	1	0	549	212
normalized size	1	1.	0.75	4.52	0.	0.	0.	2.52	0.97
time (sec)	N/A	0.525	0.356	0.043	0.	0.677	0.	0.275	42.13

Problem 580	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	165	165	134	659	0	1	0	382	146
normalized size	1	1.	0.81	3.99	0.	0.01	0.	2.32	0.88
time (sec)	N/A	0.411	0.282	0.03	0.	0.481	0.	0.254	28.262

Problem 581	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	102	102	114	442	0	1	0	317	92
normalized size	1	1.	1.12	4.33	0.	0.01	0.	3.11	0.9
time (sec)	N/A	0.146	0.159	0.028	0.	0.365	0.	0.256	13.827

Problem 582	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	32	32	32	27	0	88	0	90	27
normalized size	1	1.	1.	0.84	0.	2.75	0.	2.81	0.84
time (sec)	N/A	0.022	0.037	0.	0.	0.246	0.	0.236	3.516

Problem 583	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	102	102	129	430	0	1	0	355	92
normalized size	1	1.	1.26	4.22	0.	0.01	0.	3.48	0.9
time (sec)	N/A	0.196	0.368	0.036	0.	0.356	0.	0.26	14.833

Problem 584	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	148	148	158	653	0	1	0	0	133
normalized size	1	1.	1.07	4.41	0.	0.01	0.	0.	0.9
time (sec)	N/A	0.498	0.528	0.041	0.	0.447	0.	0.	58.888

Problem 585	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	234	234	206	988	0	1	0	0	214
normalized size	1	1.	0.88	4.22	0.	0.	0.	0.	0.91
time (sec)	N/A	0.783	0.858	0.046	0.	0.799	0.	0.	114.79

Problem 586	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	315	315	254	942	0	1	0	886	301
normalized size	1	1.	0.81	2.99	0.	0.	0.	2.81	0.96
time (sec)	N/A	0.679	0.225	0.023	0.	0.259	0.	0.284	56.369

Problem 587	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	221	221	194	686	0	1	0	653	201
normalized size	1	1.	0.88	3.1	0.	0.	0.	2.95	0.91
time (sec)	N/A	0.328	0.191	0.02	0.	0.247	0.	0.257	34.739

Problem 588	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	154	154	141	460	0	1	0	456	129
normalized size	1	1.	0.92	2.99	0.	0.01	0.	2.96	0.84
time (sec)	N/A	0.182	0.119	0.007	0.	0.234	0.	0.25	23.052

Problem 589	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	164	164	188	389	0	1	0	336	151
normalized size	1	1.	1.15	2.37	0.	0.01	0.	2.05	0.92
time (sec)	N/A	0.458	0.298	0.017	0.	1.981	0.	0.261	40.956

Problem 590	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	144	144	180	347	0	1	0	4	133
normalized size	1	1.	1.25	2.41	0.	0.01	0.	0.03	0.92
time (sec)	N/A	0.413	0.392	0.022	0.	0.85	0.	0.602	48.304

Problem 591	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	171	171	220	400	0	1	0	4	156
normalized size	1	1.	1.29	2.34	0.	0.01	0.	0.02	0.91
time (sec)	N/A	0.42	0.295	0.022	0.	0.885	0.	0.655	65.741

Problem 592	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	160	160	173	485	0	1	0	0	138
normalized size	1	1.	1.08	3.03	0.	0.01	0.	0.	0.86
time (sec)	N/A	0.281	0.174	0.021	0.	0.506	0.	0.	25.289

Problem 593	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	233	233	234	705	0	1	0	0	212
normalized size	1	1.	1.	3.03	0.	0.	0.	0.	0.91
time (sec)	N/A	0.409	0.254	0.025	0.	0.715	0.	0.	37.178

Problem 594	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	340	340	315	967	0	1	0	0	0
normalized size	1	1.	0.93	2.84	0.	0.	0.	0.	0.
time (sec)	N/A	1.044	0.349	0.028	0.	2.743	0.	0.	0.

Problem 595	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	349	349	319	1240	0	1	0	1	325
normalized size	1	1.	0.91	3.55	0.	0.	0.	0.	0.93
time (sec)	N/A	0.723	0.294	0.027	0.	0.288	0.	0.337	71.601

Problem 596	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	258	258	240	942	0	1	0	1	230
normalized size	1	1.	0.93	3.65	0.	0.	0.	0.	0.89
time (sec)	N/A	0.393	0.237	0.02	0.	0.275	0.	0.304	47.424

Problem 597	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	189	189	180	640	0	1	0	1	167
normalized size	1	1.	0.95	3.39	0.	0.01	0.	0.01	0.88
time (sec)	N/A	0.235	0.187	0.007	0.	0.242	0.	0.296	33.012

Problem 598	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	213	213	236	587	0	1	0	447	199
normalized size	1	1.	1.11	2.76	0.	0.	0.	2.1	0.93
time (sec)	N/A	0.67	0.418	0.021	0.	6.462	0.	0.306	65.337

Problem 599	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	212	489	0	1	0	4	182
normalized size	1	1.	1.11	2.56	0.	0.01	0.	0.02	0.95
time (sec)	N/A	0.622	0.129	0.023	0.	1.659	0.	0.601	83.303

Problem 600	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	209	209	224	497	0	1	0	4	196
normalized size	1	1.	1.07	2.38	0.	0.	0.	0.02	0.94
time (sec)	N/A	0.628	0.595	0.023	0.	1.283	0.	0.625	93.812

Problem 601	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	222	222	278	605	0	1	0	4	207
normalized size	1	1.	1.25	2.73	0.	0.	0.	0.02	0.93
time (sec)	N/A	0.655	0.55	0.023	0.	2.442	0.	0.656	94.41

Problem 602	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	201	201	215	705	0	1	0	0	180
normalized size	1	1.	1.07	3.51	0.	0.	0.	0.	0.9
time (sec)	N/A	0.379	0.26	0.025	0.	1.276	0.	0.	36.064

Problem 603	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	273	273	284	967	0	1	0	0	245
normalized size	1	1.	1.04	3.54	0.	0.	0.	0.	0.9
time (sec)	N/A	0.523	0.337	0.028	0.	2.736	0.	0.	50.399

Problem 604	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	437	437	395	1580	0	1	0	1	420
normalized size	1	1.	0.9	3.62	0.	0.	0.	0.	0.96
time (sec)	N/A	0.966	0.375	0.037	0.	0.321	0.	0.427	96.478

Problem 605	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	315	315	306	1240	0	1	0	1	286
normalized size	1	1.	0.97	3.94	0.	0.	0.	0.	0.91
time (sec)	N/A	0.511	0.298	0.026	0.	0.286	0.	0.374	63.011

Problem 606	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	224	224	233	848	0	1	0	1	202
normalized size	1	1.	1.04	3.79	0.	0.	0.	0.	0.9
time (sec)	N/A	0.3	0.235	0.009	0.	0.256	0.	0.352	45.068

Problem 607	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	304	304	291	828	0	1	0	576	284
normalized size	1	1.	0.96	2.72	0.	0.	0.	1.89	0.93
time (sec)	N/A	0.968	0.238	0.025	0.	17.505	0.	0.371	101.

Problem 608	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	257	257	269	696	0	1	0	4	243
normalized size	1	1.	1.05	2.71	0.	0.	0.	0.02	0.95
time (sec)	N/A	0.91	0.246	0.025	0.	6.75	0.	0.651	124.949

Problem 609	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	258	258	263	650	0	1	0	4	245
normalized size	1	1.	1.02	2.52	0.	0.	0.	0.02	0.95
time (sec)	N/A	0.878	0.221	0.024	0.	3.148	0.	0.688	123.838

Problem 610	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	292	292	297	706	0	1	0	4	280
normalized size	1	1.	1.02	2.42	0.	0.	0.	0.01	0.96
time (sec)	N/A	1.008	0.26	0.024	0.	3.572	0.	0.752	165.765

Problem 611	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	316	316	353	852	0	1	0	4	0
normalized size	1	1.	1.12	2.7	0.	0.	0.	0.01	0.
time (sec)	N/A	0.98	0.32	0.029	0.	6.308	0.	0.703	0.

Problem 612	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	242	242	270	967	0	1	0	0	219
normalized size	1	1.	1.12	4.	0.	0.	0.	0.	0.9
time (sec)	N/A	0.502	0.346	0.029	0.	2.827	0.	0.	49.344

Problem 613	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	333	333	356	1271	0	1	0	0	304
normalized size	1	1.	1.07	3.82	0.	0.	0.	0.	0.91
time (sec)	N/A	0.659	0.456	0.036	0.	5.815	0.	0.	66.543

Problem 614	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	254	254	208	574	0	1	0	393	241
normalized size	1	1.	0.82	2.26	0.	0.	0.	1.55	0.95
time (sec)	N/A	0.537	0.217	0.032	0.	0.283	0.	0.253	40.35

Problem 615	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	171	171	149	395	0	1	0	288	150
normalized size	1	1.	0.87	2.31	0.	0.01	0.	1.68	0.88
time (sec)	N/A	0.248	0.135	0.027	0.	0.267	0.	0.232	23.55

Problem 616	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	113	113	107	308	0	1	0	188	100
normalized size	1	1.	0.95	2.73	0.	0.01	0.	1.66	0.88
time (sec)	N/A	0.131	0.075	0.007	0.	0.252	0.	0.228	14.818

Problem 617	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	116	116	159	220	0	1	0	267	107
normalized size	1	1.	1.37	1.9	0.	0.01	0.	2.3	0.92
time (sec)	N/A	0.295	0.302	0.027	0.	0.865	0.	0.235	26.974

Problem 618	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	121	121	172	223	0	1	0	4	109
normalized size	1	1.	1.42	1.84	0.	0.01	0.	0.03	0.9
time (sec)	N/A	0.286	0.229	0.03	0.	0.725	0.	0.549	27.739

Problem 619	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	119	119	139	255	0	1	0	0	105
normalized size	1	1.	1.17	2.14	0.	0.01	0.	0.	0.88
time (sec)	N/A	0.199	0.123	0.032	0.	0.301	0.	0.	16.363

Problem 620	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	180	180	189	408	0	1	0	0	158
normalized size	1	1.	1.05	2.27	0.	0.01	0.	0.	0.88
time (sec)	N/A	0.312	0.194	0.035	0.	0.424	0.	0.	25.557

Problem 621	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	266	266	262	593	0	1	0	0	255
normalized size	1	1.	0.98	2.23	0.	0.	0.	0.	0.96
time (sec)	N/A	0.747	0.263	0.039	0.	0.778	0.	0.	101.455

Problem 622	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	248	248	189	692	0	1	0	428	228
normalized size	1	1.	0.76	2.79	0.	0.	0.	1.73	0.92
time (sec)	N/A	0.597	0.194	0.038	0.	0.598	0.	0.259	44.19

Problem 623	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	174	174	132	455	0	1	0	320	155
normalized size	1	1.	0.76	2.61	0.	0.01	0.	1.84	0.89
time (sec)	N/A	0.247	0.141	0.03	0.	0.389	0.	0.243	26.012

Problem 624	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	98	98	101	0	0	1	0	207	90
normalized size	1	1.	1.03	0.	0.	0.01	0.	2.11	0.92
time (sec)	N/A	0.117	0.228	0.	0.	0.307	0.	0.239	13.767

Problem 625	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	119	119	158	306	0	1	0	277	109
normalized size	1	1.	1.33	2.57	0.	0.01	0.	2.33	0.92
time (sec)	N/A	0.269	0.306	0.033	0.	0.725	0.	0.261	28.843

Problem 626	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	108	108	128	298	0	1	0	0	94
normalized size	1	1.	1.19	2.76	0.	0.01	0.	0.	0.87
time (sec)	N/A	0.193	0.399	0.036	0.	0.321	0.	0.	14.905

Problem 627	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	175	175	165	464	0	1	0	0	163
normalized size	1	1.	0.94	2.65	0.	0.01	0.	0.	0.93
time (sec)	N/A	0.31	0.213	0.038	0.	0.42	0.	0.	27.181

Problem 628	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	240	240	234	707	0	1	0	0	223
normalized size	1	1.	0.98	2.95	0.	0.	0.	0.	0.93
time (sec)	N/A	0.785	0.316	0.046	0.	0.711	0.	0.	118.695

Problem 629	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	267	267	162	676	0	1	0	531	253
normalized size	1	1.	0.61	2.53	0.	0.	0.	1.99	0.95
time (sec)	N/A	0.657	0.213	0.037	0.	0.71	0.	0.275	50.842

Problem 630	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	174	174	126	459	0	1	0	386	158
normalized size	1	1.	0.72	2.64	0.	0.01	0.	2.22	0.91
time (sec)	N/A	0.235	0.292	0.03	0.	0.496	0.	0.252	25.685

Problem 631	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	92	92	93	0	0	1	0	296	85
normalized size	1	1.	1.01	0.	0.	0.01	0.	3.22	0.92
time (sec)	N/A	0.102	0.16	0.	0.	0.366	0.	0.266	13.747

Problem 632	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	92	92	109	248	0	1	0	379	85
normalized size	1	1.	1.18	2.7	0.	0.01	0.	4.12	0.92
time (sec)	N/A	0.17	0.242	0.036	0.	0.369	0.	0.268	14.618

Problem 633	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	149	149	151	459	0	1	0	0	151
normalized size	1	1.	1.01	3.08	0.	0.01	0.	0.	1.01
time (sec)	N/A	0.283	0.473	0.042	0.	0.463	0.	0.	25.662

Problem 634	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	204	204	201	679	0	1	0	0	194
normalized size	1	1.	0.99	3.33	0.	0.	0.	0.	0.95
time (sec)	N/A	0.798	0.327	0.047	0.	0.802	0.	0.	106.523

Problem 635	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	376	376	319	1240	0	1	0	1	360
normalized size	1	1.	0.85	3.3	0.	0.	0.	0.	0.96
time (sec)	N/A	0.834	0.291	0.027	0.	0.29	0.	0.314	74.976

Problem 636	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	268	268	242	942	0	1	0	1	245
normalized size	1	1.	0.9	3.51	0.	0.	0.	0.	0.91
time (sec)	N/A	0.425	0.242	0.021	0.	0.259	0.	0.301	47.373

Problem 637	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	192	192	180	645	0	1	0	842	167
normalized size	1	1.	0.94	3.36	0.	0.01	0.	4.39	0.87
time (sec)	N/A	0.249	0.162	0.	0.	0.25	0.	0.295	32.832

Problem 638	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	218	218	233	583	0	1	0	443	199
normalized size	1	1.	1.07	2.67	0.	0.	0.	2.03	0.91
time (sec)	N/A	0.76	0.146	0.02	0.	5.929	0.	0.302	63.435

Problem 639	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	197	197	214	504	0	1	0	4	182
normalized size	1	1.	1.09	2.56	0.	0.01	0.	0.02	0.92
time (sec)	N/A	0.658	0.567	0.022	0.	2.819	0.	0.645	70.605

Problem 640	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	212	212	236	511	0	1	0	4	194
normalized size	1	1.	1.11	2.41	0.	0.	0.	0.02	0.92
time (sec)	N/A	0.655	0.636	0.022	0.	2.275	0.	0.733	88.912

Problem 641	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	228	228	283	601	0	1	0	4	212
normalized size	1	1.	1.24	2.64	0.	0.	0.	0.02	0.93
time (sec)	N/A	0.658	0.518	0.025	0.	2.51	0.	0.687	101.337

Problem 642	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	198	198	215	705	0	1	0	0	180
normalized size	1	1.	1.09	3.56	0.	0.01	0.	0.	0.91
time (sec)	N/A	0.372	0.257	0.024	0.	0.711	0.	0.	35.941

Problem 643	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	283	283	288	967	0	1	0	0	260
normalized size	1	1.	1.02	3.42	0.	0.	0.	0.	0.92
time (sec)	N/A	0.511	0.34	0.029	0.	2.757	0.	0.	50.402

Problem 644	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	437	437	393	1580	0	1	0	1	420
normalized size	1	1.	0.9	3.62	0.	0.	0.	0.	0.96
time (sec)	N/A	0.982	0.404	0.03	0.	0.325	0.	0.412	95.472

Problem 645	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	315	315	305	1240	0	1	0	1	287
normalized size	1	1.	0.97	3.94	0.	0.	0.	0.	0.91
time (sec)	N/A	0.512	0.31	0.025	0.	0.287	0.	0.37	62.803

Problem 646	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	227	227	233	853	0	1	0	1	197
normalized size	1	1.	1.03	3.76	0.	0.	0.	0.	0.87
time (sec)	N/A	0.316	0.225	0.008	0.	0.272	0.	0.367	44.973

Problem 647	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	299	294	290	828	0	1	0	574	298
normalized size	1	0.98	0.97	2.77	0.	0.	0.	1.92	1.
time (sec)	N/A	1.111	0.211	0.023	0.	17.313	0.	0.358	98.301

Problem 648	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	259	259	265	696	0	1	0	4	241
normalized size	1	1.	1.02	2.69	0.	0.	0.	0.02	0.93
time (sec)	N/A	0.916	0.251	0.024	0.	7.033	0.	0.655	121.802

Problem 649	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	275	275	259	650	0	1	0	4	245
normalized size	1	1.	0.94	2.36	0.	0.	0.	0.01	0.89
time (sec)	N/A	0.906	0.215	0.026	0.	2.947	0.	0.707	140.032

Problem 650	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	294	294	293	706	0	1	0	4	279
normalized size	1	1.	1.	2.4	0.	0.	0.	0.01	0.95
time (sec)	N/A	0.984	0.254	0.026	0.	3.572	0.	0.747	151.013

Problem 651	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	313	313	352	852	0	1	0	4	0
normalized size	1	1.	1.12	2.72	0.	0.	0.	0.01	0.
time (sec)	N/A	1.022	0.37	0.027	0.	6.595	0.	0.694	0.

Problem 652	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	239	239	270	967	0	1	0	0	216
normalized size	1	1.	1.13	4.05	0.	0.	0.	0.	0.9
time (sec)	N/A	0.476	0.364	0.029	0.	2.737	0.	0.	50.013

Problem 653	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	348	348	376	1580	0	1	0	1	311
normalized size	1	1.	1.08	4.54	0.	0.	0.	0.	0.89
time (sec)	N/A	0.609	0.461	0.028	0.	0.342	0.	0.482	80.526

Problem 654	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	262	262	300	1089	0	1	0	1	233
normalized size	1	1.	1.15	4.16	0.	0.	0.	0.	0.89
time (sec)	N/A	0.393	0.356	0.007	0.	0.283	0.	0.437	59.62

Problem 655	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	391	391	357	1116	0	1	0	722	374
normalized size	1	1.	0.91	2.85	0.	0.	0.	1.85	0.96
time (sec)	N/A	1.32	0.33	0.026	0.	58.924	0.	0.444	140.587

Problem 656	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	334	334	318	950	0	1	0	4	318
normalized size	1	1.	0.95	2.84	0.	0.	0.	0.01	0.95
time (sec)	N/A	1.22	0.325	0.028	0.	17.633	0.	0.739	173.006

Problem 657	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	319	319	309	850	0	1	0	4	0
normalized size	1	1.	0.97	2.66	0.	0.	0.	0.01	0.
time (sec)	N/A	1.212	0.269	0.025	0.	9.018	0.	0.758	0.

Problem 658	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	339	339	321	848	0	1	0	4	330
normalized size	1	1.	0.95	2.5	0.	0.	0.	0.01	0.97
time (sec)	N/A	1.271	0.267	0.027	0.	4.928	0.	0.83	175.863

Problem 659	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	380	380	364	962	0	1	0	4	0
normalized size	1	1.	0.96	2.53	0.	0.	0.	0.01	0.
time (sec)	N/A	1.349	0.346	0.029	0.	7.982	0.	0.784	0.

Problem 660	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	406	406	437	1146	0	1	0	4	0
normalized size	1	1.	1.08	2.82	0.	0.	0.	0.01	0.
time (sec)	N/A	1.295	0.34	0.03	0.	18.394	0.	0.816	0.

Problem 661	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	280	280	337	1271	0	1	0	0	258
normalized size	1	1.	1.2	4.54	0.	0.	0.	0.	0.92
time (sec)	N/A	0.613	0.46	0.036	0.	12.16	0.	0.	65.336

Problem 662	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	314	314	256	788	0	1	0	516	301
normalized size	1	1.	0.82	2.51	0.	0.	0.	1.64	0.96
time (sec)	N/A	0.67	0.262	0.036	0.	0.298	0.	0.263	55.568

Problem 663	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	217	217	188	574	0	1	0	392	196
normalized size	1	1.	0.87	2.65	0.	0.	0.	1.81	0.9
time (sec)	N/A	0.331	0.194	0.029	0.	0.277	0.	0.251	33.74

Problem 664	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	148	148	138	465	0	1	0	267	133
normalized size	1	1.	0.93	3.14	0.	0.01	0.	1.8	0.9
time (sec)	N/A	0.184	0.126	0.007	0.	0.254	0.	0.237	22.078

Problem 665	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	171	171	190	342	0	1	0	335	162
normalized size	1	1.	1.11	2.	0.	0.01	0.	1.96	0.95
time (sec)	N/A	0.498	0.661	0.029	0.	2.722	0.	0.249	44.559

Problem 666	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	162	162	192	320	0	1	0	4	144
normalized size	1	1.	1.19	1.98	0.	0.01	0.	0.02	0.89
time (sec)	N/A	0.505	0.46	0.029	0.	2.014	0.	0.603	50.085

Problem 667	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	177	177	216	354	0	1	0	4	167
normalized size	1	1.	1.22	2.	0.	0.01	0.	0.02	0.94
time (sec)	N/A	0.452	0.998	0.033	0.	1.929	0.	0.591	45.061

Problem 668	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	157	157	173	405	0	1	0	0	141
normalized size	1	1.	1.1	2.58	0.	0.01	0.	0.	0.9
time (sec)	N/A	0.278	0.194	0.034	0.	0.52	0.	0.	24.853

Problem 669	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	229	229	231	593	0	1	0	0	207
normalized size	1	1.	1.01	2.59	0.	0.	0.	0.	0.9
time (sec)	N/A	0.406	0.284	0.04	0.	0.88	0.	0.	36.683

Problem 670	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	309	309	242	961	0	1	0	568	289
normalized size	1	1.	0.78	3.11	0.	0.	0.	1.84	0.94
time (sec)	N/A	0.752	0.27	0.04	0.	1.082	0.	0.274	59.97

Problem 671	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	218	218	176	689	0	1	0	452	196
normalized size	1	1.	0.81	3.16	0.	0.	0.	2.07	0.9
time (sec)	N/A	0.338	0.22	0.037	0.	0.665	0.	0.25	36.233

Problem 672	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	138	138	138	0	0	1	0	302	128
normalized size	1	1.	1.	0.	0.	0.01	0.	2.19	0.93
time (sec)	N/A	0.171	0.164	0.	0.	0.488	0.	0.241	20.957

Problem 673	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	163	163	188	492	0	1	0	392	151
normalized size	1	1.	1.15	3.02	0.	0.01	0.	2.4	0.93
time (sec)	N/A	0.495	0.599	0.036	0.	2.429	0.	0.284	49.053

Problem 674	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	164	164	203	502	0	1	0	4	150
normalized size	1	1.	1.24	3.06	0.	0.01	0.	0.02	0.91
time (sec)	N/A	0.514	0.759	0.037	0.	1.819	0.	1.331	48.115

Problem 675	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	154	154	158	507	0	1	0	0	136
normalized size	1	1.	1.03	3.29	0.	0.01	0.	0.	0.88
time (sec)	N/A	0.268	0.307	0.042	0.	0.438	0.	0.	23.041

Problem 676	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	226	226	214	704	0	1	0	0	207
normalized size	1	1.	0.95	3.12	0.	0.	0.	0.	0.92
time (sec)	N/A	0.408	0.341	0.045	0.	0.799	0.	0.	38.152

Problem 677	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	317	317	292	982	0	1	0	0	303
normalized size	1	1.	0.92	3.1	0.	0.	0.	0.	0.96
time (sec)	N/A	1.14	0.419	0.052	0.	2.122	0.	0.	158.916

Problem 678	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	377	377	288	1366	0	1	0	926	326
normalized size	1	1.	0.76	3.62	0.	0.	0.	2.46	0.86
time (sec)	N/A	0.972	0.47	0.048	0.	2.625	0.	0.299	80.612

Problem 679	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	319	319	220	1002	0	1	0	694	306
normalized size	1	1.	0.69	3.14	0.	0.	0.	2.18	0.96
time (sec)	N/A	0.815	0.325	0.043	0.	1.348	0.	0.275	64.458

Problem 680	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	222	222	175	750	0	1	0	545	207
normalized size	1	1.	0.79	3.38	0.	0.	0.	2.45	0.93
time (sec)	N/A	0.322	0.264	0.034	0.	0.701	0.	0.261	35.026

Problem 681	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	128	128	136	0	0	1	0	373	119
normalized size	1	1.	1.06	0.	0.	0.01	0.	2.91	0.93
time (sec)	N/A	0.16	0.177	0.	0.	0.503	0.	0.253	19.238

Problem 682	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	157	157	183	566	0	1	0	494	144
normalized size	1	1.	1.17	3.61	0.	0.01	0.	3.15	0.92
time (sec)	N/A	0.442	0.67	0.036	0.	1.755	0.	0.304	46.695

Problem 683	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	142	142	164	502	0	1	0	0	124
normalized size	1	1.	1.15	3.54	0.	0.01	0.	0.	0.87
time (sec)	N/A	0.264	0.467	0.039	0.	0.49	0.	0.	20.842

Problem 684	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	220	220	211	758	0	1	0	0	207
normalized size	1	1.	0.96	3.45	0.	0.	0.	0.	0.94
time (sec)	N/A	0.413	0.358	0.046	0.	0.893	0.	0.	34.661

Problem 685	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	278	278	269	1009	0	1	0	0	265
normalized size	1	1.	0.97	3.63	0.	0.	0.	0.	0.95
time (sec)	N/A	1.146	0.457	0.05	0.	1.909	0.	0.	160.731

Problem 686	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	388	388	351	1377	0	1	0	0	0
normalized size	1	1.	0.9	3.55	0.	0.	0.	0.	0.
time (sec)	N/A	1.586	0.604	0.053	0.	6.126	0.	0.	0.

Problem 687	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	161	395	0	1	0	279	178
normalized size	1	1.	0.84	2.07	0.	0.01	0.	1.46	0.93
time (sec)	N/A	0.41	0.132	0.032	0.	0.26	0.	0.249	27.008

Problem 688	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	125	125	115	251	0	1	0	190	109
normalized size	1	1.	0.92	2.01	0.	0.01	0.	1.52	0.87
time (sec)	N/A	0.171	0.092	0.023	0.	0.249	0.	0.231	15.717

Problem 689	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	72	72	88	107	0	1	0	126	63
normalized size	1	1.	1.22	1.49	0.	0.01	0.	1.75	0.88
time (sec)	N/A	0.08	0.075	0.005	0.	0.236	0.	0.228	9.448

Problem 690	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	85	85	124	133	0	1	0	184	80
normalized size	1	1.	1.46	1.56	0.	0.01	0.	2.16	0.94
time (sec)	N/A	0.156	0.084	0.027	0.	0.346	0.	0.238	14.327

Problem 691	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	76	76	117	147	0	1	0	0	66
normalized size	1	1.	1.54	1.93	0.	0.01	0.	0.	0.87
time (sec)	N/A	0.133	0.093	0.028	0.	0.278	0.	0.	10.232

Problem 692	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	131	131	159	257	0	1	0	0	114
normalized size	1	1.	1.21	1.96	0.	0.01	0.	0.	0.87
time (sec)	N/A	0.227	0.194	0.033	0.	0.332	0.	0.	16.813

Problem 693	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	213	408	0	1	0	0	175
normalized size	1	1.	1.12	2.14	0.	0.01	0.	0.	0.92
time (sec)	N/A	0.507	0.188	0.036	0.	0.435	0.	0.	56.402

Problem 694	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	254	254	208	574	0	1	0	676	241
normalized size	1	1.	0.82	2.26	0.	0.	0.	2.66	0.95
time (sec)	N/A	0.536	0.215	0.03	0.	0.301	0.	0.276	40.393

Problem 695	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	171	171	149	395	0	1	0	479	150
normalized size	1	1.	0.87	2.31	0.	0.01	0.	2.8	0.88
time (sec)	N/A	0.24	0.13	0.029	0.	0.259	0.	0.254	23.834

Problem 696	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	113	113	107	308	0	1	0	327	100
normalized size	1	1.	0.95	2.73	0.	0.01	0.	2.89	0.88
time (sec)	N/A	0.12	0.07	0.007	0.	0.261	0.	0.249	14.879

Problem 697	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	116	116	159	219	0	1	0	259	107
normalized size	1	1.	1.37	1.89	0.	0.01	0.	2.23	0.92
time (sec)	N/A	0.295	0.214	0.029	0.	0.874	0.	0.268	27.254

Problem 698	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	119	119	172	223	0	1	0	4	109
normalized size	1	1.	1.45	1.87	0.	0.01	0.	0.03	0.92
time (sec)	N/A	0.287	0.45	0.03	0.	0.693	0.	0.605	28.077

Problem 699	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	119	119	139	255	0	1	0	0	107
normalized size	1	1.	1.17	2.14	0.	0.01	0.	0.	0.9
time (sec)	N/A	0.213	0.132	0.033	0.	0.296	0.	0.	16.314

Problem 700	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	180	180	189	408	0	1	0	0	158
normalized size	1	1.	1.05	2.27	0.	0.01	0.	0.	0.88
time (sec)	N/A	0.323	0.187	0.036	0.	0.439	0.	0.	25.473

Problem 701	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	266	266	263	593	0	1	0	0	255
normalized size	1	1.	0.99	2.23	0.	0.	0.	0.	0.96
time (sec)	N/A	0.747	0.275	0.04	0.	0.756	0.	0.	109.864

Problem 702	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	314	314	257	788	0	1	0	1	301
normalized size	1	1.	0.82	2.51	0.	0.	0.	0.	0.96
time (sec)	N/A	0.661	0.263	0.036	0.	0.307	0.	0.312	55.806

Problem 703	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	217	217	190	574	0	1	0	875	196
normalized size	1	1.	0.88	2.65	0.	0.	0.	4.03	0.9
time (sec)	N/A	0.31	0.19	0.029	0.	0.279	0.	0.293	33.813

Problem 704	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	148	148	137	465	0	1	0	614	133
normalized size	1	1.	0.93	3.14	0.	0.01	0.	4.15	0.9
time (sec)	N/A	0.166	0.133	0.007	0.	0.258	0.	0.275	22.119

Problem 705	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	171	171	190	342	0	1	0	343	162
normalized size	1	1.	1.11	2.	0.	0.01	0.	2.01	0.95
time (sec)	N/A	0.483	0.743	0.03	0.	2.756	0.	0.283	45.209

Problem 706	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	160	160	192	320	0	1	0	4	144
normalized size	1	1.	1.2	2.	0.	0.01	0.	0.02	0.9
time (sec)	N/A	0.511	0.445	0.029	0.	1.996	0.	0.626	51.506

Problem 707	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	177	177	216	354	0	1	0	4	167
normalized size	1	1.	1.22	2.	0.	0.01	0.	0.02	0.94
time (sec)	N/A	0.449	0.85	0.033	0.	1.695	0.	0.646	45.271

Problem 708	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	157	157	171	405	0	1	0	0	143
normalized size	1	1.	1.09	2.58	0.	0.01	0.	0.	0.91
time (sec)	N/A	0.308	0.202	0.036	0.	0.421	0.	0.	24.108

Problem 709	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	229	229	233	593	0	1	0	0	207
normalized size	1	1.	1.02	2.59	0.	0.	0.	0.	0.9
time (sec)	N/A	0.428	0.274	0.04	0.	0.786	0.	0.	36.27

Problem 710	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	346	346	319	813	0	1	0	0	338
normalized size	1	1.	0.92	2.35	0.	0.	0.	0.	0.98
time (sec)	N/A	1.187	0.378	0.045	0.	2.861	0.	0.	143.114

Problem 711	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	118	118	59	108	113	284	0	80	97
normalized size	1	1.	0.5	0.92	0.96	2.41	0.	0.68	0.82
time (sec)	N/A	0.157	0.06	0.021	1.497	0.214	0.	0.235	12.989

Problem 712	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	110	110	54	94	95	257	366	70	87
normalized size	1	1.	0.49	0.85	0.86	2.34	3.33	0.64	0.79
time (sec)	N/A	0.12	0.05	0.012	1.515	0.213	138.577	0.239	10.587

Problem 713	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	88	88	49	80	76	211	240	62	71
normalized size	1	1.	0.56	0.91	0.86	2.4	2.73	0.7	0.81
time (sec)	N/A	0.093	0.04	0.013	1.527	0.214	84.421	0.232	8.294

Problem 714	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	61	61	40	66	54	177	129	50	46
normalized size	1	1.	0.66	1.08	0.89	2.9	2.11	0.82	0.75
time (sec)	N/A	0.058	0.027	0.012	1.505	0.218	50.372	0.224	6.034

Problem 715	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	47	47	35	57	38	140	136	42	37
normalized size	1	1.	0.74	1.21	0.81	2.98	2.89	0.89	0.79
time (sec)	N/A	0.037	0.019	0.004	1.487	0.216	12.157	0.22	4.806

Problem 716	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	A	A	A	F	F(-2)	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	43	43	96	51	55	128	0	0	32
normalized size	1	1.	2.23	1.19	1.28	2.98	0.	0.	0.74
time (sec)	N/A	0.102	0.041	0.016	1.504	0.222	0.	0.	8.822

Problem 717	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	F(-2)	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	44	44	51	55	57	161	0	0	34
normalized size	1	1.	1.16	1.25	1.3	3.66	0.	0.	0.77
time (sec)	N/A	0.099	0.054	0.017	1.478	0.222	0.	0.	8.604

Problem 718	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	F(-2)	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	69	69	46	64	73	162	0	0	56
normalized size	1	1.	0.67	0.93	1.06	2.35	0.	0.	0.81
time (sec)	N/A	0.08	0.051	0.017	1.502	0.232	0.	0.	6.293

Problem 719	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	F(-2)	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	88	88	47	78	92	212	0	0	68
normalized size	1	1.	0.53	0.89	1.05	2.41	0.	0.	0.77
time (sec)	N/A	0.11	0.06	0.017	1.49	0.232	0.	0.	7.889

Problem 720	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	F(-2)	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	115	115	58	94	111	248	0	0	97
normalized size	1	1.	0.5	0.82	0.97	2.16	0.	0.	0.84
time (sec)	N/A	0.197	0.071	0.02	1.521	0.229	0.	0.	15.284

Problem 721	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	169	169	161	395	0	1	0	290	168
normalized size	1	1.	0.95	2.34	0.	0.01	0.	1.72	0.99
time (sec)	N/A	0.316	0.149	0.038	0.	0.3	0.	0.242	23.525

Problem 722	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	127	127	123	251	0	1	0	203	114
normalized size	1	1.	0.97	1.98	0.	0.01	0.	1.6	0.9
time (sec)	N/A	0.255	0.146	0.032	0.	0.255	0.	0.24	18.785

Problem 723	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	75	75	90	148	0	1	0	128	65
normalized size	1	1.	1.2	1.97	0.	0.01	0.	1.71	0.87
time (sec)	N/A	0.107	0.076	0.026	0.	0.261	0.	0.238	10.13

Problem 724	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	42	42	54	76	0	1	0	68	39
normalized size	1	1.	1.29	1.81	0.	0.02	0.	1.62	0.93
time (sec)	N/A	0.045	0.026	0.005	0.	0.238	0.	0.234	6.027

Problem 725	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	42	42	60	73	0	1	0	115	41
normalized size	1	1.	1.43	1.74	0.	0.02	0.	2.74	0.98
time (sec)	N/A	0.068	0.063	0.029	0.	0.254	0.	0.229	6.14

Problem 726	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	78	78	113	149	0	1	0	524	66
normalized size	1	1.	1.45	1.91	0.	0.01	0.	6.72	0.85
time (sec)	N/A	0.141	0.116	0.033	0.	0.278	0.	0.247	10.612

Problem 727	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	137	137	164	258	0	1	0	0	117
normalized size	1	1.	1.2	1.88	0.	0.01	0.	0.	0.85
time (sec)	N/A	0.287	0.187	0.037	0.	0.312	0.	0.	29.856

Problem 728	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	198	198	212	408	0	1	0	0	173
normalized size	1	1.	1.07	2.06	0.	0.01	0.	0.	0.87
time (sec)	N/A	0.494	0.173	0.039	0.	0.437	0.	0.	65.201

Problem 729	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	175	175	147	673	0	1	0	412	165
normalized size	1	1.	0.84	3.85	0.	0.01	0.	2.35	0.94
time (sec)	N/A	0.335	0.254	0.042	0.	0.419	0.	0.274	26.742

Problem 730	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	112	112	114	439	0	1	0	251	100
normalized size	1	1.	1.02	3.92	0.	0.01	0.	2.24	0.89
time (sec)	N/A	0.262	0.211	0.035	0.	0.323	0.	0.251	22.01

Problem 731	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	77	77	89	251	0	1	0	146	68
normalized size	1	1.	1.16	3.26	0.	0.01	0.	1.9	0.88
time (sec)	N/A	0.104	0.113	0.032	0.	0.313	0.	0.247	9.804

Problem 732	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	30	30	30	27	0	57	0	63	26
normalized size	1	1.	1.	0.9	0.	1.9	0.	2.1	0.87
time (sec)	N/A	0.023	0.033	0.008	0.	0.23	0.	0.222	3.489

Problem 733	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	77	77	104	243	0	1	0	189	68
normalized size	1	1.	1.35	3.16	0.	0.01	0.	2.45	0.88
time (sec)	N/A	0.141	0.211	0.039	0.	0.291	0.	0.231	10.47

Problem 734	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F	A	F	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	124	124	141	441	0	1	0	0	107
normalized size	1	1.	1.14	3.56	0.	0.01	0.	0.	0.86
time (sec)	N/A	0.316	0.339	0.046	0.	0.325	0.	0.	33.584

Problem 735	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F	A	F	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	194	194	187	683	0	1	0	0	180
normalized size	1	1.	0.96	3.52	0.	0.01	0.	0.	0.93
time (sec)	N/A	0.578	0.63	0.051	0.	0.42	0.	0.	75.948

Problem 736	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	258	258	181	1287	0	1	0	686	262
normalized size	1	1.	0.7	4.99	0.	0.	0.	2.66	1.02
time (sec)	N/A	0.621	0.464	0.048	0.	0.743	0.	0.285	53.448

Problem 737	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	174	174	150	928	0	1	0	504	165
normalized size	1	1.	0.86	5.33	0.	0.01	0.	2.9	0.95
time (sec)	N/A	0.373	0.547	0.037	0.	0.52	0.	0.256	27.258

Problem 738	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	126	126	115	604	0	1	0	288	117
normalized size	1	1.	0.91	4.79	0.	0.01	0.	2.29	0.93
time (sec)	N/A	0.253	0.23	0.035	0.	0.387	0.	0.248	22.558

Problem 739	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	80	80	46	55	0	162	0	204	68
normalized size	1	1.	0.57	0.69	0.	2.02	0.	2.55	0.85
time (sec)	N/A	0.094	0.07	0.009	0.	0.258	0.	0.237	9.66

Problem 740	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	66	66	46	53	0	159	0	173	56
normalized size	1	1.	0.7	0.8	0.	2.41	0.	2.62	0.85
time (sec)	N/A	0.054	0.052	0.007	0.	0.256	0.	0.237	7.197

Problem 741	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	124	124	130	586	0	1	0	358	114
normalized size	1	1.	1.05	4.73	0.	0.01	0.	2.89	0.92
time (sec)	N/A	0.314	0.335	0.045	0.	0.382	0.	0.261	33.838

Problem 742	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F	A	F	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	189	189	174	919	0	1	0	0	170
normalized size	1	1.	0.92	4.86	0.	0.01	0.	0.	0.9
time (sec)	N/A	0.577	0.833	0.052	0.	0.479	0.	0.	66.389

Problem 743	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	277	277	221	1288	0	1	0	0	264
normalized size	1	1.	0.8	4.65	0.	0.	0.	0.	0.95
time (sec)	N/A	0.861	1.252	0.059	0.	0.838	0.	0.	124.195

Problem 744	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	21	21	23	18	0	31	24	47	19
normalized size	1	1.	1.1	0.86	0.	1.48	1.14	2.24	0.9
time (sec)	N/A	0.021	0.023	0.007	0.	0.218	4.916	0.239	3.48

Problem 745	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	42	42	54	85	0	1	83	88	36
normalized size	1	1.	1.29	2.02	0.	0.02	1.98	2.1	0.86
time (sec)	N/A	0.094	0.066	0.042	0.	0.232	12.748	0.227	9.537

Problem 746	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	C	F(-2)	A	F	F(-2)	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	54	54	107	114	0	1	0	0	51
normalized size	1	1.	1.98	2.11	0.	0.02	0.	0.	0.94
time (sec)	N/A	0.112	0.172	0.059	0.	0.236	0.	0.	9.853

Problem 747	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	271	271	253	961	0	1	0	4	277
normalized size	1	1.	0.93	3.55	0.	0.	0.	0.01	1.02
time (sec)	N/A	0.586	0.264	0.047	0.	0.981	0.	0.618	52.49

Problem 748	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	246	246	188	692	0	1	0	4	228
normalized size	1	1.	0.76	2.81	0.	0.	0.	0.02	0.93
time (sec)	N/A	0.61	0.19	0.038	0.	0.591	0.	0.639	44.192

Problem 749	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	171	171	130	455	0	1	0	4	155
normalized size	1	1.	0.76	2.66	0.	0.01	0.	0.02	0.91
time (sec)	N/A	0.24	0.135	0.03	0.	0.408	0.	0.586	26.137

Problem 750	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	98	98	101	0	0	1	0	4	90
normalized size	1	1.	1.03	0.	0.	0.01	0.	0.04	0.92
time (sec)	N/A	0.119	0.168	0.	0.	0.334	0.	0.583	13.831

Problem 751	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	119	119	158	306	0	1	0	4	109
normalized size	1	1.	1.33	2.57	0.	0.01	0.	0.03	0.92
time (sec)	N/A	0.272	0.302	0.033	0.	0.701	0.	0.586	28.904

Problem 752	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	108	108	128	298	0	1	0	0	94
normalized size	1	1.	1.19	2.76	0.	0.01	0.	0.	0.87
time (sec)	N/A	0.2	0.34	0.036	0.	0.316	0.	0.	14.952

Problem 753	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	178	178	165	464	0	1	0	0	165
normalized size	1	1.	0.93	2.61	0.	0.01	0.	0.	0.93
time (sec)	N/A	0.313	0.22	0.04	0.	0.452	0.	0.	27.106

Problem 754	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	241	241	236	707	0	1	0	0	223
normalized size	1	1.	0.98	2.93	0.	0.	0.	0.	0.93
time (sec)	N/A	0.803	0.298	0.045	0.	0.713	0.	0.	116.928

Problem 755	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	346	346	320	1265	0	1	0	4	352
normalized size	1	1.	0.92	3.66	0.	0.	0.	0.01	1.02
time (sec)	N/A	0.768	0.354	0.047	0.	1.672	0.	0.685	79.469

Problem 756	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	306	306	241	961	0	1	0	4	289
normalized size	1	1.	0.79	3.14	0.	0.	0.	0.01	0.94
time (sec)	N/A	0.746	0.295	0.043	0.	0.951	0.	0.638	60.27

Problem 757	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	214	214	173	689	0	1	0	4	196
normalized size	1	1.	0.81	3.22	0.	0.	0.	0.02	0.92
time (sec)	N/A	0.304	0.204	0.037	0.	0.58	0.	0.62	36.283

Problem 758	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	138	138	138	0	0	1	0	4	128
normalized size	1	1.	1.	0.	0.	0.01	0.	0.03	0.93
time (sec)	N/A	0.169	0.162	0.	0.	0.4	0.	0.617	21.157

Problem 759	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	163	163	184	492	0	1	0	4	151
normalized size	1	1.	1.13	3.02	0.	0.01	0.	0.02	0.93
time (sec)	N/A	0.5	0.448	0.035	0.	2.125	0.	0.603	50.117

Problem 760	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	163	163	199	502	0	1	0	4	150
normalized size	1	1.	1.22	3.08	0.	0.01	0.	0.02	0.92
time (sec)	N/A	0.522	0.543	0.037	0.	1.719	0.	0.631	32.574

Problem 761	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	154	154	165	507	0	1	0	0	136
normalized size	1	1.	1.07	3.29	0.	0.01	0.	0.	0.88
time (sec)	N/A	0.296	0.243	0.04	0.	0.424	0.	0.	11.222

Problem 762	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	230	230	213	704	0	1	0	0	209
normalized size	1	1.	0.93	3.06	0.	0.	0.	0.	0.91
time (sec)	N/A	0.418	0.393	0.043	0.	0.659	0.	0.	18.644

Problem 763	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	318	318	295	982	0	1	0	0	303
normalized size	1	1.	0.93	3.09	0.	0.	0.	0.	0.95
time (sec)	N/A	1.162	0.479	0.051	0.	1.74	0.	0.	95.756

Problem 764	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	250	250	179	1369	0	1	0	4	243
normalized size	1	1.	0.72	5.48	0.	0.	0.	0.02	0.97
time (sec)	N/A	0.626	0.859	0.049	0.	0.659	0.	0.59	51.091

Problem 765	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	167	167	142	906	0	1	0	4	162
normalized size	1	1.	0.85	5.43	0.	0.01	0.	0.02	0.97
time (sec)	N/A	0.363	0.409	0.037	0.	0.423	0.	0.555	26.61

Problem 766	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	130	130	116	654	0	1	0	4	117
normalized size	1	1.	0.89	5.03	0.	0.01	0.	0.03	0.9
time (sec)	N/A	0.247	0.164	0.036	0.	0.355	0.	0.596	23.953

Problem 767	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	75	75	43	53	0	171	0	198	63
normalized size	1	1.	0.57	0.71	0.	2.28	0.	2.64	0.84
time (sec)	N/A	0.101	0.074	0.008	0.	0.288	0.	0.247	9.478

Problem 768	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	62	62	42	52	0	169	0	192	53
normalized size	1	1.	0.68	0.84	0.	2.73	0.	3.1	0.85
time (sec)	N/A	0.057	0.058	0.008	0.	0.284	0.	0.243	7.229

Problem 769	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	121	121	125	638	0	1	0	4	107
normalized size	1	1.	1.03	5.27	0.	0.01	0.	0.03	0.88
time (sec)	N/A	0.304	0.21	0.05	0.	0.356	0.	0.986	34.466

Problem 770	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	185	185	170	897	0	1	0	0	168
normalized size	1	1.	0.92	4.85	0.	0.01	0.	0.	0.91
time (sec)	N/A	0.571	0.672	0.057	0.	0.382	0.	0.	71.436

Problem 771	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	268	268	224	1372	0	1	0	4	252
normalized size	1	1.	0.84	5.12	0.	0.	0.	0.01	0.94
time (sec)	N/A	0.881	1.235	0.063	0.	0.682	0.	2.38	108.238

Problem 772	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	351	351	214	2228	0	1	0	4	357
normalized size	1	1.	0.61	6.35	0.	0.	0.	0.01	1.02
time (sec)	N/A	0.924	0.919	0.062	0.	1.439	0.	0.586	91.824

Problem 773	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	251	251	182	1714	0	1	0	4	243
normalized size	1	1.	0.73	6.83	0.	0.	0.	0.02	0.97
time (sec)	N/A	0.591	0.987	0.046	0.	0.749	0.	0.582	50.478

Problem 774	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	165	165	160	1289	0	1	0	4	158
normalized size	1	1.	0.97	7.81	0.	0.01	0.	0.02	0.96
time (sec)	N/A	0.336	0.674	0.043	0.	0.53	0.	0.595	25.942

Problem 775	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	151	151	82	111	0	371	0	423	131
normalized size	1	1.	0.54	0.74	0.	2.46	0.	2.8	0.87
time (sec)	N/A	0.346	0.161	0.012	0.	0.367	0.	0.289	26.197

Problem 776	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	118	118	83	115	0	379	0	421	104
normalized size	1	1.	0.7	0.97	0.	3.21	0.	3.57	0.88
time (sec)	N/A	0.14	0.125	0.012	0.	0.374	0.	0.292	16.439

Problem 777	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	98	98	78	104	0	369	0	393	87
normalized size	1	1.	0.8	1.06	0.	3.77	0.	4.01	0.89
time (sec)	N/A	0.091	0.107	0.01	0.	0.366	0.	0.262	12.421

Problem 778	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	180	180	175	1253	0	1	0	4	163
normalized size	1	1.	0.97	6.96	0.	0.01	0.	0.02	0.91
time (sec)	N/A	0.554	0.826	0.06	0.	0.455	0.	1.082	60.903

Problem 779	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	264	264	212	1692	0	1	0	0	248
normalized size	1	1.	0.8	6.41	0.	0.	0.	0.	0.94
time (sec)	N/A	0.886	1.199	0.072	0.	0.708	0.	0.	114.612

Problem 780	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F	A	F(-1)	A	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	361	361	258	2216	0	1	0	4	0
normalized size	1	1.	0.71	6.14	0.	0.	0.	0.01	0.
time (sec)	N/A	1.248	1.671	0.08	0.	1.667	0.	2.412	0.

Problem 781	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	497	497	385	1762	0	1	0	4	430
normalized size	1	1.	0.77	3.55	0.	0.	0.	0.01	0.87
time (sec)	N/A	1.346	0.583	0.059	0.	4.481	0.	0.748	127.19

Problem 782	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	377	377	296	1366	0	1	0	4	326
normalized size	1	1.	0.79	3.62	0.	0.	0.	0.01	0.86
time (sec)	N/A	0.882	0.45	0.048	0.	2.343	0.	0.691	81.052

Problem 783	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	319	319	214	1002	0	1	0	4	306
normalized size	1	1.	0.67	3.14	0.	0.	0.	0.01	0.96
time (sec)	N/A	0.73	0.333	0.04	0.	1.272	0.	0.669	66.906

Problem 784	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	222	222	173	750	0	1	0	4	207
normalized size	1	1.	0.78	3.38	0.	0.	0.	0.02	0.93
time (sec)	N/A	0.307	0.276	0.034	0.	0.709	0.	0.661	35.395

Problem 785	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	128	128	134	0	0	1	0	4	119
normalized size	1	1.	1.05	0.	0.	0.01	0.	0.03	0.93
time (sec)	N/A	0.16	0.173	0.	0.	0.492	0.	0.654	19.351

Problem 786	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	157	157	183	566	0	1	0	4	144
normalized size	1	1.	1.17	3.61	0.	0.01	0.	0.03	0.92
time (sec)	N/A	0.419	0.602	0.037	0.	1.728	0.	0.65	46.872

Problem 787	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	142	142	162	502	0	1	0	0	128
normalized size	1	1.	1.14	3.54	0.	0.01	0.	0.	0.9
time (sec)	N/A	0.264	0.46	0.038	0.	0.538	0.	0.	20.643

Problem 788	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	220	220	211	758	0	1	0	0	207
normalized size	1	1.	0.96	3.45	0.	0.	0.	0.	0.94
time (sec)	N/A	0.405	0.424	0.045	0.	0.886	0.	0.	34.442

Problem 789	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	278	278	264	1009	0	1	0	0	267
normalized size	1	1.	0.95	3.63	0.	0.	0.	0.	0.96
time (sec)	N/A	1.147	0.463	0.048	0.	1.562	0.	0.	160.972

Problem 790	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	F(-2)	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	388	388	344	1377	0	1	0	0	0
normalized size	1	1.	0.89	3.55	0.	0.	0.	0.	0.
time (sec)	N/A	1.617	1.885	0.056	0.	7.054	0.	0.	0.

Problem 791	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	126	126	116	604	0	1	0	4	117
normalized size	1	1.	0.92	4.79	0.	0.01	0.	0.03	0.93
time (sec)	N/A	0.236	0.24	0.036	0.	0.411	0.	0.572	22.737

Problem 792	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	445	445	246	3425	0	1	0	4	454
normalized size	1	1.	0.55	7.7	0.	0.	0.	0.01	1.02
time (sec)	N/A	1.449	1.463	0.071	0.	3.625	0.	0.812	141.776

Problem 793	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	341	341	214	2748	0	1	0	4	342
normalized size	1	1.	0.63	8.06	0.	0.	0.	0.01	1.
time (sec)	N/A	0.976	1.008	0.052	0.	1.986	0.	0.684	92.293

Problem 794	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	241	241	194	2089	0	1	0	4	238
normalized size	1	1.	0.8	8.67	0.	0.	0.	0.02	0.99
time (sec)	N/A	0.573	0.929	0.049	0.	0.999	0.	0.672	51.444

Problem 795	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	189	189	125	182	0	605	0	855	173
normalized size	1	1.	0.66	0.96	0.	3.2	0.	4.52	0.92
time (sec)	N/A	0.438	0.26	0.013	0.	0.727	0.	0.501	41.842

Problem 796	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	186	186	107	203	0	632	0	852	172
normalized size	1	1.	0.58	1.09	0.	3.4	0.	4.58	0.92
time (sec)	N/A	0.44	0.33	0.013	0.	0.754	0.	0.505	37.766

Problem 797	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	158	158	128	198	0	632	0	933	143
normalized size	1	1.	0.81	1.25	0.	4.	0.	5.91	0.91
time (sec)	N/A	0.203	0.198	0.012	0.	0.769	0.	0.495	24.18

Problem 798	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	135	135	118	169	0	603	0	718	121
normalized size	1	1.	0.87	1.25	0.	4.47	0.	5.32	0.9
time (sec)	N/A	0.125	0.152	0.013	0.	0.765	0.	0.407	20.468

Problem 799	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	252	252	209	2033	0	1	0	4	240
normalized size	1	1.	0.83	8.07	0.	0.	0.	0.02	0.95
time (sec)	N/A	0.872	1.392	0.069	0.	0.912	0.	1.434	100.825

Problem 800	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	352	352	241	2703	0	1	0	4	0
normalized size	1	1.	0.68	7.68	0.	0.	0.	0.01	0.
time (sec)	N/A	1.274	1.638	0.083	0.	1.793	0.	2.004	0.

Problem 801	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	462	462	291	3392	0	1	0	4	0
normalized size	1	1.	0.63	7.34	0.	0.	0.	0.01	0.
time (sec)	N/A	1.739	2.526	0.092	0.	6.666	0.	2.646	0.

Problem 802	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	28	28	28	23	0	1	44	58	22
normalized size	1	1.	1.	0.82	0.	0.04	1.57	2.07	0.79
time (sec)	N/A	0.011	0.013	0.003	0.	0.232	9.656	0.229	3.548

Problem 803	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	28	28	28	23	0	1	27	28	0
normalized size	1	1.	1.	0.82	0.	0.04	0.96	1.	0.
time (sec)	N/A	0.011	0.008	0.003	0.	0.232	7.192	0.225	0.

Problem 804	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	23	23	23	23	0	1	48	14	19
normalized size	1	1.	1.	1.	0.	0.04	2.09	0.61	0.83
time (sec)	N/A	0.01	0.006	0.003	0.	0.234	6.02	0.22	3.356

Problem 805	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	24	24	24	22	0	1	37	18	20
normalized size	1	1.	1.	0.92	0.	0.04	1.54	0.75	0.83
time (sec)	N/A	0.016	0.007	0.014	0.	0.235	5.553	0.22	3.504

Problem 806	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	26	26	26	23	0	1	20	24	20
normalized size	1	1.	1.	0.88	0.	0.04	0.77	0.92	0.77
time (sec)	N/A	0.011	0.008	0.004	0.	0.238	5.071	0.219	3.53

Problem 807	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	28	28	28	23	0	1	88	26	24
normalized size	1	1.	1.	0.82	0.	0.04	3.14	0.93	0.86
time (sec)	N/A	0.011	0.008	0.004	0.	0.236	6.913	0.222	3.553

Problem 808	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	36	36	36	31	20	57	143	0	26
normalized size	1	1.	1.	0.86	0.56	1.58	3.97	0.	0.72
time (sec)	N/A	0.018	0.021	0.003	1.363	0.25	14.264	0.	4.264

Problem 809	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	26	26	26	25	14	12	19	7	19
normalized size	1	1.	1.	0.96	0.54	0.46	0.73	0.27	0.73
time (sec)	N/A	0.012	0.008	0.003	1.352	0.242	100.468	0.225	3.708

Problem 810	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	26	26	26	25	14	12	19	7	0
normalized size	1	1.	1.	0.96	0.54	0.46	0.73	0.27	0.
time (sec)	N/A	0.011	0.005	0.003	1.353	0.239	41.342	0.224	0.

Problem 811	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	21	21	21	26	9	8	44	1	15
normalized size	1	1.	1.	1.24	0.43	0.38	2.1	0.05	0.71
time (sec)	N/A	0.01	0.003	0.033	1.36	0.237	30.527	0.216	3.559

Problem 812	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	A	A	A	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	22	22	22	56	11	9	44	0	17
normalized size	1	1.	1.	2.55	0.5	0.41	2.	0.	0.77
time (sec)	N/A	0.013	0.005	0.057	1.359	0.247	98.738	0.	3.701

Problem 813	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	24	24	24	25	14	12	17	0	17
normalized size	1	1.	1.	1.04	0.58	0.5	0.71	0.	0.71
time (sec)	N/A	0.011	0.005	0.003	1.361	0.239	20.265	0.	3.726

Problem 814	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	26	26	26	25	14	12	20	0	20
normalized size	1	1.	1.	0.96	0.54	0.46	0.77	0.	0.77
time (sec)	N/A	0.011	0.004	0.003	1.358	0.247	47.754	0.	3.742

Problem 815	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	34	34	34	33	28	23	0	1	22
normalized size	1	1.	1.	0.97	0.82	0.68	0.	0.03	0.65
time (sec)	N/A	0.015	0.011	0.003	1.372	0.257	0.	0.288	4.504

Problem 816	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-1)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	78	78	52	97	0	273	0	66	68
normalized size	1	1.	0.67	1.24	0.	3.5	0.	0.85	0.87
time (sec)	N/A	0.122	0.069	0.024	0.	0.241	0.	0.225	10.824

Problem 817	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-1)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	61	61	47	83	0	220	0	59	49
normalized size	1	1.	0.77	1.36	0.	3.61	0.	0.97	0.8
time (sec)	N/A	0.07	0.071	0.014	0.	0.255	0.	0.22	8.02

Problem 818	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	41	41	42	69	0	163	0	51	32
normalized size	1	1.	1.02	1.68	0.	3.98	0.	1.24	0.78
time (sec)	N/A	0.039	0.042	0.016	0.	0.246	0.	0.223	5.31

Problem 819	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	20	20	20	15	51	76	61	26	14
normalized size	1	1.	1.	0.75	2.55	3.8	3.05	1.3	0.7
time (sec)	N/A	0.013	0.019	0.005	1.338	0.23	9.958	0.229	2.4

Problem 820	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	18	18	17	13	46	78	61	16	15
normalized size	1	1.	0.94	0.72	2.56	4.33	3.39	0.89	0.83
time (sec)	N/A	0.011	0.016	0.003	1.343	0.233	10.055	0.218	2.054

Problem 821	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F	F(-2)	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	59	59	92	93	95	166	0	0	44
normalized size	1	1.	1.56	1.58	1.61	2.81	0.	0.	0.75
time (sec)	N/A	0.074	0.068	0.017	1.345	0.233	0.	0.	6.563

Problem 822	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	F(-2)	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	87	87	54	113	116	242	0	0	65
normalized size	1	1.	0.62	1.3	1.33	2.78	0.	0.	0.75
time (sec)	N/A	0.152	0.073	0.019	1.352	0.228	0.	0.	12.519

Problem 823	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	F(-2)	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	112	112	61	129	135	308	0	0	87
normalized size	1	1.	0.54	1.15	1.21	2.75	0.	0.	0.78
time (sec)	N/A	0.21	0.074	0.019	1.349	0.23	0.	0.	15.935

Problem 824	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	26	26	34	40	36	127	87	42	20
normalized size	1	1.	1.31	1.54	1.38	4.88	3.35	1.62	0.77
time (sec)	N/A	0.034	0.03	0.02	1.352	0.229	12.784	0.24	3.002

Problem 825	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	15	15	15	12	9	51	76	15	12
normalized size	1	1.	1.	0.8	0.6	3.4	5.07	1.	0.8
time (sec)	N/A	0.011	0.011	0.004	1.337	0.237	7.508	0.239	1.909

Problem 826	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	2	2	16	31	19	24	41	23	2
normalized size	1	1.	8.	15.5	9.5	12.	20.5	11.5	1.
time (sec)	N/A	0.008	0.007	0.004	1.347	0.226	3.819	0.247	1.128

Problem 827	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	16	16	18	28	9	24	56	27	14
normalized size	1	1.	1.12	1.75	0.56	1.5	3.5	1.69	0.88
time (sec)	N/A	0.024	0.024	0.018	1.504	0.221	13.119	0.221	1.774

Problem 828	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	18	18	18	15	15	30	0	28	14
normalized size	1	1.	1.	0.83	0.83	1.67	0.	1.56	0.78
time (sec)	N/A	0.025	0.014	0.004	1.488	0.226	0.	0.218	2.604

Problem 829	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	44	52	50	189	0	62	37
normalized size	1	1.	0.98	1.16	1.11	4.2	0.	1.38	0.82
time (sec)	N/A	0.039	0.036	0.01	1.349	0.225	0.	0.242	4.251

Problem 830	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	18	18	18	13	12	101	0	16	14
normalized size	1	1.	1.	0.72	0.67	5.61	0.	0.89	0.78
time (sec)	N/A	0.009	0.011	0.004	1.352	0.23	0.	0.232	1.918

Problem 831	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	26	26	36	57	36	126	133	39	20
normalized size	1	1.	1.38	2.19	1.38	4.85	5.12	1.5	0.77
time (sec)	N/A	0.018	0.009	0.004	1.34	0.224	9.171	0.243	3.126

Problem 832	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	34	34	34	35	18	96	0	43	27
normalized size	1	1.	1.	1.03	0.53	2.82	0.	1.26	0.79
time (sec)	N/A	0.045	0.03	0.009	1.498	0.245	0.	0.225	4.276

Problem 833	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	22	22	38	44	36	80	0	54	17
normalized size	1	1.	1.73	2.	1.64	3.64	0.	2.45	0.77
time (sec)	N/A	0.029	0.021	0.01	1.524	0.225	0.	0.228	3.606

Problem 834	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	16	16	16	57	30	31	27	28	15
normalized size	1	1.	1.	3.56	1.88	1.94	1.69	1.75	0.94
time (sec)	N/A	0.021	0.011	0.01	1.493	0.229	3.765	0.248	3.499

Problem 835	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	35	35	38	53	27	46	0	57	31
normalized size	1	1.	1.09	1.51	0.77	1.31	0.	1.63	0.89
time (sec)	N/A	0.042	0.037	0.028	1.506	0.238	0.	0.222	3.741

Problem 836	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	35	35	33	51	20	100	58	73	31
normalized size	1	1.	0.94	1.46	0.57	2.86	1.66	2.09	0.89
time (sec)	N/A	0.048	0.059	0.024	1.528	0.238	31.724	0.22	4.439

Problem 837	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	20	20	15	15	15	90	95	23	15
normalized size	1	1.	0.75	0.75	0.75	4.5	4.75	1.15	0.75
time (sec)	N/A	0.01	0.005	0.003	1.489	0.222	32.912	0.225	2.25

Problem 838	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	146	146	79	157	163	120	0	181	133
normalized size	1	1.	0.54	1.08	1.12	0.82	0.	1.24	0.91
time (sec)	N/A	0.157	0.112	0.019	1.5	0.251	0.	0.225	12.739

Problem 839	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	22	22	22	94	0	42	0	35	24
normalized size	1	1.	1.	4.27	0.	1.91	0.	1.59	1.09
time (sec)	N/A	0.032	0.014	0.008	0.	0.227	0.	0.269	6.309

Problem 840	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F	F	A	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	75	75	66	91	0	0	99	0	68
normalized size	1	1.	0.88	1.21	0.	0.	1.32	0.	0.91
time (sec)	N/A	0.144	0.173	0.278	0.	0.	20.151	0.	12.453

Problem 841	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F	F	A	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	77	77	77	93	0	0	95	0	71
normalized size	1	1.	1.	1.21	0.	0.	1.23	0.	0.92
time (sec)	N/A	0.152	0.078	0.069	0.	0.	41.016	0.	13.951

Problem 842	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F	F	A	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	87	87	77	93	0	0	109	0	80
normalized size	1	1.	0.89	1.07	0.	0.	1.25	0.	0.92
time (sec)	N/A	0.172	0.059	0.075	0.	0.	40.368	0.	15.844

Problem 843	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	A	F	F	A	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	30	30	70	32	0	0	95	0	31
normalized size	1	1.	2.33	1.07	0.	0.	3.17	0.	1.03
time (sec)	N/A	0.054	0.151	0.075	0.	0.	19.709	0.	4.493

Problem 844	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	A	F	F	A	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	33	33	78	34	0	0	92	0	34
normalized size	1	1.	2.36	1.03	0.	0.	2.79	0.	1.03
time (sec)	N/A	0.056	0.072	0.064	0.	0.	40.223	0.	4.958

Problem 845	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	A	F	F	A	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	42	42	81	34	0	0	105	0	42
normalized size	1	1.	1.93	0.81	0.	0.	2.5	0.	1.
time (sec)	N/A	0.065	0.062	0.072	0.	0.	39.654	0.	6.012

Problem 846	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F	F	A	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	24	24	43	32	0	0	78	0	22
normalized size	1	1.	1.79	1.33	0.	0.	3.25	0.	0.92
time (sec)	N/A	0.033	0.076	0.049	0.	0.	19.762	0.	3.412

Problem 847	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F	F	A	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	27	27	50	24	0	0	82	0	26
normalized size	1	1.	1.85	0.89	0.	0.	3.04	0.	0.96
time (sec)	N/A	0.037	0.051	0.046	0.	0.	34.452	0.	3.764

Problem 848	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F	F	A	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	36	36	54	32	0	0	88	0	34
normalized size	1	1.	1.5	0.89	0.	0.	2.44	0.	0.94
time (sec)	N/A	0.046	0.025	0.068	0.	0.	31.238	0.	4.286

Problem 849	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	B	F	F	A	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	10	10	66	24	0	0	66	0	10
normalized size	1	1.	6.6	2.4	0.	0.	6.6	0.	1.
time (sec)	N/A	0.027	0.116	0.045	0.	0.	18.84	0.	2.999

Problem 850	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	B	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	10	10	66	43	0	0	0	0	10
normalized size	1	1.	6.6	4.3	0.	0.	0.	0.	1.
time (sec)	N/A	0.043	0.02	0.02	0.	0.	0.	0.	5.93

Problem 851	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	A	F	F	A	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	33	33	76	32	0	0	94	0	32
normalized size	1	1.	2.3	0.97	0.	0.	2.85	0.	0.97
time (sec)	N/A	0.064	0.131	0.085	0.	0.	39.326	0.	5.951

Problem 852	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	38	38	89	64	0	0	0	0	34
normalized size	1	1.	2.34	1.68	0.	0.	0.	0.	0.89
time (sec)	N/A	0.062	0.197	0.088	0.	0.	0.	0.	5.971

Problem 853	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	B	F	F	F	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	10	10	104	39	0	0	0	0	10
normalized size	1	1.	10.4	3.9	0.	0.	0.	0.	1.
time (sec)	N/A	0.026	0.269	0.016	0.	0.	0.	0.	2.993

Problem 854	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	B	F	F	F	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	10	10	104	56	0	0	0	0	10
normalized size	1	1.	10.4	5.6	0.	0.	0.	0.	1.
time (sec)	N/A	0.045	0.126	0.015	0.	0.	0.	0.	5.544

Problem 855	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	33	33	119	49	0	0	0	0	32
normalized size	1	1.	3.61	1.48	0.	0.	0.	0.	0.97
time (sec)	N/A	0.058	0.41	0.023	0.	0.	0.	0.	5.631

Problem 856	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	38	38	102	129	0	0	0	0	34
normalized size	1	1.	2.68	3.39	0.	0.	0.	0.	0.89
time (sec)	N/A	0.061	0.573	0.066	0.	0.	0.	0.	5.705

Problem 857	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	24	24	38	25	0	0	0	0	26
normalized size	1	1.	1.58	1.04	0.	0.	0.	0.	1.08
time (sec)	N/A	0.053	0.067	0.015	0.	0.	0.	0.	4.538

Problem 858	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	B	A	B	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	24	49	46	49	0	0	0	0	80
normalized size	1	2.04	1.92	2.04	0.	0.	0.	0.	3.33
time (sec)	N/A	0.075	0.057	0.036	0.	0.	0.	0.	34.442

Problem 859	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	A	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	37	37	77	33	0	0	0	0	37
normalized size	1	1.	2.08	0.89	0.	0.	0.	0.	1.
time (sec)	N/A	0.081	0.846	0.02	0.	0.	0.	0.	6.796

Problem 860	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	A	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	42	42	112	67	0	0	0	0	39
normalized size	1	1.	2.67	1.6	0.	0.	0.	0.	0.93
time (sec)	N/A	0.071	0.766	0.022	0.	0.	0.	0.	6.76

Problem 861	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F	F	F	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	51	51	72	112	0	0	0	0	66
normalized size	1	1.	1.41	2.2	0.	0.	0.	0.	1.29
time (sec)	N/A	0.101	0.298	0.089	0.	0.	0.	0.	8.036

Problem 862	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	F	F	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	51	51	125	212	0	0	0	0	66
normalized size	1	1.	2.45	4.16	0.	0.	0.	0.	1.29
time (sec)	N/A	0.098	1.543	0.024	0.	0.	0.	0.	8.099

Problem 863	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F	F	A
verified	N/A	NO	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	752	752	54	0	0	0	0	0	682
normalized size	1	1.	0.07	0.	0.	0.	0.	0.	0.91
time (sec)	N/A	1.262	0.067	0.125	0.	0.	0.	0.	39.783

Problem 864	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F	F	A
verified	N/A	NO	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	727	727	49	0	0	0	0	0	661
normalized size	1	1.	0.07	0.	0.	0.	0.	0.	0.91
time (sec)	N/A	0.955	0.048	0.11	0.	0.	0.	0.	32.327

Problem 865	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F	F	A
verified	N/A	NO	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	720	720	44	0	0	0	0	0	651
normalized size	1	1.	0.06	0.	0.	0.	0.	0.	0.9
time (sec)	N/A	0.936	0.041	0.099	0.	0.	0.	0.	31.003

Problem 866	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F	F	A
verified	N/A	NO	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	695	695	38	0	0	0	0	0	632
normalized size	1	1.	0.05	0.	0.	0.	0.	0.	0.91
time (sec)	N/A	0.759	0.027	0.097	0.	0.	0.	0.	25.527

Problem 867	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	A	F	A
verified	N/A	NO	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	671	671	26	0	0	0	41	0	612
normalized size	1	1.	0.04	0.	0.	0.	0.06	0.	0.91
time (sec)	N/A	0.599	0.015	0.053	0.	0.	4.035	0.	21.232

Problem 868	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F(-1)	F	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	99	99	115	0	0	0	0	0	85
normalized size	1	1.	1.16	0.	0.	0.	0.	0.	0.86
time (sec)	N/A	0.063	0.17	0.063	0.	0.	0.	0.	4.144

Problem 869	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F(-1)	F(-2)	F	A
verified	N/A	NO	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	796	796	219	0	0	0	0	0	714
normalized size	1	1.	0.28	0.	0.	0.	0.	0.	0.9
time (sec)	N/A	1.032	0.452	0.128	0.	0.	0.	0.	36.156

Problem 870	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F(-1)	F(-2)	F	A
verified	N/A	NO	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	821	821	225	0	0	0	0	0	731
normalized size	1	1.	0.27	0.	0.	0.	0.	0.	0.89
time (sec)	N/A	1.222	0.35	0.115	0.	0.	0.	0.	43.591

Problem 871	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F	F(-1)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	340	340	221	0	0	2952	0	0	340
normalized size	1	1.	0.65	0.	0.	8.68	0.	0.	1.
time (sec)	N/A	0.609	0.417	0.048	0.	0.635	0.	0.	53.968

Problem 872	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F	F(-1)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	268	268	168	0	0	2259	0	0	255
normalized size	1	1.	0.63	0.	0.	8.43	0.	0.	0.95
time (sec)	N/A	0.533	0.284	0.047	0.	0.358	0.	0.	40.261

Problem 873	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F	F(-1)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	188	188	122	0	0	1573	0	0	170
normalized size	1	1.	0.65	0.	0.	8.37	0.	0.	0.9
time (sec)	N/A	0.247	0.329	0.038	0.	0.278	0.	0.	28.373

Problem 874	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F	F(-1)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	127	127	76	0	0	865	0	0	112
normalized size	1	1.	0.6	0.	0.	6.81	0.	0.	0.88
time (sec)	N/A	0.134	0.175	0.	0.	0.252	0.	0.	19.88

Problem 875	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F	F(-1)	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	169	169	216	0	0	490	0	0	162
normalized size	1	1.	1.28	0.	0.	2.9	0.	0.	0.96
time (sec)	N/A	0.254	0.522	0.062	0.	0.316	0.	0.	31.89

Problem 876	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F	F(-1)	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	131	131	176	0	0	873	0	0	114
normalized size	1	1.	1.34	0.	0.	6.66	0.	0.	0.87
time (sec)	N/A	0.184	0.411	0.054	0.	0.256	0.	0.	18.771

Problem 877	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F	F(-1)	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	194	194	211	0	0	1592	0	0	175
normalized size	1	1.	1.09	0.	0.	8.21	0.	0.	0.9
time (sec)	N/A	0.309	0.39	0.052	0.	0.279	0.	0.	27.82

Problem 878	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F	F(-1)	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	266	266	260	0	0	2277	0	0	250
normalized size	1	1.	0.98	0.	0.	8.56	0.	0.	0.94
time (sec)	N/A	0.622	0.426	0.056	0.	0.355	0.	0.	77.816

Problem 879	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F	F(-1)	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	368	368	315	0	0	2970	0	0	357
normalized size	1	1.	0.86	0.	0.	8.07	0.	0.	0.97
time (sec)	N/A	0.935	0.51	0.06	0.	0.666	0.	0.	158.041

Problem 880	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	234	234	57	0	0	378	0	0	197
normalized size	1	1.	0.24	0.	0.	1.62	0.	0.	0.84
time (sec)	N/A	0.286	0.075	0.049	0.	0.248	0.	0.	22.787

Problem 881	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	213	213	51	0	0	371	0	0	172
normalized size	1	1.	0.24	0.	0.	1.74	0.	0.	0.81
time (sec)	N/A	0.219	0.045	0.031	0.	0.239	0.	0.	21.633

Problem 882	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	A	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	186	186	43	0	0	362	41	0	155
normalized size	1	1.	0.23	0.	0.	1.95	0.22	0.	0.83
time (sec)	N/A	0.176	0.019	0.027	0.	0.244	8.926	0.	19.374

Problem 883	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	203	203	119	0	0	443	0	0	172
normalized size	1	1.	0.59	0.	0.	2.18	0.	0.	0.85
time (sec)	N/A	0.203	0.207	0.057	0.	0.245	0.	0.	20.788

Problem 884	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F(-2)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	62	62	106	0	0	128	0	0	46
normalized size	1	1.	1.71	0.	0.	2.06	0.	0.	0.74
time (sec)	N/A	0.065	0.243	0.046	0.	0.245	0.	0.	5.275

Problem 885	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F(-2)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	91	91	114	0	0	143	0	0	70
normalized size	1	1.	1.25	0.	0.	1.57	0.	0.	0.77
time (sec)	N/A	0.092	0.15	0.043	0.	0.239	0.	0.	6.857

Problem 886	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F(-2)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	114	114	119	0	0	151	0	0	95
normalized size	1	1.	1.04	0.	0.	1.32	0.	0.	0.83
time (sec)	N/A	0.163	0.154	0.044	0.	0.235	0.	0.	12.438

Problem 887	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F(-2)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	137	137	124	0	0	158	0	0	116
normalized size	1	1.	0.91	0.	0.	1.15	0.	0.	0.85
time (sec)	N/A	0.212	0.161	0.044	0.	0.228	0.	0.	16.232

Problem 888	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F	F(-1)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	259	259	168	0	0	2253	0	0	260
normalized size	1	1.	0.65	0.	0.	8.7	0.	0.	1.
time (sec)	N/A	0.448	0.34	0.052	0.	0.379	0.	0.	38.717

Problem 889	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F	F(-1)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	201	201	123	0	0	1577	0	0	190
normalized size	1	1.	0.61	0.	0.	7.85	0.	0.	0.95
time (sec)	N/A	0.389	0.257	0.048	0.	0.283	0.	0.	30.399

Problem 890	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F	F(-1)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	130	130	95	0	0	895	0	0	117
normalized size	1	1.	0.73	0.	0.	6.88	0.	0.	0.9
time (sec)	N/A	0.166	0.186	0.043	0.	0.258	0.	0.	18.463

Problem 891	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F	F(-1)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	85	85	73	0	0	286	0	0	80
normalized size	1	1.	0.86	0.	0.	3.36	0.	0.	0.94
time (sec)	N/A	0.081	0.057	0.	0.	0.244	0.	0.	14.742

Problem 892	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F	F(-1)	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	85	85	146	0	0	286	0	0	82
normalized size	1	1.	1.72	0.	0.	3.36	0.	0.	0.96
time (sec)	N/A	0.109	0.263	0.059	0.	0.245	0.	0.	12.905

Problem 893	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F	F(-1)	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	134	134	180	0	0	903	0	0	119
normalized size	1	1.	1.34	0.	0.	6.74	0.	0.	0.89
time (sec)	N/A	0.196	0.305	0.05	0.	0.258	0.	0.	19.867

Problem 894	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F	F(-1)	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	206	206	211	0	0	1597	0	0	194
normalized size	1	1.	1.02	0.	0.	7.75	0.	0.	0.94
time (sec)	N/A	0.372	0.367	0.052	0.	0.281	0.	0.	45.699

Problem 895	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F	F(-1)	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	288	288	259	0	0	2272	0	0	279
normalized size	1	1.	0.9	0.	0.	7.89	0.	0.	0.97
time (sec)	N/A	0.622	0.493	0.058	0.	0.366	0.	0.	94.201

Problem 896	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F(-1)	F(-1)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	244	244	39	0	0	610	0	0	204
normalized size	1	1.	0.16	0.	0.	2.5	0.	0.	0.84
time (sec)	N/A	0.414	0.033	0.079	0.	0.248	0.	0.	36.436

Problem 897	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	A	F(-1)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	216	216	23	0	0	626	90	0	185
normalized size	1	1.	0.11	0.	0.	2.9	0.42	0.	0.86
time (sec)	N/A	0.298	0.017	0.079	0.	0.247	77.752	0.	31.748

Problem 898	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	F(-1)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	30	30	23	21	36	41	0	0	26
normalized size	1	1.	0.77	0.7	1.2	1.37	0.	0.	0.87
time (sec)	N/A	0.032	0.017	0.006	1.422	0.218	0.	0.	3.284

Problem 899	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	F(-1)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	51	51	35	28	46	50	0	0	39
normalized size	1	1.	0.69	0.55	0.9	0.98	0.	0.	0.76
time (sec)	N/A	0.064	0.023	0.007	1.426	0.213	0.	0.	7.437

Problem 900	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	F(-1)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	76	76	40	33	53	57	0	0	60
normalized size	1	1.	0.53	0.43	0.7	0.75	0.	0.	0.79
time (sec)	N/A	0.085	0.026	0.006	1.428	0.221	0.	0.	9.97

Problem 901	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F(-1)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	93	93	39	0	0	0	0	0	76
normalized size	1	1.	0.42	0.	0.	0.	0.	0.	0.82
time (sec)	N/A	0.109	0.031	0.069	0.	0.	0.	0.	12.297

Problem 902	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	A	F(-1)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	60	60	25	0	0	0	105	0	49
normalized size	1	1.	0.42	0.	0.	0.	1.75	0.	0.82
time (sec)	N/A	0.086	0.014	0.059	0.	0.	28.898	0.	9.536

Problem 903	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F(-1)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	42	42	44	0	0	0	0	0	39
normalized size	1	1.	1.05	0.	0.	0.	0.	0.	0.93
time (sec)	N/A	0.063	0.028	0.066	0.	0.	0.	0.	7.563

Problem 904	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F(-1)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	70	70	51	0	0	0	0	0	61
normalized size	1	1.	0.73	0.	0.	0.	0.	0.	0.87
time (sec)	N/A	0.087	0.051	0.069	0.	0.	0.	0.	9.833

Problem 905	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F(-1)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	95	95	60	0	0	0	0	0	83
normalized size	1	1.	0.63	0.	0.	0.	0.	0.	0.87
time (sec)	N/A	0.111	0.048	0.072	0.	0.	0.	0.	12.747

Problem 906	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	104	104	110	222	232	339	2402	641	92
normalized size	1	1.	1.06	2.13	2.23	3.26	23.1	6.16	0.88
time (sec)	N/A	0.14	0.14	0.01	1.365	0.237	7.803	0.301	23.263

Problem 907	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	74	74	72	114	153	215	1090	389	63
normalized size	1	1.	0.97	1.54	2.07	2.91	14.73	5.26	0.85
time (sec)	N/A	0.088	0.071	0.007	1.366	0.228	4.629	0.237	15.959

Problem 908	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	46	46	41	49	0	112	377	200	37
normalized size	1	1.	0.89	1.07	0.	2.43	8.2	4.35	0.8
time (sec)	N/A	0.046	0.039	0.004	0.	0.223	2.337	0.234	10.054

Problem 909	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F(-2)	F	A	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	56	56	67	0	0	0	170	0	41
normalized size	1	1.	1.2	0.	0.	0.	3.04	0.	0.73
time (sec)	N/A	0.05	0.093	0.035	0.	0.	7.676	0.	6.342

Problem 910	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	A	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	62	62	87	0	0	0	493	0	49
normalized size	1	1.	1.4	0.	0.	0.	7.95	0.	0.79
time (sec)	N/A	0.06	0.05	0.049	0.	0.	15.614	0.	6.896

Problem 911	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	157	157	225	547	429	788	6215	1	144
normalized size	1	1.	1.43	3.48	2.73	5.02	39.59	0.01	0.92
time (sec)	N/A	0.206	0.219	0.013	1.383	0.233	16.715	0.223	42.794

Problem 912	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	114	114	160	324	298	531	3402	976	100
normalized size	1	1.	1.4	2.84	2.61	4.66	29.84	8.56	0.88
time (sec)	N/A	0.141	0.159	0.013	1.382	0.226	9.812	0.237	27.919

Problem 913	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	78	78	99	159	0	317	1504	574	66
normalized size	1	1.	1.27	2.04	0.	4.06	19.28	7.36	0.85
time (sec)	N/A	0.08	0.124	0.01	0.	0.222	5.741	0.234	19.418

Problem 914	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F(-2)	F	A	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	88	88	119	0	0	0	386	0	71
normalized size	1	1.	1.35	0.	0.	0.	4.39	0.	0.81
time (sec)	N/A	0.108	0.319	0.043	0.	0.	10.131	0.	16.333

Problem 915	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F(-2)	F	A	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	87	87	117	0	0	0	554	0	70
normalized size	1	1.	1.34	0.	0.	0.	6.37	0.	0.8
time (sec)	N/A	0.115	0.308	0.069	0.	0.	13.436	0.	14.407

Problem 916	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	A	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	124	124	135	0	0	0	1807	0	102
normalized size	1	1.	1.09	0.	0.	0.	14.57	0.	0.82
time (sec)	N/A	0.192	0.113	0.063	0.	0.	19.961	0.	16.564

Problem 917	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	A	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	130	130	143	0	0	0	5367	0	105
normalized size	1	1.	1.1	0.	0.	0.	41.28	0.	0.81
time (sec)	N/A	0.23	0.135	0.073	0.	0.	27.429	0.	17.473

Problem 918	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	212	212	403	1073	684	1451	12893	1	197
normalized size	1	1.	1.9	5.06	3.23	6.84	60.82	0.	0.93
time (sec)	N/A	0.29	0.48	0.015	1.366	0.231	33.969	0.234	61.049

Problem 919	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	154	154	296	685	495	1034	7776	1	138
normalized size	1	1.	1.92	4.45	3.21	6.71	50.49	0.01	0.9
time (sec)	N/A	0.197	0.281	0.015	1.373	0.253	28.54	0.225	43.044

Problem 920	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	110	110	195	389	0	671	4056	1233	95
normalized size	1	1.	1.77	3.54	0.	6.1	36.87	11.21	0.86
time (sec)	N/A	0.112	0.264	0.013	0.	0.226	11.742	0.231	29.699

Problem 921	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F(-2)	F	A	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	131	131	251	0	0	0	993	0	116
normalized size	1	1.	1.92	0.	0.	0.	7.58	0.	0.89
time (sec)	N/A	0.149	0.615	0.059	0.	0.	14.423	0.	27.079

Problem 922	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F(-2)	F	A	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	143	143	172	0	0	0	770	0	121
normalized size	1	1.	1.2	0.	0.	0.	5.38	0.	0.85
time (sec)	N/A	0.331	0.501	0.058	0.	0.	16.321	0.	26.447

Problem 923	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F(-2)	F	A	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	176	176	171	0	0	0	1868	0	175
normalized size	1	1.	0.97	0.	0.	0.	10.61	0.	0.99
time (sec)	N/A	0.477	0.489	0.066	0.	0.	21.406	0.	31.513

Problem 924	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	22	22	22	23	43	39	0	66	17
normalized size	1	1.	1.	1.05	1.95	1.77	0.	3.	0.77
time (sec)	N/A	0.017	0.039	0.006	1.537	0.247	0.	0.238	3.976

Problem 925	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	108	108	164	0	0	0	0	0	85
normalized size	1	1.	1.52	0.	0.	0.	0.	0.	0.79
time (sec)	N/A	0.155	0.394	0.064	0.	0.	0.	0.	23.973

Problem 926	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	78	78	86	0	0	0	0	0	54
normalized size	1	1.	1.1	0.	0.	0.	0.	0.	0.69
time (sec)	N/A	0.07	0.164	0.059	0.	0.	0.	0.	10.401

Problem 927	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	51	51	66	0	0	0	0	0	37
normalized size	1	1.	1.29	0.	0.	0.	0.	0.	0.73
time (sec)	N/A	0.031	0.024	0.056	0.	0.	0.	0.	5.404

Problem 928	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	95	95	105	0	0	0	0	0	66
normalized size	1	1.	1.11	0.	0.	0.	0.	0.	0.69
time (sec)	N/A	0.087	0.107	0.054	0.	0.	0.	0.	12.169

Problem 929	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	124	124	155	0	0	0	0	0	95
normalized size	1	1.	1.25	0.	0.	0.	0.	0.	0.77
time (sec)	N/A	0.217	0.304	0.079	0.	0.	0.	0.	39.513

Problem 930	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	203	203	126	0	0	0	0	0	178
normalized size	1	1.	0.62	0.	0.	0.	0.	0.	0.88
time (sec)	N/A	0.481	0.376	0.083	0.	0.	0.	0.	43.506

Problem 931	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	122	122	126	0	0	0	0	0	102
normalized size	1	1.	1.03	0.	0.	0.	0.	0.	0.84
time (sec)	N/A	0.225	0.335	0.077	0.	0.	0.	0.	27.672

Problem 932	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	99	99	126	0	0	0	0	0	73
normalized size	1	1.	1.27	0.	0.	0.	0.	0.	0.74
time (sec)	N/A	0.104	0.329	0.072	0.	0.	0.	0.	13.846

Problem 933	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F	F	A
verified	N/A	Yes	N/A	TBD	TBD	TBD	TBD	TBD	TBD
size	52	52	0	0	0	0	0	0	39
normalized size	1	1.	0.	0.	0.	0.	0.	0.	0.75
time (sec)	N/A	0.032	0.04	0.069	0.	0.	0.	0.	5.205

Problem 934	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F	F	A
verified	N/A	Yes	N/A	TBD	TBD	TBD	TBD	TBD	TBD
size	139	139	0	0	0	0	0	0	107
normalized size	1	1.	0.	0.	0.	0.	0.	0.	0.77
time (sec)	N/A	0.243	0.077	0.066	0.	0.	0.	0.	41.457

Problem 935	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F	F	A
verified	N/A	Yes	N/A	TBD	TBD	TBD	TBD	TBD	TBD
size	190	190	0	0	0	0	0	0	156
normalized size	1	1.	0.	0.	0.	0.	0.	0.	0.82
time (sec)	N/A	0.567	0.089	0.093	0.	0.	0.	0.	75.78

Problem 936	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	195	195	100	0	0	0	0	0	173
normalized size	1	1.	0.51	0.	0.	0.	0.	0.	0.89
time (sec)	N/A	0.328	0.134	0.04	0.	0.	0.	0.	33.296

Problem 937	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	107	107	73	0	0	0	0	0	87
normalized size	1	1.	0.68	0.	0.	0.	0.	0.	0.81
time (sec)	N/A	0.126	0.07	0.032	0.	0.	0.	0.	11.892

Problem 938	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	61	61	239	0	0	0	0	0	46
normalized size	1	1.	3.92	0.	0.	0.	0.	0.	0.75
time (sec)	N/A	0.22	0.725	0.052	0.	0.	0.	0.	11.366

Problem 939	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	61	61	345	0	0	0	0	0	48
normalized size	1	1.	5.66	0.	0.	0.	0.	0.	0.79
time (sec)	N/A	0.234	1.161	0.043	0.	0.	0.	0.	11.444

Problem 940	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	A	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	209	209	124	0	0	0	131	0	177
normalized size	1	1.	0.59	0.	0.	0.	0.63	0.	0.85
time (sec)	N/A	0.459	0.201	0.09	0.	0.	83.278	0.	56.668

Problem 941	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	A	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	108	99	82	0	0	0	82	0	87
normalized size	1	0.92	0.76	0.	0.	0.	0.76	0.	0.81
time (sec)	N/A	0.138	0.087	0.071	0.	0.	40.557	0.	16.104

Problem 942	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	63	63	153	0	0	0	0	0	46
normalized size	1	1.	2.43	0.	0.	0.	0.	0.	0.73
time (sec)	N/A	0.103	0.403	0.081	0.	0.	0.	0.	12.467

Problem 943	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	63	63	153	0	0	0	0	0	48
normalized size	1	1.	2.43	0.	0.	0.	0.	0.	0.76
time (sec)	N/A	0.103	0.415	0.086	0.	0.	0.	0.	12.683

Problem 944	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	81	81	163	0	0	0	0	0	61
normalized size	1	1.	2.01	0.	0.	0.	0.	0.	0.75
time (sec)	N/A	0.14	0.516	0.181	0.	0.	0.	0.	19.977

Problem 945	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	211	238	174	0	0	0	0	0	199
normalized size	1	1.13	0.82	0.	0.	0.	0.	0.	0.94
time (sec)	N/A	0.429	0.238	0.2	0.	0.	0.	0.	60.343

Problem 946	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	206	216	136	0	0	0	0	0	185
normalized size	1	1.05	0.66	0.	0.	0.	0.	0.	0.9
time (sec)	N/A	0.425	0.391	0.095	0.	0.	0.	0.	60.678

Problem 947	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	117	129	136	0	0	0	0	0	104
normalized size	1	1.1	1.16	0.	0.	0.	0.	0.	0.89
time (sec)	N/A	0.149	0.367	0.085	0.	0.	0.	0.	25.713

Problem 948	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	61	74	73	0	0	0	0	0	56
normalized size	1	1.21	1.2	0.	0.	0.	0.	0.	0.92
time (sec)	N/A	0.065	0.095	0.121	0.	0.	0.	0.	13.92

Problem 949	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	85	85	214	0	0	0	0	0	63
normalized size	1	1.	2.52	0.	0.	0.	0.	0.	0.74
time (sec)	N/A	0.116	0.382	0.079	0.	0.	0.	0.	17.523

Problem 950	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	85	85	216	0	0	0	0	0	65
normalized size	1	1.	2.54	0.	0.	0.	0.	0.	0.76
time (sec)	N/A	0.122	0.427	0.082	0.	0.	0.	0.	17.496

Problem 951	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	79	79	159	0	0	0	0	0	61
normalized size	1	1.	2.01	0.	0.	0.	0.	0.	0.77
time (sec)	N/A	0.134	0.384	0.082	0.	0.	0.	0.	18.538

Problem 952	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	79	79	157	0	0	0	0	0	61
normalized size	1	1.	1.99	0.	0.	0.	0.	0.	0.77
time (sec)	N/A	0.133	0.375	0.059	0.	0.	0.	0.	18.386

Problem 953	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	77	77	157	0	0	0	0	0	60
normalized size	1	1.	2.04	0.	0.	0.	0.	0.	0.78
time (sec)	N/A	0.136	0.365	0.059	0.	0.	0.	0.	18.342

Problem 954	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	49	49	163	0	0	0	0	0	37
normalized size	1	1.	3.33	0.	0.	0.	0.	0.	0.76
time (sec)	N/A	0.066	0.44	0.207	0.	0.	0.	0.	6.11

Problem 955	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	65	65	163	0	0	0	0	0	49
normalized size	1	1.	2.51	0.	0.	0.	0.	0.	0.75
time (sec)	N/A	0.102	0.514	0.178	0.	0.	0.	0.	12.444

Problem 956	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	47	47	159	0	0	0	0	0	37
normalized size	1	1.	3.38	0.	0.	0.	0.	0.	0.79
time (sec)	N/A	0.055	0.322	0.073	0.	0.	0.	0.	5.633

Problem 957	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	63	63	159	0	0	0	0	0	49
normalized size	1	1.	2.52	0.	0.	0.	0.	0.	0.78
time (sec)	N/A	0.094	0.377	0.057	0.	0.	0.	0.	11.43

Problem 958	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	295	295	130	0	0	0	0	0	275
normalized size	1	1.	0.44	0.	0.	0.	0.	0.	0.93
time (sec)	N/A	0.605	0.364	0.092	0.	0.	0.	0.	51.757

Problem 959	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	199	199	130	0	0	0	0	0	160
normalized size	1	1.	0.65	0.	0.	0.	0.	0.	0.8
time (sec)	N/A	0.368	0.108	0.089	0.	0.	0.	0.	34.198

Problem 960	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	124	120	130	0	0	0	0	0	95
normalized size	1	0.97	1.05	0.	0.	0.	0.	0.	0.77
time (sec)	N/A	0.158	0.118	0.082	0.	0.	0.	0.	20.19

Problem 961	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	72	72	80	0	0	0	0	0	54
normalized size	1	1.	1.11	0.	0.	0.	0.	0.	0.75
time (sec)	N/A	0.064	0.069	0.001	0.	0.	0.	0.	14.166

Problem 962	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	108	108	216	0	0	0	0	0	90
normalized size	1	1.	2.	0.	0.	0.	0.	0.	0.83
time (sec)	N/A	0.15	0.406	0.079	0.	0.	0.	0.	23.14

Problem 963	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	62	62	141	0	0	0	0	0	48
normalized size	1	1.	2.27	0.	0.	0.	0.	0.	0.77
time (sec)	N/A	0.055	0.299	0.082	0.	0.	0.	0.	6.097

Problem 964	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	117	117	146	0	0	0	0	0	92
normalized size	1	1.	1.25	0.	0.	0.	0.	0.	0.79
time (sec)	N/A	0.142	0.364	0.094	0.	0.	0.	0.	12.811

Problem 965	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	194	194	146	0	0	0	0	0	180
normalized size	1	1.	0.75	0.	0.	0.	0.	0.	0.93
time (sec)	N/A	0.376	0.47	0.096	0.	0.	0.	0.	48.888

Problem 966	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	105	105	79	0	0	0	0	0	82
normalized size	1	1.	0.75	0.	0.	0.	0.	0.	0.78
time (sec)	N/A	0.185	0.173	0.098	0.	0.	0.	0.	11.058

Problem 967	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	94	94	79	0	0	0	0	0	68
normalized size	1	1.	0.84	0.	0.	0.	0.	0.	0.72
time (sec)	N/A	0.097	0.147	0.079	0.	0.	0.	0.	9.557

Problem 968	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	61	61	79	0	0	0	0	0	44
normalized size	1	1.	1.3	0.	0.	0.	0.	0.	0.72
time (sec)	N/A	0.048	0.146	0.079	0.	0.	0.	0.	5.478

Problem 969	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	38	38	40	0	0	0	0	0	26
normalized size	1	1.	1.05	0.	0.	0.	0.	0.	0.68
time (sec)	N/A	0.022	0.028	0.088	0.	0.	0.	0.	3.488

Problem 970	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	68	68	140	0	0	0	0	0	61
normalized size	1	1.	2.06	0.	0.	0.	0.	0.	0.9
time (sec)	N/A	0.077	0.315	0.073	0.	0.	0.	0.	7.951

Problem 971	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	44	44	90	0	0	0	0	0	34
normalized size	1	1.	2.05	0.	0.	0.	0.	0.	0.77
time (sec)	N/A	0.036	0.222	0.085	0.	0.	0.	0.	4.208

Problem 972	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	71	71	95	0	0	0	0	0	53
normalized size	1	1.	1.34	0.	0.	0.	0.	0.	0.75
time (sec)	N/A	0.061	0.232	0.081	0.	0.	0.	0.	6.608

Problem 973	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	105	105	95	0	0	0	0	0	80
normalized size	1	1.	0.9	0.	0.	0.	0.	0.	0.76
time (sec)	N/A	0.125	0.24	0.105	0.	0.	0.	0.	13.952

Problem 974	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	36	36	38	0	0	0	0	0	27
normalized size	1	1.	1.06	0.	0.	0.	0.	0.	0.75
time (sec)	N/A	0.044	0.038	0.199	0.	0.	0.	0.	7.409

Problem 975	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	39	39	68	0	0	0	0	0	31
normalized size	1	1.	1.74	0.	0.	0.	0.	0.	0.79
time (sec)	N/A	0.048	0.074	0.243	0.	0.	0.	0.	7.888

Problem 976	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	42	42	42	0	0	0	0	0	32
normalized size	1	1.	1.	0.	0.	0.	0.	0.	0.76
time (sec)	N/A	0.047	0.05	0.194	0.	0.	0.	0.	7.504

Problem 977	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	42	42	74	0	0	0	0	0	32
normalized size	1	1.	1.76	0.	0.	0.	0.	0.	0.76
time (sec)	N/A	0.044	0.075	0.224	0.	0.	0.	0.	7.488

Problem 978	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	151	151	171	0	0	0	0	0	112
normalized size	1	1.	1.13	0.	0.	0.	0.	0.	0.74
time (sec)	N/A	0.25	0.213	0.24	0.	0.	0.	0.	40.311

Problem 979	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	99	99	117	0	0	0	0	0	71
normalized size	1	1.	1.18	0.	0.	0.	0.	0.	0.72
time (sec)	N/A	0.136	0.148	0.24	0.	0.	0.	0.	15.578

Problem 980	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	42	42	73	0	0	0	0	0	34
normalized size	1	1.	1.74	0.	0.	0.	0.	0.	0.81
time (sec)	N/A	0.045	0.063	0.221	0.	0.	0.	0.	7.87

Problem 981	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	104	104	168	0	0	0	0	0	75
normalized size	1	1.	1.62	0.	0.	0.	0.	0.	0.72
time (sec)	N/A	0.192	0.395	0.237	0.	0.	0.	0.	16.75

Problem 982	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	158	158	163	0	0	0	0	0	117
normalized size	1	1.	1.03	0.	0.	0.	0.	0.	0.74
time (sec)	N/A	0.336	0.443	0.234	0.	0.	0.	0.	27.188

Problem 983	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	79	79	308	0	0	0	0	0	61
normalized size	1	1.	3.9	0.	0.	0.	0.	0.	0.77
time (sec)	N/A	0.15	1.079	0.214	0.	0.	0.	0.	16.923

Problem 984	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	79	79	154	0	0	0	0	0	54
normalized size	1	1.	1.95	0.	0.	0.	0.	0.	0.68
time (sec)	N/A	0.134	0.464	0.2	0.	0.	0.	0.	18.826

Problem 985	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	83	83	75	0	0	0	0	0	71
normalized size	1	1.	0.9	0.	0.	0.	0.	0.	0.86
time (sec)	N/A	0.076	0.211	0.201	0.	0.	0.	0.	5.896

Problem 986	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	70	70	139	0	0	0	0	0	44
normalized size	1	1.	1.99	0.	0.	0.	0.	0.	0.63
time (sec)	N/A	0.059	0.318	0.17	0.	0.	0.	0.	7.216

Problem 987	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	50	50	44	0	0	0	0	0	36
normalized size	1	1.	0.88	0.	0.	0.	0.	0.	0.72
time (sec)	N/A	0.064	0.048	0.178	0.	0.	0.	0.	8.117

Problem 988	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	86	86	182	0	0	0	0	0	70
normalized size	1	1.	2.12	0.	0.	0.	0.	0.	0.81
time (sec)	N/A	0.107	0.353	0.072	0.	0.	0.	0.	12.679

Problem 989	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	C	C	F	F	F	F(-1)	F	A
verified	N/A	NO	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	131	48	158	0	0	0	0	0	36
normalized size	1	0.37	1.21	0.	0.	0.	0.	0.	0.27
time (sec)	N/A	0.067	0.417	0.076	0.	0.	0.	0.	6.504

Problem 990	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	28	28	27	98	90	90	68	104	26
normalized size	1	1.	0.96	3.5	3.21	3.21	2.43	3.71	0.93
time (sec)	N/A	0.038	0.03	0.02	1.357	0.215	7.261	0.216	4.184

Problem 991	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	28	28	27	182	166	166	0	180	26
normalized size	1	1.	0.96	6.5	5.93	5.93	0.	6.43	0.93
time (sec)	N/A	0.035	0.04	0.023	1.387	0.225	0.	0.218	4.232

Problem 992	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	28	28	27	290	266	266	0	277	26
normalized size	1	1.	0.96	10.36	9.5	9.5	0.	9.89	0.93
time (sec)	N/A	0.033	0.077	0.033	1.473	0.327	0.	0.22	4.253

Problem 993	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	54	54	49	52	85	100	0	383	39
normalized size	1	1.	0.91	0.96	1.57	1.85	0.	7.09	0.72
time (sec)	N/A	0.079	0.096	0.007	1.355	0.238	0.	0.23	8.183

Problem 994	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	77	77	172	176	236	1	226	281	68
normalized size	1	1.	2.23	2.29	3.06	0.01	2.94	3.65	0.88
time (sec)	N/A	0.315	0.102	0.001	1.331	0.188	0.186	0.215	29.52

Problem 995	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	77	77	130	135	181	1	168	215	68
normalized size	1	1.	1.69	1.75	2.35	0.01	2.18	2.79	0.88
time (sec)	N/A	0.221	0.073	0.002	1.342	0.185	0.156	0.215	25.103

Problem 996	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	77	77	96	94	126	1	116	153	68
normalized size	1	1.	1.25	1.22	1.64	0.01	1.51	1.99	0.88
time (sec)	N/A	0.167	0.052	0.001	1.324	0.179	0.131	0.215	21.777

Problem 997	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	56	56	53	53	70	1	63	89	0
normalized size	1	1.	0.95	0.95	1.25	0.02	1.12	1.59	0.
time (sec)	N/A	0.107	0.034	0.002	1.326	0.18	0.098	0.215	0.

Problem 998	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	28	28	28	25	32	1	26	35	0
normalized size	1	1.	1.	0.89	1.14	0.04	0.93	1.25	0.
time (sec)	N/A	0.041	0.007	0.002	1.36	0.191	0.071	0.212	0.

Problem 999	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	60	60	56	90	89	92	53	96	0
normalized size	1	1.	0.93	1.5	1.48	1.53	0.88	1.6	0.
time (sec)	N/A	0.101	0.042	0.005	1.34	0.203	1.814	0.218	0.

Problem 1000	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	63	63	56	106	100	138	71	157	0
normalized size	1	1.	0.89	1.68	1.59	2.19	1.13	2.49	0.
time (sec)	N/A	0.128	0.084	0.012	1.354	0.211	2.716	0.231	0.

Problem 1001	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	70	70	72	118	117	142	94	107	63
normalized size	1	1.	1.03	1.69	1.67	2.03	1.34	1.53	0.9
time (sec)	N/A	0.12	0.057	0.01	1.346	0.206	4.406	0.219	19.176

Problem 1002	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	75	75	63	79	126	126	107	93	66
normalized size	1	1.	0.84	1.05	1.68	1.68	1.43	1.24	0.88
time (sec)	N/A	0.122	0.052	0.007	1.339	0.203	7.241	0.216	19.587

Problem 1003	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	77	77	62	79	138	138	117	166	70
normalized size	1	1.	0.81	1.03	1.79	1.79	1.52	2.16	0.91
time (sec)	N/A	0.128	0.055	0.007	1.337	0.201	11.995	0.219	19.975

Problem 1004	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	77	77	65	79	158	158	134	96	70
normalized size	1	1.	0.84	1.03	2.05	2.05	1.74	1.25	0.91
time (sec)	N/A	0.129	0.055	0.009	1.338	0.214	18.161	0.22	20.202

Problem 1005	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	120	120	283	305	410	1	384	489	112
normalized size	1	1.	2.36	2.54	3.42	0.01	3.2	4.08	0.93
time (sec)	N/A	0.579	0.162	0.003	1.336	0.19	0.251	0.212	56.411

Problem 1006	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	120	120	216	237	319	1	296	379	112
normalized size	1	1.	1.8	1.98	2.66	0.01	2.47	3.16	0.93
time (sec)	N/A	0.392	0.121	0.002	1.352	0.193	0.223	0.213	46.348

Problem 1007	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	118	118	157	169	227	1	202	269	112
normalized size	1	1.	1.33	1.43	1.92	0.01	1.71	2.28	0.95
time (sec)	N/A	0.317	0.088	0.002	1.347	0.186	0.181	0.211	40.885

Problem 1008	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	75	75	96	101	135	1	116	161	68
normalized size	1	1.	1.28	1.35	1.8	0.01	1.55	2.15	0.91
time (sec)	N/A	0.173	0.045	0.001	1.346	0.183	0.132	0.216	22.062

Problem 1009	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	38	38	46	49	65	1	49	66	31
normalized size	1	1.	1.21	1.29	1.71	0.03	1.29	1.74	0.82
time (sec)	N/A	0.068	0.015	0.	1.341	0.184	0.112	0.212	9.448

Problem 1010	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	92	92	102	197	205	207	117	219	0
normalized size	1	1.	1.11	2.14	2.23	2.25	1.27	2.38	0.
time (sec)	N/A	0.152	0.097	0.006	1.348	0.209	2.639	0.221	0.

Problem 1011	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	101	101	98	223	211	321	148	306	0
normalized size	1	1.	0.97	2.21	2.09	3.18	1.47	3.03	0.
time (sec)	N/A	0.247	0.141	0.013	1.351	0.207	4.737	0.222	0.

Problem 1012	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	106	106	143	242	224	333	187	211	0
normalized size	1	1.	1.35	2.28	2.11	3.14	1.76	1.99	0.
time (sec)	N/A	0.235	0.132	0.013	1.37	0.211	11.439	0.216	0.

Problem 1013	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	101	101	138	251	248	298	211	220	87
normalized size	1	1.	1.37	2.49	2.46	2.95	2.09	2.18	0.86
time (sec)	N/A	0.188	0.139	0.01	1.361	0.204	25.211	0.217	22.837

Problem 1014	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	86	86	125	166	252	252	221	347	73
normalized size	1	1.	1.45	1.93	2.93	2.93	2.57	4.03	0.85
time (sec)	N/A	0.106	0.111	0.007	1.368	0.201	51.911	0.216	11.836

Problem 1015	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	120	120	129	166	274	274	236	216	114
normalized size	1	1.	1.08	1.38	2.28	2.28	1.97	1.8	0.95
time (sec)	N/A	0.256	0.115	0.008	1.369	0.216	104.11	0.215	36.103

Problem 1016	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	120	120	126	166	281	281	0	213	114
normalized size	1	1.	1.05	1.38	2.34	2.34	0.	1.78	0.95
time (sec)	N/A	0.235	0.108	0.009	1.362	0.209	0.	0.211	36.838

Problem 1017	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	120	120	129	166	304	304	0	216	114
normalized size	1	1.	1.08	1.38	2.53	2.53	0.	1.8	0.95
time (sec)	N/A	0.216	0.104	0.009	1.365	0.22	0.	0.219	37.637

Problem 1018	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	163	163	471	529	699	1	678	856	155
normalized size	1	1.	2.89	3.25	4.29	0.01	4.16	5.25	0.95
time (sec)	N/A	1.029	0.322	0.004	1.364	0.191	0.368	0.215	86.995

Problem 1019	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	163	163	397	434	574	1	546	699	155
normalized size	1	1.	2.44	2.66	3.52	0.01	3.35	4.29	0.95
time (sec)	N/A	0.844	0.28	0.001	1.363	0.195	0.322	0.221	80.537

Problem 1020	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	159	159	297	339	439	1	422	543	153
normalized size	1	1.	1.87	2.13	2.76	0.01	2.65	3.42	0.96
time (sec)	N/A	0.581	0.181	0.001	1.35	0.192	0.281	0.219	72.669

Problem 1021	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	118	118	224	244	323	1	296	387	112
normalized size	1	1.	1.9	2.07	2.74	0.01	2.51	3.28	0.95
time (sec)	N/A	0.384	0.121	0.	1.357	0.192	0.235	0.218	46.979

Problem 1022	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	75	75	130	149	197	1	168	231	68
normalized size	1	1.	1.73	1.99	2.63	0.01	2.24	3.08	0.91
time (sec)	N/A	0.241	0.066	0.001	1.352	0.185	0.172	0.218	25.343

Problem 1023	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	38	38	67	73	93	1	73	97	31
normalized size	1	1.	1.76	1.92	2.45	0.03	1.92	2.55	0.82
time (sec)	N/A	0.045	0.018	0.	1.343	0.187	0.13	0.229	10.59

Problem 1024	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	124	124	169	341	348	351	214	383	0
normalized size	1	1.	1.36	2.75	2.81	2.83	1.73	3.09	0.
time (sec)	N/A	0.194	0.154	0.007	1.339	0.21	3.656	0.226	0.

Problem 1025	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	150	150	244	376	360	535	250	489	143
normalized size	1	1.	1.63	2.51	2.4	3.57	1.67	3.26	0.95
time (sec)	N/A	0.415	0.182	0.013	1.368	0.215	7.559	0.232	51.185

Problem 1026	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	145	145	238	404	370	567	296	369	0
normalized size	1	1.	1.64	2.79	2.55	3.91	2.04	2.54	0.
time (sec)	N/A	0.368	0.196	0.013	1.376	0.213	21.759	0.227	0.

Problem 1027	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	149	149	232	419	383	548	337	360	0
normalized size	1	1.	1.56	2.81	2.57	3.68	2.26	2.42	0.
time (sec)	N/A	0.368	0.199	0.014	1.368	0.215	62.646	0.222	0.

Problem 1028	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	129	129	222	430	408	478	359	603	114
normalized size	1	1.	1.72	3.33	3.16	3.71	2.78	4.67	0.88
time (sec)	N/A	0.248	0.194	0.012	1.381	0.209	171.014	0.245	33.09

Problem 1029	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	86	86	211	281	410	410	0	379	73
normalized size	1	1.	2.45	3.27	4.77	4.77	0.	4.41	0.85
time (sec)	N/A	0.106	0.2	0.01	1.38	0.208	0.	0.227	11.952

Problem 1030	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	133	133	211	281	428	428	0	381	116
normalized size	1	1.	1.59	2.11	3.22	3.22	0.	2.86	0.87
time (sec)	N/A	0.212	0.174	0.008	1.377	0.209	0.	0.233	20.962

Problem 1031	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	163	163	215	281	448	448	0	382	156
normalized size	1	1.	1.32	1.72	2.75	2.75	0.	2.34	0.96
time (sec)	N/A	0.393	0.161	0.01	1.381	0.202	0.	0.232	57.383

Problem 1032	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	163	163	211	281	452	452	0	379	155
normalized size	1	1.	1.29	1.72	2.77	2.77	0.	2.33	0.95
time (sec)	N/A	0.373	0.18	0.01	1.392	0.207	0.	0.213	60.003

Problem 1033	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	163	163	214	281	478	478	0	382	156
normalized size	1	1.	1.31	1.72	2.93	2.93	0.	2.34	0.96
time (sec)	N/A	0.361	0.19	0.01	1.438	0.21	0.	0.212	62.821

Problem 1034	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	292	292	1385	1525	2068	1	1969	1	0
normalized size	1	1.	4.74	5.22	7.08	0.	6.74	0.	0.
time (sec)	N/A	4.948	1.079	0.003	1.388	0.208	0.837	0.213	0.

Problem 1035	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	292	292	1224	1349	1831	1	1756	1	0
normalized size	1	1.	4.19	4.62	6.27	0.	6.01	0.	0.
time (sec)	N/A	3.81	0.951	0.004	1.396	0.191	0.75	0.216	0.

Problem 1036	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	290	290	1069	1173	1582	1	1504	1	0
normalized size	1	1.	3.69	4.04	5.46	0.	5.19	0.	0.
time (sec)	N/A	3.21	0.805	0.003	1.376	0.196	0.703	0.225	0.

Problem 1037	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	240	240	907	997	1346	1	1278	1	240
normalized size	1	1.	3.78	4.15	5.61	0.	5.32	0.	1.
time (sec)	N/A	2.494	0.653	0.003	1.358	0.194	0.603	0.231	158.159

Problem 1038	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	204	204	762	821	1118	1	1035	1	202
normalized size	1	1.	3.74	4.02	5.48	0.	5.07	0.	0.99
time (sec)	N/A	1.94	0.528	0.003	1.358	0.191	0.515	0.226	118.162

Problem 1039	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	159	159	586	645	868	1	802	1037	153
normalized size	1	1.	3.69	4.06	5.46	0.01	5.04	6.52	0.96
time (sec)	N/A	1.21	0.384	0.003	1.355	0.189	0.437	0.228	83.211

Problem 1040	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	118	118	386	469	643	1	568	745	112
normalized size	1	1.	3.27	3.97	5.45	0.01	4.81	6.31	0.95
time (sec)	N/A	0.869	0.561	0.003	1.337	0.191	0.339	0.228	56.356

Problem 1041	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	75	75	231	293	401	1	333	452	68
normalized size	1	1.	3.08	3.91	5.35	0.01	4.44	6.03	0.91
time (sec)	N/A	0.457	0.284	0.001	1.334	0.186	0.245	0.24	33.747

Problem 1042	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	38	38	122	145	192	1	148	196	31
normalized size	1	1.	3.21	3.82	5.05	0.03	3.89	5.16	0.82
time (sec)	N/A	0.048	0.061	0.003	1.334	0.188	0.187	0.229	16.826

Problem 1043	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	220	220	501	989	1029	1030	709	1	0
normalized size	1	1.	2.28	4.5	4.68	4.68	3.22	0.	0.
time (sec)	N/A	0.409	0.543	0.011	1.386	0.21	8.342	0.223	0.

Problem 1044	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	277	277	643	1047	1041	1440	755	1	284
normalized size	1	1.	2.32	3.78	3.76	5.2	2.73	0.	1.03
time (sec)	N/A	1.552	0.574	0.02	1.352	0.217	18.154	0.231	151.415

Problem 1045	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	276	276	352	1101	1052	1589	802	1094	0
normalized size	1	1.	1.28	3.99	3.81	5.76	2.91	3.96	0.
time (sec)	N/A	1.313	0.342	0.025	1.386	0.213	74.492	0.233	0.

Problem 1046	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	279	279	297	1143	1071	1654	0	1075	0
normalized size	1	1.	1.06	4.1	3.84	5.93	0.	3.85	0.
time (sec)	N/A	1.207	0.324	0.026	1.401	0.211	0.	0.233	0.

Problem 1047	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	279	279	263	1177	1081	1650	0	1	284
normalized size	1	1.	0.94	4.22	3.87	5.91	0.	0.	1.02
time (sec)	N/A	1.112	0.377	0.024	1.423	0.219	0.	0.23	129.116

Problem 1048	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	F(-1)	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	272	272	633	1202	1099	1562	0	1052	0
normalized size	1	1.	2.33	4.42	4.04	5.74	0.	3.87	0.
time (sec)	N/A	1.014	0.649	0.029	1.421	0.225	0.	0.229	0.

Problem 1049	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	F(-1)	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	278	278	619	1217	1112	1435	0	1046	0
normalized size	1	1.	2.23	4.38	4.	5.16	0.	3.76	0.
time (sec)	N/A	1.025	0.645	0.022	1.425	0.222	0.	0.233	0.

Problem 1050	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	213	213	615	1227	1137	1268	0	1052	196
normalized size	1	1.	2.89	5.76	5.34	5.95	0.	4.94	0.92
time (sec)	N/A	0.53	3.091	0.018	1.406	0.218	0.	0.236	74.543

Problem 1051	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	86	86	597	814	1111	1111	0	1	73
normalized size	1	1.	6.94	9.47	12.92	12.92	0.	0.01	0.85
time (sec)	N/A	0.117	0.95	0.016	1.519	0.216	0.	0.241	12.657

Problem 1052	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	135	135	603	814	1162	1162	0	1	122
normalized size	1	1.	4.47	6.03	8.61	8.61	0.	0.01	0.9
time (sec)	N/A	0.174	0.999	0.013	1.424	0.211	0.	0.238	25.472

Problem 1053	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	185	185	602	814	1177	1177	0	1	172
normalized size	1	1.	3.25	4.4	6.36	6.36	0.	0.01	0.93
time (sec)	N/A	0.244	0.956	0.012	1.43	0.206	0.	0.233	37.423

Problem 1054	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	235	235	605	814	1192	1192	0	1	221
normalized size	1	1.	2.57	3.46	5.07	5.07	0.	0.	0.94
time (sec)	N/A	0.301	0.965	0.013	1.421	0.21	0.	0.23	50.57

Problem 1055	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	F(-1)	A	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	292	292	600	814	1207	1207	0	1	0
normalized size	1	1.	2.05	2.79	4.13	4.13	0.	0.	0.
time (sec)	N/A	1.025	0.996	0.013	1.432	0.217	0.	0.226	0.

Problem 1056	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	F(-1)	A	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	292	292	605	814	1222	1222	0	1	0
normalized size	1	1.	2.07	2.79	4.18	4.18	0.	0.	0.
time (sec)	N/A	1.004	0.968	0.013	1.447	0.213	0.	0.231	0.

Problem 1057	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	F(-1)	A	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	292	292	602	814	1218	1218	0	1	0
normalized size	1	1.	2.06	2.79	4.17	4.17	0.	0.	0.
time (sec)	N/A	1.012	0.969	0.013	1.448	0.215	0.	0.223	0.

Problem 1058	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	464	464	3532	3893	5272	1	5092	1	0
normalized size	1	1.	7.61	8.39	11.36	0.	10.97	0.	0.
time (sec)	N/A	23.767	3.281	0.005	1.434	0.196	1.991	0.223	0.

Problem 1059	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	464	464	3320	3609	4888	1	4655	1	0
normalized size	1	1.	7.16	7.78	10.53	0.	10.03	0.	0.
time (sec)	N/A	20.667	3.1	0.006	1.421	0.191	1.88	0.215	0.

Problem 1060	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	461	461	3018	3325	4501	1	4328	1	0
normalized size	1	1.	6.55	7.21	9.76	0.	9.39	0.	0.
time (sec)	N/A	18.368	2.671	0.004	1.429	0.195	1.755	0.219	0.

Problem 1061	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	460	460	2815	3041	4115	1	3936	1	0
normalized size	1	1.	6.12	6.61	8.95	0.	8.56	0.	0.
time (sec)	N/A	15.895	2.37	0.006	1.414	0.199	1.63	0.211	0.

Problem 1062	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	415	415	2553	2757	3741	1	3541	1	0
normalized size	1	1.	6.15	6.64	9.01	0.	8.53	0.	0.
time (sec)	N/A	12.581	2.064	0.006	1.412	0.2	1.456	0.212	0.

Problem 1063	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	372	372	2307	2473	3357	1	3165	1	0
normalized size	1	1.	6.2	6.65	9.02	0.	8.51	0.	0.
time (sec)	N/A	10.796	1.769	0.006	1.404	0.195	1.313	0.212	0.

Problem 1064	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	329	329	2034	2189	2967	1	2824	1	0
normalized size	1	1.	6.18	6.65	9.02	0.	8.58	0.	0.
time (sec)	N/A	8.315	1.514	0.004	1.4	0.193	1.194	0.212	0.

Problem 1065	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	290	290	1788	1905	2588	1	2424	1	0
normalized size	1	1.	6.17	6.57	8.92	0.	8.36	0.	0.
time (sec)	N/A	6.847	1.351	0.004	1.392	0.194	1.055	0.211	0.

Problem 1066	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	243	243	1509	1621	2194	1	2076	1	0
normalized size	1	1.	6.21	6.67	9.03	0.	8.54	0.	0.
time (sec)	N/A	5.174	1.07	0.004	1.396	0.208	0.93	0.21	0.

Problem 1067	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	204	204	1098	1337	1825	1	1676	1	0
normalized size	1	1.	5.38	6.55	8.95	0.	8.22	0.	0.
time (sec)	N/A	3.945	2.263	0.003	1.375	0.198	0.775	0.216	0.

Problem 1068	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	159	159	855	1053	1442	1	1302	1	155
normalized size	1	1.	5.38	6.62	9.07	0.01	8.19	0.01	0.97
time (sec)	N/A	2.697	1.477	0.004	1.374	0.196	0.62	0.226	136.67

Problem 1069	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	118	118	614	769	1054	1	921	1	112
normalized size	1	1.	5.2	6.52	8.93	0.01	7.81	0.01	0.95
time (sec)	N/A	1.882	1.184	0.003	1.371	0.197	0.489	0.211	92.747

Problem 1070	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	75	75	383	485	666	1	549	744	68
normalized size	1	1.	5.11	6.47	8.88	0.01	7.32	9.92	0.91
time (sec)	N/A	1.044	0.358	0.003	1.357	0.192	0.35	0.213	52.209

Problem 1071	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	38	38	198	241	324	1	248	325	31
normalized size	1	1.	5.21	6.34	8.53	0.03	6.53	8.55	0.82
time (sec)	N/A	0.053	0.107	0.003	1.358	0.186	0.252	0.213	20.714

Problem 1072	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	348	348	1915	2357	2435	2437	1844	1	0
normalized size	1	1.	5.5	6.77	7.	7.	5.3	0.	0.
time (sec)	N/A	0.749	6.141	0.021	1.393	0.215	18.049	0.212	0.

Problem 1073	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	445	445	1486	2447	2453	3144	1904	1	0
normalized size	1	1.	3.34	5.5	5.51	7.07	4.28	0.	0.
time (sec)	N/A	6.508	1.561	0.033	1.395	0.246	40.185	0.224	0.

Problem 1074	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	F(-1)	A	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	445	445	1480	2532	2465	3438	0	1	0
normalized size	1	1.	3.33	5.69	5.54	7.73	0.	0.	0.
time (sec)	N/A	5.38	1.601	0.037	1.433	0.255	0.	0.214	0.

Problem 1075	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	445	445	814	2607	2483	3648	0	1	0
normalized size	1	1.	1.83	5.86	5.58	8.2	0.	0.	0.
time (sec)	N/A	4.415	1.	0.042	1.471	0.251	0.	0.216	0.

Problem 1076	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	444	444	686	2673	2492	3791	0	1	0
normalized size	1	1.	1.55	6.02	5.61	8.54	0.	0.	0.
time (sec)	N/A	3.831	0.949	0.045	1.577	0.257	0.	0.228	0.

Problem 1077	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	447	447	587	2731	2512	3849	0	1	0
normalized size	1	1.	1.31	6.11	5.62	8.61	0.	0.	0.
time (sec)	N/A	3.514	0.96	0.049	1.585	0.23	0.	0.217	0.

Problem 1078	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	447	447	505	2781	2523	3848	0	1	0
normalized size	1	1.	1.13	6.22	5.64	8.61	0.	0.	0.
time (sec)	N/A	2.946	1.015	0.05	1.63	0.229	0.	0.216	0.

Problem 1079	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	444	444	450	2823	2542	3757	0	1	0
normalized size	1	1.	1.01	6.36	5.73	8.46	0.	0.	0.
time (sec)	N/A	2.834	1.067	0.048	1.674	0.233	0.	0.217	0.

Problem 1080	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	445	445	415	2857	2554	3614	0	1	0
normalized size	1	1.	0.93	6.42	5.74	8.12	0.	0.	0.
time (sec)	N/A	2.619	1.139	0.044	2.645	0.24	0.	0.213	0.

Problem 1081	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	F(-1)	A	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	441	441	1460	2882	2570	3376	0	1	0
normalized size	1	1.	3.31	6.54	5.83	7.66	0.	0.	0.
time (sec)	N/A	2.461	2.025	0.04	1.628	0.228	0.	0.213	0.

Problem 1082	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	F(-1)	A	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	446	446	1447	2897	2584	3117	0	1	0
normalized size	1	1.	3.24	6.5	5.79	6.99	0.	0.	0.
time (sec)	N/A	2.478	1.955	0.033	1.536	0.237	0.	0.221	0.

Problem 1083	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	321	321	1992	2907	2608	2820	0	1	301
normalized size	1	1.	6.21	9.06	8.12	8.79	0.	0.	0.94
time (sec)	N/A	1.106	6.449	0.024	1.53	0.221	0.	0.214	146.666

Problem 1084	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	86	86	1421	1942	2531	2531	0	1	73
normalized size	1	1.	16.52	22.58	29.43	29.43	0.	0.01	0.85
time (sec)	N/A	0.127	2.801	0.018	1.535	0.218	0.	0.218	12.581

Problem 1085	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	135	135	1433	1942	2634	2634	0	1	122
normalized size	1	1.	10.61	14.39	19.51	19.51	0.	0.01	0.9
time (sec)	N/A	0.183	3.031	0.016	1.536	0.217	0.	0.215	24.761

Problem 1086	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	185	185	1430	1942	2649	2649	0	1	172
normalized size	1	1.	7.73	10.5	14.32	14.32	0.	0.01	0.93
time (sec)	N/A	0.243	3.101	0.018	1.56	0.216	0.	0.222	36.723

Problem 1087	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	235	235	1430	1942	2664	2664	0	1	221
normalized size	1	1.	6.09	8.26	11.34	11.34	0.	0.	0.94
time (sec)	N/A	0.309	3.03	0.016	1.567	0.213	0.	0.216	50.459

Problem 1088	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	285	285	1429	1942	2678	2678	0	1	270
normalized size	1	1.	5.01	6.81	9.4	9.4	0.	0.	0.95
time (sec)	N/A	0.391	2.92	0.016	1.574	0.213	0.	0.215	65.841

Problem 1089	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	335	335	1433	1942	2693	2693	0	1	320
normalized size	1	1.	4.28	5.8	8.04	8.04	0.	0.	0.96
time (sec)	N/A	0.463	3.993	0.016	1.571	0.22	0.	0.215	83.748

Problem 1090	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	385	385	1428	1942	2708	2708	0	1	369
normalized size	1	1.	3.71	5.04	7.03	7.03	0.	0.	0.96
time (sec)	N/A	0.547	3.053	0.016	1.606	0.219	0.	0.216	103.81

Problem 1091	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	F(-1)	A	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	460	460	1433	1942	2723	2723	0	1	0
normalized size	1	1.	3.12	4.22	5.92	5.92	0.	0.	0.
time (sec)	N/A	2.483	3.094	0.016	1.594	0.222	0.	0.214	0.

Problem 1092	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	F(-1)	A	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	462	462	1428	1942	2738	2738	0	1	0
normalized size	1	1.	3.09	4.2	5.93	5.93	0.	0.	0.
time (sec)	N/A	2.482	3.774	0.017	1.609	0.217	0.	0.218	0.

Problem 1093	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	F(-1)	A	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	464	464	1431	1942	2753	2753	0	1	0
normalized size	1	1.	3.08	4.19	5.93	5.93	0.	0.	0.
time (sec)	N/A	2.458	3.143	0.017	1.604	0.22	0.	0.214	0.

Problem 1094	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	187	187	368	737	760	764	510	857	0
normalized size	1	1.	1.97	3.94	4.06	4.09	2.73	4.58	0.
time (sec)	N/A	0.269	0.357	0.01	1.367	0.208	6.482	0.223	0.

Problem 1095	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	155	155	257	521	540	544	345	599	0
normalized size	1	1.	1.66	3.36	3.48	3.51	2.23	3.86	0.
time (sec)	N/A	0.216	0.246	0.008	1.35	0.214	4.932	0.217	0.

Problem 1096	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	123	123	169	341	359	363	214	387	0
normalized size	1	1.	1.37	2.77	2.92	2.95	1.74	3.15	0.
time (sec)	N/A	0.17	0.163	0.007	1.35	0.209	3.489	0.218	0.

Problem 1097	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	91	91	102	197	209	213	117	221	0
normalized size	1	1.	1.12	2.16	2.3	2.34	1.29	2.43	0.
time (sec)	N/A	0.124	0.094	0.004	1.355	0.215	2.502	0.216	0.

Problem 1098	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	59	59	56	90	97	101	53	100	0
normalized size	1	1.	0.95	1.53	1.64	1.71	0.9	1.69	0.
time (sec)	N/A	0.095	0.039	0.004	1.355	0.222	1.81	0.215	0.

Problem 1099	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	25	25	25	32	35	34	20	36	0
normalized size	1	1.	1.	1.28	1.4	1.36	0.8	1.44	0.
time (sec)	N/A	0.038	0.013	0.002	1.344	0.213	1.232	0.226	0.

Problem 1100	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	57	57	50	84	78	72	226	165	42
normalized size	1	1.	0.88	1.47	1.37	1.26	3.96	2.89	0.74
time (sec)	N/A	0.097	0.044	0.009	1.347	0.222	4.533	0.245	14.952

Problem 1101	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	82	82	80	123	161	200	355	149	63
normalized size	1	1.	0.98	1.5	1.96	2.44	4.33	1.82	0.77
time (sec)	N/A	0.136	0.142	0.026	1.35	0.215	4.947	0.218	21.651

Problem 1102	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	112	112	112	171	333	463	558	308	90
normalized size	1	1.	1.	1.53	2.97	4.13	4.98	2.75	0.8
time (sec)	N/A	0.199	0.169	0.016	1.38	0.214	7.958	0.216	30.143

Problem 1103	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	146	146	145	220	599	821	818	489	119
normalized size	1	1.	0.99	1.51	4.1	5.62	5.6	3.35	0.82
time (sec)	N/A	0.263	0.355	0.018	1.381	0.219	11.924	0.215	43.484

Problem 1104	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	178	178	183	267	927	1245	1132	713	146
normalized size	1	1.	1.03	1.5	5.21	6.99	6.36	4.01	0.82
time (sec)	N/A	0.35	0.188	0.02	1.42	0.223	18.092	0.22	60.253

Problem 1105	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	227	227	500	787	782	1123	552	953	230
normalized size	1	1.	2.2	3.47	3.44	4.95	2.43	4.2	1.01
time (sec)	N/A	0.804	0.462	0.019	1.372	0.212	13.617	0.234	105.298

Problem 1106	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	187	187	365	564	555	824	384	705	189
normalized size	1	1.	1.95	3.02	2.97	4.41	2.05	3.77	1.01
time (sec)	N/A	0.547	0.374	0.017	1.372	0.215	10.05	0.233	71.764

Problem 1107	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	145	145	250	376	369	563	250	485	143
normalized size	1	1.	1.72	2.59	2.54	3.88	1.72	3.34	0.99
time (sec)	N/A	0.377	0.224	0.015	1.363	0.208	7.29	0.234	51.126

Problem 1108	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	99	99	153	223	213	336	148	306	0
normalized size	1	1.	1.55	2.25	2.15	3.39	1.49	3.09	0.
time (sec)	N/A	0.215	0.131	0.013	1.356	0.215	4.766	0.224	0.

Problem 1109	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	60	60	56	106	104	147	71	158	0
normalized size	1	1.	0.93	1.77	1.73	2.45	1.18	2.63	0.
time (sec)	N/A	0.122	0.079	0.01	1.352	0.213	2.673	0.244	0.

Problem 1110	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	32	32	31	39	46	50	27	77	26
normalized size	1	1.	0.97	1.22	1.44	1.56	0.84	2.41	0.81
time (sec)	N/A	0.051	0.019	0.003	1.346	0.216	1.394	0.224	7.951

Problem 1111	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	82	82	69	123	159	212	355	143	63
normalized size	1	1.	0.84	1.5	1.94	2.59	4.33	1.74	0.77
time (sec)	N/A	0.136	0.106	0.02	1.35	0.215	4.787	0.238	21.593

Problem 1112	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	117	117	103	208	346	535	706	273	104
normalized size	1	1.	0.88	1.78	2.96	4.57	6.03	2.33	0.89
time (sec)	N/A	0.22	0.182	0.022	1.361	0.217	8.654	0.232	35.124

Problem 1113	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	157	157	146	289	647	1081	1066	413	146
normalized size	1	1.	0.93	1.84	4.12	6.89	6.79	2.63	0.93
time (sec)	N/A	0.333	0.169	0.022	1.395	0.245	13.741	0.24	57.64

Problem 1114	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	200	200	188	364	1027	1646	1445	571	189
normalized size	1	1.	0.94	1.82	5.14	8.23	7.22	2.86	0.94
time (sec)	N/A	0.468	0.245	0.024	1.421	0.235	21.825	0.241	105.173

Problem 1115	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	239	239	225	438	1472	2298	1877	770	0
normalized size	1	1.	0.94	1.83	6.16	9.62	7.85	3.22	0.
time (sec)	N/A	0.626	0.309	0.029	1.463	0.249	33.469	0.248	0.

Problem 1116	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	230	230	254	833	799	1231	602	807	231
normalized size	1	1.	1.1	3.62	3.47	5.35	2.62	3.51	1.
time (sec)	N/A	0.74	0.26	0.022	1.384	0.218	45.	0.229	92.992

Problem 1117	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	187	601	572	902	435	567	192
normalized size	1	1.	0.98	3.15	2.99	4.72	2.28	2.97	1.01
time (sec)	N/A	0.551	0.191	0.018	1.395	0.217	31.983	0.229	71.026

Problem 1118	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	141	141	245	404	381	597	296	367	0
normalized size	1	1.	1.74	2.87	2.7	4.23	2.1	2.6	0.
time (sec)	N/A	0.337	0.245	0.016	1.378	0.218	19.901	0.231	0.

Problem 1119	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	103	103	140	242	230	348	187	209	0
normalized size	1	1.	1.36	2.35	2.23	3.38	1.82	2.03	0.
time (sec)	N/A	0.217	0.126	0.013	1.349	0.22	10.945	0.223	0.

Problem 1120	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	69	69	75	118	124	149	94	104	63
normalized size	1	1.	1.09	1.71	1.8	2.16	1.36	1.51	0.91
time (sec)	N/A	0.128	0.053	0.01	1.347	0.216	4.351	0.232	19.163

Problem 1121	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	28	28	26	35	51	51	39	32	22
normalized size	1	1.	0.93	1.25	1.82	1.82	1.39	1.14	0.79
time (sec)	N/A	0.022	0.015	0.	1.356	0.206	1.804	0.216	3.381

Problem 1122	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	113	113	103	171	340	487	558	309	90
normalized size	1	1.	0.91	1.51	3.01	4.31	4.94	2.73	0.8
time (sec)	N/A	0.202	0.111	0.016	1.346	0.227	8.199	0.23	29.74

Problem 1123	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	158	158	146	287	644	1084	1066	402	146
normalized size	1	1.	0.92	1.82	4.08	6.86	6.75	2.54	0.92
time (sec)	N/A	0.344	0.167	0.022	1.37	0.231	14.102	0.234	58.829

Problem 1124	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	199	199	185	380	1006	1640	1431	617	192
normalized size	1	1.	0.93	1.91	5.06	8.24	7.19	3.1	0.96
time (sec)	N/A	0.491	0.251	0.024	1.404	0.236	30.258	0.256	116.923

Problem 1125	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	248	248	233	463	1520	2491	1975	1026	0
normalized size	1	1.	0.94	1.87	6.13	10.04	7.96	4.14	0.
time (sec)	N/A	0.683	0.33	0.028	1.455	0.251	34.336	0.238	0.

Problem 1126	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	34	34	62	55	73	1	60	73	29
normalized size	1	1.	1.82	1.62	2.15	0.03	1.76	2.15	0.85
time (sec)	N/A	0.062	0.004	0.001	1.332	0.181	0.104	0.229	10.243

Problem 1127	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	34	34	53	50	66	1	51	66	27
normalized size	1	1.	1.56	1.47	1.94	0.03	1.5	1.94	0.79
time (sec)	N/A	0.063	0.003	0.002	1.329	0.183	0.1	0.223	9.564

Problem 1128	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	34	34	48	45	59	1	46	59	27
normalized size	1	1.	1.41	1.32	1.74	0.03	1.35	1.74	0.79
time (sec)	N/A	0.059	0.003	0.001	1.337	0.182	0.094	0.21	8.874

Problem 1129	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	34	34	47	40	53	1	44	53	29
normalized size	1	1.	1.38	1.18	1.56	0.03	1.29	1.56	0.85
time (sec)	N/A	0.056	0.003	0.003	1.322	0.191	0.089	0.217	8.273

Problem 1130	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	34	34	42	35	46	1	39	46	0
normalized size	1	1.	1.24	1.03	1.35	0.03	1.15	1.35	0.
time (sec)	N/A	0.051	0.002	0.003	1.328	0.189	0.087	0.218	0.

Problem 1131	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	34	34	35	30	39	1	32	39	0
normalized size	1	1.	1.03	0.88	1.15	0.03	0.94	1.15	0.
time (sec)	N/A	0.049	0.002	0.002	1.364	0.188	0.073	0.218	0.

Problem 1132	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	34	34	28	25	32	1	26	32	0
normalized size	1	1.	0.82	0.74	0.94	0.03	0.76	0.94	0.
time (sec)	N/A	0.045	0.001	0.001	1.352	0.187	0.075	0.234	0.

Problem 1133	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	25	25	25	20	26	1	22	26	0
normalized size	1	1.	1.	0.8	1.04	0.04	0.88	1.04	0.
time (sec)	N/A	0.029	0.002	0.001	1.319	0.182	0.069	0.232	0.

Problem 1134	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	18	18	18	15	19	1	14	19	0
normalized size	1	1.	1.	0.83	1.06	0.06	0.78	1.06	0.
time (sec)	N/A	0.017	0.001	0.002	1.845	0.181	0.059	0.232	0.

Problem 1135	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	23	23	22	18	23	23	20	24	0
normalized size	1	1.	0.96	0.78	1.	1.	0.87	1.04	0.
time (sec)	N/A	0.027	0.009	0.003	1.371	0.212	0.135	0.242	0.

Problem 1136	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	27	27	26	22	28	43	20	43	0
normalized size	1	1.	0.96	0.81	1.04	1.59	0.74	1.59	0.
time (sec)	N/A	0.036	0.017	0.009	1.342	0.212	0.212	0.215	0.

Problem 1137	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	33	33	27	28	38	50	26	32	26
normalized size	1	1.	0.82	0.85	1.15	1.52	0.79	0.97	0.79
time (sec)	N/A	0.035	0.015	0.01	1.345	0.218	0.236	0.234	6.145

Problem 1138	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	34	34	21	29	39	39	24	26	26
normalized size	1	1.	0.62	0.85	1.15	1.15	0.71	0.76	0.76
time (sec)	N/A	0.036	0.01	0.007	1.346	0.207	0.272	0.22	6.382

Problem 1139	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	34	34	21	29	46	46	29	38	29
normalized size	1	1.	0.62	0.85	1.35	1.35	0.85	1.12	0.85
time (sec)	N/A	0.038	0.009	0.007	1.351	0.202	0.301	0.21	6.442

Problem 1140	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	34	34	21	29	53	53	34	26	29
normalized size	1	1.	0.62	0.85	1.56	1.56	1.	0.76	0.85
time (sec)	N/A	0.038	0.01	0.007	1.333	0.206	0.342	0.212	6.494

Problem 1141	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	69	60	80	1	66	80	39
normalized size	1	1.	1.53	1.33	1.78	0.02	1.47	1.78	0.87
time (sec)	N/A	0.089	0.004	0.003	1.343	0.186	0.129	0.21	12.3

Problem 1142	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	62	55	73	1	60	73	39
normalized size	1	1.	1.38	1.22	1.62	0.02	1.33	1.62	0.87
time (sec)	N/A	0.081	0.003	0.002	1.341	0.186	0.119	0.213	11.568

Problem 1143	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	51	50	66	1	49	66	36
normalized size	1	1.	1.13	1.11	1.47	0.02	1.09	1.47	0.8
time (sec)	N/A	0.078	0.003	0.003	1.349	0.186	0.105	0.211	10.899

Problem 1144	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	52	45	59	1	49	59	39
normalized size	1	1.	1.16	1.	1.31	0.02	1.09	1.31	0.87
time (sec)	N/A	0.072	0.003	0.003	1.343	0.176	0.1	0.205	10.329

Problem 1145	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	47	40	53	1	44	53	0
normalized size	1	1.	1.04	0.89	1.18	0.02	0.98	1.18	0.
time (sec)	N/A	0.071	0.002	0.001	1.342	0.176	0.108	0.209	0.

Problem 1146	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	44	35	46	1	41	46	0
normalized size	1	1.	0.98	0.78	1.02	0.02	0.91	1.02	0.
time (sec)	N/A	0.064	0.002	0.001	1.347	0.181	0.087	0.208	0.

Problem 1147	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	31	30	39	1	29	39	0
normalized size	1	1.	0.69	0.67	0.87	0.02	0.64	0.87	0.
time (sec)	N/A	0.063	0.002	0.003	1.343	0.187	0.08	0.206	0.

Problem 1148	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	34	34	30	25	32	1	27	32	0
normalized size	1	1.	0.88	0.74	0.94	0.03	0.79	0.94	0.
time (sec)	N/A	0.045	0.001	0.001	1.347	0.184	0.067	0.207	0.

Problem 1149	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	23	23	23	20	26	1	20	26	0
normalized size	1	1.	1.	0.87	1.13	0.04	0.87	1.13	0.
time (sec)	N/A	0.024	0.001	0.001	1.35	0.182	0.075	0.209	0.

Problem 1150	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	30	30	27	23	30	30	27	31	0
normalized size	1	1.	0.9	0.77	1.	1.	0.9	1.03	0.
time (sec)	N/A	0.034	0.015	0.004	1.346	0.209	0.17	0.21	0.

Problem 1151	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	34	34	36	27	35	50	27	65	0
normalized size	1	1.	1.06	0.79	1.03	1.47	0.79	1.91	0.
time (sec)	N/A	0.045	0.017	0.009	1.346	0.22	0.21	0.218	0.

Problem 1152	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	38	38	35	31	42	63	29	36	0
normalized size	1	1.	0.92	0.82	1.11	1.66	0.76	0.95	0.
time (sec)	N/A	0.047	0.04	0.01	1.351	0.215	0.277	0.209	0.

Problem 1153	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	44	44	36	37	51	70	36	39	36
normalized size	1	1.	0.82	0.84	1.16	1.59	0.82	0.89	0.82
time (sec)	N/A	0.046	0.023	0.009	1.347	0.214	0.32	0.21	7.699

Problem 1154	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	37	37	26	38	53	53	34	50	32
normalized size	1	1.	0.7	1.03	1.43	1.43	0.92	1.35	0.86
time (sec)	N/A	0.035	0.015	0.008	1.35	0.209	0.33	0.211	5.423

Problem 1155	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	26	38	59	59	39	32	39
normalized size	1	1.	0.58	0.84	1.31	1.31	0.87	0.71	0.87
time (sec)	N/A	0.051	0.015	0.009	1.366	0.221	0.38	0.209	8.149

Problem 1156	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	26	38	66	66	44	32	39
normalized size	1	1.	0.58	0.84	1.47	1.47	0.98	0.71	0.87
time (sec)	N/A	0.051	0.014	0.007	1.343	0.211	0.405	0.207	8.194

Problem 1157	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	26	38	73	73	49	32	39
normalized size	1	1.	0.58	0.84	1.62	1.62	1.09	0.71	0.87
time (sec)	N/A	0.051	0.014	0.007	1.343	0.205	0.444	0.211	8.316

Problem 1158	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	56	56	74	65	86	1	71	86	49
normalized size	1	1.	1.32	1.16	1.54	0.02	1.27	1.54	0.88
time (sec)	N/A	0.093	0.004	0.003	1.343	0.186	0.121	0.207	14.008

Problem 1159	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	56	56	67	60	80	1	65	80	49
normalized size	1	1.	1.2	1.07	1.43	0.02	1.16	1.43	0.88
time (sec)	N/A	0.09	0.003	0.002	1.353	0.178	0.12	0.205	13.229

Problem 1160	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	56	56	60	55	73	1	58	73	48
normalized size	1	1.	1.07	0.98	1.3	0.02	1.04	1.3	0.86
time (sec)	N/A	0.08	0.003	0.001	1.349	0.177	0.111	0.208	12.439

Problem 1161	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	56	56	55	50	66	1	53	66	0
normalized size	1	1.	0.98	0.89	1.18	0.02	0.95	1.18	0.
time (sec)	N/A	0.082	0.003	0.002	1.348	0.182	0.105	0.208	0.

Problem 1162	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	56	56	52	45	59	1	49	59	0
normalized size	1	1.	0.93	0.8	1.05	0.02	0.88	1.05	0.
time (sec)	N/A	0.075	0.003	0.003	1.365	0.185	0.1	0.21	0.

Problem 1163	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	56	56	49	40	53	1	46	53	0
normalized size	1	1.	0.88	0.71	0.95	0.02	0.82	0.95	0.
time (sec)	N/A	0.073	0.002	0.	1.337	0.185	0.097	0.206	0.

Problem 1164	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	40	35	46	1	37	46	0
normalized size	1	1.	0.89	0.78	1.02	0.02	0.82	1.02	0.
time (sec)	N/A	0.063	0.002	0.003	1.349	0.187	0.084	0.209	0.

Problem 1165	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	34	34	33	30	39	1	31	39	0
normalized size	1	1.	0.97	0.88	1.15	0.03	0.91	1.15	0.
time (sec)	N/A	0.049	0.001	0.001	1.329	0.186	0.082	0.207	0.

Problem 1166	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	23	23	28	25	32	1	26	32	0
normalized size	1	1.	1.22	1.09	1.39	0.04	1.13	1.39	0.
time (sec)	N/A	0.019	0.001	0.002	1.337	0.182	0.075	0.209	0.

Problem 1167	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	37	37	32	28	36	36	34	38	0
normalized size	1	1.	0.86	0.76	0.97	0.97	0.92	1.03	0.
time (sec)	N/A	0.035	0.018	0.005	1.326	0.211	0.167	0.208	0.

Problem 1168	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	41	41	44	32	42	57	34	77	0
normalized size	1	1.	1.07	0.78	1.02	1.39	0.83	1.88	0.
time (sec)	N/A	0.05	0.017	0.009	1.332	0.223	0.212	0.21	0.

Problem 1169	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	46	36	49	70	36	43	0
normalized size	1	1.	1.02	0.8	1.09	1.56	0.8	0.96	0.
time (sec)	N/A	0.057	0.02	0.01	1.344	0.217	0.274	0.212	0.

Problem 1170	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	49	49	47	40	55	84	39	43	0
normalized size	1	1.	0.96	0.82	1.12	1.71	0.8	0.88	0.
time (sec)	N/A	0.057	0.031	0.008	1.338	0.212	0.317	0.213	0.

Problem 1171	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	55	55	41	46	65	90	46	74	46
normalized size	1	1.	0.75	0.84	1.18	1.64	0.84	1.35	0.84
time (sec)	N/A	0.053	0.023	0.01	1.337	0.213	0.365	0.208	8.933

Problem 1172	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	37	37	31	47	66	66	44	39	32
normalized size	1	1.	0.84	1.27	1.78	1.78	1.19	1.05	0.86
time (sec)	N/A	0.036	0.016	0.009	1.353	0.209	0.412	0.209	5.354

Problem 1173	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	55	55	31	47	73	73	49	39	49
normalized size	1	1.	0.56	0.85	1.33	1.33	0.89	0.71	0.89
time (sec)	N/A	0.051	0.016	0.007	1.331	0.211	0.431	0.206	7.002

Problem 1174	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	56	56	31	47	80	80	54	39	49
normalized size	1	1.	0.55	0.84	1.43	1.43	0.96	0.7	0.88
time (sec)	N/A	0.058	0.015	0.009	1.337	0.203	0.487	0.209	9.636

Problem 1175	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	18	18	56	55	73	1	54	73	15
normalized size	1	1.	3.11	3.06	4.06	0.06	3.	4.06	0.83
time (sec)	N/A	0.02	0.005	0.001	1.335	0.176	0.113	0.207	4.391

Problem 1176	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	58	58	47	43	57	57	54	58	0
normalized size	1	1.	0.81	0.74	0.98	0.98	0.93	1.	0.
time (sec)	N/A	0.051	0.025	0.006	1.353	0.212	0.206	0.207	0.

Problem 1177	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	51	51	42	38	50	50	48	51	0
normalized size	1	1.	0.82	0.75	0.98	0.98	0.94	1.	0.
time (sec)	N/A	0.047	0.02	0.004	1.324	0.215	0.188	0.209	0.

Problem 1178	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	44	44	37	33	43	43	41	45	0
normalized size	1	1.	0.84	0.75	0.98	0.98	0.93	1.02	0.
time (sec)	N/A	0.042	0.022	0.004	1.324	0.203	0.175	0.208	0.

Problem 1179	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	37	37	35	28	36	36	34	38	0
normalized size	1	1.	0.95	0.76	0.97	0.97	0.92	1.03	0.
time (sec)	N/A	0.036	0.02	0.003	1.338	0.212	0.167	0.205	0.

Problem 1180	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	30	30	27	23	30	30	27	31	0
normalized size	1	1.	0.9	0.77	1.	1.	0.9	1.03	0.
time (sec)	N/A	0.033	0.015	0.002	1.324	0.214	0.155	0.211	0.

Problem 1181	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	23	23	22	18	23	23	20	24	0
normalized size	1	1.	0.96	0.78	1.	1.	0.87	1.04	0.
time (sec)	N/A	0.026	0.008	0.003	1.35	0.206	0.14	0.211	0.

Problem 1182	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	16	16	17	13	16	16	14	18	0
normalized size	1	1.	1.06	0.81	1.	1.	0.88	1.12	0.
time (sec)	N/A	0.018	0.004	0.004	1.343	0.21	0.116	0.21	0.

Problem 1183	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	21	21	21	18	23	23	19	26	19
normalized size	1	1.	1.	0.86	1.1	1.1	0.9	1.24	0.9
time (sec)	N/A	0.029	0.009	0.007	1.344	0.224	0.219	0.206	4.767

Problem 1184	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	28	28	38	27	35	50	22	34	22
normalized size	1	1.	1.36	0.96	1.25	1.79	0.79	1.21	0.79
time (sec)	N/A	0.037	0.024	0.01	1.348	0.209	0.253	0.213	5.661

Problem 1185	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	37	37	35	36	49	74	31	45	32
normalized size	1	1.	0.95	0.97	1.32	2.	0.84	1.22	0.86
time (sec)	N/A	0.044	0.052	0.01	1.348	0.216	0.306	0.213	6.683

Problem 1186	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	48	48	40	45	62	101	41	51	42
normalized size	1	1.	0.83	0.94	1.29	2.1	0.85	1.06	0.88
time (sec)	N/A	0.049	0.041	0.013	1.347	0.21	0.362	0.208	7.696

Problem 1187	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	59	59	45	54	76	128	51	70	53
normalized size	1	1.	0.76	0.92	1.29	2.17	0.86	1.19	0.9
time (sec)	N/A	0.06	0.046	0.013	1.348	0.22	0.423	0.214	8.863

Problem 1188	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	70	70	50	63	89	155	61	65	63
normalized size	1	1.	0.71	0.9	1.27	2.21	0.87	0.93	0.9
time (sec)	N/A	0.067	0.051	0.013	1.351	0.212	0.46	0.206	9.971

Problem 1189	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	81	81	75	72	103	182	71	72	73
normalized size	1	1.	0.93	0.89	1.27	2.25	0.88	0.89	0.9
time (sec)	N/A	0.075	0.074	0.012	1.35	0.208	0.505	0.211	11.158

Problem 1190	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	69	69	85	52	69	84	61	126	0
normalized size	1	1.	1.23	0.75	1.	1.22	0.88	1.83	0.
time (sec)	N/A	0.078	0.06	0.01	1.339	0.21	0.245	0.21	0.

Problem 1191	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	62	62	59	47	62	77	54	113	0
normalized size	1	1.	0.95	0.76	1.	1.24	0.87	1.82	0.
time (sec)	N/A	0.071	0.03	0.01	1.346	0.208	0.241	0.212	0.

Problem 1192	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	55	55	48	42	55	70	48	101	0
normalized size	1	1.	0.87	0.76	1.	1.27	0.87	1.84	0.
time (sec)	N/A	0.064	0.031	0.009	1.346	0.207	0.235	0.211	0.

Problem 1193	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	48	48	49	37	49	63	41	89	0
normalized size	1	1.	1.02	0.77	1.02	1.31	0.85	1.85	0.
time (sec)	N/A	0.059	0.027	0.009	1.343	0.214	0.225	0.212	0.

Problem 1194	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	41	41	46	32	42	57	34	77	0
normalized size	1	1.	1.12	0.78	1.02	1.39	0.83	1.88	0.
time (sec)	N/A	0.052	0.021	0.01	1.34	0.213	0.211	0.21	0.

Problem 1195	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	34	34	41	27	35	50	27	65	0
normalized size	1	1.	1.21	0.79	1.03	1.47	0.79	1.91	0.
time (sec)	N/A	0.045	0.02	0.01	1.342	0.218	0.199	0.212	0.

Problem 1196	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	27	27	26	22	28	43	20	43	0
normalized size	1	1.	0.96	0.81	1.04	1.59	0.74	1.59	0.
time (sec)	N/A	0.033	0.017	0.01	1.343	0.213	0.189	0.212	0.

Problem 1197	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	22	22	22	19	24	32	17	38	17
normalized size	1	1.	1.	0.86	1.09	1.45	0.77	1.73	0.77
time (sec)	N/A	0.021	0.007	0.007	1.342	0.213	0.163	0.21	3.981

Problem 1198	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	28	28	30	27	35	50	22	34	22
normalized size	1	1.	1.07	0.96	1.25	1.79	0.79	1.21	0.79
time (sec)	N/A	0.037	0.023	0.01	1.34	0.21	0.24	0.208	5.711

Problem 1199	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	35	35	37	36	49	74	31	51	29
normalized size	1	1.	1.06	1.03	1.4	2.11	0.89	1.46	0.83
time (sec)	N/A	0.045	0.027	0.013	1.349	0.205	0.296	0.209	6.714

Problem 1200	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	46	46	48	45	62	101	41	66	39
normalized size	1	1.	1.04	0.98	1.35	2.2	0.89	1.43	0.85
time (sec)	N/A	0.054	0.03	0.015	1.335	0.216	0.372	0.209	7.807

Problem 1201	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	55	55	57	54	76	128	51	78	48
normalized size	1	1.	1.04	0.98	1.38	2.33	0.93	1.42	0.87
time (sec)	N/A	0.064	0.032	0.016	1.34	0.234	0.418	0.208	9.03

Problem 1202	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	68	68	70	63	89	155	61	90	60
normalized size	1	1.	1.03	0.93	1.31	2.28	0.9	1.32	0.88
time (sec)	N/A	0.076	0.04	0.014	1.346	0.229	0.461	0.212	10.313

Problem 1203	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	75	75	77	72	103	182	71	103	66
normalized size	1	1.	1.03	0.96	1.37	2.43	0.95	1.37	0.88
time (sec)	N/A	0.092	0.046	0.014	1.347	0.234	0.53	0.209	11.561

Problem 1204	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	90	90	92	81	116	209	82	115	80
normalized size	1	1.	1.02	0.9	1.29	2.32	0.91	1.28	0.89
time (sec)	N/A	0.104	0.052	0.015	1.355	0.212	0.58	0.212	12.923

Problem 1205	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	73	73	64	56	76	97	63	70	0
normalized size	1	1.	0.88	0.77	1.04	1.33	0.86	0.96	0.
time (sec)	N/A	0.086	0.038	0.01	1.343	0.213	0.306	0.207	0.

Problem 1206	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	66	66	61	51	69	90	56	63	0
normalized size	1	1.	0.92	0.77	1.05	1.36	0.85	0.95	0.
time (sec)	N/A	0.076	0.033	0.01	1.346	0.232	0.297	0.211	0.

Problem 1207	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	59	59	58	46	62	84	49	57	0
normalized size	1	1.	0.98	0.78	1.05	1.42	0.83	0.97	0.
time (sec)	N/A	0.071	0.027	0.01	1.352	0.227	0.285	0.207	0.

Problem 1208	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	52	52	51	41	55	77	42	50	0
normalized size	1	1.	0.98	0.79	1.06	1.48	0.81	0.96	0.
time (sec)	N/A	0.062	0.029	0.01	1.354	0.234	0.278	0.211	0.

Problem 1209	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	48	36	49	70	36	43	0
normalized size	1	1.	1.07	0.8	1.09	1.56	0.8	0.96	0.
time (sec)	N/A	0.055	0.021	0.01	1.353	0.225	0.277	0.208	0.

Problem 1210	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	38	38	39	31	42	63	29	36	0
normalized size	1	1.	1.03	0.82	1.11	1.66	0.76	0.95	0.
time (sec)	N/A	0.047	0.028	0.008	1.403	0.221	0.266	0.213	0.

Problem 1211	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	33	33	33	28	38	50	26	32	27
normalized size	1	1.	1.	0.85	1.15	1.52	0.79	0.97	0.82
time (sec)	N/A	0.035	0.012	0.008	1.352	0.226	0.243	0.207	6.106

Problem 1212	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	18	18	16	20	26	26	14	19	15
normalized size	1	1.	0.89	1.11	1.44	1.44	0.78	1.06	0.83
time (sec)	N/A	0.01	0.004	0.007	1.35	0.225	0.201	0.208	2.481

Problem 1213	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	37	37	48	36	49	74	31	45	32
normalized size	1	1.	1.3	0.97	1.32	2.	0.84	1.22	0.86
time (sec)	N/A	0.045	0.021	0.012	1.385	0.22	0.307	0.206	6.807

Problem 1214	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	46	46	48	45	62	101	41	66	39
normalized size	1	1.	1.04	0.98	1.35	2.2	0.89	1.43	0.85
time (sec)	N/A	0.055	0.03	0.014	1.327	0.211	0.357	0.21	7.933

Problem 1215	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	57	57	59	54	76	128	51	65	49
normalized size	1	1.	1.04	0.95	1.33	2.25	0.89	1.14	0.86
time (sec)	N/A	0.066	0.051	0.014	1.329	0.216	0.425	0.206	9.265

Problem 1216	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	66	66	68	63	89	155	61	74	58
normalized size	1	1.	1.03	0.95	1.35	2.35	0.92	1.12	0.88
time (sec)	N/A	0.083	0.039	0.014	1.353	0.208	0.48	0.212	10.476

Problem 1217	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	75	75	77	72	103	182	71	103	66
normalized size	1	1.	1.03	0.96	1.37	2.43	0.95	1.37	0.88
time (sec)	N/A	0.09	0.046	0.013	1.353	0.207	0.537	0.209	11.906

Problem 1218	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	86	86	88	81	116	209	82	88	76
normalized size	1	1.	1.02	0.94	1.35	2.43	0.95	1.02	0.88
time (sec)	N/A	0.105	0.052	0.015	1.328	0.211	0.607	0.207	13.317

Problem 1219	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	67	60	80	1	65	80	39
normalized size	1	1.	1.49	1.33	1.78	0.02	1.44	1.78	0.87
time (sec)	N/A	0.086	0.004	0.001	1.325	0.192	0.117	0.204	12.137

Problem 1220	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	64	55	73	1	61	73	39
normalized size	1	1.	1.42	1.22	1.62	0.02	1.36	1.62	0.87
time (sec)	N/A	0.081	0.003	0.002	1.341	0.184	0.111	0.207	11.462

Problem 1221	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	53	50	66	1	51	66	39
normalized size	1	1.	1.18	1.11	1.47	0.02	1.13	1.47	0.87
time (sec)	N/A	0.079	0.003	0.001	1.343	0.184	0.098	0.202	10.744

Problem 1222	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	48	45	59	1	46	59	39
normalized size	1	1.	1.07	1.	1.31	0.02	1.02	1.31	0.87
time (sec)	N/A	0.074	0.003	0.001	1.341	0.182	0.107	0.205	10.109

Problem 1223	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	49	40	53	1	46	53	0
normalized size	1	1.	1.09	0.89	1.18	0.02	1.02	1.18	0.
time (sec)	N/A	0.07	0.002	0.002	1.326	0.184	0.092	0.205	0.

Problem 1224	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	42	35	46	1	39	46	0
normalized size	1	1.	0.93	0.78	1.02	0.02	0.87	1.02	0.
time (sec)	N/A	0.065	0.002	0.001	1.345	0.182	0.083	0.204	0.

Problem 1225	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	35	30	39	1	32	39	0
normalized size	1	1.	0.78	0.67	0.87	0.02	0.71	0.87	0.
time (sec)	N/A	0.061	0.002	0.	1.345	0.186	0.08	0.205	0.

Problem 1226	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	34	34	28	25	32	1	26	32	0
normalized size	1	1.	0.82	0.74	0.94	0.03	0.76	0.94	0.
time (sec)	N/A	0.046	0.001	0.003	1.321	0.196	0.07	0.205	0.

Problem 1227	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	23	23	23	20	26	1	20	26	0
normalized size	1	1.	1.	0.87	1.13	0.04	0.87	1.13	0.
time (sec)	N/A	0.024	0.001	0.	1.347	0.189	0.066	0.205	0.

Problem 1228	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	30	30	27	23	30	30	27	31	0
normalized size	1	1.	0.9	0.77	1.	1.	0.9	1.03	0.
time (sec)	N/A	0.032	0.015	0.003	1.345	0.212	0.155	0.205	0.

Problem 1229	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	34	34	39	27	35	50	27	65	0
normalized size	1	1.	1.15	0.79	1.03	1.47	0.79	1.91	0.
time (sec)	N/A	0.044	0.019	0.009	1.345	0.225	0.207	0.212	0.

Problem 1230	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	38	38	41	31	42	63	29	36	0
normalized size	1	1.	1.08	0.82	1.11	1.66	0.76	0.95	0.
time (sec)	N/A	0.047	0.021	0.012	1.344	0.215	0.272	0.208	0.

Problem 1231	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	44	44	36	37	51	70	34	39	36
normalized size	1	1.	0.82	0.84	1.16	1.59	0.77	0.89	0.82
time (sec)	N/A	0.045	0.023	0.009	1.343	0.215	0.307	0.208	7.643

Problem 1232	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	37	37	26	38	53	53	36	50	31
normalized size	1	1.	0.7	1.03	1.43	1.43	0.97	1.35	0.84
time (sec)	N/A	0.036	0.017	0.008	1.358	0.21	0.344	0.207	5.276

Problem 1233	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	26	38	59	59	41	32	39
normalized size	1	1.	0.58	0.84	1.31	1.31	0.91	0.71	0.87
time (sec)	N/A	0.05	0.018	0.009	1.347	0.194	0.374	0.207	8.112

Problem 1234	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	26	38	66	66	46	32	39
normalized size	1	1.	0.58	0.84	1.47	1.47	1.02	0.71	0.87
time (sec)	N/A	0.048	0.017	0.008	1.351	0.198	0.42	0.206	8.172

Problem 1235	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	26	38	73	73	51	32	39
normalized size	1	1.	0.58	0.84	1.62	1.62	1.13	0.71	0.87
time (sec)	N/A	0.051	0.018	0.009	1.35	0.203	0.45	0.207	8.24

Problem 1236	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	56	56	74	65	86	1	71	86	49
normalized size	1	1.	1.32	1.16	1.54	0.02	1.27	1.54	0.88
time (sec)	N/A	0.107	0.004	0.001	1.346	0.188	0.122	0.206	14.376

Problem 1237	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	56	56	69	60	80	1	66	80	49
normalized size	1	1.	1.23	1.07	1.43	0.02	1.18	1.43	0.88
time (sec)	N/A	0.106	0.004	0.001	1.347	0.183	0.121	0.209	13.618

Problem 1238	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	56	56	60	55	73	1	58	73	49
normalized size	1	1.	1.07	0.98	1.3	0.02	1.04	1.3	0.88
time (sec)	N/A	0.096	0.003	0.001	1.347	0.185	0.112	0.203	12.995

Problem 1239	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	56	56	55	50	66	1	53	66	0
normalized size	1	1.	0.98	0.89	1.18	0.02	0.95	1.18	0.
time (sec)	N/A	0.095	0.004	0.001	1.342	0.189	0.107	0.205	0.

Problem 1240	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	56	56	52	45	59	1	49	59	0
normalized size	1	1.	0.93	0.8	1.05	0.02	0.88	1.05	0.
time (sec)	N/A	0.088	0.003	0.	1.348	0.182	0.102	0.208	0.

Problem 1241	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	56	56	51	40	53	1	48	53	0
normalized size	1	1.	0.91	0.71	0.95	0.02	0.86	0.95	0.
time (sec)	N/A	0.087	0.003	0.	1.353	0.191	0.093	0.212	0.

Problem 1242	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	56	56	42	35	46	1	39	46	0
normalized size	1	1.	0.75	0.62	0.82	0.02	0.7	0.82	0.
time (sec)	N/A	0.078	0.002	0.001	1.339	0.191	0.084	0.206	0.

Problem 1243	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	35	30	39	1	32	39	0
normalized size	1	1.	0.78	0.67	0.87	0.02	0.71	0.87	0.
time (sec)	N/A	0.06	0.001	0.002	1.341	0.186	0.08	0.212	0.

Problem 1244	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	34	34	26	25	32	1	24	32	0
normalized size	1	1.	0.76	0.74	0.94	0.03	0.71	0.94	0.
time (sec)	N/A	0.033	0.001	0.002	1.349	0.187	0.075	0.212	0.

Problem 1245	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	37	37	32	28	36	36	34	38	0
normalized size	1	1.	0.86	0.76	0.97	0.97	0.92	1.03	0.
time (sec)	N/A	0.043	0.015	0.003	1.346	0.209	0.163	0.209	0.

Problem 1246	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	41	41	44	32	42	57	34	77	0
normalized size	1	1.	1.07	0.78	1.02	1.39	0.83	1.88	0.
time (sec)	N/A	0.055	0.022	0.009	1.338	0.208	0.224	0.209	0.

Problem 1247	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	42	36	49	70	36	43	0
normalized size	1	1.	0.93	0.8	1.09	1.56	0.8	0.96	0.
time (sec)	N/A	0.059	0.029	0.01	1.348	0.211	0.269	0.219	0.

Problem 1248	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	49	49	46	40	55	84	39	43	0
normalized size	1	1.	0.94	0.82	1.12	1.71	0.8	0.88	0.
time (sec)	N/A	0.059	0.026	0.01	1.344	0.212	0.331	0.22	0.

Problem 1249	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	55	55	41	46	65	90	44	74	46
normalized size	1	1.	0.75	0.84	1.18	1.64	0.8	1.35	0.84
time (sec)	N/A	0.056	0.022	0.009	1.337	0.219	0.383	0.209	9.276

Problem 1250	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	56	56	31	47	66	66	46	39	46
normalized size	1	1.	0.55	0.84	1.18	1.18	0.82	0.7	0.82
time (sec)	N/A	0.061	0.023	0.007	1.349	0.202	0.395	0.207	9.977

Problem 1251	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	56	56	31	47	73	73	51	39	49
normalized size	1	1.	0.55	0.84	1.3	1.3	0.91	0.7	0.88
time (sec)	N/A	0.062	0.018	0.009	1.343	0.21	0.433	0.21	10.022

Problem 1252	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	56	56	31	47	80	80	56	39	49
normalized size	1	1.	0.55	0.84	1.43	1.43	1.	0.7	0.88
time (sec)	N/A	0.062	0.021	0.007	1.351	0.198	0.487	0.206	10.168

Problem 1253	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	67	67	93	80	107	1	90	107	60
normalized size	1	1.	1.39	1.19	1.6	0.01	1.34	1.6	0.9
time (sec)	N/A	0.132	0.005	0.003	1.358	0.174	0.147	0.222	18.233

Problem 1254	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	67	67	90	75	100	1	87	100	60
normalized size	1	1.	1.34	1.12	1.49	0.01	1.3	1.49	0.9
time (sec)	N/A	0.129	0.004	0.003	1.345	0.176	0.138	0.223	17.187

Problem 1255	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	67	67	85	70	93	1	82	93	60
normalized size	1	1.	1.27	1.04	1.39	0.01	1.22	1.39	0.9
time (sec)	N/A	0.121	0.004	0.002	1.362	0.183	0.136	0.219	16.19

Problem 1256	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	67	67	76	65	86	1	73	86	60
normalized size	1	1.	1.13	0.97	1.28	0.01	1.09	1.28	0.9
time (sec)	N/A	0.11	0.004	0.003	1.333	0.182	0.128	0.222	15.359

Problem 1257	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	67	67	67	60	80	1	65	80	0
normalized size	1	1.	1.	0.9	1.19	0.01	0.97	1.19	0.
time (sec)	N/A	0.109	0.004	0.002	1.335	0.185	0.118	0.224	0.

Problem 1258	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	67	67	60	55	73	1	58	73	0
normalized size	1	1.	0.9	0.82	1.09	0.01	0.87	1.09	0.
time (sec)	N/A	0.101	0.004	0.003	1.347	0.18	0.118	0.218	0.

Problem 1259	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	67	67	57	50	66	1	54	66	0
normalized size	1	1.	0.85	0.75	0.99	0.01	0.81	0.99	0.
time (sec)	N/A	0.099	0.004	0.001	1.344	0.179	0.111	0.23	0.

Problem 1260	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	67	67	52	45	59	1	49	59	0
normalized size	1	1.	0.78	0.67	0.88	0.01	0.73	0.88	0.
time (sec)	N/A	0.096	0.004	0.003	1.35	0.178	0.106	0.22	0.

Problem 1261	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	56	56	49	40	53	1	46	53	0
normalized size	1	1.	0.88	0.71	0.95	0.02	0.82	0.95	0.
time (sec)	N/A	0.084	0.004	0.002	1.328	0.187	0.095	0.212	0.

Problem 1262	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	42	35	46	1	39	46	0
normalized size	1	1.	0.93	0.78	1.02	0.02	0.87	1.02	0.
time (sec)	N/A	0.064	0.002	0.003	1.343	0.193	0.083	0.232	0.

Problem 1263	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	34	34	35	30	39	1	32	39	0
normalized size	1	1.	1.03	0.88	1.15	0.03	0.94	1.15	0.
time (sec)	N/A	0.037	0.001	0.003	1.333	0.188	0.085	0.225	0.

Problem 1264	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	44	44	37	33	43	43	41	45	0
normalized size	1	1.	0.84	0.75	0.98	0.98	0.93	1.02	0.
time (sec)	N/A	0.048	0.018	0.004	1.334	0.208	0.177	0.223	0.

Problem 1265	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	48	48	49	37	49	63	41	89	0
normalized size	1	1.	1.02	0.77	1.02	1.31	0.85	1.85	0.
time (sec)	N/A	0.063	0.05	0.008	1.33	0.206	0.215	0.221	0.

Problem 1266	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	52	52	51	41	55	77	42	50	0
normalized size	1	1.	0.98	0.79	1.06	1.48	0.81	0.96	0.
time (sec)	N/A	0.067	0.051	0.009	1.355	0.207	0.287	0.214	0.

Problem 1267	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	56	56	51	45	62	90	46	50	0
normalized size	1	1.	0.91	0.8	1.11	1.61	0.82	0.89	0.
time (sec)	N/A	0.068	0.054	0.01	1.327	0.214	0.341	0.221	0.

Problem 1268	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	60	60	51	49	69	104	49	80	0
normalized size	1	1.	0.85	0.82	1.15	1.73	0.82	1.33	0.
time (sec)	N/A	0.071	0.054	0.01	1.326	0.202	0.381	0.219	0.

Problem 1269	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	66	66	46	55	78	111	54	53	56
normalized size	1	1.	0.7	0.83	1.18	1.68	0.82	0.8	0.85
time (sec)	N/A	0.064	0.053	0.01	1.323	0.219	0.433	0.219	10.635

Problem 1270	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	67	67	36	56	80	80	56	46	56
normalized size	1	1.	0.54	0.84	1.19	1.19	0.84	0.69	0.84
time (sec)	N/A	0.069	0.043	0.009	1.352	0.199	0.46	0.211	11.47

Problem 1271	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	67	67	36	56	86	86	61	46	60
normalized size	1	1.	0.54	0.84	1.28	1.28	0.91	0.69	0.9
time (sec)	N/A	0.07	0.042	0.01	1.357	0.205	0.506	0.221	11.68

Problem 1272	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	72	72	57	53	70	70	68	72	0
normalized size	1	1.	0.79	0.74	0.97	0.97	0.94	1.	0.
time (sec)	N/A	0.072	0.024	0.006	1.324	0.214	0.208	0.217	0.

Problem 1273	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	65	65	52	48	63	63	61	65	0
normalized size	1	1.	0.8	0.74	0.97	0.97	0.94	1.	0.
time (sec)	N/A	0.067	0.022	0.004	1.349	0.221	0.202	0.225	0.

Problem 1274	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	58	58	47	43	57	57	54	58	0
normalized size	1	1.	0.81	0.74	0.98	0.98	0.93	1.	0.
time (sec)	N/A	0.06	0.02	0.003	1.35	0.21	0.201	0.216	0.

Problem 1275	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	51	51	42	38	50	50	48	51	0
normalized size	1	1.	0.82	0.75	0.98	0.98	0.94	1.	0.
time (sec)	N/A	0.053	0.02	0.004	1.341	0.212	0.185	0.21	0.

Problem 1276	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	44	44	37	33	43	43	41	45	0
normalized size	1	1.	0.84	0.75	0.98	0.98	0.93	1.02	0.
time (sec)	N/A	0.049	0.018	0.004	1.346	0.218	0.172	0.208	0.

Problem 1277	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	37	37	35	28	36	36	34	38	0
normalized size	1	1.	0.95	0.76	0.97	0.97	0.92	1.03	0.
time (sec)	N/A	0.042	0.018	0.003	1.344	0.211	0.161	0.207	0.

Problem 1278	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	30	30	27	23	30	30	27	31	0
normalized size	1	1.	0.9	0.77	1.	1.	0.9	1.03	0.
time (sec)	N/A	0.031	0.016	0.005	1.351	0.213	0.151	0.206	0.

Problem 1279	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	23	23	22	18	23	23	20	24	0
normalized size	1	1.	0.96	0.78	1.	1.	0.87	1.04	0.
time (sec)	N/A	0.022	0.009	0.003	1.352	0.209	0.131	0.212	0.

Problem 1280	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	26	26	27	21	27	27	24	30	0
normalized size	1	1.	1.04	0.81	1.04	1.04	0.92	1.15	0.
time (sec)	N/A	0.038	0.016	0.009	1.347	0.208	0.25	0.21	0.

Problem 1281	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	32	32	32	27	35	50	26	58	26
normalized size	1	1.	1.	0.84	1.09	1.56	0.81	1.81	0.81
time (sec)	N/A	0.041	0.029	0.012	1.348	0.218	0.315	0.224	6.274

Problem 1282	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	39	39	48	36	49	74	31	45	32
normalized size	1	1.	1.23	0.92	1.26	1.9	0.79	1.15	0.82
time (sec)	N/A	0.049	0.027	0.011	1.35	0.22	0.346	0.22	7.317

Problem 1283	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	48	48	40	45	62	101	41	51	42
normalized size	1	1.	0.83	0.94	1.29	2.1	0.85	1.06	0.88
time (sec)	N/A	0.055	0.044	0.01	1.345	0.212	0.376	0.236	8.321

Problem 1284	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	59	59	45	54	76	128	51	70	53
normalized size	1	1.	0.76	0.92	1.29	2.17	0.86	1.19	0.9
time (sec)	N/A	0.065	0.046	0.011	1.344	0.217	0.498	0.214	9.43

Problem 1285	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	70	70	57	63	89	155	61	65	63
normalized size	1	1.	0.81	0.9	1.27	2.21	0.87	0.93	0.9
time (sec)	N/A	0.077	0.056	0.013	1.352	0.215	0.5	0.209	10.623

Problem 1286	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	81	81	55	72	103	182	71	72	73
normalized size	1	1.	0.68	0.89	1.27	2.25	0.88	0.89	0.9
time (sec)	N/A	0.085	0.082	0.012	1.345	0.211	0.562	0.207	11.832

Problem 1287	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	92	92	84	81	116	209	82	78	83
normalized size	1	1.	0.91	0.88	1.26	2.27	0.89	0.85	0.9
time (sec)	N/A	0.092	0.107	0.018	1.353	0.202	0.604	0.207	13.054

Problem 1288	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	76	76	69	57	76	90	68	138	0
normalized size	1	1.	0.91	0.75	1.	1.18	0.89	1.82	0.
time (sec)	N/A	0.094	0.048	0.011	1.343	0.208	0.256	0.21	0.

Problem 1289	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	69	69	66	52	69	84	61	126	0
normalized size	1	1.	0.96	0.75	1.	1.22	0.88	1.83	0.
time (sec)	N/A	0.082	0.055	0.01	1.342	0.217	0.253	0.208	0.

Problem 1290	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	62	62	61	47	62	77	54	113	0
normalized size	1	1.	0.98	0.76	1.	1.24	0.87	1.82	0.
time (sec)	N/A	0.077	0.053	0.01	1.35	0.218	0.244	0.21	0.

Problem 1291	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	55	55	56	42	55	70	48	101	0
normalized size	1	1.	1.02	0.76	1.	1.27	0.87	1.84	0.
time (sec)	N/A	0.069	0.051	0.008	1.341	0.217	0.248	0.213	0.

Problem 1292	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	48	48	51	37	49	63	41	89	0
normalized size	1	1.	1.06	0.77	1.02	1.31	0.85	1.85	0.
time (sec)	N/A	0.062	0.048	0.01	1.343	0.21	0.255	0.21	0.

Problem 1293	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	41	41	42	32	42	57	34	77	0
normalized size	1	1.	1.02	0.78	1.02	1.39	0.83	1.88	0.
time (sec)	N/A	0.055	0.029	0.01	1.346	0.212	0.235	0.21	0.

Problem 1294	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	34	34	39	27	35	50	27	65	0
normalized size	1	1.	1.15	0.79	1.03	1.47	0.79	1.91	0.
time (sec)	N/A	0.043	0.019	0.008	1.346	0.213	0.207	0.211	0.

Problem 1295	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	27	27	34	22	28	43	20	43	0
normalized size	1	1.	1.26	0.81	1.04	1.59	0.74	1.59	0.
time (sec)	N/A	0.026	0.016	0.007	1.335	0.207	0.186	0.234	0.

Problem 1296	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	32	32	32	27	35	50	26	58	26
normalized size	1	1.	1.	0.84	1.09	1.56	0.81	1.81	0.81
time (sec)	N/A	0.041	0.033	0.01	1.349	0.211	0.324	0.212	6.297

Problem 1297	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	39	39	61	36	49	74	31	51	29
normalized size	1	1.	1.56	0.92	1.26	1.9	0.79	1.31	0.74
time (sec)	N/A	0.051	0.051	0.013	1.346	0.214	0.331	0.212	7.234

Problem 1298	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	46	46	48	45	62	101	41	66	39
normalized size	1	1.	1.04	0.98	1.35	2.2	0.89	1.43	0.85
time (sec)	N/A	0.058	0.044	0.013	1.344	0.214	0.446	0.214	8.46

Problem 1299	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	55	55	57	54	76	128	51	78	48
normalized size	1	1.	1.04	0.98	1.38	2.33	0.93	1.42	0.87
time (sec)	N/A	0.069	0.051	0.014	1.351	0.227	0.477	0.211	9.901

Problem 1300	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	68	68	57	63	89	155	61	90	60
normalized size	1	1.	0.84	0.93	1.31	2.28	0.9	1.32	0.88
time (sec)	N/A	0.077	0.142	0.014	1.362	0.224	0.517	0.213	10.67

Problem 1301	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	77	77	62	72	103	182	71	103	68
normalized size	1	1.	0.81	0.94	1.34	2.36	0.92	1.34	0.88
time (sec)	N/A	0.092	0.111	0.015	1.333	0.216	0.545	0.214	11.965

Problem 1302	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	90	90	92	81	116	209	82	115	80
normalized size	1	1.	1.02	0.9	1.29	2.32	0.91	1.28	0.89
time (sec)	N/A	0.102	0.158	0.017	1.33	0.217	0.607	0.213	13.349

Problem 1303	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	97	97	99	90	130	236	92	127	87
normalized size	1	1.	1.02	0.93	1.34	2.43	0.95	1.31	0.9
time (sec)	N/A	0.117	0.117	0.016	1.354	0.224	0.686	0.212	14.864

Problem 1304	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	87	87	76	66	89	111	76	84	0
normalized size	1	1.	0.87	0.76	1.02	1.28	0.87	0.97	0.
time (sec)	N/A	0.11	0.05	0.01	1.35	0.216	0.328	0.207	0.

Problem 1305	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	80	80	71	61	82	104	70	77	0
normalized size	1	1.	0.89	0.76	1.02	1.3	0.88	0.96	0.
time (sec)	N/A	0.101	0.049	0.01	1.342	0.207	0.327	0.22	0.

Problem 1306	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	73	73	68	56	76	97	63	70	0
normalized size	1	1.	0.93	0.77	1.04	1.33	0.86	0.96	0.
time (sec)	N/A	0.093	0.057	0.01	1.374	0.212	0.311	0.217	0.

Problem 1307	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	66	66	63	51	69	90	56	63	0
normalized size	1	1.	0.95	0.77	1.05	1.36	0.85	0.95	0.
time (sec)	N/A	0.083	0.056	0.011	1.322	0.206	0.31	0.207	0.

Problem 1308	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	59	59	58	46	62	84	49	57	0
normalized size	1	1.	0.98	0.78	1.05	1.42	0.83	0.97	0.
time (sec)	N/A	0.075	0.052	0.009	1.348	0.218	0.299	0.216	0.

Problem 1309	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	52	52	48	41	55	70	42	50	0
normalized size	1	1.	0.92	0.79	1.06	1.35	0.81	0.96	0.
time (sec)	N/A	0.068	0.052	0.01	1.332	0.218	0.276	0.213	0.

Problem 1310	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	42	36	49	70	36	43	0
normalized size	1	1.	0.93	0.8	1.09	1.56	0.8	0.96	0.
time (sec)	N/A	0.06	0.026	0.01	1.346	0.204	0.281	0.216	0.

Problem 1311	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	38	38	37	31	42	63	29	36	0
normalized size	1	1.	0.97	0.82	1.11	1.66	0.76	0.95	0.
time (sec)	N/A	0.047	0.027	0.009	1.356	0.208	0.266	0.206	0.

Problem 1312	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	33	33	31	28	38	50	24	32	26
normalized size	1	1.	0.94	0.85	1.15	1.52	0.73	0.97	0.79
time (sec)	N/A	0.03	0.017	0.008	1.329	0.212	0.247	0.206	5.348

Problem 1313	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	39	39	48	36	49	74	31	45	32
normalized size	1	1.	1.23	0.92	1.26	1.9	0.79	1.15	0.82
time (sec)	N/A	0.05	0.032	0.013	1.34	0.214	0.361	0.209	7.337

Problem 1314	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	46	46	48	45	62	101	41	66	39
normalized size	1	1.	1.04	0.98	1.35	2.2	0.89	1.43	0.85
time (sec)	N/A	0.059	0.043	0.014	1.331	0.211	0.384	0.213	8.431

Problem 1315	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	57	57	59	54	76	128	51	65	49
normalized size	1	1.	1.04	0.95	1.33	2.25	0.89	1.14	0.86
time (sec)	N/A	0.07	0.044	0.014	1.326	0.216	0.437	0.209	9.699

Problem 1316	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	68	68	70	63	89	155	61	74	60
normalized size	1	1.	1.03	0.93	1.31	2.28	0.9	1.09	0.88
time (sec)	N/A	0.084	0.078	0.014	1.328	0.218	0.49	0.207	10.895

Problem 1317	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	77	77	79	72	103	182	71	103	68
normalized size	1	1.	1.03	0.94	1.34	2.36	0.92	1.34	0.88
time (sec)	N/A	0.094	0.093	0.016	1.334	0.212	0.56	0.208	12.28

Problem 1318	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	88	88	90	81	116	209	82	88	78
normalized size	1	1.	1.02	0.92	1.32	2.38	0.93	1.	0.89
time (sec)	N/A	0.11	0.106	0.016	1.479	0.21	0.594	0.208	13.801

Problem 1319	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	101	101	103	90	130	236	92	95	90
normalized size	1	1.	1.02	0.89	1.29	2.34	0.91	0.94	0.89
time (sec)	N/A	0.124	0.12	0.016	1.353	0.213	0.666	0.206	15.26

Problem 1320	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	110	110	112	99	143	263	102	101	99
normalized size	1	1.	1.02	0.9	1.3	2.39	0.93	0.92	0.9
time (sec)	N/A	0.14	0.137	0.016	1.355	0.205	0.74	0.207	17.011

Problem 1321	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	56	56	72	65	86	1	70	86	49
normalized size	1	1.	1.29	1.16	1.54	0.02	1.25	1.54	0.88
time (sec)	N/A	0.093	0.005	0.001	1.339	0.178	0.122	0.204	14.088

Problem 1322	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	56	56	67	60	80	1	65	80	49
normalized size	1	1.	1.2	1.07	1.43	0.02	1.16	1.43	0.88
time (sec)	N/A	0.092	0.003	0.002	1.339	0.187	0.124	0.213	13.201

Problem 1323	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	56	56	62	55	73	1	60	73	49
normalized size	1	1.	1.11	0.98	1.3	0.02	1.07	1.3	0.88
time (sec)	N/A	0.082	0.003	0.002	1.342	0.182	0.112	0.206	12.418

Problem 1324	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	56	56	53	50	66	1	51	66	0
normalized size	1	1.	0.95	0.89	1.18	0.02	0.91	1.18	0.
time (sec)	N/A	0.086	0.003	0.001	1.357	0.189	0.105	0.211	0.

Problem 1325	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	56	56	50	45	59	1	48	59	0
normalized size	1	1.	0.89	0.8	1.05	0.02	0.86	1.05	0.
time (sec)	N/A	0.075	0.003	0.002	1.341	0.18	0.097	0.204	0.

Problem 1326	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	56	56	45	40	53	1	42	53	0
normalized size	1	1.	0.8	0.71	0.95	0.02	0.75	0.95	0.
time (sec)	N/A	0.072	0.002	0.	1.348	0.186	0.097	0.208	0.

Problem 1327	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	40	35	46	1	37	46	0
normalized size	1	1.	0.89	0.78	1.02	0.02	0.82	1.02	0.
time (sec)	N/A	0.063	0.002	0.002	1.339	0.185	0.085	0.208	0.

Problem 1328	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	34	34	35	30	39	1	32	39	0
normalized size	1	1.	1.03	0.88	1.15	0.03	0.94	1.15	0.
time (sec)	N/A	0.047	0.001	0.	1.348	0.186	0.078	0.208	0.

Problem 1329	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	23	23	26	25	32	1	24	32	0
normalized size	1	1.	1.13	1.09	1.39	0.04	1.04	1.39	0.
time (sec)	N/A	0.02	0.001	0.001	1.341	0.183	0.076	0.207	0.

Problem 1330	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	37	37	32	28	36	36	34	38	0
normalized size	1	1.	0.86	0.76	0.97	0.97	0.92	1.03	0.
time (sec)	N/A	0.035	0.019	0.003	1.34	0.217	0.175	0.211	0.

Problem 1331	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	41	41	44	32	42	57	34	77	0
normalized size	1	1.	1.07	0.78	1.02	1.39	0.83	1.88	0.
time (sec)	N/A	0.048	0.02	0.009	1.341	0.213	0.214	0.207	0.

Problem 1332	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	46	36	49	70	36	43	0
normalized size	1	1.	1.02	0.8	1.09	1.56	0.8	0.96	0.
time (sec)	N/A	0.055	0.03	0.01	1.348	0.216	0.27	0.209	0.

Problem 1333	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	49	49	46	40	55	84	39	43	0
normalized size	1	1.	0.94	0.82	1.12	1.71	0.8	0.88	0.
time (sec)	N/A	0.054	0.026	0.01	1.348	0.21	0.321	0.206	0.

Problem 1334	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	55	55	41	46	65	90	46	74	46
normalized size	1	1.	0.75	0.84	1.18	1.64	0.84	1.35	0.84
time (sec)	N/A	0.053	0.026	0.01	1.348	0.214	0.373	0.217	8.826

Problem 1335	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	37	37	31	47	66	66	44	39	31
normalized size	1	1.	0.84	1.27	1.78	1.78	1.19	1.05	0.84
time (sec)	N/A	0.037	0.018	0.008	1.351	0.21	0.387	0.211	5.295

Problem 1336	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	55	55	31	47	73	73	49	39	48
normalized size	1	1.	0.56	0.85	1.33	1.33	0.89	0.71	0.87
time (sec)	N/A	0.051	0.017	0.009	1.346	0.202	0.424	0.21	6.906

Problem 1337	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	56	56	31	47	80	80	54	39	49
normalized size	1	1.	0.55	0.84	1.43	1.43	0.96	0.7	0.88
time (sec)	N/A	0.059	0.018	0.01	1.347	0.22	0.472	0.203	9.661

Problem 1338	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	67	67	87	70	93	1	83	93	60
normalized size	1	1.	1.3	1.04	1.39	0.01	1.24	1.39	0.9
time (sec)	N/A	0.122	0.004	0.003	1.356	0.195	0.138	0.209	16.324

Problem 1339	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	67	67	78	65	86	1	75	86	60
normalized size	1	1.	1.16	0.97	1.28	0.01	1.12	1.28	0.9
time (sec)	N/A	0.109	0.004	0.003	1.339	0.189	0.122	0.204	15.525

Problem 1340	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	67	67	71	60	80	1	68	80	0
normalized size	1	1.	1.06	0.9	1.19	0.01	1.01	1.19	0.
time (sec)	N/A	0.111	0.004	0.001	1.35	0.185	0.116	0.213	0.

Problem 1341	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	67	67	62	55	73	1	60	73	0
normalized size	1	1.	0.93	0.82	1.09	0.01	0.9	1.09	0.
time (sec)	N/A	0.098	0.004	0.001	1.344	0.19	0.119	0.212	0.

Problem 1342	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	67	67	57	50	66	1	54	66	0
normalized size	1	1.	0.85	0.75	0.99	0.01	0.81	0.99	0.
time (sec)	N/A	0.098	0.004	0.002	1.341	0.183	0.104	0.217	0.

Problem 1343	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	67	67	56	45	59	1	53	59	0
normalized size	1	1.	0.84	0.67	0.88	0.01	0.79	0.88	0.
time (sec)	N/A	0.093	0.004	0.	1.346	0.185	0.101	0.207	0.

Problem 1344	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	56	56	47	40	53	1	44	53	0
normalized size	1	1.	0.84	0.71	0.95	0.02	0.79	0.95	0.
time (sec)	N/A	0.085	0.002	0.003	1.352	0.183	0.089	0.205	0.

Problem 1345	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	46	35	46	1	42	46	0
normalized size	1	1.	1.02	0.78	1.02	0.02	0.93	1.02	0.
time (sec)	N/A	0.062	0.001	0.001	1.353	0.184	0.088	0.204	0.

Problem 1346	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	34	34	35	30	39	1	32	39	0
normalized size	1	1.	1.03	0.88	1.15	0.03	0.94	1.15	0.
time (sec)	N/A	0.035	0.001	0.002	1.34	0.184	0.094	0.209	0.

Problem 1347	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	44	44	37	33	43	43	41	45	0
normalized size	1	1.	0.84	0.75	0.98	0.98	0.93	1.02	0.
time (sec)	N/A	0.047	0.019	0.004	1.371	0.209	0.184	0.206	0.

Problem 1348	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	48	48	49	37	49	63	41	89	0
normalized size	1	1.	1.02	0.77	1.02	1.31	0.85	1.85	0.
time (sec)	N/A	0.063	0.049	0.009	1.335	0.209	0.246	0.213	0.

Problem 1349	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	52	52	51	41	55	77	42	50	0
normalized size	1	1.	0.98	0.79	1.06	1.48	0.81	0.96	0.
time (sec)	N/A	0.065	0.053	0.01	1.346	0.209	0.296	0.209	0.

Problem 1350	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	56	56	51	45	62	90	46	50	0
normalized size	1	1.	0.91	0.8	1.11	1.61	0.82	0.89	0.
time (sec)	N/A	0.069	0.05	0.01	1.335	0.214	0.346	0.212	0.

Problem 1351	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	60	60	51	49	69	104	49	80	0
normalized size	1	1.	0.85	0.82	1.15	1.73	0.82	1.33	0.
time (sec)	N/A	0.068	0.054	0.01	1.342	0.213	0.387	0.222	0.

Problem 1352	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	66	66	46	55	78	111	56	53	56
normalized size	1	1.	0.7	0.83	1.18	1.68	0.85	0.8	0.85
time (sec)	N/A	0.064	0.056	0.012	1.334	0.214	0.428	0.207	10.535

Problem 1353	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	67	67	36	56	80	80	54	46	56
normalized size	1	1.	0.54	0.84	1.19	1.19	0.81	0.69	0.84
time (sec)	N/A	0.068	0.041	0.008	1.372	0.204	0.467	0.21	11.451

Problem 1354	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	67	67	36	56	86	86	60	46	60
normalized size	1	1.	0.54	0.84	1.28	1.28	0.9	0.69	0.9
time (sec)	N/A	0.072	0.041	0.01	1.35	0.195	0.526	0.211	11.551

Problem 1355	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	78	78	85	70	93	1	82	93	0
normalized size	1	1.	1.09	0.9	1.19	0.01	1.05	1.19	0.
time (sec)	N/A	0.131	0.005	0.003	1.35	0.179	0.131	0.21	0.

Problem 1356	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	78	78	74	65	86	1	71	86	0
normalized size	1	1.	0.95	0.83	1.1	0.01	0.91	1.1	0.
time (sec)	N/A	0.112	0.004	0.003	1.339	0.191	0.134	0.216	0.

Problem 1357	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	78	78	65	60	80	1	63	80	0
normalized size	1	1.	0.83	0.77	1.03	0.01	0.81	1.03	0.
time (sec)	N/A	0.113	0.004	0.003	1.345	0.182	0.118	0.219	0.

Problem 1358	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	78	78	62	55	73	1	60	73	0
normalized size	1	1.	0.79	0.71	0.94	0.01	0.77	0.94	0.
time (sec)	N/A	0.107	0.004	0.001	1.343	0.181	0.125	0.209	0.

Problem 1359	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	78	78	59	50	66	1	56	66	0
normalized size	1	1.	0.76	0.64	0.85	0.01	0.72	0.85	0.
time (sec)	N/A	0.101	0.004	0.001	1.351	0.179	0.11	0.22	0.

Problem 1360	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	67	67	54	45	59	1	51	59	0
normalized size	1	1.	0.81	0.67	0.88	0.01	0.76	0.88	0.
time (sec)	N/A	0.095	0.004	0.002	1.396	0.178	0.097	0.214	0.

Problem 1361	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	56	56	47	40	53	1	44	53	0
normalized size	1	1.	0.84	0.71	0.95	0.02	0.79	0.95	0.
time (sec)	N/A	0.072	0.002	0.002	1.371	0.178	0.088	0.206	0.

Problem 1362	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	40	35	46	1	37	46	0
normalized size	1	1.	0.89	0.78	1.02	0.02	0.82	1.02	0.
time (sec)	N/A	0.042	0.002	0.001	1.328	0.187	0.084	0.209	0.

Problem 1363	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	51	51	42	38	50	50	48	51	0
normalized size	1	1.	0.82	0.75	0.98	0.98	0.94	1.	0.
time (sec)	N/A	0.053	0.019	0.004	1.333	0.203	0.18	0.211	0.

Problem 1364	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	55	55	54	42	55	70	48	101	0
normalized size	1	1.	0.98	0.76	1.	1.27	0.87	1.84	0.
time (sec)	N/A	0.068	0.022	0.01	1.342	0.202	0.236	0.21	0.

Problem 1365	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	59	59	56	46	62	84	49	57	0
normalized size	1	1.	0.95	0.78	1.05	1.42	0.83	0.97	0.
time (sec)	N/A	0.072	0.03	0.01	1.352	0.211	0.299	0.209	0.

Problem 1366	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	63	63	52	50	69	97	53	57	0
normalized size	1	1.	0.83	0.79	1.1	1.54	0.84	0.9	0.
time (sec)	N/A	0.077	0.03	0.01	1.347	0.223	0.341	0.207	0.

Problem 1367	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	67	67	56	54	76	111	56	101	0
normalized size	1	1.	0.84	0.81	1.13	1.66	0.84	1.51	0.
time (sec)	N/A	0.081	0.034	0.012	1.349	0.22	0.398	0.211	0.

Problem 1368	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	71	71	56	58	82	124	60	57	0
normalized size	1	1.	0.79	0.82	1.15	1.75	0.85	0.8	0.
time (sec)	N/A	0.081	0.035	0.012	1.344	0.215	0.463	0.21	0.

Problem 1369	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	77	77	51	64	92	131	66	59	66
normalized size	1	1.	0.66	0.83	1.19	1.7	0.86	0.77	0.86
time (sec)	N/A	0.077	0.026	0.009	1.338	0.213	0.477	0.206	11.887

Problem 1370	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	78	78	41	65	93	93	65	53	66
normalized size	1	1.	0.53	0.83	1.19	1.19	0.83	0.68	0.85
time (sec)	N/A	0.082	0.022	0.008	1.349	0.205	0.511	0.214	13.207

Problem 1371	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	72	72	57	53	70	70	68	72	0
normalized size	1	1.	0.79	0.74	0.97	0.97	0.94	1.	0.
time (sec)	N/A	0.072	0.025	0.006	1.343	0.213	0.212	0.211	0.

Problem 1372	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	65	65	52	48	63	63	61	65	0
normalized size	1	1.	0.8	0.74	0.97	0.97	0.94	1.	0.
time (sec)	N/A	0.065	0.021	0.003	1.343	0.201	0.209	0.214	0.

Problem 1373	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	58	58	47	43	57	57	54	58	0
normalized size	1	1.	0.81	0.74	0.98	0.98	0.93	1.	0.
time (sec)	N/A	0.058	0.02	0.004	1.351	0.227	0.194	0.212	0.

Problem 1374	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	51	51	42	38	50	50	48	51	0
normalized size	1	1.	0.82	0.75	0.98	0.98	0.94	1.	0.
time (sec)	N/A	0.057	0.019	0.004	1.35	0.219	0.187	0.207	0.

Problem 1375	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	44	44	37	33	43	43	41	45	0
normalized size	1	1.	0.84	0.75	0.98	0.98	0.93	1.02	0.
time (sec)	N/A	0.047	0.019	0.003	1.343	0.205	0.199	0.213	0.

Problem 1376	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	37	37	35	28	36	36	34	38	0
normalized size	1	1.	0.95	0.76	0.97	0.97	0.92	1.03	0.
time (sec)	N/A	0.036	0.021	0.004	1.345	0.215	0.165	0.208	0.

Problem 1377	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	30	30	27	23	30	30	27	31	0
normalized size	1	1.	0.9	0.77	1.	1.	0.9	1.03	0.
time (sec)	N/A	0.025	0.011	0.005	1.34	0.206	0.149	0.214	0.

Problem 1378	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	33	33	35	26	34	34	31	36	0
normalized size	1	1.	1.06	0.79	1.03	1.03	0.94	1.09	0.
time (sec)	N/A	0.043	0.022	0.008	1.345	0.209	0.27	0.212	0.

Problem 1379	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	37	37	36	30	39	61	31	63	0
normalized size	1	1.	0.97	0.81	1.05	1.65	0.84	1.7	0.
time (sec)	N/A	0.046	0.035	0.011	1.342	0.214	0.358	0.214	0.

Problem 1380	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	43	43	39	36	49	74	34	45	36
normalized size	1	1.	0.91	0.84	1.14	1.72	0.79	1.05	0.84
time (sec)	N/A	0.051	0.041	0.011	1.35	0.236	0.389	0.21	7.363

Problem 1381	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	50	50	40	45	62	101	41	51	42
normalized size	1	1.	0.8	0.9	1.24	2.02	0.82	1.02	0.84
time (sec)	N/A	0.057	0.045	0.011	1.347	0.217	0.427	0.213	8.425

Problem 1382	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	59	59	45	54	76	128	51	70	53
normalized size	1	1.	0.76	0.92	1.29	2.17	0.86	1.19	0.9
time (sec)	N/A	0.065	0.048	0.013	1.347	0.215	0.443	0.218	9.402

Problem 1383	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	70	70	50	63	89	155	61	65	63
normalized size	1	1.	0.71	0.9	1.27	2.21	0.87	0.93	0.9
time (sec)	N/A	0.072	0.069	0.013	1.35	0.228	0.496	0.215	5.257

Problem 1384	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	81	81	75	72	103	182	71	72	73
normalized size	1	1.	0.93	0.89	1.27	2.25	0.88	0.89	0.9
time (sec)	N/A	0.082	0.1	0.013	1.351	0.225	0.542	0.206	5.859

Problem 1385	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	92	92	84	81	116	209	82	78	83
normalized size	1	1.	0.91	0.88	1.26	2.27	0.89	0.85	0.9
time (sec)	N/A	0.092	0.111	0.015	1.35	0.22	0.61	0.212	6.494

Problem 1386	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	76	76	71	57	76	90	68	138	0
normalized size	1	1.	0.93	0.75	1.	1.18	0.89	1.82	0.
time (sec)	N/A	0.09	0.059	0.01	1.346	0.211	0.262	0.211	0.

Problem 1387	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	69	69	66	52	69	84	61	126	0
normalized size	1	1.	0.96	0.75	1.	1.22	0.88	1.83	0.
time (sec)	N/A	0.082	0.054	0.01	1.345	0.216	0.249	0.215	0.

Problem 1388	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	62	62	61	47	62	77	54	113	0
normalized size	1	1.	0.98	0.76	1.	1.24	0.87	1.82	0.
time (sec)	N/A	0.077	0.052	0.01	1.338	0.213	0.242	0.208	0.

Problem 1389	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	55	55	54	42	55	70	48	101	0
normalized size	1	1.	0.98	0.76	1.	1.27	0.87	1.84	0.
time (sec)	N/A	0.068	0.027	0.009	1.341	0.206	0.226	0.212	0.

Problem 1390	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	48	48	51	37	49	63	41	89	0
normalized size	1	1.	1.06	0.77	1.02	1.31	0.85	1.85	0.
time (sec)	N/A	0.062	0.048	0.01	1.349	0.204	0.238	0.21	0.

Problem 1391	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	41	41	44	32	42	57	34	77	0
normalized size	1	1.	1.07	0.78	1.02	1.39	0.83	1.88	0.
time (sec)	N/A	0.05	0.022	0.01	1.348	0.211	0.223	0.208	0.

Problem 1392	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	34	34	39	27	35	50	27	65	0
normalized size	1	1.	1.15	0.79	1.03	1.47	0.79	1.91	0.
time (sec)	N/A	0.034	0.015	0.009	1.321	0.208	0.196	0.209	0.

Problem 1393	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	37	37	36	30	39	61	31	63	0
normalized size	1	1.	0.97	0.81	1.05	1.65	0.84	1.7	0.
time (sec)	N/A	0.046	0.036	0.011	1.321	0.209	0.334	0.218	0.

Problem 1394	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	43	43	61	36	49	74	34	76	32
normalized size	1	1.	1.42	0.84	1.14	1.72	0.79	1.77	0.74
time (sec)	N/A	0.05	0.045	0.015	1.326	0.219	0.381	0.218	3.599

Problem 1395	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	50	50	47	45	62	101	41	66	39
normalized size	1	1.	0.94	0.9	1.24	2.02	0.82	1.32	0.78
time (sec)	N/A	0.06	0.057	0.015	1.375	0.215	0.408	0.211	4.121

Problem 1396	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	57	57	59	54	76	128	51	78	49
normalized size	1	1.	1.04	0.95	1.33	2.25	0.89	1.37	0.86
time (sec)	N/A	0.069	0.047	0.014	1.334	0.232	0.473	0.213	4.687

Problem 1397	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	68	68	70	63	89	155	61	90	60
normalized size	1	1.	1.03	0.93	1.31	2.28	0.9	1.32	0.88
time (sec)	N/A	0.08	0.053	0.016	1.341	0.22	0.509	0.208	5.31

Problem 1398	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	75	75	62	72	103	182	71	103	66
normalized size	1	1.	0.83	0.96	1.37	2.43	0.95	1.37	0.88
time (sec)	N/A	0.093	0.099	0.016	1.361	0.208	0.586	0.212	5.926

Problem 1399	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	88	88	90	81	116	209	82	115	78
normalized size	1	1.	1.02	0.92	1.32	2.38	0.93	1.31	0.89
time (sec)	N/A	0.105	0.149	0.016	1.335	0.207	0.623	0.208	6.65

Problem 1400	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	97	97	99	90	130	236	92	127	87
normalized size	1	1.	1.02	0.93	1.34	2.43	0.95	1.31	0.9
time (sec)	N/A	0.119	0.165	0.016	1.368	0.216	0.715	0.22	7.344

Problem 1401	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	87	87	76	66	89	111	76	84	0
normalized size	1	1.	0.87	0.76	1.02	1.28	0.87	0.97	0.
time (sec)	N/A	0.108	0.056	0.01	1.32	0.211	0.334	0.211	0.

Problem 1402	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	80	80	73	61	82	104	70	77	0
normalized size	1	1.	0.91	0.76	1.02	1.3	0.88	0.96	0.
time (sec)	N/A	0.099	0.068	0.01	1.336	0.209	0.319	0.212	0.

Problem 1403	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	73	73	68	56	76	97	63	70	0
normalized size	1	1.	0.93	0.77	1.04	1.33	0.86	0.96	0.
time (sec)	N/A	0.09	0.058	0.01	1.329	0.212	0.314	0.209	0.

Problem 1404	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	66	66	63	51	69	90	56	63	0
normalized size	1	1.	0.95	0.77	1.05	1.36	0.85	0.95	0.
time (sec)	N/A	0.08	0.055	0.008	1.365	0.207	0.302	0.209	0.

Problem 1405	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	59	59	56	46	62	84	49	57	0
normalized size	1	1.	0.95	0.78	1.05	1.42	0.83	0.97	0.
time (sec)	N/A	0.074	0.028	0.011	1.372	0.213	0.309	0.209	0.

Problem 1406	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	52	52	53	41	55	77	42	50	0
normalized size	1	1.	1.02	0.79	1.06	1.48	0.81	0.96	0.
time (sec)	N/A	0.067	0.055	0.009	1.33	0.208	0.292	0.206	0.

Problem 1407	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	46	36	49	70	36	43	0
normalized size	1	1.	1.02	0.8	1.09	1.56	0.8	0.96	0.
time (sec)	N/A	0.055	0.028	0.01	1.33	0.209	0.27	0.209	0.

Problem 1408	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	38	38	37	31	42	63	29	36	0
normalized size	1	1.	0.97	0.82	1.11	1.66	0.76	0.95	0.
time (sec)	N/A	0.036	0.026	0.009	1.345	0.221	0.246	0.209	0.

Problem 1409	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	43	43	44	36	49	74	34	45	36
normalized size	1	1.	1.02	0.84	1.14	1.72	0.79	1.05	0.84
time (sec)	N/A	0.05	0.039	0.012	1.425	0.224	0.385	0.211	7.422

Problem 1410	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	50	50	48	45	62	101	41	66	39
normalized size	1	1.	0.96	0.9	1.24	2.02	0.82	1.32	0.78
time (sec)	N/A	0.062	0.046	0.014	1.347	0.227	0.396	0.217	8.482

Problem 1411	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	57	57	59	54	76	128	51	65	49
normalized size	1	1.	1.04	0.95	1.33	2.25	0.89	1.14	0.86
time (sec)	N/A	0.071	0.054	0.015	1.346	0.218	0.436	0.215	9.734

Problem 1412	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	68	68	70	63	89	155	61	74	60
normalized size	1	1.	1.03	0.93	1.31	2.28	0.9	1.09	0.88
time (sec)	N/A	0.082	0.053	0.014	1.344	0.216	0.534	0.213	10.981

Problem 1413	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	75	75	77	72	103	182	71	103	66
normalized size	1	1.	1.03	0.96	1.37	2.43	0.95	1.37	0.88
time (sec)	N/A	0.094	0.059	0.014	1.345	0.205	0.572	0.216	12.42

Problem 1414	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	86	86	88	81	116	209	82	88	76
normalized size	1	1.	1.02	0.94	1.35	2.43	0.95	1.02	0.88
time (sec)	N/A	0.108	0.114	0.015	1.354	0.21	0.647	0.208	13.89

Problem 1415	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	97	97	99	90	130	236	92	95	87
normalized size	1	1.	1.02	0.93	1.34	2.43	0.95	0.98	0.9
time (sec)	N/A	0.124	0.172	0.016	1.359	0.213	0.681	0.213	15.456

Problem 1416	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	110	110	112	99	143	263	102	101	99
normalized size	1	1.	1.02	0.9	1.3	2.39	0.93	0.92	0.9
time (sec)	N/A	0.141	0.206	0.016	1.348	0.211	0.796	0.211	17.232

Problem 1417	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	72	72	57	53	70	70	70	72	0
normalized size	1	1.	0.79	0.74	0.97	0.97	0.97	1.	0.
time (sec)	N/A	0.063	0.026	0.006	1.344	0.209	0.226	0.215	0.

Problem 1418	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	65	65	52	48	63	63	63	65	0
normalized size	1	1.	0.8	0.74	0.97	0.97	0.97	1.	0.
time (sec)	N/A	0.056	0.023	0.004	1.354	0.21	0.216	0.215	0.

Problem 1419	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	58	58	47	43	57	57	56	58	0
normalized size	1	1.	0.81	0.74	0.98	0.98	0.97	1.	0.
time (sec)	N/A	0.05	0.024	0.006	1.344	0.208	0.199	0.209	0.

Problem 1420	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	51	51	42	38	50	50	49	51	0
normalized size	1	1.	0.82	0.75	0.98	0.98	0.96	1.	0.
time (sec)	N/A	0.046	0.021	0.005	1.347	0.21	0.191	0.206	0.

Problem 1421	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	44	44	37	33	43	43	42	45	0
normalized size	1	1.	0.84	0.75	0.98	0.98	0.95	1.02	0.
time (sec)	N/A	0.042	0.022	0.003	1.348	0.209	0.182	0.208	0.

Problem 1422	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	37	37	32	28	36	36	36	38	0
normalized size	1	1.	0.86	0.76	0.97	0.97	0.97	1.03	0.
time (sec)	N/A	0.036	0.019	0.003	1.345	0.205	0.174	0.21	0.

Problem 1423	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	30	30	27	23	30	30	29	31	0
normalized size	1	1.	0.9	0.77	1.	1.	0.97	1.03	0.
time (sec)	N/A	0.031	0.016	0.005	1.349	0.207	0.163	0.217	0.

Problem 1424	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	23	23	22	18	23	23	22	24	0
normalized size	1	1.	0.96	0.78	1.	1.	0.96	1.04	0.
time (sec)	N/A	0.026	0.007	0.003	1.342	0.207	0.175	0.219	0.

Problem 1425	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	16	16	17	13	16	16	15	18	0
normalized size	1	1.	1.06	0.81	1.	1.	0.94	1.12	0.
time (sec)	N/A	0.018	0.004	0.003	1.344	0.213	0.145	0.21	0.

Problem 1426	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	21	21	21	18	23	23	19	26	19
normalized size	1	1.	1.	0.86	1.1	1.1	0.9	1.24	0.9
time (sec)	N/A	0.03	0.007	0.007	1.345	0.216	0.229	0.207	5.371

Problem 1427	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	32	32	30	27	35	50	26	34	26
normalized size	1	1.	0.94	0.84	1.09	1.56	0.81	1.06	0.81
time (sec)	N/A	0.041	0.024	0.012	1.343	0.212	0.286	0.211	6.344

Problem 1428	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	43	43	35	36	49	74	34	45	36
normalized size	1	1.	0.81	0.84	1.14	1.72	0.79	1.05	0.84
time (sec)	N/A	0.044	0.029	0.011	1.347	0.211	0.338	0.207	7.373

Problem 1429	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	54	54	40	45	62	101	44	51	46
normalized size	1	1.	0.74	0.83	1.15	1.87	0.81	0.94	0.85
time (sec)	N/A	0.051	0.036	0.011	1.352	0.226	0.389	0.208	8.447

Problem 1430	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	65	65	45	54	76	128	54	70	56
normalized size	1	1.	0.69	0.83	1.17	1.97	0.83	1.08	0.86
time (sec)	N/A	0.062	0.049	0.013	1.344	0.232	0.443	0.205	9.586

Problem 1431	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	76	76	50	63	89	155	65	65	66
normalized size	1	1.	0.66	0.83	1.17	2.04	0.86	0.86	0.87
time (sec)	N/A	0.07	0.058	0.013	1.335	0.225	0.487	0.211	10.83

Problem 1432	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	87	87	55	72	103	182	75	72	76
normalized size	1	1.	0.63	0.83	1.18	2.09	0.86	0.83	0.87
time (sec)	N/A	0.078	0.062	0.013	1.348	0.227	0.544	0.211	12.091

Problem 1433	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	98	98	60	81	116	209	85	78	87
normalized size	1	1.	0.61	0.83	1.18	2.13	0.87	0.8	0.89
time (sec)	N/A	0.084	0.07	0.013	1.351	0.222	0.601	0.211	13.423

Problem 1434	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	79	79	62	58	77	77	76	78	0
normalized size	1	1.	0.78	0.73	0.97	0.97	0.96	0.99	0.
time (sec)	N/A	0.077	0.024	0.004	1.342	0.221	0.25	0.207	0.

Problem 1435	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	72	72	75	53	70	70	70	72	0
normalized size	1	1.	1.04	0.74	0.97	0.97	0.97	1.	0.
time (sec)	N/A	0.071	0.023	0.005	1.351	0.238	0.239	0.21	0.

Problem 1436	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	65	65	52	48	63	63	63	65	0
normalized size	1	1.	0.8	0.74	0.97	0.97	0.97	1.	0.
time (sec)	N/A	0.066	0.022	0.004	1.356	0.227	0.228	0.208	0.

Problem 1437	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	58	58	47	43	57	57	56	58	0
normalized size	1	1.	0.81	0.74	0.98	0.98	0.97	1.	0.
time (sec)	N/A	0.06	0.021	0.004	1.333	0.235	0.236	0.213	0.

Problem 1438	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	51	51	42	38	50	50	49	51	0
normalized size	1	1.	0.82	0.75	0.98	0.98	0.96	1.	0.
time (sec)	N/A	0.055	0.019	0.004	1.33	0.232	0.2	0.209	0.

Problem 1439	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	44	44	37	33	43	43	42	45	0
normalized size	1	1.	0.84	0.75	0.98	0.98	0.95	1.02	0.
time (sec)	N/A	0.049	0.018	0.004	1.336	0.227	0.2	0.211	0.

Problem 1440	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	37	37	32	28	36	36	36	38	0
normalized size	1	1.	0.86	0.76	0.97	0.97	0.97	1.03	0.
time (sec)	N/A	0.045	0.016	0.003	1.326	0.227	0.184	0.209	0.

Problem 1441	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	30	30	27	23	30	30	29	31	0
normalized size	1	1.	0.9	0.77	1.	1.	0.97	1.03	0.
time (sec)	N/A	0.033	0.016	0.004	1.324	0.218	0.167	0.206	0.

Problem 1442	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	23	23	25	18	23	23	22	24	0
normalized size	1	1.	1.09	0.78	1.	1.	0.96	1.04	0.
time (sec)	N/A	0.022	0.01	0.003	1.334	0.216	0.149	0.206	0.

Problem 1443	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	26	26	32	21	27	27	22	30	0
normalized size	1	1.	1.23	0.81	1.04	1.04	0.85	1.15	0.
time (sec)	N/A	0.039	0.023	0.009	1.328	0.216	0.269	0.206	0.

Problem 1444	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	32	32	30	27	35	50	27	58	27
normalized size	1	1.	0.94	0.84	1.09	1.56	0.84	1.81	0.84
time (sec)	N/A	0.043	0.033	0.011	1.35	0.207	0.342	0.209	6.838

Problem 1445	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	43	43	35	36	49	74	34	45	36
normalized size	1	1.	0.81	0.84	1.14	1.72	0.79	1.05	0.84
time (sec)	N/A	0.05	0.033	0.012	1.341	0.203	0.38	0.211	7.893

Problem 1446	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	54	54	40	45	62	101	44	51	46
normalized size	1	1.	0.74	0.83	1.15	1.87	0.81	0.94	0.85
time (sec)	N/A	0.057	0.04	0.012	1.326	0.212	0.426	0.209	8.977

Problem 1447	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	65	65	47	54	76	128	54	70	56
normalized size	1	1.	0.72	0.83	1.17	1.97	0.83	1.08	0.86
time (sec)	N/A	0.066	0.049	0.012	1.337	0.216	0.474	0.212	10.217

Problem 1448	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	76	76	52	63	89	155	65	65	66
normalized size	1	1.	0.68	0.83	1.17	2.04	0.86	0.86	0.87
time (sec)	N/A	0.077	0.076	0.013	1.342	0.215	0.53	0.212	11.421

Problem 1449	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	87	87	57	72	103	182	75	72	76
normalized size	1	1.	0.66	0.83	1.18	2.09	0.86	0.83	0.87
time (sec)	N/A	0.086	0.07	0.011	1.332	0.212	0.578	0.214	12.706

Problem 1450	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	98	98	62	81	116	209	85	78	87
normalized size	1	1.	0.63	0.83	1.18	2.13	0.87	0.8	0.89
time (sec)	N/A	0.094	0.08	0.014	1.335	0.217	0.644	0.211	14.217

Problem 1451	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	79	79	82	58	77	77	76	78	0
normalized size	1	1.	1.04	0.73	0.97	0.97	0.96	0.99	0.
time (sec)	N/A	0.079	0.024	0.004	1.338	0.222	0.248	0.211	0.

Problem 1452	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	72	72	75	53	70	70	70	72	0
normalized size	1	1.	1.04	0.74	0.97	0.97	0.97	1.	0.
time (sec)	N/A	0.073	0.022	0.004	1.337	0.22	0.244	0.208	0.

Problem 1453	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	65	65	68	48	63	63	63	65	0
normalized size	1	1.	1.05	0.74	0.97	0.97	0.97	1.	0.
time (sec)	N/A	0.068	0.021	0.004	1.343	0.224	0.225	0.21	0.

Problem 1454	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	58	58	47	43	57	57	56	58	0
normalized size	1	1.	0.81	0.74	0.98	0.98	0.97	1.	0.
time (sec)	N/A	0.061	0.02	0.005	1.333	0.206	0.216	0.212	0.

Problem 1455	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	51	51	42	38	50	50	49	51	0
normalized size	1	1.	0.82	0.75	0.98	0.98	0.96	1.	0.
time (sec)	N/A	0.054	0.018	0.003	1.357	0.219	0.203	0.209	0.

Problem 1456	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	44	44	37	33	43	43	42	45	0
normalized size	1	1.	0.84	0.75	0.98	0.98	0.95	1.02	0.
time (sec)	N/A	0.049	0.018	0.004	1.345	0.209	0.186	0.208	0.

Problem 1457	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	37	37	32	28	36	36	36	38	0
normalized size	1	1.	0.86	0.76	0.97	0.97	0.97	1.03	0.
time (sec)	N/A	0.038	0.018	0.003	1.336	0.22	0.174	0.208	0.

Problem 1458	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	30	30	30	23	30	30	29	31	0
normalized size	1	1.	1.	0.77	1.	1.	0.97	1.03	0.
time (sec)	N/A	0.028	0.012	0.003	1.338	0.211	0.151	0.21	0.

Problem 1459	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	33	33	35	26	34	34	31	36	0
normalized size	1	1.	1.06	0.79	1.03	1.03	0.94	1.09	0.
time (sec)	N/A	0.041	0.026	0.009	1.346	0.218	0.288	0.21	0.

Problem 1460	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	37	37	37	30	39	61	31	63	0
normalized size	1	1.	1.	0.81	1.05	1.65	0.84	1.7	0.
time (sec)	N/A	0.048	0.041	0.012	1.344	0.22	0.358	0.208	0.

Problem 1461	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	43	43	35	36	49	74	36	45	36
normalized size	1	1.	0.81	0.84	1.14	1.72	0.84	1.05	0.84
time (sec)	N/A	0.05	0.036	0.013	1.35	0.215	0.424	0.209	7.904

Problem 1462	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	54	54	40	45	62	101	44	51	46
normalized size	1	1.	0.74	0.83	1.15	1.87	0.81	0.94	0.85
time (sec)	N/A	0.059	0.039	0.011	1.343	0.217	0.441	0.209	9.054

Problem 1463	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	65	65	47	54	76	128	54	70	56
normalized size	1	1.	0.72	0.83	1.17	1.97	0.83	1.08	0.86
time (sec)	N/A	0.067	0.055	0.013	1.344	0.214	0.476	0.212	10.217

Problem 1464	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	76	76	52	63	89	155	65	65	66
normalized size	1	1.	0.68	0.83	1.17	2.04	0.86	0.86	0.87
time (sec)	N/A	0.077	0.074	0.013	1.352	0.212	0.542	0.205	11.51

Problem 1465	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	87	87	57	72	103	182	75	72	76
normalized size	1	1.	0.66	0.83	1.18	2.09	0.86	0.83	0.87
time (sec)	N/A	0.086	0.072	0.013	1.356	0.215	0.598	0.212	12.825

Problem 1466	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	98	98	62	81	116	209	85	78	87
normalized size	1	1.	0.63	0.83	1.18	2.13	0.87	0.8	0.89
time (sec)	N/A	0.096	0.09	0.013	1.356	0.214	0.639	0.205	14.184

Problem 1467	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	F(-2)	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	104	104	99	257	217	279	614	0	0
normalized size	1	1.	0.95	2.47	2.09	2.68	5.9	0.	0.
time (sec)	N/A	0.242	0.132	0.013	1.361	0.336	26.569	0.	0.

Problem 1468	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	68	68	62	51	68	68	63	70	0
normalized size	1	1.	0.91	0.75	1.	1.	0.93	1.03	0.
time (sec)	N/A	0.07	0.044	0.01	1.351	0.206	0.346	0.204	0.

Problem 1469	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	61	61	58	46	61	61	56	63	0
normalized size	1	1.	0.95	0.75	1.	1.	0.92	1.03	0.
time (sec)	N/A	0.063	0.043	0.01	1.347	0.206	0.33	0.21	0.

Problem 1470	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	54	54	50	41	54	54	49	57	0
normalized size	1	1.	0.93	0.76	1.	1.	0.91	1.06	0.
time (sec)	N/A	0.058	0.031	0.01	1.351	0.201	0.305	0.212	0.

Problem 1471	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	47	47	45	36	47	47	42	50	0
normalized size	1	1.	0.96	0.77	1.	1.	0.89	1.06	0.
time (sec)	N/A	0.051	0.026	0.008	1.35	0.229	0.299	0.217	0.

Problem 1472	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	40	40	43	31	41	41	36	43	0
normalized size	1	1.	1.08	0.78	1.02	1.02	0.9	1.08	0.
time (sec)	N/A	0.048	0.034	0.008	1.343	0.208	0.322	0.207	0.

Problem 1473	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	33	33	35	26	34	34	29	36	0
normalized size	1	1.	1.06	0.79	1.03	1.03	0.88	1.09	0.
time (sec)	N/A	0.042	0.024	0.009	1.343	0.225	0.287	0.216	0.

Problem 1474	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	26	26	31	21	27	27	22	30	0
normalized size	1	1.	1.19	0.81	1.04	1.04	0.85	1.15	0.
time (sec)	N/A	0.039	0.019	0.009	1.35	0.211	0.274	0.207	0.

Problem 1475	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	21	21	21	18	23	23	17	26	17
normalized size	1	1.	1.	0.86	1.1	1.1	0.81	1.24	0.81
time (sec)	N/A	0.03	0.007	0.008	1.341	0.213	0.253	0.21	5.292

Problem 1476	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	21	21	21	18	23	23	15	26	15
normalized size	1	1.	1.	0.86	1.1	1.1	0.71	1.24	0.71
time (sec)	N/A	0.015	0.006	0.007	1.342	0.215	0.194	0.207	3.035

Problem 1477	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	31	31	31	26	34	34	29	38	29
normalized size	1	1.	1.	0.84	1.1	1.1	0.94	1.23	0.94
time (sec)	N/A	0.045	0.012	0.01	1.34	0.217	0.308	0.209	6.479

Problem 1478	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	42	42	38	35	46	68	36	54	36
normalized size	1	1.	0.9	0.83	1.1	1.62	0.86	1.29	0.86
time (sec)	N/A	0.051	0.033	0.013	1.343	0.221	0.414	0.209	7.494

Problem 1479	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	53	53	49	44	59	99	44	57	46
normalized size	1	1.	0.92	0.83	1.11	1.87	0.83	1.08	0.87
time (sec)	N/A	0.062	0.035	0.013	1.354	0.218	0.488	0.213	8.72

Problem 1480	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	64	64	50	53	73	132	54	63	56
normalized size	1	1.	0.78	0.83	1.14	2.06	0.84	0.98	0.88
time (sec)	N/A	0.071	0.08	0.014	1.345	0.22	0.555	0.215	10.004

Problem 1481	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	75	75	55	62	86	166	65	90	66
normalized size	1	1.	0.73	0.83	1.15	2.21	0.87	1.2	0.88
time (sec)	N/A	0.083	0.101	0.013	1.37	0.227	0.614	0.213	11.191

Problem 1482	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	86	86	60	71	100	200	75	77	76
normalized size	1	1.	0.7	0.83	1.16	2.33	0.87	0.9	0.88
time (sec)	N/A	0.092	0.111	0.016	1.341	0.224	0.68	0.209	12.461

Problem 1483	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	97	97	97	80	113	234	85	84	87
normalized size	1	1.	1.	0.82	1.16	2.41	0.88	0.87	0.9
time (sec)	N/A	0.108	0.062	0.014	1.351	0.222	0.74	0.207	13.872

Problem 1484	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	72	72	64	55	73	95	65	134	0
normalized size	1	1.	0.89	0.76	1.01	1.32	0.9	1.86	0.
time (sec)	N/A	0.076	0.107	0.013	1.35	0.207	0.401	0.213	0.

Problem 1485	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	65	65	60	50	66	88	58	122	0
normalized size	1	1.	0.92	0.77	1.02	1.35	0.89	1.88	0.
time (sec)	N/A	0.07	0.057	0.013	1.34	0.215	0.384	0.216	0.

Problem 1486	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	58	58	54	45	59	81	51	109	0
normalized size	1	1.	0.93	0.78	1.02	1.4	0.88	1.88	0.
time (sec)	N/A	0.063	0.064	0.013	1.356	0.211	0.374	0.206	0.

Problem 1487	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	51	51	50	40	53	74	44	97	0
normalized size	1	1.	0.98	0.78	1.04	1.45	0.86	1.9	0.
time (sec)	N/A	0.055	0.038	0.013	1.328	0.22	0.369	0.212	0.

Problem 1488	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	44	44	52	35	46	68	37	85	0
normalized size	1	1.	1.18	0.8	1.05	1.55	0.84	1.93	0.
time (sec)	N/A	0.051	0.042	0.011	1.355	0.209	0.356	0.207	0.

Problem 1489	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	37	37	37	30	39	61	31	63	0
normalized size	1	1.	1.	0.81	1.05	1.65	0.84	1.7	0.
time (sec)	N/A	0.046	0.034	0.012	1.338	0.226	0.352	0.213	0.

Problem 1490	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	32	32	30	27	35	50	26	58	26
normalized size	1	1.	0.94	0.84	1.09	1.56	0.81	1.81	0.81
time (sec)	N/A	0.042	0.027	0.012	1.342	0.219	0.334	0.209	6.773

Problem 1491	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	32	32	30	27	35	50	26	34	26
normalized size	1	1.	0.94	0.84	1.09	1.56	0.81	1.06	0.81
time (sec)	N/A	0.039	0.023	0.01	1.349	0.211	0.27	0.207	6.264

Problem 1492	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	32	32	30	27	35	50	26	34	26
normalized size	1	1.	0.94	0.84	1.09	1.56	0.81	1.06	0.81
time (sec)	N/A	0.028	0.016	0.01	1.33	0.215	0.263	0.206	5.212

Problem 1493	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	42	42	38	35	46	68	36	54	36
normalized size	1	1.	0.9	0.83	1.1	1.62	0.86	1.29	0.86
time (sec)	N/A	0.051	0.039	0.013	1.362	0.211	0.404	0.213	7.537

Problem 1494	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	53	53	47	44	59	99	44	72	42
normalized size	1	1.	0.89	0.83	1.11	1.87	0.83	1.36	0.79
time (sec)	N/A	0.063	0.039	0.016	1.355	0.219	0.501	0.219	8.733

Problem 1495	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	64	64	60	53	73	132	54	86	53
normalized size	1	1.	0.94	0.83	1.14	2.06	0.84	1.34	0.83
time (sec)	N/A	0.073	0.04	0.015	1.354	0.218	0.562	0.212	9.99

Problem 1496	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	75	75	62	62	86	166	65	99	63
normalized size	1	1.	0.83	0.83	1.15	2.21	0.87	1.32	0.84
time (sec)	N/A	0.083	0.127	0.016	1.342	0.221	0.632	0.21	11.392

Problem 1497	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	86	86	84	71	100	200	75	111	73
normalized size	1	1.	0.98	0.83	1.16	2.33	0.87	1.29	0.85
time (sec)	N/A	0.096	0.056	0.016	1.329	0.217	0.686	0.214	12.734

Problem 1498	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	97	97	95	80	113	234	85	123	83
normalized size	1	1.	0.98	0.82	1.16	2.41	0.88	1.27	0.86
time (sec)	N/A	0.111	0.064	0.018	1.331	0.223	0.767	0.212	14.183

Problem 1499	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	76	76	68	59	80	115	66	76	0
normalized size	1	1.	0.89	0.78	1.05	1.51	0.87	1.	0.
time (sec)	N/A	0.085	0.165	0.013	1.347	0.215	0.474	0.207	0.

Problem 1500	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	69	69	60	54	73	108	60	69	0
normalized size	1	1.	0.87	0.78	1.06	1.57	0.87	1.	0.
time (sec)	N/A	0.077	0.06	0.013	1.335	0.215	0.459	0.21	0.

Problem 1501	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	62	62	56	49	66	101	53	62	0
normalized size	1	1.	0.9	0.79	1.06	1.63	0.85	1.	0.
time (sec)	N/A	0.068	0.097	0.013	1.334	0.211	0.464	0.222	0.

Problem 1502	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	55	55	50	44	59	95	46	55	0
normalized size	1	1.	0.91	0.8	1.07	1.73	0.84	1.	0.
time (sec)	N/A	0.06	0.047	0.012	1.349	0.202	0.449	0.215	0.

Problem 1503	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	48	48	45	39	53	88	39	49	0
normalized size	1	1.	0.94	0.81	1.1	1.83	0.81	1.02	0.
time (sec)	N/A	0.054	0.045	0.013	1.343	0.216	0.451	0.217	0.

Problem 1504	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	43	43	35	36	49	74	34	45	36
normalized size	1	1.	0.81	0.84	1.14	1.72	0.79	1.05	0.84
time (sec)	N/A	0.054	0.035	0.011	1.344	0.224	0.414	0.21	7.777

Problem 1505	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	43	43	35	36	49	74	34	45	36
normalized size	1	1.	0.81	0.84	1.14	1.72	0.79	1.05	0.84
time (sec)	N/A	0.051	0.033	0.012	1.347	0.218	0.374	0.217	7.889

Problem 1506	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	43	43	35	36	49	74	34	45	36
normalized size	1	1.	0.81	0.84	1.14	1.72	0.79	1.05	0.84
time (sec)	N/A	0.044	0.029	0.01	1.341	0.211	0.335	0.206	7.301

Problem 1507	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	43	43	35	36	49	74	34	45	36
normalized size	1	1.	0.81	0.84	1.14	1.72	0.79	1.05	0.84
time (sec)	N/A	0.036	0.026	0.01	1.351	0.21	0.328	0.207	6.254

Problem 1508	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	53	53	43	44	59	99	44	57	46
normalized size	1	1.	0.81	0.83	1.11	1.87	0.83	1.08	0.87
time (sec)	N/A	0.061	0.061	0.013	1.337	0.212	0.478	0.212	8.727

Problem 1509	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	64	64	60	53	73	132	54	86	53
normalized size	1	1.	0.94	0.83	1.14	2.06	0.84	1.34	0.83
time (sec)	N/A	0.074	0.044	0.019	1.343	0.215	0.561	0.213	10.054

Problem 1510	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	75	75	71	62	86	166	65	80	63
normalized size	1	1.	0.95	0.83	1.15	2.21	0.87	1.07	0.84
time (sec)	N/A	0.086	0.047	0.018	1.346	0.225	0.649	0.21	11.45

Problem 1511	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	86	86	84	71	100	200	75	86	73
normalized size	1	1.	0.98	0.83	1.16	2.33	0.87	1.	0.85
time (sec)	N/A	0.098	0.052	0.017	1.341	0.223	0.712	0.209	12.922

Problem 1512	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	97	97	95	80	113	234	85	123	83
normalized size	1	1.	0.98	0.82	1.16	2.41	0.88	1.27	0.86
time (sec)	N/A	0.114	0.061	0.017	1.341	0.229	0.761	0.211	14.433

Problem 1513	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	103	103	86	229	242	235	214	247	0
normalized size	1	1.	0.83	2.22	2.35	2.28	2.08	2.4	0.
time (sec)	N/A	0.204	0.083	0.01	1.353	0.221	5.078	0.207	0.

Problem 1514	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	76	76	62	161	165	161	163	176	0
normalized size	1	1.	0.82	2.12	2.17	2.12	2.14	2.32	0.
time (sec)	N/A	0.131	0.06	0.01	1.347	0.214	3.916	0.208	0.

Problem 1515	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	62	62	54	107	111	103	112	113	0
normalized size	1	1.	0.87	1.73	1.79	1.66	1.81	1.82	0.
time (sec)	N/A	0.107	0.043	0.009	1.355	0.216	2.713	0.208	0.

Problem 1516	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	49	49	37	60	62	55	71	65	41
normalized size	1	1.	0.76	1.22	1.27	1.12	1.45	1.33	0.84
time (sec)	N/A	0.087	0.014	0.009	1.346	0.207	0.913	0.208	10.263

Problem 1517	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	14	14	14	32	42	34	20	45	8
normalized size	1	1.	1.	2.29	3.	2.43	1.43	3.21	0.57
time (sec)	N/A	0.025	0.006	0.007	1.349	0.203	0.334	0.208	7.911

Problem 1518	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	74	74	68	72	96	86	668	126	54
normalized size	1	1.	0.92	0.97	1.3	1.16	9.03	1.7	0.73
time (sec)	N/A	0.129	0.054	0.011	1.344	0.239	12.152	0.208	21.856

Problem 1519	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	107	107	102	108	212	329	1232	385	90
normalized size	1	1.	0.95	1.01	1.98	3.07	11.51	3.6	0.84
time (sec)	N/A	0.192	0.339	0.029	1.356	0.713	59.623	0.233	48.987

Problem 1520	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	161	161	147	182	424	817	0	374	143
normalized size	1	1.	0.91	1.13	2.63	5.07	0.	2.32	0.89
time (sec)	N/A	0.306	0.526	0.017	1.38	4.902	0.	0.209	69.186

Problem 1521	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	76	76	69	57	76	90	68	138	0
normalized size	1	1.	0.91	0.75	1.	1.18	0.89	1.82	0.
time (sec)	N/A	0.09	0.027	0.01	1.347	0.215	0.251	0.209	0.

Problem 1522	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	69	69	64	52	69	84	61	126	0
normalized size	1	1.	0.93	0.75	1.	1.22	0.88	1.83	0.
time (sec)	N/A	0.084	0.023	0.01	1.35	0.21	0.239	0.208	0.

Problem 1523	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	62	62	59	47	62	77	54	113	0
normalized size	1	1.	0.95	0.76	1.	1.24	0.87	1.82	0.
time (sec)	N/A	0.076	0.023	0.011	1.332	0.205	0.234	0.209	0.

Problem 1524	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	55	55	51	42	55	70	48	101	0
normalized size	1	1.	0.93	0.76	1.	1.27	0.87	1.84	0.
time (sec)	N/A	0.067	0.021	0.009	1.342	0.213	0.229	0.207	0.

Problem 1525	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	46	46	49	37	49	63	39	89	0
normalized size	1	1.	1.07	0.8	1.07	1.37	0.85	1.93	0.
time (sec)	N/A	0.058	0.02	0.01	1.347	0.213	0.215	0.207	0.

Problem 1526	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	41	41	41	32	42	57	34	77	0
normalized size	1	1.	1.	0.78	1.02	1.39	0.83	1.88	0.
time (sec)	N/A	0.053	0.019	0.009	1.343	0.21	0.202	0.207	0.

Problem 1527	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	32	32	36	27	35	50	26	65	0
normalized size	1	1.	1.12	0.84	1.09	1.56	0.81	2.03	0.
time (sec)	N/A	0.045	0.017	0.01	1.345	0.205	0.196	0.207	0.

Problem 1528	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	27	27	26	22	28	43	20	43	0
normalized size	1	1.	0.96	0.81	1.04	1.59	0.74	1.59	0.
time (sec)	N/A	0.035	0.017	0.008	1.367	0.199	0.169	0.207	0.

Problem 1529	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	22	22	22	19	24	32	15	38	15
normalized size	1	1.	1.	0.86	1.09	1.45	0.68	1.73	0.68
time (sec)	N/A	0.021	0.01	0.009	1.342	0.208	0.159	0.205	4.526

Problem 1530	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	32	32	37	27	35	50	22	34	22
normalized size	1	1.	1.16	0.84	1.09	1.56	0.69	1.06	0.69
time (sec)	N/A	0.038	0.022	0.011	1.326	0.215	0.231	0.206	6.257

Problem 1531	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	43	43	40	36	46	66	34	54	32
normalized size	1	1.	0.93	0.84	1.07	1.53	0.79	1.26	0.74
time (sec)	N/A	0.049	0.03	0.013	1.332	0.222	0.298	0.206	7.324

Problem 1532	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	54	54	47	45	62	101	44	69	42
normalized size	1	1.	0.87	0.83	1.15	1.87	0.81	1.28	0.78
time (sec)	N/A	0.057	0.043	0.014	1.327	0.216	0.362	0.209	8.514

Problem 1533	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	65	65	52	54	76	128	54	81	53
normalized size	1	1.	0.8	0.83	1.17	1.97	0.83	1.25	0.82
time (sec)	N/A	0.071	0.053	0.016	1.343	0.209	0.408	0.206	9.797

Problem 1534	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	76	76	59	63	89	155	65	90	63
normalized size	1	1.	0.78	0.83	1.17	2.04	0.86	1.18	0.83
time (sec)	N/A	0.082	0.072	0.015	1.333	0.207	0.459	0.217	11.089

Problem 1535	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	87	87	62	72	103	182	75	105	73
normalized size	1	1.	0.71	0.83	1.18	2.09	0.86	1.21	0.84
time (sec)	N/A	0.096	0.081	0.014	1.335	0.22	0.524	0.208	12.422

Problem 1536	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	98	98	67	81	109	189	80	117	83
normalized size	1	1.	0.68	0.83	1.11	1.93	0.82	1.19	0.85
time (sec)	N/A	0.11	0.064	0.018	1.342	0.22	0.564	0.213	13.956

Problem 1537	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	81	81	74	62	82	97	73	150	0
normalized size	1	1.	0.91	0.77	1.01	1.2	0.9	1.85	0.
time (sec)	N/A	0.109	0.038	0.01	1.327	0.216	0.272	0.208	0.

Problem 1538	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	76	76	69	57	76	90	68	138	0
normalized size	1	1.	0.91	0.75	1.	1.18	0.89	1.82	0.
time (sec)	N/A	0.095	0.029	0.009	1.341	0.226	0.263	0.21	0.

Problem 1539	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	69	69	64	52	69	84	61	126	0
normalized size	1	1.	0.93	0.75	1.	1.22	0.88	1.83	0.
time (sec)	N/A	0.089	0.034	0.01	1.328	0.225	0.254	0.211	0.

Problem 1540	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	62	62	59	47	62	77	54	113	0
normalized size	1	1.	0.95	0.76	1.	1.24	0.87	1.82	0.
time (sec)	N/A	0.08	0.027	0.009	1.353	0.219	0.247	0.216	0.

Problem 1541	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	55	55	54	42	55	70	48	101	0
normalized size	1	1.	0.98	0.76	1.	1.27	0.87	1.84	0.
time (sec)	N/A	0.072	0.031	0.011	1.358	0.21	0.23	0.213	0.

Problem 1542	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	48	48	49	37	49	63	41	89	0
normalized size	1	1.	1.02	0.77	1.02	1.31	0.85	1.85	0.
time (sec)	N/A	0.064	0.024	0.009	1.338	0.206	0.219	0.215	0.

Problem 1543	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	41	41	41	32	42	57	34	77	0
normalized size	1	1.	1.	0.78	1.02	1.39	0.83	1.88	0.
time (sec)	N/A	0.06	0.024	0.008	1.358	0.204	0.203	0.219	0.

Problem 1544	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	34	34	36	27	35	50	27	65	0
normalized size	1	1.	1.06	0.79	1.03	1.47	0.79	1.91	0.
time (sec)	N/A	0.046	0.017	0.008	1.356	0.2	0.195	0.22	0.

Problem 1545	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	27	27	26	22	28	43	20	43	0
normalized size	1	1.	0.96	0.81	1.04	1.59	0.74	1.59	0.
time (sec)	N/A	0.029	0.019	0.007	1.321	0.201	0.169	0.21	0.

Problem 1546	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	32	32	40	27	35	50	24	58	24
normalized size	1	1.	1.25	0.84	1.09	1.56	0.75	1.81	0.75
time (sec)	N/A	0.043	0.025	0.01	1.338	0.21	0.309	0.208	6.684

Problem 1547	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	43	43	38	36	46	66	34	54	32
normalized size	1	1.	0.88	0.84	1.07	1.53	0.79	1.26	0.74
time (sec)	N/A	0.052	0.044	0.013	1.348	0.209	0.322	0.209	7.797

Problem 1548	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	54	54	47	45	62	101	44	69	42
normalized size	1	1.	0.87	0.83	1.15	1.87	0.81	1.28	0.78
time (sec)	N/A	0.062	0.046	0.014	1.345	0.232	0.378	0.206	9.014

Problem 1549	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	65	65	54	54	76	128	54	81	53
normalized size	1	1.	0.83	0.83	1.17	1.97	0.83	1.25	0.82
time (sec)	N/A	0.073	0.066	0.016	1.353	0.216	0.425	0.207	10.228

Problem 1550	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	76	76	59	63	89	155	65	90	63
normalized size	1	1.	0.78	0.83	1.17	2.04	0.86	1.18	0.83
time (sec)	N/A	0.087	0.066	0.018	1.344	0.225	0.482	0.207	11.457

Problem 1551	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	87	87	64	72	103	182	75	105	73
normalized size	1	1.	0.74	0.83	1.18	2.09	0.86	1.21	0.84
time (sec)	N/A	0.1	0.096	0.016	1.358	0.223	0.536	0.212	12.898

Problem 1552	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	98	98	69	81	109	189	80	117	83
normalized size	1	1.	0.7	0.83	1.11	1.93	0.82	1.19	0.85
time (sec)	N/A	0.113	0.101	0.017	1.35	0.213	0.585	0.208	14.354

Problem 1553	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	109	109	74	90	130	236	95	130	94
normalized size	1	1.	0.68	0.83	1.19	2.17	0.87	1.19	0.86
time (sec)	N/A	0.13	0.139	0.017	1.356	0.237	0.643	0.212	15.872

Problem 1554	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	90	90	79	67	89	104	82	162	0
normalized size	1	1.	0.88	0.74	0.99	1.16	0.91	1.8	0.
time (sec)	N/A	0.116	0.032	0.012	1.349	0.212	0.293	0.213	0.

Problem 1555	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	83	83	74	62	82	97	75	150	0
normalized size	1	1.	0.89	0.75	0.99	1.17	0.9	1.81	0.
time (sec)	N/A	0.108	0.029	0.01	1.345	0.209	0.276	0.215	0.

Problem 1556	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	76	76	69	57	76	90	68	138	0
normalized size	1	1.	0.91	0.75	1.	1.18	0.89	1.82	0.
time (sec)	N/A	0.098	0.032	0.01	1.348	0.206	0.259	0.216	0.

Problem 1557	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	69	69	64	52	69	84	61	126	0
normalized size	1	1.	0.93	0.75	1.	1.22	0.88	1.83	0.
time (sec)	N/A	0.09	0.029	0.01	1.349	0.209	0.259	0.217	0.

Problem 1558	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	62	62	59	47	62	77	54	113	0
normalized size	1	1.	0.95	0.76	1.	1.24	0.87	1.82	0.
time (sec)	N/A	0.081	0.026	0.01	1.34	0.21	0.244	0.214	0.

Problem 1559	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	55	55	54	42	55	70	48	101	0
normalized size	1	1.	0.98	0.76	1.	1.27	0.87	1.84	0.
time (sec)	N/A	0.072	0.023	0.008	1.348	0.203	0.226	0.212	0.

Problem 1560	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	48	48	49	37	49	63	41	89	0
normalized size	1	1.	1.02	0.77	1.02	1.31	0.85	1.85	0.
time (sec)	N/A	0.063	0.024	0.008	1.329	0.202	0.212	0.21	0.

Problem 1561	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	41	41	41	32	42	57	34	77	0
normalized size	1	1.	1.	0.78	1.02	1.39	0.83	1.88	0.
time (sec)	N/A	0.053	0.018	0.009	1.346	0.211	0.208	0.206	0.

Problem 1562	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	34	34	36	27	35	50	27	65	0
normalized size	1	1.	1.06	0.79	1.03	1.47	0.79	1.91	0.
time (sec)	N/A	0.033	0.012	0.009	1.344	0.214	0.184	0.208	0.

Problem 1563	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	37	37	37	30	39	61	29	63	0
normalized size	1	1.	1.	0.81	1.05	1.65	0.78	1.7	0.
time (sec)	N/A	0.045	0.04	0.011	1.359	0.214	0.318	0.205	0.

Problem 1564	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	43	43	40	36	46	66	34	78	32
normalized size	1	1.	0.93	0.84	1.07	1.53	0.79	1.81	0.74
time (sec)	N/A	0.053	0.039	0.013	1.343	0.211	0.389	0.208	7.845

Problem 1565	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	54	54	48	45	62	101	44	69	42
normalized size	1	1.	0.89	0.83	1.15	1.87	0.81	1.28	0.78
time (sec)	N/A	0.064	0.052	0.014	1.345	0.208	0.395	0.208	9.013

Problem 1566	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	65	65	62	54	76	128	54	81	53
normalized size	1	1.	0.95	0.83	1.17	1.97	0.83	1.25	0.82
time (sec)	N/A	0.073	0.068	0.015	1.349	0.215	0.448	0.209	10.239

Problem 1567	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	76	76	59	63	89	155	65	90	63
normalized size	1	1.	0.78	0.83	1.17	2.04	0.86	1.18	0.83
time (sec)	N/A	0.089	0.079	0.015	1.349	0.225	0.485	0.209	11.532

Problem 1568	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	87	87	64	72	103	182	75	105	73
normalized size	1	1.	0.74	0.83	1.18	2.09	0.86	1.21	0.84
time (sec)	N/A	0.098	0.104	0.014	1.348	0.214	0.563	0.214	13.157

Problem 1569	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	98	98	69	81	109	189	80	117	83
normalized size	1	1.	0.7	0.83	1.11	1.93	0.82	1.19	0.85
time (sec)	N/A	0.114	0.097	0.015	1.351	0.213	0.598	0.215	14.377

Problem 1570	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	109	109	74	90	130	236	95	130	94
normalized size	1	1.	0.68	0.83	1.19	2.17	0.87	1.19	0.86
time (sec)	N/A	0.129	0.108	0.017	1.351	0.224	0.658	0.214	15.953

Problem 1571	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	72	72	66	55	73	95	63	134	0
normalized size	1	1.	0.92	0.76	1.01	1.32	0.88	1.86	0.
time (sec)	N/A	0.081	0.112	0.013	1.347	0.218	0.377	0.208	0.

Problem 1572	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	65	65	60	50	66	88	56	122	0
normalized size	1	1.	0.92	0.77	1.02	1.35	0.86	1.88	0.
time (sec)	N/A	0.073	0.06	0.013	1.344	0.215	0.343	0.209	0.

Problem 1573	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	58	58	55	45	59	81	49	109	0
normalized size	1	1.	0.95	0.78	1.02	1.4	0.84	1.88	0.
time (sec)	N/A	0.065	0.047	0.012	1.348	0.221	0.358	0.21	0.

Problem 1574	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	51	51	52	40	53	74	42	97	0
normalized size	1	1.	1.02	0.78	1.04	1.45	0.82	1.9	0.
time (sec)	N/A	0.058	0.04	0.012	1.364	0.213	0.332	0.213	0.

Problem 1575	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	44	44	45	35	46	68	36	85	0
normalized size	1	1.	1.02	0.8	1.05	1.55	0.82	1.93	0.
time (sec)	N/A	0.051	0.037	0.011	1.345	0.216	0.323	0.208	0.

Problem 1576	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	37	37	37	30	39	61	29	63	0
normalized size	1	1.	1.	0.81	1.05	1.65	0.78	1.7	0.
time (sec)	N/A	0.046	0.037	0.012	1.344	0.214	0.314	0.207	0.

Problem 1577	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	32	32	40	27	35	50	24	58	24
normalized size	1	1.	1.25	0.84	1.09	1.56	0.75	1.81	0.75
time (sec)	N/A	0.042	0.023	0.011	1.341	0.205	0.308	0.21	6.738

Problem 1578	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	32	32	37	27	35	50	22	34	22
normalized size	1	1.	1.16	0.84	1.09	1.56	0.69	1.06	0.69
time (sec)	N/A	0.039	0.021	0.01	1.317	0.209	0.241	0.212	6.275

Problem 1579	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	32	32	38	27	35	50	26	34	26
normalized size	1	1.	1.19	0.84	1.09	1.56	0.81	1.06	0.81
time (sec)	N/A	0.029	0.015	0.011	1.322	0.218	0.263	0.212	5.238

Problem 1580	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	42	42	40	35	46	68	36	54	36
normalized size	1	1.	0.95	0.83	1.1	1.62	0.86	1.29	0.86
time (sec)	N/A	0.051	0.05	0.013	1.332	0.229	0.4	0.209	7.484

Problem 1581	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	53	53	56	44	57	88	44	74	42
normalized size	1	1.	1.06	0.83	1.08	1.66	0.83	1.4	0.79
time (sec)	N/A	0.063	0.051	0.016	1.416	0.225	0.466	0.208	8.8

Problem 1582	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	64	64	61	53	73	132	54	89	53
normalized size	1	1.	0.95	0.83	1.14	2.06	0.84	1.39	0.83
time (sec)	N/A	0.074	0.081	0.017	1.359	0.218	0.532	0.21	10.111

Problem 1583	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	75	75	70	62	86	166	65	101	63
normalized size	1	1.	0.93	0.83	1.15	2.21	0.87	1.35	0.84
time (sec)	N/A	0.089	0.093	0.017	1.358	0.217	0.587	0.215	11.484

Problem 1584	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	86	86	81	71	100	200	75	111	73
normalized size	1	1.	0.94	0.83	1.16	2.33	0.87	1.29	0.85
time (sec)	N/A	0.099	0.191	0.017	1.338	0.222	0.667	0.209	12.777

Problem 1585	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	97	97	87	80	113	234	85	126	83
normalized size	1	1.	0.9	0.82	1.16	2.41	0.88	1.3	0.86
time (sec)	N/A	0.117	0.081	0.017	1.35	0.221	0.735	0.211	14.181

Problem 1586	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	76	76	95	59	77	107	66	151	0
normalized size	1	1.	1.25	0.78	1.01	1.41	0.87	1.99	0.
time (sec)	N/A	0.09	0.072	0.014	1.333	0.211	0.421	0.209	0.

Problem 1587	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	69	69	74	54	70	100	60	139	0
normalized size	1	1.	1.07	0.78	1.01	1.45	0.87	2.01	0.
time (sec)	N/A	0.08	0.065	0.016	1.33	0.211	0.414	0.212	0.

Problem 1588	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	62	62	65	49	63	93	53	127	0
normalized size	1	1.	1.05	0.79	1.02	1.5	0.85	2.05	0.
time (sec)	N/A	0.072	0.06	0.016	1.331	0.221	0.408	0.213	0.

Problem 1589	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	55	55	56	44	57	86	46	115	0
normalized size	1	1.	1.02	0.8	1.04	1.56	0.84	2.09	0.
time (sec)	N/A	0.066	0.05	0.015	1.375	0.214	0.398	0.211	0.

Problem 1590	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	48	48	47	39	50	80	39	100	0
normalized size	1	1.	0.98	0.81	1.04	1.67	0.81	2.08	0.
time (sec)	N/A	0.057	0.056	0.014	1.357	0.214	0.388	0.207	0.

Problem 1591	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	43	43	40	36	46	66	34	78	32
normalized size	1	1.	0.93	0.84	1.07	1.53	0.79	1.81	0.74
time (sec)	N/A	0.052	0.036	0.014	1.318	0.204	0.38	0.208	7.746

Problem 1592	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	43	43	38	36	46	66	34	54	32
normalized size	1	1.	0.88	0.84	1.07	1.53	0.79	1.26	0.74
time (sec)	N/A	0.053	0.042	0.013	1.355	0.205	0.319	0.205	7.796

Problem 1593	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	43	43	40	36	46	66	34	54	32
normalized size	1	1.	0.93	0.84	1.07	1.53	0.79	1.26	0.74
time (sec)	N/A	0.047	0.029	0.013	1.349	0.204	0.298	0.21	7.35

Problem 1594	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	43	43	40	36	46	66	34	54	32
normalized size	1	1.	0.93	0.84	1.07	1.53	0.79	1.26	0.74
time (sec)	N/A	0.04	0.025	0.013	1.344	0.2	0.308	0.206	6.286

Problem 1595	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	53	53	48	44	57	88	44	74	42
normalized size	1	1.	0.91	0.83	1.08	1.66	0.83	1.4	0.79
time (sec)	N/A	0.062	0.057	0.017	1.349	0.219	0.471	0.212	8.794

Problem 1596	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	64	64	59	53	73	132	54	104	49
normalized size	1	1.	0.92	0.83	1.14	2.06	0.84	1.62	0.77
time (sec)	N/A	0.074	0.089	0.019	1.352	0.225	0.528	0.208	10.068

Problem 1597	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	75	75	65	62	86	166	65	116	60
normalized size	1	1.	0.87	0.83	1.15	2.21	0.87	1.55	0.8
time (sec)	N/A	0.086	0.123	0.018	1.353	0.217	0.603	0.211	11.415

Problem 1598	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	86	86	70	71	100	200	75	128	70
normalized size	1	1.	0.81	0.83	1.16	2.33	0.87	1.49	0.81
time (sec)	N/A	0.104	0.145	0.02	1.344	0.217	0.672	0.21	12.804

Problem 1599	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	97	97	75	80	113	234	85	140	80
normalized size	1	1.	0.77	0.82	1.16	2.41	0.88	1.44	0.82
time (sec)	N/A	0.119	0.163	0.02	1.344	0.217	0.753	0.208	14.227

Problem 1600	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	80	80	74	63	86	135	70	151	0
normalized size	1	1.	0.92	0.79	1.08	1.69	0.88	1.89	0.
time (sec)	N/A	0.097	0.186	0.016	1.349	0.224	0.491	0.208	0.

Problem 1601	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	73	73	67	58	80	128	63	139	0
normalized size	1	1.	0.92	0.79	1.1	1.75	0.86	1.9	0.
time (sec)	N/A	0.089	0.073	0.016	1.349	0.216	0.494	0.212	0.

Problem 1602	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	66	66	60	53	73	122	56	127	0
normalized size	1	1.	0.91	0.8	1.11	1.85	0.85	1.92	0.
time (sec)	N/A	0.075	0.086	0.014	1.344	0.21	0.47	0.208	0.

Problem 1603	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	59	59	55	48	66	115	49	112	0
normalized size	1	1.	0.93	0.81	1.12	1.95	0.83	1.9	0.
time (sec)	N/A	0.069	0.076	0.014	1.35	0.215	0.466	0.21	0.

Problem 1604	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	54	54	48	45	62	101	44	93	42
normalized size	1	1.	0.89	0.83	1.15	1.87	0.81	1.72	0.78
time (sec)	N/A	0.062	0.053	0.015	1.347	0.221	0.451	0.208	8.836

Problem 1605	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	54	54	47	45	62	101	44	69	42
normalized size	1	1.	0.87	0.83	1.15	1.87	0.81	1.28	0.78
time (sec)	N/A	0.064	0.045	0.015	1.348	0.219	0.395	0.207	8.913

Problem 1606	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	54	54	47	45	62	101	44	69	42
normalized size	1	1.	0.87	0.83	1.15	1.87	0.81	1.28	0.78
time (sec)	N/A	0.061	0.045	0.016	1.35	0.206	0.401	0.206	8.896

Problem 1607	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	54	54	47	45	62	101	44	69	42
normalized size	1	1.	0.87	0.83	1.15	1.87	0.81	1.28	0.78
time (sec)	N/A	0.057	0.04	0.014	1.345	0.216	0.37	0.205	8.494

Problem 1608	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	54	54	47	45	62	101	44	69	42
normalized size	1	1.	0.87	0.83	1.15	1.87	0.81	1.28	0.78
time (sec)	N/A	0.05	0.037	0.015	1.349	0.212	0.395	0.207	7.415

Problem 1609	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	64	64	60	53	73	132	54	89	53
normalized size	1	1.	0.94	0.83	1.14	2.06	0.84	1.39	0.83
time (sec)	N/A	0.075	0.052	0.017	1.347	0.217	0.537	0.211	10.045

Problem 1610	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	75	75	65	62	86	166	65	116	60
normalized size	1	1.	0.87	0.83	1.15	2.21	0.87	1.55	0.8
time (sec)	N/A	0.087	0.108	0.019	1.351	0.221	0.607	0.207	11.441

Problem 1611	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	86	86	79	71	100	200	75	131	70
normalized size	1	1.	0.92	0.83	1.16	2.33	0.87	1.52	0.81
time (sec)	N/A	0.104	0.181	0.021	1.352	0.221	0.655	0.214	12.925

Problem 1612	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	97	97	88	80	113	234	85	143	80
normalized size	1	1.	0.91	0.82	1.16	2.41	0.88	1.47	0.82
time (sec)	N/A	0.117	0.176	0.021	1.347	0.218	0.744	0.213	14.492

Problem 1613	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	80	80	71	61	82	104	70	77	0
normalized size	1	1.	0.89	0.76	1.02	1.3	0.88	0.96	0.
time (sec)	N/A	0.101	0.035	0.012	1.345	0.207	0.331	0.211	0.

Problem 1614	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	73	73	66	56	76	97	63	70	0
normalized size	1	1.	0.9	0.77	1.04	1.33	0.86	0.96	0.
time (sec)	N/A	0.091	0.033	0.01	1.347	0.224	0.321	0.208	0.

Problem 1615	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	66	66	61	51	69	90	56	63	0
normalized size	1	1.	0.92	0.77	1.05	1.36	0.85	0.95	0.
time (sec)	N/A	0.082	0.028	0.01	1.353	0.214	0.313	0.207	0.

Problem 1616	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	59	59	56	46	62	84	49	57	0
normalized size	1	1.	0.95	0.78	1.05	1.42	0.83	0.97	0.
time (sec)	N/A	0.074	0.028	0.01	1.344	0.22	0.299	0.212	0.

Problem 1617	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	50	50	51	41	55	77	41	50	0
normalized size	1	1.	1.02	0.82	1.1	1.54	0.82	1.	0.
time (sec)	N/A	0.066	0.026	0.008	1.358	0.215	0.292	0.206	0.

Problem 1618	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	46	36	49	70	36	43	0
normalized size	1	1.	1.02	0.8	1.09	1.56	0.8	0.96	0.
time (sec)	N/A	0.057	0.023	0.008	1.354	0.221	0.286	0.209	0.

Problem 1619	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	38	38	34	31	42	63	29	36	0
normalized size	1	1.	0.89	0.82	1.11	1.66	0.76	0.95	0.
time (sec)	N/A	0.05	0.038	0.01	1.364	0.216	0.263	0.217	0.

Problem 1620	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	33	33	33	28	38	50	24	32	26
normalized size	1	1.	1.	0.85	1.15	1.52	0.73	0.97	0.79
time (sec)	N/A	0.036	0.011	0.008	1.322	0.206	0.249	0.211	6.668

Problem 1621	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	18	18	16	20	26	26	14	19	14
normalized size	1	1.	0.89	1.11	1.44	1.44	0.78	1.06	0.78
time (sec)	N/A	0.011	0.006	0.007	1.332	0.206	0.214	0.201	2.484

Problem 1622	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	43	43	35	36	49	74	34	45	36
normalized size	1	1.	0.81	0.84	1.14	1.72	0.79	1.05	0.84
time (sec)	N/A	0.047	0.031	0.012	1.323	0.22	0.324	0.206	7.286

Problem 1623	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	54	54	47	45	62	101	44	69	42
normalized size	1	1.	0.87	0.83	1.15	1.87	0.81	1.28	0.78
time (sec)	N/A	0.059	0.059	0.014	1.323	0.208	0.379	0.208	8.499

Problem 1624	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	65	65	48	54	76	128	54	62	53
normalized size	1	1.	0.74	0.83	1.17	1.97	0.83	0.95	0.82
time (sec)	N/A	0.068	0.045	0.014	1.341	0.205	0.435	0.211	9.831

Problem 1625	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	76	76	57	63	89	155	65	74	63
normalized size	1	1.	0.75	0.83	1.17	2.04	0.86	0.97	0.83
time (sec)	N/A	0.082	0.058	0.015	1.351	0.217	0.479	0.21	11.182

Problem 1626	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	87	87	64	72	103	182	75	105	73
normalized size	1	1.	0.74	0.83	1.18	2.09	0.86	1.21	0.84
time (sec)	N/A	0.097	0.091	0.017	1.353	0.217	0.546	0.21	12.591

Problem 1627	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	98	98	69	81	116	209	85	88	83
normalized size	1	1.	0.7	0.83	1.18	2.13	0.87	0.9	0.85
time (sec)	N/A	0.113	0.102	0.016	1.331	0.221	0.597	0.206	14.163

Problem 1628	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	80	80	71	61	82	104	70	77	0
normalized size	1	1.	0.89	0.76	1.02	1.3	0.88	0.96	0.
time (sec)	N/A	0.105	0.038	0.01	1.32	0.216	0.355	0.209	0.

Problem 1629	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	73	73	66	56	76	97	63	70	0
normalized size	1	1.	0.9	0.77	1.04	1.33	0.86	0.96	0.
time (sec)	N/A	0.097	0.036	0.01	1.359	0.21	0.328	0.207	0.

Problem 1630	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	66	66	61	51	69	90	56	63	0
normalized size	1	1.	0.92	0.77	1.05	1.36	0.85	0.95	0.
time (sec)	N/A	0.087	0.034	0.008	1.349	0.2	0.323	0.208	0.

Problem 1631	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	59	59	56	46	62	84	49	57	0
normalized size	1	1.	0.95	0.78	1.05	1.42	0.83	0.97	0.
time (sec)	N/A	0.08	0.031	0.008	1.342	0.212	0.314	0.206	0.

Problem 1632	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	52	52	47	41	55	77	42	50	0
normalized size	1	1.	0.9	0.79	1.06	1.48	0.81	0.96	0.
time (sec)	N/A	0.07	0.032	0.01	1.362	0.21	0.299	0.207	0.

Problem 1633	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	46	36	49	70	36	43	0
normalized size	1	1.	1.02	0.8	1.09	1.56	0.8	0.96	0.
time (sec)	N/A	0.064	0.025	0.009	1.339	0.214	0.285	0.206	0.

Problem 1634	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	38	38	34	31	42	63	29	36	0
normalized size	1	1.	0.89	0.82	1.11	1.66	0.76	0.95	0.
time (sec)	N/A	0.047	0.039	0.01	1.352	0.208	0.269	0.213	0.

Problem 1635	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	33	33	33	28	38	50	24	32	26
normalized size	1	1.	1.	0.85	1.15	1.52	0.73	0.97	0.79
time (sec)	N/A	0.032	0.013	0.008	1.336	0.215	0.254	0.208	5.941

Problem 1636	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	43	43	35	36	49	74	31	45	32
normalized size	1	1.	0.81	0.84	1.14	1.72	0.72	1.05	0.74
time (sec)	N/A	0.053	0.037	0.012	1.348	0.212	0.35	0.21	7.81

Problem 1637	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	54	54	47	45	62	101	44	69	42
normalized size	1	1.	0.87	0.83	1.15	1.87	0.81	1.28	0.78
time (sec)	N/A	0.062	0.059	0.013	1.326	0.223	0.419	0.21	8.987

Problem 1638	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	65	65	48	54	76	128	54	62	53
normalized size	1	1.	0.74	0.83	1.17	1.97	0.83	0.95	0.82
time (sec)	N/A	0.075	0.051	0.016	1.34	0.211	0.446	0.21	10.259

Problem 1639	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	76	76	57	63	89	155	65	74	63
normalized size	1	1.	0.75	0.83	1.17	2.04	0.86	0.97	0.83
time (sec)	N/A	0.088	0.083	0.016	1.341	0.207	0.511	0.219	11.63

Problem 1640	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	87	87	64	72	103	182	75	105	73
normalized size	1	1.	0.74	0.83	1.18	2.09	0.86	1.21	0.84
time (sec)	N/A	0.106	0.09	0.02	1.35	0.202	0.577	0.214	13.078

Problem 1641	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	98	98	69	81	116	209	85	88	83
normalized size	1	1.	0.7	0.83	1.18	2.13	0.87	0.9	0.85
time (sec)	N/A	0.122	0.103	0.016	1.392	0.21	0.623	0.209	14.562

Problem 1642	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	80	80	71	61	82	104	70	77	0
normalized size	1	1.	0.89	0.76	1.02	1.3	0.88	0.96	0.
time (sec)	N/A	0.104	0.042	0.011	1.348	0.206	0.351	0.224	0.

Problem 1643	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	73	73	66	56	76	97	63	70	0
normalized size	1	1.	0.9	0.77	1.04	1.33	0.86	0.96	0.
time (sec)	N/A	0.097	0.034	0.01	1.355	0.213	0.341	0.208	0.

Problem 1644	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	64	64	61	51	69	90	54	63	0
normalized size	1	1.	0.95	0.8	1.08	1.41	0.84	0.98	0.
time (sec)	N/A	0.086	0.033	0.011	1.363	0.212	0.332	0.209	0.

Problem 1645	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	59	59	56	46	62	84	49	57	0
normalized size	1	1.	0.95	0.78	1.05	1.42	0.83	0.97	0.
time (sec)	N/A	0.081	0.031	0.01	1.365	0.211	0.31	0.212	0.

Problem 1646	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	52	52	47	41	55	77	42	50	0
normalized size	1	1.	0.9	0.79	1.06	1.48	0.81	0.96	0.
time (sec)	N/A	0.073	0.033	0.01	1.356	0.215	0.296	0.214	0.

Problem 1647	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	46	36	49	70	36	43	0
normalized size	1	1.	1.02	0.8	1.09	1.56	0.8	0.96	0.
time (sec)	N/A	0.055	0.023	0.009	1.355	0.226	0.278	0.21	0.

Problem 1648	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	38	38	34	31	42	63	29	36	0
normalized size	1	1.	0.89	0.82	1.11	1.66	0.76	0.95	0.
time (sec)	N/A	0.037	0.038	0.01	1.344	0.22	0.254	0.208	0.

Problem 1649	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	43	43	35	36	49	74	32	45	34
normalized size	1	1.	0.81	0.84	1.14	1.72	0.74	1.05	0.79
time (sec)	N/A	0.05	0.039	0.01	1.347	0.22	0.424	0.212	7.794

Problem 1650	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	54	54	47	45	62	101	44	69	42
normalized size	1	1.	0.87	0.83	1.15	1.87	0.81	1.28	0.78
time (sec)	N/A	0.066	0.059	0.014	1.343	0.226	0.437	0.211	8.976

Problem 1651	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	65	65	48	54	76	128	54	62	53
normalized size	1	1.	0.74	0.83	1.17	1.97	0.83	0.95	0.82
time (sec)	N/A	0.074	0.054	0.014	1.349	0.224	0.471	0.228	10.232

Problem 1652	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	76	76	57	63	89	155	65	74	63
normalized size	1	1.	0.75	0.83	1.17	2.04	0.86	0.97	0.83
time (sec)	N/A	0.087	0.09	0.015	1.345	0.216	0.525	0.209	11.601

Problem 1653	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	87	87	64	72	103	182	75	105	73
normalized size	1	1.	0.74	0.83	1.18	2.09	0.86	1.21	0.84
time (sec)	N/A	0.105	0.093	0.016	1.353	0.214	0.627	0.212	13.034

Problem 1654	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	76	76	98	59	80	115	65	76	0
normalized size	1	1.	1.29	0.78	1.05	1.51	0.86	1.	0.
time (sec)	N/A	0.091	0.077	0.013	1.345	0.218	0.462	0.217	0.

Problem 1655	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	69	69	60	54	73	108	58	69	0
normalized size	1	1.	0.87	0.78	1.06	1.57	0.84	1.	0.
time (sec)	N/A	0.08	0.071	0.012	1.347	0.205	0.449	0.215	0.

Problem 1656	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	62	62	55	49	66	101	51	62	0
normalized size	1	1.	0.89	0.79	1.06	1.63	0.82	1.	0.
time (sec)	N/A	0.074	0.048	0.013	1.362	0.212	0.439	0.209	0.

Problem 1657	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	55	55	55	44	59	95	44	55	0
normalized size	1	1.	1.	0.8	1.07	1.73	0.8	1.	0.
time (sec)	N/A	0.062	0.062	0.013	1.361	0.214	0.435	0.211	0.

Problem 1658	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	48	48	46	39	53	88	37	49	0
normalized size	1	1.	0.96	0.81	1.1	1.83	0.77	1.02	0.
time (sec)	N/A	0.054	0.053	0.013	1.36	0.214	0.424	0.208	0.

Problem 1659	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	43	43	35	36	49	74	32	45	34
normalized size	1	1.	0.81	0.84	1.14	1.72	0.74	1.05	0.79
time (sec)	N/A	0.05	0.037	0.013	1.354	0.224	0.402	0.208	7.819

Problem 1660	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	43	43	35	36	49	74	31	45	32
normalized size	1	1.	0.81	0.84	1.14	1.72	0.72	1.05	0.74
time (sec)	N/A	0.053	0.034	0.011	1.353	0.211	0.343	0.225	7.806

Problem 1661	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	43	43	46	36	49	74	34	45	36
normalized size	1	1.	1.07	0.84	1.14	1.72	0.79	1.05	0.84
time (sec)	N/A	0.046	0.026	0.012	1.356	0.214	0.317	0.23	7.349

Problem 1662	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	43	43	46	36	49	74	34	45	36
normalized size	1	1.	1.07	0.84	1.14	1.72	0.79	1.05	0.84
time (sec)	N/A	0.035	0.021	0.01	1.346	0.214	0.322	0.209	6.251

Problem 1663	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	53	53	52	44	59	99	44	57	46
normalized size	1	1.	0.98	0.83	1.11	1.87	0.83	1.08	0.87
time (sec)	N/A	0.062	0.046	0.015	1.353	0.211	0.495	0.216	8.712

Problem 1664	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	64	64	57	53	73	132	54	89	53
normalized size	1	1.	0.89	0.83	1.14	2.06	0.84	1.39	0.83
time (sec)	N/A	0.074	0.108	0.016	1.37	0.215	0.539	0.219	10.007

Problem 1665	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	75	75	58	62	86	166	65	80	63
normalized size	1	1.	0.77	0.83	1.15	2.21	0.87	1.07	0.84
time (sec)	N/A	0.087	0.105	0.017	1.356	0.221	0.607	0.213	11.46

Problem 1666	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	86	86	69	71	100	200	75	86	73
normalized size	1	1.	0.8	0.83	1.16	2.33	0.87	1.	0.85
time (sec)	N/A	0.101	0.154	0.017	1.327	0.224	0.664	0.216	12.878

Problem 1667	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	80	80	98	63	86	135	70	151	0
normalized size	1	1.	1.22	0.79	1.08	1.69	0.88	1.89	0.
time (sec)	N/A	0.097	0.095	0.017	1.357	0.211	0.543	0.215	0.

Problem 1668	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	73	73	67	58	80	128	63	139	0
normalized size	1	1.	0.92	0.79	1.1	1.75	0.86	1.9	0.
time (sec)	N/A	0.088	0.079	0.014	1.34	0.21	0.535	0.221	0.

Problem 1669	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	66	66	74	53	73	122	56	127	0
normalized size	1	1.	1.12	0.8	1.11	1.85	0.85	1.92	0.
time (sec)	N/A	0.076	0.074	0.014	1.366	0.213	0.511	0.219	0.

Problem 1670	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	59	59	55	48	66	115	49	112	0
normalized size	1	1.	0.93	0.81	1.12	1.95	0.83	1.9	0.
time (sec)	N/A	0.07	0.058	0.016	1.332	0.21	0.501	0.218	0.

Problem 1671	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	54	54	48	45	62	101	44	93	42
normalized size	1	1.	0.89	0.83	1.15	1.87	0.81	1.72	0.78
time (sec)	N/A	0.063	0.051	0.013	1.342	0.208	0.49	0.215	8.986

Problem 1672	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	54	54	47	45	62	101	44	69	42
normalized size	1	1.	0.87	0.83	1.15	1.87	0.81	1.28	0.78
time (sec)	N/A	0.064	0.059	0.015	1.366	0.208	0.433	0.211	8.892

Problem 1673	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	54	54	48	45	62	101	44	69	42
normalized size	1	1.	0.89	0.83	1.15	1.87	0.81	1.28	0.78
time (sec)	N/A	0.061	0.052	0.014	1.342	0.219	0.412	0.209	8.899

Problem 1674	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	54	54	62	45	62	101	44	69	42
normalized size	1	1.	1.15	0.83	1.15	1.87	0.81	1.28	0.78
time (sec)	N/A	0.058	0.031	0.013	1.337	0.214	0.405	0.213	8.449

Problem 1675	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	54	54	62	45	62	101	44	69	42
normalized size	1	1.	1.15	0.83	1.15	1.87	0.81	1.28	0.78
time (sec)	N/A	0.048	0.025	0.014	1.344	0.221	0.388	0.208	7.479

Problem 1676	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	64	64	60	53	73	132	54	89	53
normalized size	1	1.	0.94	0.83	1.14	2.06	0.84	1.39	0.83
time (sec)	N/A	0.075	0.049	0.016	1.345	0.216	0.547	0.215	10.063

Problem 1677	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	75	75	68	62	86	166	65	116	60
normalized size	1	1.	0.91	0.83	1.15	2.21	0.87	1.55	0.8
time (sec)	N/A	0.088	0.113	0.019	1.365	0.215	0.614	0.213	11.395

Problem 1678	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	86	86	74	71	100	200	75	128	70
normalized size	1	1.	0.86	0.83	1.16	2.33	0.87	1.49	0.81
time (sec)	N/A	0.104	0.103	0.02	1.351	0.21	0.676	0.221	12.782

Problem 1679	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	97	97	88	80	113	234	85	140	80
normalized size	1	1.	0.91	0.82	1.16	2.41	0.88	1.44	0.82
time (sec)	N/A	0.12	0.239	0.02	1.335	0.223	0.755	0.214	14.305

Problem 1680	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	91	91	75	72	100	162	80	92	0
normalized size	1	1.	0.82	0.79	1.1	1.78	0.88	1.01	0.
time (sec)	N/A	0.114	0.075	0.017	1.367	0.215	0.597	0.21	0.

Problem 1681	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	84	84	70	67	93	155	73	85	0
normalized size	1	1.	0.83	0.8	1.11	1.85	0.87	1.01	0.
time (sec)	N/A	0.101	0.065	0.016	1.339	0.214	0.59	0.218	0.

Problem 1682	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	77	77	65	62	86	149	66	78	0
normalized size	1	1.	0.84	0.81	1.12	1.94	0.86	1.01	0.
time (sec)	N/A	0.093	0.064	0.015	1.352	0.213	0.576	0.212	0.

Problem 1683	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	70	70	60	57	80	142	60	72	0
normalized size	1	1.	0.86	0.81	1.14	2.03	0.86	1.03	0.
time (sec)	N/A	0.079	0.064	0.016	1.365	0.212	0.564	0.213	0.

Problem 1684	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	65	65	50	54	76	128	54	68	53
normalized size	1	1.	0.77	0.83	1.17	1.97	0.83	1.05	0.82
time (sec)	N/A	0.076	0.049	0.016	1.354	0.21	0.54	0.218	10.404

Problem 1685	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	65	65	48	54	76	128	54	62	53
normalized size	1	1.	0.74	0.83	1.17	1.97	0.83	0.95	0.82
time (sec)	N/A	0.077	0.051	0.014	1.343	0.21	0.478	0.219	10.326

Problem 1686	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	65	65	48	54	76	128	54	62	53
normalized size	1	1.	0.74	0.83	1.17	1.97	0.83	0.95	0.82
time (sec)	N/A	0.079	0.052	0.016	1.342	0.203	0.483	0.209	10.266

Problem 1687	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	65	65	48	54	76	128	54	62	53
normalized size	1	1.	0.74	0.83	1.17	1.97	0.83	0.95	0.82
time (sec)	N/A	0.075	0.049	0.019	1.349	0.209	0.456	0.21	10.33

Problem 1688	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	65	65	48	54	76	128	54	62	53
normalized size	1	1.	0.74	0.83	1.17	1.97	0.83	0.95	0.82
time (sec)	N/A	0.069	0.04	0.014	1.351	0.209	0.422	0.213	9.873

Problem 1689	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	65	65	48	54	76	128	54	62	53
normalized size	1	1.	0.74	0.83	1.17	1.97	0.83	0.95	0.82
time (sec)	N/A	0.061	0.035	0.014	1.342	0.222	0.427	0.21	8.771

Problem 1690	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	75	75	60	62	86	166	65	80	63
normalized size	1	1.	0.8	0.83	1.15	2.21	0.87	1.07	0.84
time (sec)	N/A	0.089	0.119	0.017	1.36	0.228	0.598	0.213	11.591

Problem 1691	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	86	86	76	71	100	200	75	128	70
normalized size	1	1.	0.88	0.83	1.16	2.33	0.87	1.49	0.81
time (sec)	N/A	0.103	0.108	0.02	1.357	0.235	0.701	0.211	13.025

Problem 1692	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	97	97	88	80	113	234	85	97	80
normalized size	1	1.	0.91	0.82	1.16	2.41	0.88	1.	0.82
time (sec)	N/A	0.12	0.242	0.02	1.351	0.228	0.758	0.211	14.713

Problem 1693	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	108	108	82	89	127	267	95	109	90
normalized size	1	1.	0.76	0.82	1.18	2.47	0.88	1.01	0.83
time (sec)	N/A	0.139	0.177	0.02	1.341	0.219	0.843	0.211	16.309

Problem 1694	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	361	361	653	767	981	1	1018	1	0
normalized size	1	1.	1.81	2.12	2.72	0.	2.82	0.	0.
time (sec)	N/A	1.875	0.479	0.001	1.392	0.189	0.486	0.209	0.

Problem 1695	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	193	193	241	286	363	1	345	467	201
normalized size	1	1.	1.25	1.48	1.88	0.01	1.79	2.42	1.04
time (sec)	N/A	0.599	0.146	0.001	1.363	0.187	0.244	0.209	92.374

Problem 1696	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	F
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	56	56	53	53	70	1	63	89	0
normalized size	1	1.	0.95	0.95	1.25	0.02	1.12	1.59	0.
time (sec)	N/A	0.1	0.034	0.001	1.387	0.191	0.11	0.21	0.

Problem 1697	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	86	86	80	87	151	151	0	0	65
normalized size	1	1.	0.93	1.01	1.76	1.76	0.	0.	0.76
time (sec)	N/A	0.161	0.085	0.011	1.358	5.497	0.	0.	25.054

Problem 1698	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	F(-1)	F(-1)	A	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	234	234	232	398	2830	0	0	1	0
normalized size	1	1.	0.99	1.7	12.09	0.	0.	0.	0.
time (sec)	N/A	0.892	1.452	0.058	1.526	0.	0.	0.453	0.

Problem 1699	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	F(-1)	F(-1)	A	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	495	495	490	1076	14857	0	0	1	0
normalized size	1	1.	0.99	2.17	30.01	0.	0.	0.	0.
time (sec)	N/A	3.624	2.915	0.047	2.536	0.	0.	0.335	0.

Problem 1700	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	170	170	156	549	0	1	0	338	146
normalized size	1	1.	0.92	3.23	0.	0.01	0.	1.99	0.86
time (sec)	N/A	0.616	0.428	0.037	0.	0.821	0.	0.219	82.758

Problem 1701	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	83	83	70	73	101	311	578	1	78
normalized size	1	1.	0.84	0.88	1.22	3.75	6.96	0.01	0.94
time (sec)	N/A	0.119	0.151	0.007	1.349	0.223	25.202	0.227	17.713

Problem 1702	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	83	83	70	73	101	255	476	1	78
normalized size	1	1.	0.84	0.88	1.22	3.07	5.73	0.01	0.94
time (sec)	N/A	0.102	0.123	0.006	1.344	0.222	10.362	0.218	17.219

Problem 1703	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	83	83	70	73	101	201	318	412	78
normalized size	1	1.	0.84	0.88	1.22	2.42	3.83	4.96	0.94
time (sec)	N/A	0.099	0.099	0.005	1.354	0.22	8.044	0.216	16.956

Problem 1704	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	83	83	70	73	101	146	94	161	78
normalized size	1	1.	0.84	0.88	1.22	1.76	1.13	1.94	0.94
time (sec)	N/A	0.099	0.084	0.006	1.347	0.222	4.534	0.209	16.621

Problem 1705	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	81	81	68	73	101	95	311	155	76
normalized size	1	1.	0.84	0.9	1.25	1.17	3.84	1.91	0.94
time (sec)	N/A	0.101	0.075	0.005	1.346	0.232	16.934	0.207	16.4

Problem 1706	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	79	79	68	73	111	93	638	135	75
normalized size	1	1.	0.86	0.92	1.41	1.18	8.08	1.71	0.95
time (sec)	N/A	0.102	0.088	0.006	1.352	0.232	14.089	0.21	16.384

Problem 1707	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	79	79	68	72	107	108	355	119	76
normalized size	1	1.	0.86	0.91	1.35	1.37	4.49	1.51	0.96
time (sec)	N/A	0.101	0.093	0.007	1.343	0.224	4.342	0.21	16.599

Problem 1708	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	81	81	68	73	97	122	520	117	80
normalized size	1	1.	0.84	0.9	1.2	1.51	6.42	1.44	0.99
time (sec)	N/A	0.101	0.087	0.006	1.392	0.227	9.281	0.216	16.688

Problem 1709	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	128	128	138	169	215	572	1020	1	126
normalized size	1	1.	1.08	1.32	1.68	4.47	7.97	0.01	0.98
time (sec)	N/A	0.196	0.297	0.01	1.339	0.224	32.246	0.239	32.491

Problem 1710	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	128	128	138	169	215	481	857	1	126
normalized size	1	1.	1.08	1.32	1.68	3.76	6.7	0.01	0.98
time (sec)	N/A	0.164	0.27	0.01	1.333	0.229	14.737	0.235	31.333

Problem 1711	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	128	128	139	169	215	390	586	1	126
normalized size	1	1.	1.09	1.32	1.68	3.05	4.58	0.01	0.98
time (sec)	N/A	0.158	0.23	0.01	1.357	0.225	10.628	0.221	30.759

Problem 1712	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	128	128	138	169	215	297	201	321	126
normalized size	1	1.	1.08	1.32	1.68	2.32	1.57	2.51	0.98
time (sec)	N/A	0.154	0.191	0.009	1.335	0.224	5.454	0.214	30.095

Problem 1713	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	126	126	137	169	215	209	583	317	124
normalized size	1	1.	1.09	1.34	1.71	1.66	4.63	2.52	0.98
time (sec)	N/A	0.153	0.189	0.01	1.347	0.226	34.26	0.224	29.886

Problem 1714	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	124	124	135	169	225	209	0	296	122
normalized size	1	1.	1.09	1.36	1.81	1.69	0.	2.39	0.98
time (sec)	N/A	0.16	0.169	0.01	1.37	0.224	0.	0.214	29.258

Problem 1715	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	124	124	101	168	220	221	709	278	122
normalized size	1	1.	0.81	1.35	1.77	1.78	5.72	2.24	0.98
time (sec)	N/A	0.159	0.265	0.01	1.358	0.228	5.265	0.214	29.494

Problem 1716	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	124	124	107	169	221	239	1015	273	122
normalized size	1	1.	0.86	1.36	1.78	1.93	8.19	2.2	0.98
time (sec)	N/A	0.159	0.343	0.01	1.356	0.224	10.999	0.214	29.614

Problem 1717	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	173	173	227	301	358	855	1523	1	170
normalized size	1	1.	1.31	1.74	2.07	4.94	8.8	0.01	0.98
time (sec)	N/A	0.274	0.374	0.01	1.371	0.227	44.131	0.258	48.301

Problem 1718	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	173	173	228	301	358	728	1564	1	170
normalized size	1	1.	1.32	1.74	2.07	4.21	9.04	0.01	0.98
time (sec)	N/A	0.219	0.338	0.012	1.354	0.228	19.223	0.238	46.555

Problem 1719	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	173	173	228	301	358	602	913	1	170
normalized size	1	1.	1.32	1.74	2.07	3.48	5.28	0.01	0.98
time (sec)	N/A	0.215	0.354	0.01	1.346	0.231	13.098	0.225	47.537

Problem 1720	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	173	173	227	301	358	477	342	522	170
normalized size	1	1.	1.31	1.74	2.07	2.76	1.98	3.02	0.98
time (sec)	N/A	0.211	0.235	0.01	1.356	0.224	6.654	0.215	44.356

Problem 1721	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	171	171	226	301	358	355	916	517	168
normalized size	1	1.	1.32	1.76	2.09	2.08	5.36	3.02	0.98
time (sec)	N/A	0.209	0.233	0.011	1.375	0.23	58.83	0.215	43.782

Problem 1722	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	167	167	222	301	369	354	0	514	165
normalized size	1	1.	1.33	1.8	2.21	2.12	0.	3.08	0.99
time (sec)	N/A	0.218	0.248	0.013	1.362	0.224	0.	0.216	43.149

Problem 1723	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	169	169	152	301	366	369	0	493	167
normalized size	1	1.	0.9	1.78	2.17	2.18	0.	2.92	0.99
time (sec)	N/A	0.22	0.387	0.011	1.369	0.233	0.	0.216	43.064

Problem 1724	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	169	169	139	301	369	382	1654	491	167
normalized size	1	1.	0.82	1.78	2.18	2.26	9.79	2.91	0.99
time (sec)	N/A	0.205	0.366	0.01	1.368	0.232	13.338	0.216	45.806

Problem 1725	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	198	198	263	820	0	1	456	753	175
normalized size	1	1.	1.33	4.14	0.	0.01	2.3	3.8	0.88
time (sec)	N/A	0.491	0.462	0.025	0.	0.251	119.826	0.227	43.662

Problem 1726	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	164	164	185	573	0	1	340	501	144
normalized size	1	1.	1.13	3.49	0.	0.01	2.07	3.05	0.88
time (sec)	N/A	0.277	0.32	0.016	0.	0.241	75.485	0.222	33.605

Problem 1727	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	130	130	129	370	0	1	258	308	114
normalized size	1	1.	0.99	2.85	0.	0.01	1.98	2.37	0.88
time (sec)	N/A	0.221	0.205	0.014	0.	0.222	46.673	0.213	24.121

Problem 1728	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	98	98	94	211	0	1	212	170	85
normalized size	1	1.	0.96	2.15	0.	0.01	2.16	1.73	0.87
time (sec)	N/A	0.163	0.217	0.013	0.	0.223	15.703	0.211	18.101

Problem 1729	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	74	74	74	96	0	1	211	93	63
normalized size	1	1.	1.	1.3	0.	0.01	2.85	1.26	0.85
time (sec)	N/A	0.114	0.116	0.013	0.	0.222	13.192	0.221	12.845

Problem 1730	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	88	88	88	142	0	1	0	126	76
normalized size	1	1.	1.	1.61	0.	0.01	0.	1.43	0.86
time (sec)	N/A	0.171	0.345	0.016	0.	0.226	0.	0.22	15.412

Problem 1731	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	119	119	118	187	0	1	0	217	104
normalized size	1	1.	0.99	1.57	0.	0.01	0.	1.82	0.87
time (sec)	N/A	0.22	0.346	0.019	0.	0.226	0.	0.216	22.627

Problem 1732	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	151	151	151	234	0	1	0	383	133
normalized size	1	1.	1.	1.55	0.	0.01	0.	2.54	0.88
time (sec)	N/A	0.272	0.427	0.02	0.	0.232	0.	0.221	30.836

Problem 1733	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	256	256	252	915	0	1	0	815	245
normalized size	1	1.	0.98	3.57	0.	0.	0.	3.18	0.96
time (sec)	N/A	0.565	1.312	0.031	0.	0.232	0.	0.232	62.386

Problem 1734	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	214	214	179	626	0	1	0	540	202
normalized size	1	1.	0.84	2.93	0.	0.	0.	2.52	0.94
time (sec)	N/A	0.481	0.652	0.025	0.	0.229	0.	0.223	49.077

Problem 1735	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	174	174	127	381	0	1	2508	323	162
normalized size	1	1.	0.73	2.19	0.	0.01	14.41	1.86	0.93
time (sec)	N/A	0.343	0.322	0.024	0.	0.224	165.419	0.225	40.464

Problem 1736	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	140	140	99	186	0	1	1559	170	124
normalized size	1	1.	0.71	1.33	0.	0.01	11.14	1.21	0.89
time (sec)	N/A	0.265	0.128	0.022	0.	0.225	39.95	0.218	29.777

Problem 1737	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	103	103	102	195	0	1	0	182	85
normalized size	1	1.	0.99	1.89	0.	0.01	0.	1.77	0.83
time (sec)	N/A	0.196	0.143	0.02	0.	0.22	0.	0.247	17.874

Problem 1738	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	140	140	123	253	0	1	0	275	124
normalized size	1	1.	0.88	1.81	0.	0.01	0.	1.96	0.89
time (sec)	N/A	0.303	0.323	0.027	0.	0.225	0.	0.234	30.897

Problem 1739	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	181	181	154	328	0	1	0	401	167
normalized size	1	1.	0.85	1.81	0.	0.01	0.	2.22	0.92
time (sec)	N/A	0.385	0.875	0.03	0.	0.23	0.	0.233	41.762

Problem 1740	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	221	221	191	403	0	1	0	587	207
normalized size	1	1.	0.86	1.82	0.	0.	0.	2.66	0.94
time (sec)	N/A	0.528	0.759	0.033	0.	0.235	0.	0.237	53.882

Problem 1741	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	274	274	223	940	0	1	0	819	269
normalized size	1	1.	0.81	3.43	0.	0.	0.	2.99	0.98
time (sec)	N/A	0.593	0.805	0.036	0.	0.233	0.	0.234	60.729

Problem 1742	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	233	233	171	626	0	1	0	540	224
normalized size	1	1.	0.73	2.69	0.	0.	0.	2.32	0.96
time (sec)	N/A	0.449	0.527	0.03	0.	0.226	0.	0.227	48.859

Problem 1743	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	197	197	139	360	0	1	0	319	182
normalized size	1	1.	0.71	1.83	0.	0.01	0.	1.62	0.92
time (sec)	N/A	0.36	0.261	0.026	0.	0.225	0.	0.22	39.346

Problem 1744	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	157	157	129	339	0	1	0	331	138
normalized size	1	1.	0.82	2.16	0.	0.01	0.	2.11	0.88
time (sec)	N/A	0.286	0.318	0.021	0.	0.226	0.	0.221	28.649

Problem 1745	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	157	157	143	436	0	1	0	359	138
normalized size	1	1.	0.91	2.78	0.	0.01	0.	2.29	0.88
time (sec)	N/A	0.336	0.309	0.025	0.	0.227	0.	0.219	29.626

Problem 1746	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	197	197	156	485	0	1	0	467	182
normalized size	1	1.	0.79	2.46	0.	0.01	0.	2.37	0.92
time (sec)	N/A	0.405	0.879	0.03	0.	0.234	0.	0.225	42.766

Problem 1747	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	240	240	195	568	0	1	0	606	230
normalized size	1	1.	0.81	2.37	0.	0.	0.	2.52	0.96
time (sec)	N/A	0.519	1.365	0.037	0.	0.241	0.	0.227	54.848

Problem 1748	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	281	281	236	648	0	1	0	822	274
normalized size	1	1.	0.84	2.31	0.	0.	0.	2.93	0.98
time (sec)	N/A	0.664	1.213	0.039	0.	0.245	0.	0.233	68.684

Problem 1749	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	164	164	190	573	0	1	340	522	144
normalized size	1	1.	1.16	3.49	0.	0.01	2.07	3.18	0.88
time (sec)	N/A	0.408	0.338	0.023	0.	0.224	78.58	0.221	33.802

Problem 1750	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	130	130	129	370	0	1	258	321	114
normalized size	1	1.	0.99	2.85	0.	0.01	1.98	2.47	0.88
time (sec)	N/A	0.233	0.203	0.014	0.	0.221	46.4	0.217	24.809

Problem 1751	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	98	98	94	211	0	1	212	176	85
normalized size	1	1.	0.96	2.15	0.	0.01	2.16	1.8	0.87
time (sec)	N/A	0.165	0.214	0.013	0.	0.221	15.602	0.217	17.823

Problem 1752	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	74	74	74	96	0	1	211	95	63
normalized size	1	1.	1.	1.3	0.	0.01	2.85	1.28	0.85
time (sec)	N/A	0.121	0.135	0.013	0.	0.22	12.887	0.214	13.7

Problem 1753	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	88	88	88	142	0	1	0	127	76
normalized size	1	1.	1.	1.61	0.	0.01	0.	1.44	0.86
time (sec)	N/A	0.171	0.36	0.015	0.	0.219	0.	0.215	15.976

Problem 1754	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	119	119	116	187	0	1	0	216	104
normalized size	1	1.	0.97	1.57	0.	0.01	0.	1.82	0.87
time (sec)	N/A	0.232	0.234	0.02	0.	0.223	0.	0.22	22.785

Problem 1755	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	151	151	151	234	0	1	0	385	133
normalized size	1	1.	1.	1.55	0.	0.01	0.	2.55	0.88
time (sec)	N/A	0.329	0.435	0.022	0.	0.234	0.	0.222	30.337

Problem 1756	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	185	185	185	281	0	1	0	608	163
normalized size	1	1.	1.	1.52	0.	0.01	0.	3.29	0.88
time (sec)	N/A	0.401	0.772	0.024	0.	0.237	0.	0.226	40.544

Problem 1757	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	208	208	295	972	0	1	493	909	192
normalized size	1	1.	1.42	4.67	0.	0.	2.37	4.37	0.92
time (sec)	N/A	0.442	0.593	0.022	0.	0.231	138.01	0.231	57.33

Problem 1758	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	172	172	204	644	0	1	355	572	160
normalized size	1	1.	1.19	3.74	0.	0.01	2.06	3.33	0.93
time (sec)	N/A	0.334	0.516	0.02	0.	0.228	76.746	0.224	45.613

Problem 1759	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	138	138	152	387	0	1	274	338	129
normalized size	1	1.	1.1	2.8	0.	0.01	1.99	2.45	0.93
time (sec)	N/A	0.253	0.204	0.017	0.	0.224	13.961	0.217	36.973

Problem 1760	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	112	112	99	201	0	1	255	203	105
normalized size	1	1.	0.88	1.79	0.	0.01	2.28	1.81	0.94
time (sec)	N/A	0.227	0.156	0.015	0.	0.222	30.85	0.214	31.723

Problem 1761	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	112	112	108	249	0	1	0	174	153
normalized size	1	1.	0.96	2.22	0.	0.01	0.	1.55	1.37
time (sec)	N/A	0.28	0.355	0.02	0.	0.221	0.	0.217	58.907

Problem 1762	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	140	140	140	332	0	1	0	319	126
normalized size	1	1.	1.	2.37	0.	0.01	0.	2.28	0.9
time (sec)	N/A	0.361	0.398	0.023	0.	0.231	0.	0.221	70.269

Problem 1763	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	173	173	166	408	0	1	0	583	155
normalized size	1	1.	0.96	2.36	0.	0.01	0.	3.37	0.9
time (sec)	N/A	0.459	0.494	0.026	0.	0.231	0.	0.225	87.63

Problem 1764	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	207	207	207	486	0	1	0	938	185
normalized size	1	1.	1.	2.35	0.	0.	0.	4.53	0.89
time (sec)	N/A	0.754	0.84	0.03	0.	0.241	0.	0.229	110.165

Problem 1765	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	280	280	435	1437	0	1	0	1	282
normalized size	1	1.	1.55	5.13	0.	0.	0.	0.	1.01
time (sec)	N/A	0.667	0.882	0.021	0.	0.236	0.	0.237	99.316

Problem 1766	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	244	244	313	984	0	1	500	922	250
normalized size	1	1.	1.28	4.03	0.	0.	2.05	3.78	1.02
time (sec)	N/A	0.482	0.607	0.022	0.	0.232	136.518	0.235	85.622

Problem 1767	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	210	210	249	629	0	1	388	589	219
normalized size	1	1.	1.19	3.	0.	0.	1.85	2.8	1.04
time (sec)	N/A	0.376	0.381	0.019	0.	0.224	25.322	0.222	83.095

Problem 1768	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	184	184	157	372	0	1	345	402	196
normalized size	1	1.	0.85	2.02	0.	0.01	1.88	2.18	1.07
time (sec)	N/A	0.348	0.268	0.016	0.	0.221	75.78	0.216	70.554

Problem 1769	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	149	169	137	395	0	1	0	325	178
normalized size	1	1.13	0.92	2.65	0.	0.01	0.	2.18	1.19
time (sec)	N/A	0.445	0.479	0.021	0.	0.227	0.	0.218	73.633

Problem 1770	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	163	163	156	501	0	1	0	455	253
normalized size	1	1.	0.96	3.07	0.	0.01	0.	2.79	1.55
time (sec)	N/A	0.457	0.684	0.026	0.	0.231	0.	0.221	140.259

Problem 1771	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	227	227	212	649	0	1	0	826	226
normalized size	1	1.	0.93	2.86	0.	0.	0.	3.64	1.
time (sec)	N/A	0.694	0.935	0.028	0.	0.258	0.	0.233	159.692

Problem 1772	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	260	260	246	756	0	1	0	1	0
normalized size	1	1.	0.95	2.91	0.	0.	0.	0.	0.
time (sec)	N/A	0.971	1.224	0.032	0.	0.239	0.	0.231	0.

Problem 1773	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	105	105	48	45	99	66	94	165	94
normalized size	1	1.	0.46	0.43	0.94	0.63	0.9	1.57	0.9
time (sec)	N/A	0.066	0.036	0.006	1.345	0.206	3.908	0.218	10.972

Problem 1774	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	92	92	48	40	86	59	82	143	82
normalized size	1	1.	0.52	0.43	0.93	0.64	0.89	1.55	0.89
time (sec)	N/A	0.062	0.035	0.004	1.35	0.212	3.592	0.216	9.969

Problem 1775	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	79	79	38	35	74	53	70	122	70
normalized size	1	1.	0.48	0.44	0.94	0.67	0.89	1.54	0.89
time (sec)	N/A	0.056	0.028	0.004	1.364	0.207	3.322	0.215	9.087

Problem 1776	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	66	66	38	30	62	46	58	100	58
normalized size	1	1.	0.58	0.45	0.94	0.7	0.88	1.52	0.88
time (sec)	N/A	0.051	0.03	0.006	1.354	0.207	3.207	0.215	7.846

Problem 1777	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	53	53	33	25	50	39	46	78	46
normalized size	1	1.	0.62	0.47	0.94	0.74	0.87	1.47	0.87
time (sec)	N/A	0.046	0.028	0.006	1.357	0.204	3.032	0.213	6.819

Problem 1778	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	40	40	23	20	38	32	34	57	34
normalized size	1	1.	0.57	0.5	0.95	0.8	0.85	1.42	0.85
time (sec)	N/A	0.033	0.012	0.005	1.358	0.205	2.925	0.214	5.584

Problem 1779	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	27	27	18	15	26	26	138	35	20
normalized size	1	1.	0.67	0.56	0.96	0.96	5.11	1.3	0.74
time (sec)	N/A	0.019	0.009	0.005	1.353	0.207	3.449	0.213	4.094

Problem 1780	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	56	56	46	38	74	77	88	78	48
normalized size	1	1.	0.82	0.68	1.32	1.38	1.57	1.39	0.86
time (sec)	N/A	0.064	0.05	0.009	1.519	0.213	8.391	0.224	7.01

Problem 1781	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	59	59	55	45	84	86	175	88	49
normalized size	1	1.	0.93	0.76	1.42	1.46	2.97	1.49	0.83
time (sec)	N/A	0.061	0.062	0.014	1.495	0.219	42.606	0.216	7.267

Problem 1782	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	68	68	53	48	100	100	313	92	56
normalized size	1	1.	0.78	0.71	1.47	1.47	4.6	1.35	0.82
time (sec)	N/A	0.062	0.085	0.015	1.49	0.216	95.072	0.22	8.088

Problem 1783	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	88	88	58	57	124	120	439	113	75
normalized size	1	1.	0.66	0.65	1.41	1.36	4.99	1.28	0.85
time (sec)	N/A	0.079	0.09	0.017	1.516	0.211	163.61	0.213	9.874

Problem 1784	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	110	110	63	66	149	149	0	135	94
normalized size	1	1.	0.57	0.6	1.35	1.35	0.	1.23	0.85
time (sec)	N/A	0.103	0.103	0.016	1.495	0.211	0.	0.215	11.073

Problem 1785	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	128	128	68	75	173	161	0	157	109
normalized size	1	1.	0.53	0.59	1.35	1.26	0.	1.23	0.85
time (sec)	N/A	0.126	0.101	0.017	1.477	0.213	0.	0.219	13.168

Problem 1786	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	92	92	43	40	86	59	82	143	82
normalized size	1	1.	0.47	0.43	0.93	0.64	0.89	1.55	0.89
time (sec)	N/A	0.068	0.059	0.006	1.349	0.206	3.361	0.216	10.315

Problem 1787	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	79	79	38	35	74	53	70	122	70
normalized size	1	1.	0.48	0.44	0.94	0.67	0.89	1.54	0.89
time (sec)	N/A	0.061	0.052	0.005	1.359	0.206	3.165	0.22	9.903

Problem 1788	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	66	66	33	30	62	46	58	100	58
normalized size	1	1.	0.5	0.45	0.94	0.7	0.88	1.52	0.88
time (sec)	N/A	0.056	0.052	0.007	1.346	0.212	2.967	0.212	8.364

Problem 1789	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	53	53	33	25	50	39	46	78	46
normalized size	1	1.	0.62	0.47	0.94	0.74	0.87	1.47	0.87
time (sec)	N/A	0.044	0.027	0.006	1.345	0.21	2.843	0.212	6.853

Problem 1790	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	40	40	28	20	38	32	187	57	34
normalized size	1	1.	0.7	0.5	0.95	0.8	4.68	1.42	0.85
time (sec)	N/A	0.025	0.019	0.006	1.344	0.214	4.674	0.21	4.971

Problem 1791	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	69	69	51	47	86	84	99	100	60
normalized size	1	1.	0.74	0.68	1.25	1.22	1.43	1.45	0.87
time (sec)	N/A	0.085	0.063	0.009	1.504	0.213	6.425	0.22	8.649

Problem 1792	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	74	74	55	54	96	93	189	100	61
normalized size	1	1.	0.74	0.73	1.3	1.26	2.55	1.35	0.82
time (sec)	N/A	0.09	0.098	0.017	1.51	0.216	51.18	0.212	8.921

Problem 1793	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	81	81	58	57	112	107	323	104	68
normalized size	1	1.	0.72	0.7	1.38	1.32	3.99	1.28	0.84
time (sec)	N/A	0.093	0.096	0.016	1.517	0.221	125.215	0.211	10.231

Problem 1794	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	88	88	58	57	124	120	0	113	75
normalized size	1	1.	0.66	0.65	1.41	1.36	0.	1.28	0.85
time (sec)	N/A	0.1	0.096	0.017	1.493	0.224	0.	0.215	10.455

Problem 1795	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	108	108	63	66	149	140	0	135	94
normalized size	1	1.	0.58	0.61	1.38	1.3	0.	1.25	0.87
time (sec)	N/A	0.117	0.106	0.018	1.496	0.22	0.	0.219	12.539

Problem 1796	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	128	128	68	75	173	161	0	157	112
normalized size	1	1.	0.53	0.59	1.35	1.26	0.	1.23	0.88
time (sec)	N/A	0.141	0.11	0.017	1.493	0.214	0.	0.216	14.336

Problem 1797	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	148	148	73	84	197	181	0	178	131
normalized size	1	1.	0.49	0.57	1.33	1.22	0.	1.2	0.89
time (sec)	N/A	0.163	0.125	0.017	1.529	0.212	0.	0.222	16.167

Problem 1798	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	105	105	48	45	99	66	94	165	94
normalized size	1	1.	0.46	0.43	0.94	0.63	0.9	1.57	0.9
time (sec)	N/A	0.075	0.062	0.007	1.339	0.207	3.699	0.216	11.299

Problem 1799	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	92	92	43	40	86	59	82	143	82
normalized size	1	1.	0.47	0.43	0.93	0.64	0.89	1.55	0.89
time (sec)	N/A	0.069	0.057	0.006	1.358	0.206	3.38	0.218	10.248

Problem 1800	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	79	79	38	35	74	53	70	122	70
normalized size	1	1.	0.48	0.44	0.94	0.67	0.89	1.54	0.89
time (sec)	N/A	0.062	0.053	0.006	1.336	0.208	3.131	0.214	9.104

Problem 1801	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	66	66	38	30	62	46	58	100	58
normalized size	1	1.	0.58	0.45	0.94	0.7	0.88	1.52	0.88
time (sec)	N/A	0.05	0.028	0.005	1.395	0.209	3.027	0.233	7.773

Problem 1802	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	53	53	33	25	50	39	236	78	46
normalized size	1	1.	0.62	0.47	0.94	0.74	4.45	1.47	0.87
time (sec)	N/A	0.031	0.021	0.005	1.34	0.21	6.397	0.238	5.83

Problem 1803	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	82	82	56	56	99	92	110	122	71
normalized size	1	1.	0.68	0.68	1.21	1.12	1.34	1.49	0.87
time (sec)	N/A	0.09	0.076	0.01	1.498	0.216	6.919	0.241	9.523

Problem 1804	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	93	93	63	63	108	100	199	122	78
normalized size	1	1.	0.68	0.68	1.16	1.08	2.14	1.31	0.84
time (sec)	N/A	0.153	0.099	0.018	1.517	0.212	62.268	0.218	18.733

Problem 1805	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	100	100	63	66	124	113	337	116	85
normalized size	1	1.	0.63	0.66	1.24	1.13	3.37	1.16	0.85
time (sec)	N/A	0.157	0.112	0.017	1.492	0.213	152.759	0.215	19.032

Problem 1806	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	107	107	63	66	136	127	0	126	92
normalized size	1	1.	0.59	0.62	1.27	1.19	0.	1.18	0.86
time (sec)	N/A	0.158	0.106	0.017	1.513	0.213	0.	0.218	18.873

Problem 1807	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	107	107	63	66	149	140	0	135	95
normalized size	1	1.	0.59	0.62	1.39	1.31	0.	1.26	0.89
time (sec)	N/A	0.158	0.123	0.016	1.519	0.211	0.	0.227	18.75

Problem 1808	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	127	127	68	75	173	161	0	157	110
normalized size	1	1.	0.54	0.59	1.36	1.27	0.	1.24	0.87
time (sec)	N/A	0.179	0.117	0.017	1.524	0.211	0.	0.236	20.847

Problem 1809	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	147	147	73	84	197	181	0	178	129
normalized size	1	1.	0.5	0.57	1.34	1.23	0.	1.21	0.88
time (sec)	N/A	0.203	0.124	0.018	1.536	0.212	0.	0.223	23.14

Problem 1810	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	167	167	78	93	221	201	0	200	148
normalized size	1	1.	0.47	0.56	1.32	1.2	0.	1.2	0.89
time (sec)	N/A	0.228	0.14	0.018	1.52	0.213	0.	0.227	25.097

Problem 1811	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	95	95	61	65	111	99	122	143	83
normalized size	1	1.	0.64	0.68	1.17	1.04	1.28	1.51	0.87
time (sec)	N/A	0.099	0.093	0.01	1.495	0.211	7.565	0.241	10.227

Problem 1812	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	82	82	56	56	99	92	110	122	71
normalized size	1	1.	0.68	0.68	1.21	1.12	1.34	1.49	0.87
time (sec)	N/A	0.089	0.069	0.01	1.498	0.214	6.948	0.247	9.344

Problem 1813	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	69	69	51	47	86	84	99	100	60
normalized size	1	1.	0.74	0.68	1.25	1.22	1.43	1.45	0.87
time (sec)	N/A	0.085	0.068	0.011	1.524	0.214	6.167	0.228	8.35

Problem 1814	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	56	56	46	38	74	77	85	78	46
normalized size	1	1.	0.82	0.68	1.32	1.38	1.52	1.39	0.82
time (sec)	N/A	0.059	0.043	0.007	1.633	0.211	7.896	0.21	6.161

Problem 1815	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	43	43	41	29	62	72	107	66	36
normalized size	1	1.	0.95	0.67	1.44	1.67	2.49	1.53	0.84
time (sec)	N/A	0.038	0.026	0.008	1.504	0.216	4.571	0.215	4.543

Problem 1816	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	55	55	55	38	99	115	124	107	49
normalized size	1	1.	1.	0.69	1.8	2.09	2.25	1.95	0.89
time (sec)	N/A	0.07	0.046	0.013	1.521	0.219	16.311	0.221	8.11

Problem 1817	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	68	68	81	54	117	130	223	126	61
normalized size	1	1.	1.19	0.79	1.72	1.91	3.28	1.85	0.9
time (sec)	N/A	0.122	0.122	0.015	1.679	0.219	27.484	0.219	14.927

Problem 1818	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	95	95	80	66	149	166	369	144	80
normalized size	1	1.	0.84	0.69	1.57	1.75	3.88	1.52	0.84
time (sec)	N/A	0.18	0.135	0.017	1.503	0.219	56.945	0.217	21.232

Problem 1819	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	113	113	83	75	173	185	559	166	99
normalized size	1	1.	0.73	0.66	1.53	1.64	4.95	1.47	0.88
time (sec)	N/A	0.241	0.183	0.019	1.515	0.219	99.85	0.217	27.997

Problem 1820	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	133	133	88	84	197	212	794	188	117
normalized size	1	1.	0.66	0.63	1.48	1.59	5.97	1.41	0.88
time (sec)	N/A	0.301	0.249	0.019	1.483	0.221	159.506	0.232	34.926

Problem 1821	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	133	133	73	81	132	113	223	165	116
normalized size	1	1.	0.55	0.61	0.99	0.85	1.68	1.24	0.87
time (sec)	N/A	0.261	0.117	0.016	1.496	0.211	84.175	0.219	34.322

Problem 1822	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	113	113	68	72	120	107	211	143	97
normalized size	1	1.	0.6	0.64	1.06	0.95	1.87	1.27	0.86
time (sec)	N/A	0.203	0.108	0.015	1.529	0.212	72.615	0.217	27.867

Problem 1823	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	88	88	63	63	108	100	199	122	75
normalized size	1	1.	0.72	0.72	1.23	1.14	2.26	1.39	0.85
time (sec)	N/A	0.138	0.104	0.016	1.527	0.214	60.71	0.219	15.974

Problem 1824	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	74	74	58	54	96	93	187	100	61
normalized size	1	1.	0.78	0.73	1.3	1.26	2.53	1.35	0.82
time (sec)	N/A	0.091	0.088	0.017	1.502	0.219	49.653	0.213	9.232

Problem 1825	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	61	61	53	45	84	86	175	88	49
normalized size	1	1.	0.87	0.74	1.38	1.41	2.87	1.44	0.8
time (sec)	N/A	0.06	0.072	0.016	1.491	0.214	39.107	0.212	7.024

Problem 1826	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	48	48	48	36	72	80	177	76	37
normalized size	1	1.	1.	0.75	1.5	1.67	3.69	1.58	0.77
time (sec)	N/A	0.037	0.059	0.012	1.493	0.21	5.52	0.212	4.809

Problem 1827	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	69	69	69	54	119	131	223	127	61
normalized size	1	1.	1.	0.78	1.72	1.9	3.23	1.84	0.88
time (sec)	N/A	0.118	0.12	0.017	1.504	0.22	25.094	0.214	14.776

Problem 1828	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	97	97	85	70	149	188	321	157	83
normalized size	1	1.	0.88	0.72	1.54	1.94	3.31	1.62	0.86
time (sec)	N/A	0.175	0.148	0.017	1.52	0.222	42.257	0.23	21.531

Problem 1829	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	131	131	94	82	173	215	468	166	109
normalized size	1	1.	0.72	0.63	1.32	1.64	3.57	1.27	0.83
time (sec)	N/A	0.245	0.192	0.02	1.504	0.221	69.474	0.246	28.547

Problem 1830	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	158	158	99	91	197	242	658	188	133
normalized size	1	1.	0.63	0.58	1.25	1.53	4.16	1.19	0.84
time (sec)	N/A	0.308	0.158	0.02	1.52	0.223	109.637	0.228	34.364

Problem 1831	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	120	120	68	75	136	120	0	138	104
normalized size	1	1.	0.57	0.62	1.13	1.	0.	1.15	0.87
time (sec)	N/A	0.205	0.133	0.017	1.483	0.215	0.	0.213	26.308

Problem 1832	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	100	100	63	66	124	113	335	116	85
normalized size	1	1.	0.63	0.66	1.24	1.13	3.35	1.16	0.85
time (sec)	N/A	0.153	0.102	0.017	1.499	0.215	152.922	0.219	19.084

Problem 1833	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	81	81	58	57	112	107	323	104	68
normalized size	1	1.	0.72	0.7	1.38	1.32	3.99	1.28	0.84
time (sec)	N/A	0.093	0.09	0.015	1.479	0.22	123.005	0.225	9.822

Problem 1834	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	68	68	53	48	100	100	311	92	56
normalized size	1	1.	0.78	0.71	1.47	1.47	4.57	1.35	0.82
time (sec)	N/A	0.062	0.087	0.016	1.497	0.213	92.914	0.217	7.499

Problem 1835	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	68	68	53	48	100	99	233	92	53
normalized size	1	1.	0.78	0.71	1.47	1.46	3.43	1.35	0.78
time (sec)	N/A	0.054	0.079	0.014	1.492	0.216	9.327	0.212	6.649

Problem 1836	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	93	93	78	66	149	161	369	144	80
normalized size	1	1.	0.84	0.71	1.6	1.73	3.97	1.55	0.86
time (sec)	N/A	0.181	0.158	0.016	1.514	0.222	55.077	0.22	21.185

Problem 1837	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	121	121	94	82	173	213	468	166	104
normalized size	1	1.	0.78	0.68	1.43	1.76	3.87	1.37	0.86
time (sec)	N/A	0.231	0.179	0.02	1.498	0.221	72.441	0.237	27.51

Problem 1838	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	153	153	101	94	197	240	614	200	131
normalized size	1	1.	0.66	0.61	1.29	1.57	4.01	1.31	0.86
time (sec)	N/A	0.301	0.152	0.022	1.495	0.225	100.473	0.252	35.456

Problem 1839	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	180	180	106	103	221	267	804	204	160
normalized size	1	1.	0.59	0.57	1.23	1.48	4.47	1.13	0.89
time (sec)	N/A	0.369	0.174	0.022	1.53	0.222	141.276	0.248	42.98

Problem 1840	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	105	105	48	45	99	73	94	1	94
normalized size	1	1.	0.46	0.43	0.94	0.7	0.9	0.01	0.9
time (sec)	N/A	0.068	0.036	0.004	1.372	0.207	10.08	0.226	11.275

Problem 1841	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	92	92	43	40	86	66	82	153	82
normalized size	1	1.	0.47	0.43	0.93	0.72	0.89	1.66	0.89
time (sec)	N/A	0.062	0.047	0.005	1.346	0.208	8.697	0.218	10.08

Problem 1842	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	79	79	38	35	74	59	70	131	70
normalized size	1	1.	0.48	0.44	0.94	0.75	0.89	1.66	0.89
time (sec)	N/A	0.057	0.03	0.005	1.345	0.216	7.471	0.212	9.029

Problem 1843	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	66	66	33	30	62	53	58	109	58
normalized size	1	1.	0.5	0.45	0.94	0.8	0.88	1.65	0.88
time (sec)	N/A	0.05	0.04	0.006	1.353	0.209	6.438	0.211	8.223

Problem 1844	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	53	53	28	25	50	46	46	88	46
normalized size	1	1.	0.53	0.47	0.94	0.87	0.87	1.66	0.87
time (sec)	N/A	0.047	0.037	0.005	1.343	0.22	5.642	0.227	7.213

Problem 1845	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	40	40	23	20	38	39	34	66	34
normalized size	1	1.	0.57	0.5	0.95	0.98	0.85	1.65	0.85
time (sec)	N/A	0.034	0.014	0.003	1.356	0.224	4.794	0.238	6.068

Problem 1846	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	27	27	18	15	26	32	54	45	22
normalized size	1	1.	0.67	0.56	0.96	1.19	2.	1.67	0.81
time (sec)	N/A	0.018	0.011	0.004	1.379	0.222	1.071	0.23	3.789

Problem 1847	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	69	69	51	47	86	85	99	100	58
normalized size	1	1.	0.74	0.68	1.25	1.23	1.43	1.45	0.84
time (sec)	N/A	0.074	0.061	0.009	1.581	0.226	14.237	0.235	7.888

Problem 1848	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	76	76	58	54	96	103	0	100	61
normalized size	1	1.	0.76	0.71	1.26	1.36	0.	1.32	0.8
time (sec)	N/A	0.077	0.084	0.014	1.599	0.235	0.	0.243	8.737

Problem 1849	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	81	81	58	57	112	107	0	104	68
normalized size	1	1.	0.72	0.7	1.38	1.32	0.	1.28	0.84
time (sec)	N/A	0.074	0.1	0.016	1.534	0.237	0.	0.243	9.077

Problem 1850	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	88	88	58	57	124	120	0	113	75
normalized size	1	1.	0.66	0.65	1.41	1.36	0.	1.28	0.85
time (sec)	N/A	0.08	0.091	0.016	1.507	0.217	0.	0.212	9.939

Problem 1851	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	108	108	63	66	149	140	0	135	94
normalized size	1	1.	0.58	0.61	1.38	1.3	0.	1.25	0.87
time (sec)	N/A	0.102	0.11	0.016	1.536	0.215	0.	0.213	12.307

Problem 1852	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	128	128	68	75	173	161	0	157	112
normalized size	1	1.	0.53	0.59	1.35	1.26	0.	1.23	0.88
time (sec)	N/A	0.123	0.107	0.017	1.525	0.215	0.	0.216	13.782

Problem 1853	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	92	92	43	40	86	66	82	153	82
normalized size	1	1.	0.47	0.43	0.93	0.72	0.89	1.66	0.89
time (sec)	N/A	0.071	0.06	0.007	1.349	0.206	4.151	0.238	10.589

Problem 1854	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	79	79	38	35	74	59	70	131	70
normalized size	1	1.	0.48	0.44	0.94	0.75	0.89	1.66	0.89
time (sec)	N/A	0.065	0.054	0.006	1.366	0.207	3.568	0.219	9.526

Problem 1855	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	66	66	33	30	62	53	58	109	58
normalized size	1	1.	0.5	0.45	0.94	0.8	0.88	1.65	0.88
time (sec)	N/A	0.059	0.051	0.007	1.35	0.205	3.096	0.219	8.894

Problem 1856	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	53	53	28	25	50	46	46	88	46
normalized size	1	1.	0.53	0.47	0.94	0.87	0.87	1.66	0.87
time (sec)	N/A	0.045	0.036	0.005	1.36	0.21	2.718	0.214	7.24

Problem 1857	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	40	40	23	20	38	39	236	66	34
normalized size	1	1.	0.57	0.5	0.95	0.98	5.9	1.65	0.85
time (sec)	N/A	0.025	0.029	0.005	1.353	0.209	2.741	0.224	5.33

Problem 1858	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	82	82	56	56	99	92	110	122	71
normalized size	1	1.	0.68	0.68	1.21	1.12	1.34	1.49	0.87
time (sec)	N/A	0.099	0.08	0.008	1.492	0.227	9.919	0.231	10.192

Problem 1859	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	89	89	63	63	108	109	201	122	73
normalized size	1	1.	0.71	0.71	1.21	1.22	2.26	1.37	0.82
time (sec)	N/A	0.107	0.1	0.017	1.479	0.222	158.729	0.221	11.951

Problem 1860	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	94	94	63	66	124	113	0	116	80
normalized size	1	1.	0.67	0.7	1.32	1.2	0.	1.23	0.85
time (sec)	N/A	0.111	0.113	0.017	1.488	0.217	0.	0.255	12.472

Problem 1861	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	101	101	63	66	136	127	0	126	87
normalized size	1	1.	0.62	0.65	1.35	1.26	0.	1.25	0.86
time (sec)	N/A	0.111	0.114	0.017	1.513	0.226	0.	0.228	12.57

Problem 1862	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	108	108	63	66	149	140	0	135	94
normalized size	1	1.	0.58	0.61	1.38	1.3	0.	1.25	0.87
time (sec)	N/A	0.119	0.119	0.019	1.507	0.224	0.	0.213	12.554

Problem 1863	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	128	128	68	75	173	161	0	157	112
normalized size	1	1.	0.53	0.59	1.35	1.26	0.	1.23	0.88
time (sec)	N/A	0.138	0.122	0.019	1.513	0.223	0.	0.215	14.4

Problem 1864	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	148	148	73	84	197	181	0	178	131
normalized size	1	1.	0.49	0.57	1.33	1.22	0.	1.2	0.89
time (sec)	N/A	0.165	0.123	0.02	1.51	0.218	0.	0.213	17.876

Problem 1865	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	105	105	48	45	99	73	94	1	94
normalized size	1	1.	0.46	0.43	0.94	0.7	0.9	0.01	0.9
time (sec)	N/A	0.074	0.065	0.006	1.35	0.207	4.83	0.212	12.16

Problem 1866	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	92	92	43	40	86	66	82	153	82
normalized size	1	1.	0.47	0.43	0.93	0.72	0.89	1.66	0.89
time (sec)	N/A	0.069	0.057	0.006	1.36	0.205	4.178	0.214	10.932

Problem 1867	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	79	79	38	35	74	59	70	131	70
normalized size	1	1.	0.48	0.44	0.94	0.75	0.89	1.66	0.89
time (sec)	N/A	0.064	0.054	0.006	1.366	0.208	3.567	0.215	10.157

Problem 1868	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	66	66	33	30	62	53	58	109	58
normalized size	1	1.	0.5	0.45	0.94	0.8	0.88	1.65	0.88
time (sec)	N/A	0.051	0.039	0.006	1.344	0.218	3.133	0.214	8.255

Problem 1869	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	53	53	28	25	50	46	286	88	46
normalized size	1	1.	0.53	0.47	0.94	0.87	5.4	1.66	0.87
time (sec)	N/A	0.031	0.032	0.005	1.35	0.21	3.703	0.214	6.005

Problem 1870	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	95	95	61	65	111	99	122	143	83
normalized size	1	1.	0.64	0.68	1.17	1.04	1.28	1.51	0.87
time (sec)	N/A	0.104	0.088	0.01	1.499	0.216	13.36	0.234	11.762

Problem 1871	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	108	108	70	72	120	116	0	143	90
normalized size	1	1.	0.65	0.67	1.11	1.07	0.	1.32	0.83
time (sec)	N/A	0.156	0.119	0.017	1.496	0.218	0.	0.243	20.872

Problem 1872	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	118	118	63	75	136	113	0	138	97
normalized size	1	1.	0.53	0.64	1.15	0.96	0.	1.17	0.82
time (sec)	N/A	0.204	0.108	0.017	1.494	0.212	0.	0.224	20.188

Problem 1873	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	125	125	68	75	149	134	0	138	104
normalized size	1	1.	0.54	0.6	1.19	1.07	0.	1.1	0.83
time (sec)	N/A	0.205	0.129	0.017	1.507	0.212	0.	0.222	20.107

Problem 1874	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	131	131	68	75	161	147	0	147	105
normalized size	1	1.	0.52	0.57	1.23	1.12	0.	1.12	0.8
time (sec)	N/A	0.212	0.134	0.017	1.526	0.212	0.	0.216	20.202

Problem 1875	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	134	134	68	75	173	161	0	157	110
normalized size	1	1.	0.51	0.56	1.29	1.2	0.	1.17	0.82
time (sec)	N/A	0.21	0.128	0.017	1.504	0.21	0.	0.216	22.424

Problem 1876	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	154	154	73	84	197	181	0	178	129
normalized size	1	1.	0.47	0.55	1.28	1.18	0.	1.16	0.84
time (sec)	N/A	0.233	0.138	0.018	1.517	0.211	0.	0.225	23.559

Problem 1877	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	174	174	78	93	221	201	0	200	148
normalized size	1	1.	0.45	0.53	1.27	1.16	0.	1.15	0.85
time (sec)	N/A	0.26	0.165	0.019	1.495	0.209	0.	0.215	26.118

Problem 1878	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	134	134	76	92	147	119	158	208	119
normalized size	1	1.	0.57	0.69	1.1	0.89	1.18	1.55	0.89
time (sec)	N/A	0.119	0.127	0.013	1.495	0.212	25.448	0.216	14.058

Problem 1879	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	121	121	71	83	135	112	146	186	107
normalized size	1	1.	0.59	0.69	1.12	0.93	1.21	1.54	0.88
time (sec)	N/A	0.117	0.099	0.01	1.494	0.212	22.368	0.215	13.116

Problem 1880	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	108	108	66	74	123	105	134	165	95
normalized size	1	1.	0.61	0.69	1.14	0.97	1.24	1.53	0.88
time (sec)	N/A	0.11	0.102	0.01	1.565	0.211	17.462	0.215	12.101

Problem 1881	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	95	95	61	65	111	99	122	143	83
normalized size	1	1.	0.64	0.68	1.17	1.04	1.28	1.51	0.87
time (sec)	N/A	0.104	0.081	0.008	1.494	0.215	13.241	0.213	11.017

Problem 1882	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	82	82	56	56	99	92	110	122	71
normalized size	1	1.	0.68	0.68	1.21	1.12	1.34	1.49	0.87
time (sec)	N/A	0.099	0.079	0.01	1.496	0.211	9.759	0.214	10.078

Problem 1883	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	69	69	51	47	86	85	99	100	60
normalized size	1	1.	0.74	0.68	1.25	1.23	1.43	1.45	0.87
time (sec)	N/A	0.073	0.051	0.008	1.486	0.214	6.739	0.212	7.903

Problem 1884	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	56	56	46	38	74	80	155	78	48
normalized size	1	1.	0.82	0.68	1.32	1.43	2.77	1.39	0.86
time (sec)	N/A	0.049	0.046	0.008	1.487	0.213	3.017	0.21	5.792

Problem 1885	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	72	72	66	47	111	138	139	119	61
normalized size	1	1.	0.92	0.65	1.54	1.92	1.93	1.65	0.85
time (sec)	N/A	0.122	0.065	0.013	1.492	0.236	6.72	0.212	13.694

Problem 1886	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	77	77	75	54	120	161	226	128	65
normalized size	1	1.	0.97	0.7	1.56	2.09	2.94	1.66	0.84
time (sec)	N/A	0.125	0.136	0.016	1.49	0.236	56.716	0.212	14.776

Problem 1887	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	93	93	78	66	149	158	372	144	82
normalized size	1	1.	0.84	0.71	1.6	1.7	4.	1.55	0.88
time (sec)	N/A	0.184	0.155	0.017	1.508	0.235	142.934	0.214	21.485

Problem 1888	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	113	113	83	75	173	185	0	166	100
normalized size	1	1.	0.73	0.66	1.53	1.64	0.	1.47	0.88
time (sec)	N/A	0.244	0.182	0.017	1.505	0.235	0.	0.215	28.195

Problem 1889	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	133	133	88	84	197	212	0	188	119
normalized size	1	1.	0.66	0.63	1.48	1.59	0.	1.41	0.89
time (sec)	N/A	0.303	0.166	0.019	1.521	0.234	0.	0.217	34.798

Problem 1890	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	153	153	93	93	221	239	0	209	138
normalized size	1	1.	0.61	0.61	1.44	1.56	0.	1.37	0.9
time (sec)	N/A	0.369	0.174	0.019	1.517	0.219	0.	0.218	42.478

Problem 1891	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	148	148	78	90	144	130	0	186	128
normalized size	1	1.	0.53	0.61	0.97	0.88	0.	1.26	0.86
time (sec)	N/A	0.263	0.138	0.017	1.542	0.212	0.	0.217	35.569

Problem 1892	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	128	128	78	81	132	123	0	165	109
normalized size	1	1.	0.61	0.63	1.03	0.96	0.	1.29	0.85
time (sec)	N/A	0.206	0.128	0.016	1.496	0.214	0.	0.217	27.959

Problem 1893	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	108	108	68	72	120	116	0	143	90
normalized size	1	1.	0.63	0.67	1.11	1.07	0.	1.32	0.83
time (sec)	N/A	0.158	0.106	0.016	1.533	0.214	0.	0.216	21.075

Problem 1894	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	89	89	63	63	108	109	199	122	73
normalized size	1	1.	0.71	0.71	1.21	1.22	2.24	1.37	0.82
time (sec)	N/A	0.108	0.104	0.016	1.505	0.213	158.772	0.212	11.02

Problem 1895	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	76	76	58	54	96	103	187	100	61
normalized size	1	1.	0.76	0.71	1.26	1.36	2.46	1.32	0.8
time (sec)	N/A	0.077	0.091	0.014	1.484	0.23	104.48	0.211	8.409

Problem 1896	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	63	63	53	45	84	96	240	88	49
normalized size	1	1.	0.84	0.71	1.33	1.52	3.81	1.4	0.78
time (sec)	N/A	0.051	0.073	0.013	1.494	0.225	3.494	0.212	6.347

Problem 1897	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	77	77	76	54	120	161	226	128	65
normalized size	1	1.	0.99	0.7	1.56	2.09	2.94	1.66	0.84
time (sec)	N/A	0.127	0.185	0.016	1.583	0.234	57.949	0.213	15.301

Problem 1898	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	102	102	85	70	149	188	321	157	87
normalized size	1	1.	0.83	0.69	1.46	1.84	3.15	1.54	0.85
time (sec)	N/A	0.193	0.158	0.02	1.508	0.235	119.229	0.214	22.072

Problem 1899	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	127	127	90	82	173	196	0	166	109
normalized size	1	1.	0.71	0.65	1.36	1.54	0.	1.31	0.86
time (sec)	N/A	0.264	0.166	0.02	1.502	0.22	0.	0.215	28.342

Problem 1900	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	154	154	95	91	197	215	0	188	133
normalized size	1	1.	0.62	0.59	1.28	1.4	0.	1.22	0.86
time (sec)	N/A	0.331	0.157	0.02	1.507	0.219	0.	0.214	35.243

Problem 1901	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	181	181	100	100	221	242	0	209	153
normalized size	1	1.	0.55	0.55	1.22	1.34	0.	1.15	0.85
time (sec)	N/A	0.375	0.176	0.021	1.512	0.222	0.	0.216	42.462

Problem 1902	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	140	140	73	84	149	127	0	159	116
normalized size	1	1.	0.52	0.6	1.06	0.91	0.	1.14	0.83
time (sec)	N/A	0.258	0.133	0.018	1.505	0.216	0.	0.217	27.637

Problem 1903	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	120	120	68	75	136	120	0	138	97
normalized size	1	1.	0.57	0.62	1.13	1.	0.	1.15	0.81
time (sec)	N/A	0.2	0.142	0.016	1.502	0.212	0.	0.214	20.546

Problem 1904	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	94	94	63	66	124	113	0	116	80
normalized size	1	1.	0.67	0.7	1.32	1.2	0.	1.23	0.85
time (sec)	N/A	0.111	0.127	0.017	1.506	0.214	0.	0.214	11.426

Problem 1905	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	81	81	58	57	112	107	0	104	68
normalized size	1	1.	0.72	0.7	1.38	1.32	0.	1.28	0.84
time (sec)	N/A	0.076	0.097	0.015	1.499	0.215	0.	0.212	9.018

Problem 1906	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	68	68	53	48	100	100	236	92	56
normalized size	1	1.	0.78	0.71	1.47	1.47	3.47	1.35	0.82
time (sec)	N/A	0.053	0.076	0.012	1.506	0.216	4.262	0.211	7.228

Problem 1907	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	93	93	78	66	149	159	372	144	82
normalized size	1	1.	0.84	0.71	1.6	1.71	4.	1.55	0.88
time (sec)	N/A	0.184	0.156	0.018	1.524	0.225	146.733	0.218	21.627

Problem 1908	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	118	118	88	82	171	186	0	166	105
normalized size	1	1.	0.75	0.69	1.45	1.58	0.	1.41	0.89
time (sec)	N/A	0.257	0.187	0.02	1.503	0.223	0.	0.216	28.754

Problem 1909	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	147	147	97	94	197	240	0	200	133
normalized size	1	1.	0.66	0.64	1.34	1.63	0.	1.36	0.9
time (sec)	N/A	0.321	0.15	0.02	1.506	0.226	0.	0.239	34.517

Problem 1910	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	178	178	104	103	221	267	0	204	162
normalized size	1	1.	0.58	0.58	1.24	1.5	0.	1.15	0.91
time (sec)	N/A	0.389	0.185	0.02	1.504	0.24	0.	0.237	41.245

Problem 1911	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	105	105	48	45	99	80	94	1	94
normalized size	1	1.	0.46	0.43	0.94	0.76	0.9	0.01	0.9
time (sec)	N/A	0.074	0.04	0.006	1.346	0.224	6.728	0.216	10.85

Problem 1912	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	92	92	43	40	86	73	82	1	82
normalized size	1	1.	0.47	0.43	0.93	0.79	0.89	0.01	0.89
time (sec)	N/A	0.068	0.052	0.007	1.337	0.225	5.814	0.214	9.816

Problem 1913	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	79	79	38	35	74	66	70	131	70
normalized size	1	1.	0.48	0.44	0.94	0.84	0.89	1.66	0.89
time (sec)	N/A	0.064	0.032	0.004	1.344	0.211	5.05	0.213	9.015

Problem 1914	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	66	66	33	30	62	59	58	109	58
normalized size	1	1.	0.5	0.45	0.94	0.89	0.88	1.65	0.88
time (sec)	N/A	0.058	0.045	0.005	1.348	0.205	4.442	0.21	8.011

Problem 1915	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	53	53	28	25	50	53	100	88	46
normalized size	1	1.	0.53	0.47	0.94	1.	1.89	1.66	0.87
time (sec)	N/A	0.051	0.043	0.006	1.396	0.224	2.907	0.211	7.02

Problem 1916	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	40	40	23	20	38	46	85	66	34
normalized size	1	1.	0.57	0.5	0.95	1.15	2.12	1.65	0.85
time (sec)	N/A	0.038	0.015	0.005	1.469	0.203	2.255	0.21	5.852

Problem 1917	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	27	27	18	15	26	39	70	45	22
normalized size	1	1.	0.67	0.56	0.96	1.44	2.59	1.67	0.81
time (sec)	N/A	0.021	0.012	0.003	1.35	0.207	1.623	0.208	3.911

Problem 1918	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	82	82	56	56	99	92	112	122	71
normalized size	1	1.	0.68	0.68	1.21	1.12	1.37	1.49	0.87
time (sec)	N/A	0.095	0.069	0.008	1.501	0.218	10.082	0.211	9.165

Problem 1919	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	89	89	63	63	108	108	199	122	73
normalized size	1	1.	0.71	0.71	1.21	1.21	2.24	1.37	0.82
time (sec)	N/A	0.099	0.089	0.016	1.502	0.218	153.727	0.219	9.622

Problem 1920	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	96	96	63	66	124	122	0	116	80
normalized size	1	1.	0.66	0.69	1.29	1.27	0.	1.21	0.83
time (sec)	N/A	0.105	0.105	0.016	1.502	0.213	0.	0.212	10.432

Problem 1921	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	101	101	63	66	136	127	0	126	87
normalized size	1	1.	0.62	0.65	1.35	1.26	0.	1.25	0.86
time (sec)	N/A	0.103	0.11	0.017	1.512	0.213	0.	0.214	10.847

Problem 1922	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	108	108	63	66	149	140	0	135	94
normalized size	1	1.	0.58	0.61	1.38	1.3	0.	1.25	0.87
time (sec)	N/A	0.11	0.113	0.017	1.566	0.215	0.	0.214	11.477

Problem 1923	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	128	128	68	75	173	161	0	157	112
normalized size	1	1.	0.53	0.59	1.35	1.26	0.	1.23	0.88
time (sec)	N/A	0.134	0.118	0.017	1.53	0.215	0.	0.214	13.436

Problem 1924	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	148	148	73	84	197	181	0	178	131
normalized size	1	1.	0.49	0.57	1.33	1.22	0.	1.2	0.89
time (sec)	N/A	0.159	0.122	0.016	1.495	0.237	0.	0.24	15.917

Problem 1925	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	92	92	43	40	86	73	82	1	82
normalized size	1	1.	0.47	0.43	0.93	0.79	0.89	0.01	0.89
time (sec)	N/A	0.072	0.063	0.006	1.35	0.232	5.736	0.238	10.224

Problem 1926	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	79	79	38	35	74	66	70	131	70
normalized size	1	1.	0.48	0.44	0.94	0.84	0.89	1.66	0.89
time (sec)	N/A	0.068	0.055	0.007	1.35	0.232	4.956	0.219	9.504

Problem 1927	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	66	66	33	30	62	59	58	109	58
normalized size	1	1.	0.5	0.45	0.94	0.89	0.88	1.65	0.88
time (sec)	N/A	0.065	0.053	0.005	1.33	0.236	4.387	0.213	8.47

Problem 1928	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	53	53	28	25	50	53	100	88	46
normalized size	1	1.	0.53	0.47	0.94	1.	1.89	1.66	0.87
time (sec)	N/A	0.05	0.042	0.004	1.34	0.212	2.9	0.233	6.967

Problem 1929	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	40	40	23	20	38	46	85	66	34
normalized size	1	1.	0.57	0.5	0.95	1.15	2.12	1.65	0.85
time (sec)	N/A	0.031	0.034	0.006	1.352	0.204	2.279	0.21	5.056

Problem 1930	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	95	95	61	65	111	99	122	143	83
normalized size	1	1.	0.64	0.68	1.17	1.04	1.28	1.51	0.87
time (sec)	N/A	0.123	0.085	0.01	1.507	0.225	13.721	0.213	11.586

Problem 1931	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	102	102	70	72	120	115	0	143	85
normalized size	1	1.	0.69	0.71	1.18	1.13	0.	1.4	0.83
time (sec)	N/A	0.13	0.113	0.016	1.583	0.221	0.	0.212	12.382

Problem 1932	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	109	109	68	75	136	128	0	138	92
normalized size	1	1.	0.62	0.69	1.25	1.17	0.	1.27	0.84
time (sec)	N/A	0.138	0.116	0.016	1.493	0.222	0.	0.214	12.737

Problem 1933	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	114	114	68	75	149	134	0	138	99
normalized size	1	1.	0.6	0.66	1.31	1.18	0.	1.21	0.87
time (sec)	N/A	0.137	0.125	0.016	1.515	0.212	0.	0.214	13.311

Problem 1934	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	121	121	68	75	161	147	0	147	105
normalized size	1	1.	0.56	0.62	1.33	1.21	0.	1.21	0.87
time (sec)	N/A	0.144	0.132	0.019	1.506	0.215	0.	0.215	13.867

Problem 1935	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	128	128	68	75	173	161	0	157	112
normalized size	1	1.	0.53	0.59	1.35	1.26	0.	1.23	0.88
time (sec)	N/A	0.151	0.123	0.017	1.488	0.213	0.	0.214	15.702

Problem 1936	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	148	148	73	84	197	181	0	178	131
normalized size	1	1.	0.49	0.57	1.33	1.22	0.	1.2	0.89
time (sec)	N/A	0.175	0.134	0.019	1.529	0.216	0.	0.217	17.562

Problem 1937	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	168	168	78	93	221	201	0	200	150
normalized size	1	1.	0.46	0.55	1.32	1.2	0.	1.19	0.89
time (sec)	N/A	0.209	0.138	0.02	1.506	0.222	0.	0.23	19.595

Problem 1938	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	105	105	48	45	99	80	94	1	94
normalized size	1	1.	0.46	0.43	0.94	0.76	0.9	0.01	0.9
time (sec)	N/A	0.082	0.064	0.007	1.344	0.26	6.628	0.216	11.316

Problem 1939	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	92	92	43	40	86	73	82	1	82
normalized size	1	1.	0.47	0.43	0.93	0.79	0.89	0.01	0.89
time (sec)	N/A	0.069	0.059	0.006	1.486	0.217	5.765	0.216	10.305

Problem 1940	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	79	79	38	35	74	66	70	131	70
normalized size	1	1.	0.48	0.44	0.94	0.84	0.89	1.66	0.89
time (sec)	N/A	0.07	0.056	0.006	1.356	0.206	4.982	0.218	9.482

Problem 1941	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	66	66	33	30	62	59	58	109	58
normalized size	1	1.	0.5	0.45	0.94	0.89	0.88	1.65	0.88
time (sec)	N/A	0.056	0.044	0.006	1.344	0.205	4.496	0.214	7.966

Problem 1942	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	53	53	28	25	50	53	100	88	46
normalized size	1	1.	0.53	0.47	0.94	1.	1.89	1.66	0.87
time (sec)	N/A	0.032	0.037	0.004	1.339	0.222	2.912	0.212	6.012

Problem 1943	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	108	108	66	74	123	105	134	165	95
normalized size	1	1.	0.61	0.69	1.14	0.97	1.24	1.53	0.88
time (sec)	N/A	0.13	0.101	0.01	1.505	0.216	18.149	0.213	12.779

Problem 1944	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	121	121	73	81	132	122	0	165	104
normalized size	1	1.	0.6	0.67	1.09	1.01	0.	1.36	0.86
time (sec)	N/A	0.199	0.113	0.017	1.487	0.214	0.	0.215	20.051

Problem 1945	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	135	135	75	84	149	135	0	159	110
normalized size	1	1.	0.56	0.62	1.1	1.	0.	1.18	0.81
time (sec)	N/A	0.231	0.128	0.016	1.503	0.214	0.	0.216	20.462

Problem 1946	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	147	147	73	84	161	140	0	159	117
normalized size	1	1.	0.5	0.57	1.1	0.95	0.	1.08	0.8
time (sec)	N/A	0.288	0.137	0.019	1.5	0.212	0.	0.221	21.082

Problem 1947	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	154	154	73	84	173	154	0	159	121
normalized size	1	1.	0.47	0.55	1.12	1.	0.	1.03	0.79
time (sec)	N/A	0.297	0.139	0.017	1.498	0.211	0.	0.235	20.606

Problem 1948	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	161	161	73	84	185	167	0	169	124
normalized size	1	1.	0.45	0.52	1.15	1.04	0.	1.05	0.77
time (sec)	N/A	0.306	0.137	0.02	1.504	0.212	0.	0.249	21.145

Problem 1949	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	162	162	73	84	197	181	0	178	131
normalized size	1	1.	0.45	0.52	1.22	1.12	0.	1.1	0.81
time (sec)	N/A	0.259	0.147	0.02	1.522	0.214	0.	0.235	22.395

Problem 1950	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	181	181	78	93	221	201	0	200	150
normalized size	1	1.	0.43	0.51	1.22	1.11	0.	1.1	0.83
time (sec)	N/A	0.332	0.158	0.02	1.508	0.212	0.	0.221	24.732

Problem 1951	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	121	121	71	83	135	112	146	186	107
normalized size	1	1.	0.59	0.69	1.12	0.93	1.21	1.54	0.88
time (sec)	N/A	0.137	0.129	0.01	1.49	0.214	23.491	0.216	13.445

Problem 1952	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	108	108	66	74	123	105	134	165	95
normalized size	1	1.	0.61	0.69	1.14	0.97	1.24	1.53	0.88
time (sec)	N/A	0.134	0.094	0.008	1.512	0.212	18.03	0.213	12.5

Problem 1953	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	95	95	61	65	111	99	121	143	82
normalized size	1	1.	0.64	0.68	1.17	1.04	1.27	1.51	0.86
time (sec)	N/A	0.13	0.083	0.01	1.504	0.218	13.607	0.214	11.561

Problem 1954	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	82	82	56	56	99	92	110	122	71
normalized size	1	1.	0.68	0.68	1.21	1.12	1.34	1.49	0.87
time (sec)	N/A	0.098	0.061	0.009	1.5	0.21	9.955	0.21	9.395

Problem 1955	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	69	69	51	47	86	86	204	100	60
normalized size	1	1.	0.74	0.68	1.25	1.25	2.96	1.45	0.87
time (sec)	N/A	0.071	0.056	0.007	1.49	0.21	4.688	0.211	7.068

Problem 1956	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	85	85	71	56	123	144	151	131	73
normalized size	1	1.	0.84	0.66	1.45	1.69	1.78	1.54	0.86
time (sec)	N/A	0.188	0.114	0.014	1.479	0.217	10.077	0.215	20.724

Problem 1957	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	92	92	78	63	132	166	240	140	76
normalized size	1	1.	0.85	0.68	1.43	1.8	2.61	1.52	0.83
time (sec)	N/A	0.19	0.16	0.017	1.502	0.22	99.067	0.217	21.601

Problem 1958	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	95	95	80	66	149	188	0	144	83
normalized size	1	1.	0.84	0.69	1.57	1.98	0.	1.52	0.87
time (sec)	N/A	0.189	0.149	0.018	1.481	0.219	0.	0.217	20.925

Problem 1959	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	113	113	83	75	173	185	0	166	100
normalized size	1	1.	0.73	0.66	1.53	1.64	0.	1.47	0.88
time (sec)	N/A	0.252	0.168	0.017	1.503	0.219	0.	0.216	27.699

Problem 1960	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	133	133	88	84	197	212	0	188	119
normalized size	1	1.	0.66	0.63	1.48	1.59	0.	1.41	0.89
time (sec)	N/A	0.314	0.172	0.019	1.508	0.218	0.	0.216	34.622

Problem 1961	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	153	153	93	93	221	239	0	209	138
normalized size	1	1.	0.61	0.61	1.44	1.56	0.	1.37	0.9
time (sec)	N/A	0.378	0.192	0.017	1.476	0.227	0.	0.218	41.428

Problem 1962	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	173	173	98	102	246	266	0	231	156
normalized size	1	1.	0.57	0.59	1.42	1.54	0.	1.34	0.9
time (sec)	N/A	0.45	0.21	0.019	1.511	0.224	0.	0.22	49.099

Problem 1963	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	141	141	78	90	144	128	0	186	121
normalized size	1	1.	0.55	0.64	1.02	0.91	0.	1.32	0.86
time (sec)	N/A	0.251	0.143	0.017	1.512	0.215	0.	0.216	28.906

Problem 1964	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	121	121	73	81	132	122	0	165	102
normalized size	1	1.	0.6	0.67	1.09	1.01	0.	1.36	0.84
time (sec)	N/A	0.192	0.121	0.016	1.531	0.212	0.	0.218	21.935

Problem 1965	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	102	102	68	72	120	115	0	143	85
normalized size	1	1.	0.67	0.71	1.18	1.13	0.	1.4	0.83
time (sec)	N/A	0.132	0.106	0.015	1.489	0.215	0.	0.212	12.244

Problem 1966	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	89	89	63	63	108	108	199	122	73
normalized size	1	1.	0.71	0.71	1.21	1.21	2.24	1.37	0.82
time (sec)	N/A	0.098	0.107	0.014	1.509	0.212	153.886	0.212	9.742

Problem 1967	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	76	76	58	54	96	101	197	100	61
normalized size	1	1.	0.76	0.71	1.26	1.33	2.59	1.32	0.8
time (sec)	N/A	0.068	0.078	0.013	1.521	0.213	4.836	0.212	7.367

Problem 1968	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	92	92	83	63	132	166	240	140	76
normalized size	1	1.	0.9	0.68	1.43	1.8	2.61	1.52	0.83
time (sec)	N/A	0.191	0.221	0.018	1.505	0.223	99.675	0.216	21.491

Problem 1969	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	106	106	90	70	149	188	0	157	87
normalized size	1	1.	0.85	0.66	1.41	1.77	0.	1.48	0.82
time (sec)	N/A	0.194	0.195	0.02	1.524	0.22	0.	0.214	20.869

Problem 1970	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	131	131	94	82	173	215	0	166	110
normalized size	1	1.	0.72	0.63	1.32	1.64	0.	1.27	0.84
time (sec)	N/A	0.251	0.192	0.019	1.524	0.226	0.	0.217	27.212

Problem 1971	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	154	154	95	91	197	215	0	188	133
normalized size	1	1.	0.62	0.59	1.28	1.4	0.	1.22	0.86
time (sec)	N/A	0.319	0.229	0.021	1.491	0.22	0.	0.218	34.283

Problem 1972	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	181	181	100	100	221	242	0	209	156
normalized size	1	1.	0.55	0.55	1.22	1.34	0.	1.15	0.86
time (sec)	N/A	0.383	0.186	0.021	1.563	0.22	0.	0.22	41.822

Problem 1973	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	208	208	105	109	246	269	0	231	180
normalized size	1	1.	0.5	0.52	1.18	1.29	0.	1.11	0.87
time (sec)	N/A	0.461	0.207	0.022	1.515	0.221	0.	0.221	49.082

Problem 1974	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	155	155	78	93	161	142	0	181	128
normalized size	1	1.	0.5	0.6	1.04	0.92	0.	1.17	0.83
time (sec)	N/A	0.286	0.149	0.017	1.55	0.215	0.	0.217	29.139

Problem 1975	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	135	135	73	84	149	135	0	159	109
normalized size	1	1.	0.54	0.62	1.1	1.	0.	1.18	0.81
time (sec)	N/A	0.232	0.131	0.017	1.53	0.228	0.	0.217	21.533

Problem 1976	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	109	109	68	75	136	128	0	138	92
normalized size	1	1.	0.62	0.69	1.25	1.17	0.	1.27	0.84
time (sec)	N/A	0.142	0.119	0.017	1.499	0.222	0.	0.214	12.563

Problem 1977	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	96	96	63	66	124	122	0	116	80
normalized size	1	1.	0.66	0.69	1.29	1.27	0.	1.21	0.83
time (sec)	N/A	0.099	0.112	0.016	1.499	0.216	0.	0.213	9.847

Problem 1978	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	83	83	58	57	112	115	299	104	66
normalized size	1	1.	0.7	0.69	1.35	1.39	3.6	1.25	0.8
time (sec)	N/A	0.074	0.086	0.015	1.483	0.214	5.673	0.212	8.196

Problem 1979	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	97	97	81	66	149	188	0	144	83
normalized size	1	1.	0.84	0.68	1.54	1.94	0.	1.48	0.86
time (sec)	N/A	0.192	0.216	0.017	1.496	0.242	0.	0.216	20.729

Problem 1980	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	124	124	93	82	173	213	0	166	107
normalized size	1	1.	0.75	0.66	1.4	1.72	0.	1.34	0.86
time (sec)	N/A	0.257	0.219	0.019	1.601	0.243	0.	0.216	27.164

Problem 1981	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	145	145	95	94	197	221	0	200	131
normalized size	1	1.	0.66	0.65	1.36	1.52	0.	1.38	0.9
time (sec)	N/A	0.319	0.159	0.021	1.496	0.232	0.	0.214	34.5

Problem 1982	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	172	172	98	103	220	239	0	204	156
normalized size	1	1.	0.57	0.6	1.28	1.39	0.	1.19	0.91
time (sec)	N/A	0.388	0.176	0.021	1.509	0.248	0.	0.217	41.045

Problem 1983	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	201	201	105	112	246	266	0	225	182
normalized size	1	1.	0.52	0.56	1.22	1.32	0.	1.12	0.91
time (sec)	N/A	0.46	0.216	0.023	1.523	0.244	0.	0.22	48.542

Problem 1984	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	92	92	43	40	86	53	82	134	82
normalized size	1	1.	0.47	0.43	0.93	0.58	0.89	1.46	0.89
time (sec)	N/A	0.068	0.04	0.008	1.347	0.208	18.82	0.209	9.621

Problem 1985	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	79	79	38	35	74	46	70	112	70
normalized size	1	1.	0.48	0.44	0.94	0.58	0.89	1.42	0.89
time (sec)	N/A	0.062	0.024	0.005	1.35	0.205	13.9	0.209	8.727

Problem 1986	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	66	66	33	30	62	39	58	90	58
normalized size	1	1.	0.5	0.45	0.94	0.59	0.88	1.36	0.88
time (sec)	N/A	0.055	0.033	0.005	1.349	0.209	9.91	0.208	7.856

Problem 1987	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	53	53	28	25	50	32	46	69	46
normalized size	1	1.	0.53	0.47	0.94	0.6	0.87	1.3	0.87
time (sec)	N/A	0.052	0.03	0.004	1.355	0.226	6.634	0.207	6.905

Problem 1988	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	40	40	23	20	38	26	34	47	34
normalized size	1	1.	0.57	0.5	0.95	0.65	0.85	1.18	0.85
time (sec)	N/A	0.038	0.009	0.003	1.346	0.21	4.172	0.207	5.627

Problem 1989	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	27	27	18	15	26	19	88	26	22
normalized size	1	1.	0.67	0.56	0.96	0.7	3.26	0.96	0.81
time (sec)	N/A	0.022	0.006	0.004	1.346	0.206	1.549	0.207	3.753

Problem 1990	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	41	41	41	29	62	65	80	66	36
normalized size	1	1.	1.	0.71	1.51	1.59	1.95	1.61	0.88
time (sec)	N/A	0.05	0.045	0.008	1.496	0.229	3.564	0.231	4.897

Problem 1991	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	48	48	45	36	72	80	0	76	37
normalized size	1	1.	0.94	0.75	1.5	1.67	0.	1.58	0.77
time (sec)	N/A	0.054	0.071	0.013	1.502	0.232	0.	0.236	5.277

Problem 1992	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	68	68	53	48	100	100	0	92	56
normalized size	1	1.	0.78	0.71	1.47	1.47	0.	1.35	0.82
time (sec)	N/A	0.069	0.095	0.015	1.507	0.232	0.	0.22	6.898

Problem 1993	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	88	88	58	57	124	120	0	113	75
normalized size	1	1.	0.66	0.65	1.41	1.36	0.	1.28	0.85
time (sec)	N/A	0.09	0.098	0.014	1.495	0.23	0.	0.211	8.729

Problem 1994	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	108	108	63	66	149	140	0	135	94
normalized size	1	1.	0.58	0.61	1.38	1.3	0.	1.25	0.87
time (sec)	N/A	0.111	0.114	0.014	1.508	0.239	0.	0.213	10.514

Problem 1995	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	105	105	48	45	99	59	94	155	94
normalized size	1	1.	0.46	0.43	0.94	0.56	0.9	1.48	0.9
time (sec)	N/A	0.08	0.057	0.007	1.344	0.214	24.576	0.211	11.25

Problem 1996	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	92	92	43	40	86	53	82	134	82
normalized size	1	1.	0.47	0.43	0.93	0.58	0.89	1.46	0.89
time (sec)	N/A	0.077	0.053	0.007	1.359	0.215	18.746	0.21	10.218

Problem 1997	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	79	79	38	35	74	46	70	112	70
normalized size	1	1.	0.48	0.44	0.94	0.58	0.89	1.42	0.89
time (sec)	N/A	0.07	0.049	0.005	1.363	0.206	13.9	0.213	9.482

Problem 1998	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	66	66	33	30	62	39	58	90	58
normalized size	1	1.	0.5	0.45	0.94	0.59	0.88	1.36	0.88
time (sec)	N/A	0.064	0.046	0.006	1.343	0.201	9.888	0.211	8.39

Problem 1999	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	53	53	28	25	50	32	46	69	46
normalized size	1	1.	0.53	0.47	0.94	0.6	0.87	1.3	0.87
time (sec)	N/A	0.05	0.03	0.006	1.347	0.223	6.615	0.211	7.008

Problem 2000	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	40	40	23	20	38	26	134	47	34
normalized size	1	1.	0.57	0.5	0.95	0.65	3.35	1.18	0.85
time (sec)	N/A	0.029	0.021	0.004	1.348	0.213	2.171	0.21	5.159

Problem 2001	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	54	54	46	38	74	72	90	78	48
normalized size	1	1.	0.85	0.7	1.37	1.33	1.67	1.44	0.89
time (sec)	N/A	0.07	0.068	0.009	1.5	0.221	4.19	0.226	7.201

Problem 2002	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	61	61	51	45	84	86	0	88	49
normalized size	1	1.	0.84	0.74	1.38	1.41	0.	1.44	0.8
time (sec)	N/A	0.085	0.096	0.014	1.494	0.213	0.	0.228	7.736

Problem 2003	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	68	68	53	48	100	100	0	92	56
normalized size	1	1.	0.78	0.71	1.47	1.47	0.	1.35	0.82
time (sec)	N/A	0.089	0.097	0.016	1.499	0.211	0.	0.218	8.409

Problem 2004	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	88	88	58	57	124	120	0	113	75
normalized size	1	1.	0.66	0.65	1.41	1.36	0.	1.28	0.85
time (sec)	N/A	0.109	0.103	0.018	1.514	0.21	0.	0.227	10.146

Problem 2005	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	108	108	63	66	149	140	0	135	94
normalized size	1	1.	0.58	0.61	1.38	1.3	0.	1.25	0.87
time (sec)	N/A	0.132	0.127	0.017	1.507	0.233	0.	0.23	11.749

Problem 2006	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	130	130	68	75	173	170	0	157	112
normalized size	1	1.	0.52	0.58	1.33	1.31	0.	1.21	0.86
time (sec)	N/A	0.154	0.128	0.017	1.563	0.235	0.	0.226	13.671

Problem 2007	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	105	105	48	45	99	59	94	155	94
normalized size	1	1.	0.46	0.43	0.94	0.56	0.9	1.48	0.9
time (sec)	N/A	0.079	0.056	0.007	1.368	0.239	24.589	0.231	11.314

Problem 2008	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	92	92	43	40	86	53	82	134	82
normalized size	1	1.	0.47	0.43	0.93	0.58	0.89	1.46	0.89
time (sec)	N/A	0.075	0.052	0.006	1.371	0.258	18.767	0.234	10.548

Problem 2009	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	79	79	38	35	74	46	70	112	70
normalized size	1	1.	0.48	0.44	0.94	0.58	0.89	1.42	0.89
time (sec)	N/A	0.071	0.048	0.007	1.333	0.235	13.759	0.229	9.555

Problem 2010	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	66	66	33	30	62	39	58	90	58
normalized size	1	1.	0.5	0.45	0.94	0.59	0.88	1.36	0.88
time (sec)	N/A	0.057	0.033	0.004	1.371	0.233	9.888	0.242	8.383

Problem 2011	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	53	53	28	25	50	32	190	69	46
normalized size	1	1.	0.53	0.47	0.94	0.6	3.58	1.3	0.87
time (sec)	N/A	0.035	0.024	0.004	1.356	0.238	3.131	0.237	6.053

Problem 2012	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	67	67	51	47	86	78	102	100	60
normalized size	1	1.	0.76	0.7	1.28	1.16	1.52	1.49	0.9
time (sec)	N/A	0.085	0.09	0.009	1.527	0.244	5.058	0.222	8.718

Problem 2013	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	73	73	58	54	96	93	0	100	60
normalized size	1	1.	0.79	0.74	1.32	1.27	0.	1.37	0.82
time (sec)	N/A	0.107	0.095	0.015	1.508	0.24	0.	0.218	11.755

Problem 2014	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	80	80	58	57	112	107	0	104	66
normalized size	1	1.	0.72	0.71	1.4	1.34	0.	1.3	0.82
time (sec)	N/A	0.111	0.115	0.016	1.526	0.239	0.	0.211	12.151

Problem 2015	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	80	80	58	57	124	120	0	113	70
normalized size	1	1.	0.72	0.71	1.55	1.5	0.	1.41	0.88
time (sec)	N/A	0.113	0.105	0.017	1.499	0.24	0.	0.214	11.895

Problem 2016	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	100	100	63	66	149	140	0	135	85
normalized size	1	1.	0.63	0.66	1.49	1.4	0.	1.35	0.85
time (sec)	N/A	0.131	0.113	0.017	1.531	0.245	0.	0.214	13.531

Problem 2017	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	120	120	68	75	173	161	0	157	104
normalized size	1	1.	0.57	0.62	1.44	1.34	0.	1.31	0.87
time (sec)	N/A	0.152	0.137	0.017	1.516	0.251	0.	0.219	15.706

Problem 2018	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	132	132	122	387	0	1	0	277	116
normalized size	1	1.	0.92	2.93	0.	0.01	0.	2.1	0.88
time (sec)	N/A	0.434	0.386	0.026	0.	0.237	0.	0.216	47.728

Problem 2019	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	93	93	61	65	111	92	126	143	83
normalized size	1	1.	0.66	0.7	1.19	0.99	1.35	1.54	0.89
time (sec)	N/A	0.097	0.115	0.01	1.547	0.226	7.398	0.215	9.935

Problem 2020	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	80	80	56	56	99	85	114	122	71
normalized size	1	1.	0.7	0.7	1.24	1.06	1.42	1.52	0.89
time (sec)	N/A	0.094	0.088	0.01	1.555	0.255	6.198	0.237	9.009

Problem 2021	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	67	67	51	47	86	78	102	100	60
normalized size	1	1.	0.76	0.7	1.28	1.16	1.52	1.49	0.9
time (sec)	N/A	0.081	0.072	0.009	1.531	0.271	5.043	0.223	7.982

Problem 2022	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	54	54	46	38	74	72	90	78	48
normalized size	1	1.	0.85	0.7	1.37	1.33	1.67	1.44	0.89
time (sec)	N/A	0.08	0.054	0.008	1.542	0.248	4.213	0.211	7.211

Problem 2023	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	41	41	41	29	62	65	78	66	37
normalized size	1	1.	1.	0.71	1.51	1.59	1.9	1.61	0.9
time (sec)	N/A	0.052	0.035	0.007	1.494	0.245	3.58	0.215	4.97

Problem 2024	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	25	25	25	19	49	45	63	54	26
normalized size	1	1.	1.	0.76	1.96	1.8	2.52	2.16	1.04
time (sec)	N/A	0.027	0.011	0.005	1.479	0.227	1.749	0.224	3.068

Problem 2025	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	55	55	55	38	99	115	131	107	49
normalized size	1	1.	1.	0.69	1.8	2.09	2.38	1.95	0.89
time (sec)	N/A	0.08	0.045	0.013	1.505	0.225	8.306	0.217	6.358

Problem 2026	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	77	77	77	54	120	161	0	128	65
normalized size	1	1.	1.	0.7	1.56	2.09	0.	1.66	0.84
time (sec)	N/A	0.143	0.138	0.016	1.515	0.222	0.	0.216	14.252

Problem 2027	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	97	97	82	66	149	188	0	144	83
normalized size	1	1.	0.85	0.68	1.54	1.94	0.	1.48	0.86
time (sec)	N/A	0.201	0.154	0.016	1.481	0.222	0.	0.217	20.852

Problem 2028	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	117	117	87	75	173	215	0	166	100
normalized size	1	1.	0.74	0.64	1.48	1.84	0.	1.42	0.85
time (sec)	N/A	0.261	0.178	0.017	1.496	0.231	0.	0.265	27.766

Problem 2029	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	137	137	92	84	197	242	0	188	121
normalized size	1	1.	0.67	0.61	1.44	1.77	0.	1.37	0.88
time (sec)	N/A	0.329	0.167	0.019	1.502	0.224	0.	0.238	34.629

Problem 2030	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	133	133	73	81	132	113	0	165	117
normalized size	1	1.	0.55	0.61	0.99	0.85	0.	1.24	0.88
time (sec)	N/A	0.282	0.131	0.016	1.494	0.218	0.	0.222	33.008

Problem 2031	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	113	113	68	72	120	107	0	143	99
normalized size	1	1.	0.6	0.64	1.06	0.95	0.	1.27	0.88
time (sec)	N/A	0.224	0.112	0.018	1.514	0.241	0.	0.213	25.549

Problem 2032	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	93	93	63	63	108	100	0	122	80
normalized size	1	1.	0.68	0.68	1.16	1.08	0.	1.31	0.86
time (sec)	N/A	0.161	0.113	0.016	1.499	0.251	0.	0.214	18.984

Problem 2033	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	73	73	58	54	96	93	0	100	61
normalized size	1	1.	0.79	0.74	1.32	1.27	0.	1.37	0.84
time (sec)	N/A	0.107	0.102	0.016	1.489	0.251	0.	0.213	11.814

Problem 2034	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	61	61	53	45	84	86	0	88	51
normalized size	1	1.	0.87	0.74	1.38	1.41	0.	1.44	0.84
time (sec)	N/A	0.08	0.094	0.016	1.499	0.239	0.	0.215	7.732

Problem 2035	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	48	48	48	36	72	81	0	76	39
normalized size	1	1.	1.	0.75	1.5	1.69	0.	1.58	0.81
time (sec)	N/A	0.052	0.072	0.015	1.495	0.228	0.	0.219	5.36

Problem 2036	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	48	48	46	36	72	80	173	76	39
normalized size	1	1.	0.96	0.75	1.5	1.67	3.6	1.58	0.81
time (sec)	N/A	0.042	0.064	0.01	1.504	0.23	3.136	0.21	4.519

Problem 2037	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	77	77	75	54	120	161	0	128	65
normalized size	1	1.	0.97	0.7	1.56	2.09	0.	1.66	0.84
time (sec)	N/A	0.141	0.151	0.017	1.501	0.223	0.	0.212	14.326

Problem 2038	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	106	106	91	70	149	188	0	157	87
normalized size	1	1.	0.86	0.66	1.41	1.77	0.	1.48	0.82
time (sec)	N/A	0.201	0.178	0.019	1.512	0.225	0.	0.215	20.883

Problem 2039	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	133	133	96	82	173	215	0	166	107
normalized size	1	1.	0.72	0.62	1.3	1.62	0.	1.25	0.8
time (sec)	N/A	0.262	0.191	0.02	1.494	0.22	0.	0.221	27.816

Problem 2040	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	160	160	101	91	197	242	0	188	126
normalized size	1	1.	0.63	0.57	1.23	1.51	0.	1.18	0.79
time (sec)	N/A	0.331	0.165	0.021	1.503	0.221	0.	0.22	36.24

Problem 2041	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	140	140	73	84	149	127	0	159	124
normalized size	1	1.	0.52	0.6	1.06	0.91	0.	1.14	0.89
time (sec)	N/A	0.284	0.142	0.017	1.505	0.218	0.	0.217	33.134

Problem 2042	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	120	120	68	75	136	120	0	138	105
normalized size	1	1.	0.57	0.62	1.13	1.	0.	1.15	0.88
time (sec)	N/A	0.223	0.125	0.019	1.503	0.223	0.	0.227	26.118

Problem 2043	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	100	100	63	66	124	113	0	116	87
normalized size	1	1.	0.63	0.66	1.24	1.13	0.	1.16	0.87
time (sec)	N/A	0.166	0.114	0.018	1.502	0.248	0.	0.231	18.332

Problem 2044	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	80	80	58	57	112	107	0	104	68
normalized size	1	1.	0.72	0.71	1.4	1.34	0.	1.3	0.85
time (sec)	N/A	0.111	0.102	0.017	1.505	0.244	0.	0.229	12.608

Problem 2045	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	68	68	53	48	100	100	0	92	58
normalized size	1	1.	0.78	0.71	1.47	1.47	0.	1.35	0.85
time (sec)	N/A	0.09	0.089	0.016	1.5	0.237	0.	0.226	8.419

Problem 2046	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	68	68	53	48	100	100	0	92	58
normalized size	1	1.	0.78	0.71	1.47	1.47	0.	1.35	0.85
time (sec)	N/A	0.071	0.098	0.013	1.508	0.227	0.	0.233	6.991

Problem 2047	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	68	68	53	52	100	101	233	92	58
normalized size	1	1.	0.78	0.76	1.47	1.49	3.43	1.35	0.85
time (sec)	N/A	0.06	0.078	0.009	1.517	0.219	5.109	0.218	6.098

Problem 2048	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	97	97	81	66	149	188	0	144	83
normalized size	1	1.	0.84	0.68	1.54	1.94	0.	1.48	0.86
time (sec)	N/A	0.205	0.234	0.018	1.489	0.229	0.	0.272	20.525

Problem 2049	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	126	126	95	82	173	213	0	166	110
normalized size	1	1.	0.75	0.65	1.37	1.69	0.	1.32	0.87
time (sec)	N/A	0.266	0.238	0.02	1.501	0.22	0.	0.234	27.639

Problem 2050	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	153	153	101	94	197	240	0	200	133
normalized size	1	1.	0.66	0.61	1.29	1.57	0.	1.31	0.87
time (sec)	N/A	0.333	0.159	0.022	1.508	0.249	0.	0.247	34.927

Problem 2051	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	180	180	106	103	221	267	0	204	151
normalized size	1	1.	0.59	0.57	1.23	1.48	0.	1.13	0.84
time (sec)	N/A	0.402	0.176	0.021	1.512	0.258	0.	0.231	45.839

Problem 2052	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	118	118	53	50	111	66	0	167	105
normalized size	1	1.	0.45	0.42	0.94	0.56	0.	1.42	0.89
time (sec)	N/A	0.083	0.058	0.005	1.374	0.231	0.	0.211	12.587

Problem 2053	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	105	105	48	45	99	59	0	146	94
normalized size	1	1.	0.46	0.43	0.94	0.56	0.	1.39	0.9
time (sec)	N/A	0.077	0.033	0.004	1.353	0.24	0.	0.212	11.119

Problem 2054	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	92	92	47	40	86	53	0	124	82
normalized size	1	1.	0.51	0.43	0.93	0.58	0.	1.35	0.89
time (sec)	N/A	0.072	0.045	0.006	1.355	0.222	0.	0.211	10.542

Problem 2055	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	79	79	38	35	74	46	0	103	70
normalized size	1	1.	0.48	0.44	0.94	0.58	0.	1.3	0.89
time (sec)	N/A	0.066	0.029	0.006	1.364	0.207	0.	0.212	9.807

Problem 2056	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	66	66	37	30	62	39	0	81	58
normalized size	1	1.	0.56	0.45	0.94	0.59	0.	1.23	0.88
time (sec)	N/A	0.059	0.039	0.006	1.336	0.212	0.	0.21	8.201

Problem 2057	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	53	53	25	25	50	32	0	59	46
normalized size	1	1.	0.47	0.47	0.94	0.6	0.	1.11	0.87
time (sec)	N/A	0.054	0.038	0.006	1.341	0.255	0.	0.209	7.331

Problem 2058	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	38	38	20	20	38	26	160	38	32
normalized size	1	1.	0.53	0.53	1.	0.68	4.21	1.	0.84
time (sec)	N/A	0.039	0.01	0.004	1.332	0.238	4.849	0.214	5.956

Problem 2059	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	27	27	15	15	26	19	20	26	22
normalized size	1	1.	0.56	0.56	0.96	0.7	0.74	0.96	0.81
time (sec)	N/A	0.022	0.007	0.004	1.339	0.22	0.682	0.229	3.91

Problem 2060	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	41	41	41	29	62	73	0	66	36
normalized size	1	1.	1.	0.71	1.51	1.78	0.	1.61	0.88
time (sec)	N/A	0.05	0.063	0.011	1.509	0.229	0.	0.232	5.477

Problem 2061	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	61	61	56	45	88	96	0	92	53
normalized size	1	1.	0.92	0.74	1.44	1.57	0.	1.51	0.87
time (sec)	N/A	0.066	0.106	0.016	1.506	0.227	0.	0.228	7.289

Problem 2062	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	90	90	58	57	112	124	0	104	71
normalized size	1	1.	0.64	0.63	1.24	1.38	0.	1.16	0.79
time (sec)	N/A	0.093	0.128	0.017	1.506	0.224	0.	0.226	9.049

Problem 2063	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	108	108	63	66	136	136	0	126	94
normalized size	1	1.	0.58	0.61	1.26	1.26	0.	1.17	0.87
time (sec)	N/A	0.115	0.13	0.019	1.52	0.224	0.	0.22	11.664

Problem 2064	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	128	128	68	75	161	157	0	147	114
normalized size	1	1.	0.53	0.59	1.26	1.23	0.	1.15	0.89
time (sec)	N/A	0.141	0.177	0.019	1.579	0.255	0.	0.216	13.837

Problem 2065	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	150	150	73	84	185	185	0	169	133
normalized size	1	1.	0.49	0.56	1.23	1.23	0.	1.13	0.89
time (sec)	N/A	0.165	0.124	0.02	1.5	0.241	0.	0.221	16.762

Problem 2066	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	105	105	48	45	99	59	0	146	94
normalized size	1	1.	0.46	0.43	0.94	0.56	0.	1.39	0.9
time (sec)	N/A	0.083	0.063	0.007	1.346	0.22	0.	0.211	12.18

Problem 2067	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	92	92	43	40	86	53	0	124	82
normalized size	1	1.	0.47	0.43	0.93	0.58	0.	1.35	0.89
time (sec)	N/A	0.078	0.056	0.006	1.344	0.22	0.	0.21	10.783

Problem 2068	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	79	79	38	35	74	46	0	103	70
normalized size	1	1.	0.48	0.44	0.94	0.58	0.	1.3	0.89
time (sec)	N/A	0.071	0.05	0.006	1.35	0.208	0.	0.211	10.116

Problem 2069	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	66	66	33	30	62	39	0	81	58
normalized size	1	1.	0.5	0.45	0.94	0.59	0.	1.23	0.88
time (sec)	N/A	0.062	0.05	0.006	1.341	0.217	0.	0.217	8.846

Problem 2070	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	53	53	32	25	50	32	0	59	46
normalized size	1	1.	0.6	0.47	0.94	0.6	0.	1.11	0.87
time (sec)	N/A	0.052	0.036	0.004	1.344	0.228	0.	0.213	7.311

Problem 2071	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	40	40	27	20	38	26	352	38	34
normalized size	1	1.	0.68	0.5	0.95	0.65	8.8	0.95	0.85
time (sec)	N/A	0.028	0.026	0.004	1.348	0.242	2.203	0.212	5.048

Problem 2072	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	54	54	50	38	74	80	0	78	48
normalized size	1	1.	0.93	0.7	1.37	1.48	0.	1.44	0.89
time (sec)	N/A	0.089	0.096	0.015	1.507	0.239	0.	0.215	9.833

Problem 2073	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	68	68	56	45	88	96	0	92	56
normalized size	1	1.	0.82	0.66	1.29	1.41	0.	1.35	0.82
time (sec)	N/A	0.094	0.109	0.019	1.504	0.231	0.	0.221	8.186

Problem 2074	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	88	88	58	57	112	116	0	104	76
normalized size	1	1.	0.66	0.65	1.27	1.32	0.	1.18	0.86
time (sec)	N/A	0.113	0.143	0.019	1.502	0.227	0.	0.265	9.799

Problem 2075	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	108	108	63	66	136	136	0	126	95
normalized size	1	1.	0.58	0.61	1.26	1.26	0.	1.17	0.88
time (sec)	N/A	0.137	0.16	0.02	1.507	0.227	0.	0.228	11.724

Problem 2076	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	128	128	68	75	161	157	0	147	114
normalized size	1	1.	0.53	0.59	1.26	1.23	0.	1.15	0.89
time (sec)	N/A	0.158	0.177	0.02	1.506	0.225	0.	0.224	13.669

Problem 2077	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	105	105	48	45	99	59	0	146	94
normalized size	1	1.	0.46	0.43	0.94	0.56	0.	1.39	0.9
time (sec)	N/A	0.085	0.061	0.007	1.345	0.212	0.	0.213	10.997

Problem 2078	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	92	92	43	40	86	53	0	124	82
normalized size	1	1.	0.47	0.43	0.93	0.58	0.	1.35	0.89
time (sec)	N/A	0.075	0.055	0.006	1.349	0.22	0.	0.213	10.185

Problem 2079	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	79	79	38	35	74	46	0	103	70
normalized size	1	1.	0.48	0.44	0.94	0.58	0.	1.3	0.89
time (sec)	N/A	0.071	0.051	0.006	1.346	0.217	0.	0.217	9.319

Problem 2080	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	66	66	37	30	62	39	0	81	58
normalized size	1	1.	0.56	0.45	0.94	0.59	0.	1.23	0.88
time (sec)	N/A	0.055	0.038	0.006	1.344	0.213	0.	0.223	7.88

Problem 2081	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	53	53	25	25	50	32	435	59	46
normalized size	1	1.	0.47	0.47	0.94	0.6	8.21	1.11	0.87
time (sec)	N/A	0.034	0.031	0.004	1.344	0.217	3.381	0.222	5.873

Problem 2082	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	67	67	51	47	86	86	0	90	60
normalized size	1	1.	0.76	0.7	1.28	1.28	0.	1.34	0.9
time (sec)	N/A	0.106	0.134	0.012	1.499	0.232	0.	0.231	10.335

Problem 2083	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	80	80	61	54	100	104	0	104	66
normalized size	1	1.	0.76	0.68	1.25	1.3	0.	1.3	0.82
time (sec)	N/A	0.113	0.125	0.02	1.496	0.247	0.	0.244	12.341

Problem 2084	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	80	80	58	57	112	116	0	104	71
normalized size	1	1.	0.72	0.71	1.4	1.45	0.	1.3	0.89
time (sec)	N/A	0.115	0.135	0.019	1.494	0.24	0.	0.239	12.177

Problem 2085	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	100	100	63	66	136	136	0	126	87
normalized size	1	1.	0.63	0.66	1.36	1.36	0.	1.26	0.87
time (sec)	N/A	0.133	0.161	0.02	1.481	0.224	0.	0.233	13.912

Problem 2086	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	120	120	68	75	161	157	0	147	105
normalized size	1	1.	0.57	0.62	1.34	1.31	0.	1.22	0.88
time (sec)	N/A	0.157	0.173	0.02	1.494	0.219	0.	0.219	15.877

Problem 2087	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	106	106	66	74	123	107	0	155	95
normalized size	1	1.	0.62	0.7	1.16	1.01	0.	1.46	0.9
time (sec)	N/A	0.219	0.179	0.013	1.495	0.237	0.	0.218	18.207

Problem 2088	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	93	93	61	65	111	100	0	134	83
normalized size	1	1.	0.66	0.7	1.19	1.08	0.	1.44	0.89
time (sec)	N/A	0.174	0.147	0.013	1.499	0.246	0.	0.215	15.014

Problem 2089	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	80	80	56	56	99	93	0	112	71
normalized size	1	1.	0.7	0.7	1.24	1.16	0.	1.4	0.89
time (sec)	N/A	0.138	0.131	0.013	1.536	0.227	0.	0.213	12.682

Problem 2090	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	67	67	51	47	86	86	0	90	60
normalized size	1	1.	0.76	0.7	1.28	1.28	0.	1.34	0.9
time (sec)	N/A	0.104	0.106	0.013	1.511	0.227	0.	0.244	10.472

Problem 2091	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	54	54	46	38	74	80	0	78	48
normalized size	1	1.	0.85	0.7	1.37	1.48	0.	1.44	0.89
time (sec)	N/A	0.084	0.093	0.013	1.513	0.243	0.	0.247	10.136

Problem 2092	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	41	41	41	29	62	73	0	66	36
normalized size	1	1.	1.	0.71	1.51	1.78	0.	1.61	0.88
time (sec)	N/A	0.052	0.046	0.011	1.496	0.239	0.	0.217	5.372

Problem 2093	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	43	43	41	29	62	81	830	66	36
normalized size	1	1.	0.95	0.67	1.44	1.88	19.3	1.53	0.84
time (sec)	N/A	0.04	0.056	0.008	1.507	0.231	2.681	0.217	4.305

Problem 2094	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	72	72	71	47	111	157	0	119	61
normalized size	1	1.	0.99	0.65	1.54	2.18	0.	1.65	0.85
time (sec)	N/A	0.136	0.214	0.016	1.504	0.24	0.	0.22	13.782

Problem 2095	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	92	92	87	63	136	186	0	144	78
normalized size	1	1.	0.95	0.68	1.48	2.02	0.	1.57	0.85
time (sec)	N/A	0.21	0.184	0.019	1.482	0.241	0.	0.227	21.374

Problem 2096	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	112	112	89	75	161	213	0	157	97
normalized size	1	1.	0.79	0.67	1.44	1.9	0.	1.4	0.87
time (sec)	N/A	0.273	0.2	0.022	1.5	0.24	0.	0.25	27.741

Problem 2097	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	132	132	94	84	185	240	0	178	116
normalized size	1	1.	0.71	0.64	1.4	1.82	0.	1.35	0.88
time (sec)	N/A	0.35	0.172	0.021	1.519	0.268	0.	0.235	34.317

Problem 2098	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	140	140	76	81	136	124	0	159	122
normalized size	1	1.	0.54	0.58	0.97	0.89	0.	1.14	0.87
time (sec)	N/A	0.282	0.156	0.021	1.499	0.276	0.	0.223	32.887

Problem 2099	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	120	120	71	72	124	117	0	138	104
normalized size	1	1.	0.59	0.6	1.03	0.98	0.	1.15	0.87
time (sec)	N/A	0.226	0.137	0.02	1.511	0.253	0.	0.221	25.544

Problem 2100	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	100	100	66	63	112	111	0	116	85
normalized size	1	1.	0.66	0.63	1.12	1.11	0.	1.16	0.85
time (sec)	N/A	0.169	0.119	0.019	1.498	0.248	0.	0.222	18.262

Problem 2101	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	80	80	61	54	100	104	0	104	66
normalized size	1	1.	0.76	0.68	1.25	1.3	0.	1.3	0.82
time (sec)	N/A	0.114	0.115	0.02	1.516	0.215	0.	0.25	12.12

Problem 2102	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	68	68	56	45	88	96	0	92	53
normalized size	1	1.	0.82	0.66	1.29	1.41	0.	1.35	0.78
time (sec)	N/A	0.094	0.107	0.019	1.504	0.217	0.	0.223	8.41

Problem 2103	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	61	61	56	45	88	96	0	92	53
normalized size	1	1.	0.92	0.74	1.44	1.57	0.	1.51	0.87
time (sec)	N/A	0.071	0.099	0.017	1.513	0.215	0.	0.218	6.801

Problem 2104	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	70	70	56	45	88	104	177	92	56
normalized size	1	1.	0.8	0.64	1.26	1.49	2.53	1.31	0.8
time (sec)	N/A	0.061	0.086	0.015	1.521	0.251	4.325	0.217	5.935

Problem 2105	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	92	92	86	63	136	185	0	144	78
normalized size	1	1.	0.93	0.68	1.48	2.01	0.	1.57	0.85
time (sec)	N/A	0.211	0.252	0.02	1.501	0.242	0.	0.221	21.504

Problem 2106	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	119	119	96	79	161	212	0	178	100
normalized size	1	1.	0.81	0.66	1.35	1.78	0.	1.5	0.84
time (sec)	N/A	0.281	0.312	0.023	1.495	0.243	0.	0.221	28.283

Problem 2107	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	146	146	104	91	185	239	0	182	121
normalized size	1	1.	0.71	0.62	1.27	1.64	0.	1.25	0.83
time (sec)	N/A	0.357	0.172	0.024	1.497	0.24	0.	0.261	34.919

Problem 2108	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	147	147	73	84	149	138	0	150	131
normalized size	1	1.	0.5	0.57	1.01	0.94	0.	1.02	0.89
time (sec)	N/A	0.286	0.219	0.02	1.511	0.24	0.	0.233	32.921

Problem 2109	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	127	127	68	75	136	131	0	128	112
normalized size	1	1.	0.54	0.59	1.07	1.03	0.	1.01	0.88
time (sec)	N/A	0.225	0.191	0.02	1.514	0.25	0.	0.222	25.288

Problem 2110	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	107	107	63	66	124	124	0	116	94
normalized size	1	1.	0.59	0.62	1.16	1.16	0.	1.08	0.88
time (sec)	N/A	0.172	0.186	0.02	1.509	0.224	0.	0.22	19.129

Problem 2111	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	80	80	58	57	112	116	0	104	71
normalized size	1	1.	0.72	0.71	1.4	1.45	0.	1.3	0.89
time (sec)	N/A	0.11	0.128	0.02	1.509	0.222	0.	0.22	11.89

Problem 2112	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	88	88	58	57	112	116	0	104	71
normalized size	1	1.	0.66	0.65	1.27	1.32	0.	1.18	0.81
time (sec)	N/A	0.113	0.13	0.019	1.493	0.225	0.	0.245	9.763

Problem 2113	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	88	88	58	57	112	116	0	104	71
normalized size	1	1.	0.66	0.65	1.27	1.32	0.	1.18	0.81
time (sec)	N/A	0.092	0.131	0.017	1.494	0.221	0.	0.222	8.531

Problem 2114	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	90	90	58	57	112	124	233	104	76
normalized size	1	1.	0.64	0.63	1.24	1.38	2.59	1.16	0.84
time (sec)	N/A	0.08	0.113	0.017	1.495	0.222	6.834	0.222	7.763

Problem 2115	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	112	112	88	75	161	213	0	157	97
normalized size	1	1.	0.79	0.67	1.44	1.9	0.	1.4	0.87
time (sec)	N/A	0.281	0.398	0.02	1.503	0.243	0.	0.227	27.951

Problem 2116	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	139	139	103	91	185	240	0	182	124
normalized size	1	1.	0.74	0.65	1.33	1.73	0.	1.31	0.89
time (sec)	N/A	0.352	0.219	0.024	1.491	0.249	0.	0.227	35.217

Problem 2117	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	166	166	106	103	209	267	0	212	146
normalized size	1	1.	0.64	0.62	1.26	1.61	0.	1.28	0.88
time (sec)	N/A	0.429	0.199	0.024	1.496	0.234	0.	0.242	42.757

Problem 2118	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	92	92	43	40	81	62	0	119	82
normalized size	1	1.	0.47	0.43	0.88	0.67	0.	1.29	0.89
time (sec)	N/A	0.071	0.057	0.006	1.356	0.221	0.	0.23	9.998

Problem 2119	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	79	79	38	35	69	55	0	97	70
normalized size	1	1.	0.48	0.44	0.87	0.7	0.	1.23	0.89
time (sec)	N/A	0.066	0.029	0.006	1.348	0.23	0.	0.215	8.98

Problem 2120	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	66	66	33	30	57	49	0	76	58
normalized size	1	1.	0.5	0.45	0.86	0.74	0.	1.15	0.88
time (sec)	N/A	0.055	0.046	0.006	1.353	0.223	0.	0.212	7.96

Problem 2121	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	53	53	28	25	45	42	102	54	46
normalized size	1	1.	0.53	0.47	0.85	0.79	1.92	1.02	0.87
time (sec)	N/A	0.054	0.04	0.006	1.349	0.216	1.206	0.215	7.236

Problem 2122	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	38	38	23	20	32	35	75	42	32
normalized size	1	1.	0.61	0.53	0.84	0.92	1.97	1.11	0.84
time (sec)	N/A	0.04	0.011	0.003	1.339	0.212	1.135	0.209	5.826

Problem 2123	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	27	27	18	15	19	28	48	28	22
normalized size	1	1.	0.67	0.56	0.7	1.04	1.78	1.04	0.81
time (sec)	N/A	0.022	0.009	0.004	1.339	0.21	1.048	0.222	3.903

Problem 2124	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	56	56	52	38	69	105	0	82	48
normalized size	1	1.	0.93	0.68	1.23	1.88	0.	1.46	0.86
time (sec)	N/A	0.069	0.107	0.013	1.5	0.213	0.	0.252	6.88

Problem 2125	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	76	76	58	54	100	119	0	104	65
normalized size	1	1.	0.76	0.71	1.32	1.57	0.	1.37	0.86
time (sec)	N/A	0.087	0.116	0.018	1.492	0.222	0.	0.245	8.373

Problem 2126	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	96	96	66	66	124	144	0	120	83
normalized size	1	1.	0.69	0.69	1.29	1.5	0.	1.25	0.86
time (sec)	N/A	0.107	0.124	0.02	1.502	0.218	0.	0.234	10.251

Problem 2127	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	130	130	68	75	149	165	0	128	102
normalized size	1	1.	0.52	0.58	1.15	1.27	0.	0.98	0.78
time (sec)	N/A	0.128	0.155	0.02	1.497	0.22	0.	0.238	12.264

Problem 2128	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	150	150	73	84	173	185	0	163	133
normalized size	1	1.	0.49	0.56	1.15	1.23	0.	1.09	0.89
time (sec)	N/A	0.164	0.183	0.022	1.509	0.219	0.	0.231	14.734

Problem 2129	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	105	105	48	45	93	69	0	140	94
normalized size	1	1.	0.46	0.43	0.89	0.66	0.	1.33	0.9
time (sec)	N/A	0.088	0.062	0.006	1.348	0.217	0.	0.212	11.442

Problem 2130	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	92	92	43	40	81	62	0	119	82
normalized size	1	1.	0.47	0.43	0.88	0.67	0.	1.29	0.89
time (sec)	N/A	0.081	0.056	0.006	1.352	0.219	0.	0.212	10.613

Problem 2131	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	79	79	38	35	69	55	0	97	70
normalized size	1	1.	0.48	0.44	0.87	0.7	0.	1.23	0.89
time (sec)	N/A	0.075	0.054	0.006	1.339	0.213	0.	0.212	9.316

Problem 2132	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	66	66	33	30	57	49	0	76	58
normalized size	1	1.	0.5	0.45	0.86	0.74	0.	1.15	0.88
time (sec)	N/A	0.068	0.05	0.006	1.338	0.208	0.	0.212	8.443

Problem 2133	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	53	53	28	25	45	42	102	54	46
normalized size	1	1.	0.53	0.47	0.85	0.79	1.92	1.02	0.87
time (sec)	N/A	0.054	0.043	0.004	1.333	0.205	1.201	0.21	7.071

Problem 2134	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	40	40	23	20	32	35	75	42	34
normalized size	1	1.	0.57	0.5	0.8	0.88	1.88	1.05	0.85
time (sec)	N/A	0.03	0.029	0.004	1.333	0.213	1.116	0.209	5.119

Problem 2135	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	54	54	46	38	69	97	0	82	48
normalized size	1	1.	0.85	0.7	1.28	1.8	0.	1.52	0.89
time (sec)	N/A	0.088	0.13	0.014	1.475	0.226	0.	0.214	11.881

Problem 2136	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	81	81	58	54	100	112	0	104	70
normalized size	1	1.	0.72	0.67	1.23	1.38	0.	1.28	0.86
time (sec)	N/A	0.114	0.116	0.02	1.488	0.224	0.	0.218	10.19

Problem 2137	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	110	110	66	66	124	144	0	120	94
normalized size	1	1.	0.6	0.6	1.13	1.31	0.	1.09	0.85
time (sec)	N/A	0.138	0.133	0.02	1.513	0.222	0.	0.216	12.369

Problem 2138	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	128	128	68	75	149	157	0	128	114
normalized size	1	1.	0.53	0.59	1.16	1.23	0.	1.	0.89
time (sec)	N/A	0.16	0.161	0.022	1.488	0.215	0.	0.214	14.362

Problem 2139	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	148	148	73	84	173	177	0	163	133
normalized size	1	1.	0.49	0.57	1.17	1.2	0.	1.1	0.9
time (sec)	N/A	0.189	0.191	0.024	1.495	0.218	0.	0.219	16.323

Problem 2140	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	118	118	53	50	105	76	0	162	105
normalized size	1	1.	0.45	0.42	0.89	0.64	0.	1.37	0.89
time (sec)	N/A	0.091	0.066	0.006	1.332	0.212	0.	0.216	12.398

Problem 2141	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	105	105	48	45	93	69	0	140	94
normalized size	1	1.	0.46	0.43	0.89	0.66	0.	1.33	0.9
time (sec)	N/A	0.086	0.061	0.006	1.322	0.212	0.	0.248	11.344

Problem 2142	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	92	92	43	40	81	62	0	119	82
normalized size	1	1.	0.47	0.43	0.88	0.67	0.	1.29	0.89
time (sec)	N/A	0.079	0.055	0.006	1.332	0.214	0.	0.218	10.285

Problem 2143	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	79	79	38	35	69	55	0	97	70
normalized size	1	1.	0.48	0.44	0.87	0.7	0.	1.23	0.89
time (sec)	N/A	0.074	0.054	0.006	1.37	0.214	0.	0.217	9.659

Problem 2144	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	66	66	33	30	57	49	0	76	58
normalized size	1	1.	0.5	0.45	0.86	0.74	0.	1.15	0.88
time (sec)	N/A	0.059	0.045	0.005	1.362	0.213	0.	0.215	8.085

Problem 2145	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	53	53	28	25	45	42	102	54	46
normalized size	1	1.	0.53	0.47	0.85	0.79	1.92	1.02	0.87
time (sec)	N/A	0.036	0.031	0.005	1.343	0.212	1.151	0.212	6.117

Problem 2146	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	67	67	51	47	81	101	0	95	60
normalized size	1	1.	0.76	0.7	1.21	1.51	0.	1.42	0.9
time (sec)	N/A	0.099	0.156	0.016	1.479	0.225	0.	0.217	11.931

Problem 2147	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	80	80	58	54	100	112	0	104	68
normalized size	1	1.	0.72	0.68	1.25	1.4	0.	1.3	0.85
time (sec)	N/A	0.12	0.126	0.022	1.494	0.216	0.	0.219	12.921

Problem 2148	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	100	100	66	66	124	138	0	120	87
normalized size	1	1.	0.66	0.66	1.24	1.38	0.	1.2	0.87
time (sec)	N/A	0.141	0.131	0.021	1.513	0.211	0.	0.229	14.089

Problem 2149	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	120	120	68	75	149	157	0	128	105
normalized size	1	1.	0.57	0.62	1.24	1.31	0.	1.07	0.88
time (sec)	N/A	0.162	0.164	0.022	1.598	0.221	0.	0.221	16.462

Problem 2150	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	140	140	73	84	173	177	0	163	124
normalized size	1	1.	0.52	0.6	1.24	1.26	0.	1.16	0.89
time (sec)	N/A	0.184	0.186	0.023	1.498	0.226	0.	0.222	17.939

Problem 2151	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	160	160	78	93	197	197	0	185	143
normalized size	1	1.	0.49	0.58	1.23	1.23	0.	1.16	0.89
time (sec)	N/A	0.211	0.175	0.024	1.505	0.223	0.	0.225	20.458

Problem 2152	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	106	106	66	74	117	123	0	150	95
normalized size	1	1.	0.62	0.7	1.1	1.16	0.	1.42	0.9
time (sec)	N/A	0.194	0.188	0.017	1.508	0.221	0.	0.218	16.909

Problem 2153	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	93	93	61	65	105	116	0	128	83
normalized size	1	1.	0.66	0.7	1.13	1.25	0.	1.38	0.89
time (sec)	N/A	0.152	0.155	0.016	1.486	0.217	0.	0.218	14.23

Problem 2154	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	80	80	56	56	93	109	0	107	71
normalized size	1	1.	0.7	0.7	1.16	1.36	0.	1.34	0.89
time (sec)	N/A	0.118	0.151	0.016	1.493	0.223	0.	0.225	12.193

Problem 2155	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	67	67	51	47	81	103	0	95	60
normalized size	1	1.	0.76	0.7	1.21	1.54	0.	1.42	0.9
time (sec)	N/A	0.097	0.121	0.016	1.506	0.227	0.	0.221	11.54

Problem 2156	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	54	54	46	38	69	97	0	82	48
normalized size	1	1.	0.85	0.7	1.28	1.8	0.	1.52	0.89
time (sec)	N/A	0.087	0.095	0.015	1.501	0.223	0.	0.211	11.33

Problem 2157	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	56	56	52	38	69	104	0	82	48
normalized size	1	1.	0.93	0.68	1.23	1.86	0.	1.46	0.86
time (sec)	N/A	0.07	0.078	0.013	1.504	0.25	0.	0.221	6.813

Problem 2158	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	56	56	52	38	69	105	1836	82	48
normalized size	1	1.	0.93	0.68	1.23	1.88	32.79	1.46	0.86
time (sec)	N/A	0.057	0.067	0.012	1.503	0.245	4.145	0.215	5.802

Problem 2159	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	85	85	77	56	117	186	105	135	73
normalized size	1	1.	0.91	0.66	1.38	2.19	1.24	1.59	0.86
time (sec)	N/A	0.206	0.206	0.019	1.503	0.236	12.234	0.218	21.229

Problem 2160	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	105	105	105	72	149	205	0	157	90
normalized size	1	1.	1.	0.69	1.42	1.95	0.	1.5	0.86
time (sec)	N/A	0.282	0.282	0.022	1.507	0.23	0.	0.218	28.604

Problem 2161	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	125	125	97	84	173	240	0	173	109
normalized size	1	1.	0.78	0.67	1.38	1.92	0.	1.38	0.87
time (sec)	N/A	0.351	0.167	0.023	1.503	0.231	0.	0.239	35.663

Problem 2162	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	145	145	99	93	197	267	0	181	128
normalized size	1	1.	0.68	0.64	1.36	1.84	0.	1.25	0.88
time (sec)	N/A	0.422	0.22	0.024	1.503	0.228	0.	0.221	41.517

Problem 2163	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	140	140	73	81	136	131	0	150	124
normalized size	1	1.	0.52	0.58	0.97	0.94	0.	1.07	0.89
time (sec)	N/A	0.299	0.203	0.021	1.49	0.222	0.	0.226	32.353

Problem 2164	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	120	120	68	72	124	124	0	128	105
normalized size	1	1.	0.57	0.6	1.03	1.03	0.	1.07	0.88
time (sec)	N/A	0.24	0.172	0.021	1.51	0.219	0.	0.217	25.148

Problem 2165	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	100	100	63	63	112	117	0	116	87
normalized size	1	1.	0.63	0.63	1.12	1.17	0.	1.16	0.87
time (sec)	N/A	0.179	0.161	0.02	1.497	0.219	0.	0.215	18.815

Problem 2166	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	80	80	58	54	100	112	0	104	68
normalized size	1	1.	0.72	0.68	1.25	1.4	0.	1.3	0.85
time (sec)	N/A	0.117	0.117	0.022	1.511	0.222	0.	0.215	12.076

Problem 2167	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	81	81	58	54	100	111	0	104	65
normalized size	1	1.	0.72	0.67	1.23	1.37	0.	1.28	0.8
time (sec)	N/A	0.112	0.112	0.02	1.493	0.22	0.	0.221	9.713

Problem 2168	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	76	76	58	54	100	119	0	104	65
normalized size	1	1.	0.76	0.71	1.32	1.57	0.	1.37	0.86
time (sec)	N/A	0.088	0.112	0.019	1.497	0.214	0.	0.222	8.292

Problem 2169	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	76	76	58	54	100	119	2286	104	65
normalized size	1	1.	0.76	0.71	1.32	1.57	30.08	1.37	0.86
time (sec)	N/A	0.076	0.108	0.016	1.497	0.217	6.87	0.214	7.342

Problem 2170	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	105	105	88	72	149	204	0	157	90
normalized size	1	1.	0.84	0.69	1.42	1.94	0.	1.5	0.86
time (sec)	N/A	0.278	0.244	0.021	1.508	0.24	0.	0.22	27.917

Problem 2171	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	132	132	101	88	173	239	0	185	112
normalized size	1	1.	0.77	0.67	1.31	1.81	0.	1.4	0.85
time (sec)	N/A	0.344	0.181	0.026	1.515	0.232	0.	0.22	34.732

Problem 2172	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	159	159	108	100	197	266	0	194	133
normalized size	1	1.	0.68	0.63	1.24	1.67	0.	1.22	0.84
time (sec)	N/A	0.424	0.249	0.027	1.506	0.226	0.	0.23	41.907

Problem 2173	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	147	147	76	84	149	150	0	144	133
normalized size	1	1.	0.52	0.57	1.01	1.02	0.	0.98	0.9
time (sec)	N/A	0.308	0.148	0.023	1.519	0.221	0.	0.217	32.053

Problem 2174	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	127	127	71	75	136	143	0	132	114
normalized size	1	1.	0.56	0.59	1.07	1.13	0.	1.04	0.9
time (sec)	N/A	0.247	0.124	0.023	1.516	0.229	0.	0.217	25.124

Problem 2175	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	107	107	66	66	124	138	0	120	95
normalized size	1	1.	0.62	0.62	1.16	1.29	0.	1.12	0.89
time (sec)	N/A	0.181	0.119	0.023	1.514	0.221	0.	0.216	19.23

Problem 2176	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	100	100	66	66	124	136	0	120	87
normalized size	1	1.	0.66	0.66	1.24	1.36	0.	1.2	0.87
time (sec)	N/A	0.137	0.122	0.022	1.495	0.222	0.	0.228	13.843

Problem 2177	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	108	108	66	66	124	136	0	120	83
normalized size	1	1.	0.61	0.61	1.15	1.26	0.	1.11	0.77
time (sec)	N/A	0.137	0.114	0.021	1.504	0.212	0.	0.229	11.318

Problem 2178	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	96	96	66	66	124	144	0	120	83
normalized size	1	1.	0.69	0.69	1.29	1.5	0.	1.25	0.86
time (sec)	N/A	0.106	0.123	0.02	1.494	0.228	0.	0.245	10.083

Problem 2179	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	110	110	66	66	124	144	984	120	95
normalized size	1	1.	0.6	0.6	1.13	1.31	8.95	1.09	0.86
time (sec)	N/A	0.103	0.104	0.019	1.487	0.219	10.105	0.236	9.529

Problem 2180	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	125	125	96	84	173	240	0	173	109
normalized size	1	1.	0.77	0.67	1.38	1.92	0.	1.38	0.87
time (sec)	N/A	0.346	0.204	0.023	1.511	0.235	0.	0.225	34.548

Problem 2181	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	152	152	109	100	197	267	0	194	136
normalized size	1	1.	0.72	0.66	1.3	1.76	0.	1.28	0.89
time (sec)	N/A	0.419	0.174	0.026	1.52	0.231	0.	0.221	42.869

Problem 2182	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	179	179	111	112	221	294	0	228	158
normalized size	1	1.	0.62	0.63	1.23	1.64	0.	1.27	0.88
time (sec)	N/A	0.486	0.253	0.027	1.481	0.226	0.	0.219	50.565

Problem 2183	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	304	304	335	1631	0	1	0	1	298
normalized size	1	1.	1.1	5.37	0.	0.	0.	0.	0.98
time (sec)	N/A	0.682	0.484	0.038	0.	0.296	0.	0.362	56.587

Problem 2184	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	250	250	248	1150	0	1	0	1	243
normalized size	1	1.	0.99	4.6	0.	0.	0.	0.	0.97
time (sec)	N/A	0.512	0.361	0.023	0.	0.284	0.	0.312	42.303

Problem 2185	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	196	196	173	755	0	1	0	439	175
normalized size	1	1.	0.88	3.85	0.	0.01	0.	2.24	0.89
time (sec)	N/A	0.394	0.197	0.019	0.	0.261	0.	0.258	29.335

Problem 2186	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	140	140	130	376	0	1	0	236	131
normalized size	1	1.	0.93	2.69	0.	0.01	0.	1.69	0.94
time (sec)	N/A	0.272	0.123	0.028	0.	0.436	0.	0.232	18.249

Problem 2187	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	148	148	108	386	0	1	0	274	136
normalized size	1	1.	0.73	2.61	0.	0.01	0.	1.85	0.92
time (sec)	N/A	0.304	0.124	0.039	0.	0.594	0.	0.242	25.832

Problem 2188	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	111	111	128	503	0	1	0	324	100
normalized size	1	1.	1.15	4.53	0.	0.01	0.	2.92	0.9
time (sec)	N/A	0.169	0.181	0.036	0.	0.561	0.	0.254	16.361

Problem 2189	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	95	95	66	74	0	298	0	281	85
normalized size	1	1.	0.69	0.78	0.	3.14	0.	2.96	0.89
time (sec)	N/A	0.167	0.152	0.011	0.	0.532	0.	0.255	12.528

Problem 2190	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	147	147	135	177	0	594	0	528	138
normalized size	1	1.	0.92	1.2	0.	4.04	0.	3.59	0.94
time (sec)	N/A	0.267	0.242	0.011	0.	0.964	0.	0.283	24.397

Problem 2191	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	198	198	177	322	0	959	0	857	185
normalized size	1	1.	0.89	1.63	0.	4.84	0.	4.33	0.93
time (sec)	N/A	0.351	0.449	0.014	0.	2.502	0.	0.331	34.639

Problem 2192	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	255	255	218	505	0	1411	0	1	246
normalized size	1	1.	0.85	1.98	0.	5.53	0.	0.	0.96
time (sec)	N/A	0.467	0.41	0.017	0.	6.03	0.	0.402	50.817

Problem 2193	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	309	309	256	722	0	1926	0	1	301
normalized size	1	1.	0.83	2.34	0.	6.23	0.	0.	0.97
time (sec)	N/A	0.578	0.528	0.019	0.	14.567	0.	0.524	67.627

Problem 2194	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	358	358	445	2198	0	1	0	1	350
normalized size	1	1.	1.24	6.14	0.	0.	0.	0.	0.98
time (sec)	N/A	0.815	0.739	0.033	0.	0.348	0.	0.529	75.208

Problem 2195	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	304	304	332	1631	0	1	0	1	275
normalized size	1	1.	1.09	5.37	0.	0.	0.	0.	0.9
time (sec)	N/A	0.637	0.538	0.024	0.	0.305	0.	0.406	56.891

Problem 2196	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	250	250	249	1150	0	1	0	1	241
normalized size	1	1.	1.	4.6	0.	0.	0.	0.	0.96
time (sec)	N/A	0.501	0.356	0.021	0.	0.272	0.	0.3	42.047

Problem 2197	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	193	193	178	636	0	1	0	362	182
normalized size	1	1.	0.92	3.3	0.	0.01	0.	1.88	0.94
time (sec)	N/A	0.385	0.232	0.033	0.	0.53	0.	0.237	29.275

Problem 2198	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	202	202	158	740	0	1	0	367	190
normalized size	1	1.	0.78	3.66	0.	0.	0.	1.82	0.94
time (sec)	N/A	0.414	0.26	0.033	0.	0.757	0.	0.253	37.532

Problem 2199	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	202	202	152	698	0	1	0	475	192
normalized size	1	1.	0.75	3.46	0.	0.	0.	2.35	0.95
time (sec)	N/A	0.383	0.295	0.034	0.	0.848	0.	0.265	35.99

Problem 2200	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	138	138	158	780	0	1	0	587	128
normalized size	1	1.	1.14	5.65	0.	0.01	0.	4.25	0.93
time (sec)	N/A	0.218	0.484	0.036	0.	0.87	0.	0.286	21.761

Problem 2201	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	95	95	66	74	0	413	0	394	85
normalized size	1	1.	0.69	0.78	0.	4.35	0.	4.15	0.89
time (sec)	N/A	0.164	0.234	0.01	0.	0.954	0.	0.29	12.527

Problem 2202	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	147	147	135	177	0	765	0	709	138
normalized size	1	1.	0.92	1.2	0.	5.2	0.	4.82	0.94
time (sec)	N/A	0.269	0.313	0.011	0.	2.469	0.	0.343	24.689

Problem 2203	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	201	201	217	322	0	1188	0	1	192
normalized size	1	1.	1.08	1.6	0.	5.91	0.	0.	0.96
time (sec)	N/A	0.366	0.432	0.014	0.	6.093	0.	0.411	37.325

Problem 2204	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	255	255	254	505	0	1690	0	1	246
normalized size	1	1.	1.	1.98	0.	6.63	0.	0.	0.96
time (sec)	N/A	0.449	0.54	0.017	0.	14.321	0.	0.536	50.998

Problem 2205	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	304	304	287	722	0	2260	0	1	286
normalized size	1	1.	0.94	2.38	0.	7.43	0.	0.	0.94
time (sec)	N/A	0.579	0.68	0.018	0.	30.843	0.	0.699	64.482

Problem 2206	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	412	412	575	2851	0	1	0	1	377
normalized size	1	1.	1.4	6.92	0.	0.	0.	0.	0.92
time (sec)	N/A	0.964	1.257	0.041	0.	0.382	0.	0.734	96.389

Problem 2207	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	358	358	444	2198	0	1	0	1	350
normalized size	1	1.	1.24	6.14	0.	0.	0.	0.	0.98
time (sec)	N/A	0.777	0.633	0.032	0.	0.339	0.	0.529	76.31

Problem 2208	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	304	304	334	1631	0	1	0	1	296
normalized size	1	1.	1.1	5.37	0.	0.	0.	0.	0.97
time (sec)	N/A	0.641	0.511	0.027	0.	0.295	0.	0.359	57.993

Problem 2209	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	246	246	243	968	0	1	0	527	238
normalized size	1	1.	0.99	3.93	0.	0.	0.	2.14	0.97
time (sec)	N/A	0.504	0.355	0.036	0.	0.62	0.	0.247	40.496

Problem 2210	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	253	253	230	1184	0	1	0	564	241
normalized size	1	1.	0.91	4.68	0.	0.	0.	2.23	0.95
time (sec)	N/A	0.533	0.43	0.046	0.	1.015	0.	0.265	50.423

Problem 2211	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	257	257	228	1250	0	1	0	721	253
normalized size	1	1.	0.89	4.86	0.	0.	0.	2.81	0.98
time (sec)	N/A	0.509	0.569	0.038	0.	1.123	0.	0.294	50.249

Problem 2212	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	256	256	190	1092	0	1	0	902	246
normalized size	1	1.	0.74	4.27	0.	0.	0.	3.52	0.96
time (sec)	N/A	0.491	0.51	0.037	0.	1.315	0.	0.307	46.266

Problem 2213	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	167	167	196	1089	0	1	0	946	156
normalized size	1	1.	1.17	6.52	0.	0.01	0.	5.66	0.93
time (sec)	N/A	0.267	0.643	0.04	0.	1.742	0.	0.338	27.841

Problem 2214	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	95	95	66	74	0	528	0	518	85
normalized size	1	1.	0.69	0.78	0.	5.56	0.	5.45	0.89
time (sec)	N/A	0.173	0.343	0.01	0.	2.439	0.	0.359	12.399

Problem 2215	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	147	147	135	177	0	936	0	887	138
normalized size	1	1.	0.92	1.2	0.	6.37	0.	6.03	0.94
time (sec)	N/A	0.268	0.417	0.011	0.	5.907	0.	0.442	25.086

Problem 2216	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	201	201	255	322	0	1413	0	1	192
normalized size	1	1.	1.27	1.6	0.	7.03	0.	0.	0.96
time (sec)	N/A	0.364	0.626	0.013	0.	14.645	0.	0.572	36.146

Problem 2217	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	255	255	292	505	0	1978	0	1	246
normalized size	1	1.	1.15	1.98	0.	7.76	0.	0.	0.96
time (sec)	N/A	0.47	0.733	0.015	0.	32.756	0.	0.75	50.706

Problem 2218	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	309	309	331	722	0	2603	0	1	301
normalized size	1	1.	1.07	2.34	0.	8.42	0.	0.	0.97
time (sec)	N/A	0.585	0.877	0.017	0.	68.874	0.	1.018	67.148

Problem 2219	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	246	246	244	968	0	1	0	1	238
normalized size	1	1.	0.99	3.93	0.	0.	0.	0.	0.97
time (sec)	N/A	0.523	0.412	0.036	0.	0.627	0.	0.368	40.617

Problem 2220	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	193	193	178	636	0	1	0	790	182
normalized size	1	1.	0.92	3.3	0.	0.01	0.	4.09	0.94
time (sec)	N/A	0.394	0.266	0.031	0.	0.521	0.	0.296	28.93

Problem 2221	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	140	140	129	375	0	1	0	328	131
normalized size	1	1.	0.92	2.68	0.	0.01	0.	2.34	0.94
time (sec)	N/A	0.274	0.131	0.025	0.	0.429	0.	0.251	18.773

Problem 2222	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	84	84	100	198	0	1	0	143	76
normalized size	1	1.	1.19	2.36	0.	0.01	0.	1.7	0.9
time (sec)	N/A	0.164	0.133	0.029	0.	0.446	0.	0.23	12.114

Problem 2223	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	85	85	97	278	0	1	0	162	75
normalized size	1	1.	1.14	3.27	0.	0.01	0.	1.91	0.88
time (sec)	N/A	0.135	0.158	0.036	0.	0.508	0.	0.236	11.612

Problem 2224	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	94	94	65	73	0	189	0	242	83
normalized size	1	1.	0.69	0.78	0.	2.01	0.	2.57	0.88
time (sec)	N/A	0.169	0.127	0.01	0.	0.458	0.	0.236	12.433

Problem 2225	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	145	145	131	177	0	427	0	477	134
normalized size	1	1.	0.9	1.22	0.	2.94	0.	3.29	0.92
time (sec)	N/A	0.268	0.209	0.013	0.	0.646	0.	0.263	24.465

Problem 2226	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	198	198	148	322	0	738	0	782	187
normalized size	1	1.	0.75	1.63	0.	3.73	0.	3.95	0.94
time (sec)	N/A	0.365	0.5	0.013	0.	1.095	0.	0.288	36.427

Problem 2227	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	251	251	185	505	0	1133	0	1	240
normalized size	1	1.	0.74	2.01	0.	4.51	0.	0.	0.96
time (sec)	N/A	0.442	0.329	0.017	0.	2.61	0.	0.336	50.466

Problem 2228	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	249	249	231	1184	0	1	0	4	241
normalized size	1	1.	0.93	4.76	0.	0.	0.	0.02	0.97
time (sec)	N/A	0.518	0.474	0.049	0.	1.015	0.	0.659	50.003

Problem 2229	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	199	199	157	740	0	1	0	4	190
normalized size	1	1.	0.79	3.72	0.	0.01	0.	0.02	0.95
time (sec)	N/A	0.394	0.256	0.033	0.	0.733	0.	0.588	37.194

Problem 2230	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	145	145	108	386	0	1	0	4	136
normalized size	1	1.	0.74	2.66	0.	0.01	0.	0.03	0.94
time (sec)	N/A	0.28	0.123	0.032	0.	0.584	0.	0.545	28.004

Problem 2231	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	85	85	97	278	0	1	0	4	75
normalized size	1	1.	1.14	3.27	0.	0.01	0.	0.05	0.88
time (sec)	N/A	0.122	0.165	0.034	0.	0.513	0.	0.545	11.759

Problem 2232	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	89	89	61	72	0	200	0	227	78
normalized size	1	1.	0.69	0.81	0.	2.25	0.	2.55	0.88
time (sec)	N/A	0.178	0.13	0.01	0.	0.482	0.	0.258	14.007

Problem 2233	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	139	139	99	176	0	454	0	551	131
normalized size	1	1.	0.71	1.27	0.	3.27	0.	3.96	0.94
time (sec)	N/A	0.257	0.439	0.012	0.	0.679	0.	0.324	25.741

Problem 2234	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	187	187	137	322	0	787	0	1	180
normalized size	1	1.	0.73	1.72	0.	4.21	0.	0.01	0.96
time (sec)	N/A	0.339	0.474	0.014	0.	1.195	0.	0.456	37.017

Problem 2235	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	237	237	174	505	0	1197	0	1	231
normalized size	1	1.	0.73	2.13	0.	5.05	0.	0.	0.97
time (sec)	N/A	0.448	0.455	0.018	0.	2.364	0.	0.901	49.857

Problem 2236	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	302	302	326	1882	0	1	0	4	298
normalized size	1	1.	1.08	6.23	0.	0.	0.	0.01	0.99
time (sec)	N/A	0.634	0.993	0.057	0.	1.792	0.	0.731	63.837

Problem 2237	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	257	257	230	1250	0	1	0	4	253
normalized size	1	1.	0.89	4.86	0.	0.	0.	0.02	0.98
time (sec)	N/A	0.516	0.572	0.04	0.	1.144	0.	0.664	49.008

Problem 2238	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	201	201	149	698	0	1	0	4	194
normalized size	1	1.	0.74	3.47	0.	0.	0.	0.02	0.97
time (sec)	N/A	0.396	0.296	0.033	0.	0.833	0.	0.634	37.7

Problem 2239	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	111	111	128	503	0	1	0	4	100
normalized size	1	1.	1.15	4.53	0.	0.01	0.	0.04	0.9
time (sec)	N/A	0.167	0.189	0.032	0.	0.574	0.	0.579	16.512

Problem 2240	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	95	95	65	73	0	190	0	352	83
normalized size	1	1.	0.68	0.77	0.	2.	0.	3.71	0.87
time (sec)	N/A	0.167	0.131	0.01	0.	0.465	0.	0.255	13.47

Problem 2241	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	139	139	100	177	0	455	0	763	133
normalized size	1	1.	0.72	1.27	0.	3.27	0.	5.49	0.96
time (sec)	N/A	0.27	0.475	0.01	0.	0.674	0.	0.413	25.577

Problem 2242	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	186	186	135	320	0	763	0	1	177
normalized size	1	1.	0.73	1.72	0.	4.1	0.	0.01	0.95
time (sec)	N/A	0.352	0.593	0.013	0.	1.119	0.	0.7	33.821

Problem 2243	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	246	246	176	505	0	1237	0	1	241
normalized size	1	1.	0.72	2.05	0.	5.03	0.	0.	0.98
time (sec)	N/A	0.479	0.511	0.017	0.	2.593	0.	1.318	48.696

Problem 2244	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	298	298	215	722	0	1742	0	1	296
normalized size	1	1.	0.72	2.42	0.	5.85	0.	0.	0.99
time (sec)	N/A	0.575	0.736	0.019	0.	7.611	0.	2.652	64.201

Problem 2245	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	157	157	75	138	140	104	0	427	144
normalized size	1	1.	0.48	0.88	0.89	0.66	0.	2.72	0.92
time (sec)	N/A	0.231	0.135	0.024	1.505	0.221	0.	0.278	22.185

Problem 2246	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	128	128	70	121	117	97	0	317	117
normalized size	1	1.	0.55	0.95	0.91	0.76	0.	2.48	0.91
time (sec)	N/A	0.159	0.108	0.013	1.497	0.222	0.	0.275	14.755

Problem 2247	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	121	121	65	104	95	90	314	220	109
normalized size	1	1.	0.54	0.86	0.79	0.74	2.6	1.82	0.9
time (sec)	N/A	0.137	0.1	0.013	1.501	0.218	114.398	0.255	11.092

Problem 2248	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	94	94	60	87	74	84	168	135	83
normalized size	1	1.	0.64	0.93	0.79	0.89	1.79	1.44	0.88
time (sec)	N/A	0.095	0.08	0.011	1.479	0.217	48.655	0.261	8.172

Problem 2249	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	72	72	55	72	55	77	184	61	63
normalized size	1	1.	0.76	1.	0.76	1.07	2.56	0.85	0.88
time (sec)	N/A	0.063	0.042	0.008	1.501	0.214	4.332	0.244	6.47

Problem 2250	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	84	84	95	83	73	115	0	219	76
normalized size	1	1.	1.13	0.99	0.87	1.37	0.	2.61	0.9
time (sec)	N/A	0.17	0.137	0.015	1.511	0.23	0.	0.26	16.084

Problem 2251	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	91	91	102	131	82	138	0	358	82
normalized size	1	1.	1.12	1.44	0.9	1.52	0.	3.93	0.9
time (sec)	N/A	0.173	0.17	0.016	1.5	0.234	0.	0.296	16.024

Problem 2252	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	93	93	72	154	122	107	0	343	82
normalized size	1	1.	0.77	1.66	1.31	1.15	0.	3.69	0.88
time (sec)	N/A	0.127	0.064	0.016	1.521	0.233	0.	0.302	10.347

Problem 2253	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	122	122	77	202	163	127	0	425	109
normalized size	1	1.	0.63	1.66	1.34	1.04	0.	3.48	0.89
time (sec)	N/A	0.167	0.079	0.019	1.502	0.226	0.	0.337	12.972

Problem 2254	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	151	151	82	250	212	147	0	504	136
normalized size	1	1.	0.54	1.66	1.4	0.97	0.	3.34	0.9
time (sec)	N/A	0.296	0.115	0.019	1.536	0.222	0.	0.401	28.439

Problem 2255	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	180	180	87	298	267	167	0	582	163
normalized size	1	1.	0.48	1.66	1.48	0.93	0.	3.23	0.91
time (sec)	N/A	0.37	0.119	0.02	1.526	0.234	0.	0.501	35.125

Problem 2256	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	209	209	92	346	329	188	0	660	190
normalized size	1	1.	0.44	1.66	1.57	0.9	0.	3.16	0.91
time (sec)	N/A	0.45	0.13	0.023	1.521	0.235	0.	0.616	43.528

Problem 2257	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	179	179	80	155	163	111	925	548	165
normalized size	1	1.	0.45	0.87	0.91	0.62	5.17	3.06	0.92
time (sec)	N/A	0.252	0.151	0.016	1.497	0.234	76.398	0.297	24.054

Problem 2258	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	150	150	75	138	140	104	694	427	136
normalized size	1	1.	0.5	0.92	0.93	0.69	4.63	2.85	0.91
time (sec)	N/A	0.184	0.119	0.013	1.492	0.221	48.196	0.267	16.525

Problem 2259	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	143	143	70	121	117	97	488	317	129
normalized size	1	1.	0.49	0.85	0.82	0.68	3.41	2.22	0.9
time (sec)	N/A	0.163	0.103	0.013	1.501	0.218	30.317	0.255	13.297

Problem 2260	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	116	116	65	104	95	90	314	220	105
normalized size	1	1.	0.56	0.9	0.82	0.78	2.71	1.9	0.91
time (sec)	N/A	0.113	0.073	0.011	1.504	0.216	20.282	0.264	10.119

Problem 2261	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	94	94	60	88	74	84	230	135	83
normalized size	1	1.	0.64	0.94	0.79	0.89	2.45	1.44	0.88
time (sec)	N/A	0.081	0.053	0.006	1.495	0.22	9.296	0.234	7.845

Problem 2262	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	106	106	100	98	93	122	0	234	97
normalized size	1	1.	0.94	0.92	0.88	1.15	0.	2.21	0.92
time (sec)	N/A	0.234	0.142	0.013	1.488	0.232	0.	0.294	22.689

Problem 2263	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	115	115	107	146	101	161	0	377	100
normalized size	1	1.	0.93	1.27	0.88	1.4	0.	3.28	0.87
time (sec)	N/A	0.236	0.227	0.016	1.517	0.234	0.	0.326	23.315

Problem 2264	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	120	120	107	191	136	165	0	437	109
normalized size	1	1.	0.89	1.59	1.13	1.38	0.	3.64	0.91
time (sec)	N/A	0.241	0.187	0.016	1.509	0.232	0.	0.336	22.708

Problem 2265	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	122	122	77	202	163	127	0	429	109
normalized size	1	1.	0.63	1.66	1.34	1.04	0.	3.52	0.89
time (sec)	N/A	0.172	0.095	0.017	1.5	0.223	0.	0.354	13.665

Problem 2266	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	151	151	82	250	212	147	0	512	138
normalized size	1	1.	0.54	1.66	1.4	0.97	0.	3.39	0.91
time (sec)	N/A	0.214	0.108	0.017	1.514	0.222	0.	0.404	16.664

Problem 2267	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	180	180	87	298	267	167	0	594	163
normalized size	1	1.	0.48	1.66	1.48	0.93	0.	3.3	0.91
time (sec)	N/A	0.368	0.108	0.018	1.512	0.225	0.	0.465	35.892

Problem 2268	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	209	209	92	346	329	188	0	676	190
normalized size	1	1.	0.44	1.66	1.57	0.9	0.	3.23	0.91
time (sec)	N/A	0.439	0.148	0.019	1.555	0.225	0.	0.549	43.632

Problem 2269	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	201	201	85	172	186	117	0	1	187
normalized size	1	1.	0.42	0.86	0.93	0.58	0.	0.	0.93
time (sec)	N/A	0.276	0.161	0.017	1.49	0.22	0.	0.277	26.921

Problem 2270	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	172	172	80	155	163	111	0	548	158
normalized size	1	1.	0.47	0.9	0.95	0.65	0.	3.19	0.92
time (sec)	N/A	0.207	0.14	0.015	1.492	0.219	0.	0.279	19.249

Problem 2271	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	165	165	75	138	140	104	694	427	150
normalized size	1	1.	0.45	0.84	0.85	0.63	4.21	2.59	0.91
time (sec)	N/A	0.194	0.114	0.013	1.506	0.217	166.953	0.273	15.206

Problem 2272	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	138	138	70	121	117	97	488	317	126
normalized size	1	1.	0.51	0.88	0.85	0.7	3.54	2.3	0.91
time (sec)	N/A	0.142	0.114	0.011	1.494	0.219	118.613	0.265	12.258

Problem 2273	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	116	116	65	104	95	90	272	220	104
normalized size	1	1.	0.56	0.9	0.82	0.78	2.34	1.9	0.9
time (sec)	N/A	0.102	0.073	0.008	1.484	0.217	37.528	0.245	9.764

Problem 2274	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	130	130	105	115	112	136	0	251	117
normalized size	1	1.	0.81	0.88	0.86	1.05	0.	1.93	0.9
time (sec)	N/A	0.31	0.167	0.013	1.511	0.227	0.	0.29	30.389

Problem 2275	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	137	137	112	163	122	167	0	394	121
normalized size	1	1.	0.82	1.19	0.89	1.22	0.	2.88	0.88
time (sec)	N/A	0.305	0.221	0.019	1.486	0.229	0.	0.354	30.943

Problem 2276	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	144	144	112	208	136	188	0	463	128
normalized size	1	1.	0.78	1.44	0.94	1.31	0.	3.22	0.89
time (sec)	N/A	0.306	0.164	0.017	1.506	0.229	0.	0.386	30.031

Problem 2277	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	149	149	112	253	178	192	0	520	136
normalized size	1	1.	0.75	1.7	1.19	1.29	0.	3.49	0.91
time (sec)	N/A	0.313	0.184	0.019	1.57	0.234	0.	0.399	29.626

Problem 2278	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	151	151	82	250	212	147	0	512	136
normalized size	1	1.	0.54	1.66	1.4	0.97	0.	3.39	0.9
time (sec)	N/A	0.221	0.126	0.017	1.532	0.223	0.	0.414	17.105

Problem 2279	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	180	180	87	298	267	167	0	594	165
normalized size	1	1.	0.48	1.66	1.48	0.93	0.	3.3	0.92
time (sec)	N/A	0.269	0.15	0.017	1.515	0.223	0.	0.485	20.595

Problem 2280	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	209	209	92	346	329	188	0	676	190
normalized size	1	1.	0.44	1.66	1.57	0.9	0.	3.23	0.91
time (sec)	N/A	0.454	0.133	0.02	1.505	0.223	0.	0.601	43.867

Problem 2281	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	238	238	97	394	398	208	0	759	218
normalized size	1	1.	0.41	1.66	1.67	0.87	0.	3.19	0.92
time (sec)	N/A	0.531	0.145	0.033	1.531	0.23	0.	0.717	52.778

Problem 2282	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	119	119	193	300	0	1	0	328	104
normalized size	1	1.	1.62	2.52	0.	0.01	0.	2.76	0.87
time (sec)	N/A	0.317	0.398	0.064	0.	5.753	0.	0.283	26.962

Problem 2283	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	119	119	193	300	0	1	0	321	104
normalized size	1	1.	1.62	2.52	0.	0.01	0.	2.7	0.87
time (sec)	N/A	0.249	0.247	0.034	0.	5.773	0.	0.265	27.014

Problem 2284	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	106	106	65	104	99	90	462	274	97
normalized size	1	1.	0.61	0.98	0.93	0.85	4.36	2.58	0.92
time (sec)	N/A	0.135	0.121	0.016	1.509	0.222	15.491	0.249	13.378

Problem 2285	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	99	99	60	87	78	84	291	189	88
normalized size	1	1.	0.61	0.88	0.79	0.85	2.94	1.91	0.89
time (sec)	N/A	0.116	0.086	0.015	1.506	0.215	10.91	0.243	9.334

Problem 2286	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	72	72	55	70	59	77	165	116	65
normalized size	1	1.	0.76	0.97	0.82	1.07	2.29	1.61	0.9
time (sec)	N/A	0.073	0.053	0.013	1.491	0.222	7.795	0.231	6.668

Problem 2287	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	50	50	50	56	39	70	141	54	42
normalized size	1	1.	1.	1.12	0.78	1.4	2.82	1.08	0.84
time (sec)	N/A	0.044	0.037	0.005	1.493	0.219	2.75	0.221	4.614

Problem 2288	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	64	64	75	69	54	96	0	196	60
normalized size	1	1.	1.17	1.08	0.84	1.5	0.	3.06	0.94
time (sec)	N/A	0.104	0.109	0.017	1.507	0.229	0.	0.242	8.667

Problem 2289	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	59	59	69	108	66	86	0	266	54
normalized size	1	1.	1.17	1.83	1.12	1.46	0.	4.51	0.92
time (sec)	N/A	0.09	0.06	0.017	1.507	0.223	0.	0.252	7.512

Problem 2290	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	93	93	72	154	103	107	0	347	83
normalized size	1	1.	0.77	1.66	1.11	1.15	0.	3.73	0.89
time (sec)	N/A	0.125	0.067	0.019	1.5	0.229	0.	0.284	10.166

Problem 2291	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	122	122	77	202	144	127	0	425	109
normalized size	1	1.	0.63	1.66	1.18	1.04	0.	3.48	0.89
time (sec)	N/A	0.227	0.086	0.02	1.499	0.221	0.	0.33	22.619

Problem 2292	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	151	151	82	250	193	147	0	504	136
normalized size	1	1.	0.54	1.66	1.28	0.97	0.	3.34	0.9
time (sec)	N/A	0.297	0.109	0.02	1.516	0.226	0.	0.407	28.5

Problem 2293	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	113	113	65	116	107	107	0	165	104
normalized size	1	1.	0.58	1.03	0.95	0.95	0.	1.46	0.92
time (sec)	N/A	0.179	0.173	0.02	1.511	0.224	0.	0.298	19.284

Problem 2294	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	94	94	60	99	88	100	0	150	85
normalized size	1	1.	0.64	1.05	0.94	1.06	0.	1.6	0.9
time (sec)	N/A	0.115	0.138	0.019	1.513	0.218	0.	0.27	9.713

Problem 2295	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	72	72	55	82	68	93	0	132	65
normalized size	1	1.	0.76	1.14	0.94	1.29	0.	1.83	0.9
time (sec)	N/A	0.076	0.102	0.015	1.507	0.219	0.	0.249	7.12

Problem 2296	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	52	52	49	0	49	93	153	112	46
normalized size	1	1.	0.94	0.	0.94	1.79	2.94	2.15	0.88
time (sec)	N/A	0.045	0.087	0.049	1.508	0.218	2.704	0.227	5.211

Problem 2297	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	53	53	55	100	78	81	0	184	49
normalized size	1	1.	1.04	1.89	1.47	1.53	0.	3.47	0.92
time (sec)	N/A	0.082	0.066	0.019	1.506	0.217	0.	0.235	7.49

Problem 2298	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	84	84	70	154	124	107	0	347	82
normalized size	1	1.	0.83	1.83	1.48	1.27	0.	4.13	0.98
time (sec)	N/A	0.122	0.094	0.021	1.506	0.222	0.	0.254	10.147

Problem 2299	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	115	115	77	202	193	127	0	427	104
normalized size	1	1.	0.67	1.76	1.68	1.1	0.	3.71	0.9
time (sec)	N/A	0.234	0.087	0.02	1.515	0.223	0.	0.293	21.578

Problem 2300	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	144	144	82	250	285	147	0	505	131
normalized size	1	1.	0.57	1.74	1.98	1.02	0.	3.51	0.91
time (sec)	N/A	0.309	0.106	0.022	1.517	0.224	0.	0.347	28.877

Problem 2301	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-1)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	142	142	70	147	0	127	0	255	133
normalized size	1	1.	0.49	1.04	0.	0.89	0.	1.8	0.94
time (sec)	N/A	0.264	0.211	0.021	0.	0.222	0.	0.316	26.781

Problem 2302	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-1)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	113	113	65	130	0	120	0	238	104
normalized size	1	1.	0.58	1.15	0.	1.06	0.	2.11	0.92
time (sec)	N/A	0.191	0.175	0.018	0.	0.221	0.	0.297	19.031

Problem 2303	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-1)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	94	94	60	113	0	113	0	220	85
normalized size	1	1.	0.64	1.2	0.	1.2	0.	2.34	0.9
time (sec)	N/A	0.117	0.148	0.016	0.	0.223	0.	0.287	10.62

Problem 2304	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	74	74	57	96	65	115	0	194	66
normalized size	1	1.	0.77	1.3	0.88	1.55	0.	2.62	0.89
time (sec)	N/A	0.074	0.125	0.015	1.608	0.217	0.	0.278	7.435

Problem 2305	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	22	22	22	17	65	45	100	176	20
normalized size	1	1.	1.	0.77	2.95	2.05	4.55	8.	0.91
time (sec)	N/A	0.016	0.03	0.004	1.501	0.213	5.097	0.234	2.843

Problem 2306	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	75	75	63	147	117	103	0	267	70
normalized size	1	1.	0.84	1.96	1.56	1.37	0.	3.56	0.93
time (sec)	N/A	0.122	0.111	0.02	1.516	0.219	0.	0.254	10.092

Problem 2307	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	103	103	77	202	163	127	0	429	95
normalized size	1	1.	0.75	1.96	1.58	1.23	0.	4.17	0.92
time (sec)	N/A	0.225	0.092	0.02	1.505	0.22	0.	0.307	21.332

Problem 2308	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	137	137	82	250	232	147	0	509	124
normalized size	1	1.	0.6	1.82	1.69	1.07	0.	3.72	0.91
time (sec)	N/A	0.312	0.104	0.022	1.515	0.221	0.	0.364	28.918

Problem 2309	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	166	166	87	298	324	167	0	587	151
normalized size	1	1.	0.52	1.8	1.95	1.01	0.	3.54	0.91
time (sec)	N/A	0.391	0.114	0.022	1.519	0.228	0.	0.459	37.451

Problem 2310	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	150	150	75	138	140	104	695	427	136
normalized size	1	1.	0.5	0.92	0.93	0.69	4.63	2.85	0.91
time (sec)	N/A	0.184	0.13	0.014	1.504	0.22	49.194	0.27	17.871

Problem 2311	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	143	143	70	121	117	97	490	317	129
normalized size	1	1.	0.49	0.85	0.82	0.68	3.43	2.22	0.9
time (sec)	N/A	0.166	0.11	0.013	1.493	0.225	30.841	0.253	14.156

Problem 2312	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	116	116	65	104	95	90	316	220	105
normalized size	1	1.	0.56	0.9	0.82	0.78	2.72	1.9	0.91
time (sec)	N/A	0.116	0.068	0.012	1.479	0.218	20.446	0.238	10.368

Problem 2313	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	94	94	60	88	74	84	230	135	83
normalized size	1	1.	0.64	0.94	0.79	0.89	2.45	1.44	0.88
time (sec)	N/A	0.084	0.08	0.005	1.504	0.217	9.012	0.224	8.084

Problem 2314	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	106	106	100	98	93	122	0	234	97
normalized size	1	1.	0.94	0.92	0.88	1.15	0.	2.21	0.92
time (sec)	N/A	0.237	0.158	0.013	1.501	0.23	0.	0.283	23.452

Problem 2315	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	115	115	107	146	101	153	0	377	102
normalized size	1	1.	0.93	1.27	0.88	1.33	0.	3.28	0.89
time (sec)	N/A	0.24	0.144	0.017	1.503	0.229	0.	0.317	23.551

Problem 2316	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	120	120	107	191	136	165	0	437	107
normalized size	1	1.	0.89	1.59	1.13	1.38	0.	3.64	0.89
time (sec)	N/A	0.238	0.145	0.017	1.522	0.229	0.	0.325	23.092

Problem 2317	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	122	122	77	202	163	127	0	429	109
normalized size	1	1.	0.63	1.66	1.34	1.04	0.	3.52	0.89
time (sec)	N/A	0.167	0.086	0.017	1.512	0.221	0.	0.331	13.969

Problem 2318	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	151	151	82	250	212	147	0	512	138
normalized size	1	1.	0.54	1.66	1.4	0.97	0.	3.39	0.91
time (sec)	N/A	0.213	0.092	0.019	1.519	0.226	0.	0.391	16.853

Problem 2319	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	180	180	87	298	267	167	0	594	163
normalized size	1	1.	0.48	1.66	1.48	0.93	0.	3.3	0.91
time (sec)	N/A	0.37	0.102	0.017	1.517	0.222	0.	0.459	36.718

Problem 2320	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	172	172	80	155	157	111	0	548	158
normalized size	1	1.	0.47	0.9	0.91	0.65	0.	3.19	0.92
time (sec)	N/A	0.212	0.145	0.014	1.508	0.225	0.	0.276	19.363

Problem 2321	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	165	165	75	138	134	104	0	427	150
normalized size	1	1.	0.45	0.84	0.81	0.63	0.	2.59	0.91
time (sec)	N/A	0.195	0.122	0.012	1.505	0.222	0.	0.257	15.642

Problem 2322	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	138	138	70	121	113	97	0	317	126
normalized size	1	1.	0.51	0.88	0.82	0.7	0.	2.3	0.91
time (sec)	N/A	0.144	0.084	0.012	1.493	0.22	0.	0.245	12.532

Problem 2323	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	116	116	65	104	95	90	269	220	104
normalized size	1	1.	0.56	0.9	0.82	0.78	2.32	1.9	0.9
time (sec)	N/A	0.107	0.099	0.006	1.507	0.218	17.827	0.243	10.01

Problem 2324	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	128	128	105	115	112	128	0	251	117
normalized size	1	1.	0.82	0.9	0.88	1.	0.	1.96	0.91
time (sec)	N/A	0.297	0.184	0.017	1.513	0.232	0.	0.286	30.064

Problem 2325	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	135	135	112	163	122	151	0	394	119
normalized size	1	1.	0.83	1.21	0.9	1.12	0.	2.92	0.88
time (sec)	N/A	0.301	0.17	0.017	1.517	0.235	0.	0.355	30.197

Problem 2326	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	142	142	112	208	176	171	0	463	129
normalized size	1	1.	0.79	1.46	1.24	1.2	0.	3.26	0.91
time (sec)	N/A	0.304	0.175	0.017	1.527	0.232	0.	0.394	29.632

Problem 2327	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	149	149	112	253	217	192	0	520	134
normalized size	1	1.	0.75	1.7	1.46	1.29	0.	3.49	0.9
time (sec)	N/A	0.306	0.185	0.017	1.49	0.233	0.	0.395	29.612

Problem 2328	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	151	151	82	250	251	147	0	512	136
normalized size	1	1.	0.54	1.66	1.66	0.97	0.	3.39	0.9
time (sec)	N/A	0.216	0.101	0.018	1.507	0.223	0.	0.412	17.133

Problem 2329	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	180	180	87	298	306	167	0	594	165
normalized size	1	1.	0.48	1.66	1.7	0.93	0.	3.3	0.92
time (sec)	N/A	0.271	0.142	0.018	1.519	0.225	0.	0.491	20.193

Problem 2330	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	209	209	92	346	369	188	0	676	190
normalized size	1	1.	0.44	1.66	1.77	0.9	0.	3.23	0.91
time (sec)	N/A	0.445	0.138	0.02	1.515	0.229	0.	0.599	43.928

Problem 2331	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	238	238	121	394	437	208	0	759	218
normalized size	1	1.	0.51	1.66	1.84	0.87	0.	3.19	0.92
time (sec)	N/A	0.52	0.157	0.018	1.543	0.233	0.	0.698	52.671

Problem 2332	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	194	194	85	172	180	117	0	1	178
normalized size	1	1.	0.44	0.89	0.93	0.6	0.	0.01	0.92
time (sec)	N/A	0.244	0.153	0.016	1.514	0.223	0.	0.275	21.14

Problem 2333	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	187	187	80	155	157	111	0	548	170
normalized size	1	1.	0.43	0.83	0.84	0.59	0.	2.93	0.91
time (sec)	N/A	0.222	0.133	0.014	1.505	0.217	0.	0.272	17.553

Problem 2334	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	160	160	75	138	134	104	0	427	144
normalized size	1	1.	0.47	0.86	0.84	0.65	0.	2.67	0.9
time (sec)	N/A	0.169	0.101	0.011	1.509	0.222	0.	0.256	14.222

Problem 2335	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	138	138	70	120	113	97	311	317	124
normalized size	1	1.	0.51	0.87	0.82	0.7	2.25	2.3	0.9
time (sec)	N/A	0.131	0.107	0.007	1.501	0.217	147.195	0.249	11.741

Problem 2336	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	150	150	110	132	132	135	0	269	138
normalized size	1	1.	0.73	0.88	0.88	0.9	0.	1.79	0.92
time (sec)	N/A	0.37	0.21	0.013	1.5	0.238	0.	0.307	37.715

Problem 2337	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	159	159	117	180	140	166	0	412	141
normalized size	1	1.	0.74	1.13	0.88	1.04	0.	2.59	0.89
time (sec)	N/A	0.379	0.21	0.018	1.501	0.234	0.	0.396	37.656

Problem 2338	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	166	166	117	225	176	194	0	481	148
normalized size	1	1.	0.7	1.36	1.06	1.17	0.	2.9	0.89
time (sec)	N/A	0.38	0.226	0.019	1.505	0.233	0.	0.456	36.944

Problem 2339	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	171	171	117	270	217	198	0	545	156
normalized size	1	1.	0.68	1.58	1.27	1.16	0.	3.19	0.91
time (sec)	N/A	0.383	0.238	0.018	1.541	0.232	0.	0.503	36.613

Problem 2340	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	178	178	117	315	266	219	0	602	162
normalized size	1	1.	0.66	1.77	1.49	1.23	0.	3.38	0.91
time (sec)	N/A	0.386	0.245	0.018	1.517	0.236	0.	0.495	36.807

Problem 2341	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	180	180	87	298	306	167	0	594	163
normalized size	1	1.	0.48	1.66	1.7	0.93	0.	3.3	0.91
time (sec)	N/A	0.264	0.11	0.019	1.527	0.223	0.	0.501	21.553

Problem 2342	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	209	209	92	346	369	188	0	676	190
normalized size	1	1.	0.44	1.66	1.77	0.9	0.	3.23	0.91
time (sec)	N/A	0.321	0.153	0.02	1.522	0.229	0.	0.603	24.152

Problem 2343	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	238	238	97	394	437	208	0	759	218
normalized size	1	1.	0.41	1.66	1.84	0.87	0.	3.19	0.92
time (sec)	N/A	0.534	0.15	0.021	1.523	0.238	0.	0.73	52.075

Problem 2344	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	128	128	70	121	124	97	593	371	117
normalized size	1	1.	0.55	0.95	0.97	0.76	4.63	2.9	0.91
time (sec)	N/A	0.165	0.129	0.016	1.514	0.224	97.146	0.274	14.821

Problem 2345	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	121	121	65	104	101	90	394	274	109
normalized size	1	1.	0.54	0.86	0.83	0.74	3.26	2.26	0.9
time (sec)	N/A	0.141	0.105	0.014	1.508	0.23	56.895	0.238	11.111

Problem 2346	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	94	94	60	87	78	84	223	189	83
normalized size	1	1.	0.64	0.93	0.83	0.89	2.37	2.01	0.88
time (sec)	N/A	0.096	0.094	0.013	1.495	0.217	33.642	0.233	8.209

Problem 2347	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	72	72	55	72	55	77	184	116	63
normalized size	1	1.	0.76	1.	0.76	1.07	2.56	1.61	0.88
time (sec)	N/A	0.062	0.049	0.006	1.494	0.215	5.337	0.237	6.166

Problem 2348	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	86	86	95	83	73	123	0	216	80
normalized size	1	1.	1.1	0.97	0.85	1.43	0.	2.51	0.93
time (sec)	N/A	0.171	0.117	0.017	1.505	0.239	0.	0.259	15.194

Problem 2349	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	93	93	104	131	82	146	0	351	82
normalized size	1	1.	1.12	1.41	0.88	1.57	0.	3.77	0.88
time (sec)	N/A	0.174	0.144	0.02	1.496	0.235	0.	0.29	15.539

Problem 2350	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	93	93	72	154	103	107	0	346	82
normalized size	1	1.	0.77	1.66	1.11	1.15	0.	3.72	0.88
time (sec)	N/A	0.125	0.071	0.019	1.5	0.228	0.	0.288	10.641

Problem 2351	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	122	122	77	202	144	127	0	429	109
normalized size	1	1.	0.63	1.66	1.18	1.04	0.	3.52	0.89
time (sec)	N/A	0.173	0.088	0.022	1.5	0.223	0.	0.338	13.584

Problem 2352	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	151	151	82	250	193	147	0	512	138
normalized size	1	1.	0.54	1.66	1.28	0.97	0.	3.39	0.91
time (sec)	N/A	0.303	0.143	0.022	1.512	0.22	0.	0.38	28.177

Problem 2353	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	180	180	103	298	248	167	0	594	165
normalized size	1	1.	0.57	1.66	1.38	0.93	0.	3.3	0.92
time (sec)	N/A	0.371	0.155	0.023	1.515	0.232	0.	0.463	35.435

Problem 2354	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	135	135	70	133	248	113	0	185	124
normalized size	1	1.	0.52	0.99	1.84	0.84	0.	1.37	0.92
time (sec)	N/A	0.204	0.195	0.017	1.51	0.221	0.	0.304	21.348

Problem 2355	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	116	116	65	116	208	107	0	167	105
normalized size	1	1.	0.56	1.	1.79	0.92	0.	1.44	0.91
time (sec)	N/A	0.143	0.164	0.018	1.504	0.228	0.	0.279	11.571

Problem 2356	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	94	94	60	99	131	100	0	150	83
normalized size	1	1.	0.64	1.05	1.39	1.06	0.	1.6	0.88
time (sec)	N/A	0.096	0.12	0.016	1.507	0.223	0.	0.267	8.818

Problem 2357	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	74	74	57	0	84	101	187	132	66
normalized size	1	1.	0.77	0.	1.14	1.36	2.53	1.78	0.89
time (sec)	N/A	0.06	0.081	0.052	1.501	0.221	5.181	0.247	6.633

Problem 2358	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	86	86	97	124	93	146	0	270	78
normalized size	1	1.	1.13	1.44	1.08	1.7	0.	3.14	0.91
time (sec)	N/A	0.17	0.226	0.02	1.498	0.227	0.	0.274	15.861

Problem 2359	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	79	79	70	154	124	103	0	340	78
normalized size	1	1.	0.89	1.95	1.57	1.3	0.	4.3	0.99
time (sec)	N/A	0.129	0.093	0.02	1.513	0.221	0.	0.28	10.363

Problem 2360	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	115	115	77	202	193	127	0	427	110
normalized size	1	1.	0.67	1.76	1.68	1.1	0.	3.71	0.96
time (sec)	N/A	0.173	0.088	0.02	1.51	0.22	0.	0.315	13.303

Problem 2361	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	144	144	82	250	285	147	0	509	133
normalized size	1	1.	0.57	1.74	1.98	1.02	0.	3.53	0.92
time (sec)	N/A	0.321	0.107	0.023	1.527	0.222	0.	0.355	28.481

Problem 2362	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	173	173	87	298	400	167	0	591	160
normalized size	1	1.	0.5	1.72	2.31	0.97	0.	3.42	0.92
time (sec)	N/A	0.404	0.135	0.023	1.521	0.223	0.	0.423	35.576

Problem 2363	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	142	142	70	147	285	127	0	255	124
normalized size	1	1.	0.49	1.04	2.01	0.89	0.	1.8	0.87
time (sec)	N/A	0.263	0.201	0.02	1.535	0.223	0.	0.313	21.007

Problem 2364	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	116	116	65	130	208	120	0	238	105
normalized size	1	1.	0.56	1.12	1.79	1.03	0.	2.05	0.91
time (sec)	N/A	0.143	0.171	0.018	1.522	0.218	0.	0.3	12.059

Problem 2365	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	96	96	62	113	161	122	0	220	87
normalized size	1	1.	0.65	1.18	1.68	1.27	0.	2.29	0.91
time (sec)	N/A	0.096	0.139	0.016	1.497	0.22	0.	0.279	9.149

Problem 2366	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	74	74	55	0	126	113	206	194	65
normalized size	1	1.	0.74	0.	1.7	1.53	2.78	2.62	0.88
time (sec)	N/A	0.063	0.13	0.066	1.488	0.218	9.873	0.26	6.911

Problem 2367	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	75	75	63	147	140	103	0	262	70
normalized size	1	1.	0.84	1.96	1.87	1.37	0.	3.49	0.93
time (sec)	N/A	0.124	0.129	0.02	1.526	0.219	0.	0.287	10.322

Problem 2368	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	104	104	77	202	163	123	0	423	105
normalized size	1	1.	0.74	1.94	1.57	1.18	0.	4.07	1.01
time (sec)	N/A	0.164	0.09	0.021	1.505	0.219	0.	0.323	13.005

Problem 2369	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	137	137	82	250	232	147	0	509	126
normalized size	1	1.	0.6	1.82	1.69	1.07	0.	3.72	0.92
time (sec)	N/A	0.33	0.103	0.021	1.494	0.223	0.	0.352	28.109

Problem 2370	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	166	166	87	298	324	167	0	591	153
normalized size	1	1.	0.52	1.8	1.95	1.01	0.	3.56	0.92
time (sec)	N/A	0.388	0.115	0.021	1.537	0.228	0.	0.418	35.632

Problem 2371	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	172	172	80	155	163	111	0	548	158
normalized size	1	1.	0.47	0.9	0.95	0.65	0.	3.19	0.92
time (sec)	N/A	0.21	0.141	0.014	1.51	0.218	0.	0.28	18.881

Problem 2372	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	165	165	75	138	140	104	695	427	150
normalized size	1	1.	0.45	0.84	0.85	0.63	4.21	2.59	0.91
time (sec)	N/A	0.191	0.12	0.014	1.523	0.214	166.381	0.264	15.867

Problem 2373	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	138	138	70	121	117	97	490	317	126
normalized size	1	1.	0.51	0.88	0.85	0.7	3.55	2.3	0.91
time (sec)	N/A	0.141	0.08	0.013	1.487	0.217	118.586	0.254	12.193

Problem 2374	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	116	116	65	104	95	90	269	220	104
normalized size	1	1.	0.56	0.9	0.82	0.78	2.32	1.9	0.9
time (sec)	N/A	0.109	0.092	0.007	1.483	0.215	35.777	0.245	9.77

Problem 2375	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	128	128	105	115	112	128	0	251	117
normalized size	1	1.	0.82	0.9	0.88	1.	0.	1.96	0.91
time (sec)	N/A	0.31	0.198	0.013	1.486	0.229	0.	0.294	30.198

Problem 2376	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	135	135	112	163	122	151	0	394	121
normalized size	1	1.	0.83	1.21	0.9	1.12	0.	2.92	0.9
time (sec)	N/A	0.307	0.159	0.017	1.511	0.228	0.	0.367	31.196

Problem 2377	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	144	144	112	208	136	180	0	463	128
normalized size	1	1.	0.78	1.44	0.94	1.25	0.	3.22	0.89
time (sec)	N/A	0.304	0.172	0.017	1.511	0.227	0.	0.4	30.359

Problem 2378	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	149	149	112	253	178	192	0	520	134
normalized size	1	1.	0.75	1.7	1.19	1.29	0.	3.49	0.9
time (sec)	N/A	0.314	0.194	0.017	1.516	0.237	0.	0.401	29.767

Problem 2379	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	151	151	82	250	212	147	0	512	136
normalized size	1	1.	0.54	1.66	1.4	0.97	0.	3.39	0.9
time (sec)	N/A	0.216	0.088	0.017	1.551	0.224	0.	0.415	17.081

Problem 2380	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	180	180	87	298	267	167	0	594	165
normalized size	1	1.	0.48	1.66	1.48	0.93	0.	3.3	0.92
time (sec)	N/A	0.264	0.113	0.018	1.635	0.227	0.	0.498	20.37

Problem 2381	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	209	209	92	346	329	188	0	676	189
normalized size	1	1.	0.44	1.66	1.57	0.9	0.	3.23	0.9
time (sec)	N/A	0.453	0.155	0.018	1.515	0.226	0.	0.613	43.899

Problem 2382	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	194	194	85	172	180	117	0	1	178
normalized size	1	1.	0.44	0.89	0.93	0.6	0.	0.01	0.92
time (sec)	N/A	0.242	0.153	0.014	1.49	0.225	0.	0.292	21.23

Problem 2383	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	187	187	80	155	157	111	0	548	170
normalized size	1	1.	0.43	0.83	0.84	0.59	0.	2.93	0.91
time (sec)	N/A	0.221	0.146	0.013	1.503	0.219	0.	0.287	17.522

Problem 2384	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	160	160	75	138	134	104	0	427	144
normalized size	1	1.	0.47	0.86	0.84	0.65	0.	2.67	0.9
time (sec)	N/A	0.171	0.098	0.013	1.496	0.22	0.	0.269	14.572

Problem 2385	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	138	138	70	120	113	97	311	317	124
normalized size	1	1.	0.51	0.87	0.82	0.7	2.25	2.3	0.9
time (sec)	N/A	0.131	0.106	0.007	1.499	0.216	146.246	0.259	12.031

Problem 2386	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	150	150	110	132	132	135	0	269	138
normalized size	1	1.	0.73	0.88	0.88	0.9	0.	1.79	0.92
time (sec)	N/A	0.367	0.193	0.014	1.515	0.229	0.	0.314	37.571

Problem 2387	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	157	157	117	180	140	158	0	412	141
normalized size	1	1.	0.75	1.15	0.89	1.01	0.	2.62	0.9
time (sec)	N/A	0.369	0.226	0.017	1.489	0.232	0.	0.409	37.926

Problem 2388	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	164	164	117	225	176	178	0	481	150
normalized size	1	1.	0.71	1.37	1.07	1.09	0.	2.93	0.91
time (sec)	N/A	0.366	0.183	0.018	1.506	0.236	0.	0.456	37.202

Problem 2389	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	171	171	117	270	217	198	0	545	155
normalized size	1	1.	0.68	1.58	1.27	1.16	0.	3.19	0.91
time (sec)	N/A	0.375	0.221	0.017	1.52	0.236	0.	0.498	36.905

Problem 2390	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	178	178	117	315	266	219	0	602	162
normalized size	1	1.	0.66	1.77	1.49	1.23	0.	3.38	0.91
time (sec)	N/A	0.38	0.233	0.02	1.532	0.235	0.	0.526	36.445

Problem 2391	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	180	180	87	298	306	167	0	594	163
normalized size	1	1.	0.48	1.66	1.7	0.93	0.	3.3	0.91
time (sec)	N/A	0.269	0.117	0.017	1.528	0.225	0.	0.524	20.613

Problem 2392	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	209	209	92	346	369	188	0	676	190
normalized size	1	1.	0.44	1.66	1.77	0.9	0.	3.23	0.91
time (sec)	N/A	0.315	0.156	0.018	1.523	0.231	0.	0.638	23.823

Problem 2393	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	238	238	97	394	437	208	0	759	218
normalized size	1	1.	0.41	1.66	1.84	0.87	0.	3.19	0.92
time (sec)	N/A	0.523	0.15	0.02	1.531	0.235	0.	0.756	52.158

Problem 2394	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	216	216	90	189	196	124	0	1	197
normalized size	1	1.	0.42	0.88	0.91	0.57	0.	0.	0.91
time (sec)	N/A	0.274	0.192	0.018	1.505	0.22	0.	0.294	24.091

Problem 2395	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	209	209	85	172	173	117	0	1	190
normalized size	1	1.	0.41	0.82	0.83	0.56	0.	0.	0.91
time (sec)	N/A	0.255	0.156	0.014	1.502	0.223	0.	0.295	20.809

Problem 2396	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	182	182	80	155	153	111	0	548	167
normalized size	1	1.	0.44	0.85	0.84	0.61	0.	3.01	0.92
time (sec)	N/A	0.201	0.104	0.013	1.503	0.221	0.	0.274	16.547

Problem 2397	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	160	160	75	136	134	104	0	427	144
normalized size	1	1.	0.47	0.85	0.84	0.65	0.	2.67	0.9
time (sec)	N/A	0.157	0.093	0.007	1.496	0.225	0.	0.266	13.718

Problem 2398	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	172	172	115	149	151	142	0	286	158
normalized size	1	1.	0.67	0.87	0.88	0.83	0.	1.66	0.92
time (sec)	N/A	0.447	0.21	0.014	1.511	0.235	0.	0.336	44.872

Problem 2399	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	179	179	122	197	161	165	0	429	162
normalized size	1	1.	0.68	1.1	0.9	0.92	0.	2.4	0.91
time (sec)	N/A	0.458	0.213	0.018	1.512	0.231	0.	0.456	45.198

Problem 2400	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	188	188	122	242	215	193	0	498	168
normalized size	1	1.	0.65	1.29	1.14	1.03	0.	2.65	0.89
time (sec)	N/A	0.457	0.209	0.019	1.525	0.238	0.	0.534	45.83

Problem 2401	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	195	195	122	287	257	221	0	563	177
normalized size	1	1.	0.63	1.47	1.32	1.13	0.	2.89	0.91
time (sec)	N/A	0.458	0.249	0.019	1.528	0.233	0.	0.604	44.704

Problem 2402	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	200	200	122	332	305	225	0	628	182
normalized size	1	1.	0.61	1.66	1.52	1.12	0.	3.14	0.91
time (sec)	N/A	0.458	0.275	0.018	1.529	0.235	0.	0.641	44.414

Problem 2403	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	207	207	122	377	360	246	0	684	189
normalized size	1	1.	0.59	1.82	1.74	1.19	0.	3.3	0.91
time (sec)	N/A	0.466	0.291	0.02	1.525	0.241	0.	0.62	44.264

Problem 2404	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	209	209	92	346	408	188	0	676	190
normalized size	1	1.	0.44	1.66	1.95	0.9	0.	3.23	0.91
time (sec)	N/A	0.325	0.184	0.019	1.623	0.231	0.	0.657	24.618

Problem 2405	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	238	238	97	394	477	208	0	759	219
normalized size	1	1.	0.41	1.66	2.	0.87	0.	3.19	0.92
time (sec)	N/A	0.377	0.154	0.019	1.529	0.231	0.	0.803	28.447

Problem 2406	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	267	267	102	442	552	228	0	841	245
normalized size	1	1.	0.38	1.66	2.07	0.85	0.	3.15	0.92
time (sec)	N/A	0.627	0.164	0.037	1.531	0.231	0.	0.943	60.695

Problem 2407	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	179	179	80	155	170	111	0	602	165
normalized size	1	1.	0.45	0.87	0.95	0.62	0.	3.36	0.92
time (sec)	N/A	0.269	0.154	0.015	1.502	0.22	0.	0.281	24.811

Problem 2408	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	150	150	75	138	147	104	0	481	136
normalized size	1	1.	0.5	0.92	0.98	0.69	0.	3.21	0.91
time (sec)	N/A	0.192	0.127	0.015	1.516	0.22	0.	0.273	17.092

Problem 2409	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	143	143	70	121	124	97	0	371	129
normalized size	1	1.	0.49	0.85	0.87	0.68	0.	2.59	0.9
time (sec)	N/A	0.168	0.119	0.014	1.509	0.222	0.	0.26	13.458

Problem 2410	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	116	116	65	104	101	90	296	274	105
normalized size	1	1.	0.56	0.9	0.87	0.78	2.55	2.36	0.91
time (sec)	N/A	0.12	0.08	0.013	1.511	0.226	81.22	0.249	10.334

Problem 2411	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	94	94	60	88	78	84	230	189	83
normalized size	1	1.	0.64	0.94	0.83	0.89	2.45	2.01	0.88
time (sec)	N/A	0.085	0.056	0.006	1.515	0.225	22.324	0.24	7.924

Problem 2412	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	106	106	100	98	93	122	0	234	99
normalized size	1	1.	0.94	0.92	0.88	1.15	0.	2.21	0.93
time (sec)	N/A	0.236	0.176	0.017	1.527	0.239	0.	0.283	22.733

Problem 2413	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	115	115	107	146	101	153	0	377	102
normalized size	1	1.	0.93	1.27	0.88	1.33	0.	3.28	0.89
time (sec)	N/A	0.237	0.183	0.02	1.496	0.231	0.	0.338	23.404

Problem 2414	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	122	122	111	191	117	173	0	437	109
normalized size	1	1.	0.91	1.57	0.96	1.42	0.	3.58	0.89
time (sec)	N/A	0.237	0.154	0.019	1.509	0.232	0.	0.35	22.362

Problem 2415	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	122	122	77	202	144	127	0	429	109
normalized size	1	1.	0.63	1.66	1.18	1.04	0.	3.52	0.89
time (sec)	N/A	0.167	0.105	0.02	1.525	0.234	0.	0.368	13.609

Problem 2416	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	151	151	82	250	193	147	0	512	138
normalized size	1	1.	0.54	1.66	1.28	0.97	0.	3.39	0.91
time (sec)	N/A	0.218	0.117	0.024	1.502	0.234	0.	0.414	17.159

Problem 2417	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	180	180	87	298	248	167	0	594	165
normalized size	1	1.	0.48	1.66	1.38	0.93	0.	3.3	0.92
time (sec)	N/A	0.369	0.113	0.023	1.503	0.231	0.	0.494	35.257

Problem 2418	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	209	209	112	346	311	188	0	676	192
normalized size	1	1.	0.54	1.66	1.49	0.9	0.	3.23	0.92
time (sec)	N/A	0.448	0.158	0.022	1.506	0.229	0.	0.595	42.44

Problem 2419	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	186	186	84	167	193	127	0	220	173
normalized size	1	1.	0.45	0.9	1.04	0.68	0.	1.18	0.93
time (sec)	N/A	0.314	0.202	0.02	1.522	0.229	0.	0.352	30.999

Problem 2420	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	157	157	75	150	170	120	0	203	144
normalized size	1	1.	0.48	0.96	1.08	0.76	0.	1.29	0.92
time (sec)	N/A	0.235	0.197	0.023	1.506	0.229	0.	0.322	24.872

Problem 2421	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	138	138	70	133	147	113	0	185	126
normalized size	1	1.	0.51	0.96	1.07	0.82	0.	1.34	0.91
time (sec)	N/A	0.166	0.174	0.02	1.494	0.223	0.	0.32	14.632

Problem 2422	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	116	116	65	116	124	107	0	167	105
normalized size	1	1.	0.56	1.	1.07	0.92	0.	1.44	0.91
time (sec)	N/A	0.119	0.141	0.016	1.508	0.231	0.	0.288	11.738

Problem 2423	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	94	94	60	0	101	100	230	150	85
normalized size	1	1.	0.64	0.	1.07	1.06	2.45	1.6	0.9
time (sec)	N/A	0.086	0.103	0.057	1.505	0.223	29.578	0.268	9.134

Problem 2424	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	108	108	104	139	116	153	0	296	99
normalized size	1	1.	0.96	1.29	1.07	1.42	0.	2.74	0.92
time (sec)	N/A	0.241	0.266	0.019	1.531	0.233	0.	0.294	24.384

Problem 2425	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	115	115	107	191	139	173	0	431	104
normalized size	1	1.	0.93	1.66	1.21	1.5	0.	3.75	0.9
time (sec)	N/A	0.243	0.228	0.02	1.507	0.23	0.	0.326	23.872

Problem 2426	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	115	115	77	202	193	123	0	427	109
normalized size	1	1.	0.67	1.76	1.68	1.07	0.	3.71	0.95
time (sec)	N/A	0.169	0.084	0.02	1.513	0.224	0.	0.329	14.465

Problem 2427	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	144	144	82	250	285	147	0	509	138
normalized size	1	1.	0.57	1.74	1.98	1.02	0.	3.53	0.96
time (sec)	N/A	0.215	0.096	0.02	1.506	0.22	0.	0.377	17.832

Problem 2428	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	173	173	87	298	400	167	0	591	160
normalized size	1	1.	0.5	1.72	2.31	0.97	0.	3.42	0.92
time (sec)	N/A	0.394	0.117	0.022	1.523	0.224	0.	0.447	36.137

Problem 2429	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	202	202	92	346	537	188	0	674	187
normalized size	1	1.	0.46	1.71	2.66	0.93	0.	3.34	0.93
time (sec)	N/A	0.473	0.149	0.023	1.519	0.226	0.	0.546	44.214

Problem 2430	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	193	193	80	181	478	140	0	290	173
normalized size	1	1.	0.41	0.94	2.48	0.73	0.	1.5	0.9
time (sec)	N/A	0.346	0.242	0.02	1.542	0.227	0.	0.368	31.695

Problem 2431	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	164	164	75	164	439	134	0	273	144
normalized size	1	1.	0.46	1.	2.68	0.82	0.	1.66	0.88
time (sec)	N/A	0.281	0.196	0.021	1.535	0.225	0.	0.344	23.417

Problem 2432	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	138	138	70	147	333	127	0	255	126
normalized size	1	1.	0.51	1.07	2.41	0.92	0.	1.85	0.91
time (sec)	N/A	0.167	0.184	0.018	1.515	0.229	0.	0.329	14.308

Problem 2433	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	116	116	65	130	251	120	0	238	107
normalized size	1	1.	0.56	1.12	2.16	1.03	0.	2.05	0.92
time (sec)	N/A	0.119	0.156	0.016	1.508	0.224	0.	0.3	11.342

Problem 2434	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	96	96	60	0	174	122	258	220	85
normalized size	1	1.	0.62	0.	1.81	1.27	2.69	2.29	0.89
time (sec)	N/A	0.084	0.162	0.063	1.498	0.22	29.167	0.289	8.915

Problem 2435	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	108	108	103	184	220	173	0	352	99
normalized size	1	1.	0.95	1.7	2.04	1.6	0.	3.26	0.92
time (sec)	N/A	0.244	0.4	0.02	1.514	0.231	0.	0.302	22.903

Problem 2436	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	101	101	77	202	186	123	0	423	105
normalized size	1	1.	0.76	2.	1.84	1.22	0.	4.19	1.04
time (sec)	N/A	0.172	0.091	0.02	1.515	0.221	0.	0.327	13.92

Problem 2437	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	137	137	82	250	232	143	0	509	138
normalized size	1	1.	0.6	1.82	1.69	1.04	0.	3.72	1.01
time (sec)	N/A	0.213	0.093	0.022	1.512	0.227	0.	0.375	17.036

Problem 2438	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	166	166	87	298	324	167	0	591	153
normalized size	1	1.	0.52	1.8	1.95	1.01	0.	3.56	0.92
time (sec)	N/A	0.388	0.117	0.021	1.494	0.225	0.	0.445	36.551

Problem 2439	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	195	195	92	346	439	188	0	674	180
normalized size	1	1.	0.47	1.77	2.25	0.96	0.	3.46	0.92
time (sec)	N/A	0.48	0.124	0.023	1.518	0.227	0.	0.513	43.455

Problem 2440	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	224	224	133	394	576	208	0	756	207
normalized size	1	1.	0.59	1.76	2.57	0.93	0.	3.38	0.92
time (sec)	N/A	0.557	0.163	0.028	1.535	0.227	0.	0.632	51.571

Problem 2441	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	135	135	70	121	122	97	665	97	124
normalized size	1	1.	0.52	0.9	0.9	0.72	4.93	0.72	0.92
time (sec)	N/A	0.201	0.126	0.017	1.503	0.223	22.817	0.233	20.983

Problem 2442	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	106	106	65	104	99	90	466	85	97
normalized size	1	1.	0.61	0.98	0.93	0.85	4.4	0.8	0.92
time (sec)	N/A	0.137	0.093	0.019	1.511	0.218	15.361	0.232	13.359

Problem 2443	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	99	99	60	87	78	84	292	73	88
normalized size	1	1.	0.61	0.88	0.79	0.85	2.95	0.74	0.89
time (sec)	N/A	0.114	0.081	0.015	1.502	0.214	10.831	0.239	9.473

Problem 2444	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	72	72	55	70	59	77	167	61	65
normalized size	1	1.	0.76	0.97	0.82	1.07	2.32	0.85	0.9
time (sec)	N/A	0.072	0.05	0.013	1.497	0.215	7.681	0.227	6.887

Problem 2445	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	50	50	50	56	39	70	141	54	42
normalized size	1	1.	1.	1.12	0.78	1.4	2.82	1.08	0.84
time (sec)	N/A	0.044	0.034	0.006	1.504	0.221	3.095	0.228	4.765

Problem 2446	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	62	62	75	69	54	88	0	190	56
normalized size	1	1.	1.21	1.11	0.87	1.42	0.	3.06	0.9
time (sec)	N/A	0.107	0.114	0.016	1.5	0.23	0.	0.267	8.862

Problem 2447	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	64	64	67	108	68	86	0	261	56
normalized size	1	1.	1.05	1.69	1.06	1.34	0.	4.08	0.88
time (sec)	N/A	0.085	0.073	0.02	1.546	0.219	0.	0.268	7.701

Problem 2448	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	93	93	72	154	103	107	0	347	83
normalized size	1	1.	0.77	1.66	1.11	1.15	0.	3.73	0.89
time (sec)	N/A	0.123	0.074	0.02	1.505	0.221	0.	0.301	10.398

Problem 2449	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	122	122	77	202	144	127	0	429	109
normalized size	1	1.	0.63	1.66	1.18	1.04	0.	3.52	0.89
time (sec)	N/A	0.224	0.086	0.02	1.503	0.223	0.	0.352	21.678

Problem 2450	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	151	151	82	250	193	147	0	512	134
normalized size	1	1.	0.54	1.66	1.28	0.97	0.	3.39	0.89
time (sec)	N/A	0.297	0.121	0.022	1.568	0.224	0.	0.43	28.919

Problem 2451	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	128	128	70	121	124	97	597	97	117
normalized size	1	1.	0.55	0.95	0.97	0.76	4.66	0.76	0.91
time (sec)	N/A	0.163	0.117	0.013	1.502	0.217	98.405	0.246	15.368

Problem 2452	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	121	121	65	104	101	90	398	85	109
normalized size	1	1.	0.54	0.86	0.83	0.74	3.29	0.7	0.9
time (sec)	N/A	0.141	0.096	0.014	1.49	0.217	57.244	0.232	11.632

Problem 2453	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	94	94	60	87	78	84	224	73	83
normalized size	1	1.	0.64	0.93	0.83	0.89	2.38	0.78	0.88
time (sec)	N/A	0.096	0.063	0.013	1.506	0.216	34.005	0.228	8.833

Problem 2454	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	72	72	55	72	55	77	187	61	63
normalized size	1	1.	0.76	1.	0.76	1.07	2.6	0.85	0.88
time (sec)	N/A	0.064	0.048	0.005	1.51	0.223	6.172	0.229	6.48

Problem 2455	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	86	86	95	83	73	131	0	216	78
normalized size	1	1.	1.1	0.97	0.85	1.52	0.	2.51	0.91
time (sec)	N/A	0.175	0.111	0.017	1.498	0.228	0.	0.276	16.224

Problem 2456	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	91	91	102	131	82	138	0	351	80
normalized size	1	1.	1.12	1.44	0.9	1.52	0.	3.86	0.88
time (sec)	N/A	0.176	0.138	0.019	1.51	0.23	0.	0.295	16.245

Problem 2457	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	93	93	72	154	103	107	0	347	83
normalized size	1	1.	0.77	1.66	1.11	1.15	0.	3.73	0.89
time (sec)	N/A	0.127	0.078	0.019	1.512	0.22	0.	0.304	10.76

Problem 2458	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	122	122	77	202	144	127	0	429	109
normalized size	1	1.	0.63	1.66	1.18	1.04	0.	3.52	0.89
time (sec)	N/A	0.173	0.115	0.02	1.504	0.224	0.	0.353	13.554

Problem 2459	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	151	151	82	250	193	147	0	512	136
normalized size	1	1.	0.54	1.66	1.28	0.97	0.	3.39	0.9
time (sec)	N/A	0.296	0.132	0.023	1.507	0.226	0.	0.415	29.153

Problem 2460	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	180	180	87	298	248	167	0	594	163
normalized size	1	1.	0.48	1.66	1.38	0.93	0.	3.3	0.91
time (sec)	N/A	0.376	0.136	0.022	1.504	0.227	0.	0.523	35.858

Problem 2461	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	150	150	75	138	147	104	0	109	136
normalized size	1	1.	0.5	0.92	0.98	0.69	0.	0.73	0.91
time (sec)	N/A	0.189	0.157	0.014	1.482	0.218	0.	0.239	16.782

Problem 2462	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	143	143	70	121	124	97	0	97	129
normalized size	1	1.	0.49	0.85	0.87	0.68	0.	0.68	0.9
time (sec)	N/A	0.167	0.114	0.014	1.505	0.218	0.	0.24	13.266

Problem 2463	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	116	116	65	104	101	90	298	85	105
normalized size	1	1.	0.56	0.9	0.87	0.78	2.57	0.73	0.91
time (sec)	N/A	0.119	0.08	0.013	1.51	0.218	81.236	0.232	10.083

Problem 2464	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	96	96	60	88	78	92	230	73	83
normalized size	1	1.	0.62	0.92	0.81	0.96	2.4	0.76	0.86
time (sec)	N/A	0.083	0.059	0.006	1.499	0.221	24.162	0.226	7.922

Problem 2465	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	108	108	100	98	93	138	0	234	99
normalized size	1	1.	0.93	0.91	0.86	1.28	0.	2.17	0.92
time (sec)	N/A	0.236	0.178	0.019	1.508	0.229	0.	0.289	22.545

Problem 2466	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	115	115	107	146	101	161	0	377	100
normalized size	1	1.	0.93	1.27	0.88	1.4	0.	3.28	0.87
time (sec)	N/A	0.239	0.209	0.019	1.51	0.228	0.	0.326	23.172

Problem 2467	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	120	120	107	191	117	165	0	437	107
normalized size	1	1.	0.89	1.59	0.98	1.38	0.	3.64	0.89
time (sec)	N/A	0.233	0.18	0.02	1.508	0.229	0.	0.356	22.9

Problem 2468	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	122	122	77	202	144	127	0	429	110
normalized size	1	1.	0.63	1.66	1.18	1.04	0.	3.52	0.9
time (sec)	N/A	0.172	0.086	0.019	1.501	0.222	0.	0.364	13.612

Problem 2469	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	151	151	82	250	193	147	0	512	136
normalized size	1	1.	0.54	1.66	1.28	0.97	0.	3.39	0.9
time (sec)	N/A	0.216	0.091	0.023	1.517	0.222	0.	0.429	16.534

Problem 2470	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	180	180	87	298	248	167	0	594	163
normalized size	1	1.	0.48	1.66	1.38	0.93	0.	3.3	0.91
time (sec)	N/A	0.37	0.161	0.023	1.522	0.229	0.	0.517	36.126

Problem 2471	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	209	209	92	346	311	188	0	676	190
normalized size	1	1.	0.44	1.66	1.49	0.9	0.	3.23	0.91
time (sec)	N/A	0.455	0.135	0.023	1.52	0.231	0.	0.644	44.077

Problem 2472	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	113	113	65	104	101	90	0	85	105
normalized size	1	1.	0.58	0.92	0.89	0.8	0.	0.75	0.93
time (sec)	N/A	0.186	0.114	0.018	1.493	0.222	0.	0.234	18.609

Problem 2473	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	84	84	60	87	78	84	0	73	75
normalized size	1	1.	0.71	1.04	0.93	1.	0.	0.87	0.89
time (sec)	N/A	0.119	0.088	0.028	1.493	0.218	0.	0.229	11.434

Problem 2474	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	77	77	55	70	55	77	0	61	68
normalized size	1	1.	0.71	0.91	0.71	1.	0.	0.79	0.88
time (sec)	N/A	0.098	0.07	0.02	1.497	0.221	0.	0.226	7.646

Problem 2475	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	50	50	50	55	35	70	0	54	44
normalized size	1	1.	1.	1.1	0.7	1.4	0.	1.08	0.88
time (sec)	N/A	0.056	0.032	0.017	1.491	0.216	0.	0.227	5.137

Problem 2476	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	26	26	27	39	15	49	58	28	22
normalized size	1	1.	1.04	1.5	0.58	1.88	2.23	1.08	0.85
time (sec)	N/A	0.026	0.019	0.006	1.495	0.215	1.846	0.228	3.173

Problem 2477	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	32	32	35	55	38	41	0	99	34
normalized size	1	1.	1.09	1.72	1.19	1.28	0.	3.09	1.06
time (sec)	N/A	0.049	0.044	0.017	1.5	0.224	0.	0.232	4.744

Problem 2478	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	64	64	67	108	68	86	0	261	56
normalized size	1	1.	1.05	1.69	1.06	1.34	0.	4.08	0.88
time (sec)	N/A	0.089	0.085	0.02	1.507	0.223	0.	0.249	7.397

Problem 2479	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	93	93	72	154	103	107	0	347	83
normalized size	1	1.	0.77	1.66	1.11	1.15	0.	3.73	0.89
time (sec)	N/A	0.161	0.078	0.02	1.514	0.237	0.	0.27	15.005

Problem 2480	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	122	122	77	202	144	127	0	429	109
normalized size	1	1.	0.63	1.66	1.18	1.04	0.	3.52	0.89
time (sec)	N/A	0.226	0.099	0.023	1.503	0.223	0.	0.311	22.247

Problem 2481	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	113	113	65	116	111	107	0	167	105
normalized size	1	1.	0.58	1.03	0.98	0.95	0.	1.48	0.93
time (sec)	N/A	0.188	0.165	0.02	1.496	0.225	0.	0.242	19.166

Problem 2482	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	84	84	60	99	88	100	0	150	76
normalized size	1	1.	0.71	1.18	1.05	1.19	0.	1.79	0.9
time (sec)	N/A	0.12	0.139	0.02	1.516	0.231	0.	0.246	11.764

Problem 2483	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	72	72	55	82	68	93	0	132	65
normalized size	1	1.	0.76	1.14	0.94	1.29	0.	1.83	0.9
time (sec)	N/A	0.098	0.122	0.018	1.502	0.228	0.	0.243	7.864

Problem 2484	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	52	52	52	67	49	95	0	107	44
normalized size	1	1.	1.	1.29	0.94	1.83	0.	2.06	0.85
time (sec)	N/A	0.058	0.074	0.017	1.499	0.229	0.	0.244	5.395

Problem 2485	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	22	22	22	17	28	22	54	82	20
normalized size	1	1.	1.	0.77	1.27	1.	2.45	3.73	0.91
time (sec)	N/A	0.016	0.02	0.004	1.496	0.221	1.848	0.23	2.746

Problem 2486	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	55	55	58	101	0	86	0	180	53
normalized size	1	1.	1.05	1.84	0.	1.56	0.	3.27	0.96
time (sec)	N/A	0.088	0.07	0.02	0.	0.237	0.	0.236	7.035

Problem 2487	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	86	86	72	154	0	107	0	340	78
normalized size	1	1.	0.84	1.79	0.	1.24	0.	3.95	0.91
time (sec)	N/A	0.168	0.096	0.022	0.	0.235	0.	0.276	14.585

Problem 2488	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	115	115	77	202	0	127	0	427	105
normalized size	1	1.	0.67	1.76	0.	1.1	0.	3.71	0.91
time (sec)	N/A	0.242	0.092	0.023	0.	0.233	0.	0.292	21.25

Problem 2489	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	144	144	82	250	0	147	0	509	131
normalized size	1	1.	0.57	1.74	0.	1.02	0.	3.53	0.91
time (sec)	N/A	0.322	0.107	0.025	0.	0.238	0.	0.345	28.078

Problem 2490	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	142	142	70	147	146	127	0	255	133
normalized size	1	1.	0.49	1.04	1.03	0.89	0.	1.8	0.94
time (sec)	N/A	0.265	0.198	0.021	1.504	0.237	0.	0.281	25.852

Problem 2491	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	113	113	65	130	123	120	0	238	105
normalized size	1	1.	0.58	1.15	1.09	1.06	0.	2.11	0.93
time (sec)	N/A	0.196	0.174	0.024	1.533	0.232	0.	0.27	18.796

Problem 2492	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	84	84	60	113	103	113	0	220	80
normalized size	1	1.	0.71	1.35	1.23	1.35	0.	2.62	0.95
time (sec)	N/A	0.125	0.149	0.019	1.502	0.235	0.	0.263	11.642

Problem 2493	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	74	74	57	96	84	115	0	194	65
normalized size	1	1.	0.77	1.3	1.14	1.55	0.	2.62	0.88
time (sec)	N/A	0.102	0.134	0.021	1.48	0.229	0.	0.258	8.522

Problem 2494	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	27	22	65	45	0	170	41
normalized size	1	1.	0.6	0.49	1.44	1.	0.	3.78	0.91
time (sec)	N/A	0.046	0.037	0.006	1.504	0.224	0.	0.244	5.26

Problem 2495	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	27	22	65	45	104	170	41
normalized size	1	1.	0.6	0.49	1.44	1.	2.31	3.78	0.91
time (sec)	N/A	0.033	0.023	0.004	1.499	0.214	8.118	0.234	4.317

Problem 2496	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	77	77	63	147	0	107	0	262	73
normalized size	1	1.	0.82	1.91	0.	1.39	0.	3.4	0.95
time (sec)	N/A	0.166	0.094	0.022	0.	0.233	0.	0.248	14.526

Problem 2497	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	108	108	77	202	0	127	0	423	99
normalized size	1	1.	0.71	1.87	0.	1.18	0.	3.92	0.92
time (sec)	N/A	0.243	0.088	0.023	0.	0.23	0.	0.287	20.948

Problem 2498	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	137	137	82	250	0	147	0	509	126
normalized size	1	1.	0.6	1.82	0.	1.07	0.	3.72	0.92
time (sec)	N/A	0.322	0.11	0.024	0.	0.231	0.	0.337	28.049

Problem 2499	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	166	166	87	298	0	167	0	591	151
normalized size	1	1.	0.52	1.8	0.	1.01	0.	3.56	0.91
time (sec)	N/A	0.401	0.136	0.024	0.	0.234	0.	0.408	35.383

Problem 2500	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	B	F(-2)	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	59	59	81	154	0	1	0	130	49
normalized size	1	1.	1.37	2.61	0.	0.02	0.	2.2	0.83
time (sec)	N/A	0.179	0.165	0.073	0.	0.269	0.	0.227	16.455

Problem 2501	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	168	168	79	157	150	120	0	149	156
normalized size	1	1.	0.47	0.93	0.89	0.71	0.	0.89	0.93
time (sec)	N/A	0.316	0.127	0.023	1.513	0.234	0.	0.239	33.11

Problem 2502	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	139	139	74	140	127	113	0	131	129
normalized size	1	1.	0.53	1.01	0.91	0.81	0.	0.94	0.93
time (sec)	N/A	0.245	0.115	0.019	1.509	0.229	0.	0.24	25.878

Problem 2503	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	110	110	69	123	107	107	0	113	102
normalized size	1	1.	0.63	1.12	0.97	0.97	0.	1.03	0.93
time (sec)	N/A	0.184	0.093	0.017	1.517	0.223	0.	0.231	18.788

Problem 2504	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	94	94	64	106	88	100	0	96	85
normalized size	1	1.	0.68	1.13	0.94	1.06	0.	1.02	0.9
time (sec)	N/A	0.117	0.078	0.018	1.504	0.228	0.	0.23	10.01

Problem 2505	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	72	72	59	89	68	93	0	78	65
normalized size	1	1.	0.82	1.24	0.94	1.29	0.	1.08	0.9
time (sec)	N/A	0.075	0.059	0.016	1.507	0.234	0.	0.225	7.097

Problem 2506	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	47	47	46	0	49	93	95	61	39
normalized size	1	1.	0.98	0.	1.04	1.98	2.02	1.3	0.83
time (sec)	N/A	0.042	0.041	0.057	1.482	0.232	2.811	0.223	5.204

Problem 2507	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	57	57	68	108	78	85	0	135	53
normalized size	1	1.	1.19	1.89	1.37	1.49	0.	2.37	0.93
time (sec)	N/A	0.086	0.085	0.02	1.5	0.228	0.	0.249	7.82

Problem 2508	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	93	93	75	161	124	101	0	296	78
normalized size	1	1.	0.81	1.73	1.33	1.09	0.	3.18	0.84
time (sec)	N/A	0.128	0.076	0.02	1.507	0.232	0.	0.304	9.925

Problem 2509	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	122	122	77	209	193	127	0	382	110
normalized size	1	1.	0.63	1.71	1.58	1.04	0.	3.13	0.9
time (sec)	N/A	0.228	0.112	0.02	1.515	0.232	0.	0.373	21.331

Problem 2510	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	151	151	82	257	285	147	0	464	136
normalized size	1	1.	0.54	1.7	1.89	0.97	0.	3.07	0.9
time (sec)	N/A	0.294	0.11	0.022	1.513	0.236	0.	0.469	28.526

Problem 2511	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	180	180	87	305	400	167	0	547	165
normalized size	1	1.	0.48	1.69	2.22	0.93	0.	3.04	0.92
time (sec)	N/A	0.377	0.123	0.021	1.514	0.235	0.	0.607	35.443

Problem 2512	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	161	161	79	157	267	120	0	149	150
normalized size	1	1.	0.49	0.98	1.66	0.75	0.	0.93	0.93
time (sec)	N/A	0.258	0.122	0.02	1.524	0.23	0.	0.247	28.087

Problem 2513	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	132	132	74	140	248	113	0	131	121
normalized size	1	1.	0.56	1.06	1.88	0.86	0.	0.99	0.92
time (sec)	N/A	0.201	0.109	0.02	1.519	0.234	0.	0.239	20.295

Problem 2514	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	116	116	69	123	208	107	0	113	105
normalized size	1	1.	0.59	1.06	1.79	0.92	0.	0.97	0.91
time (sec)	N/A	0.143	0.092	0.019	1.512	0.235	0.	0.236	11.519

Problem 2515	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	94	94	64	106	131	100	0	96	85
normalized size	1	1.	0.68	1.13	1.39	1.06	0.	1.02	0.9
time (sec)	N/A	0.099	0.068	0.016	1.508	0.234	0.	0.232	8.874

Problem 2516	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	71	71	59	0	84	101	144	78	61
normalized size	1	1.	0.83	0.	1.18	1.42	2.03	1.1	0.86
time (sec)	N/A	0.063	0.055	0.043	1.499	0.23	6.087	0.229	6.554

Problem 2517	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	86	86	104	131	93	154	0	225	78
normalized size	1	1.	1.21	1.52	1.08	1.79	0.	2.62	0.91
time (sec)	N/A	0.177	0.238	0.017	1.498	0.234	0.	0.266	15.903

Problem 2518	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	93	93	75	161	124	101	0	296	76
normalized size	1	1.	0.81	1.73	1.33	1.09	0.	3.18	0.82
time (sec)	N/A	0.129	0.08	0.019	1.505	0.225	0.	0.311	10.68

Problem 2519	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	122	122	77	209	193	127	0	382	109
normalized size	1	1.	0.63	1.71	1.58	1.04	0.	3.13	0.89
time (sec)	N/A	0.175	0.122	0.022	1.508	0.233	0.	0.374	13.523

Problem 2520	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	151	151	82	257	285	147	0	464	138
normalized size	1	1.	0.54	1.7	1.89	0.97	0.	3.07	0.91
time (sec)	N/A	0.302	0.116	0.023	1.505	0.237	0.	0.476	29.274

Problem 2521	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	180	180	87	305	400	167	0	547	165
normalized size	1	1.	0.48	1.69	2.22	0.93	0.	3.04	0.92
time (sec)	N/A	0.376	0.134	0.023	1.516	0.239	0.	0.608	36.665

Problem 2522	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	183	183	84	174	193	127	0	166	170
normalized size	1	1.	0.46	0.95	1.05	0.69	0.	0.91	0.93
time (sec)	N/A	0.293	0.136	0.019	1.515	0.246	0.	0.249	30.449

Problem 2523	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	154	154	79	157	170	120	0	149	143
normalized size	1	1.	0.51	1.02	1.1	0.78	0.	0.97	0.93
time (sec)	N/A	0.223	0.117	0.019	1.509	0.244	0.	0.235	23.535

Problem 2524	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	138	138	74	140	147	113	0	131	126
normalized size	1	1.	0.54	1.01	1.07	0.82	0.	0.95	0.91
time (sec)	N/A	0.17	0.101	0.017	1.497	0.23	0.	0.238	14.28

Problem 2525	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	118	118	69	123	124	115	0	113	105
normalized size	1	1.	0.58	1.04	1.05	0.97	0.	0.96	0.89
time (sec)	N/A	0.119	0.08	0.018	1.501	0.229	0.	0.233	11.183

Problem 2526	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	93	93	64	0	101	108	187	96	82
normalized size	1	1.	0.69	0.	1.09	1.16	2.01	1.03	0.88
time (sec)	N/A	0.082	0.06	0.07	1.525	0.225	31.741	0.227	8.967

Problem 2527	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	108	108	104	146	116	161	0	243	99
normalized size	1	1.	0.96	1.35	1.07	1.49	0.	2.25	0.92
time (sec)	N/A	0.235	0.343	0.019	1.501	0.237	0.	0.272	23.797

Problem 2528	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	122	122	110	198	139	173	0	386	107
normalized size	1	1.	0.9	1.62	1.14	1.42	0.	3.16	0.88
time (sec)	N/A	0.244	0.2	0.02	1.507	0.234	0.	0.363	22.886

Problem 2529	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	122	122	77	209	193	127	0	381	107
normalized size	1	1.	0.63	1.71	1.58	1.04	0.	3.12	0.88
time (sec)	N/A	0.172	0.12	0.02	1.534	0.235	0.	0.399	13.696

Problem 2530	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	151	151	82	257	285	147	0	464	134
normalized size	1	1.	0.54	1.7	1.89	0.97	0.	3.07	0.89
time (sec)	N/A	0.219	0.127	0.022	1.5	0.24	0.	0.495	17.191

Problem 2531	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	180	180	87	305	400	167	0	547	165
normalized size	1	1.	0.48	1.69	2.22	0.93	0.	3.04	0.92
time (sec)	N/A	0.37	0.127	0.022	1.519	0.242	0.	0.625	37.687

Problem 2532	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	209	209	92	353	537	188	0	629	192
normalized size	1	1.	0.44	1.69	2.57	0.9	0.	3.01	0.92
time (sec)	N/A	0.447	0.159	0.023	1.564	0.238	0.	0.82	44.154

Problem 2533	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	142	142	74	140	134	113	0	131	133
normalized size	1	1.	0.52	0.99	0.94	0.8	0.	0.92	0.94
time (sec)	N/A	0.259	0.122	0.021	1.503	0.236	0.	0.237	26.327

Problem 2534	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	113	113	69	123	111	107	0	113	105
normalized size	1	1.	0.61	1.09	0.98	0.95	0.	1.	0.93
time (sec)	N/A	0.188	0.096	0.019	1.503	0.239	0.	0.231	19.41

Problem 2535	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	84	84	64	106	88	100	0	96	76
normalized size	1	1.	0.76	1.26	1.05	1.19	0.	1.14	0.9
time (sec)	N/A	0.12	0.087	0.021	1.501	0.231	0.	0.231	12.27

Problem 2536	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	72	72	59	89	68	93	0	78	65
normalized size	1	1.	0.82	1.24	0.94	1.29	0.	1.08	0.9
time (sec)	N/A	0.098	0.072	0.019	1.49	0.227	0.	0.234	8.26

Problem 2537	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	48	48	48	74	49	86	0	61	44
normalized size	1	1.	1.	1.54	1.02	1.79	0.	1.27	0.92
time (sec)	N/A	0.057	0.059	0.016	1.514	0.228	0.	0.227	5.523

Problem 2538	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	22	22	22	17	28	31	49	35	19
normalized size	1	1.	1.	0.77	1.27	1.41	2.23	1.59	0.86
time (sec)	N/A	0.016	0.021	0.006	1.48	0.222	1.924	0.223	2.867

Problem 2539	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	57	57	60	108	0	86	0	135	53
normalized size	1	1.	1.05	1.89	0.	1.51	0.	2.37	0.93
time (sec)	N/A	0.089	0.111	0.022	0.	0.227	0.	0.249	7.189

Problem 2540	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	86	86	75	161	0	101	0	296	78
normalized size	1	1.	0.87	1.87	0.	1.17	0.	3.44	0.91
time (sec)	N/A	0.173	0.077	0.022	0.	0.221	0.	0.299	14.888

Problem 2541	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	115	115	77	209	0	127	0	382	105
normalized size	1	1.	0.67	1.82	0.	1.1	0.	3.32	0.91
time (sec)	N/A	0.247	0.1	0.023	0.	0.229	0.	0.341	21.775

Problem 2542	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	144	144	82	257	0	147	0	464	131
normalized size	1	1.	0.57	1.78	0.	1.02	0.	3.22	0.91
time (sec)	N/A	0.326	0.118	0.024	0.	0.23	0.	0.431	29.738

Problem 2543	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	173	173	87	305	0	167	0	547	160
normalized size	1	1.	0.5	1.76	0.	0.97	0.	3.16	0.92
time (sec)	N/A	0.412	0.144	0.027	0.	0.238	0.	0.57	36.903

Problem 2544	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	142	142	86	154	124	122	0	194	133
normalized size	1	1.	0.61	1.08	0.87	0.86	0.	1.37	0.94
time (sec)	N/A	0.264	0.156	0.023	1.523	0.229	0.	0.262	26.886

Problem 2545	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	113	113	78	137	101	115	0	177	105
normalized size	1	1.	0.69	1.21	0.89	1.02	0.	1.57	0.93
time (sec)	N/A	0.193	0.142	0.02	1.493	0.23	0.	0.253	19.17

Problem 2546	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	84	84	70	120	78	108	0	159	78
normalized size	1	1.	0.83	1.43	0.93	1.29	0.	1.89	0.93
time (sec)	N/A	0.122	0.132	0.02	1.5	0.236	0.	0.25	11.821

Problem 2547	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	72	72	55	103	55	101	0	142	65
normalized size	1	1.	0.76	1.43	0.76	1.4	0.	1.97	0.9
time (sec)	N/A	0.098	0.136	0.02	1.497	0.229	0.	0.246	8.657

Problem 2548	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	27	22	41	42	0	117	39
normalized size	1	1.	0.6	0.49	0.91	0.93	0.	2.6	0.87
time (sec)	N/A	0.048	0.04	0.004	1.325	0.227	0.	0.238	5.141

Problem 2549	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	27	22	41	42	117	117	39
normalized size	1	1.	0.6	0.49	0.91	0.93	2.6	2.6	0.87
time (sec)	N/A	0.034	0.025	0.004	1.342	0.215	5.752	0.227	4.266

Problem 2550	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	79	79	65	154	78	101	0	215	73
normalized size	1	1.	0.82	1.95	0.99	1.28	0.	2.72	0.92
time (sec)	N/A	0.165	0.114	0.023	1.498	0.229	0.	0.251	15.196

Problem 2551	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	108	108	80	209	124	127	0	375	99
normalized size	1	1.	0.74	1.94	1.15	1.18	0.	3.47	0.92
time (sec)	N/A	0.252	0.1	0.023	1.513	0.236	0.	0.312	22.198

Problem 2552	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	137	137	82	257	193	147	0	462	126
normalized size	1	1.	0.6	1.88	1.41	1.07	0.	3.37	0.92
time (sec)	N/A	0.335	0.113	0.026	1.506	0.241	0.	0.4	29.363

Problem 2553	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	166	166	87	305	285	167	0	544	153
normalized size	1	1.	0.52	1.84	1.72	1.01	0.	3.28	0.92
time (sec)	N/A	0.422	0.14	0.024	1.507	0.243	0.	0.491	36.274

Problem 2554	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	142	142	83	168	151	140	0	265	133
normalized size	1	1.	0.58	1.18	1.06	0.99	0.	1.87	0.94
time (sec)	N/A	0.271	0.207	0.023	1.514	0.234	0.	0.273	26.091

Problem 2555	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	113	113	65	151	128	134	0	247	107
normalized size	1	1.	0.58	1.34	1.13	1.19	0.	2.19	0.95
time (sec)	N/A	0.197	0.206	0.026	1.509	0.232	0.	0.266	19.178

Problem 2556	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	84	84	60	134	105	127	0	230	80
normalized size	1	1.	0.71	1.6	1.25	1.51	0.	2.74	0.95
time (sec)	N/A	0.123	0.194	0.021	1.504	0.23	0.	0.268	12.333

Problem 2557	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	67	67	32	27	86	58	0	205	60
normalized size	1	1.	0.48	0.4	1.28	0.87	0.	3.06	0.9
time (sec)	N/A	0.089	0.051	0.005	1.345	0.229	0.	0.256	8.285

Problem 2558	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	67	67	32	27	86	58	0	205	60
normalized size	1	1.	0.48	0.4	1.28	0.87	0.	3.06	0.9
time (sec)	N/A	0.068	0.044	0.005	1.339	0.219	0.	0.256	6.902

Problem 2559	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	67	67	32	27	86	58	231	205	60
normalized size	1	1.	0.48	0.4	1.28	0.87	3.45	3.06	0.9
time (sec)	N/A	0.051	0.03	0.005	1.354	0.224	40.047	0.236	5.919

Problem 2560	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	101	101	70	202	0	127	0	297	94
normalized size	1	1.	0.69	2.	0.	1.26	0.	2.94	0.93
time (sec)	N/A	0.235	0.136	0.023	0.	0.236	0.	0.261	22.133

Problem 2561	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	130	130	85	257	0	147	0	458	119
normalized size	1	1.	0.65	1.98	0.	1.13	0.	3.52	0.92
time (sec)	N/A	0.325	0.11	0.024	0.	0.237	0.	0.366	29.324

Problem 2562	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	159	159	87	305	0	167	0	544	146
normalized size	1	1.	0.55	1.92	0.	1.05	0.	3.42	0.92
time (sec)	N/A	0.413	0.121	0.026	0.	0.237	0.	0.482	36.526

Problem 2563	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-1)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	142	142	79	154	0	127	0	131	131
normalized size	1	1.	0.56	1.08	0.	0.89	0.	0.92	0.92
time (sec)	N/A	0.258	0.176	0.022	0.	0.229	0.	0.238	26.975

Problem 2564	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-1)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	113	113	74	137	0	120	0	113	104
normalized size	1	1.	0.65	1.21	0.	1.06	0.	1.	0.92
time (sec)	N/A	0.191	0.161	0.018	0.	0.222	0.	0.231	19.61

Problem 2565	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-1)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	94	94	69	120	0	113	0	96	85
normalized size	1	1.	0.73	1.28	0.	1.2	0.	1.02	0.9
time (sec)	N/A	0.118	0.132	0.019	0.	0.228	0.	0.235	10.376

Problem 2566	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	74	74	64	103	65	115	0	78	65
normalized size	1	1.	0.86	1.39	0.88	1.55	0.	1.05	0.88
time (sec)	N/A	0.074	0.111	0.015	1.507	0.228	0.	0.228	7.888

Problem 2567	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	22	22	22	17	65	38	82	35	19
normalized size	1	1.	1.	0.77	2.95	1.73	3.73	1.59	0.86
time (sec)	N/A	0.016	0.025	0.005	1.487	0.218	5.007	0.225	2.899

Problem 2568	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	79	79	65	154	117	107	0	153	73
normalized size	1	1.	0.82	1.95	1.48	1.35	0.	1.94	0.92
time (sec)	N/A	0.123	0.15	0.019	1.507	0.23	0.	0.254	10.48

Problem 2569	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	115	115	77	209	163	127	0	313	104
normalized size	1	1.	0.67	1.82	1.42	1.1	0.	2.72	0.9
time (sec)	N/A	0.244	0.096	0.02	1.511	0.233	0.	0.331	22.439

Problem 2570	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	144	144	85	257	232	147	0	400	131
normalized size	1	1.	0.59	1.78	1.61	1.02	0.	2.78	0.91
time (sec)	N/A	0.324	0.095	0.021	1.518	0.23	0.	0.42	29.435

Problem 2571	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	173	173	87	305	324	167	0	482	158
normalized size	1	1.	0.5	1.76	1.87	0.97	0.	2.79	0.91
time (sec)	N/A	0.407	0.149	0.022	1.514	0.231	0.	0.542	36.608

Problem 2572	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	164	164	84	171	325	134	0	149	158
normalized size	1	1.	0.51	1.04	1.98	0.82	0.	0.91	0.96
time (sec)	N/A	0.28	0.19	0.019	1.546	0.231	0.	0.242	35.052

Problem 2573	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	135	135	79	154	285	127	0	131	131
normalized size	1	1.	0.59	1.14	2.11	0.94	0.	0.97	0.97
time (sec)	N/A	0.212	0.162	0.019	1.528	0.223	0.	0.235	27.62

Problem 2574	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	116	116	74	137	208	120	0	113	105
normalized size	1	1.	0.64	1.18	1.79	1.03	0.	0.97	0.91
time (sec)	N/A	0.141	0.149	0.019	1.533	0.226	0.	0.235	12.384

Problem 2575	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	96	96	69	120	161	122	0	96	85
normalized size	1	1.	0.72	1.25	1.68	1.27	0.	1.	0.89
time (sec)	N/A	0.093	0.109	0.016	1.51	0.229	0.	0.229	9.423

Problem 2576	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	74	74	64	0	126	115	636	78	63
normalized size	1	1.	0.86	0.	1.7	1.55	8.59	1.05	0.85
time (sec)	N/A	0.061	0.106	0.043	1.505	0.232	10.679	0.233	7.187

Problem 2577	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	79	79	65	154	140	107	0	153	73
normalized size	1	1.	0.82	1.95	1.77	1.35	0.	1.94	0.92
time (sec)	N/A	0.125	0.12	0.02	1.508	0.226	0.	0.265	10.832

Problem 2578	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	122	122	77	209	163	127	0	313	99
normalized size	1	1.	0.63	1.71	1.34	1.04	0.	2.57	0.81
time (sec)	N/A	0.172	0.093	0.021	1.516	0.223	0.	0.33	13.303

Problem 2579	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	144	144	85	257	232	147	0	400	133
normalized size	1	1.	0.59	1.78	1.61	1.02	0.	2.78	0.92
time (sec)	N/A	0.328	0.101	0.022	1.509	0.227	0.	0.431	28.615

Problem 2580	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	173	173	87	305	324	167	0	482	160
normalized size	1	1.	0.5	1.76	1.87	0.97	0.	2.79	0.92
time (sec)	N/A	0.404	0.159	0.022	1.512	0.227	0.	0.559	35.966

Problem 2581	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	186	186	89	188	478	140	0	166	178
normalized size	1	1.	0.48	1.01	2.57	0.75	0.	0.89	0.96
time (sec)	N/A	0.32	0.192	0.018	1.52	0.231	0.	0.251	37.433

Problem 2582	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	157	157	84	171	439	134	0	149	151
normalized size	1	1.	0.54	1.09	2.8	0.85	0.	0.95	0.96
time (sec)	N/A	0.241	0.169	0.019	1.525	0.231	0.	0.243	29.486

Problem 2583	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	140	140	79	154	333	135	0	131	126
normalized size	1	1.	0.56	1.1	2.38	0.96	0.	0.94	0.9
time (sec)	N/A	0.167	0.154	0.019	1.52	0.239	0.	0.257	14.716

Problem 2584	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	118	118	74	137	251	128	0	113	105
normalized size	1	1.	0.63	1.16	2.13	1.08	0.	0.96	0.89
time (sec)	N/A	0.119	0.123	0.019	1.502	0.23	0.	0.24	11.491

Problem 2585	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	96	96	69	0	174	122	729	96	83
normalized size	1	1.	0.72	0.	1.81	1.27	7.59	1.	0.86
time (sec)	N/A	0.081	0.11	0.042	1.503	0.223	30.827	0.234	9.105

Problem 2586	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	108	108	100	191	220	181	0	243	99
normalized size	1	1.	0.93	1.77	2.04	1.68	0.	2.25	0.92
time (sec)	N/A	0.243	0.244	0.02	1.52	0.233	0.	0.282	23.089

Problem 2587	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	122	122	77	209	186	127	0	313	97
normalized size	1	1.	0.63	1.71	1.52	1.04	0.	2.57	0.8
time (sec)	N/A	0.174	0.106	0.02	1.501	0.222	0.	0.348	14.078

Problem 2588	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	151	151	85	257	232	147	0	400	131
normalized size	1	1.	0.56	1.7	1.54	0.97	0.	2.65	0.87
time (sec)	N/A	0.22	0.111	0.021	1.513	0.225	0.	0.458	17.185

Problem 2589	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	173	173	87	305	324	167	0	482	160
normalized size	1	1.	0.5	1.76	1.87	0.97	0.	2.79	0.92
time (sec)	N/A	0.403	0.156	0.023	1.511	0.223	0.	0.566	36.459

Problem 2590	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	202	202	92	353	439	188	0	564	187
normalized size	1	1.	0.46	1.75	2.17	0.93	0.	2.79	0.93
time (sec)	N/A	0.493	0.151	0.023	1.509	0.227	0.	0.75	43.281

Problem 2591	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	142	142	79	154	146	127	0	131	133
normalized size	1	1.	0.56	1.08	1.03	0.89	0.	0.92	0.94
time (sec)	N/A	0.264	0.177	0.023	1.497	0.225	0.	0.244	25.808

Problem 2592	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	113	113	74	137	123	120	0	113	105
normalized size	1	1.	0.65	1.21	1.09	1.06	0.	1.	0.93
time (sec)	N/A	0.191	0.147	0.021	1.54	0.235	0.	0.255	18.781

Problem 2593	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	84	84	69	120	103	113	0	96	78
normalized size	1	1.	0.82	1.43	1.23	1.35	0.	1.14	0.93
time (sec)	N/A	0.124	0.154	0.02	1.487	0.224	0.	0.265	11.648

Problem 2594	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	72	72	64	103	84	107	0	78	65
normalized size	1	1.	0.89	1.43	1.17	1.49	0.	1.08	0.9
time (sec)	N/A	0.098	0.146	0.02	1.48	0.224	0.	0.253	8.315

Problem 2595	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	27	22	65	45	0	53	39
normalized size	1	1.	0.6	0.49	1.44	1.	0.	1.18	0.87
time (sec)	N/A	0.047	0.037	0.004	1.491	0.217	0.	0.252	5.126

Problem 2596	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	27	22	65	45	178	53	39
normalized size	1	1.	0.6	0.49	1.44	1.	3.96	1.18	0.87
time (sec)	N/A	0.033	0.025	0.005	1.494	0.213	8.229	0.246	4.185

Problem 2597	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	79	79	65	154	0	107	0	153	73
normalized size	1	1.	0.82	1.95	0.	1.35	0.	1.94	0.92
time (sec)	N/A	0.166	0.142	0.022	0.	0.23	0.	0.26	14.717

Problem 2598	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F	A	F(-2)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	108	108	77	209	0	127	0	313	99
normalized size	1	1.	0.71	1.94	0.	1.18	0.	2.9	0.92
time (sec)	N/A	0.25	0.105	0.023	0.	0.225	0.	0.323	21.949

Problem 2599	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	137	137	85	257	0	147	0	400	126
normalized size	1	1.	0.62	1.88	0.	1.07	0.	2.92	0.92
time (sec)	N/A	0.319	0.116	0.025	0.	0.226	0.	0.389	28.824

Problem 2600	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	166	166	87	305	0	167	0	482	151
normalized size	1	1.	0.52	1.84	0.	1.01	0.	2.9	0.91
time (sec)	N/A	0.403	0.128	0.024	0.	0.224	0.	0.496	36.178

Problem 2601	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	142	142	89	168	151	140	0	194	133
normalized size	1	1.	0.63	1.18	1.06	0.99	0.	1.37	0.94
time (sec)	N/A	0.273	0.177	0.021	1.498	0.227	0.	0.262	26.884

Problem 2602	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	113	113	84	151	128	134	0	177	105
normalized size	1	1.	0.74	1.34	1.13	1.19	0.	1.57	0.93
time (sec)	N/A	0.201	0.149	0.021	1.5	0.227	0.	0.258	18.736

Problem 2603	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	84	84	79	134	105	127	0	159	78
normalized size	1	1.	0.94	1.6	1.25	1.51	0.	1.89	0.93
time (sec)	N/A	0.126	0.134	0.022	1.492	0.223	0.	0.255	12.308

Problem 2604	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	67	67	32	27	86	58	0	135	60
normalized size	1	1.	0.48	0.4	1.28	0.87	0.	2.01	0.9
time (sec)	N/A	0.091	0.052	0.006	1.33	0.216	0.	0.271	8.081

Problem 2605	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	67	67	32	27	86	58	0	135	60
normalized size	1	1.	0.48	0.4	1.28	0.87	0.	2.01	0.9
time (sec)	N/A	0.068	0.046	0.004	1.359	0.217	0.	0.254	6.7

Problem 2606	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	67	67	32	27	86	58	231	135	60
normalized size	1	1.	0.48	0.4	1.28	0.87	3.45	2.01	0.9
time (sec)	N/A	0.053	0.033	0.005	1.342	0.22	39.992	0.232	5.776

Problem 2607	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	101	101	70	202	0	127	0	232	94
normalized size	1	1.	0.69	2.	0.	1.26	0.	2.3	0.93
time (sec)	N/A	0.243	0.159	0.023	0.	0.227	0.	0.266	21.653

Problem 2608	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	130	130	82	257	0	147	0	393	119
normalized size	1	1.	0.63	1.98	0.	1.13	0.	3.02	0.92
time (sec)	N/A	0.334	0.11	0.025	0.	0.23	0.	0.338	28.381

Problem 2609	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	159	159	90	305	0	167	0	479	146
normalized size	1	1.	0.57	1.92	0.	1.05	0.	3.01	0.92
time (sec)	N/A	0.415	0.121	0.026	0.	0.227	0.	0.45	35.586

Problem 2610	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	171	171	75	199	289	161	0	282	160
normalized size	1	1.	0.44	1.16	1.69	0.94	0.	1.65	0.94
time (sec)	N/A	0.359	0.276	0.023	1.511	0.23	0.	0.287	34.219

Problem 2611	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	142	142	70	182	266	154	0	265	134
normalized size	1	1.	0.49	1.28	1.87	1.08	0.	1.87	0.94
time (sec)	N/A	0.284	0.264	0.021	1.512	0.226	0.	0.282	25.85

Problem 2612	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	113	113	65	165	243	147	0	247	107
normalized size	1	1.	0.58	1.46	2.15	1.3	0.	2.19	0.95
time (sec)	N/A	0.205	0.248	0.022	1.515	0.224	0.	0.277	19.3

Problem 2613	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	96	96	37	32	103	72	0	223	87
normalized size	1	1.	0.39	0.33	1.07	0.75	0.	2.32	0.91
time (sec)	N/A	0.134	0.054	0.007	1.347	0.22	0.	0.266	11.351

Problem 2614	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	89	89	37	32	80	72	0	223	80
normalized size	1	1.	0.42	0.36	0.9	0.81	0.	2.51	0.9
time (sec)	N/A	0.111	0.055	0.006	1.339	0.219	0.	0.271	10.169

Problem 2615	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	89	89	37	32	80	72	0	223	80
normalized size	1	1.	0.42	0.36	0.9	0.81	0.	2.51	0.9
time (sec)	N/A	0.087	0.055	0.004	1.344	0.229	0.	0.266	8.819

Problem 2616	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	89	89	37	32	80	72	393	223	80
normalized size	1	1.	0.42	0.36	0.9	0.81	4.42	2.51	0.9
time (sec)	N/A	0.072	0.042	0.003	1.342	0.23	141.072	0.239	8.368

Problem 2617	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	123	123	75	250	117	147	0	315	114
normalized size	1	1.	0.61	2.03	0.95	1.2	0.	2.56	0.93
time (sec)	N/A	0.321	0.153	0.023	1.503	0.235	0.	0.28	29.689

Problem 2618	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	152	152	87	305	163	167	0	475	139
normalized size	1	1.	0.57	2.01	1.07	1.1	0.	3.12	0.91
time (sec)	N/A	0.407	0.145	0.026	1.512	0.226	0.	0.425	38.642

Problem 2619	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	A	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	181	181	95	353	232	188	0	562	167
normalized size	1	1.	0.52	1.95	1.28	1.04	0.	3.1	0.92
time (sec)	N/A	0.493	0.116	0.026	1.507	0.235	0.	0.533	42.783

Problem 2620	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	58	58	129	181	0	0	0	0	42
normalized size	1	1.	2.22	3.12	0.	0.	0.	0.	0.72
time (sec)	N/A	0.206	0.47	0.253	0.	0.	0.	0.	20.557

Problem 2621	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	96	96	126	207	0	0	0	0	83
normalized size	1	1.	1.31	2.16	0.	0.	0.	0.	0.86
time (sec)	N/A	0.4	0.598	0.171	0.	0.	0.	0.	52.401

Problem 2622	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	134	134	126	192	0	0	0	0	114
normalized size	1	1.	0.94	1.43	0.	0.	0.	0.	0.85
time (sec)	N/A	0.588	0.662	0.115	0.	0.	0.	0.	50.638

Problem 2623	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	58	58	191	548	0	0	0	0	42
normalized size	1	1.	3.29	9.45	0.	0.	0.	0.	0.72
time (sec)	N/A	0.175	1.149	0.053	0.	0.	0.	0.	18.214

Problem 2624	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	F	F	F	F	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	96	96	200	822	0	0	0	0	0
normalized size	1	1.	2.08	8.56	0.	0.	0.	0.	0.
time (sec)	N/A	0.382	1.998	0.047	0.	0.	0.	0.	0.

Problem 2625	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	A	F	F	F	F	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	162	162	103	183	0	0	0	0	0
normalized size	1	1.	0.64	1.13	0.	0.	0.	0.	0.
time (sec)	N/A	0.824	0.296	0.052	0.	0.	0.	0.	0.

Problem 2626	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	134	134	154	209	0	0	0	0	114
normalized size	1	1.	1.15	1.56	0.	0.	0.	0.	0.85
time (sec)	N/A	0.358	2.265	0.027	0.	0.	0.	0.	42.836

Problem 2627	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F	F	F	F	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	101	101	123	174	0	0	0	0	0
normalized size	1	1.	1.22	1.72	0.	0.	0.	0.	0.
time (sec)	N/A	0.395	0.422	0.119	0.	0.	0.	0.	0.

Problem 2628	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	102	179	0	0	0	0	172
normalized size	1	1.	0.53	0.94	0.	0.	0.	0.	0.9
time (sec)	N/A	0.422	0.366	0.112	0.	0.	0.	0.	39.156

Problem 2629	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	160	160	97	174	0	0	0	0	143
normalized size	1	1.	0.61	1.09	0.	0.	0.	0.	0.89
time (sec)	N/A	0.33	0.304	0.015	0.	0.	0.	0.	31.305

Problem 2630	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	129	129	97	169	0	0	0	0	114
normalized size	1	1.	0.75	1.31	0.	0.	0.	0.	0.88
time (sec)	N/A	0.26	0.245	0.013	0.	0.	0.	0.	24.073

Problem 2631	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	98	98	92	164	0	0	0	0	85
normalized size	1	1.	0.94	1.67	0.	0.	0.	0.	0.87
time (sec)	N/A	0.194	0.166	0.031	0.	0.	0.	0.	16.764

Problem 2632	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	98	98	92	159	0	0	0	0	85
normalized size	1	1.	0.94	1.62	0.	0.	0.	0.	0.87
time (sec)	N/A	0.189	0.226	0.049	0.	0.	0.	0.	17.009

Problem 2633	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	129	129	97	267	0	0	0	0	114
normalized size	1	1.	0.75	2.07	0.	0.	0.	0.	0.88
time (sec)	N/A	0.263	0.237	0.044	0.	0.	0.	0.	23.605

Problem 2634	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	160	160	99	386	0	0	0	0	143
normalized size	1	1.	0.62	2.41	0.	0.	0.	0.	0.89
time (sec)	N/A	0.342	0.318	0.048	0.	0.	0.	0.	30.823

Problem 2635	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	106	505	0	0	0	0	172
normalized size	1	1.	0.55	2.64	0.	0.	0.	0.	0.9
time (sec)	N/A	0.427	0.318	0.05	0.	0.	0.	0.	37.497

Problem 2636	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	218	218	107	184	0	0	0	0	201
normalized size	1	1.	0.49	0.84	0.	0.	0.	0.	0.92
time (sec)	N/A	0.482	0.439	0.031	0.	0.	0.	0.	46.369

Problem 2637	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	102	179	0	0	0	0	172
normalized size	1	1.	0.53	0.94	0.	0.	0.	0.	0.9
time (sec)	N/A	0.403	0.337	0.017	0.	0.	0.	0.	38.83

Problem 2638	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	160	160	97	174	0	0	0	0	143
normalized size	1	1.	0.61	1.09	0.	0.	0.	0.	0.89
time (sec)	N/A	0.334	0.293	0.015	0.	0.	0.	0.	31.34

Problem 2639	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	129	129	92	169	0	0	0	0	114
normalized size	1	1.	0.71	1.31	0.	0.	0.	0.	0.88
time (sec)	N/A	0.257	0.25	0.016	0.	0.	0.	0.	23.657

Problem 2640	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	129	129	97	164	0	0	0	0	114
normalized size	1	1.	0.75	1.27	0.	0.	0.	0.	0.88
time (sec)	N/A	0.254	0.282	0.024	0.	0.	0.	0.	24.365

Problem 2641	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	129	129	97	267	0	0	0	0	114
normalized size	1	1.	0.75	2.07	0.	0.	0.	0.	0.88
time (sec)	N/A	0.258	0.297	0.027	0.	0.	0.	0.	23.858

Problem 2642	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	160	160	99	386	0	0	0	0	143
normalized size	1	1.	0.62	2.41	0.	0.	0.	0.	0.89
time (sec)	N/A	0.333	0.31	0.027	0.	0.	0.	0.	31.057

Problem 2643	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	104	505	0	0	0	0	172
normalized size	1	1.	0.54	2.64	0.	0.	0.	0.	0.9
time (sec)	N/A	0.422	0.339	0.029	0.	0.	0.	0.	37.809

Problem 2644	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	222	222	107	624	0	0	0	0	201
normalized size	1	1.	0.48	2.81	0.	0.	0.	0.	0.91
time (sec)	N/A	0.505	0.406	0.055	0.	0.	0.	0.	45.37

Problem 2645	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	249	249	112	189	0	0	0	0	230
normalized size	1	1.	0.45	0.76	0.	0.	0.	0.	0.92
time (sec)	N/A	0.565	0.445	0.033	0.	0.	0.	0.	54.574

Problem 2646	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	218	218	107	184	0	0	0	0	201
normalized size	1	1.	0.49	0.84	0.	0.	0.	0.	0.92
time (sec)	N/A	0.483	0.376	0.017	0.	0.	0.	0.	46.393

Problem 2647	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	102	179	0	0	0	0	172
normalized size	1	1.	0.53	0.94	0.	0.	0.	0.	0.9
time (sec)	N/A	0.407	0.329	0.017	0.	0.	0.	0.	38.846

Problem 2648	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	160	160	97	174	0	0	0	0	141
normalized size	1	1.	0.61	1.09	0.	0.	0.	0.	0.88
time (sec)	N/A	0.336	0.355	0.017	0.	0.	0.	0.	31.032

Problem 2649	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	156	156	112	168	0	0	0	0	138
normalized size	1	1.	0.72	1.08	0.	0.	0.	0.	0.88
time (sec)	N/A	0.331	0.241	0.024	0.	0.	0.	0.	31.659

Problem 2650	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	160	160	102	272	0	0	0	0	143
normalized size	1	1.	0.64	1.7	0.	0.	0.	0.	0.89
time (sec)	N/A	0.333	0.371	0.027	0.	0.	0.	0.	31.323

Problem 2651	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	160	160	99	386	0	0	0	0	143
normalized size	1	1.	0.62	2.41	0.	0.	0.	0.	0.89
time (sec)	N/A	0.338	0.32	0.029	0.	0.	0.	0.	30.733

Problem 2652	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	104	505	0	0	0	0	172
normalized size	1	1.	0.54	2.64	0.	0.	0.	0.	0.9
time (sec)	N/A	0.421	0.349	0.03	0.	0.	0.	0.	38.352

Problem 2653	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	222	222	110	624	0	0	0	0	201
normalized size	1	1.	0.5	2.81	0.	0.	0.	0.	0.91
time (sec)	N/A	0.499	0.422	0.029	0.	0.	0.	0.	45.58

Problem 2654	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	249	249	112	743	0	0	0	0	230
normalized size	1	1.	0.45	2.98	0.	0.	0.	0.	0.92
time (sec)	N/A	0.594	0.486	0.058	0.	0.	0.	0.	53.037

Problem 2655	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	134	134	154	209	0	0	0	0	114
normalized size	1	1.	1.15	1.56	0.	0.	0.	0.	0.85
time (sec)	N/A	0.327	1.295	0.	0.	0.	0.	0.	42.813

Problem 2656	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	184	184	126	1022	0	0	0	0	150
normalized size	1	1.	0.68	5.55	0.	0.	0.	0.	0.82
time (sec)	N/A	0.539	1.291	0.082	0.	0.	0.	0.	59.038

Problem 2657	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	C	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	31	31	109	81	0	0	0	0	26
normalized size	1	1.	3.52	2.61	0.	0.	0.	0.	0.84
time (sec)	N/A	0.05	0.623	0.046	0.	0.	0.	0.	4.658

Problem 2658	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	158	158	97	174	0	0	0	0	143
normalized size	1	1.	0.61	1.1	0.	0.	0.	0.	0.91
time (sec)	N/A	0.341	0.317	0.032	0.	0.	0.	0.	33.209

Problem 2659	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	127	127	97	169	0	0	0	0	114
normalized size	1	1.	0.76	1.33	0.	0.	0.	0.	0.9
time (sec)	N/A	0.263	0.277	0.016	0.	0.	0.	0.	26.284

Problem 2660	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	98	98	92	164	0	0	0	0	85
normalized size	1	1.	0.94	1.67	0.	0.	0.	0.	0.87
time (sec)	N/A	0.19	0.161	0.014	0.	0.	0.	0.	19.433

Problem 2661	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	C	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	49	49	121	67	0	0	0	0	65
normalized size	1	1.	2.47	1.37	0.	0.	0.	0.	1.33
time (sec)	N/A	0.094	0.372	0.018	0.	0.	0.	0.	9.146

Problem 2662	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	61	61	106	158	0	0	0	0	54
normalized size	1	1.	1.74	2.59	0.	0.	0.	0.	0.89
time (sec)	N/A	0.087	0.151	0.024	0.	0.	0.	0.	9.42

Problem 2663	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	129	129	97	267	0	0	0	0	114
normalized size	1	1.	0.75	2.07	0.	0.	0.	0.	0.88
time (sec)	N/A	0.262	0.323	0.028	0.	0.	0.	0.	25.226

Problem 2664	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	158	158	101	386	0	0	0	0	143
normalized size	1	1.	0.64	2.44	0.	0.	0.	0.	0.91
time (sec)	N/A	0.344	0.313	0.03	0.	0.	0.	0.	33.269

Problem 2665	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	189	189	107	174	0	0	0	0	172
normalized size	1	1.	0.57	0.92	0.	0.	0.	0.	0.91
time (sec)	N/A	0.408	0.43	0.048	0.	0.	0.	0.	41.473

Problem 2666	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	158	158	102	169	0	0	0	0	143
normalized size	1	1.	0.65	1.07	0.	0.	0.	0.	0.91
time (sec)	N/A	0.336	0.384	0.026	0.	0.	0.	0.	33.946

Problem 2667	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	127	127	97	164	0	0	0	0	114
normalized size	1	1.	0.76	1.29	0.	0.	0.	0.	0.9
time (sec)	N/A	0.253	0.361	0.023	0.	0.	0.	0.	26.451

Problem 2668	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	94	94	92	159	0	0	0	0	85
normalized size	1	1.	0.98	1.69	0.	0.	0.	0.	0.9
time (sec)	N/A	0.186	0.275	0.018	0.	0.	0.	0.	18.767

Problem 2669	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	61	61	61	104	0	0	0	0	54
normalized size	1	1.	1.	1.7	0.	0.	0.	0.	0.89
time (sec)	N/A	0.088	0.151	0.024	0.	0.	0.	0.	9.618

Problem 2670	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	117	117	128	158	0	0	0	0	109
normalized size	1	1.	1.09	1.35	0.	0.	0.	0.	0.93
time (sec)	N/A	0.267	0.23	0.027	0.	0.	0.	0.	25.49

Problem 2671	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	158	158	100	267	0	0	0	0	143
normalized size	1	1.	0.63	1.69	0.	0.	0.	0.	0.91
time (sec)	N/A	0.344	0.311	0.033	0.	0.	0.	0.	31.044

Problem 2672	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	189	189	105	386	0	0	0	0	172
normalized size	1	1.	0.56	2.04	0.	0.	0.	0.	0.91
time (sec)	N/A	0.432	0.324	0.035	0.	0.	0.	0.	38.022

Problem 2673	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	218	218	112	282	0	0	0	0	201
normalized size	1	1.	0.51	1.29	0.	0.	0.	0.	0.92
time (sec)	N/A	0.496	0.459	0.052	0.	0.	0.	0.	47.134

Problem 2674	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	189	189	107	277	0	0	0	0	172
normalized size	1	1.	0.57	1.47	0.	0.	0.	0.	0.91
time (sec)	N/A	0.414	0.412	0.027	0.	0.	0.	0.	39.221

Problem 2675	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	156	156	102	272	0	0	0	0	143
normalized size	1	1.	0.65	1.74	0.	0.	0.	0.	0.92
time (sec)	N/A	0.335	0.381	0.028	0.	0.	0.	0.	31.815

Problem 2676	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	125	125	97	267	0	0	0	0	114
normalized size	1	1.	0.78	2.14	0.	0.	0.	0.	0.91
time (sec)	N/A	0.259	0.389	0.026	0.	0.	0.	0.	24.416

Problem 2677	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	125	125	97	267	0	0	0	0	114
normalized size	1	1.	0.78	2.14	0.	0.	0.	0.	0.91
time (sec)	N/A	0.262	0.358	0.021	0.	0.	0.	0.	24.397

Problem 2678	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	125	125	97	267	0	0	0	0	114
normalized size	1	1.	0.78	2.14	0.	0.	0.	0.	0.91
time (sec)	N/A	0.264	0.272	0.028	0.	0.	0.	0.	23.935

Problem 2679	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	150	150	99	267	0	0	0	0	141
normalized size	1	1.	0.66	1.78	0.	0.	0.	0.	0.94
time (sec)	N/A	0.337	0.265	0.033	0.	0.	0.	0.	30.467

Problem 2680	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	187	187	104	383	0	0	0	0	172
normalized size	1	1.	0.56	2.05	0.	0.	0.	0.	0.92
time (sec)	N/A	0.425	0.324	0.033	0.	0.	0.	0.	38.156

Problem 2681	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	218	218	109	502	0	0	0	0	201
normalized size	1	1.	0.5	2.3	0.	0.	0.	0.	0.92
time (sec)	N/A	0.523	0.361	0.036	0.	0.	0.	0.	45.627

Problem 2682	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	218	218	107	184	0	0	0	0	201
normalized size	1	1.	0.49	0.84	0.	0.	0.	0.	0.92
time (sec)	N/A	0.479	0.372	0.016	0.	0.	0.	0.	46.569

Problem 2683	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	105	179	0	0	0	0	172
normalized size	1	1.	0.55	0.94	0.	0.	0.	0.	0.9
time (sec)	N/A	0.39	0.323	0.017	0.	0.	0.	0.	38.83

Problem 2684	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	160	160	97	174	0	0	0	0	143
normalized size	1	1.	0.61	1.09	0.	0.	0.	0.	0.89
time (sec)	N/A	0.326	0.294	0.016	0.	0.	0.	0.	31.547

Problem 2685	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	129	129	97	169	0	0	0	0	114
normalized size	1	1.	0.75	1.31	0.	0.	0.	0.	0.88
time (sec)	N/A	0.255	0.141	0.016	0.	0.	0.	0.	24.186

Problem 2686	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	129	129	97	164	0	0	0	0	114
normalized size	1	1.	0.75	1.27	0.	0.	0.	0.	0.88
time (sec)	N/A	0.256	0.25	0.024	0.	0.	0.	0.	24.315

Problem 2687	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	129	129	97	267	0	0	0	0	114
normalized size	1	1.	0.75	2.07	0.	0.	0.	0.	0.88
time (sec)	N/A	0.264	0.237	0.027	0.	0.	0.	0.	23.994

Problem 2688	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	160	160	99	386	0	0	0	0	143
normalized size	1	1.	0.62	2.41	0.	0.	0.	0.	0.89
time (sec)	N/A	0.343	0.215	0.027	0.	0.	0.	0.	30.805

Problem 2689	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	106	505	0	0	0	0	172
normalized size	1	1.	0.55	2.64	0.	0.	0.	0.	0.9
time (sec)	N/A	0.422	0.329	0.029	0.	0.	0.	0.	38.238

Problem 2690	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	222	222	111	624	0	0	0	0	201
normalized size	1	1.	0.5	2.81	0.	0.	0.	0.	0.91
time (sec)	N/A	0.505	0.364	0.03	0.	0.	0.	0.	45.276

Problem 2691	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	249	249	115	189	0	0	0	0	230
normalized size	1	1.	0.46	0.76	0.	0.	0.	0.	0.92
time (sec)	N/A	0.569	0.442	0.016	0.	0.	0.	0.	54.371

Problem 2692	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	218	218	110	184	0	0	0	0	201
normalized size	1	1.	0.5	0.84	0.	0.	0.	0.	0.92
time (sec)	N/A	0.484	0.392	0.022	0.	0.	0.	0.	45.772

Problem 2693	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	105	179	0	0	0	0	172
normalized size	1	1.	0.55	0.94	0.	0.	0.	0.	0.9
time (sec)	N/A	0.405	0.342	0.017	0.	0.	0.	0.	38.344

Problem 2694	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	160	160	97	174	0	0	0	0	143
normalized size	1	1.	0.61	1.09	0.	0.	0.	0.	0.89
time (sec)	N/A	0.324	0.302	0.017	0.	0.	0.	0.	30.934

Problem 2695	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	160	160	102	169	0	0	0	0	143
normalized size	1	1.	0.64	1.06	0.	0.	0.	0.	0.89
time (sec)	N/A	0.323	0.325	0.024	0.	0.	0.	0.	31.337

Problem 2696	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	160	160	102	272	0	0	0	0	143
normalized size	1	1.	0.64	1.7	0.	0.	0.	0.	0.89
time (sec)	N/A	0.329	0.325	0.028	0.	0.	0.	0.	31.165

Problem 2697	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	160	160	99	386	0	0	0	0	143
normalized size	1	1.	0.62	2.41	0.	0.	0.	0.	0.89
time (sec)	N/A	0.333	0.235	0.027	0.	0.	0.	0.	30.498

Problem 2698	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	104	505	0	0	0	0	172
normalized size	1	1.	0.54	2.64	0.	0.	0.	0.	0.9
time (sec)	N/A	0.414	0.261	0.029	0.	0.	0.	0.	38.212

Problem 2699	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	222	222	111	624	0	0	0	0	201
normalized size	1	1.	0.5	2.81	0.	0.	0.	0.	0.91
time (sec)	N/A	0.494	0.363	0.03	0.	0.	0.	0.	45.503

Problem 2700	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	249	249	112	743	0	0	0	0	230
normalized size	1	1.	0.45	2.98	0.	0.	0.	0.	0.92
time (sec)	N/A	0.587	0.442	0.03	0.	0.	0.	0.	53.178

Problem 2701	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	280	280	119	194	0	0	0	1	258
normalized size	1	1.	0.42	0.69	0.	0.	0.	0.	0.92
time (sec)	N/A	0.646	0.373	0.032	0.	0.	0.	0.487	62.163

Problem 2702	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	249	249	115	189	0	0	0	0	230
normalized size	1	1.	0.46	0.76	0.	0.	0.	0.	0.92
time (sec)	N/A	0.559	0.444	0.016	0.	0.	0.	0.	53.911

Problem 2703	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	218	218	107	184	0	0	0	0	201
normalized size	1	1.	0.49	0.84	0.	0.	0.	0.	0.92
time (sec)	N/A	0.487	0.369	0.016	0.	0.	0.	0.	46.373

Problem 2704	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	105	179	0	0	0	0	172
normalized size	1	1.	0.55	0.94	0.	0.	0.	0.	0.9
time (sec)	N/A	0.41	0.357	0.017	0.	0.	0.	0.	39.365

Problem 2705	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	107	174	0	0	0	0	172
normalized size	1	1.	0.56	0.91	0.	0.	0.	0.	0.9
time (sec)	N/A	0.408	0.397	0.024	0.	0.	0.	0.	42.551

Problem 2706	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	107	277	0	0	0	0	172
normalized size	1	1.	0.56	1.45	0.	0.	0.	0.	0.9
time (sec)	N/A	0.414	0.417	0.03	0.	0.	0.	0.	40.841

Problem 2707	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	104	391	0	0	0	0	172
normalized size	1	1.	0.54	2.05	0.	0.	0.	0.	0.9
time (sec)	N/A	0.411	0.341	0.029	0.	0.	0.	0.	40.467

Problem 2708	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	104	505	0	0	0	0	172
normalized size	1	1.	0.54	2.64	0.	0.	0.	0.	0.9
time (sec)	N/A	0.416	0.354	0.028	0.	0.	0.	0.	41.155

Problem 2709	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	222	222	110	624	0	0	0	0	201
normalized size	1	1.	0.5	2.81	0.	0.	0.	0.	0.91
time (sec)	N/A	0.505	0.431	0.033	0.	0.	0.	0.	47.819

Problem 2710	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	249	249	112	743	0	0	0	0	230
normalized size	1	1.	0.45	2.98	0.	0.	0.	0.	0.92
time (sec)	N/A	0.586	0.438	0.031	0.	0.	0.	0.	57.265

Problem 2711	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	280	280	117	862	0	0	0	0	258
normalized size	1	1.	0.42	3.08	0.	0.	0.	0.	0.92
time (sec)	N/A	0.673	0.479	0.06	0.	0.	0.	0.	66.908

Problem 2712	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	105	179	0	0	0	0	172
normalized size	1	1.	0.55	0.94	0.	0.	0.	0.	0.9
time (sec)	N/A	0.407	0.357	0.017	0.	0.	0.	0.	39.411

Problem 2713	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	160	160	97	174	0	0	0	0	143
normalized size	1	1.	0.61	1.09	0.	0.	0.	0.	0.89
time (sec)	N/A	0.321	0.297	0.017	0.	0.	0.	0.	31.777

Problem 2714	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	129	129	97	169	0	0	0	0	114
normalized size	1	1.	0.75	1.31	0.	0.	0.	0.	0.88
time (sec)	N/A	0.254	0.203	0.017	0.	0.	0.	0.	25.107

Problem 2715	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	98	98	92	164	0	0	0	0	85
normalized size	1	1.	0.94	1.67	0.	0.	0.	0.	0.87
time (sec)	N/A	0.19	0.165	0.019	0.	0.	0.	0.	16.996

Problem 2716	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	98	98	92	159	0	0	0	0	85
normalized size	1	1.	0.94	1.62	0.	0.	0.	0.	0.87
time (sec)	N/A	0.188	0.25	0.027	0.	0.	0.	0.	17.095

Problem 2717	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	129	129	97	267	0	0	0	0	114
normalized size	1	1.	0.75	2.07	0.	0.	0.	0.	0.88
time (sec)	N/A	0.264	0.304	0.029	0.	0.	0.	0.	23.675

Problem 2718	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	160	160	101	386	0	0	0	0	143
normalized size	1	1.	0.63	2.41	0.	0.	0.	0.	0.89
time (sec)	N/A	0.343	0.306	0.03	0.	0.	0.	0.	30.588

Problem 2719	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	106	505	0	0	0	0	172
normalized size	1	1.	0.55	2.64	0.	0.	0.	0.	0.9
time (sec)	N/A	0.414	0.337	0.033	0.	0.	0.	0.	38.334

Problem 2720	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	222	222	132	179	0	0	0	0	201
normalized size	1	1.	0.59	0.81	0.	0.	0.	0.	0.91
time (sec)	N/A	0.484	0.234	0.026	0.	0.	0.	0.	47.458

Problem 2721	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	107	174	0	0	0	0	172
normalized size	1	1.	0.56	0.91	0.	0.	0.	0.	0.9
time (sec)	N/A	0.401	0.371	0.026	0.	0.	0.	0.	39.678

Problem 2722	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	160	160	102	169	0	0	0	0	143
normalized size	1	1.	0.64	1.06	0.	0.	0.	0.	0.89
time (sec)	N/A	0.323	0.307	0.027	0.	0.	0.	0.	32.255

Problem 2723	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	129	129	97	164	0	0	0	0	114
normalized size	1	1.	0.75	1.27	0.	0.	0.	0.	0.88
time (sec)	N/A	0.257	0.261	0.024	0.	0.	0.	0.	24.913

Problem 2724	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	98	98	92	159	0	0	0	0	85
normalized size	1	1.	0.94	1.62	0.	0.	0.	0.	0.87
time (sec)	N/A	0.188	0.299	0.024	0.	0.	0.	0.	17.501

Problem 2725	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	129	129	131	159	0	0	0	0	114
normalized size	1	1.	1.02	1.23	0.	0.	0.	0.	0.88
time (sec)	N/A	0.261	0.247	0.029	0.	0.	0.	0.	25.686

Problem 2726	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	160	160	100	267	0	0	0	0	143
normalized size	1	1.	0.62	1.67	0.	0.	0.	0.	0.89
time (sec)	N/A	0.344	0.195	0.034	0.	0.	0.	0.	33.2

Problem 2727	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	105	386	0	0	0	0	172
normalized size	1	1.	0.55	2.02	0.	0.	0.	0.	0.9
time (sec)	N/A	0.435	0.236	0.034	0.	0.	0.	0.	40.308

Problem 2728	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	222	222	110	505	0	0	0	0	201
normalized size	1	1.	0.5	2.27	0.	0.	0.	0.	0.91
time (sec)	N/A	0.525	0.275	0.037	0.	0.	0.	0.	45.668

Problem 2729	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	220	220	112	282	0	0	0	0	201
normalized size	1	1.	0.51	1.28	0.	0.	0.	0.	0.91
time (sec)	N/A	0.494	0.476	0.029	0.	0.	0.	0.	46.734

Problem 2730	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	107	277	0	0	0	0	172
normalized size	1	1.	0.56	1.45	0.	0.	0.	0.	0.9
time (sec)	N/A	0.412	0.467	0.03	0.	0.	0.	0.	39.196

Problem 2731	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	160	160	102	272	0	0	0	0	143
normalized size	1	1.	0.64	1.7	0.	0.	0.	0.	0.89
time (sec)	N/A	0.333	0.392	0.026	0.	0.	0.	0.	34.595

Problem 2732	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	127	127	97	267	0	0	0	0	114
normalized size	1	1.	0.76	2.1	0.	0.	0.	0.	0.9
time (sec)	N/A	0.267	0.337	0.028	0.	0.	0.	0.	27.192

Problem 2733	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	127	127	97	267	0	0	0	0	114
normalized size	1	1.	0.76	2.1	0.	0.	0.	0.	0.9
time (sec)	N/A	0.263	0.369	0.03	0.	0.	0.	0.	26.001

Problem 2734	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	158	158	100	267	0	0	0	0	143
normalized size	1	1.	0.63	1.69	0.	0.	0.	0.	0.91
time (sec)	N/A	0.338	0.213	0.033	0.	0.	0.	0.	32.52

Problem 2735	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	185	185	104	383	0	0	0	0	170
normalized size	1	1.	0.56	2.07	0.	0.	0.	0.	0.92
time (sec)	N/A	0.434	0.306	0.035	0.	0.	0.	0.	40.348

Problem 2736	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	222	222	109	502	0	0	0	0	201
normalized size	1	1.	0.49	2.26	0.	0.	0.	0.	0.91
time (sec)	N/A	0.519	0.362	0.037	0.	0.	0.	0.	48.88

Problem 2737	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	249	249	112	189	0	0	0	0	230
normalized size	1	1.	0.45	0.76	0.	0.	0.	0.	0.92
time (sec)	N/A	0.546	0.438	0.016	0.	0.	0.	0.	58.021

Problem 2738	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	218	218	107	184	0	0	0	0	201
normalized size	1	1.	0.49	0.84	0.	0.	0.	0.	0.92
time (sec)	N/A	0.461	0.365	0.016	0.	0.	0.	0.	47.052

Problem 2739	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	102	179	0	0	0	0	172
normalized size	1	1.	0.53	0.94	0.	0.	0.	0.	0.9
time (sec)	N/A	0.397	0.342	0.014	0.	0.	0.	0.	39.612

Problem 2740	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	160	160	102	174	0	0	0	0	143
normalized size	1	1.	0.64	1.09	0.	0.	0.	0.	0.89
time (sec)	N/A	0.329	0.168	0.017	0.	0.	0.	0.	32.095

Problem 2741	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	160	160	102	169	0	0	0	0	143
normalized size	1	1.	0.64	1.06	0.	0.	0.	0.	0.89
time (sec)	N/A	0.33	0.306	0.023	0.	0.	0.	0.	31.556

Problem 2742	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	160	160	102	272	0	0	0	0	143
normalized size	1	1.	0.64	1.7	0.	0.	0.	0.	0.89
time (sec)	N/A	0.334	0.318	0.027	0.	0.	0.	0.	32.037

Problem 2743	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	156	156	99	386	0	0	0	0	141
normalized size	1	1.	0.63	2.47	0.	0.	0.	0.	0.9
time (sec)	N/A	0.338	0.204	0.028	0.	0.	0.	0.	30.735

Problem 2744	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	106	505	0	0	0	0	172
normalized size	1	1.	0.55	2.64	0.	0.	0.	0.	0.9
time (sec)	N/A	0.417	0.351	0.03	0.	0.	0.	0.	38.225

Problem 2745	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	222	222	111	624	0	0	0	0	201
normalized size	1	1.	0.5	2.81	0.	0.	0.	0.	0.91
time (sec)	N/A	0.501	0.378	0.03	0.	0.	0.	0.	45.585

Problem 2746	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	249	249	115	743	0	0	0	0	230
normalized size	1	1.	0.46	2.98	0.	0.	0.	0.	0.92
time (sec)	N/A	0.591	0.441	0.03	0.	0.	0.	0.	53.89

Problem 2747	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	280	280	119	194	0	0	0	1	258
normalized size	1	1.	0.42	0.69	0.	0.	0.	0.	0.92
time (sec)	N/A	0.645	0.35	0.017	0.	0.	0.	0.484	62.484

Problem 2748	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	249	249	112	189	0	0	0	0	230
normalized size	1	1.	0.45	0.76	0.	0.	0.	0.	0.92
time (sec)	N/A	0.561	0.399	0.016	0.	0.	0.	0.	54.268

Problem 2749	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	218	218	107	184	0	0	0	0	201
normalized size	1	1.	0.49	0.84	0.	0.	0.	0.	0.92
time (sec)	N/A	0.481	0.42	0.016	0.	0.	0.	0.	46.991

Problem 2750	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	102	179	0	0	0	0	172
normalized size	1	1.	0.53	0.94	0.	0.	0.	0.	0.9
time (sec)	N/A	0.396	0.246	0.017	0.	0.	0.	0.	39.496

Problem 2751	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	107	174	0	0	0	0	172
normalized size	1	1.	0.56	0.91	0.	0.	0.	0.	0.9
time (sec)	N/A	0.397	0.335	0.024	0.	0.	0.	0.	39.675

Problem 2752	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	107	277	0	0	0	0	172
normalized size	1	1.	0.56	1.45	0.	0.	0.	0.	0.9
time (sec)	N/A	0.42	0.318	0.028	0.	0.	0.	0.	39.484

Problem 2753	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	104	391	0	0	0	0	172
normalized size	1	1.	0.54	2.05	0.	0.	0.	0.	0.9
time (sec)	N/A	0.409	0.253	0.028	0.	0.	0.	0.	39.088

Problem 2754	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	104	505	0	0	0	0	172
normalized size	1	1.	0.54	2.64	0.	0.	0.	0.	0.9
time (sec)	N/A	0.411	0.286	0.029	0.	0.	0.	0.	38.648

Problem 2755	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	222	222	111	624	0	0	0	0	201
normalized size	1	1.	0.5	2.81	0.	0.	0.	0.	0.91
time (sec)	N/A	0.497	0.396	0.029	0.	0.	0.	0.	45.912

Problem 2756	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	249	249	115	743	0	0	0	0	230
normalized size	1	1.	0.46	2.98	0.	0.	0.	0.	0.92
time (sec)	N/A	0.582	0.447	0.03	0.	0.	0.	0.	58.539

Problem 2757	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	280	280	117	862	0	0	0	0	258
normalized size	1	1.	0.42	3.08	0.	0.	0.	0.	0.92
time (sec)	N/A	0.671	0.445	0.032	0.	0.	0.	0.	66.431

Problem 2758	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	280	280	119	194	0	0	0	1	258
normalized size	1	1.	0.42	0.69	0.	0.	0.	0.	0.92
time (sec)	N/A	0.646	0.343	0.018	0.	0.	0.	0.474	63.561

Problem 2759	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	249	249	112	189	0	0	0	0	230
normalized size	1	1.	0.45	0.76	0.	0.	0.	0.	0.92
time (sec)	N/A	0.572	0.422	0.017	0.	0.	0.	0.	57.902

Problem 2760	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	218	218	107	184	0	0	0	0	201
normalized size	1	1.	0.49	0.84	0.	0.	0.	0.	0.92
time (sec)	N/A	0.485	0.382	0.017	0.	0.	0.	0.	49.507

Problem 2761	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	222	222	112	179	0	0	0	0	201
normalized size	1	1.	0.5	0.81	0.	0.	0.	0.	0.91
time (sec)	N/A	0.48	0.452	0.026	0.	0.	0.	0.	49.768

Problem 2762	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	222	222	112	282	0	0	0	0	201
normalized size	1	1.	0.5	1.27	0.	0.	0.	0.	0.91
time (sec)	N/A	0.485	0.419	0.029	0.	0.	0.	0.	49.774

Problem 2763	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	222	222	109	396	0	0	0	0	201
normalized size	1	1.	0.49	1.78	0.	0.	0.	0.	0.91
time (sec)	N/A	0.486	0.345	0.03	0.	0.	0.	0.	49.55

Problem 2764	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	222	222	109	510	0	0	0	0	201
normalized size	1	1.	0.49	2.3	0.	0.	0.	0.	0.91
time (sec)	N/A	0.491	0.293	0.03	0.	0.	0.	0.	48.824

Problem 2765	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	222	222	109	624	0	0	0	0	201
normalized size	1	1.	0.49	2.81	0.	0.	0.	0.	0.91
time (sec)	N/A	0.494	0.314	0.03	0.	0.	0.	0.	48.972

Problem 2766	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	249	249	112	743	0	0	0	0	230
normalized size	1	1.	0.45	2.98	0.	0.	0.	0.	0.92
time (sec)	N/A	0.588	0.559	0.031	0.	0.	0.	0.	58.07

Problem 2767	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	280	280	117	862	0	0	0	0	258
normalized size	1	1.	0.42	3.08	0.	0.	0.	0.	0.92
time (sec)	N/A	0.681	0.474	0.032	0.	0.	0.	0.	66.348

Problem 2768	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	311	311	122	981	0	0	0	0	287
normalized size	1	1.	0.39	3.15	0.	0.	0.	0.	0.92
time (sec)	N/A	0.781	0.501	0.065	0.	0.	0.	0.	74.981

Problem 2769	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	218	218	107	184	0	0	0	0	201
normalized size	1	1.	0.49	0.84	0.	0.	0.	0.	0.92
time (sec)	N/A	0.487	0.511	0.017	0.	0.	0.	0.	50.411

Problem 2770	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	102	179	0	0	0	0	172
normalized size	1	1.	0.53	0.94	0.	0.	0.	0.	0.9
time (sec)	N/A	0.4	0.338	0.017	0.	0.	0.	0.	42.384

Problem 2771	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	160	160	102	174	0	0	0	0	143
normalized size	1	1.	0.64	1.09	0.	0.	0.	0.	0.89
time (sec)	N/A	0.336	0.255	0.02	0.	0.	0.	0.	33.868

Problem 2772	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	129	129	97	169	0	0	0	0	114
normalized size	1	1.	0.75	1.31	0.	0.	0.	0.	0.88
time (sec)	N/A	0.261	0.209	0.02	0.	0.	0.	0.	25.854

Problem 2773	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	129	129	97	164	0	0	0	0	114
normalized size	1	1.	0.75	1.27	0.	0.	0.	0.	0.88
time (sec)	N/A	0.257	0.295	0.026	0.	0.	0.	0.	25.779

Problem 2774	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	129	129	97	267	0	0	0	0	114
normalized size	1	1.	0.75	2.07	0.	0.	0.	0.	0.88
time (sec)	N/A	0.26	0.285	0.028	0.	0.	0.	0.	25.62

Problem 2775	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	160	160	101	386	0	0	0	0	143
normalized size	1	1.	0.63	2.41	0.	0.	0.	0.	0.89
time (sec)	N/A	0.339	0.314	0.03	0.	0.	0.	0.	33.156

Problem 2776	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	107	505	0	0	0	0	172
normalized size	1	1.	0.56	2.64	0.	0.	0.	0.	0.9
time (sec)	N/A	0.423	0.318	0.031	0.	0.	0.	0.	40.914

Problem 2777	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	222	222	111	624	0	0	0	0	201
normalized size	1	1.	0.5	2.81	0.	0.	0.	0.	0.91
time (sec)	N/A	0.506	0.384	0.033	0.	0.	0.	0.	48.562

Problem 2778	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	249	249	115	743	0	0	0	0	230
normalized size	1	1.	0.46	2.98	0.	0.	0.	0.	0.92
time (sec)	N/A	0.6	0.478	0.033	0.	0.	0.	0.	57.408

Problem 2779	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	249	249	125	184	0	0	0	0	230
normalized size	1	1.	0.5	0.74	0.	0.	0.	0.	0.92
time (sec)	N/A	0.577	0.446	0.027	0.	0.	0.	0.	58.993

Problem 2780	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	222	222	112	179	0	0	0	0	201
normalized size	1	1.	0.5	0.81	0.	0.	0.	0.	0.91
time (sec)	N/A	0.495	0.455	0.026	0.	0.	0.	0.	51.187

Problem 2781	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	107	174	0	0	0	0	172
normalized size	1	1.	0.56	0.91	0.	0.	0.	0.	0.9
time (sec)	N/A	0.405	0.435	0.026	0.	0.	0.	0.	42.2

Problem 2782	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	160	160	102	169	0	0	0	0	143
normalized size	1	1.	0.64	1.06	0.	0.	0.	0.	0.89
time (sec)	N/A	0.335	0.405	0.025	0.	0.	0.	0.	34.197

Problem 2783	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	129	129	97	164	0	0	0	0	114
normalized size	1	1.	0.75	1.27	0.	0.	0.	0.	0.88
time (sec)	N/A	0.257	0.462	0.026	0.	0.	0.	0.	26.397

Problem 2784	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	129	129	131	159	0	0	0	0	114
normalized size	1	1.	1.02	1.23	0.	0.	0.	0.	0.88
time (sec)	N/A	0.259	0.226	0.029	0.	0.	0.	0.	25.744

Problem 2785	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	160	160	100	267	0	0	0	0	143
normalized size	1	1.	0.62	1.67	0.	0.	0.	0.	0.89
time (sec)	N/A	0.346	0.223	0.034	0.	0.	0.	0.	32.984

Problem 2786	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	105	386	0	0	0	0	172
normalized size	1	1.	0.55	2.02	0.	0.	0.	0.	0.9
time (sec)	N/A	0.426	0.328	0.035	0.	0.	0.	0.	40.693

Problem 2787	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	222	222	110	505	0	0	0	0	201
normalized size	1	1.	0.5	2.27	0.	0.	0.	0.	0.91
time (sec)	N/A	0.519	0.363	0.036	0.	0.	0.	0.	48.584

Problem 2788	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	253	253	115	624	0	0	0	0	230
normalized size	1	1.	0.45	2.47	0.	0.	0.	0.	0.91
time (sec)	N/A	0.613	0.405	0.037	0.	0.	0.	0.	56.509

Problem 2789	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	253	253	117	287	0	0	0	0	230
normalized size	1	1.	0.46	1.13	0.	0.	0.	0.	0.91
time (sec)	N/A	0.582	0.487	0.029	0.	0.	0.	0.	58.25

Problem 2790	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	222	222	112	282	0	0	0	0	201
normalized size	1	1.	0.5	1.27	0.	0.	0.	0.	0.91
time (sec)	N/A	0.485	0.441	0.029	0.	0.	0.	0.	49.497

Problem 2791	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	189	189	107	277	0	0	0	0	172
normalized size	1	1.	0.57	1.47	0.	0.	0.	0.	0.91
time (sec)	N/A	0.401	0.41	0.028	0.	0.	0.	0.	40.508

Problem 2792	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	160	160	102	272	0	0	0	0	143
normalized size	1	1.	0.64	1.7	0.	0.	0.	0.	0.89
time (sec)	N/A	0.333	0.409	0.027	0.	0.	0.	0.	33.174

Problem 2793	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	127	127	97	267	0	0	0	0	114
normalized size	1	1.	0.76	2.1	0.	0.	0.	0.	0.9
time (sec)	N/A	0.259	0.294	0.028	0.	0.	0.	0.	25.153

Problem 2794	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	158	158	100	267	0	0	0	0	143
normalized size	1	1.	0.63	1.69	0.	0.	0.	0.	0.91
time (sec)	N/A	0.336	0.218	0.033	0.	0.	0.	0.	32.295

Problem 2795	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	105	383	0	0	0	0	172
normalized size	1	1.	0.55	2.01	0.	0.	0.	0.	0.9
time (sec)	N/A	0.423	0.246	0.033	0.	0.	0.	0.	39.491

Problem 2796	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	222	222	109	502	0	0	0	0	201
normalized size	1	1.	0.49	2.26	0.	0.	0.	0.	0.91
time (sec)	N/A	0.518	0.373	0.036	0.	0.	0.	0.	47.231

Problem 2797	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	251	251	114	621	0	0	0	0	230
normalized size	1	1.	0.45	2.47	0.	0.	0.	0.	0.92
time (sec)	N/A	0.609	0.403	0.036	0.	0.	0.	0.	55.989

Problem 2798	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	158	158	97	174	0	0	0	0	143
normalized size	1	1.	0.61	1.1	0.	0.	0.	0.	0.91
time (sec)	N/A	0.332	0.29	0.034	0.	0.	0.	0.	33.265

Problem 2799	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	127	127	92	169	0	0	0	0	114
normalized size	1	1.	0.72	1.33	0.	0.	0.	0.	0.9
time (sec)	N/A	0.259	0.217	0.017	0.	0.	0.	0.	25.389

Problem 2800	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	98	98	92	164	0	0	0	0	85
normalized size	1	1.	0.94	1.67	0.	0.	0.	0.	0.87
time (sec)	N/A	0.187	0.17	0.015	0.	0.	0.	0.	17.461

Problem 2801	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	31	31	56	65	0	0	0	0	27
normalized size	1	1.	1.81	2.1	0.	0.	0.	0.	0.87
time (sec)	N/A	0.043	0.084	0.018	0.	0.	0.	0.	5.188

Problem 2802	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	81	81	70	159	0	0	0	0	94
normalized size	1	1.	0.86	1.96	0.	0.	0.	0.	1.16
time (sec)	N/A	0.14	0.149	0.026	0.	0.	0.	0.	14.176

Problem 2803	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	129	129	97	267	0	0	0	0	114
normalized size	1	1.	0.75	2.07	0.	0.	0.	0.	0.88
time (sec)	N/A	0.262	0.217	0.029	0.	0.	0.	0.	25.062

Problem 2804	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	158	158	98	386	0	0	0	0	143
normalized size	1	1.	0.62	2.44	0.	0.	0.	0.	0.91
time (sec)	N/A	0.341	0.212	0.031	0.	0.	0.	0.	32.206

Problem 2805	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	105	179	0	0	0	0	172
normalized size	1	1.	0.55	0.94	0.	0.	0.	0.	0.9
time (sec)	N/A	0.403	0.348	0.019	0.	0.	0.	0.	40.991

Problem 2806	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	160	160	100	174	0	0	0	0	143
normalized size	1	1.	0.62	1.09	0.	0.	0.	0.	0.89
time (sec)	N/A	0.318	0.302	0.016	0.	0.	0.	0.	33.482

Problem 2807	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	129	129	95	169	0	0	0	0	114
normalized size	1	1.	0.74	1.31	0.	0.	0.	0.	0.88
time (sec)	N/A	0.257	0.24	0.016	0.	0.	0.	0.	25.407

Problem 2808	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	98	98	92	164	0	0	0	0	85
normalized size	1	1.	0.94	1.67	0.	0.	0.	0.	0.87
time (sec)	N/A	0.194	0.085	0.02	0.	0.	0.	0.	17.931

Problem 2809	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	98	98	92	159	0	0	0	0	85
normalized size	1	1.	0.94	1.62	0.	0.	0.	0.	0.87
time (sec)	N/A	0.185	0.163	0.024	0.	0.	0.	0.	18.158

Problem 2810	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	129	129	97	267	0	0	0	0	114
normalized size	1	1.	0.75	2.07	0.	0.	0.	0.	0.88
time (sec)	N/A	0.262	0.266	0.029	0.	0.	0.	0.	25.472

Problem 2811	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	160	160	99	386	0	0	0	0	143
normalized size	1	1.	0.62	2.41	0.	0.	0.	0.	0.89
time (sec)	N/A	0.342	0.222	0.03	0.	0.	0.	0.	32.932

Problem 2812	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	104	505	0	0	0	0	172
normalized size	1	1.	0.54	2.64	0.	0.	0.	0.	0.9
time (sec)	N/A	0.423	0.264	0.031	0.	0.	0.	0.	40.408

Problem 2813	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	249	249	115	189	0	0	0	0	230
normalized size	1	1.	0.46	0.76	0.	0.	0.	0.	0.92
time (sec)	N/A	0.573	0.526	0.019	0.	0.	0.	0.	57.827

Problem 2814	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	218	218	110	184	0	0	0	0	201
normalized size	1	1.	0.5	0.84	0.	0.	0.	0.	0.92
time (sec)	N/A	0.495	0.376	0.018	0.	0.	0.	0.	49.163

Problem 2815	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	105	179	0	0	0	0	172
normalized size	1	1.	0.55	0.94	0.	0.	0.	0.	0.9
time (sec)	N/A	0.406	0.321	0.018	0.	0.	0.	0.	40.632

Problem 2816	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	160	160	97	174	0	0	0	0	143
normalized size	1	1.	0.61	1.09	0.	0.	0.	0.	0.89
time (sec)	N/A	0.326	0.252	0.018	0.	0.	0.	0.	32.37

Problem 2817	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	129	129	95	169	0	0	0	0	114
normalized size	1	1.	0.74	1.31	0.	0.	0.	0.	0.88
time (sec)	N/A	0.258	0.268	0.023	0.	0.	0.	0.	24.619

Problem 2818	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	129	129	97	164	0	0	0	0	114
normalized size	1	1.	0.75	1.27	0.	0.	0.	0.	0.88
time (sec)	N/A	0.248	0.222	0.025	0.	0.	0.	0.	24.827

Problem 2819	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	129	129	97	267	0	0	0	0	114
normalized size	1	1.	0.75	2.07	0.	0.	0.	0.	0.88
time (sec)	N/A	0.259	0.262	0.03	0.	0.	0.	0.	25.433

Problem 2820	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	160	160	99	386	0	0	0	0	143
normalized size	1	1.	0.62	2.41	0.	0.	0.	0.	0.89
time (sec)	N/A	0.339	0.245	0.03	0.	0.	0.	0.	33.168

Problem 2821	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	104	505	0	0	0	0	172
normalized size	1	1.	0.54	2.64	0.	0.	0.	0.	0.9
time (sec)	N/A	0.409	0.266	0.032	0.	0.	0.	0.	40.82

Problem 2822	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	222	222	107	624	0	0	0	0	201
normalized size	1	1.	0.48	2.81	0.	0.	0.	0.	0.91
time (sec)	N/A	0.499	0.319	0.033	0.	0.	0.	0.	48.646

Problem 2823	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	249	249	112	743	0	0	0	0	230
normalized size	1	1.	0.45	2.98	0.	0.	0.	0.	0.92
time (sec)	N/A	0.588	0.519	0.034	0.	0.	0.	0.	57.001

Problem 2824	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	B	F	F	A	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	12	12	55	30	0	0	65	0	20
normalized size	1	1.	4.58	2.5	0.	0.	5.42	0.	1.67
time (sec)	N/A	0.03	0.131	0.058	0.	0.	12.114	0.	3.612

Problem 2825	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	A	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	16	16	74	25	0	0	0	0	14
normalized size	1	1.	4.62	1.56	0.	0.	0.	0.	0.88
time (sec)	N/A	0.038	0.121	0.089	0.	0.	0.	0.	4.024

Problem 2826	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	24	24	67	44	0	0	0	0	24
normalized size	1	1.	2.79	1.83	0.	0.	0.	0.	1.
time (sec)	N/A	0.041	0.112	0.099	0.	0.	0.	0.	3.986

Problem 2827	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	A	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	18	18	65	19	0	0	0	0	17
normalized size	1	1.	3.61	1.06	0.	0.	0.	0.	0.94
time (sec)	N/A	0.04	0.119	0.089	0.	0.	0.	0.	4.688

Problem 2828	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	A	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	18	18	78	32	0	0	0	0	19
normalized size	1	1.	4.33	1.78	0.	0.	0.	0.	1.06
time (sec)	N/A	0.038	0.151	0.093	0.	0.	0.	0.	4.075

Problem 2829	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	A	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	25	25	68	25	0	0	0	0	26
normalized size	1	1.	2.72	1.	0.	0.	0.	0.	1.04
time (sec)	N/A	0.043	0.096	0.118	0.	0.	0.	0.	4.733

Problem 2830	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	A	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	23	23	65	17	0	0	0	0	15
normalized size	1	1.	2.83	0.74	0.	0.	0.	0.	0.65
time (sec)	N/A	0.042	0.115	0.095	0.	0.	0.	0.	4.766

Problem 2831	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	B	F	F	A	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	14	14	67	55	0	0	66	0	19
normalized size	1	1.	4.79	3.93	0.	0.	4.71	0.	1.36
time (sec)	N/A	0.044	0.047	0.059	0.	0.	11.703	0.	6.718

Problem 2832	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	B	F	F	A	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	12	12	59	30	0	0	65	0	53
normalized size	1	1.	4.92	2.5	0.	0.	5.42	0.	4.42
time (sec)	N/A	0.032	0.046	0.053	0.	0.	11.746	0.	7.549

Problem 2833	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F	F	F	F	A
verified	N/A	NO	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	57	36	63	66	0	0	0	0	46
normalized size	1	0.63	1.11	1.16	0.	0.	0.	0.	0.81
time (sec)	N/A	0.072	0.136	0.059	0.	0.	0.	0.	8.156

Problem 2834	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	B	F	F	F	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	41	41	72	76	0	0	0	0	61
normalized size	1	1.	1.76	1.85	0.	0.	0.	0.	1.49
time (sec)	N/A	0.072	0.15	0.059	0.	0.	0.	0.	8.023

Problem 2835	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F	F	F	F	A
verified	N/A	NO	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	92	52	75	54	0	0	0	0	56
normalized size	1	0.57	0.82	0.59	0.	0.	0.	0.	0.61
time (sec)	N/A	0.115	0.121	0.053	0.	0.	0.	0.	9.389

Problem 2836	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	B	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	41	41	72	68	0	0	0	0	53
normalized size	1	1.	1.76	1.66	0.	0.	0.	0.	1.29
time (sec)	N/A	0.074	0.08	0.059	0.	0.	0.	0.	8.636

Problem 2837	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	C	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	57	57	75	57	0	0	0	0	65
normalized size	1	1.	1.32	1.	0.	0.	0.	0.	1.14
time (sec)	N/A	0.119	0.053	0.054	0.	0.	0.	0.	9.635

Problem 2838	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	C	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	57	57	69	46	0	0	0	0	49
normalized size	1	1.	1.21	0.81	0.	0.	0.	0.	0.86
time (sec)	N/A	0.121	0.057	0.053	0.	0.	0.	0.	9.041

Problem 2839	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	B	F	F	A	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	14	14	67	54	0	0	66	0	60
normalized size	1	1.	4.79	3.86	0.	0.	4.71	0.	4.29
time (sec)	N/A	0.044	0.044	0.057	0.	0.	12.363	0.	12.761

Problem 2840	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	B	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	204	204	201	1011	0	0	0	0	167
normalized size	1	1.	0.99	4.96	0.	0.	0.	0.	0.82
time (sec)	N/A	0.591	1.757	0.049	0.	0.	0.	0.	74.341

Problem 2841	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	B	F	F	F(-1)	F	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	437	437	449	4067	0	0	0	0	0
normalized size	1	1.	1.03	9.31	0.	0.	0.	0.	0.
time (sec)	N/A	1.908	6.11	0.109	0.	0.	0.	0.	0.

Problem 2842	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	158	158	97	174	0	0	0	0	144
normalized size	1	1.	0.61	1.1	0.	0.	0.	0.	0.91
time (sec)	N/A	0.342	0.319	0.023	0.	0.	0.	0.	33.29

Problem 2843	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	127	127	95	169	0	0	0	0	116
normalized size	1	1.	0.75	1.33	0.	0.	0.	0.	0.91
time (sec)	N/A	0.263	0.267	0.023	0.	0.	0.	0.	25.585

Problem 2844	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	96	96	92	164	0	0	0	0	85
normalized size	1	1.	0.96	1.71	0.	0.	0.	0.	0.89
time (sec)	N/A	0.191	0.092	0.02	0.	0.	0.	0.	18.141

Problem 2845	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	C	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	31	31	129	34	0	0	0	0	27
normalized size	1	1.	4.16	1.1	0.	0.	0.	0.	0.87
time (sec)	N/A	0.047	0.239	0.017	0.	0.	0.	0.	5.183

Problem 2846	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	C	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	29	29	74	33	0	0	0	0	29
normalized size	1	1.	2.55	1.14	0.	0.	0.	0.	1.
time (sec)	N/A	0.046	0.177	0.02	0.	0.	0.	0.	5.354

Problem 2847	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	63	63	62	104	0	0	0	0	56
normalized size	1	1.	0.98	1.65	0.	0.	0.	0.	0.89
time (sec)	N/A	0.093	0.112	0.027	0.	0.	0.	0.	9.581

Problem 2848	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	127	127	97	267	0	0	0	0	114
normalized size	1	1.	0.76	2.1	0.	0.	0.	0.	0.9
time (sec)	N/A	0.27	0.232	0.031	0.	0.	0.	0.	25.165

Problem 2849	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	158	158	101	386	0	0	0	0	143
normalized size	1	1.	0.64	2.44	0.	0.	0.	0.	0.91
time (sec)	N/A	0.346	0.315	0.033	0.	0.	0.	0.	32.305

Problem 2850	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	160	160	122	169	0	0	0	0	144
normalized size	1	1.	0.76	1.06	0.	0.	0.	0.	0.9
time (sec)	N/A	0.335	0.281	0.027	0.	0.	0.	0.	34.371

Problem 2851	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	129	129	97	164	0	0	0	0	116
normalized size	1	1.	0.75	1.27	0.	0.	0.	0.	0.9
time (sec)	N/A	0.259	0.31	0.027	0.	0.	0.	0.	25.971

Problem 2852	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	98	98	92	159	0	0	0	0	87
normalized size	1	1.	0.94	1.62	0.	0.	0.	0.	0.89
time (sec)	N/A	0.19	0.189	0.026	0.	0.	0.	0.	18.376

Problem 2853	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	81	81	61	159	0	0	0	0	94
normalized size	1	1.	0.75	1.96	0.	0.	0.	0.	1.16
time (sec)	N/A	0.14	0.13	0.024	0.	0.	0.	0.	14.044

Problem 2854	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	63	63	106	158	0	0	0	0	56
normalized size	1	1.	1.68	2.51	0.	0.	0.	0.	0.89
time (sec)	N/A	0.095	0.115	0.028	0.	0.	0.	0.	9.445

Problem 2855	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	129	129	130	159	0	0	0	0	114
normalized size	1	1.	1.01	1.23	0.	0.	0.	0.	0.88
time (sec)	N/A	0.266	0.174	0.032	0.	0.	0.	0.	25.471

Problem 2856	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	160	160	100	267	0	0	0	0	143
normalized size	1	1.	0.62	1.67	0.	0.	0.	0.	0.89
time (sec)	N/A	0.352	0.197	0.034	0.	0.	0.	0.	32.74

Problem 2857	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	105	386	0	0	0	0	172
normalized size	1	1.	0.55	2.02	0.	0.	0.	0.	0.9
time (sec)	N/A	0.444	0.307	0.036	0.	0.	0.	0.	40.169

Problem 2858	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	187	187	107	277	0	0	0	0	172
normalized size	1	1.	0.57	1.48	0.	0.	0.	0.	0.92
time (sec)	N/A	0.417	0.368	0.03	0.	0.	0.	0.	41.26

Problem 2859	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	156	156	102	272	0	0	0	0	144
normalized size	1	1.	0.65	1.74	0.	0.	0.	0.	0.92
time (sec)	N/A	0.336	0.317	0.029	0.	0.	0.	0.	33.255

Problem 2860	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	125	125	97	267	0	0	0	0	116
normalized size	1	1.	0.78	2.14	0.	0.	0.	0.	0.93
time (sec)	N/A	0.261	0.385	0.03	0.	0.	0.	0.	25.668

Problem 2861	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	125	125	97	267	0	0	0	0	114
normalized size	1	1.	0.78	2.14	0.	0.	0.	0.	0.91
time (sec)	N/A	0.267	0.356	0.03	0.	0.	0.	0.	25.842

Problem 2862	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	125	125	97	267	0	0	0	0	114
normalized size	1	1.	0.78	2.14	0.	0.	0.	0.	0.91
time (sec)	N/A	0.269	0.399	0.031	0.	0.	0.	0.	26.349

Problem 2863	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	125	125	97	267	0	0	0	0	114
normalized size	1	1.	0.78	2.14	0.	0.	0.	0.	0.91
time (sec)	N/A	0.266	0.325	0.03	0.	0.	0.	0.	25.337

Problem 2864	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	156	156	99	267	0	0	0	0	143
normalized size	1	1.	0.63	1.71	0.	0.	0.	0.	0.92
time (sec)	N/A	0.349	0.195	0.034	0.	0.	0.	0.	31.771

Problem 2865	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	187	187	104	383	0	0	0	0	172
normalized size	1	1.	0.56	2.05	0.	0.	0.	0.	0.92
time (sec)	N/A	0.437	0.232	0.036	0.	0.	0.	0.	39.229

Problem 2866	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	218	218	109	502	0	0	0	0	201
normalized size	1	1.	0.5	2.3	0.	0.	0.	0.	0.92
time (sec)	N/A	0.527	0.35	0.037	0.	0.	0.	0.	46.625

Problem 2867	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	B	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	86	86	120	155	0	0	0	0	70
normalized size	1	1.	1.4	1.8	0.	0.	0.	0.	0.81
time (sec)	N/A	0.167	0.182	0.086	0.	0.	0.	0.	15.299

Problem 2868	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	C	F	F	A	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	18	18	46	13	0	0	66	0	15
normalized size	1	1.	2.56	0.72	0.	0.	3.67	0.	0.83
time (sec)	N/A	0.042	0.137	0.085	0.	0.	13.065	0.	4.552

Problem 2869	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	14	14	46	35	0	0	0	0	14
normalized size	1	1.	3.29	2.5	0.	0.	0.	0.	1.
time (sec)	N/A	0.065	0.025	0.023	0.	0.	0.	0.	8.5

Problem 2870	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	14	14	44	47	0	0	0	0	14
normalized size	1	1.	3.14	3.36	0.	0.	0.	0.	1.
time (sec)	N/A	0.034	0.07	0.017	0.	0.	0.	0.	7.6

Problem 2871	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	A	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	16	16	74	21	0	0	0	0	53
normalized size	1	1.	4.62	1.31	0.	0.	0.	0.	3.31
time (sec)	N/A	0.037	0.057	0.119	0.	0.	0.	0.	7.897

Problem 2872	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	B	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	25	25	74	43	0	0	0	0	66
normalized size	1	1.	2.96	1.72	0.	0.	0.	0.	2.64
time (sec)	N/A	0.087	0.023	0.025	0.	0.	0.	0.	13.067

Problem 2873	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	25	25	68	55	0	0	0	0	66
normalized size	1	1.	2.72	2.2	0.	0.	0.	0.	2.64
time (sec)	N/A	0.057	0.1	0.02	0.	0.	0.	0.	11.846

Problem 2874	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	186	186	115	174	0	0	0	0	168
normalized size	1	1.	0.62	0.94	0.	0.	0.	0.	0.9
time (sec)	N/A	0.399	0.297	0.049	0.	0.	0.	0.	39.149

Problem 2875	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	155	155	110	169	0	0	0	0	139
normalized size	1	1.	0.71	1.09	0.	0.	0.	0.	0.9
time (sec)	N/A	0.317	0.258	0.024	0.	0.	0.	0.	31.533

Problem 2876	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	122	122	103	164	0	0	0	0	109
normalized size	1	1.	0.84	1.34	0.	0.	0.	0.	0.89
time (sec)	N/A	0.244	0.219	0.023	0.	0.	0.	0.	24.216

Problem 2877	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	85	85	86	158	0	0	0	0	76
normalized size	1	1.	1.01	1.86	0.	0.	0.	0.	0.89
time (sec)	N/A	0.182	0.167	0.019	0.	0.	0.	0.	17.292

Problem 2878	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	62	62	63	104	0	0	0	0	54
normalized size	1	1.	1.02	1.68	0.	0.	0.	0.	0.87
time (sec)	N/A	0.089	0.078	0.023	0.	0.	0.	0.	9.353

Problem 2879	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	125	125	122	159	0	0	0	0	114
normalized size	1	1.	0.98	1.27	0.	0.	0.	0.	0.91
time (sec)	N/A	0.266	0.182	0.027	0.	0.	0.	0.	24.211

Problem 2880	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	158	158	99	267	0	0	0	0	143
normalized size	1	1.	0.63	1.69	0.	0.	0.	0.	0.91
time (sec)	N/A	0.345	0.189	0.033	0.	0.	0.	0.	31.564

Problem 2881	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	189	189	104	386	0	0	0	0	172
normalized size	1	1.	0.55	2.04	0.	0.	0.	0.	0.91
time (sec)	N/A	0.427	0.257	0.036	0.	0.	0.	0.	38.925

Problem 2882	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	219	219	120	179	0	0	0	0	197
normalized size	1	1.	0.55	0.82	0.	0.	0.	0.	0.9
time (sec)	N/A	0.459	0.304	0.026	0.	0.	0.	0.	46.757

Problem 2883	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	188	188	115	174	0	0	0	0	168
normalized size	1	1.	0.61	0.93	0.	0.	0.	0.	0.89
time (sec)	N/A	0.381	0.285	0.025	0.	0.	0.	0.	39.393

Problem 2884	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	157	157	110	169	0	0	0	0	139
normalized size	1	1.	0.7	1.08	0.	0.	0.	0.	0.89
time (sec)	N/A	0.311	0.242	0.025	0.	0.	0.	0.	31.514

Problem 2885	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	126	126	105	164	0	0	0	0	110
normalized size	1	1.	0.83	1.3	0.	0.	0.	0.	0.87
time (sec)	N/A	0.247	0.185	0.023	0.	0.	0.	0.	24.521

Problem 2886	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	98	98	92	159	0	0	0	0	83
normalized size	1	1.	0.94	1.62	0.	0.	0.	0.	0.85
time (sec)	N/A	0.186	0.127	0.025	0.	0.	0.	0.	17.444

Problem 2887	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	129	129	122	159	0	0	0	0	114
normalized size	1	1.	0.95	1.23	0.	0.	0.	0.	0.88
time (sec)	N/A	0.264	0.186	0.027	0.	0.	0.	0.	24.336

Problem 2888	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	160	160	97	267	0	0	0	0	143
normalized size	1	1.	0.61	1.67	0.	0.	0.	0.	0.89
time (sec)	N/A	0.344	0.355	0.033	0.	0.	0.	0.	31.437

Problem 2889	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	104	386	0	0	0	0	172
normalized size	1	1.	0.54	2.02	0.	0.	0.	0.	0.9
time (sec)	N/A	0.434	0.243	0.036	0.	0.	0.	0.	38.625

Problem 2890	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	222	222	109	505	0	0	0	0	201
normalized size	1	1.	0.49	2.27	0.	0.	0.	0.	0.91
time (sec)	N/A	0.52	0.313	0.036	0.	0.	0.	0.	46.289

Problem 2891	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	246	246	125	184	0	0	0	0	226
normalized size	1	1.	0.51	0.75	0.	0.	0.	0.	0.92
time (sec)	N/A	0.554	0.343	0.025	0.	0.	0.	0.	54.793

Problem 2892	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	219	219	120	179	0	0	0	0	197
normalized size	1	1.	0.55	0.82	0.	0.	0.	0.	0.9
time (sec)	N/A	0.476	0.341	0.026	0.	0.	0.	0.	46.785

Problem 2893	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	188	188	115	174	0	0	0	0	168
normalized size	1	1.	0.61	0.93	0.	0.	0.	0.	0.89
time (sec)	N/A	0.39	0.278	0.026	0.	0.	0.	0.	38.818

Problem 2894	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	155	155	110	169	0	0	0	0	138
normalized size	1	1.	0.71	1.09	0.	0.	0.	0.	0.89
time (sec)	N/A	0.316	0.257	0.023	0.	0.	0.	0.	31.697

Problem 2895	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	129	129	105	164	0	0	0	0	114
normalized size	1	1.	0.81	1.27	0.	0.	0.	0.	0.88
time (sec)	N/A	0.258	0.144	0.027	0.	0.	0.	0.	24.226

Problem 2896	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	129	129	122	159	0	0	0	0	114
normalized size	1	1.	0.95	1.23	0.	0.	0.	0.	0.88
time (sec)	N/A	0.261	0.196	0.027	0.	0.	0.	0.	24.179

Problem 2897	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	160	160	100	267	0	0	0	0	143
normalized size	1	1.	0.62	1.67	0.	0.	0.	0.	0.89
time (sec)	N/A	0.337	0.202	0.034	0.	0.	0.	0.	30.761

Problem 2898	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	104	386	0	0	0	0	172
normalized size	1	1.	0.54	2.02	0.	0.	0.	0.	0.9
time (sec)	N/A	0.424	0.25	0.036	0.	0.	0.	0.	38.269

Problem 2899	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	222	222	109	505	0	0	0	0	201
normalized size	1	1.	0.49	2.27	0.	0.	0.	0.	0.91
time (sec)	N/A	0.518	0.309	0.037	0.	0.	0.	0.	45.628

Problem 2900	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	253	253	115	624	0	0	0	0	230
normalized size	1	1.	0.45	2.47	0.	0.	0.	0.	0.91
time (sec)	N/A	0.604	0.386	0.039	0.	0.	0.	0.	53.79

Problem 2901	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	160	160	110	169	0	0	0	0	143
normalized size	1	1.	0.69	1.06	0.	0.	0.	0.	0.89
time (sec)	N/A	0.335	0.189	0.025	0.	0.	0.	0.	31.954

Problem 2902	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	129	129	105	164	0	0	0	0	114
normalized size	1	1.	0.81	1.27	0.	0.	0.	0.	0.88
time (sec)	N/A	0.258	0.139	0.026	0.	0.	0.	0.	24.74

Problem 2903	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	98	98	92	159	0	0	0	0	85
normalized size	1	1.	0.94	1.62	0.	0.	0.	0.	0.87
time (sec)	N/A	0.188	0.134	0.027	0.	0.	0.	0.	17.428

Problem 2904	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	62	62	91	158	0	0	0	0	54
normalized size	1	1.	1.47	2.55	0.	0.	0.	0.	0.87
time (sec)	N/A	0.089	0.086	0.026	0.	0.	0.	0.	9.101

Problem 2905	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	C	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	81	81	61	159	0	0	0	0	94
normalized size	1	1.	0.75	1.96	0.	0.	0.	0.	1.16
time (sec)	N/A	0.143	0.099	0.027	0.	0.	0.	0.	13.017

Problem 2906	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	129	129	122	159	0	0	0	0	114
normalized size	1	1.	0.95	1.23	0.	0.	0.	0.	0.88
time (sec)	N/A	0.264	0.267	0.03	0.	0.	0.	0.	23.842

Problem 2907	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	160	160	99	267	0	0	0	0	143
normalized size	1	1.	0.62	1.67	0.	0.	0.	0.	0.89
time (sec)	N/A	0.341	0.227	0.036	0.	0.	0.	0.	30.722

Problem 2908	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	106	386	0	0	0	0	172
normalized size	1	1.	0.55	2.02	0.	0.	0.	0.	0.9
time (sec)	N/A	0.423	0.258	0.039	0.	0.	0.	0.	39.218

Problem 2909	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	132	169	0	0	0	0	172
normalized size	1	1.	0.69	0.88	0.	0.	0.	0.	0.9
time (sec)	N/A	0.408	0.373	0.035	0.	0.	0.	0.	40.977

Problem 2910	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	160	160	127	164	0	0	0	0	143
normalized size	1	1.	0.79	1.02	0.	0.	0.	0.	0.89
time (sec)	N/A	0.33	0.236	0.03	0.	0.	0.	0.	32.683

Problem 2911	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	129	129	122	159	0	0	0	0	114
normalized size	1	1.	0.95	1.23	0.	0.	0.	0.	0.88
time (sec)	N/A	0.259	0.216	0.029	0.	0.	0.	0.	25.594

Problem 2912	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	129	129	122	159	0	0	0	0	114
normalized size	1	1.	0.95	1.23	0.	0.	0.	0.	0.88
time (sec)	N/A	0.26	0.205	0.028	0.	0.	0.	0.	24.718

Problem 2913	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	129	129	122	159	0	0	0	0	114
normalized size	1	1.	0.95	1.23	0.	0.	0.	0.	0.88
time (sec)	N/A	0.261	0.183	0.029	0.	0.	0.	0.	24.362

Problem 2914	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	129	129	122	159	0	0	0	0	114
normalized size	1	1.	0.95	1.23	0.	0.	0.	0.	0.88
time (sec)	N/A	0.261	0.202	0.032	0.	0.	0.	0.	24.778

Problem 2915	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	160	160	98	159	0	0	0	0	143
normalized size	1	1.	0.61	0.99	0.	0.	0.	0.	0.89
time (sec)	N/A	0.348	0.267	0.033	0.	0.	0.	0.	32.712

Problem 2916	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	104	267	0	0	0	0	172
normalized size	1	1.	0.54	1.4	0.	0.	0.	0.	0.9
time (sec)	N/A	0.434	0.227	0.037	0.	0.	0.	0.	39.05

Problem 2917	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	222	222	109	386	0	0	0	0	201
normalized size	1	1.	0.49	1.74	0.	0.	0.	0.	0.91
time (sec)	N/A	0.524	0.268	0.041	0.	0.	0.	0.	45.911

Problem 2918	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	218	218	141	277	0	0	0	0	201
normalized size	1	1.	0.65	1.27	0.	0.	0.	0.	0.92
time (sec)	N/A	0.495	0.346	0.036	0.	0.	0.	0.	47.625

Problem 2919	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	187	187	136	272	0	0	0	0	172
normalized size	1	1.	0.73	1.45	0.	0.	0.	0.	0.92
time (sec)	N/A	0.414	0.263	0.033	0.	0.	0.	0.	39.606

Problem 2920	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	156	156	102	267	0	0	0	0	143
normalized size	1	1.	0.65	1.71	0.	0.	0.	0.	0.92
time (sec)	N/A	0.341	0.212	0.035	0.	0.	0.	0.	32.058

Problem 2921	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	156	156	97	267	0	0	0	0	143
normalized size	1	1.	0.62	1.71	0.	0.	0.	0.	0.92
time (sec)	N/A	0.337	0.378	0.033	0.	0.	0.	0.	31.48

Problem 2922	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	156	156	97	267	0	0	0	0	143
normalized size	1	1.	0.62	1.71	0.	0.	0.	0.	0.92
time (sec)	N/A	0.342	0.393	0.035	0.	0.	0.	0.	31.127

Problem 2923	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	156	156	96	267	0	0	0	0	143
normalized size	1	1.	0.62	1.71	0.	0.	0.	0.	0.92
time (sec)	N/A	0.343	0.341	0.033	0.	0.	0.	0.	31.483

Problem 2924	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	156	156	98	267	0	0	0	0	143
normalized size	1	1.	0.63	1.71	0.	0.	0.	0.	0.92
time (sec)	N/A	0.344	0.238	0.034	0.	0.	0.	0.	31.771

Problem 2925	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	187	187	104	267	0	0	0	0	172
normalized size	1	1.	0.56	1.43	0.	0.	0.	0.	0.92
time (sec)	N/A	0.43	0.296	0.037	0.	0.	0.	0.	39.603

Problem 2926	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	218	218	109	383	0	0	0	0	201
normalized size	1	1.	0.5	1.76	0.	0.	0.	0.	0.92
time (sec)	N/A	0.521	0.329	0.037	0.	0.	0.	0.	46.06

Problem 2927	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	249	249	114	502	0	0	0	0	230
normalized size	1	1.	0.46	2.02	0.	0.	0.	0.	0.92
time (sec)	N/A	0.611	0.433	0.039	0.	0.	0.	0.	54.23

Problem 2928	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	218	218	130	291	0	0	0	0	199
normalized size	1	1.	0.6	1.33	0.	0.	0.	0.	0.91
time (sec)	N/A	0.492	0.361	0.053	0.	0.	0.	0.	47.846

Problem 2929	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	187	187	125	286	0	0	0	0	170
normalized size	1	1.	0.67	1.53	0.	0.	0.	0.	0.91
time (sec)	N/A	0.405	0.325	0.029	0.	0.	0.	0.	40.354

Problem 2930	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	156	156	120	286	0	0	0	0	141
normalized size	1	1.	0.77	1.83	0.	0.	0.	0.	0.9
time (sec)	N/A	0.333	0.313	0.028	0.	0.	0.	0.	31.723

Problem 2931	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	123	123	115	276	0	0	0	0	112
normalized size	1	1.	0.93	2.24	0.	0.	0.	0.	0.91
time (sec)	N/A	0.258	0.239	0.028	0.	0.	0.	0.	24.136

Problem 2932	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	125	125	115	276	0	0	0	0	110
normalized size	1	1.	0.92	2.21	0.	0.	0.	0.	0.88
time (sec)	N/A	0.259	0.241	0.024	0.	0.	0.	0.	23.841

Problem 2933	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	125	125	115	276	0	0	0	0	114
normalized size	1	1.	0.92	2.21	0.	0.	0.	0.	0.91
time (sec)	N/A	0.263	0.304	0.029	0.	0.	0.	0.	24.068

Problem 2934	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	156	156	99	276	0	0	0	0	143
normalized size	1	1.	0.63	1.77	0.	0.	0.	0.	0.92
time (sec)	N/A	0.345	0.196	0.033	0.	0.	0.	0.	30.184

Problem 2935	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	187	187	103	383	0	0	0	0	172
normalized size	1	1.	0.55	2.05	0.	0.	0.	0.	0.92
time (sec)	N/A	0.424	0.276	0.034	0.	0.	0.	0.	37.323

Problem 2936	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	220	220	108	502	0	0	0	0	201
normalized size	1	1.	0.49	2.28	0.	0.	0.	0.	0.91
time (sec)	N/A	0.506	0.301	0.036	0.	0.	0.	0.	44.553

Problem 2937	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	222	222	130	291	0	0	0	0	197
normalized size	1	1.	0.59	1.31	0.	0.	0.	0.	0.89
time (sec)	N/A	0.468	0.361	0.03	0.	0.	0.	0.	45.768

Problem 2938	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	125	286	0	0	0	0	170
normalized size	1	1.	0.65	1.5	0.	0.	0.	0.	0.89
time (sec)	N/A	0.395	0.317	0.029	0.	0.	0.	0.	38.193

Problem 2939	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	158	158	120	286	0	0	0	0	141
normalized size	1	1.	0.76	1.81	0.	0.	0.	0.	0.89
time (sec)	N/A	0.319	0.272	0.027	0.	0.	0.	0.	30.807

Problem 2940	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	127	127	115	276	0	0	0	0	112
normalized size	1	1.	0.91	2.17	0.	0.	0.	0.	0.88
time (sec)	N/A	0.255	0.189	0.027	0.	0.	0.	0.	23.898

Problem 2941	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	127	127	115	276	0	0	0	0	114
normalized size	1	1.	0.91	2.17	0.	0.	0.	0.	0.9
time (sec)	N/A	0.256	0.25	0.03	0.	0.	0.	0.	23.791

Problem 2942	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	158	158	100	276	0	0	0	0	143
normalized size	1	1.	0.63	1.75	0.	0.	0.	0.	0.91
time (sec)	N/A	0.339	0.227	0.035	0.	0.	0.	0.	30.737

Problem 2943	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	104	383	0	0	0	0	172
normalized size	1	1.	0.54	2.01	0.	0.	0.	0.	0.9
time (sec)	N/A	0.43	0.259	0.035	0.	0.	0.	0.	37.712

Problem 2944	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	222	222	108	502	0	0	0	0	201
normalized size	1	1.	0.49	2.26	0.	0.	0.	0.	0.91
time (sec)	N/A	0.518	0.345	0.036	0.	0.	0.	0.	46.232

Problem 2945	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	253	253	135	296	0	0	0	0	228
normalized size	1	1.	0.53	1.17	0.	0.	0.	0.	0.9
time (sec)	N/A	0.57	0.341	0.03	0.	0.	0.	0.	54.22

Problem 2946	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	220	220	130	291	0	0	0	0	199
normalized size	1	1.	0.59	1.32	0.	0.	0.	0.	0.9
time (sec)	N/A	0.489	0.343	0.03	0.	0.	0.	0.	46.116

Problem 2947	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	189	189	125	286	0	0	0	0	170
normalized size	1	1.	0.66	1.51	0.	0.	0.	0.	0.9
time (sec)	N/A	0.405	0.36	0.03	0.	0.	0.	0.	38.415

Problem 2948	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	160	160	120	286	0	0	0	0	141
normalized size	1	1.	0.75	1.79	0.	0.	0.	0.	0.88
time (sec)	N/A	0.332	0.209	0.028	0.	0.	0.	0.	31.043

Problem 2949	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	127	127	115	276	0	0	0	0	114
normalized size	1	1.	0.91	2.17	0.	0.	0.	0.	0.9
time (sec)	N/A	0.261	0.201	0.03	0.	0.	0.	0.	23.619

Problem 2950	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	158	158	102	276	0	0	0	0	143
normalized size	1	1.	0.65	1.75	0.	0.	0.	0.	0.91
time (sec)	N/A	0.342	0.23	0.034	0.	0.	0.	0.	30.025

Problem 2951	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	191	191	105	383	0	0	0	0	172
normalized size	1	1.	0.55	2.01	0.	0.	0.	0.	0.9
time (sec)	N/A	0.421	0.28	0.034	0.	0.	0.	0.	37.577

Problem 2952	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	220	220	110	502	0	0	0	0	201
normalized size	1	1.	0.5	2.28	0.	0.	0.	0.	0.91
time (sec)	N/A	0.505	0.301	0.036	0.	0.	0.	0.	44.976

Problem 2953	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	253	253	113	621	0	0	0	0	230
normalized size	1	1.	0.45	2.45	0.	0.	0.	0.	0.91
time (sec)	N/A	0.593	0.439	0.037	0.	0.	0.	0.	53.127

Problem 2954	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	187	187	125	286	0	0	0	0	172
normalized size	1	1.	0.67	1.53	0.	0.	0.	0.	0.92
time (sec)	N/A	0.414	0.358	0.03	0.	0.	0.	0.	38.643

Problem 2955	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	156	156	120	281	0	0	0	0	143
normalized size	1	1.	0.77	1.8	0.	0.	0.	0.	0.92
time (sec)	N/A	0.333	0.32	0.03	0.	0.	0.	0.	31.086

Problem 2956	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	125	125	120	276	0	0	0	0	114
normalized size	1	1.	0.96	2.21	0.	0.	0.	0.	0.91
time (sec)	N/A	0.261	0.359	0.03	0.	0.	0.	0.	23.824

Problem 2957	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	125	125	115	276	0	0	0	0	112
normalized size	1	1.	0.92	2.21	0.	0.	0.	0.	0.9
time (sec)	N/A	0.262	0.251	0.032	0.	0.	0.	0.	23.472

Problem 2958	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	125	125	115	276	0	0	0	0	114
normalized size	1	1.	0.92	2.21	0.	0.	0.	0.	0.91
time (sec)	N/A	0.264	0.203	0.03	0.	0.	0.	0.	23.768

Problem 2959	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	125	125	115	276	0	0	0	0	114
normalized size	1	1.	0.92	2.21	0.	0.	0.	0.	0.91
time (sec)	N/A	0.27	0.194	0.033	0.	0.	0.	0.	23.623

Problem 2960	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	156	156	98	276	0	0	0	0	143
normalized size	1	1.	0.63	1.77	0.	0.	0.	0.	0.92
time (sec)	N/A	0.35	0.203	0.038	0.	0.	0.	0.	30.492

Problem 2961	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	187	187	103	383	0	0	0	0	172
normalized size	1	1.	0.55	2.05	0.	0.	0.	0.	0.92
time (sec)	N/A	0.43	0.298	0.036	0.	0.	0.	0.	37.49

Problem 2962	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	218	218	107	502	0	0	0	0	201
normalized size	1	1.	0.49	2.3	0.	0.	0.	0.	0.92
time (sec)	N/A	0.516	0.433	0.038	0.	0.	0.	0.	45.49

Problem 2963	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	218	218	107	286	0	0	0	0	201
normalized size	1	1.	0.49	1.31	0.	0.	0.	0.	0.92
time (sec)	N/A	0.494	0.404	0.037	0.	0.	0.	0.	46.248

Problem 2964	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	187	187	102	281	0	0	0	0	172
normalized size	1	1.	0.55	1.5	0.	0.	0.	0.	0.92
time (sec)	N/A	0.415	0.379	0.036	0.	0.	0.	0.	38.703

Problem 2965	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	156	156	97	276	0	0	0	0	143
normalized size	1	1.	0.62	1.77	0.	0.	0.	0.	0.92
time (sec)	N/A	0.337	0.337	0.034	0.	0.	0.	0.	31.093

Problem 2966	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	156	156	102	276	0	0	0	0	143
normalized size	1	1.	0.65	1.77	0.	0.	0.	0.	0.92
time (sec)	N/A	0.342	0.219	0.034	0.	0.	0.	0.	30.608

Problem 2967	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	156	156	99	276	0	0	0	0	143
normalized size	1	1.	0.63	1.77	0.	0.	0.	0.	0.92
time (sec)	N/A	0.344	0.201	0.034	0.	0.	0.	0.	30.618

Problem 2968	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	156	156	99	276	0	0	0	0	143
normalized size	1	1.	0.63	1.77	0.	0.	0.	0.	0.92
time (sec)	N/A	0.344	0.19	0.035	0.	0.	0.	0.	31.48

Problem 2969	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	156	156	98	276	0	0	0	0	143
normalized size	1	1.	0.63	1.77	0.	0.	0.	0.	0.92
time (sec)	N/A	0.349	0.246	0.036	0.	0.	0.	0.	30.588

Problem 2970	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	187	187	103	276	0	0	0	0	172
normalized size	1	1.	0.55	1.48	0.	0.	0.	0.	0.92
time (sec)	N/A	0.439	0.322	0.039	0.	0.	0.	0.	37.387

Problem 2971	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	218	218	109	383	0	0	0	0	201
normalized size	1	1.	0.5	1.76	0.	0.	0.	0.	0.92
time (sec)	N/A	0.531	0.349	0.039	0.	0.	0.	0.	45.221

Problem 2972	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	249	249	115	502	0	0	0	0	230
normalized size	1	1.	0.46	2.02	0.	0.	0.	0.	0.92
time (sec)	N/A	0.62	0.329	0.043	0.	0.	0.	0.	52.177

Problem 2973	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	249	249	117	393	0	0	0	0	230
normalized size	1	1.	0.47	1.58	0.	0.	0.	0.	0.92
time (sec)	N/A	0.584	0.42	0.038	0.	0.	0.	0.	56.727

Problem 2974	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	218	218	112	388	0	0	0	0	201
normalized size	1	1.	0.51	1.78	0.	0.	0.	0.	0.92
time (sec)	N/A	0.504	0.404	0.034	0.	0.	0.	0.	45.62

Problem 2975	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	187	187	107	383	0	0	0	0	172
normalized size	1	1.	0.57	2.05	0.	0.	0.	0.	0.92
time (sec)	N/A	0.429	0.368	0.034	0.	0.	0.	0.	38.345

Problem 2976	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	187	187	107	383	0	0	0	0	172
normalized size	1	1.	0.57	2.05	0.	0.	0.	0.	0.92
time (sec)	N/A	0.427	0.313	0.036	0.	0.	0.	0.	38.986

Problem 2977	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	187	187	104	383	0	0	0	0	172
normalized size	1	1.	0.56	2.05	0.	0.	0.	0.	0.92
time (sec)	N/A	0.42	0.282	0.035	0.	0.	0.	0.	38.464

Problem 2978	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	187	187	104	383	0	0	0	0	172
normalized size	1	1.	0.56	2.05	0.	0.	0.	0.	0.92
time (sec)	N/A	0.424	0.257	0.033	0.	0.	0.	0.	38.033

Problem 2979	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	187	187	103	383	0	0	0	0	172
normalized size	1	1.	0.55	2.05	0.	0.	0.	0.	0.92
time (sec)	N/A	0.43	0.287	0.035	0.	0.	0.	0.	38.552

Problem 2980	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	187	187	103	383	0	0	0	0	172
normalized size	1	1.	0.55	2.05	0.	0.	0.	0.	0.92
time (sec)	N/A	0.431	0.258	0.038	0.	0.	0.	0.	41.605

Problem 2981	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	218	218	109	383	0	0	0	0	201
normalized size	1	1.	0.5	1.76	0.	0.	0.	0.	0.92
time (sec)	N/A	0.522	0.304	0.037	0.	0.	0.	0.	47.95

Problem 2982	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	249	249	114	502	0	0	0	0	230
normalized size	1	1.	0.46	2.02	0.	0.	0.	0.	0.92
time (sec)	N/A	0.616	0.365	0.038	0.	0.	0.	0.	53.701

Problem 2983	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	C	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	280	280	119	621	0	0	0	0	258
normalized size	1	1.	0.42	2.22	0.	0.	0.	0.	0.92
time (sec)	N/A	0.71	0.482	0.04	0.	0.	0.	0.	61.56

Problem 2984	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	571	571	311	0	0	1153	0	0	612
normalized size	1	1.	0.54	0.	0.	2.02	0.	0.	1.07
time (sec)	N/A	1.407	0.593	0.056	0.	0.371	0.	0.	96.536

Problem 2985	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	331	331	175	0	0	701	0	0	328
normalized size	1	1.	0.53	0.	0.	2.12	0.	0.	0.99
time (sec)	N/A	0.596	0.285	0.04	0.	0.243	0.	0.	44.712

Problem 2986	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	219	219	109	0	0	394	0	0	196
normalized size	1	1.	0.5	0.	0.	1.8	0.	0.	0.89
time (sec)	N/A	0.239	0.199	0.035	0.	0.227	0.	0.	23.896

Problem 2987	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	409	409	541	0	0	1206	0	0	388
normalized size	1	1.	1.32	0.	0.	2.95	0.	0.	0.95
time (sec)	N/A	1.049	6.062	0.079	0.	4.214	0.	0.	99.927

Problem 2988	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F	A	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	417	417	743	0	0	1463	0	1	393
normalized size	1	1.	1.78	0.	0.	3.51	0.	0.	0.94
time (sec)	N/A	0.884	2.611	0.088	0.	4.582	0.	0.854	86.202

Problem 2989	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	325	325	196	0	0	1278	0	1	272
normalized size	1	1.	0.6	0.	0.	3.93	0.	0.	0.84
time (sec)	N/A	0.818	1.243	0.076	0.	0.243	0.	0.954	54.712

Problem 2990	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	465	465	304	0	0	2911	0	1	427
normalized size	1	1.	0.65	0.	0.	6.26	0.	0.	0.92
time (sec)	N/A	1.463	1.344	0.077	0.	0.302	0.	1.058	123.763

Problem 2991	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	475	475	229	0	0	838	0	0	502
normalized size	1	1.	0.48	0.	0.	1.76	0.	0.	1.06
time (sec)	N/A	1.074	0.452	0.048	0.	0.288	0.	0.	62.676

Problem 2992	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	273	273	129	0	0	502	0	0	260
normalized size	1	1.	0.47	0.	0.	1.84	0.	0.	0.95
time (sec)	N/A	0.447	0.215	0.044	0.	0.231	0.	0.	27.671

Problem 2993	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	171	171	76	0	0	327	0	0	160
normalized size	1	1.	0.44	0.	0.	1.91	0.	0.	0.94
time (sec)	N/A	0.155	0.192	0.	0.	0.224	0.	0.	12.884

Problem 2994	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	339	339	290	0	0	652	0	0	303
normalized size	1	1.	0.86	0.	0.	1.92	0.	0.	0.89
time (sec)	N/A	0.418	1.049	0.077	0.	0.273	0.	0.	33.468

Problem 2995	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F(-2)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	256	256	124	0	0	896	0	0	219
normalized size	1	1.	0.48	0.	0.	3.5	0.	0.	0.86
time (sec)	N/A	0.311	1.157	0.08	0.	0.231	0.	0.	28.161

Problem 2996	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	386	386	212	0	0	1683	0	0	345
normalized size	1	1.	0.55	0.	0.	4.36	0.	0.	0.89
time (sec)	N/A	0.672	1.169	0.082	0.	0.258	0.	0.	76.261

Problem 2997	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F(-1)	F(-2)	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	591	591	334	0	0	3586	0	0	0
normalized size	1	1.	0.57	0.	0.	6.07	0.	0.	0.
time (sec)	N/A	2.682	1.434	0.083	0.	0.364	0.	0.	0.

Problem 2998	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F	F	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	587	587	275	0	0	898	0	0	0
normalized size	1	1.	0.47	0.	0.	1.53	0.	0.	0.
time (sec)	N/A	1.175	0.546	0.063	0.	0.58	0.	0.	0.

Problem 2999	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	369	369	162	0	0	570	0	0	386
normalized size	1	1.	0.44	0.	0.	1.54	0.	0.	1.05
time (sec)	N/A	0.829	0.304	0.047	0.	0.264	0.	0.	45.667

Problem 3000	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	200	200	99	0	0	360	0	0	194
normalized size	1	1.	0.5	0.	0.	1.8	0.	0.	0.97
time (sec)	N/A	0.297	0.223	0.042	0.	0.232	0.	0.	17.072

Problem 3001	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	126	126	71	0	0	239	0	0	122
normalized size	1	1.	0.56	0.	0.	1.9	0.	0.	0.97
time (sec)	N/A	0.07	0.075	0.	0.	0.22	0.	0.	6.119

Problem 3002	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	197	197	108	0	0	657	0	0	170
normalized size	1	1.	0.55	0.	0.	3.34	0.	0.	0.86
time (sec)	N/A	0.223	1.502	0.081	0.	0.23	0.	0.	12.051

Problem 3003	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F(-2)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	293	293	171	0	0	1022	0	0	264
normalized size	1	1.	0.58	0.	0.	3.49	0.	0.	0.9
time (sec)	N/A	0.559	0.823	0.086	0.	0.244	0.	0.	47.583

Problem 3004	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F(-2)	F	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	477	477	244	0	0	2020	0	0	0
normalized size	1	1.	0.51	0.	0.	4.23	0.	0.	0.
time (sec)	N/A	1.757	1.283	0.112	0.	0.304	0.	0.	0.

Problem 3005	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	F(-1)
verified	N/A	NO	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	1389	1389	160	0	0	0	0	0	0
normalized size	1	1.	0.12	0.	0.	0.	0.	0.	0.
time (sec)	N/A	5.18	0.494	0.098	0.	0.	0.	0.	0.

Problem 3006	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F	F	F(-1)
verified	N/A	NO	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	1373	1373	129	0	0	0	0	0	0
normalized size	1	1.	0.09	0.	0.	0.	0.	0.	0.
time (sec)	N/A	4.424	0.337	0.089	0.	0.	0.	0.	0.

Problem 3007	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F	F	A
verified	N/A	NO	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	1326	1326	95	0	0	0	0	0	1571
normalized size	1	1.	0.07	0.	0.	0.	0.	0.	1.18
time (sec)	N/A	3.616	0.304	0.07	0.	0.	0.	0.	179.283

Problem 3008	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F	F	A
verified	N/A	NO	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	1283	1283	94	0	0	0	0	0	1527
normalized size	1	1.	0.07	0.	0.	0.	0.	0.	1.19
time (sec)	N/A	2.574	0.11	0.056	0.	0.	0.	0.	138.341

Problem 3009	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F(-1)	F	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	178	178	276	0	0	0	0	0	165
normalized size	1	1.	1.55	0.	0.	0.	0.	0.	0.93
time (sec)	N/A	0.224	1.155	0.076	0.	0.	0.	0.	16.492

Problem 3010	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F(-1)	F(-2)	F	F(-1)
verified	N/A	NO	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	1510	1510	593	0	0	0	0	0	0
normalized size	1	1.	0.39	0.	0.	0.	0.	0.	0.
time (sec)	N/A	4.481	4.382	0.083	0.	0.	0.	0.	0.

Problem 3011	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F(-1)	F(-2)	F(-2)	F(-1)
verified	N/A	NO	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	1558	1558	620	0	0	0	0	0	0
normalized size	1	1.	0.4	0.	0.	0.	0.	0.	0.
time (sec)	N/A	6.097	3.577	0.083	0.	0.	0.	0.	0.

Problem 3012	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F	F(-2)	F(-1)
verified	N/A	NO	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	1388	1388	157	0	0	0	0	0	0
normalized size	1	1.	0.11	0.	0.	0.	0.	0.	0.
time (sec)	N/A	4.964	0.603	0.083	0.	0.	0.	0.	0.

Problem 3013	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F	F(-2)	F(-1)
verified	N/A	NO	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	1366	1366	119	0	0	0	0	0	0
normalized size	1	1.	0.09	0.	0.	0.	0.	0.	0.
time (sec)	N/A	4.13	0.461	0.088	0.	0.	0.	0.	0.

Problem 3014	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	A	A	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	32	32	32	27	35	59	0	0	31
normalized size	1	1.	1.	0.84	1.09	1.84	0.	0.	0.97
time (sec)	N/A	0.043	0.097	0.009	1.522	0.322	0.	0.	7.891

Problem 3015	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F	F	A
verified	N/A	NO	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	1333	1333	127	0	0	0	0	0	1569
normalized size	1	1.	0.1	0.	0.	0.	0.	0.	1.18
time (sec)	N/A	3.433	0.318	0.06	0.	0.	0.	0.	178.159

Problem 3016	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F(-1)	F	F(-2)	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	113	113	395	0	0	0	0	0	99
normalized size	1	1.	3.5	0.	0.	0.	0.	0.	0.88
time (sec)	N/A	0.374	1.377	0.078	0.	0.	0.	0.	31.263

Problem 3017	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F(-1)	F(-2)	F(-2)	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	114	114	605	0	0	0	0	0	100
normalized size	1	1.	5.31	0.	0.	0.	0.	0.	0.88
time (sec)	N/A	0.345	3.669	0.079	0.	0.	0.	0.	31.291

Problem 3018	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F(-1)	F(-2)	F(-2)	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	116	116	638	0	0	0	0	0	102
normalized size	1	1.	5.5	0.	0.	0.	0.	0.	0.88
time (sec)	N/A	0.349	4.117	0.08	0.	0.	0.	0.	32.655

Problem 3019	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F(-1)	F	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	120	120	196	0	0	0	0	0	109
normalized size	1	1.	1.63	0.	0.	0.	0.	0.	0.91
time (sec)	N/A	0.118	0.489	0.095	0.	0.	0.	0.	10.037

Problem 3020	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F	F(-2)	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	562	562	282	0	0	1403	0	0	0
normalized size	1	1.	0.5	0.	0.	2.5	0.	0.	0.
time (sec)	N/A	1.511	0.916	0.112	0.	0.317	0.	0.	0.

Problem 3021	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	328	328	137	0	0	798	0	0	323
normalized size	1	1.	0.42	0.	0.	2.43	0.	0.	0.98
time (sec)	N/A	0.67	0.464	0.091	0.	0.253	0.	0.	50.598

Problem 3022	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	195	195	95	0	0	427	0	0	189
normalized size	1	1.	0.49	0.	0.	2.19	0.	0.	0.97
time (sec)	N/A	0.225	0.361	0.	0.	0.243	0.	0.	19.63

Problem 3023	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F	F(-2)	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	380	380	559	0	0	961	0	0	337
normalized size	1	1.	1.47	0.	0.	2.53	0.	0.	0.89
time (sec)	N/A	1.081	3.429	0.096	0.	0.503	0.	0.	100.821

Problem 3024	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F(-2)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	301	301	160	0	0	864	0	0	257
normalized size	1	1.	0.53	0.	0.	2.87	0.	0.	0.85
time (sec)	N/A	0.548	1.105	0.085	0.	0.268	0.	0.	44.57

Problem 3025	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F(-1)	F(-2)	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	434	434	208	0	0	2352	0	0	408
normalized size	1	1.	0.48	0.	0.	5.42	0.	0.	0.94
time (sec)	N/A	0.913	1.307	0.091	0.	0.323	0.	0.	101.335

Problem 3026	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	A	F(-1)	F(-2)	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	645	645	371	0	0	5064	0	0	0
normalized size	1	1.	0.58	0.	0.	7.85	0.	0.	0.
time (sec)	N/A	3.834	1.635	0.091	0.	0.483	0.	0.	0.

Problem 3027	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F(-1)	F	F	F(-1)
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	266	266	270	0	0	0	0	0	0
normalized size	1	1.	1.02	0.	0.	0.	0.	0.	0.
time (sec)	N/A	1.212	0.889	0.098	0.	0.	0.	0.	0.

Problem 3028	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F(-1)	F	F	F(-1)
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	252	252	271	0	0	0	0	0	0
normalized size	1	1.	1.08	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.959	0.919	0.098	0.	0.	0.	0.	0.

Problem 3029	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	125	125	132	0	0	0	0	0	95
normalized size	1	1.	1.06	0.	0.	0.	0.	0.	0.76
time (sec)	N/A	0.206	0.355	0.077	0.	0.	0.	0.	22.343

Problem 3030	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	134	134	201	0	0	0	0	0	105
normalized size	1	1.	1.5	0.	0.	0.	0.	0.	0.78
time (sec)	N/A	0.235	0.689	0.086	0.	0.	0.	0.	22.83

Problem 3031	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	152	152	147	0	0	0	0	0	117
normalized size	1	1.	0.97	0.	0.	0.	0.	0.	0.77
time (sec)	N/A	0.233	0.2	0.08	0.	0.	0.	0.	28.592

Problem 3032	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	117	117	129	0	0	0	0	0	88
normalized size	1	1.	1.1	0.	0.	0.	0.	0.	0.75
time (sec)	N/A	0.178	0.255	0.075	0.	0.	0.	0.	22.822

Problem 3033	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	123	122	82	161	0	437	0	1	88
normalized size	1	0.99	0.67	1.31	0.	3.55	0.	0.01	0.72
time (sec)	N/A	0.194	0.248	0.008	0.	0.278	0.	0.229	23.748

Problem 3034	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F	A	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	207	205	198	506	0	1193	0	0	151
normalized size	1	0.99	0.96	2.44	0.	5.76	0.	0.	0.73
time (sec)	N/A	0.36	0.56	0.01	0.	0.268	0.	0.	47.347

Problem 3035	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F	A	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	299	296	267	1187	0	2350	0	0	221
normalized size	1	0.99	0.89	3.97	0.	7.86	0.	0.	0.74
time (sec)	N/A	0.591	0.856	0.013	0.	0.268	0.	0.	82.113

Problem 3036	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	135	134	192	0	0	0	0	0	105
normalized size	1	0.99	1.42	0.	0.	0.	0.	0.	0.78
time (sec)	N/A	0.215	0.607	0.086	0.	0.	0.	0.	21.826

Problem 3037	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	151	150	117	0	0	0	0	0	116
normalized size	1	0.99	0.77	0.	0.	0.	0.	0.	0.77
time (sec)	N/A	0.236	0.175	0.079	0.	0.	0.	0.	27.505

Problem 3038	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	118	118	125	0	0	0	0	0	88
normalized size	1	1.	1.06	0.	0.	0.	0.	0.	0.75
time (sec)	N/A	0.18	0.269	0.076	0.	0.	0.	0.	22.6

Problem 3039	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	125	123	84	160	0	440	0	1	90
normalized size	1	0.98	0.67	1.28	0.	3.52	0.	0.01	0.72
time (sec)	N/A	0.203	0.257	0.009	0.	0.258	0.	0.229	25.195

Problem 3040	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F	A	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	207	205	201	505	0	1193	0	0	151
normalized size	1	0.99	0.97	2.44	0.	5.76	0.	0.	0.73
time (sec)	N/A	0.374	0.618	0.012	0.	0.258	0.	0.	48.895

Problem 3041	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F	A	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	300	297	270	1188	0	2349	0	0	221
normalized size	1	0.99	0.9	3.96	0.	7.83	0.	0.	0.74
time (sec)	N/A	0.573	1.183	0.015	0.	0.272	0.	0.	81.072

Problem 3042	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	121	121	290	0	0	0	0	0	92
normalized size	1	1.	2.4	0.	0.	0.	0.	0.	0.76
time (sec)	N/A	0.308	0.974	0.225	0.	0.	0.	0.	75.005

Problem 3043	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	188	188	155	0	0	0	0	0	153
normalized size	1	1.	0.82	0.	0.	0.	0.	0.	0.81
time (sec)	N/A	0.541	0.253	0.109	0.	0.	0.	0.	48.608

Problem 3044	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	432	431	440	0	0	0	0	0	556
normalized size	1	1.	1.02	0.	0.	0.	0.	0.	1.29
time (sec)	N/A	1.257	2.988	0.1	0.	0.	0.	0.	138.712

Problem 3045	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	250	249	320	0	0	0	0	0	212
normalized size	1	1.	1.28	0.	0.	0.	0.	0.	0.85
time (sec)	N/A	0.554	0.859	0.093	0.	0.	0.	0.	49.928

Problem 3046	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	135	134	201	0	0	0	0	0	105
normalized size	1	0.99	1.49	0.	0.	0.	0.	0.	0.78
time (sec)	N/A	0.188	0.368	0.083	0.	0.	0.	0.	21.942

Problem 3047	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	72	72	80	0	0	0	0	0	54
normalized size	1	1.	1.11	0.	0.	0.	0.	0.	0.75
time (sec)	N/A	0.077	0.067	0.106	0.	0.	0.	0.	14.82

Problem 3048	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	128	128	292	0	0	0	0	0	95
normalized size	1	1.	2.28	0.	0.	0.	0.	0.	0.74
time (sec)	N/A	0.229	0.868	0.092	0.	0.	0.	0.	29.018

Problem 3049	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	83	83	113	0	0	0	0	0	65
normalized size	1	1.	1.36	0.	0.	0.	0.	0.	0.78
time (sec)	N/A	0.084	0.625	0.117	0.	0.	0.	0.	10.496

Problem 3050	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	174	173	432	0	0	0	0	0	141
normalized size	1	0.99	2.48	0.	0.	0.	0.	0.	0.81
time (sec)	N/A	0.273	3.016	0.118	0.	0.	0.	0.	32.689

Problem 3051	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	F(-1)
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	309	308	1697	0	0	0	0	0	0
normalized size	1	1.	5.49	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.893	7.466	0.167	0.	0.	0.	0.	0.

Problem 3052	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	179	179	153	0	0	0	0	0	143
normalized size	1	1.	0.85	0.	0.	0.	0.	0.	0.8
time (sec)	N/A	0.326	0.418	0.108	0.	0.	0.	0.	43.02

Problem 3053	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	130	130	300	0	0	0	0	0	100
normalized size	1	1.	2.31	0.	0.	0.	0.	0.	0.77
time (sec)	N/A	0.36	1.35	0.221	0.	0.	0.	0.	79.266

Problem 3054	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	142	142	395	0	0	0	0	0	110
normalized size	1	1.	2.78	0.	0.	0.	0.	0.	0.77
time (sec)	N/A	0.435	1.661	0.084	0.	0.	0.	0.	27.149

Problem 3055	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	121	121	241	0	0	0	0	0	87
normalized size	1	1.	1.99	0.	0.	0.	0.	0.	0.72
time (sec)	N/A	0.267	0.406	0.082	0.	0.	0.	0.	17.572

Problem 3056	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	152	151	131	0	0	0	0	0	116
normalized size	1	0.99	0.86	0.	0.	0.	0.	0.	0.76
time (sec)	N/A	0.253	0.166	0.076	0.	0.	0.	0.	33.574

Problem 3057	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	75	75	74	0	0	0	0	0	54
normalized size	1	1.	0.99	0.	0.	0.	0.	0.	0.72
time (sec)	N/A	0.094	0.052	0.102	0.	0.	0.	0.	15.346

Problem 3058	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	75	75	362	0	0	0	0	0	51
normalized size	1	1.	4.83	0.	0.	0.	0.	0.	0.68
time (sec)	N/A	0.088	0.708	0.091	0.	0.	0.	0.	9.093

Problem 3059	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	158	158	286	0	0	0	0	0	124
normalized size	1	1.	1.81	0.	0.	0.	0.	0.	0.78
time (sec)	N/A	0.272	1.912	0.122	0.	0.	0.	0.	28.331

Problem 3060	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	F(-1)
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	300	300	2361	0	0	0	0	0	0
normalized size	1	1.	7.87	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.869	5.739	0.125	0.	0.	0.	0.	0.

Problem 3061	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	F(-1)
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	520	520	7153	0	0	0	0	0	0
normalized size	1	1.	13.76	0.	0.	0.	0.	0.	0.
time (sec)	N/A	2.477	19.712	0.187	0.	0.	0.	0.	0.

Problem 3062	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	131	131	300	0	0	0	0	0	102
normalized size	1	1.	2.29	0.	0.	0.	0.	0.	0.78
time (sec)	N/A	0.368	1.511	0.236	0.	0.	0.	0.	76.426

Problem 3063	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	132	132	273	0	0	0	0	0	107
normalized size	1	1.	2.07	0.	0.	0.	0.	0.	0.81
time (sec)	N/A	0.343	0.796	0.085	0.	0.	0.	0.	20.121

Problem 3064	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	204	202	300	0	0	0	0	0	178
normalized size	1	0.99	1.47	0.	0.	0.	0.	0.	0.87
time (sec)	N/A	0.498	1.659	0.083	0.	0.	0.	0.	66.843

Problem 3065	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	124	124	132	0	0	0	0	0	94
normalized size	1	1.	1.06	0.	0.	0.	0.	0.	0.76
time (sec)	N/A	0.183	0.331	0.075	0.	0.	0.	0.	22.085

Problem 3066	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F	A	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	36	36	36	42	0	78	0	0	29
normalized size	1	1.	1.	1.17	0.	2.17	0.	0.	0.81
time (sec)	N/A	0.028	0.059	0.006	0.	0.25	0.	0.	4.719

Problem 3067	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	135	135	578	0	0	0	0	0	104
normalized size	1	1.	4.28	0.	0.	0.	0.	0.	0.77
time (sec)	N/A	0.218	6.675	0.093	0.	0.	0.	0.	20.206

Problem 3068	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	245	243	21480	0	0	0	0	0	199
normalized size	1	0.99	87.67	0.	0.	0.	0.	0.	0.81
time (sec)	N/A	0.646	21.481	0.101	0.	0.	0.	0.	115.884

Problem 3069	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	F(-1)
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	453	452	57971	0	0	0	0	0	0
normalized size	1	1.	127.97	0.	0.	0.	0.	0.	0.
time (sec)	N/A	1.7	25.296	0.135	0.	0.	0.	0.	0.

Problem 3070	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	133	133	300	0	0	0	0	0	105
normalized size	1	1.	2.26	0.	0.	0.	0.	0.	0.79
time (sec)	N/A	0.368	2.091	0.223	0.	0.	0.	0.	76.439

Problem 3071	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	188	188	318	0	0	0	0	0	156
normalized size	1	1.	1.69	0.	0.	0.	0.	0.	0.83
time (sec)	N/A	0.508	0.965	0.084	0.	0.	0.	0.	38.106

Problem 3072	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	139	139	131	0	0	0	0	0	121
normalized size	1	1.	0.94	0.	0.	0.	0.	0.	0.87
time (sec)	N/A	0.285	0.487	0.079	0.	0.	0.	0.	21.505

Problem 3073	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	205	202	426	0	0	0	0	0	178
normalized size	1	0.99	2.08	0.	0.	0.	0.	0.	0.87
time (sec)	N/A	0.542	2.695	0.089	0.	0.	0.	0.	93.044

Problem 3074	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F	A	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	114	112	82	158	0	454	0	0	92
normalized size	1	0.98	0.72	1.39	0.	3.98	0.	0.	0.81
time (sec)	N/A	0.171	0.255	0.008	0.	0.242	0.	0.	23.326

Problem 3075	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F	A	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	79	79	59	124	0	277	0	0	63
normalized size	1	1.	0.75	1.57	0.	3.51	0.	0.	0.8
time (sec)	N/A	0.07	0.101	0.006	0.	0.23	0.	0.	13.606

Problem 3076	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	209	208	12578	0	0	0	0	0	177
normalized size	1	1.	60.18	0.	0.	0.	0.	0.	0.85
time (sec)	N/A	0.602	27.466	0.095	0.	0.	0.	0.	122.084

Problem 3077	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	F(-1)
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	400	398	38673	0	0	0	0	0	0
normalized size	1	1.	96.68	0.	0.	0.	0.	0.	0.
time (sec)	N/A	1.732	26.82	180.	0.	0.	0.	0.	0.

Problem 3078	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	133	133	300	0	0	0	0	0	104
normalized size	1	1.	2.26	0.	0.	0.	0.	0.	0.78
time (sec)	N/A	0.375	3.447	0.375	0.	0.	0.	0.	76.741

Problem 3079	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	333	333	166	0	0	0	0	0	286
normalized size	1	1.	0.5	0.	0.	0.	0.	0.	0.86
time (sec)	N/A	0.816	0.743	0.094	0.	0.	0.	0.	79.323

Problem 3080	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	406	406	1833	0	0	0	0	0	342
normalized size	1	1.	4.51	0.	0.	0.	0.	0.	0.84
time (sec)	N/A	0.741	57.428	0.085	0.	0.	0.	0.	141.596

Problem 3081	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F	A	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	353	351	285	741	0	1744	0	0	303
normalized size	1	0.99	0.81	2.1	0.	4.94	0.	0.	0.86
time (sec)	N/A	0.871	0.743	0.018	0.	0.252	0.	0.	142.791

Problem 3082	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F	A	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	188	184	199	503	0	1218	0	0	156
normalized size	1	0.98	1.06	2.68	0.	6.48	0.	0.	0.83
time (sec)	N/A	0.305	0.615	0.017	0.	0.239	0.	0.	46.252

Problem 3083	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F	A	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	130	130	112	319	0	684	0	0	107
normalized size	1	1.	0.86	2.45	0.	5.26	0.	0.	0.82
time (sec)	N/A	0.133	0.202	0.009	0.	0.233	0.	0.	29.701

Problem 3084	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	F(-1)
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	345	344	26263	0	0	0	0	0	0
normalized size	1	1.	76.12	0.	0.	0.	0.	0.	0.
time (sec)	N/A	1.447	35.848	0.099	0.	0.	0.	0.	0.

Problem 3085	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	F(-1)
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	648	646	64249	0	0	0	0	0	0
normalized size	1	1.	99.15	0.	0.	0.	0.	0.	0.
time (sec)	N/A	4.494	39.301	0.13	0.	0.	0.	0.	0.

Problem 3086	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	133	133	300	0	0	0	0	0	105
normalized size	1	1.	2.26	0.	0.	0.	0.	0.	0.79
time (sec)	N/A	0.368	6.758	0.226	0.	0.	0.	0.	79.217

Problem 3087	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	546	546	274	0	0	0	0	0	479
normalized size	1	1.	0.5	0.	0.	0.	0.	0.	0.88
time (sec)	N/A	1.154	0.869	0.083	0.	0.	0.	0.	139.688

Problem 3088	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F(-2)	F(-1)
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	650	650	5118	0	0	0	0	0	0
normalized size	1	1.	7.87	0.	0.	0.	0.	0.	0.
time (sec)	N/A	1.323	168.581	0.082	0.	0.	0.	0.	0.

Problem 3089	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F	A	F(-1)	F(-2)	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	460	459	610	2481	0	4618	0	0	0
normalized size	1	1.	1.33	5.39	0.	10.04	0.	0.	0.
time (sec)	N/A	1.341	2.963	0.017	0.	0.269	0.	0.	0.

Problem 3090	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F	A	F(-1)	F	F(-1)
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	494	493	444	1884	0	3594	0	0	0
normalized size	1	1.	0.9	3.81	0.	7.28	0.	0.	0.
time (sec)	N/A	1.458	1.7	0.02	0.	0.266	0.	0.	0.

Problem 3091	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F	A	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	268	264	267	1184	0	2399	0	0	228
normalized size	1	0.99	1.	4.42	0.	8.95	0.	0.	0.85
time (sec)	N/A	0.488	0.92	0.013	0.	0.249	0.	0.	77.936

Problem 3092	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F	A	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	185	185	181	662	0	1288	0	0	153
normalized size	1	1.	0.98	3.58	0.	6.96	0.	0.	0.83
time (sec)	N/A	0.236	0.493	0.013	0.	0.241	0.	0.	57.456

Problem 3093	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	F(-1)
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	570	569	50481	0	0	0	0	0	0
normalized size	1	1.	88.56	0.	0.	0.	0.	0.	0.
time (sec)	N/A	3.519	43.628	0.103	0.	0.	0.	0.	0.

Problem 3094	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	131	131	298	0	0	0	0	0	104
normalized size	1	1.	2.27	0.	0.	0.	0.	0.	0.79
time (sec)	N/A	0.358	1.381	0.229	0.	0.	0.	0.	75.309

Problem 3095	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	F(-1)
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	803	799	676	0	0	0	0	0	0
normalized size	1	1.	0.84	0.	0.	0.	0.	0.	0.
time (sec)	N/A	7.387	7.248	0.11	0.	0.	0.	0.	0.

Problem 3096	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	445	444	461	0	0	0	0	0	564
normalized size	1	1.	1.04	0.	0.	0.	0.	0.	1.27
time (sec)	N/A	1.306	3.346	0.099	0.	0.	0.	0.	138.72

Problem 3097	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	260	259	510	0	0	0	0	0	221
normalized size	1	1.	1.96	0.	0.	0.	0.	0.	0.85
time (sec)	N/A	0.639	5.867	0.097	0.	0.	0.	0.	52.551

Problem 3098	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	145	144	322	0	0	0	0	0	114
normalized size	1	0.99	2.22	0.	0.	0.	0.	0.	0.79
time (sec)	N/A	0.241	1.07	0.087	0.	0.	0.	0.	23.897

Problem 3099	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	82	82	202	0	0	0	0	0	66
normalized size	1	1.	2.46	0.	0.	0.	0.	0.	0.8
time (sec)	N/A	0.097	0.326	0.11	0.	0.	0.	0.	15.993

Problem 3100	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	220	220	622	0	0	0	0	0	178
normalized size	1	1.	2.83	0.	0.	0.	0.	0.	0.81
time (sec)	N/A	0.399	1.359	0.095	0.	0.	0.	0.	53.733

Problem 3101	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	108	108	461	0	0	0	0	0	83
normalized size	1	1.	4.27	0.	0.	0.	0.	0.	0.77
time (sec)	N/A	0.216	0.541	0.102	0.	0.	0.	0.	26.16

Problem 3102	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	85	85	933	0	0	0	0	0	68
normalized size	1	1.	10.98	0.	0.	0.	0.	0.	0.8
time (sec)	N/A	0.101	2.84	0.124	0.	0.	0.	0.	11.751

Problem 3103	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	176	175	3798	0	0	0	0	0	143
normalized size	1	0.99	21.58	0.	0.	0.	0.	0.	0.81
time (sec)	N/A	0.281	6.192	0.185	0.	0.	0.	0.	37.656

Problem 3104	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	F(-1)
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	311	310	61774	0	0	0	0	0	0
normalized size	1	1.	198.63	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.928	22.649	0.301	0.	0.	0.	0.	0.

Problem 3105	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	133	133	300	0	0	0	0	0	104
normalized size	1	1.	2.26	0.	0.	0.	0.	0.	0.78
time (sec)	N/A	0.355	1.883	0.228	0.	0.	0.	0.	75.654

Problem 3106	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	F(-1)
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	447	446	467	0	0	0	0	0	0
normalized size	1	1.	1.04	0.	0.	0.	0.	0.	0.
time (sec)	N/A	1.365	4.299	0.099	0.	0.	0.	0.	0.

Problem 3107	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	262	261	340	0	0	0	0	0	223
normalized size	1	1.	1.3	0.	0.	0.	0.	0.	0.85
time (sec)	N/A	0.635	0.894	0.098	0.	0.	0.	0.	62.416

Problem 3108	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	147	146	509	0	0	0	0	0	116
normalized size	1	0.99	3.46	0.	0.	0.	0.	0.	0.79
time (sec)	N/A	0.244	5.433	0.088	0.	0.	0.	0.	27.761

Problem 3109	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	84	84	319	0	0	0	0	0	66
normalized size	1	1.	3.8	0.	0.	0.	0.	0.	0.79
time (sec)	N/A	0.088	0.774	0.113	0.	0.	0.	0.	18.003

Problem 3110	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	319	319	303	0	0	0	0	0	258
normalized size	1	1.	0.95	0.	0.	0.	0.	0.	0.81
time (sec)	N/A	0.617	1.795	0.091	0.	0.	0.	0.	82.908

Problem 3111	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	113	113	291	0	0	0	0	0	85
normalized size	1	1.	2.58	0.	0.	0.	0.	0.	0.75
time (sec)	N/A	0.219	1.885	0.101	0.	0.	0.	0.	29.503

Problem 3112	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	110	110	304	0	0	0	0	0	85
normalized size	1	1.	2.76	0.	0.	0.	0.	0.	0.77
time (sec)	N/A	0.212	2.551	0.127	0.	0.	0.	0.	29.563

Problem 3113	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	85	85	122	0	0	0	0	0	66
normalized size	1	1.	1.44	0.	0.	0.	0.	0.	0.78
time (sec)	N/A	0.104	1.854	0.185	0.	0.	0.	0.	12.015

Problem 3114	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	176	175	3314	0	0	0	0	0	143
normalized size	1	0.99	18.83	0.	0.	0.	0.	0.	0.81
time (sec)	N/A	0.251	17.261	0.273	0.	0.	0.	0.	37.574

Problem 3115	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	F(-1)
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	311	310	29088	0	0	0	0	0	0
normalized size	1	1.	93.53	0.	0.	0.	0.	0.	0.
time (sec)	N/A	0.928	30.343	0.469	0.	0.	0.	0.	0.

Problem 3116	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	F(-1)
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	541	540	79140	0	0	0	0	0	0
normalized size	1	1.	146.28	0.	0.	0.	0.	0.	0.
time (sec)	N/A	2.877	34.629	0.836	0.	0.	0.	0.	0.

Problem 3117	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	139	139	323	0	0	0	0	0	105
normalized size	1	1.	2.32	0.	0.	0.	0.	0.	0.76
time (sec)	N/A	0.325	1.536	0.229	0.	0.	0.	0.	79.441

Problem 3118	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	139	139	312	0	0	0	0	0	110
normalized size	1	1.	2.24	0.	0.	0.	0.	0.	0.79
time (sec)	N/A	0.342	2.274	0.235	0.	0.	0.	0.	77.007

Problem 3119	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	129	129	303	0	0	0	0	0	99
normalized size	1	1.	2.35	0.	0.	0.	0.	0.	0.77
time (sec)	N/A	0.282	0.262	0.222	0.	0.	0.	0.	73.225

Problem 3120	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	138	138	315	0	0	0	0	0	105
normalized size	1	1.	2.28	0.	0.	0.	0.	0.	0.76
time (sec)	N/A	0.333	1.553	0.237	0.	0.	0.	0.	77.4

Problem 3121	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	124	124	123	0	0	0	0	0	97
normalized size	1	1.	0.99	0.	0.	0.	0.	0.	0.78
time (sec)	N/A	0.114	1.078	0.249	0.	0.	0.	0.	11.002

Problem 3122	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	237	235	5197	0	0	0	0	0	192
normalized size	1	0.99	21.93	0.	0.	0.	0.	0.	0.81
time (sec)	N/A	0.3	73.02	0.237	0.	0.	0.	0.	54.68

Problem 3123	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F	F(-1)	F	F(-1)
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	428	426	12876	0	0	0	0	0	0
normalized size	1	1.	30.08	0.	0.	0.	0.	0.	0.
time (sec)	N/A	1.546	169.05	0.237	0.	0.	0.	0.	0.

Problem 3124	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	B	A	A	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	88	88	5681	198	1380	448	0	0	78
normalized size	1	1.	64.56	2.25	15.68	5.09	0.	0.	0.89
time (sec)	N/A	0.227	74.205	0.01	4.006	0.338	0.	0.	22.942

Problem 3125	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	A	A	A	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	101	101	1732	162	311	304	0	0	76
normalized size	1	1.	17.15	1.6	3.08	3.01	0.	0.	0.75
time (sec)	N/A	0.135	18.319	0.008	1.613	0.385	0.	0.	18.463

Problem 3126	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	129	129	303	0	0	0	0	0	99
normalized size	1	1.	2.35	0.	0.	0.	0.	0.	0.77
time (sec)	N/A	0.291	1.045	0.225	0.	0.	0.	0.	71.448

Problem 3127	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	137	137	308	0	0	0	0	0	107
normalized size	1	1.	2.25	0.	0.	0.	0.	0.	0.78
time (sec)	N/A	0.349	1.477	0.212	0.	0.	0.	0.	74.084

Problem 3128	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F(-1)	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	123	123	122	0	0	0	0	0	95
normalized size	1	1.	0.99	0.	0.	0.	0.	0.	0.77
time (sec)	N/A	0.105	0.968	0.227	0.	0.	0.	0.	10.519

Problem 3129	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	227	226	5212	0	0	0	0	0	197
normalized size	1	1.	22.96	0.	0.	0.	0.	0.	0.87
time (sec)	N/A	0.333	19.	0.224	0.	0.	0.	0.	58.935

Problem 3130	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F	F(-1)	F	F(-1)
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	402	401	13018	0	0	0	0	0	0
normalized size	1	1.	32.38	0.	0.	0.	0.	0.	0.
time (sec)	N/A	1.473	168.072	0.227	0.	0.	0.	0.	0.

Problem 3131	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	123	123	296	0	0	0	0	0	94
normalized size	1	1.	2.41	0.	0.	0.	0.	0.	0.76
time (sec)	N/A	0.277	1.059	0.218	0.	0.	0.	0.	69.924

Problem 3132	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	259	272	330	0	0	0	0	0	248
normalized size	1	1.05	1.27	0.	0.	0.	0.	0.	0.96
time (sec)	N/A	0.929	1.375	0.098	0.	0.	0.	0.	99.087

Problem 3133	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	C	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	131	141	202	0	0	0	0	0	117
normalized size	1	1.08	1.54	0.	0.	0.	0.	0.	0.89
time (sec)	N/A	0.235	0.409	0.085	0.	0.	0.	0.	27.764

Problem 3134	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	61	74	73	0	0	0	0	0	56
normalized size	1	1.21	1.2	0.	0.	0.	0.	0.	0.92
time (sec)	N/A	0.074	0.083	0.137	0.	0.	0.	0.	14.489

Problem 3135	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	100	100	298	0	0	0	0	0	75
normalized size	1	1.	2.98	0.	0.	0.	0.	0.	0.75
time (sec)	N/A	0.165	0.98	0.094	0.	0.	0.	0.	24.242

Problem 3136	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	101	101	286	0	0	0	0	0	76
normalized size	1	1.	2.83	0.	0.	0.	0.	0.	0.75
time (sec)	N/A	0.17	1.071	0.11	0.	0.	0.	0.	24.509

Problem 3137	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	103	103	299	0	0	0	0	0	80
normalized size	1	1.	2.9	0.	0.	0.	0.	0.	0.78
time (sec)	N/A	0.175	1.532	0.129	0.	0.	0.	0.	26.183

Problem 3138	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	50	50	47	0	0	0	0	0	37
normalized size	1	1.	0.94	0.	0.	0.	0.	0.	0.74
time (sec)	N/A	0.058	0.05	0.06	0.	0.	0.	0.	5.417

Problem 3139	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	43	43	48	0	0	0	0	0	36
normalized size	1	1.	1.12	0.	0.	0.	0.	0.	0.84
time (sec)	N/A	0.057	0.057	0.06	0.	0.	0.	0.	5.444

Problem 3140	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	45	45	47	0	0	0	0	0	31
normalized size	1	1.	1.04	0.	0.	0.	0.	0.	0.69
time (sec)	N/A	0.061	0.048	0.081	0.	0.	0.	0.	5.365

Problem 3141	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	38	38	48	0	0	0	0	0	29
normalized size	1	1.	1.26	0.	0.	0.	0.	0.	0.76
time (sec)	N/A	0.055	0.049	0.049	0.	0.	0.	0.	5.35

Problem 3142	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F(-1)	F	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	100	100	921	0	0	0	0	0	85
normalized size	1	1.	9.21	0.	0.	0.	0.	0.	0.85
time (sec)	N/A	0.275	5.099	0.132	0.	0.	0.	0.	23.266

Problem 3143	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F(-1)	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	123	123	661	0	0	0	0	0	102
normalized size	1	1.	5.37	0.	0.	0.	0.	0.	0.83
time (sec)	N/A	0.501	10.77	0.116	0.	0.	0.	0.	63.471

Problem 3144	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	123	123	289	0	0	0	0	0	104
normalized size	1	1.	2.35	0.	0.	0.	0.	0.	0.85
time (sec)	N/A	0.43	1.141	0.061	0.	0.	0.	0.	67.521

Problem 3145	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	121	121	287	0	0	0	0	0	97
normalized size	1	1.	2.37	0.	0.	0.	0.	0.	0.8
time (sec)	N/A	0.424	0.913	0.06	0.	0.	0.	0.	66.847

Problem 3146	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	128	128	816	0	0	0	0	0	104
normalized size	1	1.	6.38	0.	0.	0.	0.	0.	0.81
time (sec)	N/A	0.433	5.562	0.06	0.	0.	0.	0.	66.923

Problem 3147	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	121	121	825	0	0	0	0	0	102
normalized size	1	1.	6.82	0.	0.	0.	0.	0.	0.84
time (sec)	N/A	0.428	4.012	0.061	0.	0.	0.	0.	66.288

Problem 3148	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F(-1)	F	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	100	100	901	0	0	0	0	0	80
normalized size	1	1.	9.01	0.	0.	0.	0.	0.	0.8
time (sec)	N/A	0.249	4.853	0.095	0.	0.	0.	0.	21.471

Problem 3149	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F(-1)	F	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	100	100	895	0	0	0	0	0	80
normalized size	1	1.	8.95	0.	0.	0.	0.	0.	0.8
time (sec)	N/A	0.241	3.033	0.082	0.	0.	0.	0.	21.479

Problem 3150	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F(-1)	F(-1)	F	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	125	125	1077	0	0	0	0	0	104
normalized size	1	1.	8.62	0.	0.	0.	0.	0.	0.83
time (sec)	N/A	0.488	13.826	0.145	0.	0.	0.	0.	63.369

Problem 3151	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F(-1)	F(-1)	F(-1)	A
verified	N/A	Yes	NO	TBD	TBD	TBD	TBD	TBD	TBD
size	125	125	1078	0	0	0	0	0	104
normalized size	1	1.	8.62	0.	0.	0.	0.	0.	0.83
time (sec)	N/A	0.5	9.866	0.139	0.	0.	0.	0.	63.535

Problem 3152	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	F(-2)	A	F(-1)	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	234	234	635	2355	0	3070	0	1	224
normalized size	1	1.	2.71	10.06	0.	13.12	0.	0.	0.96
time (sec)	N/A	0.461	1.332	0.019	0.	0.332	0.	0.259	86.822

Problem 3153	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	B	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	186	186	391	1270	0	1731	14073	1	172
normalized size	1	1.	2.1	6.83	0.	9.31	75.66	0.01	0.92
time (sec)	N/A	0.34	0.597	0.017	0.	0.32	26.4	0.228	62.337

Problem 3154	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	138	138	221	576	0	891	6094	1	126
normalized size	1	1.	1.6	4.17	0.	6.46	44.16	0.01	0.91
time (sec)	N/A	0.249	0.344	0.014	0.	0.289	10.092	0.238	42.177

Problem 3155	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	90	90	103	189	0	346	1952	744	78
normalized size	1	1.	1.14	2.1	0.	3.84	21.69	8.27	0.87
time (sec)	N/A	0.138	0.133	0.008	0.	0.266	3.966	0.235	23.697

Problem 3156	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	47	47	41	46	0	112	377	205	37
normalized size	1	1.	0.87	0.98	0.	2.38	8.02	4.36	0.79
time (sec)	N/A	0.059	0.036	0.004	0.	0.307	1.209	0.229	10.266

Problem 3157	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	85	85	78	0	0	0	0	0	63
normalized size	1	1.	0.92	0.	0.	0.	0.	0.	0.74
time (sec)	N/A	0.122	0.11	0.069	0.	0.	0.	0.	12.674

Problem 3158	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F(-1)	F	A
verified	N/A	Yes	N/A	TBD	TBD	TBD	TBD	TBD	TBD
size	112	112	0	0	0	0	0	0	88
normalized size	1	1.	0.	0.	0.	0.	0.	0.	0.79
time (sec)	N/A	0.183	0.145	0.078	0.	0.	0.	0.	17.916

Problem 3159	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	B	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	91	91	148	187	0	236	1826	652	75
normalized size	1	1.	1.63	2.05	0.	2.59	20.07	7.16	0.82
time (sec)	N/A	0.073	0.075	0.011	0.	0.237	3.419	0.228	11.69

Problem 3160	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	73	73	106	120	0	162	1018	429	60
normalized size	1	1.	1.45	1.64	0.	2.22	13.95	5.88	0.82
time (sec)	N/A	0.064	0.05	0.01	0.	0.236	2.179	0.228	10.038

Problem 3161	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	A	F(-2)	A	A	A	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	55	55	63	69	0	101	488	252	44
normalized size	1	1.	1.15	1.25	0.	1.84	8.87	4.58	0.8
time (sec)	N/A	0.047	0.037	0.005	0.	0.239	1.301	0.236	8.086

Problem 3162	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	52	52	63	0	0	0	0	0	41
normalized size	1	1.	1.21	0.	0.	0.	0.	0.	0.79
time (sec)	N/A	0.051	0.115	0.047	0.	0.	0.	0.	6.588

Problem 3163	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	59	59	97	0	0	0	0	0	42
normalized size	1	1.	1.64	0.	0.	0.	0.	0.	0.71
time (sec)	N/A	0.067	0.073	0.056	0.	0.	0.	0.	6.984

Problem 3164	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	59	59	103	0	0	0	0	0	49
normalized size	1	1.	1.75	0.	0.	0.	0.	0.	0.83
time (sec)	N/A	0.071	0.088	0.069	0.	0.	0.	0.	6.787

Problem 3165	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	B	F	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	90	90	240	0	0	0	0	0	73
normalized size	1	1.	2.67	0.	0.	0.	0.	0.	0.81
time (sec)	N/A	0.093	0.569	0.073	0.	0.	0.	0.	11.681

Problem 3166	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	72	72	106	0	0	0	0	0	58
normalized size	1	1.	1.47	0.	0.	0.	0.	0.	0.81
time (sec)	N/A	0.082	0.448	0.064	0.	0.	0.	0.	10.257

Problem 3167	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	54	54	67	0	0	0	0	0	42
normalized size	1	1.	1.24	0.	0.	0.	0.	0.	0.78
time (sec)	N/A	0.047	0.112	0.054	0.	0.	0.	0.	6.475

Problem 3168	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	A	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	69	69	96	0	0	0	112	0	53
normalized size	1	1.	1.39	0.	0.	0.	1.62	0.	0.77
time (sec)	N/A	0.074	0.156	0.063	0.	0.	2.352	0.	8.359

Problem 3169	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	A	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	94	94	161	0	0	0	447	0	73
normalized size	1	1.	1.71	0.	0.	0.	4.76	0.	0.78
time (sec)	N/A	0.17	0.333	0.077	0.	0.	4.503	0.	22.611

Problem 3170	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	A	F	A
verified	N/A	Yes	Yes	TBD	TBD	TBD	TBD	TBD	TBD
size	124	124	220	0	0	0	1226	0	104
normalized size	1	1.	1.77	0.	0.	0.	9.89	0.	0.84
time (sec)	N/A	0.316	0.7	0.095	0.	0.	6.596	0.	43.19

Problem 3171	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F	F	A
verified	N/A	Yes	N/A	TBD	TBD	TBD	TBD	TBD	TBD
size	52	52	0	0	0	0	0	0	39
normalized size	1	1.	0.	0.	0.	0.	0.	0.	0.75
time (sec)	N/A	0.046	0.048	0.071	0.	0.	0.	0.	5.462

Problem 3172	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F(-1)	F	A
verified	N/A	Yes	N/A	TBD	TBD	TBD	TBD	TBD	TBD
size	187	187	0	0	0	0	0	0	150
normalized size	1	1.	0.	0.	0.	0.	0.	0.	0.8
time (sec)	N/A	0.546	0.093	0.131	0.	0.	0.	0.	145.93

Problem 3173	Optimal	Rubi	Mathematica	Maple	Maxima	Fricas	Sympy	Giac	Rubi in Sympy
grade	A	A	A	F	F	F	F(-1)	F	F(-1)
verified	N/A	Yes	N/A	TBD	TBD	TBD	TBD	TBD	TBD
size	281	281	0	0	0	0	0	0	0
normalized size	1	1.	0.	0.	0.	0.	0.	0.	0.
time (sec)	N/A	1.236	0.134	0.125	0.	0.	0.	0.	0.

2.2 Detailed conclusion table specific for Rubi results

The following table is specific to Rubi. It gives additional statistics for each integral. the column **steps** is the number of steps used by Rubi to obtain the antiderivative. The **rules** column is the number of unique rules used. The **integrand size** column is the leaf size of the integrand. Finally the ratio $\frac{\text{number of rules}}{\text{integrand size}}$ is given. The larger this ratio is, the harder the integral was to solve. In this test, problem number [883] had the largest ratio of [0.6]

Table 1: Rubi specific breakdown of results for each integral

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
1	A	2	1	1.	20	0.05
2	A	2	1	1.	18	0.056
3	A	2	1	1.	17	0.059
4	A	2	1	1.	20	0.05
5	A	2	1	1.	20	0.05
6	A	1	1	1.	20	0.05
7	A	2	1	1.	20	0.05
8	A	2	1	1.	20	0.05
9	A	2	1	1.	20	0.05
10	A	2	1	1.	20	0.05
11	A	2	1	1.	20	0.05
12	A	2	1	1.	20	0.05
13	A	2	1	1.	20	0.05
14	A	2	1	1.	20	0.05
15	A	2	1	1.	18	0.056
16	A	2	1	1.	17	0.059
17	A	2	1	1.	20	0.05
18	A	2	1	1.	20	0.05
19	A	2	1	1.	20	0.05

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
20	A	2	1	1.	20	0.05
21	A	2	1	1.	20	0.05
22	A	2	1	1.	20	0.05
23	A	2	2	1.	20	0.1
24	A	2	1	1.	20	0.05
25	A	2	1	1.	20	0.05
26	A	2	1	1.	20	0.05
27	A	2	1	1.	20	0.05
28	A	2	1	1.	20	0.05
29	A	2	1	1.	18	0.056
30	A	2	1	1.	17	0.059
31	A	2	1	1.	20	0.05
32	A	2	1	1.	20	0.05
33	A	2	1	1.	20	0.05
34	A	1	1	1.	20	0.05
35	A	2	1	1.	20	0.05
36	A	2	1	1.	20	0.05
37	A	2	1	1.	20	0.05
38	A	2	2	1.	20	0.1
39	A	3	3	1.	20	0.15
40	A	2	1	1.	20	0.05
41	A	2	1	1.	20	0.05
42	A	2	1	1.	20	0.05
43	A	2	1	1.	20	0.05
44	A	2	2	1.	20	0.1
45	A	3	3	1.	20	0.15
46	A	4	3	1.	20	0.15
47	A	2	1	1.	20	0.05
48	A	2	1	1.	20	0.05
49	A	2	1	1.	14	0.071
50	A	2	1	1.	14	0.071
51	A	2	1	1.	14	0.071
52	A	2	1	1.	12	0.083
53	A	2	1	1.	11	0.091
54	A	2	1	1.	14	0.071
55	A	2	1	1.	14	0.071
56	A	2	1	1.	14	0.071
57	A	2	1	1.	14	0.071
58	A	2	1	1.	14	0.071
59	A	2	1	1.	14	0.071
60	A	2	1	1.	16	0.062
61	A	2	1	1.	16	0.062
62	A	2	1	1.	16	0.062
63	A	2	1	1.	14	0.071
64	A	2	1	1.	13	0.077
65	A	3	2	1.	16	0.125
66	A	2	1	1.	16	0.062
67	A	2	1	1.	16	0.062
68	A	2	1	1.	16	0.062

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
69	A	2	2	1.	16	0.125
70	A	2	1	1.	16	0.062
71	A	2	1	1.	16	0.062
72	A	2	1	1.	16	0.062
73	A	2	1	1.	16	0.062
74	A	2	1	1.	16	0.062
75	A	2	1	1.	16	0.062
76	A	2	1	1.	14	0.071
77	A	2	1	1.	13	0.077
78	A	3	2	1.	16	0.125
79	A	2	1	1.	16	0.062
80	A	2	1	1.	16	0.062
81	A	2	1	1.	16	0.062
82	A	3	2	1.	16	0.125
83	A	2	2	1.	16	0.125
84	A	2	1	1.	16	0.062
85	A	2	1	1.	16	0.062
86	A	2	1	1.	16	0.062
87	A	2	1	1.	16	0.062
88	A	2	1	1.	16	0.062
89	A	2	1	1.	16	0.062
90	A	2	1	1.	16	0.062
91	A	2	1	1.	16	0.062
92	A	2	1	1.	14	0.071
93	A	2	1	1.	13	0.077
94	A	3	2	1.	16	0.125
95	A	2	1	1.	16	0.062
96	A	2	1	1.	16	0.062
97	A	2	1	1.	16	0.062
98	A	2	1	1.	16	0.062
99	A	2	1	1.	16	0.062
100	A	3	2	1.	16	0.125
101	A	2	2	1.	16	0.125
102	A	3	3	1.	16	0.188
103	A	2	1	1.	16	0.062
104	A	2	1	1.	16	0.062
105	A	2	1	1.	16	0.062
106	A	2	1	1.	16	0.062
107	A	2	1	1.	16	0.062
108	A	2	1	1.	16	0.062
109	A	2	1	1.	16	0.062
110	A	2	1	1.	16	0.062
111	A	2	1	1.	16	0.062
112	A	2	1	1.	16	0.062
113	A	2	1	1.	16	0.062
114	A	2	1	1.	16	0.062
115	A	2	1	1.	14	0.071
116	A	2	1	1.	13	0.077
117	A	3	2	1.	16	0.125

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
118	A	2	1	1.	16	0.062
119	A	2	1	1.	16	0.062
120	A	2	1	1.	16	0.062
121	A	2	1	1.	16	0.062
122	A	2	1	1.	16	0.062
123	A	2	1	1.	16	0.062
124	A	2	1	1.	16	0.062
125	A	2	1	1.	16	0.062
126	A	2	1	1.	16	0.062
127	A	2	1	1.	16	0.062
128	A	3	2	1.	16	0.125
129	A	2	2	1.	16	0.125
130	A	3	3	1.	16	0.188
131	A	4	3	1.	16	0.188
132	A	5	3	1.	16	0.188
133	A	6	3	1.	16	0.188
134	A	7	3	1.	16	0.188
135	A	2	1	1.	16	0.062
136	A	2	1	1.	16	0.062
137	A	2	1	1.	16	0.062
138	A	2	1	1.	16	0.062
139	A	2	1	1.	16	0.062
140	A	2	1	1.	14	0.071
141	A	2	1	1.	13	0.077
142	A	1	1	1.	14	0.071
143	A	2	1	1.	16	0.062
144	A	2	1	1.	16	0.062
145	A	2	1	1.	16	0.062
146	A	2	1	1.	14	0.071
147	A	2	1	1.	13	0.077
148	A	2	1	1.	16	0.062
149	A	2	1	1.	16	0.062
150	A	2	1	1.	16	0.062
151	A	2	1	1.	16	0.062
152	A	2	1	1.	16	0.062
153	A	2	1	1.	16	0.062
154	A	2	1	1.	16	0.062
155	A	2	1	1.	16	0.062
156	A	2	1	1.	14	0.071
157	A	2	1	1.	13	0.077
158	A	2	1	1.	16	0.062
159	A	2	1	1.	16	0.062
160	A	2	1	1.	16	0.062
161	A	2	1	1.	16	0.062
162	A	2	1	1.	16	0.062
163	A	2	1	1.	16	0.062
164	A	2	1	1.	16	0.062
165	A	2	1	1.	14	0.071
166	A	1	1	1.	13	0.077

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
167	A	2	1	1.	16	0.062
168	A	2	1	1.	16	0.062
169	A	2	1	1.	16	0.062
170	A	2	1	1.	16	0.062
171	A	2	1	1.	18	0.056
172	A	2	1	1.	18	0.056
173	A	2	1	1.	16	0.062
174	A	2	1	1.	16	0.062
175	A	2	1	1.	16	0.062
176	A	2	1	1.	14	0.071
177	A	2	1	1.	13	0.077
178	A	2	1	1.	16	0.062
179	A	2	1	1.	16	0.062
180	A	2	1	1.	16	0.062
181	A	2	1	1.	16	0.062
182	A	2	1	1.	18	0.056
183	A	2	1	1.	18	0.056
184	A	2	1	1.	16	0.062
185	A	2	1	1.	15	0.067
186	A	2	1	1.	18	0.056
187	A	2	1	1.	18	0.056
188	A	2	1	1.	18	0.056
189	A	2	1	1.	18	0.056
190	A	2	1	1.	18	0.056
191	A	2	1	1.	18	0.056
192	A	2	1	1.	18	0.056
193	A	2	1	1.	16	0.062
194	A	2	1	1.	15	0.067
195	A	2	1	1.	18	0.056
196	A	2	1	1.	18	0.056
197	A	2	1	1.	18	0.056
198	A	2	1	1.	18	0.056
199	A	2	1	1.	18	0.056
200	A	2	1	1.	18	0.056
201	A	2	1	1.	18	0.056
202	A	2	1	1.	18	0.056
203	A	2	1	1.	18	0.056
204	A	2	1	1.	18	0.056
205	A	2	1	1.	16	0.062
206	A	3	2	1.	15	0.133
207	A	2	1	1.	18	0.056
208	A	2	1	1.	18	0.056
209	A	2	1	1.	18	0.056
210	A	2	1	1.	18	0.056
211	A	2	1	1.	18	0.056
212	A	2	1	1.	18	0.056
213	A	2	1	1.	18	0.056
214	A	2	1	1.	18	0.056
215	A	2	1	1.	16	0.062

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
216	A	2	1	1.	15	0.067
217	A	2	1	1.	18	0.056
218	A	2	1	1.	18	0.056
219	A	2	1	1.	18	0.056
220	A	2	1	1.	18	0.056
221	A	2	1	1.	18	0.056
222	A	2	1	1.	18	0.056
223	A	2	1	1.	18	0.056
224	A	2	1	1.	16	0.062
225	A	2	1	1.	15	0.067
226	A	2	1	1.	18	0.056
227	A	2	1	1.	18	0.056
228	A	2	1	1.	18	0.056
229	A	2	1	1.	18	0.056
230	A	2	1	1.	18	0.056
231	A	2	1	1.	16	0.062
232	A	2	1	1.	15	0.067
233	A	2	1	1.	18	0.056
234	A	2	1	1.	18	0.056
235	A	2	1	1.	18	0.056
236	A	2	1	1.	18	0.056
237	A	2	1	1.	18	0.056
238	A	2	1	1.	18	0.056
239	A	2	1	1.	18	0.056
240	A	2	1	1.	18	0.056
241	A	2	1	1.	16	0.062
242	A	2	1	1.	15	0.067
243	A	2	1	1.	18	0.056
244	A	2	1	1.	18	0.056
245	A	2	1	1.	18	0.056
246	A	2	1	1.	18	0.056
247	A	2	1	1.	18	0.056
248	A	2	1	1.	18	0.056
249	A	2	1	1.	18	0.056
250	A	2	1	1.	18	0.056
251	A	2	1	1.	18	0.056
252	A	2	1	1.	18	0.056
253	A	2	1	1.	18	0.056
254	A	2	1	1.	16	0.062
255	A	2	1	1.	15	0.067
256	A	2	1	1.	18	0.056
257	A	2	1	1.	18	0.056
258	A	2	1	1.	18	0.056
259	A	2	1	1.	18	0.056
260	A	2	1	1.	18	0.056
261	A	2	1	1.	18	0.056
262	A	2	1	1.	18	0.056
263	A	2	1	1.	18	0.056
264	A	2	1	1.	18	0.056

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
265	A	2	1	1.	16	0.062
266	A	2	1	1.	15	0.067
267	A	2	1	1.	18	0.056
268	A	2	1	1.	18	0.056
269	A	2	1	1.	18	0.056
270	A	3	3	1.	14	0.214
271	A	2	1	1.	18	0.056
272	A	2	1	1.	18	0.056
273	A	2	1	1.	16	0.062
274	A	2	1	1.	15	0.067
275	A	2	1	1.	18	0.056
276	A	2	1	1.	18	0.056
277	A	2	1	1.	18	0.056
278	A	2	1	1.	18	0.056
279	A	2	1	1.	18	0.056
280	A	2	1	1.	18	0.056
281	A	2	1	1.	18	0.056
282	A	2	1	1.	18	0.056
283	A	2	1	1.	18	0.056
284	A	2	1	1.	18	0.056
285	A	2	1	1.	16	0.062
286	A	2	1	1.	15	0.067
287	A	2	1	1.	18	0.056
288	A	2	1	1.	18	0.056
289	A	2	1	1.	16	0.062
290	A	2	1	1.	16	0.062
291	A	2	1	1.	16	0.062
292	A	2	1	1.	16	0.062
293	A	2	1	1.	16	0.062
294	A	2	1	1.	16	0.062
295	A	2	1	1.	16	0.062
296	A	2	1	1.	16	0.062
297	A	2	1	1.	18	0.056
298	A	2	1	1.	18	0.056
299	A	2	1	1.	18	0.056
300	A	2	1	1.	18	0.056
301	A	2	1	1.	18	0.056
302	A	2	1	1.	18	0.056
303	A	2	1	1.	18	0.056
304	A	2	1	1.	18	0.056
305	A	2	1	1.	18	0.056
306	A	2	1	1.	18	0.056
307	A	2	1	1.	18	0.056
308	A	2	1	1.	18	0.056
309	A	2	1	1.	18	0.056
310	A	2	1	1.	18	0.056
311	A	2	1	1.	18	0.056
312	A	2	1	1.	18	0.056
313	A	5	5	1.32	18	0.278

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	number of rules / integrand leaf size
314	A	7	4	1.	18	0.222
315	A	6	4	1.	18	0.222
316	A	5	4	1.	18	0.222
317	A	4	4	1.	18	0.222
318	A	3	3	1.	18	0.167
319	A	3	3	1.	18	0.167
320	A	4	4	1.	18	0.222
321	A	5	4	1.	18	0.222
322	A	6	4	1.	18	0.222
323	A	7	4	1.	18	0.222
324	A	7	4	1.	18	0.222
325	A	6	4	1.	18	0.222
326	A	5	4	1.	18	0.222
327	A	4	4	1.	18	0.222
328	A	3	3	1.	18	0.167
329	A	4	4	1.	18	0.222
330	A	5	4	1.	18	0.222
331	A	6	4	1.	18	0.222
332	A	7	4	1.	18	0.222
333	A	7	5	1.	18	0.278
334	A	6	5	1.	18	0.278
335	A	5	5	1.	18	0.278
336	A	4	4	1.	18	0.222
337	A	4	4	1.	18	0.222
338	A	5	5	1.	18	0.278
339	A	6	5	1.	18	0.278
340	A	7	5	1.	18	0.278
341	A	2	1	1.	16	0.062
342	A	2	1	1.	16	0.062
343	A	2	1	1.	16	0.062
344	A	2	1	1.	14	0.071
345	A	2	2	1.	16	0.125
346	A	2	2	1.	16	0.125
347	A	2	2	1.	16	0.125
348	A	2	1	1.	18	0.056
349	A	7	3	1.35	18	0.167
350	A	5	3	1.	18	0.167
351	A	2	2	1.	16	0.125
352	A	3	2	1.	18	0.111
353	A	4	3	1.	18	0.167
354	A	5	4	1.	18	0.222
355	A	2	1	1.	21	0.048
356	A	2	1	1.	21	0.048
357	A	2	1	1.	19	0.053
358	A	5	3	1.	21	0.143
359	A	5	3	1.	21	0.143
360	A	5	3	1.	21	0.143
361	A	2	1	1.	24	0.042
362	A	2	1	1.	24	0.042

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
363	A	2	1	1.	22	0.045
364	A	5	3	1.	24	0.125
365	A	5	3	1.	24	0.125
366	A	5	3	1.	24	0.125
367	A	2	1	1.	22	0.045
368	A	2	1	1.	22	0.045
369	A	2	1	1.	22	0.045
370	A	3	2	1.	20	0.1
371	A	2	2	1.	22	0.091
372	A	2	2	1.	22	0.091
373	A	2	2	1.	16	0.125
374	A	2	2	1.	41	0.049
375	A	2	1	1.	18	0.056
376	A	2	1	1.	18	0.056
377	A	2	1	1.	18	0.056
378	A	2	1	1.	16	0.062
379	A	2	1	1.	15	0.067
380	A	4	4	1.	18	0.222
381	A	4	4	1.	18	0.222
382	A	4	4	1.	18	0.222
383	A	5	5	1.	18	0.278
384	A	6	5	1.	18	0.278
385	A	7	5	1.	18	0.278
386	A	2	1	1.	18	0.056
387	A	2	1	1.	18	0.056
388	A	2	1	1.	18	0.056
389	A	2	1	1.	16	0.062
390	A	2	1	1.	15	0.067
391	A	5	4	1.	18	0.222
392	A	5	4	1.	18	0.222
393	A	5	5	1.	18	0.278
394	A	5	4	1.	18	0.222
395	A	6	5	1.	18	0.278
396	A	7	5	1.	18	0.278
397	A	8	5	1.	18	0.278
398	A	2	1	1.	18	0.056
399	A	2	1	1.	18	0.056
400	A	2	1	1.	18	0.056
401	A	2	1	1.	16	0.062
402	A	2	1	1.	15	0.067
403	A	6	4	1.	18	0.222
404	A	6	4	1.	18	0.222
405	A	6	5	1.	18	0.278
406	A	6	5	1.	18	0.278
407	A	6	4	1.	18	0.222
408	A	7	5	1.	18	0.278
409	A	8	5	1.	18	0.278
410	A	9	5	1.	18	0.278
411	A	2	1	1.	18	0.056

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
412	A	2	1	1.	18	0.056
413	A	2	1	1.	18	0.056
414	A	2	1	1.	16	0.062
415	A	2	1	1.	15	0.067
416	A	3	3	1.	18	0.167
417	A	3	3	1.	18	0.167
418	A	4	4	1.	18	0.222
419	A	5	4	1.	18	0.222
420	A	6	4	1.	18	0.222
421	A	7	4	1.	18	0.222
422	A	2	1	1.	18	0.056
423	A	2	1	1.	18	0.056
424	A	2	1	1.	18	0.056
425	A	2	1	1.	16	0.062
426	A	2	1	1.	15	0.067
427	A	3	3	1.	18	0.167
428	A	4	4	1.	18	0.222
429	A	5	4	1.	18	0.222
430	A	6	4	1.	18	0.222
431	A	7	4	1.	18	0.222
432	A	2	1	1.	18	0.056
433	A	2	1	1.	18	0.056
434	A	2	1	1.	18	0.056
435	A	2	1	1.	16	0.062
436	A	2	1	1.	15	0.067
437	A	4	4	1.	18	0.222
438	A	5	4	1.	18	0.222
439	A	6	4	1.	18	0.222
440	A	7	4	1.	18	0.222
441	A	8	4	1.	18	0.222
442	A	4	4	1.	20	0.2
443	A	7	4	1.	20	0.2
444	A	7	4	1.	20	0.2
445	A	6	4	1.	18	0.222
446	A	5	3	1.	17	0.176
447	A	7	6	1.	20	0.3
448	A	7	6	1.	20	0.3
449	A	7	6	1.	20	0.3
450	A	8	7	1.	20	0.35
451	A	2	2	1.	24	0.083
452	A	9	9	1.	25	0.36
453	A	7	6	1.	20	0.3
454	A	6	5	1.	20	0.25
455	A	7	6	1.	20	0.3
456	A	7	6	1.	20	0.3
457	A	7	5	1.	20	0.25
458	A	6	4	1.	18	0.222
459	A	5	4	1.	17	0.235
460	A	7	6	1.	20	0.3

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
461	A	7	6	1.08	20	0.3
462	A	8	7	1.	20	0.35
463	A	9	7	1.	20	0.35
464	A	7	6	1.	20	0.3
465	A	8	7	1.	20	0.35
466	A	9	7	1.	20	0.35
467	A	7	4	1.	20	0.2
468	A	6	4	1.	20	0.2
469	A	5	4	1.	20	0.2
470	A	4	4	1.	20	0.2
471	A	4	4	1.	20	0.2
472	A	4	4	1.	20	0.2
473	A	2	2	1.	20	0.1
474	A	3	3	1.	20	0.15
475	A	4	3	1.	20	0.15
476	A	5	3	1.	20	0.15
477	A	6	3	1.	20	0.15
478	A	8	4	1.	20	0.2
479	A	7	4	1.	20	0.2
480	A	6	4	1.	20	0.2
481	A	5	4	1.	20	0.2
482	A	5	4	1.	20	0.2
483	A	5	5	1.	20	0.25
484	A	5	4	1.	20	0.2
485	A	2	2	1.	20	0.1
486	A	3	3	1.	20	0.15
487	A	4	3	1.	20	0.15
488	A	5	3	1.	20	0.15
489	A	6	3	1.	20	0.15
490	A	8	4	1.	20	0.2
491	A	7	4	1.	20	0.2
492	A	6	4	1.	20	0.2
493	A	6	4	1.	20	0.2
494	A	6	5	1.	20	0.25
495	A	6	5	1.	20	0.25
496	A	6	4	1.	20	0.2
497	A	2	2	1.	20	0.1
498	A	3	3	1.	20	0.15
499	A	4	3	1.	20	0.15
500	A	5	3	1.	20	0.15
501	A	6	3	1.	20	0.15
502	A	7	4	1.	20	0.2
503	A	6	4	1.	20	0.2
504	A	5	4	1.	20	0.2
505	A	4	4	1.	20	0.2
506	A	3	3	1.	20	0.15
507	A	3	3	1.	20	0.15
508	A	2	2	1.	20	0.1
509	A	3	3	1.	20	0.15

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
510	A	4	3	1.	20	0.15
511	A	5	3	1.	20	0.15
512	A	6	3	1.	20	0.15
513	A	7	3	1.	20	0.15
514	A	7	4	1.	20	0.2
515	A	6	4	1.	20	0.2
516	A	5	4	1.	20	0.2
517	A	4	4	1.	20	0.2
518	A	3	3	1.	20	0.15
519	A	2	2	1.	20	0.1
520	A	3	3	1.	20	0.15
521	A	4	3	1.	20	0.15
522	A	5	3	1.	20	0.15
523	A	6	3	1.	20	0.15
524	A	7	3	1.	20	0.15
525	A	7	5	1.	20	0.25
526	A	6	5	1.	20	0.25
527	A	5	5	1.	20	0.25
528	A	4	4	1.	20	0.2
529	A	2	2	1.	20	0.1
530	A	3	3	1.	20	0.15
531	A	4	3	1.	20	0.15
532	A	5	3	1.	20	0.15
533	A	6	3	1.	20	0.15
534	A	7	3	1.	20	0.15
535	A	6	5	1.	22	0.227
536	A	6	5	1.	22	0.227
537	A	5	4	1.	20	0.2
538	A	4	3	1.	19	0.158
539	A	6	5	1.	22	0.227
540	A	6	5	1.	22	0.227
541	A	4	3	1.	22	0.136
542	A	5	4	1.	22	0.182
543	A	7	5	1.	22	0.227
544	A	8	5	1.	22	0.227
545	A	7	5	1.	22	0.227
546	A	6	4	1.	20	0.2
547	A	5	3	1.	19	0.158
548	A	7	6	1.	22	0.273
549	A	7	6	1.	22	0.273
550	A	7	6	1.	22	0.273
551	A	5	3	1.	22	0.136
552	A	6	4	1.	22	0.182
553	A	8	6	1.	22	0.273
554	A	8	5	1.	22	0.227
555	A	7	4	1.	20	0.2
556	A	6	3	1.	19	0.158
557	A	8	6	1.	22	0.273
558	A	8	6	1.	22	0.273

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
559	A	8	7	1.	22	0.318
560	A	8	6	1.	22	0.273
561	A	6	3	1.	22	0.136
562	A	7	4	1.	22	0.182
563	A	9	6	1.	22	0.273
564	A	5	5	1.	22	0.227
565	A	5	5	1.	22	0.227
566	A	4	4	1.	20	0.2
567	A	3	3	1.	19	0.158
568	A	5	4	1.	22	0.182
569	A	3	3	1.	22	0.136
570	A	4	4	1.	22	0.182
571	A	6	5	1.	22	0.227
572	A	7	5	1.	22	0.227
573	A	5	5	1.	22	0.227
574	A	4	4	1.	20	0.2
575	A	3	3	1.	19	0.158
576	A	3	3	1.	22	0.136
577	A	4	4	1.	22	0.182
578	A	6	6	1.	22	0.273
579	A	5	5	1.	22	0.227
580	A	5	5	1.	22	0.227
581	A	4	4	1.	20	0.2
582	A	1	1	1.	19	0.053
583	A	4	4	1.	22	0.182
584	A	6	5	1.	22	0.227
585	A	7	6	1.	22	0.273
586	A	7	5	1.	22	0.227
587	A	6	4	1.	20	0.2
588	A	5	3	1.	19	0.158
589	A	7	6	1.	22	0.273
590	A	7	6	1.	22	0.273
591	A	7	6	1.	22	0.273
592	A	5	3	1.	22	0.136
593	A	6	4	1.	22	0.182
594	A	8	6	1.	22	0.273
595	A	8	5	1.	22	0.227
596	A	7	4	1.	20	0.2
597	A	6	3	1.	19	0.158
598	A	8	6	1.	22	0.273
599	A	8	6	1.	22	0.273
600	A	8	7	1.	22	0.318
601	A	8	6	1.	22	0.273
602	A	6	3	1.	22	0.136
603	A	7	4	1.	22	0.182
604	A	9	5	1.	22	0.227
605	A	8	4	1.	20	0.2
606	A	7	3	1.	19	0.158
607	A	9	6	1.	22	0.273

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
608	A	9	6	1.	22	0.273
609	A	9	7	1.	22	0.318
610	A	9	7	1.	22	0.318
611	A	9	6	1.	22	0.273
612	A	7	3	1.	22	0.136
613	A	8	4	1.	22	0.182
614	A	6	5	1.	22	0.227
615	A	5	4	1.	20	0.2
616	A	4	3	1.	19	0.158
617	A	6	5	1.	22	0.227
618	A	6	5	1.	22	0.227
619	A	4	3	1.	22	0.136
620	A	5	4	1.	22	0.182
621	A	7	5	1.	22	0.227
622	A	6	5	1.	22	0.227
623	A	5	4	1.	20	0.2
624	A	4	4	1.	19	0.21
625	A	6	5	1.	22	0.227
626	A	4	3	1.	22	0.136
627	A	5	4	1.	22	0.182
628	A	7	6	1.	22	0.273
629	A	6	5	1.	22	0.227
630	A	5	5	1.	20	0.25
631	A	4	3	1.	19	0.158
632	A	4	3	1.	22	0.136
633	A	5	4	1.	22	0.182
634	A	7	6	1.	22	0.273
635	A	8	5	1.	22	0.227
636	A	7	4	1.	20	0.2
637	A	6	3	1.	19	0.158
638	A	8	6	1.	22	0.273
639	A	8	6	1.	22	0.273
640	A	8	7	1.	22	0.318
641	A	8	6	1.	22	0.273
642	A	6	3	1.	22	0.136
643	A	7	4	1.	22	0.182
644	A	9	5	1.	22	0.227
645	A	8	4	1.	20	0.2
646	A	7	3	1.	19	0.158
647	A	9	6	0.98	22	0.273
648	A	9	6	1.	22	0.273
649	A	9	7	1.	22	0.318
650	A	9	7	1.	22	0.318
651	A	9	6	1.	22	0.273
652	A	7	3	1.	22	0.136
653	A	9	4	1.	20	0.2
654	A	8	3	1.	19	0.158
655	A	10	6	1.	22	0.273
656	A	10	6	1.	22	0.273

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
657	A	10	7	1.	22	0.318
658	A	10	7	1.	22	0.318
659	A	10	7	1.	22	0.318
660	A	10	6	1.	22	0.273
661	A	8	3	1.	22	0.136
662	A	7	5	1.	22	0.227
663	A	6	4	1.	20	0.2
664	A	5	3	1.	19	0.158
665	A	7	6	1.	22	0.273
666	A	7	6	1.	22	0.273
667	A	7	6	1.	22	0.273
668	A	5	3	1.	22	0.136
669	A	6	4	1.	22	0.182
670	A	7	5	1.	22	0.227
671	A	6	4	1.	20	0.2
672	A	5	4	1.	19	0.21
673	A	7	6	1.	22	0.273
674	A	7	6	1.	22	0.273
675	A	5	3	1.	22	0.136
676	A	6	4	1.	22	0.182
677	A	8	7	1.	22	0.318
678	A	7	6	1.	22	0.273
679	A	7	5	1.	22	0.227
680	A	6	5	1.	20	0.25
681	A	5	4	1.	19	0.21
682	A	7	6	1.	22	0.273
683	A	5	3	1.	22	0.136
684	A	6	4	1.	22	0.182
685	A	8	7	1.	22	0.318
686	A	9	7	1.	22	0.318
687	A	5	5	1.	22	0.227
688	A	4	4	1.	20	0.2
689	A	3	3	1.	19	0.158
690	A	5	4	1.	22	0.182
691	A	3	3	1.	22	0.136
692	A	4	4	1.	22	0.182
693	A	6	5	1.	22	0.227
694	A	6	5	1.	22	0.227
695	A	5	4	1.	20	0.2
696	A	4	3	1.	19	0.158
697	A	6	5	1.	22	0.227
698	A	6	5	1.	22	0.227
699	A	4	3	1.	22	0.136
700	A	5	4	1.	22	0.182
701	A	7	5	1.	22	0.227
702	A	7	5	1.	22	0.227
703	A	6	4	1.	20	0.2
704	A	5	3	1.	19	0.158
705	A	7	6	1.	22	0.273

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
706	A	7	6	1.	22	0.273
707	A	7	6	1.	22	0.273
708	A	5	3	1.	22	0.136
709	A	6	4	1.	22	0.182
710	A	8	6	1.	22	0.273
711	A	7	6	1.	20	0.3
712	A	8	6	1.	20	0.3
713	A	6	5	1.	20	0.25
714	A	5	4	1.	18	0.222
715	A	4	3	1.	17	0.176
716	A	6	6	1.	20	0.3
717	A	6	6	1.	20	0.3
718	A	4	3	1.	20	0.15
719	A	5	4	1.	20	0.2
720	A	7	5	1.	20	0.25
721	A	4	4	1.	22	0.182
722	A	4	4	1.	22	0.182
723	A	3	3	1.	20	0.15
724	A	2	2	1.	19	0.105
725	A	2	2	1.	22	0.091
726	A	3	3	1.	22	0.136
727	A	5	5	1.	22	0.227
728	A	6	5	1.	22	0.227
729	A	4	4	1.	22	0.182
730	A	4	4	1.	22	0.182
731	A	3	3	1.	20	0.15
732	A	1	1	1.	19	0.053
733	A	3	3	1.	22	0.136
734	A	5	5	1.	22	0.227
735	A	6	6	1.	22	0.273
736	A	5	5	1.	22	0.227
737	A	4	4	1.	22	0.182
738	A	4	4	1.	22	0.182
739	A	2	2	1.	20	0.1
740	A	2	2	1.	19	0.105
741	A	5	5	1.	22	0.227
742	A	6	5	1.	22	0.227
743	A	7	6	1.	22	0.273
744	A	2	2	1.	20	0.1
745	A	2	2	1.	26	0.077
746	A	2	2	1.	27	0.074
747	A	6	6	1.	22	0.273
748	A	6	5	1.	22	0.227
749	A	5	4	1.	20	0.2
750	A	4	4	1.	19	0.21
751	A	6	5	1.	22	0.227
752	A	4	3	1.	22	0.136
753	A	5	4	1.	22	0.182
754	A	7	6	1.	22	0.273

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
755	A	7	6	1.	22	0.273
756	A	7	5	1.	22	0.227
757	A	6	4	1.	20	0.2
758	A	5	4	1.	19	0.21
759	A	7	6	1.	22	0.273
760	A	7	6	1.	22	0.273
761	A	5	3	1.	22	0.136
762	A	6	4	1.	22	0.182
763	A	8	7	1.	22	0.318
764	A	5	5	1.	22	0.227
765	A	4	4	1.	22	0.182
766	A	4	4	1.	22	0.182
767	A	2	2	1.	20	0.1
768	A	2	2	1.	19	0.105
769	A	5	5	1.	22	0.227
770	A	6	5	1.	22	0.227
771	A	7	6	1.	22	0.273
772	A	6	5	1.	22	0.227
773	A	5	5	1.	22	0.227
774	A	4	4	1.	22	0.182
775	A	3	3	1.	22	0.136
776	A	3	3	1.	20	0.15
777	A	3	2	1.	19	0.105
778	A	6	5	1.	22	0.227
779	A	7	5	1.	22	0.227
780	A	8	6	1.	22	0.273
781	A	8	7	1.	22	0.318
782	A	7	6	1.	22	0.273
783	A	7	5	1.	22	0.227
784	A	6	5	1.	20	0.25
785	A	5	4	1.	19	0.21
786	A	7	6	1.	22	0.273
787	A	5	3	1.	22	0.136
788	A	6	4	1.	22	0.182
789	A	8	7	1.	22	0.318
790	A	9	7	1.	22	0.318
791	A	4	4	1.	22	0.182
792	A	7	5	1.	22	0.227
793	A	6	5	1.	22	0.227
794	A	5	5	1.	22	0.227
795	A	4	4	1.	22	0.182
796	A	4	4	1.	22	0.182
797	A	4	3	1.	20	0.15
798	A	4	2	1.	19	0.105
799	A	7	5	1.	22	0.227
800	A	8	5	1.	22	0.227
801	A	9	6	1.	22	0.273
802	A	2	2	1.	25	0.08
803	A	2	2	1.	23	0.087

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
804	A	2	2	1.	22	0.091
805	A	2	2	1.	25	0.08
806	A	2	2	1.	25	0.08
807	A	2	2	1.	25	0.08
808	A	2	2	1.	27	0.074
809	A	2	2	1.	23	0.087
810	A	2	2	1.	21	0.095
811	A	2	2	1.	20	0.1
812	A	2	2	1.	23	0.087
813	A	2	2	1.	23	0.087
814	A	2	2	1.	23	0.087
815	A	2	2	1.	25	0.08
816	A	5	5	1.	20	0.25
817	A	6	6	1.	20	0.3
818	A	4	4	1.	18	0.222
819	A	1	1	1.	17	0.059
820	A	1	1	1.	15	0.067
821	A	4	4	1.	20	0.2
822	A	6	6	1.	20	0.3
823	A	7	6	1.	20	0.3
824	A	2	2	1.	18	0.111
825	A	1	1	1.	16	0.062
826	A	1	1	1.	15	0.067
827	A	2	2	1.	18	0.111
828	A	1	1	1.	18	0.056
829	A	3	3	1.	18	0.167
830	A	1	1	1.	16	0.062
831	A	2	2	1.	15	0.133
832	A	3	3	1.	18	0.167
833	A	2	2	1.	18	0.111
834	A	2	2	1.	19	0.105
835	A	2	2	1.	22	0.091
836	A	3	3	1.	18	0.167
837	A	1	1	1.	18	0.056
838	A	7	5	1.	22	0.227
839	A	2	2	1.	21	0.095
840	A	2	2	1.	25	0.08
841	A	2	2	1.	27	0.074
842	A	2	2	1.	27	0.074
843	A	1	1	1.	25	0.04
844	A	1	1	1.	27	0.037
845	A	1	1	1.	27	0.037
846	A	1	1	1.	24	0.042
847	A	1	1	1.	26	0.038
848	A	1	1	1.	26	0.038
849	A	1	1	1.	22	0.045
850	A	2	2	1.	19	0.105
851	A	1	1	1.	27	0.037
852	A	1	1	1.	27	0.037

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
853	A	1	1	1.	22	0.045
854	A	2	2	1.	19	0.105
855	A	1	1	1.	27	0.037
856	A	1	1	1.	27	0.037
857	A	2	2	1.	22	0.091
858	B	4	4	2.04	29	0.138
859	A	1	1	1.	27	0.037
860	A	1	1	1.	27	0.037
861	A	2	2	1.	24	0.083
862	A	2	2	1.	24	0.083
863	A	8	8	1.	22	0.364
864	A	7	7	1.	22	0.318
865	A	7	7	1.	22	0.318
866	A	6	6	1.	20	0.3
867	A	5	5	1.	19	0.263
868	A	1	1	1.	22	0.045
869	A	8	8	1.	22	0.364
870	A	9	9	1.	22	0.409
871	A	7	7	1.	22	0.318
872	A	7	7	1.	22	0.318
873	A	6	6	1.	20	0.3
874	A	5	5	1.	19	0.263
875	A	9	6	1.	22	0.273
876	A	5	5	1.	22	0.227
877	A	6	6	1.	22	0.273
878	A	8	7	1.	22	0.318
879	A	9	7	1.	22	0.318
880	A	13	10	1.	20	0.5
881	A	12	9	1.	18	0.5
882	A	11	8	1.	17	0.471
883	A	15	12	1.	20	0.6
884	A	5	5	1.	20	0.25
885	A	6	6	1.	20	0.3
886	A	8	7	1.	20	0.35
887	A	9	7	1.	20	0.35
888	A	6	6	1.	22	0.273
889	A	6	6	1.	22	0.273
890	A	5	5	1.	20	0.25
891	A	4	4	1.	19	0.21
892	A	4	4	1.	22	0.182
893	A	5	5	1.	22	0.227
894	A	7	7	1.	22	0.318
895	A	8	7	1.	22	0.318
896	A	13	10	1.	24	0.417
897	A	12	9	1.	24	0.375
898	A	1	1	1.	24	0.042
899	A	3	3	1.	24	0.125
900	A	4	3	1.	24	0.125
901	A	6	6	1.	24	0.25

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
902	A	5	5	1.	24	0.208
903	A	4	4	1.	24	0.167
904	A	5	5	1.	24	0.208
905	A	6	5	1.	24	0.208
906	A	2	1	1.	16	0.062
907	A	2	1	1.	14	0.071
908	A	2	1	1.	13	0.077
909	A	2	2	1.	16	0.125
910	A	2	2	1.	16	0.125
911	A	2	1	1.	18	0.056
912	A	2	1	1.	16	0.062
913	A	2	1	1.	15	0.067
914	A	3	2	1.	18	0.111
915	A	3	3	1.	18	0.167
916	A	3	3	1.	18	0.167
917	A	3	3	1.	18	0.167
918	A	2	1	1.	18	0.056
919	A	2	1	1.	16	0.062
920	A	2	1	1.	15	0.067
921	A	3	2	1.	18	0.111
922	A	3	3	1.	18	0.167
923	A	3	3	1.	18	0.167
924	A	1	1	1.	23	0.043
925	A	3	2	1.	18	0.111
926	A	2	2	1.	16	0.125
927	A	1	1	1.	15	0.067
928	A	3	3	1.	18	0.167
929	A	4	4	1.	18	0.222
930	A	3	3	1.	18	0.167
931	A	3	3	1.	18	0.167
932	A	2	2	1.	16	0.125
933	A	1	1	1.	15	0.067
934	A	4	4	1.	18	0.222
935	A	5	5	1.	18	0.278
936	A	4	4	1.	22	0.182
937	A	3	3	1.	20	0.15
938	A	3	3	1.	22	0.136
939	A	3	3	1.	22	0.136
940	A	4	4	1.	20	0.2
941	A	3	3	0.92	18	0.167
942	A	2	2	1.	20	0.1
943	A	2	2	1.	20	0.1
944	A	3	2	1.	20	0.1
945	A	11	4	1.13	23	0.174
946	A	4	4	1.05	18	0.222
947	A	3	3	1.1	16	0.188
948	A	2	2	1.21	15	0.133
949	A	2	2	1.	18	0.111
950	A	2	2	1.	18	0.111

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
951	A	3	2	1.	22	0.091
952	A	3	2	1.	22	0.091
953	A	3	2	1.	22	0.091
954	A	1	1	1.	20	0.05
955	A	2	2	1.	20	0.1
956	A	1	1	1.	22	0.045
957	A	2	2	1.	22	0.091
958	A	4	4	1.	20	0.2
959	A	4	4	1.	20	0.2
960	A	3	3	0.97	18	0.167
961	A	2	2	1.	17	0.118
962	A	4	4	1.	20	0.2
963	A	1	1	1.	20	0.05
964	A	2	2	1.	20	0.1
965	A	4	4	1.	20	0.2
966	A	3	3	1.	18	0.167
967	A	3	3	1.	18	0.167
968	A	2	2	1.	16	0.125
969	A	1	1	1.	15	0.067
970	A	3	3	1.	18	0.167
971	A	1	1	1.	18	0.056
972	A	2	2	1.	18	0.111
973	A	4	4	1.	18	0.222
974	A	2	2	1.	19	0.105
975	A	2	2	1.	20	0.1
976	A	2	2	1.	19	0.105
977	A	2	2	1.	21	0.095
978	A	8	3	1.	22	0.136
979	A	5	3	1.	22	0.136
980	A	2	2	1.	20	0.1
981	A	5	3	1.	22	0.136
982	A	8	3	1.	22	0.136
983	A	3	2	1.	20	0.1
984	A	3	2	1.	20	0.1
985	A	1	1	1.	30	0.033
986	A	1	1	1.	31	0.032
987	A	2	2	1.	25	0.08
988	A	3	3	1.	21	0.143
989	C	1	1	0.37	25	0.04
990	A	1	1	1.	19	0.053
991	A	1	1	1.	19	0.053
992	A	1	1	1.	19	0.053
993	A	1	1	1.	37	0.027
994	A	2	1	1.	18	0.056
995	A	2	1	1.	18	0.056
996	A	2	1	1.	18	0.056
997	A	2	1	1.	16	0.062
998	A	2	1	1.	11	0.091
999	A	2	1	1.	18	0.056

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
1000	A	2	1	1.	18	0.056
1001	A	2	1	1.	18	0.056
1002	A	2	1	1.	18	0.056
1003	A	2	1	1.	18	0.056
1004	A	2	1	1.	18	0.056
1005	A	2	1	1.	20	0.05
1006	A	2	1	1.	20	0.05
1007	A	2	1	1.	20	0.05
1008	A	2	1	1.	18	0.056
1009	A	2	1	1.	13	0.077
1010	A	2	1	1.	20	0.05
1011	A	2	1	1.	20	0.05
1012	A	2	1	1.	20	0.05
1013	A	3	2	1.	20	0.1
1014	A	2	2	1.	20	0.1
1015	A	2	1	1.	20	0.05
1016	A	2	1	1.	20	0.05
1017	A	2	1	1.	20	0.05
1018	A	2	1	1.	20	0.05
1019	A	2	1	1.	20	0.05
1020	A	2	1	1.	20	0.05
1021	A	2	1	1.	20	0.05
1022	A	2	1	1.	18	0.056
1023	A	2	1	1.	13	0.077
1024	A	2	1	1.	20	0.05
1025	A	2	1	1.	20	0.05
1026	A	2	1	1.	20	0.05
1027	A	2	1	1.	20	0.05
1028	A	3	2	1.	20	0.1
1029	A	2	2	1.	20	0.1
1030	A	3	3	1.	20	0.15
1031	A	2	1	1.	20	0.05
1032	A	2	1	1.	20	0.05
1033	A	2	1	1.	20	0.05
1034	A	2	1	1.	20	0.05
1035	A	2	1	1.	20	0.05
1036	A	2	1	1.	20	0.05
1037	A	2	1	1.	20	0.05
1038	A	2	1	1.	20	0.05
1039	A	2	1	1.	20	0.05
1040	A	2	1	1.	20	0.05
1041	A	2	1	1.	18	0.056
1042	A	2	1	1.	13	0.077
1043	A	2	1	1.	20	0.05
1044	A	2	1	1.	20	0.05
1045	A	2	1	1.	20	0.05
1046	A	2	1	1.	20	0.05
1047	A	2	1	1.	20	0.05
1048	A	2	1	1.	20	0.05

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
1049	A	2	1	1.	20	0.05
1050	A	3	2	1.	20	0.1
1051	A	2	2	1.	20	0.1
1052	A	3	3	1.	20	0.15
1053	A	4	3	1.	20	0.15
1054	A	5	3	1.	20	0.15
1055	A	2	1	1.	20	0.05
1056	A	2	1	1.	20	0.05
1057	A	2	1	1.	20	0.05
1058	A	2	1	1.	20	0.05
1059	A	2	1	1.	20	0.05
1060	A	2	1	1.	20	0.05
1061	A	2	1	1.	20	0.05
1062	A	2	1	1.	20	0.05
1063	A	2	1	1.	20	0.05
1064	A	2	1	1.	20	0.05
1065	A	2	1	1.	20	0.05
1066	A	2	1	1.	20	0.05
1067	A	2	1	1.	20	0.05
1068	A	2	1	1.	20	0.05
1069	A	2	1	1.	20	0.05
1070	A	2	1	1.	18	0.056
1071	A	2	1	1.	13	0.077
1072	A	2	1	1.	20	0.05
1073	A	2	1	1.	20	0.05
1074	A	2	1	1.	20	0.05
1075	A	2	1	1.	20	0.05
1076	A	2	1	1.	20	0.05
1077	A	2	1	1.	20	0.05
1078	A	2	1	1.	20	0.05
1079	A	2	1	1.	20	0.05
1080	A	2	1	1.	20	0.05
1081	A	2	1	1.	20	0.05
1082	A	2	1	1.	20	0.05
1083	A	3	2	1.	20	0.1
1084	A	2	2	1.	20	0.1
1085	A	3	3	1.	20	0.15
1086	A	4	3	1.	20	0.15
1087	A	5	3	1.	20	0.15
1088	A	6	3	1.	20	0.15
1089	A	7	3	1.	20	0.15
1090	A	8	3	1.	20	0.15
1091	A	2	1	1.	20	0.05
1092	A	2	1	1.	20	0.05
1093	A	2	1	1.	20	0.05
1094	A	2	1	1.	20	0.05
1095	A	2	1	1.	20	0.05
1096	A	2	1	1.	20	0.05
1097	A	2	1	1.	20	0.05

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
1098	A	2	1	1.	18	0.056
1099	A	2	1	1.	13	0.077
1100	A	2	1	1.	20	0.05
1101	A	2	1	1.	20	0.05
1102	A	2	1	1.	20	0.05
1103	A	2	1	1.	20	0.05
1104	A	2	1	1.	20	0.05
1105	A	2	1	1.	20	0.05
1106	A	2	1	1.	20	0.05
1107	A	2	1	1.	20	0.05
1108	A	2	1	1.	20	0.05
1109	A	2	1	1.	18	0.056
1110	A	2	1	1.	13	0.077
1111	A	2	1	1.	20	0.05
1112	A	2	1	1.	20	0.05
1113	A	2	1	1.	20	0.05
1114	A	2	1	1.	20	0.05
1115	A	2	1	1.	20	0.05
1116	A	2	1	1.	20	0.05
1117	A	2	1	1.	20	0.05
1118	A	2	1	1.	20	0.05
1119	A	2	1	1.	20	0.05
1120	A	2	1	1.	18	0.056
1121	A	1	1	1.	13	0.077
1122	A	2	1	1.	20	0.05
1123	A	2	1	1.	20	0.05
1124	A	2	1	1.	20	0.05
1125	A	2	1	1.	20	0.05
1126	A	2	1	1.	18	0.056
1127	A	2	1	1.	18	0.056
1128	A	2	1	1.	18	0.056
1129	A	2	1	1.	18	0.056
1130	A	2	1	1.	18	0.056
1131	A	2	1	1.	18	0.056
1132	A	2	1	1.	18	0.056
1133	A	2	1	1.	16	0.062
1134	A	2	1	1.	11	0.091
1135	A	2	1	1.	18	0.056
1136	A	2	1	1.	18	0.056
1137	A	2	1	1.	18	0.056
1138	A	2	1	1.	18	0.056
1139	A	2	1	1.	18	0.056
1140	A	2	1	1.	18	0.056
1141	A	2	1	1.	20	0.05
1142	A	2	1	1.	20	0.05
1143	A	2	1	1.	20	0.05
1144	A	2	1	1.	20	0.05
1145	A	2	1	1.	20	0.05
1146	A	2	1	1.	20	0.05

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
1147	A	2	1	1.	20	0.05
1148	A	2	1	1.	18	0.056
1149	A	2	1	1.	13	0.077
1150	A	2	1	1.	20	0.05
1151	A	2	1	1.	20	0.05
1152	A	2	1	1.	20	0.05
1153	A	2	1	1.	20	0.05
1154	A	2	2	1.	20	0.1
1155	A	2	1	1.	20	0.05
1156	A	2	1	1.	20	0.05
1157	A	2	1	1.	20	0.05
1158	A	2	1	1.	20	0.05
1159	A	2	1	1.	20	0.05
1160	A	2	1	1.	20	0.05
1161	A	2	1	1.	20	0.05
1162	A	2	1	1.	20	0.05
1163	A	2	1	1.	20	0.05
1164	A	2	1	1.	20	0.05
1165	A	2	1	1.	18	0.056
1166	A	2	1	1.	13	0.077
1167	A	2	1	1.	20	0.05
1168	A	2	1	1.	20	0.05
1169	A	2	1	1.	20	0.05
1170	A	2	1	1.	20	0.05
1171	A	2	1	1.	20	0.05
1172	A	2	2	1.	20	0.1
1173	A	3	3	1.	20	0.15
1174	A	2	1	1.	20	0.05
1175	A	1	1	1.	20	0.05
1176	A	2	1	1.	20	0.05
1177	A	2	1	1.	20	0.05
1178	A	2	1	1.	20	0.05
1179	A	2	1	1.	20	0.05
1180	A	2	1	1.	20	0.05
1181	A	2	1	1.	18	0.056
1182	A	2	1	1.	13	0.077
1183	A	2	1	1.	20	0.05
1184	A	2	1	1.	20	0.05
1185	A	2	1	1.	20	0.05
1186	A	2	1	1.	20	0.05
1187	A	2	1	1.	20	0.05
1188	A	2	1	1.	20	0.05
1189	A	2	1	1.	20	0.05
1190	A	2	1	1.	20	0.05
1191	A	2	1	1.	20	0.05
1192	A	2	1	1.	20	0.05
1193	A	2	1	1.	20	0.05
1194	A	2	1	1.	20	0.05
1195	A	2	1	1.	20	0.05

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
1196	A	2	1	1.	18	0.056
1197	A	2	1	1.	13	0.077
1198	A	2	1	1.	20	0.05
1199	A	2	1	1.	20	0.05
1200	A	2	1	1.	20	0.05
1201	A	2	1	1.	20	0.05
1202	A	2	1	1.	20	0.05
1203	A	2	1	1.	20	0.05
1204	A	2	1	1.	20	0.05
1205	A	2	1	1.	20	0.05
1206	A	2	1	1.	20	0.05
1207	A	2	1	1.	20	0.05
1208	A	2	1	1.	20	0.05
1209	A	2	1	1.	20	0.05
1210	A	2	1	1.	20	0.05
1211	A	2	1	1.	18	0.056
1212	A	1	1	1.	13	0.077
1213	A	2	1	1.	20	0.05
1214	A	2	1	1.	20	0.05
1215	A	2	1	1.	20	0.05
1216	A	2	1	1.	20	0.05
1217	A	2	1	1.	20	0.05
1218	A	2	1	1.	20	0.05
1219	A	2	1	1.	20	0.05
1220	A	2	1	1.	20	0.05
1221	A	2	1	1.	20	0.05
1222	A	2	1	1.	20	0.05
1223	A	2	1	1.	20	0.05
1224	A	2	1	1.	20	0.05
1225	A	2	1	1.	20	0.05
1226	A	2	1	1.	18	0.056
1227	A	2	1	1.	13	0.077
1228	A	2	1	1.	20	0.05
1229	A	2	1	1.	20	0.05
1230	A	2	1	1.	20	0.05
1231	A	2	1	1.	20	0.05
1232	A	2	2	1.	20	0.1
1233	A	2	1	1.	20	0.05
1234	A	2	1	1.	20	0.05
1235	A	2	1	1.	20	0.05
1236	A	2	1	1.	22	0.045
1237	A	2	1	1.	22	0.045
1238	A	2	1	1.	22	0.045
1239	A	2	1	1.	22	0.045
1240	A	2	1	1.	22	0.045
1241	A	2	1	1.	22	0.045
1242	A	2	1	1.	22	0.045
1243	A	2	1	1.	20	0.05
1244	A	2	1	1.	15	0.067

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
1245	A	2	1	1.	22	0.045
1246	A	2	1	1.	22	0.045
1247	A	2	1	1.	22	0.045
1248	A	2	1	1.	22	0.045
1249	A	2	1	1.	22	0.045
1250	A	2	1	1.	22	0.045
1251	A	2	1	1.	22	0.045
1252	A	2	1	1.	22	0.045
1253	A	2	1	1.	22	0.045
1254	A	2	1	1.	22	0.045
1255	A	2	1	1.	22	0.045
1256	A	2	1	1.	22	0.045
1257	A	2	1	1.	22	0.045
1258	A	2	1	1.	22	0.045
1259	A	2	1	1.	22	0.045
1260	A	2	1	1.	22	0.045
1261	A	2	1	1.	22	0.045
1262	A	2	1	1.	20	0.05
1263	A	2	1	1.	15	0.067
1264	A	2	1	1.	22	0.045
1265	A	2	1	1.	22	0.045
1266	A	2	1	1.	22	0.045
1267	A	2	1	1.	22	0.045
1268	A	2	1	1.	22	0.045
1269	A	2	1	1.	22	0.045
1270	A	2	1	1.	22	0.045
1271	A	2	1	1.	22	0.045
1272	A	2	1	1.	22	0.045
1273	A	2	1	1.	22	0.045
1274	A	2	1	1.	22	0.045
1275	A	2	1	1.	22	0.045
1276	A	2	1	1.	22	0.045
1277	A	2	1	1.	22	0.045
1278	A	2	1	1.	20	0.05
1279	A	2	1	1.	15	0.067
1280	A	2	1	1.	22	0.045
1281	A	2	1	1.	22	0.045
1282	A	2	1	1.	22	0.045
1283	A	2	1	1.	22	0.045
1284	A	2	1	1.	22	0.045
1285	A	2	1	1.	22	0.045
1286	A	2	1	1.	22	0.045
1287	A	2	1	1.	22	0.045
1288	A	2	1	1.	22	0.045
1289	A	2	1	1.	22	0.045
1290	A	2	1	1.	22	0.045
1291	A	2	1	1.	22	0.045
1292	A	2	1	1.	22	0.045
1293	A	2	1	1.	22	0.045

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
1294	A	2	1	1.	20	0.05
1295	A	2	1	1.	15	0.067
1296	A	2	1	1.	22	0.045
1297	A	2	1	1.	22	0.045
1298	A	2	1	1.	22	0.045
1299	A	2	1	1.	22	0.045
1300	A	2	1	1.	22	0.045
1301	A	2	1	1.	22	0.045
1302	A	2	1	1.	22	0.045
1303	A	2	1	1.	22	0.045
1304	A	2	1	1.	22	0.045
1305	A	2	1	1.	22	0.045
1306	A	2	1	1.	22	0.045
1307	A	2	1	1.	22	0.045
1308	A	2	1	1.	22	0.045
1309	A	2	1	1.	22	0.045
1310	A	2	1	1.	22	0.045
1311	A	2	1	1.	20	0.05
1312	A	2	1	1.	15	0.067
1313	A	2	1	1.	22	0.045
1314	A	2	1	1.	22	0.045
1315	A	2	1	1.	22	0.045
1316	A	2	1	1.	22	0.045
1317	A	2	1	1.	22	0.045
1318	A	2	1	1.	22	0.045
1319	A	2	1	1.	22	0.045
1320	A	2	1	1.	22	0.045
1321	A	2	1	1.	20	0.05
1322	A	2	1	1.	20	0.05
1323	A	2	1	1.	20	0.05
1324	A	2	1	1.	20	0.05
1325	A	2	1	1.	20	0.05
1326	A	2	1	1.	20	0.05
1327	A	2	1	1.	20	0.05
1328	A	2	1	1.	18	0.056
1329	A	2	1	1.	13	0.077
1330	A	2	1	1.	20	0.05
1331	A	2	1	1.	20	0.05
1332	A	2	1	1.	20	0.05
1333	A	2	1	1.	20	0.05
1334	A	2	1	1.	20	0.05
1335	A	2	2	1.	20	0.1
1336	A	3	3	1.	20	0.15
1337	A	2	1	1.	20	0.05
1338	A	2	1	1.	22	0.045
1339	A	2	1	1.	22	0.045
1340	A	2	1	1.	22	0.045
1341	A	2	1	1.	22	0.045
1342	A	2	1	1.	22	0.045

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
1343	A	2	1	1.	22	0.045
1344	A	2	1	1.	22	0.045
1345	A	2	1	1.	20	0.05
1346	A	2	1	1.	15	0.067
1347	A	2	1	1.	22	0.045
1348	A	2	1	1.	22	0.045
1349	A	2	1	1.	22	0.045
1350	A	2	1	1.	22	0.045
1351	A	2	1	1.	22	0.045
1352	A	2	1	1.	22	0.045
1353	A	2	1	1.	22	0.045
1354	A	2	1	1.	22	0.045
1355	A	2	1	1.	22	0.045
1356	A	2	1	1.	22	0.045
1357	A	2	1	1.	22	0.045
1358	A	2	1	1.	22	0.045
1359	A	2	1	1.	22	0.045
1360	A	2	1	1.	22	0.045
1361	A	2	1	1.	20	0.05
1362	A	2	1	1.	15	0.067
1363	A	2	1	1.	22	0.045
1364	A	2	1	1.	22	0.045
1365	A	2	1	1.	22	0.045
1366	A	2	1	1.	22	0.045
1367	A	2	1	1.	22	0.045
1368	A	2	1	1.	22	0.045
1369	A	2	1	1.	22	0.045
1370	A	2	1	1.	22	0.045
1371	A	2	1	1.	22	0.045
1372	A	2	1	1.	22	0.045
1373	A	2	1	1.	22	0.045
1374	A	2	1	1.	22	0.045
1375	A	2	1	1.	22	0.045
1376	A	2	1	1.	20	0.05
1377	A	2	1	1.	15	0.067
1378	A	2	1	1.	22	0.045
1379	A	2	1	1.	22	0.045
1380	A	2	1	1.	22	0.045
1381	A	2	1	1.	22	0.045
1382	A	2	1	1.	22	0.045
1383	A	2	1	1.	22	0.045
1384	A	2	1	1.	22	0.045
1385	A	2	1	1.	22	0.045
1386	A	2	1	1.	22	0.045
1387	A	2	1	1.	22	0.045
1388	A	2	1	1.	22	0.045
1389	A	2	1	1.	22	0.045
1390	A	2	1	1.	22	0.045
1391	A	2	1	1.	20	0.05

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
1392	A	2	1	1.	15	0.067
1393	A	2	1	1.	22	0.045
1394	A	2	1	1.	22	0.045
1395	A	2	1	1.	22	0.045
1396	A	2	1	1.	22	0.045
1397	A	2	1	1.	22	0.045
1398	A	2	1	1.	22	0.045
1399	A	2	1	1.	22	0.045
1400	A	2	1	1.	22	0.045
1401	A	2	1	1.	22	0.045
1402	A	2	1	1.	22	0.045
1403	A	2	1	1.	22	0.045
1404	A	2	1	1.	22	0.045
1405	A	2	1	1.	22	0.045
1406	A	2	1	1.	22	0.045
1407	A	2	1	1.	20	0.05
1408	A	2	1	1.	15	0.067
1409	A	2	1	1.	22	0.045
1410	A	2	1	1.	22	0.045
1411	A	2	1	1.	22	0.045
1412	A	2	1	1.	22	0.045
1413	A	2	1	1.	22	0.045
1414	A	2	1	1.	22	0.045
1415	A	2	1	1.	22	0.045
1416	A	2	1	1.	22	0.045
1417	A	2	1	1.	20	0.05
1418	A	2	1	1.	20	0.05
1419	A	2	1	1.	20	0.05
1420	A	2	1	1.	20	0.05
1421	A	2	1	1.	20	0.05
1422	A	2	1	1.	20	0.05
1423	A	2	1	1.	20	0.05
1424	A	2	1	1.	18	0.056
1425	A	2	1	1.	13	0.077
1426	A	2	1	1.	20	0.05
1427	A	2	1	1.	20	0.05
1428	A	2	1	1.	20	0.05
1429	A	2	1	1.	20	0.05
1430	A	2	1	1.	20	0.05
1431	A	2	1	1.	20	0.05
1432	A	2	1	1.	20	0.05
1433	A	2	1	1.	20	0.05
1434	A	2	1	1.	22	0.045
1435	A	2	1	1.	22	0.045
1436	A	2	1	1.	22	0.045
1437	A	2	1	1.	22	0.045
1438	A	2	1	1.	22	0.045
1439	A	2	1	1.	22	0.045
1440	A	2	1	1.	22	0.045

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
1441	A	2	1	1.	20	0.05
1442	A	2	1	1.	15	0.067
1443	A	2	1	1.	22	0.045
1444	A	2	1	1.	22	0.045
1445	A	2	1	1.	22	0.045
1446	A	2	1	1.	22	0.045
1447	A	2	1	1.	22	0.045
1448	A	2	1	1.	22	0.045
1449	A	2	1	1.	22	0.045
1450	A	2	1	1.	22	0.045
1451	A	2	1	1.	22	0.045
1452	A	2	1	1.	22	0.045
1453	A	2	1	1.	22	0.045
1454	A	2	1	1.	22	0.045
1455	A	2	1	1.	22	0.045
1456	A	2	1	1.	22	0.045
1457	A	2	1	1.	20	0.05
1458	A	2	1	1.	15	0.067
1459	A	2	1	1.	22	0.045
1460	A	2	1	1.	22	0.045
1461	A	2	1	1.	22	0.045
1462	A	2	1	1.	22	0.045
1463	A	2	1	1.	22	0.045
1464	A	2	1	1.	22	0.045
1465	A	2	1	1.	22	0.045
1466	A	2	1	1.	22	0.045
1467	A	2	1	1.	22	0.045
1468	A	2	1	1.	22	0.045
1469	A	2	1	1.	22	0.045
1470	A	2	1	1.	22	0.045
1471	A	2	1	1.	22	0.045
1472	A	2	1	1.	22	0.045
1473	A	2	1	1.	22	0.045
1474	A	2	1	1.	22	0.045
1475	A	2	1	1.	20	0.05
1476	A	3	2	1.	15	0.133
1477	A	2	1	1.	22	0.045
1478	A	2	1	1.	22	0.045
1479	A	2	1	1.	22	0.045
1480	A	2	1	1.	22	0.045
1481	A	2	1	1.	22	0.045
1482	A	2	1	1.	22	0.045
1483	A	2	1	1.	22	0.045
1484	A	2	1	1.	22	0.045
1485	A	2	1	1.	22	0.045
1486	A	2	1	1.	22	0.045
1487	A	2	1	1.	22	0.045
1488	A	2	1	1.	22	0.045
1489	A	2	1	1.	22	0.045

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
1490	A	2	1	1.	22	0.045
1491	A	2	1	1.	20	0.05
1492	A	2	1	1.	15	0.067
1493	A	2	1	1.	22	0.045
1494	A	2	1	1.	22	0.045
1495	A	2	1	1.	22	0.045
1496	A	2	1	1.	22	0.045
1497	A	2	1	1.	22	0.045
1498	A	2	1	1.	22	0.045
1499	A	2	1	1.	22	0.045
1500	A	2	1	1.	22	0.045
1501	A	2	1	1.	22	0.045
1502	A	2	1	1.	22	0.045
1503	A	2	1	1.	22	0.045
1504	A	2	1	1.	22	0.045
1505	A	2	1	1.	22	0.045
1506	A	2	1	1.	20	0.05
1507	A	2	1	1.	15	0.067
1508	A	2	1	1.	22	0.045
1509	A	2	1	1.	22	0.045
1510	A	2	1	1.	22	0.045
1511	A	2	1	1.	22	0.045
1512	A	2	1	1.	22	0.045
1513	A	2	1	1.	23	0.043
1514	A	2	1	1.	23	0.043
1515	A	2	1	1.	23	0.043
1516	A	2	1	1.	21	0.048
1517	A	2	2	1.	16	0.125
1518	A	2	1	1.	23	0.043
1519	A	2	1	1.	23	0.043
1520	A	2	1	1.	23	0.043
1521	A	2	1	1.	20	0.05
1522	A	2	1	1.	20	0.05
1523	A	2	1	1.	20	0.05
1524	A	2	1	1.	20	0.05
1525	A	2	1	1.	20	0.05
1526	A	2	1	1.	20	0.05
1527	A	2	1	1.	20	0.05
1528	A	2	1	1.	18	0.056
1529	A	2	1	1.	13	0.077
1530	A	2	1	1.	20	0.05
1531	A	2	1	1.	20	0.05
1532	A	2	1	1.	20	0.05
1533	A	2	1	1.	20	0.05
1534	A	2	1	1.	20	0.05
1535	A	2	1	1.	20	0.05
1536	A	2	1	1.	20	0.05
1537	A	2	1	1.	22	0.045
1538	A	2	1	1.	22	0.045

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	number of rules / integrand leaf size
1539	A	2	1	1.	22	0.045
1540	A	2	1	1.	22	0.045
1541	A	2	1	1.	22	0.045
1542	A	2	1	1.	22	0.045
1543	A	2	1	1.	22	0.045
1544	A	2	1	1.	20	0.05
1545	A	2	1	1.	15	0.067
1546	A	2	1	1.	22	0.045
1547	A	2	1	1.	22	0.045
1548	A	2	1	1.	22	0.045
1549	A	2	1	1.	22	0.045
1550	A	2	1	1.	22	0.045
1551	A	2	1	1.	22	0.045
1552	A	2	1	1.	22	0.045
1553	A	2	1	1.	22	0.045
1554	A	2	1	1.	22	0.045
1555	A	2	1	1.	22	0.045
1556	A	2	1	1.	22	0.045
1557	A	2	1	1.	22	0.045
1558	A	2	1	1.	22	0.045
1559	A	2	1	1.	22	0.045
1560	A	2	1	1.	22	0.045
1561	A	2	1	1.	20	0.05
1562	A	2	1	1.	15	0.067
1563	A	2	1	1.	22	0.045
1564	A	2	1	1.	22	0.045
1565	A	2	1	1.	22	0.045
1566	A	2	1	1.	22	0.045
1567	A	2	1	1.	22	0.045
1568	A	2	1	1.	22	0.045
1569	A	2	1	1.	22	0.045
1570	A	2	1	1.	22	0.045
1571	A	2	1	1.	22	0.045
1572	A	2	1	1.	22	0.045
1573	A	2	1	1.	22	0.045
1574	A	2	1	1.	22	0.045
1575	A	2	1	1.	22	0.045
1576	A	2	1	1.	22	0.045
1577	A	2	1	1.	22	0.045
1578	A	2	1	1.	20	0.05
1579	A	2	1	1.	15	0.067
1580	A	2	1	1.	22	0.045
1581	A	2	1	1.	22	0.045
1582	A	2	1	1.	22	0.045
1583	A	2	1	1.	22	0.045
1584	A	2	1	1.	22	0.045
1585	A	2	1	1.	22	0.045
1586	A	2	1	1.	22	0.045
1587	A	2	1	1.	22	0.045

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
1588	A	2	1	1.	22	0.045
1589	A	2	1	1.	22	0.045
1590	A	2	1	1.	22	0.045
1591	A	2	1	1.	22	0.045
1592	A	2	1	1.	22	0.045
1593	A	2	1	1.	20	0.05
1594	A	2	1	1.	15	0.067
1595	A	2	1	1.	22	0.045
1596	A	2	1	1.	22	0.045
1597	A	2	1	1.	22	0.045
1598	A	2	1	1.	22	0.045
1599	A	2	1	1.	22	0.045
1600	A	2	1	1.	22	0.045
1601	A	2	1	1.	22	0.045
1602	A	2	1	1.	22	0.045
1603	A	2	1	1.	22	0.045
1604	A	2	1	1.	22	0.045
1605	A	2	1	1.	22	0.045
1606	A	2	1	1.	22	0.045
1607	A	2	1	1.	20	0.05
1608	A	2	1	1.	15	0.067
1609	A	2	1	1.	22	0.045
1610	A	2	1	1.	22	0.045
1611	A	2	1	1.	22	0.045
1612	A	2	1	1.	22	0.045
1613	A	2	1	1.	20	0.05
1614	A	2	1	1.	20	0.05
1615	A	2	1	1.	20	0.05
1616	A	2	1	1.	20	0.05
1617	A	2	1	1.	20	0.05
1618	A	2	1	1.	20	0.05
1619	A	2	1	1.	20	0.05
1620	A	2	1	1.	18	0.056
1621	A	1	1	1.	13	0.077
1622	A	2	1	1.	20	0.05
1623	A	2	1	1.	20	0.05
1624	A	2	1	1.	20	0.05
1625	A	2	1	1.	20	0.05
1626	A	2	1	1.	20	0.05
1627	A	2	1	1.	20	0.05
1628	A	2	1	1.	22	0.045
1629	A	2	1	1.	22	0.045
1630	A	2	1	1.	22	0.045
1631	A	2	1	1.	22	0.045
1632	A	2	1	1.	22	0.045
1633	A	2	1	1.	22	0.045
1634	A	2	1	1.	20	0.05
1635	A	2	1	1.	15	0.067
1636	A	2	1	1.	22	0.045

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	number of rules / integrand leaf size
1637	A	2	1	1.	22	0.045
1638	A	2	1	1.	22	0.045
1639	A	2	1	1.	22	0.045
1640	A	2	1	1.	22	0.045
1641	A	2	1	1.	22	0.045
1642	A	2	1	1.	22	0.045
1643	A	2	1	1.	22	0.045
1644	A	2	1	1.	22	0.045
1645	A	2	1	1.	22	0.045
1646	A	2	1	1.	22	0.045
1647	A	2	1	1.	20	0.05
1648	A	2	1	1.	15	0.067
1649	A	2	1	1.	22	0.045
1650	A	2	1	1.	22	0.045
1651	A	2	1	1.	22	0.045
1652	A	2	1	1.	22	0.045
1653	A	2	1	1.	22	0.045
1654	A	2	1	1.	22	0.045
1655	A	2	1	1.	22	0.045
1656	A	2	1	1.	22	0.045
1657	A	2	1	1.	22	0.045
1658	A	2	1	1.	22	0.045
1659	A	2	1	1.	22	0.045
1660	A	2	1	1.	22	0.045
1661	A	2	1	1.	20	0.05
1662	A	2	1	1.	15	0.067
1663	A	2	1	1.	22	0.045
1664	A	2	1	1.	22	0.045
1665	A	2	1	1.	22	0.045
1666	A	2	1	1.	22	0.045
1667	A	2	1	1.	22	0.045
1668	A	2	1	1.	22	0.045
1669	A	2	1	1.	22	0.045
1670	A	2	1	1.	22	0.045
1671	A	2	1	1.	22	0.045
1672	A	2	1	1.	22	0.045
1673	A	2	1	1.	22	0.045
1674	A	2	1	1.	20	0.05
1675	A	2	1	1.	15	0.067
1676	A	2	1	1.	22	0.045
1677	A	2	1	1.	22	0.045
1678	A	2	1	1.	22	0.045
1679	A	2	1	1.	22	0.045
1680	A	2	1	1.	22	0.045
1681	A	2	1	1.	22	0.045
1682	A	2	1	1.	22	0.045
1683	A	2	1	1.	22	0.045
1684	A	2	1	1.	22	0.045
1685	A	2	1	1.	22	0.045

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
1686	A	2	1	1.	22	0.045
1687	A	2	1	1.	22	0.045
1688	A	2	1	1.	20	0.05
1689	A	2	1	1.	15	0.067
1690	A	2	1	1.	22	0.045
1691	A	2	1	1.	22	0.045
1692	A	2	1	1.	22	0.045
1693	A	2	1	1.	22	0.045
1694	A	2	1	1.	22	0.045
1695	A	2	1	1.	22	0.045
1696	A	2	1	1.	16	0.062
1697	A	2	1	1.	22	0.045
1698	A	2	1	1.	22	0.045
1699	A	2	1	1.	22	0.045
1700	A	6	5	1.	24	0.208
1701	A	2	1	1.	20	0.05
1702	A	2	1	1.	20	0.05
1703	A	2	1	1.	20	0.05
1704	A	2	1	1.	20	0.05
1705	A	2	1	1.	20	0.05
1706	A	2	1	1.	20	0.05
1707	A	2	1	1.	20	0.05
1708	A	2	1	1.	20	0.05
1709	A	2	1	1.	22	0.045
1710	A	2	1	1.	22	0.045
1711	A	2	1	1.	22	0.045
1712	A	2	1	1.	22	0.045
1713	A	2	1	1.	22	0.045
1714	A	2	1	1.	22	0.045
1715	A	2	1	1.	22	0.045
1716	A	2	1	1.	22	0.045
1717	A	2	1	1.	22	0.045
1718	A	2	1	1.	22	0.045
1719	A	2	1	1.	22	0.045
1720	A	2	1	1.	22	0.045
1721	A	2	1	1.	22	0.045
1722	A	2	1	1.	22	0.045
1723	A	2	1	1.	22	0.045
1724	A	2	1	1.	22	0.045
1725	A	7	4	1.	22	0.182
1726	A	6	4	1.	22	0.182
1727	A	5	4	1.	22	0.182
1728	A	4	4	1.	22	0.182
1729	A	3	3	1.	22	0.136
1730	A	3	3	1.	22	0.136
1731	A	4	4	1.	22	0.182
1732	A	5	4	1.	22	0.182
1733	A	7	4	1.	22	0.182
1734	A	6	4	1.	22	0.182

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
1735	A	5	4	1.	22	0.182
1736	A	4	4	1.	22	0.182
1737	A	3	3	1.	22	0.136
1738	A	4	4	1.	22	0.182
1739	A	5	4	1.	22	0.182
1740	A	6	4	1.	22	0.182
1741	A	7	5	1.	22	0.227
1742	A	6	5	1.	22	0.227
1743	A	5	5	1.	22	0.227
1744	A	4	4	1.	22	0.182
1745	A	4	4	1.	22	0.182
1746	A	5	5	1.	22	0.227
1747	A	6	5	1.	22	0.227
1748	A	7	5	1.	22	0.227
1749	A	6	4	1.	22	0.182
1750	A	5	4	1.	22	0.182
1751	A	4	4	1.	22	0.182
1752	A	3	3	1.	22	0.136
1753	A	3	3	1.	22	0.136
1754	A	4	4	1.	22	0.182
1755	A	5	4	1.	22	0.182
1756	A	6	4	1.	22	0.182
1757	A	7	4	1.	24	0.167
1758	A	6	4	1.	24	0.167
1759	A	5	4	1.	24	0.167
1760	A	4	3	1.	24	0.125
1761	A	4	3	1.	24	0.125
1762	A	4	3	1.	24	0.125
1763	A	4	3	1.	24	0.125
1764	A	4	3	1.	24	0.125
1765	A	7	4	1.	24	0.167
1766	A	6	4	1.	24	0.167
1767	A	5	4	1.	24	0.167
1768	A	4	3	1.	24	0.125
1769	A	6	4	1.13	24	0.167
1770	A	4	3	1.	24	0.125
1771	A	4	3	1.	24	0.125
1772	A	4	3	1.	24	0.125
1773	A	2	1	1.	22	0.045
1774	A	2	1	1.	22	0.045
1775	A	2	1	1.	22	0.045
1776	A	2	1	1.	22	0.045
1777	A	2	1	1.	22	0.045
1778	A	2	1	1.	20	0.05
1779	A	2	1	1.	15	0.067
1780	A	4	4	1.	22	0.182
1781	A	4	4	1.	22	0.182
1782	A	4	4	1.	22	0.182
1783	A	5	5	1.	22	0.227

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
1784	A	6	5	1.	22	0.227
1785	A	7	5	1.	22	0.227
1786	A	2	1	1.	24	0.042
1787	A	2	1	1.	24	0.042
1788	A	2	1	1.	24	0.042
1789	A	2	1	1.	22	0.045
1790	A	2	1	1.	17	0.059
1791	A	5	4	1.	24	0.167
1792	A	5	5	1.	24	0.208
1793	A	5	5	1.	24	0.208
1794	A	5	5	1.	24	0.208
1795	A	6	6	1.	24	0.25
1796	A	7	6	1.	24	0.25
1797	A	8	6	1.	24	0.25
1798	A	2	1	1.	24	0.042
1799	A	2	1	1.	24	0.042
1800	A	2	1	1.	24	0.042
1801	A	2	1	1.	22	0.045
1802	A	2	1	1.	17	0.059
1803	A	5	4	1.	24	0.167
1804	A	5	5	1.	24	0.208
1805	A	5	5	1.	24	0.208
1806	A	5	5	1.	24	0.208
1807	A	5	5	1.	24	0.208
1808	A	6	6	1.	24	0.25
1809	A	7	6	1.	24	0.25
1810	A	8	6	1.	24	0.25
1811	A	5	4	1.	24	0.167
1812	A	5	4	1.	24	0.167
1813	A	5	4	1.	24	0.167
1814	A	4	4	1.	22	0.182
1815	A	3	3	1.	17	0.176
1816	A	5	3	1.	24	0.125
1817	A	6	4	1.	24	0.167
1818	A	7	5	1.	24	0.208
1819	A	8	5	1.	24	0.208
1820	A	9	5	1.	24	0.208
1821	A	7	5	1.	24	0.208
1822	A	6	5	1.	24	0.208
1823	A	6	6	1.	24	0.25
1824	A	5	5	1.	24	0.208
1825	A	4	4	1.	22	0.182
1826	A	3	3	1.	17	0.176
1827	A	6	4	1.	24	0.167
1828	A	7	5	1.	24	0.208
1829	A	8	5	1.	24	0.208
1830	A	9	5	1.	24	0.208
1831	A	6	6	1.	24	0.25
1832	A	5	5	1.	24	0.208

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
1833	A	5	5	1.	24	0.208
1834	A	4	4	1.	22	0.182
1835	A	4	4	1.	17	0.235
1836	A	7	5	1.	24	0.208
1837	A	8	5	1.	24	0.208
1838	A	9	5	1.	24	0.208
1839	A	10	5	1.	24	0.208
1840	A	2	1	1.	22	0.045
1841	A	2	1	1.	22	0.045
1842	A	2	1	1.	22	0.045
1843	A	2	1	1.	22	0.045
1844	A	2	1	1.	22	0.045
1845	A	2	1	1.	20	0.05
1846	A	2	1	1.	15	0.067
1847	A	5	4	1.	22	0.182
1848	A	5	4	1.	22	0.182
1849	A	5	5	1.	22	0.227
1850	A	5	4	1.	22	0.182
1851	A	6	5	1.	22	0.227
1852	A	7	5	1.	22	0.227
1853	A	2	1	1.	24	0.042
1854	A	2	1	1.	24	0.042
1855	A	2	1	1.	24	0.042
1856	A	2	1	1.	22	0.045
1857	A	2	1	1.	17	0.059
1858	A	6	4	1.	24	0.167
1859	A	6	5	1.	24	0.208
1860	A	6	5	1.	24	0.208
1861	A	6	6	1.	24	0.25
1862	A	6	5	1.	24	0.208
1863	A	7	6	1.	24	0.25
1864	A	8	6	1.	24	0.25
1865	A	2	1	1.	24	0.042
1866	A	2	1	1.	24	0.042
1867	A	2	1	1.	24	0.042
1868	A	2	1	1.	22	0.045
1869	A	2	1	1.	17	0.059
1870	A	6	4	1.	24	0.167
1871	A	6	6	1.	24	0.25
1872	A	6	6	1.	24	0.25
1873	A	6	5	1.	24	0.208
1874	A	6	5	1.	24	0.208
1875	A	6	5	1.	24	0.208
1876	A	7	6	1.	24	0.25
1877	A	8	6	1.	24	0.25
1878	A	6	4	1.	24	0.167
1879	A	6	4	1.	24	0.167
1880	A	6	4	1.	24	0.167
1881	A	6	4	1.	24	0.167

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	number of rules / integrand leaf size
1882	A	6	4	1.	24	0.167
1883	A	5	4	1.	22	0.182
1884	A	4	3	1.	17	0.176
1885	A	6	4	1.	24	0.167
1886	A	6	4	1.	24	0.167
1887	A	7	5	1.	24	0.208
1888	A	8	5	1.	24	0.208
1889	A	9	5	1.	24	0.208
1890	A	10	5	1.	24	0.208
1891	A	8	6	1.	24	0.25
1892	A	7	6	1.	24	0.25
1893	A	6	6	1.	24	0.25
1894	A	6	5	1.	24	0.208
1895	A	5	4	1.	22	0.182
1896	A	4	4	1.	17	0.235
1897	A	6	4	1.	24	0.167
1898	A	7	5	1.	24	0.208
1899	A	8	5	1.	24	0.208
1900	A	9	5	1.	24	0.208
1901	A	10	5	1.	24	0.208
1902	A	7	6	1.	24	0.25
1903	A	6	6	1.	24	0.25
1904	A	6	5	1.	24	0.208
1905	A	5	5	1.	22	0.227
1906	A	4	3	1.	17	0.176
1907	A	7	5	1.	24	0.208
1908	A	8	5	1.	24	0.208
1909	A	9	5	1.	24	0.208
1910	A	10	5	1.	24	0.208
1911	A	2	1	1.	22	0.045
1912	A	2	1	1.	22	0.045
1913	A	2	1	1.	22	0.045
1914	A	2	1	1.	22	0.045
1915	A	2	1	1.	22	0.045
1916	A	2	1	1.	20	0.05
1917	A	2	1	1.	15	0.067
1918	A	6	4	1.	22	0.182
1919	A	6	4	1.	22	0.182
1920	A	6	5	1.	22	0.227
1921	A	6	5	1.	22	0.227
1922	A	6	4	1.	22	0.182
1923	A	7	5	1.	22	0.227
1924	A	8	5	1.	22	0.227
1925	A	2	1	1.	24	0.042
1926	A	2	1	1.	24	0.042
1927	A	2	1	1.	24	0.042
1928	A	2	1	1.	22	0.045
1929	A	2	1	1.	17	0.059
1930	A	7	4	1.	24	0.167

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
1931	A	7	5	1.	24	0.208
1932	A	7	5	1.	24	0.208
1933	A	7	6	1.	24	0.25
1934	A	7	6	1.	24	0.25
1935	A	7	5	1.	24	0.208
1936	A	8	6	1.	24	0.25
1937	A	9	6	1.	24	0.25
1938	A	2	1	1.	24	0.042
1939	A	2	1	1.	24	0.042
1940	A	2	1	1.	24	0.042
1941	A	2	1	1.	22	0.045
1942	A	2	1	1.	17	0.059
1943	A	7	4	1.	24	0.167
1944	A	8	7	1.	24	0.292
1945	A	8	8	1.	24	0.333
1946	A	8	7	1.	24	0.292
1947	A	8	6	1.	24	0.25
1948	A	8	6	1.	24	0.25
1949	A	10	9	1.	24	0.375
1950	A	9	7	1.	24	0.292
1951	A	7	4	1.	24	0.167
1952	A	7	4	1.	24	0.167
1953	A	7	4	1.	24	0.167
1954	A	6	4	1.	22	0.182
1955	A	5	3	1.	17	0.176
1956	A	7	5	1.	24	0.208
1957	A	7	5	1.	24	0.208
1958	A	7	5	1.	24	0.208
1959	A	8	6	1.	24	0.25
1960	A	9	6	1.	24	0.25
1961	A	10	6	1.	24	0.25
1962	A	11	6	1.	24	0.25
1963	A	8	6	1.	24	0.25
1964	A	7	6	1.	24	0.25
1965	A	7	5	1.	24	0.208
1966	A	6	4	1.	22	0.182
1967	A	5	4	1.	17	0.235
1968	A	7	5	1.	24	0.208
1969	A	7	5	1.	24	0.208
1970	A	8	6	1.	24	0.25
1971	A	9	6	1.	24	0.25
1972	A	10	6	1.	24	0.25
1973	A	11	6	1.	24	0.25
1974	A	8	7	1.	24	0.292
1975	A	7	7	1.	24	0.292
1976	A	7	5	1.	24	0.208
1977	A	6	5	1.	22	0.227
1978	A	5	4	1.	17	0.235
1979	A	7	5	1.	24	0.208

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
1980	A	8	6	1.	24	0.25
1981	A	9	6	1.	24	0.25
1982	A	10	6	1.	24	0.25
1983	A	11	6	1.	24	0.25
1984	A	2	1	1.	22	0.045
1985	A	2	1	1.	22	0.045
1986	A	2	1	1.	22	0.045
1987	A	2	1	1.	22	0.045
1988	A	2	1	1.	20	0.05
1989	A	2	1	1.	15	0.067
1990	A	3	3	1.	22	0.136
1991	A	3	3	1.	22	0.136
1992	A	4	4	1.	22	0.182
1993	A	5	4	1.	22	0.182
1994	A	6	4	1.	22	0.182
1995	A	2	1	1.	24	0.042
1996	A	2	1	1.	24	0.042
1997	A	2	1	1.	24	0.042
1998	A	2	1	1.	24	0.042
1999	A	2	1	1.	22	0.045
2000	A	2	1	1.	17	0.059
2001	A	4	3	1.	24	0.125
2002	A	4	4	1.	24	0.167
2003	A	4	4	1.	24	0.167
2004	A	5	5	1.	24	0.208
2005	A	6	5	1.	24	0.208
2006	A	7	5	1.	24	0.208
2007	A	2	1	1.	24	0.042
2008	A	2	1	1.	24	0.042
2009	A	2	1	1.	24	0.042
2010	A	2	1	1.	22	0.045
2011	A	2	1	1.	17	0.059
2012	A	4	3	1.	24	0.125
2013	A	4	4	1.	24	0.167
2014	A	4	4	1.	24	0.167
2015	A	4	4	1.	24	0.167
2016	A	5	5	1.	24	0.208
2017	A	6	5	1.	24	0.208
2018	A	4	4	1.	24	0.167
2019	A	4	3	1.	24	0.125
2020	A	4	3	1.	24	0.125
2021	A	4	3	1.	24	0.125
2022	A	4	3	1.	24	0.125
2023	A	3	3	1.	22	0.136
2024	A	2	2	1.	17	0.118
2025	A	5	3	1.	24	0.125
2026	A	6	4	1.	24	0.167
2027	A	7	5	1.	24	0.208
2028	A	8	5	1.	24	0.208

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
2029	A	9	5	1.	24	0.208
2030	A	7	5	1.	24	0.208
2031	A	6	5	1.	24	0.208
2032	A	5	5	1.	24	0.208
2033	A	4	4	1.	24	0.167
2034	A	4	4	1.	24	0.167
2035	A	3	3	1.	22	0.136
2036	A	3	3	1.	17	0.176
2037	A	6	4	1.	24	0.167
2038	A	7	5	1.	24	0.208
2039	A	8	5	1.	24	0.208
2040	A	9	5	1.	24	0.208
2041	A	7	6	1.	24	0.25
2042	A	6	6	1.	24	0.25
2043	A	5	5	1.	24	0.208
2044	A	4	4	1.	24	0.167
2045	A	4	4	1.	24	0.167
2046	A	4	4	1.	22	0.182
2047	A	4	3	1.	17	0.176
2048	A	7	5	1.	24	0.208
2049	A	8	5	1.	24	0.208
2050	A	9	5	1.	24	0.208
2051	A	10	5	1.	24	0.208
2052	A	2	1	1.	22	0.045
2053	A	2	1	1.	22	0.045
2054	A	2	1	1.	22	0.045
2055	A	2	1	1.	22	0.045
2056	A	2	1	1.	22	0.045
2057	A	2	1	1.	22	0.045
2058	A	2	1	1.	20	0.05
2059	A	2	1	1.	15	0.067
2060	A	3	3	1.	22	0.136
2061	A	4	4	1.	22	0.182
2062	A	5	4	1.	22	0.182
2063	A	6	4	1.	22	0.182
2064	A	7	4	1.	22	0.182
2065	A	8	4	1.	22	0.182
2066	A	2	1	1.	24	0.042
2067	A	2	1	1.	24	0.042
2068	A	2	1	1.	24	0.042
2069	A	2	1	1.	24	0.042
2070	A	2	1	1.	22	0.045
2071	A	2	1	1.	17	0.059
2072	A	4	3	1.	24	0.125
2073	A	4	4	1.	24	0.167
2074	A	5	5	1.	24	0.208
2075	A	6	5	1.	24	0.208
2076	A	7	5	1.	24	0.208
2077	A	2	1	1.	24	0.042

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
2078	A	2	1	1.	24	0.042
2079	A	2	1	1.	24	0.042
2080	A	2	1	1.	22	0.045
2081	A	2	1	1.	17	0.059
2082	A	6	4	1.	24	0.167
2083	A	4	4	1.	24	0.167
2084	A	4	4	1.	24	0.167
2085	A	5	5	1.	24	0.208
2086	A	6	5	1.	24	0.208
2087	A	12	4	1.	24	0.167
2088	A	10	4	1.	24	0.167
2089	A	8	4	1.	24	0.167
2090	A	6	4	1.	24	0.167
2091	A	4	3	1.	24	0.125
2092	A	3	3	1.	22	0.136
2093	A	3	3	1.	17	0.176
2094	A	6	4	1.	24	0.167
2095	A	7	5	1.	24	0.208
2096	A	8	6	1.	24	0.25
2097	A	9	6	1.	24	0.25
2098	A	7	6	1.	24	0.25
2099	A	6	6	1.	24	0.25
2100	A	5	5	1.	24	0.208
2101	A	4	4	1.	24	0.167
2102	A	4	4	1.	24	0.167
2103	A	4	4	1.	22	0.182
2104	A	4	3	1.	17	0.176
2105	A	7	5	1.	24	0.208
2106	A	8	6	1.	24	0.25
2107	A	9	6	1.	24	0.25
2108	A	7	6	1.	24	0.25
2109	A	6	5	1.	24	0.208
2110	A	5	5	1.	24	0.208
2111	A	4	4	1.	24	0.167
2112	A	5	5	1.	24	0.208
2113	A	5	4	1.	22	0.182
2114	A	5	3	1.	17	0.176
2115	A	8	6	1.	24	0.25
2116	A	9	6	1.	24	0.25
2117	A	10	6	1.	24	0.25
2118	A	2	1	1.	22	0.045
2119	A	2	1	1.	22	0.045
2120	A	2	1	1.	22	0.045
2121	A	2	1	1.	22	0.045
2122	A	2	1	1.	20	0.05
2123	A	2	1	1.	15	0.067
2124	A	4	4	1.	22	0.182
2125	A	5	4	1.	22	0.182
2126	A	6	5	1.	22	0.227

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
2127	A	7	4	1.	22	0.182
2128	A	8	4	1.	22	0.182
2129	A	2	1	1.	24	0.042
2130	A	2	1	1.	24	0.042
2131	A	2	1	1.	24	0.042
2132	A	2	1	1.	24	0.042
2133	A	2	1	1.	22	0.045
2134	A	2	1	1.	17	0.059
2135	A	4	3	1.	24	0.125
2136	A	5	5	1.	24	0.208
2137	A	6	5	1.	24	0.208
2138	A	7	5	1.	24	0.208
2139	A	8	5	1.	24	0.208
2140	A	2	1	1.	24	0.042
2141	A	2	1	1.	24	0.042
2142	A	2	1	1.	24	0.042
2143	A	2	1	1.	24	0.042
2144	A	2	1	1.	22	0.045
2145	A	2	1	1.	17	0.059
2146	A	4	3	1.	24	0.125
2147	A	4	4	1.	24	0.167
2148	A	5	5	1.	24	0.208
2149	A	6	5	1.	24	0.208
2150	A	7	5	1.	24	0.208
2151	A	8	5	1.	24	0.208
2152	A	10	4	1.	24	0.167
2153	A	8	4	1.	24	0.167
2154	A	6	4	1.	24	0.167
2155	A	4	3	1.	24	0.125
2156	A	4	3	1.	24	0.125
2157	A	4	4	1.	22	0.182
2158	A	4	3	1.	17	0.176
2159	A	7	5	1.	24	0.208
2160	A	8	5	1.	24	0.208
2161	A	9	6	1.	24	0.25
2162	A	10	6	1.	24	0.25
2163	A	7	7	1.	24	0.292
2164	A	6	6	1.	24	0.25
2165	A	5	5	1.	24	0.208
2166	A	4	4	1.	24	0.167
2167	A	5	5	1.	24	0.208
2168	A	5	4	1.	22	0.182
2169	A	5	4	1.	17	0.235
2170	A	8	5	1.	24	0.208
2171	A	9	6	1.	24	0.25
2172	A	10	6	1.	24	0.25
2173	A	7	6	1.	24	0.25
2174	A	6	5	1.	24	0.208
2175	A	5	5	1.	24	0.208

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
2176	A	5	5	1.	24	0.208
2177	A	6	5	1.	24	0.208
2178	A	6	5	1.	22	0.227
2179	A	6	3	1.	17	0.176
2180	A	9	6	1.	24	0.25
2181	A	10	6	1.	24	0.25
2182	A	11	6	1.	24	0.25
2183	A	7	4	1.	24	0.167
2184	A	6	4	1.	24	0.167
2185	A	5	4	1.	24	0.167
2186	A	4	4	1.	24	0.167
2187	A	4	4	1.	24	0.167
2188	A	4	4	1.	24	0.167
2189	A	2	2	1.	24	0.083
2190	A	3	3	1.	24	0.125
2191	A	4	3	1.	24	0.125
2192	A	5	3	1.	24	0.125
2193	A	6	3	1.	24	0.125
2194	A	8	4	1.	24	0.167
2195	A	7	4	1.	24	0.167
2196	A	6	4	1.	24	0.167
2197	A	5	4	1.	24	0.167
2198	A	5	4	1.	24	0.167
2199	A	5	5	1.	24	0.208
2200	A	5	4	1.	24	0.167
2201	A	2	2	1.	24	0.083
2202	A	3	3	1.	24	0.125
2203	A	4	3	1.	24	0.125
2204	A	5	3	1.	24	0.125
2205	A	6	3	1.	24	0.125
2206	A	9	4	1.	24	0.167
2207	A	8	4	1.	24	0.167
2208	A	7	4	1.	24	0.167
2209	A	6	4	1.	24	0.167
2210	A	6	4	1.	24	0.167
2211	A	6	5	1.	24	0.208
2212	A	6	5	1.	24	0.208
2213	A	6	4	1.	24	0.167
2214	A	2	2	1.	24	0.083
2215	A	3	3	1.	24	0.125
2216	A	4	3	1.	24	0.125
2217	A	5	3	1.	24	0.125
2218	A	6	3	1.	24	0.125
2219	A	6	4	1.	24	0.167
2220	A	5	4	1.	24	0.167
2221	A	4	4	1.	24	0.167
2222	A	3	3	1.	24	0.125
2223	A	3	3	1.	24	0.125
2224	A	2	2	1.	24	0.083

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
2225	A	3	3	1.	24	0.125
2226	A	4	3	1.	24	0.125
2227	A	5	3	1.	24	0.125
2228	A	6	4	1.	24	0.167
2229	A	5	4	1.	24	0.167
2230	A	4	4	1.	24	0.167
2231	A	3	3	1.	24	0.125
2232	A	2	2	1.	24	0.083
2233	A	3	3	1.	24	0.125
2234	A	4	3	1.	24	0.125
2235	A	5	3	1.	24	0.125
2236	A	7	5	1.	24	0.208
2237	A	6	5	1.	24	0.208
2238	A	5	5	1.	24	0.208
2239	A	4	4	1.	24	0.167
2240	A	2	2	1.	24	0.083
2241	A	3	3	1.	24	0.125
2242	A	4	3	1.	24	0.125
2243	A	5	3	1.	24	0.125
2244	A	6	3	1.	24	0.125
2245	A	7	6	1.	26	0.231
2246	A	6	5	1.	26	0.192
2247	A	6	5	1.	26	0.192
2248	A	5	4	1.	24	0.167
2249	A	4	3	1.	19	0.158
2250	A	6	6	1.	26	0.231
2251	A	6	6	1.	26	0.231
2252	A	4	3	1.	26	0.115
2253	A	5	4	1.	26	0.154
2254	A	7	5	1.	26	0.192
2255	A	8	5	1.	26	0.192
2256	A	9	5	1.	26	0.192
2257	A	8	6	1.	26	0.231
2258	A	7	5	1.	26	0.192
2259	A	7	5	1.	26	0.192
2260	A	6	4	1.	24	0.167
2261	A	5	3	1.	19	0.158
2262	A	7	7	1.	26	0.269
2263	A	7	7	1.	26	0.269
2264	A	7	7	1.	26	0.269
2265	A	5	3	1.	26	0.115
2266	A	6	4	1.	26	0.154
2267	A	8	6	1.	26	0.231
2268	A	9	6	1.	26	0.231
2269	A	9	6	1.	26	0.231
2270	A	8	5	1.	26	0.192
2271	A	8	5	1.	26	0.192
2272	A	7	4	1.	24	0.167
2273	A	6	3	1.	19	0.158

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
2274	A	8	7	1.	26	0.269
2275	A	8	7	1.	26	0.269
2276	A	8	8	1.	26	0.308
2277	A	8	7	1.	26	0.269
2278	A	6	3	1.	26	0.115
2279	A	7	4	1.	26	0.154
2280	A	9	6	1.	26	0.231
2281	A	10	6	1.	26	0.231
2282	A	5	4	1.	26	0.154
2283	A	5	4	1.	26	0.154
2284	A	5	5	1.	26	0.192
2285	A	5	5	1.	26	0.192
2286	A	4	4	1.	24	0.167
2287	A	3	3	1.	19	0.158
2288	A	5	5	1.	26	0.192
2289	A	3	3	1.	26	0.115
2290	A	4	4	1.	26	0.154
2291	A	6	5	1.	26	0.192
2292	A	7	5	1.	26	0.192
2293	A	5	5	1.	26	0.192
2294	A	5	5	1.	26	0.192
2295	A	4	4	1.	24	0.167
2296	A	3	3	1.	19	0.158
2297	A	3	3	1.	26	0.115
2298	A	4	4	1.	26	0.154
2299	A	6	6	1.	26	0.231
2300	A	7	6	1.	26	0.231
2301	A	6	6	1.	26	0.231
2302	A	5	5	1.	26	0.192
2303	A	5	5	1.	26	0.192
2304	A	4	4	1.	24	0.167
2305	A	1	1	1.	19	0.053
2306	A	4	4	1.	26	0.154
2307	A	6	5	1.	26	0.192
2308	A	7	6	1.	26	0.231
2309	A	8	6	1.	26	0.231
2310	A	7	5	1.	26	0.192
2311	A	7	5	1.	26	0.192
2312	A	6	4	1.	24	0.167
2313	A	5	3	1.	19	0.158
2314	A	7	7	1.	26	0.269
2315	A	7	7	1.	26	0.269
2316	A	7	7	1.	26	0.269
2317	A	5	3	1.	26	0.115
2318	A	6	4	1.	26	0.154
2319	A	8	6	1.	26	0.231
2320	A	8	5	1.	26	0.192
2321	A	8	5	1.	26	0.192
2322	A	7	4	1.	24	0.167

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
2323	A	6	3	1.	19	0.158
2324	A	8	7	1.	26	0.269
2325	A	8	7	1.	26	0.269
2326	A	8	8	1.	26	0.308
2327	A	8	7	1.	26	0.269
2328	A	6	3	1.	26	0.115
2329	A	7	4	1.	26	0.154
2330	A	9	6	1.	26	0.231
2331	A	10	6	1.	26	0.231
2332	A	9	5	1.	26	0.192
2333	A	9	5	1.	26	0.192
2334	A	8	4	1.	24	0.167
2335	A	7	3	1.	19	0.158
2336	A	9	7	1.	26	0.269
2337	A	9	7	1.	26	0.269
2338	A	9	8	1.	26	0.308
2339	A	9	8	1.	26	0.308
2340	A	9	7	1.	26	0.269
2341	A	7	3	1.	26	0.115
2342	A	8	4	1.	26	0.154
2343	A	10	6	1.	26	0.231
2344	A	6	5	1.	26	0.192
2345	A	6	5	1.	26	0.192
2346	A	5	4	1.	24	0.167
2347	A	4	3	1.	19	0.158
2348	A	6	6	1.	26	0.231
2349	A	6	6	1.	26	0.231
2350	A	4	3	1.	26	0.115
2351	A	5	4	1.	26	0.154
2352	A	7	5	1.	26	0.192
2353	A	8	5	1.	26	0.192
2354	A	6	6	1.	26	0.231
2355	A	6	5	1.	26	0.192
2356	A	5	4	1.	24	0.167
2357	A	4	4	1.	19	0.21
2358	A	6	6	1.	26	0.231
2359	A	4	3	1.	26	0.115
2360	A	5	4	1.	26	0.154
2361	A	7	6	1.	26	0.231
2362	A	8	6	1.	26	0.231
2363	A	6	6	1.	26	0.231
2364	A	6	5	1.	26	0.192
2365	A	5	5	1.	24	0.208
2366	A	4	3	1.	19	0.158
2367	A	4	3	1.	26	0.115
2368	A	5	4	1.	26	0.154
2369	A	7	6	1.	26	0.231
2370	A	8	6	1.	26	0.231
2371	A	8	5	1.	26	0.192

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	number of rules / integrand leaf size
2372	A	8	5	1.	26	0.192
2373	A	7	4	1.	24	0.167
2374	A	6	3	1.	19	0.158
2375	A	8	7	1.	26	0.269
2376	A	8	7	1.	26	0.269
2377	A	8	8	1.	26	0.308
2378	A	8	7	1.	26	0.269
2379	A	6	3	1.	26	0.115
2380	A	7	4	1.	26	0.154
2381	A	9	6	1.	26	0.231
2382	A	9	5	1.	26	0.192
2383	A	9	5	1.	26	0.192
2384	A	8	4	1.	24	0.167
2385	A	7	3	1.	19	0.158
2386	A	9	7	1.	26	0.269
2387	A	9	7	1.	26	0.269
2388	A	9	8	1.	26	0.308
2389	A	9	8	1.	26	0.308
2390	A	9	7	1.	26	0.269
2391	A	7	3	1.	26	0.115
2392	A	8	4	1.	26	0.154
2393	A	10	6	1.	26	0.231
2394	A	10	5	1.	26	0.192
2395	A	10	5	1.	26	0.192
2396	A	9	4	1.	24	0.167
2397	A	8	3	1.	19	0.158
2398	A	10	7	1.	26	0.269
2399	A	10	7	1.	26	0.269
2400	A	10	8	1.	26	0.308
2401	A	10	8	1.	26	0.308
2402	A	10	8	1.	26	0.308
2403	A	10	7	1.	26	0.269
2404	A	8	3	1.	26	0.115
2405	A	9	4	1.	26	0.154
2406	A	11	6	1.	26	0.231
2407	A	8	6	1.	26	0.231
2408	A	7	5	1.	26	0.192
2409	A	7	5	1.	26	0.192
2410	A	6	4	1.	24	0.167
2411	A	5	3	1.	19	0.158
2412	A	7	7	1.	26	0.269
2413	A	7	7	1.	26	0.269
2414	A	7	7	1.	26	0.269
2415	A	5	3	1.	26	0.115
2416	A	6	4	1.	26	0.154
2417	A	8	6	1.	26	0.231
2418	A	9	6	1.	26	0.231
2419	A	8	6	1.	26	0.231
2420	A	7	6	1.	26	0.231

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
2421	A	7	5	1.	26	0.192
2422	A	6	4	1.	24	0.167
2423	A	5	4	1.	19	0.21
2424	A	7	7	1.	26	0.269
2425	A	7	7	1.	26	0.269
2426	A	5	3	1.	26	0.115
2427	A	6	4	1.	26	0.154
2428	A	8	7	1.	26	0.269
2429	A	9	7	1.	26	0.269
2430	A	8	7	1.	26	0.269
2431	A	7	7	1.	26	0.269
2432	A	7	5	1.	26	0.192
2433	A	6	5	1.	24	0.208
2434	A	5	4	1.	19	0.21
2435	A	7	7	1.	26	0.269
2436	A	5	3	1.	26	0.115
2437	A	6	4	1.	26	0.154
2438	A	8	7	1.	26	0.269
2439	A	9	7	1.	26	0.269
2440	A	10	7	1.	26	0.269
2441	A	6	6	1.	26	0.231
2442	A	5	5	1.	26	0.192
2443	A	5	5	1.	26	0.192
2444	A	4	4	1.	24	0.167
2445	A	3	3	1.	19	0.158
2446	A	5	5	1.	26	0.192
2447	A	3	3	1.	26	0.115
2448	A	4	4	1.	26	0.154
2449	A	6	5	1.	26	0.192
2450	A	7	5	1.	26	0.192
2451	A	6	5	1.	26	0.192
2452	A	6	5	1.	26	0.192
2453	A	5	4	1.	24	0.167
2454	A	4	3	1.	19	0.158
2455	A	6	6	1.	26	0.231
2456	A	6	6	1.	26	0.231
2457	A	4	3	1.	26	0.115
2458	A	5	4	1.	26	0.154
2459	A	7	5	1.	26	0.192
2460	A	8	5	1.	26	0.192
2461	A	7	5	1.	26	0.192
2462	A	7	5	1.	26	0.192
2463	A	6	4	1.	24	0.167
2464	A	5	3	1.	19	0.158
2465	A	7	7	1.	26	0.269
2466	A	7	7	1.	26	0.269
2467	A	7	7	1.	26	0.269
2468	A	5	3	1.	26	0.115
2469	A	6	4	1.	26	0.154

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
2470	A	8	6	1.	26	0.231
2471	A	9	6	1.	26	0.231
2472	A	5	5	1.	26	0.192
2473	A	4	4	1.	26	0.154
2474	A	4	4	1.	26	0.154
2475	A	3	3	1.	24	0.125
2476	A	2	2	1.	19	0.105
2477	A	2	2	1.	26	0.077
2478	A	3	3	1.	26	0.115
2479	A	5	5	1.	26	0.192
2480	A	6	5	1.	26	0.192
2481	A	5	5	1.	26	0.192
2482	A	4	4	1.	26	0.154
2483	A	4	4	1.	26	0.154
2484	A	3	3	1.	24	0.125
2485	A	1	1	1.	19	0.053
2486	A	3	3	1.	26	0.115
2487	A	5	5	1.	26	0.192
2488	A	6	6	1.	26	0.231
2489	A	7	6	1.	26	0.231
2490	A	6	6	1.	26	0.231
2491	A	5	5	1.	26	0.192
2492	A	4	4	1.	26	0.154
2493	A	4	4	1.	26	0.154
2494	A	2	2	1.	24	0.083
2495	A	2	2	1.	19	0.105
2496	A	5	5	1.	26	0.192
2497	A	6	5	1.	26	0.192
2498	A	7	6	1.	26	0.231
2499	A	8	6	1.	26	0.231
2500	A	2	2	1.	34	0.059
2501	A	7	5	1.	26	0.192
2502	A	6	5	1.	26	0.192
2503	A	5	5	1.	26	0.192
2504	A	5	5	1.	26	0.192
2505	A	4	4	1.	24	0.167
2506	A	3	3	1.	19	0.158
2507	A	3	3	1.	26	0.115
2508	A	4	4	1.	26	0.154
2509	A	6	5	1.	26	0.192
2510	A	7	5	1.	26	0.192
2511	A	8	5	1.	26	0.192
2512	A	7	6	1.	26	0.231
2513	A	6	6	1.	26	0.231
2514	A	6	5	1.	26	0.192
2515	A	5	4	1.	24	0.167
2516	A	4	4	1.	19	0.21
2517	A	6	6	1.	26	0.231
2518	A	4	3	1.	26	0.115

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
2519	A	5	4	1.	26	0.154
2520	A	7	5	1.	26	0.192
2521	A	8	5	1.	26	0.192
2522	A	8	6	1.	26	0.231
2523	A	7	6	1.	26	0.231
2524	A	7	5	1.	26	0.192
2525	A	6	4	1.	24	0.167
2526	A	5	4	1.	19	0.21
2527	A	7	7	1.	26	0.269
2528	A	7	7	1.	26	0.269
2529	A	5	3	1.	26	0.115
2530	A	6	4	1.	26	0.154
2531	A	8	6	1.	26	0.231
2532	A	9	6	1.	26	0.231
2533	A	6	5	1.	26	0.192
2534	A	5	5	1.	26	0.192
2535	A	4	4	1.	26	0.154
2536	A	4	4	1.	26	0.154
2537	A	3	3	1.	24	0.125
2538	A	1	1	1.	19	0.053
2539	A	3	3	1.	26	0.115
2540	A	5	5	1.	26	0.192
2541	A	6	6	1.	26	0.231
2542	A	7	6	1.	26	0.231
2543	A	8	6	1.	26	0.231
2544	A	6	6	1.	26	0.231
2545	A	5	5	1.	26	0.192
2546	A	4	4	1.	26	0.154
2547	A	4	4	1.	26	0.154
2548	A	2	2	1.	24	0.083
2549	A	2	2	1.	19	0.105
2550	A	5	5	1.	26	0.192
2551	A	6	5	1.	26	0.192
2552	A	7	6	1.	26	0.231
2553	A	8	6	1.	26	0.231
2554	A	6	5	1.	26	0.192
2555	A	5	5	1.	26	0.192
2556	A	4	4	1.	26	0.154
2557	A	3	3	1.	26	0.115
2558	A	3	3	1.	24	0.125
2559	A	3	2	1.	19	0.105
2560	A	6	5	1.	26	0.192
2561	A	7	5	1.	26	0.192
2562	A	8	6	1.	26	0.231
2563	A	6	6	1.	26	0.231
2564	A	5	5	1.	26	0.192
2565	A	5	5	1.	26	0.192
2566	A	4	4	1.	24	0.167
2567	A	1	1	1.	19	0.053

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
2568	A	4	4	1.	26	0.154
2569	A	6	6	1.	26	0.231
2570	A	7	6	1.	26	0.231
2571	A	8	6	1.	26	0.231
2572	A	7	7	1.	26	0.269
2573	A	6	6	1.	26	0.231
2574	A	6	5	1.	26	0.192
2575	A	5	5	1.	24	0.208
2576	A	4	3	1.	19	0.158
2577	A	4	3	1.	26	0.115
2578	A	5	4	1.	26	0.154
2579	A	7	6	1.	26	0.231
2580	A	8	6	1.	26	0.231
2581	A	8	7	1.	26	0.269
2582	A	7	6	1.	26	0.231
2583	A	7	5	1.	26	0.192
2584	A	6	5	1.	24	0.208
2585	A	5	4	1.	19	0.21
2586	A	7	7	1.	26	0.269
2587	A	5	3	1.	26	0.115
2588	A	6	4	1.	26	0.154
2589	A	8	7	1.	26	0.269
2590	A	9	7	1.	26	0.269
2591	A	6	6	1.	26	0.231
2592	A	5	5	1.	26	0.192
2593	A	4	4	1.	26	0.154
2594	A	4	4	1.	26	0.154
2595	A	2	2	1.	24	0.083
2596	A	2	2	1.	19	0.105
2597	A	5	5	1.	26	0.192
2598	A	6	5	1.	26	0.192
2599	A	7	6	1.	26	0.231
2600	A	8	6	1.	26	0.231
2601	A	6	5	1.	26	0.192
2602	A	5	5	1.	26	0.192
2603	A	4	4	1.	26	0.154
2604	A	3	3	1.	26	0.115
2605	A	3	3	1.	24	0.125
2606	A	3	2	1.	19	0.105
2607	A	6	5	1.	26	0.192
2608	A	7	5	1.	26	0.192
2609	A	8	6	1.	26	0.231
2610	A	7	5	1.	26	0.192
2611	A	6	5	1.	26	0.192
2612	A	5	5	1.	26	0.192
2613	A	4	4	1.	26	0.154
2614	A	4	4	1.	26	0.154
2615	A	4	3	1.	24	0.125
2616	A	4	2	1.	19	0.105

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
2617	A	7	5	1.	26	0.192
2618	A	8	5	1.	26	0.192
2619	A	9	6	1.	26	0.231
2620	A	1	1	1.	40	0.025
2621	A	2	2	1.	34	0.059
2622	A	3	2	1.	28	0.071
2623	A	1	1	1.	40	0.025
2624	A	2	2	1.	34	0.059
2625	A	2	2	1.	40	0.05
2626	A	2	2	1.	28	0.071
2627	A	3	2	1.	30	0.067
2628	A	7	5	1.	28	0.179
2629	A	6	5	1.	28	0.179
2630	A	5	5	1.	28	0.179
2631	A	4	4	1.	28	0.143
2632	A	4	4	1.	28	0.143
2633	A	5	5	1.	28	0.179
2634	A	6	5	1.	28	0.179
2635	A	7	5	1.	28	0.179
2636	A	8	5	1.	28	0.179
2637	A	7	5	1.	28	0.179
2638	A	6	5	1.	28	0.179
2639	A	5	5	1.	28	0.179
2640	A	5	5	1.	28	0.179
2641	A	5	5	1.	28	0.179
2642	A	6	6	1.	28	0.214
2643	A	7	6	1.	28	0.214
2644	A	8	6	1.	28	0.214
2645	A	9	5	1.	28	0.179
2646	A	8	5	1.	28	0.179
2647	A	7	5	1.	28	0.179
2648	A	6	5	1.	28	0.179
2649	A	6	5	1.	28	0.179
2650	A	6	6	1.	28	0.214
2651	A	6	5	1.	28	0.179
2652	A	7	6	1.	28	0.214
2653	A	8	6	1.	28	0.214
2654	A	9	6	1.	28	0.214
2655	A	2	2	1.	28	0.071
2656	A	4	4	1.	28	0.143
2657	A	1	1	1.	28	0.036
2658	A	6	5	1.	28	0.179
2659	A	5	5	1.	28	0.179
2660	A	4	4	1.	28	0.143
2661	A	2	2	1.	28	0.071
2662	A	3	3	1.	28	0.107
2663	A	5	5	1.	28	0.179
2664	A	6	5	1.	28	0.179
2665	A	7	5	1.	28	0.179

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	number of rules / integrand leaf size
2666	A	6	5	1.	28	0.179
2667	A	5	5	1.	28	0.179
2668	A	4	4	1.	28	0.143
2669	A	3	3	1.	28	0.107
2670	A	5	5	1.	28	0.179
2671	A	6	5	1.	28	0.179
2672	A	7	5	1.	28	0.179
2673	A	8	6	1.	28	0.214
2674	A	7	6	1.	28	0.214
2675	A	6	6	1.	28	0.214
2676	A	5	5	1.	28	0.179
2677	A	5	5	1.	28	0.179
2678	A	5	5	1.	28	0.179
2679	A	6	5	1.	28	0.179
2680	A	7	5	1.	28	0.179
2681	A	8	5	1.	28	0.179
2682	A	8	5	1.	28	0.179
2683	A	7	5	1.	28	0.179
2684	A	6	5	1.	28	0.179
2685	A	5	5	1.	28	0.179
2686	A	5	5	1.	28	0.179
2687	A	5	5	1.	28	0.179
2688	A	6	6	1.	28	0.214
2689	A	7	6	1.	28	0.214
2690	A	8	6	1.	28	0.214
2691	A	9	5	1.	28	0.179
2692	A	8	5	1.	28	0.179
2693	A	7	5	1.	28	0.179
2694	A	6	5	1.	28	0.179
2695	A	6	5	1.	28	0.179
2696	A	6	6	1.	28	0.214
2697	A	6	5	1.	28	0.179
2698	A	7	6	1.	28	0.214
2699	A	8	6	1.	28	0.214
2700	A	9	6	1.	28	0.214
2701	A	10	5	1.	28	0.179
2702	A	9	5	1.	28	0.179
2703	A	8	5	1.	28	0.179
2704	A	7	5	1.	28	0.179
2705	A	7	5	1.	28	0.179
2706	A	7	6	1.	28	0.214
2707	A	7	6	1.	28	0.214
2708	A	7	5	1.	28	0.179
2709	A	8	6	1.	28	0.214
2710	A	9	6	1.	28	0.214
2711	A	10	6	1.	28	0.214
2712	A	7	5	1.	28	0.179
2713	A	6	5	1.	28	0.179
2714	A	5	5	1.	28	0.179

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	number of rules / integrand leaf size
2715	A	4	4	1.	28	0.143
2716	A	4	4	1.	28	0.143
2717	A	5	5	1.	28	0.179
2718	A	6	5	1.	28	0.179
2719	A	7	5	1.	28	0.179
2720	A	8	5	1.	28	0.179
2721	A	7	5	1.	28	0.179
2722	A	6	5	1.	28	0.179
2723	A	5	5	1.	28	0.179
2724	A	4	4	1.	28	0.143
2725	A	5	5	1.	28	0.179
2726	A	6	5	1.	28	0.179
2727	A	7	5	1.	28	0.179
2728	A	8	5	1.	28	0.179
2729	A	8	6	1.	28	0.214
2730	A	7	6	1.	28	0.214
2731	A	6	6	1.	28	0.214
2732	A	5	5	1.	28	0.179
2733	A	5	5	1.	28	0.179
2734	A	6	5	1.	28	0.179
2735	A	7	5	1.	28	0.179
2736	A	8	5	1.	28	0.179
2737	A	9	5	1.	28	0.179
2738	A	8	5	1.	28	0.179
2739	A	7	5	1.	28	0.179
2740	A	6	5	1.	28	0.179
2741	A	6	5	1.	28	0.179
2742	A	6	6	1.	28	0.214
2743	A	6	5	1.	28	0.179
2744	A	7	6	1.	28	0.214
2745	A	8	6	1.	28	0.214
2746	A	9	6	1.	28	0.214
2747	A	10	5	1.	28	0.179
2748	A	9	5	1.	28	0.179
2749	A	8	5	1.	28	0.179
2750	A	7	5	1.	28	0.179
2751	A	7	5	1.	28	0.179
2752	A	7	6	1.	28	0.214
2753	A	7	6	1.	28	0.214
2754	A	7	5	1.	28	0.179
2755	A	8	6	1.	28	0.214
2756	A	9	6	1.	28	0.214
2757	A	10	6	1.	28	0.214
2758	A	10	5	1.	28	0.179
2759	A	9	5	1.	28	0.179
2760	A	8	5	1.	28	0.179
2761	A	8	5	1.	28	0.179
2762	A	8	6	1.	28	0.214
2763	A	8	6	1.	28	0.214

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
2764	A	8	6	1.	28	0.214
2765	A	8	5	1.	28	0.179
2766	A	9	6	1.	28	0.214
2767	A	10	6	1.	28	0.214
2768	A	11	6	1.	28	0.214
2769	A	8	5	1.	28	0.179
2770	A	7	5	1.	28	0.179
2771	A	6	5	1.	28	0.179
2772	A	5	5	1.	28	0.179
2773	A	5	5	1.	28	0.179
2774	A	5	5	1.	28	0.179
2775	A	6	6	1.	28	0.214
2776	A	7	6	1.	28	0.214
2777	A	8	6	1.	28	0.214
2778	A	9	6	1.	28	0.214
2779	A	9	5	1.	28	0.179
2780	A	8	5	1.	28	0.179
2781	A	7	5	1.	28	0.179
2782	A	6	5	1.	28	0.179
2783	A	5	5	1.	28	0.179
2784	A	5	5	1.	28	0.179
2785	A	6	6	1.	28	0.214
2786	A	7	6	1.	28	0.214
2787	A	8	6	1.	28	0.214
2788	A	9	6	1.	28	0.214
2789	A	9	6	1.	28	0.214
2790	A	8	6	1.	28	0.214
2791	A	7	6	1.	28	0.214
2792	A	6	6	1.	28	0.214
2793	A	5	5	1.	28	0.179
2794	A	6	6	1.	28	0.214
2795	A	7	6	1.	28	0.214
2796	A	8	6	1.	28	0.214
2797	A	9	6	1.	28	0.214
2798	A	6	5	1.	28	0.179
2799	A	5	5	1.	28	0.179
2800	A	4	4	1.	28	0.143
2801	A	1	1	1.	28	0.036
2802	A	4	4	1.	28	0.143
2803	A	5	5	1.	28	0.179
2804	A	6	5	1.	28	0.179
2805	A	7	5	1.	28	0.179
2806	A	6	5	1.	28	0.179
2807	A	5	5	1.	28	0.179
2808	A	4	4	1.	28	0.143
2809	A	4	4	1.	28	0.143
2810	A	5	5	1.	28	0.179
2811	A	6	5	1.	28	0.179
2812	A	7	5	1.	28	0.179

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	number of rules / integrand leaf size
2813	A	9	5	1.	28	0.179
2814	A	8	5	1.	28	0.179
2815	A	7	5	1.	28	0.179
2816	A	6	5	1.	28	0.179
2817	A	5	5	1.	28	0.179
2818	A	5	5	1.	28	0.179
2819	A	5	5	1.	28	0.179
2820	A	6	6	1.	28	0.214
2821	A	7	6	1.	28	0.214
2822	A	8	6	1.	28	0.214
2823	A	9	6	1.	28	0.214
2824	A	1	1	1.	22	0.045
2825	A	1	1	1.	24	0.042
2826	A	1	1	1.	24	0.042
2827	A	1	1	1.	26	0.038
2828	A	1	1	1.	24	0.042
2829	A	1	1	1.	26	0.038
2830	A	1	1	1.	26	0.038
2831	A	1	1	1.	28	0.036
2832	A	1	1	1.	22	0.045
2833	A	2	2	0.63	24	0.083
2834	A	2	2	1.	24	0.083
2835	A	3	2	0.57	26	0.077
2836	A	2	2	1.	24	0.083
2837	A	3	2	1.	26	0.077
2838	A	3	2	1.	26	0.077
2839	A	1	1	1.	28	0.036
2840	A	4	4	1.	28	0.143
2841	A	8	7	1.	28	0.25
2842	A	6	5	1.	28	0.179
2843	A	5	5	1.	28	0.179
2844	A	4	4	1.	28	0.143
2845	A	1	1	1.	28	0.036
2846	A	1	1	1.	28	0.036
2847	A	3	3	1.	28	0.107
2848	A	5	5	1.	28	0.179
2849	A	6	5	1.	28	0.179
2850	A	6	5	1.	28	0.179
2851	A	5	5	1.	28	0.179
2852	A	4	4	1.	28	0.143
2853	A	4	4	1.	28	0.143
2854	A	3	3	1.	28	0.107
2855	A	5	5	1.	28	0.179
2856	A	6	5	1.	28	0.179
2857	A	7	5	1.	28	0.179
2858	A	7	6	1.	28	0.214
2859	A	6	6	1.	28	0.214
2860	A	5	5	1.	28	0.179
2861	A	5	5	1.	28	0.179

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
2862	A	5	5	1.	28	0.179
2863	A	5	5	1.	28	0.179
2864	A	6	5	1.	28	0.179
2865	A	7	5	1.	28	0.179
2866	A	8	5	1.	28	0.179
2867	A	3	3	1.	24	0.125
2868	A	1	1	1.	26	0.038
2869	A	3	3	1.	23	0.13
2870	A	2	2	1.	24	0.083
2871	A	1	1	1.	24	0.042
2872	A	3	3	1.	21	0.143
2873	A	2	2	1.	22	0.091
2874	A	7	5	1.	28	0.179
2875	A	6	5	1.	28	0.179
2876	A	5	5	1.	28	0.179
2877	A	4	4	1.	28	0.143
2878	A	3	3	1.	28	0.107
2879	A	5	5	1.	28	0.179
2880	A	6	5	1.	28	0.179
2881	A	7	5	1.	28	0.179
2882	A	8	5	1.	28	0.179
2883	A	7	5	1.	28	0.179
2884	A	6	5	1.	28	0.179
2885	A	5	5	1.	28	0.179
2886	A	4	4	1.	28	0.143
2887	A	5	5	1.	28	0.179
2888	A	6	5	1.	28	0.179
2889	A	7	5	1.	28	0.179
2890	A	8	5	1.	28	0.179
2891	A	9	5	1.	28	0.179
2892	A	8	5	1.	28	0.179
2893	A	7	5	1.	28	0.179
2894	A	6	5	1.	28	0.179
2895	A	5	5	1.	28	0.179
2896	A	5	5	1.	28	0.179
2897	A	6	6	1.	28	0.214
2898	A	7	6	1.	28	0.214
2899	A	8	6	1.	28	0.214
2900	A	9	6	1.	28	0.214
2901	A	6	5	1.	28	0.179
2902	A	5	5	1.	28	0.179
2903	A	4	4	1.	28	0.143
2904	A	3	3	1.	28	0.107
2905	A	4	4	1.	28	0.143
2906	A	5	5	1.	28	0.179
2907	A	6	5	1.	28	0.179
2908	A	7	5	1.	28	0.179
2909	A	7	6	1.	28	0.214
2910	A	6	6	1.	28	0.214

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
2911	A	5	5	1.	28	0.179
2912	A	5	5	1.	28	0.179
2913	A	5	5	1.	28	0.179
2914	A	5	5	1.	28	0.179
2915	A	6	5	1.	28	0.179
2916	A	7	5	1.	28	0.179
2917	A	8	5	1.	28	0.179
2918	A	8	6	1.	28	0.214
2919	A	7	6	1.	28	0.214
2920	A	6	5	1.	28	0.179
2921	A	6	6	1.	28	0.214
2922	A	6	5	1.	28	0.179
2923	A	6	5	1.	28	0.179
2924	A	6	5	1.	28	0.179
2925	A	7	5	1.	28	0.179
2926	A	8	5	1.	28	0.179
2927	A	9	5	1.	28	0.179
2928	A	8	6	1.	28	0.214
2929	A	7	6	1.	28	0.214
2930	A	6	6	1.	28	0.214
2931	A	5	5	1.	28	0.179
2932	A	5	5	1.	28	0.179
2933	A	5	5	1.	28	0.179
2934	A	6	5	1.	28	0.179
2935	A	7	5	1.	28	0.179
2936	A	8	5	1.	28	0.179
2937	A	8	6	1.	28	0.214
2938	A	7	6	1.	28	0.214
2939	A	6	6	1.	28	0.214
2940	A	5	5	1.	28	0.179
2941	A	5	5	1.	28	0.179
2942	A	6	5	1.	28	0.179
2943	A	7	5	1.	28	0.179
2944	A	8	5	1.	28	0.179
2945	A	9	6	1.	28	0.214
2946	A	8	6	1.	28	0.214
2947	A	7	6	1.	28	0.214
2948	A	6	6	1.	28	0.214
2949	A	5	5	1.	28	0.179
2950	A	6	6	1.	28	0.214
2951	A	7	6	1.	28	0.214
2952	A	8	6	1.	28	0.214
2953	A	9	6	1.	28	0.214
2954	A	7	6	1.	28	0.214
2955	A	6	6	1.	28	0.214
2956	A	5	5	1.	28	0.179
2957	A	5	5	1.	28	0.179
2958	A	5	5	1.	28	0.179
2959	A	5	5	1.	28	0.179

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
2960	A	6	5	1.	28	0.179
2961	A	7	5	1.	28	0.179
2962	A	8	5	1.	28	0.179
2963	A	8	6	1.	28	0.214
2964	A	7	6	1.	28	0.214
2965	A	6	5	1.	28	0.179
2966	A	6	6	1.	28	0.214
2967	A	6	5	1.	28	0.179
2968	A	6	5	1.	28	0.179
2969	A	6	5	1.	28	0.179
2970	A	7	5	1.	28	0.179
2971	A	8	5	1.	28	0.179
2972	A	9	5	1.	28	0.179
2973	A	9	6	1.	28	0.214
2974	A	8	6	1.	28	0.214
2975	A	7	5	1.	28	0.179
2976	A	7	6	1.	28	0.214
2977	A	7	6	1.	28	0.214
2978	A	7	5	1.	28	0.179
2979	A	7	5	1.	28	0.179
2980	A	7	5	1.	28	0.179
2981	A	8	5	1.	28	0.179
2982	A	9	5	1.	28	0.179
2983	A	10	5	1.	28	0.179
2984	A	5	4	1.	26	0.154
2985	A	4	3	1.	24	0.125
2986	A	3	2	1.	19	0.105
2987	A	4	4	1.	26	0.154
2988	A	4	4	1.	26	0.154
2989	A	3	2	1.	26	0.077
2990	A	4	3	1.	26	0.115
2991	A	4	4	1.	26	0.154
2992	A	3	3	1.	24	0.125
2993	A	2	2	1.	19	0.105
2994	A	3	3	1.	26	0.115
2995	A	2	2	1.	26	0.077
2996	A	3	3	1.	26	0.115
2997	A	5	4	1.	26	0.154
2998	A	3	3	1.	26	0.115
2999	A	3	3	1.	26	0.115
3000	A	2	2	1.	24	0.083
3001	A	1	1	1.	19	0.053
3002	A	1	1	1.	26	0.038
3003	A	2	2	1.	26	0.077
3004	A	4	4	1.	26	0.154
3005	A	7	7	1.	33	0.212
3006	A	7	7	1.	33	0.212
3007	A	6	6	1.	31	0.194
3008	A	5	5	1.	26	0.192

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
3009	A	1	1	1.	33	0.03
3010	A	8	8	1.	33	0.242
3011	A	9	9	1.	33	0.273
3012	A	7	7	1.	33	0.212
3013	A	7	7	1.	33	0.212
3014	A	1	1	1.	31	0.032
3015	A	6	6	1.	26	0.231
3016	A	2	2	1.	33	0.061
3017	A	2	2	1.	33	0.061
3018	A	2	2	1.	33	0.061
3019	A	1	1	1.	28	0.036
3020	A	5	4	1.	26	0.154
3021	A	4	3	1.	24	0.125
3022	A	3	3	1.	19	0.158
3023	A	4	4	1.	26	0.154
3024	A	3	2	1.	26	0.077
3025	A	4	3	1.	26	0.115
3026	A	6	4	1.	26	0.154
3027	A	5	4	1.	26	0.154
3028	A	5	4	1.	26	0.154
3029	A	3	3	1.	24	0.125
3030	A	3	3	1.	22	0.136
3031	A	3	3	1.	24	0.125
3032	A	3	3	1.	24	0.125
3033	A	2	2	0.99	24	0.083
3034	A	3	3	0.99	24	0.125
3035	A	4	3	0.99	24	0.125
3036	A	3	3	0.99	22	0.136
3037	A	3	3	0.99	24	0.125
3038	A	3	3	1.	24	0.125
3039	A	2	2	0.98	24	0.083
3040	A	3	3	0.99	24	0.125
3041	A	4	3	0.99	24	0.125
3042	A	3	3	1.	24	0.125
3043	A	4	4	1.	24	0.167
3044	A	4	4	1.	24	0.167
3045	A	4	4	1.	24	0.167
3046	A	3	3	0.99	22	0.136
3047	A	2	2	1.	17	0.118
3048	A	4	4	1.	24	0.167
3049	A	1	1	1.	24	0.042
3050	A	2	2	0.99	24	0.083
3051	A	4	4	1.	24	0.167
3052	A	5	4	1.	24	0.167
3053	A	3	3	1.	26	0.115
3054	A	3	3	1.	26	0.115
3055	A	3	3	1.	26	0.115
3056	A	3	3	0.99	24	0.125
3057	A	2	2	1.	19	0.105

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
3058	A	1	1	1.	26	0.038
3059	A	2	2	1.	26	0.077
3060	A	4	4	1.	26	0.154
3061	A	5	4	1.	26	0.154
3062	A	3	3	1.	26	0.115
3063	A	3	3	1.	26	0.115
3064	A	4	4	0.99	26	0.154
3065	A	3	3	1.	24	0.125
3066	A	1	1	1.	19	0.053
3067	A	2	2	1.	26	0.077
3068	A	4	4	0.99	26	0.154
3069	A	5	4	1.	26	0.154
3070	A	3	3	1.	26	0.115
3071	A	4	4	1.	26	0.154
3072	A	3	3	1.	26	0.115
3073	A	4	4	0.99	26	0.154
3074	A	2	2	0.98	24	0.083
3075	A	2	2	1.	19	0.105
3076	A	4	4	1.	26	0.154
3077	A	5	5	1.	26	0.192
3078	A	3	3	1.	26	0.115
3079	A	9	8	1.	26	0.308
3080	A	10	5	1.	26	0.192
3081	A	4	4	0.99	26	0.154
3082	A	3	3	0.98	24	0.125
3083	A	3	2	1.	19	0.105
3084	A	5	4	1.	26	0.154
3085	A	6	5	1.	26	0.192
3086	A	3	3	1.	26	0.115
3087	A	16	9	1.	26	0.346
3088	A	14	5	1.	26	0.192
3089	A	5	5	1.	26	0.192
3090	A	5	4	1.	26	0.154
3091	A	4	3	0.99	24	0.125
3092	A	4	2	1.	19	0.105
3093	A	6	4	1.	26	0.154
3094	A	3	3	1.	26	0.115
3095	A	5	5	1.	26	0.192
3096	A	4	4	1.	26	0.154
3097	A	4	4	1.	26	0.154
3098	A	3	3	0.99	24	0.125
3099	A	2	2	1.	19	0.105
3100	A	7	4	1.	26	0.154
3101	A	2	2	1.	26	0.077
3102	A	1	1	1.	26	0.038
3103	A	2	2	0.99	26	0.077
3104	A	4	4	1.	26	0.154
3105	A	3	3	1.	26	0.115
3106	A	4	4	1.	26	0.154

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
3107	A	4	4	1.	26	0.154
3108	A	3	3	0.99	24	0.125
3109	A	2	2	1.	19	0.105
3110	A	10	4	1.	26	0.154
3111	A	2	2	1.	26	0.077
3112	A	2	2	1.	26	0.077
3113	A	1	1	1.	26	0.038
3114	A	2	2	0.99	26	0.077
3115	A	4	4	1.	26	0.154
3116	A	5	4	1.	26	0.154
3117	A	3	3	1.	30	0.1
3118	A	3	3	1.	30	0.1
3119	A	3	3	1.	28	0.107
3120	A	3	3	1.	30	0.1
3121	A	1	1	1.	30	0.033
3122	A	2	2	0.99	30	0.067
3123	A	4	4	1.	30	0.133
3124	A	1	1	1.	60	0.017
3125	A	1	1	1.	77	0.013
3126	A	3	3	1.	28	0.107
3127	A	3	3	1.	29	0.103
3128	A	1	1	1.	29	0.034
3129	A	2	2	1.	29	0.069
3130	A	4	4	1.	29	0.138
3131	A	3	3	1.	22	0.136
3132	A	4	4	1.05	22	0.182
3133	A	3	3	1.08	20	0.15
3134	A	2	2	1.21	15	0.133
3135	A	2	2	1.	22	0.091
3136	A	2	2	1.	22	0.091
3137	A	2	2	1.	22	0.091
3138	A	1	1	1.	24	0.042
3139	A	1	1	1.	24	0.042
3140	A	1	1	1.	24	0.042
3141	A	1	1	1.	24	0.042
3142	A	2	2	1.	26	0.077
3143	A	3	3	1.	28	0.107
3144	A	3	3	1.	26	0.115
3145	A	3	3	1.	26	0.115
3146	A	3	3	1.	26	0.115
3147	A	3	3	1.	26	0.115
3148	A	2	2	1.	26	0.077
3149	A	2	2	1.	26	0.077
3150	A	3	3	1.	28	0.107
3151	A	3	3	1.	28	0.107
3152	A	2	1	1.	20	0.05
3153	A	2	1	1.	20	0.05
3154	A	2	1	1.	20	0.05
3155	A	2	1	1.	18	0.056

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Table 1 – continued from previous page

#	grade	number of steps used	number of unique rules	normalized antiderivative leaf size	integrand leaf size	$\frac{\text{number of rules}}{\text{integrand leaf size}}$
3156	A	2	1	1.	13	0.077
3157	A	2	2	1.	20	0.1
3158	A	2	2	1.	20	0.1
3159	A	2	1	1.	20	0.05
3160	A	2	1	1.	20	0.05
3161	A	2	1	1.	18	0.056
3162	A	2	2	1.	20	0.1
3163	A	2	2	1.	20	0.1
3164	A	2	2	1.	20	0.1
3165	A	3	2	1.	22	0.091
3166	A	3	2	1.	22	0.091
3167	A	2	2	1.	20	0.1
3168	A	3	2	1.	22	0.091
3169	A	4	3	1.	22	0.136
3170	A	5	4	1.	22	0.182
3171	A	1	1	1.	15	0.067
3172	A	4	3	1.	22	0.136
3173	A	5	4	1.	22	0.182

3 Listing of integrals

3.1 $\int x^2(a+bx)(ac-bcx)^3\,dx$

Optimal. Leaf size=55

$$\frac{1}{3}a^4c^3x^3-\frac{1}{2}a^3bc^3x^4+\frac{1}{3}ab^3c^3x^6-\frac{1}{7}b^4c^3x^7$$

```
[Out] (a^4*c^3*x^3)/3 - (a^3*b*c^3*x^4)/2 + (a*b^3*c^3*x^6)/3 - (b^4*c^
3*x^7)/7
```

Rubi [A] time = 0.0969724, antiderivative size = 55, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{1}{3}a^4c^3x^3-\frac{1}{2}a^3bc^3x^4+\frac{1}{3}ab^3c^3x^6-\frac{1}{7}b^4c^3x^7$$

Antiderivative was successfully verified.

```
[In]  Int[x^2*(a + b*x)*(a*c - b*c*x)^3,x]
```

```
[Out] (a^4*c^3*x^3)/3 - (a^3*b*c^3*x^4)/2 + (a*b^3*c^3*x^6)/3 - (b^4*c^
3*x^7)/7
```

Rubi in Sympy [A] time = 22.3337, size = 49, normalized size = 0.89

$$\frac{a^4c^3x^3}{3}-\frac{a^3bc^3x^4}{2}+\frac{ab^3c^3x^6}{3}-\frac{b^4c^3x^7}{7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(b*x+a)*(-b*c*x+a*c)**3,x)
```

```
[Out] a**4*c**3*x**3/3 - a**3*b*c**3*x**4/2 + a*b**3*c**3*x**6/3 - b**4
*c**3*x**7/7
```

Mathematica [A] time = 0.00588609, size = 47, normalized size = 0.85

$$c^3\left(\frac{a^4x^3}{3}-\frac{1}{2}a^3bx^4+\frac{1}{3}ab^3x^6-\frac{1}{7}b^4x^7\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^2*(a + b*x)*(a*c - b*c*x)^3,x]
```

```
[Out] c^3*((a^4*x^3)/3 - (a^3*b*x^4)/2 + (a*b^3*x^6)/3 - (b^4*x^7)/7)
```

Maple [A] time = 0.001, size = 48, normalized size = 0.9

$$\frac{a^4c^3x^3}{3}-\frac{a^3bc^3x^4}{2}+\frac{ab^3c^3x^6}{3}-\frac{b^4c^3x^7}{7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(b*x+a)*(-b*c*x+a*c)^3,x)
```

```
[Out] 1/3*a^4*c^3*x^3-1/2*a^3*b*c^3*x^4+1/3*a*b^3*c^3*x^6-1/7*b^4*c^3*x
^7
```

Maxima [A] time = 1.35392, size = 63, normalized size = 1.15

$$-\frac{1}{7}b^4c^3x^7 + \frac{1}{3}ab^3c^3x^6 - \frac{1}{2}a^3bc^3x^4 + \frac{1}{3}a^4c^3x^3$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^3*(b*x + a)*x^2,x, algorithm="maxima")
```

```
[Out] -1/7*b^4*c^3*x^7 + 1/3*a*b^3*c^3*x^6 - 1/2*a^3*b*c^3*x^4 + 1/3*a^
4*c^3*x^3
```

Fricas [A] time = 0.182293, size = 1, normalized size = 0.02

$$-\frac{1}{7}x^7c^3b^4 + \frac{1}{3}x^6c^3b^3a - \frac{1}{2}x^4c^3ba^3 + \frac{1}{3}x^3c^3a^4$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^3*(b*x + a)*x^2,x, algorithm="fricas")
```

```
[Out] -1/7*x^7*c^3*b^4 + 1/3*x^6*c^3*b^3*a - 1/2*x^4*c^3*b*a^3 + 1/3*x^
3*c^3*a^4
```

Sympy [A] time = 0.063702, size = 49, normalized size = 0.89

$$\frac{a^4c^3x^3}{3} - \frac{a^3bc^3x^4}{2} + \frac{ab^3c^3x^6}{3} - \frac{b^4c^3x^7}{7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(b*x+a)*(-b*c*x+a*c)**3,x)
```

```
[Out] a**4*c**3*x**3/3 - a**3*b*c**3*x**4/2 + a*b**3*c**3*x**6/3 - b**4
*c**3*x**7/7
```

GIAC/XCAS [A] time = 0.324206, size = 63, normalized size = 1.15

$$-\frac{1}{7}b^4c^3x^7 + \frac{1}{3}ab^3c^3x^6 - \frac{1}{2}a^3bc^3x^4 + \frac{1}{3}a^4c^3x^3$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^3*(b*x + a)*x^2,x, algorithm="giac")
```

```
[Out] -1/7*b^4*c^3*x^7 + 1/3*a*b^3*c^3*x^6 - 1/2*a^3*b*c^3*x^4 + 1/3*a^
4*c^3*x^3
```

3.2 $\int x(a+bx)(ac-bcx)^3\,dx$

Optimal. Leaf size=55

$$\frac{1}{2}a^4c^3x^2-\frac{2}{3}a^3bc^3x^3+\frac{2}{5}ab^3c^3x^5-\frac{1}{6}b^4c^3x^6$$

```
[Out] (a^4*c^3*x^2)/2 - (2*a^3*b*c^3*x^3)/3 + (2*a*b^3*c^3*x^5)/5 - (b^
4*c^3*x^6)/6
```

Rubi [A] time = 0.0799337, antiderivative size = 55, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{1}{2}a^4c^3x^2-\frac{2}{3}a^3bc^3x^3+\frac{2}{5}ab^3c^3x^5-\frac{1}{6}b^4c^3x^6$$

Antiderivative was successfully verified.

```
[In]  Int[x*(a + b*x)*(a*c - b*c*x)^3,x]
```

```
[Out] (a^4*c^3*x^2)/2 - (2*a^3*b*c^3*x^3)/3 + (2*a*b^3*c^3*x^5)/5 - (b^
4*c^3*x^6)/6
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$a^4c^3\int x\,dx-\frac{2a^3bc^3x^3}{3}+\frac{2ab^3c^3x^5}{5}-\frac{b^4c^3x^6}{6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(b*x+a)*(-b*c*x+a*c)**3,x)
```

```
[Out] a**4*c**3*Integral(x, x) - 2*a**3*b*c**3*x**3/3 + 2*a*b**3*c**3*x
**5/5 - b**4*c**3*x**6/6
```

Mathematica [A] time = 0.00362285, size = 47, normalized size = 0.85

$$c^3\left(\frac{a^4x^2}{2}-\frac{2}{3}a^3bx^3+\frac{2}{5}ab^3x^5-\frac{1}{6}b^4x^6\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[x*(a + b*x)*(a*c - b*c*x)^3,x]
```

```
[Out] c^3*((a^4*x^2)/2 - (2*a^3*b*x^3)/3 + (2*a*b^3*x^5)/5 - (b^4*x^6)/
6)
```

Maple [A] time = 0.001, size = 48, normalized size = 0.9

$$\frac{a^4c^3x^2}{2}-\frac{2\,a^3bc^3x^3}{3}+\frac{2\,ab^3c^3x^5}{5}-\frac{b^4c^3x^6}{6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(b*x+a)*(-b*c*x+a*c)^3,x)
```

```
[Out] 1/2*a^4*c^3*x^2-2/3*a^3*b*c^3*x^3+2/5*a*b^3*c^3*x^5-1/6*b^4*c^3*x
^6
```

Maxima [A] time = 1.3479, size = 63, normalized size = 1.15

$$-\frac{1}{6}\,b^4c^3x^6+\frac{2}{5}\,ab^3c^3x^5-\frac{2}{3}\,a^3bc^3x^3+\frac{1}{2}\,a^4c^3x^2$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^3*(b*x + a)*x,x, algorithm="maxima")
```

```
[Out] -1/6*b^4*c^3*x^6 + 2/5*a*b^3*c^3*x^5 - 2/3*a^3*b*c^3*x^3 + 1/2*a^
4*c^3*x^2
```

Fricas [A] time = 0.179631, size = 1, normalized size = 0.02

$$-\frac{1}{6}x^6c^3b^4+\frac{2}{5}x^5c^3b^3a-\frac{2}{3}x^3c^3ba^3+\frac{1}{2}x^2c^3a^4$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^3*(b*x + a)*x,x, algorithm="fricas")
```

```
[Out] -1/6*x^6*c^3*b^4 + 2/5*x^5*c^3*b^3*a - 2/3*x^3*c^3*b*a^3 + 1/2*x^
2*c^3*a^4
```

Sympy [A] time = 0.070649, size = 53, normalized size = 0.96

$$\frac{a^4c^3x^2}{2}-\frac{2a^3bc^3x^3}{3}+\frac{2ab^3c^3x^5}{5}-\frac{b^4c^3x^6}{6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(b*x+a)*(-b*c*x+a*c)**3,x)
```

```
[Out] a**4*c**3*x**2/2 - 2*a**3*b*c**3*x**3/3 + 2*a*b**3*c**3*x**5/5 -
b**4*c**3*x**6/6
```

GIAC/XCAS [A] time = 0.244508, size = 63, normalized size = 1.15

$$-\frac{1}{6}\,b^4c^3x^6+\frac{2}{5}\,ab^3c^3x^5-\frac{2}{3}\,a^3bc^3x^3+\frac{1}{2}\,a^4c^3x^2$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^3*(b*x + a)*x,x, algorithm="giac")
```

```
[Out] -1/6*b^4*c^3*x^6 + 2/5*a*b^3*c^3*x^5 - 2/3*a^3*b*c^3*x^3 + 1/2*a^
4*c^3*x^2
```

3.3 $\int (a+bx)(ac-bcx)^3\,dx$

Optimal. Leaf size=38

$$\frac{c^3(a-bx)^5}{5b}-\frac{ac^3(a-bx)^4}{2b}$$

```
[Out] -(a*c^3*(a - b*x)^4)/(2*b) + (c^3*(a - b*x)^5)/(5*b)
```

Rubi [A] time = 0.0390046, antiderivative size = 38, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 17, $\frac{\text{number of rules}}{\text{integrand size}} = 0.059$

$$\frac{c^3(a-bx)^5}{5b}-\frac{ac^3(a-bx)^4}{2b}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)*(a*c - b*c*x)^3,x]

[Out] -(a*c^3*(a - b*x)^4)/(2*b) + (c^3*(a - b*x)^5)/(5*b)
```

Rubi in Sympy [A] time = 17.1044, size = 27, normalized size = 0.71

$$-\frac{ac^3\,(a-bx)^4}{2b}+\frac{c^3\,(a-bx)^5}{5b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(-b*c*x+a*c)**3,x)

[Out] -a*c**3*(a - b*x)**4/(2*b) + c**3*(a - b*x)**5/(5*b)
```

Mathematica [A] time = 0.00307152, size = 40, normalized size = 1.05

$$c^3\left(a^4x-a^3bx^2+\frac{1}{2}ab^3x^4-\frac{1}{5}b^4x^5\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)*(a*c - b*c*x)^3,x]

[Out] c^3*(a^4*x - a^3*b*x^2 + (a*b^3*x^4)/2 - (b^4*x^5)/5)
```

Maple [A] time = 0., size = 45, normalized size = 1.2

$$-\frac{b^4c^3x^5}{5}+\frac{ab^3c^3x^4}{2}-a^3c^3bx^2+a^4c^3x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(-b*c*x+a*c)^3,x)

[Out] -1/5*b^4*c^3*x^5+1/2*a*b^3*c^3*x^4-a^3*c^3*b*x^2+a^4*c^3*x
```

Maxima [A] time = 1.34954, size = 59, normalized size = 1.55

$$-\frac{1}{5}\,b^4c^3x^5 + \frac{1}{2}\,ab^3c^3x^4 - a^3bc^3x^2 + a^4c^3x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^3*(b*x + a),x, algorithm="maxima")
```

```
[Out] -1/5*b^4*c^3*x^5 + 1/2*a*b^3*c^3*x^4 - a^3*b*c^3*x^2 + a^4*c^3*x
```

Fricas [A] time = 0.181779, size = 1, normalized size = 0.03

$$-\frac{1}{5}x^5c^3b^4 + \frac{1}{2}x^4c^3b^3a - x^2c^3ba^3 + xc^3a^4$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^3*(b*x + a),x, algorithm="fricas")
```

```
[Out] -1/5*x^5*c^3*b^4 + 1/2*x^4*c^3*b^3*a - x^2*c^3*b*a^3 + x*c^3*a^4
```

Sympy [A] time = 0.066993, size = 44, normalized size = 1.16

$$a^4c^3x - a^3bc^3x^2 + \frac{ab^3c^3x^4}{2} - \frac{b^4c^3x^5}{5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(-b*c*x+a*c)**3,x)
```

```
[Out] a**4*c**3*x - a**3*b*c**3*x**2 + a*b**3*c**3*x**4/2 - b**4*c**3*x
**5/5
```

GIAC/XCAS [A] time = 0.247579, size = 59, normalized size = 1.55

$$-\frac{1}{5}\,b^4c^3x^5 + \frac{1}{2}\,ab^3c^3x^4 - a^3bc^3x^2 + a^4c^3x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^3*(b*x + a),x, algorithm="giac")
```

```
[Out] -1/5*b^4*c^3*x^5 + 1/2*a*b^3*c^3*x^4 - a^3*b*c^3*x^2 + a^4*c^3*x
```

3.4 $\int \frac{(a+bx)(ac-bcx)^3}{x}\,dx$

Optimal. Leaf size=47

$$a^4c^3\log(x)-2a^3bc^3x+\frac{2}{3}ab^3c^3x^3-\frac{1}{4}b^4c^3x^4$$

```
[Out] -2*a^3*b*c^3*x + (2*a*b^3*c^3*x^3)/3 - (b^4*c^3*x^4)/4 + a^4*c^3*
Log[x]
```

Rubi [A] time = 0.0480749, antiderivative size = 47, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$a^4c^3\log(x)-2a^3bc^3x+\frac{2}{3}ab^3c^3x^3-\frac{1}{4}b^4c^3x^4$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(a*c - b*c*x)^3)/x,x]
```

```
[Out] -2*a^3*b*c^3*x + (2*a*b^3*c^3*x^3)/3 - (b^4*c^3*x^4)/4 + a^4*c^3*
Log[x]
```

Rubi in Sympy [A] time = 18.1017, size = 48, normalized size = 1.02

$$a^4c^3\log{(x)}-2a^3bc^3x+\frac{2ab^3c^3x^3}{3}-\frac{b^4c^3x^4}{4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(-b*c*x+a*c)**3/x,x)
```

```
[Out] a**4*c**3*log(x) - 2*a**3*b*c**3*x + 2*a*b**3*c**3*x**3/3 - b**4*
c**3*x**4/4
```

Mathematica [A] time = 0.0214984, size = 48, normalized size = 1.02

$$c^3\left(a^4\log(-bx)+\frac{1}{12}\left(19a^4-24a^3bx+8ab^3x^3-3b^4x^4\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(a*c - b*c*x)^3)/x,x]
```

```
[Out] c^3*((19*a^4 - 24*a^3*b*x + 8*a*b^3*x^3 - 3*b^4*x^4)/12 + a^4*Log
[-(b*x)])
```

Maple [A] time = 0.005, size = 44, normalized size = 0.9

$$-2\,a^3bc^3x+\frac{2\,ab^3c^3x^3}{3}-\frac{b^4c^3x^4}{4}+a^4c^3\ln{(x)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(-b*c*x+a*c)^3/x,x)
```

```
[Out] -2*a^3*b*c^3*x+2/3*a*b^3*c^3*x^3-1/4*b^4*c^3*x^4+a^4*c^3*ln(x)
```

Maxima [A] time = 1.34506, size = 58, normalized size = 1.23

$$-\frac{1}{4}\,b^4c^3x^4 + \frac{2}{3}\,ab^3c^3x^3 - 2\,a^3bc^3x + a^4c^3\log\left(x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^3*(b*x + a)/x,x, algorithm="maxima")
```

```
[Out] -1/4*b^4*c^3*x^4 + 2/3*a*b^3*c^3*x^3 - 2*a^3*b*c^3*x + a^4*c^3*lo
g(x)
```

Fricas [A] time = 0.201208, size = 58, normalized size = 1.23

$$-\frac{1}{4}\,b^4c^3x^4 + \frac{2}{3}\,ab^3c^3x^3 - 2\,a^3bc^3x + a^4c^3\log\left(x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^3*(b*x + a)/x,x, algorithm="fricas")
```

```
[Out] -1/4*b^4*c^3*x^4 + 2/3*a*b^3*c^3*x^3 - 2*a^3*b*c^3*x + a^4*c^3*lo
g(x)
```

Sympy [A] time = 0.584198, size = 48, normalized size = 1.02

$$a^4c^3\log\left(x\right) - 2a^3bc^3x + \frac{2ab^3c^3x^3}{3} - \frac{b^4c^3x^4}{4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(-b*c*x+a*c)**3/x,x)
```

```
[Out] a**4*c**3*log(x) - 2*a**3*b*c**3*x + 2*a*b**3*c**3*x**3/3 - b**4*
c**3*x**4/4
```

GIAC/XCAS [A] time = 0.234265, size = 59, normalized size = 1.26

$$-\frac{1}{4}\,b^4c^3x^4 + \frac{2}{3}\,ab^3c^3x^3 - 2\,a^3bc^3x + a^4c^3\ln\left(|x|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^3*(b*x + a)/x,x, algorithm="giac")
```

```
[Out] -1/4*b^4*c^3*x^4 + 2/3*a*b^3*c^3*x^3 - 2*a^3*b*c^3*x + a^4*c^3*ln
(abs(x))
```

3.5 $\int \frac{(a+bx)(ac-bcx)^3}{x^2} \, dx$

Optimal. Leaf size=47

$$-\frac{a^4c^3}{x} - 2a^3bc^3\log(x) + ab^3c^3x^2 - \frac{1}{3}b^4c^3x^3$$

```
[Out] -((a^4*c^3)/x) + a*b^3*c^3*x^2 - (b^4*c^3*x^3)/3 - 2*a^3*b*c^3*Lo
g[x]
```

Rubi [A] time = 0.0651393, antiderivative size = 47, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{a^4c^3}{x} - 2a^3bc^3\log(x) + ab^3c^3x^2 - \frac{1}{3}b^4c^3x^3$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(a*c - b*c*x)^3)/x^2,x]
```

```
[Out] -((a^4*c^3)/x) + a*b^3*c^3*x^2 - (b^4*c^3*x^3)/3 - 2*a^3*b*c^3*Lo
g[x]
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{a^4c^3}{x} - 2a^3bc^3\log(x) + 2ab^3c^3\int x\,dx - \frac{b^4c^3x^3}{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(-b*c*x+a*c)**3/x**2,x)
```

```
[Out] -a**4*c**3/x - 2*a**3*b*c**3*log(x) + 2*a*b**3*c**3*Integral(x, x
) - b**4*c**3*x**3/3
```

Mathematica [A] time = 0.0114285, size = 39, normalized size = 0.83

$$c^3\left(-\frac{a^4}{x} - 2a^3b\log(x) + ab^3x^2 - \frac{b^4x^3}{3}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(a*c - b*c*x)^3)/x^2,x]
```

```
[Out] c^3*(-(a^4/x) + a*b^3*x^2 - (b^4*x^3)/3 - 2*a^3*b*Log[x])
```

Maple [A] time = 0.008, size = 46, normalized size = 1.

$$-\frac{a^4c^3}{x} + ab^3c^3x^2 - \frac{b^4c^3x^3}{3} - 2a^3bc^3\ln(x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(-b*c*x+a*c)^3/x^2,x)
```

```
[Out] -a^4*c^3/x+a*b^3*c^3*x^2-1/3*b^4*c^3*x^3-2*a^3*b*c^3*ln(x)
```

Maxima [A] time = 1.34825, size = 61, normalized size = 1.3

$$-\frac{1}{3}\,b^{4}c^{3}x^{3}+ab^{3}c^{3}x^{2}-2\,a^{3}bc^{3}\log\left(x\right)-\frac{a^{4}c^{3}}{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^3*(b*x + a)/x^2,x, algorithm="maxima")
```

```
[Out] -1/3*b^4*c^3*x^3 + a*b^3*c^3*x^2 - 2*a^3*b*c^3*log(x) - a^4*c^3/x
```

Fricas [A] time = 0.200665, size = 65, normalized size = 1.38

$$-\frac{b^{4}c^{3}x^{4}-3\,ab^{3}c^{3}x^{3}+6\,a^{3}bc^{3}x\log\left(x\right)+3\,a^{4}c^{3}}{3\,x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^3*(b*x + a)/x^2,x, algorithm="fricas")
```

```
[Out] -1/3*(b^4*c^3*x^4 - 3*a*b^3*c^3*x^3 + 6*a^3*b*c^3*x*log(x) + 3*a^
4*c^3)/x
```

Sympy [A] time = 0.649685, size = 44, normalized size = 0.94

$$-\frac{a^{4}c^{3}}{x}-2a^{3}bc^{3}\log\left(x\right)+ab^{3}c^{3}x^{2}-\frac{b^{4}c^{3}x^{3}}{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(-b*c*x+a*c)**3/x**2,x)
```

```
[Out] -a**4*c**3/x - 2*a**3*b*c**3*log(x) + a*b**3*c**3*x**2 - b**4*c**
3*x**3/3
```

GIAC/XCAS [A] time = 0.238759, size = 62, normalized size = 1.32

$$-\frac{1}{3}\,b^{4}c^{3}x^{3}+ab^{3}c^{3}x^{2}-2\,a^{3}bc^{3}\ln\left(|x|\right)-\frac{a^{4}c^{3}}{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^3*(b*x + a)/x^2,x, algorithm="giac")
```

```
[Out] -1/3*b^4*c^3*x^3 + a*b^3*c^3*x^2 - 2*a^3*b*c^3*ln(abs(x)) - a^4*c
^3/x
```

3.6 $\int \frac{(a+bx)(ac-bcx)^3}{x^3} dx$

Optimal. Leaf size=18

$$-\frac{c^3(a-bx)^4}{2x^2}$$

```
[Out] -(c^3*(a - b*x)^4)/(2*x^2)
```

Rubi [A] time = 0.0169764, antiderivative size = 18, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{c^3(a-bx)^4}{2x^2}$$

Antiderivative was successfully verified.

```
[In] Int[((a + b*x)*(a*c - b*c*x)^3)/x^3,x]

[Out] -(c^3*(a - b*x)^4)/(2*x^2)
```

Rubi in Sympy [A] time = 7.24753, size = 15, normalized size = 0.83

$$-\frac{c^3 (a-bx)^4}{2x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)*(-b*c*x+a*c)**3/x**3,x)

[Out] -c**3*(a - b*x)**4/(2*x**2)
```

Mathematica [B] time = 0.0100257, size = 41, normalized size = 2.28

$$c^3 \left(-\frac{a^4}{2x^2} + \frac{2a^3b}{x} + 2ab^3x - \frac{b^4x^2}{2}\right)$$

Antiderivative was successfully verified.

```
[In] Integrate[((a + b*x)*(a*c - b*c*x)^3)/x^3,x]

[Out] c^3*(-a^4/(2*x^2) + (2*a^3*b)/x + 2*a*b^3*x - (b^4*x^2)/2)
```

Maple [B] time = 0.007, size = 38, normalized size = 2.1

$$c^3 \left(-\frac{b^4x^2}{2} + 2\,ab^3x - \frac{a^4}{2\,x^2} + 2\,\frac{a^3b}{x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((b*x+a)*(-b*c*x+a*c)^3/x^3,x)

[Out] c^3*(-1/2*b^4*x^2+2*a*b^3*x-1/2*a^4/x^2+2*a^3*b/x)
```

Maxima [A] time = 1.34911, size = 62, normalized size = 3.44

$$-\frac{1}{2}\,b^4c^3x^2+2\,ab^3c^3x+\frac{4\,a^3bc^3x-a^4c^3}{2\,x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^3*(b*x + a)/x^3,x, algorithm="maxima")
```

```
[Out] -1/2*b^4*c^3*x^2 + 2*a*b^3*c^3*x + 1/2*(4*a^3*b*c^3*x - a^4*c^3)/
x^2
```

Fricas [A] time = 0.196202, size = 61, normalized size = 3.39

$$-\frac{b^4c^3x^4-4\,ab^3c^3x^3-4\,a^3bc^3x+a^4c^3}{2\,x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^3*(b*x + a)/x^3,x, algorithm="fricas")
```

```
[Out] -1/2*(b^4*c^3*x^4 - 4*a*b^3*c^3*x^3 - 4*a^3*b*c^3*x + a^4*c^3)/x^
2
```

Sympy [A] time = 0.695501, size = 46, normalized size = 2.56

$$2ab^3c^3x-\frac{b^4c^3x^2}{2}+\frac{-a^4c^3+4a^3bc^3x}{2x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(-b*c*x+a*c)**3/x**3,x)
```

```
[Out] 2*a*b**3*c**3*x - b**4*c**3*x**2/2 + (-a**4*c**3 + 4*a**3*b*c**3*
x)/(2*x**2)
```

GIAC/XCAS [A] time = 0.327112, size = 62, normalized size = 3.44

$$-\frac{1}{2}\,b^4c^3x^2+2\,ab^3c^3x+\frac{4\,a^3bc^3x-a^4c^3}{2\,x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^3*(b*x + a)/x^3,x, algorithm="giac")
```

```
[Out] -1/2*b^4*c^3*x^2 + 2*a*b^3*c^3*x + 1/2*(4*a^3*b*c^3*x - a^4*c^3)/
x^2
```

3.7 $\int \frac{(a+bx)(ac-bcx)^3}{x^4}\,dx$

Optimal. Leaf size=45

$$-\frac{a^4c^3}{3x^3}+\frac{a^3bc^3}{x^2}+2ab^3c^3\log(x)-b^4c^3x$$

```
[Out] -(a^4*c^3)/(3*x^3) + (a^3*b*c^3)/x^2 - b^4*c^3*x + 2*a*b^3*c^3*Lo
g[x]
```

Rubi [A] time = 0.0647815, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{a^4c^3}{3x^3}+\frac{a^3bc^3}{x^2}+2ab^3c^3\log(x)-b^4c^3x$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(a*c - b*c*x)^3)/x^4,x]
```

```
[Out] -(a^4*c^3)/(3*x^3) + (a^3*b*c^3)/x^2 - b^4*c^3*x + 2*a*b^3*c^3*Lo
g[x]
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{a^4c^3}{3x^3}+\frac{a^3bc^3}{x^2}+2ab^3c^3\log(x)-c^3\int b^4\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(-b*c*x+a*c)**3/x**4,x)
```

```
[Out] -a**4*c**3/(3*x**3) + a**3*b*c**3/x**2 + 2*a*b**3*c**3*log(x) - c
**3*Integral(b**4, x)
```

Mathematica [A] time = 0.0105812, size = 37, normalized size = 0.82

$$c^3\left(-\frac{a^4}{3x^3}+\frac{a^3b}{x^2}+2ab^3\log(x)-b^4x\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(a*c - b*c*x)^3)/x^4,x]
```

```
[Out] c^3*(-a^4/(3*x^3) + (a^3*b)/x^2 - b^4*x + 2*a*b^3*Log[x])
```

Maple [A] time = 0.008, size = 44, normalized size = 1.

$$-\frac{a^4c^3}{3\,x^3}+\frac{a^3bc^3}{x^2}-b^4c^3x+2\,ab^3c^3\ln(x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(-b*c*x+a*c)^3/x^4,x)
```

```
[Out] -1/3*a^4*c^3/x^3+a^3*b*c^3/x^2-b^4*c^3*x+2*a*b^3*c^3*ln(x)
```

Maxima [A] time = 1.34687, size = 61, normalized size = 1.36

$$-b^4c^3x + 2\,ab^3c^3\log(x) + \frac{3\,a^3bc^3x - a^4c^3}{3\,x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^3*(b*x + a)/x^4,x, algorithm="maxima")
```

```
[Out] -b^4*c^3*x + 2*a*b^3*c^3*log(x) + 1/3*(3*a^3*b*c^3*x - a^4*c^3)/x
^3
```

Fricas [A] time = 0.206879, size = 65, normalized size = 1.44

$$-\frac{3\,b^4c^3x^4 - 6\,ab^3c^3x^3\log(x) - 3\,a^3bc^3x + a^4c^3}{3\,x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^3*(b*x + a)/x^4,x, algorithm="fricas")
```

```
[Out] -1/3*(3*b^4*c^3*x^4 - 6*a*b^3*c^3*x^3*log(x) - 3*a^3*b*c^3*x + a^
4*c^3)/x^3
```

Sympy [A] time = 0.793751, size = 44, normalized size = 0.98

$$2ab^3c^3\log(x) - b^4c^3x + \frac{-a^4c^3 + 3a^3bc^3x}{3x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(-b*c*x+a*c)**3/x**4,x)
```

```
[Out] 2*a*b**3*c**3*log(x) - b**4*c**3*x + (-a**4*c**3 + 3*a**3*b*c**3*
x)/(3*x**3)
```

GIAC/XCAS [A] time = 0.324626, size = 62, normalized size = 1.38

$$-b^4c^3x + 2\,ab^3c^3\ln(|x|) + \frac{3\,a^3bc^3x - a^4c^3}{3\,x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^3*(b*x + a)/x^4,x, algorithm="giac")
```

```
[Out] -b^4*c^3*x + 2*a*b^3*c^3*ln(abs(x)) + 1/3*(3*a^3*b*c^3*x - a^4*c^
3)/x^3
```

3.8 $\int \frac{(a+bx)(ac-bcx)^3}{x^5} dx$

Optimal. Leaf size=50

$$-\frac{a^4c^3}{4x^4}+\frac{2a^3bc^3}{3x^3}-\frac{2ab^3c^3}{x}-b^4c^3\log(x)$$

```
[Out] -(a^4*c^3)/(4*x^4) + (2*a^3*b*c^3)/(3*x^3) - (2*a*b^3*c^3)/x - b^
4*c^3*Log[x]
```

Rubi [A] time = 0.0588129, antiderivative size = 50, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{a^4c^3}{4x^4}+\frac{2a^3bc^3}{3x^3}-\frac{2ab^3c^3}{x}-b^4c^3\log(x)$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(a*c - b*c*x)^3)/x^5,x]
```

```
[Out] -(a^4*c^3)/(4*x^4) + (2*a^3*b*c^3)/(3*x^3) - (2*a*b^3*c^3)/x - b^
4*c^3*Log[x]
```

Rubi in Sympy [A] time = 18.6312, size = 48, normalized size = 0.96

$$-\frac{a^4c^3}{4x^4}+\frac{2a^3bc^3}{3x^3}-\frac{2ab^3c^3}{x}-b^4c^3\log(x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(-b*c*x+a*c)**3/x**5,x)
```

```
[Out] -a**4*c**3/(4*x**4) + 2*a**3*b*c**3/(3*x**3) - 2*a*b**3*c**3/x -
b**4*c**3*log(x)
```

Mathematica [A] time = 0.0102081, size = 42, normalized size = 0.84

$$c^3\left(-\frac{a^4}{4x^4}+\frac{2a^3b}{3x^3}-\frac{2ab^3}{x}-b^4\log(x)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(a*c - b*c*x)^3)/x^5,x]
```

```
[Out] c^3*(-a^4/(4*x^4) + (2*a^3*b)/(3*x^3) - (2*a*b^3)/x - b^4*Log[x])
```

Maple [A] time = 0.009, size = 47, normalized size = 0.9

$$-\frac{a^4c^3}{4\,x^4}+\frac{2\,a^3bc^3}{3\,x^3}-2\,\frac{ab^3c^3}{x}-b^4c^3\ln(x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(-b*c*x+a*c)^3/x^5,x)
```

```
[Out] -1/4*a^4*c^3/x^4+2/3*a^3*b*c^3/x^3-2*a*b^3*c^3/x-b^4*c^3*ln(x)
```

Maxima [A] time = 1.34589, size = 63, normalized size = 1.26

$$-b^4c^3\log(x) - \frac{24\,ab^3c^3x^3 - 8\,a^3bc^3x + 3\,a^4c^3}{12\,x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^3*(b*x + a)/x^5,x, algorithm="maxima")
```

```
[Out] -b^4*c^3*log(x) - 1/12*(24*a*b^3*c^3*x^3 - 8*a^3*b*c^3*x + 3*a^4*
c^3)/x^4
```

Fricas [A] time = 0.207032, size = 66, normalized size = 1.32

$$-\frac{12\,b^4c^3x^4\log(x) + 24\,ab^3c^3x^3 - 8\,a^3bc^3x + 3\,a^4c^3}{12\,x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^3*(b*x + a)/x^5,x, algorithm="fricas")
```

```
[Out] -1/12*(12*b^4*c^3*x^4*log(x) + 24*a*b^3*c^3*x^3 - 8*a^3*b*c^3*x +
 3*a^4*c^3)/x^4
```

Sympy [A] time = 0.859972, size = 49, normalized size = 0.98

$$-b^4c^3\log(x) - \frac{3a^4c^3 - 8a^3bc^3x + 24ab^3c^3x^3}{12x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(-b*c*x+a*c)**3/x**5,x)
```

```
[Out] -b**4*c**3*log(x) - (3*a**4*c**3 - 8*a**3*b*c**3*x + 24*a*b**3*c*
*3*x**3)/(12*x**4)
```

GIAC/XCAS [A] time = 0.30132, size = 65, normalized size = 1.3

$$-b^4c^3\ln(|x|) - \frac{24\,ab^3c^3x^3 - 8\,a^3bc^3x + 3\,a^4c^3}{12\,x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^3*(b*x + a)/x^5,x, algorithm="giac")
```

```
[Out] -b^4*c^3*ln(abs(x)) - 1/12*(24*a*b^3*c^3*x^3 - 8*a^3*b*c^3*x + 3*
a^4*c^3)/x^4
```

3.9 $\int \frac{(a+bx)(ac-bcx)^3}{x^6} dx$

Optimal. Leaf size=50

$$-\frac{a^4c^3}{5x^5}+\frac{a^3bc^3}{2x^4}-\frac{ab^3c^3}{x^2}+\frac{b^4c^3}{x}$$

```
[Out] -(a^4*c^3)/(5*x^5) + (a^3*b*c^3)/(2*x^4) - (a*b^3*c^3)/x^2 + (b^4
*c^3)/x
```

Rubi [A] time = 0.0658317, antiderivative size = 50, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{a^4c^3}{5x^5}+\frac{a^3bc^3}{2x^4}-\frac{ab^3c^3}{x^2}+\frac{b^4c^3}{x}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(a*c - b*c*x)^3)/x^6,x]
```

```
[Out] -(a^4*c^3)/(5*x^5) + (a^3*b*c^3)/(2*x^4) - (a*b^3*c^3)/x^2 + (b^4
*c^3)/x
```

Rubi in Sympy [A] time = 19.3438, size = 44, normalized size = 0.88

$$-\frac{a^4c^3}{5x^5}+\frac{a^3bc^3}{2x^4}-\frac{ab^3c^3}{x^2}+\frac{b^4c^3}{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(-b*c*x+a*c)**3/x**6,x)
```

```
[Out] -a**4*c**3/(5*x**5) + a**3*b*c**3/(2*x**4) - a*b**3*c**3/x**2 + b
**4*c**3/x
```

Mathematica [A] time = 0.00945838, size = 42, normalized size = 0.84

$$c^3\left(-\frac{a^4}{5x^5}+\frac{a^3b}{2x^4}-\frac{ab^3}{x^2}+\frac{b^4}{x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(a*c - b*c*x)^3)/x^6,x]
```

```
[Out] c^3*(-a^4/(5*x^5) + (a^3*b)/(2*x^4) - (a*b^3)/x^2 + b^4/x)
```

Maple [A] time = 0.009, size = 39, normalized size = 0.8

$$c^3\left(-\frac{ab^3}{x^2}-\frac{a^4}{5\,x^5}+\frac{b^4}{x}+\frac{a^3b}{2\,x^4}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(-b*c*x+a*c)^3/x^6,x)
```

```
[Out] c^3*(-a*b^3/x^2-1/5*a^4/x^5+b^4/x+1/2*a^3*b/x^4)
```

Maxima [A] time = 1.33919, size = 63, normalized size = 1.26

$$\frac{10\,b^4c^3x^4-10\,ab^3c^3x^3+5\,a^3bc^3x-2\,a^4c^3}{10\,x^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^3*(b*x + a)/x^6,x, algorithm="maxima")
```

```
[Out] 1/10*(10*b^4*c^3*x^4 - 10*a*b^3*c^3*x^3 + 5*a^3*b*c^3*x - 2*a^4*c
^3)/x^5
```

Fricas [A] time = 0.200824, size = 63, normalized size = 1.26

$$\frac{10\,b^4c^3x^4-10\,ab^3c^3x^3+5\,a^3bc^3x-2\,a^4c^3}{10\,x^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^3*(b*x + a)/x^6,x, algorithm="fricas")
```

```
[Out] 1/10*(10*b^4*c^3*x^4 - 10*a*b^3*c^3*x^3 + 5*a^3*b*c^3*x - 2*a^4*c
^3)/x^5
```

Sympy [A] time = 0.967409, size = 49, normalized size = 0.98

$$\frac{-2a^4c^3+5a^3bc^3x-10ab^3c^3x^3+10b^4c^3x^4}{10x^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(-b*c*x+a*c)**3/x**6,x)
```

```
[Out] (-2*a**4*c**3 + 5*a**3*b*c**3*x - 10*a*b**3*c**3*x**3 + 10*b**4*c
**3*x**4)/(10*x**5)
```

GIAC/XCAS [A] time = 0.257344, size = 63, normalized size = 1.26

$$\frac{10\,b^4c^3x^4-10\,ab^3c^3x^3+5\,a^3bc^3x-2\,a^4c^3}{10\,x^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^3*(b*x + a)/x^6,x, algorithm="giac")
```

```
[Out] 1/10*(10*b^4*c^3*x^4 - 10*a*b^3*c^3*x^3 + 5*a^3*b*c^3*x - 2*a^4*c
^3)/x^5
```

3.10 $\int \frac{(a+bx)(ac-bcx)^3}{x^7} dx$

Optimal. Leaf size=55

$$-\frac{a^4c^3}{6x^6}+\frac{2a^3bc^3}{5x^5}-\frac{2ab^3c^3}{3x^3}+\frac{b^4c^3}{2x^2}$$

```
[Out] -(a^4*c^3)/(6*x^6) + (2*a^3*b*c^3)/(5*x^5) - (2*a*b^3*c^3)/(3*x^3
) + (b^4*c^3)/(2*x^2)
```

Rubi [A] time = 0.0679135, antiderivative size = 55, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{a^4c^3}{6x^6}+\frac{2a^3bc^3}{5x^5}-\frac{2ab^3c^3}{3x^3}+\frac{b^4c^3}{2x^2}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(a*c - b*c*x)^3)/x^7,x]
```

```
[Out] -(a^4*c^3)/(6*x^6) + (2*a^3*b*c^3)/(5*x^5) - (2*a*b^3*c^3)/(3*x^3
) + (b^4*c^3)/(2*x^2)
```

Rubi in Sympy [A] time = 19.6266, size = 53, normalized size = 0.96

$$-\frac{a^4c^3}{6x^6}+\frac{2a^3bc^3}{5x^5}-\frac{2ab^3c^3}{3x^3}+\frac{b^4c^3}{2x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(-b*c*x+a*c)**3/x**7,x)
```

```
[Out] -a**4*c**3/(6*x**6) + 2*a**3*b*c**3/(5*x**5) - 2*a*b**3*c**3/(3*x
**3) + b**4*c**3/(2*x**2)
```

Mathematica [A] time = 0.00965933, size = 47, normalized size = 0.85

$$c^3\left(-\frac{a^4}{6x^6}+\frac{2a^3b}{5x^5}-\frac{2ab^3}{3x^3}+\frac{b^4}{2x^2}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(a*c - b*c*x)^3)/x^7,x]
```

```
[Out] c^3*(-a^4/(6*x^6) + (2*a^3*b)/(5*x^5) - (2*a*b^3)/(3*x^3) + b^4/(
2*x^2))
```

Maple [A] time = 0.007, size = 40, normalized size = 0.7

$$c^3\left(\frac{b^4}{2\,x^2}+\frac{2\,a^3b}{5\,x^5}-\frac{2\,ab^3}{3\,x^3}-\frac{a^4}{6\,x^6}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(-b*c*x+a*c)^3/x^7,x)
```

```
[Out] c^3*(1/2*b^4/x^2+2/5*a^3*b/x^5-2/3*a*b^3/x^3-1/6*a^4/x^6)
```

Maxima [A] time = 1.34674, size = 63, normalized size = 1.15

$$\frac{15\,b^4c^3x^4 - 20\,ab^3c^3x^3 + 12\,a^3bc^3x - 5\,a^4c^3}{30\,x^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(b*c*x - a*c)^3*(b*x + a)/x^7,x, algorithm="maxima")
```

```
[Out] 1/30*(15*b^4*c^3*x^4 - 20*a*b^3*c^3*x^3 + 12*a^3*b*c^3*x - 5*a^4*
c^3)/x^6
```

Fricas [A] time = 0.199403, size = 63, normalized size = 1.15

$$\frac{15\,b^4c^3x^4 - 20\,ab^3c^3x^3 + 12\,a^3bc^3x - 5\,a^4c^3}{30\,x^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(b*c*x - a*c)^3*(b*x + a)/x^7,x, algorithm="fricas")
```

```
[Out] 1/30*(15*b^4*c^3*x^4 - 20*a*b^3*c^3*x^3 + 12*a^3*b*c^3*x - 5*a^4*
c^3)/x^6
```

Sympy [A] time = 0.928871, size = 49, normalized size = 0.89

$$\frac{-5a^4c^3 + 12a^3bc^3x - 20ab^3c^3x^3 + 15b^4c^3x^4}{30x^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)*(-b*c*x+a*c)**3/x**7,x)
```

```
[Out] (-5*a**4*c**3 + 12*a**3*b*c**3*x - 20*a*b**3*c**3*x**3 + 15*b**4*
c**3*x**4)/(30*x**6)
```

GIAC/XCAS [A] time = 0.2405, size = 63, normalized size = 1.15

$$\frac{15\,b^4c^3x^4 - 20\,ab^3c^3x^3 + 12\,a^3bc^3x - 5\,a^4c^3}{30\,x^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(b*c*x - a*c)^3*(b*x + a)/x^7,x, algorithm="giac")
```

```
[Out] 1/30*(15*b^4*c^3*x^4 - 20*a*b^3*c^3*x^3 + 12*a^3*b*c^3*x - 5*a^4*
c^3)/x^6
```

3.11 $\int \frac{(a+bx)(ac-bcx)^3}{x^8} dx$

Optimal. Leaf size=55

$$-\frac{a^4c^3}{7x^7}+\frac{a^3bc^3}{3x^6}-\frac{ab^3c^3}{2x^4}+\frac{b^4c^3}{3x^3}$$

```
[Out] -(a^4*c^3)/(7*x^7) + (a^3*b*c^3)/(3*x^6) - (a*b^3*c^3)/(2*x^4) +
(b^4*c^3)/(3*x^3)
```

Rubi [A] time = 0.0664601, antiderivative size = 55, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{a^4c^3}{7x^7}+\frac{a^3bc^3}{3x^6}-\frac{ab^3c^3}{2x^4}+\frac{b^4c^3}{3x^3}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(a*c - b*c*x)^3)/x^8,x]
```

```
[Out] -(a^4*c^3)/(7*x^7) + (a^3*b*c^3)/(3*x^6) - (a*b^3*c^3)/(2*x^4) +
(b^4*c^3)/(3*x^3)
```

Rubi in Sympy [A] time = 19.5576, size = 49, normalized size = 0.89

$$-\frac{a^4c^3}{7x^7}+\frac{a^3bc^3}{3x^6}-\frac{ab^3c^3}{2x^4}+\frac{b^4c^3}{3x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(-b*c*x+a*c)**3/x**8,x)
```

```
[Out] -a**4*c**3/(7*x**7) + a**3*b*c**3/(3*x**6) - a*b**3*c**3/(2*x**4)
 + b**4*c**3/(3*x**3)
```

Mathematica [A] time = 0.00962125, size = 47, normalized size = 0.85

$$c^3\left(-\frac{a^4}{7x^7}+\frac{a^3b}{3x^6}-\frac{ab^3}{2x^4}+\frac{b^4}{3x^3}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(a*c - b*c*x)^3)/x^8,x]
```

```
[Out] c^3*(-a^4/(7*x^7) + (a^3*b)/(3*x^6) - (a*b^3)/(2*x^4) + b^4/(3*x^
3))
```

Maple [A] time = 0.007, size = 40, normalized size = 0.7

$$c^3\left(-\frac{a^4}{7\,x^7}+\frac{b^4}{3\,x^3}-\frac{ab^3}{2\,x^4}+\frac{a^3b}{3\,x^6}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(-b*c*x+a*c)^3/x^8,x)
```

```
[Out] c^3*(-1/7*a^4/x^7+1/3*b^4/x^3-1/2*a*b^3/x^4+1/3*a^3*b/x^6)
```

Maxima [A] time = 1.34668, size = 63, normalized size = 1.15

$$\frac{14\,b^4c^3x^4 - 21\,ab^3c^3x^3 + 14\,a^3bc^3x - 6\,a^4c^3}{42\,x^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^3*(b*x + a)/x^8,x, algorithm="maxima")
```

```
[Out] 1/42*(14*b^4*c^3*x^4 - 21*a*b^3*c^3*x^3 + 14*a^3*b*c^3*x - 6*a^4*
c^3)/x^7
```

Fricas [A] time = 0.196409, size = 63, normalized size = 1.15

$$\frac{14\,b^4c^3x^4 - 21\,ab^3c^3x^3 + 14\,a^3bc^3x - 6\,a^4c^3}{42\,x^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^3*(b*x + a)/x^8,x, algorithm="fricas")
```

```
[Out] 1/42*(14*b^4*c^3*x^4 - 21*a*b^3*c^3*x^3 + 14*a^3*b*c^3*x - 6*a^4*
c^3)/x^7
```

Sympy [A] time = 0.968414, size = 49, normalized size = 0.89

$$\frac{-6a^4c^3 + 14a^3bc^3x - 21ab^3c^3x^3 + 14b^4c^3x^4}{42x^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(-b*c*x+a*c)**3/x**8,x)
```

```
[Out] (-6*a**4*c**3 + 14*a**3*b*c**3*x - 21*a*b**3*c**3*x**3 + 14*b**4*
c**3*x**4)/(42*x**7)
```

GIAC/XCAS [A] time = 0.270836, size = 63, normalized size = 1.15

$$\frac{14\,b^4c^3x^4 - 21\,ab^3c^3x^3 + 14\,a^3bc^3x - 6\,a^4c^3}{42\,x^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^3*(b*x + a)/x^8,x, algorithm="giac")
```

```
[Out] 1/42*(14*b^4*c^3*x^4 - 21*a*b^3*c^3*x^3 + 14*a^3*b*c^3*x - 6*a^4*
c^3)/x^7
```

3.12 $\int x^4(a+bx)(ac-bcx)^4\,dx$

Optimal. Leaf size=87

$$\frac{1}{5}a^5c^4x^5-\frac{1}{2}a^4bc^4x^6+\frac{2}{7}a^3b^2c^4x^7+\frac{1}{4}a^2b^3c^4x^8-\frac{1}{3}ab^4c^4x^9+\frac{1}{10}b^5c^4x^{10}$$

```
[Out] (a^5*c^4*x^5)/5 - (a^4*b*c^4*x^6)/2 + (2*a^3*b^2*c^4*x^7)/7 + (a^
2*b^3*c^4*x^8)/4 - (a*b^4*c^4*x^9)/3 + (b^5*c^4*x^10)/10
```

Rubi [A] time = 0.140707, antiderivative size = 87, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{1}{5}a^5c^4x^5-\frac{1}{2}a^4bc^4x^6+\frac{2}{7}a^3b^2c^4x^7+\frac{1}{4}a^2b^3c^4x^8-\frac{1}{3}ab^4c^4x^9+\frac{1}{10}b^5c^4x^{10}$$

Antiderivative was successfully verified.

```
[In]  Int[x^4*(a + b*x)*(a*c - b*c*x)^4,x]
```

```
[Out] (a^5*c^4*x^5)/5 - (a^4*b*c^4*x^6)/2 + (2*a^3*b^2*c^4*x^7)/7 + (a^
2*b^3*c^4*x^8)/4 - (a*b^4*c^4*x^9)/3 + (b^5*c^4*x^10)/10
```

Rubi in Sympy [A] time = 35.1911, size = 82, normalized size = 0.94

$$\frac{a^5c^4x^5}{5}-\frac{a^4bc^4x^6}{2}+\frac{2a^3b^2c^4x^7}{7}+\frac{a^2b^3c^4x^8}{4}-\frac{ab^4c^4x^9}{3}+\frac{b^5c^4x^{10}}{10}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**4*(b*x+a)*(-b*c*x+a*c)**4,x)
```

```
[Out] a**5*c**4*x**5/5 - a**4*b*c**4*x**6/2 + 2*a**3*b**2*c**4*x**7/7 +
 a**2*b**3*c**4*x**8/4 - a*b**4*c**4*x**9/3 + b**5*c**4*x**10/10
```

Mathematica [A] time = 0.00722586, size = 87, normalized size = 1.

$$\frac{1}{5}a^5c^4x^5-\frac{1}{2}a^4bc^4x^6+\frac{2}{7}a^3b^2c^4x^7+\frac{1}{4}a^2b^3c^4x^8-\frac{1}{3}ab^4c^4x^9+\frac{1}{10}b^5c^4x^{10}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^4*(a + b*x)*(a*c - b*c*x)^4,x]
```

```
[Out] (a^5*c^4*x^5)/5 - (a^4*b*c^4*x^6)/2 + (2*a^3*b^2*c^4*x^7)/7 + (a^
2*b^3*c^4*x^8)/4 - (a*b^4*c^4*x^9)/3 + (b^5*c^4*x^10)/10
```

Maple [A] time = 0.002, size = 76, normalized size = 0.9

$$\frac{a^5c^4x^5}{5}-\frac{a^4bc^4x^6}{2}+\frac{2\,a^3b^2c^4x^7}{7}+\frac{a^2b^3c^4x^8}{4}-\frac{ab^4c^4x^9}{3}+\frac{b^5c^4x^{10}}{10}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^4*(b*x+a)*(-b*c*x+a*c)^4,x)
```

```
[Out] 1/5*a^5*c^4*x^5-1/2*a^4*b*c^4*x^6+2/7*a^3*b^2*c^4*x^7+1/4*a^2*b^3
*c^4*x^8-1/3*a*b^4*c^4*x^9+1/10*b^5*c^4*x^10
```

Maxima [A] time = 1.34917, size = 101, normalized size = 1.16

$$\frac{1}{10}\, b^5c^4x^{10} - \frac{1}{3}\, ab^4c^4x^9 + \frac{1}{4}\, a^2b^3c^4x^8 + \frac{2}{7}\, a^3b^2c^4x^7 - \frac{1}{2}\, a^4bc^4x^6 + \frac{1}{5}\, a^5c^4x^5$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^4*(b*x + a)*x^4,x, algorithm="maxima")
```

```
[Out] 1/10*b^5*c^4*x^10 - 1/3*a*b^4*c^4*x^9 + 1/4*a^2*b^3*c^4*x^8 + 2/7
*a^3*b^2*c^4*x^7 - 1/2*a^4*b*c^4*x^6 + 1/5*a^5*c^4*x^5
```

Fricas [A] time = 0.186274, size = 1, normalized size = 0.01

$$\frac{1}{10}x^{10}c^4b^5 - \frac{1}{3}x^9c^4b^4a + \frac{1}{4}x^8c^4b^3a^2 + \frac{2}{7}x^7c^4b^2a^3 - \frac{1}{2}x^6c^4ba^4 + \frac{1}{5}x^5c^4a^5$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^4*(b*x + a)*x^4,x, algorithm="fricas")
```

```
[Out] 1/10*x^10*c^4*b^5 - 1/3*x^9*c^4*b^4*a + 1/4*x^8*c^4*b^3*a^2 + 2/7
*x^7*c^4*b^2*a^3 - 1/2*x^6*c^4*b*a^4 + 1/5*x^5*c^4*a^5
```

Sympy [A] time = 0.075412, size = 82, normalized size = 0.94

$$\frac{a^5c^4x^5}{5} - \frac{a^4bc^4x^6}{2} + \frac{2a^3b^2c^4x^7}{7} + \frac{a^2b^3c^4x^8}{4} - \frac{ab^4c^4x^9}{3} + \frac{b^5c^4x^{10}}{10}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**4*(b*x+a)*(-b*c*x+a*c)**4,x)
```

```
[Out] a**5*c**4*x**5/5 - a**4*b*c**4*x**6/2 + 2*a**3*b**2*c**4*x**7/7 +
 a**2*b**3*c**4*x**8/4 - a*b**4*c**4*x**9/3 + b**5*c**4*x**10/10
```

GIAC/XCAS [A] time = 0.245858, size = 101, normalized size = 1.16

$$\frac{1}{10}\, b^5c^4x^{10} - \frac{1}{3}\, ab^4c^4x^9 + \frac{1}{4}\, a^2b^3c^4x^8 + \frac{2}{7}\, a^3b^2c^4x^7 - \frac{1}{2}\, a^4bc^4x^6 + \frac{1}{5}\, a^5c^4x^5$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^4*(b*x + a)*x^4,x, algorithm="giac")
```

```
[Out] 1/10*b^5*c^4*x^10 - 1/3*a*b^4*c^4*x^9 + 1/4*a^2*b^3*c^4*x^8 + 2/7
*a^3*b^2*c^4*x^7 - 1/2*a^4*b*c^4*x^6 + 1/5*a^5*c^4*x^5
```

3.13 $\int x^3(a+bx)(ac-bcx)^4\,dx$

Optimal. Leaf size=87

$$\frac{1}{4}a^5c^4x^4-\frac{3}{5}a^4bc^4x^5+\frac{1}{3}a^3b^2c^4x^6+\frac{2}{7}a^2b^3c^4x^7-\frac{3}{8}ab^4c^4x^8+\frac{1}{9}b^5c^4x^9$$

```
[Out] (a^5*c^4*x^4)/4 - (3*a^4*b*c^4*x^5)/5 + (a^3*b^2*c^4*x^6)/3 + (2*
a^2*b^3*c^4*x^7)/7 - (3*a*b^4*c^4*x^8)/8 + (b^5*c^4*x^9)/9
```

Rubi [A] time = 0.129145, antiderivative size = 87, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$\frac{1}{4}a^5c^4x^4-\frac{3}{5}a^4bc^4x^5+\frac{1}{3}a^3b^2c^4x^6+\frac{2}{7}a^2b^3c^4x^7-\frac{3}{8}ab^4c^4x^8+\frac{1}{9}b^5c^4x^9$$

Antiderivative was successfully verified.

```
[In]  Int[x^3*(a + b*x)*(a*c - b*c*x)^4,x]
```

```
[Out] (a^5*c^4*x^4)/4 - (3*a^4*b*c^4*x^5)/5 + (a^3*b^2*c^4*x^6)/3 + (2*
a^2*b^3*c^4*x^7)/7 - (3*a*b^4*c^4*x^8)/8 + (b^5*c^4*x^9)/9
```

Rubi in Sympy [A] time = 34.3876, size = 85, normalized size = 0.98

$$\frac{a^5c^4x^4}{4}-\frac{3a^4bc^4x^5}{5}+\frac{a^3b^2c^4x^6}{3}+\frac{2a^2b^3c^4x^7}{7}-\frac{3ab^4c^4x^8}{8}+\frac{b^5c^4x^9}{9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3*(b*x+a)*(-b*c*x+a*c)**4,x)
```

```
[Out] a**5*c**4*x**4/4 - 3*a**4*b*c**4*x**5/5 + a**3*b**2*c**4*x**6/3 +
 2*a**2*b**3*c**4*x**7/7 - 3*a*b**4*c**4*x**8/8 + b**5*c**4*x**9/
9
```

Mathematica [A] time = 0.00489126, size = 87, normalized size = 1.

$$\frac{1}{4}a^5c^4x^4-\frac{3}{5}a^4bc^4x^5+\frac{1}{3}a^3b^2c^4x^6+\frac{2}{7}a^2b^3c^4x^7-\frac{3}{8}ab^4c^4x^8+\frac{1}{9}b^5c^4x^9$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^3*(a + b*x)*(a*c - b*c*x)^4,x]
```

```
[Out] (a^5*c^4*x^4)/4 - (3*a^4*b*c^4*x^5)/5 + (a^3*b^2*c^4*x^6)/3 + (2*
a^2*b^3*c^4*x^7)/7 - (3*a*b^4*c^4*x^8)/8 + (b^5*c^4*x^9)/9
```

Maple [A] time = 0.002, size = 76, normalized size = 0.9

$$\frac{a^5c^4x^4}{4}-\frac{3\,a^4bc^4x^5}{5}+\frac{a^3b^2c^4x^6}{3}+\frac{2\,a^2b^3c^4x^7}{7}-\frac{3\,ab^4c^4x^8}{8}+\frac{b^5c^4x^9}{9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^3*(b*x+a)*(-b*c*x+a*c)^4,x)
```

```
[Out] 1/4*a^5*c^4*x^4-3/5*a^4*b*c^4*x^5+1/3*a^3*b^2*c^4*x^6+2/7*a^2*b^3
*c^4*x^7-3/8*a*b^4*c^4*x^8+1/9*b^5*c^4*x^9
```

Maxima [A] time = 1.34337, size = 101, normalized size = 1.16

$$\frac{1}{9}\,b^5c^4x^9 - \frac{3}{8}\,ab^4c^4x^8 + \frac{2}{7}\,a^2b^3c^4x^7 + \frac{1}{3}\,a^3b^2c^4x^6 - \frac{3}{5}\,a^4bc^4x^5 + \frac{1}{4}\,a^5c^4x^4$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^4*(b*x + a)*x^3,x, algorithm="maxima")
```

```
[Out] 1/9*b^5*c^4*x^9 - 3/8*a*b^4*c^4*x^8 + 2/7*a^2*b^3*c^4*x^7 + 1/3*a
^3*b^2*c^4*x^6 - 3/5*a^4*b*c^4*x^5 + 1/4*a^5*c^4*x^4
```

Fricas [A] time = 0.17796, size = 1, normalized size = 0.01

$$\frac{1}{9}x^9c^4b^5 - \frac{3}{8}x^8c^4b^4a + \frac{2}{7}x^7c^4b^3a^2 + \frac{1}{3}x^6c^4b^2a^3 - \frac{3}{5}x^5c^4ba^4 + \frac{1}{4}x^4c^4a^5$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^4*(b*x + a)*x^3,x, algorithm="fricas")
```

```
[Out] 1/9*x^9*c^4*b^5 - 3/8*x^8*c^4*b^4*a + 2/7*x^7*c^4*b^3*a^2 + 1/3*x
^6*c^4*b^2*a^3 - 3/5*x^5*c^4*b*a^4 + 1/4*x^4*c^4*a^5
```

Sympy [A] time = 0.075467, size = 85, normalized size = 0.98

$$\frac{a^5c^4x^4}{4} - \frac{3a^4bc^4x^5}{5} + \frac{a^3b^2c^4x^6}{3} + \frac{2a^2b^3c^4x^7}{7} - \frac{3ab^4c^4x^8}{8} + \frac{b^5c^4x^9}{9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**3*(b*x+a)*(-b*c*x+a*c)**4,x)
```

```
[Out] a**5*c**4*x**4/4 - 3*a**4*b*c**4*x**5/5 + a**3*b**2*c**4*x**6/3 +
 2*a**2*b**3*c**4*x**7/7 - 3*a*b**4*c**4*x**8/8 + b**5*c**4*x**9/
9
```

GIAC/XCAS [A] time = 0.241223, size = 101, normalized size = 1.16

$$\frac{1}{9}\,b^5c^4x^9 - \frac{3}{8}\,ab^4c^4x^8 + \frac{2}{7}\,a^2b^3c^4x^7 + \frac{1}{3}\,a^3b^2c^4x^6 - \frac{3}{5}\,a^4bc^4x^5 + \frac{1}{4}\,a^5c^4x^4$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^4*(b*x + a)*x^3,x, algorithm="giac")
```

```
[Out] 1/9*b^5*c^4*x^9 - 3/8*a*b^4*c^4*x^8 + 2/7*a^2*b^3*c^4*x^7 + 1/3*a
^3*b^2*c^4*x^6 - 3/5*a^4*b*c^4*x^5 + 1/4*a^5*c^4*x^4
```

3.14 $\int x^2(a+bx)(ac-bcx)^4\,dx$

Optimal. Leaf size=80

$$-\frac{2a^3c^4(a-bx)^5}{5b^3}+\frac{5a^2c^4(a-bx)^6}{6b^3}+\frac{c^4(a-bx)^8}{8b^3}-\frac{4ac^4(a-bx)^7}{7b^3}$$

```
[Out] (-2*a^3*c^4*(a - b*x)^5)/(5*b^3) + (5*a^2*c^4*(a - b*x)^6)/(6*b^3
) - (4*a*c^4*(a - b*x)^7)/(7*b^3) + (c^4*(a - b*x)^8)/(8*b^3)
```

Rubi [A] time = 0.130913, antiderivative size = 80, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{2a^3c^4(a-bx)^5}{5b^3}+\frac{5a^2c^4(a-bx)^6}{6b^3}+\frac{c^4(a-bx)^8}{8b^3}-\frac{4ac^4(a-bx)^7}{7b^3}$$

Antiderivative was successfully verified.

```
[In]  Int[x^2*(a + b*x)*(a*c - b*c*x)^4,x]
```

```
[Out] (-2*a^3*c^4*(a - b*x)^5)/(5*b^3) + (5*a^2*c^4*(a - b*x)^6)/(6*b^3
) - (4*a*c^4*(a - b*x)^7)/(7*b^3) + (c^4*(a - b*x)^8)/(8*b^3)
```

Rubi in Sympy [A] time = 33.5262, size = 85, normalized size = 1.06

$$\frac{a^5c^4x^3}{3}-\frac{3a^4bc^4x^4}{4}+\frac{2a^3b^2c^4x^5}{5}+\frac{a^2b^3c^4x^6}{3}-\frac{3ab^4c^4x^7}{7}+\frac{b^5c^4x^8}{8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(b*x+a)*(-b*c*x+a*c)**4,x)
```

```
[Out] a**5*c**4*x**3/3 - 3*a**4*b*c**4*x**4/4 + 2*a**3*b**2*c**4*x**5/5
 + a**2*b**3*c**4*x**6/3 - 3*a*b**4*c**4*x**7/7 + b**5*c**4*x**8/
8
```

Mathematica [A] time = 0.00470055, size = 87, normalized size = 1.09

$$\frac{1}{3}a^5c^4x^3-\frac{3}{4}a^4bc^4x^4+\frac{2}{5}a^3b^2c^4x^5+\frac{1}{3}a^2b^3c^4x^6-\frac{3}{7}ab^4c^4x^7+\frac{1}{8}b^5c^4x^8$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^2*(a + b*x)*(a*c - b*c*x)^4,x]
```

```
[Out] (a^5*c^4*x^3)/3 - (3*a^4*b*c^4*x^4)/4 + (2*a^3*b^2*c^4*x^5)/5 + (
a^2*b^3*c^4*x^6)/3 - (3*a*b^4*c^4*x^7)/7 + (b^5*c^4*x^8)/8
```

Maple [A] time = 0.001, size = 76, normalized size = 1.

$$\frac{b^5c^4x^8}{8}-\frac{3\,ab^4c^4x^7}{7}+\frac{a^2c^4b^3x^6}{3}+\frac{2\,a^3c^4b^2x^5}{5}-\frac{3\,a^4c^4bx^4}{4}+\frac{a^5c^4x^3}{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(b*x+a)*(-b*c*x+a*c)^4,x)
```

```
[Out] 1/8*b^5*c^4*x^8-3/7*a*b^4*c^4*x^7+1/3*a^2*c^4*b^3*x^6+2/5*a^3*c^4
*b^2*x^5-3/4*a^4*c^4*b*x^4+1/3*a^5*c^4*x^3
```

Maxima [A] time = 1.34347, size = 101, normalized size = 1.26

$$\frac{1}{8}\,b^5c^4x^8-\frac{3}{7}\,ab^4c^4x^7+\frac{1}{3}\,a^2b^3c^4x^6+\frac{2}{5}\,a^3b^2c^4x^5-\frac{3}{4}\,a^4bc^4x^4+\frac{1}{3}\,a^5c^4x^3$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^4*(b*x + a)*x^2,x, algorithm="maxima")
```

```
[Out] 1/8*b^5*c^4*x^8 - 3/7*a*b^4*c^4*x^7 + 1/3*a^2*b^3*c^4*x^6 + 2/5*a
^3*b^2*c^4*x^5 - 3/4*a^4*b*c^4*x^4 + 1/3*a^5*c^4*x^3
```

Fricas [A] time = 0.181705, size = 1, normalized size = 0.01

$$\frac{1}{8}x^8c^4b^5-\frac{3}{7}x^7c^4b^4a+\frac{1}{3}x^6c^4b^3a^2+\frac{2}{5}x^5c^4b^2a^3-\frac{3}{4}x^4c^4ba^4+\frac{1}{3}x^3c^4a^5$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^4*(b*x + a)*x^2,x, algorithm="fricas")
```

```
[Out] 1/8*x^8*c^4*b^5 - 3/7*x^7*c^4*b^4*a + 1/3*x^6*c^4*b^3*a^2 + 2/5*x
^5*c^4*b^2*a^3 - 3/4*x^4*c^4*b*a^4 + 1/3*x^3*c^4*a^5
```

Sympy [A] time = 0.074648, size = 85, normalized size = 1.06

$$\frac{a^5c^4x^3}{3}-\frac{3a^4bc^4x^4}{4}+\frac{2a^3b^2c^4x^5}{5}+\frac{a^2b^3c^4x^6}{3}-\frac{3ab^4c^4x^7}{7}+\frac{b^5c^4x^8}{8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(b*x+a)*(-b*c*x+a*c)**4,x)
```

```
[Out] a**5*c**4*x**3/3 - 3*a**4*b*c**4*x**4/4 + 2*a**3*b**2*c**4*x**5/5
 + a**2*b**3*c**4*x**6/3 - 3*a*b**4*c**4*x**7/7 + b**5*c**4*x**8/
8
```

GIAC/XCAS [A] time = 0.219836, size = 101, normalized size = 1.26

$$\frac{1}{8}\,b^5c^4x^8-\frac{3}{7}\,ab^4c^4x^7+\frac{1}{3}\,a^2b^3c^4x^6+\frac{2}{5}\,a^3b^2c^4x^5-\frac{3}{4}\,a^4bc^4x^4+\frac{1}{3}\,a^5c^4x^3$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^4*(b*x + a)*x^2,x, algorithm="giac")
```

```
[Out] 1/8*b^5*c^4*x^8 - 3/7*a*b^4*c^4*x^7 + 1/3*a^2*b^3*c^4*x^6 + 2/5*a
^3*b^2*c^4*x^5 - 3/4*a^4*b*c^4*x^4 + 1/3*a^5*c^4*x^3
```

3.15 $\int x(a+bx)(ac-bcx)^4\,dx$

Optimal. Leaf size=59

$$-\frac{2a^2c^4(a-bx)^5}{5b^2}-\frac{c^4(a-bx)^7}{7b^2}+\frac{ac^4(a-bx)^6}{2b^2}$$

```
[Out] (-2*a^2*c^4*(a - b*x)^5)/(5*b^2) + (a*c^4*(a - b*x)^6)/(2*b^2) -
(c^4*(a - b*x)^7)/(7*b^2)
```

Rubi [A] time = 0.0949834, antiderivative size = 59, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{2a^2c^4(a-bx)^5}{5b^2}-\frac{c^4(a-bx)^7}{7b^2}+\frac{ac^4(a-bx)^6}{2b^2}$$

Antiderivative was successfully verified.

```
[In]  Int[x*(a + b*x)*(a*c - b*c*x)^4,x]
```

```
[Out] (-2*a^2*c^4*(a - b*x)^5)/(5*b^2) + (a*c^4*(a - b*x)^6)/(2*b^2) -
(c^4*(a - b*x)^7)/(7*b^2)
```

Rubi in Sympy [A] time = 30.4474, size = 51, normalized size = 0.86

$$-\frac{2a^2c^4\left(a-bx\right)^5}{5b^2}+\frac{ac^4\left(a-bx\right)^6}{2b^2}-\frac{c^4\left(a-bx\right)^7}{7b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(b*x+a)*(-b*c*x+a*c)**4,x)
```

```
[Out] -2*a**2*c**4*(a - b*x)**5/(5*b**2) + a*c**4*(a - b*x)**6/(2*b**2)
 - c**4*(a - b*x)**7/(7*b**2)
```

Mathematica [A] time = 0.00412394, size = 85, normalized size = 1.44

$$\frac{1}{2}a^5c^4x^2-a^4bc^4x^3+\frac{1}{2}a^3b^2c^4x^4+\frac{2}{5}a^2b^3c^4x^5-\frac{1}{2}ab^4c^4x^6+\frac{1}{7}b^5c^4x^7$$

Antiderivative was successfully verified.

```
[In]  Integrate[x*(a + b*x)*(a*c - b*c*x)^4,x]
```

```
[Out] (a^5*c^4*x^2)/2 - a^4*b*c^4*x^3 + (a^3*b^2*c^4*x^4)/2 + (2*a^2*b^
3*c^4*x^5)/5 - (a*b^4*c^4*x^6)/2 + (b^5*c^4*x^7)/7
```

Maple [A] time = 0.001, size = 76, normalized size = 1.3

$$\frac{b^5c^4x^7}{7}-\frac{ab^4c^4x^6}{2}+\frac{2\,a^2c^4b^3x^5}{5}+\frac{a^3c^4b^2x^4}{2}-a^4c^4bx^3+\frac{a^5c^4x^2}{2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(b*x+a)*(-b*c*x+a*c)^4,x)
```

```
[Out] 1/7*b^5*c^4*x^7-1/2*a*b^4*c^4*x^6+2/5*a^2*c^4*b^3*x^5+1/2*a^3*c^4
*b^2*x^4-a^4*c^4*b*x^3+1/2*a^5*c^4*x^2
```

Maxima [A] time = 1.37352, size = 101, normalized size = 1.71

$$\frac{1}{7}\,b^5c^4x^7-\frac{1}{2}\,ab^4c^4x^6+\frac{2}{5}\,a^2b^3c^4x^5+\frac{1}{2}\,a^3b^2c^4x^4-a^4bc^4x^3+\frac{1}{2}\,a^5c^4x^2$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^4*(b*x + a)*x,x, algorithm="maxima")
```

```
[Out] 1/7*b^5*c^4*x^7 - 1/2*a*b^4*c^4*x^6 + 2/5*a^2*b^3*c^4*x^5 + 1/2*a
^3*b^2*c^4*x^4 - a^4*b*c^4*x^3 + 1/2*a^5*c^4*x^2
```

Fricas [A] time = 0.186815, size = 1, normalized size = 0.02

$$\frac{1}{7}x^7c^4b^5-\frac{1}{2}x^6c^4b^4a+\frac{2}{5}x^5c^4b^3a^2+\frac{1}{2}x^4c^4b^2a^3-x^3c^4ba^4+\frac{1}{2}x^2c^4a^5$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^4*(b*x + a)*x,x, algorithm="fricas")
```

```
[Out] 1/7*x^7*c^4*b^5 - 1/2*x^6*c^4*b^4*a + 2/5*x^5*c^4*b^3*a^2 + 1/2*x
^4*c^4*b^2*a^3 - x^3*c^4*b*a^4 + 1/2*x^2*c^4*a^5
```

Sympy [A] time = 0.074481, size = 80, normalized size = 1.36

$$\frac{a^5c^4x^2}{2}-a^4bc^4x^3+\frac{a^3b^2c^4x^4}{2}+\frac{2a^2b^3c^4x^5}{5}-\frac{ab^4c^4x^6}{2}+\frac{b^5c^4x^7}{7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(b*x+a)*(-b*c*x+a*c)**4,x)
```

```
[Out] a**5*c**4*x**2/2 - a**4*b*c**4*x**3 + a**3*b**2*c**4*x**4/2 + 2*a
**2*b**3*c**4*x**5/5 - a*b**4*c**4*x**6/2 + b**5*c**4*x**7/7
```

GIAC/XCAS [A] time = 0.233208, size = 101, normalized size = 1.71

$$\frac{1}{7}\,b^5c^4x^7-\frac{1}{2}\,ab^4c^4x^6+\frac{2}{5}\,a^2b^3c^4x^5+\frac{1}{2}\,a^3b^2c^4x^4-a^4bc^4x^3+\frac{1}{2}\,a^5c^4x^2$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^4*(b*x + a)*x,x, algorithm="giac")
```

```
[Out] 1/7*b^5*c^4*x^7 - 1/2*a*b^4*c^4*x^6 + 2/5*a^2*b^3*c^4*x^5 + 1/2*a
^3*b^2*c^4*x^4 - a^4*b*c^4*x^3 + 1/2*a^5*c^4*x^2
```

3.16 $\int (a+bx)(ac-bcx)^4\,dx$

Optimal. Leaf size=38

$$\frac{c^4(a-bx)^6}{6b}-\frac{2ac^4(a-bx)^5}{5b}$$

```
[Out] (-2*a*c^4*(a - b*x)^5)/(5*b) + (c^4*(a - b*x)^6)/(6*b)
```

Rubi [A] time = 0.0389007, antiderivative size = 38, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 17, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.059

$$\frac{c^4(a-bx)^6}{6b}-\frac{2ac^4(a-bx)^5}{5b}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)*(a*c - b*c*x)^4,x]

[Out] (-2*a*c^4*(a - b*x)^5)/(5*b) + (c^4*(a - b*x)^6)/(6*b)
```

Rubi in Sympy [A] time = 20.5314, size = 29, normalized size = 0.76

$$-\frac{2ac^4\left(a-bx\right)^5}{5b}+\frac{c^4\left(a-bx\right)^6}{6b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(-b*c*x+a*c)**4,x)

[Out] -2*a*c**4*(a - b*x)**5/(5*b) + c**4*(a - b*x)**6/(6*b)
```

Mathematica [A] time = 0.00438089, size = 68, normalized size = 1.79

$$c^4\left(a^5x-\frac{3}{2}a^4bx^2+\frac{2}{3}a^3b^2x^3+\frac{1}{2}a^2b^3x^4-\frac{3}{5}ab^4x^5+\frac{b^5x^6}{6}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)*(a*c - b*c*x)^4,x]

[Out] c^4*(a^5*x - (3*a^4*b*x^2)/2 + (2*a^3*b^2*x^3)/3 + (a^2*b^3*x^4)/
2 - (3*a*b^4*x^5)/5 + (b^5*x^6)/6)
```

Maple [B] time = 0., size = 73, normalized size = 1.9

$$\frac{b^5c^4x^6}{6}-\frac{3\,ab^4c^4x^5}{5}+\frac{a^2b^3c^4x^4}{2}+\frac{2\,a^3b^2c^4x^3}{3}-\frac{3\,a^4bc^4x^2}{2}+a^5c^4x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(-b*c*x+a*c)^4,x)
```

```
[Out] 1/6*b^5*c^4*x^6-3/5*a*b^4*c^4*x^5+1/2*a^2*b^3*c^4*x^4+2/3*a^3*b^2
*c^4*x^3-3/2*a^4*b*c^4*x^2+a^5*c^4*x
```

Maxima [A] time = 1.34604, size = 97, normalized size = 2.55

$$\frac{1}{6}\,b^5c^4x^6 - \frac{3}{5}\,ab^4c^4x^5 + \frac{1}{2}\,a^2b^3c^4x^4 + \frac{2}{3}\,a^3b^2c^4x^3 - \frac{3}{2}\,a^4bc^4x^2 + a^5c^4x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^4*(b*x + a),x, algorithm="maxima")
```

```
[Out] 1/6*b^5*c^4*x^6 - 3/5*a*b^4*c^4*x^5 + 1/2*a^2*b^3*c^4*x^4 + 2/3*a
^3*b^2*c^4*x^3 - 3/2*a^4*b*c^4*x^2 + a^5*c^4*x
```

Fricas [A] time = 0.183376, size = 1, normalized size = 0.03

$$\frac{1}{6}x^6c^4b^5 - \frac{3}{5}x^5c^4b^4a + \frac{1}{2}x^4c^4b^3a^2 + \frac{2}{3}x^3c^4b^2a^3 - \frac{3}{2}x^2c^4ba^4 + xc^4a^5$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^4*(b*x + a),x, algorithm="fricas")
```

```
[Out] 1/6*x^6*c^4*b^5 - 3/5*x^5*c^4*b^4*a + 1/2*x^4*c^4*b^3*a^2 + 2/3*x
^3*c^4*b^2*a^3 - 3/2*x^2*c^4*b*a^4 + x*c^4*a^5
```

Sympy [A] time = 0.078894, size = 82, normalized size = 2.16

$$a^5c^4x - \frac{3a^4bc^4x^2}{2} + \frac{2a^3b^2c^4x^3}{3} + \frac{a^2b^3c^4x^4}{2} - \frac{3ab^4c^4x^5}{5} + \frac{b^5c^4x^6}{6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(-b*c*x+a*c)**4,x)
```

```
[Out] a**5*c**4*x - 3*a**4*b*c**4*x**2/2 + 2*a**3*b**2*c**4*x**3/3 + a*
*2*b**3*c**4*x**4/2 - 3*a*b**4*c**4*x**5/5 + b**5*c**4*x**6/6
```

GIAC/XCAS [A] time = 0.26225, size = 97, normalized size = 2.55

$$\frac{1}{6}\,b^5c^4x^6 - \frac{3}{5}\,ab^4c^4x^5 + \frac{1}{2}\,a^2b^3c^4x^4 + \frac{2}{3}\,a^3b^2c^4x^3 - \frac{3}{2}\,a^4bc^4x^2 + a^5c^4x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^4*(b*x + a),x, algorithm="giac")
```

```
[Out] 1/6*b^5*c^4*x^6 - 3/5*a*b^4*c^4*x^5 + 1/2*a^2*b^3*c^4*x^4 + 2/3*a
^3*b^2*c^4*x^3 - 3/2*a^4*b*c^4*x^2 + a^5*c^4*x
```

3.17 $\int \frac{(a+bx)(ac-bcx)^4}{x}\,dx$

Optimal. Leaf size=76

$$a^5c^4\log(x)-3a^4bc^4x+a^3b^2c^4x^2+\frac{2}{3}a^2b^3c^4x^3-\frac{3}{4}ab^4c^4x^4+\frac{1}{5}b^5c^4x^5$$

```
[Out] -3*a^4*b*c^4*x + a^3*b^2*c^4*x^2 + (2*a^2*b^3*c^4*x^3)/3 - (3*a*b
^4*c^4*x^4)/4 + (b^5*c^4*x^5)/5 + a^5*c^4*Log[x]
```

Rubi [A] time = 0.0760721, antiderivative size = 76, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$a^5c^4\log(x)-3a^4bc^4x+a^3b^2c^4x^2+\frac{2}{3}a^2b^3c^4x^3-\frac{3}{4}ab^4c^4x^4+\frac{1}{5}b^5c^4x^5$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(a*c - b*c*x)^4)/x,x]
```

```
[Out] -3*a^4*b*c^4*x + a^3*b^2*c^4*x^2 + (2*a^2*b^3*c^4*x^3)/3 - (3*a*b
^4*c^4*x^4)/4 + (b^5*c^4*x^5)/5 + a^5*c^4*Log[x]
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$a^5c^4\log(x)-3a^4bc^4x+2a^3b^2c^4\int x\,dx+\frac{2a^2b^3c^4x^3}{3}-\frac{3ab^4c^4x^4}{4}+\frac{b^5c^4x^5}{5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(-b*c*x+a*c)**4/x,x)
```

```
[Out] a**5*c**4*log(x) - 3*a**4*b*c**4*x + 2*a**3*b**2*c**4*Integral(x,
 x) + 2*a**2*b**3*c**4*x**3/3 - 3*a*b**4*c**4*x**4/4 + b**5*c**4*
x**5/5
```

Mathematica [A] time = 0.0308659, size = 70, normalized size = 0.92

$$\frac{1}{60}c^4\left(60a^5\log(-bcx)+113a^5-180a^4bx+60a^3b^2x^2+40a^2b^3x^3-45ab^4x^4+12b^5x^5\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(a*c - b*c*x)^4)/x,x]
```

```
[Out] (c^4*(113*a^5 - 180*a^4*b*x + 60*a^3*b^2*x^2 + 40*a^2*b^3*x^3 - 4
5*a*b^4*x^4 + 12*b^5*x^5 + 60*a^5*Log[-(b*c*x)]))/60
```

Maple [A] time = 0.004, size = 71, normalized size = 0.9

$$-3\,a^4bc^4x+a^3b^2c^4x^2+\frac{2\,a^2b^3c^4x^3}{3}-\frac{3\,ab^4c^4x^4}{4}+\frac{b^5c^4x^5}{5}+a^5c^4\ln(x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(-b*c*x+a*c)^4/x,x)
```

```
[Out] -3*a^4*b*c^4*x+a^3*b^2*c^4*x^2+2/3*a^2*b^3*c^4*x^3-3/4*a*b^4*c^4*
x^4+1/5*b^5*c^4*x^5+a^5*c^4*ln(x)
```

Maxima [A] time = 1.33748, size = 95, normalized size = 1.25

$$\frac{1}{5} b^5 c^4 x^5 - \frac{3}{4} a b^4 c^4 x^4 + \frac{2}{3} a^2 b^3 c^4 x^3 + a^3 b^2 c^4 x^2 - 3 a^4 b c^4 x + a^5 c^4 \log(x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^4*(b*x + a)/x,x, algorithm="maxima")
```

```
[Out] 1/5*b^5*c^4*x^5 - 3/4*a*b^4*c^4*x^4 + 2/3*a^2*b^3*c^4*x^3 + a^3*b
^2*c^4*x^2 - 3*a^4*b*c^4*x + a^5*c^4*log(x)
```

Fricas [A] time = 0.203911, size = 95, normalized size = 1.25

$$\frac{1}{5} b^5 c^4 x^5 - \frac{3}{4} a b^4 c^4 x^4 + \frac{2}{3} a^2 b^3 c^4 x^3 + a^3 b^2 c^4 x^2 - 3 a^4 b c^4 x + a^5 c^4 \log(x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^4*(b*x + a)/x,x, algorithm="fricas")
```

```
[Out] 1/5*b^5*c^4*x^5 - 3/4*a*b^4*c^4*x^4 + 2/3*a^2*b^3*c^4*x^3 + a^3*b
^2*c^4*x^2 - 3*a^4*b*c^4*x + a^5*c^4*log(x)
```

Sympy [A] time = 0.637898, size = 78, normalized size = 1.03

$$a^5 c^4 \log(x) - 3a^4 b c^4 x + a^3 b^2 c^4 x^2 + \frac{2a^2 b^3 c^4 x^3}{3} - \frac{3ab^4 c^4 x^4}{4} + \frac{b^5 c^4 x^5}{5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(-b*c*x+a*c)**4/x,x)
```

```
[Out] a**5*c**4*log(x) - 3*a**4*b*c**4*x + a**3*b**2*c**4*x**2 + 2*a**2
*b**3*c**4*x**3/3 - 3*a*b**4*c**4*x**4/4 + b**5*c**4*x**5/5
```

GIAC/XCAS [A] time = 0.240822, size = 96, normalized size = 1.26

$$\frac{1}{5} b^5 c^4 x^5 - \frac{3}{4} a b^4 c^4 x^4 + \frac{2}{3} a^2 b^3 c^4 x^3 + a^3 b^2 c^4 x^2 - 3 a^4 b c^4 x + a^5 c^4 \ln(|x|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^4*(b*x + a)/x,x, algorithm="giac")
```

```
[Out] 1/5*b^5*c^4*x^5 - 3/4*a*b^4*c^4*x^4 + 2/3*a^2*b^3*c^4*x^3 + a^3*b
^2*c^4*x^2 - 3*a^4*b*c^4*x + a^5*c^4*ln(abs(x))
```

3.18 $\int \frac{(a+bx)(ac-bcx)^4}{x^2}\,dx$

Optimal. Leaf size=73

$$-\frac{a^5c^4}{x}-3a^4bc^4\log(x)+2a^3b^2c^4x+a^2b^3c^4x^2-ab^4c^4x^3+\frac{1}{4}b^5c^4x^4$$

```
[Out] -((a^5*c^4)/x) + 2*a^3*b^2*c^4*x + a^2*b^3*c^4*x^2 - a*b^4*c^4*x^
3 + (b^5*c^4*x^4)/4 - 3*a^4*b*c^4*Log[x]
```

Rubi [A] time = 0.0954468, antiderivative size = 73, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{a^5c^4}{x}-3a^4bc^4\log(x)+2a^3b^2c^4x+a^2b^3c^4x^2-ab^4c^4x^3+\frac{1}{4}b^5c^4x^4$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(a*c - b*c*x)^4)/x^2,x]
```

```
[Out] -((a^5*c^4)/x) + 2*a^3*b^2*c^4*x + a^2*b^3*c^4*x^2 - a*b^4*c^4*x^
3 + (b^5*c^4*x^4)/4 - 3*a^4*b*c^4*Log[x]
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{a^5c^4}{x}-3a^4bc^4\log{(x)}+2a^3b^2c^4x+2a^2b^3c^4\int x\,dx-ab^4c^4x^3+\frac{b^5c^4x^4}{4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(-b*c*x+a*c)**4/x**2,x)
```

```
[Out] -a**5*c**4/x - 3*a**4*b*c**4*log(x) + 2*a**3*b**2*c**4*x + 2*a**2
*b**3*c**4*Integral(x, x) - a*b**4*c**4*x**3 + b**5*c**4*x**4/4
```

Mathematica [A] time = 0.0140338, size = 73, normalized size = 1.

$$-\frac{a^5c^4}{x}-3a^4bc^4\log(x)+2a^3b^2c^4x+a^2b^3c^4x^2-ab^4c^4x^3+\frac{1}{4}b^5c^4x^4$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(a*c - b*c*x)^4)/x^2,x]
```

```
[Out] -((a^5*c^4)/x) + 2*a^3*b^2*c^4*x + a^2*b^3*c^4*x^2 - a*b^4*c^4*x^
3 + (b^5*c^4*x^4)/4 - 3*a^4*b*c^4*Log[x]
```

Maple [A] time = 0.009, size = 72, normalized size = 1.

$$-\frac{a^5c^4}{x}+2\,a^3b^2c^4x+a^2b^3c^4x^2-ab^4c^4x^3+\frac{b^5c^4x^4}{4}-3\,a^4bc^4\ln(x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(-b*c*x+a*c)^4/x^2,x)
```

```
[Out] -a^5*c^4/x+2*a^3*b^2*c^4*x+a^2*b^3*c^4*x^2-a*b^4*c^4*x^3+1/4*b^5*
c^4*x^4-3*a^4*b*c^4*ln(x)
```

Maxima [A] time = 1.38091, size = 96, normalized size = 1.32

$$\frac{1}{4}\,b^5c^4x^4 - ab^4c^4x^3 + a^2b^3c^4x^2 + 2\,a^3b^2c^4x - 3\,a^4bc^4\log\left(x\right) - \frac{a^5c^4}{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^4*(b*x + a)/x^2,x, algorithm="maxima")
```

```
[Out] 1/4*b^5*c^4*x^4 - a*b^4*c^4*x^3 + a^2*b^3*c^4*x^2 + 2*a^3*b^2*c^4
*x - 3*a^4*b*c^4*log(x) - a^5*c^4/x
```

Fricas [A] time = 0.208116, size = 103, normalized size = 1.41

$$\frac{b^5c^4x^5 - 4\,ab^4c^4x^4 + 4\,a^2b^3c^4x^3 + 8\,a^3b^2c^4x^2 - 12\,a^4bc^4x\log\left(x\right) - 4\,a^5c^4}{4\,x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^4*(b*x + a)/x^2,x, algorithm="fricas")
```

```
[Out] 1/4*(b^5*c^4*x^5 - 4*a*b^4*c^4*x^4 + 4*a^2*b^3*c^4*x^3 + 8*a^3*b^
2*c^4*x^2 - 12*a^4*b*c^4*x*log(x) - 4*a^5*c^4)/x
```

Sympy [A] time = 0.691072, size = 71, normalized size = 0.97

$$-\frac{a^5c^4}{x} - 3a^4bc^4\log\left(x\right) + 2a^3b^2c^4x + a^2b^3c^4x^2 - ab^4c^4x^3 + \frac{b^5c^4x^4}{4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(-b*c*x+a*c)**4/x**2,x)
```

```
[Out] -a**5*c**4/x - 3*a**4*b*c**4*log(x) + 2*a**3*b**2*c**4*x + a**2*b
**3*c**4*x**2 - a*b**4*c**4*x**3 + b**5*c**4*x**4/4
```

GIAC/XCAS [A] time = 0.245653, size = 97, normalized size = 1.33

$$\frac{1}{4}\,b^5c^4x^4 - ab^4c^4x^3 + a^2b^3c^4x^2 + 2\,a^3b^2c^4x - 3\,a^4bc^4\ln\left(|x|\right) - \frac{a^5c^4}{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^4*(b*x + a)/x^2,x, algorithm="giac")
```

```
[Out] 1/4*b^5*c^4*x^4 - a*b^4*c^4*x^3 + a^2*b^3*c^4*x^2 + 2*a^3*b^2*c^4
*x - 3*a^4*b*c^4*ln(abs(x)) - a^5*c^4/x
```

3.19 $\int \frac{(a+bx)(ac-bcx)^4}{x^3}\,dx$

Optimal. Leaf size=78

$$-\frac{a^5c^4}{2x^2}+\frac{3a^4bc^4}{x}+2a^3b^2c^4\log(x)+2a^2b^3c^4x-\frac{3}{2}ab^4c^4x^2+\frac{1}{3}b^5c^4x^3$$

```
[Out] -(a^5*c^4)/(2*x^2) + (3*a^4*b*c^4)/x + 2*a^2*b^3*c^4*x - (3*a*b^4
*c^4*x^2)/2 + (b^5*c^4*x^3)/3 + 2*a^3*b^2*c^4*Log[x]
```

Rubi [A] time = 0.0928805, antiderivative size = 78, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{a^5c^4}{2x^2}+\frac{3a^4bc^4}{x}+2a^3b^2c^4\log(x)+2a^2b^3c^4x-\frac{3}{2}ab^4c^4x^2+\frac{1}{3}b^5c^4x^3$$

Antiderivative was successfully verified.

```
[In] Int[((a + b*x)*(a*c - b*c*x)^4)/x^3,x]
```

```
[Out] -(a^5*c^4)/(2*x^2) + (3*a^4*b*c^4)/x + 2*a^2*b^3*c^4*x - (3*a*b^4
*c^4*x^2)/2 + (b^5*c^4*x^3)/3 + 2*a^3*b^2*c^4*Log[x]
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{a^5c^4}{2x^2}+\frac{3a^4bc^4}{x}+2a^3b^2c^4\log(x)+2a^2b^3c^4x-3ab^4c^4\int x\,dx+\frac{b^5c^4x^3}{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)*(-b*c*x+a*c)**4/x**3,x)
```

```
[Out] -a**5*c**4/(2*x**2) + 3*a**4*b*c**4/x + 2*a**3*b**2*c**4*log(x) +
 2*a**2*b**3*c**4*x - 3*a*b**4*c**4*Integral(x, x) + b**5*c**4*x*
*3/3
```

Mathematica [A] time = 0.0128985, size = 78, normalized size = 1.

$$-\frac{a^5c^4}{2x^2}+\frac{3a^4bc^4}{x}+2a^3b^2c^4\log(x)+2a^2b^3c^4x-\frac{3}{2}ab^4c^4x^2+\frac{1}{3}b^5c^4x^3$$

Antiderivative was successfully verified.

```
[In] Integrate[((a + b*x)*(a*c - b*c*x)^4)/x^3,x]
```

```
[Out] -(a^5*c^4)/(2*x^2) + (3*a^4*b*c^4)/x + 2*a^2*b^3*c^4*x - (3*a*b^4
*c^4*x^2)/2 + (b^5*c^4*x^3)/3 + 2*a^3*b^2*c^4*Log[x]
```

Maple [A] time = 0.009, size = 73, normalized size = 0.9

$$-\frac{a^5c^4}{2\,x^2}+3\,\frac{a^4bc^4}{x}+2\,a^2b^3c^4x-\frac{3\,ab^4c^4x^2}{2}+\frac{b^5c^4x^3}{3}+2\,a^3b^2c^4\ln(x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(-b*c*x+a*c)^4/x^3,x)
```

```
[Out] -1/2*a^5*c^4/x^2+3*a^4*b*c^4/x+2*a^2*b^3*c^4*x-3/2*a*b^4*c^4*x^2+
1/3*b^5*c^4*x^3+2*a^3*b^2*c^4*ln(x)
```

Maxima [A] time = 1.3403, size = 99, normalized size = 1.27

$$\frac{1}{3}\,b^5c^4x^3-\frac{3}{2}\,ab^4c^4x^2+2\,a^2b^3c^4x+2\,a^3b^2c^4\log\left(x\right)+\frac{6\,a^4bc^4x-a^5c^4}{2\,x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^4*(b*x + a)/x^3,x, algorithm="maxima")
```

```
[Out] 1/3*b^5*c^4*x^3 - 3/2*a*b^4*c^4*x^2 + 2*a^2*b^3*c^4*x + 2*a^3*b^2
*c^4*log(x) + 1/2*(6*a^4*b*c^4*x - a^5*c^4)/x^2
```

Fricas [A] time = 0.201447, size = 104, normalized size = 1.33

$$\frac{2\,b^5c^4x^5-9\,ab^4c^4x^4+12\,a^2b^3c^4x^3+12\,a^3b^2c^4x^2\log\left(x\right)+18\,a^4bc^4x-3\,a^5c^4}{6\,x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^4*(b*x + a)/x^3,x, algorithm="fricas")
```

```
[Out] 1/6*(2*b^5*c^4*x^5 - 9*a*b^4*c^4*x^4 + 12*a^2*b^3*c^4*x^3 + 12*a^
3*b^2*c^4*x^2*log(x) + 18*a^4*b*c^4*x - 3*a^5*c^4)/x^2
```

Sympy [A] time = 0.751934, size = 78, normalized size = 1.

$$2a^3b^2c^4\log\left(x\right)+2a^2b^3c^4x-\frac{3ab^4c^4x^2}{2}+\frac{b^5c^4x^3}{3}+\frac{-a^5c^4+6a^4bc^4x}{2x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(-b*c*x+a*c)**4/x**3,x)
```

```
[Out] 2*a**3*b**2*c**4*log(x) + 2*a**2*b**3*c**4*x - 3*a*b**4*c**4*x**2
/2 + b**5*c**4*x**3/3 + (-a**5*c**4 + 6*a**4*b*c**4*x)/(2*x**2)
```

GIAC/XCAS [A] time = 0.292718, size = 100, normalized size = 1.28

$$\frac{1}{3}\,b^5c^4x^3-\frac{3}{2}\,ab^4c^4x^2+2\,a^2b^3c^4x+2\,a^3b^2c^4\ln\left(|x|\right)+\frac{6\,a^4bc^4x-a^5c^4}{2\,x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^4*(b*x + a)/x^3,x, algorithm="giac")
```

```
[Out] 1/3*b^5*c^4*x^3 - 3/2*a*b^4*c^4*x^2 + 2*a^2*b^3*c^4*x + 2*a^3*b^2
*c^4*ln(abs(x)) + 1/2*(6*a^4*b*c^4*x - a^5*c^4)/x^2
```

3.20 $\int \frac{(a+bx)(ac-bcx)^4}{x^4} dx$

Optimal. Leaf size=78

$$-\frac{a^5c^4}{3x^3}+\frac{3a^4bc^4}{2x^2}-\frac{2a^3b^2c^4}{x}+2a^2b^3c^4\log(x)-3ab^4c^4x+\frac{1}{2}b^5c^4x^2$$

```
[Out] -(a^5*c^4)/(3*x^3) + (3*a^4*b*c^4)/(2*x^2) - (2*a^3*b^2*c^4)/x -
3*a*b^4*c^4*x + (b^5*c^4*x^2)/2 + 2*a^2*b^3*c^4*Log[x]
```

Rubi [A] time = 0.097031, antiderivative size = 78, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{a^5c^4}{3x^3}+\frac{3a^4bc^4}{2x^2}-\frac{2a^3b^2c^4}{x}+2a^2b^3c^4\log(x)-3ab^4c^4x+\frac{1}{2}b^5c^4x^2$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(a*c - b*c*x)^4)/x^4,x]
```

```
[Out] -(a^5*c^4)/(3*x^3) + (3*a^4*b*c^4)/(2*x^2) - (2*a^3*b^2*c^4)/x -
3*a*b^4*c^4*x + (b^5*c^4*x^2)/2 + 2*a^2*b^3*c^4*Log[x]
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{a^5c^4}{3x^3}+\frac{3a^4bc^4}{2x^2}-\frac{2a^3b^2c^4}{x}+2a^2b^3c^4\log(x)-3ab^4c^4x+b^5c^4\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(-b*c*x+a*c)**4/x**4,x)
```

```
[Out] -a**5*c**4/(3*x**3) + 3*a**4*b*c**4/(2*x**2) - 2*a**3*b**2*c**4/x
 + 2*a**2*b**3*c**4*log(x) - 3*a*b**4*c**4*x + b**5*c**4*Integral
(x, x)
```

Mathematica [A] time = 0.0123702, size = 78, normalized size = 1.

$$-\frac{a^5c^4}{3x^3}+\frac{3a^4bc^4}{2x^2}-\frac{2a^3b^2c^4}{x}+2a^2b^3c^4\log(x)-3ab^4c^4x+\frac{1}{2}b^5c^4x^2$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(a*c - b*c*x)^4)/x^4,x]
```

```
[Out] -(a^5*c^4)/(3*x^3) + (3*a^4*b*c^4)/(2*x^2) - (2*a^3*b^2*c^4)/x -
3*a*b^4*c^4*x + (b^5*c^4*x^2)/2 + 2*a^2*b^3*c^4*Log[x]
```

Maple [A] time = 0.01, size = 73, normalized size = 0.9

$$-\frac{a^5c^4}{3\,x^3}+\frac{3\,a^4bc^4}{2\,x^2}-2\,\frac{a^3b^2c^4}{x}-3\,ab^4c^4x+\frac{b^5c^4x^2}{2}+2\,a^2b^3c^4\ln(x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(-b*c*x+a*c)^4/x^4,x)
```

```
[Out] -1/3*a^5*c^4/x^3+3/2*a^4*b*c^4/x^2-2*a^3*b^2*c^4/x-3*a*b^4*c^4*x+
1/2*b^5*c^4*x^2+2*a^2*b^3*c^4*ln(x)
```

Maxima [A] time = 1.32848, size = 99, normalized size = 1.27

$$\frac{1}{2}\,b^5c^4x^2 - 3\,ab^4c^4x + 2\,a^2b^3c^4\log\left(x\right) - \frac{12\,a^3b^2c^4x^2 - 9\,a^4bc^4x + 2\,a^5c^4}{6\,x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^4*(b*x + a)/x^4,x, algorithm="maxima")
```

```
[Out] 1/2*b^5*c^4*x^2 - 3*a*b^4*c^4*x + 2*a^2*b^3*c^4*log(x) - 1/6*(12*
a^3*b^2*c^4*x^2 - 9*a^4*b*c^4*x + 2*a^5*c^4)/x^3
```

Fricas [A] time = 0.203335, size = 104, normalized size = 1.33

$$\frac{3\,b^5c^4x^5 - 18\,ab^4c^4x^4 + 12\,a^2b^3c^4x^3\log\left(x\right) - 12\,a^3b^2c^4x^2 + 9\,a^4bc^4x - 2\,a^5c^4}{6\,x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^4*(b*x + a)/x^4,x, algorithm="fricas")
```

```
[Out] 1/6*(3*b^5*c^4*x^5 - 18*a*b^4*c^4*x^4 + 12*a^2*b^3*c^4*x^3*log(x)
 - 12*a^3*b^2*c^4*x^2 + 9*a^4*b*c^4*x - 2*a^5*c^4)/x^3
```

Sympy [A] time = 0.86951, size = 78, normalized size = 1.

$$2a^2b^3c^4\log\left(x\right) - 3ab^4c^4x + \frac{b^5c^4x^2}{2} - \frac{2a^5c^4 - 9a^4bc^4x + 12a^3b^2c^4x^2}{6x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(-b*c*x+a*c)**4/x**4,x)
```

```
[Out] 2*a**2*b**3*c**4*log(x) - 3*a*b**4*c**4*x + b**5*c**4*x**2/2 - (2
*a**5*c**4 - 9*a**4*b*c**4*x + 12*a**3*b**2*c**4*x**2)/(6*x**3)
```

GIAC/XCAS [A] time = 0.239015, size = 100, normalized size = 1.28

$$\frac{1}{2}\,b^5c^4x^2 - 3\,ab^4c^4x + 2\,a^2b^3c^4\ln\left(|x|\right) - \frac{12\,a^3b^2c^4x^2 - 9\,a^4bc^4x + 2\,a^5c^4}{6\,x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^4*(b*x + a)/x^4,x, algorithm="giac")
```

```
[Out] 1/2*b^5*c^4*x^2 - 3*a*b^4*c^4*x + 2*a^2*b^3*c^4*ln(abs(x)) - 1/6*
(12*a^3*b^2*c^4*x^2 - 9*a^4*b*c^4*x + 2*a^5*c^4)/x^3
```

3.21 $\int \frac{(a+bx)(ac-bcx)^4}{x^5}\,dx$

Optimal. Leaf size=72

$$-\frac{a^5c^4}{4x^4}+\frac{a^4bc^4}{x^3}-\frac{a^3b^2c^4}{x^2}-\frac{2a^2b^3c^4}{x}-3ab^4c^4\log(x)+b^5c^4x$$

```
[Out] -(a^5*c^4)/(4*x^4) + (a^4*b*c^4)/x^3 - (a^3*b^2*c^4)/x^2 - (2*a^2
*b^3*c^4)/x + b^5*c^4*x - 3*a*b^4*c^4*Log[x]
```

Rubi [A] time = 0.0953821, antiderivative size = 72, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{a^5c^4}{4x^4}+\frac{a^4bc^4}{x^3}-\frac{a^3b^2c^4}{x^2}-\frac{2a^2b^3c^4}{x}-3ab^4c^4\log(x)+b^5c^4x$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(a*c - b*c*x)^4)/x^5,x]
```

```
[Out] -(a^5*c^4)/(4*x^4) + (a^4*b*c^4)/x^3 - (a^3*b^2*c^4)/x^2 - (2*a^2
*b^3*c^4)/x + b^5*c^4*x - 3*a*b^4*c^4*Log[x]
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{a^5c^4}{4x^4}+\frac{a^4bc^4}{x^3}-\frac{a^3b^2c^4}{x^2}-\frac{2a^2b^3c^4}{x}-3ab^4c^4\log(x)+c^4\int b^5\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(-b*c*x+a*c)**4/x**5,x)
```

```
[Out] -a**5*c**4/(4*x**4) + a**4*b*c**4/x**3 - a**3*b**2*c**4/x**2 - 2*
a**2*b**3*c**4/x - 3*a*b**4*c**4*log(x) + c**4*Integral(b**5, x)
```

Mathematica [A] time = 0.0129897, size = 72, normalized size = 1.

$$-\frac{a^5c^4}{4x^4}+\frac{a^4bc^4}{x^3}-\frac{a^3b^2c^4}{x^2}-\frac{2a^2b^3c^4}{x}-3ab^4c^4\log(x)+b^5c^4x$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(a*c - b*c*x)^4)/x^5,x]
```

```
[Out] -(a^5*c^4)/(4*x^4) + (a^4*b*c^4)/x^3 - (a^3*b^2*c^4)/x^2 - (2*a^2
*b^3*c^4)/x + b^5*c^4*x - 3*a*b^4*c^4*Log[x]
```

Maple [A] time = 0.01, size = 71, normalized size = 1.

$$-\frac{a^5c^4}{4\,x^4}+\frac{a^4bc^4}{x^3}-\frac{a^3b^2c^4}{x^2}-2\,\frac{a^2b^3c^4}{x}+b^5c^4x-3\,ab^4c^4\ln(x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(-b*c*x+a*c)^4/x^5,x)
```

```
[Out] -1/4*a^5*c^4/x^4+a^4*b*c^4/x^3-a^3*b^2*c^4/x^2-2*a^2*b^3*c^4/x+b^
5*c^4*x-3*a*b^4*c^4*ln(x)
```

Maxima [A] time = 1.36321, size = 96, normalized size = 1.33

$$b^5c^4x - 3\,ab^4c^4\log(x) - \frac{8\,a^2b^3c^4x^3 + 4\,a^3b^2c^4x^2 - 4\,a^4bc^4x + a^5c^4}{4\,x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^4*(b*x + a)/x^5,x, algorithm="maxima")
```

```
[Out] b^5*c^4*x - 3*a*b^4*c^4*log(x) - 1/4*(8*a^2*b^3*c^4*x^3 + 4*a^3*b
^2*c^4*x^2 - 4*a^4*b*c^4*x + a^5*c^4)/x^4
```

Fricas [A] time = 0.211525, size = 104, normalized size = 1.44

$$\frac{4\,b^5c^4x^5 - 12\,ab^4c^4x^4\log(x) - 8\,a^2b^3c^4x^3 - 4\,a^3b^2c^4x^2 + 4\,a^4bc^4x - a^5c^4}{4\,x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^4*(b*x + a)/x^5,x, algorithm="fricas")
```

```
[Out] 1/4*(4*b^5*c^4*x^5 - 12*a*b^4*c^4*x^4*log(x) - 8*a^2*b^3*c^4*x^3
- 4*a^3*b^2*c^4*x^2 + 4*a^4*b*c^4*x - a^5*c^4)/x^4
```

Sympy [A] time = 0.988506, size = 75, normalized size = 1.04

$$-3ab^4c^4\log(x) + b^5c^4x - \frac{a^5c^4 - 4a^4bc^4x + 4a^3b^2c^4x^2 + 8a^2b^3c^4x^3}{4x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(-b*c*x+a*c)**4/x**5,x)
```

```
[Out] -3*a*b**4*c**4*log(x) + b**5*c**4*x - (a**5*c**4 - 4*a**4*b*c**4*
x + 4*a**3*b**2*c**4*x**2 + 8*a**2*b**3*c**4*x**3)/(4*x**4)
```

GIAC/XCAS [A] time = 0.274291, size = 97, normalized size = 1.35

$$b^5c^4x - 3\,ab^4c^4\ln(|x|) - \frac{8\,a^2b^3c^4x^3 + 4\,a^3b^2c^4x^2 - 4\,a^4bc^4x + a^5c^4}{4\,x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^4*(b*x + a)/x^5,x, algorithm="giac")
```

```
[Out] b^5*c^4*x - 3*a*b^4*c^4*ln(abs(x)) - 1/4*(8*a^2*b^3*c^4*x^3 + 4*a
^3*b^2*c^4*x^2 - 4*a^4*b*c^4*x + a^5*c^4)/x^4
```

3.22 $\int \frac{(a+bx)(ac-bcx)^4}{x^6} dx$

Optimal. Leaf size=79

$$-\frac{a^5c^4}{5x^5}+\frac{3a^4bc^4}{4x^4}-\frac{2a^3b^2c^4}{3x^3}-\frac{a^2b^3c^4}{x^2}+\frac{3ab^4c^4}{x}+b^5c^4\log(x)$$

```
[Out] -(a^5*c^4)/(5*x^5) + (3*a^4*b*c^4)/(4*x^4) - (2*a^3*b^2*c^4)/(3*x
^3) - (a^2*b^3*c^4)/x^2 + (3*a*b^4*c^4)/x + b^5*c^4*Log[x]
```

Rubi [A] time = 0.0883102, antiderivative size = 79, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{a^5c^4}{5x^5}+\frac{3a^4bc^4}{4x^4}-\frac{2a^3b^2c^4}{3x^3}-\frac{a^2b^3c^4}{x^2}+\frac{3ab^4c^4}{x}+b^5c^4\log(x)$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(a*c - b*c*x)^4)/x^6,x]
```

```
[Out] -(a^5*c^4)/(5*x^5) + (3*a^4*b*c^4)/(4*x^4) - (2*a^3*b^2*c^4)/(3*x
^3) - (a^2*b^3*c^4)/x^2 + (3*a*b^4*c^4)/x + b^5*c^4*Log[x]
```

Rubi in Sympy [A] time = 29.5247, size = 78, normalized size = 0.99

$$-\frac{a^5c^4}{5x^5}+\frac{3a^4bc^4}{4x^4}-\frac{2a^3b^2c^4}{3x^3}-\frac{a^2b^3c^4}{x^2}+\frac{3ab^4c^4}{x}+b^5c^4\log(x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(-b*c*x+a*c)**4/x**6,x)
```

```
[Out] -a**5*c**4/(5*x**5) + 3*a**4*b*c**4/(4*x**4) - 2*a**3*b**2*c**4/(
3*x**3) - a**2*b**3*c**4/x**2 + 3*a*b**4*c**4/x + b**5*c**4*log(x
)
```

Mathematica [A] time = 0.0119251, size = 79, normalized size = 1.

$$-\frac{a^5c^4}{5x^5}+\frac{3a^4bc^4}{4x^4}-\frac{2a^3b^2c^4}{3x^3}-\frac{a^2b^3c^4}{x^2}+\frac{3ab^4c^4}{x}+b^5c^4\log(x)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(a*c - b*c*x)^4)/x^6,x]
```

```
[Out] -(a^5*c^4)/(5*x^5) + (3*a^4*b*c^4)/(4*x^4) - (2*a^3*b^2*c^4)/(3*x
^3) - (a^2*b^3*c^4)/x^2 + (3*a*b^4*c^4)/x + b^5*c^4*Log[x]
```

Maple [A] time = 0.01, size = 74, normalized size = 0.9

$$-\frac{a^5c^4}{5\,x^5}+\frac{3\,a^4bc^4}{4\,x^4}-\frac{2\,a^3b^2c^4}{3\,x^3}-\frac{a^2b^3c^4}{x^2}+3\,\frac{ab^4c^4}{x}+b^5c^4\ln(x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(-b*c*x+a*c)^4/x^6,x)
```

```
[Out] -1/5*a^5*c^4/x^5+3/4*a^4*b*c^4/x^4-2/3*a^3*b^2*c^4/x^3-a^2*b^3*c^
4/x^2+3*a*b^4*c^4/x+b^5*c^4*ln(x)
```

Maxima [A] time = 1.35063, size = 100, normalized size = 1.27

$$b^5c^4\log(x) + \frac{180\,ab^4c^4x^4 - 60\,a^2b^3c^4x^3 - 40\,a^3b^2c^4x^2 + 45\,a^4bc^4x - 12\,a^5c^4}{60\,x^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^4*(b*x + a)/x^6,x, algorithm="maxima")
```

```
[Out] b^5*c^4*log(x) + 1/60*(180*a*b^4*c^4*x^4 - 60*a^2*b^3*c^4*x^3 - 4
0*a^3*b^2*c^4*x^2 + 45*a^4*b*c^4*x - 12*a^5*c^4)/x^5
```

Fricas [A] time = 0.210444, size = 104, normalized size = 1.32

$$\frac{60\,b^5c^4x^5\log(x) + 180\,ab^4c^4x^4 - 60\,a^2b^3c^4x^3 - 40\,a^3b^2c^4x^2 + 45\,a^4bc^4x - 12\,a^5c^4}{60\,x^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^4*(b*x + a)/x^6,x, algorithm="fricas")
```

```
[Out] 1/60*(60*b^5*c^4*x^5*log(x) + 180*a*b^4*c^4*x^4 - 60*a^2*b^3*c^4*
x^3 - 40*a^3*b^2*c^4*x^2 + 45*a^4*b*c^4*x - 12*a^5*c^4)/x^5
```

Sympy [A] time = 1.22647, size = 78, normalized size = 0.99

$$b^5c^4\log(x) + \frac{-12a^5c^4 + 45a^4bc^4x - 40a^3b^2c^4x^2 - 60a^2b^3c^4x^3 + 180ab^4c^4x^4}{60x^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(-b*c*x+a*c)**4/x**6,x)
```

```
[Out] b**5*c**4*log(x) + (-12*a**5*c**4 + 45*a**4*b*c**4*x - 40*a**3*b*
*2*c**4*x**2 - 60*a**2*b**3*c**4*x**3 + 180*a*b**4*c**4*x**4)/(60
*x**5)
```

GIAC/XCAS [A] time = 0.265893, size = 101, normalized size = 1.28

$$b^5c^4\ln(|x|) + \frac{180\,ab^4c^4x^4 - 60\,a^2b^3c^4x^3 - 40\,a^3b^2c^4x^2 + 45\,a^4bc^4x - 12\,a^5c^4}{60\,x^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^4*(b*x + a)/x^6,x, algorithm="giac")
```

```
[Out] b^5*c^4*ln(abs(x)) + 1/60*(180*a*b^4*c^4*x^4 - 60*a^2*b^3*c^4*x^3
 - 40*a^3*b^2*c^4*x^2 + 45*a^4*b*c^4*x - 12*a^5*c^4)/x^5
```

3.23 $\int \frac{(a+bx)(ac-bcx)^4}{x^7} dx$

Optimal. Leaf size=41

$$-\frac{c^4(a-bx)^5}{6x^6}-\frac{7bc^4(a-bx)^5}{30ax^5}$$

```
[Out] -(c^4*(a - b*x)^5)/(6*x^6) - (7*b*c^4*(a - b*x)^5)/(30*a*x^5)
```

Rubi [A] time = 0.047905, antiderivative size = 41, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.1

$$-\frac{c^4(a-bx)^5}{6x^6}-\frac{7bc^4(a-bx)^5}{30ax^5}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(a*c - b*c*x)^4)/x^7,x]
```

```
[Out] -(c^4*(a - b*x)^5)/(6*x^6) - (7*b*c^4*(a - b*x)^5)/(30*a*x^5)
```

Rubi in Sympy [A] time = 11.4961, size = 36, normalized size = 0.88

$$-\frac{c^4(a-bx)^5}{6x^6}-\frac{7bc^4(a-bx)^5}{30ax^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(-b*c*x+a*c)**4/x**7,x)
```

```
[Out] -c**4*(a - b*x)**5/(6*x**6) - 7*b*c**4*(a - b*x)**5/(30*a*x**5)
```

Mathematica [B] time = 0.0116509, size = 85, normalized size = 2.07

$$-\frac{a^5c^4}{6x^6}+\frac{3a^4bc^4}{5x^5}-\frac{a^3b^2c^4}{2x^4}-\frac{2a^2b^3c^4}{3x^3}+\frac{3ab^4c^4}{2x^2}-\frac{b^5c^4}{x}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(a*c - b*c*x)^4)/x^7,x]
```

```
[Out] -(a^5*c^4)/(6*x^6) + (3*a^4*b*c^4)/(5*x^5) - (a^3*b^2*c^4)/(2*x^4
) - (2*a^2*b^3*c^4)/(3*x^3) + (3*a*b^4*c^4)/(2*x^2) - (b^5*c^4)/x
```

Maple [A] time = 0.007, size = 62, normalized size = 1.5

$$c^4\left(\frac{3\,ab^4}{2\,x^2}+\frac{3\,a^4b}{5\,x^5}-\frac{b^5}{x}-\frac{2\,a^2b^3}{3\,x^3}-\frac{a^3b^2}{2\,x^4}-\frac{a^5}{6\,x^6}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(-b*c*x+a*c)^4/x^7,x)
```

```
[Out] c^4*(3/2*a*b^4/x^2+3/5*a^4*b/x^5-b^5/x-2/3*a^2*b^3/x^3-1/2*a^3*b^
2/x^4-1/6*a^5/x^6)
```

Maxima [A] time = 1.3453, size = 101, normalized size = 2.46

$$-\frac{30\,b^5c^4x^5 - 45\,ab^4c^4x^4 + 20\,a^2b^3c^4x^3 + 15\,a^3b^2c^4x^2 - 18\,a^4bc^4x + 5\,a^5c^4}{30\,x^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^4*(b*x + a)/x^7,x, algorithm="maxima")
```

```
[Out] -1/30*(30*b^5*c^4*x^5 - 45*a*b^4*c^4*x^4 + 20*a^2*b^3*c^4*x^3 + 1
5*a^3*b^2*c^4*x^2 - 18*a^4*b*c^4*x + 5*a^5*c^4)/x^6
```

Fricas [A] time = 0.198642, size = 101, normalized size = 2.46

$$-\frac{30\,b^5c^4x^5 - 45\,ab^4c^4x^4 + 20\,a^2b^3c^4x^3 + 15\,a^3b^2c^4x^2 - 18\,a^4bc^4x + 5\,a^5c^4}{30\,x^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^4*(b*x + a)/x^7,x, algorithm="fricas")
```

```
[Out] -1/30*(30*b^5*c^4*x^5 - 45*a*b^4*c^4*x^4 + 20*a^2*b^3*c^4*x^3 + 1
5*a^3*b^2*c^4*x^2 - 18*a^4*b*c^4*x + 5*a^5*c^4)/x^6
```

Sympy [A] time = 2.14901, size = 82, normalized size = 2.

$$-\frac{5a^5c^4 - 18a^4bc^4x + 15a^3b^2c^4x^2 + 20a^2b^3c^4x^3 - 45ab^4c^4x^4 + 30b^5c^4x^5}{30x^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(-b*c*x+a*c)**4/x**7,x)
```

```
[Out] -(5*a**5*c**4 - 18*a**4*b*c**4*x + 15*a**3*b**2*c**4*x**2 + 20*a*
*2*b**3*c**4*x**3 - 45*a*b**4*c**4*x**4 + 30*b**5*c**4*x**5)/(30*
x**6)
```

GIAC/XCAS [A] time = 0.238882, size = 101, normalized size = 2.46

$$-\frac{30\,b^5c^4x^5 - 45\,ab^4c^4x^4 + 20\,a^2b^3c^4x^3 + 15\,a^3b^2c^4x^2 - 18\,a^4bc^4x + 5\,a^5c^4}{30\,x^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^4*(b*x + a)/x^7,x, algorithm="giac")
```

```
[Out] -1/30*(30*b^5*c^4*x^5 - 45*a*b^4*c^4*x^4 + 20*a^2*b^3*c^4*x^3 + 1
5*a^3*b^2*c^4*x^2 - 18*a^4*b*c^4*x + 5*a^5*c^4)/x^6
```

3.24 $\int \frac{(a+bx)(ac-bcx)^4}{x^8}\,dx$

Optimal. Leaf size=84

$$-\frac{a^5c^4}{7x^7}+\frac{a^4bc^4}{2x^6}-\frac{2a^3b^2c^4}{5x^5}-\frac{a^2b^3c^4}{2x^4}+\frac{ab^4c^4}{x^3}-\frac{b^5c^4}{2x^2}$$

```
[Out] -(a^5*c^4)/(7*x^7) + (a^4*b*c^4)/(2*x^6) - (2*a^3*b^2*c^4)/(5*x^5
) - (a^2*b^3*c^4)/(2*x^4) + (a*b^4*c^4)/x^3 - (b^5*c^4)/(2*x^2)
```

Rubi [A] time = 0.0997115, antiderivative size = 84, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{a^5c^4}{7x^7}+\frac{a^4bc^4}{2x^6}-\frac{2a^3b^2c^4}{5x^5}-\frac{a^2b^3c^4}{2x^4}+\frac{ab^4c^4}{x^3}-\frac{b^5c^4}{2x^2}$$

Antiderivative was successfully verified.

```
[In] Int[((a + b*x)*(a*c - b*c*x)^4)/x^8,x]
```

```
[Out] -(a^5*c^4)/(7*x^7) + (a^4*b*c^4)/(2*x^6) - (2*a^3*b^2*c^4)/(5*x^5
) - (a^2*b^3*c^4)/(2*x^4) + (a*b^4*c^4)/x^3 - (b^5*c^4)/(2*x^2)
```

Rubi in Sympy [A] time = 30.4361, size = 80, normalized size = 0.95

$$-\frac{a^5c^4}{7x^7}+\frac{a^4bc^4}{2x^6}-\frac{2a^3b^2c^4}{5x^5}-\frac{a^2b^3c^4}{2x^4}+\frac{ab^4c^4}{x^3}-\frac{b^5c^4}{2x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)*(-b*c*x+a*c)**4/x**8,x)
```

```
[Out] -a**5*c**4/(7*x**7) + a**4*b*c**4/(2*x**6) - 2*a**3*b**2*c**4/(5*
x**5) - a**2*b**3*c**4/(2*x**4) + a*b**4*c**4/x**3 - b**5*c**4/(2
*x**2)
```

Mathematica [A] time = 0.0123171, size = 84, normalized size = 1.

$$-\frac{a^5c^4}{7x^7}+\frac{a^4bc^4}{2x^6}-\frac{2a^3b^2c^4}{5x^5}-\frac{a^2b^3c^4}{2x^4}+\frac{ab^4c^4}{x^3}-\frac{b^5c^4}{2x^2}$$

Antiderivative was successfully verified.

```
[In] Integrate[((a + b*x)*(a*c - b*c*x)^4)/x^8,x]
```

```
[Out] -(a^5*c^4)/(7*x^7) + (a^4*b*c^4)/(2*x^6) - (2*a^3*b^2*c^4)/(5*x^5
) - (a^2*b^3*c^4)/(2*x^4) + (a*b^4*c^4)/x^3 - (b^5*c^4)/(2*x^2)
```

Maple [A] time = 0.007, size = 61, normalized size = 0.7

$$c^4\left(-\frac{a^5}{7\,x^7}-\frac{b^5}{2\,x^2}-\frac{2\,a^3b^2}{5\,x^5}+\frac{ab^4}{x^3}-\frac{a^2b^3}{2\,x^4}+\frac{a^4b}{2\,x^6}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(-b*c*x+a*c)^4/x^8,x)
```

```
[Out] c^4*(-1/7*a^5/x^7-1/2*b^5/x^2-2/5*a^3*b^2/x^5+a*b^4/x^3-1/2*a^2*b
^3/x^4+1/2*a^4*b/x^6)
```

Maxima [A] time = 1.3392, size = 101, normalized size = 1.2

$$-\frac{35\,b^5c^4x^5-70\,ab^4c^4x^4+35\,a^2b^3c^4x^3+28\,a^3b^2c^4x^2-35\,a^4bc^4x+10\,a^5c^4}{70\,x^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^4*(b*x + a)/x^8,x, algorithm="maxima")
```

```
[Out] -1/70*(35*b^5*c^4*x^5 - 70*a*b^4*c^4*x^4 + 35*a^2*b^3*c^4*x^3 + 2
8*a^3*b^2*c^4*x^2 - 35*a^4*b*c^4*x + 10*a^5*c^4)/x^7
```

Fricas [A] time = 0.20239, size = 101, normalized size = 1.2

$$-\frac{35\,b^5c^4x^5-70\,ab^4c^4x^4+35\,a^2b^3c^4x^3+28\,a^3b^2c^4x^2-35\,a^4bc^4x+10\,a^5c^4}{70\,x^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^4*(b*x + a)/x^8,x, algorithm="fricas")
```

```
[Out] -1/70*(35*b^5*c^4*x^5 - 70*a*b^4*c^4*x^4 + 35*a^2*b^3*c^4*x^3 + 2
8*a^3*b^2*c^4*x^2 - 35*a^4*b*c^4*x + 10*a^5*c^4)/x^7
```

Sympy [A] time = 2.35962, size = 82, normalized size = 0.98

$$-\frac{10a^5c^4-35a^4bc^4x+28a^3b^2c^4x^2+35a^2b^3c^4x^3-70ab^4c^4x^4+35b^5c^4x^5}{70x^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(-b*c*x+a*c)**4/x**8,x)
```

```
[Out] -(10*a**5*c**4 - 35*a**4*b*c**4*x + 28*a**3*b**2*c**4*x**2 + 35*a
**2*b**3*c**4*x**3 - 70*a*b**4*c**4*x**4 + 35*b**5*c**4*x**5)/(70
*x**7)
```

GIAC/XCAS [A] time = 0.257668, size = 101, normalized size = 1.2

$$-\frac{35\,b^5c^4x^5-70\,ab^4c^4x^4+35\,a^2b^3c^4x^3+28\,a^3b^2c^4x^2-35\,a^4bc^4x+10\,a^5c^4}{70\,x^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^4*(b*x + a)/x^8,x, algorithm="giac")
```

```
[Out] -1/70*(35*b^5*c^4*x^5 - 70*a*b^4*c^4*x^4 + 35*a^2*b^3*c^4*x^3 + 2
8*a^3*b^2*c^4*x^2 - 35*a^4*b*c^4*x + 10*a^5*c^4)/x^7
```

3.25 $\int \frac{(a+bx)(ac-bcx)^4}{x^9}\,dx$

Optimal. Leaf size=87

$$-\frac{a^5c^4}{8x^8}+\frac{3a^4bc^4}{7x^7}-\frac{a^3b^2c^4}{3x^6}-\frac{2a^2b^3c^4}{5x^5}+\frac{3ab^4c^4}{4x^4}-\frac{b^5c^4}{3x^3}$$

```
[Out] -(a^5*c^4)/(8*x^8) + (3*a^4*b*c^4)/(7*x^7) - (a^3*b^2*c^4)/(3*x^6
) - (2*a^2*b^3*c^4)/(5*x^5) + (3*a*b^4*c^4)/(4*x^4) - (b^5*c^4)/(
3*x^3)
```

Rubi [A] time = 0.0967123, antiderivative size = 87, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{a^5c^4}{8x^8}+\frac{3a^4bc^4}{7x^7}-\frac{a^3b^2c^4}{3x^6}-\frac{2a^2b^3c^4}{5x^5}+\frac{3ab^4c^4}{4x^4}-\frac{b^5c^4}{3x^3}$$

Antiderivative was successfully verified.

```
[In] Int[((a + b*x)*(a*c - b*c*x)^4)/x^9,x]
```

```
[Out] -(a^5*c^4)/(8*x^8) + (3*a^4*b*c^4)/(7*x^7) - (a^3*b^2*c^4)/(3*x^6
) - (2*a^2*b^3*c^4)/(5*x^5) + (3*a*b^4*c^4)/(4*x^4) - (b^5*c^4)/(
3*x^3)
```

Rubi in Sympy [A] time = 30.5192, size = 85, normalized size = 0.98

$$-\frac{a^5c^4}{8x^8}+\frac{3a^4bc^4}{7x^7}-\frac{a^3b^2c^4}{3x^6}-\frac{2a^2b^3c^4}{5x^5}+\frac{3ab^4c^4}{4x^4}-\frac{b^5c^4}{3x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)*(-b*c*x+a*c)**4/x**9,x)
```

```
[Out] -a**5*c**4/(8*x**8) + 3*a**4*b*c**4/(7*x**7) - a**3*b**2*c**4/(3*
x**6) - 2*a**2*b**3*c**4/(5*x**5) + 3*a*b**4*c**4/(4*x**4) - b**5
*c**4/(3*x**3)
```

Mathematica [A] time = 0.0125069, size = 87, normalized size = 1.

$$-\frac{a^5c^4}{8x^8}+\frac{3a^4bc^4}{7x^7}-\frac{a^3b^2c^4}{3x^6}-\frac{2a^2b^3c^4}{5x^5}+\frac{3ab^4c^4}{4x^4}-\frac{b^5c^4}{3x^3}$$

Antiderivative was successfully verified.

```
[In] Integrate[((a + b*x)*(a*c - b*c*x)^4)/x^9,x]
```

```
[Out] -(a^5*c^4)/(8*x^8) + (3*a^4*b*c^4)/(7*x^7) - (a^3*b^2*c^4)/(3*x^6
) - (2*a^2*b^3*c^4)/(5*x^5) + (3*a*b^4*c^4)/(4*x^4) - (b^5*c^4)/(
3*x^3)
```

Maple [A] time = 0.007, size = 62, normalized size = 0.7

$$c^4\left(-\frac{a^5}{8\,x^8}+\frac{3\,a^4b}{7\,x^7}-\frac{2\,a^2b^3}{5\,x^5}-\frac{b^5}{3\,x^3}+\frac{3\,ab^4}{4\,x^4}-\frac{a^3b^2}{3\,x^6}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(-b*c*x+a*c)^4/x^9,x)
```

```
[Out] c^4*(-1/8*a^5/x^8+3/7*a^4*b/x^7-2/5*a^2*b^3/x^5-1/3*b^5/x^3+3/4*a
*b^4/x^4-1/3*a^3*b^2/x^6)
```

Maxima [A] time = 1.41696, size = 101, normalized size = 1.16

$$-\frac{280\,b^5c^4x^5 - 630\,ab^4c^4x^4 + 336\,a^2b^3c^4x^3 + 280\,a^3b^2c^4x^2 - 360\,a^4bc^4x + 105\,a^5c^4}{840\,x^8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^4*(b*x + a)/x^9,x, algorithm="maxima")
```

```
[Out] -1/840*(280*b^5*c^4*x^5 - 630*a*b^4*c^4*x^4 + 336*a^2*b^3*c^4*x^3
 + 280*a^3*b^2*c^4*x^2 - 360*a^4*b*c^4*x + 105*a^5*c^4)/x^8
```

Fricas [A] time = 0.196852, size = 101, normalized size = 1.16

$$-\frac{280\,b^5c^4x^5 - 630\,ab^4c^4x^4 + 336\,a^2b^3c^4x^3 + 280\,a^3b^2c^4x^2 - 360\,a^4bc^4x + 105\,a^5c^4}{840\,x^8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^4*(b*x + a)/x^9,x, algorithm="fricas")
```

```
[Out] -1/840*(280*b^5*c^4*x^5 - 630*a*b^4*c^4*x^4 + 336*a^2*b^3*c^4*x^3
 + 280*a^3*b^2*c^4*x^2 - 360*a^4*b*c^4*x + 105*a^5*c^4)/x^8
```

Sympy [A] time = 2.53186, size = 82, normalized size = 0.94

$$-\frac{105a^5c^4 - 360a^4bc^4x + 280a^3b^2c^4x^2 + 336a^2b^3c^4x^3 - 630ab^4c^4x^4 + 280b^5c^4x^5}{840x^8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(-b*c*x+a*c)**4/x**9,x)
```

```
[Out] -(105*a**5*c**4 - 360*a**4*b*c**4*x + 280*a**3*b**2*c**4*x**2 + 3
36*a**2*b**3*c**4*x**3 - 630*a*b**4*c**4*x**4 + 280*b**5*c**4*x**
5)/(840*x**8)
```

GIAC/XCAS [A] time = 0.258737, size = 101, normalized size = 1.16

$$-\frac{280\,b^5c^4x^5 - 630\,ab^4c^4x^4 + 336\,a^2b^3c^4x^3 + 280\,a^3b^2c^4x^2 - 360\,a^4bc^4x + 105\,a^5c^4}{840\,x^8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^4*(b*x + a)/x^9,x, algorithm="giac")
```

```
[Out] -1/840*(280*b^5*c^4*x^5 - 630*a*b^4*c^4*x^4 + 336*a^2*b^3*c^4*x^3
 + 280*a^3*b^2*c^4*x^2 - 360*a^4*b*c^4*x + 105*a^5*c^4)/x^8
```

3.26 $\int x^4(a+bx)(ac-bcx)^5\,dx$

Optimal. Leaf size=87

$$\frac{1}{5}a^6c^5x^5-\frac{2}{3}a^5bc^5x^6+\frac{5}{7}a^4b^2c^5x^7-\frac{5}{9}a^2b^4c^5x^9+\frac{2}{5}ab^5c^5x^{10}-\frac{1}{11}b^6c^5x^{11}$$

```
[Out] (a^6*c^5*x^5)/5 - (2*a^5*b*c^5*x^6)/3 + (5*a^4*b^2*c^5*x^7)/7 - (
5*a^2*b^4*c^5*x^9)/9 + (2*a*b^5*c^5*x^10)/5 - (b^6*c^5*x^11)/11
```

Rubi [A] time = 0.141228, antiderivative size = 87, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{1}{5}a^6c^5x^5-\frac{2}{3}a^5bc^5x^6+\frac{5}{7}a^4b^2c^5x^7-\frac{5}{9}a^2b^4c^5x^9+\frac{2}{5}ab^5c^5x^{10}-\frac{1}{11}b^6c^5x^{11}$$

Antiderivative was successfully verified.

```
[In] Int[x^4*(a + b*x)*(a*c - b*c*x)^5,x]
```

```
[Out] (a^6*c^5*x^5)/5 - (2*a^5*b*c^5*x^6)/3 + (5*a^4*b^2*c^5*x^7)/7 - (
5*a^2*b^4*c^5*x^9)/9 + (2*a*b^5*c^5*x^10)/5 - (b^6*c^5*x^11)/11
```

Rubi in Sympy [A] time = 36.3125, size = 87, normalized size = 1.

$$\frac{a^6c^5x^5}{5}-\frac{2a^5bc^5x^6}{3}+\frac{5a^4b^2c^5x^7}{7}-\frac{5a^2b^4c^5x^9}{9}+\frac{2ab^5c^5x^{10}}{5}-\frac{b^6c^5x^{11}}{11}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(x**4*(b*x+a)*(-b*c*x+a*c)**5,x)
```

```
[Out] a**6*c**5*x**5/5 - 2*a**5*b*c**5*x**6/3 + 5*a**4*b**2*c**5*x**7/7
 - 5*a**2*b**4*c**5*x**9/9 + 2*a*b**5*c**5*x**10/5 - b**6*c**5*x*
*11/11
```

Mathematica [A] time = 0.0063107, size = 73, normalized size = 0.84

$$c^5\left(\frac{a^6x^5}{5}-\frac{2}{3}a^5bx^6+\frac{5}{7}a^4b^2x^7-\frac{5}{9}a^2b^4x^9+\frac{2}{5}ab^5x^{10}-\frac{1}{11}b^6x^{11}\right)$$

Antiderivative was successfully verified.

```
[In] Integrate[x^4*(a + b*x)*(a*c - b*c*x)^5,x]
```

```
[Out] c^5*((a^6*x^5)/5 - (2*a^5*b*x^6)/3 + (5*a^4*b^2*x^7)/7 - (5*a^2*b
^4*x^9)/9 + (2*a*b^5*x^10)/5 - (b^6*x^11)/11)
```

Maple [A] time = 0.004, size = 76, normalized size = 0.9

$$\frac{a^6c^5x^5}{5}-\frac{2\,a^5bc^5x^6}{3}+\frac{5\,a^4b^2c^5x^7}{7}-\frac{5\,a^2b^4c^5x^9}{9}+\frac{2\,ab^5c^5x^{10}}{5}-\frac{b^6c^5x^{11}}{11}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int(x^4*(b*x+a)*(-b*c*x+a*c)^5,x)
```

```
[Out] 1/5*a^6*c^5*x^5-2/3*a^5*b*c^5*x^6+5/7*a^4*b^2*c^5*x^7-5/9*a^2*b^4
*c^5*x^9+2/5*a*b^5*c^5*x^10-1/11*b^6*c^5*x^11
```

Maxima [A] time = 1.3831, size = 101, normalized size = 1.16

$$-\frac{1}{11}b^6c^5x^{11}+\frac{2}{5}ab^5c^5x^{10}-\frac{5}{9}a^2b^4c^5x^9+\frac{5}{7}a^4b^2c^5x^7-\frac{2}{3}a^5bc^5x^6+\frac{1}{5}a^6c^5x^5$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(-(b*c*x - a*c)^5*(b*x + a)*x^4,x, algorithm="maxima")
```

```
[Out] -1/11*b^6*c^5*x^11 + 2/5*a*b^5*c^5*x^10 - 5/9*a^2*b^4*c^5*x^9 + 5
/7*a^4*b^2*c^5*x^7 - 2/3*a^5*b*c^5*x^6 + 1/5*a^6*c^5*x^5
```

Fricas [A] time = 0.179747, size = 1, normalized size = 0.01

$$-\frac{1}{11}x^{11}c^5b^6+\frac{2}{5}x^{10}c^5b^5a-\frac{5}{9}x^9c^5b^4a^2+\frac{5}{7}x^7c^5b^2a^4-\frac{2}{3}x^6c^5ba^5+\frac{1}{5}x^5c^5a^6$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(-(b*c*x - a*c)^5*(b*x + a)*x^4,x, algorithm="fricas")
```

```
[Out] -1/11*x^11*c^5*b^6 + 2/5*x^10*c^5*b^5*a - 5/9*x^9*c^5*b^4*a^2 + 5
/7*x^7*c^5*b^2*a^4 - 2/3*x^6*c^5*b*a^5 + 1/5*x^5*c^5*a^6
```

Sympy [A] time = 0.157269, size = 87, normalized size = 1.

$$\frac{a^6c^5x^5}{5}-\frac{2a^5bc^5x^6}{3}+\frac{5a^4b^2c^5x^7}{7}-\frac{5a^2b^4c^5x^9}{9}+\frac{2ab^5c^5x^{10}}{5}-\frac{b^6c^5x^{11}}{11}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(x**4*(b*x+a)*(-b*c*x+a*c)**5,x)
```

```
[Out] a**6*c**5*x**5/5 - 2*a**5*b*c**5*x**6/3 + 5*a**4*b**2*c**5*x**7/7
 - 5*a**2*b**4*c**5*x**9/9 + 2*a*b**5*c**5*x**10/5 - b**6*c**5*x*
*11/11
```

GIAC/XCAS [A] time = 0.261511, size = 101, normalized size = 1.16

$$-\frac{1}{11}b^6c^5x^{11}+\frac{2}{5}ab^5c^5x^{10}-\frac{5}{9}a^2b^4c^5x^9+\frac{5}{7}a^4b^2c^5x^7-\frac{2}{3}a^5bc^5x^6+\frac{1}{5}a^6c^5x^5$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(-(b*c*x - a*c)^5*(b*x + a)*x^4,x, algorithm="giac")
```

```
[Out] -1/11*b^6*c^5*x^11 + 2/5*a*b^5*c^5*x^10 - 5/9*a^2*b^4*c^5*x^9 + 5
/7*a^4*b^2*c^5*x^7 - 2/3*a^5*b*c^5*x^6 + 1/5*a^6*c^5*x^5
```

3.27 $\int x^3(a+bx)(ac-bcx)^5\,dx$

Optimal. Leaf size=87

$$\frac{1}{4}a^6c^5x^4-\frac{4}{5}a^5bc^5x^5+\frac{5}{6}a^4b^2c^5x^6-\frac{5}{8}a^2b^4c^5x^8+\frac{4}{9}ab^5c^5x^9-\frac{1}{10}b^6c^5x^{10}$$

```
[Out] (a^6*c^5*x^4)/4 - (4*a^5*b*c^5*x^5)/5 + (5*a^4*b^2*c^5*x^6)/6 - (
5*a^2*b^4*c^5*x^8)/8 + (4*a*b^5*c^5*x^9)/9 - (b^6*c^5*x^10)/10
```

Rubi [A] time = 0.135238, antiderivative size = 87, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{1}{4}a^6c^5x^4-\frac{4}{5}a^5bc^5x^5+\frac{5}{6}a^4b^2c^5x^6-\frac{5}{8}a^2b^4c^5x^8+\frac{4}{9}ab^5c^5x^9-\frac{1}{10}b^6c^5x^{10}$$

Antiderivative was successfully verified.

```
[In]  Int[x^3*(a + b*x)*(a*c - b*c*x)^5,x]
```

```
[Out] (a^6*c^5*x^4)/4 - (4*a^5*b*c^5*x^5)/5 + (5*a^4*b^2*c^5*x^6)/6 - (
5*a^2*b^4*c^5*x^8)/8 + (4*a*b^5*c^5*x^9)/9 - (b^6*c^5*x^10)/10
```

Rubi in Sympy [A] time = 35.0023, size = 87, normalized size = 1.

$$\frac{a^6c^5x^4}{4}-\frac{4a^5bc^5x^5}{5}+\frac{5a^4b^2c^5x^6}{6}-\frac{5a^2b^4c^5x^8}{8}+\frac{4ab^5c^5x^9}{9}-\frac{b^6c^5x^{10}}{10}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3*(b*x+a)*(-b*c*x+a*c)**5,x)
```

```
[Out] a**6*c**5*x**4/4 - 4*a**5*b*c**5*x**5/5 + 5*a**4*b**2*c**5*x**6/6
 - 5*a**2*b**4*c**5*x**8/8 + 4*a*b**5*c**5*x**9/9 - b**6*c**5*x**
10/10
```

Mathematica [A] time = 0.00495686, size = 73, normalized size = 0.84

$$c^5\left(\frac{a^6x^4}{4}-\frac{4}{5}a^5bx^5+\frac{5}{6}a^4b^2x^6-\frac{5}{8}a^2b^4x^8+\frac{4}{9}ab^5x^9-\frac{1}{10}b^6x^{10}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^3*(a + b*x)*(a*c - b*c*x)^5,x]
```

```
[Out] c^5*((a^6*x^4)/4 - (4*a^5*b*x^5)/5 + (5*a^4*b^2*x^6)/6 - (5*a^2*b
^4*x^8)/8 + (4*a*b^5*x^9)/9 - (b^6*x^10)/10)
```

Maple [A] time = 0.001, size = 76, normalized size = 0.9

$$\frac{a^6c^5x^4}{4}-\frac{4\,a^5bc^5x^5}{5}+\frac{5\,a^4b^2c^5x^6}{6}-\frac{5\,a^2b^4c^5x^8}{8}+\frac{4\,ab^5c^5x^9}{9}-\frac{b^6c^5x^{10}}{10}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^3*(b*x+a)*(-b*c*x+a*c)^5,x)
```

```
[Out] 1/4*a^6*c^5*x^4-4/5*a^5*b*c^5*x^5+5/6*a^4*b^2*c^5*x^6-5/8*a^2*b^4
*c^5*x^8+4/9*a*b^5*c^5*x^9-1/10*b^6*c^5*x^10
```

Maxima [A] time = 1.39324, size = 101, normalized size = 1.16

$$-\frac{1}{10}\,b^6c^5x^{10}+\frac{4}{9}\,ab^5c^5x^9-\frac{5}{8}\,a^2b^4c^5x^8+\frac{5}{6}\,a^4b^2c^5x^6-\frac{4}{5}\,a^5bc^5x^5+\frac{1}{4}\,a^6c^5x^4$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a)*x^3,x, algorithm="maxima")
```

```
[Out] -1/10*b^6*c^5*x^10 + 4/9*a*b^5*c^5*x^9 - 5/8*a^2*b^4*c^5*x^8 + 5/
6*a^4*b^2*c^5*x^6 - 4/5*a^5*b*c^5*x^5 + 1/4*a^6*c^5*x^4
```

Fricas [A] time = 0.182011, size = 1, normalized size = 0.01

$$-\frac{1}{10}x^{10}c^5b^6+\frac{4}{9}x^9c^5b^5a-\frac{5}{8}x^8c^5b^4a^2+\frac{5}{6}x^6c^5b^2a^4-\frac{4}{5}x^5c^5ba^5+\frac{1}{4}x^4c^5a^6$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a)*x^3,x, algorithm="fricas")
```

```
[Out] -1/10*x^10*c^5*b^6 + 4/9*x^9*c^5*b^5*a - 5/8*x^8*c^5*b^4*a^2 + 5/
6*x^6*c^5*b^2*a^4 - 4/5*x^5*c^5*b*a^5 + 1/4*x^4*c^5*a^6
```

Sympy [A] time = 0.151745, size = 87, normalized size = 1.

$$\frac{a^6c^5x^4}{4}-\frac{4a^5bc^5x^5}{5}+\frac{5a^4b^2c^5x^6}{6}-\frac{5a^2b^4c^5x^8}{8}+\frac{4ab^5c^5x^9}{9}-\frac{b^6c^5x^{10}}{10}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**3*(b*x+a)*(-b*c*x+a*c)**5,x)
```

```
[Out] a**6*c**5*x**4/4 - 4*a**5*b*c**5*x**5/5 + 5*a**4*b**2*c**5*x**6/6
 - 5*a**2*b**4*c**5*x**8/8 + 4*a*b**5*c**5*x**9/9 - b**6*c**5*x**
10/10
```

GIAC/XCAS [A] time = 0.242206, size = 101, normalized size = 1.16

$$-\frac{1}{10}\,b^6c^5x^{10}+\frac{4}{9}\,ab^5c^5x^9-\frac{5}{8}\,a^2b^4c^5x^8+\frac{5}{6}\,a^4b^2c^5x^6-\frac{4}{5}\,a^5bc^5x^5+\frac{1}{4}\,a^6c^5x^4$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a)*x^3,x, algorithm="giac")
```

```
[Out] -1/10*b^6*c^5*x^10 + 4/9*a*b^5*c^5*x^9 - 5/8*a^2*b^4*c^5*x^8 + 5/
6*a^4*b^2*c^5*x^6 - 4/5*a^5*b*c^5*x^5 + 1/4*a^6*c^5*x^4
```

3.28 $\int x^2(a+bx)(ac-bcx)^5\,dx$

Optimal. Leaf size=80

$$-\frac{a^3c^5(a-bx)^6}{3b^3}+\frac{5a^2c^5(a-bx)^7}{7b^3}+\frac{c^5(a-bx)^9}{9b^3}-\frac{ac^5(a-bx)^8}{2b^3}$$

```
[Out] -(a^3*c^5*(a - b*x)^6)/(3*b^3) + (5*a^2*c^5*(a - b*x)^7)/(7*b^3)
- (a*c^5*(a - b*x)^8)/(2*b^3) + (c^5*(a - b*x)^9)/(9*b^3)
```

Rubi [A] time = 0.132133, antiderivative size = 80, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{a^3c^5(a-bx)^6}{3b^3}+\frac{5a^2c^5(a-bx)^7}{7b^3}+\frac{c^5(a-bx)^9}{9b^3}-\frac{ac^5(a-bx)^8}{2b^3}$$

Antiderivative was successfully verified.

```
[In]  Int[x^2*(a + b*x)*(a*c - b*c*x)^5,x]
```

```
[Out] -(a^3*c^5*(a - b*x)^6)/(3*b^3) + (5*a^2*c^5*(a - b*x)^7)/(7*b^3)
- (a*c^5*(a - b*x)^8)/(2*b^3) + (c^5*(a - b*x)^9)/(9*b^3)
```

Rubi in Sympy [A] time = 34.0316, size = 78, normalized size = 0.98

$$\frac{a^6c^5x^3}{3}-a^5bc^5x^4+a^4b^2c^5x^5-\frac{5a^2b^4c^5x^7}{7}+\frac{ab^5c^5x^8}{2}-\frac{b^6c^5x^9}{9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(b*x+a)*(-b*c*x+a*c)**5,x)
```

```
[Out] a**6*c**5*x**3/3 - a**5*b*c**5*x**4 + a**4*b**2*c**5*x**5 - 5*a**
2*b**4*c**5*x**7/7 + a*b**5*c**5*x**8/2 - b**6*c**5*x**9/9
```

Mathematica [A] time = 0.00512101, size = 68, normalized size = 0.85

$$c^5\left(\frac{a^6x^3}{3}-a^5bx^4+a^4b^2x^5-\frac{5}{7}a^2b^4x^7+\frac{1}{2}ab^5x^8-\frac{1}{9}b^6x^9\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^2*(a + b*x)*(a*c - b*c*x)^5,x]
```

```
[Out] c^5*((a^6*x^3)/3 - a^5*b*x^4 + a^4*b^2*x^5 - (5*a^2*b^4*x^7)/7 +
(a*b^5*x^8)/2 - (b^6*x^9)/9)
```

Maple [A] time = 0.001, size = 75, normalized size = 0.9

$$-\frac{b^6c^5x^9}{9}+\frac{ab^5c^5x^8}{2}-\frac{5\,a^2c^5b^4x^7}{7}+a^4c^5b^2x^5-a^5bc^5x^4+\frac{a^6c^5x^3}{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(b*x+a)*(-b*c*x+a*c)^5,x)
```

```
[Out] -1/9*b^6*c^5*x^9+1/2*a*b^5*c^5*x^8-5/7*a^2*c^5*b^4*x^7+a^4*c^5*b^
2*x^5-a^5*b*c^5*x^4+1/3*a^6*c^5*x^3
```

Maxima [A] time = 1.3483, size = 100, normalized size = 1.25

$$-\frac{1}{9}\,b^6c^5x^9+\frac{1}{2}\,ab^5c^5x^8-\frac{5}{7}\,a^2b^4c^5x^7+a^4b^2c^5x^5-a^5bc^5x^4+\frac{1}{3}\,a^6c^5x^3$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a)*x^2,x, algorithm="maxima")
```

```
[Out] -1/9*b^6*c^5*x^9 + 1/2*a*b^5*c^5*x^8 - 5/7*a^2*b^4*c^5*x^7 + a^4*
b^2*c^5*x^5 - a^5*b*c^5*x^4 + 1/3*a^6*c^5*x^3
```

Fricas [A] time = 0.181328, size = 1, normalized size = 0.01

$$-\frac{1}{9}x^9c^5b^6+\frac{1}{2}x^8c^5b^5a-\frac{5}{7}x^7c^5b^4a^2+x^5c^5b^2a^4-x^4c^5ba^5+\frac{1}{3}x^3c^5a^6$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a)*x^2,x, algorithm="fricas")
```

```
[Out] -1/9*x^9*c^5*b^6 + 1/2*x^8*c^5*b^5*a - 5/7*x^7*c^5*b^4*a^2 + x^5*
c^5*b^2*a^4 - x^4*c^5*b*a^5 + 1/3*x^3*c^5*a^6
```

Sympy [A] time = 0.158462, size = 78, normalized size = 0.98

$$\frac{a^6c^5x^3}{3}-a^5bc^5x^4+a^4b^2c^5x^5-\frac{5a^2b^4c^5x^7}{7}+\frac{ab^5c^5x^8}{2}-\frac{b^6c^5x^9}{9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(b*x+a)*(-b*c*x+a*c)**5,x)
```

```
[Out] a**6*c**5*x**3/3 - a**5*b*c**5*x**4 + a**4*b**2*c**5*x**5 - 5*a**
2*b**4*c**5*x**7/7 + a*b**5*c**5*x**8/2 - b**6*c**5*x**9/9
```

GIAC/XCAS [A] time = 0.255371, size = 100, normalized size = 1.25

$$-\frac{1}{9}\,b^6c^5x^9+\frac{1}{2}\,ab^5c^5x^8-\frac{5}{7}\,a^2b^4c^5x^7+a^4b^2c^5x^5-a^5bc^5x^4+\frac{1}{3}\,a^6c^5x^3$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a)*x^2,x, algorithm="giac")
```

```
[Out] -1/9*b^6*c^5*x^9 + 1/2*a*b^5*c^5*x^8 - 5/7*a^2*b^4*c^5*x^7 + a^4*
b^2*c^5*x^5 - a^5*b*c^5*x^4 + 1/3*a^6*c^5*x^3
```

3.29 $\int x(a + bx)(ac - bcx)^5 \, dx$

Optimal. Leaf size=59

$$-\frac{a^2c^5(a-bx)^6}{3b^2} - \frac{c^5(a-bx)^8}{8b^2} + \frac{3ac^5(a-bx)^7}{7b^2}$$

```
[Out] -(a^2*c^5*(a - b*x)^6)/(3*b^2) + (3*a*c^5*(a - b*x)^7)/(7*b^2) -
(c^5*(a - b*x)^8)/(8*b^2)
```

Rubi [A] time = 0.100716, antiderivative size = 59, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.056$

$$-\frac{a^2c^5(a-bx)^6}{3b^2} - \frac{c^5(a-bx)^8}{8b^2} + \frac{3ac^5(a-bx)^7}{7b^2}$$

Antiderivative was successfully verified.

```
[In]  Int[x*(a + b*x)*(a*c - b*c*x)^5,x]
```

```
[Out] -(a^2*c^5*(a - b*x)^6)/(3*b^2) + (3*a*c^5*(a - b*x)^7)/(7*b^2) -
(c^5*(a - b*x)^8)/(8*b^2)
```

Rubi in Sympy [A] time = 31.4809, size = 51, normalized size = 0.86

$$-\frac{a^2c^5\left(a-bx\right)^6}{3b^2} + \frac{3ac^5\left(a-bx\right)^7}{7b^2} - \frac{c^5\left(a-bx\right)^8}{8b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(b*x+a)*(-b*c*x+a*c)**5,x)
```

```
[Out] -a**2*c**5*(a - b*x)**6/(3*b**2) + 3*a*c**5*(a - b*x)**7/(7*b**2)
 - c**5*(a - b*x)**8/(8*b**2)
```

Mathematica [A] time = 0.00435593, size = 73, normalized size = 1.24

$$c^5\left(\frac{a^6x^2}{2} - \frac{4}{3}a^5bx^3 + \frac{5}{4}a^4b^2x^4 - \frac{5}{6}a^2b^4x^6 + \frac{4}{7}ab^5x^7 - \frac{1}{8}b^6x^8\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[x*(a + b*x)*(a*c - b*c*x)^5,x]
```

```
[Out] c^5*((a^6*x^2)/2 - (4*a^5*b*x^3)/3 + (5*a^4*b^2*x^4)/4 - (5*a^2*b
^4*x^6)/6 + (4*a*b^5*x^7)/7 - (b^6*x^8)/8)
```

Maple [A] time = 0.003, size = 76, normalized size = 1.3

$$-\frac{b^6c^5x^8}{8} + \frac{4\,ab^5c^5x^7}{7} - \frac{5\,a^2c^5b^4x^6}{6} + \frac{5\,a^4c^5b^2x^4}{4} - \frac{4\,a^5bc^5x^3}{3} + \frac{a^6c^5x^2}{2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(b*x+a)*(-b*c*x+a*c)^5,x)
```

```
[Out] -1/8*b^6*c^5*x^8+4/7*a*b^5*c^5*x^7-5/6*a^2*c^5*b^4*x^6+5/4*a^4*c^
5*b^2*x^4-4/3*a^5*b*c^5*x^3+1/2*a^6*c^5*x^2
```

Maxima [A] time = 1.34909, size = 101, normalized size = 1.71

$$-\frac{1}{8}\,b^6c^5x^8+\frac{4}{7}\,ab^5c^5x^7-\frac{5}{6}\,a^2b^4c^5x^6+\frac{5}{4}\,a^4b^2c^5x^4-\frac{4}{3}\,a^5bc^5x^3+\frac{1}{2}\,a^6c^5x^2$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a)*x,x, algorithm="maxima")
```

```
[Out] -1/8*b^6*c^5*x^8 + 4/7*a*b^5*c^5*x^7 - 5/6*a^2*b^4*c^5*x^6 + 5/4*
a^4*b^2*c^5*x^4 - 4/3*a^5*b*c^5*x^3 + 1/2*a^6*c^5*x^2
```

Fricas [A] time = 0.184253, size = 1, normalized size = 0.02

$$-\frac{1}{8}x^8c^5b^6+\frac{4}{7}x^7c^5b^5a-\frac{5}{6}x^6c^5b^4a^2+\frac{5}{4}x^4c^5b^2a^4-\frac{4}{3}x^3c^5ba^5+\frac{1}{2}x^2c^5a^6$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a)*x,x, algorithm="fricas")
```

```
[Out] -1/8*x^8*c^5*b^6 + 4/7*x^7*c^5*b^5*a - 5/6*x^6*c^5*b^4*a^2 + 5/4*
x^4*c^5*b^2*a^4 - 4/3*x^3*c^5*b*a^5 + 1/2*x^2*c^5*a^6
```

Sympy [A] time = 0.156608, size = 87, normalized size = 1.47

$$\frac{a^6c^5x^2}{2}-\frac{4a^5bc^5x^3}{3}+\frac{5a^4b^2c^5x^4}{4}-\frac{5a^2b^4c^5x^6}{6}+\frac{4ab^5c^5x^7}{7}-\frac{b^6c^5x^8}{8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(b*x+a)*(-b*c*x+a*c)**5,x)
```

```
[Out] a**6*c**5*x**2/2 - 4*a**5*b*c**5*x**3/3 + 5*a**4*b**2*c**5*x**4/4
 - 5*a**2*b**4*c**5*x**6/6 + 4*a*b**5*c**5*x**7/7 - b**6*c**5*x**
8/8
```

GIAC/XCAS [A] time = 0.234386, size = 101, normalized size = 1.71

$$-\frac{1}{8}\,b^6c^5x^8+\frac{4}{7}\,ab^5c^5x^7-\frac{5}{6}\,a^2b^4c^5x^6+\frac{5}{4}\,a^4b^2c^5x^4-\frac{4}{3}\,a^5bc^5x^3+\frac{1}{2}\,a^6c^5x^2$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a)*x,x, algorithm="giac")
```

```
[Out] -1/8*b^6*c^5*x^8 + 4/7*a*b^5*c^5*x^7 - 5/6*a^2*b^4*c^5*x^6 + 5/4*
a^4*b^2*c^5*x^4 - 4/3*a^5*b*c^5*x^3 + 1/2*a^6*c^5*x^2
```

3.30 $\int (a+bx)(ac-bcx)^5\,dx$

Optimal. Leaf size=38

$$\frac{c^5(a-bx)^7}{7b}-\frac{ac^5(a-bx)^6}{3b}$$

```
[Out] -(a*c^5*(a - b*x)^6)/(3*b) + (c^5*(a - b*x)^7)/(7*b)
```

Rubi [A] time = 0.0387781, antiderivative size = 38, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 17, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.059

$$\frac{c^5(a-bx)^7}{7b}-\frac{ac^5(a-bx)^6}{3b}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)*(a*c - b*c*x)^5,x]

[Out] -(a*c^5*(a - b*x)^6)/(3*b) + (c^5*(a - b*x)^7)/(7*b)
```

Rubi in Sympy [A] time = 20.9502, size = 27, normalized size = 0.71

$$-\frac{ac^5\left(a-bx\right)^6}{3b}+\frac{c^5\left(a-bx\right)^7}{7b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(-b*c*x+a*c)**5,x)

[Out] -a*c**5*(a - b*x)**6/(3*b) + c**5*(a - b*x)**7/(7*b)
```

Mathematica [A] time = 0.00396523, size = 64, normalized size = 1.68

$$c^5\left(a^6x-2a^5bx^2+\frac{5}{3}a^4b^2x^3-a^2b^4x^5+\frac{2}{3}ab^5x^6-\frac{1}{7}b^6x^7\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)*(a*c - b*c*x)^5,x]

[Out] c^5*(a^6*x - 2*a^5*b*x^2 + (5*a^4*b^2*x^3)/3 - a^2*b^4*x^5 + (2*a
*b^5*x^6)/3 - (b^6*x^7)/7)
```

Maple [B] time = 0.001, size = 73, normalized size = 1.9

$$-\frac{b^6c^5x^7}{7}+\frac{2\,ab^5c^5x^6}{3}-a^2b^4c^5x^5+\frac{5\,a^4b^2c^5x^3}{3}-2\,a^5bc^5x^2+a^6c^5x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(-b*c*x+a*c)^5,x)
```

```
[Out] -1/7*b^6*c^5*x^7+2/3*a*b^5*c^5*x^6-a^2*b^4*c^5*x^5+5/3*a^4*b^2*c^
5*x^3-2*a^5*b*c^5*x^2+a^6*c^5*x
```

Maxima [A] time = 1.34342, size = 97, normalized size = 2.55

$$-\frac{1}{7}\,b^6c^5x^7+\frac{2}{3}\,ab^5c^5x^6-a^2b^4c^5x^5+\frac{5}{3}\,a^4b^2c^5x^3-2\,a^5bc^5x^2+a^6c^5x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a),x, algorithm="maxima")
```

```
[Out] -1/7*b^6*c^5*x^7 + 2/3*a*b^5*c^5*x^6 - a^2*b^4*c^5*x^5 + 5/3*a^4*
b^2*c^5*x^3 - 2*a^5*b*c^5*x^2 + a^6*c^5*x
```

Fricas [A] time = 0.185656, size = 1, normalized size = 0.03

$$-\frac{1}{7}x^7c^5b^6+\frac{2}{3}x^6c^5b^5a-x^5c^5b^4a^2+\frac{5}{3}x^3c^5b^2a^4-2x^2c^5ba^5+xc^5a^6$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a),x, algorithm="fricas")
```

```
[Out] -1/7*x^7*c^5*b^6 + 2/3*x^6*c^5*b^5*a - x^5*c^5*b^4*a^2 + 5/3*x^3*
c^5*b^2*a^4 - 2*x^2*c^5*b*a^5 + x*c^5*a^6
```

Sympy [A] time = 0.157425, size = 78, normalized size = 2.05

$$a^6c^5x-2a^5bc^5x^2+\frac{5a^4b^2c^5x^3}{3}-a^2b^4c^5x^5+\frac{2ab^5c^5x^6}{3}-\frac{b^6c^5x^7}{7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(-b*c*x+a*c)**5,x)
```

```
[Out] a**6*c**5*x - 2*a**5*b*c**5*x**2 + 5*a**4*b**2*c**5*x**3/3 - a**2
*b**4*c**5*x**5 + 2*a*b**5*c**5*x**6/3 - b**6*c**5*x**7/7
```

GIAC/XCAS [A] time = 0.24946, size = 97, normalized size = 2.55

$$-\frac{1}{7}\,b^6c^5x^7+\frac{2}{3}\,ab^5c^5x^6-a^2b^4c^5x^5+\frac{5}{3}\,a^4b^2c^5x^3-2\,a^5bc^5x^2+a^6c^5x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a),x, algorithm="giac")
```

```
[Out] -1/7*b^6*c^5*x^7 + 2/3*a*b^5*c^5*x^6 - a^2*b^4*c^5*x^5 + 5/3*a^4*
b^2*c^5*x^3 - 2*a^5*b*c^5*x^2 + a^6*c^5*x
```

3.31 $\int \frac{(a+bx)(ac-bcx)^5}{x}\,dx$

Optimal. Leaf size=79

$$a^6c^5\log(x)-4a^5bc^5x+\frac{5}{2}a^4b^2c^5x^2-\frac{5}{4}a^2b^4c^5x^4+\frac{4}{5}ab^5c^5x^5-\frac{1}{6}b^6c^5x^6$$

```
[Out] -4*a^5*b*c^5*x + (5*a^4*b^2*c^5*x^2)/2 - (5*a^2*b^4*c^5*x^4)/4 +
(4*a*b^5*c^5*x^5)/5 - (b^6*c^5*x^6)/6 + a^6*c^5*Log[x]
```

Rubi [A] time = 0.0785363, antiderivative size = 79, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$a^6c^5\log(x)-4a^5bc^5x+\frac{5}{2}a^4b^2c^5x^2-\frac{5}{4}a^2b^4c^5x^4+\frac{4}{5}ab^5c^5x^5-\frac{1}{6}b^6c^5x^6$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(a*c - b*c*x)^5)/x,x]
```

```
[Out] -4*a^5*b*c^5*x + (5*a^4*b^2*c^5*x^2)/2 - (5*a^2*b^4*c^5*x^4)/4 +
(4*a*b^5*c^5*x^5)/5 - (b^6*c^5*x^6)/6 + a^6*c^5*Log[x]
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$a^6c^5\log(x)-4a^5bc^5x+5a^4b^2c^5\int x\,dx-\frac{5a^2b^4c^5x^4}{4}+\frac{4ab^5c^5x^5}{5}-\frac{b^6c^5x^6}{6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(-b*c*x+a*c)**5/x,x)
```

```
[Out] a**6*c**5*log(x) - 4*a**5*b*c**5*x + 5*a**4*b**2*c**5*Integral(x,
 x) - 5*a**2*b**4*c**5*x**4/4 + 4*a*b**5*c**5*x**5/5 - b**6*c**5*
x**6/6
```

Mathematica [A] time = 0.0205116, size = 75, normalized size = 0.95

$$c^5\left(a^6\log(-bx)+\frac{127a^6}{60}-4a^5bx+\frac{5}{2}a^4b^2x^2-\frac{5}{4}a^2b^4x^4+\frac{4}{5}ab^5x^5-\frac{b^6x^6}{6}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(a*c - b*c*x)^5)/x,x]
```

```
[Out] c^5*((127*a^6)/60 - 4*a^5*b*x + (5*a^4*b^2*x^2)/2 - (5*a^2*b^4*x^
4)/4 + (4*a*b^5*x^5)/5 - (b^6*x^6)/6 + a^6*Log[-(b*x)])
```

Maple [A] time = 0.004, size = 72, normalized size = 0.9

$$-4\,a^5bc^5x+\frac{5\,a^4b^2c^5x^2}{2}-\frac{5\,a^2b^4c^5x^4}{4}+\frac{4\,ab^5c^5x^5}{5}-\frac{b^6c^5x^6}{6}+a^6c^5\ln(x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(-b*c*x+a*c)^5/x,x)
```

```
[Out] -4*a^5*b*c^5*x+5/2*a^4*b^2*c^5*x^2-5/4*a^2*b^4*c^5*x^4+4/5*a*b^5*
c^5*x^5-1/6*b^6*c^5*x^6+a^6*c^5*ln(x)
```

Maxima [A] time = 1.3819, size = 96, normalized size = 1.22

$$-\frac{1}{6}\,b^6c^5x^6+\frac{4}{5}\,ab^5c^5x^5-\frac{5}{4}\,a^2b^4c^5x^4+\frac{5}{2}\,a^4b^2c^5x^2-4\,a^5bc^5x+a^6c^5\log\left(x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a)/x,x, algorithm="maxima")
```

```
[Out] -1/6*b^6*c^5*x^6 + 4/5*a*b^5*c^5*x^5 - 5/4*a^2*b^4*c^5*x^4 + 5/2*
a^4*b^2*c^5*x^2 - 4*a^5*b*c^5*x + a^6*c^5*log(x)
```

Fricas [A] time = 0.205614, size = 96, normalized size = 1.22

$$-\frac{1}{6}\,b^6c^5x^6+\frac{4}{5}\,ab^5c^5x^5-\frac{5}{4}\,a^2b^4c^5x^4+\frac{5}{2}\,a^4b^2c^5x^2-4\,a^5bc^5x+a^6c^5\log\left(x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a)/x,x, algorithm="fricas")
```

```
[Out] -1/6*b^6*c^5*x^6 + 4/5*a*b^5*c^5*x^5 - 5/4*a^2*b^4*c^5*x^4 + 5/2*
a^4*b^2*c^5*x^2 - 4*a^5*b*c^5*x + a^6*c^5*log(x)
```

Sympy [A] time = 1.31218, size = 82, normalized size = 1.04

$$a^6c^5\log\left(x\right)-4a^5bc^5x+\frac{5a^4b^2c^5x^2}{2}-\frac{5a^2b^4c^5x^4}{4}+\frac{4ab^5c^5x^5}{5}-\frac{b^6c^5x^6}{6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(-b*c*x+a*c)**5/x,x)
```

```
[Out] a**6*c**5*log(x) - 4*a**5*b*c**5*x + 5*a**4*b**2*c**5*x**2/2 - 5*
a**2*b**4*c**5*x**4/4 + 4*a*b**5*c**5*x**5/5 - b**6*c**5*x**6/6
```

GIAC/XCAS [A] time = 0.247664, size = 97, normalized size = 1.23

$$-\frac{1}{6}\,b^6c^5x^6+\frac{4}{5}\,ab^5c^5x^5-\frac{5}{4}\,a^2b^4c^5x^4+\frac{5}{2}\,a^4b^2c^5x^2-4\,a^5bc^5x+a^6c^5\ln\left(|x|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a)/x,x, algorithm="giac")
```

```
[Out] -1/6*b^6*c^5*x^6 + 4/5*a*b^5*c^5*x^5 - 5/4*a^2*b^4*c^5*x^4 + 5/2*
a^4*b^2*c^5*x^2 - 4*a^5*b*c^5*x + a^6*c^5*ln(abs(x))
```

3.32 $\int \frac{(a+bx)(ac-bcx)^5}{x^2}\,dx$

Optimal. Leaf size=75

$$-\frac{a^6c^5}{x}-4a^5bc^5\log(x)+5a^4b^2c^5x-\frac{5}{3}a^2b^4c^5x^3+ab^5c^5x^4-\frac{1}{5}b^6c^5x^5$$

```
[Out] -((a^6*c^5)/x) + 5*a^4*b^2*c^5*x - (5*a^2*b^4*c^5*x^3)/3 + a*b^5*
c^5*x^4 - (b^6*c^5*x^5)/5 - 4*a^5*b*c^5*Log[x]
```

Rubi [A] time = 0.0980214, antiderivative size = 75, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{a^6c^5}{x}-4a^5bc^5\log(x)+5a^4b^2c^5x-\frac{5}{3}a^2b^4c^5x^3+ab^5c^5x^4-\frac{1}{5}b^6c^5x^5$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(a*c - b*c*x)^5)/x^2,x]
```

```
[Out] -((a^6*c^5)/x) + 5*a^4*b^2*c^5*x - (5*a^2*b^4*c^5*x^3)/3 + a*b^5*
c^5*x^4 - (b^6*c^5*x^5)/5 - 4*a^5*b*c^5*Log[x]
```

Rubi in Sympy [A] time = 28.5862, size = 75, normalized size = 1.

$$-\frac{a^6c^5}{x}-4a^5bc^5\log{(x)}+5a^4b^2c^5x-\frac{5a^2b^4c^5x^3}{3}+ab^5c^5x^4-\frac{b^6c^5x^5}{5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(-b*c*x+a*c)**5/x**2,x)
```

```
[Out] -a**6*c**5/x - 4*a**5*b*c**5*log(x) + 5*a**4*b**2*c**5*x - 5*a**2
*b**4*c**5*x**3/3 + a*b**5*c**5*x**4 - b**6*c**5*x**5/5
```

Mathematica [A] time = 0.0114794, size = 61, normalized size = 0.81

$$c^5\left(-\frac{a^6}{x}-4a^5b\log(x)+5a^4b^2x-\frac{5}{3}a^2b^4x^3+ab^5x^4-\frac{b^6x^5}{5}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(a*c - b*c*x)^5)/x^2,x]
```

```
[Out] c^5*(-(a^6/x) + 5*a^4*b^2*x - (5*a^2*b^4*x^3)/3 + a*b^5*x^4 - (b^
6*x^5)/5 - 4*a^5*b*Log[x])
```

Maple [A] time = 0.01, size = 72, normalized size = 1.

$$-\frac{a^6c^5}{x}+5\,a^4b^2c^5x-\frac{5\,a^2b^4c^5x^3}{3}+ab^5c^5x^4-\frac{b^6c^5x^5}{5}-4\,a^5bc^5\ln{(x)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(-b*c*x+a*c)^5/x^2,x)
```

```
[Out] -a^6*c^5/x+5*a^4*b^2*c^5*x-5/3*a^2*b^4*c^5*x^3+a*b^5*c^5*x^4-1/5*
b^6*c^5*x^5-4*a^5*b*c^5*ln(x)
```

Maxima [A] time = 1.33863, size = 96, normalized size = 1.28

$$-\frac{1}{5}\,b^{6}c^{5}x^{5}+ab^{5}c^{5}x^{4}-\frac{5}{3}\,a^{2}b^{4}c^{5}x^{3}+5\,a^{4}b^{2}c^{5}x-4\,a^{5}bc^{5}\log\left(x\right)-\frac{a^{6}c^{5}}{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a)/x^2,x, algorithm="maxima")
```

```
[Out] -1/5*b^6*c^5*x^5 + a*b^5*c^5*x^4 - 5/3*a^2*b^4*c^5*x^3 + 5*a^4*b^
2*c^5*x - 4*a^5*b*c^5*log(x) - a^6*c^5/x
```

Fricas [A] time = 0.205273, size = 104, normalized size = 1.39

$$-\frac{3\,b^{6}c^{5}x^{6}-15\,ab^{5}c^{5}x^{5}+25\,a^{2}b^{4}c^{5}x^{4}-75\,a^{4}b^{2}c^{5}x^{2}+60\,a^{5}bc^{5}x\log\left(x\right)+15\,a^{6}c^{5}}{15\,x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a)/x^2,x, algorithm="fricas")
```

```
[Out] -1/15*(3*b^6*c^5*x^6 - 15*a*b^5*c^5*x^5 + 25*a^2*b^4*c^5*x^4 - 75
*a^4*b^2*c^5*x^2 + 60*a^5*b*c^5*x*log(x) + 15*a^6*c^5)/x
```

Sympy [A] time = 1.42978, size = 75, normalized size = 1.

$$-\frac{a^{6}c^{5}}{x}-4a^{5}bc^{5}\log\left(x\right)+5a^{4}b^{2}c^{5}x-\frac{5a^{2}b^{4}c^{5}x^{3}}{3}+ab^{5}c^{5}x^{4}-\frac{b^{6}c^{5}x^{5}}{5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(-b*c*x+a*c)**5/x**2,x)
```

```
[Out] -a**6*c**5/x - 4*a**5*b*c**5*log(x) + 5*a**4*b**2*c**5*x - 5*a**2
*b**4*c**5*x**3/3 + a*b**5*c**5*x**4 - b**6*c**5*x**5/5
```

GIAC/XCAS [A] time = 0.320218, size = 97, normalized size = 1.29

$$-\frac{1}{5}\,b^{6}c^{5}x^{5}+ab^{5}c^{5}x^{4}-\frac{5}{3}\,a^{2}b^{4}c^{5}x^{3}+5\,a^{4}b^{2}c^{5}x-4\,a^{5}bc^{5}\ln\left(|x|\right)-\frac{a^{6}c^{5}}{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a)/x^2,x, algorithm="giac")
```

```
[Out] -1/5*b^6*c^5*x^5 + a*b^5*c^5*x^4 - 5/3*a^2*b^4*c^5*x^3 + 5*a^4*b^
2*c^5*x - 4*a^5*b*c^5*ln(abs(x)) - a^6*c^5/x
```

3.33 $\int \frac{(a+bx)(ac-bcx)^5}{x^3} dx$

Optimal. Leaf size=82

$$-\frac{a^6c^5}{2x^2}+\frac{4a^5bc^5}{x}+5a^4b^2c^5\log(x)-\frac{5}{2}a^2b^4c^5x^2+\frac{4}{3}ab^5c^5x^3-\frac{1}{4}b^6c^5x^4$$

```
[Out] -(a^6*c^5)/(2*x^2) + (4*a^5*b*c^5)/x - (5*a^2*b^4*c^5*x^2)/2 + (4
*a*b^5*c^5*x^3)/3 - (b^6*c^5*x^4)/4 + 5*a^4*b^2*c^5*Log[x]
```

Rubi [A] time = 0.0996539, antiderivative size = 82, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{a^6c^5}{2x^2}+\frac{4a^5bc^5}{x}+5a^4b^2c^5\log(x)-\frac{5}{2}a^2b^4c^5x^2+\frac{4}{3}ab^5c^5x^3-\frac{1}{4}b^6c^5x^4$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(a*c - b*c*x)^5)/x^3,x]
```

```
[Out] -(a^6*c^5)/(2*x^2) + (4*a^5*b*c^5)/x - (5*a^2*b^4*c^5*x^2)/2 + (4
*a*b^5*c^5*x^3)/3 - (b^6*c^5*x^4)/4 + 5*a^4*b^2*c^5*Log[x]
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{a^6c^5}{2x^2}+\frac{4a^5bc^5}{x}+5a^4b^2c^5\log(x)-5a^2b^4c^5\int x\,dx+\frac{4ab^5c^5x^3}{3}-\frac{b^6c^5x^4}{4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(-b*c*x+a*c)**5/x**3,x)
```

```
[Out] -a**6*c**5/(2*x**2) + 4*a**5*b*c**5/x + 5*a**4*b**2*c**5*log(x) -
 5*a**2*b**4*c**5*Integral(x, x) + 4*a*b**5*c**5*x**3/3 - b**6*c*
*5*x**4/4
```

Mathematica [A] time = 0.0116138, size = 68, normalized size = 0.83

$$c^5\left(-\frac{a^6}{2x^2}+\frac{4a^5b}{x}+5a^4b^2\log(x)-\frac{5}{2}a^2b^4x^2+\frac{4}{3}ab^5x^3-\frac{b^6x^4}{4}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(a*c - b*c*x)^5)/x^3,x]
```

```
[Out] c^5*(-a^6/(2*x^2) + (4*a^5*b)/x - (5*a^2*b^4*x^2)/2 + (4*a*b^5*x^
3)/3 - (b^6*x^4)/4 + 5*a^4*b^2*Log[x])
```

Maple [A] time = 0.012, size = 75, normalized size = 0.9

$$-\frac{a^6c^5}{2\,x^2}+4\,\frac{a^5bc^5}{x}-\frac{5\,a^2b^4c^5x^2}{2}+\frac{4\,ab^5c^5x^3}{3}-\frac{b^6c^5x^4}{4}+5\,a^4b^2c^5\ln(x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(-b*c*x+a*c)^5/x^3,x)
```

```
[Out] -1/2*a^6*c^5/x^2+4*a^5*b*c^5/x-5/2*a^2*b^4*c^5*x^2+4/3*a*b^5*c^5*
x^3-1/4*b^6*c^5*x^4+5*a^4*b^2*c^5*ln(x)
```

Maxima [A] time = 1.43133, size = 101, normalized size = 1.23

$$-\frac{1}{4}\,b^{6}c^{5}x^{4}+\frac{4}{3}\,ab^{5}c^{5}x^{3}-\frac{5}{2}\,a^{2}b^{4}c^{5}x^{2}+5\,a^{4}b^{2}c^{5}\log\left(x\right)+\frac{8\,a^{5}bc^{5}x-a^{6}c^{5}}{2\,x^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a)/x^3,x, algorithm="maxima")
```

```
[Out] -1/4*b^6*c^5*x^4 + 4/3*a*b^5*c^5*x^3 - 5/2*a^2*b^4*c^5*x^2 + 5*a^
4*b^2*c^5*log(x) + 1/2*(8*a^5*b*c^5*x - a^6*c^5)/x^2
```

Fricas [A] time = 0.205664, size = 104, normalized size = 1.27

$$-\frac{3\,b^{6}c^{5}x^{6}-16\,ab^{5}c^{5}x^{5}+30\,a^{2}b^{4}c^{5}x^{4}-60\,a^{4}b^{2}c^{5}x^{2}\log\left(x\right)-48\,a^{5}bc^{5}x+6\,a^{6}c^{5}}{12\,x^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a)/x^3,x, algorithm="fricas")
```

```
[Out] -1/12*(3*b^6*c^5*x^6 - 16*a*b^5*c^5*x^5 + 30*a^2*b^4*c^5*x^4 - 60
*a^4*b^2*c^5*x^2*log(x) - 48*a^5*b*c^5*x + 6*a^6*c^5)/x^2
```

Sympy [A] time = 1.67691, size = 82, normalized size = 1.

$$5a^{4}b^{2}c^{5}\log\left(x\right)-\frac{5a^{2}b^{4}c^{5}x^{2}}{2}+\frac{4ab^{5}c^{5}x^{3}}{3}-\frac{b^{6}c^{5}x^{4}}{4}+\frac{-a^{6}c^{5}+8a^{5}bc^{5}x}{2x^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(-b*c*x+a*c)**5/x**3,x)
```

```
[Out] 5*a**4*b**2*c**5*log(x) - 5*a**2*b**4*c**5*x**2/2 + 4*a*b**5*c**5
*x**3/3 - b**6*c**5*x**4/4 + (-a**6*c**5 + 8*a**5*b*c**5*x)/(2*x*
*2)
```

GIAC/XCAS [A] time = 0.239884, size = 103, normalized size = 1.26

$$-\frac{1}{4}\,b^{6}c^{5}x^{4}+\frac{4}{3}\,ab^{5}c^{5}x^{3}-\frac{5}{2}\,a^{2}b^{4}c^{5}x^{2}+5\,a^{4}b^{2}c^{5}\ln\left(|x|\right)+\frac{8\,a^{5}bc^{5}x-a^{6}c^{5}}{2\,x^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a)/x^3,x, algorithm="giac")
```

```
[Out] -1/4*b^6*c^5*x^4 + 4/3*a*b^5*c^5*x^3 - 5/2*a^2*b^4*c^5*x^2 + 5*a^
4*b^2*c^5*ln(abs(x)) + 1/2*(8*a^5*b*c^5*x - a^6*c^5)/x^2
```

3.34 $\int \frac{(a+bx)(ac-bcx)^5}{x^4}\,dx$

Optimal. Leaf size=18

$$-\frac{c^5(a-bx)^6}{3x^3}$$

```
[Out] -(c^5*(a - b*x)^6)/(3*x^3)
```

Rubi [A] time = 0.0176333, antiderivative size = 18, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{c^5(a-bx)^6}{3x^3}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(a*c - b*c*x)^5)/x^4,x]

[Out] -(c^5*(a - b*x)^6)/(3*x^3)
```

Rubi in Sympy [A] time = 8.11383, size = 15, normalized size = 0.83

$$-\frac{c^5\,(a-bx)^6}{3x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(-b*c*x+a*c)**5/x**4,x)

[Out] -c**5*(a - b*x)**6/(3*x**3)
```

Mathematica [B] time = 0.010506, size = 63, normalized size = 3.5

$$c^5\left(-\frac{a^6}{3x^3}+\frac{2a^5b}{x^2}-\frac{5a^4b^2}{x}-5a^2b^4x+2ab^5x^2-\frac{b^6x^3}{3}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(a*c - b*c*x)^5)/x^4,x]

[Out] c^5*(-a^6/(3*x^3) + (2*a^5*b)/x^2 - (5*a^4*b^2)/x - 5*a^2*b^4*x +
 2*a*b^5*x^2 - (b^6*x^3)/3)
```

Maple [B] time = 0.007, size = 60, normalized size = 3.3

$$c^5\left(-\frac{b^6x^3}{3}+2\,ab^5x^2-5\,a^2b^4x+2\,\frac{a^5b}{x^2}-5\,\frac{a^4b^2}{x}-\frac{a^6}{3\,x^3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(-b*c*x+a*c)^5/x^4,x)
```

```
[Out] c^5*(-1/3*b^6*x^3+2*a*b^5*x^2-5*a^2*b^4*x+2*a^5*b/x^2-5*a^4*b^2/x
-1/3*a^6/x^3)
```

Maxima [A] time = 1.34962, size = 99, normalized size = 5.5

$$-\frac{1}{3}\,b^6c^5x^3 + 2\,ab^5c^5x^2 - 5\,a^2b^4c^5x - \frac{15\,a^4b^2c^5x^2 - 6\,a^5bc^5x + a^6c^5}{3\,x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a)/x^4,x, algorithm="maxima")
```

```
[Out] -1/3*b^6*c^5*x^3 + 2*a*b^5*c^5*x^2 - 5*a^2*b^4*c^5*x - 1/3*(15*a^
4*b^2*c^5*x^2 - 6*a^5*b*c^5*x + a^6*c^5)/x^3
```

Fricas [A] time = 0.196608, size = 99, normalized size = 5.5

$$-\frac{b^6c^5x^6 - 6\,ab^5c^5x^5 + 15\,a^2b^4c^5x^4 + 15\,a^4b^2c^5x^2 - 6\,a^5bc^5x + a^6c^5}{3\,x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a)/x^4,x, algorithm="fricas")
```

```
[Out] -1/3*(b^6*c^5*x^6 - 6*a*b^5*c^5*x^5 + 15*a^2*b^4*c^5*x^4 + 15*a^4
*b^2*c^5*x^2 - 6*a^5*b*c^5*x + a^6*c^5)/x^3
```

Sympy [A] time = 1.68087, size = 76, normalized size = 4.22

$$-5a^2b^4c^5x + 2ab^5c^5x^2 - \frac{b^6c^5x^3}{3} - \frac{a^6c^5 - 6a^5bc^5x + 15a^4b^2c^5x^2}{3x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(-b*c*x+a*c)**5/x**4,x)
```

```
[Out] -5*a**2*b**4*c**5*x + 2*a*b**5*c**5*x**2 - b**6*c**5*x**3/3 - (a*
*6*c**5 - 6*a**5*b*c**5*x + 15*a**4*b**2*c**5*x**2)/(3*x**3)
```

GIAC/XCAS [A] time = 0.223388, size = 99, normalized size = 5.5

$$-\frac{1}{3}\,b^6c^5x^3 + 2\,ab^5c^5x^2 - 5\,a^2b^4c^5x - \frac{15\,a^4b^2c^5x^2 - 6\,a^5bc^5x + a^6c^5}{3\,x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a)/x^4,x, algorithm="giac")
```

```
[Out] -1/3*b^6*c^5*x^3 + 2*a*b^5*c^5*x^2 - 5*a^2*b^4*c^5*x - 1/3*(15*a^
4*b^2*c^5*x^2 - 6*a^5*b*c^5*x + a^6*c^5)/x^3
```

3.35 $\int \frac{(a+bx)(ac-bcx)^5}{x^5} dx$

Optimal. Leaf size=80

$$-\frac{a^6c^5}{4x^4}+\frac{4a^5bc^5}{3x^3}-\frac{5a^4b^2c^5}{2x^2}-5a^2b^4c^5\log(x)+4ab^5c^5x-\frac{1}{2}b^6c^5x^2$$

```
[Out] -(a^6*c^5)/(4*x^4) + (4*a^5*b*c^5)/(3*x^3) - (5*a^4*b^2*c^5)/(2*x
^2) + 4*a*b^5*c^5*x - (b^6*c^5*x^2)/2 - 5*a^2*b^4*c^5*Log[x]
```

Rubi [A] time = 0.100944, antiderivative size = 80, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{a^6c^5}{4x^4}+\frac{4a^5bc^5}{3x^3}-\frac{5a^4b^2c^5}{2x^2}-5a^2b^4c^5\log(x)+4ab^5c^5x-\frac{1}{2}b^6c^5x^2$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(a*c - b*c*x)^5)/x^5,x]
```

```
[Out] -(a^6*c^5)/(4*x^4) + (4*a^5*b*c^5)/(3*x^3) - (5*a^4*b^2*c^5)/(2*x
^2) + 4*a*b^5*c^5*x - (b^6*c^5*x^2)/2 - 5*a^2*b^4*c^5*Log[x]
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{a^6c^5}{4x^4}+\frac{4a^5bc^5}{3x^3}-\frac{5a^4b^2c^5}{2x^2}-5a^2b^4c^5\log(x)+4ab^5c^5x-b^6c^5\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(-b*c*x+a*c)**5/x**5,x)
```

```
[Out] -a**6*c**5/(4*x**4) + 4*a**5*b*c**5/(3*x**3) - 5*a**4*b**2*c**5/(
2*x**2) - 5*a**2*b**4*c**5*log(x) + 4*a*b**5*c**5*x - b**6*c**5*I
ntegral(x, x)
```

Mathematica [A] time = 0.01125, size = 66, normalized size = 0.82

$$c^5\left(-\frac{a^6}{4x^4}+\frac{4a^5b}{3x^3}-\frac{5a^4b^2}{2x^2}-5a^2b^4\log(x)+4ab^5x-\frac{b^6x^2}{2}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(a*c - b*c*x)^5)/x^5,x]
```

```
[Out] c^5*(-a^6/(4*x^4) + (4*a^5*b)/(3*x^3) - (5*a^4*b^2)/(2*x^2) + 4*a
*b^5*x - (b^6*x^2)/2 - 5*a^2*b^4*Log[x])
```

Maple [A] time = 0.01, size = 73, normalized size = 0.9

$$-\frac{a^6c^5}{4\,x^4}+\frac{4\,a^5bc^5}{3\,x^3}-\frac{5\,a^4b^2c^5}{2\,x^2}+4\,ab^5c^5x-\frac{b^6c^5x^2}{2}-5\,a^2b^4c^5\ln(x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(-b*c*x+a*c)^5/x^5,x)
```

```
[Out] -1/4*a^6*c^5/x^4+4/3*a^5*b*c^5/x^3-5/2*a^4*b^2*c^5/x^2+4*a*b^5*c^
5*x-1/2*b^6*c^5*x^2-5*a^2*b^4*c^5*ln(x)
```

Maxima [A] time = 1.34142, size = 99, normalized size = 1.24

$$-\frac{1}{2}\,b^6c^5x^2 + 4\,ab^5c^5x - 5\,a^2b^4c^5\log\left(x\right) - \frac{30\,a^4b^2c^5x^2 - 16\,a^5bc^5x + 3\,a^6c^5}{12\,x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a)/x^5,x, algorithm="maxima")
```

```
[Out] -1/2*b^6*c^5*x^2 + 4*a*b^5*c^5*x - 5*a^2*b^4*c^5*log(x) - 1/12*(3
0*a^4*b^2*c^5*x^2 - 16*a^5*b*c^5*x + 3*a^6*c^5)/x^4
```

Fricas [A] time = 0.204316, size = 104, normalized size = 1.3

$$-\frac{6\,b^6c^5x^6 - 48\,ab^5c^5x^5 + 60\,a^2b^4c^5x^4\log\left(x\right) + 30\,a^4b^2c^5x^2 - 16\,a^5bc^5x + 3\,a^6c^5}{12\,x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a)/x^5,x, algorithm="fricas")
```

```
[Out] -1/12*(6*b^6*c^5*x^6 - 48*a*b^5*c^5*x^5 + 60*a^2*b^4*c^5*x^4*log(
x) + 30*a^4*b^2*c^5*x^2 - 16*a^5*b*c^5*x + 3*a^6*c^5)/x^4
```

Sympy [A] time = 1.91437, size = 78, normalized size = 0.98

$$-5a^2b^4c^5\log\left(x\right) + 4ab^5c^5x - \frac{b^6c^5x^2}{2} - \frac{3a^6c^5 - 16a^5bc^5x + 30a^4b^2c^5x^2}{12x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(-b*c*x+a*c)**5/x**5,x)
```

```
[Out] -5*a**2*b**4*c**5*log(x) + 4*a*b**5*c**5*x - b**6*c**5*x**2/2 - (
3*a**6*c**5 - 16*a**5*b*c**5*x + 30*a**4*b**2*c**5*x**2)/(12*x**4
)
```

GIAC/XCAS [A] time = 0.243966, size = 100, normalized size = 1.25

$$-\frac{1}{2}\,b^6c^5x^2 + 4\,ab^5c^5x - 5\,a^2b^4c^5\ln\left(|x|\right) - \frac{30\,a^4b^2c^5x^2 - 16\,a^5bc^5x + 3\,a^6c^5}{12\,x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a)/x^5,x, algorithm="giac")
```

```
[Out] -1/2*b^6*c^5*x^2 + 4*a*b^5*c^5*x - 5*a^2*b^4*c^5*ln(abs(x)) - 1/1
2*(30*a^4*b^2*c^5*x^2 - 16*a^5*b*c^5*x + 3*a^6*c^5)/x^4
```

3.36 $\int \frac{(a+bx)(ac-bcx)^5}{x^6}\,dx$

Optimal. Leaf size=75

$$-\frac{a^6c^5}{5x^5}+\frac{a^5bc^5}{x^4}-\frac{5a^4b^2c^5}{3x^3}+\frac{5a^2b^4c^5}{x}+4ab^5c^5\log(x)-b^6c^5x$$

```
[Out] -(a^6*c^5)/(5*x^5) + (a^5*b*c^5)/x^4 - (5*a^4*b^2*c^5)/(3*x^3) +
(5*a^2*b^4*c^5)/x - b^6*c^5*x + 4*a*b^5*c^5*Log[x]
```

Rubi [A] time = 0.0996664, antiderivative size = 75, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{a^6c^5}{5x^5}+\frac{a^5bc^5}{x^4}-\frac{5a^4b^2c^5}{3x^3}+\frac{5a^2b^4c^5}{x}+4ab^5c^5\log(x)-b^6c^5x$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(a*c - b*c*x)^5)/x^6,x]
```

```
[Out] -(a^6*c^5)/(5*x^5) + (a^5*b*c^5)/x^4 - (5*a^4*b^2*c^5)/(3*x^3) +
(5*a^2*b^4*c^5)/x - b^6*c^5*x + 4*a*b^5*c^5*Log[x]
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{a^6c^5}{5x^5}+\frac{a^5bc^5}{x^4}-\frac{5a^4b^2c^5}{3x^3}+\frac{5a^2b^4c^5}{x}+4ab^5c^5\log(x)-c^5\int b^6\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(-b*c*x+a*c)**5/x**6,x)
```

```
[Out] -a**6*c**5/(5*x**5) + a**5*b*c**5/x**4 - 5*a**4*b**2*c**5/(3*x**3
) + 5*a**2*b**4*c**5/x + 4*a*b**5*c**5*log(x) - c**5*Integral(b**
6, x)
```

Mathematica [A] time = 0.011138, size = 61, normalized size = 0.81

$$c^5\left(-\frac{a^6}{5x^5}+\frac{a^5b}{x^4}-\frac{5a^4b^2}{3x^3}+\frac{5a^2b^4}{x}+4ab^5\log(x)-b^6x\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(a*c - b*c*x)^5)/x^6,x]
```

```
[Out] c^5*(-a^6/(5*x^5) + (a^5*b)/x^4 - (5*a^4*b^2)/(3*x^3) + (5*a^2*b^
4)/x - b^6*x + 4*a*b^5*Log[x])
```

Maple [A] time = 0.01, size = 72, normalized size = 1.

$$-\frac{a^6c^5}{5\,x^5}+\frac{a^5bc^5}{x^4}-\frac{5\,a^4b^2c^5}{3\,x^3}+5\,\frac{a^2b^4c^5}{x}-b^6c^5x+4\,ab^5c^5\ln(x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(-b*c*x+a*c)^5/x^6,x)
```

```
[Out] -1/5*a^6*c^5/x^5+a^5*b*c^5/x^4-5/3*a^4*b^2*c^5/x^3+5*a^2*b^4*c^5/
x-b^6*c^5*x+4*a*b^5*c^5*ln(x)
```

Maxima [A] time = 1.33767, size = 99, normalized size = 1.32

$$-b^6c^5x + 4\,ab^5c^5\log(x) + \frac{75\,a^2b^4c^5x^4 - 25\,a^4b^2c^5x^2 + 15\,a^5bc^5x - 3\,a^6c^5}{15\,x^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a)/x^6,x, algorithm="maxima")
```

```
[Out] -b^6*c^5*x + 4*a*b^5*c^5*log(x) + 1/15*(75*a^2*b^4*c^5*x^4 - 25*a
^4*b^2*c^5*x^2 + 15*a^5*b*c^5*x - 3*a^6*c^5)/x^5
```

Fricas [A] time = 0.208575, size = 104, normalized size = 1.39

$$-\frac{15\,b^6c^5x^6 - 60\,ab^5c^5x^5\log(x) - 75\,a^2b^4c^5x^4 + 25\,a^4b^2c^5x^2 - 15\,a^5bc^5x + 3\,a^6c^5}{15\,x^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a)/x^6,x, algorithm="fricas")
```

```
[Out] -1/15*(15*b^6*c^5*x^6 - 60*a*b^5*c^5*x^5*log(x) - 75*a^2*b^4*c^5*
x^4 + 25*a^4*b^2*c^5*x^2 - 15*a^5*b*c^5*x + 3*a^6*c^5)/x^5
```

Sympy [A] time = 2.19792, size = 76, normalized size = 1.01

$$4ab^5c^5\log(x) - b^6c^5x + \frac{-3a^6c^5 + 15a^5bc^5x - 25a^4b^2c^5x^2 + 75a^2b^4c^5x^4}{15x^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(-b*c*x+a*c)**5/x**6,x)
```

```
[Out] 4*a*b**5*c**5*log(x) - b**6*c**5*x + (-3*a**6*c**5 + 15*a**5*b*c*
*5*x - 25*a**4*b**2*c**5*x**2 + 75*a**2*b**4*c**5*x**4)/(15*x**5)
```

GIAC/XCAS [A] time = 0.244273, size = 100, normalized size = 1.33

$$-b^6c^5x + 4\,ab^5c^5\ln(|x|) + \frac{75\,a^2b^4c^5x^4 - 25\,a^4b^2c^5x^2 + 15\,a^5bc^5x - 3\,a^6c^5}{15\,x^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a)/x^6,x, algorithm="giac")
```

```
[Out] -b^6*c^5*x + 4*a*b^5*c^5*ln(abs(x)) + 1/15*(75*a^2*b^4*c^5*x^4 -
25*a^4*b^2*c^5*x^2 + 15*a^5*b*c^5*x - 3*a^6*c^5)/x^5
```

3.37 $\int \frac{(a+bx)(ac-bcx)^5}{x^7} dx$

Optimal. Leaf size=82

$$-\frac{a^6c^5}{6x^6}+\frac{4a^5bc^5}{5x^5}-\frac{5a^4b^2c^5}{4x^4}+\frac{5a^2b^4c^5}{2x^2}-\frac{4ab^5c^5}{x}-b^6c^5\log(x)$$

```
[Out] -(a^6*c^5)/(6*x^6) + (4*a^5*b*c^5)/(5*x^5) - (5*a^4*b^2*c^5)/(4*x
^4) + (5*a^2*b^4*c^5)/(2*x^2) - (4*a*b^5*c^5)/x - b^6*c^5*Log[x]
```

Rubi [A] time = 0.089377, antiderivative size = 82, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{a^6c^5}{6x^6}+\frac{4a^5bc^5}{5x^5}-\frac{5a^4b^2c^5}{4x^4}+\frac{5a^2b^4c^5}{2x^2}-\frac{4ab^5c^5}{x}-b^6c^5\log(x)$$

Antiderivative was successfully verified.

```
[In] Int[((a + b*x)*(a*c - b*c*x)^5)/x^7,x]
```

```
[Out] -(a^6*c^5)/(6*x^6) + (4*a^5*b*c^5)/(5*x^5) - (5*a^4*b^2*c^5)/(4*x
^4) + (5*a^2*b^4*c^5)/(2*x^2) - (4*a*b^5*c^5)/x - b^6*c^5*Log[x]
```

Rubi in Sympy [A] time = 30.9346, size = 82, normalized size = 1.

$$-\frac{a^6c^5}{6x^6}+\frac{4a^5bc^5}{5x^5}-\frac{5a^4b^2c^5}{4x^4}+\frac{5a^2b^4c^5}{2x^2}-\frac{4ab^5c^5}{x}-b^6c^5\log{(x)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)*(-b*c*x+a*c)**5/x**7,x)
```

```
[Out] -a**6*c**5/(6*x**6) + 4*a**5*b*c**5/(5*x**5) - 5*a**4*b**2*c**5/(
4*x**4) + 5*a**2*b**4*c**5/(2*x**2) - 4*a*b**5*c**5/x - b**6*c**5
*log(x)
```

Mathematica [A] time = 0.0116429, size = 68, normalized size = 0.83

$$c^5\left(-\frac{a^6}{6x^6}+\frac{4a^5b}{5x^5}-\frac{5a^4b^2}{4x^4}+\frac{5a^2b^4}{2x^2}-\frac{4ab^5}{x}-b^6\log(x)\right)$$

Antiderivative was successfully verified.

```
[In] Integrate[((a + b*x)*(a*c - b*c*x)^5)/x^7,x]
```

```
[Out] c^5*(-a^6/(6*x^6) + (4*a^5*b)/(5*x^5) - (5*a^4*b^2)/(4*x^4) + (5*
a^2*b^4)/(2*x^2) - (4*a*b^5)/x - b^6*Log[x])
```

Maple [A] time = 0.01, size = 75, normalized size = 0.9

$$-\frac{a^6c^5}{6\,x^6}+\frac{4\,a^5bc^5}{5\,x^5}-\frac{5\,a^4b^2c^5}{4\,x^4}+\frac{5\,a^2b^4c^5}{2\,x^2}-4\,\frac{ab^5c^5}{x}-b^6c^5\ln{(x)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(-b*c*x+a*c)^5/x^7,x)
```

```
[Out] -1/6*a^6*c^5/x^6+4/5*a^5*b*c^5/x^5-5/4*a^4*b^2*c^5/x^4+5/2*a^2*b^
4*c^5/x^2-4*a*b^5*c^5/x-b^6*c^5*ln(x)
```

Maxima [A] time = 1.34933, size = 101, normalized size = 1.23

$$-b^6c^5\log(x) - \frac{240\,ab^5c^5x^5 - 150\,a^2b^4c^5x^4 + 75\,a^4b^2c^5x^2 - 48\,a^5bc^5x + 10\,a^6c^5}{60\,x^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a)/x^7,x, algorithm="maxima")
```

```
[Out] -b^6*c^5*log(x) - 1/60*(240*a*b^5*c^5*x^5 - 150*a^2*b^4*c^5*x^4 +
 75*a^4*b^2*c^5*x^2 - 48*a^5*b*c^5*x + 10*a^6*c^5)/x^6
```

Fricas [A] time = 0.209328, size = 104, normalized size = 1.27

$$-\frac{60\,b^6c^5x^6\log(x) + 240\,ab^5c^5x^5 - 150\,a^2b^4c^5x^4 + 75\,a^4b^2c^5x^2 - 48\,a^5bc^5x + 10\,a^6c^5}{60\,x^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a)/x^7,x, algorithm="fricas")
```

```
[Out] -1/60*(60*b^6*c^5*x^6*log(x) + 240*a*b^5*c^5*x^5 - 150*a^2*b^4*c^
5*x^4 + 75*a^4*b^2*c^5*x^2 - 48*a^5*b*c^5*x + 10*a^6*c^5)/x^6
```

Sympy [A] time = 2.51832, size = 80, normalized size = 0.98

$$-b^6c^5\log(x) - \frac{10a^6c^5 - 48a^5bc^5x + 75a^4b^2c^5x^2 - 150a^2b^4c^5x^4 + 240ab^5c^5x^5}{60x^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(-b*c*x+a*c)**5/x**7,x)
```

```
[Out] -b**6*c**5*log(x) - (10*a**6*c**5 - 48*a**5*b*c**5*x + 75*a**4*b*
*2*c**5*x**2 - 150*a**2*b**4*c**5*x**4 + 240*a*b**5*c**5*x**5)/(6
0*x**6)
```

GIAC/XCAS [A] time = 0.241207, size = 103, normalized size = 1.26

$$-b^6c^5\ln(|x|) - \frac{240\,ab^5c^5x^5 - 150\,a^2b^4c^5x^4 + 75\,a^4b^2c^5x^2 - 48\,a^5bc^5x + 10\,a^6c^5}{60\,x^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a)/x^7,x, algorithm="giac")
```

```
[Out] -b^6*c^5*ln(abs(x)) - 1/60*(240*a*b^5*c^5*x^5 - 150*a^2*b^4*c^5*x
^4 + 75*a^4*b^2*c^5*x^2 - 48*a^5*b*c^5*x + 10*a^6*c^5)/x^6
```

3.38 $\int \frac{(a+bx)(ac-bcx)^5}{x^8} \, dx$

Optimal. Leaf size=41

$$-\frac{c^5(a-bx)^6}{7x^7}-\frac{4bc^5(a-bx)^6}{21ax^6}$$

```
[Out] -(c^5*(a - b*x)^6)/(7*x^7) - (4*b*c^5*(a - b*x)^6)/(21*a*x^6)
```

Rubi [A] time = 0.0483606, antiderivative size = 41, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.1$

$$-\frac{c^5(a-bx)^6}{7x^7}-\frac{4bc^5(a-bx)^6}{21ax^6}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(a*c - b*c*x)^5)/x^8,x]
```

```
[Out] -(c^5*(a - b*x)^6)/(7*x^7) - (4*b*c^5*(a - b*x)^6)/(21*a*x^6)
```

Rubi in Sympy [A] time = 11.6774, size = 36, normalized size = 0.88

$$-\frac{c^5\,(a-bx)^6}{7x^7}-\frac{4bc^5\,(a-bx)^6}{21ax^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(-b*c*x+a*c)**5/x**8,x)
```

```
[Out] -c**5*(a - b*x)**6/(7*x**7) - 4*b*c**5*(a - b*x)**6/(21*a*x**6)
```

Mathematica [A] time = 0.0114612, size = 66, normalized size = 1.61

$$c^5\left(-\frac{a^6}{7x^7}+\frac{2a^5b}{3x^6}-\frac{a^4b^2}{x^5}+\frac{5a^2b^4}{3x^3}-\frac{2ab^5}{x^2}+\frac{b^6}{x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(a*c - b*c*x)^5)/x^8,x]
```

```
[Out] c^5*(-a^6/(7*x^7) + (2*a^5*b)/(3*x^6) - (a^4*b^2)/x^5 + (5*a^2*b^
4)/(3*x^3) - (2*a*b^5)/x^2 + b^6/x)
```

Maple [A] time = 0.008, size = 61, normalized size = 1.5

$$c^5\left(-\frac{a^6}{7\,x^7}-2\,\frac{ab^5}{x^2}-\frac{a^4b^2}{x^5}+\frac{b^6}{x}+\frac{5\,a^2b^4}{3\,x^3}+\frac{2\,a^5b}{3\,x^6}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(-b*c*x+a*c)^5/x^8,x)
```

```
[Out] c^5*(-1/7*a^6/x^7-2*a*b^5/x^2-a^4*b^2/x^5+b^6/x+5/3*a^2*b^4/x^3+2
/3*a^5*b/x^6)
```

Maxima [A] time = 1.35168, size = 101, normalized size = 2.46

$$\frac{21 b^6c^5x^6 - 42 ab^5c^5x^5 + 35 a^2b^4c^5x^4 - 21 a^4b^2c^5x^2 + 14 a^5bc^5x - 3 a^6c^5}{21 x^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a)/x^8,x, algorithm="maxima")
```

```
[Out] 1/21*(21*b^6*c^5*x^6 - 42*a*b^5*c^5*x^5 + 35*a^2*b^4*c^5*x^4 - 21
*a^4*b^2*c^5*x^2 + 14*a^5*b*c^5*x - 3*a^6*c^5)/x^7
```

Fricas [A] time = 0.200362, size = 101, normalized size = 2.46

$$\frac{21 b^6c^5x^6 - 42 ab^5c^5x^5 + 35 a^2b^4c^5x^4 - 21 a^4b^2c^5x^2 + 14 a^5bc^5x - 3 a^6c^5}{21 x^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a)/x^8,x, algorithm="fricas")
```

```
[Out] 1/21*(21*b^6*c^5*x^6 - 42*a*b^5*c^5*x^5 + 35*a^2*b^4*c^5*x^4 - 21
*a^4*b^2*c^5*x^2 + 14*a^5*b*c^5*x - 3*a^6*c^5)/x^7
```

Sympy [A] time = 2.56319, size = 80, normalized size = 1.95

$$\frac{-3a^6c^5 + 14a^5bc^5x - 21a^4b^2c^5x^2 + 35a^2b^4c^5x^4 - 42ab^5c^5x^5 + 21b^6c^5x^6}{21x^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(-b*c*x+a*c)**5/x**8,x)
```

```
[Out] (-3*a**6*c**5 + 14*a**5*b*c**5*x - 21*a**4*b**2*c**5*x**2 + 35*a*
*2*b**4*c**5*x**4 - 42*a*b**5*c**5*x**5 + 21*b**6*c**5*x**6)/(21*
x**7)
```

GIAC/XCAS [A] time = 0.25478, size = 101, normalized size = 2.46

$$\frac{21 b^6c^5x^6 - 42 ab^5c^5x^5 + 35 a^2b^4c^5x^4 - 21 a^4b^2c^5x^2 + 14 a^5bc^5x - 3 a^6c^5}{21 x^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a)/x^8,x, algorithm="giac")
```

```
[Out] 1/21*(21*b^6*c^5*x^6 - 42*a*b^5*c^5*x^5 + 35*a^2*b^4*c^5*x^4 - 21
*a^4*b^2*c^5*x^2 + 14*a^5*b*c^5*x - 3*a^6*c^5)/x^7
```

3.39 $\int \frac{(a+bx)(ac-bcx)^5}{x^9}\,dx$

Optimal. Leaf size=65

$$-\frac{5b^2c^5(a-bx)^6}{168a^2x^6}-\frac{c^5(a-bx)^6}{8x^8}-\frac{5bc^5(a-bx)^6}{28ax^7}$$

```
[Out] -(c^5*(a - b*x)^6)/(8*x^8) - (5*b*c^5*(a - b*x)^6)/(28*a*x^7) - (
5*b^2*c^5*(a - b*x)^6)/(168*a^2*x^6)
```

Rubi [A] time = 0.072663, antiderivative size = 65, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.15

$$-\frac{5b^2c^5(a-bx)^6}{168a^2x^6}-\frac{c^5(a-bx)^6}{8x^8}-\frac{5bc^5(a-bx)^6}{28ax^7}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(a*c - b*c*x)^5)/x^9,x]
```

```
[Out] -(c^5*(a - b*x)^6)/(8*x^8) - (5*b*c^5*(a - b*x)^6)/(28*a*x^7) - (
5*b^2*c^5*(a - b*x)^6)/(168*a^2*x^6)
```

Rubi in Sympy [A] time = 17.0452, size = 60, normalized size = 0.92

$$-\frac{c^5\,(a-bx)^6}{8x^8}-\frac{5bc^5\,(a-bx)^6}{28ax^7}-\frac{5b^2c^5\,(a-bx)^6}{168a^2x^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(-b*c*x+a*c)**5/x**9,x)
```

```
[Out] -c**5*(a - b*x)**6/(8*x**8) - 5*b*c**5*(a - b*x)**6/(28*a*x**7) -
 5*b**2*c**5*(a - b*x)**6/(168*a**2*x**6)
```

Mathematica [A] time = 0.0105354, size = 73, normalized size = 1.12

$$c^5\left(-\frac{a^6}{8x^8}+\frac{4a^5b}{7x^7}-\frac{5a^4b^2}{6x^6}+\frac{5a^2b^4}{4x^4}-\frac{4ab^5}{3x^3}+\frac{b^6}{2x^2}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(a*c - b*c*x)^5)/x^9,x]
```

```
[Out] c^5*(-a^6/(8*x^8) + (4*a^5*b)/(7*x^7) - (5*a^4*b^2)/(6*x^6) + (5*
a^2*b^4)/(4*x^4) - (4*a*b^5)/(3*x^3) + b^6/(2*x^2))
```

Maple [A] time = 0.008, size = 62, normalized size = 1.

$$c^5\left(-\frac{a^6}{8\,x^8}+\frac{4\,a^5b}{7\,x^7}+\frac{b^6}{2\,x^2}-\frac{4\,ab^5}{3\,x^3}+\frac{5\,a^2b^4}{4\,x^4}-\frac{5\,a^4b^2}{6\,x^6}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(-b*c*x+a*c)^5/x^9,x)
```

```
[Out] c^5*(-1/8*a^6/x^8+4/7*a^5*b/x^7+1/2*b^6/x^2-4/3*a*b^5/x^3+5/4*a^2
*b^4/x^4-5/6*a^4*b^2/x^6)
```

Maxima [A] time = 1.34215, size = 101, normalized size = 1.55

$$\frac{84\,b^6c^5x^6-224\,ab^5c^5x^5+210\,a^2b^4c^5x^4-140\,a^4b^2c^5x^2+96\,a^5bc^5x-21\,a^6c^5}{168\,x^8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a)/x^9,x, algorithm="maxima")
```

```
[Out] 1/168*(84*b^6*c^5*x^6 - 224*a*b^5*c^5*x^5 + 210*a^2*b^4*c^5*x^4 -
 140*a^4*b^2*c^5*x^2 + 96*a^5*b*c^5*x - 21*a^6*c^5)/x^8
```

Fricas [A] time = 0.204573, size = 101, normalized size = 1.55

$$\frac{84\,b^6c^5x^6-224\,ab^5c^5x^5+210\,a^2b^4c^5x^4-140\,a^4b^2c^5x^2+96\,a^5bc^5x-21\,a^6c^5}{168\,x^8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a)/x^9,x, algorithm="fricas")
```

```
[Out] 1/168*(84*b^6*c^5*x^6 - 224*a*b^5*c^5*x^5 + 210*a^2*b^4*c^5*x^4 -
 140*a^4*b^2*c^5*x^2 + 96*a^5*b*c^5*x - 21*a^6*c^5)/x^8
```

Sympy [A] time = 2.69636, size = 80, normalized size = 1.23

$$\frac{-21a^6c^5+96a^5bc^5x-140a^4b^2c^5x^2+210a^2b^4c^5x^4-224ab^5c^5x^5+84b^6c^5x^6}{168x^8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(-b*c*x+a*c)**5/x**9,x)
```

```
[Out] (-21*a**6*c**5 + 96*a**5*b*c**5*x - 140*a**4*b**2*c**5*x**2 + 210
*a**2*b**4*c**5*x**4 - 224*a*b**5*c**5*x**5 + 84*b**6*c**5*x**6)/
(168*x**8)
```

GIAC/XCAS [A] time = 0.239899, size = 101, normalized size = 1.55

$$\frac{84\,b^6c^5x^6-224\,ab^5c^5x^5+210\,a^2b^4c^5x^4-140\,a^4b^2c^5x^2+96\,a^5bc^5x-21\,a^6c^5}{168\,x^8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a)/x^9,x, algorithm="giac")
```

```
[Out] 1/168*(84*b^6*c^5*x^6 - 224*a*b^5*c^5*x^5 + 210*a^2*b^4*c^5*x^4 -
 140*a^4*b^2*c^5*x^2 + 96*a^5*b*c^5*x - 21*a^6*c^5)/x^8
```

3.40 $\int \frac{(a+bx)(ac-bcx)^5}{x^{10}} dx$

Optimal. Leaf size=82

$$-\frac{a^6c^5}{9x^9}+\frac{a^5bc^5}{2x^8}-\frac{5a^4b^2c^5}{7x^7}+\frac{a^2b^4c^5}{x^5}-\frac{ab^5c^5}{x^4}+\frac{b^6c^5}{3x^3}$$

```
[Out] -(a^6*c^5)/(9*x^9) + (a^5*b*c^5)/(2*x^8) - (5*a^4*b^2*c^5)/(7*x^7
) + (a^2*b^4*c^5)/x^5 - (a*b^5*c^5)/x^4 + (b^6*c^5)/(3*x^3)
```

Rubi [A] time = 0.10004, antiderivative size = 82, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{a^6c^5}{9x^9}+\frac{a^5bc^5}{2x^8}-\frac{5a^4b^2c^5}{7x^7}+\frac{a^2b^4c^5}{x^5}-\frac{ab^5c^5}{x^4}+\frac{b^6c^5}{3x^3}$$

Antiderivative was successfully verified.

```
[In] Int[((a + b*x)*(a*c - b*c*x)^5)/x^10,x]
```

```
[Out] -(a^6*c^5)/(9*x^9) + (a^5*b*c^5)/(2*x^8) - (5*a^4*b^2*c^5)/(7*x^7
) + (a^2*b^4*c^5)/x^5 - (a*b^5*c^5)/x^4 + (b^6*c^5)/(3*x^3)
```

Rubi in Sympy [A] time = 32.1698, size = 78, normalized size = 0.95

$$-\frac{a^6c^5}{9x^9}+\frac{a^5bc^5}{2x^8}-\frac{5a^4b^2c^5}{7x^7}+\frac{a^2b^4c^5}{x^5}-\frac{ab^5c^5}{x^4}+\frac{b^6c^5}{3x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)*(-b*c*x+a*c)**5/x**10,x)
```

```
[Out] -a**6*c**5/(9*x**9) + a**5*b*c**5/(2*x**8) - 5*a**4*b**2*c**5/(7*
x**7) + a**2*b**4*c**5/x**5 - a*b**5*c**5/x**4 + b**6*c**5/(3*x**
3)
```

Mathematica [A] time = 0.0107671, size = 68, normalized size = 0.83

$$c^5\left(-\frac{a^6}{9x^9}+\frac{a^5b}{2x^8}-\frac{5a^4b^2}{7x^7}+\frac{a^2b^4}{x^5}-\frac{ab^5}{x^4}+\frac{b^6}{3x^3}\right)$$

Antiderivative was successfully verified.

```
[In] Integrate[((a + b*x)*(a*c - b*c*x)^5)/x^10,x]
```

```
[Out] c^5*(-a^6/(9*x^9) + (a^5*b)/(2*x^8) - (5*a^4*b^2)/(7*x^7) + (a^2*
b^4)/x^5 - (a*b^5)/x^4 + b^6/(3*x^3))
```

Maple [A] time = 0.007, size = 61, normalized size = 0.7

$$c^5\left(\frac{a^5b}{2\,x^8}-\frac{5\,a^4b^2}{7\,x^7}-\frac{a^6}{9\,x^9}+\frac{a^2b^4}{x^5}+\frac{b^6}{3\,x^3}-\frac{ab^5}{x^4}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(-b*c*x+a*c)^5/x^10,x)
```

```
[Out] c^5*(1/2*a^5*b/x^8-5/7*a^4*b^2/x^7-1/9*a^6/x^9+a^2*b^4/x^5+1/3*b^
6/x^3-a*b^5/x^4)
```

Maxima [A] time = 1.35321, size = 101, normalized size = 1.23

$$\frac{42\,b^6c^5x^6-126\,ab^5c^5x^5+126\,a^2b^4c^5x^4-90\,a^4b^2c^5x^2+63\,a^5bc^5x-14\,a^6c^5}{126\,x^9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a)/x^10,x, algorithm="maxima")
```

```
[Out] 1/126*(42*b^6*c^5*x^6 - 126*a*b^5*c^5*x^5 + 126*a^2*b^4*c^5*x^4 -
 90*a^4*b^2*c^5*x^2 + 63*a^5*b*c^5*x - 14*a^6*c^5)/x^9
```

Fricas [A] time = 0.204769, size = 101, normalized size = 1.23

$$\frac{42\,b^6c^5x^6-126\,ab^5c^5x^5+126\,a^2b^4c^5x^4-90\,a^4b^2c^5x^2+63\,a^5bc^5x-14\,a^6c^5}{126\,x^9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a)/x^10,x, algorithm="fricas")
```

```
[Out] 1/126*(42*b^6*c^5*x^6 - 126*a*b^5*c^5*x^5 + 126*a^2*b^4*c^5*x^4 -
 90*a^4*b^2*c^5*x^2 + 63*a^5*b*c^5*x - 14*a^6*c^5)/x^9
```

Sympy [A] time = 2.8548, size = 80, normalized size = 0.98

$$\frac{-14a^6c^5+63a^5bc^5x-90a^4b^2c^5x^2+126a^2b^4c^5x^4-126ab^5c^5x^5+42b^6c^5x^6}{126x^9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(-b*c*x+a*c)**5/x**10,x)
```

```
[Out] (-14*a**6*c**5 + 63*a**5*b*c**5*x - 90*a**4*b**2*c**5*x**2 + 126*
a**2*b**4*c**5*x**4 - 126*a*b**5*c**5*x**5 + 42*b**6*c**5*x**6)/(
126*x**9)
```

GIAC/XCAS [A] time = 0.236626, size = 101, normalized size = 1.23

$$\frac{42\,b^6c^5x^6-126\,ab^5c^5x^5+126\,a^2b^4c^5x^4-90\,a^4b^2c^5x^2+63\,a^5bc^5x-14\,a^6c^5}{126\,x^9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a)/x^10,x, algorithm="giac")
```

```
[Out] 1/126*(42*b^6*c^5*x^6 - 126*a*b^5*c^5*x^5 + 126*a^2*b^4*c^5*x^4 -
 90*a^4*b^2*c^5*x^2 + 63*a^5*b*c^5*x - 14*a^6*c^5)/x^9
```

3.41 $\int \frac{(a+bx)(ac-bcx)^5}{x^{11}}\,dx$

Optimal. Leaf size=87

$$-\frac{a^6c^5}{10x^{10}}+\frac{4a^5bc^5}{9x^9}-\frac{5a^4b^2c^5}{8x^8}+\frac{5a^2b^4c^5}{6x^6}-\frac{4ab^5c^5}{5x^5}+\frac{b^6c^5}{4x^4}$$

```
[Out] -(a^6*c^5)/(10*x^10) + (4*a^5*b*c^5)/(9*x^9) - (5*a^4*b^2*c^5)/(8
*x^8) + (5*a^2*b^4*c^5)/(6*x^6) - (4*a*b^5*c^5)/(5*x^5) + (b^6*c^
5)/(4*x^4)
```

Rubi [A] time = 0.0999413, antiderivative size = 87, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{a^6c^5}{10x^{10}}+\frac{4a^5bc^5}{9x^9}-\frac{5a^4b^2c^5}{8x^8}+\frac{5a^2b^4c^5}{6x^6}-\frac{4ab^5c^5}{5x^5}+\frac{b^6c^5}{4x^4}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(a*c - b*c*x)^5)/x^11,x]
```

```
[Out] -(a^6*c^5)/(10*x^10) + (4*a^5*b*c^5)/(9*x^9) - (5*a^4*b^2*c^5)/(8
*x^8) + (5*a^2*b^4*c^5)/(6*x^6) - (4*a*b^5*c^5)/(5*x^5) + (b^6*c^
5)/(4*x^4)
```

Rubi in Sympy [A] time = 32.0793, size = 87, normalized size = 1.

$$-\frac{a^6c^5}{10x^{10}}+\frac{4a^5bc^5}{9x^9}-\frac{5a^4b^2c^5}{8x^8}+\frac{5a^2b^4c^5}{6x^6}-\frac{4ab^5c^5}{5x^5}+\frac{b^6c^5}{4x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(-b*c*x+a*c)**5/x**11,x)
```

```
[Out] -a**6*c**5/(10*x**10) + 4*a**5*b*c**5/(9*x**9) - 5*a**4*b**2*c**5
/(8*x**8) + 5*a**2*b**4*c**5/(6*x**6) - 4*a*b**5*c**5/(5*x**5) +
b**6*c**5/(4*x**4)
```

Mathematica [A] time = 0.0105546, size = 73, normalized size = 0.84

$$c^5\left(-\frac{a^6}{10x^{10}}+\frac{4a^5b}{9x^9}-\frac{5a^4b^2}{8x^8}+\frac{5a^2b^4}{6x^6}-\frac{4ab^5}{5x^5}+\frac{b^6}{4x^4}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(a*c - b*c*x)^5)/x^11,x]
```

```
[Out] c^5*(-a^6/(10*x^10) + (4*a^5*b)/(9*x^9) - (5*a^4*b^2)/(8*x^8) + (
5*a^2*b^4)/(6*x^6) - (4*a*b^5)/(5*x^5) + b^6/(4*x^4))
```

Maple [A] time = 0.007, size = 62, normalized size = 0.7

$$c^5\left(-\frac{5\,a^4b^2}{8\,x^8}+\frac{4\,a^5b}{9\,x^9}-\frac{4\,ab^5}{5\,x^5}-\frac{a^6}{10\,x^{10}}+\frac{b^6}{4\,x^4}+\frac{5\,a^2b^4}{6\,x^6}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(-b*c*x+a*c)^5/x^11,x)
```

```
[Out] c^5*(-5/8*a^4*b^2/x^8+4/9*a^5*b/x^9-4/5*a*b^5/x^5-1/10*a^6/x^10+1
/4*b^6/x^4+5/6*a^2*b^4/x^6)
```

Maxima [A] time = 1.36719, size = 101, normalized size = 1.16

$$\frac{90\,b^6c^5x^6 - 288\,ab^5c^5x^5 + 300\,a^2b^4c^5x^4 - 225\,a^4b^2c^5x^2 + 160\,a^5bc^5x - 36\,a^6c^5}{360\,x^{10}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a)/x^11,x, algorithm="maxima")
```

```
[Out] 1/360*(90*b^6*c^5*x^6 - 288*a*b^5*c^5*x^5 + 300*a^2*b^4*c^5*x^4 -
 225*a^4*b^2*c^5*x^2 + 160*a^5*b*c^5*x - 36*a^6*c^5)/x^10
```

Fricas [A] time = 0.197007, size = 101, normalized size = 1.16

$$\frac{90\,b^6c^5x^6 - 288\,ab^5c^5x^5 + 300\,a^2b^4c^5x^4 - 225\,a^4b^2c^5x^2 + 160\,a^5bc^5x - 36\,a^6c^5}{360\,x^{10}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a)/x^11,x, algorithm="fricas")
```

```
[Out] 1/360*(90*b^6*c^5*x^6 - 288*a*b^5*c^5*x^5 + 300*a^2*b^4*c^5*x^4 -
 225*a^4*b^2*c^5*x^2 + 160*a^5*b*c^5*x - 36*a^6*c^5)/x^10
```

Sympy [A] time = 3.05442, size = 80, normalized size = 0.92

$$\frac{-36a^6c^5 + 160a^5bc^5x - 225a^4b^2c^5x^2 + 300a^2b^4c^5x^4 - 288ab^5c^5x^5 + 90b^6c^5x^6}{360x^{10}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(-b*c*x+a*c)**5/x**11,x)
```

```
[Out] (-36*a**6*c**5 + 160*a**5*b*c**5*x - 225*a**4*b**2*c**5*x**2 + 30
0*a**2*b**4*c**5*x**4 - 288*a*b**5*c**5*x**5 + 90*b**6*c**5*x**6)
/(360*x**10)
```

GIAC/XCAS [A] time = 0.246342, size = 101, normalized size = 1.16

$$\frac{90\,b^6c^5x^6 - 288\,ab^5c^5x^5 + 300\,a^2b^4c^5x^4 - 225\,a^4b^2c^5x^2 + 160\,a^5bc^5x - 36\,a^6c^5}{360\,x^{10}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a)/x^11,x, algorithm="giac")
```

```
[Out] 1/360*(90*b^6*c^5*x^6 - 288*a*b^5*c^5*x^5 + 300*a^2*b^4*c^5*x^4 -
 225*a^4*b^2*c^5*x^2 + 160*a^5*b*c^5*x - 36*a^6*c^5)/x^10
```

3.42 $\int \frac{(a+bx)(ac-bcx)^5}{x^{12}} dx$

Optimal. Leaf size=87

$$-\frac{a^6c^5}{11x^{11}}+\frac{2a^5bc^5}{5x^{10}}-\frac{5a^4b^2c^5}{9x^9}+\frac{5a^2b^4c^5}{7x^7}-\frac{2ab^5c^5}{3x^6}+\frac{b^6c^5}{5x^5}$$

```
[Out] -(a^6*c^5)/(11*x^11) + (2*a^5*b*c^5)/(5*x^10) - (5*a^4*b^2*c^5)/(
9*x^9) + (5*a^2*b^4*c^5)/(7*x^7) - (2*a*b^5*c^5)/(3*x^6) + (b^6*c
^5)/(5*x^5)
```

Rubi [A] time = 0.0988411, antiderivative size = 87, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{a^6c^5}{11x^{11}}+\frac{2a^5bc^5}{5x^{10}}-\frac{5a^4b^2c^5}{9x^9}+\frac{5a^2b^4c^5}{7x^7}-\frac{2ab^5c^5}{3x^6}+\frac{b^6c^5}{5x^5}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(a*c - b*c*x)^5)/x^12,x]
```

```
[Out] -(a^6*c^5)/(11*x^11) + (2*a^5*b*c^5)/(5*x^10) - (5*a^4*b^2*c^5)/(
9*x^9) + (5*a^2*b^4*c^5)/(7*x^7) - (2*a*b^5*c^5)/(3*x^6) + (b^6*c
^5)/(5*x^5)
```

Rubi in Sympy [A] time = 32.0212, size = 87, normalized size = 1.

$$-\frac{a^6c^5}{11x^{11}}+\frac{2a^5bc^5}{5x^{10}}-\frac{5a^4b^2c^5}{9x^9}+\frac{5a^2b^4c^5}{7x^7}-\frac{2ab^5c^5}{3x^6}+\frac{b^6c^5}{5x^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(-b*c*x+a*c)**5/x**12,x)
```

```
[Out] -a**6*c**5/(11*x**11) + 2*a**5*b*c**5/(5*x**10) - 5*a**4*b**2*c**
5/(9*x**9) + 5*a**2*b**4*c**5/(7*x**7) - 2*a*b**5*c**5/(3*x**6) +
 b**6*c**5/(5*x**5)
```

Mathematica [A] time = 0.010419, size = 73, normalized size = 0.84

$$c^5\left(-\frac{a^6}{11x^{11}}+\frac{2a^5b}{5x^{10}}-\frac{5a^4b^2}{9x^9}+\frac{5a^2b^4}{7x^7}-\frac{2ab^5}{3x^6}+\frac{b^6}{5x^5}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(a*c - b*c*x)^5)/x^12,x]
```

```
[Out] c^5*(-a^6/(11*x^11) + (2*a^5*b)/(5*x^10) - (5*a^4*b^2)/(9*x^9) +
(5*a^2*b^4)/(7*x^7) - (2*a*b^5)/(3*x^6) + b^6/(5*x^5))
```

Maple [A] time = 0.008, size = 62, normalized size = 0.7

$$c^5\left(-\frac{a^6}{11\,x^{11}}+\frac{2\,a^5b}{5\,x^{10}}+\frac{5\,a^2b^4}{7\,x^7}-\frac{5\,a^4b^2}{9\,x^9}+\frac{b^6}{5\,x^5}-\frac{2\,ab^5}{3\,x^6}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(-b*c*x+a*c)^5/x^12,x)
```

```
[Out] c^5*(-1/11*a^6/x^11+2/5*a^5*b/x^10+5/7*a^2*b^4/x^7-5/9*a^4*b^2/x^
9+1/5*b^6/x^5-2/3*a*b^5/x^6)
```

Maxima [A] time = 1.35577, size = 101, normalized size = 1.16

$$\frac{693\,b^6c^5x^6 - 2310\,ab^5c^5x^5 + 2475\,a^2b^4c^5x^4 - 1925\,a^4b^2c^5x^2 + 1386\,a^5bc^5x - 315\,a^6c^5}{3465\,x^{11}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a)/x^12,x, algorithm="maxima")
```

```
[Out] 1/3465*(693*b^6*c^5*x^6 - 2310*a*b^5*c^5*x^5 + 2475*a^2*b^4*c^5*x
^4 - 1925*a^4*b^2*c^5*x^2 + 1386*a^5*b*c^5*x - 315*a^6*c^5)/x^11
```

Fricas [A] time = 0.193093, size = 101, normalized size = 1.16

$$\frac{693\,b^6c^5x^6 - 2310\,ab^5c^5x^5 + 2475\,a^2b^4c^5x^4 - 1925\,a^4b^2c^5x^2 + 1386\,a^5bc^5x - 315\,a^6c^5}{3465\,x^{11}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a)/x^12,x, algorithm="fricas")
```

```
[Out] 1/3465*(693*b^6*c^5*x^6 - 2310*a*b^5*c^5*x^5 + 2475*a^2*b^4*c^5*x
^4 - 1925*a^4*b^2*c^5*x^2 + 1386*a^5*b*c^5*x - 315*a^6*c^5)/x^11
```

Sympy [A] time = 3.17057, size = 80, normalized size = 0.92

$$\frac{-315a^6c^5 + 1386a^5bc^5x - 1925a^4b^2c^5x^2 + 2475a^2b^4c^5x^4 - 2310ab^5c^5x^5 + 693b^6c^5x^6}{3465x^{11}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(-b*c*x+a*c)**5/x**12,x)
```

```
[Out] (-315*a**6*c**5 + 1386*a**5*b*c**5*x - 1925*a**4*b**2*c**5*x**2 +
 2475*a**2*b**4*c**5*x**4 - 2310*a*b**5*c**5*x**5 + 693*b**6*c**5
*x**6)/(3465*x**11)
```

GIAC/XCAS [A] time = 0.23757, size = 101, normalized size = 1.16

$$\frac{693\,b^6c^5x^6 - 2310\,ab^5c^5x^5 + 2475\,a^2b^4c^5x^4 - 1925\,a^4b^2c^5x^2 + 1386\,a^5bc^5x - 315\,a^6c^5}{3465\,x^{11}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^5*(b*x + a)/x^12,x, algorithm="giac")
```

```
[Out] 1/3465*(693*b^6*c^5*x^6 - 2310*a*b^5*c^5*x^5 + 2475*a^2*b^4*c^5*x
^4 - 1925*a^4*b^2*c^5*x^2 + 1386*a^5*b*c^5*x - 315*a^6*c^5)/x^11
```

3.43 $\int \frac{(a+bx)(ac-bcx)^6}{x^8}\,dx$

Optimal. Leaf size=113

$$-\frac{a^7c^6}{7x^7}+\frac{5a^6bc^6}{6x^6}-\frac{9a^5b^2c^6}{5x^5}+\frac{5a^4b^3c^6}{4x^4}+\frac{5a^3b^4c^6}{3x^3}-\frac{9a^2b^5c^6}{2x^2}+\frac{5ab^6c^6}{x}+b^7c^6\log(x)$$

```
[Out] -(a^7*c^6)/(7*x^7) + (5*a^6*b*c^6)/(6*x^6) - (9*a^5*b^2*c^6)/(5*x
^5) + (5*a^4*b^3*c^6)/(4*x^4) + (5*a^3*b^4*c^6)/(3*x^3) - (9*a^2*
b^5*c^6)/(2*x^2) + (5*a*b^6*c^6)/x + b^7*c^6*Log[x]
```

Rubi [A] time = 0.133524, antiderivative size = 113, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{a^7c^6}{7x^7}+\frac{5a^6bc^6}{6x^6}-\frac{9a^5b^2c^6}{5x^5}+\frac{5a^4b^3c^6}{4x^4}+\frac{5a^3b^4c^6}{3x^3}-\frac{9a^2b^5c^6}{2x^2}+\frac{5ab^6c^6}{x}+b^7c^6\log(x)$$

Antiderivative was successfully verified.

```
[In] Int[((a + b*x)*(a*c - b*c*x)^6)/x^8,x]
```

```
[Out] -(a^7*c^6)/(7*x^7) + (5*a^6*b*c^6)/(6*x^6) - (9*a^5*b^2*c^6)/(5*x
^5) + (5*a^4*b^3*c^6)/(4*x^4) + (5*a^3*b^4*c^6)/(3*x^3) - (9*a^2*
b^5*c^6)/(2*x^2) + (5*a*b^6*c^6)/x + b^7*c^6*Log[x]
```

Rubi in Sympy [A] time = 42.72, size = 116, normalized size = 1.03

$$-\frac{a^7c^6}{7x^7}+\frac{5a^6bc^6}{6x^6}-\frac{9a^5b^2c^6}{5x^5}+\frac{5a^4b^3c^6}{4x^4}+\frac{5a^3b^4c^6}{3x^3}-\frac{9a^2b^5c^6}{2x^2}+\frac{5ab^6c^6}{x}+b^7c^6\log(x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)*(-b*c*x+a*c)**6/x**8,x)
```

```
[Out] -a**7*c**6/(7*x**7) + 5*a**6*b*c**6/(6*x**6) - 9*a**5*b**2*c**6/(
5*x**5) + 5*a**4*b**3*c**6/(4*x**4) + 5*a**3*b**4*c**6/(3*x**3) -
 9*a**2*b**5*c**6/(2*x**2) + 5*a*b**6*c**6/x + b**7*c**6*log(x)
```

Mathematica [A] time = 0.0179226, size = 113, normalized size = 1.

$$-\frac{a^7c^6}{7x^7}+\frac{5a^6bc^6}{6x^6}-\frac{9a^5b^2c^6}{5x^5}+\frac{5a^4b^3c^6}{4x^4}+\frac{5a^3b^4c^6}{3x^3}-\frac{9a^2b^5c^6}{2x^2}+\frac{5ab^6c^6}{x}+b^7c^6\log(x)$$

Antiderivative was successfully verified.

```
[In] Integrate[((a + b*x)*(a*c - b*c*x)^6)/x^8,x]
```

```
[Out] -(a^7*c^6)/(7*x^7) + (5*a^6*b*c^6)/(6*x^6) - (9*a^5*b^2*c^6)/(5*x
^5) + (5*a^4*b^3*c^6)/(4*x^4) + (5*a^3*b^4*c^6)/(3*x^3) - (9*a^2*
b^5*c^6)/(2*x^2) + (5*a*b^6*c^6)/x + b^7*c^6*Log[x]
```

Maple [A] time = 0.009, size = 102, normalized size = 0.9

$$-\frac{a^7c^6}{7\,x^7}+\frac{5\,a^6bc^6}{6\,x^6}-\frac{9\,a^5b^2c^6}{5\,x^5}+\frac{5\,a^4b^3c^6}{4\,x^4}+\frac{5\,a^3b^4c^6}{3\,x^3}-\frac{9\,a^2b^5c^6}{2\,x^2}+5\,\frac{ab^6c^6}{x}+b^7c^6\ln(x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(-b*c*x+a*c)^6/x^8,x)
```

```
[Out] -1/7*a^7*c^6/x^7+5/6*a^6*b*c^6/x^6-9/5*a^5*b^2*c^6/x^5+5/4*a^4*b^
3*c^6/x^4+5/3*a^3*b^4*c^6/x^3-9/2*a^2*b^5*c^6/x^2+5*a*b^6*c^6/x+b
^7*c^6*ln(x)
```

Maxima [A] time = 1.37068, size = 138, normalized size = 1.22

$$b^7c^6\log(x) + \frac{2100\,ab^6c^6x^6 - 1890\,a^2b^5c^6x^5 + 700\,a^3b^4c^6x^4 + 525\,a^4b^3c^6x^3 - 756\,a^5b^2c^6x^2 + 350\,a^6bc^6x - 60\,a^7c^6}{420\,x^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^6*(b*x + a)/x^8,x, algorithm="maxima")
```

```
[Out] b^7*c^6*log(x) + 1/420*(2100*a*b^6*c^6*x^6 - 1890*a^2*b^5*c^6*x^5
 + 700*a^3*b^4*c^6*x^4 + 525*a^4*b^3*c^6*x^3 - 756*a^5*b^2*c^6*x^
2 + 350*a^6*b*c^6*x - 60*a^7*c^6)/x^7
```

Fricas [A] time = 0.212408, size = 142, normalized size = 1.26

$$\frac{420\,b^7c^6x^7\log(x) + 2100\,ab^6c^6x^6 - 1890\,a^2b^5c^6x^5 + 700\,a^3b^4c^6x^4 + 525\,a^4b^3c^6x^3 - 756\,a^5b^2c^6x^2 + 350\,a^6bc^6x - 60\,a^7c^6}{420\,x^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^6*(b*x + a)/x^8,x, algorithm="fricas")
```

```
[Out] 1/420*(420*b^7*c^6*x^7*log(x) + 2100*a*b^6*c^6*x^6 - 1890*a^2*b^5
*c^6*x^5 + 700*a^3*b^4*c^6*x^4 + 525*a^4*b^3*c^6*x^3 - 756*a^5*b^
2*c^6*x^2 + 350*a^6*b*c^6*x - 60*a^7*c^6)/x^7
```

Sympy [A] time = 2.93247, size = 109, normalized size = 0.96

$$b^7c^6\log(x) + \frac{-60a^7c^6 + 350a^6bc^6x - 756a^5b^2c^6x^2 + 525a^4b^3c^6x^3 + 700a^3b^4c^6x^4 - 1890a^2b^5c^6x^5 + 2100ab^6c^6x^6}{420x^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(-b*c*x+a*c)**6/x**8,x)
```

```
[Out] b**7*c**6*log(x) + (-60*a**7*c**6 + 350*a**6*b*c**6*x - 756*a**5*
b**2*c**6*x**2 + 525*a**4*b**3*c**6*x**3 + 700*a**3*b**4*c**6*x**
4 - 1890*a**2*b**5*c**6*x**5 + 2100*a*b**6*c**6*x**6)/(420*x**7)
```

GIAC/XCAS [A] time = 0.268075, size = 139, normalized size = 1.23

$$b^7c^6\ln(|x|) + \frac{2100\,ab^6c^6x^6 - 1890\,a^2b^5c^6x^5 + 700\,a^3b^4c^6x^4 + 525\,a^4b^3c^6x^3 - 756\,a^5b^2c^6x^2 + 350\,a^6bc^6x - 60\,a^7c^6}{420\,x^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^6*(b*x + a)/x^8,x, algorithm="giac")
```

```
[Out] b^7*c^6*ln(abs(x)) + 1/420*(2100*a*b^6*c^6*x^6 - 1890*a^2*b^5*c^6
*x^5 + 700*a^3*b^4*c^6*x^4 + 525*a^4*b^3*c^6*x^3 - 756*a^5*b^2*c^
6*x^2 + 350*a^6*b*c^6*x - 60*a^7*c^6)/x^7
```

3.44 $\int \frac{(a+bx)(ac-bcx)^6}{x^9}\,dx$

Optimal. Leaf size=41

$$-\frac{c^6(a-bx)^7}{8x^8}-\frac{9bc^6(a-bx)^7}{56ax^7}$$

```
[Out] -(c^6*(a - b*x)^7)/(8*x^8) - (9*b*c^6*(a - b*x)^7)/(56*a*x^7)
```

Rubi [A] time = 0.048592, antiderivative size = 41, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.1

$$-\frac{c^6(a-bx)^7}{8x^8}-\frac{9bc^6(a-bx)^7}{56ax^7}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(a*c - b*c*x)^6)/x^9,x]

[Out] -(c^6*(a - b*x)^7)/(8*x^8) - (9*b*c^6*(a - b*x)^7)/(56*a*x^7)
```

Rubi in Sympy [A] time = 11.5599, size = 36, normalized size = 0.88

$$-\frac{c^6\,(a-bx)^7}{8x^8}-\frac{9bc^6\,(a-bx)^7}{56ax^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(-b*c*x+a*c)**6/x**9,x)

[Out] -c**6*(a - b*x)**7/(8*x**8) - 9*b*c**6*(a - b*x)**7/(56*a*x**7)
```

Mathematica [B] time = 0.0126723, size = 112, normalized size = 2.73

$$-\frac{a^7c^6}{8x^8}+\frac{5a^6bc^6}{7x^7}-\frac{3a^5b^2c^6}{2x^6}+\frac{a^4b^3c^6}{x^5}+\frac{5a^3b^4c^6}{4x^4}-\frac{3a^2b^5c^6}{x^3}+\frac{5ab^6c^6}{2x^2}-\frac{b^7c^6}{x}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(a*c - b*c*x)^6)/x^9,x]

[Out] -(a^7*c^6)/(8*x^8) + (5*a^6*b*c^6)/(7*x^7) - (3*a^5*b^2*c^6)/(2*x
^6) + (a^4*b^3*c^6)/x^5 + (5*a^3*b^4*c^6)/(4*x^4) - (3*a^2*b^5*c^
6)/x^3 + (5*a*b^6*c^6)/(2*x^2) - (b^7*c^6)/x
```

Maple [B] time = 0.009, size = 83, normalized size = 2.

$$c^6\left(-\frac{a^7}{8\,x^8}+\frac{5\,a^6b}{7\,x^7}+\frac{5\,ab^6}{2\,x^2}+\frac{a^4b^3}{x^5}-\frac{b^7}{x}-3\,\frac{a^2b^5}{x^3}+\frac{5\,a^3b^4}{4\,x^4}-\frac{3\,a^5b^2}{2\,x^6}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(-b*c*x+a*c)^6/x^9,x)
```

```
[Out] c^6*(-1/8*a^7/x^8+5/7*a^6*b/x^7+5/2*a*b^6/x^2+a^4*b^3/x^5-b^7/x-3
*a^2*b^5/x^3+5/4*a^3*b^4/x^4-3/2*a^5*b^2/x^6)
```

Maxima [A] time = 1.34906, size = 139, normalized size = 3.39

$$-\frac{56\,b^7c^6x^7 - 140\,ab^6c^6x^6 + 168\,a^2b^5c^6x^5 - 70\,a^3b^4c^6x^4 - 56\,a^4b^3c^6x^3 + 84\,a^5b^2c^6x^2 - 40\,a^6bc^6x + 7\,a^7c^6}{56\,x^8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^6*(b*x + a)/x^9,x, algorithm="maxima")
```

```
[Out] -1/56*(56*b^7*c^6*x^7 - 140*a*b^6*c^6*x^6 + 168*a^2*b^5*c^6*x^5 -
 70*a^3*b^4*c^6*x^4 - 56*a^4*b^3*c^6*x^3 + 84*a^5*b^2*c^6*x^2 - 4
0*a^6*b*c^6*x + 7*a^7*c^6)/x^8
```

Fricas [A] time = 0.202988, size = 139, normalized size = 3.39

$$-\frac{56\,b^7c^6x^7 - 140\,ab^6c^6x^6 + 168\,a^2b^5c^6x^5 - 70\,a^3b^4c^6x^4 - 56\,a^4b^3c^6x^3 + 84\,a^5b^2c^6x^2 - 40\,a^6bc^6x + 7\,a^7c^6}{56\,x^8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^6*(b*x + a)/x^9,x, algorithm="fricas")
```

```
[Out] -1/56*(56*b^7*c^6*x^7 - 140*a*b^6*c^6*x^6 + 168*a^2*b^5*c^6*x^5 -
 70*a^3*b^4*c^6*x^4 - 56*a^4*b^3*c^6*x^3 + 84*a^5*b^2*c^6*x^2 - 4
0*a^6*b*c^6*x + 7*a^7*c^6)/x^8
```

Sympy [A] time = 3.28287, size = 112, normalized size = 2.73

$$-\frac{7a^7c^6 - 40a^6bc^6x + 84a^5b^2c^6x^2 - 56a^4b^3c^6x^3 - 70a^3b^4c^6x^4 + 168a^2b^5c^6x^5 - 140ab^6c^6x^6 + 56b^7c^6x^7}{56x^8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(-b*c*x+a*c)**6/x**9,x)
```

```
[Out] -(7*a**7*c**6 - 40*a**6*b*c**6*x + 84*a**5*b**2*c**6*x**2 - 56*a*
*4*b**3*c**6*x**3 - 70*a**3*b**4*c**6*x**4 + 168*a**2*b**5*c**6*x
**5 - 140*a*b**6*c**6*x**6 + 56*b**7*c**6*x**7)/(56*x**8)
```

GIAC/XCAS [A] time = 0.243355, size = 139, normalized size = 3.39

$$-\frac{56\,b^7c^6x^7 - 140\,ab^6c^6x^6 + 168\,a^2b^5c^6x^5 - 70\,a^3b^4c^6x^4 - 56\,a^4b^3c^6x^3 + 84\,a^5b^2c^6x^2 - 40\,a^6bc^6x + 7\,a^7c^6}{56\,x^8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^6*(b*x + a)/x^9,x, algorithm="giac")
```

```
[Out] -1/56*(56*b^7*c^6*x^7 - 140*a*b^6*c^6*x^6 + 168*a^2*b^5*c^6*x^5 -
 70*a^3*b^4*c^6*x^4 - 56*a^4*b^3*c^6*x^3 + 84*a^5*b^2*c^6*x^2 - 4
0*a^6*b*c^6*x + 7*a^7*c^6)/x^8
```

3.45 $\int \frac{(a+bx)(ac-bcx)^6}{x^{10}}\,dx$

Optimal. Leaf size=65

$$-\frac{11b^2c^6(a-bx)^7}{504a^2x^7}-\frac{c^6(a-bx)^7}{9x^9}-\frac{11bc^6(a-bx)^7}{72ax^8}$$

```
[Out] -(c^6*(a - b*x)^7)/(9*x^9) - (11*b*c^6*(a - b*x)^7)/(72*a*x^8) -
(11*b^2*c^6*(a - b*x)^7)/(504*a^2*x^7)
```

Rubi [A] time = 0.0732524, antiderivative size = 65, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.15$

$$-\frac{11b^2c^6(a-bx)^7}{504a^2x^7}-\frac{c^6(a-bx)^7}{9x^9}-\frac{11bc^6(a-bx)^7}{72ax^8}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(a*c - b*c*x)^6)/x^10,x]
```

```
[Out] -(c^6*(a - b*x)^7)/(9*x^9) - (11*b*c^6*(a - b*x)^7)/(72*a*x^8) -
(11*b^2*c^6*(a - b*x)^7)/(504*a^2*x^7)
```

Rubi in Sympy [A] time = 16.9989, size = 60, normalized size = 0.92

$$-\frac{c^6\left(a-bx\right)^7}{9x^9}-\frac{11bc^6\left(a-bx\right)^7}{72ax^8}-\frac{11b^2c^6\left(a-bx\right)^7}{504a^2x^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(-b*c*x+a*c)**6/x**10,x)
```

```
[Out] -c**6*(a - b*x)**7/(9*x**9) - 11*b*c**6*(a - b*x)**7/(72*a*x**8)
- 11*b**2*c**6*(a - b*x)**7/(504*a**2*x**7)
```

Mathematica [A] time = 0.012375, size = 116, normalized size = 1.78

$$-\frac{a^7c^6}{9x^9}+\frac{5a^6bc^6}{8x^8}-\frac{9a^5b^2c^6}{7x^7}+\frac{5a^4b^3c^6}{6x^6}+\frac{a^3b^4c^6}{x^5}-\frac{9a^2b^5c^6}{4x^4}+\frac{5ab^6c^6}{3x^3}-\frac{b^7c^6}{2x^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(a*c - b*c*x)^6)/x^10,x]
```

```
[Out] -(a^7*c^6)/(9*x^9) + (5*a^6*b*c^6)/(8*x^8) - (9*a^5*b^2*c^6)/(7*x
^7) + (5*a^4*b^3*c^6)/(6*x^6) + (a^3*b^4*c^6)/x^5 - (9*a^2*b^5*c^
6)/(4*x^4) + (5*a*b^6*c^6)/(3*x^3) - (b^7*c^6)/(2*x^2)
```

Maple [A] time = 0.007, size = 83, normalized size = 1.3

$$c^6\left(\frac{5\,a^6b}{8\,x^8}-\frac{9\,a^5b^2}{7\,x^7}-\frac{a^7}{9\,x^9}-\frac{b^7}{2\,x^2}+\frac{a^3b^4}{x^5}+\frac{5\,ab^6}{3\,x^3}-\frac{9\,a^2b^5}{4\,x^4}+\frac{5\,a^4b^3}{6\,x^6}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(-b*c*x+a*c)^6/x^10,x)
```

```
[Out] c^6*(5/8*a^6*b/x^8-9/7*a^5*b^2/x^7-1/9*a^7/x^9-1/2*b^7/x^2+a^3*b^
4/x^5+5/3*a*b^6/x^3-9/4*a^2*b^5/x^4+5/6*a^4*b^3/x^6)
```

Maxima [A] time = 1.36789, size = 139, normalized size = 2.14

$$-\frac{252\,b^7c^6x^7 - 840\,ab^6c^6x^6 + 1134\,a^2b^5c^6x^5 - 504\,a^3b^4c^6x^4 - 420\,a^4b^3c^6x^3 + 648\,a^5b^2c^6x^2 - 315\,a^6bc^6x + 56\,a^7c^6}{504\,x^9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^6*(b*x + a)/x^10,x, algorithm="maxima")
```

```
[Out] -1/504*(252*b^7*c^6*x^7 - 840*a*b^6*c^6*x^6 + 1134*a^2*b^5*c^6*x^
5 - 504*a^3*b^4*c^6*x^4 - 420*a^4*b^3*c^6*x^3 + 648*a^5*b^2*c^6*x
^2 - 315*a^6*b*c^6*x + 56*a^7*c^6)/x^9
```

Fricas [A] time = 0.20362, size = 139, normalized size = 2.14

$$-\frac{252\,b^7c^6x^7 - 840\,ab^6c^6x^6 + 1134\,a^2b^5c^6x^5 - 504\,a^3b^4c^6x^4 - 420\,a^4b^3c^6x^3 + 648\,a^5b^2c^6x^2 - 315\,a^6bc^6x + 56\,a^7c^6}{504\,x^9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^6*(b*x + a)/x^10,x, algorithm="fricas")
```

```
[Out] -1/504*(252*b^7*c^6*x^7 - 840*a*b^6*c^6*x^6 + 1134*a^2*b^5*c^6*x^
5 - 504*a^3*b^4*c^6*x^4 - 420*a^4*b^3*c^6*x^3 + 648*a^5*b^2*c^6*x
^2 - 315*a^6*b*c^6*x + 56*a^7*c^6)/x^9
```

Sympy [A] time = 3.94577, size = 112, normalized size = 1.72

$$-\frac{56a^7c^6 - 315a^6bc^6x + 648a^5b^2c^6x^2 - 420a^4b^3c^6x^3 - 504a^3b^4c^6x^4 + 1134a^2b^5c^6x^5 - 840ab^6c^6x^6 + 252b^7c^6x^7}{504x^9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(-b*c*x+a*c)**6/x**10,x)
```

```
[Out] -(56*a**7*c**6 - 315*a**6*b*c**6*x + 648*a**5*b**2*c**6*x**2 - 42
0*a**4*b**3*c**6*x**3 - 504*a**3*b**4*c**6*x**4 + 1134*a**2*b**5*
c**6*x**5 - 840*a*b**6*c**6*x**6 + 252*b**7*c**6*x**7)/(504*x**9)
```

GIAC/XCAS [A] time = 0.25027, size = 139, normalized size = 2.14

$$-\frac{252\,b^7c^6x^7 - 840\,ab^6c^6x^6 + 1134\,a^2b^5c^6x^5 - 504\,a^3b^4c^6x^4 - 420\,a^4b^3c^6x^3 + 648\,a^5b^2c^6x^2 - 315\,a^6bc^6x + 56\,a^7c^6}{504\,x^9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^6*(b*x + a)/x^10,x, algorithm="giac")
```

```
[Out] -1/504*(252*b^7*c^6*x^7 - 840*a*b^6*c^6*x^6 + 1134*a^2*b^5*c^6*x^
5 - 504*a^3*b^4*c^6*x^4 - 420*a^4*b^3*c^6*x^3 + 648*a^5*b^2*c^6*x
^2 - 315*a^6*b*c^6*x + 56*a^7*c^6)/x^9
```

3.46 $\int \frac{(a+bx)(ac-bcx)^6}{x^{11}} dx$

Optimal. Leaf size=89

$$-\frac{13b^3c^6(a-bx)^7}{2520a^3x^7}-\frac{13b^2c^6(a-bx)^7}{360a^2x^8}-\frac{c^6(a-bx)^7}{10x^{10}}-\frac{13bc^6(a-bx)^7}{90ax^9}$$

```
[Out] -(c^6*(a - b*x)^7)/(10*x^10) - (13*b*c^6*(a - b*x)^7)/(90*a*x^9)
- (13*b^2*c^6*(a - b*x)^7)/(360*a^2*x^8) - (13*b^3*c^6*(a - b*x)^
7)/(2520*a^3*x^7)
```

Rubi [A] time = 0.0972803, antiderivative size = 89, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.15$

$$-\frac{13b^3c^6(a-bx)^7}{2520a^3x^7}-\frac{13b^2c^6(a-bx)^7}{360a^2x^8}-\frac{c^6(a-bx)^7}{10x^{10}}-\frac{13bc^6(a-bx)^7}{90ax^9}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(a*c - b*c*x)^6)/x^11,x]
```

```
[Out] -(c^6*(a - b*x)^7)/(10*x^10) - (13*b*c^6*(a - b*x)^7)/(90*a*x^9)
- (13*b^2*c^6*(a - b*x)^7)/(360*a^2*x^8) - (13*b^3*c^6*(a - b*x)^
7)/(2520*a^3*x^7)
```

Rubi in Sympy [A] time = 24.7376, size = 83, normalized size = 0.93

$$-\frac{c^6\left(a-bx\right)^7}{10x^{10}}-\frac{13bc^6\left(a-bx\right)^7}{90ax^9}-\frac{13b^2c^6\left(a-bx\right)^7}{360a^2x^8}-\frac{13b^3c^6\left(a-bx\right)^7}{2520a^3x^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(-b*c*x+a*c)**6/x**11,x)
```

```
[Out] -c**6*(a - b*x)**7/(10*x**10) - 13*b*c**6*(a - b*x)**7/(90*a*x**9
) - 13*b**2*c**6*(a - b*x)**7/(360*a**2*x**8) - 13*b**3*c**6*(a -
 b*x)**7/(2520*a**3*x**7)
```

Mathematica [A] time = 0.0135778, size = 119, normalized size = 1.34

$$-\frac{a^7c^6}{10x^{10}}+\frac{5a^6bc^6}{9x^9}-\frac{9a^5b^2c^6}{8x^8}+\frac{5a^4b^3c^6}{7x^7}+\frac{5a^3b^4c^6}{6x^6}-\frac{9a^2b^5c^6}{5x^5}+\frac{5ab^6c^6}{4x^4}-\frac{b^7c^6}{3x^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(a*c - b*c*x)^6)/x^11,x]
```

```
[Out] -(a^7*c^6)/(10*x^10) + (5*a^6*b*c^6)/(9*x^9) - (9*a^5*b^2*c^6)/(8
*x^8) + (5*a^4*b^3*c^6)/(7*x^7) + (5*a^3*b^4*c^6)/(6*x^6) - (9*a^
2*b^5*c^6)/(5*x^5) + (5*a*b^6*c^6)/(4*x^4) - (b^7*c^6)/(3*x^3)
```

Maple [A] time = 0.009, size = 84, normalized size = 0.9

$$c^6\left(-\frac{9\,a^5b^2}{8\,x^8}+\frac{5\,a^4b^3}{7\,x^7}+\frac{5\,a^6b}{9\,x^9}-\frac{9\,a^2b^5}{5\,x^5}-\frac{a^7}{10\,x^{10}}-\frac{b^7}{3\,x^3}+\frac{5\,ab^6}{4\,x^4}+\frac{5\,a^3b^4}{6\,x^6}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(-b*c*x+a*c)^6/x^11,x)
```

```
[Out] c^6*(-9/8*a^5*b^2/x^8+5/7*a^4*b^3/x^7+5/9*a^6*b/x^9-9/5*a^2*b^5/x
^5-1/10*a^7/x^10-1/3*b^7/x^3+5/4*a*b^6/x^4+5/6*a^3*b^4/x^6)
```

Maxima [A] time = 1.35529, size = 139, normalized size = 1.56

$$-\frac{840\,b^7c^6x^7-3150\,ab^6c^6x^6+4536\,a^2b^5c^6x^5-2100\,a^3b^4c^6x^4-1800\,a^4b^3c^6x^3+2835\,a^5b^2c^6x^2-1400\,a^6bc^6x+252\,a^7c^6}{2520\,x^{10}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^6*(b*x + a)/x^11,x, algorithm="maxima")
```

```
[Out] -1/2520*(840*b^7*c^6*x^7 - 3150*a*b^6*c^6*x^6 + 4536*a^2*b^5*c^6*
x^5 - 2100*a^3*b^4*c^6*x^4 - 1800*a^4*b^3*c^6*x^3 + 2835*a^5*b^2*
c^6*x^2 - 1400*a^6*b*c^6*x + 252*a^7*c^6)/x^10
```

Fricas [A] time = 0.200069, size = 139, normalized size = 1.56

$$-\frac{840\,b^7c^6x^7-3150\,ab^6c^6x^6+4536\,a^2b^5c^6x^5-2100\,a^3b^4c^6x^4-1800\,a^4b^3c^6x^3+2835\,a^5b^2c^6x^2-1400\,a^6bc^6x+252\,a^7c^6}{2520\,x^{10}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^6*(b*x + a)/x^11,x, algorithm="fricas")
```

```
[Out] -1/2520*(840*b^7*c^6*x^7 - 3150*a*b^6*c^6*x^6 + 4536*a^2*b^5*c^6*
x^5 - 2100*a^3*b^4*c^6*x^4 - 1800*a^4*b^3*c^6*x^3 + 2835*a^5*b^2*
c^6*x^2 - 1400*a^6*b*c^6*x + 252*a^7*c^6)/x^10
```

Sympy [A] time = 3.71471, size = 112, normalized size = 1.26

$$-\frac{252a^7c^6-1400a^6bc^6x+2835a^5b^2c^6x^2-1800a^4b^3c^6x^3-2100a^3b^4c^6x^4+4536a^2b^5c^6x^5-3150ab^6c^6x^6+840b^7c^6x^7}{2520x^{10}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(-b*c*x+a*c)**6/x**11,x)
```

```
[Out] -(252*a**7*c**6 - 1400*a**6*b*c**6*x + 2835*a**5*b**2*c**6*x**2 -
 1800*a**4*b**3*c**6*x**3 - 2100*a**3*b**4*c**6*x**4 + 4536*a**2*
b**5*c**6*x**5 - 3150*a*b**6*c**6*x**6 + 840*b**7*c**6*x**7)/(252
0*x**10)
```

GIAC/XCAS [A] time = 0.237591, size = 139, normalized size = 1.56

$$-\frac{840\,b^7c^6x^7-3150\,ab^6c^6x^6+4536\,a^2b^5c^6x^5-2100\,a^3b^4c^6x^4-1800\,a^4b^3c^6x^3+2835\,a^5b^2c^6x^2-1400\,a^6bc^6x+252\,a^7c^6}{2520\,x^{10}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^6*(b*x + a)/x^11,x, algorithm="giac")
```

```
[Out] -1/2520*(840*b^7*c^6*x^7 - 3150*a*b^6*c^6*x^6 + 4536*a^2*b^5*c^6*
x^5 - 2100*a^3*b^4*c^6*x^4 - 1800*a^4*b^3*c^6*x^3 + 2835*a^5*b^2*
c^6*x^2 - 1400*a^6*b*c^6*x + 252*a^7*c^6)/x^10
```

3.47 $\int \frac{(a+bx)(ac-bcx)^6}{x^{12}}\,dx$

Optimal. Leaf size=114

$$-\frac{a^7c^6}{11x^{11}}+\frac{a^6bc^6}{2x^{10}}-\frac{a^5b^2c^6}{x^9}+\frac{5a^4b^3c^6}{8x^8}+\frac{5a^3b^4c^6}{7x^7}-\frac{3a^2b^5c^6}{2x^6}+\frac{ab^6c^6}{x^5}-\frac{b^7c^6}{4x^4}$$

```
[Out] -(a^7*c^6)/(11*x^11) + (a^6*b*c^6)/(2*x^10) - (a^5*b^2*c^6)/x^9 +
 (5*a^4*b^3*c^6)/(8*x^8) + (5*a^3*b^4*c^6)/(7*x^7) - (3*a^2*b^5*c
^6)/(2*x^6) + (a*b^6*c^6)/x^5 - (b^7*c^6)/(4*x^4)
```

Rubi [A] time = 0.141146, antiderivative size = 114, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{a^7c^6}{11x^{11}}+\frac{a^6bc^6}{2x^{10}}-\frac{a^5b^2c^6}{x^9}+\frac{5a^4b^3c^6}{8x^8}+\frac{5a^3b^4c^6}{7x^7}-\frac{3a^2b^5c^6}{2x^6}+\frac{ab^6c^6}{x^5}-\frac{b^7c^6}{4x^4}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(a*c - b*c*x)^6)/x^12,x]
```

```
[Out] -(a^7*c^6)/(11*x^11) + (a^6*b*c^6)/(2*x^10) - (a^5*b^2*c^6)/x^9 +
 (5*a^4*b^3*c^6)/(8*x^8) + (5*a^3*b^4*c^6)/(7*x^7) - (3*a^2*b^5*c
^6)/(2*x^6) + (a*b^6*c^6)/x^5 - (b^7*c^6)/(4*x^4)
```

Rubi in Sympy [A] time = 43.7732, size = 112, normalized size = 0.98

$$-\frac{a^7c^6}{11x^{11}}+\frac{a^6bc^6}{2x^{10}}-\frac{a^5b^2c^6}{x^9}+\frac{5a^4b^3c^6}{8x^8}+\frac{5a^3b^4c^6}{7x^7}-\frac{3a^2b^5c^6}{2x^6}+\frac{ab^6c^6}{x^5}-\frac{b^7c^6}{4x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(-b*c*x+a*c)**6/x**12,x)
```

```
[Out] -a**7*c**6/(11*x**11) + a**6*b*c**6/(2*x**10) - a**5*b**2*c**6/x*
*9 + 5*a**4*b**3*c**6/(8*x**8) + 5*a**3*b**4*c**6/(7*x**7) - 3*a*
*2*b**5*c**6/(2*x**6) + a*b**6*c**6/x**5 - b**7*c**6/(4*x**4)
```

Mathematica [A] time = 0.0124432, size = 114, normalized size = 1.

$$-\frac{a^7c^6}{11x^{11}}+\frac{a^6bc^6}{2x^{10}}-\frac{a^5b^2c^6}{x^9}+\frac{5a^4b^3c^6}{8x^8}+\frac{5a^3b^4c^6}{7x^7}-\frac{3a^2b^5c^6}{2x^6}+\frac{ab^6c^6}{x^5}-\frac{b^7c^6}{4x^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(a*c - b*c*x)^6)/x^12,x]
```

```
[Out] -(a^7*c^6)/(11*x^11) + (a^6*b*c^6)/(2*x^10) - (a^5*b^2*c^6)/x^9 +
 (5*a^4*b^3*c^6)/(8*x^8) + (5*a^3*b^4*c^6)/(7*x^7) - (3*a^2*b^5*c
^6)/(2*x^6) + (a*b^6*c^6)/x^5 - (b^7*c^6)/(4*x^4)
```

Maple [A] time = 0.007, size = 83, normalized size = 0.7

$$c^6\left(\frac{5\,a^4b^3}{8\,x^8}-\frac{a^7}{11\,x^{11}}+\frac{a^6b}{2\,x^{10}}+\frac{5\,a^3b^4}{7\,x^7}-\frac{a^5b^2}{x^9}+\frac{ab^6}{x^5}-\frac{b^7}{4\,x^4}-\frac{3\,a^2b^5}{2\,x^6}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(-b*c*x+a*c)^6/x^12,x)
```

```
[Out] c^6*(5/8*a^4*b^3/x^8-1/11*a^7/x^11+1/2*a^6*b/x^10+5/7*a^3*b^4/x^7
-a^5*b^2/x^9+a*b^6/x^5-1/4*b^7/x^4-3/2*a^2*b^5/x^6)
```

Maxima [A] time = 1.34935, size = 139, normalized size = 1.22

$$-\frac{154\,b^7c^6x^7-616\,ab^6c^6x^6+924\,a^2b^5c^6x^5-440\,a^3b^4c^6x^4-385\,a^4b^3c^6x^3+616\,a^5b^2c^6x^2-308\,a^6bc^6x+56\,a^7c^6}{616\,x^{11}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^6*(b*x + a)/x^12,x, algorithm="maxima")
```

```
[Out] -1/616*(154*b^7*c^6*x^7 - 616*a*b^6*c^6*x^6 + 924*a^2*b^5*c^6*x^5
 - 440*a^3*b^4*c^6*x^4 - 385*a^4*b^3*c^6*x^3 + 616*a^5*b^2*c^6*x^
2 - 308*a^6*b*c^6*x + 56*a^7*c^6)/x^11
```

Fricas [A] time = 0.197285, size = 139, normalized size = 1.22

$$-\frac{154\,b^7c^6x^7-616\,ab^6c^6x^6+924\,a^2b^5c^6x^5-440\,a^3b^4c^6x^4-385\,a^4b^3c^6x^3+616\,a^5b^2c^6x^2-308\,a^6bc^6x+56\,a^7c^6}{616\,x^{11}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^6*(b*x + a)/x^12,x, algorithm="fricas")
```

```
[Out] -1/616*(154*b^7*c^6*x^7 - 616*a*b^6*c^6*x^6 + 924*a^2*b^5*c^6*x^5
 - 440*a^3*b^4*c^6*x^4 - 385*a^4*b^3*c^6*x^3 + 616*a^5*b^2*c^6*x^
2 - 308*a^6*b*c^6*x + 56*a^7*c^6)/x^11
```

Sympy [A] time = 3.71153, size = 112, normalized size = 0.98

$$-\frac{56a^7c^6-308a^6bc^6x+616a^5b^2c^6x^2-385a^4b^3c^6x^3-440a^3b^4c^6x^4+924a^2b^5c^6x^5-616ab^6c^6x^6+154b^7c^6x^7}{616x^{11}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(-b*c*x+a*c)**6/x**12,x)
```

```
[Out] -(56*a**7*c**6 - 308*a**6*b*c**6*x + 616*a**5*b**2*c**6*x**2 - 38
5*a**4*b**3*c**6*x**3 - 440*a**3*b**4*c**6*x**4 + 924*a**2*b**5*c
**6*x**5 - 616*a*b**6*c**6*x**6 + 154*b**7*c**6*x**7)/(616*x**11)
```

GIAC/XCAS [A] time = 0.248457, size = 139, normalized size = 1.22

$$-\frac{154\,b^7c^6x^7-616\,ab^6c^6x^6+924\,a^2b^5c^6x^5-440\,a^3b^4c^6x^4-385\,a^4b^3c^6x^3+616\,a^5b^2c^6x^2-308\,a^6bc^6x+56\,a^7c^6}{616\,x^{11}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^6*(b*x + a)/x^12,x, algorithm="giac")
```

```
[Out] -1/616*(154*b^7*c^6*x^7 - 616*a*b^6*c^6*x^6 + 924*a^2*b^5*c^6*x^5
 - 440*a^3*b^4*c^6*x^4 - 385*a^4*b^3*c^6*x^3 + 616*a^5*b^2*c^6*x^
2 - 308*a^6*b*c^6*x + 56*a^7*c^6)/x^11
```

3.48 $\int \frac{(a+bx)(ac-bcx)^6}{x^{13}} dx$

Optimal. Leaf size=119

$$-\frac{a^7c^6}{12x^{12}}+\frac{5a^6bc^6}{11x^{11}}-\frac{9a^5b^2c^6}{10x^{10}}+\frac{5a^4b^3c^6}{9x^9}+\frac{5a^3b^4c^6}{8x^8}-\frac{9a^2b^5c^6}{7x^7}+\frac{5ab^6c^6}{6x^6}-\frac{b^7c^6}{5x^5}$$

```
[Out] -(a^7*c^6)/(12*x^12) + (5*a^6*b*c^6)/(11*x^11) - (9*a^5*b^2*c^6)/
(10*x^10) + (5*a^4*b^3*c^6)/(9*x^9) + (5*a^3*b^4*c^6)/(8*x^8) - (
9*a^2*b^5*c^6)/(7*x^7) + (5*a*b^6*c^6)/(6*x^6) - (b^7*c^6)/(5*x^5
)
```

Rubi [A] time = 0.136668, antiderivative size = 119, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{a^7c^6}{12x^{12}}+\frac{5a^6bc^6}{11x^{11}}-\frac{9a^5b^2c^6}{10x^{10}}+\frac{5a^4b^3c^6}{9x^9}+\frac{5a^3b^4c^6}{8x^8}-\frac{9a^2b^5c^6}{7x^7}+\frac{5ab^6c^6}{6x^6}-\frac{b^7c^6}{5x^5}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(a*c - b*c*x)^6)/x^13,x]
```

```
[Out] -(a^7*c^6)/(12*x^12) + (5*a^6*b*c^6)/(11*x^11) - (9*a^5*b^2*c^6)/
(10*x^10) + (5*a^4*b^3*c^6)/(9*x^9) + (5*a^3*b^4*c^6)/(8*x^8) - (
9*a^2*b^5*c^6)/(7*x^7) + (5*a*b^6*c^6)/(6*x^6) - (b^7*c^6)/(5*x^5
)
```

Rubi in Sympy [A] time = 43.7964, size = 121, normalized size = 1.02

$$-\frac{a^7c^6}{12x^{12}}+\frac{5a^6bc^6}{11x^{11}}-\frac{9a^5b^2c^6}{10x^{10}}+\frac{5a^4b^3c^6}{9x^9}+\frac{5a^3b^4c^6}{8x^8}-\frac{9a^2b^5c^6}{7x^7}+\frac{5ab^6c^6}{6x^6}-\frac{b^7c^6}{5x^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(-b*c*x+a*c)**6/x**13,x)
```

```
[Out] -a**7*c**6/(12*x**12) + 5*a**6*b*c**6/(11*x**11) - 9*a**5*b**2*c*
*6/(10*x**10) + 5*a**4*b**3*c**6/(9*x**9) + 5*a**3*b**4*c**6/(8*x
**8) - 9*a**2*b**5*c**6/(7*x**7) + 5*a*b**6*c**6/(6*x**6) - b**7*
c**6/(5*x**5)
```

Mathematica [A] time = 0.01276, size = 119, normalized size = 1.

$$-\frac{a^7c^6}{12x^{12}}+\frac{5a^6bc^6}{11x^{11}}-\frac{9a^5b^2c^6}{10x^{10}}+\frac{5a^4b^3c^6}{9x^9}+\frac{5a^3b^4c^6}{8x^8}-\frac{9a^2b^5c^6}{7x^7}+\frac{5ab^6c^6}{6x^6}-\frac{b^7c^6}{5x^5}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(a*c - b*c*x)^6)/x^13,x]
```

```
[Out] -(a^7*c^6)/(12*x^12) + (5*a^6*b*c^6)/(11*x^11) - (9*a^5*b^2*c^6)/
(10*x^10) + (5*a^4*b^3*c^6)/(9*x^9) + (5*a^3*b^4*c^6)/(8*x^8) - (
9*a^2*b^5*c^6)/(7*x^7) + (5*a*b^6*c^6)/(6*x^6) - (b^7*c^6)/(5*x^5
)
```

Maple [A] time = 0.01, size = 84, normalized size = 0.7

$$c^{6}\left(\frac{5\,a^{3}b^{4}}{8\,x^{8}}+\frac{5\,a^{6}b}{11\,x^{11}}-\frac{9\,a^{2}b^{5}}{7\,x^{7}}+\frac{5\,a^{4}b^{3}}{9\,x^{9}}-\frac{b^{7}}{5\,x^{5}}-\frac{a^{7}}{12\,x^{12}}-\frac{9\,a^{5}b^{2}}{10\,x^{10}}+\frac{5\,ab^{6}}{6\,x^{6}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(-b*c*x+a*c)^6/x^13,x)
```

```
[Out] c^6*(5/8*a^3*b^4/x^8+5/11*a^6*b/x^11-9/7*a^2*b^5/x^7+5/9*a^4*b^3/
x^9-1/5*b^7/x^5-1/12*a^7/x^12-9/10*a^5*b^2/x^10+5/6*a*b^6/x^6)
```

Maxima [A] time = 1.34222, size = 139, normalized size = 1.17

$$-\frac{5544\,b^{7}c^{6}x^{7}-23100\,ab^{6}c^{6}x^{6}+35640\,a^{2}b^{5}c^{6}x^{5}-17325\,a^{3}b^{4}c^{6}x^{4}-15400\,a^{4}b^{3}c^{6}x^{3}+24948\,a^{5}b^{2}c^{6}x^{2}-12600\,a^{6}bc^{6}x+23}{27720\,x^{12}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^6*(b*x + a)/x^13,x, algorithm="maxima")
```

```
[Out] -1/27720*(5544*b^7*c^6*x^7 - 23100*a*b^6*c^6*x^6 + 35640*a^2*b^5*
c^6*x^5 - 17325*a^3*b^4*c^6*x^4 - 15400*a^4*b^3*c^6*x^3 + 24948*a
^5*b^2*c^6*x^2 - 12600*a^6*b*c^6*x + 2310*a^7*c^6)/x^12
```

Fricas [A] time = 0.197762, size = 139, normalized size = 1.17

$$-\frac{5544\,b^{7}c^{6}x^{7}-23100\,ab^{6}c^{6}x^{6}+35640\,a^{2}b^{5}c^{6}x^{5}-17325\,a^{3}b^{4}c^{6}x^{4}-15400\,a^{4}b^{3}c^{6}x^{3}+24948\,a^{5}b^{2}c^{6}x^{2}-12600\,a^{6}bc^{6}x+23}{27720\,x^{12}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^6*(b*x + a)/x^13,x, algorithm="fricas")
```

```
[Out] -1/27720*(5544*b^7*c^6*x^7 - 23100*a*b^6*c^6*x^6 + 35640*a^2*b^5*
c^6*x^5 - 17325*a^3*b^4*c^6*x^4 - 15400*a^4*b^3*c^6*x^3 + 24948*a
^5*b^2*c^6*x^2 - 12600*a^6*b*c^6*x + 2310*a^7*c^6)/x^12
```

Sympy [A] time = 3.97082, size = 112, normalized size = 0.94

$$-\frac{2310a^{7}c^{6}-12600a^{6}bc^{6}x+24948a^{5}b^{2}c^{6}x^{2}-15400a^{4}b^{3}c^{6}x^{3}-17325a^{3}b^{4}c^{6}x^{4}+35640a^{2}b^{5}c^{6}x^{5}-23100ab^{6}c^{6}x^{6}+5544b^{7}c}{27720x^{12}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(-b*c*x+a*c)**6/x**13,x)
```

```
[Out] -(2310*a**7*c**6 - 12600*a**6*b*c**6*x + 24948*a**5*b**2*c**6*x**
2 - 15400*a**4*b**3*c**6*x**3 - 17325*a**3*b**4*c**6*x**4 + 35640
*a**2*b**5*c**6*x**5 - 23100*a*b**6*c**6*x**6 + 5544*b**7*c**6*x*
*7)/(27720*x**12)
```

GIAC/XCAS [A] time = 0.248371, size = 139, normalized size = 1.17

$$-\frac{5544\,b^{7}c^{6}x^{7}-23100\,ab^{6}c^{6}x^{6}+35640\,a^{2}b^{5}c^{6}x^{5}-17325\,a^{3}b^{4}c^{6}x^{4}-15400\,a^{4}b^{3}c^{6}x^{3}+24948\,a^{5}b^{2}c^{6}x^{2}-12600\,a^{6}bc^{6}x+23}{27720\,x^{12}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^6*(b*x + a)/x^13,x, algorithm="giac")
```

```
[Out] -1/27720*(5544*b^7*c^6*x^7 - 23100*a*b^6*c^6*x^6 + 35640*a^2*b^5*
c^6*x^5 - 17325*a^3*b^4*c^6*x^4 - 15400*a^4*b^3*c^6*x^3 + 24948*a
^5*b^2*c^6*x^2 - 12600*a^6*b*c^6*x + 2310*a^7*c^6)/x^12
```

3.49 $\int x^4(a + bx)(A + Bx)\,dx$

Optimal. Leaf size=33

$$\frac{1}{6}x^6(aB + Ab) + \frac{1}{5}aAx^5 + \frac{1}{7}bBx^7$$

```
[Out] (a*A*x^5)/5 + ((A*b + a*B)*x^6)/6 + (b*B*x^7)/7
```

Rubi [A] time = 0.0811973, antiderivative size = 33, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 14, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.071

$$\frac{1}{6}x^6(aB + Ab) + \frac{1}{5}aAx^5 + \frac{1}{7}bBx^7$$

Antiderivative was successfully verified.

```
[In]  Int[x^4*(a + b*x)*(A + B*x),x]

[Out] (a*A*x^5)/5 + ((A*b + a*B)*x^6)/6 + (b*B*x^7)/7
```

Rubi in Sympy [A] time = 10.0476, size = 29, normalized size = 0.88

$$\frac{Aax^5}{5} + \frac{Bbx^7}{7} + x^6\left(\frac{Ab}{6} + \frac{Ba}{6}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**4*(b*x+a)*(B*x+A),x)

[Out] A*a*x**5/5 + B*b*x**7/7 + x**6*(A*b/6 + B*a/6)
```

Mathematica [A] time = 0.00835732, size = 33, normalized size = 1.

$$\frac{1}{6}x^6(aB + Ab) + \frac{1}{5}aAx^5 + \frac{1}{7}bBx^7$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^4*(a + b*x)*(A + B*x),x]

[Out] (a*A*x^5)/5 + ((A*b + a*B)*x^6)/6 + (b*B*x^7)/7
```

Maple [A] time = 0.002, size = 28, normalized size = 0.9

$$\frac{aAx^5}{5} + \frac{(Ab + Ba)\,x^6}{6} + \frac{bBx^7}{7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^4*(b*x+a)*(B*x+A),x)

[Out] 1/5*a*A*x^5+1/6*(A*b+B*a)*x^6+1/7*b*B*x^7
```

Maxima [A] time = 1.34245, size = 36, normalized size = 1.09

$$\frac{1}{7}Bbx^7 + \frac{1}{5}Aax^5 + \frac{1}{6}(Ba + Ab)x^6$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*x^4,x, algorithm="maxima")

[Out] 1/7*B*b*x^7 + 1/5*A*a*x^5 + 1/6*(B*a + A*b)*x^6
```

Fricas [A] time = 0.176897, size = 1, normalized size = 0.03

$$\frac{1}{7}x^7bB + \frac{1}{6}x^6aB + \frac{1}{6}x^6bA + \frac{1}{5}x^5aA$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*x^4,x, algorithm="fricas")

[Out] 1/7*x^7*b*B + 1/6*x^6*a*B + 1/6*x^6*b*A + 1/5*x^5*a*A
```

Sympy [A] time = 0.081733, size = 29, normalized size = 0.88

$$\frac{Aax^5}{5} + \frac{Bbx^7}{7} + x^6\left(\frac{Ab}{6} + \frac{Ba}{6}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**4*(b*x+a)*(B*x+A),x)

[Out] A*a*x**5/5 + B*b*x**7/7 + x**6*(A*b/6 + B*a/6)
```

GIAC/XCAS [A] time = 0.237286, size = 39, normalized size = 1.18

$$\frac{1}{7}Bbx^7 + \frac{1}{6}Bax^6 + \frac{1}{6}Abx^6 + \frac{1}{5}Aax^5$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*x^4,x, algorithm="giac")

[Out] 1/7*B*b*x^7 + 1/6*B*a*x^6 + 1/6*A*b*x^6 + 1/5*A*a*x^5
```

3.50 $\int x^3(a+bx)(A+Bx)\,dx$

Optimal. Leaf size=33

$$\frac{1}{5}x^5(aB+Ab)+\frac{1}{4}aAx^4+\frac{1}{6}bBx^6$$

```
[Out] (a*A*x^4)/4 + ((A*b + a*B)*x^5)/5 + (b*B*x^6)/6
```

Rubi [A] time = 0.0746319, antiderivative size = 33, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 14, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.071

$$\frac{1}{5}x^5(aB+Ab)+\frac{1}{4}aAx^4+\frac{1}{6}bBx^6$$

Antiderivative was successfully verified.

```
[In]  Int[x^3*(a + b*x)*(A + B*x),x]

[Out] (a*A*x^4)/4 + ((A*b + a*B)*x^5)/5 + (b*B*x^6)/6
```

Rubi in Sympy [A] time = 10.1892, size = 29, normalized size = 0.88

$$\frac{Aax^4}{4}+\frac{Bbx^6}{6}+x^5\left(\frac{Ab}{5}+\frac{Ba}{5}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3*(b*x+a)*(B*x+A),x)

[Out] A*a*x**4/4 + B*b*x**6/6 + x**5*(A*b/5 + B*a/5)
```

Mathematica [A] time = 0.00733753, size = 33, normalized size = 1.

$$\frac{1}{5}x^5(aB+Ab)+\frac{1}{4}aAx^4+\frac{1}{6}bBx^6$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^3*(a + b*x)*(A + B*x),x]

[Out] (a*A*x^4)/4 + ((A*b + a*B)*x^5)/5 + (b*B*x^6)/6
```

Maple [A] time = 0.002, size = 28, normalized size = 0.9

$$\frac{aAx^4}{4}+\frac{(Ab+Ba)\,x^5}{5}+\frac{bBx^6}{6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^3*(b*x+a)*(B*x+A),x)

[Out] 1/4*a*A*x^4+1/5*(A*b+B*a)*x^5+1/6*b*B*x^6
```

Maxima [A] time = 1.35277, size = 36, normalized size = 1.09

$$\frac{1}{6}\,Bbx^{6} + \frac{1}{4}\,Aax^{4} + \frac{1}{5}\,(Ba + Ab)x^{5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*x^3,x, algorithm="maxima")
```

```
[Out] 1/6*B*b*x^6 + 1/4*A*a*x^4 + 1/5*(B*a + A*b)*x^5
```

Fricas [A] time = 0.18226, size = 1, normalized size = 0.03

$$\frac{1}{6}x^{6}bB + \frac{1}{5}x^{5}aB + \frac{1}{5}x^{5}bA + \frac{1}{4}x^{4}aA$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*x^3,x, algorithm="fricas")
```

```
[Out] 1/6*x^6*b*B + 1/5*x^5*a*B + 1/5*x^5*b*A + 1/4*x^4*a*A
```

Sympy [A] time = 0.084536, size = 29, normalized size = 0.88

$$\frac{Aax^{4}}{4} + \frac{Bbx^{6}}{6} + x^{5}\left(\frac{Ab}{5} + \frac{Ba}{5}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**3*(b*x+a)*(B*x+A),x)
```

```
[Out] A*a*x**4/4 + B*b*x**6/6 + x**5*(A*b/5 + B*a/5)
```

GIAC/XCAS [A] time = 0.229772, size = 39, normalized size = 1.18

$$\frac{1}{6}\,Bbx^{6} + \frac{1}{5}\,Bax^{5} + \frac{1}{5}\,Abx^{5} + \frac{1}{4}\,Aax^{4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*x^3,x, algorithm="giac")
```

```
[Out] 1/6*B*b*x^6 + 1/5*B*a*x^5 + 1/5*A*b*x^5 + 1/4*A*a*x^4
```

3.51 $\int x^2(a+bx)(A+Bx)\,dx$

Optimal. Leaf size=33

$$\frac{1}{4}x^4(aB+Ab)+\frac{1}{3}aAx^3+\frac{1}{5}bBx^5$$

```
[Out] (a*A*x^3)/3 + ((A*b + a*B)*x^4)/4 + (b*B*x^5)/5
```

Rubi [A] time = 0.0629032, antiderivative size = 33, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 14, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.071

$$\frac{1}{4}x^4(aB+Ab)+\frac{1}{3}aAx^3+\frac{1}{5}bBx^5$$

Antiderivative was successfully verified.

```
[In] Int[x^2*(a + b*x)*(A + B*x),x]
```

```
[Out] (a*A*x^3)/3 + ((A*b + a*B)*x^4)/4 + (b*B*x^5)/5
```

Rubi in Sympy [A] time = 10.0678, size = 29, normalized size = 0.88

$$\frac{Aax^3}{3}+\frac{Bbx^5}{5}+x^4\left(\frac{Ab}{4}+\frac{Ba}{4}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(x**2*(b*x+a)*(B*x+A),x)
```

```
[Out] A*a*x**3/3 + B*b*x**5/5 + x**4*(A*b/4 + B*a/4)
```

Mathematica [A] time = 0.00689147, size = 33, normalized size = 1.

$$\frac{1}{4}x^4(aB+Ab)+\frac{1}{3}aAx^3+\frac{1}{5}bBx^5$$

Antiderivative was successfully verified.

```
[In] Integrate[x^2*(a + b*x)*(A + B*x),x]
```

```
[Out] (a*A*x^3)/3 + ((A*b + a*B)*x^4)/4 + (b*B*x^5)/5
```

Maple [A] time = 0.001, size = 28, normalized size = 0.9

$$\frac{aAx^3}{3}+\frac{(Ab+Ba)\,x^4}{4}+\frac{bBx^5}{5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^2*(b*x+a)*(B*x+A),x)
```

```
[Out] 1/3*a*A*x^3+1/4*(A*b+B*a)*x^4+1/5*b*B*x^5
```

Maxima [A] time = 1.35067, size = 36, normalized size = 1.09

$$\frac{1}{5}\,Bbx^5 + \frac{1}{3}\,Aax^3 + \frac{1}{4}\,(Ba + Ab)x^4$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*x^2,x, algorithm="maxima")
```

```
[Out] 1/5*B*b*x^5 + 1/3*A*a*x^3 + 1/4*(B*a + A*b)*x^4
```

Fricas [A] time = 0.17843, size = 1, normalized size = 0.03

$$\frac{1}{5}x^5bB + \frac{1}{4}x^4aB + \frac{1}{4}x^4bA + \frac{1}{3}x^3aA$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*x^2,x, algorithm="fricas")
```

```
[Out] 1/5*x^5*b*B + 1/4*x^4*a*B + 1/4*x^4*b*A + 1/3*x^3*a*A
```

Sympy [A] time = 0.076649, size = 29, normalized size = 0.88

$$\frac{Aax^3}{3} + \frac{Bbx^5}{5} + x^4\left(\frac{Ab}{4} + \frac{Ba}{4}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(b*x+a)*(B*x+A),x)
```

```
[Out] A*a*x**3/3 + B*b*x**5/5 + x**4*(A*b/4 + B*a/4)
```

GIAC/XCAS [A] time = 0.279738, size = 39, normalized size = 1.18

$$\frac{1}{5}\,Bbx^5 + \frac{1}{4}\,Bax^4 + \frac{1}{4}\,Abx^4 + \frac{1}{3}\,Aax^3$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*x^2,x, algorithm="giac")
```

```
[Out] 1/5*B*b*x^5 + 1/4*B*a*x^4 + 1/4*A*b*x^4 + 1/3*A*a*x^3
```

3.52 $\int x(a+bx)(A+Bx)\,dx$

Optimal. Leaf size=33

$$\frac{1}{3}x^3(aB+Ab)+\frac{1}{2}aAx^2+\frac{1}{4}bBx^4$$

```
[Out] (a*A*x^2)/2 + ((A*b + a*B)*x^3)/3 + (b*B*x^4)/4
```

Rubi [A] time = 0.0518347, antiderivative size = 33, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 12, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.083

$$\frac{1}{3}x^3(aB+Ab)+\frac{1}{2}aAx^2+\frac{1}{4}bBx^4$$

Antiderivative was successfully verified.

```
[In]  Int[x*(a + b*x)*(A + B*x),x]

[Out] (a*A*x^2)/2 + ((A*b + a*B)*x^3)/3 + (b*B*x^4)/4
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$Aa\int x\,dx+\frac{Bbx^4}{4}+x^3\left(\frac{Ab}{3}+\frac{Ba}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(b*x+a)*(B*x+A),x)

[Out] A*a*Integral(x, x) + B*b*x**4/4 + x**3*(A*b/3 + B*a/3)
```

Mathematica [A] time = 0.00755864, size = 29, normalized size = 0.88

$$\frac{1}{12}x^2(a(6A+4Bx)+bx(4A+3Bx))$$

Antiderivative was successfully verified.

```
[In]  Integrate[x*(a + b*x)*(A + B*x),x]

[Out] (x^2*(b*x*(4*A + 3*B*x) + a*(6*A + 4*B*x)))/12
```

Maple [A] time = 0.002, size = 28, normalized size = 0.9

$$\frac{aAx^2}{2}+\frac{(Ab+Ba)\,x^3}{3}+\frac{bBx^4}{4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(b*x+a)*(B*x+A),x)

[Out] 1/2*a*A*x^2+1/3*(A*b+B*a)*x^3+1/4*b*B*x^4
```

Maxima [A] time = 1.33478, size = 36, normalized size = 1.09

$$\frac{1}{4}\,Bbx^4 + \frac{1}{2}\,Aax^2 + \frac{1}{3}\,(Ba + Ab)x^3$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*x,x, algorithm="maxima")
```

```
[Out] 1/4*B*b*x^4 + 1/2*A*a*x^2 + 1/3*(B*a + A*b)*x^3
```

Fricas [A] time = 0.181589, size = 1, normalized size = 0.03

$$\frac{1}{4}x^4bB + \frac{1}{3}x^3aB + \frac{1}{3}x^3bA + \frac{1}{2}x^2aA$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*x,x, algorithm="fricas")
```

```
[Out] 1/4*x^4*b*B + 1/3*x^3*a*B + 1/3*x^3*b*A + 1/2*x^2*a*A
```

Sympy [A] time = 0.08546, size = 29, normalized size = 0.88

$$\frac{Aax^2}{2} + \frac{Bbx^4}{4} + x^3\left(\frac{Ab}{3} + \frac{Ba}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(b*x+a)*(B*x+A),x)
```

```
[Out] A*a*x**2/2 + B*b*x**4/4 + x**3*(A*b/3 + B*a/3)
```

GIAC/XCAS [A] time = 0.230383, size = 39, normalized size = 1.18

$$\frac{1}{4}\,Bbx^4 + \frac{1}{3}\,Bax^3 + \frac{1}{3}\,Abx^3 + \frac{1}{2}\,Aax^2$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*x,x, algorithm="giac")
```

```
[Out] 1/4*B*b*x^4 + 1/3*B*a*x^3 + 1/3*A*b*x^3 + 1/2*A*a*x^2
```

3.53 $\int (a+bx)(A+Bx)\,dx$

Optimal. Leaf size=28

$$\frac{1}{2}x^2(aB+Ab)+aAx+\frac{1}{3}bBx^3$$

```
[Out] a*A*x + ((A*b + a*B)*x^2)/2 + (b*B*x^3)/3
```

Rubi [A] time = 0.0363424, antiderivative size = 28, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 11, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.091

$$\frac{1}{2}x^2(aB+Ab)+aAx+\frac{1}{3}bBx^3$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)*(A + B*x),x]
```

```
[Out] a*A*x + ((A*b + a*B)*x^2)/2 + (b*B*x^3)/3
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{Bbx^3}{3}+a\int A\,dx+(Ab+Ba)\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(B*x+A),x)
```

```
[Out] B*b*x**3/3 + a*Integral(A, x) + (A*b + B*a)*Integral(x, x)
```

Mathematica [A] time = 0.00827604, size = 28, normalized size = 1.

$$\frac{1}{2}x^2(aB+Ab)+aAx+\frac{1}{3}bBx^3$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)*(A + B*x),x]
```

```
[Out] a*A*x + ((A*b + a*B)*x^2)/2 + (b*B*x^3)/3
```

Maple [A] time = 0.001, size = 25, normalized size = 0.9

$$aAx+\frac{(Ab+Ba)\,x^2}{2}+\frac{bBx^3}{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(B*x+A),x)
```

```
[Out] a*A*x+1/2*(A*b+B*a)*x^2+1/3*b*B*x^3
```

Maxima [A] time = 1.34515, size = 32, normalized size = 1.14

$$\frac{1}{3}Bbx^3 + Aax + \frac{1}{2}(Ba + Ab)x^2$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a),x, algorithm="maxima")
```

```
[Out] 1/3*B*b*x^3 + A*a*x + 1/2*(B*a + A*b)*x^2
```

Fricas [A] time = 0.180422, size = 1, normalized size = 0.04

$$\frac{1}{3}x^3bB + \frac{1}{2}x^2aB + \frac{1}{2}x^2bA + xaA$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a),x, algorithm="fricas")
```

```
[Out] 1/3*x^3*b*B + 1/2*x^2*a*B + 1/2*x^2*b*A + x*a*A
```

Sympy [A] time = 0.068449, size = 26, normalized size = 0.93

$$Aax + \frac{Bbx^3}{3} + x^2\left(\frac{Ab}{2} + \frac{Ba}{2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(B*x+A),x)
```

```
[Out] A*a*x + B*b*x**3/3 + x**2*(A*b/2 + B*a/2)
```

GIAC/XCAS [A] time = 0.260024, size = 35, normalized size = 1.25

$$\frac{1}{3}Bbx^3 + \frac{1}{2}Bax^2 + \frac{1}{2}Abx^2 + Aax$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a),x, algorithm="giac")
```

```
[Out] 1/3*B*b*x^3 + 1/2*B*a*x^2 + 1/2*A*b*x^2 + A*a*x
```

3.54 $\int \frac{(a+bx)(A+Bx)}{x} \, dx$

Optimal. Leaf size=24

$$x(aB + Ab) + aA\log(x) + \frac{1}{2}bBx^2$$

```
[Out] (A*b + a*B)*x + (b*B*x^2)/2 + a*A*Log[x]
```

Rubi [A] time = 0.0299539, antiderivative size = 24, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 14, $\frac{\text{number of rules}}{\text{integrand size}} = 0.071$

$$x(aB + Ab) + aA\log(x) + \frac{1}{2}bBx^2$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(A + B*x))/x,x]
```

```
[Out] (A*b + a*B)*x + (b*B*x^2)/2 + a*A*Log[x]
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$Aa\log(x) + Bb\int x\,dx + a\int B\,dx + b\int A\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(B*x+A)/x,x)
```

```
[Out] A*a*log(x) + B*b*Integral(x, x) + a*Integral(B, x) + b*Integral(A
, x)
```

Mathematica [A] time = 0.00790774, size = 24, normalized size = 1.

$$x(aB + Ab) + aA\log(x) + \frac{1}{2}bBx^2$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(A + B*x))/x,x]
```

```
[Out] (A*b + a*B)*x + (b*B*x^2)/2 + a*A*Log[x]
```

Maple [A] time = 0.003, size = 22, normalized size = 0.9

$$\frac{bBx^2}{2} + Abx + Bax + aA\ln(x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(B*x+A)/x,x)
```

```
[Out] 1/2*b*B*x^2+A*b*x+B*a*x+a*A*ln(x)
```

Maxima [A] time = 1.3494, size = 30, normalized size = 1.25

$$\frac{1}{2} Bbx^2 + Aa\log(x) + (Ba + Ab)x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/x,x, algorithm="maxima")
```

```
[Out] 1/2*B*b*x^2 + A*a*log(x) + (B*a + A*b)*x
```

Fricas [A] time = 0.20254, size = 30, normalized size = 1.25

$$\frac{1}{2} Bbx^2 + Aa\log(x) + (Ba + Ab)x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/x,x, algorithm="fricas")
```

```
[Out] 1/2*B*b*x^2 + A*a*log(x) + (B*a + A*b)*x
```

Sympy [A] time = 1.11974, size = 22, normalized size = 0.92

$$Aa\log(x) + \frac{Bbx^2}{2} + x(Ab + Ba)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(B*x+A)/x,x)
```

```
[Out] A*a*log(x) + B*b*x**2/2 + x*(A*b + B*a)
```

GIAC/XCAS [A] time = 0.288064, size = 30, normalized size = 1.25

$$\frac{1}{2} Bbx^2 + Bax + Abx + Aa\ln(|x|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/x,x, algorithm="giac")
```

```
[Out] 1/2*B*b*x^2 + B*a*x + A*b*x + A*a*ln(abs(x))
```

3.55 $\int \frac{(a+bx)(A+Bx)}{x^2}\,dx$

Optimal. Leaf size=22

$$\log(x)(aB+Ab)-\frac{aA}{x}+bBx$$

```
[Out] -((a*A)/x) + b*B*x + (A*b + a*B)*Log[x]
```

Rubi [A] time = 0.0393829, antiderivative size = 22, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 14, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.071

$$\log(x)(aB+Ab)-\frac{aA}{x}+bBx$$

Antiderivative was successfully verified.

```
[In] Int[((a + b*x)*(A + B*x))/x^2,x]
```

```
[Out] -((a*A)/x) + b*B*x + (A*b + a*B)*Log[x]
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{Aa}{x}+b\int B\,dx+(Ab+Ba)\log{(x)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)*(B*x+A)/x**2,x)
```

```
[Out] -A*a/x + b*Integral(B, x) + (A*b + B*a)*log(x)
```

Mathematica [A] time = 0.0140815, size = 22, normalized size = 1.

$$\log(x)(aB+Ab)-\frac{aA}{x}+bBx$$

Antiderivative was successfully verified.

```
[In] Integrate[((a + b*x)*(A + B*x))/x^2,x]
```

```
[Out] -((a*A)/x) + b*B*x + (A*b + a*B)*Log[x]
```

Maple [A] time = 0.008, size = 23, normalized size = 1.1

$$bBx+A\ln{(x)}\,b+B\ln{(x)}\,a-\frac{Aa}{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((b*x+a)*(B*x+A)/x^2,x)
```

```
[Out] b*B*x+A*ln(x)*b+B*ln(x)*a-a*A/x
```

Maxima [A] time = 1.34666, size = 30, normalized size = 1.36

$$Bbx + (Ba + Ab)\log(x) - \frac{Aa}{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/x^2,x, algorithm="maxima")
```

```
[Out] B*b*x + (B*a + A*b)*log(x) - A*a/x
```

Fricas [A] time = 0.201067, size = 35, normalized size = 1.59

$$\frac{Bbx^2 + (Ba + Ab)x\log(x) - Aa}{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/x^2,x, algorithm="fricas")
```

```
[Out] (B*b*x^2 + (B*a + A*b)*x*log(x) - A*a)/x
```

Sympy [A] time = 1.32623, size = 19, normalized size = 0.86

$$-\frac{Aa}{x} + Bbx + (Ab + Ba)\log(x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(B*x+A)/x**2,x)
```

```
[Out] -A*a/x + B*b*x + (A*b + B*a)*log(x)
```

GIAC/XCAS [A] time = 0.285383, size = 31, normalized size = 1.41

$$Bbx + (Ba + Ab)\ln(|x|) - \frac{Aa}{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/x^2,x, algorithm="giac")
```

```
[Out] B*b*x + (B*a + A*b)*ln(abs(x)) - A*a/x
```

3.56 $\int \frac{(a+bx)(A+Bx)}{x^3}\,dx$

Optimal. Leaf size=27

$$-\frac{aB+Ab}{x}-\frac{aA}{2x^2}+bB\log(x)$$

```
[Out] -(a*A)/(2*x^2) - (A*b + a*B)/x + b*B*Log[x]
```

Rubi [A] time = 0.0389608, antiderivative size = 27, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 14, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.071

$$-\frac{aB+Ab}{x}-\frac{aA}{2x^2}+bB\log(x)$$

Antiderivative was successfully verified.

```
[In] Int[((a + b*x)*(A + B*x))/x^3,x]

[Out] -(a*A)/(2*x^2) - (A*b + a*B)/x + b*B*Log[x]
```

Rubi in Sympy [A] time = 9.03037, size = 22, normalized size = 0.81

$$-\frac{Aa}{2x^2}+Bb\log(x)-\frac{Ab+Ba}{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)*(B*x+A)/x**3,x)

[Out] -A*a/(2*x**2) + B*b*log(x) - (A*b + B*a)/x
```

Mathematica [A] time = 0.0171661, size = 28, normalized size = 1.04

$$\frac{-aB-Ab}{x}-\frac{aA}{2x^2}+bB\log(x)$$

Antiderivative was successfully verified.

```
[In] Integrate[((a + b*x)*(A + B*x))/x^3,x]

[Out] -(a*A)/(2*x^2) + (-(A*b) - a*B)/x + b*B*Log[x]
```

Maple [A] time = 0.007, size = 28, normalized size = 1.

$$bB\ln(x)-\frac{Aa}{2x^2}-\frac{Ab}{x}-\frac{Ba}{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((b*x+a)*(B*x+A)/x^3,x)

[Out] b*B*ln(x)-1/2*a*A/x^2-1/x*A*b-1/x*B*a
```

Maxima [A] time = 1.3489, size = 34, normalized size = 1.26

$$Bb\log(x) - \frac{Aa + 2(Ba + Ab)x}{2x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/x^3,x, algorithm="maxima")
```

```
[Out] B*b*log(x) - 1/2*(A*a + 2*(B*a + A*b)*x)/x^2
```

Fricas [A] time = 0.201038, size = 39, normalized size = 1.44

$$\frac{2Bbx^2\log(x) - Aa - 2(Ba + Ab)x}{2x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/x^3,x, algorithm="fricas")
```

```
[Out] 1/2*(2*B*b*x^2*log(x) - A*a - 2*(B*a + A*b)*x)/x^2
```

Sympy [A] time = 1.53712, size = 26, normalized size = 0.96

$$Bb\log(x) - \frac{Aa + x(2Ab + 2Ba)}{2x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(B*x+A)/x**3,x)
```

```
[Out] B*b*log(x) - (A*a + x*(2*A*b + 2*B*a))/(2*x**2)
```

GIAC/XCAS [A] time = 0.278564, size = 35, normalized size = 1.3

$$Bb\ln(|x|) - \frac{Aa + 2(Ba + Ab)x}{2x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/x^3,x, algorithm="giac")
```

```
[Out] B*b*ln(abs(x)) - 1/2*(A*a + 2*(B*a + A*b)*x)/x^2
```

3.57 $\int \frac{(a+bx)(A+Bx)}{x^4}\,dx$

Optimal. Leaf size=31

$$-\frac{aB+Ab}{2x^2}-\frac{aA}{3x^3}-\frac{bB}{x}$$

```
[Out] -(a*A)/(3*x^3) - (A*b + a*B)/(2*x^2) - (b*B)/x
```

Rubi [A] time = 0.0418669, antiderivative size = 31, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 14, $\frac{\text{number of rules}}{\text{integrand size}} = 0.071$

$$-\frac{aB+Ab}{2x^2}-\frac{aA}{3x^3}-\frac{bB}{x}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(A + B*x))/x^4,x]

[Out] -(a*A)/(3*x^3) - (A*b + a*B)/(2*x^2) - (b*B)/x
```

Rubi in Sympy [A] time = 9.64497, size = 27, normalized size = 0.87

$$-\frac{Aa}{3x^3}-\frac{Bb}{x}-\frac{\frac{Ab}{2}+\frac{Ba}{2}}{x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(B*x+A)/x**4,x)

[Out] -A*a/(3*x**3) - B*b/x - (A*b/2 + B*a/2)/x**2
```

Mathematica [A] time = 0.0151285, size = 28, normalized size = 0.9

$$-\frac{a(2A+3Bx)+3bx(A+2Bx)}{6x^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(A + B*x))/x^4,x]

[Out] -(3*b*x*(A + 2*B*x) + a*(2*A + 3*B*x))/(6*x^3)
```

Maple [A] time = 0.007, size = 28, normalized size = 0.9

$$-\frac{Ab+Ba}{2\,x^2}-\frac{Bb}{x}-\frac{Aa}{3\,x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(B*x+A)/x^4,x)

[Out] -1/2*(A*b+B*a)/x^2-b*B/x-1/3*a*A/x^3
```

Maxima [A] time = 1.34636, size = 36, normalized size = 1.16

$$-\frac{6\,Bbx^2 + 2\,Aa + 3\,(Ba + Ab)x}{6\,x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/x^4,x, algorithm="maxima")
```

```
[Out] -1/6*(6*B*b*x^2 + 2*A*a + 3*(B*a + A*b)*x)/x^3
```

Fricas [A] time = 0.194757, size = 36, normalized size = 1.16

$$-\frac{6\,Bbx^2 + 2\,Aa + 3\,(Ba + Ab)x}{6\,x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/x^4,x, algorithm="fricas")
```

```
[Out] -1/6*(6*B*b*x^2 + 2*A*a + 3*(B*a + A*b)*x)/x^3
```

Sympy [A] time = 1.78957, size = 31, normalized size = 1.

$$-\frac{2Aa + 6Bbx^2 + x\,(3Ab + 3Ba)}{6x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(B*x+A)/x**4,x)
```

```
[Out] -(2*A*a + 6*B*b*x**2 + x*(3*A*b + 3*B*a))/(6*x**3)
```

GIAC/XCAS [A] time = 0.317351, size = 36, normalized size = 1.16

$$-\frac{6\,Bbx^2 + 3\,Bax + 3\,Abx + 2\,Aa}{6\,x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/x^4,x, algorithm="giac")
```

```
[Out] -1/6*(6*B*b*x^2 + 3*B*a*x + 3*A*b*x + 2*A*a)/x^3
```

3.58 $\int \frac{(a+bx)(A+Bx)}{x^5}\,dx$

Optimal. Leaf size=33

$$-\frac{aB+Ab}{3x^3}-\frac{aA}{4x^4}-\frac{bB}{2x^2}$$

```
[Out] -(a*A)/(4*x^4) - (A*b + a*B)/(3*x^3) - (b*B)/(2*x^2)
```

Rubi [A] time = 0.0437458, antiderivative size = 33, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 14, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.071

$$-\frac{aB+Ab}{3x^3}-\frac{aA}{4x^4}-\frac{bB}{2x^2}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(A + B*x))/x^5,x]

[Out] -(a*A)/(4*x^4) - (A*b + a*B)/(3*x^3) - (b*B)/(2*x^2)
```

Rubi in Sympy [A] time = 9.42148, size = 31, normalized size = 0.94

$$-\frac{Aa}{4x^4}-\frac{Bb}{2x^2}-\frac{\frac{Ab}{3}+\frac{Ba}{3}}{x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(B*x+A)/x**5,x)

[Out] -A*a/(4*x**4) - B*b/(2*x**2) - (A*b/3 + B*a/3)/x**3
```

Mathematica [A] time = 0.0139481, size = 29, normalized size = 0.88

$$-\frac{3aA+4aBx+4Abx+6bBx^2}{12x^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(A + B*x))/x^5,x]

[Out] -(3*a*A + 4*A*b*x + 4*a*B*x + 6*b*B*x^2)/(12*x^4)
```

Maple [A] time = 0.007, size = 28, normalized size = 0.9

$$-\frac{Bb}{2\,x^2}-\frac{Ab+Ba}{3\,x^3}-\frac{Aa}{4\,x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(B*x+A)/x^5,x)

[Out] -1/2*b*B/x^2-1/3*(A*b+B*a)/x^3-1/4*a*A/x^4
```

Maxima [A] time = 1.34802, size = 36, normalized size = 1.09

$$-\frac{6\,Bbx^2+3\,Aa+4\,(Ba+Ab)x}{12\,x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/x^5,x, algorithm="maxima")
```

```
[Out] -1/12*(6*B*b*x^2 + 3*A*a + 4*(B*a + A*b)*x)/x^4
```

Fricas [A] time = 0.193922, size = 36, normalized size = 1.09

$$-\frac{6\,Bbx^2+3\,Aa+4\,(Ba+Ab)x}{12\,x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/x^5,x, algorithm="fricas")
```

```
[Out] -1/12*(6*B*b*x^2 + 3*A*a + 4*(B*a + A*b)*x)/x^4
```

Sympy [A] time = 2.02201, size = 31, normalized size = 0.94

$$-\frac{3Aa+6Bbx^2+x\,(4Ab+4Ba)}{12x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(B*x+A)/x**5,x)
```

```
[Out] -(3*A*a + 6*B*b*x**2 + x*(4*A*b + 4*B*a))/(12*x**4)
```

GIAC/XCAS [A] time = 0.375601, size = 36, normalized size = 1.09

$$-\frac{6\,Bbx^2+4\,Bax+4\,Abx+3\,Aa}{12\,x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/x^5,x, algorithm="giac")
```

```
[Out] -1/12*(6*B*b*x^2 + 4*B*a*x + 4*A*b*x + 3*A*a)/x^4
```

3.59 $\int \frac{(a+bx)(A+Bx)}{x^6} dx$

Optimal. Leaf size=33

$$-\frac{aB+Ab}{4x^4}-\frac{aA}{5x^5}-\frac{bB}{3x^3}$$

```
[Out] -(a*A)/(5*x^5) - (A*b + a*B)/(4*x^4) - (b*B)/(3*x^3)
```

Rubi [A] time = 0.0419066, antiderivative size = 33, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 14, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.071

$$-\frac{aB+Ab}{4x^4}-\frac{aA}{5x^5}-\frac{bB}{3x^3}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(A + B*x))/x^6,x]

[Out] -(a*A)/(5*x^5) - (A*b + a*B)/(4*x^4) - (b*B)/(3*x^3)
```

Rubi in Sympy [A] time = 9.58898, size = 31, normalized size = 0.94

$$-\frac{Aa}{5x^5}-\frac{Bb}{3x^3}-\frac{\frac{Ab}{4}+\frac{Ba}{4}}{x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(B*x+A)/x**6,x)

[Out] -A*a/(5*x**5) - B*b/(3*x**3) - (A*b/4 + B*a/4)/x**4
```

Mathematica [A] time = 0.0155947, size = 31, normalized size = 0.94

$$-\frac{3a(4A+5Bx)+5bx(3A+4Bx)}{60x^5}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(A + B*x))/x^6,x]

[Out] -(5*b*x*(3*A + 4*B*x) + 3*a*(4*A + 5*B*x))/(60*x^5)
```

Maple [A] time = 0.007, size = 28, normalized size = 0.9

$$-\frac{Aa}{5\,x^5}-\frac{Bb}{3\,x^3}-\frac{Ab+Ba}{4\,x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(B*x+A)/x^6,x)

[Out] -1/5*a*A/x^5-1/3*b*B/x^3-1/4*(A*b+B*a)/x^4
```

Maxima [A] time = 1.35656, size = 36, normalized size = 1.09

$$-\frac{20\,Bbx^2 + 12\,Aa + 15\,(Ba + Ab)x}{60\,x^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/x^6,x, algorithm="maxima")
```

```
[Out] -1/60*(20*B*b*x^2 + 12*A*a + 15*(B*a + A*b)*x)/x^5
```

Fricas [A] time = 0.194647, size = 36, normalized size = 1.09

$$-\frac{20\,Bbx^2 + 12\,Aa + 15\,(Ba + Ab)x}{60\,x^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/x^6,x, algorithm="fricas")
```

```
[Out] -1/60*(20*B*b*x^2 + 12*A*a + 15*(B*a + A*b)*x)/x^5
```

Sympy [A] time = 2.32656, size = 31, normalized size = 0.94

$$-\frac{12Aa + 20Bbx^2 + x\,(15Ab + 15Ba)}{60x^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(B*x+A)/x**6,x)
```

```
[Out] -(12*A*a + 20*B*b*x**2 + x*(15*A*b + 15*B*a))/(60*x**5)
```

GIAC/XCAS [A] time = 0.27023, size = 36, normalized size = 1.09

$$-\frac{20\,Bbx^2 + 15\,Bax + 15\,Abx + 12\,Aa}{60\,x^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/x^6,x, algorithm="giac")
```

```
[Out] -1/60*(20*B*b*x^2 + 15*B*a*x + 15*A*b*x + 12*A*a)/x^5
```

3.60 $\int x^4(a+bx)^2(A+Bx)\,dx$

Optimal. Leaf size=55

$$\frac{1}{5}a^2Ax^5+\frac{1}{7}bx^7(2aB+Ab)+\frac{1}{6}ax^6(aB+2Ab)+\frac{1}{8}b^2Bx^8$$

```
[Out] (a^2*A*x^5)/5 + (a*(2*A*b + a*B)*x^6)/6 + (b*(A*b + 2*a*B)*x^7)/7
 + (b^2*B*x^8)/8
```

Rubi [A] time = 0.129884, antiderivative size = 55, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$\frac{1}{5}a^2Ax^5+\frac{1}{7}bx^7(2aB+Ab)+\frac{1}{6}ax^6(aB+2Ab)+\frac{1}{8}b^2Bx^8$$

Antiderivative was successfully verified.

```
[In]  Int[x^4*(a + b*x)^2*(A + B*x),x]
```

```
[Out] (a^2*A*x^5)/5 + (a*(2*A*b + a*B)*x^6)/6 + (b*(A*b + 2*a*B)*x^7)/7
 + (b^2*B*x^8)/8
```

Rubi in Sympy [A] time = 22.2209, size = 49, normalized size = 0.89

$$\frac{Aa^2x^5}{5}+\frac{Bb^2x^8}{8}+\frac{ax^6\left(2Ab+Ba\right)}{6}+\frac{bx^7\left(Ab+2Ba\right)}{7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**4*(b*x+a)**2*(B*x+A),x)
```

```
[Out] A*a**2*x**5/5 + B*b**2*x**8/8 + a*x**6*(2*A*b + B*a)/6 + b*x**7*(
A*b + 2*B*a)/7
```

Mathematica [A] time = 0.0123318, size = 55, normalized size = 1.

$$\frac{1}{5}a^2Ax^5+\frac{1}{7}bx^7(2aB+Ab)+\frac{1}{6}ax^6(aB+2Ab)+\frac{1}{8}b^2Bx^8$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^4*(a + b*x)^2*(A + B*x),x]
```

```
[Out] (a^2*A*x^5)/5 + (a*(2*A*b + a*B)*x^6)/6 + (b*(A*b + 2*a*B)*x^7)/7
 + (b^2*B*x^8)/8
```

Maple [A] time = 0.001, size = 52, normalized size = 1.

$$\frac{b^2Bx^8}{8}+\frac{\left(b^2A+2\,abB\right)x^7}{7}+\frac{\left(2\,abA+a^2B\right)x^6}{6}+\frac{a^2Ax^5}{5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^4*(b*x+a)^2*(B*x+A),x)
```

```
[Out] 1/8*b^2*B*x^8+1/7*(A*b^2+2*B*a*b)*x^7+1/6*(2*A*a*b+B*a^2)*x^6+1/5
*a^2*A*x^5
```

Maxima [A] time = 1.3899, size = 69, normalized size = 1.25

$$\frac{1}{8}\,Bb^2x^8+\frac{1}{5}\,Aa^2x^5+\frac{1}{7}\,\left(2\,Bab+Ab^2\right)x^7+\frac{1}{6}\,\left(Ba^2+2\,Aab\right)x^6$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*x^4,x, algorithm="maxima")
```

```
[Out] 1/8*B*b^2*x^8 + 1/5*A*a^2*x^5 + 1/7*(2*B*a*b + A*b^2)*x^7 + 1/6*(
B*a^2 + 2*A*a*b)*x^6
```

Fricas [A] time = 0.176977, size = 1, normalized size = 0.02

$$\frac{1}{8}x^8b^2B+\frac{2}{7}x^7baB+\frac{1}{7}x^7b^2A+\frac{1}{6}x^6a^2B+\frac{1}{3}x^6baA+\frac{1}{5}x^5a^2A$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*x^4,x, algorithm="fricas")
```

```
[Out] 1/8*x^8*b^2*B + 2/7*x^7*b*a*B + 1/7*x^7*b^2*A + 1/6*x^6*a^2*B + 1
/3*x^6*b*a*A + 1/5*x^5*a^2*A
```

Sympy [A] time = 0.11133, size = 54, normalized size = 0.98

$$\frac{Aa^2x^5}{5}+\frac{Bb^2x^8}{8}+x^7\left(\frac{Ab^2}{7}+\frac{2Bab}{7}\right)+x^6\left(\frac{Aab}{3}+\frac{Ba^2}{6}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**4*(b*x+a)**2*(B*x+A),x)
```

```
[Out] A*a**2*x**5/5 + B*b**2*x**8/8 + x**7*(A*b**2/7 + 2*B*a*b/7) + x**
6*(A*a*b/3 + B*a**2/6)
```

GIAC/XCAS [A] time = 0.250077, size = 72, normalized size = 1.31

$$\frac{1}{8}\,Bb^2x^8+\frac{2}{7}\,Babx^7+\frac{1}{7}\,Ab^2x^7+\frac{1}{6}\,Ba^2x^6+\frac{1}{3}\,Aabx^6+\frac{1}{5}\,Aa^2x^5$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*x^4,x, algorithm="giac")
```

```
[Out] 1/8*B*b^2*x^8 + 2/7*B*a*b*x^7 + 1/7*A*b^2*x^7 + 1/6*B*a^2*x^6 + 1
/3*A*a*b*x^6 + 1/5*A*a^2*x^5
```

3.61 $\int x^3(a+bx)^2(A+Bx)\,dx$

Optimal. Leaf size=55

$$\frac{1}{4}a^2Ax^4+\frac{1}{6}bx^6(2aB+Ab)+\frac{1}{5}ax^5(aB+2Ab)+\frac{1}{7}b^2Bx^7$$

```
[Out] (a^2*A*x^4)/4 + (a*(2*A*b + a*B)*x^5)/5 + (b*(A*b + 2*a*B)*x^6)/6
 + (b^2*B*x^7)/7
```

Rubi [A] time = 0.106708, antiderivative size = 55, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$\frac{1}{4}a^2Ax^4+\frac{1}{6}bx^6(2aB+Ab)+\frac{1}{5}ax^5(aB+2Ab)+\frac{1}{7}b^2Bx^7$$

Antiderivative was successfully verified.

```
[In]  Int[x^3*(a + b*x)^2*(A + B*x),x]
```

```
[Out] (a^2*A*x^4)/4 + (a*(2*A*b + a*B)*x^5)/5 + (b*(A*b + 2*a*B)*x^6)/6
 + (b^2*B*x^7)/7
```

Rubi in Sympy [A] time = 20.8002, size = 49, normalized size = 0.89

$$\frac{Aa^2x^4}{4}+\frac{Bb^2x^7}{7}+\frac{ax^5\,(2Ab+Ba)}{5}+\frac{bx^6\,(Ab+2Ba)}{6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3*(b*x+a)**2*(B*x+A),x)
```

```
[Out] A*a**2*x**4/4 + B*b**2*x**7/7 + a*x**5*(2*A*b + B*a)/5 + b*x**6*(
A*b + 2*B*a)/6
```

Mathematica [A] time = 0.0114064, size = 55, normalized size = 1.

$$\frac{1}{4}a^2Ax^4+\frac{1}{6}bx^6(2aB+Ab)+\frac{1}{5}ax^5(aB+2Ab)+\frac{1}{7}b^2Bx^7$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^3*(a + b*x)^2*(A + B*x),x]
```

```
[Out] (a^2*A*x^4)/4 + (a*(2*A*b + a*B)*x^5)/5 + (b*(A*b + 2*a*B)*x^6)/6
 + (b^2*B*x^7)/7
```

Maple [A] time = 0.001, size = 52, normalized size = 1.

$$\frac{b^2Bx^7}{7}+\frac{\left(b^2A+2\,abB\right)x^6}{6}+\frac{\left(2\,abA+a^2B\right)x^5}{5}+\frac{a^2Ax^4}{4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^3*(b*x+a)^2*(B*x+A),x)
```

```
[Out] 1/7*b^2*B*x^7+1/6*(A*b^2+2*B*a*b)*x^6+1/5*(2*A*a*b+B*a^2)*x^5+1/4
*a^2*A*x^4
```

Maxima [A] time = 1.34298, size = 69, normalized size = 1.25

$$\frac{1}{7}Bb^2x^7 + \frac{1}{4}Aa^2x^4 + \frac{1}{6}\left(2Bab + Ab^2\right)x^6 + \frac{1}{5}\left(Ba^2 + 2Aab\right)x^5$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*x^3,x, algorithm="maxima")
```

```
[Out] 1/7*B*b^2*x^7 + 1/4*A*a^2*x^4 + 1/6*(2*B*a*b + A*b^2)*x^6 + 1/5*(
B*a^2 + 2*A*a*b)*x^5
```

Fricas [A] time = 0.17833, size = 1, normalized size = 0.02

$$\frac{1}{7}x^7b^2B + \frac{1}{3}x^6baB + \frac{1}{6}x^6b^2A + \frac{1}{5}x^5a^2B + \frac{2}{5}x^5baA + \frac{1}{4}x^4a^2A$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*x^3,x, algorithm="fricas")
```

```
[Out] 1/7*x^7*b^2*B + 1/3*x^6*b*a*B + 1/6*x^6*b^2*A + 1/5*x^5*a^2*B + 2
/5*x^5*b*a*A + 1/4*x^4*a^2*A
```

Sympy [A] time = 0.110189, size = 54, normalized size = 0.98

$$\frac{Aa^2x^4}{4} + \frac{Bb^2x^7}{7} + x^6\left(\frac{Ab^2}{6} + \frac{Bab}{3}\right) + x^5\left(\frac{2Aab}{5} + \frac{Ba^2}{5}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**3*(b*x+a)**2*(B*x+A),x)
```

```
[Out] A*a**2*x**4/4 + B*b**2*x**7/7 + x**6*(A*b**2/6 + B*a*b/3) + x**5*
(2*A*a*b/5 + B*a**2/5)
```

GIAC/XCAS [A] time = 0.278977, size = 72, normalized size = 1.31

$$\frac{1}{7}Bb^2x^7 + \frac{1}{3}Babx^6 + \frac{1}{6}Ab^2x^6 + \frac{1}{5}Ba^2x^5 + \frac{2}{5}Aabx^5 + \frac{1}{4}Aa^2x^4$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*x^3,x, algorithm="giac")
```

```
[Out] 1/7*B*b^2*x^7 + 1/3*B*a*b*x^6 + 1/6*A*b^2*x^6 + 1/5*B*a^2*x^5 + 2
/5*A*a*b*x^5 + 1/4*A*a^2*x^4
```

3.62 $\int x^2(a+bx)^2(A+Bx)\,dx$

Optimal. Leaf size=55

$$\frac{1}{3}a^2Ax^3+\frac{1}{5}bx^5(2aB+Ab)+\frac{1}{4}ax^4(aB+2Ab)+\frac{1}{6}b^2Bx^6$$

```
[Out] (a^2*A*x^3)/3 + (a*(2*A*b + a*B)*x^4)/4 + (b*(A*b + 2*a*B)*x^5)/5
 + (b^2*B*x^6)/6
```

Rubi [A] time = 0.103696, antiderivative size = 55, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$\frac{1}{3}a^2Ax^3+\frac{1}{5}bx^5(2aB+Ab)+\frac{1}{4}ax^4(aB+2Ab)+\frac{1}{6}b^2Bx^6$$

Antiderivative was successfully verified.

```
[In]  Int[x^2*(a + b*x)^2*(A + B*x),x]
```

```
[Out] (a^2*A*x^3)/3 + (a*(2*A*b + a*B)*x^4)/4 + (b*(A*b + 2*a*B)*x^5)/5
 + (b^2*B*x^6)/6
```

Rubi in Sympy [A] time = 19.2223, size = 49, normalized size = 0.89

$$\frac{Aa^2x^3}{3}+\frac{Bb^2x^6}{6}+\frac{ax^4\,(2Ab+Ba)}{4}+\frac{bx^5\,(Ab+2Ba)}{5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(b*x+a)**2*(B*x+A),x)
```

```
[Out] A*a**2*x**3/3 + B*b**2*x**6/6 + a*x**4*(2*A*b + B*a)/4 + b*x**5*(
A*b + 2*B*a)/5
```

Mathematica [A] time = 0.0184989, size = 50, normalized size = 0.91

$$\frac{1}{60}x^3\left(5a^2(4A+3Bx)+6abx(5A+4Bx)+2b^2x^2(6A+5Bx)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^2*(a + b*x)^2*(A + B*x),x]
```

```
[Out] (x^3*(5*a^2*(4*A + 3*B*x) + 6*a*b*x*(5*A + 4*B*x) + 2*b^2*x^2*(6*
A + 5*B*x)))/60
```

Maple [A] time = 0.002, size = 52, normalized size = 1.

$$\frac{b^2Bx^6}{6}+\frac{\left(b^2A+2\,abB\right)x^5}{5}+\frac{\left(2\,abA+a^2B\right)x^4}{4}+\frac{a^2Ax^3}{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(b*x+a)^2*(B*x+A),x)
```

```
[Out] 1/6*b^2*B*x^6+1/5*(A*b^2+2*B*a*b)*x^5+1/4*(2*A*a*b+B*a^2)*x^4+1/3
*a^2*A*x^3
```

Maxima [A] time = 1.34826, size = 69, normalized size = 1.25

$$\frac{1}{6}Bb^2x^6 + \frac{1}{3}Aa^2x^3 + \frac{1}{5}\left(2Bab + Ab^2\right)x^5 + \frac{1}{4}\left(Ba^2 + 2Aab\right)x^4$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*x^2,x, algorithm="maxima")
```

```
[Out] 1/6*B*b^2*x^6 + 1/3*A*a^2*x^3 + 1/5*(2*B*a*b + A*b^2)*x^5 + 1/4*(
B*a^2 + 2*A*a*b)*x^4
```

Fricas [A] time = 0.180699, size = 1, normalized size = 0.02

$$\frac{1}{6}x^6b^2B + \frac{2}{5}x^5baB + \frac{1}{5}x^5b^2A + \frac{1}{4}x^4a^2B + \frac{1}{2}x^4baA + \frac{1}{3}x^3a^2A$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*x^2,x, algorithm="fricas")
```

```
[Out] 1/6*x^6*b^2*B + 2/5*x^5*b*a*B + 1/5*x^5*b^2*A + 1/4*x^4*a^2*B + 1
/2*x^4*b*a*A + 1/3*x^3*a^2*A
```

Sympy [A] time = 0.107858, size = 54, normalized size = 0.98

$$\frac{Aa^2x^3}{3} + \frac{Bb^2x^6}{6} + x^5\left(\frac{Ab^2}{5} + \frac{2Bab}{5}\right) + x^4\left(\frac{Aab}{2} + \frac{Ba^2}{4}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(b*x+a)**2*(B*x+A),x)
```

```
[Out] A*a**2*x**3/3 + B*b**2*x**6/6 + x**5*(A*b**2/5 + 2*B*a*b/5) + x**
4*(A*a*b/2 + B*a**2/4)
```

GIAC/XCAS [A] time = 0.299964, size = 72, normalized size = 1.31

$$\frac{1}{6}Bb^2x^6 + \frac{2}{5}Babx^5 + \frac{1}{5}Ab^2x^5 + \frac{1}{4}Ba^2x^4 + \frac{1}{2}Aabx^4 + \frac{1}{3}Aa^2x^3$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*x^2,x, algorithm="giac")
```

```
[Out] 1/6*B*b^2*x^6 + 2/5*B*a*b*x^5 + 1/5*A*b^2*x^5 + 1/4*B*a^2*x^4 + 1
/2*A*a*b*x^4 + 1/3*A*a^2*x^3
```

3.63 $\int x(a+bx)^2(A+Bx)\,dx$

Optimal. Leaf size=55

$$\frac{1}{2}a^2Ax^2+\frac{1}{4}bx^4(2aB+Ab)+\frac{1}{3}ax^3(aB+2Ab)+\frac{1}{5}b^2Bx^5$$

```
[Out] (a^2*A*x^2)/2 + (a*(2*A*b + a*B)*x^3)/3 + (b*(A*b + 2*a*B)*x^4)/4
 + (b^2*B*x^5)/5
```

Rubi [A] time = 0.0815608, antiderivative size = 55, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 14, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.071

$$\frac{1}{2}a^2Ax^2+\frac{1}{4}bx^4(2aB+Ab)+\frac{1}{3}ax^3(aB+2Ab)+\frac{1}{5}b^2Bx^5$$

Antiderivative was successfully verified.

```
[In]  Int[x*(a + b*x)^2*(A + B*x),x]
```

```
[Out] (a^2*A*x^2)/2 + (a*(2*A*b + a*B)*x^3)/3 + (b*(A*b + 2*a*B)*x^4)/4
 + (b^2*B*x^5)/5
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$Aa^2\int x\,dx+\frac{Bb^2x^5}{5}+\frac{ax^3\,(2Ab+Ba)}{3}+\frac{bx^4\,(Ab+2Ba)}{4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(b*x+a)**2*(B*x+A),x)
```

```
[Out] A*a**2*Integral(x, x) + B*b**2*x**5/5 + a*x**3*(2*A*b + B*a)/3 +
b*x**4*(A*b + 2*B*a)/4
```

Mathematica [A] time = 0.015404, size = 50, normalized size = 0.91

$$\frac{1}{60}x^2\left(10a^2(3A+2Bx)+10abx(4A+3Bx)+3b^2x^2(5A+4Bx)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[x*(a + b*x)^2*(A + B*x),x]
```

```
[Out] (x^2*(10*a^2*(3*A + 2*B*x) + 10*a*b*x*(4*A + 3*B*x) + 3*b^2*x^2*(
5*A + 4*B*x)))/60
```

Maple [A] time = 0.002, size = 52, normalized size = 1.

$$\frac{b^2Bx^5}{5}+\frac{\left(b^2A+2\,abB\right)x^4}{4}+\frac{\left(2\,abA+a^2B\right)x^3}{3}+\frac{a^2Ax^2}{2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(b*x+a)^2*(B*x+A),x)
```

```
[Out] 1/5*b^2*B*x^5+1/4*(A*b^2+2*B*a*b)*x^4+1/3*(2*A*a*b+B*a^2)*x^3+1/2
*a^2*A*x^2
```

Maxima [A] time = 1.33293, size = 69, normalized size = 1.25

$$\frac{1}{5}Bb^2x^5 + \frac{1}{2}Aa^2x^2 + \frac{1}{4}\left(2\,Bab + Ab^2\right)x^4 + \frac{1}{3}\left(Ba^2 + 2\,Aab\right)x^3$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*x,x, algorithm="maxima")
```

```
[Out] 1/5*B*b^2*x^5 + 1/2*A*a^2*x^2 + 1/4*(2*B*a*b + A*b^2)*x^4 + 1/3*(
B*a^2 + 2*A*a*b)*x^3
```

Fricas [A] time = 0.176305, size = 1, normalized size = 0.02

$$\frac{1}{5}x^5b^2B + \frac{1}{2}x^4baB + \frac{1}{4}x^4b^2A + \frac{1}{3}x^3a^2B + \frac{2}{3}x^3baA + \frac{1}{2}x^2a^2A$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*x,x, algorithm="fricas")
```

```
[Out] 1/5*x^5*b^2*B + 1/2*x^4*b*a*B + 1/4*x^4*b^2*A + 1/3*x^3*a^2*B + 2
/3*x^3*b*a*A + 1/2*x^2*a^2*A
```

Sympy [A] time = 0.123688, size = 54, normalized size = 0.98

$$\frac{Aa^2x^2}{2} + \frac{Bb^2x^5}{5} + x^4\left(\frac{Ab^2}{4} + \frac{Bab}{2}\right) + x^3\left(\frac{2Aab}{3} + \frac{Ba^2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(b*x+a)**2*(B*x+A),x)
```

```
[Out] A*a**2*x**2/2 + B*b**2*x**5/5 + x**4*(A*b**2/4 + B*a*b/2) + x**3*
(2*A*a*b/3 + B*a**2/3)
```

GIAC/XCAS [A] time = 0.342007, size = 72, normalized size = 1.31

$$\frac{1}{5}Bb^2x^5 + \frac{1}{2}Babx^4 + \frac{1}{4}Ab^2x^4 + \frac{1}{3}Ba^2x^3 + \frac{2}{3}Aabx^3 + \frac{1}{2}Aa^2x^2$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*x,x, algorithm="giac")
```

```
[Out] 1/5*B*b^2*x^5 + 1/2*B*a*b*x^4 + 1/4*A*b^2*x^4 + 1/3*B*a^2*x^3 + 2
/3*A*a*b*x^3 + 1/2*A*a^2*x^2
```

3.64 $\int (a+bx)^2(A+Bx)\,dx$

Optimal. Leaf size=38

$$\frac{(a+bx)^3(Ab-aB)}{3b^2}+\frac{B(a+bx)^4}{4b^2}$$

```
[Out] ((A*b - a*B)*(a + b*x)^3)/(3*b^2) + (B*(a + b*x)^4)/(4*b^2)
```

Rubi [A] time = 0.0555583, antiderivative size = 38, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 13, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.077

$$\frac{(a+bx)^3(Ab-aB)}{3b^2}+\frac{B(a+bx)^4}{4b^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^2*(A + B*x),x]

[Out] ((A*b - a*B)*(a + b*x)^3)/(3*b^2) + (B*(a + b*x)^4)/(4*b^2)
```

Rubi in Sympy [A] time = 15.8175, size = 31, normalized size = 0.82

$$\frac{B\left(a+bx\right)^4}{4b^2}+\frac{\left(a+bx\right)^3\left(Ab-Ba\right)}{3b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**2*(B*x+A),x)

[Out] B*(a + b*x)**4/(4*b**2) + (a + b*x)**3*(A*b - B*a)/(3*b**2)
```

Mathematica [A] time = 0.0172855, size = 46, normalized size = 1.21

$$\frac{1}{12}x\left(6a^2(2A+Bx)+4abx(3A+2Bx)+b^2x^2(4A+3Bx)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^2*(A + B*x),x]

[Out] (x*(6*a^2*(2*A + B*x) + 4*a*b*x*(3*A + 2*B*x) + b^2*x^2*(4*A + 3*
B*x)))/12
```

Maple [A] time = 0.001, size = 49, normalized size = 1.3

$$\frac{b^2Bx^4}{4}+\frac{\left(b^2A+2\,abB\right)x^3}{3}+\frac{\left(2\,abA+a^2B\right)x^2}{2}+a^2Ax$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^2*(B*x+A),x)

[Out] 1/4*b^2*B*x^4+1/3*(A*b^2+2*B*a*b)*x^3+1/2*(2*A*a*b+B*a^2)*x^2+a^2
*A*x
```

Maxima [A] time = 1.3334, size = 65, normalized size = 1.71

$$\frac{1}{4}\,Bb^{2}x^{4}+Aa^{2}x+\frac{1}{3}\,\left(2\,Bab+Ab^{2}\right)x^{3}+\frac{1}{2}\,\left(Ba^{2}+2\,Aab\right)x^{2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2,x, algorithm="maxima")
```

```
[Out] 1/4*B*b^2*x^4 + A*a^2*x + 1/3*(2*B*a*b + A*b^2)*x^3 + 1/2*(B*a^2
+ 2*A*a*b)*x^2
```

Fricas [A] time = 0.178848, size = 1, normalized size = 0.03

$$\frac{1}{4}x^{4}b^{2}B+\frac{2}{3}x^{3}baB+\frac{1}{3}x^{3}b^{2}A+\frac{1}{2}x^{2}a^{2}B+x^{2}baA+xa^{2}A$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2,x, algorithm="fricas")
```

```
[Out] 1/4*x^4*b^2*B + 2/3*x^3*b*a*B + 1/3*x^3*b^2*A + 1/2*x^2*a^2*B + x
^2*b*a*A + x*a^2*A
```

Sympy [A] time = 0.114742, size = 49, normalized size = 1.29

$$Aa^{2}x+\frac{Bb^{2}x^{4}}{4}+x^{3}\left(\frac{Ab^{2}}{3}+\frac{2Bab}{3}\right)+x^{2}\left(Aab+\frac{Ba^{2}}{2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**2*(B*x+A),x)
```

```
[Out] A*a**2*x + B*b**2*x**4/4 + x**3*(A*b**2/3 + 2*B*a*b/3) + x**2*(A*
a*b + B*a**2/2)
```

GIAC/XCAS [A] time = 0.291336, size = 66, normalized size = 1.74

$$\frac{1}{4}\,Bb^{2}x^{4}+\frac{2}{3}\,Babx^{3}+\frac{1}{3}\,Ab^{2}x^{3}+\frac{1}{2}\,Ba^{2}x^{2}+Aabx^{2}+Aa^{2}x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2,x, algorithm="giac")
```

```
[Out] 1/4*B*b^2*x^4 + 2/3*B*a*b*x^3 + 1/3*A*b^2*x^3 + 1/2*B*a^2*x^2 + A
*a*b*x^2 + A*a^2*x
```

3.65 $\int \frac{(a+bx)^2(A+Bx)}{x} \, dx$

Optimal. Leaf size=40

$$a^2A\log(x)+2aAbx+\frac{B(a+bx)^3}{3b}+\frac{1}{2}Ab^2x^2$$

```
[Out] 2*a*A*b*x + (A*b^2*x^2)/2 + (B*(a + b*x)^3)/(3*b) + a^2*A*Log[x]
```

Rubi [A] time = 0.0372604, antiderivative size = 40, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 2, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$a^2A\log(x)+2aAbx+\frac{B(a+bx)^3}{3b}+\frac{1}{2}Ab^2x^2$$

Antiderivative was successfully verified.

```
[In] Int[((a + b*x)^2*(A + B*x))/x,x]
```

```
[Out] 2*a*A*b*x + (A*b^2*x^2)/2 + (B*(a + b*x)^3)/(3*b) + a^2*A*Log[x]
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$Aa^2\log(x)+2Aabx+Ab^2\int x\,dx+\frac{B(a+bx)^3}{3b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)**2*(B*x+A)/x,x)
```

```
[Out] A*a**2*log(x) + 2*A*a*b*x + A*b**2*Integral(x, x) + B*(a + b*x)**
3/(3*b)
```

Mathematica [A] time = 0.0252649, size = 43, normalized size = 1.08

$$a^2A\log(x)+a^2Bx+abx(2A+Bx)+\frac{1}{6}b^2x^2(3A+2Bx)$$

Antiderivative was successfully verified.

```
[In] Integrate[((a + b*x)^2*(A + B*x))/x,x]
```

```
[Out] a^2*B*x + a*b*x*(2*A + B*x) + (b^2*x^2*(3*A + 2*B*x))/6 + a^2*A*L
og[x]
```

Maple [A] time = 0.003, size = 46, normalized size = 1.2

$$\frac{Bb^2x^3}{3}+\frac{Ab^2x^2}{2}+Bx^2ab+2\,aAbx+a^2Bx+a^2A\ln(x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((b*x+a)^2*(B*x+A)/x,x)
```

```
[Out] 1/3*B*b^2*x^3+1/2*A*b^2*x^2+B*x^2*a*b+2*a*A*b*x+a^2*B*x+a^2*A*ln(
x)
```

Maxima [A] time = 1.33049, size = 62, normalized size = 1.55

$$\frac{1}{3}Bb^2x^3 + Aa^2\log(x) + \frac{1}{2}\left(2Bab + Ab^2\right)x^2 + \left(Ba^2 + 2Aab\right)x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/x,x, algorithm="maxima")
```

```
[Out] 1/3*B*b^2*x^3 + A*a^2*log(x) + 1/2*(2*B*a*b + A*b^2)*x^2 + (B*a^2
 + 2*A*a*b)*x
```

Fricas [A] time = 0.200406, size = 62, normalized size = 1.55

$$\frac{1}{3}Bb^2x^3 + Aa^2\log(x) + \frac{1}{2}\left(2Bab + Ab^2\right)x^2 + \left(Ba^2 + 2Aab\right)x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/x,x, algorithm="fricas")
```

```
[Out] 1/3*B*b^2*x^3 + A*a^2*log(x) + 1/2*(2*B*a*b + A*b^2)*x^2 + (B*a^2
 + 2*A*a*b)*x
```

Sympy [A] time = 1.23805, size = 46, normalized size = 1.15

$$Aa^2\log(x) + \frac{Bb^2x^3}{3} + x^2\left(\frac{Ab^2}{2} + Bab\right) + x\left(2Aab + Ba^2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**2*(B*x+A)/x,x)
```

```
[Out] A*a**2*log(x) + B*b**2*x**3/3 + x**2*(A*b**2/2 + B*a*b) + x*(2*A*
a*b + B*a**2)
```

GIAC/XCAS [A] time = 0.253532, size = 62, normalized size = 1.55

$$\frac{1}{3}Bb^2x^3 + Babx^2 + \frac{1}{2}Ab^2x^2 + Ba^2x + 2Aabx + Aa^2\ln(|x|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/x,x, algorithm="giac")
```

```
[Out] 1/3*B*b^2*x^3 + B*a*b*x^2 + 1/2*A*b^2*x^2 + B*a^2*x + 2*A*a*b*x +
 A*a^2*ln(abs(x))
```

3.66 $\int \frac{(a+bx)^2(A+Bx)}{x^2}\,dx$

Optimal. Leaf size=44

$$-\frac{a^2A}{x}+bx(2aB+Ab)+a\log(x)(aB+2Ab)+\frac{1}{2}b^2Bx^2$$

```
[Out] -((a^2*A)/x) + b*(A*b + 2*a*B)*x + (b^2*B*x^2)/2 + a*(2*A*b + a*B
)*Log[x]
```

Rubi [A] time = 0.0750248, antiderivative size = 44, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{a^2A}{x}+bx(2aB+Ab)+a\log(x)(aB+2Ab)+\frac{1}{2}b^2Bx^2$$

Antiderivative was successfully verified.

```
[In] Int[((a + b*x)^2*(A + B*x))/x^2,x]
```

```
[Out] -((a^2*A)/x) + b*(A*b + 2*a*B)*x + (b^2*B*x^2)/2 + a*(2*A*b + a*B
)*Log[x]
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{Aa^2}{x}+Bb^2\int x\,dx+a\,(2Ab+Ba)\log{(x)}+\frac{b\,(Ab+2Ba)\int A\,dx}{A}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)**2*(B*x+A)/x**2,x)
```

```
[Out] -A*a**2/x + B*b**2*Integral(x, x) + a*(2*A*b + B*a)*log(x) + b*(A
*b + 2*B*a)*Integral(A, x)/A
```

Mathematica [A] time = 0.0380607, size = 43, normalized size = 0.98

$$-\frac{a^2A}{x}+a\log(x)(aB+2Ab)+2abBx+\frac{1}{2}b^2x(2A+Bx)$$

Antiderivative was successfully verified.

```
[In] Integrate[((a + b*x)^2*(A + B*x))/x^2,x]
```

```
[Out] -((a^2*A)/x) + 2*a*b*B*x + (b^2*x*(2*A + B*x))/2 + a*(2*A*b + a*B
)*Log[x]
```

Maple [A] time = 0.008, size = 46, normalized size = 1.1

$$\frac{b^2Bx^2}{2}+Axb^2+2\,Bxab+2\,A\ln{(x)}\,ab+B\ln{(x)}\,a^2-\frac{Aa^2}{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^2*(B*x+A)/x^2,x)

[Out] 1/2*b^2*B*x^2+A*x*b^2+2*B*x*a*b+2*A*ln(x)*a*b+B*ln(x)*a^2-a^2*A/x
```

Maxima [A] time = 1.34989, size = 62, normalized size = 1.41

$$\frac{1}{2}Bb^2x^2 - \frac{Aa^2}{x} + \left(2Bab + Ab^2\right)x + \left(Ba^2 + 2Aab\right)\log\left(x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/x^2,x, algorithm="maxima")

[Out] 1/2*B*b^2*x^2 - A*a^2/x + (2*B*a*b + A*b^2)*x + (B*a^2 + 2*A*a*b)
*log(x)
```

Fricas [A] time = 0.204609, size = 70, normalized size = 1.59

$$\frac{Bb^2x^3 - 2Aa^2 + 2\left(2Bab + Ab^2\right)x^2 + 2\left(Ba^2 + 2Aab\right)x\log\left(x\right)}{2x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/x^2,x, algorithm="fricas")

[Out] 1/2*(B*b^2*x^3 - 2*A*a^2 + 2*(2*B*a*b + A*b^2)*x^2 + 2*(B*a^2 + 2
*A*a*b)*x*log(x))/x
```

Sympy [A] time = 1.42724, size = 42, normalized size = 0.95

$$-\frac{Aa^2}{x} + \frac{Bb^2x^2}{2} + a\left(2Ab + Ba\right)\log\left(x\right) + x\left(Ab^2 + 2Bab\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**2*(B*x+A)/x**2,x)

[Out] -A*a**2/x + B*b**2*x**2/2 + a*(2*A*b + B*a)*log(x) + x*(A*b**2 +
2*B*a*b)
```

GIAC/XCAS [A] time = 0.270435, size = 62, normalized size = 1.41

$$\frac{1}{2}Bb^2x^2 + 2Babx + Ab^2x - \frac{Aa^2}{x} + \left(Ba^2 + 2Aab\right)\ln\left(|x|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/x^2,x, algorithm="giac")

[Out] 1/2*B*b^2*x^2 + 2*B*a*b*x + A*b^2*x - A*a^2/x + (B*a^2 + 2*A*a*b)
*ln(abs(x))
```

3.67 $\int \frac{(a+bx)^2(A+Bx)}{x^3} \, dx$

Optimal. Leaf size=44

$$-\frac{a^2A}{2x^2}-\frac{a(aB+2Ab)}{x}+b\log(x)(2aB+Ab)+b^2Bx$$

```
[Out] -(a^2*A)/(2*x^2) - (a*(2*A*b + a*B))/x + b^2*B*x + b*(A*b + 2*a*B
)*Log[x]
```

Rubi [A] time = 0.0706231, antiderivative size = 44, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{a^2A}{2x^2}-\frac{a(aB+2Ab)}{x}+b\log(x)(2aB+Ab)+b^2Bx$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^2*(A + B*x))/x^3,x]
```

```
[Out] -(a^2*A)/(2*x^2) - (a*(2*A*b + a*B))/x + b^2*B*x + b*(A*b + 2*a*B
)*Log[x]
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{Aa^2}{2x^2}-\frac{a\,(2Ab+Ba)}{x}+b^2\int B\,dx+b\,(Ab+2Ba)\log{(x)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**2*(B*x+A)/x**3,x)
```

```
[Out] -A*a**2/(2*x**2) - a*(2*A*b + B*a)/x + b**2*Integral(B, x) + b*(A
*b + 2*B*a)*log(x)
```

Mathematica [A] time = 0.0403211, size = 43, normalized size = 0.98

$$-\frac{a^2(A+2Bx)}{2x^2}+b\log(x)(2aB+Ab)-\frac{2aAb}{x}+b^2Bx$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^2*(A + B*x))/x^3,x]
```

```
[Out] (-2*a*A*b)/x + b^2*B*x - (a^2*(A + 2*B*x))/(2*x^2) + b*(A*b + 2*a
*B)*Log[x]
```

Maple [A] time = 0.01, size = 48, normalized size = 1.1

$$b^2Bx+A\ln{(x)}\,b^2+2\,B\ln{(x)}\,ab-\frac{Aa^2}{2\,x^2}-2\,\frac{abA}{x}-\frac{a^2B}{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^2*(B*x+A)/x^3,x)
```

```
[Out] b^2*B*x+A*ln(x)*b^2+2*B*ln(x)*a*b-1/2*a^2*A/x^2-2*a/x*A*b-a^2/x*B
```

Maxima [A] time = 1.35643, size = 62, normalized size = 1.41

$$Bb^2x + \left(2\,Bab + Ab^2\right)\log\left(x\right) - \frac{Aa^2 + 2\,\left(Ba^2 + 2\,Aab\right)x}{2\,x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/x^3,x, algorithm="maxima")
```

```
[Out] B*b^2*x + (2*B*a*b + A*b^2)*log(x) - 1/2*(A*a^2 + 2*(B*a^2 + 2*A*
a*b)*x)/x^2
```

Fricas [A] time = 0.201138, size = 72, normalized size = 1.64

$$\frac{2\,Bb^2x^3 + 2\,\left(2\,Bab + Ab^2\right)x^2\log\left(x\right) - Aa^2 - 2\,\left(Ba^2 + 2\,Aab\right)x}{2\,x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/x^3,x, algorithm="fricas")
```

```
[Out] 1/2*(2*B*b^2*x^3 + 2*(2*B*a*b + A*b^2)*x^2*log(x) - A*a^2 - 2*(B*
a^2 + 2*A*a*b)*x)/x^2
```

Sympy [A] time = 1.99308, size = 44, normalized size = 1.

$$Bb^2x + b\left(Ab + 2Ba\right)\log\left(x\right) - \frac{Aa^2 + x\left(4Aab + 2Ba^2\right)}{2x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**2*(B*x+A)/x**3,x)
```

```
[Out] B*b**2*x + b*(A*b + 2*B*a)*log(x) - (A*a**2 + x*(4*A*a*b + 2*B*a*
*2))/(2*x**2)
```

GIAC/XCAS [A] time = 0.260705, size = 63, normalized size = 1.43

$$Bb^2x + \left(2\,Bab + Ab^2\right)\ln\left(|x|\right) - \frac{Aa^2 + 2\,\left(Ba^2 + 2\,Aab\right)x}{2\,x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/x^3,x, algorithm="giac")
```

```
[Out] B*b^2*x + (2*B*a*b + A*b^2)*ln(abs(x)) - 1/2*(A*a^2 + 2*(B*a^2 +
2*A*a*b)*x)/x^2
```

3.68 $\int \frac{(a+bx)^2(A+Bx)}{x^4}\,dx$

Optimal. Leaf size=49

$$-\frac{a^2A}{3x^3}-\frac{a(aB+2Ab)}{2x^2}-\frac{b(2aB+Ab)}{x}+b^2B\log(x)$$

```
[Out] -(a^2*A)/(3*x^3) - (a*(2*A*b + a*B))/(2*x^2) - (b*(A*b + 2*a*B))/
x + b^2*B*Log[x]
```

Rubi [A] time = 0.0606733, antiderivative size = 49, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{a^2A}{3x^3}-\frac{a(aB+2Ab)}{2x^2}-\frac{b(2aB+Ab)}{x}+b^2B\log(x)$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^2*(A + B*x))/x^4,x]
```

```
[Out] -(a^2*A)/(3*x^3) - (a*(2*A*b + a*B))/(2*x^2) - (b*(A*b + 2*a*B))/
x + b^2*B*Log[x]
```

Rubi in Sympy [A] time = 15.4601, size = 44, normalized size = 0.9

$$-\frac{Aa^2}{3x^3}+Bb^2\log{(x)}-\frac{a\,(2Ab+Ba)}{2x^2}-\frac{b\,(Ab+2Ba)}{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**2*(B*x+A)/x**4,x)
```

```
[Out] -A*a**2/(3*x**3) + B*b**2*log(x) - a*(2*A*b + B*a)/(2*x**2) - b*(
A*b + 2*B*a)/x
```

Mathematica [A] time = 0.0414151, size = 48, normalized size = 0.98

$$b^2B\log(x)-\frac{a^2(2A+3Bx)+6abx(A+2Bx)+6Ab^2x^2}{6x^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^2*(A + B*x))/x^4,x]
```

```
[Out] -(6*A*b^2*x^2 + 6*a*b*x*(A + 2*B*x) + a^2*(2*A + 3*B*x))/(6*x^3)
+ b^2*B*Log[x]
```

Maple [A] time = 0.008, size = 52, normalized size = 1.1

$$b^2B\ln{(x)}-\frac{abA}{x^2}-\frac{a^2B}{2\,x^2}-\frac{b^2A}{x}-2\,\frac{abB}{x}-\frac{Aa^2}{3\,x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^2*(B*x+A)/x^4,x)
```

```
[Out] b^2*B*ln(x)-a/x^2*A*b-1/2*a^2/x^2*B-b^2/x*A-2*b/x*B*a-1/3*a^2*A/x
^3
```

Maxima [A] time = 1.33932, size = 68, normalized size = 1.39

$$Bb^2 \log(x) - \frac{2\,Aa^2 + 6\,\left(2\,Bab + Ab^2\right)x^2 + 3\,\left(Ba^2 + 2\,Aab\right)x}{6\,x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/x^4,x, algorithm="maxima")
```

```
[Out] B*b^2*log(x) - 1/6*(2*A*a^2 + 6*(2*B*a*b + A*b^2)*x^2 + 3*(B*a^2
+ 2*A*a*b)*x)/x^3
```

Fricas [A] time = 0.204527, size = 72, normalized size = 1.47

$$\frac{6\,Bb^2x^3\log(x) - 2\,Aa^2 - 6\,\left(2\,Bab + Ab^2\right)x^2 - 3\,\left(Ba^2 + 2\,Aab\right)x}{6\,x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/x^4,x, algorithm="fricas")
```

```
[Out] 1/6*(6*B*b^2*x^3*log(x) - 2*A*a^2 - 6*(2*B*a*b + A*b^2)*x^2 - 3*(
B*a^2 + 2*A*a*b)*x)/x^3
```

Sympy [A] time = 2.77017, size = 51, normalized size = 1.04

$$Bb^2 \log(x) - \frac{2Aa^2 + x^2\left(6Ab^2 + 12Bab\right) + x\left(6Aab + 3Ba^2\right)}{6x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**2*(B*x+A)/x**4,x)
```

```
[Out] B*b**2*log(x) - (2*A*a**2 + x**2*(6*A*b**2 + 12*B*a*b) + x*(6*A*a
*b + 3*B*a**2))/(6*x**3)
```

GIAC/XCAS [A] time = 0.287234, size = 69, normalized size = 1.41

$$Bb^2\ln(|x|) - \frac{2\,Aa^2 + 6\,\left(2\,Bab + Ab^2\right)x^2 + 3\,\left(Ba^2 + 2\,Aab\right)x}{6\,x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/x^4,x, algorithm="giac")
```

```
[Out] B*b^2*ln(abs(x)) - 1/6*(2*A*a^2 + 6*(2*B*a*b + A*b^2)*x^2 + 3*(B*
a^2 + 2*A*a*b)*x)/x^3
```

3.69 $\int \frac{(a+bx)^2(A+Bx)}{x^5} dx$

Optimal. Leaf size=44

$$\frac{(a+bx)^3(Ab-4aB)}{12a^2x^3}-\frac{A(a+bx)^3}{4ax^4}$$

```
[Out] -(A*(a + b*x)^3)/(4*a*x^4) + ((A*b - 4*a*B)*(a + b*x)^3)/(12*a^2*
x^3)
```

Rubi [A] time = 0.0526766, antiderivative size = 44, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$\frac{(a+bx)^3(Ab-4aB)}{12a^2x^3}-\frac{A(a+bx)^3}{4ax^4}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^2*(A + B*x))/x^5,x]
```

```
[Out] -(A*(a + b*x)^3)/(4*a*x^4) + ((A*b - 4*a*B)*(a + b*x)^3)/(12*a^2*
x^3)
```

Rubi in Sympy [A] time = 15.5182, size = 48, normalized size = 1.09

$$-\frac{Aa^2}{4x^4}-\frac{Bb^2}{x}-\frac{a(2Ab+Ba)}{3x^3}-\frac{b(Ab+2Ba)}{2x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**2*(B*x+A)/x**5,x)
```

```
[Out] -A*a**2/(4*x**4) - B*b**2/x - a*(2*A*b + B*a)/(3*x**3) - b*(A*b +
 2*B*a)/(2*x**2)
```

Mathematica [A] time = 0.0249638, size = 47, normalized size = 1.07

$$-\frac{a^2(3A+4Bx)+4abx(2A+3Bx)+6b^2x^2(A+2Bx)}{12x^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^2*(A + B*x))/x^5,x]
```

```
[Out] -(6*b^2*x^2*(A + 2*B*x) + 4*a*b*x*(2*A + 3*B*x) + a^2*(3*A + 4*B*
x))/(12*x^4)
```

Maple [A] time = 0.007, size = 48, normalized size = 1.1

$$-\frac{b(Ab+2Ba)}{2x^2}-\frac{Bb^2}{x}-\frac{a(2Ab+Ba)}{3x^3}-\frac{Aa^2}{4x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^2*(B*x+A)/x^5,x)
```

```
[Out] -1/2*b*(A*b+2*B*a)/x^2-B*b^2/x-1/3*a*(2*A*b+B*a)/x^3-1/4*A*a^2/x^
4
```

Maxima [A] time = 1.33655, size = 69, normalized size = 1.57

$$-\frac{12\,Bb^2x^3 + 3\,Aa^2 + 6\,\left(2\,Bab + Ab^2\right)x^2 + 4\,\left(Ba^2 + 2\,Aab\right)x}{12\,x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/x^5,x, algorithm="maxima")
```

```
[Out] -1/12*(12*B*b^2*x^3 + 3*A*a^2 + 6*(2*B*a*b + A*b^2)*x^2 + 4*(B*a^
2 + 2*A*a*b)*x)/x^4
```

Fricas [A] time = 0.195127, size = 69, normalized size = 1.57

$$-\frac{12\,Bb^2x^3 + 3\,Aa^2 + 6\,\left(2\,Bab + Ab^2\right)x^2 + 4\,\left(Ba^2 + 2\,Aab\right)x}{12\,x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/x^5,x, algorithm="fricas")
```

```
[Out] -1/12*(12*B*b^2*x^3 + 3*A*a^2 + 6*(2*B*a*b + A*b^2)*x^2 + 4*(B*a^
2 + 2*A*a*b)*x)/x^4
```

Sympy [A] time = 3.34528, size = 54, normalized size = 1.23

$$-\frac{3Aa^2 + 12Bb^2x^3 + x^2\left(6Ab^2 + 12Bab\right) + x\left(8Aab + 4Ba^2\right)}{12x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**2*(B*x+A)/x**5,x)
```

```
[Out] -(3*A*a**2 + 12*B*b**2*x**3 + x**2*(6*A*b**2 + 12*B*a*b) + x*(8*A
*a*b + 4*B*a**2))/(12*x**4)
```

GIAC/XCAS [A] time = 0.305717, size = 69, normalized size = 1.57

$$-\frac{12\,Bb^2x^3 + 12\,Babx^2 + 6\,Ab^2x^2 + 4\,Ba^2x + 8\,Aabx + 3\,Aa^2}{12\,x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/x^5,x, algorithm="giac")
```

```
[Out] -1/12*(12*B*b^2*x^3 + 12*B*a*b*x^2 + 6*A*b^2*x^2 + 4*B*a^2*x + 8*
A*a*b*x + 3*A*a^2)/x^4
```

3.70 $\int \frac{(a+bx)^2(A+Bx)}{x^6} dx$

Optimal. Leaf size=55

$$-\frac{a^2A}{5x^5}-\frac{a(aB+2Ab)}{4x^4}-\frac{b(2aB+Ab)}{3x^3}-\frac{b^2B}{2x^2}$$

```
[Out] -(a^2*A)/(5*x^5) - (a*(2*A*b + a*B))/(4*x^4) - (b*(A*b + 2*a*B))/
(3*x^3) - (b^2*B)/(2*x^2)
```

Rubi [A] time = 0.0744248, antiderivative size = 55, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}} = 0.062$

$$-\frac{a^2A}{5x^5}-\frac{a(aB+2Ab)}{4x^4}-\frac{b(2aB+Ab)}{3x^3}-\frac{b^2B}{2x^2}$$

Antiderivative was successfully verified.

```
[In] Int[((a + b*x)^2*(A + B*x))/x^6,x]
```

```
[Out] -(a^2*A)/(5*x^5) - (a*(2*A*b + a*B))/(4*x^4) - (b*(A*b + 2*a*B))/
(3*x^3) - (b^2*B)/(2*x^2)
```

Rubi in Sympy [A] time = 16.0546, size = 51, normalized size = 0.93

$$-\frac{Aa^2}{5x^5}-\frac{Bb^2}{2x^2}-\frac{a\left(2Ab+Ba\right)}{4x^4}-\frac{b\left(Ab+2Ba\right)}{3x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)**2*(B*x+A)/x**6,x)
```

```
[Out] -A*a**2/(5*x**5) - B*b**2/(2*x**2) - a*(2*A*b + B*a)/(4*x**4) - b
*(A*b + 2*B*a)/(3*x**3)
```

Mathematica [A] time = 0.023793, size = 50, normalized size = 0.91

$$-\frac{3a^2(4A+5Bx)+10abx(3A+4Bx)+10b^2x^2(2A+3Bx)}{60x^5}$$

Antiderivative was successfully verified.

```
[In] Integrate[((a + b*x)^2*(A + B*x))/x^6,x]
```

```
[Out] -(10*b^2*x^2*(2*A + 3*B*x) + 10*a*b*x*(3*A + 4*B*x) + 3*a^2*(4*A
+ 5*B*x))/(60*x^5)
```

Maple [A] time = 0.009, size = 48, normalized size = 0.9

$$-\frac{Aa^2}{5\,x^5}-\frac{a\left(2\,Ab+Ba\right)}{4\,x^4}-\frac{b\left(Ab+2\,Ba\right)}{3\,x^3}-\frac{Bb^2}{2\,x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((b*x+a)^2*(B*x+A)/x^6,x)
```

```
[Out] -1/5*a^2*A/x^5-1/4*a*(2*A*b+B*a)/x^4-1/3*b*(A*b+2*B*a)/x^3-1/2*b^
2*B/x^2
```

Maxima [A] time = 1.32855, size = 69, normalized size = 1.25

$$-\frac{30\,Bb^2x^3 + 12\,Aa^2 + 20\,\left(2\,Bab + Ab^2\right)x^2 + 15\,\left(Ba^2 + 2\,Aab\right)x}{60\,x^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/x^6,x, algorithm="maxima")
```

```
[Out] -1/60*(30*B*b^2*x^3 + 12*A*a^2 + 20*(2*B*a*b + A*b^2)*x^2 + 15*(B
*a^2 + 2*A*a*b)*x)/x^5
```

Fricas [A] time = 0.196755, size = 69, normalized size = 1.25

$$-\frac{30\,Bb^2x^3 + 12\,Aa^2 + 20\,\left(2\,Bab + Ab^2\right)x^2 + 15\,\left(Ba^2 + 2\,Aab\right)x}{60\,x^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/x^6,x, algorithm="fricas")
```

```
[Out] -1/60*(30*B*b^2*x^3 + 12*A*a^2 + 20*(2*B*a*b + A*b^2)*x^2 + 15*(B
*a^2 + 2*A*a*b)*x)/x^5
```

Sympy [A] time = 4.00108, size = 54, normalized size = 0.98

$$-\frac{12Aa^2 + 30Bb^2x^3 + x^2\left(20Ab^2 + 40Bab\right) + x\left(30Aab + 15Ba^2\right)}{60x^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**2*(B*x+A)/x**6,x)
```

```
[Out] -(12*A*a**2 + 30*B*b**2*x**3 + x**2*(20*A*b**2 + 40*B*a*b) + x*(3
0*A*a*b + 15*B*a**2))/(60*x**5)
```

GIAC/XCAS [A] time = 0.264698, size = 69, normalized size = 1.25

$$-\frac{30\,Bb^2x^3 + 40\,Babx^2 + 20\,Ab^2x^2 + 15\,Ba^2x + 30\,Aabx + 12\,Aa^2}{60\,x^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/x^6,x, algorithm="giac")
```

```
[Out] -1/60*(30*B*b^2*x^3 + 40*B*a*b*x^2 + 20*A*b^2*x^2 + 15*B*a^2*x +
30*A*a*b*x + 12*A*a^2)/x^5
```

3.71 $\int \frac{(a+bx)^2(A+Bx)}{x^7} dx$

Optimal. Leaf size=55

$$-\frac{a^2A}{6x^6}-\frac{a(aB+2Ab)}{5x^5}-\frac{b(2aB+Ab)}{4x^4}-\frac{b^2B}{3x^3}$$

```
[Out] -(a^2*A)/(6*x^6) - (a*(2*A*b + a*B))/(5*x^5) - (b*(A*b + 2*a*B))/
(4*x^4) - (b^2*B)/(3*x^3)
```

Rubi [A] time = 0.0711133, antiderivative size = 55, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{a^2A}{6x^6}-\frac{a(aB+2Ab)}{5x^5}-\frac{b(2aB+Ab)}{4x^4}-\frac{b^2B}{3x^3}$$

Antiderivative was successfully verified.

```
[In] Int[((a + b*x)^2*(A + B*x))/x^7,x]
```

```
[Out] -(a^2*A)/(6*x^6) - (a*(2*A*b + a*B))/(5*x^5) - (b*(A*b + 2*a*B))/
(4*x^4) - (b^2*B)/(3*x^3)
```

Rubi in Sympy [A] time = 16.0111, size = 51, normalized size = 0.93

$$-\frac{Aa^2}{6x^6}-\frac{Bb^2}{3x^3}-\frac{a\,(2Ab+Ba)}{5x^5}-\frac{b\,(Ab+2Ba)}{4x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)**2*(B*x+A)/x**7,x)
```

```
[Out] -A*a**2/(6*x**6) - B*b**2/(3*x**3) - a*(2*A*b + B*a)/(5*x**5) - b
*(A*b + 2*B*a)/(4*x**4)
```

Mathematica [A] time = 0.0254428, size = 50, normalized size = 0.91

$$-\frac{2a^2(5A+6Bx)+6abx(4A+5Bx)+5b^2x^2(3A+4Bx)}{60x^6}$$

Antiderivative was successfully verified.

```
[In] Integrate[((a + b*x)^2*(A + B*x))/x^7,x]
```

```
[Out] -(5*b^2*x^2*(3*A + 4*B*x) + 6*a*b*x*(4*A + 5*B*x) + 2*a^2*(5*A +
6*B*x))/(60*x^6)
```

Maple [A] time = 0.007, size = 48, normalized size = 0.9

$$-\frac{Aa^2}{6\,x^6}-\frac{a\,(2\,Ab+Ba)}{5\,x^5}-\frac{b\,(Ab+2\,Ba)}{4\,x^4}-\frac{Bb^2}{3\,x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((b*x+a)^2*(B*x+A)/x^7,x)
```

```
[Out] -1/6*a^2*A/x^6-1/5*a*(2*A*b+B*a)/x^5-1/4*b*(A*b+2*B*a)/x^4-1/3*b^
2*B/x^3
```

Maxima [A] time = 1.36396, size = 69, normalized size = 1.25

$$-\frac{20\,Bb^2x^3+10\,Aa^2+15\,\left(2\,Bab+Ab^2\right)x^2+12\,\left(Ba^2+2\,Aab\right)x}{60\,x^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/x^7,x, algorithm="maxima")
```

```
[Out] -1/60*(20*B*b^2*x^3 + 10*A*a^2 + 15*(2*B*a*b + A*b^2)*x^2 + 12*(B
*a^2 + 2*A*a*b)*x)/x^6
```

Fricas [A] time = 0.200064, size = 69, normalized size = 1.25

$$-\frac{20\,Bb^2x^3+10\,Aa^2+15\,\left(2\,Bab+Ab^2\right)x^2+12\,\left(Ba^2+2\,Aab\right)x}{60\,x^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/x^7,x, algorithm="fricas")
```

```
[Out] -1/60*(20*B*b^2*x^3 + 10*A*a^2 + 15*(2*B*a*b + A*b^2)*x^2 + 12*(B
*a^2 + 2*A*a*b)*x)/x^6
```

Sympy [A] time = 4.9467, size = 54, normalized size = 0.98

$$-\frac{10Aa^2+20Bb^2x^3+x^2\left(15Ab^2+30Bab\right)+x\left(24Aab+12Ba^2\right)}{60x^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**2*(B*x+A)/x**7,x)
```

```
[Out] -(10*A*a**2 + 20*B*b**2*x**3 + x**2*(15*A*b**2 + 30*B*a*b) + x*(2
4*A*a*b + 12*B*a**2))/(60*x**6)
```

GIAC/XCAS [A] time = 0.265295, size = 69, normalized size = 1.25

$$-\frac{20\,Bb^2x^3+30\,Babx^2+15\,Ab^2x^2+12\,Ba^2x+24\,Aabx+10\,Aa^2}{60\,x^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/x^7,x, algorithm="giac")
```

```
[Out] -1/60*(20*B*b^2*x^3 + 30*B*a*b*x^2 + 15*A*b^2*x^2 + 12*B*a^2*x +
24*A*a*b*x + 10*A*a^2)/x^6
```

3.72 $\int \frac{(a+bx)^2(A+Bx)}{x^8} dx$

Optimal. Leaf size=55

$$-\frac{a^2A}{7x^7}-\frac{a(aB+2Ab)}{6x^6}-\frac{b(2aB+Ab)}{5x^5}-\frac{b^2B}{4x^4}$$

```
[Out] -(a^2*A)/(7*x^7) - (a*(2*A*b + a*B))/(6*x^6) - (b*(A*b + 2*a*B))/
(5*x^5) - (b^2*B)/(4*x^4)
```

Rubi [A] time = 0.0697547, antiderivative size = 55, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{a^2A}{7x^7}-\frac{a(aB+2Ab)}{6x^6}-\frac{b(2aB+Ab)}{5x^5}-\frac{b^2B}{4x^4}$$

Antiderivative was successfully verified.

```
[In] Int[((a + b*x)^2*(A + B*x))/x^8,x]
```

```
[Out] -(a^2*A)/(7*x^7) - (a*(2*A*b + a*B))/(6*x^6) - (b*(A*b + 2*a*B))/
(5*x^5) - (b^2*B)/(4*x^4)
```

Rubi in Sympy [A] time = 16.3968, size = 51, normalized size = 0.93

$$-\frac{Aa^2}{7x^7}-\frac{Bb^2}{4x^4}-\frac{a\,(2Ab+Ba)}{6x^6}-\frac{b\,(Ab+2Ba)}{5x^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)**2*(B*x+A)/x**8,x)
```

```
[Out] -A*a**2/(7*x**7) - B*b**2/(4*x**4) - a*(2*A*b + B*a)/(6*x**6) - b
*(A*b + 2*B*a)/(5*x**5)
```

Mathematica [A] time = 0.024735, size = 50, normalized size = 0.91

$$-\frac{10a^2(6A+7Bx)+28abx(5A+6Bx)+21b^2x^2(4A+5Bx)}{420x^7}$$

Antiderivative was successfully verified.

```
[In] Integrate[((a + b*x)^2*(A + B*x))/x^8,x]
```

```
[Out] -(21*b^2*x^2*(4*A + 5*B*x) + 28*a*b*x*(5*A + 6*B*x) + 10*a^2*(6*A
 + 7*B*x))/(420*x^7)
```

Maple [A] time = 0.008, size = 48, normalized size = 0.9

$$-\frac{Aa^2}{7\,x^7}-\frac{a\,(2\,Ab+Ba)}{6\,x^6}-\frac{b\,(Ab+2\,Ba)}{5\,x^5}-\frac{Bb^2}{4\,x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((b*x+a)^2*(B*x+A)/x^8,x)
```

```
[Out] -1/7*a^2*A/x^7-1/6*a*(2*A*b+B*a)/x^6-1/5*b*(A*b+2*B*a)/x^5-1/4*b^
2*B/x^4
```

Maxima [A] time = 1.35101, size = 69, normalized size = 1.25

$$-\frac{105\,Bb^2x^3 + 60\,Aa^2 + 84\,\left(2\,Bab + Ab^2\right)x^2 + 70\,\left(Ba^2 + 2\,Aab\right)x}{420\,x^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/x^8,x, algorithm="maxima")
```

```
[Out] -1/420*(105*B*b^2*x^3 + 60*A*a^2 + 84*(2*B*a*b + A*b^2)*x^2 + 70*
(B*a^2 + 2*A*a*b)*x)/x^7
```

Fricas [A] time = 0.195706, size = 69, normalized size = 1.25

$$-\frac{105\,Bb^2x^3 + 60\,Aa^2 + 84\,\left(2\,Bab + Ab^2\right)x^2 + 70\,\left(Ba^2 + 2\,Aab\right)x}{420\,x^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/x^8,x, algorithm="fricas")
```

```
[Out] -1/420*(105*B*b^2*x^3 + 60*A*a^2 + 84*(2*B*a*b + A*b^2)*x^2 + 70*
(B*a^2 + 2*A*a*b)*x)/x^7
```

Sympy [A] time = 5.57775, size = 54, normalized size = 0.98

$$-\frac{60Aa^2 + 105Bb^2x^3 + x^2\left(84Ab^2 + 168Bab\right) + x\left(140Aab + 70Ba^2\right)}{420x^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**2*(B*x+A)/x**8,x)
```

```
[Out] -(60*A*a**2 + 105*B*b**2*x**3 + x**2*(84*A*b**2 + 168*B*a*b) + x*
(140*A*a*b + 70*B*a**2))/(420*x**7)
```

GIAC/XCAS [A] time = 0.253125, size = 69, normalized size = 1.25

$$-\frac{105\,Bb^2x^3 + 168\,Babx^2 + 84\,Ab^2x^2 + 70\,Ba^2x + 140\,Aabx + 60\,Aa^2}{420\,x^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/x^8,x, algorithm="giac")
```

```
[Out] -1/420*(105*B*b^2*x^3 + 168*B*a*b*x^2 + 84*A*b^2*x^2 + 70*B*a^2*x
 + 140*A*a*b*x + 60*A*a^2)/x^7
```

3.73 $\int x^4(a+bx)^3(A+Bx)\,dx$

Optimal. Leaf size=75

$$\frac{1}{5}a^3Ax^5+\frac{1}{6}a^2x^6(aB+3Ab)+\frac{1}{8}b^2x^8(3aB+Ab)+\frac{3}{7}abx^7(aB+Ab)+\frac{1}{9}b^3Bx^9$$

```
[Out] (a^3*A*x^5)/5 + (a^2*(3*A*b + a*B)*x^6)/6 + (3*a*b*(A*b + a*B)*x^
7)/7 + (b^2*(A*b + 3*a*B)*x^8)/8 + (b^3*B*x^9)/9
```

Rubi [A] time = 0.156713, antiderivative size = 75, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$\frac{1}{5}a^3Ax^5+\frac{1}{6}a^2x^6(aB+3Ab)+\frac{1}{8}b^2x^8(3aB+Ab)+\frac{3}{7}abx^7(aB+Ab)+\frac{1}{9}b^3Bx^9$$

Antiderivative was successfully verified.

```
[In]  Int[x^4*(a + b*x)^3*(A + B*x),x]
```

```
[Out] (a^3*A*x^5)/5 + (a^2*(3*A*b + a*B)*x^6)/6 + (3*a*b*(A*b + a*B)*x^
7)/7 + (b^2*(A*b + 3*a*B)*x^8)/8 + (b^3*B*x^9)/9
```

Rubi in Sympy [A] time = 28.061, size = 70, normalized size = 0.93

$$\frac{Aa^3x^5}{5}+\frac{Bb^3x^9}{9}+\frac{a^2x^6\,(3Ab+Ba)}{6}+\frac{3abx^7\,(Ab+Ba)}{7}+\frac{b^2x^8\,(Ab+3Ba)}{8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**4*(b*x+a)**3*(B*x+A),x)
```

```
[Out] A*a**3*x**5/5 + B*b**3*x**9/9 + a**2*x**6*(3*A*b + B*a)/6 + 3*a*b
*x**7*(A*b + B*a)/7 + b**2*x**8*(A*b + 3*B*a)/8
```

Mathematica [A] time = 0.0168775, size = 75, normalized size = 1.

$$\frac{1}{5}a^3Ax^5+\frac{1}{6}a^2x^6(aB+3Ab)+\frac{1}{8}b^2x^8(3aB+Ab)+\frac{3}{7}abx^7(aB+Ab)+\frac{1}{9}b^3Bx^9$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^4*(a + b*x)^3*(A + B*x),x]
```

```
[Out] (a^3*A*x^5)/5 + (a^2*(3*A*b + a*B)*x^6)/6 + (3*a*b*(A*b + a*B)*x^
7)/7 + (b^2*(A*b + 3*a*B)*x^8)/8 + (b^3*B*x^9)/9
```

Maple [A] time = 0.003, size = 76, normalized size = 1.

$$\frac{b^3Bx^9}{9}+\frac{\left(b^3A+3\,ab^2B\right)x^8}{8}+\frac{\left(3\,ab^2A+3\,a^2bB\right)x^7}{7}+\frac{\left(3\,a^2bA+a^3B\right)x^6}{6}+\frac{a^3Ax^5}{5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^4*(b*x+a)^3*(B*x+A),x)
```

```
[Out] 1/9*b^3*B*x^9+1/8*(A*b^3+3*B*a*b^2)*x^8+1/7*(3*A*a*b^2+3*B*a^2*b)
*x^7+1/6*(3*A*a^2*b+B*a^3)*x^6+1/5*a^3*A*x^5
```

Maxima [A] time = 1.33958, size = 99, normalized size = 1.32

$$\frac{1}{9}Bb^3x^9 + \frac{1}{5}Aa^3x^5 + \frac{1}{8}\left(3Bab^2 + Ab^3\right)x^8 + \frac{3}{7}\left(Ba^2b + Aab^2\right)x^7 + \frac{1}{6}\left(Ba^3 + 3Aa^2b\right)x^6$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*x^4,x, algorithm="maxima")
```

```
[Out] 1/9*B*b^3*x^9 + 1/5*A*a^3*x^5 + 1/8*(3*B*a*b^2 + A*b^3)*x^8 + 3/7
*(B*a^2*b + A*a*b^2)*x^7 + 1/6*(B*a^3 + 3*A*a^2*b)*x^6
```

Fricas [A] time = 0.182428, size = 1, normalized size = 0.01

$$\frac{1}{9}x^9b^3B + \frac{3}{8}x^8b^2aB + \frac{1}{8}x^8b^3A + \frac{3}{7}x^7ba^2B + \frac{3}{7}x^7b^2aA + \frac{1}{6}x^6a^3B + \frac{1}{2}x^6ba^2A + \frac{1}{5}x^5a^3A$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*x^4,x, algorithm="fricas")
```

```
[Out] 1/9*x^9*b^3*B + 3/8*x^8*b^2*a*B + 1/8*x^8*b^3*A + 3/7*x^7*b*a^2*B
 + 3/7*x^7*b^2*a*A + 1/6*x^6*a^3*B + 1/2*x^6*b*a^2*A + 1/5*x^5*a^
3*A
```

Sympy [A] time = 0.140319, size = 82, normalized size = 1.09

$$\frac{Aa^3x^5}{5} + \frac{Bb^3x^9}{9} + x^8\left(\frac{Ab^3}{8} + \frac{3Bab^2}{8}\right) + x^7\left(\frac{3Aab^2}{7} + \frac{3Ba^2b}{7}\right) + x^6\left(\frac{Aa^2b}{2} + \frac{Ba^3}{6}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**4*(b*x+a)**3*(B*x+A),x)
```

```
[Out] A*a**3*x**5/5 + B*b**3*x**9/9 + x**8*(A*b**3/8 + 3*B*a*b**2/8) +
x**7*(3*A*a*b**2/7 + 3*B*a**2*b/7) + x**6*(A*a**2*b/2 + B*a**3/6)
```

GIAC/XCAS [A] time = 0.29354, size = 104, normalized size = 1.39

$$\frac{1}{9}Bb^3x^9 + \frac{3}{8}Bab^2x^8 + \frac{1}{8}Ab^3x^8 + \frac{3}{7}Ba^2bx^7 + \frac{3}{7}Aab^2x^7 + \frac{1}{6}Ba^3x^6 + \frac{1}{2}Aa^2bx^6 + \frac{1}{5}Aa^3x^5$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*x^4,x, algorithm="giac")
```

```
[Out] 1/9*B*b^3*x^9 + 3/8*B*a*b^2*x^8 + 1/8*A*b^3*x^8 + 3/7*B*a^2*b*x^7
 + 3/7*A*a*b^2*x^7 + 1/6*B*a^3*x^6 + 1/2*A*a^2*b*x^6 + 1/5*A*a^3*
x^5
```

3.74 $\int x^3(a+bx)^3(A+Bx)\,dx$

Optimal. Leaf size=75

$$\frac{1}{4}a^3Ax^4+\frac{1}{5}a^2x^5(aB+3Ab)+\frac{1}{7}b^2x^7(3aB+Ab)+\frac{1}{2}abx^6(aB+Ab)+\frac{1}{8}b^3Bx^8$$

```
[Out] (a^3*A*x^4)/4 + (a^2*(3*A*b + a*B)*x^5)/5 + (a*b*(A*b + a*B)*x^6)
/2 + (b^2*(A*b + 3*a*B)*x^7)/7 + (b^3*B*x^8)/8
```

Rubi [A] time = 0.139218, antiderivative size = 75, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$\frac{1}{4}a^3Ax^4+\frac{1}{5}a^2x^5(aB+3Ab)+\frac{1}{7}b^2x^7(3aB+Ab)+\frac{1}{2}abx^6(aB+Ab)+\frac{1}{8}b^3Bx^8$$

Antiderivative was successfully verified.

```
[In]  Int[x^3*(a + b*x)^3*(A + B*x),x]
```

```
[Out] (a^3*A*x^4)/4 + (a^2*(3*A*b + a*B)*x^5)/5 + (a*b*(A*b + a*B)*x^6)
/2 + (b^2*(A*b + 3*a*B)*x^7)/7 + (b^3*B*x^8)/8
```

Rubi in Sympy [A] time = 26.7379, size = 68, normalized size = 0.91

$$\frac{Aa^3x^4}{4}+\frac{Bb^3x^8}{8}+\frac{a^2x^5\,(3Ab+Ba)}{5}+\frac{abx^6\,(Ab+Ba)}{2}+\frac{b^2x^7\,(Ab+3Ba)}{7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3*(b*x+a)**3*(B*x+A),x)
```

```
[Out] A*a**3*x**4/4 + B*b**3*x**8/8 + a**2*x**5*(3*A*b + B*a)/5 + a*b*x
**6*(A*b + B*a)/2 + b**2*x**7*(A*b + 3*B*a)/7
```

Mathematica [A] time = 0.0151051, size = 75, normalized size = 1.

$$\frac{1}{4}a^3Ax^4+\frac{1}{5}a^2x^5(aB+3Ab)+\frac{1}{7}b^2x^7(3aB+Ab)+\frac{1}{2}abx^6(aB+Ab)+\frac{1}{8}b^3Bx^8$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^3*(a + b*x)^3*(A + B*x),x]
```

```
[Out] (a^3*A*x^4)/4 + (a^2*(3*A*b + a*B)*x^5)/5 + (a*b*(A*b + a*B)*x^6)
/2 + (b^2*(A*b + 3*a*B)*x^7)/7 + (b^3*B*x^8)/8
```

Maple [A] time = 0.001, size = 76, normalized size = 1.

$$\frac{b^3Bx^8}{8}+\frac{\left(b^3A+3\,ab^2B\right)x^7}{7}+\frac{\left(3\,ab^2A+3\,a^2bB\right)x^6}{6}+\frac{\left(3\,a^2bA+a^3B\right)x^5}{5}+\frac{a^3Ax^4}{4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^3*(b*x+a)^3*(B*x+A),x)
```

```
[Out] 1/8*b^3*B*x^8+1/7*(A*b^3+3*B*a*b^2)*x^7+1/6*(3*A*a*b^2+3*B*a^2*b)
*x^6+1/5*(3*A*a^2*b+B*a^3)*x^5+1/4*a^3*A*x^4
```

Maxima [A] time = 1.33122, size = 99, normalized size = 1.32

$$\frac{1}{8}\,Bb^3x^8+\frac{1}{4}\,Aa^3x^4+\frac{1}{7}\,\left(3\,Bab^2+Ab^3\right)x^7+\frac{1}{2}\,\left(Ba^2b+Aab^2\right)x^6+\frac{1}{5}\,\left(Ba^3+3\,Aa^2b\right)x^5$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*x^3,x, algorithm="maxima")
```

```
[Out] 1/8*B*b^3*x^8 + 1/4*A*a^3*x^4 + 1/7*(3*B*a*b^2 + A*b^3)*x^7 + 1/2
*(B*a^2*b + A*a*b^2)*x^6 + 1/5*(B*a^3 + 3*A*a^2*b)*x^5
```

Fricas [A] time = 0.179468, size = 1, normalized size = 0.01

$$\frac{1}{8}x^8b^3B+\frac{3}{7}x^7b^2aB+\frac{1}{7}x^7b^3A+\frac{1}{2}x^6ba^2B+\frac{1}{2}x^6b^2aA+\frac{1}{5}x^5a^3B+\frac{3}{5}x^5ba^2A+\frac{1}{4}x^4a^3A$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*x^3,x, algorithm="fricas")
```

```
[Out] 1/8*x^8*b^3*B + 3/7*x^7*b^2*a*B + 1/7*x^7*b^3*A + 1/2*x^6*b*a^2*B
 + 1/2*x^6*b^2*a*A + 1/5*x^5*a^3*B + 3/5*x^5*b*a^2*A + 1/4*x^4*a^
3*A
```

Sympy [A] time = 0.135865, size = 80, normalized size = 1.07

$$\frac{Aa^3x^4}{4}+\frac{Bb^3x^8}{8}+x^7\left(\frac{Ab^3}{7}+\frac{3Bab^2}{7}\right)+x^6\left(\frac{Aab^2}{2}+\frac{Ba^2b}{2}\right)+x^5\left(\frac{3Aa^2b}{5}+\frac{Ba^3}{5}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**3*(b*x+a)**3*(B*x+A),x)
```

```
[Out] A*a**3*x**4/4 + B*b**3*x**8/8 + x**7*(A*b**3/7 + 3*B*a*b**2/7) +
x**6*(A*a*b**2/2 + B*a**2*b/2) + x**5*(3*A*a**2*b/5 + B*a**3/5)
```

GIAC/XCAS [A] time = 0.254985, size = 104, normalized size = 1.39

$$\frac{1}{8}\,Bb^3x^8+\frac{3}{7}\,Bab^2x^7+\frac{1}{7}\,Ab^3x^7+\frac{1}{2}\,Ba^2bx^6+\frac{1}{2}\,Aab^2x^6+\frac{1}{5}\,Ba^3x^5+\frac{3}{5}\,Aa^2bx^5+\frac{1}{4}\,Aa^3x^4$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*x^3,x, algorithm="giac")
```

```
[Out] 1/8*B*b^3*x^8 + 3/7*B*a*b^2*x^7 + 1/7*A*b^3*x^7 + 1/2*B*a^2*b*x^6
 + 1/2*A*a*b^2*x^6 + 1/5*B*a^3*x^5 + 3/5*A*a^2*b*x^5 + 1/4*A*a^3*
x^4
```

3.75 $\int x^2(a+bx)^3(A+Bx)\,dx$

Optimal. Leaf size=75

$$\frac{1}{3}a^3Ax^3+\frac{1}{4}a^2x^4(aB+3Ab)+\frac{1}{6}b^2x^6(3aB+Ab)+\frac{3}{5}abx^5(aB+Ab)+\frac{1}{7}b^3Bx^7$$

```
[Out] (a^3*A*x^3)/3 + (a^2*(3*A*b + a*B)*x^4)/4 + (3*a*b*(A*b + a*B)*x^
5)/5 + (b^2*(A*b + 3*a*B)*x^6)/6 + (b^3*B*x^7)/7
```

Rubi [A] time = 0.128177, antiderivative size = 75, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$\frac{1}{3}a^3Ax^3+\frac{1}{4}a^2x^4(aB+3Ab)+\frac{1}{6}b^2x^6(3aB+Ab)+\frac{3}{5}abx^5(aB+Ab)+\frac{1}{7}b^3Bx^7$$

Antiderivative was successfully verified.

```
[In]  Int[x^2*(a + b*x)^3*(A + B*x),x]
```

```
[Out] (a^3*A*x^3)/3 + (a^2*(3*A*b + a*B)*x^4)/4 + (3*a*b*(A*b + a*B)*x^
5)/5 + (b^2*(A*b + 3*a*B)*x^6)/6 + (b^3*B*x^7)/7
```

Rubi in Sympy [A] time = 25.3105, size = 70, normalized size = 0.93

$$\frac{Aa^3x^3}{3}+\frac{Bb^3x^7}{7}+\frac{a^2x^4\,(3Ab+Ba)}{4}+\frac{3abx^5\,(Ab+Ba)}{5}+\frac{b^2x^6\,(Ab+3Ba)}{6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(b*x+a)**3*(B*x+A),x)
```

```
[Out] A*a**3*x**3/3 + B*b**3*x**7/7 + a**2*x**4*(3*A*b + B*a)/4 + 3*a*b
*x**5*(A*b + B*a)/5 + b**2*x**6*(A*b + 3*B*a)/6
```

Mathematica [A] time = 0.014861, size = 75, normalized size = 1.

$$\frac{1}{3}a^3Ax^3+\frac{1}{4}a^2x^4(aB+3Ab)+\frac{1}{6}b^2x^6(3aB+Ab)+\frac{3}{5}abx^5(aB+Ab)+\frac{1}{7}b^3Bx^7$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^2*(a + b*x)^3*(A + B*x),x]
```

```
[Out] (a^3*A*x^3)/3 + (a^2*(3*A*b + a*B)*x^4)/4 + (3*a*b*(A*b + a*B)*x^
5)/5 + (b^2*(A*b + 3*a*B)*x^6)/6 + (b^3*B*x^7)/7
```

Maple [A] time = 0., size = 76, normalized size = 1.

$$\frac{b^3Bx^7}{7}+\frac{\left(b^3A+3\,ab^2B\right)x^6}{6}+\frac{\left(3\,ab^2A+3\,a^2bB\right)x^5}{5}+\frac{\left(3\,a^2bA+a^3B\right)x^4}{4}+\frac{a^3Ax^3}{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(b*x+a)^3*(B*x+A),x)
```

```
[Out] 1/7*b^3*B*x^7+1/6*(A*b^3+3*B*a*b^2)*x^6+1/5*(3*A*a*b^2+3*B*a^2*b)
*x^5+1/4*(3*A*a^2*b+B*a^3)*x^4+1/3*a^3*A*x^3
```

Maxima [A] time = 1.35362, size = 99, normalized size = 1.32

$$\frac{1}{7}Bb^3x^7 + \frac{1}{3}Aa^3x^3 + \frac{1}{6}\left(3Bab^2 + Ab^3\right)x^6 + \frac{3}{5}\left(Ba^2b + Aab^2\right)x^5 + \frac{1}{4}\left(Ba^3 + 3Aa^2b\right)x^4$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*x^2,x, algorithm="maxima")
```

```
[Out] 1/7*B*b^3*x^7 + 1/3*A*a^3*x^3 + 1/6*(3*B*a*b^2 + A*b^3)*x^6 + 3/5
*(B*a^2*b + A*a*b^2)*x^5 + 1/4*(B*a^3 + 3*A*a^2*b)*x^4
```

Fricas [A] time = 0.179839, size = 1, normalized size = 0.01

$$\frac{1}{7}x^7b^3B + \frac{1}{2}x^6b^2aB + \frac{1}{6}x^6b^3A + \frac{3}{5}x^5ba^2B + \frac{3}{5}x^5b^2aA + \frac{1}{4}x^4a^3B + \frac{3}{4}x^4ba^2A + \frac{1}{3}x^3a^3A$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*x^2,x, algorithm="fricas")
```

```
[Out] 1/7*x^7*b^3*B + 1/2*x^6*b^2*a*B + 1/6*x^6*b^3*A + 3/5*x^5*b*a^2*B
 + 3/5*x^5*b^2*a*A + 1/4*x^4*a^3*B + 3/4*x^4*b*a^2*A + 1/3*x^3*a^
3*A
```

Sympy [A] time = 0.153018, size = 82, normalized size = 1.09

$$\frac{Aa^3x^3}{3} + \frac{Bb^3x^7}{7} + x^6\left(\frac{Ab^3}{6} + \frac{Bab^2}{2}\right) + x^5\left(\frac{3Aab^2}{5} + \frac{3Ba^2b}{5}\right) + x^4\left(\frac{3Aa^2b}{4} + \frac{Ba^3}{4}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(b*x+a)**3*(B*x+A),x)
```

```
[Out] A*a**3*x**3/3 + B*b**3*x**7/7 + x**6*(A*b**3/6 + B*a*b**2/2) + x*
*5*(3*A*a*b**2/5 + 3*B*a**2*b/5) + x**4*(3*A*a**2*b/4 + B*a**3/4)
```

GIAC/XCAS [A] time = 0.275459, size = 104, normalized size = 1.39

$$\frac{1}{7}Bb^3x^7 + \frac{1}{2}Bab^2x^6 + \frac{1}{6}Ab^3x^6 + \frac{3}{5}Ba^2bx^5 + \frac{3}{5}Aab^2x^5 + \frac{1}{4}Ba^3x^4 + \frac{3}{4}Aa^2bx^4 + \frac{1}{3}Aa^3x^3$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*x^2,x, algorithm="giac")
```

```
[Out] 1/7*B*b^3*x^7 + 1/2*B*a*b^2*x^6 + 1/6*A*b^3*x^6 + 3/5*B*a^2*b*x^5
 + 3/5*A*a*b^2*x^5 + 1/4*B*a^3*x^4 + 3/4*A*a^2*b*x^4 + 1/3*A*a^3*
x^3
```

3.76 $\int x(a+bx)^3(A+Bx)\,dx$

Optimal. Leaf size=61

$$\frac{(a+bx)^5(Ab-2aB)}{5b^3}-\frac{a(a+bx)^4(Ab-aB)}{4b^3}+\frac{B(a+bx)^6}{6b^3}$$

```
[Out] -(a*(A*b - a*B)*(a + b*x)^4)/(4*b^3) + ((A*b - 2*a*B)*(a + b*x)^5
)/(5*b^3) + (B*(a + b*x)^6)/(6*b^3)
```

Rubi [A] time = 0.10964, antiderivative size = 61, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 14, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.071

$$\frac{(a+bx)^5(Ab-2aB)}{5b^3}-\frac{a(a+bx)^4(Ab-aB)}{4b^3}+\frac{B(a+bx)^6}{6b^3}$$

Antiderivative was successfully verified.

```
[In]  Int[x*(a + b*x)^3*(A + B*x),x]
```

```
[Out] -(a*(A*b - a*B)*(a + b*x)^4)/(4*b^3) + ((A*b - 2*a*B)*(a + b*x)^5
)/(5*b^3) + (B*(a + b*x)^6)/(6*b^3)
```

Rubi in Sympy [A] time = 24.0858, size = 53, normalized size = 0.87

$$\frac{B(a+bx)^6}{6b^3}-\frac{a(a+bx)^4(Ab-Ba)}{4b^3}+\frac{(a+bx)^5(Ab-2Ba)}{5b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(b*x+a)**3*(B*x+A),x)
```

```
[Out] B*(a + b*x)**6/(6*b**3) - a*(a + b*x)**4*(A*b - B*a)/(4*b**3) + (
a + b*x)**5*(A*b - 2*B*a)/(5*b**3)
```

Mathematica [A] time = 0.020963, size = 69, normalized size = 1.13

$$\frac{1}{60}x^2\left(10a^3(3A+2Bx)+15a^2bx(4A+3Bx)+9ab^2x^2(5A+4Bx)+2b^3x^3(6A+5Bx)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[x*(a + b*x)^3*(A + B*x),x]
```

```
[Out] (x^2*(10*a^3*(3*A + 2*B*x) + 15*a^2*b*x*(4*A + 3*B*x) + 9*a*b^2*x
^2*(5*A + 4*B*x) + 2*b^3*x^3*(6*A + 5*B*x)))/60
```

Maple [A] time = 0.002, size = 76, normalized size = 1.3

$$\frac{b^3Bx^6}{6}+\frac{\left(b^3A+3\,ab^2B\right)x^5}{5}+\frac{\left(3\,ab^2A+3\,a^2bB\right)x^4}{4}+\frac{\left(3\,a^2bA+a^3B\right)x^3}{3}+\frac{a^3Ax^2}{2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int(x*(b*x+a)^3*(B*x+A),x)
```

```
[Out] 1/6*b^3*B*x^6+1/5*(A*b^3+3*B*a*b^2)*x^5+1/4*(3*A*a*b^2+3*B*a^2*b)
*x^4+1/3*(3*A*a^2*b+B*a^3)*x^3+1/2*a^3*A*x^2
```

Maxima [A] time = 1.33746, size = 99, normalized size = 1.62

$$\frac{1}{6}Bb^3x^6 + \frac{1}{2}Aa^3x^2 + \frac{1}{5}\left(3Bab^2 + Ab^3\right)x^5 + \frac{3}{4}\left(Ba^2b + Aab^2\right)x^4 + \frac{1}{3}\left(Ba^3 + 3Aa^2b\right)x^3$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*(b*x + a)^3*x,x, algorithm="maxima")
```

```
[Out] 1/6*B*b^3*x^6 + 1/2*A*a^3*x^2 + 1/5*(3*B*a*b^2 + A*b^3)*x^5 + 3/4
*(B*a^2*b + A*a*b^2)*x^4 + 1/3*(B*a^3 + 3*A*a^2*b)*x^3
```

Fricas [A] time = 0.180292, size = 1, normalized size = 0.02

$$\frac{1}{6}x^6b^3B + \frac{3}{5}x^5b^2aB + \frac{1}{5}x^5b^3A + \frac{3}{4}x^4ba^2B + \frac{3}{4}x^4b^2aA + \frac{1}{3}x^3a^3B + x^3ba^2A + \frac{1}{2}x^2a^3A$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*(b*x + a)^3*x,x, algorithm="fricas")
```

```
[Out] 1/6*x^6*b^3*B + 3/5*x^5*b^2*a*B + 1/5*x^5*b^3*A + 3/4*x^4*b*a^2*B
 + 3/4*x^4*b^2*a*A + 1/3*x^3*a^3*B + x^3*b*a^2*A + 1/2*x^2*a^3*A
```

Sympy [A] time = 0.155511, size = 80, normalized size = 1.31

$$\frac{Aa^3x^2}{2} + \frac{Bb^3x^6}{6} + x^5\left(\frac{Ab^3}{5} + \frac{3Bab^2}{5}\right) + x^4\left(\frac{3Aab^2}{4} + \frac{3Ba^2b}{4}\right) + x^3\left(Aa^2b + \frac{Ba^3}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(x*(b*x+a)**3*(B*x+A),x)
```

```
[Out] A*a**3*x**2/2 + B*b**3*x**6/6 + x**5*(A*b**3/5 + 3*B*a*b**2/5) +
x**4*(3*A*a*b**2/4 + 3*B*a**2*b/4) + x**3*(A*a**2*b + B*a**3/3)
```

GIAC/XCAS [A] time = 0.262637, size = 103, normalized size = 1.69

$$\frac{1}{6}Bb^3x^6 + \frac{3}{5}Bab^2x^5 + \frac{1}{5}Ab^3x^5 + \frac{3}{4}Ba^2bx^4 + \frac{3}{4}Aab^2x^4 + \frac{1}{3}Ba^3x^3 + Aa^2bx^3 + \frac{1}{2}Aa^3x^2$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*(b*x + a)^3*x,x, algorithm="giac")
```

```
[Out] 1/6*B*b^3*x^6 + 3/5*B*a*b^2*x^5 + 1/5*A*b^3*x^5 + 3/4*B*a^2*b*x^4
 + 3/4*A*a*b^2*x^4 + 1/3*B*a^3*x^3 + A*a^2*b*x^3 + 1/2*A*a^3*x^2
```

3.77 $\int (a+bx)^3(A+Bx)\,dx$

Optimal. Leaf size=38

$$\frac{(a+bx)^4(Ab-aB)}{4b^2}+\frac{B(a+bx)^5}{5b^2}$$

```
[Out] ((A*b - a*B)*(a + b*x)^4)/(4*b^2) + (B*(a + b*x)^5)/(5*b^2)
```

Rubi [A] time = 0.043438, antiderivative size = 38, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 13, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.077

$$\frac{(a+bx)^4(Ab-aB)}{4b^2}+\frac{B(a+bx)^5}{5b^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^3*(A + B*x),x]

[Out] ((A*b - a*B)*(a + b*x)^4)/(4*b^2) + (B*(a + b*x)^5)/(5*b^2)
```

Rubi in Sympy [A] time = 17.0508, size = 31, normalized size = 0.82

$$\frac{B\left(a+bx\right)^5}{5b^2}+\frac{\left(a+bx\right)^4\left(Ab-Ba\right)}{4b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**3*(B*x+A),x)

[Out] B*(a + b*x)**5/(5*b**2) + (a + b*x)**4*(A*b - B*a)/(4*b**2)
```

Mathematica [A] time = 0.0156859, size = 67, normalized size = 1.76

$$a^3Ax+\frac{1}{2}a^2x^2(aB+3Ab)+\frac{1}{4}b^2x^4(3aB+Ab)+abx^3(aB+Ab)+\frac{1}{5}b^3Bx^5$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^3*(A + B*x),x]

[Out] a^3*A*x + (a^2*(3*A*b + a*B)*x^2)/2 + a*b*(A*b + a*B)*x^3 + (b^2*
(A*b + 3*a*B)*x^4)/4 + (b^3*B*x^5)/5
```

Maple [B] time = 0., size = 73, normalized size = 1.9

$$\frac{b^3Bx^5}{5}+\frac{\left(b^3A+3\,ab^2B\right)x^4}{4}+\frac{\left(3\,ab^2A+3\,a^2bB\right)x^3}{3}+\frac{\left(3\,a^2bA+a^3B\right)x^2}{2}+a^3Ax$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3*(B*x+A),x)

[Out] 1/5*b^3*B*x^5+1/4*(A*b^3+3*B*a*b^2)*x^4+1/3*(3*A*a*b^2+3*B*a^2*b)
*x^3+1/2*(3*A*a^2*b+B*a^3)*x^2+a^3*A*x
```

Maxima [A] time = 1.32381, size = 93, normalized size = 2.45

$$\frac{1}{5}\,Bb^3x^5 + Aa^3x + \frac{1}{4}\,\left(3\,Bab^2 + Ab^3\right)x^4 + \left(Ba^2b + Aab^2\right)x^3 + \frac{1}{2}\,\left(Ba^3 + 3\,Aa^2b\right)x^2$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3,x, algorithm="maxima")
```

```
[Out] 1/5*B*b^3*x^5 + A*a^3*x + 1/4*(3*B*a*b^2 + A*b^3)*x^4 + (B*a^2*b
+ A*a*b^2)*x^3 + 1/2*(B*a^3 + 3*A*a^2*b)*x^2
```

Fricas [A] time = 0.178331, size = 1, normalized size = 0.03

$$\frac{1}{5}x^5b^3B + \frac{3}{4}x^4b^2aB + \frac{1}{4}x^4b^3A + x^3ba^2B + x^3b^2aA + \frac{1}{2}x^2a^3B + \frac{3}{2}x^2ba^2A + xa^3A$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3,x, algorithm="fricas")
```

```
[Out] 1/5*x^5*b^3*B + 3/4*x^4*b^2*a*B + 1/4*x^4*b^3*A + x^3*b*a^2*B + x
^3*b^2*a*A + 1/2*x^2*a^3*B + 3/2*x^2*b*a^2*A + x*a^3*A
```

Sympy [A] time = 0.122166, size = 73, normalized size = 1.92

$$Aa^3x + \frac{Bb^3x^5}{5} + x^4\left(\frac{Ab^3}{4} + \frac{3Bab^2}{4}\right) + x^3\left(Aab^2 + Ba^2b\right) + x^2\left(\frac{3Aa^2b}{2} + \frac{Ba^3}{2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**3*(B*x+A),x)
```

```
[Out] A*a**3*x + B*b**3*x**5/5 + x**4*(A*b**3/4 + 3*B*a*b**2/4) + x**3*
(A*a*b**2 + B*a**2*b) + x**2*(3*A*a**2*b/2 + B*a**3/2)
```

GIAC/XCAS [A] time = 0.297436, size = 97, normalized size = 2.55

$$\frac{1}{5}\,Bb^3x^5 + \frac{3}{4}\,Bab^2x^4 + \frac{1}{4}\,Ab^3x^4 + Ba^2bx^3 + Aab^2x^3 + \frac{1}{2}\,Ba^3x^2 + \frac{3}{2}\,Aa^2bx^2 + Aa^3x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3,x, algorithm="giac")
```

```
[Out] 1/5*B*b^3*x^5 + 3/4*B*a*b^2*x^4 + 1/4*A*b^3*x^4 + B*a^2*b*x^3 + A
*a*b^2*x^3 + 1/2*B*a^3*x^2 + 3/2*A*a^2*b*x^2 + A*a^3*x
```

3.78 $\int \frac{(a+bx)^3(A+Bx)}{x} dx$

Optimal. Leaf size=54

$$a^3A\log(x) + 3a^2Abx + \frac{3}{2}aAb^2x^2 + \frac{B(a+bx)^4}{4b} + \frac{1}{3}Ab^3x^3$$

```
[Out] 3*a^2*A*b*x + (3*a*A*b^2*x^2)/2 + (A*b^3*x^3)/3 + (B*(a + b*x)^4)
/(4*b) + a^3*A*Log[x]
```

Rubi [A] time = 0.0499503, antiderivative size = 54, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 2, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$a^3A\log(x) + 3a^2Abx + \frac{3}{2}aAb^2x^2 + \frac{B(a+bx)^4}{4b} + \frac{1}{3}Ab^3x^3$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^3*(A + B*x))/x,x]
```

```
[Out] 3*a^2*A*b*x + (3*a*A*b^2*x^2)/2 + (A*b^3*x^3)/3 + (B*(a + b*x)^4)
/(4*b) + a^3*A*Log[x]
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$Aa^3\log(x) + 3Aa^2bx + 3Aab^2\int x\,dx + \frac{Ab^3x^3}{3} + \frac{B(a+bx)^4}{4b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**3*(B*x+A)/x,x)
```

```
[Out] A*a**3*log(x) + 3*A*a**2*b*x + 3*A*a*b**2*Integral(x, x) + A*b**3
*x**3/3 + B*(a + b*x)**4/(4*b)
```

Mathematica [A] time = 0.0422138, size = 63, normalized size = 1.17

$$a^3A\log(x) + \frac{1}{12}x\left(12a^3B + 18a^2b(2A+Bx) + 6ab^2x(3A+2Bx) + b^3x^2(4A+3Bx)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^3*(A + B*x))/x,x]
```

```
[Out] (x*(12*a^3*B + 18*a^2*b*(2*A + B*x) + 6*a*b^2*x*(3*A + 2*B*x) + b
^3*x^2*(4*A + 3*B*x)))/12 + a^3*A*Log[x]
```

Maple [A] time = 0.005, size = 70, normalized size = 1.3

$$\frac{Bb^3x^4}{4} + \frac{Ab^3x^3}{3} + Bx^3ab^2 + \frac{3\,aAb^2x^2}{2} + \frac{3\,Bx^2a^2b}{2} + 3\,a^2Abx + a^3Bx + a^3A\ln(x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3*(B*x+A)/x,x)
```

```
[Out] 1/4*B*b^3*x^4+1/3*A*b^3*x^3+B*x^3*a*b^2+3/2*a*A*b^2*x^2+3/2*B*x^2
*a^2*b+3*a^2*A*b*x+a^3*B*x+a^3*A*ln(x)
```

Maxima [A] time = 1.33228, size = 92, normalized size = 1.7

$$\frac{1}{4}Bb^3x^4 + Aa^3\log(x) + \frac{1}{3}\left(3Bab^2 + Ab^3\right)x^3 + \frac{3}{2}\left(Ba^2b + Aab^2\right)x^2 + \left(Ba^3 + 3Aa^2b\right)x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/x,x, algorithm="maxima")
```

```
[Out] 1/4*B*b^3*x^4 + A*a^3*log(x) + 1/3*(3*B*a*b^2 + A*b^3)*x^3 + 3/2*
(B*a^2*b + A*a*b^2)*x^2 + (B*a^3 + 3*A*a^2*b)*x
```

Fricas [A] time = 0.19886, size = 92, normalized size = 1.7

$$\frac{1}{4}Bb^3x^4 + Aa^3\log(x) + \frac{1}{3}\left(3Bab^2 + Ab^3\right)x^3 + \frac{3}{2}\left(Ba^2b + Aab^2\right)x^2 + \left(Ba^3 + 3Aa^2b\right)x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/x,x, algorithm="fricas")
```

```
[Out] 1/4*B*b^3*x^4 + A*a^3*log(x) + 1/3*(3*B*a*b^2 + A*b^3)*x^3 + 3/2*
(B*a^2*b + A*a*b^2)*x^2 + (B*a^3 + 3*A*a^2*b)*x
```

Sympy [A] time = 1.33524, size = 73, normalized size = 1.35

$$Aa^3\log(x) + \frac{Bb^3x^4}{4} + x^3\left(\frac{Ab^3}{3} + Bab^2\right) + x^2\left(\frac{3Aab^2}{2} + \frac{3Ba^2b}{2}\right) + x\left(3Aa^2b + Ba^3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**3*(B*x+A)/x,x)
```

```
[Out] A*a**3*log(x) + B*b**3*x**4/4 + x**3*(A*b**3/3 + B*a*b**2) + x**2
*(3*A*a*b**2/2 + 3*B*a**2*b/2) + x*(3*A*a**2*b + B*a**3)
```

GIAC/XCAS [A] time = 0.262322, size = 95, normalized size = 1.76

$$\frac{1}{4}Bb^3x^4 + Bab^2x^3 + \frac{1}{3}Ab^3x^3 + \frac{3}{2}Ba^2bx^2 + \frac{3}{2}Aab^2x^2 + Ba^3x + 3Aa^2bx + Aa^3\ln(|x|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/x,x, algorithm="giac")
```

```
[Out] 1/4*B*b^3*x^4 + B*a*b^2*x^3 + 1/3*A*b^3*x^3 + 3/2*B*a^2*b*x^2 + 3
/2*A*a*b^2*x^2 + B*a^3*x + 3*A*a^2*b*x + A*a^3*ln(abs(x))
```

3.79 $\int \frac{(a+bx)^3(A+Bx)}{x^2}\,dx$

Optimal. Leaf size=65

$$-\frac{a^3A}{x}+a^2\log(x)(aB+3Ab)+\frac{1}{2}b^2x^2(3aB+Ab)+3abx(aB+Ab)+\frac{1}{3}b^3Bx^3$$

```
[Out] -((a^3*A)/x) + 3*a*b*(A*b + a*B)*x + (b^2*(A*b + 3*a*B)*x^2)/2 +
(b^3*B*x^3)/3 + a^2*(3*A*b + a*B)*Log[x]
```

Rubi [A] time = 0.104044, antiderivative size = 65, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{a^3A}{x}+a^2\log(x)(aB+3Ab)+\frac{1}{2}b^2x^2(3aB+Ab)+3abx(aB+Ab)+\frac{1}{3}b^3Bx^3$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^3*(A + B*x))/x^2,x]
```

```
[Out] -((a^3*A)/x) + 3*a*b*(A*b + a*B)*x + (b^2*(A*b + 3*a*B)*x^2)/2 +
(b^3*B*x^3)/3 + a^2*(3*A*b + a*B)*Log[x]
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{Aa^3}{x}+\frac{Bb^3x^3}{3}+a^2\left(3Ab+Ba\right)\log\left(x\right)+3abx\left(Ab+Ba\right)+b^2\left(Ab+3Ba\right)\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**3*(B*x+A)/x**2,x)
```

```
[Out] -A*a**3/x + B*b**3*x**3/3 + a**2*(3*A*b + B*a)*log(x) + 3*a*b*x*(
A*b + B*a) + b**2*(A*b + 3*B*a)*Integral(x, x)
```

Mathematica [A] time = 0.042144, size = 67, normalized size = 1.03

$$-\frac{a^3A}{x}+\log(x)\left(a^3B+3a^2Ab\right)+\frac{1}{2}b^2x^2(3aB+Ab)+3abx(aB+Ab)+\frac{1}{3}b^3Bx^3$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^3*(A + B*x))/x^2,x]
```

```
[Out] -((a^3*A)/x) + 3*a*b*(A*b + a*B)*x + (b^2*(A*b + 3*a*B)*x^2)/2 +
(b^3*B*x^3)/3 + (3*a^2*A*b + a^3*B)*Log[x]
```

Maple [A] time = 0.008, size = 71, normalized size = 1.1

$$\frac{b^3Bx^3}{3}+\frac{Ax^2b^3}{2}+\frac{3\,Bx^2ab^2}{2}+3\,Axab^2+3\,Bxa^2b+3\,A\ln\left(x\right)a^2b+B\ln\left(x\right)a^3-\frac{Aa^3}{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3*(B*x+A)/x^2,x)
```

```
[Out] 1/3*b^3*B*x^3+1/2*A*x^2*b^3+3/2*B*x^2*a*b^2+3*A*x*a*b^2+3*B*x*a^2
*b+3*A*ln(x)*a^2*b+B*ln(x)*a^3-a^3*A/x
```

Maxima [A] time = 1.34158, size = 93, normalized size = 1.43

$$\frac{1}{3}\,Bb^3x^3 - \frac{Aa^3}{x} + \frac{1}{2}\left(3\,Bab^2 + Ab^3\right)x^2 + 3\left(Ba^2b + Aab^2\right)x + \left(Ba^3 + 3\,Aa^2b\right)\log\left(x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/x^2,x, algorithm="maxima")
```

```
[Out] 1/3*B*b^3*x^3 - A*a^3/x + 1/2*(3*B*a*b^2 + A*b^3)*x^2 + 3*(B*a^2*
b + A*a*b^2)*x + (B*a^3 + 3*A*a^2*b)*log(x)
```

Fricas [A] time = 0.201134, size = 101, normalized size = 1.55

$$\frac{2\,Bb^3x^4 - 6\,Aa^3 + 3\left(3\,Bab^2 + Ab^3\right)x^3 + 18\left(Ba^2b + Aab^2\right)x^2 + 6\left(Ba^3 + 3\,Aa^2b\right)x\log\left(x\right)}{6\,x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/x^2,x, algorithm="fricas")
```

```
[Out] 1/6*(2*B*b^3*x^4 - 6*A*a^3 + 3*(3*B*a*b^2 + A*b^3)*x^3 + 18*(B*a^
2*b + A*a*b^2)*x^2 + 6*(B*a^3 + 3*A*a^2*b)*x*log(x))/x
```

Sympy [A] time = 1.58298, size = 70, normalized size = 1.08

$$-\frac{Aa^3}{x} + \frac{Bb^3x^3}{3} + a^2\left(3Ab + Ba\right)\log\left(x\right) + x^2\left(\frac{Ab^3}{2} + \frac{3Bab^2}{2}\right) + x\left(3Aab^2 + 3Ba^2b\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**3*(B*x+A)/x**2,x)
```

```
[Out] -A*a**3/x + B*b**3*x**3/3 + a**2*(3*A*b + B*a)*log(x) + x**2*(A*b
**3/2 + 3*B*a*b**2/2) + x*(3*A*a*b**2 + 3*B*a**2*b)
```

GIAC/XCAS [A] time = 0.28016, size = 96, normalized size = 1.48

$$\frac{1}{3}\,Bb^3x^3 + \frac{3}{2}\,Bab^2x^2 + \frac{1}{2}\,Ab^3x^2 + 3\,Ba^2bx + 3\,Aab^2x - \frac{Aa^3}{x} + \left(Ba^3 + 3\,Aa^2b\right)\ln\left(|x|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/x^2,x, algorithm="giac")
```

```
[Out] 1/3*B*b^3*x^3 + 3/2*B*a*b^2*x^2 + 1/2*A*b^3*x^2 + 3*B*a^2*b*x + 3
*A*a*b^2*x - A*a^3/x + (B*a^3 + 3*A*a^2*b)*ln(abs(x))
```

3.80 $\int \frac{(a+bx)^3(A+Bx)}{x^3}\,dx$

Optimal. Leaf size=65

$$-\frac{a^3A}{2x^2}-\frac{a^2(aB+3Ab)}{x}+b^2x(3aB+Ab)+3ab\log(x)(aB+Ab)+\frac{1}{2}b^3Bx^2$$

```
[Out] -(a^3*A)/(2*x^2) - (a^2*(3*A*b + a*B))/x + b^2*(A*b + 3*a*B)*x +
(b^3*B*x^2)/2 + 3*a*b*(A*b + a*B)*Log[x]
```

Rubi [A] time = 0.11127, antiderivative size = 65, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{a^3A}{2x^2}-\frac{a^2(aB+3Ab)}{x}+b^2x(3aB+Ab)+3ab\log(x)(aB+Ab)+\frac{1}{2}b^3Bx^2$$

Antiderivative was successfully verified.

```
[In] Int[((a + b*x)^3*(A + B*x))/x^3,x]
```

```
[Out] -(a^3*A)/(2*x^2) - (a^2*(3*A*b + a*B))/x + b^2*(A*b + 3*a*B)*x +
(b^3*B*x^2)/2 + 3*a*b*(A*b + a*B)*Log[x]
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{Aa^3}{2x^2}+Bb^3\int x\,dx-\frac{a^2\left(3Ab+Ba\right)}{x}+3ab\left(Ab+Ba\right)\log\left(x\right)+\frac{b^2\left(Ab+3Ba\right)\int A\,dx}{A}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)**3*(B*x+A)/x**3,x)
```

```
[Out] -A*a**3/(2*x**2) + B*b**3*Integral(x, x) - a**2*(3*A*b + B*a)/x +
 3*a*b*(A*b + B*a)*log(x) + b**2*(A*b + 3*B*a)*Integral(A, x)/A
```

Mathematica [A] time = 0.043502, size = 62, normalized size = 0.95

$$\frac{1}{2}\left(-\frac{a^3(A+2Bx)}{x^2}-\frac{6a^2Ab}{x}+6ab\log(x)(aB+Ab)+6ab^2Bx+b^3x(2A+Bx)\right)$$

Antiderivative was successfully verified.

```
[In] Integrate[((a + b*x)^3*(A + B*x))/x^3,x]
```

```
[Out] ((-6*a^2*A*b)/x + 6*a*b^2*B*x + b^3*x*(2*A + B*x) - (a^3*(A + 2*B
*x))/x^2 + 6*a*b*(A*b + a*B)*Log[x])/2
```

Maple [A] time = 0.01, size = 71, normalized size = 1.1

$$\frac{b^3Bx^2}{2}+Axb^3+3\,Bxab^2+3\,A\ln\left(x\right)ab^2+3\,B\ln\left(x\right)a^2b-\frac{Aa^3}{2\,x^2}-3\,\frac{a^2bA}{x}-\frac{a^3B}{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3*(B*x+A)/x^3,x)
```

```
[Out] 1/2*b^3*B*x^2+A*x*b^3+3*B*x*a*b^2+3*A*ln(x)*a*b^2+3*B*ln(x)*a^2*b
-1/2*a^3*A/x^2-3*a^2/x*A*b-a^3/x*B
```

Maxima [A] time = 1.35414, size = 93, normalized size = 1.43

$$\frac{1}{2}Bb^3x^2 + \left(3Bab^2 + Ab^3\right)x + 3\left(Ba^2b + Aab^2\right)\log(x) - \frac{Aa^3 + 2\left(Ba^3 + 3Aa^2b\right)x}{2x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/x^3,x, algorithm="maxima")
```

```
[Out] 1/2*B*b^3*x^2 + (3*B*a*b^2 + A*b^3)*x + 3*(B*a^2*b + A*a*b^2)*log
(x) - 1/2*(A*a^3 + 2*(B*a^3 + 3*A*a^2*b)*x)/x^2
```

Fricas [A] time = 0.204833, size = 100, normalized size = 1.54

$$\frac{Bb^3x^4 - Aa^3 + 2\left(3Bab^2 + Ab^3\right)x^3 + 6\left(Ba^2b + Aab^2\right)x^2\log(x) - 2\left(Ba^3 + 3Aa^2b\right)x}{2x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/x^3,x, algorithm="fricas")
```

```
[Out] 1/2*(B*b^3*x^4 - A*a^3 + 2*(3*B*a*b^2 + A*b^3)*x^3 + 6*(B*a^2*b +
 A*a*b^2)*x^2*log(x) - 2*(B*a^3 + 3*A*a^2*b)*x)/x^2
```

Sympy [A] time = 2.14464, size = 66, normalized size = 1.02

$$\frac{Bb^3x^2}{2} + 3ab\left(Ab + Ba\right)\log(x) + x\left(Ab^3 + 3Bab^2\right) - \frac{Aa^3 + x\left(6Aa^2b + 2Ba^3\right)}{2x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**3*(B*x+A)/x**3,x)
```

```
[Out] B*b**3*x**2/2 + 3*a*b*(A*b + B*a)*log(x) + x*(A*b**3 + 3*B*a*b**2
) - (A*a**3 + x*(6*A*a**2*b + 2*B*a**3))/(2*x**2)
```

GIAC/XCAS [A] time = 0.235512, size = 93, normalized size = 1.43

$$\frac{1}{2}Bb^3x^2 + 3Bab^2x + Ab^3x + 3\left(Ba^2b + Aab^2\right)\ln(|x|) - \frac{Aa^3 + 2\left(Ba^3 + 3Aa^2b\right)x}{2x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/x^3,x, algorithm="giac")
```

```
[Out] 1/2*B*b^3*x^2 + 3*B*a*b^2*x + A*b^3*x + 3*(B*a^2*b + A*a*b^2)*ln(
abs(x)) - 1/2*(A*a^3 + 2*(B*a^3 + 3*A*a^2*b)*x)/x^2
```

3.81 $\int \frac{(a+bx)^3(A+Bx)}{x^4}\,dx$

Optimal. Leaf size=64

$$-\frac{a^3A}{3x^3}-\frac{a^2(aB+3Ab)}{2x^2}+b^2\log(x)(3aB+Ab)-\frac{3ab(aB+Ab)}{x}+b^3Bx$$

```
[Out] -(a^3*A)/(3*x^3) - (a^2*(3*A*b + a*B))/(2*x^2) - (3*a*b*(A*b + a*
B))/x + b^3*B*x + b^2*(A*b + 3*a*B)*Log[x]
```

Rubi [A] time = 0.101765, antiderivative size = 64, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{a^3A}{3x^3}-\frac{a^2(aB+3Ab)}{2x^2}+b^2\log(x)(3aB+Ab)-\frac{3ab(aB+Ab)}{x}+b^3Bx$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^3*(A + B*x))/x^4,x]
```

```
[Out] -(a^3*A)/(3*x^3) - (a^2*(3*A*b + a*B))/(2*x^2) - (3*a*b*(A*b + a*
B))/x + b^3*B*x + b^2*(A*b + 3*a*B)*Log[x]
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{Aa^3}{3x^3}-\frac{a^2\left(3Ab+Ba\right)}{2x^2}-\frac{3ab\left(Ab+Ba\right)}{x}+b^3\int B\,dx+b^2\left(Ab+3Ba\right)\log\left(x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**3*(B*x+A)/x**4,x)
```

```
[Out] -A*a**3/(3*x**3) - a**2*(3*A*b + B*a)/(2*x**2) - 3*a*b*(A*b + B*a
)/x + b**3*Integral(B, x) + b**2*(A*b + 3*B*a)*log(x)
```

Mathematica [A] time = 0.060854, size = 67, normalized size = 1.05

$$b^2\log(x)(3aB+Ab)-\frac{a^3(2A+3Bx)+9a^2bx(A+2Bx)+18aAb^2x^2-6b^3Bx^4}{6x^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^3*(A + B*x))/x^4,x]
```

```
[Out] -(18*a*A*b^2*x^2 - 6*b^3*B*x^4 + 9*a^2*b*x*(A + 2*B*x) + a^3*(2*A
 + 3*B*x))/(6*x^3) + b^2*(A*b + 3*a*B)*Log[x]
```

Maple [A] time = 0.01, size = 72, normalized size = 1.1

$$b^3Bx+A\ln\left(x\right)b^3+3\,B\ln\left(x\right)ab^2-\frac{3\,a^2bA}{2\,x^2}-\frac{a^3B}{2\,x^2}-3\,\frac{ab^2A}{x}-3\,\frac{a^2bB}{x}-\frac{Aa^3}{3\,x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3*(B*x+A)/x^4,x)
```

```
[Out] b^3*B*x+A*ln(x)*b^3+3*B*ln(x)*a*b^2-3/2*a^2/x^2*A*b-1/2*a^3/x^2*B
-3*a*b^2/x*A-3*a^2*b/x*B-1/3*a^3*A/x^3
```

Maxima [A] time = 1.34797, size = 93, normalized size = 1.45

$$Bb^3x + \left(3\,Bab^2 + Ab^3\right)\log\left(x\right) - \frac{2\,Aa^3 + 18\,\left(Ba^2b + Aab^2\right)x^2 + 3\,\left(Ba^3 + 3\,Aa^2b\right)x}{6\,x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/x^4,x, algorithm="maxima")
```

```
[Out] B*b^3*x + (3*B*a*b^2 + A*b^3)*log(x) - 1/6*(2*A*a^3 + 18*(B*a^2*b
 + A*a*b^2)*x^2 + 3*(B*a^3 + 3*A*a^2*b)*x)/x^3
```

Fricas [A] time = 0.206592, size = 101, normalized size = 1.58

$$\frac{6\,Bb^3x^4 + 6\,\left(3\,Bab^2 + Ab^3\right)x^3\log\left(x\right) - 2\,Aa^3 - 18\,\left(Ba^2b + Aab^2\right)x^2 - 3\,\left(Ba^3 + 3\,Aa^2b\right)x}{6\,x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/x^4,x, algorithm="fricas")
```

```
[Out] 1/6*(6*B*b^3*x^4 + 6*(3*B*a*b^2 + A*b^3)*x^3*log(x) - 2*A*a^3 - 1
8*(B*a^2*b + A*a*b^2)*x^2 - 3*(B*a^3 + 3*A*a^2*b)*x)/x^3
```

Sympy [A] time = 3.39135, size = 70, normalized size = 1.09

$$Bb^3x + b^2\left(Ab + 3Ba\right)\log\left(x\right) - \frac{2Aa^3 + x^2\left(18Aab^2 + 18Ba^2b\right) + x\left(9Aa^2b + 3Ba^3\right)}{6x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**3*(B*x+A)/x**4,x)
```

```
[Out] B*b**3*x + b**2*(A*b + 3*B*a)*log(x) - (2*A*a**3 + x**2*(18*A*a*b
**2 + 18*B*a**2*b) + x*(9*A*a**2*b + 3*B*a**3))/(6*x**3)
```

GIAC/XCAS [A] time = 0.293465, size = 95, normalized size = 1.48

$$Bb^3x + \left(3\,Bab^2 + Ab^3\right)\ln\left(|x|\right) - \frac{2\,Aa^3 + 18\,\left(Ba^2b + Aab^2\right)x^2 + 3\,\left(Ba^3 + 3\,Aa^2b\right)x}{6\,x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/x^4,x, algorithm="giac")
```

```
[Out] B*b^3*x + (3*B*a*b^2 + A*b^3)*ln(abs(x)) - 1/6*(2*A*a^3 + 18*(B*a
^2*b + A*a*b^2)*x^2 + 3*(B*a^3 + 3*A*a^2*b)*x)/x^3
```

3.82 $\int \frac{(a+bx)^3(A+Bx)}{x^5} dx$

Optimal. Leaf size=59

$$-\frac{a^3B}{3x^3}-\frac{3a^2bB}{2x^2}-\frac{A(a+bx)^4}{4ax^4}-\frac{3ab^2B}{x}+b^3B\log(x)$$

```
[Out] -(a^3*B)/(3*x^3) - (3*a^2*b*B)/(2*x^2) - (3*a*b^2*B)/x - (A*(a +
b*x)^4)/(4*a*x^4) + b^3*B*Log[x]
```

Rubi [A] time = 0.0683416, antiderivative size = 59, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 2, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$-\frac{a^3B}{3x^3}-\frac{3a^2bB}{2x^2}-\frac{A(a+bx)^4}{4ax^4}-\frac{3ab^2B}{x}+b^3B\log(x)$$

Antiderivative was successfully verified.

```
[In] Int[((a + b*x)^3*(A + B*x))/x^5,x]
```

```
[Out] -(a^3*B)/(3*x^3) - (3*a^2*b*B)/(2*x^2) - (3*a*b^2*B)/x - (A*(a +
b*x)^4)/(4*a*x^4) + b^3*B*Log[x]
```

Rubi in Sympy [A] time = 14.4514, size = 56, normalized size = 0.95

$$-\frac{A\left(a+bx\right)^4}{4ax^4}-\frac{Ba^3}{3x^3}-\frac{3Ba^2b}{2x^2}-\frac{3Bab^2}{x}+Bb^3\log\left(x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)**3*(B*x+A)/x**5,x)
```

```
[Out] -A*(a + b*x)**4/(4*a*x**4) - B*a**3/(3*x**3) - 3*B*a**2*b/(2*x**2
) - 3*B*a*b**2/x + B*b**3*log(x)
```

Mathematica [A] time = 0.0413322, size = 70, normalized size = 1.19

$$-\frac{a^3(3A+4Bx)+6a^2bx(2A+3Bx)+18ab^2x^2(A+2Bx)+12Ab^3x^3-12b^3Bx^4\log(x)}{12x^4}$$

Antiderivative was successfully verified.

```
[In] Integrate[((a + b*x)^3*(A + B*x))/x^5,x]
```

```
[Out] -(12*A*b^3*x^3 + 18*a*b^2*x^2*(A + 2*B*x) + 6*a^2*b*x*(2*A + 3*B*
x) + a^3*(3*A + 4*B*x) - 12*b^3*B*x^4*Log[x])/(12*x^4)
```

Maple [A] time = 0.01, size = 76, normalized size = 1.3

$$b^3B\ln(x)-\frac{3\,ab^2A}{2\,x^2}-\frac{3\,a^2bB}{2\,x^2}-\frac{b^3A}{x}-3\,\frac{ab^2B}{x}-\frac{a^2bA}{x^3}-\frac{a^3B}{3\,x^3}-\frac{Aa^3}{4\,x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3*(B*x+A)/x^5,x)
```

```
[Out] b^3*B*ln(x)-3/2*a*b^2/x^2*A-3/2*a^2*b*B/x^2-b^3/x*A-3*a*b^2*B/x-a
^2/x^3*A*b-1/3*a^3*B/x^3-1/4*A*a^3/x^4
```

Maxima [A] time = 1.34838, size = 97, normalized size = 1.64

$$Bb^3\log(x) - \frac{3\,Aa^3 + 12\,(3\,Bab^2 + Ab^3)\,x^3 + 18\,(Ba^2b + Aab^2)\,x^2 + 4\,(Ba^3 + 3\,Aa^2b)\,x}{12\,x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/x^5,x, algorithm="maxima")
```

```
[Out] B*b^3*log(x) - 1/12*(3*A*a^3 + 12*(3*B*a*b^2 + A*b^3)*x^3 + 18*(B
*a^2*b + A*a*b^2)*x^2 + 4*(B*a^3 + 3*A*a^2*b)*x)/x^4
```

Fricas [A] time = 0.206265, size = 101, normalized size = 1.71

$$\frac{12\,Bb^3x^4\log(x) - 3\,Aa^3 - 12\,(3\,Bab^2 + Ab^3)\,x^3 - 18\,(Ba^2b + Aab^2)\,x^2 - 4\,(Ba^3 + 3\,Aa^2b)\,x}{12\,x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/x^5,x, algorithm="fricas")
```

```
[Out] 1/12*(12*B*b^3*x^4*log(x) - 3*A*a^3 - 12*(3*B*a*b^2 + A*b^3)*x^3
- 18*(B*a^2*b + A*a*b^2)*x^2 - 4*(B*a^3 + 3*A*a^2*b)*x)/x^4
```

Sympy [A] time = 4.63915, size = 75, normalized size = 1.27

$$Bb^3\log(x) - \frac{3Aa^3 + x^3\left(12Ab^3 + 36Bab^2\right) + x^2\left(18Aab^2 + 18Ba^2b\right) + x\left(12Aa^2b + 4Ba^3\right)}{12x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**3*(B*x+A)/x**5,x)
```

```
[Out] B*b**3*log(x) - (3*A*a**3 + x**3*(12*A*b**3 + 36*B*a*b**2) + x**2
*(18*A*a*b**2 + 18*B*a**2*b) + x*(12*A*a**2*b + 4*B*a**3))/(12*x*
*4)
```

GIAC/XCAS [A] time = 0.282141, size = 99, normalized size = 1.68

$$Bb^3\ln(|x|) - \frac{3\,Aa^3 + 12\,(3\,Bab^2 + Ab^3)\,x^3 + 18\,(Ba^2b + Aab^2)\,x^2 + 4\,(Ba^3 + 3\,Aa^2b)\,x}{12\,x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/x^5,x, algorithm="giac")
```

```
[Out] B*b^3*ln(abs(x)) - 1/12*(3*A*a^3 + 12*(3*B*a*b^2 + A*b^3)*x^3 + 1
8*(B*a^2*b + A*a*b^2)*x^2 + 4*(B*a^3 + 3*A*a^2*b)*x)/x^4
```

3.83 $\int \frac{(a+bx)^3(A+Bx)}{x^6}\,dx$

Optimal. Leaf size=44

$$\frac{(a+bx)^4(Ab-5aB)}{20a^2x^4}-\frac{A(a+bx)^4}{5ax^5}$$

```
[Out] -(A*(a + b*x)^4)/(5*a*x^5) + ((A*b - 5*a*B)*(a + b*x)^4)/(20*a^2*
x^4)
```

Rubi [A] time = 0.0553299, antiderivative size = 44, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$\frac{(a+bx)^4(Ab-5aB)}{20a^2x^4}-\frac{A(a+bx)^4}{5ax^5}$$

Antiderivative was successfully verified.

```
[In] Int[((a + b*x)^3*(A + B*x))/x^6,x]
```

```
[Out] -(A*(a + b*x)^4)/(5*a*x^5) + ((A*b - 5*a*B)*(a + b*x)^4)/(20*a^2*
x^4)
```

Rubi in Sympy [A] time = 21.342, size = 65, normalized size = 1.48

$$-\frac{Aa^3}{5x^5}-\frac{Bb^3}{x}-\frac{a^2\left(3Ab+Ba\right)}{4x^4}-\frac{ab\left(Ab+Ba\right)}{x^3}-\frac{b^2\left(Ab+3Ba\right)}{2x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)**3*(B*x+A)/x**6,x)
```

```
[Out] -A*a**3/(5*x**5) - B*b**3/x - a**2*(3*A*b + B*a)/(4*x**4) - a*b*(
A*b + B*a)/x**3 - b**2*(A*b + 3*B*a)/(2*x**2)
```

Mathematica [A] time = 0.032885, size = 66, normalized size = 1.5

$$-\frac{a^3(4A+5Bx)+5a^2bx(3A+4Bx)+10ab^2x^2(2A+3Bx)+10b^3x^3(A+2Bx)}{20x^5}$$

Antiderivative was successfully verified.

```
[In] Integrate[((a + b*x)^3*(A + B*x))/x^6,x]
```

```
[Out] -(10*b^3*x^3*(A + 2*B*x) + 10*a*b^2*x^2*(2*A + 3*B*x) + 5*a^2*b*x
*(3*A + 4*B*x) + a^3*(4*A + 5*B*x))/(20*x^5)
```

Maple [A] time = 0.007, size = 66, normalized size = 1.5

$$-\frac{b^2\left(Ab+3\,Ba\right)}{2\,x^2}-\frac{Aa^3}{5\,x^5}-\frac{Bb^3}{x}-\frac{ab\left(Ab+Ba\right)}{x^3}-\frac{a^2\left(3\,Ab+Ba\right)}{4\,x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((b*x+a)^3*(B*x+A)/x^6,x)
```

```
[Out] -1/2*b^2*(A*b+3*B*a)/x^2-1/5*A*a^3/x^5-B*b^3/x-a*b*(A*b+B*a)/x^3-
1/4*a^2*(3*A*b+B*a)/x^4
```

Maxima [A] time = 1.35107, size = 99, normalized size = 2.25

$$-\frac{20\,Bb^3x^4 + 4\,Aa^3 + 10\,\left(3\,Bab^2 + Ab^3\right)x^3 + 20\,\left(Ba^2b + Aab^2\right)x^2 + 5\,\left(Ba^3 + 3\,Aa^2b\right)x}{20\,x^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/x^6,x, algorithm="maxima")
```

```
[Out] -1/20*(20*B*b^3*x^4 + 4*A*a^3 + 10*(3*B*a*b^2 + A*b^3)*x^3 + 20*(
B*a^2*b + A*a*b^2)*x^2 + 5*(B*a^3 + 3*A*a^2*b)*x)/x^5
```

Fricas [A] time = 0.197189, size = 99, normalized size = 2.25

$$-\frac{20\,Bb^3x^4 + 4\,Aa^3 + 10\,\left(3\,Bab^2 + Ab^3\right)x^3 + 20\,\left(Ba^2b + Aab^2\right)x^2 + 5\,\left(Ba^3 + 3\,Aa^2b\right)x}{20\,x^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/x^6,x, algorithm="fricas")
```

```
[Out] -1/20*(20*B*b^3*x^4 + 4*A*a^3 + 10*(3*B*a*b^2 + A*b^3)*x^3 + 20*(
B*a^2*b + A*a*b^2)*x^2 + 5*(B*a^3 + 3*A*a^2*b)*x)/x^5
```

Sympy [A] time = 5.71446, size = 78, normalized size = 1.77

$$-\frac{4Aa^3 + 20Bb^3x^4 + x^3\left(10Ab^3 + 30Bab^2\right) + x^2\left(20Aab^2 + 20Ba^2b\right) + x\left(15Aa^2b + 5Ba^3\right)}{20x^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**3*(B*x+A)/x**6,x)
```

```
[Out] -(4*A*a**3 + 20*B*b**3*x**4 + x**3*(10*A*b**3 + 30*B*a*b**2) + x*
*2*(20*A*a*b**2 + 20*B*a**2*b) + x*(15*A*a**2*b + 5*B*a**3))/(20*
x**5)
```

GIAC/XCAS [A] time = 0.414367, size = 101, normalized size = 2.3

$$-\frac{20\,Bb^3x^4 + 30\,Bab^2x^3 + 10\,Ab^3x^3 + 20\,Ba^2bx^2 + 20\,Aab^2x^2 + 5\,Ba^3x + 15\,Aa^2bx + 4\,Aa^3}{20\,x^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/x^6,x, algorithm="giac")
```

```
[Out] -1/20*(20*B*b^3*x^4 + 30*B*a*b^2*x^3 + 10*A*b^3*x^3 + 20*B*a^2*b*
x^2 + 20*A*a*b^2*x^2 + 5*B*a^3*x + 15*A*a^2*b*x + 4*A*a^3)/x^5
```

3.84 $\int \frac{(a+bx)^3(A+Bx)}{x^7}\,dx$

Optimal. Leaf size=75

$$-\frac{a^3A}{6x^6}-\frac{a^2(aB+3Ab)}{5x^5}-\frac{b^2(3aB+Ab)}{3x^3}-\frac{3ab(aB+Ab)}{4x^4}-\frac{b^3B}{2x^2}$$

```
[Out] -(a^3*A)/(6*x^6) - (a^2*(3*A*b + a*B))/(5*x^5) - (3*a*b*(A*b + a*
B))/(4*x^4) - (b^2*(A*b + 3*a*B))/(3*x^3) - (b^3*B)/(2*x^2)
```

Rubi [A] time = 0.104703, antiderivative size = 75, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{a^3A}{6x^6}-\frac{a^2(aB+3Ab)}{5x^5}-\frac{b^2(3aB+Ab)}{3x^3}-\frac{3ab(aB+Ab)}{4x^4}-\frac{b^3B}{2x^2}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^3*(A + B*x))/x^7,x]
```

```
[Out] -(a^3*A)/(6*x^6) - (a^2*(3*A*b + a*B))/(5*x^5) - (3*a*b*(A*b + a*
B))/(4*x^4) - (b^2*(A*b + 3*a*B))/(3*x^3) - (b^3*B)/(2*x^2)
```

Rubi in Sympy [A] time = 21.875, size = 71, normalized size = 0.95

$$-\frac{Aa^3}{6x^6}-\frac{Bb^3}{2x^2}-\frac{a^2\left(3Ab+Ba\right)}{5x^5}-\frac{3ab\left(Ab+Ba\right)}{4x^4}-\frac{b^2\left(Ab+3Ba\right)}{3x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**3*(B*x+A)/x**7,x)
```

```
[Out] -A*a**3/(6*x**6) - B*b**3/(2*x**2) - a**2*(3*A*b + B*a)/(5*x**5)
- 3*a*b*(A*b + B*a)/(4*x**4) - b**2*(A*b + 3*B*a)/(3*x**3)
```

Mathematica [A] time = 0.0315647, size = 69, normalized size = 0.92

$$-\frac{2a^3(5A+6Bx)+9a^2bx(4A+5Bx)+15ab^2x^2(3A+4Bx)+10b^3x^3(2A+3Bx)}{60x^6}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^3*(A + B*x))/x^7,x]
```

```
[Out] -(10*b^3*x^3*(2*A + 3*B*x) + 15*a*b^2*x^2*(3*A + 4*B*x) + 9*a^2*b
*x*(4*A + 5*B*x) + 2*a^3*(5*A + 6*B*x))/(60*x^6)
```

Maple [A] time = 0.009, size = 66, normalized size = 0.9

$$-\frac{Aa^3}{6\,x^6}-\frac{a^2\left(3\,Ab+Ba\right)}{5\,x^5}-\frac{3\,ab\left(Ab+Ba\right)}{4\,x^4}-\frac{b^2\left(Ab+3\,Ba\right)}{3\,x^3}-\frac{Bb^3}{2\,x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3*(B*x+A)/x^7,x)
```

```
[Out] -1/6*a^3*A/x^6-1/5*a^2*(3*A*b+B*a)/x^5-3/4*a*b*(A*b+B*a)/x^4-1/3*
b^2*(A*b+3*B*a)/x^3-1/2*b^3*B/x^2
```

Maxima [A] time = 1.34828, size = 99, normalized size = 1.32

$$-\frac{30\,Bb^3x^4 + 10\,Aa^3 + 20\,\left(3\,Bab^2 + Ab^3\right)x^3 + 45\,\left(Ba^2b + Aab^2\right)x^2 + 12\,\left(Ba^3 + 3\,Aa^2b\right)x}{60\,x^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/x^7,x, algorithm="maxima")
```

```
[Out] -1/60*(30*B*b^3*x^4 + 10*A*a^3 + 20*(3*B*a*b^2 + A*b^3)*x^3 + 45*
(B*a^2*b + A*a*b^2)*x^2 + 12*(B*a^3 + 3*A*a^2*b)*x)/x^6
```

Fricas [A] time = 0.200175, size = 99, normalized size = 1.32

$$-\frac{30\,Bb^3x^4 + 10\,Aa^3 + 20\,\left(3\,Bab^2 + Ab^3\right)x^3 + 45\,\left(Ba^2b + Aab^2\right)x^2 + 12\,\left(Ba^3 + 3\,Aa^2b\right)x}{60\,x^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/x^7,x, algorithm="fricas")
```

```
[Out] -1/60*(30*B*b^3*x^4 + 10*A*a^3 + 20*(3*B*a*b^2 + A*b^3)*x^3 + 45*
(B*a^2*b + A*a*b^2)*x^2 + 12*(B*a^3 + 3*A*a^2*b)*x)/x^6
```

Sympy [A] time = 7.48343, size = 78, normalized size = 1.04

$$-\frac{10Aa^3 + 30Bb^3x^4 + x^3\left(20Ab^3 + 60Bab^2\right) + x^2\left(45Aab^2 + 45Ba^2b\right) + x\left(36Aa^2b + 12Ba^3\right)}{60x^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**3*(B*x+A)/x**7,x)
```

```
[Out] -(10*A*a**3 + 30*B*b**3*x**4 + x**3*(20*A*b**3 + 60*B*a*b**2) + x
**2*(45*A*a*b**2 + 45*B*a**2*b) + x*(36*A*a**2*b + 12*B*a**3))/(6
0*x**6)
```

GIAC/XCAS [A] time = 0.295586, size = 101, normalized size = 1.35

$$-\frac{30\,Bb^3x^4 + 60\,Bab^2x^3 + 20\,Ab^3x^3 + 45\,Ba^2bx^2 + 45\,Aab^2x^2 + 12\,Ba^3x + 36\,Aa^2bx + 10\,Aa^3}{60\,x^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/x^7,x, algorithm="giac")
```

```
[Out] -1/60*(30*B*b^3*x^4 + 60*B*a*b^2*x^3 + 20*A*b^3*x^3 + 45*B*a^2*b*
x^2 + 45*A*a*b^2*x^2 + 12*B*a^3*x + 36*A*a^2*b*x + 10*A*a^3)/x^6
```

3.85 $\int \frac{(a+bx)^3(A+Bx)}{x^8}\,dx$

Optimal. Leaf size=75

$$-\frac{a^3A}{7x^7}-\frac{a^2(aB+3Ab)}{6x^6}-\frac{b^2(3aB+Ab)}{4x^4}-\frac{3ab(aB+Ab)}{5x^5}-\frac{b^3B}{3x^3}$$

```
[Out] -(a^3*A)/(7*x^7) - (a^2*(3*A*b + a*B))/(6*x^6) - (3*a*b*(A*b + a*
B))/(5*x^5) - (b^2*(A*b + 3*a*B))/(4*x^4) - (b^3*B)/(3*x^3)
```

Rubi [A] time = 0.0968201, antiderivative size = 75, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{a^3A}{7x^7}-\frac{a^2(aB+3Ab)}{6x^6}-\frac{b^2(3aB+Ab)}{4x^4}-\frac{3ab(aB+Ab)}{5x^5}-\frac{b^3B}{3x^3}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^3*(A + B*x))/x^8,x]
```

```
[Out] -(a^3*A)/(7*x^7) - (a^2*(3*A*b + a*B))/(6*x^6) - (3*a*b*(A*b + a*
B))/(5*x^5) - (b^2*(A*b + 3*a*B))/(4*x^4) - (b^3*B)/(3*x^3)
```

Rubi in Sympy [A] time = 21.5493, size = 71, normalized size = 0.95

$$-\frac{Aa^3}{7x^7}-\frac{Bb^3}{3x^3}-\frac{a^2\left(3Ab+Ba\right)}{6x^6}-\frac{3ab\left(Ab+Ba\right)}{5x^5}-\frac{b^2\left(Ab+3Ba\right)}{4x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**3*(B*x+A)/x**8,x)
```

```
[Out] -A*a**3/(7*x**7) - B*b**3/(3*x**3) - a**2*(3*A*b + B*a)/(6*x**6)
- 3*a*b*(A*b + B*a)/(5*x**5) - b**2*(A*b + 3*B*a)/(4*x**4)
```

Mathematica [A] time = 0.0325848, size = 69, normalized size = 0.92

$$-\frac{10a^3(6A+7Bx)+42a^2bx(5A+6Bx)+63ab^2x^2(4A+5Bx)+35b^3x^3(3A+4Bx)}{420x^7}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^3*(A + B*x))/x^8,x]
```

```
[Out] -(35*b^3*x^3*(3*A + 4*B*x) + 63*a*b^2*x^2*(4*A + 5*B*x) + 42*a^2*
b*x*(5*A + 6*B*x) + 10*a^3*(6*A + 7*B*x))/(420*x^7)
```

Maple [A] time = 0.009, size = 66, normalized size = 0.9

$$-\frac{Aa^3}{7\,x^7}-\frac{a^2\,(3\,Ab+Ba)}{6\,x^6}-\frac{3\,ab\,(Ab+Ba)}{5\,x^5}-\frac{b^2\,(Ab+3\,Ba)}{4\,x^4}-\frac{Bb^3}{3\,x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3*(B*x+A)/x^8,x)
```

```
[Out] -1/7*a^3*A/x^7-1/6*a^2*(3*A*b+B*a)/x^6-3/5*a*b*(A*b+B*a)/x^5-1/4*
b^2*(A*b+3*B*a)/x^4-1/3*b^3*B/x^3
```

Maxima [A] time = 1.35388, size = 99, normalized size = 1.32

$$-\frac{140\,Bb^3x^4+60\,Aa^3+105\,\left(3\,Bab^2+Ab^3\right)x^3+252\,\left(Ba^2b+Aab^2\right)x^2+70\,\left(Ba^3+3\,Aa^2b\right)x}{420\,x^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/x^8,x, algorithm="maxima")
```

```
[Out] -1/420*(140*B*b^3*x^4 + 60*A*a^3 + 105*(3*B*a*b^2 + A*b^3)*x^3 +
252*(B*a^2*b + A*a*b^2)*x^2 + 70*(B*a^3 + 3*A*a^2*b)*x)/x^7
```

Fricas [A] time = 0.197446, size = 99, normalized size = 1.32

$$-\frac{140\,Bb^3x^4+60\,Aa^3+105\,\left(3\,Bab^2+Ab^3\right)x^3+252\,\left(Ba^2b+Aab^2\right)x^2+70\,\left(Ba^3+3\,Aa^2b\right)x}{420\,x^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/x^8,x, algorithm="fricas")
```

```
[Out] -1/420*(140*B*b^3*x^4 + 60*A*a^3 + 105*(3*B*a*b^2 + A*b^3)*x^3 +
252*(B*a^2*b + A*a*b^2)*x^2 + 70*(B*a^3 + 3*A*a^2*b)*x)/x^7
```

Sympy [A] time = 8.85491, size = 78, normalized size = 1.04

$$-\frac{60Aa^3+140Bb^3x^4+x^3\left(105Ab^3+315Bab^2\right)+x^2\left(252Aab^2+252Ba^2b\right)+x\left(210Aa^2b+70Ba^3\right)}{420x^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**3*(B*x+A)/x**8,x)
```

```
[Out] -(60*A*a**3 + 140*B*b**3*x**4 + x**3*(105*A*b**3 + 315*B*a*b**2)
+ x**2*(252*A*a*b**2 + 252*B*a**2*b) + x*(210*A*a**2*b + 70*B*a**
3))/(420*x**7)
```

GIAC/XCAS [A] time = 0.245471, size = 101, normalized size = 1.35

$$-\frac{140\,Bb^3x^4+315\,Bab^2x^3+105\,Ab^3x^3+252\,Ba^2bx^2+252\,Aab^2x^2+70\,Ba^3x+210\,Aa^2bx+60\,Aa^3}{420\,x^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/x^8,x, algorithm="giac")
```

```
[Out] -1/420*(140*B*b^3*x^4 + 315*B*a*b^2*x^3 + 105*A*b^3*x^3 + 252*B*a
^2*b*x^2 + 252*A*a*b^2*x^2 + 70*B*a^3*x + 210*A*a^2*b*x + 60*A*a^
3)/x^7
```

3.86 $\int \frac{(a+bx)^3(A+Bx)}{x^9} dx$

Optimal. Leaf size=75

$$-\frac{a^3A}{8x^8}-\frac{a^2(aB+3Ab)}{7x^7}-\frac{b^2(3aB+Ab)}{5x^5}-\frac{ab(aB+Ab)}{2x^6}-\frac{b^3B}{4x^4}$$

```
[Out] -(a^3*A)/(8*x^8) - (a^2*(3*A*b + a*B))/(7*x^7) - (a*b*(A*b + a*B)
)/(2*x^6) - (b^2*(A*b + 3*a*B))/(5*x^5) - (b^3*B)/(4*x^4)
```

Rubi [A] time = 0.0971536, antiderivative size = 75, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{a^3A}{8x^8}-\frac{a^2(aB+3Ab)}{7x^7}-\frac{b^2(3aB+Ab)}{5x^5}-\frac{ab(aB+Ab)}{2x^6}-\frac{b^3B}{4x^4}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^3*(A + B*x))/x^9,x]
```

```
[Out] -(a^3*A)/(8*x^8) - (a^2*(3*A*b + a*B))/(7*x^7) - (a*b*(A*b + a*B)
)/(2*x^6) - (b^2*(A*b + 3*a*B))/(5*x^5) - (b^3*B)/(4*x^4)
```

Rubi in Sympy [A] time = 21.6976, size = 70, normalized size = 0.93

$$-\frac{Aa^3}{8x^8}-\frac{Bb^3}{4x^4}-\frac{a^2\left(3Ab+Ba\right)}{7x^7}-\frac{ab\left(Ab+Ba\right)}{2x^6}-\frac{b^2\left(Ab+3Ba\right)}{5x^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**3*(B*x+A)/x**9,x)
```

```
[Out] -A*a**3/(8*x**8) - B*b**3/(4*x**4) - a**2*(3*A*b + B*a)/(7*x**7)
- a*b*(A*b + B*a)/(2*x**6) - b**2*(A*b + 3*B*a)/(5*x**5)
```

Mathematica [A] time = 0.0314434, size = 69, normalized size = 0.92

$$-\frac{5a^3(7A+8Bx)+20a^2bx(6A+7Bx)+28ab^2x^2(5A+6Bx)+14b^3x^3(4A+5Bx)}{280x^8}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^3*(A + B*x))/x^9,x]
```

```
[Out] -(14*b^3*x^3*(4*A + 5*B*x) + 28*a*b^2*x^2*(5*A + 6*B*x) + 20*a^2*
b*x*(6*A + 7*B*x) + 5*a^3*(7*A + 8*B*x))/(280*x^8)
```

Maple [A] time = 0.009, size = 66, normalized size = 0.9

$$-\frac{Aa^3}{8\,x^8}-\frac{a^2\left(3\,Ab+Ba\right)}{7\,x^7}-\frac{ab\left(Ab+Ba\right)}{2\,x^6}-\frac{b^2\left(Ab+3\,Ba\right)}{5\,x^5}-\frac{Bb^3}{4\,x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3*(B*x+A)/x^9,x)
```

```
[Out] -1/8*a^3*A/x^8-1/7*a^2*(3*A*b+B*a)/x^7-1/2*a*b*(A*b+B*a)/x^6-1/5*
b^2*(A*b+3*B*a)/x^5-1/4*b^3*B/x^4
```

Maxima [A] time = 1.35862, size = 99, normalized size = 1.32

$$-\frac{70\,Bb^3x^4 + 35\,Aa^3 + 56\,\left(3\,Bab^2 + Ab^3\right)x^3 + 140\,\left(Ba^2b + Aab^2\right)x^2 + 40\,\left(Ba^3 + 3\,Aa^2b\right)x}{280\,x^8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/x^9,x, algorithm="maxima")
```

```
[Out] -1/280*(70*B*b^3*x^4 + 35*A*a^3 + 56*(3*B*a*b^2 + A*b^3)*x^3 + 14
0*(B*a^2*b + A*a*b^2)*x^2 + 40*(B*a^3 + 3*A*a^2*b)*x)/x^8
```

Fricas [A] time = 0.197916, size = 99, normalized size = 1.32

$$-\frac{70\,Bb^3x^4 + 35\,Aa^3 + 56\,\left(3\,Bab^2 + Ab^3\right)x^3 + 140\,\left(Ba^2b + Aab^2\right)x^2 + 40\,\left(Ba^3 + 3\,Aa^2b\right)x}{280\,x^8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/x^9,x, algorithm="fricas")
```

```
[Out] -1/280*(70*B*b^3*x^4 + 35*A*a^3 + 56*(3*B*a*b^2 + A*b^3)*x^3 + 14
0*(B*a^2*b + A*a*b^2)*x^2 + 40*(B*a^3 + 3*A*a^2*b)*x)/x^8
```

Sympy [A] time = 11.2094, size = 78, normalized size = 1.04

$$-\frac{35Aa^3 + 70Bb^3x^4 + x^3\left(56Ab^3 + 168Bab^2\right) + x^2\left(140Aab^2 + 140Ba^2b\right) + x\left(120Aa^2b + 40Ba^3\right)}{280x^8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**3*(B*x+A)/x**9,x)
```

```
[Out] -(35*A*a**3 + 70*B*b**3*x**4 + x**3*(56*A*b**3 + 168*B*a*b**2) +
x**2*(140*A*a*b**2 + 140*B*a**2*b) + x*(120*A*a**2*b + 40*B*a**3)
)/(280*x**8)
```

GIAC/XCAS [A] time = 0.340221, size = 101, normalized size = 1.35

$$-\frac{70\,Bb^3x^4 + 168\,Bab^2x^3 + 56\,Ab^3x^3 + 140\,Ba^2bx^2 + 140\,Aab^2x^2 + 40\,Ba^3x + 120\,Aa^2bx + 35\,Aa^3}{280\,x^8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/x^9,x, algorithm="giac")
```

```
[Out] -1/280*(70*B*b^3*x^4 + 168*B*a*b^2*x^3 + 56*A*b^3*x^3 + 140*B*a^2
*b*x^2 + 140*A*a*b^2*x^2 + 40*B*a^3*x + 120*A*a^2*b*x + 35*A*a^3)
/x^8
```

3.87 $\int \frac{(a+bx)^3(A+Bx)}{x^{10}} dx$

Optimal. Leaf size=75

$$-\frac{a^3A}{9x^9}-\frac{a^2(aB+3Ab)}{8x^8}-\frac{b^2(3aB+Ab)}{6x^6}-\frac{3ab(aB+Ab)}{7x^7}-\frac{b^3B}{5x^5}$$

```
[Out] -(a^3*A)/(9*x^9) - (a^2*(3*A*b + a*B))/(8*x^8) - (3*a*b*(A*b + a*
B))/(7*x^7) - (b^2*(A*b + 3*a*B))/(6*x^6) - (b^3*B)/(5*x^5)
```

Rubi [A] time = 0.0940145, antiderivative size = 75, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{a^3A}{9x^9}-\frac{a^2(aB+3Ab)}{8x^8}-\frac{b^2(3aB+Ab)}{6x^6}-\frac{3ab(aB+Ab)}{7x^7}-\frac{b^3B}{5x^5}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^3*(A + B*x))/x^10,x]
```

```
[Out] -(a^3*A)/(9*x^9) - (a^2*(3*A*b + a*B))/(8*x^8) - (3*a*b*(A*b + a*
B))/(7*x^7) - (b^2*(A*b + 3*a*B))/(6*x^6) - (b^3*B)/(5*x^5)
```

Rubi in Sympy [A] time = 22.1189, size = 71, normalized size = 0.95

$$-\frac{Aa^3}{9x^9}-\frac{Bb^3}{5x^5}-\frac{a^2\left(3Ab+Ba\right)}{8x^8}-\frac{3ab\left(Ab+Ba\right)}{7x^7}-\frac{b^2\left(Ab+3Ba\right)}{6x^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**3*(B*x+A)/x**10,x)
```

```
[Out] -A*a**3/(9*x**9) - B*b**3/(5*x**5) - a**2*(3*A*b + B*a)/(8*x**8)
- 3*a*b*(A*b + B*a)/(7*x**7) - b**2*(A*b + 3*B*a)/(6*x**6)
```

Mathematica [A] time = 0.0341582, size = 69, normalized size = 0.92

$$-\frac{35a^3(8A+9Bx)+135a^2bx(7A+8Bx)+180ab^2x^2(6A+7Bx)+84b^3x^3(5A+6Bx)}{2520x^9}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^3*(A + B*x))/x^10,x]
```

```
[Out] -(84*b^3*x^3*(5*A + 6*B*x) + 180*a*b^2*x^2*(6*A + 7*B*x) + 135*a^
2*b*x*(7*A + 8*B*x) + 35*a^3*(8*A + 9*B*x))/(2520*x^9)
```

Maple [A] time = 0.009, size = 66, normalized size = 0.9

$$-\frac{Aa^3}{9\,x^9}-\frac{a^2\left(3\,Ab+Ba\right)}{8\,x^8}-\frac{3\,ab\left(Ab+Ba\right)}{7\,x^7}-\frac{b^2\left(Ab+3\,Ba\right)}{6\,x^6}-\frac{Bb^3}{5\,x^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3*(B*x+A)/x^10,x)
```

```
[Out] -1/9*a^3*A/x^9-1/8*a^2*(3*A*b+B*a)/x^8-3/7*a*b*(A*b+B*a)/x^7-1/6*
b^2*(A*b+3*B*a)/x^6-1/5*b^3*B/x^5
```

Maxima [A] time = 1.35173, size = 99, normalized size = 1.32

$$-\frac{504\,Bb^{3}x^{4} + 280\,Aa^{3} + 420\,\left(3\,Bab^{2} + Ab^{3}\right)x^{3} + 1080\,\left(Ba^{2}b + Aab^{2}\right)x^{2} + 315\,\left(Ba^{3} + 3\,Aa^{2}b\right)x}{2520\,x^{9}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/x^10,x, algorithm="maxima")
```

```
[Out] -1/2520*(504*B*b^3*x^4 + 280*A*a^3 + 420*(3*B*a*b^2 + A*b^3)*x^3
+ 1080*(B*a^2*b + A*a*b^2)*x^2 + 315*(B*a^3 + 3*A*a^2*b)*x)/x^9
```

Fricas [A] time = 0.194826, size = 99, normalized size = 1.32

$$-\frac{504\,Bb^{3}x^{4} + 280\,Aa^{3} + 420\,\left(3\,Bab^{2} + Ab^{3}\right)x^{3} + 1080\,\left(Ba^{2}b + Aab^{2}\right)x^{2} + 315\,\left(Ba^{3} + 3\,Aa^{2}b\right)x}{2520\,x^{9}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/x^10,x, algorithm="fricas")
```

```
[Out] -1/2520*(504*B*b^3*x^4 + 280*A*a^3 + 420*(3*B*a*b^2 + A*b^3)*x^3
+ 1080*(B*a^2*b + A*a*b^2)*x^2 + 315*(B*a^3 + 3*A*a^2*b)*x)/x^9
```

Sympy [A] time = 13.206, size = 78, normalized size = 1.04

$$-\frac{280Aa^{3} + 504Bb^{3}x^{4} + x^{3}\left(420Ab^{3} + 1260Bab^{2}\right) + x^{2}\left(1080Aab^{2} + 1080Ba^{2}b\right) + x\left(945Aa^{2}b + 315Ba^{3}\right)}{2520x^{9}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**3*(B*x+A)/x**10,x)
```

```
[Out] -(280*A*a**3 + 504*B*b**3*x**4 + x**3*(420*A*b**3 + 1260*B*a*b**2
) + x**2*(1080*A*a*b**2 + 1080*B*a**2*b) + x*(945*A*a**2*b + 315*
B*a**3))/(2520*x**9)
```

GIAC/XCAS [A] time = 0.328768, size = 101, normalized size = 1.35

$$-\frac{504\,Bb^{3}x^{4} + 1260\,Bab^{2}x^{3} + 420\,Ab^{3}x^{3} + 1080\,Ba^{2}bx^{2} + 1080\,Aab^{2}x^{2} + 315\,Ba^{3}x + 945\,Aa^{2}bx + 280\,Aa^{3}}{2520\,x^{9}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/x^10,x, algorithm="giac")
```

```
[Out] -1/2520*(504*B*b^3*x^4 + 1260*B*a*b^2*x^3 + 420*A*b^3*x^3 + 1080*
B*a^2*b*x^2 + 1080*A*a*b^2*x^2 + 315*B*a^3*x + 945*A*a^2*b*x + 28
0*A*a^3)/x^9
```

3.88 $\int x^5(a+bx)^5(A+Bx)\,dx$

Optimal. Leaf size=117

$$\frac{1}{6}a^5Ax^6+\frac{1}{7}a^4x^7(aB+5Ab)+\frac{5}{8}a^3bx^8(aB+2Ab)+\frac{10}{9}a^2b^2x^9(aB+Ab)+\frac{1}{11}b^4x^{11}(5aB+Ab)+\frac{1}{2}ab^3x^{10}(2aB+Ab)+\frac{1}{12}b^5Bx^{12}$$

```
[Out] (a^5*A*x^6)/6 + (a^4*(5*A*b + a*B)*x^7)/7 + (5*a^3*b*(2*A*b + a*B
)*x^8)/8 + (10*a^2*b^2*(A*b + a*B)*x^9)/9 + (a*b^3*(A*b + 2*a*B)*
x^10)/2 + (b^4*(A*b + 5*a*B)*x^11)/11 + (b^5*B*x^12)/12
```

Rubi [A] time = 0.260824, antiderivative size = 117, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$\frac{1}{6}a^5Ax^6+\frac{1}{7}a^4x^7(aB+5Ab)+\frac{5}{8}a^3bx^8(aB+2Ab)+\frac{10}{9}a^2b^2x^9(aB+Ab)+\frac{1}{11}b^4x^{11}(5aB+Ab)+\frac{1}{2}ab^3x^{10}(2aB+Ab)+\frac{1}{12}b^5Bx^{12}$$

Antiderivative was successfully verified.

```
[In]  Int[x^5*(a + b*x)^5*(A + B*x),x]
```

```
[Out] (a^5*A*x^6)/6 + (a^4*(5*A*b + a*B)*x^7)/7 + (5*a^3*b*(2*A*b + a*B
)*x^8)/8 + (10*a^2*b^2*(A*b + a*B)*x^9)/9 + (a*b^3*(A*b + 2*a*B)*
x^10)/2 + (b^4*(A*b + 5*a*B)*x^11)/11 + (b^5*B*x^12)/12
```

Rubi in Sympy [A] time = 48.4265, size = 112, normalized size = 0.96

$$\frac{Aa^5x^6}{6}+\frac{Bb^5x^{12}}{12}+\frac{a^4x^7\left(5Ab+Ba\right)}{7}+\frac{5a^3bx^8\left(2Ab+Ba\right)}{8}+\frac{10a^2b^2x^9\left(Ab+Ba\right)}{9}+\frac{ab^3x^{10}\left(Ab+2Ba\right)}{2}+\frac{b^4x^{11}\left(Ab+5Ba\right)}{11}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**5*(b*x+a)**5*(B*x+A),x)
```

```
[Out] A*a**5*x**6/6 + B*b**5*x**12/12 + a**4*x**7*(5*A*b + B*a)/7 + 5*a
**3*b*x**8*(2*A*b + B*a)/8 + 10*a**2*b**2*x**9*(A*b + B*a)/9 + a*
b**3*x**10*(A*b + 2*B*a)/2 + b**4*x**11*(A*b + 5*B*a)/11
```

Mathematica [A] time = 0.0294864, size = 117, normalized size = 1.

$$\frac{1}{6}a^5Ax^6+\frac{1}{7}a^4x^7(aB+5Ab)+\frac{5}{8}a^3bx^8(aB+2Ab)+\frac{10}{9}a^2b^2x^9(aB+Ab)+\frac{1}{11}b^4x^{11}(5aB+Ab)+\frac{1}{2}ab^3x^{10}(2aB+Ab)+\frac{1}{12}b^5Bx^{12}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^5*(a + b*x)^5*(A + B*x),x]
```

```
[Out] (a^5*A*x^6)/6 + (a^4*(5*A*b + a*B)*x^7)/7 + (5*a^3*b*(2*A*b + a*B
)*x^8)/8 + (10*a^2*b^2*(A*b + a*B)*x^9)/9 + (a*b^3*(A*b + 2*a*B)*
x^10)/2 + (b^4*(A*b + 5*a*B)*x^11)/11 + (b^5*B*x^12)/12
```

Maple [A] time = 0.003, size = 124, normalized size = 1.1

$$\frac{b^5Bx^{12}}{12}+\frac{(b^5A+5\,ab^4B)\,x^{11}}{11}+\frac{(5\,ab^4A+10\,a^2b^3B)\,x^{10}}{10}+\frac{(10\,a^2b^3A+10\,a^3b^2B)\,x^9}{9}+\frac{(10\,a^3b^2A+5\,a^4bB)\,x^8}{8}+\frac{(5\,a^4bA+a^5B)\,x^7}{7}+\frac{a^5Ax^6}{6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^5*(b*x+a)^5*(B*x+A),x)
```

```
[Out] 1/12*b^5*B*x^12+1/11*(A*b^5+5*B*a*b^4)*x^11+1/10*(5*A*a*b^4+10*B*
a^2*b^3)*x^10+1/9*(10*A*a^2*b^3+10*B*a^3*b^2)*x^9+1/8*(10*A*a^3*b
^2+5*B*a^4*b)*x^8+1/7*(5*A*a^4*b+B*a^5)*x^7+1/6*a^5*A*x^6
```

Maxima [A] time = 1.35404, size = 161, normalized size = 1.38

$$\frac{1}{12}\,Bb^5x^{12}+\frac{1}{6}\,Aa^5x^6+\frac{1}{11}\,(5\,Bab^4+Ab^5)\,x^{11}+\frac{1}{2}\,(2\,Ba^2b^3+Aab^4)\,x^{10}+\frac{10}{9}\,(Ba^3b^2+Aa^2b^3)\,x^9+\frac{5}{8}\,(Ba^4b+2\,Aa^3b^2)\,x^8+\frac{1}{7}\,(Ba^5+5\,Aa^4b)\,x^7$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^5*x^5,x, algorithm="maxima")
```

```
[Out] 1/12*B*b^5*x^12 + 1/6*A*a^5*x^6 + 1/11*(5*B*a*b^4 + A*b^5)*x^11 +
 1/2*(2*B*a^2*b^3 + A*a*b^4)*x^10 + 10/9*(B*a^3*b^2 + A*a^2*b^3)*
x^9 + 5/8*(B*a^4*b + 2*A*a^3*b^2)*x^8 + 1/7*(B*a^5 + 5*A*a^4*b)*x
^7
```

Fricas [A] time = 0.179187, size = 1, normalized size = 0.01

$$\frac{1}{12}x^{12}b^5B+\frac{5}{11}x^{11}b^4aB+\frac{1}{11}x^{11}b^5A+x^{10}b^3a^2B+\frac{1}{2}x^{10}b^4aA+\frac{10}{9}x^9b^2a^3B+\frac{10}{9}x^9b^3a^2A+\frac{5}{8}x^8ba^4B+\frac{5}{4}x^8b^2a^3A+\frac{1}{7}x^7a^5B+\frac{5}{7}x^7ba^4A+\frac{1}{6}x^6a^5A$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^5*x^5,x, algorithm="fricas")
```

```
[Out] 1/12*x^12*b^5*B + 5/11*x^11*b^4*a*B + 1/11*x^11*b^5*A + x^10*b^3*
a^2*B + 1/2*x^10*b^4*a*A + 10/9*x^9*b^2*a^3*B + 10/9*x^9*b^3*a^2*
A + 5/8*x^8*b*a^4*B + 5/4*x^8*b^2*a^3*A + 1/7*x^7*a^5*B + 5/7*x^7
*b*a^4*A + 1/6*x^6*a^5*A
```

Sympy [A] time = 0.224505, size = 133, normalized size = 1.14

$$\frac{Aa^5x^6}{6}+\frac{Bb^5x^{12}}{12}+x^{11}\left(\frac{Ab^5}{11}+\frac{5Bab^4}{11}\right)+x^{10}\left(\frac{Aab^4}{2}+Ba^2b^3\right)+x^9\left(\frac{10Aa^2b^3}{9}+\frac{10Ba^3b^2}{9}\right)+x^8\left(\frac{5Aa^3b^2}{4}+\frac{5Ba^4b}{8}\right)+x^7\left(\frac{5Aa^4b}{7}+\frac{Ba^5}{7}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**5*(b*x+a)**5*(B*x+A),x)
```

```
[Out] A*a**5*x**6/6 + B*b**5*x**12/12 + x**11*(A*b**5/11 + 5*B*a*b**4/1
1) + x**10*(A*a*b**4/2 + B*a**2*b**3) + x**9*(10*A*a**2*b**3/9 +
10*B*a**3*b**2/9) + x**8*(5*A*a**3*b**2/4 + 5*B*a**4*b/8) + x**7*
(5*A*a**4*b/7 + B*a**5/7)
```

GIAC/XCAS [A] time = 0.271698, size = 167, normalized size = 1.43

$$\frac{1}{12}\,Bb^5x^{12} + \frac{5}{11}\,Bab^4x^{11} + \frac{1}{11}\,Ab^5x^{11} + Ba^2b^3x^{10} + \frac{1}{2}\,Aab^4x^{10} + \frac{10}{9}\,Ba^3b^2x^9 + \frac{10}{9}\,Aa^2b^3x^9 + \frac{5}{8}\,Ba^4bx^8 + \frac{5}{4}\,Aa^3b^2x^8 + \frac{1}{7}\,Ba^5x^7 + \frac{5}{7}\,Aa^4bx^7 + \frac{1}{6}\,Aa^5x^6$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^5*x^5,x, algorithm="giac")
```

```
[Out] 1/12*B*b^5*x^12 + 5/11*B*a*b^4*x^11 + 1/11*A*b^5*x^11 + B*a^2*b^3
*x^10 + 1/2*A*a*b^4*x^10 + 10/9*B*a^3*b^2*x^9 + 10/9*A*a^2*b^3*x^
9 + 5/8*B*a^4*b*x^8 + 5/4*A*a^3*b^2*x^8 + 1/7*B*a^5*x^7 + 5/7*A*a
^4*b*x^7 + 1/6*A*a^5*x^6
```

3.89 $\int x^4(a+bx)^5(A+Bx)\,dx$

Optimal. Leaf size=117

$$\frac{1}{5}a^5Ax^5+\frac{1}{6}a^4x^6(aB+5Ab)+\frac{5}{7}a^3bx^7(aB+2Ab)+\frac{5}{4}a^2b^2x^8(aB+Ab)+\frac{1}{10}b^4x^{10}(5aB+Ab)+\frac{5}{9}ab^3x^9(2aB+Ab)+\frac{1}{11}b^5Bx^{11}$$

```
[Out] (a^5*A*x^5)/5 + (a^4*(5*A*b + a*B)*x^6)/6 + (5*a^3*b*(2*A*b + a*B
)*x^7)/7 + (5*a^2*b^2*(A*b + a*B)*x^8)/4 + (5*a*b^3*(A*b + 2*a*B)
*x^9)/9 + (b^4*(A*b + 5*a*B)*x^10)/10 + (b^5*B*x^11)/11
```

Rubi [A] time = 0.227685, antiderivative size = 117, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$\frac{1}{5}a^5Ax^5+\frac{1}{6}a^4x^6(aB+5Ab)+\frac{5}{7}a^3bx^7(aB+2Ab)+\frac{5}{4}a^2b^2x^8(aB+Ab)+\frac{1}{10}b^4x^{10}(5aB+Ab)+\frac{5}{9}ab^3x^9(2aB+Ab)+\frac{1}{11}b^5Bx^{11}$$

Antiderivative was successfully verified.

```
[In]  Int[x^4*(a + b*x)^5*(A + B*x),x]
```

```
[Out] (a^5*A*x^5)/5 + (a^4*(5*A*b + a*B)*x^6)/6 + (5*a^3*b*(2*A*b + a*B
)*x^7)/7 + (5*a^2*b^2*(A*b + a*B)*x^8)/4 + (5*a*b^3*(A*b + 2*a*B)
*x^9)/9 + (b^4*(A*b + 5*a*B)*x^10)/10 + (b^5*B*x^11)/11
```

Rubi in Sympy [A] time = 46.957, size = 114, normalized size = 0.97

$$\frac{Aa^5x^5}{5}+\frac{Bb^5x^{11}}{11}+\frac{a^4x^6\left(5Ab+Ba\right)}{6}+\frac{5a^3bx^7\left(2Ab+Ba\right)}{7}+\frac{5a^2b^2x^8\left(Ab+Ba\right)}{4}+\frac{5ab^3x^9\left(Ab+2Ba\right)}{9}+\frac{b^4x^{10}\left(Ab+5Ba\right)}{10}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**4*(b*x+a)**5*(B*x+A),x)
```

```
[Out] A*a**5*x**5/5 + B*b**5*x**11/11 + a**4*x**6*(5*A*b + B*a)/6 + 5*a
**3*b*x**7*(2*A*b + B*a)/7 + 5*a**2*b**2*x**8*(A*b + B*a)/4 + 5*a
*b**3*x**9*(A*b + 2*B*a)/9 + b**4*x**10*(A*b + 5*B*a)/10
```

Mathematica [A] time = 0.0268907, size = 117, normalized size = 1.

$$\frac{1}{5}a^5Ax^5+\frac{1}{6}a^4x^6(aB+5Ab)+\frac{5}{7}a^3bx^7(aB+2Ab)+\frac{5}{4}a^2b^2x^8(aB+Ab)+\frac{1}{10}b^4x^{10}(5aB+Ab)+\frac{5}{9}ab^3x^9(2aB+Ab)+\frac{1}{11}b^5Bx^{11}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^4*(a + b*x)^5*(A + B*x),x]
```

```
[Out] (a^5*A*x^5)/5 + (a^4*(5*A*b + a*B)*x^6)/6 + (5*a^3*b*(2*A*b + a*B
)*x^7)/7 + (5*a^2*b^2*(A*b + a*B)*x^8)/4 + (5*a*b^3*(A*b + 2*a*B)
*x^9)/9 + (b^4*(A*b + 5*a*B)*x^10)/10 + (b^5*B*x^11)/11
```

Maple [A] time = 0.002, size = 124, normalized size = 1.1

$$\frac{b^5Bx^{11}}{11}+\frac{(b^5A+5ab^4B)x^{10}}{10}+\frac{(5ab^4A+10a^2b^3B)x^9}{9}+\frac{(10a^2b^3A+10a^3b^2B)x^8}{8}+\frac{(10a^3b^2A+5a^4bB)x^7}{7}+\frac{(5a^4bA+a^5B)x^6}{6}+\frac{a^5Ax^5}{5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int(x^4*(b*x+a)^5*(B*x+A),x)
```

```
[Out] 1/11*b^5*B*x^11+1/10*(A*b^5+5*B*a*b^4)*x^10+1/9*(5*A*a*b^4+10*B*a
^2*b^3)*x^9+1/8*(10*A*a^2*b^3+10*B*a^3*b^2)*x^8+1/7*(10*A*a^3*b^2
+5*B*a^4*b)*x^7+1/6*(5*A*a^4*b+B*a^5)*x^6+1/5*a^5*A*x^5
```

Maxima [A] time = 1.36853, size = 161, normalized size = 1.38

$$\frac{1}{11}Bb^5x^{11}+\frac{1}{5}Aa^5x^5+\frac{1}{10}(5Bab^4+Ab^5)x^{10}+\frac{5}{9}(2Ba^2b^3+Aab^4)x^9+\frac{5}{4}(Ba^3b^2+Aa^2b^3)x^8+\frac{5}{7}(Ba^4b+2Aa^3b^2)x^7+\frac{1}{6}(Ba^5+5Aa^4b)x^6$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*(b*x + a)^5*x^4,x, algorithm="maxima")
```

```
[Out] 1/11*B*b^5*x^11 + 1/5*A*a^5*x^5 + 1/10*(5*B*a*b^4 + A*b^5)*x^10 +
 5/9*(2*B*a^2*b^3 + A*a*b^4)*x^9 + 5/4*(B*a^3*b^2 + A*a^2*b^3)*x^
8 + 5/7*(B*a^4*b + 2*A*a^3*b^2)*x^7 + 1/6*(B*a^5 + 5*A*a^4*b)*x^6
```

Fricas [A] time = 0.182042, size = 1, normalized size = 0.01

$$\frac{1}{11}x^{11}b^5B+\frac{1}{2}x^{10}b^4aB+\frac{1}{10}x^{10}b^5A+\frac{10}{9}x^9b^3a^2B+\frac{5}{9}x^9b^4aA+\frac{5}{4}x^8b^2a^3B+\frac{5}{4}x^8b^3a^2A+\frac{5}{7}x^7ba^4B+\frac{10}{7}x^7b^2a^3A+\frac{1}{6}x^6a^5B+\frac{5}{6}x^6ba^4A+\frac{1}{5}x^5a^5A$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*(b*x + a)^5*x^4,x, algorithm="fricas")
```

```
[Out] 1/11*x^11*b^5*B + 1/2*x^10*b^4*a*B + 1/10*x^10*b^5*A + 10/9*x^9*b
^3*a^2*B + 5/9*x^9*b^4*a*A + 5/4*x^8*b^2*a^3*B + 5/4*x^8*b^3*a^2*
A + 5/7*x^7*b*a^4*B + 10/7*x^7*b^2*a^3*A + 1/6*x^6*a^5*B + 5/6*x^
6*b*a^4*A + 1/5*x^5*a^5*A
```

Sympy [A] time = 0.169707, size = 136, normalized size = 1.16

$$\frac{Aa^5x^5}{5}+\frac{Bb^5x^{11}}{11}+x^{10}\left(\frac{Ab^5}{10}+\frac{Bab^4}{2}\right)+x^9\left(\frac{5Aab^4}{9}+\frac{10Ba^2b^3}{9}\right)+x^8\left(\frac{5Aa^2b^3}{4}+\frac{5Ba^3b^2}{4}\right)+x^7\left(\frac{10Aa^3b^2}{7}+\frac{5Ba^4b}{7}\right)+x^6\left(\frac{5Aa^4b}{6}+\frac{Ba^5}{6}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(x**4*(b*x+a)**5*(B*x+A),x)
```

```
[Out] A*a**5*x**5/5 + B*b**5*x**11/11 + x**10*(A*b**5/10 + B*a*b**4/2)
+ x**9*(5*A*a*b**4/9 + 10*B*a**2*b**3/9) + x**8*(5*A*a**2*b**3/4
+ 5*B*a**3*b**2/4) + x**7*(10*A*a**3*b**2/7 + 5*B*a**4*b/7) + x**
6*(5*A*a**4*b/6 + B*a**5/6)
```

GIAC/XCAS [A] time = 0.286923, size = 169, normalized size = 1.44

$$\frac{1}{11} Bb^5x^{11} + \frac{1}{2} Bab^4x^{10} + \frac{1}{10} Ab^5x^{10} + \frac{10}{9} Ba^2b^3x^9 + \frac{5}{9} Aab^4x^9 + \frac{5}{4} Ba^3b^2x^8 + \frac{5}{4} Aa^2b^3x^8 + \frac{5}{7} Ba^4bx^7 + \frac{10}{7} Aa^3b^2x^7 + \frac{1}{6} Ba^5x^6 + \frac{5}{6} Aa^4bx^6 + \frac{1}{5} Aa^5x^5$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^5*x^4,x, algorithm="giac")
```

```
[Out] 1/11*B*b^5*x^11 + 1/2*B*a*b^4*x^10 + 1/10*A*b^5*x^10 + 10/9*B*a^2
*b^3*x^9 + 5/9*A*a*b^4*x^9 + 5/4*B*a^3*b^2*x^8 + 5/4*A*a^2*b^3*x^
8 + 5/7*B*a^4*b*x^7 + 10/7*A*a^3*b^2*x^7 + 1/6*B*a^5*x^6 + 5/6*A*
a^4*b*x^6 + 1/5*A*a^5*x^5
```

3.90 $\int x^3(a+bx)^5(A+Bx)\,dx$

Optimal. Leaf size=112

$$-\frac{a^3(a+bx)^6(Ab-aB)}{6b^5}+\frac{a^2(a+bx)^7(3Ab-4aB)}{7b^5}+\frac{(a+bx)^9(Ab-4aB)}{9b^5}-\frac{3a(a+bx)^8(Ab-2aB)}{8b^5}+\frac{B(a+bx)^{10}}{10b^5}$$

```
[Out] -(a^3*(A*b - a*B)*(a + b*x)^6)/(6*b^5) + (a^2*(3*A*b - 4*a*B)*(a
+ b*x)^7)/(7*b^5) - (3*a*(A*b - 2*a*B)*(a + b*x)^8)/(8*b^5) + ((A
*b - 4*a*B)*(a + b*x)^9)/(9*b^5) + (B*(a + b*x)^10)/(10*b^5)
```

Rubi [A] time = 0.229814, antiderivative size = 112, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}=0.062$

$$-\frac{a^3(a+bx)^6(Ab-aB)}{6b^5}+\frac{a^2(a+bx)^7(3Ab-4aB)}{7b^5}+\frac{(a+bx)^9(Ab-4aB)}{9b^5}-\frac{3a(a+bx)^8(Ab-2aB)}{8b^5}+\frac{B(a+bx)^{10}}{10b^5}$$

Antiderivative was successfully verified.

```
[In]  Int[x^3*(a + b*x)^5*(A + B*x),x]
```

```
[Out] -(a^3*(A*b - a*B)*(a + b*x)^6)/(6*b^5) + (a^2*(3*A*b - 4*a*B)*(a
+ b*x)^7)/(7*b^5) - (3*a*(A*b - 2*a*B)*(a + b*x)^8)/(8*b^5) + ((A
*b - 4*a*B)*(a + b*x)^9)/(9*b^5) + (B*(a + b*x)^10)/(10*b^5)
```

Rubi in Sympy [A] time = 45.1155, size = 114, normalized size = 1.02

$$\frac{Aa^5x^4}{4}+\frac{Bb^5x^{10}}{10}+\frac{a^4x^5\left(5Ab+Ba\right)}{5}+\frac{5a^3bx^6\left(2Ab+Ba\right)}{6}+\frac{10a^2b^2x^7\left(Ab+Ba\right)}{7}+\frac{5ab^3x^8\left(Ab+2Ba\right)}{8}+\frac{b^4x^9\left(Ab+5Ba\right)}{9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3*(b*x+a)**5*(B*x+A),x)
```

```
[Out] A*a**5*x**4/4 + B*b**5*x**10/10 + a**4*x**5*(5*A*b + B*a)/5 + 5*a
**3*b*x**6*(2*A*b + B*a)/6 + 10*a**2*b**2*x**7*(A*b + B*a)/7 + 5*
a*b**3*x**8*(A*b + 2*B*a)/8 + b**4*x**9*(A*b + 5*B*a)/9
```

Mathematica [A] time = 0.0251503, size = 117, normalized size = 1.04

$$\frac{1}{4}a^5Ax^4+\frac{1}{5}a^4x^5(aB+5Ab)+\frac{5}{6}a^3bx^6(aB+2Ab)+\frac{10}{7}a^2b^2x^7(aB+Ab)+\frac{1}{9}b^4x^9(5aB+Ab)+\frac{5}{8}ab^3x^8(2aB+Ab)+\frac{1}{10}b^5Bx^{10}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^3*(a + b*x)^5*(A + B*x),x]
```

```
[Out] (a^5*A*x^4)/4 + (a^4*(5*A*b + a*B)*x^5)/5 + (5*a^3*b*(2*A*b + a*B
)*x^6)/6 + (10*a^2*b^2*(A*b + a*B)*x^7)/7 + (5*a*b^3*(A*b + 2*a*B
```

```
)*x^8)/8 + (b^4*(A*b + 5*a*B)*x^9)/9 + (b^5*B*x^10)/10
```

Maple [A] time = 0.003, size = 124, normalized size = 1.1

$$\frac{b^5Bx^{10}}{10}+\frac{\left(b^5A+5\,ab^4B\right)x^9}{9}+\frac{\left(5\,ab^4A+10\,a^2b^3B\right)x^8}{8}+\frac{\left(10\,a^2b^3A+10\,a^3b^2B\right)x^7}{7}+\frac{\left(10\,a^3b^2A+5\,a^4bB\right)x^6}{6}+\frac{\left(5\,a^4bA+a^5B\right)x^5}{5}+\frac{a^5Ax^4}{4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^3*(b*x+a)^5*(B*x+A),x)
```

```
[Out] 1/10*b^5*B*x^10+1/9*(A*b^5+5*B*a*b^4)*x^9+1/8*(5*A*a*b^4+10*B*a^2
*b^3)*x^8+1/7*(10*A*a^2*b^3+10*B*a^3*b^2)*x^7+1/6*(10*A*a^3*b^2+5
*B*a^4*b)*x^6+1/5*(5*A*a^4*b+B*a^5)*x^5+1/4*a^5*A*x^4
```

Maxima [A] time = 1.35768, size = 161, normalized size = 1.44

$$\frac{1}{10}\,Bb^5x^{10}+\frac{1}{4}\,Aa^5x^4+\frac{1}{9}\left(5\,Bab^4+Ab^5\right)x^9+\frac{5}{8}\left(2\,Ba^2b^3+Aab^4\right)x^8+\frac{10}{7}\left(Ba^3b^2+Aa^2b^3\right)x^7+\frac{5}{6}\left(Ba^4b+2\,Aa^3b^2\right)x^6+\frac{1}{5}\left(Ba^5+5\,Aa^4b\right)x^5$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^5*x^3,x, algorithm="maxima")
```

```
[Out] 1/10*B*b^5*x^10 + 1/4*A*a^5*x^4 + 1/9*(5*B*a*b^4 + A*b^5)*x^9 + 5
/8*(2*B*a^2*b^3 + A*a*b^4)*x^8 + 10/7*(B*a^3*b^2 + A*a^2*b^3)*x^7
 + 5/6*(B*a^4*b + 2*A*a^3*b^2)*x^6 + 1/5*(B*a^5 + 5*A*a^4*b)*x^5
```

Fricas [A] time = 0.180873, size = 1, normalized size = 0.01

$$\frac{1}{10}x^{10}b^5B+\frac{5}{9}x^9b^4aB+\frac{1}{9}x^9b^5A+\frac{5}{4}x^8b^3a^2B+\frac{5}{8}x^8b^4aA+\frac{10}{7}x^7b^2a^3B+\frac{10}{7}x^7b^3a^2A+\frac{5}{6}x^6ba^4B+\frac{5}{3}x^6b^2a^3A+\frac{1}{5}x^5a^5B+x^5ba^4A+\frac{1}{4}x^4a^5A$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^5*x^3,x, algorithm="fricas")
```

```
[Out] 1/10*x^10*b^5*B + 5/9*x^9*b^4*a*B + 1/9*x^9*b^5*A + 5/4*x^8*b^3*a
^2*B + 5/8*x^8*b^4*a*A + 10/7*x^7*b^2*a^3*B + 10/7*x^7*b^3*a^2*A
+ 5/6*x^6*b*a^4*B + 5/3*x^6*b^2*a^3*A + 1/5*x^5*a^5*B + x^5*b*a^4
*A + 1/4*x^4*a^5*A
```

Sympy [A] time = 0.196797, size = 134, normalized size = 1.2

$$\frac{Aa^5x^4}{4}+\frac{Bb^5x^{10}}{10}+x^9\left(\frac{Ab^5}{9}+\frac{5Bab^4}{9}\right)+x^8\left(\frac{5Aab^4}{8}+\frac{5Ba^2b^3}{4}\right)+x^7\left(\frac{10Aa^2b^3}{7}+\frac{10Ba^3b^2}{7}\right)+x^6\left(\frac{5Aa^3b^2}{3}+\frac{5Ba^4b}{6}\right)+x^5\left(Aa^4b+\frac{Ba^5}{5}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**3*(b*x+a)**5*(B*x+A),x)
```

```
[Out] A*a**5*x**4/4 + B*b**5*x**10/10 + x**9*(A*b**5/9 + 5*B*a*b**4/9)
+ x**8*(5*A*a*b**4/8 + 5*B*a**2*b**3/4) + x**7*(10*A*a**2*b**3/7
+ 10*B*a**3*b**2/7) + x**6*(5*A*a**3*b**2/3 + 5*B*a**4*b/6) + x**
5*(A*a**4*b + B*a**5/5)
```

GIAC/XCAS [A] time = 0.305804, size = 167, normalized size = 1.49

$$\frac{1}{10}\,Bb^5x^{10} + \frac{5}{9}\,Bab^4x^9 + \frac{1}{9}\,Ab^5x^9 + \frac{5}{4}\,Ba^2b^3x^8 + \frac{5}{8}\,Aab^4x^8 + \frac{10}{7}\,Ba^3b^2x^7 + \frac{10}{7}\,Aa^2b^3x^7 + \frac{5}{6}\,Ba^4bx^6 + \frac{5}{3}\,Aa^3b^2x^6 + \frac{1}{5}\,Ba^5x^5 + Aa^4bx^5 + \frac{1}{4}\,Aa^5x^4$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^5*x^3,x, algorithm="giac")
```

```
[Out] 1/10*B*b^5*x^10 + 5/9*B*a*b^4*x^9 + 1/9*A*b^5*x^9 + 5/4*B*a^2*b^3
*x^8 + 5/8*A*a*b^4*x^8 + 10/7*B*a^3*b^2*x^7 + 10/7*A*a^2*b^3*x^7
+ 5/6*B*a^4*b*x^6 + 5/3*A*a^3*b^2*x^6 + 1/5*B*a^5*x^5 + A*a^4*b*x
^5 + 1/4*A*a^5*x^4
```

3.91 $\int x^2(a+bx)^5(A+Bx)\,dx$

Optimal. Leaf size=87

$$\frac{a^2(a+bx)^6(Ab-aB)}{6b^4}+\frac{(a+bx)^8(Ab-3aB)}{8b^4}-\frac{a(a+bx)^7(2Ab-3aB)}{7b^4}+\frac{B(a+bx)^9}{9b^4}$$

```
[Out] (a^2*(A*b - a*B)*(a + b*x)^6)/(6*b^4) - (a*(2*A*b - 3*a*B)*(a + b
*x)^7)/(7*b^4) + ((A*b - 3*a*B)*(a + b*x)^8)/(8*b^4) + (B*(a + b*
x)^9)/(9*b^4)
```

Rubi [A] time = 0.199971, antiderivative size = 87, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}} = 0.062$

$$\frac{a^2(a+bx)^6(Ab-aB)}{6b^4}+\frac{(a+bx)^8(Ab-3aB)}{8b^4}-\frac{a(a+bx)^7(2Ab-3aB)}{7b^4}+\frac{B(a+bx)^9}{9b^4}$$

Antiderivative was successfully verified.

```
[In]  Int[x^2*(a + b*x)^5*(A + B*x),x]
```

```
[Out] (a^2*(A*b - a*B)*(a + b*x)^6)/(6*b^4) - (a*(2*A*b - 3*a*B)*(a + b
*x)^7)/(7*b^4) + ((A*b - 3*a*B)*(a + b*x)^8)/(8*b^4) + (B*(a + b*
x)^9)/(9*b^4)
```

Rubi in Sympy [A] time = 41.549, size = 78, normalized size = 0.9

$$\frac{B(a+bx)^9}{9b^4}+\frac{a^2(a+bx)^6(Ab-Ba)}{6b^4}-\frac{a(a+bx)^7(2Ab-3Ba)}{7b^4}+\frac{(a+bx)^8(Ab-3Ba)}{8b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(b*x+a)**5*(B*x+A),x)
```

```
[Out] B*(a + b*x)**9/(9*b**4) + a**2*(a + b*x)**6*(A*b - B*a)/(6*b**4)
- a*(a + b*x)**7*(2*A*b - 3*B*a)/(7*b**4) + (a + b*x)**8*(A*b - 3
*B*a)/(8*b**4)
```

Mathematica [A] time = 0.0260485, size = 114, normalized size = 1.31

$$\frac{1}{3}a^5Ax^3+\frac{1}{4}a^4x^4(aB+5Ab)+a^3bx^5(aB+2Ab)+\frac{5}{3}a^2b^2x^6(aB+Ab)+\frac{1}{8}b^4x^8(5aB+Ab)+\frac{5}{7}ab^3x^7(2aB+Ab)+\frac{1}{9}b^5Bx^9$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^2*(a + b*x)^5*(A + B*x),x]
```

```
[Out] (a^5*A*x^3)/3 + (a^4*(5*A*b + a*B)*x^4)/4 + a^3*b*(2*A*b + a*B)*x
^5 + (5*a^2*b^2*(A*b + a*B)*x^6)/3 + (5*a*b^3*(A*b + 2*a*B)*x^7)/
7 + (b^4*(A*b + 5*a*B)*x^8)/8 + (b^5*B*x^9)/9
```

Maple [A] time = 0.001, size = 124, normalized size = 1.4

$$\frac{b^5Bx^9}{9}+\frac{\left(b^5A+5\,ab^4B\right)x^8}{8}+\frac{\left(5\,ab^4A+10\,a^2b^3B\right)x^7}{7}+\frac{\left(10\,a^2b^3A+10\,a^3b^2B\right)x^6}{6}+\frac{\left(10\,a^3b^2A+5\,a^4bB\right)x^5}{5}+\frac{\left(5\,a^4bA+a^5B\right)x^4}{4}+\frac{a^5Ax^3}{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(b*x+a)^5*(B*x+A),x)
```

```
[Out] 1/9*b^5*B*x^9+1/8*(A*b^5+5*B*a*b^4)*x^8+1/7*(5*A*a*b^4+10*B*a^2*b
^3)*x^7+1/6*(10*A*a^2*b^3+10*B*a^3*b^2)*x^6+1/5*(10*A*a^3*b^2+5*B
*a^4*b)*x^5+1/4*(5*A*a^4*b+B*a^5)*x^4+1/3*a^5*A*x^3
```

Maxima [A] time = 1.37337, size = 159, normalized size = 1.83

$$\frac{1}{9}\,Bb^5x^9+\frac{1}{3}\,Aa^5x^3+\frac{1}{8}\left(5\,Bab^4+Ab^5\right)x^8+\frac{5}{7}\left(2\,Ba^2b^3+Aab^4\right)x^7+\frac{5}{3}\left(Ba^3b^2+Aa^2b^3\right)x^6+\left(Ba^4b+2\,Aa^3b^2\right)x^5+\frac{1}{4}\left(Ba^5+5\,Aa^4b\right)x^4$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^5*x^2,x, algorithm="maxima")
```

```
[Out] 1/9*B*b^5*x^9 + 1/3*A*a^5*x^3 + 1/8*(5*B*a*b^4 + A*b^5)*x^8 + 5/7
*(2*B*a^2*b^3 + A*a*b^4)*x^7 + 5/3*(B*a^3*b^2 + A*a^2*b^3)*x^6 +
(B*a^4*b + 2*A*a^3*b^2)*x^5 + 1/4*(B*a^5 + 5*A*a^4*b)*x^4
```

Fricas [A] time = 0.182225, size = 1, normalized size = 0.01

$$\frac{1}{9}x^9b^5B+\frac{5}{8}x^8b^4aB+\frac{1}{8}x^8b^5A+\frac{10}{7}x^7b^3a^2B+\frac{5}{7}x^7b^4aA+\frac{5}{3}x^6b^2a^3B+\frac{5}{3}x^6b^3a^2A+x^5ba^4B+2x^5b^2a^3A+\frac{1}{4}x^4a^5B+\frac{5}{4}x^4ba^4A+\frac{1}{3}x^3a^5A$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^5*x^2,x, algorithm="fricas")
```

```
[Out] 1/9*x^9*b^5*B + 5/8*x^8*b^4*a*B + 1/8*x^8*b^5*A + 10/7*x^7*b^3*a^
2*B + 5/7*x^7*b^4*a*A + 5/3*x^6*b^2*a^3*B + 5/3*x^6*b^3*a^2*A + x
^5*b*a^4*B + 2*x^5*b^2*a^3*A + 1/4*x^4*a^5*B + 5/4*x^4*b*a^4*A +
1/3*x^3*a^5*A
```

Sympy [A] time = 0.169496, size = 133, normalized size = 1.53

$$\frac{Aa^5x^3}{3}+\frac{Bb^5x^9}{9}+x^8\left(\frac{Ab^5}{8}+\frac{5Bab^4}{8}\right)+x^7\left(\frac{5Aab^4}{7}+\frac{10Ba^2b^3}{7}\right)+x^6\left(\frac{5Aa^2b^3}{3}+\frac{5Ba^3b^2}{3}\right)+x^5\left(2Aa^3b^2+Ba^4b\right)+x^4\left(\frac{5Aa^4b}{4}+\frac{Ba^5}{4}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(b*x+a)**5*(B*x+A),x)
```

```
[Out] A*a**5*x**3/3 + B*b**5*x**9/9 + x**8*(A*b**5/8 + 5*B*a*b**4/8) +
x**7*(5*A*a*b**4/7 + 10*B*a**2*b**3/7) + x**6*(5*A*a**2*b**3/3 +
5*B*a**3*b**2/3) + x**5*(2*A*a**3*b**2 + B*a**4*b) + x**4*(5*A*a*
*4*b/4 + B*a**5/4)
```

GIAC/XCAS [A] time = 0.412385, size = 167, normalized size = 1.92

$$\frac{1}{9} Bb^5x^9 + \frac{5}{8} Bab^4x^8 + \frac{1}{8} Ab^5x^8 + \frac{10}{7} Ba^2b^3x^7 + \frac{5}{7} Aab^4x^7 + \frac{5}{3} Ba^3b^2x^6 + \frac{5}{3} Aa^2b^3x^6 + Ba^4bx^5 + 2 Aa^3b^2x^5 + \frac{1}{4} Ba^5x^4 + \frac{5}{4} Aa^4bx^4 + \frac{1}{3} Aa^5x^3$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^5*x^2,x, algorithm="giac")
```

```
[Out] 1/9*B*b^5*x^9 + 5/8*B*a*b^4*x^8 + 1/8*A*b^5*x^8 + 10/7*B*a^2*b^3*
x^7 + 5/7*A*a*b^4*x^7 + 5/3*B*a^3*b^2*x^6 + 5/3*A*a^2*b^3*x^6 + B
*a^4*b*x^5 + 2*A*a^3*b^2*x^5 + 1/4*B*a^5*x^4 + 5/4*A*a^4*b*x^4 +
1/3*A*a^5*x^3
```

3.92 $\int x(a+bx)^5(A+Bx)\,dx$

Optimal. Leaf size=61

$$\frac{(a+bx)^7(Ab-2aB)}{7b^3}-\frac{a(a+bx)^6(Ab-aB)}{6b^3}+\frac{B(a+bx)^8}{8b^3}$$

```
[Out] -(a*(A*b - a*B)*(a + b*x)^6)/(6*b^3) + ((A*b - 2*a*B)*(a + b*x)^7
)/(7*b^3) + (B*(a + b*x)^8)/(8*b^3)
```

Rubi [A] time = 0.153904, antiderivative size = 61, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 14, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.071

$$\frac{(a+bx)^7(Ab-2aB)}{7b^3}-\frac{a(a+bx)^6(Ab-aB)}{6b^3}+\frac{B(a+bx)^8}{8b^3}$$

Antiderivative was successfully verified.

```
[In]  Int[x*(a + b*x)^5*(A + B*x),x]
```

```
[Out] -(a*(A*b - a*B)*(a + b*x)^6)/(6*b^3) + ((A*b - 2*a*B)*(a + b*x)^7
)/(7*b^3) + (B*(a + b*x)^8)/(8*b^3)
```

Rubi in Sympy [A] time = 32.5561, size = 53, normalized size = 0.87

$$\frac{B\left(a+bx\right)^8}{8b^3}-\frac{a\left(a+bx\right)^6\left(Ab-Ba\right)}{6b^3}+\frac{\left(a+bx\right)^7\left(Ab-2Ba\right)}{7b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(b*x+a)**5*(B*x+A),x)
```

```
[Out] B*(a + b*x)**8/(8*b**3) - a*(a + b*x)**6*(A*b - B*a)/(6*b**3) + (
a + b*x)**7*(A*b - 2*B*a)/(7*b**3)
```

Mathematica [A] time = 0.0260399, size = 115, normalized size = 1.89

$$\frac{1}{2}a^5Ax^2+\frac{1}{3}a^4x^3(aB+5Ab)+\frac{5}{4}a^3bx^4(aB+2Ab)+2a^2b^2x^5(aB+Ab)+\frac{1}{7}b^4x^7(5aB+Ab)+\frac{5}{6}ab^3x^6(2aB+Ab)+\frac{1}{8}b^5Bx^8$$

Antiderivative was successfully verified.

```
[In]  Integrate[x*(a + b*x)^5*(A + B*x),x]
```

```
[Out] (a^5*A*x^2)/2 + (a^4*(5*A*b + a*B)*x^3)/3 + (5*a^3*b*(2*A*b + a*B
)*x^4)/4 + 2*a^2*b^2*(A*b + a*B)*x^5 + (5*a*b^3*(A*b + 2*a*B)*x^6
)/6 + (b^4*(A*b + 5*a*B)*x^7)/7 + (b^5*B*x^8)/8
```

Maple [B] time = 0.002, size = 124, normalized size = 2.

$$\frac{b^5Bx^8}{8}+\frac{\left(b^5A+5\,ab^4B\right)x^7}{7}+\frac{\left(5\,ab^4A+10\,a^2b^3B\right)x^6}{6}+\frac{\left(10\,a^2b^3A+10\,a^3b^2B\right)x^5}{5}+\frac{\left(10\,a^3b^2A+5\,a^4bB\right)x^4}{4}+\frac{\left(5\,a^4bA+a^5B\right)x^3}{3}+\frac{a^5Ax^2}{2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(b*x+a)^5*(B*x+A),x)
```

```
[Out] 1/8*b^5*B*x^8+1/7*(A*b^5+5*B*a*b^4)*x^7+1/6*(5*A*a*b^4+10*B*a^2*b
^3)*x^6+1/5*(10*A*a^2*b^3+10*B*a^3*b^2)*x^5+1/4*(10*A*a^3*b^2+5*B
*a^4*b)*x^4+1/3*(5*A*a^4*b+B*a^5)*x^3+1/2*a^5*A*x^2
```

Maxima [A] time = 1.35222, size = 161, normalized size = 2.64

$$\frac{1}{8} Bb^5x^8 + \frac{1}{2} Aa^5x^2 + \frac{1}{7} \left(5 Bab^4 + Ab^5\right) x^7 + \frac{5}{6} \left(2 Ba^2b^3 + Aab^4\right) x^6 + 2 \left(Ba^3b^2 + Aa^2b^3\right) x^5 + \frac{5}{4} \left(Ba^4b + 2 Aa^3b^2\right) x^4 + \frac{1}{3} \left(Ba^5 + 5 Aa^4b\right) x^3$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^5*x,x, algorithm="maxima")
```

```
[Out] 1/8*B*b^5*x^8 + 1/2*A*a^5*x^2 + 1/7*(5*B*a*b^4 + A*b^5)*x^7 + 5/6
*(2*B*a^2*b^3 + A*a*b^4)*x^6 + 2*(B*a^3*b^2 + A*a^2*b^3)*x^5 + 5/
4*(B*a^4*b + 2*A*a^3*b^2)*x^4 + 1/3*(B*a^5 + 5*A*a^4*b)*x^3
```

Fricas [A] time = 0.185931, size = 1, normalized size = 0.02

$$\frac{1}{8}x^8b^5B + \frac{5}{7}x^7b^4aB + \frac{1}{7}x^7b^5A + \frac{5}{3}x^6b^3a^2B + \frac{5}{6}x^6b^4aA + 2x^5b^2a^3B + 2x^5b^3a^2A + \frac{5}{4}x^4ba^4B + \frac{5}{2}x^4b^2a^3A + \frac{1}{3}x^3a^5B + \frac{5}{3}x^3ba^4A + \frac{1}{2}x^2a^5A$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^5*x,x, algorithm="fricas")
```

```
[Out] 1/8*x^8*b^5*B + 5/7*x^7*b^4*a*B + 1/7*x^7*b^5*A + 5/3*x^6*b^3*a^2
*B + 5/6*x^6*b^4*a*A + 2*x^5*b^2*a^3*B + 2*x^5*b^3*a^2*A + 5/4*x^
4*b*a^4*B + 5/2*x^4*b^2*a^3*A + 1/3*x^3*a^5*B + 5/3*x^3*b*a^4*A +
 1/2*x^2*a^5*A
```

Sympy [A] time = 0.165515, size = 134, normalized size = 2.2

$$\frac{Aa^5x^2}{2} + \frac{Bb^5x^8}{8} + x^7 \left(\frac{Ab^5}{7} + \frac{5Bab^4}{7}\right) + x^6 \left(\frac{5Aab^4}{6} + \frac{5Ba^2b^3}{3}\right) + x^5 \left(2Aa^2b^3 + 2Ba^3b^2\right) + x^4 \left(\frac{5Aa^3b^2}{2} + \frac{5Ba^4b}{4}\right) + x^3 \left(\frac{5Aa^4b}{3} + \frac{Ba^5}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(b*x+a)**5*(B*x+A),x)
```

```
[Out] A*a**5*x**2/2 + B*b**5*x**8/8 + x**7*(A*b**5/7 + 5*B*a*b**4/7) +
x**6*(5*A*a*b**4/6 + 5*B*a**2*b**3/3) + x**5*(2*A*a**2*b**3 + 2*B
*a**3*b**2) + x**4*(5*A*a**3*b**2/2 + 5*B*a**4*b/4) + x**3*(5*A*a
**4*b/3 + B*a**5/3)
```

GIAC/XCAS [A] time = 0.36516, size = 169, normalized size = 2.77

$$\frac{1}{8}Bb^5x^8 + \frac{5}{7}Bab^4x^7 + \frac{1}{7}Ab^5x^7 + \frac{5}{3}Ba^2b^3x^6 + \frac{5}{6}Aab^4x^6 + 2Ba^3b^2x^5 + 2Aa^2b^3x^5 + \frac{5}{4}Ba^4bx^4 + \frac{5}{2}Aa^3b^2x^4 + \frac{1}{3}Ba^5x^3 + \frac{5}{3}Aa^4bx^3 + \frac{1}{2}Aa^5x^2$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^5*x,x, algorithm="giac")
```

```
[Out] 1/8*B*b^5*x^8 + 5/7*B*a*b^4*x^7 + 1/7*A*b^5*x^7 + 5/3*B*a^2*b^3*x
^6 + 5/6*A*a*b^4*x^6 + 2*B*a^3*b^2*x^5 + 2*A*a^2*b^3*x^5 + 5/4*B*
a^4*b*x^4 + 5/2*A*a^3*b^2*x^4 + 1/3*B*a^5*x^3 + 5/3*A*a^4*b*x^3 +
 1/2*A*a^5*x^2
```

3.93 $\int (a+bx)^5(A+Bx)\,dx$

Optimal. Leaf size=38

$$\frac{(a+bx)^6(Ab-aB)}{6b^2}+\frac{B(a+bx)^7}{7b^2}$$

```
[Out] ((A*b - a*B)*(a + b*x)^6)/(6*b^2) + (B*(a + b*x)^7)/(7*b^2)
```

Rubi [A] time = 0.0500009, antiderivative size = 38, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 13, $\frac{\text{number of rules}}{\text{integrand size}} = 0.077$

$$\frac{(a+bx)^6(Ab-aB)}{6b^2}+\frac{B(a+bx)^7}{7b^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^5*(A + B*x),x]
```

```
[Out] ((A*b - a*B)*(a + b*x)^6)/(6*b^2) + (B*(a + b*x)^7)/(7*b^2)
```

Rubi in Sympy [A] time = 24.6282, size = 31, normalized size = 0.82

$$\frac{B\,(a+bx)^7}{7b^2}+\frac{(a+bx)^6\,(Ab-Ba)}{6b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**5*(B*x+A),x)
```

```
[Out] B*(a + b*x)**7/(7*b**2) + (a + b*x)**6*(A*b - B*a)/(6*b**2)
```

Mathematica [B] time = 0.0256271, size = 109, normalized size = 2.87

$$a^5Ax+\frac{1}{2}a^4x^2(aB+5Ab)+\frac{5}{3}a^3bx^3(aB+2Ab)+\frac{5}{2}a^2b^2x^4(aB+Ab)+\frac{1}{6}b^4x^6(5aB+Ab)+ab^3x^5(2aB+Ab)+\frac{1}{7}b^5Bx^7$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^5*(A + B*x),x]
```

```
[Out] a^5*A*x + (a^4*(5*A*b + a*B)*x^2)/2 + (5*a^3*b*(2*A*b + a*B)*x^3)
/3 + (5*a^2*b^2*(A*b + a*B)*x^4)/2 + a*b^3*(A*b + 2*a*B)*x^5 + (b
^4*(A*b + 5*a*B)*x^6)/6 + (b^5*B*x^7)/7
```

Maple [B] time = 0.003, size = 121, normalized size = 3.2

$$\frac{b^5Bx^7}{7}+\frac{\left(b^5A+5\,ab^4B\right)x^6}{6}+\frac{\left(5\,ab^4A+10\,a^2b^3B\right)x^5}{5}+\frac{\left(10\,a^2b^3A+10\,a^3b^2B\right)x^4}{4}+\frac{\left(10\,a^3b^2A+5\,a^4bB\right)x^3}{3}+\frac{\left(5\,a^4bA+a^5B\right)x^2}{2}+a^5Ax$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^5*(B*x+A),x)
```

```
[Out] 1/7*b^5*B*x^7+1/6*(A*b^5+5*B*a*b^4)*x^6+1/5*(5*A*a*b^4+10*B*a^2*b
^3)*x^5+1/4*(10*A*a^2*b^3+10*B*a^3*b^2)*x^4+1/3*(10*A*a^3*b^2+5*B
*a^4*b)*x^3+1/2*(5*A*a^4*b+B*a^5)*x^2+a^5*A*x
```

Maxima [A] time = 1.34996, size = 155, normalized size = 4.08

$$\frac{1}{7}Bb^5x^7 + Aa^5x + \frac{1}{6}\left(5\,Bab^4 + Ab^5\right)x^6 + \left(2\,Ba^2b^3 + Aab^4\right)x^5 + \frac{5}{2}\left(Ba^3b^2 + Aa^2b^3\right)x^4 + \frac{5}{3}\left(Ba^4b + 2\,Aa^3b^2\right)x^3 + \frac{1}{2}\left(Ba^5 + 5\,Aa^4b\right)x^2$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^5,x, algorithm="maxima")
```

```
[Out] 1/7*B*b^5*x^7 + A*a^5*x + 1/6*(5*B*a*b^4 + A*b^5)*x^6 + (2*B*a^2*
b^3 + A*a*b^4)*x^5 + 5/2*(B*a^3*b^2 + A*a^2*b^3)*x^4 + 5/3*(B*a^4
*b + 2*A*a^3*b^2)*x^3 + 1/2*(B*a^5 + 5*A*a^4*b)*x^2
```

Fricas [A] time = 0.179545, size = 1, normalized size = 0.03

$$\frac{1}{7}x^7b^5B + \frac{5}{6}x^6b^4aB + \frac{1}{6}x^6b^5A + 2x^5b^3a^2B + x^5b^4aA + \frac{5}{2}x^4b^2a^3B + \frac{5}{2}x^4b^3a^2A + \frac{5}{3}x^3ba^4B + \frac{10}{3}x^3b^2a^3A + \frac{1}{2}x^2a^5B + \frac{5}{2}x^2ba^4A + xa^5A$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^5,x, algorithm="fricas")
```

```
[Out] 1/7*x^7*b^5*B + 5/6*x^6*b^4*a*B + 1/6*x^6*b^5*A + 2*x^5*b^3*a^2*B
 + x^5*b^4*a*A + 5/2*x^4*b^2*a^3*B + 5/2*x^4*b^3*a^2*A + 5/3*x^3*
b*a^4*B + 10/3*x^3*b^2*a^3*A + 1/2*x^2*a^5*B + 5/2*x^2*b*a^4*A +
x*a^5*A
```

Sympy [A] time = 0.174539, size = 129, normalized size = 3.39

$$Aa^5x + \frac{Bb^5x^7}{7} + x^6\left(\frac{Ab^5}{6} + \frac{5Bab^4}{6}\right) + x^5\left(Aab^4 + 2Ba^2b^3\right) + x^4\left(\frac{5Aa^2b^3}{2} + \frac{5Ba^3b^2}{2}\right) + x^3\left(\frac{10Aa^3b^2}{3} + \frac{5Ba^4b}{3}\right) + x^2\left(\frac{5Aa^4b}{2} + \frac{Ba^5}{2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**5*(B*x+A),x)
```

```
[Out] A*a**5*x + B*b**5*x**7/7 + x**6*(A*b**5/6 + 5*B*a*b**4/6) + x**5*
(A*a*b**4 + 2*B*a**2*b**3) + x**4*(5*A*a**2*b**3/2 + 5*B*a**3*b**
2/2) + x**3*(10*A*a**3*b**2/3 + 5*B*a**4*b/3) + x**2*(5*A*a**4*b/
2 + B*a**5/2)
```

GIAC/XCAS [A] time = 0.257203, size = 163, normalized size = 4.29

$$\frac{1}{7}Bb^5x^7 + \frac{5}{6}Bab^4x^6 + \frac{1}{6}Ab^5x^6 + 2\,Ba^2b^3x^5 + Aab^4x^5 + \frac{5}{2}Ba^3b^2x^4 + \frac{5}{2}Aa^2b^3x^4 + \frac{5}{3}Ba^4bx^3 + \frac{10}{3}Aa^3b^2x^3 + \frac{1}{2}Ba^5x^2 + \frac{5}{2}Aa^4bx^2 + Aa^5x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^5,x, algorithm="giac")
```

```
[Out] 1/7*B*b^5*x^7 + 5/6*B*a*b^4*x^6 + 1/6*A*b^5*x^6 + 2*B*a^2*b^3*x^5
 + A*a*b^4*x^5 + 5/2*B*a^3*b^2*x^4 + 5/2*A*a^2*b^3*x^4 + 5/3*B*a^
4*b*x^3 + 10/3*A*a^3*b^2*x^3 + 1/2*B*a^5*x^2 + 5/2*A*a^4*b*x^2 +
A*a^5*x
```

3.94 $\int \frac{(a+bx)^5(A+Bx)}{x} \, dx$

Optimal. Leaf size=80

$$a^5 A \log(x) + 5a^4 Abx + 5a^3 Ab^2x^2 + \frac{10}{3}a^2 Ab^3x^3 + \frac{5}{4}aAb^4x^4 + \frac{B(a+bx)^6}{6b} + \frac{1}{5}Ab^5x^5$$

```
[Out] 5*a^4*A*b*x + 5*a^3*A*b^2*x^2 + (10*a^2*A*b^3*x^3)/3 + (5*a*A*b^4
*x^4)/4 + (A*b^5*x^5)/5 + (B*(a + b*x)^6)/(6*b) + a^5*A*Log[x]
```

Rubi [A] time = 0.0791376, antiderivative size = 80, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 2, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}} = 0.125$

$$a^5 A \log(x) + 5a^4 Abx + 5a^3 Ab^2x^2 + \frac{10}{3}a^2 Ab^3x^3 + \frac{5}{4}aAb^4x^4 + \frac{B(a+bx)^6}{6b} + \frac{1}{5}Ab^5x^5$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^5*(A + B*x))/x,x]
```

```
[Out] 5*a^4*A*b*x + 5*a^3*A*b^2*x^2 + (10*a^2*A*b^3*x^3)/3 + (5*a*A*b^4
*x^4)/4 + (A*b^5*x^5)/5 + (B*(a + b*x)^6)/(6*b) + a^5*A*Log[x]
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$Aa^5 \log(x) + 5Aa^4bx + 10Aa^3b^2 \int x \, dx + \frac{10Aa^2b^3x^3}{3} + \frac{5Aab^4x^4}{4} + \frac{Ab^5x^5}{5} + \frac{B(a+bx)^6}{6b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**5*(B*x+A)/x,x)
```

```
[Out] A*a**5*log(x) + 5*A*a**4*b*x + 10*A*a**3*b**2*Integral(x, x) + 10
*A*a**2*b**3*x**3/3 + 5*A*a*b**4*x**4/4 + A*b**5*x**5/5 + B*(a +
b*x)**6/(6*b)
```

Mathematica [A] time = 0.0532292, size = 108, normalized size = 1.35

$$a^5 A \log(x) + a^4 x(aB + 5Ab) + \frac{5}{2}a^3bx^2(aB + 2Ab) + \frac{10}{3}a^2b^2x^3(aB + Ab) + \frac{1}{5}b^4x^5(5aB + Ab) + \frac{5}{4}ab^3x^4(2aB + Ab) + \frac{1}{6}b^5Bx^6$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^5*(A + B*x))/x,x]
```

```
[Out] a^4*(5*A*b + a*B)*x + (5*a^3*b*(2*A*b + a*B)*x^2)/2 + (10*a^2*b^2
*(A*b + a*B)*x^3)/3 + (5*a*b^3*(A*b + 2*a*B)*x^4)/4 + (b^4*(A*b +
 5*a*B)*x^5)/5 + (b^5*B*x^6)/6 + a^5*A*Log[x]
```

Maple [A] time = 0.004, size = 118, normalized size = 1.5

$$\frac{Bb^5x^6}{6} + \frac{Ab^5x^5}{5} + Bx^5ab^4 + \frac{5\,aAb^4x^4}{4} + \frac{5\,Bx^4a^2b^3}{2} + \frac{10\,a^2Ab^3x^3}{3} + \frac{10\,Bx^3a^3b^2}{3} + 5\,a^3Ab^2x^2 + \frac{5\,Bx^2a^4b}{2} + 5\,a^4Abx + a^5Bx + a^5A\ln(x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^5*(B*x+A)/x,x)
```

```
[Out] 1/6*B*b^5*x^6+1/5*A*b^5*x^5+B*x^5*a*b^4+5/4*a*A*b^4*x^4+5/2*B*x^4
*a^2*b^3+10/3*a^2*A*b^3*x^3+10/3*B*x^3*a^3*b^2+5*a^3*A*b^2*x^2+5/
2*B*x^2*a^4*b+5*a^4*A*b*x+a^5*B*x+a^5*A*ln(x)
```

Maxima [A] time = 1.37386, size = 154, normalized size = 1.92

$$\frac{1}{6}Bb^5x^6 + Aa^5\log(x) + \frac{1}{5}\left(5Bab^4 + Ab^5\right)x^5 + \frac{5}{4}\left(2Ba^2b^3 + Aab^4\right)x^4 + \frac{10}{3}\left(Ba^3b^2 + Aa^2b^3\right)x^3 + \frac{5}{2}\left(Ba^4b + 2Aa^3b^2\right)x^2 + \left(Ba^5 + 5Aa^4b\right)x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^5/x,x, algorithm="maxima")
```

```
[Out] 1/6*B*b^5*x^6 + A*a^5*log(x) + 1/5*(5*B*a*b^4 + A*b^5)*x^5 + 5/4*
(2*B*a^2*b^3 + A*a*b^4)*x^4 + 10/3*(B*a^3*b^2 + A*a^2*b^3)*x^3 +
5/2*(B*a^4*b + 2*A*a^3*b^2)*x^2 + (B*a^5 + 5*A*a^4*b)*x
```

Fricas [A] time = 0.202306, size = 154, normalized size = 1.92

$$\frac{1}{6}Bb^5x^6 + Aa^5\log(x) + \frac{1}{5}\left(5Bab^4 + Ab^5\right)x^5 + \frac{5}{4}\left(2Ba^2b^3 + Aab^4\right)x^4 + \frac{10}{3}\left(Ba^3b^2 + Aa^2b^3\right)x^3 + \frac{5}{2}\left(Ba^4b + 2Aa^3b^2\right)x^2 + \left(Ba^5 + 5Aa^4b\right)x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^5/x,x, algorithm="fricas")
```

```
[Out] 1/6*B*b^5*x^6 + A*a^5*log(x) + 1/5*(5*B*a*b^4 + A*b^5)*x^5 + 5/4*
(2*B*a^2*b^3 + A*a*b^4)*x^4 + 10/3*(B*a^3*b^2 + A*a^2*b^3)*x^3 +
5/2*(B*a^4*b + 2*A*a^3*b^2)*x^2 + (B*a^5 + 5*A*a^4*b)*x
```

Sympy [A] time = 1.66825, size = 126, normalized size = 1.58

$$Aa^5\log(x) + \frac{Bb^5x^6}{6} + x^5\left(\frac{Ab^5}{5} + Bab^4\right) + x^4\left(\frac{5Aab^4}{4} + \frac{5Ba^2b^3}{2}\right) + x^3\left(\frac{10Aa^2b^3}{3} + \frac{10Ba^3b^2}{3}\right) + x^2\left(5Aa^3b^2 + \frac{5Ba^4b}{2}\right) + x\left(5Aa^4b + Ba^5\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**5*(B*x+A)/x,x)
```

```
[Out] A*a**5*log(x) + B*b**5*x**6/6 + x**5*(A*b**5/5 + B*a*b**4) + x**4
*(5*A*a*b**4/4 + 5*B*a**2*b**3/2) + x**3*(10*A*a**2*b**3/3 + 10*B
*a**3*b**2/3) + x**2*(5*A*a**3*b**2 + 5*B*a**4*b/2) + x*(5*A*a**4
*b + B*a**5)
```

GIAC/XCAS [A] time = 0.270844, size = 159, normalized size = 1.99

$$\frac{1}{6}Bb^5x^6 + Bab^4x^5 + \frac{1}{5}Ab^5x^5 + \frac{5}{2}Ba^2b^3x^4 + \frac{5}{4}Aab^4x^4 + \frac{10}{3}Ba^3b^2x^3 + \frac{10}{3}Aa^2b^3x^3 + \frac{5}{2}Ba^4bx^2 + 5Aa^3b^2x^2 + Ba^5x + 5Aa^4bx + Aa^5\ln(|x|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^5/x,x, algorithm="giac")
```

```
[Out] 1/6*B*b^5*x^6 + B*a*b^4*x^5 + 1/5*A*b^5*x^5 + 5/2*B*a^2*b^3*x^4 +
 5/4*A*a*b^4*x^4 + 10/3*B*a^3*b^2*x^3 + 10/3*A*a^2*b^3*x^3 + 5/2*
B*a^4*b*x^2 + 5*A*a^3*b^2*x^2 + B*a^5*x + 5*A*a^4*b*x + A*a^5*ln(
abs(x))
```

3.95 $\int \frac{(a+bx)^5(A+Bx)}{x^2}\,dx$

Optimal. Leaf size=105

$$-\frac{a^5A}{x}+a^4\log(x)(aB+5Ab)+5a^3bx(aB+2Ab)+5a^2b^2x^2(aB+Ab)+\frac{1}{4}b^4x^4(5aB+Ab)+\frac{5}{3}ab^3x^3(2aB+Ab)+\frac{1}{5}b^5Bx^5$$

```
[Out] -((a^5*A)/x) + 5*a^3*b*(2*A*b + a*B)*x + 5*a^2*b^2*(A*b + a*B)*x^
2 + (5*a*b^3*(A*b + 2*a*B)*x^3)/3 + (b^4*(A*b + 5*a*B)*x^4)/4 + (
b^5*B*x^5)/5 + a^4*(5*A*b + a*B)*Log[x]
```

Rubi [A] time = 0.187493, antiderivative size = 105, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{a^5A}{x}+a^4\log(x)(aB+5Ab)+5a^3bx(aB+2Ab)+5a^2b^2x^2(aB+Ab)+\frac{1}{4}b^4x^4(5aB+Ab)+\frac{5}{3}ab^3x^3(2aB+Ab)+\frac{1}{5}b^5Bx^5$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^5*(A + B*x))/x^2,x]
```

```
[Out] -((a^5*A)/x) + 5*a^3*b*(2*A*b + a*B)*x + 5*a^2*b^2*(A*b + a*B)*x^
2 + (5*a*b^3*(A*b + 2*a*B)*x^3)/3 + (b^4*(A*b + 5*a*B)*x^4)/4 + (
b^5*B*x^5)/5 + a^4*(5*A*b + a*B)*Log[x]
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{Aa^5}{x}+\frac{Bb^5x^5}{5}+a^4\left(5Ab+Ba\right)\log\left(x\right)+5a^3bx\left(2Ab+Ba\right)+10a^2b^2\left(Ab+Ba\right)\int x\,dx+\frac{5ab^3x^3\left(Ab+2Ba\right)}{3}+\frac{b^4x^4\left(Ab+5Ba\right)}{4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**5*(B*x+A)/x**2,x)
```

```
[Out] -A*a**5/x + B*b**5*x**5/5 + a**4*(5*A*b + B*a)*log(x) + 5*a**3*b*
x*(2*A*b + B*a) + 10*a**2*b**2*(A*b + B*a)*Integral(x, x) + 5*a*b
**3*x**3*(A*b + 2*B*a)/3 + b**4*x**4*(A*b + 5*B*a)/4
```

Mathematica [A] time = 0.0722995, size = 107, normalized size = 1.02

$$-\frac{a^5A}{x}+5a^3bx(aB+2Ab)+5a^2b^2x^2(aB+Ab)+\log(x)\left(a^5B+5a^4Ab\right)+\frac{1}{4}b^4x^4(5aB+Ab)+\frac{5}{3}ab^3x^3(2aB+Ab)+\frac{1}{5}b^5Bx^5$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^5*(A + B*x))/x^2,x]
```

```
[Out] -((a^5*A)/x) + 5*a^3*b*(2*A*b + a*B)*x + 5*a^2*b^2*(A*b + a*B)*x^
2 + (5*a*b^3*(A*b + 2*a*B)*x^3)/3 + (b^4*(A*b + 5*a*B)*x^4)/4 + (
```

```
b^5*B*x^5)/5 + (5*a^4*A*b + a^5*B)*Log[x]
```

Maple [A] time = 0.01, size = 119, normalized size = 1.1

$$\frac{b^5Bx^5}{5}+\frac{Ax^4b^5}{4}+\frac{5\,Bx^4ab^4}{4}+\frac{5\,Ax^3ab^4}{3}+\frac{10\,Bx^3a^2b^3}{3}+5\,Ax^2a^2b^3+5\,Bx^2a^3b^2+10\,Axa^3b^2+5\,Bxa^4b+5\,A\ln(x)\,a^4b+B\ln(x)\,a^5-\frac{Aa^5}{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((b*x+a)^5*(B*x+A)/x^2,x)
```

```
[Out] 1/5*b^5*B*x^5+1/4*A*x^4*b^5+5/4*B*x^4*a*b^4+5/3*A*x^3*a*b^4+10/3*
B*x^3*a^2*b^3+5*A*x^2*a^2*b^3+5*B*x^2*a^3*b^2+10*A*x*a^3*b^2+5*B*
x*a^4*b+5*A*ln(x)*a^4*b+B*ln(x)*a^5-a^5*A/x
```

Maxima [A] time = 1.3535, size = 155, normalized size = 1.48

$$\frac{1}{5}\,Bb^5x^5-\frac{Aa^5}{x}+\frac{1}{4}\left(5\,Bab^4+Ab^5\right)x^4+\frac{5}{3}\left(2\,Ba^2b^3+Aab^4\right)x^3+5\left(Ba^3b^2+Aa^2b^3\right)x^2+5\left(Ba^4b+2\,Aa^3b^2\right)x+\left(Ba^5+5\,Aa^4b\right)\log\left(x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*(b*x + a)^5/x^2,x, algorithm="maxima")
```

```
[Out] 1/5*B*b^5*x^5 - A*a^5/x + 1/4*(5*B*a*b^4 + A*b^5)*x^4 + 5/3*(2*B*
a^2*b^3 + A*a*b^4)*x^3 + 5*(B*a^3*b^2 + A*a^2*b^3)*x^2 + 5*(B*a^4
*b + 2*A*a^3*b^2)*x + (B*a^5 + 5*A*a^4*b)*log(x)
```

Fricas [A] time = 0.200399, size = 163, normalized size = 1.55

$$\frac{12\,Bb^5x^6-60\,Aa^5+15\left(5\,Bab^4+Ab^5\right)x^5+100\left(2\,Ba^2b^3+Aab^4\right)x^4+300\left(Ba^3b^2+Aa^2b^3\right)x^3+300\left(Ba^4b+2\,Aa^3b^2\right)x^2+6}{60\,x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*(b*x + a)^5/x^2,x, algorithm="fricas")
```

```
[Out] 1/60*(12*B*b^5*x^6 - 60*A*a^5 + 15*(5*B*a*b^4 + A*b^5)*x^5 + 100*
(2*B*a^2*b^3 + A*a*b^4)*x^4 + 300*(B*a^3*b^2 + A*a^2*b^3)*x^3 + 3
00*(B*a^4*b + 2*A*a^3*b^2)*x^2 + 60*(B*a^5 + 5*A*a^4*b)*x*log(x))
/x
```

Sympy [A] time = 1.82058, size = 121, normalized size = 1.15

$$-\frac{Aa^5}{x}+\frac{Bb^5x^5}{5}+a^4\left(5Ab+Ba\right)\log\left(x\right)+x^4\left(\frac{Ab^5}{4}+\frac{5Bab^4}{4}\right)+x^3\left(\frac{5Aab^4}{3}+\frac{10Ba^2b^3}{3}\right)+x^2\left(5Aa^2b^3+5Ba^3b^2\right)+x\left(10Aa^3b^2+5Ba^4b\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((b*x+a)**5*(B*x+A)/x**2,x)
```

```
[Out] -A*a**5/x + B*b**5*x**5/5 + a**4*(5*A*b + B*a)*log(x) + x**4*(A*b
**5/4 + 5*B*a*b**4/4) + x**3*(5*A*a*b**4/3 + 10*B*a**2*b**3/3) +
x**2*(5*A*a**2*b**3 + 5*B*a**3*b**2) + x*(10*A*a**3*b**2 + 5*B*a*
*4*b)
```

GIAC/XCAS [A] time = 0.257819, size = 161, normalized size = 1.53

$$\frac{1}{5}Bb^5x^5 + \frac{5}{4}Bab^4x^4 + \frac{1}{4}Ab^5x^4 + \frac{10}{3}Ba^2b^3x^3 + \frac{5}{3}Aab^4x^3 + 5Ba^3b^2x^2 + 5Aa^2b^3x^2 + 5Ba^4bx + 10Aa^3b^2x - \frac{Aa^5}{x} + \left(Ba^5 + 5Aa^4b\right)\ln\left(|x|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^5/x^2,x, algorithm="giac")
```

```
[Out] 1/5*B*b^5*x^5 + 5/4*B*a*b^4*x^4 + 1/4*A*b^5*x^4 + 10/3*B*a^2*b^3*
x^3 + 5/3*A*a*b^4*x^3 + 5*B*a^3*b^2*x^2 + 5*A*a^2*b^3*x^2 + 5*B*a
^4*b*x + 10*A*a^3*b^2*x - A*a^5/x + (B*a^5 + 5*A*a^4*b)*ln(abs(x)
)
```

3.96 $\int \frac{(a+bx)^5(A+Bx)}{x^3} \, dx$

Optimal. Leaf size=108

$$-\frac{a^5 A}{2x^2}-\frac{a^4(aB+5Ab)}{x}+5a^3 b\log(x)(aB+2Ab)+10a^2b^2x(aB+Ab)+\frac{1}{3}b^4x^3(5aB+Ab)+\frac{5}{2}ab^3x^2(2aB+Ab)+\frac{1}{4}b^5Bx^4$$

```
[Out] -(a^5*A)/(2*x^2) - (a^4*(5*A*b + a*B))/x + 10*a^2*b^2*(A*b + a*B)
*x + (5*a*b^3*(A*b + 2*a*B)*x^2)/2 + (b^4*(A*b + 5*a*B)*x^3)/3 +
(b^5*B*x^4)/4 + 5*a^3*b*(2*A*b + a*B)*Log[x]
```

Rubi [A] time = 0.166551, antiderivative size = 108, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}} = 0.062$

$$-\frac{a^5 A}{2x^2}-\frac{a^4(aB+5Ab)}{x}+5a^3 b\log(x)(aB+2Ab)+10a^2b^2x(aB+Ab)+\frac{1}{3}b^4x^3(5aB+Ab)+\frac{5}{2}ab^3x^2(2aB+Ab)+\frac{1}{4}b^5Bx^4$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^5*(A + B*x))/x^3,x]
```

```
[Out] -(a^5*A)/(2*x^2) - (a^4*(5*A*b + a*B))/x + 10*a^2*b^2*(A*b + a*B)
*x + (5*a*b^3*(A*b + 2*a*B)*x^2)/2 + (b^4*(A*b + 5*a*B)*x^3)/3 +
(b^5*B*x^4)/4 + 5*a^3*b*(2*A*b + a*B)*Log[x]
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{Aa^5}{2x^2}+\frac{Bb^5x^4}{4}-\frac{a^4\left(5Ab+Ba\right)}{x}+5a^3b\left(2Ab+Ba\right)\log\left(x\right)+10a^2b^2x\left(Ab+Ba\right)+5ab^3\left(Ab+2Ba\right)\int x\,dx+\frac{b^4x^3\left(Ab+5Ba\right)}{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**5*(B*x+A)/x**3,x)
```

```
[Out] -A*a**5/(2*x**2) + B*b**5*x**4/4 - a**4*(5*A*b + B*a)/x + 5*a**3*
b*(2*A*b + B*a)*log(x) + 10*a**2*b**2*x*(A*b + B*a) + 5*a*b**3*(A
*b + 2*B*a)*Integral(x, x) + b**4*x**3*(A*b + 5*B*a)/3
```

Mathematica [A] time = 0.0643415, size = 106, normalized size = 0.98

$$-\frac{a^5(A+2Bx)}{2x^2}-\frac{5a^4Ab}{x}+5a^3b\log(x)(aB+2Ab)+10a^3b^2Bx+5a^2b^3x(2A+Bx)+\frac{5}{6}ab^4x^2(3A+2Bx)+\frac{1}{12}b^5x^3(4A+3Bx)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^5*(A + B*x))/x^3,x]
```

```
[Out] (-5*a^4*A*b)/x + 10*a^3*b^2*B*x + 5*a^2*b^3*x*(2*A + B*x) - (a^5*
(A + 2*B*x))/(2*x^2) + (5*a*b^4*x^2*(3*A + 2*B*x))/6 + (b^5*x^3*(
```

```
4*A + 3*B*x))/12 + 5*a^3*b*(2*A*b + a*B)*Log[x]
```

Maple [A] time = 0.01, size = 120, normalized size = 1.1

$$\frac{b^5Bx^4}{4}+\frac{Ax^3b^5}{3}+\frac{5\,Bx^3ab^4}{3}+\frac{5\,Ax^2ab^4}{2}+5\,Bx^2a^2b^3+10\,Axa^2b^3+10\,Bxa^3b^2+10\,A\ln(x)\,a^3b^2+5\,B\ln(x)\,a^4b-\frac{Aa^5}{2\,x^2}-5\,\frac{a^4bA}{x}-\frac{a^5B}{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((b*x+a)^5*(B*x+A)/x^3,x)
```

```
[Out] 1/4*b^5*B*x^4+1/3*A*x^3*b^5+5/3*B*x^3*a*b^4+5/2*A*x^2*a*b^4+5*B*x
^2*a^2*b^3+10*A*x*a^2*b^3+10*B*x*a^3*b^2+10*A*ln(x)*a^3*b^2+5*B*l
n(x)*a^4*b-1/2*a^5*A/x^2-5*a^4/x*A*b-a^5/x*B
```

Maxima [A] time = 1.35645, size = 157, normalized size = 1.45

$$\frac{1}{4}\,Bb^5x^4+\frac{1}{3}\left(5\,Bab^4+Ab^5\right)x^3+\frac{5}{2}\left(2\,Ba^2b^3+Aab^4\right)x^2+10\left(Ba^3b^2+Aa^2b^3\right)x+5\left(Ba^4b+2\,Aa^3b^2\right)\log\left(x\right)-\frac{Aa^5+2\left(Ba^5+5\,Aa^4b\right)x}{2\,x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*(b*x + a)^5/x^3,x, algorithm="maxima")
```

```
[Out] 1/4*B*b^5*x^4 + 1/3*(5*B*a*b^4 + A*b^5)*x^3 + 5/2*(2*B*a^2*b^3 +
A*a*b^4)*x^2 + 10*(B*a^3*b^2 + A*a^2*b^3)*x + 5*(B*a^4*b + 2*A*a^
3*b^2)*log(x) - 1/2*(A*a^5 + 2*(B*a^5 + 5*A*a^4*b)*x)/x^2
```

Fricas [A] time = 0.203217, size = 163, normalized size = 1.51

$$\frac{3\,Bb^5x^6-6\,Aa^5+4\left(5\,Bab^4+Ab^5\right)x^5+30\left(2\,Ba^2b^3+Aab^4\right)x^4+120\left(Ba^3b^2+Aa^2b^3\right)x^3+60\left(Ba^4b+2\,Aa^3b^2\right)x^2\log\left(x\right)-}{12\,x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*(b*x + a)^5/x^3,x, algorithm="fricas")
```

```
[Out] 1/12*(3*B*b^5*x^6 - 6*A*a^5 + 4*(5*B*a*b^4 + A*b^5)*x^5 + 30*(2*B
*a^2*b^3 + A*a*b^4)*x^4 + 120*(B*a^3*b^2 + A*a^2*b^3)*x^3 + 60*(B
*a^4*b + 2*A*a^3*b^2)*x^2*log(x) - 12*(B*a^5 + 5*A*a^4*b)*x)/x^2
```

Sympy [A] time = 2.67121, size = 121, normalized size = 1.12

$$\frac{Bb^5x^4}{4}+5a^3b\left(2Ab+Ba\right)\log\left(x\right)+x^3\left(\frac{Ab^5}{3}+\frac{5Bab^4}{3}\right)+x^2\left(\frac{5Aab^4}{2}+5Ba^2b^3\right)+x\left(10Aa^2b^3+10Ba^3b^2\right)-\frac{Aa^5+x\left(10Aa^4b+2Ba^5\right)}{2x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((b*x+a)**5*(B*x+A)/x**3,x)
```

```
[Out] B*b**5*x**4/4 + 5*a**3*b*(2*A*b + B*a)*log(x) + x**3*(A*b**5/3 +
5*B*a*b**4/3) + x**2*(5*A*a*b**4/2 + 5*B*a**2*b**3) + x*(10*A*a**
2*b**3 + 10*B*a**3*b**2) - (A*a**5 + x*(10*A*a**4*b + 2*B*a**5))/
(2*x**2)
```

GIAC/XCAS [A] time = 0.255587, size = 161, normalized size = 1.49

$$\frac{1}{4}\,Bb^5x^4 + \frac{5}{3}\,Bab^4x^3 + \frac{1}{3}\,Ab^5x^3 + 5\,Ba^2b^3x^2 + \frac{5}{2}\,Aab^4x^2 + 10\,Ba^3b^2x + 10\,Aa^2b^3x + 5\,\left(Ba^4b + 2\,Aa^3b^2\right)\ln\left(|x|\right) - \frac{Aa^5 + 2\,\left(Ba^5 + 5\,Aa^4b\right)x}{2\,x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^5/x^3,x, algorithm="giac")
```

```
[Out] 1/4*B*b^5*x^4 + 5/3*B*a*b^4*x^3 + 1/3*A*b^5*x^3 + 5*B*a^2*b^3*x^2
 + 5/2*A*a*b^4*x^2 + 10*B*a^3*b^2*x + 10*A*a^2*b^3*x + 5*(B*a^4*b
 + 2*A*a^3*b^2)*ln(abs(x)) - 1/2*(A*a^5 + 2*(B*a^5 + 5*A*a^4*b)*x
)/x^2
```

3.97 $\int \frac{(a+bx)^5(A+Bx)}{x^4} \, dx$

Optimal. Leaf size=108

$$-\frac{a^5A}{3x^3}-\frac{a^4(aB+5Ab)}{2x^2}-\frac{5a^3b(aB+2Ab)}{x}+10a^2b^2\log(x)(aB+Ab)+\frac{1}{2}b^4x^2(5aB+Ab)+5ab^3x(2aB+Ab)+\frac{1}{3}b^5Bx^3$$

```
[Out] -(a^5*A)/(3*x^3) - (a^4*(5*A*b + a*B))/(2*x^2) - (5*a^3*b*(2*A*b
+ a*B))/x + 5*a*b^3*(A*b + 2*a*B)*x + (b^4*(A*b + 5*a*B)*x^2)/2 +
 (b^5*B*x^3)/3 + 10*a^2*b^2*(A*b + a*B)*Log[x]
```

Rubi [A] time = 0.17002, antiderivative size = 108, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{a^5A}{3x^3}-\frac{a^4(aB+5Ab)}{2x^2}-\frac{5a^3b(aB+2Ab)}{x}+10a^2b^2\log(x)(aB+Ab)+\frac{1}{2}b^4x^2(5aB+Ab)+5ab^3x(2aB+Ab)+\frac{1}{3}b^5Bx^3$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^5*(A + B*x))/x^4,x]
```

```
[Out] -(a^5*A)/(3*x^3) - (a^4*(5*A*b + a*B))/(2*x^2) - (5*a^3*b*(2*A*b
+ a*B))/x + 5*a*b^3*(A*b + 2*a*B)*x + (b^4*(A*b + 5*a*B)*x^2)/2 +
 (b^5*B*x^3)/3 + 10*a^2*b^2*(A*b + a*B)*Log[x]
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{Aa^5}{3x^3}+\frac{Bb^5x^3}{3}-\frac{a^4\left(5Ab+Ba\right)}{2x^2}-\frac{5a^3b\left(2Ab+Ba\right)}{x}+10a^2b^2\left(Ab+Ba\right)\log\left(x\right)+5ab^3x\left(Ab+2Ba\right)+b^4\left(Ab+5Ba\right)\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**5*(B*x+A)/x**4,x)
```

```
[Out] -A*a**5/(3*x**3) + B*b**5*x**3/3 - a**4*(5*A*b + B*a)/(2*x**2) -
5*a**3*b*(2*A*b + B*a)/x + 10*a**2*b**2*(A*b + B*a)*log(x) + 5*a*
b**3*x*(A*b + 2*B*a) + b**4*(A*b + 5*B*a)*Integral(x, x)
```

Mathematica [A] time = 0.0441145, size = 109, normalized size = 1.01

$$\frac{a^5(-(2A+3Bx))-15a^4bx(A+2Bx)-60a^3Ab^2x^2+60a^2b^2x^3\log(x)(aB+Ab)+60a^2b^3Bx^4+15ab^4x^4(2A+Bx)+b^5x^5(3A\cdots}{6x^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^5*(A + B*x))/x^4,x]
```

```
[Out] (-60*a^3*A*b^2*x^2 + 60*a^2*b^3*B*x^4 + 15*a*b^4*x^4*(2*A + B*x)
- 15*a^4*b*x*(A + 2*B*x) + b^5*x^5*(3*A + 2*B*x) - a^5*(2*A + 3*B
*x) + 60*a^2*b^2*(A*b + a*B)*x^3*Log[x])/(6*x^3)
```

Maple [A] time = 0.01, size = 120, normalized size = 1.1

$$\frac{b^5Bx^3}{3}+\frac{Ax^2b^5}{2}+\frac{5\,Bx^2ab^4}{2}+5\,Axab^4+10\,Bxa^2b^3+10\,A\ln(x)\,a^2b^3+10\,B\ln(x)\,a^3b^2-\frac{5\,a^4bA}{2\,x^2}-\frac{a^5B}{2\,x^2}-10\,\frac{a^3b^2A}{x}-5\,\frac{a^4bB}{x}-\frac{Aa^5}{3\,x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^5*(B*x+A)/x^4,x)
```

```
[Out] 1/3*b^5*B*x^3+1/2*A*x^2*b^5+5/2*B*x^2*a*b^4+5*A*x*a*b^4+10*B*x*a^
2*b^3+10*A*ln(x)*a^2*b^3+10*B*ln(x)*a^3*b^2-5/2*a^4/x^2*A*b-1/2*a
^5/x^2*B-10*a^3*b^2/x*A-5*a^4*b/x*B-1/3*a^5*A/x^3
```

Maxima [A] time = 1.34721, size = 158, normalized size = 1.46

$$\frac{1}{3}\,Bb^5x^3+\frac{1}{2}\left(5\,Bab^4+Ab^5\right)x^2+5\left(2\,Ba^2b^3+Aab^4\right)x+10\left(Ba^3b^2+Aa^2b^3\right)\log(x)-\frac{2\,Aa^5+30\left(Ba^4b+2\,Aa^3b^2\right)x^2+3\left(Ba^5+5\,Aa^4b\right)x}{6\,x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^5/x^4,x, algorithm="maxima")
```

```
[Out] 1/3*B*b^5*x^3 + 1/2*(5*B*a*b^4 + A*b^5)*x^2 + 5*(2*B*a^2*b^3 + A*
a*b^4)*x + 10*(B*a^3*b^2 + A*a^2*b^3)*log(x) - 1/6*(2*A*a^5 + 30*
(B*a^4*b + 2*A*a^3*b^2)*x^2 + 3*(B*a^5 + 5*A*a^4*b)*x)/x^3
```

Fricas [A] time = 0.202035, size = 163, normalized size = 1.51

$$\frac{2\,Bb^5x^6-2\,Aa^5+3\left(5\,Bab^4+Ab^5\right)x^5+30\left(2\,Ba^2b^3+Aab^4\right)x^4+60\left(Ba^3b^2+Aa^2b^3\right)x^3\log(x)-30\left(Ba^4b+2\,Aa^3b^2\right)x^2-}{6\,x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^5/x^4,x, algorithm="fricas")
```

```
[Out] 1/6*(2*B*b^5*x^6 - 2*A*a^5 + 3*(5*B*a*b^4 + A*b^5)*x^5 + 30*(2*B*
a^2*b^3 + A*a*b^4)*x^4 + 60*(B*a^3*b^2 + A*a^2*b^3)*x^3*log(x) -
30*(B*a^4*b + 2*A*a^3*b^2)*x^2 - 3*(B*a^5 + 5*A*a^4*b)*x)/x^3
```

Sympy [A] time = 4.08448, size = 119, normalized size = 1.1

$$\frac{Bb^5x^3}{3}+10a^2b^2\left(Ab+Ba\right)\log(x)+x^2\left(\frac{Ab^5}{2}+\frac{5Bab^4}{2}\right)+x\left(5Aab^4+10Ba^2b^3\right)-\frac{2Aa^5+x^2\left(60Aa^3b^2+30Ba^4b\right)+x\left(15Aa^4b+3Ba^5\right)}{6x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**5*(B*x+A)/x**4,x)
```

```
[Out] B*b**5*x**3/3 + 10*a**2*b**2*(A*b + B*a)*log(x) + x**2*(A*b**5/2
+ 5*B*a*b**4/2) + x*(5*A*a*b**4 + 10*B*a**2*b**3) - (2*A*a**5 + x
```

```
**2*(60*A*a**3*b**2 + 30*B*a**4*b) + x*(15*A*a**4*b + 3*B*a**5))/
(6*x**3)
```

GIAC/XCAS [A] time = 0.24754, size = 159, normalized size = 1.47

$$\frac{1}{3}Bb^5x^3 + \frac{5}{2}Bab^4x^2 + \frac{1}{2}Ab^5x^2 + 10Ba^2b^3x + 5Aab^4x + 10\left(Ba^3b^2 + Aa^2b^3\right)\ln\left(|x|\right) - \frac{2Aa^5 + 30\left(Ba^4b + 2Aa^3b^2\right)x^2 + 3\left(Ba^5 + 5Aa^4b\right)x}{6x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^5/x^4,x, algorithm="giac")
```

```
[Out] 1/3*B*b^5*x^3 + 5/2*B*a*b^4*x^2 + 1/2*A*b^5*x^2 + 10*B*a^2*b^3*x
+ 5*A*a*b^4*x + 10*(B*a^3*b^2 + A*a^2*b^3)*ln(abs(x)) - 1/6*(2*A*
a^5 + 30*(B*a^4*b + 2*A*a^3*b^2)*x^2 + 3*(B*a^5 + 5*A*a^4*b)*x)/x
^3
```

3.98 $\int \frac{(a+bx)^5(A+Bx)}{x^5} dx$

Optimal. Leaf size=107

$$-\frac{a^5A}{4x^4}-\frac{a^4(aB+5Ab)}{3x^3}-\frac{5a^3b(aB+2Ab)}{2x^2}-\frac{10a^2b^2(aB+Ab)}{x}+b^4x(5aB+Ab)+5ab^3\log(x)(2aB+Ab)+\frac{1}{2}b^5Bx^2$$

```
[Out] -(a^5*A)/(4*x^4) - (a^4*(5*A*b + a*B))/(3*x^3) - (5*a^3*b*(2*A*b
+ a*B))/(2*x^2) - (10*a^2*b^2*(A*b + a*B))/x + b^4*(A*b + 5*a*B)*
x + (b^5*B*x^2)/2 + 5*a*b^3*(A*b + 2*a*B)*Log[x]
```

Rubi [A] time = 0.180618, antiderivative size = 107, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}} = 0.062$

$$-\frac{a^5A}{4x^4}-\frac{a^4(aB+5Ab)}{3x^3}-\frac{5a^3b(aB+2Ab)}{2x^2}-\frac{10a^2b^2(aB+Ab)}{x}+b^4x(5aB+Ab)+5ab^3\log(x)(2aB+Ab)+\frac{1}{2}b^5Bx^2$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^5*(A + B*x))/x^5,x]
```

```
[Out] -(a^5*A)/(4*x^4) - (a^4*(5*A*b + a*B))/(3*x^3) - (5*a^3*b*(2*A*b
+ a*B))/(2*x^2) - (10*a^2*b^2*(A*b + a*B))/x + b^4*(A*b + 5*a*B)*
x + (b^5*B*x^2)/2 + 5*a*b^3*(A*b + 2*a*B)*Log[x]
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{Aa^5}{4x^4}+Bb^5\int x\,dx-\frac{a^4\left(5Ab+Ba\right)}{3x^3}-\frac{5a^3b\left(2Ab+Ba\right)}{2x^2}-\frac{10a^2b^2\left(Ab+Ba\right)}{x}+5ab^3\left(Ab+2Ba\right)\log\left(x\right)+\frac{b^4\left(Ab+5Ba\right)\int A\,dx}{A}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**5*(B*x+A)/x**5,x)
```

```
[Out] -A*a**5/(4*x**4) + B*b**5*Integral(x, x) - a**4*(5*A*b + B*a)/(3*
x**3) - 5*a**3*b*(2*A*b + B*a)/(2*x**2) - 10*a**2*b**2*(A*b + B*a
)/x + 5*a*b**3*(A*b + 2*B*a)*log(x) + b**4*(A*b + 5*B*a)*Integral
(A, x)/A
```

Mathematica [A] time = 0.0698497, size = 106, normalized size = 0.99

$$-\frac{a^5(3A+4Bx)}{12x^4}-\frac{5a^4b(2A+3Bx)}{6x^3}-\frac{5a^3b^2(A+2Bx)}{x^2}-\frac{10a^2Ab^3}{x}+5ab^3\log(x)(2aB+Ab)+5ab^4Bx+\frac{1}{2}b^5x(2A+Bx)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^5*(A + B*x))/x^5,x]
```

```
[Out] (-10*a^2*A*b^3)/x + 5*a*b^4*B*x + (b^5*x*(2*A + B*x))/2 - (5*a^3*
b^2*(A + 2*B*x))/x^2 - (5*a^4*b*(2*A + 3*B*x))/(6*x^3) - (a^5*(3*
```

```
A + 4*B*x))/(12*x^4) + 5*a*b^3*(A*b + 2*a*B)*Log[x]
```

Maple [A] time = 0.011, size = 119, normalized size = 1.1

$$\frac{b^5Bx^2}{2}+Axb^5+5\,Bxab^4+5\,A\ln(x)\,ab^4+10\,B\ln(x)\,a^2b^3-5\,\frac{a^3b^2A}{x^2}-\frac{5\,a^4bB}{2\,x^2}-10\,\frac{a^2b^3A}{x}-10\,\frac{a^3b^2B}{x}-\frac{5\,a^4bA}{3\,x^3}-\frac{a^5B}{3\,x^3}-\frac{Aa^5}{4\,x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^5*(B*x+A)/x^5,x)
```

```
[Out] 1/2*b^5*B*x^2+A*x*b^5+5*B*x*a*b^4+5*A*ln(x)*a*b^4+10*B*ln(x)*a^2*
b^3-5*a^3*b^2/x^2*A-5/2*a^4*b/x^2*B-10*a^2*b^3/x*A-10*a^3*b^2/x*B
-5/3*a^4/x^3*A*b-1/3*a^5/x^3*B-1/4*a^5*A/x^4
```

Maxima [A] time = 1.34535, size = 157, normalized size = 1.47

$$\frac{1}{2}\,Bb^5x^2+\left(5\,Bab^4+Ab^5\right)x+5\left(2\,Ba^2b^3+Aab^4\right)\log(x)-\frac{3\,Aa^5+120\left(Ba^3b^2+Aa^2b^3\right)x^3+30\left(Ba^4b+2\,Aa^3b^2\right)x^2+4\left(Ba^5+5\,Aa^4b\right)x}{12\,x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^5/x^5,x, algorithm="maxima")
```

```
[Out] 1/2*B*b^5*x^2 + (5*B*a*b^4 + A*b^5)*x + 5*(2*B*a^2*b^3 + A*a*b^4)
*log(x) - 1/12*(3*A*a^5 + 120*(B*a^3*b^2 + A*a^2*b^3)*x^3 + 30*(B
*a^4*b + 2*A*a^3*b^2)*x^2 + 4*(B*a^5 + 5*A*a^4*b)*x)/x^4
```

Fricas [A] time = 0.208087, size = 163, normalized size = 1.52

$$\frac{6\,Bb^5x^6-3\,Aa^5+12\left(5\,Bab^4+Ab^5\right)x^5+60\left(2\,Ba^2b^3+Aab^4\right)x^4\log(x)-120\left(Ba^3b^2+Aa^2b^3\right)x^3-30\left(Ba^4b+2\,Aa^3b^2\right)x^2}{12\,x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^5/x^5,x, algorithm="fricas")
```

```
[Out] 1/12*(6*B*b^5*x^6 - 3*A*a^5 + 12*(5*B*a*b^4 + A*b^5)*x^5 + 60*(2*
B*a^2*b^3 + A*a*b^4)*x^4*log(x) - 120*(B*a^3*b^2 + A*a^2*b^3)*x^3
 - 30*(B*a^4*b + 2*A*a^3*b^2)*x^2 - 4*(B*a^5 + 5*A*a^4*b)*x)/x^4
```

Sympy [A] time = 5.69284, size = 117, normalized size = 1.09

$$\frac{Bb^5x^2}{2}+5ab^3\left(Ab+2Ba\right)\log(x)+x\left(Ab^5+5Bab^4\right)-\frac{3Aa^5+x^3\left(120Aa^2b^3+120Ba^3b^2\right)+x^2\left(60Aa^3b^2+30Ba^4b\right)+x\left(20Aa^4b+4Ba^5\right)}{12x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**5*(B*x+A)/x**5,x)
```

```
[Out] B*b**5*x**2/2 + 5*a*b**3*(A*b + 2*B*a)*log(x) + x*(A*b**5 + 5*B*a
*b**4) - (3*A*a**5 + x**3*(120*A*a**2*b**3 + 120*B*a**3*b**2) + x
**2*(60*A*a**3*b**2 + 30*B*a**4*b) + x*(20*A*a**4*b + 4*B*a**5))/
(12*x**4)
```

GIAC/XCAS [A] time = 0.313214, size = 157, normalized size = 1.47

$$\frac{1}{2}Bb^5x^2 + 5Bab^4x + Ab^5x + 5\left(2Ba^2b^3 + Aab^4\right)\ln\left(|x|\right) - \frac{3Aa^5 + 120\left(Ba^3b^2 + Aa^2b^3\right)x^3 + 30\left(Ba^4b + 2Aa^3b^2\right)x^2 + 4\left(Ba^5 + 5Aa^4b\right)x}{12x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^5/x^5,x, algorithm="giac")
```

```
[Out] 1/2*B*b^5*x^2 + 5*B*a*b^4*x + A*b^5*x + 5*(2*B*a^2*b^3 + A*a*b^4)
*ln(abs(x)) - 1/12*(3*A*a^5 + 120*(B*a^3*b^2 + A*a^2*b^3)*x^3 + 3
0*(B*a^4*b + 2*A*a^3*b^2)*x^2 + 4*(B*a^5 + 5*A*a^4*b)*x)/x^4
```

3.99 $\int \frac{(a+bx)^5(A+Bx)}{x^6} dx$

Optimal. Leaf size=104

$$-\frac{a^5A}{5x^5}-\frac{a^4(aB+5Ab)}{4x^4}-\frac{5a^3b(aB+2Ab)}{3x^3}-\frac{5a^2b^2(aB+Ab)}{x^2}+b^4\log(x)(5aB+Ab)-\frac{5ab^3(2aB+Ab)}{x}+b^5Bx$$

```
[Out] -(a^5*A)/(5*x^5) - (a^4*(5*A*b + a*B))/(4*x^4) - (5*a^3*b*(2*A*b
+ a*B))/(3*x^3) - (5*a^2*b^2*(A*b + a*B))/x^2 - (5*a*b^3*(A*b + 2
*a*B))/x + b^5*B*x + b^4*(A*b + 5*a*B)*Log[x]
```

Rubi [A] time = 0.163076, antiderivative size = 104, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{a^5A}{5x^5}-\frac{a^4(aB+5Ab)}{4x^4}-\frac{5a^3b(aB+2Ab)}{3x^3}-\frac{5a^2b^2(aB+Ab)}{x^2}+b^4\log(x)(5aB+Ab)-\frac{5ab^3(2aB+Ab)}{x}+b^5Bx$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^5*(A + B*x))/x^6,x]
```

```
[Out] -(a^5*A)/(5*x^5) - (a^4*(5*A*b + a*B))/(4*x^4) - (5*a^3*b*(2*A*b
+ a*B))/(3*x^3) - (5*a^2*b^2*(A*b + a*B))/x^2 - (5*a*b^3*(A*b + 2
*a*B))/x + b^5*B*x + b^4*(A*b + 5*a*B)*Log[x]
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{Aa^5}{5x^5}-\frac{a^4\left(5Ab+Ba\right)}{4x^4}-\frac{5a^3b\left(2Ab+Ba\right)}{3x^3}-\frac{5a^2b^2\left(Ab+Ba\right)}{x^2}-\frac{5ab^3\left(Ab+2Ba\right)}{x}+b^5\int B\,dx+b^4\left(Ab+5Ba\right)\log\left(x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**5*(B*x+A)/x**6,x)
```

```
[Out] -A*a**5/(5*x**5) - a**4*(5*A*b + B*a)/(4*x**4) - 5*a**3*b*(2*A*b
+ B*a)/(3*x**3) - 5*a**2*b**2*(A*b + B*a)/x**2 - 5*a*b**3*(A*b +
2*B*a)/x + b**5*Integral(B, x) + b**4*(A*b + 5*B*a)*log(x)
```

Mathematica [A] time = 0.0757304, size = 106, normalized size = 1.02

$$-\frac{a^5(4A+5Bx)}{20x^5}-\frac{5a^4b(3A+4Bx)}{12x^4}-\frac{5a^3b^2(2A+3Bx)}{3x^3}-\frac{5a^2b^3(A+2Bx)}{x^2}+b^4\log(x)(5aB+Ab)-\frac{5aAb^4}{x}+b^5Bx$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^5*(A + B*x))/x^6,x]
```

```
[Out] (-5*a*A*b^4)/x + b^5*B*x - (5*a^2*b^3*(A + 2*B*x))/x^2 - (5*a^3*b
^2*(2*A + 3*B*x))/(3*x^3) - (5*a^4*b*(3*A + 4*B*x))/(12*x^4) - (a
^5*(4*A + 5*B*x))/(20*x^5) + b^4*(A*b + 5*a*B)*Log[x]
```

Maple [A] time = 0.012, size = 120, normalized size = 1.2

$$b^5Bx + A\ln(x)\,b^5 + 5\,B\ln(x)\,ab^4 - 5\,\frac{a^2b^3A}{x^2} - 5\,\frac{a^3b^2B}{x^2} - \frac{Aa^5}{5\,x^5} - 5\,\frac{ab^4A}{x} - 10\,\frac{a^2b^3B}{x} - \frac{10\,a^3b^2A}{3\,x^3} - \frac{5\,a^4bB}{3\,x^3} - \frac{5\,a^4bA}{4\,x^4} - \frac{a^5B}{4\,x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^5*(B*x+A)/x^6,x)
```

```
[Out] b^5*B*x+A*ln(x)*b^5+5*B*ln(x)*a*b^4-5*a^2*b^3/x^2*A-5*a^3*b^2/x^2
*B-1/5*a^5*A/x^5-5*a*b^4/x*A-10*a^2*b^3/x*B-10/3*a^3*b^2/x^3*A-5/
3*a^4*b/x^3*B-5/4*a^4/x^4*A*b-1/4*a^5/x^4*B
```

Maxima [A] time = 1.34509, size = 155, normalized size = 1.49

$$Bb^5x + \left(5\,Bab^4 + Ab^5\right)\log(x) - \frac{12\,Aa^5 + 300\left(2\,Ba^2b^3 + Aab^4\right)x^4 + 300\left(Ba^3b^2 + Aa^2b^3\right)x^3 + 100\left(Ba^4b + 2\,Aa^3b^2\right)x^2 + 15\left(Ba^5 + 5\,Aa^4b\right)x}{60\,x^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^5/x^6,x, algorithm="maxima")
```

```
[Out] B*b^5*x + (5*B*a*b^4 + A*b^5)*log(x) - 1/60*(12*A*a^5 + 300*(2*B*
a^2*b^3 + A*a*b^4)*x^4 + 300*(B*a^3*b^2 + A*a^2*b^3)*x^3 + 100*(B
*a^4*b + 2*A*a^3*b^2)*x^2 + 15*(B*a^5 + 5*A*a^4*b)*x)/x^5
```

Fricas [A] time = 0.201607, size = 163, normalized size = 1.57

$$\frac{60\,Bb^5x^6 + 60\left(5\,Bab^4 + Ab^5\right)x^5\log(x) - 12\,Aa^5 - 300\left(2\,Ba^2b^3 + Aab^4\right)x^4 - 300\left(Ba^3b^2 + Aa^2b^3\right)x^3 - 100\left(Ba^4b + 2\,Aa^3b\right.}{60\,x^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^5/x^6,x, algorithm="fricas")
```

```
[Out] 1/60*(60*B*b^5*x^6 + 60*(5*B*a*b^4 + A*b^5)*x^5*log(x) - 12*A*a^5
 - 300*(2*B*a^2*b^3 + A*a*b^4)*x^4 - 300*(B*a^3*b^2 + A*a^2*b^3)*
x^3 - 100*(B*a^4*b + 2*A*a^3*b^2)*x^2 - 15*(B*a^5 + 5*A*a^4*b)*x)
/x^5
```

Sympy [A] time = 9.49236, size = 117, normalized size = 1.12

$$Bb^5x + b^4\left(Ab + 5Ba\right)\log(x) - \frac{12Aa^5 + x^4\left(300Aab^4 + 600Ba^2b^3\right) + x^3\left(300Aa^2b^3 + 300Ba^3b^2\right) + x^2\left(200Aa^3b^2 + 100Ba^4b\right) + x\left(75Aa^4b + 15Ba^5\right)}{60x^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**5*(B*x+A)/x**6,x)
```

```
[Out] B*b**5*x + b**4*(A*b + 5*B*a)*log(x) - (12*A*a**5 + x**4*(300*A*a
*b**4 + 600*B*a**2*b**3) + x**3*(300*A*a**2*b**3 + 300*B*a**3*b**
2) + x**2*(200*A*a**3*b**2 + 100*B*a**4*b) + x*(75*A*a**4*b + 15*
B*a**5))/(60*x**5)
```

GIAC/XCAS [A] time = 0.282032, size = 157, normalized size = 1.51

$$Bb^5x + \left(5\,Bab^4 + Ab^5\right)\ln\left(|x|\right) - \frac{12\,Aa^5 + 300\,\left(2\,Ba^2b^3 + Aab^4\right)x^4 + 300\,\left(Ba^3b^2 + Aa^2b^3\right)x^3 + 100\,\left(Ba^4b + 2\,Aa^3b^2\right)x^2 + 15\,\left(Ba^5 + 5\,Aa^4b\right)x}{60\,x^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^5/x^6,x, algorithm="giac")
```

```
[Out] B*b^5*x + (5*B*a*b^4 + A*b^5)*ln(abs(x)) - 1/60*(12*A*a^5 + 300*(
2*B*a^2*b^3 + A*a*b^4)*x^4 + 300*(B*a^3*b^2 + A*a^2*b^3)*x^3 + 10
0*(B*a^4*b + 2*A*a^3*b^2)*x^2 + 15*(B*a^5 + 5*A*a^4*b)*x)/x^5
```

3.100 $\int \frac{(a+bx)^5(A+Bx)}{x^7}\,dx$

Optimal. Leaf size=85

$$-\frac{a^5B}{5x^5}-\frac{5a^4bB}{4x^4}-\frac{10a^3b^2B}{3x^3}-\frac{5a^2b^3B}{x^2}-\frac{A(a+bx)^6}{6ax^6}-\frac{5ab^4B}{x}+b^5B\log(x)$$

```
[Out] -(a^5*B)/(5*x^5) - (5*a^4*b*B)/(4*x^4) - (10*a^3*b^2*B)/(3*x^3) -
 (5*a^2*b^3*B)/x^2 - (5*a*b^4*B)/x - (A*(a + b*x)^6)/(6*a*x^6) +
b^5*B*Log[x]
```

Rubi [A] time = 0.0900029, antiderivative size = 85, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 2, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$-\frac{a^5B}{5x^5}-\frac{5a^4bB}{4x^4}-\frac{10a^3b^2B}{3x^3}-\frac{5a^2b^3B}{x^2}-\frac{A(a+bx)^6}{6ax^6}-\frac{5ab^4B}{x}+b^5B\log(x)$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^5*(A + B*x))/x^7,x]
```

```
[Out] -(a^5*B)/(5*x^5) - (5*a^4*b*B)/(4*x^4) - (10*a^3*b^2*B)/(3*x^3) -
 (5*a^2*b^3*B)/x^2 - (5*a*b^4*B)/x - (A*(a + b*x)^6)/(6*a*x^6) +
b^5*B*Log[x]
```

Rubi in Sympy [A] time = 24.7194, size = 85, normalized size = 1.

$$-\frac{A\left(a+bx\right)^6}{6ax^6}-\frac{Ba^5}{5x^5}-\frac{5Ba^4b}{4x^4}-\frac{10Ba^3b^2}{3x^3}-\frac{5Ba^2b^3}{x^2}-\frac{5Bab^4}{x}+Bb^5\log\left(x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**5*(B*x+A)/x**7,x)
```

```
[Out] -A*(a + b*x)**6/(6*a*x**6) - B*a**5/(5*x**5) - 5*B*a**4*b/(4*x**4
) - 10*B*a**3*b**2/(3*x**3) - 5*B*a**2*b**3/x**2 - 5*B*a*b**4/x +
 B*b**5*log(x)
```

Mathematica [A] time = 0.0667776, size = 109, normalized size = 1.28

$$-\frac{2a^5(5A+6Bx)+15a^4bx(4A+5Bx)+50a^3b^2x^2(3A+4Bx)+100a^2b^3x^3(2A+3Bx)+150ab^4x^4(A+2Bx)+60Ab^5x^5-60b^5}{60x^6}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^5*(A + B*x))/x^7,x]
```

```
[Out] -(60*A*b^5*x^5 + 150*a*b^4*x^4*(A + 2*B*x) + 100*a^2*b^3*x^3*(2*A
 + 3*B*x) + 50*a^3*b^2*x^2*(3*A + 4*B*x) + 15*a^4*b*x*(4*A + 5*B*
x) + 2*a^5*(5*A + 6*B*x) - 60*b^5*B*x^6*Log[x])/(60*x^6)
```

Maple [A] time = 0.012, size = 124, normalized size = 1.5

$$b^5B\ln(x)-\frac{5\,ab^4A}{2\,x^2}-5\,\frac{a^2b^3B}{x^2}-\frac{a^4bA}{x^5}-\frac{a^5B}{5\,x^5}-\frac{b^5A}{x}-5\,\frac{ab^4B}{x}-\frac{10\,a^2b^3A}{3\,x^3}-\frac{10\,a^3b^2B}{3\,x^3}-\frac{5\,a^3b^2A}{2\,x^4}-\frac{5\,a^4bB}{4\,x^4}-\frac{Aa^5}{6\,x^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^5*(B*x+A)/x^7,x)
```

```
[Out] b^5*B*ln(x)-5/2*a*b^4/x^2*A-5*a^2*b^3*B/x^2-a^4/x^5*A*b-1/5*a^5*B
/x^5-b^5/x*A-5*a*b^4*B/x-10/3*a^2*b^3/x^3*A-10/3*a^3*b^2*B/x^3-5/
2*a^3*b^2/x^4*A-5/4*a^4*b*B/x^4-1/6*A*a^5/x^6
```

Maxima [A] time = 1.36306, size = 159, normalized size = 1.87

$$Bb^5 \log(x) - \frac{10\,Aa^5 + 60\left(5\,Bab^4 + Ab^5\right)x^5 + 150\left(2\,Ba^2b^3 + Aab^4\right)x^4 + 200\left(Ba^3b^2 + Aa^2b^3\right)x^3 + 75\left(Ba^4b + 2\,Aa^3b^2\right)x^2 + 12\left(Ba^5 + 5\right.}{60\,x^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^5/x^7,x, algorithm="maxima")
```

```
[Out] B*b^5*log(x) - 1/60*(10*A*a^5 + 60*(5*B*a*b^4 + A*b^5)*x^5 + 150*
(2*B*a^2*b^3 + A*a*b^4)*x^4 + 200*(B*a^3*b^2 + A*a^2*b^3)*x^3 + 7
5*(B*a^4*b + 2*A*a^3*b^2)*x^2 + 12*(B*a^5 + 5*A*a^4*b)*x)/x^6
```

Fricas [A] time = 0.203301, size = 163, normalized size = 1.92

$$\frac{60\,Bb^5x^6\log(x) - 10\,Aa^5 - 60\left(5\,Bab^4 + Ab^5\right)x^5 - 150\left(2\,Ba^2b^3 + Aab^4\right)x^4 - 200\left(Ba^3b^2 + Aa^2b^3\right)x^3 - 75\left(Ba^4b + 2\,Aa^3b^2\right.}{60\,x^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^5/x^7,x, algorithm="fricas")
```

```
[Out] 1/60*(60*B*b^5*x^6*log(x) - 10*A*a^5 - 60*(5*B*a*b^4 + A*b^5)*x^5
 - 150*(2*B*a^2*b^3 + A*a*b^4)*x^4 - 200*(B*a^3*b^2 + A*a^2*b^3)*
x^3 - 75*(B*a^4*b + 2*A*a^3*b^2)*x^2 - 12*(B*a^5 + 5*A*a^4*b)*x)/
x^6
```

Sympy [A] time = 12.5409, size = 122, normalized size = 1.44

$$Bb^5 \log(x) - \frac{10Aa^5 + x^5\left(60Ab^5 + 300Bab^4\right) + x^4\left(150Aab^4 + 300Ba^2b^3\right) + x^3\left(200Aa^2b^3 + 200Ba^3b^2\right) + x^2\left(150Aa^3b^2 + 75Ba^4b\right) + x\left(\right.}{60x^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**5*(B*x+A)/x**7,x)
```

```
[Out] B*b**5*log(x) - (10*A*a**5 + x**5*(60*A*b**5 + 300*B*a*b**4) + x*
*4*(150*A*a*b**4 + 300*B*a**2*b**3) + x**3*(200*A*a**2*b**3 + 200
*B*a**3*b**2) + x**2*(150*A*a**3*b**2 + 75*B*a**4*b) + x*(60*A*a*
*4*b + 12*B*a**5))/(60*x**6)
```

GIAC/XCAS [A] time = 0.29547, size = 161, normalized size = 1.89

$$Bb^5\ln(|x|) - \frac{10\,Aa^5 + 60\left(5\,Bab^4 + Ab^5\right)x^5 + 150\left(2\,Ba^2b^3 + Aab^4\right)x^4 + 200\left(Ba^3b^2 + Aa^2b^3\right)x^3 + 75\left(Ba^4b + 2\,Aa^3b^2\right)x^2 + 12\left(Ba^5 + 5\right.}{60\,x^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^5/x^7,x, algorithm="giac")
```

```
[Out] B*b^5*ln(abs(x)) - 1/60*(10*A*a^5 + 60*(5*B*a*b^4 + A*b^5)*x^5 +
150*(2*B*a^2*b^3 + A*a*b^4)*x^4 + 200*(B*a^3*b^2 + A*a^2*b^3)*x^3
 + 75*(B*a^4*b + 2*A*a^3*b^2)*x^2 + 12*(B*a^5 + 5*A*a^4*b)*x)/x^6
```

3.101 $\int \frac{(a+bx)^5(A+Bx)}{x^8} \, dx$

Optimal. Leaf size=44

$$\frac{(a+bx)^6(Ab-7aB)}{42a^2x^6}-\frac{A(a+bx)^6}{7ax^7}$$

```
[Out] -(A*(a + b*x)^6)/(7*a*x^7) + ((A*b - 7*a*B)*(a + b*x)^6)/(42*a^2*
x^6)
```

Rubi [A] time = 0.0568072, antiderivative size = 44, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$\frac{(a+bx)^6(Ab-7aB)}{42a^2x^6}-\frac{A(a+bx)^6}{7ax^7}$$

Antiderivative was successfully verified.

```
[In] Int[((a + b*x)^5*(A + B*x))/x^8,x]
```

```
[Out] -(A*(a + b*x)^6)/(7*a*x^7) + ((A*b - 7*a*B)*(a + b*x)^6)/(42*a^2*
x^6)
```

Rubi in Sympy [A] time = 9.11375, size = 37, normalized size = 0.84

$$-\frac{A\left(a+bx\right)^{6}}{7ax^{7}}+\frac{\left(a+bx\right)^{6}\left(Ab-7Ba\right)}{42a^{2}x^{6}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)**5*(B*x+A)/x**8,x)
```

```
[Out] -A*(a + b*x)**6/(7*a*x**7) + (a + b*x)**6*(A*b - 7*B*a)/(42*a**2*
x**6)
```

Mathematica [B] time = 0.0480026, size = 104, normalized size = 2.36

$$-\frac{a^5(6A+7Bx)+7a^4bx(5A+6Bx)+21a^3b^2x^2(4A+5Bx)+35a^2b^3x^3(3A+4Bx)+35ab^4x^4(2A+3Bx)+21b^5x^5(A+2Bx)}{42x^7}$$

Antiderivative was successfully verified.

```
[In] Integrate[((a + b*x)^5*(A + B*x))/x^8,x]
```

```
[Out] -(21*b^5*x^5*(A + 2*B*x) + 35*a*b^4*x^4*(2*A + 3*B*x) + 35*a^2*b^
3*x^3*(3*A + 4*B*x) + 21*a^3*b^2*x^2*(4*A + 5*B*x) + 7*a^4*b*x*(5
*A + 6*B*x) + a^5*(6*A + 7*B*x))/(42*x^7)
```

Maple [B] time = 0.009, size = 104, normalized size = 2.4

$$-\frac{Aa^{5}}{7\,x^{7}}-\frac{b^{4}\left(Ab+5\,Ba\right)}{2\,x^{2}}-\frac{a^{3}b\left(2\,Ab+Ba\right)}{x^{5}}-\frac{Bb^{5}}{x}-\frac{5\,ab^{3}\left(Ab+2\,Ba\right)}{3\,x^{3}}-\frac{5\,a^{2}b^{2}\left(Ab+Ba\right)}{2\,x^{4}}-\frac{a^{4}\left(5\,Ab+Ba\right)}{6\,x^{6}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^5*(B*x+A)/x^8,x)
```

```
[Out] -1/7*A*a^5/x^7-1/2*b^4*(A*b+5*B*a)/x^2-a^3*b*(2*A*b+B*a)/x^5-B*b^
5/x-5/3*a*b^3*(A*b+2*B*a)/x^3-5/2*a^2*b^2*(A*b+B*a)/x^4-1/6*a^4*(
5*A*b+B*a)/x^6
```

Maxima [A] time = 1.36453, size = 161, normalized size = 3.66

$$-\frac{42\,Bb^5x^6 + 6\,Aa^5 + 21\left(5\,Bab^4 + Ab^5\right)x^5 + 70\left(2\,Ba^2b^3 + Aab^4\right)x^4 + 105\left(Ba^3b^2 + Aa^2b^3\right)x^3 + 42\left(Ba^4b + 2\,Aa^3b^2\right)x^2 + 7\,(}{42\,x^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^5/x^8,x, algorithm="maxima")
```

```
[Out] -1/42*(42*B*b^5*x^6 + 6*A*a^5 + 21*(5*B*a*b^4 + A*b^5)*x^5 + 70*(
2*B*a^2*b^3 + A*a*b^4)*x^4 + 105*(B*a^3*b^2 + A*a^2*b^3)*x^3 + 42
*(B*a^4*b + 2*A*a^3*b^2)*x^2 + 7*(B*a^5 + 5*A*a^4*b)*x)/x^7
```

Fricas [A] time = 0.195514, size = 161, normalized size = 3.66

$$-\frac{42\,Bb^5x^6 + 6\,Aa^5 + 21\left(5\,Bab^4 + Ab^5\right)x^5 + 70\left(2\,Ba^2b^3 + Aab^4\right)x^4 + 105\left(Ba^3b^2 + Aa^2b^3\right)x^3 + 42\left(Ba^4b + 2\,Aa^3b^2\right)x^2 + 7\,(}{42\,x^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^5/x^8,x, algorithm="fricas")
```

```
[Out] -1/42*(42*B*b^5*x^6 + 6*A*a^5 + 21*(5*B*a*b^4 + A*b^5)*x^5 + 70*(
2*B*a^2*b^3 + A*a*b^4)*x^4 + 105*(B*a^3*b^2 + A*a^2*b^3)*x^3 + 42
*(B*a^4*b + 2*A*a^3*b^2)*x^2 + 7*(B*a^5 + 5*A*a^4*b)*x)/x^7
```

Sympy [A] time = 16.2177, size = 126, normalized size = 2.86

$$-\frac{6Aa^5 + 42Bb^5x^6 + x^5\left(21Ab^5 + 105Bab^4\right) + x^4\left(70Aab^4 + 140Ba^2b^3\right) + x^3\left(105Aa^2b^3 + 105Ba^3b^2\right) + x^2\left(84Aa^3b^2 + 42Ba^4b\right.}{42x^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**5*(B*x+A)/x**8,x)
```

```
[Out] -(6*A*a**5 + 42*B*b**5*x**6 + x**5*(21*A*b**5 + 105*B*a*b**4) + x
**4*(70*A*a*b**4 + 140*B*a**2*b**3) + x**3*(105*A*a**2*b**3 + 105
*B*a**3*b**2) + x**2*(84*A*a**3*b**2 + 42*B*a**4*b) + x*(35*A*a**
4*b + 7*B*a**5))/(42*x**7)
```

GIAC/XCAS [A] time = 0.263366, size = 166, normalized size = 3.77

$$-\frac{42\,Bb^5x^6 + 105\,Bab^4x^5 + 21\,Ab^5x^5 + 140\,Ba^2b^3x^4 + 70\,Aab^4x^4 + 105\,Ba^3b^2x^3 + 105\,Aa^2b^3x^3 + 42\,Ba^4bx^2 + 84\,Aa^3b^2x^2 + }{42\,x^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^5/x^8,x, algorithm="giac")
```

```
[Out] -1/42*(42*B*b^5*x^6 + 105*B*a*b^4*x^5 + 21*A*b^5*x^5 + 140*B*a^2*
b^3*x^4 + 70*A*a*b^4*x^4 + 105*B*a^3*b^2*x^3 + 105*A*a^2*b^3*x^3
+ 42*B*a^4*b*x^2 + 84*A*a^3*b^2*x^2 + 7*B*a^5*x + 35*A*a^4*b*x +
6*A*a^5)/x^7
```

3.102 $\int \frac{(a+bx)^5(A+Bx)}{x^9}\,dx$

Optimal. Leaf size=70

$$-\frac{b(a+bx)^6(Ab-4aB)}{168a^3x^6}+\frac{(a+bx)^6(Ab-4aB)}{28a^2x^7}-\frac{A(a+bx)^6}{8ax^8}$$

```
[Out] -(A*(a + b*x)^6)/(8*a*x^8) + ((A*b - 4*a*B)*(a + b*x)^6)/(28*a^2*
x^7) - (b*(A*b - 4*a*B)*(a + b*x)^6)/(168*a^3*x^6)
```

Rubi [A] time = 0.098301, antiderivative size = 70, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.188

$$-\frac{b(a+bx)^6(Ab-4aB)}{168a^3x^6}+\frac{(a+bx)^6(Ab-4aB)}{28a^2x^7}-\frac{A(a+bx)^6}{8ax^8}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^5*(A + B*x))/x^9,x]
```

```
[Out] -(A*(a + b*x)^6)/(8*a*x^8) + ((A*b - 4*a*B)*(a + b*x)^6)/(28*a^2*
x^7) - (b*(A*b - 4*a*B)*(a + b*x)^6)/(168*a^3*x^6)
```

Rubi in Sympy [A] time = 13.371, size = 63, normalized size = 0.9

$$-\frac{A\,(a+bx)^6}{8ax^8}+\frac{(a+bx)^6\,(Ab-4Ba)}{28a^2x^7}-\frac{b\,(a+bx)^6\,(Ab-4Ba)}{168a^3x^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**5*(B*x+A)/x**9,x)
```

```
[Out] -A*(a + b*x)**6/(8*a*x**8) + (a + b*x)**6*(A*b - 4*B*a)/(28*a**2*
x**7) - b*(a + b*x)**6*(A*b - 4*B*a)/(168*a**3*x**6)
```

Mathematica [A] time = 0.0476819, size = 107, normalized size = 1.53

$$-\frac{3a^5(7A+8Bx)+20a^4bx(6A+7Bx)+56a^3b^2x^2(5A+6Bx)+84a^2b^3x^3(4A+5Bx)+70ab^4x^4(3A+4Bx)+28b^5x^5(2A+3Bx}{168x^8}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^5*(A + B*x))/x^9,x]
```

```
[Out] -(28*b^5*x^5*(2*A + 3*B*x) + 70*a*b^4*x^4*(3*A + 4*B*x) + 84*a^2*
b^3*x^3*(4*A + 5*B*x) + 56*a^3*b^2*x^2*(5*A + 6*B*x) + 20*a^4*b*x
*(6*A + 7*B*x) + 3*a^5*(7*A + 8*B*x))/(168*x^8)
```

Maple [A] time = 0.008, size = 104, normalized size = 1.5

$$-\frac{Aa^5}{8\,x^8}-\frac{a^4\,(5\,Ab+Ba)}{7\,x^7}-\frac{Bb^5}{2\,x^2}-2\,\frac{a^2b^2\,(Ab+Ba)}{x^5}-\frac{b^4\,(Ab+5\,Ba)}{3\,x^3}-\frac{5\,ab^3\,(Ab+2\,Ba)}{4\,x^4}-\frac{5\,a^3b\,(2\,Ab+Ba)}{6\,x^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^5*(B*x+A)/x^9,x)
```

```
[Out] -1/8*A*a^5/x^8-1/7*a^4*(5*A*b+B*a)/x^7-1/2*B*b^5/x^2-2*a^2*b^2*(A
*b+B*a)/x^5-1/3*b^4*(A*b+5*B*a)/x^3-5/4*a*b^3*(A*b+2*B*a)/x^4-5/6
*a^3*b*(2*A*b+B*a)/x^6
```

Maxima [A] time = 1.39534, size = 161, normalized size = 2.3

$$-\frac{84\,Bb^5x^6 + 21\,Aa^5 + 56\,\left(5\,Bab^4 + Ab^5\right)x^5 + 210\,\left(2\,Ba^2b^3 + Aab^4\right)x^4 + 336\,\left(Ba^3b^2 + Aa^2b^3\right)x^3 + 140\,\left(Ba^4b + 2\,Aa^3b^2\right)x^2 + \cdots}{168\,x^8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^5/x^9,x, algorithm="maxima")
```

```
[Out] -1/168*(84*B*b^5*x^6 + 21*A*a^5 + 56*(5*B*a*b^4 + A*b^5)*x^5 + 21
0*(2*B*a^2*b^3 + A*a*b^4)*x^4 + 336*(B*a^3*b^2 + A*a^2*b^3)*x^3 +
 140*(B*a^4*b + 2*A*a^3*b^2)*x^2 + 24*(B*a^5 + 5*A*a^4*b)*x)/x^8
```

Fricas [A] time = 0.194873, size = 161, normalized size = 2.3

$$-\frac{84\,Bb^5x^6 + 21\,Aa^5 + 56\,\left(5\,Bab^4 + Ab^5\right)x^5 + 210\,\left(2\,Ba^2b^3 + Aab^4\right)x^4 + 336\,\left(Ba^3b^2 + Aa^2b^3\right)x^3 + 140\,\left(Ba^4b + 2\,Aa^3b^2\right)x^2 + \cdots}{168\,x^8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^5/x^9,x, algorithm="fricas")
```

```
[Out] -1/168*(84*B*b^5*x^6 + 21*A*a^5 + 56*(5*B*a*b^4 + A*b^5)*x^5 + 21
0*(2*B*a^2*b^3 + A*a*b^4)*x^4 + 336*(B*a^3*b^2 + A*a^2*b^3)*x^3 +
 140*(B*a^4*b + 2*A*a^3*b^2)*x^2 + 24*(B*a^5 + 5*A*a^4*b)*x)/x^8
```

Sympy [A] time = 19.2484, size = 126, normalized size = 1.8

$$-\frac{21Aa^5 + 84Bb^5x^6 + x^5\left(56Ab^5 + 280Bab^4\right) + x^4\left(210Aab^4 + 420Ba^2b^3\right) + x^3\left(336Aa^2b^3 + 336Ba^3b^2\right) + x^2\left(280Aa^3b^2 + 140 \cdots\right.}{168x^8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**5*(B*x+A)/x**9,x)
```

```
[Out] -(21*A*a**5 + 84*B*b**5*x**6 + x**5*(56*A*b**5 + 280*B*a*b**4) +
x**4*(210*A*a*b**4 + 420*B*a**2*b**3) + x**3*(336*A*a**2*b**3 + 3
36*B*a**3*b**2) + x**2*(280*A*a**3*b**2 + 140*B*a**4*b) + x*(120*
A*a**4*b + 24*B*a**5))/(168*x**8)
```

GIAC/XCAS [A] time = 0.273669, size = 166, normalized size = 2.37

$$-\frac{84\,Bb^5x^6 + 280\,Bab^4x^5 + 56\,Ab^5x^5 + 420\,Ba^2b^3x^4 + 210\,Aab^4x^4 + 336\,Ba^3b^2x^3 + 336\,Aa^2b^3x^3 + 140\,Ba^4bx^2 + 280\,Aa^3b^2x^2 \cdots}{168\,x^8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^5/x^9,x, algorithm="giac")
```

```
[Out] -1/168*(84*B*b^5*x^6 + 280*B*a*b^4*x^5 + 56*A*b^5*x^5 + 420*B*a^2
*b^3*x^4 + 210*A*a*b^4*x^4 + 336*B*a^3*b^2*x^3 + 336*A*a^2*b^3*x^
3 + 140*B*a^4*b*x^2 + 280*A*a^3*b^2*x^2 + 24*B*a^5*x + 120*A*a^4*
b*x + 21*A*a^5)/x^8
```

3.103 $\int \frac{(a+bx)^5(A+Bx)}{x^{10}}\,dx$

Optimal. Leaf size=115

$$-\frac{a^5A}{9x^9}-\frac{a^4(aB+5Ab)}{8x^8}-\frac{5a^3b(aB+2Ab)}{7x^7}-\frac{5a^2b^2(aB+Ab)}{3x^6}-\frac{b^4(5aB+Ab)}{4x^4}-\frac{ab^3(2aB+Ab)}{x^5}-\frac{b^5B}{3x^3}$$

```
[Out] -(a^5*A)/(9*x^9) - (a^4*(5*A*b + a*B))/(8*x^8) - (5*a^3*b*(2*A*b
+ a*B))/(7*x^7) - (5*a^2*b^2*(A*b + a*B))/(3*x^6) - (a*b^3*(A*b +
 2*a*B))/x^5 - (b^4*(A*b + 5*a*B))/(4*x^4) - (b^5*B)/(3*x^3)
```

Rubi [A] time = 0.18986, antiderivative size = 115, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{a^5A}{9x^9}-\frac{a^4(aB+5Ab)}{8x^8}-\frac{5a^3b(aB+2Ab)}{7x^7}-\frac{5a^2b^2(aB+Ab)}{3x^6}-\frac{b^4(5aB+Ab)}{4x^4}-\frac{ab^3(2aB+Ab)}{x^5}-\frac{b^5B}{3x^3}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^5*(A + B*x))/x^10,x]
```

```
[Out] -(a^5*A)/(9*x^9) - (a^4*(5*A*b + a*B))/(8*x^8) - (5*a^3*b*(2*A*b
+ a*B))/(7*x^7) - (5*a^2*b^2*(A*b + a*B))/(3*x^6) - (a*b^3*(A*b +
 2*a*B))/x^5 - (b^4*(A*b + 5*a*B))/(4*x^4) - (b^5*B)/(3*x^3)
```

Rubi in Sympy [A] time = 33.9683, size = 112, normalized size = 0.97

$$-\frac{Aa^5}{9x^9}-\frac{Bb^5}{3x^3}-\frac{a^4\left(5Ab+Ba\right)}{8x^8}-\frac{5a^3b\left(2Ab+Ba\right)}{7x^7}-\frac{5a^2b^2\left(Ab+Ba\right)}{3x^6}-\frac{ab^3\left(Ab+2Ba\right)}{x^5}-\frac{b^4\left(Ab+5Ba\right)}{4x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**5*(B*x+A)/x**10,x)
```

```
[Out] -A*a**5/(9*x**9) - B*b**5/(3*x**3) - a**4*(5*A*b + B*a)/(8*x**8)
- 5*a**3*b*(2*A*b + B*a)/(7*x**7) - 5*a**2*b**2*(A*b + B*a)/(3*x*
*6) - a*b**3*(A*b + 2*B*a)/x**5 - b**4*(A*b + 5*B*a)/(4*x**4)
```

Mathematica [A] time = 0.0489532, size = 107, normalized size = 0.93

$$-\frac{7a^5(8A+9Bx)+45a^4bx(7A+8Bx)+120a^3b^2x^2(6A+7Bx)+168a^2b^3x^3(5A+6Bx)+126ab^4x^4(4A+5Bx)+42b^5x^5(3A+}{504x^9}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^5*(A + B*x))/x^10,x]
```

```
[Out] -(42*b^5*x^5*(3*A + 4*B*x) + 126*a*b^4*x^4*(4*A + 5*B*x) + 168*a^
2*b^3*x^3*(5*A + 6*B*x) + 120*a^3*b^2*x^2*(6*A + 7*B*x) + 45*a^4*
b*x*(7*A + 8*B*x) + 7*a^5*(8*A + 9*B*x))/(504*x^9)
```

Maple [A] time = 0.008, size = 104, normalized size = 0.9

$$-\frac{Aa^5}{9\,x^9}-\frac{a^4\left(5\,Ab+Ba\right)}{8\,x^8}-\frac{5\,a^3b\left(2\,Ab+Ba\right)}{7\,x^7}-\frac{5\,a^2b^2\left(Ab+Ba\right)}{3\,x^6}-\frac{ab^3\left(Ab+2\,Ba\right)}{x^5}-\frac{b^4\left(Ab+5\,Ba\right)}{4\,x^4}-\frac{Bb^5}{3\,x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^5*(B*x+A)/x^10,x)
```

```
[Out] -1/9*a^5*A/x^9-1/8*a^4*(5*A*b+B*a)/x^8-5/7*a^3*b*(2*A*b+B*a)/x^7-
5/3*a^2*b^2*(A*b+B*a)/x^6-a*b^3*(A*b+2*B*a)/x^5-1/4*b^4*(A*b+5*B*
a)/x^4-1/3*b^5*B/x^3
```

Maxima [A] time = 1.36017, size = 161, normalized size = 1.4

$$-\frac{168\,Bb^5x^6 + 56\,Aa^5 + 126\,\left(5\,Bab^4 + Ab^5\right)x^5 + 504\,\left(2\,Ba^2b^3 + Aab^4\right)x^4 + 840\,\left(Ba^3b^2 + Aa^2b^3\right)x^3 + 360\,\left(Ba^4b + 2\,Aa^3b^2\right)x^2}{504\,x^9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^5/x^10,x, algorithm="maxima")
```

```
[Out] -1/504*(168*B*b^5*x^6 + 56*A*a^5 + 126*(5*B*a*b^4 + A*b^5)*x^5 +
504*(2*B*a^2*b^3 + A*a*b^4)*x^4 + 840*(B*a^3*b^2 + A*a^2*b^3)*x^3
 + 360*(B*a^4*b + 2*A*a^3*b^2)*x^2 + 63*(B*a^5 + 5*A*a^4*b)*x)/x^
9
```

Fricas [A] time = 0.194952, size = 161, normalized size = 1.4

$$-\frac{168\,Bb^5x^6 + 56\,Aa^5 + 126\,\left(5\,Bab^4 + Ab^5\right)x^5 + 504\,\left(2\,Ba^2b^3 + Aab^4\right)x^4 + 840\,\left(Ba^3b^2 + Aa^2b^3\right)x^3 + 360\,\left(Ba^4b + 2\,Aa^3b^2\right)x^2}{504\,x^9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^5/x^10,x, algorithm="fricas")
```

```
[Out] -1/504*(168*B*b^5*x^6 + 56*A*a^5 + 126*(5*B*a*b^4 + A*b^5)*x^5 +
504*(2*B*a^2*b^3 + A*a*b^4)*x^4 + 840*(B*a^3*b^2 + A*a^2*b^3)*x^3
 + 360*(B*a^4*b + 2*A*a^3*b^2)*x^2 + 63*(B*a^5 + 5*A*a^4*b)*x)/x^
9
```

Sympy [A] time = 26.0589, size = 126, normalized size = 1.1

$$-\frac{56Aa^5 + 168Bb^5x^6 + x^5\left(126Ab^5 + 630Bab^4\right) + x^4\left(504Aab^4 + 1008Ba^2b^3\right) + x^3\left(840Aa^2b^3 + 840Ba^3b^2\right) + x^2\left(720Aa^3b^2 + \right.}{504x^9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**5*(B*x+A)/x**10,x)
```

```
[Out] -(56*A*a**5 + 168*B*b**5*x**6 + x**5*(126*A*b**5 + 630*B*a*b**4)
+ x**4*(504*A*a*b**4 + 1008*B*a**2*b**3) + x**3*(840*A*a**2*b**3
+ 840*B*a**3*b**2) + x**2*(720*A*a**3*b**2 + 360*B*a**4*b) + x*(3
15*A*a**4*b + 63*B*a**5))/(504*x**9)
```

GIAC/XCAS [A] time = 0.284362, size = 166, normalized size = 1.44

$$-\frac{168\,Bb^5x^6 + 630\,Bab^4x^5 + 126\,Ab^5x^5 + 1008\,Ba^2b^3x^4 + 504\,Aab^4x^4 + 840\,Ba^3b^2x^3 + 840\,Aa^2b^3x^3 + 360\,Ba^4bx^2 + 720\,Aa^3b}{504\,x^9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^5/x^10,x, algorithm="giac")
```

```
[Out] -1/504*(168*B*b^5*x^6 + 630*B*a*b^4*x^5 + 126*A*b^5*x^5 + 1008*B*
a^2*b^3*x^4 + 504*A*a*b^4*x^4 + 840*B*a^3*b^2*x^3 + 840*A*a^2*b^3
*x^3 + 360*B*a^4*b*x^2 + 720*A*a^3*b^2*x^2 + 63*B*a^5*x + 315*A*a
^4*b*x + 56*A*a^5)/x^9
```

3.104 $\int \frac{(a+bx)^5(A+Bx)}{x^{11}}\,dx$

Optimal. Leaf size=117

$$-\frac{a^5A}{10x^{10}}-\frac{a^4(aB+5Ab)}{9x^9}-\frac{5a^3b(aB+2Ab)}{8x^8}-\frac{10a^2b^2(aB+Ab)}{7x^7}-\frac{b^4(5aB+Ab)}{5x^5}-\frac{5ab^3(2aB+Ab)}{6x^6}-\frac{b^5B}{4x^4}$$

```
[Out] -(a^5*A)/(10*x^10) - (a^4*(5*A*b + a*B))/(9*x^9) - (5*a^3*b*(2*A*
b + a*B))/(8*x^8) - (10*a^2*b^2*(A*b + a*B))/(7*x^7) - (5*a*b^3*(
A*b + 2*a*B))/(6*x^6) - (b^4*(A*b + 5*a*B))/(5*x^5) - (b^5*B)/(4*
x^4)
```

Rubi [A] time = 0.175462, antiderivative size = 117, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{a^5A}{10x^{10}}-\frac{a^4(aB+5Ab)}{9x^9}-\frac{5a^3b(aB+2Ab)}{8x^8}-\frac{10a^2b^2(aB+Ab)}{7x^7}-\frac{b^4(5aB+Ab)}{5x^5}-\frac{5ab^3(2aB+Ab)}{6x^6}-\frac{b^5B}{4x^4}$$

Antiderivative was successfully verified.

```
[In] Int[((a + b*x)^5*(A + B*x))/x^11,x]
```

```
[Out] -(a^5*A)/(10*x^10) - (a^4*(5*A*b + a*B))/(9*x^9) - (5*a^3*b*(2*A*
b + a*B))/(8*x^8) - (10*a^2*b^2*(A*b + a*B))/(7*x^7) - (5*a*b^3*(
A*b + 2*a*B))/(6*x^6) - (b^4*(A*b + 5*a*B))/(5*x^5) - (b^5*B)/(4*
x^4)
```

Rubi in Sympy [A] time = 33.4383, size = 116, normalized size = 0.99

$$-\frac{Aa^5}{10x^{10}}-\frac{Bb^5}{4x^4}-\frac{a^4\left(5Ab+Ba\right)}{9x^9}-\frac{5a^3b\left(2Ab+Ba\right)}{8x^8}-\frac{10a^2b^2\left(Ab+Ba\right)}{7x^7}-\frac{5ab^3\left(Ab+2Ba\right)}{6x^6}-\frac{b^4\left(Ab+5Ba\right)}{5x^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)**5*(B*x+A)/x**11,x)
```

```
[Out] -A*a**5/(10*x**10) - B*b**5/(4*x**4) - a**4*(5*A*b + B*a)/(9*x**9
) - 5*a**3*b*(2*A*b + B*a)/(8*x**8) - 10*a**2*b**2*(A*b + B*a)/(7
*x**7) - 5*a*b**3*(A*b + 2*B*a)/(6*x**6) - b**4*(A*b + 5*B*a)/(5*
x**5)
```

Mathematica [A] time = 0.0500053, size = 107, normalized size = 0.91

$$-\frac{28a^5(9A+10Bx)+175a^4bx(8A+9Bx)+450a^3b^2x^2(7A+8Bx)+600a^2b^3x^3(6A+7Bx)+420ab^4x^4(5A+6Bx)+126b^5x^5(4}{2520x^{10}}$$

Antiderivative was successfully verified.

```
[In] Integrate[((a + b*x)^5*(A + B*x))/x^11,x]
```

```
[Out] -(126*b^5*x^5*(4*A + 5*B*x) + 420*a*b^4*x^4*(5*A + 6*B*x) + 600*a
^2*b^3*x^3*(6*A + 7*B*x) + 450*a^3*b^2*x^2*(7*A + 8*B*x) + 175*a^
4*b*x*(8*A + 9*B*x) + 28*a^5*(9*A + 10*B*x))/(2520*x^10)
```

Maple [A] time = 0.009, size = 104, normalized size = 0.9

$$-\frac{Aa^5}{10\,x^{10}}-\frac{a^4\left(5\,Ab+Ba\right)}{9\,x^9}-\frac{5\,a^3b\left(2\,Ab+Ba\right)}{8\,x^8}-\frac{10\,a^2b^2\left(Ab+Ba\right)}{7\,x^7}-\frac{5\,ab^3\left(Ab+2\,Ba\right)}{6\,x^6}-\frac{b^4\left(Ab+5\,Ba\right)}{5\,x^5}-\frac{Bb^5}{4\,x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^5*(B*x+A)/x^11,x)
```

```
[Out] -1/10*a^5*A/x^10-1/9*a^4*(5*A*b+B*a)/x^9-5/8*a^3*b*(2*A*b+B*a)/x^
8-10/7*a^2*b^2*(A*b+B*a)/x^7-5/6*a*b^3*(A*b+2*B*a)/x^6-1/5*b^4*(A
*b+5*B*a)/x^5-1/4*b^5*B/x^4
```

Maxima [A] time = 1.34251, size = 161, normalized size = 1.38

$$-\frac{630\,Bb^5x^6 + 252\,Aa^5 + 504\left(5\,Bab^4 + Ab^5\right)x^5 + 2100\left(2\,Ba^2b^3 + Aab^4\right)x^4 + 3600\left(Ba^3b^2 + Aa^2b^3\right)x^3 + 1575\left(Ba^4b + 2\,Aa^3b\right.}{2520\,x^{10}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^5/x^11,x, algorithm="maxima")
```

```
[Out] -1/2520*(630*B*b^5*x^6 + 252*A*a^5 + 504*(5*B*a*b^4 + A*b^5)*x^5
+ 2100*(2*B*a^2*b^3 + A*a*b^4)*x^4 + 3600*(B*a^3*b^2 + A*a^2*b^3)
*x^3 + 1575*(B*a^4*b + 2*A*a^3*b^2)*x^2 + 280*(B*a^5 + 5*A*a^4*b)
*x)/x^10
```

Fricas [A] time = 0.196308, size = 161, normalized size = 1.38

$$-\frac{630\,Bb^5x^6 + 252\,Aa^5 + 504\left(5\,Bab^4 + Ab^5\right)x^5 + 2100\left(2\,Ba^2b^3 + Aab^4\right)x^4 + 3600\left(Ba^3b^2 + Aa^2b^3\right)x^3 + 1575\left(Ba^4b + 2\,Aa^3b\right.}{2520\,x^{10}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^5/x^11,x, algorithm="fricas")
```

```
[Out] -1/2520*(630*B*b^5*x^6 + 252*A*a^5 + 504*(5*B*a*b^4 + A*b^5)*x^5
+ 2100*(2*B*a^2*b^3 + A*a*b^4)*x^4 + 3600*(B*a^3*b^2 + A*a^2*b^3)
*x^3 + 1575*(B*a^4*b + 2*A*a^3*b^2)*x^2 + 280*(B*a^5 + 5*A*a^4*b)
*x)/x^10
```

Sympy [A] time = 33.8304, size = 126, normalized size = 1.08

$$-\frac{252Aa^5 + 630Bb^5x^6 + x^5\left(504Ab^5 + 2520Bab^4\right) + x^4\left(2100Aab^4 + 4200Ba^2b^3\right) + x^3\left(3600Aa^2b^3 + 3600Ba^3b^2\right) + x^2\left(3150A\right.}{2520x^{10}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**5*(B*x+A)/x**11,x)
```

```
[Out] -(252*A*a**5 + 630*B*b**5*x**6 + x**5*(504*A*b**5 + 2520*B*a*b**4
) + x**4*(2100*A*a*b**4 + 4200*B*a**2*b**3) + x**3*(3600*A*a**2*b
**3 + 3600*B*a**3*b**2) + x**2*(3150*A*a**3*b**2 + 1575*B*a**4*b)
 + x*(1400*A*a**4*b + 280*B*a**5))/(2520*x**10)
```

GIAC/XCAS [A] time = 0.278103, size = 166, normalized size = 1.42

$$-\frac{630\,Bb^5x^6 + 2520\,Bab^4x^5 + 504\,Ab^5x^5 + 4200\,Ba^2b^3x^4 + 2100\,Aab^4x^4 + 3600\,Ba^3b^2x^3 + 3600\,Aa^2b^3x^3 + 1575\,Ba^4bx^2 + 31}{2520\,x^{10}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^5/x^11,x, algorithm="giac")
```

```
[Out] -1/2520*(630*B*b^5*x^6 + 2520*B*a*b^4*x^5 + 504*A*b^5*x^5 + 4200*
B*a^2*b^3*x^4 + 2100*A*a*b^4*x^4 + 3600*B*a^3*b^2*x^3 + 3600*A*a^
2*b^3*x^3 + 1575*B*a^4*b*x^2 + 3150*A*a^3*b^2*x^2 + 280*B*a^5*x +
 1400*A*a^4*b*x + 252*A*a^5)/x^10
```

3.105 $\int \frac{(a+bx)^5(A+Bx)}{x^{12}} \, dx$

Optimal. Leaf size=117

$$-\frac{a^5A}{11x^{11}}-\frac{a^4(aB+5Ab)}{10x^{10}}-\frac{5a^3b(aB+2Ab)}{9x^9}-\frac{5a^2b^2(aB+Ab)}{4x^8}-\frac{b^4(5aB+Ab)}{6x^6}-\frac{5ab^3(2aB+Ab)}{7x^7}-\frac{b^5B}{5x^5}$$

```
[Out] -(a^5*A)/(11*x^11) - (a^4*(5*A*b + a*B))/(10*x^10) - (5*a^3*b*(2*
A*b + a*B))/(9*x^9) - (5*a^2*b^2*(A*b + a*B))/(4*x^8) - (5*a*b^3*
(A*b + 2*a*B))/(7*x^7) - (b^4*(A*b + 5*a*B))/(6*x^6) - (b^5*B)/(5
*x^5)
```

Rubi [A] time = 0.163753, antiderivative size = 117, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{a^5A}{11x^{11}}-\frac{a^4(aB+5Ab)}{10x^{10}}-\frac{5a^3b(aB+2Ab)}{9x^9}-\frac{5a^2b^2(aB+Ab)}{4x^8}-\frac{b^4(5aB+Ab)}{6x^6}-\frac{5ab^3(2aB+Ab)}{7x^7}-\frac{b^5B}{5x^5}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^5*(A + B*x))/x^12,x]
```

```
[Out] -(a^5*A)/(11*x^11) - (a^4*(5*A*b + a*B))/(10*x^10) - (5*a^3*b*(2*
A*b + a*B))/(9*x^9) - (5*a^2*b^2*(A*b + a*B))/(4*x^8) - (5*a*b^3*
(A*b + 2*a*B))/(7*x^7) - (b^4*(A*b + 5*a*B))/(6*x^6) - (b^5*B)/(5
*x^5)
```

Rubi in Sympy [A] time = 33.7867, size = 116, normalized size = 0.99

$$-\frac{Aa^5}{11x^{11}}-\frac{Bb^5}{5x^5}-\frac{a^4\left(5Ab+Ba\right)}{10x^{10}}-\frac{5a^3b\left(2Ab+Ba\right)}{9x^9}-\frac{5a^2b^2\left(Ab+Ba\right)}{4x^8}-\frac{5ab^3\left(Ab+2Ba\right)}{7x^7}-\frac{b^4\left(Ab+5Ba\right)}{6x^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**5*(B*x+A)/x**12,x)
```

```
[Out] -A*a**5/(11*x**11) - B*b**5/(5*x**5) - a**4*(5*A*b + B*a)/(10*x**
10) - 5*a**3*b*(2*A*b + B*a)/(9*x**9) - 5*a**2*b**2*(A*b + B*a)/(
4*x**8) - 5*a*b**3*(A*b + 2*B*a)/(7*x**7) - b**4*(A*b + 5*B*a)/(6
*x**6)
```

Mathematica [A] time = 0.0502402, size = 107, normalized size = 0.91

$$-\frac{126a^5(10A+11Bx)+770a^4bx(9A+10Bx)+1925a^3b^2x^2(8A+9Bx)+2475a^2b^3x^3(7A+8Bx)+1650ab^4x^4(6A+7Bx)+46}{13860x^{11}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^5*(A + B*x))/x^12,x]
```

```
[Out] -(462*b^5*x^5*(5*A + 6*B*x) + 1650*a*b^4*x^4*(6*A + 7*B*x) + 2475
*a^2*b^3*x^3*(7*A + 8*B*x) + 1925*a^3*b^2*x^2*(8*A + 9*B*x) + 770
*a^4*b*x*(9*A + 10*B*x) + 126*a^5*(10*A + 11*B*x))/(13860*x^11)
```

Maple [A] time = 0.009, size = 104, normalized size = 0.9

$$-\frac{Aa^5}{11\,x^{11}}-\frac{a^4\left(5\,Ab+Ba\right)}{10\,x^{10}}-\frac{5\,a^3b\left(2\,Ab+Ba\right)}{9\,x^9}-\frac{5\,a^2b^2\left(Ab+Ba\right)}{4\,x^8}-\frac{5\,ab^3\left(Ab+2\,Ba\right)}{7\,x^7}-\frac{b^4\left(Ab+5\,Ba\right)}{6\,x^6}-\frac{Bb^5}{5\,x^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((b*x+a)^5*(B*x+A)/x^12,x)
```

```
[Out] -1/11*a^5*A/x^11-1/10*a^4*(5*A*b+B*a)/x^10-5/9*a^3*b*(2*A*b+B*a)/
x^9-5/4*a^2*b^2*(A*b+B*a)/x^8-5/7*a*b^3*(A*b+2*B*a)/x^7-1/6*b^4*(
A*b+5*B*a)/x^6-1/5*b^5*B/x^5
```

Maxima [A] time = 1.35917, size = 161, normalized size = 1.38

$$-\frac{2772\,Bb^5x^6 + 1260\,Aa^5 + 2310\left(5\,Bab^4 + Ab^5\right)x^5 + 9900\left(2\,Ba^2b^3 + Aab^4\right)x^4 + 17325\left(Ba^3b^2 + Aa^2b^3\right)x^3 + 7700\left(Ba^4b + 2\right.}{13860\,x^{11}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*(b*x + a)^5/x^12,x, algorithm="maxima")
```

```
[Out] -1/13860*(2772*B*b^5*x^6 + 1260*A*a^5 + 2310*(5*B*a*b^4 + A*b^5)*
x^5 + 9900*(2*B*a^2*b^3 + A*a*b^4)*x^4 + 17325*(B*a^3*b^2 + A*a^2
*b^3)*x^3 + 7700*(B*a^4*b + 2*A*a^3*b^2)*x^2 + 1386*(B*a^5 + 5*A*
a^4*b)*x)/x^11
```

Fricas [A] time = 0.195143, size = 161, normalized size = 1.38

$$-\frac{2772\,Bb^5x^6 + 1260\,Aa^5 + 2310\left(5\,Bab^4 + Ab^5\right)x^5 + 9900\left(2\,Ba^2b^3 + Aab^4\right)x^4 + 17325\left(Ba^3b^2 + Aa^2b^3\right)x^3 + 7700\left(Ba^4b + 2\right.}{13860\,x^{11}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*(b*x + a)^5/x^12,x, algorithm="fricas")
```

```
[Out] -1/13860*(2772*B*b^5*x^6 + 1260*A*a^5 + 2310*(5*B*a*b^4 + A*b^5)*
x^5 + 9900*(2*B*a^2*b^3 + A*a*b^4)*x^4 + 17325*(B*a^3*b^2 + A*a^2
*b^3)*x^3 + 7700*(B*a^4*b + 2*A*a^3*b^2)*x^2 + 1386*(B*a^5 + 5*A*
a^4*b)*x)/x^11
```

Sympy [A] time = 38.6468, size = 126, normalized size = 1.08

$$-\frac{1260Aa^5 + 2772Bb^5x^6 + x^5\left(2310Ab^5 + 11550Bab^4\right) + x^4\left(9900Aab^4 + 19800Ba^2b^3\right) + x^3\left(17325Aa^2b^3 + 17325Ba^3b^2\right) + x}{13860x^{11}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((b*x+a)**5*(B*x+A)/x**12,x)
```

```
[Out] -(1260*A*a**5 + 2772*B*b**5*x**6 + x**5*(2310*A*b**5 + 11550*B*a*
b**4) + x**4*(9900*A*a*b**4 + 19800*B*a**2*b**3) + x**3*(17325*A*
a**2*b**3 + 17325*B*a**3*b**2) + x**2*(15400*A*a**3*b**2 + 7700*B
*a**4*b) + x*(6930*A*a**4*b + 1386*B*a**5))/(13860*x**11)
```

GIAC/XCAS [A] time = 0.315792, size = 166, normalized size = 1.42

$$-\frac{2772\,Bb^5x^6 + 11550\,Bab^4x^5 + 2310\,Ab^5x^5 + 19800\,Ba^2b^3x^4 + 9900\,Aab^4x^4 + 17325\,Ba^3b^2x^3 + 17325\,Aa^2b^3x^3 + 7700\,Ba^4b}{13860\,x^{11}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^5/x^12,x, algorithm="giac")
```

```
[Out] -1/13860*(2772*B*b^5*x^6 + 11550*B*a*b^4*x^5 + 2310*A*b^5*x^5 + 1
9800*B*a^2*b^3*x^4 + 9900*A*a*b^4*x^4 + 17325*B*a^3*b^2*x^3 + 173
25*A*a^2*b^3*x^3 + 7700*B*a^4*b*x^2 + 15400*A*a^3*b^2*x^2 + 1386*
B*a^5*x + 6930*A*a^4*b*x + 1260*A*a^5)/x^11
```

3.106 $\int x^{10}(a+bx)^{10}(A+Bx)\,dx$

Optimal. Leaf size=229

$$\frac{1}{11}a^{10}Ax^{11}+\frac{1}{12}a^9x^{12}(aB+10Ab)+\frac{5}{13}a^8bx^{13}(2aB+9Ab)+\frac{15}{14}a^7b^2x^{14}(3aB+8Ab)+2a^6b^3x^{15}(4aB+7Ab)+\frac{21}{8}a^5b^4x^{16}(5aB+6Ab)+\frac{42}{17}a^4b^5x^{17}(6aB+5Ab)+\frac{5}{3}a^3b^6x^{18}(7aB+4Ab)+\frac{15}{19}a^2b^7x^{19}(8aB+3Ab)+\frac{1}{21}b^9x^{21}(10aB+Ab)+\frac{1}{4}ab^8x^{20}(9aB+2Ab)+\frac{1}{22}b^{10}Bx^{22}$$

```
[Out] (a^10*A*x^11)/11 + (a^9*(10*A*b + a*B)*x^12)/12 + (5*a^8*b*(9*A*b
 + 2*a*B)*x^13)/13 + (15*a^7*b^2*(8*A*b + 3*a*B)*x^14)/14 + 2*a^6
*b^3*(7*A*b + 4*a*B)*x^15 + (21*a^5*b^4*(6*A*b + 5*a*B)*x^16)/8 +
 (42*a^4*b^5*(5*A*b + 6*a*B)*x^17)/17 + (5*a^3*b^6*(4*A*b + 7*a*B
)*x^18)/3 + (15*a^2*b^7*(3*A*b + 8*a*B)*x^19)/19 + (a*b^8*(2*A*b
+ 9*a*B)*x^20)/4 + (b^9*(A*b + 10*a*B)*x^21)/21 + (b^10*B*x^22)/2
2
```

Rubi [A] time = 0.599225, antiderivative size = 229, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}} = 0.062$

$$\frac{1}{11}a^{10}Ax^{11}+\frac{1}{12}a^9x^{12}(aB+10Ab)+\frac{5}{13}a^8bx^{13}(2aB+9Ab)+\frac{15}{14}a^7b^2x^{14}(3aB+8Ab)+2a^6b^3x^{15}(4aB+7Ab)+\frac{21}{8}a^5b^4x^{16}(5aB+6Ab)+\frac{42}{17}a^4b^5x^{17}(6aB+5Ab)+\frac{5}{3}a^3b^6x^{18}(7aB+4Ab)+\frac{15}{19}a^2b^7x^{19}(8aB+3Ab)+\frac{1}{21}b^9x^{21}(10aB+Ab)+\frac{1}{4}ab^8x^{20}(9aB+2Ab)+\frac{1}{22}b^{10}Bx^{22}$$

Antiderivative was successfully verified.

```
[In]  Int[x^10*(a + b*x)^10*(A + B*x),x]
```



```
[Out] (a^10*A*x^11)/11 + (a^9*(10*A*b + a*B)*x^12)/12 + (5*a^8*b*(9*A*b
 + 2*a*B)*x^13)/13 + (15*a^7*b^2*(8*A*b + 3*a*B)*x^14)/14 + 2*a^6
*b^3*(7*A*b + 4*a*B)*x^15 + (21*a^5*b^4*(6*A*b + 5*a*B)*x^16)/8 +
 (42*a^4*b^5*(5*A*b + 6*a*B)*x^17)/17 + (5*a^3*b^6*(4*A*b + 7*a*B
)*x^18)/3 + (15*a^2*b^7*(3*A*b + 8*a*B)*x^19)/19 + (a*b^8*(2*A*b
+ 9*a*B)*x^20)/4 + (b^9*(A*b + 10*a*B)*x^21)/21 + (b^10*B*x^22)/2
2
```

Rubi in Sympy [A] time = 115.112, size = 236, normalized size = 1.03

$$\frac{Aa^{10}x^{11}}{11}+\frac{Bb^{10}x^{22}}{22}+\frac{a^9x^{12}\left(10Ab+Ba\right)}{12}+\frac{5a^8bx^{13}\left(9Ab+2Ba\right)}{13}+\frac{15a^7b^2x^{14}\left(8Ab+3Ba\right)}{14}+2a^6b^3x^{15}\left(7Ab+4Ba\right)+\frac{21a^5b^4x^{16}\left(6Ab+5Ba\right)}{8}+\frac{42a^4b^5x^{17}\left(5Ab+6Ba\right)}{17}+\frac{5a^3b^6x^{18}\left(4Ab+7Ba\right)}{3}+\frac{15a^2b^7x^{19}\left(3Ab+8Ba\right)}{19}+\frac{ab^8x^{20}\left(2Ab+9Ba\right)}{4}+\frac{b^9x^{21}\left(Ab+10Ba\right)}{21}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**10*(b*x+a)**10*(B*x+A),x)
```

```
[Out] A*a**10*x**11/11 + B*b**10*x**22/22 + a**9*x**12*(10*A*b + B*a)/1
2 + 5*a**8*b*x**13*(9*A*b + 2*B*a)/13 + 15*a**7*b**2*x**14*(8*A*b
 + 3*B*a)/14 + 2*a**6*b**3*x**15*(7*A*b + 4*B*a) + 21*a**5*b**4*x
**16*(6*A*b + 5*B*a)/8 + 42*a**4*b**5*x**17*(5*A*b + 6*B*a)/17 +
5*a**3*b**6*x**18*(4*A*b + 7*B*a)/3 + 15*a**2*b**7*x**19*(3*A*b +
 8*B*a)/19 + a*b**8*x**20*(2*A*b + 9*B*a)/4 + b**9*x**21*(A*b + 1
0*B*a)/21
```

Mathematica [A] time = 0.0558076, size = 229, normalized size = 1.

$$\frac{1}{11}a^{10}Ax^{11}+\frac{1}{12}a^9x^{12}(aB+10Ab)+\frac{5}{13}a^8bx^{13}(2aB+9Ab)+\frac{15}{14}a^7b^2x^{14}(3aB+8Ab)+2a^6b^3x^{15}(4aB+7Ab)+\frac{21}{8}a^5b^4x^{16}(5aB+6Ab)+\frac{42}{17}a^4b^5x^{17}(6aB+5Ab)+\frac{5}{3}a^3b^6x^{18}(7aB+4Ab)+\frac{15}{19}a^2b^7x^{19}(8aB+3Ab)+\frac{1}{21}b^9x^{21}(10aB+Ab)+\frac{1}{4}ab^8x^{20}(9aB+2Ab)+\frac{1}{22}b^{10}Bx^{22}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^10*(a + b*x)^10*(A + B*x),x]
```

```
[Out] (a^10*A*x^11)/11 + (a^9*(10*A*b + a*B)*x^12)/12 + (5*a^8*b*(9*A*b
 + 2*a*B)*x^13)/13 + (15*a^7*b^2*(8*A*b + 3*a*B)*x^14)/14 + 2*a^6
*b^3*(7*A*b + 4*a*B)*x^15 + (21*a^5*b^4*(6*A*b + 5*a*B)*x^16)/8 +
 (42*a^4*b^5*(5*A*b + 6*a*B)*x^17)/17 + (5*a^3*b^6*(4*A*b + 7*a*B
)*x^18)/3 + (15*a^2*b^7*(3*A*b + 8*a*B)*x^19)/19 + (a*b^8*(2*A*b
+ 9*a*B)*x^20)/4 + (b^9*(A*b + 10*a*B)*x^21)/21 + (b^10*B*x^22)/2
2
```

Maple [A] time = 0.003, size = 244, normalized size = 1.1

$$\frac{b^{10}Bx^{22}}{22}+\frac{\left(b^{10}A+10\,ab^9B\right)x^{21}}{21}+\frac{\left(10\,ab^9A+45\,a^2b^8B\right)x^{20}}{20}+\frac{\left(45\,a^2b^8A+120\,a^3b^7B\right)x^{19}}{19}+\frac{\left(120\,a^3b^7A+210\,a^4b^6B\right)x^{18}}{18}+\frac{\left(210\,a^4b^6A+252\,a^5b^5B\right)x^{17}}{17}+\frac{\left(252\,a^5b^5A+210\,a^6b^4B\right)x^{16}}{16}+\frac{\left(210\,a^6b^4A+120\,a^7b^3B\right)x^{15}}{15}+\frac{\left(120\,a^7b^3A+45\,a^8b^2B\right)x^{14}}{14}+\frac{\left(45\,a^8b^2A+10\,a^9bB\right)x^{13}}{13}+\frac{\left(10\,a^9bA+a^{10}B\right)x^{12}}{12}+\frac{a^{10}Ax^{11}}{11}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^10*(b*x+a)^10*(B*x+A),x)
```

```
[Out] 1/22*b^10*B*x^22+1/21*(A*b^10+10*B*a*b^9)*x^21+1/20*(10*A*a*b^9+4
5*B*a^2*b^8)*x^20+1/19*(45*A*a^2*b^8+120*B*a^3*b^7)*x^19+1/18*(12
0*A*a^3*b^7+210*B*a^4*b^6)*x^18+1/17*(210*A*a^4*b^6+252*B*a^5*b^5
)*x^17+1/16*(252*A*a^5*b^5+210*B*a^6*b^4)*x^16+1/15*(210*A*a^6*b^
4+120*B*a^7*b^3)*x^15+1/14*(120*A*a^7*b^3+45*B*a^8*b^2)*x^14+1/13
*(45*A*a^8*b^2+10*B*a^9*b)*x^13+1/12*(10*A*a^9*b+B*a^10)*x^12+1/1
1*a^10*A*x^11
```

Maxima [A] time = 1.33121, size = 328, normalized size = 1.43

$$\frac{1}{22}\,Bb^{10}x^{22}+\frac{1}{11}\,Aa^{10}x^{11}+\frac{1}{21}\left(10\,Bab^9+Ab^{10}\right)x^{21}+\frac{1}{4}\left(9\,Ba^2b^8+2\,Aab^9\right)x^{20}+\frac{15}{19}\left(8\,Ba^3b^7+3\,Aa^2b^8\right)x^{19}+\frac{5}{3}\left(7\,Ba^4b^6+4\,Aa^3b^7\right)x^{18}+\frac{42}{17}\left(6\,Ba^5b^5+5\,Aa^4b^6\right)x^{17}+\frac{21}{8}\left(5\,Ba^6b^4+6\,Aa^5b^5\right)x^{16}+2\left(4\,Ba^7b^3+7\,Aa^6b^4\right)x^{15}+\frac{15}{14}\left(3\,Ba^8b^2+8\,Aa^7b^3\right)x^{14}+\frac{5}{13}\left(2\,Ba^9b+9\,Aa^8b^2\right)x^{13}+\frac{1}{12}\left(Ba^{10}+10\,Aa^9b\right)x^{12}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*x^10,x, algorithm="maxima")
```

```
[Out] 1/22*B*b^10*x^22 + 1/11*A*a^10*x^11 + 1/21*(10*B*a*b^9 + A*b^10)*
x^21 + 1/4*(9*B*a^2*b^8 + 2*A*a*b^9)*x^20 + 15/19*(8*B*a^3*b^7 +
```

```
3*A*a^2*b^8)*x^19 + 5/3*(7*B*a^4*b^6 + 4*A*a^3*b^7)*x^18 + 42/17*
(6*B*a^5*b^5 + 5*A*a^4*b^6)*x^17 + 21/8*(5*B*a^6*b^4 + 6*A*a^5*b^
5)*x^16 + 2*(4*B*a^7*b^3 + 7*A*a^6*b^4)*x^15 + 15/14*(3*B*a^8*b^2
 + 8*A*a^7*b^3)*x^14 + 5/13*(2*B*a^9*b + 9*A*a^8*b^2)*x^13 + 1/12
*(B*a^10 + 10*A*a^9*b)*x^12
```

Fricas [A] time = 0.183419, size = 1, normalized size = 0.

$$\frac{1}{22}x^{22}b^{10}B+\frac{10}{21}x^{21}b^{9}aB+\frac{1}{21}x^{21}b^{10}A+\frac{9}{4}x^{20}b^{8}a^{2}B+\frac{1}{2}x^{20}b^{9}aA+\frac{120}{19}x^{19}b^{7}a^{3}B+\frac{45}{19}x^{19}b^{8}a^{2}A+\frac{35}{3}x^{18}b^{6}a^{4}B+\frac{20}{3}x^{18}b^{7}a^{3}A+\frac{252}{17}x^{17}b^{5}a^{5}B+\frac{210}{17}x^{17}b^{6}a^{4}A+\frac{105}{8}x^{16}b^{4}a^{6}B+\frac{63}{4}x^{16}b^{5}a^{5}A+8x^{15}b^{3}a^{7}B+14x^{15}b^{4}a^{6}A+\frac{45}{14}x^{14}b^{2}a^{8}B+\frac{60}{7}x^{14}b^{3}a^{7}A+\frac{10}{13}x^{13}ba^{9}B+\frac{45}{13}x^{13}b^{2}a^{8}A+\frac{1}{12}x^{12}a^{10}B+\frac{5}{6}x^{12}ba^{9}A+\frac{1}{11}x^{11}a^{10}A$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*x^10,x, algorithm="fricas")
```

```
[Out] 1/22*x^22*b^10*B + 10/21*x^21*b^9*a*B + 1/21*x^21*b^10*A + 9/4*x^
20*b^8*a^2*B + 1/2*x^20*b^9*a*A + 120/19*x^19*b^7*a^3*B + 45/19*x
^19*b^8*a^2*A + 35/3*x^18*b^6*a^4*B + 20/3*x^18*b^7*a^3*A + 252/1
7*x^17*b^5*a^5*B + 210/17*x^17*b^6*a^4*A + 105/8*x^16*b^4*a^6*B +
 63/4*x^16*b^5*a^5*A + 8*x^15*b^3*a^7*B + 14*x^15*b^4*a^6*A + 45/
14*x^14*b^2*a^8*B + 60/7*x^14*b^3*a^7*A + 10/13*x^13*b*a^9*B + 45
/13*x^13*b^2*a^8*A + 1/12*x^12*a^10*B + 5/6*x^12*b*a^9*A + 1/11*x
^11*a^10*A
```

Sympy [A] time = 0.255935, size = 269, normalized size = 1.17

$$\frac{Aa^{10}x^{11}}{11}+\frac{Bb^{10}x^{22}}{22}+x^{21}\left(\frac{Ab^{10}}{21}+\frac{10Bab^{9}}{21}\right)+x^{20}\left(\frac{Aab^{9}}{2}+\frac{9Ba^{2}b^{8}}{4}\right)+x^{19}\left(\frac{45Aa^{2}b^{8}}{19}+\frac{120Ba^{3}b^{7}}{19}\right)+x^{18}\left(\frac{20Aa^{3}b^{7}}{3}+\frac{35Ba^{4}b^{6}}{3}\right)+x^{17}\left(\frac{210Aa^{4}b^{6}}{17}+\frac{252Ba^{5}b^{5}}{17}\right)+x^{16}\left(\frac{63Aa^{5}b^{5}}{4}+\frac{105Ba^{6}b^{4}}{8}\right)+x^{15}\left(14Aa^{6}b^{4}+8Ba^{7}b^{3}\right)+x^{14}\left(\frac{60Aa^{7}b^{3}}{7}+\frac{45Ba^{8}b^{2}}{14}\right)+x^{13}\left(\frac{45Aa^{8}b^{2}}{13}+\frac{10Ba^{9}b}{13}\right)+x^{12}\left(\frac{5Aa^{9}b}{6}+\frac{Ba^{10}}{12}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**10*(b*x+a)**10*(B*x+A),x)
```

```
[Out] A*a**10*x**11/11 + B*b**10*x**22/22 + x**21*(A*b**10/21 + 10*B*a*
b**9/21) + x**20*(A*a*b**9/2 + 9*B*a**2*b**8/4) + x**19*(45*A*a**
2*b**8/19 + 120*B*a**3*b**7/19) + x**18*(20*A*a**3*b**7/3 + 35*B*
a**4*b**6/3) + x**17*(210*A*a**4*b**6/17 + 252*B*a**5*b**5/17) +
x**16*(63*A*a**5*b**5/4 + 105*B*a**6*b**4/8) + x**15*(14*A*a**6*b
**4 + 8*B*a**7*b**3) + x**14*(60*A*a**7*b**3/7 + 45*B*a**8*b**2/1
4) + x**13*(45*A*a**8*b**2/13 + 10*B*a**9*b/13) + x**12*(5*A*a**9
*b/6 + B*a**10/12)
```

GIAC/XCAS [A] time = 0.441109, size = 331, normalized size = 1.45

$$\frac{1}{22}Bb^{10}x^{22}+\frac{10}{21}Bab^{9}x^{21}+\frac{1}{21}Ab^{10}x^{21}+\frac{9}{4}Ba^{2}b^{8}x^{20}+\frac{1}{2}Aab^{9}x^{20}+\frac{120}{19}Ba^{3}b^{7}x^{19}+\frac{45}{19}Aa^{2}b^{8}x^{19}+\frac{35}{3}Ba^{4}b^{6}x^{18}+\frac{20}{3}Aa^{3}b^{7}x^{18}+\frac{252}{17}Ba^{5}b^{5}x^{17}+\frac{210}{17}Aa^{4}b^{6}x^{17}+\frac{105}{8}Ba^{6}b^{4}x^{16}+\frac{63}{4}Aa^{5}b^{5}x^{16}+8\,Ba^{7}b^{3}x^{15}+14\,Aa^{6}b^{4}x^{15}+\frac{45}{14}Ba^{8}b^{2}x^{14}+\frac{60}{7}Aa^{7}b^{3}x^{14}+\frac{10}{13}Ba^{9}bx^{13}+\frac{45}{13}Aa^{8}b^{2}x^{13}+\frac{1}{12}Ba^{10}x^{12}+\frac{5}{6}Aa^{9}bx^{12}+\frac{1}{11}Aa^{10}x^{11}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*x^10,x, algorithm="giac")
```

```
[Out] 1/22*B*b^10*x^22 + 10/21*B*a*b^9*x^21 + 1/21*A*b^10*x^21 + 9/4*B*
a^2*b^8*x^20 + 1/2*A*a*b^9*x^20 + 120/19*B*a^3*b^7*x^19 + 45/19*A
*a^2*b^8*x^19 + 35/3*B*a^4*b^6*x^18 + 20/3*A*a^3*b^7*x^18 + 252/1
7*B*a^5*b^5*x^17 + 210/17*A*a^4*b^6*x^17 + 105/8*B*a^6*b^4*x^16 +
 63/4*A*a^5*b^5*x^16 + 8*B*a^7*b^3*x^15 + 14*A*a^6*b^4*x^15 + 45/
14*B*a^8*b^2*x^14 + 60/7*A*a^7*b^3*x^14 + 10/13*B*a^9*b*x^13 + 45
/13*A*a^8*b^2*x^13 + 1/12*B*a^10*x^12 + 5/6*A*a^9*b*x^12 + 1/11*A
*a^10*x^11
```

3.107 $\int x^9(a+bx)^{10}(A+Bx)\,dx$

Optimal. Leaf size=231

$$\frac{1}{10}a^{10}Ax^{10}+\frac{1}{11}a^9x^{11}(aB+10Ab)+\frac{5}{12}a^8bx^{12}(2aB+9Ab)+\frac{15}{13}a^7b^2x^{13}(3aB+8Ab)+\frac{15}{7}a^6b^3x^{14}(4aB+7Ab)+\frac{14}{5}a^5b^4x^{15}(5aB+6Ab)+\frac{21}{8}a^4b^5x^{16}(6aB+5Ab)+\frac{30}{17}a^3b^6x^{17}(7aB+4Ab)+\frac{5}{6}a^2b^7x^{18}(8aB+3Ab)+\frac{1}{20}b^9x^{20}(10aB+Ab)+\frac{5}{19}ab^8x^{19}(9aB+2Ab)+\frac{1}{21}b^{10}Bx^{21}$$

```
[Out] (a^10*A*x^10)/10 + (a^9*(10*A*b + a*B)*x^11)/11 + (5*a^8*b*(9*A*b
 + 2*a*B)*x^12)/12 + (15*a^7*b^2*(8*A*b + 3*a*B)*x^13)/13 + (15*a
^6*b^3*(7*A*b + 4*a*B)*x^14)/7 + (14*a^5*b^4*(6*A*b + 5*a*B)*x^15
)/5 + (21*a^4*b^5*(5*A*b + 6*a*B)*x^16)/8 + (30*a^3*b^6*(4*A*b +
7*a*B)*x^17)/17 + (5*a^2*b^7*(3*A*b + 8*a*B)*x^18)/6 + (5*a*b^8*(
2*A*b + 9*a*B)*x^19)/19 + (b^9*(A*b + 10*a*B)*x^20)/20 + (b^10*B*
x^21)/21
```

Rubi [A] time = 0.570009, antiderivative size = 231, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$\frac{1}{10}a^{10}Ax^{10}+\frac{1}{11}a^9x^{11}(aB+10Ab)+\frac{5}{12}a^8bx^{12}(2aB+9Ab)+\frac{15}{13}a^7b^2x^{13}(3aB+8Ab)+\frac{15}{7}a^6b^3x^{14}(4aB+7Ab)+\frac{14}{5}a^5b^4x^{15}(5aB+6Ab)+\frac{21}{8}a^4b^5x^{16}(6aB+5Ab)+\frac{30}{17}a^3b^6x^{17}(7aB+4Ab)+\frac{5}{6}a^2b^7x^{18}(8aB+3Ab)+\frac{1}{20}b^9x^{20}(10aB+Ab)+\frac{5}{19}ab^8x^{19}(9aB+2Ab)+\frac{1}{21}b^{10}Bx^{21}$$

Antiderivative was successfully verified.

```
[In]  Int[x^9*(a + b*x)^10*(A + B*x),x]
```


```
[Out] (a^10*A*x^10)/10 + (a^9*(10*A*b + a*B)*x^11)/11 + (5*a^8*b*(9*A*b
 + 2*a*B)*x^12)/12 + (15*a^7*b^2*(8*A*b + 3*a*B)*x^13)/13 + (15*a
^6*b^3*(7*A*b + 4*a*B)*x^14)/7 + (14*a^5*b^4*(6*A*b + 5*a*B)*x^15
)/5 + (21*a^4*b^5*(5*A*b + 6*a*B)*x^16)/8 + (30*a^3*b^6*(4*A*b +
7*a*B)*x^17)/17 + (5*a^2*b^7*(3*A*b + 8*a*B)*x^18)/6 + (5*a*b^8*(
2*A*b + 9*a*B)*x^19)/19 + (b^9*(A*b + 10*a*B)*x^20)/20 + (b^10*B*
x^21)/21
```

Rubi in Sympy [A] time = 110.447, size = 240, normalized size = 1.04

$$\frac{Aa^{10}x^{10}}{10}+\frac{Bb^{10}x^{21}}{21}+\frac{a^9x^{11}\left(10Ab+Ba\right)}{11}+\frac{5a^8bx^{12}\left(9Ab+2Ba\right)}{12}+\frac{15a^7b^2x^{13}\left(8Ab+3Ba\right)}{13}+\frac{15a^6b^3x^{14}\left(7Ab+4Ba\right)}{7}+\frac{14a^5b^4x^{15}\left(6Ab+5Ba\right)}{5}+\frac{21a^4b^5x^{16}\left(5Ab+6Ba\right)}{8}+\frac{30a^3b^6x^{17}\left(4Ab+7Ba\right)}{17}+\frac{5a^2b^7x^{18}\left(3Ab+8Ba\right)}{6}+\frac{5ab^8x^{19}\left(2Ab+9Ba\right)}{19}+\frac{b^9x^{20}\left(Ab+10Ba\right)}{20}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**9*(b*x+a)**10*(B*x+A),x)
```

```
[Out] A*a**10*x**10/10 + B*b**10*x**21/21 + a**9*x**11*(10*A*b + B*a)/1
1 + 5*a**8*b*x**12*(9*A*b + 2*B*a)/12 + 15*a**7*b**2*x**13*(8*A*b
 + 3*B*a)/13 + 15*a**6*b**3*x**14*(7*A*b + 4*B*a)/7 + 14*a**5*b**
4*x**15*(6*A*b + 5*B*a)/5 + 21*a**4*b**5*x**16*(5*A*b + 6*B*a)/8
+ 30*a**3*b**6*x**17*(4*A*b + 7*B*a)/17 + 5*a**2*b**7*x**18*(3*A*
b + 8*B*a)/6 + 5*a*b**8*x**19*(2*A*b + 9*B*a)/19 + b**9*x**20*(A*
b + 10*B*a)/20
```

Mathematica [A] time = 0.0512776, size = 231, normalized size = 1.

$$\frac{1}{10}a^{10}Ax^{10}+\frac{1}{11}a^9x^{11}(aB+10Ab)+\frac{5}{12}a^8bx^{12}(2aB+9Ab)+\frac{15}{13}a^7b^2x^{13}(3aB+8Ab)+\frac{15}{7}a^6b^3x^{14}(4aB+7Ab)+\frac{14}{5}a^5b^4x^{15}(5aB+6Ab)+\frac{21}{8}a^4b^5x^{16}(6aB+5Ab)+\frac{30}{17}a^3b^6x^{17}(7aB+4Ab)+\frac{5}{6}a^2b^7x^{18}(8aB+3Ab)+\frac{1}{20}b^9x^{20}(10aB+Ab)+\frac{5}{19}ab^8x^{19}(9aB+2Ab)+\frac{1}{21}b^{10}Bx^{21}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^9*(a + b*x)^10*(A + B*x),x]
```

```
[Out] (a^10*A*x^10)/10 + (a^9*(10*A*b + a*B)*x^11)/11 + (5*a^8*b*(9*A*b
 + 2*a*B)*x^12)/12 + (15*a^7*b^2*(8*A*b + 3*a*B)*x^13)/13 + (15*a
^6*b^3*(7*A*b + 4*a*B)*x^14)/7 + (14*a^5*b^4*(6*A*b + 5*a*B)*x^15
)/5 + (21*a^4*b^5*(5*A*b + 6*a*B)*x^16)/8 + (30*a^3*b^6*(4*A*b +
7*a*B)*x^17)/17 + (5*a^2*b^7*(3*A*b + 8*a*B)*x^18)/6 + (5*a*b^8*(
2*A*b + 9*a*B)*x^19)/19 + (b^9*(A*b + 10*a*B)*x^20)/20 + (b^10*B*
x^21)/21
```

Maple [A] time = 0.001, size = 244, normalized size = 1.1

$$\frac{b^{10}Bx^{21}}{21}+\frac{\left(b^{10}A+10\,ab^9B\right)x^{20}}{20}+\frac{\left(10\,ab^9A+45\,a^2b^8B\right)x^{19}}{19}+\frac{\left(45\,a^2b^8A+120\,a^3b^7B\right)x^{18}}{18}+\frac{\left(120\,a^3b^7A+210\,a^4b^6B\right)x^{17}}{17}+\frac{\left(210\,a^4b^6A+252\,a^5b^5B\right)x^{16}}{16}+\frac{\left(252\,a^5b^5A+210\,a^6b^4B\right)x^{15}}{15}+\frac{\left(210\,a^6b^4A+120\,a^7b^3B\right)x^{14}}{14}+\frac{\left(120\,a^7b^3A+45\,a^8b^2B\right)x^{13}}{13}+\frac{\left(45\,a^8b^2A+10\,a^9bB\right)x^{12}}{12}+\frac{\left(10\,a^9bA+a^{10}B\right)x^{11}}{11}+\frac{a^{10}Ax^{10}}{10}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^9*(b*x+a)^10*(B*x+A),x)
```

```
[Out] 1/21*b^10*B*x^21+1/20*(A*b^10+10*B*a*b^9)*x^20+1/19*(10*A*a*b^9+4
5*B*a^2*b^8)*x^19+1/18*(45*A*a^2*b^8+120*B*a^3*b^7)*x^18+1/17*(12
0*A*a^3*b^7+210*B*a^4*b^6)*x^17+1/16*(210*A*a^4*b^6+252*B*a^5*b^5
)*x^16+1/15*(252*A*a^5*b^5+210*B*a^6*b^4)*x^15+1/14*(210*A*a^6*b^
4+120*B*a^7*b^3)*x^14+1/13*(120*A*a^7*b^3+45*B*a^8*b^2)*x^13+1/12
*(45*A*a^8*b^2+10*B*a^9*b)*x^12+1/11*(10*A*a^9*b+B*a^10)*x^11+1/1
0*a^10*A*x^10
```

Maxima [A] time = 1.3686, size = 328, normalized size = 1.42

$$\frac{1}{21}Bb^{10}x^{21}+\frac{1}{10}Aa^{10}x^{10}+\frac{1}{20}\left(10\,Bab^9+Ab^{10}\right)x^{20}+\frac{5}{19}\left(9\,Ba^2b^8+2\,Aab^9\right)x^{19}+\frac{5}{6}\left(8\,Ba^3b^7+3\,Aa^2b^8\right)x^{18}+\frac{30}{17}\left(7\,Ba^4b^6+4\,Aa^3b^7\right)x^{17}+\frac{21}{8}\left(6\,Ba^5b^5+5\,Aa^4b^6\right)x^{16}+\frac{14}{5}\left(5\,Ba^6b^4+6\,Aa^5b^5\right)x^{15}+\frac{15}{7}\left(4\,Ba^7b^3+7\,Aa^6b^4\right)x^{14}+\frac{15}{13}\left(3\,Ba^8b^2+8\,Aa^7b^3\right)x^{13}+\frac{5}{12}\left(2\,Ba^9b+9\,Aa^8b^2\right)x^{12}+\frac{1}{11}\left(Ba^{10}+10\,Aa^9b\right)x^{11}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*x^9,x, algorithm="maxima")
```

```
[Out] 1/21*B*b^10*x^21 + 1/10*A*a^10*x^10 + 1/20*(10*B*a*b^9 + A*b^10)*
x^20 + 5/19*(9*B*a^2*b^8 + 2*A*a*b^9)*x^19 + 5/6*(8*B*a^3*b^7 + 3
```

```
*A*a^2*b^8)*x^18 + 30/17*(7*B*a^4*b^6 + 4*A*a^3*b^7)*x^17 + 21/8*
(6*B*a^5*b^5 + 5*A*a^4*b^6)*x^16 + 14/5*(5*B*a^6*b^4 + 6*A*a^5*b^
5)*x^15 + 15/7*(4*B*a^7*b^3 + 7*A*a^6*b^4)*x^14 + 15/13*(3*B*a^8*
b^2 + 8*A*a^7*b^3)*x^13 + 5/12*(2*B*a^9*b + 9*A*a^8*b^2)*x^12 + 1
/11*(B*a^10 + 10*A*a^9*b)*x^11
```

Fricas [A] time = 0.179023, size = 1, normalized size = 0.

$$\frac{1}{21}x^{21}b^{10}B+\frac{1}{2}x^{20}b^{9}aB+\frac{1}{20}x^{20}b^{10}A+\frac{45}{19}x^{19}b^{8}a^{2}B+\frac{10}{19}x^{19}b^{9}aA+\frac{20}{3}x^{18}b^{7}a^{3}B+\frac{5}{2}x^{18}b^{8}a^{2}A+\frac{210}{17}x^{17}b^{6}a^{4}B+\frac{120}{17}x^{17}b^{7}a^{3}A+\frac{63}{4}x^{16}b^{5}a^{5}B+\frac{105}{8}x^{16}b^{6}a^{4}A+14x^{15}b^{4}a^{6}B+\frac{84}{5}x^{15}b^{5}a^{5}A+\frac{60}{7}x^{14}b^{3}a^{7}B+15x^{14}b^{4}a^{6}A+\frac{45}{13}x^{13}b^{2}a^{8}B+\frac{120}{13}x^{13}b^{3}a^{7}A+\frac{5}{6}x^{12}ba^{9}B+\frac{15}{4}x^{12}b^{2}a^{8}A+\frac{1}{11}x^{11}a^{10}B+\frac{10}{11}x^{11}ba^{9}A+\frac{1}{10}x^{10}a^{10}A$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*x^9,x, algorithm="fricas")
```

```
[Out] 1/21*x^21*b^10*B + 1/2*x^20*b^9*a*B + 1/20*x^20*b^10*A + 45/19*x^
19*b^8*a^2*B + 10/19*x^19*b^9*a*A + 20/3*x^18*b^7*a^3*B + 5/2*x^1
8*b^8*a^2*A + 210/17*x^17*b^6*a^4*B + 120/17*x^17*b^7*a^3*A + 63/
4*x^16*b^5*a^5*B + 105/8*x^16*b^6*a^4*A + 14*x^15*b^4*a^6*B + 84/
5*x^15*b^5*a^5*A + 60/7*x^14*b^3*a^7*B + 15*x^14*b^4*a^6*A + 45/1
3*x^13*b^2*a^8*B + 120/13*x^13*b^3*a^7*A + 5/6*x^12*b*a^9*B + 15/
4*x^12*b^2*a^8*A + 1/11*x^11*a^10*B + 10/11*x^11*b*a^9*A + 1/10*x
^10*a^10*A
```

Sympy [A] time = 0.257816, size = 269, normalized size = 1.16

$$\frac{Aa^{10}x^{10}}{10}+\frac{Bb^{10}x^{21}}{21}+x^{20}\left(\frac{Ab^{10}}{20}+\frac{Bab^{9}}{2}\right)+x^{19}\left(\frac{10Aab^{9}}{19}+\frac{45Ba^{2}b^{8}}{19}\right)+x^{18}\left(\frac{5Aa^{2}b^{8}}{2}+\frac{20Ba^{3}b^{7}}{3}\right)+x^{17}\left(\frac{120Aa^{3}b^{7}}{17}+\frac{210Ba^{4}b^{6}}{17}\right)+x^{16}\left(\frac{105Aa^{4}b^{6}}{8}+\frac{63Ba^{5}b^{5}}{4}\right)+x^{15}\left(\frac{84Aa^{5}b^{5}}{5}+14Ba^{6}b^{4}\right)+x^{14}\left(15Aa^{6}b^{4}+\frac{60Ba^{7}b^{3}}{7}\right)+x^{13}\left(\frac{120Aa^{7}b^{3}}{13}+\frac{45Ba^{8}b^{2}}{13}\right)+x^{12}\left(\frac{15Aa^{8}b^{2}}{4}+\frac{5Ba^{9}b}{6}\right)+x^{11}\left(\frac{10Aa^{9}b}{11}+\frac{Ba^{10}}{11}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**9*(b*x+a)**10*(B*x+A),x)
```

```
[Out] A*a**10*x**10/10 + B*b**10*x**21/21 + x**20*(A*b**10/20 + B*a*b**
9/2) + x**19*(10*A*a*b**9/19 + 45*B*a**2*b**8/19) + x**18*(5*A*a*
*2*b**8/2 + 20*B*a**3*b**7/3) + x**17*(120*A*a**3*b**7/17 + 210*B
*a**4*b**6/17) + x**16*(105*A*a**4*b**6/8 + 63*B*a**5*b**5/4) + x
**15*(84*A*a**5*b**5/5 + 14*B*a**6*b**4) + x**14*(15*A*a**6*b**4
+ 60*B*a**7*b**3/7) + x**13*(120*A*a**7*b**3/13 + 45*B*a**8*b**2/
13) + x**12*(15*A*a**8*b**2/4 + 5*B*a**9*b/6) + x**11*(10*A*a**9*
b/11 + B*a**10/11)
```

GIAC/XCAS [A] time = 0.306784, size = 331, normalized size = 1.43

$$\frac{1}{21} Bb^{10}x^{21} + \frac{1}{2} Bab^9x^{20} + \frac{1}{20} Ab^{10}x^{20} + \frac{45}{19} Ba^2b^8x^{19} + \frac{10}{19} Aab^9x^{19} + \frac{20}{3} Ba^3b^7x^{18} + \frac{5}{2} Aa^2b^8x^{18} + \frac{210}{17} Ba^4b^6x^{17} + \frac{120}{17} Aa^3b^7x^{17} + \frac{63}{4} Ba^5b^5x^{16} + \frac{105}{8} Aa^4b^6x^{16} + 14 Ba^6b^4x^{15} + \frac{84}{5} Aa^5b^5x^{15} + \frac{60}{7} Ba^7b^3x^{14} + 15 Aa^6b^4x^{14} + \frac{45}{13} Ba^8b^2x^{13} + \frac{120}{13} Aa^7b^3x^{13} + \frac{5}{6} Ba^9bx^{12} + \frac{15}{4} Aa^8b^2x^{12} + \frac{1}{11} Ba^{10}x^{11} + \frac{10}{11} Aa^9bx^{11} + \frac{1}{10} Aa^{10}x^{10}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*x^9,x, algorithm="giac")
```

```
[Out] 1/21*B*b^10*x^21 + 1/2*B*a*b^9*x^20 + 1/20*A*b^10*x^20 + 45/19*B*
a^2*b^8*x^19 + 10/19*A*a*b^9*x^19 + 20/3*B*a^3*b^7*x^18 + 5/2*A*a
^2*b^8*x^18 + 210/17*B*a^4*b^6*x^17 + 120/17*A*a^3*b^7*x^17 + 63/
4*B*a^5*b^5*x^16 + 105/8*A*a^4*b^6*x^16 + 14*B*a^6*b^4*x^15 + 84/
5*A*a^5*b^5*x^15 + 60/7*B*a^7*b^3*x^14 + 15*A*a^6*b^4*x^14 + 45/1
3*B*a^8*b^2*x^13 + 120/13*A*a^7*b^3*x^13 + 5/6*B*a^9*b*x^12 + 15/
4*A*a^8*b^2*x^12 + 1/11*B*a^10*x^11 + 10/11*A*a^9*b*x^11 + 1/10*A
*a^10*x^10
```

3.108 $\int x^8(a+bx)^{10}(A+Bx)\,dx$

Optimal. Leaf size=240

$$\frac{a^8(a+bx)^{11}(Ab-aB)}{11b^{10}}-\frac{a^7(a+bx)^{12}(8Ab-9aB)}{12b^{10}}+\frac{4a^6(a+bx)^{13}(7Ab-9aB)}{13b^{10}}-\frac{2a^5(a+bx)^{14}(2Ab-3aB)}{b^{10}}+\frac{14a^4(a+bx)^{15}(5Ab-9aB)}{15b^{10}}-\frac{7a^3(a+bx)^{16}(4Ab-9aB)}{8b^{10}}+\frac{28a^2(a+bx)^{17}(Ab-3aB)}{17b^{10}}+\frac{(a+bx)^{19}(Ab-9aB)}{19b^{10}}-\frac{2a(a+bx)^{18}(2Ab-9aB)}{9b^{10}}+\frac{B(a+bx)^{20}}{20b^{10}}$$

```
[Out] (a^8*(A*b - a*B)*(a + b*x)^11)/(11*b^10) - (a^7*(8*A*b - 9*a*B)*(
a + b*x)^12)/(12*b^10) + (4*a^6*(7*A*b - 9*a*B)*(a + b*x)^13)/(13
*b^10) - (2*a^5*(2*A*b - 3*a*B)*(a + b*x)^14)/b^10 + (14*a^4*(5*A
*b - 9*a*B)*(a + b*x)^15)/(15*b^10) - (7*a^3*(4*A*b - 9*a*B)*(a +
 b*x)^16)/(8*b^10) + (28*a^2*(A*b - 3*a*B)*(a + b*x)^17)/(17*b^10
) - (2*a*(2*A*b - 9*a*B)*(a + b*x)^18)/(9*b^10) + ((A*b - 9*a*B)*
(a + b*x)^19)/(19*b^10) + (B*(a + b*x)^20)/(20*b^10)
```

Rubi [A] time = 0.606041, antiderivative size = 240, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$\frac{a^8(a+bx)^{11}(Ab-aB)}{11b^{10}}-\frac{a^7(a+bx)^{12}(8Ab-9aB)}{12b^{10}}+\frac{4a^6(a+bx)^{13}(7Ab-9aB)}{13b^{10}}-\frac{2a^5(a+bx)^{14}(2Ab-3aB)}{b^{10}}+\frac{14a^4(a+bx)^{15}(5Ab-9aB)}{15b^{10}}-\frac{7a^3(a+bx)^{16}(4Ab-9aB)}{8b^{10}}+\frac{28a^2(a+bx)^{17}(Ab-3aB)}{17b^{10}}+\frac{(a+bx)^{19}(Ab-9aB)}{19b^{10}}-\frac{2a(a+bx)^{18}(2Ab-9aB)}{9b^{10}}+\frac{B(a+bx)^{20}}{20b^{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[x^8*(a + b*x)^10*(A + B*x),x]
```

```
[Out] (a^8*(A*b - a*B)*(a + b*x)^11)/(11*b^10) - (a^7*(8*A*b - 9*a*B)*(
a + b*x)^12)/(12*b^10) + (4*a^6*(7*A*b - 9*a*B)*(a + b*x)^13)/(13
*b^10) - (2*a^5*(2*A*b - 3*a*B)*(a + b*x)^14)/b^10 + (14*a^4*(5*A
*b - 9*a*B)*(a + b*x)^15)/(15*b^10) - (7*a^3*(4*A*b - 9*a*B)*(a +
 b*x)^16)/(8*b^10) + (28*a^2*(A*b - 3*a*B)*(a + b*x)^17)/(17*b^10
) - (2*a*(2*A*b - 9*a*B)*(a + b*x)^18)/(9*b^10) + ((A*b - 9*a*B)*
(a + b*x)^19)/(19*b^10) + (B*(a + b*x)^20)/(20*b^10)
```

Rubi in Sympy [A] time = 102.554, size = 238, normalized size = 0.99

$$\frac{Aa^{10}x^9}{9}+\frac{Bb^{10}x^{20}}{20}+\frac{a^9x^{10}\left(10Ab+Ba\right)}{10}+\frac{5a^8bx^{11}\left(9Ab+2Ba\right)}{11}+\frac{5a^7b^2x^{12}\left(8Ab+3Ba\right)}{4}+\frac{30a^6b^3x^{13}\left(7Ab+4Ba\right)}{13}+3a^5b^4x^{14}\left(6Ab+5Ba\right)+\frac{14a^4b^5x^{15}\left(5Ab+6Ba\right)}{5}+\frac{15a^3b^6x^{16}\left(4Ab+7Ba\right)}{8}+\frac{15a^2b^7x^{17}\left(3Ab+8Ba\right)}{17}+\frac{5ab^8x^{18}\left(2Ab+9Ba\right)}{18}+\frac{b^9x^{19}\left(Ab+10Ba\right)}{19}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**8*(b*x+a)**10*(B*x+A),x)
```

```
[Out] A*a**10*x**9/9 + B*b**10*x**20/20 + a**9*x**10*(10*A*b + B*a)/10
+ 5*a**8*b*x**11*(9*A*b + 2*B*a)/11 + 5*a**7*b**2*x**12*(8*A*b +
3*B*a)/4 + 30*a**6*b**3*x**13*(7*A*b + 4*B*a)/13 + 3*a**5*b**4*x*
*14*(6*A*b + 5*B*a) + 14*a**4*b**5*x**15*(5*A*b + 6*B*a)/5 + 15*a
**3*b**6*x**16*(4*A*b + 7*B*a)/8 + 15*a**2*b**7*x**17*(3*A*b + 8*
B*a)/17 + 5*a*b**8*x**18*(2*A*b + 9*B*a)/18 + b**9*x**19*(A*b + 1
0*B*a)/19
```

Mathematica [A] time = 0.0544877, size = 229, normalized size = 0.95

$$\frac{1}{9}a^{10}Ax^9+\frac{1}{10}a^9x^{10}(aB+10Ab)+\frac{5}{11}a^8bx^{11}(2aB+9Ab)+\frac{5}{4}a^7b^2x^{12}(3aB+8Ab)+\frac{30}{13}a^6b^3x^{13}(4aB+7Ab)+3a^5b^4x^{14}(5aB+6Ab)+\frac{14}{5}a^4b^5x^{15}(6aB+5Ab)+\frac{15}{8}a^3b^6x^{16}(7aB+4Ab)+\frac{15}{17}a^2b^7x^{17}(8aB+3Ab)+\frac{1}{19}b^9x^{19}(10aB+Ab)+\frac{5}{18}ab^8x^{18}(9aB+2Ab)+\frac{1}{20}b^{10}Bx^{20}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^8*(a + b*x)^10*(A + B*x),x]
```

```
[Out] (a^10*A*x^9)/9 + (a^9*(10*A*b + a*B)*x^10)/10 + (5*a^8*b*(9*A*b +
 2*a*B)*x^11)/11 + (5*a^7*b^2*(8*A*b + 3*a*B)*x^12)/4 + (30*a^6*b
^3*(7*A*b + 4*a*B)*x^13)/13 + 3*a^5*b^4*(6*A*b + 5*a*B)*x^14 + (1
4*a^4*b^5*(5*A*b + 6*a*B)*x^15)/5 + (15*a^3*b^6*(4*A*b + 7*a*B)*x
^16)/8 + (15*a^2*b^7*(3*A*b + 8*a*B)*x^17)/17 + (5*a*b^8*(2*A*b +
 9*a*B)*x^18)/18 + (b^9*(A*b + 10*a*B)*x^19)/19 + (b^10*B*x^20)/2
0
```

Maple [A] time = 0.002, size = 244, normalized size = 1.

$$\frac{b^{10}Bx^{20}}{20}+\frac{\left(b^{10}A+10\,ab^9B\right)x^{19}}{19}+\frac{\left(10\,ab^9A+45\,a^2b^8B\right)x^{18}}{18}+\frac{\left(45\,a^2b^8A+120\,a^3b^7B\right)x^{17}}{17}+\frac{\left(120\,a^3b^7A+210\,a^4b^6B\right)x^{16}}{16}+\frac{\left(210\,a^4b^6A+252\,a^5b^5B\right)x^{15}}{15}+\frac{\left(252\,a^5b^5A+210\,a^6b^4B\right)x^{14}}{14}+\frac{\left(210\,a^6b^4A+120\,a^7b^3B\right)x^{13}}{13}+\frac{\left(120\,a^7b^3A+45\,a^8b^2B\right)x^{12}}{12}+\frac{\left(45\,a^8b^2A+10\,a^9bB\right)x^{11}}{11}+\frac{\left(10\,a^9bA+a^{10}B\right)x^{10}}{10}+\frac{a^{10}Ax^9}{9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^8*(b*x+a)^10*(B*x+A),x)
```

```
[Out] 1/20*b^10*B*x^20+1/19*(A*b^10+10*B*a*b^9)*x^19+1/18*(10*A*a*b^9+4
5*B*a^2*b^8)*x^18+1/17*(45*A*a^2*b^8+120*B*a^3*b^7)*x^17+1/16*(12
0*A*a^3*b^7+210*B*a^4*b^6)*x^16+1/15*(210*A*a^4*b^6+252*B*a^5*b^5
)*x^15+1/14*(252*A*a^5*b^5+210*B*a^6*b^4)*x^14+1/13*(210*A*a^6*b^
4+120*B*a^7*b^3)*x^13+1/12*(120*A*a^7*b^3+45*B*a^8*b^2)*x^12+1/11
*(45*A*a^8*b^2+10*B*a^9*b)*x^11+1/10*(10*A*a^9*b+B*a^10)*x^10+1/9
*a^10*A*x^9
```

Maxima [A] time = 1.33996, size = 328, normalized size = 1.37

$$\frac{1}{20}\,Bb^{10}x^{20}+\frac{1}{9}\,Aa^{10}x^9+\frac{1}{19}\left(10\,Bab^9+Ab^{10}\right)x^{19}+\frac{5}{18}\left(9\,Ba^2b^8+2\,Aab^9\right)x^{18}+\frac{15}{17}\left(8\,Ba^3b^7+3\,Aa^2b^8\right)x^{17}+\frac{15}{8}\left(7\,Ba^4b^6+4\,Aa^3b^7\right)x^{16}+\frac{14}{5}\left(6\,Ba^5b^5+5\,Aa^4b^6\right)x^{15}+3\left(5\,Ba^6b^4+6\,Aa^5b^5\right)x^{14}+\frac{30}{13}\left(4\,Ba^7b^3+7\,Aa^6b^4\right)x^{13}+\frac{5}{4}\left(3\,Ba^8b^2+8\,Aa^7b^3\right)x^{12}+\frac{5}{11}\left(2\,Ba^9b+9\,Aa^8b^2\right)x^{11}+\frac{1}{10}\left(Ba^{10}+10\,Aa^9b\right)x^{10}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*x^8,x, algorithm="maxima")
```

```
[Out] 1/20*B*b^10*x^20 + 1/9*A*a^10*x^9 + 1/19*(10*B*a*b^9 + A*b^10)*x^
19 + 5/18*(9*B*a^2*b^8 + 2*A*a*b^9)*x^18 + 15/17*(8*B*a^3*b^7 + 3
```

```
*A*a^2*b^8)*x^17 + 15/8*(7*B*a^4*b^6 + 4*A*a^3*b^7)*x^16 + 14/5*(
6*B*a^5*b^5 + 5*A*a^4*b^6)*x^15 + 3*(5*B*a^6*b^4 + 6*A*a^5*b^5)*x
^14 + 30/13*(4*B*a^7*b^3 + 7*A*a^6*b^4)*x^13 + 5/4*(3*B*a^8*b^2 +
 8*A*a^7*b^3)*x^12 + 5/11*(2*B*a^9*b + 9*A*a^8*b^2)*x^11 + 1/10*(
B*a^10 + 10*A*a^9*b)*x^10
```

Fricas [A] time = 0.181452, size = 1, normalized size = 0.

$$\frac{1}{20}x^{20}b^{10}B+\frac{10}{19}x^{19}b^{9}aB+\frac{1}{19}x^{19}b^{10}A+\frac{5}{2}x^{18}b^{8}a^{2}B+\frac{5}{9}x^{18}b^{9}aA+\frac{120}{17}x^{17}b^{7}a^{3}B+\frac{45}{17}x^{17}b^{8}a^{2}A+\frac{105}{8}x^{16}b^{6}a^{4}B+\frac{15}{2}x^{16}b^{7}a^{3}A+\frac{84}{5}x^{15}b^{5}a^{5}B+14x^{15}b^{6}a^{4}A+15x^{14}b^{4}a^{6}B+18x^{14}b^{5}a^{5}A+\frac{120}{13}x^{13}b^{3}a^{7}B+\frac{210}{13}x^{13}b^{4}a^{6}A+\frac{15}{4}x^{12}b^{2}a^{8}B+10x^{12}b^{3}a^{7}A+\frac{10}{11}x^{11}ba^{9}B+\frac{45}{11}x^{11}b^{2}a^{8}A+\frac{1}{10}x^{10}a^{10}B+x^{10}ba^{9}A+\frac{1}{9}x^{9}a^{10}A$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*x^8,x, algorithm="fricas")
```

```
[Out] 1/20*x^20*b^10*B + 10/19*x^19*b^9*a*B + 1/19*x^19*b^10*A + 5/2*x^
18*b^8*a^2*B + 5/9*x^18*b^9*a*A + 120/17*x^17*b^7*a^3*B + 45/17*x
^17*b^8*a^2*A + 105/8*x^16*b^6*a^4*B + 15/2*x^16*b^7*a^3*A + 84/5
*x^15*b^5*a^5*B + 14*x^15*b^6*a^4*A + 15*x^14*b^4*a^6*B + 18*x^14
*b^5*a^5*A + 120/13*x^13*b^3*a^7*B + 210/13*x^13*b^4*a^6*A + 15/4
*x^12*b^2*a^8*B + 10*x^12*b^3*a^7*A + 10/11*x^11*b*a^9*B + 45/11*
x^11*b^2*a^8*A + 1/10*x^10*a^10*B + x^10*b*a^9*A + 1/9*x^9*a^10*A
```

Sympy [A] time = 0.261811, size = 264, normalized size = 1.1

$$\frac{Aa^{10}x^{9}}{9}+\frac{Bb^{10}x^{20}}{20}+x^{19}\left(\frac{Ab^{10}}{19}+\frac{10Bab^{9}}{19}\right)+x^{18}\left(\frac{5Aab^{9}}{9}+\frac{5Ba^{2}b^{8}}{2}\right)+x^{17}\left(\frac{45Aa^{2}b^{8}}{17}+\frac{120Ba^{3}b^{7}}{17}\right)+x^{16}\left(\frac{15Aa^{3}b^{7}}{2}+\frac{105Ba^{4}b^{6}}{8}\right)+x^{15}\left(14Aa^{4}b^{6}+\frac{84Ba^{5}b^{5}}{5}\right)+x^{14}\left(18Aa^{5}b^{5}+15Ba^{6}b^{4}\right)+x^{13}\left(\frac{210Aa^{6}b^{4}}{13}+\frac{120Ba^{7}b^{3}}{13}\right)+x^{12}\left(10Aa^{7}b^{3}+\frac{15Ba^{8}b^{2}}{4}\right)+x^{11}\left(\frac{45Aa^{8}b^{2}}{11}+\frac{10Ba^{9}b}{11}\right)+x^{10}\left(Aa^{9}b+\frac{Ba^{10}}{10}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**8*(b*x+a)**10*(B*x+A),x)
```

```
[Out] A*a**10*x**9/9 + B*b**10*x**20/20 + x**19*(A*b**10/19 + 10*B*a*b*
*9/19) + x**18*(5*A*a*b**9/9 + 5*B*a**2*b**8/2) + x**17*(45*A*a**
2*b**8/17 + 120*B*a**3*b**7/17) + x**16*(15*A*a**3*b**7/2 + 105*B
*a**4*b**6/8) + x**15*(14*A*a**4*b**6 + 84*B*a**5*b**5/5) + x**14
*(18*A*a**5*b**5 + 15*B*a**6*b**4) + x**13*(210*A*a**6*b**4/13 +
120*B*a**7*b**3/13) + x**12*(10*A*a**7*b**3 + 15*B*a**8*b**2/4) +
 x**11*(45*A*a**8*b**2/11 + 10*B*a**9*b/11) + x**10*(A*a**9*b + B
*a**10/10)
```

GIAC/XCAS [A] time = 0.235297, size = 329, normalized size = 1.37

$$\frac{1}{20}Bb^{10}x^{20}+\frac{10}{19}Bab^{9}x^{19}+\frac{1}{19}Ab^{10}x^{19}+\frac{5}{2}Ba^{2}b^{8}x^{18}+\frac{5}{9}Aab^{9}x^{18}+\frac{120}{17}Ba^{3}b^{7}x^{17}+\frac{45}{17}Aa^{2}b^{8}x^{17}+\frac{105}{8}Ba^{4}b^{6}x^{16}+\frac{15}{2}Aa^{3}b^{7}x^{16}+\frac{84}{5}Ba^{5}b^{5}x^{15}+14\,Aa^{4}b^{6}x^{15}+15\,Ba^{6}b^{4}x^{14}+18\,Aa^{5}b^{5}x^{14}+\frac{120}{13}Ba^{7}b^{3}x^{13}+\frac{210}{13}Aa^{6}b^{4}x^{13}+\frac{15}{4}Ba^{8}b^{2}x^{12}+10\,Aa^{7}b^{3}x^{12}+\frac{10}{11}Ba^{9}bx^{11}+\frac{45}{11}Aa^{8}b^{2}x^{11}+\frac{1}{10}Ba^{10}x^{10}+Aa^{9}bx^{10}+\frac{1}{9}Aa^{10}x^{9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*x^8,x, algorithm="giac")
```

```
[Out] 1/20*B*b^10*x^20 + 10/19*B*a*b^9*x^19 + 1/19*A*b^10*x^19 + 5/2*B*
a^2*b^8*x^18 + 5/9*A*a*b^9*x^18 + 120/17*B*a^3*b^7*x^17 + 45/17*A
*a^2*b^8*x^17 + 105/8*B*a^4*b^6*x^16 + 15/2*A*a^3*b^7*x^16 + 84/5
*B*a^5*b^5*x^15 + 14*A*a^4*b^6*x^15 + 15*B*a^6*b^4*x^14 + 18*A*a^
5*b^5*x^14 + 120/13*B*a^7*b^3*x^13 + 210/13*A*a^6*b^4*x^13 + 15/4
*B*a^8*b^2*x^12 + 10*A*a^7*b^3*x^12 + 10/11*B*a^9*b*x^11 + 45/11*
A*a^8*b^2*x^11 + 1/10*B*a^10*x^10 + A*a^9*b*x^10 + 1/9*A*a^10*x^9
```

3.109 $\int x^7(a+bx)^{10}(A+Bx)\,dx$

Optimal. Leaf size=215

$$-\frac{a^7(a+bx)^{11}(Ab-aB)}{11b^9}+\frac{a^6(a+bx)^{12}(7Ab-8aB)}{12b^9}-\frac{7a^5(a+bx)^{13}(3Ab-4aB)}{13b^9}+\frac{a^4(a+bx)^{14}(5Ab-8aB)}{2b^9}-\frac{7a^3(a+bx)^{15}(Ab-2aB)}{3b^9}+\frac{7a^2(a+bx)^{16}(3Ab-8aB)}{16b^9}+\frac{(a+bx)^{18}(Ab-8aB)}{18b^9}-\frac{7a(a+bx)^{17}(Ab-4aB)}{17b^9}+\frac{B(a+bx)^{19}}{19b^9}$$

```
[Out] -(a^7*(A*b - a*B)*(a + b*x)^11)/(11*b^9) + (a^6*(7*A*b - 8*a*B)*(
a + b*x)^12)/(12*b^9) - (7*a^5*(3*A*b - 4*a*B)*(a + b*x)^13)/(13*
b^9) + (a^4*(5*A*b - 8*a*B)*(a + b*x)^14)/(2*b^9) - (7*a^3*(A*b -
 2*a*B)*(a + b*x)^15)/(3*b^9) + (7*a^2*(3*A*b - 8*a*B)*(a + b*x)^
16)/(16*b^9) - (7*a*(A*b - 4*a*B)*(a + b*x)^17)/(17*b^9) + ((A*b
- 8*a*B)*(a + b*x)^18)/(18*b^9) + (B*(a + b*x)^19)/(19*b^9)
```

Rubi [A] time = 0.568197, antiderivative size = 215, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}} = 0.062$

$$-\frac{a^7(a+bx)^{11}(Ab-aB)}{11b^9}+\frac{a^6(a+bx)^{12}(7Ab-8aB)}{12b^9}-\frac{7a^5(a+bx)^{13}(3Ab-4aB)}{13b^9}+\frac{a^4(a+bx)^{14}(5Ab-8aB)}{2b^9}-\frac{7a^3(a+bx)^{15}(Ab-2aB)}{3b^9}+\frac{7a^2(a+bx)^{16}(3Ab-8aB)}{16b^9}+\frac{(a+bx)^{18}(Ab-8aB)}{18b^9}-\frac{7a(a+bx)^{17}(Ab-4aB)}{17b^9}+\frac{B(a+bx)^{19}}{19b^9}$$

Antiderivative was successfully verified.

```
[In]  Int[x^7*(a + b*x)^10*(A + B*x),x]
```

```
[Out] -(a^7*(A*b - a*B)*(a + b*x)^11)/(11*b^9) + (a^6*(7*A*b - 8*a*B)*(
a + b*x)^12)/(12*b^9) - (7*a^5*(3*A*b - 4*a*B)*(a + b*x)^13)/(13*
b^9) + (a^4*(5*A*b - 8*a*B)*(a + b*x)^14)/(2*b^9) - (7*a^3*(A*b -
 2*a*B)*(a + b*x)^15)/(3*b^9) + (7*a^2*(3*A*b - 8*a*B)*(a + b*x)^
16)/(16*b^9) - (7*a*(A*b - 4*a*B)*(a + b*x)^17)/(17*b^9) + ((A*b
- 8*a*B)*(a + b*x)^18)/(18*b^9) + (B*(a + b*x)^19)/(19*b^9)
```

Rubi in Sympy [A] time = 105.856, size = 209, normalized size = 0.97

$$\frac{B(a+bx)^{19}}{19b^9}-\frac{a^7(a+bx)^{11}(Ab-Ba)}{11b^9}+\frac{a^6(a+bx)^{12}(7Ab-8Ba)}{12b^9}-\frac{7a^5(a+bx)^{13}(3Ab-4Ba)}{13b^9}+\frac{a^4(a+bx)^{14}(5Ab-8Ba)}{2b^9}-\frac{7a^3(a+bx)^{15}(Ab-2Ba)}{3b^9}+\frac{7a^2(a+bx)^{16}(3Ab-8Ba)}{16b^9}-\frac{7a(a+bx)^{17}(Ab-4Ba)}{17b^9}+\frac{(a+bx)^{18}(Ab-8Ba)}{18b^9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**7*(b*x+a)**10*(B*x+A),x)
```

```
[Out] B*(a + b*x)**19/(19*b**9) - a**7*(a + b*x)**11*(A*b - B*a)/(11*b*
*9) + a**6*(a + b*x)**12*(7*A*b - 8*B*a)/(12*b**9) - 7*a**5*(a +
b*x)**13*(3*A*b - 4*B*a)/(13*b**9) + a**4*(a + b*x)**14*(5*A*b -
8*B*a)/(2*b**9) - 7*a**3*(a + b*x)**15*(A*b - 2*B*a)/(3*b**9) + 7
*a**2*(a + b*x)**16*(3*A*b - 8*B*a)/(16*b**9) - 7*a*(a + b*x)**17
*(A*b - 4*B*a)/(17*b**9) + (a + b*x)**18*(A*b - 8*B*a)/(18*b**9)
```

Mathematica [A] time = 0.051708, size = 227, normalized size = 1.06

$$\frac{1}{8}a^{10}Ax^8+\frac{1}{9}a^9x^9(aB+10Ab)+\frac{1}{2}a^8bx^{10}(2aB+9Ab)+\frac{15}{11}a^7b^2x^{11}(3aB+8Ab)+\frac{5}{2}a^6b^3x^{12}(4aB+7Ab)+\frac{42}{13}a^5b^4x^{13}(5aB+6Ab)+3a^4b^5x^{14}(6aB+5Ab)+2a^3b^6x^{15}(7aB+4Ab)+\frac{15}{16}a^2b^7x^{16}(8aB+3Ab)+\frac{1}{18}b^9x^{18}(10aB+Ab)+\frac{5}{17}ab^8x^{17}(9aB+2Ab)+\frac{1}{19}b^{10}Bx^{19}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^7*(a + b*x)^10*(A + B*x),x]
```

```
[Out] (a^10*A*x^8)/8 + (a^9*(10*A*b + a*B)*x^9)/9 + (a^8*b*(9*A*b + 2*a
*B)*x^10)/2 + (15*a^7*b^2*(8*A*b + 3*a*B)*x^11)/11 + (5*a^6*b^3*(
7*A*b + 4*a*B)*x^12)/2 + (42*a^5*b^4*(6*A*b + 5*a*B)*x^13)/13 + 3
*a^4*b^5*(5*A*b + 6*a*B)*x^14 + 2*a^3*b^6*(4*A*b + 7*a*B)*x^15 +
(15*a^2*b^7*(3*A*b + 8*a*B)*x^16)/16 + (5*a*b^8*(2*A*b + 9*a*B)*x
^17)/17 + (b^9*(A*b + 10*a*B)*x^18)/18 + (b^10*B*x^19)/19
```

Maple [A] time = 0.001, size = 244, normalized size = 1.1

$$\frac{b^{10}Bx^{19}}{19}+\frac{\left(b^{10}A+10\,ab^9B\right)x^{18}}{18}+\frac{\left(10\,ab^9A+45\,a^2b^8B\right)x^{17}}{17}+\frac{\left(45\,a^2b^8A+120\,a^3b^7B\right)x^{16}}{16}+\frac{\left(120\,a^3b^7A+210\,a^4b^6B\right)x^{15}}{15}+\frac{\left(210\,a^4b^6A+252\,a^5b^5B\right)x^{14}}{14}+\frac{\left(252\,a^5b^5A+210\,a^6b^4B\right)x^{13}}{13}+\frac{\left(210\,a^6b^4A+120\,a^7b^3B\right)x^{12}}{12}+\frac{\left(120\,a^7b^3A+45\,a^8b^2B\right)x^{11}}{11}+\frac{\left(45\,a^8b^2A+10\,a^9bB\right)x^{10}}{10}+\frac{\left(10\,a^9bA+a^{10}B\right)x^9}{9}+\frac{a^{10}Ax^8}{8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^7*(b*x+a)^10*(B*x+A),x)
```

```
[Out] 1/19*b^10*B*x^19+1/18*(A*b^10+10*B*a*b^9)*x^18+1/17*(10*A*a*b^9+4
5*B*a^2*b^8)*x^17+1/16*(45*A*a^2*b^8+120*B*a^3*b^7)*x^16+1/15*(12
0*A*a^3*b^7+210*B*a^4*b^6)*x^15+1/14*(210*A*a^4*b^6+252*B*a^5*b^5
)*x^14+1/13*(252*A*a^5*b^5+210*B*a^6*b^4)*x^13+1/12*(210*A*a^6*b^
4+120*B*a^7*b^3)*x^12+1/11*(120*A*a^7*b^3+45*B*a^8*b^2)*x^11+1/10
*(45*A*a^8*b^2+10*B*a^9*b)*x^10+1/9*(10*A*a^9*b+B*a^10)*x^9+1/8*a
^10*A*x^8
```

Maxima [A] time = 1.36136, size = 328, normalized size = 1.53

$$\frac{1}{19}\,Bb^{10}x^{19}+\frac{1}{8}\,Aa^{10}x^8+\frac{1}{18}\left(10\,Bab^9+Ab^{10}\right)x^{18}+\frac{5}{17}\left(9\,Ba^2b^8+2\,Aab^9\right)x^{17}+\frac{15}{16}\left(8\,Ba^3b^7+3\,Aa^2b^8\right)x^{16}+2\left(7\,Ba^4b^6+4\,Aa^3b^7\right)x^{15}+3\left(6\,Ba^5b^5+5\,Aa^4b^6\right)x^{14}+\frac{42}{13}\left(5\,Ba^6b^4+6\,Aa^5b^5\right)x^{13}+\frac{5}{2}\left(4\,Ba^7b^3+7\,Aa^6b^4\right)x^{12}+\frac{15}{11}\left(3\,Ba^8b^2+8\,Aa^7b^3\right)x^{11}+\frac{1}{2}\left(2\,Ba^9b+9\,Aa^8b^2\right)x^{10}+\frac{1}{9}\left(Ba^{10}+10\,Aa^9b\right)x^9$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*x^7,x, algorithm="maxima")
```

```
[Out] 1/19*B*b^10*x^19 + 1/8*A*a^10*x^8 + 1/18*(10*B*a*b^9 + A*b^10)*x^
18 + 5/17*(9*B*a^2*b^8 + 2*A*a*b^9)*x^17 + 15/16*(8*B*a^3*b^7 + 3
*A*a^2*b^8)*x^16 + 2*(7*B*a^4*b^6 + 4*A*a^3*b^7)*x^15 + 3*(6*B*a^
5*b^5 + 5*A*a^4*b^6)*x^14 + 42/13*(5*B*a^6*b^4 + 6*A*a^5*b^5)*x^1
```

```
3 + 5/2*(4*B*a^7*b^3 + 7*A*a^6*b^4)*x^12 + 15/11*(3*B*a^8*b^2 + 8
*A*a^7*b^3)*x^11 + 1/2*(2*B*a^9*b + 9*A*a^8*b^2)*x^10 + 1/9*(B*a^
10 + 10*A*a^9*b)*x^9
```

Fricas [A] time = 0.177874, size = 1, normalized size = 0.

$$\frac{1}{19}x^{19}b^{10}B+\frac{5}{9}x^{18}b^{9}aB+\frac{1}{18}x^{18}b^{10}A+\frac{45}{17}x^{17}b^{8}a^{2}B+\frac{10}{17}x^{17}b^{9}aA+\frac{15}{2}x^{16}b^{7}a^{3}B+\frac{45}{16}x^{16}b^{8}a^{2}A+14x^{15}b^{6}a^{4}B+8x^{15}b^{7}a^{3}A+18x^{14}b^{5}a^{5}B+15x^{14}b^{6}a^{4}A+\frac{210}{13}x^{13}b^{4}a^{6}B+\frac{252}{13}x^{13}b^{5}a^{5}A+10x^{12}b^{3}a^{7}B+\frac{35}{2}x^{12}b^{4}a^{6}A+\frac{45}{11}x^{11}b^{2}a^{8}B+\frac{120}{11}x^{11}b^{3}a^{7}A+x^{10}ba^{9}B+\frac{9}{2}x^{10}b^{2}a^{8}A+\frac{1}{9}x^{9}a^{10}B+\frac{10}{9}x^{9}ba^{9}A+\frac{1}{8}x^{8}a^{10}A$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*(b*x + a)^10*x^7,x, algorithm="fricas")
```

```
[Out] 1/19*x^19*b^10*B + 5/9*x^18*b^9*a*B + 1/18*x^18*b^10*A + 45/17*x^
17*b^8*a^2*B + 10/17*x^17*b^9*a*A + 15/2*x^16*b^7*a^3*B + 45/16*x
^16*b^8*a^2*A + 14*x^15*b^6*a^4*B + 8*x^15*b^7*a^3*A + 18*x^14*b^
5*a^5*B + 15*x^14*b^6*a^4*A + 210/13*x^13*b^4*a^6*B + 252/13*x^13
*b^5*a^5*A + 10*x^12*b^3*a^7*B + 35/2*x^12*b^4*a^6*A + 45/11*x^11
*b^2*a^8*B + 120/11*x^11*b^3*a^7*A + x^10*b*a^9*B + 9/2*x^10*b^2*
a^8*A + 1/9*x^9*a^10*B + 10/9*x^9*b*a^9*A + 1/8*x^8*a^10*A
```

Sympy [A] time = 0.262629, size = 262, normalized size = 1.22

$$\frac{Aa^{10}x^{8}}{8}+\frac{Bb^{10}x^{19}}{19}+x^{18}\left(\frac{Ab^{10}}{18}+\frac{5Bab^{9}}{9}\right)+x^{17}\left(\frac{10Aab^{9}}{17}+\frac{45Ba^{2}b^{8}}{17}\right)+x^{16}\left(\frac{45Aa^{2}b^{8}}{16}+\frac{15Ba^{3}b^{7}}{2}\right)+x^{15}\left(8Aa^{3}b^{7}+14Ba^{4}b^{6}\right)+x^{14}\left(15Aa^{4}b^{6}+18Ba^{5}b^{5}\right)+x^{13}\left(\frac{252Aa^{5}b^{5}}{13}+\frac{210Ba^{6}b^{4}}{13}\right)+x^{12}\left(\frac{35Aa^{6}b^{4}}{2}+10Ba^{7}b^{3}\right)+x^{11}\left(\frac{120Aa^{7}b^{3}}{11}+\frac{45Ba^{8}b^{2}}{11}\right)+x^{10}\left(\frac{9Aa^{8}b^{2}}{2}+Ba^{9}b\right)+x^{9}\left(\frac{10Aa^{9}b}{9}+\frac{Ba^{10}}{9}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(x**7*(b*x+a)**10*(B*x+A),x)
```

```
[Out] A*a**10*x**8/8 + B*b**10*x**19/19 + x**18*(A*b**10/18 + 5*B*a*b**
9/9) + x**17*(10*A*a*b**9/17 + 45*B*a**2*b**8/17) + x**16*(45*A*a
**2*b**8/16 + 15*B*a**3*b**7/2) + x**15*(8*A*a**3*b**7 + 14*B*a**
4*b**6) + x**14*(15*A*a**4*b**6 + 18*B*a**5*b**5) + x**13*(252*A*
a**5*b**5/13 + 210*B*a**6*b**4/13) + x**12*(35*A*a**6*b**4/2 + 10
*B*a**7*b**3) + x**11*(120*A*a**7*b**3/11 + 45*B*a**8*b**2/11) +
x**10*(9*A*a**8*b**2/2 + B*a**9*b) + x**9*(10*A*a**9*b/9 + B*a**1
0/9)
```

GIAC/XCAS [A] time = 0.273861, size = 329, normalized size = 1.53

$$\frac{1}{19}Bb^{10}x^{19}+\frac{5}{9}Bab^{9}x^{18}+\frac{1}{18}Ab^{10}x^{18}+\frac{45}{17}Ba^{2}b^{8}x^{17}+\frac{10}{17}Aab^{9}x^{17}+\frac{15}{2}Ba^{3}b^{7}x^{16}+\frac{45}{16}Aa^{2}b^{8}x^{16}+14Ba^{4}b^{6}x^{15}+8Aa^{3}b^{7}x^{15}+18Ba^{5}b^{5}x^{14}+15Aa^{4}b^{6}x^{14}+\frac{210}{13}Ba^{6}b^{4}x^{13}+\frac{252}{13}Aa^{5}b^{5}x^{13}+10Ba^{7}b^{3}x^{12}+\frac{35}{2}Aa^{6}b^{4}x^{12}+\frac{45}{11}Ba^{8}b^{2}x^{11}+\frac{120}{11}Aa^{7}b^{3}x^{11}+Ba^{9}bx^{10}+\frac{9}{2}Aa^{8}b^{2}x^{10}+\frac{1}{9}Ba^{10}x^{9}+\frac{10}{9}Aa^{9}bx^{9}+\frac{1}{8}Aa^{10}x^{8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*x^7,x, algorithm="giac")
```

```
[Out] 1/19*B*b^10*x^19 + 5/9*B*a*b^9*x^18 + 1/18*A*b^10*x^18 + 45/17*B*
a^2*b^8*x^17 + 10/17*A*a*b^9*x^17 + 15/2*B*a^3*b^7*x^16 + 45/16*A
*a^2*b^8*x^16 + 14*B*a^4*b^6*x^15 + 8*A*a^3*b^7*x^15 + 18*B*a^5*b
^5*x^14 + 15*A*a^4*b^6*x^14 + 210/13*B*a^6*b^4*x^13 + 252/13*A*a^
5*b^5*x^13 + 10*B*a^7*b^3*x^12 + 35/2*A*a^6*b^4*x^12 + 45/11*B*a^
8*b^2*x^11 + 120/11*A*a^7*b^3*x^11 + B*a^9*b*x^10 + 9/2*A*a^8*b^2
*x^10 + 1/9*B*a^10*x^9 + 10/9*A*a^9*b*x^9 + 1/8*A*a^10*x^8
```

3.110 $\int x^6(a+bx)^{10}(A+Bx)\,dx$

Optimal. Leaf size=191

$$\frac{a^6(a+bx)^{11}(Ab-aB)}{11b^8}-\frac{a^5(a+bx)^{12}(6Ab-7aB)}{12b^8}+\frac{3a^4(a+bx)^{13}(5Ab-7aB)}{13b^8}-\frac{5a^3(a+bx)^{14}(4Ab-7aB)}{14b^8}+\frac{a^2(a+bx)^{15}(3Ab-7aB)}{3b^8}+\frac{(a+bx)^{17}(Ab-7aB)}{17b^8}-\frac{3a(a+bx)^{16}(2Ab-7aB)}{16b^8}+\frac{B(a+bx)^{18}}{18b^8}$$

```
[Out] (a^6*(A*b - a*B)*(a + b*x)^11)/(11*b^8) - (a^5*(6*A*b - 7*a*B)*(a
 + b*x)^12)/(12*b^8) + (3*a^4*(5*A*b - 7*a*B)*(a + b*x)^13)/(13*b
^8) - (5*a^3*(4*A*b - 7*a*B)*(a + b*x)^14)/(14*b^8) + (a^2*(3*A*b
 - 7*a*B)*(a + b*x)^15)/(3*b^8) - (3*a*(2*A*b - 7*a*B)*(a + b*x)^
16)/(16*b^8) + ((A*b - 7*a*B)*(a + b*x)^17)/(17*b^8) + (B*(a + b*
x)^18)/(18*b^8)
```

Rubi [A] time = 0.54184, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$\frac{a^6(a+bx)^{11}(Ab-aB)}{11b^8}-\frac{a^5(a+bx)^{12}(6Ab-7aB)}{12b^8}+\frac{3a^4(a+bx)^{13}(5Ab-7aB)}{13b^8}-\frac{5a^3(a+bx)^{14}(4Ab-7aB)}{14b^8}+\frac{a^2(a+bx)^{15}(3Ab-7aB)}{3b^8}+\frac{(a+bx)^{17}(Ab-7aB)}{17b^8}-\frac{3a(a+bx)^{16}(2Ab-7aB)}{16b^8}+\frac{B(a+bx)^{18}}{18b^8}$$

Antiderivative was successfully verified.

```
[In]  Int[x^6*(a + b*x)^10*(A + B*x),x]
```



```
[Out] (a^6*(A*b - a*B)*(a + b*x)^11)/(11*b^8) - (a^5*(6*A*b - 7*a*B)*(a
 + b*x)^12)/(12*b^8) + (3*a^4*(5*A*b - 7*a*B)*(a + b*x)^13)/(13*b
^8) - (5*a^3*(4*A*b - 7*a*B)*(a + b*x)^14)/(14*b^8) + (a^2*(3*A*b
 - 7*a*B)*(a + b*x)^15)/(3*b^8) - (3*a*(2*A*b - 7*a*B)*(a + b*x)^
16)/(16*b^8) + ((A*b - 7*a*B)*(a + b*x)^17)/(17*b^8) + (B*(a + b*
x)^18)/(18*b^8)
```

Rubi in Sympy [A] time = 90.7794, size = 185, normalized size = 0.97

$$\frac{B\left(a+bx\right)^{18}}{18b^8}+\frac{a^6\left(a+bx\right)^{11}\left(Ab-Ba\right)}{11b^8}-\frac{a^5\left(a+bx\right)^{12}\left(6Ab-7Ba\right)}{12b^8}+\frac{3a^4\left(a+bx\right)^{13}\left(5Ab-7Ba\right)}{13b^8}-\frac{5a^3\left(a+bx\right)^{14}\left(4Ab-7Ba\right)}{14b^8}+\frac{a^2\left(a+bx\right)^{15}\left(3Ab-7Ba\right)}{3b^8}-\frac{3a\left(a+bx\right)^{16}\left(2Ab-7Ba\right)}{16b^8}+\frac{\left(a+bx\right)^{17}\left(Ab-7Ba\right)}{17b^8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**6*(b*x+a)**10*(B*x+A),x)
```

```
[Out] B*(a + b*x)**18/(18*b**8) + a**6*(a + b*x)**11*(A*b - B*a)/(11*b*
*8) - a**5*(a + b*x)**12*(6*A*b - 7*B*a)/(12*b**8) + 3*a**4*(a +
b*x)**13*(5*A*b - 7*B*a)/(13*b**8) - 5*a**3*(a + b*x)**14*(4*A*b
- 7*B*a)/(14*b**8) + a**2*(a + b*x)**15*(3*A*b - 7*B*a)/(3*b**8)
- 3*a*(a + b*x)**16*(2*A*b - 7*B*a)/(16*b**8) + (a + b*x)**17*(A*
b - 7*B*a)/(17*b**8)
```

Mathematica [A] time = 0.0538563, size = 228, normalized size = 1.19

$$\frac{1}{7}a^{10}Ax^7+\frac{1}{8}a^9x^8(aB+10Ab)+\frac{5}{9}a^8bx^9(2aB+9Ab)+\frac{3}{2}a^7b^2x^{10}(3aB+8Ab)+\frac{30}{11}a^6b^3x^{11}(4aB+7Ab)+\frac{7}{2}a^5b^4x^{12}(5aB+6Ab)+\frac{42}{13}a^4b^5x^{13}(6aB+5Ab)+\frac{15}{7}a^3b^6x^{14}(7aB+4Ab)+a^2b^7x^{15}(8aB+3Ab)+\frac{1}{17}b^9x^{17}(10aB+Ab)+\frac{5}{16}ab^8x^{16}(9aB+2Ab)+\frac{1}{18}b^{10}Bx^{18}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^6*(a + b*x)^10*(A + B*x),x]
```

```
[Out] (a^10*A*x^7)/7 + (a^9*(10*A*b + a*B)*x^8)/8 + (5*a^8*b*(9*A*b + 2
*a*B)*x^9)/9 + (3*a^7*b^2*(8*A*b + 3*a*B)*x^10)/2 + (30*a^6*b^3*(
7*A*b + 4*a*B)*x^11)/11 + (7*a^5*b^4*(6*A*b + 5*a*B)*x^12)/2 + (4
2*a^4*b^5*(5*A*b + 6*a*B)*x^13)/13 + (15*a^3*b^6*(4*A*b + 7*a*B)*
x^14)/7 + a^2*b^7*(3*A*b + 8*a*B)*x^15 + (5*a*b^8*(2*A*b + 9*a*B)
*x^16)/16 + (b^9*(A*b + 10*a*B)*x^17)/17 + (b^10*B*x^18)/18
```

Maple [A] time = 0.003, size = 244, normalized size = 1.3

$$\frac{b^{10}Bx^{18}}{18}+\frac{\left(b^{10}A+10\,ab^9B\right)x^{17}}{17}+\frac{\left(10\,ab^9A+45\,a^2b^8B\right)x^{16}}{16}+\frac{\left(45\,a^2b^8A+120\,a^3b^7B\right)x^{15}}{15}+\frac{\left(120\,a^3b^7A+210\,a^4b^6B\right)x^{14}}{14}+\frac{\left(210\,a^4b^6A+252\,a^5b^5B\right)x^{13}}{13}+\frac{\left(252\,a^5b^5A+210\,a^6b^4B\right)x^{12}}{12}+\frac{\left(210\,a^6b^4A+120\,a^7b^3B\right)x^{11}}{11}+\frac{\left(120\,a^7b^3A+45\,a^8b^2B\right)x^{10}}{10}+\frac{\left(45\,a^8b^2A+10\,a^9bB\right)x^9}{9}+\frac{\left(10\,a^9bA+a^{10}B\right)x^8}{8}+\frac{a^{10}Ax^7}{7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^6*(b*x+a)^10*(B*x+A),x)
```

```
[Out] 1/18*b^10*B*x^18+1/17*(A*b^10+10*B*a*b^9)*x^17+1/16*(10*A*a*b^9+4
5*B*a^2*b^8)*x^16+1/15*(45*A*a^2*b^8+120*B*a^3*b^7)*x^15+1/14*(12
0*A*a^3*b^7+210*B*a^4*b^6)*x^14+1/13*(210*A*a^4*b^6+252*B*a^5*b^5
)*x^13+1/12*(252*A*a^5*b^5+210*B*a^6*b^4)*x^12+1/11*(210*A*a^6*b^
4+120*B*a^7*b^3)*x^11+1/10*(120*A*a^7*b^3+45*B*a^8*b^2)*x^10+1/9*
(45*A*a^8*b^2+10*B*a^9*b)*x^9+1/8*(10*A*a^9*b+B*a^10)*x^8+1/7*a^1
0*A*x^7
```

Maxima [A] time = 1.34128, size = 327, normalized size = 1.71

$$\frac{1}{18}\,Bb^{10}x^{18}+\frac{1}{7}\,Aa^{10}x^7+\frac{1}{17}\left(10\,Bab^9+Ab^{10}\right)x^{17}+\frac{5}{16}\left(9\,Ba^2b^8+2\,Aab^9\right)x^{16}+\left(8\,Ba^3b^7+3\,Aa^2b^8\right)x^{15}+\frac{15}{7}\left(7\,Ba^4b^6+4\,Aa^3b^7\right)x^{14}+\frac{42}{13}\left(6\,Ba^5b^5+5\,Aa^4b^6\right)x^{13}+\frac{7}{2}\left(5\,Ba^6b^4+6\,Aa^5b^5\right)x^{12}+\frac{30}{11}\left(4\,Ba^7b^3+7\,Aa^6b^4\right)x^{11}+\frac{3}{2}\left(3\,Ba^8b^2+8\,Aa^7b^3\right)x^{10}+\frac{5}{9}\left(2\,Ba^9b+9\,Aa^8b^2\right)x^9+\frac{1}{8}\left(Ba^{10}+10\,Aa^9b\right)x^8$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*x^6,x, algorithm="maxima")
```

```
[Out] 1/18*B*b^10*x^18 + 1/7*A*a^10*x^7 + 1/17*(10*B*a*b^9 + A*b^10)*x^
17 + 5/16*(9*B*a^2*b^8 + 2*A*a*b^9)*x^16 + (8*B*a^3*b^7 + 3*A*a^2
*b^8)*x^15 + 15/7*(7*B*a^4*b^6 + 4*A*a^3*b^7)*x^14 + 42/13*(6*B*a
^5*b^5 + 5*A*a^4*b^6)*x^13 + 7/2*(5*B*a^6*b^4 + 6*A*a^5*b^5)*x^12
```

```
 + 30/11*(4*B*a^7*b^3 + 7*A*a^6*b^4)*x^11 + 3/2*(3*B*a^8*b^2 + 8*
A*a^7*b^3)*x^10 + 5/9*(2*B*a^9*b + 9*A*a^8*b^2)*x^9 + 1/8*(B*a^10
 + 10*A*a^9*b)*x^8
```

Fricas [A] time = 0.180815, size = 1, normalized size = 0.01

$$\frac{1}{18}x^{18}b^{10}B + \frac{10}{17}x^{17}b^9aB + \frac{1}{17}x^{17}b^{10}A + \frac{45}{16}x^{16}b^8a^2B + \frac{5}{8}x^{16}b^9aA + 8x^{15}b^7a^3B + 3x^{15}b^8a^2A + 15x^{14}b^6a^4B + \frac{60}{7}x^{14}b^7a^3A + \frac{252}{13}x^{13}b^5a^5B + \frac{210}{13}x^{13}b^6a^4A + \frac{35}{2}x^{12}b^4a^6B + 21x^{12}b^5a^5A + \frac{120}{11}x^{11}b^3a^7B + \frac{210}{11}x^{11}b^4a^6A + \frac{9}{2}x^{10}b^2a^8B + 12x^{10}b^3a^7A + \frac{10}{9}x^9ba^9B + 5x^9b^2a^8A + \frac{1}{8}x^8a^{10}B + \frac{5}{4}x^8ba^9A + \frac{1}{7}x^7a^{10}A$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*x^6,x, algorithm="fricas")
```

```
[Out] 1/18*x^18*b^10*B + 10/17*x^17*b^9*a*B + 1/17*x^17*b^10*A + 45/16*
x^16*b^8*a^2*B + 5/8*x^16*b^9*a*A + 8*x^15*b^7*a^3*B + 3*x^15*b^8
*a^2*A + 15*x^14*b^6*a^4*B + 60/7*x^14*b^7*a^3*A + 252/13*x^13*b^
5*a^5*B + 210/13*x^13*b^6*a^4*A + 35/2*x^12*b^4*a^6*B + 21*x^12*b
^5*a^5*A + 120/11*x^11*b^3*a^7*B + 210/11*x^11*b^4*a^6*A + 9/2*x^
10*b^2*a^8*B + 12*x^10*b^3*a^7*A + 10/9*x^9*b*a^9*B + 5*x^9*b^2*a
^8*A + 1/8*x^8*a^10*B + 5/4*x^8*b*a^9*A + 1/7*x^7*a^10*A
```

Sympy [A] time = 0.252341, size = 264, normalized size = 1.38

$$\frac{Aa^{10}x^7}{7} + \frac{Bb^{10}x^{18}}{18} + x^{17}\left(\frac{Ab^{10}}{17} + \frac{10Bab^9}{17}\right) + x^{16}\left(\frac{5Aab^9}{8} + \frac{45Ba^2b^8}{16}\right) + x^{15}\left(3Aa^2b^8 + 8Ba^3b^7\right) + x^{14}\left(\frac{60Aa^3b^7}{7} + 15Ba^4b^6\right) + x^{13}\left(\frac{210Aa^4b^6}{13} + \frac{252Ba^5b^5}{13}\right) + x^{12}\left(21Aa^5b^5 + \frac{35Ba^6b^4}{2}\right) + x^{11}\left(\frac{210Aa^6b^4}{11} + \frac{120Ba^7b^3}{11}\right) + x^{10}\left(12Aa^7b^3 + \frac{9Ba^8b^2}{2}\right) + x^9\left(5Aa^8b^2 + \frac{10Ba^9b}{9}\right) + x^8\left(\frac{5Aa^9b}{4} + \frac{Ba^{10}}{8}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**6*(b*x+a)**10*(B*x+A),x)
```

```
[Out] A*a**10*x**7/7 + B*b**10*x**18/18 + x**17*(A*b**10/17 + 10*B*a*b*
*9/17) + x**16*(5*A*a*b**9/8 + 45*B*a**2*b**8/16) + x**15*(3*A*a*
*2*b**8 + 8*B*a**3*b**7) + x**14*(60*A*a**3*b**7/7 + 15*B*a**4*b*
*6) + x**13*(210*A*a**4*b**6/13 + 252*B*a**5*b**5/13) + x**12*(21
*A*a**5*b**5 + 35*B*a**6*b**4/2) + x**11*(210*A*a**6*b**4/11 + 12
0*B*a**7*b**3/11) + x**10*(12*A*a**7*b**3 + 9*B*a**8*b**2/2) + x*
*9*(5*A*a**8*b**2 + 10*B*a**9*b/9) + x**8*(5*A*a**9*b/4 + B*a**10
/8)
```

GIAC/XCAS [A] time = 0.282318, size = 331, normalized size = 1.73

$$\frac{1}{18}Bb^{10}x^{18} + \frac{10}{17}Bab^9x^{17} + \frac{1}{17}Ab^{10}x^{17} + \frac{45}{16}Ba^2b^8x^{16} + \frac{5}{8}Aab^9x^{16} + 8Ba^3b^7x^{15} + 3Aa^2b^8x^{15} + 15Ba^4b^6x^{14} + \frac{60}{7}Aa^3b^7x^{14} + \frac{252}{13}Ba^5b^5x^{13} + \frac{210}{13}Aa^4b^6x^{13} + \frac{35}{2}Ba^6b^4x^{12} + 21Aa^5b^5x^{12} + \frac{120}{11}Ba^7b^3x^{11} + \frac{210}{11}Aa^6b^4x^{11} + \frac{9}{2}Ba^8b^2x^{10} + 12Aa^7b^3x^{10} + \frac{10}{9}Ba^9bx^9 + 5Aa^8b^2x^9 + \frac{1}{8}Ba^{10}x^8 + \frac{5}{4}Aa^9bx^8 + \frac{1}{7}Aa^{10}x^7$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*x^6,x, algorithm="giac")
```

```
[Out] 1/18*B*b^10*x^18 + 10/17*B*a*b^9*x^17 + 1/17*A*b^10*x^17 + 45/16*
B*a^2*b^8*x^16 + 5/8*A*a*b^9*x^16 + 8*B*a^3*b^7*x^15 + 3*A*a^2*b^
8*x^15 + 15*B*a^4*b^6*x^14 + 60/7*A*a^3*b^7*x^14 + 252/13*B*a^5*b
^5*x^13 + 210/13*A*a^4*b^6*x^13 + 35/2*B*a^6*b^4*x^12 + 21*A*a^5*
b^5*x^12 + 120/11*B*a^7*b^3*x^11 + 210/11*A*a^6*b^4*x^11 + 9/2*B*
a^8*b^2*x^10 + 12*A*a^7*b^3*x^10 + 10/9*B*a^9*b*x^9 + 5*A*a^8*b^2
*x^9 + 1/8*B*a^10*x^8 + 5/4*A*a^9*b*x^8 + 1/7*A*a^10*x^7
```

3.111 $\int x^5(a+bx)^{10}(A+Bx)\,dx$

Optimal. Leaf size=163

$$-\frac{a^5(a+bx)^{11}(Ab-aB)}{11b^7}+\frac{a^4(a+bx)^{12}(5Ab-6aB)}{12b^7}-\frac{5a^3(a+bx)^{13}(2Ab-3aB)}{13b^7}+\frac{5a^2(a+bx)^{14}(Ab-2aB)}{7b^7}+\frac{(a+bx)^{16}(Ab-6aB)}{16b^7}-\frac{a(a+bx)^{15}(Ab-3aB)}{3b^7}+\frac{B(a+bx)^{17}}{17b^7}$$

```
[Out] -(a^5*(A*b - a*B)*(a + b*x)^11)/(11*b^7) + (a^4*(5*A*b - 6*a*B)*(
a + b*x)^12)/(12*b^7) - (5*a^3*(2*A*b - 3*a*B)*(a + b*x)^13)/(13*
b^7) + (5*a^2*(A*b - 2*a*B)*(a + b*x)^14)/(7*b^7) - (a*(A*b - 3*a
*B)*(a + b*x)^15)/(3*b^7) + ((A*b - 6*a*B)*(a + b*x)^16)/(16*b^7)
 + (B*(a + b*x)^17)/(17*b^7)
```

Rubi [A] time = 0.481367, antiderivative size = 163, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{a^5(a+bx)^{11}(Ab-aB)}{11b^7}+\frac{a^4(a+bx)^{12}(5Ab-6aB)}{12b^7}-\frac{5a^3(a+bx)^{13}(2Ab-3aB)}{13b^7}+\frac{5a^2(a+bx)^{14}(Ab-2aB)}{7b^7}+\frac{(a+bx)^{16}(Ab-6aB)}{16b^7}-\frac{a(a+bx)^{15}(Ab-3aB)}{3b^7}+\frac{B(a+bx)^{17}}{17b^7}$$

Antiderivative was successfully verified.

```
[In]  Int[x^5*(a + b*x)^10*(A + B*x),x]
```

```
[Out] -(a^5*(A*b - a*B)*(a + b*x)^11)/(11*b^7) + (a^4*(5*A*b - 6*a*B)*(
a + b*x)^12)/(12*b^7) - (5*a^3*(2*A*b - 3*a*B)*(a + b*x)^13)/(13*
b^7) + (5*a^2*(A*b - 2*a*B)*(a + b*x)^14)/(7*b^7) - (a*(A*b - 3*a
*B)*(a + b*x)^15)/(3*b^7) + ((A*b - 6*a*B)*(a + b*x)^16)/(16*b^7)
 + (B*(a + b*x)^17)/(17*b^7)
```

Rubi in Sympy [A] time = 81.417, size = 155, normalized size = 0.95

$$\frac{B(a+bx)^{17}}{17b^7}-\frac{a^5(a+bx)^{11}(Ab-Ba)}{11b^7}+\frac{a^4(a+bx)^{12}(5Ab-6Ba)}{12b^7}-\frac{5a^3(a+bx)^{13}(2Ab-3Ba)}{13b^7}+\frac{5a^2(a+bx)^{14}(Ab-2Ba)}{7b^7}-\frac{a(a+bx)^{15}(Ab-3Ba)}{3b^7}+\frac{(a+bx)^{16}(Ab-6Ba)}{16b^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**5*(b*x+a)**10*(B*x+A),x)
```

```
[Out] B*(a + b*x)**17/(17*b**7) - a**5*(a + b*x)**11*(A*b - B*a)/(11*b*
*7) + a**4*(a + b*x)**12*(5*A*b - 6*B*a)/(12*b**7) - 5*a**3*(a +
b*x)**13*(2*A*b - 3*B*a)/(13*b**7) + 5*a**2*(a + b*x)**14*(A*b -
2*B*a)/(7*b**7) - a*(a + b*x)**15*(A*b - 3*B*a)/(3*b**7) + (a + b
*x)**16*(A*b - 6*B*a)/(16*b**7)
```

Mathematica [A] time = 0.0509554, size = 229, normalized size = 1.4

$$\frac{1}{6}a^{10}Ax^6+\frac{1}{7}a^9x^7(aB+10Ab)+\frac{5}{8}a^8bx^8(2aB+9Ab)+\frac{5}{3}a^7b^2x^9(3aB+8Ab)+3a^6b^3x^{10}(4aB+7Ab)+\frac{42}{11}a^5b^4x^{11}(5aB+6Ab)+\frac{7}{2}a^4b^5x^{12}(6aB+5Ab)+\frac{30}{13}a^3b^6x^{13}(7aB+4Ab)+\frac{15}{14}a^2b^7x^{14}(8aB+3Ab)+\frac{1}{16}b^9x^{16}(10aB+Ab)+\frac{1}{3}ab^8x^{15}(9aB+2Ab)+\frac{1}{17}b^{10}Bx^{17}$$

Antiderivative was successfully verified.

```
[In]   Integrate[x^5*(a + b*x)^10*(A + B*x),x]
```

```
[Out] (a^10*A*x^6)/6 + (a^9*(10*A*b + a*B)*x^7)/7 + (5*a^8*b*(9*A*b + 2
*a*B)*x^8)/8 + (5*a^7*b^2*(8*A*b + 3*a*B)*x^9)/3 + 3*a^6*b^3*(7*A
*b + 4*a*B)*x^10 + (42*a^5*b^4*(6*A*b + 5*a*B)*x^11)/11 + (7*a^4*
b^5*(5*A*b + 6*a*B)*x^12)/2 + (30*a^3*b^6*(4*A*b + 7*a*B)*x^13)/1
3 + (15*a^2*b^7*(3*A*b + 8*a*B)*x^14)/14 + (a*b^8*(2*A*b + 9*a*B)
*x^15)/3 + (b^9*(A*b + 10*a*B)*x^16)/16 + (b^10*B*x^17)/17
```

Maple [A] time = 0.002, size = 244, normalized size = 1.5

$$\frac{b^{10}Bx^{17}}{17}+\frac{\left(b^{10}A+10\,ab^{9}B\right)x^{16}}{16}+\frac{\left(10\,ab^{9}A+45\,a^{2}b^{8}B\right)x^{15}}{15}+\frac{\left(45\,a^{2}b^{8}A+120\,a^{3}b^{7}B\right)x^{14}}{14}+\frac{\left(120\,a^{3}b^{7}A+210\,a^{4}b^{6}B\right)x^{13}}{13}+\frac{\left(210\,a^{4}b^{6}A+252\,a^{5}b^{5}B\right)x^{12}}{12}+\frac{\left(252\,a^{5}b^{5}A+210\,a^{6}b^{4}B\right)x^{11}}{11}+\frac{\left(210\,a^{6}b^{4}A+120\,a^{7}b^{3}B\right)x^{10}}{10}+\frac{\left(120\,a^{7}b^{3}A+45\,a^{8}b^{2}B\right)x^{9}}{9}+\frac{\left(45\,a^{8}b^{2}A+10\,a^{9}bB\right)x^{8}}{8}+\frac{\left(10\,a^{9}bA+a^{10}B\right)x^{7}}{7}+\frac{a^{10}Ax^{6}}{6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int(x^5*(b*x+a)^10*(B*x+A),x)
```

```
[Out] 1/17*b^10*B*x^17+1/16*(A*b^10+10*B*a*b^9)*x^16+1/15*(10*A*a*b^9+4
5*B*a^2*b^8)*x^15+1/14*(45*A*a^2*b^8+120*B*a^3*b^7)*x^14+1/13*(12
0*A*a^3*b^7+210*B*a^4*b^6)*x^13+1/12*(210*A*a^4*b^6+252*B*a^5*b^5
)*x^12+1/11*(252*A*a^5*b^5+210*B*a^6*b^4)*x^11+1/10*(210*A*a^6*b^
4+120*B*a^7*b^3)*x^10+1/9*(120*A*a^7*b^3+45*B*a^8*b^2)*x^9+1/8*(4
5*A*a^8*b^2+10*B*a^9*b)*x^8+1/7*(10*A*a^9*b+B*a^10)*x^7+1/6*a^10*
A*x^6
```

Maxima [A] time = 1.35542, size = 328, normalized size = 2.01

$$\frac{1}{17}\,Bb^{10}x^{17}+\frac{1}{6}\,Aa^{10}x^{6}+\frac{1}{16}\left(10\,Bab^{9}+Ab^{10}\right)x^{16}+\frac{1}{3}\left(9\,Ba^{2}b^{8}+2\,Aab^{9}\right)x^{15}+\frac{15}{14}\left(8\,Ba^{3}b^{7}+3\,Aa^{2}b^{8}\right)x^{14}+\frac{30}{13}\left(7\,Ba^{4}b^{6}+4\,Aa^{3}b^{7}\right)x^{13}+\frac{7}{2}\left(6\,Ba^{5}b^{5}+5\,Aa^{4}b^{6}\right)x^{12}+\frac{42}{11}\left(5\,Ba^{6}b^{4}+6\,Aa^{5}b^{5}\right)x^{11}+3\left(4\,Ba^{7}b^{3}+7\,Aa^{6}b^{4}\right)x^{10}+\frac{5}{3}\left(3\,Ba^{8}b^{2}+8\,Aa^{7}b^{3}\right)x^{9}+\frac{5}{8}\left(2\,Ba^{9}b+9\,Aa^{8}b^{2}\right)x^{8}+\frac{1}{7}\left(Ba^{10}+10\,Aa^{9}b\right)x^{7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*(b*x + a)^10*x^5,x, algorithm="maxima")
```

```
[Out] 1/17*B*b^10*x^17 + 1/6*A*a^10*x^6 + 1/16*(10*B*a*b^9 + A*b^10)*x^
16 + 1/3*(9*B*a^2*b^8 + 2*A*a*b^9)*x^15 + 15/14*(8*B*a^3*b^7 + 3*
A*a^2*b^8)*x^14 + 30/13*(7*B*a^4*b^6 + 4*A*a^3*b^7)*x^13 + 7/2*(6
*B*a^5*b^5 + 5*A*a^4*b^6)*x^12 + 42/11*(5*B*a^6*b^4 + 6*A*a^5*b^5
)*x^11 + 3*(4*B*a^7*b^3 + 7*A*a^6*b^4)*x^10 + 5/3*(3*B*a^8*b^2 +
8*A*a^7*b^3)*x^9 + 5/8*(2*B*a^9*b + 9*A*a^8*b^2)*x^8 + 1/7*(B*a^1
0 + 10*A*a^9*b)*x^7
```

Fricas [A] time = 0.17962, size = 1, normalized size = 0.01

$$\frac{1}{17}x^{17}b^{10}B + \frac{5}{8}x^{16}b^9aB + \frac{1}{16}x^{16}b^{10}A + 3x^{15}b^8a^2B + \frac{2}{3}x^{15}b^9aA + \frac{60}{7}x^{14}b^7a^3B + \frac{45}{14}x^{14}b^8a^2A + \frac{210}{13}x^{13}b^6a^4B + \frac{120}{13}x^{13}b^7a^3A + 21x^{12}b^5a^5B + \frac{35}{2}x^{12}b^6a^4A + \frac{210}{11}x^{11}b^4a^6B + \frac{252}{11}x^{11}b^5a^5A + 12x^{10}b^3a^7B + 21x^{10}b^4a^6A + 5x^9b^2a^8B + \frac{40}{3}x^9b^3a^7A + \frac{5}{4}x^8ba^9B + \frac{45}{8}x^8b^2a^8A + \frac{1}{7}x^7a^{10}B + \frac{10}{7}x^7ba^9A + \frac{1}{6}x^6a^{10}A$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*x^5,x, algorithm="fricas")
```

```
[Out] 1/17*x^17*b^10*B + 5/8*x^16*b^9*a*B + 1/16*x^16*b^10*A + 3*x^15*b
^8*a^2*B + 2/3*x^15*b^9*a*A + 60/7*x^14*b^7*a^3*B + 45/14*x^14*b^
8*a^2*A + 210/13*x^13*b^6*a^4*B + 120/13*x^13*b^7*a^3*A + 21*x^12
*b^5*a^5*B + 35/2*x^12*b^6*a^4*A + 210/11*x^11*b^4*a^6*B + 252/11
*x^11*b^5*a^5*A + 12*x^10*b^3*a^7*B + 21*x^10*b^4*a^6*A + 5*x^9*b
^2*a^8*B + 40/3*x^9*b^3*a^7*A + 5/4*x^8*b*a^9*B + 45/8*x^8*b^2*a^
8*A + 1/7*x^7*a^10*B + 10/7*x^7*b*a^9*A + 1/6*x^6*a^10*A
```

Sympy [A] time = 0.290734, size = 265, normalized size = 1.63

$$\frac{Aa^{10}x^6}{6} + \frac{Bb^{10}x^{17}}{17} + x^{16}\left(\frac{Ab^{10}}{16} + \frac{5Bab^9}{8}\right) + x^{15}\left(\frac{2Aab^9}{3} + 3Ba^2b^8\right) + x^{14}\left(\frac{45Aa^2b^8}{14} + \frac{60Ba^3b^7}{7}\right) + x^{13}\left(\frac{120Aa^3b^7}{13} + \frac{210Ba^4b^6}{13}\right) + x^{12}\left(\frac{35Aa^4b^6}{2} + 21Ba^5b^5\right) + x^{11}\left(\frac{252Aa^5b^5}{11} + \frac{210Ba^6b^4}{11}\right) + x^{10}\left(21Aa^6b^4 + 12Ba^7b^3\right) + x^9\left(\frac{40Aa^7b^3}{3} + 5Ba^8b^2\right) + x^8\left(\frac{45Aa^8b^2}{8} + \frac{5Ba^9b}{4}\right) + x^7\left(\frac{10Aa^9b}{7} + \frac{Ba^{10}}{7}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**5*(b*x+a)**10*(B*x+A),x)
```

```
[Out] A*a**10*x**6/6 + B*b**10*x**17/17 + x**16*(A*b**10/16 + 5*B*a*b**
9/8) + x**15*(2*A*a*b**9/3 + 3*B*a**2*b**8) + x**14*(45*A*a**2*b*
*8/14 + 60*B*a**3*b**7/7) + x**13*(120*A*a**3*b**7/13 + 210*B*a**
4*b**6/13) + x**12*(35*A*a**4*b**6/2 + 21*B*a**5*b**5) + x**11*(2
52*A*a**5*b**5/11 + 210*B*a**6*b**4/11) + x**10*(21*A*a**6*b**4 +
 12*B*a**7*b**3) + x**9*(40*A*a**7*b**3/3 + 5*B*a**8*b**2) + x**8
*(45*A*a**8*b**2/8 + 5*B*a**9*b/4) + x**7*(10*A*a**9*b/7 + B*a**1
0/7)
```

GIAC/XCAS [A] time = 0.255159, size = 331, normalized size = 2.03

$$\frac{1}{17}Bb^{10}x^{17} + \frac{5}{8}Bab^9x^{16} + \frac{1}{16}Ab^{10}x^{16} + 3Ba^2b^8x^{15} + \frac{2}{3}Aab^9x^{15} + \frac{60}{7}Ba^3b^7x^{14} + \frac{45}{14}Aa^2b^8x^{14} + \frac{210}{13}Ba^4b^6x^{13} + \frac{120}{13}Aa^3b^7x^{13} + 21Ba^5b^5x^{12} + \frac{35}{2}Aa^4b^6x^{12} + \frac{210}{11}Ba^6b^4x^{11} + \frac{252}{11}Aa^5b^5x^{11} + 12Ba^7b^3x^{10} + 21Aa^6b^4x^{10} + 5Ba^8b^2x^9 + \frac{40}{3}Aa^7b^3x^9 + \frac{5}{4}Ba^9bx^8 + \frac{45}{8}Aa^8b^2x^8 + \frac{1}{7}Ba^{10}x^7 + \frac{10}{7}Aa^9bx^7 + \frac{1}{6}Aa^{10}x^6$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*x^5,x, algorithm="giac")
```

```
[Out] 1/17*B*b^10*x^17 + 5/8*B*a*b^9*x^16 + 1/16*A*b^10*x^16 + 3*B*a^2*
b^8*x^15 + 2/3*A*a*b^9*x^15 + 60/7*B*a^3*b^7*x^14 + 45/14*A*a^2*b
```

```
^8*x^14 + 210/13*B*a^4*b^6*x^13 + 120/13*A*a^3*b^7*x^13 + 21*B*a^
5*b^5*x^12 + 35/2*A*a^4*b^6*x^12 + 210/11*B*a^6*b^4*x^11 + 252/11
*A*a^5*b^5*x^11 + 12*B*a^7*b^3*x^10 + 21*A*a^6*b^4*x^10 + 5*B*a^8
*b^2*x^9 + 40/3*A*a^7*b^3*x^9 + 5/4*B*a^9*b*x^8 + 45/8*A*a^8*b^2*
x^8 + 1/7*B*a^10*x^7 + 10/7*A*a^9*b*x^7 + 1/6*A*a^10*x^6
```

3.112 $\int x^4(a+bx)^{10}(A+Bx)\,dx$

Optimal. Leaf size=139

$$\frac{a^4(a+bx)^{11}(Ab-aB)}{11b^6}-\frac{a^3(a+bx)^{12}(4Ab-5aB)}{12b^6}+\frac{2a^2(a+bx)^{13}(3Ab-5aB)}{13b^6}+\frac{(a+bx)^{15}(Ab-5aB)}{15b^6}-\frac{a(a+bx)^{14}(2Ab-5aB)}{7b^6}+\frac{B(a+bx)^{16}}{16b^6}$$

```
[Out] (a^4*(A*b - a*B)*(a + b*x)^11)/(11*b^6) - (a^3*(4*A*b - 5*a*B)*(a
 + b*x)^12)/(12*b^6) + (2*a^2*(3*A*b - 5*a*B)*(a + b*x)^13)/(13*b
^6) - (a*(2*A*b - 5*a*B)*(a + b*x)^14)/(7*b^6) + ((A*b - 5*a*B)*(
a + b*x)^15)/(15*b^6) + (B*(a + b*x)^16)/(16*b^6)
```

Rubi [A] time = 0.456742, antiderivative size = 139, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$\frac{a^4(a+bx)^{11}(Ab-aB)}{11b^6}-\frac{a^3(a+bx)^{12}(4Ab-5aB)}{12b^6}+\frac{2a^2(a+bx)^{13}(3Ab-5aB)}{13b^6}+\frac{(a+bx)^{15}(Ab-5aB)}{15b^6}-\frac{a(a+bx)^{14}(2Ab-5aB)}{7b^6}+\frac{B(a+bx)^{16}}{16b^6}$$

Antiderivative was successfully verified.

```
[In]  Int[x^4*(a + b*x)^10*(A + B*x),x]
```

```
[Out] (a^4*(A*b - a*B)*(a + b*x)^11)/(11*b^6) - (a^3*(4*A*b - 5*a*B)*(a
 + b*x)^12)/(12*b^6) + (2*a^2*(3*A*b - 5*a*B)*(a + b*x)^13)/(13*b
^6) - (a*(2*A*b - 5*a*B)*(a + b*x)^14)/(7*b^6) + ((A*b - 5*a*B)*(
a + b*x)^15)/(15*b^6) + (B*(a + b*x)^16)/(16*b^6)
```

Rubi in Sympy [A] time = 71.3857, size = 131, normalized size = 0.94

$$\frac{B\left(a+bx\right)^{16}}{16b^6}+\frac{a^4\left(a+bx\right)^{11}\left(Ab-Ba\right)}{11b^6}-\frac{a^3\left(a+bx\right)^{12}\left(4Ab-5Ba\right)}{12b^6}+\frac{2a^2\left(a+bx\right)^{13}\left(3Ab-5Ba\right)}{13b^6}-\frac{a\left(a+bx\right)^{14}\left(2Ab-5Ba\right)}{7b^6}+\frac{\left(a+bx\right)^{15}\left(Ab-5Ba\right)}{15b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**4*(b*x+a)**10*(B*x+A),x)
```

```
[Out] B*(a + b*x)**16/(16*b**6) + a**4*(a + b*x)**11*(A*b - B*a)/(11*b*
*6) - a**3*(a + b*x)**12*(4*A*b - 5*B*a)/(12*b**6) + 2*a**2*(a +
b*x)**13*(3*A*b - 5*B*a)/(13*b**6) - a*(a + b*x)**14*(2*A*b - 5*B
*a)/(7*b**6) + (a + b*x)**15*(A*b - 5*B*a)/(15*b**6)
```

Mathematica [A] time = 0.0495033, size = 231, normalized size = 1.66

$$\frac{1}{5}a^{10}Ax^5+\frac{1}{6}a^9x^6(aB+10Ab)+\frac{5}{7}a^8bx^7(2aB+9Ab)+\frac{15}{8}a^7b^2x^8(3aB+8Ab)+\frac{10}{3}a^6b^3x^9(4aB+7Ab)+\frac{21}{5}a^5b^4x^{10}(5aB+6Ab)+\frac{42}{11}a^4b^5x^{11}(6aB+5Ab)+\frac{5}{2}a^3b^6x^{12}(7aB+4Ab)+\frac{15}{13}a^2b^7x^{13}(8aB+3Ab)+\frac{1}{15}b^9x^{15}(10aB+Ab)+\frac{5}{14}ab^8x^{14}(9aB+2Ab)+\frac{1}{16}b^{10}Bx^{16}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^4*(a + b*x)^10*(A + B*x),x]
```

```
[Out] (a^10*A*x^5)/5 + (a^9*(10*A*b + a*B)*x^6)/6 + (5*a^8*b*(9*A*b + 2
*a*B)*x^7)/7 + (15*a^7*b^2*(8*A*b + 3*a*B)*x^8)/8 + (10*a^6*b^3*(
7*A*b + 4*a*B)*x^9)/3 + (21*a^5*b^4*(6*A*b + 5*a*B)*x^10)/5 + (42
*a^4*b^5*(5*A*b + 6*a*B)*x^11)/11 + (5*a^3*b^6*(4*A*b + 7*a*B)*x^
12)/2 + (15*a^2*b^7*(3*A*b + 8*a*B)*x^13)/13 + (5*a*b^8*(2*A*b +
9*a*B)*x^14)/14 + (b^9*(A*b + 10*a*B)*x^15)/15 + (b^10*B*x^16)/16
```

Maple [A] time = 0.001, size = 244, normalized size = 1.8

$$\frac{b^{10}Bx^{16}}{16}+\frac{\left(b^{10}A+10\,ab^{9}B\right)x^{15}}{15}+\frac{\left(10\,ab^{9}A+45\,a^{2}b^{8}B\right)x^{14}}{14}+\frac{\left(45\,a^{2}b^{8}A+120\,a^{3}b^{7}B\right)x^{13}}{13}+\frac{\left(120\,a^{3}b^{7}A+210\,a^{4}b^{6}B\right)x^{12}}{12}+\frac{\left(210\,a^{4}b^{6}A+252\,a^{5}b^{5}B\right)x^{11}}{11}+\frac{\left(252\,a^{5}b^{5}A+210\,a^{6}b^{4}B\right)x^{10}}{10}+\frac{\left(210\,a^{6}b^{4}A+120\,a^{7}b^{3}B\right)x^{9}}{9}+\frac{\left(120\,a^{7}b^{3}A+45\,a^{8}b^{2}B\right)x^{8}}{8}+\frac{\left(45\,a^{8}b^{2}A+10\,a^{9}bB\right)x^{7}}{7}+\frac{\left(10\,a^{9}bA+a^{10}B\right)x^{6}}{6}+\frac{a^{10}Ax^{5}}{5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^4*(b*x+a)^10*(B*x+A),x)
```

```
[Out] 1/16*b^10*B*x^16+1/15*(A*b^10+10*B*a*b^9)*x^15+1/14*(10*A*a*b^9+4
5*B*a^2*b^8)*x^14+1/13*(45*A*a^2*b^8+120*B*a^3*b^7)*x^13+1/12*(12
0*A*a^3*b^7+210*B*a^4*b^6)*x^12+1/11*(210*A*a^4*b^6+252*B*a^5*b^5
)*x^11+1/10*(252*A*a^5*b^5+210*B*a^6*b^4)*x^10+1/9*(210*A*a^6*b^4
+120*B*a^7*b^3)*x^9+1/8*(120*A*a^7*b^3+45*B*a^8*b^2)*x^8+1/7*(45*
A*a^8*b^2+10*B*a^9*b)*x^7+1/6*(10*A*a^9*b+B*a^10)*x^6+1/5*a^10*A*
x^5
```

Maxima [A] time = 1.34861, size = 328, normalized size = 2.36

$$\frac{1}{16}\,Bb^{10}x^{16}+\frac{1}{5}\,Aa^{10}x^{5}+\frac{1}{15}\left(10\,Bab^{9}+Ab^{10}\right)x^{15}+\frac{5}{14}\left(9\,Ba^{2}b^{8}+2\,Aab^{9}\right)x^{14}+\frac{15}{13}\left(8\,Ba^{3}b^{7}+3\,Aa^{2}b^{8}\right)x^{13}+\frac{5}{2}\left(7\,Ba^{4}b^{6}+4\,Aa^{3}b^{7}\right)x^{12}+\frac{42}{11}\left(6\,Ba^{5}b^{5}+5\,Aa^{4}b^{6}\right)x^{11}+\frac{21}{5}\left(5\,Ba^{6}b^{4}+6\,Aa^{5}b^{5}\right)x^{10}+\frac{10}{3}\left(4\,Ba^{7}b^{3}+7\,Aa^{6}b^{4}\right)x^{9}+\frac{15}{8}\left(3\,Ba^{8}b^{2}+8\,Aa^{7}b^{3}\right)x^{8}+\frac{5}{7}\left(2\,Ba^{9}b+9\,Aa^{8}b^{2}\right)x^{7}+\frac{1}{6}\left(Ba^{10}+10\,Aa^{9}b\right)x^{6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*x^4,x, algorithm="maxima")
```

```
[Out] 1/16*B*b^10*x^16 + 1/5*A*a^10*x^5 + 1/15*(10*B*a*b^9 + A*b^10)*x^
15 + 5/14*(9*B*a^2*b^8 + 2*A*a*b^9)*x^14 + 15/13*(8*B*a^3*b^7 + 3
*A*a^2*b^8)*x^13 + 5/2*(7*B*a^4*b^6 + 4*A*a^3*b^7)*x^12 + 42/11*(
6*B*a^5*b^5 + 5*A*a^4*b^6)*x^11 + 21/5*(5*B*a^6*b^4 + 6*A*a^5*b^5
)*x^10 + 10/3*(4*B*a^7*b^3 + 7*A*a^6*b^4)*x^9 + 15/8*(3*B*a^8*b^2
 + 8*A*a^7*b^3)*x^8 + 5/7*(2*B*a^9*b + 9*A*a^8*b^2)*x^7 + 1/6*(B*
a^10 + 10*A*a^9*b)*x^6
```

Fricas [A] time = 0.182999, size = 1, normalized size = 0.01

$$\frac{1}{16}x^{16}b^{10}B+\frac{2}{3}x^{15}b^{9}aB+\frac{1}{15}x^{15}b^{10}A+\frac{45}{14}x^{14}b^{8}a^{2}B+\frac{5}{7}x^{14}b^{9}aA+\frac{120}{13}x^{13}b^{7}a^{3}B+\frac{45}{13}x^{13}b^{8}a^{2}A+\frac{35}{2}x^{12}b^{6}a^{4}B+10x^{12}b^{7}a^{3}A+\frac{252}{11}x^{11}b^{5}a^{5}B+\frac{210}{11}x^{11}b^{6}a^{4}A+21x^{10}b^{4}a^{6}B+\frac{126}{5}x^{10}b^{5}a^{5}A+\frac{40}{3}x^{9}b^{3}a^{7}B+\frac{70}{3}x^{9}b^{4}a^{6}A+\frac{45}{8}x^{8}b^{2}a^{8}B+15x^{8}b^{3}a^{7}A+\frac{10}{7}x^{7}ba^{9}B+\frac{45}{7}x^{7}b^{2}a^{8}A+\frac{1}{6}x^{6}a^{10}B+\frac{5}{3}x^{6}ba^{9}A+\frac{1}{5}x^{5}a^{10}A$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*x^4,x, algorithm="fricas")
```

```
[Out] 1/16*x^16*b^10*B + 2/3*x^15*b^9*a*B + 1/15*x^15*b^10*A + 45/14*x^
14*b^8*a^2*B + 5/7*x^14*b^9*a*A + 120/13*x^13*b^7*a^3*B + 45/13*x
^13*b^8*a^2*A + 35/2*x^12*b^6*a^4*B + 10*x^12*b^7*a^3*A + 252/11*
x^11*b^5*a^5*B + 210/11*x^11*b^6*a^4*A + 21*x^10*b^4*a^6*B + 126/
5*x^10*b^5*a^5*A + 40/3*x^9*b^3*a^7*B + 70/3*x^9*b^4*a^6*A + 45/8
*x^8*b^2*a^8*B + 15*x^8*b^3*a^7*A + 10/7*x^7*b*a^9*B + 45/7*x^7*b
^2*a^8*A + 1/6*x^6*a^10*B + 5/3*x^6*b*a^9*A + 1/5*x^5*a^10*A
```

Sympy [A] time = 0.252673, size = 269, normalized size = 1.94

$$\frac{Aa^{10}x^{5}}{5}+\frac{Bb^{10}x^{16}}{16}+x^{15}\left(\frac{Ab^{10}}{15}+\frac{2Bab^{9}}{3}\right)+x^{14}\left(\frac{5Aab^{9}}{7}+\frac{45Ba^{2}b^{8}}{14}\right)+x^{13}\left(\frac{45Aa^{2}b^{8}}{13}+\frac{120Ba^{3}b^{7}}{13}\right)+x^{12}\left(10Aa^{3}b^{7}+\frac{35Ba^{4}b^{6}}{2}\right)+x^{11}\left(\frac{210Aa^{4}b^{6}}{11}+\frac{252Ba^{5}b^{5}}{11}\right)+x^{10}\left(\frac{126Aa^{5}b^{5}}{5}+21Ba^{6}b^{4}\right)+x^{9}\left(\frac{70Aa^{6}b^{4}}{3}+\frac{40Ba^{7}b^{3}}{3}\right)+x^{8}\left(15Aa^{7}b^{3}+\frac{45Ba^{8}b^{2}}{8}\right)+x^{7}\left(\frac{45Aa^{8}b^{2}}{7}+\frac{10Ba^{9}b}{7}\right)+x^{6}\left(\frac{5Aa^{9}b}{3}+\frac{Ba^{10}}{6}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**4*(b*x+a)**10*(B*x+A),x)
```

```
[Out] A*a**10*x**5/5 + B*b**10*x**16/16 + x**15*(A*b**10/15 + 2*B*a*b**
9/3) + x**14*(5*A*a*b**9/7 + 45*B*a**2*b**8/14) + x**13*(45*A*a**
2*b**8/13 + 120*B*a**3*b**7/13) + x**12*(10*A*a**3*b**7 + 35*B*a*
*4*b**6/2) + x**11*(210*A*a**4*b**6/11 + 252*B*a**5*b**5/11) + x*
*10*(126*A*a**5*b**5/5 + 21*B*a**6*b**4) + x**9*(70*A*a**6*b**4/3
 + 40*B*a**7*b**3/3) + x**8*(15*A*a**7*b**3 + 45*B*a**8*b**2/8) +
 x**7*(45*A*a**8*b**2/7 + 10*B*a**9*b/7) + x**6*(5*A*a**9*b/3 + B
*a**10/6)
```

GIAC/XCAS [A] time = 0.299109, size = 331, normalized size = 2.38

$$\frac{1}{16}Bb^{10}x^{16}+\frac{2}{3}Bab^{9}x^{15}+\frac{1}{15}Ab^{10}x^{15}+\frac{45}{14}Ba^{2}b^{8}x^{14}+\frac{5}{7}Aab^{9}x^{14}+\frac{120}{13}Ba^{3}b^{7}x^{13}+\frac{45}{13}Aa^{2}b^{8}x^{13}+\frac{35}{2}Ba^{4}b^{6}x^{12}+10Aa^{3}b^{7}x^{12}+\frac{252}{11}Ba^{5}b^{5}x^{11}+\frac{210}{11}Aa^{4}b^{6}x^{11}+21Ba^{6}b^{4}x^{10}+\frac{126}{5}Aa^{5}b^{5}x^{10}+\frac{40}{3}Ba^{7}b^{3}x^{9}+\frac{70}{3}Aa^{6}b^{4}x^{9}+\frac{45}{8}Ba^{8}b^{2}x^{8}+15Aa^{7}b^{3}x^{8}+\frac{10}{7}Ba^{9}bx^{7}+\frac{45}{7}Aa^{8}b^{2}x^{7}+\frac{1}{6}Ba^{10}x^{6}+\frac{5}{3}Aa^{9}bx^{6}+\frac{1}{5}Aa^{10}x^{5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*x^4,x, algorithm="giac")
```

```
[Out] 1/16*B*b^10*x^16 + 2/3*B*a*b^9*x^15 + 1/15*A*b^10*x^15 + 45/14*B*
a^2*b^8*x^14 + 5/7*A*a*b^9*x^14 + 120/13*B*a^3*b^7*x^13 + 45/13*A
*a^2*b^8*x^13 + 35/2*B*a^4*b^6*x^12 + 10*A*a^3*b^7*x^12 + 252/11*
B*a^5*b^5*x^11 + 210/11*A*a^4*b^6*x^11 + 21*B*a^6*b^4*x^10 + 126/
```

```
5*A*a^5*b^5*x^10 + 40/3*B*a^7*b^3*x^9 + 70/3*A*a^6*b^4*x^9 + 45/8
*B*a^8*b^2*x^8 + 15*A*a^7*b^3*x^8 + 10/7*B*a^9*b*x^7 + 45/7*A*a^8
*b^2*x^7 + 1/6*B*a^10*x^6 + 5/3*A*a^9*b*x^6 + 1/5*A*a^10*x^5
```

3.113 $\int x^3(a+bx)^{10}(A+Bx)\,dx$

Optimal. Leaf size=112

$$-\frac{a^3(a+bx)^{11}(Ab-aB)}{11b^5}+\frac{a^2(a+bx)^{12}(3Ab-4aB)}{12b^5}+\frac{(a+bx)^{14}(Ab-4aB)}{14b^5}-\frac{3a(a+bx)^{13}(Ab-2aB)}{13b^5}+\frac{B(a+bx)^{15}}{15b^5}$$

```
[Out] -(a^3*(A*b - a*B)*(a + b*x)^11)/(11*b^5) + (a^2*(3*A*b - 4*a*B)*(
a + b*x)^12)/(12*b^5) - (3*a*(A*b - 2*a*B)*(a + b*x)^13)/(13*b^5)
 + ((A*b - 4*a*B)*(a + b*x)^14)/(14*b^5) + (B*(a + b*x)^15)/(15*b
^5)
```

Rubi [A] time = 0.414812, antiderivative size = 112, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{a^3(a+bx)^{11}(Ab-aB)}{11b^5}+\frac{a^2(a+bx)^{12}(3Ab-4aB)}{12b^5}+\frac{(a+bx)^{14}(Ab-4aB)}{14b^5}-\frac{3a(a+bx)^{13}(Ab-2aB)}{13b^5}+\frac{B(a+bx)^{15}}{15b^5}$$

Antiderivative was successfully verified.

```
[In]  Int[x^3*(a + b*x)^10*(A + B*x),x]
```

```
[Out] -(a^3*(A*b - a*B)*(a + b*x)^11)/(11*b^5) + (a^2*(3*A*b - 4*a*B)*(
a + b*x)^12)/(12*b^5) - (3*a*(A*b - 2*a*B)*(a + b*x)^13)/(13*b^5)
 + ((A*b - 4*a*B)*(a + b*x)^14)/(14*b^5) + (B*(a + b*x)^15)/(15*b
^5)
```

Rubi in Sympy [A] time = 60.2533, size = 104, normalized size = 0.93

$$\frac{B\left(a+bx\right)^{15}}{15b^5}-\frac{a^3\left(a+bx\right)^{11}\left(Ab-Ba\right)}{11b^5}+\frac{a^2\left(a+bx\right)^{12}\left(3Ab-4Ba\right)}{12b^5}-\frac{3a\left(a+bx\right)^{13}\left(Ab-2Ba\right)}{13b^5}+\frac{\left(a+bx\right)^{14}\left(Ab-4Ba\right)}{14b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3*(b*x+a)**10*(B*x+A),x)
```

```
[Out] B*(a + b*x)**15/(15*b**5) - a**3*(a + b*x)**11*(A*b - B*a)/(11*b*
*5) + a**2*(a + b*x)**12*(3*A*b - 4*B*a)/(12*b**5) - 3*a*(a + b*x
)**13*(A*b - 2*B*a)/(13*b**5) + (a + b*x)**14*(A*b - 4*B*a)/(14*b
**5)
```

Mathematica [B] time = 0.0506959, size = 231, normalized size = 2.06

$$\frac{1}{4}a^{10}Ax^4+\frac{1}{5}a^9x^5(aB+10Ab)+\frac{5}{6}a^8bx^6(2aB+9Ab)+\frac{15}{7}a^7b^2x^7(3aB+8Ab)+\frac{15}{4}a^6b^3x^8(4aB+7Ab)+\frac{14}{3}a^5b^4x^9(5aB+6Ab)+\frac{21}{5}a^4b^5x^{10}(6aB+5Ab)+\frac{30}{11}a^3b^6x^{11}(7aB+4Ab)+\frac{5}{4}a^2b^7x^{12}(8aB+3Ab)+\frac{1}{14}b^9x^{14}(10aB+Ab)+\frac{5}{13}ab^8x^{13}(9aB+2Ab)+\frac{1}{15}b^{10}Bx^{15}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^3*(a + b*x)^10*(A + B*x),x]
```

```
[Out] (a^10*A*x^4)/4 + (a^9*(10*A*b + a*B)*x^5)/5 + (5*a^8*b*(9*A*b + 2
*a*B)*x^6)/6 + (15*a^7*b^2*(8*A*b + 3*a*B)*x^7)/7 + (15*a^6*b^3*(
7*A*b + 4*a*B)*x^8)/4 + (14*a^5*b^4*(6*A*b + 5*a*B)*x^9)/3 + (21*
a^4*b^5*(5*A*b + 6*a*B)*x^10)/5 + (30*a^3*b^6*(4*A*b + 7*a*B)*x^1
1)/11 + (5*a^2*b^7*(3*A*b + 8*a*B)*x^12)/4 + (5*a*b^8*(2*A*b + 9*
a*B)*x^13)/13 + (b^9*(A*b + 10*a*B)*x^14)/14 + (b^10*B*x^15)/15
```

Maple [B] time = 0.003, size = 244, normalized size = 2.2

$$\frac{b^{10}Bx^{15}}{15}+\frac{\left(b^{10}A+10\,ab^{9}B\right)x^{14}}{14}+\frac{\left(10\,ab^{9}A+45\,a^{2}b^{8}B\right)x^{13}}{13}+\frac{\left(45\,a^{2}b^{8}A+120\,a^{3}b^{7}B\right)x^{12}}{12}+\frac{\left(120\,a^{3}b^{7}A+210\,a^{4}b^{6}B\right)x^{11}}{11}+\frac{\left(210\,a^{4}b^{6}A+252\,a^{5}b^{5}B\right)x^{10}}{10}+\frac{\left(252\,a^{5}b^{5}A+210\,a^{6}b^{4}B\right)x^{9}}{9}+\frac{\left(210\,a^{6}b^{4}A+120\,a^{7}b^{3}B\right)x^{8}}{8}+\frac{\left(120\,a^{7}b^{3}A+45\,a^{8}b^{2}B\right)x^{7}}{7}+\frac{\left(45\,a^{8}b^{2}A+10\,a^{9}bB\right)x^{6}}{6}+\frac{\left(10\,a^{9}bA+a^{10}B\right)x^{5}}{5}+\frac{a^{10}Ax^{4}}{4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^3*(b*x+a)^10*(B*x+A),x)
```

```
[Out] 1/15*b^10*B*x^15+1/14*(A*b^10+10*B*a*b^9)*x^14+1/13*(10*A*a*b^9+4
5*B*a^2*b^8)*x^13+1/12*(45*A*a^2*b^8+120*B*a^3*b^7)*x^12+1/11*(12
0*A*a^3*b^7+210*B*a^4*b^6)*x^11+1/10*(210*A*a^4*b^6+252*B*a^5*b^5
)*x^10+1/9*(252*A*a^5*b^5+210*B*a^6*b^4)*x^9+1/8*(210*A*a^6*b^4+1
20*B*a^7*b^3)*x^8+1/7*(120*A*a^7*b^3+45*B*a^8*b^2)*x^7+1/6*(45*A*
a^8*b^2+10*B*a^9*b)*x^6+1/5*(10*A*a^9*b+B*a^10)*x^5+1/4*a^10*A*x^
4
```

Maxima [A] time = 1.39447, size = 328, normalized size = 2.93

$$\frac{1}{15}\,Bb^{10}x^{15}+\frac{1}{4}\,Aa^{10}x^{4}+\frac{1}{14}\left(10\,Bab^{9}+Ab^{10}\right)x^{14}+\frac{5}{13}\left(9\,Ba^{2}b^{8}+2\,Aab^{9}\right)x^{13}+\frac{5}{4}\left(8\,Ba^{3}b^{7}+3\,Aa^{2}b^{8}\right)x^{12}+\frac{30}{11}\left(7\,Ba^{4}b^{6}+4\,Aa^{3}b^{7}\right)x^{11}+\frac{21}{5}\left(6\,Ba^{5}b^{5}+5\,Aa^{4}b^{6}\right)x^{10}+\frac{14}{3}\left(5\,Ba^{6}b^{4}+6\,Aa^{5}b^{5}\right)x^{9}+\frac{15}{4}\left(4\,Ba^{7}b^{3}+7\,Aa^{6}b^{4}\right)x^{8}+\frac{15}{7}\left(3\,Ba^{8}b^{2}+8\,Aa^{7}b^{3}\right)x^{7}+\frac{5}{6}\left(2\,Ba^{9}b+9\,Aa^{8}b^{2}\right)x^{6}+\frac{1}{5}\left(Ba^{10}+10\,Aa^{9}b\right)x^{5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*x^3,x, algorithm="maxima")
```

```
[Out] 1/15*B*b^10*x^15 + 1/4*A*a^10*x^4 + 1/14*(10*B*a*b^9 + A*b^10)*x^
14 + 5/13*(9*B*a^2*b^8 + 2*A*a*b^9)*x^13 + 5/4*(8*B*a^3*b^7 + 3*A
*a^2*b^8)*x^12 + 30/11*(7*B*a^4*b^6 + 4*A*a^3*b^7)*x^11 + 21/5*(6
*B*a^5*b^5 + 5*A*a^4*b^6)*x^10 + 14/3*(5*B*a^6*b^4 + 6*A*a^5*b^5)
*x^9 + 15/4*(4*B*a^7*b^3 + 7*A*a^6*b^4)*x^8 + 15/7*(3*B*a^8*b^2 +
 8*A*a^7*b^3)*x^7 + 5/6*(2*B*a^9*b + 9*A*a^8*b^2)*x^6 + 1/5*(B*a^
10 + 10*A*a^9*b)*x^5
```

Fricas [A] time = 0.179896, size = 1, normalized size = 0.01

$$\frac{1}{15}x^{15}b^{10}B+\frac{5}{7}x^{14}b^{9}aB+\frac{1}{14}x^{14}b^{10}A+\frac{45}{13}x^{13}b^{8}a^{2}B+\frac{10}{13}x^{13}b^{9}aA+10x^{12}b^{7}a^{3}B+\frac{15}{4}x^{12}b^{8}a^{2}A+\frac{210}{11}x^{11}b^{6}a^{4}B+\frac{120}{11}x^{11}b^{7}a^{3}A+\frac{126}{5}x^{10}b^{5}a^{5}B+21x^{10}b^{6}a^{4}A+\frac{70}{3}x^{9}b^{4}a^{6}B+28x^{9}b^{5}a^{5}A+15x^{8}b^{3}a^{7}B+\frac{105}{4}x^{8}b^{4}a^{6}A+\frac{45}{7}x^{7}b^{2}a^{8}B+\frac{120}{7}x^{7}b^{3}a^{7}A+\frac{5}{3}x^{6}ba^{9}B+\frac{15}{2}x^{6}b^{2}a^{8}A+\frac{1}{5}x^{5}a^{10}B+2x^{5}ba^{9}A+\frac{1}{4}x^{4}a^{10}A$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*x^3,x, algorithm="fricas")
```

```
[Out] 1/15*x^15*b^10*B + 5/7*x^14*b^9*a*B + 1/14*x^14*b^10*A + 45/13*x^
13*b^8*a^2*B + 10/13*x^13*b^9*a*A + 10*x^12*b^7*a^3*B + 15/4*x^12
*b^8*a^2*A + 210/11*x^11*b^6*a^4*B + 120/11*x^11*b^7*a^3*A + 126/
5*x^10*b^5*a^5*B + 21*x^10*b^6*a^4*A + 70/3*x^9*b^4*a^6*B + 28*x^
9*b^5*a^5*A + 15*x^8*b^3*a^7*B + 105/4*x^8*b^4*a^6*A + 45/7*x^7*b
^2*a^8*B + 120/7*x^7*b^3*a^7*A + 5/3*x^6*b*a^9*B + 15/2*x^6*b^2*a
^8*A + 1/5*x^5*a^10*B + 2*x^5*b*a^9*A + 1/4*x^4*a^10*A
```

Sympy [A] time = 0.251525, size = 265, normalized size = 2.37

$$\frac{Aa^{10}x^{4}}{4}+\frac{Bb^{10}x^{15}}{15}+x^{14}\left(\frac{Ab^{10}}{14}+\frac{5Bab^{9}}{7}\right)+x^{13}\left(\frac{10Aab^{9}}{13}+\frac{45Ba^{2}b^{8}}{13}\right)+x^{12}\left(\frac{15Aa^{2}b^{8}}{4}+10Ba^{3}b^{7}\right)+x^{11}\left(\frac{120Aa^{3}b^{7}}{11}+\frac{210Ba^{4}b^{6}}{11}\right)+x^{10}\left(21Aa^{4}b^{6}+\frac{126Ba^{5}b^{5}}{5}\right)+x^{9}\left(28Aa^{5}b^{5}+\frac{70Ba^{6}b^{4}}{3}\right)+x^{8}\left(\frac{105Aa^{6}b^{4}}{4}+15Ba^{7}b^{3}\right)+x^{7}\left(\frac{120Aa^{7}b^{3}}{7}+\frac{45Ba^{8}b^{2}}{7}\right)+x^{6}\left(\frac{15Aa^{8}b^{2}}{2}+\frac{5Ba^{9}b}{3}\right)+x^{5}\left(2Aa^{9}b+\frac{Ba^{10}}{5}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**3*(b*x+a)**10*(B*x+A),x)
```

```
[Out] A*a**10*x**4/4 + B*b**10*x**15/15 + x**14*(A*b**10/14 + 5*B*a*b**
9/7) + x**13*(10*A*a*b**9/13 + 45*B*a**2*b**8/13) + x**12*(15*A*a
**2*b**8/4 + 10*B*a**3*b**7) + x**11*(120*A*a**3*b**7/11 + 210*B*
a**4*b**6/11) + x**10*(21*A*a**4*b**6 + 126*B*a**5*b**5/5) + x**9
*(28*A*a**5*b**5 + 70*B*a**6*b**4/3) + x**8*(105*A*a**6*b**4/4 +
15*B*a**7*b**3) + x**7*(120*A*a**7*b**3/7 + 45*B*a**8*b**2/7) + x
**6*(15*A*a**8*b**2/2 + 5*B*a**9*b/3) + x**5*(2*A*a**9*b + B*a**1
0/5)
```

GIAC/XCAS [A] time = 0.291286, size = 331, normalized size = 2.96

$$\frac{1}{15}Bb^{10}x^{15}+\frac{5}{7}Bab^{9}x^{14}+\frac{1}{14}Ab^{10}x^{14}+\frac{45}{13}Ba^{2}b^{8}x^{13}+\frac{10}{13}Aab^{9}x^{13}+10Ba^{3}b^{7}x^{12}+\frac{15}{4}Aa^{2}b^{8}x^{12}+\frac{210}{11}Ba^{4}b^{6}x^{11}+\frac{120}{11}Aa^{3}b^{7}x^{11}+\frac{126}{5}Ba^{5}b^{5}x^{10}+21Aa^{4}b^{6}x^{10}+\frac{70}{3}Ba^{6}b^{4}x^{9}+28Aa^{5}b^{5}x^{9}+15Ba^{7}b^{3}x^{8}+\frac{105}{4}Aa^{6}b^{4}x^{8}+\frac{45}{7}Ba^{8}b^{2}x^{7}+\frac{120}{7}Aa^{7}b^{3}x^{7}+\frac{5}{3}Ba^{9}bx^{6}+\frac{15}{2}Aa^{8}b^{2}x^{6}+\frac{1}{5}Ba^{10}x^{5}+2Aa^{9}bx^{5}+\frac{1}{4}Aa^{10}x^{4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*x^3,x, algorithm="giac")
```

```
[Out] 1/15*B*b^10*x^15 + 5/7*B*a*b^9*x^14 + 1/14*A*b^10*x^14 + 45/13*B*
a^2*b^8*x^13 + 10/13*A*a*b^9*x^13 + 10*B*a^3*b^7*x^12 + 15/4*A*a^
```

```
2*b^8*x^12 + 210/11*B*a^4*b^6*x^11 + 120/11*A*a^3*b^7*x^11 + 126/
5*B*a^5*b^5*x^10 + 21*A*a^4*b^6*x^10 + 70/3*B*a^6*b^4*x^9 + 28*A*
a^5*b^5*x^9 + 15*B*a^7*b^3*x^8 + 105/4*A*a^6*b^4*x^8 + 45/7*B*a^8
*b^2*x^7 + 120/7*A*a^7*b^3*x^7 + 5/3*B*a^9*b*x^6 + 15/2*A*a^8*b^2
*x^6 + 1/5*B*a^10*x^5 + 2*A*a^9*b*x^5 + 1/4*A*a^10*x^4
```

3.114 $\int x^2(a+bx)^{10}(A+Bx)\,dx$

Optimal. Leaf size=87

$$\frac{a^2(a+bx)^{11}(Ab-aB)}{11b^4}+\frac{(a+bx)^{13}(Ab-3aB)}{13b^4}-\frac{a(a+bx)^{12}(2Ab-3aB)}{12b^4}+\frac{B(a+bx)^{14}}{14b^4}$$

```
[Out] (a^2*(A*b - a*B)*(a + b*x)^11)/(11*b^4) - (a*(2*A*b - 3*a*B)*(a +
 b*x)^12)/(12*b^4) + ((A*b - 3*a*B)*(a + b*x)^13)/(13*b^4) + (B*(
a + b*x)^14)/(14*b^4)
```

Rubi [A] time = 0.389367, antiderivative size = 87, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}} = 0.062$

$$\frac{a^2(a+bx)^{11}(Ab-aB)}{11b^4}+\frac{(a+bx)^{13}(Ab-3aB)}{13b^4}-\frac{a(a+bx)^{12}(2Ab-3aB)}{12b^4}+\frac{B(a+bx)^{14}}{14b^4}$$

Antiderivative was successfully verified.

```
[In]  Int[x^2*(a + b*x)^10*(A + B*x),x]
```

```
[Out] (a^2*(A*b - a*B)*(a + b*x)^11)/(11*b^4) - (a*(2*A*b - 3*a*B)*(a +
 b*x)^12)/(12*b^4) + ((A*b - 3*a*B)*(a + b*x)^13)/(13*b^4) + (B*(
a + b*x)^14)/(14*b^4)
```

Rubi in Sympy [A] time = 50.2002, size = 78, normalized size = 0.9

$$\frac{B\,(a+bx)^{14}}{14b^4}+\frac{a^2\,(a+bx)^{11}\,(Ab-Ba)}{11b^4}-\frac{a\,(a+bx)^{12}\,(2Ab-3Ba)}{12b^4}+\frac{(a+bx)^{13}\,(Ab-3Ba)}{13b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(b*x+a)**10*(B*x+A),x)
```

```
[Out] B*(a + b*x)**14/(14*b**4) + a**2*(a + b*x)**11*(A*b - B*a)/(11*b*
*4) - a*(a + b*x)**12*(2*A*b - 3*B*a)/(12*b**4) + (a + b*x)**13*(
A*b - 3*B*a)/(13*b**4)
```

Mathematica [B] time = 0.0512075, size = 226, normalized size = 2.6

$$\frac{1}{3}a^{10}Ax^3+\frac{1}{4}a^9x^4(aB+10Ab)+a^8bx^5(2aB+9Ab)+\frac{5}{2}a^7b^2x^6(3aB+8Ab)$$
$$+\frac{30}{7}a^6b^3x^7(4aB+7Ab)+\frac{21}{4}a^5b^4x^8(5aB+6Ab)+\frac{14}{3}a^4b^5x^9(6aB+5Ab)+3a^3b^6x^{10}(7aB+4Ab)$$
$$+\frac{15}{11}a^2b^7x^{11}(8aB+3Ab)+\frac{1}{13}b^9x^{13}(10aB+Ab)+\frac{5}{12}ab^8x^{12}(9aB+2Ab)+\frac{1}{14}b^{10}Bx^{14}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^2*(a + b*x)^10*(A + B*x),x]
```

```
[Out] (a^10*A*x^3)/3 + (a^9*(10*A*b + a*B)*x^4)/4 + a^8*b*(9*A*b + 2*a*
B)*x^5 + (5*a^7*b^2*(8*A*b + 3*a*B)*x^6)/2 + (30*a^6*b^3*(7*A*b +
 4*a*B)*x^7)/7 + (21*a^5*b^4*(6*A*b + 5*a*B)*x^8)/4 + (14*a^4*b^5
*(5*A*b + 6*a*B)*x^9)/3 + 3*a^3*b^6*(4*A*b + 7*a*B)*x^10 + (15*a^
2*b^7*(3*A*b + 8*a*B)*x^11)/11 + (5*a*b^8*(2*A*b + 9*a*B)*x^12)/1
2 + (b^9*(A*b + 10*a*B)*x^13)/13 + (b^10*B*x^14)/14
```

Maple [B] time = 0.001, size = 244, normalized size = 2.8

$$\frac{b^{10}Bx^{14}}{14}+\frac{\left(b^{10}A+10\,ab^{9}B\right)x^{13}}{13}+\frac{\left(10\,ab^{9}A+45\,a^{2}b^{8}B\right)x^{12}}{12}+\frac{\left(45\,a^{2}b^{8}A+120\,a^{3}b^{7}B\right)x^{11}}{11}+\frac{\left(120\,a^{3}b^{7}A+210\,a^{4}b^{6}B\right)x^{10}}{10}+\frac{\left(210\,a^{4}b^{6}A+252\,a^{5}b^{5}B\right)x^{9}}{9}+\frac{\left(252\,a^{5}b^{5}A+210\,a^{6}b^{4}B\right)x^{8}}{8}+\frac{\left(210\,a^{6}b^{4}A+120\,a^{7}b^{3}B\right)x^{7}}{7}+\frac{\left(120\,a^{7}b^{3}A+45\,a^{8}b^{2}B\right)x^{6}}{6}+\frac{\left(45\,a^{8}b^{2}A+10\,a^{9}bB\right)x^{5}}{5}+\frac{\left(10\,a^{9}bA+a^{10}B\right)x^{4}}{4}+\frac{a^{10}Ax^{3}}{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(b*x+a)^10*(B*x+A),x)
```

```
[Out] 1/14*b^10*B*x^14+1/13*(A*b^10+10*B*a*b^9)*x^13+1/12*(10*A*a*b^9+4
5*B*a^2*b^8)*x^12+1/11*(45*A*a^2*b^8+120*B*a^3*b^7)*x^11+1/10*(12
0*A*a^3*b^7+210*B*a^4*b^6)*x^10+1/9*(210*A*a^4*b^6+252*B*a^5*b^5)
*x^9+1/8*(252*A*a^5*b^5+210*B*a^6*b^4)*x^8+1/7*(210*A*a^6*b^4+120
*B*a^7*b^3)*x^7+1/6*(120*A*a^7*b^3+45*B*a^8*b^2)*x^6+1/5*(45*A*a^
8*b^2+10*B*a^9*b)*x^5+1/4*(10*A*a^9*b+B*a^10)*x^4+1/3*a^10*A*x^3
```

Maxima [A] time = 1.34323, size = 327, normalized size = 3.76

$$\frac{1}{14}\,Bb^{10}x^{14}+\frac{1}{3}\,Aa^{10}x^{3}+\frac{1}{13}\left(10\,Bab^{9}+Ab^{10}\right)x^{13}+\frac{5}{12}\left(9\,Ba^{2}b^{8}+2\,Aab^{9}\right)x^{12}+\frac{15}{11}\left(8\,Ba^{3}b^{7}+3\,Aa^{2}b^{8}\right)x^{11}+3\left(7\,Ba^{4}b^{6}+4\,Aa^{3}b^{7}\right)x^{10}+\frac{14}{3}\left(6\,Ba^{5}b^{5}+5\,Aa^{4}b^{6}\right)x^{9}+\frac{21}{4}\left(5\,Ba^{6}b^{4}+6\,Aa^{5}b^{5}\right)x^{8}+\frac{30}{7}\left(4\,Ba^{7}b^{3}+7\,Aa^{6}b^{4}\right)x^{7}+\frac{5}{2}\left(3\,Ba^{8}b^{2}+8\,Aa^{7}b^{3}\right)x^{6}+\left(2\,Ba^{9}b+9\,Aa^{8}b^{2}\right)x^{5}+\frac{1}{4}\left(Ba^{10}+10\,Aa^{9}b\right)x^{4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*x^2,x, algorithm="maxima")
```

```
[Out] 1/14*B*b^10*x^14 + 1/3*A*a^10*x^3 + 1/13*(10*B*a*b^9 + A*b^10)*x^
13 + 5/12*(9*B*a^2*b^8 + 2*A*a*b^9)*x^12 + 15/11*(8*B*a^3*b^7 + 3
*A*a^2*b^8)*x^11 + 3*(7*B*a^4*b^6 + 4*A*a^3*b^7)*x^10 + 14/3*(6*B
*a^5*b^5 + 5*A*a^4*b^6)*x^9 + 21/4*(5*B*a^6*b^4 + 6*A*a^5*b^5)*x^
8 + 30/7*(4*B*a^7*b^3 + 7*A*a^6*b^4)*x^7 + 5/2*(3*B*a^8*b^2 + 8*A
*a^7*b^3)*x^6 + (2*B*a^9*b + 9*A*a^8*b^2)*x^5 + 1/4*(B*a^10 + 10*
A*a^9*b)*x^4
```

Fricas [A] time = 0.182812, size = 1, normalized size = 0.01

$$\frac{1}{14}x^{14}b^{10}B+\frac{10}{13}x^{13}b^{9}aB+\frac{1}{13}x^{13}b^{10}A+\frac{15}{4}x^{12}b^{8}a^{2}B+\frac{5}{6}x^{12}b^{9}aA+\frac{120}{11}x^{11}b^{7}a^{3}B+\frac{45}{11}x^{11}b^{8}a^{2}A+21x^{10}b^{6}a^{4}B+12x^{10}b^{7}a^{3}A+28x^{9}b^{5}a^{5}B+\frac{70}{3}x^{9}b^{6}a^{4}A+\frac{105}{4}x^{8}b^{4}a^{6}B+\frac{63}{2}x^{8}b^{5}a^{5}A+\frac{120}{7}x^{7}b^{3}a^{7}B+30x^{7}b^{4}a^{6}A+\frac{15}{2}x^{6}b^{2}a^{8}B+20x^{6}b^{3}a^{7}A+2x^{5}ba^{9}B+9x^{5}b^{2}a^{8}A+\frac{1}{4}x^{4}a^{10}B+\frac{5}{2}x^{4}ba^{9}A+\frac{1}{3}x^{3}a^{10}A$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*x^2,x, algorithm="fricas")
```

```
[Out] 1/14*x^14*b^10*B + 10/13*x^13*b^9*a*B + 1/13*x^13*b^10*A + 15/4*x
^12*b^8*a^2*B + 5/6*x^12*b^9*a*A + 120/11*x^11*b^7*a^3*B + 45/11*
```

```
x^11*b^8*a^2*A + 21*x^10*b^6*a^4*B + 12*x^10*b^7*a^3*A + 28*x^9*b
^5*a^5*B + 70/3*x^9*b^6*a^4*A + 105/4*x^8*b^4*a^6*B + 63/2*x^8*b^
5*a^5*A + 120/7*x^7*b^3*a^7*B + 30*x^7*b^4*a^6*A + 15/2*x^6*b^2*a
^8*B + 20*x^6*b^3*a^7*A + 2*x^5*b*a^9*B + 9*x^5*b^2*a^8*A + 1/4*x
^4*a^10*B + 5/2*x^4*b*a^9*A + 1/3*x^3*a^10*A
```

Sympy [A] time = 0.266173, size = 262, normalized size = 3.01

$$\frac{Aa^{10}x^3}{3} + \frac{Bb^{10}x^{14}}{14} + x^{13}\left(\frac{Ab^{10}}{13} + \frac{10Bab^9}{13}\right) + x^{12}\left(\frac{5Aab^9}{6} + \frac{15Ba^2b^8}{4}\right) + x^{11}\left(\frac{45Aa^2b^8}{11} + \frac{120Ba^3b^7}{11}\right) + x^{10}\left(12Aa^3b^7 + 21Ba^4b^6\right) + x^9\left(\frac{70Aa^4b^6}{3} + 28Ba^5b^5\right) + x^8\left(\frac{63Aa^5b^5}{2} + \frac{105Ba^6b^4}{4}\right) + x^7\left(30Aa^6b^4 + \frac{120Ba^7b^3}{7}\right) + x^6\left(20Aa^7b^3 + \frac{15Ba^8b^2}{2}\right) + x^5\left(9Aa^8b^2 + 2Ba^9b\right) + x^4\left(\frac{5Aa^9b}{2} + \frac{Ba^{10}}{4}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(x**2*(b*x+a)**10*(B*x+A),x)
```

```
[Out] A*a**10*x**3/3 + B*b**10*x**14/14 + x**13*(A*b**10/13 + 10*B*a*b*
*9/13) + x**12*(5*A*a*b**9/6 + 15*B*a**2*b**8/4) + x**11*(45*A*a*
*2*b**8/11 + 120*B*a**3*b**7/11) + x**10*(12*A*a**3*b**7 + 21*B*a
**4*b**6) + x**9*(70*A*a**4*b**6/3 + 28*B*a**5*b**5) + x**8*(63*A
*a**5*b**5/2 + 105*B*a**6*b**4/4) + x**7*(30*A*a**6*b**4 + 120*B*
a**7*b**3/7) + x**6*(20*A*a**7*b**3 + 15*B*a**8*b**2/2) + x**5*(9
*A*a**8*b**2 + 2*B*a**9*b) + x**4*(5*A*a**9*b/2 + B*a**10/4)
```

GIAC/XCAS [A] time = 0.318629, size = 331, normalized size = 3.8

$$\frac{1}{14}Bb^{10}x^{14} + \frac{10}{13}Bab^9x^{13} + \frac{1}{13}Ab^{10}x^{13} + \frac{15}{4}Ba^2b^8x^{12} + \frac{5}{6}Aab^9x^{12} + \frac{120}{11}Ba^3b^7x^{11} + \frac{45}{11}Aa^2b^8x^{11} + 21\,Ba^4b^6x^{10} + 12\,Aa^3b^7x^{10} + 28\,Ba^5b^5x^9 + \frac{70}{3}Aa^4b^6x^9 + \frac{105}{4}Ba^6b^4x^8 + \frac{63}{2}Aa^5b^5x^8 + \frac{120}{7}Ba^7b^3x^7 + 30\,Aa^6b^4x^7 + \frac{15}{2}Ba^8b^2x^6 + 20\,Aa^7b^3x^6 + 2\,Ba^9bx^5 + 9\,Aa^8b^2x^5 + \frac{1}{4}Ba^{10}x^4 + \frac{5}{2}Aa^9bx^4 + \frac{1}{3}Aa^{10}x^3$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*(b*x + a)^10*x^2,x, algorithm="giac")
```

```
[Out] 1/14*B*b^10*x^14 + 10/13*B*a*b^9*x^13 + 1/13*A*b^10*x^13 + 15/4*B
*a^2*b^8*x^12 + 5/6*A*a*b^9*x^12 + 120/11*B*a^3*b^7*x^11 + 45/11*
A*a^2*b^8*x^11 + 21*B*a^4*b^6*x^10 + 12*A*a^3*b^7*x^10 + 28*B*a^5
*b^5*x^9 + 70/3*A*a^4*b^6*x^9 + 105/4*B*a^6*b^4*x^8 + 63/2*A*a^5*
b^5*x^8 + 120/7*B*a^7*b^3*x^7 + 30*A*a^6*b^4*x^7 + 15/2*B*a^8*b^2
*x^6 + 20*A*a^7*b^3*x^6 + 2*B*a^9*b*x^5 + 9*A*a^8*b^2*x^5 + 1/4*B
*a^10*x^4 + 5/2*A*a^9*b*x^4 + 1/3*A*a^10*x^3
```

3.115 $\int x(a+bx)^{10}(A+Bx)\,dx$

Optimal. Leaf size=61

$$\frac{(a+bx)^{12}(Ab-2aB)}{12b^3}-\frac{a(a+bx)^{11}(Ab-aB)}{11b^3}+\frac{B(a+bx)^{13}}{13b^3}$$

```
[Out] -(a*(A*b - a*B)*(a + b*x)^11)/(11*b^3) + ((A*b - 2*a*B)*(a + b*x)
^12)/(12*b^3) + (B*(a + b*x)^13)/(13*b^3)
```

Rubi [A] time = 0.332518, antiderivative size = 61, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 14, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.071

$$\frac{(a+bx)^{12}(Ab-2aB)}{12b^3}-\frac{a(a+bx)^{11}(Ab-aB)}{11b^3}+\frac{B(a+bx)^{13}}{13b^3}$$

Antiderivative was successfully verified.

```
[In]  Int[x*(a + b*x)^10*(A + B*x),x]
```

```
[Out] -(a*(A*b - a*B)*(a + b*x)^11)/(11*b^3) + ((A*b - 2*a*B)*(a + b*x)
^12)/(12*b^3) + (B*(a + b*x)^13)/(13*b^3)
```

Rubi in Sympy [A] time = 40.558, size = 53, normalized size = 0.87

$$\frac{B(a+bx)^{13}}{13b^3}-\frac{a(a+bx)^{11}(Ab-Ba)}{11b^3}+\frac{(a+bx)^{12}(Ab-2Ba)}{12b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(b*x+a)**10*(B*x+A),x)
```

```
[Out] B*(a + b*x)**13/(13*b**3) - a*(a + b*x)**11*(A*b - B*a)/(11*b**3)
 + (a + b*x)**12*(A*b - 2*B*a)/(12*b**3)
```

Mathematica [B] time = 0.0698328, size = 218, normalized size = 3.57

$$\frac{1}{6}a^{10}x^2(3A+2Bx)+\frac{5}{6}a^9bx^3(4A+3Bx)+\frac{9}{4}a^8b^2x^4(5A+4Bx)+4a^7b^3x^5(6A+5Bx)+5a^6b^4x^6(7A+6Bx)+\frac{9}{2}a^5b^5x^7(8A+7Bx)+\frac{35}{12}a^4b^6x^8(9A+8Bx)+\frac{4}{3}a^3b^7x^9(10A+9Bx)+\frac{9}{22}a^2b^8x^{10}(11A+10Bx)+\frac{5}{66}ab^9x^{11}(12A+11Bx)+\frac{1}{156}b^{10}x^{12}(13A+12Bx)$$

Antiderivative was successfully verified.

```
[In]  Integrate[x*(a + b*x)^10*(A + B*x),x]
```

```
[Out] (a^10*x^2*(3*A + 2*B*x))/6 + (5*a^9*b*x^3*(4*A + 3*B*x))/6 + (9*a
^8*b^2*x^4*(5*A + 4*B*x))/4 + 4*a^7*b^3*x^5*(6*A + 5*B*x) + 5*a^6
*b^4*x^6*(7*A + 6*B*x) + (9*a^5*b^5*x^7*(8*A + 7*B*x))/2 + (35*a^
4*b^6*x^8*(9*A + 8*B*x))/12 + (4*a^3*b^7*x^9*(10*A + 9*B*x))/3 +
(9*a^2*b^8*x^10*(11*A + 10*B*x))/22 + (5*a*b^9*x^11*(12*A + 11*B*
x))/66 + (b^10*x^12*(13*A + 12*B*x))/156
```

Maple [B] time = 0.003, size = 244, normalized size = 4.

$$\frac{b^{10}Bx^{13}}{13}+\frac{\left(b^{10}A+10\,ab^{9}B\right)x^{12}}{12}+\frac{\left(10\,ab^{9}A+45\,a^{2}b^{8}B\right)x^{11}}{11}+\frac{\left(45\,a^{2}b^{8}A+120\,a^{3}b^{7}B\right)x^{10}}{10}+\frac{\left(120\,a^{3}b^{7}A+210\,a^{4}b^{6}B\right)x^{9}}{9}+\frac{\left(210\,a^{4}b^{6}A+252\,a^{5}b^{5}B\right)x^{8}}{8}+\frac{\left(252\,a^{5}b^{5}A+210\,a^{6}b^{4}B\right)x^{7}}{7}+\frac{\left(210\,a^{6}b^{4}A+120\,a^{7}b^{3}B\right)x^{6}}{6}+\frac{\left(120\,a^{7}b^{3}A+45\,a^{8}b^{2}B\right)x^{5}}{5}+\frac{\left(45\,a^{8}b^{2}A+10\,a^{9}bB\right)x^{4}}{4}+\frac{\left(10\,a^{9}bA+a^{10}B\right)x^{3}}{3}+\frac{a^{10}Ax^{2}}{2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int(x*(b*x+a)^10*(B*x+A),x)
```

```
[Out] 1/13*b^10*B*x^13+1/12*(A*b^10+10*B*a*b^9)*x^12+1/11*(10*A*a*b^9+4
5*B*a^2*b^8)*x^11+1/10*(45*A*a^2*b^8+120*B*a^3*b^7)*x^10+1/9*(120
*A*a^3*b^7+210*B*a^4*b^6)*x^9+1/8*(210*A*a^4*b^6+252*B*a^5*b^5)*x
^8+1/7*(252*A*a^5*b^5+210*B*a^6*b^4)*x^7+1/6*(210*A*a^6*b^4+120*B
*a^7*b^3)*x^6+1/5*(120*A*a^7*b^3+45*B*a^8*b^2)*x^5+1/4*(45*A*a^8*
b^2+10*B*a^9*b)*x^4+1/3*(10*A*a^9*b+B*a^10)*x^3+1/2*a^10*A*x^2
```

Maxima [A] time = 1.35054, size = 328, normalized size = 5.38

$$\frac{1}{13}\,Bb^{10}x^{13}+\frac{1}{2}\,Aa^{10}x^{2}+\frac{1}{12}\,\left(10\,Bab^{9}+Ab^{10}\right)x^{12}+\frac{5}{11}\,\left(9\,Ba^{2}b^{8}+2\,Aab^{9}\right)x^{11}+\frac{3}{2}\,\left(8\,Ba^{3}b^{7}+3\,Aa^{2}b^{8}\right)x^{10}+\frac{10}{3}\,\left(7\,Ba^{4}b^{6}+4\,Aa^{3}b^{7}\right)x^{9}+\frac{21}{4}\,\left(6\,Ba^{5}b^{5}+5\,Aa^{4}b^{6}\right)x^{8}+6\,\left(5\,Ba^{6}b^{4}+6\,Aa^{5}b^{5}\right)x^{7}+5\,\left(4\,Ba^{7}b^{3}+7\,Aa^{6}b^{4}\right)x^{6}+3\,\left(3\,Ba^{8}b^{2}+8\,Aa^{7}b^{3}\right)x^{5}+\frac{5}{4}\,\left(2\,Ba^{9}b+9\,Aa^{8}b^{2}\right)x^{4}+\frac{1}{3}\,\left(Ba^{10}+10\,Aa^{9}b\right)x^{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*(b*x + a)^10*x,x, algorithm="maxima")
```

```
[Out] 1/13*B*b^10*x^13 + 1/2*A*a^10*x^2 + 1/12*(10*B*a*b^9 + A*b^10)*x^
12 + 5/11*(9*B*a^2*b^8 + 2*A*a*b^9)*x^11 + 3/2*(8*B*a^3*b^7 + 3*A
*a^2*b^8)*x^10 + 10/3*(7*B*a^4*b^6 + 4*A*a^3*b^7)*x^9 + 21/4*(6*B
*a^5*b^5 + 5*A*a^4*b^6)*x^8 + 6*(5*B*a^6*b^4 + 6*A*a^5*b^5)*x^7 +
 5*(4*B*a^7*b^3 + 7*A*a^6*b^4)*x^6 + 3*(3*B*a^8*b^2 + 8*A*a^7*b^3
)*x^5 + 5/4*(2*B*a^9*b + 9*A*a^8*b^2)*x^4 + 1/3*(B*a^10 + 10*A*a^
9*b)*x^3
```

Fricas [A] time = 0.179389, size = 1, normalized size = 0.02

$$\frac{1}{13}x^{13}b^{10}B+\frac{5}{6}x^{12}b^{9}aB+\frac{1}{12}x^{12}b^{10}A+\frac{45}{11}x^{11}b^{8}a^{2}B+\frac{10}{11}x^{11}b^{9}aA+12x^{10}b^{7}a^{3}B+\frac{9}{2}x^{10}b^{8}a^{2}A+\frac{70}{3}x^{9}b^{6}a^{4}B+\frac{40}{3}x^{9}b^{7}a^{3}A+\frac{63}{2}x^{8}b^{5}a^{5}B+\frac{105}{4}x^{8}b^{6}a^{4}A+30x^{7}b^{4}a^{6}B+36x^{7}b^{5}a^{5}A+20x^{6}b^{3}a^{7}B+35x^{6}b^{4}a^{6}A+9x^{5}b^{2}a^{8}B+24x^{5}b^{3}a^{7}A+\frac{5}{2}x^{4}ba^{9}B+\frac{45}{4}x^{4}b^{2}a^{8}A+\frac{1}{3}x^{3}a^{10}B+\frac{10}{3}x^{3}ba^{9}A+\frac{1}{2}x^{2}a^{10}A$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*(b*x + a)^10*x,x, algorithm="fricas")
```

```
[Out] 1/13*x^13*b^10*B + 5/6*x^12*b^9*a*B + 1/12*x^12*b^10*A + 45/11*x^
11*b^8*a^2*B + 10/11*x^11*b^9*a*A + 12*x^10*b^7*a^3*B + 9/2*x^10*
b^8*a^2*A + 70/3*x^9*b^6*a^4*B + 40/3*x^9*b^7*a^3*A + 63/2*x^8*b^
5*a^5*B + 105/4*x^8*b^6*a^4*A + 30*x^7*b^4*a^6*B + 36*x^7*b^5*a^5
```

```
*A + 20*x^6*b^3*a^7*B + 35*x^6*b^4*a^6*A + 9*x^5*b^2*a^8*B + 24*x
^5*b^3*a^7*A + 5/2*x^4*b*a^9*B + 45/4*x^4*b^2*a^8*A + 1/3*x^3*a^1
0*B + 10/3*x^3*b*a^9*A + 1/2*x^2*a^10*A
```

Sympy [A] time = 0.260235, size = 262, normalized size = 4.3

$$\frac{Aa^{10}x^2}{2} + \frac{Bb^{10}x^{13}}{13} + x^{12}\left(\frac{Ab^{10}}{12} + \frac{5Bab^9}{6}\right) + x^{11}\left(\frac{10Aab^9}{11} + \frac{45Ba^2b^8}{11}\right) + x^{10}\left(\frac{9Aa^2b^8}{2} + 12Ba^3b^7\right) + x^9\left(\frac{40Aa^3b^7}{3} + \frac{70Ba^4b^6}{3}\right) + x^8\left(\frac{105Aa^4b^6}{4} + \frac{63Ba^5b^5}{2}\right) + x^7\left(36Aa^5b^5 + 30Ba^6b^4\right) + x^6\left(35Aa^6b^4 + 20Ba^7b^3\right) + x^5\left(24Aa^7b^3 + 9Ba^8b^2\right) + x^4\left(\frac{45Aa^8b^2}{4} + \frac{5Ba^9b}{2}\right) + x^3\left(\frac{10Aa^9b}{3} + \frac{Ba^{10}}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(b*x+a)**10*(B*x+A),x)
```

```
[Out] A*a**10*x**2/2 + B*b**10*x**13/13 + x**12*(A*b**10/12 + 5*B*a*b**
9/6) + x**11*(10*A*a*b**9/11 + 45*B*a**2*b**8/11) + x**10*(9*A*a*
*2*b**8/2 + 12*B*a**3*b**7) + x**9*(40*A*a**3*b**7/3 + 70*B*a**4*
b**6/3) + x**8*(105*A*a**4*b**6/4 + 63*B*a**5*b**5/2) + x**7*(36*
A*a**5*b**5 + 30*B*a**6*b**4) + x**6*(35*A*a**6*b**4 + 20*B*a**7*
b**3) + x**5*(24*A*a**7*b**3 + 9*B*a**8*b**2) + x**4*(45*A*a**8*b
**2/4 + 5*B*a**9*b/2) + x**3*(10*A*a**9*b/3 + B*a**10/3)
```

GIAC/XCAS [A] time = 0.275989, size = 331, normalized size = 5.43

$$\frac{1}{13}\,Bb^{10}x^{13} + \frac{5}{6}\,Bab^9x^{12} + \frac{1}{12}\,Ab^{10}x^{12} + \frac{45}{11}\,Ba^2b^8x^{11} + \frac{10}{11}\,Aab^9x^{11} + 12\,Ba^3b^7x^{10} + \frac{9}{2}\,Aa^2b^8x^{10} + \frac{70}{3}\,Ba^4b^6x^9 + \frac{40}{3}\,Aa^3b^7x^9 + \frac{63}{2}\,Ba^5b^5x^8 + \frac{105}{4}\,Aa^4b^6x^8 + 30\,Ba^6b^4x^7 + 36\,Aa^5b^5x^7 + 20\,Ba^7b^3x^6 + 35\,Aa^6b^4x^6 + 9\,Ba^8b^2x^5 + 24\,Aa^7b^3x^5 + \frac{5}{2}\,Ba^9bx^4 + \frac{45}{4}\,Aa^8b^2x^4 + \frac{1}{3}\,Ba^{10}x^3 + \frac{10}{3}\,Aa^9bx^3 + \frac{1}{2}\,Aa^{10}x^2$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*x,x, algorithm="giac")
```

```
[Out] 1/13*B*b^10*x^13 + 5/6*B*a*b^9*x^12 + 1/12*A*b^10*x^12 + 45/11*B*
a^2*b^8*x^11 + 10/11*A*a*b^9*x^11 + 12*B*a^3*b^7*x^10 + 9/2*A*a^2
*b^8*x^10 + 70/3*B*a^4*b^6*x^9 + 40/3*A*a^3*b^7*x^9 + 63/2*B*a^5*
b^5*x^8 + 105/4*A*a^4*b^6*x^8 + 30*B*a^6*b^4*x^7 + 36*A*a^5*b^5*x
^7 + 20*B*a^7*b^3*x^6 + 35*A*a^6*b^4*x^6 + 9*B*a^8*b^2*x^5 + 24*A
*a^7*b^3*x^5 + 5/2*B*a^9*b*x^4 + 45/4*A*a^8*b^2*x^4 + 1/3*B*a^10*
x^3 + 10/3*A*a^9*b*x^3 + 1/2*A*a^10*x^2
```

3.116 $\int (a+bx)^{10}(A+Bx)\,dx$

Optimal. Leaf size=38

$$\frac{(a+bx)^{11}(Ab-aB)}{11b^2}+\frac{B(a+bx)^{12}}{12b^2}$$

```
[Out] ((A*b - a*B)*(a + b*x)^11)/(11*b^2) + (B*(a + b*x)^12)/(12*b^2)
```

Rubi [A] time = 0.0527079, antiderivative size = 38, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 13, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.077

$$\frac{(a+bx)^{11}(Ab-aB)}{11b^2}+\frac{B(a+bx)^{12}}{12b^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^10*(A + B*x),x]
```

```
[Out] ((A*b - a*B)*(a + b*x)^11)/(11*b^2) + (B*(a + b*x)^12)/(12*b^2)
```

Rubi in Sympy [A] time = 32.7378, size = 31, normalized size = 0.82

$$\frac{B\left(a+bx\right)^{12}}{12b^2}+\frac{\left(a+bx\right)^{11}\left(Ab-Ba\right)}{11b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A),x)
```

```
[Out] B*(a + b*x)**12/(12*b**2) + (a + b*x)**11*(A*b - B*a)/(11*b**2)
```

Mathematica [B] time = 0.102354, size = 198, normalized size = 5.21

$$\frac{1}{132}x\left(66a^{10}(2A+Bx)+220a^9bx(3A+2Bx)+495a^8b^2x^2(4A+3Bx)+792a^7b^3x^3(5A+4Bx)\right.$$
$$+924a^6b^4x^4(6A+5Bx)+792a^5b^5x^5(7A+6Bx)+495a^4b^6x^6(8A+7Bx)$$
$$\left.+220a^3b^7x^7(9A+8Bx)+66a^2b^8x^8(10A+9Bx)+12ab^9x^9(11A+10Bx)+b^{10}x^{10}(12A+11Bx)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^10*(A + B*x),x]
```

```
[Out] (x*(66*a^10*(2*A + B*x) + 220*a^9*b*x*(3*A + 2*B*x) + 495*a^8*b^2
*x^2*(4*A + 3*B*x) + 792*a^7*b^3*x^3*(5*A + 4*B*x) + 924*a^6*b^4*
x^4*(6*A + 5*B*x) + 792*a^5*b^5*x^5*(7*A + 6*B*x) + 495*a^4*b^6*x
^6*(8*A + 7*B*x) + 220*a^3*b^7*x^7*(9*A + 8*B*x) + 66*a^2*b^8*x^8
*(10*A + 9*B*x) + 12*a*b^9*x^9*(11*A + 10*B*x) + b^10*x^10*(12*A
+ 11*B*x)))/132
```

Maple [B] time = 0.003, size = 241, normalized size = 6.3

$$\frac{b^{10}Bx^{12}}{12}+\frac{\left(b^{10}A+10\,ab^{9}B\right)x^{11}}{11}+\frac{\left(10\,ab^{9}A+45\,a^{2}b^{8}B\right)x^{10}}{10}+\frac{\left(45\,a^{2}b^{8}A+120\,a^{3}b^{7}B\right)x^{9}}{9}+\frac{\left(120\,a^{3}b^{7}A+210\,a^{4}b^{6}B\right)x^{8}}{8}+\frac{\left(210\,a^{4}b^{6}A+252\,a^{5}b^{5}B\right)x^{7}}{7}+\frac{\left(252\,a^{5}b^{5}A+210\,a^{6}b^{4}B\right)x^{6}}{6}+\frac{\left(210\,a^{6}b^{4}A+120\,a^{7}b^{3}B\right)x^{5}}{5}+\frac{\left(120\,a^{7}b^{3}A+45\,a^{8}b^{2}B\right)x^{4}}{4}+\frac{\left(45\,a^{8}b^{2}A+10\,a^{9}bB\right)x^{3}}{3}+\frac{\left(10\,a^{9}bA+a^{10}B\right)x^{2}}{2}+a^{10}Ax$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^10*(B*x+A),x)
```

```
[Out] 1/12*b^10*B*x^12+1/11*(A*b^10+10*B*a*b^9)*x^11+1/10*(10*A*a*b^9+4
5*B*a^2*b^8)*x^10+1/9*(45*A*a^2*b^8+120*B*a^3*b^7)*x^9+1/8*(120*A
*a^3*b^7+210*B*a^4*b^6)*x^8+1/7*(210*A*a^4*b^6+252*B*a^5*b^5)*x^7
+1/6*(252*A*a^5*b^5+210*B*a^6*b^4)*x^6+1/5*(210*A*a^6*b^4+120*B*a
^7*b^3)*x^5+1/4*(120*A*a^7*b^3+45*B*a^8*b^2)*x^4+1/3*(45*A*a^8*b^
2+10*B*a^9*b)*x^3+1/2*(10*A*a^9*b+B*a^10)*x^2+a^10*A*x
```

Maxima [A] time = 1.34855, size = 324, normalized size = 8.53

$$\frac{1}{12}\,Bb^{10}x^{12}+Aa^{10}x+\frac{1}{11}\left(10\,Bab^{9}+Ab^{10}\right)x^{11}+\frac{1}{2}\left(9\,Ba^{2}b^{8}+2\,Aab^{9}\right)x^{10}+\frac{5}{3}\left(8\,Ba^{3}b^{7}+3\,Aa^{2}b^{8}\right)x^{9}+\frac{15}{4}\left(7\,Ba^{4}b^{6}+4\,Aa^{3}b^{7}\right)x^{8}+6\left(6\,Ba^{5}b^{5}+5\,Aa^{4}b^{6}\right)x^{7}+7\left(5\,Ba^{6}b^{4}+6\,Aa^{5}b^{5}\right)x^{6}+6\left(4\,Ba^{7}b^{3}+7\,Aa^{6}b^{4}\right)x^{5}+\frac{15}{4}\left(3\,Ba^{8}b^{2}+8\,Aa^{7}b^{3}\right)x^{4}+\frac{5}{3}\left(2\,Ba^{9}b+9\,Aa^{8}b^{2}\right)x^{3}+\frac{1}{2}\left(Ba^{10}+10\,Aa^{9}b\right)x^{2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10,x, algorithm="maxima")
```

```
[Out] 1/12*B*b^10*x^12 + A*a^10*x + 1/11*(10*B*a*b^9 + A*b^10)*x^11 + 1
/2*(9*B*a^2*b^8 + 2*A*a*b^9)*x^10 + 5/3*(8*B*a^3*b^7 + 3*A*a^2*b^
8)*x^9 + 15/4*(7*B*a^4*b^6 + 4*A*a^3*b^7)*x^8 + 6*(6*B*a^5*b^5 +
5*A*a^4*b^6)*x^7 + 7*(5*B*a^6*b^4 + 6*A*a^5*b^5)*x^6 + 6*(4*B*a^7
*b^3 + 7*A*a^6*b^4)*x^5 + 15/4*(3*B*a^8*b^2 + 8*A*a^7*b^3)*x^4 +
5/3*(2*B*a^9*b + 9*A*a^8*b^2)*x^3 + 1/2*(B*a^10 + 10*A*a^9*b)*x^2
```

Fricas [A] time = 0.180989, size = 1, normalized size = 0.03

$$\frac{1}{12}x^{12}b^{10}B+\frac{10}{11}x^{11}b^{9}aB+\frac{1}{11}x^{11}b^{10}A+\frac{9}{2}x^{10}b^{8}a^{2}B+x^{10}b^{9}aA+\frac{40}{3}x^{9}b^{7}a^{3}B+5x^{9}b^{8}a^{2}A+\frac{105}{4}x^{8}b^{6}a^{4}B+15x^{8}b^{7}a^{3}A+36x^{7}b^{5}a^{5}B+30x^{7}b^{6}a^{4}A+35x^{6}b^{4}a^{6}B+42x^{6}b^{5}a^{5}A+24x^{5}b^{3}a^{7}B+42x^{5}b^{4}a^{6}A+\frac{45}{4}x^{4}b^{2}a^{8}B+30x^{4}b^{3}a^{7}A+\frac{10}{3}x^{3}ba^{9}B+15x^{3}b^{2}a^{8}A+\frac{1}{2}x^{2}a^{10}B+5x^{2}ba^{9}A+xa^{10}A$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10,x, algorithm="fricas")
```

```
[Out] 1/12*x^12*b^10*B + 10/11*x^11*b^9*a*B + 1/11*x^11*b^10*A + 9/2*x^
10*b^8*a^2*B + x^10*b^9*a*A + 40/3*x^9*b^7*a^3*B + 5*x^9*b^8*a^2*
A + 105/4*x^8*b^6*a^4*B + 15*x^8*b^7*a^3*A + 36*x^7*b^5*a^5*B + 3
0*x^7*b^6*a^4*A + 35*x^6*b^4*a^6*B + 42*x^6*b^5*a^5*A + 24*x^5*b^
3*a^7*B + 42*x^5*b^4*a^6*A + 45/4*x^4*b^2*a^8*B + 30*x^4*b^3*a^7*
A + 10/3*x^3*b*a^9*B + 15*x^3*b^2*a^8*A + 1/2*x^2*a^10*B + 5*x^2*
```

```
b*a^9*A + x*a^10*A
```

Sympy [A] time = 0.256985, size = 248, normalized size = 6.53

$$Aa^{10}x + \frac{Bb^{10}x^{12}}{12} + x^{11}\left(\frac{Ab^{10}}{11} + \frac{10Bab^{9}}{11}\right) + x^{10}\left(Aab^{9} + \frac{9Ba^{2}b^{8}}{2}\right) + x^{9}\left(5Aa^{2}b^{8} + \frac{40Ba^{3}b^{7}}{3}\right) + x^{8}\left(15Aa^{3}b^{7} + \frac{105Ba^{4}b^{6}}{4}\right) + x^{7}\left(30Aa^{4}b^{6} + 36Ba^{5}b^{5}\right) + x^{6}\left(42Aa^{5}b^{5} + 35Ba^{6}b^{4}\right) + x^{5}\left(42Aa^{6}b^{4} + 24Ba^{7}b^{3}\right) + x^{4}\left(30Aa^{7}b^{3} + \frac{45Ba^{8}b^{2}}{4}\right) + x^{3}\left(15Aa^{8}b^{2} + \frac{10Ba^{9}b}{3}\right) + x^{2}\left(5Aa^{9}b + \frac{Ba^{10}}{2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A),x)
```

```
[Out] A*a**10*x + B*b**10*x**12/12 + x**11*(A*b**10/11 + 10*B*a*b**9/11
) + x**10*(A*a*b**9 + 9*B*a**2*b**8/2) + x**9*(5*A*a**2*b**8 + 40
*B*a**3*b**7/3) + x**8*(15*A*a**3*b**7 + 105*B*a**4*b**6/4) + x**
7*(30*A*a**4*b**6 + 36*B*a**5*b**5) + x**6*(42*A*a**5*b**5 + 35*B
*a**6*b**4) + x**5*(42*A*a**6*b**4 + 24*B*a**7*b**3) + x**4*(30*A
*a**7*b**3 + 45*B*a**8*b**2/4) + x**3*(15*A*a**8*b**2 + 10*B*a**9
*b/3) + x**2*(5*A*a**9*b + B*a**10/2)
```

GIAC/XCAS [A] time = 0.294595, size = 325, normalized size = 8.55

$$\frac{1}{12}Bb^{10}x^{12} + \frac{10}{11}Bab^{9}x^{11} + \frac{1}{11}Ab^{10}x^{11} + \frac{9}{2}Ba^{2}b^{8}x^{10} + Aab^{9}x^{10} + \frac{40}{3}Ba^{3}b^{7}x^{9} + 5\,Aa^{2}b^{8}x^{9} + \frac{105}{4}Ba^{4}b^{6}x^{8} + 15\,Aa^{3}b^{7}x^{8} + 36\,Ba^{5}b^{5}x^{7} + 30\,Aa^{4}b^{6}x^{7} + 35\,Ba^{6}b^{4}x^{6} + 42\,Aa^{5}b^{5}x^{6} + 24\,Ba^{7}b^{3}x^{5} + 42\,Aa^{6}b^{4}x^{5} + \frac{45}{4}Ba^{8}b^{2}x^{4} + 30\,Aa^{7}b^{3}x^{4} + \frac{10}{3}Ba^{9}bx^{3} + 15\,Aa^{8}b^{2}x^{3} + \frac{1}{2}Ba^{10}x^{2} + 5\,Aa^{9}bx^{2} + Aa^{10}x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10,x, algorithm="giac")
```

```
[Out] 1/12*B*b^10*x^12 + 10/11*B*a*b^9*x^11 + 1/11*A*b^10*x^11 + 9/2*B*
a^2*b^8*x^10 + A*a*b^9*x^10 + 40/3*B*a^3*b^7*x^9 + 5*A*a^2*b^8*x^
9 + 105/4*B*a^4*b^6*x^8 + 15*A*a^3*b^7*x^8 + 36*B*a^5*b^5*x^7 + 3
0*A*a^4*b^6*x^7 + 35*B*a^6*b^4*x^6 + 42*A*a^5*b^5*x^6 + 24*B*a^7*
b^3*x^5 + 42*A*a^6*b^4*x^5 + 45/4*B*a^8*b^2*x^4 + 30*A*a^7*b^3*x^
4 + 10/3*B*a^9*b*x^3 + 15*A*a^8*b^2*x^3 + 1/2*B*a^10*x^2 + 5*A*a^
9*b*x^2 + A*a^10*x
```

3.117 $\int \frac{(a+bx)^{10}(A+Bx)}{x} \, dx$

Optimal. Leaf size=148

$$a^{10}A\log(x)+10a^9Abx+\frac{45}{2}a^8Ab^2x^2+40a^7Ab^3x^3+\frac{105}{2}a^6Ab^4x^4+\frac{252}{5}a^5Ab^5x^5+35a^4Ab^6x^6+\frac{120}{7}a^3Ab^7x^7+\frac{45}{8}a^2Ab^8x^8+\frac{10}{9}aAb^9x^9+\frac{B(a+bx)^{11}}{11b}+\frac{1}{10}Ab^{10}x^{10}$$

```
[Out] 10*a^9*A*b*x + (45*a^8*A*b^2*x^2)/2 + 40*a^7*A*b^3*x^3 + (105*a^6
*A*b^4*x^4)/2 + (252*a^5*A*b^5*x^5)/5 + 35*a^4*A*b^6*x^6 + (120*a
^3*A*b^7*x^7)/7 + (45*a^2*A*b^8*x^8)/8 + (10*a*A*b^9*x^9)/9 + (A*
b^10*x^10)/10 + (B*(a + b*x)^11)/(11*b) + a^10*A*Log[x]
```

Rubi [A] time = 0.143237, antiderivative size = 148, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 2, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$a^{10}A\log(x)+10a^9Abx+\frac{45}{2}a^8Ab^2x^2+40a^7Ab^3x^3+\frac{105}{2}a^6Ab^4x^4+\frac{252}{5}a^5Ab^5x^5+35a^4Ab^6x^6+\frac{120}{7}a^3Ab^7x^7+\frac{45}{8}a^2Ab^8x^8+\frac{10}{9}aAb^9x^9+\frac{B(a+bx)^{11}}{11b}+\frac{1}{10}Ab^{10}x^{10}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^10*(A + B*x))/x,x]
```

```
[Out] 10*a^9*A*b*x + (45*a^8*A*b^2*x^2)/2 + 40*a^7*A*b^3*x^3 + (105*a^6
*A*b^4*x^4)/2 + (252*a^5*A*b^5*x^5)/5 + 35*a^4*A*b^6*x^6 + (120*a
^3*A*b^7*x^7)/7 + (45*a^2*A*b^8*x^8)/8 + (10*a*A*b^9*x^9)/9 + (A*
b^10*x^10)/10 + (B*(a + b*x)^11)/(11*b) + a^10*A*Log[x]
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$Aa^{10}\log(x)+10Aa^9bx+45Aa^8b^2\int x\,dx+40Aa^7b^3x^3+\frac{105Aa^6b^4x^4}{2}+\frac{252Aa^5b^5x^5}{5}+35Aa^4b^6x^6+\frac{120Aa^3b^7x^7}{7}+\frac{45Aa^2b^8x^8}{8}+\frac{10Aab^9x^9}{9}+\frac{Ab^{10}x^{10}}{10}+\frac{B(a+bx)^{11}}{11b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)/x,x)
```

```
[Out] A*a**10*log(x) + 10*A*a**9*b*x + 45*A*a**8*b**2*Integral(x, x) +
40*A*a**7*b**3*x**3 + 105*A*a**6*b**4*x**4/2 + 252*A*a**5*b**5*x*
*5/5 + 35*A*a**4*b**6*x**6 + 120*A*a**3*b**7*x**7/7 + 45*A*a**2*b
**8*x**8/8 + 10*A*a*b**9*x**9/9 + A*b**10*x**10/10 + B*(a + b*x)*
*11/(11*b)
```

Mathematica [A] time = 0.0945508, size = 208, normalized size = 1.41

$$a^{10}A\log(x)+a^{10}Bx+5a^9bx(2A+Bx)+\frac{15}{2}a^8b^2x^2(3A+2Bx)+10a^7b^3x^3(4A+3Bx)+\frac{21}{2}a^6b^4x^4(5A+4Bx)+\frac{42}{5}a^5b^5x^5(6A+5Bx)+5a^4b^6x^6(7A+6Bx)+\frac{15}{7}a^3b^7x^7(8A+7Bx)+\frac{5}{8}a^2b^8x^8(9A+8Bx)+\frac{1}{9}ab^9x^9(10A+9Bx)+\frac{1}{110}b^{10}x^{10}(11A+10Bx)$$

Antiderivative was successfully verified.

```
[In]   Integrate[((a + b*x)^10*(A + B*x))/x,x]
```

```
[Out] a^10*B*x + 5*a^9*b*x*(2*A + B*x) + (15*a^8*b^2*x^2*(3*A + 2*B*x))
/2 + 10*a^7*b^3*x^3*(4*A + 3*B*x) + (21*a^6*b^4*x^4*(5*A + 4*B*x)
)/2 + (42*a^5*b^5*x^5*(6*A + 5*B*x))/5 + 5*a^4*b^6*x^6*(7*A + 6*B
*x) + (15*a^3*b^7*x^7*(8*A + 7*B*x))/7 + (5*a^2*b^8*x^8*(9*A + 8*
B*x))/8 + (a*b^9*x^9*(10*A + 9*B*x))/9 + (b^10*x^10*(11*A + 10*B*
x))/110 + a^10*A*Log[x]
```

Maple [A] time = 0.004, size = 238, normalized size = 1.6

$$\frac{Bb^{10}x^{11}}{11}+\frac{Ab^{10}x^{10}}{10}+Bx^{10}ab^{9}+\frac{10\,aAb^{9}x^{9}}{9}+5\,Bx^{9}a^{2}b^{8}+\frac{45\,a^{2}Ab^{8}x^{8}}{8}+15\,Bx^{8}a^{3}b^{7}+\frac{120\,a^{3}Ab^{7}x^{7}}{7}+30\,Bx^{7}a^{4}b^{6}+35\,a^{4}Ab^{6}x^{6}+42\,Bx^{6}a^{5}b^{5}+\frac{252\,a^{5}Ab^{5}x^{5}}{5}+42\,Bx^{5}a^{6}b^{4}+\frac{105\,a^{6}Ab^{4}x^{4}}{2}+30\,Bx^{4}a^{7}b^{3}+40\,a^{7}Ab^{3}x^{3}+15\,Bx^{3}a^{8}b^{2}+\frac{45\,a^{8}Ab^{2}x^{2}}{2}+5\,Bx^{2}a^{9}b+10\,a^{9}Abx+a^{10}Bx+a^{10}A\ln(x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((b*x+a)^10*(B*x+A)/x,x)
```

```
[Out] 1/11*B*b^10*x^11+1/10*A*b^10*x^10+B*x^10*a*b^9+10/9*a*A*b^9*x^9+5
*B*x^9*a^2*b^8+45/8*a^2*A*b^8*x^8+15*B*x^8*a^3*b^7+120/7*a^3*A*b^
7*x^7+30*B*x^7*a^4*b^6+35*a^4*A*b^6*x^6+42*B*x^6*a^5*b^5+252/5*a^
5*A*b^5*x^5+42*B*x^5*a^6*b^4+105/2*a^6*A*b^4*x^4+30*B*x^4*a^7*b^3
+40*a^7*A*b^3*x^3+15*B*x^3*a^8*b^2+45/2*a^8*A*b^2*x^2+5*B*x^2*a^9
*b+10*a^9*A*b*x+a^10*B*x+a^10*A*ln(x)
```

Maxima [A] time = 1.34171, size = 321, normalized size = 2.17

$$\frac{1}{11}\,Bb^{10}x^{11}+Aa^{10}\log(x)+\frac{1}{10}\left(10\,Bab^{9}+Ab^{10}\right)x^{10}+\frac{5}{9}\left(9\,Ba^{2}b^{8}+2\,Aab^{9}\right)x^{9}+\frac{15}{8}\left(8\,Ba^{3}b^{7}+3\,Aa^{2}b^{8}\right)x^{8}+\frac{30}{7}\left(7\,Ba^{4}b^{6}+4\,Aa^{3}b^{7}\right)x^{7}+7\left(6\,Ba^{5}b^{5}+5\,Aa^{4}b^{6}\right)x^{6}+\frac{42}{5}\left(5\,Ba^{6}b^{4}+6\,Aa^{5}b^{5}\right)x^{5}+\frac{15}{2}\left(4\,Ba^{7}b^{3}+7\,Aa^{6}b^{4}\right)x^{4}+5\left(3\,Ba^{8}b^{2}+8\,Aa^{7}b^{3}\right)x^{3}+\frac{5}{2}\left(2\,Ba^{9}b+9\,Aa^{8}b^{2}\right)x^{2}+\left(Ba^{10}+10\,Aa^{9}b\right)x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*(b*x + a)^10/x,x, algorithm="maxima")
```

```
[Out] 1/11*B*b^10*x^11 + A*a^10*log(x) + 1/10*(10*B*a*b^9 + A*b^10)*x^1
0 + 5/9*(9*B*a^2*b^8 + 2*A*a*b^9)*x^9 + 15/8*(8*B*a^3*b^7 + 3*A*a
^2*b^8)*x^8 + 30/7*(7*B*a^4*b^6 + 4*A*a^3*b^7)*x^7 + 7*(6*B*a^5*b
^5 + 5*A*a^4*b^6)*x^6 + 42/5*(5*B*a^6*b^4 + 6*A*a^5*b^5)*x^5 + 15
/2*(4*B*a^7*b^3 + 7*A*a^6*b^4)*x^4 + 5*(3*B*a^8*b^2 + 8*A*a^7*b^3
)*x^3 + 5/2*(2*B*a^9*b + 9*A*a^8*b^2)*x^2 + (B*a^10 + 10*A*a^9*b)
*x
```

Fricas [A] time = 0.203022, size = 321, normalized size = 2.17

$$\frac{1}{11}\,Bb^{10}x^{11}+Aa^{10}\log(x)+\frac{1}{10}\left(10\,Bab^{9}+Ab^{10}\right)x^{10}+\frac{5}{9}\left(9\,Ba^{2}b^{8}+2\,Aab^{9}\right)x^{9}+\frac{15}{8}\left(8\,Ba^{3}b^{7}+3\,Aa^{2}b^{8}\right)x^{8}+\frac{30}{7}\left(7\,Ba^{4}b^{6}+4\,Aa^{3}b^{7}\right)x^{7}+7\left(6\,Ba^{5}b^{5}+5\,Aa^{4}b^{6}\right)x^{6}+\frac{42}{5}\left(5\,Ba^{6}b^{4}+6\,Aa^{5}b^{5}\right)x^{5}+\frac{15}{2}\left(4\,Ba^{7}b^{3}+7\,Aa^{6}b^{4}\right)x^{4}+5\left(3\,Ba^{8}b^{2}+8\,Aa^{7}b^{3}\right)x^{3}+\frac{5}{2}\left(2\,Ba^{9}b+9\,Aa^{8}b^{2}\right)x^{2}+\left(Ba^{10}+10\,Aa^{9}b\right)x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x,x, algorithm="fricas")
```

```
[Out] 1/11*B*b^10*x^11 + A*a^10*log(x) + 1/10*(10*B*a*b^9 + A*b^10)*x^1
0 + 5/9*(9*B*a^2*b^8 + 2*A*a*b^9)*x^9 + 15/8*(8*B*a^3*b^7 + 3*A*a
^2*b^8)*x^8 + 30/7*(7*B*a^4*b^6 + 4*A*a^3*b^7)*x^7 + 7*(6*B*a^5*b
^5 + 5*A*a^4*b^6)*x^6 + 42/5*(5*B*a^6*b^4 + 6*A*a^5*b^5)*x^5 + 15
/2*(4*B*a^7*b^3 + 7*A*a^6*b^4)*x^4 + 5*(3*B*a^8*b^2 + 8*A*a^7*b^3
)*x^3 + 5/2*(2*B*a^9*b + 9*A*a^8*b^2)*x^2 + (B*a^10 + 10*A*a^9*b)
*x
```

Sympy [A] time = 2.6432, size = 246, normalized size = 1.66

$$Aa^{10}\log(x) + \frac{Bb^{10}x^{11}}{11} + x^{10}\left(\frac{Ab^{10}}{10} + Bab^9\right) + x^9\left(\frac{10Aab^9}{9} + 5Ba^2b^8\right) + x^8\left(\frac{45Aa^2b^8}{8} + 15Ba^3b^7\right) + x^7\left(\frac{120Aa^3b^7}{7} + 30Ba^4b^6\right) + x^6\left(35Aa^4b^6 + 42Ba^5b^5\right) + x^5\left(\frac{252Aa^5b^5}{5} + 42Ba^6b^4\right) + x^4\left(\frac{105Aa^6b^4}{2} + 30Ba^7b^3\right) + x^3\left(40Aa^7b^3 + 15Ba^8b^2\right) + x^2\left(\frac{45Aa^8b^2}{2} + 5Ba^9b\right) + x\left(10Aa^9b + Ba^{10}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)/x,x)
```

```
[Out] A*a**10*log(x) + B*b**10*x**11/11 + x**10*(A*b**10/10 + B*a*b**9)
 + x**9*(10*A*a*b**9/9 + 5*B*a**2*b**8) + x**8*(45*A*a**2*b**8/8
+ 15*B*a**3*b**7) + x**7*(120*A*a**3*b**7/7 + 30*B*a**4*b**6) + x
**6*(35*A*a**4*b**6 + 42*B*a**5*b**5) + x**5*(252*A*a**5*b**5/5 +
 42*B*a**6*b**4) + x**4*(105*A*a**6*b**4/2 + 30*B*a**7*b**3) + x*
*3*(40*A*a**7*b**3 + 15*B*a**8*b**2) + x**2*(45*A*a**8*b**2/2 + 5
*B*a**9*b) + x*(10*A*a**9*b + B*a**10)
```

GIAC/XCAS [A] time = 0.280501, size = 321, normalized size = 2.17

$$\frac{1}{11}Bb^{10}x^{11} + Bab^9x^{10} + \frac{1}{10}Ab^{10}x^{10} + 5\,Ba^2b^8x^9 + \frac{10}{9}Aab^9x^9 + 15\,Ba^3b^7x^8 + \frac{45}{8}Aa^2b^8x^8 + 30\,Ba^4b^6x^7 + \frac{120}{7}Aa^3b^7x^7 + 42\,Ba^5b^5x^6 + 35\,Aa^4b^6x^6 + 42\,Ba^6b^4x^5 + \frac{252}{5}Aa^5b^5x^5 + 30\,Ba^7b^3x^4 + \frac{105}{2}Aa^6b^4x^4 + 15\,Ba^8b^2x^3 + 40\,Aa^7b^3x^3 + 5\,Ba^9bx^2 + \frac{45}{2}Aa^8b^2x^2 + Ba^{10}x + 10\,Aa^9bx + Aa^{10}\ln(|x|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x,x, algorithm="giac")
```

```
[Out] 1/11*B*b^10*x^11 + B*a*b^9*x^10 + 1/10*A*b^10*x^10 + 5*B*a^2*b^8*
x^9 + 10/9*A*a*b^9*x^9 + 15*B*a^3*b^7*x^8 + 45/8*A*a^2*b^8*x^8 +
30*B*a^4*b^6*x^7 + 120/7*A*a^3*b^7*x^7 + 42*B*a^5*b^5*x^6 + 35*A*
a^4*b^6*x^6 + 42*B*a^6*b^4*x^5 + 252/5*A*a^5*b^5*x^5 + 30*B*a^7*b
^3*x^4 + 105/2*A*a^6*b^4*x^4 + 15*B*a^8*b^2*x^3 + 40*A*a^7*b^3*x^
3 + 5*B*a^9*b*x^2 + 45/2*A*a^8*b^2*x^2 + B*a^10*x + 10*A*a^9*b*x
+ A*a^10*ln(abs(x))
```

3.118 $\int \frac{(a+bx)^{10}(A+Bx)}{x^2}\,dx$

Optimal. Leaf size=217

$$-\frac{a^{10}A}{x}+a^9\log(x)(aB+10Ab)+5a^8bx(2aB+9Ab)+\frac{15}{2}a^7b^2x^2(3aB+8Ab)+10a^6b^3x^3(4aB+7Ab)+\frac{21}{2}a^5b^4x^4(5aB+6Ab)+\frac{42}{5}a^4b^5x^5(6aB+5Ab)+5a^3b^6x^6(7aB+4Ab)+\frac{15}{7}a^2b^7x^7(8aB+3Ab)+\frac{1}{9}b^9x^9(10aB+Ab)+\frac{5}{8}ab^8x^8(9aB+2Ab)+\frac{1}{10}b^{10}Bx^{10}$$

```
[Out] -((a^10*A)/x) + 5*a^8*b*(9*A*b + 2*a*B)*x + (15*a^7*b^2*(8*A*b +
3*a*B)*x^2)/2 + 10*a^6*b^3*(7*A*b + 4*a*B)*x^3 + (21*a^5*b^4*(6*A
*b + 5*a*B)*x^4)/2 + (42*a^4*b^5*(5*A*b + 6*a*B)*x^5)/5 + 5*a^3*b
^6*(4*A*b + 7*a*B)*x^6 + (15*a^2*b^7*(3*A*b + 8*a*B)*x^7)/7 + (5*
a*b^8*(2*A*b + 9*a*B)*x^8)/8 + (b^9*(A*b + 10*a*B)*x^9)/9 + (b^10
*B*x^10)/10 + a^9*(10*A*b + a*B)*Log[x]
```

Rubi [A] time = 0.472862, antiderivative size = 217, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{a^{10}A}{x}+a^9\log(x)(aB+10Ab)+5a^8bx(2aB+9Ab)+\frac{15}{2}a^7b^2x^2(3aB+8Ab)+10a^6b^3x^3(4aB+7Ab)+\frac{21}{2}a^5b^4x^4(5aB+6Ab)+\frac{42}{5}a^4b^5x^5(6aB+5Ab)+5a^3b^6x^6(7aB+4Ab)+\frac{15}{7}a^2b^7x^7(8aB+3Ab)+\frac{1}{9}b^9x^9(10aB+Ab)+\frac{5}{8}ab^8x^8(9aB+2Ab)+\frac{1}{10}b^{10}Bx^{10}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^10*(A + B*x))/x^2,x]
```

```
[Out] -((a^10*A)/x) + 5*a^8*b*(9*A*b + 2*a*B)*x + (15*a^7*b^2*(8*A*b +
3*a*B)*x^2)/2 + 10*a^6*b^3*(7*A*b + 4*a*B)*x^3 + (21*a^5*b^4*(6*A
*b + 5*a*B)*x^4)/2 + (42*a^4*b^5*(5*A*b + 6*a*B)*x^5)/5 + 5*a^3*b
^6*(4*A*b + 7*a*B)*x^6 + (15*a^2*b^7*(3*A*b + 8*a*B)*x^7)/7 + (5*
a*b^8*(2*A*b + 9*a*B)*x^8)/8 + (b^9*(A*b + 10*a*B)*x^9)/9 + (b^10
*B*x^10)/10 + a^9*(10*A*b + a*B)*Log[x]
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{Aa^{10}}{x}+\frac{Bb^{10}x^{10}}{10}+a^9\left(10Ab+Ba\right)\log\left(x\right)+5a^8bx\left(9Ab+2Ba\right)+15a^7b^2\left(8Ab+3Ba\right)\int x\,dx+10a^6b^3x^3\left(7Ab+4Ba\right)+\frac{21a^5b^4x^4\left(6Ab+5Ba\right)}{2}+\frac{42a^4b^5x^5\left(5Ab+6Ba\right)}{5}+5a^3b^6x^6\left(4Ab+7Ba\right)+\frac{15a^2b^7x^7\left(3Ab+8Ba\right)}{7}+\frac{5ab^8x^8\left(2Ab+9Ba\right)}{8}+\frac{b^9x^9\left(Ab+10Ba\right)}{9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)/x**2,x)
```

```
[Out] -A*a**10/x + B*b**10*x**10/10 + a**9*(10*A*b + B*a)*log(x) + 5*a*
*8*b*x*(9*A*b + 2*B*a) + 15*a**7*b**2*(8*A*b + 3*B*a)*Integral(x,
 x) + 10*a**6*b**3*x**3*(7*A*b + 4*B*a) + 21*a**5*b**4*x**4*(6*A*
b + 5*B*a)/2 + 42*a**4*b**5*x**5*(5*A*b + 6*B*a)/5 + 5*a**3*b**6*
x**6*(4*A*b + 7*B*a) + 15*a**2*b**7*x**7*(3*A*b + 8*B*a)/7 + 5*a*
b**8*x**8*(2*A*b + 9*B*a)/8 + b**9*x**9*(A*b + 10*B*a)/9
```

Mathematica [A] time = 0.267617, size = 209, normalized size = 0.96

$$-\frac{a^{10}A}{x}+a^9\log(x)(aB+10Ab)+10a^9bBx+\frac{45}{2}a^8b^2x(2A+Bx)+20a^7b^3x^2(3A+2Bx)+\frac{35}{2}a^6b^4x^3(4A+3Bx)+\frac{63}{5}a^5b^5x^4(5A+4Bx)+7a^4b^6x^5(6A+5Bx)+\frac{20}{7}a^3b^7x^6(7A+6Bx)+\frac{45}{56}a^2b^8x^7(8A+7Bx)+\frac{5}{36}ab^9x^8(9A+8Bx)+\frac{1}{90}b^{10}x^9(10A+9Bx)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^10*(A + B*x))/x^2,x]
```

```
[Out] -((a^10*A)/x) + 10*a^9*b*B*x + (45*a^8*b^2*x*(2*A + B*x))/2 + 20*
a^7*b^3*x^2*(3*A + 2*B*x) + (35*a^6*b^4*x^3*(4*A + 3*B*x))/2 + (6
3*a^5*b^5*x^4*(5*A + 4*B*x))/5 + 7*a^4*b^6*x^5*(6*A + 5*B*x) + (2
0*a^3*b^7*x^6*(7*A + 6*B*x))/7 + (45*a^2*b^8*x^7*(8*A + 7*B*x))/5
6 + (5*a*b^9*x^8*(9*A + 8*B*x))/36 + (b^10*x^9*(10*A + 9*B*x))/90
 + a^9*(10*A*b + a*B)*Log[x]
```

Maple [A] time = 0.01, size = 239, normalized size = 1.1

$$\frac{b^{10}Bx^{10}}{10}+\frac{Ax^9b^{10}}{9}+\frac{10\,Bx^9ab^9}{9}+\frac{5\,Ax^8ab^9}{4}+\frac{45\,Bx^8a^2b^8}{8}+\frac{45\,Ax^7a^2b^8}{7}+\frac{120\,Bx^7a^3b^7}{7}+20\,Ax^6a^3b^7+35\,Bx^6a^4b^6+42\,Ax^5a^4b^6+\frac{252\,Bx^5a^5b^5}{5}+63\,Ax^4a^5b^5+\frac{105\,Bx^4a^6b^4}{2}+70\,Ax^3a^6b^4+40\,Bx^3a^7b^3+60\,Ax^2a^7b^3+\frac{45\,Bx^2a^8b^2}{2}+45\,Axa^8b^2+10\,Bxa^9b+10\,A\ln(x)\,a^9b+B\ln(x)\,a^{10}-\frac{Aa^{10}}{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^10*(B*x+A)/x^2,x)
```

```
[Out] 1/10*b^10*B*x^10+1/9*A*x^9*b^10+10/9*B*x^9*a*b^9+5/4*A*x^8*a*b^9+
45/8*B*x^8*a^2*b^8+45/7*A*x^7*a^2*b^8+120/7*B*x^7*a^3*b^7+20*A*x^
6*a^3*b^7+35*B*x^6*a^4*b^6+42*A*x^5*a^4*b^6+252/5*B*x^5*a^5*b^5+6
3*A*x^4*a^5*b^5+105/2*B*x^4*a^6*b^4+70*A*x^3*a^6*b^4+40*B*x^3*a^7
*b^3+60*A*x^2*a^7*b^3+45/2*B*x^2*a^8*b^2+45*A*x*a^8*b^2+10*B*x*a^
9*b+10*A*ln(x)*a^9*b+B*ln(x)*a^10-a^10*A/x
```

Maxima [A] time = 1.37758, size = 323, normalized size = 1.49

$$\frac{1}{10}Bb^{10}x^{10}-\frac{Aa^{10}}{x}+\frac{1}{9}\left(10\,Bab^9+Ab^{10}\right)x^9+\frac{5}{8}\left(9\,Ba^2b^8+2\,Aab^9\right)x^8+\frac{15}{7}\left(8\,Ba^3b^7+3\,Aa^2b^8\right)x^7+5\left(7\,Ba^4b^6+4\,Aa^3b^7\right)x^6+\frac{42}{5}\left(6\,Ba^5b^5+5\,Aa^4b^6\right)x^5+\frac{21}{2}\left(5\,Ba^6b^4+6\,Aa^5b^5\right)x^4+10\left(4\,Ba^7b^3+7\,Aa^6b^4\right)x^3+\frac{15}{2}\left(3\,Ba^8b^2+8\,Aa^7b^3\right)x^2+5\left(2\,Ba^9b+9\,Aa^8b^2\right)x+\left(Ba^{10}+10\,Aa^9b\right)\log(x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^2,x, algorithm="maxima")
```

```
[Out] 1/10*B*b^10*x^10 - A*a^10/x + 1/9*(10*B*a*b^9 + A*b^10)*x^9 + 5/8
*(9*B*a^2*b^8 + 2*A*a*b^9)*x^8 + 15/7*(8*B*a^3*b^7 + 3*A*a^2*b^8)
*x^7 + 5*(7*B*a^4*b^6 + 4*A*a^3*b^7)*x^6 + 42/5*(6*B*a^5*b^5 + 5*
A*a^4*b^6)*x^5 + 21/2*(5*B*a^6*b^4 + 6*A*a^5*b^5)*x^4 + 10*(4*B*a
^7*b^3 + 7*A*a^6*b^4)*x^3 + 15/2*(3*B*a^8*b^2 + 8*A*a^7*b^3)*x^2
+ 5*(2*B*a^9*b + 9*A*a^8*b^2)*x + (B*a^10 + 10*A*a^9*b)*log(x)
```

Fricas [A] time = 0.201489, size = 331, normalized size = 1.53

$$\frac{252\,Bb^{10}x^{11} - 2520\,Aa^{10} + 280\,\left(10\,Bab^{9} + Ab^{10}\right)x^{10} + 1575\,\left(9\,Ba^{2}b^{8} + 2\,Aab^{9}\right)x^{9} + 5400\,\left(8\,Ba^{3}b^{7} + 3\,Aa^{2}b^{8}\right)x^{8} + 12600\,(7\,\ldots}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^2,x, algorithm="fricas")
```

```
[Out] 1/2520*(252*B*b^10*x^11 - 2520*A*a^10 + 280*(10*B*a*b^9 + A*b^10)
*x^10 + 1575*(9*B*a^2*b^8 + 2*A*a*b^9)*x^9 + 5400*(8*B*a^3*b^7 +
3*A*a^2*b^8)*x^8 + 12600*(7*B*a^4*b^6 + 4*A*a^3*b^7)*x^7 + 21168*
(6*B*a^5*b^5 + 5*A*a^4*b^6)*x^6 + 26460*(5*B*a^6*b^4 + 6*A*a^5*b^
5)*x^5 + 25200*(4*B*a^7*b^3 + 7*A*a^6*b^4)*x^4 + 18900*(3*B*a^8*b
^2 + 8*A*a^7*b^3)*x^3 + 12600*(2*B*a^9*b + 9*A*a^8*b^2)*x^2 + 252
0*(B*a^10 + 10*A*a^9*b)*x*log(x))/x
```

Sympy [A] time = 2.78683, size = 248, normalized size = 1.14

$$-\frac{Aa^{10}}{x} + \frac{Bb^{10}x^{10}}{10} + a^{9}\left(10Ab + Ba\right)\log\left(x\right) + x^{9}\left(\frac{Ab^{10}}{9} + \frac{10Bab^{9}}{9}\right) + x^{8}\left(\frac{5Aab^{9}}{4} + \frac{45Ba^{2}b^{8}}{8}\right) + x^{7}\left(\frac{45Aa^{2}b^{8}}{7} + \frac{120Ba^{3}b^{7}}{7}\right) + x^{6}\left(20Aa^{3}b^{7} + 35Ba^{4}b^{6}\right) + x^{5}\left(42Aa^{4}b^{6} + \frac{252Ba^{5}b^{5}}{5}\right) + x^{4}\left(63Aa^{5}b^{5} + \frac{105Ba^{6}b^{4}}{2}\right) + x^{3}\left(70Aa^{6}b^{4} + 40Ba^{7}b^{3}\right) + x^{2}\left(60Aa^{7}b^{3} + \frac{45Ba^{8}b^{2}}{2}\right) + x\left(45Aa^{8}b^{2} + 10Ba^{9}b\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)/x**2,x)
```

```
[Out] -A*a**10/x + B*b**10*x**10/10 + a**9*(10*A*b + B*a)*log(x) + x**9
*(A*b**10/9 + 10*B*a*b**9/9) + x**8*(5*A*a*b**9/4 + 45*B*a**2*b**
8/8) + x**7*(45*A*a**2*b**8/7 + 120*B*a**3*b**7/7) + x**6*(20*A*a
**3*b**7 + 35*B*a**4*b**6) + x**5*(42*A*a**4*b**6 + 252*B*a**5*b*
*5/5) + x**4*(63*A*a**5*b**5 + 105*B*a**6*b**4/2) + x**3*(70*A*a*
*6*b**4 + 40*B*a**7*b**3) + x**2*(60*A*a**7*b**3 + 45*B*a**8*b**2
/2) + x*(45*A*a**8*b**2 + 10*B*a**9*b)
```

GIAC/XCAS [A] time = 0.293738, size = 323, normalized size = 1.49

$$\frac{1}{10}\,Bb^{10}x^{10} + \frac{10}{9}\,Bab^{9}x^{9} + \frac{1}{9}\,Ab^{10}x^{9} + \frac{45}{8}\,Ba^{2}b^{8}x^{8} + \frac{5}{4}\,Aab^{9}x^{8} + \frac{120}{7}\,Ba^{3}b^{7}x^{7} + \frac{45}{7}\,Aa^{2}b^{8}x^{7} + 35\,Ba^{4}b^{6}x^{6} + 20\,Aa^{3}b^{7}x^{6} + \frac{252}{5}\,Ba^{5}b^{5}x^{5} + 42\,Aa^{4}b^{6}x^{5} + \frac{105}{2}\,Ba^{6}b^{4}x^{4} + 63\,Aa^{5}b^{5}x^{4} + 40\,Ba^{7}b^{3}x^{3} + 70\,Aa^{6}b^{4}x^{3} + \frac{45}{2}\,Ba^{8}b^{2}x^{2} + 60\,Aa^{7}b^{3}x^{2} + 10\,Ba^{9}bx + 45\,Aa^{8}b^{2}x - \frac{Aa^{10}}{x} + \left(Ba^{10} + 10\,Aa^{9}b\right)\ln\left(|x|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^2,x, algorithm="giac")
```

```
[Out] 1/10*B*b^10*x^10 + 10/9*B*a*b^9*x^9 + 1/9*A*b^10*x^9 + 45/8*B*a^2
*b^8*x^8 + 5/4*A*a*b^9*x^8 + 120/7*B*a^3*b^7*x^7 + 45/7*A*a^2*b^8
*x^7 + 35*B*a^4*b^6*x^6 + 20*A*a^3*b^7*x^6 + 252/5*B*a^5*b^5*x^5
+ 42*A*a^4*b^6*x^5 + 105/2*B*a^6*b^4*x^4 + 63*A*a^5*b^5*x^4 + 40*
B*a^7*b^3*x^3 + 70*A*a^6*b^4*x^3 + 45/2*B*a^8*b^2*x^2 + 60*A*a^7*
b^3*x^2 + 10*B*a^9*b*x + 45*A*a^8*b^2*x - A*a^10/x + (B*a^10 + 10
*A*a^9*b)*ln(abs(x))
```

3.119 $\int \frac{(a+bx)^{10}(A+Bx)}{x^3}\,dx$

Optimal. Leaf size=216

$$-\frac{a^{10}A}{2x^2}-\frac{a^9(aB+10Ab)}{x}+5a^8b\log(x)(2aB+9Ab)+15a^7b^2x(3aB+8Ab)+15a^6b^3x^2(4aB+7Ab)+14a^5b^4x^3(5aB+6Ab)+\frac{21}{2}a^4b^5x^4(6aB+5Ab)+6a^3b^6x^5(7aB+4Ab)+\frac{5}{2}a^2b^7x^6(8aB+3Ab)+\frac{1}{8}b^9x^8(10aB+Ab)+\frac{5}{7}ab^8x^7(9aB+2Ab)+\frac{1}{9}b^{10}Bx^9$$

```
[Out] -(a^10*A)/(2*x^2) - (a^9*(10*A*b + a*B))/x + 15*a^7*b^2*(8*A*b +
3*a*B)*x + 15*a^6*b^3*(7*A*b + 4*a*B)*x^2 + 14*a^5*b^4*(6*A*b + 5
*a*B)*x^3 + (21*a^4*b^5*(5*A*b + 6*a*B)*x^4)/2 + 6*a^3*b^6*(4*A*b
 + 7*a*B)*x^5 + (5*a^2*b^7*(3*A*b + 8*a*B)*x^6)/2 + (5*a*b^8*(2*A
*b + 9*a*B)*x^7)/7 + (b^9*(A*b + 10*a*B)*x^8)/8 + (b^10*B*x^9)/9
+ 5*a^8*b*(9*A*b + 2*a*B)*Log[x]
```

Rubi [A] time = 0.464411, antiderivative size = 216, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{a^{10}A}{2x^2}-\frac{a^9(aB+10Ab)}{x}+5a^8b\log(x)(2aB+9Ab)+15a^7b^2x(3aB+8Ab)+15a^6b^3x^2(4aB+7Ab)+14a^5b^4x^3(5aB+6Ab)+\frac{21}{2}a^4b^5x^4(6aB+5Ab)+6a^3b^6x^5(7aB+4Ab)+\frac{5}{2}a^2b^7x^6(8aB+3Ab)+\frac{1}{8}b^9x^8(10aB+Ab)+\frac{5}{7}ab^8x^7(9aB+2Ab)+\frac{1}{9}b^{10}Bx^9$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^10*(A + B*x))/x^3,x]
```

```
[Out] -(a^10*A)/(2*x^2) - (a^9*(10*A*b + a*B))/x + 15*a^7*b^2*(8*A*b +
3*a*B)*x + 15*a^6*b^3*(7*A*b + 4*a*B)*x^2 + 14*a^5*b^4*(6*A*b + 5
*a*B)*x^3 + (21*a^4*b^5*(5*A*b + 6*a*B)*x^4)/2 + 6*a^3*b^6*(4*A*b
 + 7*a*B)*x^5 + (5*a^2*b^7*(3*A*b + 8*a*B)*x^6)/2 + (5*a*b^8*(2*A
*b + 9*a*B)*x^7)/7 + (b^9*(A*b + 10*a*B)*x^8)/8 + (b^10*B*x^9)/9
+ 5*a^8*b*(9*A*b + 2*a*B)*Log[x]
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{Aa^{10}}{2x^2}+\frac{Bb^{10}x^9}{9}-\frac{a^9\left(10Ab+Ba\right)}{x}+5a^8b\left(9Ab+2Ba\right)\log\left(x\right)+45a^7b^2x\left(\frac{8Ab}{3}+Ba\right)+30a^6b^3\left(7Ab+4Ba\right)\int x\,dx+14a^5b^4x^3\left(6Ab+5Ba\right)+\frac{21a^4b^5x^4\left(5Ab+6Ba\right)}{2}+6a^3b^6x^5\left(4Ab+7Ba\right)+\frac{5a^2b^7x^6\left(3Ab+8Ba\right)}{2}+\frac{5ab^8x^7\left(2Ab+9Ba\right)}{7}+\frac{b^9x^8\left(Ab+10Ba\right)}{8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)/x**3,x)
```

```
[Out] -A*a**10/(2*x**2) + B*b**10*x**9/9 - a**9*(10*A*b + B*a)/x + 5*a*
*8*b*(9*A*b + 2*B*a)*log(x) + 45*a**7*b**2*x*(8*A*b/3 + B*a) + 30
*a**6*b**3*(7*A*b + 4*B*a)*Integral(x, x) + 14*a**5*b**4*x**3*(6*
A*b + 5*B*a) + 21*a**4*b**5*x**4*(5*A*b + 6*B*a)/2 + 6*a**3*b**6*
x**5*(4*A*b + 7*B*a) + 5*a**2*b**7*x**6*(3*A*b + 8*B*a)/2 + 5*a*b
**8*x**7*(2*A*b + 9*B*a)/7 + b**9*x**8*(A*b + 10*B*a)/8
```

Mathematica [A] time = 0.201315, size = 206, normalized size = 0.95

$$-\frac{a^{10}(A+2Bx)}{2x^2}-\frac{10a^9Ab}{x}+5a^8b\log(x)(2aB+9Ab)+45a^8b^2Bx+60a^7b^3x(2A+Bx)+35a^6b^4x^2(3A+2Bx)+21a^5b^5x^3(4A+3Bx)+\frac{21}{2}a^4b^6x^4(5A+4Bx)+4a^3b^7x^5(6A+5Bx)+\frac{15}{14}a^2b^8x^6(7A+6Bx)+\frac{5}{28}ab^9x^7(8A+7Bx)+\frac{1}{72}b^{10}x^8(9A+8Bx)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^10*(A + B*x))/x^3,x]
```

```
[Out] (-10*a^9*A*b)/x + 45*a^8*b^2*B*x + 60*a^7*b^3*x*(2*A + B*x) - (a^
10*(A + 2*B*x))/(2*x^2) + 35*a^6*b^4*x^2*(3*A + 2*B*x) + 21*a^5*b
^5*x^3*(4*A + 3*B*x) + (21*a^4*b^6*x^4*(5*A + 4*B*x))/2 + 4*a^3*b
^7*x^5*(6*A + 5*B*x) + (15*a^2*b^8*x^6*(7*A + 6*B*x))/14 + (5*a*b
^9*x^7*(8*A + 7*B*x))/28 + (b^10*x^8*(9*A + 8*B*x))/72 + 5*a^8*b*
(9*A*b + 2*a*B)*Log[x]
```

Maple [A] time = 0.012, size = 240, normalized size = 1.1

$$\frac{b^{10}Bx^9}{9}+\frac{Ax^8b^{10}}{8}+\frac{5\,Bx^8ab^9}{4}+\frac{10\,Ax^7ab^9}{7}+\frac{45\,Bx^7a^2b^8}{7}+\frac{15\,Ax^6a^2b^8}{2}+20\,Bx^6a^3b^7+24\,Ax^5a^3b^7+42\,Bx^5a^4b^6+\frac{105\,Ax^4a^4b^6}{2}+63\,Bx^4a^5b^5+84\,Ax^3a^5b^5+70\,Bx^3a^6b^4+105\,Ax^2a^6b^4+60\,Bx^2a^7b^3+120\,Axa^7b^3+45\,Bxa^8b^2+45\,A\ln(x)\,a^8b^2+10\,B\ln(x)\,a^9b-\frac{Aa^{10}}{2\,x^2}-10\,\frac{a^9bA}{x}-\frac{a^{10}B}{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^10*(B*x+A)/x^3,x)
```

```
[Out] 1/9*b^10*B*x^9+1/8*A*x^8*b^10+5/4*B*x^8*a*b^9+10/7*A*x^7*a*b^9+45
/7*B*x^7*a^2*b^8+15/2*A*x^6*a^2*b^8+20*B*x^6*a^3*b^7+24*A*x^5*a^3
*b^7+42*B*x^5*a^4*b^6+105/2*A*x^4*a^4*b^6+63*B*x^4*a^5*b^5+84*A*x
^3*a^5*b^5+70*B*x^3*a^6*b^4+105*A*x^2*a^6*b^4+60*B*x^2*a^7*b^3+12
0*A*x*a^7*b^3+45*B*x*a^8*b^2+45*A*ln(x)*a^8*b^2+10*B*ln(x)*a^9*b-
1/2*a^10*A/x^2-10*a^9/x*A*b-a^10/x*B
```

Maxima [A] time = 1.34725, size = 324, normalized size = 1.5

$$\frac{1}{9}\,Bb^{10}x^9+\frac{1}{8}\left(10\,Bab^9+Ab^{10}\right)x^8+\frac{5}{7}\left(9\,Ba^2b^8+2\,Aab^9\right)x^7+\frac{5}{2}\left(8\,Ba^3b^7+3\,Aa^2b^8\right)x^6+6\left(7\,Ba^4b^6+4\,Aa^3b^7\right)x^5+\frac{21}{2}\left(6\,Ba^5b^5+5\,Aa^4b^6\right)x^4+14\left(5\,Ba^6b^4+6\,Aa^5b^5\right)x^3+15\left(4\,Ba^7b^3+7\,Aa^6b^4\right)x^2+15\left(3\,Ba^8b^2+8\,Aa^7b^3\right)x+5\left(2\,Ba^9b+9\,Aa^8b^2\right)\log(x)-\frac{Aa^{10}+2\left(Ba^{10}+10\,Aa^9b\right)x}{2\,x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^3,x, algorithm="maxima")
```

```
[Out] 1/9*B*b^10*x^9 + 1/8*(10*B*a*b^9 + A*b^10)*x^8 + 5/7*(9*B*a^2*b^8
 + 2*A*a*b^9)*x^7 + 5/2*(8*B*a^3*b^7 + 3*A*a^2*b^8)*x^6 + 6*(7*B*
a^4*b^6 + 4*A*a^3*b^7)*x^5 + 21/2*(6*B*a^5*b^5 + 5*A*a^4*b^6)*x^4
 + 14*(5*B*a^6*b^4 + 6*A*a^5*b^5)*x^3 + 15*(4*B*a^7*b^3 + 7*A*a^6
*b^4)*x^2 + 15*(3*B*a^8*b^2 + 8*A*a^7*b^3)*x + 5*(2*B*a^9*b + 9*A
*a^8*b^2)*log(x) - 1/2*(A*a^10 + 2*(B*a^10 + 10*A*a^9*b)*x)/x^2
```

Fricas [A] time = 0.206324, size = 331, normalized size = 1.53

$$\frac{56\,Bb^{10}x^{11} - 252\,Aa^{10} + 63\,\left(10\,Bab^{9} + Ab^{10}\right)x^{10} + 360\,\left(9\,Ba^{2}b^{8} + 2\,Aab^{9}\right)x^{9} + 1260\,\left(8\,Ba^{3}b^{7} + 3\,Aa^{2}b^{8}\right)x^{8} + 3024\,\left(7\,Ba^{4}b^{6}\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^3,x, algorithm="fricas")
```

```
[Out] 1/504*(56*B*b^10*x^11 - 252*A*a^10 + 63*(10*B*a*b^9 + A*b^10)*x^1
0 + 360*(9*B*a^2*b^8 + 2*A*a*b^9)*x^9 + 1260*(8*B*a^3*b^7 + 3*A*a
^2*b^8)*x^8 + 3024*(7*B*a^4*b^6 + 4*A*a^3*b^7)*x^7 + 5292*(6*B*a^
5*b^5 + 5*A*a^4*b^6)*x^6 + 7056*(5*B*a^6*b^4 + 6*A*a^5*b^5)*x^5 +
 7560*(4*B*a^7*b^3 + 7*A*a^6*b^4)*x^4 + 7560*(3*B*a^8*b^2 + 8*A*a
^7*b^3)*x^3 + 2520*(2*B*a^9*b + 9*A*a^8*b^2)*x^2*log(x) - 504*(B*
a^10 + 10*A*a^9*b)*x)/x^2
```

Sympy [A] time = 3.49357, size = 246, normalized size = 1.14

$$\frac{Bb^{10}x^{9}}{9} + 5a^{8}b\left(9Ab + 2Ba\right)\log\left(x\right) + x^{8}\left(\frac{Ab^{10}}{8} + \frac{5Bab^{9}}{4}\right) + x^{7}\left(\frac{10Aab^{9}}{7} + \frac{45Ba^{2}b^{8}}{7}\right) + x^{6}\left(\frac{15Aa^{2}b^{8}}{2} + 20Ba^{3}b^{7}\right) + x^{5}\left(24Aa^{3}b^{7} + 42Ba^{4}b^{6}\right) + x^{4}\left(\frac{105Aa^{4}b^{6}}{2} + 63Ba^{5}b^{5}\right) + x^{3}\left(84Aa^{5}b^{5} + 70Ba^{6}b^{4}\right) + x^{2}\left(105Aa^{6}b^{4} + 60Ba^{7}b^{3}\right) + x\left(120Aa^{7}b^{3} + 45Ba^{8}b^{2}\right) - \frac{Aa^{10} + x\left(20Aa^{9}b + 2Ba^{10}\right)}{2x^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)/x**3,x)
```

```
[Out] B*b**10*x**9/9 + 5*a**8*b*(9*A*b + 2*B*a)*log(x) + x**8*(A*b**10/
8 + 5*B*a*b**9/4) + x**7*(10*A*a*b**9/7 + 45*B*a**2*b**8/7) + x**
6*(15*A*a**2*b**8/2 + 20*B*a**3*b**7) + x**5*(24*A*a**3*b**7 + 42
*B*a**4*b**6) + x**4*(105*A*a**4*b**6/2 + 63*B*a**5*b**5) + x**3*
(84*A*a**5*b**5 + 70*B*a**6*b**4) + x**2*(105*A*a**6*b**4 + 60*B*
a**7*b**3) + x*(120*A*a**7*b**3 + 45*B*a**8*b**2) - (A*a**10 + x*
(20*A*a**9*b + 2*B*a**10))/(2*x**2)
```

GIAC/XCAS [A] time = 0.2957, size = 324, normalized size = 1.5

$$\frac{1}{9}\,Bb^{10}x^{9} + \frac{5}{4}\,Bab^{9}x^{8} + \frac{1}{8}\,Ab^{10}x^{8} + \frac{45}{7}\,Ba^{2}b^{8}x^{7} + \frac{10}{7}\,Aab^{9}x^{7} + 20\,Ba^{3}b^{7}x^{6} + \frac{15}{2}\,Aa^{2}b^{8}x^{6} + 42\,Ba^{4}b^{6}x^{5} + 24\,Aa^{3}b^{7}x^{5} + 63\,Ba^{5}b^{5}x^{4} + \frac{105}{2}\,Aa^{4}b^{6}x^{4} + 70\,Ba^{6}b^{4}x^{3} + 84\,Aa^{5}b^{5}x^{3} + 60\,Ba^{7}b^{3}x^{2} + 105\,Aa^{6}b^{4}x^{2} + 45\,Ba^{8}b^{2}x + 120\,Aa^{7}b^{3}x + 5\,\left(2\,Ba^{9}b + 9\,Aa^{8}b^{2}\right)\ln\left(|x|\right) - \frac{Aa^{10} + 2\,\left(Ba^{10} + 10\,Aa^{9}b\right)x}{2\,x^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^3,x, algorithm="giac")
```

```
[Out] 1/9*B*b^10*x^9 + 5/4*B*a*b^9*x^8 + 1/8*A*b^10*x^8 + 45/7*B*a^2*b^
8*x^7 + 10/7*A*a*b^9*x^7 + 20*B*a^3*b^7*x^6 + 15/2*A*a^2*b^8*x^6
+ 42*B*a^4*b^6*x^5 + 24*A*a^3*b^7*x^5 + 63*B*a^5*b^5*x^4 + 105/2*
A*a^4*b^6*x^4 + 70*B*a^6*b^4*x^3 + 84*A*a^5*b^5*x^3 + 60*B*a^7*b^
3*x^2 + 105*A*a^6*b^4*x^2 + 45*B*a^8*b^2*x + 120*A*a^7*b^3*x + 5*
(2*B*a^9*b + 9*A*a^8*b^2)*ln(abs(x)) - 1/2*(A*a^10 + 2*(B*a^10 +
10*A*a^9*b)*x)/x^2
```

3.120 $\int \frac{(a+bx)^{10}(A+Bx)}{x^4} dx$

Optimal. Leaf size=216

$$-\frac{a^{10}A}{3x^3}-\frac{a^9(aB+10Ab)}{2x^2}-\frac{5a^8b(2aB+9Ab)}{x}+15a^7b^2\log(x)(3aB+8Ab)+30a^6b^3x(4aB+7Ab)+21a^5b^4x^2(5aB+6Ab)+14a^4b^5x^3(6aB+5Ab)+\frac{15}{2}a^3b^6x^4(7aB+4Ab)+3a^2b^7x^5(8aB+3Ab)+\frac{1}{7}b^9x^7(10aB+Ab)+\frac{5}{6}ab^8x^6(9aB+2Ab)+\frac{1}{8}b^{10}Bx^8$$

```
[Out] -(a^10*A)/(3*x^3) - (a^9*(10*A*b + a*B))/(2*x^2) - (5*a^8*b*(9*A*
b + 2*a*B))/x + 30*a^6*b^3*(7*A*b + 4*a*B)*x + 21*a^5*b^4*(6*A*b
+ 5*a*B)*x^2 + 14*a^4*b^5*(5*A*b + 6*a*B)*x^3 + (15*a^3*b^6*(4*A*
b + 7*a*B)*x^4)/2 + 3*a^2*b^7*(3*A*b + 8*a*B)*x^5 + (5*a*b^8*(2*A
*b + 9*a*B)*x^6)/6 + (b^9*(A*b + 10*a*B)*x^7)/7 + (b^10*B*x^8)/8
+ 15*a^7*b^2*(8*A*b + 3*a*B)*Log[x]
```

Rubi [A] time = 0.471398, antiderivative size = 216, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{a^{10}A}{3x^3}-\frac{a^9(aB+10Ab)}{2x^2}-\frac{5a^8b(2aB+9Ab)}{x}+15a^7b^2\log(x)(3aB+8Ab)+30a^6b^3x(4aB+7Ab)+21a^5b^4x^2(5aB+6Ab)+14a^4b^5x^3(6aB+5Ab)+\frac{15}{2}a^3b^6x^4(7aB+4Ab)+3a^2b^7x^5(8aB+3Ab)+\frac{1}{7}b^9x^7(10aB+Ab)+\frac{5}{6}ab^8x^6(9aB+2Ab)+\frac{1}{8}b^{10}Bx^8$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^10*(A + B*x))/x^4,x]
```

```
[Out] -(a^10*A)/(3*x^3) - (a^9*(10*A*b + a*B))/(2*x^2) - (5*a^8*b*(9*A*
b + 2*a*B))/x + 30*a^6*b^3*(7*A*b + 4*a*B)*x + 21*a^5*b^4*(6*A*b
+ 5*a*B)*x^2 + 14*a^4*b^5*(5*A*b + 6*a*B)*x^3 + (15*a^3*b^6*(4*A*
b + 7*a*B)*x^4)/2 + 3*a^2*b^7*(3*A*b + 8*a*B)*x^5 + (5*a*b^8*(2*A
*b + 9*a*B)*x^6)/6 + (b^9*(A*b + 10*a*B)*x^7)/7 + (b^10*B*x^8)/8
+ 15*a^7*b^2*(8*A*b + 3*a*B)*Log[x]
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{Aa^{10}}{3x^3}+\frac{Bb^{10}x^8}{8}-\frac{a^9(10Ab+Ba)}{2x^2}-\frac{5a^8b(9Ab+2Ba)}{x}+15a^7b^2(8Ab+3Ba)\log(x)+120a^6b^3x\left(\frac{7Ab}{4}+Ba\right)+42a^5b^4(6Ab+5Ba)\int x\,dx+14a^4b^5x^3(5Ab+6Ba)+\frac{15a^3b^6x^4(4Ab+7Ba)}{2}+3a^2b^7x^5(3Ab+8Ba)+\frac{5ab^8x^6(2Ab+9Ba)}{6}+\frac{b^9x^7(Ab+10Ba)}{7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)/x**4,x)
```

```
[Out] -A*a**10/(3*x**3) + B*b**10*x**8/8 - a**9*(10*A*b + B*a)/(2*x**2)
 - 5*a**8*b*(9*A*b + 2*B*a)/x + 15*a**7*b**2*(8*A*b + 3*B*a)*log(
x) + 120*a**6*b**3*x*(7*A*b/4 + B*a) + 42*a**5*b**4*(6*A*b + 5*B*
a)*Integral(x, x) + 14*a**4*b**5*x**3*(5*A*b + 6*B*a) + 15*a**3*b
**6*x**4*(4*A*b + 7*B*a)/2 + 3*a**2*b**7*x**5*(3*A*b + 8*B*a) + 5
*a*b**8*x**6*(2*A*b + 9*B*a)/6 + b**9*x**7*(A*b + 10*B*a)/7
```

Mathematica [A] time = 0.206323, size = 208, normalized size = 0.96

$$-\frac{a^{10}(2A+3Bx)}{6x^3}-\frac{5a^9b(A+2Bx)}{x^2}-\frac{45a^8Ab^2}{x}+15a^7b^2\log(x)(3aB+8Ab)+120a^7b^3Bx+105a^6b^4x(2A+Bx)+42a^5b^5x^2(3A+2Bx)+\frac{35}{2}a^4b^6x^3(4A+3Bx)+6a^3b^7x^4(5A+4Bx)+\frac{3}{2}a^2b^8x^5(6A+5Bx)+\frac{5}{21}ab^9x^6(7A+6Bx)+\frac{1}{56}b^{10}x^7(8A+7Bx)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^10*(A + B*x))/x^4,x]
```

```
[Out] (-45*a^8*A*b^2)/x + 120*a^7*b^3*B*x + 105*a^6*b^4*x*(2*A + B*x) -
 (5*a^9*b*(A + 2*B*x))/x^2 + 42*a^5*b^5*x^2*(3*A + 2*B*x) - (a^10
*(2*A + 3*B*x))/(6*x^3) + (35*a^4*b^6*x^3*(4*A + 3*B*x))/2 + 6*a^
3*b^7*x^4*(5*A + 4*B*x) + (3*a^2*b^8*x^5*(6*A + 5*B*x))/2 + (5*a*
b^9*x^6*(7*A + 6*B*x))/21 + (b^10*x^7*(8*A + 7*B*x))/56 + 15*a^7*
b^2*(8*A*b + 3*a*B)*Log[x]
```

Maple [A] time = 0.013, size = 240, normalized size = 1.1

$$\frac{b^{10}Bx^8}{8}+\frac{Ax^7b^{10}}{7}+\frac{10\,Bx^7ab^9}{7}+\frac{5\,Ax^6ab^9}{3}+\frac{15\,Bx^6a^2b^8}{2}+9\,Ax^5a^2b^8+24\,Bx^5a^3b^7+30\,Ax^4a^3b^7+\frac{105\,Bx^4a^4b^6}{2}+70\,Ax^3a^4b^6+84\,Bx^3a^5b^5+126\,Ax^2a^5b^5+105\,Bx^2a^6b^4+210\,Axa^6b^4+120\,Bxa^7b^3+120\,A\ln(x)\,a^7b^3+45\,B\ln(x)\,a^8b^2-5\,\frac{a^9bA}{x^2}-\frac{a^{10}B}{2\,x^2}-45\,\frac{a^8b^2A}{x}-10\,\frac{a^9bB}{x}-\frac{Aa^{10}}{3\,x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^10*(B*x+A)/x^4,x)
```

```
[Out] 1/8*b^10*B*x^8+1/7*A*x^7*b^10+10/7*B*x^7*a*b^9+5/3*A*x^6*a*b^9+15
/2*B*x^6*a^2*b^8+9*A*x^5*a^2*b^8+24*B*x^5*a^3*b^7+30*A*x^4*a^3*b^
7+105/2*B*x^4*a^4*b^6+70*A*x^3*a^4*b^6+84*B*x^3*a^5*b^5+126*A*x^2
*a^5*b^5+105*B*x^2*a^6*b^4+210*A*x*a^6*b^4+120*B*x*a^7*b^3+120*A*
ln(x)*a^7*b^3+45*B*ln(x)*a^8*b^2-5*a^9/x^2*A*b-1/2*a^10/x^2*B-45*
a^8*b^2/x*A-10*a^9*b/x*B-1/3*a^10*A/x^3
```

Maxima [A] time = 1.36302, size = 325, normalized size = 1.5

$$\frac{1}{8}\,Bb^{10}x^8+\frac{1}{7}\left(10\,Bab^9+Ab^{10}\right)x^7+\frac{5}{6}\left(9\,Ba^2b^8+2\,Aab^9\right)x^6+3\left(8\,Ba^3b^7+3\,Aa^2b^8\right)x^5+\frac{15}{2}\left(7\,Ba^4b^6+4\,Aa^3b^7\right)x^4+14\left(6\,Ba^5b^5+5\,Aa^4b^6\right)x^3+21\left(5\,Ba^6b^4+6\,Aa^5b^5\right)x^2+30\left(4\,Ba^7b^3+7\,Aa^6b^4\right)x+15\left(3\,Ba^8b^2+8\,Aa^7b^3\right)\log(x)-\frac{2\,Aa^{10}+30\left(2\,Ba^9b+9\,Aa^8b^2\right)x^2+3\left(Ba^{10}+10\,Aa^9b\right)x}{6\,x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^4,x, algorithm="maxima")
```

```
[Out] 1/8*B*b^10*x^8 + 1/7*(10*B*a*b^9 + A*b^10)*x^7 + 5/6*(9*B*a^2*b^8
 + 2*A*a*b^9)*x^6 + 3*(8*B*a^3*b^7 + 3*A*a^2*b^8)*x^5 + 15/2*(7*B
*a^4*b^6 + 4*A*a^3*b^7)*x^4 + 14*(6*B*a^5*b^5 + 5*A*a^4*b^6)*x^3
+ 21*(5*B*a^6*b^4 + 6*A*a^5*b^5)*x^2 + 30*(4*B*a^7*b^3 + 7*A*a^6*
b^4)*x + 15*(3*B*a^8*b^2 + 8*A*a^7*b^3)*log(x) - 1/6*(2*A*a^10 +
30*(2*B*a^9*b + 9*A*a^8*b^2)*x^2 + 3*(B*a^10 + 10*A*a^9*b)*x)/x^3
```

Fricas [A] time = 0.207952, size = 331, normalized size = 1.53

$$\frac{21\,Bb^{10}x^{11} - 56\,Aa^{10} + 24\,\left(10\,Bab^{9} + Ab^{10}\right)x^{10} + 140\,\left(9\,Ba^{2}b^{8} + 2\,Aab^{9}\right)x^{9} + 504\,\left(8\,Ba^{3}b^{7} + 3\,Aa^{2}b^{8}\right)x^{8} + 1260\,\left(7\,Ba^{4}b^{6} + \cdots\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^4,x, algorithm="fricas")
```

```
[Out] 1/168*(21*B*b^10*x^11 - 56*A*a^10 + 24*(10*B*a*b^9 + A*b^10)*x^10
 + 140*(9*B*a^2*b^8 + 2*A*a*b^9)*x^9 + 504*(8*B*a^3*b^7 + 3*A*a^2
*b^8)*x^8 + 1260*(7*B*a^4*b^6 + 4*A*a^3*b^7)*x^7 + 2352*(6*B*a^5*
b^5 + 5*A*a^4*b^6)*x^6 + 3528*(5*B*a^6*b^4 + 6*A*a^5*b^5)*x^5 + 5
040*(4*B*a^7*b^3 + 7*A*a^6*b^4)*x^4 + 2520*(3*B*a^8*b^2 + 8*A*a^7
*b^3)*x^3*log(x) - 840*(2*B*a^9*b + 9*A*a^8*b^2)*x^2 - 84*(B*a^10
 + 10*A*a^9*b)*x)/x^3
```

Sympy [A] time = 4.77018, size = 246, normalized size = 1.14

$$\frac{Bb^{10}x^{8}}{8} + 15a^{7}b^{2}\left(8Ab + 3Ba\right)\log\left(x\right) + x^{7}\left(\frac{Ab^{10}}{7} + \frac{10Bab^{9}}{7}\right) + x^{6}\left(\frac{5Aab^{9}}{3} + \frac{15Ba^{2}b^{8}}{2}\right) + x^{5}\left(9Aa^{2}b^{8} + 24Ba^{3}b^{7}\right) + x^{4}\left(30Aa^{3}b^{7} + \frac{105Ba^{4}b^{6}}{2}\right) + x^{3}\left(70Aa^{4}b^{6} + 84Ba^{5}b^{5}\right) + x^{2}\left(126Aa^{5}b^{5} + 105Ba^{6}b^{4}\right) + x\left(210Aa^{6}b^{4} + 120Ba^{7}b^{3}\right) - \frac{2Aa^{10} + x^{2}\left(270Aa^{8}b^{2} + 60Ba^{9}b\right) + x\left(30Aa^{9}b + 3Ba^{10}\right)}{6x^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)/x**4,x)
```

```
[Out] B*b**10*x**8/8 + 15*a**7*b**2*(8*A*b + 3*B*a)*log(x) + x**7*(A*b*
*10/7 + 10*B*a*b**9/7) + x**6*(5*A*a*b**9/3 + 15*B*a**2*b**8/2) +
 x**5*(9*A*a**2*b**8 + 24*B*a**3*b**7) + x**4*(30*A*a**3*b**7 + 1
05*B*a**4*b**6/2) + x**3*(70*A*a**4*b**6 + 84*B*a**5*b**5) + x**2
*(126*A*a**5*b**5 + 105*B*a**6*b**4) + x*(210*A*a**6*b**4 + 120*B
*a**7*b**3) - (2*A*a**10 + x**2*(270*A*a**8*b**2 + 60*B*a**9*b) +
 x*(30*A*a**9*b + 3*B*a**10))/(6*x**3)
```

GIAC/XCAS [A] time = 0.262339, size = 325, normalized size = 1.5

$$\frac{1}{8}\,Bb^{10}x^{8} + \frac{10}{7}\,Bab^{9}x^{7} + \frac{1}{7}\,Ab^{10}x^{7} + \frac{15}{2}\,Ba^{2}b^{8}x^{6} + \frac{5}{3}\,Aab^{9}x^{6} + 24\,Ba^{3}b^{7}x^{5} + 9\,Aa^{2}b^{8}x^{5} + \frac{105}{2}\,Ba^{4}b^{6}x^{4} + 30\,Aa^{3}b^{7}x^{4} + 84\,Ba^{5}b^{5}x^{3} + 70\,Aa^{4}b^{6}x^{3} + 105\,Ba^{6}b^{4}x^{2} + 126\,Aa^{5}b^{5}x^{2} + 120\,Ba^{7}b^{3}x + 210\,Aa^{6}b^{4}x + 15\,\left(3\,Ba^{8}b^{2} + 8\,Aa^{7}b^{3}\right)\ln\left(|x|\right) - \frac{2\,Aa^{10} + 30\,\left(2\,Ba^{9}b + 9\,Aa^{8}b^{2}\right)x^{2} + 3\,\left(Ba^{10} + 10\,Aa^{9}b\right)x}{6\,x^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^4,x, algorithm="giac")
```

```
[Out] 1/8*B*b^10*x^8 + 10/7*B*a*b^9*x^7 + 1/7*A*b^10*x^7 + 15/2*B*a^2*b
^8*x^6 + 5/3*A*a*b^9*x^6 + 24*B*a^3*b^7*x^5 + 9*A*a^2*b^8*x^5 + 1
05/2*B*a^4*b^6*x^4 + 30*A*a^3*b^7*x^4 + 84*B*a^5*b^5*x^3 + 70*A*a
^4*b^6*x^3 + 105*B*a^6*b^4*x^2 + 126*A*a^5*b^5*x^2 + 120*B*a^7*b^
3*x + 210*A*a^6*b^4*x + 15*(3*B*a^8*b^2 + 8*A*a^7*b^3)*ln(abs(x))
 - 1/6*(2*A*a^10 + 30*(2*B*a^9*b + 9*A*a^8*b^2)*x^2 + 3*(B*a^10 +
 10*A*a^9*b)*x)/x^3
```

3.121 $\int \frac{(a+bx)^{10}(A+Bx)}{x^5}\,dx$

Optimal. Leaf size=215

$$-\frac{a^{10}A}{4x^4}-\frac{a^9(aB+10Ab)}{3x^3}-\frac{5a^8b(2aB+9Ab)}{2x^2}-\frac{15a^7b^2(3aB+8Ab)}{x}+30a^6b^3\log(x)(4aB+7Ab)+42a^5b^4x(5aB+6Ab)+21a^4b^5x^2(6aB+5Ab)+10a^3b^6x^3(7aB+4Ab)+\frac{15}{4}a^2b^7x^4(8aB+3Ab)+\frac{1}{6}b^9x^6(10aB+Ab)+ab^8x^5(9aB+2Ab)+\frac{1}{7}b^{10}Bx^7$$

```
[Out] -(a^10*A)/(4*x^4) - (a^9*(10*A*b + a*B))/(3*x^3) - (5*a^8*b*(9*A*
b + 2*a*B))/(2*x^2) - (15*a^7*b^2*(8*A*b + 3*a*B))/x + 42*a^5*b^4
*(6*A*b + 5*a*B)*x + 21*a^4*b^5*(5*A*b + 6*a*B)*x^2 + 10*a^3*b^6*
(4*A*b + 7*a*B)*x^3 + (15*a^2*b^7*(3*A*b + 8*a*B)*x^4)/4 + a*b^8*
(2*A*b + 9*a*B)*x^5 + (b^9*(A*b + 10*a*B)*x^6)/6 + (b^10*B*x^7)/7
 + 30*a^6*b^3*(7*A*b + 4*a*B)*Log[x]
```

Rubi [A] time = 0.4691, antiderivative size = 215, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}} = 0.062$

$$-\frac{a^{10}A}{4x^4}-\frac{a^9(aB+10Ab)}{3x^3}-\frac{5a^8b(2aB+9Ab)}{2x^2}-\frac{15a^7b^2(3aB+8Ab)}{x}+30a^6b^3\log(x)(4aB+7Ab)+42a^5b^4x(5aB+6Ab)+21a^4b^5x^2(6aB+5Ab)+10a^3b^6x^3(7aB+4Ab)+\frac{15}{4}a^2b^7x^4(8aB+3Ab)+\frac{1}{6}b^9x^6(10aB+Ab)+ab^8x^5(9aB+2Ab)+\frac{1}{7}b^{10}Bx^7$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^10*(A + B*x))/x^5,x]
```

```
[Out] -(a^10*A)/(4*x^4) - (a^9*(10*A*b + a*B))/(3*x^3) - (5*a^8*b*(9*A*
b + 2*a*B))/(2*x^2) - (15*a^7*b^2*(8*A*b + 3*a*B))/x + 42*a^5*b^4
*(6*A*b + 5*a*B)*x + 21*a^4*b^5*(5*A*b + 6*a*B)*x^2 + 10*a^3*b^6*
(4*A*b + 7*a*B)*x^3 + (15*a^2*b^7*(3*A*b + 8*a*B)*x^4)/4 + a*b^8*
(2*A*b + 9*a*B)*x^5 + (b^9*(A*b + 10*a*B)*x^6)/6 + (b^10*B*x^7)/7
 + 30*a^6*b^3*(7*A*b + 4*a*B)*Log[x]
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{Aa^{10}}{4x^4}+\frac{Bb^{10}x^7}{7}-\frac{a^9\left(10Ab+Ba\right)}{3x^3}-\frac{5a^8b\left(9Ab+2Ba\right)}{2x^2}-\frac{15a^7b^2\left(8Ab+3Ba\right)}{x}+30a^6b^3\left(7Ab+4Ba\right)\log\left(x\right)+210a^5b^4x\left(\frac{6Ab}{5}+Ba\right)+42a^4b^5\left(5Ab+6Ba\right)\int x\,dx+10a^3b^6x^3\left(4Ab+7Ba\right)+\frac{15a^2b^7x^4\left(3Ab+8Ba\right)}{4}+ab^8x^5\left(2Ab+9Ba\right)+\frac{b^9x^6\left(Ab+10Ba\right)}{6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)/x**5,x)
```

```
[Out] -A*a**10/(4*x**4) + B*b**10*x**7/7 - a**9*(10*A*b + B*a)/(3*x**3)
 - 5*a**8*b*(9*A*b + 2*B*a)/(2*x**2) - 15*a**7*b**2*(8*A*b + 3*B*
a)/x + 30*a**6*b**3*(7*A*b + 4*B*a)*log(x) + 210*a**5*b**4*x*(6*A
*b/5 + B*a) + 42*a**4*b**5*(5*A*b + 6*B*a)*Integral(x, x) + 10*a*
*3*b**6*x**3*(4*A*b + 7*B*a) + 15*a**2*b**7*x**4*(3*A*b + 8*B*a)/
4 + a*b**8*x**5*(2*A*b + 9*B*a) + b**9*x**6*(A*b + 10*B*a)/6
```

Mathematica [A] time = 0.187994, size = 210, normalized size = 0.98

$$-\frac{a^{10}(3A+4Bx)}{12x^4}-\frac{5a^9b(2A+3Bx)}{3x^3}-\frac{45a^8b^2(A+2Bx)}{2x^2}-\frac{120a^7Ab^3}{x}+30a^6b^3\log(x)(4aB+7Ab)+210a^6b^4Bx+126a^5b^5x(2A+Bx)+35a^4b^6x^2(3A+2Bx)+10a^3b^7x^3(4A+3Bx)+\frac{9}{4}a^2b^8x^4(5A+4Bx)+\frac{1}{3}ab^9x^5(6A+5Bx)+\frac{1}{42}b^{10}x^6(7A+6Bx)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^10*(A + B*x))/x^5,x]
```

```
[Out] (-120*a^7*A*b^3)/x + 210*a^6*b^4*B*x + 126*a^5*b^5*x*(2*A + B*x)
- (45*a^8*b^2*(A + 2*B*x))/(2*x^2) + 35*a^4*b^6*x^2*(3*A + 2*B*x)
 - (5*a^9*b*(2*A + 3*B*x))/(3*x^3) + 10*a^3*b^7*x^3*(4*A + 3*B*x)
 - (a^10*(3*A + 4*B*x))/(12*x^4) + (9*a^2*b^8*x^4*(5*A + 4*B*x))/
4 + (a*b^9*x^5*(6*A + 5*B*x))/3 + (b^10*x^6*(7*A + 6*B*x))/42 + 3
0*a^6*b^3*(7*A*b + 4*a*B)*Log[x]
```

Maple [A] time = 0.011, size = 240, normalized size = 1.1

$$\frac{b^{10}Bx^7}{7}+\frac{Ax^6b^{10}}{6}+\frac{5\,Bx^6ab^9}{3}+2\,Ax^5ab^9+9\,Bx^5a^2b^8+\frac{45\,Ax^4a^2b^8}{4}+30\,Bx^4a^3b^7+40\,Ax^3a^3b^7+70\,Bx^3a^4b^6+105\,Ax^2a^4b^6+126\,Bx^2a^5b^5+252\,Axa^5b^5+210\,Bxa^6b^4+210\,A\ln(x)\,a^6b^4+120\,B\ln(x)\,a^7b^3-\frac{45\,a^8b^2A}{2\,x^2}-5\,\frac{a^9bB}{x^2}-120\,\frac{a^7b^3A}{x}-45\,\frac{a^8b^2B}{x}-\frac{10\,a^9bA}{3\,x^3}-\frac{a^{10}B}{3\,x^3}-\frac{Aa^{10}}{4\,x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^10*(B*x+A)/x^5,x)
```

```
[Out] 1/7*b^10*B*x^7+1/6*A*x^6*b^10+5/3*B*x^6*a*b^9+2*A*x^5*a*b^9+9*B*x
^5*a^2*b^8+45/4*A*x^4*a^2*b^8+30*B*x^4*a^3*b^7+40*A*x^3*a^3*b^7+7
0*B*x^3*a^4*b^6+105*A*x^2*a^4*b^6+126*B*x^2*a^5*b^5+252*A*x*a^5*b
^5+210*B*x*a^6*b^4+210*A*ln(x)*a^6*b^4+120*B*ln(x)*a^7*b^3-45/2*a
^8*b^2/x^2*A-5*a^9*b/x^2*B-120*a^7*b^3/x*A-45*a^8*b^2/x*B-10/3*a^
9/x^3*A*b-1/3*a^10/x^3*B-1/4*a^10*A/x^4
```

Maxima [A] time = 1.41114, size = 324, normalized size = 1.51

$$\frac{1}{7}\,Bb^{10}x^7+\frac{1}{6}\left(10\,Bab^9+Ab^{10}\right)x^6+\left(9\,Ba^2b^8+2\,Aab^9\right)x^5+\frac{15}{4}\left(8\,Ba^3b^7+3\,Aa^2b^8\right)x^4+10\left(7\,Ba^4b^6+4\,Aa^3b^7\right)x^3+21\left(6\,Ba^5b^5+5\,Aa^4b^6\right)x^2+42\left(5\,Ba^6b^4+6\,Aa^5b^5\right)x+30\left(4\,Ba^7b^3+7\,Aa^6b^4\right)\log(x)-\frac{3\,Aa^{10}+180\left(3\,Ba^8b^2+8\,Aa^7b^3\right)x^3+30\left(2\,Ba^9b+9\,Aa^8b^2\right)x^2+4\left(Ba^{10}+10\,Aa^9b\right)x}{12\,x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^5,x, algorithm="maxima")
```

```
[Out] 1/7*B*b^10*x^7 + 1/6*(10*B*a*b^9 + A*b^10)*x^6 + (9*B*a^2*b^8 + 2
*A*a*b^9)*x^5 + 15/4*(8*B*a^3*b^7 + 3*A*a^2*b^8)*x^4 + 10*(7*B*a^
4*b^6 + 4*A*a^3*b^7)*x^3 + 21*(6*B*a^5*b^5 + 5*A*a^4*b^6)*x^2 + 4
2*(5*B*a^6*b^4 + 6*A*a^5*b^5)*x + 30*(4*B*a^7*b^3 + 7*A*a^6*b^4)*
log(x) - 1/12*(3*A*a^10 + 180*(3*B*a^8*b^2 + 8*A*a^7*b^3)*x^3 + 3
0*(2*B*a^9*b + 9*A*a^8*b^2)*x^2 + 4*(B*a^10 + 10*A*a^9*b)*x)/x^4
```

Fricas [A] time = 0.209535, size = 331, normalized size = 1.54

$$\frac{12\,Bb^{10}x^{11} - 21\,Aa^{10} + 14\left(10\,Bab^{9} + Ab^{10}\right)x^{10} + 84\left(9\,Ba^{2}b^{8} + 2\,Aab^{9}\right)x^{9} + 315\left(8\,Ba^{3}b^{7} + 3\,Aa^{2}b^{8}\right)x^{8} + 840\left(7\,Ba^{4}b^{6} + 4\,A\ldots\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^5,x, algorithm="fricas")
```

```
[Out] 1/84*(12*B*b^10*x^11 - 21*A*a^10 + 14*(10*B*a*b^9 + A*b^10)*x^10
+ 84*(9*B*a^2*b^8 + 2*A*a*b^9)*x^9 + 315*(8*B*a^3*b^7 + 3*A*a^2*b
^8)*x^8 + 840*(7*B*a^4*b^6 + 4*A*a^3*b^7)*x^7 + 1764*(6*B*a^5*b^5
 + 5*A*a^4*b^6)*x^6 + 3528*(5*B*a^6*b^4 + 6*A*a^5*b^5)*x^5 + 2520
*(4*B*a^7*b^3 + 7*A*a^6*b^4)*x^4*log(x) - 1260*(3*B*a^8*b^2 + 8*A
*a^7*b^3)*x^3 - 210*(2*B*a^9*b + 9*A*a^8*b^2)*x^2 - 28*(B*a^10 +
10*A*a^9*b)*x)/x^4
```

Sympy [A] time = 6.98476, size = 243, normalized size = 1.13

$$\frac{Bb^{10}x^{7}}{7} + 30a^{6}b^{3}\left(7Ab + 4Ba\right)\log\left(x\right) + x^{6}\left(\frac{Ab^{10}}{6} + \frac{5Bab^{9}}{3}\right) + x^{5}\left(2Aab^{9} + 9Ba^{2}b^{8}\right) + x^{4}\left(\frac{45Aa^{2}b^{8}}{4} + 30Ba^{3}b^{7}\right) + x^{3}\left(40Aa^{3}b^{7} + 70Ba^{4}b^{6}\right) + x^{2}\left(105Aa^{4}b^{6} + 126Ba^{5}b^{5}\right) + x\left(252Aa^{5}b^{5} + 210Ba^{6}b^{4}\right) - \frac{3Aa^{10} + x^{3}\left(1440Aa^{7}b^{3} + 540Ba^{8}b^{2}\right) + x^{2}\left(270Aa^{8}b^{2} + 60Ba^{9}b\right) + x\left(40Aa^{9}b + 4Ba^{10}\right)}{12x^{4}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)/x**5,x)
```

```
[Out] B*b**10*x**7/7 + 30*a**6*b**3*(7*A*b + 4*B*a)*log(x) + x**6*(A*b*
*10/6 + 5*B*a*b**9/3) + x**5*(2*A*a*b**9 + 9*B*a**2*b**8) + x**4*
(45*A*a**2*b**8/4 + 30*B*a**3*b**7) + x**3*(40*A*a**3*b**7 + 70*B
*a**4*b**6) + x**2*(105*A*a**4*b**6 + 126*B*a**5*b**5) + x*(252*A
*a**5*b**5 + 210*B*a**6*b**4) - (3*A*a**10 + x**3*(1440*A*a**7*b*
*3 + 540*B*a**8*b**2) + x**2*(270*A*a**8*b**2 + 60*B*a**9*b) + x*
(40*A*a**9*b + 4*B*a**10))/(12*x**4)
```

GIAC/XCAS [A] time = 0.255071, size = 325, normalized size = 1.51

$$\frac{1}{7}\,Bb^{10}x^{7} + \frac{5}{3}\,Bab^{9}x^{6} + \frac{1}{6}\,Ab^{10}x^{6} + 9\,Ba^{2}b^{8}x^{5} + 2\,Aab^{9}x^{5} + 30\,Ba^{3}b^{7}x^{4} + \frac{45}{4}\,Aa^{2}b^{8}x^{4} + 70\,Ba^{4}b^{6}x^{3} + 40\,Aa^{3}b^{7}x^{3} + 126\,Ba^{5}b^{5}x^{2} + 105\,Aa^{4}b^{6}x^{2} + 210\,Ba^{6}b^{4}x + 252\,Aa^{5}b^{5}x + 30\left(4\,Ba^{7}b^{3} + 7\,Aa^{6}b^{4}\right)\ln\left(|x|\right) - \frac{3\,Aa^{10} + 180\left(3\,Ba^{8}b^{2} + 8\,Aa^{7}b^{3}\right)x^{3} + 30\left(2\,Ba^{9}b + 9\,Aa^{8}b^{2}\right)x^{2} + 4\left(Ba^{10} + 10\,Aa^{9}b\right)x}{12\,x^{4}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^5,x, algorithm="giac")
```

```
[Out] 1/7*B*b^10*x^7 + 5/3*B*a*b^9*x^6 + 1/6*A*b^10*x^6 + 9*B*a^2*b^8*x
^5 + 2*A*a*b^9*x^5 + 30*B*a^3*b^7*x^4 + 45/4*A*a^2*b^8*x^4 + 70*B
*a^4*b^6*x^3 + 40*A*a^3*b^7*x^3 + 126*B*a^5*b^5*x^2 + 105*A*a^4*b
^6*x^2 + 210*B*a^6*b^4*x + 252*A*a^5*b^5*x + 30*(4*B*a^7*b^3 + 7*
A*a^6*b^4)*ln(abs(x)) - 1/12*(3*A*a^10 + 180*(3*B*a^8*b^2 + 8*A*a
^7*b^3)*x^3 + 30*(2*B*a^9*b + 9*A*a^8*b^2)*x^2 + 4*(B*a^10 + 10*A
*a^9*b)*x)/x^4
```

3.122 $\int \frac{(a+bx)^{10}(A+Bx)}{x^6} \, dx$

Optimal. Leaf size=218

$$-\frac{a^{10}A}{5x^5}-\frac{a^9(aB+10Ab)}{4x^4}-\frac{5a^8b(2aB+9Ab)}{3x^3}-\frac{15a^7b^2(3aB+8Ab)}{2x^2}-\frac{30a^6b^3(4aB+7Ab)}{x}+42a^5b^4\log(x)(5aB+6Ab)+42a^4b^5x(6aB+5Ab)+15a^3b^6x^2(7aB+4Ab)+5a^2b^7x^3(8aB+3Ab)+\frac{1}{5}b^9x^5(10aB+Ab)+\frac{5}{4}ab^8x^4(9aB+2Ab)+\frac{1}{6}b^{10}Bx^6$$

```
[Out] -(a^10*A)/(5*x^5) - (a^9*(10*A*b + a*B))/(4*x^4) - (5*a^8*b*(9*A*
b + 2*a*B))/(3*x^3) - (15*a^7*b^2*(8*A*b + 3*a*B))/(2*x^2) - (30*
a^6*b^3*(7*A*b + 4*a*B))/x + 42*a^4*b^5*(5*A*b + 6*a*B)*x + 15*a^
3*b^6*(4*A*b + 7*a*B)*x^2 + 5*a^2*b^7*(3*A*b + 8*a*B)*x^3 + (5*a*
b^8*(2*A*b + 9*a*B)*x^4)/4 + (b^9*(A*b + 10*a*B)*x^5)/5 + (b^10*B
*x^6)/6 + 42*a^5*b^4*(6*A*b + 5*a*B)*Log[x]
```

Rubi [A] time = 0.475959, antiderivative size = 218, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{a^{10}A}{5x^5}-\frac{a^9(aB+10Ab)}{4x^4}-\frac{5a^8b(2aB+9Ab)}{3x^3}-\frac{15a^7b^2(3aB+8Ab)}{2x^2}-\frac{30a^6b^3(4aB+7Ab)}{x}+42a^5b^4\log(x)(5aB+6Ab)+42a^4b^5x(6aB+5Ab)+15a^3b^6x^2(7aB+4Ab)+5a^2b^7x^3(8aB+3Ab)+\frac{1}{5}b^9x^5(10aB+Ab)+\frac{5}{4}ab^8x^4(9aB+2Ab)+\frac{1}{6}b^{10}Bx^6$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^10*(A + B*x))/x^6,x]
```

```
[Out] -(a^10*A)/(5*x^5) - (a^9*(10*A*b + a*B))/(4*x^4) - (5*a^8*b*(9*A*
b + 2*a*B))/(3*x^3) - (15*a^7*b^2*(8*A*b + 3*a*B))/(2*x^2) - (30*
a^6*b^3*(7*A*b + 4*a*B))/x + 42*a^4*b^5*(5*A*b + 6*a*B)*x + 15*a^
3*b^6*(4*A*b + 7*a*B)*x^2 + 5*a^2*b^7*(3*A*b + 8*a*B)*x^3 + (5*a*
b^8*(2*A*b + 9*a*B)*x^4)/4 + (b^9*(A*b + 10*a*B)*x^5)/5 + (b^10*B
*x^6)/6 + 42*a^5*b^4*(6*A*b + 5*a*B)*Log[x]
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{Aa^{10}}{5x^5}+\frac{Bb^{10}x^6}{6}-\frac{a^9\left(10Ab+Ba\right)}{4x^4}-\frac{5a^8b\left(9Ab+2Ba\right)}{3x^3}-\frac{15a^7b^2\left(8Ab+3Ba\right)}{2x^2}-\frac{30a^6b^3\left(7Ab+4Ba\right)}{x}+42a^5b^4\left(6Ab+5Ba\right)\log\left(x\right)+210a^4b^5x\left(Ab+\frac{6Ba}{5}\right)+30a^3b^6\left(4Ab+7Ba\right)\int x\,dx+5a^2b^7x^3\left(3Ab+8Ba\right)+\frac{5ab^8x^4\left(2Ab+9Ba\right)}{4}+\frac{b^9x^5\left(Ab+10Ba\right)}{5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)/x**6,x)
```

```
[Out] -A*a**10/(5*x**5) + B*b**10*x**6/6 - a**9*(10*A*b + B*a)/(4*x**4)
 - 5*a**8*b*(9*A*b + 2*B*a)/(3*x**3) - 15*a**7*b**2*(8*A*b + 3*B*
a)/(2*x**2) - 30*a**6*b**3*(7*A*b + 4*B*a)/x + 42*a**5*b**4*(6*A*
b + 5*B*a)*log(x) + 210*a**4*b**5*x*(A*b + 6*B*a/5) + 30*a**3*b**
6*(4*A*b + 7*B*a)*Integral(x, x) + 5*a**2*b**7*x**3*(3*A*b + 8*B*
a) + 5*a*b**8*x**4*(2*A*b + 9*B*a)/4 + b**9*x**5*(A*b + 10*B*a)/5
```

Mathematica [A] time = 0.132747, size = 210, normalized size = 0.96

$$-\frac{a^{10}(4A+5Bx)}{20x^5}-\frac{5a^9b(3A+4Bx)}{6x^4}-\frac{15a^8b^2(2A+3Bx)}{2x^3}-\frac{60a^7b^3(A+2Bx)}{x^2}-\frac{210a^6Ab^4}{x}+42a^5b^4\log(x)(5aB+6Ab)+252a^5b^5Bx+105a^4b^6x(2A+Bx)+20a^3b^7x^2(3A+2Bx)+\frac{15}{4}a^2b^8x^3(4A+3Bx)+\frac{1}{2}ab^9x^4(5A+4Bx)+\frac{1}{30}b^{10}x^5(6A+5Bx)$$

Antiderivative was successfully verified.

```
[In]   Integrate[((a + b*x)^10*(A + B*x))/x^6,x]
```

```
[Out] (-210*a^6*A*b^4)/x + 252*a^5*b^5*B*x + 105*a^4*b^6*x*(2*A + B*x)
- (60*a^7*b^3*(A + 2*B*x))/x^2 + 20*a^3*b^7*x^2*(3*A + 2*B*x) - (
15*a^8*b^2*(2*A + 3*B*x))/(2*x^3) + (15*a^2*b^8*x^3*(4*A + 3*B*x)
)/4 - (5*a^9*b*(3*A + 4*B*x))/(6*x^4) + (a*b^9*x^4*(5*A + 4*B*x))
/2 - (a^10*(4*A + 5*B*x))/(20*x^5) + (b^10*x^5*(6*A + 5*B*x))/30
+ 42*a^5*b^4*(6*A*b + 5*a*B)*Log[x]
```

Maple [A] time = 0.013, size = 240, normalized size = 1.1

$$\frac{b^{10}Bx^6}{6}+\frac{Ax^5b^{10}}{5}+2\,Bx^5ab^9+\frac{5\,Ax^4ab^9}{2}+\frac{45\,Bx^4a^2b^8}{4}+15\,Ax^3a^2b^8+40\,Bx^3a^3b^7+60\,Ax^2a^3b^7+105\,Bx^2a^4b^6+210\,Axa^4b^6+252\,Bxa^5b^5+252\,A\ln(x)\,a^5b^5+210\,B\ln(x)\,a^6b^4-60\,\frac{a^7b^3A}{x^2}-\frac{45\,a^8b^2B}{2\,x^2}-\frac{Aa^{10}}{5\,x^5}-210\,\frac{a^6b^4A}{x}-120\,\frac{a^7b^3B}{x}-15\,\frac{a^8b^2A}{x^3}-\frac{10\,a^9bB}{3\,x^3}-\frac{5\,a^9bA}{2\,x^4}-\frac{a^{10}B}{4\,x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((b*x+a)^10*(B*x+A)/x^6,x)
```

```
[Out] 1/6*b^10*B*x^6+1/5*A*x^5*b^10+2*B*x^5*a*b^9+5/2*A*x^4*a*b^9+45/4*
B*x^4*a^2*b^8+15*A*x^3*a^2*b^8+40*B*x^3*a^3*b^7+60*A*x^2*a^3*b^7+
105*B*x^2*a^4*b^6+210*A*x*a^4*b^6+252*B*x*a^5*b^5+252*A*ln(x)*a^5
*b^5+210*B*ln(x)*a^6*b^4-60*a^7*b^3/x^2*A-45/2*a^8*b^2/x^2*B-1/5*
a^10*A/x^5-210*a^6*b^4/x*A-120*a^7*b^3/x*B-15*a^8*b^2/x^3*A-10/3*
a^9*b/x^3*B-5/2*a^9/x^4*A*b-1/4*a^10/x^4*B
```

Maxima [A] time = 1.3615, size = 325, normalized size = 1.49

$$\frac{1}{6}\,Bb^{10}x^6+\frac{1}{5}\left(10\,Bab^9+Ab^{10}\right)x^5+\frac{5}{4}\left(9\,Ba^2b^8+2\,Aab^9\right)x^4+5\left(8\,Ba^3b^7+3\,Aa^2b^8\right)x^3+15\left(7\,Ba^4b^6+4\,Aa^3b^7\right)x^2+42\left(6\,Ba^5b^5+5\,Aa^4b^6\right)x+42\left(5\,Ba^6b^4+6\,Aa^5b^5\right)\log(x)-\frac{12\,Aa^{10}+1800\left(4\,Ba^7b^3+7\,Aa^6b^4\right)x^4+450\left(3\,Ba^8b^2+8\,Aa^7b^3\right)x^3+100\left(2\,Ba^9b+9\,Aa^8b^2\right)x^2+15\left(Ba^{10}+10\,Aa^9b\right)x}{60\,x^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*(b*x + a)^10/x^6,x, algorithm="maxima")
```

```
[Out] 1/6*B*b^10*x^6 + 1/5*(10*B*a*b^9 + A*b^10)*x^5 + 5/4*(9*B*a^2*b^8
 + 2*A*a*b^9)*x^4 + 5*(8*B*a^3*b^7 + 3*A*a^2*b^8)*x^3 + 15*(7*B*a
^4*b^6 + 4*A*a^3*b^7)*x^2 + 42*(6*B*a^5*b^5 + 5*A*a^4*b^6)*x + 42
*(5*B*a^6*b^4 + 6*A*a^5*b^5)*log(x) - 1/60*(12*A*a^10 + 1800*(4*B
*a^7*b^3 + 7*A*a^6*b^4)*x^4 + 450*(3*B*a^8*b^2 + 8*A*a^7*b^3)*x^3
 + 100*(2*B*a^9*b + 9*A*a^8*b^2)*x^2 + 15*(B*a^10 + 10*A*a^9*b)*x
)/x^5
```

Fricas [A] time = 0.210444, size = 331, normalized size = 1.52

$$\frac{10\,Bb^{10}x^{11} - 12\,Aa^{10} + 12\,\left(10\,Bab^{9} + Ab^{10}\right)x^{10} + 75\,\left(9\,Ba^{2}b^{8} + 2\,Aab^{9}\right)x^{9} + 300\,\left(8\,Ba^{3}b^{7} + 3\,Aa^{2}b^{8}\right)x^{8} + 900\,\left(7\,Ba^{4}b^{6} + 4\,A\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*(b*x + a)^10/x^6,x, algorithm="fricas")
```

```
[Out] 1/60*(10*B*b^10*x^11 - 12*A*a^10 + 12*(10*B*a*b^9 + A*b^10)*x^10
+ 75*(9*B*a^2*b^8 + 2*A*a*b^9)*x^9 + 300*(8*B*a^3*b^7 + 3*A*a^2*b
^8)*x^8 + 900*(7*B*a^4*b^6 + 4*A*a^3*b^7)*x^7 + 2520*(6*B*a^5*b^5
 + 5*A*a^4*b^6)*x^6 + 2520*(5*B*a^6*b^4 + 6*A*a^5*b^5)*x^5*log(x)
 - 1800*(4*B*a^7*b^3 + 7*A*a^6*b^4)*x^4 - 450*(3*B*a^8*b^2 + 8*A*
a^7*b^3)*x^3 - 100*(2*B*a^9*b + 9*A*a^8*b^2)*x^2 - 15*(B*a^10 + 1
0*A*a^9*b)*x)/x^5
```

Sympy [A] time = 9.79956, size = 243, normalized size = 1.11

$$\frac{Bb^{10}x^{6}}{6} + 42a^{5}b^{4}\left(6Ab + 5Ba\right)\log\left(x\right) + x^{5}\left(\frac{Ab^{10}}{5} + 2Bab^{9}\right) + x^{4}\left(\frac{5Aab^{9}}{2} + \frac{45Ba^{2}b^{8}}{4}\right)$$
$$+ x^{3}\left(15Aa^{2}b^{8} + 40Ba^{3}b^{7}\right) + x^{2}\left(60Aa^{3}b^{7} + 105Ba^{4}b^{6}\right) + x\left(210Aa^{4}b^{6} + 252Ba^{5}b^{5}\right)$$
$$- \frac{12Aa^{10} + x^{4}\left(12600Aa^{6}b^{4} + 7200Ba^{7}b^{3}\right) + x^{3}\left(3600Aa^{7}b^{3} + 1350Ba^{8}b^{2}\right) + x^{2}\left(900Aa^{8}b^{2} + 200Ba^{9}b\right) + x\left(150Aa^{9}b + 15Ba\right.}{60x^{5}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((b*x+a)**10*(B*x+A)/x**6,x)
```

```
[Out] B*b**10*x**6/6 + 42*a**5*b**4*(6*A*b + 5*B*a)*log(x) + x**5*(A*b*
*10/5 + 2*B*a*b**9) + x**4*(5*A*a*b**9/2 + 45*B*a**2*b**8/4) + x*
*3*(15*A*a**2*b**8 + 40*B*a**3*b**7) + x**2*(60*A*a**3*b**7 + 105
*B*a**4*b**6) + x*(210*A*a**4*b**6 + 252*B*a**5*b**5) - (12*A*a**
10 + x**4*(12600*A*a**6*b**4 + 7200*B*a**7*b**3) + x**3*(3600*A*a
**7*b**3 + 1350*B*a**8*b**2) + x**2*(900*A*a**8*b**2 + 200*B*a**9
*b) + x*(150*A*a**9*b + 15*B*a**10))/(60*x**5)
```

GIAC/XCAS [A] time = 0.250315, size = 325, normalized size = 1.49

$$\frac{1}{6}\,Bb^{10}x^{6} + 2\,Bab^{9}x^{5} + \frac{1}{5}\,Ab^{10}x^{5} + \frac{45}{4}\,Ba^{2}b^{8}x^{4} + \frac{5}{2}\,Aab^{9}x^{4} + 40\,Ba^{3}b^{7}x^{3} + 15\,Aa^{2}b^{8}x^{3}$$
$$+ 105\,Ba^{4}b^{6}x^{2} + 60\,Aa^{3}b^{7}x^{2} + 252\,Ba^{5}b^{5}x + 210\,Aa^{4}b^{6}x + 42\,\left(5\,Ba^{6}b^{4} + 6\,Aa^{5}b^{5}\right)\ln\left(|x|\right)$$
$$- \frac{12\,Aa^{10} + 1800\,\left(4\,Ba^{7}b^{3} + 7\,Aa^{6}b^{4}\right)x^{4} + 450\,\left(3\,Ba^{8}b^{2} + 8\,Aa^{7}b^{3}\right)x^{3} + 100\,\left(2\,Ba^{9}b + 9\,Aa^{8}b^{2}\right)x^{2} + 15\,\left(Ba^{10} + 10\,Aa^{9}b\right)x}{60\,x^{5}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*(b*x + a)^10/x^6,x, algorithm="giac")
```

```
[Out] 1/6*B*b^10*x^6 + 2*B*a*b^9*x^5 + 1/5*A*b^10*x^5 + 45/4*B*a^2*b^8*
x^4 + 5/2*A*a*b^9*x^4 + 40*B*a^3*b^7*x^3 + 15*A*a^2*b^8*x^3 + 105
*B*a^4*b^6*x^2 + 60*A*a^3*b^7*x^2 + 252*B*a^5*b^5*x + 210*A*a^4*b
^6*x + 42*(5*B*a^6*b^4 + 6*A*a^5*b^5)*ln(abs(x)) - 1/60*(12*A*a^1
0 + 1800*(4*B*a^7*b^3 + 7*A*a^6*b^4)*x^4 + 450*(3*B*a^8*b^2 + 8*A
*a^7*b^3)*x^3 + 100*(2*B*a^9*b + 9*A*a^8*b^2)*x^2 + 15*(B*a^10 +
10*A*a^9*b)*x)/x^5
```

3.123 $\int \frac{(a+bx)^{10}(A+Bx)}{x^7}\,dx$

Optimal. Leaf size=218

$$-\frac{a^{10}A}{6x^6}-\frac{a^9(aB+10Ab)}{5x^5}-\frac{5a^8b(2aB+9Ab)}{4x^4}-\frac{5a^7b^2(3aB+8Ab)}{x^3}-\frac{15a^6b^3(4aB+7Ab)}{x^2}-\frac{42a^5b^4(5aB+6Ab)}{x}+42a^4b^5\log(x)(6aB+5Ab)+30a^3b^6x(7aB+4Ab)+\frac{15}{2}a^2b^7x^2(8aB+3Ab)+\frac{1}{4}b^9x^4(10aB+Ab)+\frac{5}{3}ab^8x^3(9aB+2Ab)+\frac{1}{5}b^{10}Bx^5$$

```
[Out] -(a^10*A)/(6*x^6) - (a^9*(10*A*b + a*B))/(5*x^5) - (5*a^8*b*(9*A*
b + 2*a*B))/(4*x^4) - (5*a^7*b^2*(8*A*b + 3*a*B))/x^3 - (15*a^6*b
^3*(7*A*b + 4*a*B))/x^2 - (42*a^5*b^4*(6*A*b + 5*a*B))/x + 30*a^3
*b^6*(4*A*b + 7*a*B)*x + (15*a^2*b^7*(3*A*b + 8*a*B)*x^2)/2 + (5*
a*b^8*(2*A*b + 9*a*B)*x^3)/3 + (b^9*(A*b + 10*a*B)*x^4)/4 + (b^10
*B*x^5)/5 + 42*a^4*b^5*(5*A*b + 6*a*B)*Log[x]
```

Rubi [A] time = 0.491404, antiderivative size = 218, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{a^{10}A}{6x^6}-\frac{a^9(aB+10Ab)}{5x^5}-\frac{5a^8b(2aB+9Ab)}{4x^4}-\frac{5a^7b^2(3aB+8Ab)}{x^3}-\frac{15a^6b^3(4aB+7Ab)}{x^2}-\frac{42a^5b^4(5aB+6Ab)}{x}+42a^4b^5\log(x)(6aB+5Ab)+30a^3b^6x(7aB+4Ab)+\frac{15}{2}a^2b^7x^2(8aB+3Ab)+\frac{1}{4}b^9x^4(10aB+Ab)+\frac{5}{3}ab^8x^3(9aB+2Ab)+\frac{1}{5}b^{10}Bx^5$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^10*(A + B*x))/x^7,x]
```

```
[Out] -(a^10*A)/(6*x^6) - (a^9*(10*A*b + a*B))/(5*x^5) - (5*a^8*b*(9*A*
b + 2*a*B))/(4*x^4) - (5*a^7*b^2*(8*A*b + 3*a*B))/x^3 - (15*a^6*b
^3*(7*A*b + 4*a*B))/x^2 - (42*a^5*b^4*(6*A*b + 5*a*B))/x + 30*a^3
*b^6*(4*A*b + 7*a*B)*x + (15*a^2*b^7*(3*A*b + 8*a*B)*x^2)/2 + (5*
a*b^8*(2*A*b + 9*a*B)*x^3)/3 + (b^9*(A*b + 10*a*B)*x^4)/4 + (b^10
*B*x^5)/5 + 42*a^4*b^5*(5*A*b + 6*a*B)*Log[x]
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{Aa^{10}}{6x^6}+\frac{Bb^{10}x^5}{5}-\frac{a^9\left(10Ab+Ba\right)}{5x^5}-\frac{5a^8b\left(9Ab+2Ba\right)}{4x^4}-\frac{5a^7b^2\left(8Ab+3Ba\right)}{x^3}-\frac{15a^6b^3\left(7Ab+4Ba\right)}{x^2}-\frac{42a^5b^4\left(6Ab+5Ba\right)}{x}+42a^4b^5\left(5Ab+6Ba\right)\log\left(x\right)+120a^3b^6x\left(Ab+\frac{7Ba}{4}\right)+15a^2b^7\left(3Ab+8Ba\right)\int x\,dx+\frac{5ab^8x^3\left(2Ab+9Ba\right)}{3}+\frac{b^9x^4\left(Ab+10Ba\right)}{4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)/x**7,x)
```

```
[Out] -A*a**10/(6*x**6) + B*b**10*x**5/5 - a**9*(10*A*b + B*a)/(5*x**5)
 - 5*a**8*b*(9*A*b + 2*B*a)/(4*x**4) - 5*a**7*b**2*(8*A*b + 3*B*a
)/x**3 - 15*a**6*b**3*(7*A*b + 4*B*a)/x**2 - 42*a**5*b**4*(6*A*b
+ 5*B*a)/x + 42*a**4*b**5*(5*A*b + 6*B*a)*log(x) + 120*a**3*b**6*
x*(A*b + 7*B*a/4) + 15*a**2*b**7*(3*A*b + 8*B*a)*Integral(x, x) +
 5*a*b**8*x**3*(2*A*b + 9*B*a)/3 + b**9*x**4*(A*b + 10*B*a)/4
```

Mathematica [A] time = 0.137853, size = 210, normalized size = 0.96

$$-\frac{a^{10}(5A+6Bx)}{30x^6}-\frac{a^9b(4A+5Bx)}{2x^5}-\frac{15a^8b^2(3A+4Bx)}{4x^4}-\frac{20a^7b^3(2A+3Bx)}{x^3}-\frac{105a^6b^4(A+2Bx)}{x^2}-\frac{252a^5Ab^5}{x}+42a^4b^5\log(x)(6aB+5Ab)+210a^4b^6Bx+60a^3b^7x(2A+Bx)+\frac{15}{2}a^2b^8x^2(3A+2Bx)+\frac{5}{6}ab^9x^3(4A+3Bx)+\frac{1}{20}b^{10}x^4(5A+4Bx)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^10*(A + B*x))/x^7,x]
```

```
[Out] (-252*a^5*A*b^5)/x + 210*a^4*b^6*B*x + 60*a^3*b^7*x*(2*A + B*x) -
 (105*a^6*b^4*(A + 2*B*x))/x^2 + (15*a^2*b^8*x^2*(3*A + 2*B*x))/2
 - (20*a^7*b^3*(2*A + 3*B*x))/x^3 + (5*a*b^9*x^3*(4*A + 3*B*x))/6
 - (15*a^8*b^2*(3*A + 4*B*x))/(4*x^4) + (b^10*x^4*(5*A + 4*B*x))/
20 - (a^9*b*(4*A + 5*B*x))/(2*x^5) - (a^10*(5*A + 6*B*x))/(30*x^6
) + 42*a^4*b^5*(5*A*b + 6*a*B)*Log[x]
```

Maple [A] time = 0.013, size = 240, normalized size = 1.1

$$\frac{b^{10}Bx^5}{5}+\frac{Ax^4b^{10}}{4}+\frac{5\,Bx^4ab^9}{2}+\frac{10\,Ax^3ab^9}{3}+15\,Bx^3a^2b^8+\frac{45\,Ax^2a^2b^8}{2}+60\,Bx^2a^3b^7+120\,Axa^3b^7+210\,Bxa^4b^6+210\,A\ln(x)\,a^4b^6+252\,B\ln(x)\,a^5b^5-105\,\frac{a^6b^4A}{x^2}-60\,\frac{a^7b^3B}{x^2}-2\,\frac{a^9bA}{x^5}-\frac{a^{10}B}{5\,x^5}-252\,\frac{a^5b^5A}{x}-210\,\frac{a^6b^4B}{x}-40\,\frac{a^7b^3A}{x^3}-15\,\frac{a^8b^2B}{x^3}-\frac{45\,a^8b^2A}{4\,x^4}-\frac{5\,a^9bB}{2\,x^4}-\frac{Aa^{10}}{6\,x^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^10*(B*x+A)/x^7,x)
```

```
[Out] 1/5*b^10*B*x^5+1/4*A*x^4*b^10+5/2*B*x^4*a*b^9+10/3*A*x^3*a*b^9+15
*B*x^3*a^2*b^8+45/2*A*x^2*a^2*b^8+60*B*x^2*a^3*b^7+120*A*x*a^3*b^
7+210*B*x*a^4*b^6+210*A*ln(x)*a^4*b^6+252*B*ln(x)*a^5*b^5-105*a^6
*b^4/x^2*A-60*a^7*b^3/x^2*B-2*a^9/x^5*A*b-1/5*a^10/x^5*B-252*a^5*
b^5/x*A-210*a^6*b^4/x*B-40*a^7*b^3/x^3*A-15*a^8*b^2/x^3*B-45/4*a^
8*b^2/x^4*A-5/2*a^9*b/x^4*B-1/6*a^10*A/x^6
```

Maxima [A] time = 1.55449, size = 325, normalized size = 1.49

$$\frac{1}{5}\,Bb^{10}x^5+\frac{1}{4}\left(10\,Bab^9+Ab^{10}\right)x^4+\frac{5}{3}\left(9\,Ba^2b^8+2\,Aab^9\right)x^3+\frac{15}{2}\left(8\,Ba^3b^7+3\,Aa^2b^8\right)x^2+30\left(7\,Ba^4b^6+4\,Aa^3b^7\right)x+42\left(6\,Ba^5b^5+5\,Aa^4b^6\right)\log(x)-\frac{10\,Aa^{10}+2520\left(5\,Ba^6b^4+6\,Aa^5b^5\right)x^5+900\left(4\,Ba^7b^3+7\,Aa^6b^4\right)x^4+300\left(3\,Ba^8b^2+8\,Aa^7b^3\right)x^3+75\left(2\,Ba^9b+9\,Aa^8b^2\right)x}{60\,x^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^7,x, algorithm="maxima")
```

```
[Out] 1/5*B*b^10*x^5 + 1/4*(10*B*a*b^9 + A*b^10)*x^4 + 5/3*(9*B*a^2*b^8
 + 2*A*a*b^9)*x^3 + 15/2*(8*B*a^3*b^7 + 3*A*a^2*b^8)*x^2 + 30*(7*
B*a^4*b^6 + 4*A*a^3*b^7)*x + 42*(6*B*a^5*b^5 + 5*A*a^4*b^6)*log(x
) - 1/60*(10*A*a^10 + 2520*(5*B*a^6*b^4 + 6*A*a^5*b^5)*x^5 + 900*
(4*B*a^7*b^3 + 7*A*a^6*b^4)*x^4 + 300*(3*B*a^8*b^2 + 8*A*a^7*b^3)
*x^3 + 75*(2*B*a^9*b + 9*A*a^8*b^2)*x^2 + 12*(B*a^10 + 10*A*a^9*b
)*x)/x^6
```

Fricas [A] time = 0.204718, size = 331, normalized size = 1.52

$$\frac{12\,Bb^{10}x^{11} - 10\,Aa^{10} + 15\,\left(10\,Bab^{9} + Ab^{10}\right)x^{10} + 100\,\left(9\,Ba^{2}b^{8} + 2\,Aab^{9}\right)x^{9} + 450\,\left(8\,Ba^{3}b^{7} + 3\,Aa^{2}b^{8}\right)x^{8} + 1800\,\left(7\,Ba^{4}b^{6} + \cdots\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^7,x, algorithm="fricas")
```

```
[Out] 1/60*(12*B*b^10*x^11 - 10*A*a^10 + 15*(10*B*a*b^9 + A*b^10)*x^10
+ 100*(9*B*a^2*b^8 + 2*A*a*b^9)*x^9 + 450*(8*B*a^3*b^7 + 3*A*a^2*
b^8)*x^8 + 1800*(7*B*a^4*b^6 + 4*A*a^3*b^7)*x^7 + 2520*(6*B*a^5*b
^5 + 5*A*a^4*b^6)*x^6*log(x) - 2520*(5*B*a^6*b^4 + 6*A*a^5*b^5)*x
^5 - 900*(4*B*a^7*b^3 + 7*A*a^6*b^4)*x^4 - 300*(3*B*a^8*b^2 + 8*A
*a^7*b^3)*x^3 - 75*(2*B*a^9*b + 9*A*a^8*b^2)*x^2 - 12*(B*a^10 + 1
0*A*a^9*b)*x)/x^6
```

Sympy [A] time = 14.8274, size = 245, normalized size = 1.12

$$\frac{Bb^{10}x^{5}}{5} + 42a^{4}b^{5}\left(5Ab + 6Ba\right)\log\left(x\right) + x^{4}\left(\frac{Ab^{10}}{4} + \frac{5Bab^{9}}{2}\right) + x^{3}\left(\frac{10Aab^{9}}{3} + 15Ba^{2}b^{8}\right) + x^{2}\left(\frac{45Aa^{2}b^{8}}{2} + 60Ba^{3}b^{7}\right) + x\left(120Aa^{3}b^{7} + 210Ba^{4}b^{6}\right) - \frac{10Aa^{10} + x^{5}\left(15120Aa^{5}b^{5} + 12600Ba^{6}b^{4}\right) + x^{4}\left(6300Aa^{6}b^{4} + 3600Ba^{7}b^{3}\right) + x^{3}\left(2400Aa^{7}b^{3} + 900Ba^{8}b^{2}\right) + x^{2}\left(675Aa^{8}b^{2} + \cdots\right.}{60x^{6}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)/x**7,x)
```

```
[Out] B*b**10*x**5/5 + 42*a**4*b**5*(5*A*b + 6*B*a)*log(x) + x**4*(A*b*
*10/4 + 5*B*a*b**9/2) + x**3*(10*A*a*b**9/3 + 15*B*a**2*b**8) + x
**2*(45*A*a**2*b**8/2 + 60*B*a**3*b**7) + x*(120*A*a**3*b**7 + 21
0*B*a**4*b**6) - (10*A*a**10 + x**5*(15120*A*a**5*b**5 + 12600*B*
a**6*b**4) + x**4*(6300*A*a**6*b**4 + 3600*B*a**7*b**3) + x**3*(2
400*A*a**7*b**3 + 900*B*a**8*b**2) + x**2*(675*A*a**8*b**2 + 150*
B*a**9*b) + x*(120*A*a**9*b + 12*B*a**10))/(60*x**6)
```

GIAC/XCAS [A] time = 0.261353, size = 325, normalized size = 1.49

$$\frac{1}{5}\,Bb^{10}x^{5} + \frac{5}{2}\,Bab^{9}x^{4} + \frac{1}{4}\,Ab^{10}x^{4} + 15\,Ba^{2}b^{8}x^{3} + \frac{10}{3}\,Aab^{9}x^{3} + 60\,Ba^{3}b^{7}x^{2} + \frac{45}{2}\,Aa^{2}b^{8}x^{2} + 210\,Ba^{4}b^{6}x + 120\,Aa^{3}b^{7}x + 42\,\left(6\,Ba^{5}b^{5} + 5\,Aa^{4}b^{6}\right)\ln\left(|x|\right) - \frac{10\,Aa^{10} + 2520\,\left(5\,Ba^{6}b^{4} + 6\,Aa^{5}b^{5}\right)x^{5} + 900\,\left(4\,Ba^{7}b^{3} + 7\,Aa^{6}b^{4}\right)x^{4} + 300\,\left(3\,Ba^{8}b^{2} + 8\,Aa^{7}b^{3}\right)x^{3} + 75\,\left(2\,Ba^{9}b + 9\,Aa^{8}b^{2}\right)x \cdots}{60\,x^{6}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^7,x, algorithm="giac")
```

```
[Out] 1/5*B*b^10*x^5 + 5/2*B*a*b^9*x^4 + 1/4*A*b^10*x^4 + 15*B*a^2*b^8*
x^3 + 10/3*A*a*b^9*x^3 + 60*B*a^3*b^7*x^2 + 45/2*A*a^2*b^8*x^2 +
210*B*a^4*b^6*x + 120*A*a^3*b^7*x + 42*(6*B*a^5*b^5 + 5*A*a^4*b^6
)*ln(abs(x)) - 1/60*(10*A*a^10 + 2520*(5*B*a^6*b^4 + 6*A*a^5*b^5)
*x^5 + 900*(4*B*a^7*b^3 + 7*A*a^6*b^4)*x^4 + 300*(3*B*a^8*b^2 + 8
*A*a^7*b^3)*x^3 + 75*(2*B*a^9*b + 9*A*a^8*b^2)*x^2 + 12*(B*a^10 +
 10*A*a^9*b)*x)/x^6
```

3.124 $\int \frac{(a+bx)^{10}(A+Bx)}{x^8} dx$

Optimal. Leaf size=216

$$-\frac{a^{10}A}{7x^7}-\frac{a^9(aB+10Ab)}{6x^6}-\frac{a^8b(2aB+9Ab)}{x^5}-\frac{15a^7b^2(3aB+8Ab)}{4x^4}-\frac{10a^6b^3(4aB+7Ab)}{x^3}-\frac{21a^5b^4(5aB+6Ab)}{x^2}-\frac{42a^4b^5(6aB+5Ab)}{x}+30a^3b^6\log(x)(7aB+4Ab)+15a^2b^7x(8aB+3Ab)+\frac{1}{3}b^9x^3(10aB+Ab)+\frac{5}{2}ab^8x^2(9aB+2Ab)+\frac{1}{4}b^{10}Bx^4$$

```
[Out] -(a^10*A)/(7*x^7) - (a^9*(10*A*b + a*B))/(6*x^6) - (a^8*b*(9*A*b
+ 2*a*B))/x^5 - (15*a^7*b^2*(8*A*b + 3*a*B))/(4*x^4) - (10*a^6*b^
3*(7*A*b + 4*a*B))/x^3 - (21*a^5*b^4*(6*A*b + 5*a*B))/x^2 - (42*a
^4*b^5*(5*A*b + 6*a*B))/x + 15*a^2*b^7*(3*A*b + 8*a*B)*x + (5*a*b
^8*(2*A*b + 9*a*B)*x^2)/2 + (b^9*(A*b + 10*a*B)*x^3)/3 + (b^10*B*
x^4)/4 + 30*a^3*b^6*(4*A*b + 7*a*B)*Log[x]
```

Rubi [A] time = 0.486301, antiderivative size = 216, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{a^{10}A}{7x^7}-\frac{a^9(aB+10Ab)}{6x^6}-\frac{a^8b(2aB+9Ab)}{x^5}-\frac{15a^7b^2(3aB+8Ab)}{4x^4}-\frac{10a^6b^3(4aB+7Ab)}{x^3}-\frac{21a^5b^4(5aB+6Ab)}{x^2}-\frac{42a^4b^5(6aB+5Ab)}{x}+30a^3b^6\log(x)(7aB+4Ab)+15a^2b^7x(8aB+3Ab)+\frac{1}{3}b^9x^3(10aB+Ab)+\frac{5}{2}ab^8x^2(9aB+2Ab)+\frac{1}{4}b^{10}Bx^4$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^10*(A + B*x))/x^8,x]
```

```
[Out] -(a^10*A)/(7*x^7) - (a^9*(10*A*b + a*B))/(6*x^6) - (a^8*b*(9*A*b
+ 2*a*B))/x^5 - (15*a^7*b^2*(8*A*b + 3*a*B))/(4*x^4) - (10*a^6*b^
3*(7*A*b + 4*a*B))/x^3 - (21*a^5*b^4*(6*A*b + 5*a*B))/x^2 - (42*a
^4*b^5*(5*A*b + 6*a*B))/x + 15*a^2*b^7*(3*A*b + 8*a*B)*x + (5*a*b
^8*(2*A*b + 9*a*B)*x^2)/2 + (b^9*(A*b + 10*a*B)*x^3)/3 + (b^10*B*
x^4)/4 + 30*a^3*b^6*(4*A*b + 7*a*B)*Log[x]
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{Aa^{10}}{7x^7}+\frac{Bb^{10}x^4}{4}-\frac{a^9\left(10Ab+Ba\right)}{6x^6}-\frac{a^8b\left(9Ab+2Ba\right)}{x^5}-\frac{15a^7b^2\left(8Ab+3Ba\right)}{4x^4}-\frac{10a^6b^3\left(7Ab+4Ba\right)}{x^3}-\frac{21a^5b^4\left(6Ab+5Ba\right)}{x^2}-\frac{42a^4b^5\left(5Ab+6Ba\right)}{x}+30a^3b^6\left(4Ab+7Ba\right)\log\left(x\right)+45a^2b^7x\left(Ab+\frac{8Ba}{3}\right)+5ab^8\left(2Ab+9Ba\right)\int x\,dx+\frac{b^9x^3\left(Ab+10Ba\right)}{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)/x**8,x)
```

```
[Out] -A*a**10/(7*x**7) + B*b**10*x**4/4 - a**9*(10*A*b + B*a)/(6*x**6)
 - a**8*b*(9*A*b + 2*B*a)/x**5 - 15*a**7*b**2*(8*A*b + 3*B*a)/(4*
x**4) - 10*a**6*b**3*(7*A*b + 4*B*a)/x**3 - 21*a**5*b**4*(6*A*b +
 5*B*a)/x**2 - 42*a**4*b**5*(5*A*b + 6*B*a)/x + 30*a**3*b**6*(4*A
*b + 7*B*a)*log(x) + 45*a**2*b**7*x*(A*b + 8*B*a/3) + 5*a*b**8*(2
*A*b + 9*B*a)*Integral(x, x) + b**9*x**3*(A*b + 10*B*a)/3
```

Mathematica [A] time = 0.166815, size = 210, normalized size = 0.97

$$-\frac{a^{10}(6A+7Bx)}{42x^7}-\frac{a^9b(5A+6Bx)}{3x^6}-\frac{9a^8b^2(4A+5Bx)}{4x^5}-\frac{10a^7b^3(3A+4Bx)}{x^4}-\frac{35a^6b^4(2A+3Bx)}{x^3}-\frac{126a^5b^5(A+2Bx)}{x^2}-\frac{210a^4Ab^6}{x}+30a^3b^6\log(x)(7aB+4Ab)+120a^3b^7Bx+\frac{45}{2}a^2b^8x(2A+Bx)+\frac{5}{3}ab^9x^2(3A+2Bx)+\frac{1}{12}b^{10}x^3(4A+3Bx)$$

Antiderivative was successfully verified.

```
[In]   Integrate[((a + b*x)^10*(A + B*x))/x^8,x]
```

```
[Out] (-210*a^4*A*b^6)/x + 120*a^3*b^7*B*x + (45*a^2*b^8*x*(2*A + B*x))
/2 - (126*a^5*b^5*(A + 2*B*x))/x^2 + (5*a*b^9*x^2*(3*A + 2*B*x))/
3 - (35*a^6*b^4*(2*A + 3*B*x))/x^3 + (b^10*x^3*(4*A + 3*B*x))/12
- (10*a^7*b^3*(3*A + 4*B*x))/x^4 - (9*a^8*b^2*(4*A + 5*B*x))/(4*x
^5) - (a^9*b*(5*A + 6*B*x))/(3*x^6) - (a^10*(6*A + 7*B*x))/(42*x^
7) + 30*a^3*b^6*(4*A*b + 7*a*B)*Log[x]
```

Maple [A] time = 0.014, size = 240, normalized size = 1.1

$$\frac{b^{10}Bx^4}{4}+\frac{Ax^3b^{10}}{3}+\frac{10\,Bx^3ab^9}{3}+5\,Ax^2ab^9+\frac{45\,Bx^2a^2b^8}{2}+45\,Axa^2b^8+120\,Bxa^3b^7-\frac{Aa^{10}}{7\,x^7}+120\,A\ln(x)\,a^3b^7+210\,B\ln(x)\,a^4b^6-126\,\frac{a^5b^5A}{x^2}-105\,\frac{a^6b^4B}{x^2}-9\,\frac{a^8b^2A}{x^5}-2\,\frac{a^9bB}{x^5}-210\,\frac{Aa^4b^6}{x}-252\,\frac{a^5b^5B}{x}-70\,\frac{a^6b^4A}{x^3}-40\,\frac{a^7b^3B}{x^3}-30\,\frac{a^7b^3A}{x^4}-\frac{45\,a^8b^2B}{4\,x^4}-\frac{5\,a^9bA}{3\,x^6}-\frac{a^{10}B}{6\,x^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((b*x+a)^10*(B*x+A)/x^8,x)
```

```
[Out] 1/4*b^10*B*x^4+1/3*A*x^3*b^10+10/3*B*x^3*a*b^9+5*A*x^2*a*b^9+45/2
*B*x^2*a^2*b^8+45*A*x*a^2*b^8+120*B*x*a^3*b^7-1/7*a^10*A/x^7+120*
A*ln(x)*a^3*b^7+210*B*ln(x)*a^4*b^6-126*a^5*b^5/x^2*A-105*a^6*b^4
/x^2*B-9*a^8*b^2/x^5*A-2*a^9*b/x^5*B-210*a^4*b^6/x*A-252*a^5*b^5/
x*B-70*a^6*b^4/x^3*A-40*a^7*b^3/x^3*B-30*a^7*b^3/x^4*A-45/4*a^8*b
^2/x^4*B-5/3*a^9/x^6*A*b-1/6*a^10/x^6*B
```

Maxima [A] time = 1.35266, size = 325, normalized size = 1.5

$$\frac{1}{4}\,Bb^{10}x^4+\frac{1}{3}\left(10\,Bab^9+Ab^{10}\right)x^3+\frac{5}{2}\left(9\,Ba^2b^8+2\,Aab^9\right)x^2+15\left(8\,Ba^3b^7+3\,Aa^2b^8\right)x+30\left(7\,Ba^4b^6+4\,Aa^3b^7\right)\log(x)-\frac{12\,Aa^{10}+3528\left(6\,Ba^5b^5+5\,Aa^4b^6\right)x^6+1764\left(5\,Ba^6b^4+6\,Aa^5b^5\right)x^5+840\left(4\,Ba^7b^3+7\,Aa^6b^4\right)x^4+315\left(3\,Ba^8b^2+8\,Aa^7b\right.}{84\,x^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*(b*x + a)^10/x^8,x, algorithm="maxima")
```

```
[Out] 1/4*B*b^10*x^4 + 1/3*(10*B*a*b^9 + A*b^10)*x^3 + 5/2*(9*B*a^2*b^8
 + 2*A*a*b^9)*x^2 + 15*(8*B*a^3*b^7 + 3*A*a^2*b^8)*x + 30*(7*B*a^
4*b^6 + 4*A*a^3*b^7)*log(x) - 1/84*(12*A*a^10 + 3528*(6*B*a^5*b^5
 + 5*A*a^4*b^6)*x^6 + 1764*(5*B*a^6*b^4 + 6*A*a^5*b^5)*x^5 + 840*
(4*B*a^7*b^3 + 7*A*a^6*b^4)*x^4 + 315*(3*B*a^8*b^2 + 8*A*a^7*b^3)
*x^3 + 84*(2*B*a^9*b + 9*A*a^8*b^2)*x^2 + 14*(B*a^10 + 10*A*a^9*b
)*x)/x^7
```

Fricas [A] time = 0.199486, size = 331, normalized size = 1.53

$$\frac{21\,Bb^{10}x^{11} - 12\,Aa^{10} + 28\left(10\,Bab^9 + Ab^{10}\right)x^{10} + 210\left(9\,Ba^2b^8 + 2\,Aab^9\right)x^9 + 1260\left(8\,Ba^3b^7 + 3\,Aa^2b^8\right)x^8 + 2520\left(7\,Ba^4b^6 + \cdots\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^8,x, algorithm="fricas")
```

```
[Out] 1/84*(21*B*b^10*x^11 - 12*A*a^10 + 28*(10*B*a*b^9 + A*b^10)*x^10
+ 210*(9*B*a^2*b^8 + 2*A*a*b^9)*x^9 + 1260*(8*B*a^3*b^7 + 3*A*a^2
*b^8)*x^8 + 2520*(7*B*a^4*b^6 + 4*A*a^3*b^7)*x^7*log(x) - 3528*(6
*B*a^5*b^5 + 5*A*a^4*b^6)*x^6 - 1764*(5*B*a^6*b^4 + 6*A*a^5*b^5)*
x^5 - 840*(4*B*a^7*b^3 + 7*A*a^6*b^4)*x^4 - 315*(3*B*a^8*b^2 + 8*
A*a^7*b^3)*x^3 - 84*(2*B*a^9*b + 9*A*a^8*b^2)*x^2 - 14*(B*a^10 +
10*A*a^9*b)*x)/x^7
```

Sympy [A] time = 20.8423, size = 243, normalized size = 1.12

$$\frac{Bb^{10}x^4}{4} + 30a^3b^6\left(4Ab+7Ba\right)\log\left(x\right) + x^3\left(\frac{Ab^{10}}{3} + \frac{10Bab^9}{3}\right) + x^2\left(5Aab^9 + \frac{45Ba^2b^8}{2}\right) + x\left(45Aa^2b^8 + 120Ba^3b^7\right)$$
$$-\frac{12Aa^{10} + x^6\left(17640Aa^4b^6 + 21168Ba^5b^5\right) + x^5\left(10584Aa^5b^5 + 8820Ba^6b^4\right) + x^4\left(5880Aa^6b^4 + 3360Ba^7b^3\right) + x^3\left(2520Aa^7b \cdots\right.}{84x^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)/x**8,x)
```

```
[Out] B*b**10*x**4/4 + 30*a**3*b**6*(4*A*b + 7*B*a)*log(x) + x**3*(A*b*
*10/3 + 10*B*a*b**9/3) + x**2*(5*A*a*b**9 + 45*B*a**2*b**8/2) + x
*(45*A*a**2*b**8 + 120*B*a**3*b**7) - (12*A*a**10 + x**6*(17640*A
*a**4*b**6 + 21168*B*a**5*b**5) + x**5*(10584*A*a**5*b**5 + 8820*
B*a**6*b**4) + x**4*(5880*A*a**6*b**4 + 3360*B*a**7*b**3) + x**3*
(2520*A*a**7*b**3 + 945*B*a**8*b**2) + x**2*(756*A*a**8*b**2 + 16
8*B*a**9*b) + x*(140*A*a**9*b + 14*B*a**10))/(84*x**7)
```

GIAC/XCAS [A] time = 0.323857, size = 325, normalized size = 1.5

$$\frac{1}{4}\,Bb^{10}x^4 + \frac{10}{3}\,Bab^9x^3 + \frac{1}{3}\,Ab^{10}x^3 + \frac{45}{2}\,Ba^2b^8x^2 + 5\,Aab^9x^2$$
$$+ 120\,Ba^3b^7x + 45\,Aa^2b^8x + 30\left(7\,Ba^4b^6 + 4\,Aa^3b^7\right)\ln\left(|x|\right)$$
$$-\frac{12\,Aa^{10} + 3528\left(6\,Ba^5b^5 + 5\,Aa^4b^6\right)x^6 + 1764\left(5\,Ba^6b^4 + 6\,Aa^5b^5\right)x^5 + 840\left(4\,Ba^7b^3 + 7\,Aa^6b^4\right)x^4 + 315\left(3\,Ba^8b^2 + 8\,Aa^7b \cdots\right.}{84\,x^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^8,x, algorithm="giac")
```

```
[Out] 1/4*B*b^10*x^4 + 10/3*B*a*b^9*x^3 + 1/3*A*b^10*x^3 + 45/2*B*a^2*b
^8*x^2 + 5*A*a*b^9*x^2 + 120*B*a^3*b^7*x + 45*A*a^2*b^8*x + 30*(7
*B*a^4*b^6 + 4*A*a^3*b^7)*ln(abs(x)) - 1/84*(12*A*a^10 + 3528*(6*
B*a^5*b^5 + 5*A*a^4*b^6)*x^6 + 1764*(5*B*a^6*b^4 + 6*A*a^5*b^5)*x
^5 + 840*(4*B*a^7*b^3 + 7*A*a^6*b^4)*x^4 + 315*(3*B*a^8*b^2 + 8*A
*a^7*b^3)*x^3 + 84*(2*B*a^9*b + 9*A*a^8*b^2)*x^2 + 14*(B*a^10 + 1
0*A*a^9*b)*x)/x^7
```

3.125 $\int \frac{(a+bx)^{10}(A+Bx)}{x^9} dx$

Optimal. Leaf size=216

$$-\frac{a^{10}A}{8x^8}-\frac{a^9(aB+10Ab)}{7x^7}-\frac{5a^8b(2aB+9Ab)}{6x^6}-\frac{3a^7b^2(3aB+8Ab)}{x^5}-\frac{15a^6b^3(4aB+7Ab)}{2x^4}-\frac{14a^5b^4(5aB+6Ab)}{x^3}-\frac{21a^4b^5(6aB+5Ab)}{x^2}-\frac{30a^3b^6(7aB+4Ab)}{x}+15a^2b^7\log(x)(8aB+3Ab)+\frac{1}{2}b^9x^2(10aB+Ab)+5ab^8x(9aB+2Ab)+\frac{1}{3}b^{10}Bx^3$$

```
[Out] -(a^10*A)/(8*x^8) - (a^9*(10*A*b + a*B))/(7*x^7) - (5*a^8*b*(9*A*
b + 2*a*B))/(6*x^6) - (3*a^7*b^2*(8*A*b + 3*a*B))/x^5 - (15*a^6*b
^3*(7*A*b + 4*a*B))/(2*x^4) - (14*a^5*b^4*(6*A*b + 5*a*B))/x^3 -
(21*a^4*b^5*(5*A*b + 6*a*B))/x^2 - (30*a^3*b^6*(4*A*b + 7*a*B))/x
 + 5*a*b^8*(2*A*b + 9*a*B)*x + (b^9*(A*b + 10*a*B)*x^2)/2 + (b^10
*B*x^3)/3 + 15*a^2*b^7*(3*A*b + 8*a*B)*Log[x]
```

Rubi [A] time = 0.48848, antiderivative size = 216, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{a^{10}A}{8x^8}-\frac{a^9(aB+10Ab)}{7x^7}-\frac{5a^8b(2aB+9Ab)}{6x^6}-\frac{3a^7b^2(3aB+8Ab)}{x^5}-\frac{15a^6b^3(4aB+7Ab)}{2x^4}-\frac{14a^5b^4(5aB+6Ab)}{x^3}-\frac{21a^4b^5(6aB+5Ab)}{x^2}-\frac{30a^3b^6(7aB+4Ab)}{x}+15a^2b^7\log(x)(8aB+3Ab)+\frac{1}{2}b^9x^2(10aB+Ab)+5ab^8x(9aB+2Ab)+\frac{1}{3}b^{10}Bx^3$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^10*(A + B*x))/x^9,x]
```

```
[Out] -(a^10*A)/(8*x^8) - (a^9*(10*A*b + a*B))/(7*x^7) - (5*a^8*b*(9*A*
b + 2*a*B))/(6*x^6) - (3*a^7*b^2*(8*A*b + 3*a*B))/x^5 - (15*a^6*b
^3*(7*A*b + 4*a*B))/(2*x^4) - (14*a^5*b^4*(6*A*b + 5*a*B))/x^3 -
(21*a^4*b^5*(5*A*b + 6*a*B))/x^2 - (30*a^3*b^6*(4*A*b + 7*a*B))/x
 + 5*a*b^8*(2*A*b + 9*a*B)*x + (b^9*(A*b + 10*a*B)*x^2)/2 + (b^10
*B*x^3)/3 + 15*a^2*b^7*(3*A*b + 8*a*B)*Log[x]
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{Aa^{10}}{8x^8}+\frac{Bb^{10}x^3}{3}-\frac{a^9\left(10Ab+Ba\right)}{7x^7}-\frac{5a^8b\left(9Ab+2Ba\right)}{6x^6}-\frac{3a^7b^2\left(8Ab+3Ba\right)}{x^5}-\frac{15a^6b^3\left(7Ab+4Ba\right)}{2x^4}-\frac{14a^5b^4\left(6Ab+5Ba\right)}{x^3}-\frac{21a^4b^5\left(5Ab+6Ba\right)}{x^2}-\frac{30a^3b^6\left(4Ab+7Ba\right)}{x}+15a^2b^7\left(3Ab+8Ba\right)\log\left(x\right)+5ab^8x\left(2Ab+9Ba\right)+b^9\left(Ab+10Ba\right)\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)/x**9,x)
```

```
[Out] -A*a**10/(8*x**8) + B*b**10*x**3/3 - a**9*(10*A*b + B*a)/(7*x**7)
 - 5*a**8*b*(9*A*b + 2*B*a)/(6*x**6) - 3*a**7*b**2*(8*A*b + 3*B*a
)/x**5 - 15*a**6*b**3*(7*A*b + 4*B*a)/(2*x**4) - 14*a**5*b**4*(6*
A*b + 5*B*a)/x**3 - 21*a**4*b**5*(5*A*b + 6*B*a)/x**2 - 30*a**3*b
**6*(4*A*b + 7*B*a)/x + 15*a**2*b**7*(3*A*b + 8*B*a)*log(x) + 5*a
*b**8*x*(2*A*b + 9*B*a) + b**9*(A*b + 10*B*a)*Integral(x, x)
```

Mathematica [A] time = 0.16498, size = 208, normalized size = 0.96

$$-\frac{a^{10}(7A+8Bx)}{56x^8}-\frac{5a^9b(6A+7Bx)}{21x^7}-\frac{3a^8b^2(5A+6Bx)}{2x^6}-\frac{6a^7b^3(4A+5Bx)}{x^5}-\frac{35a^6b^4(3A+4Bx)}{2x^4}-\frac{42a^5b^5(2A+3Bx)}{x^3}-\frac{105a^4b^6(A+2Bx)}{x^2}-\frac{120a^3Ab^7}{x}+15a^2b^7\log(x)(8aB+3Ab)+45a^2b^8Bx+5ab^9x(2A+Bx)+\frac{1}{6}b^{10}x^2(3A+2Bx)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^10*(A + B*x))/x^9,x]
```

```
[Out] (-120*a^3*A*b^7)/x + 45*a^2*b^8*B*x + 5*a*b^9*x*(2*A + B*x) - (10
5*a^4*b^6*(A + 2*B*x))/x^2 + (b^10*x^2*(3*A + 2*B*x))/6 - (42*a^5
*b^5*(2*A + 3*B*x))/x^3 - (35*a^6*b^4*(3*A + 4*B*x))/(2*x^4) - (6
*a^7*b^3*(4*A + 5*B*x))/x^5 - (3*a^8*b^2*(5*A + 6*B*x))/(2*x^6) -
 (5*a^9*b*(6*A + 7*B*x))/(21*x^7) - (a^10*(7*A + 8*B*x))/(56*x^8)
 + 15*a^2*b^7*(3*A*b + 8*a*B)*Log[x]
```

Maple [A] time = 0.014, size = 240, normalized size = 1.1

$$\frac{b^{10}Bx^3}{3}+\frac{Ax^2b^{10}}{2}+5\,Bx^2ab^9+10\,Axab^9+45\,Bxa^2b^8-\frac{Aa^{10}}{8\,x^8}-\frac{10\,a^9bA}{7\,x^7}-\frac{a^{10}B}{7\,x^7}+45\,A\ln(x)\,a^2b^8+120\,B\ln(x)\,a^3b^7-105\,\frac{Aa^4b^6}{x^2}-126\,\frac{a^5b^5B}{x^2}-24\,\frac{a^7b^3A}{x^5}-9\,\frac{a^8b^2B}{x^5}-120\,\frac{a^3b^7A}{x}-210\,\frac{a^4b^6B}{x}-84\,\frac{a^5b^5A}{x^3}-70\,\frac{a^6b^4B}{x^3}-\frac{105\,a^6b^4A}{2\,x^4}-30\,\frac{a^7b^3B}{x^4}-\frac{15\,a^8b^2A}{2\,x^6}-\frac{5\,a^9bB}{3\,x^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^10*(B*x+A)/x^9,x)
```

```
[Out] 1/3*b^10*B*x^3+1/2*A*x^2*b^10+5*B*x^2*a*b^9+10*A*x*a*b^9+45*B*x*a
^2*b^8-1/8*a^10*A/x^8-10/7*a^9/x^7*A*b-1/7*a^10/x^7*B+45*A*ln(x)*
a^2*b^8+120*B*ln(x)*a^3*b^7-105*a^4*b^6/x^2*A-126*a^5*b^5/x^2*B-2
4*a^7*b^3/x^5*A-9*a^8*b^2/x^5*B-120*a^3*b^7/x*A-210*a^4*b^6/x*B-8
4*a^5*b^5/x^3*A-70*a^6*b^4/x^3*B-105/2*a^6*b^4/x^4*A-30*a^7*b^3/x
^4*B-15/2*a^8*b^2/x^6*A-5/3*a^9*b/x^6*B
```

Maxima [A] time = 1.37747, size = 325, normalized size = 1.5

$$\frac{1}{3}\,Bb^{10}x^3+\frac{1}{2}\left(10\,Bab^9+Ab^{10}\right)x^2+5\left(9\,Ba^2b^8+2\,Aab^9\right)x+15\left(8\,Ba^3b^7+3\,Aa^2b^8\right)\log(x)-\frac{21\,Aa^{10}+5040\left(7\,Ba^4b^6+4\,Aa^3b^7\right)x^7+3528\left(6\,Ba^5b^5+5\,Aa^4b^6\right)x^6+2352\left(5\,Ba^6b^4+6\,Aa^5b^5\right)x^5+1260\left(4\,Ba^7b^3+7\,Aa\right.}{168\,x^8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^9,x, algorithm="maxima")
```

```
[Out] 1/3*B*b^10*x^3 + 1/2*(10*B*a*b^9 + A*b^10)*x^2 + 5*(9*B*a^2*b^8 +
 2*A*a*b^9)*x + 15*(8*B*a^3*b^7 + 3*A*a^2*b^8)*log(x) - 1/168*(21
*A*a^10 + 5040*(7*B*a^4*b^6 + 4*A*a^3*b^7)*x^7 + 3528*(6*B*a^5*b^
5 + 5*A*a^4*b^6)*x^6 + 2352*(5*B*a^6*b^4 + 6*A*a^5*b^5)*x^5 + 126
0*(4*B*a^7*b^3 + 7*A*a^6*b^4)*x^4 + 504*(3*B*a^8*b^2 + 8*A*a^7*b^
3)*x^3 + 140*(2*B*a^9*b + 9*A*a^8*b^2)*x^2 + 24*(B*a^10 + 10*A*a^
9*b)*x)/x^8
```

Fricas [A] time = 0.21877, size = 331, normalized size = 1.53

$$\frac{56\,Bb^{10}x^{11} - 21\,Aa^{10} + 84\,\left(10\,Bab^{9} + Ab^{10}\right)x^{10} + 840\,\left(9\,Ba^{2}b^{8} + 2\,Aab^{9}\right)x^{9} + 2520\,\left(8\,Ba^{3}b^{7} + 3\,Aa^{2}b^{8}\right)x^{8}\log\left(x\right) - 5040\,(7\,B}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^9,x, algorithm="fricas")
```

```
[Out] 1/168*(56*B*b^10*x^11 - 21*A*a^10 + 84*(10*B*a*b^9 + A*b^10)*x^10
 + 840*(9*B*a^2*b^8 + 2*A*a*b^9)*x^9 + 2520*(8*B*a^3*b^7 + 3*A*a^
2*b^8)*x^8*log(x) - 5040*(7*B*a^4*b^6 + 4*A*a^3*b^7)*x^7 - 3528*(
6*B*a^5*b^5 + 5*A*a^4*b^6)*x^6 - 2352*(5*B*a^6*b^4 + 6*A*a^5*b^5)
*x^5 - 1260*(4*B*a^7*b^3 + 7*A*a^6*b^4)*x^4 - 504*(3*B*a^8*b^2 +
8*A*a^7*b^3)*x^3 - 140*(2*B*a^9*b + 9*A*a^8*b^2)*x^2 - 24*(B*a^10
 + 10*A*a^9*b)*x)/x^8
```

Sympy [A] time = 30.8391, size = 240, normalized size = 1.11

$$\frac{Bb^{10}x^{3}}{3} + 15a^{2}b^{7}\left(3Ab + 8Ba\right)\log\left(x\right) + x^{2}\left(\frac{Ab^{10}}{2} + 5Bab^{9}\right) + x\left(10Aab^{9} + 45Ba^{2}b^{8}\right) - \frac{21Aa^{10} + x^{7}\left(20160Aa^{3}b^{7} + 35280Ba^{4}b^{6}\right) + x^{6}\left(17640Aa^{4}b^{6} + 21168Ba^{5}b^{5}\right) + x^{5}\left(14112Aa^{5}b^{5} + 11760Ba^{6}b^{4}\right) + x^{4}\left(8820A\right.}{168x^{8}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)/x**9,x)
```

```
[Out] B*b**10*x**3/3 + 15*a**2*b**7*(3*A*b + 8*B*a)*log(x) + x**2*(A*b*
*10/2 + 5*B*a*b**9) + x*(10*A*a*b**9 + 45*B*a**2*b**8) - (21*A*a*
*10 + x**7*(20160*A*a**3*b**7 + 35280*B*a**4*b**6) + x**6*(17640*
A*a**4*b**6 + 21168*B*a**5*b**5) + x**5*(14112*A*a**5*b**5 + 1176
0*B*a**6*b**4) + x**4*(8820*A*a**6*b**4 + 5040*B*a**7*b**3) + x**
3*(4032*A*a**7*b**3 + 1512*B*a**8*b**2) + x**2*(1260*A*a**8*b**2
+ 280*B*a**9*b) + x*(240*A*a**9*b + 24*B*a**10))/(168*x**8)
```

GIAC/XCAS [A] time = 0.320782, size = 325, normalized size = 1.5

$$\frac{1}{3}\,Bb^{10}x^{3} + 5\,Bab^{9}x^{2} + \frac{1}{2}\,Ab^{10}x^{2} + 45\,Ba^{2}b^{8}x + 10\,Aab^{9}x + 15\,\left(8\,Ba^{3}b^{7} + 3\,Aa^{2}b^{8}\right)\ln\left(|x|\right) - \frac{21\,Aa^{10} + 5040\,\left(7\,Ba^{4}b^{6} + 4\,Aa^{3}b^{7}\right)x^{7} + 3528\,\left(6\,Ba^{5}b^{5} + 5\,Aa^{4}b^{6}\right)x^{6} + 2352\,\left(5\,Ba^{6}b^{4} + 6\,Aa^{5}b^{5}\right)x^{5} + 1260\,\left(4\,Ba^{7}b^{3} + 7\,Aa\right.}{168\,x^{8}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^9,x, algorithm="giac")
```

```
[Out] 1/3*B*b^10*x^3 + 5*B*a*b^9*x^2 + 1/2*A*b^10*x^2 + 45*B*a^2*b^8*x
+ 10*A*a*b^9*x + 15*(8*B*a^3*b^7 + 3*A*a^2*b^8)*ln(abs(x)) - 1/16
8*(21*A*a^10 + 5040*(7*B*a^4*b^6 + 4*A*a^3*b^7)*x^7 + 3528*(6*B*a
^5*b^5 + 5*A*a^4*b^6)*x^6 + 2352*(5*B*a^6*b^4 + 6*A*a^5*b^5)*x^5
+ 1260*(4*B*a^7*b^3 + 7*A*a^6*b^4)*x^4 + 504*(3*B*a^8*b^2 + 8*A*a
^7*b^3)*x^3 + 140*(2*B*a^9*b + 9*A*a^8*b^2)*x^2 + 24*(B*a^10 + 10
*A*a^9*b)*x)/x^8
```

3.126 $\int \frac{(a+bx)^{10}(A+Bx)}{x^{10}}\,dx$

Optimal. Leaf size=215

$$-\frac{a^{10}A}{9x^9}-\frac{a^9(aB+10Ab)}{8x^8}-\frac{5a^8b(2aB+9Ab)}{7x^7}-\frac{5a^7b^2(3aB+8Ab)}{2x^6}-\frac{6a^6b^3(4aB+7Ab)}{x^5}-\frac{21a^5b^4(5aB+6Ab)}{2x^4}-\frac{14a^4b^5(6aB+5Ab)}{x^3}-\frac{15a^3b^6(7aB+4Ab)}{x^2}-\frac{15a^2b^7(8aB+3Ab)}{x}+b^9x(10aB+Ab)+5ab^8\log(x)(9aB+2Ab)+\frac{1}{2}b^{10}Bx^2$$

```
[Out] -(a^10*A)/(9*x^9) - (a^9*(10*A*b + a*B))/(8*x^8) - (5*a^8*b*(9*A*
b + 2*a*B))/(7*x^7) - (5*a^7*b^2*(8*A*b + 3*a*B))/(2*x^6) - (6*a^
6*b^3*(7*A*b + 4*a*B))/x^5 - (21*a^5*b^4*(6*A*b + 5*a*B))/(2*x^4)
 - (14*a^4*b^5*(5*A*b + 6*a*B))/x^3 - (15*a^3*b^6*(4*A*b + 7*a*B)
)/x^2 - (15*a^2*b^7*(3*A*b + 8*a*B))/x + b^9*(A*b + 10*a*B)*x + (
b^10*B*x^2)/2 + 5*a*b^8*(2*A*b + 9*a*B)*Log[x]
```

Rubi [A] time = 0.493365, antiderivative size = 215, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{a^{10}A}{9x^9}-\frac{a^9(aB+10Ab)}{8x^8}-\frac{5a^8b(2aB+9Ab)}{7x^7}-\frac{5a^7b^2(3aB+8Ab)}{2x^6}-\frac{6a^6b^3(4aB+7Ab)}{x^5}-\frac{21a^5b^4(5aB+6Ab)}{2x^4}-\frac{14a^4b^5(6aB+5Ab)}{x^3}-\frac{15a^3b^6(7aB+4Ab)}{x^2}-\frac{15a^2b^7(8aB+3Ab)}{x}+b^9x(10aB+Ab)+5ab^8\log(x)(9aB+2Ab)+\frac{1}{2}b^{10}Bx^2$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^10*(A + B*x))/x^10,x]
```

```
[Out] -(a^10*A)/(9*x^9) - (a^9*(10*A*b + a*B))/(8*x^8) - (5*a^8*b*(9*A*
b + 2*a*B))/(7*x^7) - (5*a^7*b^2*(8*A*b + 3*a*B))/(2*x^6) - (6*a^
6*b^3*(7*A*b + 4*a*B))/x^5 - (21*a^5*b^4*(6*A*b + 5*a*B))/(2*x^4)
 - (14*a^4*b^5*(5*A*b + 6*a*B))/x^3 - (15*a^3*b^6*(4*A*b + 7*a*B)
)/x^2 - (15*a^2*b^7*(3*A*b + 8*a*B))/x + b^9*(A*b + 10*a*B)*x + (
b^10*B*x^2)/2 + 5*a*b^8*(2*A*b + 9*a*B)*Log[x]
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{Aa^{10}}{9x^9}+Bb^{10}\int x\,dx-\frac{a^9\left(10Ab+Ba\right)}{8x^8}-\frac{5a^8b\left(9Ab+2Ba\right)}{7x^7}-\frac{5a^7b^2\left(8Ab+3Ba\right)}{2x^6}-\frac{6a^6b^3\left(7Ab+4Ba\right)}{x^5}-\frac{21a^5b^4\left(6Ab+5Ba\right)}{2x^4}-\frac{14a^4b^5\left(5Ab+6Ba\right)}{x^3}-\frac{15a^3b^6\left(4Ab+7Ba\right)}{x^2}-\frac{15a^2b^7\left(3Ab+8Ba\right)}{x}+5ab^8\left(2Ab+9Ba\right)\log\left(x\right)+\frac{b^9\left(Ab+10Ba\right)\int A\,dx}{A}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)/x**10,x)
```

```
[Out] -A*a**10/(9*x**9) + B*b**10*Integral(x, x) - a**9*(10*A*b + B*a)/
(8*x**8) - 5*a**8*b*(9*A*b + 2*B*a)/(7*x**7) - 5*a**7*b**2*(8*A*b
 + 3*B*a)/(2*x**6) - 6*a**6*b**3*(7*A*b + 4*B*a)/x**5 - 21*a**5*b
**4*(6*A*b + 5*B*a)/(2*x**4) - 14*a**4*b**5*(5*A*b + 6*B*a)/x**3
- 15*a**3*b**6*(4*A*b + 7*B*a)/x**2 - 15*a**2*b**7*(3*A*b + 8*B*a
)/x + 5*a*b**8*(2*A*b + 9*B*a)*log(x) + b**9*(A*b + 10*B*a)*Integ
ral(A, x)/A
```

Mathematica [A] time = 0.171917, size = 206, normalized size = 0.96

$$-\frac{a^{10}(8A+9Bx)}{72x^9}-\frac{5a^9b(7A+8Bx)}{28x^8}-\frac{15a^8b^2(6A+7Bx)}{14x^7}-\frac{4a^7b^3(5A+6Bx)}{x^6}-\frac{21a^6b^4(4A+5Bx)}{2x^5}-\frac{21a^5b^5(3A+4Bx)}{x^4}-\frac{35a^4b^6(2A+3Bx)}{x^3}-\frac{60a^3b^7(A+2Bx)}{x^2}-\frac{45a^2Ab^8}{x}+5ab^8\log(x)(9aB+2Ab)+10ab^9Bx+\frac{1}{2}b^{10}x(2A+Bx)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^10*(A + B*x))/x^10,x]
```

```
[Out] (-45*a^2*A*b^8)/x + 10*a*b^9*B*x + (b^10*x*(2*A + B*x))/2 - (60*a
^3*b^7*(A + 2*B*x))/x^2 - (35*a^4*b^6*(2*A + 3*B*x))/x^3 - (21*a^
5*b^5*(3*A + 4*B*x))/x^4 - (21*a^6*b^4*(4*A + 5*B*x))/(2*x^5) - (
4*a^7*b^3*(5*A + 6*B*x))/x^6 - (15*a^8*b^2*(6*A + 7*B*x))/(14*x^7
) - (5*a^9*b*(7*A + 8*B*x))/(28*x^8) - (a^10*(8*A + 9*B*x))/(72*x
^9) + 5*a*b^8*(2*A*b + 9*a*B)*Log[x]
```

Maple [A] time = 0.013, size = 239, normalized size = 1.1

$$\frac{b^{10}Bx^2}{2}+Axb^{10}+10\,Bxab^9-\frac{5\,a^9bA}{4\,x^8}-\frac{a^{10}B}{8\,x^8}-\frac{45\,a^8b^2A}{7\,x^7}-\frac{10\,a^9bB}{7\,x^7}-\frac{Aa^{10}}{9\,x^9}+10\,A\ln(x)\,ab^9+45\,B\ln(x)\,a^2b^8-60\,\frac{a^3b^7A}{x^2}-105\,\frac{a^4b^6B}{x^2}-42\,\frac{a^6b^4A}{x^5}-24\,\frac{a^7b^3B}{x^5}-45\,\frac{Aa^2b^8}{x}-120\,\frac{Ba^3b^7}{x}-70\,\frac{Aa^4b^6}{x^3}-84\,\frac{a^5b^5B}{x^3}-63\,\frac{a^5b^5A}{x^4}-\frac{105\,a^6b^4B}{2\,x^4}-20\,\frac{a^7b^3A}{x^6}-\frac{15\,a^8b^2B}{2\,x^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^10*(B*x+A)/x^10,x)
```

```
[Out] 1/2*b^10*B*x^2+A*x*b^10+10*B*x*a*b^9-5/4*a^9/x^8*A*b-1/8*a^10/x^8
*B-45/7*a^8*b^2/x^7*A-10/7*a^9*b/x^7*B-1/9*a^10*A/x^9+10*A*ln(x)*
a*b^9+45*B*ln(x)*a^2*b^8-60*a^3*b^7/x^2*A-105*a^4*b^6/x^2*B-42*a^
6*b^4/x^5*A-24*a^7*b^3/x^5*B-45*a^2*b^8/x*A-120*a^3*b^7/x*B-70*a^
4*b^6/x^3*A-84*a^5*b^5/x^3*B-63*a^5*b^5/x^4*A-105/2*a^6*b^4/x^4*B
-20*a^7*b^3/x^6*A-15/2*a^8*b^2/x^6*B
```

Maxima [A] time = 1.3682, size = 324, normalized size = 1.51

$$\frac{1}{2}\,Bb^{10}x^2+\left(10\,Bab^9+Ab^{10}\right)x+5\left(9\,Ba^2b^8+2\,Aab^9\right)\log(x)-\frac{56\,Aa^{10}+7560\left(8\,Ba^3b^7+3\,Aa^2b^8\right)x^8+7560\left(7\,Ba^4b^6+4\,Aa^3b^7\right)x^7+7056\left(6\,Ba^5b^5+5\,Aa^4b^6\right)x^6+5292\left(5\,Ba^6b^4+6\,Aa\right.}{504}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^10,x, algorithm="maxima")
```

```
[Out] 1/2*B*b^10*x^2 + (10*B*a*b^9 + A*b^10)*x + 5*(9*B*a^2*b^8 + 2*A*a
*b^9)*log(x) - 1/504*(56*A*a^10 + 7560*(8*B*a^3*b^7 + 3*A*a^2*b^8
)*x^8 + 7560*(7*B*a^4*b^6 + 4*A*a^3*b^7)*x^7 + 7056*(6*B*a^5*b^5
+ 5*A*a^4*b^6)*x^6 + 5292*(5*B*a^6*b^4 + 6*A*a^5*b^5)*x^5 + 3024*
(4*B*a^7*b^3 + 7*A*a^6*b^4)*x^4 + 1260*(3*B*a^8*b^2 + 8*A*a^7*b^3
)*x^3 + 360*(2*B*a^9*b + 9*A*a^8*b^2)*x^2 + 63*(B*a^10 + 10*A*a^9
*b)*x)/x^9
```

Fricas [A] time = 0.209761, size = 331, normalized size = 1.54

$$\frac{252\, Bb^{10}x^{11} - 56\, Aa^{10} + 504\, \left(10\, Bab^{9} + Ab^{10}\right)x^{10} + 2520\, \left(9\, Ba^{2}b^{8} + 2\, Aab^{9}\right)x^{9}\log\left(x\right) - 7560\, \left(8\, Ba^{3}b^{7} + 3\, Aa^{2}b^{8}\right)x^{8} - 7560}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^10,x, algorithm="fricas")
```

```
[Out] 1/504*(252*B*b^10*x^11 - 56*A*a^10 + 504*(10*B*a*b^9 + A*b^10)*x^
10 + 2520*(9*B*a^2*b^8 + 2*A*a*b^9)*x^9*log(x) - 7560*(8*B*a^3*b^
7 + 3*A*a^2*b^8)*x^8 - 7560*(7*B*a^4*b^6 + 4*A*a^3*b^7)*x^7 - 705
6*(6*B*a^5*b^5 + 5*A*a^4*b^6)*x^6 - 5292*(5*B*a^6*b^4 + 6*A*a^5*b
^5)*x^5 - 3024*(4*B*a^7*b^3 + 7*A*a^6*b^4)*x^4 - 1260*(3*B*a^8*b^
2 + 8*A*a^7*b^3)*x^3 - 360*(2*B*a^9*b + 9*A*a^8*b^2)*x^2 - 63*(B*
a^10 + 10*A*a^9*b)*x)/x^9
```

Sympy [A] time = 43.0658, size = 238, normalized size = 1.11

$$\frac{Bb^{10}x^{2}}{2} + 5ab^{8}\left(2Ab + 9Ba\right)\log\left(x\right) + x\left(Ab^{10} + 10Bab^{9}\right) - \frac{56Aa^{10} + x^{8}\left(22680Aa^{2}b^{8} + 60480Ba^{3}b^{7}\right) + x^{7}\left(30240Aa^{3}b^{7} + 52920Ba^{4}b^{6}\right) + x^{6}\left(35280Aa^{4}b^{6} + 42336Ba^{5}b^{5}\right) + x^{5}\left(31752\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)/x**10,x)
```

```
[Out] B*b**10*x**2/2 + 5*a*b**8*(2*A*b + 9*B*a)*log(x) + x*(A*b**10 + 1
0*B*a*b**9) - (56*A*a**10 + x**8*(22680*A*a**2*b**8 + 60480*B*a**
3*b**7) + x**7*(30240*A*a**3*b**7 + 52920*B*a**4*b**6) + x**6*(35
280*A*a**4*b**6 + 42336*B*a**5*b**5) + x**5*(31752*A*a**5*b**5 +
26460*B*a**6*b**4) + x**4*(21168*A*a**6*b**4 + 12096*B*a**7*b**3)
 + x**3*(10080*A*a**7*b**3 + 3780*B*a**8*b**2) + x**2*(3240*A*a**
8*b**2 + 720*B*a**9*b) + x*(630*A*a**9*b + 63*B*a**10))/(504*x**9
)
```

GIAC/XCAS [A] time = 0.284611, size = 324, normalized size = 1.51

$$\frac{1}{2}\, Bb^{10}x^{2} + 10\, Bab^{9}x + Ab^{10}x + 5\, \left(9\, Ba^{2}b^{8} + 2\, Aab^{9}\right)\ln\left(|x|\right) - \frac{56\, Aa^{10} + 7560\, \left(8\, Ba^{3}b^{7} + 3\, Aa^{2}b^{8}\right)x^{8} + 7560\, \left(7\, Ba^{4}b^{6} + 4\, Aa^{3}b^{7}\right)x^{7} + 7056\, \left(6\, Ba^{5}b^{5} + 5\, Aa^{4}b^{6}\right)x^{6} + 5292\, \left(5\, Ba^{6}b^{4} + 6\, Aa\right.}{504}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^10,x, algorithm="giac")
```

```
[Out] 1/2*B*b^10*x^2 + 10*B*a*b^9*x + A*b^10*x + 5*(9*B*a^2*b^8 + 2*A*a
*b^9)*ln(abs(x)) - 1/504*(56*A*a^10 + 7560*(8*B*a^3*b^7 + 3*A*a^2
*b^8)*x^8 + 7560*(7*B*a^4*b^6 + 4*A*a^3*b^7)*x^7 + 7056*(6*B*a^5*
b^5 + 5*A*a^4*b^6)*x^6 + 5292*(5*B*a^6*b^4 + 6*A*a^5*b^5)*x^5 + 3
024*(4*B*a^7*b^3 + 7*A*a^6*b^4)*x^4 + 1260*(3*B*a^8*b^2 + 8*A*a^7
*b^3)*x^3 + 360*(2*B*a^9*b + 9*A*a^8*b^2)*x^2 + 63*(B*a^10 + 10*A
*a^9*b)*x)/x^9
```

3.127 $\int \frac{(a+bx)^{10}(A+Bx)}{x^{11}} dx$

Optimal. Leaf size=216

$$-\frac{a^{10}A}{10x^{10}}-\frac{a^9(aB+10Ab)}{9x^9}-\frac{5a^8b(2aB+9Ab)}{8x^8}-\frac{15a^7b^2(3aB+8Ab)}{7x^7}-\frac{5a^6b^3(4aB+7Ab)}{x^6}-\frac{42a^5b^4(5aB+6Ab)}{5x^5}-\frac{21a^4b^5(6aB+5Ab)}{2x^4}-\frac{10a^3b^6(7aB+4Ab)}{x^3}-\frac{15a^2b^7(8aB+3Ab)}{2x^2}+b^9\log(x)(10aB+Ab)-\frac{5ab^8(9aB+2Ab)}{x}+b^{10}Bx$$

```
[Out] -(a^10*A)/(10*x^10) - (a^9*(10*A*b + a*B))/(9*x^9) - (5*a^8*b*(9*
A*b + 2*a*B))/(8*x^8) - (15*a^7*b^2*(8*A*b + 3*a*B))/(7*x^7) - (5
*a^6*b^3*(7*A*b + 4*a*B))/x^6 - (42*a^5*b^4*(6*A*b + 5*a*B))/(5*x
^5) - (21*a^4*b^5*(5*A*b + 6*a*B))/(2*x^4) - (10*a^3*b^6*(4*A*b +
 7*a*B))/x^3 - (15*a^2*b^7*(3*A*b + 8*a*B))/(2*x^2) - (5*a*b^8*(2
*A*b + 9*a*B))/x + b^10*B*x + b^9*(A*b + 10*a*B)*Log[x]
```

Rubi [A] time = 0.473494, antiderivative size = 216, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{a^{10}A}{10x^{10}}-\frac{a^9(aB+10Ab)}{9x^9}-\frac{5a^8b(2aB+9Ab)}{8x^8}-\frac{15a^7b^2(3aB+8Ab)}{7x^7}-\frac{5a^6b^3(4aB+7Ab)}{x^6}-\frac{42a^5b^4(5aB+6Ab)}{5x^5}-\frac{21a^4b^5(6aB+5Ab)}{2x^4}-\frac{10a^3b^6(7aB+4Ab)}{x^3}-\frac{15a^2b^7(8aB+3Ab)}{2x^2}+b^9\log(x)(10aB+Ab)-\frac{5ab^8(9aB+2Ab)}{x}+b^{10}Bx$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^10*(A + B*x))/x^11,x]
```

```
[Out] -(a^10*A)/(10*x^10) - (a^9*(10*A*b + a*B))/(9*x^9) - (5*a^8*b*(9*
A*b + 2*a*B))/(8*x^8) - (15*a^7*b^2*(8*A*b + 3*a*B))/(7*x^7) - (5
*a^6*b^3*(7*A*b + 4*a*B))/x^6 - (42*a^5*b^4*(6*A*b + 5*a*B))/(5*x
^5) - (21*a^4*b^5*(5*A*b + 6*a*B))/(2*x^4) - (10*a^3*b^6*(4*A*b +
 7*a*B))/x^3 - (15*a^2*b^7*(3*A*b + 8*a*B))/(2*x^2) - (5*a*b^8*(2
*A*b + 9*a*B))/x + b^10*B*x + b^9*(A*b + 10*a*B)*Log[x]
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{Aa^{10}}{10x^{10}}-\frac{a^9\left(10Ab+Ba\right)}{9x^9}-\frac{5a^8b\left(9Ab+2Ba\right)}{8x^8}-\frac{15a^7b^2\left(8Ab+3Ba\right)}{7x^7}-\frac{5a^6b^3\left(7Ab+4Ba\right)}{x^6}-\frac{42a^5b^4\left(6Ab+5Ba\right)}{5x^5}-\frac{21a^4b^5\left(5Ab+6Ba\right)}{2x^4}-\frac{10a^3b^6\left(4Ab+7Ba\right)}{x^3}-\frac{15a^2b^7\left(3Ab+8Ba\right)}{2x^2}-\frac{5ab^8\left(2Ab+9Ba\right)}{x}+b^{10}\int B\,dx+b^9\left(Ab+10Ba\right)\log\left(x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)/x**11,x)
```

```
[Out] -A*a**10/(10*x**10) - a**9*(10*A*b + B*a)/(9*x**9) - 5*a**8*b*(9*
A*b + 2*B*a)/(8*x**8) - 15*a**7*b**2*(8*A*b + 3*B*a)/(7*x**7) - 5
*a**6*b**3*(7*A*b + 4*B*a)/x**6 - 42*a**5*b**4*(6*A*b + 5*B*a)/(5
*x**5) - 21*a**4*b**5*(5*A*b + 6*B*a)/(2*x**4) - 10*a**3*b**6*(4*
A*b + 7*B*a)/x**3 - 15*a**2*b**7*(3*A*b + 8*B*a)/(2*x**2) - 5*a*b
**8*(2*A*b + 9*B*a)/x + b**10*Integral(B, x) + b**9*(A*b + 10*B*a
)*log(x)
```

Mathematica [A] time = 0.156, size = 209, normalized size = 0.97

$$-\frac{a^{10}(9A+10Bx)}{90x^{10}}-\frac{5a^9b(8A+9Bx)}{36x^9}-\frac{45a^8b^2(7A+8Bx)}{56x^8}-\frac{20a^7b^3(6A+7Bx)}{7x^7}-\frac{7a^6b^4(5A+6Bx)}{x^6}-\frac{63a^5b^5(4A+5Bx)}{5x^5}-\frac{35a^4b^6(3A+4Bx)}{2x^4}-\frac{20a^3b^7(2A+3Bx)}{x^3}-\frac{45a^2b^8(A+2Bx)}{2x^2}+b^9\log(x)(10aB+Ab)-\frac{10aAb^9}{x}+b^{10}Bx$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^10*(A + B*x))/x^11,x]
```

```
[Out] (-10*a*A*b^9)/x + b^10*B*x - (45*a^2*b^8*(A + 2*B*x))/(2*x^2) - (
20*a^3*b^7*(2*A + 3*B*x))/x^3 - (35*a^4*b^6*(3*A + 4*B*x))/(2*x^4
) - (63*a^5*b^5*(4*A + 5*B*x))/(5*x^5) - (7*a^6*b^4*(5*A + 6*B*x)
)/x^6 - (20*a^7*b^3*(6*A + 7*B*x))/(7*x^7) - (45*a^8*b^2*(7*A + 8
*B*x))/(56*x^8) - (5*a^9*b*(8*A + 9*B*x))/(36*x^9) - (a^10*(9*A +
 10*B*x))/(90*x^10) + b^9*(A*b + 10*a*B)*Log[x]
```

Maple [A] time = 0.014, size = 240, normalized size = 1.1

$$b^{10}Bx-\frac{45\,a^8b^2A}{8\,x^8}-\frac{5\,a^9bB}{4\,x^8}-\frac{120\,a^7b^3A}{7\,x^7}-\frac{45\,a^8b^2B}{7\,x^7}-\frac{10\,a^9bA}{9\,x^9}-\frac{a^{10}B}{9\,x^9}+A\ln(x)\,b^{10}+10\,B\ln(x)\,ab^9-\frac{45\,Aa^2b^8}{2\,x^2}-60\,\frac{Ba^3b^7}{x^2}-\frac{252\,a^5b^5A}{5\,x^5}-42\,\frac{a^6b^4B}{x^5}-10\,\frac{ab^9A}{x}-45\,\frac{a^2b^8B}{x}-40\,\frac{a^3b^7A}{x^3}-70\,\frac{a^4b^6B}{x^3}-\frac{105\,Aa^4b^6}{2\,x^4}-63\,\frac{a^5b^5B}{x^4}-\frac{Aa^{10}}{10\,x^{10}}-35\,\frac{a^6b^4A}{x^6}-20\,\frac{a^7b^3B}{x^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^10*(B*x+A)/x^11,x)
```

```
[Out] b^10*B*x-45/8*a^8*b^2/x^8*A-5/4*a^9*b/x^8*B-120/7*a^7*b^3/x^7*A-4
5/7*a^8*b^2/x^7*B-10/9*a^9/x^9*A*b-1/9*a^10/x^9*B+A*ln(x)*b^10+10
*B*ln(x)*a*b^9-45/2*a^2*b^8/x^2*A-60*a^3*b^7/x^2*B-252/5*a^5*b^5/
x^5*A-42*a^6*b^4/x^5*B-10*a*b^9/x*A-45*a^2*b^8/x*B-40*a^3*b^7/x^3
*A-70*a^4*b^6/x^3*B-105/2*a^4*b^6/x^4*A-63*a^5*b^5/x^4*B-1/10*a^1
0*A/x^10-35*a^6*b^4/x^6*A-20*a^7*b^3/x^6*B
```

Maxima [A] time = 1.37552, size = 323, normalized size = 1.5

$$Bb^{10}x+\left(10\,Bab^9+Ab^{10}\right)\log(x)-\frac{252\,Aa^{10}+12600\,\left(9\,Ba^2b^8+2\,Aab^9\right)x^9+18900\,\left(8\,Ba^3b^7+3\,Aa^2b^8\right)x^8+25200\,\left(7\,Ba^4b^6+4\,Aa^3b^7\right)x^7+26460\,\left(6\,Ba^5b^5+\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^11,x, algorithm="maxima")
```

```
[Out] B*b^10*x + (10*B*a*b^9 + A*b^10)*log(x) - 1/2520*(252*A*a^10 + 12
600*(9*B*a^2*b^8 + 2*A*a*b^9)*x^9 + 18900*(8*B*a^3*b^7 + 3*A*a^2*
b^8)*x^8 + 25200*(7*B*a^4*b^6 + 4*A*a^3*b^7)*x^7 + 26460*(6*B*a^5
*b^5 + 5*A*a^4*b^6)*x^6 + 21168*(5*B*a^6*b^4 + 6*A*a^5*b^5)*x^5 +
 12600*(4*B*a^7*b^3 + 7*A*a^6*b^4)*x^4 + 5400*(3*B*a^8*b^2 + 8*A*
a^7*b^3)*x^3 + 1575*(2*B*a^9*b + 9*A*a^8*b^2)*x^2 + 280*(B*a^10 +
 10*A*a^9*b)*x)/x^10
```

Fricas [A] time = 0.209803, size = 331, normalized size = 1.53

$$\frac{2520\,Bb^{10}x^{11} + 2520\left(10\,Bab^9 + Ab^{10}\right)x^{10}\log\left(x\right) - 252\,Aa^{10} - 12600\left(9\,Ba^2b^8 + 2\,Aab^9\right)x^9 - 18900\left(8\,Ba^3b^7 + 3\,Aa^2b^8\right)x^8 -}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^11,x, algorithm="fricas")
```

```
[Out] 1/2520*(2520*B*b^10*x^11 + 2520*(10*B*a*b^9 + A*b^10)*x^10*log(x)
 - 252*A*a^10 - 12600*(9*B*a^2*b^8 + 2*A*a*b^9)*x^9 - 18900*(8*B*
a^3*b^7 + 3*A*a^2*b^8)*x^8 - 25200*(7*B*a^4*b^6 + 4*A*a^3*b^7)*x^
7 - 26460*(6*B*a^5*b^5 + 5*A*a^4*b^6)*x^6 - 21168*(5*B*a^6*b^4 +
6*A*a^5*b^5)*x^5 - 12600*(4*B*a^7*b^3 + 7*A*a^6*b^4)*x^4 - 5400*(
3*B*a^8*b^2 + 8*A*a^7*b^3)*x^3 - 1575*(2*B*a^9*b + 9*A*a^8*b^2)*x
^2 - 280*(B*a^10 + 10*A*a^9*b)*x)/x^10
```

Sympy [A] time = 63.4233, size = 236, normalized size = 1.09

$$Bb^{10}x + b^9\left(Ab + 10Ba\right)\log\left(x\right) - \frac{252Aa^{10} + x^9\left(25200Aab^9 + 113400Ba^2b^8\right) + x^8\left(56700Aa^2b^8 + 151200Ba^3b^7\right) + x^7\left(100800Aa^3b^7 + 176400Ba^4b^6\right) + x^6\left(1\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)/x**11,x)
```

```
[Out] B*b**10*x + b**9*(A*b + 10*B*a)*log(x) - (252*A*a**10 + x**9*(252
00*A*a*b**9 + 113400*B*a**2*b**8) + x**8*(56700*A*a**2*b**8 + 151
200*B*a**3*b**7) + x**7*(100800*A*a**3*b**7 + 176400*B*a**4*b**6)
 + x**6*(132300*A*a**4*b**6 + 158760*B*a**5*b**5) + x**5*(127008*
A*a**5*b**5 + 105840*B*a**6*b**4) + x**4*(88200*A*a**6*b**4 + 504
00*B*a**7*b**3) + x**3*(43200*A*a**7*b**3 + 16200*B*a**8*b**2) +
x**2*(14175*A*a**8*b**2 + 3150*B*a**9*b) + x*(2800*A*a**9*b + 280
*B*a**10))/(2520*x**10)
```

GIAC/XCAS [A] time = 0.319432, size = 324, normalized size = 1.5

$$Bb^{10}x + \left(10\,Bab^9 + Ab^{10}\right)\ln\left(|x|\right) - \frac{252\,Aa^{10} + 12600\left(9\,Ba^2b^8 + 2\,Aab^9\right)x^9 + 18900\left(8\,Ba^3b^7 + 3\,Aa^2b^8\right)x^8 + 25200\left(7\,Ba^4b^6 + 4\,Aa^3b^7\right)x^7 + 26460\left(6\,Ba^5b^5 +\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^11,x, algorithm="giac")
```

```
[Out] B*b^10*x + (10*B*a*b^9 + A*b^10)*ln(abs(x)) - 1/2520*(252*A*a^10
+ 12600*(9*B*a^2*b^8 + 2*A*a*b^9)*x^9 + 18900*(8*B*a^3*b^7 + 3*A*
a^2*b^8)*x^8 + 25200*(7*B*a^4*b^6 + 4*A*a^3*b^7)*x^7 + 26460*(6*B
*a^5*b^5 + 5*A*a^4*b^6)*x^6 + 21168*(5*B*a^6*b^4 + 6*A*a^5*b^5)*x
^5 + 12600*(4*B*a^7*b^3 + 7*A*a^6*b^4)*x^4 + 5400*(3*B*a^8*b^2 +
8*A*a^7*b^3)*x^3 + 1575*(2*B*a^9*b + 9*A*a^8*b^2)*x^2 + 280*(B*a^
10 + 10*A*a^9*b)*x)/x^10
```

3.128 $\int \frac{(a+bx)^{10}(A+Bx)}{x^{12}}\,dx$

Optimal. Leaf size=153

$$-\frac{a^{10}B}{10x^{10}}-\frac{10a^9bB}{9x^9}-\frac{45a^8b^2B}{8x^8}-\frac{120a^7b^3B}{7x^7}-\frac{35a^6b^4B}{x^6}-\frac{252a^5b^5B}{5x^5}-\frac{105a^4b^6B}{2x^4}-\frac{40a^3b^7B}{x^3}-\frac{45a^2b^8B}{2x^2}-\frac{A(a+bx)^{11}}{11ax^{11}}-\frac{10ab^9B}{x}+b^{10}B\log(x)$$

```
[Out] -(a^10*B)/(10*x^10) - (10*a^9*b*B)/(9*x^9) - (45*a^8*b^2*B)/(8*x^
8) - (120*a^7*b^3*B)/(7*x^7) - (35*a^6*b^4*B)/x^6 - (252*a^5*b^5*
B)/(5*x^5) - (105*a^4*b^6*B)/(2*x^4) - (40*a^3*b^7*B)/x^3 - (45*a
^2*b^8*B)/(2*x^2) - (10*a*b^9*B)/x - (A*(a + b*x)^11)/(11*a*x^11)
 + b^10*B*Log[x]
```

Rubi [A] time = 0.187065, antiderivative size = 153, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 2, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$-\frac{a^{10}B}{10x^{10}}-\frac{10a^9bB}{9x^9}-\frac{45a^8b^2B}{8x^8}-\frac{120a^7b^3B}{7x^7}-\frac{35a^6b^4B}{x^6}-\frac{252a^5b^5B}{5x^5}-\frac{105a^4b^6B}{2x^4}-\frac{40a^3b^7B}{x^3}-\frac{45a^2b^8B}{2x^2}-\frac{A(a+bx)^{11}}{11ax^{11}}-\frac{10ab^9B}{x}+b^{10}B\log(x)$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^10*(A + B*x))/x^12,x]
```

```
[Out] -(a^10*B)/(10*x^10) - (10*a^9*b*B)/(9*x^9) - (45*a^8*b^2*B)/(8*x^
8) - (120*a^7*b^3*B)/(7*x^7) - (35*a^6*b^4*B)/x^6 - (252*a^5*b^5*
B)/(5*x^5) - (105*a^4*b^6*B)/(2*x^4) - (40*a^3*b^7*B)/x^3 - (45*a
^2*b^8*B)/(2*x^2) - (10*a*b^9*B)/x - (A*(a + b*x)^11)/(11*a*x^11)
 + b^10*B*Log[x]
```

Rubi in Sympy [A] time = 48.5731, size = 160, normalized size = 1.05

$$-\frac{A\left(a+bx\right)^{11}}{11ax^{11}}-\frac{Ba^{10}}{10x^{10}}-\frac{10Ba^9b}{9x^9}-\frac{45Ba^8b^2}{8x^8}-\frac{120Ba^7b^3}{7x^7}-\frac{35Ba^6b^4}{x^6}-\frac{252Ba^5b^5}{5x^5}-\frac{105Ba^4b^6}{2x^4}-\frac{40Ba^3b^7}{x^3}-\frac{45Ba^2b^8}{2x^2}-\frac{10Bab^9}{x}+Bb^{10}\log\left(x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)/x**12,x)
```

```
[Out] -A*(a + b*x)**11/(11*a*x**11) - B*a**10/(10*x**10) - 10*B*a**9*b/
(9*x**9) - 45*B*a**8*b**2/(8*x**8) - 120*B*a**7*b**3/(7*x**7) - 3
5*B*a**6*b**4/x**6 - 252*B*a**5*b**5/(5*x**5) - 105*B*a**4*b**6/(
2*x**4) - 40*B*a**3*b**7/x**3 - 45*B*a**2*b**8/(2*x**2) - 10*B*a*
b**9/x + B*b**10*log(x)
```

Mathematica [A] time = 0.220915, size = 212, normalized size = 1.39

$$-\frac{a^{10}(10A+11Bx)}{110x^{11}}-\frac{a^9b(9A+10Bx)}{9x^{10}}-\frac{5a^8b^2(8A+9Bx)}{8x^9}-\frac{15a^7b^3(7A+8Bx)}{7x^8}-\frac{5a^6b^4(6A+7Bx)}{x^7}-\frac{42a^5b^5(5A+6Bx)}{5x^6}-\frac{21a^4b^6(4A+5Bx)}{2x^5}-\frac{10a^3b^7(3A+4Bx)}{x^4}-\frac{15a^2b^8(2A+3Bx)}{2x^3}-\frac{5ab^9(A+2Bx)}{x^2}-\frac{Ab^{10}}{x}+b^{10}B\log(x)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^10*(A + B*x))/x^12,x]
```

```
[Out] -((A*b^10)/x) - (5*a*b^9*(A + 2*B*x))/x^2 - (15*a^2*b^8*(2*A + 3*
B*x))/(2*x^3) - (10*a^3*b^7*(3*A + 4*B*x))/x^4 - (21*a^4*b^6*(4*A
 + 5*B*x))/(2*x^5) - (42*a^5*b^5*(5*A + 6*B*x))/(5*x^6) - (5*a^6*
b^4*(6*A + 7*B*x))/x^7 - (15*a^7*b^3*(7*A + 8*B*x))/(7*x^8) - (5*
a^8*b^2*(8*A + 9*B*x))/(8*x^9) - (a^9*b*(9*A + 10*B*x))/(9*x^10)
- (a^10*(10*A + 11*B*x))/(110*x^11) + b^10*B*Log[x]
```

Maple [A] time = 0.013, size = 244, normalized size = 1.6

$$-15\,{\frac{{a}^{7}{b}^{3}A}{{x}^{8}}}-{\frac{45\,{a}^{8}{b}^{2}B}{8\,{x}^{8}}}-{\frac{A{a}^{10}}{11\,{x}^{11}}}-30\,{\frac{{a}^{6}{b}^{4}A}{{x}^{7}}}-{\frac{120\,{a}^{7}{b}^{3}B}{7\,{x}^{7}}}-5\,{\frac{{a}^{8}{b}^{2}A}{{x}^{9}}}-{\frac{10\,{a}^{9}bB}{9\,{x}^{9}}}+{b}^{10}B\ln \left(x \right) -5\,{\frac{a{b}^{9}A}{{x}^{2}}}-{\frac{45\,{a}^{2}{b}^{8}B}{2\,{x}^{2}}}-42\,{\frac{A{a}^{4}{b}^{6}}{{x}^{5}}}-{\frac{252\,{a}^{5}{b}^{5}B}{5\,{x}^{5}}}-{\frac{A{b}^{10}}{x}}-10\,{\frac{a{b}^{9}B}{x}}-15\,{\frac{A{a}^{2}{b}^{8}}{{x}^{3}}}-40\,{\frac{B{a}^{3}{b}^{7}}{{x}^{3}}}-30\,{\frac{{a}^{3}{b}^{7}A}{{x}^{4}}}-{\frac{105\,{a}^{4}{b}^{6}B}{2\,{x}^{4}}}-{\frac{{a}^{9}bA}{{x}^{10}}}-{\frac{{a}^{10}B}{10\,{x}^{10}}}-42\,{\frac{{a}^{5}{b}^{5}A}{{x}^{6}}}-35\,{\frac{{a}^{6}{b}^{4}B}{{x}^{6}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^10*(B*x+A)/x^12,x)
```

```
[Out] -15*a^7*b^3/x^8*A-45/8*a^8*b^2*B/x^8-1/11*A*a^10/x^11-30*a^6*b^4/
x^7*A-120/7*a^7*b^3*B/x^7-5*a^8*b^2/x^9*A-10/9*a^9*b*B/x^9+b^10*B
*ln(x)-5*a*b^9/x^2*A-45/2*a^2*b^8*B/x^2-42*a^4*b^6/x^5*A-252/5*a^
5*b^5*B/x^5-b^10/x*A-10*a*b^9*B/x-15*a^2*b^8/x^3*A-40*a^3*b^7*B/x
^3-30*a^3*b^7/x^4*A-105/2*a^4*b^6*B/x^4-a^9/x^10*A*b-1/10*a^10*B/
x^10-42*a^5*b^5/x^6*A-35*a^6*b^4*B/x^6
```

Maxima [A] time = 1.44525, size = 327, normalized size = 2.14

$$B b^{10} \log\left(x\right) - \frac{2520 \, A a^{10} + 27720 \, {\left(10 \, B a b^{9} + A b^{10}\right)} x^{10} + 69300 \, {\left(9 \, B a^{2} b^{8} + 2 \, A a b^{9}\right)} x^{9} + 138600 \, {\left(8 \, B a^{3} b^{7} + 3 \, A a^{2} b^{8}\right)} x^{8} + 207900 \, {\left(7 \, B a^{4} b^{6}}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^12,x, algorithm="maxima")
```

```
[Out] B*b^10*log(x) - 1/27720*(2520*A*a^10 + 27720*(10*B*a*b^9 + A*b^10
)*x^10 + 69300*(9*B*a^2*b^8 + 2*A*a*b^9)*x^9 + 138600*(8*B*a^3*b^
7 + 3*A*a^2*b^8)*x^8 + 207900*(7*B*a^4*b^6 + 4*A*a^3*b^7)*x^7 + 2
32848*(6*B*a^5*b^5 + 5*A*a^4*b^6)*x^6 + 194040*(5*B*a^6*b^4 + 6*A
*a^5*b^5)*x^5 + 118800*(4*B*a^7*b^3 + 7*A*a^6*b^4)*x^4 + 51975*(3
*B*a^8*b^2 + 8*A*a^7*b^3)*x^3 + 15400*(2*B*a^9*b + 9*A*a^8*b^2)*x
^2 + 2772*(B*a^10 + 10*A*a^9*b)*x)/x^11
```

Fricas [A] time = 0.201775, size = 331, normalized size = 2.16

$$\frac{27720 \, B b^{10} x^{11} \log\left(x\right) - 2520 \, A a^{10} - 27720 \, {\left(10 \, B a b^{9} + A b^{10}\right)} x^{10} - 69300 \, {\left(9 \, B a^{2} b^{8} + 2 \, A a b^{9}\right)} x^{9} - 138600 \, {\left(8 \, B a^{3} b^{7} + 3 \, A a^{2} b^{8}}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^12,x, algorithm="fricas")
```

```
[Out] 1/27720*(27720*B*b^10*x^11*log(x) - 2520*A*a^10 - 27720*(10*B*a*b
^9 + A*b^10)*x^10 - 69300*(9*B*a^2*b^8 + 2*A*a*b^9)*x^9 - 138600*
(8*B*a^3*b^7 + 3*A*a^2*b^8)*x^8 - 207900*(7*B*a^4*b^6 + 4*A*a^3*b
^7)*x^7 - 232848*(6*B*a^5*b^5 + 5*A*a^4*b^6)*x^6 - 194040*(5*B*a^
6*b^4 + 6*A*a^5*b^5)*x^5 - 118800*(4*B*a^7*b^3 + 7*A*a^6*b^4)*x^4
 - 51975*(3*B*a^8*b^2 + 8*A*a^7*b^3)*x^3 - 15400*(2*B*a^9*b + 9*A
*a^8*b^2)*x^2 - 2772*(B*a^10 + 10*A*a^9*b)*x)/x^11
```

Sympy [A] time = 89.541, size = 241, normalized size = 1.58

$$Bb^{10}\log(x) - \frac{2520Aa^{10} + x^{10}\left(27720Ab^{10} + 277200Bab^{9}\right) + x^{9}\left(138600Aab^{9} + 623700Ba^{2}b^{8}\right) + x^{8}\left(415800Aa^{2}b^{8} + 1108800Ba^{3}b^{7}\right) + x^{7}}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)/x**12,x)
```

```
[Out] B*b**10*log(x) - (2520*A*a**10 + x**10*(27720*A*b**10 + 277200*B*
a*b**9) + x**9*(138600*A*a*b**9 + 623700*B*a**2*b**8) + x**8*(415
800*A*a**2*b**8 + 1108800*B*a**3*b**7) + x**7*(831600*A*a**3*b**7
 + 1455300*B*a**4*b**6) + x**6*(1164240*A*a**4*b**6 + 1397088*B*a
**5*b**5) + x**5*(1164240*A*a**5*b**5 + 970200*B*a**6*b**4) + x**
4*(831600*A*a**6*b**4 + 475200*B*a**7*b**3) + x**3*(415800*A*a**7
*b**3 + 155925*B*a**8*b**2) + x**2*(138600*A*a**8*b**2 + 30800*B*
a**9*b) + x*(27720*A*a**9*b + 2772*B*a**10))/(27720*x**11)
```

GIAC/XCAS [A] time = 0.363109, size = 328, normalized size = 2.14

$$Bb^{10}\ln(|x|) - \frac{2520\,Aa^{10} + 27720\left(10\,Bab^{9} + Ab^{10}\right)x^{10} + 69300\left(9\,Ba^{2}b^{8} + 2\,Aab^{9}\right)x^{9} + 138600\left(8\,Ba^{3}b^{7} + 3\,Aa^{2}b^{8}\right)x^{8} + 207900\left(7\,Ba^{4}b^{6}\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^12,x, algorithm="giac")
```

```
[Out] B*b^10*ln(abs(x)) - 1/27720*(2520*A*a^10 + 27720*(10*B*a*b^9 + A*
b^10)*x^10 + 69300*(9*B*a^2*b^8 + 2*A*a*b^9)*x^9 + 138600*(8*B*a^
3*b^7 + 3*A*a^2*b^8)*x^8 + 207900*(7*B*a^4*b^6 + 4*A*a^3*b^7)*x^7
 + 232848*(6*B*a^5*b^5 + 5*A*a^4*b^6)*x^6 + 194040*(5*B*a^6*b^4 +
 6*A*a^5*b^5)*x^5 + 118800*(4*B*a^7*b^3 + 7*A*a^6*b^4)*x^4 + 5197
5*(3*B*a^8*b^2 + 8*A*a^7*b^3)*x^3 + 15400*(2*B*a^9*b + 9*A*a^8*b^
2)*x^2 + 2772*(B*a^10 + 10*A*a^9*b)*x)/x^11
```

3.129 $\int \frac{(a+bx)^{10}(A+Bx)}{x^{13}}\,dx$

Optimal. Leaf size=44

$$\frac{(a+bx)^{11}(Ab-12aB)}{132a^2x^{11}}-\frac{A(a+bx)^{11}}{12ax^{12}}$$

```
[Out] -(A*(a + b*x)^11)/(12*a*x^12) + ((A*b - 12*a*B)*(a + b*x)^11)/(13
2*a^2*x^11)
```

Rubi [A] time = 0.0651617, antiderivative size = 44, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$\frac{(a+bx)^{11}(Ab-12aB)}{132a^2x^{11}}-\frac{A(a+bx)^{11}}{12ax^{12}}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^10*(A + B*x))/x^13,x]
```

```
[Out] -(A*(a + b*x)^11)/(12*a*x^12) + ((A*b - 12*a*B)*(a + b*x)^11)/(13
2*a^2*x^11)
```

Rubi in Sympy [A] time = 8.61173, size = 37, normalized size = 0.84

$$-\frac{A(a+bx)^{11}}{12ax^{12}}+\frac{(a+bx)^{11}(Ab-12Ba)}{132a^2x^{11}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)/x**13,x)
```

```
[Out] -A*(a + b*x)**11/(12*a*x**12) + (a + b*x)**11*(A*b - 12*B*a)/(132
*a**2*x**11)
```

Mathematica [B] time = 0.130373, size = 199, normalized size = 4.52

$$-\frac{a^{10}(11A+12Bx)+12a^9bx(10A+11Bx)+66a^8b^2x^2(9A+10Bx)+220a^7b^3x^3(8A+9Bx)+495a^6b^4x^4(7A+8Bx)+792a^5b^5}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^10*(A + B*x))/x^13,x]
```

```
[Out] -(66*b^10*x^10*(A + 2*B*x) + 220*a*b^9*x^9*(2*A + 3*B*x) + 495*a^
2*b^8*x^8*(3*A + 4*B*x) + 792*a^3*b^7*x^7*(4*A + 5*B*x) + 924*a^4
*b^6*x^6*(5*A + 6*B*x) + 792*a^5*b^5*x^5*(6*A + 7*B*x) + 495*a^6*
b^4*x^4*(7*A + 8*B*x) + 220*a^7*b^3*x^3*(8*A + 9*B*x) + 66*a^8*b^
2*x^2*(9*A + 10*B*x) + 12*a^9*b*x*(10*A + 11*B*x) + a^10*(11*A +
12*B*x))/(132*x^12)
```

Maple [B] time = 0.01, size = 208, normalized size = 4.7

$$-\frac{15\,a^6b^3\,(7\,Ab+4\,Ba)}{4\,x^8}-\frac{a^9\,(10\,Ab+Ba)}{11\,x^{11}}-6\,\frac{a^5b^4\,(6\,Ab+5\,Ba)}{x^7}-\frac{5\,a^7b^2\,(8\,Ab+3\,Ba)}{3\,x^9}-\frac{b^9\,(Ab+10\,Ba)}{2\,x^2}-6\,\frac{a^3b^6\,(4\,Ab+7\,Ba)}{x^5}-\frac{Aa^{10}}{12\,x^{12}}-\frac{Bb^{10}}{x}-\frac{5\,ab^8\,(2\,Ab+9\,Ba)}{3\,x^3}-\frac{15\,a^2b^7\,(3\,Ab+8\,Ba)}{4\,x^4}-\frac{a^8b\,(9\,Ab+2\,Ba)}{2\,x^{10}}-7\,\frac{a^4b^5\,(5\,Ab+6\,Ba)}{x^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^10*(B*x+A)/x^13,x)
```

```
[Out] -15/4*a^6*b^3*(7*A*b+4*B*a)/x^8-1/11*a^9*(10*A*b+B*a)/x^11-6*a^5*
b^4*(6*A*b+5*B*a)/x^7-5/3*a^7*b^2*(8*A*b+3*B*a)/x^9-1/2*b^9*(A*b+
10*B*a)/x^2-6*a^3*b^6*(4*A*b+7*B*a)/x^5-1/12*A*a^10/x^12-B*b^10/x
-5/3*a*b^8*(2*A*b+9*B*a)/x^3-15/4*a^2*b^7*(3*A*b+8*B*a)/x^4-1/2*a
^8*b*(9*A*b+2*B*a)/x^10-7*a^4*b^5*(5*A*b+6*B*a)/x^6
```

Maxima [A] time = 1.39082, size = 328, normalized size = 7.45

$$-\frac{132\,Bb^{10}x^{11}+11\,Aa^{10}+66\,\left(10\,Bab^9+Ab^{10}\right)x^{10}+220\,\left(9\,Ba^2b^8+2\,Aab^9\right)x^9+495\,\left(8\,Ba^3b^7+3\,Aa^2b^8\right)x^8+792\,\left(7\,Ba^4b^6+\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^13,x, algorithm="maxima")
```

```
[Out] -1/132*(132*B*b^10*x^11 + 11*A*a^10 + 66*(10*B*a*b^9 + A*b^10)*x^
10 + 220*(9*B*a^2*b^8 + 2*A*a*b^9)*x^9 + 495*(8*B*a^3*b^7 + 3*A*a
^2*b^8)*x^8 + 792*(7*B*a^4*b^6 + 4*A*a^3*b^7)*x^7 + 924*(6*B*a^5*
b^5 + 5*A*a^4*b^6)*x^6 + 792*(5*B*a^6*b^4 + 6*A*a^5*b^5)*x^5 + 49
5*(4*B*a^7*b^3 + 7*A*a^6*b^4)*x^4 + 220*(3*B*a^8*b^2 + 8*A*a^7*b^
3)*x^3 + 66*(2*B*a^9*b + 9*A*a^8*b^2)*x^2 + 12*(B*a^10 + 10*A*a^9
*b)*x)/x^12
```

Fricas [A] time = 0.195584, size = 328, normalized size = 7.45

$$-\frac{132\,Bb^{10}x^{11}+11\,Aa^{10}+66\,\left(10\,Bab^9+Ab^{10}\right)x^{10}+220\,\left(9\,Ba^2b^8+2\,Aab^9\right)x^9+495\,\left(8\,Ba^3b^7+3\,Aa^2b^8\right)x^8+792\,\left(7\,Ba^4b^6+\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^13,x, algorithm="fricas")
```

```
[Out] -1/132*(132*B*b^10*x^11 + 11*A*a^10 + 66*(10*B*a*b^9 + A*b^10)*x^
10 + 220*(9*B*a^2*b^8 + 2*A*a*b^9)*x^9 + 495*(8*B*a^3*b^7 + 3*A*a
^2*b^8)*x^8 + 792*(7*B*a^4*b^6 + 4*A*a^3*b^7)*x^7 + 924*(6*B*a^5*
b^5 + 5*A*a^4*b^6)*x^6 + 792*(5*B*a^6*b^4 + 6*A*a^5*b^5)*x^5 + 49
5*(4*B*a^7*b^3 + 7*A*a^6*b^4)*x^4 + 220*(3*B*a^8*b^2 + 8*A*a^7*b^
3)*x^3 + 66*(2*B*a^9*b + 9*A*a^8*b^2)*x^2 + 12*(B*a^10 + 10*A*a^9
*b)*x)/x^12
```

Sympy [A] time = 173.961, size = 245, normalized size = 5.57

$$-\frac{11Aa^{10}+132Bb^{10}x^{11}+x^{10}\left(66Ab^{10}+660Bab^9\right)+x^9\left(440Aab^9+1980Ba^2b^8\right)+x^8\left(1485Aa^2b^8+3960Ba^3b^7\right)+x^7\left(3168A\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)/x**13,x)
```

```
[Out] -(11*A*a**10 + 132*B*b**10*x**11 + x**10*(66*A*b**10 + 660*B*a*b*
*9) + x**9*(440*A*a*b**9 + 1980*B*a**2*b**8) + x**8*(1485*A*a**2*
b**8 + 3960*B*a**3*b**7) + x**7*(3168*A*a**3*b**7 + 5544*B*a**4*b
**6) + x**6*(4620*A*a**4*b**6 + 5544*B*a**5*b**5) + x**5*(4752*A*
a**5*b**5 + 3960*B*a**6*b**4) + x**4*(3465*A*a**6*b**4 + 1980*B*a
**7*b**3) + x**3*(1760*A*a**7*b**3 + 660*B*a**8*b**2) + x**2*(594
*A*a**8*b**2 + 132*B*a**9*b) + x*(120*A*a**9*b + 12*B*a**10))/(13
2*x**12)
```

GIAC/XCAS [A] time = 0.318226, size = 328, normalized size = 7.45

$$-\frac{132\,Bb^{10}x^{11} + 660\,Bab^{9}x^{10} + 66\,Ab^{10}x^{10} + 1980\,Ba^{2}b^{8}x^{9} + 440\,Aab^{9}x^{9} + 3960\,Ba^{3}b^{7}x^{8} + 1485\,Aa^{2}b^{8}x^{8} + 5544\,Ba^{4}b^{6}x^{7} + 3}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^13,x, algorithm="giac")
```

```
[Out] -1/132*(132*B*b^10*x^11 + 660*B*a*b^9*x^10 + 66*A*b^10*x^10 + 198
0*B*a^2*b^8*x^9 + 440*A*a*b^9*x^9 + 3960*B*a^3*b^7*x^8 + 1485*A*a
^2*b^8*x^8 + 5544*B*a^4*b^6*x^7 + 3168*A*a^3*b^7*x^7 + 5544*B*a^5
*b^5*x^6 + 4620*A*a^4*b^6*x^6 + 3960*B*a^6*b^4*x^5 + 4752*A*a^5*b
^5*x^5 + 1980*B*a^7*b^3*x^4 + 3465*A*a^6*b^4*x^4 + 660*B*a^8*b^2*
x^3 + 1760*A*a^7*b^3*x^3 + 132*B*a^9*b*x^2 + 594*A*a^8*b^2*x^2 +
12*B*a^10*x + 120*A*a^9*b*x + 11*A*a^10)/x^12
```

3.130 $\int \frac{(a+bx)^{10}(A+Bx)}{x^{14}}\,dx$

Optimal. Leaf size=72

$$-\frac{b(a+bx)^{11}(2Ab-13aB)}{1716a^3x^{11}}+\frac{(a+bx)^{11}(2Ab-13aB)}{156a^2x^{12}}-\frac{A(a+bx)^{11}}{13ax^{13}}$$

```
[Out] -(A*(a + b*x)^11)/(13*a*x^13) + ((2*A*b - 13*a*B)*(a + b*x)^11)/(
156*a^2*x^12) - (b*(2*A*b - 13*a*B)*(a + b*x)^11)/(1716*a^3*x^11)
```

Rubi [A] time = 0.0989314, antiderivative size = 72, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.188

$$-\frac{b(a+bx)^{11}(2Ab-13aB)}{1716a^3x^{11}}+\frac{(a+bx)^{11}(2Ab-13aB)}{156a^2x^{12}}-\frac{A(a+bx)^{11}}{13ax^{13}}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^10*(A + B*x))/x^14,x]
```

```
[Out] -(A*(a + b*x)^11)/(13*a*x^13) + ((2*A*b - 13*a*B)*(a + b*x)^11)/(
156*a^2*x^12) - (b*(2*A*b - 13*a*B)*(a + b*x)^11)/(1716*a^3*x^11)
```

Rubi in Sympy [A] time = 12.7876, size = 66, normalized size = 0.92

$$-\frac{A\left(a+bx\right)^{11}}{13ax^{13}}+\frac{\left(a+bx\right)^{11}\left(2Ab-13Ba\right)}{156a^2x^{12}}-\frac{b\left(a+bx\right)^{11}\left(2Ab-13Ba\right)}{1716a^3x^{11}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)/x**14,x)
```

```
[Out] -A*(a + b*x)**11/(13*a*x**13) + (a + b*x)**11*(2*A*b - 13*B*a)/(1
56*a**2*x**12) - b*(a + b*x)**11*(2*A*b - 13*B*a)/(1716*a**3*x**1
1)
```

Mathematica [B] time = 0.103351, size = 202, normalized size = 2.81

$$-\frac{11a^{10}(12A+13Bx)+130a^9bx(11A+12Bx)+702a^8b^2x^2(10A+11Bx)+2288a^7b^3x^3(9A+10Bx)+5005a^6b^4x^4(8A+9Bx)}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^10*(A + B*x))/x^14,x]
```

```
[Out] -(286*b^10*x^10*(2*A + 3*B*x) + 1430*a*b^9*x^9*(3*A + 4*B*x) + 38
61*a^2*b^8*x^8*(4*A + 5*B*x) + 6864*a^3*b^7*x^7*(5*A + 6*B*x) + 8
580*a^4*b^6*x^6*(6*A + 7*B*x) + 7722*a^5*b^5*x^5*(7*A + 8*B*x) +
5005*a^6*b^4*x^4*(8*A + 9*B*x) + 2288*a^7*b^3*x^3*(9*A + 10*B*x)
+ 702*a^8*b^2*x^2*(10*A + 11*B*x) + 130*a^9*b*x*(11*A + 12*B*x) +
 11*a^10*(12*A + 13*B*x))/(1716*x^13)
```

Maple [B] time = 0.01, size = 208, normalized size = 2.9

$$-\frac{21 a^5 b^4 (6 Ab + 5 Ba)}{4 x^8} - \frac{Aa^{10}}{13 x^{13}} - \frac{5 a^8 b (9 Ab + 2 Ba)}{11 x^{11}} - 6 \frac{a^4 b^5 (5 Ab + 6 Ba)}{x^7} - \frac{10 a^6 b^3 (7 Ab + 4 Ba)}{3 x^9} - \frac{Bb^{10}}{2 x^2} - 3 \frac{a^2 b^7 (3 Ab + 8 Ba)}{x^5} - \frac{b^9 (Ab + 10 Ba)}{3 x^3} - \frac{a^9 (10 Ab + Ba)}{12 x^{12}} - \frac{5 ab^8 (2 Ab + 9 Ba)}{4 x^4} - \frac{3 a^7 b^2 (8 Ab + 3 Ba)}{2 x^{10}} - 5 \frac{a^3 b^6 (4 Ab + 7 Ba)}{x^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((b*x+a)^10*(B*x+A)/x^14,x)
```

```
[Out] -21/4*a^5*b^4*(6*A*b+5*B*a)/x^8-1/13*A*a^10/x^13-5/11*a^8*b*(9*A*
b+2*B*a)/x^11-6*a^4*b^5*(5*A*b+6*B*a)/x^7-10/3*a^6*b^3*(7*A*b+4*B
*a)/x^9-1/2*B*b^10/x^2-3*a^2*b^7*(3*A*b+8*B*a)/x^5-1/3*b^9*(A*b+1
0*B*a)/x^3-1/12*a^9*(10*A*b+B*a)/x^12-5/4*a*b^8*(2*A*b+9*B*a)/x^4
-3/2*a^7*b^2*(8*A*b+3*B*a)/x^10-5*a^3*b^6*(4*A*b+7*B*a)/x^6
```

Maxima [A] time = 1.38799, size = 328, normalized size = 4.56

$$-\frac{858 Bb^{10}x^{11} + 132 Aa^{10} + 572 \left(10 Bab^9 + Ab^{10}\right) x^{10} + 2145 \left(9 Ba^2b^8 + 2 Aab^9\right) x^9 + 5148 \left(8 Ba^3b^7 + 3 Aa^2b^8\right) x^8 + 8580 \left(7 B\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*(b*x + a)^10/x^14,x, algorithm="maxima")
```

```
[Out] -1/1716*(858*B*b^10*x^11 + 132*A*a^10 + 572*(10*B*a*b^9 + A*b^10)
*x^10 + 2145*(9*B*a^2*b^8 + 2*A*a*b^9)*x^9 + 5148*(8*B*a^3*b^7 +
3*A*a^2*b^8)*x^8 + 8580*(7*B*a^4*b^6 + 4*A*a^3*b^7)*x^7 + 10296*(
6*B*a^5*b^5 + 5*A*a^4*b^6)*x^6 + 9009*(5*B*a^6*b^4 + 6*A*a^5*b^5)
*x^5 + 5720*(4*B*a^7*b^3 + 7*A*a^6*b^4)*x^4 + 2574*(3*B*a^8*b^2 +
 8*A*a^7*b^3)*x^3 + 780*(2*B*a^9*b + 9*A*a^8*b^2)*x^2 + 143*(B*a^
10 + 10*A*a^9*b)*x)/x^13
```

Fricas [A] time = 0.195327, size = 328, normalized size = 4.56

$$-\frac{858 Bb^{10}x^{11} + 132 Aa^{10} + 572 \left(10 Bab^9 + Ab^{10}\right) x^{10} + 2145 \left(9 Ba^2b^8 + 2 Aab^9\right) x^9 + 5148 \left(8 Ba^3b^7 + 3 Aa^2b^8\right) x^8 + 8580 \left(7 B\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*(b*x + a)^10/x^14,x, algorithm="fricas")
```

```
[Out] -1/1716*(858*B*b^10*x^11 + 132*A*a^10 + 572*(10*B*a*b^9 + A*b^10)
*x^10 + 2145*(9*B*a^2*b^8 + 2*A*a*b^9)*x^9 + 5148*(8*B*a^3*b^7 +
3*A*a^2*b^8)*x^8 + 8580*(7*B*a^4*b^6 + 4*A*a^3*b^7)*x^7 + 10296*(
6*B*a^5*b^5 + 5*A*a^4*b^6)*x^6 + 9009*(5*B*a^6*b^4 + 6*A*a^5*b^5)
*x^5 + 5720*(4*B*a^7*b^3 + 7*A*a^6*b^4)*x^4 + 2574*(3*B*a^8*b^2 +
 8*A*a^7*b^3)*x^3 + 780*(2*B*a^9*b + 9*A*a^8*b^2)*x^2 + 143*(B*a^
10 + 10*A*a^9*b)*x)/x^13
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)/x**14,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.275503, size = 328, normalized size = 4.56

$$-\frac{858\,Bb^{10}x^{11} + 5720\,Bab^{9}x^{10} + 572\,Ab^{10}x^{10} + 19305\,Ba^{2}b^{8}x^{9} + 4290\,Aab^{9}x^{9} + 41184\,Ba^{3}b^{7}x^{8} + 15444\,Aa^{2}b^{8}x^{8} + 60060\,Ba^{4}\cdots}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^14,x, algorithm="giac")
```

```
[Out] -1/1716*(858*B*b^10*x^11 + 5720*B*a*b^9*x^10 + 572*A*b^10*x^10 +
19305*B*a^2*b^8*x^9 + 4290*A*a*b^9*x^9 + 41184*B*a^3*b^7*x^8 + 15
444*A*a^2*b^8*x^8 + 60060*B*a^4*b^6*x^7 + 34320*A*a^3*b^7*x^7 + 6
1776*B*a^5*b^5*x^6 + 51480*A*a^4*b^6*x^6 + 45045*B*a^6*b^4*x^5 +
54054*A*a^5*b^5*x^5 + 22880*B*a^7*b^3*x^4 + 40040*A*a^6*b^4*x^4 +
 7722*B*a^8*b^2*x^3 + 20592*A*a^7*b^3*x^3 + 1560*B*a^9*b*x^2 + 70
20*A*a^8*b^2*x^2 + 143*B*a^10*x + 1430*A*a^9*b*x + 132*A*a^10)/x^
13
```

3.131 $\int \frac{(a+bx)^{10}(A+Bx)}{x^{15}}\,dx$

Optimal. Leaf size=101

$$\frac{b^2(a+bx)^{11}(3Ab-14aB)}{12012a^4x^{11}}-\frac{b(a+bx)^{11}(3Ab-14aB)}{1092a^3x^{12}}+\frac{(a+bx)^{11}(3Ab-14aB)}{182a^2x^{13}}-\frac{A(a+bx)^{11}}{14ax^{14}}$$

```
[Out] -(A*(a + b*x)^11)/(14*a*x^14) + ((3*A*b - 14*a*B)*(a + b*x)^11)/(
182*a^2*x^13) - (b*(3*A*b - 14*a*B)*(a + b*x)^11)/(1092*a^3*x^12)
 + (b^2*(3*A*b - 14*a*B)*(a + b*x)^11)/(12012*a^4*x^11)
```

Rubi [A] time = 0.128684, antiderivative size = 101, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}} = 0.188$

$$\frac{b^2(a+bx)^{11}(3Ab-14aB)}{12012a^4x^{11}}-\frac{b(a+bx)^{11}(3Ab-14aB)}{1092a^3x^{12}}+\frac{(a+bx)^{11}(3Ab-14aB)}{182a^2x^{13}}-\frac{A(a+bx)^{11}}{14ax^{14}}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^10*(A + B*x))/x^15,x]
```

```
[Out] -(A*(a + b*x)^11)/(14*a*x^14) + ((3*A*b - 14*a*B)*(a + b*x)^11)/(
182*a^2*x^13) - (b*(3*A*b - 14*a*B)*(a + b*x)^11)/(1092*a^3*x^12)
 + (b^2*(3*A*b - 14*a*B)*(a + b*x)^11)/(12012*a^4*x^11)
```

Rubi in Sympy [A] time = 18.0422, size = 95, normalized size = 0.94

$$-\frac{A\left(a+bx\right)^{11}}{14ax^{14}}+\frac{\left(a+bx\right)^{11}\left(3Ab-14Ba\right)}{182a^2x^{13}}-\frac{b\left(a+bx\right)^{11}\left(3Ab-14Ba\right)}{1092a^3x^{12}}+\frac{b^2\left(a+bx\right)^{11}\left(3Ab-14Ba\right)}{12012a^4x^{11}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)/x**15,x)
```

```
[Out] -A*(a + b*x)**11/(14*a*x**14) + (a + b*x)**11*(3*A*b - 14*B*a)/(1
82*a**2*x**13) - b*(a + b*x)**11*(3*A*b - 14*B*a)/(1092*a**3*x**1
2) + b**2*(a + b*x)**11*(3*A*b - 14*B*a)/(12012*a**4*x**11)
```

Mathematica [A] time = 0.10791, size = 202, normalized size = 2.

$$-\frac{66a^{10}(13A+14Bx)+770a^9bx(12A+13Bx)+4095a^8b^2x^2(11A+12Bx)+13104a^7b^3x^3(10A+11Bx)+28028a^6b^4x^4(9A+1}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^10*(A + B*x))/x^15,x]
```

```
[Out] -(1001*b^10*x^10*(3*A + 4*B*x) + 6006*a*b^9*x^9*(4*A + 5*B*x) + 1
8018*a^2*b^8*x^8*(5*A + 6*B*x) + 34320*a^3*b^7*x^7*(6*A + 7*B*x)
+ 45045*a^4*b^6*x^6*(7*A + 8*B*x) + 42042*a^5*b^5*x^5*(8*A + 9*B*
x) + 28028*a^6*b^4*x^4*(9*A + 10*B*x) + 13104*a^7*b^3*x^3*(10*A +
 11*B*x) + 4095*a^8*b^2*x^2*(11*A + 12*B*x) + 770*a^9*b*x*(12*A +
 13*B*x) + 66*a^10*(13*A + 14*B*x))/(12012*x^14)
```

Maple [B] time = 0.01, size = 208, normalized size = 2.1

$$-\frac{21\,a^4b^5\,(5\,Ab+6\,Ba)}{4\,x^8}-\frac{15\,a^7b^2\,(8\,Ab+3\,Ba)}{11\,x^{11}}-\frac{30\,a^3b^6\,(4\,Ab+7\,Ba)}{7\,x^7}-\frac{14\,a^5b^4\,(6\,Ab+5\,Ba)}{3\,x^9}-\frac{ab^8\,(2\,Ab+9\,Ba)}{x^5}-\frac{Bb^{10}}{3\,x^3}-\frac{5\,a^8b\,(9\,Ab+2\,Ba)}{12\,x^{12}}-\frac{Aa^{10}}{14\,x^{14}}-\frac{a^9\,(10\,Ab+Ba)}{13\,x^{13}}-\frac{b^9\,(Ab+10\,Ba)}{4\,x^4}-3\,\frac{a^6b^3\,(7\,Ab+4\,Ba)}{x^{10}}-\frac{5\,a^2b^7\,(3\,Ab+8\,Ba)}{2\,x^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((b*x+a)^10*(B*x+A)/x^15,x)
```

```
[Out] -21/4*a^4*b^5*(5*A*b+6*B*a)/x^8-15/11*a^7*b^2*(8*A*b+3*B*a)/x^11-
30/7*a^3*b^6*(4*A*b+7*B*a)/x^7-14/3*a^5*b^4*(6*A*b+5*B*a)/x^9-a*b
^8*(2*A*b+9*B*a)/x^5-1/3*B*b^10/x^3-5/12*a^8*b*(9*A*b+2*B*a)/x^12
-1/14*A*a^10/x^14-1/13*a^9*(10*A*b+B*a)/x^13-1/4*b^9*(A*b+10*B*a)
/x^4-3*a^6*b^3*(7*A*b+4*B*a)/x^10-5/2*a^2*b^7*(3*A*b+8*B*a)/x^6
```

Maxima [A] time = 1.35019, size = 328, normalized size = 3.25

$$-\frac{4004\,Bb^{10}x^{11}+858\,Aa^{10}+3003\left(10\,Bab^9+Ab^{10}\right)x^{10}+12012\left(9\,Ba^2b^8+2\,Aab^9\right)x^9+30030\left(8\,Ba^3b^7+3\,Aa^2b^8\right)x^8+5148$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*(b*x + a)^10/x^15,x, algorithm="maxima")
```

```
[Out] -1/12012*(4004*B*b^10*x^11 + 858*A*a^10 + 3003*(10*B*a*b^9 + A*b^
10)*x^10 + 12012*(9*B*a^2*b^8 + 2*A*a*b^9)*x^9 + 30030*(8*B*a^3*b
^7 + 3*A*a^2*b^8)*x^8 + 51480*(7*B*a^4*b^6 + 4*A*a^3*b^7)*x^7 + 6
3063*(6*B*a^5*b^5 + 5*A*a^4*b^6)*x^6 + 56056*(5*B*a^6*b^4 + 6*A*a
^5*b^5)*x^5 + 36036*(4*B*a^7*b^3 + 7*A*a^6*b^4)*x^4 + 16380*(3*B*
a^8*b^2 + 8*A*a^7*b^3)*x^3 + 5005*(2*B*a^9*b + 9*A*a^8*b^2)*x^2 +
 924*(B*a^10 + 10*A*a^9*b)*x)/x^14
```

Fricas [A] time = 0.196113, size = 328, normalized size = 3.25

$$-\frac{4004\,Bb^{10}x^{11}+858\,Aa^{10}+3003\left(10\,Bab^9+Ab^{10}\right)x^{10}+12012\left(9\,Ba^2b^8+2\,Aab^9\right)x^9+30030\left(8\,Ba^3b^7+3\,Aa^2b^8\right)x^8+5148$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*(b*x + a)^10/x^15,x, algorithm="fricas")
```

```
[Out] -1/12012*(4004*B*b^10*x^11 + 858*A*a^10 + 3003*(10*B*a*b^9 + A*b^
10)*x^10 + 12012*(9*B*a^2*b^8 + 2*A*a*b^9)*x^9 + 30030*(8*B*a^3*b
^7 + 3*A*a^2*b^8)*x^8 + 51480*(7*B*a^4*b^6 + 4*A*a^3*b^7)*x^7 + 6
3063*(6*B*a^5*b^5 + 5*A*a^4*b^6)*x^6 + 56056*(5*B*a^6*b^4 + 6*A*a
^5*b^5)*x^5 + 36036*(4*B*a^7*b^3 + 7*A*a^6*b^4)*x^4 + 16380*(3*B*
a^8*b^2 + 8*A*a^7*b^3)*x^3 + 5005*(2*B*a^9*b + 9*A*a^8*b^2)*x^2 +
 924*(B*a^10 + 10*A*a^9*b)*x)/x^14
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)/x**15,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.287153, size = 328, normalized size = 3.25

$$-\frac{4004\,Bb^{10}x^{11} + 30030\,Bab^{9}x^{10} + 3003\,Ab^{10}x^{10} + 108108\,Ba^{2}b^{8}x^{9} + 24024\,Aab^{9}x^{9} + 240240\,Ba^{3}b^{7}x^{8} + 90090\,Aa^{2}b^{8}x^{8} + 36}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^15,x, algorithm="giac")
```

```
[Out] -1/12012*(4004*B*b^10*x^11 + 30030*B*a*b^9*x^10 + 3003*A*b^10*x^1
0 + 108108*B*a^2*b^8*x^9 + 24024*A*a*b^9*x^9 + 240240*B*a^3*b^7*x
^8 + 90090*A*a^2*b^8*x^8 + 360360*B*a^4*b^6*x^7 + 205920*A*a^3*b^
7*x^7 + 378378*B*a^5*b^5*x^6 + 315315*A*a^4*b^6*x^6 + 280280*B*a^
6*b^4*x^5 + 336336*A*a^5*b^5*x^5 + 144144*B*a^7*b^3*x^4 + 252252*
A*a^6*b^4*x^4 + 49140*B*a^8*b^2*x^3 + 131040*A*a^7*b^3*x^3 + 1001
0*B*a^9*b*x^2 + 45045*A*a^8*b^2*x^2 + 924*B*a^10*x + 9240*A*a^9*b
*x + 858*A*a^10)/x^14
```

3.132 $\int \frac{(a+bx)^{10}(A+Bx)}{x^{16}} dx$

Optimal. Leaf size=130

$$-\frac{b^3(a+bx)^{11}(4Ab-15aB)}{60060a^5x^{11}}+\frac{b^2(a+bx)^{11}(4Ab-15aB)}{5460a^4x^{12}}-\frac{b(a+bx)^{11}(4Ab-15aB)}{910a^3x^{13}}+\frac{(a+bx)^{11}(4Ab-15aB)}{210a^2x^{14}}-\frac{A(a+bx)^{11}}{15ax^{15}}$$

```
[Out] -(A*(a + b*x)^11)/(15*a*x^15) + ((4*A*b - 15*a*B)*(a + b*x)^11)/(
210*a^2*x^14) - (b*(4*A*b - 15*a*B)*(a + b*x)^11)/(910*a^3*x^13)
+ (b^2*(4*A*b - 15*a*B)*(a + b*x)^11)/(5460*a^4*x^12) - (b^3*(4*A
*b - 15*a*B)*(a + b*x)^11)/(60060*a^5*x^11)
```

Rubi [A] time = 0.16283, antiderivative size = 130, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}} = 0.188$

$$-\frac{b^3(a+bx)^{11}(4Ab-15aB)}{60060a^5x^{11}}+\frac{b^2(a+bx)^{11}(4Ab-15aB)}{5460a^4x^{12}}-\frac{b(a+bx)^{11}(4Ab-15aB)}{910a^3x^{13}}+\frac{(a+bx)^{11}(4Ab-15aB)}{210a^2x^{14}}-\frac{A(a+bx)^{11}}{15ax^{15}}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^10*(A + B*x))/x^16,x]
```

```
[Out] -(A*(a + b*x)^11)/(15*a*x^15) + ((4*A*b - 15*a*B)*(a + b*x)^11)/(
210*a^2*x^14) - (b*(4*A*b - 15*a*B)*(a + b*x)^11)/(910*a^3*x^13)
+ (b^2*(4*A*b - 15*a*B)*(a + b*x)^11)/(5460*a^4*x^12) - (b^3*(4*A
*b - 15*a*B)*(a + b*x)^11)/(60060*a^5*x^11)
```

Rubi in Sympy [A] time = 25.2555, size = 124, normalized size = 0.95

$$-\frac{A(a+bx)^{11}}{15ax^{15}}+\frac{(a+bx)^{11}(4Ab-15Ba)}{210a^2x^{14}}-\frac{b(a+bx)^{11}(4Ab-15Ba)}{910a^3x^{13}}+\frac{b^2(a+bx)^{11}(4Ab-15Ba)}{5460a^4x^{12}}-\frac{b^3(a+bx)^{11}(4Ab-15Ba)}{60060a^5x^{11}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)/x**16,x)
```

```
[Out] -A*(a + b*x)**11/(15*a*x**15) + (a + b*x)**11*(4*A*b - 15*B*a)/(2
10*a**2*x**14) - b*(a + b*x)**11*(4*A*b - 15*B*a)/(910*a**3*x**13
) + b**2*(a + b*x)**11*(4*A*b - 15*B*a)/(5460*a**4*x**12) - b**3*
(a + b*x)**11*(4*A*b - 15*B*a)/(60060*a**5*x**11)
```

Mathematica [A] time = 0.104477, size = 202, normalized size = 1.55

$$-\frac{286a^{10}(14A+15Bx)+3300a^9bx(13A+14Bx)+17325a^8b^2x^2(12A+13Bx)+54600a^7b^3x^3(11A+12Bx)+114660a^6b^4x^4(1}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^10*(A + B*x))/x^16,x]
```

```
[Out] -(3003*b^10*x^10*(4*A + 5*B*x) + 20020*a*b^9*x^9*(5*A + 6*B*x) +
64350*a^2*b^8*x^8*(6*A + 7*B*x) + 128700*a^3*b^7*x^7*(7*A + 8*B*x
```

```
) + 175175*a^4*b^6*x^6*(8*A + 9*B*x) + 168168*a^5*b^5*x^5*(9*A +
10*B*x) + 114660*a^6*b^4*x^4*(10*A + 11*B*x) + 54600*a^7*b^3*x^3*
(11*A + 12*B*x) + 17325*a^8*b^2*x^2*(12*A + 13*B*x) + 3300*a^9*b*
x*(13*A + 14*B*x) + 286*a^10*(14*A + 15*B*x))/(60060*x^15)
```

Maple [A] time = 0.01, size = 208, normalized size = 1.6

$$-\frac{15\,a^{3}b^{6}\left(4\,Ab+7\,Ba\right)}{4\,x^{8}}-\frac{30\,a^{6}b^{3}\left(7\,Ab+4\,Ba\right)}{11\,x^{11}}-\frac{15\,a^{2}b^{7}\left(3\,Ab+8\,Ba\right)}{7\,x^{7}}-\frac{14\,a^{4}b^{5}\left(5\,Ab+6\,Ba\right)}{3\,x^{9}}-\frac{5\,a^{8}b\left(9\,Ab+2\,Ba\right)}{13\,x^{13}}-\frac{5\,a^{7}b^{2}\left(8\,Ab+3\,Ba\right)}{4\,x^{12}}-\frac{b^{9}\left(Ab+10\,Ba\right)}{5\,x^{5}}-\frac{Aa^{10}}{15\,x^{15}}-\frac{Bb^{10}}{4\,x^{4}}-\frac{a^{9}\left(10\,Ab+Ba\right)}{14\,x^{14}}-\frac{21\,a^{5}b^{4}\left(6\,Ab+5\,Ba\right)}{5\,x^{10}}-\frac{5\,ab^{8}\left(2\,Ab+9\,Ba\right)}{6\,x^{6}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((b*x+a)^10*(B*x+A)/x^16,x)
```

```
[Out] -15/4*a^3*b^6*(4*A*b+7*B*a)/x^8-30/11*a^6*b^3*(7*A*b+4*B*a)/x^11-
15/7*a^2*b^7*(3*A*b+8*B*a)/x^7-14/3*a^4*b^5*(5*A*b+6*B*a)/x^9-5/1
3*a^8*b*(9*A*b+2*B*a)/x^13-5/4*a^7*b^2*(8*A*b+3*B*a)/x^12-1/5*b^9
*(A*b+10*B*a)/x^5-1/15*A*a^10/x^15-1/4*B*b^10/x^4-1/14*a^9*(10*A*
b+B*a)/x^14-21/5*a^5*b^4*(6*A*b+5*B*a)/x^10-5/6*a*b^8*(2*A*b+9*B*
a)/x^6
```

Maxima [A] time = 1.36681, size = 328, normalized size = 2.52

$$-\frac{15015\,Bb^{10}x^{11}+4004\,Aa^{10}+12012\left(10\,Bab^{9}+Ab^{10}\right)x^{10}+50050\left(9\,Ba^{2}b^{8}+2\,Aab^{9}\right)x^{9}+128700\left(8\,Ba^{3}b^{7}+3\,Aa^{2}b^{8}\right)x^{8}+\cdots}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*(b*x + a)^10/x^16,x, algorithm="maxima")
```

```
[Out] -1/60060*(15015*B*b^10*x^11 + 4004*A*a^10 + 12012*(10*B*a*b^9 + A
*b^10)*x^10 + 50050*(9*B*a^2*b^8 + 2*A*a*b^9)*x^9 + 128700*(8*B*a
^3*b^7 + 3*A*a^2*b^8)*x^8 + 225225*(7*B*a^4*b^6 + 4*A*a^3*b^7)*x^
7 + 280280*(6*B*a^5*b^5 + 5*A*a^4*b^6)*x^6 + 252252*(5*B*a^6*b^4
+ 6*A*a^5*b^5)*x^5 + 163800*(4*B*a^7*b^3 + 7*A*a^6*b^4)*x^4 + 750
75*(3*B*a^8*b^2 + 8*A*a^7*b^3)*x^3 + 23100*(2*B*a^9*b + 9*A*a^8*b
^2)*x^2 + 4290*(B*a^10 + 10*A*a^9*b)*x)/x^15
```

Fricas [A] time = 0.195975, size = 328, normalized size = 2.52

$$-\frac{15015\,Bb^{10}x^{11}+4004\,Aa^{10}+12012\left(10\,Bab^{9}+Ab^{10}\right)x^{10}+50050\left(9\,Ba^{2}b^{8}+2\,Aab^{9}\right)x^{9}+128700\left(8\,Ba^{3}b^{7}+3\,Aa^{2}b^{8}\right)x^{8}+\cdots}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*(b*x + a)^10/x^16,x, algorithm="fricas")
```

```
[Out] -1/60060*(15015*B*b^10*x^11 + 4004*A*a^10 + 12012*(10*B*a*b^9 + A
*b^10)*x^10 + 50050*(9*B*a^2*b^8 + 2*A*a*b^9)*x^9 + 128700*(8*B*a
^3*b^7 + 3*A*a^2*b^8)*x^8 + 225225*(7*B*a^4*b^6 + 4*A*a^3*b^7)*x^
7 + 280280*(6*B*a^5*b^5 + 5*A*a^4*b^6)*x^6 + 252252*(5*B*a^6*b^4
+ 6*A*a^5*b^5)*x^5 + 163800*(4*B*a^7*b^3 + 7*A*a^6*b^4)*x^4 + 750
75*(3*B*a^8*b^2 + 8*A*a^7*b^3)*x^3 + 23100*(2*B*a^9*b + 9*A*a^8*b
^2)*x^2 + 4290*(B*a^10 + 10*A*a^9*b)*x)/x^15
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)/x**16,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.242164, size = 328, normalized size = 2.52

$$-\frac{15015\,Bb^{10}x^{11} + 120120\,Bab^{9}x^{10} + 12012\,Ab^{10}x^{10} + 450450\,Ba^{2}b^{8}x^{9} + 100100\,Aab^{9}x^{9} + 1029600\,Ba^{3}b^{7}x^{8} + 386100\,Aa^{2}b^{8}\cdots}{\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^16,x, algorithm="giac")
```

```
[Out] -1/60060*(15015*B*b^10*x^11 + 120120*B*a*b^9*x^10 + 12012*A*b^10*
x^10 + 450450*B*a^2*b^8*x^9 + 100100*A*a*b^9*x^9 + 1029600*B*a^3*
b^7*x^8 + 386100*A*a^2*b^8*x^8 + 1576575*B*a^4*b^6*x^7 + 900900*A
*a^3*b^7*x^7 + 1681680*B*a^5*b^5*x^6 + 1401400*A*a^4*b^6*x^6 + 12
61260*B*a^6*b^4*x^5 + 1513512*A*a^5*b^5*x^5 + 655200*B*a^7*b^3*x^
4 + 1146600*A*a^6*b^4*x^4 + 225225*B*a^8*b^2*x^3 + 600600*A*a^7*b
^3*x^3 + 46200*B*a^9*b*x^2 + 207900*A*a^8*b^2*x^2 + 4290*B*a^10*x
 + 42900*A*a^9*b*x + 4004*A*a^10)/x^15
```

3.133 $\int \frac{(a+bx)^{10}(A+Bx)}{x^{17}}\,dx$

Optimal. Leaf size=159

$$\frac{b^4(a+bx)^{11}(5Ab-16aB)}{240240a^6x^{11}}-\frac{b^3(a+bx)^{11}(5Ab-16aB)}{21840a^5x^{12}}+\frac{b^2(a+bx)^{11}(5Ab-16aB)}{3640a^4x^{13}}-\frac{b(a+bx)^{11}(5Ab-16aB)}{840a^3x^{14}}+\frac{(a+bx)^{11}(5Ab-16aB)}{240a^2x^{15}}-\frac{A(a+bx)^{11}}{16ax^{16}}$$

```
[Out] -(A*(a + b*x)^11)/(16*a*x^16) + ((5*A*b - 16*a*B)*(a + b*x)^11)/(
240*a^2*x^15) - (b*(5*A*b - 16*a*B)*(a + b*x)^11)/(840*a^3*x^14)
+ (b^2*(5*A*b - 16*a*B)*(a + b*x)^11)/(3640*a^4*x^13) - (b^3*(5*A
*b - 16*a*B)*(a + b*x)^11)/(21840*a^5*x^12) + (b^4*(5*A*b - 16*a*
B)*(a + b*x)^11)/(240240*a^6*x^11)
```

Rubi [A] time = 0.200202, antiderivative size = 159, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 3, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}} = 0.188$

$$\frac{b^4(a+bx)^{11}(5Ab-16aB)}{240240a^6x^{11}}-\frac{b^3(a+bx)^{11}(5Ab-16aB)}{21840a^5x^{12}}+\frac{b^2(a+bx)^{11}(5Ab-16aB)}{3640a^4x^{13}}-\frac{b(a+bx)^{11}(5Ab-16aB)}{840a^3x^{14}}+\frac{(a+bx)^{11}(5Ab-16aB)}{240a^2x^{15}}-\frac{A(a+bx)^{11}}{16ax^{16}}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^10*(A + B*x))/x^17,x]
```

```
[Out] -(A*(a + b*x)^11)/(16*a*x^16) + ((5*A*b - 16*a*B)*(a + b*x)^11)/(
240*a^2*x^15) - (b*(5*A*b - 16*a*B)*(a + b*x)^11)/(840*a^3*x^14)
+ (b^2*(5*A*b - 16*a*B)*(a + b*x)^11)/(3640*a^4*x^13) - (b^3*(5*A
*b - 16*a*B)*(a + b*x)^11)/(21840*a^5*x^12) + (b^4*(5*A*b - 16*a*
B)*(a + b*x)^11)/(240240*a^6*x^11)
```

Rubi in Sympy [A] time = 32.4822, size = 153, normalized size = 0.96

$$-\frac{A\left(a+bx\right)^{11}}{16ax^{16}}+\frac{\left(a+bx\right)^{11}\left(5Ab-16Ba\right)}{240a^2x^{15}}-\frac{b\left(a+bx\right)^{11}\left(5Ab-16Ba\right)}{840a^3x^{14}}+\frac{b^2\left(a+bx\right)^{11}\left(5Ab-16Ba\right)}{3640a^4x^{13}}-\frac{b^3\left(a+bx\right)^{11}\left(5Ab-16Ba\right)}{21840a^5x^{12}}+\frac{b^4\left(a+bx\right)^{11}\left(5Ab-16Ba\right)}{240240a^6x^{11}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)/x**17,x)
```

```
[Out] -A*(a + b*x)**11/(16*a*x**16) + (a + b*x)**11*(5*A*b - 16*B*a)/(2
40*a**2*x**15) - b*(a + b*x)**11*(5*A*b - 16*B*a)/(840*a**3*x**14
) + b**2*(a + b*x)**11*(5*A*b - 16*B*a)/(3640*a**4*x**13) - b**3*
(a + b*x)**11*(5*A*b - 16*B*a)/(21840*a**5*x**12) + b**4*(a + b*x
)**11*(5*A*b - 16*B*a)/(240240*a**6*x**11)
```

Mathematica [A] time = 0.120611, size = 222, normalized size = 1.4

$$-\frac{a^{10}(15A+16Bx)}{240x^{16}}-\frac{a^9b(14A+15Bx)}{21x^{15}}-\frac{45a^8b^2(13A+14Bx)}{182x^{14}}-\frac{10a^7b^3(12A+13Bx)}{13x^{13}}-\frac{35a^6b^4(11A+12Bx)}{22x^{12}}-\frac{126a^5b^5(10A+11Bx)}{55x^{11}}-\frac{7a^4b^6(9A+10Bx)}{3x^{10}}-\frac{5a^3b^7(8A+9Bx)}{3x^9}-\frac{45a^2b^8(7A+8Bx)}{56x^8}-\frac{5ab^9(6A+7Bx)}{21x^7}-\frac{b^{10}(5A+6Bx)}{30x^6}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^10*(A + B*x))/x^17,x]
```

```
[Out] -(b^10*(5*A + 6*B*x))/(30*x^6) - (5*a*b^9*(6*A + 7*B*x))/(21*x^7)
 - (45*a^2*b^8*(7*A + 8*B*x))/(56*x^8) - (5*a^3*b^7*(8*A + 9*B*x)
)/(3*x^9) - (7*a^4*b^6*(9*A + 10*B*x))/(3*x^10) - (126*a^5*b^5*(1
0*A + 11*B*x))/(55*x^11) - (35*a^6*b^4*(11*A + 12*B*x))/(22*x^12)
 - (10*a^7*b^3*(12*A + 13*B*x))/(13*x^13) - (45*a^8*b^2*(13*A + 1
4*B*x))/(182*x^14) - (a^9*b*(14*A + 15*B*x))/(21*x^15) - (a^10*(1
5*A + 16*B*x))/(240*x^16)
```

Maple [A] time = 0.009, size = 208, normalized size = 1.3

$$-\frac{15\,a^2b^7\,(3\,Ab+8\,Ba)}{8\,x^8}-\frac{42\,a^5b^4\,(6\,Ab+5\,Ba)}{11\,x^{11}}-\frac{5\,ab^8\,(2\,Ab+9\,Ba)}{7\,x^7}-\frac{5\,a^6b^3\,(7\,Ab+4\,Ba)}{2\,x^{12}}-\frac{10\,a^3b^6\,(4\,Ab+7\,Ba)}{3\,x^9}-\frac{5\,a^8b\,(9\,Ab+2\,Ba)}{14\,x^{14}}-\frac{Bb^{10}}{5\,x^5}-\frac{Aa^{10}}{16\,x^{16}}-\frac{15\,a^7b^2\,(8\,Ab+3\,Ba)}{13\,x^{13}}-\frac{21\,a^4b^5\,(5\,Ab+6\,Ba)}{5\,x^{10}}-\frac{a^9\,(10\,Ab+Ba)}{15\,x^{15}}-\frac{b^9\,(Ab+10\,Ba)}{6\,x^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^10*(B*x+A)/x^17,x)
```

```
[Out] -15/8*a^2*b^7*(3*A*b+8*B*a)/x^8-42/11*a^5*b^4*(6*A*b+5*B*a)/x^11-
5/7*a*b^8*(2*A*b+9*B*a)/x^7-5/2*a^6*b^3*(7*A*b+4*B*a)/x^12-10/3*a
^3*b^6*(4*A*b+7*B*a)/x^9-5/14*a^8*b*(9*A*b+2*B*a)/x^14-1/5*B*b^10
/x^5-1/16*A*a^10/x^16-15/13*a^7*b^2*(8*A*b+3*B*a)/x^13-21/5*a^4*b
^5*(5*A*b+6*B*a)/x^10-1/15*a^9*(10*A*b+B*a)/x^15-1/6*b^9*(A*b+10*
B*a)/x^6
```

Maxima [A] time = 1.36542, size = 328, normalized size = 2.06

$$-\frac{48048\,Bb^{10}x^{11}+15015\,Aa^{10}+40040\left(10\,Bab^9+Ab^{10}\right)x^{10}+171600\left(9\,Ba^2b^8+2\,Aab^9\right)x^9+450450\left(8\,Ba^3b^7+3\,Aa^2b^8\right)x^8}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^17,x, algorithm="maxima")
```

```
[Out] -1/240240*(48048*B*b^10*x^11 + 15015*A*a^10 + 40040*(10*B*a*b^9 +
 A*b^10)*x^10 + 171600*(9*B*a^2*b^8 + 2*A*a*b^9)*x^9 + 450450*(8*
B*a^3*b^7 + 3*A*a^2*b^8)*x^8 + 800800*(7*B*a^4*b^6 + 4*A*a^3*b^7)
*x^7 + 1009008*(6*B*a^5*b^5 + 5*A*a^4*b^6)*x^6 + 917280*(5*B*a^6*
b^4 + 6*A*a^5*b^5)*x^5 + 600600*(4*B*a^7*b^3 + 7*A*a^6*b^4)*x^4 +
 277200*(3*B*a^8*b^2 + 8*A*a^7*b^3)*x^3 + 85800*(2*B*a^9*b + 9*A*
a^8*b^2)*x^2 + 16016*(B*a^10 + 10*A*a^9*b)*x)/x^16
```

Fricas [A] time = 0.197809, size = 328, normalized size = 2.06

$$-\frac{48048\,Bb^{10}x^{11}+15015\,Aa^{10}+40040\left(10\,Bab^9+Ab^{10}\right)x^{10}+171600\left(9\,Ba^2b^8+2\,Aab^9\right)x^9+450450\left(8\,Ba^3b^7+3\,Aa^2b^8\right)x^8}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^17,x, algorithm="fricas")
```

```
[Out] -1/240240*(48048*B*b^10*x^11 + 15015*A*a^10 + 40040*(10*B*a*b^9 +
 A*b^10)*x^10 + 171600*(9*B*a^2*b^8 + 2*A*a*b^9)*x^9 + 450450*(8*
```

```
B*a^3*b^7 + 3*A*a^2*b^8)*x^8 + 800800*(7*B*a^4*b^6 + 4*A*a^3*b^7)
*x^7 + 1009008*(6*B*a^5*b^5 + 5*A*a^4*b^6)*x^6 + 917280*(5*B*a^6*
b^4 + 6*A*a^5*b^5)*x^5 + 600600*(4*B*a^7*b^3 + 7*A*a^6*b^4)*x^4 +
 277200*(3*B*a^8*b^2 + 8*A*a^7*b^3)*x^3 + 85800*(2*B*a^9*b + 9*A*
a^8*b^2)*x^2 + 16016*(B*a^10 + 10*A*a^9*b)*x)/x^16
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)/x**17,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.265447, size = 328, normalized size = 2.06

$$-\frac{48048\,Bb^{10}x^{11} + 400400\,Bab^{9}x^{10} + 40040\,Ab^{10}x^{10} + 1544400\,Ba^{2}b^{8}x^{9} + 343200\,Aab^{9}x^{9} + 3603600\,Ba^{3}b^{7}x^{8} + 1351350\,Aa^{2}}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^17,x, algorithm="giac")
```

```
[Out] -1/240240*(48048*B*b^10*x^11 + 400400*B*a*b^9*x^10 + 40040*A*b^10
*x^10 + 1544400*B*a^2*b^8*x^9 + 343200*A*a*b^9*x^9 + 3603600*B*a^
3*b^7*x^8 + 1351350*A*a^2*b^8*x^8 + 5605600*B*a^4*b^6*x^7 + 32032
00*A*a^3*b^7*x^7 + 6054048*B*a^5*b^5*x^6 + 5045040*A*a^4*b^6*x^6
+ 4586400*B*a^6*b^4*x^5 + 5503680*A*a^5*b^5*x^5 + 2402400*B*a^7*b
^3*x^4 + 4204200*A*a^6*b^4*x^4 + 831600*B*a^8*b^2*x^3 + 2217600*A
*a^7*b^3*x^3 + 171600*B*a^9*b*x^2 + 772200*A*a^8*b^2*x^2 + 16016*
B*a^10*x + 160160*A*a^9*b*x + 15015*A*a^10)/x^16
```

3.134 $\int \frac{(a+bx)^{10}(A+Bx)}{x^{18}} dx$

Optimal. Leaf size=188

$$-\frac{b^5(a+bx)^{11}(6Ab-17aB)}{816816a^7x^{11}}+\frac{b^4(a+bx)^{11}(6Ab-17aB)}{74256a^6x^{12}}-\frac{b^3(a+bx)^{11}(6Ab-17aB)}{12376a^5x^{13}}+\frac{b^2(a+bx)^{11}(6Ab-17aB)}{2856a^4x^{14}}-\frac{b(a+bx)^{11}(6Ab-17aB)}{816a^3x^{15}}+\frac{(a+bx)^{11}(6Ab-17aB)}{272a^2x^{16}}-\frac{A(a+bx)^{11}}{17ax^{17}}$$

```
[Out] -(A*(a + b*x)^11)/(17*a*x^17) + ((6*A*b - 17*a*B)*(a + b*x)^11)/(
272*a^2*x^16) - (b*(6*A*b - 17*a*B)*(a + b*x)^11)/(816*a^3*x^15)
+ (b^2*(6*A*b - 17*a*B)*(a + b*x)^11)/(2856*a^4*x^14) - (b^3*(6*A
*b - 17*a*B)*(a + b*x)^11)/(12376*a^5*x^13) + (b^4*(6*A*b - 17*a*
B)*(a + b*x)^11)/(74256*a^6*x^12) - (b^5*(6*A*b - 17*a*B)*(a + b*
x)^11)/(816816*a^7*x^11)
```

Rubi [A] time = 0.240997, antiderivative size = 188, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 3, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.188

$$-\frac{b^5(a+bx)^{11}(6Ab-17aB)}{816816a^7x^{11}}+\frac{b^4(a+bx)^{11}(6Ab-17aB)}{74256a^6x^{12}}-\frac{b^3(a+bx)^{11}(6Ab-17aB)}{12376a^5x^{13}}+\frac{b^2(a+bx)^{11}(6Ab-17aB)}{2856a^4x^{14}}-\frac{b(a+bx)^{11}(6Ab-17aB)}{816a^3x^{15}}+\frac{(a+bx)^{11}(6Ab-17aB)}{272a^2x^{16}}-\frac{A(a+bx)^{11}}{17ax^{17}}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^10*(A + B*x))/x^18,x]
```

```
[Out] -(A*(a + b*x)^11)/(17*a*x^17) + ((6*A*b - 17*a*B)*(a + b*x)^11)/(
272*a^2*x^16) - (b*(6*A*b - 17*a*B)*(a + b*x)^11)/(816*a^3*x^15)
+ (b^2*(6*A*b - 17*a*B)*(a + b*x)^11)/(2856*a^4*x^14) - (b^3*(6*A
*b - 17*a*B)*(a + b*x)^11)/(12376*a^5*x^13) + (b^4*(6*A*b - 17*a*
B)*(a + b*x)^11)/(74256*a^6*x^12) - (b^5*(6*A*b - 17*a*B)*(a + b*
x)^11)/(816816*a^7*x^11)
```

Rubi in Sympy [A] time = 41.3479, size = 182, normalized size = 0.97

$$-\frac{A(a+bx)^{11}}{17ax^{17}}+\frac{(a+bx)^{11}(6Ab-17Ba)}{272a^2x^{16}}-\frac{b(a+bx)^{11}(6Ab-17Ba)}{816a^3x^{15}}+\frac{b^2(a+bx)^{11}(6Ab-17Ba)}{2856a^4x^{14}}-\frac{b^3(a+bx)^{11}(6Ab-17Ba)}{12376a^5x^{13}}+\frac{b^4(a+bx)^{11}(6Ab-17Ba)}{74256a^6x^{12}}-\frac{b^5(a+bx)^{11}(6Ab-17Ba)}{816816a^7x^{11}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)/x**18,x)
```

```
[Out] -A*(a + b*x)**11/(17*a*x**17) + (a + b*x)**11*(6*A*b - 17*B*a)/(2
72*a**2*x**16) - b*(a + b*x)**11*(6*A*b - 17*B*a)/(816*a**3*x**15
) + b**2*(a + b*x)**11*(6*A*b - 17*B*a)/(2856*a**4*x**14) - b**3*
(a + b*x)**11*(6*A*b - 17*B*a)/(12376*a**5*x**13) + b**4*(a + b*x
)**11*(6*A*b - 17*B*a)/(74256*a**6*x**12) - b**5*(a + b*x)**11*(6
*A*b - 17*B*a)/(816816*a**7*x**11)
```

Mathematica [A] time = 0.123288, size = 222, normalized size = 1.18

$$-\frac{a^{10}(16A+17Bx)}{272x^{17}}-\frac{a^9b(15A+16Bx)}{24x^{16}}-\frac{3a^8b^2(14A+15Bx)}{14x^{15}}-\frac{60a^7b^3(13A+14Bx)}{91x^{14}}-\frac{35a^6b^4(12A+13Bx)}{26x^{13}}-\frac{21a^5b^5(11A+12Bx)}{11x^{12}}-\frac{21a^4b^6(10A+11Bx)}{11x^{11}}-\frac{4a^3b^7(9A+10Bx)}{3x^{10}}-\frac{5a^2b^8(8A+9Bx)}{8x^9}-\frac{5ab^9(7A+8Bx)}{28x^8}-\frac{b^{10}(6A+7Bx)}{42x^7}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^10*(A + B*x))/x^18,x]
```

```
[Out] -(b^10*(6*A + 7*B*x))/(42*x^7) - (5*a*b^9*(7*A + 8*B*x))/(28*x^8)
 - (5*a^2*b^8*(8*A + 9*B*x))/(8*x^9) - (4*a^3*b^7*(9*A + 10*B*x))
/(3*x^10) - (21*a^4*b^6*(10*A + 11*B*x))/(11*x^11) - (21*a^5*b^5*
(11*A + 12*B*x))/(11*x^12) - (35*a^6*b^4*(12*A + 13*B*x))/(26*x^1
3) - (60*a^7*b^3*(13*A + 14*B*x))/(91*x^14) - (3*a^8*b^2*(14*A +
15*B*x))/(14*x^15) - (a^9*b*(15*A + 16*B*x))/(24*x^16) - (a^10*(1
6*A + 17*B*x))/(272*x^17)
```

Maple [A] time = 0.009, size = 208, normalized size = 1.1

$$-\frac{5ab^8(2Ab+9Ba)}{8x^8}-\frac{15a^7b^2(8Ab+3Ba)}{14x^{14}}-\frac{42a^4b^5(5Ab+6Ba)}{11x^{11}}-\frac{7a^5b^4(6Ab+5Ba)}{2x^{12}}-\frac{b^9(Ab+10Ba)}{7x^7}-\frac{5a^2b^7(3Ab+8Ba)}{3x^9}-\frac{a^8b(9Ab+2Ba)}{3x^{15}}-\frac{a^9(10Ab+Ba)}{16x^{16}}-3\frac{a^3b^6(4Ab+7Ba)}{x^{10}}-\frac{Aa^{10}}{17x^{17}}-\frac{30a^6b^3(7Ab+4Ba)}{13x^{13}}-\frac{Bb^{10}}{6x^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^10*(B*x+A)/x^18,x)
```

```
[Out] -5/8*a*b^8*(2*A*b+9*B*a)/x^8-15/14*a^7*b^2*(8*A*b+3*B*a)/x^14-42/
11*a^4*b^5*(5*A*b+6*B*a)/x^11-7/2*a^5*b^4*(6*A*b+5*B*a)/x^12-1/7*
b^9*(A*b+10*B*a)/x^7-5/3*a^2*b^7*(3*A*b+8*B*a)/x^9-1/3*a^8*b*(9*A
*b+2*B*a)/x^15-1/16*a^9*(10*A*b+B*a)/x^16-3*a^3*b^6*(4*A*b+7*B*a)
/x^10-1/17*A*a^10/x^17-30/13*a^6*b^3*(7*A*b+4*B*a)/x^13-1/6*B*b^1
0/x^6
```

Maxima [A] time = 1.36381, size = 328, normalized size = 1.74

$$-\frac{136136\,Bb^{10}x^{11}+48048\,Aa^{10}+116688\left(10\,Bab^9+Ab^{10}\right)x^{10}+510510\left(9\,Ba^2b^8+2\,Aab^9\right)x^9+1361360\left(8\,Ba^3b^7+3\,Aa^2b^8\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^18,x, algorithm="maxima")
```

```
[Out] -1/816816*(136136*B*b^10*x^11 + 48048*A*a^10 + 116688*(10*B*a*b^9
 + A*b^10)*x^10 + 510510*(9*B*a^2*b^8 + 2*A*a*b^9)*x^9 + 1361360*
(8*B*a^3*b^7 + 3*A*a^2*b^8)*x^8 + 2450448*(7*B*a^4*b^6 + 4*A*a^3*
b^7)*x^7 + 3118752*(6*B*a^5*b^5 + 5*A*a^4*b^6)*x^6 + 2858856*(5*B
*a^6*b^4 + 6*A*a^5*b^5)*x^5 + 1884960*(4*B*a^7*b^3 + 7*A*a^6*b^4)
*x^4 + 875160*(3*B*a^8*b^2 + 8*A*a^7*b^3)*x^3 + 272272*(2*B*a^9*b
 + 9*A*a^8*b^2)*x^2 + 51051*(B*a^10 + 10*A*a^9*b)*x)/x^17
```

Fricas [A] time = 0.200692, size = 328, normalized size = 1.74

$$-\frac{136136\,Bb^{10}x^{11}+48048\,Aa^{10}+116688\left(10\,Bab^9+Ab^{10}\right)x^{10}+510510\left(9\,Ba^2b^8+2\,Aab^9\right)x^9+1361360\left(8\,Ba^3b^7+3\,Aa^2b^8\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^18,x, algorithm="fricas")
```

```
[Out] -1/816816*(136136*B*b^10*x^11 + 48048*A*a^10 + 116688*(10*B*a*b^9
 + A*b^10)*x^10 + 510510*(9*B*a^2*b^8 + 2*A*a*b^9)*x^9 + 1361360*
```

```
(8*B*a^3*b^7 + 3*A*a^2*b^8)*x^8 + 2450448*(7*B*a^4*b^6 + 4*A*a^3*
b^7)*x^7 + 3118752*(6*B*a^5*b^5 + 5*A*a^4*b^6)*x^6 + 2858856*(5*B
*a^6*b^4 + 6*A*a^5*b^5)*x^5 + 1884960*(4*B*a^7*b^3 + 7*A*a^6*b^4)
*x^4 + 875160*(3*B*a^8*b^2 + 8*A*a^7*b^3)*x^3 + 272272*(2*B*a^9*b
 + 9*A*a^8*b^2)*x^2 + 51051*(B*a^10 + 10*A*a^9*b)*x)/x^17
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)/x**18,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.273894, size = 328, normalized size = 1.74

$$-\frac{136136\,Bb^{10}x^{11} + 1166880\,Bab^{9}x^{10} + 116688\,Ab^{10}x^{10} + 4594590\,Ba^{2}b^{8}x^{9} + 1021020\,Aab^{9}x^{9} + 10890880\,Ba^{3}b^{7}x^{8} + 408408}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^18,x, algorithm="giac")
```

```
[Out] -1/816816*(136136*B*b^10*x^11 + 1166880*B*a*b^9*x^10 + 116688*A*b
^10*x^10 + 4594590*B*a^2*b^8*x^9 + 1021020*A*a*b^9*x^9 + 10890880
*B*a^3*b^7*x^8 + 4084080*A*a^2*b^8*x^8 + 17153136*B*a^4*b^6*x^7 +
 9801792*A*a^3*b^7*x^7 + 18712512*B*a^5*b^5*x^6 + 15593760*A*a^4*
b^6*x^6 + 14294280*B*a^6*b^4*x^5 + 17153136*A*a^5*b^5*x^5 + 75398
40*B*a^7*b^3*x^4 + 13194720*A*a^6*b^4*x^4 + 2625480*B*a^8*b^2*x^3
 + 7001280*A*a^7*b^3*x^3 + 544544*B*a^9*b*x^2 + 2450448*A*a^8*b^2
*x^2 + 51051*B*a^10*x + 510510*A*a^9*b*x + 48048*A*a^10)/x^17
```

3.135 $\int \frac{(a+bx)^{10}(A+Bx)}{x^{19}}\,dx$

Optimal. Leaf size=229

$$-\frac{a^{10}A}{18x^{18}}-\frac{a^9(aB+10Ab)}{17x^{17}}-\frac{5a^8b(2aB+9Ab)}{16x^{16}}-\frac{a^7b^2(3aB+8Ab)}{x^{15}}-\frac{15a^6b^3(4aB+7Ab)}{7x^{14}}-\frac{42a^5b^4(5aB+6Ab)}{13x^{13}}-\frac{7a^4b^5(6aB+5Ab)}{2x^{12}}-\frac{30a^3b^6(7aB+4Ab)}{11x^{11}}-\frac{3a^2b^7(8aB+3Ab)}{2x^{10}}-\frac{b^9(10aB+Ab)}{8x^8}-\frac{5ab^8(9aB+2Ab)}{9x^9}-\frac{b^{10}B}{7x^7}$$

```
[Out] -(a^10*A)/(18*x^18) - (a^9*(10*A*b + a*B))/(17*x^17) - (5*a^8*b*(
9*A*b + 2*a*B))/(16*x^16) - (a^7*b^2*(8*A*b + 3*a*B))/x^15 - (15*
a^6*b^3*(7*A*b + 4*a*B))/(7*x^14) - (42*a^5*b^4*(6*A*b + 5*a*B))/
(13*x^13) - (7*a^4*b^5*(5*A*b + 6*a*B))/(2*x^12) - (30*a^3*b^6*(4
*A*b + 7*a*B))/(11*x^11) - (3*a^2*b^7*(3*A*b + 8*a*B))/(2*x^10) -
 (5*a*b^8*(2*A*b + 9*a*B))/(9*x^9) - (b^9*(A*b + 10*a*B))/(8*x^8)
 - (b^10*B)/(7*x^7)
```

Rubi [A] time = 0.503284, antiderivative size = 229, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{a^{10}A}{18x^{18}}-\frac{a^9(aB+10Ab)}{17x^{17}}-\frac{5a^8b(2aB+9Ab)}{16x^{16}}-\frac{a^7b^2(3aB+8Ab)}{x^{15}}-\frac{15a^6b^3(4aB+7Ab)}{7x^{14}}-\frac{42a^5b^4(5aB+6Ab)}{13x^{13}}-\frac{7a^4b^5(6aB+5Ab)}{2x^{12}}-\frac{30a^3b^6(7aB+4Ab)}{11x^{11}}-\frac{3a^2b^7(8aB+3Ab)}{2x^{10}}-\frac{b^9(10aB+Ab)}{8x^8}-\frac{5ab^8(9aB+2Ab)}{9x^9}-\frac{b^{10}B}{7x^7}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^10*(A + B*x))/x^19,x]
```

```
[Out] -(a^10*A)/(18*x^18) - (a^9*(10*A*b + a*B))/(17*x^17) - (5*a^8*b*(
9*A*b + 2*a*B))/(16*x^16) - (a^7*b^2*(8*A*b + 3*a*B))/x^15 - (15*
a^6*b^3*(7*A*b + 4*a*B))/(7*x^14) - (42*a^5*b^4*(6*A*b + 5*a*B))/
(13*x^13) - (7*a^4*b^5*(5*A*b + 6*a*B))/(2*x^12) - (30*a^3*b^6*(4
*A*b + 7*a*B))/(11*x^11) - (3*a^2*b^7*(3*A*b + 8*a*B))/(2*x^10) -
 (5*a*b^8*(2*A*b + 9*a*B))/(9*x^9) - (b^9*(A*b + 10*a*B))/(8*x^8)
 - (b^10*B)/(7*x^7)
```

Rubi in Sympy [A] time = 78.1327, size = 238, normalized size = 1.04

$$-\frac{Aa^{10}}{18x^{18}}-\frac{Bb^{10}}{7x^7}-\frac{a^9\left(10Ab+Ba\right)}{17x^{17}}-\frac{5a^8b\left(9Ab+2Ba\right)}{16x^{16}}-\frac{a^7b^2\left(8Ab+3Ba\right)}{x^{15}}-\frac{15a^6b^3\left(7Ab+4Ba\right)}{7x^{14}}-\frac{42a^5b^4\left(6Ab+5Ba\right)}{13x^{13}}-\frac{7a^4b^5\left(5Ab+6Ba\right)}{2x^{12}}-\frac{30a^3b^6\left(4Ab+7Ba\right)}{11x^{11}}-\frac{3a^2b^7\left(3Ab+8Ba\right)}{2x^{10}}-\frac{5ab^8\left(2Ab+9Ba\right)}{9x^9}-\frac{b^9\left(Ab+10Ba\right)}{8x^8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)/x**19,x)
```

```
[Out] -A*a**10/(18*x**18) - B*b**10/(7*x**7) - a**9*(10*A*b + B*a)/(17*
x**17) - 5*a**8*b*(9*A*b + 2*B*a)/(16*x**16) - a**7*b**2*(8*A*b +
 3*B*a)/x**15 - 15*a**6*b**3*(7*A*b + 4*B*a)/(7*x**14) - 42*a**5*
b**4*(6*A*b + 5*B*a)/(13*x**13) - 7*a**4*b**5*(5*A*b + 6*B*a)/(2*
x**12) - 30*a**3*b**6*(4*A*b + 7*B*a)/(11*x**11) - 3*a**2*b**7*(3
*A*b + 8*B*a)/(2*x**10) - 5*a*b**8*(2*A*b + 9*B*a)/(9*x**9) - b**
9*(A*b + 10*B*a)/(8*x**8)
```

Mathematica [A] time = 0.12804, size = 222, normalized size = 0.97

$$-\frac{a^{10}(17A+18Bx)}{306x^{18}}-\frac{5a^9b(16A+17Bx)}{136x^{17}}-\frac{3a^8b^2(15A+16Bx)}{16x^{16}}-\frac{4a^7b^3(14A+15Bx)}{7x^{15}}-\frac{15a^6b^4(13A+14Bx)}{13x^{14}}-\frac{21a^5b^5(12A+13Bx)}{13x^{13}}-\frac{35a^4b^6(11A+12Bx)}{22x^{12}}-\frac{12a^3b^7(10A+11Bx)}{11x^{11}}-\frac{a^2b^8(9A+10Bx)}{2x^{10}}-\frac{5ab^9(8A+9Bx)}{36x^9}-\frac{b^{10}(7A+8Bx)}{56x^8}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^10*(A + B*x))/x^19,x]
```

```
[Out] -(b^10*(7*A + 8*B*x))/(56*x^8) - (5*a*b^9*(8*A + 9*B*x))/(36*x^9)
 - (a^2*b^8*(9*A + 10*B*x))/(2*x^10) - (12*a^3*b^7*(10*A + 11*B*x
))/(11*x^11) - (35*a^4*b^6*(11*A + 12*B*x))/(22*x^12) - (21*a^5*b
^5*(12*A + 13*B*x))/(13*x^13) - (15*a^6*b^4*(13*A + 14*B*x))/(13*
x^14) - (4*a^7*b^3*(14*A + 15*B*x))/(7*x^15) - (3*a^8*b^2*(15*A +
 16*B*x))/(16*x^16) - (5*a^9*b*(16*A + 17*B*x))/(136*x^17) - (a^1
0*(17*A + 18*B*x))/(306*x^18)
```

Maple [A] time = 0.01, size = 208, normalized size = 0.9

$$-\frac{Aa^{10}}{18\,x^{18}}-\frac{a^9\,(10\,Ab+Ba)}{17\,x^{17}}-\frac{5\,a^8b\,(9\,Ab+2\,Ba)}{16\,x^{16}}-\frac{a^7b^2\,(8\,Ab+3\,Ba)}{x^{15}}-\frac{15\,a^6b^3\,(7\,Ab+4\,Ba)}{7\,x^{14}}-\frac{42\,a^5b^4\,(6\,Ab+5\,Ba)}{13\,x^{13}}-\frac{7\,a^4b^5\,(5\,Ab+6\,Ba)}{2\,x^{12}}-\frac{30\,a^3b^6\,(4\,Ab+7\,Ba)}{11\,x^{11}}-\frac{3\,a^2b^7\,(3\,Ab+8\,Ba)}{2\,x^{10}}-\frac{5\,ab^8\,(2\,Ab+9\,Ba)}{9\,x^9}-\frac{b^9\,(Ab+10\,Ba)}{8\,x^8}-\frac{Bb^{10}}{7\,x^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^10*(B*x+A)/x^19,x)
```

```
[Out] -1/18*a^10*A/x^18-1/17*a^9*(10*A*b+B*a)/x^17-5/16*a^8*b*(9*A*b+2*
B*a)/x^16-a^7*b^2*(8*A*b+3*B*a)/x^15-15/7*a^6*b^3*(7*A*b+4*B*a)/x
^14-42/13*a^5*b^4*(6*A*b+5*B*a)/x^13-7/2*a^4*b^5*(5*A*b+6*B*a)/x^
12-30/11*a^3*b^6*(4*A*b+7*B*a)/x^11-3/2*a^2*b^7*(3*A*b+8*B*a)/x^1
0-5/9*a*b^8*(2*A*b+9*B*a)/x^9-1/8*b^9*(A*b+10*B*a)/x^8-1/7*b^10*B
/x^7
```

Maxima [A] time = 1.36015, size = 328, normalized size = 1.43

$$-\frac{350064\,Bb^{10}x^{11}+136136\,Aa^{10}+306306\left(10\,Bab^9+Ab^{10}\right)x^{10}+1361360\left(9\,Ba^2b^8+2\,Aab^9\right)x^9+3675672\left(8\,Ba^3b^7+3\,Aa^2\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^19,x, algorithm="maxima")
```

```
[Out] -1/2450448*(350064*B*b^10*x^11 + 136136*A*a^10 + 306306*(10*B*a*b
^9 + A*b^10)*x^10 + 1361360*(9*B*a^2*b^8 + 2*A*a*b^9)*x^9 + 36756
72*(8*B*a^3*b^7 + 3*A*a^2*b^8)*x^8 + 6683040*(7*B*a^4*b^6 + 4*A*a
^3*b^7)*x^7 + 8576568*(6*B*a^5*b^5 + 5*A*a^4*b^6)*x^6 + 7916832*(
5*B*a^6*b^4 + 6*A*a^5*b^5)*x^5 + 5250960*(4*B*a^7*b^3 + 7*A*a^6*b
^4)*x^4 + 2450448*(3*B*a^8*b^2 + 8*A*a^7*b^3)*x^3 + 765765*(2*B*a
^9*b + 9*A*a^8*b^2)*x^2 + 144144*(B*a^10 + 10*A*a^9*b)*x)/x^18
```

Fricas [A] time = 0.196024, size = 328, normalized size = 1.43

$$-\frac{350064\,Bb^{10}x^{11} + 136136\,Aa^{10} + 306306\,\left(10\,Bab^{9} + Ab^{10}\right)x^{10} + 1361360\,\left(9\,Ba^{2}b^{8} + 2\,Aab^{9}\right)x^{9} + 3675672\,\left(8\,Ba^{3}b^{7} + 3\,Aa^{2}\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^19,x, algorithm="fricas")
```

```
[Out] -1/2450448*(350064*B*b^10*x^11 + 136136*A*a^10 + 306306*(10*B*a*b
^9 + A*b^10)*x^10 + 1361360*(9*B*a^2*b^8 + 2*A*a*b^9)*x^9 + 36756
72*(8*B*a^3*b^7 + 3*A*a^2*b^8)*x^8 + 6683040*(7*B*a^4*b^6 + 4*A*a
^3*b^7)*x^7 + 8576568*(6*B*a^5*b^5 + 5*A*a^4*b^6)*x^6 + 7916832*(
5*B*a^6*b^4 + 6*A*a^5*b^5)*x^5 + 5250960*(4*B*a^7*b^3 + 7*A*a^6*b
^4)*x^4 + 2450448*(3*B*a^8*b^2 + 8*A*a^7*b^3)*x^3 + 765765*(2*B*a
^9*b + 9*A*a^8*b^2)*x^2 + 144144*(B*a^10 + 10*A*a^9*b)*x)/x^18
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)/x**19,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.281799, size = 328, normalized size = 1.43

$$-\frac{350064\,Bb^{10}x^{11} + 3063060\,Bab^{9}x^{10} + 306306\,Ab^{10}x^{10} + 12252240\,Ba^{2}b^{8}x^{9} + 2722720\,Aab^{9}x^{9} + 29405376\,Ba^{3}b^{7}x^{8} + 11027}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^19,x, algorithm="giac")
```

```
[Out] -1/2450448*(350064*B*b^10*x^11 + 3063060*B*a*b^9*x^10 + 306306*A*
b^10*x^10 + 12252240*B*a^2*b^8*x^9 + 2722720*A*a*b^9*x^9 + 294053
76*B*a^3*b^7*x^8 + 11027016*A*a^2*b^8*x^8 + 46781280*B*a^4*b^6*x^
7 + 26732160*A*a^3*b^7*x^7 + 51459408*B*a^5*b^5*x^6 + 42882840*A*
a^4*b^6*x^6 + 39584160*B*a^6*b^4*x^5 + 47500992*A*a^5*b^5*x^5 + 2
1003840*B*a^7*b^3*x^4 + 36756720*A*a^6*b^4*x^4 + 7351344*B*a^8*b^
2*x^3 + 19603584*A*a^7*b^3*x^3 + 1531530*B*a^9*b*x^2 + 6891885*A*
a^8*b^2*x^2 + 144144*B*a^10*x + 1441440*A*a^9*b*x + 136136*A*a^10
)/x^18
```

3.136 $\int \frac{(a+bx)^{10}(A+Bx)}{x^{20}}\,dx$

Optimal. Leaf size=227

$$-\frac{a^{10}A}{19x^{19}}-\frac{a^9(aB+10Ab)}{18x^{18}}-\frac{5a^8b(2aB+9Ab)}{17x^{17}}-\frac{15a^7b^2(3aB+8Ab)}{16x^{16}}-\frac{2a^6b^3(4aB+7Ab)}{x^{15}}-\frac{3a^5b^4(5aB+6Ab)}{x^{14}}-\frac{42a^4b^5(6aB+5Ab)}{13x^{13}}-\frac{5a^3b^6(7aB+4Ab)}{2x^{12}}-\frac{15a^2b^7(8aB+3Ab)}{11x^{11}}-\frac{b^9(10aB+Ab)}{9x^9}-\frac{ab^8(9aB+2Ab)}{2x^{10}}-\frac{b^{10}B}{8x^8}$$

```
[Out] -(a^10*A)/(19*x^19) - (a^9*(10*A*b + a*B))/(18*x^18) - (5*a^8*b*(
9*A*b + 2*a*B))/(17*x^17) - (15*a^7*b^2*(8*A*b + 3*a*B))/(16*x^16
) - (2*a^6*b^3*(7*A*b + 4*a*B))/x^15 - (3*a^5*b^4*(6*A*b + 5*a*B)
)/x^14 - (42*a^4*b^5*(5*A*b + 6*a*B))/(13*x^13) - (5*a^3*b^6*(4*A
*b + 7*a*B))/(2*x^12) - (15*a^2*b^7*(3*A*b + 8*a*B))/(11*x^11) -
(a*b^8*(2*A*b + 9*a*B))/(2*x^10) - (b^9*(A*b + 10*a*B))/(9*x^9) -
 (b^10*B)/(8*x^8)
```

Rubi [A] time = 0.495038, antiderivative size = 227, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{a^{10}A}{19x^{19}}-\frac{a^9(aB+10Ab)}{18x^{18}}-\frac{5a^8b(2aB+9Ab)}{17x^{17}}-\frac{15a^7b^2(3aB+8Ab)}{16x^{16}}-\frac{2a^6b^3(4aB+7Ab)}{x^{15}}-\frac{3a^5b^4(5aB+6Ab)}{x^{14}}-\frac{42a^4b^5(6aB+5Ab)}{13x^{13}}-\frac{5a^3b^6(7aB+4Ab)}{2x^{12}}-\frac{15a^2b^7(8aB+3Ab)}{11x^{11}}-\frac{b^9(10aB+Ab)}{9x^9}-\frac{ab^8(9aB+2Ab)}{2x^{10}}-\frac{b^{10}B}{8x^8}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^10*(A + B*x))/x^20,x]
```

```
[Out] -(a^10*A)/(19*x^19) - (a^9*(10*A*b + a*B))/(18*x^18) - (5*a^8*b*(
9*A*b + 2*a*B))/(17*x^17) - (15*a^7*b^2*(8*A*b + 3*a*B))/(16*x^16
) - (2*a^6*b^3*(7*A*b + 4*a*B))/x^15 - (3*a^5*b^4*(6*A*b + 5*a*B)
)/x^14 - (42*a^4*b^5*(5*A*b + 6*a*B))/(13*x^13) - (5*a^3*b^6*(4*A
*b + 7*a*B))/(2*x^12) - (15*a^2*b^7*(3*A*b + 8*a*B))/(11*x^11) -
(a*b^8*(2*A*b + 9*a*B))/(2*x^10) - (b^9*(A*b + 10*a*B))/(9*x^9) -
 (b^10*B)/(8*x^8)
```

Rubi in Sympy [A] time = 77.5899, size = 236, normalized size = 1.04

$$-\frac{Aa^{10}}{19x^{19}}-\frac{Bb^{10}}{8x^8}-\frac{a^9\left(10Ab+Ba\right)}{18x^{18}}-\frac{5a^8b\left(9Ab+2Ba\right)}{17x^{17}}-\frac{15a^7b^2\left(8Ab+3Ba\right)}{16x^{16}}-\frac{2a^6b^3\left(7Ab+4Ba\right)}{x^{15}}-\frac{3a^5b^4\left(6Ab+5Ba\right)}{x^{14}}-\frac{42a^4b^5\left(5Ab+6Ba\right)}{13x^{13}}-\frac{5a^3b^6\left(4Ab+7Ba\right)}{2x^{12}}-\frac{15a^2b^7\left(3Ab+8Ba\right)}{11x^{11}}-\frac{ab^8\left(2Ab+9Ba\right)}{2x^{10}}-\frac{b^9\left(Ab+10Ba\right)}{9x^9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)/x**20,x)
```

```
[Out] -A*a**10/(19*x**19) - B*b**10/(8*x**8) - a**9*(10*A*b + B*a)/(18*
x**18) - 5*a**8*b*(9*A*b + 2*B*a)/(17*x**17) - 15*a**7*b**2*(8*A*
b + 3*B*a)/(16*x**16) - 2*a**6*b**3*(7*A*b + 4*B*a)/x**15 - 3*a**
5*b**4*(6*A*b + 5*B*a)/x**14 - 42*a**4*b**5*(5*A*b + 6*B*a)/(13*x
**13) - 5*a**3*b**6*(4*A*b + 7*B*a)/(2*x**12) - 15*a**2*b**7*(3*A
*b + 8*B*a)/(11*x**11) - a*b**8*(2*A*b + 9*B*a)/(2*x**10) - b**9*
(A*b + 10*B*a)/(9*x**9)
```

Mathematica [A] time = 0.128141, size = 220, normalized size = 0.97

$$-\frac{a^{10}(18A+19Bx)}{342x^{19}}-\frac{5a^9b(17A+18Bx)}{153x^{18}}-\frac{45a^8b^2(16A+17Bx)}{272x^{17}}-\frac{a^7b^3(15A+16Bx)}{2x^{16}}-\frac{a^6b^4(14A+15Bx)}{x^{15}}-\frac{18a^5b^5(13A+14Bx)}{13x^{14}}-\frac{35a^4b^6(12A+13Bx)}{26x^{13}}-\frac{10a^3b^7(11A+12Bx)}{11x^{12}}-\frac{9a^2b^8(10A+11Bx)}{22x^{11}}-\frac{ab^9(9A+10Bx)}{9x^{10}}-\frac{b^{10}(8A+9Bx)}{72x^9}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^10*(A + B*x))/x^20,x]
```

```
[Out] -(b^10*(8*A + 9*B*x))/(72*x^9) - (a*b^9*(9*A + 10*B*x))/(9*x^10)
- (9*a^2*b^8*(10*A + 11*B*x))/(22*x^11) - (10*a^3*b^7*(11*A + 12*
B*x))/(11*x^12) - (35*a^4*b^6*(12*A + 13*B*x))/(26*x^13) - (18*a^
5*b^5*(13*A + 14*B*x))/(13*x^14) - (a^6*b^4*(14*A + 15*B*x))/x^15
 - (a^7*b^3*(15*A + 16*B*x))/(2*x^16) - (45*a^8*b^2*(16*A + 17*B*
x))/(272*x^17) - (5*a^9*b*(17*A + 18*B*x))/(153*x^18) - (a^10*(18
*A + 19*B*x))/(342*x^19)
```

Maple [A] time = 0.01, size = 208, normalized size = 0.9

$$-\frac{Aa^{10}}{19\,x^{19}}-\frac{a^9\,(10\,Ab+Ba)}{18\,x^{18}}-\frac{5\,a^8b\,(9\,Ab+2\,Ba)}{17\,x^{17}}-\frac{15\,a^7b^2\,(8\,Ab+3\,Ba)}{16\,x^{16}}-2\,\frac{a^6b^3\,(7\,Ab+4\,Ba)}{x^{15}}-3\,\frac{a^5b^4\,(6\,Ab+5\,Ba)}{x^{14}}-\frac{42\,a^4b^5\,(5\,Ab+6\,Ba)}{13\,x^{13}}-\frac{5\,a^3b^6\,(4\,Ab+7\,Ba)}{2\,x^{12}}-\frac{15\,a^2b^7\,(3\,Ab+8\,Ba)}{11\,x^{11}}-\frac{ab^8\,(2\,Ab+9\,Ba)}{2\,x^{10}}-\frac{b^9\,(Ab+10\,Ba)}{9\,x^9}-\frac{Bb^{10}}{8\,x^8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^10*(B*x+A)/x^20,x)
```

```
[Out] -1/19*a^10*A/x^19-1/18*a^9*(10*A*b+B*a)/x^18-5/17*a^8*b*(9*A*b+2*
B*a)/x^17-15/16*a^7*b^2*(8*A*b+3*B*a)/x^16-2*a^6*b^3*(7*A*b+4*B*a
)/x^15-3*a^5*b^4*(6*A*b+5*B*a)/x^14-42/13*a^4*b^5*(5*A*b+6*B*a)/x
^13-5/2*a^3*b^6*(4*A*b+7*B*a)/x^12-15/11*a^2*b^7*(3*A*b+8*B*a)/x^
11-1/2*a*b^8*(2*A*b+9*B*a)/x^10-1/9*b^9*(A*b+10*B*a)/x^9-1/8*b^10
*B/x^8
```

Maxima [A] time = 1.36153, size = 328, normalized size = 1.44

$$-\frac{831402\,Bb^{10}x^{11}+350064\,Aa^{10}+739024\left(10\,Bab^9+Ab^{10}\right)x^{10}+3325608\left(9\,Ba^2b^8+2\,Aab^9\right)x^9+9069840\left(8\,Ba^3b^7+3\,Aa^2\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^20,x, algorithm="maxima")
```

```
[Out] -1/6651216*(831402*B*b^10*x^11 + 350064*A*a^10 + 739024*(10*B*a*b
^9 + A*b^10)*x^10 + 3325608*(9*B*a^2*b^8 + 2*A*a*b^9)*x^9 + 90698
40*(8*B*a^3*b^7 + 3*A*a^2*b^8)*x^8 + 16628040*(7*B*a^4*b^6 + 4*A*
a^3*b^7)*x^7 + 21488544*(6*B*a^5*b^5 + 5*A*a^4*b^6)*x^6 + 1995364
8*(5*B*a^6*b^4 + 6*A*a^5*b^5)*x^5 + 13302432*(4*B*a^7*b^3 + 7*A*a
^6*b^4)*x^4 + 6235515*(3*B*a^8*b^2 + 8*A*a^7*b^3)*x^3 + 1956240*(
2*B*a^9*b + 9*A*a^8*b^2)*x^2 + 369512*(B*a^10 + 10*A*a^9*b)*x)/x^
19
```

Fricas [A] time = 0.196571, size = 328, normalized size = 1.44

$$-\frac{831402\,Bb^{10}x^{11}+350064\,Aa^{10}+739024\,\left(10\,Bab^{9}+Ab^{10}\right)x^{10}+3325608\,\left(9\,Ba^{2}b^{8}+2\,Aab^{9}\right)x^{9}+9069840\,\left(8\,Ba^{3}b^{7}+3\,Aa^{2}\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^20,x, algorithm="fricas")
```

```
[Out] -1/6651216*(831402*B*b^10*x^11 + 350064*A*a^10 + 739024*(10*B*a*b
^9 + A*b^10)*x^10 + 3325608*(9*B*a^2*b^8 + 2*A*a*b^9)*x^9 + 90698
40*(8*B*a^3*b^7 + 3*A*a^2*b^8)*x^8 + 16628040*(7*B*a^4*b^6 + 4*A*
a^3*b^7)*x^7 + 21488544*(6*B*a^5*b^5 + 5*A*a^4*b^6)*x^6 + 1995364
8*(5*B*a^6*b^4 + 6*A*a^5*b^5)*x^5 + 13302432*(4*B*a^7*b^3 + 7*A*a
^6*b^4)*x^4 + 6235515*(3*B*a^8*b^2 + 8*A*a^7*b^3)*x^3 + 1956240*(
2*B*a^9*b + 9*A*a^8*b^2)*x^2 + 369512*(B*a^10 + 10*A*a^9*b)*x)/x^
19
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)/x**20,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.371221, size = 328, normalized size = 1.44

$$-\frac{831402\,Bb^{10}x^{11}+7390240\,Bab^{9}x^{10}+739024\,Ab^{10}x^{10}+29930472\,Ba^{2}b^{8}x^{9}+6651216\,Aab^{9}x^{9}+72558720\,Ba^{3}b^{7}x^{8}+2720}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^20,x, algorithm="giac")
```

```
[Out] -1/6651216*(831402*B*b^10*x^11 + 7390240*B*a*b^9*x^10 + 739024*A*
b^10*x^10 + 29930472*B*a^2*b^8*x^9 + 6651216*A*a*b^9*x^9 + 725587
20*B*a^3*b^7*x^8 + 27209520*A*a^2*b^8*x^8 + 116396280*B*a^4*b^6*x
^7 + 66512160*A*a^3*b^7*x^7 + 128931264*B*a^5*b^5*x^6 + 107442720
*A*a^4*b^6*x^6 + 99768240*B*a^6*b^4*x^5 + 119721888*A*a^5*b^5*x^5
 + 53209728*B*a^7*b^3*x^4 + 93117024*A*a^6*b^4*x^4 + 18706545*B*a
^8*b^2*x^3 + 49884120*A*a^7*b^3*x^3 + 3912480*B*a^9*b*x^2 + 17606
160*A*a^8*b^2*x^2 + 369512*B*a^10*x + 3695120*A*a^9*b*x + 350064*
A*a^10)/x^19
```

3.137 $\int \frac{(a+bx)^{10}(A+Bx)}{x^{21}}\,dx$

Optimal. Leaf size=229

$$-\frac{a^{10}A}{20x^{20}}-\frac{a^9(aB+10Ab)}{19x^{19}}-\frac{5a^8b(2aB+9Ab)}{18x^{18}}-\frac{15a^7b^2(3aB+8Ab)}{17x^{17}}-\frac{15a^6b^3(4aB+7Ab)}{8x^{16}}-\frac{14a^5b^4(5aB+6Ab)}{5x^{15}}-\frac{3a^4b^5(6aB+5Ab)}{x^{14}}-\frac{30a^3b^6(7aB+4Ab)}{13x^{13}}-\frac{5a^2b^7(8aB+3Ab)}{4x^{12}}-\frac{b^9(10aB+Ab)}{10x^{10}}-\frac{5ab^8(9aB+2Ab)}{11x^{11}}-\frac{b^{10}B}{9x^9}$$

```
[Out] -(a^10*A)/(20*x^20) - (a^9*(10*A*b + a*B))/(19*x^19) - (5*a^8*b*(
9*A*b + 2*a*B))/(18*x^18) - (15*a^7*b^2*(8*A*b + 3*a*B))/(17*x^17
) - (15*a^6*b^3*(7*A*b + 4*a*B))/(8*x^16) - (14*a^5*b^4*(6*A*b +
5*a*B))/(5*x^15) - (3*a^4*b^5*(5*A*b + 6*a*B))/x^14 - (30*a^3*b^6
*(4*A*b + 7*a*B))/(13*x^13) - (5*a^2*b^7*(3*A*b + 8*a*B))/(4*x^12
) - (5*a*b^8*(2*A*b + 9*a*B))/(11*x^11) - (b^9*(A*b + 10*a*B))/(1
0*x^10) - (b^10*B)/(9*x^9)
```

Rubi [A] time = 0.4905, antiderivative size = 229, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{a^{10}A}{20x^{20}}-\frac{a^9(aB+10Ab)}{19x^{19}}-\frac{5a^8b(2aB+9Ab)}{18x^{18}}-\frac{15a^7b^2(3aB+8Ab)}{17x^{17}}-\frac{15a^6b^3(4aB+7Ab)}{8x^{16}}-\frac{14a^5b^4(5aB+6Ab)}{5x^{15}}-\frac{3a^4b^5(6aB+5Ab)}{x^{14}}-\frac{30a^3b^6(7aB+4Ab)}{13x^{13}}-\frac{5a^2b^7(8aB+3Ab)}{4x^{12}}-\frac{b^9(10aB+Ab)}{10x^{10}}-\frac{5ab^8(9aB+2Ab)}{11x^{11}}-\frac{b^{10}B}{9x^9}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^10*(A + B*x))/x^21,x]
```


```
[Out] -(a^10*A)/(20*x^20) - (a^9*(10*A*b + a*B))/(19*x^19) - (5*a^8*b*(
9*A*b + 2*a*B))/(18*x^18) - (15*a^7*b^2*(8*A*b + 3*a*B))/(17*x^17
) - (15*a^6*b^3*(7*A*b + 4*a*B))/(8*x^16) - (14*a^5*b^4*(6*A*b +
5*a*B))/(5*x^15) - (3*a^4*b^5*(5*A*b + 6*a*B))/x^14 - (30*a^3*b^6
*(4*A*b + 7*a*B))/(13*x^13) - (5*a^2*b^7*(3*A*b + 8*a*B))/(4*x^12
) - (5*a*b^8*(2*A*b + 9*a*B))/(11*x^11) - (b^9*(A*b + 10*a*B))/(1
0*x^10) - (b^10*B)/(9*x^9)
```

Rubi in Sympy [A] time = 77.3907, size = 240, normalized size = 1.05

$$-\frac{Aa^{10}}{20x^{20}}-\frac{Bb^{10}}{9x^9}-\frac{a^9\left(10Ab+Ba\right)}{19x^{19}}-\frac{5a^8b\left(9Ab+2Ba\right)}{18x^{18}}-\frac{15a^7b^2\left(8Ab+3Ba\right)}{17x^{17}}-\frac{15a^6b^3\left(7Ab+4Ba\right)}{8x^{16}}-\frac{14a^5b^4\left(6Ab+5Ba\right)}{5x^{15}}-\frac{3a^4b^5\left(5Ab+6Ba\right)}{x^{14}}-\frac{30a^3b^6\left(4Ab+7Ba\right)}{13x^{13}}-\frac{5a^2b^7\left(3Ab+8Ba\right)}{4x^{12}}-\frac{5ab^8\left(2Ab+9Ba\right)}{11x^{11}}-\frac{b^9\left(Ab+10Ba\right)}{10x^{10}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)/x**21,x)
```

```
[Out] -A*a**10/(20*x**20) - B*b**10/(9*x**9) - a**9*(10*A*b + B*a)/(19*
x**19) - 5*a**8*b*(9*A*b + 2*B*a)/(18*x**18) - 15*a**7*b**2*(8*A*
b + 3*B*a)/(17*x**17) - 15*a**6*b**3*(7*A*b + 4*B*a)/(8*x**16) -
14*a**5*b**4*(6*A*b + 5*B*a)/(5*x**15) - 3*a**4*b**5*(5*A*b + 6*B
*a)/x**14 - 30*a**3*b**6*(4*A*b + 7*B*a)/(13*x**13) - 5*a**2*b**7
*(3*A*b + 8*B*a)/(4*x**12) - 5*a*b**8*(2*A*b + 9*B*a)/(11*x**11)
- b**9*(A*b + 10*B*a)/(10*x**10)
```

Mathematica [A] time = 0.121646, size = 222, normalized size = 0.97

$$-\frac{a^{10}(19A+20Bx)}{380x^{20}}-\frac{5a^9b(18A+19Bx)}{171x^{19}}-\frac{5a^8b^2(17A+18Bx)}{34x^{18}}-\frac{15a^7b^3(16A+17Bx)}{34x^{17}}-\frac{7a^6b^4(15A+16Bx)}{8x^{16}}-\frac{6a^5b^5(14A+15Bx)}{5x^{15}}-\frac{15a^4b^6(13A+14Bx)}{13x^{14}}-\frac{10a^3b^7(12A+13Bx)}{13x^{13}}-\frac{15a^2b^8(11A+12Bx)}{44x^{12}}-\frac{ab^9(10A+11Bx)}{11x^{11}}-\frac{b^{10}(9A+10Bx)}{90x^{10}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^10*(A + B*x))/x^21,x]
```

```
[Out] -(b^10*(9*A + 10*B*x))/(90*x^10) - (a*b^9*(10*A + 11*B*x))/(11*x^
11) - (15*a^2*b^8*(11*A + 12*B*x))/(44*x^12) - (10*a^3*b^7*(12*A
+ 13*B*x))/(13*x^13) - (15*a^4*b^6*(13*A + 14*B*x))/(13*x^14) - (
6*a^5*b^5*(14*A + 15*B*x))/(5*x^15) - (7*a^6*b^4*(15*A + 16*B*x))
/(8*x^16) - (15*a^7*b^3*(16*A + 17*B*x))/(34*x^17) - (5*a^8*b^2*(
17*A + 18*B*x))/(34*x^18) - (5*a^9*b*(18*A + 19*B*x))/(171*x^19)
- (a^10*(19*A + 20*B*x))/(380*x^20)
```

Maple [A] time = 0.01, size = 208, normalized size = 0.9

$$-\frac{Aa^{10}}{20\,x^{20}}-\frac{a^9\,(10\,Ab+Ba)}{19\,x^{19}}-\frac{5\,a^8b\,(9\,Ab+2\,Ba)}{18\,x^{18}}-\frac{15\,a^7b^2\,(8\,Ab+3\,Ba)}{17\,x^{17}}-\frac{15\,a^6b^3\,(7\,Ab+4\,Ba)}{8\,x^{16}}-\frac{14\,a^5b^4\,(6\,Ab+5\,Ba)}{5\,x^{15}}-3\,\frac{a^4b^5\,(5\,Ab+6\,Ba)}{x^{14}}-\frac{30\,a^3b^6\,(4\,Ab+7\,Ba)}{13\,x^{13}}-\frac{5\,a^2b^7\,(3\,Ab+8\,Ba)}{4\,x^{12}}-\frac{5\,ab^8\,(2\,Ab+9\,Ba)}{11\,x^{11}}-\frac{b^9\,(Ab+10\,Ba)}{10\,x^{10}}-\frac{Bb^{10}}{9\,x^9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^10*(B*x+A)/x^21,x)
```

```
[Out] -1/20*a^10*A/x^20-1/19*a^9*(10*A*b+B*a)/x^19-5/18*a^8*b*(9*A*b+2*
B*a)/x^18-15/17*a^7*b^2*(8*A*b+3*B*a)/x^17-15/8*a^6*b^3*(7*A*b+4*
B*a)/x^16-14/5*a^5*b^4*(6*A*b+5*B*a)/x^15-3*a^4*b^5*(5*A*b+6*B*a)
/x^14-30/13*a^3*b^6*(4*A*b+7*B*a)/x^13-5/4*a^2*b^7*(3*A*b+8*B*a)/
x^12-5/11*a*b^8*(2*A*b+9*B*a)/x^11-1/10*b^9*(A*b+10*B*a)/x^10-1/9
*b^10*B/x^9
```

Maxima [A] time = 1.35787, size = 328, normalized size = 1.43

$$-\frac{1847560\,Bb^{10}x^{11}+831402\,Aa^{10}+1662804\left(10\,Bab^9+Ab^{10}\right)x^{10}+7558200\left(9\,Ba^2b^8+2\,Aab^9\right)x^9+20785050\left(8\,Ba^3b^7+3\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^21,x, algorithm="maxima")
```

```
[Out] -1/16628040*(1847560*B*b^10*x^11 + 831402*A*a^10 + 1662804*(10*B*
a*b^9 + A*b^10)*x^10 + 7558200*(9*B*a^2*b^8 + 2*A*a*b^9)*x^9 + 20
785050*(8*B*a^3*b^7 + 3*A*a^2*b^8)*x^8 + 38372400*(7*B*a^4*b^6 +
4*A*a^3*b^7)*x^7 + 49884120*(6*B*a^5*b^5 + 5*A*a^4*b^6)*x^6 + 465
58512*(5*B*a^6*b^4 + 6*A*a^5*b^5)*x^5 + 31177575*(4*B*a^7*b^3 + 7
*A*a^6*b^4)*x^4 + 14671800*(3*B*a^8*b^2 + 8*A*a^7*b^3)*x^3 + 4618
900*(2*B*a^9*b + 9*A*a^8*b^2)*x^2 + 875160*(B*a^10 + 10*A*a^9*b)*
x)/x^20
```

Fricas [A] time = 0.194708, size = 328, normalized size = 1.43

$$-\frac{1847560\,Bb^{10}x^{11} + 831402\,Aa^{10} + 1662804\left(10\,Bab^{9} + Ab^{10}\right)x^{10} + 7558200\left(9\,Ba^{2}b^{8} + 2\,Aab^{9}\right)x^{9} + 20785050\left(8\,Ba^{3}b^{7} + 3\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^21,x, algorithm="fricas")
```

```
[Out] -1/16628040*(1847560*B*b^10*x^11 + 831402*A*a^10 + 1662804*(10*B*
a*b^9 + A*b^10)*x^10 + 7558200*(9*B*a^2*b^8 + 2*A*a*b^9)*x^9 + 20
785050*(8*B*a^3*b^7 + 3*A*a^2*b^8)*x^8 + 38372400*(7*B*a^4*b^6 +
4*A*a^3*b^7)*x^7 + 49884120*(6*B*a^5*b^5 + 5*A*a^4*b^6)*x^6 + 465
58512*(5*B*a^6*b^4 + 6*A*a^5*b^5)*x^5 + 31177575*(4*B*a^7*b^3 + 7
*A*a^6*b^4)*x^4 + 14671800*(3*B*a^8*b^2 + 8*A*a^7*b^3)*x^3 + 4618
900*(2*B*a^9*b + 9*A*a^8*b^2)*x^2 + 875160*(B*a^10 + 10*A*a^9*b)*
x)/x^20
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)/x**21,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.264824, size = 328, normalized size = 1.43

$$-\frac{1847560\,Bb^{10}x^{11} + 16628040\,Bab^{9}x^{10} + 1662804\,Ab^{10}x^{10} + 68023800\,Ba^{2}b^{8}x^{9} + 15116400\,Aab^{9}x^{9} + 166280400\,Ba^{3}b^{7}x^{8} +}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/x^21,x, algorithm="giac")
```

```
[Out] -1/16628040*(1847560*B*b^10*x^11 + 16628040*B*a*b^9*x^10 + 166280
4*A*b^10*x^10 + 68023800*B*a^2*b^8*x^9 + 15116400*A*a*b^9*x^9 + 1
66280400*B*a^3*b^7*x^8 + 62355150*A*a^2*b^8*x^8 + 268606800*B*a^4
*b^6*x^7 + 153489600*A*a^3*b^7*x^7 + 299304720*B*a^5*b^5*x^6 + 24
9420600*A*a^4*b^6*x^6 + 232792560*B*a^6*b^4*x^5 + 279351072*A*a^5
*b^5*x^5 + 124710300*B*a^7*b^3*x^4 + 218243025*A*a^6*b^4*x^4 + 44
015400*B*a^8*b^2*x^3 + 117374400*A*a^7*b^3*x^3 + 9237800*B*a^9*b*
x^2 + 41570100*A*a^8*b^2*x^2 + 875160*B*a^10*x + 8751600*A*a^9*b*
x + 831402*A*a^10)/x^20
```

3.138 $\int x^3(a+bx)(c+dx)^{16}\,dx$

Optimal. Leaf size=114

$$\frac{c^3(c+dx)^{17}(bc-ad)}{17d^5}-\frac{c^2(c+dx)^{18}(4bc-3ad)}{18d^5}-\frac{(c+dx)^{20}(4bc-ad)}{20d^5}+\frac{3c(c+dx)^{19}(2bc-ad)}{19d^5}+\frac{b(c+dx)^{21}}{21d^5}$$

```
[Out] (c^3*(b*c - a*d)*(c + d*x)^17)/(17*d^5) - (c^2*(4*b*c - 3*a*d)*(c
 + d*x)^18)/(18*d^5) + (3*c*(2*b*c - a*d)*(c + d*x)^19)/(19*d^5)
- ((4*b*c - a*d)*(c + d*x)^20)/(20*d^5) + (b*(c + d*x)^21)/(21*d^
5)
```

Rubi [A] time = 0.765033, antiderivative size = 114, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$\frac{c^3(c+dx)^{17}(bc-ad)}{17d^5}-\frac{c^2(c+dx)^{18}(4bc-3ad)}{18d^5}-\frac{(c+dx)^{20}(4bc-ad)}{20d^5}+\frac{3c(c+dx)^{19}(2bc-ad)}{19d^5}+\frac{b(c+dx)^{21}}{21d^5}$$

Antiderivative was successfully verified.

```
[In]  Int[x^3*(a + b*x)*(c + d*x)^16,x]
```

```
[Out] (c^3*(b*c - a*d)*(c + d*x)^17)/(17*d^5) - (c^2*(4*b*c - 3*a*d)*(c
 + d*x)^18)/(18*d^5) + (3*c*(2*b*c - a*d)*(c + d*x)^19)/(19*d^5)
- ((4*b*c - a*d)*(c + d*x)^20)/(20*d^5) + (b*(c + d*x)^21)/(21*d^
5)
```

Rubi in Sympy [A] time = 85.8224, size = 104, normalized size = 0.91

$$\frac{b\,(c+dx)^{21}}{21d^5}-\frac{c^3\,(c+dx)^{17}\,(ad-bc)}{17d^5}+\frac{c^2\,(c+dx)^{18}\,(3ad-4bc)}{18d^5}-\frac{3c\,(c+dx)^{19}\,(ad-2bc)}{19d^5}+\frac{(c+dx)^{20}\,(ad-4bc)}{20d^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3*(b*x+a)*(d*x+c)**16,x)
```

```
[Out] b*(c + d*x)**21/(21*d**5) - c**3*(c + d*x)**17*(a*d - b*c)/(17*d*
*5) + c**2*(c + d*x)**18*(3*a*d - 4*b*c)/(18*d**5) - 3*c*(c + d*x
)**19*(a*d - 2*b*c)/(19*d**5) + (c + d*x)**20*(a*d - 4*b*c)/(20*d
**5)
```

Mathematica [B] time = 0.119879, size = 359, normalized size = 3.15

$$\frac{1}{5}c^{15}x^5(16ad+bc)+\frac{4}{3}c^{14}dx^6(15ad+2bc)+\frac{40}{7}c^{13}d^2x^7(14ad+3bc)+\frac{35}{2}c^{12}d^3x^8(13ad+4bc)+\frac{364}{9}c^{11}d^4x^9(12ad+5bc)+\frac{364}{5}c^{10}d^5x^{10}(11ad+6bc)+104c^9d^6x^{11}(10ad+7bc)+\frac{715}{6}c^8d^7x^{12}(9ad+8bc)+110c^7d^8x^{13}(8ad+9bc)+\frac{572}{7}c^6d^9x^{14}(7ad+10bc)+\frac{728}{15}c^5d^{10}x^{15}(6ad+11bc)+\frac{91}{4}c^4d^{11}x^{16}(5ad+12bc)+\frac{140}{17}c^3d^{12}x^{17}(4ad+13bc)+\frac{20}{9}c^2d^{13}x^{18}(3ad+14bc)+\frac{1}{20}d^{15}x^{20}(ad+16bc)+\frac{8}{19}cd^{14}x^{19}(2ad+15bc)+\frac{1}{4}ac^{16}x^4+\frac{1}{21}bd^{16}x^{21}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^3*(a + b*x)*(c + d*x)^16,x]
```

```
[Out] (a*c^16*x^4)/4 + (c^15*(b*c + 16*a*d)*x^5)/5 + (4*c^14*d*(2*b*c +
 15*a*d)*x^6)/3 + (40*c^13*d^2*(3*b*c + 14*a*d)*x^7)/7 + (35*c^12
*d^3*(4*b*c + 13*a*d)*x^8)/2 + (364*c^11*d^4*(5*b*c + 12*a*d)*x^9
)/9 + (364*c^10*d^5*(6*b*c + 11*a*d)*x^10)/5 + 104*c^9*d^6*(7*b*c
 + 10*a*d)*x^11 + (715*c^8*d^7*(8*b*c + 9*a*d)*x^12)/6 + 110*c^7*
d^8*(9*b*c + 8*a*d)*x^13 + (572*c^6*d^9*(10*b*c + 7*a*d)*x^14)/7
+ (728*c^5*d^10*(11*b*c + 6*a*d)*x^15)/15 + (91*c^4*d^11*(12*b*c
+ 5*a*d)*x^16)/4 + (140*c^3*d^12*(13*b*c + 4*a*d)*x^17)/17 + (20*
c^2*d^13*(14*b*c + 3*a*d)*x^18)/9 + (8*c*d^14*(15*b*c + 2*a*d)*x^
19)/19 + (d^15*(16*b*c + a*d)*x^20)/20 + (b*d^16*x^21)/21
```

Maple [B] time = 0.003, size = 388, normalized size = 3.4

$$\frac{bd^{16}x^{21}}{21}+\frac{\left(ad^{16}+16\,bcd^{15}\right)x^{20}}{20}+\frac{\left(16\,acd^{15}+120\,bc^{2}d^{14}\right)x^{19}}{19}+\frac{\left(120\,ac^{2}d^{14}+560\,bc^{3}d^{13}\right)x^{18}}{18}+\frac{\left(560\,ac^{3}d^{13}+1820\,bc^{4}d^{12}\right)x^{17}}{17}+\frac{\left(1820\,ac^{4}d^{12}+4368\,bc^{5}d^{11}\right)x^{16}}{16}+\frac{\left(4368\,ac^{5}d^{11}+8008\,bc^{6}d^{10}\right)x^{15}}{15}+\frac{\left(8008\,ac^{6}d^{10}+11440\,bc^{7}d^{9}\right)x^{14}}{14}+\frac{\left(11440\,ac^{7}d^{9}+12870\,bc^{8}d^{8}\right)x^{13}}{13}+\frac{\left(12870\,ac^{8}d^{8}+11440\,bc^{9}d^{7}\right)x^{12}}{12}+\frac{\left(11440\,ac^{9}d^{7}+8008\,bc^{10}d^{6}\right)x^{11}}{11}+\frac{\left(8008\,ac^{10}d^{6}+4368\,bc^{11}d^{5}\right)x^{10}}{10}+\frac{\left(4368\,ac^{11}d^{5}+1820\,bc^{12}d^{4}\right)x^{9}}{9}+\frac{\left(1820\,ac^{12}d^{4}+560\,bc^{13}d^{3}\right)x^{8}}{8}+\frac{\left(560\,ac^{13}d^{3}+120\,bc^{14}d^{2}\right)x^{7}}{7}+\frac{\left(120\,ac^{14}d^{2}+16\,bc^{15}d\right)x^{6}}{6}+\frac{\left(16\,ac^{15}d+bc^{16}\right)x^{5}}{5}+\frac{ac^{16}x^{4}}{4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^3*(b*x+a)*(d*x+c)^16,x)
```

```
[Out] 1/21*b*d^16*x^21+1/20*(a*d^16+16*b*c*d^15)*x^20+1/19*(16*a*c*d^15
+120*b*c^2*d^14)*x^19+1/18*(120*a*c^2*d^14+560*b*c^3*d^13)*x^18+1
/17*(560*a*c^3*d^13+1820*b*c^4*d^12)*x^17+1/16*(1820*a*c^4*d^12+4
368*b*c^5*d^11)*x^16+1/15*(4368*a*c^5*d^11+8008*b*c^6*d^10)*x^15+
1/14*(8008*a*c^6*d^10+11440*b*c^7*d^9)*x^14+1/13*(11440*a*c^7*d^9
+12870*b*c^8*d^8)*x^13+1/12*(12870*a*c^8*d^8+11440*b*c^9*d^7)*x^1
2+1/11*(11440*a*c^9*d^7+8008*b*c^10*d^6)*x^11+1/10*(8008*a*c^10*d
^6+4368*b*c^11*d^5)*x^10+1/9*(4368*a*c^11*d^5+1820*b*c^12*d^4)*x^
9+1/8*(1820*a*c^12*d^4+560*b*c^13*d^3)*x^8+1/7*(560*a*c^13*d^3+12
0*b*c^14*d^2)*x^7+1/6*(120*a*c^14*d^2+16*b*c^15*d)*x^6+1/5*(16*a*
c^15*d+b*c^16)*x^5+1/4*a*c^16*x^4
```

Maxima [A] time = 1.35646, size = 522, normalized size = 4.58

$$\frac{1}{21}\,bd^{16}x^{21}+\frac{1}{4}\,ac^{16}x^{4}+\frac{1}{20}\left(16\,bcd^{15}+ad^{16}\right)x^{20}+\frac{8}{19}\left(15\,bc^{2}d^{14}+2\,acd^{15}\right)x^{19}+\frac{20}{9}\left(14\,bc^{3}d^{13}+3\,ac^{2}d^{14}\right)x^{18}+\frac{140}{17}\left(13\,bc^{4}d^{12}+4\,ac^{3}d^{13}\right)x^{17}+\frac{91}{4}\left(12\,bc^{5}d^{11}+5\,ac^{4}d^{12}\right)x^{16}+\frac{728}{15}\left(11\,bc^{6}d^{10}+6\,ac^{5}d^{11}\right)x^{15}+\frac{572}{7}\left(10\,bc^{7}d^{9}+7\,ac^{6}d^{10}\right)x^{14}+110\left(9\,bc^{8}d^{8}+8\,ac^{7}d^{9}\right)x^{13}+\frac{715}{6}\left(8\,bc^{9}d^{7}+9\,ac^{8}d^{8}\right)x^{12}+104\left(7\,bc^{10}d^{6}+10\,ac^{9}d^{7}\right)x^{11}+\frac{364}{5}\left(6\,bc^{11}d^{5}+11\,ac^{10}d^{6}\right)x^{10}+\frac{364}{9}\left(5\,bc^{12}d^{4}+12\,ac^{11}d^{5}\right)x^{9}+\frac{35}{2}\left(4\,bc^{13}d^{3}+13\,ac^{12}d^{4}\right)x^{8}+\frac{40}{7}\left(3\,bc^{14}d^{2}+14\,ac^{13}d^{3}\right)x^{7}+\frac{4}{3}\left(2\,bc^{15}d+15\,ac^{14}d^{2}\right)x^{6}+\frac{1}{5}\left(bc^{16}+16\,ac^{15}d\right)x^{5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)*(d*x + c)^16*x^3,x, algorithm="maxima")
```

```
[Out] 1/21*b*d^16*x^21 + 1/4*a*c^16*x^4 + 1/20*(16*b*c*d^15 + a*d^16)*x
^20 + 8/19*(15*b*c^2*d^14 + 2*a*c*d^15)*x^19 + 20/9*(14*b*c^3*d^1
3 + 3*a*c^2*d^14)*x^18 + 140/17*(13*b*c^4*d^12 + 4*a*c^3*d^13)*x^
17 + 91/4*(12*b*c^5*d^11 + 5*a*c^4*d^12)*x^16 + 728/15*(11*b*c^6*
d^10 + 6*a*c^5*d^11)*x^15 + 572/7*(10*b*c^7*d^9 + 7*a*c^6*d^10)*x
^14 + 110*(9*b*c^8*d^8 + 8*a*c^7*d^9)*x^13 + 715/6*(8*b*c^9*d^7 +
 9*a*c^8*d^8)*x^12 + 104*(7*b*c^10*d^6 + 10*a*c^9*d^7)*x^11 + 364
/5*(6*b*c^11*d^5 + 11*a*c^10*d^6)*x^10 + 364/9*(5*b*c^12*d^4 + 12
*a*c^11*d^5)*x^9 + 35/2*(4*b*c^13*d^3 + 13*a*c^12*d^4)*x^8 + 40/7
*(3*b*c^14*d^2 + 14*a*c^13*d^3)*x^7 + 4/3*(2*b*c^15*d + 15*a*c^14
*d^2)*x^6 + 1/5*(b*c^16 + 16*a*c^15*d)*x^5
```

Fricas [A] time = 0.180324, size = 1, normalized size = 0.01

$$\frac{1}{21}x^{21}d^{16}b+\frac{4}{5}x^{20}d^{15}cb+\frac{1}{20}x^{20}d^{16}a+\frac{120}{19}x^{19}d^{14}c^2b+\frac{16}{19}x^{19}d^{15}ca+\frac{280}{9}x^{18}d^{13}c^3b+\frac{20}{3}x^{18}d^{14}c^2a+\frac{1820}{17}x^{17}d^{12}c^4b+\frac{560}{17}x^{17}d^{13}c^3a+273x^{16}d^{11}c^5b+\frac{455}{4}x^{16}d^{12}c^4a+\frac{8008}{15}x^{15}d^{10}c^6b+\frac{1456}{5}x^{15}d^{11}c^5a+\frac{5720}{7}x^{14}d^9c^7b+572x^{14}d^{10}c^6a+990x^{13}d^8c^8b+880x^{13}d^9c^7a+\frac{2860}{3}x^{12}d^7c^9b+\frac{2145}{2}x^{12}d^8c^8a+728x^{11}d^6c^{10}b+1040x^{11}d^7c^9a+\frac{2184}{5}x^{10}d^5c^{11}b+\frac{4004}{5}x^{10}d^6c^{10}a+\frac{1820}{9}x^9d^4c^{12}b+\frac{1456}{3}x^9d^5c^{11}a+70x^8d^3c^{13}b+\frac{455}{2}x^8d^4c^{12}a+\frac{120}{7}x^7d^2c^{14}b+80x^7d^3c^{13}a+\frac{8}{3}x^6dc^{15}b+20x^6d^2c^{14}a+\frac{1}{5}x^5c^{16}b+\frac{16}{5}x^5dc^{15}a+\frac{1}{4}x^4c^{16}a$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)*(d*x + c)^16*x^3,x, algorithm="fricas")
```

```
[Out] 1/21*x^21*d^16*b + 4/5*x^20*d^15*c*b + 1/20*x^20*d^16*a + 120/19*
x^19*d^14*c^2*b + 16/19*x^19*d^15*c*a + 280/9*x^18*d^13*c^3*b + 2
0/3*x^18*d^14*c^2*a + 1820/17*x^17*d^12*c^4*b + 560/17*x^17*d^13*
c^3*a + 273*x^16*d^11*c^5*b + 455/4*x^16*d^12*c^4*a + 8008/15*x^1
5*d^10*c^6*b + 1456/5*x^15*d^11*c^5*a + 5720/7*x^14*d^9*c^7*b + 5
72*x^14*d^10*c^6*a + 990*x^13*d^8*c^8*b + 880*x^13*d^9*c^7*a + 28
60/3*x^12*d^7*c^9*b + 2145/2*x^12*d^8*c^8*a + 728*x^11*d^6*c^10*b
 + 1040*x^11*d^7*c^9*a + 2184/5*x^10*d^5*c^11*b + 4004/5*x^10*d^6
*c^10*a + 1820/9*x^9*d^4*c^12*b + 1456/3*x^9*d^5*c^11*a + 70*x^8*
d^3*c^13*b + 455/2*x^8*d^4*c^12*a + 120/7*x^7*d^2*c^14*b + 80*x^7
*d^3*c^13*a + 8/3*x^6*d*c^15*b + 20*x^6*d^2*c^14*a + 1/5*x^5*c^16
*b + 16/5*x^5*d*c^15*a + 1/4*x^4*c^16*a
```

Sympy [A] time = 0.558108, size = 422, normalized size = 3.7

$$\frac{ac^{16}x^4}{4}+\frac{bd^{16}x^{21}}{21}+x^{20}\left(\frac{ad^{16}}{20}+\frac{4bcd^{15}}{5}\right)+x^{19}\left(\frac{16acd^{15}}{19}+\frac{120bc^2d^{14}}{19}\right)+x^{18}\left(\frac{20ac^2d^{14}}{3}+\frac{280bc^3d^{13}}{9}\right)+x^{17}\left(\frac{560ac^3d^{13}}{17}+\frac{1820bc^4d^{12}}{17}\right)+x^{16}\left(\frac{455ac^4d^{12}}{4}+273bc^5d^{11}\right)+x^{15}\left(\frac{1456ac^5d^{11}}{5}+\frac{8008bc^6d^{10}}{15}\right)+x^{14}\left(572ac^6d^{10}+\frac{5720bc^7d^9}{7}\right)+x^{13}\left(880ac^7d^9+990bc^8d^8\right)+x^{12}\left(\frac{2145ac^8d^8}{2}+\frac{2860bc^9d^7}{3}\right)+x^{11}\left(1040ac^9d^7+728bc^{10}d^6\right)+x^{10}\left(\frac{4004ac^{10}d^6}{5}+\frac{2184bc^{11}d^5}{5}\right)+x^9\left(\frac{1456ac^{11}d^5}{3}+\frac{1820bc^{12}d^4}{9}\right)+x^8\left(\frac{455ac^{12}d^4}{2}+70bc^{13}d^3\right)+x^7\left(80ac^{13}d^3+\frac{120bc^{14}d^2}{7}\right)+x^6\left(20ac^{14}d^2+\frac{8bc^{15}d}{3}\right)+x^5\left(\frac{16ac^{15}d}{5}+\frac{bc^{16}}{5}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**3*(b*x+a)*(d*x+c)**16,x)
```

```
[Out] a*c**16*x**4/4 + b*d**16*x**21/21 + x**20*(a*d**16/20 + 4*b*c*d**
15/5) + x**19*(16*a*c*d**15/19 + 120*b*c**2*d**14/19) + x**18*(20
*a*c**2*d**14/3 + 280*b*c**3*d**13/9) + x**17*(560*a*c**3*d**13/1
7 + 1820*b*c**4*d**12/17) + x**16*(455*a*c**4*d**12/4 + 273*b*c**
5*d**11) + x**15*(1456*a*c**5*d**11/5 + 8008*b*c**6*d**10/15) + x
**14*(572*a*c**6*d**10 + 5720*b*c**7*d**9/7) + x**13*(880*a*c**7*
d**9 + 990*b*c**8*d**8) + x**12*(2145*a*c**8*d**8/2 + 2860*b*c**9
*d**7/3) + x**11*(1040*a*c**9*d**7 + 728*b*c**10*d**6) + x**10*(4
004*a*c**10*d**6/5 + 2184*b*c**11*d**5/5) + x**9*(1456*a*c**11*d*
*5/3 + 1820*b*c**12*d**4/9) + x**8*(455*a*c**12*d**4/2 + 70*b*c**
13*d**3) + x**7*(80*a*c**13*d**3 + 120*b*c**14*d**2/7) + x**6*(20
*a*c**14*d**2 + 8*b*c**15*d/3) + x**5*(16*a*c**15*d/5 + b*c**16/5
)
```

GIAC/XCAS [A] time = 0.330588, size = 525, normalized size = 4.61

$$\frac{1}{21}\,bd^{16}x^{21}+\frac{4}{5}\,bcd^{15}x^{20}+\frac{1}{20}\,ad^{16}x^{20}+\frac{120}{19}\,bc^{2}d^{14}x^{19}+\frac{16}{19}\,acd^{15}x^{19}+\frac{280}{9}\,bc^{3}d^{13}x^{18}+\frac{20}{3}\,ac^{2}d^{14}x^{18}+\frac{1820}{17}\,bc^{4}d^{12}x^{17}+\frac{560}{17}\,ac^{3}d^{13}x^{17}+273\,bc^{5}d^{11}x^{16}+\frac{455}{4}\,ac^{4}d^{12}x^{16}+\frac{8008}{15}\,bc^{6}d^{10}x^{15}+\frac{1456}{5}\,ac^{5}d^{11}x^{15}+\frac{5720}{7}\,bc^{7}d^{9}x^{14}+572\,ac^{6}d^{10}x^{14}+990\,bc^{8}d^{8}x^{13}+880\,ac^{7}d^{9}x^{13}+\frac{2860}{3}\,bc^{9}d^{7}x^{12}+\frac{2145}{2}\,ac^{8}d^{8}x^{12}+728\,bc^{10}d^{6}x^{11}+1040\,ac^{9}d^{7}x^{11}+\frac{2184}{5}\,bc^{11}d^{5}x^{10}+\frac{4004}{5}\,ac^{10}d^{6}x^{10}+\frac{1820}{9}\,bc^{12}d^{4}x^{9}+\frac{1456}{3}\,ac^{11}d^{5}x^{9}+70\,bc^{13}d^{3}x^{8}+\frac{455}{2}\,ac^{12}d^{4}x^{8}+\frac{120}{7}\,bc^{14}d^{2}x^{7}+80\,ac^{13}d^{3}x^{7}+\frac{8}{3}\,bc^{15}dx^{6}+20\,ac^{14}d^{2}x^{6}+\frac{1}{5}\,bc^{16}x^{5}+\frac{16}{5}\,ac^{15}dx^{5}+\frac{1}{4}\,ac^{16}x^{4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)*(d*x + c)^16*x^3,x, algorithm="giac")
```

```
[Out] 1/21*b*d^16*x^21 + 4/5*b*c*d^15*x^20 + 1/20*a*d^16*x^20 + 120/19*
b*c^2*d^14*x^19 + 16/19*a*c*d^15*x^19 + 280/9*b*c^3*d^13*x^18 + 2
0/3*a*c^2*d^14*x^18 + 1820/17*b*c^4*d^12*x^17 + 560/17*a*c^3*d^13
*x^17 + 273*b*c^5*d^11*x^16 + 455/4*a*c^4*d^12*x^16 + 8008/15*b*c
^6*d^10*x^15 + 1456/5*a*c^5*d^11*x^15 + 5720/7*b*c^7*d^9*x^14 + 5
72*a*c^6*d^10*x^14 + 990*b*c^8*d^8*x^13 + 880*a*c^7*d^9*x^13 + 28
60/3*b*c^9*d^7*x^12 + 2145/2*a*c^8*d^8*x^12 + 728*b*c^10*d^6*x^11
 + 1040*a*c^9*d^7*x^11 + 2184/5*b*c^11*d^5*x^10 + 4004/5*a*c^10*d
^6*x^10 + 1820/9*b*c^12*d^4*x^9 + 1456/3*a*c^11*d^5*x^9 + 70*b*c^
13*d^3*x^8 + 455/2*a*c^12*d^4*x^8 + 120/7*b*c^14*d^2*x^7 + 80*a*c
^13*d^3*x^7 + 8/3*b*c^15*d*x^6 + 20*a*c^14*d^2*x^6 + 1/5*b*c^16*x
^5 + 16/5*a*c^15*d*x^5 + 1/4*a*c^16*x^4
```

3.139 $\int x^2(a+bx)(c+dx)^{16}\,dx$

Optimal. Leaf size=88

$$-\frac{c^2(c+dx)^{17}(bc-ad)}{17d^4}-\frac{(c+dx)^{19}(3bc-ad)}{19d^4}+\frac{c(c+dx)^{18}(3bc-2ad)}{18d^4}+\frac{b(c+dx)^{20}}{20d^4}$$

```
[Out] -(c^2*(b*c - a*d)*(c + d*x)^17)/(17*d^4) + (c*(3*b*c - 2*a*d)*(c
+ d*x)^18)/(18*d^4) - ((3*b*c - a*d)*(c + d*x)^19)/(19*d^4) + (b*
(c + d*x)^20)/(20*d^4)
```

Rubi [A] time = 0.722085, antiderivative size = 88, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{c^2(c+dx)^{17}(bc-ad)}{17d^4}-\frac{(c+dx)^{19}(3bc-ad)}{19d^4}+\frac{c(c+dx)^{18}(3bc-2ad)}{18d^4}+\frac{b(c+dx)^{20}}{20d^4}$$

Antiderivative was successfully verified.

```
[In]  Int[x^2*(a + b*x)*(c + d*x)^16,x]
```

```
[Out] -(c^2*(b*c - a*d)*(c + d*x)^17)/(17*d^4) + (c*(3*b*c - 2*a*d)*(c
+ d*x)^18)/(18*d^4) - ((3*b*c - a*d)*(c + d*x)^19)/(19*d^4) + (b*
(c + d*x)^20)/(20*d^4)
```

Rubi in Sympy [A] time = 75.1066, size = 78, normalized size = 0.89

$$\frac{b\,(c+dx)^{20}}{20d^4}+\frac{c^2\,(c+dx)^{17}\,(ad-bc)}{17d^4}-\frac{c\,(c+dx)^{18}\,(2ad-3bc)}{18d^4}+\frac{(c+dx)^{19}\,(ad-3bc)}{19d^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(b*x+a)*(d*x+c)**16,x)
```

```
[Out] b*(c + d*x)**20/(20*d**4) + c**2*(c + d*x)**17*(a*d - b*c)/(17*d*
*4) - c*(c + d*x)**18*(2*a*d - 3*b*c)/(18*d**4) + (c + d*x)**19*(
a*d - 3*b*c)/(19*d**4)
```

Mathematica [B] time = 0.115993, size = 355, normalized size = 4.03

$$\begin{aligned}&\frac{1}{4}c^{15}x^4(16ad+bc)+\frac{8}{5}c^{14}dx^5(15ad+2bc)+\frac{20}{3}c^{13}d^2x^6(14ad+3bc)+20c^{12}d^3x^7(13ad+4bc)\\&+\frac{91}{2}c^{11}d^4x^8(12ad+5bc)+\frac{728}{9}c^{10}d^5x^9(11ad+6bc)+\frac{572}{5}c^9d^6x^{10}(10ad+7bc)\\&+130c^8d^7x^{11}(9ad+8bc)+\frac{715}{6}c^7d^8x^{12}(8ad+9bc)+88c^6d^9x^{13}(7ad+10bc)\\&+52c^5d^{10}x^{14}(6ad+11bc)+\frac{364}{15}c^4d^{11}x^{15}(5ad+12bc)+\frac{35}{4}c^3d^{12}x^{16}(4ad+13bc)\\&+\frac{40}{17}c^2d^{13}x^{17}(3ad+14bc)+\frac{1}{19}d^{15}x^{19}(ad+16bc)+\frac{4}{9}cd^{14}x^{18}(2ad+15bc)+\frac{1}{3}ac^{16}x^3+\frac{1}{20}bd^{16}x^{20}\end{aligned}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^2*(a + b*x)*(c + d*x)^16,x]
```

```
[Out] (a*c^16*x^3)/3 + (c^15*(b*c + 16*a*d)*x^4)/4 + (8*c^14*d*(2*b*c +
 15*a*d)*x^5)/5 + (20*c^13*d^2*(3*b*c + 14*a*d)*x^6)/3 + 20*c^12*
d^3*(4*b*c + 13*a*d)*x^7 + (91*c^11*d^4*(5*b*c + 12*a*d)*x^8)/2 +
```

```
(728*c^10*d^5*(6*b*c + 11*a*d)*x^9)/9 + (572*c^9*d^6*(7*b*c + 10
*a*d)*x^10)/5 + 130*c^8*d^7*(8*b*c + 9*a*d)*x^11 + (715*c^7*d^8*(
9*b*c + 8*a*d)*x^12)/6 + 88*c^6*d^9*(10*b*c + 7*a*d)*x^13 + 52*c^
5*d^10*(11*b*c + 6*a*d)*x^14 + (364*c^4*d^11*(12*b*c + 5*a*d)*x^1
5)/15 + (35*c^3*d^12*(13*b*c + 4*a*d)*x^16)/4 + (40*c^2*d^13*(14*
b*c + 3*a*d)*x^17)/17 + (4*c*d^14*(15*b*c + 2*a*d)*x^18)/9 + (d^1
5*(16*b*c + a*d)*x^19)/19 + (b*d^16*x^20)/20
```

Maple [B] time = 0.003, size = 388, normalized size = 4.4

$$\frac{bd^{16}x^{20}}{20}+\frac{\left(ad^{16}+16\,bcd^{15}\right)x^{19}}{19}+\frac{\left(16\,acd^{15}+120\,bc^{2}d^{14}\right)x^{18}}{18}+\frac{\left(120\,ac^{2}d^{14}+560\,bc^{3}d^{13}\right)x^{17}}{17}+\frac{\left(560\,ac^{3}d^{13}+1820\,bc^{4}d^{12}\right)x^{16}}{16}+\frac{\left(1820\,ac^{4}d^{12}+4368\,bc^{5}d^{11}\right)x^{15}}{15}+\frac{\left(4368\,ac^{5}d^{11}+8008\,bc^{6}d^{10}\right)x^{14}}{14}+\frac{\left(8008\,ac^{6}d^{10}+11440\,bc^{7}d^{9}\right)x^{13}}{13}+\frac{\left(11440\,ac^{7}d^{9}+12870\,bc^{8}d^{8}\right)x^{12}}{12}+\frac{\left(12870\,ac^{8}d^{8}+11440\,bc^{9}d^{7}\right)x^{11}}{11}+\frac{\left(11440\,ac^{9}d^{7}+8008\,bc^{10}d^{6}\right)x^{10}}{10}+\frac{\left(8008\,ac^{10}d^{6}+4368\,bc^{11}d^{5}\right)x^{9}}{9}+\frac{\left(4368\,ac^{11}d^{5}+1820\,bc^{12}d^{4}\right)x^{8}}{8}+\frac{\left(1820\,ac^{12}d^{4}+560\,bc^{13}d^{3}\right)x^{7}}{7}+\frac{\left(560\,ac^{13}d^{3}+120\,bc^{14}d^{2}\right)x^{6}}{6}+\frac{\left(120\,ac^{14}d^{2}+16\,bc^{15}d\right)x^{5}}{5}+\frac{\left(16\,ac^{15}d+bc^{16}\right)x^{4}}{4}+\frac{ac^{16}x^{3}}{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(b*x+a)*(d*x+c)^16,x)
```

```
[Out] 1/20*b*d^16*x^20+1/19*(a*d^16+16*b*c*d^15)*x^19+1/18*(16*a*c*d^15
+120*b*c^2*d^14)*x^18+1/17*(120*a*c^2*d^14+560*b*c^3*d^13)*x^17+1
/16*(560*a*c^3*d^13+1820*b*c^4*d^12)*x^16+1/15*(1820*a*c^4*d^12+4
368*b*c^5*d^11)*x^15+1/14*(4368*a*c^5*d^11+8008*b*c^6*d^10)*x^14+
1/13*(8008*a*c^6*d^10+11440*b*c^7*d^9)*x^13+1/12*(11440*a*c^7*d^9
+12870*b*c^8*d^8)*x^12+1/11*(12870*a*c^8*d^8+11440*b*c^9*d^7)*x^1
1+1/10*(11440*a*c^9*d^7+8008*b*c^10*d^6)*x^10+1/9*(8008*a*c^10*d^
6+4368*b*c^11*d^5)*x^9+1/8*(4368*a*c^11*d^5+1820*b*c^12*d^4)*x^8+
1/7*(1820*a*c^12*d^4+560*b*c^13*d^3)*x^7+1/6*(560*a*c^13*d^3+120*
b*c^14*d^2)*x^6+1/5*(120*a*c^14*d^2+16*b*c^15*d)*x^5+1/4*(16*a*c^
15*d+b*c^16)*x^4+1/3*a*c^16*x^3
```

Maxima [A] time = 1.36182, size = 522, normalized size = 5.93

$$\frac{1}{20}\,bd^{16}x^{20}+\frac{1}{3}\,ac^{16}x^{3}+\frac{1}{19}\left(16\,bcd^{15}+ad^{16}\right)x^{19}+\frac{4}{9}\left(15\,bc^{2}d^{14}+2\,acd^{15}\right)x^{18}+\frac{40}{17}\left(14\,bc^{3}d^{13}+3\,ac^{2}d^{14}\right)x^{17}+\frac{35}{4}\left(13\,bc^{4}d^{12}+4\,ac^{3}d^{13}\right)x^{16}+\frac{364}{15}\left(12\,bc^{5}d^{11}+5\,ac^{4}d^{12}\right)x^{15}+52\left(11\,bc^{6}d^{10}+6\,ac^{5}d^{11}\right)x^{14}+88\left(10\,bc^{7}d^{9}+7\,ac^{6}d^{10}\right)x^{13}+\frac{715}{6}\left(9\,bc^{8}d^{8}+8\,ac^{7}d^{9}\right)x^{12}+130\left(8\,bc^{9}d^{7}+9\,ac^{8}d^{8}\right)x^{11}+\frac{572}{5}\left(7\,bc^{10}d^{6}+10\,ac^{9}d^{7}\right)x^{10}+\frac{728}{9}\left(6\,bc^{11}d^{5}+11\,ac^{10}d^{6}\right)x^{9}+\frac{91}{2}\left(5\,bc^{12}d^{4}+12\,ac^{11}d^{5}\right)x^{8}+20\left(4\,bc^{13}d^{3}+13\,ac^{12}d^{4}\right)x^{7}+\frac{20}{3}\left(3\,bc^{14}d^{2}+14\,ac^{13}d^{3}\right)x^{6}+\frac{8}{5}\left(2\,bc^{15}d+15\,ac^{14}d^{2}\right)x^{5}+\frac{1}{4}\left(bc^{16}+16\,ac^{15}d\right)x^{4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)*(d*x + c)^16*x^2,x, algorithm="maxima")
```

```
[Out] 1/20*b*d^16*x^20 + 1/3*a*c^16*x^3 + 1/19*(16*b*c*d^15 + a*d^16)*x
^19 + 4/9*(15*b*c^2*d^14 + 2*a*c*d^15)*x^18 + 40/17*(14*b*c^3*d^1
3 + 3*a*c^2*d^14)*x^17 + 35/4*(13*b*c^4*d^12 + 4*a*c^3*d^13)*x^16
```

```
 + 364/15*(12*b*c^5*d^11 + 5*a*c^4*d^12)*x^15 + 52*(11*b*c^6*d^10
 + 6*a*c^5*d^11)*x^14 + 88*(10*b*c^7*d^9 + 7*a*c^6*d^10)*x^13 + 7
15/6*(9*b*c^8*d^8 + 8*a*c^7*d^9)*x^12 + 130*(8*b*c^9*d^7 + 9*a*c^
8*d^8)*x^11 + 572/5*(7*b*c^10*d^6 + 10*a*c^9*d^7)*x^10 + 728/9*(6
*b*c^11*d^5 + 11*a*c^10*d^6)*x^9 + 91/2*(5*b*c^12*d^4 + 12*a*c^11
*d^5)*x^8 + 20*(4*b*c^13*d^3 + 13*a*c^12*d^4)*x^7 + 20/3*(3*b*c^1
4*d^2 + 14*a*c^13*d^3)*x^6 + 8/5*(2*b*c^15*d + 15*a*c^14*d^2)*x^5
 + 1/4*(b*c^16 + 16*a*c^15*d)*x^4
```

Fricas [A] time = 0.179046, size = 1, normalized size = 0.01

$$\frac{1}{20}x^{20}d^{16}b + \frac{16}{19}x^{19}d^{15}cb + \frac{1}{19}x^{19}d^{16}a + \frac{20}{3}x^{18}d^{14}c^2b + \frac{8}{9}x^{18}d^{15}ca + \frac{560}{17}x^{17}d^{13}c^3b + \frac{120}{17}x^{17}d^{14}c^2a + \frac{455}{4}x^{16}d^{12}c^4b + 35x^{16}d^{13}c^3a + \frac{1456}{5}x^{15}d^{11}c^5b + \frac{364}{3}x^{15}d^{12}c^4a + 572x^{14}d^{10}c^6b + 312x^{14}d^{11}c^5a + 880x^{13}d^9c^7b + 616x^{13}d^{10}c^6a + \frac{2145}{2}x^{12}d^8c^8b + \frac{2860}{3}x^{12}d^9c^7a + 1040x^{11}d^7c^9b + 1170x^{11}d^8c^8a + \frac{4004}{5}x^{10}d^6c^{10}b + 1144x^{10}d^7c^9a + \frac{1456}{3}x^9d^5c^{11}b + \frac{8008}{9}x^9d^6c^{10}a + \frac{455}{2}x^8d^4c^{12}b + 546x^8d^5c^{11}a + 80x^7d^3c^{13}b + 260x^7d^4c^{12}a + 20x^6d^2c^{14}b + \frac{280}{3}x^6d^3c^{13}a + \frac{16}{5}x^5dc^{15}b + 24x^5d^2c^{14}a + \frac{1}{4}x^4c^{16}b + 4x^4dc^{15}a + \frac{1}{3}x^3c^{16}a$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)*(d*x + c)^16*x^2,x, algorithm="fricas")
```

```
[Out] 1/20*x^20*d^16*b + 16/19*x^19*d^15*c*b + 1/19*x^19*d^16*a + 20/3*
x^18*d^14*c^2*b + 8/9*x^18*d^15*c*a + 560/17*x^17*d^13*c^3*b + 12
0/17*x^17*d^14*c^2*a + 455/4*x^16*d^12*c^4*b + 35*x^16*d^13*c^3*a
 + 1456/5*x^15*d^11*c^5*b + 364/3*x^15*d^12*c^4*a + 572*x^14*d^10
*c^6*b + 312*x^14*d^11*c^5*a + 880*x^13*d^9*c^7*b + 616*x^13*d^10
*c^6*a + 2145/2*x^12*d^8*c^8*b + 2860/3*x^12*d^9*c^7*a + 1040*x^1
1*d^7*c^9*b + 1170*x^11*d^8*c^8*a + 4004/5*x^10*d^6*c^10*b + 1144
*x^10*d^7*c^9*a + 1456/3*x^9*d^5*c^11*b + 8008/9*x^9*d^6*c^10*a +
 455/2*x^8*d^4*c^12*b + 546*x^8*d^5*c^11*a + 80*x^7*d^3*c^13*b +
260*x^7*d^4*c^12*a + 20*x^6*d^2*c^14*b + 280/3*x^6*d^3*c^13*a + 1
6/5*x^5*d*c^15*b + 24*x^5*d^2*c^14*a + 1/4*x^4*c^16*b + 4*x^4*d*c
^15*a + 1/3*x^3*c^16*a
```

Sympy [A] time = 0.559934, size = 413, normalized size = 4.69

$$\frac{ac^{16}x^3}{3} + \frac{bd^{16}x^{20}}{20} + x^{19}\left(\frac{ad^{16}}{19} + \frac{16bcd^{15}}{19}\right) + x^{18}\left(\frac{8acd^{15}}{9} + \frac{20bc^2d^{14}}{3}\right) + x^{17}\left(\frac{120ac^2d^{14}}{17} + \frac{560bc^3d^{13}}{17}\right) + x^{16}\left(35ac^3d^{13} + \frac{455bc^4d^{12}}{4}\right) + x^{15}\left(\frac{364ac^4d^{12}}{3} + \frac{1456bc^5d^{11}}{5}\right) + x^{14}\left(312ac^5d^{11} + 572bc^6d^{10}\right) + x^{13}\left(616ac^6d^{10} + 880bc^7d^9\right) + x^{12}\left(\frac{2860ac^7d^9}{3} + \frac{2145bc^8d^8}{2}\right) + x^{11}\left(1170ac^8d^8 + 1040bc^9d^7\right) + x^{10}\left(1144ac^9d^7 + \frac{4004bc^{10}d^6}{5}\right) + x^9\left(\frac{8008ac^{10}d^6}{9} + \frac{1456bc^{11}d^5}{3}\right) + x^8\left(546ac^{11}d^5 + \frac{455bc^{12}d^4}{2}\right) + x^7\left(260ac^{12}d^4 + 80bc^{13}d^3\right) + x^6\left(\frac{280ac^{13}d^3}{3} + 20bc^{14}d^2\right) + x^5\left(24ac^{14}d^2 + \frac{16bc^{15}d}{5}\right) + x^4\left(4ac^{15}d + \frac{bc^{16}}{4}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(b*x+a)*(d*x+c)**16,x)
```

```
[Out] a*c**16*x**3/3 + b*d**16*x**20/20 + x**19*(a*d**16/19 + 16*b*c*d*
*15/19) + x**18*(8*a*c*d**15/9 + 20*b*c**2*d**14/3) + x**17*(120*
```

```
a*c**2*d**14/17 + 560*b*c**3*d**13/17) + x**16*(35*a*c**3*d**13 +
 455*b*c**4*d**12/4) + x**15*(364*a*c**4*d**12/3 + 1456*b*c**5*d*
*11/5) + x**14*(312*a*c**5*d**11 + 572*b*c**6*d**10) + x**13*(616
*a*c**6*d**10 + 880*b*c**7*d**9) + x**12*(2860*a*c**7*d**9/3 + 21
45*b*c**8*d**8/2) + x**11*(1170*a*c**8*d**8 + 1040*b*c**9*d**7) +
 x**10*(1144*a*c**9*d**7 + 4004*b*c**10*d**6/5) + x**9*(8008*a*c*
*10*d**6/9 + 1456*b*c**11*d**5/3) + x**8*(546*a*c**11*d**5 + 455*
b*c**12*d**4/2) + x**7*(260*a*c**12*d**4 + 80*b*c**13*d**3) + x**
6*(280*a*c**13*d**3/3 + 20*b*c**14*d**2) + x**5*(24*a*c**14*d**2
+ 16*b*c**15*d/5) + x**4*(4*a*c**15*d + b*c**16/4)
```

GIAC/XCAS [A] time = 0.333622, size = 525, normalized size = 5.97

$$\frac{1}{20}\,bd^{16}x^{20}+\frac{16}{19}\,bcd^{15}x^{19}+\frac{1}{19}\,ad^{16}x^{19}+\frac{20}{3}\,bc^{2}d^{14}x^{18}+\frac{8}{9}\,acd^{15}x^{18}+\frac{560}{17}\,bc^{3}d^{13}x^{17}+\frac{120}{17}\,ac^{2}d^{14}x^{17}+\frac{455}{4}\,bc^{4}d^{12}x^{16}+35\,ac^{3}d^{13}x^{16}+\frac{1456}{5}\,bc^{5}d^{11}x^{15}+\frac{364}{3}\,ac^{4}d^{12}x^{15}+572\,bc^{6}d^{10}x^{14}+312\,ac^{5}d^{11}x^{14}+880\,bc^{7}d^{9}x^{13}+616\,ac^{6}d^{10}x^{13}+\frac{2145}{2}\,bc^{8}d^{8}x^{12}+\frac{2860}{3}\,ac^{7}d^{9}x^{12}+1040\,bc^{9}d^{7}x^{11}+1170\,ac^{8}d^{8}x^{11}+\frac{4004}{5}\,bc^{10}d^{6}x^{10}+1144\,ac^{9}d^{7}x^{10}+\frac{1456}{3}\,bc^{11}d^{5}x^{9}+\frac{8008}{9}\,ac^{10}d^{6}x^{9}+\frac{455}{2}\,bc^{12}d^{4}x^{8}+546\,ac^{11}d^{5}x^{8}+80\,bc^{13}d^{3}x^{7}+260\,ac^{12}d^{4}x^{7}+20\,bc^{14}d^{2}x^{6}+\frac{280}{3}\,ac^{13}d^{3}x^{6}+\frac{16}{5}\,bc^{15}dx^{5}+24\,ac^{14}d^{2}x^{5}+\frac{1}{4}\,bc^{16}x^{4}+4\,ac^{15}dx^{4}+\frac{1}{3}\,ac^{16}x^{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)*(d*x + c)^16*x^2,x, algorithm="giac")
```

```
[Out] 1/20*b*d^16*x^20 + 16/19*b*c*d^15*x^19 + 1/19*a*d^16*x^19 + 20/3*
b*c^2*d^14*x^18 + 8/9*a*c*d^15*x^18 + 560/17*b*c^3*d^13*x^17 + 12
0/17*a*c^2*d^14*x^17 + 455/4*b*c^4*d^12*x^16 + 35*a*c^3*d^13*x^16
 + 1456/5*b*c^5*d^11*x^15 + 364/3*a*c^4*d^12*x^15 + 572*b*c^6*d^1
0*x^14 + 312*a*c^5*d^11*x^14 + 880*b*c^7*d^9*x^13 + 616*a*c^6*d^1
0*x^13 + 2145/2*b*c^8*d^8*x^12 + 2860/3*a*c^7*d^9*x^12 + 1040*b*c
^9*d^7*x^11 + 1170*a*c^8*d^8*x^11 + 4004/5*b*c^10*d^6*x^10 + 1144
*a*c^9*d^7*x^10 + 1456/3*b*c^11*d^5*x^9 + 8008/9*a*c^10*d^6*x^9 +
 455/2*b*c^12*d^4*x^8 + 546*a*c^11*d^5*x^8 + 80*b*c^13*d^3*x^7 +
260*a*c^12*d^4*x^7 + 20*b*c^14*d^2*x^6 + 280/3*a*c^13*d^3*x^6 + 1
6/5*b*c^15*d*x^5 + 24*a*c^14*d^2*x^5 + 1/4*b*c^16*x^4 + 4*a*c^15*
d*x^4 + 1/3*a*c^16*x^3
```

3.140 $\int x(a+bx)(c+dx)^{16}\,dx$

Optimal. Leaf size=62

$$-\frac{(c+dx)^{18}(2bc-ad)}{18d^3}+\frac{c(c+dx)^{17}(bc-ad)}{17d^3}+\frac{b(c+dx)^{19}}{19d^3}$$

```
[Out] (c*(b*c - a*d)*(c + d*x)^17)/(17*d^3) - ((2*b*c - a*d)*(c + d*x)^
18)/(18*d^3) + (b*(c + d*x)^19)/(19*d^3)
```

Rubi [A] time = 0.66482, antiderivative size = 62, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 14, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.071

$$-\frac{(c+dx)^{18}(2bc-ad)}{18d^3}+\frac{c(c+dx)^{17}(bc-ad)}{17d^3}+\frac{b(c+dx)^{19}}{19d^3}$$

Antiderivative was successfully verified.

```
[In]  Int[x*(a + b*x)*(c + d*x)^16,x]
```

```
[Out] (c*(b*c - a*d)*(c + d*x)^17)/(17*d^3) - ((2*b*c - a*d)*(c + d*x)^
18)/(18*d^3) + (b*(c + d*x)^19)/(19*d^3)
```

Rubi in Sympy [A] time = 65.075, size = 53, normalized size = 0.85

$$\frac{b\left(c+dx\right)^{19}}{19d^3}-\frac{c\left(c+dx\right)^{17}\left(ad-bc\right)}{17d^3}+\frac{\left(c+dx\right)^{18}\left(ad-2bc\right)}{18d^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(b*x+a)*(d*x+c)**16,x)
```

```
[Out] b*(c + d*x)**19/(19*d**3) - c*(c + d*x)**17*(a*d - b*c)/(17*d**3)
 + (c + d*x)**18*(a*d - 2*b*c)/(18*d**3)
```

Mathematica [B] time = 0.119815, size = 347, normalized size = 5.6

$$\frac{1}{3}c^{15}x^3(16ad+bc)+2c^{14}dx^4(15ad+2bc)+8c^{13}d^2x^5(14ad+3bc)+\frac{70}{3}c^{12}d^3x^6(13ad+4bc)+52c^{11}d^4x^7(12ad+5bc)+91c^{10}d^5x^8(11ad+6bc)+\frac{1144}{9}c^9d^6x^9(10ad+7bc)+143c^8d^7x^{10}(9ad+8bc)+130c^7d^8x^{11}(8ad+9bc)+\frac{286}{3}c^6d^9x^{12}(7ad+10bc)+56c^5d^{10}x^{13}(6ad+11bc)+26c^4d^{11}x^{14}(5ad+12bc)+\frac{28}{3}c^3d^{12}x^{15}(4ad+13bc)+\frac{5}{2}c^2d^{13}x^{16}(3ad+14bc)+\frac{1}{18}d^{15}x^{18}(ad+16bc)+\frac{8}{17}cd^{14}x^{17}(2ad+15bc)+\frac{1}{2}ac^{16}x^2+\frac{1}{19}bd^{16}x^{19}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x*(a + b*x)*(c + d*x)^16,x]
```

```
[Out] (a*c^16*x^2)/2 + (c^15*(b*c + 16*a*d)*x^3)/3 + 2*c^14*d*(2*b*c +
15*a*d)*x^4 + 8*c^13*d^2*(3*b*c + 14*a*d)*x^5 + (70*c^12*d^3*(4*b
*c + 13*a*d)*x^6)/3 + 52*c^11*d^4*(5*b*c + 12*a*d)*x^7 + 91*c^10*
d^5*(6*b*c + 11*a*d)*x^8 + (1144*c^9*d^6*(7*b*c + 10*a*d)*x^9)/9
+ 143*c^8*d^7*(8*b*c + 9*a*d)*x^10 + 130*c^7*d^8*(9*b*c + 8*a*d)*
x^11 + (286*c^6*d^9*(10*b*c + 7*a*d)*x^12)/3 + 56*c^5*d^10*(11*b*
```

```
c + 6*a*d)*x^13 + 26*c^4*d^11*(12*b*c + 5*a*d)*x^14 + (28*c^3*d^1
2*(13*b*c + 4*a*d)*x^15)/3 + (5*c^2*d^13*(14*b*c + 3*a*d)*x^16)/2
 + (8*c*d^14*(15*b*c + 2*a*d)*x^17)/17 + (d^15*(16*b*c + a*d)*x^1
8)/18 + (b*d^16*x^19)/19
```

Maple [B] time = 0.003, size = 388, normalized size = 6.3

$$\frac{bd^{16}x^{19}}{19}+\frac{\left(ad^{16}+16\,bcd^{15}\right)x^{18}}{18}+\frac{\left(16\,acd^{15}+120\,bc^{2}d^{14}\right)x^{17}}{17}+\frac{\left(120\,ac^{2}d^{14}+560\,bc^{3}d^{13}\right)x^{16}}{16}+\frac{\left(560\,ac^{3}d^{13}+1820\,bc^{4}d^{12}\right)x^{15}}{15}+\frac{\left(1820\,ac^{4}d^{12}+4368\,bc^{5}d^{11}\right)x^{14}}{14}+\frac{\left(4368\,ac^{5}d^{11}+8008\,bc^{6}d^{10}\right)x^{13}}{13}+\frac{\left(8008\,ac^{6}d^{10}+11440\,bc^{7}d^{9}\right)x^{12}}{12}+\frac{\left(11440\,ac^{7}d^{9}+12870\,bc^{8}d^{8}\right)x^{11}}{11}+\frac{\left(12870\,ac^{8}d^{8}+11440\,bc^{9}d^{7}\right)x^{10}}{10}+\frac{\left(11440\,ac^{9}d^{7}+8008\,bc^{10}d^{6}\right)x^{9}}{9}+\frac{\left(8008\,ac^{10}d^{6}+4368\,bc^{11}d^{5}\right)x^{8}}{8}+\frac{\left(4368\,ac^{11}d^{5}+1820\,bc^{12}d^{4}\right)x^{7}}{7}+\frac{\left(1820\,ac^{12}d^{4}+560\,bc^{13}d^{3}\right)x^{6}}{6}+\frac{\left(560\,ac^{13}d^{3}+120\,bc^{14}d^{2}\right)x^{5}}{5}+\frac{\left(120\,ac^{14}d^{2}+16\,bc^{15}d\right)x^{4}}{4}+\frac{\left(16\,ac^{15}d+bc^{16}\right)x^{3}}{3}+\frac{ac^{16}x^{2}}{2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int(x*(b*x+a)*(d*x+c)^16,x)
```

```
[Out] 1/19*b*d^16*x^19+1/18*(a*d^16+16*b*c*d^15)*x^18+1/17*(16*a*c*d^15
+120*b*c^2*d^14)*x^17+1/16*(120*a*c^2*d^14+560*b*c^3*d^13)*x^16+1
/15*(560*a*c^3*d^13+1820*b*c^4*d^12)*x^15+1/14*(1820*a*c^4*d^12+4
368*b*c^5*d^11)*x^14+1/13*(4368*a*c^5*d^11+8008*b*c^6*d^10)*x^13+
1/12*(8008*a*c^6*d^10+11440*b*c^7*d^9)*x^12+1/11*(11440*a*c^7*d^9
+12870*b*c^8*d^8)*x^11+1/10*(12870*a*c^8*d^8+11440*b*c^9*d^7)*x^1
0+1/9*(11440*a*c^9*d^7+8008*b*c^10*d^6)*x^9+1/8*(8008*a*c^10*d^6+
4368*b*c^11*d^5)*x^8+1/7*(4368*a*c^11*d^5+1820*b*c^12*d^4)*x^7+1/
6*(1820*a*c^12*d^4+560*b*c^13*d^3)*x^6+1/5*(560*a*c^13*d^3+120*b*
c^14*d^2)*x^5+1/4*(120*a*c^14*d^2+16*b*c^15*d)*x^4+1/3*(16*a*c^15
*d+b*c^16)*x^3+1/2*a*c^16*x^2
```

Maxima [A] time = 1.35692, size = 522, normalized size = 8.42

$$\frac{1}{19}\,bd^{16}x^{19}+\frac{1}{2}\,ac^{16}x^{2}+\frac{1}{18}\left(16\,bcd^{15}+ad^{16}\right)x^{18}+\frac{8}{17}\left(15\,bc^{2}d^{14}+2\,acd^{15}\right)x^{17}+\frac{5}{2}\left(14\,bc^{3}d^{13}+3\,ac^{2}d^{14}\right)x^{16}+\frac{28}{3}\left(13\,bc^{4}d^{12}+4\,ac^{3}d^{13}\right)x^{15}+26\left(12\,bc^{5}d^{11}+5\,ac^{4}d^{12}\right)x^{14}+56\left(11\,bc^{6}d^{10}+6\,ac^{5}d^{11}\right)x^{13}+\frac{286}{3}\left(10\,bc^{7}d^{9}+7\,ac^{6}d^{10}\right)x^{12}+130\left(9\,bc^{8}d^{8}+8\,ac^{7}d^{9}\right)x^{11}+143\left(8\,bc^{9}d^{7}+9\,ac^{8}d^{8}\right)x^{10}+\frac{1144}{9}\left(7\,bc^{10}d^{6}+10\,ac^{9}d^{7}\right)x^{9}+91\left(6\,bc^{11}d^{5}+11\,ac^{10}d^{6}\right)x^{8}+52\left(5\,bc^{12}d^{4}+12\,ac^{11}d^{5}\right)x^{7}+\frac{70}{3}\left(4\,bc^{13}d^{3}+13\,ac^{12}d^{4}\right)x^{6}+8\left(3\,bc^{14}d^{2}+14\,ac^{13}d^{3}\right)x^{5}+2\left(2\,bc^{15}d+15\,ac^{14}d^{2}\right)x^{4}+\frac{1}{3}\left(bc^{16}+16\,ac^{15}d\right)x^{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((b*x + a)*(d*x + c)^16*x,x, algorithm="maxima")
```

```
[Out] 1/19*b*d^16*x^19 + 1/2*a*c^16*x^2 + 1/18*(16*b*c*d^15 + a*d^16)*x
^18 + 8/17*(15*b*c^2*d^14 + 2*a*c*d^15)*x^17 + 5/2*(14*b*c^3*d^13
 + 3*a*c^2*d^14)*x^16 + 28/3*(13*b*c^4*d^12 + 4*a*c^3*d^13)*x^15
+ 26*(12*b*c^5*d^11 + 5*a*c^4*d^12)*x^14 + 56*(11*b*c^6*d^10 + 6*
a*c^5*d^11)*x^13 + 286/3*(10*b*c^7*d^9 + 7*a*c^6*d^10)*x^12 + 130
*(9*b*c^8*d^8 + 8*a*c^7*d^9)*x^11 + 143*(8*b*c^9*d^7 + 9*a*c^8*d^
```

```
8)*x^10 + 1144/9*(7*b*c^10*d^6 + 10*a*c^9*d^7)*x^9 + 91*(6*b*c^11
*d^5 + 11*a*c^10*d^6)*x^8 + 52*(5*b*c^12*d^4 + 12*a*c^11*d^5)*x^7
 + 70/3*(4*b*c^13*d^3 + 13*a*c^12*d^4)*x^6 + 8*(3*b*c^14*d^2 + 14
*a*c^13*d^3)*x^5 + 2*(2*b*c^15*d + 15*a*c^14*d^2)*x^4 + 1/3*(b*c^
16 + 16*a*c^15*d)*x^3
```

Fricas [A] time = 0.177916, size = 1, normalized size = 0.02

$$\frac{1}{19}x^{19}d^{16}b + \frac{8}{9}x^{18}d^{15}cb + \frac{1}{18}x^{18}d^{16}a + \frac{120}{17}x^{17}d^{14}c^2b + \frac{16}{17}x^{17}d^{15}ca + 35x^{16}d^{13}c^3b + \frac{15}{2}x^{16}d^{14}c^2a + \frac{364}{3}x^{15}d^{12}c^4b + \frac{112}{3}x^{15}d^{13}c^3a + 312x^{14}d^{11}c^5b + 130x^{14}d^{12}c^4a + 616x^{13}d^{10}c^6b + 336x^{13}d^{11}c^5a + \frac{2860}{3}x^{12}d^9c^7b + \frac{2002}{3}x^{12}d^{10}c^6a + 1170x^{11}d^8c^8b + 1040x^{11}d^9c^7a + 1144x^{10}d^7c^9b + 1287x^{10}d^8c^8a + \frac{8008}{9}x^9d^6c^{10}b + \frac{11440}{9}x^9d^7c^9a + 546x^8d^5c^{11}b + 1001x^8d^6c^{10}a + 260x^7d^4c^{12}b + 624x^7d^5c^{11}a + \frac{280}{3}x^6d^3c^{13}b + \frac{910}{3}x^6d^4c^{12}a + 24x^5d^2c^{14}b + 112x^5d^3c^{13}a + 4x^4dc^{15}b + 30x^4d^2c^{14}a + \frac{1}{3}x^3c^{16}b + \frac{16}{3}x^3dc^{15}a + \frac{1}{2}x^2c^{16}a$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)*(d*x + c)^16*x,x, algorithm="fricas")
```

```
[Out] 1/19*x^19*d^16*b + 8/9*x^18*d^15*c*b + 1/18*x^18*d^16*a + 120/17*
x^17*d^14*c^2*b + 16/17*x^17*d^15*c*a + 35*x^16*d^13*c^3*b + 15/2
*x^16*d^14*c^2*a + 364/3*x^15*d^12*c^4*b + 112/3*x^15*d^13*c^3*a
+ 312*x^14*d^11*c^5*b + 130*x^14*d^12*c^4*a + 616*x^13*d^10*c^6*b
 + 336*x^13*d^11*c^5*a + 2860/3*x^12*d^9*c^7*b + 2002/3*x^12*d^10
*c^6*a + 1170*x^11*d^8*c^8*b + 1040*x^11*d^9*c^7*a + 1144*x^10*d^
7*c^9*b + 1287*x^10*d^8*c^8*a + 8008/9*x^9*d^6*c^10*b + 11440/9*x
^9*d^7*c^9*a + 546*x^8*d^5*c^11*b + 1001*x^8*d^6*c^10*a + 260*x^7
*d^4*c^12*b + 624*x^7*d^5*c^11*a + 280/3*x^6*d^3*c^13*b + 910/3*x
^6*d^4*c^12*a + 24*x^5*d^2*c^14*b + 112*x^5*d^3*c^13*a + 4*x^4*d*
c^15*b + 30*x^4*d^2*c^14*a + 1/3*x^3*c^16*b + 16/3*x^3*d*c^15*a +
 1/2*x^2*c^16*a
```

Sympy [A] time = 0.54633, size = 408, normalized size = 6.58

$$\frac{ac^{16}x^2}{2} + \frac{bd^{16}x^{19}}{19} + x^{18}\left(\frac{ad^{16}}{18} + \frac{8bcd^{15}}{9}\right) + x^{17}\left(\frac{16acd^{15}}{17} + \frac{120bc^2d^{14}}{17}\right) + x^{16}\left(\frac{15ac^2d^{14}}{2} + 35bc^3d^{13}\right) + x^{15}\left(\frac{112ac^3d^{13}}{3} + \frac{364bc^4d^{12}}{3}\right) + x^{14}\left(130ac^4d^{12} + 312bc^5d^{11}\right) + x^{13}\left(336ac^5d^{11} + 616bc^6d^{10}\right) + x^{12}\left(\frac{2002ac^6d^{10}}{3} + \frac{2860bc^7d^9}{3}\right) + x^{11}\left(1040ac^7d^9 + 1170bc^8d^8\right) + x^{10}\left(1287ac^8d^8 + 1144bc^9d^7\right) + x^9\left(\frac{11440ac^9d^7}{9} + \frac{8008bc^{10}d^6}{9}\right) + x^8\left(1001ac^{10}d^6 + 546bc^{11}d^5\right) + x^7\left(624ac^{11}d^5 + 260bc^{12}d^4\right) + x^6\left(\frac{910ac^{12}d^4}{3} + \frac{280bc^{13}d^3}{3}\right) + x^5\left(112ac^{13}d^3 + 24bc^{14}d^2\right) + x^4\left(30ac^{14}d^2 + 4bc^{15}d\right) + x^3\left(\frac{16ac^{15}d}{3} + \frac{bc^{16}}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(b*x+a)*(d*x+c)**16,x)
```

```
[Out] a*c**16*x**2/2 + b*d**16*x**19/19 + x**18*(a*d**16/18 + 8*b*c*d**
15/9) + x**17*(16*a*c*d**15/17 + 120*b*c**2*d**14/17) + x**16*(15
*a*c**2*d**14/2 + 35*b*c**3*d**13) + x**15*(112*a*c**3*d**13/3 +
364*b*c**4*d**12/3) + x**14*(130*a*c**4*d**12 + 312*b*c**5*d**11)
 + x**13*(336*a*c**5*d**11 + 616*b*c**6*d**10) + x**12*(2002*a*c*
```

```
*6*d**10/3 + 2860*b*c**7*d**9/3) + x**11*(1040*a*c**7*d**9 + 1170
*b*c**8*d**8) + x**10*(1287*a*c**8*d**8 + 1144*b*c**9*d**7) + x**
9*(11440*a*c**9*d**7/9 + 8008*b*c**10*d**6/9) + x**8*(1001*a*c**1
0*d**6 + 546*b*c**11*d**5) + x**7*(624*a*c**11*d**5 + 260*b*c**12
*d**4) + x**6*(910*a*c**12*d**4/3 + 280*b*c**13*d**3/3) + x**5*(1
12*a*c**13*d**3 + 24*b*c**14*d**2) + x**4*(30*a*c**14*d**2 + 4*b*
c**15*d) + x**3*(16*a*c**15*d/3 + b*c**16/3)
```

GIAC/XCAS [A] time = 0.30246, size = 525, normalized size = 8.47

$$\frac{1}{19}\,bd^{16}x^{19} + \frac{8}{9}\,bcd^{15}x^{18} + \frac{1}{18}\,ad^{16}x^{18} + \frac{120}{17}\,bc^{2}d^{14}x^{17} + \frac{16}{17}\,acd^{15}x^{17} + 35\,bc^{3}d^{13}x^{16} + \frac{15}{2}\,ac^{2}d^{14}x^{16} + \frac{364}{3}\,bc^{4}d^{12}x^{15} + \frac{112}{3}\,ac^{3}d^{13}x^{15} + 312\,bc^{5}d^{11}x^{14} + 130\,ac^{4}d^{12}x^{14} + 616\,bc^{6}d^{10}x^{13} + 336\,ac^{5}d^{11}x^{13} + \frac{2860}{3}\,bc^{7}d^{9}x^{12} + \frac{2002}{3}\,ac^{6}d^{10}x^{12} + 1170\,bc^{8}d^{8}x^{11} + 1040\,ac^{7}d^{9}x^{11} + 1144\,bc^{9}d^{7}x^{10} + 1287\,ac^{8}d^{8}x^{10} + \frac{8008}{9}\,bc^{10}d^{6}x^{9} + \frac{11440}{9}\,ac^{9}d^{7}x^{9} + 546\,bc^{11}d^{5}x^{8} + 1001\,ac^{10}d^{6}x^{8} + 260\,bc^{12}d^{4}x^{7} + 624\,ac^{11}d^{5}x^{7} + \frac{280}{3}\,bc^{13}d^{3}x^{6} + \frac{910}{3}\,ac^{12}d^{4}x^{6} + 24\,bc^{14}d^{2}x^{5} + 112\,ac^{13}d^{3}x^{5} + 4\,bc^{15}dx^{4} + 30\,ac^{14}d^{2}x^{4} + \frac{1}{3}\,bc^{16}x^{3} + \frac{16}{3}\,ac^{15}dx^{3} + \frac{1}{2}\,ac^{16}x^{2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)*(d*x + c)^16*x,x, algorithm="giac")
```

```
[Out] 1/19*b*d^16*x^19 + 8/9*b*c*d^15*x^18 + 1/18*a*d^16*x^18 + 120/17*
b*c^2*d^14*x^17 + 16/17*a*c*d^15*x^17 + 35*b*c^3*d^13*x^16 + 15/2
*a*c^2*d^14*x^16 + 364/3*b*c^4*d^12*x^15 + 112/3*a*c^3*d^13*x^15
+ 312*b*c^5*d^11*x^14 + 130*a*c^4*d^12*x^14 + 616*b*c^6*d^10*x^13
 + 336*a*c^5*d^11*x^13 + 2860/3*b*c^7*d^9*x^12 + 2002/3*a*c^6*d^1
0*x^12 + 1170*b*c^8*d^8*x^11 + 1040*a*c^7*d^9*x^11 + 1144*b*c^9*d
^7*x^10 + 1287*a*c^8*d^8*x^10 + 8008/9*b*c^10*d^6*x^9 + 11440/9*a
*c^9*d^7*x^9 + 546*b*c^11*d^5*x^8 + 1001*a*c^10*d^6*x^8 + 260*b*c
^12*d^4*x^7 + 624*a*c^11*d^5*x^7 + 280/3*b*c^13*d^3*x^6 + 910/3*a
*c^12*d^4*x^6 + 24*b*c^14*d^2*x^5 + 112*a*c^13*d^3*x^5 + 4*b*c^15
*d*x^4 + 30*a*c^14*d^2*x^4 + 1/3*b*c^16*x^3 + 16/3*a*c^15*d*x^3 +
 1/2*a*c^16*x^2
```

3.141 $\int (a+bx)(c+dx)^{16}\,dx$

Optimal. Leaf size=38

$$\frac{b(c+dx)^{18}}{18d^2}-\frac{(c+dx)^{17}(bc-ad)}{17d^2}$$

```
[Out] -((b*c - a*d)*(c + d*x)^17)/(17*d^2) + (b*(c + d*x)^18)/(18*d^2)
```

Rubi [A] time = 0.0603763, antiderivative size = 38, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 13, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.077

$$\frac{b(c+dx)^{18}}{18d^2}-\frac{(c+dx)^{17}(bc-ad)}{17d^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)*(c + d*x)^16,x]

[Out] -((b*c - a*d)*(c + d*x)^17)/(17*d^2) + (b*(c + d*x)^18)/(18*d^2)
```

Rubi in Sympy [A] time = 56.7719, size = 31, normalized size = 0.82

$$\frac{b\left(c+dx\right)^{18}}{18d^2}+\frac{\left(c+dx\right)^{17}\left(ad-bc\right)}{17d^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(d*x+c)**16,x)

[Out] b*(c + d*x)**18/(18*d**2) + (c + d*x)**17*(a*d - b*c)/(17*d**2)
```

Mathematica [B] time = 0.098997, size = 342, normalized size = 9.

$$\frac{1}{2}c^{15}x^2(16ad+bc)+\frac{8}{3}c^{14}dx^3(15ad+2bc)+10c^{13}d^2x^4(14ad+3bc)+28c^{12}d^3x^5(13ad+4bc)+\frac{182}{3}c^{11}d^4x^6(12ad+5bc)+104c^{10}d^5x^7(11ad+6bc)+143c^9d^6x^8(10ad+7bc)+\frac{1430}{9}c^8d^7x^9(9ad+8bc)+143c^7d^8x^{10}(8ad+9bc)+104c^6d^9x^{11}(7ad+10bc)+\frac{182}{3}c^5d^{10}x^{12}(6ad+11bc)+28c^4d^{11}x^{13}(5ad+12bc)+10c^3d^{12}x^{14}(4ad+13bc)+\frac{8}{3}c^2d^{13}x^{15}(3ad+14bc)+\frac{1}{17}d^{15}x^{17}(ad+16bc)+\frac{1}{2}cd^{14}x^{16}(2ad+15bc)+ac^{16}x+\frac{1}{18}bd^{16}x^{18}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)*(c + d*x)^16,x]

[Out] a*c^16*x + (c^15*(b*c + 16*a*d)*x^2)/2 + (8*c^14*d*(2*b*c + 15*a*
d)*x^3)/3 + 10*c^13*d^2*(3*b*c + 14*a*d)*x^4 + 28*c^12*d^3*(4*b*c
 + 13*a*d)*x^5 + (182*c^11*d^4*(5*b*c + 12*a*d)*x^6)/3 + 104*c^10
*d^5*(6*b*c + 11*a*d)*x^7 + 143*c^9*d^6*(7*b*c + 10*a*d)*x^8 + (1
430*c^8*d^7*(8*b*c + 9*a*d)*x^9)/9 + 143*c^7*d^8*(9*b*c + 8*a*d)*
x^10 + 104*c^6*d^9*(10*b*c + 7*a*d)*x^11 + (182*c^5*d^10*(11*b*c
+ 6*a*d)*x^12)/3 + 28*c^4*d^11*(12*b*c + 5*a*d)*x^13 + 10*c^3*d^1
2*(13*b*c + 4*a*d)*x^14 + (8*c^2*d^13*(14*b*c + 3*a*d)*x^15)/3 +
(c*d^14*(15*b*c + 2*a*d)*x^16)/2 + (d^15*(16*b*c + a*d)*x^17)/17
```

```
+ (b*d^16*x^18)/18
```

Maple [B] time = 0.003, size = 385, normalized size = 10.1

$$\frac{bd^{16}x^{18}}{18}+\frac{\left(ad^{16}+16\,bcd^{15}\right)x^{17}}{17}+\frac{\left(16\,acd^{15}+120\,bc^{2}d^{14}\right)x^{16}}{16}+\frac{\left(120\,ac^{2}d^{14}+560\,bc^{3}d^{13}\right)x^{15}}{15}+\frac{\left(560\,ac^{3}d^{13}+1820\,bc^{4}d^{12}\right)x^{14}}{14}+\frac{\left(1820\,ac^{4}d^{12}+4368\,bc^{5}d^{11}\right)x^{13}}{13}+\frac{\left(4368\,ac^{5}d^{11}+8008\,bc^{6}d^{10}\right)x^{12}}{12}+\frac{\left(8008\,ac^{6}d^{10}+11440\,bc^{7}d^{9}\right)x^{11}}{11}+\frac{\left(11440\,ac^{7}d^{9}+12870\,bc^{8}d^{8}\right)x^{10}}{10}+\frac{\left(12870\,ac^{8}d^{8}+11440\,bc^{9}d^{7}\right)x^{9}}{9}+\frac{\left(11440\,ac^{9}d^{7}+8008\,bc^{10}d^{6}\right)x^{8}}{8}+\frac{\left(8008\,ac^{10}d^{6}+4368\,bc^{11}d^{5}\right)x^{7}}{7}+\frac{\left(4368\,ac^{11}d^{5}+1820\,bc^{12}d^{4}\right)x^{6}}{6}+\frac{\left(1820\,ac^{12}d^{4}+560\,bc^{13}d^{3}\right)x^{5}}{5}+\frac{\left(560\,ac^{13}d^{3}+120\,bc^{14}d^{2}\right)x^{4}}{4}+\frac{\left(120\,ac^{14}d^{2}+16\,bc^{15}d\right)x^{3}}{3}+\frac{\left(16\,ac^{15}d+bc^{16}\right)x^{2}}{2}+ac^{16}x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(d*x+c)^16,x)
```

```
[Out] 1/18*b*d^16*x^18+1/17*(a*d^16+16*b*c*d^15)*x^17+1/16*(16*a*c*d^15
+120*b*c^2*d^14)*x^16+1/15*(120*a*c^2*d^14+560*b*c^3*d^13)*x^15+1
/14*(560*a*c^3*d^13+1820*b*c^4*d^12)*x^14+1/13*(1820*a*c^4*d^12+4
368*b*c^5*d^11)*x^13+1/12*(4368*a*c^5*d^11+8008*b*c^6*d^10)*x^12+
1/11*(8008*a*c^6*d^10+11440*b*c^7*d^9)*x^11+1/10*(11440*a*c^7*d^9
+12870*b*c^8*d^8)*x^10+1/9*(12870*a*c^8*d^8+11440*b*c^9*d^7)*x^9+
1/8*(11440*a*c^9*d^7+8008*b*c^10*d^6)*x^8+1/7*(8008*a*c^10*d^6+43
68*b*c^11*d^5)*x^7+1/6*(4368*a*c^11*d^5+1820*b*c^12*d^4)*x^6+1/5*
(1820*a*c^12*d^4+560*b*c^13*d^3)*x^5+1/4*(560*a*c^13*d^3+120*b*c^
14*d^2)*x^4+1/3*(120*a*c^14*d^2+16*b*c^15*d)*x^3+1/2*(16*a*c^15*d
+b*c^16)*x^2+a*c^16*x
```

Maxima [A] time = 1.36046, size = 518, normalized size = 13.63

$$\frac{1}{18}\,bd^{16}x^{18}+ac^{16}x+\frac{1}{17}\left(16\,bcd^{15}+ad^{16}\right)x^{17}+\frac{1}{2}\left(15\,bc^{2}d^{14}+2\,acd^{15}\right)x^{16}+\frac{8}{3}\left(14\,bc^{3}d^{13}+3\,ac^{2}d^{14}\right)x^{15}+10\left(13\,bc^{4}d^{12}+4\,ac^{3}d^{13}\right)x^{14}+28\left(12\,bc^{5}d^{11}+5\,ac^{4}d^{12}\right)x^{13}+\frac{182}{3}\left(11\,bc^{6}d^{10}+6\,ac^{5}d^{11}\right)x^{12}+104\left(10\,bc^{7}d^{9}+7\,ac^{6}d^{10}\right)x^{11}+143\left(9\,bc^{8}d^{8}+8\,ac^{7}d^{9}\right)x^{10}+\frac{1430}{9}\left(8\,bc^{9}d^{7}+9\,ac^{8}d^{8}\right)x^{9}+143\left(7\,bc^{10}d^{6}+10\,ac^{9}d^{7}\right)x^{8}+104\left(6\,bc^{11}d^{5}+11\,ac^{10}d^{6}\right)x^{7}+\frac{182}{3}\left(5\,bc^{12}d^{4}+12\,ac^{11}d^{5}\right)x^{6}+28\left(4\,bc^{13}d^{3}+13\,ac^{12}d^{4}\right)x^{5}+10\left(3\,bc^{14}d^{2}+14\,ac^{13}d^{3}\right)x^{4}+\frac{8}{3}\left(2\,bc^{15}d+15\,ac^{14}d^{2}\right)x^{3}+\frac{1}{2}\left(bc^{16}+16\,ac^{15}d\right)x^{2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)*(d*x + c)^16,x, algorithm="maxima")
```

```
[Out] 1/18*b*d^16*x^18 + a*c^16*x + 1/17*(16*b*c*d^15 + a*d^16)*x^17 +
1/2*(15*b*c^2*d^14 + 2*a*c*d^15)*x^16 + 8/3*(14*b*c^3*d^13 + 3*a*
c^2*d^14)*x^15 + 10*(13*b*c^4*d^12 + 4*a*c^3*d^13)*x^14 + 28*(12*
b*c^5*d^11 + 5*a*c^4*d^12)*x^13 + 182/3*(11*b*c^6*d^10 + 6*a*c^5*
d^11)*x^12 + 104*(10*b*c^7*d^9 + 7*a*c^6*d^10)*x^11 + 143*(9*b*c^
8*d^8 + 8*a*c^7*d^9)*x^10 + 1430/9*(8*b*c^9*d^7 + 9*a*c^8*d^8)*x^
9 + 143*(7*b*c^10*d^6 + 10*a*c^9*d^7)*x^8 + 104*(6*b*c^11*d^5 + 1
1*a*c^10*d^6)*x^7 + 182/3*(5*b*c^12*d^4 + 12*a*c^11*d^5)*x^6 + 28
*(4*b*c^13*d^3 + 13*a*c^12*d^4)*x^5 + 10*(3*b*c^14*d^2 + 14*a*c^1
```

```
3*d^3)*x^4 + 8/3*(2*b*c^15*d + 15*a*c^14*d^2)*x^3 + 1/2*(b*c^16 +
 16*a*c^15*d)*x^2
```

Fricas [A] time = 0.180005, size = 1, normalized size = 0.03

$$\frac{1}{18}x^{18}d^{16}b + \frac{16}{17}x^{17}d^{15}cb + \frac{1}{17}x^{17}d^{16}a + \frac{15}{2}x^{16}d^{14}c^2b + x^{16}d^{15}ca + \frac{112}{3}x^{15}d^{13}c^3b + 8x^{15}d^{14}c^2a + 130x^{14}d^{12}c^4b + 40x^{14}d^{13}c^3a + 336x^{13}d^{11}c^5b + 140x^{13}d^{12}c^4a + \frac{2002}{3}x^{12}d^{10}c^6b + 364x^{12}d^{11}c^5a + 1040x^{11}d^9c^7b + 728x^{11}d^{10}c^6a + 1287x^{10}d^8c^8b + 1144x^{10}d^9c^7a + \frac{11440}{9}x^9d^7c^9b + 1430x^9d^8c^8a + 1001x^8d^6c^{10}b + 1430x^8d^7c^9a + 624x^7d^5c^{11}b + 1144x^7d^6c^{10}a + \frac{910}{3}x^6d^4c^{12}b + 728x^6d^5c^{11}a + 112x^5d^3c^{13}b + 364x^5d^4c^{12}a + 30x^4d^2c^{14}b + 140x^4d^3c^{13}a + \frac{16}{3}x^3dc^{15}b + 40x^3d^2c^{14}a + \frac{1}{2}x^2c^{16}b + 8x^2dc^{15}a + xc^{16}a$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)*(d*x + c)^16,x, algorithm="fricas")
```

```
[Out] 1/18*x^18*d^16*b + 16/17*x^17*d^15*c*b + 1/17*x^17*d^16*a + 15/2*
x^16*d^14*c^2*b + x^16*d^15*c*a + 112/3*x^15*d^13*c^3*b + 8*x^15*
d^14*c^2*a + 130*x^14*d^12*c^4*b + 40*x^14*d^13*c^3*a + 336*x^13*
d^11*c^5*b + 140*x^13*d^12*c^4*a + 2002/3*x^12*d^10*c^6*b + 364*x
^12*d^11*c^5*a + 1040*x^11*d^9*c^7*b + 728*x^11*d^10*c^6*a + 1287
*x^10*d^8*c^8*b + 1144*x^10*d^9*c^7*a + 11440/9*x^9*d^7*c^9*b + 1
430*x^9*d^8*c^8*a + 1001*x^8*d^6*c^10*b + 1430*x^8*d^7*c^9*a + 62
4*x^7*d^5*c^11*b + 1144*x^7*d^6*c^10*a + 910/3*x^6*d^4*c^12*b + 7
28*x^6*d^5*c^11*a + 112*x^5*d^3*c^13*b + 364*x^5*d^4*c^12*a + 30*
x^4*d^2*c^14*b + 140*x^4*d^3*c^13*a + 16/3*x^3*d*c^15*b + 40*x^3*
d^2*c^14*a + 1/2*x^2*c^16*b + 8*x^2*d*c^15*a + x*c^16*a
```

Sympy [A] time = 0.547865, size = 393, normalized size = 10.34

$$ac^{16}x + \frac{bd^{16}x^{18}}{18} + x^{17}\left(\frac{ad^{16}}{17} + \frac{16bcd^{15}}{17}\right) + x^{16}\left(acd^{15} + \frac{15bc^2d^{14}}{2}\right) + x^{15}\left(8ac^2d^{14} + \frac{112bc^3d^{13}}{3}\right) + x^{14}\left(40ac^3d^{13} + 130bc^4d^{12}\right) + x^{13}\left(140ac^4d^{12} + 336bc^5d^{11}\right) + x^{12}\left(364ac^5d^{11} + \frac{2002bc^6d^{10}}{3}\right) + x^{11}\left(728ac^6d^{10} + 1040bc^7d^9\right) + x^{10}\left(1144ac^7d^9 + 1287bc^8d^8\right) + x^9\left(1430ac^8d^8 + \frac{11440bc^9d^7}{9}\right) + x^8\left(1430ac^9d^7 + 1001bc^{10}d^6\right) + x^7\left(1144ac^{10}d^6 + 624bc^{11}d^5\right) + x^6\left(728ac^{11}d^5 + \frac{910bc^{12}d^4}{3}\right) + x^5\left(364ac^{12}d^4 + 112bc^{13}d^3\right) + x^4\left(140ac^{13}d^3 + 30bc^{14}d^2\right) + x^3\left(40ac^{14}d^2 + \frac{16bc^{15}d}{3}\right) + x^2\left(8ac^{15}d + \frac{bc^{16}}{2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(d*x+c)**16,x)
```

```
[Out] a*c**16*x + b*d**16*x**18/18 + x**17*(a*d**16/17 + 16*b*c*d**15/1
7) + x**16*(a*c*d**15 + 15*b*c**2*d**14/2) + x**15*(8*a*c**2*d**1
4 + 112*b*c**3*d**13/3) + x**14*(40*a*c**3*d**13 + 130*b*c**4*d**
12) + x**13*(140*a*c**4*d**12 + 336*b*c**5*d**11) + x**12*(364*a*
c**5*d**11 + 2002*b*c**6*d**10/3) + x**11*(728*a*c**6*d**10 + 104
0*b*c**7*d**9) + x**10*(1144*a*c**7*d**9 + 1287*b*c**8*d**8) + x*
*9*(1430*a*c**8*d**8 + 11440*b*c**9*d**7/9) + x**8*(1430*a*c**9*d
**7 + 1001*b*c**10*d**6) + x**7*(1144*a*c**10*d**6 + 624*b*c**11*
d**5) + x**6*(728*a*c**11*d**5 + 910*b*c**12*d**4/3) + x**5*(364*
a*c**12*d**4 + 112*b*c**13*d**3) + x**4*(140*a*c**13*d**3 + 30*b*
```

```
c**14*d**2) + x**3*(40*a*c**14*d**2 + 16*b*c**15*d/3) + x**2*(8*a
*c**15*d + b*c**16/2)
```

GIAC/XCAS [A] time = 0.300092, size = 520, normalized size = 13.68

$$\frac{1}{18}\,bd^{16}x^{18}+\frac{16}{17}\,bcd^{15}x^{17}+\frac{1}{17}\,ad^{16}x^{17}+\frac{15}{2}\,bc^{2}d^{14}x^{16}+acd^{15}x^{16}+\frac{112}{3}\,bc^{3}d^{13}x^{15}+8\,ac^{2}d^{14}x^{15}+130\,bc^{4}d^{12}x^{14}+40\,ac^{3}d^{13}x^{14}+336\,bc^{5}d^{11}x^{13}+140\,ac^{4}d^{12}x^{13}+\frac{2002}{3}\,bc^{6}d^{10}x^{12}+364\,ac^{5}d^{11}x^{12}+1040\,bc^{7}d^{9}x^{11}+728\,ac^{6}d^{10}x^{11}+1287\,bc^{8}d^{8}x^{10}+1144\,ac^{7}d^{9}x^{10}+\frac{11440}{9}\,bc^{9}d^{7}x^{9}+1430\,ac^{8}d^{8}x^{9}+1001\,bc^{10}d^{6}x^{8}+1430\,ac^{9}d^{7}x^{8}+624\,bc^{11}d^{5}x^{7}+1144\,ac^{10}d^{6}x^{7}+\frac{910}{3}\,bc^{12}d^{4}x^{6}+728\,ac^{11}d^{5}x^{6}+112\,bc^{13}d^{3}x^{5}+364\,ac^{12}d^{4}x^{5}+30\,bc^{14}d^{2}x^{4}+140\,ac^{13}d^{3}x^{4}+\frac{16}{3}\,bc^{15}dx^{3}+40\,ac^{14}d^{2}x^{3}+\frac{1}{2}\,bc^{16}x^{2}+8\,ac^{15}dx^{2}+ac^{16}x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)*(d*x + c)^16,x, algorithm="giac")
```

```
[Out] 1/18*b*d^16*x^18 + 16/17*b*c*d^15*x^17 + 1/17*a*d^16*x^17 + 15/2*
b*c^2*d^14*x^16 + a*c*d^15*x^16 + 112/3*b*c^3*d^13*x^15 + 8*a*c^2
*d^14*x^15 + 130*b*c^4*d^12*x^14 + 40*a*c^3*d^13*x^14 + 336*b*c^5
*d^11*x^13 + 140*a*c^4*d^12*x^13 + 2002/3*b*c^6*d^10*x^12 + 364*a
*c^5*d^11*x^12 + 1040*b*c^7*d^9*x^11 + 728*a*c^6*d^10*x^11 + 1287
*b*c^8*d^8*x^10 + 1144*a*c^7*d^9*x^10 + 11440/9*b*c^9*d^7*x^9 + 1
430*a*c^8*d^8*x^9 + 1001*b*c^10*d^6*x^8 + 1430*a*c^9*d^7*x^8 + 62
4*b*c^11*d^5*x^7 + 1144*a*c^10*d^6*x^7 + 910/3*b*c^12*d^4*x^6 + 7
28*a*c^11*d^5*x^6 + 112*b*c^13*d^3*x^5 + 364*a*c^12*d^4*x^5 + 30*
b*c^14*d^2*x^4 + 140*a*c^13*d^3*x^4 + 16/3*b*c^15*d*x^3 + 40*a*c^
14*d^2*x^3 + 1/2*b*c^16*x^2 + 8*a*c^15*d*x^2 + a*c^16*x
```

3.142 $\int x^2(2+x)^5(2+3x)\,dx$

Optimal. Leaf size=12

$$\frac{1}{3}x^3(x+2)^6$$

```
[Out] (x^3*(2 + x)^6)/3
```

Rubi [A] time = 0.00927471, antiderivative size = 12, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 14, $\frac{\text{number of rules}}{\text{integrand size}} = 0.071$

$$\frac{1}{3}x^3(x+2)^6$$

Antiderivative was successfully verified.

```
[In]  Int[x^2*(2 + x)^5*(2 + 3*x),x]

[Out] (x^3*(2 + x)^6)/3
```

Rubi in Sympy [A] time = 4.67963, size = 8, normalized size = 0.67

$$\frac{x^3\,(x+2)^6}{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(2+x)**5*(2+3*x),x)

[Out] x**3*(x + 2)**6/3
```

Mathematica [B] time = 0.00306096, size = 42, normalized size = 3.5

$$\frac{x^9}{3}+4x^8+20x^7+\frac{160x^6}{3}+80x^5+64x^4+\frac{64x^3}{3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^2*(2 + x)^5*(2 + 3*x),x]

[Out] (64*x^3)/3 + 64*x^4 + 80*x^5 + (160*x^6)/3 + 20*x^7 + 4*x^8 + x^9
/3
```

Maple [B] time = 0.002, size = 37, normalized size = 3.1

$$\frac{x^9}{3}+4\,x^8+20\,x^7+\frac{160\,x^6}{3}+80\,x^5+64\,x^4+\frac{64\,x^3}{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(2+x)^5*(2+3*x),x)

[Out] 1/3*x^9+4*x^8+20*x^7+160/3*x^6+80*x^5+64*x^4+64/3*x^3
```

Maxima [A] time = 1.3504, size = 49, normalized size = 4.08

$$\frac{1}{3}\,x^{9}+4\,x^{8}+20\,x^{7}+\frac{160}{3}\,x^{6}+80\,x^{5}+64\,x^{4}+\frac{64}{3}\,x^{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)*(x + 2)^5*x^2,x, algorithm="maxima")
```

```
[Out] 1/3*x^9 + 4*x^8 + 20*x^7 + 160/3*x^6 + 80*x^5 + 64*x^4 + 64/3*x^3
```

Fricas [A] time = 0.175227, size = 1, normalized size = 0.08

$$\frac{1}{3}x^{9}+4x^{8}+20x^{7}+\frac{160}{3}x^{6}+80x^{5}+64x^{4}+\frac{64}{3}x^{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)*(x + 2)^5*x^2,x, algorithm="fricas")
```

```
[Out] 1/3*x^9 + 4*x^8 + 20*x^7 + 160/3*x^6 + 80*x^5 + 64*x^4 + 64/3*x^3
```

Sympy [A] time = 0.104304, size = 37, normalized size = 3.08

$$\frac{x^{9}}{3}+4x^{8}+20x^{7}+\frac{160x^{6}}{3}+80x^{5}+64x^{4}+\frac{64x^{3}}{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(2+x)**5*(2+3*x),x)
```

```
[Out] x**9/3 + 4*x**8 + 20*x**7 + 160*x**6/3 + 80*x**5 + 64*x**4 + 64*x
**3/3
```

GIAC/XCAS [A] time = 0.280048, size = 49, normalized size = 4.08

$$\frac{1}{3}\,x^{9}+4\,x^{8}+20\,x^{7}+\frac{160}{3}\,x^{6}+80\,x^{5}+64\,x^{4}+\frac{64}{3}\,x^{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)*(x + 2)^5*x^2,x, algorithm="giac")
```

```
[Out] 1/3*x^9 + 4*x^8 + 20*x^7 + 160/3*x^6 + 80*x^5 + 64*x^4 + 64/3*x^3
```

3.143 $\int \frac{x^4(A+Bx)}{a+bx} dx$

Optimal. Leaf size=108

$$\frac{a^4(Ab-aB)\log(a+bx)}{b^6}-\frac{a^3x(Ab-aB)}{b^5}+\frac{a^2x^2(Ab-aB)}{2b^4}-\frac{ax^3(Ab-aB)}{3b^3}+\frac{x^4(Ab-aB)}{4b^2}+\frac{Bx^5}{5b}$$

```
[Out] -((a^3*(A*b - a*B)*x)/b^5) + (a^2*(A*b - a*B)*x^2)/(2*b^4) - (a*(
A*b - a*B)*x^3)/(3*b^3) + ((A*b - a*B)*x^4)/(4*b^2) + (B*x^5)/(5*
b) + (a^4*(A*b - a*B)*Log[a + b*x])/b^6
```

Rubi [A] time = 0.213153, antiderivative size = 108, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$\frac{a^4(Ab-aB)\log(a+bx)}{b^6}-\frac{a^3x(Ab-aB)}{b^5}+\frac{a^2x^2(Ab-aB)}{2b^4}-\frac{ax^3(Ab-aB)}{3b^3}+\frac{x^4(Ab-aB)}{4b^2}+\frac{Bx^5}{5b}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^4*(A + B*x))/(a + b*x),x]
```

```
[Out] -((a^3*(A*b - a*B)*x)/b^5) + (a^2*(A*b - a*B)*x^2)/(2*b^4) - (a*(
A*b - a*B)*x^3)/(3*b^3) + ((A*b - a*B)*x^4)/(4*b^2) + (B*x^5)/(5*
b) + (a^4*(A*b - a*B)*Log[a + b*x])/b^6
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{Bx^5}{5b}+\frac{a^4(Ab-Ba)\log(a+bx)}{b^6}+\frac{a^2(Ab-Ba)\int x\,dx}{b^4}-\frac{ax^3(Ab-Ba)}{3b^3}+\frac{x^4(Ab-Ba)}{4b^2}-\frac{(Ab-Ba)\int a^3\,dx}{b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**4*(B*x+A)/(b*x+a),x)
```

```
[Out] B*x**5/(5*b) + a**4*(A*b - B*a)*log(a + b*x)/b**6 + a**2*(A*b - B
*a)*Integral(x, x)/b**4 - a*x**3*(A*b - B*a)/(3*b**3) + x**4*(A*b
 - B*a)/(4*b**2) - (A*b - B*a)*Integral(a**3, x)/b**5
```

Mathematica [A] time = 0.0641934, size = 100, normalized size = 0.93

$$\frac{bx\left(60a^4B-30a^3b(2A+Bx)+10a^2b^2x(3A+2Bx)-5ab^3x^2(4A+3Bx)+3b^4x^3(5A+4Bx)\right)-60a^4(aB-Ab)\log(a+bx)}{60b^6}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^4*(A + B*x))/(a + b*x),x]
```

```
[Out] (b*x*(60*a^4*B - 30*a^3*b*(2*A + B*x) + 10*a^2*b^2*x*(3*A + 2*B*x
) - 5*a*b^3*x^2*(4*A + 3*B*x) + 3*b^4*x^3*(5*A + 4*B*x)) - 60*a^4
*(-(A*b) + a*B)*Log[a + b*x])/(60*b^6)
```

Maple [A] time = 0.004, size = 124, normalized size = 1.2

$$\frac{Bx^5}{5\,b}+\frac{Ax^4}{4\,b}-\frac{Bx^4a}{4\,b^2}-\frac{aAx^3}{3\,b^2}+\frac{Bx^3a^2}{3\,b^3}+\frac{a^2Ax^2}{2\,b^3}-\frac{Bx^2a^3}{2\,b^4}-\frac{a^3Ax}{b^4}+\frac{Ba^4x}{b^5}+\frac{a^4\ln(bx+a)\,A}{b^5}-\frac{a^5\ln(bx+a)\,B}{b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^4*(B*x+A)/(b*x+a),x)
```

```
[Out] 1/5*B*x^5/b+1/4/b*A*x^4-1/4/b^2*B*x^4*a-1/3/b^2*A*x^3*a+1/3/b^3*B
*x^3*a^2+1/2/b^3*A*x^2*a^2-1/2/b^4*B*x^2*a^3-1/b^4*A*a^3*x+1/b^5*
B*a^4*x+a^4/b^5*ln(b*x+a)*A-a^5/b^6*ln(b*x+a)*B
```

Maxima [A] time = 1.3533, size = 157, normalized size = 1.45

$$\frac{12\,Bb^4x^5 - 15\,\left(Bab^3 - Ab^4\right)x^4 + 20\,\left(Ba^2b^2 - Aab^3\right)x^3 - 30\,\left(Ba^3b - Aa^2b^2\right)x^2 + 60\,\left(Ba^4 - Aa^3b\right)x}{60\,b^5} - \frac{\left(Ba^5 - Aa^4b\right)\log\left(bx + a\right)}{b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^4/(b*x + a),x, algorithm="maxima")
```

```
[Out] 1/60*(12*B*b^4*x^5 - 15*(B*a*b^3 - A*b^4)*x^4 + 20*(B*a^2*b^2 - A
*a*b^3)*x^3 - 30*(B*a^3*b - A*a^2*b^2)*x^2 + 60*(B*a^4 - A*a^3*b)
*x)/b^5 - (B*a^5 - A*a^4*b)*log(b*x + a)/b^6
```

Fricas [A] time = 0.197441, size = 158, normalized size = 1.46

$$\frac{12\,Bb^5x^5 - 15\,\left(Bab^4 - Ab^5\right)x^4 + 20\,\left(Ba^2b^3 - Aab^4\right)x^3 - 30\,\left(Ba^3b^2 - Aa^2b^3\right)x^2 + 60\,\left(Ba^4b - Aa^3b^2\right)x - 60\,\left(Ba^5 - Aa^4b\right)\mathrm{l}}{60\,b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^4/(b*x + a),x, algorithm="fricas")
```

```
[Out] 1/60*(12*B*b^5*x^5 - 15*(B*a*b^4 - A*b^5)*x^4 + 20*(B*a^2*b^3 - A
*a*b^4)*x^3 - 30*(B*a^3*b^2 - A*a^2*b^3)*x^2 + 60*(B*a^4*b - A*a^
3*b^2)*x - 60*(B*a^5 - A*a^4*b)*log(b*x + a))/b^6
```

Sympy [A] time = 2.5349, size = 99, normalized size = 0.92

$$\frac{Bx^5}{5b} - \frac{a^4\left(-Ab + Ba\right)\log\left(a + bx\right)}{b^6} - \frac{x^4\left(-Ab + Ba\right)}{4b^2} + \frac{x^3\left(-Aab + Ba^2\right)}{3b^3} - \frac{x^2\left(-Aa^2b + Ba^3\right)}{2b^4} + \frac{x\left(-Aa^3b + Ba^4\right)}{b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**4*(B*x+A)/(b*x+a),x)
```

```
[Out] B*x**5/(5*b) - a**4*(-A*b + B*a)*log(a + b*x)/b**6 - x**4*(-A*b +
 B*a)/(4*b**2) + x**3*(-A*a*b + B*a**2)/(3*b**3) - x**2*(-A*a**2*
b + B*a**3)/(2*b**4) + x*(-A*a**3*b + B*a**4)/b**5
```

GIAC/XCAS [A] time = 0.267017, size = 161, normalized size = 1.49

$$\frac{12\,Bb^4x^5 - 15\,Bab^3x^4 + 15\,Ab^4x^4 + 20\,Ba^2b^2x^3 - 20\,Aab^3x^3 - 30\,Ba^3bx^2 + 30\,Aa^2b^2x^2 + 60\,Ba^4x - 60\,Aa^3bx}{60\,b^5} - \frac{\left(Ba^5 - Aa^4b\right)\ln\left(|bx + a|\right)}{b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^4/(b*x + a),x, algorithm="giac")
```

```
[Out] 1/60*(12*B*b^4*x^5 - 15*B*a*b^3*x^4 + 15*A*b^4*x^4 + 20*B*a^2*b^2
*x^3 - 20*A*a*b^3*x^3 - 30*B*a^3*b*x^2 + 30*A*a^2*b^2*x^2 + 60*B*
a^4*x - 60*A*a^3*b*x)/b^5 - (B*a^5 - A*a^4*b)*ln(abs(b*x + a))/b^
6
```

3.144 $\int \frac{x^3(A+Bx)}{a+bx}\,dx$

Optimal. Leaf size=87

$$-\frac{a^3(Ab-aB)\log(a+bx)}{b^5}+\frac{a^2x(Ab-aB)}{b^4}-\frac{ax^2(Ab-aB)}{2b^3}+\frac{x^3(Ab-aB)}{3b^2}+\frac{Bx^4}{4b}$$

```
[Out] (a^2*(A*b - a*B)*x)/b^4 - (a*(A*b - a*B)*x^2)/(2*b^3) + ((A*b - a
*B)*x^3)/(3*b^2) + (B*x^4)/(4*b) - (a^3*(A*b - a*B)*Log[a + b*x])
/b^5
```

Rubi [A] time = 0.147805, antiderivative size = 87, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}} = 0.062$

$$-\frac{a^3(Ab-aB)\log(a+bx)}{b^5}+\frac{a^2x(Ab-aB)}{b^4}-\frac{ax^2(Ab-aB)}{2b^3}+\frac{x^3(Ab-aB)}{3b^2}+\frac{Bx^4}{4b}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^3*(A + B*x))/(a + b*x),x]
```

```
[Out] (a^2*(A*b - a*B)*x)/b^4 - (a*(A*b - a*B)*x^2)/(2*b^3) + ((A*b - a
*B)*x^3)/(3*b^2) + (B*x^4)/(4*b) - (a^3*(A*b - a*B)*Log[a + b*x])
/b^5
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{Bx^4}{4b}-\frac{a^3\left(Ab-Ba\right)\log\left(a+bx\right)}{b^5}-\frac{a\left(Ab-Ba\right)\int x\,dx}{b^3}+\frac{x^3\left(Ab-Ba\right)}{3b^2}+\frac{\left(Ab-Ba\right)\int a^2\,dx}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3*(B*x+A)/(b*x+a),x)
```

```
[Out] B*x**4/(4*b) - a**3*(A*b - B*a)*log(a + b*x)/b**5 - a*(A*b - B*a)
*Integral(x, x)/b**3 + x**3*(A*b - B*a)/(3*b**2) + (A*b - B*a)*In
tegral(a**2, x)/b**4
```

Mathematica [A] time = 0.0478221, size = 80, normalized size = 0.92

$$\frac{12a^3(aB-Ab)\log(a+bx)+bx\left(-12a^3B+6a^2b(2A+Bx)-2ab^2x(3A+2Bx)+b^3x^2(4A+3Bx)\right)}{12b^5}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^3*(A + B*x))/(a + b*x),x]
```

```
[Out] (b*x*(-12*a^3*B + 6*a^2*b*(2*A + B*x) - 2*a*b^2*x*(3*A + 2*B*x) +
 b^3*x^2*(4*A + 3*B*x)) + 12*a^3*(-(A*b) + a*B)*Log[a + b*x])/(12
*b^5)
```

Maple [A] time = 0.004, size = 100, normalized size = 1.2

$$\frac{Bx^4}{4\,b}+\frac{Ax^3}{3\,b}-\frac{Bx^3a}{3\,b^2}-\frac{aAx^2}{2\,b^2}+\frac{Bx^2a^2}{2\,b^3}+\frac{a^2Ax}{b^3}-\frac{a^3Bx}{b^4}-\frac{a^3\ln\left(bx+a\right)A}{b^4}+\frac{a^4\ln\left(bx+a\right)B}{b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int(x^3*(B*x+A)/(b*x+a),x)
```

```
[Out] 1/4*B*x^4/b+1/3/b*A*x^3-1/3/b^2*B*x^3*a-1/2/b^2*A*x^2*a+1/2/b^3*B
*x^2*a^2+1/b^3*a^2*A*x-1/b^4*a^3*B*x-a^3/b^4*ln(b*x+a)*A+a^4/b^5*
ln(b*x+a)*B
```

Maxima [A] time = 1.34271, size = 124, normalized size = 1.43

$$\frac{3\,Bb^3x^4 - 4\,\left(Bab^2 - Ab^3\right)x^3 + 6\,\left(Ba^2b - Aab^2\right)x^2 - 12\,\left(Ba^3 - Aa^2b\right)x}{12\,b^4} + \frac{\left(Ba^4 - Aa^3b\right)\log\left(bx + a\right)}{b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*x^3/(b*x + a),x, algorithm="maxima")
```

```
[Out] 1/12*(3*B*b^3*x^4 - 4*(B*a*b^2 - A*b^3)*x^3 + 6*(B*a^2*b - A*a*b^
2)*x^2 - 12*(B*a^3 - A*a^2*b)*x)/b^4 + (B*a^4 - A*a^3*b)*log(b*x
+ a)/b^5
```

Fricas [A] time = 0.196737, size = 127, normalized size = 1.46

$$\frac{3\,Bb^4x^4 - 4\,\left(Bab^3 - Ab^4\right)x^3 + 6\,\left(Ba^2b^2 - Aab^3\right)x^2 - 12\,\left(Ba^3b - Aa^2b^2\right)x + 12\,\left(Ba^4 - Aa^3b\right)\log\left(bx + a\right)}{12\,b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*x^3/(b*x + a),x, algorithm="fricas")
```

```
[Out] 1/12*(3*B*b^4*x^4 - 4*(B*a*b^3 - A*b^4)*x^3 + 6*(B*a^2*b^2 - A*a*
b^3)*x^2 - 12*(B*a^3*b - A*a^2*b^2)*x + 12*(B*a^4 - A*a^3*b)*log(
b*x + a))/b^5
```

Sympy [A] time = 2.44985, size = 78, normalized size = 0.9

$$\frac{Bx^4}{4b} + \frac{a^3\left(-Ab + Ba\right)\log\left(a + bx\right)}{b^5} - \frac{x^3\left(-Ab + Ba\right)}{3b^2} + \frac{x^2\left(-Aab + Ba^2\right)}{2b^3} - \frac{x\left(-Aa^2b + Ba^3\right)}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(x**3*(B*x+A)/(b*x+a),x)
```

```
[Out] B*x**4/(4*b) + a**3*(-A*b + B*a)*log(a + b*x)/b**5 - x**3*(-A*b +
 B*a)/(3*b**2) + x**2*(-A*a*b + B*a**2)/(2*b**3) - x*(-A*a**2*b +
 B*a**3)/b**4
```

GIAC/XCAS [A] time = 0.276005, size = 127, normalized size = 1.46

$$\frac{3\,Bb^3x^4 - 4\,Bab^2x^3 + 4\,Ab^3x^3 + 6\,Ba^2bx^2 - 6\,Aab^2x^2 - 12\,Ba^3x + 12\,Aa^2bx}{12\,b^4} + \frac{\left(Ba^4 - Aa^3b\right)\ln\left(\left|bx + a\right|\right)}{b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*x^3/(b*x + a),x, algorithm="giac")
```

```
[Out] 1/12*(3*B*b^3*x^4 - 4*B*a*b^2*x^3 + 4*A*b^3*x^3 + 6*B*a^2*b*x^2 -
 6*A*a*b^2*x^2 - 12*B*a^3*x + 12*A*a^2*b*x)/b^4 + (B*a^4 - A*a^3*
b)*ln(abs(b*x + a))/b^5
```

3.145 $\int \frac{x^2(A+Bx)}{a+bx}\,dx$

Optimal. Leaf size=66

$$\frac{a^2(Ab-aB)\log(a+bx)}{b^4}-\frac{ax(Ab-aB)}{b^3}+\frac{x^2(Ab-aB)}{2b^2}+\frac{Bx^3}{3b}$$

```
[Out] -((a*(A*b - a*B)*x)/b^3) + ((A*b - a*B)*x^2)/(2*b^2) + (B*x^3)/(3
*b) + (a^2*(A*b - a*B)*Log[a + b*x])/b^4
```

Rubi [A] time = 0.111041, antiderivative size = 66, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$\frac{a^2(Ab-aB)\log(a+bx)}{b^4}-\frac{ax(Ab-aB)}{b^3}+\frac{x^2(Ab-aB)}{2b^2}+\frac{Bx^3}{3b}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^2*(A + B*x))/(a + b*x),x]
```

```
[Out] -((a*(A*b - a*B)*x)/b^3) + ((A*b - a*B)*x^2)/(2*b^2) + (B*x^3)/(3
*b) + (a^2*(A*b - a*B)*Log[a + b*x])/b^4
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{Bx^3}{3b}+\frac{a^2\left(Ab-Ba\right)\log\left(a+bx\right)}{b^4}+\frac{\left(Ab-Ba\right)\int x\,dx}{b^2}-\frac{\left(Ab-Ba\right)\int a\,dx}{b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(B*x+A)/(b*x+a),x)
```

```
[Out] B*x**3/(3*b) + a**2*(A*b - B*a)*log(a + b*x)/b**4 + (A*b - B*a)*I
ntegral(x, x)/b**2 - (A*b - B*a)*Integral(a, x)/b**3
```

Mathematica [A] time = 0.0352871, size = 61, normalized size = 0.92

$$\frac{bx\left(6a^2B-3ab(2A+Bx)+b^2x(3A+2Bx)\right)+6a^2(Ab-aB)\log(a+bx)}{6b^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^2*(A + B*x))/(a + b*x),x]
```

```
[Out] (b*x*(6*a^2*B - 3*a*b*(2*A + B*x) + b^2*x*(3*A + 2*B*x)) + 6*a^2*
(A*b - a*B)*Log[a + b*x])/(6*b^4)
```

Maple [A] time = 0.004, size = 76, normalized size = 1.2

$$\frac{Bx^3}{3\,b}+\frac{Ax^2}{2\,b}-\frac{Bx^2a}{2\,b^2}-\frac{aAx}{b^2}+\frac{a^2Bx}{b^3}+\frac{a^2\ln\left(bx+a\right)A}{b^3}-\frac{a^3\ln\left(bx+a\right)B}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int(x^2*(B*x+A)/(b*x+a),x)
```

```
[Out] 1/3*B*x^3/b+1/2/b*A*x^2-1/2/b^2*B*x^2*a-1/b^2*a*A*x+1/b^3*a^2*B*x
+a^2/b^3*ln(b*x+a)*A-a^3/b^4*ln(b*x+a)*B
```

Maxima [A] time = 1.35289, size = 95, normalized size = 1.44

$$\frac{2\,Bb^2x^3 - 3\,\left(Bab - Ab^2\right)x^2 + 6\,\left(Ba^2 - Aab\right)x}{6\,b^3} - \frac{\left(Ba^3 - Aa^2b\right)\,\log\left(bx + a\right)}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*x^2/(b*x + a),x, algorithm="maxima")
```

```
[Out] 1/6*(2*B*b^2*x^3 - 3*(B*a*b - A*b^2)*x^2 + 6*(B*a^2 - A*a*b)*x)/b
^3 - (B*a^3 - A*a^2*b)*log(b*x + a)/b^4
```

Fricas [A] time = 0.201202, size = 96, normalized size = 1.45

$$\frac{2\,Bb^3x^3 - 3\,\left(Bab^2 - Ab^3\right)x^2 + 6\,\left(Ba^2b - Aab^2\right)x - 6\,\left(Ba^3 - Aa^2b\right)\,\log\left(bx + a\right)}{6\,b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*x^2/(b*x + a),x, algorithm="fricas")
```

```
[Out] 1/6*(2*B*b^3*x^3 - 3*(B*a*b^2 - A*b^3)*x^2 + 6*(B*a^2*b - A*a*b^2
)*x - 6*(B*a^3 - A*a^2*b)*log(b*x + a))/b^4
```

Sympy [A] time = 2.27296, size = 58, normalized size = 0.88

$$\frac{Bx^3}{3b} - \frac{a^2\left(-Ab + Ba\right)\log\left(a + bx\right)}{b^4} - \frac{x^2\left(-Ab + Ba\right)}{2b^2} + \frac{x\left(-Aab + Ba^2\right)}{b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(x**2*(B*x+A)/(b*x+a),x)
```

```
[Out] B*x**3/(3*b) - a**2*(-A*b + B*a)*log(a + b*x)/b**4 - x**2*(-A*b +
 B*a)/(2*b**2) + x*(-A*a*b + B*a**2)/b**3
```

GIAC/XCAS [A] time = 0.31739, size = 96, normalized size = 1.45

$$\frac{2\,Bb^2x^3 - 3\,Babx^2 + 3\,Ab^2x^2 + 6\,Ba^2x - 6\,Aabx}{6\,b^3} - \frac{\left(Ba^3 - Aa^2b\right)\ln\left(|bx + a|\right)}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*x^2/(b*x + a),x, algorithm="giac")
```

```
[Out] 1/6*(2*B*b^2*x^3 - 3*B*a*b*x^2 + 3*A*b^2*x^2 + 6*B*a^2*x - 6*A*a*
b*x)/b^3 - (B*a^3 - A*a^2*b)*ln(abs(b*x + a))/b^4
```

3.146 $\int \frac{x(A+Bx)}{a+bx}\,dx$

Optimal. Leaf size=45

$$-\frac{a(Ab-aB)\log(a+bx)}{b^3}+\frac{x(Ab-aB)}{b^2}+\frac{Bx^2}{2b}$$

```
[Out] ((A*b - a*B)*x)/b^2 + (B*x^2)/(2*b) - (a*(A*b - a*B)*Log[a + b*x]
)/b^3
```

Rubi [A] time = 0.0753976, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 14, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.071

$$-\frac{a(Ab-aB)\log(a+bx)}{b^3}+\frac{x(Ab-aB)}{b^2}+\frac{Bx^2}{2b}$$

Antiderivative was successfully verified.

```
[In]  Int[(x*(A + B*x))/(a + b*x),x]
```

```
[Out] ((A*b - a*B)*x)/b^2 + (B*x^2)/(2*b) - (a*(A*b - a*B)*Log[a + b*x]
)/b^3
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{B\int x\,dx}{b}-\frac{a\,(Ab-Ba)\log\,(a+bx)}{b^3}+(Ab-Ba)\int\frac{1}{b^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(B*x+A)/(b*x+a),x)
```

```
[Out] B*Integral(x, x)/b - a*(A*b - B*a)*log(a + b*x)/b**3 + (A*b - B*a
)*Integral(b**(-2), x)
```

Mathematica [A] time = 0.021436, size = 41, normalized size = 0.91

$$\frac{bx(-2aB+2Ab+bBx)+2a(aB-Ab)\log(a+bx)}{2b^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x*(A + B*x))/(a + b*x),x]
```

```
[Out] (b*x*(2*A*b - 2*a*B + b*B*x) + 2*a*(-(A*b) + a*B)*Log[a + b*x])/(
2*b^3)
```

Maple [A] time = 0.003, size = 52, normalized size = 1.2

$$\frac{Bx^2}{2\,b}+\frac{Ax}{b}-\frac{Bax}{b^2}-\frac{a\ln\,(bx+a)\,A}{b^2}+\frac{a^2\ln\,(bx+a)\,B}{b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(B*x+A)/(b*x+a),x)
```

```
[Out] 1/2*B*x^2/b+1/b*A*x-1/b^2*B*a*x-a/b^2*ln(b*x+a)*A+a^2/b^3*ln(b*x+
a)*B
```

Maxima [A] time = 1.34744, size = 61, normalized size = 1.36

$$\frac{Bbx^2 - 2(Ba - Ab)x}{2b^2} + \frac{(Ba^2 - Aab)\log(bx + a)}{b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x/(b*x + a),x, algorithm="maxima")
```

```
[Out] 1/2*(B*b*x^2 - 2*(B*a - A*b)*x)/b^2 + (B*a^2 - A*a*b)*log(b*x + a
)/b^3
```

Fricas [A] time = 0.199959, size = 63, normalized size = 1.4

$$\frac{Bb^2x^2 - 2(Bab - Ab^2)x + 2(Ba^2 - Aab)\log(bx + a)}{2b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x/(b*x + a),x, algorithm="fricas")
```

```
[Out] 1/2*(B*b^2*x^2 - 2*(B*a*b - A*b^2)*x + 2*(B*a^2 - A*a*b)*log(b*x
+ a))/b^3
```

Sympy [A] time = 2.11004, size = 37, normalized size = 0.82

$$\frac{Bx^2}{2b} + \frac{a(-Ab + Ba)\log(a + bx)}{b^3} - \frac{x(-Ab + Ba)}{b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(B*x+A)/(b*x+a),x)
```

```
[Out] B*x**2/(2*b) + a*(-A*b + B*a)*log(a + b*x)/b**3 - x*(-A*b + B*a)/
b**2
```

GIAC/XCAS [A] time = 0.280089, size = 61, normalized size = 1.36

$$\frac{Bbx^2 - 2Bax + 2Abx}{2b^2} + \frac{(Ba^2 - Aab)\ln(|bx + a|)}{b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x/(b*x + a),x, algorithm="giac")
```

```
[Out] 1/2*(B*b*x^2 - 2*B*a*x + 2*A*b*x)/b^2 + (B*a^2 - A*a*b)*ln(abs(b*
x + a))/b^3
```

3.147 $\int \frac{A+Bx}{a+bx}\,dx$

Optimal. Leaf size=25

$$\frac{(Ab-aB)\log(a+bx)}{b^2}+\frac{Bx}{b}$$

```
[Out] (B*x)/b + ((A*b - a*B)*Log[a + b*x])/b^2
```

Rubi [A] time = 0.0445672, antiderivative size = 25, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 13, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.077

$$\frac{(Ab-aB)\log(a+bx)}{b^2}+\frac{Bx}{b}$$

Antiderivative was successfully verified.

```
[In] Int[(A + B*x)/(a + b*x),x]

[Out] (B*x)/b + ((A*b - a*B)*Log[a + b*x])/b^2
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{\int B\,dx}{b}+\frac{(Ab-Ba)\log(a+bx)}{b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((B*x+A)/(b*x+a),x)

[Out] Integral(B, x)/b + (A*b - B*a)*log(a + b*x)/b**2
```

Mathematica [A] time = 0.0119094, size = 25, normalized size = 1.

$$\frac{(Ab-aB)\log(a+bx)}{b^2}+\frac{Bx}{b}$$

Antiderivative was successfully verified.

```
[In] Integrate[(A + B*x)/(a + b*x),x]

[Out] (B*x)/b + ((A*b - a*B)*Log[a + b*x])/b^2
```

Maple [A] time = 0.003, size = 32, normalized size = 1.3

$$\frac{Bx}{b}+\frac{\ln(bx+a)A}{b}-\frac{\ln(bx+a)Ba}{b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((B*x+A)/(b*x+a),x)

[Out] B*x/b+1/b*ln(b*x+a)*A-1/b^2*ln(b*x+a)*B*a
```

Maxima [A] time = 1.35108, size = 35, normalized size = 1.4

$$\frac{Bx}{b} - \frac{(Ba - Ab)\log(bx + a)}{b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(b*x + a),x, algorithm="maxima")
```

```
[Out] B*x/b - (B*a - A*b)*log(b*x + a)/b^2
```

Fricas [A] time = 0.200627, size = 34, normalized size = 1.36

$$\frac{Bbx - (Ba - Ab)\log(bx + a)}{b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(b*x + a),x, algorithm="fricas")
```

```
[Out] (B*b*x - (B*a - A*b)*log(b*x + a))/b^2
```

Sympy [A] time = 1.93576, size = 20, normalized size = 0.8

$$\frac{Bx}{b} - \frac{(-Ab + Ba)\log(a + bx)}{b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(b*x+a),x)
```

```
[Out] B*x/b - (-A*b + B*a)*log(a + b*x)/b**2
```

GIAC/XCAS [A] time = 0.264301, size = 36, normalized size = 1.44

$$\frac{Bx}{b} - \frac{(Ba - Ab)\ln(|bx + a|)}{b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(b*x + a),x, algorithm="giac")
```

```
[Out] B*x/b - (B*a - A*b)*ln(abs(b*x + a))/b^2
```

3.148 $\int \frac{A+Bx}{x(a+bx)}\,dx$

Optimal. Leaf size=30

$$\frac{A\log(x)}{a}-\frac{(Ab-aB)\log(a+bx)}{ab}$$

```
[Out] (A*Log[x])/a - ((A*b - a*B)*Log[a + b*x])/(a*b)
```

Rubi [A] time = 0.0515285, antiderivative size = 30, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$\frac{A\log(x)}{a}-\frac{(Ab-aB)\log(a+bx)}{ab}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x*(a + b*x)),x]

[Out] (A*Log[x])/a - ((A*b - a*B)*Log[a + b*x])/(a*b)
```

Rubi in Sympy [A] time = 12.0976, size = 22, normalized size = 0.73

$$\frac{A\log\left(x\right)}{a}-\frac{\left(Ab-Ba\right)\log\left(a+bx\right)}{ab}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x/(b*x+a),x)

[Out] A*log(x)/a - (A*b - B*a)*log(a + b*x)/(a*b)
```

Mathematica [A] time = 0.0157441, size = 29, normalized size = 0.97

$$\frac{(aB-Ab)\log(a+bx)}{ab}+\frac{A\log(x)}{a}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x*(a + b*x)),x]

[Out] (A*Log[x])/a + ((-(A*b) + a*B)*Log[a + b*x])/(a*b)
```

Maple [A] time = 0.008, size = 32, normalized size = 1.1

$$\frac{A\ln\left(x\right)}{a}-\frac{\ln\left(bx+a\right)A}{a}+\frac{\ln\left(bx+a\right)B}{b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x/(b*x+a),x)

[Out] A*ln(x)/a-1/a*ln(b*x+a)*A+1/b*ln(b*x+a)*B
```

Maxima [A] time = 1.37698, size = 39, normalized size = 1.3

$$\frac{A\log(x)}{a} + \frac{(Ba - Ab)\log(bx + a)}{ab}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*x),x, algorithm="maxima")
```

```
[Out] A*log(x)/a + (B*a - A*b)*log(b*x + a)/(a*b)
```

Fricas [A] time = 0.209175, size = 38, normalized size = 1.27

$$\frac{Ab\log(x) + (Ba - Ab)\log(bx + a)}{ab}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*x),x, algorithm="fricas")
```

```
[Out] (A*b*log(x) + (B*a - A*b)*log(b*x + a))/(a*b)
```

Sympy [A] time = 2.01345, size = 41, normalized size = 1.37

$$\frac{A\log(x)}{a} + \frac{(-Ab + Ba)\log\left(x + \frac{-Aa + \frac{a(-Ab+Ba)}{b}}{-2Ab+Ba}\right)}{ab}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x/(b*x+a),x)
```

```
[Out] A*log(x)/a + (-A*b + B*a)*log(x + (-A*a + a*(-A*b + B*a)/b)/(-2*A
*b + B*a))/(a*b)
```

GIAC/XCAS [A] time = 0.3275, size = 42, normalized size = 1.4

$$\frac{A\ln(|x|)}{a} + \frac{(Ba - Ab)\ln(|bx + a|)}{ab}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*x),x, algorithm="giac")
```

```
[Out] A*ln(abs(x))/a + (B*a - A*b)*ln(abs(b*x + a))/(a*b)
```

3.149 $\int \frac{A+Bx}{x^2(a+bx)}\,dx$

Optimal. Leaf size=43

$$-\frac{\log(x)(Ab-aB)}{a^2}+\frac{(Ab-aB)\log(a+bx)}{a^2}-\frac{A}{ax}$$

```
[Out] -(A/(a*x)) - ((A*b - a*B)*Log[x])/a^2 + ((A*b - a*B)*Log[a + b*x]
)/a^2
```

Rubi [A] time = 0.0750495, antiderivative size = 43, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{\log(x)(Ab-aB)}{a^2}+\frac{(Ab-aB)\log(a+bx)}{a^2}-\frac{A}{ax}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^2*(a + b*x)),x]
```

```
[Out] -(A/(a*x)) - ((A*b - a*B)*Log[x])/a^2 + ((A*b - a*B)*Log[a + b*x]
)/a^2
```

Rubi in Sympy [A] time = 15.7459, size = 34, normalized size = 0.79

$$-\frac{A}{ax}-\frac{(Ab-Ba)\log{(x)}}{a^2}+\frac{(Ab-Ba)\log{(a+bx)}}{a^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**2/(b*x+a),x)
```

```
[Out] -A/(a*x) - (A*b - B*a)*log(x)/a**2 + (A*b - B*a)*log(a + b*x)/a**
2
```

Mathematica [A] time = 0.0272837, size = 42, normalized size = 0.98

$$\frac{\log(x)(aB-Ab)}{a^2}+\frac{(Ab-aB)\log(a+bx)}{a^2}-\frac{A}{ax}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^2*(a + b*x)),x]
```

```
[Out] -(A/(a*x)) + ((-(A*b) + a*B)*Log[x])/a^2 + ((A*b - a*B)*Log[a + b
*x])/a^2
```

Maple [A] time = 0.011, size = 51, normalized size = 1.2

$$-\frac{A}{ax}-\frac{A\ln{(x)}\,b}{a^2}+\frac{\ln{(x)}\,B}{a}+\frac{\ln{(bx+a)}\,Ab}{a^2}-\frac{\ln{(bx+a)}\,B}{a}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^2/(b*x+a),x)
```

```
[Out] -A/a/x-1/a^2*ln(x)*A*b+1/a*ln(x)*B+1/a^2*ln(b*x+a)*A*b-1/a*ln(b*x
+a)*B
```

Maxima [A] time = 1.37365, size = 58, normalized size = 1.35

$$-\frac{(Ba-Ab)\log(bx+a)}{a^2}+\frac{(Ba-Ab)\log(x)}{a^2}-\frac{A}{ax}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*x^2),x, algorithm="maxima")
```

```
[Out] -(B*a - A*b)*log(b*x + a)/a^2 + (B*a - A*b)*log(x)/a^2 - A/(a*x)
```

Fricas [A] time = 0.206465, size = 55, normalized size = 1.28

$$-\frac{(Ba-Ab)x\log(bx+a)-(Ba-Ab)x\log(x)+Aa}{a^2x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*x^2),x, algorithm="fricas")
```

```
[Out] -((B*a - A*b)*x*log(b*x + a) - (B*a - A*b)*x*log(x) + A*a)/(a^2*x
)
```

Sympy [A] time = 3.00614, size = 95, normalized size = 2.21

$$-\frac{A}{ax}+\frac{(-Ab+Ba)\log\left(x+\frac{-Aab+Ba^2-a(-Ab+Ba)}{-2Ab^2+2Bab}\right)}{a^2}-\frac{(-Ab+Ba)\log\left(x+\frac{-Aab+Ba^2+a(-Ab+Ba)}{-2Ab^2+2Bab}\right)}{a^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**2/(b*x+a),x)
```

```
[Out] -A/(a*x) + (-A*b + B*a)*log(x + (-A*a*b + B*a**2 - a*(-A*b + B*a)
)/(-2*A*b**2 + 2*B*a*b))/a**2 - (-A*b + B*a)*log(x + (-A*a*b + B*
a**2 + a*(-A*b + B*a))/(-2*A*b**2 + 2*B*a*b))/a**2
```

GIAC/XCAS [A] time = 0.411661, size = 69, normalized size = 1.6

$$\frac{(Ba-Ab)\ln(|x|)}{a^2}-\frac{A}{ax}-\frac{(Bab-Ab^2)\ln(|bx+a|)}{a^2b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*x^2),x, algorithm="giac")
```

```
[Out] (B*a - A*b)*ln(abs(x))/a^2 - A/(a*x) - (B*a*b - A*b^2)*ln(abs(b*x
 + a))/(a^2*b)
```

3.150 $\int \frac{A+Bx}{x^3(a+bx)}\,dx$

Optimal. Leaf size=62

$$\frac{b\log(x)(Ab-aB)}{a^3}-\frac{b(Ab-aB)\log(a+bx)}{a^3}+\frac{Ab-aB}{a^2x}-\frac{A}{2ax^2}$$

```
[Out] -A/(2*a*x^2) + (A*b - a*B)/(a^2*x) + (b*(A*b - a*B)*Log[x])/a^3 -
 (b*(A*b - a*B)*Log[a + b*x])/a^3
```

Rubi [A] time = 0.100591, antiderivative size = 62, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$\frac{b\log(x)(Ab-aB)}{a^3}-\frac{b(Ab-aB)\log(a+bx)}{a^3}+\frac{Ab-aB}{a^2x}-\frac{A}{2ax^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^3*(a + b*x)),x]
```

```
[Out] -A/(2*a*x^2) + (A*b - a*B)/(a^2*x) + (b*(A*b - a*B)*Log[x])/a^3 -
 (b*(A*b - a*B)*Log[a + b*x])/a^3
```

Rubi in Sympy [A] time = 20.4616, size = 53, normalized size = 0.85

$$-\frac{A}{2ax^2}+\frac{Ab-Ba}{a^2x}+\frac{b\,(Ab-Ba)\log{(x)}}{a^3}-\frac{b\,(Ab-Ba)\log{(a+bx)}}{a^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**3/(b*x+a),x)
```

```
[Out] -A/(2*a*x**2) + (A*b - B*a)/(a**2*x) + b*(A*b - B*a)*log(x)/a**3
- b*(A*b - B*a)*log(a + b*x)/a**3
```

Mathematica [A] time = 0.0518142, size = 58, normalized size = 0.94

$$\frac{-\frac{a(aA+2aBx-2Abx)}{x^2}+2b\log(x)(Ab-aB)+2b(aB-Ab)\log(a+bx)}{2a^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^3*(a + b*x)),x]
```

```
[Out] (-((a*(a*A - 2*A*b*x + 2*a*B*x))/x^2) + 2*b*(A*b - a*B)*Log[x] +
2*b*(-(A*b) + a*B)*Log[a + b*x])/(2*a^3)
```

Maple [A] time = 0.012, size = 75, normalized size = 1.2

$$-\frac{A}{2\,ax^2}+\frac{Ab}{a^2x}-\frac{B}{ax}+\frac{A\ln{(x)}\,b^2}{a^3}-\frac{bB\ln{(x)}}{a^2}-\frac{b^2\ln{(bx+a)}\,A}{a^3}+\frac{b\ln{(bx+a)}\,B}{a^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^3/(b*x+a),x)
```

```
[Out] -1/2*A/a/x^2+1/a^2/x*A*b-1/a/x*B+1/a^3*b^2*ln(x)*A-1/a^2*b*ln(x)*
B-1/a^3*b^2*ln(b*x+a)*A+1/a^2*b*ln(b*x+a)*B
```

Maxima [A] time = 1.39457, size = 85, normalized size = 1.37

$$\frac{\left(Bab - Ab^2\right)\log\left(bx + a\right)}{a^3} - \frac{\left(Bab - Ab^2\right)\log\left(x\right)}{a^3} - \frac{Aa + 2\left(Ba - Ab\right)x}{2\,a^2x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*x^3),x, algorithm="maxima")
```

```
[Out] (B*a*b - A*b^2)*log(b*x + a)/a^3 - (B*a*b - A*b^2)*log(x)/a^3 - 1
/2*(A*a + 2*(B*a - A*b)*x)/(a^2*x^2)
```

Fricas [A] time = 0.213394, size = 93, normalized size = 1.5

$$\frac{2\left(Bab - Ab^2\right)x^2\log\left(bx + a\right) - 2\left(Bab - Ab^2\right)x^2\log\left(x\right) - Aa^2 - 2\left(Ba^2 - Aab\right)x}{2\,a^3x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*x^3),x, algorithm="fricas")
```

```
[Out] 1/2*(2*(B*a*b - A*b^2)*x^2*log(b*x + a) - 2*(B*a*b - A*b^2)*x^2*l
og(x) - A*a^2 - 2*(B*a^2 - A*a*b)*x)/(a^3*x^2)
```

Sympy [A] time = 3.58721, size = 131, normalized size = 2.11

$$-\frac{Aa + x\left(-2Ab + 2Ba\right)}{2a^2x^2} - \frac{b\left(-Ab + Ba\right)\log\left(x + \frac{-Aab^2 + Ba^2b - ab(-Ab + Ba)}{-2Ab^3 + 2Bab^2}\right)}{a^3} + \frac{b\left(-Ab + Ba\right)\log\left(x + \frac{-Aab^2 + Ba^2b + ab(-Ab + Ba)}{-2Ab^3 + 2Bab^2}\right)}{a^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**3/(b*x+a),x)
```

```
[Out] -(A*a + x*(-2*A*b + 2*B*a))/(2*a**2*x**2) - b*(-A*b + B*a)*log(x
+ (-A*a*b**2 + B*a**2*b - a*b*(-A*b + B*a))/(-2*A*b**3 + 2*B*a*b*
*2))/a**3 + b*(-A*b + B*a)*log(x + (-A*a*b**2 + B*a**2*b + a*b*(-
A*b + B*a))/(-2*A*b**3 + 2*B*a*b**2))/a**3
```

GIAC/XCAS [A] time = 0.30958, size = 101, normalized size = 1.63

$$-\frac{\left(Bab - Ab^2\right)\ln\left(|x|\right)}{a^3} + \frac{\left(Bab^2 - Ab^3\right)\ln\left(|bx + a|\right)}{a^3b} - \frac{Aa^2 + 2\left(Ba^2 - Aab\right)x}{2\,a^3x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*x^3),x, algorithm="giac")
```

```
[Out] -(B*a*b - A*b^2)*ln(abs(x))/a^3 + (B*a*b^2 - A*b^3)*ln(abs(b*x +
a))/(a^3*b) - 1/2*(A*a^2 + 2*(B*a^2 - A*a*b)*x)/(a^3*x^2)
```

3.151 $\int \frac{A+Bx}{x^4(a+bx)}\,dx$

Optimal. Leaf size=86

$$-\frac{b^2\log(x)(Ab-aB)}{a^4}+\frac{b^2(Ab-aB)\log(a+bx)}{a^4}-\frac{b(Ab-aB)}{a^3x}+\frac{Ab-aB}{2a^2x^2}-\frac{A}{3ax^3}$$

```
[Out] -A/(3*a*x^3) + (A*b - a*B)/(2*a^2*x^2) - (b*(A*b - a*B))/(a^3*x)
- (b^2*(A*b - a*B)*Log[x])/a^4 + (b^2*(A*b - a*B)*Log[a + b*x])/a
^4
```

Rubi [A] time = 0.12521, antiderivative size = 86, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{b^2\log(x)(Ab-aB)}{a^4}+\frac{b^2(Ab-aB)\log(a+bx)}{a^4}-\frac{b(Ab-aB)}{a^3x}+\frac{Ab-aB}{2a^2x^2}-\frac{A}{3ax^3}$$

Antiderivative was successfully verified.

```
[In] Int[(A + B*x)/(x^4*(a + b*x)),x]
```

```
[Out] -A/(3*a*x^3) + (A*b - a*B)/(2*a^2*x^2) - (b*(A*b - a*B))/(a^3*x)
- (b^2*(A*b - a*B)*Log[x])/a^4 + (b^2*(A*b - a*B)*Log[a + b*x])/a
^4
```

Rubi in Sympy [A] time = 25.9118, size = 73, normalized size = 0.85

$$-\frac{A}{3ax^3}+\frac{Ab-Ba}{2a^2x^2}-\frac{b\,(Ab-Ba)}{a^3x}-\frac{b^2\,(Ab-Ba)\log{(x)}}{a^4}+\frac{b^2\,(Ab-Ba)\log{(a+bx)}}{a^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((B*x+A)/x**4/(b*x+a),x)
```

```
[Out] -A/(3*a*x**3) + (A*b - B*a)/(2*a**2*x**2) - b*(A*b - B*a)/(a**3*x
) - b**2*(A*b - B*a)*log(x)/a**4 + b**2*(A*b - B*a)*log(a + b*x)/
a**4
```

Mathematica [A] time = 0.0849843, size = 81, normalized size = 0.94

$$\frac{\frac{a\left(a^2(-(2A+3Bx))+3abx(A+2Bx)-6Ab^2x^2\right)}{x^3}+6b^2\log(x)(aB-Ab)+6b^2(Ab-aB)\log(a+bx)}{6a^4}$$

Antiderivative was successfully verified.

```
[In] Integrate[(A + B*x)/(x^4*(a + b*x)),x]
```

```
[Out] ((a*(-6*A*b^2*x^2 + 3*a*b*x*(A + 2*B*x) - a^2*(2*A + 3*B*x)))/x^3
 + 6*b^2*(-(A*b) + a*B)*Log[x] + 6*b^2*(A*b - a*B)*Log[a + b*x])/
(6*a^4)
```

Maple [A] time = 0.013, size = 101, normalized size = 1.2

$$-\frac{A}{3\,a{x}^{3}}+\frac{Ab}{2\,{a}^{2}{x}^{2}}-\frac{B}{2\,a{x}^{2}}-\frac{{b}^{2}A}{{a}^{3}x}+\frac{bB}{{a}^{2}x}-\frac{A\ln(x){b}^{3}}{{a}^{4}}+\frac{{b}^{2}B\ln(x)}{{a}^{3}}+\frac{{b}^{3}\ln(bx+a)A}{{a}^{4}}-\frac{{b}^{2}\ln(bx+a)B}{{a}^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^4/(b*x+a),x)
```

```
[Out] -1/3*A/a/x^3+1/2/a^2/x^2*A*b-1/2/a/x^2*B-1/a^3*b^2/x*A+1/a^2*b/x*
B-1/a^4*b^3*ln(x)*A+1/a^3*b^2*ln(x)*B+1/a^4*b^3*ln(b*x+a)*A-1/a^3
*b^2*ln(b*x+a)*B
```

Maxima [A] time = 1.36167, size = 120, normalized size = 1.4

$$-\frac{\left(Bab^2-Ab^3\right)\log\left(bx+a\right)}{a^4}+\frac{\left(Bab^2-Ab^3\right)\log\left(x\right)}{a^4}-\frac{2\,Aa^2-6\,\left(Bab-Ab^2\right)x^2+3\,\left(Ba^2-Aab\right)x}{6\,a^3x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*x^4),x, algorithm="maxima")
```

```
[Out] -(B*a*b^2 - A*b^3)*log(b*x + a)/a^4 + (B*a*b^2 - A*b^3)*log(x)/a^
4 - 1/6*(2*A*a^2 - 6*(B*a*b - A*b^2)*x^2 + 3*(B*a^2 - A*a*b)*x)/(
a^3*x^3)
```

Fricas [A] time = 0.216383, size = 127, normalized size = 1.48

$$-\frac{6\,\left(Bab^2-Ab^3\right)x^3\log\left(bx+a\right)-6\,\left(Bab^2-Ab^3\right)x^3\log\left(x\right)+2\,Aa^3-6\,\left(Ba^2b-Aab^2\right)x^2+3\,\left(Ba^3-Aa^2b\right)x}{6\,a^4x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*x^4),x, algorithm="fricas")
```

```
[Out] -1/6*(6*(B*a*b^2 - A*b^3)*x^3*log(b*x + a) - 6*(B*a*b^2 - A*b^3)*
x^3*log(x) + 2*A*a^3 - 6*(B*a^2*b - A*a*b^2)*x^2 + 3*(B*a^3 - A*a
^2*b)*x)/(a^4*x^3)
```

Sympy [A] time = 4.09543, size = 165, normalized size = 1.92

$$\frac{-2Aa^2+x^2\left(-6Ab^2+6Bab\right)+x\left(3Aab-3Ba^2\right)}{6a^3x^3}+\frac{b^2\left(-Ab+Ba\right)\log\left(x+\frac{-Aab^3+Ba^2b^2-ab^2(-Ab+Ba)}{-2Ab^4+2Bab^3}\right)}{a^4}-\frac{b^2\left(-Ab+Ba\right)\log\left(x+\frac{-Aab^3+Ba^2b^2+ab^2(-Ab+Ba)}{-2Ab^4+2Bab^3}\right)}{a^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**4/(b*x+a),x)
```

```
[Out] (-2*A*a**2 + x**2*(-6*A*b**2 + 6*B*a*b) + x*(3*A*a*b - 3*B*a**2))
/(6*a**3*x**3) + b**2*(-A*b + B*a)*log(x + (-A*a*b**3 + B*a**2*b*
*2 - a*b**2*(-A*b + B*a))/(-2*A*b**4 + 2*B*a*b**3))/a**4 - b**2*(
-A*b + B*a)*log(x + (-A*a*b**3 + B*a**2*b**2 + a*b**2*(-A*b + B*a
))/(-2*A*b**4 + 2*B*a*b**3))/a**4
```

GIAC/XCAS [A] time = 0.278971, size = 134, normalized size = 1.56

$$\frac{\left(Bab^2-Ab^3\right)\ln\left(|x|\right)}{a^4}-\frac{\left(Bab^3-Ab^4\right)\ln\left(|bx+a|\right)}{a^4b}-\frac{2\,Aa^3-6\,\left(Ba^2b-Aab^2\right)x^2+3\,\left(Ba^3-Aa^2b\right)x}{6\,a^4x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*x^4),x, algorithm="giac")
```

```
[Out] (B*a*b^2 - A*b^3)*ln(abs(x))/a^4 - (B*a*b^3 - A*b^4)*ln(abs(b*x +
 a))/(a^4*b) - 1/6*(2*A*a^3 - 6*(B*a^2*b - A*a*b^2)*x^2 + 3*(B*a^
3 - A*a^2*b)*x)/(a^4*x^3)
```

3.152 $\int \frac{A+Bx}{x^5(a+bx)} dx$

Optimal. Leaf size=106

$$\frac{b^3\log(x)(Ab-aB)}{a^5} - \frac{b^3(Ab-aB)\log(a+bx)}{a^5} + \frac{b^2(Ab-aB)}{a^4x} - \frac{b(Ab-aB)}{2a^3x^2} + \frac{Ab-aB}{3a^2x^3} - \frac{A}{4ax^4}$$

```
[Out] -A/(4*a*x^4) + (A*b - a*B)/(3*a^2*x^3) - (b*(A*b - a*B))/(2*a^3*x
^2) + (b^2*(A*b - a*B))/(a^4*x) + (b^3*(A*b - a*B)*Log[x])/a^5 -
(b^3*(A*b - a*B)*Log[a + b*x])/a^5
```

Rubi [A] time = 0.153017, antiderivative size = 106, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$\frac{b^3\log(x)(Ab-aB)}{a^5} - \frac{b^3(Ab-aB)\log(a+bx)}{a^5} + \frac{b^2(Ab-aB)}{a^4x} - \frac{b(Ab-aB)}{2a^3x^2} + \frac{Ab-aB}{3a^2x^3} - \frac{A}{4ax^4}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^5*(a + b*x)),x]
```

```
[Out] -A/(4*a*x^4) + (A*b - a*B)/(3*a^2*x^3) - (b*(A*b - a*B))/(2*a^3*x
^2) + (b^2*(A*b - a*B))/(a^4*x) + (b^3*(A*b - a*B)*Log[x])/a^5 -
(b^3*(A*b - a*B)*Log[a + b*x])/a^5
```

Rubi in Sympy [A] time = 31.3941, size = 92, normalized size = 0.87

$$-\frac{A}{4ax^4} + \frac{Ab-Ba}{3a^2x^3} - \frac{b(Ab-Ba)}{2a^3x^2} + \frac{b^2(Ab-Ba)}{a^4x} + \frac{b^3(Ab-Ba)\log(x)}{a^5} - \frac{b^3(Ab-Ba)\log(a+bx)}{a^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**5/(b*x+a),x)
```

```
[Out] -A/(4*a*x**4) + (A*b - B*a)/(3*a**2*x**3) - b*(A*b - B*a)/(2*a**3
*x**2) + b**2*(A*b - B*a)/(a**4*x) + b**3*(A*b - B*a)*log(x)/a**5
 - b**3*(A*b - B*a)*log(a + b*x)/a**5
```

Mathematica [A] time = 0.11372, size = 100, normalized size = 0.94

$$\frac{\frac{a(a^3(-(3A+4Bx))+2a^2bx(2A+3Bx)-6ab^2x^2(A+2Bx)+12Ab^3x^3)}{x^4} + 12b^3\log(x)(Ab-aB) - 12b^3(Ab-aB)\log(a+bx)}{12a^5}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^5*(a + b*x)),x]
```

```
[Out] ((a*(12*A*b^3*x^3 - 6*a*b^2*x^2*(A + 2*B*x) + 2*a^2*b*x*(2*A + 3*
B*x) - a^3*(3*A + 4*B*x)))/x^4 + 12*b^3*(A*b - a*B)*Log[x] - 12*b
^3*(A*b - a*B)*Log[a + b*x])/(12*a^5)
```

Maple [A] time = 0.014, size = 125, normalized size = 1.2

$$-\frac{A}{4\,ax^4} + \frac{Ab}{3\,a^2x^3} - \frac{B}{3\,ax^3} + \frac{b^4\ln(x)\,A}{a^5} - \frac{b^3B\ln(x)}{a^4} - \frac{b^2A}{2\,a^3x^2} + \frac{bB}{2\,a^2x^2} + \frac{b^3A}{a^4x} - \frac{b^2B}{a^3x} - \frac{b^4\ln(bx+a)\,A}{a^5} + \frac{b^3\ln(bx+a)\,B}{a^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^5/(b*x+a),x)
```

```
[Out] -1/4*A/a/x^4+1/3/a^2/x^3*A*b-1/3/a/x^3*B+1/a^5*b^4*ln(x)*A-1/a^4*
b^3*ln(x)*B-1/2/a^3*b^2/x^2*A+1/2/a^2*b/x^2*B+1/a^4*b^3/x*A-1/a^3
*b^2/x*B-1/a^5*b^4*ln(b*x+a)*A+1/a^4*b^3*ln(b*x+a)*B
```

Maxima [A] time = 1.37354, size = 151, normalized size = 1.42

$$\frac{\left(Bab^3 - Ab^4\right)\log\left(bx + a\right)}{a^5} - \frac{\left(Bab^3 - Ab^4\right)\log\left(x\right)}{a^5} - \frac{3\,Aa^3 + 12\,\left(Bab^2 - Ab^3\right)x^3 - 6\,\left(Ba^2b - Aab^2\right)x^2 + 4\,\left(Ba^3 - Aa^2b\right)x}{12\,a^4x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*x^5),x, algorithm="maxima")
```

```
[Out] (B*a*b^3 - A*b^4)*log(b*x + a)/a^5 - (B*a*b^3 - A*b^4)*log(x)/a^5
 - 1/12*(3*A*a^3 + 12*(B*a*b^2 - A*b^3)*x^3 - 6*(B*a^2*b - A*a*b^
2)*x^2 + 4*(B*a^3 - A*a^2*b)*x)/(a^4*x^4)
```

Fricas [A] time = 0.209221, size = 158, normalized size = 1.49

$$\frac{12\,\left(Bab^3 - Ab^4\right)x^4\log\left(bx + a\right) - 12\,\left(Bab^3 - Ab^4\right)x^4\log\left(x\right) - 3\,Aa^4 - 12\,\left(Ba^2b^2 - Aab^3\right)x^3 + 6\,\left(Ba^3b - Aa^2b^2\right)x^2 - 4\,\left(Ba\right.}{12\,a^5x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*x^5),x, algorithm="fricas")
```

```
[Out] 1/12*(12*(B*a*b^3 - A*b^4)*x^4*log(b*x + a) - 12*(B*a*b^3 - A*b^4
)*x^4*log(x) - 3*A*a^4 - 12*(B*a^2*b^2 - A*a*b^3)*x^3 + 6*(B*a^3*
b - A*a^2*b^2)*x^2 - 4*(B*a^4 - A*a^3*b)*x)/(a^5*x^4)
```

Sympy [A] time = 4.64012, size = 189, normalized size = 1.78

$$-\frac{3Aa^3 + x^3\left(-12Ab^3 + 12Bab^2\right) + x^2\left(6Aab^2 - 6Ba^2b\right) + x\left(-4Aa^2b + 4Ba^3\right)}{12a^4x^4} - \frac{b^3\left(-Ab + Ba\right)\log\left(x + \frac{-Aab^4 + Ba^2b^3 - ab^3(-Ab+Ba)}{-2Ab^5 + 2Bab^4}\right)}{a^5} + \frac{b^3\left(-Ab + Ba\right)\log\left(x + \frac{-Aab^4 + Ba^2b^3 + ab^3(-Ab+Ba)}{-2Ab^5 + 2Bab^4}\right)}{a^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**5/(b*x+a),x)
```

```
[Out] -(3*A*a**3 + x**3*(-12*A*b**3 + 12*B*a*b**2) + x**2*(6*A*a*b**2 -
 6*B*a**2*b) + x*(-4*A*a**2*b + 4*B*a**3))/(12*a**4*x**4) - b**3*
(-A*b + B*a)*log(x + (-A*a*b**4 + B*a**2*b**3 - a*b**3*(-A*b + B*
a))/(-2*A*b**5 + 2*B*a*b**4))/a**5 + b**3*(-A*b + B*a)*log(x + (-
A*a*b**4 + B*a**2*b**3 + a*b**3*(-A*b + B*a))/(-2*A*b**5 + 2*B*a*
b**4))/a**5
```

GIAC/XCAS [A] time = 0.302465, size = 165, normalized size = 1.56

$$-\frac{\left(Bab^{3}-Ab^{4}\right)\ln\left(|x|\right)}{a^{5}}+\frac{\left(Bab^{4}-Ab^{5}\right)\ln\left(|bx+a|\right)}{a^{5}b}-\frac{3\,Aa^{4}+12\,\left(Ba^{2}b^{2}-Aab^{3}\right)x^{3}-6\,\left(Ba^{3}b-Aa^{2}b^{2}\right)x^{2}+4\,\left(Ba^{4}-Aa^{3}b\right)x}{12\,a^{5}x^{4}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*x^5),x, algorithm="giac")
```

```
[Out] -(B*a*b^3 - A*b^4)*ln(abs(x))/a^5 + (B*a*b^4 - A*b^5)*ln(abs(b*x
+ a))/(a^5*b) - 1/12*(3*A*a^4 + 12*(B*a^2*b^2 - A*a*b^3)*x^3 - 6*
(B*a^3*b - A*a^2*b^2)*x^2 + 4*(B*a^4 - A*a^3*b)*x)/(a^5*x^4)
```

3.153 $\int \frac{x^4(A+Bx)}{(a+bx)^2}\,dx$

Optimal. Leaf size=113

$$-\frac{a^4(Ab-aB)}{b^6(a+bx)}-\frac{a^3(4Ab-5aB)\log(a+bx)}{b^6}+\frac{a^2x(3Ab-4aB)}{b^5}-\frac{ax^2(2Ab-3aB)}{2b^4}+\frac{x^3(Ab-2aB)}{3b^3}+\frac{Bx^4}{4b^2}$$

```
[Out] (a^2*(3*A*b - 4*a*B)*x)/b^5 - (a*(2*A*b - 3*a*B)*x^2)/(2*b^4) + (
(A*b - 2*a*B)*x^3)/(3*b^3) + (B*x^4)/(4*b^2) - (a^4*(A*b - a*B))/
(b^6*(a + b*x)) - (a^3*(4*A*b - 5*a*B)*Log[a + b*x])/b^6
```

Rubi [A] time = 0.261204, antiderivative size = 113, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{a^4(Ab-aB)}{b^6(a+bx)}-\frac{a^3(4Ab-5aB)\log(a+bx)}{b^6}+\frac{a^2x(3Ab-4aB)}{b^5}-\frac{ax^2(2Ab-3aB)}{2b^4}+\frac{x^3(Ab-2aB)}{3b^3}+\frac{Bx^4}{4b^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^4*(A + B*x))/(a + b*x)^2,x]
```

```
[Out] (a^2*(3*A*b - 4*a*B)*x)/b^5 - (a*(2*A*b - 3*a*B)*x^2)/(2*b^4) + (
(A*b - 2*a*B)*x^3)/(3*b^3) + (B*x^4)/(4*b^2) - (a^4*(A*b - a*B))/
(b^6*(a + b*x)) - (a^3*(4*A*b - 5*a*B)*Log[a + b*x])/b^6
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{Bx^4}{4b^2}-\frac{a^4\left(Ab-Ba\right)}{b^6\left(a+bx\right)}-\frac{a^3\left(4Ab-5Ba\right)\log\left(a+bx\right)}{b^6}-\frac{a\left(2Ab-3Ba\right)\int x\,dx}{b^4}+\frac{x^3\left(Ab-2Ba\right)}{3b^3}+\frac{\left(3Ab-4Ba\right)\int a^2\,dx}{b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**4*(B*x+A)/(b*x+a)**2,x)
```

```
[Out] B*x**4/(4*b**2) - a**4*(A*b - B*a)/(b**6*(a + b*x)) - a**3*(4*A*b
 - 5*B*a)*log(a + b*x)/b**6 - a*(2*A*b - 3*B*a)*Integral(x, x)/b*
*4 + x**3*(A*b - 2*B*a)/(3*b**3) + (3*A*b - 4*B*a)*Integral(a**2,
 x)/b**5
```

Mathematica [A] time = 0.115586, size = 107, normalized size = 0.95

$$\frac{\frac{12a^4(aB-Ab)}{a+bx}+12a^3(5aB-4Ab)\log(a+bx)-12a^2bx(4aB-3Ab)+4b^3x^3(Ab-2aB)+6ab^2x^2(3aB-2Ab)+3b^4Bx^4}{12b^6}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^4*(A + B*x))/(a + b*x)^2,x]
```

```
[Out] (-12*a^2*b*(-3*A*b + 4*a*B)*x + 6*a*b^2*(-2*A*b + 3*a*B)*x^2 + 4*
b^3*(A*b - 2*a*B)*x^3 + 3*b^4*B*x^4 + (12*a^4*(-(A*b) + a*B))/(a
+ b*x) + 12*a^3*(-4*A*b + 5*a*B)*Log[a + b*x])/(12*b^6)
```

Maple [A] time = 0.012, size = 133, normalized size = 1.2

$$\frac{Bx^4}{4\,b^2}+\frac{Ax^3}{3\,b^2}-\frac{2\,Bx^3a}{3\,b^3}-\frac{aAx^2}{b^3}+\frac{3\,Bx^2a^2}{2\,b^4}+3\,\frac{a^2Ax}{b^4}-4\,\frac{a^3Bx}{b^5}-4\,\frac{a^3\ln(bx+a)\,A}{b^5}+5\,\frac{a^4\ln(bx+a)\,B}{b^6}-\frac{a^4A}{(bx+a)\,b^5}+\frac{Ba^5}{(bx+a)\,b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^4*(B*x+A)/(b*x+a)^2,x)
```

```
[Out] 1/4*B*x^4/b^2+1/3/b^2*A*x^3-2/3/b^3*B*x^3*a-1/b^3*A*x^2*a+3/2/b^4
*B*x^2*a^2+3/b^4*a^2*A*x-4/b^5*a^3*B*x-4*a^3/b^5*ln(b*x+a)*A+5*a^
4/b^6*ln(b*x+a)*B-a^4/(b*x+a)/b^5*A+a^5/(b*x+a)/b^6*B
```

Maxima [A] time = 1.32863, size = 166, normalized size = 1.47

$$\frac{Ba^5-Aa^4b}{b^7x+ab^6}+\frac{3\,Bb^3x^4-4\left(2\,Bab^2-Ab^3\right)x^3+6\left(3\,Ba^2b-2\,Aab^2\right)x^2-12\left(4\,Ba^3-3\,Aa^2b\right)x}{12\,b^5}+\frac{\left(5\,Ba^4-4\,Aa^3b\right)\log(bx+a)}{b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^4/(b*x + a)^2,x, algorithm="maxima")
```

```
[Out] (B*a^5 - A*a^4*b)/(b^7*x + a*b^6) + 1/12*(3*B*b^3*x^4 - 4*(2*B*a*
b^2 - A*b^3)*x^3 + 6*(3*B*a^2*b - 2*A*a*b^2)*x^2 - 12*(4*B*a^3 -
3*A*a^2*b)*x)/b^5 + (5*B*a^4 - 4*A*a^3*b)*log(b*x + a)/b^6
```

Fricas [A] time = 0.205272, size = 221, normalized size = 1.96

$$\frac{3\,Bb^5x^5+12\,Ba^5-12\,Aa^4b-\left(5\,Bab^4-4\,Ab^5\right)x^4+2\left(5\,Ba^2b^3-4\,Aab^4\right)x^3-6\left(5\,Ba^3b^2-4\,Aa^2b^3\right)x^2-12\left(4\,Ba^4b-3\,Aa\right.}{12\left(b^7x+ab^6\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^4/(b*x + a)^2,x, algorithm="fricas")
```

```
[Out] 1/12*(3*B*b^5*x^5 + 12*B*a^5 - 12*A*a^4*b - (5*B*a*b^4 - 4*A*b^5)
*x^4 + 2*(5*B*a^2*b^3 - 4*A*a*b^4)*x^3 - 6*(5*B*a^3*b^2 - 4*A*a^2
*b^3)*x^2 - 12*(4*B*a^4*b - 3*A*a^3*b^2)*x + 12*(5*B*a^5 - 4*A*a^
4*b + (5*B*a^4*b - 4*A*a^3*b^2)*x)*log(b*x + a))/(b^7*x + a*b^6)
```

Sympy [A] time = 3.9557, size = 114, normalized size = 1.01

$$\frac{Bx^4}{4b^2}+\frac{a^3\left(-4Ab+5Ba\right)\log(a+bx)}{b^6}+\frac{-Aa^4b+Ba^5}{ab^6+b^7x}-\frac{x^3\left(-Ab+2Ba\right)}{3b^3}+\frac{x^2\left(-2Aab+3Ba^2\right)}{2b^4}-\frac{x\left(-3Aa^2b+4Ba^3\right)}{b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**4*(B*x+A)/(b*x+a)**2,x)
```

```
[Out] B*x**4/(4*b**2) + a**3*(-4*A*b + 5*B*a)*log(a + b*x)/b**6 + (-A*a
**4*b + B*a**5)/(a*b**6 + b**7*x) - x**3*(-A*b + 2*B*a)/(3*b**3)
```

```
+ x**2*(-2*A*a*b + 3*B*a**2)/(2*b**4) - x*(-3*A*a**2*b + 4*B*a**3
)/b**5
```

GIAC/XCAS [A] time = 0.255956, size = 236, normalized size = 2.09

$$\frac{(bx+a)^4\left(3\,B-\frac{4\,(5\,Bab-Ab^2)}{(bx+a)b}+\frac{12\,(5\,Ba^2b^2-2\,Aab^3)}{(bx+a)^2b^2}-\frac{24\,(5\,Ba^3b^3-3\,Aa^2b^4)}{(bx+a)^3b^3}\right)}{12\,b^6}-\frac{\left(5\,Ba^4-4\,Aa^3b\right)\ln\left(\frac{|bx+a|}{(bx+a)^2|b|}\right)}{b^6}+\frac{\frac{Ba^5b^4}{bx+a}-\frac{Aa^4b^5}{bx+a}}{b^{10}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^4/(b*x + a)^2,x, algorithm="giac")
```

```
[Out] 1/12*(b*x + a)^4*(3*B - 4*(5*B*a*b - A*b^2)/((b*x + a)*b) + 12*(5
*B*a^2*b^2 - 2*A*a*b^3)/((b*x + a)^2*b^2) - 24*(5*B*a^3*b^3 - 3*A
*a^2*b^4)/((b*x + a)^3*b^3))/b^6 - (5*B*a^4 - 4*A*a^3*b)*ln(abs(b
*x + a)/((b*x + a)^2*abs(b)))/b^6 + (B*a^5*b^4/(b*x + a) - A*a^4*
b^5/(b*x + a))/b^10
```

3.154 $\int \frac{x^3(A+Bx)}{(a+bx)^2}\,dx$

Optimal. Leaf size=90

$$\frac{a^3(Ab-aB)}{b^5(a+bx)}+\frac{a^2(3Ab-4aB)\log(a+bx)}{b^5}-\frac{ax(2Ab-3aB)}{b^4}+\frac{x^2(Ab-2aB)}{2b^3}+\frac{Bx^3}{3b^2}$$

```
[Out] -((a*(2*A*b - 3*a*B)*x)/b^4) + ((A*b - 2*a*B)*x^2)/(2*b^3) + (B*x
^3)/(3*b^2) + (a^3*(A*b - a*B))/(b^5*(a + b*x)) + (a^2*(3*A*b - 4
*a*B)*Log[a + b*x])/b^5
```

Rubi [A] time = 0.183133, antiderivative size = 90, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$\frac{a^3(Ab-aB)}{b^5(a+bx)}+\frac{a^2(3Ab-4aB)\log(a+bx)}{b^5}-\frac{ax(2Ab-3aB)}{b^4}+\frac{x^2(Ab-2aB)}{2b^3}+\frac{Bx^3}{3b^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^3*(A + B*x))/(a + b*x)^2,x]
```

```
[Out] -((a*(2*A*b - 3*a*B)*x)/b^4) + ((A*b - 2*a*B)*x^2)/(2*b^3) + (B*x
^3)/(3*b^2) + (a^3*(A*b - a*B))/(b^5*(a + b*x)) + (a^2*(3*A*b - 4
*a*B)*Log[a + b*x])/b^5
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{Bx^3}{3b^2}+\frac{a^3\left(Ab-Ba\right)}{b^5\left(a+bx\right)}+\frac{a^2\left(3Ab-4Ba\right)\log\left(a+bx\right)}{b^5}+\frac{\left(Ab-2Ba\right)\int x\,dx}{b^3}-\frac{\left(2Ab-3Ba\right)\int a\,dx}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3*(B*x+A)/(b*x+a)**2,x)
```

```
[Out] B*x**3/(3*b**2) + a**3*(A*b - B*a)/(b**5*(a + b*x)) + a**2*(3*A*b
 - 4*B*a)*log(a + b*x)/b**5 + (A*b - 2*B*a)*Integral(x, x)/b**3 -
 (2*A*b - 3*B*a)*Integral(a, x)/b**4
```

Mathematica [A] time = 0.0965533, size = 87, normalized size = 0.97

$$\frac{\frac{6a^3(Ab-aB)}{a+bx}+6a^2(3Ab-4aB)\log(a+bx)+3b^2x^2(Ab-2aB)+6abx(3aB-2Ab)+2b^3Bx^3}{6b^5}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^3*(A + B*x))/(a + b*x)^2,x]
```

```
[Out] (6*a*b*(-2*A*b + 3*a*B)*x + 3*b^2*(A*b - 2*a*B)*x^2 + 2*b^3*B*x^3
 + (6*a^3*(A*b - a*B))/(a + b*x) + 6*a^2*(3*A*b - 4*a*B)*Log[a +
b*x])/(6*b^5)
```

Maple [A] time = 0.013, size = 109, normalized size = 1.2

$$\frac{Bx^3}{3\,b^2}+\frac{Ax^2}{2\,b^2}-\frac{Bx^2a}{b^3}-2\,\frac{aAx}{b^3}+3\,\frac{a^2Bx}{b^4}+3\,\frac{a^2\ln\left(bx+a\right)A}{b^4}-4\,\frac{a^3\ln\left(bx+a\right)B}{b^5}+\frac{a^3A}{\left(bx+a\right)b^4}-\frac{Ba^4}{\left(bx+a\right)b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int(x^3*(B*x+A)/(b*x+a)^2,x)
```

```
[Out] 1/3*B*x^3/b^2+1/2/b^2*A*x^2-1/b^3*B*x^2*a-2/b^3*a*A*x+3/b^4*a^2*B
*x+3*a^2/b^4*ln(b*x+a)*A-4*a^3/b^5*ln(b*x+a)*B+a^3/(b*x+a)/b^4*A-
a^4/(b*x+a)/b^5*B
```

Maxima [A] time = 1.32483, size = 136, normalized size = 1.51

$$-\frac{Ba^4 - Aa^3b}{b^6x + ab^5} + \frac{2\,Bb^2x^3 - 3\left(2\,Bab - Ab^2\right)x^2 + 6\left(3\,Ba^2 - 2\,Aab\right)x}{6\,b^4} - \frac{\left(4\,Ba^3 - 3\,Aa^2b\right)\log\left(bx + a\right)}{b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*x^3/(b*x + a)^2,x, algorithm="maxima")
```

```
[Out] -(B*a^4 - A*a^3*b)/(b^6*x + a*b^5) + 1/6*(2*B*b^2*x^3 - 3*(2*B*a*
b - A*b^2)*x^2 + 6*(3*B*a^2 - 2*A*a*b)*x)/b^4 - (4*B*a^3 - 3*A*a^
2*b)*log(b*x + a)/b^5
```

Fricas [A] time = 0.201778, size = 189, normalized size = 2.1

$$\frac{2\,Bb^4x^4 - 6\,Ba^4 + 6\,Aa^3b - \left(4\,Bab^3 - 3\,Ab^4\right)x^3 + 3\left(4\,Ba^2b^2 - 3\,Aab^3\right)x^2 + 6\left(3\,Ba^3b - 2\,Aa^2b^2\right)x - 6\left(4\,Ba^4 - 3\,Aa^3b + (4\right.}{6\left(b^6x + ab^5\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*x^3/(b*x + a)^2,x, algorithm="fricas")
```

```
[Out] 1/6*(2*B*b^4*x^4 - 6*B*a^4 + 6*A*a^3*b - (4*B*a*b^3 - 3*A*b^4)*x^
3 + 3*(4*B*a^2*b^2 - 3*A*a*b^3)*x^2 + 6*(3*B*a^3*b - 2*A*a^2*b^2)
*x - 6*(4*B*a^4 - 3*A*a^3*b + (4*B*a^3*b - 3*A*a^2*b^2)*x)*log(b*
x + a))/(b^6*x + a*b^5)
```

Sympy [A] time = 3.58669, size = 90, normalized size = 1.

$$\frac{Bx^3}{3b^2} - \frac{a^2\left(-3Ab + 4Ba\right)\log\left(a + bx\right)}{b^5} - \frac{-Aa^3b + Ba^4}{ab^5 + b^6x} - \frac{x^2\left(-Ab + 2Ba\right)}{2b^3} + \frac{x\left(-2Aab + 3Ba^2\right)}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(x**3*(B*x+A)/(b*x+a)**2,x)
```

```
[Out] B*x**3/(3*b**2) - a**2*(-3*A*b + 4*B*a)*log(a + b*x)/b**5 - (-A*a
**3*b + B*a**4)/(a*b**5 + b**6*x) - x**2*(-A*b + 2*B*a)/(2*b**3)
+ x*(-2*A*a*b + 3*B*a**2)/b**4
```

GIAC/XCAS [A] time = 0.332717, size = 194, normalized size = 2.16

$$\frac{(bx + a)^3\left(2\,B - \frac{3\left(4\,Bab - Ab^2\right)}{(bx + a)b} + \frac{18\left(2\,Ba^2b^2 - Aab^3\right)}{(bx + a)^2b^2}\right)}{6\,b^5} + \frac{\left(4\,Ba^3 - 3\,Aa^2b\right)\ln\left(\frac{|bx + a|}{(bx + a)^2|b|}\right)}{b^5} - \frac{\frac{Ba^4b^3}{bx + a} - \frac{Aa^3b^4}{bx + a}}{b^8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^3/(b*x + a)^2,x, algorithm="giac")
```

```
[Out] 1/6*(b*x + a)^3*(2*B - 3*(4*B*a*b - A*b^2)/((b*x + a)*b) + 18*(2*
B*a^2*b^2 - A*a*b^3)/((b*x + a)^2*b^2))/b^5 + (4*B*a^3 - 3*A*a^2*
b)*ln(abs(b*x + a)/((b*x + a)^2*abs(b)))/b^5 - (B*a^4*b^3/(b*x +
a) - A*a^3*b^4/(b*x + a))/b^8
```

3.155 $\int \frac{x^2(A+Bx)}{(a+bx)^2} dx$

Optimal. Leaf size=69

$$-\frac{a^2(Ab-aB)}{b^4(a+bx)}-\frac{a(2Ab-3aB)\log(a+bx)}{b^4}+\frac{x(Ab-2aB)}{b^3}+\frac{Bx^2}{2b^2}$$

```
[Out] ((A*b - 2*a*B)*x)/b^3 + (B*x^2)/(2*b^2) - (a^2*(A*b - a*B))/(b^4*
(a + b*x)) - (a*(2*A*b - 3*a*B)*Log[a + b*x])/b^4
```

Rubi [A] time = 0.133818, antiderivative size = 69, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{a^2(Ab-aB)}{b^4(a+bx)}-\frac{a(2Ab-3aB)\log(a+bx)}{b^4}+\frac{x(Ab-2aB)}{b^3}+\frac{Bx^2}{2b^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^2*(A + B*x))/(a + b*x)^2,x]
```

```
[Out] ((A*b - 2*a*B)*x)/b^3 + (B*x^2)/(2*b^2) - (a^2*(A*b - a*B))/(b^4*
(a + b*x)) - (a*(2*A*b - 3*a*B)*Log[a + b*x])/b^4
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{B\int x\,dx}{b^2}-\frac{a^2\,(Ab-Ba)}{b^4\,(a+bx)}-\frac{a\,(2Ab-3Ba)\log{(a+bx)}}{b^4}+(Ab-2Ba)\int\frac{1}{b^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(B*x+A)/(b*x+a)**2,x)
```

```
[Out] B*Integral(x, x)/b**2 - a**2*(A*b - B*a)/(b**4*(a + b*x)) - a*(2*
A*b - 3*B*a)*log(a + b*x)/b**4 + (A*b - 2*B*a)*Integral(b**(-3),
x)
```

Mathematica [A] time = 0.0908134, size = 66, normalized size = 0.96

$$\frac{\frac{2a^2(aB-Ab)}{a+bx}+2bx(Ab-2aB)+2a(3aB-2Ab)\log(a+bx)+b^2Bx^2}{2b^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^2*(A + B*x))/(a + b*x)^2,x]
```

```
[Out] (2*b*(A*b - 2*a*B)*x + b^2*B*x^2 + (2*a^2*(-(A*b) + a*B))/(a + b*
x) + 2*a*(-2*A*b + 3*a*B)*Log[a + b*x])/(2*b^4)
```

Maple [A] time = 0.01, size = 84, normalized size = 1.2

$$\frac{Bx^2}{2\,b^2}+\frac{Ax}{b^2}-2\,\frac{Bax}{b^3}-2\,\frac{a\ln{(bx+a)}\,A}{b^3}+3\,\frac{a^2\ln{(bx+a)}\,B}{b^4}-\frac{a^2A}{(bx+a)\,b^3}+\frac{a^3B}{(bx+a)\,b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int(x^2*(B*x+A)/(b*x+a)^2,x)
```

```
[Out] 1/2*B*x^2/b^2+1/b^2*A*x-2/b^3*B*a*x-2*a/b^3*ln(b*x+a)*A+3*a^2/b^4
*ln(b*x+a)*B-a^2/(b*x+a)/b^3*A+a^3/(b*x+a)/b^4*B
```

Maxima [A] time = 1.35206, size = 100, normalized size = 1.45

$$\frac{Ba^3 - Aa^2b}{b^5x + ab^4} + \frac{Bbx^2 - 2(2Ba - Ab)x}{2b^3} + \frac{(3Ba^2 - 2Aab)\log(bx + a)}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*x^2/(b*x + a)^2,x, algorithm="maxima")
```

```
[Out] (B*a^3 - A*a^2*b)/(b^5*x + a*b^4) + 1/2*(B*b*x^2 - 2*(2*B*a - A*b
)*x)/b^3 + (3*B*a^2 - 2*A*a*b)*log(b*x + a)/b^4
```

Fricas [A] time = 0.20149, size = 153, normalized size = 2.22

$$\frac{Bb^3x^3 + 2Ba^3 - 2Aa^2b - (3Bab^2 - 2Ab^3)x^2 - 2(2Ba^2b - Aab^2)x + 2(3Ba^3 - 2Aa^2b + (3Ba^2b - 2Aab^2)x)\log(bx + a)}{2(b^5x + ab^4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*x^2/(b*x + a)^2,x, algorithm="fricas")
```

```
[Out] 1/2*(B*b^3*x^3 + 2*B*a^3 - 2*A*a^2*b - (3*B*a*b^2 - 2*A*b^3)*x^2
- 2*(2*B*a^2*b - A*a*b^2)*x + 2*(3*B*a^3 - 2*A*a^2*b + (3*B*a^2*b
 - 2*A*a*b^2)*x)*log(b*x + a))/(b^5*x + a*b^4)
```

Sympy [A] time = 3.30673, size = 66, normalized size = 0.96

$$\frac{Bx^2}{2b^2} + \frac{a(-2Ab + 3Ba)\log(a + bx)}{b^4} + \frac{-Aa^2b + Ba^3}{ab^4 + b^5x} - \frac{x(-Ab + 2Ba)}{b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(x**2*(B*x+A)/(b*x+a)**2,x)
```

```
[Out] B*x**2/(2*b**2) + a*(-2*A*b + 3*B*a)*log(a + b*x)/b**4 + (-A*a**2
*b + B*a**3)/(a*b**4 + b**5*x) - x*(-A*b + 2*B*a)/b**3
```

GIAC/XCAS [A] time = 0.258722, size = 150, normalized size = 2.17

$$\frac{(bx + a)^2\left(B - \frac{2(3Bab - Ab^2)}{(bx+a)b}\right)}{2b^4} - \frac{(3Ba^2 - 2Aab)\ln\left(\frac{|bx+a|}{(bx+a)^2|b|}\right)}{b^4} + \frac{\frac{Ba^3b^2}{bx+a} - \frac{Aa^2b^3}{bx+a}}{b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*x^2/(b*x + a)^2,x, algorithm="giac")
```

```
[Out] 1/2*(b*x + a)^2*(B - 2*(3*B*a*b - A*b^2)/((b*x + a)*b))/b^4 - (3*
B*a^2 - 2*A*a*b)*ln(abs(b*x + a)/((b*x + a)^2*abs(b)))/b^4 + (B*a
^3*b^2/(b*x + a) - A*a^2*b^3/(b*x + a))/b^6
```

3.156 $\int \frac{x(A+Bx)}{(a+bx)^2}\,dx$

Optimal. Leaf size=45

$$\frac{a(Ab-aB)}{b^3(a+bx)}+\frac{(Ab-2aB)\log(a+bx)}{b^3}+\frac{Bx}{b^2}$$

```
[Out] (B*x)/b^2 + (a*(A*b - a*B))/(b^3*(a + b*x)) + ((A*b - 2*a*B)*Log[
a + b*x])/b^3
```

Rubi [A] time = 0.0897591, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 14, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.071

$$\frac{a(Ab-aB)}{b^3(a+bx)}+\frac{(Ab-2aB)\log(a+bx)}{b^3}+\frac{Bx}{b^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(x*(A + B*x))/(a + b*x)^2,x]
```

```
[Out] (B*x)/b^2 + (a*(A*b - a*B))/(b^3*(a + b*x)) + ((A*b - 2*a*B)*Log[
a + b*x])/b^3
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{a\,(Ab-Ba)}{b^3\,(a+bx)}+\frac{\int B\,dx}{b^2}+\frac{(Ab-2Ba)\log\,(a+bx)}{b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(B*x+A)/(b*x+a)**2,x)
```

```
[Out] a*(A*b - B*a)/(b**3*(a + b*x)) + Integral(B, x)/b**2 + (A*b - 2*B
*a)*log(a + b*x)/b**3
```

Mathematica [A] time = 0.0422483, size = 41, normalized size = 0.91

$$\frac{\frac{a(Ab-aB)}{a+bx}+(Ab-2aB)\log(a+bx)+bBx}{b^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x*(A + B*x))/(a + b*x)^2,x]
```

```
[Out] (b*B*x + (a*(A*b - a*B))/(a + b*x) + (A*b - 2*a*B)*Log[a + b*x])/
b^3
```

Maple [A] time = 0.009, size = 61, normalized size = 1.4

$$\frac{Bx}{b^2}+\frac{\ln\,(bx+a)\,A}{b^2}-2\,\frac{\ln\,(bx+a)\,Ba}{b^3}+\frac{aA}{(bx+a)\,b^2}-\frac{a^2B}{(bx+a)\,b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(B*x+A)/(b*x+a)^2,x)
```

```
[Out] B*x/b^2+1/b^2*ln(b*x+a)*A-2/b^3*ln(b*x+a)*B*a+a/(b*x+a)/b^2*A-a^2
/(b*x+a)/b^3*B
```

Maxima [A] time = 1.33817, size = 72, normalized size = 1.6

$$-\frac{Ba^2 - Aab}{b^4x + ab^3} + \frac{Bx}{b^2} - \frac{(2\,Ba - Ab)\log(bx + a)}{b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x/(b*x + a)^2,x, algorithm="maxima")
```

```
[Out] -(B*a^2 - A*a*b)/(b^4*x + a*b^3) + B*x/b^2 - (2*B*a - A*b)*log(b*
x + a)/b^3
```

Fricas [A] time = 0.207402, size = 97, normalized size = 2.16

$$\frac{Bb^2x^2 + Babx - Ba^2 + Aab - \left(2\,Ba^2 - Aab + \left(2\,Bab - Ab^2\right)x\right)\log(bx + a)}{b^4x + ab^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x/(b*x + a)^2,x, algorithm="fricas")
```

```
[Out] (B*b^2*x^2 + B*a*b*x - B*a^2 + A*a*b - (2*B*a^2 - A*a*b + (2*B*a*
b - A*b^2)*x)*log(b*x + a))/(b^4*x + a*b^3)
```

Sympy [A] time = 2.87808, size = 44, normalized size = 0.98

$$\frac{Bx}{b^2} - \frac{-Aab + Ba^2}{ab^3 + b^4x} - \frac{(-Ab + 2Ba)\log(a + bx)}{b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(B*x+A)/(b*x+a)**2,x)
```

```
[Out] B*x/b**2 - (-A*a*b + B*a**2)/(a*b**3 + b**4*x) - (-A*b + 2*B*a)*l
og(a + b*x)/b**3
```

GIAC/XCAS [A] time = 0.260054, size = 108, normalized size = 2.4

$$\frac{\frac{(bx+a)B}{b^2} + \frac{(2\,Ba-Ab)\ln\left(\frac{|bx+a|}{(bx+a)^2|b|}\right)}{b^2} - \frac{\frac{Ba^2b}{bx+a} - \frac{Aab^2}{bx+a}}{b^3}}{b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x/(b*x + a)^2,x, algorithm="giac")
```

```
[Out] ((b*x + a)*B/b^2 + (2*B*a - A*b)*ln(abs(b*x + a)/((b*x + a)^2*abs
(b)))/b^2 - (B*a^2*b/(b*x + a) - A*a*b^2/(b*x + a))/b^3)/b
```

3.157 $\int \frac{A+Bx}{(a+bx)^2}\,dx$

Optimal. Leaf size=32

$$\frac{B\log(a+bx)}{b^2}-\frac{Ab-aB}{b^2(a+bx)}$$

```
[Out] -((A*b - a*B)/(b^2*(a + b*x))) + (B*Log[a + b*x])/b^2
```

Rubi [A] time = 0.0499263, antiderivative size = 32, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 13, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.077

$$\frac{B\log(a+bx)}{b^2}-\frac{Ab-aB}{b^2(a+bx)}$$

Antiderivative was successfully verified.

```
[In] Int[(A + B*x)/(a + b*x)^2,x]
```

```
[Out] -((A*b - a*B)/(b^2*(a + b*x))) + (B*Log[a + b*x])/b^2
```

Rubi in Sympy [A] time = 13.0154, size = 26, normalized size = 0.81

$$\frac{B\log{(a+bx)}}{b^2}-\frac{Ab-Ba}{b^2\,(a+bx)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((B*x+A)/(b*x+a)**2,x)
```

```
[Out] B*log(a + b*x)/b**2 - (A*b - B*a)/(b**2*(a + b*x))
```

Mathematica [A] time = 0.0182518, size = 31, normalized size = 0.97

$$\frac{aB-Ab}{b^2(a+bx)}+\frac{B\log(a+bx)}{b^2}$$

Antiderivative was successfully verified.

```
[In] Integrate[(A + B*x)/(a + b*x)^2,x]
```

```
[Out] (-(A*b) + a*B)/(b^2*(a + b*x)) + (B*Log[a + b*x])/b^2
```

Maple [A] time = 0.007, size = 39, normalized size = 1.2

$$\frac{B\ln{(bx+a)}}{b^2}-\frac{A}{(bx+a)\,b}+\frac{Ba}{(bx+a)\,b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((B*x+A)/(b*x+a)^2,x)
```

```
[Out] B*ln(b*x+a)/b^2-1/(b*x+a)/b*A+1/(b*x+a)/b^2*B*a
```

Maxima [A] time = 1.33655, size = 46, normalized size = 1.44

$$\frac{Ba - Ab}{b^3x + ab^2} + \frac{B\log(bx + a)}{b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(b*x + a)^2,x, algorithm="maxima")
```

```
[Out] (B*a - A*b)/(b^3*x + a*b^2) + B*log(b*x + a)/b^2
```

Fricas [A] time = 0.202463, size = 50, normalized size = 1.56

$$\frac{Ba - Ab + (Bbx + Ba)\log(bx + a)}{b^3x + ab^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(b*x + a)^2,x, algorithm="fricas")
```

```
[Out] (B*a - A*b + (B*b*x + B*a)*log(b*x + a))/(b^3*x + a*b^2)
```

Sympy [A] time = 2.24987, size = 27, normalized size = 0.84

$$\frac{B\log(a + bx)}{b^2} + \frac{-Ab + Ba}{ab^2 + b^3x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(b*x+a)**2,x)
```

```
[Out] B*log(a + b*x)/b**2 + (-A*b + B*a)/(a*b**2 + b**3*x)
```

GIAC/XCAS [A] time = 0.287675, size = 77, normalized size = 2.41

$$-\frac{B\left(\frac{\ln\left(\frac{|bx+a|}{(bx+a)^2|b|}\right)}{b} - \frac{a}{(bx+a)b}\right)}{b} - \frac{A}{(bx + a)b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(b*x + a)^2,x, algorithm="giac")
```

```
[Out] -B*(ln(abs(b*x + a)/((b*x + a)^2*abs(b)))/b - a/((b*x + a)*b))/b
- A/((b*x + a)*b)
```

3.158 $\int \frac{A+Bx}{x(a+bx)^2} dx$

Optimal. Leaf size=42

$$-\frac{A\log(a+bx)}{a^2}+\frac{A\log(x)}{a^2}+\frac{Ab-aB}{ab(a+bx)}$$

```
[Out] (A*b - a*B)/(a*b*(a + b*x)) + (A*Log[x])/a^2 - (A*Log[a + b*x])/a
^2
```

Rubi [A] time = 0.0677766, antiderivative size = 42, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{A\log(a+bx)}{a^2}+\frac{A\log(x)}{a^2}+\frac{Ab-aB}{ab(a+bx)}$$

Antiderivative was successfully verified.

```
[In] Int[(A + B*x)/(x*(a + b*x)^2),x]
```

```
[Out] (A*b - a*B)/(a*b*(a + b*x)) + (A*Log[x])/a^2 - (A*Log[a + b*x])/a
^2
```

Rubi in Sympy [A] time = 16.3021, size = 34, normalized size = 0.81

$$\frac{A\log(x)}{a^2}-\frac{A\log(a+bx)}{a^2}+\frac{Ab-Ba}{ab(a+bx)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((B*x+A)/x/(b*x+a)**2,x)
```

```
[Out] A*log(x)/a**2 - A*log(a + b*x)/a**2 + (A*b - B*a)/(a*b*(a + b*x))
```

Mathematica [A] time = 0.0417507, size = 38, normalized size = 0.9

$$\frac{\frac{a(Ab-aB)}{b(a+bx)}-A\log(a+bx)+A\log(x)}{a^2}$$

Antiderivative was successfully verified.

```
[In] Integrate[(A + B*x)/(x*(a + b*x)^2),x]
```

```
[Out] ((a*(A*b - a*B))/(b*(a + b*x)) + A*Log[x] - A*Log[a + b*x])/a^2
```

Maple [A] time = 0.013, size = 46, normalized size = 1.1

$$\frac{A\ln(x)}{a^2}+\frac{A}{a(bx+a)}-\frac{B}{(bx+a)b}-\frac{A\ln(bx+a)}{a^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((B*x+A)/x/(b*x+a)^2,x)
```

```
[Out] A*ln(x)/a^2+1/a/(b*x+a)*A-B/(b*x+a)/b-A*ln(b*x+a)/a^2
```

Maxima [A] time = 1.33233, size = 59, normalized size = 1.4

$$-\frac{Ba-Ab}{ab^2x+a^2b}-\frac{A\log(bx+a)}{a^2}+\frac{A\log(x)}{a^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^2*x),x, algorithm="maxima")
```

```
[Out] -(B*a - A*b)/(a*b^2*x + a^2*b) - A*log(b*x + a)/a^2 + A*log(x)/a^
2
```

Fricas [A] time = 0.208147, size = 84, normalized size = 2.

$$-\frac{Ba^2-Aab+(Ab^2x+Aab)\log(bx+a)-(Ab^2x+Aab)\log(x)}{a^2b^2x+a^3b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^2*x),x, algorithm="fricas")
```

```
[Out] -(B*a^2 - A*a*b + (A*b^2*x + A*a*b)*log(b*x + a) - (A*b^2*x + A*a
*b)*log(x))/(a^2*b^2*x + a^3*b)
```

Sympy [A] time = 2.80135, size = 32, normalized size = 0.76

$$\frac{A\left(\log(x)-\log\left(\frac{a}{b}+x\right)\right)}{a^2}-\frac{-Ab+Ba}{a^2b+ab^2x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x/(b*x+a)**2,x)
```

```
[Out] A*(log(x) - log(a/b + x))/a**2 - (-A*b + B*a)/(a**2*b + a*b**2*x)
```

GIAC/XCAS [A] time = 0.269832, size = 74, normalized size = 1.76

$$b\left(\frac{A\ln\left(\left|-\frac{a}{bx+a}+1\right|\right)}{a^2b}-\frac{\frac{Ba}{bx+a}-\frac{Ab}{bx+a}}{ab^2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^2*x),x, algorithm="giac")
```

```
[Out] b*(A*ln(abs(-a/(b*x + a) + 1))/(a^2*b) - (B*a/(b*x + a) - A*b/(b*
x + a))/(a*b^2))
```

3.159 $\int \frac{A+Bx}{x^2(a+bx)^2}\,dx$

Optimal. Leaf size=65

$$-\frac{\log(x)(2Ab-aB)}{a^3}+\frac{(2Ab-aB)\log(a+bx)}{a^3}-\frac{Ab-aB}{a^2(a+bx)}-\frac{A}{a^2x}$$

```
[Out] -(A/(a^2*x)) - (A*b - a*B)/(a^2*(a + b*x)) - ((2*A*b - a*B)*Log[x
])/a^3 + ((2*A*b - a*B)*Log[a + b*x])/a^3
```

Rubi [A] time = 0.117456, antiderivative size = 65, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{\log(x)(2Ab-aB)}{a^3}+\frac{(2Ab-aB)\log(a+bx)}{a^3}-\frac{Ab-aB}{a^2(a+bx)}-\frac{A}{a^2x}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^2*(a + b*x)^2),x]
```

```
[Out] -(A/(a^2*x)) - (A*b - a*B)/(a^2*(a + b*x)) - ((2*A*b - a*B)*Log[x
])/a^3 + ((2*A*b - a*B)*Log[a + b*x])/a^3
```

Rubi in Sympy [A] time = 23.2582, size = 54, normalized size = 0.83

$$-\frac{A}{a^2x}-\frac{Ab-Ba}{a^2\left(a+bx\right)}-\frac{(2Ab-Ba)\log\left(x\right)}{a^3}+\frac{(2Ab-Ba)\log\left(a+bx\right)}{a^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**2/(b*x+a)**2,x)
```

```
[Out] -A/(a**2*x) - (A*b - B*a)/(a**2*(a + b*x)) - (2*A*b - B*a)*log(x)
/a**3 + (2*A*b - B*a)*log(a + b*x)/a**3
```

Mathematica [A] time = 0.0673055, size = 56, normalized size = 0.86

$$\frac{\frac{a(aB-Ab)}{a+bx}+\log(x)(aB-2Ab)+(2Ab-aB)\log(a+bx)-\frac{aA}{x}}{a^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^2*(a + b*x)^2),x]
```

```
[Out] (-((a*A)/x) + (a*(-(A*b) + a*B))/(a + b*x) + (-2*A*b + a*B)*Log[x
] + (2*A*b - a*B)*Log[a + b*x])/a^3
```

Maple [A] time = 0.016, size = 78, normalized size = 1.2

$$-\frac{A}{a^2x}-2\,\frac{A\ln(x)\,b}{a^3}+\frac{\ln(x)\,B}{a^2}+2\,\frac{\ln(bx+a)\,Ab}{a^3}-\frac{\ln(bx+a)\,B}{a^2}-\frac{Ab}{a^2\,(bx+a)}+\frac{B}{a\,(bx+a)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^2/(b*x+a)^2,x)
```

```
[Out] -A/a^2/x-2/a^3*ln(x)*A*b+1/a^2*ln(x)*B+2/a^3*ln(b*x+a)*A*b-1/a^2*
ln(b*x+a)*B-A*b/a^2/(b*x+a)+1/a/(b*x+a)*B
```

Maxima [A] time = 1.34597, size = 90, normalized size = 1.38

$$-\frac{Aa - (Ba - 2\,Ab)x}{a^2bx^2 + a^3x} - \frac{(Ba - 2\,Ab)\log(bx + a)}{a^3} + \frac{(Ba - 2\,Ab)\log(x)}{a^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^2*x^2),x, algorithm="maxima")
```

```
[Out] -(A*a - (B*a - 2*A*b)*x)/(a^2*b*x^2 + a^3*x) - (B*a - 2*A*b)*log(
b*x + a)/a^3 + (B*a - 2*A*b)*log(x)/a^3
```

Fricas [A] time = 0.21003, size = 144, normalized size = 2.22

$$-\frac{Aa^2 - \left(Ba^2 - 2\,Aab\right)x + \left(\left(Bab - 2\,Ab^2\right)x^2 + \left(Ba^2 - 2\,Aab\right)x\right)\log(bx + a) - \left(\left(Bab - 2\,Ab^2\right)x^2 + \left(Ba^2 - 2\,Aab\right)x\right)\log(x)}{a^3bx^2 + a^4x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^2*x^2),x, algorithm="fricas")
```

```
[Out] -(A*a^2 - (B*a^2 - 2*A*a*b)*x + ((B*a*b - 2*A*b^2)*x^2 + (B*a^2 -
 2*A*a*b)*x)*log(b*x + a) - ((B*a*b - 2*A*b^2)*x^2 + (B*a^2 - 2*A
*a*b)*x)*log(x))/(a^3*b*x^2 + a^4*x)
```

Sympy [A] time = 3.86659, size = 128, normalized size = 1.97

$$\frac{-Aa + x(-2Ab + Ba)}{a^3x + a^2bx^2} + \frac{(-2Ab + Ba)\log\left(x + \frac{-2Aab + Ba^2 - a(-2Ab + Ba)}{-4Ab^2 + 2Bab}\right)}{a^3} - \frac{(-2Ab + Ba)\log\left(x + \frac{-2Aab + Ba^2 + a(-2Ab + Ba)}{-4Ab^2 + 2Bab}\right)}{a^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**2/(b*x+a)**2,x)
```

```
[Out] (-A*a + x*(-2*A*b + B*a))/(a**3*x + a**2*b*x**2) + (-2*A*b + B*a)
*log(x + (-2*A*a*b + B*a**2 - a*(-2*A*b + B*a))/(-4*A*b**2 + 2*B*
a*b))/a**3 - (-2*A*b + B*a)*log(x + (-2*A*a*b + B*a**2 + a*(-2*A*
b + B*a))/(-4*A*b**2 + 2*B*a*b))/a**3
```

GIAC/XCAS [A] time = 0.321837, size = 116, normalized size = 1.78

$$\frac{Ab}{a^3\left(\frac{a}{bx+a} - 1\right)} + \frac{\left(Bab - 2\,Ab^2\right)\ln\left(\left|-\frac{a}{bx+a} + 1\right|\right)}{a^3b} + \frac{\frac{Bab^2}{bx+a} - \frac{Ab^3}{bx+a}}{a^2b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^2*x^2),x, algorithm="giac")
```

```
[Out] A*b/(a^3*(a/(b*x + a) - 1)) + (B*a*b - 2*A*b^2)*ln(abs(-a/(b*x +
a) + 1))/(a^3*b) + (B*a*b^2/(b*x + a) - A*b^3/(b*x + a))/(a^2*b^2
)
```

3.160 $\int \frac{A+Bx}{x^3(a+bx)^2}\,dx$

Optimal. Leaf size=85

$$\frac{b\log(x)(3Ab-2aB)}{a^4}-\frac{b(3Ab-2aB)\log(a+bx)}{a^4}+\frac{2Ab-aB}{a^3x}+\frac{b(Ab-aB)}{a^3(a+bx)}-\frac{A}{2a^2x^2}$$

```
[Out] -A/(2*a^2*x^2) + (2*A*b - a*B)/(a^3*x) + (b*(A*b - a*B))/(a^3*(a
+ b*x)) + (b*(3*A*b - 2*a*B)*Log[x])/a^4 - (b*(3*A*b - 2*a*B)*Log
[a + b*x])/a^4
```

Rubi [A] time = 0.163731, antiderivative size = 85, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$\frac{b\log(x)(3Ab-2aB)}{a^4}-\frac{b(3Ab-2aB)\log(a+bx)}{a^4}+\frac{2Ab-aB}{a^3x}+\frac{b(Ab-aB)}{a^3(a+bx)}-\frac{A}{2a^2x^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^3*(a + b*x)^2),x]
```

```
[Out] -A/(2*a^2*x^2) + (2*A*b - a*B)/(a^3*x) + (b*(A*b - a*B))/(a^3*(a
+ b*x)) + (b*(3*A*b - 2*a*B)*Log[x])/a^4 - (b*(3*A*b - 2*a*B)*Log
[a + b*x])/a^4
```

Rubi in Sympy [A] time = 30.1712, size = 80, normalized size = 0.94

$$-\frac{A}{2a^2x^2}+\frac{b\left(Ab-Ba\right)}{a^3\left(a+bx\right)}+\frac{2Ab-Ba}{a^3x}+\frac{b\left(3Ab-2Ba\right)\log\left(x\right)}{a^4}-\frac{b\left(3Ab-2Ba\right)\log\left(a+bx\right)}{a^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**3/(b*x+a)**2,x)
```

```
[Out] -A/(2*a**2*x**2) + b*(A*b - B*a)/(a**3*(a + b*x)) + (2*A*b - B*a)
/(a**3*x) + b*(3*A*b - 2*B*a)*log(x)/a**4 - b*(3*A*b - 2*B*a)*log
(a + b*x)/a**4
```

Mathematica [A] time = 0.131025, size = 85, normalized size = 1.

$$\frac{-\frac{a\left(a^2(A+2Bx)+abx(4Bx-3A)-6Ab^2x^2\right)}{x^2(a+bx)}+2b\log(x)(3Ab-2aB)+2b(2aB-3Ab)\log(a+bx)}{2a^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^3*(a + b*x)^2),x]
```

```
[Out] (-((a*(-6*A*b^2*x^2 + a^2*(A + 2*B*x) + a*b*x*(-3*A + 4*B*x)))/(x
^2*(a + b*x))) + 2*b*(3*A*b - 2*a*B)*Log[x] + 2*b*(-3*A*b + 2*a*B
)*Log[a + b*x])/(2*a^4)
```

Maple [A] time = 0.016, size = 107, normalized size = 1.3

$$-\frac{A}{2\,a^2x^2}+2\,\frac{Ab}{a^3x}-\frac{B}{a^2x}+3\,\frac{A\ln\left(x\right)b^2}{a^4}-2\,\frac{bB\ln\left(x\right)}{a^3}-3\,\frac{b^2\ln\left(bx+a\right)A}{a^4}+2\,\frac{b\ln\left(bx+a\right)B}{a^3}+\frac{Ab^2}{a^3\left(bx+a\right)}-\frac{Bb}{a^2\left(bx+a\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^3/(b*x+a)^2,x)
```

```
[Out] -1/2*A/a^2/x^2+2/a^3/x*A*b-1/a^2/x*B+3*b^2/a^4*ln(x)*A-2*b/a^3*ln
(x)*B-3*b^2/a^4*ln(b*x+a)*A+2*b/a^3*ln(b*x+a)*B+1/a^3*b^2/(b*x+a)
*A-1/a^2*b/(b*x+a)*B
```

Maxima [A] time = 1.33854, size = 134, normalized size = 1.58

$$-\frac{Aa^2 + 2\left(2\,Bab - 3\,Ab^2\right)x^2 + \left(2\,Ba^2 - 3\,Aab\right)x}{2\left(a^3bx^3 + a^4x^2\right)} + \frac{\left(2\,Bab - 3\,Ab^2\right)\log\left(bx + a\right)}{a^4} - \frac{\left(2\,Bab - 3\,Ab^2\right)\log\left(x\right)}{a^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^2*x^3),x, algorithm="maxima")
```

```
[Out] -1/2*(A*a^2 + 2*(2*B*a*b - 3*A*b^2)*x^2 + (2*B*a^2 - 3*A*a*b)*x)/
(a^3*b*x^3 + a^4*x^2) + (2*B*a*b - 3*A*b^2)*log(b*x + a)/a^4 - (2
*B*a*b - 3*A*b^2)*log(x)/a^4
```

Fricas [A] time = 0.212768, size = 203, normalized size = 2.39

$$-\frac{Aa^3 + 2\left(2\,Ba^2b - 3\,Aab^2\right)x^2 + \left(2\,Ba^3 - 3\,Aa^2b\right)x - 2\left(\left(2\,Bab^2 - 3\,Ab^3\right)x^3 + \left(2\,Ba^2b - 3\,Aab^2\right)x^2\right)\log\left(bx + a\right) + 2\left(\left(2\,Ba\right.\right.}{2\left(a^4bx^3 + a^5x^2\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^2*x^3),x, algorithm="fricas")
```

```
[Out] -1/2*(A*a^3 + 2*(2*B*a^2*b - 3*A*a*b^2)*x^2 + (2*B*a^3 - 3*A*a^2*
b)*x - 2*((2*B*a*b^2 - 3*A*b^3)*x^3 + (2*B*a^2*b - 3*A*a*b^2)*x^2
)*log(b*x + a) + 2*((2*B*a*b^2 - 3*A*b^3)*x^3 + (2*B*a^2*b - 3*A*
a*b^2)*x^2)*log(x))/(a^4*b*x^3 + a^5*x^2)
```

Sympy [A] time = 4.58925, size = 184, normalized size = 2.16

$$-\frac{Aa^2 + x^2\left(-6Ab^2 + 4Bab\right) + x\left(-3Aab + 2Ba^2\right)}{2a^4x^2 + 2a^3bx^3} - \frac{b\left(-3Ab + 2Ba\right)\log\left(x + \frac{-3Aab^2 + 2Ba^2b - ab(-3Ab + 2Ba)}{-6Ab^3 + 4Bab^2}\right)}{a^4} + \frac{b\left(-3Ab + 2Ba\right)\log\left(x + \frac{-3Aab^2 + 2Ba^2b + ab(-3Ab + 2Ba)}{-6Ab^3 + 4Bab^2}\right)}{a^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**3/(b*x+a)**2,x)
```

```
[Out] -(A*a**2 + x**2*(-6*A*b**2 + 4*B*a*b) + x*(-3*A*a*b + 2*B*a**2))/
(2*a**4*x**2 + 2*a**3*b*x**3) - b*(-3*A*b + 2*B*a)*log(x + (-3*A*
a*b**2 + 2*B*a**2*b - a*b*(-3*A*b + 2*B*a))/(-6*A*b**3 + 4*B*a*b*
*2))/a**4 + b*(-3*A*b + 2*B*a)*log(x + (-3*A*a*b**2 + 2*B*a**2*b
+ a*b*(-3*A*b + 2*B*a))/(-6*A*b**3 + 4*B*a*b**2))/a**4
```

GIAC/XCAS [A] time = 0.424267, size = 176, normalized size = 2.07

$$-\frac{\left(2\,Bab^{2}-3\,Ab^{3}\right)\ln\left(\left|-\frac{a}{bx+a}+1\right|\right)}{a^{4}b}-\frac{\frac{Bab^{4}}{bx+a}-\frac{Ab^{5}}{bx+a}}{a^{3}b^{3}}-\frac{2\,Bab-5\,Ab^{2}-\frac{2\left(Ba^{2}b^{2}-3\,Aab^{3}\right)}{(bx+a)b}}{2\,a^{4}\left(\frac{a}{bx+a}-1\right)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^2*x^3),x, algorithm="giac")
```

```
[Out] -(2*B*a*b^2 - 3*A*b^3)*ln(abs(-a/(b*x + a) + 1))/(a^4*b) - (B*a*b
^4/(b*x + a) - A*b^5/(b*x + a))/(a^3*b^3) - 1/2*(2*B*a*b - 5*A*b^
2 - 2*(B*a^2*b^2 - 3*A*a*b^3)/((b*x + a)*b))/(a^4*(a/(b*x + a) -
1)^2)
```

3.161 $\int \frac{A+Bx}{x^4(a+bx)^2} dx$

Optimal. Leaf size=113

$$-\frac{b^2\log(x)(4Ab-3aB)}{a^5}+\frac{b^2(4Ab-3aB)\log(a+bx)}{a^5}-\frac{b^2(Ab-aB)}{a^4(a+bx)}-\frac{b(3Ab-2aB)}{a^4x}+\frac{2Ab-aB}{2a^3x^2}-\frac{A}{3a^2x^3}$$

```
[Out] -A/(3*a^2*x^3) + (2*A*b - a*B)/(2*a^3*x^2) - (b*(3*A*b - 2*a*B))/
(a^4*x) - (b^2*(A*b - a*B))/(a^4*(a + b*x)) - (b^2*(4*A*b - 3*a*B
)*Log[x])/a^5 + (b^2*(4*A*b - 3*a*B)*Log[a + b*x])/a^5
```

Rubi [A] time = 0.219224, antiderivative size = 113, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{b^2\log(x)(4Ab-3aB)}{a^5}+\frac{b^2(4Ab-3aB)\log(a+bx)}{a^5}-\frac{b^2(Ab-aB)}{a^4(a+bx)}-\frac{b(3Ab-2aB)}{a^4x}+\frac{2Ab-aB}{2a^3x^2}-\frac{A}{3a^2x^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^4*(a + b*x)^2),x]
```

```
[Out] -A/(3*a^2*x^3) + (2*A*b - a*B)/(2*a^3*x^2) - (b*(3*A*b - 2*a*B))/
(a^4*x) - (b^2*(A*b - a*B))/(a^4*(a + b*x)) - (b^2*(4*A*b - 3*a*B
)*Log[x])/a^5 + (b^2*(4*A*b - 3*a*B)*Log[a + b*x])/a^5
```

Rubi in Sympy [A] time = 39.6892, size = 105, normalized size = 0.93

$$-\frac{A}{3a^2x^3}+\frac{2Ab-Ba}{2a^3x^2}-\frac{b^2\left(Ab-Ba\right)}{a^4\left(a+bx\right)}-\frac{b\left(3Ab-2Ba\right)}{a^4x}-\frac{b^2\left(4Ab-3Ba\right)\log\left(x\right)}{a^5}+\frac{b^2\left(4Ab-3Ba\right)\log\left(a+bx\right)}{a^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**4/(b*x+a)**2,x)
```

```
[Out] -A/(3*a**2*x**3) + (2*A*b - B*a)/(2*a**3*x**2) - b**2*(A*b - B*a)
/(a**4*(a + b*x)) - b*(3*A*b - 2*B*a)/(a**4*x) - b**2*(4*A*b - 3*
B*a)*log(x)/a**5 + b**2*(4*A*b - 3*B*a)*log(a + b*x)/a**5
```

Mathematica [A] time = 0.176734, size = 106, normalized size = 0.94

$$\frac{-\frac{2a^3A}{x^3}-\frac{3a^2(aB-2Ab)}{x^2}+\frac{6ab^2(aB-Ab)}{a+bx}+6b^2\log(x)(3aB-4Ab)+6b^2(4Ab-3aB)\log(a+bx)+\frac{6ab(2aB-3Ab)}{x}}{6a^5}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^4*(a + b*x)^2),x]
```

```
[Out] ((-2*a^3*A)/x^3 - (3*a^2*(-2*A*b + a*B))/x^2 + (6*a*b*(-3*A*b + 2
*a*B))/x + (6*a*b^2*(-(A*b) + a*B))/(a + b*x) + 6*b^2*(-4*A*b + 3
*a*B)*Log[x] + 6*b^2*(4*A*b - 3*a*B)*Log[a + b*x])/(6*a^5)
```

Maple [A] time = 0.017, size = 134, normalized size = 1.2

$$-\frac{A}{3\,a^2x^3}+\frac{Ab}{a^3x^2}-\frac{B}{2\,a^2x^2}-3\,\frac{Ab^2}{a^4x}+2\,\frac{Bb}{a^3x}-4\,\frac{A\ln(x)\,b^3}{a^5}+3\,\frac{b^2B\ln(x)}{a^4}+4\,\frac{b^3\ln(bx+a)\,A}{a^5}-3\,\frac{b^2\ln(bx+a)\,B}{a^4}-\frac{Ab^3}{a^4\,(bx+a)}+\frac{Bb^2}{a^3\,(bx+a)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^4/(b*x+a)^2,x)
```

```
[Out] -1/3*A/a^2/x^3+1/a^3/x^2*A*b-1/2/a^2/x^2*B-3/a^4*b^2/x*A+2/a^3*b/
x*B-4*b^3/a^5*ln(x)*A+3*b^2/a^4*ln(x)*B+4*b^3/a^5*ln(b*x+a)*A-3*b
^2/a^4*ln(b*x+a)*B-1/a^4*b^3/(b*x+a)*A+1/a^3*b^2/(b*x+a)*B
```

Maxima [A] time = 1.33457, size = 173, normalized size = 1.53

$$-\frac{2\,Aa^3-6\,\left(3\,Bab^2-4\,Ab^3\right)x^3-3\,\left(3\,Ba^2b-4\,Aab^2\right)x^2+\left(3\,Ba^3-4\,Aa^2b\right)x}{6\,\left(a^4bx^4+a^5x^3\right)}-\frac{\left(3\,Bab^2-4\,Ab^3\right)\log\left(bx+a\right)}{a^5}+\frac{\left(3\,Bab^2-4\,Ab^3\right)\log\left(x\right)}{a^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^2*x^4),x, algorithm="maxima")
```

```
[Out] -1/6*(2*A*a^3 - 6*(3*B*a*b^2 - 4*A*b^3)*x^3 - 3*(3*B*a^2*b - 4*A*
a*b^2)*x^2 + (3*B*a^3 - 4*A*a^2*b)*x)/(a^4*b*x^4 + a^5*x^3) - (3*
B*a*b^2 - 4*A*b^3)*log(b*x + a)/a^5 + (3*B*a*b^2 - 4*A*b^3)*log(x
)/a^5
```

Fricas [A] time = 0.211719, size = 242, normalized size = 2.14

$$-\frac{2\,Aa^4-6\,\left(3\,Ba^2b^2-4\,Aab^3\right)x^3-3\,\left(3\,Ba^3b-4\,Aa^2b^2\right)x^2+\left(3\,Ba^4-4\,Aa^3b\right)x+6\,\left(\left(3\,Bab^3-4\,Ab^4\right)x^4+\left(3\,Ba^2b^2-4\,Aa\right.\right.}{6\,\left(a^5bx^4+a^6x^3\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^2*x^4),x, algorithm="fricas")
```

```
[Out] -1/6*(2*A*a^4 - 6*(3*B*a^2*b^2 - 4*A*a*b^3)*x^3 - 3*(3*B*a^3*b -
4*A*a^2*b^2)*x^2 + (3*B*a^4 - 4*A*a^3*b)*x + 6*((3*B*a*b^3 - 4*A*
b^4)*x^4 + (3*B*a^2*b^2 - 4*A*a*b^3)*x^3)*log(b*x + a) - 6*((3*B*
a*b^3 - 4*A*b^4)*x^4 + (3*B*a^2*b^2 - 4*A*a*b^3)*x^3)*log(x))/(a^
5*b*x^4 + a^6*x^3)
```

Sympy [A] time = 5.10393, size = 219, normalized size = 1.94

$$\frac{-2Aa^3+x^3\left(-24Ab^3+18Bab^2\right)+x^2\left(-12Aab^2+9Ba^2b\right)+x\left(4Aa^2b-3Ba^3\right)}{6a^5x^3+6a^4bx^4}+\frac{b^2\left(-4Ab+3Ba\right)\log\left(x+\frac{-4Aab^3+3Ba^2b^2-ab^2(-4Ab+3Ba)}{-8Ab^4+6Bab^3}\right)}{a^5}-\frac{b^2\left(-4Ab+3Ba\right)\log\left(x+\frac{-4Aab^3+3Ba^2b^2+ab^2(-4Ab+3Ba)}{-8Ab^4+6Bab^3}\right)}{a^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**4/(b*x+a)**2,x)
```

```
[Out] (-2*A*a**3 + x**3*(-24*A*b**3 + 18*B*a*b**2) + x**2*(-12*A*a*b**2
 + 9*B*a**2*b) + x*(4*A*a**2*b - 3*B*a**3))/(6*a**5*x**3 + 6*a**4
*b*x**4) + b**2*(-4*A*b + 3*B*a)*log(x + (-4*A*a*b**3 + 3*B*a**2*
b**2 - a*b**2*(-4*A*b + 3*B*a))/(-8*A*b**4 + 6*B*a*b**3))/a**5 -
b**2*(-4*A*b + 3*B*a)*log(x + (-4*A*a*b**3 + 3*B*a**2*b**2 + a*b*
```

```
*2*(-4*A*b + 3*B*a))/(-8*A*b**4 + 6*B*a*b**3))/a**5
```

GIAC/XCAS [A] time = 0.261863, size = 217, normalized size = 1.92

$$\frac{\left(3\,Bab^3-4\,Ab^4\right)\ln\left(\left|-\frac{a}{bx+a}+1\right|\right)}{a^5b}+\frac{\frac{Bab^6}{bx+a}-\frac{Ab^7}{bx+a}}{a^4b^4}-\frac{15\,Bab^2-26\,Ab^3-\frac{3\left(11\,Ba^2b^3-20\,Aab^4\right)}{(bx+a)b}+\frac{18\left(Ba^3b^4-2\,Aa^2b^5\right)}{(bx+a)^2b^2}}{6\,a^5\left(\frac{a}{bx+a}-1\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^2*x^4),x, algorithm="giac")
```

```
[Out] (3*B*a*b^3 - 4*A*b^4)*ln(abs(-a/(b*x + a) + 1))/(a^5*b) + (B*a*b^
6/(b*x + a) - A*b^7/(b*x + a))/(a^4*b^4) - 1/6*(15*B*a*b^2 - 26*A
*b^3 - 3*(11*B*a^2*b^3 - 20*A*a*b^4)/((b*x + a)*b) + 18*(B*a^3*b^
4 - 2*A*a^2*b^5)/((b*x + a)^2*b^2))/(a^5*(a/(b*x + a) - 1)^3)
```

3.162 $\int \frac{x^4(A+Bx)}{(a+bx)^3}\,dx$

Optimal. Leaf size=116

$$-\frac{a^4(Ab-aB)}{2b^6(a+bx)^2}+\frac{a^3(4Ab-5aB)}{b^6(a+bx)}+\frac{2a^2(3Ab-5aB)\log(a+bx)}{b^6}-\frac{3ax(Ab-2aB)}{b^5}+\frac{x^2(Ab-3aB)}{2b^4}+\frac{Bx^3}{3b^3}$$

```
[Out] (-3*a*(A*b - 2*a*B)*x)/b^5 + ((A*b - 3*a*B)*x^2)/(2*b^4) + (B*x^3
)/(3*b^3) - (a^4*(A*b - a*B))/(2*b^6*(a + b*x)^2) + (a^3*(4*A*b -
 5*a*B))/(b^6*(a + b*x)) + (2*a^2*(3*A*b - 5*a*B)*Log[a + b*x])/b
^6
```

Rubi [A] time = 0.272835, antiderivative size = 116, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{a^4(Ab-aB)}{2b^6(a+bx)^2}+\frac{a^3(4Ab-5aB)}{b^6(a+bx)}+\frac{2a^2(3Ab-5aB)\log(a+bx)}{b^6}-\frac{3ax(Ab-2aB)}{b^5}+\frac{x^2(Ab-3aB)}{2b^4}+\frac{Bx^3}{3b^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^4*(A + B*x))/(a + b*x)^3,x]
```

```
[Out] (-3*a*(A*b - 2*a*B)*x)/b^5 + ((A*b - 3*a*B)*x^2)/(2*b^4) + (B*x^3
)/(3*b^3) - (a^4*(A*b - a*B))/(2*b^6*(a + b*x)^2) + (a^3*(4*A*b -
 5*a*B))/(b^6*(a + b*x)) + (2*a^2*(3*A*b - 5*a*B)*Log[a + b*x])/b
^6
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{Bx^3}{3b^3}-\frac{a^4\left(Ab-Ba\right)}{2b^6\left(a+bx\right)^2}+\frac{a^3\left(4Ab-5Ba\right)}{b^6\left(a+bx\right)}+\frac{2a^2\left(3Ab-5Ba\right)\log\left(a+bx\right)}{b^6}-\frac{3ax\left(Ab-2Ba\right)}{b^5}+\frac{\left(Ab-3Ba\right)\int x\,dx}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**4*(B*x+A)/(b*x+a)**3,x)
```

```
[Out] B*x**3/(3*b**3) - a**4*(A*b - B*a)/(2*b**6*(a + b*x)**2) + a**3*(
4*A*b - 5*B*a)/(b**6*(a + b*x)) + 2*a**2*(3*A*b - 5*B*a)*log(a +
b*x)/b**6 - 3*a*x*(A*b - 2*B*a)/b**5 + (A*b - 3*B*a)*Integral(x,
x)/b**4
```

Mathematica [A] time = 0.126032, size = 108, normalized size = 0.93

$$\frac{\frac{3a^4(aB-Ab)}{(a+bx)^2}+\frac{6a^3(4Ab-5aB)}{a+bx}-12a^2(5aB-3Ab)\log(a+bx)+3b^2x^2(Ab-3aB)+18abx(2aB-Ab)+2b^3Bx^3}{6b^6}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^4*(A + B*x))/(a + b*x)^3,x]
```

```
[Out] (18*a*b*(-(A*b) + 2*a*B)*x + 3*b^2*(A*b - 3*a*B)*x^2 + 2*b^3*B*x^
3 + (3*a^4*(-(A*b) + a*B))/(a + b*x)^2 + (6*a^3*(4*A*b - 5*a*B))/
(a + b*x) - 12*a^2*(-3*A*b + 5*a*B)*Log[a + b*x])/(6*b^6)
```

Maple [A] time = 0.017, size = 142, normalized size = 1.2

$$\frac{Bx^3}{3\,b^3}+\frac{Ax^2}{2\,b^3}-\frac{3\,Bx^2a}{2\,b^4}-3\,\frac{aAx}{b^4}+6\,\frac{a^2Bx}{b^5}+6\,\frac{a^2\ln(bx+a)\,A}{b^5}-10\,\frac{a^3\ln(bx+a)\,B}{b^6}+4\,\frac{Aa^3}{(bx+a)\,b^5}-5\,\frac{Ba^4}{(bx+a)\,b^6}-\frac{a^4A}{2\,(bx+a)^2\,b^5}+\frac{Ba^5}{2\,(bx+a)^2\,b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^4*(B*x+A)/(b*x+a)^3,x)
```

```
[Out] 1/3*B*x^3/b^3+1/2/b^3*A*x^2-3/2/b^4*B*x^2*a-3/b^4*a*A*x+6/b^5*a^2
*B*x+6*a^2/b^5*ln(b*x+a)*A-10*a^3/b^6*ln(b*x+a)*B+4*a^3/(b*x+a)/b
^5*A-5*a^4/(b*x+a)/b^6*B-1/2*a^4/(b*x+a)^2/b^5*A+1/2*a^5/(b*x+a)^
2/b^6*B
```

Maxima [A] time = 1.33707, size = 180, normalized size = 1.55

$$-\frac{9\,Ba^5-7\,Aa^4b+2\left(5\,Ba^4b-4\,Aa^3b^2\right)x}{2\left(b^8x^2+2\,ab^7x+a^2b^6\right)}+\frac{2\,Bb^2x^3-3\left(3\,Bab-Ab^2\right)x^2+18\left(2\,Ba^2-Aab\right)x}{6\,b^5}-\frac{2\left(5\,Ba^3-3\,Aa^2b\right)\log(bx+a)}{b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^4/(b*x + a)^3,x, algorithm="maxima")
```

```
[Out] -1/2*(9*B*a^5 - 7*A*a^4*b + 2*(5*B*a^4*b - 4*A*a^3*b^2)*x)/(b^8*x
^2 + 2*a*b^7*x + a^2*b^6) + 1/6*(2*B*b^2*x^3 - 3*(3*B*a*b - A*b^2
)*x^2 + 18*(2*B*a^2 - A*a*b)*x)/b^5 - 2*(5*B*a^3 - 3*A*a^2*b)*log
(b*x + a)/b^6
```

Fricas [A] time = 0.201878, size = 266, normalized size = 2.29

$$\frac{2\,Bb^5x^5-27\,Ba^5+21\,Aa^4b-\left(5\,Bab^4-3\,Ab^5\right)x^4+4\left(5\,Ba^2b^3-3\,Aab^4\right)x^3+3\left(21\,Ba^3b^2-11\,Aa^2b^3\right)x^2+6\left(Ba^4b+Aa^3b^2\right.}{6\left(b^8x^2+2\,ab^7x+a^2b^6\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^4/(b*x + a)^3,x, algorithm="fricas")
```

```
[Out] 1/6*(2*B*b^5*x^5 - 27*B*a^5 + 21*A*a^4*b - (5*B*a*b^4 - 3*A*b^5)*
x^4 + 4*(5*B*a^2*b^3 - 3*A*a*b^4)*x^3 + 3*(21*B*a^3*b^2 - 11*A*a^
2*b^3)*x^2 + 6*(B*a^4*b + A*a^3*b^2)*x - 12*(5*B*a^5 - 3*A*a^4*b
+ (5*B*a^3*b^2 - 3*A*a^2*b^3)*x^2 + 2*(5*B*a^4*b - 3*A*a^3*b^2)*x
)*log(b*x + a))/(b^8*x^2 + 2*a*b^7*x + a^2*b^6)
```

Sympy [A] time = 5.73194, size = 131, normalized size = 1.13

$$\frac{Bx^3}{3b^3}-\frac{2a^2\left(-3Ab+5Ba\right)\log(a+bx)}{b^6}-\frac{-7Aa^4b+9Ba^5+x\left(-8Aa^3b^2+10Ba^4b\right)}{2a^2b^6+4ab^7x+2b^8x^2}-\frac{x^2\left(-Ab+3Ba\right)}{2b^4}+\frac{x\left(-3Aab+6Ba^2\right)}{b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**4*(B*x+A)/(b*x+a)**3,x)
```

```
[Out] B*x**3/(3*b**3) - 2*a**2*(-3*A*b + 5*B*a)*log(a + b*x)/b**6 - (-7
*A*a**4*b + 9*B*a**5 + x*(-8*A*a**3*b**2 + 10*B*a**4*b))/(2*a**2*
b**6 + 4*a*b**7*x + 2*b**8*x**2) - x**2*(-A*b + 3*B*a)/(2*b**4) +
 x*(-3*A*a*b + 6*B*a**2)/b**5
```

GIAC/XCAS [A] time = 0.247127, size = 169, normalized size = 1.46

$$-\frac{2\left(5\,Ba^{3}-3\,Aa^{2}b\right)\ln\left(\left|bx+a\right|\right)}{b^{6}}-\frac{9\,Ba^{5}-7\,Aa^{4}b+2\left(5\,Ba^{4}b-4\,Aa^{3}b^{2}\right)x}{2\,(bx+a)^{2}b^{6}}+\frac{2\,Bb^{6}x^{3}-9\,Bab^{5}x^{2}+3\,Ab^{6}x^{2}+36\,Ba^{2}b^{4}x-18\,Aab^{5}x}{6\,b^{9}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^4/(b*x + a)^3,x, algorithm="giac")
```

```
[Out] -2*(5*B*a^3 - 3*A*a^2*b)*ln(abs(b*x + a))/b^6 - 1/2*(9*B*a^5 - 7*
A*a^4*b + 2*(5*B*a^4*b - 4*A*a^3*b^2)*x)/((b*x + a)^2*b^6) + 1/6*
(2*B*b^6*x^3 - 9*B*a*b^5*x^2 + 3*A*b^6*x^2 + 36*B*a^2*b^4*x - 18*
A*a*b^5*x)/b^9
```

3.163 $\int \frac{x^3(A+Bx)}{(a+bx)^3}\,dx$

Optimal. Leaf size=94

$$\frac{a^3(Ab-aB)}{2b^5(a+bx)^2}-\frac{a^2(3Ab-4aB)}{b^5(a+bx)}-\frac{3a(Ab-2aB)\log(a+bx)}{b^5}+\frac{x(Ab-3aB)}{b^4}+\frac{Bx^2}{2b^3}$$

```
[Out] ((A*b - 3*a*B)*x)/b^4 + (B*x^2)/(2*b^3) + (a^3*(A*b - a*B))/(2*b^
5*(a + b*x)^2) - (a^2*(3*A*b - 4*a*B))/(b^5*(a + b*x)) - (3*a*(A*
b - 2*a*B)*Log[a + b*x])/b^5
```

Rubi [A] time = 0.204213, antiderivative size = 94, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$\frac{a^3(Ab-aB)}{2b^5(a+bx)^2}-\frac{a^2(3Ab-4aB)}{b^5(a+bx)}-\frac{3a(Ab-2aB)\log(a+bx)}{b^5}+\frac{x(Ab-3aB)}{b^4}+\frac{Bx^2}{2b^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^3*(A + B*x))/(a + b*x)^3,x]
```

```
[Out] ((A*b - 3*a*B)*x)/b^4 + (B*x^2)/(2*b^3) + (a^3*(A*b - a*B))/(2*b^
5*(a + b*x)^2) - (a^2*(3*A*b - 4*a*B))/(b^5*(a + b*x)) - (3*a*(A*
b - 2*a*B)*Log[a + b*x])/b^5
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{B\int x\,dx}{b^3}+\frac{a^3\left(Ab-Ba\right)}{2b^5\left(a+bx\right)^2}-\frac{a^2\left(3Ab-4Ba\right)}{b^5\left(a+bx\right)}-\frac{3a\left(Ab-2Ba\right)\log\left(a+bx\right)}{b^5}+\left(Ab-3Ba\right)\int\frac{1}{b^4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3*(B*x+A)/(b*x+a)**3,x)
```

```
[Out] B*Integral(x, x)/b**3 + a**3*(A*b - B*a)/(2*b**5*(a + b*x)**2) -
a**2*(3*A*b - 4*B*a)/(b**5*(a + b*x)) - 3*a*(A*b - 2*B*a)*log(a +
 b*x)/b**5 + (A*b - 3*B*a)*Integral(b**(-4), x)
```

Mathematica [A] time = 0.0903696, size = 86, normalized size = 0.91

$$\frac{\frac{a^3(Ab-aB)}{(a+bx)^2}+\frac{2a^2(4aB-3Ab)}{a+bx}+2bx(Ab-3aB)+6a(2aB-Ab)\log(a+bx)+b^2Bx^2}{2b^5}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^3*(A + B*x))/(a + b*x)^3,x]
```

```
[Out] (2*b*(A*b - 3*a*B)*x + b^2*B*x^2 + (a^3*(A*b - a*B))/(a + b*x)^2
+ (2*a^2*(-3*A*b + 4*a*B))/(a + b*x) + 6*a*(-(A*b) + 2*a*B)*Log[a
 + b*x])/(2*b^5)
```

Maple [A] time = 0.013, size = 117, normalized size = 1.2

$$\frac{Bx^2}{2\,b^3}+\frac{Ax}{b^3}-3\,\frac{Bax}{b^4}-3\,\frac{a\ln(bx+a)\,A}{b^4}+6\,\frac{a^2\ln(bx+a)\,B}{b^5}-3\,\frac{Aa^2}{(bx+a)\,b^4}+4\,\frac{a^3B}{(bx+a)\,b^5}+\frac{a^3A}{2\,(bx+a)^2\,b^4}-\frac{Ba^4}{2\,(bx+a)^2\,b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^3*(B*x+A)/(b*x+a)^3,x)
```

```
[Out] 1/2*B*x^2/b^3+1/b^3*A*x-3/b^4*B*a*x-3*a/b^4*ln(b*x+a)*A+6*a^2/b^5
*ln(b*x+a)*B-3*a^2/(b*x+a)/b^4*A+4*a^3/(b*x+a)/b^5*B+1/2*a^3/(b*x
+a)^2/b^4*A-1/2*a^4/(b*x+a)^2/b^5*B
```

Maxima [A] time = 1.33581, size = 146, normalized size = 1.55

$$\frac{7\,Ba^4-5\,Aa^3b+2\left(4\,Ba^3b-3\,Aa^2b^2\right)x}{2\left(b^7x^2+2\,ab^6x+a^2b^5\right)}+\frac{Bbx^2-2\,(3\,Ba-Ab)x}{2\,b^4}+\frac{3\left(2\,Ba^2-Aab\right)\log(bx+a)}{b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^3/(b*x + a)^3,x, algorithm="maxima")
```

```
[Out] 1/2*(7*B*a^4 - 5*A*a^3*b + 2*(4*B*a^3*b - 3*A*a^2*b^2)*x)/(b^7*x^
2 + 2*a*b^6*x + a^2*b^5) + 1/2*(B*b*x^2 - 2*(3*B*a - A*b)*x)/b^4
+ 3*(2*B*a^2 - A*a*b)*log(b*x + a)/b^5
```

Fricas [A] time = 0.200986, size = 231, normalized size = 2.46

$$\frac{Bb^4x^4+7\,Ba^4-5\,Aa^3b-2\left(2\,Bab^3-Ab^4\right)x^3-\left(11\,Ba^2b^2-4\,Aab^3\right)x^2+2\left(Ba^3b-2\,Aa^2b^2\right)x+6\left(2\,Ba^4-Aa^3b+\left(2\,Ba^2b\right.\right.}{2\left(b^7x^2+2\,ab^6x+a^2b^5\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^3/(b*x + a)^3,x, algorithm="fricas")
```

```
[Out] 1/2*(B*b^4*x^4 + 7*B*a^4 - 5*A*a^3*b - 2*(2*B*a*b^3 - A*b^4)*x^3
- (11*B*a^2*b^2 - 4*A*a*b^3)*x^2 + 2*(B*a^3*b - 2*A*a^2*b^2)*x +
6*(2*B*a^4 - A*a^3*b + (2*B*a^2*b^2 - A*a*b^3)*x^2 + 2*(2*B*a^3*b
 - A*a^2*b^2)*x)*log(b*x + a))/(b^7*x^2 + 2*a*b^6*x + a^2*b^5)
```

Sympy [A] time = 5.20453, size = 105, normalized size = 1.12

$$\frac{Bx^2}{2b^3}+\frac{3a\,(-Ab+2Ba)\log(a+bx)}{b^5}+\frac{-5Aa^3b+7Ba^4+x\left(-6Aa^2b^2+8Ba^3b\right)}{2a^2b^5+4ab^6x+2b^7x^2}-\frac{x\,(-Ab+3Ba)}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**3*(B*x+A)/(b*x+a)**3,x)
```

```
[Out] B*x**2/(2*b**3) + 3*a*(-A*b + 2*B*a)*log(a + b*x)/b**5 + (-5*A*a*
*3*b + 7*B*a**4 + x*(-6*A*a**2*b**2 + 8*B*a**3*b))/(2*a**2*b**5 +
 4*a*b**6*x + 2*b**7*x**2) - x*(-A*b + 3*B*a)/b**4
```

GIAC/XCAS [A] time = 0.289922, size = 135, normalized size = 1.44

$$\frac{3\left(2\,Ba^{2}-Aab\right)\ln\left(|bx+a|\right)}{b^{5}}+\frac{Bb^{3}x^{2}-6\,Bab^{2}x+2\,Ab^{3}x}{2\,b^{6}}+\frac{7\,Ba^{4}-5\,Aa^{3}b+2\left(4\,Ba^{3}b-3\,Aa^{2}b^{2}\right)x}{2\,(bx+a)^{2}b^{5}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^3/(b*x + a)^3,x, algorithm="giac")
```

```
[Out] 3*(2*B*a^2 - A*a*b)*ln(abs(b*x + a))/b^5 + 1/2*(B*b^3*x^2 - 6*B*a
*b^2*x + 2*A*b^3*x)/b^6 + 1/2*(7*B*a^4 - 5*A*a^3*b + 2*(4*B*a^3*b
 - 3*A*a^2*b^2)*x)/((b*x + a)^2*b^5)
```

3.164 $\int \frac{x^2(A+Bx)}{(a+bx)^3}\,dx$

Optimal. Leaf size=71

$$-\frac{a^2(Ab-aB)}{2b^4(a+bx)^2}+\frac{a(2Ab-3aB)}{b^4(a+bx)}+\frac{(Ab-3aB)\log(a+bx)}{b^4}+\frac{Bx}{b^3}$$

```
[Out] (B*x)/b^3 - (a^2*(A*b - a*B))/(2*b^4*(a + b*x)^2) + (a*(2*A*b - 3
*a*B))/(b^4*(a + b*x)) + ((A*b - 3*a*B)*Log[a + b*x])/b^4
```

Rubi [A] time = 0.148667, antiderivative size = 71, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{a^2(Ab-aB)}{2b^4(a+bx)^2}+\frac{a(2Ab-3aB)}{b^4(a+bx)}+\frac{(Ab-3aB)\log(a+bx)}{b^4}+\frac{Bx}{b^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^2*(A + B*x))/(a + b*x)^3,x]
```

```
[Out] (B*x)/b^3 - (a^2*(A*b - a*B))/(2*b^4*(a + b*x)^2) + (a*(2*A*b - 3
*a*B))/(b^4*(a + b*x)) + ((A*b - 3*a*B)*Log[a + b*x])/b^4
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{a^2\left(Ab-Ba\right)}{2b^4\left(a+bx\right)^2}+\frac{a\left(2Ab-3Ba\right)}{b^4\left(a+bx\right)}+\frac{\int B\,dx}{b^3}+\frac{\left(Ab-3Ba\right)\log\left(a+bx\right)}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(B*x+A)/(b*x+a)**3,x)
```

```
[Out] -a**2*(A*b - B*a)/(2*b**4*(a + b*x)**2) + a*(2*A*b - 3*B*a)/(b**4
*(a + b*x)) + Integral(B, x)/b**3 + (A*b - 3*B*a)*log(a + b*x)/b*
*4
```

Mathematica [A] time = 0.0451, size = 75, normalized size = 1.06

$$\frac{2aAb-3a^2B}{b^4(a+bx)}+\frac{a^3B-a^2Ab}{2b^4(a+bx)^2}+\frac{(Ab-3aB)\log(a+bx)}{b^4}+\frac{Bx}{b^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^2*(A + B*x))/(a + b*x)^3,x]
```

```
[Out] (B*x)/b^3 + (-(a^2*A*b) + a^3*B)/(2*b^4*(a + b*x)^2) + (2*a*A*b -
 3*a^2*B)/(b^4*(a + b*x)) + ((A*b - 3*a*B)*Log[a + b*x])/b^4
```

Maple [A] time = 0.01, size = 94, normalized size = 1.3

$$\frac{Bx}{b^3}+\frac{\ln\left(bx+a\right)A}{b^3}-3\,\frac{\ln\left(bx+a\right)Ba}{b^4}+2\,\frac{aA}{\left(bx+a\right)b^3}-3\,\frac{a^2B}{\left(bx+a\right)b^4}-\frac{a^2A}{2\,\left(bx+a\right)^2b^3}+\frac{a^3B}{2\,\left(bx+a\right)^2b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(B*x+A)/(b*x+a)^3,x)
```

```
[Out] B*x/b^3+1/b^3*ln(b*x+a)*A-3/b^4*ln(b*x+a)*B*a+2*a/(b*x+a)/b^3*A-3
*a^2/(b*x+a)/b^4*B-1/2*a^2/(b*x+a)^2/b^3*A+1/2*a^3/(b*x+a)^2/b^4*
B
```

Maxima [A] time = 1.34258, size = 115, normalized size = 1.62

$$-\frac{5\,Ba^3 - 3\,Aa^2b + 2\left(3\,Ba^2b - 2\,Aab^2\right)x}{2\left(b^6x^2 + 2\,ab^5x + a^2b^4\right)} + \frac{Bx}{b^3} - \frac{\left(3\,Ba - Ab\right)\log\left(bx + a\right)}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^2/(b*x + a)^3,x, algorithm="maxima")
```

```
[Out] -1/2*(5*B*a^3 - 3*A*a^2*b + 2*(3*B*a^2*b - 2*A*a*b^2)*x)/(b^6*x^2
 + 2*a*b^5*x + a^2*b^4) + B*x/b^3 - (3*B*a - A*b)*log(b*x + a)/b^
4
```

Fricas [A] time = 0.205285, size = 181, normalized size = 2.55

$$\frac{2\,Bb^3x^3 + 4\,Bab^2x^2 - 5\,Ba^3 + 3\,Aa^2b - 4\left(Ba^2b - Aab^2\right)x - 2\left(3\,Ba^3 - Aa^2b + \left(3\,Bab^2 - Ab^3\right)x^2 + 2\left(3\,Ba^2b - Aab^2\right)x\right)\log}{2\left(b^6x^2 + 2\,ab^5x + a^2b^4\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^2/(b*x + a)^3,x, algorithm="fricas")
```

```
[Out] 1/2*(2*B*b^3*x^3 + 4*B*a*b^2*x^2 - 5*B*a^3 + 3*A*a^2*b - 4*(B*a^2
*b - A*a*b^2)*x - 2*(3*B*a^3 - A*a^2*b + (3*B*a*b^2 - A*b^3)*x^2
+ 2*(3*B*a^2*b - A*a*b^2)*x)*log(b*x + a))/(b^6*x^2 + 2*a*b^5*x +
 a^2*b^4)
```

Sympy [A] time = 4.42159, size = 83, normalized size = 1.17

$$\frac{Bx}{b^3} - \frac{-3Aa^2b + 5Ba^3 + x\left(-4Aab^2 + 6Ba^2b\right)}{2a^2b^4 + 4ab^5x + 2b^6x^2} - \frac{\left(-Ab + 3Ba\right)\log\left(a + bx\right)}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(B*x+A)/(b*x+a)**3,x)
```

```
[Out] B*x/b**3 - (-3*A*a**2*b + 5*B*a**3 + x*(-4*A*a*b**2 + 6*B*a**2*b)
)/(2*a**2*b**4 + 4*a*b**5*x + 2*b**6*x**2) - (-A*b + 3*B*a)*log(a
 + b*x)/b**4
```

GIAC/XCAS [A] time = 0.253638, size = 97, normalized size = 1.37

$$\frac{Bx}{b^3} - \frac{\left(3\,Ba - Ab\right)\ln\left(|bx + a|\right)}{b^4} - \frac{5\,Ba^3 - 3\,Aa^2b + 2\left(3\,Ba^2b - 2\,Aab^2\right)x}{2\left(bx + a\right)^2b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^2/(b*x + a)^3,x, algorithm="giac")
```

```
[Out] B*x/b^3 - (3*B*a - A*b)*ln(abs(b*x + a))/b^4 - 1/2*(5*B*a^3 - 3*A
*a^2*b + 2*(3*B*a^2*b - 2*A*a*b^2)*x)/((b*x + a)^2*b^4)
```

3.165 $\int \frac{x(A+Bx)}{(a+bx)^3}\,dx$

Optimal. Leaf size=55

$$-\frac{Ab-2aB}{b^3(a+bx)}+\frac{a(Ab-aB)}{2b^3(a+bx)^2}+\frac{B\log(a+bx)}{b^3}$$

```
[Out] (a*(A*b - a*B))/(2*b^3*(a + b*x)^2) - (A*b - 2*a*B)/(b^3*(a + b*x
)) + (B*Log[a + b*x])/b^3
```

Rubi [A] time = 0.0938443, antiderivative size = 55, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 14, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.071

$$-\frac{Ab-2aB}{b^3(a+bx)}+\frac{a(Ab-aB)}{2b^3(a+bx)^2}+\frac{B\log(a+bx)}{b^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(x*(A + B*x))/(a + b*x)^3,x]
```

```
[Out] (a*(A*b - a*B))/(2*b^3*(a + b*x)^2) - (A*b - 2*a*B)/(b^3*(a + b*x
)) + (B*Log[a + b*x])/b^3
```

Rubi in Sympy [A] time = 21.8455, size = 48, normalized size = 0.87

$$\frac{B\log\left(a+bx\right)}{b^3}+\frac{a\left(Ab-Ba\right)}{2b^3\left(a+bx\right)^2}-\frac{Ab-2Ba}{b^3\left(a+bx\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(B*x+A)/(b*x+a)**3,x)
```

```
[Out] B*log(a + b*x)/b**3 + a*(A*b - B*a)/(2*b**3*(a + b*x)**2) - (A*b
- 2*B*a)/(b**3*(a + b*x))
```

Mathematica [A] time = 0.0267877, size = 54, normalized size = 0.98

$$\frac{3a^2B-ab(A-4Bx)+2B(a+bx)^2\log(a+bx)-2Ab^2x}{2b^3(a+bx)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x*(A + B*x))/(a + b*x)^3,x]
```

```
[Out] (3*a^2*B - 2*A*b^2*x - a*b*(A - 4*B*x) + 2*B*(a + b*x)^2*Log[a +
b*x])/(2*b^3*(a + b*x)^2)
```

Maple [A] time = 0.01, size = 70, normalized size = 1.3

$$\frac{B\ln\left(bx+a\right)}{b^3}-\frac{A}{\left(bx+a\right)b^2}+2\,\frac{Ba}{\left(bx+a\right)b^3}+\frac{Aa}{2\,b^2\left(bx+a\right)^2}-\frac{a^2B}{2\,b^3\left(bx+a\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(B*x+A)/(b*x+a)^3,x)
```

```
[Out] B*ln(b*x+a)/b^3-1/(b*x+a)/b^2*A+2/(b*x+a)/b^3*B*a+1/2*a/b^2/(b*x+
a)^2*A-1/2*a^2/b^3/(b*x+a)^2*B
```

Maxima [A] time = 1.35896, size = 88, normalized size = 1.6

$$\frac{3\,Ba^2 - Aab + 2\,\left(2\,Bab - Ab^2\right)x}{2\,(b^5x^2 + 2\,ab^4x + a^2b^3)} + \frac{B\log\left(bx + a\right)}{b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x/(b*x + a)^3,x, algorithm="maxima")
```

```
[Out] 1/2*(3*B*a^2 - A*a*b + 2*(2*B*a*b - A*b^2)*x)/(b^5*x^2 + 2*a*b^4*
x + a^2*b^3) + B*log(b*x + a)/b^3
```

Fricas [A] time = 0.201545, size = 109, normalized size = 1.98

$$\frac{3\,Ba^2 - Aab + 2\,\left(2\,Bab - Ab^2\right)x + 2\,\left(Bb^2x^2 + 2\,Babx + Ba^2\right)\log\left(bx + a\right)}{2\,(b^5x^2 + 2\,ab^4x + a^2b^3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x/(b*x + a)^3,x, algorithm="fricas")
```

```
[Out] 1/2*(3*B*a^2 - A*a*b + 2*(2*B*a*b - A*b^2)*x + 2*(B*b^2*x^2 + 2*B
*a*b*x + B*a^2)*log(b*x + a))/(b^5*x^2 + 2*a*b^4*x + a^2*b^3)
```

Sympy [A] time = 3.21818, size = 63, normalized size = 1.15

$$\frac{B\log\left(a + bx\right)}{b^3} + \frac{-Aab + 3Ba^2 + x\left(-2Ab^2 + 4Bab\right)}{2a^2b^3 + 4ab^4x + 2b^5x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(B*x+A)/(b*x+a)**3,x)
```

```
[Out] B*log(a + b*x)/b**3 + (-A*a*b + 3*B*a**2 + x*(-2*A*b**2 + 4*B*a*b
))/(2*a**2*b**3 + 4*a*b**4*x + 2*b**5*x**2)
```

GIAC/XCAS [A] time = 0.27948, size = 73, normalized size = 1.33

$$\frac{B\ln\left(|bx + a|\right)}{b^3} + \frac{2\,(2\,Ba - Ab)x + \frac{3\,Ba^2 - Aab}{b}}{2\,(bx + a)^2b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x/(b*x + a)^3,x, algorithm="giac")
```

```
[Out] B*ln(abs(b*x + a))/b^3 + 1/2*(2*(2*B*a - A*b)*x + (3*B*a^2 - A*a*
b)/b)/((b*x + a)^2*b^2)
```

3.166 $\int \frac{A+Bx}{(a+bx)^3} dx$

Optimal. Leaf size=28

$$-\frac{(A+Bx)^2}{2(a+bx)^2(Ab-aB)}$$

```
[Out] -(A + B*x)^2/(2*(A*b - a*B)*(a + b*x)^2)
```

Rubi [A] time = 0.0202277, antiderivative size = 28, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 13, $\frac{\text{number of rules}}{\text{integrand size}} = 0.077$

$$-\frac{(A+Bx)^2}{2(a+bx)^2(Ab-aB)}$$

Antiderivative was successfully verified.

```
[In] Int[(A + B*x)/(a + b*x)^3,x]
```

```
[Out] -(A + B*x)^2/(2*(A*b - a*B)*(a + b*x)^2)
```

Rubi in Sympy [A] time = 5.51431, size = 22, normalized size = 0.79

$$-\frac{(A+Bx)^2}{2\,(a+bx)^2\,(Ab-Ba)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((B*x+A)/(b*x+a)**3,x)
```

```
[Out] -(A + B*x)**2/(2*(a + b*x)**2*(A*b - B*a))
```

Mathematica [A] time = 0.0149541, size = 26, normalized size = 0.93

$$-\frac{B(a+2bx)+Ab}{2b^2(a+bx)^2}$$

Antiderivative was successfully verified.

```
[In] Integrate[(A + B*x)/(a + b*x)^3,x]
```

```
[Out] -(A*b + B*(a + 2*b*x))/(2*b^2*(a + b*x)^2)
```

Maple [A] time = 0.006, size = 35, normalized size = 1.3

$$-\frac{B}{(bx+a)\,b^2}-\frac{Ab-Ba}{2\,b^2\,(bx+a)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((B*x+A)/(b*x+a)^3,x)
```

```
[Out] -B/(b*x+a)/b^2-1/2*(A*b-B*a)/b^2/(b*x+a)^2
```

Maxima [A] time = 1.3264, size = 51, normalized size = 1.82

$$-\frac{2\,Bbx + Ba + Ab}{2\,(b^4x^2 + 2\,ab^3x + a^2b^2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(b*x + a)^3,x, algorithm="maxima")

[Out] -1/2*(2*B*b*x + B*a + A*b)/(b^4*x^2 + 2*a*b^3*x + a^2*b^2)
```

Fricas [A] time = 0.198636, size = 51, normalized size = 1.82

$$-\frac{2\,Bbx + Ba + Ab}{2\,(b^4x^2 + 2\,ab^3x + a^2b^2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(b*x + a)^3,x, algorithm="fricas")

[Out] -1/2*(2*B*b*x + B*a + A*b)/(b^4*x^2 + 2*a*b^3*x + a^2*b^2)
```

Sympy [A] time = 2.732, size = 39, normalized size = 1.39

$$-\frac{Ab + Ba + 2Bbx}{2a^2b^2 + 4ab^3x + 2b^4x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(b*x+a)**3,x)

[Out] -(A*b + B*a + 2*B*b*x)/(2*a**2*b**2 + 4*a*b**3*x + 2*b**4*x**2)
```

GIAC/XCAS [A] time = 0.292224, size = 32, normalized size = 1.14

$$-\frac{2\,Bbx + Ba + Ab}{2\,(bx + a)^2b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(b*x + a)^3,x, algorithm="giac")

[Out] -1/2*(2*B*b*x + B*a + A*b)/((b*x + a)^2*b^2)
```

3.167 $\int \frac{A+Bx}{x(a+bx)^3}\,dx$

Optimal. Leaf size=57

$$-\frac{A\log(a+bx)}{a^3}+\frac{A\log(x)}{a^3}+\frac{A}{a^2(a+bx)}+\frac{Ab-aB}{2ab(a+bx)^2}$$

```
[Out] (A*b - a*B)/(2*a*b*(a + b*x)^2) + A/(a^2*(a + b*x)) + (A*Log[x])/
a^3 - (A*Log[a + b*x])/a^3
```

Rubi [A] time = 0.0880827, antiderivative size = 57, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{A\log(a+bx)}{a^3}+\frac{A\log(x)}{a^3}+\frac{A}{a^2(a+bx)}+\frac{Ab-aB}{2ab(a+bx)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x*(a + b*x)^3),x]
```

```
[Out] (A*b - a*B)/(2*a*b*(a + b*x)^2) + A/(a^2*(a + b*x)) + (A*Log[x])/
a^3 - (A*Log[a + b*x])/a^3
```

Rubi in Sympy [A] time = 21.5527, size = 48, normalized size = 0.84

$$\frac{A}{a^2\,(a+bx)}+\frac{A\log{(x)}}{a^3}-\frac{A\log{(a+bx)}}{a^3}+\frac{Ab-Ba}{2ab\,(a+bx)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x/(b*x+a)**3,x)
```

```
[Out] A/(a**2*(a + b*x)) + A*log(x)/a**3 - A*log(a + b*x)/a**3 + (A*b -
 B*a)/(2*a*b*(a + b*x)**2)
```

Mathematica [A] time = 0.0755806, size = 53, normalized size = 0.93

$$\frac{\frac{a(a^2(-B)+3aAb+2Ab^2x)}{b(a+bx)^2}-2A\log(a+bx)+2A\log(x)}{2a^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x*(a + b*x)^3),x]
```

```
[Out] ((a*(3*a*A*b - a^2*B + 2*A*b^2*x))/(b*(a + b*x)^2) + 2*A*Log[x] -
 2*A*Log[a + b*x])/(2*a^3)
```

Maple [A] time = 0.011, size = 59, normalized size = 1.

$$\frac{A\ln{(x)}}{a^3}+\frac{A}{2\,a\,(bx+a)^2}-\frac{B}{2\,(bx+a)^2\,b}-\frac{A\ln{(bx+a)}}{a^3}+\frac{A}{a^2\,(bx+a)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x/(b*x+a)^3,x)
```

```
[Out] A*ln(x)/a^3+1/2/a/(b*x+a)^2*A-1/2*B/(b*x+a)^2/b-A*ln(b*x+a)/a^3+A
/a^2/(b*x+a)
```

Maxima [A] time = 1.33537, size = 92, normalized size = 1.61

$$\frac{2\,Ab^2x - Ba^2 + 3\,Aab}{2\,(a^2b^3x^2 + 2\,a^3b^2x + a^4b)} - \frac{A\log(bx+a)}{a^3} + \frac{A\log(x)}{a^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^3*x),x, algorithm="maxima")
```

```
[Out] 1/2*(2*A*b^2*x - B*a^2 + 3*A*a*b)/(a^2*b^3*x^2 + 2*a^3*b^2*x + a^
4*b) - A*log(b*x + a)/a^3 + A*log(x)/a^3
```

Fricas [A] time = 0.208558, size = 147, normalized size = 2.58

$$\frac{2\,Aab^2x - Ba^3 + 3\,Aa^2b - 2\,\left(Ab^3x^2 + 2\,Aab^2x + Aa^2b\right)\log(bx+a) + 2\,\left(Ab^3x^2 + 2\,Aab^2x + Aa^2b\right)\log(x)}{2\,(a^3b^3x^2 + 2\,a^4b^2x + a^5b)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^3*x),x, algorithm="fricas")
```

```
[Out] 1/2*(2*A*a*b^2*x - B*a^3 + 3*A*a^2*b - 2*(A*b^3*x^2 + 2*A*a*b^2*x
 + A*a^2*b)*log(b*x + a) + 2*(A*b^3*x^2 + 2*A*a*b^2*x + A*a^2*b)*
log(x))/(a^3*b^3*x^2 + 2*a^4*b^2*x + a^5*b)
```

Sympy [A] time = 3.46666, size = 63, normalized size = 1.11

$$\frac{A\left(\log(x) - \log\left(\frac{a}{b} + x\right)\right)}{a^3} + \frac{3Aab + 2Ab^2x - Ba^2}{2a^4b + 4a^3b^2x + 2a^2b^3x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x/(b*x+a)**3,x)
```

```
[Out] A*(log(x) - log(a/b + x))/a**3 + (3*A*a*b + 2*A*b**2*x - B*a**2)/
(2*a**4*b + 4*a**3*b**2*x + 2*a**2*b**3*x**2)
```

GIAC/XCAS [A] time = 0.286087, size = 80, normalized size = 1.4

$$-\frac{A\ln(|bx+a|)}{a^3} + \frac{A\ln(|x|)}{a^3} + \frac{2\,Aab^2x - Ba^3 + 3\,Aa^2b}{2\,(bx+a)^2a^3b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^3*x),x, algorithm="giac")
```

```
[Out] -A*ln(abs(b*x + a))/a^3 + A*ln(abs(x))/a^3 + 1/2*(2*A*a*b^2*x - B
*a^3 + 3*A*a^2*b)/((b*x + a)^2*a^3*b)
```

3.168 $\int \frac{A+Bx}{x^2(a+bx)^3}\,dx$

Optimal. Leaf size=88

$$-\frac{\log(x)(3Ab-aB)}{a^4}+\frac{(3Ab-aB)\log(a+bx)}{a^4}-\frac{2Ab-aB}{a^3(a+bx)}-\frac{A}{a^3x}-\frac{Ab-aB}{2a^2(a+bx)^2}$$

```
[Out] -(A/(a^3*x)) - (A*b - a*B)/(2*a^2*(a + b*x)^2) - (2*A*b - a*B)/(a
^3*(a + b*x)) - ((3*A*b - a*B)*Log[x])/a^4 + ((3*A*b - a*B)*Log[a
 + b*x])/a^4
```

Rubi [A] time = 0.164836, antiderivative size = 88, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{\log(x)(3Ab-aB)}{a^4}+\frac{(3Ab-aB)\log(a+bx)}{a^4}-\frac{2Ab-aB}{a^3(a+bx)}-\frac{A}{a^3x}-\frac{Ab-aB}{2a^2(a+bx)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^2*(a + b*x)^3),x]
```

```
[Out] -(A/(a^3*x)) - (A*b - a*B)/(2*a^2*(a + b*x)^2) - (2*A*b - a*B)/(a
^3*(a + b*x)) - ((3*A*b - a*B)*Log[x])/a^4 + ((3*A*b - a*B)*Log[a
 + b*x])/a^4
```

Rubi in Sympy [A] time = 29.3914, size = 75, normalized size = 0.85

$$-\frac{A}{a^3x}-\frac{Ab-Ba}{2a^2\left(a+bx\right)^2}-\frac{2Ab-Ba}{a^3\left(a+bx\right)}-\frac{(3Ab-Ba)\log\left(x\right)}{a^4}+\frac{(3Ab-Ba)\log\left(a+bx\right)}{a^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**2/(b*x+a)**3,x)
```

```
[Out] -A/(a**3*x) - (A*b - B*a)/(2*a**2*(a + b*x)**2) - (2*A*b - B*a)/(
a**3*(a + b*x)) - (3*A*b - B*a)*log(x)/a**4 + (3*A*b - B*a)*log(a
 + b*x)/a**4
```

Mathematica [A] time = 0.0796838, size = 81, normalized size = 0.92

$$\frac{\frac{a^2(aB-Ab)}{(a+bx)^2}+\frac{2a(aB-2Ab)}{a+bx}+2\log(x)(aB-3Ab)+2(3Ab-aB)\log(a+bx)-\frac{2aA}{x}}{2a^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^2*(a + b*x)^3),x]
```

```
[Out] ((-2*a*A)/x + (a^2*(-(A*b) + a*B))/(a + b*x)^2 + (2*a*(-2*A*b + a
*B))/(a + b*x) + 2*(-3*A*b + a*B)*Log[x] + 2*(3*A*b - a*B)*Log[a
+ b*x])/(2*a^4)
```

Maple [A] time = 0.016, size = 105, normalized size = 1.2

$$-\frac{A}{a^3x}-3\,\frac{A\ln\left(x\right)b}{a^4}+\frac{\ln\left(x\right)B}{a^3}-2\,\frac{Ab}{a^3\left(bx+a\right)}+\frac{B}{a^2\left(bx+a\right)}+3\,\frac{\ln\left(bx+a\right)Ab}{a^4}-\frac{\ln\left(bx+a\right)B}{a^3}-\frac{Ab}{2\,a^2\left(bx+a\right)^2}+\frac{B}{2\,a\left(bx+a\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((B*x+A)/x^2/(b*x+a)^3,x)
```

```
[Out] -A/a^3/x-3/a^4*ln(x)*A*b+1/a^3*ln(x)*B-2*A*b/a^3/(b*x+a)+1/a^2/(b
*x+a)*B+3/a^4*ln(b*x+a)*A*b-1/a^3*ln(b*x+a)*B-1/2*A*b/a^2/(b*x+a)
^2+1/2/a/(b*x+a)^2*B
```

Maxima [A] time = 1.34988, size = 135, normalized size = 1.53

$$-\frac{2\,Aa^2-2\,\left(Bab-3\,Ab^2\right)x^2-3\,\left(Ba^2-3\,Aab\right)x}{2\,\left(a^3b^2x^3+2\,a^4bx^2+a^5x\right)}-\frac{(Ba-3\,Ab)\log\left(bx+a\right)}{a^4}+\frac{(Ba-3\,Ab)\log\left(x\right)}{a^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)/((b*x + a)^3*x^2),x, algorithm="maxima")
```

```
[Out] -1/2*(2*A*a^2 - 2*(B*a*b - 3*A*b^2)*x^2 - 3*(B*a^2 - 3*A*a*b)*x)/
(a^3*b^2*x^3 + 2*a^4*b*x^2 + a^5*x) - (B*a - 3*A*b)*log(b*x + a)/
a^4 + (B*a - 3*A*b)*log(x)/a^4
```

Fricas [A] time = 0.21139, size = 252, normalized size = 2.86

$$-\frac{2\,Aa^3-2\,\left(Ba^2b-3\,Aab^2\right)x^2-3\,\left(Ba^3-3\,Aa^2b\right)x+2\,\left(\left(Bab^2-3\,Ab^3\right)x^3+2\,\left(Ba^2b-3\,Aab^2\right)x^2+\left(Ba^3-3\,Aa^2b\right)x\right)\log(}{2\,\left(a^4b^2x^3+2\,a^5bx^2+a^6x\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)/((b*x + a)^3*x^2),x, algorithm="fricas")
```

```
[Out] -1/2*(2*A*a^3 - 2*(B*a^2*b - 3*A*a*b^2)*x^2 - 3*(B*a^3 - 3*A*a^2*
b)*x + 2*((B*a*b^2 - 3*A*b^3)*x^3 + 2*(B*a^2*b - 3*A*a*b^2)*x^2 +
 (B*a^3 - 3*A*a^2*b)*x)*log(b*x + a) - 2*((B*a*b^2 - 3*A*b^3)*x^3
 + 2*(B*a^2*b - 3*A*a*b^2)*x^2 + (B*a^3 - 3*A*a^2*b)*x)*log(x))/(
a^4*b^2*x^3 + 2*a^5*b*x^2 + a^6*x)
```

Sympy [A] time = 4.83799, size = 168, normalized size = 1.91

$$\frac{-2Aa^2+x^2\left(-6Ab^2+2Bab\right)+x\left(-9Aab+3Ba^2\right)}{2a^5x+4a^4bx^2+2a^3b^2x^3}+\frac{(-3Ab+Ba)\log\left(x+\frac{-3Aab+Ba^2-a(-3Ab+Ba)}{-6Ab^2+2Bab}\right)}{a^4}-\frac{(-3Ab+Ba)\log\left(x+\frac{-3Aab+Ba^2+a(-3Ab+Ba)}{-6Ab^2+2Bab}\right)}{a^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x+A)/x**2/(b*x+a)**3,x)
```

```
[Out] (-2*A*a**2 + x**2*(-6*A*b**2 + 2*B*a*b) + x*(-9*A*a*b + 3*B*a**2)
)/(2*a**5*x + 4*a**4*b*x**2 + 2*a**3*b**2*x**3) + (-3*A*b + B*a)*
log(x + (-3*A*a*b + B*a**2 - a*(-3*A*b + B*a))/(-6*A*b**2 + 2*B*a
*b))/a**4 - (-3*A*b + B*a)*log(x + (-3*A*a*b + B*a**2 + a*(-3*A*b
 + B*a))/(-6*A*b**2 + 2*B*a*b))/a**4
```

GIAC/XCAS [A] time = 0.256167, size = 134, normalized size = 1.52

$$\frac{(Ba-3\,Ab)\ln\left(|x|\right)}{a^4}-\frac{\left(Bab-3\,Ab^2\right)\ln\left(|bx+a|\right)}{a^4b}-\frac{2\,Aa^3-2\,\left(Ba^2b-3\,Aab^2\right)x^2-3\,\left(Ba^3-3\,Aa^2b\right)x}{2\,(bx+a)^2a^4x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^3*x^2),x, algorithm="giac")
```

```
[Out] (B*a - 3*A*b)*ln(abs(x))/a^4 - (B*a*b - 3*A*b^2)*ln(abs(b*x + a))
/(a^4*b) - 1/2*(2*A*a^3 - 2*(B*a^2*b - 3*A*a*b^2)*x^2 - 3*(B*a^3
- 3*A*a^2*b)*x)/((b*x + a)^2*a^4*x)
```

3.169 $\int \frac{A+Bx}{x^3(a+bx)^3}\,dx$

Optimal. Leaf size=110

$$\frac{3b\log(x)(2Ab-aB)}{a^5}-\frac{3b(2Ab-aB)\log(a+bx)}{a^5}+\frac{3Ab-aB}{a^4x}+\frac{b(3Ab-2aB)}{a^4(a+bx)}+\frac{b(Ab-aB)}{2a^3(a+bx)^2}-\frac{A}{2a^3x^2}$$

```
[Out] -A/(2*a^3*x^2) + (3*A*b - a*B)/(a^4*x) + (b*(A*b - a*B))/(2*a^3*(
a + b*x)^2) + (b*(3*A*b - 2*a*B))/(a^4*(a + b*x)) + (3*b*(2*A*b -
 a*B)*Log[x])/a^5 - (3*b*(2*A*b - a*B)*Log[a + b*x])/a^5
```

Rubi [A] time = 0.215935, antiderivative size = 110, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$\frac{3b\log(x)(2Ab-aB)}{a^5}-\frac{3b(2Ab-aB)\log(a+bx)}{a^5}+\frac{3Ab-aB}{a^4x}+\frac{b(3Ab-2aB)}{a^4(a+bx)}+\frac{b(Ab-aB)}{2a^3(a+bx)^2}-\frac{A}{2a^3x^2}$$

Antiderivative was successfully verified.

```
[In] Int[(A + B*x)/(x^3*(a + b*x)^3),x]
```

```
[Out] -A/(2*a^3*x^2) + (3*A*b - a*B)/(a^4*x) + (b*(A*b - a*B))/(2*a^3*(
a + b*x)^2) + (b*(3*A*b - 2*a*B))/(a^4*(a + b*x)) + (3*b*(2*A*b -
 a*B)*Log[x])/a^5 - (3*b*(2*A*b - a*B)*Log[a + b*x])/a^5
```

Rubi in Sympy [A] time = 39.579, size = 104, normalized size = 0.95

$$-\frac{A}{2a^3x^2}+\frac{b\left(Ab-Ba\right)}{2a^3\left(a+bx\right)^2}+\frac{b\left(3Ab-2Ba\right)}{a^4\left(a+bx\right)}+\frac{3Ab-Ba}{a^4x}+\frac{3b\left(2Ab-Ba\right)\log\left(x\right)}{a^5}-\frac{3b\left(2Ab-Ba\right)\log\left(a+bx\right)}{a^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((B*x+A)/x**3/(b*x+a)**3,x)
```

```
[Out] -A/(2*a**3*x**2) + b*(A*b - B*a)/(2*a**3*(a + b*x)**2) + b*(3*A*b
 - 2*B*a)/(a**4*(a + b*x)) + (3*A*b - B*a)/(a**4*x) + 3*b*(2*A*b
- B*a)*log(x)/a**5 - 3*b*(2*A*b - B*a)*log(a + b*x)/a**5
```

Mathematica [A] time = 0.175514, size = 102, normalized size = 0.93

$$\frac{-\frac{a\left(a^3(A+2Bx)+a^2bx(9Bx-4A)+6ab^2x^2(Bx-3A)-12Ab^3x^3\right)}{x^2(a+bx)^2}+6b\log(x)(2Ab-aB)+6b(aB-2Ab)\log(a+bx)}{2a^5}$$

Antiderivative was successfully verified.

```
[In] Integrate[(A + B*x)/(x^3*(a + b*x)^3),x]
```

```
[Out] (-((a*(-12*A*b^3*x^3 + 6*a*b^2*x^2*(-3*A + B*x) + a^3*(A + 2*B*x)
 + a^2*b*x*(-4*A + 9*B*x)))/(x^2*(a + b*x)^2)) + 6*b*(2*A*b - a*B
)*Log[x] + 6*b*(-2*A*b + a*B)*Log[a + b*x])/(2*a^5)
```

Maple [A] time = 0.017, size = 138, normalized size = 1.3

$$-\frac{A}{2\,a^3x^2}+3\,\frac{Ab}{a^4x}-\frac{B}{a^3x}+6\,\frac{A\ln\left(x\right)b^2}{a^5}-3\,\frac{bB\ln\left(x\right)}{a^4}-6\,\frac{b^2\ln\left(bx+a\right)A}{a^5}+3\,\frac{b\ln\left(bx+a\right)B}{a^4}+3\,\frac{Ab^2}{a^4\left(bx+a\right)}-2\,\frac{Bb}{a^3\left(bx+a\right)}+\frac{Ab^2}{2\,a^3\left(bx+a\right)^2}-\frac{Bb}{2\,a^2\left(bx+a\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((B*x+A)/x^3/(b*x+a)^3,x)
```

```
[Out] -1/2*A/a^3/x^2+3/a^4/x*A*b-1/a^3/x*B+6*b^2/a^5*ln(x)*A-3*b/a^4*ln
(x)*B-6*b^2/a^5*ln(b*x+a)*A+3*b/a^4*ln(b*x+a)*B+3/a^4*b^2/(b*x+a)
*A-2/a^3*b/(b*x+a)*B+1/2/a^3*b^2/(b*x+a)^2*A-1/2/a^2*b/(b*x+a)^2*
B
```

Maxima [A] time = 1.35128, size = 177, normalized size = 1.61

$$-\frac{Aa^3 + 6\left(Bab^2 - 2\,Ab^3\right)x^3 + 9\left(Ba^2b - 2\,Aab^2\right)x^2 + 2\left(Ba^3 - 2\,Aa^2b\right)x}{2\left(a^4b^2x^4 + 2\,a^5bx^3 + a^6x^2\right)} + \frac{3\left(Bab - 2\,Ab^2\right)\log\left(bx + a\right)}{a^5} - \frac{3\left(Bab - 2\,Ab^2\right)\log\left(x\right)}{a^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)/((b*x + a)^3*x^3),x, algorithm="maxima")
```

```
[Out] -1/2*(A*a^3 + 6*(B*a*b^2 - 2*A*b^3)*x^3 + 9*(B*a^2*b - 2*A*a*b^2)
*x^2 + 2*(B*a^3 - 2*A*a^2*b)*x)/(a^4*b^2*x^4 + 2*a^5*b*x^3 + a^6*
x^2) + 3*(B*a*b - 2*A*b^2)*log(b*x + a)/a^5 - 3*(B*a*b - 2*A*b^2)
*log(x)/a^5
```

Fricas [A] time = 0.209108, size = 304, normalized size = 2.76

$$-\frac{Aa^4 + 6\left(Ba^2b^2 - 2\,Aab^3\right)x^3 + 9\left(Ba^3b - 2\,Aa^2b^2\right)x^2 + 2\left(Ba^4 - 2\,Aa^3b\right)x - 6\left(\left(Bab^3 - 2\,Ab^4\right)x^4 + 2\left(Ba^2b^2 - 2\,Aab^3\right)x^3\right.}{2\left(a^5b^2x^4 + 2\,a^6bx\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)/((b*x + a)^3*x^3),x, algorithm="fricas")
```

```
[Out] -1/2*(A*a^4 + 6*(B*a^2*b^2 - 2*A*a*b^3)*x^3 + 9*(B*a^3*b - 2*A*a^
2*b^2)*x^2 + 2*(B*a^4 - 2*A*a^3*b)*x - 6*((B*a*b^3 - 2*A*b^4)*x^4
 + 2*(B*a^2*b^2 - 2*A*a*b^3)*x^3 + (B*a^3*b - 2*A*a^2*b^2)*x^2)*l
og(b*x + a) + 6*((B*a*b^3 - 2*A*b^4)*x^4 + 2*(B*a^2*b^2 - 2*A*a*b
^3)*x^3 + (B*a^3*b - 2*A*a^2*b^2)*x^2)*log(x))/(a^5*b^2*x^4 + 2*a
^6*b*x^3 + a^7*x^2)
```

Sympy [A] time = 5.59785, size = 219, normalized size = 1.99

$$-\frac{Aa^3 + x^3\left(-12Ab^3 + 6Bab^2\right) + x^2\left(-18Aab^2 + 9Ba^2b\right) + x\left(-4Aa^2b + 2Ba^3\right)}{2a^6x^2 + 4a^5bx^3 + 2a^4b^2x^4} - \frac{3b\left(-2Ab + Ba\right)\log\left(x + \frac{-6Aab^2+3Ba^2b-3ab(-2Ab+Ba)}{-12Ab^3+6Bab^2}\right)}{a^5} + \frac{3b\left(-2Ab + Ba\right)\log\left(x + \frac{-6Aab^2+3Ba^2b+3ab(-2Ab+Ba)}{-12Ab^3+6Bab^2}\right)}{a^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x+A)/x**3/(b*x+a)**3,x)
```

```
[Out] -(A*a**3 + x**3*(-12*A*b**3 + 6*B*a*b**2) + x**2*(-18*A*a*b**2 +
9*B*a**2*b) + x*(-4*A*a**2*b + 2*B*a**3))/(2*a**6*x**2 + 4*a**5*b
*x**3 + 2*a**4*b**2*x**4) - 3*b*(-2*A*b + B*a)*log(x + (-6*A*a*b*
```

```
*2 + 3*B*a**2*b - 3*a*b*(-2*A*b + B*a))/(-12*A*b**3 + 6*B*a*b**2)
)/a**5 + 3*b*(-2*A*b + B*a)*log(x + (-6*A*a*b**2 + 3*B*a**2*b + 3
*a*b*(-2*A*b + B*a))/(-12*A*b**3 + 6*B*a*b**2))/a**5
```

GIAC/XCAS [A] time = 0.262541, size = 167, normalized size = 1.52

$$-\frac{3\left(Bab-2\,Ab^{2}\right)\ln\left(|x|\right)}{a^{5}}+\frac{3\left(Bab^{2}-2\,Ab^{3}\right)\ln\left(|bx+a|\right)}{a^{5}b}-\frac{6\,Bab^{2}x^{3}-12\,Ab^{3}x^{3}+9\,Ba^{2}bx^{2}-18\,Aab^{2}x^{2}+2\,Ba^{3}x-4\,Aa^{2}bx+Aa^{3}}{2\left(bx^{2}+ax\right)^{2}a^{4}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^3*x^3),x, algorithm="giac")
```

```
[Out] -3*(B*a*b - 2*A*b^2)*ln(abs(x))/a^5 + 3*(B*a*b^2 - 2*A*b^3)*ln(ab
s(b*x + a))/(a^5*b) - 1/2*(6*B*a*b^2*x^3 - 12*A*b^3*x^3 + 9*B*a^2
*b*x^2 - 18*A*a*b^2*x^2 + 2*B*a^3*x - 4*A*a^2*b*x + A*a^3)/((b*x^
2 + a*x)^2*a^4)
```

3.170 $\int \frac{A+Bx}{x^4(a+bx)^3}\,dx$

Optimal. Leaf size=140

$$-\frac{2b^2\log(x)(5Ab-3aB)}{a^6}+\frac{2b^2(5Ab-3aB)\log(a+bx)}{a^6}-\frac{b^2(4Ab-3aB)}{a^5(a+bx)}-\frac{3b(2Ab-aB)}{a^5x}-\frac{b^2(Ab-aB)}{2a^4(a+bx)^2}+\frac{3Ab-aB}{2a^4x^2}-\frac{A}{3a^3x^3}$$

```
[Out] -A/(3*a^3*x^3) + (3*A*b - a*B)/(2*a^4*x^2) - (3*b*(2*A*b - a*B))/
(a^5*x) - (b^2*(A*b - a*B))/(2*a^4*(a + b*x)^2) - (b^2*(4*A*b - 3
*a*B))/(a^5*(a + b*x)) - (2*b^2*(5*A*b - 3*a*B)*Log[x])/a^6 + (2*
b^2*(5*A*b - 3*a*B)*Log[a + b*x])/a^6
```

Rubi [A] time = 0.287136, antiderivative size = 140, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{2b^2\log(x)(5Ab-3aB)}{a^6}+\frac{2b^2(5Ab-3aB)\log(a+bx)}{a^6}-\frac{b^2(4Ab-3aB)}{a^5(a+bx)}-\frac{3b(2Ab-aB)}{a^5x}-\frac{b^2(Ab-aB)}{2a^4(a+bx)^2}+\frac{3Ab-aB}{2a^4x^2}-\frac{A}{3a^3x^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^4*(a + b*x)^3),x]
```

```
[Out] -A/(3*a^3*x^3) + (3*A*b - a*B)/(2*a^4*x^2) - (3*b*(2*A*b - a*B))/
(a^5*x) - (b^2*(A*b - a*B))/(2*a^4*(a + b*x)^2) - (b^2*(4*A*b - 3
*a*B))/(a^5*(a + b*x)) - (2*b^2*(5*A*b - 3*a*B)*Log[x])/a^6 + (2*
b^2*(5*A*b - 3*a*B)*Log[a + b*x])/a^6
```

Rubi in Sympy [A] time = 53.5509, size = 134, normalized size = 0.96

$$-\frac{A}{3a^3x^3}-\frac{b^2\left(Ab-Ba\right)}{2a^4\left(a+bx\right)^2}+\frac{3Ab-Ba}{2a^4x^2}-\frac{b^2\left(4Ab-3Ba\right)}{a^5\left(a+bx\right)}-\frac{3b\left(2Ab-Ba\right)}{a^5x}-\frac{2b^2\left(5Ab-3Ba\right)\log\left(x\right)}{a^6}+\frac{2b^2\left(5Ab-3Ba\right)\log\left(a+bx\right)}{a^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**4/(b*x+a)**3,x)
```

```
[Out] -A/(3*a**3*x**3) - b**2*(A*b - B*a)/(2*a**4*(a + b*x)**2) + (3*A*
b - B*a)/(2*a**4*x**2) - b**2*(4*A*b - 3*B*a)/(a**5*(a + b*x)) -
3*b*(2*A*b - B*a)/(a**5*x) - 2*b**2*(5*A*b - 3*B*a)*log(x)/a**6 +
 2*b**2*(5*A*b - 3*B*a)*log(a + b*x)/a**6
```

Mathematica [A] time = 0.238561, size = 129, normalized size = 0.92

$$\frac{\frac{a\left(a^4(-(2A+3Bx))+a^3bx(5A+12Bx)+2a^2b^2x^2(27Bx-10A)+18ab^3x^3(2Bx-5A)-60Ab^4x^4\right)}{x^3(a+bx)^2}+12b^2\log(x)(3aB-5Ab)+12b^2(5Ab-3aB)\log(a+}{6a^6}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^4*(a + b*x)^3),x]
```

```
[Out] ((a*(-60*A*b^4*x^4 + 18*a*b^3*x^3*(-5*A + 2*B*x) - a^4*(2*A + 3*B
*x) + a^3*b*x*(5*A + 12*B*x) + 2*a^2*b^2*x^2*(-10*A + 27*B*x)))/(
x^3*(a + b*x)^2) + 12*b^2*(-5*A*b + 3*a*B)*Log[x] + 12*b^2*(5*A*b
 - 3*a*B)*Log[a + b*x])/(6*a^6)
```

Maple [A] time = 0.017, size = 168, normalized size = 1.2

$$-\frac{A}{3a^3x^3}+\frac{3Ab}{2a^4x^2}-\frac{B}{2a^3x^2}-6\frac{Ab^2}{a^5x}+3\frac{Bb}{a^4x}-10\frac{A\ln(x)b^3}{a^6}+6\frac{b^2B\ln(x)}{a^5}-4\frac{Ab^3}{a^5(bx+a)}+3\frac{Bb^2}{a^4(bx+a)}-\frac{Ab^3}{2a^4(bx+a)^2}+\frac{Bb^2}{2a^3(bx+a)^2}+10\frac{b^3\ln(bx+a)A}{a^6}-6\frac{b^2\ln(bx+a)B}{a^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((B*x+A)/x^4/(b*x+a)^3,x)
```

```
[Out] -1/3*A/a^3/x^3+3/2/a^4/x^2*A*b-1/2/a^3/x^2*B-6/a^5*b^2/x*A+3/a^4*
b/x*B-10*b^3/a^6*ln(x)*A+6*b^2/a^5*ln(x)*B-4/a^5*b^3/(b*x+a)*A+3/
a^4*b^2/(b*x+a)*B-1/2/a^4*b^3/(b*x+a)^2*A+1/2/a^3*b^2/(b*x+a)^2*B
+10*b^3/a^6*ln(b*x+a)*A-6*b^2/a^5*ln(b*x+a)*B
```

Maxima [A] time = 1.36404, size = 221, normalized size = 1.58

$$-\frac{2Aa^4-12\left(3Bab^3-5Ab^4\right)x^4-18\left(3Ba^2b^2-5Aab^3\right)x^3-4\left(3Ba^3b-5Aa^2b^2\right)x^2+\left(3Ba^4-5Aa^3b\right)x}{6\left(a^5b^2x^5+2a^6bx^4+a^7x^3\right)}-\frac{2\left(3Bab^2-5Ab^3\right)\log(bx+a)}{a^6}+\frac{2\left(3Bab^2-5Ab^3\right)\log(x)}{a^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)/((b*x + a)^3*x^4),x, algorithm="maxima")
```

```
[Out] -1/6*(2*A*a^4 - 12*(3*B*a*b^3 - 5*A*b^4)*x^4 - 18*(3*B*a^2*b^2 -
5*A*a*b^3)*x^3 - 4*(3*B*a^3*b - 5*A*a^2*b^2)*x^2 + (3*B*a^4 - 5*A
*a^3*b)*x)/(a^5*b^2*x^5 + 2*a^6*b*x^4 + a^7*x^3) - 2*(3*B*a*b^2 -
 5*A*b^3)*log(b*x + a)/a^6 + 2*(3*B*a*b^2 - 5*A*b^3)*log(x)/a^6
```

Fricas [A] time = 0.215402, size = 354, normalized size = 2.53

$$-\frac{2Aa^5-12\left(3Ba^2b^3-5Aab^4\right)x^4-18\left(3Ba^3b^2-5Aa^2b^3\right)x^3-4\left(3Ba^4b-5Aa^3b^2\right)x^2+\left(3Ba^5-5Aa^4b\right)x+12\left(\left(3Bab^4\right.\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)/((b*x + a)^3*x^4),x, algorithm="fricas")
```

```
[Out] -1/6*(2*A*a^5 - 12*(3*B*a^2*b^3 - 5*A*a*b^4)*x^4 - 18*(3*B*a^3*b^
2 - 5*A*a^2*b^3)*x^3 - 4*(3*B*a^4*b - 5*A*a^3*b^2)*x^2 + (3*B*a^5
 - 5*A*a^4*b)*x + 12*((3*B*a*b^4 - 5*A*b^5)*x^5 + 2*(3*B*a^2*b^3
- 5*A*a*b^4)*x^4 + (3*B*a^3*b^2 - 5*A*a^2*b^3)*x^3)*log(b*x + a)
- 12*((3*B*a*b^4 - 5*A*b^5)*x^5 + 2*(3*B*a^2*b^3 - 5*A*a*b^4)*x^4
 + (3*B*a^3*b^2 - 5*A*a^2*b^3)*x^3)*log(x))/(a^6*b^2*x^5 + 2*a^7*
b*x^4 + a^8*x^3)
```

Sympy [A] time = 6.19622, size = 262, normalized size = 1.87

$$\frac{-2Aa^4 + x^4\left(-60Ab^4 + 36Bab^3\right) + x^3\left(-90Aab^3 + 54Ba^2b^2\right) + x^2\left(-20Aa^2b^2 + 12Ba^3b\right) + x\left(5Aa^3b - 3Ba^4\right)}{6a^7x^3 + 12a^6bx^4 + 6a^5b^2x^5} + \frac{2b^2(-5Ab + 3Ba)\log\left(x + \frac{-10Aab^3 + 6Ba^2b^2 - 2ab^2(-5Ab + 3Ba)}{-20Ab^4 + 12Bab^3}\right)}{a^6} - \frac{2b^2(-5Ab + 3Ba)\log\left(x + \frac{-10Aab^3 + 6Ba^2b^2 + 2ab^2(-5Ab + 3Ba)}{-20Ab^4 + 12Bab^3}\right)}{a^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**4/(b*x+a)**3,x)
```

```
[Out] (-2*A*a**4 + x**4*(-60*A*b**4 + 36*B*a*b**3) + x**3*(-90*A*a*b**3
 + 54*B*a**2*b**2) + x**2*(-20*A*a**2*b**2 + 12*B*a**3*b) + x*(5*
A*a**3*b - 3*B*a**4))/(6*a**7*x**3 + 12*a**6*b*x**4 + 6*a**5*b**2
*x**5) + 2*b**2*(-5*A*b + 3*B*a)*log(x + (-10*A*a*b**3 + 6*B*a**2
*b**2 - 2*a*b**2*(-5*A*b + 3*B*a))/(-20*A*b**4 + 12*B*a*b**3))/a*
*6 - 2*b**2*(-5*A*b + 3*B*a)*log(x + (-10*A*a*b**3 + 6*B*a**2*b**
2 + 2*a*b**2*(-5*A*b + 3*B*a))/(-20*A*b**4 + 12*B*a*b**3))/a**6
```

GIAC/XCAS [A] time = 0.361478, size = 213, normalized size = 1.52

$$\frac{2\left(3\,Bab^2 - 5\,Ab^3\right)\ln\left(|x|\right)}{a^6} - \frac{2\left(3\,Bab^3 - 5\,Ab^4\right)\ln\left(|bx + a|\right)}{a^6b} - \frac{2\,Aa^5 - 12\left(3\,Ba^2b^3 - 5\,Aab^4\right)x^4 - 18\left(3\,Ba^3b^2 - 5\,Aa^2b^3\right)x^3 - 4\left(3\,Ba^4b - 5\,Aa^3b^2\right)x^2 + \left(3\,Ba^5 - 5\,Aa^4b\right)x}{6\,(bx + a)^2a^6x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^3*x^4),x, algorithm="giac")
```

```
[Out] 2*(3*B*a*b^2 - 5*A*b^3)*ln(abs(x))/a^6 - 2*(3*B*a*b^3 - 5*A*b^4)*
ln(abs(b*x + a))/(a^6*b) - 1/6*(2*A*a^5 - 12*(3*B*a^2*b^3 - 5*A*a
*b^4)*x^4 - 18*(3*B*a^3*b^2 - 5*A*a^2*b^3)*x^3 - 4*(3*B*a^4*b - 5
*A*a^3*b^2)*x^2 + (3*B*a^5 - 5*A*a^4*b)*x)/((b*x + a)^2*a^6*x^3)
```

3.171 $\int x^3(a+bx)^2(c+dx)^{16}\,dx$

Optimal. Leaf size=177

$$\frac{(c+dx)^{20}\left(a^2d^2-8abcd+10b^2c^2\right)}{20d^6}-\frac{c(c+dx)^{19}\left(3a^2d^2-12abcd+10b^2c^2\right)}{19d^6}-\frac{c^3(c+dx)^{17}(bc-ad)^2}{17d^6}+\frac{c^2(c+dx)^{18}(5bc-3ad)(bc-ad)}{18d^6}-\frac{b(c+dx)^{21}(5bc-2ad)}{21d^6}+\frac{b^2(c+dx)^{22}}{22d^6}$$

```
[Out] -(c^3*(b*c - a*d)^2*(c + d*x)^17)/(17*d^6) + (c^2*(5*b*c - 3*a*d)
*(b*c - a*d)*(c + d*x)^18)/(18*d^6) - (c*(10*b^2*c^2 - 12*a*b*c*d
 + 3*a^2*d^2)*(c + d*x)^19)/(19*d^6) + ((10*b^2*c^2 - 8*a*b*c*d +
 a^2*d^2)*(c + d*x)^20)/(20*d^6) - (b*(5*b*c - 2*a*d)*(c + d*x)^2
1)/(21*d^6) + (b^2*(c + d*x)^22)/(22*d^6)
```

Rubi [A] time = 1.2701, antiderivative size = 177, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{(c+dx)^{20}\left(a^2d^2-8abcd+10b^2c^2\right)}{20d^6}-\frac{c(c+dx)^{19}\left(3a^2d^2-12abcd+10b^2c^2\right)}{19d^6}-\frac{c^3(c+dx)^{17}(bc-ad)^2}{17d^6}+\frac{c^2(c+dx)^{18}(5bc-3ad)(bc-ad)}{18d^6}-\frac{b(c+dx)^{21}(5bc-2ad)}{21d^6}+\frac{b^2(c+dx)^{22}}{22d^6}$$

Antiderivative was successfully verified.

```
[In]  Int[x^3*(a + b*x)^2*(c + d*x)^16,x]
```

```
[Out] -(c^3*(b*c - a*d)^2*(c + d*x)^17)/(17*d^6) + (c^2*(5*b*c - 3*a*d)
*(b*c - a*d)*(c + d*x)^18)/(18*d^6) - (c*(10*b^2*c^2 - 12*a*b*c*d
 + 3*a^2*d^2)*(c + d*x)^19)/(19*d^6) + ((10*b^2*c^2 - 8*a*b*c*d +
 a^2*d^2)*(c + d*x)^20)/(20*d^6) - (b*(5*b*c - 2*a*d)*(c + d*x)^2
1)/(21*d^6) + (b^2*(c + d*x)^22)/(22*d^6)
```

Rubi in Sympy [A] time = 150.826, size = 168, normalized size = 0.95

$$\frac{b^2\,(c+dx)^{22}}{22d^6}+\frac{b\,(c+dx)^{21}\,(2ad-5bc)}{21d^6}-\frac{c^3\,(c+dx)^{17}\,(ad-bc)^2}{17d^6}+\frac{c^2\,(c+dx)^{18}\,(ad-bc)\,(3ad-5bc)}{18d^6}-\frac{c\,(c+dx)^{19}\left(3a^2d^2-12abcd+10b^2c^2\right)}{19d^6}+\frac{(c+dx)^{20}\left(a^2d^2-8abcd+10b^2c^2\right)}{20d^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3*(b*x+a)**2*(d*x+c)**16,x)
```

```
[Out] b**2*(c + d*x)**22/(22*d**6) + b*(c + d*x)**21*(2*a*d - 5*b*c)/(2
1*d**6) - c**3*(c + d*x)**17*(a*d - b*c)**2/(17*d**6) + c**2*(c +
 d*x)**18*(a*d - b*c)*(3*a*d - 5*b*c)/(18*d**6) - c*(c + d*x)**19
*(3*a**2*d**2 - 12*a*b*c*d + 10*b**2*c**2)/(19*d**6) + (c + d*x)*
*20*(a**2*d**2 - 8*a*b*c*d + 10*b**2*c**2)/(20*d**6)
```

Mathematica [B] time = 0.231946, size = 589, normalized size = 3.33

$$\frac{1}{20}d^{14}x^{20}\left(a^2d^2+32abcd+120b^2c^2\right)+\frac{16}{19}cd^{13}x^{19}\left(a^2d^2+15abcd+35b^2c^2\right)+\frac{10}{9}c^2d^{12}x^{18}\left(6a^2d^2+56abcd+91b^2c^2\right)+\frac{1}{6}c^{14}x^6\left(120a^2d^2+32abcd+b^2c^2\right)+\frac{16}{7}c^{13}dx^7\left(35a^2d^2+15abcd+b^2c^2\right)+\frac{5}{2}c^{12}d^2x^8\left(91a^2d^2+56abcd+6b^2c^2\right)+\frac{56}{9}c^{11}d^3x^9\left(78a^2d^2+65abcd+10b^2c^2\right)+\frac{182}{5}c^{10}d^4x^{10}\left(22a^2d^2+24abcd+5b^2c^2\right)+\frac{208}{11}c^9d^5x^{11}\left(55a^2d^2+77abcd+21b^2c^2\right)+\frac{143}{6}c^8d^6x^{12}\left(45a^2d^2+80abcd+28b^2c^2\right)+220c^7d^7x^{13}\left(4a^2d^2+9abcd+4b^2c^2\right)+\frac{143}{7}c^6d^8x^{14}\left(28a^2d^2+80abcd+45b^2c^2\right)+\frac{208}{15}c^5d^9x^{15}\left(21a^2d^2+77abcd+55b^2c^2\right)+\frac{91}{4}c^4d^{10}x^{16}\left(5a^2d^2+24abcd+22b^2c^2\right)+\frac{56}{17}c^3d^{11}x^{17}\left(10a^2d^2+65abcd+78b^2c^2\right)+\frac{1}{4}a^2c^{16}x^4+\frac{2}{5}ac^{15}x^5(8ad+bc)+\frac{2}{21}bd^{15}x^{21}(ad+8bc)+\frac{1}{22}b^2d^{16}x^{22}$$

Antiderivative was successfully verified.

```
[In]   Integrate[x^3*(a + b*x)^2*(c + d*x)^16,x]
```

```
[Out] (a^2*c^16*x^4)/4 + (2*a*c^15*(b*c + 8*a*d)*x^5)/5 + (c^14*(b^2*c^
2 + 32*a*b*c*d + 120*a^2*d^2)*x^6)/6 + (16*c^13*d*(b^2*c^2 + 15*a
*b*c*d + 35*a^2*d^2)*x^7)/7 + (5*c^12*d^2*(6*b^2*c^2 + 56*a*b*c*d
 + 91*a^2*d^2)*x^8)/2 + (56*c^11*d^3*(10*b^2*c^2 + 65*a*b*c*d + 7
8*a^2*d^2)*x^9)/9 + (182*c^10*d^4*(5*b^2*c^2 + 24*a*b*c*d + 22*a^
2*d^2)*x^10)/5 + (208*c^9*d^5*(21*b^2*c^2 + 77*a*b*c*d + 55*a^2*d
^2)*x^11)/11 + (143*c^8*d^6*(28*b^2*c^2 + 80*a*b*c*d + 45*a^2*d^2
)*x^12)/6 + 220*c^7*d^7*(4*b^2*c^2 + 9*a*b*c*d + 4*a^2*d^2)*x^13
+ (143*c^6*d^8*(45*b^2*c^2 + 80*a*b*c*d + 28*a^2*d^2)*x^14)/7 + (
208*c^5*d^9*(55*b^2*c^2 + 77*a*b*c*d + 21*a^2*d^2)*x^15)/15 + (91
*c^4*d^10*(22*b^2*c^2 + 24*a*b*c*d + 5*a^2*d^2)*x^16)/4 + (56*c^3
*d^11*(78*b^2*c^2 + 65*a*b*c*d + 10*a^2*d^2)*x^17)/17 + (10*c^2*d
^12*(91*b^2*c^2 + 56*a*b*c*d + 6*a^2*d^2)*x^18)/9 + (16*c*d^13*(3
5*b^2*c^2 + 15*a*b*c*d + a^2*d^2)*x^19)/19 + (d^14*(120*b^2*c^2 +
 32*a*b*c*d + a^2*d^2)*x^20)/20 + (2*b*d^15*(8*b*c + a*d)*x^21)/2
1 + (b^2*d^16*x^22)/22
```

Maple [B] time = 0.003, size = 622, normalized size = 3.5

$$\frac{b^{2} d^{16} x^{22}}{22}+\frac{\left(2 a b \,d^{16}+16 b^{2} c \,d^{15}\right) x^{21}}{21}+\frac{\left(a^{2} d^{16}+32 a b c \,d^{15}+120 b^{2} c^{2} d^{14}\right) x^{20}}{20}+\frac{\left(16 a^{2} c \,d^{15}+240 a b \,c^{2} d^{14}+560 b^{2} c^{3} d^{13}\right) x^{19}}{19}+\frac{\left(120 a^{2} c^{2} d^{14}+1120 a b \,c^{3} d^{13}+1820 b^{2} c^{4} d^{12}\right) x^{18}}{18}+\frac{\left(560 a^{2} c^{3} d^{13}+3640 a b \,c^{4} d^{12}+4368 b^{2} c^{5} d^{11}\right) x^{17}}{17}+\frac{\left(1820 a^{2} c^{4} d^{12}+8736 a b \,c^{5} d^{11}+8008 b^{2} c^{6} d^{10}\right) x^{16}}{16}+\frac{\left(4368 a^{2} c^{5} d^{11}+16016 a b \,c^{6} d^{10}+11440 b^{2} c^{7} d^{9}\right) x^{15}}{15}+\frac{\left(8008 a^{2} c^{6} d^{10}+22880 a b \,c^{7} d^{9}+12870 b^{2} c^{8} d^{8}\right) x^{14}}{14}+\frac{\left(11440 a^{2} c^{7} d^{9}+25740 a b \,c^{8} d^{8}+11440 b^{2} c^{9} d^{7}\right) x^{13}}{13}+\frac{\left(12870 a^{2} c^{8} d^{8}+22880 a b \,c^{9} d^{7}+8008 b^{2} c^{10} d^{6}\right) x^{12}}{12}+\frac{\left(11440 a^{2} c^{9} d^{7}+16016 a b \,c^{10} d^{6}+4368 b^{2} c^{11} d^{5}\right) x^{11}}{11}+\frac{\left(8008 a^{2} c^{10} d^{6}+8736 a b \,c^{11} d^{5}+1820 b^{2} c^{12} d^{4}\right) x^{10}}{10}+\frac{\left(4368 a^{2} c^{11} d^{5}+3640 a b \,c^{12} d^{4}+560 b^{2} c^{13} d^{3}\right) x^{9}}{9}+\frac{\left(1820 a^{2} c^{12} d^{4}+1120 a b \,c^{13} d^{3}+120 b^{2} c^{14} d^{2}\right) x^{8}}{8}+\frac{\left(560 a^{2} c^{13} d^{3}+240 a b \,c^{14} d^{2}+16 b^{2} c^{15} d\right) x^{7}}{7}+\frac{\left(120 a^{2} c^{14} d^{2}+32 a b \,c^{15} d+b^{2} c^{16}\right) x^{6}}{6}+\frac{\left(16 a^{2} c^{15} d+2 a b \,c^{16}\right) x^{5}}{5}+\frac{a^{2} c^{16} x^{4}}{4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int(x^3*(b*x+a)^2*(d*x+c)^16,x)
```

```
[Out] 1/22*b^2*d^16*x^22+1/21*(2*a*b*d^16+16*b^2*c*d^15)*x^21+1/20*(a^2
*d^16+32*a*b*c*d^15+120*b^2*c^2*d^14)*x^20+1/19*(16*a^2*c*d^15+24
0*a*b*c^2*d^14+560*b^2*c^3*d^13)*x^19+1/18*(120*a^2*c^2*d^14+1120
*a*b*c^3*d^13+1820*b^2*c^4*d^12)*x^18+1/17*(560*a^2*c^3*d^13+3640
*a*b*c^4*d^12+4368*b^2*c^5*d^11)*x^17+1/16*(1820*a^2*c^4*d^12+873
6*a*b*c^5*d^11+8008*b^2*c^6*d^10)*x^16+1/15*(4368*a^2*c^5*d^11+16
016*a*b*c^6*d^10+11440*b^2*c^7*d^9)*x^15+1/14*(8008*a^2*c^6*d^10+
22880*a*b*c^7*d^9+12870*b^2*c^8*d^8)*x^14+1/13*(11440*a^2*c^7*d^9
+25740*a*b*c^8*d^8+11440*b^2*c^9*d^7)*x^13+1/12*(12870*a^2*c^8*d^
8+22880*a*b*c^9*d^7+8008*b^2*c^10*d^6)*x^12+1/11*(11440*a^2*c^9*d
^7+16016*a*b*c^10*d^6+4368*b^2*c^11*d^5)*x^11+1/10*(8008*a^2*c^10
*d^6+8736*a*b*c^11*d^5+1820*b^2*c^12*d^4)*x^10+1/9*(4368*a^2*c^11
*d^5+3640*a*b*c^12*d^4+560*b^2*c^13*d^3)*x^9+1/8*(1820*a^2*c^12*d
^4+1120*a*b*c^13*d^3+120*b^2*c^14*d^2)*x^8+1/7*(560*a^2*c^13*d^3+
240*a*b*c^14*d^2+16*b^2*c^15*d)*x^7+1/6*(120*a^2*c^14*d^2+32*a*b*
c^15*d+b^2*c^16)*x^6+1/5*(16*a^2*c^15*d+2*a*b*c^16)*x^5+1/4*a^2*c
^16*x^4
```

Maxima [A] time = 1.36015, size = 833, normalized size = 4.71

$$\frac{1}{22}\,b^2d^{16}x^{22}+\frac{1}{4}\,a^2c^{16}x^4+\frac{2}{21}\left(8\,b^2cd^{15}+abd^{16}\right)x^{21}+\frac{1}{20}\left(120\,b^2c^2d^{14}+32\,abcd^{15}+a^2d^{16}\right)x^{20}+\frac{16}{19}\left(35\,b^2c^3d^{13}+15\,abc^2d^{14}+a^2cd^{15}\right)x^{19}+\frac{10}{9}\left(91\,b^2c^4d^{12}+56\,abc^3d^{13}+6\,a^2c^2d^{14}\right)x^{18}+\frac{56}{17}\left(78\,b^2c^5d^{11}+65\,abc^4d^{12}+10\,a^2c^3d^{13}\right)x^{17}+\frac{91}{4}\left(22\,b^2c^6d^{10}+24\,abc^5d^{11}+5\,a^2c^4d^{12}\right)x^{16}+\frac{208}{15}\left(55\,b^2c^7d^9+77\,abc^6d^{10}+21\,a^2c^5d^{11}\right)x^{15}+\frac{143}{7}\left(45\,b^2c^8d^8+80\,abc^7d^9+28\,a^2c^6d^{10}\right)x^{14}+220\left(4\,b^2c^9d^7+9\,abc^8d^8+4\,a^2c^7d^9\right)x^{13}+\frac{143}{6}\left(28\,b^2c^{10}d^6+80\,abc^9d^7+45\,a^2c^8d^8\right)x^{12}+\frac{208}{11}\left(21\,b^2c^{11}d^5+77\,abc^{10}d^6+55\,a^2c^9d^7\right)x^{11}+\frac{182}{5}\left(5\,b^2c^{12}d^4+24\,abc^{11}d^5+22\,a^2c^{10}d^6\right)x^{10}+\frac{56}{9}\left(10\,b^2c^{13}d^3+65\,abc^{12}d^4+78\,a^2c^{11}d^5\right)x^9+\frac{5}{2}\left(6\,b^2c^{14}d^2+56\,abc^{13}d^3+91\,a^2c^{12}d^4\right)x^8+\frac{16}{7}\left(b^2c^{15}d+15\,abc^{14}d^2+35\,a^2c^{13}d^3\right)x^7+\frac{1}{6}\left(b^2c^{16}+32\,abc^{15}d+120\,a^2c^{14}d^2\right)x^6+\frac{2}{5}\left(abc^{16}+8\,a^2c^{15}d\right)x^5$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^2*(d*x + c)^16*x^3,x, algorithm="maxima")
```

```
[Out] 1/22*b^2*d^16*x^22 + 1/4*a^2*c^16*x^4 + 2/21*(8*b^2*c*d^15 + a*b*
d^16)*x^21 + 1/20*(120*b^2*c^2*d^14 + 32*a*b*c*d^15 + a^2*d^16)*x
^20 + 16/19*(35*b^2*c^3*d^13 + 15*a*b*c^2*d^14 + a^2*c*d^15)*x^19
 + 10/9*(91*b^2*c^4*d^12 + 56*a*b*c^3*d^13 + 6*a^2*c^2*d^14)*x^18
 + 56/17*(78*b^2*c^5*d^11 + 65*a*b*c^4*d^12 + 10*a^2*c^3*d^13)*x^
17 + 91/4*(22*b^2*c^6*d^10 + 24*a*b*c^5*d^11 + 5*a^2*c^4*d^12)*x^
16 + 208/15*(55*b^2*c^7*d^9 + 77*a*b*c^6*d^10 + 21*a^2*c^5*d^11)*
x^15 + 143/7*(45*b^2*c^8*d^8 + 80*a*b*c^7*d^9 + 28*a^2*c^6*d^10)*
x^14 + 220*(4*b^2*c^9*d^7 + 9*a*b*c^8*d^8 + 4*a^2*c^7*d^9)*x^13 +
 143/6*(28*b^2*c^10*d^6 + 80*a*b*c^9*d^7 + 45*a^2*c^8*d^8)*x^12 +
 208/11*(21*b^2*c^11*d^5 + 77*a*b*c^10*d^6 + 55*a^2*c^9*d^7)*x^11
 + 182/5*(5*b^2*c^12*d^4 + 24*a*b*c^11*d^5 + 22*a^2*c^10*d^6)*x^1
0 + 56/9*(10*b^2*c^13*d^3 + 65*a*b*c^12*d^4 + 78*a^2*c^11*d^5)*x^
9 + 5/2*(6*b^2*c^14*d^2 + 56*a*b*c^13*d^3 + 91*a^2*c^12*d^4)*x^8
+ 16/7*(b^2*c^15*d + 15*a*b*c^14*d^2 + 35*a^2*c^13*d^3)*x^7 + 1/6
*(b^2*c^16 + 32*a*b*c^15*d + 120*a^2*c^14*d^2)*x^6 + 2/5*(a*b*c^1
6 + 8*a^2*c^15*d)*x^5
```

Fricas [A] time = 0.18385, size = 1, normalized size = 0.01

$$\frac{1}{22}x^{22}d^{16}b^2 + \frac{16}{21}x^{21}d^{15}cb^2 + \frac{2}{21}x^{21}d^{16}ba + 6x^{20}d^{14}c^2b^2 + \frac{8}{5}x^{20}d^{15}cba + \frac{1}{20}x^{20}d^{16}a^2 + \frac{560}{19}x^{19}d^{13}c^3b^2 + \frac{240}{19}x^{19}d^{14}c^2ba + \frac{16}{19}x^{19}d^{15}ca^2 + \frac{910}{9}x^{18}d^{12}c^4b^2 + \frac{560}{9}x^{18}d^{13}c^3ba + \frac{20}{3}x^{18}d^{14}c^2a^2 + \frac{4368}{17}x^{17}d^{11}c^5b^2 + \frac{3640}{17}x^{17}d^{12}c^4ba + \frac{560}{17}x^{17}d^{13}c^3a^2 + \frac{1001}{2}x^{16}d^{10}c^6b^2 + 546x^{16}d^{11}c^5ba + \frac{455}{4}x^{16}d^{12}c^4a^2 + \frac{2288}{3}x^{15}d^9c^7b^2 + \frac{16016}{15}x^{15}d^{10}c^6ba + \frac{1456}{5}x^{15}d^{11}c^5a^2 + \frac{6435}{7}x^{14}d^8c^8b^2 + \frac{11440}{7}x^{14}d^9c^7ba + 572x^{14}d^{10}c^6a^2 + 880x^{13}d^7c^9b^2 + 1980x^{13}d^8c^8ba + 880x^{13}d^9c^7a^2 + \frac{2002}{3}x^{12}d^6c^{10}b^2 + \frac{5720}{3}x^{12}d^7c^9ba + \frac{2145}{2}x^{12}d^8c^8a^2 + \frac{4368}{11}x^{11}d^5c^{11}b^2 + 1456x^{11}d^6c^{10}ba + 1040x^{11}d^7c^9a^2 + 182x^{10}d^4c^{12}b^2 + \frac{4368}{5}x^{10}d^5c^{11}ba + \frac{4004}{5}x^{10}d^6c^{10}a^2 + \frac{560}{9}x^9d^3c^{13}b^2 + \frac{3640}{9}x^9d^4c^{12}ba + \frac{1456}{3}x^9d^5c^{11}a^2 + 15x^8d^2c^{14}b^2 + 140x^8d^3c^{13}ba + \frac{455}{2}x^8d^4c^{12}a^2 + \frac{16}{7}x^7dc^{15}b^2 + \frac{240}{7}x^7d^2c^{14}ba + 80x^7d^3c^{13}a^2 + \frac{1}{6}x^6c^{16}b^2 + \frac{16}{3}x^6dc^{15}ba + 20x^6d^2c^{14}a^2 + \frac{2}{5}x^5c^{16}ba + \frac{16}{5}x^5dc^{15}a^2 + \frac{1}{4}x^4c^{16}a^2$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^2*(d*x + c)^16*x^3,x, algorithm="fricas")
```

```
[Out] 1/22*x^22*d^16*b^2 + 16/21*x^21*d^15*c*b^2 + 2/21*x^21*d^16*b*a +
 6*x^20*d^14*c^2*b^2 + 8/5*x^20*d^15*c*b*a + 1/20*x^20*d^16*a^2 +
 560/19*x^19*d^13*c^3*b^2 + 240/19*x^19*d^14*c^2*b*a + 16/19*x^19
*d^15*c*a^2 + 910/9*x^18*d^12*c^4*b^2 + 560/9*x^18*d^13*c^3*b*a +
 20/3*x^18*d^14*c^2*a^2 + 4368/17*x^17*d^11*c^5*b^2 + 3640/17*x^1
7*d^12*c^4*b*a + 560/17*x^17*d^13*c^3*a^2 + 1001/2*x^16*d^10*c^6*
b^2 + 546*x^16*d^11*c^5*b*a + 455/4*x^16*d^12*c^4*a^2 + 2288/3*x^
15*d^9*c^7*b^2 + 16016/15*x^15*d^10*c^6*b*a + 1456/5*x^15*d^11*c^
5*a^2 + 6435/7*x^14*d^8*c^8*b^2 + 11440/7*x^14*d^9*c^7*b*a + 572*
x^14*d^10*c^6*a^2 + 880*x^13*d^7*c^9*b^2 + 1980*x^13*d^8*c^8*b*a
+ 880*x^13*d^9*c^7*a^2 + 2002/3*x^12*d^6*c^10*b^2 + 5720/3*x^12*d
^7*c^9*b*a + 2145/2*x^12*d^8*c^8*a^2 + 4368/11*x^11*d^5*c^11*b^2
+ 1456*x^11*d^6*c^10*b*a + 1040*x^11*d^7*c^9*a^2 + 182*x^10*d^4*c
^12*b^2 + 4368/5*x^10*d^5*c^11*b*a + 4004/5*x^10*d^6*c^10*a^2 + 5
60/9*x^9*d^3*c^13*b^2 + 3640/9*x^9*d^4*c^12*b*a + 1456/3*x^9*d^5*
c^11*a^2 + 15*x^8*d^2*c^14*b^2 + 140*x^8*d^3*c^13*b*a + 455/2*x^8
*d^4*c^12*a^2 + 16/7*x^7*d*c^15*b^2 + 240/7*x^7*d^2*c^14*b*a + 80
*x^7*d^3*c^13*a^2 + 1/6*x^6*c^16*b^2 + 16/3*x^6*d*c^15*b*a + 20*x
^6*d^2*c^14*a^2 + 2/5*x^5*c^16*b*a + 16/5*x^5*d*c^15*a^2 + 1/4*x^
4*c^16*a^2
```

Sympy [A] time = 0.713372, size = 697, normalized size = 3.94

$$\frac{a^2c^{16}x^4}{4} + \frac{b^2d^{16}x^{22}}{22} + x^{21}\left(\frac{2abd^{16}}{21} + \frac{16b^2cd^{15}}{21}\right) + x^{20}\left(\frac{a^2d^{16}}{20} + \frac{8abcd^{15}}{5} + 6b^2c^2d^{14}\right) + x^{19}\left(\frac{16a^2cd^{15}}{19} + \frac{240abc^2d^{14}}{19} + \frac{560b^2c^3d^{13}}{19}\right) + x^{18}\left(\frac{20a^2c^2d^{14}}{3} + \frac{560abc^3d^{13}}{9} + \frac{910b^2c^4d^{12}}{9}\right) + x^{17}\left(\frac{560a^2c^3d^{13}}{17} + \frac{3640abc^4d^{12}}{17} + \frac{4368b^2c^5d^{11}}{17}\right) + x^{16}\left(\frac{455a^2c^4d^{12}}{4} + 546abc^5d^{11} + \frac{1001b^2c^6d^{10}}{2}\right) + x^{15}\left(\frac{1456a^2c^5d^{11}}{5} + \frac{16016abc^6d^{10}}{15} + \frac{2288b^2c^7d^9}{3}\right) + x^{14}\left(572a^2c^6d^{10} + \frac{11440abc^7d^9}{7} + \frac{6435b^2c^8d^8}{7}\right) + x^{13}\left(880a^2c^7d^9 + 1980abc^8d^8 + 880b^2c^9d^7\right) + x^{12}\left(\frac{2145a^2c^8d^8}{2} + \frac{5720abc^9d^7}{3} + \frac{2002b^2c^{10}d^6}{3}\right) + x^{11}\left(1040a^2c^9d^7 + 1456abc^{10}d^6 + \frac{4368b^2c^{11}d^5}{11}\right) + x^{10}\left(\frac{4004a^2c^{10}d^6}{5} + \frac{4368abc^{11}d^5}{5} + 182b^2c^{12}d^4\right) + x^9\left(\frac{1456a^2c^{11}d^5}{3} + \frac{3640abc^{12}d^4}{9} + \frac{560b^2c^{13}d^3}{9}\right) + x^8\left(\frac{455a^2c^{12}d^4}{2} + 140abc^{13}d^3 + 15b^2c^{14}d^2\right) + x^7\left(80a^2c^{13}d^3 + \frac{240abc^{14}d^2}{7} + \frac{16b^2c^{15}d}{7}\right) + x^6\left(20a^2c^{14}d^2 + \frac{16abc^{15}d}{3} + \frac{b^2c^{16}}{6}\right) + x^5\left(\frac{16a^2c^{15}d}{5} + \frac{2abc^{16}}{5}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**3*(b*x+a)**2*(d*x+c)**16,x)
```

```
[Out] a**2*c**16*x**4/4 + b**2*d**16*x**22/22 + x**21*(2*a*b*d**16/21 +
 16*b**2*c*d**15/21) + x**20*(a**2*d**16/20 + 8*a*b*c*d**15/5 + 6
*b**2*c**2*d**14) + x**19*(16*a**2*c*d**15/19 + 240*a*b*c**2*d**1
4/19 + 560*b**2*c**3*d**13/19) + x**18*(20*a**2*c**2*d**14/3 + 56
0*a*b*c**3*d**13/9 + 910*b**2*c**4*d**12/9) + x**17*(560*a**2*c**
3*d**13/17 + 3640*a*b*c**4*d**12/17 + 4368*b**2*c**5*d**11/17) +
x**16*(455*a**2*c**4*d**12/4 + 546*a*b*c**5*d**11 + 1001*b**2*c**
6*d**10/2) + x**15*(1456*a**2*c**5*d**11/5 + 16016*a*b*c**6*d**10
/15 + 2288*b**2*c**7*d**9/3) + x**14*(572*a**2*c**6*d**10 + 11440
*a*b*c**7*d**9/7 + 6435*b**2*c**8*d**8/7) + x**13*(880*a**2*c**7*
d**9 + 1980*a*b*c**8*d**8 + 880*b**2*c**9*d**7) + x**12*(2145*a**
2*c**8*d**8/2 + 5720*a*b*c**9*d**7/3 + 2002*b**2*c**10*d**6/3) +
x**11*(1040*a**2*c**9*d**7 + 1456*a*b*c**10*d**6 + 4368*b**2*c**1
1*d**5/11) + x**10*(4004*a**2*c**10*d**6/5 + 4368*a*b*c**11*d**5/
5 + 182*b**2*c**12*d**4) + x**9*(1456*a**2*c**11*d**5/3 + 3640*a*
b*c**12*d**4/9 + 560*b**2*c**13*d**3/9) + x**8*(455*a**2*c**12*d*
*4/2 + 140*a*b*c**13*d**3 + 15*b**2*c**14*d**2) + x**7*(80*a**2*c
**13*d**3 + 240*a*b*c**14*d**2/7 + 16*b**2*c**15*d/7) + x**6*(20*
a**2*c**14*d**2 + 16*a*b*c**15*d/3 + b**2*c**16/6) + x**5*(16*a**
2*c**15*d/5 + 2*a*b*c**16/5)
```

GIAC/XCAS [A] time = 0.276249, size = 902, normalized size = 5.1

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^2*(d*x + c)^16*x^3,x, algorithm="giac")
```

```
[Out] 1/22*b^2*d^16*x^22 + 16/21*b^2*c*d^15*x^21 + 2/21*a*b*d^16*x^21 +
 6*b^2*c^2*d^14*x^20 + 8/5*a*b*c*d^15*x^20 + 1/20*a^2*d^16*x^20 +
 560/19*b^2*c^3*d^13*x^19 + 240/19*a*b*c^2*d^14*x^19 + 16/19*a^2*
c*d^15*x^19 + 910/9*b^2*c^4*d^12*x^18 + 560/9*a*b*c^3*d^13*x^18 +
 20/3*a^2*c^2*d^14*x^18 + 4368/17*b^2*c^5*d^11*x^17 + 3640/17*a*b
*c^4*d^12*x^17 + 560/17*a^2*c^3*d^13*x^17 + 1001/2*b^2*c^6*d^10*x
^16 + 546*a*b*c^5*d^11*x^16 + 455/4*a^2*c^4*d^12*x^16 + 2288/3*b^
2*c^7*d^9*x^15 + 16016/15*a*b*c^6*d^10*x^15 + 1456/5*a^2*c^5*d^11
*x^15 + 6435/7*b^2*c^8*d^8*x^14 + 11440/7*a*b*c^7*d^9*x^14 + 572*
a^2*c^6*d^10*x^14 + 880*b^2*c^9*d^7*x^13 + 1980*a*b*c^8*d^8*x^13
+ 880*a^2*c^7*d^9*x^13 + 2002/3*b^2*c^10*d^6*x^12 + 5720/3*a*b*c^
9*d^7*x^12 + 2145/2*a^2*c^8*d^8*x^12 + 4368/11*b^2*c^11*d^5*x^11
+ 1456*a*b*c^10*d^6*x^11 + 1040*a^2*c^9*d^7*x^11 + 182*b^2*c^12*d
^4*x^10 + 4368/5*a*b*c^11*d^5*x^10 + 4004/5*a^2*c^10*d^6*x^10 + 5
60/9*b^2*c^13*d^3*x^9 + 3640/9*a*b*c^12*d^4*x^9 + 1456/3*a^2*c^11
*d^5*x^9 + 15*b^2*c^14*d^2*x^8 + 140*a*b*c^13*d^3*x^8 + 455/2*a^2
*c^12*d^4*x^8 + 16/7*b^2*c^15*d*x^7 + 240/7*a*b*c^14*d^2*x^7 + 80
*a^2*c^13*d^3*x^7 + 1/6*b^2*c^16*x^6 + 16/3*a*b*c^15*d*x^6 + 20*a
^2*c^14*d^2*x^6 + 2/5*a*b*c^16*x^5 + 16/5*a^2*c^15*d*x^5 + 1/4*a^
2*c^16*x^4
```

3.172 $\int x^2(a+bx)^2(c+dx)^{16}\,dx$

Optimal. Leaf size=137

$$\frac{(c+dx)^{19}\left(a^2d^2-6abcd+6b^2c^2\right)}{19d^5}+\frac{c^2(c+dx)^{17}(bc-ad)^2}{17d^5}-\frac{b(c+dx)^{20}(2bc-ad)}{10d^5}-\frac{c(c+dx)^{18}(bc-ad)(2bc-ad)}{9d^5}+\frac{b^2(c+dx)^{21}}{21d^5}$$

```
[Out] (c^2*(b*c - a*d)^2*(c + d*x)^17)/(17*d^5) - (c*(b*c - a*d)*(2*b*c
 - a*d)*(c + d*x)^18)/(9*d^5) + ((6*b^2*c^2 - 6*a*b*c*d + a^2*d^2
)*(c + d*x)^19)/(19*d^5) - (b*(2*b*c - a*d)*(c + d*x)^20)/(10*d^5
) + (b^2*(c + d*x)^21)/(21*d^5)
```

Rubi [A] time = 1.19443, antiderivative size = 137, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{(c+dx)^{19}\left(a^2d^2-6abcd+6b^2c^2\right)}{19d^5}+\frac{c^2(c+dx)^{17}(bc-ad)^2}{17d^5}-\frac{b(c+dx)^{20}(2bc-ad)}{10d^5}-\frac{c(c+dx)^{18}(bc-ad)(2bc-ad)}{9d^5}+\frac{b^2(c+dx)^{21}}{21d^5}$$

Antiderivative was successfully verified.

```
[In]  Int[x^2*(a + b*x)^2*(c + d*x)^16,x]
```

```
[Out] (c^2*(b*c - a*d)^2*(c + d*x)^17)/(17*d^5) - (c*(b*c - a*d)*(2*b*c
 - a*d)*(c + d*x)^18)/(9*d^5) + ((6*b^2*c^2 - 6*a*b*c*d + a^2*d^2
)*(c + d*x)^19)/(19*d^5) - (b*(2*b*c - a*d)*(c + d*x)^20)/(10*d^5
) + (b^2*(c + d*x)^21)/(21*d^5)
```

Rubi in Sympy [A] time = 133.247, size = 124, normalized size = 0.91

$$\frac{b^2\left(c+dx\right)^{21}}{21d^5}+\frac{b\left(c+dx\right)^{20}\left(ad-2bc\right)}{10d^5}+\frac{c^2\left(c+dx\right)^{17}\left(ad-bc\right)^2}{17d^5}-\frac{c\left(c+dx\right)^{18}\left(ad-2bc\right)\left(ad-bc\right)}{9d^5}+\frac{\left(c+dx\right)^{19}\left(a^2d^2-6abcd+6b^2c^2\right)}{19d^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(b*x+a)**2*(d*x+c)**16,x)
```

```
[Out] b**2*(c + d*x)**21/(21*d**5) + b*(c + d*x)**20*(a*d - 2*b*c)/(10*
d**5) + c**2*(c + d*x)**17*(a*d - b*c)**2/(17*d**5) - c*(c + d*x)
**18*(a*d - 2*b*c)*(a*d - b*c)/(9*d**5) + (c + d*x)**19*(a**2*d**
2 - 6*a*b*c*d + 6*b**2*c**2)/(19*d**5)
```

Mathematica [B] time = 0.183904, size = 585, normalized size = 4.27

$$\frac{1}{19}d^{14}x^{19}\left(a^2d^2+32abcd+120b^2c^2\right)+\frac{8}{9}cd^{13}x^{18}\left(a^2d^2+15abcd+35b^2c^2\right)+\frac{20}{17}c^2d^{12}x^{17}\left(6a^2d^2+56abcd+91b^2c^2\right)+\frac{1}{5}c^{14}x^5\left(120a^2d^2+32abcd+b^2c^2\right)+\frac{8}{3}c^{13}dx^6\left(35a^2d^2+15abcd+b^2c^2\right)+\frac{20}{7}c^{12}d^2x^7\left(91a^2d^2+56abcd+6b^2c^2\right)+7c^{11}d^3x^8\left(78a^2d^2+65abcd+10b^2c^2\right)+\frac{364}{9}c^{10}d^4x^9\left(22a^2d^2+24abcd+5b^2c^2\right)+\frac{104}{5}c^9d^5x^{10}\left(55a^2d^2+77abcd+21b^2c^2\right)+26c^8d^6x^{11}\left(45a^2d^2+80abcd+28b^2c^2\right)+\frac{715}{3}c^7d^7x^{12}\left(4a^2d^2+9abcd+4b^2c^2\right)+22c^6d^8x^{13}\left(28a^2d^2+80abcd+45b^2c^2\right)+\frac{104}{7}c^5d^9x^{14}\left(21a^2d^2+77abcd+55b^2c^2\right)+\frac{364}{15}c^4d^{10}x^{15}\left(5a^2d^2+24abcd+22b^2c^2\right)+\frac{7}{2}c^3d^{11}x^{16}\left(10a^2d^2+65abcd+78b^2c^2\right)+\frac{1}{3}a^2c^{16}x^3+\frac{1}{2}ac^{15}x^4(8ad+bc)+\frac{1}{10}bd^{15}x^{20}(ad+8bc)+\frac{1}{21}b^2d^{16}x^{21}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^2*(a + b*x)^2*(c + d*x)^16,x]
```

```
[Out] (a^2*c^16*x^3)/3 + (a*c^15*(b*c + 8*a*d)*x^4)/2 + (c^14*(b^2*c^2
+ 32*a*b*c*d + 120*a^2*d^2)*x^5)/5 + (8*c^13*d*(b^2*c^2 + 15*a*b*
c*d + 35*a^2*d^2)*x^6)/3 + (20*c^12*d^2*(6*b^2*c^2 + 56*a*b*c*d +
 91*a^2*d^2)*x^7)/7 + 7*c^11*d^3*(10*b^2*c^2 + 65*a*b*c*d + 78*a^
2*d^2)*x^8 + (364*c^10*d^4*(5*b^2*c^2 + 24*a*b*c*d + 22*a^2*d^2)*
x^9)/9 + (104*c^9*d^5*(21*b^2*c^2 + 77*a*b*c*d + 55*a^2*d^2)*x^10
)/5 + 26*c^8*d^6*(28*b^2*c^2 + 80*a*b*c*d + 45*a^2*d^2)*x^11 + (7
15*c^7*d^7*(4*b^2*c^2 + 9*a*b*c*d + 4*a^2*d^2)*x^12)/3 + 22*c^6*d
^8*(45*b^2*c^2 + 80*a*b*c*d + 28*a^2*d^2)*x^13 + (104*c^5*d^9*(55
*b^2*c^2 + 77*a*b*c*d + 21*a^2*d^2)*x^14)/7 + (364*c^4*d^10*(22*b
^2*c^2 + 24*a*b*c*d + 5*a^2*d^2)*x^15)/15 + (7*c^3*d^11*(78*b^2*c
^2 + 65*a*b*c*d + 10*a^2*d^2)*x^16)/2 + (20*c^2*d^12*(91*b^2*c^2
+ 56*a*b*c*d + 6*a^2*d^2)*x^17)/17 + (8*c*d^13*(35*b^2*c^2 + 15*a
*b*c*d + a^2*d^2)*x^18)/9 + (d^14*(120*b^2*c^2 + 32*a*b*c*d + a^2
*d^2)*x^19)/19 + (b*d^15*(8*b*c + a*d)*x^20)/10 + (b^2*d^16*x^21)
/21
```

Maple [B] time = 0.003, size = 622, normalized size = 4.5

$$\frac{b^2d^{16}x^{21}}{21}+\frac{\left(2\,abd^{16}+16\,b^2cd^{15}\right)x^{20}}{20}+\frac{\left(a^2d^{16}+32\,abcd^{15}+120\,b^2c^2d^{14}\right)x^{19}}{19}+\frac{\left(16\,a^2cd^{15}+240\,abc^2d^{14}+560\,b^2c^3d^{13}\right)x^{18}}{18}+\frac{\left(120\,a^2c^2d^{14}+1120\,abc^3d^{13}+1820\,b^2c^4d^{12}\right)x^{17}}{17}+\frac{\left(560\,a^2c^3d^{13}+3640\,abc^4d^{12}+4368\,b^2c^5d^{11}\right)x^{16}}{16}+\frac{\left(1820\,a^2c^4d^{12}+8736\,abc^5d^{11}+8008\,b^2c^6d^{10}\right)x^{15}}{15}+\frac{\left(4368\,a^2c^5d^{11}+16016\,abc^6d^{10}+11440\,b^2c^7d^9\right)x^{14}}{14}+\frac{\left(8008\,a^2c^6d^{10}+22880\,abc^7d^9+12870\,b^2c^8d^8\right)x^{13}}{13}+\frac{\left(11440\,a^2c^7d^9+25740\,abc^8d^8+11440\,b^2c^9d^7\right)x^{12}}{12}+\frac{\left(12870\,a^2c^8d^8+22880\,abc^9d^7+8008\,b^2c^{10}d^6\right)x^{11}}{11}+\frac{\left(11440\,a^2c^9d^7+16016\,abc^{10}d^6+4368\,b^2c^{11}d^5\right)x^{10}}{10}+\frac{\left(8008\,a^2c^{10}d^6+8736\,abc^{11}d^5+1820\,b^2c^{12}d^4\right)x^9}{9}+\frac{\left(4368\,a^2c^{11}d^5+3640\,abc^{12}d^4+560\,b^2c^{13}d^3\right)x^8}{8}+\frac{\left(1820\,a^2c^{12}d^4+1120\,abc^{13}d^3+120\,b^2c^{14}d^2\right)x^7}{7}+\frac{\left(560\,a^2c^{13}d^3+240\,abc^{14}d^2+16\,b^2c^{15}d\right)x^6}{6}+\frac{\left(120\,a^2c^{14}d^2+32\,abc^{15}d+b^2c^{16}\right)x^5}{5}+\frac{\left(16\,a^2c^{15}d+2\,abc^{16}\right)x^4}{4}+\frac{a^2c^{16}x^3}{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int(x^2*(b*x+a)^2*(d*x+c)^16,x)
```

```
[Out] 1/21*b^2*d^16*x^21+1/20*(2*a*b*d^16+16*b^2*c*d^15)*x^20+1/19*(a^2
*d^16+32*a*b*c*d^15+120*b^2*c^2*d^14)*x^19+1/18*(16*a^2*c*d^15+24
0*a*b*c^2*d^14+560*b^2*c^3*d^13)*x^18+1/17*(120*a^2*c^2*d^14+1120
*a*b*c^3*d^13+1820*b^2*c^4*d^12)*x^17+1/16*(560*a^2*c^3*d^13+3640
*a*b*c^4*d^12+4368*b^2*c^5*d^11)*x^16+1/15*(1820*a^2*c^4*d^12+873
6*a*b*c^5*d^11+8008*b^2*c^6*d^10)*x^15+1/14*(4368*a^2*c^5*d^11+16
016*a*b*c^6*d^10+11440*b^2*c^7*d^9)*x^14+1/13*(8008*a^2*c^6*d^10+
22880*a*b*c^7*d^9+12870*b^2*c^8*d^8)*x^13+1/12*(11440*a^2*c^7*d^9
+25740*a*b*c^8*d^8+11440*b^2*c^9*d^7)*x^12+1/11*(12870*a^2*c^8*d^
8+22880*a*b*c^9*d^7+8008*b^2*c^10*d^6)*x^11+1/10*(11440*a^2*c^9*d
^7+16016*a*b*c^10*d^6+4368*b^2*c^11*d^5)*x^10+1/9*(8008*a^2*c^10*
d^6+8736*a*b*c^11*d^5+1820*b^2*c^12*d^4)*x^9+1/8*(4368*a^2*c^11*d
^5+3640*a*b*c^12*d^4+560*b^2*c^13*d^3)*x^8+1/7*(1820*a^2*c^12*d^4
+1120*a*b*c^13*d^3+120*b^2*c^14*d^2)*x^7+1/6*(560*a^2*c^13*d^3+24
0*a*b*c^14*d^2+16*b^2*c^15*d)*x^6+1/5*(120*a^2*c^14*d^2+32*a*b*c^
15*d+b^2*c^16)*x^5+1/4*(16*a^2*c^15*d+2*a*b*c^16)*x^4+1/3*a^2*c^1
6*x^3
```

Maxima [A] time = 1.36709, size = 833, normalized size = 6.08

$$\frac{1}{21}\,b^{2}d^{16}x^{21} + \frac{1}{3}\,a^{2}c^{16}x^{3} + \frac{1}{10}\,\left(8\,b^{2}cd^{15} + abd^{16}\right)x^{20} + \frac{1}{19}\,\left(120\,b^{2}c^{2}d^{14} + 32\,abcd^{15} + a^{2}d^{16}\right)x^{19} + \frac{8}{9}\,\left(35\,b^{2}c^{3}d^{13} + 15\,abc^{2}d^{14} + a^{2}cd^{15}\right)x^{18} + \frac{20}{17}\,\left(91\,b^{2}c^{4}d^{12} + 56\,abc^{3}d^{13} + 6\,a^{2}c^{2}d^{14}\right)x^{17} + \frac{7}{2}\,\left(78\,b^{2}c^{5}d^{11} + 65\,abc^{4}d^{12} + 10\,a^{2}c^{3}d^{13}\right)x^{16} + \frac{364}{15}\,\left(22\,b^{2}c^{6}d^{10} + 24\,abc^{5}d^{11} + 5\,a^{2}c^{4}d^{12}\right)x^{15} + \frac{104}{7}\,\left(55\,b^{2}c^{7}d^{9} + 77\,abc^{6}d^{10} + 21\,a^{2}c^{5}d^{11}\right)x^{14} + 22\,\left(45\,b^{2}c^{8}d^{8} + 80\,abc^{7}d^{9} + 28\,a^{2}c^{6}d^{10}\right)x^{13} + \frac{715}{3}\,\left(4\,b^{2}c^{9}d^{7} + 9\,abc^{8}d^{8} + 4\,a^{2}c^{7}d^{9}\right)x^{12} + 26\,\left(28\,b^{2}c^{10}d^{6} + 80\,abc^{9}d^{7} + 45\,a^{2}c^{8}d^{8}\right)x^{11} + \frac{104}{5}\,\left(21\,b^{2}c^{11}d^{5} + 77\,abc^{10}d^{6} + 55\,a^{2}c^{9}d^{7}\right)x^{10} + \frac{364}{9}\,\left(5\,b^{2}c^{12}d^{4} + 24\,abc^{11}d^{5} + 22\,a^{2}c^{10}d^{6}\right)x^{9} + 7\,\left(10\,b^{2}c^{13}d^{3} + 65\,abc^{12}d^{4} + 78\,a^{2}c^{11}d^{5}\right)x^{8} + \frac{20}{7}\,\left(6\,b^{2}c^{14}d^{2} + 56\,abc^{13}d^{3} + 91\,a^{2}c^{12}d^{4}\right)x^{7} + \frac{8}{3}\,\left(b^{2}c^{15}d + 15\,abc^{14}d^{2} + 35\,a^{2}c^{13}d^{3}\right)x^{6} + \frac{1}{5}\,\left(b^{2}c^{16} + 32\,abc^{15}d + 120\,a^{2}c^{14}d^{2}\right)x^{5} + \frac{1}{2}\,\left(abc^{16} + 8\,a^{2}c^{15}d\right)x^{4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^2*(d*x + c)^16*x^2,x, algorithm="maxima")
```

```
[Out] 1/21*b^2*d^16*x^21 + 1/3*a^2*c^16*x^3 + 1/10*(8*b^2*c*d^15 + a*b*
d^16)*x^20 + 1/19*(120*b^2*c^2*d^14 + 32*a*b*c*d^15 + a^2*d^16)*x
^19 + 8/9*(35*b^2*c^3*d^13 + 15*a*b*c^2*d^14 + a^2*c*d^15)*x^18 +
 20/17*(91*b^2*c^4*d^12 + 56*a*b*c^3*d^13 + 6*a^2*c^2*d^14)*x^17
+ 7/2*(78*b^2*c^5*d^11 + 65*a*b*c^4*d^12 + 10*a^2*c^3*d^13)*x^16
+ 364/15*(22*b^2*c^6*d^10 + 24*a*b*c^5*d^11 + 5*a^2*c^4*d^12)*x^1
5 + 104/7*(55*b^2*c^7*d^9 + 77*a*b*c^6*d^10 + 21*a^2*c^5*d^11)*x^
14 + 22*(45*b^2*c^8*d^8 + 80*a*b*c^7*d^9 + 28*a^2*c^6*d^10)*x^13
+ 715/3*(4*b^2*c^9*d^7 + 9*a*b*c^8*d^8 + 4*a^2*c^7*d^9)*x^12 + 26
*(28*b^2*c^10*d^6 + 80*a*b*c^9*d^7 + 45*a^2*c^8*d^8)*x^11 + 104/5
*(21*b^2*c^11*d^5 + 77*a*b*c^10*d^6 + 55*a^2*c^9*d^7)*x^10 + 364/
9*(5*b^2*c^12*d^4 + 24*a*b*c^11*d^5 + 22*a^2*c^10*d^6)*x^9 + 7*(1
0*b^2*c^13*d^3 + 65*a*b*c^12*d^4 + 78*a^2*c^11*d^5)*x^8 + 20/7*(6
*b^2*c^14*d^2 + 56*a*b*c^13*d^3 + 91*a^2*c^12*d^4)*x^7 + 8/3*(b^2
*c^15*d + 15*a*b*c^14*d^2 + 35*a^2*c^13*d^3)*x^6 + 1/5*(b^2*c^16
+ 32*a*b*c^15*d + 120*a^2*c^14*d^2)*x^5 + 1/2*(a*b*c^16 + 8*a^2*c
^15*d)*x^4
```

Fricas [A] time = 0.185762, size = 1, normalized size = 0.01

$$\frac{1}{21}x^{21}d^{16}b^2 + \frac{4}{5}x^{20}d^{15}cb^2 + \frac{1}{10}x^{20}d^{16}ba + \frac{120}{19}x^{19}d^{14}c^2b^2 + \frac{32}{19}x^{19}d^{15}cba + \frac{1}{19}x^{19}d^{16}a^2 + \frac{280}{9}x^{18}d^{13}c^3b^2 + \frac{40}{3}x^{18}d^{14}c^2ba + \frac{8}{9}x^{18}d^{15}ca^2 + \frac{1820}{17}x^{17}d^{12}c^4b^2 + \frac{1120}{17}x^{17}d^{13}c^3ba + \frac{120}{17}x^{17}d^{14}c^2a^2 + 273x^{16}d^{11}c^5b^2 + \frac{455}{2}x^{16}d^{12}c^4ba + 35x^{16}d^{13}c^3a^2 + \frac{8008}{15}x^{15}d^{10}c^6b^2 + \frac{2912}{5}x^{15}d^{11}c^5ba + \frac{364}{3}x^{15}d^{12}c^4a^2 + \frac{5720}{7}x^{14}d^9c^7b^2 + 1144x^{14}d^{10}c^6ba + 312x^{14}d^{11}c^5a^2 + 990x^{13}d^8c^8b^2 + 1760x^{13}d^9c^7ba + 616x^{13}d^{10}c^6a^2 + \frac{2860}{3}x^{12}d^7c^9b^2 + 2145x^{12}d^8c^8ba + \frac{2860}{3}x^{12}d^9c^7a^2 + 728x^{11}d^6c^{10}b^2 + 2080x^{11}d^7c^9ba + 1170x^{11}d^8c^8a^2 + \frac{2184}{5}x^{10}d^5c^{11}b^2 + \frac{8008}{5}x^{10}d^6c^{10}ba + 1144x^{10}d^7c^9a^2 + \frac{1820}{9}x^9d^4c^{12}b^2 + \frac{2912}{3}x^9d^5c^{11}ba + \frac{8008}{9}x^9d^6c^{10}a^2 + 70x^8d^3c^{13}b^2 + 455x^8d^4c^{12}ba + 546x^8d^5c^{11}a^2 + \frac{120}{7}x^7d^2c^{14}b^2 + 160x^7d^3c^{13}ba + 260x^7d^4c^{12}a^2 + \frac{8}{3}x^6dc^{15}b^2 + 40x^6d^2c^{14}ba + \frac{280}{3}x^6d^3c^{13}a^2 + \frac{1}{5}x^5c^{16}b^2 + \frac{32}{5}x^5dc^{15}ba + 24x^5d^2c^{14}a^2 + \frac{1}{2}x^4c^{16}ba + 4x^4dc^{15}a^2 + \frac{1}{3}x^3c^{16}a^2$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^2*(d*x + c)^16*x^2,x, algorithm="fricas")
```

```
[Out] 1/21*x^21*d^16*b^2 + 4/5*x^20*d^15*c*b^2 + 1/10*x^20*d^16*b*a + 1
20/19*x^19*d^14*c^2*b^2 + 32/19*x^19*d^15*c*b*a + 1/19*x^19*d^16*
a^2 + 280/9*x^18*d^13*c^3*b^2 + 40/3*x^18*d^14*c^2*b*a + 8/9*x^18
*d^15*c*a^2 + 1820/17*x^17*d^12*c^4*b^2 + 1120/17*x^17*d^13*c^3*b
*a + 120/17*x^17*d^14*c^2*a^2 + 273*x^16*d^11*c^5*b^2 + 455/2*x^1
6*d^12*c^4*b*a + 35*x^16*d^13*c^3*a^2 + 8008/15*x^15*d^10*c^6*b^2
 + 2912/5*x^15*d^11*c^5*b*a + 364/3*x^15*d^12*c^4*a^2 + 5720/7*x^
14*d^9*c^7*b^2 + 1144*x^14*d^10*c^6*b*a + 312*x^14*d^11*c^5*a^2 +
 990*x^13*d^8*c^8*b^2 + 1760*x^13*d^9*c^7*b*a + 616*x^13*d^10*c^6
*a^2 + 2860/3*x^12*d^7*c^9*b^2 + 2145*x^12*d^8*c^8*b*a + 2860/3*x
^12*d^9*c^7*a^2 + 728*x^11*d^6*c^10*b^2 + 2080*x^11*d^7*c^9*b*a +
 1170*x^11*d^8*c^8*a^2 + 2184/5*x^10*d^5*c^11*b^2 + 8008/5*x^10*d
^6*c^10*b*a + 1144*x^10*d^7*c^9*a^2 + 1820/9*x^9*d^4*c^12*b^2 + 2
912/3*x^9*d^5*c^11*b*a + 8008/9*x^9*d^6*c^10*a^2 + 70*x^8*d^3*c^1
3*b^2 + 455*x^8*d^4*c^12*b*a + 546*x^8*d^5*c^11*a^2 + 120/7*x^7*d
^2*c^14*b^2 + 160*x^7*d^3*c^13*b*a + 260*x^7*d^4*c^12*a^2 + 8/3*x
^6*d*c^15*b^2 + 40*x^6*d^2*c^14*b*a + 280/3*x^6*d^3*c^13*a^2 + 1/
5*x^5*c^16*b^2 + 32/5*x^5*d*c^15*b*a + 24*x^5*d^2*c^14*a^2 + 1/2*
x^4*c^16*b*a + 4*x^4*d*c^15*a^2 + 1/3*x^3*c^16*a^2
```

Sympy [A] time = 0.71544, size = 682, normalized size = 4.98

$$\frac{a^2c^{16}x^3}{3} + \frac{b^2d^{16}x^{21}}{21} + x^{20}\left(\frac{abd^{16}}{10} + \frac{4b^2cd^{15}}{5}\right) + x^{19}\left(\frac{a^2d^{16}}{19} + \frac{32abcd^{15}}{19} + \frac{120b^2c^2d^{14}}{19}\right) + x^{18}\left(\frac{8a^2cd^{15}}{9} + \frac{40abc^2d^{14}}{3} + \frac{280b^2c^3d^{13}}{9}\right) + x^{17}\left(\frac{120a^2c^2d^{14}}{17} + \frac{1120abc^3d^{13}}{17} + \frac{1820b^2c^4d^{12}}{17}\right) + x^{16}\left(35a^2c^3d^{13} + \frac{455abc^4d^{12}}{2} + 273b^2c^5d^{11}\right) + x^{15}\left(\frac{364a^2c^4d^{12}}{3} + \frac{2912abc^5d^{11}}{5} + \frac{8008b^2c^6d^{10}}{15}\right) + x^{14}\left(312a^2c^5d^{11} + 1144abc^6d^{10} + \frac{5720b^2c^7d^9}{7}\right) + x^{13}\left(616a^2c^6d^{10} + 1760abc^7d^9 + 990b^2c^8d^8\right) + x^{12}\left(\frac{2860a^2c^7d^9}{3} + 2145abc^8d^8 + \frac{2860b^2c^9d^7}{3}\right) + x^{11}\left(1170a^2c^8d^8 + 2080abc^9d^7 + 728b^2c^{10}d^6\right) + x^{10}\left(1144a^2c^9d^7 + \frac{8008abc^{10}d^6}{5} + \frac{2184b^2c^{11}d^5}{5}\right) + x^9\left(\frac{8008a^2c^{10}d^6}{9} + \frac{2912abc^{11}d^5}{3} + \frac{1820b^2c^{12}d^4}{9}\right) + x^8\left(546a^2c^{11}d^5 + 455abc^{12}d^4 + 70b^2c^{13}d^3\right) + x^7\left(260a^2c^{12}d^4 + 160abc^{13}d^3 + \frac{120b^2c^{14}d^2}{7}\right) + x^6\left(\frac{280a^2c^{13}d^3}{3} + 40abc^{14}d^2 + \frac{8b^2c^{15}d}{3}\right) + x^5\left(24a^2c^{14}d^2 + \frac{32abc^{15}d}{5} + \frac{b^2c^{16}}{5}\right) + x^4\left(4a^2c^{15}d + \frac{abc^{16}}{2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(x**2*(b*x+a)**2*(d*x+c)**16,x)
```

```
[Out] a**2*c**16*x**3/3 + b**2*d**16*x**21/21 + x**20*(a*b*d**16/10 + 4
*b**2*c*d**15/5) + x**19*(a**2*d**16/19 + 32*a*b*c*d**15/19 + 120
*b**2*c**2*d**14/19) + x**18*(8*a**2*c*d**15/9 + 40*a*b*c**2*d**1
4/3 + 280*b**2*c**3*d**13/9) + x**17*(120*a**2*c**2*d**14/17 + 11
20*a*b*c**3*d**13/17 + 1820*b**2*c**4*d**12/17) + x**16*(35*a**2*
c**3*d**13 + 455*a*b*c**4*d**12/2 + 273*b**2*c**5*d**11) + x**15*
(364*a**2*c**4*d**12/3 + 2912*a*b*c**5*d**11/5 + 8008*b**2*c**6*d
**10/15) + x**14*(312*a**2*c**5*d**11 + 1144*a*b*c**6*d**10 + 572
0*b**2*c**7*d**9/7) + x**13*(616*a**2*c**6*d**10 + 1760*a*b*c**7*
d**9 + 990*b**2*c**8*d**8) + x**12*(2860*a**2*c**7*d**9/3 + 2145*
a*b*c**8*d**8 + 2860*b**2*c**9*d**7/3) + x**11*(1170*a**2*c**8*d*
*8 + 2080*a*b*c**9*d**7 + 728*b**2*c**10*d**6) + x**10*(1144*a**2
*c**9*d**7 + 8008*a*b*c**10*d**6/5 + 2184*b**2*c**11*d**5/5) + x*
*9*(8008*a**2*c**10*d**6/9 + 2912*a*b*c**11*d**5/3 + 1820*b**2*c*
*12*d**4/9) + x**8*(546*a**2*c**11*d**5 + 455*a*b*c**12*d**4 + 70
*b**2*c**13*d**3) + x**7*(260*a**2*c**12*d**4 + 160*a*b*c**13*d**
3 + 120*b**2*c**14*d**2/7) + x**6*(280*a**2*c**13*d**3/3 + 40*a*b
*c**14*d**2 + 8*b**2*c**15*d/3) + x**5*(24*a**2*c**14*d**2 + 32*a
*b*c**15*d/5 + b**2*c**16/5) + x**4*(4*a**2*c**15*d + a*b*c**16/2
)
```

GIAC/XCAS [A] time = 0.313639, size = 902, normalized size = 6.58

$$\frac{1}{21}\,b^2d^{16}x^{21}+\frac{4}{5}\,b^2cd^{15}x^{20}+\frac{1}{10}\,abd^{16}x^{20}+\frac{120}{19}\,b^2c^2d^{14}x^{19}+\frac{32}{19}\,abcd^{15}x^{19}+\frac{1}{19}\,a^2d^{16}x^{19}+\frac{280}{9}\,b^2c^3d^{13}x^{18}+\frac{40}{3}\,abc^2d^{14}x^{18}+\frac{8}{9}\,a^2cd^{15}x^{18}+\frac{1820}{17}\,b^2c^4d^{12}x^{17}+\frac{1120}{17}\,abc^3d^{13}x^{17}+\frac{120}{17}\,a^2c^2d^{14}x^{17}+273\,b^2c^5d^{11}x^{16}+\frac{455}{2}\,abc^4d^{12}x^{16}+35\,a^2c^3d^{13}x^{16}+\frac{8008}{15}\,b^2c^6d^{10}x^{15}+\frac{2912}{5}\,abc^5d^{11}x^{15}+\frac{364}{3}\,a^2c^4d^{12}x^{15}+\frac{5720}{7}\,b^2c^7d^9x^{14}+1144\,abc^6d^{10}x^{14}+312\,a^2c^5d^{11}x^{14}+990\,b^2c^8d^8x^{13}+1760\,abc^7d^9x^{13}+616\,a^2c^6d^{10}x^{13}+\frac{2860}{3}\,b^2c^9d^7x^{12}+2145\,abc^8d^8x^{12}+\frac{2860}{3}\,a^2c^7d^9x^{12}+728\,b^2c^{10}d^6x^{11}+2080\,abc^9d^7x^{11}+1170\,a^2c^8d^8x^{11}+\frac{2184}{5}\,b^2c^{11}d^5x^{10}+\frac{8008}{5}\,abc^{10}d^6x^{10}+1144\,a^2c^9d^7x^{10}+\frac{1820}{9}\,b^2c^{12}d^4x^9+\frac{2912}{3}\,abc^{11}d^5x^9+\frac{8008}{9}\,a^2c^{10}d^6x^9+70\,b^2c^{13}d^3x^8+455\,abc^{12}d^4x^8+546\,a^2c^{11}d^5x^8+\frac{120}{7}\,b^2c^{14}d^2x^7+160\,abc^{13}d^3x^7+260\,a^2c^{12}d^4x^7+\frac{8}{3}\,b^2c^{15}dx^6+40\,abc^{14}d^2x^6+\frac{280}{3}\,a^2c^{13}d^3x^6+\frac{1}{5}\,b^2c^{16}x^5+\frac{32}{5}\,abc^{15}dx^5+24\,a^2c^{14}d^2x^5+\frac{1}{2}\,abc^{16}x^4+4\,a^2c^{15}dx^4+\frac{1}{3}\,a^2c^{16}x^3$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^2*(d*x + c)^16*x^2,x, algorithm="giac")
```

```
[Out] 1/21*b^2*d^16*x^21 + 4/5*b^2*c*d^15*x^20 + 1/10*a*b*d^16*x^20 + 1
20/19*b^2*c^2*d^14*x^19 + 32/19*a*b*c*d^15*x^19 + 1/19*a^2*d^16*x
^19 + 280/9*b^2*c^3*d^13*x^18 + 40/3*a*b*c^2*d^14*x^18 + 8/9*a^2*
c*d^15*x^18 + 1820/17*b^2*c^4*d^12*x^17 + 1120/17*a*b*c^3*d^13*x^
17 + 120/17*a^2*c^2*d^14*x^17 + 273*b^2*c^5*d^11*x^16 + 455/2*a*b
*c^4*d^12*x^16 + 35*a^2*c^3*d^13*x^16 + 8008/15*b^2*c^6*d^10*x^15
 + 2912/5*a*b*c^5*d^11*x^15 + 364/3*a^2*c^4*d^12*x^15 + 5720/7*b^
2*c^7*d^9*x^14 + 1144*a*b*c^6*d^10*x^14 + 312*a^2*c^5*d^11*x^14 +
 990*b^2*c^8*d^8*x^13 + 1760*a*b*c^7*d^9*x^13 + 616*a^2*c^6*d^10*
x^13 + 2860/3*b^2*c^9*d^7*x^12 + 2145*a*b*c^8*d^8*x^12 + 2860/3*a
^2*c^7*d^9*x^12 + 728*b^2*c^10*d^6*x^11 + 2080*a*b*c^9*d^7*x^11 +
 1170*a^2*c^8*d^8*x^11 + 2184/5*b^2*c^11*d^5*x^10 + 8008/5*a*b*c^
10*d^6*x^10 + 1144*a^2*c^9*d^7*x^10 + 1820/9*b^2*c^12*d^4*x^9 + 2
912/3*a*b*c^11*d^5*x^9 + 8008/9*a^2*c^10*d^6*x^9 + 70*b^2*c^13*d^
3*x^8 + 455*a*b*c^12*d^4*x^8 + 546*a^2*c^11*d^5*x^8 + 120/7*b^2*c
^14*d^2*x^7 + 160*a*b*c^13*d^3*x^7 + 260*a^2*c^12*d^4*x^7 + 8/3*b
^2*c^15*d*x^6 + 40*a*b*c^14*d^2*x^6 + 280/3*a^2*c^13*d^3*x^6 + 1/
5*b^2*c^16*x^5 + 32/5*a*b*c^15*d*x^5 + 24*a^2*c^14*d^2*x^5 + 1/2*
a*b*c^16*x^4 + 4*a^2*c^15*d*x^4 + 1/3*a^2*c^16*x^3
```

3.173 $\int x(a+bx)^2(c+dx)^{16}\,dx$

Optimal. Leaf size=98

$$-\frac{b(c+dx)^{19}(3bc-2ad)}{19d^4}+\frac{(c+dx)^{18}(bc-ad)(3bc-ad)}{18d^4}-\frac{c(c+dx)^{17}(bc-ad)^2}{17d^4}+\frac{b^2(c+dx)^{20}}{20d^4}$$

```
[Out] -(c*(b*c - a*d)^2*(c + d*x)^17)/(17*d^4) + ((b*c - a*d)*(3*b*c -
a*d)*(c + d*x)^18)/(18*d^4) - (b*(3*b*c - 2*a*d)*(c + d*x)^19)/(1
9*d^4) + (b^2*(c + d*x)^20)/(20*d^4)
```

Rubi [A] time = 1.12446, antiderivative size = 98, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}} = 0.062$

$$-\frac{b(c+dx)^{19}(3bc-2ad)}{19d^4}+\frac{(c+dx)^{18}(bc-ad)(3bc-ad)}{18d^4}-\frac{c(c+dx)^{17}(bc-ad)^2}{17d^4}+\frac{b^2(c+dx)^{20}}{20d^4}$$

Antiderivative was successfully verified.

```
[In]  Int[x*(a + b*x)^2*(c + d*x)^16,x]
```

```
[Out] -(c*(b*c - a*d)^2*(c + d*x)^17)/(17*d^4) + ((b*c - a*d)*(3*b*c -
a*d)*(c + d*x)^18)/(18*d^4) - (b*(3*b*c - 2*a*d)*(c + d*x)^19)/(1
9*d^4) + (b^2*(c + d*x)^20)/(20*d^4)
```

Rubi in Sympy [A] time = 113.429, size = 87, normalized size = 0.89

$$\frac{b^2\left(c+dx\right)^{20}}{20d^4}+\frac{b\left(c+dx\right)^{19}\left(2ad-3bc\right)}{19d^4}-\frac{c\left(c+dx\right)^{17}\left(ad-bc\right)^2}{17d^4}+\frac{\left(c+dx\right)^{18}\left(ad-3bc\right)\left(ad-bc\right)}{18d^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(b*x+a)**2*(d*x+c)**16,x)
```

```
[Out] b**2*(c + d*x)**20/(20*d**4) + b*(c + d*x)**19*(2*a*d - 3*b*c)/(1
9*d**4) - c*(c + d*x)**17*(a*d - b*c)**2/(17*d**4) + (c + d*x)**1
8*(a*d - 3*b*c)*(a*d - b*c)/(18*d**4)
```

Mathematica [B] time = 0.170915, size = 583, normalized size = 5.95

$$\begin{aligned}
&\frac{1}{18}d^{14}x^{18}\left(a^2d^2+32abcd+120b^2c^2\right)+\frac{16}{17}cd^{13}x^{17}\left(a^2d^2+15abcd+35b^2c^2\right)\\
&+\frac{5}{4}c^2d^{12}x^{16}\left(6a^2d^2+56abcd+91b^2c^2\right)+\frac{1}{4}c^{14}x^4\left(120a^2d^2+32abcd+b^2c^2\right)\\
&+\frac{16}{5}c^{13}dx^5\left(35a^2d^2+15abcd+b^2c^2\right)+\frac{10}{3}c^{12}d^2x^6\left(91a^2d^2+56abcd+6b^2c^2\right)\\
&+8c^{11}d^3x^7\left(78a^2d^2+65abcd+10b^2c^2\right)+\frac{91}{2}c^{10}d^4x^8\left(22a^2d^2+24abcd+5b^2c^2\right)\\
&+\frac{208}{9}c^9d^5x^9\left(55a^2d^2+77abcd+21b^2c^2\right)+\frac{143}{5}c^8d^6x^{10}\left(45a^2d^2+80abcd+28b^2c^2\right)\\
&+260c^7d^7x^{11}\left(4a^2d^2+9abcd+4b^2c^2\right)+\frac{143}{6}c^6d^8x^{12}\left(28a^2d^2+80abcd+45b^2c^2\right)\\
&+16c^5d^9x^{13}\left(21a^2d^2+77abcd+55b^2c^2\right)+26c^4d^{10}x^{14}\left(5a^2d^2+24abcd+22b^2c^2\right)\\
&+\frac{56}{15}c^3d^{11}x^{15}\left(10a^2d^2+65abcd+78b^2c^2\right)+\frac{1}{2}a^2c^{16}x^2\\
&+\frac{2}{3}ac^{15}x^3(8ad+bc)+\frac{2}{19}bd^{15}x^{19}(ad+8bc)+\frac{1}{20}b^2d^{16}x^{20}
\end{aligned}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x*(a + b*x)^2*(c + d*x)^16,x]
```

```
[Out] (a^2*c^16*x^2)/2 + (2*a*c^15*(b*c + 8*a*d)*x^3)/3 + (c^14*(b^2*c^
2 + 32*a*b*c*d + 120*a^2*d^2)*x^4)/4 + (16*c^13*d*(b^2*c^2 + 15*a
*b*c*d + 35*a^2*d^2)*x^5)/5 + (10*c^12*d^2*(6*b^2*c^2 + 56*a*b*c*
d + 91*a^2*d^2)*x^6)/3 + 8*c^11*d^3*(10*b^2*c^2 + 65*a*b*c*d + 78
*a^2*d^2)*x^7 + (91*c^10*d^4*(5*b^2*c^2 + 24*a*b*c*d + 22*a^2*d^2
)*x^8)/2 + (208*c^9*d^5*(21*b^2*c^2 + 77*a*b*c*d + 55*a^2*d^2)*x^
9)/9 + (143*c^8*d^6*(28*b^2*c^2 + 80*a*b*c*d + 45*a^2*d^2)*x^10)/
5 + 260*c^7*d^7*(4*b^2*c^2 + 9*a*b*c*d + 4*a^2*d^2)*x^11 + (143*c
^6*d^8*(45*b^2*c^2 + 80*a*b*c*d + 28*a^2*d^2)*x^12)/6 + 16*c^5*d^
9*(55*b^2*c^2 + 77*a*b*c*d + 21*a^2*d^2)*x^13 + 26*c^4*d^10*(22*b
^2*c^2 + 24*a*b*c*d + 5*a^2*d^2)*x^14 + (56*c^3*d^11*(78*b^2*c^2
+ 65*a*b*c*d + 10*a^2*d^2)*x^15)/15 + (5*c^2*d^12*(91*b^2*c^2 + 5
6*a*b*c*d + 6*a^2*d^2)*x^16)/4 + (16*c*d^13*(35*b^2*c^2 + 15*a*b*
c*d + a^2*d^2)*x^17)/17 + (d^14*(120*b^2*c^2 + 32*a*b*c*d + a^2*d
^2)*x^18)/18 + (2*b*d^15*(8*b*c + a*d)*x^19)/19 + (b^2*d^16*x^20)
/20
```

Maple [B] time = 0.004, size = 622, normalized size = 6.4

$$\frac{b^2d^{16}x^{20}}{20}+\frac{\left(2\,abd^{16}+16\,b^2cd^{15}\right)x^{19}}{19}+\frac{\left(a^2d^{16}+32\,abcd^{15}+120\,b^2c^2d^{14}\right)x^{18}}{18}$$
$$+\frac{\left(16\,a^2cd^{15}+240\,abc^2d^{14}+560\,b^2c^3d^{13}\right)x^{17}}{17}$$
$$+\frac{\left(120\,a^2c^2d^{14}+1120\,abc^3d^{13}+1820\,b^2c^4d^{12}\right)x^{16}}{16}$$
$$+\frac{\left(560\,a^2c^3d^{13}+3640\,abc^4d^{12}+4368\,b^2c^5d^{11}\right)x^{15}}{15}$$
$$+\frac{\left(1820\,a^2c^4d^{12}+8736\,abc^5d^{11}+8008\,b^2c^6d^{10}\right)x^{14}}{14}$$
$$+\frac{\left(4368\,a^2c^5d^{11}+16016\,abc^6d^{10}+11440\,b^2c^7d^9\right)x^{13}}{13}$$
$$+\frac{\left(8008\,a^2c^6d^{10}+22880\,abc^7d^9+12870\,b^2c^8d^8\right)x^{12}}{12}$$
$$+\frac{\left(11440\,a^2c^7d^9+25740\,abc^8d^8+11440\,b^2c^9d^7\right)x^{11}}{11}$$
$$+\frac{\left(12870\,a^2c^8d^8+22880\,abc^9d^7+8008\,b^2c^{10}d^6\right)x^{10}}{10}$$
$$+\frac{\left(11440\,a^2c^9d^7+16016\,abc^{10}d^6+4368\,b^2c^{11}d^5\right)x^{9}}{9}$$
$$+\frac{\left(8008\,a^2c^{10}d^6+8736\,abc^{11}d^5+1820\,b^2c^{12}d^4\right)x^{8}}{8}$$
$$+\frac{\left(4368\,a^2c^{11}d^5+3640\,abc^{12}d^4+560\,b^2c^{13}d^3\right)x^{7}}{7}$$
$$+\frac{\left(1820\,a^2c^{12}d^4+1120\,abc^{13}d^3+120\,b^2c^{14}d^2\right)x^{6}}{6}$$
$$+\frac{\left(560\,a^2c^{13}d^3+240\,abc^{14}d^2+16\,b^2c^{15}d\right)x^{5}}{5}$$
$$+\frac{\left(120\,a^2c^{14}d^2+32\,abc^{15}d+b^2c^{16}\right)x^{4}}{4}+\frac{\left(16\,a^2c^{15}d+2\,abc^{16}\right)x^{3}}{3}+\frac{a^2c^{16}x^2}{2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(b*x+a)^2*(d*x+c)^16,x)
```

```
[Out] 1/20*b^2*d^16*x^20+1/19*(2*a*b*d^16+16*b^2*c*d^15)*x^19+1/18*(a^2
*d^16+32*a*b*c*d^15+120*b^2*c^2*d^14)*x^18+1/17*(16*a^2*c*d^15+24
0*a*b*c^2*d^14+560*b^2*c^3*d^13)*x^17+1/16*(120*a^2*c^2*d^14+1120
*a*b*c^3*d^13+1820*b^2*c^4*d^12)*x^16+1/15*(560*a^2*c^3*d^13+3640
*a*b*c^4*d^12+4368*b^2*c^5*d^11)*x^15+1/14*(1820*a^2*c^4*d^12+873
6*a*b*c^5*d^11+8008*b^2*c^6*d^10)*x^14+1/13*(4368*a^2*c^5*d^11+16
016*a*b*c^6*d^10+11440*b^2*c^7*d^9)*x^13+1/12*(8008*a^2*c^6*d^10+
22880*a*b*c^7*d^9+12870*b^2*c^8*d^8)*x^12+1/11*(11440*a^2*c^7*d^9
```

```
+25740*a*b*c^8*d^8+11440*b^2*c^9*d^7)*x^11+1/10*(12870*a^2*c^8*d^
8+22880*a*b*c^9*d^7+8008*b^2*c^10*d^6)*x^10+1/9*(11440*a^2*c^9*d^
7+16016*a*b*c^10*d^6+4368*b^2*c^11*d^5)*x^9+1/8*(8008*a^2*c^10*d^
6+8736*a*b*c^11*d^5+1820*b^2*c^12*d^4)*x^8+1/7*(4368*a^2*c^11*d^5
+3640*a*b*c^12*d^4+560*b^2*c^13*d^3)*x^7+1/6*(1820*a^2*c^12*d^4+1
120*a*b*c^13*d^3+120*b^2*c^14*d^2)*x^6+1/5*(560*a^2*c^13*d^3+240*
a*b*c^14*d^2+16*b^2*c^15*d)*x^5+1/4*(120*a^2*c^14*d^2+32*a*b*c^15
*d+b^2*c^16)*x^4+1/3*(16*a^2*c^15*d+2*a*b*c^16)*x^3+1/2*a^2*c^16*
x^2
```

<u>Maxima</u> [A] time = 1.36576, size = 833, normalized size = 8.5

$$\frac{1}{20}b^2d^{16}x^{20}+\frac{1}{2}a^2c^{16}x^2+\frac{2}{19}\left(8b^2cd^{15}+abd^{16}\right)x^{19}+\frac{1}{18}\left(120b^2c^2d^{14}+32abcd^{15}+a^2d^{16}\right)x^{18}+\frac{16}{17}\left(35b^2c^3d^{13}+15abc^2d^{14}+a^2cd^{15}\right)x^{17}+\frac{5}{4}\left(91b^2c^4d^{12}+56abc^3d^{13}+6a^2c^2d^{14}\right)x^{16}+\frac{56}{15}\left(78b^2c^5d^{11}+65abc^4d^{12}+10a^2c^3d^{13}\right)x^{15}+26\left(22b^2c^6d^{10}+24abc^5d^{11}+5a^2c^4d^{12}\right)x^{14}+16\left(55b^2c^7d^9+77abc^6d^{10}+21a^2c^5d^{11}\right)x^{13}+\frac{143}{6}\left(45b^2c^8d^8+80abc^7d^9+28a^2c^6d^{10}\right)x^{12}+260\left(4b^2c^9d^7+9abc^8d^8+4a^2c^7d^9\right)x^{11}+\frac{143}{5}\left(28b^2c^{10}d^6+80abc^9d^7+45a^2c^8d^8\right)x^{10}+\frac{208}{9}\left(21b^2c^{11}d^5+77abc^{10}d^6+55a^2c^9d^7\right)x^9+\frac{91}{2}\left(5b^2c^{12}d^4+24abc^{11}d^5+22a^2c^{10}d^6\right)x^8+8\left(10b^2c^{13}d^3+65abc^{12}d^4+78a^2c^{11}d^5\right)x^7+\frac{10}{3}\left(6b^2c^{14}d^2+56abc^{13}d^3+91a^2c^{12}d^4\right)x^6+\frac{16}{5}\left(b^2c^{15}d+15abc^{14}d^2+35a^2c^{13}d^3\right)x^5+\frac{1}{4}\left(b^2c^{16}+32abc^{15}d+120a^2c^{14}d^2\right)x^4+\frac{2}{3}\left(abc^{16}+8a^2c^{15}d\right)x^3$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^2*(d*x + c)^16*x,x, algorithm="maxima")
```

```
[Out] 1/20*b^2*d^16*x^20 + 1/2*a^2*c^16*x^2 + 2/19*(8*b^2*c*d^15 + a*b*
d^16)*x^19 + 1/18*(120*b^2*c^2*d^14 + 32*a*b*c*d^15 + a^2*d^16)*x
^18 + 16/17*(35*b^2*c^3*d^13 + 15*a*b*c^2*d^14 + a^2*c*d^15)*x^17
 + 5/4*(91*b^2*c^4*d^12 + 56*a*b*c^3*d^13 + 6*a^2*c^2*d^14)*x^16
+ 56/15*(78*b^2*c^5*d^11 + 65*a*b*c^4*d^12 + 10*a^2*c^3*d^13)*x^1
5 + 26*(22*b^2*c^6*d^10 + 24*a*b*c^5*d^11 + 5*a^2*c^4*d^12)*x^14
+ 16*(55*b^2*c^7*d^9 + 77*a*b*c^6*d^10 + 21*a^2*c^5*d^11)*x^13 +
143/6*(45*b^2*c^8*d^8 + 80*a*b*c^7*d^9 + 28*a^2*c^6*d^10)*x^12 +
260*(4*b^2*c^9*d^7 + 9*a*b*c^8*d^8 + 4*a^2*c^7*d^9)*x^11 + 143/5*
(28*b^2*c^10*d^6 + 80*a*b*c^9*d^7 + 45*a^2*c^8*d^8)*x^10 + 208/9*
(21*b^2*c^11*d^5 + 77*a*b*c^10*d^6 + 55*a^2*c^9*d^7)*x^9 + 91/2*(
5*b^2*c^12*d^4 + 24*a*b*c^11*d^5 + 22*a^2*c^10*d^6)*x^8 + 8*(10*b
^2*c^13*d^3 + 65*a*b*c^12*d^4 + 78*a^2*c^11*d^5)*x^7 + 10/3*(6*b^
2*c^14*d^2 + 56*a*b*c^13*d^3 + 91*a^2*c^12*d^4)*x^6 + 16/5*(b^2*c
^15*d + 15*a*b*c^14*d^2 + 35*a^2*c^13*d^3)*x^5 + 1/4*(b^2*c^16 +
32*a*b*c^15*d + 120*a^2*c^14*d^2)*x^4 + 2/3*(a*b*c^16 + 8*a^2*c^1
5*d)*x^3
```

Fricas [A] time = 0.182888, size = 1, normalized size = 0.01

$$\frac{1}{20}x^{20}d^{16}b^2 + \frac{16}{19}x^{19}d^{15}cb^2 + \frac{2}{19}x^{19}d^{16}ba + \frac{20}{3}x^{18}d^{14}c^2b^2 + \frac{16}{9}x^{18}d^{15}cba + \frac{1}{18}x^{18}d^{16}a^2 + \frac{560}{17}x^{17}d^{13}c^3b^2 + \frac{240}{17}x^{17}d^{14}c^2ba + \frac{16}{17}x^{17}d^{15}ca^2 + \frac{455}{4}x^{16}d^{12}c^4b^2 + 70x^{16}d^{13}c^3ba + \frac{15}{2}x^{16}d^{14}c^2a^2 + \frac{1456}{5}x^{15}d^{11}c^5b^2 + \frac{728}{3}x^{15}d^{12}c^4ba + \frac{112}{3}x^{15}d^{13}c^3a^2 + 572x^{14}d^{10}c^6b^2 + 624x^{14}d^{11}c^5ba + 130x^{14}d^{12}c^4a^2 + 880x^{13}d^9c^7b^2 + 1232x^{13}d^{10}c^6ba + 336x^{13}d^{11}c^5a^2 + \frac{2145}{2}x^{12}d^8c^8b^2 + \frac{5720}{3}x^{12}d^9c^7ba + \frac{2002}{3}x^{12}d^{10}c^6a^2 + 1040x^{11}d^7c^9b^2 + 2340x^{11}d^8c^8ba + 1040x^{11}d^9c^7a^2 + \frac{4004}{5}x^{10}d^6c^{10}b^2 + 2288x^{10}d^7c^9ba + 1287x^{10}d^8c^8a^2 + \frac{1456}{3}x^9d^5c^{11}b^2 + \frac{16016}{9}x^9d^6c^{10}ba + \frac{11440}{9}x^9d^7c^9a^2 + \frac{455}{2}x^8d^4c^{12}b^2 + 1092x^8d^5c^{11}ba + 1001x^8d^6c^{10}a^2 + 80x^7d^3c^{13}b^2 + 520x^7d^4c^{12}ba + 624x^7d^5c^{11}a^2 + 20x^6d^2c^{14}b^2 + \frac{560}{3}x^6d^3c^{13}ba + \frac{910}{3}x^6d^4c^{12}a^2 + \frac{16}{5}x^5dc^{15}b^2 + 48x^5d^2c^{14}ba + 112x^5d^3c^{13}a^2 + \frac{1}{4}x^4c^{16}b^2 + 8x^4dc^{15}ba + 30x^4d^2c^{14}a^2 + \frac{2}{3}x^3c^{16}ba + \frac{16}{3}x^3dc^{15}a^2 + \frac{1}{2}x^2c^{16}a^2$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^2*(d*x + c)^16*x,x, algorithm="fricas")
```

```
[Out] 1/20*x^20*d^16*b^2 + 16/19*x^19*d^15*c*b^2 + 2/19*x^19*d^16*b*a +
 20/3*x^18*d^14*c^2*b^2 + 16/9*x^18*d^15*c*b*a + 1/18*x^18*d^16*a
^2 + 560/17*x^17*d^13*c^3*b^2 + 240/17*x^17*d^14*c^2*b*a + 16/17*
x^17*d^15*c*a^2 + 455/4*x^16*d^12*c^4*b^2 + 70*x^16*d^13*c^3*b*a
+ 15/2*x^16*d^14*c^2*a^2 + 1456/5*x^15*d^11*c^5*b^2 + 728/3*x^15*
d^12*c^4*b*a + 112/3*x^15*d^13*c^3*a^2 + 572*x^14*d^10*c^6*b^2 +
624*x^14*d^11*c^5*b*a + 130*x^14*d^12*c^4*a^2 + 880*x^13*d^9*c^7*
b^2 + 1232*x^13*d^10*c^6*b*a + 336*x^13*d^11*c^5*a^2 + 2145/2*x^1
2*d^8*c^8*b^2 + 5720/3*x^12*d^9*c^7*b*a + 2002/3*x^12*d^10*c^6*a^
2 + 1040*x^11*d^7*c^9*b^2 + 2340*x^11*d^8*c^8*b*a + 1040*x^11*d^9
*c^7*a^2 + 4004/5*x^10*d^6*c^10*b^2 + 2288*x^10*d^7*c^9*b*a + 128
7*x^10*d^8*c^8*a^2 + 1456/3*x^9*d^5*c^11*b^2 + 16016/9*x^9*d^6*c^
10*b*a + 11440/9*x^9*d^7*c^9*a^2 + 455/2*x^8*d^4*c^12*b^2 + 1092*
x^8*d^5*c^11*b*a + 1001*x^8*d^6*c^10*a^2 + 80*x^7*d^3*c^13*b^2 +
520*x^7*d^4*c^12*b*a + 624*x^7*d^5*c^11*a^2 + 20*x^6*d^2*c^14*b^2
 + 560/3*x^6*d^3*c^13*b*a + 910/3*x^6*d^4*c^12*a^2 + 16/5*x^5*d*c
^15*b^2 + 48*x^5*d^2*c^14*b*a + 112*x^5*d^3*c^13*a^2 + 1/4*x^4*c^
16*b^2 + 8*x^4*d*c^15*b*a + 30*x^4*d^2*c^14*a^2 + 2/3*x^3*c^16*b*
a + 16/3*x^3*d*c^15*a^2 + 1/2*x^2*c^16*a^2
```

Sympy [A] time = 0.710009, size = 682, normalized size = 6.96

$$\frac{a^2c^{16}x^2}{2} + \frac{b^2d^{16}x^{20}}{20} + x^{19}\left(\frac{2abd^{16}}{19} + \frac{16b^2cd^{15}}{19}\right) + x^{18}\left(\frac{a^2d^{16}}{18} + \frac{16abcd^{15}}{9} + \frac{20b^2c^2d^{14}}{3}\right) + x^{17}\left(\frac{16a^2cd^{15}}{17} + \frac{240abc^2d^{14}}{17} + \frac{560b^2c^3d^{13}}{17}\right) + x^{16}\left(\frac{15a^2c^2d^{14}}{2} + 70abc^3d^{13} + \frac{455b^2c^4d^{12}}{4}\right) + x^{15}\left(\frac{112a^2c^3d^{13}}{3} + \frac{728abc^4d^{12}}{3} + \frac{1456b^2c^5d^{11}}{5}\right) + x^{14}\left(130a^2c^4d^{12} + 624abc^5d^{11} + 572b^2c^6d^{10}\right) + x^{13}\left(336a^2c^5d^{11} + 1232abc^6d^{10} + 880b^2c^7d^9\right) + x^{12}\left(\frac{2002a^2c^6d^{10}}{3} + \frac{5720abc^7d^9}{3} + \frac{2145b^2c^8d^8}{2}\right) + x^{11}\left(1040a^2c^7d^9 + 2340abc^8d^8 + 1040b^2c^9d^7\right) + x^{10}\left(1287a^2c^8d^8 + 2288abc^9d^7 + \frac{4004b^2c^{10}d^6}{5}\right) + x^9\left(\frac{11440a^2c^9d^7}{9} + \frac{16016abc^{10}d^6}{9} + \frac{1456b^2c^{11}d^5}{3}\right) + x^8\left(1001a^2c^{10}d^6 + 1092abc^{11}d^5 + \frac{455b^2c^{12}d^4}{2}\right) + x^7\left(624a^2c^{11}d^5 + 520abc^{12}d^4 + 80b^2c^{13}d^3\right) + x^6\left(\frac{910a^2c^{12}d^4}{3} + \frac{560abc^{13}d^3}{3} + 20b^2c^{14}d^2\right) + x^5\left(112a^2c^{13}d^3 + 48abc^{14}d^2 + \frac{16b^2c^{15}d}{5}\right) + x^4\left(30a^2c^{14}d^2 + 8abc^{15}d + \frac{b^2c^{16}}{4}\right) + x^3\left(\frac{16a^2c^{15}d}{3} + \frac{2abc^{16}}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(x*(b*x+a)**2*(d*x+c)**16,x)
```

```
[Out] a**2*c**16*x**2/2 + b**2*d**16*x**20/20 + x**19*(2*a*b*d**16/19 +
 16*b**2*c*d**15/19) + x**18*(a**2*d**16/18 + 16*a*b*c*d**15/9 +
20*b**2*c**2*d**14/3) + x**17*(16*a**2*c*d**15/17 + 240*a*b*c**2*
d**14/17 + 560*b**2*c**3*d**13/17) + x**16*(15*a**2*c**2*d**14/2
+ 70*a*b*c**3*d**13 + 455*b**2*c**4*d**12/4) + x**15*(112*a**2*c*
*3*d**13/3 + 728*a*b*c**4*d**12/3 + 1456*b**2*c**5*d**11/5) + x**
14*(130*a**2*c**4*d**12 + 624*a*b*c**5*d**11 + 572*b**2*c**6*d**1
0) + x**13*(336*a**2*c**5*d**11 + 1232*a*b*c**6*d**10 + 880*b**2*
c**7*d**9) + x**12*(2002*a**2*c**6*d**10/3 + 5720*a*b*c**7*d**9/3
 + 2145*b**2*c**8*d**8/2) + x**11*(1040*a**2*c**7*d**9 + 2340*a*b
*c**8*d**8 + 1040*b**2*c**9*d**7) + x**10*(1287*a**2*c**8*d**8 +
2288*a*b*c**9*d**7 + 4004*b**2*c**10*d**6/5) + x**9*(11440*a**2*c
**9*d**7/9 + 16016*a*b*c**10*d**6/9 + 1456*b**2*c**11*d**5/3) + x
**8*(1001*a**2*c**10*d**6 + 1092*a*b*c**11*d**5 + 455*b**2*c**12*
d**4/2) + x**7*(624*a**2*c**11*d**5 + 520*a*b*c**12*d**4 + 80*b**
2*c**13*d**3) + x**6*(910*a**2*c**12*d**4/3 + 560*a*b*c**13*d**3/
3 + 20*b**2*c**14*d**2) + x**5*(112*a**2*c**13*d**3 + 48*a*b*c**1
4*d**2 + 16*b**2*c**15*d/5) + x**4*(30*a**2*c**14*d**2 + 8*a*b*c*
*15*d + b**2*c**16/4) + x**3*(16*a**2*c**15*d/3 + 2*a*b*c**16/3)
```

GIAC/XCAS [A] time = 0.28258, size = 902, normalized size = 9.2

$$\frac{1}{20}\,b^2d^{16}x^{20} + \frac{16}{19}\,b^2cd^{15}x^{19} + \frac{2}{19}\,abd^{16}x^{19} + \frac{20}{3}\,b^2c^2d^{14}x^{18} + \frac{16}{9}\,abcd^{15}x^{18} + \frac{1}{18}\,a^2d^{16}x^{18} + \frac{560}{17}\,b^2c^3d^{13}x^{17} + \frac{240}{17}\,abc^2d^{14}x^{17} + \frac{16}{17}\,a^2cd^{15}x^{17} + \frac{455}{4}\,b^2c^4d^{12}x^{16} + 70\,abc^3d^{13}x^{16} + \frac{15}{2}\,a^2c^2d^{14}x^{16} + \frac{1456}{5}\,b^2c^5d^{11}x^{15} + \frac{728}{3}\,abc^4d^{12}x^{15} + \frac{112}{3}\,a^2c^3d^{13}x^{15} + 572\,b^2c^6d^{10}x^{14} + 624\,abc^5d^{11}x^{14} + 130\,a^2c^4d^{12}x^{14} + 880\,b^2c^7d^9x^{13} + 1232\,abc^6d^{10}x^{13} + 336\,a^2c^5d^{11}x^{13} + \frac{2145}{2}\,b^2c^8d^8x^{12} + \frac{5720}{3}\,abc^7d^9x^{12} + \frac{2002}{3}\,a^2c^6d^{10}x^{12} + 1040\,b^2c^9d^7x^{11} + 2340\,abc^8d^8x^{11} + 1040\,a^2c^7d^9x^{11} + \frac{4004}{5}\,b^2c^{10}d^6x^{10} + 2288\,abc^9d^7x^{10} + 1287\,a^2c^8d^8x^{10} + \frac{1456}{3}\,b^2c^{11}d^5x^9 + \frac{16016}{9}\,abc^{10}d^6x^9 + \frac{11440}{9}\,a^2c^9d^7x^9 + \frac{455}{2}\,b^2c^{12}d^4x^8 + 1092\,abc^{11}d^5x^8 + 1001\,a^2c^{10}d^6x^8 + 80\,b^2c^{13}d^3x^7 + 520\,abc^{12}d^4x^7 + 624\,a^2c^{11}d^5x^7 + 20\,b^2c^{14}d^2x^6 + \frac{560}{3}\,abc^{13}d^3x^6 + \frac{910}{3}\,a^2c^{12}d^4x^6 + \frac{16}{5}\,b^2c^{15}dx^5 + 48\,abc^{14}d^2x^5 + 112\,a^2c^{13}d^3x^5 + \frac{1}{4}\,b^2c^{16}x^4 + 8\,abc^{15}dx^4 + 30\,a^2c^{14}d^2x^4 + \frac{2}{3}\,abc^{16}x^3 + \frac{16}{3}\,a^2c^{15}dx^3 + \frac{1}{2}\,a^2c^{16}x^2$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^2*(d*x + c)^16*x,x, algorithm="giac")
```

```
[Out] 1/20*b^2*d^16*x^20 + 16/19*b^2*c*d^15*x^19 + 2/19*a*b*d^16*x^19 +
 20/3*b^2*c^2*d^14*x^18 + 16/9*a*b*c*d^15*x^18 + 1/18*a^2*d^16*x^
18 + 560/17*b^2*c^3*d^13*x^17 + 240/17*a*b*c^2*d^14*x^17 + 16/17*
a^2*c*d^15*x^17 + 455/4*b^2*c^4*d^12*x^16 + 70*a*b*c^3*d^13*x^16
+ 15/2*a^2*c^2*d^14*x^16 + 1456/5*b^2*c^5*d^11*x^15 + 728/3*a*b*c
^4*d^12*x^15 + 112/3*a^2*c^3*d^13*x^15 + 572*b^2*c^6*d^10*x^14 +
624*a*b*c^5*d^11*x^14 + 130*a^2*c^4*d^12*x^14 + 880*b^2*c^7*d^9*x
^13 + 1232*a*b*c^6*d^10*x^13 + 336*a^2*c^5*d^11*x^13 + 2145/2*b^2
*c^8*d^8*x^12 + 5720/3*a*b*c^7*d^9*x^12 + 2002/3*a^2*c^6*d^10*x^1
2 + 1040*b^2*c^9*d^7*x^11 + 2340*a*b*c^8*d^8*x^11 + 1040*a^2*c^7*
d^9*x^11 + 4004/5*b^2*c^10*d^6*x^10 + 2288*a*b*c^9*d^7*x^10 + 128
7*a^2*c^8*d^8*x^10 + 1456/3*b^2*c^11*d^5*x^9 + 16016/9*a*b*c^10*d
^6*x^9 + 11440/9*a^2*c^9*d^7*x^9 + 455/2*b^2*c^12*d^4*x^8 + 1092*
a*b*c^11*d^5*x^8 + 1001*a^2*c^10*d^6*x^8 + 80*b^2*c^13*d^3*x^7 +
520*a*b*c^12*d^4*x^7 + 624*a^2*c^11*d^5*x^7 + 20*b^2*c^14*d^2*x^6
 + 560/3*a*b*c^13*d^3*x^6 + 910/3*a^2*c^12*d^4*x^6 + 16/5*b^2*c^1
5*d*x^5 + 48*a*b*c^14*d^2*x^5 + 112*a^2*c^13*d^3*x^5 + 1/4*b^2*c^
16*x^4 + 8*a*b*c^15*d*x^4 + 30*a^2*c^14*d^2*x^4 + 2/3*a*b*c^16*x^
3 + 16/3*a^2*c^15*d*x^3 + 1/2*a^2*c^16*x^2
```

3.174 $\int \frac{x^3(c+dx)}{a+bx}\,dx$

Optimal. Leaf size=87

$$-\frac{a^3(bc-ad)\log(a+bx)}{b^5}+\frac{a^2x(bc-ad)}{b^4}-\frac{ax^2(bc-ad)}{2b^3}+\frac{x^3(bc-ad)}{3b^2}+\frac{dx^4}{4b}$$

```
[Out] (a^2*(b*c - a*d)*x)/b^4 - (a*(b*c - a*d)*x^2)/(2*b^3) + ((b*c - a
*d)*x^3)/(3*b^2) + (d*x^4)/(4*b) - (a^3*(b*c - a*d)*Log[a + b*x])
/b^5
```

Rubi [A] time = 0.166751, antiderivative size = 87, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}} = 0.062$

$$-\frac{a^3(bc-ad)\log(a+bx)}{b^5}+\frac{a^2x(bc-ad)}{b^4}-\frac{ax^2(bc-ad)}{2b^3}+\frac{x^3(bc-ad)}{3b^2}+\frac{dx^4}{4b}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^3*(c + d*x))/(a + b*x),x]
```

```
[Out] (a^2*(b*c - a*d)*x)/b^4 - (a*(b*c - a*d)*x^2)/(2*b^3) + ((b*c - a
*d)*x^3)/(3*b^2) + (d*x^4)/(4*b) - (a^3*(b*c - a*d)*Log[a + b*x])
/b^5
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{a^3(ad-bc)\log(a+bx)}{b^5}+\frac{a(ad-bc)\int x\,dx}{b^3}+\frac{dx^4}{4b}-\frac{x^3(ad-bc)}{3b^2}-\frac{(ad-bc)\int a^2\,dx}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3*(d*x+c)/(b*x+a),x)
```

```
[Out] a**3*(a*d - b*c)*log(a + b*x)/b**5 + a*(a*d - b*c)*Integral(x, x)
/b**3 + d*x**4/(4*b) - x**3*(a*d - b*c)/(3*b**2) - (a*d - b*c)*In
tegral(a**2, x)/b**4
```

Mathematica [A] time = 0.0470087, size = 80, normalized size = 0.92

$$\frac{12a^3(ad-bc)\log(a+bx)+bx\left(-12a^3d+6a^2b(2c+dx)-2ab^2x(3c+2dx)+b^3x^2(4c+3dx)\right)}{12b^5}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^3*(c + d*x))/(a + b*x),x]
```

```
[Out] (b*x*(-12*a^3*d + 6*a^2*b*(2*c + d*x) - 2*a*b^2*x*(3*c + 2*d*x) +
 b^3*x^2*(4*c + 3*d*x)) + 12*a^3*(-(b*c) + a*d)*Log[a + b*x])/(12
*b^5)
```

Maple [A] time = 0.005, size = 100, normalized size = 1.2

$$\frac{dx^4}{4\,b}-\frac{x^3ad}{3\,b^2}+\frac{cx^3}{3\,b}+\frac{a^2x^2d}{2\,b^3}-\frac{x^2ac}{2\,b^2}-\frac{a^3dx}{b^4}+\frac{a^2cx}{b^3}+\frac{a^4\ln(bx+a)\,d}{b^5}-\frac{a^3\ln(bx+a)\,c}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^3*(d*x+c)/(b*x+a),x)
```

```
[Out] 1/4*d*x^4/b-1/3/b^2*x^3*a*d+1/3/b*x^3*c+1/2/b^3*x^2*a^2*d-1/2/b^2
*x^2*a*c-1/b^4*a^3*d*x+1/b^3*a^2*c*x+a^4/b^5*ln(b*x+a)*d-a^3/b^4*
ln(b*x+a)*c
```

Maxima [A] time = 1.34564, size = 126, normalized size = 1.45

$$\frac{3\,b^3dx^4+4\,\left(b^3c-ab^2d\right)x^3-6\,\left(ab^2c-a^2bd\right)x^2+12\,\left(a^2bc-a^3d\right)x}{12\,b^4}-\frac{\left(a^3bc-a^4d\right)\log\left(bx+a\right)}{b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)*x^3/(b*x + a),x, algorithm="maxima")
```

```
[Out] 1/12*(3*b^3*d*x^4 + 4*(b^3*c - a*b^2*d)*x^3 - 6*(a*b^2*c - a^2*b*
d)*x^2 + 12*(a^2*b*c - a^3*d)*x)/b^4 - (a^3*b*c - a^4*d)*log(b*x
+ a)/b^5
```

Fricas [A] time = 0.198067, size = 127, normalized size = 1.46

$$\frac{3\,b^4dx^4+4\,\left(b^4c-ab^3d\right)x^3-6\,\left(ab^3c-a^2b^2d\right)x^2+12\,\left(a^2b^2c-a^3bd\right)x-12\,\left(a^3bc-a^4d\right)\log\left(bx+a\right)}{12\,b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)*x^3/(b*x + a),x, algorithm="fricas")
```

```
[Out] 1/12*(3*b^4*d*x^4 + 4*(b^4*c - a*b^3*d)*x^3 - 6*(a*b^3*c - a^2*b^
2*d)*x^2 + 12*(a^2*b^2*c - a^3*b*d)*x - 12*(a^3*b*c - a^4*d)*log(
b*x + a))/b^5
```

Sympy [A] time = 2.34299, size = 78, normalized size = 0.9

$$\frac{a^3\left(ad-bc\right)\log\left(a+bx\right)}{b^5}+\frac{dx^4}{4b}-\frac{x^3\left(ad-bc\right)}{3b^2}+\frac{x^2\left(a^2d-abc\right)}{2b^3}-\frac{x\left(a^3d-a^2bc\right)}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**3*(d*x+c)/(b*x+a),x)
```

```
[Out] a**3*(a*d - b*c)*log(a + b*x)/b**5 + d*x**4/(4*b) - x**3*(a*d - b
*c)/(3*b**2) + x**2*(a**2*d - a*b*c)/(2*b**3) - x*(a**3*d - a**2*
b*c)/b**4
```

GIAC/XCAS [A] time = 0.262375, size = 128, normalized size = 1.47

$$\frac{3\,b^3dx^4+4\,b^3cx^3-4\,ab^2dx^3-6\,ab^2cx^2+6\,a^2bdx^2+12\,a^2bcx-12\,a^3dx}{12\,b^4}-\frac{\left(a^3bc-a^4d\right)\ln\left(|bx+a|\right)}{b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)*x^3/(b*x + a),x, algorithm="giac")
```

```
[Out] 1/12*(3*b^3*d*x^4 + 4*b^3*c*x^3 - 4*a*b^2*d*x^3 - 6*a*b^2*c*x^2 +
 6*a^2*b*d*x^2 + 12*a^2*b*c*x - 12*a^3*d*x)/b^4 - (a^3*b*c - a^4*
d)*ln(abs(b*x + a))/b^5
```

3.175 $\int \frac{x^2(c+dx)}{a+bx}\,dx$

Optimal. Leaf size=66

$$\frac{a^2(bc-ad)\log(a+bx)}{b^4}-\frac{ax(bc-ad)}{b^3}+\frac{x^2(bc-ad)}{2b^2}+\frac{dx^3}{3b}$$

```
[Out] -((a*(b*c - a*d)*x)/b^3) + ((b*c - a*d)*x^2)/(2*b^2) + (d*x^3)/(3
*b) + (a^2*(b*c - a*d)*Log[a + b*x])/b^4
```

Rubi [A] time = 0.114618, antiderivative size = 66, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$\frac{a^2(bc-ad)\log(a+bx)}{b^4}-\frac{ax(bc-ad)}{b^3}+\frac{x^2(bc-ad)}{2b^2}+\frac{dx^3}{3b}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^2*(c + d*x))/(a + b*x),x]
```

```
[Out] -((a*(b*c - a*d)*x)/b^3) + ((b*c - a*d)*x^2)/(2*b^2) + (d*x^3)/(3
*b) + (a^2*(b*c - a*d)*Log[a + b*x])/b^4
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{a^2\,(ad-bc)\log{(a+bx)}}{b^4}+\frac{dx^3}{3b}-\frac{(ad-bc)\int x\,dx}{b^2}+\frac{(ad-bc)\int a\,dx}{b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(d*x+c)/(b*x+a),x)
```

```
[Out] -a**2*(a*d - b*c)*log(a + b*x)/b**4 + d*x**3/(3*b) - (a*d - b*c)*
Integral(x, x)/b**2 + (a*d - b*c)*Integral(a, x)/b**3
```

Mathematica [A] time = 0.0348711, size = 61, normalized size = 0.92

$$\frac{bx\left(6a^2d-3ab(2c+dx)+b^2x(3c+2dx)\right)+6a^2(bc-ad)\log(a+bx)}{6b^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^2*(c + d*x))/(a + b*x),x]
```

```
[Out] (b*x*(6*a^2*d - 3*a*b*(2*c + d*x) + b^2*x*(3*c + 2*d*x)) + 6*a^2*
(b*c - a*d)*Log[a + b*x])/(6*b^4)
```

Maple [A] time = 0.004, size = 76, normalized size = 1.2

$$\frac{dx^3}{3\,b}-\frac{x^2ad}{2\,b^2}+\frac{cx^2}{2\,b}+\frac{a^2dx}{b^3}-\frac{acx}{b^2}-\frac{a^3\ln{(bx+a)}\,d}{b^4}+\frac{a^2\ln{(bx+a)}\,c}{b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(d*x+c)/(b*x+a),x)
```

```
[Out] 1/3*d*x^3/b-1/2/b^2*x^2*a*d+1/2/b*x^2*c+1/b^3*a^2*d*x-1/b^2*a*c*x
-a^3/b^4*ln(b*x+a)*d+a^2/b^3*ln(b*x+a)*c
```

Maxima [A] time = 1.34616, size = 93, normalized size = 1.41

$$\frac{2\,b^2dx^3+3\,\left(b^2c-abd\right)x^2-6\,\left(abc-a^2d\right)x}{6\,b^3}+\frac{\left(a^2bc-a^3d\right)\log\left(bx+a\right)}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)*x^2/(b*x + a),x, algorithm="maxima")
```

```
[Out] 1/6*(2*b^2*d*x^3 + 3*(b^2*c - a*b*d)*x^2 - 6*(a*b*c - a^2*d)*x)/b
^3 + (a^2*b*c - a^3*d)*log(b*x + a)/b^4
```

Fricas [A] time = 0.203537, size = 96, normalized size = 1.45

$$\frac{2\,b^3dx^3+3\,\left(b^3c-ab^2d\right)x^2-6\,\left(ab^2c-a^2bd\right)x+6\,\left(a^2bc-a^3d\right)\log\left(bx+a\right)}{6\,b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)*x^2/(b*x + a),x, algorithm="fricas")
```

```
[Out] 1/6*(2*b^3*d*x^3 + 3*(b^3*c - a*b^2*d)*x^2 - 6*(a*b^2*c - a^2*b*d
)*x + 6*(a^2*b*c - a^3*d)*log(b*x + a))/b^4
```

Sympy [A] time = 2.28825, size = 58, normalized size = 0.88

$$-\frac{a^2\left(ad-bc\right)\log\left(a+bx\right)}{b^4}+\frac{dx^3}{3b}-\frac{x^2\left(ad-bc\right)}{2b^2}+\frac{x\left(a^2d-abc\right)}{b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(d*x+c)/(b*x+a),x)
```

```
[Out] -a**2*(a*d - b*c)*log(a + b*x)/b**4 + d*x**3/(3*b) - x**2*(a*d -
b*c)/(2*b**2) + x*(a**2*d - a*b*c)/b**3
```

GIAC/XCAS [A] time = 0.245121, size = 95, normalized size = 1.44

$$\frac{2\,b^2dx^3+3\,b^2cx^2-3\,abdx^2-6\,abcx+6\,a^2dx}{6\,b^3}+\frac{\left(a^2bc-a^3d\right)\ln\left(|bx+a|\right)}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)*x^2/(b*x + a),x, algorithm="giac")
```

```
[Out] 1/6*(2*b^2*d*x^3 + 3*b^2*c*x^2 - 3*a*b*d*x^2 - 6*a*b*c*x + 6*a^2*
d*x)/b^3 + (a^2*b*c - a^3*d)*ln(abs(b*x + a))/b^4
```

3.176 $\int \frac{x(c+dx)}{a+bx}\,dx$

Optimal. Leaf size=45

$$-\frac{a(bc-ad)\log(a+bx)}{b^3}+\frac{x(bc-ad)}{b^2}+\frac{dx^2}{2b}$$

```
[Out] ((b*c - a*d)*x)/b^2 + (d*x^2)/(2*b) - (a*(b*c - a*d)*Log[a + b*x]
)/b^3
```

Rubi [A] time = 0.0726813, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 14, $\frac{\text{number of rules}}{\text{integrand size}} = 0.071$

$$-\frac{a(bc-ad)\log(a+bx)}{b^3}+\frac{x(bc-ad)}{b^2}+\frac{dx^2}{2b}$$

Antiderivative was successfully verified.

```
[In]  Int[(x*(c + d*x))/(a + b*x),x]
```

```
[Out] ((b*c - a*d)*x)/b^2 + (d*x^2)/(2*b) - (a*(b*c - a*d)*Log[a + b*x]
)/b^3
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{a\,(ad-bc)\log{(a+bx)}}{b^3}-(ad-bc)\int\frac{1}{b^2}\,dx+\frac{d\int x\,dx}{b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(d*x+c)/(b*x+a),x)
```

```
[Out] a*(a*d - b*c)*log(a + b*x)/b**3 - (a*d - b*c)*Integral(b**(-2), x
) + d*Integral(x, x)/b
```

Mathematica [A] time = 0.0214152, size = 41, normalized size = 0.91

$$\frac{bx(-2ad+2bc+bdx)+2a(ad-bc)\log(a+bx)}{2b^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x*(c + d*x))/(a + b*x),x]
```

```
[Out] (b*x*(2*b*c - 2*a*d + b*d*x) + 2*a*(-(b*c) + a*d)*Log[a + b*x])/(
2*b^3)
```

Maple [A] time = 0.004, size = 52, normalized size = 1.2

$$\frac{dx^2}{2\,b}-\frac{adx}{b^2}+\frac{cx}{b}+\frac{a^2\ln{(bx+a)}\,d}{b^3}-\frac{a\ln{(bx+a)}\,c}{b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(d*x+c)/(b*x+a),x)
```

```
[Out] 1/2*d*x^2/b-1/b^2*a*d*x+1/b*x*c+a^2/b^3*ln(b*x+a)*d-a/b^2*ln(b*x+
a)*c
```

Maxima [A] time = 1.35166, size = 62, normalized size = 1.38

$$\frac{bdx^2 + 2\,(bc - ad)x}{2\,b^2} - \frac{\left(abc - a^2d\right)\log\left(bx + a\right)}{b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)*x/(b*x + a),x, algorithm="maxima")
```

```
[Out] 1/2*(b*d*x^2 + 2*(b*c - a*d)*x)/b^2 - (a*b*c - a^2*d)*log(b*x + a
)/b^3
```

Fricas [A] time = 0.205849, size = 63, normalized size = 1.4

$$\frac{b^2dx^2 + 2\left(b^2c - abd\right)x - 2\left(abc - a^2d\right)\log\left(bx + a\right)}{2\,b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)*x/(b*x + a),x, algorithm="fricas")
```

```
[Out] 1/2*(b^2*d*x^2 + 2*(b^2*c - a*b*d)*x - 2*(a*b*c - a^2*d)*log(b*x
+ a))/b^3
```

Sympy [A] time = 2.13985, size = 37, normalized size = 0.82

$$\frac{a\,(ad - bc)\log\left(a + bx\right)}{b^3} + \frac{dx^2}{2b} - \frac{x\,(ad - bc)}{b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(d*x+c)/(b*x+a),x)
```

```
[Out] a*(a*d - b*c)*log(a + b*x)/b**3 + d*x**2/(2*b) - x*(a*d - b*c)/b*
*2
```

GIAC/XCAS [A] time = 0.2505, size = 62, normalized size = 1.38

$$\frac{bdx^2 + 2\,bcx - 2\,adx}{2\,b^2} - \frac{\left(abc - a^2d\right)\ln\left(|bx + a|\right)}{b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)*x/(b*x + a),x, algorithm="giac")
```

```
[Out] 1/2*(b*d*x^2 + 2*b*c*x - 2*a*d*x)/b^2 - (a*b*c - a^2*d)*ln(abs(b*
x + a))/b^3
```

3.177 $\int \frac{c+dx}{a+bx}\,dx$

Optimal. Leaf size=25

$$\frac{(bc-ad)\log(a+bx)}{b^2}+\frac{dx}{b}$$

```
[Out] (d*x)/b + ((b*c - a*d)*Log[a + b*x])/b^2
```

Rubi [A] time = 0.0419139, antiderivative size = 25, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 13, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.077

$$\frac{(bc-ad)\log(a+bx)}{b^2}+\frac{dx}{b}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)/(a + b*x),x]

[Out] (d*x)/b + ((b*c - a*d)*Log[a + b*x])/b^2
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{\int d\,dx}{b}-\frac{(ad-bc)\log(a+bx)}{b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)/(b*x+a),x)

[Out] Integral(d, x)/b - (a*d - b*c)*log(a + b*x)/b**2
```

Mathematica [A] time = 0.0116576, size = 25, normalized size = 1.

$$\frac{(bc-ad)\log(a+bx)}{b^2}+\frac{dx}{b}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)/(a + b*x),x]

[Out] (d*x)/b + ((b*c - a*d)*Log[a + b*x])/b^2
```

Maple [A] time = 0., size = 32, normalized size = 1.3

$$\frac{dx}{b}-\frac{\ln(bx+a)\,ad}{b^2}+\frac{c\ln(bx+a)}{b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)/(b*x+a),x)

[Out] d*x/b-1/b^2*ln(b*x+a)*a*d+c*ln(b*x+a)/b
```

Maxima [A] time = 1.34345, size = 34, normalized size = 1.36

$$\frac{dx}{b} + \frac{(bc - ad)\log(bx + a)}{b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)/(b*x + a),x, algorithm="maxima")
```

```
[Out] d*x/b + (b*c - a*d)*log(b*x + a)/b^2
```

Fricas [A] time = 0.203038, size = 32, normalized size = 1.28

$$\frac{bdx + (bc - ad)\log(bx + a)}{b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)/(b*x + a),x, algorithm="fricas")
```

```
[Out] (b*d*x + (b*c - a*d)*log(b*x + a))/b^2
```

Sympy [A] time = 1.95995, size = 20, normalized size = 0.8

$$\frac{dx}{b} - \frac{(ad - bc)\log(a + bx)}{b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)/(b*x+a),x)
```

```
[Out] d*x/b - (a*d - b*c)*log(a + b*x)/b**2
```

GIAC/XCAS [A] time = 0.293141, size = 35, normalized size = 1.4

$$\frac{dx}{b} + \frac{(bc - ad)\ln(|bx + a|)}{b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)/(b*x + a),x, algorithm="giac")
```

```
[Out] d*x/b + (b*c - a*d)*ln(abs(b*x + a))/b^2
```

3.178 $\int \frac{c+dx}{x(a+bx)}\,dx$

Optimal. Leaf size=30

$$\frac{c\log(x)}{a}-\frac{(bc-ad)\log(a+bx)}{ab}$$

```
[Out] (c*Log[x])/a - ((b*c - a*d)*Log[a + b*x])/(a*b)
```

Rubi [A] time = 0.0506808, antiderivative size = 30, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$\frac{c\log(x)}{a}-\frac{(bc-ad)\log(a+bx)}{ab}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)/(x*(a + b*x)),x]

[Out] (c*Log[x])/a - ((b*c - a*d)*Log[a + b*x])/(a*b)
```

Rubi in Sympy [A] time = 11.8357, size = 22, normalized size = 0.73

$$\frac{c\log{(x)}}{a}+\frac{(ad-bc)\log{(a+bx)}}{ab}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)/x/(b*x+a),x)

[Out] c*log(x)/a + (a*d - b*c)*log(a + b*x)/(a*b)
```

Mathematica [A] time = 0.0156811, size = 29, normalized size = 0.97

$$\frac{(ad-bc)\log(a+bx)}{ab}+\frac{c\log(x)}{a}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)/(x*(a + b*x)),x]

[Out] (c*Log[x])/a + ((-(b*c) + a*d)*Log[a + b*x])/(a*b)
```

Maple [A] time = 0.007, size = 32, normalized size = 1.1

$$\frac{c\ln{(x)}}{a}+\frac{\ln{(bx+a)}\,d}{b}-\frac{\ln{(bx+a)}\,c}{a}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)/x/(b*x+a),x)

[Out] c*ln(x)/a+1/b*ln(b*x+a)*d-1/a*ln(b*x+a)*c
```

Maxima [A] time = 1.34596, size = 41, normalized size = 1.37

$$\frac{c\log(x)}{a} - \frac{(bc - ad)\log(bx + a)}{ab}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)/((b*x + a)*x),x, algorithm="maxima")
```

```
[Out] c*log(x)/a - (b*c - a*d)*log(b*x + a)/(a*b)
```

Fricas [A] time = 0.208178, size = 39, normalized size = 1.3

$$\frac{bc\log(x) - (bc - ad)\log(bx + a)}{ab}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)/((b*x + a)*x),x, algorithm="fricas")
```

```
[Out] (b*c*log(x) - (b*c - a*d)*log(b*x + a))/(a*b)
```

Sympy [A] time = 2.09683, size = 41, normalized size = 1.37

$$\frac{c\log(x)}{a} + \frac{(ad - bc)\log\left(x + \frac{-ac + \frac{a(ad-bc)}{b}}{ad-2bc}\right)}{ab}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)/x/(b*x+a),x)
```

```
[Out] c*log(x)/a + (a*d - b*c)*log(x + (-a*c + a*(a*d - b*c)/b)/(a*d -
2*b*c))/(a*b)
```

GIAC/XCAS [A] time = 0.264264, size = 43, normalized size = 1.43

$$\frac{c\ln(|x|)}{a} - \frac{(bc - ad)\ln(|bx + a|)}{ab}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)/((b*x + a)*x),x, algorithm="giac")
```

```
[Out] c*ln(abs(x))/a - (b*c - a*d)*ln(abs(b*x + a))/(a*b)
```

3.179 $\int \frac{c+dx}{x^2(a+bx)} dx$

Optimal. Leaf size=43

$$-\frac{\log(x)(bc-ad)}{a^2}+\frac{(bc-ad)\log(a+bx)}{a^2}-\frac{c}{ax}$$

```
[Out] -(c/(a*x)) - ((b*c - a*d)*Log[x])/a^2 + ((b*c - a*d)*Log[a + b*x]
)/a^2
```

Rubi [A] time = 0.0740463, antiderivative size = 43, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}} = 0.062$

$$-\frac{\log(x)(bc-ad)}{a^2}+\frac{(bc-ad)\log(a+bx)}{a^2}-\frac{c}{ax}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)/(x^2*(a + b*x)),x]
```

```
[Out] -(c/(a*x)) - ((b*c - a*d)*Log[x])/a^2 + ((b*c - a*d)*Log[a + b*x]
)/a^2
```

Rubi in Sympy [A] time = 15.3107, size = 34, normalized size = 0.79

$$-\frac{c}{ax}+\frac{(ad-bc)\log(x)}{a^2}-\frac{(ad-bc)\log(a+bx)}{a^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)/x**2/(b*x+a),x)
```

```
[Out] -c/(a*x) + (a*d - b*c)*log(x)/a**2 - (a*d - b*c)*log(a + b*x)/a**
2
```

Mathematica [A] time = 0.0274577, size = 42, normalized size = 0.98

$$\frac{\log(x)(ad-bc)}{a^2}+\frac{(bc-ad)\log(a+bx)}{a^2}-\frac{c}{ax}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)/(x^2*(a + b*x)),x]
```

```
[Out] -(c/(a*x)) + ((-(b*c) + a*d)*Log[x])/a^2 + ((b*c - a*d)*Log[a + b
*x])/a^2
```

Maple [A] time = 0.012, size = 51, normalized size = 1.2

$$-\frac{c}{ax}+\frac{\ln(x)d}{a}-\frac{b\ln(x)c}{a^2}-\frac{\ln(bx+a)d}{a}+\frac{\ln(bx+a)bc}{a^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)/x^2/(b*x+a),x)
```

```
[Out] -c/a/x+1/a*ln(x)*d-1/a^2*ln(x)*b*c-1/a*ln(b*x+a)*d+1/a^2*ln(b*x+a
)*b*c
```

Maxima [A] time = 1.34533, size = 58, normalized size = 1.35

$$\frac{(bc-ad)\log(bx+a)}{a^2} - \frac{(bc-ad)\log(x)}{a^2} - \frac{c}{ax}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)/((b*x + a)*x^2),x, algorithm="maxima")
```

```
[Out] (b*c - a*d)*log(b*x + a)/a^2 - (b*c - a*d)*log(x)/a^2 - c/(a*x)
```

Fricas [A] time = 0.2087, size = 55, normalized size = 1.28

$$\frac{(bc-ad)x\log(bx+a) - (bc-ad)x\log(x) - ac}{a^2x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)/((b*x + a)*x^2),x, algorithm="fricas")
```

```
[Out] ((b*c - a*d)*x*log(b*x + a) - (b*c - a*d)*x*log(x) - a*c)/(a^2*x)
```

Sympy [A] time = 3.06773, size = 95, normalized size = 2.21

$$-\frac{c}{ax} + \frac{(ad-bc)\log\left(x + \frac{a^2d-abc-a(ad-bc)}{2abd-2b^2c}\right)}{a^2} - \frac{(ad-bc)\log\left(x + \frac{a^2d-abc+a(ad-bc)}{2abd-2b^2c}\right)}{a^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)/x**2/(b*x+a),x)
```

```
[Out] -c/(a*x) + (a*d - b*c)*log(x + (a**2*d - a*b*c - a*(a*d - b*c))/(
2*a*b*d - 2*b**2*c))/a**2 - (a*d - b*c)*log(x + (a**2*d - a*b*c +
 a*(a*d - b*c))/(2*a*b*d - 2*b**2*c))/a**2
```

GIAC/XCAS [A] time = 0.307341, size = 69, normalized size = 1.6

$$-\frac{(bc-ad)\ln(|x|)}{a^2} - \frac{c}{ax} + \frac{(b^2c-abd)\ln(|bx+a|)}{a^2b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)/((b*x + a)*x^2),x, algorithm="giac")
```

```
[Out] -(b*c - a*d)*ln(abs(x))/a^2 - c/(a*x) + (b^2*c - a*b*d)*ln(abs(b*
x + a))/(a^2*b)
```

3.180 $\int \frac{c+dx}{x^3(a+bx)} dx$

Optimal. Leaf size=62

$$\frac{b\log(x)(bc-ad)}{a^3} - \frac{b(bc-ad)\log(a+bx)}{a^3} + \frac{bc-ad}{a^2x} - \frac{c}{2ax^2}$$

```
[Out] -c/(2*a*x^2) + (b*c - a*d)/(a^2*x) + (b*(b*c - a*d)*Log[x])/a^3 -
 (b*(b*c - a*d)*Log[a + b*x])/a^3
```

Rubi [A] time = 0.0997947, antiderivative size = 62, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$\frac{b\log(x)(bc-ad)}{a^3} - \frac{b(bc-ad)\log(a+bx)}{a^3} + \frac{bc-ad}{a^2x} - \frac{c}{2ax^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)/(x^3*(a + b*x)),x]
```

```
[Out] -c/(2*a*x^2) + (b*c - a*d)/(a^2*x) + (b*(b*c - a*d)*Log[x])/a^3 -
 (b*(b*c - a*d)*Log[a + b*x])/a^3
```

Rubi in Sympy [A] time = 19.6384, size = 53, normalized size = 0.85

$$-\frac{c}{2ax^2} - \frac{ad-bc}{a^2x} - \frac{b\left(ad-bc\right)\log\left(x\right)}{a^3} + \frac{b\left(ad-bc\right)\log\left(a+bx\right)}{a^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)/x**3/(b*x+a),x)
```

```
[Out] -c/(2*a*x**2) - (a*d - b*c)/(a**2*x) - b*(a*d - b*c)*log(x)/a**3
+ b*(a*d - b*c)*log(a + b*x)/a**3
```

Mathematica [A] time = 0.0515368, size = 58, normalized size = 0.94

$$\frac{-\frac{a(ac+2adx-2bcx)}{x^2} + 2b\log(x)(bc-ad) + 2b(ad-bc)\log(a+bx)}{2a^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)/(x^3*(a + b*x)),x]
```

```
[Out] (-((a*(a*c - 2*b*c*x + 2*a*d*x))/x^2) + 2*b*(b*c - a*d)*Log[x] +
2*b*(-(b*c) + a*d)*Log[a + b*x])/(2*a^3)
```

Maple [A] time = 0.013, size = 75, normalized size = 1.2

$$-\frac{c}{2\,ax^2} - \frac{d}{ax} + \frac{bc}{a^2x} - \frac{b\ln\left(x\right)d}{a^2} + \frac{b^2\ln\left(x\right)c}{a^3} + \frac{b\ln\left(bx+a\right)d}{a^2} - \frac{b^2\ln\left(bx+a\right)c}{a^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)/x^3/(b*x+a),x)
```

```
[Out] -1/2*c/a/x^2-1/a/x*d+1/a^2/x*b*c-1/a^2*b*ln(x)*d+1/a^3*b^2*ln(x)*
c+1/a^2*b*ln(b*x+a)*d-1/a^3*b^2*ln(b*x+a)*c
```

Maxima [A] time = 1.35835, size = 85, normalized size = 1.37

$$-\frac{\left(b^2c-abd\right)\log\left(bx+a\right)}{a^3}+\frac{\left(b^2c-abd\right)\log\left(x\right)}{a^3}-\frac{ac-2\left(bc-ad\right)x}{2\,a^2x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)/((b*x + a)*x^3),x, algorithm="maxima")
```

```
[Out] -(b^2*c - a*b*d)*log(b*x + a)/a^3 + (b^2*c - a*b*d)*log(x)/a^3 -
1/2*(a*c - 2*(b*c - a*d)*x)/(a^2*x^2)
```

Fricas [A] time = 0.209225, size = 92, normalized size = 1.48

$$-\frac{2\left(b^2c-abd\right)x^2\log\left(bx+a\right)-2\left(b^2c-abd\right)x^2\log\left(x\right)+a^2c-2\left(abc-a^2d\right)x}{2\,a^3x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)/((b*x + a)*x^3),x, algorithm="fricas")
```

```
[Out] -1/2*(2*(b^2*c - a*b*d)*x^2*log(b*x + a) - 2*(b^2*c - a*b*d)*x^2*
log(x) + a^2*c - 2*(a*b*c - a^2*d)*x)/(a^3*x^2)
```

Sympy [A] time = 3.7108, size = 131, normalized size = 2.11

$$-\frac{ac+x\left(2ad-2bc\right)}{2a^2x^2}-\frac{b\left(ad-bc\right)\log\left(x+\frac{a^2bd-ab^2c-ab(ad-bc)}{2ab^2d-2b^3c}\right)}{a^3}+\frac{b\left(ad-bc\right)\log\left(x+\frac{a^2bd-ab^2c+ab(ad-bc)}{2ab^2d-2b^3c}\right)}{a^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)/x**3/(b*x+a),x)
```

```
[Out] -(a*c + x*(2*a*d - 2*b*c))/(2*a**2*x**2) - b*(a*d - b*c)*log(x +
(a**2*b*d - a*b**2*c - a*b*(a*d - b*c))/(2*a*b**2*d - 2*b**3*c))/
a**3 + b*(a*d - b*c)*log(x + (a**2*b*d - a*b**2*c + a*b*(a*d - b*
c))/(2*a*b**2*d - 2*b**3*c))/a**3
```

GIAC/XCAS [A] time = 0.296036, size = 101, normalized size = 1.63

$$\frac{\left(b^2c-abd\right)\ln\left(|x|\right)}{a^3}-\frac{\left(b^3c-ab^2d\right)\ln\left(|bx+a|\right)}{a^3b}-\frac{a^2c-2\left(abc-a^2d\right)x}{2\,a^3x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)/((b*x + a)*x^3),x, algorithm="giac")
```

```
[Out] (b^2*c - a*b*d)*ln(abs(x))/a^3 - (b^3*c - a*b^2*d)*ln(abs(b*x + a
))/(a^3*b) - 1/2*(a^2*c - 2*(a*b*c - a^2*d)*x)/(a^3*x^2)
```

3.181 $\int \frac{c+dx}{x^4(a+bx)}\,dx$

Optimal. Leaf size=86

$$-\frac{b^2\log(x)(bc-ad)}{a^4}+\frac{b^2(bc-ad)\log(a+bx)}{a^4}-\frac{b(bc-ad)}{a^3x}+\frac{bc-ad}{2a^2x^2}-\frac{c}{3ax^3}$$

```
[Out] -c/(3*a*x^3) + (b*c - a*d)/(2*a^2*x^2) - (b*(b*c - a*d))/(a^3*x)
- (b^2*(b*c - a*d)*Log[x])/a^4 + (b^2*(b*c - a*d)*Log[a + b*x])/a
^4
```

Rubi [A] time = 0.128087, antiderivative size = 86, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{b^2\log(x)(bc-ad)}{a^4}+\frac{b^2(bc-ad)\log(a+bx)}{a^4}-\frac{b(bc-ad)}{a^3x}+\frac{bc-ad}{2a^2x^2}-\frac{c}{3ax^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)/(x^4*(a + b*x)),x]
```

```
[Out] -c/(3*a*x^3) + (b*c - a*d)/(2*a^2*x^2) - (b*(b*c - a*d))/(a^3*x)
- (b^2*(b*c - a*d)*Log[x])/a^4 + (b^2*(b*c - a*d)*Log[a + b*x])/a
^4
```

Rubi in Sympy [A] time = 26.4072, size = 73, normalized size = 0.85

$$-\frac{c}{3ax^3}-\frac{ad-bc}{2a^2x^2}+\frac{b\,(ad-bc)}{a^3x}+\frac{b^2\,(ad-bc)\log{(x)}}{a^4}-\frac{b^2\,(ad-bc)\log{(a+bx)}}{a^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)/x**4/(b*x+a),x)
```

```
[Out] -c/(3*a*x**3) - (a*d - b*c)/(2*a**2*x**2) + b*(a*d - b*c)/(a**3*x
) + b**2*(a*d - b*c)*log(x)/a**4 - b**2*(a*d - b*c)*log(a + b*x)/
a**4
```

Mathematica [A] time = 0.0783917, size = 81, normalized size = 0.94

$$\frac{\frac{a\left(a^2(-(2c+3dx))+3abx(c+2dx)-6b^2cx^2\right)}{x^3}+6b^2\log(x)(ad-bc)+6b^2(bc-ad)\log(a+bx)}{6a^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)/(x^4*(a + b*x)),x]
```

```
[Out] ((a*(-6*b^2*c*x^2 + 3*a*b*x*(c + 2*d*x) - a^2*(2*c + 3*d*x)))/x^3
 + 6*b^2*(-(b*c) + a*d)*Log[x] + 6*b^2*(b*c - a*d)*Log[a + b*x])/
(6*a^4)
```

Maple [A] time = 0.013, size = 101, normalized size = 1.2

$$-\frac{c}{3\,ax^3}-\frac{d}{2\,ax^2}+\frac{bc}{2\,a^2x^2}+\frac{b^2\ln{(x)}\,d}{a^3}-\frac{b^3\ln{(x)}\,c}{a^4}+\frac{bd}{a^2x}-\frac{b^2c}{a^3x}-\frac{b^2\ln{(bx+a)}\,d}{a^3}+\frac{b^3\ln{(bx+a)}\,c}{a^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)/x^4/(b*x+a),x)
```

```
[Out] -1/3*c/a/x^3-1/2/a/x^2*d+1/2/a^2/x^2*b*c+1/a^3*b^2*ln(x)*d-1/a^4*
b^3*ln(x)*c+1/a^2*b/x*d-1/a^3*b^2/x*c-1/a^3*b^2*ln(b*x+a)*d+1/a^4
*b^3*ln(b*x+a)*c
```

Maxima [A] time = 1.35145, size = 120, normalized size = 1.4

$$\frac{(b^3c - ab^2d)\log(bx + a)}{a^4} - \frac{(b^3c - ab^2d)\log(x)}{a^4} - \frac{2a^2c + 6(b^2c - abd)x^2 - 3(abc - a^2d)x}{6a^3x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)/((b*x + a)*x^4),x, algorithm="maxima")
```

```
[Out] (b^3*c - a*b^2*d)*log(b*x + a)/a^4 - (b^3*c - a*b^2*d)*log(x)/a^4
 - 1/6*(2*a^2*c + 6*(b^2*c - a*b*d)*x^2 - 3*(a*b*c - a^2*d)*x)/(a
^3*x^3)
```

Fricas [A] time = 0.20921, size = 127, normalized size = 1.48

$$\frac{6(b^3c - ab^2d)x^3\log(bx + a) - 6(b^3c - ab^2d)x^3\log(x) - 2a^3c - 6(ab^2c - a^2bd)x^2 + 3(a^2bc - a^3d)x}{6a^4x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)/((b*x + a)*x^4),x, algorithm="fricas")
```

```
[Out] 1/6*(6*(b^3*c - a*b^2*d)*x^3*log(b*x + a) - 6*(b^3*c - a*b^2*d)*x
^3*log(x) - 2*a^3*c - 6*(a*b^2*c - a^2*b*d)*x^2 + 3*(a^2*b*c - a^
3*d)*x)/(a^4*x^3)
```

Sympy [A] time = 4.0612, size = 165, normalized size = 1.92

$$\frac{-2a^2c + x^2(6abd - 6b^2c) + x(-3a^2d + 3abc)}{6a^3x^3} + \frac{b^2(ad - bc)\log\left(x + \frac{a^2b^2d - ab^3c - ab^2(ad - bc)}{2ab^3d - 2b^4c}\right)}{a^4} - \frac{b^2(ad - bc)\log\left(x + \frac{a^2b^2d - ab^3c + ab^2(ad - bc)}{2ab^3d - 2b^4c}\right)}{a^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)/x**4/(b*x+a),x)
```

```
[Out] (-2*a**2*c + x**2*(6*a*b*d - 6*b**2*c) + x*(-3*a**2*d + 3*a*b*c))
/(6*a**3*x**3) + b**2*(a*d - b*c)*log(x + (a**2*b**2*d - a*b**3*c
 - a*b**2*(a*d - b*c))/(2*a*b**3*d - 2*b**4*c))/a**4 - b**2*(a*d
- b*c)*log(x + (a**2*b**2*d - a*b**3*c + a*b**2*(a*d - b*c))/(2*a
*b**3*d - 2*b**4*c))/a**4
```

GIAC/XCAS [A] time = 0.269014, size = 134, normalized size = 1.56

$$-\frac{(b^3c - ab^2d)\ln(|x|)}{a^4} + \frac{(b^4c - ab^3d)\ln(|bx + a|)}{a^4b} - \frac{2a^3c + 6(ab^2c - a^2bd)x^2 - 3(a^2bc - a^3d)x}{6a^4x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)/((b*x + a)*x^4),x, algorithm="giac")
```

```
[Out] -(b^3*c - a*b^2*d)*ln(abs(x))/a^4 + (b^4*c - a*b^3*d)*ln(abs(b*x
+ a))/(a^4*b) - 1/6*(2*a^3*c + 6*(a*b^2*c - a^2*b*d)*x^2 - 3*(a^2
*b*c - a^3*d)*x)/(a^4*x^3)
```

3.182 $\int \frac{x^3(c+dx)^2}{a+bx}\,dx$

Optimal. Leaf size=117

$$-\frac{a^3(bc-ad)^2\log(a+bx)}{b^6}+\frac{a^2x(bc-ad)^2}{b^5}-\frac{ax^2(bc-ad)^2}{2b^4}+\frac{x^3(bc-ad)^2}{3b^3}+\frac{dx^4(2bc-ad)}{4b^2}+\frac{d^2x^5}{5b}$$

```
[Out] (a^2*(b*c - a*d)^2*x)/b^5 - (a*(b*c - a*d)^2*x^2)/(2*b^4) + ((b*c
 - a*d)^2*x^3)/(3*b^3) + (d*(2*b*c - a*d)*x^4)/(4*b^2) + (d^2*x^5
)/(5*b) - (a^3*(b*c - a*d)^2*Log[a + b*x])/b^6
```

Rubi [A] time = 0.236442, antiderivative size = 117, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.056$

$$-\frac{a^3(bc-ad)^2\log(a+bx)}{b^6}+\frac{a^2x(bc-ad)^2}{b^5}-\frac{ax^2(bc-ad)^2}{2b^4}+\frac{x^3(bc-ad)^2}{3b^3}+\frac{dx^4(2bc-ad)}{4b^2}+\frac{d^2x^5}{5b}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^3*(c + d*x)^2)/(a + b*x),x]
```

```
[Out] (a^2*(b*c - a*d)^2*x)/b^5 - (a*(b*c - a*d)^2*x^2)/(2*b^4) + ((b*c
 - a*d)^2*x^3)/(3*b^3) + (d*(2*b*c - a*d)*x^4)/(4*b^2) + (d^2*x^5
)/(5*b) - (a^3*(b*c - a*d)^2*Log[a + b*x])/b^6
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{a^3\left(ad-bc\right)^2\log\left(a+bx\right)}{b^6}-\frac{a\left(ad-bc\right)^2\int x\,dx}{b^4}+\frac{d^2x^5}{5b}-\frac{dx^4\left(ad-2bc\right)}{4b^2}+\frac{x^3\left(ad-bc\right)^2}{3b^3}+\frac{\left(ad-bc\right)^2\int a^2\,dx}{b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3*(d*x+c)**2/(b*x+a),x)
```

```
[Out] -a**3*(a*d - b*c)**2*log(a + b*x)/b**6 - a*(a*d - b*c)**2*Integra
l(x, x)/b**4 + d**2*x**5/(5*b) - d*x**4*(a*d - 2*b*c)/(4*b**2) +
x**3*(a*d - b*c)**2/(3*b**3) + (a*d - b*c)**2*Integral(a**2, x)/b
**5
```

Mathematica [A] time = 0.206231, size = 112, normalized size = 0.96

$$\frac{-60a^3(bc-ad)^2\log(a+bx)+60a^2bx(bc-ad)^2+15b^4dx^4(2bc-ad)+20b^3x^3(bc-ad)^2-30ab^2x^2(bc-ad)^2+12b^5d^2x^5}{60b^6}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^3*(c + d*x)^2)/(a + b*x),x]
```

```
[Out] (60*a^2*b*(b*c - a*d)^2*x - 30*a*b^2*(b*c - a*d)^2*x^2 + 20*b^3*(
b*c - a*d)^2*x^3 + 15*b^4*d*(2*b*c - a*d)*x^4 + 12*b^5*d^2*x^5 -
60*a^3*(b*c - a*d)^2*Log[a + b*x])/(60*b^6)
```

Maple [A] time = 0.006, size = 192, normalized size = 1.6

$$\frac{d^2x^5}{5\,b}-\frac{x^4ad^2}{4\,b^2}+\frac{x^4cd}{2\,b}+\frac{x^3a^2d^2}{3\,b^3}-\frac{2\,x^3acd}{3\,b^2}+\frac{x^3c^2}{3\,b}-\frac{x^2a^3d^2}{2\,b^4}+\frac{a^2x^2cd}{b^3}-\frac{x^2ac^2}{2\,b^2}+\frac{a^4d^2x}{b^5}-2\,\frac{a^3cdx}{b^4}+\frac{a^2c^2x}{b^3}-\frac{a^5\ln\left(bx+a\right)d^2}{b^6}+2\,\frac{a^4\ln\left(bx+a\right)cd}{b^5}-\frac{a^3\ln\left(bx+a\right)c^2}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int(x^3*(d*x+c)^2/(b*x+a),x)
```

```
[Out] 1/5*d^2*x^5/b-1/4/b^2*x^4*a*d^2+1/2/b*x^4*c*d+1/3/b^3*x^3*a^2*d^2
-2/3/b^2*x^3*a*c*d+1/3/b*x^3*c^2-1/2/b^4*x^2*a^3*d^2+1/b^3*x^2*a^
2*c*d-1/2/b^2*x^2*a*c^2+1/b^5*a^4*d^2*x-2/b^4*a^3*c*d*x+1/b^3*a^2
*c^2*x-a^5/b^6*ln(b*x+a)*d^2+2*a^4/b^5*ln(b*x+a)*c*d-a^3/b^4*ln(b
*x+a)*c^2
```

Maxima [A] time = 1.3514, size = 228, normalized size = 1.95

$$\frac{12\,b^4d^2x^5 + 15\left(2\,b^4cd - ab^3d^2\right)x^4 + 20\left(b^4c^2 - 2\,ab^3cd + a^2b^2d^2\right)x^3 - 30\left(ab^3c^2 - 2\,a^2b^2cd + a^3bd^2\right)x^2 + 60\left(a^2b^2c^2 - 2\,a^3\right.}{60\,b^5}$$
$$-\frac{\left(a^3b^2c^2 - 2\,a^4bcd + a^5d^2\right)\log\left(bx + a\right)}{b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((d*x + c)^2*x^3/(b*x + a),x, algorithm="maxima")
```

```
[Out] 1/60*(12*b^4*d^2*x^5 + 15*(2*b^4*c*d - a*b^3*d^2)*x^4 + 20*(b^4*c
^2 - 2*a*b^3*c*d + a^2*b^2*d^2)*x^3 - 30*(a*b^3*c^2 - 2*a^2*b^2*c
*d + a^3*b*d^2)*x^2 + 60*(a^2*b^2*c^2 - 2*a^3*b*c*d + a^4*d^2)*x)
/b^5 - (a^3*b^2*c^2 - 2*a^4*b*c*d + a^5*d^2)*log(b*x + a)/b^6
```

Fricas [A] time = 0.208014, size = 230, normalized size = 1.97

$$\frac{12\,b^5d^2x^5 + 15\left(2\,b^5cd - ab^4d^2\right)x^4 + 20\left(b^5c^2 - 2\,ab^4cd + a^2b^3d^2\right)x^3 - 30\left(ab^4c^2 - 2\,a^2b^3cd + a^3b^2d^2\right)x^2 + 60\left(a^2b^3c^2 - 2\,a\right.}{60\,b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((d*x + c)^2*x^3/(b*x + a),x, algorithm="fricas")
```

```
[Out] 1/60*(12*b^5*d^2*x^5 + 15*(2*b^5*c*d - a*b^4*d^2)*x^4 + 20*(b^5*c
^2 - 2*a*b^4*c*d + a^2*b^3*d^2)*x^3 - 30*(a*b^4*c^2 - 2*a^2*b^3*c
*d + a^3*b^2*d^2)*x^2 + 60*(a^2*b^3*c^2 - 2*a^3*b^2*c*d + a^4*b*d
^2)*x - 60*(a^3*b^2*c^2 - 2*a^4*b*c*d + a^5*d^2)*log(b*x + a))/b^
6
```

Sympy [A] time = 3.0012, size = 148, normalized size = 1.26

$$-\frac{a^3\left(ad - bc\right)^2\log\left(a + bx\right)}{b^6} + \frac{d^2x^5}{5b} - \frac{x^4\left(ad^2 - 2bcd\right)}{4b^2} + \frac{x^3\left(a^2d^2 - 2abcd + b^2c^2\right)}{3b^3} - \frac{x^2\left(a^3d^2 - 2a^2bcd + ab^2c^2\right)}{2b^4} + \frac{x\left(a^4d^2 - 2a^3bcd + a^2b^2c^2\right)}{b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(x**3*(d*x+c)**2/(b*x+a),x)
```

```
[Out] -a**3*(a*d - b*c)**2*log(a + b*x)/b**6 + d**2*x**5/(5*b) - x**4*(
a*d**2 - 2*b*c*d)/(4*b**2) + x**3*(a**2*d**2 - 2*a*b*c*d + b**2*c
**2)/(3*b**3) - x**2*(a**3*d**2 - 2*a**2*b*c*d + a*b**2*c**2)/(2*
b**4) + x*(a**4*d**2 - 2*a**3*b*c*d + a**2*b**2*c**2)/b**5
```

GIAC/XCAS [A] time = 0.261551, size = 244, normalized size = 2.09

$$\frac{12\,b^4d^2x^5 + 30\,b^4cdx^4 - 15\,ab^3d^2x^4 + 20\,b^4c^2x^3 - 40\,ab^3cdx^3 + 20\,a^2b^2d^2x^3 - 30\,ab^3c^2x^2 + 60\,a^2b^2cdx^2 - 30\,a^3bd^2x^2 + 60}{60\,b^5}$$

$$-\frac{\left(a^3b^2c^2 - 2\,a^4bcd + a^5d^2\right)\ln\left(|bx + a|\right)}{b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2*x^3/(b*x + a),x, algorithm="giac")
```

```
[Out] 1/60*(12*b^4*d^2*x^5 + 30*b^4*c*d*x^4 - 15*a*b^3*d^2*x^4 + 20*b^4
*c^2*x^3 - 40*a*b^3*c*d*x^3 + 20*a^2*b^2*d^2*x^3 - 30*a*b^3*c^2*x
^2 + 60*a^2*b^2*c*d*x^2 - 30*a^3*b*d^2*x^2 + 60*a^2*b^2*c^2*x - 1
20*a^3*b*c*d*x + 60*a^4*d^2*x)/b^5 - (a^3*b^2*c^2 - 2*a^4*b*c*d +
 a^5*d^2)*ln(abs(b*x + a))/b^6
```

3.183 $\int \frac{x^2(c+dx)^2}{a+bx} \, dx$

Optimal. Leaf size=94

$$\frac{a^2(bc-ad)^2\log(a+bx)}{b^5}-\frac{ax(bc-ad)^2}{b^4}+\frac{x^2(bc-ad)^2}{2b^3}+\frac{dx^3(2bc-ad)}{3b^2}+\frac{d^2x^4}{4b}$$

```
[Out] -((a*(b*c - a*d)^2*x)/b^4) + ((b*c - a*d)^2*x^2)/(2*b^3) + (d*(2*
b*c - a*d)*x^3)/(3*b^2) + (d^2*x^4)/(4*b) + (a^2*(b*c - a*d)^2*Lo
g[a + b*x])/b^5
```

Rubi [A] time = 0.177396, antiderivative size = 94, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{a^2(bc-ad)^2\log(a+bx)}{b^5}-\frac{ax(bc-ad)^2}{b^4}+\frac{x^2(bc-ad)^2}{2b^3}+\frac{dx^3(2bc-ad)}{3b^2}+\frac{d^2x^4}{4b}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^2*(c + d*x)^2)/(a + b*x),x]
```

```
[Out] -((a*(b*c - a*d)^2*x)/b^4) + ((b*c - a*d)^2*x^2)/(2*b^3) + (d*(2*
b*c - a*d)*x^3)/(3*b^2) + (d^2*x^4)/(4*b) + (a^2*(b*c - a*d)^2*Lo
g[a + b*x])/b^5
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{a^2\left(ad-bc\right)^2\log\left(a+bx\right)}{b^5}+\frac{d^2x^4}{4b}-\frac{dx^3\left(ad-2bc\right)}{3b^2}+\frac{\left(ad-bc\right)^2\int x\,dx}{b^3}-\frac{\left(ad-bc\right)^2\int a\,dx}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(d*x+c)**2/(b*x+a),x)
```

```
[Out] a**2*(a*d - b*c)**2*log(a + b*x)/b**5 + d**2*x**4/(4*b) - d*x**3*
(a*d - 2*b*c)/(3*b**2) + (a*d - b*c)**2*Integral(x, x)/b**3 - (a*
d - b*c)**2*Integral(a, x)/b**4
```

Mathematica [A] time = 0.0624581, size = 103, normalized size = 1.1

$$\frac{12a^2(bc-ad)^2\log(a+bx)+bx\left(-12a^3d^2+6a^2bd(4c+dx)-4ab^2\left(3c^2+3cdx+d^2x^2\right)+b^3x\left(6c^2+8cdx+3d^2x^2\right)\right)}{12b^5}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^2*(c + d*x)^2)/(a + b*x),x]
```

```
[Out] (b*x*(-12*a^3*d^2 + 6*a^2*b*d*(4*c + d*x) - 4*a*b^2*(3*c^2 + 3*c*
d*x + d^2*x^2) + b^3*x*(6*c^2 + 8*c*d*x + 3*d^2*x^2)) + 12*a^2*(b
*c - a*d)^2*Log[a + b*x])/(12*b^5)
```

Maple [A] time = 0.004, size = 152, normalized size = 1.6

$$\frac{d^2x^4}{4\,b}-\frac{x^3ad^2}{3\,b^2}+\frac{2\,cx^3d}{3\,b}+\frac{a^2x^2d^2}{2\,b^3}-\frac{x^2acd}{b^2}+\frac{x^2c^2}{2\,b}-\frac{xa^3d^2}{b^4}+2\,\frac{a^2cdx}{b^3}-\frac{ac^2x}{b^2}+\frac{a^4\ln(bx+a)\,d^2}{b^5}-2\,\frac{a^3\ln(bx+a)\,cd}{b^4}+\frac{a^2\ln(bx+a)\,c^2}{b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int(x^2*(d*x+c)^2/(b*x+a),x)
```

```
[Out] 1/4*d^2*x^4/b-1/3/b^2*x^3*a*d^2+2/3/b*x^3*c*d+1/2/b^3*x^2*a^2*d^2
-1/b^2*x^2*a*c*d+1/2/b*x^2*c^2-1/b^4*x*a^3*d^2+2/b^3*a^2*c*d*x-1/
b^2*a*c^2*x+a^4/b^5*ln(b*x+a)*d^2-2*a^3/b^4*ln(b*x+a)*c*d+a^2/b^3
*ln(b*x+a)*c^2
```

Maxima [A] time = 1.35257, size = 178, normalized size = 1.89

$$\frac{3\,b^3d^2x^4 + 4\left(2\,b^3cd - ab^2d^2\right)x^3 + 6\left(b^3c^2 - 2\,ab^2cd + a^2bd^2\right)x^2 - 12\left(ab^2c^2 - 2\,a^2bcd + a^3d^2\right)x}{12\,b^4} + \frac{\left(a^2b^2c^2 - 2\,a^3bcd + a^4d^2\right)\log\left(bx + a\right)}{b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((d*x + c)^2*x^2/(b*x + a),x, algorithm="maxima")
```

```
[Out] 1/12*(3*b^3*d^2*x^4 + 4*(2*b^3*c*d - a*b^2*d^2)*x^3 + 6*(b^3*c^2
- 2*a*b^2*c*d + a^2*b*d^2)*x^2 - 12*(a*b^2*c^2 - 2*a^2*b*c*d + a^
3*d^2)*x)/b^4 + (a^2*b^2*c^2 - 2*a^3*b*c*d + a^4*d^2)*log(b*x + a
)/b^5
```

Fricas [A] time = 0.202601, size = 181, normalized size = 1.93

$$\frac{3\,b^4d^2x^4 + 4\left(2\,b^4cd - ab^3d^2\right)x^3 + 6\left(b^4c^2 - 2\,ab^3cd + a^2b^2d^2\right)x^2 - 12\left(ab^3c^2 - 2\,a^2b^2cd + a^3bd^2\right)x + 12\left(a^2b^2c^2 - 2\,a^3bcd\right.}{12\,b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((d*x + c)^2*x^2/(b*x + a),x, algorithm="fricas")
```

```
[Out] 1/12*(3*b^4*d^2*x^4 + 4*(2*b^4*c*d - a*b^3*d^2)*x^3 + 6*(b^4*c^2
- 2*a*b^3*c*d + a^2*b^2*d^2)*x^2 - 12*(a*b^3*c^2 - 2*a^2*b^2*c*d
+ a^3*b*d^2)*x + 12*(a^2*b^2*c^2 - 2*a^3*b*c*d + a^4*d^2)*log(b*x
 + a))/b^5
```

Sympy [A] time = 2.84664, size = 112, normalized size = 1.19

$$\frac{a^2\left(ad - bc\right)^2\log\left(a + bx\right)}{b^5} + \frac{d^2x^4}{4b} - \frac{x^3\left(ad^2 - 2bcd\right)}{3b^2} + \frac{x^2\left(a^2d^2 - 2abcd + b^2c^2\right)}{2b^3} - \frac{x\left(a^3d^2 - 2a^2bcd + ab^2c^2\right)}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(x**2*(d*x+c)**2/(b*x+a),x)
```

```
[Out] a**2*(a*d - b*c)**2*log(a + b*x)/b**5 + d**2*x**4/(4*b) - x**3*(a
*d**2 - 2*b*c*d)/(3*b**2) + x**2*(a**2*d**2 - 2*a*b*c*d + b**2*c*
*2)/(2*b**3) - x*(a**3*d**2 - 2*a**2*b*c*d + a*b**2*c**2)/b**4
```

GIAC/XCAS [A] time = 0.29494, size = 188, normalized size = 2.

$$\frac{3\,b^3d^2x^4 + 8\,b^3cdx^3 - 4\,ab^2d^2x^3 + 6\,b^3c^2x^2 - 12\,ab^2cdx^2 + 6\,a^2bd^2x^2 - 12\,ab^2c^2x + 24\,a^2bcdx - 12\,a^3d^2x}{12\,b^4} + \frac{\left(a^2b^2c^2 - 2\,a^3bcd + a^4d^2\right)\ln\left(|bx + a|\right)}{b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2*x^2/(b*x + a),x, algorithm="giac")
```

```
[Out] 1/12*(3*b^3*d^2*x^4 + 8*b^3*c*d*x^3 - 4*a*b^2*d^2*x^3 + 6*b^3*c^2
*x^2 - 12*a*b^2*c*d*x^2 + 6*a^2*b*d^2*x^2 - 12*a*b^2*c^2*x + 24*a
^2*b*c*d*x - 12*a^3*d^2*x)/b^4 + (a^2*b^2*c^2 - 2*a^3*b*c*d + a^4
*d^2)*ln(abs(b*x + a))/b^5
```

3.184 $\int \frac{x(c+dx)^2}{a+bx}\,dx$

Optimal. Leaf size=71

$$-\frac{a(bc-ad)^2\log(a+bx)}{b^4}+\frac{x(bc-ad)^2}{b^3}+\frac{dx^2(2bc-ad)}{2b^2}+\frac{d^2x^3}{3b}$$

```
[Out] ((b*c - a*d)^2*x)/b^3 + (d*(2*b*c - a*d)*x^2)/(2*b^2) + (d^2*x^3)
/(3*b) - (a*(b*c - a*d)^2*Log[a + b*x])/b^4
```

Rubi [A] time = 0.114312, antiderivative size = 71, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{a(bc-ad)^2\log(a+bx)}{b^4}+\frac{x(bc-ad)^2}{b^3}+\frac{dx^2(2bc-ad)}{2b^2}+\frac{d^2x^3}{3b}$$

Antiderivative was successfully verified.

```
[In]  Int[(x*(c + d*x)^2)/(a + b*x),x]
```

```
[Out] ((b*c - a*d)^2*x)/b^3 + (d*(2*b*c - a*d)*x^2)/(2*b^2) + (d^2*x^3)
/(3*b) - (a*(b*c - a*d)^2*Log[a + b*x])/b^4
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{a\left(ad-bc\right)^2\log\left(a+bx\right)}{b^4}+\left(ad-bc\right)^2\int\frac{1}{b^3}\,dx+\frac{d^2x^3}{3b}-\frac{d\left(ad-2bc\right)\int x\,dx}{b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(d*x+c)**2/(b*x+a),x)
```

```
[Out] -a*(a*d - b*c)**2*log(a + b*x)/b**4 + (a*d - b*c)**2*Integral(b**
(-3), x) + d**2*x**3/(3*b) - d*(a*d - 2*b*c)*Integral(x, x)/b**2
```

Mathematica [A] time = 0.0463681, size = 74, normalized size = 1.04

$$\frac{bx\left(6a^2d^2-3abd(4c+dx)+2b^2\left(3c^2+3cdx+d^2x^2\right)\right)-6a(bc-ad)^2\log(a+bx)}{6b^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x*(c + d*x)^2)/(a + b*x),x]
```

```
[Out] (b*x*(6*a^2*d^2 - 3*a*b*d*(4*c + d*x) + 2*b^2*(3*c^2 + 3*c*d*x +
d^2*x^2)) - 6*a*(b*c - a*d)^2*Log[a + b*x])/(6*b^4)
```

Maple [A] time = 0.003, size = 110, normalized size = 1.6

$$\frac{d^2x^3}{3\,b}-\frac{x^2ad^2}{2\,b^2}+\frac{cx^2d}{b}+\frac{a^2d^2x}{b^3}-2\,\frac{acdx}{b^2}+\frac{c^2x}{b}-\frac{a^3\ln\left(bx+a\right)d^2}{b^4}+2\,\frac{a^2\ln\left(bx+a\right)cd}{b^3}-\frac{a\ln\left(bx+a\right)c^2}{b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(d*x+c)^2/(b*x+a),x)
```

```
[Out] 1/3*d^2*x^3/b-1/2/b^2*x^2*a*d^2+1/b*x^2*c*d+1/b^3*a^2*d^2*x-2/b^2
*a*c*d*x+1/b*c^2*x-a^3/b^4*ln(b*x+a)*d^2+2*a^2/b^3*ln(b*x+a)*c*d-
a/b^2*ln(b*x+a)*c^2
```

Maxima [A] time = 1.3479, size = 131, normalized size = 1.85

$$\frac{2\,b^2d^2x^3+3\,\left(2\,b^2cd-abd^2\right)x^2+6\,\left(b^2c^2-2\,abcd+a^2d^2\right)x}{6\,b^3}-\frac{\left(ab^2c^2-2\,a^2bcd+a^3d^2\right)\log\left(bx+a\right)}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2*x/(b*x + a),x, algorithm="maxima")
```

```
[Out] 1/6*(2*b^2*d^2*x^3 + 3*(2*b^2*c*d - a*b*d^2)*x^2 + 6*(b^2*c^2 - 2
*a*b*c*d + a^2*d^2)*x)/b^3 - (a*b^2*c^2 - 2*a^2*b*c*d + a^3*d^2)*
log(b*x + a)/b^4
```

Fricas [A] time = 0.203769, size = 132, normalized size = 1.86

$$\frac{2\,b^3d^2x^3+3\,\left(2\,b^3cd-ab^2d^2\right)x^2+6\,\left(b^3c^2-2\,ab^2cd+a^2bd^2\right)x-6\,\left(ab^2c^2-2\,a^2bcd+a^3d^2\right)\log\left(bx+a\right)}{6\,b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2*x/(b*x + a),x, algorithm="fricas")
```

```
[Out] 1/6*(2*b^3*d^2*x^3 + 3*(2*b^3*c*d - a*b^2*d^2)*x^2 + 6*(b^3*c^2 -
 2*a*b^2*c*d + a^2*b*d^2)*x - 6*(a*b^2*c^2 - 2*a^2*b*c*d + a^3*d^
2)*log(b*x + a))/b^4
```

Sympy [A] time = 2.66444, size = 76, normalized size = 1.07

$$-\frac{a\left(ad-bc\right)^2\log\left(a+bx\right)}{b^4}+\frac{d^2x^3}{3b}-\frac{x^2\left(ad^2-2bcd\right)}{2b^2}+\frac{x\left(a^2d^2-2abcd+b^2c^2\right)}{b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(d*x+c)**2/(b*x+a),x)
```

```
[Out] -a*(a*d - b*c)**2*log(a + b*x)/b**4 + d**2*x**3/(3*b) - x**2*(a*d
**2 - 2*b*c*d)/(2*b**2) + x*(a**2*d**2 - 2*a*b*c*d + b**2*c**2)/b
**3
```

GIAC/XCAS [A] time = 0.285471, size = 134, normalized size = 1.89

$$\frac{2\,b^2d^2x^3+6\,b^2cdx^2-3\,abd^2x^2+6\,b^2c^2x-12\,abcdx+6\,a^2d^2x}{6\,b^3}-\frac{\left(ab^2c^2-2\,a^2bcd+a^3d^2\right)\ln\left(|bx+a|\right)}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2*x/(b*x + a),x, algorithm="giac")
```

```
[Out] 1/6*(2*b^2*d^2*x^3 + 6*b^2*c*d*x^2 - 3*a*b*d^2*x^2 + 6*b^2*c^2*x
- 12*a*b*c*d*x + 6*a^2*d^2*x)/b^3 - (a*b^2*c^2 - 2*a^2*b*c*d + a^
3*d^2)*ln(abs(b*x + a))/b^4
```

3.185 $\int \frac{(c+dx)^2}{a+bx} dx$

Optimal. Leaf size=49

$$\frac{(bc-ad)^2\log(a+bx)}{b^3}+\frac{dx(bc-ad)}{b^2}+\frac{(c+dx)^2}{2b}$$

```
[Out] (d*(b*c - a*d)*x)/b^2 + (c + d*x)^2/(2*b) + ((b*c - a*d)^2*Log[a
+ b*x])/b^3
```

Rubi [A] time = 0.0524235, antiderivative size = 49, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.067

$$\frac{(bc-ad)^2\log(a+bx)}{b^3}+\frac{dx(bc-ad)}{b^2}+\frac{(c+dx)^2}{2b}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^2/(a + b*x),x]
```

```
[Out] (d*(b*c - a*d)*x)/b^2 + (c + d*x)^2/(2*b) + ((b*c - a*d)^2*Log[a
+ b*x])/b^3
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{(c+dx)^2}{2b}-\frac{(ad-bc)\int d\,dx}{b^2}+\frac{(ad-bc)^2\log(a+bx)}{b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**2/(b*x+a),x)
```

```
[Out] (c + d*x)**2/(2*b) - (a*d - b*c)*Integral(d, x)/b**2 + (a*d - b*c
)**2*log(a + b*x)/b**3
```

Mathematica [A] time = 0.0267893, size = 43, normalized size = 0.88

$$\frac{bdx(-2ad+4bc+bdx)+2(bc-ad)^2\log(a+bx)}{2b^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^2/(a + b*x),x]
```

```
[Out] (b*d*x*(4*b*c - 2*a*d + b*d*x) + 2*(b*c - a*d)^2*Log[a + b*x])/(2
*b^3)
```

Maple [A] time = 0., size = 74, normalized size = 1.5

$$\frac{d^2x^2}{2\,b}-\frac{d^2ax}{b^2}+2\,\frac{dxc}{b}+\frac{\ln(bx+a)\,a^2d^2}{b^3}-2\,\frac{\ln(bx+a)\,acd}{b^2}+\frac{\ln(bx+a)\,c^2}{b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^2/(b*x+a),x)
```

```
[Out] 1/2*d^2/b*x^2-d^2/b^2*a*x+2*d/b*x*c+1/b^3*ln(b*x+a)*a^2*d^2-2/b^2
*ln(b*x+a)*a*c*d+1/b*ln(b*x+a)*c^2
```

Maxima [A] time = 1.35595, size = 82, normalized size = 1.67

$$\frac{bd^2x^2 + 2\left(2\,bcd - ad^2\right)x}{2\,b^2} + \frac{\left(b^2c^2 - 2\,abcd + a^2d^2\right)\log\left(bx + a\right)}{b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2/(b*x + a),x, algorithm="maxima")
```

```
[Out] 1/2*(b*d^2*x^2 + 2*(2*b*c*d - a*d^2)*x)/b^2 + (b^2*c^2 - 2*a*b*c*
d + a^2*d^2)*log(b*x + a)/b^3
```

Fricas [A] time = 0.199455, size = 85, normalized size = 1.73

$$\frac{b^2d^2x^2 + 2\left(2\,b^2cd - abd^2\right)x + 2\left(b^2c^2 - 2\,abcd + a^2d^2\right)\log\left(bx + a\right)}{2\,b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2/(b*x + a),x, algorithm="fricas")
```

```
[Out] 1/2*(b^2*d^2*x^2 + 2*(2*b^2*c*d - a*b*d^2)*x + 2*(b^2*c^2 - 2*a*b
*c*d + a^2*d^2)*log(b*x + a))/b^3
```

Sympy [A] time = 2.41855, size = 44, normalized size = 0.9

$$\frac{d^2x^2}{2b} - \frac{x\left(ad^2 - 2bcd\right)}{b^2} + \frac{(ad - bc)^2\log\left(a + bx\right)}{b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**2/(b*x+a),x)
```

```
[Out] d**2*x**2/(2*b) - x*(a*d**2 - 2*b*c*d)/b**2 + (a*d - b*c)**2*log(
a + b*x)/b**3
```

GIAC/XCAS [A] time = 0.281295, size = 81, normalized size = 1.65

$$\frac{bd^2x^2 + 4\,bcdx - 2\,ad^2x}{2\,b^2} + \frac{\left(b^2c^2 - 2\,abcd + a^2d^2\right)\ln\left(|bx + a|\right)}{b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2/(b*x + a),x, algorithm="giac")
```

```
[Out] 1/2*(b*d^2*x^2 + 4*b*c*d*x - 2*a*d^2*x)/b^2 + (b^2*c^2 - 2*a*b*c*
d + a^2*d^2)*ln(abs(b*x + a))/b^3
```

3.186 $\int \frac{(c+dx)^2}{x(a+bx)}\,dx$

Optimal. Leaf size=42

$$-\frac{(bc-ad)^2\log(a+bx)}{ab^2}+\frac{c^2\log(x)}{a}+\frac{d^2x}{b}$$

```
[Out] (d^2*x)/b + (c^2*Log[x])/a - ((b*c - a*d)^2*Log[a + b*x])/(a*b^2)
```

Rubi [A] time = 0.0717783, antiderivative size = 42, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{(bc-ad)^2\log(a+bx)}{ab^2}+\frac{c^2\log(x)}{a}+\frac{d^2x}{b}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^2/(x*(a + b*x)),x]
```

```
[Out] (d^2*x)/b + (c^2*Log[x])/a - ((b*c - a*d)^2*Log[a + b*x])/(a*b^2)
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$d^2\int\frac{1}{b}\,dx+\frac{c^2\log(x)}{a}-\frac{(ad-bc)^2\log(a+bx)}{ab^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**2/x/(b*x+a),x)
```

```
[Out] d**2*Integral(1/b, x) + c**2*log(x)/a - (a*d - b*c)**2*log(a + b*
x)/(a*b**2)
```

Mathematica [A] time = 0.0300781, size = 42, normalized size = 1.

$$\frac{-(bc-ad)^2\log(a+bx)+abd^2x+b^2c^2\log(x)}{ab^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^2/(x*(a + b*x)),x]
```

```
[Out] (a*b*d^2*x + b^2*c^2*Log[x] - (b*c - a*d)^2*Log[a + b*x])/(a*b^2)
```

Maple [A] time = 0.009, size = 61, normalized size = 1.5

$$\frac{d^2x}{b}+\frac{c^2\ln(x)}{a}-\frac{a\ln(bx+a)d^2}{b^2}+2\,\frac{\ln(bx+a)cd}{b}-\frac{\ln(bx+a)c^2}{a}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^2/x/(b*x+a),x)
```

```
[Out] d^2*x/b+c^2*ln(x)/a-a/b^2*ln(b*x+a)*d^2+2/b*ln(b*x+a)*c*d-1/a*ln(
b*x+a)*c^2
```

Maxima [A] time = 1.36945, size = 72, normalized size = 1.71

$$\frac{d^2x}{b} + \frac{c^2 \log(x)}{a} - \frac{(b^2c^2 - 2\,abcd + a^2d^2) \log(bx + a)}{ab^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2/((b*x + a)*x),x, algorithm="maxima")
```

```
[Out] d^2*x/b + c^2*log(x)/a - (b^2*c^2 - 2*a*b*c*d + a^2*d^2)*log(b*x
+ a)/(a*b^2)
```

Fricas [A] time = 0.211574, size = 72, normalized size = 1.71

$$\frac{abd^2x + b^2c^2 \log(x) - (b^2c^2 - 2\,abcd + a^2d^2) \log(bx + a)}{ab^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2/((b*x + a)*x),x, algorithm="fricas")
```

```
[Out] (a*b*d^2*x + b^2*c^2*log(x) - (b^2*c^2 - 2*a*b*c*d + a^2*d^2)*log
(b*x + a))/(a*b^2)
```

Sympy [A] time = 5.57297, size = 73, normalized size = 1.74

$$\frac{d^2x}{b} + \frac{c^2 \log(x)}{a} - \frac{(ad - bc)^2 \log\left(x + \frac{abc^2 + \frac{a(ad-bc)^2}{b}}{a^2d^2 - 2abcd + 2b^2c^2}\right)}{ab^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**2/x/(b*x+a),x)
```

```
[Out] d**2*x/b + c**2*log(x)/a - (a*d - b*c)**2*log(x + (a*b*c**2 + a*(
a*d - b*c)**2/b)/(a**2*d**2 - 2*a*b*c*d + 2*b**2*c**2))/(a*b**2)
```

GIAC/XCAS [A] time = 0.267028, size = 74, normalized size = 1.76

$$\frac{d^2x}{b} + \frac{c^2\ln(|x|)}{a} - \frac{(b^2c^2 - 2\,abcd + a^2d^2)\ln(|bx + a|)}{ab^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2/((b*x + a)*x),x, algorithm="giac")
```

```
[Out] d^2*x/b + c^2*ln(abs(x))/a - (b^2*c^2 - 2*a*b*c*d + a^2*d^2)*ln(a
bs(b*x + a))/(a*b^2)
```

3.187 $\int \frac{(c+dx)^2}{x^2(a+bx)}\,dx$

Optimal. Leaf size=51

$$-\frac{c\log(x)(bc-2ad)}{a^2}+\frac{(bc-ad)^2\log(a+bx)}{a^2b}-\frac{c^2}{ax}$$

```
[Out] -(c^2/(a*x)) - (c*(b*c - 2*a*d)*Log[x])/a^2 + ((b*c - a*d)^2*Log[
a + b*x])/(a^2*b)
```

Rubi [A] time = 0.0925061, antiderivative size = 51, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{c\log(x)(bc-2ad)}{a^2}+\frac{(bc-ad)^2\log(a+bx)}{a^2b}-\frac{c^2}{ax}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^2/(x^2*(a + b*x)),x]
```

```
[Out] -(c^2/(a*x)) - (c*(b*c - 2*a*d)*Log[x])/a^2 + ((b*c - a*d)^2*Log[
a + b*x])/(a^2*b)
```

Rubi in Sympy [A] time = 21.3072, size = 42, normalized size = 0.82

$$-\frac{c^2}{ax}+\frac{c\,(2ad-bc)\log{(x)}}{a^2}+\frac{(ad-bc)^2\log{(a+bx)}}{a^2b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**2/x**2/(b*x+a),x)
```

```
[Out] -c**2/(a*x) + c*(2*a*d - b*c)*log(x)/a**2 + (a*d - b*c)**2*log(a
+ b*x)/(a**2*b)
```

Mathematica [A] time = 0.0383928, size = 51, normalized size = 1.

$$\frac{-abc^2+bcx\log(x)(2ad-bc)+x(bc-ad)^2\log(a+bx)}{a^2bx}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^2/(x^2*(a + b*x)),x]
```

```
[Out] (-(a*b*c^2) + b*c*(-(b*c) + 2*a*d)*x*Log[x] + (b*c - a*d)^2*x*Log
[a + b*x])/(a^2*b*x)
```

Maple [A] time = 0.011, size = 73, normalized size = 1.4

$$-\frac{c^2}{ax}+2\,\frac{c\ln{(x)}\,d}{a}-\frac{c^2\ln{(x)}\,b}{a^2}+\frac{\ln{(bx+a)}\,d^2}{b}-2\,\frac{\ln{(bx+a)}\,cd}{a}+\frac{b\ln{(bx+a)}\,c^2}{a^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^2/x^2/(b*x+a),x)
```

```
[Out] -c^2/a/x+2*c/a*ln(x)*d-c^2/a^2*ln(x)*b+1/b*ln(b*x+a)*d^2-2/a*ln(b
*x+a)*c*d+1/a^2*b*ln(b*x+a)*c^2
```

Maxima [A] time = 1.3496, size = 86, normalized size = 1.69

$$-\frac{c^2}{ax} - \frac{\left(bc^2 - 2\,acd\right)\log\left(x\right)}{a^2} + \frac{\left(b^2c^2 - 2\,abcd + a^2d^2\right)\log\left(bx + a\right)}{a^2b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2/((b*x + a)*x^2),x, algorithm="maxima")
```

```
[Out] -c^2/(a*x) - (b*c^2 - 2*a*c*d)*log(x)/a^2 + (b^2*c^2 - 2*a*b*c*d
+ a^2*d^2)*log(b*x + a)/(a^2*b)
```

Fricas [A] time = 0.209106, size = 89, normalized size = 1.75

$$-\frac{abc^2 - \left(b^2c^2 - 2\,abcd + a^2d^2\right)x\log\left(bx + a\right) + \left(b^2c^2 - 2\,abcd\right)x\log\left(x\right)}{a^2bx}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2/((b*x + a)*x^2),x, algorithm="fricas")
```

```
[Out] -(a*b*c^2 - (b^2*c^2 - 2*a*b*c*d + a^2*d^2)*x*log(b*x + a) + (b^2
*c^2 - 2*a*b*c*d)*x*log(x))/(a^2*b*x)
```

Sympy [A] time = 5.55078, size = 141, normalized size = 2.76

$$-\frac{c^2}{ax} + \frac{c\left(2ad - bc\right)\log\left(x + \frac{-2a^2cd + abc^2 + ac(2ad - bc)}{a^2d^2 - 4abcd + 2b^2c^2}\right)}{a^2} + \frac{\left(ad - bc\right)^2\log\left(x + \frac{-2a^2cd + abc^2 + \frac{a(ad-bc)^2}{b}}{a^2d^2 - 4abcd + 2b^2c^2}\right)}{a^2b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**2/x**2/(b*x+a),x)
```

```
[Out] -c**2/(a*x) + c*(2*a*d - b*c)*log(x + (-2*a**2*c*d + a*b*c**2 + a
*c*(2*a*d - b*c))/(a**2*d**2 - 4*a*b*c*d + 2*b**2*c**2))/a**2 + (
a*d - b*c)**2*log(x + (-2*a**2*c*d + a*b*c**2 + a*(a*d - b*c)**2/
b)/(a**2*d**2 - 4*a*b*c*d + 2*b**2*c**2))/(a**2*b)
```

GIAC/XCAS [A] time = 0.263427, size = 89, normalized size = 1.75

$$-\frac{c^2}{ax} - \frac{\left(bc^2 - 2\,acd\right)\ln\left(|x|\right)}{a^2} + \frac{\left(b^2c^2 - 2\,abcd + a^2d^2\right)\ln\left(|bx + a|\right)}{a^2b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2/((b*x + a)*x^2),x, algorithm="giac")
```

```
[Out] -c^2/(a*x) - (b*c^2 - 2*a*c*d)*ln(abs(x))/a^2 + (b^2*c^2 - 2*a*b*
c*d + a^2*d^2)*ln(abs(b*x + a))/(a^2*b)
```

3.188 $\int \frac{(c+dx)^2}{x^3(a+bx)}\,dx$

Optimal. Leaf size=67

$$\frac{\log(x)(bc-ad)^2}{a^3}-\frac{(bc-ad)^2\log(a+bx)}{a^3}+\frac{c(bc-2ad)}{a^2x}-\frac{c^2}{2ax^2}$$

```
[Out] -c^2/(2*a*x^2) + (c*(b*c - 2*a*d))/(a^2*x) + ((b*c - a*d)^2*Log[x
])/a^3 - ((b*c - a*d)^2*Log[a + b*x])/a^3
```

Rubi [A] time = 0.114169, antiderivative size = 67, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{\log(x)(bc-ad)^2}{a^3}-\frac{(bc-ad)^2\log(a+bx)}{a^3}+\frac{c(bc-2ad)}{a^2x}-\frac{c^2}{2ax^2}$$

Antiderivative was successfully verified.

```
[In] Int[(c + d*x)^2/(x^3*(a + b*x)),x]
```

```
[Out] -c^2/(2*a*x^2) + (c*(b*c - 2*a*d))/(a^2*x) + ((b*c - a*d)^2*Log[x
])/a^3 - ((b*c - a*d)^2*Log[a + b*x])/a^3
```

Rubi in Sympy [A] time = 25.529, size = 58, normalized size = 0.87

$$-\frac{c^2}{2ax^2}-\frac{c\,(2ad-bc)}{a^2x}+\frac{(ad-bc)^2\log(x)}{a^3}-\frac{(ad-bc)^2\log(a+bx)}{a^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((d*x+c)**2/x**3/(b*x+a),x)
```

```
[Out] -c**2/(2*a*x**2) - c*(2*a*d - b*c)/(a**2*x) + (a*d - b*c)**2*log(
x)/a**3 - (a*d - b*c)**2*log(a + b*x)/a**3
```

Mathematica [A] time = 0.0889831, size = 60, normalized size = 0.9

$$-\frac{\frac{ac(ac+4adx-2bcx)}{x^2}-2\log(x)(bc-ad)^2+2(bc-ad)^2\log(a+bx)}{2a^3}$$

Antiderivative was successfully verified.

```
[In] Integrate[(c + d*x)^2/(x^3*(a + b*x)),x]
```

```
[Out] -((a*c*(a*c - 2*b*c*x + 4*a*d*x))/x^2 - 2*(b*c - a*d)^2*Log[x] +
2*(b*c - a*d)^2*Log[a + b*x])/(2*a^3)
```

Maple [A] time = 0.013, size = 110, normalized size = 1.6

$$-\frac{c^2}{2\,ax^2}+\frac{\ln(x)\,d^2}{a}-2\,\frac{b\ln(x)\,cd}{a^2}+\frac{\ln(x)\,b^2c^2}{a^3}-2\,\frac{cd}{ax}+\frac{c^2b}{a^2x}-\frac{\ln(bx+a)\,d^2}{a}+2\,\frac{\ln(bx+a)\,bcd}{a^2}-\frac{\ln(bx+a)\,b^2c^2}{a^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^2/x^3/(b*x+a),x)
```

```
[Out] -1/2*c^2/a/x^2+1/a*ln(x)*d^2-2/a^2*ln(x)*b*c*d+1/a^3*ln(x)*b^2*c^
2-2*c/a/x*d+c^2/a^2/x*b-1/a*ln(b*x+a)*d^2+2/a^2*ln(b*x+a)*b*c*d-1
/a^3*ln(b*x+a)*b^2*c^2
```

Maxima [A] time = 1.33578, size = 119, normalized size = 1.78

$$-\frac{\left(b^{2}c^{2}-2\,abcd+a^{2}d^{2}\right)\log\left(bx+a\right)}{a^{3}}+\frac{\left(b^{2}c^{2}-2\,abcd+a^{2}d^{2}\right)\log\left(x\right)}{a^{3}}-\frac{ac^{2}-2\left(bc^{2}-2\,acd\right)x}{2\,a^{2}x^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2/((b*x + a)*x^3),x, algorithm="maxima")
```

```
[Out] -(b^2*c^2 - 2*a*b*c*d + a^2*d^2)*log(b*x + a)/a^3 + (b^2*c^2 - 2*
a*b*c*d + a^2*d^2)*log(x)/a^3 - 1/2*(a*c^2 - 2*(b*c^2 - 2*a*c*d)*
x)/(a^2*x^2)
```

Fricas [A] time = 0.211511, size = 126, normalized size = 1.88

$$-\frac{a^{2}c^{2}+2\left(b^{2}c^{2}-2\,abcd+a^{2}d^{2}\right)x^{2}\log\left(bx+a\right)-2\left(b^{2}c^{2}-2\,abcd+a^{2}d^{2}\right)x^{2}\log\left(x\right)-2\left(abc^{2}-2\,a^{2}cd\right)x}{2\,a^{3}x^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2/((b*x + a)*x^3),x, algorithm="fricas")
```

```
[Out] -1/2*(a^2*c^2 + 2*(b^2*c^2 - 2*a*b*c*d + a^2*d^2)*x^2*log(b*x + a
) - 2*(b^2*c^2 - 2*a*b*c*d + a^2*d^2)*x^2*log(x) - 2*(a*b*c^2 - 2
*a^2*c*d)*x)/(a^3*x^2)
```

Sympy [A] time = 4.88516, size = 187, normalized size = 2.79

$$-\frac{ac^{2}+x\left(4acd-2bc^{2}\right)}{2a^{2}x^{2}}+\frac{(ad-bc)^{2}\log\left(x+\frac{a^{3}d^{2}-2a^{2}bcd+ab^{2}c^{2}-a(ad-bc)^{2}}{2a^{2}bd^{2}-4ab^{2}cd+2b^{3}c^{2}}\right)}{a^{3}}-\frac{(ad-bc)^{2}\log\left(x+\frac{a^{3}d^{2}-2a^{2}bcd+ab^{2}c^{2}+a(ad-bc)^{2}}{2a^{2}bd^{2}-4ab^{2}cd+2b^{3}c^{2}}\right)}{a^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**2/x**3/(b*x+a),x)
```

```
[Out] -(a*c**2 + x*(4*a*c*d - 2*b*c**2))/(2*a**2*x**2) + (a*d - b*c)**2
*log(x + (a**3*d**2 - 2*a**2*b*c*d + a*b**2*c**2 - a*(a*d - b*c)*
*2)/(2*a**2*b*d**2 - 4*a*b**2*c*d + 2*b**3*c**2))/a**3 - (a*d - b
*c)**2*log(x + (a**3*d**2 - 2*a**2*b*c*d + a*b**2*c**2 + a*(a*d -
 b*c)**2)/(2*a**2*b*d**2 - 4*a*b**2*c*d + 2*b**3*c**2))/a**3
```

GIAC/XCAS [A] time = 0.282471, size = 136, normalized size = 2.03

$$\frac{\left(b^{2}c^{2}-2\,abcd+a^{2}d^{2}\right)\ln\left(|x|\right)}{a^{3}}-\frac{\left(b^{3}c^{2}-2\,ab^{2}cd+a^{2}bd^{2}\right)\ln\left(|bx+a|\right)}{a^{3}b}-\frac{a^{2}c^{2}-2\left(abc^{2}-2\,a^{2}cd\right)x}{2\,a^{3}x^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2/((b*x + a)*x^3),x, algorithm="giac")
```

```
[Out] (b^2*c^2 - 2*a*b*c*d + a^2*d^2)*ln(abs(x))/a^3 - (b^3*c^2 - 2*a*b
^2*c*d + a^2*b*d^2)*ln(abs(b*x + a))/(a^3*b) - 1/2*(a^2*c^2 - 2*(
a*b*c^2 - 2*a^2*c*d)*x)/(a^3*x^2)
```

3.189 $\int \frac{(c+dx)^2}{x^4(a+bx)}\,dx$

Optimal. Leaf size=90

$$-\frac{b\log(x)(bc-ad)^2}{a^4}+\frac{b(bc-ad)^2\log(a+bx)}{a^4}-\frac{(bc-ad)^2}{a^3x}+\frac{c(bc-2ad)}{2a^2x^2}-\frac{c^2}{3ax^3}$$

```
[Out] -c^2/(3*a*x^3) + (c*(b*c - 2*a*d))/(2*a^2*x^2) - (b*c - a*d)^2/(a
^3*x) - (b*(b*c - a*d)^2*Log[x])/a^4 + (b*(b*c - a*d)^2*Log[a + b
*x])/a^4
```

Rubi [A] time = 0.139078, antiderivative size = 90, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.056$

$$-\frac{b\log(x)(bc-ad)^2}{a^4}+\frac{b(bc-ad)^2\log(a+bx)}{a^4}-\frac{(bc-ad)^2}{a^3x}+\frac{c(bc-2ad)}{2a^2x^2}-\frac{c^2}{3ax^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^2/(x^4*(a + b*x)),x]
```

```
[Out] -c^2/(3*a*x^3) + (c*(b*c - 2*a*d))/(2*a^2*x^2) - (b*c - a*d)^2/(a
^3*x) - (b*(b*c - a*d)^2*Log[x])/a^4 + (b*(b*c - a*d)^2*Log[a + b
*x])/a^4
```

Rubi in Sympy [A] time = 32.2085, size = 78, normalized size = 0.87

$$-\frac{c^2}{3ax^3}-\frac{c\,(2ad-bc)}{2a^2x^2}-\frac{(ad-bc)^2}{a^3x}-\frac{b\,(ad-bc)^2\log\left(x\right)}{a^4}+\frac{b\,(ad-bc)^2\log\left(a+bx\right)}{a^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**2/x**4/(b*x+a),x)
```

```
[Out] -c**2/(3*a*x**3) - c*(2*a*d - b*c)/(2*a**2*x**2) - (a*d - b*c)**2
/(a**3*x) - b*(a*d - b*c)**2*log(x)/a**4 + b*(a*d - b*c)**2*log(a
 + b*x)/a**4
```

Mathematica [A] time = 0.0777402, size = 99, normalized size = 1.1

$$\frac{-2a^3\left(c^2+3cdx+3d^2x^2\right)+3a^2bcx(c+4dx)-6ab^2c^2x^2-6bx^3\log(x)(bc-ad)^2+6bx^3(bc-ad)^2\log(a+bx)}{6a^4x^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^2/(x^4*(a + b*x)),x]
```

```
[Out] (-6*a*b^2*c^2*x^2 + 3*a^2*b*c*x*(c + 4*d*x) - 2*a^3*(c^2 + 3*c*d*
x + 3*d^2*x^2) - 6*b*(b*c - a*d)^2*x^3*Log[x] + 6*b*(b*c - a*d)^2
*x^3*Log[a + b*x])/(6*a^4*x^3)
```

Maple [A] time = 0.014, size = 153, normalized size = 1.7

$$-\frac{c^2}{3\,ax^3}-\frac{d^2}{ax}+2\,\frac{bcd}{a^2x}-\frac{b^2c^2}{a^3x}-\frac{cd}{ax^2}+\frac{c^2b}{2\,a^2x^2}-\frac{b\ln\left(x\right)d^2}{a^2}+2\,\frac{b^2\ln\left(x\right)cd}{a^3}-\frac{b^3\ln\left(x\right)c^2}{a^4}+\frac{b\ln\left(bx+a\right)d^2}{a^2}-2\,\frac{b^2\ln\left(bx+a\right)cd}{a^3}+\frac{b^3\ln\left(bx+a\right)c^2}{a^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^2/x^4/(b*x+a),x)
```

```
[Out] -1/3*c^2/a/x^3-1/a/x*d^2+2/a^2/x*b*c*d-1/a^3/x*b^2*c^2-c/a/x^2*d+
1/2*c^2/a^2/x^2*b-1/a^2*b*ln(x)*d^2+2/a^3*b^2*ln(x)*c*d-1/a^4*b^3
*ln(x)*c^2+1/a^2*b*ln(b*x+a)*d^2-2/a^3*b^2*ln(b*x+a)*c*d+1/a^4*b^
3*ln(b*x+a)*c^2
```

Maxima [A] time = 1.35287, size = 170, normalized size = 1.89

$$\frac{\left(b^{3}c^{2}-2\,ab^{2}cd+a^{2}bd^{2}\right)\log\left(bx+a\right)}{a^{4}}-\frac{\left(b^{3}c^{2}-2\,ab^{2}cd+a^{2}bd^{2}\right)\log\left(x\right)}{a^{4}}-\frac{2\,a^{2}c^{2}+6\,\left(b^{2}c^{2}-2\,abcd+a^{2}d^{2}\right)x^{2}-3\,\left(abc^{2}-2\,a^{2}cd\right)x}{6\,a^{3}x^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2/((b*x + a)*x^4),x, algorithm="maxima")
```

```
[Out] (b^3*c^2 - 2*a*b^2*c*d + a^2*b*d^2)*log(b*x + a)/a^4 - (b^3*c^2 -
 2*a*b^2*c*d + a^2*b*d^2)*log(x)/a^4 - 1/6*(2*a^2*c^2 + 6*(b^2*c^
2 - 2*a*b*c*d + a^2*d^2)*x^2 - 3*(a*b*c^2 - 2*a^2*c*d)*x)/(a^3*x^
3)
```

Fricas [A] time = 0.212439, size = 177, normalized size = 1.97

$$-\frac{2\,a^{3}c^{2}-6\,\left(b^{3}c^{2}-2\,ab^{2}cd+a^{2}bd^{2}\right)x^{3}\log\left(bx+a\right)+6\,\left(b^{3}c^{2}-2\,ab^{2}cd+a^{2}bd^{2}\right)x^{3}\log\left(x\right)+6\,\left(ab^{2}c^{2}-2\,a^{2}bcd+a^{3}d^{2}\right)x^{2}-}{6\,a^{4}x^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2/((b*x + a)*x^4),x, algorithm="fricas")
```

```
[Out] -1/6*(2*a^3*c^2 - 6*(b^3*c^2 - 2*a*b^2*c*d + a^2*b*d^2)*x^3*log(b
*x + a) + 6*(b^3*c^2 - 2*a*b^2*c*d + a^2*b*d^2)*x^3*log(x) + 6*(a
*b^2*c^2 - 2*a^2*b*c*d + a^3*d^2)*x^2 - 3*(a^2*b*c^2 - 2*a^3*c*d)
*x)/(a^4*x^3)
```

Sympy [A] time = 5.72324, size = 240, normalized size = 2.67

$$-\frac{2a^{2}c^{2}+x^{2}\left(6a^{2}d^{2}-12abcd+6b^{2}c^{2}\right)+x\left(6a^{2}cd-3abc^{2}\right)}{6a^{3}x^{3}}-\frac{b\left(ad-bc\right)^{2}\log\left(x+\frac{a^{3}bd^{2}-2a^{2}b^{2}cd+ab^{3}c^{2}-ab(ad-bc)^{2}}{2a^{2}b^{2}d^{2}-4ab^{3}cd+2b^{4}c^{2}}\right)}{a^{4}}+\frac{b\left(ad-bc\right)^{2}\log\left(x+\frac{a^{3}bd^{2}-2a^{2}b^{2}cd+ab^{3}c^{2}+ab(ad-bc)^{2}}{2a^{2}b^{2}d^{2}-4ab^{3}cd+2b^{4}c^{2}}\right)}{a^{4}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**2/x**4/(b*x+a),x)
```

```
[Out] -(2*a**2*c**2 + x**2*(6*a**2*d**2 - 12*a*b*c*d + 6*b**2*c**2) + x
*(6*a**2*c*d - 3*a*b*c**2))/(6*a**3*x**3) - b*(a*d - b*c)**2*log(
x + (a**3*b*d**2 - 2*a**2*b**2*c*d + a*b**3*c**2 - a*b*(a*d - b*c
)**2)/(2*a**2*b**2*d**2 - 4*a*b**3*c*d + 2*b**4*c**2))/a**4 + b*(
a*d - b*c)**2*log(x + (a**3*b*d**2 - 2*a**2*b**2*c*d + a*b**3*c**
```

```
2 + a*b*(a*d - b*c)**2)/(2*a**2*b**2*d**2 - 4*a*b**3*c*d + 2*b**4
*c**2))/a**4
```

GIAC/XCAS [A] time = 0.297612, size = 186, normalized size = 2.07

$$-\frac{\left(b^{3}c^{2}-2\,ab^{2}cd+a^{2}bd^{2}\right)\ln\left(|x|\right)}{a^{4}}+\frac{\left(b^{4}c^{2}-2\,ab^{3}cd+a^{2}b^{2}d^{2}\right)\ln\left(|bx+a|\right)}{a^{4}b}-\frac{2\,a^{3}c^{2}+6\left(ab^{2}c^{2}-2\,a^{2}bcd+a^{3}d^{2}\right)x^{2}-3\left(a^{2}bc^{2}-2\,a^{3}cd\right)x}{6\,a^{4}x^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2/((b*x + a)*x^4),x, algorithm="giac")
```

```
[Out] -(b^3*c^2 - 2*a*b^2*c*d + a^2*b*d^2)*ln(abs(x))/a^4 + (b^4*c^2 -
2*a*b^3*c*d + a^2*b^2*d^2)*ln(abs(b*x + a))/(a^4*b) - 1/6*(2*a^3*
c^2 + 6*(a*b^2*c^2 - 2*a^2*b*c*d + a^3*d^2)*x^2 - 3*(a^2*b*c^2 -
2*a^3*c*d)*x)/(a^4*x^3)
```

3.190 $\int \frac{(c+dx)^2}{x^5(a+bx)}\,dx$

Optimal. Leaf size=114

$$\frac{b^2\log(x)(bc-ad)^2}{a^5}-\frac{b^2(bc-ad)^2\log(a+bx)}{a^5}+\frac{b(bc-ad)^2}{a^4x}-\frac{(bc-ad)^2}{2a^3x^2}+\frac{c(bc-2ad)}{3a^2x^3}-\frac{c^2}{4ax^4}$$

```
[Out] -c^2/(4*a*x^4) + (c*(b*c - 2*a*d))/(3*a^2*x^3) - (b*c - a*d)^2/(2
*a^3*x^2) + (b*(b*c - a*d)^2)/(a^4*x) + (b^2*(b*c - a*d)^2*Log[x]
)/a^5 - (b^2*(b*c - a*d)^2*Log[a + b*x])/a^5
```

Rubi [A] time = 0.170607, antiderivative size = 114, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{b^2\log(x)(bc-ad)^2}{a^5}-\frac{b^2(bc-ad)^2\log(a+bx)}{a^5}+\frac{b(bc-ad)^2}{a^4x}-\frac{(bc-ad)^2}{2a^3x^2}+\frac{c(bc-2ad)}{3a^2x^3}-\frac{c^2}{4ax^4}$$

Antiderivative was successfully verified.

```
[In] Int[(c + d*x)^2/(x^5*(a + b*x)),x]
```

```
[Out] -c^2/(4*a*x^4) + (c*(b*c - 2*a*d))/(3*a^2*x^3) - (b*c - a*d)^2/(2
*a^3*x^2) + (b*(b*c - a*d)^2)/(a^4*x) + (b^2*(b*c - a*d)^2*Log[x]
)/a^5 - (b^2*(b*c - a*d)^2*Log[a + b*x])/a^5
```

Rubi in Sympy [A] time = 40.8651, size = 100, normalized size = 0.88

$$-\frac{c^2}{4ax^4}-\frac{c(2ad-bc)}{3a^2x^3}-\frac{(ad-bc)^2}{2a^3x^2}+\frac{b(ad-bc)^2}{a^4x}+\frac{b^2(ad-bc)^2\log(x)}{a^5}-\frac{b^2(ad-bc)^2\log(a+bx)}{a^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((d*x+c)**2/x**5/(b*x+a),x)
```

```
[Out] -c**2/(4*a*x**4) - c*(2*a*d - b*c)/(3*a**2*x**3) - (a*d - b*c)**2
/(2*a**3*x**2) + b*(a*d - b*c)**2/(a**4*x) + b**2*(a*d - b*c)**2*
log(x)/a**5 - b**2*(a*d - b*c)**2*log(a + b*x)/a**5
```

Mathematica [A] time = 0.171648, size = 127, normalized size = 1.11

$$\frac{\frac{a\left(a^3\left(-\left(3c^2+8cdx+6d^2x^2\right)\right)+4a^2bx\left(c^2+3cdx+3d^2x^2\right)-6ab^2cx^2(c+4dx)+12b^3c^2x^3\right)}{x^4}+12b^2\log(x)(bc-ad)^2-12b^2(bc-ad)^2\log(a+bx)}{12a^5}$$

Antiderivative was successfully verified.

```
[In] Integrate[(c + d*x)^2/(x^5*(a + b*x)),x]
```

```
[Out] ((a*(12*b^3*c^2*x^3 - 6*a*b^2*c*x^2*(c + 4*d*x) + 4*a^2*b*x*(c^2
+ 3*c*d*x + 3*d^2*x^2) - a^3*(3*c^2 + 8*c*d*x + 6*d^2*x^2)))/x^4
+ 12*b^2*(b*c - a*d)^2*Log[x] - 12*b^2*(b*c - a*d)^2*Log[a + b*x]
)/(12*a^5)
```

Maple [A] time = 0.013, size = 193, normalized size = 1.7

$$-\frac{c^2}{4\,ax^4}-\frac{d^2}{2\,ax^2}+\frac{bcd}{a^2x^2}-\frac{b^2c^2}{2\,a^3x^2}-\frac{2\,cd}{3\,ax^3}+\frac{c^2b}{3\,a^2x^3}+\frac{b^2\ln(x)\,d^2}{a^3}-2\,\frac{b^3\ln(x)\,cd}{a^4}+\frac{b^4\ln(x)\,c^2}{a^5}+\frac{bd^2}{a^2x}-2\,\frac{b^2cd}{a^3x}+\frac{b^3c^2}{a^4x}-\frac{b^2\ln(bx+a)\,d^2}{a^3}+2\,\frac{b^3\ln(bx+a)\,cd}{a^4}-\frac{b^4\ln(bx+a)\,c^2}{a^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((d*x+c)^2/x^5/(b*x+a),x)
```

```
[Out] -1/4*c^2/a/x^4-1/2/a/x^2*d^2+1/a^2/x^2*b*c*d-1/2/a^3/x^2*b^2*c^2-
2/3*c/a/x^3*d+1/3*c^2/a^2/x^3*b+1/a^3*b^2*ln(x)*d^2-2/a^4*b^3*ln(
x)*c*d+1/a^5*b^4*ln(x)*c^2+1/a^2*b/x*d^2-2/a^3*b^2/x*c*d+1/a^4*b^
3/x*c^2-1/a^3*b^2*ln(b*x+a)*d^2+2/a^4*b^3*ln(b*x+a)*c*d-1/a^5*b^4
*ln(b*x+a)*c^2
```

Maxima [A] time = 1.35415, size = 221, normalized size = 1.94

$$-\frac{\left(b^4c^2-2\,ab^3cd+a^2b^2d^2\right)\log\left(bx+a\right)}{a^5}+\frac{\left(b^4c^2-2\,ab^3cd+a^2b^2d^2\right)\log\left(x\right)}{a^5}-\frac{3\,a^3c^2-12\,\left(b^3c^2-2\,ab^2cd+a^2bd^2\right)x^3+6\,\left(ab^2c^2-2\,a^2bcd+a^3d^2\right)x^2-4\,\left(a^2bc^2-2\,a^3cd\right)x}{12\,a^4x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((d*x + c)^2/((b*x + a)*x^5),x, algorithm="maxima")
```

```
[Out] -(b^4*c^2 - 2*a*b^3*c*d + a^2*b^2*d^2)*log(b*x + a)/a^5 + (b^4*c^
2 - 2*a*b^3*c*d + a^2*b^2*d^2)*log(x)/a^5 - 1/12*(3*a^3*c^2 - 12*
(b^3*c^2 - 2*a*b^2*c*d + a^2*b*d^2)*x^3 + 6*(a*b^2*c^2 - 2*a^2*b*
c*d + a^3*d^2)*x^2 - 4*(a^2*b*c^2 - 2*a^3*c*d)*x)/(a^4*x^4)
```

Fricas [A] time = 0.20996, size = 228, normalized size = 2.

$$-\frac{3\,a^4c^2+12\,\left(b^4c^2-2\,ab^3cd+a^2b^2d^2\right)x^4\log\left(bx+a\right)-12\,\left(b^4c^2-2\,ab^3cd+a^2b^2d^2\right)x^4\log\left(x\right)-12\,\left(ab^3c^2-2\,a^2b^2cd+a^3b\right.}{12\,a^5x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((d*x + c)^2/((b*x + a)*x^5),x, algorithm="fricas")
```

```
[Out] -1/12*(3*a^4*c^2 + 12*(b^4*c^2 - 2*a*b^3*c*d + a^2*b^2*d^2)*x^4*l
og(b*x + a) - 12*(b^4*c^2 - 2*a*b^3*c*d + a^2*b^2*d^2)*x^4*log(x)
 - 12*(a*b^3*c^2 - 2*a^2*b^2*c*d + a^3*b*d^2)*x^3 + 6*(a^2*b^2*c^
2 - 2*a^3*b*c*d + a^4*d^2)*x^2 - 4*(a^3*b*c^2 - 2*a^4*c*d)*x)/(a^
5*x^4)
```

Sympy [A] time = 6.46607, size = 287, normalized size = 2.52

$$\frac{-3a^3c^2+x^3\left(12a^2bd^2-24ab^2cd+12b^3c^2\right)+x^2\left(-6a^3d^2+12a^2bcd-6ab^2c^2\right)+x\left(-8a^3cd+4a^2bc^2\right)}{12a^4x^4}+\frac{b^2\left(ad-bc\right)^2\log\left(x+\frac{a^3b^2d^2-2a^2b^3cd+ab^4c^2-ab^2(ad-bc)^2}{2a^2b^3d^2-4ab^4cd+2b^5c^2}\right)}{a^5}-\frac{b^2\left(ad-bc\right)^2\log\left(x+\frac{a^3b^2d^2-2a^2b^3cd+ab^4c^2+ab^2(ad-bc)^2}{2a^2b^3d^2-4ab^4cd+2b^5c^2}\right)}{a^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((d*x+c)**2/x**5/(b*x+a),x)
```

```
[Out] (-3*a**3*c**2 + x**3*(12*a**2*b*d**2 - 24*a*b**2*c*d + 12*b**3*c*
*2) + x**2*(-6*a**3*d**2 + 12*a**2*b*c*d - 6*a*b**2*c**2) + x*(-8
*a**3*c*d + 4*a**2*b*c**2))/(12*a**4*x**4) + b**2*(a*d - b*c)**2*
```

```
log(x + (a**3*b**2*d**2 - 2*a**2*b**3*c*d + a*b**4*c**2 - a*b**2*
(a*d - b*c)**2)/(2*a**2*b**3*d**2 - 4*a*b**4*c*d + 2*b**5*c**2))/
a**5 - b**2*(a*d - b*c)**2*log(x + (a**3*b**2*d**2 - 2*a**2*b**3*
c*d + a*b**4*c**2 + a*b**2*(a*d - b*c)**2)/(2*a**2*b**3*d**2 - 4*
a*b**4*c*d + 2*b**5*c**2))/a**5
```

GIAC/XCAS [A] time = 0.392081, size = 235, normalized size = 2.06

$$\frac{\left(b^4c^2 - 2\,ab^3cd + a^2b^2d^2\right)\ln\left(|x|\right)}{a^5} - \frac{\left(b^5c^2 - 2\,ab^4cd + a^2b^3d^2\right)\ln\left(|bx + a|\right)}{a^5b} - \frac{3\,a^4c^2 - 12\left(ab^3c^2 - 2\,a^2b^2cd + a^3bd^2\right)x^3 + 6\left(a^2b^2c^2 - 2\,a^3bcd + a^4d^2\right)x^2 - 4\left(a^3bc^2 - 2\,a^4cd\right)x}{12\,a^5x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2/((b*x + a)*x^5),x, algorithm="giac")
```

```
[Out] (b^4*c^2 - 2*a*b^3*c*d + a^2*b^2*d^2)*ln(abs(x))/a^5 - (b^5*c^2 -
 2*a*b^4*c*d + a^2*b^3*d^2)*ln(abs(b*x + a))/(a^5*b) - 1/12*(3*a^
4*c^2 - 12*(a*b^3*c^2 - 2*a^2*b^2*c*d + a^3*b*d^2)*x^3 + 6*(a^2*b
^2*c^2 - 2*a^3*b*c*d + a^4*d^2)*x^2 - 4*(a^3*b*c^2 - 2*a^4*c*d)*x
)/(a^5*x^4)
```

3.191 $\int \frac{x^3(c+dx)^3}{a+bx} \, dx$

Optimal. Leaf size=152

$$-\frac{a^3(bc-ad)^3\log(a+bx)}{b^7}+\frac{a^2x(bc-ad)^3}{b^6}+\frac{dx^4\left(a^2d^2-3abcd+3b^2c^2\right)}{4b^3}-\frac{ax^2(bc-ad)^3}{2b^5}+\frac{x^3(bc-ad)^3}{3b^4}+\frac{d^2x^5(3bc-ad)}{5b^2}+\frac{d^3x^6}{6b}$$

```
[Out] (a^2*(b*c - a*d)^3*x)/b^6 - (a*(b*c - a*d)^3*x^2)/(2*b^5) + ((b*c
 - a*d)^3*x^3)/(3*b^4) + (d*(3*b^2*c^2 - 3*a*b*c*d + a^2*d^2)*x^4
)/(4*b^3) + (d^2*(3*b*c - a*d)*x^5)/(5*b^2) + (d^3*x^6)/(6*b) - (
a^3*(b*c - a*d)^3*Log[a + b*x])/b^7
```

Rubi [A] time = 0.321666, antiderivative size = 152, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{a^3(bc-ad)^3\log(a+bx)}{b^7}+\frac{a^2x(bc-ad)^3}{b^6}+\frac{dx^4\left(a^2d^2-3abcd+3b^2c^2\right)}{4b^3}-\frac{ax^2(bc-ad)^3}{2b^5}+\frac{x^3(bc-ad)^3}{3b^4}+\frac{d^2x^5(3bc-ad)}{5b^2}+\frac{d^3x^6}{6b}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^3*(c + d*x)^3)/(a + b*x),x]
```

```
[Out] (a^2*(b*c - a*d)^3*x)/b^6 - (a*(b*c - a*d)^3*x^2)/(2*b^5) + ((b*c
 - a*d)^3*x^3)/(3*b^4) + (d*(3*b^2*c^2 - 3*a*b*c*d + a^2*d^2)*x^4
)/(4*b^3) + (d^2*(3*b*c - a*d)*x^5)/(5*b^2) + (d^3*x^6)/(6*b) - (
a^3*(b*c - a*d)^3*Log[a + b*x])/b^7
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{a^3\left(ad-bc\right)^3\log\left(a+bx\right)}{b^7}+\frac{a\left(ad-bc\right)^3\int x\,dx}{b^5}+\frac{d^3x^6}{6b}-\frac{d^2x^5\left(ad-3bc\right)}{5b^2}+\frac{dx^4\left(a^2d^2-3abcd+3b^2c^2\right)}{4b^3}-\frac{x^3\left(ad-bc\right)^3}{3b^4}-\frac{\left(ad-bc\right)^3\int a^2\,dx}{b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3*(d*x+c)**3/(b*x+a),x)
```

```
[Out] a**3*(a*d - b*c)**3*log(a + b*x)/b**7 + a*(a*d - b*c)**3*Integral
(x, x)/b**5 + d**3*x**6/(6*b) - d**2*x**5*(a*d - 3*b*c)/(5*b**2)
+ d*x**4*(a**2*d**2 - 3*a*b*c*d + 3*b**2*c**2)/(4*b**3) - x**3*(a
*d - b*c)**3/(3*b**4) - (a*d - b*c)**3*Integral(a**2, x)/b**6
```

Mathematica [A] time = 0.150846, size = 145, normalized size = 0.95

$$\frac{60a^3(ad-bc)^3\log(a+bx)+15b^4dx^4\left(a^2d^2-3abcd+3b^2c^2\right)-60a^2bx(ad-bc)^3+12b^5d^2x^5(3bc-ad)+20b^3x^3(bc-ad)^3}{60b^7}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^3*(c + d*x)^3)/(a + b*x),x]
```

```
[Out] (-60*a^2*b*(-(b*c) + a*d)^3*x + 30*a*b^2*(-(b*c) + a*d)^3*x^2 + 2
0*b^3*(b*c - a*d)^3*x^3 + 15*b^4*d*(3*b^2*c^2 - 3*a*b*c*d + a^2*d
^2)*x^4 + 12*b^5*d^2*(3*b*c - a*d)*x^5 + 10*b^6*d^3*x^6 + 60*a^3*
(-(b*c) + a*d)^3*Log[a + b*x])/(60*b^7)
```

Maple [B] time = 0.006, size = 302, normalized size = 2.

$$\frac{d^3x^6}{6\,b}-\frac{x^5ad^3}{5\,b^2}+\frac{3\,x^5cd^2}{5\,b}+\frac{x^4a^2d^3}{4\,b^3}-\frac{3\,x^4acd^2}{4\,b^2}+\frac{3\,x^4c^2d}{4\,b}-\frac{x^3a^3d^3}{3\,b^4}+\frac{x^3a^2cd^2}{b^3}-\frac{x^3ac^2d}{b^2}+\frac{x^3c^3}{3\,b}+\frac{x^2a^4d^3}{2\,b^5}-\frac{3\,x^2a^3cd^2}{2\,b^4}+\frac{3\,a^2x^2c^2d}{2\,b^3}-\frac{x^2ac^3}{2\,b^2}-\frac{a^5d^3x}{b^6}+3\,\frac{a^4cd^2x}{b^5}-3\,\frac{a^3c^2dx}{b^4}+\frac{a^2c^3x}{b^3}+\frac{a^6\ln(bx+a)\,d^3}{b^7}-3\,\frac{a^5\ln(bx+a)\,cd^2}{b^6}+3\,\frac{a^4\ln(bx+a)\,c^2d}{b^5}-\frac{a^3\ln(bx+a)\,c^3}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^3*(d*x+c)^3/(b*x+a),x)
```

```
[Out] 1/6*d^3*x^6/b-1/5/b^2*x^5*a*d^3+3/5/b*x^5*c*d^2+1/4/b^3*x^4*a^2*d
^3-3/4/b^2*x^4*a*c*d^2+3/4/b*x^4*c^2*d-1/3/b^4*x^3*a^3*d^3+1/b^3*
x^3*a^2*c*d^2-1/b^2*x^3*a*c^2*d+1/3/b*x^3*c^3+1/2/b^5*x^2*a^4*d^3
-3/2/b^4*x^2*a^3*c*d^2+3/2/b^3*x^2*a^2*c^2*d-1/2/b^2*x^2*a*c^3-1/
b^6*a^5*d^3*x+3/b^5*a^4*c*d^2*x-3/b^4*a^3*c^2*d*x+1/b^3*a^2*c^3*x
+a^6/b^7*ln(b*x+a)*d^3-3*a^5/b^6*ln(b*x+a)*c*d^2+3*a^4/b^5*ln(b*x
+a)*c^2*d-a^3/b^4*ln(b*x+a)*c^3
```

Maxima [A] time = 1.3502, size = 359, normalized size = 2.36

$$\frac{10\,b^5d^3x^6+12\left(3\,b^5cd^2-ab^4d^3\right)x^5+15\left(3\,b^5c^2d-3\,ab^4cd^2+a^2b^3d^3\right)x^4+20\left(b^5c^3-3\,ab^4c^2d+3\,a^2b^3cd^2-a^3b^2d^3\right)x^3-}{60\,b^6}$$

$$-\frac{\left(a^3b^3c^3-3\,a^4b^2c^2d+3\,a^5bcd^2-a^6d^3\right)\log(bx+a)}{b^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3*x^3/(b*x + a),x, algorithm="maxima")
```

```
[Out] 1/60*(10*b^5*d^3*x^6 + 12*(3*b^5*c*d^2 - a*b^4*d^3)*x^5 + 15*(3*b
^5*c^2*d - 3*a*b^4*c*d^2 + a^2*b^3*d^3)*x^4 + 20*(b^5*c^3 - 3*a*b
^4*c^2*d + 3*a^2*b^3*c*d^2 - a^3*b^2*d^3)*x^3 - 30*(a*b^4*c^3 - 3
*a^2*b^3*c^2*d + 3*a^3*b^2*c*d^2 - a^4*b*d^3)*x^2 + 60*(a^2*b^3*c
^3 - 3*a^3*b^2*c^2*d + 3*a^4*b*c*d^2 - a^5*d^3)*x)/b^6 - (a^3*b^3
*c^3 - 3*a^4*b^2*c^2*d + 3*a^5*b*c*d^2 - a^6*d^3)*log(b*x + a)/b^
7
```

Fricas [A] time = 0.201586, size = 360, normalized size = 2.37

$$\frac{10\,b^6d^3x^6+12\left(3\,b^6cd^2-ab^5d^3\right)x^5+15\left(3\,b^6c^2d-3\,ab^5cd^2+a^2b^4d^3\right)x^4+20\left(b^6c^3-3\,ab^5c^2d+3\,a^2b^4cd^2-a^3b^3d^3\right)x^3-}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3*x^3/(b*x + a),x, algorithm="fricas")
```

```
[Out] 1/60*(10*b^6*d^3*x^6 + 12*(3*b^6*c*d^2 - a*b^5*d^3)*x^5 + 15*(3*b
^6*c^2*d - 3*a*b^5*c*d^2 + a^2*b^4*d^3)*x^4 + 20*(b^6*c^3 - 3*a*b
^5*c^2*d + 3*a^2*b^4*c*d^2 - a^3*b^3*d^3)*x^3 - 30*(a*b^5*c^3 - 3
*a^2*b^4*c^2*d + 3*a^3*b^3*c*d^2 - a^4*b^2*d^3)*x^2 + 60*(a^2*b^4
*c^3 - 3*a^3*b^3*c^2*d + 3*a^4*b^2*c*d^2 - a^5*b*d^3)*x - 60*(a^3
```

```
*b^3*c^3 - 3*a^4*b^2*c^2*d + 3*a^5*b*c*d^2 - a^6*d^3)*log(b*x + a
))/b^7
```

Sympy [A] time = 3.62475, size = 231, normalized size = 1.52

$$\frac{a^3\left(ad-bc\right)^3\log\left(a+bx\right)}{b^7}+\frac{d^3x^6}{6b}-\frac{x^5\left(ad^3-3bcd^2\right)}{5b^2}+\frac{x^4\left(a^2d^3-3abcd^2+3b^2c^2d\right)}{4b^3}-\frac{x^3\left(a^3d^3-3a^2bcd^2+3ab^2c^2d-b^3c^3\right)}{3b^4}+\frac{x^2\left(a^4d^3-3a^3bcd^2+3a^2b^2c^2d-ab^3c^3\right)}{2b^5}-\frac{x\left(a^5d^3-3a^4bcd^2+3a^3b^2c^2d-a^2b^3c^3\right)}{b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**3*(d*x+c)**3/(b*x+a),x)
```

```
[Out] a**3*(a*d - b*c)**3*log(a + b*x)/b**7 + d**3*x**6/(6*b) - x**5*(a
*d**3 - 3*b*c*d**2)/(5*b**2) + x**4*(a**2*d**3 - 3*a*b*c*d**2 + 3
*b**2*c**2*d)/(4*b**3) - x**3*(a**3*d**3 - 3*a**2*b*c*d**2 + 3*a*
b**2*c**2*d - b**3*c**3)/(3*b**4) + x**2*(a**4*d**3 - 3*a**3*b*c*
d**2 + 3*a**2*b**2*c**2*d - a*b**3*c**3)/(2*b**5) - x*(a**5*d**3
- 3*a**4*b*c*d**2 + 3*a**3*b**2*c**2*d - a**2*b**3*c**3)/b**6
```

GIAC/XCAS [A] time = 0.262245, size = 386, normalized size = 2.54

$$\frac{10\,b^5d^3x^6+36\,b^5cd^2x^5-12\,ab^4d^3x^5+45\,b^5c^2dx^4-45\,ab^4cd^2x^4+15\,a^2b^3d^3x^4+20\,b^5c^3x^3-60\,ab^4c^2dx^3+60\,a^2b^3cd^2x^3-}{6}$$

$$-\frac{\left(a^3b^3c^3-3\,a^4b^2c^2d+3\,a^5bcd^2-a^6d^3\right)\ln\left(|bx+a|\right)}{b^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3*x^3/(b*x + a),x, algorithm="giac")
```

```
[Out] 1/60*(10*b^5*d^3*x^6 + 36*b^5*c*d^2*x^5 - 12*a*b^4*d^3*x^5 + 45*b
^5*c^2*d*x^4 - 45*a*b^4*c*d^2*x^4 + 15*a^2*b^3*d^3*x^4 + 20*b^5*c
^3*x^3 - 60*a*b^4*c^2*d*x^3 + 60*a^2*b^3*c*d^2*x^3 - 20*a^3*b^2*d
^3*x^3 - 30*a*b^4*c^3*x^2 + 90*a^2*b^3*c^2*d*x^2 - 90*a^3*b^2*c*d
^2*x^2 + 30*a^4*b*d^3*x^2 + 60*a^2*b^3*c^3*x - 180*a^3*b^2*c^2*d*
x + 180*a^4*b*c*d^2*x - 60*a^5*d^3*x)/b^6 - (a^3*b^3*c^3 - 3*a^4*
b^2*c^2*d + 3*a^5*b*c*d^2 - a^6*d^3)*ln(abs(b*x + a))/b^7
```

3.192 $\int \frac{x^2(c+dx)^3}{a+bx} \, dx$

Optimal. Leaf size=129

$$\frac{a^2(bc-ad)^3\log(a+bx)}{b^6}+\frac{dx^3\left(a^2d^2-3abcd+3b^2c^2\right)}{3b^3}-\frac{ax(bc-ad)^3}{b^5}+\frac{x^2(bc-ad)^3}{2b^4}+\frac{d^2x^4(3bc-ad)}{4b^2}+\frac{d^3x^5}{5b}$$

```
[Out] -((a*(b*c - a*d)^3*x)/b^5) + ((b*c - a*d)^3*x^2)/(2*b^4) + (d*(3*
b^2*c^2 - 3*a*b*c*d + a^2*d^2)*x^3)/(3*b^3) + (d^2*(3*b*c - a*d)*
x^4)/(4*b^2) + (d^3*x^5)/(5*b) + (a^2*(b*c - a*d)^3*Log[a + b*x])
/b^6
```

Rubi [A] time = 0.233873, antiderivative size = 129, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{a^2(bc-ad)^3\log(a+bx)}{b^6}+\frac{dx^3\left(a^2d^2-3abcd+3b^2c^2\right)}{3b^3}-\frac{ax(bc-ad)^3}{b^5}+\frac{x^2(bc-ad)^3}{2b^4}+\frac{d^2x^4(3bc-ad)}{4b^2}+\frac{d^3x^5}{5b}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^2*(c + d*x)^3)/(a + b*x),x]
```

```
[Out] -((a*(b*c - a*d)^3*x)/b^5) + ((b*c - a*d)^3*x^2)/(2*b^4) + (d*(3*
b^2*c^2 - 3*a*b*c*d + a^2*d^2)*x^3)/(3*b^3) + (d^2*(3*b*c - a*d)*
x^4)/(4*b^2) + (d^3*x^5)/(5*b) + (a^2*(b*c - a*d)^3*Log[a + b*x])
/b^6
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{a^2\left(ad-bc\right)^3\log\left(a+bx\right)}{b^6}+\frac{d^3x^5}{5b}-\frac{d^2x^4\left(ad-3bc\right)}{4b^2}+\frac{dx^3\left(a^2d^2-3abcd+3b^2c^2\right)}{3b^3}-\frac{\left(ad-bc\right)^3\int x\,dx}{b^4}+\frac{\left(ad-bc\right)^3\int a\,dx}{b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(d*x+c)**3/(b*x+a),x)
```

```
[Out] -a**2*(a*d - b*c)**3*log(a + b*x)/b**6 + d**3*x**5/(5*b) - d**2*x
**4*(a*d - 3*b*c)/(4*b**2) + d*x**3*(a**2*d**2 - 3*a*b*c*d + 3*b*
*2*c**2)/(3*b**3) - (a*d - b*c)**3*Integral(x, x)/b**4 + (a*d - b
*c)**3*Integral(a, x)/b**5
```

Mathematica [A] time = 0.1271, size = 124, normalized size = 0.96

$$\frac{20b^3dx^3\left(a^2d^2-3abcd+3b^2c^2\right)+60a^2(bc-ad)^3\log(a+bx)+15b^4d^2x^4(3bc-ad)+30b^2x^2(bc-ad)^3+60abx(ad-bc)^3 \cdot}{60b^6}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^2*(c + d*x)^3)/(a + b*x),x]
```

```
[Out] (60*a*b*(-(b*c) + a*d)^3*x + 30*b^2*(b*c - a*d)^3*x^2 + 20*b^3*d*
(3*b^2*c^2 - 3*a*b*c*d + a^2*d^2)*x^3 + 15*b^4*d^2*(3*b*c - a*d)*
```

```
x^4 + 12*b^5*d^3*x^5 + 60*a^2*(b*c - a*d)^3*Log[a + b*x])/(60*b^6
)
```

Maple [B] time = 0.006, size = 244, normalized size = 1.9

$$\frac{d^3x^5}{5\,b}-\frac{x^4ad^3}{4\,b^2}+\frac{3\,x^4cd^2}{4\,b}+\frac{x^3a^2d^3}{3\,b^3}-\frac{x^3acd^2}{b^2}+\frac{x^3c^2d}{b}-\frac{x^2a^3d^3}{2\,b^4}+\frac{3\,a^2x^2cd^2}{2\,b^3}-\frac{3\,x^2ac^2d}{2\,b^2}+\frac{c^3x^2}{2\,b}+\frac{a^4d^3x}{b^5}-3\,\frac{a^3cd^2x}{b^4}+3\,\frac{a^2c^2dx}{b^3}-\frac{ac^3x}{b^2}-\frac{a^5\ln\left(bx+a\right)d^3}{b^6}+3\,\frac{a^4\ln\left(bx+a\right)cd^2}{b^5}-3\,\frac{a^3\ln\left(bx+a\right)c^2d}{b^4}+\frac{a^2\ln\left(bx+a\right)c^3}{b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(d*x+c)^3/(b*x+a),x)
```

```
[Out] 1/5*d^3*x^5/b-1/4/b^2*x^4*a*d^3+3/4/b*x^4*c*d^2+1/3/b^3*x^3*a^2*d
^3-1/b^2*x^3*a*c*d^2+1/b*x^3*c^2*d-1/2/b^4*x^2*a^3*d^3+3/2/b^3*x^
2*a^2*c*d^2-3/2/b^2*x^2*a*c^2*d+1/2/b*c^3*x^2+1/b^5*a^4*d^3*x-3/b
^4*a^3*c*d^2*x+3/b^3*a^2*c^2*d*x-1/b^2*a*c^3*x-a^5/b^6*ln(b*x+a)*
d^3+3*a^4/b^5*ln(b*x+a)*c*d^2-3*a^3/b^4*ln(b*x+a)*c^2*d+a^2/b^3*l
n(b*x+a)*c^3
```

Maxima [A] time = 1.3486, size = 289, normalized size = 2.24

$$\frac{12\,b^4d^3x^5+15\,\left(3\,b^4cd^2-ab^3d^3\right)x^4+20\,\left(3\,b^4c^2d-3\,ab^3cd^2+a^2b^2d^3\right)x^3+30\,\left(b^4c^3-3\,ab^3c^2d+3\,a^2b^2cd^2-a^3bd^3\right)x^2-6}{60\,b^5}+\frac{\left(a^2b^3c^3-3\,a^3b^2c^2d+3\,a^4bcd^2-a^5d^3\right)\log\left(bx+a\right)}{b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3*x^2/(b*x + a),x, algorithm="maxima")
```

```
[Out] 1/60*(12*b^4*d^3*x^5 + 15*(3*b^4*c*d^2 - a*b^3*d^3)*x^4 + 20*(3*b
^4*c^2*d - 3*a*b^3*c*d^2 + a^2*b^2*d^3)*x^3 + 30*(b^4*c^3 - 3*a*b
^3*c^2*d + 3*a^2*b^2*c*d^2 - a^3*b*d^3)*x^2 - 60*(a*b^3*c^3 - 3*a
^2*b^2*c^2*d + 3*a^3*b*c*d^2 - a^4*d^3)*x)/b^5 + (a^2*b^3*c^3 - 3
*a^3*b^2*c^2*d + 3*a^4*b*c*d^2 - a^5*d^3)*log(b*x + a)/b^6
```

Fricas [A] time = 0.199869, size = 292, normalized size = 2.26

$$\frac{12\,b^5d^3x^5+15\,\left(3\,b^5cd^2-ab^4d^3\right)x^4+20\,\left(3\,b^5c^2d-3\,ab^4cd^2+a^2b^3d^3\right)x^3+30\,\left(b^5c^3-3\,ab^4c^2d+3\,a^2b^3cd^2-a^3b^2d^3\right)x^2-}{60\,b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3*x^2/(b*x + a),x, algorithm="fricas")
```

```
[Out] 1/60*(12*b^5*d^3*x^5 + 15*(3*b^5*c*d^2 - a*b^4*d^3)*x^4 + 20*(3*b
^5*c^2*d - 3*a*b^4*c*d^2 + a^2*b^3*d^3)*x^3 + 30*(b^5*c^3 - 3*a*b
^4*c^2*d + 3*a^2*b^3*c*d^2 - a^3*b^2*d^3)*x^2 - 60*(a*b^4*c^3 - 3
*a^2*b^3*c^2*d + 3*a^3*b^2*c*d^2 - a^4*b*d^3)*x + 60*(a^2*b^3*c^3
 - 3*a^3*b^2*c^2*d + 3*a^4*b*c*d^2 - a^5*d^3)*log(b*x + a))/b^6
```

Sympy [A] time = 3.39603, size = 180, normalized size = 1.4

$$-\frac{a^2 (ad-bc)^3 \log (a+bx)}{b^6}+\frac{d^3x^5}{5b}-\frac{x^4 \left(ad^3-3bcd^2\right)}{4b^2}+\frac{x^3 \left(a^2d^3-3abcd^2+3b^2c^2d\right)}{3b^3}-\frac{x^2 \left(a^3d^3-3a^2bcd^2+3ab^2c^2d-b^3c^3\right)}{2b^4}+\frac{x \left(a^4d^3-3a^3bcd^2+3a^2b^2c^2d-ab^3c^3\right)}{b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(d*x+c)**3/(b*x+a),x)
```

```
[Out] -a**2*(a*d - b*c)**3*log(a + b*x)/b**6 + d**3*x**5/(5*b) - x**4*(
a*d**3 - 3*b*c*d**2)/(4*b**2) + x**3*(a**2*d**3 - 3*a*b*c*d**2 +
3*b**2*c**2*d)/(3*b**3) - x**2*(a**3*d**3 - 3*a**2*b*c*d**2 + 3*a
*b**2*c**2*d - b**3*c**3)/(2*b**4) + x*(a**4*d**3 - 3*a**3*b*c*d*
*2 + 3*a**2*b**2*c**2*d - a*b**3*c**3)/b**5
```

GIAC/XCAS [A] time = 0.319389, size = 306, normalized size = 2.37

$$\frac{12\,b^4d^3x^5+45\,b^4cd^2x^4-15\,ab^3d^3x^4+60\,b^4c^2dx^3-60\,ab^3cd^2x^3+20\,a^2b^2d^3x^3+30\,b^4c^3x^2-90\,ab^3c^2dx^2+90\,a^2b^2cd^2x^2-}{60\,b^5}+\frac{\left(a^2b^3c^3-3\,a^3b^2c^2d+3\,a^4bcd^2-a^5d^3\right)\ln\left(|bx+a|\right)}{b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3*x^2/(b*x + a),x, algorithm="giac")
```

```
[Out] 1/60*(12*b^4*d^3*x^5 + 45*b^4*c*d^2*x^4 - 15*a*b^3*d^3*x^4 + 60*b
^4*c^2*d*x^3 - 60*a*b^3*c*d^2*x^3 + 20*a^2*b^2*d^3*x^3 + 30*b^4*c
^3*x^2 - 90*a*b^3*c^2*d*x^2 + 90*a^2*b^2*c*d^2*x^2 - 30*a^3*b*d^3
*x^2 - 60*a*b^3*c^3*x + 180*a^2*b^2*c^2*d*x - 180*a^3*b*c*d^2*x +
 60*a^4*d^3*x)/b^5 + (a^2*b^3*c^3 - 3*a^3*b^2*c^2*d + 3*a^4*b*c*d
^2 - a^5*d^3)*ln(abs(b*x + a))/b^6
```

3.193 $\int \frac{x(c+dx)^3}{a+bx} \, dx$

Optimal. Leaf size=106

$$\frac{dx^2\left(a^2d^2-3abcd+3b^2c^2\right)}{2b^3}-\frac{a(bc-ad)^3\log(a+bx)}{b^5}+\frac{x(bc-ad)^3}{b^4}+\frac{d^2x^3(3bc-ad)}{3b^2}+\frac{d^3x^4}{4b}$$

```
[Out] ((b*c - a*d)^3*x)/b^4 + (d*(3*b^2*c^2 - 3*a*b*c*d + a^2*d^2)*x^2)
/(2*b^3) + (d^2*(3*b*c - a*d)*x^3)/(3*b^2) + (d^3*x^4)/(4*b) - (a
*(b*c - a*d)^3*Log[a + b*x])/b^5
```

Rubi [A] time = 0.170836, antiderivative size = 106, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$\frac{dx^2\left(a^2d^2-3abcd+3b^2c^2\right)}{2b^3}-\frac{a(bc-ad)^3\log(a+bx)}{b^5}+\frac{x(bc-ad)^3}{b^4}+\frac{d^2x^3(3bc-ad)}{3b^2}+\frac{d^3x^4}{4b}$$

Antiderivative was successfully verified.

```
[In]  Int[(x*(c + d*x)^3)/(a + b*x),x]
```

```
[Out] ((b*c - a*d)^3*x)/b^4 + (d*(3*b^2*c^2 - 3*a*b*c*d + a^2*d^2)*x^2)
/(2*b^3) + (d^2*(3*b*c - a*d)*x^3)/(3*b^2) + (d^3*x^4)/(4*b) - (a
*(b*c - a*d)^3*Log[a + b*x])/b^5
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{a\,(ad-bc)^3\log{(a+bx)}}{b^5}-(ad-bc)^3\int\frac{1}{b^4}\,dx+\frac{d^3x^4}{4b}-\frac{d^2x^3\,(ad-3bc)}{3b^2}+\frac{d\left(a^2d^2-3abcd+3b^2c^2\right)\int x\,dx}{b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(d*x+c)**3/(b*x+a),x)
```

```
[Out] a*(a*d - b*c)**3*log(a + b*x)/b**5 - (a*d - b*c)**3*Integral(b**(
-4), x) + d**3*x**4/(4*b) - d**2*x**3*(a*d - 3*b*c)/(3*b**2) + d*
(a**2*d**2 - 3*a*b*c*d + 3*b**2*c**2)*Integral(x, x)/b**3
```

Mathematica [A] time = 0.0714432, size = 115, normalized size = 1.08

$$\frac{bx\left(-12a^3d^3+6a^2bd^2(6c+dx)-2ab^2d\left(18c^2+9cdx+2d^2x^2\right)+3b^3\left(4c^3+6c^2dx+4cd^2x^2+d^3x^3\right)\right)+12a(ad-bc)^3\log(a}{12b^5}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x*(c + d*x)^3)/(a + b*x),x]
```

```
[Out] (b*x*(-12*a^3*d^3 + 6*a^2*b*d^2*(6*c + d*x) - 2*a*b^2*d*(18*c^2 +
 9*c*d*x + 2*d^2*x^2) + 3*b^3*(4*c^3 + 6*c^2*d*x + 4*c*d^2*x^2 +
d^3*x^3)) + 12*a*(-(b*c) + a*d)^3*Log[a + b*x])/(12*b^5)
```

Maple [A] time = 0.004, size = 186, normalized size = 1.8

$$\frac{d^3x^4}{4\,b}-\frac{x^3ad^3}{3\,b^2}+\frac{cx^3d^2}{b}+\frac{a^2x^2d^3}{2\,b^3}-\frac{3\,x^2acd^2}{2\,b^2}+\frac{3\,x^2c^2d}{2\,b}-\frac{a^3d^3x}{b^4}+3\,\frac{a^2cd^2x}{b^3}-3\,\frac{ac^2dx}{b^2}$$
$$+\frac{c^3x}{b}+\frac{a^4\ln(bx+a)\,d^3}{b^5}-3\,\frac{a^3\ln(bx+a)\,cd^2}{b^4}+3\,\frac{a^2\ln(bx+a)\,c^2d}{b^3}-\frac{a\ln(bx+a)\,c^3}{b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(d*x+c)^3/(b*x+a),x)
```

```
[Out] 1/4*d^3*x^4/b-1/3/b^2*x^3*a*d^3+1/b*x^3*c*d^2+1/2/b^3*x^2*a^2*d^3
-3/2/b^2*x^2*a*c*d^2+3/2/b*x^2*c^2*d-1/b^4*a^3*d^3*x+3/b^3*a^2*c*
d^2*x-3/b^2*a*c^2*d*x+1/b*c^3*x+a^4/b^5*ln(b*x+a)*d^3-3*a^3/b^4*l
n(b*x+a)*c*d^2+3*a^2/b^3*ln(b*x+a)*c^2*d-a/b^2*ln(b*x+a)*c^3
```

Maxima [A] time = 1.3503, size = 221, normalized size = 2.08

$$\frac{3\,b^3d^3x^4 + 4\left(3\,b^3cd^2 - ab^2d^3\right)x^3 + 6\left(3\,b^3c^2d - 3\,ab^2cd^2 + a^2bd^3\right)x^2 + 12\left(b^3c^3 - 3\,ab^2c^2d + 3\,a^2bcd^2 - a^3d^3\right)x}{12\,b^4} - \frac{\left(ab^3c^3 - 3\,a^2b^2c^2d + 3\,a^3bcd^2 - a^4d^3\right)\log\left(bx + a\right)}{b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3*x/(b*x + a),x, algorithm="maxima")
```

```
[Out] 1/12*(3*b^3*d^3*x^4 + 4*(3*b^3*c*d^2 - a*b^2*d^3)*x^3 + 6*(3*b^3*
c^2*d - 3*a*b^2*c*d^2 + a^2*b*d^3)*x^2 + 12*(b^3*c^3 - 3*a*b^2*c^
2*d + 3*a^2*b*c*d^2 - a^3*d^3)*x)/b^4 - (a*b^3*c^3 - 3*a^2*b^2*c^
2*d + 3*a^3*b*c*d^2 - a^4*d^3)*log(b*x + a)/b^5
```

Fricas [A] time = 0.203485, size = 223, normalized size = 2.1

$$\frac{3\,b^4d^3x^4 + 4\left(3\,b^4cd^2 - ab^3d^3\right)x^3 + 6\left(3\,b^4c^2d - 3\,ab^3cd^2 + a^2b^2d^3\right)x^2 + 12\left(b^4c^3 - 3\,ab^3c^2d + 3\,a^2b^2cd^2 - a^3bd^3\right)x - 12\,(ab}{12\,b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3*x/(b*x + a),x, algorithm="fricas")
```

```
[Out] 1/12*(3*b^4*d^3*x^4 + 4*(3*b^4*c*d^2 - a*b^3*d^3)*x^3 + 6*(3*b^4*
c^2*d - 3*a*b^3*c*d^2 + a^2*b^2*d^3)*x^2 + 12*(b^4*c^3 - 3*a*b^3*
c^2*d + 3*a^2*b^2*c*d^2 - a^3*b*d^3)*x - 12*(a*b^3*c^3 - 3*a^2*b^
2*c^2*d + 3*a^3*b*c*d^2 - a^4*d^3)*log(b*x + a))/b^5
```

Sympy [A] time = 3.18917, size = 129, normalized size = 1.22

$$\frac{a\left(ad - bc\right)^{3}\log\left(a + bx\right)}{b^{5}} + \frac{d^{3}x^{4}}{4b} - \frac{x^{3}\left(ad^{3} - 3bcd^{2}\right)}{3b^{2}} + \frac{x^{2}\left(a^{2}d^{3} - 3abcd^{2} + 3b^{2}c^{2}d\right)}{2b^{3}} - \frac{x\left(a^{3}d^{3} - 3a^{2}bcd^{2} + 3ab^{2}c^{2}d - b^{3}c^{3}\right)}{b^{4}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(d*x+c)**3/(b*x+a),x)
```

```
[Out] a*(a*d - b*c)**3*log(a + b*x)/b**5 + d**3*x**4/(4*b) - x**3*(a*d*
*3 - 3*b*c*d**2)/(3*b**2) + x**2*(a**2*d**3 - 3*a*b*c*d**2 + 3*b*
*2*c**2*d)/(2*b**3) - x*(a**3*d**3 - 3*a**2*b*c*d**2 + 3*a*b**2*c
**2*d - b**3*c**3)/b**4
```

GIAC/XCAS [A] time = 0.260837, size = 230, normalized size = 2.17

$$\frac{3\,b^3d^3x^4 + 12\,b^3cd^2x^3 - 4\,ab^2d^3x^3 + 18\,b^3c^2dx^2 - 18\,ab^2cd^2x^2 + 6\,a^2bd^3x^2 + 12\,b^3c^3x - 36\,ab^2c^2dx + 36\,a^2bcd^2x - 12\,a^3d^3}{12\,b^4}$$
$$-\frac{\left(ab^3c^3 - 3\,a^2b^2c^2d + 3\,a^3bcd^2 - a^4d^3\right)\ln\left(|bx + a|\right)}{b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3*x/(b*x + a),x, algorithm="giac")
```

```
[Out] 1/12*(3*b^3*d^3*x^4 + 12*b^3*c*d^2*x^3 - 4*a*b^2*d^3*x^3 + 18*b^3
*c^2*d*x^2 - 18*a*b^2*c*d^2*x^2 + 6*a^2*b*d^3*x^2 + 12*b^3*c^3*x
- 36*a*b^2*c^2*d*x + 36*a^2*b*c*d^2*x - 12*a^3*d^3*x)/b^4 - (a*b^
3*c^3 - 3*a^2*b^2*c^2*d + 3*a^3*b*c*d^2 - a^4*d^3)*ln(abs(b*x + a
))/b^5
```

3.194 $\int \frac{(c+dx)^3}{a+bx}\,dx$

Optimal. Leaf size=73

$$\frac{(bc-ad)^3\log(a+bx)}{b^4}+\frac{dx(bc-ad)^2}{b^3}+\frac{(c+dx)^2(bc-ad)}{2b^2}+\frac{(c+dx)^3}{3b}$$

```
[Out] (d*(b*c - a*d)^2*x)/b^3 + ((b*c - a*d)*(c + d*x)^2)/(2*b^2) + (c
+ d*x)^3/(3*b) + ((b*c - a*d)^3*Log[a + b*x])/b^4
```

Rubi [A] time = 0.0748069, antiderivative size = 73, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.067

$$\frac{(bc-ad)^3\log(a+bx)}{b^4}+\frac{dx(bc-ad)^2}{b^3}+\frac{(c+dx)^2(bc-ad)}{2b^2}+\frac{(c+dx)^3}{3b}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^3/(a + b*x),x]
```

```
[Out] (d*(b*c - a*d)^2*x)/b^3 + ((b*c - a*d)*(c + d*x)^2)/(2*b^2) + (c
+ d*x)^3/(3*b) + ((b*c - a*d)^3*Log[a + b*x])/b^4
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{(c+dx)^3}{3b}-\frac{(c+dx)^2\,(ad-bc)}{2b^2}+\frac{(ad-bc)^2\int d\,dx}{b^3}-\frac{(ad-bc)^3\log{(a+bx)}}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**3/(b*x+a),x)
```

```
[Out] (c + d*x)**3/(3*b) - (c + d*x)**2*(a*d - b*c)/(2*b**2) + (a*d - b
*c)**2*Integral(d, x)/b**3 - (a*d - b*c)**3*log(a + b*x)/b**4
```

Mathematica [A] time = 0.0460686, size = 74, normalized size = 1.01

$$\frac{bdx\left(6a^2d^2-3abd(6c+dx)+b^2\left(18c^2+9cdx+2d^2x^2\right)\right)+6(bc-ad)^3\log(a+bx)}{6b^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^3/(a + b*x),x]
```

```
[Out] (b*d*x*(6*a^2*d^2 - 3*a*b*d*(6*c + d*x) + b^2*(18*c^2 + 9*c*d*x +
 2*d^2*x^2)) + 6*(b*c - a*d)^3*Log[a + b*x])/(6*b^4)
```

Maple [A] time = 0.001, size = 133, normalized size = 1.8

$$\frac{d^3x^3}{3\,b}-\frac{d^3x^2a}{2\,b^2}+\frac{3\,d^2x^2c}{2\,b}+\frac{d^3a^2x}{b^3}-3\,\frac{d^2acx}{b^2}+3\,\frac{dc^2x}{b}-\frac{\ln{(bx+a)}\,a^3d^3}{b^4}+3\,\frac{\ln{(bx+a)}\,a^2cd^2}{b^3}-3\,\frac{\ln{(bx+a)}\,ac^2d}{b^2}+\frac{\ln{(bx+a)}\,c^3}{b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^3/(b*x+a),x)
```

```
[Out] 1/3*d^3/b*x^3-1/2*d^3/b^2*x^2*a+3/2*d^2/b*x^2*c+d^3/b^3*a^2*x-3*d
^2/b^2*a*c*x+3*d/b*c^2*x-1/b^4*ln(b*x+a)*a^3*d^3+3/b^3*ln(b*x+a)*
a^2*c*d^2-3/b^2*ln(b*x+a)*a*c^2*d+1/b*ln(b*x+a)*c^3
```

Maxima [A] time = 1.3601, size = 154, normalized size = 2.11

$$\frac{2\,b^2d^3x^3 + 3\,\left(3\,b^2cd^2 - abd^3\right)x^2 + 6\,\left(3\,b^2c^2d - 3\,abcd^2 + a^2d^3\right)x}{6\,b^3} + \frac{\left(b^3c^3 - 3\,ab^2c^2d + 3\,a^2bcd^2 - a^3d^3\right)\log\left(bx + a\right)}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/(b*x + a),x, algorithm="maxima")
```

```
[Out] 1/6*(2*b^2*d^3*x^3 + 3*(3*b^2*c*d^2 - a*b*d^3)*x^2 + 6*(3*b^2*c^2
*d - 3*a*b*c*d^2 + a^2*d^3)*x)/b^3 + (b^3*c^3 - 3*a*b^2*c^2*d + 3
*a^2*b*c*d^2 - a^3*d^3)*log(b*x + a)/b^4
```

Fricas [A] time = 0.202082, size = 157, normalized size = 2.15

$$\frac{2\,b^3d^3x^3 + 3\,\left(3\,b^3cd^2 - ab^2d^3\right)x^2 + 6\,\left(3\,b^3c^2d - 3\,ab^2cd^2 + a^2bd^3\right)x + 6\,\left(b^3c^3 - 3\,ab^2c^2d + 3\,a^2bcd^2 - a^3d^3\right)\log\left(bx + a\right)}{6\,b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/(b*x + a),x, algorithm="fricas")
```

```
[Out] 1/6*(2*b^3*d^3*x^3 + 3*(3*b^3*c*d^2 - a*b^2*d^3)*x^2 + 6*(3*b^3*c
^2*d - 3*a*b^2*c*d^2 + a^2*b*d^3)*x + 6*(b^3*c^3 - 3*a*b^2*c^2*d
+ 3*a^2*b*c*d^2 - a^3*d^3)*log(b*x + a))/b^4
```

Sympy [A] time = 2.89055, size = 82, normalized size = 1.12

$$\frac{d^3x^3}{3b} - \frac{x^2\left(ad^3 - 3bcd^2\right)}{2b^2} + \frac{x\left(a^2d^3 - 3abcd^2 + 3b^2c^2d\right)}{b^3} - \frac{(ad - bc)^3\log\left(a + bx\right)}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**3/(b*x+a),x)
```

```
[Out] d**3*x**3/(3*b) - x**2*(a*d**3 - 3*b*c*d**2)/(2*b**2) + x*(a**2*d
**3 - 3*a*b*c*d**2 + 3*b**2*c**2*d)/b**3 - (a*d - b*c)**3*log(a +
 b*x)/b**4
```

GIAC/XCAS [A] time = 0.357816, size = 155, normalized size = 2.12

$$\frac{2\,b^2d^3x^3 + 9\,b^2cd^2x^2 - 3\,abd^3x^2 + 18\,b^2c^2dx - 18\,abcd^2x + 6\,a^2d^3x}{6\,b^3} + \frac{\left(b^3c^3 - 3\,ab^2c^2d + 3\,a^2bcd^2 - a^3d^3\right)\ln\left(|bx + a|\right)}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/(b*x + a),x, algorithm="giac")
```

```
[Out] 1/6*(2*b^2*d^3*x^3 + 9*b^2*c*d^2*x^2 - 3*a*b*d^3*x^2 + 18*b^2*c^2
*d*x - 18*a*b*c*d^2*x + 6*a^2*d^3*x)/b^3 + (b^3*c^3 - 3*a*b^2*c^2
*d + 3*a^2*b*c*d^2 - a^3*d^3)*ln(abs(b*x + a))/b^4
```

3.195 $\int \frac{(c+dx)^3}{x(a+bx)}\,dx$

Optimal. Leaf size=64

$$-\frac{(bc-ad)^3\log(a+bx)}{ab^3}+\frac{d^2x(3bc-ad)}{b^2}+\frac{c^3\log(x)}{a}+\frac{d^3x^2}{2b}$$

```
[Out] (d^2*(3*b*c - a*d)*x)/b^2 + (d^3*x^2)/(2*b) + (c^3*Log[x])/a - ((
b*c - a*d)^3*Log[a + b*x])/(a*b^3)
```

Rubi [A] time = 0.110603, antiderivative size = 64, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{(bc-ad)^3\log(a+bx)}{ab^3}+\frac{d^2x(3bc-ad)}{b^2}+\frac{c^3\log(x)}{a}+\frac{d^3x^2}{2b}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^3/(x*(a + b*x)),x]
```

```
[Out] (d^2*(3*b*c - a*d)*x)/b^2 + (d^3*x^2)/(2*b) + (c^3*Log[x])/a - ((
b*c - a*d)^3*Log[a + b*x])/(a*b^3)
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-d^2\left(ad-3bc\right)\int \frac{1}{b^2}\,dx+\frac{d^3\int x\,dx}{b}+\frac{c^3\log\left(x\right)}{a}+\frac{\left(ad-bc\right)^3\log\left(a+bx\right)}{ab^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**3/x/(b*x+a),x)
```

```
[Out] -d**2*(a*d - 3*b*c)*Integral(b**(-2), x) + d**3*Integral(x, x)/b
+ c**3*log(x)/a + (a*d - b*c)**3*log(a + b*x)/(a*b**3)
```

Mathematica [A] time = 0.044101, size = 59, normalized size = 0.92

$$\frac{abd^2x(-2ad+6bc+bdx)-2(bc-ad)^3\log(a+bx)+2b^3c^3\log(x)}{2ab^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^3/(x*(a + b*x)),x]
```

```
[Out] (a*b*d^2*x*(6*b*c - 2*a*d + b*d*x) + 2*b^3*c^3*Log[x] - 2*(b*c -
a*d)^3*Log[a + b*x])/(2*a*b^3)
```

Maple [A] time = 0.009, size = 103, normalized size = 1.6

$$\frac{d^3x^2}{2\,b}-\frac{d^3ax}{b^2}+3\,\frac{d^2xc}{b}+\frac{c^3\ln\left(x\right)}{a}+\frac{a^2\ln\left(bx+a\right)d^3}{b^3}-3\,\frac{a\ln\left(bx+a\right)cd^2}{b^2}+3\,\frac{\ln\left(bx+a\right)c^2d}{b}-\frac{\ln\left(bx+a\right)c^3}{a}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^3/x/(b*x+a),x)
```

```
[Out] 1/2*d^3*x^2/b-d^3/b^2*a*x+3*d^2/b*x*c+c^3*ln(x)/a+1/b^3*a^2*ln(b*
x+a)*d^3-3/b^2*a*ln(b*x+a)*c*d^2+3/b*ln(b*x+a)*c^2*d-1/a*ln(b*x+a
)*c^3
```

Maxima [A] time = 1.32911, size = 123, normalized size = 1.92

$$\frac{c^3\log(x)}{a}+\frac{bd^3x^2+2\left(3\,bcd^2-ad^3\right)x}{2\,b^2}-\frac{\left(b^3c^3-3\,ab^2c^2d+3\,a^2bcd^2-a^3d^3\right)\log(bx+a)}{ab^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/((b*x + a)*x),x, algorithm="maxima")
```

```
[Out] c^3*log(x)/a + 1/2*(b*d^3*x^2 + 2*(3*b*c*d^2 - a*d^3)*x)/b^2 - (b
^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*log(b*x + a)/(a
*b^3)
```

Fricas [A] time = 0.210761, size = 131, normalized size = 2.05

$$\frac{ab^2d^3x^2+2\,b^3c^3\log(x)+2\left(3\,ab^2cd^2-a^2bd^3\right)x-2\left(b^3c^3-3\,ab^2c^2d+3\,a^2bcd^2-a^3d^3\right)\log(bx+a)}{2\,ab^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/((b*x + a)*x),x, algorithm="fricas")
```

```
[Out] 1/2*(a*b^2*d^3*x^2 + 2*b^3*c^3*log(x) + 2*(3*a*b^2*c*d^2 - a^2*b*
d^3)*x - 2*(b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*lo
g(b*x + a))/(a*b^3)
```

Sympy [A] time = 7.53387, size = 112, normalized size = 1.75

$$\frac{d^3x^2}{2b}-\frac{x\left(ad^3-3bcd^2\right)}{b^2}+\frac{c^3\log(x)}{a}+\frac{(ad-bc)^3\log\left(x+\frac{-ab^2c^3+\frac{a(ad-bc)^3}{b}}{a^3d^3-3a^2bcd^2+3ab^2c^2d-2b^3c^3}\right)}{ab^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**3/x/(b*x+a),x)
```

```
[Out] d**3*x**2/(2*b) - x*(a*d**3 - 3*b*c*d**2)/b**2 + c**3*log(x)/a +
(a*d - b*c)**3*log(x + (-a*b**2*c**3 + a*(a*d - b*c)**3/b)/(a**3*
d**3 - 3*a**2*b*c*d**2 + 3*a*b**2*c**2*d - 2*b**3*c**3))/(a*b**3)
```

GIAC/XCAS [A] time = 0.281084, size = 123, normalized size = 1.92

$$\frac{c^3\ln(|x|)}{a}+\frac{bd^3x^2+6\,bcd^2x-2\,ad^3x}{2\,b^2}-\frac{\left(b^3c^3-3\,ab^2c^2d+3\,a^2bcd^2-a^3d^3\right)\ln(|bx+a|)}{ab^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/((b*x + a)*x),x, algorithm="giac")
```

```
[Out] c^3*ln(abs(x))/a + 1/2*(b*d^3*x^2 + 6*b*c*d^2*x - 2*a*d^3*x)/b^2
- (b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*ln(abs(b*x
+ a))/(a*b^3)
```

3.196 $\int \frac{(c+dx)^3}{x^2(a+bx)}\,dx$

Optimal. Leaf size=61

$$\frac{(bc-ad)^3\log(a+bx)}{a^2b^2}-\frac{c^2\log(x)(bc-3ad)}{a^2}-\frac{c^3}{ax}+\frac{d^3x}{b}$$

```
[Out] -(c^3/(a*x)) + (d^3*x)/b - (c^2*(b*c - 3*a*d)*Log[x])/a^2 + ((b*c
 - a*d)^3*Log[a + b*x])/(a^2*b^2)
```

Rubi [A] time = 0.112239, antiderivative size = 61, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{(bc-ad)^3\log(a+bx)}{a^2b^2}-\frac{c^2\log(x)(bc-3ad)}{a^2}-\frac{c^3}{ax}+\frac{d^3x}{b}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^3/(x^2*(a + b*x)),x]
```

```
[Out] -(c^3/(a*x)) + (d^3*x)/b - (c^2*(b*c - 3*a*d)*Log[x])/a^2 + ((b*c
 - a*d)^3*Log[a + b*x])/(a^2*b^2)
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$d^3\int\frac{1}{b}\,dx-\frac{c^3}{ax}+\frac{c^2\,(3ad-bc)\log{(x)}}{a^2}-\frac{(ad-bc)^3\log{(a+bx)}}{a^2b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**3/x**2/(b*x+a),x)
```

```
[Out] d**3*Integral(1/b, x) - c**3/(a*x) + c**2*(3*a*d - b*c)*log(x)/a*
*2 - (a*d - b*c)**3*log(a + b*x)/(a**2*b**2)
```

Mathematica [A] time = 0.0534791, size = 66, normalized size = 1.08

$$\frac{b^2c^2x\log(x)(3ad-bc)+ab\left(ad^3x^2-bc^3\right)+x(bc-ad)^3\log(a+bx)}{a^2b^2x}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^3/(x^2*(a + b*x)),x]
```

```
[Out] (a*b*(-(b*c^3) + a*d^3*x^2) + b^2*c^2*(-(b*c) + 3*a*d)*x*Log[x] +
 (b*c - a*d)^3*x*Log[a + b*x])/(a^2*b^2*x)
```

Maple [A] time = 0.013, size = 102, normalized size = 1.7

$$\frac{d^3x}{b}-\frac{c^3}{ax}+3\,\frac{c^2\ln{(x)}\,d}{a}-\frac{c^3\ln{(x)}\,b}{a^2}-\frac{a\ln{(bx+a)}\,d^3}{b^2}+3\,\frac{\ln{(bx+a)}\,cd^2}{b}-3\,\frac{\ln{(bx+a)}\,c^2d}{a}+\frac{b\ln{(bx+a)}\,c^3}{a^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^3/x^2/(b*x+a),x)
```

```
[Out] d^3*x/b-c^3/a/x+3*c^2/a*ln(x)*d-c^3/a^2*ln(x)*b-1/b^2*a*ln(b*x+a)
*d^3+3/b*ln(b*x+a)*c*d^2-3/a*ln(b*x+a)*c^2*d+b/a^2*ln(b*x+a)*c^3
```

Maxima [A] time = 1.33753, size = 120, normalized size = 1.97

$$\frac{d^3x}{b} - \frac{c^3}{ax} - \frac{\left(bc^3 - 3\,ac^2d\right)\log\left(x\right)}{a^2} + \frac{\left(b^3c^3 - 3\,ab^2c^2d + 3\,a^2bcd^2 - a^3d^3\right)\log\left(bx + a\right)}{a^2b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/((b*x + a)*x^2),x, algorithm="maxima")
```

```
[Out] d^3*x/b - c^3/(a*x) - (b*c^3 - 3*a*c^2*d)*log(x)/a^2 + (b^3*c^3 -
 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*log(b*x + a)/(a^2*b^2)
```

Fricas [A] time = 0.217234, size = 132, normalized size = 2.16

$$\frac{a^2bd^3x^2 - ab^2c^3 + \left(b^3c^3 - 3\,ab^2c^2d + 3\,a^2bcd^2 - a^3d^3\right)x\log\left(bx + a\right) - \left(b^3c^3 - 3\,ab^2c^2d\right)x\log\left(x\right)}{a^2b^2x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/((b*x + a)*x^2),x, algorithm="fricas")
```

```
[Out] (a^2*b*d^3*x^2 - a*b^2*c^3 + (b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c
*d^2 - a^3*d^3)*x*log(b*x + a) - (b^3*c^3 - 3*a*b^2*c^2*d)*x*log(
x))/(a^2*b^2*x)
```

Sympy [A] time = 8.19624, size = 196, normalized size = 3.21

$$\frac{d^3x}{b} - \frac{c^3}{ax} + \frac{c^2\left(3ad - bc\right)\log\left(x + \frac{3a^2bc^2d - ab^2c^3 - abc^2(3ad - bc)}{a^3d^3 - 3a^2bcd^2 + 6ab^2c^2d - 2b^3c^3}\right)}{a^2} - \frac{\left(ad - bc\right)^3\log\left(x + \frac{3a^2bc^2d - ab^2c^3 + \frac{a(ad-bc)^3}{b}}{a^3d^3 - 3a^2bcd^2 + 6ab^2c^2d - 2b^3c^3}\right)}{a^2b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**3/x**2/(b*x+a),x)
```

```
[Out] d**3*x/b - c**3/(a*x) + c**2*(3*a*d - b*c)*log(x + (3*a**2*b*c**2
*d - a*b**2*c**3 - a*b*c**2*(3*a*d - b*c))/(a**3*d**3 - 3*a**2*b*
c*d**2 + 6*a*b**2*c**2*d - 2*b**3*c**3))/a**2 - (a*d - b*c)**3*lo
g(x + (3*a**2*b*c**2*d - a*b**2*c**3 + a*(a*d - b*c)**3/b)/(a**3*
d**3 - 3*a**2*b*c*d**2 + 6*a*b**2*c**2*d - 2*b**3*c**3))/(a**2*b*
*2)
```

GIAC/XCAS [A] time = 0.288914, size = 123, normalized size = 2.02

$$\frac{d^3x}{b} - \frac{c^3}{ax} - \frac{\left(bc^3 - 3\,ac^2d\right)\ln\left(|x|\right)}{a^2} + \frac{\left(b^3c^3 - 3\,ab^2c^2d + 3\,a^2bcd^2 - a^3d^3\right)\ln\left(|bx + a|\right)}{a^2b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/((b*x + a)*x^2),x, algorithm="giac")
```

```
[Out] d^3*x/b - c^3/(a*x) - (b*c^3 - 3*a*c^2*d)*ln(abs(x))/a^2 + (b^3*c
^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*ln(abs(b*x + a))/(a
^2*b^2)
```

3.197 $\int \frac{(c+dx)^3}{x^3(a+bx)}\,dx$

Optimal. Leaf size=85

$$-\frac{(bc-ad)^3\log(a+bx)}{a^3b}+\frac{c^2(bc-3ad)}{a^2x}+\frac{c\log(x)\left(3a^2d^2-3abcd+b^2c^2\right)}{a^3}-\frac{c^3}{2ax^2}$$

```
[Out] -c^3/(2*a*x^2) + (c^2*(b*c - 3*a*d))/(a^2*x) + (c*(b^2*c^2 - 3*a*
b*c*d + 3*a^2*d^2)*Log[x])/a^3 - ((b*c - a*d)^3*Log[a + b*x])/(a^
3*b)
```

Rubi [A] time = 0.136631, antiderivative size = 85, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{(bc-ad)^3\log(a+bx)}{a^3b}+\frac{c^2(bc-3ad)}{a^2x}+\frac{c\log(x)\left(3a^2d^2-3abcd+b^2c^2\right)}{a^3}-\frac{c^3}{2ax^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^3/(x^3*(a + b*x)),x]
```

```
[Out] -c^3/(2*a*x^2) + (c^2*(b*c - 3*a*d))/(a^2*x) + (c*(b^2*c^2 - 3*a*
b*c*d + 3*a^2*d^2)*Log[x])/a^3 - ((b*c - a*d)^3*Log[a + b*x])/(a^
3*b)
```

Rubi in Sympy [A] time = 36.0037, size = 78, normalized size = 0.92

$$-\frac{c^3}{2ax^2}-\frac{c^2\left(3ad-bc\right)}{a^2x}+\frac{c\left(3a^2d^2-3abcd+b^2c^2\right)\log\left(x\right)}{a^3}+\frac{(ad-bc)^3\log\left(a+bx\right)}{a^3b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**3/x**3/(b*x+a),x)
```

```
[Out] -c**3/(2*a*x**2) - c**2*(3*a*d - b*c)/(a**2*x) + c*(3*a**2*d**2 -
 3*a*b*c*d + b**2*c**2)*log(x)/a**3 + (a*d - b*c)**3*log(a + b*x)
/(a**3*b)
```

Mathematica [A] time = 0.142552, size = 78, normalized size = 0.92

$$-\frac{-2c\log(x)\left(3a^2d^2-3abcd+b^2c^2\right)+\frac{ac^2(a(c+6dx)-2bcx)}{x^2}+\frac{2(bc-ad)^3\log(a+bx)}{b}}{2a^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^3/(x^3*(a + b*x)),x]
```

```
[Out] -((a*c^2*(-2*b*c*x + a*(c + 6*d*x)))/x^2 - 2*c*(b^2*c^2 - 3*a*b*c
*d + 3*a^2*d^2)*Log[x] + (2*(b*c - a*d)^3*Log[a + b*x])/b)/(2*a^3
)
```

Maple [A] time = 0.014, size = 132, normalized size = 1.6

$$-\frac{c^3}{2\,ax^2}+3\,\frac{c\ln(x)\,d^2}{a}-3\,\frac{c^2\ln(x)\,bd}{a^2}+\frac{c^3\ln(x)\,b^2}{a^3}-3\,\frac{c^2d}{ax}+\frac{bc^3}{xa^2}+\frac{\ln(bx+a)\,d^3}{b}-3\,\frac{\ln(bx+a)\,cd^2}{a}+3\,\frac{b\ln(bx+a)\,c^2d}{a^2}-\frac{b^2\ln(bx+a)\,c^3}{a^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^3/x^3/(b*x+a),x)
```

```
[Out] -1/2*c^3/a/x^2+3*c/a*ln(x)*d^2-3*c^2/a^2*ln(x)*b*d+c^3/a^3*ln(x)*
b^2-3*c^2/x/a*d+c^3/x/a^2*b+1/b*ln(b*x+a)*d^3-3/a*ln(b*x+a)*c*d^2
+3/a^2*b*ln(b*x+a)*c^2*d-1/a^3*b^2*ln(b*x+a)*c^3
```

Maxima [A] time = 1.35875, size = 151, normalized size = 1.78

$$\frac{\left(b^2c^3 - 3\,abc^2d + 3\,a^2cd^2\right)\log\left(x\right)}{a^3} - \frac{\left(b^3c^3 - 3\,ab^2c^2d + 3\,a^2bcd^2 - a^3d^3\right)\log\left(bx + a\right)}{a^3b} - \frac{ac^3 - 2\,\left(bc^3 - 3\,ac^2d\right)x}{2\,a^2x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/((b*x + a)*x^3),x, algorithm="maxima")
```

```
[Out] (b^2*c^3 - 3*a*b*c^2*d + 3*a^2*c*d^2)*log(x)/a^3 - (b^3*c^3 - 3*a
*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*log(b*x + a)/(a^3*b) - 1/2*
(a*c^3 - 2*(b*c^3 - 3*a*c^2*d)*x)/(a^2*x^2)
```

Fricas [A] time = 0.223112, size = 167, normalized size = 1.96

$$-\frac{a^2bc^3 + 2\,\left(b^3c^3 - 3\,ab^2c^2d + 3\,a^2bcd^2 - a^3d^3\right)x^2\log\left(bx + a\right) - 2\,\left(b^3c^3 - 3\,ab^2c^2d + 3\,a^2bcd^2\right)x^2\log\left(x\right) - 2\,\left(ab^2c^3 - 3\,a^2b\right.}{2\,a^3bx^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/((b*x + a)*x^3),x, algorithm="fricas")
```

```
[Out] -1/2*(a^2*b*c^3 + 2*(b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^
3*d^3)*x^2*log(b*x + a) - 2*(b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*
d^2)*x^2*log(x) - 2*(a*b^2*c^3 - 3*a^2*b*c^2*d)*x)/(a^3*b*x^2)
```

Sympy [A] time = 8.34295, size = 257, normalized size = 3.02

$$-\frac{ac^3 + x\left(6ac^2d - 2bc^3\right)}{2a^2x^2} + \frac{c\left(3a^2d^2 - 3abcd + b^2c^2\right)\log\left(x + \frac{-3a^3cd^2+3a^2bc^2d-ab^2c^3+ac\left(3a^2d^2-3abcd+b^2c^2\right)}{a^3d^3-6a^2bcd^2+6ab^2c^2d-2b^3c^3}\right)}{a^3} + \frac{(ad - bc)^3\log\left(x + \frac{-3a^3cd^2+3a^2bc^2d-ab^2c^3+\frac{a(ad-bc)^3}{b}}{a^3d^3-6a^2bcd^2+6ab^2c^2d-2b^3c^3}\right)}{a^3b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**3/x**3/(b*x+a),x)
```

```
[Out] -(a*c**3 + x*(6*a*c**2*d - 2*b*c**3))/(2*a**2*x**2) + c*(3*a**2*d
**2 - 3*a*b*c*d + b**2*c**2)*log(x + (-3*a**3*c*d**2 + 3*a**2*b*c
**2*d - a*b**2*c**3 + a*c*(3*a**2*d**2 - 3*a*b*c*d + b**2*c**2))/
(a**3*d**3 - 6*a**2*b*c*d**2 + 6*a*b**2*c**2*d - 2*b**3*c**3))/a*
*3 + (a*d - b*c)**3*log(x + (-3*a**3*c*d**2 + 3*a**2*b*c**2*d - a
*b**2*c**3 + a*(a*d - b*c)**3/b)/(a**3*d**3 - 6*a**2*b*c*d**2 + 6
*a*b**2*c**2*d - 2*b**3*c**3))/(a**3*b)
```

GIAC/XCAS [A] time = 0.263854, size = 161, normalized size = 1.89

$$\frac{\left(b^{2}c^{3}-3\,abc^{2}d+3\,a^{2}cd^{2}\right)\ln\left(|x|\right)}{a^{3}}-\frac{\left(b^{3}c^{3}-3\,ab^{2}c^{2}d+3\,a^{2}bcd^{2}-a^{3}d^{3}\right)\ln\left(|bx+a|\right)}{a^{3}b}-\frac{a^{2}c^{3}-2\left(abc^{3}-3\,a^{2}c^{2}d\right)x}{2\,a^{3}x^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/((b*x + a)*x^3),x, algorithm="giac")
```

```
[Out] (b^2*c^3 - 3*a*b*c^2*d + 3*a^2*c*d^2)*ln(abs(x))/a^3 - (b^3*c^3 -
 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*ln(abs(b*x + a))/(a^3*b
) - 1/2*(a^2*c^3 - 2*(a*b*c^3 - 3*a^2*c^2*d)*x)/(a^3*x^2)
```

3.198 $\int \frac{(c+dx)^3}{x^4(a+bx)}\,dx$

Optimal. Leaf size=103

$$-\frac{\log(x)(bc-ad)^3}{a^4}+\frac{(bc-ad)^3\log(a+bx)}{a^4}+\frac{c^2(bc-3ad)}{2a^2x^2}-\frac{c\left(3a^2d^2-3abcd+b^2c^2\right)}{a^3x}-\frac{c^3}{3ax^3}$$

```
[Out] -c^3/(3*a*x^3) + (c^2*(b*c - 3*a*d))/(2*a^2*x^2) - (c*(b^2*c^2 -
3*a*b*c*d + 3*a^2*d^2))/(a^3*x) - ((b*c - a*d)^3*Log[x])/a^4 + ((
b*c - a*d)^3*Log[a + b*x])/a^4
```

Rubi [A] time = 0.160945, antiderivative size = 103, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{\log(x)(bc-ad)^3}{a^4}+\frac{(bc-ad)^3\log(a+bx)}{a^4}+\frac{c^2(bc-3ad)}{2a^2x^2}-\frac{c\left(3a^2d^2-3abcd+b^2c^2\right)}{a^3x}-\frac{c^3}{3ax^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^3/(x^4*(a + b*x)),x]
```

```
[Out] -c^3/(3*a*x^3) + (c^2*(b*c - 3*a*d))/(2*a^2*x^2) - (c*(b^2*c^2 -
3*a*b*c*d + 3*a^2*d^2))/(a^3*x) - ((b*c - a*d)^3*Log[x])/a^4 + ((
b*c - a*d)^3*Log[a + b*x])/a^4
```

Rubi in Sympy [A] time = 41.8179, size = 94, normalized size = 0.91

$$-\frac{c^3}{3ax^3}-\frac{c^2\left(3ad-bc\right)}{2a^2x^2}-\frac{c\left(3a^2d^2-3abcd+b^2c^2\right)}{a^3x}+\frac{\left(ad-bc\right)^3\log\left(x\right)}{a^4}-\frac{\left(ad-bc\right)^3\log\left(a+bx\right)}{a^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**3/x**4/(b*x+a),x)
```

```
[Out] -c**3/(3*a*x**3) - c**2*(3*a*d - b*c)/(2*a**2*x**2) - c*(3*a**2*d
**2 - 3*a*b*c*d + b**2*c**2)/(a**3*x) + (a*d - b*c)**3*log(x)/a**
4 - (a*d - b*c)**3*log(a + b*x)/a**4
```

Mathematica [A] time = 0.107384, size = 93, normalized size = 0.9

$$-\frac{\frac{ac\left(a^2\left(2c^2+9cdx+18d^2x^2\right)-3abcx(c+6dx)+6b^2c^2x^2\right)}{x^3}+6\log(x)(bc-ad)^3-6(bc-ad)^3\log(a+bx)}{6a^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^3/(x^4*(a + b*x)),x]
```

```
[Out] -((a*c*(6*b^2*c^2*x^2 - 3*a*b*c*x*(c + 6*d*x) + a^2*(2*c^2 + 9*c*
d*x + 18*d^2*x^2)))/x^3 + 6*(b*c - a*d)^3*Log[x] - 6*(b*c - a*d)^
3*Log[a + b*x])/(6*a^4)
```

Maple [A] time = 0.013, size = 188, normalized size = 1.8

$$-\frac{c^3}{3\,ax^3}+\frac{\ln(x)\,d^3}{a}-3\,\frac{\ln(x)\,cbd^2}{a^2}+3\,\frac{\ln(x)\,b^2c^2d}{a^3}-\frac{\ln(x)\,b^3c^3}{a^4}-3\,\frac{cd^2}{ax}+3\,\frac{c^2bd}{a^2x}-\frac{c^3b^2}{a^3x}$$
$$-\frac{3\,c^2d}{2\,ax^2}+\frac{c^3b}{2\,a^2x^2}-\frac{\ln(bx+a)\,d^3}{a}+3\,\frac{\ln(bx+a)\,cbd^2}{a^2}-3\,\frac{\ln(bx+a)\,b^2c^2d}{a^3}+\frac{\ln(bx+a)\,b^3c^3}{a^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^3/x^4/(b*x+a),x)
```

```
[Out] -1/3*c^3/a/x^3+1/a*ln(x)*d^3-3/a^2*ln(x)*c*b*d^2+3/a^3*ln(x)*b^2*
c^2*d-1/a^4*ln(x)*b^3*c^3-3*c/a/x*d^2+3*c^2/a^2/x*b*d-c^3/a^3/x*b
^2-3/2*c^2/a/x^2*d+1/2*c^3/a^2/x^2*b-1/a*ln(b*x+a)*d^3+3/a^2*ln(b
*x+a)*c*b*d^2-3/a^3*ln(b*x+a)*b^2*c^2*d+1/a^4*ln(b*x+a)*b^3*c^3
```

Maxima [A] time = 1.35657, size = 211, normalized size = 2.05

$$\frac{\left(b^{3} c^{3} - 3 \, a b^{2} c^{2} d + 3 \, a^{2} b c d^{2} - a^{3} d^{3}\right) \log\left(b x + a\right)}{a^{4}} - \frac{\left(b^{3} c^{3} - 3 \, a b^{2} c^{2} d + 3 \, a^{2} b c d^{2} - a^{3} d^{3}\right) \log\left(x\right)}{a^{4}} - \frac{2 \, a^{2} c^{3} + 6 \, \left(b^{2} c^{3} - 3 \, a b c^{2} d + 3 \, a^{2} c d^{2}\right) x^{2} - 3 \, \left(a b c^{3} - 3 \, a^{2} c^{2} d\right) x}{6 \, a^{3} x^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/((b*x + a)*x^4),x, algorithm="maxima")
```

```
[Out] (b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*log(b*x + a)/
a^4 - (b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*log(x)/
a^4 - 1/6*(2*a^2*c^3 + 6*(b^2*c^3 - 3*a*b*c^2*d + 3*a^2*c*d^2)*x^
2 - 3*(a*b*c^3 - 3*a^2*c^2*d)*x)/(a^3*x^3)
```

Fricas [A] time = 0.217698, size = 217, normalized size = 2.11

$$-\frac{2 \, a^{3} c^{3} - 6 \, \left(b^{3} c^{3} - 3 \, a b^{2} c^{2} d + 3 \, a^{2} b c d^{2} - a^{3} d^{3}\right) x^{3} \log\left(b x + a\right) + 6 \, \left(b^{3} c^{3} - 3 \, a b^{2} c^{2} d + 3 \, a^{2} b c d^{2} - a^{3} d^{3}\right) x^{3} \log\left(x\right) + 6 \, \left(a b^{2} c^{3}\right.}{6 \, a^{4} x^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/((b*x + a)*x^4),x, algorithm="fricas")
```

```
[Out] -1/6*(2*a^3*c^3 - 6*(b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^
3*d^3)*x^3*log(b*x + a) + 6*(b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*
d^2 - a^3*d^3)*x^3*log(x) + 6*(a*b^2*c^3 - 3*a^2*b*c^2*d + 3*a^3*
c*d^2)*x^2 - 3*(a^2*b*c^3 - 3*a^3*c^2*d)*x)/(a^4*x^3)
```

Sympy [A] time = 7.56108, size = 289, normalized size = 2.81

$$-\frac{2a^{2}c^{3} + x^{2}\left(18a^{2}cd^{2} - 18abc^{2}d + 6b^{2}c^{3}\right) + x\left(9a^{2}c^{2}d - 3abc^{3}\right)}{6a^{3}x^{3}} + \frac{\left(ad - bc\right)^{3}\log\left(x + \frac{a^{4}d^{3} - 3a^{3}bcd^{2} + 3a^{2}b^{2}c^{2}d - ab^{3}c^{3} - a\left(ad - bc\right)^{3}}{2a^{3}bd^{3} - 6a^{2}b^{2}cd^{2} + 6ab^{3}c^{2}d - 2b^{4}c^{3}}\right)}{a^{4}} - \frac{\left(ad - bc\right)^{3}\log\left(x + \frac{a^{4}d^{3} - 3a^{3}bcd^{2} + 3a^{2}b^{2}c^{2}d - ab^{3}c^{3} + a\left(ad - bc\right)^{3}}{2a^{3}bd^{3} - 6a^{2}b^{2}cd^{2} + 6ab^{3}c^{2}d - 2b^{4}c^{3}}\right)}{a^{4}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**3/x**4/(b*x+a),x)
```

```
[Out] -(2*a**2*c**3 + x**2*(18*a**2*c*d**2 - 18*a*b*c**2*d + 6*b**2*c**
3) + x*(9*a**2*c**2*d - 3*a*b*c**3))/(6*a**3*x**3) + (a*d - b*c)*
*3*log(x + (a**4*d**3 - 3*a**3*b*c*d**2 + 3*a**2*b**2*c**2*d - a*
b**3*c**3 - a*(a*d - b*c)**3)/(2*a**3*b*d**3 - 6*a**2*b**2*c*d**2
 + 6*a*b**3*c**2*d - 2*b**4*c**3))/a**4 - (a*d - b*c)**3*log(x +
```

```
(a**4*d**3 - 3*a**3*b*c*d**2 + 3*a**2*b**2*c**2*d - a*b**3*c**3 +
 a*(a*d - b*c)**3)/(2*a**3*b*d**3 - 6*a**2*b**2*c*d**2 + 6*a*b**3
*c**2*d - 2*b**4*c**3))/a**4
```

GIAC/XCAS [A] time = 0.270129, size = 228, normalized size = 2.21

$$-\frac{\left(b^3c^3 - 3\,ab^2c^2d + 3\,a^2bcd^2 - a^3d^3\right)\ln\left(|x|\right)}{a^4} + \frac{\left(b^4c^3 - 3\,ab^3c^2d + 3\,a^2b^2cd^2 - a^3bd^3\right)\ln\left(|bx + a|\right)}{a^4b} - \frac{2\,a^3c^3 + 6\left(ab^2c^3 - 3\,a^2bc^2d + 3\,a^3cd^2\right)x^2 - 3\left(a^2bc^3 - 3\,a^3c^2d\right)x}{6\,a^4x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/((b*x + a)*x^4),x, algorithm="giac")
```

```
[Out] -(b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*ln(abs(x))/a
^4 + (b^4*c^3 - 3*a*b^3*c^2*d + 3*a^2*b^2*c*d^2 - a^3*b*d^3)*ln(a
bs(b*x + a))/(a^4*b) - 1/6*(2*a^3*c^3 + 6*(a*b^2*c^3 - 3*a^2*b*c^
2*d + 3*a^3*c*d^2)*x^2 - 3*(a^2*b*c^3 - 3*a^3*c^2*d)*x)/(a^4*x^3)
```

3.199 $\int \frac{(c+dx)^3}{x^5(a+bx)}\,dx$

Optimal. Leaf size=124

$$\frac{b\log(x)(bc-ad)^3}{a^5}-\frac{b(bc-ad)^3\log(a+bx)}{a^5}+\frac{(bc-ad)^3}{a^4x}+\frac{c^2(bc-3ad)}{3a^2x^3}-\frac{c\left(3a^2d^2-3abcd+b^2c^2\right)}{2a^3x^2}-\frac{c^3}{4ax^4}$$

```
[Out] -c^3/(4*a*x^4) + (c^2*(b*c - 3*a*d))/(3*a^2*x^3) - (c*(b^2*c^2 -
3*a*b*c*d + 3*a^2*d^2))/(2*a^3*x^2) + (b*c - a*d)^3/(a^4*x) + (b*
(b*c - a*d)^3*Log[x])/a^5 - (b*(b*c - a*d)^3*Log[a + b*x])/a^5
```

Rubi [A] time = 0.189365, antiderivative size = 124, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{b\log(x)(bc-ad)^3}{a^5}-\frac{b(bc-ad)^3\log(a+bx)}{a^5}+\frac{(bc-ad)^3}{a^4x}+\frac{c^2(bc-3ad)}{3a^2x^3}-\frac{c\left(3a^2d^2-3abcd+b^2c^2\right)}{2a^3x^2}-\frac{c^3}{4ax^4}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^3/(x^5*(a + b*x)),x]
```

```
[Out] -c^3/(4*a*x^4) + (c^2*(b*c - 3*a*d))/(3*a^2*x^3) - (c*(b^2*c^2 -
3*a*b*c*d + 3*a^2*d^2))/(2*a^3*x^2) + (b*c - a*d)^3/(a^4*x) + (b*
(b*c - a*d)^3*Log[x])/a^5 - (b*(b*c - a*d)^3*Log[a + b*x])/a^5
```

Rubi in Sympy [A] time = 49.2828, size = 114, normalized size = 0.92

$$-\frac{c^3}{4ax^4}-\frac{c^2\left(3ad-bc\right)}{3a^2x^3}-\frac{c\left(3a^2d^2-3abcd+b^2c^2\right)}{2a^3x^2}-\frac{\left(ad-bc\right)^3}{a^4x}-\frac{b\left(ad-bc\right)^3\log\left(x\right)}{a^5}+\frac{b\left(ad-bc\right)^3\log\left(a+bx\right)}{a^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**3/x**5/(b*x+a),x)
```

```
[Out] -c**3/(4*a*x**4) - c**2*(3*a*d - b*c)/(3*a**2*x**3) - c*(3*a**2*d
**2 - 3*a*b*c*d + b**2*c**2)/(2*a**3*x**2) - (a*d - b*c)**3/(a**4
*x) - b*(a*d - b*c)**3*log(x)/a**5 + b*(a*d - b*c)**3*log(a + b*x
)/a**5
```

Mathematica [A] time = 0.213711, size = 137, normalized size = 1.1

$$\frac{\frac{a\left(-3a^3\left(c^3+4c^2dx+6cd^2x^2+4d^3x^3\right)+2a^2bcx\left(2c^2+9cdx+18d^2x^2\right)-6ab^2c^2x^2(c+6dx)+12b^3c^3x^3\right)}{x^4}+12b\log(x)(bc-ad)^3-12b(bc-ad)^3\log(a+$$

$$12a^5$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^3/(x^5*(a + b*x)),x]
```

```
[Out] ((a*(12*b^3*c^3*x^3 - 6*a*b^2*c^2*x^2*(c + 6*d*x) + 2*a^2*b*c*x*(
2*c^2 + 9*c*d*x + 18*d^2*x^2) - 3*a^3*(c^3 + 4*c^2*d*x + 6*c*d^2*
x^2 + 4*d^3*x^3)))/x^4 + 12*b*(b*c - a*d)^3*Log[x] - 12*b*(b*c -
a*d)^3*Log[a + b*x])/(12*a^5)
```

Maple [B] time = 0.015, size = 246, normalized size = 2.

$$-\frac{c^3}{4\,a x^4}-\frac{d^3}{a x}+3\,\frac{b c d^2}{a^2 x}-3\,\frac{b^2 c^2 d}{a^3 x}+\frac{b^3 c^3}{a^4 x}-\frac{3\,c d^2}{2\,a x^2}+\frac{3\,c^2 b d}{2\,a^2 x^2}-\frac{c^3 b^2}{2\,a^3 x^2}-\frac{c^2 d}{a x^3}+\frac{c^3 b}{3\,a^2 x^3}-\frac{b\ln(x)\,d^3}{a^2}+3\,\frac{b^2\ln(x)\,c d^2}{a^3}-3\,\frac{b^3\ln(x)\,c^2 d}{a^4}+\frac{b^4 c^3\ln(x)}{a^5}+\frac{b\ln(bx+a)\,d^3}{a^2}-3\,\frac{b^2\ln(bx+a)\,c d^2}{a^3}+3\,\frac{b^3\ln(bx+a)\,c^2 d}{a^4}-\frac{b^4\ln(bx+a)\,c^3}{a^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((d*x+c)^3/x^5/(b*x+a),x)
```

```
[Out] -1/4*c^3/a/x^4-1/a/x*d^3+3/a^2/x*c*b*d^2-3/a^3/x*b^2*c^2*d+1/a^4/
x*b^3*c^3-3/2*c/a/x^2*d^2+3/2*c^2/a^2/x^2*b*d-1/2*c^3/a^3/x^2*b^2
-c^2/a/x^3*d+1/3*c^3/a^2/x^3*b-1/a^2*b*ln(x)*d^3+3/a^3*b^2*ln(x)*
c*d^2-3/a^4*b^3*ln(x)*c^2*d+1/a^5*b^4*ln(x)*c^3+1/a^2*b*ln(b*x+a)
*d^3-3/a^3*b^2*ln(b*x+a)*c*d^2+3/a^4*b^3*ln(b*x+a)*c^2*d-1/a^5*b^
4*ln(b*x+a)*c^3
```

Maxima [A] time = 1.33702, size = 281, normalized size = 2.27

$$-\frac{\left(b^4c^3-3\,ab^3c^2d+3\,a^2b^2cd^2-a^3bd^3\right)\log\left(bx+a\right)}{a^5}+\frac{\left(b^4c^3-3\,ab^3c^2d+3\,a^2b^2cd^2-a^3bd^3\right)\log\left(x\right)}{a^5}-\frac{3\,a^3c^3-12\left(b^3c^3-3\,ab^2c^2d+3\,a^2bcd^2-a^3d^3\right)x^3+6\left(ab^2c^3-3\,a^2bc^2d+3\,a^3cd^2\right)x^2-4\left(a^2bc^3-3\,a^3c^2d\right)x}{12\,a^4x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((d*x + c)^3/((b*x + a)*x^5),x, algorithm="maxima")
```

```
[Out] -(b^4*c^3 - 3*a*b^3*c^2*d + 3*a^2*b^2*c*d^2 - a^3*b*d^3)*log(b*x
+ a)/a^5 + (b^4*c^3 - 3*a*b^3*c^2*d + 3*a^2*b^2*c*d^2 - a^3*b*d^3
)*log(x)/a^5 - 1/12*(3*a^3*c^3 - 12*(b^3*c^3 - 3*a*b^2*c^2*d + 3*
a^2*b*c*d^2 - a^3*d^3)*x^3 + 6*(a*b^2*c^3 - 3*a^2*b*c^2*d + 3*a^3
*c*d^2)*x^2 - 4*(a^2*b*c^3 - 3*a^3*c^2*d)*x)/(a^4*x^4)
```

Fricas [A] time = 0.213142, size = 288, normalized size = 2.32

$$-\frac{3\,a^4c^3+12\left(b^4c^3-3\,ab^3c^2d+3\,a^2b^2cd^2-a^3bd^3\right)x^4\log\left(bx+a\right)-12\left(b^4c^3-3\,ab^3c^2d+3\,a^2b^2cd^2-a^3bd^3\right)x^4\log\left(x\right)-1}{12\,a^5x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((d*x + c)^3/((b*x + a)*x^5),x, algorithm="fricas")
```

```
[Out] -1/12*(3*a^4*c^3 + 12*(b^4*c^3 - 3*a*b^3*c^2*d + 3*a^2*b^2*c*d^2
- a^3*b*d^3)*x^4*log(b*x + a) - 12*(b^4*c^3 - 3*a*b^3*c^2*d + 3*a
^2*b^2*c*d^2 - a^3*b*d^3)*x^4*log(x) - 12*(a*b^3*c^3 - 3*a^2*b^2*
c^2*d + 3*a^3*b*c*d^2 - a^4*d^3)*x^3 + 6*(a^2*b^2*c^3 - 3*a^3*b*c
^2*d + 3*a^4*c*d^2)*x^2 - 4*(a^3*b*c^3 - 3*a^4*c^2*d)*x)/(a^5*x^4
)
```

Sympy [A] time = 8.85086, size = 355, normalized size = 2.86

$$-\frac{3a^3c^3+x^3\left(12a^3d^3-36a^2bcd^2+36ab^2c^2d-12b^3c^3\right)+x^2\left(18a^3cd^2-18a^2bc^2d+6ab^2c^3\right)+x\left(12a^3c^2d-4a^2bc^3\right)}{12a^4x^4}$$
$$-\frac{b\left(ad-bc\right)^3\log\left(x+\frac{a^4bd^3-3a^3b^2cd^2+3a^2b^3c^2d-ab^4c^3-ab(ad-bc)^3}{2a^3b^2d^3-6a^2b^3cd^2+6ab^4c^2d-2b^5c^3}\right)}{a^5}$$
$$+\frac{b\left(ad-bc\right)^3\log\left(x+\frac{a^4bd^3-3a^3b^2cd^2+3a^2b^3c^2d-ab^4c^3+ab(ad-bc)^3}{2a^3b^2d^3-6a^2b^3cd^2+6ab^4c^2d-2b^5c^3}\right)}{a^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**3/x**5/(b*x+a),x)
```

```
[Out] -(3*a**3*c**3 + x**3*(12*a**3*d**3 - 36*a**2*b*c*d**2 + 36*a*b**2
*c**2*d - 12*b**3*c**3) + x**2*(18*a**3*c*d**2 - 18*a**2*b*c**2*d
 + 6*a*b**2*c**3) + x*(12*a**3*c**2*d - 4*a**2*b*c**3))/(12*a**4*
x**4) - b*(a*d - b*c)**3*log(x + (a**4*b*d**3 - 3*a**3*b**2*c*d**
2 + 3*a**2*b**3*c**2*d - a*b**4*c**3 - a*b*(a*d - b*c)**3)/(2*a**
3*b**2*d**3 - 6*a**2*b**3*c*d**2 + 6*a*b**4*c**2*d - 2*b**5*c**3)
)/a**5 + b*(a*d - b*c)**3*log(x + (a**4*b*d**3 - 3*a**3*b**2*c*d*
*2 + 3*a**2*b**3*c**2*d - a*b**4*c**3 + a*b*(a*d - b*c)**3)/(2*a*
*3*b**2*d**3 - 6*a**2*b**3*c*d**2 + 6*a*b**4*c**2*d - 2*b**5*c**3
))/a**5
```

GIAC/XCAS [A] time = 0.269671, size = 297, normalized size = 2.4

$$\frac{\left(b^4c^3-3\,ab^3c^2d+3\,a^2b^2cd^2-a^3bd^3\right)\ln\left(|x|\right)}{a^5}-\frac{\left(b^5c^3-3\,ab^4c^2d+3\,a^2b^3cd^2-a^3b^2d^3\right)\ln\left(|bx+a|\right)}{a^5b}$$
$$-\frac{3\,a^4c^3-12\left(ab^3c^3-3\,a^2b^2c^2d+3\,a^3bcd^2-a^4d^3\right)x^3+6\left(a^2b^2c^3-3\,a^3bc^2d+3\,a^4cd^2\right)x^2-4\left(a^3bc^3-3\,a^4c^2d\right)x}{12\,a^5x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/((b*x + a)*x^5),x, algorithm="giac")
```

```
[Out] (b^4*c^3 - 3*a*b^3*c^2*d + 3*a^2*b^2*c*d^2 - a^3*b*d^3)*ln(abs(x)
)/a^5 - (b^5*c^3 - 3*a*b^4*c^2*d + 3*a^2*b^3*c*d^2 - a^3*b^2*d^3)
*ln(abs(b*x + a))/(a^5*b) - 1/12*(3*a^4*c^3 - 12*(a*b^3*c^3 - 3*a
^2*b^2*c^2*d + 3*a^3*b*c*d^2 - a^4*d^3)*x^3 + 6*(a^2*b^2*c^3 - 3*
a^3*b*c^2*d + 3*a^4*c*d^2)*x^2 - 4*(a^3*b*c^3 - 3*a^4*c^2*d)*x)/(
a^5*x^4)
```

3.200 $\int \frac{(c+dx)^3}{x^6(a+bx)}\,dx$

Optimal. Leaf size=150

$$-\frac{b^2\log(x)(bc-ad)^3}{a^6}+\frac{b^2(bc-ad)^3\log(a+bx)}{a^6}-\frac{b(bc-ad)^3}{a^5x}+\frac{(bc-ad)^3}{2a^4x^2}+\frac{c^2(bc-3ad)}{4a^2x^4}-\frac{c\left(3a^2d^2-3abcd+b^2c^2\right)}{3a^3x^3}-\frac{c^3}{5ax^5}$$

```
[Out] -c^3/(5*a*x^5) + (c^2*(b*c - 3*a*d))/(4*a^2*x^4) - (c*(b^2*c^2 -
3*a*b*c*d + 3*a^2*d^2))/(3*a^3*x^3) + (b*c - a*d)^3/(2*a^4*x^2) -
 (b*(b*c - a*d)^3)/(a^5*x) - (b^2*(b*c - a*d)^3*Log[x])/a^6 + (b^
2*(b*c - a*d)^3*Log[a + b*x])/a^6
```

Rubi [A] time = 0.234996, antiderivative size = 150, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{b^2\log(x)(bc-ad)^3}{a^6}+\frac{b^2(bc-ad)^3\log(a+bx)}{a^6}-\frac{b(bc-ad)^3}{a^5x}+\frac{(bc-ad)^3}{2a^4x^2}+\frac{c^2(bc-3ad)}{4a^2x^4}-\frac{c\left(3a^2d^2-3abcd+b^2c^2\right)}{3a^3x^3}-\frac{c^3}{5ax^5}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^3/(x^6*(a + b*x)),x]
```


```
[Out] -c^3/(5*a*x^5) + (c^2*(b*c - 3*a*d))/(4*a^2*x^4) - (c*(b^2*c^2 -
3*a*b*c*d + 3*a^2*d^2))/(3*a^3*x^3) + (b*c - a*d)^3/(2*a^4*x^2) -
 (b*(b*c - a*d)^3)/(a^5*x) - (b^2*(b*c - a*d)^3*Log[x])/a^6 + (b^
2*(b*c - a*d)^3*Log[a + b*x])/a^6
```

Rubi in Sympy [A] time = 59.4639, size = 136, normalized size = 0.91

$$-\frac{c^3}{5ax^5}-\frac{c^2\left(3ad-bc\right)}{4a^2x^4}-\frac{c\left(3a^2d^2-3abcd+b^2c^2\right)}{3a^3x^3}-\frac{\left(ad-bc\right)^3}{2a^4x^2}+\frac{b\left(ad-bc\right)^3}{a^5x}+\frac{b^2\left(ad-bc\right)^3\log\left(x\right)}{a^6}-\frac{b^2\left(ad-bc\right)^3\log\left(a+bx\right)}{a^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**3/x**6/(b*x+a),x)
```

```
[Out] -c**3/(5*a*x**5) - c**2*(3*a*d - b*c)/(4*a**2*x**4) - c*(3*a**2*d
**2 - 3*a*b*c*d + b**2*c**2)/(3*a**3*x**3) - (a*d - b*c)**3/(2*a*
*4*x**2) + b*(a*d - b*c)**3/(a**5*x) + b**2*(a*d - b*c)**3*log(x)
/a**6 - b**2*(a*d - b*c)**3*log(a + b*x)/a**6
```

Mathematica [A] time = 0.171201, size = 188, normalized size = 1.25

$$\frac{-3a^5\left(4c^3+15c^2dx+20cd^2x^2+10d^3x^3\right)+15a^4bx\left(c^3+4c^2dx+6cd^2x^2+4d^3x^3\right)-10a^3b^2cx^2\left(2c^2+9cdx+18d^2x^2\right)+30\ldots}{60a^6x^5}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^3/(x^6*(a + b*x)),x]
```

```
[Out] (-60*a*b^4*c^3*x^4 + 30*a^2*b^3*c^2*x^3*(c + 6*d*x) - 10*a^3*b^2*
c*x^2*(2*c^2 + 9*c*d*x + 18*d^2*x^2) + 15*a^4*b*x*(c^3 + 4*c^2*d*
x + 6*c*d^2*x^2 + 4*d^3*x^3) - 3*a^5*(4*c^3 + 15*c^2*d*x + 20*c*d
^2*x^2 + 10*d^3*x^3) - 60*b^2*(b*c - a*d)^3*x^5*Log[x] + 60*b^2*(
b*c - a*d)^3*x^5*Log[a + b*x])/(60*a^6*x^5)
```

Maple [B] time = 0.016, size = 305, normalized size = 2.

$$-\frac{c^3}{5\,ax^5}-\frac{d^3}{2\,ax^2}+\frac{3\,bcd^2}{2\,a^2x^2}-\frac{3\,b^2c^2d}{2\,a^3x^2}+\frac{b^3c^3}{2\,a^4x^2}-\frac{cd^2}{ax^3}+\frac{c^2bd}{a^2x^3}-\frac{c^3b^2}{3\,a^3x^3}-\frac{3\,c^2d}{4\,ax^4}+\frac{c^3b}{4\,a^2x^4}+\frac{b^2\ln(x)\,d^3}{a^3}-3\,\frac{b^3\ln(x)\,cd^2}{a^4}+3\,\frac{b^4\ln(x)\,c^2d}{a^5}-\frac{b^5\ln(x)\,c^3}{a^6}+\frac{bd^3}{a^2x}-3\,\frac{b^2cd^2}{a^3x}+3\,\frac{b^3c^2d}{a^4x}-\frac{b^4c^3}{a^5x}-\frac{b^2\ln(bx+a)\,d^3}{a^3}+3\,\frac{b^3\ln(bx+a)\,cd^2}{a^4}-3\,\frac{b^4\ln(bx+a)\,c^2d}{a^5}+\frac{b^5\ln(bx+a)\,c^3}{a^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^3/x^6/(b*x+a),x)
```

```
[Out] -1/5*c^3/a/x^5-1/2/a/x^2*d^3+3/2/a^2/x^2*c*b*d^2-3/2/a^3/x^2*b^2*
c^2*d+1/2/a^4/x^2*b^3*c^3-c/a/x^3*d^2+c^2/a^2/x^3*b*d-1/3*c^3/a^3
/x^3*b^2-3/4*c^2/a/x^4*d+1/4*c^3/a^2/x^4*b+1/a^3*b^2*ln(x)*d^3-3/
a^4*b^3*ln(x)*c*d^2+3/a^5*b^4*ln(x)*c^2*d-1/a^6*b^5*ln(x)*c^3+1/a
^2*b/x*d^3-3/a^3*b^2/x*c*d^2+3/a^4*b^3/x*c^2*d-1/a^5*b^4/x*c^3-1/
a^3*b^2*ln(b*x+a)*d^3+3/a^4*b^3*ln(b*x+a)*c*d^2-3/a^5*b^4*ln(b*x+
a)*c^2*d+1/a^6*b^5*ln(b*x+a)*c^3
```

Maxima [A] time = 1.35214, size = 352, normalized size = 2.35

$$\frac{\left(b^5c^3-3\,ab^4c^2d+3\,a^2b^3cd^2-a^3b^2d^3\right)\log\left(bx+a\right)}{a^6}-\frac{\left(b^5c^3-3\,ab^4c^2d+3\,a^2b^3cd^2-a^3b^2d^3\right)\log\left(x\right)}{a^6}-\frac{12\,a^4c^3+60\left(b^4c^3-3\,ab^3c^2d+3\,a^2b^2cd^2-a^3bd^3\right)x^4-30\left(ab^3c^3-3\,a^2b^2c^2d+3\,a^3bcd^2-a^4d^3\right)x^3+20\left(a^2b^2c^3-3\,a^3bc\right.}{60\,a^5x^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/((b*x + a)*x^6),x, algorithm="maxima")
```

```
[Out] (b^5*c^3 - 3*a*b^4*c^2*d + 3*a^2*b^3*c*d^2 - a^3*b^2*d^3)*log(b*x
 + a)/a^6 - (b^5*c^3 - 3*a*b^4*c^2*d + 3*a^2*b^3*c*d^2 - a^3*b^2*
d^3)*log(x)/a^6 - 1/60*(12*a^4*c^3 + 60*(b^4*c^3 - 3*a*b^3*c^2*d
+ 3*a^2*b^2*c*d^2 - a^3*b*d^3)*x^4 - 30*(a*b^3*c^3 - 3*a^2*b^2*c^
2*d + 3*a^3*b*c*d^2 - a^4*d^3)*x^3 + 20*(a^2*b^2*c^3 - 3*a^3*b*c^
2*d + 3*a^4*c*d^2)*x^2 - 15*(a^3*b*c^3 - 3*a^4*c^2*d)*x)/(a^5*x^5
)
```

Fricas [A] time = 0.21982, size = 359, normalized size = 2.39

$$-\frac{12\,a^5c^3-60\left(b^5c^3-3\,ab^4c^2d+3\,a^2b^3cd^2-a^3b^2d^3\right)x^5\log\left(bx+a\right)+60\left(b^5c^3-3\,ab^4c^2d+3\,a^2b^3cd^2-a^3b^2d^3\right)x^5\log\left(x\right)\cdots}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/((b*x + a)*x^6),x, algorithm="fricas")
```

```
[Out] -1/60*(12*a^5*c^3 - 60*(b^5*c^3 - 3*a*b^4*c^2*d + 3*a^2*b^3*c*d^2
 - a^3*b^2*d^3)*x^5*log(b*x + a) + 60*(b^5*c^3 - 3*a*b^4*c^2*d +
3*a^2*b^3*c*d^2 - a^3*b^2*d^3)*x^5*log(x) + 60*(a*b^4*c^3 - 3*a^2
*b^3*c^2*d + 3*a^3*b^2*c*d^2 - a^4*b*d^3)*x^4 - 30*(a^2*b^3*c^3 -
```

```
3*a^3*b^2*c^2*d + 3*a^4*b*c*d^2 - a^5*d^3)*x^3 + 20*(a^3*b^2*c^3
 - 3*a^4*b*c^2*d + 3*a^5*c*d^2)*x^2 - 15*(a^4*b*c^3 - 3*a^5*c^2*d
)*x)/(a^6*x^5)
```

Sympy [A] time = 9.91019, size = 418, normalized size = 2.79

$$\frac{-12a^4c^3 + x^4\left(60a^3bd^3 - 180a^2b^2cd^2 + 180ab^3c^2d - 60b^4c^3\right) + x^3\left(-30a^4d^3 + 90a^3bcd^2 - 90a^2b^2c^2d + 30ab^3c^3\right) + x^2\left(-60a\right.}{60a^5x^5}$$
$$+\frac{b^2(ad-bc)^3\log\left(x+\frac{a^4b^2d^3-3a^3b^3cd^2+3a^2b^4c^2d-ab^5c^3-ab^2(ad-bc)^3}{2a^3b^3d^3-6a^2b^4cd^2+6ab^5c^2d-2b^6c^3}\right)}{a^6}$$
$$-\frac{b^2(ad-bc)^3\log\left(x+\frac{a^4b^2d^3-3a^3b^3cd^2+3a^2b^4c^2d-ab^5c^3+ab^2(ad-bc)^3}{2a^3b^3d^3-6a^2b^4cd^2+6ab^5c^2d-2b^6c^3}\right)}{a^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**3/x**6/(b*x+a),x)
```

```
[Out] (-12*a**4*c**3 + x**4*(60*a**3*b*d**3 - 180*a**2*b**2*c*d**2 + 18
0*a*b**3*c**2*d - 60*b**4*c**3) + x**3*(-30*a**4*d**3 + 90*a**3*b
*c*d**2 - 90*a**2*b**2*c**2*d + 30*a*b**3*c**3) + x**2*(-60*a**4*
c*d**2 + 60*a**3*b*c**2*d - 20*a**2*b**2*c**3) + x*(-45*a**4*c**2
*d + 15*a**3*b*c**3))/(60*a**5*x**5) + b**2*(a*d - b*c)**3*log(x
+ (a**4*b**2*d**3 - 3*a**3*b**3*c*d**2 + 3*a**2*b**4*c**2*d - a*b
**5*c**3 - a*b**2*(a*d - b*c)**3)/(2*a**3*b**3*d**3 - 6*a**2*b**4
*c*d**2 + 6*a*b**5*c**2*d - 2*b**6*c**3))/a**6 - b**2*(a*d - b*c)
**3*log(x + (a**4*b**2*d**3 - 3*a**3*b**3*c*d**2 + 3*a**2*b**4*c*
*2*d - a*b**5*c**3 + a*b**2*(a*d - b*c)**3)/(2*a**3*b**3*d**3 - 6
*a**2*b**4*c*d**2 + 6*a*b**5*c**2*d - 2*b**6*c**3))/a**6
```

GIAC/XCAS [A] time = 0.282928, size = 366, normalized size = 2.44

$$-\frac{\left(b^5c^3 - 3\,ab^4c^2d + 3\,a^2b^3cd^2 - a^3b^2d^3\right)\ln\left(|x|\right)}{a^6} + \frac{\left(b^6c^3 - 3\,ab^5c^2d + 3\,a^2b^4cd^2 - a^3b^3d^3\right)\ln\left(|bx+a|\right)}{a^6b}$$
$$-\frac{12\,a^5c^3 + 60\left(ab^4c^3 - 3\,a^2b^3c^2d + 3\,a^3b^2cd^2 - a^4bd^3\right)x^4 - 30\left(a^2b^3c^3 - 3\,a^3b^2c^2d + 3\,a^4bcd^2 - a^5d^3\right)x^3 + 20\left(a^3b^2c^3 - 3\,a\right.}{60\,a^6x^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/((b*x + a)*x^6),x, algorithm="giac")
```

```
[Out] -(b^5*c^3 - 3*a*b^4*c^2*d + 3*a^2*b^3*c*d^2 - a^3*b^2*d^3)*ln(abs
(x))/a^6 + (b^6*c^3 - 3*a*b^5*c^2*d + 3*a^2*b^4*c*d^2 - a^3*b^3*d
^3)*ln(abs(b*x + a))/(a^6*b) - 1/60*(12*a^5*c^3 + 60*(a*b^4*c^3 -
 3*a^2*b^3*c^2*d + 3*a^3*b^2*c*d^2 - a^4*b*d^3)*x^4 - 30*(a^2*b^3
*c^3 - 3*a^3*b^2*c^2*d + 3*a^4*b*c*d^2 - a^5*d^3)*x^3 + 20*(a^3*b
^2*c^3 - 3*a^4*b*c^2*d + 3*a^5*c*d^2)*x^2 - 15*(a^4*b*c^3 - 3*a^5
*c^2*d)*x)/(a^6*x^5)
```

3.201 $\int \frac{x^5}{(a+bx)(c+dx)} dx$

Optimal. Leaf size=145

$$-\frac{a^5\log(a+bx)}{b^5(bc-ad)}-\frac{x(ad+bc)\left(a^2d^2+b^2c^2\right)}{b^4d^4}+\frac{x^2\left(a^2d^2+abcd+b^2c^2\right)}{2b^3d^3}-\frac{x^3(ad+bc)}{3b^2d^2}+\frac{c^5\log(c+dx)}{d^5(bc-ad)}+\frac{x^4}{4bd}$$

```
[Out] -(((b*c + a*d)*(b^2*c^2 + a^2*d^2)*x)/(b^4*d^4)) + ((b^2*c^2 + a*
b*c*d + a^2*d^2)*x^2)/(2*b^3*d^3) - ((b*c + a*d)*x^3)/(3*b^2*d^2)
 + x^4/(4*b*d) - (a^5*Log[a + b*x])/(b^5*(b*c - a*d)) + (c^5*Log[
c + d*x])/(d^5*(b*c - a*d))
```

Rubi [A] time = 0.298371, antiderivative size = 145, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{a^5\log(a+bx)}{b^5(bc-ad)}-\frac{x(ad+bc)\left(a^2d^2+b^2c^2\right)}{b^4d^4}+\frac{x^2\left(a^2d^2+abcd+b^2c^2\right)}{2b^3d^3}-\frac{x^3(ad+bc)}{3b^2d^2}+\frac{c^5\log(c+dx)}{d^5(bc-ad)}+\frac{x^4}{4bd}$$

Antiderivative was successfully verified.

```
[In]  Int[x^5/((a + b*x)*(c + d*x)),x]
```

```
[Out] -(((b*c + a*d)*(b^2*c^2 + a^2*d^2)*x)/(b^4*d^4)) + ((b^2*c^2 + a*
b*c*d + a^2*d^2)*x^2)/(2*b^3*d^3) - ((b*c + a*d)*x^3)/(3*b^2*d^2)
 + x^4/(4*b*d) - (a^5*Log[a + b*x])/(b^5*(b*c - a*d)) + (c^5*Log[
c + d*x])/(d^5*(b*c - a*d))
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{a^5\log\left(a+bx\right)}{b^5\left(ad-bc\right)}-\frac{c^5\log\left(c+dx\right)}{d^5\left(ad-bc\right)}-\frac{\left(ad+bc\right)\left(a^2d^2+b^2c^2\right)\int\frac{1}{b^4}\,dx}{d^4}+\frac{x^4}{4bd}-\frac{x^3\left(ad+bc\right)}{3b^2d^2}+\frac{\left(a^2d^2+abcd+b^2c^2\right)\int x\,dx}{b^3d^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**5/(b*x+a)/(d*x+c),x)
```

```
[Out] a**5*log(a + b*x)/(b**5*(a*d - b*c)) - c**5*log(c + d*x)/(d**5*(a
*d - b*c)) - (a*d + b*c)*(a**2*d**2 + b**2*c**2)*Integral(b**(-4)
, x)/d**4 + x**4/(4*b*d) - x**3*(a*d + b*c)/(3*b**2*d**2) + (a**2
*d**2 + a*b*c*d + b**2*c**2)*Integral(x, x)/(b**3*d**3)
```

Mathematica [A] time = 0.100766, size = 133, normalized size = 0.92

$$\frac{-12a^5d^5\log(a+bx)+bdx\left(12a^4d^4-6a^3bd^4x+4a^2b^2d^4x^2-3ab^3d^4x^3+b^4c\left(-12c^3+6c^2dx-4cd^2x^2+3d^3x^3\right)\right)+12b^5c^5}{12b^5d^5(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^5/((a + b*x)*(c + d*x)),x]
```

```
[Out] (b*d*x*(12*a^4*d^4 - 6*a^3*b*d^4*x + 4*a^2*b^2*d^4*x^2 - 3*a*b^3*
d^4*x^3 + b^4*c*(-12*c^3 + 6*c^2*d*x - 4*c*d^2*x^2 + 3*d^3*x^3))
- 12*a^5*d^5*Log[a + b*x] + 12*b^5*c^5*Log[c + d*x])/(12*b^5*d^5*
(b*c - a*d))
```

Maple [A] time = 0.012, size = 175, normalized size = 1.2

$$\frac{x^4}{4\,bd}-\frac{x^3a}{3\,b^2d}-\frac{cx^3}{3\,bd^2}+\frac{a^2x^2}{2\,b^3d}+\frac{x^2ac}{2\,b^2d^2}+\frac{x^2c^2}{2\,bd^3}-\frac{a^3x}{b^4d}-\frac{a^2cx}{b^3d^2}-\frac{ac^2x}{b^2d^3}-\frac{c^3x}{bd^4}-\frac{c^5\ln(dx+c)}{d^5(ad-bc)}+\frac{a^5\ln(bx+a)}{b^5(ad-bc)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^5/(b*x+a)/(d*x+c),x)
```

```
[Out] 1/4*x^4/b/d-1/3/b^2/d*x^3*a-1/3/b/d^2*x^3*c+1/2/b^3/d*x^2*a^2+1/2
/b^2/d^2*x^2*a*c+1/2/b/d^3*x^2*c^2-1/b^4/d*a^3*x-1/b^3/d^2*a^2*c*
x-1/b^2/d^3*a*c^2*x-1/b/d^4*c^3*x-1/d^5*c^5/(a*d-b*c)*ln(d*x+c)+1
/b^5*a^5/(a*d-b*c)*ln(b*x+a)
```

Maxima [A] time = 1.35363, size = 217, normalized size = 1.5

$$-\frac{a^5\log(bx+a)}{b^6c-ab^5d}+\frac{c^5\log(dx+c)}{bcd^5-ad^6}+\frac{3\,b^3d^3x^4-4\left(b^3cd^2+ab^2d^3\right)x^3+6\left(b^3c^2d+ab^2cd^2+a^2bd^3\right)x^2-12\left(b^3c^3+ab^2c^2d+a^2bcd^2+a^3d^3\right)x}{12\,b^4d^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^5/((b*x + a)*(d*x + c)),x, algorithm="maxima")
```

```
[Out] -a^5*log(b*x + a)/(b^6*c - a*b^5*d) + c^5*log(d*x + c)/(b*c*d^5 -
 a*d^6) + 1/12*(3*b^3*d^3*x^4 - 4*(b^3*c*d^2 + a*b^2*d^3)*x^3 + 6
*(b^3*c^2*d + a*b^2*c*d^2 + a^2*b*d^3)*x^2 - 12*(b^3*c^3 + a*b^2*
c^2*d + a^2*b*c*d^2 + a^3*d^3)*x)/(b^4*d^4)
```

Fricas [A] time = 0.222746, size = 201, normalized size = 1.39

$$-\frac{12\,a^5d^5\log(bx+a)-12\,b^5c^5\log(dx+c)-3\left(b^5cd^4-ab^4d^5\right)x^4+4\left(b^5c^2d^3-a^2b^3d^5\right)x^3-6\left(b^5c^3d^2-a^3b^2d^5\right)x^2+12\,(b}{12\left(b^6cd^5-ab^5d^6\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^5/((b*x + a)*(d*x + c)),x, algorithm="fricas")
```

```
[Out] -1/12*(12*a^5*d^5*log(b*x + a) - 12*b^5*c^5*log(d*x + c) - 3*(b^5
*c*d^4 - a*b^4*d^5)*x^4 + 4*(b^5*c^2*d^3 - a^2*b^3*d^5)*x^3 - 6*(
b^5*c^3*d^2 - a^3*b^2*d^5)*x^2 + 12*(b^5*c^4*d - a^4*b*d^5)*x)/(b
^6*c*d^5 - a*b^5*d^6)
```

Sympy [A] time = 11.1271, size = 298, normalized size = 2.06

$$\frac{a^5\log\left(x+\frac{\frac{a^7d^6}{b(ad-bc)}-\frac{2a^6cd^5}{ad-bc}+\frac{a^5bc^2d^4}{ad-bc}+a^5cd^4+ab^4c^5}{a^5d^5+b^5c^5}\right)}{b^5(ad-bc)}-\frac{c^5\log\left(x+\frac{a^5cd^4-\frac{a^2b^4c^5d}{ad-bc}+\frac{2ab^5c^6}{ad-bc}+ab^4c^5-\frac{b^6c^7}{d(ad-bc)}}{a^5d^5+b^5c^5}\right)}{d^5(ad-bc)}+\frac{x^4}{4bd}-\frac{x^3(ad+bc)}{3b^2d^2}+\frac{x^2\left(a^2d^2+abcd+b^2c^2\right)}{2b^3d^3}-\frac{x\left(a^3d^3+a^2bcd^2+ab^2c^2d+b^3c^3\right)}{b^4d^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**5/(b*x+a)/(d*x+c),x)
```

```
[Out] a**5*log(x + (a**7*d**6/(b*(a*d - b*c)) - 2*a**6*c*d**5/(a*d - b*
c) + a**5*b*c**2*d**4/(a*d - b*c) + a**5*c*d**4 + a*b**4*c**5)/(a
**5*d**5 + b**5*c**5))/(b**5*(a*d - b*c)) - c**5*log(x + (a**5*c*
d**4 - a**2*b**4*c**5*d/(a*d - b*c) + 2*a*b**5*c**6/(a*d - b*c) +
 a*b**4*c**5 - b**6*c**7/(d*(a*d - b*c)))/(a**5*d**5 + b**5*c**5)
)/(d**5*(a*d - b*c)) + x**4/(4*b*d) - x**3*(a*d + b*c)/(3*b**2*d*
*2) + x**2*(a**2*d**2 + a*b*c*d + b**2*c**2)/(2*b**3*d**3) - x*(a
**3*d**3 + a**2*b*c*d**2 + a*b**2*c**2*d + b**3*c**3)/(b**4*d**4)
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^5/((b*x + a)*(d*x + c)),x, algorithm="giac")
```

```
[Out] Exception raised: NotImplementedError
```

3.202 $\int \frac{x^4}{(a+bx)(c+dx)}\,dx$

Optimal. Leaf size=109

$$\frac{a^4\log(a+bx)}{b^4(bc-ad)}+\frac{x\left(a^2d^2+abcd+b^2c^2\right)}{b^3d^3}-\frac{x^2(ad+bc)}{2b^2d^2}-\frac{c^4\log(c+dx)}{d^4(bc-ad)}+\frac{x^3}{3bd}$$

```
[Out] ((b^2*c^2 + a*b*c*d + a^2*d^2)*x)/(b^3*d^3) - ((b*c + a*d)*x^2)/(
2*b^2*d^2) + x^3/(3*b*d) + (a^4*Log[a + b*x])/(b^4*(b*c - a*d)) -
 (c^4*Log[c + d*x])/(d^4*(b*c - a*d))
```

Rubi [A] time = 0.180058, antiderivative size = 109, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{a^4\log(a+bx)}{b^4(bc-ad)}+\frac{x\left(a^2d^2+abcd+b^2c^2\right)}{b^3d^3}-\frac{x^2(ad+bc)}{2b^2d^2}-\frac{c^4\log(c+dx)}{d^4(bc-ad)}+\frac{x^3}{3bd}$$

Antiderivative was successfully verified.

```
[In]  Int[x^4/((a + b*x)*(c + d*x)),x]
```

```
[Out] ((b^2*c^2 + a*b*c*d + a^2*d^2)*x)/(b^3*d^3) - ((b*c + a*d)*x^2)/(
2*b^2*d^2) + x^3/(3*b*d) + (a^4*Log[a + b*x])/(b^4*(b*c - a*d)) -
 (c^4*Log[c + d*x])/(d^4*(b*c - a*d))
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{a^4\log(a+bx)}{b^4(ad-bc)}+\frac{c^4\log(c+dx)}{d^4(ad-bc)}+\frac{\left(a^2d^2+abcd+b^2c^2\right)\int\frac{1}{b^3}\,dx}{d^3}+\frac{x^3}{3bd}-\frac{(ad+bc)\int x\,dx}{b^2d^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**4/(b*x+a)/(d*x+c),x)
```

```
[Out] -a**4*log(a + b*x)/(b**4*(a*d - b*c)) + c**4*log(c + d*x)/(d**4*(
a*d - b*c)) + (a**2*d**2 + a*b*c*d + b**2*c**2)*Integral(b**(-3),
 x)/d**3 + x**3/(3*b*d) - (a*d + b*c)*Integral(x, x)/(b**2*d**2)
```

Mathematica [A] time = 0.0864412, size = 105, normalized size = 0.96

$$\frac{6a^4d^4\log(a+bx)+bdx(bc-ad)\left(6a^2d^2-3abd(dx-2c)+b^2\left(6c^2-3cdx+2d^2x^2\right)\right)-6b^4c^4\log(c+dx)}{6b^4d^4(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^4/((a + b*x)*(c + d*x)),x]
```

```
[Out] (b*d*(b*c - a*d)*x*(6*a^2*d^2 - 3*a*b*d*(-2*c + d*x) + b^2*(6*c^2
 - 3*c*d*x + 2*d^2*x^2)) + 6*a^4*d^4*Log[a + b*x] - 6*b^4*c^4*Log
[c + d*x])/(6*b^4*d^4*(b*c - a*d))
```

Maple [A] time = 0.01, size = 116, normalized size = 1.1

$$\frac{x^3}{3\,bd}-\frac{x^2a}{2\,b^2d}-\frac{cx^2}{2\,bd^2}+\frac{a^2x}{b^3d}+\frac{acx}{b^2d^2}+\frac{c^2x}{bd^3}+\frac{c^4\ln(dx+c)}{d^4(ad-bc)}-\frac{a^4\ln(bx+a)}{b^4(ad-bc)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^4/(b*x+a)/(d*x+c),x)
```

```
[Out] 1/3*x^3/b/d-1/2/b^2/d*x^2*a-1/2/b/d^2*x^2*c+1/b^3/d*a^2*x+1/b^2/d
^2*a*c*x+1/b/d^3*c^2*x+1/d^4*c^4/(a*d-b*c)*ln(d*x+c)-1/b^4*a^4/(a
*d-b*c)*ln(b*x+a)
```

Maxima [A] time = 1.35448, size = 153, normalized size = 1.4

$$\frac{a^4\log(bx+a)}{b^5c-ab^4d}-\frac{c^4\log(dx+c)}{bcd^4-ad^5}+\frac{2\,b^2d^2x^3-3\,(b^2cd+abd^2)\,x^2+6\,(b^2c^2+abcd+a^2d^2)\,x}{6\,b^3d^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^4/((b*x + a)*(d*x + c)),x, algorithm="maxima")
```

```
[Out] a^4*log(b*x + a)/(b^5*c - a*b^4*d) - c^4*log(d*x + c)/(b*c*d^4 -
a*d^5) + 1/6*(2*b^2*d^2*x^3 - 3*(b^2*c*d + a*b*d^2)*x^2 + 6*(b^2*
c^2 + a*b*c*d + a^2*d^2)*x)/(b^3*d^3)
```

Fricas [A] time = 0.215863, size = 165, normalized size = 1.51

$$\frac{6\,a^4d^4\log(bx+a)-6\,b^4c^4\log(dx+c)+2\,(b^4cd^3-ab^3d^4)\,x^3-3\,(b^4c^2d^2-a^2b^2d^4)\,x^2+6\,(b^4c^3d-a^3bd^4)\,x}{6\,(b^5cd^4-ab^4d^5)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^4/((b*x + a)*(d*x + c)),x, algorithm="fricas")
```

```
[Out] 1/6*(6*a^4*d^4*log(b*x + a) - 6*b^4*c^4*log(d*x + c) + 2*(b^4*c*d
^3 - a*b^3*d^4)*x^3 - 3*(b^4*c^2*d^2 - a^2*b^2*d^4)*x^2 + 6*(b^4*
c^3*d - a^3*b*d^4)*x)/(b^5*c*d^4 - a*b^4*d^5)
```

Sympy [A] time = 9.23302, size = 252, normalized size = 2.31

$$-\frac{a^4\log\left(x+\frac{\frac{a^6d^5}{b(ad-bc)}-\frac{2a^5cd^4}{ad-bc}+\frac{a^4bc^2d^3}{ad-bc}+a^4cd^3+ab^3c^4}{a^4d^4+b^4c^4}\right)}{b^4\,(ad-bc)}+\frac{c^4\log\left(x+\frac{a^4cd^3-\frac{a^2b^3c^4d}{ad-bc}+\frac{2ab^4c^5}{ad-bc}+ab^3c^4-\frac{b^5c^6}{d(ad-bc)}}{a^4d^4+b^4c^4}\right)}{d^4\,(ad-bc)}+\frac{x^3}{3bd}-\frac{x^2\,(ad+bc)}{2b^2d^2}+\frac{x\,(a^2d^2+abcd+b^2c^2)}{b^3d^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**4/(b*x+a)/(d*x+c),x)
```

```
[Out] -a**4*log(x + (a**6*d**5/(b*(a*d - b*c)) - 2*a**5*c*d**4/(a*d - b
*c) + a**4*b*c**2*d**3/(a*d - b*c) + a**4*c*d**3 + a*b**3*c**4)/(
a**4*d**4 + b**4*c**4))/(b**4*(a*d - b*c)) + c**4*log(x + (a**4*c
*d**3 - a**2*b**3*c**4*d/(a*d - b*c) + 2*a*b**4*c**5/(a*d - b*c)
+ a*b**3*c**4 - b**5*c**6/(d*(a*d - b*c)))/(a**4*d**4 + b**4*c**4
))/(d**4*(a*d - b*c)) + x**3/(3*b*d) - x**2*(a*d + b*c)/(2*b**2*d
**2) + x*(a**2*d**2 + a*b*c*d + b**2*c**2)/(b**3*d**3)
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^4/((b*x + a)*(d*x + c)),x, algorithm="giac")

[Out] Exception raised: NotImplementedError
```

3.203 $\int \frac{x^3}{(a+bx)(c+dx)}\,dx$

Optimal. Leaf size=77

$$-\frac{a^3\log(a+bx)}{b^3(bc-ad)}-\frac{x(ad+bc)}{b^2d^2}+\frac{c^3\log(c+dx)}{d^3(bc-ad)}+\frac{x^2}{2bd}$$

```
[Out] -(((b*c + a*d)*x)/(b^2*d^2)) + x^2/(2*b*d) - (a^3*Log[a + b*x])/(
b^3*(b*c - a*d)) + (c^3*Log[c + d*x])/(d^3*(b*c - a*d))
```

Rubi [A] time = 0.130673, antiderivative size = 77, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{a^3\log(a+bx)}{b^3(bc-ad)}-\frac{x(ad+bc)}{b^2d^2}+\frac{c^3\log(c+dx)}{d^3(bc-ad)}+\frac{x^2}{2bd}$$

Antiderivative was successfully verified.

```
[In]  Int[x^3/((a + b*x)*(c + d*x)),x]
```

```
[Out] -(((b*c + a*d)*x)/(b^2*d^2)) + x^2/(2*b*d) - (a^3*Log[a + b*x])/(
b^3*(b*c - a*d)) + (c^3*Log[c + d*x])/(d^3*(b*c - a*d))
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{a^3\log(a+bx)}{b^3(ad-bc)}-\frac{c^3\log(c+dx)}{d^3(ad-bc)}-\frac{(ad+bc)\int\frac{1}{b^2}\,dx}{d^2}+\frac{\int x\,dx}{bd}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3/(b*x+a)/(d*x+c),x)
```

```
[Out] a**3*log(a + b*x)/(b**3*(a*d - b*c)) - c**3*log(c + d*x)/(d**3*(a
*d - b*c)) - (a*d + b*c)*Integral(b**(-2), x)/d**2 + Integral(x,
x)/(b*d)
```

Mathematica [A] time = 0.0588202, size = 74, normalized size = 0.96

$$\frac{-2a^3d^3\log(a+bx)+bdx(bc-ad)(-2ad-2bc+bdx)+2b^3c^3\log(c+dx)}{2b^3d^3(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^3/((a + b*x)*(c + d*x)),x]
```

```
[Out] (b*d*(b*c - a*d)*x*(-2*b*c - 2*a*d + b*d*x) - 2*a^3*d^3*Log[a + b
*x] + 2*b^3*c^3*Log[c + d*x])/(2*b^3*d^3*(b*c - a*d))
```

Maple [A] time = 0.009, size = 80, normalized size = 1.

$$\frac{x^2}{2\,bd}-\frac{ax}{b^2d}-\frac{cx}{bd^2}-\frac{c^3\ln(dx+c)}{d^3(ad-bc)}+\frac{a^3\ln(bx+a)}{b^3(ad-bc)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^3/(b*x+a)/(d*x+c),x)
```

```
[Out] 1/2*x^2/b/d-1/b^2/d*a*x-1/b/d^2*x*c-1/d^3*c^3/(a*d-b*c)*ln(d*x+c)
+1/b^3*a^3/(a*d-b*c)*ln(b*x+a)
```

Maxima [A] time = 1.36947, size = 104, normalized size = 1.35

$$-\frac{a^3 \log(bx+a)}{b^4c-ab^3d}+\frac{c^3\log(dx+c)}{bcd^3-ad^4}+\frac{bdx^2-2\,(bc+ad)x}{2\,b^2d^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^3/((b*x + a)*(d*x + c)),x, algorithm="maxima")
```

```
[Out] -a^3*log(b*x + a)/(b^4*c - a*b^3*d) + c^3*log(d*x + c)/(b*c*d^3 -
 a*d^4) + 1/2*(b*d*x^2 - 2*(b*c + a*d)*x)/(b^2*d^2)
```

Fricas [A] time = 0.221891, size = 128, normalized size = 1.66

$$-\frac{2\,a^3d^3\log(bx+a)-2\,b^3c^3\log(dx+c)-\left(b^3cd^2-ab^2d^3\right)x^2+2\left(b^3c^2d-a^2bd^3\right)x}{2\,(b^4cd^3-ab^3d^4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^3/((b*x + a)*(d*x + c)),x, algorithm="fricas")
```

```
[Out] -1/2*(2*a^3*d^3*log(b*x + a) - 2*b^3*c^3*log(d*x + c) - (b^3*c*d^
2 - a*b^2*d^3)*x^2 + 2*(b^3*c^2*d - a^2*b*d^3)*x)/(b^4*c*d^3 - a*
b^3*d^4)
```

Sympy [A] time = 7.82358, size = 219, normalized size = 2.84

$$\frac{a^3\log\left(x+\frac{\frac{a^5d^4}{b(ad-bc)}-\frac{2a^4cd^3}{ad-bc}+\frac{a^3bc^2d^2}{ad-bc}+a^3cd^2+ab^2c^3}{a^3d^3+b^3c^3}\right)}{b^3\,(ad-bc)}-\frac{c^3\log\left(x+\frac{a^3cd^2-\frac{a^2b^2c^3d}{ad-bc}+\frac{2ab^3c^4}{ad-bc}+ab^2c^3-\frac{b^4c^5}{d(ad-bc)}}{a^3d^3+b^3c^3}\right)}{d^3\,(ad-bc)}+\frac{x^2}{2bd}-\frac{x\,(ad+bc)}{b^2d^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**3/(b*x+a)/(d*x+c),x)
```

```
[Out] a**3*log(x + (a**5*d**4/(b*(a*d - b*c)) - 2*a**4*c*d**3/(a*d - b*
c) + a**3*b*c**2*d**2/(a*d - b*c) + a**3*c*d**2 + a*b**2*c**3)/(a
**3*d**3 + b**3*c**3))/(b**3*(a*d - b*c)) - c**3*log(x + (a**3*c*
d**2 - a**2*b**2*c**3*d/(a*d - b*c) + 2*a*b**3*c**4/(a*d - b*c) +
 a*b**2*c**3 - b**4*c**5/(d*(a*d - b*c)))/(a**3*d**3 + b**3*c**3)
)/(d**3*(a*d - b*c)) + x**2/(2*b*d) - x*(a*d + b*c)/(b**2*d**2)
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^3/((b*x + a)*(d*x + c)),x, algorithm="giac")

[Out] Exception raised: NotImplementedError
```

3.204 $\int \frac{x^2}{(a+bx)(c+dx)} \, dx$

Optimal. Leaf size=56

$$\frac{a^2 \log(a+bx)}{b^2(bc-ad)} - \frac{c^2 \log(c+dx)}{d^2(bc-ad)} + \frac{x}{bd}$$

```
[Out] x/(b*d) + (a^2*Log[a + b*x])/(b^2*(b*c - a*d)) - (c^2*Log[c + d*x
])/(d^2*(b*c - a*d))
```

Rubi [A] time = 0.0923564, antiderivative size = 56, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{a^2 \log(a+bx)}{b^2(bc-ad)} - \frac{c^2 \log(c+dx)}{d^2(bc-ad)} + \frac{x}{bd}$$

Antiderivative was successfully verified.

```
[In]  Int[x^2/((a + b*x)*(c + d*x)),x]
```

```
[Out] x/(b*d) + (a^2*Log[a + b*x])/(b^2*(b*c - a*d)) - (c^2*Log[c + d*x
])/(d^2*(b*c - a*d))
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{a^2 \log(a+bx)}{b^2(ad-bc)} + \frac{c^2 \log(c+dx)}{d^2(ad-bc)} + \frac{\int \frac{1}{b}\, dx}{d}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2/(b*x+a)/(d*x+c),x)
```

```
[Out] -a**2*log(a + b*x)/(b**2*(a*d - b*c)) + c**2*log(c + d*x)/(d**2*(
a*d - b*c)) + Integral(1/b, x)/d
```

Mathematica [A] time = 0.0419386, size = 56, normalized size = 1.

$$\frac{a^2 \log(a+bx)}{b^2(bc-ad)} - \frac{c^2 \log(c+dx)}{d^2(bc-ad)} + \frac{x}{bd}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^2/((a + b*x)*(c + d*x)),x]
```

```
[Out] x/(b*d) + (a^2*Log[a + b*x])/(b^2*(b*c - a*d)) - (c^2*Log[c + d*x
])/(d^2*(b*c - a*d))
```

Maple [A] time = 0.009, size = 57, normalized size = 1.

$$\frac{x}{bd} + \frac{c^2 \ln(dx+c)}{d^2(ad-bc)} - \frac{a^2 \ln(bx+a)}{b^2(ad-bc)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2/(b*x+a)/(d*x+c),x)
```

```
[Out] x/b/d+1/d^2*c^2/(a*d-b*c)*ln(d*x+c)-1/b^2*a^2/(a*d-b*c)*ln(b*x+a)
```

Maxima [A] time = 1.35613, size = 81, normalized size = 1.45

$$\frac{a^2 \log (bx + a)}{b^3c - ab^2d} - \frac{c^2 \log (dx + c)}{bcd^2 - ad^3} + \frac{x}{bd}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2/((b*x + a)*(d*x + c)),x, algorithm="maxima")
```

```
[Out] a^2*log(b*x + a)/(b^3*c - a*b^2*d) - c^2*log(d*x + c)/(b*c*d^2 -
a*d^3) + x/(b*d)
```

Fricas [A] time = 0.22171, size = 88, normalized size = 1.57

$$\frac{a^2d^2 \log (bx + a) - b^2c^2 \log (dx + c) + \left(b^2cd - abd^2\right)x}{b^3cd^2 - ab^2d^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2/((b*x + a)*(d*x + c)),x, algorithm="fricas")
```

```
[Out] (a^2*d^2*log(b*x + a) - b^2*c^2*log(d*x + c) + (b^2*c*d - a*b*d^2
)*x)/(b^3*c*d^2 - a*b^2*d^3)
```

Sympy [A] time = 6.21615, size = 190, normalized size = 3.39

$$-\frac{a^2 \log \left(x + \frac{\frac{a^4d^3}{b(ad-bc)} - \frac{2a^3cd^2}{ad-bc} + \frac{a^2bc^2d}{ad-bc} + a^2cd + abc^2}{a^2d^2 + b^2c^2}\right)}{b^2\,(ad - bc)} + \frac{c^2 \log \left(x + \frac{-\frac{a^2bc^2d}{ad-bc} + a^2cd + \frac{2ab^2c^3}{ad-bc} + abc^2 - \frac{b^3c^4}{d(ad-bc)}}{a^2d^2 + b^2c^2}\right)}{d^2\,(ad - bc)} + \frac{x}{bd}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2/(b*x+a)/(d*x+c),x)
```

```
[Out] -a**2*log(x + (a**4*d**3/(b*(a*d - b*c)) - 2*a**3*c*d**2/(a*d - b
*c) + a**2*b*c**2*d/(a*d - b*c) + a**2*c*d + a*b*c**2)/(a**2*d**2
 + b**2*c**2))/(b**2*(a*d - b*c)) + c**2*log(x + (-a**2*b*c**2*d/
(a*d - b*c) + a**2*c*d + 2*a*b**2*c**3/(a*d - b*c) + a*b*c**2 - b
**3*c**4/(d*(a*d - b*c)))/(a**2*d**2 + b**2*c**2))/(d**2*(a*d - b
*c)) + x/(b*d)
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2/((b*x + a)*(d*x + c)),x, algorithm="giac")
```

```
[Out] Exception raised: NotImplementedError
```

3.205 $\int \frac{x}{(a+bx)(c+dx)}\,dx$

Optimal. Leaf size=44

$$\frac{c\log(c+dx)}{d(bc-ad)}-\frac{a\log(a+bx)}{b(bc-ad)}$$

```
[Out] -((a*Log[a + b*x])/(b*(b*c - a*d))) + (c*Log[c + d*x])/(d*(b*c -
a*d))
```

Rubi [A] time = 0.0609283, antiderivative size = 44, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$\frac{c\log(c+dx)}{d(bc-ad)}-\frac{a\log(a+bx)}{b(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[x/((a + b*x)*(c + d*x)),x]
```

```
[Out] -((a*Log[a + b*x])/(b*(b*c - a*d))) + (c*Log[c + d*x])/(d*(b*c -
a*d))
```

Rubi in Sympy [A] time = 18.2118, size = 32, normalized size = 0.73

$$\frac{a\log\left(a+bx\right)}{b\left(ad-bc\right)}-\frac{c\log\left(c+dx\right)}{d\left(ad-bc\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x/(b*x+a)/(d*x+c),x)
```

```
[Out] a*log(a + b*x)/(b*(a*d - b*c)) - c*log(c + d*x)/(d*(a*d - b*c))
```

Mathematica [A] time = 0.0260754, size = 38, normalized size = 0.86

$$-\frac{ad\log(a+bx)-bc\log(c+dx)}{b^2cd-abd^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x/((a + b*x)*(c + d*x)),x]
```

```
[Out] -((a*d*Log[a + b*x] - b*c*Log[c + d*x])/(b^2*c*d - a*b*d^2))
```

Maple [A] time = 0.009, size = 45, normalized size = 1.

$$-\frac{c\ln\left(dx+c\right)}{d\left(ad-bc\right)}+\frac{a\ln\left(bx+a\right)}{\left(ad-bc\right)b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x/(b*x+a)/(d*x+c),x)
```

```
[Out] -c/(a*d-b*c)/d*ln(d*x+c)+a/(a*d-b*c)/b*ln(b*x+a)
```

Maxima [A] time = 1.32914, size = 59, normalized size = 1.34

$$-\frac{a\log\left(bx+a\right)}{b^2c-abd}+\frac{c\log\left(dx+c\right)}{bcd-ad^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/((b*x + a)*(d*x + c)),x, algorithm="maxima")
```

```
[Out] -a*log(b*x + a)/(b^2*c - a*b*d) + c*log(d*x + c)/(b*c*d - a*d^2)
```

Fricas [A] time = 0.215946, size = 51, normalized size = 1.16

$$-\frac{ad\log\left(bx+a\right)-bc\log\left(dx+c\right)}{b^2cd-abd^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/((b*x + a)*(d*x + c)),x, algorithm="fricas")
```

```
[Out] -(a*d*log(b*x + a) - b*c*log(d*x + c))/(b^2*c*d - a*b*d^2)
```

Sympy [A] time = 2.93527, size = 138, normalized size = 3.14

$$\frac{a\log\left(x+\frac{\frac{a^3d^2}{b(ad-bc)}-\frac{2a^2cd}{ad-bc}+\frac{abc^2}{ad-bc}+2ac}{ad+bc}\right)}{b\left(ad-bc\right)}-\frac{c\log\left(x+\frac{-\frac{a^2cd}{ad-bc}+\frac{2abc^2}{ad-bc}+2ac-\frac{b^2c^3}{d(ad-bc)}}{ad+bc}\right)}{d\left(ad-bc\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/(b*x+a)/(d*x+c),x)
```

```
[Out] a*log(x + (a**3*d**2/(b*(a*d - b*c)) - 2*a**2*c*d/(a*d - b*c) + a
*b*c**2/(a*d - b*c) + 2*a*c)/(a*d + b*c))/(b*(a*d - b*c)) - c*log
(x + (-a**2*c*d/(a*d - b*c) + 2*a*b*c**2/(a*d - b*c) + 2*a*c - b*
*2*c**3/(d*(a*d - b*c)))/(a*d + b*c))/(d*(a*d - b*c))
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/((b*x + a)*(d*x + c)),x, algorithm="giac")
```

```
[Out] Exception raised: NotImplementedError
```

3.206 $\int \frac{1}{(a+bx)(c+dx)}\,dx$

Optimal. Leaf size=36

$$\frac{\log(a+bx)}{bc-ad}-\frac{\log(c+dx)}{bc-ad}$$

```
[Out] Log[a + b*x]/(b*c - a*d) - Log[c + d*x]/(b*c - a*d)
```

Rubi [A] time = 0.0257206, antiderivative size = 36, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 2, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.133

$$\frac{\log(a+bx)}{bc-ad}-\frac{\log(c+dx)}{bc-ad}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((a + b*x)*(c + d*x)),x]

[Out] Log[a + b*x]/(b*c - a*d) - Log[c + d*x]/(b*c - a*d)
```

Rubi in Sympy [A] time = 9.63638, size = 26, normalized size = 0.72

$$-\frac{\log\left(a+bx\right)}{ad-bc}+\frac{\log\left(c+dx\right)}{ad-bc}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(b*x+a)/(d*x+c),x)

[Out] -log(a + b*x)/(a*d - b*c) + log(c + d*x)/(a*d - b*c)
```

Mathematica [A] time = 0.0170423, size = 26, normalized size = 0.72

$$\frac{\log(a+bx)-\log(c+dx)}{bc-ad}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((a + b*x)*(c + d*x)),x]

[Out] (Log[a + b*x] - Log[c + d*x])/(b*c - a*d)
```

Maple [A] time = 0.002, size = 37, normalized size = 1.

$$\frac{\ln\left(dx+c\right)}{ad-bc}-\frac{\ln\left(bx+a\right)}{ad-bc}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(b*x+a)/(d*x+c),x)

[Out] 1/(a*d-b*c)*ln(d*x+c)-1/(a*d-b*c)*ln(b*x+a)
```

Maxima [A] time = 1.33932, size = 49, normalized size = 1.36

$$\frac{\log(bx+a)}{bc-ad}-\frac{\log(dx+c)}{bc-ad}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)*(d*x + c)),x, algorithm="maxima")
```

```
[Out] log(b*x + a)/(b*c - a*d) - log(d*x + c)/(b*c - a*d)
```

Fricas [A] time = 0.211159, size = 35, normalized size = 0.97

$$\frac{\log(bx+a)-\log(dx+c)}{bc-ad}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)*(d*x + c)),x, algorithm="fricas")
```

```
[Out] (log(b*x + a) - log(d*x + c))/(b*c - a*d)
```

Sympy [A] time = 1.56382, size = 128, normalized size = 3.56

$$\frac{\log\left(x+\frac{-\frac{a^2d^2}{ad-bc}+\frac{2abcd}{ad-bc}+ad-\frac{b^2c^2}{ad-bc}+bc}{2bd}\right)}{ad-bc}-\frac{\log\left(x+\frac{\frac{a^2d^2}{ad-bc}-\frac{2abcd}{ad-bc}+ad+\frac{b^2c^2}{ad-bc}+bc}{2bd}\right)}{ad-bc}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(b*x+a)/(d*x+c),x)
```

```
[Out] log(x + (-a**2*d**2/(a*d - b*c) + 2*a*b*c*d/(a*d - b*c) + a*d - b
**2*c**2/(a*d - b*c) + b*c)/(2*b*d))/(a*d - b*c) - log(x + (a**2*
d**2/(a*d - b*c) - 2*a*b*c*d/(a*d - b*c) + a*d + b**2*c**2/(a*d -
 b*c) + b*c)/(2*b*d))/(a*d - b*c)
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)*(d*x + c)),x, algorithm="giac")
```

```
[Out] Exception raised: NotImplementedError
```

3.207 $\int \frac{1}{x(a+bx)(c+dx)}\,dx$

Optimal. Leaf size=53

$$-\frac{b\log(a+bx)}{a(bc-ad)}+\frac{d\log(c+dx)}{c(bc-ad)}+\frac{\log(x)}{ac}$$

```
[Out] Log[x]/(a*c) - (b*Log[a + b*x])/(a*(b*c - a*d)) + (d*Log[c + d*x]
)/(c*(b*c - a*d))
```

Rubi [A] time = 0.0857343, antiderivative size = 53, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{b\log(a+bx)}{a(bc-ad)}+\frac{d\log(c+dx)}{c(bc-ad)}+\frac{\log(x)}{ac}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x*(a + b*x)*(c + d*x)),x]
```

```
[Out] Log[x]/(a*c) - (b*Log[a + b*x])/(a*(b*c - a*d)) + (d*Log[c + d*x]
)/(c*(b*c - a*d))
```

Rubi in Sympy [A] time = 24.834, size = 39, normalized size = 0.74

$$-\frac{d\log\left(c+dx\right)}{c\left(ad-bc\right)}+\frac{b\log\left(a+bx\right)}{a\left(ad-bc\right)}+\frac{\log\left(x\right)}{ac}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x/(b*x+a)/(d*x+c),x)
```

```
[Out] -d*log(c + d*x)/(c*(a*d - b*c)) + b*log(a + b*x)/(a*(a*d - b*c))
+ log(x)/(a*c)
```

Mathematica [A] time = 0.035985, size = 48, normalized size = 0.91

$$\frac{-bc\log(a+bx)+ad\log(c+dx)-ad\log(x)+bc\log(x)}{abc^2-a^2cd}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(x*(a + b*x)*(c + d*x)),x]
```

```
[Out] (b*c*Log[x] - a*d*Log[x] - b*c*Log[a + b*x] + a*d*Log[c + d*x])/(
a*b*c^2 - a^2*c*d)
```

Maple [A] time = 0.01, size = 54, normalized size = 1.

$$-\frac{d\ln\left(dx+c\right)}{c\left(ad-bc\right)}+\frac{\ln\left(x\right)}{ac}+\frac{b\ln\left(bx+a\right)}{\left(ad-bc\right)a}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/x/(b*x+a)/(d*x+c),x)
```

```
[Out] -d/c/(a*d-b*c)*ln(d*x+c)+ln(x)/a/c+b/(a*d-b*c)/a*ln(b*x+a)
```

Maxima [A] time = 1.37828, size = 72, normalized size = 1.36

$$-\frac{b\log(bx+a)}{abc-a^2d}+\frac{d\log(dx+c)}{bc^2-acd}+\frac{\log(x)}{ac}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)*(d*x + c)*x),x, algorithm="maxima")
```

```
[Out] -b*log(b*x + a)/(a*b*c - a^2*d) + d*log(d*x + c)/(b*c^2 - a*c*d)
+ log(x)/(a*c)
```

Fricas [A] time = 0.30494, size = 68, normalized size = 1.28

$$-\frac{bc\log(bx+a)-ad\log(dx+c)-(bc-ad)\log(x)}{abc^2-a^2cd}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)*(d*x + c)*x),x, algorithm="fricas")
```

```
[Out] -(b*c*log(b*x + a) - a*d*log(d*x + c) - (b*c - a*d)*log(x))/(a*b*
c^2 - a^2*c*d)
```

Sympy [A] time = 92.4771, size = 583, normalized size = 11.

$$-\frac{d\log\left(x+\frac{-\frac{2a^6d^6}{(ad-bc)^2}+\frac{6a^5bcd^5}{(ad-bc)^2}-\frac{8a^4b^2c^2d^4}{(ad-bc)^2}+\frac{3a^4bcd^4}{ad-bc}+2a^4d^4+\frac{6a^3b^3c^3d^3}{(ad-bc)^2}-\frac{6a^3b^2c^2d^3}{ad-bc}-3a^3bcd^3-\frac{2a^2b^4c^4d^2}{(ad-bc)^2}+\frac{3a^2b^3c^3d^2}{ad-bc}+2a^2b^2c^2d^2-3ab^3c^3d+2b^4c^4}{2a^3bd^4-3a^2b^2cd^3-3ab^3c^2d^2+2b^4c^3d}\right)}{c(ad-bc)}+\frac{b\log\left(x+\frac{-\frac{2a^4b^2c^2d^4}{(ad-bc)^2}+2a^4d^4+\frac{6a^3b^3c^3d^3}{(ad-bc)^2}-\frac{3a^3b^2c^2d^3}{ad-bc}-3a^3bcd^3-\frac{8a^2b^4c^4d^2}{(ad-bc)^2}+\frac{6a^2b^3c^3d^2}{ad-bc}+2a^2b^2c^2d^2+\frac{6ab^5c^5d}{(ad-bc)^2}-\frac{3ab^4c^4d}{ad-bc}-3ab^3c^3d-\frac{2b^6c^6}{(ad-bc)^2}+2b^4c^4}{2a^3bd^4-3a^2b^2cd^3-3ab^3c^2d^2+2b^4c^3d}\right)}{a(ad-bc)}+\frac{\log(x)}{ac}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/x/(b*x+a)/(d*x+c),x)
```

```
[Out] -d*log(x + (-2*a**6*d**6/(a*d - b*c)**2 + 6*a**5*b*c*d**5/(a*d -
b*c)**2 - 8*a**4*b**2*c**2*d**4/(a*d - b*c)**2 + 3*a**4*b*c*d**4/
(a*d - b*c) + 2*a**4*d**4 + 6*a**3*b**3*c**3*d**3/(a*d - b*c)**2
- 6*a**3*b**2*c**2*d**3/(a*d - b*c) - 3*a**3*b*c*d**3 - 2*a**2*b*
*4*c**4*d**2/(a*d - b*c)**2 + 3*a**2*b**3*c**3*d**2/(a*d - b*c) +
 2*a**2*b**2*c**2*d**2 - 3*a*b**3*c**3*d + 2*b**4*c**4)/(2*a**3*b
*d**4 - 3*a**2*b**2*c*d**3 - 3*a*b**3*c**2*d**2 + 2*b**4*c**3*d))
/(c*(a*d - b*c)) + b*log(x + (-2*a**4*b**2*c**2*d**4/(a*d - b*c)*
*2 + 2*a**4*d**4 + 6*a**3*b**3*c**3*d**3/(a*d - b*c)**2 - 3*a**3*
b**2*c**2*d**3/(a*d - b*c) - 3*a**3*b*c*d**3 - 8*a**2*b**4*c**4*d
**2/(a*d - b*c)**2 + 6*a**2*b**3*c**3*d**2/(a*d - b*c) + 2*a**2*b
**2*c**2*d**2 + 6*a*b**5*c**5*d/(a*d - b*c)**2 - 3*a*b**4*c**4*d/
(a*d - b*c) - 3*a*b**3*c**3*d - 2*b**6*c**6/(a*d - b*c)**2 + 2*b*
*4*c**4)/(2*a**3*b*d**4 - 3*a**2*b**2*c*d**3 - 3*a*b**3*c**2*d**2
 + 2*b**4*c**3*d))/(a*(a*d - b*c)) + log(x)/(a*c)
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)*(d*x + c)*x),x, algorithm="giac")

[Out] Exception raised: NotImplementedError
```

3.208 $\int \frac{1}{x^2(a+bx)(c+dx)}\,dx$

Optimal. Leaf size=76

$$\frac{b^2\log(a+bx)}{a^2(bc-ad)}-\frac{\log(x)(ad+bc)}{a^2c^2}-\frac{d^2\log(c+dx)}{c^2(bc-ad)}-\frac{1}{acx}$$

```
[Out] -(1/(a*c*x)) - ((b*c + a*d)*Log[x])/(a^2*c^2) + (b^2*Log[a + b*x]
)/(a^2*(b*c - a*d)) - (d^2*Log[c + d*x])/(c^2*(b*c - a*d))
```

Rubi [A] time = 0.135863, antiderivative size = 76, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{b^2\log(a+bx)}{a^2(bc-ad)}-\frac{\log(x)(ad+bc)}{a^2c^2}-\frac{d^2\log(c+dx)}{c^2(bc-ad)}-\frac{1}{acx}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x^2*(a + b*x)*(c + d*x)),x]
```

```
[Out] -(1/(a*c*x)) - ((b*c + a*d)*Log[x])/(a^2*c^2) + (b^2*Log[a + b*x]
)/(a^2*(b*c - a*d)) - (d^2*Log[c + d*x])/(c^2*(b*c - a*d))
```

Rubi in Sympy [A] time = 32.8926, size = 63, normalized size = 0.83

$$\frac{d^2\log{(c+dx)}}{c^2\,(ad-bc)}-\frac{1}{acx}-\frac{b^2\log{(a+bx)}}{a^2\,(ad-bc)}-\frac{(ad+bc)\log{(x)}}{a^2c^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x**2/(b*x+a)/(d*x+c),x)
```

```
[Out] d**2*log(c + d*x)/(c**2*(a*d - b*c)) - 1/(a*c*x) - b**2*log(a + b
*x)/(a**2*(a*d - b*c)) - (a*d + b*c)*log(x)/(a**2*c**2)
```

Mathematica [A] time = 0.0621593, size = 78, normalized size = 1.03

$$-\frac{b^2\log(a+bx)}{a^2(ad-bc)}+\frac{\log(x)(-ad-bc)}{a^2c^2}-\frac{d^2\log(c+dx)}{c^2(bc-ad)}-\frac{1}{acx}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(x^2*(a + b*x)*(c + d*x)),x]
```

```
[Out] -(1/(a*c*x)) + ((-(b*c) - a*d)*Log[x])/(a^2*c^2) - (b^2*Log[a + b
*x])/(a^2*(-(b*c) + a*d)) - (d^2*Log[c + d*x])/(c^2*(b*c - a*d))
```

Maple [A] time = 0.019, size = 82, normalized size = 1.1

$$\frac{d^2\ln{(dx+c)}}{c^2\,(ad-bc)}-\frac{1}{acx}-\frac{\ln{(x)}\,d}{ac^2}-\frac{b\ln{(x)}}{a^2c}-\frac{b^2\ln{(bx+a)}}{(ad-bc)\,a^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/x^2/(b*x+a)/(d*x+c),x)
```

```
[Out] d^2/c^2/(a*d-b*c)*ln(d*x+c)-1/a/c/x-1/a/c^2*ln(x)*d-1/a^2/c*ln(x)
*b-b^2/(a*d-b*c)/a^2*ln(b*x+a)
```

Maxima [A] time = 1.35481, size = 108, normalized size = 1.42

$$\frac{b^2 \log (bx+a)}{a^2bc-a^3d}-\frac{d^2 \log (dx+c)}{bc^3-ac^2d}-\frac{(bc+ad)\log (x)}{a^2c^2}-\frac{1}{acx}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)*(d*x + c)*x^2),x, algorithm="maxima")
```

```
[Out] b^2*log(b*x + a)/(a^2*b*c - a^3*d) - d^2*log(d*x + c)/(b*c^3 - a*
c^2*d) - (b*c + a*d)*log(x)/(a^2*c^2) - 1/(a*c*x)
```

Fricas [A] time = 0.349368, size = 119, normalized size = 1.57

$$\frac{b^2c^2x\log (bx+a)-a^2d^2x\log (dx+c)-abc^2+a^2cd-\left(b^2c^2-a^2d^2\right)x\log (x)}{(a^2bc^3-a^3c^2d)x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)*(d*x + c)*x^2),x, algorithm="fricas")
```

```
[Out] (b^2*c^2*x*log(b*x + a) - a^2*d^2*x*log(d*x + c) - a*b*c^2 + a^2*
c*d - (b^2*c^2 - a^2*d^2)*x*log(x))/((a^2*b*c^3 - a^3*c^2*d)*x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/x**2/(b*x+a)/(d*x+c),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)*(d*x + c)*x^2),x, algorithm="giac")
```

```
[Out] Exception raised: NotImplementedError
```

3.209 $\int \frac{1}{x^3(a+bx)(c+dx)}\,dx$

Optimal. Leaf size=107

$$-\frac{b^3\log(a+bx)}{a^3(bc-ad)}+\frac{ad+bc}{a^2c^2x}+\frac{\log(x)\left(a^2d^2+abcd+b^2c^2\right)}{a^3c^3}+\frac{d^3\log(c+dx)}{c^3(bc-ad)}-\frac{1}{2acx^2}$$

```
[Out] -1/(2*a*c*x^2) + (b*c + a*d)/(a^2*c^2*x) + ((b^2*c^2 + a*b*c*d +
a^2*d^2)*Log[x])/(a^3*c^3) - (b^3*Log[a + b*x])/(a^3*(b*c - a*d))
 + (d^3*Log[c + d*x])/(c^3*(b*c - a*d))
```

Rubi [A] time = 0.189969, antiderivative size = 107, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{b^3\log(a+bx)}{a^3(bc-ad)}+\frac{ad+bc}{a^2c^2x}+\frac{\log(x)\left(a^2d^2+abcd+b^2c^2\right)}{a^3c^3}+\frac{d^3\log(c+dx)}{c^3(bc-ad)}-\frac{1}{2acx^2}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x^3*(a + b*x)*(c + d*x)),x]
```

```
[Out] -1/(2*a*c*x^2) + (b*c + a*d)/(a^2*c^2*x) + ((b^2*c^2 + a*b*c*d +
a^2*d^2)*Log[x])/(a^3*c^3) - (b^3*Log[a + b*x])/(a^3*(b*c - a*d))
 + (d^3*Log[c + d*x])/(c^3*(b*c - a*d))
```

Rubi in Sympy [A] time = 43.8331, size = 95, normalized size = 0.89

$$-\frac{d^3\log{(c+dx)}}{c^3\,(ad-bc)}-\frac{1}{2acx^2}+\frac{ad+bc}{a^2c^2x}+\frac{b^3\log{(a+bx)}}{a^3\,(ad-bc)}+\frac{\left(a^2d^2+abcd+b^2c^2\right)\log{(x)}}{a^3c^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x**3/(b*x+a)/(d*x+c),x)
```

```
[Out] -d**3*log(c + d*x)/(c**3*(a*d - b*c)) - 1/(2*a*c*x**2) + (a*d + b
*c)/(a**2*c**2*x) + b**3*log(a + b*x)/(a**3*(a*d - b*c)) + (a**2*
d**2 + a*b*c*d + b**2*c**2)*log(x)/(a**3*c**3)
```

Mathematica [A] time = 0.0834125, size = 106, normalized size = 0.99

$$\frac{b^3\log(a+bx)}{a^3(ad-bc)}+\frac{ad+bc}{a^2c^2x}+\frac{\log(x)\left(a^2d^2+abcd+b^2c^2\right)}{a^3c^3}+\frac{d^3\log(c+dx)}{c^3(bc-ad)}-\frac{1}{2acx^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(x^3*(a + b*x)*(c + d*x)),x]
```

```
[Out] -1/(2*a*c*x^2) + (b*c + a*d)/(a^2*c^2*x) + ((b^2*c^2 + a*b*c*d +
a^2*d^2)*Log[x])/(a^3*c^3) + (b^3*Log[a + b*x])/(a^3*(-(b*c) + a*
d)) + (d^3*Log[c + d*x])/(c^3*(b*c - a*d))
```

Maple [A] time = 0.014, size = 117, normalized size = 1.1

$$-\frac{d^3\ln{(dx+c)}}{c^3\,(ad-bc)}-\frac{1}{2\,acx^2}+\frac{d}{ac^2x}+\frac{b}{xa^2c}+\frac{\ln{(x)}\,d^2}{ac^3}+\frac{b\ln{(x)}\,d}{a^2c^2}+\frac{\ln{(x)}\,b^2}{a^3c}+\frac{b^3\ln{(bx+a)}}{(ad-bc)\,a^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/x^3/(b*x+a)/(d*x+c),x)
```

```
[Out] -d^3/c^3/(a*d-b*c)*ln(d*x+c)-1/2/a/c/x^2+1/x/a/c^2*d+1/x/a^2/c*b+
1/a/c^3*ln(x)*d^2+1/a^2/c^2*ln(x)*b*d+1/a^3/c*ln(x)*b^2+b^3/(a*d-
b*c)/a^3*ln(b*x+a)
```

Maxima [A] time = 1.34257, size = 143, normalized size = 1.34

$$-\frac{b^3 \log (bx+a)}{a^3bc-a^4d}+\frac{d^3 \log (dx+c)}{bc^4-ac^3d}+\frac{\left(b^2c^2+abcd+a^2d^2\right)\log (x)}{a^3c^3}-\frac{ac-2\,(bc+ad)x}{2\,a^2c^2x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)*(d*x + c)*x^3),x, algorithm="maxima")
```

```
[Out] -b^3*log(b*x + a)/(a^3*b*c - a^4*d) + d^3*log(d*x + c)/(b*c^4 - a
*c^3*d) + (b^2*c^2 + a*b*c*d + a^2*d^2)*log(x)/(a^3*c^3) - 1/2*(a
*c - 2*(b*c + a*d)*x)/(a^2*c^2*x^2)
```

Fricas [A] time = 2.66523, size = 163, normalized size = 1.52

$$-\frac{2\,b^3c^3x^2\log (bx+a)-2\,a^3d^3x^2\log (dx+c)+a^2bc^3-a^3c^2d-2\left(b^3c^3-a^3d^3\right)x^2\log (x)-2\left(ab^2c^3-a^3cd^2\right)x}{2\,(a^3bc^4-a^4c^3d)x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)*(d*x + c)*x^3),x, algorithm="fricas")
```

```
[Out] -1/2*(2*b^3*c^3*x^2*log(b*x + a) - 2*a^3*d^3*x^2*log(d*x + c) + a
^2*b*c^3 - a^3*c^2*d - 2*(b^3*c^3 - a^3*d^3)*x^2*log(x) - 2*(a*b^
2*c^3 - a^3*c*d^2)*x)/((a^3*b*c^4 - a^4*c^3*d)*x^2)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/x**3/(b*x+a)/(d*x+c),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)*(d*x + c)*x^3),x, algorithm="giac")
```

```
[Out] Exception raised: NotImplementedError
```

3.210 $\int \frac{1}{x^4(a+bx)(c+dx)}\,dx$

Optimal. Leaf size=144

$$\frac{b^4\log(a+bx)}{a^4(bc-ad)}+\frac{ad+bc}{2a^2c^2x^2}-\frac{\log(x)(ad+bc)\left(a^2d^2+b^2c^2\right)}{a^4c^4}-\frac{a^2d^2+abcd+b^2c^2}{a^3c^3x}-\frac{d^4\log(c+dx)}{c^4(bc-ad)}-\frac{1}{3acx^3}$$

```
[Out] -1/(3*a*c*x^3) + (b*c + a*d)/(2*a^2*c^2*x^2) - (b^2*c^2 + a*b*c*d
 + a^2*d^2)/(a^3*c^3*x) - ((b*c + a*d)*(b^2*c^2 + a^2*d^2)*Log[x]
)/(a^4*c^4) + (b^4*Log[a + b*x])/(a^4*(b*c - a*d)) - (d^4*Log[c +
 d*x])/(c^4*(b*c - a*d))
```

Rubi [A] time = 0.272268, antiderivative size = 144, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{b^4\log(a+bx)}{a^4(bc-ad)}+\frac{ad+bc}{2a^2c^2x^2}-\frac{\log(x)(ad+bc)\left(a^2d^2+b^2c^2\right)}{a^4c^4}-\frac{a^2d^2+abcd+b^2c^2}{a^3c^3x}-\frac{d^4\log(c+dx)}{c^4(bc-ad)}-\frac{1}{3acx^3}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x^4*(a + b*x)*(c + d*x)),x]
```

```
[Out] -1/(3*a*c*x^3) + (b*c + a*d)/(2*a^2*c^2*x^2) - (b^2*c^2 + a*b*c*d
 + a^2*d^2)/(a^3*c^3*x) - ((b*c + a*d)*(b^2*c^2 + a^2*d^2)*Log[x]
)/(a^4*c^4) + (b^4*Log[a + b*x])/(a^4*(b*c - a*d)) - (d^4*Log[c +
 d*x])/(c^4*(b*c - a*d))
```

Rubi in Sympy [A] time = 55.6005, size = 128, normalized size = 0.89

$$\frac{d^4\log\left(c+dx\right)}{c^4\left(ad-bc\right)}-\frac{1}{3acx^3}+\frac{ad+bc}{2a^2c^2x^2}-\frac{a^2d^2+abcd+b^2c^2}{a^3c^3x}-\frac{b^4\log\left(a+bx\right)}{a^4\left(ad-bc\right)}-\frac{(ad+bc)\left(a^2d^2+b^2c^2\right)\log\left(x\right)}{a^4c^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x**4/(b*x+a)/(d*x+c),x)
```

```
[Out] d**4*log(c + d*x)/(c**4*(a*d - b*c)) - 1/(3*a*c*x**3) + (a*d + b*
c)/(2*a**2*c**2*x**2) - (a**2*d**2 + a*b*c*d + b**2*c**2)/(a**3*c
**3*x) - b**4*log(a + b*x)/(a**4*(a*d - b*c)) - (a*d + b*c)*(a**2
*d**2 + b**2*c**2)*log(x)/(a**4*c**4)
```

Mathematica [A] time = 0.0996833, size = 139, normalized size = 0.97

$$\frac{6x^3\log(x)\left(b^4c^4-a^4d^4\right)+a\left(a^3cd\left(-2c^2+3cdx-6d^2x^2\right)+6a^3d^4x^3\log(c+dx)+2a^2bc^4-3ab^2c^4x+6b^3c^4x^2\right)-6b^4c^4x^3}{6a^4c^4x^3(ad-bc)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(x^4*(a + b*x)*(c + d*x)),x]
```

```
[Out] (6*(b^4*c^4 - a^4*d^4)*x^3*Log[x] - 6*b^4*c^4*x^3*Log[a + b*x] +
a*(2*a^2*b*c^4 - 3*a*b^2*c^4*x + 6*b^3*c^4*x^2 + a^3*c*d*(-2*c^2
+ 3*c*d*x - 6*d^2*x^2) + 6*a^3*d^4*x^3*Log[c + d*x]))/(6*a^4*c^4*
(-(b*c) + a*d)*x^3)
```

Maple [A] time = 0.016, size = 179, normalized size = 1.2

$$\frac{d^4 \ln(dx+c)}{c^4(ad-bc)} - \frac{1}{3\,acx^3} + \frac{d}{2\,x^2ac^2} + \frac{b}{2\,a^2x^2c} - \frac{d^2}{ac^3x} - \frac{bd}{a^2c^2x} - \frac{b^2}{a^3cx} - \frac{\ln(x)\,d^3}{ac^4} - \frac{b\ln(x)\,d^2}{a^2c^3} - \frac{\ln(x)\,b^2d}{a^3c^2} - \frac{\ln(x)\,b^3}{a^4c} - \frac{b^4\ln(bx+a)}{(ad-bc)\,a^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/x^4/(b*x+a)/(d*x+c),x)
```

```
[Out] d^4/c^4/(a*d-b*c)*ln(d*x+c)-1/3/a/c/x^3+1/2/x^2/a/c^2*d+1/2/x^2/a
^2/c*b-1/a/c^3/x*d^2-1/a^2/c^2/x*b*d-1/a^3/c/x*b^2-1/a/c^4*ln(x)*
d^3-1/a^2/c^3*ln(x)*b*d^2-1/a^3/c^2*ln(x)*b^2*d-1/a^4/c*ln(x)*b^3
-b^4/(a*d-b*c)/a^4*ln(b*x+a)
```

Maxima [A] time = 1.35474, size = 211, normalized size = 1.47

$$\frac{b^4\log(bx+a)}{a^4bc-a^5d} - \frac{d^4\log(dx+c)}{bc^5-ac^4d} - \frac{\left(b^3c^3+ab^2c^2d+a^2bcd^2+a^3d^3\right)\log(x)}{a^4c^4} - \frac{2\,a^2c^2+6\left(b^2c^2+abcd+a^2d^2\right)x^2-3\left(abc^2+a^2cd\right)x}{6\,a^3c^3x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)*(d*x + c)*x^4),x, algorithm="maxima")
```

```
[Out] b^4*log(b*x + a)/(a^4*b*c - a^5*d) - d^4*log(d*x + c)/(b*c^5 - a*
c^4*d) - (b^3*c^3 + a*b^2*c^2*d + a^2*b*c*d^2 + a^3*d^3)*log(x)/(
a^4*c^4) - 1/6*(2*a^2*c^2 + 6*(b^2*c^2 + a*b*c*d + a^2*d^2)*x^2 -
 3*(a*b*c^2 + a^2*c*d)*x)/(a^3*c^3*x^3)
```

Fricas [A] time = 3.85133, size = 201, normalized size = 1.4

$$\frac{6\,b^4c^4x^3\log(bx+a) - 6\,a^4d^4x^3\log(dx+c) - 2\,a^3bc^4 + 2\,a^4c^3d - 6\left(b^4c^4-a^4d^4\right)x^3\log(x) - 6\left(ab^3c^4-a^4cd^3\right)x^2 + 3\left(a^2b^2\right.}{6\left(a^4bc^5-a^5c^4d\right)x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)*(d*x + c)*x^4),x, algorithm="fricas")
```

```
[Out] 1/6*(6*b^4*c^4*x^3*log(b*x + a) - 6*a^4*d^4*x^3*log(d*x + c) - 2*
a^3*b*c^4 + 2*a^4*c^3*d - 6*(b^4*c^4 - a^4*d^4)*x^3*log(x) - 6*(a
*b^3*c^4 - a^4*c*d^3)*x^2 + 3*(a^2*b^2*c^4 - a^4*c^2*d^2)*x)/((a^
4*b*c^5 - a^5*c^4*d)*x^3)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/x**4/(b*x+a)/(d*x+c),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)*(d*x + c)*x^4),x, algorithm="giac")

[Out] Exception raised: NotImplementedError
```

3.211 $\int \frac{x^5}{(a+bx)(c+dx)^2}\,dx$

Optimal. Leaf size=147

$$-\frac{a^5\log(a+bx)}{b^4(bc-ad)^2}+\frac{x\left(a^2d^2+2abcd+3b^2c^2\right)}{b^3d^4}-\frac{x^2(ad+2bc)}{2b^2d^3}-\frac{c^5}{d^5(c+dx)(bc-ad)}-\frac{c^4(4bc-5ad)\log(c+dx)}{d^5(bc-ad)^2}+\frac{x^3}{3bd^2}$$

```
[Out] ((3*b^2*c^2 + 2*a*b*c*d + a^2*d^2)*x)/(b^3*d^4) - ((2*b*c + a*d)*
x^2)/(2*b^2*d^3) + x^3/(3*b*d^2) - c^5/(d^5*(b*c - a*d)*(c + d*x)
) - (a^5*Log[a + b*x])/(b^4*(b*c - a*d)^2) - (c^4*(4*b*c - 5*a*d)
*Log[c + d*x])/(d^5*(b*c - a*d)^2)
```

Rubi [A] time = 0.339618, antiderivative size = 147, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{a^5\log(a+bx)}{b^4(bc-ad)^2}+\frac{x\left(a^2d^2+2abcd+3b^2c^2\right)}{b^3d^4}-\frac{x^2(ad+2bc)}{2b^2d^3}-\frac{c^5}{d^5(c+dx)(bc-ad)}-\frac{c^4(4bc-5ad)\log(c+dx)}{d^5(bc-ad)^2}+\frac{x^3}{3bd^2}$$

Antiderivative was successfully verified.

```
[In]  Int[x^5/((a + b*x)*(c + d*x)^2),x]
```

```
[Out] ((3*b^2*c^2 + 2*a*b*c*d + a^2*d^2)*x)/(b^3*d^4) - ((2*b*c + a*d)*
x^2)/(2*b^2*d^3) + x^3/(3*b*d^2) - c^5/(d^5*(b*c - a*d)*(c + d*x)
) - (a^5*Log[a + b*x])/(b^4*(b*c - a*d)^2) - (c^4*(4*b*c - 5*a*d)
*Log[c + d*x])/(d^5*(b*c - a*d)^2)
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{a^5\log\left(a+bx\right)}{b^4\left(ad-bc\right)^2}+\frac{c^5}{d^5\left(c+dx\right)\left(ad-bc\right)}+\frac{c^4\left(5ad-4bc\right)\log\left(c+dx\right)}{d^5\left(ad-bc\right)^2}+\frac{\left(a^2d^2+2abcd+3b^2c^2\right)\int\frac{1}{b^3}\,dx}{d^4}+\frac{x^3}{3bd^2}-\frac{\left(ad+2bc\right)\int x\,dx}{b^2d^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**5/(b*x+a)/(d*x+c)**2,x)
```

```
[Out] -a**5*log(a + b*x)/(b**4*(a*d - b*c)**2) + c**5/(d**5*(c + d*x)*(
a*d - b*c)) + c**4*(5*a*d - 4*b*c)*log(c + d*x)/(d**5*(a*d - b*c)
**2) + (a**2*d**2 + 2*a*b*c*d + 3*b**2*c**2)*Integral(b**(-3), x)
/d**4 + x**3/(3*b*d**2) - (a*d + 2*b*c)*Integral(x, x)/(b**2*d**3
)
```

Mathematica [A] time = 0.270065, size = 147, normalized size = 1.

$$-\frac{a^5\log(a+bx)}{b^4(bc-ad)^2}+\frac{x\left(a^2d^2+2abcd+3b^2c^2\right)}{b^3d^4}-\frac{x^2(ad+2bc)}{2b^2d^3}+\frac{c^5}{d^5(c+dx)(ad-bc)}+\frac{\left(5ac^4d-4bc^5\right)\log(c+dx)}{d^5(bc-ad)^2}+\frac{x^3}{3bd^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^5/((a + b*x)*(c + d*x)^2),x]
```

```
[Out] ((3*b^2*c^2 + 2*a*b*c*d + a^2*d^2)*x)/(b^3*d^4) - ((2*b*c + a*d)*
x^2)/(2*b^2*d^3) + x^3/(3*b*d^2) + c^5/(d^5*(-(b*c) + a*d)*(c + d
*x)) - (a^5*Log[a + b*x])/(b^4*(b*c - a*d)^2) + ((-4*b*c^5 + 5*a*
c^4*d)*Log[c + d*x])/(d^5*(b*c - a*d)^2)
```

Maple [A] time = 0.019, size = 169, normalized size = 1.2

$$\frac{x^3}{3\,bd^2} - \frac{x^2a}{2\,b^2d^2} - \frac{cx^2}{bd^3} + \frac{a^2x}{b^3d^2} + 2\,\frac{acx}{b^2d^3} + 3\,\frac{c^2x}{bd^4} + 5\,\frac{c^4\ln(dx+c)\,a}{d^4\,(ad-bc)^2} - 4\,\frac{c^5\ln(dx+c)\,b}{d^5\,(ad-bc)^2} + \frac{c^5}{d^5\,(ad-bc)\,(dx+c)} - \frac{a^5\ln(bx+a)}{b^4\,(ad-bc)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^5/(b*x+a)/(d*x+c)^2,x)
```

```
[Out] 1/3*x^3/b/d^2-1/2/b^2/d^2*x^2*a-1/b/d^3*x^2*c+1/b^3/d^2*a^2*x+2/b
^2/d^3*a*c*x+3/b/d^4*c^2*x+5/d^4*c^4/(a*d-b*c)^2*ln(d*x+c)*a-4/d^
5*c^5/(a*d-b*c)^2*ln(d*x+c)*b+1/d^5*c^5/(a*d-b*c)/(d*x+c)-1/b^4*a
^5/(a*d-b*c)^2*ln(b*x+a)
```

Maxima [A] time = 1.35458, size = 259, normalized size = 1.76

$$-\frac{a^5\log(bx+a)}{b^6c^2 - 2\,ab^5cd + a^2b^4d^2} - \frac{c^5}{bc^2d^5 - acd^6 + (bcd^6 - ad^7)x} - \frac{\left(4\,bc^5 - 5\,ac^4d\right)\log(dx+c)}{b^2c^2d^5 - 2\,abcd^6 + a^2d^7} + \frac{2\,b^2d^2x^3 - 3\left(2\,b^2cd + abd^2\right)x^2 + 6\left(3\,b^2c^2 + 2\,abcd + a^2d^2\right)x}{6\,b^3d^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^5/((b*x + a)*(d*x + c)^2),x, algorithm="maxima")
```

```
[Out] -a^5*log(b*x + a)/(b^6*c^2 - 2*a*b^5*c*d + a^2*b^4*d^2) - c^5/(b*
c^2*d^5 - a*c*d^6 + (b*c*d^6 - a*d^7)*x) - (4*b*c^5 - 5*a*c^4*d)*
log(d*x + c)/(b^2*c^2*d^5 - 2*a*b*c*d^6 + a^2*d^7) + 1/6*(2*b^2*d
^2*x^3 - 3*(2*b^2*c*d + a*b*d^2)*x^2 + 6*(3*b^2*c^2 + 2*a*b*c*d +
 a^2*d^2)*x)/(b^3*d^4)
```

Fricas [A] time = 0.218635, size = 455, normalized size = 3.1

$$-\frac{6\,b^5c^6 - 6\,ab^4c^5d - 2\left(b^5c^2d^4 - 2\,ab^4cd^5 + a^2b^3d^6\right)x^4 + \left(4\,b^5c^3d^3 - 5\,ab^4c^2d^4 - 2\,a^2b^3cd^5 + 3\,a^3b^2d^6\right)x^3 - 3\,\big(4\,b^5c^4d^2 - 5}{6\,\big(b^6c^3d^5 -}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^5/((b*x + a)*(d*x + c)^2),x, algorithm="fricas")
```

```
[Out] -1/6*(6*b^5*c^6 - 6*a*b^4*c^5*d - 2*(b^5*c^2*d^4 - 2*a*b^4*c*d^5
+ a^2*b^3*d^6)*x^4 + (4*b^5*c^3*d^3 - 5*a*b^4*c^2*d^4 - 2*a^2*b^3
*c*d^5 + 3*a^3*b^2*d^6)*x^3 - 3*(4*b^5*c^4*d^2 - 5*a*b^4*c^3*d^3
- a^3*b^2*c*d^5 + 2*a^4*b*d^6)*x^2 - 6*(3*b^5*c^5*d - 4*a*b^4*c^4
*d^2 + a^4*b*c*d^5)*x + 6*(a^5*d^6*x + a^5*c*d^5)*log(b*x + a) +
6*(4*b^5*c^6 - 5*a*b^4*c^5*d + (4*b^5*c^5*d - 5*a*b^4*c^4*d^2)*x)
*log(d*x + c))/(b^6*c^3*d^5 - 2*a*b^5*c^2*d^6 + a^2*b^4*c*d^7 + (
b^6*c^2*d^6 - 2*a*b^5*c*d^7 + a^2*b^4*d^8)*x)
```

Sympy [A] time = 18.6795, size = 461, normalized size = 3.14

$$-\frac{a^5\log\left(x+\frac{\frac{a^8d^7}{b(ad-bc)^2}-\frac{3a^7cd^6}{(ad-bc)^2}+\frac{3a^6bc^2d^5}{(ad-bc)^2}-\frac{a^5b^2c^3d^4}{(ad-bc)^2}+a^5cd^4+5a^2b^3c^4d-4ab^4c^5}{a^5d^5+5ab^4c^4d-4b^5c^5}\right)}{b^4(ad-bc)^2}+\frac{c^5}{acd^6-bc^2d^5+x(ad^7-bcd^6)}$$
$$+\frac{c^4(5ad-4bc)\log\left(x+\frac{a^5cd^4-\frac{a^3b^3c^4d^2(5ad-4bc)}{(ad-bc)^2}+\frac{3a^2b^4c^5d(5ad-4bc)}{(ad-bc)^2}+5a^2b^3c^4d-\frac{3ab^5c^6(5ad-4bc)}{(ad-bc)^2}-4ab^4c^5+\frac{b^6c^7(5ad-4bc)}{d(ad-bc)^2}}{a^5d^5+5ab^4c^4d-4b^5c^5}\right)}{d^5(ad-bc)^2}$$
$$+\frac{x^3}{3bd^2}-\frac{x^2(ad+2bc)}{2b^2d^3}+\frac{x(a^2d^2+2abcd+3b^2c^2)}{b^3d^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**5/(b*x+a)/(d*x+c)**2,x)
```

```
[Out] -a**5*log(x + (a**8*d**7/(b*(a*d - b*c)**2) - 3*a**7*c*d**6/(a*d
- b*c)**2 + 3*a**6*b*c**2*d**5/(a*d - b*c)**2 - a**5*b**2*c**3*d*
*4/(a*d - b*c)**2 + a**5*c*d**4 + 5*a**2*b**3*c**4*d - 4*a*b**4*c
**5)/(a**5*d**5 + 5*a*b**4*c**4*d - 4*b**5*c**5))/(b**4*(a*d - b*
c)**2) + c**5/(a*c*d**6 - b*c**2*d**5 + x*(a*d**7 - b*c*d**6)) +
c**4*(5*a*d - 4*b*c)*log(x + (a**5*c*d**4 - a**3*b**3*c**4*d**2*(
5*a*d - 4*b*c)/(a*d - b*c)**2 + 3*a**2*b**4*c**5*d*(5*a*d - 4*b*c
)/(a*d - b*c)**2 + 5*a**2*b**3*c**4*d - 3*a*b**5*c**6*(5*a*d - 4*
b*c)/(a*d - b*c)**2 - 4*a*b**4*c**5 + b**6*c**7*(5*a*d - 4*b*c)/(
d*(a*d - b*c)**2))/(a**5*d**5 + 5*a*b**4*c**4*d - 4*b**5*c**5))/(
d**5*(a*d - b*c)**2) + x**3/(3*b*d**2) - x**2*(a*d + 2*b*c)/(2*b*
*2*d**3) + x*(a**2*d**2 + 2*a*b*c*d + 3*b**2*c**2)/(b**3*d**4)
```

GIAC/XCAS [A] time = 0.283555, size = 332, normalized size = 2.26

$$-\frac{c^5d^4}{(bcd^9-ad^{10})(dx+c)}-\frac{a^5d\ln\left(\left|b-\frac{bc}{dx+c}+\frac{ad}{dx+c}\right|\right)}{b^6c^2d-2\,ab^5cd^2+a^2b^4d^3}$$
$$+\frac{\left(2\,b^3-\frac{3\,(4\,b^3cd+ab^2d^2)}{(dx+c)d}+\frac{6\,(6\,b^3c^2d^2+3\,ab^2cd^3+a^2bd^4)}{(dx+c)^2d^2}\right)(dx+c)^3}{6\,b^4d^5}$$
$$+\frac{(4\,b^3c^3+3\,ab^2c^2d+2\,a^2bcd^2+a^3d^3)\ln\left(\frac{|dx+c|}{(dx+c)^2|d|}\right)}{b^4d^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^5/((b*x + a)*(d*x + c)^2),x, algorithm="giac")
```

```
[Out] -c^5*d^4/((b*c*d^9 - a*d^10)*(d*x + c)) - a^5*d*ln(abs(b - b*c/(d
*x + c) + a*d/(d*x + c)))/(b^6*c^2*d - 2*a*b^5*c*d^2 + a^2*b^4*d^
3) + 1/6*(2*b^3 - 3*(4*b^3*c*d + a*b^2*d^2)/((d*x + c)*d) + 6*(6*
b^3*c^2*d^2 + 3*a*b^2*c*d^3 + a^2*b*d^4)/((d*x + c)^2*d^2))*(d*x
+ c)^3/(b^4*d^5) + (4*b^3*c^3 + 3*a*b^2*c^2*d + 2*a^2*b*c*d^2 + a
^3*d^3)*ln(abs(d*x + c)/((d*x + c)^2*abs(d)))/(b^4*d^5)
```

3.212 $\int \frac{x^4}{(a+bx)(c+dx)^2} \, dx$

Optimal. Leaf size=110

$$\frac{a^4 \log(a+bx)}{b^3(bc-ad)^2} - \frac{x(ad+2bc)}{b^2d^3} + \frac{c^4}{d^4(c+dx)(bc-ad)} + \frac{c^3(3bc-4ad)\log(c+dx)}{d^4(bc-ad)^2} + \frac{x^2}{2bd^2}$$

```
[Out] -(((2*b*c + a*d)*x)/(b^2*d^3)) + x^2/(2*b*d^2) + c^4/(d^4*(b*c -
a*d)*(c + d*x)) + (a^4*Log[a + b*x])/(b^3*(b*c - a*d)^2) + (c^3*(
3*b*c - 4*a*d)*Log[c + d*x])/(d^4*(b*c - a*d)^2)
```

Rubi [A] time = 0.22715, antiderivative size = 110, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.056$

$$\frac{a^4 \log(a+bx)}{b^3(bc-ad)^2} - \frac{x(ad+2bc)}{b^2d^3} + \frac{c^4}{d^4(c+dx)(bc-ad)} + \frac{c^3(3bc-4ad)\log(c+dx)}{d^4(bc-ad)^2} + \frac{x^2}{2bd^2}$$

Antiderivative was successfully verified.

```
[In]  Int[x^4/((a + b*x)*(c + d*x)^2),x]
```

```
[Out] -(((2*b*c + a*d)*x)/(b^2*d^3)) + x^2/(2*b*d^2) + c^4/(d^4*(b*c -
a*d)*(c + d*x)) + (a^4*Log[a + b*x])/(b^3*(b*c - a*d)^2) + (c^3*(
3*b*c - 4*a*d)*Log[c + d*x])/(d^4*(b*c - a*d)^2)
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{a^4 \log(a+bx)}{b^3(ad-bc)^2} - \frac{c^4}{d^4(c+dx)(ad-bc)} - \frac{c^3(4ad-3bc)\log(c+dx)}{d^4(ad-bc)^2} - \frac{(ad+2bc)\int \frac{1}{b^2}\, dx}{d^3} + \frac{\int x\, dx}{bd^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**4/(b*x+a)/(d*x+c)**2,x)
```

```
[Out] a**4*log(a + b*x)/(b**3*(a*d - b*c)**2) - c**4/(d**4*(c + d*x)*(a
*d - b*c)) - c**3*(4*a*d - 3*b*c)*log(c + d*x)/(d**4*(a*d - b*c)*
*2) - (a*d + 2*b*c)*Integral(b**(-2), x)/d**3 + Integral(x, x)/(b
*d**2)
```

Mathematica [A] time = 0.398893, size = 107, normalized size = 0.97

$$\frac{a^4 \log(a+bx)}{b^3(bc-ad)^2} + \frac{-\frac{2ad^2x}{b^2} + \frac{2c^4}{(c+dx)(bc-ad)} + \frac{2c^3(3bc-4ad)\log(c+dx)}{(bc-ad)^2} + \frac{dx(dx-4c)}{b}}{2d^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^4/((a + b*x)*(c + d*x)^2),x]
```

```
[Out] (a^4*Log[a + b*x])/(b^3*(b*c - a*d)^2) + ((-2*a*d^2*x)/b^2 + (d*x
*(-4*c + d*x))/b + (2*c^4)/((b*c - a*d)*(c + d*x)) + (2*c^3*(3*b*
c - 4*a*d)*Log[c + d*x])/(b*c - a*d)^2)/(2*d^4)
```

Maple [A] time = 0.016, size = 131, normalized size = 1.2

$$\frac{x^2}{2\,bd^2} - \frac{ax}{d^2b^2} - 2\,\frac{cx}{bd^3} - \frac{c^4}{d^4\,(ad-bc)\,(dx+c)} - 4\,\frac{c^3\ln(dx+c)\,a}{d^3\,(ad-bc)^2} + 3\,\frac{c^4\ln(dx+c)\,b}{d^4\,(ad-bc)^2} + \frac{a^4\ln(bx+a)}{b^3\,(ad-bc)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^4/(b*x+a)/(d*x+c)^2,x)
```

```
[Out] 1/2*x^2/b/d^2-1/b^2/d^2*a*x-2/b/d^3*x*c-1/d^4*c^4/(a*d-b*c)/(d*x+
c)-4/d^3*c^3/(a*d-b*c)^2*ln(d*x+c)*a+3/d^4*c^4/(a*d-b*c)^2*ln(d*x
+c)*b+1/b^3*a^4/(a*d-b*c)^2*ln(b*x+a)
```

Maxima [A] time = 1.3627, size = 204, normalized size = 1.85

$$\frac{a^4 \log(bx + a)}{b^5c^2 - 2\,ab^4cd + a^2b^3d^2} + \frac{c^4}{bc^2d^4 - acd^5 + (bcd^5 - ad^6)x} + \frac{\left(3\,bc^4 - 4\,ac^3d\right)\log(dx + c)}{b^2c^2d^4 - 2\,abcd^5 + a^2d^6} + \frac{bdx^2 - 2\,(2\,bc + ad)x}{2\,b^2d^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^4/((b*x + a)*(d*x + c)^2),x, algorithm="maxima")
```

```
[Out] a^4*log(b*x + a)/(b^5*c^2 - 2*a*b^4*c*d + a^2*b^3*d^2) + c^4/(b*c
^2*d^4 - a*c*d^5 + (b*c*d^5 - a*d^6)*x) + (3*b*c^4 - 4*a*c^3*d)*l
og(d*x + c)/(b^2*c^2*d^4 - 2*a*b*c*d^5 + a^2*d^6) + 1/2*(b*d*x^2
- 2*(2*b*c + a*d)*x)/(b^2*d^3)
```

Fricas [A] time = 0.216277, size = 385, normalized size = 3.5

$$\frac{2\,b^4c^5 - 2\,ab^3c^4d + \left(b^4c^2d^3 - 2\,ab^3cd^4 + a^2b^2d^5\right)x^3 - \left(3\,b^4c^3d^2 - 4\,ab^3c^2d^3 - a^2b^2cd^4 + 2\,a^3bd^5\right)x^2 - 2\,\left(2\,b^4c^4d - 3\,ab^3c^3c\right.}{2\,(b^5c^3d^4 - 2\,ab^4c^2d^5 + a^2b^3cd^6 + (b^5c^2d}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^4/((b*x + a)*(d*x + c)^2),x, algorithm="fricas")
```

```
[Out] 1/2*(2*b^4*c^5 - 2*a*b^3*c^4*d + (b^4*c^2*d^3 - 2*a*b^3*c*d^4 + a
^2*b^2*d^5)*x^3 - (3*b^4*c^3*d^2 - 4*a*b^3*c^2*d^3 - a^2*b^2*c*d^
4 + 2*a^3*b*d^5)*x^2 - 2*(2*b^4*c^4*d - 3*a*b^3*c^3*d^2 + a^3*b*c
*d^4)*x + 2*(a^4*d^5*x + a^4*c*d^4)*log(b*x + a) + 2*(3*b^4*c^5 -
 4*a*b^3*c^4*d + (3*b^4*c^4*d - 4*a*b^3*c^3*d^2)*x)*log(d*x + c))
/(b^5*c^3*d^4 - 2*a*b^4*c^2*d^5 + a^2*b^3*c*d^6 + (b^5*c^2*d^5 -
2*a*b^4*c*d^6 + a^2*b^3*d^7)*x)
```

Sympy [A] time = 15.5298, size = 425, normalized size = 3.86

$$\frac{a^4 \log\left(x + \frac{\frac{a^7d^6}{b(ad-bc)^2} - \frac{3a^6cd^5}{(ad-bc)^2} + \frac{3a^5bc^2d^4}{(ad-bc)^2} - \frac{a^4b^2c^3d^3}{(ad-bc)^2} + a^4cd^3 + 4a^2b^2c^3d - 3ab^3c^4}{a^4d^4 + 4ab^3c^3d - 3b^4c^4}\right)}{b^3\,(ad - bc)^2} - \frac{c^4}{acd^5 - bc^2d^4 + x\,(ad^6 - bcd^5)} - \frac{c^3\,(4ad - 3bc)\log\left(x + \frac{a^4cd^3 - \frac{a^3b^2c^3d^2(4ad-3bc)}{(ad-bc)^2} + \frac{3a^2b^3c^4d(4ad-3bc)}{(ad-bc)^2} + 4a^2b^2c^3d - \frac{3ab^4c^5(4ad-3bc)}{(ad-bc)^2} - 3ab^3c^4 + \frac{b^5c^6(4ad-3bc)}{d(ad-bc)^2}}{a^4d^4 + 4ab^3c^3d - 3b^4c^4}\right)}{d^4\,(ad - bc)^2} + \frac{x^2}{2bd^2} - \frac{x\,(ad + 2bc)}{b^2d^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**4/(b*x+a)/(d*x+c)**2,x)
```

```
[Out] a**4*log(x + (a**7*d**6/(b*(a*d - b*c)**2) - 3*a**6*c*d**5/(a*d -
 b*c)**2 + 3*a**5*b*c**2*d**4/(a*d - b*c)**2 - a**4*b**2*c**3*d**
3/(a*d - b*c)**2 + a**4*c*d**3 + 4*a**2*b**2*c**3*d - 3*a*b**3*c*
*4)/(a**4*d**4 + 4*a*b**3*c**3*d - 3*b**4*c**4))/(b**3*(a*d - b*c
)**2) - c**4/(a*c*d**5 - b*c**2*d**4 + x*(a*d**6 - b*c*d**5)) - c
**3*(4*a*d - 3*b*c)*log(x + (a**4*c*d**3 - a**3*b**2*c**3*d**2*(4
*a*d - 3*b*c)/(a*d - b*c)**2 + 3*a**2*b**3*c**4*d*(4*a*d - 3*b*c)
/(a*d - b*c)**2 + 4*a**2*b**2*c**3*d - 3*a*b**4*c**5*(4*a*d - 3*b
*c)/(a*d - b*c)**2 - 3*a*b**3*c**4 + b**5*c**6*(4*a*d - 3*b*c)/(d
*(a*d - b*c)**2))/(a**4*d**4 + 4*a*b**3*c**3*d - 3*b**4*c**4))/(d
**4*(a*d - b*c)**2) + x**2/(2*b*d**2) - x*(a*d + 2*b*c)/(b**2*d**
3)
```

GIAC/XCAS [A] time = 0.281581, size = 250, normalized size = 2.27

$$\frac{c^4d^3}{(bcd^7 - ad^8)(dx + c)} + \frac{a^4d\ln\left(\left|b - \frac{bc}{dx+c} + \frac{ad}{dx+c}\right|\right)}{b^5c^2d - 2\,ab^4cd^2 + a^2b^3d^3} + \frac{\left(b^2 - \frac{2\,(3\,b^2cd+abd^2)}{(dx+c)d}\right)(dx + c)^2}{2\,b^3d^4} - \frac{\left(3\,b^2c^2 + 2\,abcd + a^2d^2\right)\ln\left(\frac{|dx+c|}{(dx+c)^2|d|}\right)}{b^3d^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^4/((b*x + a)*(d*x + c)^2),x, algorithm="giac")
```

```
[Out] c^4*d^3/((b*c*d^7 - a*d^8)*(d*x + c)) + a^4*d*ln(abs(b - b*c/(d*x
 + c) + a*d/(d*x + c)))/(b^5*c^2*d - 2*a*b^4*c*d^2 + a^2*b^3*d^3)
 + 1/2*(b^2 - 2*(3*b^2*c*d + a*b*d^2)/((d*x + c)*d))*(d*x + c)^2/
(b^3*d^4) - (3*b^2*c^2 + 2*a*b*c*d + a^2*d^2)*ln(abs(d*x + c)/((d
*x + c)^2*abs(d)))/(b^3*d^4)
```

3.213 $\int \frac{x^3}{(a+bx)(c+dx)^2} dx$

Optimal. Leaf size=91

$$-\frac{a^3\log(a+bx)}{b^2(bc-ad)^2}-\frac{c^3}{d^3(c+dx)(bc-ad)}-\frac{c^2(2bc-3ad)\log(c+dx)}{d^3(bc-ad)^2}+\frac{x}{bd^2}$$

```
[Out] x/(b*d^2) - c^3/(d^3*(b*c - a*d)*(c + d*x)) - (a^3*Log[a + b*x])/
(b^2*(b*c - a*d)^2) - (c^2*(2*b*c - 3*a*d)*Log[c + d*x])/(d^3*(b*
c - a*d)^2)
```

Rubi [A] time = 0.175623, antiderivative size = 91, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.056$

$$-\frac{a^3\log(a+bx)}{b^2(bc-ad)^2}-\frac{c^3}{d^3(c+dx)(bc-ad)}-\frac{c^2(2bc-3ad)\log(c+dx)}{d^3(bc-ad)^2}+\frac{x}{bd^2}$$

Antiderivative was successfully verified.

```
[In]  Int[x^3/((a + b*x)*(c + d*x)^2),x]
```

```
[Out] x/(b*d^2) - c^3/(d^3*(b*c - a*d)*(c + d*x)) - (a^3*Log[a + b*x])/
(b^2*(b*c - a*d)^2) - (c^2*(2*b*c - 3*a*d)*Log[c + d*x])/(d^3*(b*
c - a*d)^2)
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{a^3\log(a+bx)}{b^2(ad-bc)^2}+\frac{c^3}{d^3(c+dx)(ad-bc)}+\frac{c^2(3ad-2bc)\log(c+dx)}{d^3(ad-bc)^2}+\frac{\int \frac{1}{b}\, dx}{d^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3/(b*x+a)/(d*x+c)**2,x)
```

```
[Out] -a**3*log(a + b*x)/(b**2*(a*d - b*c)**2) + c**3/(d**3*(c + d*x)*(
a*d - b*c)) + c**2*(3*a*d - 2*b*c)*log(c + d*x)/(d**3*(a*d - b*c)
**2) + Integral(1/b, x)/d**2
```

Mathematica [A] time = 0.208079, size = 87, normalized size = 0.96

$$\frac{\frac{c^3}{(c+dx)(ad-bc)}-\frac{c^2(2bc-3ad)\log(c+dx)}{(bc-ad)^2}+\frac{dx}{b}}{d^3}-\frac{a^3\log(a+bx)}{b^2(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^3/((a + b*x)*(c + d*x)^2),x]
```

```
[Out] -((a^3*Log[a + b*x])/(b^2*(b*c - a*d)^2)) + ((d*x)/b + c^3/((-(b*
c) + a*d)*(c + d*x)) - (c^2*(2*b*c - 3*a*d)*Log[c + d*x])/(b*c -
a*d)^2)/d^3
```

Maple [A] time = 0.017, size = 108, normalized size = 1.2

$$\frac{x}{bd^2}+3\,\frac{c^2\ln(dx+c)\,a}{d^2(ad-bc)^2}-2\,\frac{c^3\ln(dx+c)\,b}{d^3(ad-bc)^2}+\frac{c^3}{d^3(ad-bc)(dx+c)}-\frac{a^3\ln(bx+a)}{b^2(ad-bc)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^3/(b*x+a)/(d*x+c)^2,x)
```

```
[Out] x/b/d^2+3/d^2*c^2/(a*d-b*c)^2*ln(d*x+c)*a-2/d^3*c^3/(a*d-b*c)^2*l
n(d*x+c)*b+1/d^3*c^3/(a*d-b*c)/(d*x+c)-1/b^2*a^3/(a*d-b*c)^2*ln(b
*x+a)
```

Maxima [A] time = 1.47456, size = 184, normalized size = 2.02

$$-\frac{a^3\log(bx+a)}{b^4c^2-2\,ab^3cd+a^2b^2d^2}-\frac{c^3}{bc^2d^3-acd^4+(bcd^4-ad^5)x}-\frac{\left(2\,bc^3-3\,ac^2d\right)\log(dx+c)}{b^2c^2d^3-2\,abcd^4+a^2d^5}+\frac{x}{bd^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^3/((b*x + a)*(d*x + c)^2),x, algorithm="maxima")
```

```
[Out] -a^3*log(b*x + a)/(b^4*c^2 - 2*a*b^3*c*d + a^2*b^2*d^2) - c^3/(b*
c^2*d^3 - a*c*d^4 + (b*c*d^4 - a*d^5)*x) - (2*b*c^3 - 3*a*c^2*d)*
log(d*x + c)/(b^2*c^2*d^3 - 2*a*b*c*d^4 + a^2*d^5) + x/(b*d^2)
```

Fricas [A] time = 0.224667, size = 311, normalized size = 3.42

$$-\frac{b^3c^4-ab^2c^3d-\left(b^3c^2d^2-2\,ab^2cd^3+a^2bd^4\right)x^2-\left(b^3c^3d-2\,ab^2c^2d^2+a^2bcd^3\right)x+\left(a^3d^4x+a^3cd^3\right)\log(bx+a)+\left(2\,b^3c^4\right.}{b^4c^3d^3-2\,ab^3c^2d^4+a^2b^2cd^5+(b^4c^2d^4-2\,ab^3cd^5+a^2b^2d^6)x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^3/((b*x + a)*(d*x + c)^2),x, algorithm="fricas")
```

```
[Out] -(b^3*c^4 - a*b^2*c^3*d - (b^3*c^2*d^2 - 2*a*b^2*c*d^3 + a^2*b*d^
4)*x^2 - (b^3*c^3*d - 2*a*b^2*c^2*d^2 + a^2*b*c*d^3)*x + (a^3*d^4
*x + a^3*c*d^3)*log(b*x + a) + (2*b^3*c^4 - 3*a*b^2*c^3*d + (2*b^
3*c^3*d - 3*a*b^2*c^2*d^2)*x)*log(d*x + c))/(b^4*c^3*d^3 - 2*a*b^
3*c^2*d^4 + a^2*b^2*c*d^5 + (b^4*c^2*d^4 - 2*a*b^3*c*d^5 + a^2*b^
2*d^6)*x)
```

Sympy [A] time = 12.315, size = 400, normalized size = 4.4

$$-\frac{a^3\log\left(x+\frac{\frac{a^6d^5}{b(ad-bc)^2}-\frac{3a^5cd^4}{(ad-bc)^2}+\frac{3a^4bc^2d^3}{(ad-bc)^2}-\frac{a^3b^2c^3d^2}{(ad-bc)^2}+a^3cd^2+3a^2bc^2d-2ab^2c^3}{a^3d^3+3ab^2c^2d-2b^3c^3}\right)}{b^2\left(ad-bc\right)^2}+\frac{c^3}{acd^4-bc^2d^3+x\left(ad^5-bcd^4\right)}$$
$$+\frac{c^2\left(3ad-2bc\right)\log\left(x+\frac{-\frac{a^3bc^2d^2(3ad-2bc)}{(ad-bc)^2}+a^3cd^2+\frac{3a^2b^2c^3d(3ad-2bc)}{(ad-bc)^2}+3a^2bc^2d-\frac{3ab^3c^4(3ad-2bc)}{(ad-bc)^2}-2ab^2c^3+\frac{b^4c^5(3ad-2bc)}{d(ad-bc)^2}}{a^3d^3+3ab^2c^2d-2b^3c^3}\right)}{d^3\left(ad-bc\right)^2}$$
$$+\frac{x}{bd^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**3/(b*x+a)/(d*x+c)**2,x)
```

```
[Out] -a**3*log(x + (a**6*d**5/(b*(a*d - b*c)**2) - 3*a**5*c*d**4/(a*d
- b*c)**2 + 3*a**4*b*c**2*d**3/(a*d - b*c)**2 - a**3*b**2*c**3*d*
*2/(a*d - b*c)**2 + a**3*c*d**2 + 3*a**2*b*c**2*d - 2*a*b**2*c**3
)/(a**3*d**3 + 3*a*b**2*c**2*d - 2*b**3*c**3))/(b**2*(a*d - b*c)*
*2) + c**3/(a*c*d**4 - b*c**2*d**3 + x*(a*d**5 - b*c*d**4)) + c**
```

```
2*(3*a*d - 2*b*c)*log(x + (-a**3*b*c**2*d**2*(3*a*d - 2*b*c)/(a*d
 - b*c)**2 + a**3*c*d**2 + 3*a**2*b**2*c**3*d*(3*a*d - 2*b*c)/(a*
d - b*c)**2 + 3*a**2*b*c**2*d - 3*a*b**3*c**4*(3*a*d - 2*b*c)/(a*
d - b*c)**2 - 2*a*b**2*c**3 + b**4*c**5*(3*a*d - 2*b*c)/(d*(a*d -
 b*c)**2))/(a**3*d**3 + 3*a*b**2*c**2*d - 2*b**3*c**3))/(d**3*(a*
d - b*c)**2) + x/(b*d**2)
```

GIAC/XCAS [A] time = 0.315499, size = 188, normalized size = 2.07

$$-\frac{a^{3}d\ln\left(\left|b-\frac{bc}{dx+c}+\frac{ad}{dx+c}\right|\right)}{b^{4}c^{2}d-2\,ab^{3}cd^{2}+a^{2}b^{2}d^{3}}-\frac{c^{3}d^{2}}{(bcd^{5}-ad^{6})(dx+c)}+\frac{dx+c}{bd^{3}}+\frac{(2\,bc+ad)\ln\left(\frac{|dx+c|}{(dx+c)^{2}|d|}\right)}{b^{2}d^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^3/((b*x + a)*(d*x + c)^2),x, algorithm="giac")
```

```
[Out] -a^3*d*ln(abs(b - b*c/(d*x + c) + a*d/(d*x + c)))/(b^4*c^2*d - 2*
a*b^3*c*d^2 + a^2*b^2*d^3) - c^3*d^2/((b*c*d^5 - a*d^6)*(d*x + c)
) + (d*x + c)/(b*d^3) + (2*b*c + a*d)*ln(abs(d*x + c)/((d*x + c)^
2*abs(d)))/(b^2*d^3)
```

3.214 $\int \frac{x^2}{(a+bx)(c+dx)^2}\,dx$

Optimal. Leaf size=77

$$\frac{a^2\log(a+bx)}{b(bc-ad)^2}+\frac{c^2}{d^2(c+dx)(bc-ad)}+\frac{c(bc-2ad)\log(c+dx)}{d^2(bc-ad)^2}$$

```
[Out] c^2/(d^2*(b*c - a*d)*(c + d*x)) + (a^2*Log[a + b*x])/(b*(b*c - a*
d)^2) + (c*(b*c - 2*a*d)*Log[c + d*x])/(d^2*(b*c - a*d)^2)
```

Rubi [A] time = 0.141331, antiderivative size = 77, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{a^2\log(a+bx)}{b(bc-ad)^2}+\frac{c^2}{d^2(c+dx)(bc-ad)}+\frac{c(bc-2ad)\log(c+dx)}{d^2(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[x^2/((a + b*x)*(c + d*x)^2),x]
```

```
[Out] c^2/(d^2*(b*c - a*d)*(c + d*x)) + (a^2*Log[a + b*x])/(b*(b*c - a*
d)^2) + (c*(b*c - 2*a*d)*Log[c + d*x])/(d^2*(b*c - a*d)^2)
```

Rubi in Sympy [A] time = 36.9121, size = 66, normalized size = 0.86

$$\frac{a^2\log{(a+bx)}}{b\,(ad-bc)^2}-\frac{c^2}{d^2\,(c+dx)\,(ad-bc)}-\frac{c\,(2ad-bc)\log{(c+dx)}}{d^2\,(ad-bc)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2/(b*x+a)/(d*x+c)**2,x)
```

```
[Out] a**2*log(a + b*x)/(b*(a*d - b*c)**2) - c**2/(d**2*(c + d*x)*(a*d
- b*c)) - c*(2*a*d - b*c)*log(c + d*x)/(d**2*(a*d - b*c)**2)
```

Mathematica [A] time = 0.076785, size = 77, normalized size = 1.

$$\frac{a^2d^2(c+dx)\log(a+bx)+bc((c+dx)(bc-2ad)\log(c+dx)+c(bc-ad))}{bd^2(c+dx)(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^2/((a + b*x)*(c + d*x)^2),x]
```

```
[Out] (a^2*d^2*(c + d*x)*Log[a + b*x] + b*c*(c*(b*c - a*d) + (b*c - 2*a
*d)*(c + d*x)*Log[c + d*x]))/(b*d^2*(b*c - a*d)^2*(c + d*x))
```

Maple [A] time = 0.013, size = 97, normalized size = 1.3

$$-\frac{c^2}{d^2\,(ad-bc)\,(dx+c)}-2\,\frac{c\ln{(dx+c)}\,a}{d\,(ad-bc)^2}+\frac{c^2\ln{(dx+c)}\,b}{(ad-bc)^2\,d^2}+\frac{a^2\ln{(bx+a)}}{(ad-bc)^2\,b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2/(b*x+a)/(d*x+c)^2,x)
```

```
[Out] -c^2/d^2/(a*d-b*c)/(d*x+c)-2*c/(a*d-b*c)^2/d*ln(d*x+c)*a+c^2/(a*d
-b*c)^2/d^2*ln(d*x+c)*b+1/(a*d-b*c)^2*a^2/b*ln(b*x+a)
```

Maxima [A] time = 1.36686, size = 162, normalized size = 2.1

$$\frac{a^2 \log(bx+a)}{b^3c^2 - 2\,ab^2cd + a^2bd^2} + \frac{c^2}{bc^2d^2 - acd^3 + (bcd^3 - ad^4)x} + \frac{\left(bc^2 - 2\,acd\right)\log(dx+c)}{b^2c^2d^2 - 2\,abcd^3 + a^2d^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2/((b*x + a)*(d*x + c)^2),x, algorithm="maxima")
```

```
[Out] a^2*log(b*x + a)/(b^3*c^2 - 2*a*b^2*c*d + a^2*b*d^2) + c^2/(b*c^2
*d^2 - a*c*d^3 + (b*c*d^3 - a*d^4)*x) + (b*c^2 - 2*a*c*d)*log(d*x
 + c)/(b^2*c^2*d^2 - 2*a*b*c*d^3 + a^2*d^4)
```

Fricas [A] time = 0.222827, size = 200, normalized size = 2.6

$$\frac{b^2c^3 - abc^2d + \left(a^2d^3x + a^2cd^2\right)\log(bx+a) + \left(b^2c^3 - 2\,abc^2d + \left(b^2c^2d - 2\,abcd^2\right)x\right)\log(dx+c)}{b^3c^3d^2 - 2\,ab^2c^2d^3 + a^2bcd^4 + (b^3c^2d^3 - 2\,ab^2cd^4 + a^2bd^5)x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2/((b*x + a)*(d*x + c)^2),x, algorithm="fricas")
```

```
[Out] (b^2*c^3 - a*b*c^2*d + (a^2*d^3*x + a^2*c*d^2)*log(b*x + a) + (b^
2*c^3 - 2*a*b*c^2*d + (b^2*c^2*d - 2*a*b*c*d^2)*x)*log(d*x + c))/
(b^3*c^3*d^2 - 2*a*b^2*c^2*d^3 + a^2*b*c*d^4 + (b^3*c^2*d^3 - 2*a
*b^2*c*d^4 + a^2*b*d^5)*x)
```

Sympy [A] time = 8.92094, size = 333, normalized size = 4.32

$$\frac{a^2 \log\left(x + \frac{\frac{a^5d^4}{b(ad-bc)^2} - \frac{3a^4cd^3}{(ad-bc)^2} + \frac{3a^3bc^2d^2}{(ad-bc)^2} - \frac{a^2b^2c^3d}{(ad-bc)^2} + 3a^2cd - abc^2}{a^2d^2 + 2abcd - b^2c^2}\right)}{b\,(ad-bc)^2} - \frac{c^2}{acd^3 - bc^2d^2 + x\,(ad^4 - bcd^3)} - \frac{c\,(2ad-bc)\log\left(x + \frac{-\frac{a^3cd^2(2ad-bc)}{(ad-bc)^2} + \frac{3a^2bc^2d(2ad-bc)}{(ad-bc)^2} + 3a^2cd - \frac{3ab^2c^3(2ad-bc)}{(ad-bc)^2} - abc^2 + \frac{b^3c^4(2ad-bc)}{d(ad-bc)^2}}{a^2d^2 + 2abcd - b^2c^2}\right)}{d^2\,(ad-bc)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2/(b*x+a)/(d*x+c)**2,x)
```

```
[Out] a**2*log(x + (a**5*d**4/(b*(a*d - b*c)**2) - 3*a**4*c*d**3/(a*d -
 b*c)**2 + 3*a**3*b*c**2*d**2/(a*d - b*c)**2 - a**2*b**2*c**3*d/(
a*d - b*c)**2 + 3*a**2*c*d - a*b*c**2)/(a**2*d**2 + 2*a*b*c*d - b
**2*c**2))/(b*(a*d - b*c)**2) - c**2/(a*c*d**3 - b*c**2*d**2 + x*
(a*d**4 - b*c*d**3)) - c*(2*a*d - b*c)*log(x + (-a**3*c*d**2*(2*a
*d - b*c)/(a*d - b*c)**2 + 3*a**2*b*c**2*d*(2*a*d - b*c)/(a*d - b
*c)**2 + 3*a**2*c*d - 3*a*b**2*c**3*(2*a*d - b*c)/(a*d - b*c)**2
- a*b*c**2 + b**3*c**4*(2*a*d - b*c)/(d*(a*d - b*c)**2))/(a**2*d*
*2 + 2*a*b*c*d - b**2*c**2))/(d**2*(a*d - b*c)**2)
```

GIAC/XCAS [A] time = 0.280791, size = 154, normalized size = 2.

$$\frac{a^2 d\ln\left(\left|b-\frac{bc}{dx+c}+\frac{ad}{dx+c}\right|\right)}{b^3c^2d-2\,ab^2cd^2+a^2bd^3}+\frac{c^2d}{(bcd^3-ad^4)(dx+c)}-\frac{\ln\left(\frac{|dx+c|}{(dx+c)^2|d|}\right)}{bd^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2/((b*x + a)*(d*x + c)^2),x, algorithm="giac")
```

```
[Out] a^2*d*ln(abs(b - b*c/(d*x + c) + a*d/(d*x + c)))/(b^3*c^2*d - 2*a
*b^2*c*d^2 + a^2*b*d^3) + c^2*d/((b*c*d^3 - a*d^4)*(d*x + c)) - l
n(abs(d*x + c)/((d*x + c)^2*abs(d)))/(b*d^2)
```

3.215 $\int \frac{x}{(a+bx)(c+dx)^2}\,dx$

Optimal. Leaf size=61

$$-\frac{c}{d(c+dx)(bc-ad)}-\frac{a\log(a+bx)}{(bc-ad)^2}+\frac{a\log(c+dx)}{(bc-ad)^2}$$

```
[Out] -(c/(d*(b*c - a*d)*(c + d*x))) - (a*Log[a + b*x])/(b*c - a*d)^2 +
 (a*Log[c + d*x])/(b*c - a*d)^2
```

Rubi [A] time = 0.0872763, antiderivative size = 61, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}} = 0.062$

$$-\frac{c}{d(c+dx)(bc-ad)}-\frac{a\log(a+bx)}{(bc-ad)^2}+\frac{a\log(c+dx)}{(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[x/((a + b*x)*(c + d*x)^2),x]
```

```
[Out] -(c/(d*(b*c - a*d)*(c + d*x))) - (a*Log[a + b*x])/(b*c - a*d)^2 +
 (a*Log[c + d*x])/(b*c - a*d)^2
```

Rubi in Sympy [A] time = 25.2652, size = 48, normalized size = 0.79

$$-\frac{a\log(a+bx)}{(ad-bc)^2}+\frac{a\log(c+dx)}{(ad-bc)^2}+\frac{c}{d(c+dx)(ad-bc)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x/(b*x+a)/(d*x+c)**2,x)
```

```
[Out] -a*log(a + b*x)/(a*d - b*c)**2 + a*log(c + d*x)/(a*d - b*c)**2 +
c/(d*(c + d*x)*(a*d - b*c))
```

Mathematica [A] time = 0.0515013, size = 60, normalized size = 0.98

$$\frac{c}{d(c+dx)(ad-bc)}-\frac{a\log(a+bx)}{(bc-ad)^2}+\frac{a\log(c+dx)}{(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x/((a + b*x)*(c + d*x)^2),x]
```

```
[Out] c/(d*(-(b*c) + a*d)*(c + d*x)) - (a*Log[a + b*x])/(b*c - a*d)^2 +
 (a*Log[c + d*x])/(b*c - a*d)^2
```

Maple [A] time = 0.013, size = 61, normalized size = 1.

$$\frac{a\ln(dx+c)}{(ad-bc)^2}+\frac{c}{d(ad-bc)(dx+c)}-\frac{a\ln(bx+a)}{(ad-bc)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x/(b*x+a)/(d*x+c)^2,x)
```

```
[Out] a/(a*d-b*c)^2*ln(d*x+c)+c/(a*d-b*c)/d/(d*x+c)-a/(a*d-b*c)^2*ln(b*
x+a)
```

Maxima [A] time = 1.34932, size = 132, normalized size = 2.16

$$-\frac{a\log\left(bx+a\right)}{b^2c^2-2\,abcd+a^2d^2}+\frac{a\log\left(dx+c\right)}{b^2c^2-2\,abcd+a^2d^2}-\frac{c}{bc^2d-acd^2+(bcd^2-ad^3)x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/((b*x + a)*(d*x + c)^2),x, algorithm="maxima")
```

```
[Out] -a*log(b*x + a)/(b^2*c^2 - 2*a*b*c*d + a^2*d^2) + a*log(d*x + c)/
(b^2*c^2 - 2*a*b*c*d + a^2*d^2) - c/(b*c^2*d - a*c*d^2 + (b*c*d^2
 - a*d^3)*x)
```

Fricas [A] time = 0.224019, size = 144, normalized size = 2.36

$$-\frac{bc^2-acd+\left(ad^2x+acd\right)\log\left(bx+a\right)-\left(ad^2x+acd\right)\log\left(dx+c\right)}{b^2c^3d-2\,abc^2d^2+a^2cd^3+(b^2c^2d^2-2\,abcd^3+a^2d^4)x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/((b*x + a)*(d*x + c)^2),x, algorithm="fricas")
```

```
[Out] -(b*c^2 - a*c*d + (a*d^2*x + a*c*d)*log(b*x + a) - (a*d^2*x + a*c
*d)*log(d*x + c))/(b^2*c^3*d - 2*a*b*c^2*d^2 + a^2*c*d^3 + (b^2*c
^2*d^2 - 2*a*b*c*d^3 + a^2*d^4)*x)
```

Sympy [A] time = 5.06708, size = 238, normalized size = 3.9

$$\frac{a\log\left(x+\frac{-\frac{a^4d^3}{(ad-bc)^2}+\frac{3a^3bcd^2}{(ad-bc)^2}-\frac{3a^2b^2c^2d}{(ad-bc)^2}+a^2d+\frac{ab^3c^3}{(ad-bc)^2}+abc}{2abd}\right)}{(ad-bc)^2}-\frac{a\log\left(x+\frac{\frac{a^4d^3}{(ad-bc)^2}-\frac{3a^3bcd^2}{(ad-bc)^2}+\frac{3a^2b^2c^2d}{(ad-bc)^2}+a^2d-\frac{ab^3c^3}{(ad-bc)^2}+abc}{2abd}\right)}{(ad-bc)^2}+\frac{c}{acd^2-bc^2d+x\left(ad^3-bcd^2\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/(b*x+a)/(d*x+c)**2,x)
```

```
[Out] a*log(x + (-a**4*d**3/(a*d - b*c)**2 + 3*a**3*b*c*d**2/(a*d - b*c
)**2 - 3*a**2*b**2*c**2*d/(a*d - b*c)**2 + a**2*d + a*b**3*c**3/(
a*d - b*c)**2 + a*b*c)/(2*a*b*d))/(a*d - b*c)**2 - a*log(x + (a**
4*d**3/(a*d - b*c)**2 - 3*a**3*b*c*d**2/(a*d - b*c)**2 + 3*a**2*b
**2*c**2*d/(a*d - b*c)**2 + a**2*d - a*b**3*c**3/(a*d - b*c)**2 +
 a*b*c)/(2*a*b*d))/(a*d - b*c)**2 + c/(a*c*d**2 - b*c**2*d + x*(a
*d**3 - b*c*d**2))
```

GIAC/XCAS [A] time = 0.30503, size = 115, normalized size = 1.89

$$-\frac{\frac{ad^2\ln\left(\left|b-\frac{bc}{dx+c}+\frac{ad}{dx+c}\right|\right)}{b^2c^2d-2\,abcd^2+a^2d^3}+\frac{cd}{(bcd-ad^2)(dx+c)}}{d}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/((b*x + a)*(d*x + c)^2),x, algorithm="giac")
```

```
[Out] -(a*d^2*ln(abs(b - b*c/(d*x + c) + a*d/(d*x + c)))/(b^2*c^2*d - 2
*a*b*c*d^2 + a^2*d^3) + c*d/((b*c*d - a*d^2)*(d*x + c)))/d
```

3.216 $\int \frac{1}{(a+bx)(c+dx)^2} \, dx$

Optimal. Leaf size=56

$$\frac{1}{(c+dx)(bc-ad)}+\frac{b\log(a+bx)}{(bc-ad)^2}-\frac{b\log(c+dx)}{(bc-ad)^2}$$

```
[Out] 1/((b*c - a*d)*(c + d*x)) + (b*Log[a + b*x])/(b*c - a*d)^2 - (b*L
og[c + d*x])/(b*c - a*d)^2
```

Rubi [A] time = 0.0675686, antiderivative size = 56, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.067

$$\frac{1}{(c+dx)(bc-ad)}+\frac{b\log(a+bx)}{(bc-ad)^2}-\frac{b\log(c+dx)}{(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((a + b*x)*(c + d*x)^2),x]
```

```
[Out] 1/((b*c - a*d)*(c + d*x)) + (b*Log[a + b*x])/(b*c - a*d)^2 - (b*L
og[c + d*x])/(b*c - a*d)^2
```

Rubi in Sympy [A] time = 23.5796, size = 46, normalized size = 0.82

$$\frac{b\log(a+bx)}{(ad-bc)^2}-\frac{b\log(c+dx)}{(ad-bc)^2}-\frac{1}{(c+dx)(ad-bc)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(b*x+a)/(d*x+c)**2,x)
```

```
[Out] b*log(a + b*x)/(a*d - b*c)**2 - b*log(c + d*x)/(a*d - b*c)**2 - 1
/((c + d*x)*(a*d - b*c))
```

Mathematica [A] time = 0.038372, size = 53, normalized size = 0.95

$$\frac{b(c+dx)\log(a+bx)-ad-b(c+dx)\log(c+dx)+bc}{(c+dx)(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((a + b*x)*(c + d*x)^2),x]
```

```
[Out] (b*c - a*d + b*(c + d*x)*Log[a + b*x] - b*(c + d*x)*Log[c + d*x])
/((b*c - a*d)^2*(c + d*x))
```

Maple [A] time = 0., size = 58, normalized size = 1.

$$-\frac{1}{(ad-bc)(dx+c)}-\frac{b\ln(dx+c)}{(ad-bc)^2}+\frac{b\ln(bx+a)}{(ad-bc)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(b*x+a)/(d*x+c)^2,x)
```

```
[Out] -1/(a*d-b*c)/(d*x+c)-b/(a*d-b*c)^2*ln(d*x+c)+b/(a*d-b*c)^2*ln(b*x
+a)
```

Maxima [A] time = 1.35174, size = 122, normalized size = 2.18

$$\frac{b\log\left(bx+a\right)}{b^2c^2-2\,abcd+a^2d^2}-\frac{b\log\left(dx+c\right)}{b^2c^2-2\,abcd+a^2d^2}+\frac{1}{bc^2-acd+(bcd-ad^2)x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)*(d*x + c)^2),x, algorithm="maxima")
```

```
[Out] b*log(b*x + a)/(b^2*c^2 - 2*a*b*c*d + a^2*d^2) - b*log(d*x + c)/(
b^2*c^2 - 2*a*b*c*d + a^2*d^2) + 1/(b*c^2 - a*c*d + (b*c*d - a*d^
2)*x)
```

Fricas [A] time = 0.216132, size = 124, normalized size = 2.21

$$\frac{bc-ad+(bdx+bc)\log\left(bx+a\right)-(bdx+bc)\log\left(dx+c\right)}{b^2c^3-2\,abc^2d+a^2cd^2+(b^2c^2d-2\,abcd^2+a^2d^3)x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)*(d*x + c)^2),x, algorithm="fricas")
```

```
[Out] (b*c - a*d + (b*d*x + b*c)*log(b*x + a) - (b*d*x + b*c)*log(d*x +
 c))/(b^2*c^3 - 2*a*b*c^2*d + a^2*c*d^2 + (b^2*c^2*d - 2*a*b*c*d^
2 + a^2*d^3)*x)
```

Sympy [A] time = 4.95236, size = 233, normalized size = 4.16

$$-\frac{b\log\left(x+\frac{-\frac{a^3bd^3}{(ad-bc)^2}+\frac{3a^2b^2cd^2}{(ad-bc)^2}-\frac{3ab^3c^2d}{(ad-bc)^2}+abd+\frac{b^4c^3}{(ad-bc)^2}+b^2c}{2b^2d}\right)}{(ad-bc)^2}+\frac{b\log\left(x+\frac{\frac{a^3bd^3}{(ad-bc)^2}-\frac{3a^2b^2cd^2}{(ad-bc)^2}+\frac{3ab^3c^2d}{(ad-bc)^2}+abd-\frac{b^4c^3}{(ad-bc)^2}+b^2c}{2b^2d}\right)}{(ad-bc)^2}-\frac{1}{acd-bc^2+x\left(ad^2-bcd\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(b*x+a)/(d*x+c)**2,x)
```

```
[Out] -b*log(x + (-a**3*b*d**3/(a*d - b*c)**2 + 3*a**2*b**2*c*d**2/(a*d
 - b*c)**2 - 3*a*b**3*c**2*d/(a*d - b*c)**2 + a*b*d + b**4*c**3/(
a*d - b*c)**2 + b**2*c)/(2*b**2*d))/(a*d - b*c)**2 + b*log(x + (a
**3*b*d**3/(a*d - b*c)**2 - 3*a**2*b**2*c*d**2/(a*d - b*c)**2 + 3
*a*b**3*c**2*d/(a*d - b*c)**2 + a*b*d - b**4*c**3/(a*d - b*c)**2
+ b**2*c)/(2*b**2*d))/(a*d - b*c)**2 - 1/(a*c*d - b*c**2 + x*(a*d
**2 - b*c*d))
```

GIAC/XCAS [A] time = 0.264592, size = 104, normalized size = 1.86

$$\frac{bd\ln\left(\left|b-\frac{bc}{dx+c}+\frac{ad}{dx+c}\right|\right)}{b^2c^2d-2\,abcd^2+a^2d^3}+\frac{d}{(bcd-ad^2)(dx+c)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)*(d*x + c)^2),x, algorithm="giac")
```

```
[Out] b*d*ln(abs(b - b*c/(d*x + c) + a*d/(d*x + c)))/(b^2*c^2*d - 2*a*b
*c*d^2 + a^2*d^3) + d/((b*c*d - a*d^2)*(d*x + c))
```

3.217 $\int \frac{1}{x(a+bx)(c+dx)^2} \, dx$

Optimal. Leaf size=87

$$-\frac{b^2 \log(a+bx)}{a(bc-ad)^2}+\frac{d(2bc-ad)\log(c+dx)}{c^2(bc-ad)^2}-\frac{d}{c(c+dx)(bc-ad)}+\frac{\log(x)}{ac^2}$$

```
[Out] -(d/(c*(b*c - a*d)*(c + d*x))) + Log[x]/(a*c^2) - (b^2*Log[a + b*
x])/(a*(b*c - a*d)^2) + (d*(2*b*c - a*d)*Log[c + d*x])/(c^2*(b*c
- a*d)^2)
```

Rubi [A] time = 0.155195, antiderivative size = 87, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.056$

$$-\frac{b^2 \log(a+bx)}{a(bc-ad)^2}+\frac{d(2bc-ad)\log(c+dx)}{c^2(bc-ad)^2}-\frac{d}{c(c+dx)(bc-ad)}+\frac{\log(x)}{ac^2}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x*(a + b*x)*(c + d*x)^2),x]
```

```
[Out] -(d/(c*(b*c - a*d)*(c + d*x))) + Log[x]/(a*c^2) - (b^2*Log[a + b*
x])/(a*(b*c - a*d)^2) + (d*(2*b*c - a*d)*Log[c + d*x])/(c^2*(b*c
- a*d)^2)
```

Rubi in Sympy [A] time = 44.4287, size = 71, normalized size = 0.82

$$\frac{d}{c\,(c+dx)\,(ad-bc)}-\frac{d\,(ad-2bc)\log{(c+dx)}}{c^2\,(ad-bc)^2}-\frac{b^2\log{(a+bx)}}{a\,(ad-bc)^2}+\frac{\log{(x)}}{ac^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x/(b*x+a)/(d*x+c)**2,x)
```

```
[Out] d/(c*(c + d*x)*(a*d - b*c)) - d*(a*d - 2*b*c)*log(c + d*x)/(c**2*
(a*d - b*c)**2) - b**2*log(a + b*x)/(a*(a*d - b*c)**2) + log(x)/(
a*c**2)
```

Mathematica [A] time = 0.181197, size = 83, normalized size = 0.95

$$\frac{\frac{ad((c+dx)(2bc-ad)\log(c+dx)+c(ad-bc))-b^2c^2(c+dx)\log(a+bx)}{(c+dx)(bc-ad)^2}+\log(x)}{ac^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(x*(a + b*x)*(c + d*x)^2),x]
```

```
[Out] (Log[x] + (-(b^2*c^2*(c + d*x)*Log[a + b*x]) + a*d*(c*(-(b*c) + a
*d) + (2*b*c - a*d)*(c + d*x)*Log[c + d*x]))/((b*c - a*d)^2*(c +
d*x)))/(a*c^2)
```

Maple [A] time = 0.018, size = 105, normalized size = 1.2

$$\frac{d}{c\,(ad-bc)\,(dx+c)}-\frac{d^2\ln{(dx+c)}\,a}{c^2\,(ad-bc)^2}+2\,\frac{d\ln{(dx+c)}\,b}{c\,(ad-bc)^2}+\frac{\ln{(x)}}{ac^2}-\frac{b^2\ln{(bx+a)}}{(ad-bc)^2\,a}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/x/(b*x+a)/(d*x+c)^2,x)
```

```
[Out] d/c/(a*d-b*c)/(d*x+c)-d^2/c^2/(a*d-b*c)^2*ln(d*x+c)*a+2*d/c/(a*d-
b*c)^2*ln(d*x+c)*b+ln(x)/a/c^2-b^2/(a*d-b*c)^2/a*ln(b*x+a)
```

Maxima [A] time = 1.34851, size = 173, normalized size = 1.99

$$-\frac{b^2\log(bx+a)}{ab^2c^2-2\,a^2bcd+a^3d^2}+\frac{\left(2\,bcd-ad^2\right)\log(dx+c)}{b^2c^4-2\,abc^3d+a^2c^2d^2}-\frac{d}{bc^3-ac^2d+(bc^2d-acd^2)x}+\frac{\log(x)}{ac^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)*(d*x + c)^2*x),x, algorithm="maxima")
```

```
[Out] -b^2*log(b*x + a)/(a*b^2*c^2 - 2*a^2*b*c*d + a^3*d^2) + (2*b*c*d
- a*d^2)*log(d*x + c)/(b^2*c^4 - 2*a*b*c^3*d + a^2*c^2*d^2) - d/(
b*c^3 - a*c^2*d + (b*c^2*d - a*c*d^2)*x) + log(x)/(a*c^2)
```

Fricas [A] time = 0.9864, size = 279, normalized size = 3.21

$$-\frac{abc^2d-a^2cd^2+\left(b^2c^2dx+b^2c^3\right)\log(bx+a)-\left(2\,abc^2d-a^2cd^2+\left(2\,abcd^2-a^2d^3\right)x\right)\log(dx+c)-\left(b^2c^3-2\,abc^2d+a^2\right.}{ab^2c^5-2\,a^2bc^4d+a^3c^3d^2+(ab^2c^4d-2\,a^2bc^3d^2+a^3c^2d^3)x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)*(d*x + c)^2*x),x, algorithm="fricas")
```

```
[Out] -(a*b*c^2*d - a^2*c*d^2 + (b^2*c^2*d*x + b^2*c^3)*log(b*x + a) -
(2*a*b*c^2*d - a^2*c*d^2 + (2*a*b*c*d^2 - a^2*d^3)*x)*log(d*x + c
) - (b^2*c^3 - 2*a*b*c^2*d + a^2*c*d^2 + (b^2*c^2*d - 2*a*b*c*d^2
 + a^2*d^3)*x)*log(x))/(a*b^2*c^5 - 2*a^2*b*c^4*d + a^3*c^3*d^2 +
 (a*b^2*c^4*d - 2*a^2*b*c^3*d^2 + a^3*c^2*d^3)*x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/x/(b*x+a)/(d*x+c)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.327213, size = 381, normalized size = 4.38

$$-\frac{1}{2}d\left(\frac{(2\,bc-ad)\ln\left(\left|-b+\frac{2\,bc}{dx+c}-\frac{bc^2}{(dx+c)^2}-\frac{ad}{dx+c}+\frac{acd}{(dx+c)^2}\right|\right)}{b^2c^4-2\,abc^3d+a^2c^2d^2}+\frac{2\,d^2}{(bc^2d^2-acd^3)(dx+c)}+\frac{\left(2\,b^2c^2d-2\,abcd^2+a^2d^3\right)\ln\left(\left|\frac{-2\,b}{-2\,b}\right.\right.}{(b^2c^4-2\,abc^3d+a}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)*(d*x + c)^2*x),x, algorithm="giac")
```

```
[Out] -1/2*d*((2*b*c - a*d)*ln(abs(-b + 2*b*c/(d*x + c) - b*c^2/(d*x +
c)^2 - a*d/(d*x + c) + a*c*d/(d*x + c)^2))/(b^2*c^4 - 2*a*b*c^3*d
 + a^2*c^2*d^2) + 2*d^2/((b*c^2*d^2 - a*c*d^3)*(d*x + c)) + (2*b^
2*c^2*d - 2*a*b*c*d^2 + a^2*d^3)*ln(abs(-2*b*c*d + 2*b*c^2*d/(d*x
 + c) + a*d^2 - 2*a*c*d^2/(d*x + c) - d^2*abs(a))/abs(-2*b*c*d +
2*b*c^2*d/(d*x + c) + a*d^2 - 2*a*c*d^2/(d*x + c) + d^2*abs(a)))/
((b^2*c^4 - 2*a*b*c^3*d + a^2*c^2*d^2)*d^2*abs(a)))
```

3.218 $\int \frac{1}{x^2(a+bx)(c+dx)^2} dx$

Optimal. Leaf size=110

$$\frac{b^3 \log(a+bx)}{a^2(bc-ad)^2} - \frac{\log(x)(2ad+bc)}{a^2c^3} - \frac{d^2(3bc-2ad)\log(c+dx)}{c^3(bc-ad)^2} + \frac{d^2}{c^2(c+dx)(bc-ad)} - \frac{1}{ac^2x}$$

```
[Out] -(1/(a*c^2*x)) + d^2/(c^2*(b*c - a*d)*(c + d*x)) - ((b*c + 2*a*d)
*Log[x])/(a^2*c^3) + (b^3*Log[a + b*x])/(a^2*(b*c - a*d)^2) - (d^
2*(3*b*c - 2*a*d)*Log[c + d*x])/(c^3*(b*c - a*d)^2)
```

Rubi [A] time = 0.2286, antiderivative size = 110, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{b^3 \log(a+bx)}{a^2(bc-ad)^2} - \frac{\log(x)(2ad+bc)}{a^2c^3} - \frac{d^2(3bc-2ad)\log(c+dx)}{c^3(bc-ad)^2} + \frac{d^2}{c^2(c+dx)(bc-ad)} - \frac{1}{ac^2x}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x^2*(a + b*x)*(c + d*x)^2),x]
```

```
[Out] -(1/(a*c^2*x)) + d^2/(c^2*(b*c - a*d)*(c + d*x)) - ((b*c + 2*a*d)
*Log[x])/(a^2*c^3) + (b^3*Log[a + b*x])/(a^2*(b*c - a*d)^2) - (d^
2*(3*b*c - 2*a*d)*Log[c + d*x])/(c^3*(b*c - a*d)^2)
```

Rubi in Sympy [A] time = 53.6148, size = 99, normalized size = 0.9

$$-\frac{d^2}{c^2(c+dx)(ad-bc)} + \frac{d^2(2ad-3bc)\log(c+dx)}{c^3(ad-bc)^2} - \frac{1}{ac^2x} + \frac{b^3\log(a+bx)}{a^2(ad-bc)^2} - \frac{(2ad+bc)\log(x)}{a^2c^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x**2/(b*x+a)/(d*x+c)**2,x)
```

```
[Out] -d**2/(c**2*(c + d*x)*(a*d - b*c)) + d**2*(2*a*d - 3*b*c)*log(c +
 d*x)/(c**3*(a*d - b*c)**2) - 1/(a*c**2*x) + b**3*log(a + b*x)/(a
**2*(a*d - b*c)**2) - (2*a*d + b*c)*log(x)/(a**2*c**3)
```

Mathematica [A] time = 0.160436, size = 111, normalized size = 1.01

$$\frac{b^3\log(a+bx)}{a^2(ad-bc)^2} + \frac{\log(x)(-2ad-bc)}{a^2c^3} + \frac{(2ad^3-3bcd^2)\log(c+dx)}{c^3(bc-ad)^2} + \frac{d^2}{c^2(c+dx)(bc-ad)} - \frac{1}{ac^2x}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(x^2*(a + b*x)*(c + d*x)^2),x]
```

```
[Out] -(1/(a*c^2*x)) + d^2/(c^2*(b*c - a*d)*(c + d*x)) + ((-(b*c) - 2*a
*d)*Log[x])/(a^2*c^3) + (b^3*Log[a + b*x])/(a^2*(-(b*c) + a*d)^2)
 + ((-3*b*c*d^2 + 2*a*d^3)*Log[c + d*x])/(c^3*(b*c - a*d)^2)
```

Maple [A] time = 0.02, size = 133, normalized size = 1.2

$$-\frac{d^2}{c^2(ad-bc)(dx+c)} + 2\frac{d^3\ln(dx+c)a}{c^3(ad-bc)^2} - 3\frac{d^2\ln(dx+c)b}{c^2(ad-bc)^2} - \frac{1}{ac^2x} - 2\frac{\ln(x)d}{ac^3} - \frac{b\ln(x)}{a^2c^2} + \frac{b^3\ln(bx+a)}{(ad-bc)^2a^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int(1/x^2/(b*x+a)/(d*x+c)^2,x)
```

```
[Out] -d^2/c^2/(a*d-b*c)/(d*x+c)+2*d^3/c^3/(a*d-b*c)^2*ln(d*x+c)*a-3*d^
2/c^2/(a*d-b*c)^2*ln(d*x+c)*b-1/a/c^2/x-2/a/c^3*ln(x)*d-1/a^2/c^2
*ln(x)*b+b^3/(a*d-b*c)^2/a^2*ln(b*x+a)
```

Maxima [A] time = 1.3646, size = 239, normalized size = 2.17

$$\frac{b^{3}\log\left(bx+a\right)}{a^{2}b^{2}c^{2}-2\,a^{3}bcd+a^{4}d^{2}}-\frac{\left(3\,bcd^{2}-2\,ad^{3}\right)\log\left(dx+c\right)}{b^{2}c^{5}-2\,abc^{4}d+a^{2}c^{3}d^{2}}-\frac{bc^{2}-acd+\left(bcd-2\,ad^{2}\right)x}{(abc^{3}d-a^{2}c^{2}d^{2})x^{2}+(abc^{4}-a^{2}c^{3}d)x}-\frac{(bc+2\,ad)\log\left(x\right)}{a^{2}c^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(1/((b*x + a)*(d*x + c)^2*x^2),x, algorithm="maxima")
```

```
[Out] b^3*log(b*x + a)/(a^2*b^2*c^2 - 2*a^3*b*c*d + a^4*d^2) - (3*b*c*d
^2 - 2*a*d^3)*log(d*x + c)/(b^2*c^5 - 2*a*b*c^4*d + a^2*c^3*d^2)
- (b*c^2 - a*c*d + (b*c*d - 2*a*d^2)*x)/((a*b*c^3*d - a^2*c^2*d^2
)*x^2 + (a*b*c^4 - a^2*c^3*d)*x) - (b*c + 2*a*d)*log(x)/(a^2*c^3)
```

Fricas [A] time = 4.39123, size = 387, normalized size = 3.52

$$-\frac{ab^{2}c^{4}-2\,a^{2}bc^{3}d+a^{3}c^{2}d^{2}+\left(ab^{2}c^{3}d-3\,a^{2}bc^{2}d^{2}+2\,a^{3}cd^{3}\right)x-\left(b^{3}c^{3}dx^{2}+b^{3}c^{4}x\right)\log\left(bx+a\right)+\left(\left(3\,a^{2}bcd^{3}-2\,a^{3}d^{4}\right)x^{2}+\right.}{(a^{2}b^{2}c^{5}d-2\,a^{3}bc^{4}d^{2}+a^{4}c^{3}d^{3})x^{2}+(a}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(1/((b*x + a)*(d*x + c)^2*x^2),x, algorithm="fricas")
```

```
[Out] -(a*b^2*c^4 - 2*a^2*b*c^3*d + a^3*c^2*d^2 + (a*b^2*c^3*d - 3*a^2*
b*c^2*d^2 + 2*a^3*c*d^3)*x - (b^3*c^3*d*x^2 + b^3*c^4*x)*log(b*x
+ a) + ((3*a^2*b*c*d^3 - 2*a^3*d^4)*x^2 + (3*a^2*b*c^2*d^2 - 2*a^
3*c*d^3)*x)*log(d*x + c) + ((b^3*c^3*d - 3*a^2*b*c*d^3 + 2*a^3*d^
4)*x^2 + (b^3*c^4 - 3*a^2*b*c^2*d^2 + 2*a^3*c*d^3)*x)*log(x))/((a
^2*b^2*c^5*d - 2*a^3*b*c^4*d^2 + a^4*c^3*d^3)*x^2 + (a^2*b^2*c^6
- 2*a^3*b*c^5*d + a^4*c^4*d^2)*x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(1/x**2/(b*x+a)/(d*x+c)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.312044, size = 203, normalized size = 1.85

$$\frac{b^{3}d\ln\left(\left|b-\frac{bc}{dx+c}+\frac{ad}{dx+c}\right|\right)}{a^{2}b^{2}c^{2}d-2\,a^{3}bcd^{2}+a^{4}d^{3}}+\frac{d^{5}}{(bc^{3}d^{3}-ac^{2}d^{4})(dx+c)}+\frac{d}{ac^{3}\left(\frac{c}{dx+c}-1\right)}-\frac{\left(bcd+2\,ad^{2}\right)\ln\left(\left|-\frac{c}{dx+c}+1\right|\right)}{a^{2}c^{3}d}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)*(d*x + c)^2*x^2),x, algorithm="giac")
```

```
[Out] b^3*d*ln(abs(b - b*c/(d*x + c) + a*d/(d*x + c)))/(a^2*b^2*c^2*d -
 2*a^3*b*c*d^2 + a^4*d^3) + d^5/((b*c^3*d^3 - a*c^2*d^4)*(d*x + c
)) + d/(a*c^3*(c/(d*x + c) - 1)) - (b*c*d + 2*a*d^2)*ln(abs(-c/(d
*x + c) + 1))/(a^2*c^3*d)
```

3.219 $\int \frac{1}{x^3(a+bx)(c+dx)^2}\,dx$

Optimal. Leaf size=144

$$-\frac{b^4\log(a+bx)}{a^3(bc-ad)^2}+\frac{2ad+bc}{a^2c^3x}+\frac{\log(x)\left(3a^2d^2+2abcd+b^2c^2\right)}{a^3c^4}+\frac{d^3(4bc-3ad)\log(c+dx)}{c^4(bc-ad)^2}-\frac{d^3}{c^3(c+dx)(bc-ad)}-\frac{1}{2ac^2x^2}$$

```
[Out] -1/(2*a*c^2*x^2) + (b*c + 2*a*d)/(a^2*c^3*x) - d^3/(c^3*(b*c - a*
d)*(c + d*x)) + ((b^2*c^2 + 2*a*b*c*d + 3*a^2*d^2)*Log[x])/(a^3*c
^4) - (b^4*Log[a + b*x])/(a^3*(b*c - a*d)^2) + (d^3*(4*b*c - 3*a*
d)*Log[c + d*x])/(c^4*(b*c - a*d)^2)
```

Rubi [A] time = 0.303904, antiderivative size = 144, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{b^4\log(a+bx)}{a^3(bc-ad)^2}+\frac{2ad+bc}{a^2c^3x}+\frac{\log(x)\left(3a^2d^2+2abcd+b^2c^2\right)}{a^3c^4}+\frac{d^3(4bc-3ad)\log(c+dx)}{c^4(bc-ad)^2}-\frac{d^3}{c^3(c+dx)(bc-ad)}-\frac{1}{2ac^2x^2}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x^3*(a + b*x)*(c + d*x)^2),x]
```

```
[Out] -1/(2*a*c^2*x^2) + (b*c + 2*a*d)/(a^2*c^3*x) - d^3/(c^3*(b*c - a*
d)*(c + d*x)) + ((b^2*c^2 + 2*a*b*c*d + 3*a^2*d^2)*Log[x])/(a^3*c
^4) - (b^4*Log[a + b*x])/(a^3*(b*c - a*d)^2) + (d^3*(4*b*c - 3*a*
d)*Log[c + d*x])/(c^4*(b*c - a*d)^2)
```

Rubi in Sympy [A] time = 69.598, size = 134, normalized size = 0.93

$$\frac{d^3}{c^3\,(c+dx)\,(ad-bc)}-\frac{d^3\,(3ad-4bc)\log\,(c+dx)}{c^4\,(ad-bc)^2}-\frac{1}{2ac^2x^2}+\frac{2ad+bc}{a^2c^3x}-\frac{b^4\log\,(a+bx)}{a^3\,(ad-bc)^2}+\frac{\left(3a^2d^2+2abcd+b^2c^2\right)\log\,(x)}{a^3c^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x**3/(b*x+a)/(d*x+c)**2,x)
```

```
[Out] d**3/(c**3*(c + d*x)*(a*d - b*c)) - d**3*(3*a*d - 4*b*c)*log(c +
d*x)/(c**4*(a*d - b*c)**2) - 1/(2*a*c**2*x**2) + (2*a*d + b*c)/(a
**2*c**3*x) - b**4*log(a + b*x)/(a**3*(a*d - b*c)**2) + (3*a**2*d
**2 + 2*a*b*c*d + b**2*c**2)*log(x)/(a**3*c**4)
```

Mathematica [A] time = 1.10869, size = 143, normalized size = 0.99

$$-\frac{b^4\log(a+bx)}{a^3(bc-ad)^2}+\frac{c\left(\frac{2bc}{a^2x}+\frac{2d^3}{(c+dx)(ad-bc)}-\frac{c-4dx}{ax^2}\right)+\frac{2d^3(4bc-3ad)\log(c+dx)}{(bc-ad)^2}}{2c^4}+\frac{\log(x)\left(3a^2d^2+2abcd+b^2c^2\right)}{a^3c^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(x^3*(a + b*x)*(c + d*x)^2),x]
```

```
[Out] ((b^2*c^2 + 2*a*b*c*d + 3*a^2*d^2)*Log[x])/(a^3*c^4) - (b^4*Log[a
 + b*x])/(a^3*(b*c - a*d)^2) + (c*((2*b*c)/(a^2*x) - (c - 4*d*x)/
(a*x^2) + (2*d^3)/((-(b*c) + a*d)*(c + d*x))) + (2*d^3*(4*b*c - 3
*a*d)*Log[c + d*x])/(b*c - a*d)^2)/(2*c^4)
```

Maple [A] time = 0.02, size = 171, normalized size = 1.2

$$\frac{d^3}{c^3(ad-bc)(dx+c)} - 3\frac{d^4\ln(dx+c)a}{c^4(ad-bc)^2} + 4\frac{d^3\ln(dx+c)b}{c^3(ad-bc)^2} - \frac{1}{2ac^2x^2} + 2\frac{d}{axc^3} + \frac{b}{xa^2c^2} + 3\frac{\ln(x)d^2}{ac^4} + 2\frac{b\ln(x)d}{a^2c^3} + \frac{\ln(x)b^2}{a^3c^2} - \frac{b^4\ln(bx+a)}{(ad-bc)^2a^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/x^3/(b*x+a)/(d*x+c)^2,x)
```

```
[Out] d^3/c^3/(a*d-b*c)/(d*x+c)-3*d^4/c^4/(a*d-b*c)^2*ln(d*x+c)*a+4*d^3
/c^3/(a*d-b*c)^2*ln(d*x+c)*b-1/2/a/c^2/x^2+2/x/a/c^3*d+1/x/a^2/c^
2*b+3/a/c^4*ln(x)*d^2+2/a^2/c^3*ln(x)*b*d+1/a^3/c^2*ln(x)*b^2-b^4
/(a*d-b*c)^2/a^3*ln(b*x+a)
```

Maxima [A] time = 1.36997, size = 331, normalized size = 2.3

$$-\frac{b^4\log(bx+a)}{a^3b^2c^2 - 2a^4bcd + a^5d^2} + \frac{(4bcd^3 - 3ad^4)\log(dx+c)}{b^2c^6 - 2abc^5d + a^2c^4d^2} - \frac{abc^3 - a^2c^2d - 2(b^2c^2d + abcd^2 - 3a^2d^3)x^2 - (2b^2c^3 + abc^2d - 3a^2cd^2)x}{2((a^2bc^4d - a^3c^3d^2)x^3 + (a^2bc^5 - a^3c^4d)x^2)} + \frac{(b^2c^2 + 2abcd + 3a^2d^2)\log(x)}{a^3c^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)*(d*x + c)^2*x^3),x, algorithm="maxima")
```

```
[Out] -b^4*log(b*x + a)/(a^3*b^2*c^2 - 2*a^4*b*c*d + a^5*d^2) + (4*b*c*
d^3 - 3*a*d^4)*log(d*x + c)/(b^2*c^6 - 2*a*b*c^5*d + a^2*c^4*d^2)
 - 1/2*(a*b*c^3 - a^2*c^2*d - 2*(b^2*c^2*d + a*b*c*d^2 - 3*a^2*d^
3)*x^2 - (2*b^2*c^3 + a*b*c^2*d - 3*a^2*c*d^2)*x)/((a^2*b*c^4*d -
 a^3*c^3*d^2)*x^3 + (a^2*b*c^5 - a^3*c^4*d)*x^2) + (b^2*c^2 + 2*a
*b*c*d + 3*a^2*d^2)*log(x)/(a^3*c^4)
```

Fricas [A] time = 6.41106, size = 473, normalized size = 3.28

$$-\frac{a^2b^2c^5 - 2a^3bc^4d + a^4c^3d^2 - 2(ab^3c^4d - 4a^3bc^2d^3 + 3a^4cd^4)x^2 - (2ab^3c^5 - a^2b^2c^4d - 4a^3bc^3d^2 + 3a^4c^2d^3)x + 2(b^4c^4 \cdots}{2((a^3b^2c^6 \cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)*(d*x + c)^2*x^3),x, algorithm="fricas")
```

```
[Out] -1/2*(a^2*b^2*c^5 - 2*a^3*b*c^4*d + a^4*c^3*d^2 - 2*(a*b^3*c^4*d
- 4*a^3*b*c^2*d^3 + 3*a^4*c*d^4)*x^2 - (2*a*b^3*c^5 - a^2*b^2*c^4
*d - 4*a^3*b*c^3*d^2 + 3*a^4*c^2*d^3)*x + 2*(b^4*c^4*d*x^3 + b^4*
c^5*x^2)*log(b*x + a) - 2*((4*a^3*b*c*d^4 - 3*a^4*d^5)*x^3 + (4*a
^3*b*c^2*d^3 - 3*a^4*c*d^4)*x^2)*log(d*x + c) - 2*((b^4*c^4*d - 4
*a^3*b*c*d^4 + 3*a^4*d^5)*x^3 + (b^4*c^5 - 4*a^3*b*c^2*d^3 + 3*a^
4*c*d^4)*x^2)*log(x))/((a^3*b^2*c^6*d - 2*a^4*b*c^5*d^2 + a^5*c^4
*d^3)*x^3 + (a^3*b^2*c^7 - 2*a^4*b*c^6*d + a^5*c^5*d^2)*x^2)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/x**3/(b*x+a)/(d*x+c)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.275187, size = 285, normalized size = 1.98

$$-\frac{d^7}{(bc^4d^4 - ac^3d^5)(dx+c)} - \frac{b^4 d\ln\left(\left|b - \frac{bc}{dx+c} + \frac{ad}{dx+c}\right|\right)}{a^3b^2c^2d - 2\,a^4bcd^2 + a^5d^3} + \frac{\left(b^2c^2d + 2\,abcd^2 + 3\,a^2d^3\right)\ln\left(\left|-\frac{c}{dx+c} + 1\right|\right)}{a^3c^4d} + \frac{2\,abcd + 5\,a^2d^2 - \frac{2\,\left(abc^2d^2 + 3\,a^2cd^3\right)}{(dx+c)d}}{2\,a^3c^4\left(\frac{c}{dx+c} - 1\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)*(d*x + c)^2*x^3),x, algorithm="giac")
```

```
[Out] -d^7/((b*c^4*d^4 - a*c^3*d^5)*(d*x + c)) - b^4*d*ln(abs(b - b*c/(
d*x + c) + a*d/(d*x + c)))/(a^3*b^2*c^2*d - 2*a^4*b*c*d^2 + a^5*d
^3) + (b^2*c^2*d + 2*a*b*c*d^2 + 3*a^2*d^3)*ln(abs(-c/(d*x + c) +
 1))/(a^3*c^4*d) + 1/2*(2*a*b*c*d + 5*a^2*d^2 - 2*(a*b*c^2*d^2 +
3*a^2*c*d^3)/((d*x + c)*d))/(a^3*c^4*(c/(d*x + c) - 1)^2)
```

3.220 $\int \frac{x^5}{(a+bx)(c+dx)^3} \, dx$

Optimal. Leaf size=161

$$-\frac{a^5 \log(a+bx)}{b^3(bc-ad)^3}+\frac{c^3 \left(10a^2d^2-15abcd+6b^2c^2\right) \log(c+dx)}{d^5(bc-ad)^3}-\frac{x(ad+3bc)}{b^2d^4}-\frac{c^5}{2d^5(c+dx)^2(bc-ad)}+\frac{c^4(4bc-5ad)}{d^5(c+dx)(bc-ad)^2}+\frac{x^2}{2bd^3}$$

```
[Out] -(((3*b*c + a*d)*x)/(b^2*d^4)) + x^2/(2*b*d^3) - c^5/(2*d^5*(b*c
- a*d)*(c + d*x)^2) + (c^4*(4*b*c - 5*a*d))/(d^5*(b*c - a*d)^2*(c
 + d*x)) - (a^5*Log[a + b*x])/(b^3*(b*c - a*d)^3) + (c^3*(6*b^2*c
^2 - 15*a*b*c*d + 10*a^2*d^2)*Log[c + d*x])/(d^5*(b*c - a*d)^3)
```

Rubi [A] time = 0.398896, antiderivative size = 161, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.056$

$$-\frac{a^5 \log(a+bx)}{b^3(bc-ad)^3}+\frac{c^3 \left(10a^2d^2-15abcd+6b^2c^2\right) \log(c+dx)}{d^5(bc-ad)^3}-\frac{x(ad+3bc)}{b^2d^4}-\frac{c^5}{2d^5(c+dx)^2(bc-ad)}+\frac{c^4(4bc-5ad)}{d^5(c+dx)(bc-ad)^2}+\frac{x^2}{2bd^3}$$

Antiderivative was successfully verified.

```
[In]  Int[x^5/((a + b*x)*(c + d*x)^3),x]
```

```
[Out] -(((3*b*c + a*d)*x)/(b^2*d^4)) + x^2/(2*b*d^3) - c^5/(2*d^5*(b*c
- a*d)*(c + d*x)^2) + (c^4*(4*b*c - 5*a*d))/(d^5*(b*c - a*d)^2*(c
 + d*x)) - (a^5*Log[a + b*x])/(b^3*(b*c - a*d)^3) + (c^3*(6*b^2*c
^2 - 15*a*b*c*d + 10*a^2*d^2)*Log[c + d*x])/(d^5*(b*c - a*d)^3)
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{a^5 \log(a+bx)}{b^3 (ad-bc)^3}+\frac{c^5}{2d^5 (c+dx)^2 (ad-bc)}-\frac{c^4 (5ad-4bc)}{d^5 (c+dx) (ad-bc)^2}-\frac{c^3 \left(10a^2d^2-15abcd+6b^2c^2\right) \log(c+dx)}{d^5 (ad-bc)^3}-\frac{(ad+3bc) \int \frac{1}{b^2}\, dx}{d^4}+\frac{\int x\, dx}{bd^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**5/(b*x+a)/(d*x+c)**3,x)
```

```
[Out] a**5*log(a + b*x)/(b**3*(a*d - b*c)**3) + c**5/(2*d**5*(c + d*x)*
*2*(a*d - b*c)) - c**4*(5*a*d - 4*b*c)/(d**5*(c + d*x)*(a*d - b*c
)**2) - c**3*(10*a**2*d**2 - 15*a*b*c*d + 6*b**2*c**2)*log(c + d*
x)/(d**5*(a*d - b*c)**3) - (a*d + 3*b*c)*Integral(b**(-2), x)/d**
4 + Integral(x, x)/(b*d**3)
```

Mathematica [A] time = 0.350869, size = 161, normalized size = 1.

$$\frac{1}{2}\left(-\frac{2a^5 \log(a+bx)}{b^3(bc-ad)^3}-\frac{2c^3 \left(10a^2d^2-15abcd+6b^2c^2\right) \log(c+dx)}{d^5(ad-bc)^3}-\frac{2x(ad+3bc)}{b^2d^4}+\frac{c^5}{d^5(c+dx)^2(ad-bc)}+\frac{2c^4(4bc-5ad)}{d^5(c+dx)(bc-ad)^2}+\frac{x^2}{bd^3}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^5/((a + b*x)*(c + d*x)^3),x]
```

```
[Out] ((-2*(3*b*c + a*d)*x)/(b^2*d^4) + x^2/(b*d^3) + c^5/(d^5*(-(b*c)
+ a*d)*(c + d*x)^2) + (2*c^4*(4*b*c - 5*a*d))/(d^5*(b*c - a*d)^2*
(c + d*x)) - (2*a^5*Log[a + b*x])/(b^3*(b*c - a*d)^3) - (2*c^3*(6
*b^2*c^2 - 15*a*b*c*d + 10*a^2*d^2)*Log[c + d*x])/(d^5*(-(b*c) +
a*d)^3))/2
```

Maple [A] time = 0.02, size = 213, normalized size = 1.3

$$\frac{x^2}{2\,bd^3}-\frac{ax}{d^3b^2}-3\,\frac{cx}{bd^4}-5\,\frac{c^4a}{d^4\,(ad-bc)^2\,(dx+c)}+4\,\frac{bc^5}{(ad-bc)^2\,d^5\,(dx+c)}+\frac{c^5}{2\,d^5\,(ad-bc)\,(dx+c)^2}-10\,\frac{c^3\ln(dx+c)\,a^2}{d^3\,(ad-bc)^3}+15\,\frac{c^4\ln(dx+c)\,ab}{d^4\,(ad-bc)^3}-6\,\frac{c^5\ln(dx+c)\,b^2}{d^5\,(ad-bc)^3}+\frac{a^5\ln(bx+a)}{b^3\,(ad-bc)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^5/(b*x+a)/(d*x+c)^3,x)
```

```
[Out] 1/2*x^2/b/d^3-1/b^2/d^3*a*x-3/b/d^4*x*c-5/d^4*c^4/(a*d-b*c)^2/(d*
x+c)*a+4/d^5*c^5/(a*d-b*c)^2/(d*x+c)*b+1/2/d^5*c^5/(a*d-b*c)/(d*x
+c)^2-10/d^3*c^3/(a*d-b*c)^3*ln(d*x+c)*a^2+15/d^4*c^4/(a*d-b*c)^3
*ln(d*x+c)*a*b-6/d^5*c^5/(a*d-b*c)^3*ln(d*x+c)*b^2+1/b^3*a^5/(a*d
-b*c)^3*ln(b*x+a)
```

Maxima [A] time = 1.37131, size = 392, normalized size = 2.43

$$-\frac{a^5\log(bx+a)}{b^6c^3-3\,ab^5c^2d+3\,a^2b^4cd^2-a^3b^3d^3}+\frac{\left(6\,b^2c^5-15\,abc^4d+10\,a^2c^3d^2\right)\log(dx+c)}{b^3c^3d^5-3\,ab^2c^2d^6+3\,a^2bcd^7-a^3d^8}+\frac{7\,bc^6-9\,ac^5d+2\left(4\,bc^5d-5\,ac^4d^2\right)x}{2\,(b^2c^4d^5-2\,abc^3d^6+a^2c^2d^7+(b^2c^2d^7-2\,abcd^8+a^2d^9)x^2+2\,(b^2c^3d^6-2\,abc^2d^7+a^2cd^8)x)}+\frac{bdx^2-2\,(3\,bc+ad)x}{2\,b^2d^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^5/((b*x + a)*(d*x + c)^3),x, algorithm="maxima")
```

```
[Out] -a^5*log(b*x + a)/(b^6*c^3 - 3*a*b^5*c^2*d + 3*a^2*b^4*c*d^2 - a^
3*b^3*d^3) + (6*b^2*c^5 - 15*a*b*c^4*d + 10*a^2*c^3*d^2)*log(d*x
+ c)/(b^3*c^3*d^5 - 3*a*b^2*c^2*d^6 + 3*a^2*b*c*d^7 - a^3*d^8) +
1/2*(7*b*c^6 - 9*a*c^5*d + 2*(4*b*c^5*d - 5*a*c^4*d^2)*x)/(b^2*c^
4*d^5 - 2*a*b*c^3*d^6 + a^2*c^2*d^7 + (b^2*c^2*d^7 - 2*a*b*c*d^8
+ a^2*d^9)*x^2 + 2*(b^2*c^3*d^6 - 2*a*b*c^2*d^7 + a^2*c*d^8)*x) +
 1/2*(b*d*x^2 - 2*(3*b*c + a*d)*x)/(b^2*d^4)
```

Fricas [A] time = 0.256465, size = 782, normalized size = 4.86

$$7\,b^5c^7-16\,ab^4c^6d+9\,a^2b^3c^5d^2+\left(b^5c^3d^4-3\,ab^4c^2d^5+3\,a^2b^3cd^6-a^3b^2d^7\right)x^4-2\left(2\,b^5c^4d^3-5\,ab^4c^3d^4+3\,a^2b^3c^2d^5+a^3b\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^5/((b*x + a)*(d*x + c)^3),x, algorithm="fricas")
```

```
[Out] 1/2*(7*b^5*c^7 - 16*a*b^4*c^6*d + 9*a^2*b^3*c^5*d^2 + (b^5*c^3*d^
4 - 3*a*b^4*c^2*d^5 + 3*a^2*b^3*c*d^6 - a^3*b^2*d^7)*x^4 - 2*(2*b
^5*c^4*d^3 - 5*a*b^4*c^3*d^4 + 3*a^2*b^3*c^2*d^5 + a^3*b^2*c*d^6
```

```
- a^4*b*d^7)*x^3 - (11*b^5*c^5*d^2 - 29*a*b^4*c^4*d^3 + 21*a^2*b^
3*c^3*d^4 + a^3*b^2*c^2*d^5 - 4*a^4*b*c*d^6)*x^2 + 2*(b^5*c^6*d -
 a*b^4*c^5*d^2 - a^2*b^3*c^4*d^3 + a^4*b*c^2*d^5)*x - 2*(a^5*d^7*
x^2 + 2*a^5*c*d^6*x + a^5*c^2*d^5)*log(b*x + a) + 2*(6*b^5*c^7 -
15*a*b^4*c^6*d + 10*a^2*b^3*c^5*d^2 + (6*b^5*c^5*d^2 - 15*a*b^4*c
^4*d^3 + 10*a^2*b^3*c^3*d^4)*x^2 + 2*(6*b^5*c^6*d - 15*a*b^4*c^5*
d^2 + 10*a^2*b^3*c^4*d^3)*x)*log(d*x + c))/(b^6*c^5*d^5 - 3*a*b^5
*c^4*d^6 + 3*a^2*b^4*c^3*d^7 - a^3*b^3*c^2*d^8 + (b^6*c^3*d^7 - 3
*a*b^5*c^2*d^8 + 3*a^2*b^4*c*d^9 - a^3*b^3*d^10)*x^2 + 2*(b^6*c^4
*d^6 - 3*a*b^5*c^3*d^7 + 3*a^2*b^4*c^2*d^8 - a^3*b^3*c*d^9)*x)
```

Sympy [A] time = 26.5566, size = 745, normalized size = 4.63

$$\frac{a^5 \log\left(x + \frac{\frac{a^9d^8}{b(ad-bc)^3} - \frac{4a^8cd^7}{(ad-bc)^3} + \frac{6a^7bc^2d^6}{(ad-bc)^3} - \frac{4a^6b^2c^3d^5}{(ad-bc)^3} + \frac{a^5b^3c^4d^4}{(ad-bc)^3} + a^5cd^4 + 10a^3b^2c^3d^2 - 15a^2b^3c^4d + 6ab^4c^5}{a^5d^5 + 10a^2b^3c^3d^2 - 15ab^4c^4d + 6b^5c^5}\right)}{b^3(ad-bc)^3}$$

$$- \frac{c^3\left(10a^2d^2 - 15abcd + 6b^2c^2\right)\log\left(x + \frac{a^5cd^4 - \frac{a^4b^2c^3d^3\left(10a^2d^2-15abcd+6b^2c^2\right)}{(ad-bc)^3} + \frac{4a^3b^3c^4d^2\left(10a^2d^2-15abcd+6b^2c^2\right)}{(ad-bc)^3} + 10a^3b^2c^3d^2 - \frac{6a^2b^4c^5d\left(10a^2d^2-\cdots\right.}{(ad-bc\cdots}}{a^5d^5+10a^2b^3c^3d^2-15ab\cdots}\right.}{d^5(ad-bc)^3}$$

$$- \frac{9ac^5d - 7bc^6 + x\left(10ac^4d^2 - 8bc^5d\right)}{2a^2c^2d^7 - 4abc^3d^6 + 2b^2c^4d^5 + x^2\left(2a^2d^9 - 4abcd^8 + 2b^2c^2d^7\right) + x\left(4a^2cd^8 - 8abc^2d^7 + 4b^2c^3d^6\right)} + \frac{x^2}{2bd^3} - \frac{x(ad+3bc)}{b^2d^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**5/(b*x+a)/(d*x+c)**3,x)
```

```
[Out] a**5*log(x + (a**9*d**8/(b*(a*d - b*c)**3) - 4*a**8*c*d**7/(a*d -
 b*c)**3 + 6*a**7*b*c**2*d**6/(a*d - b*c)**3 - 4*a**6*b**2*c**3*d
**5/(a*d - b*c)**3 + a**5*b**3*c**4*d**4/(a*d - b*c)**3 + a**5*c*
d**4 + 10*a**3*b**2*c**3*d**2 - 15*a**2*b**3*c**4*d + 6*a*b**4*c*
*5)/(a**5*d**5 + 10*a**2*b**3*c**3*d**2 - 15*a*b**4*c**4*d + 6*b*
*5*c**5))/(b**3*(a*d - b*c)**3) - c**3*(10*a**2*d**2 - 15*a*b*c*d
 + 6*b**2*c**2)*log(x + (a**5*c*d**4 - a**4*b**2*c**3*d**3*(10*a*
*2*d**2 - 15*a*b*c*d + 6*b**2*c**2)/(a*d - b*c)**3 + 4*a**3*b**3*
c**4*d**2*(10*a**2*d**2 - 15*a*b*c*d + 6*b**2*c**2)/(a*d - b*c)**
3 + 10*a**3*b**2*c**3*d**2 - 6*a**2*b**4*c**5*d*(10*a**2*d**2 - 1
5*a*b*c*d + 6*b**2*c**2)/(a*d - b*c)**3 - 15*a**2*b**3*c**4*d + 4
*a*b**5*c**6*(10*a**2*d**2 - 15*a*b*c*d + 6*b**2*c**2)/(a*d - b*c
)**3 + 6*a*b**4*c**5 - b**6*c**7*(10*a**2*d**2 - 15*a*b*c*d + 6*b
**2*c**2)/(d*(a*d - b*c)**3))/(a**5*d**5 + 10*a**2*b**3*c**3*d**2
 - 15*a*b**4*c**4*d + 6*b**5*c**5))/(d**5*(a*d - b*c)**3) - (9*a*
c**5*d - 7*b*c**6 + x*(10*a*c**4*d**2 - 8*b*c**5*d))/(2*a**2*c**2
*d**7 - 4*a*b*c**3*d**6 + 2*b**2*c**4*d**5 + x**2*(2*a**2*d**9 -
4*a*b*c*d**8 + 2*b**2*c**2*d**7) + x*(4*a**2*c*d**8 - 8*a*b*c**2*
d**7 + 4*b**2*c**3*d**6)) + x**2/(2*b*d**3) - x*(a*d + 3*b*c)/(b*
*2*d**4)
```

GIAC/XCAS [A] time = 0.297383, size = 339, normalized size = 2.11

$$-\frac{a^5 \ln\left(|bx+a|\right)}{b^6c^3 - 3\,ab^5c^2d + 3\,a^2b^4cd^2 - a^3b^3d^3} + \frac{\left(6\,b^2c^5 - 15\,abc^4d + 10\,a^2c^3d^2\right)\ln\left(|dx+c|\right)}{b^3c^3d^5 - 3\,ab^2c^2d^6 + 3\,a^2bcd^7 - a^3d^8} + \frac{bd^3x^2 - 6\,bcd^2x - 2\,ad^3x}{2\,b^2d^6} + \frac{7\,b^2c^7 - 16\,abc^6d + 9\,a^2c^5d^2 + 2\left(4\,b^2c^6d - 9\,abc^5d^2 + 5\,a^2c^4d^3\right)x}{2\,(bc-ad)^3(dx+c)^2d^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^5/((b*x + a)*(d*x + c)^3),x, algorithm="giac")
```

```
[Out] -a^5*ln(abs(b*x + a))/(b^6*c^3 - 3*a*b^5*c^2*d + 3*a^2*b^4*c*d^2
- a^3*b^3*d^3) + (6*b^2*c^5 - 15*a*b*c^4*d + 10*a^2*c^3*d^2)*ln(a
```

```
bs(d*x + c))/(b^3*c^3*d^5 - 3*a*b^2*c^2*d^6 + 3*a^2*b*c*d^7 - a^3
*d^8) + 1/2*(b*d^3*x^2 - 6*b*c*d^2*x - 2*a*d^3*x)/(b^2*d^6) + 1/2
*(7*b^2*c^7 - 16*a*b*c^6*d + 9*a^2*c^5*d^2 + 2*(4*b^2*c^6*d - 9*a
*b*c^5*d^2 + 5*a^2*c^4*d^3)*x)/((b*c - a*d)^3*(d*x + c)^2*d^5)
```

3.221 $\int \frac{x^4}{(a+bx)(c+dx)^3}\,dx$

Optimal. Leaf size=140

$$\frac{a^4\log(a+bx)}{b^2(bc-ad)^3}-\frac{c^2\left(6a^2d^2-8abcd+3b^2c^2\right)\log(c+dx)}{d^4(bc-ad)^3}+\frac{c^4}{2d^4(c+dx)^2(bc-ad)}-\frac{c^3(3bc-4ad)}{d^4(c+dx)(bc-ad)^2}+\frac{x}{bd^3}$$

```
[Out] x/(b*d^3) + c^4/(2*d^4*(b*c - a*d)*(c + d*x)^2) - (c^3*(3*b*c - 4
*a*d))/(d^4*(b*c - a*d)^2*(c + d*x)) + (a^4*Log[a + b*x])/(b^2*(b
*c - a*d)^3) - (c^2*(3*b^2*c^2 - 8*a*b*c*d + 6*a^2*d^2)*Log[c + d
*x])/(d^4*(b*c - a*d)^3)
```

Rubi [A] time = 0.278974, antiderivative size = 140, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{a^4\log(a+bx)}{b^2(bc-ad)^3}-\frac{c^2\left(6a^2d^2-8abcd+3b^2c^2\right)\log(c+dx)}{d^4(bc-ad)^3}+\frac{c^4}{2d^4(c+dx)^2(bc-ad)}-\frac{c^3(3bc-4ad)}{d^4(c+dx)(bc-ad)^2}+\frac{x}{bd^3}$$

Antiderivative was successfully verified.

```
[In]  Int[x^4/((a + b*x)*(c + d*x)^3),x]
```

```
[Out] x/(b*d^3) + c^4/(2*d^4*(b*c - a*d)*(c + d*x)^2) - (c^3*(3*b*c - 4
*a*d))/(d^4*(b*c - a*d)^2*(c + d*x)) + (a^4*Log[a + b*x])/(b^2*(b
*c - a*d)^3) - (c^2*(3*b^2*c^2 - 8*a*b*c*d + 6*a^2*d^2)*Log[c + d
*x])/(d^4*(b*c - a*d)^3)
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{a^4\log{(a+bx)}}{b^2\,(ad-bc)^3}-\frac{c^4}{2d^4\,(c+dx)^2\,(ad-bc)}+\frac{c^3\,(4ad-3bc)}{d^4\,(c+dx)\,(ad-bc)^2}+\frac{c^2\left(6a^2d^2-8abcd+3b^2c^2\right)\log{(c+dx)}}{d^4\,(ad-bc)^3}+\frac{\int\frac{1}{b}\,dx}{d^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**4/(b*x+a)/(d*x+c)**3,x)
```

```
[Out] -a**4*log(a + b*x)/(b**2*(a*d - b*c)**3) - c**4/(2*d**4*(c + d*x)
**2*(a*d - b*c)) + c**3*(4*a*d - 3*b*c)/(d**4*(c + d*x)*(a*d - b*
c)**2) + c**2*(6*a**2*d**2 - 8*a*b*c*d + 3*b**2*c**2)*log(c + d*x
)/(d**4*(a*d - b*c)**3) + Integral(1/b, x)/d**3
```

Mathematica [A] time = 0.288107, size = 138, normalized size = 0.99

$$\frac{a^4\log(a+bx)}{b^2(bc-ad)^3}+\frac{c^2\left(6a^2d^2-8abcd+3b^2c^2\right)\log(c+dx)}{d^4(ad-bc)^3}-\frac{c^4}{2d^4(c+dx)^2(ad-bc)}+\frac{c^3(4ad-3bc)}{d^4(c+dx)(bc-ad)^2}+\frac{x}{bd^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^4/((a + b*x)*(c + d*x)^3),x]
```

```
[Out] x/(b*d^3) - c^4/(2*d^4*(-(b*c) + a*d)*(c + d*x)^2) + (c^3*(-3*b*c
 + 4*a*d))/(d^4*(b*c - a*d)^2*(c + d*x)) + (a^4*Log[a + b*x])/(b^
2*(b*c - a*d)^3) + (c^2*(3*b^2*c^2 - 8*a*b*c*d + 6*a^2*d^2)*Log[c
 + d*x])/(d^4*(-(b*c) + a*d)^3)
```

Maple [A] time = 0.017, size = 191, normalized size = 1.4

$$\frac{x}{bd^3} - \frac{c^4}{2\,d^4\,(ad-bc)\,(dx+c)^2} + 6\,\frac{c^2\ln(dx+c)\,a^2}{d^2\,(ad-bc)^3} - 8\,\frac{c^3\ln(dx+c)\,ab}{d^3\,(ad-bc)^3} + 3\,\frac{c^4\ln(dx+c)\,b^2}{d^4\,(ad-bc)^3} + 4\,\frac{ac^3}{d^3\,(ad-bc)^2\,(dx+c)} - 3\,\frac{c^4b}{(ad-bc)^2\,d^4\,(dx+c)} - \frac{a^4\ln(bx+a)}{b^2\,(ad-bc)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^4/(b*x+a)/(d*x+c)^3,x)
```

```
[Out] x/b/d^3-1/2/d^4*c^4/(a*d-b*c)/(d*x+c)^2+6/d^2*c^2/(a*d-b*c)^3*ln(
d*x+c)*a^2-8/d^3*c^3/(a*d-b*c)^3*ln(d*x+c)*a*b+3/d^4*c^4/(a*d-b*c
)^3*ln(d*x+c)*b^2+4/d^3*c^3/(a*d-b*c)^2/(d*x+c)*a-3/d^4*c^4/(a*d-
b*c)^2/(d*x+c)*b-1/b^2*a^4/(a*d-b*c)^3*ln(b*x+a)
```

Maxima [A] time = 1.37305, size = 367, normalized size = 2.62

$$\frac{a^4\log(bx+a)}{b^5c^3 - 3\,ab^4c^2d + 3\,a^2b^3cd^2 - a^3b^2d^3} - \frac{\left(3\,b^2c^4 - 8\,abc^3d + 6\,a^2c^2d^2\right)\log(dx+c)}{b^3c^3d^4 - 3\,ab^2c^2d^5 + 3\,a^2bcd^6 - a^3d^7} - \frac{5\,bc^5 - 7\,ac^4d + 2\left(3\,bc^4d - 4\,ac^3d^2\right)x}{2\,(b^2c^4d^4 - 2\,abc^3d^5 + a^2c^2d^6 + (b^2c^2d^6 - 2\,abcd^7 + a^2d^8)x^2 + 2\,(b^2c^3d^5 - 2\,abc^2d^6 + a^2cd^7)x)} + \frac{x}{bd^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^4/((b*x + a)*(d*x + c)^3),x, algorithm="maxima")
```

```
[Out] a^4*log(b*x + a)/(b^5*c^3 - 3*a*b^4*c^2*d + 3*a^2*b^3*c*d^2 - a^3
*b^2*d^3) - (3*b^2*c^4 - 8*a*b*c^3*d + 6*a^2*c^2*d^2)*log(d*x + c
)/(b^3*c^3*d^4 - 3*a*b^2*c^2*d^5 + 3*a^2*b*c*d^6 - a^3*d^7) - 1/2
*(5*b*c^5 - 7*a*c^4*d + 2*(3*b*c^4*d - 4*a*c^3*d^2)*x)/(b^2*c^4*d
^4 - 2*a*b*c^3*d^5 + a^2*c^2*d^6 + (b^2*c^2*d^6 - 2*a*b*c*d^7 + a
^2*d^8)*x^2 + 2*(b^2*c^3*d^5 - 2*a*b*c^2*d^6 + a^2*c*d^7)*x) + x/
(b*d^3)
```

Fricas [A] time = 0.233326, size = 676, normalized size = 4.83

$$-\frac{5\,b^4c^6 - 12\,ab^3c^5d + 7\,a^2b^2c^4d^2 - 2\left(b^4c^3d^3 - 3\,ab^3c^2d^4 + 3\,a^2b^2cd^5 - a^3bd^6\right)x^3 - 4\left(b^4c^4d^2 - 3\,ab^3c^3d^3 + 3\,a^2b^2c^2d^4 - a^3\right.}{2\,(b^5c^5d^4 - 3\,ab}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^4/((b*x + a)*(d*x + c)^3),x, algorithm="fricas")
```

```
[Out] -1/2*(5*b^4*c^6 - 12*a*b^3*c^5*d + 7*a^2*b^2*c^4*d^2 - 2*(b^4*c^3
*d^3 - 3*a*b^3*c^2*d^4 + 3*a^2*b^2*c*d^5 - a^3*b*d^6)*x^3 - 4*(b^
4*c^4*d^2 - 3*a*b^3*c^3*d^3 + 3*a^2*b^2*c^2*d^4 - a^3*b*c*d^5)*x^
2 + 2*(2*b^4*c^5*d - 4*a*b^3*c^4*d^2 + a^2*b^2*c^3*d^3 + a^3*b*c^
2*d^4)*x - 2*(a^4*d^6*x^2 + 2*a^4*c*d^5*x + a^4*c^2*d^4)*log(b*x
+ a) + 2*(3*b^4*c^6 - 8*a*b^3*c^5*d + 6*a^2*b^2*c^4*d^2 + (3*b^4*
c^4*d^2 - 8*a*b^3*c^3*d^3 + 6*a^2*b^2*c^2*d^4)*x^2 + 2*(3*b^4*c^5
*d - 8*a*b^3*c^4*d^2 + 6*a^2*b^2*c^3*d^3)*x)*log(d*x + c))/(b^5*c
^5*d^4 - 3*a*b^4*c^4*d^5 + 3*a^2*b^3*c^3*d^6 - a^3*b^2*c^2*d^7 +
(b^5*c^3*d^6 - 3*a*b^4*c^2*d^7 + 3*a^2*b^3*c*d^8 - a^3*b^2*d^9)*x
^2 + 2*(b^5*c^4*d^5 - 3*a*b^4*c^3*d^6 + 3*a^2*b^3*c^2*d^7 - a^3*b
^2*c*d^8)*x)
```

Sympy [A] time = 21.1765, size = 719, normalized size = 5.14

$$-\frac{a^4 \log\left(x+\frac{\frac{a^8d^7}{b(ad-bc)^3}-\frac{4a^7cd^6}{(ad-bc)^3}+\frac{6a^6bc^2d^5}{(ad-bc)^3}-\frac{4a^5b^2c^3d^4}{(ad-bc)^3}+\frac{a^4b^3c^4d^3}{(ad-bc)^3}+a^4cd^3+6a^3bc^2d^2-8a^2b^2c^3d+3ab^3c^4}{a^4d^4+6a^2b^2c^2d^2-8ab^3c^3d+3b^4c^4}\right)}{b^2\left(ad-bc\right)^3}$$

$$+\frac{c^2\left(6a^2d^2-8abcd+3b^2c^2\right)\log\left(x+\frac{-\frac{a^4bc^2d^3\left(6a^2d^2-8abcd+3b^2c^2\right)}{(ad-bc)^3}+a^4cd^3+\frac{4a^3b^2c^3d^2\left(6a^2d^2-8abcd+3b^2c^2\right)}{(ad-bc)^3}+6a^3bc^2d^2-\frac{6a^2b^3c^4d\left(6a^2d^2-8abcd+3b^2\cdots\right)}{(ad-bc)^3}\cdots}{a^4d^4+6a^2b^2c^2d^2-8ab^3c^3d+3b^4\cdots}\cdots\right)}{d^4\left(ad-bc\right)^3}$$

$$+\frac{7ac^4d-5bc^5+x\left(8ac^3d^2-6bc^4d\right)}{2a^2c^2d^6-4abc^3d^5+2b^2c^4d^4+x^2\left(2a^2d^8-4abcd^7+2b^2c^2d^6\right)+x\left(4a^2cd^7-8abc^2d^6+4b^2c^3d^5\right)}+\frac{x}{bd^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**4/(b*x+a)/(d*x+c)**3,x)
```

```
[Out] -a**4*log(x + (a**8*d**7/(b*(a*d - b*c)**3) - 4*a**7*c*d**6/(a*d
- b*c)**3 + 6*a**6*b*c**2*d**5/(a*d - b*c)**3 - 4*a**5*b**2*c**3*
d**4/(a*d - b*c)**3 + a**4*b**3*c**4*d**3/(a*d - b*c)**3 + a**4*c
*d**3 + 6*a**3*b*c**2*d**2 - 8*a**2*b**2*c**3*d + 3*a*b**3*c**4)/
(a**4*d**4 + 6*a**2*b**2*c**2*d**2 - 8*a*b**3*c**3*d + 3*b**4*c**
4))/(b**2*(a*d - b*c)**3) + c**2*(6*a**2*d**2 - 8*a*b*c*d + 3*b**
2*c**2)*log(x + (-a**4*b*c**2*d**3*(6*a**2*d**2 - 8*a*b*c*d + 3*b
**2*c**2)/(a*d - b*c)**3 + a**4*c*d**3 + 4*a**3*b**2*c**3*d**2*(6
*a**2*d**2 - 8*a*b*c*d + 3*b**2*c**2)/(a*d - b*c)**3 + 6*a**3*b*c
**2*d**2 - 6*a**2*b**3*c**4*d*(6*a**2*d**2 - 8*a*b*c*d + 3*b**2*c
**2)/(a*d - b*c)**3 - 8*a**2*b**2*c**3*d + 4*a*b**4*c**5*(6*a**2*
d**2 - 8*a*b*c*d + 3*b**2*c**2)/(a*d - b*c)**3 + 3*a*b**3*c**4 -
b**5*c**6*(6*a**2*d**2 - 8*a*b*c*d + 3*b**2*c**2)/(d*(a*d - b*c)*
*3))/(a**4*d**4 + 6*a**2*b**2*c**2*d**2 - 8*a*b**3*c**3*d + 3*b**
4*c**4))/(d**4*(a*d - b*c)**3) + (7*a*c**4*d - 5*b*c**5 + x*(8*a*
c**3*d**2 - 6*b*c**4*d))/(2*a**2*c**2*d**6 - 4*a*b*c**3*d**5 + 2*
b**2*c**4*d**4 + x**2*(2*a**2*d**8 - 4*a*b*c*d**7 + 2*b**2*c**2*d
**6) + x*(4*a**2*c*d**7 - 8*a*b*c**2*d**6 + 4*b**2*c**3*d**5)) +
x/(b*d**3)
```

GIAC/XCAS [A] time = 0.276415, size = 306, normalized size = 2.19

$$\frac{a^4\ln\left(|bx+a|\right)}{b^5c^3-3\,ab^4c^2d+3\,a^2b^3cd^2-a^3b^2d^3}-\frac{\left(3\,b^2c^4-8\,abc^3d+6\,a^2c^2d^2\right)\ln\left(|dx+c|\right)}{b^3c^3d^4-3\,ab^2c^2d^5+3\,a^2bcd^6-a^3d^7}+\frac{x}{bd^3}-\frac{5\,b^2c^6-12\,abc^5d+7\,a^2c^4d^2+2\left(3\,b^2c^5d-7\,abc^4d^2+4\,a^2c^3d^3\right)x}{2\left(bc-ad\right)^3\left(dx+c\right)^2d^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^4/((b*x + a)*(d*x + c)^3),x, algorithm="giac")
```

```
[Out] a^4*ln(abs(b*x + a))/(b^5*c^3 - 3*a*b^4*c^2*d + 3*a^2*b^3*c*d^2 -
 a^3*b^2*d^3) - (3*b^2*c^4 - 8*a*b*c^3*d + 6*a^2*c^2*d^2)*ln(abs(
d*x + c))/(b^3*c^3*d^4 - 3*a*b^2*c^2*d^5 + 3*a^2*b*c*d^6 - a^3*d^
7) + x/(b*d^3) - 1/2*(5*b^2*c^6 - 12*a*b*c^5*d + 7*a^2*c^4*d^2 +
2*(3*b^2*c^5*d - 7*a*b*c^4*d^2 + 4*a^2*c^3*d^3)*x)/((b*c - a*d)^3
*(d*x + c)^2*d^4)
```

3.222 $\int \frac{x^3}{(a+bx)(c+dx)^3} \, dx$

Optimal. Leaf size=128

$$-\frac{a^3 \log(a+bx)}{b(bc-ad)^3}+\frac{c\left(3a^2d^2-3abcd+b^2c^2\right)\log(c+dx)}{d^3(bc-ad)^3}-\frac{c^3}{2d^3(c+dx)^2(bc-ad)}+\frac{c^2(2bc-3ad)}{d^3(c+dx)(bc-ad)^2}$$

```
[Out] -c^3/(2*d^3*(b*c - a*d)*(c + d*x)^2) + (c^2*(2*b*c - 3*a*d))/(d^3
*(b*c - a*d)^2*(c + d*x)) - (a^3*Log[a + b*x])/(b*(b*c - a*d)^3)
+ (c*(b^2*c^2 - 3*a*b*c*d + 3*a^2*d^2)*Log[c + d*x])/(d^3*(b*c -
a*d)^3)
```

Rubi [A] time = 0.24837, antiderivative size = 128, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{a^3 \log(a+bx)}{b(bc-ad)^3}+\frac{c\left(3a^2d^2-3abcd+b^2c^2\right)\log(c+dx)}{d^3(bc-ad)^3}-\frac{c^3}{2d^3(c+dx)^2(bc-ad)}+\frac{c^2(2bc-3ad)}{d^3(c+dx)(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[x^3/((a + b*x)*(c + d*x)^3),x]
```

```
[Out] -c^3/(2*d^3*(b*c - a*d)*(c + d*x)^2) + (c^2*(2*b*c - 3*a*d))/(d^3
*(b*c - a*d)^2*(c + d*x)) - (a^3*Log[a + b*x])/(b*(b*c - a*d)^3)
+ (c*(b^2*c^2 - 3*a*b*c*d + 3*a^2*d^2)*Log[c + d*x])/(d^3*(b*c -
a*d)^3)
```

Rubi in Sympy [A] time = 69.9056, size = 116, normalized size = 0.91

$$\frac{a^3 \log(a+bx)}{b(ad-bc)^3}+\frac{c^3}{2d^3(c+dx)^2(ad-bc)}-\frac{c^2(3ad-2bc)}{d^3(c+dx)(ad-bc)^2}-\frac{c\left(3a^2d^2-3abcd+b^2c^2\right)\log(c+dx)}{d^3(ad-bc)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3/(b*x+a)/(d*x+c)**3,x)
```

```
[Out] a**3*log(a + b*x)/(b*(a*d - b*c)**3) + c**3/(2*d**3*(c + d*x)**2*
(a*d - b*c)) - c**2*(3*a*d - 2*b*c)/(d**3*(c + d*x)*(a*d - b*c)**
2) - c*(3*a**2*d**2 - 3*a*b*c*d + b**2*c**2)*log(c + d*x)/(d**3*(
a*d - b*c)**3)
```

Mathematica [A] time = 0.0988104, size = 134, normalized size = 1.05

$$-\frac{a^3 \log(a+bx)}{b(bc-ad)^3}-\frac{\left(-3a^2cd^2+3abc^2d-b^2c^3\right)\log(c+dx)}{d^3(bc-ad)^3}+\frac{c^3}{2d^3(c+dx)^2(ad-bc)}+\frac{2bc^3-3ac^2d}{d^3(c+dx)(ad-bc)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^3/((a + b*x)*(c + d*x)^3),x]
```

```
[Out] c^3/(2*d^3*(-(b*c) + a*d)*(c + d*x)^2) + (2*b*c^3 - 3*a*c^2*d)/(d
^3*(-(b*c) + a*d)^2*(c + d*x)) - (a^3*Log[a + b*x])/(b*(b*c - a*d
)^3) - ((-(b^2*c^3) + 3*a*b*c^2*d - 3*a^2*c*d^2)*Log[c + d*x])/(d
^3*(b*c - a*d)^3)
```

Maple [A] time = 0.016, size = 180, normalized size = 1.4

$$-3\,\frac{c^2a}{d^2\,(ad-bc)^2\,(dx+c)}+2\,\frac{c^3b}{d^3\,(ad-bc)^2\,(dx+c)}+\frac{c^3}{2\,d^3\,(ad-bc)\,(dx+c)^2}-3\,\frac{c\ln(dx+c)\,a^2}{d\,(ad-bc)^3}+3\,\frac{c^2\ln(dx+c)\,ab}{(ad-bc)^3\,d^2}-\frac{c^3\ln(dx+c)\,b^2}{(ad-bc)^3\,d^3}+\frac{a^3\ln(bx+a)}{(ad-bc)^3\,b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^3/(b*x+a)/(d*x+c)^3,x)
```

```
[Out] -3*c^2/d^2/(a*d-b*c)^2/(d*x+c)*a+2*c^3/d^3/(a*d-b*c)^2/(d*x+c)*b+
1/2*c^3/d^3/(a*d-b*c)/(d*x+c)^2-3*c/(a*d-b*c)^3/d*ln(d*x+c)*a^2+3
*c^2/(a*d-b*c)^3/d^2*ln(d*x+c)*a*b-c^3/(a*d-b*c)^3/d^3*ln(d*x+c)*
b^2+1/(a*d-b*c)^3*a^3/b*ln(b*x+a)
```

Maxima [A] time = 1.37147, size = 350, normalized size = 2.73

$$-\frac{a^3\log(bx+a)}{b^4c^3-3\,ab^3c^2d+3\,a^2b^2cd^2-a^3bd^3}+\frac{\left(b^2c^3-3\,abc^2d+3\,a^2cd^2\right)\log(dx+c)}{b^3c^3d^3-3\,ab^2c^2d^4+3\,a^2bcd^5-a^3d^6}+\frac{3\,bc^4-5\,ac^3d+2\left(2\,bc^3d-3\,ac^2d^2\right)x}{2\,(b^2c^4d^3-2\,abc^3d^4+a^2c^2d^5+(b^2c^2d^5-2\,abcd^6+a^2d^7)x^2+2\,(b^2c^3d^4-2\,abc^2d^5+a^2cd^6)x)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^3/((b*x + a)*(d*x + c)^3),x, algorithm="maxima")
```

```
[Out] -a^3*log(b*x + a)/(b^4*c^3 - 3*a*b^3*c^2*d + 3*a^2*b^2*c*d^2 - a^
3*b*d^3) + (b^2*c^3 - 3*a*b*c^2*d + 3*a^2*c*d^2)*log(d*x + c)/(b^
3*c^3*d^3 - 3*a*b^2*c^2*d^4 + 3*a^2*b*c*d^5 - a^3*d^6) + 1/2*(3*b
*c^4 - 5*a*c^3*d + 2*(2*b*c^3*d - 3*a*c^2*d^2)*x)/(b^2*c^4*d^3 -
2*a*b*c^3*d^4 + a^2*c^2*d^5 + (b^2*c^2*d^5 - 2*a*b*c*d^6 + a^2*d^
7)*x^2 + 2*(b^2*c^3*d^4 - 2*a*b*c^2*d^5 + a^2*c*d^6)*x)
```

Fricas [A] time = 0.224109, size = 498, normalized size = 3.89

$$\frac{3\,b^3c^5-8\,ab^2c^4d+5\,a^2bc^3d^2+2\left(2\,b^3c^4d-5\,ab^2c^3d^2+3\,a^2bc^2d^3\right)x-2\left(a^3d^5x^2+2\,a^3cd^4x+a^3c^2d^3\right)\log(bx+a)+2\,(b^3c}{2\,(b^4c^5d^3-3\,ab^3c^4d^4+3\,a^2b^2c^3d^5-a^3bc^2d^6+(b^4c^3d^5-3\,ab^3c^2d^6+3\,a^2b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^3/((b*x + a)*(d*x + c)^3),x, algorithm="fricas")
```

```
[Out] 1/2*(3*b^3*c^5 - 8*a*b^2*c^4*d + 5*a^2*b*c^3*d^2 + 2*(2*b^3*c^4*d
 - 5*a*b^2*c^3*d^2 + 3*a^2*b*c^2*d^3)*x - 2*(a^3*d^5*x^2 + 2*a^3*
c*d^4*x + a^3*c^2*d^3)*log(b*x + a) + 2*(b^3*c^5 - 3*a*b^2*c^4*d
+ 3*a^2*b*c^3*d^2 + (b^3*c^3*d^2 - 3*a*b^2*c^2*d^3 + 3*a^2*b*c*d^
4)*x^2 + 2*(b^3*c^4*d - 3*a*b^2*c^3*d^2 + 3*a^2*b*c^2*d^3)*x)*log
(d*x + c))/(b^4*c^5*d^3 - 3*a*b^3*c^4*d^4 + 3*a^2*b^2*c^3*d^5 - a
^3*b*c^2*d^6 + (b^4*c^3*d^5 - 3*a*b^3*c^2*d^6 + 3*a^2*b^2*c*d^7 -
 a^3*b*d^8)*x^2 + 2*(b^4*c^4*d^4 - 3*a*b^3*c^3*d^5 + 3*a^2*b^2*c^
2*d^6 - a^3*b*c*d^7)*x)
```

Sympy [A] time = 14.5439, size = 653, normalized size = 5.1

$$\frac{a^3\log\left(x+\frac{\frac{a^7d^6}{b(ad-bc)^3}-\frac{4a^6cd^5}{(ad-bc)^3}+\frac{6a^5bc^2d^4}{(ad-bc)^3}-\frac{4a^4b^2c^3d^3}{(ad-bc)^3}+\frac{a^3b^3c^4d^2}{(ad-bc)^3}+4a^3cd^2-3a^2bc^2d+ab^2c^3}{a^3d^3+3a^2bcd^2-3ab^2c^2d+b^3c^3}\right)}{b\,(ad-bc)^3} - \frac{c\left(3a^2d^2-3abcd+b^2c^2\right)\log\left(x+\frac{-\frac{a^4cd^3\left(3a^2d^2-3abcd+b^2c^2\right)}{(ad-bc)^3}+\frac{4a^3bc^2d^2\left(3a^2d^2-3abcd+b^2c^2\right)}{(ad-bc)^3}+4a^3cd^2-\frac{6a^2b^2c^3d\left(3a^2d^2-3abcd+b^2c^2\right)}{(ad-bc)^3}-3a^2bc^2d+\frac{4ab\ldots}{}}{a^3d^3+3a^2bcd^2-3ab^2c^2d+b^3c^3}\right)}{d^3\,(ad-bc)^3} - \frac{5ac^3d-3bc^4+x\left(6ac^2d^2-4bc^3d\right)}{2a^2c^2d^5-4abc^3d^4+2b^2c^4d^3+x^2\left(2a^2d^7-4abcd^6+2b^2c^2d^5\right)+x\left(4a^2cd^6-8abc^2d^5+4b^2c^3d^4\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**3/(b*x+a)/(d*x+c)**3,x)
```

```
[Out] a**3*log(x + (a**7*d**6/(b*(a*d - b*c)**3) - 4*a**6*c*d**5/(a*d -
 b*c)**3 + 6*a**5*b*c**2*d**4/(a*d - b*c)**3 - 4*a**4*b**2*c**3*d
**3/(a*d - b*c)**3 + a**3*b**3*c**4*d**2/(a*d - b*c)**3 + 4*a**3*
c*d**2 - 3*a**2*b*c**2*d + a*b**2*c**3)/(a**3*d**3 + 3*a**2*b*c*d
**2 - 3*a*b**2*c**2*d + b**3*c**3))/(b*(a*d - b*c)**3) - c*(3*a**
2*d**2 - 3*a*b*c*d + b**2*c**2)*log(x + (-a**4*c*d**3*(3*a**2*d**
2 - 3*a*b*c*d + b**2*c**2)/(a*d - b*c)**3 + 4*a**3*b*c**2*d**2*(3
*a**2*d**2 - 3*a*b*c*d + b**2*c**2)/(a*d - b*c)**3 + 4*a**3*c*d**
2 - 6*a**2*b**2*c**3*d*(3*a**2*d**2 - 3*a*b*c*d + b**2*c**2)/(a*d
 - b*c)**3 - 3*a**2*b*c**2*d + 4*a*b**3*c**4*(3*a**2*d**2 - 3*a*b
*c*d + b**2*c**2)/(a*d - b*c)**3 + a*b**2*c**3 - b**4*c**5*(3*a**
2*d**2 - 3*a*b*c*d + b**2*c**2)/(d*(a*d - b*c)**3))/(a**3*d**3 +
3*a**2*b*c*d**2 - 3*a*b**2*c**2*d + b**3*c**3))/(d**3*(a*d - b*c)
**3) - (5*a*c**3*d - 3*b*c**4 + x*(6*a*c**2*d**2 - 4*b*c**3*d))/(
2*a**2*c**2*d**5 - 4*a*b*c**3*d**4 + 2*b**2*c**4*d**3 + x**2*(2*a
**2*d**7 - 4*a*b*c*d**6 + 2*b**2*c**2*d**5) + x*(4*a**2*c*d**6 -
8*a*b*c**2*d**5 + 4*b**2*c**3*d**4))
```

GIAC/XCAS [A] time = 0.319224, size = 292, normalized size = 2.28

$$-\frac{a^3\ln\left(|bx+a|\right)}{b^4c^3-3\,ab^3c^2d+3\,a^2b^2cd^2-a^3bd^3}+\frac{\left(b^2c^3-3\,abc^2d+3\,a^2cd^2\right)\ln\left(|dx+c|\right)}{b^3c^3d^3-3\,ab^2c^2d^4+3\,a^2bcd^5-a^3d^6}+\frac{2\left(2\,b^2c^4-5\,abc^3d+3\,a^2c^2d^2\right)x+\frac{3\,b^2c^5-8\,abc^4d+5\,a^2c^3d^2}{d}}{2\,(bc-ad)^3(dx+c)^2d^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^3/((b*x + a)*(d*x + c)^3),x, algorithm="giac")
```

```
[Out] -a^3*ln(abs(b*x + a))/(b^4*c^3 - 3*a*b^3*c^2*d + 3*a^2*b^2*c*d^2
- a^3*b*d^3) + (b^2*c^3 - 3*a*b*c^2*d + 3*a^2*c*d^2)*ln(abs(d*x +
 c))/(b^3*c^3*d^3 - 3*a*b^2*c^2*d^4 + 3*a^2*b*c*d^5 - a^3*d^6) +
1/2*(2*(2*b^2*c^4 - 5*a*b*c^3*d + 3*a^2*c^2*d^2)*x + (3*b^2*c^5 -
 8*a*b*c^4*d + 5*a^2*c^3*d^2)/d)/((b*c - a*d)^3*(d*x + c)^2*d^2)
```

3.223 $\int \frac{x^2}{(a+bx)(c+dx)^3} \, dx$

Optimal. Leaf size=100

$$\frac{a^2 \log(a+bx)}{(bc-ad)^3} - \frac{a^2 \log(c+dx)}{(bc-ad)^3} + \frac{c^2}{2d^2(c+dx)^2(bc-ad)} - \frac{c(bc-2ad)}{d^2(c+dx)(bc-ad)^2}$$

```
[Out] c^2/(2*d^2*(b*c - a*d)*(c + d*x)^2) - (c*(b*c - 2*a*d))/(d^2*(b*c
 - a*d)^2*(c + d*x)) + (a^2*Log[a + b*x])/(b*c - a*d)^3 - (a^2*Lo
g[c + d*x])/(b*c - a*d)^3
```

Rubi [A] time = 0.19257, antiderivative size = 100, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{a^2 \log(a+bx)}{(bc-ad)^3} - \frac{a^2 \log(c+dx)}{(bc-ad)^3} + \frac{c^2}{2d^2(c+dx)^2(bc-ad)} - \frac{c(bc-2ad)}{d^2(c+dx)(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[x^2/((a + b*x)*(c + d*x)^3),x]
```

```
[Out] c^2/(2*d^2*(b*c - a*d)*(c + d*x)^2) - (c*(b*c - 2*a*d))/(d^2*(b*c
 - a*d)^2*(c + d*x)) + (a^2*Log[a + b*x])/(b*c - a*d)^3 - (a^2*Lo
g[c + d*x])/(b*c - a*d)^3
```

Rubi in Sympy [A] time = 47.9046, size = 85, normalized size = 0.85

$$-\frac{a^2 \log(a+bx)}{(ad-bc)^3} + \frac{a^2 \log(c+dx)}{(ad-bc)^3} - \frac{c^2}{2d^2(c+dx)^2(ad-bc)} + \frac{c(2ad-bc)}{d^2(c+dx)(ad-bc)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2/(b*x+a)/(d*x+c)**3,x)
```

```
[Out] -a**2*log(a + b*x)/(a*d - b*c)**3 + a**2*log(c + d*x)/(a*d - b*c)
**3 - c**2/(2*d**2*(c + d*x)**2*(a*d - b*c)) + c*(2*a*d - b*c)/(d
**2*(c + d*x)*(a*d - b*c)**2)
```

Mathematica [A] time = 0.105363, size = 99, normalized size = 0.99

$$\frac{-2a^2d^2(c+dx)^2 \log(a+bx) + 2a^2d^2(c+dx)^2 \log(c+dx) + c(bc-ad)(bc(c+2dx)-ad(3c+4dx))}{2d^2(c+dx)^2(ad-bc)^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^2/((a + b*x)*(c + d*x)^3),x]
```

```
[Out] (c*(b*c - a*d)*(b*c*(c + 2*d*x) - a*d*(3*c + 4*d*x)) - 2*a^2*d^2*
(c + d*x)^2*Log[a + b*x] + 2*a^2*d^2*(c + d*x)^2*Log[c + d*x])/(2
*d^2*(-(b*c) + a*d)^3*(c + d*x)^2)
```

Maple [A] time = 0.014, size = 118, normalized size = 1.2

$$\frac{a^2 \ln(dx+c)}{(ad-bc)^3} - \frac{c^2}{2d^2(ad-bc)(dx+c)^2} + 2\frac{ac}{d(ad-bc)^2(dx+c)} - \frac{c^2b}{(ad-bc)^2 d^2(dx+c)} - \frac{a^2 \ln(bx+a)}{(ad-bc)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2/(b*x+a)/(d*x+c)^3,x)
```

```
[Out] a^2/(a*d-b*c)^3*ln(d*x+c)-1/2*c^2/d^2/(a*d-b*c)/(d*x+c)^2+2*c/(a*
d-b*c)^2/d/(d*x+c)*a-c^2/(a*d-b*c)^2/d^2/(d*x+c)*b-a^2/(a*d-b*c)^
3*ln(b*x+a)
```

Maxima [A] time = 1.36138, size = 304, normalized size = 3.04

$$\frac{a^2\log(bx+a)}{b^3c^3-3\,ab^2c^2d+3\,a^2bcd^2-a^3d^3}-\frac{a^2\log(dx+c)}{b^3c^3-3\,ab^2c^2d+3\,a^2bcd^2-a^3d^3}-\frac{bc^3-3\,ac^2d+2\left(bc^2d-2\,acd^2\right)x}{2\,(b^2c^4d^2-2\,abc^3d^3+a^2c^2d^4+(b^2c^2d^4-2\,abcd^5+a^2d^6)x^2+2\,(b^2c^3d^3-2\,abc^2d^4+a^2cd^5)x)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2/((b*x + a)*(d*x + c)^3),x, algorithm="maxima")
```

```
[Out] a^2*log(b*x + a)/(b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d
^3) - a^2*log(d*x + c)/(b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 -
 a^3*d^3) - 1/2*(b*c^3 - 3*a*c^2*d + 2*(b*c^2*d - 2*a*c*d^2)*x)/(
b^2*c^4*d^2 - 2*a*b*c^3*d^3 + a^2*c^2*d^4 + (b^2*c^2*d^4 - 2*a*b*
c*d^5 + a^2*d^6)*x^2 + 2*(b^2*c^3*d^3 - 2*a*b*c^2*d^4 + a^2*c*d^5
)*x)
```

Fricas [A] time = 0.207824, size = 375, normalized size = 3.75

$$-\frac{b^2c^4-4\,abc^3d+3\,a^2c^2d^2+2\left(b^2c^3d-3\,abc^2d^2+2\,a^2cd^3\right)x-2\left(a^2d^4x^2+2\,a^2cd^3x+a^2c^2d^2\right)\log(bx+a)+2\left(a^2d^4x^2+2\right.}{2\,(b^3c^5d^2-3\,ab^2c^4d^3+3\,a^2bc^3d^4-a^3c^2d^5+(b^3c^3d^4-3\,ab^2c^2d^5+3\,a^2bcd^6-a^3d^7)x^2+2\,(b^3c^4d^3-3\,ab^2c^3d^4+}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2/((b*x + a)*(d*x + c)^3),x, algorithm="fricas")
```

```
[Out] -1/2*(b^2*c^4 - 4*a*b*c^3*d + 3*a^2*c^2*d^2 + 2*(b^2*c^3*d - 3*a*
b*c^2*d^2 + 2*a^2*c*d^3)*x - 2*(a^2*d^4*x^2 + 2*a^2*c*d^3*x + a^2
*c^2*d^2)*log(b*x + a) + 2*(a^2*d^4*x^2 + 2*a^2*c*d^3*x + a^2*c^2
*d^2)*log(d*x + c))/(b^3*c^5*d^2 - 3*a*b^2*c^4*d^3 + 3*a^2*b*c^3*
d^4 - a^3*c^2*d^5 + (b^3*c^3*d^4 - 3*a*b^2*c^2*d^5 + 3*a^2*b*c*d^
6 - a^3*d^7)*x^2 + 2*(b^3*c^4*d^3 - 3*a*b^2*c^3*d^4 + 3*a^2*b*c^2
*d^5 - a^3*c*d^6)*x)
```

Sympy [A] time = 7.90104, size = 408, normalized size = 4.08

$$\frac{a^2\log\left(x+\frac{-\frac{a^6d^4}{(ad-bc)^3}+\frac{4a^5bcd^3}{(ad-bc)^3}-\frac{6a^4b^2c^2d^2}{(ad-bc)^3}+\frac{4a^3b^3c^3d}{(ad-bc)^3}+a^3d-\frac{a^2b^4c^4}{(ad-bc)^3}+a^2bc}{2a^2bd}\right)}{(ad-bc)^3}-\frac{a^2\log\left(x+\frac{\frac{a^6d^4}{(ad-bc)^3}-\frac{4a^5bcd^3}{(ad-bc)^3}+\frac{6a^4b^2c^2d^2}{(ad-bc)^3}-\frac{4a^3b^3c^3d}{(ad-bc)^3}+a^3d+\frac{a^2b^4c^4}{(ad-bc)^3}+a^2bc}{2a^2bd}\right)}{(ad-bc)^3}+\frac{3ac^2d-bc^3+x\left(4acd^2-2bc^2d\right)}{2a^2c^2d^4-4abc^3d^3+2b^2c^4d^2+x^2\left(2a^2d^6-4abcd^5+2b^2c^2d^4\right)+x\left(4a^2cd^5-8abc^2d^4+4b^2c^3d^3\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2/(b*x+a)/(d*x+c)**3,x)
```

```
[Out] a**2*log(x + (-a**6*d**4/(a*d - b*c)**3 + 4*a**5*b*c*d**3/(a*d -
b*c)**3 - 6*a**4*b**2*c**2*d**2/(a*d - b*c)**3 + 4*a**3*b**3*c**3
*d/(a*d - b*c)**3 + a**3*d - a**2*b**4*c**4/(a*d - b*c)**3 + a**2
*b*c)/(2*a**2*b*d))/(a*d - b*c)**3 - a**2*log(x + (a**6*d**4/(a*d
 - b*c)**3 - 4*a**5*b*c*d**3/(a*d - b*c)**3 + 6*a**4*b**2*c**2*d*
*2/(a*d - b*c)**3 - 4*a**3*b**3*c**3*d/(a*d - b*c)**3 + a**3*d +
a**2*b**4*c**4/(a*d - b*c)**3 + a**2*b*c)/(2*a**2*b*d))/(a*d - b*
c)**3 + (3*a*c**2*d - b*c**3 + x*(4*a*c*d**2 - 2*b*c**2*d))/(2*a*
*2*c**2*d**4 - 4*a*b*c**3*d**3 + 2*b**2*c**4*d**2 + x**2*(2*a**2*
d**6 - 4*a*b*c*d**5 + 2*b**2*c**2*d**4) + x*(4*a**2*c*d**5 - 8*a*
b*c**2*d**4 + 4*b**2*c**3*d**3))
```

GIAC/XCAS [A] time = 0.273103, size = 254, normalized size = 2.54

$$\frac{a^2 b \ln\left(|bx+a|\right)}{b^4c^3 - 3\,ab^3c^2d + 3\,a^2b^2cd^2 - a^3bd^3} - \frac{a^2 d \ln\left(|dx+c|\right)}{b^3c^3d - 3\,ab^2c^2d^2 + 3\,a^2bcd^3 - a^3d^4} - \frac{b^2c^4 - 4\,abc^3d + 3\,a^2c^2d^2 + 2\left(b^2c^3d - 3\,abc^2d^2 + 2\,a^2cd^3\right)x}{2\,(bc-ad)^3(dx+c)^2d^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2/((b*x + a)*(d*x + c)^3),x, algorithm="giac")
```

```
[Out] a^2*b*ln(abs(b*x + a))/(b^4*c^3 - 3*a*b^3*c^2*d + 3*a^2*b^2*c*d^2
 - a^3*b*d^3) - a^2*d*ln(abs(d*x + c))/(b^3*c^3*d - 3*a*b^2*c^2*d
^2 + 3*a^2*b*c*d^3 - a^3*d^4) - 1/2*(b^2*c^4 - 4*a*b*c^3*d + 3*a^
2*c^2*d^2 + 2*(b^2*c^3*d - 3*a*b*c^2*d^2 + 2*a^2*c*d^3)*x)/((b*c
- a*d)^3*(d*x + c)^2*d^2)
```

3.224 $\int \frac{x}{(a+bx)(c+dx)^3}\,dx$

Optimal. Leaf size=85

$$-\frac{a}{(c+dx)(bc-ad)^2}-\frac{c}{2d(c+dx)^2(bc-ad)}-\frac{ab\log(a+bx)}{(bc-ad)^3}+\frac{ab\log(c+dx)}{(bc-ad)^3}$$

```
[Out] -c/(2*d*(b*c - a*d)*(c + d*x)^2) - a/((b*c - a*d)^2*(c + d*x)) -
(a*b*Log[a + b*x])/(b*c - a*d)^3 + (a*b*Log[c + d*x])/(b*c - a*d)
^3
```

Rubi [A] time = 0.131087, antiderivative size = 85, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{a}{(c+dx)(bc-ad)^2}-\frac{c}{2d(c+dx)^2(bc-ad)}-\frac{ab\log(a+bx)}{(bc-ad)^3}+\frac{ab\log(c+dx)}{(bc-ad)^3}$$

Antiderivative was successfully verified.

```
[In]  Int[x/((a + b*x)*(c + d*x)^3),x]
```

```
[Out] -c/(2*d*(b*c - a*d)*(c + d*x)^2) - a/((b*c - a*d)^2*(c + d*x)) -
(a*b*Log[a + b*x])/(b*c - a*d)^3 + (a*b*Log[c + d*x])/(b*c - a*d)
^3
```

Rubi in Sympy [A] time = 23.9009, size = 70, normalized size = 0.82

$$\frac{ab\log(a+bx)}{(ad-bc)^3}-\frac{ab\log(c+dx)}{(ad-bc)^3}-\frac{a}{(c+dx)(ad-bc)^2}+\frac{c}{2d(c+dx)^2(ad-bc)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x/(b*x+a)/(d*x+c)**3,x)
```

```
[Out] a*b*log(a + b*x)/(a*d - b*c)**3 - a*b*log(c + d*x)/(a*d - b*c)**3
 - a/((c + d*x)*(a*d - b*c)**2) + c/(2*d*(c + d*x)**2*(a*d - b*c)
)
```

Mathematica [A] time = 0.0785235, size = 85, normalized size = 1.

$$-\frac{a}{(c+dx)(bc-ad)^2}+\frac{c}{2d(c+dx)^2(ad-bc)}-\frac{ab\log(a+bx)}{(bc-ad)^3}+\frac{ab\log(c+dx)}{(bc-ad)^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x/((a + b*x)*(c + d*x)^3),x]
```

```
[Out] c/(2*d*(-(b*c) + a*d)*(c + d*x)^2) - a/((b*c - a*d)^2*(c + d*x))
- (a*b*Log[a + b*x])/(b*c - a*d)^3 + (a*b*Log[c + d*x])/(b*c - a*
d)^3
```

Maple [A] time = 0.013, size = 84, normalized size = 1.

$$-\frac{a}{(ad-bc)^2(dx+c)}+\frac{c}{(2ad-2bc)d(dx+c)^2}-\frac{ab\ln(dx+c)}{(ad-bc)^3}+\frac{ab\ln(bx+a)}{(ad-bc)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x/(b*x+a)/(d*x+c)^3,x)
```

```
[Out] -a/(a*d-b*c)^2/(d*x+c)+1/2*c/(a*d-b*c)/d/(d*x+c)^2-a*b/(a*d-b*c)^
3*ln(d*x+c)+a*b/(a*d-b*c)^3*ln(b*x+a)
```

Maxima [A] time = 1.35348, size = 281, normalized size = 3.31

$$-\frac{ab\log(bx+a)}{b^3c^3-3\,ab^2c^2d+3\,a^2bcd^2-a^3d^3}+\frac{ab\log(dx+c)}{b^3c^3-3\,ab^2c^2d+3\,a^2bcd^2-a^3d^3}-\frac{2\,ad^2x+bc^2+acd}{2\,(b^2c^4d-2\,abc^3d^2+a^2c^2d^3+(b^2c^2d^3-2\,abcd^4+a^2d^5)x^2+2\,(b^2c^3d^2-2\,abc^2d^3+a^2cd^4)x)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/((b*x + a)*(d*x + c)^3),x, algorithm="maxima")
```

```
[Out] -a*b*log(b*x + a)/(b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*
d^3) + a*b*log(d*x + c)/(b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2
- a^3*d^3) - 1/2*(2*a*d^2*x + b*c^2 + a*c*d)/(b^2*c^4*d - 2*a*b*c
^3*d^2 + a^2*c^2*d^3 + (b^2*c^2*d^3 - 2*a*b*c*d^4 + a^2*d^5)*x^2
+ 2*(b^2*c^3*d^2 - 2*a*b*c^2*d^3 + a^2*c*d^4)*x)
```

Fricas [A] time = 0.209268, size = 329, normalized size = 3.87

$$-\frac{b^2c^3-a^2cd^2+2\left(abcd^2-a^2d^3\right)x+2\left(abd^3x^2+2\,abcd^2x+abc^2d\right)\log(bx+a)-2\left(abd^3x^2+2\,abcd^2x+abc^2d\right)\log(}{2\,(b^3c^5d-3\,ab^2c^4d^2+3\,a^2bc^3d^3-a^3c^2d^4+(b^3c^3d^3-3\,ab^2c^2d^4+3\,a^2bcd^5-a^3d^6)x^2+2\,(b^3c^4d^2-3\,ab^2c^3d^3+3\,a^2bc^2d^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/((b*x + a)*(d*x + c)^3),x, algorithm="fricas")
```

```
[Out] -1/2*(b^2*c^3 - a^2*c*d^2 + 2*(a*b*c*d^2 - a^2*d^3)*x + 2*(a*b*d^
3*x^2 + 2*a*b*c*d^2*x + a*b*c^2*d)*log(b*x + a) - 2*(a*b*d^3*x^2
+ 2*a*b*c*d^2*x + a*b*c^2*d)*log(d*x + c))/(b^3*c^5*d - 3*a*b^2*c
^4*d^2 + 3*a^2*b*c^3*d^3 - a^3*c^2*d^4 + (b^3*c^3*d^3 - 3*a*b^2*c
^2*d^4 + 3*a^2*b*c*d^5 - a^3*d^6)*x^2 + 2*(b^3*c^4*d^2 - 3*a*b^2*
c^3*d^3 + 3*a^2*b*c^2*d^4 - a^3*c*d^5)*x)
```

Sympy [A] time = 7.3869, size = 400, normalized size = 4.71

$$-\frac{ab\log\left(x+\frac{-\frac{a^5bd^4}{(ad-bc)^3}+\frac{4a^4b^2cd^3}{(ad-bc)^3}-\frac{6a^3b^3c^2d^2}{(ad-bc)^3}+\frac{4a^2b^4c^3d}{(ad-bc)^3}+a^2bd-\frac{ab^5c^4}{(ad-bc)^3}+ab^2c}{2ab^2d}\right)}{(ad-bc)^3}+\frac{ab\log\left(x+\frac{\frac{a^5bd^4}{(ad-bc)^3}-\frac{4a^4b^2cd^3}{(ad-bc)^3}+\frac{6a^3b^3c^2d^2}{(ad-bc)^3}-\frac{4a^2b^4c^3d}{(ad-bc)^3}+a^2bd+\frac{ab^5c^4}{(ad-bc)^3}+ab^2c}{2ab^2d}\right)}{(ad-bc)^3}-\frac{acd+2ad^2x+bc^2}{2a^2c^2d^3-4abc^3d^2+2b^2c^4d+x^2\left(2a^2d^5-4abcd^4+2b^2c^2d^3\right)+x\left(4a^2cd^4-8abc^2d^3+4b^2c^3d^2\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/(b*x+a)/(d*x+c)**3,x)
```

```
[Out] -a*b*log(x + (-a**5*b*d**4/(a*d - b*c)**3 + 4*a**4*b**2*c*d**3/(a
*d - b*c)**3 - 6*a**3*b**3*c**2*d**2/(a*d - b*c)**3 + 4*a**2*b**4
```

```
*c**3*d/(a*d - b*c)**3 + a**2*b*d - a*b**5*c**4/(a*d - b*c)**3 +
a*b**2*c)/(2*a*b**2*d))/(a*d - b*c)**3 + a*b*log(x + (a**5*b*d**4
/(a*d - b*c)**3 - 4*a**4*b**2*c*d**3/(a*d - b*c)**3 + 6*a**3*b**3
*c**2*d**2/(a*d - b*c)**3 - 4*a**2*b**4*c**3*d/(a*d - b*c)**3 + a
**2*b*d + a*b**5*c**4/(a*d - b*c)**3 + a*b**2*c)/(2*a*b**2*d))/(a
*d - b*c)**3 - (a*c*d + 2*a*d**2*x + b*c**2)/(2*a**2*c**2*d**3 -
4*a*b*c**3*d**2 + 2*b**2*c**4*d + x**2*(2*a**2*d**5 - 4*a*b*c*d**
4 + 2*b**2*c**2*d**3) + x*(4*a**2*c*d**4 - 8*a*b*c**2*d**3 + 4*b*
*2*c**3*d**2))
```

GIAC/XCAS [A] time = 0.265168, size = 223, normalized size = 2.62

$$-\frac{ab^2\ln\left(|bx+a|\right)}{b^4c^3-3\,ab^3c^2d+3\,a^2b^2cd^2-a^3bd^3}+\frac{abd\ln\left(|dx+c|\right)}{b^3c^3d-3\,ab^2c^2d^2+3\,a^2bcd^3-a^3d^4}-\frac{b^2c^3-a^2cd^2+2\left(abcd^2-a^2d^3\right)x}{2\,(bc-ad)^3(dx+c)^2d}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/((b*x + a)*(d*x + c)^3),x, algorithm="giac")
```

```
[Out] -a*b^2*ln(abs(b*x + a))/(b^4*c^3 - 3*a*b^3*c^2*d + 3*a^2*b^2*c*d^
2 - a^3*b*d^3) + a*b*d*ln(abs(d*x + c))/(b^3*c^3*d - 3*a*b^2*c^2*
d^2 + 3*a^2*b*c*d^3 - a^3*d^4) - 1/2*(b^2*c^3 - a^2*c*d^2 + 2*(a*
b*c*d^2 - a^2*d^3)*x)/((b*c - a*d)^3*(d*x + c)^2*d)
```

3.225 $\int \frac{1}{(a+bx)(c+dx)^3} dx$

Optimal. Leaf size=82

$$\frac{b^2\log(a+bx)}{(bc-ad)^3}-\frac{b^2\log(c+dx)}{(bc-ad)^3}+\frac{b}{(c+dx)(bc-ad)^2}+\frac{1}{2(c+dx)^2(bc-ad)}$$

```
[Out] 1/(2*(b*c - a*d)*(c + d*x)^2) + b/((b*c - a*d)^2*(c + d*x)) + (b^
2*Log[a + b*x])/(b*c - a*d)^3 - (b^2*Log[c + d*x])/(b*c - a*d)^3
```

Rubi [A] time = 0.0992398, antiderivative size = 82, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}} = 0.067$

$$\frac{b^2\log(a+bx)}{(bc-ad)^3}-\frac{b^2\log(c+dx)}{(bc-ad)^3}+\frac{b}{(c+dx)(bc-ad)^2}+\frac{1}{2(c+dx)^2(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((a + b*x)*(c + d*x)^3),x]
```

```
[Out] 1/(2*(b*c - a*d)*(c + d*x)^2) + b/((b*c - a*d)^2*(c + d*x)) + (b^
2*Log[a + b*x])/(b*c - a*d)^3 - (b^2*Log[c + d*x])/(b*c - a*d)^3
```

Rubi in Sympy [A] time = 21.9053, size = 68, normalized size = 0.83

$$-\frac{b^2\log(a+bx)}{(ad-bc)^3}+\frac{b^2\log(c+dx)}{(ad-bc)^3}+\frac{b}{(c+dx)(ad-bc)^2}-\frac{1}{2(c+dx)^2(ad-bc)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(b*x+a)/(d*x+c)**3,x)
```

```
[Out] -b**2*log(a + b*x)/(a*d - b*c)**3 + b**2*log(c + d*x)/(a*d - b*c)
**3 + b/((c + d*x)*(a*d - b*c)**2) - 1/(2*(c + d*x)**2*(a*d - b*c
))
```

Mathematica [A] time = 0.0784022, size = 67, normalized size = 0.82

$$\frac{2b^2\log(a+bx)+\frac{(bc-ad)(-ad+3bc+2bdx)}{(c+dx)^2}-2b^2\log(c+dx)}{2(bc-ad)^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((a + b*x)*(c + d*x)^3),x]
```

```
[Out] (((b*c - a*d)*(3*b*c - a*d + 2*b*d*x))/(c + d*x)^2 + 2*b^2*Log[a
+ b*x] - 2*b^2*Log[c + d*x])/(2*(b*c - a*d)^3)
```

Maple [A] time = 0., size = 81, normalized size = 1.

$$-\frac{1}{(2ad-2bc)(dx+c)^2}+\frac{b^2\ln(dx+c)}{(ad-bc)^3}+\frac{b}{(ad-bc)^2(dx+c)}-\frac{b^2\ln(bx+a)}{(ad-bc)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(b*x+a)/(d*x+c)^3,x)
```

```
[Out] -1/2/(a*d-b*c)/(d*x+c)^2+b^2/(a*d-b*c)^3*ln(d*x+c)+b/(a*d-b*c)^2/
(d*x+c)-b^2/(a*d-b*c)^3*ln(b*x+a)
```

Maxima [A] time = 1.36019, size = 273, normalized size = 3.33

$$\frac{b^2 \log(bx+a)}{b^3c^3 - 3\,ab^2c^2d + 3\,a^2bcd^2 - a^3d^3} - \frac{b^2 \log(dx+c)}{b^3c^3 - 3\,ab^2c^2d + 3\,a^2bcd^2 - a^3d^3} + \frac{2\,bdx + 3\,bc - ad}{2\,(b^2c^4 - 2\,abc^3d + a^2c^2d^2 + (b^2c^2d^2 - 2\,abcd^3 + a^2d^4)x^2 + 2\,(b^2c^3d - 2\,abc^2d^2 + a^2cd^3)x)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)*(d*x + c)^3),x, algorithm="maxima")
```

```
[Out] b^2*log(b*x + a)/(b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d
^3) - b^2*log(d*x + c)/(b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 -
 a^3*d^3) + 1/2*(2*b*d*x + 3*b*c - a*d)/(b^2*c^4 - 2*a*b*c^3*d +
a^2*c^2*d^2 + (b^2*c^2*d^2 - 2*a*b*c*d^3 + a^2*d^4)*x^2 + 2*(b^2*
c^3*d - 2*a*b*c^2*d^2 + a^2*c*d^3)*x)
```

Fricas [A] time = 0.209757, size = 327, normalized size = 3.99

$$\frac{3\,b^2c^2 - 4\,abcd + a^2d^2 + 2\left(b^2cd - abd^2\right)x + 2\left(b^2d^2x^2 + 2\,b^2cdx + b^2c^2\right)\log(bx+a) - 2\left(b^2d^2x^2 + 2\,b^2cdx + b^2c^2\right)\log(dx}{2\,(b^3c^5 - 3\,ab^2c^4d + 3\,a^2bc^3d^2 - a^3c^2d^3 + (b^3c^3d^2 - 3\,ab^2c^2d^3 + 3\,a^2bcd^4 - a^3d^5)x^2 + 2\,(b^3c^4d - 3\,ab^2c^3d^2 + 3\,a^2bc^2d^3 - a^3c}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)*(d*x + c)^3),x, algorithm="fricas")
```

```
[Out] 1/2*(3*b^2*c^2 - 4*a*b*c*d + a^2*d^2 + 2*(b^2*c*d - a*b*d^2)*x +
2*(b^2*d^2*x^2 + 2*b^2*c*d*x + b^2*c^2)*log(b*x + a) - 2*(b^2*d^2
*x^2 + 2*b^2*c*d*x + b^2*c^2)*log(d*x + c))/(b^3*c^5 - 3*a*b^2*c^
4*d + 3*a^2*b*c^3*d^2 - a^3*c^2*d^3 + (b^3*c^3*d^2 - 3*a*b^2*c^2*
d^3 + 3*a^2*b*c*d^4 - a^3*d^5)*x^2 + 2*(b^3*c^4*d - 3*a*b^2*c^3*d
^2 + 3*a^2*b*c^2*d^3 - a^3*c*d^4)*x)
```

Sympy [A] time = 7.56587, size = 381, normalized size = 4.65

$$\frac{b^2 \log\left(x + \frac{-\frac{a^4b^2d^4}{(ad-bc)^3} + \frac{4a^3b^3cd^3}{(ad-bc)^3} - \frac{6a^2b^4c^2d^2}{(ad-bc)^3} + \frac{4ab^5c^3d}{(ad-bc)^3} + ab^2d - \frac{b^6c^4}{(ad-bc)^3} + b^3c}{2b^3d}\right)}{(ad-bc)^3} - \frac{b^2 \log\left(x + \frac{\frac{a^4b^2d^4}{(ad-bc)^3} - \frac{4a^3b^3cd^3}{(ad-bc)^3} + \frac{6a^2b^4c^2d^2}{(ad-bc)^3} - \frac{4ab^5c^3d}{(ad-bc)^3} + ab^2d + \frac{b^6c^4}{(ad-bc)^3} + b^3c}{2b^3d}\right)}{(ad-bc)^3} + \frac{-ad + 3bc + 2bdx}{2a^2c^2d^2 - 4abc^3d + 2b^2c^4 + x^2\left(2a^2d^4 - 4abcd^3 + 2b^2c^2d^2\right) + x\left(4a^2cd^3 - 8abc^2d^2 + 4b^2c^3d\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(b*x+a)/(d*x+c)**3,x)
```

```
[Out] b**2*log(x + (-a**4*b**2*d**4/(a*d - b*c)**3 + 4*a**3*b**3*c*d**3
/(a*d - b*c)**3 - 6*a**2*b**4*c**2*d**2/(a*d - b*c)**3 + 4*a*b**5
*c**3*d/(a*d - b*c)**3 + a*b**2*d - b**6*c**4/(a*d - b*c)**3 + b*
```

```
*3*c)/(2*b**3*d))/(a*d - b*c)**3 - b**2*log(x + (a**4*b**2*d**4/(
a*d - b*c)**3 - 4*a**3*b**3*c*d**3/(a*d - b*c)**3 + 6*a**2*b**4*c
**2*d**2/(a*d - b*c)**3 - 4*a*b**5*c**3*d/(a*d - b*c)**3 + a*b**2
*d + b**6*c**4/(a*d - b*c)**3 + b**3*c)/(2*b**3*d))/(a*d - b*c)**
3 + (-a*d + 3*b*c + 2*b*d*x)/(2*a**2*c**2*d**2 - 4*a*b*c**3*d + 2
*b**2*c**4 + x**2*(2*a**2*d**4 - 4*a*b*c*d**3 + 2*b**2*c**2*d**2)
 + x*(4*a**2*c*d**3 - 8*a*b*c**2*d**2 + 4*b**2*c**3*d))
```

GIAC/XCAS [A] time = 0.298156, size = 223, normalized size = 2.72

$$\frac{b^3 \ln\left(|bx+a|\right)}{b^4c^3 - 3\,ab^3c^2d + 3\,a^2b^2cd^2 - a^3bd^3} - \frac{b^2d \ln\left(|dx+c|\right)}{b^3c^3d - 3\,ab^2c^2d^2 + 3\,a^2bcd^3 - a^3d^4} + \frac{3\,b^2c^2 - 4\,abcd + a^2d^2 + 2\,\left(b^2cd - abd^2\right)x}{2\,(bc-ad)^3(dx+c)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)*(d*x + c)^3),x, algorithm="giac")
```

```
[Out] b^3*ln(abs(b*x + a))/(b^4*c^3 - 3*a*b^3*c^2*d + 3*a^2*b^2*c*d^2 -
 a^3*b*d^3) - b^2*d*ln(abs(d*x + c))/(b^3*c^3*d - 3*a*b^2*c^2*d^2
 + 3*a^2*b*c*d^3 - a^3*d^4) + 1/2*(3*b^2*c^2 - 4*a*b*c*d + a^2*d^
2 + 2*(b^2*c*d - a*b*d^2)*x)/((b*c - a*d)^3*(d*x + c)^2)
```

3.226 $\int \frac{1}{x(a+bx)(c+dx)^3} dx$

Optimal. Leaf size=134

$$\frac{d\left(a^2d^2-3abcd+3b^2c^2\right)\log(c+dx)}{c^3(bc-ad)^3}-\frac{b^3\log(a+bx)}{a(bc-ad)^3}-\frac{d(2bc-ad)}{c^2(c+dx)(bc-ad)^2}-\frac{d}{2c(c+dx)^2(bc-ad)}+\frac{\log(x)}{ac^3}$$

```
[Out] -d/(2*c*(b*c - a*d)*(c + d*x)^2) - (d*(2*b*c - a*d))/(c^2*(b*c -
a*d)^2*(c + d*x)) + Log[x]/(a*c^3) - (b^3*Log[a + b*x])/(a*(b*c -
 a*d)^3) + (d*(3*b^2*c^2 - 3*a*b*c*d + a^2*d^2)*Log[c + d*x])/(c^
3*(b*c - a*d)^3)
```

Rubi [A] time = 0.240977, antiderivative size = 134, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{d\left(a^2d^2-3abcd+3b^2c^2\right)\log(c+dx)}{c^3(bc-ad)^3}-\frac{b^3\log(a+bx)}{a(bc-ad)^3}-\frac{d(2bc-ad)}{c^2(c+dx)(bc-ad)^2}-\frac{d}{2c(c+dx)^2(bc-ad)}+\frac{\log(x)}{ac^3}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x*(a + b*x)*(c + d*x)^3),x]
```

```
[Out] -d/(2*c*(b*c - a*d)*(c + d*x)^2) - (d*(2*b*c - a*d))/(c^2*(b*c -
a*d)^2*(c + d*x)) + Log[x]/(a*c^3) - (b^3*Log[a + b*x])/(a*(b*c -
 a*d)^3) + (d*(3*b^2*c^2 - 3*a*b*c*d + a^2*d^2)*Log[c + d*x])/(c^
3*(b*c - a*d)^3)
```

Rubi in Sympy [A] time = 45.609, size = 117, normalized size = 0.87

$$\frac{d}{2c\left(c+dx\right)^2\left(ad-bc\right)}+\frac{d\left(ad-2bc\right)}{c^2\left(c+dx\right)\left(ad-bc\right)^2}-\frac{d\left(a^2d^2-3abcd+3b^2c^2\right)\log\left(c+dx\right)}{c^3\left(ad-bc\right)^3}+\frac{b^3\log\left(a+bx\right)}{a\left(ad-bc\right)^3}+\frac{\log\left(x\right)}{ac^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x/(b*x+a)/(d*x+c)**3,x)
```

```
[Out] d/(2*c*(c + d*x)**2*(a*d - b*c)) + d*(a*d - 2*b*c)/(c**2*(c + d*x
)*(a*d - b*c)**2) - d*(a**2*d**2 - 3*a*b*c*d + 3*b**2*c**2)*log(c
 + d*x)/(c**3*(a*d - b*c)**3) + b**3*log(a + b*x)/(a*(a*d - b*c)*
*3) + log(x)/(a*c**3)
```

Mathematica [A] time = 0.467649, size = 116, normalized size = 0.87

$$\frac{\frac{d\left(\frac{c(bc-ad)(bc(5c+4dx)-ad(3c+2dx))}{(c+dx)^2}-2\left(a^2d^2-3abcd+3b^2c^2\right)\log(c+dx)\right)}{c^3}+\frac{2b^3\log(a+bx)}{a}}{2(ad-bc)^3}+\frac{\log(x)}{ac^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(x*(a + b*x)*(c + d*x)^3),x]
```

```
[Out] Log[x]/(a*c^3) + ((2*b^3*Log[a + b*x])/a + (d*((c*(b*c - a*d)*(-(
a*d*(3*c + 2*d*x)) + b*c*(5*c + 4*d*x)))/(c + d*x)^2 - 2*(3*b^2*c
^2 - 3*a*b*c*d + a^2*d^2)*Log[c + d*x]))/c^3)/(2*(-(b*c) + a*d)^3
)
```

Maple [A] time = 0.018, size = 184, normalized size = 1.4

$$\frac{d}{2c(ad-bc)(dx+c)^{2}}+\frac{d^{2}a}{c^{2}(ad-bc)^{2}(dx+c)}-2\frac{bd}{c(ad-bc)^{2}(dx+c)}-\frac{d^{3}\ln(dx+c)a^{2}}{c^{3}(ad-bc)^{3}}+3\frac{d^{2}\ln(dx+c)ab}{c^{2}(ad-bc)^{3}}-3\frac{d\ln(dx+c)b^{2}}{c(ad-bc)^{3}}+\frac{\ln(x)}{ac^{3}}+\frac{b^{3}\ln(bx+a)}{(ad-bc)^{3}a}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/x/(b*x+a)/(d*x+c)^3,x)
```

```
[Out] 1/2*d/c/(a*d-b*c)/(d*x+c)^2+d^2/c^2/(a*d-b*c)^2/(d*x+c)*a-2*d/c/(
a*d-b*c)^2/(d*x+c)*b-d^3/c^3/(a*d-b*c)^3*ln(d*x+c)*a^2+3*d^2/c^2/
(a*d-b*c)^3*ln(d*x+c)*a*b-3*d/c/(a*d-b*c)^3*ln(d*x+c)*b^2+ln(x)/a
/c^3+b^3/(a*d-b*c)^3/a*ln(b*x+a)
```

Maxima [A] time = 1.36192, size = 359, normalized size = 2.68

$$-\frac{b^{3}\log(bx+a)}{ab^{3}c^{3}-3a^{2}b^{2}c^{2}d+3a^{3}bcd^{2}-a^{4}d^{3}}+\frac{\left(3b^{2}c^{2}d-3abcd^{2}+a^{2}d^{3}\right)\log(dx+c)}{b^{3}c^{6}-3ab^{2}c^{5}d+3a^{2}bc^{4}d^{2}-a^{3}c^{3}d^{3}}-\frac{5bc^{2}d-3acd^{2}+2\left(2bcd^{2}-ad^{3}\right)x}{2\left(b^{2}c^{6}-2abc^{5}d+a^{2}c^{4}d^{2}+(b^{2}c^{4}d^{2}-2abc^{3}d^{3}+a^{2}c^{2}d^{4})x^{2}+2(b^{2}c^{5}d-2abc^{4}d^{2}+a^{2}c^{3}d^{3})x\right)}+\frac{\log(x)}{ac^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)*(d*x + c)^3*x),x, algorithm="maxima")
```

```
[Out] -b^3*log(b*x + a)/(a*b^3*c^3 - 3*a^2*b^2*c^2*d + 3*a^3*b*c*d^2 -
a^4*d^3) + (3*b^2*c^2*d - 3*a*b*c*d^2 + a^2*d^3)*log(d*x + c)/(b^
3*c^6 - 3*a*b^2*c^5*d + 3*a^2*b*c^4*d^2 - a^3*c^3*d^3) - 1/2*(5*b
*c^2*d - 3*a*c*d^2 + 2*(2*b*c*d^2 - a*d^3)*x)/(b^2*c^6 - 2*a*b*c^
5*d + a^2*c^4*d^2 + (b^2*c^4*d^2 - 2*a*b*c^3*d^3 + a^2*c^2*d^4)*x
^2 + 2*(b^2*c^5*d - 2*a*b*c^4*d^2 + a^2*c^3*d^3)*x) + log(x)/(a*c
^3)
```

Fricas [A] time = 7.67893, size = 683, normalized size = 5.1

$$-\frac{5ab^{2}c^{4}d-8a^{2}bc^{3}d^{2}+3a^{3}c^{2}d^{3}+2\left(2ab^{2}c^{3}d^{2}-3a^{2}bc^{2}d^{3}+a^{3}cd^{4}\right)x+2\left(b^{3}c^{3}d^{2}x^{2}+2b^{3}c^{4}dx+b^{3}c^{5}\right)\log(bx+a)-2(3}{2(a}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)*(d*x + c)^3*x),x, algorithm="fricas")
```

```
[Out] -1/2*(5*a*b^2*c^4*d - 8*a^2*b*c^3*d^2 + 3*a^3*c^2*d^3 + 2*(2*a*b^
2*c^3*d^2 - 3*a^2*b*c^2*d^3 + a^3*c*d^4)*x + 2*(b^3*c^3*d^2*x^2 +
 2*b^3*c^4*d*x + b^3*c^5)*log(b*x + a) - 2*(3*a*b^2*c^4*d - 3*a^2
*b*c^3*d^2 + a^3*c^2*d^3 + (3*a*b^2*c^2*d^3 - 3*a^2*b*c*d^4 + a^3
*d^5)*x^2 + 2*(3*a*b^2*c^3*d^2 - 3*a^2*b*c^2*d^3 + a^3*c*d^4)*x)*
log(d*x + c) - 2*(b^3*c^5 - 3*a*b^2*c^4*d + 3*a^2*b*c^3*d^2 - a^3
*c^2*d^3 + (b^3*c^3*d^2 - 3*a*b^2*c^2*d^3 + 3*a^2*b*c*d^4 - a^3*d
^5)*x^2 + 2*(b^3*c^4*d - 3*a*b^2*c^3*d^2 + 3*a^2*b*c^2*d^3 - a^3*
```

```
c*d^4)*x)*log(x))/(a*b^3*c^8 - 3*a^2*b^2*c^7*d + 3*a^3*b*c^6*d^2
- a^4*c^5*d^3 + (a*b^3*c^6*d^2 - 3*a^2*b^2*c^5*d^3 + 3*a^3*b*c^4*
d^4 - a^4*c^3*d^5)*x^2 + 2*(a*b^3*c^7*d - 3*a^2*b^2*c^6*d^2 + 3*a
^3*b*c^5*d^3 - a^4*c^4*d^4)*x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/x/(b*x+a)/(d*x+c)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.278585, size = 316, normalized size = 2.36

$$-\frac{b^4 \ln\left(|bx+a|\right)}{ab^4c^3 - 3\,a^2b^3c^2d + 3\,a^3b^2cd^2 - a^4bd^3} + \frac{\left(3\,b^2c^2d^2 - 3\,abcd^3 + a^2d^4\right)\ln\left(|dx+c|\right)}{b^3c^6d - 3\,ab^2c^5d^2 + 3\,a^2bc^4d^3 - a^3c^3d^4} + \frac{\ln\left(|x|\right)}{ac^3} - \frac{5\,b^2c^4d - 8\,abc^3d^2 + 3\,a^2c^2d^3 + 2\left(2\,b^2c^3d^2 - 3\,abc^2d^3 + a^2cd^4\right)x}{2\,(bc-ad)^3(dx+c)^2c^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)*(d*x + c)^3*x),x, algorithm="giac")
```

```
[Out] -b^4*ln(abs(b*x + a))/(a*b^4*c^3 - 3*a^2*b^3*c^2*d + 3*a^3*b^2*c*
d^2 - a^4*b*d^3) + (3*b^2*c^2*d^2 - 3*a*b*c*d^3 + a^2*d^4)*ln(abs
(d*x + c))/(b^3*c^6*d - 3*a*b^2*c^5*d^2 + 3*a^2*b*c^4*d^3 - a^3*c
^3*d^4) + ln(abs(x))/(a*c^3) - 1/2*(5*b^2*c^4*d - 8*a*b*c^3*d^2 +
 3*a^2*c^2*d^3 + 2*(2*b^2*c^3*d^2 - 3*a*b*c^2*d^3 + a^2*c*d^4)*x)
/((b*c - a*d)^3*(d*x + c)^2*c^3)
```

3.227 $\int \frac{1}{x^2(a+bx)(c+dx)^3} \, dx$

Optimal. Leaf size=160

$$\frac{b^4 \log(a+bx)}{a^2(bc-ad)^3} - \frac{d^2 \left(3a^2d^2 - 8abcd + 6b^2c^2\right) \log(c+dx)}{c^4(bc-ad)^3} - \frac{\log(x)(3ad+bc)}{a^2c^4} + \frac{d^2(3bc-2ad)}{c^3(c+dx)(bc-ad)^2} + \frac{d^2}{2c^2(c+dx)^2(bc-ad)} - \frac{1}{ac^3x}$$

```
[Out] -(1/(a*c^3*x)) + d^2/(2*c^2*(b*c - a*d)*(c + d*x)^2) + (d^2*(3*b*
c - 2*a*d))/(c^3*(b*c - a*d)^2*(c + d*x)) - ((b*c + 3*a*d)*Log[x]
)/(a^2*c^4) + (b^4*Log[a + b*x])/(a^2*(b*c - a*d)^3) - (d^2*(6*b^
2*c^2 - 8*a*b*c*d + 3*a^2*d^2)*Log[c + d*x])/(c^4*(b*c - a*d)^3)
```

Rubi [A] time = 0.353016, antiderivative size = 160, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.056$

$$\frac{b^4 \log(a+bx)}{a^2(bc-ad)^3} - \frac{d^2 \left(3a^2d^2 - 8abcd + 6b^2c^2\right) \log(c+dx)}{c^4(bc-ad)^3} - \frac{\log(x)(3ad+bc)}{a^2c^4} + \frac{d^2(3bc-2ad)}{c^3(c+dx)(bc-ad)^2} + \frac{d^2}{2c^2(c+dx)^2(bc-ad)} - \frac{1}{ac^3x}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x^2*(a + b*x)*(c + d*x)^3),x]
```

```
[Out] -(1/(a*c^3*x)) + d^2/(2*c^2*(b*c - a*d)*(c + d*x)^2) + (d^2*(3*b*
c - 2*a*d))/(c^3*(b*c - a*d)^2*(c + d*x)) - ((b*c + 3*a*d)*Log[x]
)/(a^2*c^4) + (b^4*Log[a + b*x])/(a^2*(b*c - a*d)^3) - (d^2*(6*b^
2*c^2 - 8*a*b*c*d + 3*a^2*d^2)*Log[c + d*x])/(c^4*(b*c - a*d)^3)
```

Rubi in Sympy [A] time = 55.8341, size = 148, normalized size = 0.92

$$-\frac{d^2}{2c^2\left(c+dx\right)^2\left(ad-bc\right)} - \frac{d^2\left(2ad-3bc\right)}{c^3\left(c+dx\right)\left(ad-bc\right)^2} + \frac{d^2\left(3a^2d^2 - 8abcd + 6b^2c^2\right)\log\left(c+dx\right)}{c^4\left(ad-bc\right)^3} - \frac{1}{ac^3x} - \frac{b^4\log\left(a+bx\right)}{a^2\left(ad-bc\right)^3} - \frac{\left(3ad+bc\right)\log\left(x\right)}{a^2c^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x**2/(b*x+a)/(d*x+c)**3,x)
```

```
[Out] -d**2/(2*c**2*(c + d*x)**2*(a*d - b*c)) - d**2*(2*a*d - 3*b*c)/(c
**3*(c + d*x)*(a*d - b*c)**2) + d**2*(3*a**2*d**2 - 8*a*b*c*d + 6
*b**2*c**2)*log(c + d*x)/(c**4*(a*d - b*c)**3) - 1/(a*c**3*x) - b
**4*log(a + b*x)/(a**2*(a*d - b*c)**3) - (3*a*d + b*c)*log(x)/(a*
*2*c**4)
```

Mathematica [A] time = 0.281628, size = 163, normalized size = 1.02

$$-\frac{b^4 \log(a+bx)}{a^2(ad-bc)^3} - \frac{\left(3a^2d^4 - 8abcd^3 + 6b^2c^2d^2\right) \log(c+dx)}{c^4(bc-ad)^3} + \frac{\log(x)(-3ad-bc)}{a^2c^4} + \frac{d^2(3bc-2ad)}{c^3(c+dx)(bc-ad)^2} + \frac{d^2}{2c^2(c+dx)^2(bc-ad)} - \frac{1}{ac^3x}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(x^2*(a + b*x)*(c + d*x)^3),x]
```

```
[Out] -(1/(a*c^3*x)) + d^2/(2*c^2*(b*c - a*d)*(c + d*x)^2) + (d^2*(3*b*
c - 2*a*d))/(c^3*(b*c - a*d)^2*(c + d*x)) + ((-(b*c) - 3*a*d)*Log
[x])/(a^2*c^4) - (b^4*Log[a + b*x])/(a^2*(-(b*c) + a*d)^3) - ((6*
b^2*c^2*d^2 - 8*a*b*c*d^3 + 3*a^2*d^4)*Log[c + d*x])/(c^4*(b*c -
a*d)^3)
```

Maple [A] time = 0.021, size = 216, normalized size = 1.4

$$-\frac{d^2}{2\,c^2\,(ad-bc)\,(dx+c)^2}-2\,\frac{d^3a}{c^3\,(ad-bc)^2\,(dx+c)}+3\,\frac{d^2b}{c^2\,(ad-bc)^2\,(dx+c)}+3\,\frac{d^4\ln(dx+c)\,a^2}{c^4\,(ad-bc)^3}-8\,\frac{d^3\ln(dx+c)\,ab}{c^3\,(ad-bc)^3}+6\,\frac{d^2\ln(dx+c)\,b^2}{c^2\,(ad-bc)^3}-\frac{1}{ac^3x}-3\,\frac{\ln(x)\,d}{ac^4}-\frac{b\ln(x)}{a^2c^3}-\frac{b^4\ln(bx+a)}{(ad-bc)^3\,a^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/x^2/(b*x+a)/(d*x+c)^3,x)
```

```
[Out] -1/2*d^2/c^2/(a*d-b*c)/(d*x+c)^2-2*d^3/c^3/(a*d-b*c)^2/(d*x+c)*a+
3*d^2/c^2/(a*d-b*c)^2/(d*x+c)*b+3*d^4/c^4/(a*d-b*c)^3*ln(d*x+c)*a
^2-8*d^3/c^3/(a*d-b*c)^3*ln(d*x+c)*a*b+6*d^2/c^2/(a*d-b*c)^3*ln(d
*x+c)*b^2-1/a/c^3/x-3/a/c^4*ln(x)*d-1/a^2/c^3*ln(x)*b-b^4/(a*d-b*
c)^3/a^2*ln(b*x+a)
```

Maxima [A] time = 1.37048, size = 477, normalized size = 2.98

$$\frac{b^4\log(bx+a)}{a^2b^3c^3-3\,a^3b^2c^2d+3\,a^4bcd^2-a^5d^3}-\frac{\left(6\,b^2c^2d^2-8\,abcd^3+3\,a^2d^4\right)\log(dx+c)}{b^3c^7-3\,ab^2c^6d+3\,a^2bc^5d^2-a^3c^4d^3}-\frac{2\,b^2c^4-4\,abc^3d+2\,a^2c^2d^2+2\left(b^2c^2d^2-5\,abcd^3+3\,a^2d^4\right)x^2+\left(4\,b^2c^3d-15\,abc^2d^2+9\,a^2cd^3\right)x}{2\left((ab^2c^5d^2-2\,a^2bc^4d^3+a^3c^3d^4)x^3+2\,(ab^2c^6d-2\,a^2bc^5d^2+a^3c^4d^3)x^2+(ab^2c^7-2\,a^2bc^6d+a^3c^5d^2)x\right)}-\frac{(bc+3\,ad)\log(x)}{a^2c^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)*(d*x + c)^3*x^2),x, algorithm="maxima")
```

```
[Out] b^4*log(b*x + a)/(a^2*b^3*c^3 - 3*a^3*b^2*c^2*d + 3*a^4*b*c*d^2 -
 a^5*d^3) - (6*b^2*c^2*d^2 - 8*a*b*c*d^3 + 3*a^2*d^4)*log(d*x + c
)/(b^3*c^7 - 3*a*b^2*c^6*d + 3*a^2*b*c^5*d^2 - a^3*c^4*d^3) - 1/2
*(2*b^2*c^4 - 4*a*b*c^3*d + 2*a^2*c^2*d^2 + 2*(b^2*c^2*d^2 - 5*a*
b*c*d^3 + 3*a^2*d^4)*x^2 + (4*b^2*c^3*d - 15*a*b*c^2*d^2 + 9*a^2*
c*d^3)*x)/((a*b^2*c^5*d^2 - 2*a^2*b*c^4*d^3 + a^3*c^3*d^4)*x^3 +
2*(a*b^2*c^6*d - 2*a^2*b*c^5*d^2 + a^3*c^4*d^3)*x^2 + (a*b^2*c^7
- 2*a^2*b*c^6*d + a^3*c^5*d^2)*x) - (b*c + 3*a*d)*log(x)/(a^2*c^4
)
```

Fricas [A] time = 10.2643, size = 845, normalized size = 5.28

$$-\frac{2\,ab^3c^6-6\,a^2b^2c^5d+6\,a^3bc^4d^2-2\,a^4c^3d^3+2\left(ab^3c^4d^2-6\,a^2b^2c^3d^3+8\,a^3bc^2d^4-3\,a^4cd^5\right)x^2+\left(4\,ab^3c^5d-19\,a^2b^2c^4d^2\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)*(d*x + c)^3*x^2),x, algorithm="fricas")
```

```
[Out] -1/2*(2*a*b^3*c^6 - 6*a^2*b^2*c^5*d + 6*a^3*b*c^4*d^2 - 2*a^4*c^3
*d^3 + 2*(a*b^3*c^4*d^2 - 6*a^2*b^2*c^3*d^3 + 8*a^3*b*c^2*d^4 - 3
```

```
*a^4*c*d^5)*x^2 + (4*a*b^3*c^5*d - 19*a^2*b^2*c^4*d^2 + 24*a^3*b*
c^3*d^3 - 9*a^4*c^2*d^4)*x - 2*(b^4*c^4*d^2*x^3 + 2*b^4*c^5*d*x^2
 + b^4*c^6*x)*log(b*x + a) + 2*((6*a^2*b^2*c^2*d^4 - 8*a^3*b*c*d^
5 + 3*a^4*d^6)*x^3 + 2*(6*a^2*b^2*c^3*d^3 - 8*a^3*b*c^2*d^4 + 3*a
^4*c*d^5)*x^2 + (6*a^2*b^2*c^4*d^2 - 8*a^3*b*c^3*d^3 + 3*a^4*c^2*
d^4)*x)*log(d*x + c) + 2*((b^4*c^4*d^2 - 6*a^2*b^2*c^2*d^4 + 8*a^
3*b*c*d^5 - 3*a^4*d^6)*x^3 + 2*(b^4*c^5*d - 6*a^2*b^2*c^3*d^3 + 8
*a^3*b*c^2*d^4 - 3*a^4*c*d^5)*x^2 + (b^4*c^6 - 6*a^2*b^2*c^4*d^2
+ 8*a^3*b*c^3*d^3 - 3*a^4*c^2*d^4)*x)*log(x))/((a^2*b^3*c^7*d^2 -
 3*a^3*b^2*c^6*d^3 + 3*a^4*b*c^5*d^4 - a^5*c^4*d^5)*x^3 + 2*(a^2*
b^3*c^8*d - 3*a^3*b^2*c^7*d^2 + 3*a^4*b*c^6*d^3 - a^5*c^5*d^4)*x^
2 + (a^2*b^3*c^9 - 3*a^3*b^2*c^8*d + 3*a^4*b*c^7*d^2 - a^5*c^6*d^
3)*x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/x**2/(b*x+a)/(d*x+c)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.330652, size = 452, normalized size = 2.82

$$\frac{b^5\ln(|bx+a|)}{a^2b^4c^3 - 3\,a^3b^3c^2d + 3\,a^4b^2cd^2 - a^5bd^3} - \frac{\left(6\,b^2c^2d^3 - 8\,abcd^4 + 3\,a^2d^5\right)\ln(|dx+c|)}{b^3c^7d - 3\,ab^2c^6d^2 + 3\,a^2bc^5d^3 - a^3c^4d^4} - \frac{(bc + 3\,ad)\ln(|x|)}{a^2c^4} - \frac{2\,ab^3c^6 - 6\,a^2b^2c^5d + 6\,a^3bc^4d^2 - 2\,a^4c^3d^3 + 2\left(ab^3c^4d^2 - 6\,a^2b^2c^3d^3 + 8\,a^3bc^2d^4 - 3\,a^4cd^5\right)x^2 + \left(4\,ab^3c^5d - 19\,a^2b^2c^4d^2\right.}{2\,(bc-ad)^3(dx+c)^2a^2c^4x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)*(d*x + c)^3*x^2),x, algorithm="giac")
```

```
[Out] b^5*ln(abs(b*x + a))/(a^2*b^4*c^3 - 3*a^3*b^3*c^2*d + 3*a^4*b^2*c
*d^2 - a^5*b*d^3) - (6*b^2*c^2*d^3 - 8*a*b*c*d^4 + 3*a^2*d^5)*ln(
abs(d*x + c))/(b^3*c^7*d - 3*a*b^2*c^6*d^2 + 3*a^2*b*c^5*d^3 - a^
3*c^4*d^4) - (b*c + 3*a*d)*ln(abs(x))/(a^2*c^4) - 1/2*(2*a*b^3*c^
6 - 6*a^2*b^2*c^5*d + 6*a^3*b*c^4*d^2 - 2*a^4*c^3*d^3 + 2*(a*b^3*
c^4*d^2 - 6*a^2*b^2*c^3*d^3 + 8*a^3*b*c^2*d^4 - 3*a^4*c*d^5)*x^2
+ (4*a*b^3*c^5*d - 19*a^2*b^2*c^4*d^2 + 24*a^3*b*c^3*d^3 - 9*a^4*
c^2*d^4)*x)/((b*c - a*d)^3*(d*x + c)^2*a^2*c^4*x)
```

3.228 $\int \frac{x^4(c+dx)^2}{(a+bx)^2}\,dx$

Optimal. Leaf size=165

$$-\frac{a^4(bc-ad)^2}{b^7(a+bx)}-\frac{2a^3(2bc-3ad)(bc-ad)\log(a+bx)}{b^7}+\frac{a^2x(3bc-5ad)(bc-ad)}{b^6}-\frac{ax^2(bc-2ad)(bc-ad)}{b^5}+\frac{x^3(bc-3ad)(bc-ad)}{3b^4}+\frac{dx^4(bc-ad)}{2b^3}+\frac{d^2x^5}{5b^2}$$

```
[Out] (a^2*(3*b*c - 5*a*d)*(b*c - a*d)*x)/b^6 - (a*(b*c - 2*a*d)*(b*c -
 a*d)*x^2)/b^5 + ((b*c - 3*a*d)*(b*c - a*d)*x^3)/(3*b^4) + (d*(b*
c - a*d)*x^4)/(2*b^3) + (d^2*x^5)/(5*b^2) - (a^4*(b*c - a*d)^2)/(
b^7*(a + b*x)) - (2*a^3*(2*b*c - 3*a*d)*(b*c - a*d)*Log[a + b*x])
/b^7
```

Rubi [A] time = 0.424201, antiderivative size = 165, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{a^4(bc-ad)^2}{b^7(a+bx)}-\frac{2a^3(2bc-3ad)(bc-ad)\log(a+bx)}{b^7}+\frac{a^2x(3bc-5ad)(bc-ad)}{b^6}-\frac{ax^2(bc-2ad)(bc-ad)}{b^5}+\frac{x^3(bc-3ad)(bc-ad)}{3b^4}+\frac{dx^4(bc-ad)}{2b^3}+\frac{d^2x^5}{5b^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^4*(c + d*x)^2)/(a + b*x)^2,x]
```

```
[Out] (a^2*(3*b*c - 5*a*d)*(b*c - a*d)*x)/b^6 - (a*(b*c - 2*a*d)*(b*c -
 a*d)*x^2)/b^5 + ((b*c - 3*a*d)*(b*c - a*d)*x^3)/(3*b^4) + (d*(b*
c - a*d)*x^4)/(2*b^3) + (d^2*x^5)/(5*b^2) - (a^4*(b*c - a*d)^2)/(
b^7*(a + b*x)) - (2*a^3*(2*b*c - 3*a*d)*(b*c - a*d)*Log[a + b*x])
/b^7
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{a^4\,(ad-bc)^2}{b^7\,(a+bx)}-\frac{2a^3\,(ad-bc)\,(3ad-2bc)\log\,(a+bx)}{b^7}-\frac{2a\,(ad-bc)\,(2ad-bc)\int x\,dx}{b^5}+\frac{d^2x^5}{5b^2}-\frac{dx^4\,(ad-bc)}{2b^3}+\frac{x^3\,(ad-bc)\,(3ad-bc)}{3b^4}+\frac{(ad-bc)\,(5ad-3bc)\int a^2\,dx}{b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**4*(d*x+c)**2/(b*x+a)**2,x)
```

```
[Out] -a**4*(a*d - b*c)**2/(b**7*(a + b*x)) - 2*a**3*(a*d - b*c)*(3*a*d
 - 2*b*c)*log(a + b*x)/b**7 - 2*a*(a*d - b*c)*(2*a*d - b*c)*Integ
ral(x, x)/b**5 + d**2*x**5/(5*b**2) - d*x**4*(a*d - b*c)/(2*b**3)
 + x**3*(a*d - b*c)*(3*a*d - b*c)/(3*b**4) + (a*d - b*c)*(5*a*d -
 3*b*c)*Integral(a**2, x)/b**6
```

Mathematica [A] time = 0.187677, size = 183, normalized size = 1.11

$$\frac{-\frac{30a^4(bc-ad)^2}{a+bx}-30ab^2x^2\left(2a^2d^2-3abcd+b^2c^2\right)+30a^2bx\left(5a^2d^2-8abcd+3b^2c^2\right)+10b^3x^3\left(3a^2d^2-4abcd+b^2c^2\right)-60a}{30b^7}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^4*(c + d*x)^2)/(a + b*x)^2,x]
```

```
[Out] (30*a^2*b*(3*b^2*c^2 - 8*a*b*c*d + 5*a^2*d^2)*x - 30*a*b^2*(b^2*c
^2 - 3*a*b*c*d + 2*a^2*d^2)*x^2 + 10*b^3*(b^2*c^2 - 4*a*b*c*d + 3
*a^2*d^2)*x^3 + 15*b^4*d*(b*c - a*d)*x^4 + 6*b^5*d^2*x^5 - (30*a^
4*(b*c - a*d)^2)/(a + b*x) - 60*a^3*(2*b^2*c^2 - 5*a*b*c*d + 3*a^
2*d^2)*Log[a + b*x])/(30*b^7)
```

Maple [A] time = 0.014, size = 247, normalized size = 1.5

$$\frac{d^2x^5}{5\,b^2}-\frac{x^4ad^2}{2\,b^3}+\frac{x^4cd}{2\,b^2}+\frac{x^3a^2d^2}{b^4}-\frac{4\,x^3acd}{3\,b^3}+\frac{x^3c^2}{3\,b^2}-2\,\frac{x^2a^3d^2}{b^5}+3\,\frac{a^2x^2cd}{b^4}-\frac{x^2ac^2}{b^3}+5\,\frac{a^4d^2x}{b^6}-8\,\frac{a^3cdx}{b^5}+3\,\frac{a^2c^2x}{b^4}-6\,\frac{a^5\ln(bx+a)\,d^2}{b^7}+10\,\frac{a^4\ln(bx+a)\,cd}{b^6}-4\,\frac{a^3\ln(bx+a)\,c^2}{b^5}-\frac{a^6d^2}{(bx+a)\,b^7}+2\,\frac{a^5cd}{(bx+a)\,b^6}-\frac{a^4c^2}{(bx+a)\,b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^4*(d*x+c)^2/(b*x+a)^2,x)
```

```
[Out] 1/5*d^2*x^5/b^2-1/2/b^3*x^4*a*d^2+1/2/b^2*x^4*c*d+1/b^4*x^3*a^2*d
^2-4/3/b^3*x^3*a*c*d+1/3/b^2*x^3*c^2-2/b^5*x^2*a^3*d^2+3/b^4*x^2*
a^2*c*d-1/b^3*x^2*a*c^2+5/b^6*a^4*d^2*x-8/b^5*a^3*c*d*x+3/b^4*a^2
*c^2*x-6*a^5/b^7*ln(b*x+a)*d^2+10*a^4/b^6*ln(b*x+a)*c*d-4*a^3/b^5
*ln(b*x+a)*c^2-a^6/(b*x+a)/b^7*d^2+2*a^5/(b*x+a)/b^6*c*d-a^4/(b*x
+a)/b^5*c^2
```

Maxima [A] time = 1.33416, size = 290, normalized size = 1.76

$$-\frac{a^4b^2c^2-2\,a^5bcd+a^6d^2}{b^8x+ab^7}+\frac{6\,b^4d^2x^5+15\left(b^4cd-ab^3d^2\right)x^4+10\left(b^4c^2-4\,ab^3cd+3\,a^2b^2d^2\right)x^3-30\left(ab^3c^2-3\,a^2b^2cd+2\,a^3bd^2\right)x^2+30\left(3\,a^2b^2c^2-8\right.}{30\,b^6}-\frac{2\left(2\,a^3b^2c^2-5\,a^4bcd+3\,a^5d^2\right)\log(bx+a)}{b^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2*x^4/(b*x + a)^2,x, algorithm="maxima")
```

```
[Out] -(a^4*b^2*c^2 - 2*a^5*b*c*d + a^6*d^2)/(b^8*x + a*b^7) + 1/30*(6*
b^4*d^2*x^5 + 15*(b^4*c*d - a*b^3*d^2)*x^4 + 10*(b^4*c^2 - 4*a*b^
3*c*d + 3*a^2*b^2*d^2)*x^3 - 30*(a*b^3*c^2 - 3*a^2*b^2*c*d + 2*a^
3*b*d^2)*x^2 + 30*(3*a^2*b^2*c^2 - 8*a^3*b*c*d + 5*a^4*d^2)*x)/b^
6 - 2*(2*a^3*b^2*c^2 - 5*a^4*b*c*d + 3*a^5*d^2)*log(b*x + a)/b^7
```

Fricas [A] time = 0.214596, size = 386, normalized size = 2.34

$$\frac{6\,b^6d^2x^6-30\,a^4b^2c^2+60\,a^5bcd-30\,a^6d^2+3\left(5\,b^6cd-3\,ab^5d^2\right)x^5+5\left(2\,b^6c^2-5\,ab^5cd+3\,a^2b^4d^2\right)x^4-10\left(2\,ab^5c^2-5\,a^2\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2*x^4/(b*x + a)^2,x, algorithm="fricas")
```

```
[Out] 1/30*(6*b^6*d^2*x^6 - 30*a^4*b^2*c^2 + 60*a^5*b*c*d - 30*a^6*d^2
+ 3*(5*b^6*c*d - 3*a*b^5*d^2)*x^5 + 5*(2*b^6*c^2 - 5*a*b^5*c*d +
```

```
3*a^2*b^4*d^2)*x^4 - 10*(2*a*b^5*c^2 - 5*a^2*b^4*c*d + 3*a^3*b^3*
d^2)*x^3 + 30*(2*a^2*b^4*c^2 - 5*a^3*b^3*c*d + 3*a^4*b^2*d^2)*x^2
 + 30*(3*a^3*b^3*c^2 - 8*a^4*b^2*c*d + 5*a^5*b*d^2)*x - 60*(2*a^4
*b^2*c^2 - 5*a^5*b*c*d + 3*a^6*d^2 + (2*a^3*b^3*c^2 - 5*a^4*b^2*c
*d + 3*a^5*b*d^2)*x)*log(b*x + a))/(b^8*x + a*b^7)
```

Sympy [A] time = 5.63829, size = 201, normalized size = 1.22

$$-\frac{2a^3(ad-bc)(3ad-2bc)\log(a+bx)}{b^7}-\frac{a^6d^2-2a^5bcd+a^4b^2c^2}{ab^7+b^8x}+\frac{d^2x^5}{5b^2}-\frac{x^4\left(ad^2-bcd\right)}{2b^3}+\frac{x^3\left(3a^2d^2-4abcd+b^2c^2\right)}{3b^4}-\frac{x^2\left(2a^3d^2-3a^2bcd+ab^2c^2\right)}{b^5}+\frac{x\left(5a^4d^2-8a^3bcd+3a^2b^2c^2\right)}{b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**4*(d*x+c)**2/(b*x+a)**2,x)
```

```
[Out] -2*a**3*(a*d - b*c)*(3*a*d - 2*b*c)*log(a + b*x)/b**7 - (a**6*d**
2 - 2*a**5*b*c*d + a**4*b**2*c**2)/(a*b**7 + b**8*x) + d**2*x**5/
(5*b**2) - x**4*(a*d**2 - b*c*d)/(2*b**3) + x**3*(3*a**2*d**2 - 4
*a*b*c*d + b**2*c**2)/(3*b**4) - x**2*(2*a**3*d**2 - 3*a**2*b*c*d
 + a*b**2*c**2)/b**5 + x*(5*a**4*d**2 - 8*a**3*b*c*d + 3*a**2*b**
2*c**2)/b**6
```

GIAC/XCAS [A] time = 0.386624, size = 378, normalized size = 2.29

$$\frac{\left(6\,d^2+\frac{15\,(b^2cd-3\,abd^2)}{(bx+a)b}+\frac{10\,(b^4c^2-10\,ab^3cd+15\,a^2b^2d^2)}{(bx+a)^2b^2}-\frac{60\,(ab^5c^2-5\,a^2b^4cd+5\,a^3b^3d^2)}{(bx+a)^3b^3}+\frac{30\,(6\,a^2b^6c^2-20\,a^3b^5cd+15\,a^4b^4d^2)}{(bx+a)^4b^4}\right)(bx+a)^5}{30\,b^7}+\frac{2\left(2\,a^3b^2c^2-5\,a^4bcd+3\,a^5d^2\right)\ln\left(\frac{|bx+a|}{(bx+a)^2|b|}\right)}{b^7}-\frac{\frac{a^4b^7c^2}{bx+a}-\frac{2\,a^5b^6cd}{bx+a}+\frac{a^6b^5d^2}{bx+a}}{b^{12}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2*x^4/(b*x + a)^2,x, algorithm="giac")
```

```
[Out] 1/30*(6*d^2 + 15*(b^2*c*d - 3*a*b*d^2)/((b*x + a)*b) + 10*(b^4*c^
2 - 10*a*b^3*c*d + 15*a^2*b^2*d^2)/((b*x + a)^2*b^2) - 60*(a*b^5*
c^2 - 5*a^2*b^4*c*d + 5*a^3*b^3*d^2)/((b*x + a)^3*b^3) + 30*(6*a^
2*b^6*c^2 - 20*a^3*b^5*c*d + 15*a^4*b^4*d^2)/((b*x + a)^4*b^4))*(
b*x + a)^5/b^7 + 2*(2*a^3*b^2*c^2 - 5*a^4*b*c*d + 3*a^5*d^2)*ln(a
bs(b*x + a)/((b*x + a)^2*abs(b)))/b^7 - (a^4*b^7*c^2/(b*x + a) -
2*a^5*b^6*c*d/(b*x + a) + a^6*b^5*d^2/(b*x + a))/b^12
```

3.229 $\int \frac{x^3(c+dx)^2}{(a+bx)^2}\,dx$

Optimal. Leaf size=136

$$\frac{a^3(bc-ad)^2}{b^6(a+bx)}+\frac{a^2(3bc-5ad)(bc-ad)\log(a+bx)}{b^6}-\frac{2ax(bc-2ad)(bc-ad)}{b^5}+\frac{x^2(bc-3ad)(bc-ad)}{2b^4}+\frac{2dx^3(bc-ad)}{3b^3}+\frac{d^2x^4}{4b^2}$$

```
[Out] (-2*a*(b*c - 2*a*d)*(b*c - a*d)*x)/b^5 + ((b*c - 3*a*d)*(b*c - a*
d)*x^2)/(2*b^4) + (2*d*(b*c - a*d)*x^3)/(3*b^3) + (d^2*x^4)/(4*b^
2) + (a^3*(b*c - a*d)^2)/(b^6*(a + b*x)) + (a^2*(3*b*c - 5*a*d)*(
b*c - a*d)*Log[a + b*x])/b^6
```

Rubi [A] time = 0.310103, antiderivative size = 136, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{a^3(bc-ad)^2}{b^6(a+bx)}+\frac{a^2(3bc-5ad)(bc-ad)\log(a+bx)}{b^6}-\frac{2ax(bc-2ad)(bc-ad)}{b^5}+\frac{x^2(bc-3ad)(bc-ad)}{2b^4}+\frac{2dx^3(bc-ad)}{3b^3}+\frac{d^2x^4}{4b^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^3*(c + d*x)^2)/(a + b*x)^2,x]
```

```
[Out] (-2*a*(b*c - 2*a*d)*(b*c - a*d)*x)/b^5 + ((b*c - 3*a*d)*(b*c - a*
d)*x^2)/(2*b^4) + (2*d*(b*c - a*d)*x^3)/(3*b^3) + (d^2*x^4)/(4*b^
2) + (a^3*(b*c - a*d)^2)/(b^6*(a + b*x)) + (a^2*(3*b*c - 5*a*d)*(
b*c - a*d)*Log[a + b*x])/b^6
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{a^3\left(ad-bc\right)^2}{b^6\left(a+bx\right)}+\frac{a^2\left(ad-bc\right)\left(5ad-3bc\right)\log\left(a+bx\right)}{b^6}-\frac{2ax\left(ad-bc\right)\left(2ad-bc\right)}{b^5}+\frac{d^2x^4}{4b^2}-\frac{2dx^3\left(ad-bc\right)}{3b^3}+\frac{\left(ad-bc\right)\left(3ad-bc\right)\int x\,dx}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3*(d*x+c)**2/(b*x+a)**2,x)
```

```
[Out] a**3*(a*d - b*c)**2/(b**6*(a + b*x)) + a**2*(a*d - b*c)*(5*a*d -
3*b*c)*log(a + b*x)/b**6 - 2*a*x*(a*d - b*c)*(2*a*d - b*c)/b**5 +
 d**2*x**4/(4*b**2) - 2*d*x**3*(a*d - b*c)/(3*b**3) + (a*d - b*c)
*(3*a*d - b*c)*Integral(x, x)/b**4
```

Mathematica [A] time = 0.145507, size = 149, normalized size = 1.1

$$\frac{\frac{12a^3(bc-ad)^2}{a+bx}+6b^2x^2\left(3a^2d^2-4abcd+b^2c^2\right)-24abx\left(2a^2d^2-3abcd+b^2c^2\right)+12a^2\left(5a^2d^2-8abcd+3b^2c^2\right)\log(a+bx)+}{12b^6}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^3*(c + d*x)^2)/(a + b*x)^2,x]
```

```
[Out] (-24*a*b*(b^2*c^2 - 3*a*b*c*d + 2*a^2*d^2)*x + 6*b^2*(b^2*c^2 - 4
*a*b*c*d + 3*a^2*d^2)*x^2 + 8*b^3*d*(b*c - a*d)*x^3 + 3*b^4*d^2*x
^4 + (12*a^3*(b*c - a*d)^2)/(a + b*x) + 12*a^2*(3*b^2*c^2 - 8*a*b
*c*d + 5*a^2*d^2)*Log[a + b*x])/(12*b^6)
```

Maple [A] time = 0.013, size = 205, normalized size = 1.5

$$\frac{d^2x^4}{4\,b^2}-\frac{2\,x^3ad^2}{3\,b^3}+\frac{2\,cx^3d}{3\,b^2}+\frac{3\,a^2x^2d^2}{2\,b^4}-2\,\frac{x^2acd}{b^3}+\frac{x^2c^2}{2\,b^2}-4\,\frac{xa^3d^2}{b^5}+6\,\frac{a^2cdx}{b^4}-2\,\frac{ac^2x}{b^3}+5\,\frac{a^4\ln(bx+a)\,d^2}{b^6}-8\,\frac{a^3\ln(bx+a)\,cd}{b^5}+3\,\frac{a^2\ln(bx+a)\,c^2}{b^4}+\frac{a^5d^2}{(bx+a)\,b^6}-2\,\frac{a^4cd}{(bx+a)\,b^5}+\frac{a^3c^2}{(bx+a)\,b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^3*(d*x+c)^2/(b*x+a)^2,x)
```

```
[Out] 1/4*d^2*x^4/b^2-2/3/b^3*x^3*a*d^2+2/3/b^2*x^3*c*d+3/2/b^4*x^2*a^2
*d^2-2/b^3*x^2*a*c*d+1/2/b^2*x^2*c^2-4/b^5*x*a^3*d^2+6/b^4*a^2*c*
d*x-2/b^3*a*c^2*x+5*a^4/b^6*ln(b*x+a)*d^2-8*a^3/b^5*ln(b*x+a)*c*d
+3*a^2/b^4*ln(b*x+a)*c^2+a^5/(b*x+a)/b^6*d^2-2*a^4/(b*x+a)/b^5*c*
d+a^3/(b*x+a)/b^4*c^2
```

Maxima [A] time = 1.33708, size = 236, normalized size = 1.74

$$\frac{a^3b^2c^2-2\,a^4bcd+a^5d^2}{b^7x+ab^6}+\frac{3\,b^3d^2x^4+8\left(b^3cd-ab^2d^2\right)x^3+6\left(b^3c^2-4\,ab^2cd+3\,a^2bd^2\right)x^2-24\left(ab^2c^2-3\,a^2bcd+2\,a^3d^2\right)x}{12\,b^5}+\frac{\left(3\,a^2b^2c^2-8\,a^3bcd+5\,a^4d^2\right)\log(bx+a)}{b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2*x^3/(b*x + a)^2,x, algorithm="maxima")
```

```
[Out] (a^3*b^2*c^2 - 2*a^4*b*c*d + a^5*d^2)/(b^7*x + a*b^6) + 1/12*(3*b
^3*d^2*x^4 + 8*(b^3*c*d - a*b^2*d^2)*x^3 + 6*(b^3*c^2 - 4*a*b^2*c
*d + 3*a^2*b*d^2)*x^2 - 24*(a*b^2*c^2 - 3*a^2*b*c*d + 2*a^3*d^2)*
x)/b^5 + (3*a^2*b^2*c^2 - 8*a^3*b*c*d + 5*a^4*d^2)*log(b*x + a)/b
^6
```

Fricas [A] time = 0.214722, size = 332, normalized size = 2.44

$$\frac{3\,b^5d^2x^5+12\,a^3b^2c^2-24\,a^4bcd+12\,a^5d^2+\left(8\,b^5cd-5\,ab^4d^2\right)x^4+2\left(3\,b^5c^2-8\,ab^4cd+5\,a^2b^3d^2\right)x^3-6\left(3\,ab^4c^2-8\,a^2b^3c\right.}{1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2*x^3/(b*x + a)^2,x, algorithm="fricas")
```

```
[Out] 1/12*(3*b^5*d^2*x^5 + 12*a^3*b^2*c^2 - 24*a^4*b*c*d + 12*a^5*d^2
+ (8*b^5*c*d - 5*a*b^4*d^2)*x^4 + 2*(3*b^5*c^2 - 8*a*b^4*c*d + 5*
a^2*b^3*d^2)*x^3 - 6*(3*a*b^4*c^2 - 8*a^2*b^3*c*d + 5*a^3*b^2*d^2
)*x^2 - 24*(a^2*b^3*c^2 - 3*a^3*b^2*c*d + 2*a^4*b*d^2)*x + 12*(3*
a^3*b^2*c^2 - 8*a^4*b*c*d + 5*a^5*d^2 + (3*a^2*b^3*c^2 - 8*a^3*b^
2*c*d + 5*a^4*b*d^2)*x)*log(b*x + a))/(b^7*x + a*b^6)
```

Sympy [A] time = 5.08003, size = 167, normalized size = 1.23

$$\frac{a^2(ad-bc)(5ad-3bc)\log(a+bx)}{b^6}+\frac{a^5d^2-2a^4bcd+a^3b^2c^2}{ab^6+b^7x}+\frac{d^2x^4}{4b^2}-\frac{x^3(2ad^2-2bcd)}{3b^3}+\frac{x^2(3a^2d^2-4abcd+b^2c^2)}{2b^4}-\frac{x(4a^3d^2-6a^2bcd+2ab^2c^2)}{b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**3*(d*x+c)**2/(b*x+a)**2,x)
```

```
[Out] a**2*(a*d - b*c)*(5*a*d - 3*b*c)*log(a + b*x)/b**6 + (a**5*d**2 -
 2*a**4*b*c*d + a**3*b**2*c**2)/(a*b**6 + b**7*x) + d**2*x**4/(4*
b**2) - x**3*(2*a*d**2 - 2*b*c*d)/(3*b**3) + x**2*(3*a**2*d**2 -
4*a*b*c*d + b**2*c**2)/(2*b**4) - x*(4*a**3*d**2 - 6*a**2*b*c*d +
 2*a*b**2*c**2)/b**5
```

GIAC/XCAS [A] time = 0.267634, size = 319, normalized size = 2.35

$$\frac{\left(3\,d^2+\frac{4\,(2\,b^2cd-5\,abd^2)}{(bx+a)b}+\frac{6\,(b^4c^2-8\,ab^3cd+10\,a^2b^2d^2)}{(bx+a)^2b^2}-\frac{12\,(3\,ab^5c^2-12\,a^2b^4cd+10\,a^3b^3d^2)}{(bx+a)^3b^3}\right)(bx+a)^4}{12\,b^6}-\frac{(3\,a^2b^2c^2-8\,a^3bcd+5\,a^4d^2)\ln\left(\frac{|bx+a|}{(bx+a)^2|b|}\right)}{b^6}+\frac{\frac{a^3b^6c^2}{bx+a}-\frac{2\,a^4b^5cd}{bx+a}+\frac{a^5b^4d^2}{bx+a}}{b^{10}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2*x^3/(b*x + a)^2,x, algorithm="giac")
```

```
[Out] 1/12*(3*d^2 + 4*(2*b^2*c*d - 5*a*b*d^2)/((b*x + a)*b) + 6*(b^4*c^
2 - 8*a*b^3*c*d + 10*a^2*b^2*d^2)/((b*x + a)^2*b^2) - 12*(3*a*b^5
*c^2 - 12*a^2*b^4*c*d + 10*a^3*b^3*d^2)/((b*x + a)^3*b^3))*(b*x +
 a)^4/b^6 - (3*a^2*b^2*c^2 - 8*a^3*b*c*d + 5*a^4*d^2)*ln(abs(b*x
+ a)/((b*x + a)^2*abs(b)))/b^6 + (a^3*b^6*c^2/(b*x + a) - 2*a^4*b
^5*c*d/(b*x + a) + a^5*b^4*d^2/(b*x + a))/b^10
```

3.230 $\int \frac{x^2(c+dx)^2}{(a+bx)^2}\,dx$

Optimal. Leaf size=104

$$-\frac{a^2(bc-ad)^2}{b^5(a+bx)}-\frac{2a(bc-2ad)(bc-ad)\log(a+bx)}{b^5}+\frac{x(bc-3ad)(bc-ad)}{b^4}+\frac{dx^2(bc-ad)}{b^3}+\frac{d^2x^3}{3b^2}$$

```
[Out] ((b*c - 3*a*d)*(b*c - a*d)*x)/b^4 + (d*(b*c - a*d)*x^2)/b^3 + (d^
2*x^3)/(3*b^2) - (a^2*(b*c - a*d)^2)/(b^5*(a + b*x)) - (2*a*(b*c
- 2*a*d)*(b*c - a*d)*Log[a + b*x])/b^5
```

Rubi [A] time = 0.242164, antiderivative size = 104, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{a^2(bc-ad)^2}{b^5(a+bx)}-\frac{2a(bc-2ad)(bc-ad)\log(a+bx)}{b^5}+\frac{x(bc-3ad)(bc-ad)}{b^4}+\frac{dx^2(bc-ad)}{b^3}+\frac{d^2x^3}{3b^2}$$

Antiderivative was successfully verified.

```
[In] Int[(x^2*(c + d*x)^2)/(a + b*x)^2,x]
```

```
[Out] ((b*c - 3*a*d)*(b*c - a*d)*x)/b^4 + (d*(b*c - a*d)*x^2)/b^3 + (d^
2*x^3)/(3*b^2) - (a^2*(b*c - a*d)^2)/(b^5*(a + b*x)) - (2*a*(b*c
- 2*a*d)*(b*c - a*d)*Log[a + b*x])/b^5
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{a^2\left(ad-bc\right)^2}{b^5\left(a+bx\right)}-\frac{2a\left(ad-bc\right)\left(2ad-bc\right)\log\left(a+bx\right)}{b^5}+\left(ad-bc\right)\left(3ad-bc\right)\int\frac{1}{b^4}\,dx+\frac{d^2x^3}{3b^2}-\frac{2d\left(ad-bc\right)\int x\,dx}{b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(x**2*(d*x+c)**2/(b*x+a)**2,x)
```

```
[Out] -a**2*(a*d - b*c)**2/(b**5*(a + b*x)) - 2*a*(a*d - b*c)*(2*a*d -
b*c)*log(a + b*x)/b**5 + (a*d - b*c)*(3*a*d - b*c)*Integral(b**(-
4), x) + d**2*x**3/(3*b**2) - 2*d*(a*d - b*c)*Integral(x, x)/b**3
```

Mathematica [A] time = 0.14349, size = 114, normalized size = 1.1

$$\frac{3bx\left(3a^2d^2-4abcd+b^2c^2\right)-6a\left(2a^2d^2-3abcd+b^2c^2\right)\log(a+bx)-\frac{3a^2(bc-ad)^2}{a+bx}+3b^2dx^2(bc-ad)+b^3d^2x^3}{3b^5}$$

Antiderivative was successfully verified.

```
[In] Integrate[(x^2*(c + d*x)^2)/(a + b*x)^2,x]
```

```
[Out] (3*b*(b^2*c^2 - 4*a*b*c*d + 3*a^2*d^2)*x + 3*b^2*d*(b*c - a*d)*x^
2 + b^3*d^2*x^3 - (3*a^2*(b*c - a*d)^2)/(a + b*x) - 6*a*(b^2*c^2
- 3*a*b*c*d + 2*a^2*d^2)*Log[a + b*x])/(3*b^5)
```

Maple [A] time = 0.012, size = 164, normalized size = 1.6

$$\frac{d^2x^3}{3\,b^2}-\frac{x^2ad^2}{b^3}+\frac{cx^2d}{b^2}+3\,\frac{a^2d^2x}{b^4}-4\,\frac{acdx}{b^3}+\frac{c^2x}{b^2}-4\,\frac{a^3\ln(bx+a)\,d^2}{b^5}+6\,\frac{a^2\ln(bx+a)\,cd}{b^4}-2\,\frac{a\ln(bx+a)\,c^2}{b^3}-\frac{a^4d^2}{(bx+a)\,b^5}+2\,\frac{a^3cd}{(bx+a)\,b^4}-\frac{a^2c^2}{(bx+a)\,b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(d*x+c)^2/(b*x+a)^2,x)
```

```
[Out] 1/3*d^2*x^3/b^2-1/b^3*x^2*a*d^2+1/b^2*x^2*c*d+3/b^4*a^2*d^2*x-4/b
^3*a*c*d*x+1/b^2*c^2*x-4*a^3/b^5*ln(b*x+a)*d^2+6*a^2/b^4*ln(b*x+a
)*c*d-2*a/b^3*ln(b*x+a)*c^2-a^4/(b*x+a)/b^5*d^2+2*a^3/(b*x+a)/b^4
*c*d-a^2/(b*x+a)/b^3*c^2
```

Maxima [A] time = 1.35202, size = 186, normalized size = 1.79

$$-\frac{a^2b^2c^2-2\,a^3bcd+a^4d^2}{b^6x+ab^5}+\frac{b^2d^2x^3+3\left(b^2cd-abd^2\right)x^2+3\left(b^2c^2-4\,abcd+3\,a^2d^2\right)x}{3\,b^4}-\frac{2\left(ab^2c^2-3\,a^2bcd+2\,a^3d^2\right)\log(bx+a)}{b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2*x^2/(b*x + a)^2,x, algorithm="maxima")
```

```
[Out] -(a^2*b^2*c^2 - 2*a^3*b*c*d + a^4*d^2)/(b^6*x + a*b^5) + 1/3*(b^2
*d^2*x^3 + 3*(b^2*c*d - a*b*d^2)*x^2 + 3*(b^2*c^2 - 4*a*b*c*d + 3
*a^2*d^2)*x)/b^4 - 2*(a*b^2*c^2 - 3*a^2*b*c*d + 2*a^3*d^2)*log(b*
x + a)/b^5
```

Fricas [A] time = 0.216282, size = 273, normalized size = 2.62

$$\frac{b^4d^2x^4-3\,a^2b^2c^2+6\,a^3bcd-3\,a^4d^2+\left(3\,b^4cd-2\,ab^3d^2\right)x^3+3\left(b^4c^2-3\,ab^3cd+2\,a^2b^2d^2\right)x^2+3\left(ab^3c^2-4\,a^2b^2cd+3\,a^3\cdots\right.}{3\left(b^6x+ab^5\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2*x^2/(b*x + a)^2,x, algorithm="fricas")
```

```
[Out] 1/3*(b^4*d^2*x^4 - 3*a^2*b^2*c^2 + 6*a^3*b*c*d - 3*a^4*d^2 + (3*b
^4*c*d - 2*a*b^3*d^2)*x^3 + 3*(b^4*c^2 - 3*a*b^3*c*d + 2*a^2*b^2*
d^2)*x^2 + 3*(a*b^3*c^2 - 4*a^2*b^2*c*d + 3*a^3*b*d^2)*x - 6*(a^2
*b^2*c^2 - 3*a^3*b*c*d + 2*a^4*d^2 + (a*b^3*c^2 - 3*a^2*b^2*c*d +
 2*a^3*b*d^2)*x)*log(b*x + a))/(b^6*x + a*b^5)
```

Sympy [A] time = 4.79086, size = 122, normalized size = 1.17

$$-\frac{2a\left(ad-bc\right)\left(2ad-bc\right)\log\left(a+bx\right)}{b^5}-\frac{a^4d^2-2a^3bcd+a^2b^2c^2}{ab^5+b^6x}+\frac{d^2x^3}{3b^2}-\frac{x^2\left(ad^2-bcd\right)}{b^3}+\frac{x\left(3a^2d^2-4abcd+b^2c^2\right)}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(d*x+c)**2/(b*x+a)**2,x)
```

```
[Out] -2*a*(a*d - b*c)*(2*a*d - b*c)*log(a + b*x)/b**5 - (a**4*d**2 - 2
*a**3*b*c*d + a**2*b**2*c**2)/(a*b**5 + b**6*x) + d**2*x**3/(3*b*
*2) - x**2*(a*d**2 - b*c*d)/b**3 + x*(3*a**2*d**2 - 4*a*b*c*d + b
**2*c**2)/b**4
```

GIAC/XCAS [A] time = 0.282545, size = 254, normalized size = 2.44

$$\frac{\left(d^2 + \frac{3\,\left(b^2cd - 2\,abd^2\right)}{(bx+a)b} + \frac{3\,\left(b^4c^2 - 6\,ab^3cd + 6\,a^2b^2d^2\right)}{(bx+a)^2b^2}\right)(bx+a)^3}{3\,b^5} + \frac{2\,\left(ab^2c^2 - 3\,a^2bcd + 2\,a^3d^2\right)\ln\left(\frac{|bx+a|}{(bx+a)^2|b|}\right)}{b^5} - \frac{\frac{a^2b^5c^2}{bx+a} - \frac{2\,a^3b^4cd}{bx+a} + \frac{a^4b^3d^2}{bx+a}}{b^8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2*x^2/(b*x + a)^2,x, algorithm="giac")
```

```
[Out] 1/3*(d^2 + 3*(b^2*c*d - 2*a*b*d^2)/((b*x + a)*b) + 3*(b^4*c^2 - 6
*a*b^3*c*d + 6*a^2*b^2*d^2)/((b*x + a)^2*b^2))*(b*x + a)^3/b^5 +
2*(a*b^2*c^2 - 3*a^2*b*c*d + 2*a^3*d^2)*ln(abs(b*x + a)/((b*x + a
)^2*abs(b)))/b^5 - (a^2*b^5*c^2/(b*x + a) - 2*a^3*b^4*c*d/(b*x +
a) + a^4*b^3*d^2/(b*x + a))/b^8
```

3.231 $\int \frac{x(c+dx)^2}{(a+bx)^2} dx$

Optimal. Leaf size=77

$$\frac{a(bc-ad)^2}{b^4(a+bx)}+\frac{(bc-3ad)(bc-ad)\log(a+bx)}{b^4}+\frac{2dx(bc-ad)}{b^3}+\frac{d^2x^2}{2b^2}$$

```
[Out] (2*d*(b*c - a*d)*x)/b^3 + (d^2*x^2)/(2*b^2) + (a*(b*c - a*d)^2)/(
b^4*(a + b*x)) + ((b*c - 3*a*d)*(b*c - a*d)*Log[a + b*x])/b^4
```

Rubi [A] time = 0.15119, antiderivative size = 77, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}} = 0.062$

$$\frac{a(bc-ad)^2}{b^4(a+bx)}+\frac{(bc-3ad)(bc-ad)\log(a+bx)}{b^4}+\frac{2dx(bc-ad)}{b^3}+\frac{d^2x^2}{2b^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(x*(c + d*x)^2)/(a + b*x)^2,x]
```

```
[Out] (2*d*(b*c - a*d)*x)/b^3 + (d^2*x^2)/(2*b^2) + (a*(b*c - a*d)^2)/(
b^4*(a + b*x)) + ((b*c - 3*a*d)*(b*c - a*d)*Log[a + b*x])/b^4
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{a\left(ad-bc\right)^2}{b^4\left(a+bx\right)}+\frac{d^2\int x\,dx}{b^2}-\frac{2dx\left(ad-bc\right)}{b^3}+\frac{\left(ad-bc\right)\left(3ad-bc\right)\log\left(a+bx\right)}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(d*x+c)**2/(b*x+a)**2,x)
```

```
[Out] a*(a*d - b*c)**2/(b**4*(a + b*x)) + d**2*Integral(x, x)/b**2 - 2*
d*x*(a*d - b*c)/b**3 + (a*d - b*c)*(3*a*d - b*c)*log(a + b*x)/b**
4
```

Mathematica [A] time = 0.0847245, size = 81, normalized size = 1.05

$$\frac{2\left(3a^2d^2-4abcd+b^2c^2\right)\log(a+bx)+\frac{2a(bc-ad)^2}{a+bx}+4bdx(bc-ad)+b^2d^2x^2}{2b^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x*(c + d*x)^2)/(a + b*x)^2,x]
```

```
[Out] (4*b*d*(b*c - a*d)*x + b^2*d^2*x^2 + (2*a*(b*c - a*d)^2)/(a + b*x
) + 2*(b^2*c^2 - 4*a*b*c*d + 3*a^2*d^2)*Log[a + b*x])/(2*b^4)
```

Maple [A] time = 0.011, size = 124, normalized size = 1.6

$$\frac{d^2x^2}{2\,b^2}-2\,\frac{d^2ax}{b^3}+2\,\frac{dxc}{b^2}+3\,\frac{\ln\left(bx+a\right)a^2d^2}{b^4}-4\,\frac{\ln\left(bx+a\right)acd}{b^3}+\frac{\ln\left(bx+a\right)c^2}{b^2}+\frac{a^3d^2}{\left(bx+a\right)b^4}-2\,\frac{a^2cd}{\left(bx+a\right)b^3}+\frac{ac^2}{\left(bx+a\right)b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int(x*(d*x+c)^2/(b*x+a)^2,x)
```

```
[Out] 1/2*d^2*x^2/b^2-2*d^2/b^3*a*x+2*d/b^2*x*c+3/b^4*ln(b*x+a)*a^2*d^2
-4/b^3*ln(b*x+a)*a*c*d+1/b^2*ln(b*x+a)*c^2+a^3/(b*x+a)/b^4*d^2-2*
a^2/(b*x+a)/b^3*c*d+a/(b*x+a)/b^2*c^2
```

Maxima [A]   time = 1.34898, size = 134, normalized size = 1.74

$$\frac{ab^2c^2 - 2\,a^2bcd + a^3d^2}{b^5x + ab^4} + \frac{bd^2x^2 + 4\left(bcd - ad^2\right)x}{2\,b^3} + \frac{\left(b^2c^2 - 4\,abcd + 3\,a^2d^2\right)\log\left(bx + a\right)}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((d*x + c)^2*x/(b*x + a)^2,x, algorithm="maxima")
```

```
[Out] (a*b^2*c^2 - 2*a^2*b*c*d + a^3*d^2)/(b^5*x + a*b^4) + 1/2*(b*d^2*
x^2 + 4*(b*c*d - a*d^2)*x)/b^3 + (b^2*c^2 - 4*a*b*c*d + 3*a^2*d^2
)*log(b*x + a)/b^4
```

Fricas [A]   time = 0.206083, size = 205, normalized size = 2.66

$$\frac{b^3d^2x^3 + 2\,ab^2c^2 - 4\,a^2bcd + 2\,a^3d^2 + \left(4\,b^3cd - 3\,ab^2d^2\right)x^2 + 4\left(ab^2cd - a^2bd^2\right)x + 2\left(ab^2c^2 - 4\,a^2bcd + 3\,a^3d^2 + \left(b^3c^2 - 4\right.\right.}{2\left(b^5x + ab^4\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((d*x + c)^2*x/(b*x + a)^2,x, algorithm="fricas")
```

```
[Out] 1/2*(b^3*d^2*x^3 + 2*a*b^2*c^2 - 4*a^2*b*c*d + 2*a^3*d^2 + (4*b^3
*c*d - 3*a*b^2*d^2)*x^2 + 4*(a*b^2*c*d - a^2*b*d^2)*x + 2*(a*b^2*
c^2 - 4*a^2*b*c*d + 3*a^3*d^2 + (b^3*c^2 - 4*a*b^2*c*d + 3*a^2*b*
d^2)*x)*log(b*x + a))/(b^5*x + a*b^4)
```

Sympy [A]   time = 4.05784, size = 90, normalized size = 1.17

$$\frac{a^3d^2 - 2a^2bcd + ab^2c^2}{ab^4 + b^5x} + \frac{d^2x^2}{2b^2} - \frac{x\left(2ad^2 - 2bcd\right)}{b^3} + \frac{(ad - bc)(3ad - bc)\log\left(a + bx\right)}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(x*(d*x+c)**2/(b*x+a)**2,x)
```

```
[Out] (a**3*d**2 - 2*a**2*b*c*d + a*b**2*c**2)/(a*b**4 + b**5*x) + d**2
*x**2/(2*b**2) - x*(2*a*d**2 - 2*b*c*d)/b**3 + (a*d - b*c)*(3*a*d
 - b*c)*log(a + b*x)/b**4
```

GIAC/XCAS [A]   time = 0.266182, size = 201, normalized size = 2.61

$$\frac{\frac{\left(d^2 + \frac{2\left(2\,b^2cd - 3\,abd^2\right)}{(bx+a)b}\right)(bx+a)^2}{b^3} - \frac{2\left(b^2c^2 - 4\,abcd + 3\,a^2d^2\right)\ln\left(\frac{|bx+a|}{(bx+a)^2|b|}\right)}{b^3} + \frac{2\left(\frac{ab^4c^2}{bx+a} - \frac{2\,a^2b^3cd}{bx+a} + \frac{a^3b^2d^2}{bx+a}\right)}{b^5}}{2\,b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2*x/(b*x + a)^2,x, algorithm="giac")
```

```
[Out] 1/2*((d^2 + 2*(2*b^2*c*d - 3*a*b*d^2)/((b*x + a)*b))*(b*x + a)^2/
b^3 - 2*(b^2*c^2 - 4*a*b*c*d + 3*a^2*d^2)*ln(abs(b*x + a)/((b*x +
 a)^2*abs(b)))/b^3 + 2*(a*b^4*c^2/(b*x + a) - 2*a^2*b^3*c*d/(b*x
+ a) + a^3*b^2*d^2/(b*x + a))/b^5)/b
```

3.232 $\int \frac{(c+dx)^2}{(a+bx)^2} dx$

Optimal. Leaf size=51

$$-\frac{(bc-ad)^2}{b^3(a+bx)}+\frac{2d(bc-ad)\log(a+bx)}{b^3}+\frac{d^2x}{b^2}$$

```
[Out] (d^2*x)/b^2 - (b*c - a*d)^2/(b^3*(a + b*x)) + (2*d*(b*c - a*d)*Lo
g[a + b*x])/b^3
```

Rubi [A] time = 0.0808779, antiderivative size = 51, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.067

$$-\frac{(bc-ad)^2}{b^3(a+bx)}+\frac{2d(bc-ad)\log(a+bx)}{b^3}+\frac{d^2x}{b^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^2/(a + b*x)^2,x]
```

```
[Out] (d^2*x)/b^2 - (b*c - a*d)^2/(b^3*(a + b*x)) + (2*d*(b*c - a*d)*Lo
g[a + b*x])/b^3
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$d^2\int \frac{1}{b^2}\,dx-\frac{2d\,(ad-bc)\log\,(a+bx)}{b^3}-\frac{(ad-bc)^2}{b^3\,(a+bx)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**2/(b*x+a)**2,x)
```

```
[Out] d**2*Integral(b**(-2), x) - 2*d*(a*d - b*c)*log(a + b*x)/b**3 - (
a*d - b*c)**2/(b**3*(a + b*x))
```

Mathematica [A] time = 0.0612902, size = 47, normalized size = 0.92

$$\frac{-\frac{(bc-ad)^2}{a+bx}+2d(bc-ad)\log(a+bx)+bd^2x}{b^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^2/(a + b*x)^2,x]
```

```
[Out] (b*d^2*x - (b*c - a*d)^2/(a + b*x) + 2*d*(b*c - a*d)*Log[a + b*x]
)/b^3
```

Maple [A] time = 0.003, size = 86, normalized size = 1.7

$$\frac{d^2x}{b^2}-2\,\frac{d^2\ln(bx+a)\,a}{b^3}+2\,\frac{d\ln(bx+a)\,c}{b^2}-\frac{a^2d^2}{(bx+a)\,b^3}+2\,\frac{acd}{(bx+a)\,b^2}-\frac{c^2}{(bx+a)\,b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^2/(b*x+a)^2,x)
```

```
[Out] d^2*x/b^2-2/b^3*d^2*ln(b*x+a)*a+2/b^2*d*ln(b*x+a)*c-1/(b*x+a)/b^3
*a^2*d^2+2/(b*x+a)/b^2*a*c*d-1/(b*x+a)/b*c^2
```

Maxima [A] time = 1.34639, size = 90, normalized size = 1.76

$$\frac{d^2x}{b^2} - \frac{b^2c^2 - 2\,abcd + a^2d^2}{b^4x + ab^3} + \frac{2\,\left(bcd - ad^2\right)\log\left(bx + a\right)}{b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2/(b*x + a)^2,x, algorithm="maxima")
```

```
[Out] d^2*x/b^2 - (b^2*c^2 - 2*a*b*c*d + a^2*d^2)/(b^4*x + a*b^3) + 2*(
b*c*d - a*d^2)*log(b*x + a)/b^3
```

Fricas [A] time = 0.201329, size = 124, normalized size = 2.43

$$\frac{b^2d^2x^2 + abd^2x - b^2c^2 + 2\,abcd - a^2d^2 + 2\,\left(abcd - a^2d^2 + \left(b^2cd - abd^2\right)x\right)\log\left(bx + a\right)}{b^4x + ab^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2/(b*x + a)^2,x, algorithm="fricas")
```

```
[Out] (b^2*d^2*x^2 + a*b*d^2*x - b^2*c^2 + 2*a*b*c*d - a^2*d^2 + 2*(a*b
*c*d - a^2*d^2 + (b^2*c*d - a*b*d^2)*x)*log(b*x + a))/(b^4*x + a*
b^3)
```

Sympy [A] time = 3.42151, size = 60, normalized size = 1.18

$$-\frac{a^2d^2 - 2abcd + b^2c^2}{ab^3 + b^4x} + \frac{d^2x}{b^2} - \frac{2d\left(ad - bc\right)\log\left(a + bx\right)}{b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**2/(b*x+a)**2,x)
```

```
[Out] -(a**2*d**2 - 2*a*b*c*d + b**2*c**2)/(a*b**3 + b**4*x) + d**2*x/b
**2 - 2*d*(a*d - b*c)*log(a + b*x)/b**3
```

GIAC/XCAS [A] time = 0.301158, size = 132, normalized size = 2.59

$$\frac{(bx + a)d^2}{b^3} - \frac{2\,\left(bcd - ad^2\right)\ln\left(\frac{|bx+a|}{(bx+a)^2|b|}\right)}{b^3} - \frac{\frac{b^3c^2}{bx+a} - \frac{2\,ab^2cd}{bx+a} + \frac{a^2bd^2}{bx+a}}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2/(b*x + a)^2,x, algorithm="giac")
```

```
[Out] (b*x + a)*d^2/b^3 - 2*(b*c*d - a*d^2)*ln(abs(b*x + a)/((b*x + a)^
2*abs(b)))/b^3 - (b^3*c^2/(b*x + a) - 2*a*b^2*c*d/(b*x + a) + a^2
*b*d^2/(b*x + a))/b^4
```

3.233 $\int \frac{(c+dx)^2}{x(a+bx)^2}\,dx$

Optimal. Leaf size=58

$$-\left(\frac{c^2}{a^2}-\frac{d^2}{b^2}\right)\log(a+bx)+\frac{c^2\log(x)}{a^2}+\frac{(bc-ad)^2}{ab^2(a+bx)}$$

```
[Out] (b*c - a*d)^2/(a*b^2*(a + b*x)) + (c^2*Log[x])/a^2 - (c^2/a^2 - d
^2/b^2)*Log[a + b*x]
```

Rubi [A] time = 0.100585, antiderivative size = 58, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\left(\frac{c^2}{a^2}-\frac{d^2}{b^2}\right)\log(a+bx)+\frac{c^2\log(x)}{a^2}+\frac{(bc-ad)^2}{ab^2(a+bx)}$$

Antiderivative was successfully verified.

```
[In] Int[(c + d*x)^2/(x*(a + b*x)^2),x]
```

```
[Out] (b*c - a*d)^2/(a*b^2*(a + b*x)) + (c^2*Log[x])/a^2 - (c^2/a^2 - d
^2/b^2)*Log[a + b*x]
```

Rubi in Sympy [A] time = 17.6581, size = 48, normalized size = 0.83

$$-\left(-\frac{d^2}{b^2}+\frac{c^2}{a^2}\right)\log(a+bx)+\frac{(ad-bc)^2}{ab^2(a+bx)}+\frac{c^2\log(x)}{a^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((d*x+c)**2/x/(b*x+a)**2,x)
```

```
[Out] -(-d**2/b**2 + c**2/a**2)*log(a + b*x) + (a*d - b*c)**2/(a*b**2*(
a + b*x)) + c**2*log(x)/a**2
```

Mathematica [A] time = 0.0844928, size = 60, normalized size = 1.03

$$\frac{\frac{(ad-bc)((a+bx)(ad+bc)\log(a+bx)+a(ad-bc))}{b^2(a+bx)}+c^2\log(x)}{a^2}$$

Antiderivative was successfully verified.

```
[In] Integrate[(c + d*x)^2/(x*(a + b*x)^2),x]
```

```
[Out] (c^2*Log[x] + ((-(b*c) + a*d)*(a*(-(b*c) + a*d) + (b*c + a*d)*(a
+ b*x)*Log[a + b*x]))/(b^2*(a + b*x)))/a^2
```

Maple [A] time = 0.013, size = 81, normalized size = 1.4

$$\frac{c^2\ln(x)}{a^2}+\frac{\ln(bx+a)\,d^2}{b^2}-\frac{\ln(bx+a)\,c^2}{a^2}+\frac{d^2a}{b^2(bx+a)}-2\,\frac{cd}{b(bx+a)}+\frac{c^2}{a(bx+a)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^2/x/(b*x+a)^2,x)
```

```
[Out] c^2*ln(x)/a^2+1/b^2*ln(b*x+a)*d^2-1/a^2*ln(b*x+a)*c^2+a/b^2/(b*x+
a)*d^2-2/b/(b*x+a)*c*d+1/a/(b*x+a)*c^2
```

Maxima [A] time = 1.35013, size = 105, normalized size = 1.81

$$\frac{c^2 \log(x)}{a^2} + \frac{b^2c^2 - 2\,abcd + a^2d^2}{ab^3x + a^2b^2} - \frac{\left(b^2c^2 - a^2d^2\right)\log(bx+a)}{a^2b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2/((b*x + a)^2*x),x, algorithm="maxima")
```

```
[Out] c^2*log(x)/a^2 + (b^2*c^2 - 2*a*b*c*d + a^2*d^2)/(a*b^3*x + a^2*b
^2) - (b^2*c^2 - a^2*d^2)*log(b*x + a)/(a^2*b^2)
```

Fricas [A] time = 0.212731, size = 144, normalized size = 2.48

$$\frac{ab^2c^2 - 2\,a^2bcd + a^3d^2 - \left(ab^2c^2 - a^3d^2 + \left(b^3c^2 - a^2bd^2\right)x\right)\log(bx+a) + \left(b^3c^2x + ab^2c^2\right)\log(x)}{a^2b^3x + a^3b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2/((b*x + a)^2*x),x, algorithm="fricas")
```

```
[Out] (a*b^2*c^2 - 2*a^2*b*c*d + a^3*d^2 - (a*b^2*c^2 - a^3*d^2 + (b^3*
c^2 - a^2*b*d^2)*x)*log(b*x + a) + (b^3*c^2*x + a*b^2*c^2)*log(x)
)/(a^2*b^3*x + a^3*b^2)
```

Sympy [A] time = 5.53214, size = 107, normalized size = 1.84

$$\frac{a^2d^2 - 2abcd + b^2c^2}{a^2b^2 + ab^3x} + \frac{c^2\log(x)}{a^2} + \frac{(ad-bc)(ad+bc)\log\left(x + \frac{-abc^2 + \frac{a(ad-bc)(ad+bc)}{b}}{a^2d^2 - 2b^2c^2}\right)}{a^2b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**2/x/(b*x+a)**2,x)
```

```
[Out] (a**2*d**2 - 2*a*b*c*d + b**2*c**2)/(a**2*b**2 + a*b**3*x) + c**2
*log(x)/a**2 + (a*d - b*c)*(a*d + b*c)*log(x + (-a*b*c**2 + a*(a*
d - b*c)*(a*d + b*c)/b)/(a**2*d**2 - 2*b**2*c**2))/(a**2*b**2)
```

GIAC/XCAS [A] time = 0.282531, size = 146, normalized size = 2.52

$$-b\left(\frac{d^2\ln\left(\frac{|bx+a|}{(bx+a)^2|b|}\right)}{b^3} - \frac{c^2\ln\left(\left|-\frac{a}{bx+a}+1\right|\right)}{a^2b} - \frac{\frac{b^3c^2}{bx+a} - \frac{2\,ab^2cd}{bx+a} + \frac{a^2bd^2}{bx+a}}{ab^4}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2/((b*x + a)^2*x),x, algorithm="giac")
```

```
[Out] -b*(d^2*ln(abs(b*x + a)/((b*x + a)^2*abs(b)))/b^3 - c^2*ln(abs(-a
/(b*x + a) + 1))/(a^2*b) - (b^3*c^2/(b*x + a) - 2*a*b^2*c*d/(b*x
+ a) + a^2*b*d^2/(b*x + a))/(a*b^4))
```

3.234 $\int \frac{(c+dx)^2}{x^2(a+bx)^2}\,dx$

Optimal. Leaf size=73

$$-\frac{2c\log(x)(bc-ad)}{a^3}+\frac{2c(bc-ad)\log(a+bx)}{a^3}-\frac{(bc-ad)^2}{a^2b(a+bx)}-\frac{c^2}{a^2x}$$

```
[Out] -(c^2/(a^2*x)) - (b*c - a*d)^2/(a^2*b*(a + b*x)) - (2*c*(b*c - a*
d)*Log[x])/a^3 + (2*c*(b*c - a*d)*Log[a + b*x])/a^3
```

Rubi [A] time = 0.127077, antiderivative size = 73, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{2c\log(x)(bc-ad)}{a^3}+\frac{2c(bc-ad)\log(a+bx)}{a^3}-\frac{(bc-ad)^2}{a^2b(a+bx)}-\frac{c^2}{a^2x}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^2/(x^2*(a + b*x)^2),x]
```

```
[Out] -(c^2/(a^2*x)) - (b*c - a*d)^2/(a^2*b*(a + b*x)) - (2*c*(b*c - a*
d)*Log[x])/a^3 + (2*c*(b*c - a*d)*Log[a + b*x])/a^3
```

Rubi in Sympy [A] time = 17.0389, size = 63, normalized size = 0.86

$$-\frac{c^2}{a^2x}-\frac{(ad-bc)^2}{a^2b\,(a+bx)}+\frac{2c\,(ad-bc)\log{(x)}}{a^3}-\frac{2c\,(ad-bc)\log{(a+bx)}}{a^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**2/x**2/(b*x+a)**2,x)
```

```
[Out] -c**2/(a**2*x) - (a*d - b*c)**2/(a**2*b*(a + b*x)) + 2*c*(a*d - b
*c)*log(x)/a**3 - 2*c*(a*d - b*c)*log(a + b*x)/a**3
```

Mathematica [A] time = 0.128434, size = 67, normalized size = 0.92

$$\frac{-\frac{a(bc-ad)^2}{b(a+bx)}+2c\log(x)(ad-bc)+2c(bc-ad)\log(a+bx)-\frac{ac^2}{x}}{a^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^2/(x^2*(a + b*x)^2),x]
```

```
[Out] (-((a*c^2)/x) - (a*(b*c - a*d)^2)/(b*(a + b*x)) + 2*c*(-(b*c) + a
*d)*Log[x] + 2*c*(b*c - a*d)*Log[a + b*x])/a^3
```

Maple [A] time = 0.015, size = 106, normalized size = 1.5

$$-\frac{c^2}{a^2x}+2\,\frac{c\ln{(x)}\,d}{a^2}-2\,\frac{c^2\ln{(x)}\,b}{a^3}-\frac{d^2}{b\,(bx+a)}+2\,\frac{cd}{a\,(bx+a)}-\frac{c^2b}{a^2\,(bx+a)}-2\,\frac{c\ln{(bx+a)}\,d}{a^2}+2\,\frac{c^2\ln{(bx+a)}\,b}{a^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^2/x^2/(b*x+a)^2,x)
```

```
[Out] -c^2/a^2/x+2*c/a^2*ln(x)*d-2*c^2/a^3*ln(x)*b-1/b/(b*x+a)*d^2+2/a/
(b*x+a)*c*d-1/a^2*b/(b*x+a)*c^2-2*c/a^2*ln(b*x+a)*d+2*c^2/a^3*ln(
b*x+a)*b
```

Maxima [A] time = 1.34229, size = 126, normalized size = 1.73

$$-\frac{abc^2 + \left(2\,b^2c^2 - 2\,abcd + a^2d^2\right)x}{a^2b^2x^2 + a^3bx} + \frac{2\,\left(bc^2 - acd\right)\log\left(bx + a\right)}{a^3} - \frac{2\,\left(bc^2 - acd\right)\log\left(x\right)}{a^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2/((b*x + a)^2*x^2),x, algorithm="maxima")
```

```
[Out] -(a*b*c^2 + (2*b^2*c^2 - 2*a*b*c*d + a^2*d^2)*x)/(a^2*b^2*x^2 + a
^3*b*x) + 2*(b*c^2 - a*c*d)*log(b*x + a)/a^3 - 2*(b*c^2 - a*c*d)*
log(x)/a^3
```

Fricas [A] time = 0.21697, size = 201, normalized size = 2.75

$$-\frac{a^2bc^2 + \left(2\,ab^2c^2 - 2\,a^2bcd + a^3d^2\right)x - 2\,\left(\left(b^3c^2 - ab^2cd\right)x^2 + \left(ab^2c^2 - a^2bcd\right)x\right)\log\left(bx + a\right) + 2\,\left(\left(b^3c^2 - ab^2cd\right)x^2 + \left(ab\right.\right.}{a^3b^2x^2 + a^4bx}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2/((b*x + a)^2*x^2),x, algorithm="fricas")
```

```
[Out] -(a^2*b*c^2 + (2*a*b^2*c^2 - 2*a^2*b*c*d + a^3*d^2)*x - 2*((b^3*c
^2 - a*b^2*c*d)*x^2 + (a*b^2*c^2 - a^2*b*c*d)*x)*log(b*x + a) + 2
*((b^3*c^2 - a*b^2*c*d)*x^2 + (a*b^2*c^2 - a^2*b*c*d)*x)*log(x))/
(a^3*b^2*x^2 + a^4*b*x)
```

Sympy [A] time = 5.44414, size = 173, normalized size = 2.37

$$-\frac{abc^2 + x\left(a^2d^2 - 2abcd + 2b^2c^2\right)}{a^3bx + a^2b^2x^2} + \frac{2c\left(ad - bc\right)\log\left(x + \frac{2a^2cd - 2abc^2 - 2ac(ad - bc)}{4abcd - 4b^2c^2}\right)}{a^3} - \frac{2c\left(ad - bc\right)\log\left(x + \frac{2a^2cd - 2abc^2 + 2ac(ad - bc)}{4abcd - 4b^2c^2}\right)}{a^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**2/x**2/(b*x+a)**2,x)
```

```
[Out] -(a*b*c**2 + x*(a**2*d**2 - 2*a*b*c*d + 2*b**2*c**2))/(a**3*b*x +
 a**2*b**2*x**2) + 2*c*(a*d - b*c)*log(x + (2*a**2*c*d - 2*a*b*c*
*2 - 2*a*c*(a*d - b*c))/(4*a*b*c*d - 4*b**2*c**2))/a**3 - 2*c*(a*
d - b*c)*log(x + (2*a**2*c*d - 2*a*b*c**2 + 2*a*c*(a*d - b*c))/(4
*a*b*c*d - 4*b**2*c**2))/a**3
```

GIAC/XCAS [A] time = 0.294563, size = 150, normalized size = 2.05

$$\frac{bc^2}{a^3\left(\frac{a}{bx+a} - 1\right)} - \frac{2\left(b^2c^2 - abcd\right)\ln\left(\left|-\frac{a}{bx+a} + 1\right|\right)}{a^3b} - \frac{\frac{b^3c^2}{bx+a} - \frac{2\,ab^2cd}{bx+a} + \frac{a^2bd^2}{bx+a}}{a^2b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2/((b*x + a)^2*x^2),x, algorithm="giac")
```

```
[Out] b*c^2/(a^3*(a/(b*x + a) - 1)) - 2*(b^2*c^2 - a*b*c*d)*ln(abs(-a/(
b*x + a) + 1))/(a^3*b) - (b^3*c^2/(b*x + a) - 2*a*b^2*c*d/(b*x +
a) + a^2*b*d^2/(b*x + a))/(a^2*b^2)
```

3.235 $\int \frac{(c+dx)^2}{x^3(a+bx)^2}\,dx$

Optimal. Leaf size=103

$$\frac{\log(x)(bc-ad)(3bc-ad)}{a^4}-\frac{(bc-ad)(3bc-ad)\log(a+bx)}{a^4}+\frac{2c(bc-ad)}{a^3x}+\frac{(bc-ad)^2}{a^3(a+bx)}-\frac{c^2}{2a^2x^2}$$

```
[Out] -c^2/(2*a^2*x^2) + (2*c*(b*c - a*d))/(a^3*x) + (b*c - a*d)^2/(a^3
*(a + b*x)) + ((b*c - a*d)*(3*b*c - a*d)*Log[x])/a^4 - ((b*c - a*
d)*(3*b*c - a*d)*Log[a + b*x])/a^4
```

Rubi [A] time = 0.188368, antiderivative size = 103, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{\log(x)(bc-ad)(3bc-ad)}{a^4}-\frac{(bc-ad)(3bc-ad)\log(a+bx)}{a^4}+\frac{2c(bc-ad)}{a^3x}+\frac{(bc-ad)^2}{a^3(a+bx)}-\frac{c^2}{2a^2x^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^2/(x^3*(a + b*x)^2),x]
```

```
[Out] -c^2/(2*a^2*x^2) + (2*c*(b*c - a*d))/(a^3*x) + (b*c - a*d)^2/(a^3
*(a + b*x)) + ((b*c - a*d)*(3*b*c - a*d)*Log[x])/a^4 - ((b*c - a*
d)*(3*b*c - a*d)*Log[a + b*x])/a^4
```

Rubi in Sympy [A] time = 22.8691, size = 90, normalized size = 0.87

$$-\frac{c^2}{2a^2x^2}-\frac{2c\left(ad-bc\right)}{a^3x}+\frac{\left(ad-bc\right)^2}{a^3\left(a+bx\right)}+\frac{\left(ad-3bc\right)\left(ad-bc\right)\log\left(x\right)}{a^4}-\frac{\left(ad-3bc\right)\left(ad-bc\right)\log\left(a+bx\right)}{a^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**2/x**3/(b*x+a)**2,x)
```

```
[Out] -c**2/(2*a**2*x**2) - 2*c*(a*d - b*c)/(a**3*x) + (a*d - b*c)**2/(
a**3*(a + b*x)) + (a*d - 3*b*c)*(a*d - b*c)*log(x)/a**4 - (a*d -
3*b*c)*(a*d - b*c)*log(a + b*x)/a**4
```

Mathematica [A] time = 0.171855, size = 109, normalized size = 1.06

$$-\frac{-2\log(x)\left(a^2d^2-4abcd+3b^2c^2\right)+2\left(a^2d^2-4abcd+3b^2c^2\right)\log(a+bx)+\frac{a^2c^2}{x^2}+\frac{4ac(ad-bc)}{x}-\frac{2a(bc-ad)^2}{a+bx}}{2a^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^2/(x^3*(a + b*x)^2),x]
```

```
[Out] -((a^2*c^2)/x^2 + (4*a*c*(-(b*c) + a*d))/x - (2*a*(b*c - a*d)^2)/
(a + b*x) - 2*(3*b^2*c^2 - 4*a*b*c*d + a^2*d^2)*Log[x] + 2*(3*b^2
*c^2 - 4*a*b*c*d + a^2*d^2)*Log[a + b*x])/(2*a^4)
```

Maple [A] time = 0.017, size = 158, normalized size = 1.5

$$-\frac{c^2}{2\,a^2x^2}+\frac{\ln(x)\,d^2}{a^2}-4\,\frac{b\ln(x)\,cd}{a^3}+3\,\frac{\ln(x)\,b^2c^2}{a^4}-2\,\frac{cd}{a^2x}+2\,\frac{c^2b}{a^3x}-\frac{\ln(bx+a)\,d^2}{a^2}+4\,\frac{\ln(bx+a)\,bcd}{a^3}-3\,\frac{\ln(bx+a)\,b^2c^2}{a^4}+\frac{d^2}{a\,(bx+a)}-2\,\frac{cdb}{a^2\,(bx+a)}+\frac{b^2c^2}{a^3\,(bx+a)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((d*x+c)^2/x^3/(b*x+a)^2,x)
```

```
[Out] -1/2*c^2/a^2/x^2+1/a^2*ln(x)*d^2-4/a^3*ln(x)*b*c*d+3/a^4*ln(x)*b^
2*c^2-2*c/a^2/x*d+2*c^2/a^3/x*b-1/a^2*ln(b*x+a)*d^2+4/a^3*ln(b*x+
a)*b*c*d-3/a^4*ln(b*x+a)*b^2*c^2+1/a/(b*x+a)*d^2-2/a^2/(b*x+a)*b*
c*d+1/a^3/(b*x+a)*b^2*c^2
```

Maxima [A] time = 1.35249, size = 182, normalized size = 1.77

$$-\frac{a^2c^2 - 2\left(3\,b^2c^2 - 4\,abcd + a^2d^2\right)x^2 - \left(3\,abc^2 - 4\,a^2cd\right)x}{2\left(a^3bx^3 + a^4x^2\right)} - \frac{\left(3\,b^2c^2 - 4\,abcd + a^2d^2\right)\log\left(bx + a\right)}{a^4} + \frac{\left(3\,b^2c^2 - 4\,abcd + a^2d^2\right)\log\left(x\right)}{a^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((d*x + c)^2/((b*x + a)^2*x^3),x, algorithm="maxima")
```

```
[Out] -1/2*(a^2*c^2 - 2*(3*b^2*c^2 - 4*a*b*c*d + a^2*d^2)*x^2 - (3*a*b*
c^2 - 4*a^2*c*d)*x)/(a^3*b*x^3 + a^4*x^2) - (3*b^2*c^2 - 4*a*b*c*
d + a^2*d^2)*log(b*x + a)/a^4 + (3*b^2*c^2 - 4*a*b*c*d + a^2*d^2)
*log(x)/a^4
```

Fricas [A] time = 0.21582, size = 281, normalized size = 2.73

$$-\frac{a^3c^2 - 2\left(3\,ab^2c^2 - 4\,a^2bcd + a^3d^2\right)x^2 - \left(3\,a^2bc^2 - 4\,a^3cd\right)x + 2\left(\left(3\,b^3c^2 - 4\,ab^2cd + a^2bd^2\right)x^3 + \left(3\,ab^2c^2 - 4\,a^2bcd + a^3d\right.\right.}{2\left(a^4bx^3 + a^5x^2\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((d*x + c)^2/((b*x + a)^2*x^3),x, algorithm="fricas")
```

```
[Out] -1/2*(a^3*c^2 - 2*(3*a*b^2*c^2 - 4*a^2*b*c*d + a^3*d^2)*x^2 - (3*
a^2*b*c^2 - 4*a^3*c*d)*x + 2*((3*b^3*c^2 - 4*a*b^2*c*d + a^2*b*d^
2)*x^3 + (3*a*b^2*c^2 - 4*a^2*b*c*d + a^3*d^2)*x^2)*log(b*x + a)
- 2*((3*b^3*c^2 - 4*a*b^2*c*d + a^2*b*d^2)*x^3 + (3*a*b^2*c^2 - 4
*a^2*b*c*d + a^3*d^2)*x^2)*log(x))/(a^4*b*x^3 + a^5*x^2)
```

Sympy [A] time = 6.47653, size = 262, normalized size = 2.54

$$\frac{-a^2c^2 + x^2\left(2a^2d^2 - 8abcd + 6b^2c^2\right) + x\left(-4a^2cd + 3abc^2\right)}{2a^4x^2 + 2a^3bx^3} + \frac{(ad - 3bc)(ad - bc)\log\left(x + \frac{a^3d^2 - 4a^2bcd + 3ab^2c^2 - a(ad-3bc)(ad-bc)}{2a^2bd^2 - 8ab^2cd + 6b^3c^2}\right)}{a^4} - \frac{(ad - 3bc)(ad - bc)\log\left(x + \frac{a^3d^2 - 4a^2bcd + 3ab^2c^2 + a(ad-3bc)(ad-bc)}{2a^2bd^2 - 8ab^2cd + 6b^3c^2}\right)}{a^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((d*x+c)**2/x**3/(b*x+a)**2,x)
```

```
[Out] (-a**2*c**2 + x**2*(2*a**2*d**2 - 8*a*b*c*d + 6*b**2*c**2) + x*(-
4*a**2*c*d + 3*a*b*c**2))/(2*a**4*x**2 + 2*a**3*b*x**3) + (a*d -
3*b*c)*(a*d - b*c)*log(x + (a**3*d**2 - 4*a**2*b*c*d + 3*a*b**2*c
**2 - a*(a*d - 3*b*c)*(a*d - b*c))/(2*a**2*b*d**2 - 8*a*b**2*c*d
```

```
+ 6*b**3*c**2))/a**4 - (a*d - 3*b*c)*(a*d - b*c)*log(x + (a**3*d*
*2 - 4*a**2*b*c*d + 3*a*b**2*c**2 + a*(a*d - 3*b*c)*(a*d - b*c))/
(2*a**2*b*d**2 - 8*a*b**2*c*d + 6*b**3*c**2))/a**4
```

GIAC/XCAS [A] time = 0.350574, size = 224, normalized size = 2.17

$$\frac{\left(3\,b^3c^2-4\,ab^2cd+a^2bd^2\right)\ln\left(\left|-\frac{a}{bx+a}+1\right|\right)}{a^4b}+\frac{\frac{b^5c^2}{bx+a}-\frac{2\,ab^4cd}{bx+a}+\frac{a^2b^3d^2}{bx+a}}{a^3b^3}+\frac{5\,b^2c^2-4\,abcd-\frac{2\,\left(3\,ab^3c^2-2\,a^2b^2cd\right)}{(bx+a)b}}{2\,a^4\left(\frac{a}{bx+a}-1\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2/((b*x + a)^2*x^3),x, algorithm="giac")
```

```
[Out] (3*b^3*c^2 - 4*a*b^2*c*d + a^2*b*d^2)*ln(abs(-a/(b*x + a) + 1))/(
a^4*b) + (b^5*c^2/(b*x + a) - 2*a*b^4*c*d/(b*x + a) + a^2*b^3*d^2
/(b*x + a))/(a^3*b^3) + 1/2*(5*b^2*c^2 - 4*a*b*c*d - 2*(3*a*b^3*c
^2 - 2*a^2*b^2*c*d)/((b*x + a)*b))/(a^4*(a/(b*x + a) - 1)^2)
```

3.236 $\int \frac{(c+dx)^2}{x^4(a+bx)^2}\,dx$

Optimal. Leaf size=132

$$-\frac{2b\log(x)(bc-ad)(2bc-ad)}{a^5}+\frac{2b(bc-ad)(2bc-ad)\log(a+bx)}{a^5}-\frac{(bc-ad)(3bc-ad)}{a^4x}-\frac{b(bc-ad)^2}{a^4(a+bx)}+\frac{c(bc-ad)}{a^3x^2}-\frac{c^2}{3a^2x^3}$$

```
[Out] -c^2/(3*a^2*x^3) + (c*(b*c - a*d))/(a^3*x^2) - ((b*c - a*d)*(3*b*
c - a*d))/(a^4*x) - (b*(b*c - a*d)^2)/(a^4*(a + b*x)) - (2*b*(b*c
 - a*d)*(2*b*c - a*d)*Log[x])/a^5 + (2*b*(b*c - a*d)*(2*b*c - a*d
)*Log[a + b*x])/a^5
```

Rubi [A] time = 0.260833, antiderivative size = 132, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{2b\log(x)(bc-ad)(2bc-ad)}{a^5}+\frac{2b(bc-ad)(2bc-ad)\log(a+bx)}{a^5}-\frac{(bc-ad)(3bc-ad)}{a^4x}-\frac{b(bc-ad)^2}{a^4(a+bx)}+\frac{c(bc-ad)}{a^3x^2}-\frac{c^2}{3a^2x^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^2/(x^4*(a + b*x)^2),x]
```

```
[Out] -c^2/(3*a^2*x^3) + (c*(b*c - a*d))/(a^3*x^2) - ((b*c - a*d)*(3*b*
c - a*d))/(a^4*x) - (b*(b*c - a*d)^2)/(a^4*(a + b*x)) - (2*b*(b*c
 - a*d)*(2*b*c - a*d)*Log[x])/a^5 + (2*b*(b*c - a*d)*(2*b*c - a*d
)*Log[a + b*x])/a^5
```

Rubi in Sympy [A] time = 29.4256, size = 119, normalized size = 0.9

$$-\frac{c^2}{3a^2x^3}-\frac{c\,(ad-bc)}{a^3x^2}-\frac{b\,(ad-bc)^2}{a^4\,(a+bx)}-\frac{(ad-3bc)\,(ad-bc)}{a^4x}-\frac{2b\,(ad-2bc)\,(ad-bc)\log{(x)}}{a^5}+\frac{2b\,(ad-2bc)\,(ad-bc)\log{(a+bx)}}{a^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**2/x**4/(b*x+a)**2,x)
```

```
[Out] -c**2/(3*a**2*x**3) - c*(a*d - b*c)/(a**3*x**2) - b*(a*d - b*c)**
2/(a**4*(a + b*x)) - (a*d - 3*b*c)*(a*d - b*c)/(a**4*x) - 2*b*(a*
d - 2*b*c)*(a*d - b*c)*log(x)/a**5 + 2*b*(a*d - 2*b*c)*(a*d - b*c
)*log(a + b*x)/a**5
```

Mathematica [A] time = 0.254605, size = 142, normalized size = 1.08

$$-\frac{\frac{a^3c^2}{x^3}+\frac{3a\left(a^2d^2-4abcd+3b^2c^2\right)}{x}+6b\log(x)\left(a^2d^2-3abcd+2b^2c^2\right)-6b\left(a^2d^2-3abcd+2b^2c^2\right)\log(a+bx)+\frac{3a^2c(ad-bc)}{x^2}+3a\cdots}{3a^5}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^2/(x^4*(a + b*x)^2),x]
```

```
[Out] -((a^3*c^2)/x^3 + (3*a^2*c*(-(b*c) + a*d))/x^2 + (3*a*(3*b^2*c^2
- 4*a*b*c*d + a^2*d^2))/x + (3*a*b*(b*c - a*d)^2)/(a + b*x) + 6*b
*(2*b^2*c^2 - 3*a*b*c*d + a^2*d^2)*Log[x] - 6*b*(2*b^2*c^2 - 3*a*
b*c*d + a^2*d^2)*Log[a + b*x])/(3*a^5)
```

Maple [A] time = 0.017, size = 205, normalized size = 1.6

$$-\frac{c^2}{3\,a^2x^3}-\frac{d^2}{a^2x}+4\,\frac{cdb}{a^3x}-3\,\frac{b^2c^2}{a^4x}-2\,\frac{b\ln(x)\,d^2}{a^3}+6\,\frac{b^2\ln(x)\,cd}{a^4}-4\,\frac{b^3\ln(x)\,c^2}{a^5}-\frac{cd}{a^2x^2}+\frac{c^2b}{a^3x^2}-\frac{d^2b}{a^2\,(bx+a)}+2\,\frac{cdb^2}{a^3\,(bx+a)}-\frac{c^2b^3}{a^4\,(bx+a)}+2\,\frac{b\ln(bx+a)\,d^2}{a^3}-6\,\frac{b^2\ln(bx+a)\,cd}{a^4}+4\,\frac{b^3\ln(bx+a)\,c^2}{a^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((d*x+c)^2/x^4/(b*x+a)^2,x)
```

```
[Out] -1/3*c^2/a^2/x^3-1/a^2/x*d^2+4/a^3/x*b*c*d-3/a^4/x*b^2*c^2-2*b/a^
3*ln(x)*d^2+6*b^2/a^4*ln(x)*c*d-4*b^3/a^5*ln(x)*c^2-c/a^2/x^2*d+c
^2/a^3/x^2*b-1/a^2*b/(b*x+a)*d^2+2/a^3*b^2/(b*x+a)*c*d-1/a^4*b^3/
(b*x+a)*c^2+2*b/a^3*ln(b*x+a)*d^2-6*b^2/a^4*ln(b*x+a)*c*d+4*b^3/a
^5*ln(b*x+a)*c^2
```

Maxima [A] time = 1.35473, size = 239, normalized size = 1.81

$$-\frac{a^3c^2+6\left(2\,b^3c^2-3\,ab^2cd+a^2bd^2\right)x^3+3\left(2\,ab^2c^2-3\,a^2bcd+a^3d^2\right)x^2-\left(2\,a^2bc^2-3\,a^3cd\right)x}{3\,(a^4bx^4+a^5x^3)}+\frac{2\left(2\,b^3c^2-3\,ab^2cd+a^2bd^2\right)\log(bx+a)}{a^5}-\frac{2\left(2\,b^3c^2-3\,ab^2cd+a^2bd^2\right)\log(x)}{a^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)^2/((b*x + a)^2*x^4),x, algorithm="maxima")
```

```
[Out] -1/3*(a^3*c^2 + 6*(2*b^3*c^2 - 3*a*b^2*c*d + a^2*b*d^2)*x^3 + 3*(
2*a*b^2*c^2 - 3*a^2*b*c*d + a^3*d^2)*x^2 - (2*a^2*b*c^2 - 3*a^3*c
*d)*x)/(a^4*b*x^4 + a^5*x^3) + 2*(2*b^3*c^2 - 3*a*b^2*c*d + a^2*b
*d^2)*log(b*x + a)/a^5 - 2*(2*b^3*c^2 - 3*a*b^2*c*d + a^2*b*d^2)*
log(x)/a^5
```

Fricas [A] time = 0.221401, size = 342, normalized size = 2.59

$$-\frac{a^4c^2+6\left(2\,ab^3c^2-3\,a^2b^2cd+a^3bd^2\right)x^3+3\left(2\,a^2b^2c^2-3\,a^3bcd+a^4d^2\right)x^2-\left(2\,a^3bc^2-3\,a^4cd\right)x-6\left(\left(2\,b^4c^2-3\,ab^3cd+\right.\right.}{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)^2/((b*x + a)^2*x^4),x, algorithm="fricas")
```

```
[Out] -1/3*(a^4*c^2 + 6*(2*a*b^3*c^2 - 3*a^2*b^2*c*d + a^3*b*d^2)*x^3 +
 3*(2*a^2*b^2*c^2 - 3*a^3*b*c*d + a^4*d^2)*x^2 - (2*a^3*b*c^2 - 3
*a^4*c*d)*x - 6*((2*b^4*c^2 - 3*a*b^3*c*d + a^2*b^2*d^2)*x^4 + (2
*a*b^3*c^2 - 3*a^2*b^2*c*d + a^3*b*d^2)*x^3)*log(b*x + a) + 6*((2
*b^4*c^2 - 3*a*b^3*c*d + a^2*b^2*d^2)*x^4 + (2*a*b^3*c^2 - 3*a^2*
b^2*c*d + a^3*b*d^2)*x^3)*log(x))/(a^5*b*x^4 + a^6*x^3)
```

Sympy [A] time = 7.55869, size = 326, normalized size = 2.47

$$-\frac{a^3c^2 + x^3\left(6a^2bd^2 - 18ab^2cd + 12b^3c^2\right) + x^2\left(3a^3d^2 - 9a^2bcd + 6ab^2c^2\right) + x\left(3a^3cd - 2a^2bc^2\right)}{3a^5x^3 + 3a^4bx^4} - \frac{2b\left(ad - 2bc\right)\left(ad - bc\right)\log\left(x + \frac{2a^3bd^2 - 6a^2b^2cd + 4ab^3c^2 - 2ab(ad-2bc)(ad-bc)}{4a^2b^2d^2 - 12ab^3cd + 8b^4c^2}\right)}{a^5} + \frac{2b\left(ad - 2bc\right)\left(ad - bc\right)\log\left(x + \frac{2a^3bd^2 - 6a^2b^2cd + 4ab^3c^2 + 2ab(ad-2bc)(ad-bc)}{4a^2b^2d^2 - 12ab^3cd + 8b^4c^2}\right)}{a^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**2/x**4/(b*x+a)**2,x)
```

```
[Out] -(a**3*c**2 + x**3*(6*a**2*b*d**2 - 18*a*b**2*c*d + 12*b**3*c**2)
 + x**2*(3*a**3*d**2 - 9*a**2*b*c*d + 6*a*b**2*c**2) + x*(3*a**3*
c*d - 2*a**2*b*c**2))/(3*a**5*x**3 + 3*a**4*b*x**4) - 2*b*(a*d -
2*b*c)*(a*d - b*c)*log(x + (2*a**3*b*d**2 - 6*a**2*b**2*c*d + 4*a
*b**3*c**2 - 2*a*b*(a*d - 2*b*c)*(a*d - b*c))/(4*a**2*b**2*d**2 -
 12*a*b**3*c*d + 8*b**4*c**2))/a**5 + 2*b*(a*d - 2*b*c)*(a*d - b*
c)*log(x + (2*a**3*b*d**2 - 6*a**2*b**2*c*d + 4*a*b**3*c**2 + 2*a
*b*(a*d - 2*b*c)*(a*d - b*c))/(4*a**2*b**2*d**2 - 12*a*b**3*c*d +
 8*b**4*c**2))/a**5
```

GIAC/XCAS [A] time = 0.293305, size = 319, normalized size = 2.42

$$-\frac{2\left(2\,b^4c^2 - 3\,ab^3cd + a^2b^2d^2\right)\ln\left(\left|-\frac{a}{bx+a} + 1\right|\right)}{a^5b} - \frac{\frac{b^7c^2}{bx+a} - \frac{2\,ab^6cd}{bx+a} + \frac{a^2b^5d^2}{bx+a}}{a^4b^4} + \frac{13\,b^3c^2 - 15\,ab^2cd + 3\,a^2bd^2 - \frac{3\left(10\,ab^4c^2 - 11\,a^2b^3cd + 2\,a^3b^2d^2\right)}{(bx+a)b} + \frac{3\left(6\,a^2b^5c^2 - 6\,a^3b^4cd + a^4b^3d^2\right)}{(bx+a)^2b^2}}{3\,a^5\left(\frac{a}{bx+a} - 1\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2/((b*x + a)^2*x^4),x, algorithm="giac")
```

```
[Out] -2*(2*b^4*c^2 - 3*a*b^3*c*d + a^2*b^2*d^2)*ln(abs(-a/(b*x + a) +
1))/(a^5*b) - (b^7*c^2/(b*x + a) - 2*a*b^6*c*d/(b*x + a) + a^2*b^
5*d^2/(b*x + a))/(a^4*b^4) + 1/3*(13*b^3*c^2 - 15*a*b^2*c*d + 3*a
^2*b*d^2 - 3*(10*a*b^4*c^2 - 11*a^2*b^3*c*d + 2*a^3*b^2*d^2)/((b*
x + a)*b) + 3*(6*a^2*b^5*c^2 - 6*a^3*b^4*c*d + a^4*b^3*d^2)/((b*x
 + a)^2*b^2))/(a^5*(a/(b*x + a) - 1)^3)
```

3.237 $\int \frac{(c+dx)^2}{x^5(a+bx)^2}\,dx$

Optimal. Leaf size=167

$$\frac{b^2\log(x)(5bc-3ad)(bc-ad)}{a^6}-\frac{b^2(5bc-3ad)(bc-ad)\log(a+bx)}{a^6}+\frac{b^2(bc-ad)^2}{a^5(a+bx)}+\frac{2b(bc-ad)(2bc-ad)}{a^5x}-\frac{(bc-ad)(3bc-ad)}{2a^4x^2}+\frac{2c(bc-ad)}{3a^3x^3}-\frac{c^2}{4a^2x^4}$$

```
[Out] -c^2/(4*a^2*x^4) + (2*c*(b*c - a*d))/(3*a^3*x^3) - ((b*c - a*d)*(
3*b*c - a*d))/(2*a^4*x^2) + (2*b*(b*c - a*d)*(2*b*c - a*d))/(a^5*
x) + (b^2*(b*c - a*d)^2)/(a^5*(a + b*x)) + (b^2*(5*b*c - 3*a*d)*(
b*c - a*d)*Log[x])/a^6 - (b^2*(5*b*c - 3*a*d)*(b*c - a*d)*Log[a +
 b*x])/a^6
```

Rubi [A] time = 0.340307, antiderivative size = 167, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{b^2\log(x)(5bc-3ad)(bc-ad)}{a^6}-\frac{b^2(5bc-3ad)(bc-ad)\log(a+bx)}{a^6}+\frac{b^2(bc-ad)^2}{a^5(a+bx)}+\frac{2b(bc-ad)(2bc-ad)}{a^5x}-\frac{(bc-ad)(3bc-ad)}{2a^4x^2}+\frac{2c(bc-ad)}{3a^3x^3}-\frac{c^2}{4a^2x^4}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^2/(x^5*(a + b*x)^2),x]
```

```
[Out] -c^2/(4*a^2*x^4) + (2*c*(b*c - a*d))/(3*a^3*x^3) - ((b*c - a*d)*(
3*b*c - a*d))/(2*a^4*x^2) + (2*b*(b*c - a*d)*(2*b*c - a*d))/(a^5*
x) + (b^2*(b*c - a*d)^2)/(a^5*(a + b*x)) + (b^2*(5*b*c - 3*a*d)*(
b*c - a*d)*Log[x])/a^6 - (b^2*(5*b*c - 3*a*d)*(b*c - a*d)*Log[a +
 b*x])/a^6
```

Rubi in Sympy [A] time = 39.0261, size = 155, normalized size = 0.93

$$-\frac{c^2}{4a^2x^4}-\frac{2c\left(ad-bc\right)}{3a^3x^3}-\frac{\left(ad-3bc\right)\left(ad-bc\right)}{2a^4x^2}+\frac{b^2\left(ad-bc\right)^2}{a^5\left(a+bx\right)}+\frac{2b\left(ad-2bc\right)\left(ad-bc\right)}{a^5x}+\frac{b^2\left(ad-bc\right)\left(3ad-5bc\right)\log\left(x\right)}{a^6}-\frac{b^2\left(ad-bc\right)\left(3ad-5bc\right)\log\left(a+bx\right)}{a^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**2/x**5/(b*x+a)**2,x)
```

```
[Out] -c**2/(4*a**2*x**4) - 2*c*(a*d - b*c)/(3*a**3*x**3) - (a*d - 3*b*
c)*(a*d - b*c)/(2*a**4*x**2) + b**2*(a*d - b*c)**2/(a**5*(a + b*x
)) + 2*b*(a*d - 2*b*c)*(a*d - b*c)/(a**5*x) + b**2*(a*d - b*c)*(3
*a*d - 5*b*c)*log(x)/a**6 - b**2*(a*d - b*c)*(3*a*d - 5*b*c)*log(
a + b*x)/a**6
```

Mathematica [A] time = 0.316814, size = 182, normalized size = 1.09

$$\frac{-\frac{3a^4c^2}{x^4}-\frac{8a^3c(ad-bc)}{x^3}-\frac{6a^2\left(a^2d^2-4abcd+3b^2c^2\right)}{x^2}+\frac{24ab\left(a^2d^2-3abcd+2b^2c^2\right)}{x}+12b^2\log(x)\left(3a^2d^2-8abcd+5b^2c^2\right)-12b^2\left(3a^2d^2-\right.}{12a^6}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^2/(x^5*(a + b*x)^2),x]
```

```
[Out] ((-3*a^4*c^2)/x^4 - (8*a^3*c*(-(b*c) + a*d))/x^3 - (6*a^2*(3*b^2*
c^2 - 4*a*b*c*d + a^2*d^2))/x^2 + (24*a*b*(2*b^2*c^2 - 3*a*b*c*d
+ a^2*d^2))/x + (12*a*b^2*(b*c - a*d)^2)/(a + b*x) + 12*b^2*(5*b^
2*c^2 - 8*a*b*c*d + 3*a^2*d^2)*Log[x] - 12*b^2*(5*b^2*c^2 - 8*a*b
*c*d + 3*a^2*d^2)*Log[a + b*x])/(12*a^6)
```

Maple [A] time = 0.019, size = 249, normalized size = 1.5

$$-\frac{c^2}{4\,a^2x^4}-\frac{d^2}{2\,a^2x^2}+2\,\frac{cdb}{a^3x^2}-\frac{3\,b^2c^2}{2\,a^4x^2}+3\,\frac{b^2\ln(x)\,d^2}{a^4}-8\,\frac{b^3\ln(x)\,cd}{a^5}+5\,\frac{b^4\ln(x)\,c^2}{a^6}+2\,\frac{d^2b}{a^3x}-6\,\frac{cdb^2}{a^4x}+4\,\frac{c^2b^3}{a^5x}-\frac{2\,cd}{3\,a^2x^3}+\frac{2\,c^2b}{3\,a^3x^3}-3\,\frac{b^2\ln(bx+a)\,d^2}{a^4}+8\,\frac{b^3\ln(bx+a)\,cd}{a^5}-5\,\frac{b^4\ln(bx+a)\,c^2}{a^6}+\frac{d^2b^2}{a^3\,(bx+a)}-2\,\frac{cdb^3}{a^4\,(bx+a)}+\frac{c^2b^4}{a^5\,(bx+a)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^2/x^5/(b*x+a)^2,x)
```

```
[Out] -1/4*c^2/a^2/x^4-1/2/a^2/x^2*d^2+2/a^3/x^2*b*c*d-3/2/a^4/x^2*b^2*
c^2+3*b^2/a^4*ln(x)*d^2-8*b^3/a^5*ln(x)*c*d+5*b^4/a^6*ln(x)*c^2+2
/a^3*b/x*d^2-6/a^4*b^2/x*c*d+4/a^5*b^3/x*c^2-2/3*c/a^2/x^3*d+2/3*
c^2/a^3/x^3*b-3*b^2/a^4*ln(b*x+a)*d^2+8*b^3/a^5*ln(b*x+a)*c*d-5*b
^4/a^6*ln(b*x+a)*c^2+1/a^3*b^2/(b*x+a)*d^2-2/a^4*b^3/(b*x+a)*c*d+
1/a^5*b^4/(b*x+a)*c^2
```

Maxima [A] time = 1.36192, size = 301, normalized size = 1.8

$$-\frac{3\,a^4c^2-12\left(5\,b^4c^2-8\,ab^3cd+3\,a^2b^2d^2\right)x^4-6\left(5\,ab^3c^2-8\,a^2b^2cd+3\,a^3bd^2\right)x^3+2\left(5\,a^2b^2c^2-8\,a^3bcd+3\,a^4d^2\right)x^2-(5}{12\left(a^5bx^5+a^6x^4\right)}-\frac{\left(5\,b^4c^2-8\,ab^3cd+3\,a^2b^2d^2\right)\log(bx+a)}{a^6}+\frac{\left(5\,b^4c^2-8\,ab^3cd+3\,a^2b^2d^2\right)\log(x)}{a^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2/((b*x + a)^2*x^5),x, algorithm="maxima")
```

```
[Out] -1/12*(3*a^4*c^2 - 12*(5*b^4*c^2 - 8*a*b^3*c*d + 3*a^2*b^2*d^2)*x
^4 - 6*(5*a*b^3*c^2 - 8*a^2*b^2*c*d + 3*a^3*b*d^2)*x^3 + 2*(5*a^2
*b^2*c^2 - 8*a^3*b*c*d + 3*a^4*d^2)*x^2 - (5*a^3*b*c^2 - 8*a^4*c*
d)*x)/(a^5*b*x^5 + a^6*x^4) - (5*b^4*c^2 - 8*a*b^3*c*d + 3*a^2*b^
2*d^2)*log(b*x + a)/a^6 + (5*b^4*c^2 - 8*a*b^3*c*d + 3*a^2*b^2*d^
2)*log(x)/a^6
```

Fricas [A] time = 0.222168, size = 408, normalized size = 2.44

$$-\frac{3\,a^5c^2-12\left(5\,ab^4c^2-8\,a^2b^3cd+3\,a^3b^2d^2\right)x^4-6\left(5\,a^2b^3c^2-8\,a^3b^2cd+3\,a^4bd^2\right)x^3+2\left(5\,a^3b^2c^2-8\,a^4bcd+3\,a^5d^2\right)x^2-}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2/((b*x + a)^2*x^5),x, algorithm="fricas")
```

```
[Out] -1/12*(3*a^5*c^2 - 12*(5*a*b^4*c^2 - 8*a^2*b^3*c*d + 3*a^3*b^2*d^
2)*x^4 - 6*(5*a^2*b^3*c^2 - 8*a^3*b^2*c*d + 3*a^4*b*d^2)*x^3 + 2*
(5*a^3*b^2*c^2 - 8*a^4*b*c*d + 3*a^5*d^2)*x^2 - (5*a^4*b*c^2 - 8*
```

```
a^5*c*d)*x + 12*((5*b^5*c^2 - 8*a*b^4*c*d + 3*a^2*b^3*d^2)*x^5 +
(5*a*b^4*c^2 - 8*a^2*b^3*c*d + 3*a^3*b^2*d^2)*x^4)*log(b*x + a) -
 12*((5*b^5*c^2 - 8*a*b^4*c*d + 3*a^2*b^3*d^2)*x^5 + (5*a*b^4*c^2
 - 8*a^2*b^3*c*d + 3*a^3*b^2*d^2)*x^4)*log(x))/(a^6*b*x^5 + a^7*x
^4)
```

Sympy [A] time = 8.38829, size = 377, normalized size = 2.26

$$\frac{-3a^4c^2 + x^4\left(36a^2b^2d^2 - 96ab^3cd + 60b^4c^2\right) + x^3\left(18a^3bd^2 - 48a^2b^2cd + 30ab^3c^2\right) + x^2\left(-6a^4d^2 + 16a^3bcd - 10a^2b^2c^2\right) + x}{12a^6x^4 + 12a^5bx^5} + \frac{b^2(ad-bc)(3ad-5bc)\log\left(x + \frac{3a^3b^2d^2-8a^2b^3cd+5ab^4c^2-ab^2(ad-bc)(3ad-5bc)}{6a^2b^3d^2-16ab^4cd+10b^5c^2}\right)}{a^6} - \frac{b^2(ad-bc)(3ad-5bc)\log\left(x + \frac{3a^3b^2d^2-8a^2b^3cd+5ab^4c^2+ab^2(ad-bc)(3ad-5bc)}{6a^2b^3d^2-16ab^4cd+10b^5c^2}\right)}{a^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**2/x**5/(b*x+a)**2,x)
```

```
[Out] (-3*a**4*c**2 + x**4*(36*a**2*b**2*d**2 - 96*a*b**3*c*d + 60*b**4
*c**2) + x**3*(18*a**3*b*d**2 - 48*a**2*b**2*c*d + 30*a*b**3*c**2
) + x**2*(-6*a**4*d**2 + 16*a**3*b*c*d - 10*a**2*b**2*c**2) + x*(
-8*a**4*c*d + 5*a**3*b*c**2))/(12*a**6*x**4 + 12*a**5*b*x**5) + b
**2*(a*d - b*c)*(3*a*d - 5*b*c)*log(x + (3*a**3*b**2*d**2 - 8*a**
2*b**3*c*d + 5*a*b**4*c**2 - a*b**2*(a*d - b*c)*(3*a*d - 5*b*c))/
(6*a**2*b**3*d**2 - 16*a*b**4*c*d + 10*b**5*c**2))/a**6 - b**2*(a
*d - b*c)*(3*a*d - 5*b*c)*log(x + (3*a**3*b**2*d**2 - 8*a**2*b**3
*c*d + 5*a*b**4*c**2 + a*b**2*(a*d - b*c)*(3*a*d - 5*b*c))/(6*a**
2*b**3*d**2 - 16*a*b**4*c*d + 10*b**5*c**2))/a**6
```

GIAC/XCAS [A] time = 0.27341, size = 382, normalized size = 2.29

$$\frac{\left(5\,b^5c^2 - 8\,ab^4cd + 3\,a^2b^3d^2\right)\ln\left(\left|-\frac{a}{bx+a} + 1\right|\right)}{a^6b} + \frac{\frac{b^9c^2}{bx+a} - \frac{2\,ab^8cd}{bx+a} + \frac{a^2b^7d^2}{bx+a}}{a^5b^5} + \frac{77\,b^4c^2 - 104\,ab^3cd + 30\,a^2b^2d^2 - \frac{4\left(65\,ab^5c^2-86\,a^2b^4cd+24\,a^3b^3d^2\right)}{(bx+a)b} + \frac{6\left(50\,a^2b^6c^2-64\,a^3b^5cd+17\,a^4b^4d^2\right)}{(bx+a)^2b^2} - \frac{12\left(10\,a^3b^7c^2-12\,a^4b^6cd+3\,a^5b^5\right.}{(bx+a)^3b^3}}{12\,a^6\left(\frac{a}{bx+a} - 1\right)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2/((b*x + a)^2*x^5),x, algorithm="giac")
```

```
[Out] (5*b^5*c^2 - 8*a*b^4*c*d + 3*a^2*b^3*d^2)*ln(abs(-a/(b*x + a) + 1
))/(a^6*b) + (b^9*c^2/(b*x + a) - 2*a*b^8*c*d/(b*x + a) + a^2*b^7
*d^2/(b*x + a))/(a^5*b^5) + 1/12*(77*b^4*c^2 - 104*a*b^3*c*d + 30
*a^2*b^2*d^2 - 4*(65*a*b^5*c^2 - 86*a^2*b^4*c*d + 24*a^3*b^3*d^2)
/((b*x + a)*b) + 6*(50*a^2*b^6*c^2 - 64*a^3*b^5*c*d + 17*a^4*b^4*
d^2)/((b*x + a)^2*b^2) - 12*(10*a^3*b^7*c^2 - 12*a^4*b^6*c*d + 3*
a^5*b^5*d^2)/((b*x + a)^3*b^3))/(a^6*(a/(b*x + a) - 1)^4)
```

3.238 $\int \frac{x^4(c+dx)^3}{(a+bx)^2} dx$

Optimal. Leaf size=200

$$-\frac{a^4(bc-ad)^3}{b^8(a+bx)}-\frac{a^3(4bc-7ad)(bc-ad)^2\log(a+bx)}{b^8}+\frac{3a^2x(bc-2ad)(bc-ad)^2}{b^7}-\frac{ax^2(2bc-5ad)(bc-ad)^2}{2b^6}+\frac{x^3(bc-4ad)(bc-ad)^2}{3b^5}+\frac{3dx^4(bc-ad)^2}{4b^4}+\frac{d^2x^5(3bc-2ad)}{5b^3}+\frac{d^3x^6}{6b^2}$$

```
[Out] (3*a^2*(b*c - 2*a*d)*(b*c - a*d)^2*x)/b^7 - (a*(2*b*c - 5*a*d)*(b
*c - a*d)^2*x^2)/(2*b^6) + ((b*c - 4*a*d)*(b*c - a*d)^2*x^3)/(3*b
^5) + (3*d*(b*c - a*d)^2*x^4)/(4*b^4) + (d^2*(3*b*c - 2*a*d)*x^5)
/(5*b^3) + (d^3*x^6)/(6*b^2) - (a^4*(b*c - a*d)^3)/(b^8*(a + b*x)
) - (a^3*(4*b*c - 7*a*d)*(b*c - a*d)^2*Log[a + b*x])/b^8
```

Rubi [A] time = 0.537863, antiderivative size = 200, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{a^4(bc-ad)^3}{b^8(a+bx)}-\frac{a^3(4bc-7ad)(bc-ad)^2\log(a+bx)}{b^8}+\frac{3a^2x(bc-2ad)(bc-ad)^2}{b^7}-\frac{ax^2(2bc-5ad)(bc-ad)^2}{2b^6}+\frac{x^3(bc-4ad)(bc-ad)^2}{3b^5}+\frac{3dx^4(bc-ad)^2}{4b^4}+\frac{d^2x^5(3bc-2ad)}{5b^3}+\frac{d^3x^6}{6b^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^4*(c + d*x)^3)/(a + b*x)^2,x]
```

```
[Out] (3*a^2*(b*c - 2*a*d)*(b*c - a*d)^2*x)/b^7 - (a*(2*b*c - 5*a*d)*(b
*c - a*d)^2*x^2)/(2*b^6) + ((b*c - 4*a*d)*(b*c - a*d)^2*x^3)/(3*b
^5) + (3*d*(b*c - a*d)^2*x^4)/(4*b^4) + (d^2*(3*b*c - 2*a*d)*x^5)
/(5*b^3) + (d^3*x^6)/(6*b^2) - (a^4*(b*c - a*d)^3)/(b^8*(a + b*x)
) - (a^3*(4*b*c - 7*a*d)*(b*c - a*d)^2*Log[a + b*x])/b^8
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{a^4\left(ad-bc\right)^3}{b^8\left(a+bx\right)}+\frac{a^3\left(ad-bc\right)^2\left(7ad-4bc\right)\log\left(a+bx\right)}{b^8}-\frac{3a^2x\left(ad-bc\right)^2\left(2ad-bc\right)}{b^7}+\frac{a\left(ad-bc\right)^2\left(5ad-2bc\right)\int x\,dx}{b^6}+\frac{d^3x^6}{6b^2}-\frac{d^2x^5\left(2ad-3bc\right)}{5b^3}+\frac{3dx^4\left(ad-bc\right)^2}{4b^4}-\frac{x^3\left(ad-bc\right)^2\left(4ad-bc\right)}{3b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**4*(d*x+c)**3/(b*x+a)**2,x)
```

```
[Out] a**4*(a*d - b*c)**3/(b**8*(a + b*x)) + a**3*(a*d - b*c)**2*(7*a*d
 - 4*b*c)*log(a + b*x)/b**8 - 3*a**2*x*(a*d - b*c)**2*(2*a*d - b*
c)/b**7 + a*(a*d - b*c)**2*(5*a*d - 2*b*c)*Integral(x, x)/b**6 +
d**3*x**6/(6*b**2) - d**2*x**5*(2*a*d - 3*b*c)/(5*b**3) + 3*d*x**
4*(a*d - b*c)**2/(4*b**4) - x**3*(a*d - b*c)**2*(4*a*d - b*c)/(3*
b**5)
```

Mathematica [A] time = 0.114994, size = 190, normalized size = 0.95

$$\frac{\frac{60a^4(ad-bc)^3}{a+bx}+60a^3(bc-ad)^2(7ad-4bc)\log(a+bx)-180a^2bx(bc-ad)^2(2ad-bc)+12b^5d^2x^5(3bc-2ad)+45b^4dx^4(bc-}{60b^8}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^4*(c + d*x)^3)/(a + b*x)^2,x]
```

```
[Out] (-180*a^2*b*(b*c - a*d)^2*(-(b*c) + 2*a*d)*x + 30*a*b^2*(b*c - a*
d)^2*(-2*b*c + 5*a*d)*x^2 + 20*b^3*(b*c - 4*a*d)*(b*c - a*d)^2*x^
3 + 45*b^4*d*(b*c - a*d)^2*x^4 + 12*b^5*d^2*(3*b*c - 2*a*d)*x^5 +
 10*b^6*d^3*x^6 + (60*a^4*(-(b*c) + a*d)^3)/(a + b*x) + 60*a^3*(b
*c - a*d)^2*(-4*b*c + 7*a*d)*Log[a + b*x])/(60*b^8)
```

Maple [A] time = 0.016, size = 378, normalized size = 1.9

$$\frac{a^7d^3}{b^8(bx+a)}-\frac{a^4c^3}{b^5(bx+a)}-\frac{2x^5ad^3}{5b^3}+\frac{3x^5cd^2}{5b^2}+\frac{3x^4a^2d^3}{4b^4}+\frac{3x^4c^2d}{4b^2}-\frac{4x^3a^3d^3}{3b^5}+\frac{5x^2a^4d^3}{2b^6}-\frac{x^2ac^3}{b^3}-6\frac{a^5d^3x}{b^7}+3\frac{a^2c^3x}{b^4}+7\frac{a^6\ln(bx+a)d^3}{b^8}-4\frac{a^3\ln(bx+a)c^3}{b^5}+\frac{d^3x^6}{6b^2}-\frac{3x^4acd^2}{2b^3}+3\frac{x^3a^2cd^2}{b^4}+\frac{9a^2x^2c^2d}{2b^4}+15\frac{a^4cd^2x}{b^6}-12\frac{a^3c^2dx}{b^5}-18\frac{a^5\ln(bx+a)cd^2}{b^7}+15\frac{a^4\ln(bx+a)c^2d}{b^6}-3\frac{a^6cd^2}{b^7(bx+a)}+3\frac{a^5c^2d}{b^6(bx+a)}-2\frac{x^3ac^2d}{b^3}-6\frac{x^2a^3cd^2}{b^5}+\frac{x^3c^3}{3b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^4*(d*x+c)^3/(b*x+a)^2,x)
```

```
[Out] a^7/b^8/(b*x+a)*d^3-a^4/b^5/(b*x+a)*c^3-2/5/b^3*x^5*a*d^3+3/5/b^2
*x^5*c*d^2+3/4/b^4*x^4*a^2*d^3+3/4/b^2*x^4*c^2*d-4/3/b^5*x^3*a^3*
d^3+5/2/b^6*x^2*a^4*d^3-1/b^3*x^2*a*c^3-6/b^7*a^5*d^3*x+3/b^4*a^2
*c^3*x+7*a^6/b^8*ln(b*x+a)*d^3-4*a^3/b^5*ln(b*x+a)*c^3+1/6*d^3*x^
6/b^2-3/2/b^3*x^4*a*c*d^2+3/b^4*x^3*a^2*c*d^2+9/2/b^4*x^2*a^2*c^2
*d+15/b^6*a^4*c*d^2*x-12/b^5*a^3*c^2*d*x-18*a^5/b^7*ln(b*x+a)*c*d
^2+15*a^4/b^6*ln(b*x+a)*c^2*d-3*a^6/b^7/(b*x+a)*c*d^2+3*a^5/b^6/(
b*x+a)*c^2*d-2/b^3*x^3*a*c^2*d-6/b^5*x^2*a^3*c*d^2+1/3/b^2*x^3*c^
3
```

Maxima [A] time = 1.35932, size = 436, normalized size = 2.18

$$-\frac{a^4b^3c^3-3a^5b^2c^2d+3a^6bcd^2-a^7d^3}{b^9x+ab^8}+\frac{10b^5d^3x^6+12\left(3b^5cd^2-2ab^4d^3\right)x^5+45\left(b^5c^2d-2ab^4cd^2+a^2b^3d^3\right)x^4+20\left(b^5c^3-6ab^4c^2d+9a^2b^3cd^2-4a^3b^2d^3\right)x^3}{60b^7}-\frac{\left(4a^3b^3c^3-15a^4b^2c^2d+18a^5bcd^2-7a^6d^3\right)\log(bx+a)}{b^8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3*x^4/(b*x + a)^2,x, algorithm="maxima")
```

```
[Out] -(a^4*b^3*c^3 - 3*a^5*b^2*c^2*d + 3*a^6*b*c*d^2 - a^7*d^3)/(b^9*x
 + a*b^8) + 1/60*(10*b^5*d^3*x^6 + 12*(3*b^5*c*d^2 - 2*a*b^4*d^3)
*x^5 + 45*(b^5*c^2*d - 2*a*b^4*c*d^2 + a^2*b^3*d^3)*x^4 + 20*(b^5
*c^3 - 6*a*b^4*c^2*d + 9*a^2*b^3*c*d^2 - 4*a^3*b^2*d^3)*x^3 - 30*
(2*a*b^4*c^3 - 9*a^2*b^3*c^2*d + 12*a^3*b^2*c*d^2 - 5*a^4*b*d^3)*
x^2 + 180*(a^2*b^3*c^3 - 4*a^3*b^2*c^2*d + 5*a^4*b*c*d^2 - 2*a^5*
d^3)*x)/b^7 - (4*a^3*b^3*c^3 - 15*a^4*b^2*c^2*d + 18*a^5*b*c*d^2
- 7*a^6*d^3)*log(b*x + a)/b^8
```

Fricas [A] time = 0.211042, size = 568, normalized size = 2.84

$$10b^7d^3x^7-60a^4b^3c^3+180a^5b^2c^2d-180a^6bcd^2+60a^7d^3+2\left(18b^7cd^2-7ab^6d^3\right)x^6+3\left(15b^7c^2d-18ab^6cd^2+7a^2b^5d\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3*x^4/(b*x + a)^2,x, algorithm="fricas")
```

```
[Out] 1/60*(10*b^7*d^3*x^7 - 60*a^4*b^3*c^3 + 180*a^5*b^2*c^2*d - 180*a
^6*b*c*d^2 + 60*a^7*d^3 + 2*(18*b^7*c*d^2 - 7*a*b^6*d^3)*x^6 + 3*
(15*b^7*c^2*d - 18*a*b^6*c*d^2 + 7*a^2*b^5*d^3)*x^5 + 5*(4*b^7*c^
3 - 15*a*b^6*c^2*d + 18*a^2*b^5*c*d^2 - 7*a^3*b^4*d^3)*x^4 - 10*(
4*a*b^6*c^3 - 15*a^2*b^5*c^2*d + 18*a^3*b^4*c*d^2 - 7*a^4*b^3*d^3
)*x^3 + 30*(4*a^2*b^5*c^3 - 15*a^3*b^4*c^2*d + 18*a^4*b^3*c*d^2 -
 7*a^5*b^2*d^3)*x^2 + 180*(a^3*b^4*c^3 - 4*a^4*b^3*c^2*d + 5*a^5*
b^2*c*d^2 - 2*a^6*b*d^3)*x - 60*(4*a^4*b^3*c^3 - 15*a^5*b^2*c^2*d
 + 18*a^6*b*c*d^2 - 7*a^7*d^3 + (4*a^3*b^4*c^3 - 15*a^4*b^3*c^2*d
 + 18*a^5*b^2*c*d^2 - 7*a^6*b*d^3)*x)*log(b*x + a))/(b^9*x + a*b^
8)
```

Sympy [A] time = 7.07591, size = 308, normalized size = 1.54

$$\frac{a^{3}\left(ad-bc\right)^{2}\left(7ad-4bc\right)\log\left(a+bx\right)}{b^{8}}+\frac{a^{7}d^{3}-3a^{6}bcd^{2}+3a^{5}b^{2}c^{2}d-a^{4}b^{3}c^{3}}{ab^{8}+b^{9}x}+\frac{d^{3}x^{6}}{6b^{2}}-\frac{x^{5}\left(2ad^{3}-3bcd^{2}\right)}{5b^{3}}+\frac{x^{4}\left(3a^{2}d^{3}-6abcd^{2}+3b^{2}c^{2}d\right)}{4b^{4}}-\frac{x^{3}\left(4a^{3}d^{3}-9a^{2}bcd^{2}+6ab^{2}c^{2}d-b^{3}c^{3}\right)}{3b^{5}}+\frac{x^{2}\left(5a^{4}d^{3}-12a^{3}bcd^{2}+9a^{2}b^{2}c^{2}d-2ab^{3}c^{3}\right)}{2b^{6}}-\frac{x\left(6a^{5}d^{3}-15a^{4}bcd^{2}+12a^{3}b^{2}c^{2}d-3a^{2}b^{3}c^{3}\right)}{b^{7}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**4*(d*x+c)**3/(b*x+a)**2,x)
```

```
[Out] a**3*(a*d - b*c)**2*(7*a*d - 4*b*c)*log(a + b*x)/b**8 + (a**7*d**
3 - 3*a**6*b*c*d**2 + 3*a**5*b**2*c**2*d - a**4*b**3*c**3)/(a*b**
8 + b**9*x) + d**3*x**6/(6*b**2) - x**5*(2*a*d**3 - 3*b*c*d**2)/(
5*b**3) + x**4*(3*a**2*d**3 - 6*a*b*c*d**2 + 3*b**2*c**2*d)/(4*b*
*4) - x**3*(4*a**3*d**3 - 9*a**2*b*c*d**2 + 6*a*b**2*c**2*d - b**
3*c**3)/(3*b**5) + x**2*(5*a**4*d**3 - 12*a**3*b*c*d**2 + 9*a**2*
b**2*c**2*d - 2*a*b**3*c**3)/(2*b**6) - x*(6*a**5*d**3 - 15*a**4*
b*c*d**2 + 12*a**3*b**2*c**2*d - 3*a**2*b**3*c**3)/b**7
```

GIAC/XCAS [A] time = 0.256033, size = 544, normalized size = 2.72

$$\frac{\left(10\,d^{3}+\frac{12\,\left(3\,b^{2}cd^{2}-7\,abd^{3}\right)}{(bx+a)b}+\frac{45\,\left(b^{4}c^{2}d-6\,ab^{3}cd^{2}+7\,a^{2}b^{2}d^{3}\right)}{(bx+a)^{2}b^{2}}+\frac{20\,\left(b^{6}c^{3}-15\,ab^{5}c^{2}d+45\,a^{2}b^{4}cd^{2}-35\,a^{3}b^{3}d^{3}\right)}{(bx+a)^{3}b^{3}}-\frac{30\,\left(4\,ab^{7}c^{3}-30\,a^{2}b^{6}c^{2}d+60\,a^{3}b^{5}cd^{2}-\right.}{(bx+a)^{4}b^{4}}\right.}{60\,b^{8}}+\frac{\left(4\,a^{3}b^{3}c^{3}-15\,a^{4}b^{2}c^{2}d+18\,a^{5}bcd^{2}-7\,a^{6}d^{3}\right)\ln\left(\frac{|bx+a|}{(bx+a)^{2}|b|}\right)}{b^{8}}-\frac{\frac{a^{4}b^{9}c^{3}}{bx+a}-\frac{3\,a^{5}b^{8}c^{2}d}{bx+a}+\frac{3\,a^{6}b^{7}cd^{2}}{bx+a}-\frac{a^{7}b^{6}d^{3}}{bx+a}}{b^{14}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3*x^4/(b*x + a)^2,x, algorithm="giac")
```

```
[Out] 1/60*(10*d^3 + 12*(3*b^2*c*d^2 - 7*a*b*d^3)/((b*x + a)*b) + 45*(b
^4*c^2*d - 6*a*b^3*c*d^2 + 7*a^2*b^2*d^3)/((b*x + a)^2*b^2) + 20*
(b^6*c^3 - 15*a*b^5*c^2*d + 45*a^2*b^4*c*d^2 - 35*a^3*b^3*d^3)/((
b*x + a)^3*b^3) - 30*(4*a*b^7*c^3 - 30*a^2*b^6*c^2*d + 60*a^3*b^5
*c*d^2 - 35*a^4*b^4*d^3)/((b*x + a)^4*b^4) + 180*(2*a^2*b^8*c^3 -
 10*a^3*b^7*c^2*d + 15*a^4*b^6*c*d^2 - 7*a^5*b^5*d^3)/((b*x + a)^
5*b^5))*(b*x + a)^6/b^8 + (4*a^3*b^3*c^3 - 15*a^4*b^2*c^2*d + 18*
a^5*b*c*d^2 - 7*a^6*d^3)*ln(abs(b*x + a)/((b*x + a)^2*abs(b)))/b^
8 - (a^4*b^9*c^3/(b*x + a) - 3*a^5*b^8*c^2*d/(b*x + a) + 3*a^6*b^
7*c*d^2/(b*x + a) - a^7*b^6*d^3/(b*x + a))/b^14
```

3.239 $\int \frac{x^3(c+dx)^3}{(a+bx)^2}\,dx$

Optimal. Leaf size=164

$$\frac{a^3(bc-ad)^3}{b^7(a+bx)}+\frac{3a^2(bc-2ad)(bc-ad)^2\log(a+bx)}{b^7}-\frac{ax(2bc-5ad)(bc-ad)^2}{b^6}+\frac{x^2(bc-4ad)(bc-ad)^2}{2b^5}+\frac{dx^3(bc-ad)^2}{b^4}+\frac{d^2x^4(3bc-2ad)}{4b^3}+\frac{d^3x^5}{5b^2}$$

```
[Out] -((a*(2*b*c - 5*a*d)*(b*c - a*d)^2*x)/b^6) + ((b*c - 4*a*d)*(b*c
- a*d)^2*x^2)/(2*b^5) + (d*(b*c - a*d)^2*x^3)/b^4 + (d^2*(3*b*c -
 2*a*d)*x^4)/(4*b^3) + (d^3*x^5)/(5*b^2) + (a^3*(b*c - a*d)^3)/(b
^7*(a + b*x)) + (3*a^2*(b*c - 2*a*d)*(b*c - a*d)^2*Log[a + b*x])/
b^7
```

Rubi [A] time = 0.405794, antiderivative size = 164, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{a^3(bc-ad)^3}{b^7(a+bx)}+\frac{3a^2(bc-2ad)(bc-ad)^2\log(a+bx)}{b^7}-\frac{ax(2bc-5ad)(bc-ad)^2}{b^6}+\frac{x^2(bc-4ad)(bc-ad)^2}{2b^5}+\frac{dx^3(bc-ad)^2}{b^4}+\frac{d^2x^4(3bc-2ad)}{4b^3}+\frac{d^3x^5}{5b^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^3*(c + d*x)^3)/(a + b*x)^2,x]
```

```
[Out] -((a*(2*b*c - 5*a*d)*(b*c - a*d)^2*x)/b^6) + ((b*c - 4*a*d)*(b*c
- a*d)^2*x^2)/(2*b^5) + (d*(b*c - a*d)^2*x^3)/b^4 + (d^2*(3*b*c -
 2*a*d)*x^4)/(4*b^3) + (d^3*x^5)/(5*b^2) + (a^3*(b*c - a*d)^3)/(b
^7*(a + b*x)) + (3*a^2*(b*c - 2*a*d)*(b*c - a*d)^2*Log[a + b*x])/
b^7
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{a^3\,(ad-bc)^3}{b^7\,(a+bx)}-\frac{3a^2\,(ad-bc)^2\,(2ad-bc)\log{(a+bx)}}{b^7}+\frac{d^3x^5}{5b^2}-\frac{d^2x^4\,(2ad-3bc)}{4b^3}+\frac{dx^3\,(ad-bc)^2}{b^4}-\frac{(ad-bc)^2\,(4ad-bc)\int x\,dx}{b^5}+\frac{(ad-bc)^2\,(5ad-2bc)\int a\,dx}{b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3*(d*x+c)**3/(b*x+a)**2,x)
```

```
[Out] -a**3*(a*d - b*c)**3/(b**7*(a + b*x)) - 3*a**2*(a*d - b*c)**2*(2*
a*d - b*c)*log(a + b*x)/b**7 + d**3*x**5/(5*b**2) - d**2*x**4*(2*
a*d - 3*b*c)/(4*b**3) + d*x**3*(a*d - b*c)**2/b**4 - (a*d - b*c)*
*2*(4*a*d - b*c)*Integral(x, x)/b**5 + (a*d - b*c)**2*(5*a*d - 2*
b*c)*Integral(a, x)/b**6
```

Mathematica [A] time = 0.0966755, size = 160, normalized size = 0.98

$$\frac{-\frac{20a^3(ad-bc)^3}{a+bx}-60a^2(bc-ad)^2(2ad-bc)\log(a+bx)+5b^4d^2x^4(3bc-2ad)+20b^3dx^3(bc-ad)^2+10b^2x^2(bc-4ad)(bc-a}{20b^7}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^3*(c + d*x)^3)/(a + b*x)^2,x]
```

```
[Out] (20*a*b*(b*c - a*d)^2*(-2*b*c + 5*a*d)*x + 10*b^2*(b*c - 4*a*d)*(
b*c - a*d)^2*x^2 + 20*b^3*d*(b*c - a*d)^2*x^3 + 5*b^4*d^2*(3*b*c
- 2*a*d)*x^4 + 4*b^5*d^3*x^5 - (20*a^3*(-(b*c) + a*d)^3)/(a + b*x
) - 60*a^2*(b*c - a*d)^2*(-(b*c) + 2*a*d)*Log[a + b*x])/(20*b^7)
```

Maple [B] time = 0.014, size = 318, normalized size = 1.9

$$\frac{d^3x^5}{5\,b^2}-\frac{x^4ad^3}{2\,b^3}+\frac{3\,x^4cd^2}{4\,b^2}+\frac{x^3a^2d^3}{b^4}-2\,\frac{x^3acd^2}{b^3}+\frac{x^3c^2d}{b^2}-2\,\frac{x^2a^3d^3}{b^5}+\frac{9\,a^2x^2cd^2}{2\,b^4}-3\,\frac{x^2ac^2d}{b^3}+\frac{c^3x^2}{2\,b^2}+5\,\frac{a^4d^3x}{b^6}-12\,\frac{a^3cd^2x}{b^5}+9\,\frac{a^2c^2dx}{b^4}-2\,\frac{ac^3x}{b^3}-6\,\frac{a^5\ln(bx+a)\,d^3}{b^7}+15\,\frac{a^4\ln(bx+a)\,cd^2}{b^6}-12\,\frac{a^3\ln(bx+a)\,c^2d}{b^5}+3\,\frac{a^2\ln(bx+a)\,c^3}{b^4}-\frac{a^6d^3}{b^7\,(bx+a)}+3\,\frac{a^5cd^2}{b^6\,(bx+a)}-3\,\frac{a^4c^2d}{b^5\,(bx+a)}+\frac{a^3c^3}{b^4\,(bx+a)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^3*(d*x+c)^3/(b*x+a)^2,x)
```

```
[Out] 1/5*d^3*x^5/b^2-1/2/b^3*x^4*a*d^3+3/4/b^2*x^4*c*d^2+1/b^4*x^3*a^2
*d^3-2/b^3*x^3*a*c*d^2+1/b^2*x^3*c^2*d-2/b^5*x^2*a^3*d^3+9/2/b^4*
x^2*a^2*c*d^2-3/b^3*x^2*a*c^2*d+1/2/b^2*c^3*x^2+5/b^6*a^4*d^3*x-1
2/b^5*a^3*c*d^2*x+9/b^4*a^2*c^2*d*x-2/b^3*a*c^3*x-6*a^5/b^7*ln(b*
x+a)*d^3+15*a^4/b^6*ln(b*x+a)*c*d^2-12*a^3/b^5*ln(b*x+a)*c^2*d+3*
a^2/b^4*ln(b*x+a)*c^3-a^6/b^7/(b*x+a)*d^3+3*a^5/b^6/(b*x+a)*c*d^2
-3*a^4/b^5/(b*x+a)*c^2*d+a^3/b^4/(b*x+a)*c^3
```

Maxima [A] time = 1.35169, size = 365, normalized size = 2.23

$$\frac{a^3b^3c^3-3\,a^4b^2c^2d+3\,a^5bcd^2-a^6d^3}{b^8x+ab^7}+\frac{4\,b^4d^3x^5+5\,\left(3\,b^4cd^2-2\,ab^3d^3\right)x^4+20\,\left(b^4c^2d-2\,ab^3cd^2+a^2b^2d^3\right)x^3+10\,\left(b^4c^3-6\,ab^3c^2d+9\,a^2b^2cd^2-4\,a^3bd^3\right)x^2-2}{20\,b^6}+\frac{3\,\left(a^2b^3c^3-4\,a^3b^2c^2d+5\,a^4bcd^2-2\,a^5d^3\right)\log(bx+a)}{b^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3*x^3/(b*x + a)^2,x, algorithm="maxima")
```

```
[Out] (a^3*b^3*c^3 - 3*a^4*b^2*c^2*d + 3*a^5*b*c*d^2 - a^6*d^3)/(b^8*x
+ a*b^7) + 1/20*(4*b^4*d^3*x^5 + 5*(3*b^4*c*d^2 - 2*a*b^3*d^3)*x^
4 + 20*(b^4*c^2*d - 2*a*b^3*c*d^2 + a^2*b^2*d^3)*x^3 + 10*(b^4*c^
3 - 6*a*b^3*c^2*d + 9*a^2*b^2*c*d^2 - 4*a^3*b*d^3)*x^2 - 20*(2*a*
b^3*c^3 - 9*a^2*b^2*c^2*d + 12*a^3*b*c*d^2 - 5*a^4*d^3)*x)/b^6 +
3*(a^2*b^3*c^3 - 4*a^3*b^2*c^2*d + 5*a^4*b*c*d^2 - 2*a^5*d^3)*log
(b*x + a)/b^7
```

Fricas [A] time = 0.210074, size = 494, normalized size = 3.01

$$4\,b^6d^3x^6+20\,a^3b^3c^3-60\,a^4b^2c^2d+60\,a^5bcd^2-20\,a^6d^3+3\,\left(5\,b^6cd^2-2\,ab^5d^3\right)x^5+5\,\left(4\,b^6c^2d-5\,ab^5cd^2+2\,a^2b^4d^3\right)x^4+$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3*x^3/(b*x + a)^2,x, algorithm="fricas")
```

```
[Out] 1/20*(4*b^6*d^3*x^6 + 20*a^3*b^3*c^3 - 60*a^4*b^2*c^2*d + 60*a^5*
b*c*d^2 - 20*a^6*d^3 + 3*(5*b^6*c*d^2 - 2*a*b^5*d^3)*x^5 + 5*(4*b
^6*c^2*d - 5*a*b^5*c*d^2 + 2*a^2*b^4*d^3)*x^4 + 10*(b^6*c^3 - 4*a
*b^5*c^2*d + 5*a^2*b^4*c*d^2 - 2*a^3*b^3*d^3)*x^3 - 30*(a*b^5*c^3
 - 4*a^2*b^4*c^2*d + 5*a^3*b^3*c*d^2 - 2*a^4*b^2*d^3)*x^2 - 20*(2
*a^2*b^4*c^3 - 9*a^3*b^3*c^2*d + 12*a^4*b^2*c*d^2 - 5*a^5*b*d^3)*
x + 60*(a^3*b^3*c^3 - 4*a^4*b^2*c^2*d + 5*a^5*b*c*d^2 - 2*a^6*d^3
 + (a^2*b^4*c^3 - 4*a^3*b^3*c^2*d + 5*a^4*b^2*c*d^2 - 2*a^5*b*d^3
)*x)*log(b*x + a))/(b^8*x + a*b^7)
```

Sympy [A] time = 6.72947, size = 248, normalized size = 1.51

$$-\frac{3a^2(ad-bc)^2(2ad-bc)\log(a+bx)}{b^7}-\frac{a^6d^3-3a^5bcd^2+3a^4b^2c^2d-a^3b^3c^3}{ab^7+b^8x}+\frac{d^3x^5}{5b^2}-\frac{x^4\left(2ad^3-3bcd^2\right)}{4b^3}+\frac{x^3\left(a^2d^3-2abcd^2+b^2c^2d\right)}{b^4}-\frac{x^2\left(4a^3d^3-9a^2bcd^2+6ab^2c^2d-b^3c^3\right)}{2b^5}+\frac{x\left(5a^4d^3-12a^3bcd^2+9a^2b^2c^2d-2ab^3c^3\right)}{b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**3*(d*x+c)**3/(b*x+a)**2,x)
```

```
[Out] -3*a**2*(a*d - b*c)**2*(2*a*d - b*c)*log(a + b*x)/b**7 - (a**6*d*
*3 - 3*a**5*b*c*d**2 + 3*a**4*b**2*c**2*d - a**3*b**3*c**3)/(a*b*
*7 + b**8*x) + d**3*x**5/(5*b**2) - x**4*(2*a*d**3 - 3*b*c*d**2)/
(4*b**3) + x**3*(a**2*d**3 - 2*a*b*c*d**2 + b**2*c**2*d)/b**4 - x
**2*(4*a**3*d**3 - 9*a**2*b*c*d**2 + 6*a*b**2*c**2*d - b**3*c**3)
/(2*b**5) + x*(5*a**4*d**3 - 12*a**3*b*c*d**2 + 9*a**2*b**2*c**2*
d - 2*a*b**3*c**3)/b**6
```

GIAC/XCAS [A] time = 0.28599, size = 460, normalized size = 2.8

$$\frac{\left(4\,d^3+\frac{15\,\left(b^2cd^2-2\,abd^3\right)}{(bx+a)b}+\frac{20\,\left(b^4c^2d-5\,ab^3cd^2+5\,a^2b^2d^3\right)}{(bx+a)^2b^2}+\frac{10\,\left(b^6c^3-12\,ab^5c^2d+30\,a^2b^4cd^2-20\,a^3b^3d^3\right)}{(bx+a)^3b^3}-\frac{60\,\left(ab^7c^3-6\,a^2b^6c^2d+10\,a^3b^5cd^2-5\,a^4b\cdots\right.}{(bx+a)^4b^4}\cdots}{20\,b^7}-\frac{3\,\left(a^2b^3c^3-4\,a^3b^2c^2d+5\,a^4bcd^2-2\,a^5d^3\right)\ln\left(\frac{|bx+a|}{(bx+a)^2|b|}\right)}{b^7}+\frac{\frac{a^3b^8c^3}{bx+a}-\frac{3\,a^4b^7c^2d}{bx+a}+\frac{3\,a^5b^6cd^2}{bx+a}-\frac{a^6b^5d^3}{bx+a}}{b^{12}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3*x^3/(b*x + a)^2,x, algorithm="giac")
```

```
[Out] 1/20*(4*d^3 + 15*(b^2*c*d^2 - 2*a*b*d^3)/((b*x + a)*b) + 20*(b^4*
c^2*d - 5*a*b^3*c*d^2 + 5*a^2*b^2*d^3)/((b*x + a)^2*b^2) + 10*(b^
6*c^3 - 12*a*b^5*c^2*d + 30*a^2*b^4*c*d^2 - 20*a^3*b^3*d^3)/((b*x
 + a)^3*b^3) - 60*(a*b^7*c^3 - 6*a^2*b^6*c^2*d + 10*a^3*b^5*c*d^2
 - 5*a^4*b^4*d^3)/((b*x + a)^4*b^4))*(b*x + a)^5/b^7 - 3*(a^2*b^3
*c^3 - 4*a^3*b^2*c^2*d + 5*a^4*b*c*d^2 - 2*a^5*d^3)*ln(abs(b*x +
a)/((b*x + a)^2*abs(b)))/b^7 + (a^3*b^8*c^3/(b*x + a) - 3*a^4*b^7
*c^2*d/(b*x + a) + 3*a^5*b^6*c*d^2/(b*x + a) - a^6*b^5*d^3/(b*x +
 a))/b^12
```

3.240 $\int \frac{x^2(c+dx)^3}{(a+bx)^2}\,dx$

Optimal. Leaf size=136

$$-\frac{a^2(bc-ad)^3}{b^6(a+bx)}-\frac{a(2bc-5ad)(bc-ad)^2\log(a+bx)}{b^6}+\frac{x(bc-4ad)(bc-ad)^2}{b^5}+\frac{3dx^2(bc-ad)^2}{2b^4}+\frac{d^2x^3(3bc-2ad)}{3b^3}+\frac{d^3x^4}{4b^2}$$

```
[Out] ((b*c - 4*a*d)*(b*c - a*d)^2*x)/b^5 + (3*d*(b*c - a*d)^2*x^2)/(2*
b^4) + (d^2*(3*b*c - 2*a*d)*x^3)/(3*b^3) + (d^3*x^4)/(4*b^2) - (a
^2*(b*c - a*d)^3)/(b^6*(a + b*x)) - (a*(2*b*c - 5*a*d)*(b*c - a*d
)^2*Log[a + b*x])/b^6
```

Rubi [A] time = 0.295445, antiderivative size = 136, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{a^2(bc-ad)^3}{b^6(a+bx)}-\frac{a(2bc-5ad)(bc-ad)^2\log(a+bx)}{b^6}+\frac{x(bc-4ad)(bc-ad)^2}{b^5}+\frac{3dx^2(bc-ad)^2}{2b^4}+\frac{d^2x^3(3bc-2ad)}{3b^3}+\frac{d^3x^4}{4b^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^2*(c + d*x)^3)/(a + b*x)^2,x]
```

```
[Out] ((b*c - 4*a*d)*(b*c - a*d)^2*x)/b^5 + (3*d*(b*c - a*d)^2*x^2)/(2*
b^4) + (d^2*(3*b*c - 2*a*d)*x^3)/(3*b^3) + (d^3*x^4)/(4*b^2) - (a
^2*(b*c - a*d)^3)/(b^6*(a + b*x)) - (a*(2*b*c - 5*a*d)*(b*c - a*d
)^2*Log[a + b*x])/b^6
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{a^2\left(ad-bc\right)^3}{b^6\left(a+bx\right)}+\frac{a\left(ad-bc\right)^2\left(5ad-2bc\right)\log\left(a+bx\right)}{b^6}-\left(ad-bc\right)^2\left(4ad-bc\right)\int\frac{1}{b^5}\,dx+\frac{d^3x^4}{4b^2}-\frac{d^2x^3\left(2ad-3bc\right)}{3b^3}+\frac{3d\left(ad-bc\right)^2\int x\,dx}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(d*x+c)**3/(b*x+a)**2,x)
```

```
[Out] a**2*(a*d - b*c)**3/(b**6*(a + b*x)) + a*(a*d - b*c)**2*(5*a*d -
2*b*c)*log(a + b*x)/b**6 - (a*d - b*c)**2*(4*a*d - b*c)*Integral(
b**(-5), x) + d**3*x**4/(4*b**2) - d**2*x**3*(2*a*d - 3*b*c)/(3*b
**3) + 3*d*(a*d - b*c)**2*Integral(x, x)/b**4
```

Mathematica [A] time = 0.0807202, size = 130, normalized size = 0.96

$$\frac{\frac{12a^2(ad-bc)^3}{a+bx}+4b^3d^2x^3(3bc-2ad)+18b^2dx^2(bc-ad)^2+12bx(bc-4ad)(bc-ad)^2+12a(bc-ad)^2(5ad-2bc)\log(a+bx)}{12b^6}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^2*(c + d*x)^3)/(a + b*x)^2,x]
```

```
[Out] (12*b*(b*c - 4*a*d)*(b*c - a*d)^2*x + 18*b^2*d*(b*c - a*d)^2*x^2
+ 4*b^3*d^2*(3*b*c - 2*a*d)*x^3 + 3*b^4*d^3*x^4 + (12*a^2*(-(b*c)
 + a*d)^3)/(a + b*x) + 12*a*(b*c - a*d)^2*(-2*b*c + 5*a*d)*Log[a
+ b*x])/(12*b^6)
```

Maple [A] time = 0.013, size = 260, normalized size = 1.9

$$\frac{d^3x^4}{4\,b^2} - \frac{2\,x^3ad^3}{3\,b^3} + \frac{cx^3d^2}{b^2} + \frac{3\,a^2x^2d^3}{2\,b^4} - 3\,\frac{x^2acd^2}{b^3} + \frac{3\,x^2c^2d}{2\,b^2} - 4\,\frac{a^3d^3x}{b^5} + 9\,\frac{a^2cd^2x}{b^4} - 6\,\frac{ac^2dx}{b^3} + \frac{c^3x}{b^2} + 5\,\frac{a^4\ln(bx+a)\,d^3}{b^6} - 12\,\frac{a^3\ln(bx+a)\,cd^2}{b^5} + 9\,\frac{a^2\ln(bx+a)\,c^2d}{b^4} - 2\,\frac{a\ln(bx+a)\,c^3}{b^3} + \frac{a^5d^3}{b^6\,(bx+a)} - 3\,\frac{a^4cd^2}{b^5\,(bx+a)} + 3\,\frac{a^3c^2d}{b^4\,(bx+a)} - \frac{a^2c^3}{b^3\,(bx+a)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(d*x+c)^3/(b*x+a)^2,x)
```

```
[Out] 1/4*d^3*x^4/b^2-2/3/b^3*x^3*a*d^3+1/b^2*x^3*c*d^2+3/2/b^4*x^2*a^2
*d^3-3/b^3*x^2*a*c*d^2+3/2/b^2*x^2*c^2*d-4/b^5*a^3*d^3*x+9/b^4*a^
2*c*d^2*x-6/b^3*a*c^2*d*x+1/b^2*c^3*x+5*a^4/b^6*ln(b*x+a)*d^3-12*
a^3/b^5*ln(b*x+a)*c*d^2+9*a^2/b^4*ln(b*x+a)*c^2*d-2*a/b^3*ln(b*x+
a)*c^3+a^5/b^6/(b*x+a)*d^3-3*a^4/b^5/(b*x+a)*c*d^2+3*a^3/b^4/(b*x
+a)*c^2*d-a^2/b^3/(b*x+a)*c^3
```

Maxima [A] time = 1.36073, size = 297, normalized size = 2.18

$$-\frac{a^2b^3c^3 - 3\,a^3b^2c^2d + 3\,a^4bcd^2 - a^5d^3}{b^7x + ab^6} + \frac{3\,b^3d^3x^4 + 4\left(3\,b^3cd^2 - 2\,ab^2d^3\right)x^3 + 18\left(b^3c^2d - 2\,ab^2cd^2 + a^2bd^3\right)x^2 + 12\left(b^3c^3 - 6\,ab^2c^2d + 9\,a^2bcd^2 - 4\,a^3d^3\right)x}{12\,b^5} - \frac{\left(2\,ab^3c^3 - 9\,a^2b^2c^2d + 12\,a^3bcd^2 - 5\,a^4d^3\right)\log(bx+a)}{b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3*x^2/(b*x + a)^2,x, algorithm="maxima")
```

```
[Out] -(a^2*b^3*c^3 - 3*a^3*b^2*c^2*d + 3*a^4*b*c*d^2 - a^5*d^3)/(b^7*x
 + a*b^6) + 1/12*(3*b^3*d^3*x^4 + 4*(3*b^3*c*d^2 - 2*a*b^2*d^3)*x
^3 + 18*(b^3*c^2*d - 2*a*b^2*c*d^2 + a^2*b*d^3)*x^2 + 12*(b^3*c^3
 - 6*a*b^2*c^2*d + 9*a^2*b*c*d^2 - 4*a^3*d^3)*x)/b^5 - (2*a*b^3*c
^3 - 9*a^2*b^2*c^2*d + 12*a^3*b*c*d^2 - 5*a^4*d^3)*log(b*x + a)/b
^6
```

Fricas [A] time = 0.206712, size = 424, normalized size = 3.12

$$\frac{3\,b^5d^3x^5 - 12\,a^2b^3c^3 + 36\,a^3b^2c^2d - 36\,a^4bcd^2 + 12\,a^5d^3 + \left(12\,b^5cd^2 - 5\,ab^4d^3\right)x^4 + 2\left(9\,b^5c^2d - 12\,ab^4cd^2 + 5\,a^2b^3d^3\right)x^3 +}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3*x^2/(b*x + a)^2,x, algorithm="fricas")
```

```
[Out] 1/12*(3*b^5*d^3*x^5 - 12*a^2*b^3*c^3 + 36*a^3*b^2*c^2*d - 36*a^4*
b*c*d^2 + 12*a^5*d^3 + (12*b^5*c*d^2 - 5*a*b^4*d^3)*x^4 + 2*(9*b^
5*c^2*d - 12*a*b^4*c*d^2 + 5*a^2*b^3*d^3)*x^3 + 6*(2*b^5*c^3 - 9*
a*b^4*c^2*d + 12*a^2*b^3*c*d^2 - 5*a^3*b^2*d^3)*x^2 + 12*(a*b^4*c
^3 - 6*a^2*b^3*c^2*d + 9*a^3*b^2*c*d^2 - 4*a^4*b*d^3)*x - 12*(2*a
```

```
^2*b^3*c^3 - 9*a^3*b^2*c^2*d + 12*a^4*b*c*d^2 - 5*a^5*d^3 + (2*a*
b^4*c^3 - 9*a^2*b^3*c^2*d + 12*a^3*b^2*c*d^2 - 5*a^4*b*d^3)*x)*lo
g(b*x + a))/(b^7*x + a*b^6)
```

Sympy [A] time = 6.10854, size = 199, normalized size = 1.46

$$\frac{a\left(ad-bc\right)^{2}\left(5ad-2bc\right)\log\left(a+bx\right)}{b^{6}}+\frac{a^{5}d^{3}-3a^{4}bcd^{2}+3a^{3}b^{2}c^{2}d-a^{2}b^{3}c^{3}}{ab^{6}+b^{7}x}+\frac{d^{3}x^{4}}{4b^{2}}-\frac{x^{3}\left(2ad^{3}-3bcd^{2}\right)}{3b^{3}}+\frac{x^{2}\left(3a^{2}d^{3}-6abcd^{2}+3b^{2}c^{2}d\right)}{2b^{4}}-\frac{x\left(4a^{3}d^{3}-9a^{2}bcd^{2}+6ab^{2}c^{2}d-b^{3}c^{3}\right)}{b^{5}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(d*x+c)**3/(b*x+a)**2,x)
```

```
[Out] a*(a*d - b*c)**2*(5*a*d - 2*b*c)*log(a + b*x)/b**6 + (a**5*d**3 -
 3*a**4*b*c*d**2 + 3*a**3*b**2*c**2*d - a**2*b**3*c**3)/(a*b**6 +
 b**7*x) + d**3*x**4/(4*b**2) - x**3*(2*a*d**3 - 3*b*c*d**2)/(3*b
**3) + x**2*(3*a**2*d**3 - 6*a*b*c*d**2 + 3*b**2*c**2*d)/(2*b**4)
 - x*(4*a**3*d**3 - 9*a**2*b*c*d**2 + 6*a*b**2*c**2*d - b**3*c**3
)/b**5
```

GIAC/XCAS [A] time = 0.280576, size = 386, normalized size = 2.84

$$\frac{\left(3\,d^{3}+\frac{4\,\left(3\,b^{2}cd^{2}-5\,abd^{3}\right)}{(bx+a)b}+\frac{6\,\left(3\,b^{4}c^{2}d-12\,ab^{3}cd^{2}+10\,a^{2}b^{2}d^{3}\right)}{(bx+a)^{2}b^{2}}+\frac{12\,\left(b^{6}c^{3}-9\,ab^{5}c^{2}d+18\,a^{2}b^{4}cd^{2}-10\,a^{3}b^{3}d^{3}\right)}{(bx+a)^{3}b^{3}}\right)(bx+a)^{4}}{12\,b^{6}}+\frac{\left(2\,ab^{3}c^{3}-9\,a^{2}b^{2}c^{2}d+12\,a^{3}bcd^{2}-5\,a^{4}d^{3}\right)\ln\left(\frac{|bx+a|}{(bx+a)^{2}|b|}\right)}{b^{6}}-\frac{\frac{a^{2}b^{7}c^{3}}{bx+a}-\frac{3\,a^{3}b^{6}c^{2}d}{bx+a}+\frac{3\,a^{4}b^{5}cd^{2}}{bx+a}-\frac{a^{5}b^{4}d^{3}}{bx+a}}{b^{10}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3*x^2/(b*x + a)^2,x, algorithm="giac")
```

```
[Out] 1/12*(3*d^3 + 4*(3*b^2*c*d^2 - 5*a*b*d^3)/((b*x + a)*b) + 6*(3*b^
4*c^2*d - 12*a*b^3*c*d^2 + 10*a^2*b^2*d^3)/((b*x + a)^2*b^2) + 12
*(b^6*c^3 - 9*a*b^5*c^2*d + 18*a^2*b^4*c*d^2 - 10*a^3*b^3*d^3)/((
b*x + a)^3*b^3))*(b*x + a)^4/b^6 + (2*a*b^3*c^3 - 9*a^2*b^2*c^2*d
 + 12*a^3*b*c*d^2 - 5*a^4*d^3)*ln(abs(b*x + a)/((b*x + a)^2*abs(b
)))/b^6 - (a^2*b^7*c^3/(b*x + a) - 3*a^3*b^6*c^2*d/(b*x + a) + 3*
a^4*b^5*c*d^2/(b*x + a) - a^5*b^4*d^3/(b*x + a))/b^10
```

3.241 $\int \frac{x(c+dx)^3}{(a+bx)^2}\,dx$

Optimal. Leaf size=103

$$\frac{a(bc-ad)^3}{b^5(a+bx)}+\frac{(bc-4ad)(bc-ad)^2\log(a+bx)}{b^5}+\frac{3dx(bc-ad)^2}{b^4}+\frac{d^2x^2(3bc-2ad)}{2b^3}+\frac{d^3x^3}{3b^2}$$

```
[Out] (3*d*(b*c - a*d)^2*x)/b^4 + (d^2*(3*b*c - 2*a*d)*x^2)/(2*b^3) + (
d^3*x^3)/(3*b^2) + (a*(b*c - a*d)^3)/(b^5*(a + b*x)) + ((b*c - 4*
a*d)*(b*c - a*d)^2*Log[a + b*x])/b^5
```

Rubi [A] time = 0.199916, antiderivative size = 103, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$\frac{a(bc-ad)^3}{b^5(a+bx)}+\frac{(bc-4ad)(bc-ad)^2\log(a+bx)}{b^5}+\frac{3dx(bc-ad)^2}{b^4}+\frac{d^2x^2(3bc-2ad)}{2b^3}+\frac{d^3x^3}{3b^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(x*(c + d*x)^3)/(a + b*x)^2,x]
```

```
[Out] (3*d*(b*c - a*d)^2*x)/b^4 + (d^2*(3*b*c - 2*a*d)*x^2)/(2*b^3) + (
d^3*x^3)/(3*b^2) + (a*(b*c - a*d)^3)/(b^5*(a + b*x)) + ((b*c - 4*
a*d)*(b*c - a*d)^2*Log[a + b*x])/b^5
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{a\left(ad-bc\right)^3}{b^5\left(a+bx\right)}+\frac{d^3x^3}{3b^2}-\frac{d^2\left(2ad-3bc\right)\int x\,dx}{b^3}+\frac{3dx\left(ad-bc\right)^2}{b^4}-\frac{\left(ad-bc\right)^2\left(4ad-bc\right)\log\left(a+bx\right)}{b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(d*x+c)**3/(b*x+a)**2,x)
```

```
[Out] -a*(a*d - b*c)**3/(b**5*(a + b*x)) + d**3*x**3/(3*b**2) - d**2*(2
*a*d - 3*b*c)*Integral(x, x)/b**3 + 3*d*x*(a*d - b*c)**2/b**4 - (
a*d - b*c)**2*(4*a*d - b*c)*log(a + b*x)/b**5
```

Mathematica [A] time = 0.121971, size = 100, normalized size = 0.97

$$\frac{3b^2d^2x^2(3bc-2ad)-\frac{6a(ad-bc)^3}{a+bx}+18bdx(bc-ad)^2+6(bc-4ad)(bc-ad)^2\log(a+bx)+2b^3d^3x^3}{6b^5}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x*(c + d*x)^3)/(a + b*x)^2,x]
```

```
[Out] (18*b*d*(b*c - a*d)^2*x + 3*b^2*d^2*(3*b*c - 2*a*d)*x^2 + 2*b^3*d
^3*x^3 - (6*a*(-(b*c) + a*d)^3)/(a + b*x) + 6*(b*c - 4*a*d)*(b*c
- a*d)^2*Log[a + b*x])/(6*b^5)
```

Maple [B] time = 0.013, size = 205, normalized size = 2.

$$\frac{d^3x^3}{3\,b^2}-\frac{d^3x^2a}{b^3}+\frac{3\,d^2x^2c}{2\,b^2}+3\,\frac{a^2d^3x}{b^4}-6\,\frac{acd^2x}{b^3}+3\,\frac{c^2dx}{b^2}-4\,\frac{\ln\left(bx+a\right)a^3d^3}{b^5}+9\,\frac{\ln\left(bx+a\right)a^2cd^2}{b^4}-6\,\frac{\ln\left(bx+a\right)ac^2d}{b^3}+\frac{\ln\left(bx+a\right)c^3}{b^2}-\frac{a^4d^3}{b^5\left(bx+a\right)}+3\,\frac{a^3cd^2}{b^4\left(bx+a\right)}-3\,\frac{a^2c^2d}{b^3\left(bx+a\right)}+\frac{ac^3}{b^2\left(bx+a\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(d*x+c)^3/(b*x+a)^2,x)
```

```
[Out] 1/3*d^3*x^3/b^2-d^3/b^3*x^2*a+3/2*d^2/b^2*x^2*c+3*d^3/b^4*a^2*x-6
*d^2/b^3*a*c*x+3*d/b^2*c^2*x-4/b^5*ln(b*x+a)*a^3*d^3+9/b^4*ln(b*x
+a)*a^2*c*d^2-6/b^3*ln(b*x+a)*a*c^2*d+1/b^2*ln(b*x+a)*c^3-a^4/b^5
/(b*x+a)*d^3+3*a^3/b^4/(b*x+a)*c*d^2-3*a^2/b^3/(b*x+a)*c^2*d+a/b^
2/(b*x+a)*c^3
```

Maxima [A] time = 1.33623, size = 224, normalized size = 2.17

$$\frac{ab^3c^3 - 3\,a^2b^2c^2d + 3\,a^3bcd^2 - a^4d^3}{b^6x + ab^5} + \frac{2\,b^2d^3x^3 + 3\left(3\,b^2cd^2 - 2\,abd^3\right)x^2 + 18\left(b^2c^2d - 2\,abcd^2 + a^2d^3\right)x}{6\,b^4} + \frac{\left(b^3c^3 - 6\,ab^2c^2d + 9\,a^2bcd^2 - 4\,a^3d^3\right)\log\left(bx + a\right)}{b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3*x/(b*x + a)^2,x, algorithm="maxima")
```

```
[Out] (a*b^3*c^3 - 3*a^2*b^2*c^2*d + 3*a^3*b*c*d^2 - a^4*d^3)/(b^6*x +
a*b^5) + 1/6*(2*b^2*d^3*x^3 + 3*(3*b^2*c*d^2 - 2*a*b*d^3)*x^2 + 1
8*(b^2*c^2*d - 2*a*b*c*d^2 + a^2*d^3)*x)/b^4 + (b^3*c^3 - 6*a*b^2
*c^2*d + 9*a^2*b*c*d^2 - 4*a^3*d^3)*log(b*x + a)/b^5
```

Fricas [A] time = 0.210492, size = 332, normalized size = 3.22

$$\frac{2\,b^4d^3x^4 + 6\,ab^3c^3 - 18\,a^2b^2c^2d + 18\,a^3bcd^2 - 6\,a^4d^3 + \left(9\,b^4cd^2 - 4\,ab^3d^3\right)x^3 + 3\left(6\,b^4c^2d - 9\,ab^3cd^2 + 4\,a^2b^2d^3\right)x^2 + 18\,(a}{6\,(b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3*x/(b*x + a)^2,x, algorithm="fricas")
```

```
[Out] 1/6*(2*b^4*d^3*x^4 + 6*a*b^3*c^3 - 18*a^2*b^2*c^2*d + 18*a^3*b*c*
d^2 - 6*a^4*d^3 + (9*b^4*c*d^2 - 4*a*b^3*d^3)*x^3 + 3*(6*b^4*c^2*
d - 9*a*b^3*c*d^2 + 4*a^2*b^2*d^3)*x^2 + 18*(a*b^3*c^2*d - 2*a^2*
b^2*c*d^2 + a^3*b*d^3)*x + 6*(a*b^3*c^3 - 6*a^2*b^2*c^2*d + 9*a^3
*b*c*d^2 - 4*a^4*d^3 + (b^4*c^3 - 6*a*b^3*c^2*d + 9*a^2*b^2*c*d^2
 - 4*a^3*b*d^3)*x)*log(b*x + a))/(b^6*x + a*b^5)
```

Sympy [A] time = 5.39421, size = 146, normalized size = 1.42

$$-\frac{a^4d^3 - 3a^3bcd^2 + 3a^2b^2c^2d - ab^3c^3}{ab^5 + b^6x} + \frac{d^3x^3}{3b^2} - \frac{x^2\left(2ad^3 - 3bcd^2\right)}{2b^3} + \frac{x\left(3a^2d^3 - 6abcd^2 + 3b^2c^2d\right)}{b^4} - \frac{(ad - bc)^2\,(4ad - bc)\log\left(a + bx\right)}{b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(d*x+c)**3/(b*x+a)**2,x)
```

```
[Out] -(a**4*d**3 - 3*a**3*b*c*d**2 + 3*a**2*b**2*c**2*d - a*b**3*c**3)
/(a*b**5 + b**6*x) + d**3*x**3/(3*b**2) - x**2*(2*a*d**3 - 3*b*c*
d**2)/(2*b**3) + x*(3*a**2*d**3 - 6*a*b*c*d**2 + 3*b**2*c**2*d)/b
```

```
**4 - (a*d - b*c)**2*(4*a*d - b*c)*log(a + b*x)/b**5
```

GIAC/XCAS [A] time = 0.319496, size = 312, normalized size = 3.03

$$\frac{\frac{\left(2\,d^3+\frac{3\left(3\,b^2cd^2-4\,abd^3\right)}{(bx+a)b}+\frac{18\left(b^4c^2d-3\,ab^3cd^2+2\,a^2b^2d^3\right)}{(bx+a)^2b^2}\right)(bx+a)^3}{b^4}-\frac{6\left(b^3c^3-6\,ab^2c^2d+9\,a^2bcd^2-4\,a^3d^3\right)\ln\left(\frac{|bx+a|}{(bx+a)^2|b|}\right)}{b^4}+\frac{6\left(\frac{ab^6c^3}{bx+a}-\frac{3\,a^2b^5c^2d}{bx+a}+\frac{3\,a^3b^4cd^2}{bx+a}-a^{\cdots}\right)}{b^7}}{6\,b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3*x/(b*x + a)^2,x, algorithm="giac")
```

```
[Out] 1/6*((2*d^3 + 3*(3*b^2*c*d^2 - 4*a*b*d^3)/((b*x + a)*b) + 18*(b^4
*c^2*d - 3*a*b^3*c*d^2 + 2*a^2*b^2*d^3)/((b*x + a)^2*b^2))*(b*x +
 a)^3/b^4 - 6*(b^3*c^3 - 6*a*b^2*c^2*d + 9*a^2*b*c*d^2 - 4*a^3*d^
3)*ln(abs(b*x + a)/((b*x + a)^2*abs(b)))/b^4 + 6*(a*b^6*c^3/(b*x
+ a) - 3*a^2*b^5*c^2*d/(b*x + a) + 3*a^3*b^4*c*d^2/(b*x + a) - a^
4*b^3*d^3/(b*x + a))/b^7)/b
```

3.242 $\int \frac{(c+dx)^3}{(a+bx)^2} dx$

Optimal. Leaf size=75

$$-\frac{(bc-ad)^3}{b^4(a+bx)}+\frac{3d(bc-ad)^2\log(a+bx)}{b^4}+\frac{d^2x(3bc-2ad)}{b^3}+\frac{d^3x^2}{2b^2}$$

```
[Out] (d^2*(3*b*c - 2*a*d)*x)/b^3 + (d^3*x^2)/(2*b^2) - (b*c - a*d)^3/(
b^4*(a + b*x)) + (3*d*(b*c - a*d)^2*Log[a + b*x])/b^4
```

Rubi [A] time = 0.127414, antiderivative size = 75, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.067

$$-\frac{(bc-ad)^3}{b^4(a+bx)}+\frac{3d(bc-ad)^2\log(a+bx)}{b^4}+\frac{d^2x(3bc-2ad)}{b^3}+\frac{d^3x^2}{2b^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^3/(a + b*x)^2,x]
```

```
[Out] (d^2*(3*b*c - 2*a*d)*x)/b^3 + (d^3*x^2)/(2*b^2) - (b*c - a*d)^3/(
b^4*(a + b*x)) + (3*d*(b*c - a*d)^2*Log[a + b*x])/b^4
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-d^2(2ad-3bc)\int\frac{1}{b^3}\,dx+\frac{d^3\int x\,dx}{b^2}+\frac{3d(ad-bc)^2\log(a+bx)}{b^4}+\frac{(ad-bc)^3}{b^4(a+bx)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**3/(b*x+a)**2,x)
```

```
[Out] -d**2*(2*a*d - 3*b*c)*Integral(b**(-3), x) + d**3*Integral(x, x)/
b**2 + 3*d*(a*d - b*c)**2*log(a + b*x)/b**4 + (a*d - b*c)**3/(b**
4*(a + b*x))
```

Mathematica [A] time = 0.0887489, size = 72, normalized size = 0.96

$$\frac{2bd^2x(3bc-2ad)-\frac{2(bc-ad)^3}{a+bx}+6d(bc-ad)^2\log(a+bx)+b^2d^3x^2}{2b^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^3/(a + b*x)^2,x]
```

```
[Out] (2*b*d^2*(3*b*c - 2*a*d)*x + b^2*d^3*x^2 - (2*(b*c - a*d)^3)/(a +
 b*x) + 6*d*(b*c - a*d)^2*Log[a + b*x])/(2*b^4)
```

Maple [B] time = 0.001, size = 149, normalized size = 2.

$$\frac{d^3x^2}{2b^2}-2\frac{d^3ax}{b^3}+3\frac{d^2xc}{b^2}+3\frac{d^3\ln(bx+a)a^2}{b^4}-6\frac{d^2\ln(bx+a)ac}{b^3}+3\frac{d\ln(bx+a)c^2}{b^2}+\frac{a^3d^3}{b^4(bx+a)}-3\frac{a^2cd^2}{b^3(bx+a)}+3\frac{ac^2d}{b^2(bx+a)}-\frac{c^3}{b(bx+a)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^3/(b*x+a)^2,x)
```

```
[Out] 1/2*d^3*x^2/b^2-2*d^3/b^3*a*x+3*d^2/b^2*x*c+3/b^4*d^3*ln(b*x+a)*a
^2-6/b^3*d^2*ln(b*x+a)*a*c+3/b^2*d*ln(b*x+a)*c^2+1/b^4/(b*x+a)*a^
3*d^3-3/b^3/(b*x+a)*a^2*c*d^2+3/b^2/(b*x+a)*a*c^2*d-1/b/(b*x+a)*c
^3
```

Maxima [A] time = 1.35084, size = 159, normalized size = 2.12

$$-\frac{b^3c^3 - 3\,ab^2c^2d + 3\,a^2bcd^2 - a^3d^3}{b^5x + ab^4} + \frac{bd^3x^2 + 2\left(3\,bcd^2 - 2\,ad^3\right)x}{2\,b^3} + \frac{3\left(b^2c^2d - 2\,abcd^2 + a^2d^3\right)\log\left(bx + a\right)}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/(b*x + a)^2,x, algorithm="maxima")
```

```
[Out] -(b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)/(b^5*x + a*b
^4) + 1/2*(b*d^3*x^2 + 2*(3*b*c*d^2 - 2*a*d^3)*x)/b^3 + 3*(b^2*c^
2*d - 2*a*b*c*d^2 + a^2*d^3)*log(b*x + a)/b^4
```

Fricas [A] time = 0.205642, size = 234, normalized size = 3.12

$$\frac{b^3d^3x^3 - 2\,b^3c^3 + 6\,ab^2c^2d - 6\,a^2bcd^2 + 2\,a^3d^3 + 3\left(2\,b^3cd^2 - ab^2d^3\right)x^2 + 2\left(3\,ab^2cd^2 - 2\,a^2bd^3\right)x + 6\left(ab^2c^2d - 2\,a^2bcd^2 + \right.}{2\left(b^5x + ab^4\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/(b*x + a)^2,x, algorithm="fricas")
```

```
[Out] 1/2*(b^3*d^3*x^3 - 2*b^3*c^3 + 6*a*b^2*c^2*d - 6*a^2*b*c*d^2 + 2*
a^3*d^3 + 3*(2*b^3*c*d^2 - a*b^2*d^3)*x^2 + 2*(3*a*b^2*c*d^2 - 2*
a^2*b*d^3)*x + 6*(a*b^2*c^2*d - 2*a^2*b*c*d^2 + a^3*d^3 + (b^3*c^
2*d - 2*a*b^2*c*d^2 + a^2*b*d^3)*x)*log(b*x + a))/(b^5*x + a*b^4)
```

Sympy [A] time = 4.56684, size = 100, normalized size = 1.33

$$\frac{a^3d^3 - 3a^2bcd^2 + 3ab^2c^2d - b^3c^3}{ab^4 + b^5x} + \frac{d^3x^2}{2b^2} - \frac{x\left(2ad^3 - 3bcd^2\right)}{b^3} + \frac{3d\left(ad - bc\right)^2\log\left(a + bx\right)}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**3/(b*x+a)**2,x)
```

```
[Out] (a**3*d**3 - 3*a**2*b*c*d**2 + 3*a*b**2*c**2*d - b**3*c**3)/(a*b*
*4 + b**5*x) + d**3*x**2/(2*b**2) - x*(2*a*d**3 - 3*b*c*d**2)/b**
3 + 3*d*(a*d - b*c)**2*log(a + b*x)/b**4
```

GIAC/XCAS [A] time = 0.271, size = 225, normalized size = 3.

$$\frac{\left(d^3 + \frac{6\left(b^2cd^2 - abd^3\right)}{(bx+a)b}\right)(bx+a)^2}{2\,b^4} - \frac{3\left(b^2c^2d - 2\,abcd^2 + a^2d^3\right)\ln\left(\frac{|bx+a|}{(bx+a)^2|b|}\right)}{b^4} - \frac{\frac{b^5c^3}{bx+a} - \frac{3\,ab^4c^2d}{bx+a} + \frac{3\,a^2b^3cd^2}{bx+a} - \frac{a^3b^2d^3}{bx+a}}{b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/(b*x + a)^2,x, algorithm="giac")
```

```
[Out] 1/2*(d^3 + 6*(b^2*c*d^2 - a*b*d^3)/((b*x + a)*b))*(b*x + a)^2/b^4
 - 3*(b^2*c^2*d - 2*a*b*c*d^2 + a^2*d^3)*ln(abs(b*x + a)/((b*x +
a)^2*abs(b)))/b^4 - (b^5*c^3/(b*x + a) - 3*a*b^4*c^2*d/(b*x + a)
+ 3*a^2*b^3*c*d^2/(b*x + a) - a^3*b^2*d^3/(b*x + a))/b^6
```

3.243 $\int \frac{(c+dx)^3}{x(a+bx)^2} dx$

Optimal. Leaf size=74

$$-\frac{(bc-ad)^2(2ad+bc)\log(a+bx)}{a^2b^3}+\frac{c^3\log(x)}{a^2}+\frac{(bc-ad)^3}{ab^3(a+bx)}+\frac{d^3x}{b^2}$$

```
[Out] (d^3*x)/b^2 + (b*c - a*d)^3/(a*b^3*(a + b*x)) + (c^3*Log[x])/a^2
- ((b*c - a*d)^2*(b*c + 2*a*d)*Log[a + b*x])/(a^2*b^3)
```

Rubi [A] time = 0.133476, antiderivative size = 74, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{(bc-ad)^2(2ad+bc)\log(a+bx)}{a^2b^3}+\frac{c^3\log(x)}{a^2}+\frac{(bc-ad)^3}{ab^3(a+bx)}+\frac{d^3x}{b^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^3/(x*(a + b*x)^2),x]
```

```
[Out] (d^3*x)/b^2 + (b*c - a*d)^3/(a*b^3*(a + b*x)) + (c^3*Log[x])/a^2
- ((b*c - a*d)^2*(b*c + 2*a*d)*Log[a + b*x])/(a^2*b^3)
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$d^3\int \frac{1}{b^2}\,dx-\frac{(ad-bc)^3}{ab^3\,(a+bx)}+\frac{c^3\log{(x)}}{a^2}-\frac{(ad-bc)^2\,(2ad+bc)\log{(a+bx)}}{a^2b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**3/x/(b*x+a)**2,x)
```

```
[Out] d**3*Integral(b**(-2), x) - (a*d - b*c)**3/(a*b**3*(a + b*x)) + c
**3*log(x)/a**2 - (a*d - b*c)**2*(2*a*d + b*c)*log(a + b*x)/(a**2
*b**3)
```

Mathematica [A] time = 0.0997243, size = 74, normalized size = 1.

$$-\frac{(bc-ad)^2(2ad+bc)\log(a+bx)}{a^2b^3}+\frac{c^3\log(x)}{a^2}+\frac{(bc-ad)^3}{ab^3(a+bx)}+\frac{d^3x}{b^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^3/(x*(a + b*x)^2),x]
```

```
[Out] (d^3*x)/b^2 + (b*c - a*d)^3/(a*b^3*(a + b*x)) + (c^3*Log[x])/a^2
- ((b*c - a*d)^2*(b*c + 2*a*d)*Log[a + b*x])/(a^2*b^3)
```

Maple [A] time = 0.015, size = 128, normalized size = 1.7

$$\frac{d^3x}{b^2}+\frac{c^3\ln{(x)}}{a^2}-2\,\frac{a\ln{(bx+a)}\,d^3}{b^3}+3\,\frac{\ln{(bx+a)}\,cd^2}{b^2}-\frac{\ln{(bx+a)}\,c^3}{a^2}\\-\frac{a^2d^3}{b^3\,(bx+a)}+3\,\frac{acd^2}{b^2\,(bx+a)}-3\,\frac{c^2d}{b\,(bx+a)}+\frac{c^3}{a\,(bx+a)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^3/x/(b*x+a)^2,x)
```

```
[Out] d^3*x/b^2+c^3*ln(x)/a^2-2/b^3*a*ln(b*x+a)*d^3+3/b^2*ln(b*x+a)*c*d
^2-1/a^2*ln(b*x+a)*c^3-1/b^3*a^2/(b*x+a)*d^3+3/b^2*a/(b*x+a)*c*d^
2-3/b/(b*x+a)*c^2*d+1/a/(b*x+a)*c^3
```

Maxima [A] time = 1.35151, size = 150, normalized size = 2.03

$$\frac{d^3x}{b^2} + \frac{c^3\log(x)}{a^2} + \frac{b^3c^3 - 3\,ab^2c^2d + 3\,a^2bcd^2 - a^3d^3}{ab^4x + a^2b^3} - \frac{\left(b^3c^3 - 3\,a^2bcd^2 + 2\,a^3d^3\right)\log(bx + a)}{a^2b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/((b*x + a)^2*x),x, algorithm="maxima")
```

```
[Out] d^3*x/b^2 + c^3*log(x)/a^2 + (b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c
*d^2 - a^3*d^3)/(a*b^4*x + a^2*b^3) - (b^3*c^3 - 3*a^2*b*c*d^2 +
2*a^3*d^3)*log(b*x + a)/(a^2*b^3)
```

Fricas [A] time = 0.214424, size = 224, normalized size = 3.03

$$\frac{a^2b^2d^3x^2 + a^3bd^3x + ab^3c^3 - 3\,a^2b^2c^2d + 3\,a^3bcd^2 - a^4d^3 - \left(ab^3c^3 - 3\,a^3bcd^2 + 2\,a^4d^3 + \left(b^4c^3 - 3\,a^2b^2cd^2 + 2\,a^3bd^3\right)x\right)\log}{a^2b^4x + a^3b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/((b*x + a)^2*x),x, algorithm="fricas")
```

```
[Out] (a^2*b^2*d^3*x^2 + a^3*b*d^3*x + a*b^3*c^3 - 3*a^2*b^2*c^2*d + 3*
a^3*b*c*d^2 - a^4*d^3 - (a*b^3*c^3 - 3*a^3*b*c*d^2 + 2*a^4*d^3 +
(b^4*c^3 - 3*a^2*b^2*c*d^2 + 2*a^3*b*d^3)*x)*log(b*x + a) + (b^4*
c^3*x + a*b^3*c^3)*log(x))/(a^2*b^4*x + a^3*b^3)
```

Sympy [A] time = 9.54425, size = 153, normalized size = 2.07

$$-\frac{a^3d^3 - 3a^2bcd^2 + 3ab^2c^2d - b^3c^3}{a^2b^3 + ab^4x} + \frac{d^3x}{b^2} + \frac{c^3\log(x)}{a^2} - \frac{(ad - bc)^2(2ad + bc)\log\left(x + \frac{ab^2c^3 + \frac{a(ad-bc)^2(2ad+bc)}{b}}{2a^3d^3 - 3a^2bcd^2 + 2b^3c^3}\right)}{a^2b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**3/x/(b*x+a)**2,x)
```

```
[Out] -(a**3*d**3 - 3*a**2*b*c*d**2 + 3*a*b**2*c**2*d - b**3*c**3)/(a**
2*b**3 + a*b**4*x) + d**3*x/b**2 + c**3*log(x)/a**2 - (a*d - b*c)
**2*(2*a*d + b*c)*log(x + (a*b**2*c**3 + a*(a*d - b*c)**2*(2*a*d
+ b*c)/b)/(2*a**3*d**3 - 3*a**2*b*c*d**2 + 2*b**3*c**3))/(a**2*b*
*3)
```

GIAC/XCAS [A] time = 0.289083, size = 207, normalized size = 2.8

$$b\left(\frac{c^3\ln\left(\left|-\frac{a}{bx+a} + 1\right|\right)}{a^2b} + \frac{(bx + a)d^3}{b^4} - \frac{\left(3\,bcd^2 - 2\,ad^3\right)\ln\left(\frac{|bx+a|}{(bx+a)^2|b|}\right)}{b^4} + \frac{\frac{b^5c^3}{bx+a} - \frac{3\,ab^4c^2d}{bx+a} + \frac{3\,a^2b^3cd^2}{bx+a} - \frac{a^3b^2d^3}{bx+a}}{ab^6}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/((b*x + a)^2*x),x, algorithm="giac")
```

```
[Out] b*(c^3*ln(abs(-a/(b*x + a) + 1))/(a^2*b) + (b*x + a)*d^3/b^4 - (3
*b*c*d^2 - 2*a*d^3)*ln(abs(b*x + a)/((b*x + a)^2*abs(b)))/b^4 + (
b^5*c^3/(b*x + a) - 3*a*b^4*c^2*d/(b*x + a) + 3*a^2*b^3*c*d^2/(b*
x + a) - a^3*b^2*d^3/(b*x + a))/(a*b^6))
```

3.244 $\int \frac{(c+dx)^3}{x^2(a+bx)^2}\,dx$

Optimal. Leaf size=87

$$\frac{(bc-ad)^2(ad+2bc)\log(a+bx)}{a^3b^2}-\frac{c^2\log(x)(2bc-3ad)}{a^3}-\frac{(bc-ad)^3}{a^2b^2(a+bx)}-\frac{c^3}{a^2x}$$

```
[Out] -(c^3/(a^2*x)) - (b*c - a*d)^3/(a^2*b^2*(a + b*x)) - (c^2*(2*b*c
- 3*a*d)*Log[x])/a^3 + ((b*c - a*d)^2*(2*b*c + a*d)*Log[a + b*x])
/(a^3*b^2)
```

Rubi [A] time = 0.166809, antiderivative size = 87, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{(bc-ad)^2(ad+2bc)\log(a+bx)}{a^3b^2}-\frac{c^2\log(x)(2bc-3ad)}{a^3}-\frac{(bc-ad)^3}{a^2b^2(a+bx)}-\frac{c^3}{a^2x}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^3/(x^2*(a + b*x)^2),x]
```

```
[Out] -(c^3/(a^2*x)) - (b*c - a*d)^3/(a^2*b^2*(a + b*x)) - (c^2*(2*b*c
- 3*a*d)*Log[x])/a^3 + ((b*c - a*d)^2*(2*b*c + a*d)*Log[a + b*x])
/(a^3*b^2)
```

Rubi in Sympy [A] time = 25.9994, size = 78, normalized size = 0.9

$$-\frac{c^3}{a^2x}+\frac{(ad-bc)^3}{a^2b^2(a+bx)}+\frac{c^2(3ad-2bc)\log(x)}{a^3}+\frac{(ad-bc)^2(ad+2bc)\log(a+bx)}{a^3b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**3/x**2/(b*x+a)**2,x)
```

```
[Out] -c**3/(a**2*x) + (a*d - b*c)**3/(a**2*b**2*(a + b*x)) + c**2*(3*a
*d - 2*b*c)*log(x)/a**3 + (a*d - b*c)**2*(a*d + 2*b*c)*log(a + b*
x)/(a**3*b**2)
```

Mathematica [A] time = 0.125257, size = 79, normalized size = 0.91

$$\frac{\frac{a(ad-bc)^3}{b^2(a+bx)}+\frac{(bc-ad)^2(ad+2bc)\log(a+bx)}{b^2}+c^2\log(x)(3ad-2bc)-\frac{ac^3}{x}}{a^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^3/(x^2*(a + b*x)^2),x]
```

```
[Out] (-((a*c^3)/x) + (a*(-(b*c) + a*d)^3)/(b^2*(a + b*x)) + c^2*(-2*b*
c + 3*a*d)*Log[x] + ((b*c - a*d)^2*(2*b*c + a*d)*Log[a + b*x])/b^
2)/a^3
```

Maple [A] time = 0.017, size = 141, normalized size = 1.6

$$-\frac{c^3}{a^2x}+3\frac{c^2\ln(x)d}{a^2}-2\frac{c^3\ln(x)b}{a^3}+\frac{\ln(bx+a)d^3}{b^2}-3\frac{\ln(bx+a)c^2d}{a^2}+2\frac{b\ln(bx+a)c^3}{a^3}+\frac{ad^3}{b^2(bx+a)}-3\frac{cd^2}{b(bx+a)}+3\frac{c^2d}{a(bx+a)}-\frac{c^3b}{a^2(bx+a)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^3/x^2/(b*x+a)^2,x)
```

```
[Out] -c^3/a^2/x+3*c^2/a^2*ln(x)*d-2*c^3/a^3*ln(x)*b+1/b^2*ln(b*x+a)*d^
3-3/a^2*ln(b*x+a)*c^2*d+2/a^3*b*ln(b*x+a)*c^3+1/b^2*a/(b*x+a)*d^3
-3/b/(b*x+a)*c*d^2+3/a/(b*x+a)*c^2*d-b/a^2/(b*x+a)*c^3
```

Maxima [A] time = 1.35293, size = 178, normalized size = 2.05

$$-\frac{ab^2c^3 + \left(2\,b^3c^3 - 3\,ab^2c^2d + 3\,a^2bcd^2 - a^3d^3\right)x}{a^2b^3x^2 + a^3b^2x} - \frac{\left(2\,bc^3 - 3\,ac^2d\right)\log\left(x\right)}{a^3} + \frac{\left(2\,b^3c^3 - 3\,ab^2c^2d + a^3d^3\right)\log\left(bx + a\right)}{a^3b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/((b*x + a)^2*x^2),x, algorithm="maxima")
```

```
[Out] -(a*b^2*c^3 + (2*b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^
3)*x)/(a^2*b^3*x^2 + a^3*b^2*x) - (2*b*c^3 - 3*a*c^2*d)*log(x)/a^
3 + (2*b^3*c^3 - 3*a*b^2*c^2*d + a^3*d^3)*log(b*x + a)/(a^3*b^2)
```

Fricas [A] time = 0.213567, size = 267, normalized size = 3.07

$$-\frac{a^2b^2c^3 + \left(2\,ab^3c^3 - 3\,a^2b^2c^2d + 3\,a^3bcd^2 - a^4d^3\right)x - \left(\left(2\,b^4c^3 - 3\,ab^3c^2d + a^3bd^3\right)x^2 + \left(2\,ab^3c^3 - 3\,a^2b^2c^2d + a^4d^3\right)x\right)\log}{a^3b^3x^2 + a^4b^2x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/((b*x + a)^2*x^2),x, algorithm="fricas")
```

```
[Out] -(a^2*b^2*c^3 + (2*a*b^3*c^3 - 3*a^2*b^2*c^2*d + 3*a^3*b*c*d^2 -
a^4*d^3)*x - ((2*b^4*c^3 - 3*a*b^3*c^2*d + a^3*b*d^3)*x^2 + (2*a*
b^3*c^3 - 3*a^2*b^2*c^2*d + a^4*d^3)*x)*log(b*x + a) + ((2*b^4*c^
3 - 3*a*b^3*c^2*d)*x^2 + (2*a*b^3*c^3 - 3*a^2*b^2*c^2*d)*x)*log(x
))/(a^3*b^3*x^2 + a^4*b^2*x)
```

Sympy [A] time = 9.80823, size = 250, normalized size = 2.87

$$\frac{-ab^2c^3 + x\left(a^3d^3 - 3a^2bcd^2 + 3ab^2c^2d - 2b^3c^3\right)}{a^3b^2x + a^2b^3x^2} + \frac{c^2\left(3ad - 2bc\right)\log\left(x + \frac{-3a^2bc^2d + 2ab^2c^3 + abc^2(3ad - 2bc)}{a^3d^3 - 6ab^2c^2d + 4b^3c^3}\right)}{a^3} + \frac{\left(ad - bc\right)^2\left(ad + 2bc\right)\log\left(x + \frac{-3a^2bc^2d + 2ab^2c^3 + \frac{a(ad-bc)^2(ad+2bc)}{b}}{a^3d^3 - 6ab^2c^2d + 4b^3c^3}\right)}{a^3b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**3/x**2/(b*x+a)**2,x)
```

```
[Out] (-a*b**2*c**3 + x*(a**3*d**3 - 3*a**2*b*c*d**2 + 3*a*b**2*c**2*d
- 2*b**3*c**3))/(a**3*b**2*x + a**2*b**3*x**2) + c**2*(3*a*d - 2*
b*c)*log(x + (-3*a**2*b*c**2*d + 2*a*b**2*c**3 + a*b*c**2*(3*a*d
- 2*b*c))/(a**3*d**3 - 6*a*b**2*c**2*d + 4*b**3*c**3))/a**3 + (a*
d - b*c)**2*(a*d + 2*b*c)*log(x + (-3*a**2*b*c**2*d + 2*a*b**2*c*
```

```
*3 + a*(a*d - b*c)**2*(a*d + 2*b*c)/b)/(a**3*d**3 - 6*a*b**2*c**2
*d + 4*b**3*c**3))/(a**3*b**2)
```

GIAC/XCAS [A] time = 0.269251, size = 223, normalized size = 2.56

$$-\frac{d^3\ln\left(\frac{|bx+a|}{(bx+a)^2|b|}\right)}{b^2}+\frac{bc^3}{a^3\left(\frac{a}{bx+a}-1\right)}-\frac{\left(2\,b^2c^3-3\,abc^2d\right)\ln\left(\left|-\frac{a}{bx+a}+1\right|\right)}{a^3b}-\frac{\frac{b^5c^3}{bx+a}-\frac{3\,ab^4c^2d}{bx+a}+\frac{3\,a^2b^3cd^2}{bx+a}-\frac{a^3b^2d^3}{bx+a}}{a^2b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/((b*x + a)^2*x^2),x, algorithm="giac")
```

```
[Out] -d^3*ln(abs(b*x + a)/((b*x + a)^2*abs(b)))/b^2 + b*c^3/(a^3*(a/(b
*x + a) - 1)) - (2*b^2*c^3 - 3*a*b*c^2*d)*ln(abs(-a/(b*x + a) + 1
))/(a^3*b) - (b^5*c^3/(b*x + a) - 3*a*b^4*c^2*d/(b*x + a) + 3*a^2
*b^3*c*d^2/(b*x + a) - a^3*b^2*d^3/(b*x + a))/(a^2*b^4)
```

3.245 $\int \frac{(c+dx)^3}{x^3(a+bx)^2} dx$

Optimal. Leaf size=97

$$\frac{3c\log(x)(bc-ad)^2}{a^4}-\frac{3c(bc-ad)^2\log(a+bx)}{a^4}+\frac{c^2(2bc-3ad)}{a^3x}+\frac{(bc-ad)^3}{a^3b(a+bx)}-\frac{c^3}{2a^2x^2}$$

```
[Out] -c^3/(2*a^2*x^2) + (c^2*(2*b*c - 3*a*d))/(a^3*x) + (b*c - a*d)^3/
(a^3*b*(a + b*x)) + (3*c*(b*c - a*d)^2*Log[x])/a^4 - (3*c*(b*c -
a*d)^2*Log[a + b*x])/a^4
```

Rubi [A] time = 0.176806, antiderivative size = 97, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{3c\log(x)(bc-ad)^2}{a^4}-\frac{3c(bc-ad)^2\log(a+bx)}{a^4}+\frac{c^2(2bc-3ad)}{a^3x}+\frac{(bc-ad)^3}{a^3b(a+bx)}-\frac{c^3}{2a^2x^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^3/(x^3*(a + b*x)^2),x]
```

```
[Out] -c^3/(2*a^2*x^2) + (c^2*(2*b*c - 3*a*d))/(a^3*x) + (b*c - a*d)^3/
(a^3*b*(a + b*x)) + (3*c*(b*c - a*d)^2*Log[x])/a^4 - (3*c*(b*c -
a*d)^2*Log[a + b*x])/a^4
```

Rubi in Sympy [A] time = 25.5652, size = 88, normalized size = 0.91

$$-\frac{c^3}{2a^2x^2}-\frac{c^2(3ad-2bc)}{a^3x}-\frac{(ad-bc)^3}{a^3b(a+bx)}+\frac{3c(ad-bc)^2\log(x)}{a^4}-\frac{3c(ad-bc)^2\log(a+bx)}{a^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**3/x**3/(b*x+a)**2,x)
```

```
[Out] -c**3/(2*a**2*x**2) - c**2*(3*a*d - 2*b*c)/(a**3*x) - (a*d - b*c)
**3/(a**3*b*(a + b*x)) + 3*c*(a*d - b*c)**2*log(x)/a**4 - 3*c*(a*
d - b*c)**2*log(a + b*x)/a**4
```

Mathematica [A] time = 0.186132, size = 93, normalized size = 0.96

$$-\frac{\frac{a^2c^3}{x^2}+\frac{2ac^2(3ad-2bc)}{x}+\frac{2a(ad-bc)^3}{b(a+bx)}-6c\log(x)(bc-ad)^2+6c(bc-ad)^2\log(a+bx)}{2a^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^3/(x^3*(a + b*x)^2),x]
```

```
[Out] -((a^2*c^3)/x^2 + (2*a*c^2*(-2*b*c + 3*a*d))/x + (2*a*(-(b*c) + a
*d)^3)/(b*(a + b*x)) - 6*c*(b*c - a*d)^2*Log[x] + 6*c*(b*c - a*d)
^2*Log[a + b*x])/(2*a^4)
```

Maple [A] time = 0.017, size = 186, normalized size = 1.9

$$-\frac{c^3}{2a^2x^2}-3\frac{c^2d}{a^2x}+2\frac{c^3b}{a^3x}+3\frac{c\ln(x)d^2}{a^2}-6\frac{c^2\ln(x)bd}{a^3}+3\frac{c^3\ln(x)b^2}{a^4}-\frac{d^3}{b(bx+a)}+3\frac{cd^2}{a(bx+a)}$$
$$-3\frac{c^2db}{a^2(bx+a)}+\frac{c^3b^2}{a^3(bx+a)}-3\frac{c\ln(bx+a)d^2}{a^2}+6\frac{c^2\ln(bx+a)bd}{a^3}-3\frac{c^3\ln(bx+a)b^2}{a^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^3/x^3/(b*x+a)^2,x)
```

```
[Out] -1/2*c^3/a^2/x^2-3*c^2/a^2/x*d+2*c^3/a^3/x*b+3*c/a^2*ln(x)*d^2-6*
c^2/a^3*ln(x)*b*d+3*c^3/a^4*ln(x)*b^2-1/b/(b*x+a)*d^3+3/a/(b*x+a)
*c*d^2-3/a^2*b/(b*x+a)*c^2*d+1/a^3*b^2/(b*x+a)*c^3-3*c/a^2*ln(b*x
+a)*d^2+6*c^2/a^3*ln(b*x+a)*b*d-3*c^3/a^4*ln(b*x+a)*b^2
```

Maxima [A] time = 1.35202, size = 220, normalized size = 2.27

$$-\frac{a^2bc^3 - 2\left(3\,b^3c^3 - 6\,ab^2c^2d + 3\,a^2bcd^2 - a^3d^3\right)x^2 - 3\left(ab^2c^3 - 2\,a^2bc^2d\right)x}{2\left(a^3b^2x^3 + a^4bx^2\right)} - \frac{3\left(b^2c^3 - 2\,abc^2d + a^2cd^2\right)\log\left(bx + a\right)}{a^4} + \frac{3\left(b^2c^3 - 2\,abc^2d + a^2cd^2\right)\log\left(x\right)}{a^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/((b*x + a)^2*x^3),x, algorithm="maxima")
```

```
[Out] -1/2*(a^2*b*c^3 - 2*(3*b^3*c^3 - 6*a*b^2*c^2*d + 3*a^2*b*c*d^2 -
a^3*d^3)*x^2 - 3*(a*b^2*c^3 - 2*a^2*b*c^2*d)*x)/(a^3*b^2*x^3 + a^
4*b*x^2) - 3*(b^2*c^3 - 2*a*b*c^2*d + a^2*c*d^2)*log(b*x + a)/a^4
 + 3*(b^2*c^3 - 2*a*b*c^2*d + a^2*c*d^2)*log(x)/a^4
```

Fricas [A] time = 0.21256, size = 336, normalized size = 3.46

$$-\frac{a^3bc^3 - 2\left(3\,ab^3c^3 - 6\,a^2b^2c^2d + 3\,a^3bcd^2 - a^4d^3\right)x^2 - 3\left(a^2b^2c^3 - 2\,a^3bc^2d\right)x + 6\left(\left(b^4c^3 - 2\,ab^3c^2d + a^2b^2cd^2\right)x^3 + \left(ab^3c\right.\right.}{2\left(a^4b^2x^3 +\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/((b*x + a)^2*x^3),x, algorithm="fricas")
```

```
[Out] -1/2*(a^3*b*c^3 - 2*(3*a*b^3*c^3 - 6*a^2*b^2*c^2*d + 3*a^3*b*c*d^
2 - a^4*d^3)*x^2 - 3*(a^2*b^2*c^3 - 2*a^3*b*c^2*d)*x + 6*((b^4*c^
3 - 2*a*b^3*c^2*d + a^2*b^2*c*d^2)*x^3 + (a*b^3*c^3 - 2*a^2*b^2*c
^2*d + a^3*b*c*d^2)*x^2)*log(b*x + a) - 6*((b^4*c^3 - 2*a*b^3*c^2
*d + a^2*b^2*c*d^2)*x^3 + (a*b^3*c^3 - 2*a^2*b^2*c^2*d + a^3*b*c*
d^2)*x^2)*log(x))/(a^4*b^2*x^3 + a^5*b*x^2)
```

Sympy [A] time = 8.94706, size = 291, normalized size = 3.

$$-\frac{a^2bc^3 + x^2\left(2a^3d^3 - 6a^2bcd^2 + 12ab^2c^2d - 6b^3c^3\right) + x\left(6a^2bc^2d - 3ab^2c^3\right)}{2a^4bx^2 + 2a^3b^2x^3} + \frac{3c\left(ad - bc\right)^2\log\left(x + \frac{3a^3cd^2 - 6a^2bc^2d + 3ab^2c^3 - 3ac(ad-bc)^2}{6a^2bcd^2 - 12ab^2c^2d + 6b^3c^3}\right)}{a^4} - \frac{3c\left(ad - bc\right)^2\log\left(x + \frac{3a^3cd^2 - 6a^2bc^2d + 3ab^2c^3 + 3ac(ad-bc)^2}{6a^2bcd^2 - 12ab^2c^2d + 6b^3c^3}\right)}{a^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**3/x**3/(b*x+a)**2,x)
```

```
[Out] -(a**2*b*c**3 + x**2*(2*a**3*d**3 - 6*a**2*b*c*d**2 + 12*a*b**2*c
**2*d - 6*b**3*c**3) + x*(6*a**2*b*c**2*d - 3*a*b**2*c**3))/(2*a*
*4*b*x**2 + 2*a**3*b**2*x**3) + 3*c*(a*d - b*c)**2*log(x + (3*a**
```

```
3*c*d**2 - 6*a**2*b*c**2*d + 3*a*b**2*c**3 - 3*a*c*(a*d - b*c)**2
)/(6*a**2*b*c*d**2 - 12*a*b**2*c**2*d + 6*b**3*c**3))/a**4 - 3*c*
(a*d - b*c)**2*log(x + (3*a**3*c*d**2 - 6*a**2*b*c**2*d + 3*a*b**
2*c**3 + 3*a*c*(a*d - b*c)**2)/(6*a**2*b*c*d**2 - 12*a*b**2*c**2*
d + 6*b**3*c**3))/a**4
```

GIAC/XCAS [A] time = 0.269634, size = 262, normalized size = 2.7

$$\frac{3\left(b^3c^3 - 2\,ab^2c^2d + a^2bcd^2\right)\ln\left(\left|-\frac{a}{bx+a} + 1\right|\right)}{a^4b} + \frac{\frac{b^5c^3}{bx+a} - \frac{3\,ab^4c^2d}{bx+a} + \frac{3\,a^2b^3cd^2}{bx+a} - \frac{a^3b^2d^3}{bx+a}}{a^3b^3} + \frac{5\,b^2c^3 - 6\,abc^2d - \frac{6\left(ab^3c^3 - a^2b^2c^2d\right)}{(bx+a)b}}{2\,a^4\left(\frac{a}{bx+a} - 1\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/((b*x + a)^2*x^3),x, algorithm="giac")
```

```
[Out] 3*(b^3*c^3 - 2*a*b^2*c^2*d + a^2*b*c*d^2)*ln(abs(-a/(b*x + a) + 1
))/(a^4*b) + (b^5*c^3/(b*x + a) - 3*a*b^4*c^2*d/(b*x + a) + 3*a^2
*b^3*c*d^2/(b*x + a) - a^3*b^2*d^3/(b*x + a))/(a^3*b^3) + 1/2*(5*
b^2*c^3 - 6*a*b*c^2*d - 6*(a*b^3*c^3 - a^2*b^2*c^2*d)/((b*x + a)*
b))/(a^4*(a/(b*x + a) - 1)^2)
```

3.246 $\int \frac{(c+dx)^3}{x^4(a+bx)^2}\,dx$

Optimal. Leaf size=132

$$-\frac{\log(x)(bc-ad)^2(4bc-ad)}{a^5}+\frac{(bc-ad)^2(4bc-ad)\log(a+bx)}{a^5}-\frac{3c(bc-ad)^2}{a^4x}-\frac{(bc-ad)^3}{a^4(a+bx)}+\frac{c^2(2bc-3ad)}{2a^3x^2}-\frac{c^3}{3a^2x^3}$$

```
[Out] -c^3/(3*a^2*x^3) + (c^2*(2*b*c - 3*a*d))/(2*a^3*x^2) - (3*c*(b*c
- a*d)^2)/(a^4*x) - (b*c - a*d)^3/(a^4*(a + b*x)) - ((b*c - a*d)^
2*(4*b*c - a*d)*Log[x])/a^5 + ((b*c - a*d)^2*(4*b*c - a*d)*Log[a
+ b*x])/a^5
```

Rubi [A] time = 0.244194, antiderivative size = 132, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{\log(x)(bc-ad)^2(4bc-ad)}{a^5}+\frac{(bc-ad)^2(4bc-ad)\log(a+bx)}{a^5}-\frac{3c(bc-ad)^2}{a^4x}-\frac{(bc-ad)^3}{a^4(a+bx)}+\frac{c^2(2bc-3ad)}{2a^3x^2}-\frac{c^3}{3a^2x^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^3/(x^4*(a + b*x)^2),x]
```

```
[Out] -c^3/(3*a^2*x^3) + (c^2*(2*b*c - 3*a*d))/(2*a^3*x^2) - (3*c*(b*c
- a*d)^2)/(a^4*x) - (b*c - a*d)^3/(a^4*(a + b*x)) - ((b*c - a*d)^
2*(4*b*c - a*d)*Log[x])/a^5 + ((b*c - a*d)^2*(4*b*c - a*d)*Log[a
+ b*x])/a^5
```

Rubi in Sympy [A] time = 32.6664, size = 117, normalized size = 0.89

$$-\frac{c^3}{3a^2x^3}-\frac{c^2\left(3ad-2bc\right)}{2a^3x^2}-\frac{3c\left(ad-bc\right)^2}{a^4x}+\frac{\left(ad-bc\right)^3}{a^4\left(a+bx\right)}+\frac{\left(ad-4bc\right)\left(ad-bc\right)^2\log\left(x\right)}{a^5}-\frac{\left(ad-4bc\right)\left(ad-bc\right)^2\log\left(a+bx\right)}{a^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**3/x**4/(b*x+a)**2,x)
```

```
[Out] -c**3/(3*a**2*x**3) - c**2*(3*a*d - 2*b*c)/(2*a**3*x**2) - 3*c*(a
*d - b*c)**2/(a**4*x) + (a*d - b*c)**3/(a**4*(a + b*x)) + (a*d -
4*b*c)*(a*d - b*c)**2*log(x)/a**5 - (a*d - 4*b*c)*(a*d - b*c)**2*
log(a + b*x)/a**5
```

Mathematica [A] time = 0.105146, size = 126, normalized size = 0.95

$$-\frac{\frac{2a^3c^3}{x^3}+\frac{3a^2c^2(3ad-2bc)}{x^2}+\frac{18ac(bc-ad)^2}{x}-\frac{6a(ad-bc)^3}{a+bx}+6\log(x)(bc-ad)^2(4bc-ad)-6(bc-ad)^2(4bc-ad)\log(a+bx)}{6a^5}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^3/(x^4*(a + b*x)^2),x]
```

```
[Out] -((2*a^3*c^3)/x^3 + (3*a^2*c^2*(-2*b*c + 3*a*d))/x^2 + (18*a*c*(b
*c - a*d)^2)/x - (6*a*(-(b*c) + a*d)^3)/(a + b*x) + 6*(b*c - a*d)
^2*(4*b*c - a*d)*Log[x] - 6*(b*c - a*d)^2*(4*b*c - a*d)*Log[a + b
*x])/(6*a^5)
```

Maple [A] time = 0.02, size = 256, normalized size = 1.9

$$-\frac{c^3}{3\,a^2x^3}+\frac{\ln(x)\,d^3}{a^2}-6\,\frac{\ln(x)\,cbd^2}{a^3}+9\,\frac{\ln(x)\,b^2c^2d}{a^4}-4\,\frac{\ln(x)\,b^3c^3}{a^5}-\frac{3\,c^2d}{2\,a^2x^2}+\frac{c^3b}{a^3x^2}-3\,\frac{cd^2}{a^2x}+6\,\frac{c^2db}{a^3x}-3\,\frac{c^3b^2}{a^4x}-\frac{\ln(bx+a)\,d^3}{a^2}+6\,\frac{\ln(bx+a)\,cbd^2}{a^3}-9\,\frac{\ln(bx+a)\,b^2c^2d}{a^4}+4\,\frac{\ln(bx+a)\,b^3c^3}{a^5}+\frac{d^3}{a\,(bx+a)}-3\,\frac{cd^2b}{a^2\,(bx+a)}+3\,\frac{c^2db^2}{a^3\,(bx+a)}-\frac{b^3c^3}{a^4\,(bx+a)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^3/x^4/(b*x+a)^2,x)
```

```
[Out] -1/3*c^3/a^2/x^3+1/a^2*ln(x)*d^3-6/a^3*ln(x)*c*b*d^2+9/a^4*ln(x)*
b^2*c^2*d-4/a^5*ln(x)*b^3*c^3-3/2*c^2/a^2/x^2*d+c^3/a^3/x^2*b-3*c
/a^2/x*d^2+6*c^2/a^3/x*b*d-3*c^3/a^4/x*b^2-1/a^2*ln(b*x+a)*d^3+6/
a^3*ln(b*x+a)*c*b*d^2-9/a^4*ln(b*x+a)*b^2*c^2*d+4/a^5*ln(b*x+a)*b
^3*c^3+1/a/(b*x+a)*d^3-3/a^2/(b*x+a)*c*b*d^2+3/a^3/(b*x+a)*b^2*c^
2*d-1/a^4/(b*x+a)*b^3*c^3
```

Maxima [A] time = 1.34353, size = 296, normalized size = 2.24

$$-\frac{2\,a^3c^3+6\left(4\,b^3c^3-9\,ab^2c^2d+6\,a^2bcd^2-a^3d^3\right)x^3+3\left(4\,ab^2c^3-9\,a^2bc^2d+6\,a^3cd^2\right)x^2-\left(4\,a^2bc^3-9\,a^3c^2d\right)x}{6\left(a^4bx^4+a^5x^3\right)}+\frac{\left(4\,b^3c^3-9\,ab^2c^2d+6\,a^2bcd^2-a^3d^3\right)\log(bx+a)}{a^5}-\frac{\left(4\,b^3c^3-9\,ab^2c^2d+6\,a^2bcd^2-a^3d^3\right)\log(x)}{a^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/((b*x + a)^2*x^4),x, algorithm="maxima")
```

```
[Out] -1/6*(2*a^3*c^3 + 6*(4*b^3*c^3 - 9*a*b^2*c^2*d + 6*a^2*b*c*d^2 -
a^3*d^3)*x^3 + 3*(4*a*b^2*c^3 - 9*a^2*b*c^2*d + 6*a^3*c*d^2)*x^2
- (4*a^2*b*c^3 - 9*a^3*c^2*d)*x)/(a^4*b*x^4 + a^5*x^3) + (4*b^3*c
^3 - 9*a*b^2*c^2*d + 6*a^2*b*c*d^2 - a^3*d^3)*log(b*x + a)/a^5 -
(4*b^3*c^3 - 9*a*b^2*c^2*d + 6*a^2*b*c*d^2 - a^3*d^3)*log(x)/a^5
```

Fricas [A] time = 0.216087, size = 435, normalized size = 3.3

$$-\frac{2\,a^4c^3+6\left(4\,ab^3c^3-9\,a^2b^2c^2d+6\,a^3bcd^2-a^4d^3\right)x^3+3\left(4\,a^2b^2c^3-9\,a^3bc^2d+6\,a^4cd^2\right)x^2-\left(4\,a^3bc^3-9\,a^4c^2d\right)x-6\left(\left(4\cdots\right.\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/((b*x + a)^2*x^4),x, algorithm="fricas")
```

```
[Out] -1/6*(2*a^4*c^3 + 6*(4*a*b^3*c^3 - 9*a^2*b^2*c^2*d + 6*a^3*b*c*d^
2 - a^4*d^3)*x^3 + 3*(4*a^2*b^2*c^3 - 9*a^3*b*c^2*d + 6*a^4*c*d^2
)*x^2 - (4*a^3*b*c^3 - 9*a^4*c^2*d)*x - 6*((4*b^4*c^3 - 9*a*b^3*c
^2*d + 6*a^2*b^2*c*d^2 - a^3*b*d^3)*x^4 + (4*a*b^3*c^3 - 9*a^2*b^
2*c^2*d + 6*a^3*b*c*d^2 - a^4*d^3)*x^3)*log(b*x + a) + 6*((4*b^4*
c^3 - 9*a*b^3*c^2*d + 6*a^2*b^2*c*d^2 - a^3*b*d^3)*x^4 + (4*a*b^3
*c^3 - 9*a^2*b^2*c^2*d + 6*a^3*b*c*d^2 - a^4*d^3)*x^3)*log(x))/(a
^5*b*x^4 + a^6*x^3)
```

Sympy [A] time = 10.1899, size = 386, normalized size = 2.92

$$\frac{-2a^3c^3 + x^3\left(6a^3d^3 - 36a^2bcd^2 + 54ab^2c^2d - 24b^3c^3\right) + x^2\left(-18a^3cd^2 + 27a^2bc^2d - 12ab^2c^3\right) + x\left(-9a^3c^2d + 4a^2bc^3\right)}{6a^5x^3 + 6a^4bx^4} + \frac{(ad-4bc)(ad-bc)^2\log\left(x + \frac{a^4d^3 - 6a^3bcd^2 + 9a^2b^2c^2d - 4ab^3c^3 - a(ad-4bc)(ad-bc)^2}{2a^3bd^3 - 12a^2b^2cd^2 + 18ab^3c^2d - 8b^4c^3}\right)}{a^5} - \frac{(ad-4bc)(ad-bc)^2\log\left(x + \frac{a^4d^3 - 6a^3bcd^2 + 9a^2b^2c^2d - 4ab^3c^3 + a(ad-4bc)(ad-bc)^2}{2a^3bd^3 - 12a^2b^2cd^2 + 18ab^3c^2d - 8b^4c^3}\right)}{a^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**3/x**4/(b*x+a)**2,x)
```

```
[Out] (-2*a**3*c**3 + x**3*(6*a**3*d**3 - 36*a**2*b*c*d**2 + 54*a*b**2*
c**2*d - 24*b**3*c**3) + x**2*(-18*a**3*c*d**2 + 27*a**2*b*c**2*d
 - 12*a*b**2*c**3) + x*(-9*a**3*c**2*d + 4*a**2*b*c**3))/(6*a**5*
x**3 + 6*a**4*b*x**4) + (a*d - 4*b*c)*(a*d - b*c)**2*log(x + (a**
4*d**3 - 6*a**3*b*c*d**2 + 9*a**2*b**2*c**2*d - 4*a*b**3*c**3 - a
*(a*d - 4*b*c)*(a*d - b*c)**2)/(2*a**3*b*d**3 - 12*a**2*b**2*c*d*
*2 + 18*a*b**3*c**2*d - 8*b**4*c**3))/a**5 - (a*d - 4*b*c)*(a*d -
 b*c)**2*log(x + (a**4*d**3 - 6*a**3*b*c*d**2 + 9*a**2*b**2*c**2*
d - 4*a*b**3*c**3 + a*(a*d - 4*b*c)*(a*d - b*c)**2)/(2*a**3*b*d**
3 - 12*a**2*b**2*c*d**2 + 18*a*b**3*c**2*d - 8*b**4*c**3))/a**5
```

GIAC/XCAS [A] time = 0.268756, size = 378, normalized size = 2.86

$$-\frac{\left(4\,b^4c^3 - 9\,ab^3c^2d + 6\,a^2b^2cd^2 - a^3bd^3\right)\ln\left(\left|-\frac{a}{bx+a} + 1\right|\right)}{a^5b} - \frac{\frac{b^7c^3}{bx+a} - \frac{3\,ab^6c^2d}{bx+a} + \frac{3\,a^2b^5cd^2}{bx+a} - \frac{a^3b^4d^3}{bx+a}}{a^4b^4} + \frac{26\,b^3c^3 - 45\,ab^2c^2d + 18\,a^2bcd^2 - \frac{3\left(20\,ab^4c^3 - 33\,a^2b^3c^2d + 12\,a^3b^2cd^2\right)}{(bx+a)b} + \frac{18\left(2\,a^2b^5c^3 - 3\,a^3b^4c^2d + a^4b^3cd^2\right)}{(bx+a)^2b^2}}{6\,a^5\left(\frac{a}{bx+a} - 1\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/((b*x + a)^2*x^4),x, algorithm="giac")
```

```
[Out] -(4*b^4*c^3 - 9*a*b^3*c^2*d + 6*a^2*b^2*c*d^2 - a^3*b*d^3)*ln(abs
(-a/(b*x + a) + 1))/(a^5*b) - (b^7*c^3/(b*x + a) - 3*a*b^6*c^2*d/
(b*x + a) + 3*a^2*b^5*c*d^2/(b*x + a) - a^3*b^4*d^3/(b*x + a))/(a
^4*b^4) + 1/6*(26*b^3*c^3 - 45*a*b^2*c^2*d + 18*a^2*b*c*d^2 - 3*(
20*a*b^4*c^3 - 33*a^2*b^3*c^2*d + 12*a^3*b^2*c*d^2)/((b*x + a)*b)
 + 18*(2*a^2*b^5*c^3 - 3*a^3*b^4*c^2*d + a^4*b^3*c*d^2)/((b*x + a
)^2*b^2))/(a^5*(a/(b*x + a) - 1)^3)
```

3.247 $\int \frac{(c+dx)^3}{x^5(a+bx)^2}\,dx$

Optimal. Leaf size=162

$$\frac{b\log(x)(5bc-2ad)(bc-ad)^2}{a^6}-\frac{b(5bc-2ad)(bc-ad)^2\log(a+bx)}{a^6}+\frac{(bc-ad)^2(4bc-ad)}{a^5x}+\frac{b(bc-ad)^3}{a^5(a+bx)}-\frac{3c(bc-ad)^2}{2a^4x^2}+\frac{c^2(2bc-3ad)}{3a^3x^3}-\frac{c^3}{4a^2x^4}$$

```
[Out] -c^3/(4*a^2*x^4) + (c^2*(2*b*c - 3*a*d))/(3*a^3*x^3) - (3*c*(b*c
- a*d)^2)/(2*a^4*x^2) + ((b*c - a*d)^2*(4*b*c - a*d))/(a^5*x) + (
b*(b*c - a*d)^3)/(a^5*(a + b*x)) + (b*(5*b*c - 2*a*d)*(b*c - a*d)
^2*Log[x])/a^6 - (b*(5*b*c - 2*a*d)*(b*c - a*d)^2*Log[a + b*x])/a
^6
```

Rubi [A] time = 0.328337, antiderivative size = 162, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.056$

$$\frac{b\log(x)(5bc-2ad)(bc-ad)^2}{a^6}-\frac{b(5bc-2ad)(bc-ad)^2\log(a+bx)}{a^6}+\frac{(bc-ad)^2(4bc-ad)}{a^5x}+\frac{b(bc-ad)^3}{a^5(a+bx)}-\frac{3c(bc-ad)^2}{2a^4x^2}+\frac{c^2(2bc-3ad)}{3a^3x^3}-\frac{c^3}{4a^2x^4}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^3/(x^5*(a + b*x)^2),x]
```

```
[Out] -c^3/(4*a^2*x^4) + (c^2*(2*b*c - 3*a*d))/(3*a^3*x^3) - (3*c*(b*c
- a*d)^2)/(2*a^4*x^2) + ((b*c - a*d)^2*(4*b*c - a*d))/(a^5*x) + (
b*(b*c - a*d)^3)/(a^5*(a + b*x)) + (b*(5*b*c - 2*a*d)*(b*c - a*d)
^2*Log[x])/a^6 - (b*(5*b*c - 2*a*d)*(b*c - a*d)^2*Log[a + b*x])/a
^6
```

Rubi in Sympy [A] time = 43.5238, size = 151, normalized size = 0.93

$$-\frac{c^3}{4a^2x^4}-\frac{c^2(3ad-2bc)}{3a^3x^3}-\frac{3c(ad-bc)^2}{2a^4x^2}-\frac{b(ad-bc)^3}{a^5(a+bx)}-\frac{(ad-4bc)(ad-bc)^2}{a^5x}-\frac{b(ad-bc)^2(2ad-5bc)\log(x)}{a^6}+\frac{b(ad-bc)^2(2ad-5bc)\log(a+bx)}{a^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**3/x**5/(b*x+a)**2,x)
```

```
[Out] -c**3/(4*a**2*x**4) - c**2*(3*a*d - 2*b*c)/(3*a**3*x**3) - 3*c*(a
*d - b*c)**2/(2*a**4*x**2) - b*(a*d - b*c)**3/(a**5*(a + b*x)) -
(a*d - 4*b*c)*(a*d - b*c)**2/(a**5*x) - b*(a*d - b*c)**2*(2*a*d -
 5*b*c)*log(x)/a**6 + b*(a*d - b*c)**2*(2*a*d - 5*b*c)*log(a + b*
x)/a**6
```

Mathematica [A] time = 0.132769, size = 155, normalized size = 0.96

$$-\frac{\frac{3a^4c^3}{x^4}+\frac{4a^3c^2(3ad-2bc)}{x^3}+\frac{18a^2c(bc-ad)^2}{x^2}+\frac{12a(bc-ad)^2(ad-4bc)}{x}+\frac{12ab(ad-bc)^3}{a+bx}-12b\log(x)(5bc-2ad)(bc-ad)^2+12b(5bc-2a}{12a^6}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^3/(x^5*(a + b*x)^2),x]
```

```
[Out] -((3*a^4*c^3)/x^4 + (4*a^3*c^2*(-2*b*c + 3*a*d))/x^3 + (18*a^2*c*
(b*c - a*d)^2)/x^2 + (12*a*(b*c - a*d)^2*(-4*b*c + a*d))/x + (12*
a*b*(-(b*c) + a*d)^3)/(a + b*x) - 12*b*(5*b*c - 2*a*d)*(b*c - a*d
)^2*Log[x] + 12*b*(5*b*c - 2*a*d)*(b*c - a*d)^2*Log[a + b*x])/(12
*a^6)
```

Maple [B] time = 0.019, size = 320, normalized size = 2.

$$-\frac{c^3}{4\,a^2x^4}-\frac{d^3}{a^2x}+6\,\frac{cd^2b}{a^3x}-9\,\frac{c^2db^2}{a^4x}+4\,\frac{b^3c^3}{a^5x}-\frac{c^2d}{a^2x^3}+\frac{2\,c^3b}{3\,a^3x^3}-2\,\frac{b\ln(x)\,d^3}{a^3}+9\,\frac{b^2\ln(x)\,cd^2}{a^4}-12\,\frac{b^3\ln(x)\,c^2d}{a^5}+5\,\frac{b^4c^3\ln(x)}{a^6}-\frac{3\,cd^2}{2\,a^2x^2}+3\,\frac{c^2db}{a^3x^2}-\frac{3\,c^3b^2}{2\,a^4x^2}+2\,\frac{b\ln(bx+a)\,d^3}{a^3}-9\,\frac{b^2\ln(bx+a)\,cd^2}{a^4}+12\,\frac{b^3\ln(bx+a)\,c^2d}{a^5}-5\,\frac{b^4\ln(bx+a)\,c^3}{a^6}-\frac{d^3b}{a^2\,(bx+a)}+3\,\frac{cd^2b^2}{a^3\,(bx+a)}-3\,\frac{c^2db^3}{a^4\,(bx+a)}+\frac{c^3b^4}{a^5\,(bx+a)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^3/x^5/(b*x+a)^2,x)
```

```
[Out] -1/4*c^3/a^2/x^4-1/a^2/x*d^3+6/a^3/x*c*b*d^2-9/a^4/x*b^2*c^2*d+4/
a^5/x*b^3*c^3-c^2/a^2/x^3*d+2/3*c^3/a^3/x^3*b-2*b/a^3*ln(x)*d^3+9
*b^2/a^4*ln(x)*c*d^2-12*b^3/a^5*ln(x)*c^2*d+5*b^4/a^6*ln(x)*c^3-3
/2*c/a^2/x^2*d^2+3*c^2/a^3/x^2*b*d-3/2*c^3/a^4/x^2*b^2+2*b/a^3*ln
(b*x+a)*d^3-9*b^2/a^4*ln(b*x+a)*c*d^2+12*b^3/a^5*ln(b*x+a)*c^2*d-
5*b^4/a^6*ln(b*x+a)*c^3-b/a^2/(b*x+a)*d^3+3*b^2/a^3/(b*x+a)*c*d^2
-3*b^3/a^4/(b*x+a)*c^2*d+b^4/a^5/(b*x+a)*c^3
```

Maxima [A] time = 1.36838, size = 371, normalized size = 2.29

$$-\frac{3\,a^4c^3-12\,\left(5\,b^4c^3-12\,ab^3c^2d+9\,a^2b^2cd^2-2\,a^3bd^3\right)x^4-6\,\left(5\,ab^3c^3-12\,a^2b^2c^2d+9\,a^3bcd^2-2\,a^4d^3\right)x^3+2\,\left(5\,a^2b^2c^3-\right.}{12\,(a^5bx^5+a^6x^4)}-\frac{\left(5\,b^4c^3-12\,ab^3c^2d+9\,a^2b^2cd^2-2\,a^3bd^3\right)\log(bx+a)}{a^6}+\frac{\left(5\,b^4c^3-12\,ab^3c^2d+9\,a^2b^2cd^2-2\,a^3bd^3\right)\log(x)}{a^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/((b*x + a)^2*x^5),x, algorithm="maxima")
```

```
[Out] -1/12*(3*a^4*c^3 - 12*(5*b^4*c^3 - 12*a*b^3*c^2*d + 9*a^2*b^2*c*d
^2 - 2*a^3*b*d^3)*x^4 - 6*(5*a*b^3*c^3 - 12*a^2*b^2*c^2*d + 9*a^3
*b*c*d^2 - 2*a^4*d^3)*x^3 + 2*(5*a^2*b^2*c^3 - 12*a^3*b*c^2*d + 9
*a^4*c*d^2)*x^2 - (5*a^3*b*c^3 - 12*a^4*c^2*d)*x)/(a^5*b*x^5 + a^
6*x^4) - (5*b^4*c^3 - 12*a*b^3*c^2*d + 9*a^2*b^2*c*d^2 - 2*a^3*b*
d^3)*log(b*x + a)/a^6 + (5*b^4*c^3 - 12*a*b^3*c^2*d + 9*a^2*b^2*c
*d^2 - 2*a^3*b*d^3)*log(x)/a^6
```

Fricas [A] time = 0.218605, size = 516, normalized size = 3.19

$$-\frac{3\,a^5c^3-12\,\left(5\,ab^4c^3-12\,a^2b^3c^2d+9\,a^3b^2cd^2-2\,a^4bd^3\right)x^4-6\,\left(5\,a^2b^3c^3-12\,a^3b^2c^2d+9\,a^4bcd^2-2\,a^5d^3\right)x^3+2\,\left(5\,a^3b^2c\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/((b*x + a)^2*x^5),x, algorithm="fricas")
```

```
[Out] -1/12*(3*a^5*c^3 - 12*(5*a*b^4*c^3 - 12*a^2*b^3*c^2*d + 9*a^3*b^2
*c*d^2 - 2*a^4*b*d^3)*x^4 - 6*(5*a^2*b^3*c^3 - 12*a^3*b^2*c^2*d +
 9*a^4*b*c*d^2 - 2*a^5*d^3)*x^3 + 2*(5*a^3*b^2*c^3 - 12*a^4*b*c^2
*d + 9*a^5*c*d^2)*x^2 - (5*a^4*b*c^3 - 12*a^5*c^2*d)*x + 12*((5*b
^5*c^3 - 12*a*b^4*c^2*d + 9*a^2*b^3*c*d^2 - 2*a^3*b^2*d^3)*x^5 +
(5*a*b^4*c^3 - 12*a^2*b^3*c^2*d + 9*a^3*b^2*c*d^2 - 2*a^4*b*d^3)*
x^4)*log(b*x + a) - 12*((5*b^5*c^3 - 12*a*b^4*c^2*d + 9*a^2*b^3*c
*d^2 - 2*a^3*b^2*d^3)*x^5 + (5*a*b^4*c^3 - 12*a^2*b^3*c^2*d + 9*a
^3*b^2*c*d^2 - 2*a^4*b*d^3)*x^4)*log(x))/(a^6*b*x^5 + a^7*x^4)
```

Sympy [A] time = 11.7249, size = 466, normalized size = 2.88

$$-\frac{3a^4c^3 + x^4\left(24a^3bd^3 - 108a^2b^2cd^2 + 144ab^3c^2d - 60b^4c^3\right) + x^3\left(12a^4d^3 - 54a^3bcd^2 + 72a^2b^2c^2d - 30ab^3c^3\right) + x^2\left(18a^4cd^2 \cdots\right.}{12a^6x^4 + 12a^5bx^5} - \frac{b\left(ad-bc\right)^2\left(2ad-5bc\right)\log\left(x + \frac{2a^4bd^3 - 9a^3b^2cd^2 + 12a^2b^3c^2d - 5ab^4c^3 - ab(ad-bc)^2(2ad-5bc)}{4a^3b^2d^3 - 18a^2b^3cd^2 + 24ab^4c^2d - 10b^5c^3}\right)}{a^6} + \frac{b\left(ad-bc\right)^2\left(2ad-5bc\right)\log\left(x + \frac{2a^4bd^3 - 9a^3b^2cd^2 + 12a^2b^3c^2d - 5ab^4c^3 + ab(ad-bc)^2(2ad-5bc)}{4a^3b^2d^3 - 18a^2b^3cd^2 + 24ab^4c^2d - 10b^5c^3}\right)}{a^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**3/x**5/(b*x+a)**2,x)
```

```
[Out] -(3*a**4*c**3 + x**4*(24*a**3*b*d**3 - 108*a**2*b**2*c*d**2 + 144
*a*b**3*c**2*d - 60*b**4*c**3) + x**3*(12*a**4*d**3 - 54*a**3*b*c
*d**2 + 72*a**2*b**2*c**2*d - 30*a*b**3*c**3) + x**2*(18*a**4*c*d
**2 - 24*a**3*b*c**2*d + 10*a**2*b**2*c**3) + x*(12*a**4*c**2*d -
 5*a**3*b*c**3))/(12*a**6*x**4 + 12*a**5*b*x**5) - b*(a*d - b*c)*
*2*(2*a*d - 5*b*c)*log(x + (2*a**4*b*d**3 - 9*a**3*b**2*c*d**2 +
12*a**2*b**3*c**2*d - 5*a*b**4*c**3 - a*b*(a*d - b*c)**2*(2*a*d -
 5*b*c))/(4*a**3*b**2*d**3 - 18*a**2*b**3*c*d**2 + 24*a*b**4*c**2
*d - 10*b**5*c**3))/a**6 + b*(a*d - b*c)**2*(2*a*d - 5*b*c)*log(x
 + (2*a**4*b*d**3 - 9*a**3*b**2*c*d**2 + 12*a**2*b**3*c**2*d - 5*
a*b**4*c**3 + a*b*(a*d - b*c)**2*(2*a*d - 5*b*c))/(4*a**3*b**2*d*
*3 - 18*a**2*b**3*c*d**2 + 24*a*b**4*c**2*d - 10*b**5*c**3))/a**6
```

GIAC/XCAS [A] time = 0.300863, size = 504, normalized size = 3.11

$$\frac{\left(5\,b^5c^3 - 12\,ab^4c^2d + 9\,a^2b^3cd^2 - 2\,a^3b^2d^3\right)\ln\left(\left|-\frac{a}{bx+a} + 1\right|\right)}{a^6b} + \frac{\frac{b^9c^3}{bx+a} - \frac{3\,ab^8c^2d}{bx+a} + \frac{3\,a^2b^7cd^2}{bx+a} - \frac{a^3b^6d^3}{bx+a}}{a^5b^5} + \frac{77\,b^4c^3 - 156\,ab^3c^2d + 90\,a^2b^2cd^2 - 12\,a^3bd^3 - \frac{4\left(65\,ab^5c^3 - 129\,a^2b^4c^2d + 72\,a^3b^3cd^2 - 9\,a^4b^2d^3\right)}{(bx+a)b} + \frac{6\left(50\,a^2b^6c^3 - 96\,a^3b^5c^2d + 51\,a^4b^4cd^2 - 6\,a \cdots\right.}{(bx+a)^2b^2}}{12\,a^6\left(\frac{a}{bx+a} - 1\right)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/((b*x + a)^2*x^5),x, algorithm="giac")
```

```
[Out] (5*b^5*c^3 - 12*a*b^4*c^2*d + 9*a^2*b^3*c*d^2 - 2*a^3*b^2*d^3)*ln
(abs(-a/(b*x + a) + 1))/(a^6*b) + (b^9*c^3/(b*x + a) - 3*a*b^8*c^
2*d/(b*x + a) + 3*a^2*b^7*c*d^2/(b*x + a) - a^3*b^6*d^3/(b*x + a)
)/(a^5*b^5) + 1/12*(77*b^4*c^3 - 156*a*b^3*c^2*d + 90*a^2*b^2*c*d
^2 - 12*a^3*b*d^3 - 4*(65*a*b^5*c^3 - 129*a^2*b^4*c^2*d + 72*a^3*
b^3*c*d^2 - 9*a^4*b^2*d^3)/((b*x + a)*b) + 6*(50*a^2*b^6*c^3 - 96
*a^3*b^5*c^2*d + 51*a^4*b^4*c*d^2 - 6*a^5*b^3*d^3)/((b*x + a)^2*b
^2) - 12*(10*a^3*b^7*c^3 - 18*a^4*b^6*c^2*d + 9*a^5*b^5*c*d^2 - a
^6*b^4*d^3)/((b*x + a)^3*b^3))/(a^6*(a/(b*x + a) - 1)^4)
```

3.248 $\int \frac{(c+dx)^3}{x^6(a+bx)^2}\,dx$

Optimal. Leaf size=199

$$-\frac{3b^2\log(x)(bc-ad)^2(2bc-ad)}{a^7}+\frac{3b^2(bc-ad)^2(2bc-ad)\log(a+bx)}{a^7}-\frac{b^2(bc-ad)^3}{a^6(a+bx)}-\frac{b(5bc-2ad)(bc-ad)^2}{a^6x}+\frac{(bc-ad)^2(4bc-ad)}{2a^5x^2}-\frac{c(bc-ad)^2}{a^4x^3}+\frac{c^2(2bc-3ad)}{4a^3x^4}-\frac{c^3}{5a^2x^5}$$

```
[Out] -c^3/(5*a^2*x^5) + (c^2*(2*b*c - 3*a*d))/(4*a^3*x^4) - (c*(b*c -
a*d)^2)/(a^4*x^3) + ((b*c - a*d)^2*(4*b*c - a*d))/(2*a^5*x^2) - (
b*(5*b*c - 2*a*d)*(b*c - a*d)^2)/(a^6*x) - (b^2*(b*c - a*d)^3)/(a
^6*(a + b*x)) - (3*b^2*(b*c - a*d)^2*(2*b*c - a*d)*Log[x])/a^7 +
(3*b^2*(b*c - a*d)^2*(2*b*c - a*d)*Log[a + b*x])/a^7
```

Rubi [A] time = 0.432064, antiderivative size = 199, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.056$

$$-\frac{3b^2\log(x)(bc-ad)^2(2bc-ad)}{a^7}+\frac{3b^2(bc-ad)^2(2bc-ad)\log(a+bx)}{a^7}-\frac{b^2(bc-ad)^3}{a^6(a+bx)}-\frac{b(5bc-2ad)(bc-ad)^2}{a^6x}+\frac{(bc-ad)^2(4bc-ad)}{2a^5x^2}-\frac{c(bc-ad)^2}{a^4x^3}+\frac{c^2(2bc-3ad)}{4a^3x^4}-\frac{c^3}{5a^2x^5}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^3/(x^6*(a + b*x)^2),x]
```

```
[Out] -c^3/(5*a^2*x^5) + (c^2*(2*b*c - 3*a*d))/(4*a^3*x^4) - (c*(b*c -
a*d)^2)/(a^4*x^3) + ((b*c - a*d)^2*(4*b*c - a*d))/(2*a^5*x^2) - (
b*(5*b*c - 2*a*d)*(b*c - a*d)^2)/(a^6*x) - (b^2*(b*c - a*d)^3)/(a
^6*(a + b*x)) - (3*b^2*(b*c - a*d)^2*(2*b*c - a*d)*Log[x])/a^7 +
(3*b^2*(b*c - a*d)^2*(2*b*c - a*d)*Log[a + b*x])/a^7
```

Rubi in Sympy [A] time = 55.5069, size = 182, normalized size = 0.91

$$-\frac{c^3}{5a^2x^5}-\frac{c^2\left(3ad-2bc\right)}{4a^3x^4}-\frac{c\left(ad-bc\right)^2}{a^4x^3}-\frac{\left(ad-4bc\right)\left(ad-bc\right)^2}{2a^5x^2}+\frac{b^2\left(ad-bc\right)^3}{a^6\left(a+bx\right)}+\frac{b\left(ad-bc\right)^2\left(2ad-5bc\right)}{a^6x}+\frac{3b^2\left(ad-2bc\right)\left(ad-bc\right)^2\log\left(x\right)}{a^7}-\frac{3b^2\left(ad-2bc\right)\left(ad-bc\right)^2\log\left(a+bx\right)}{a^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**3/x**6/(b*x+a)**2,x)
```

```
[Out] -c**3/(5*a**2*x**5) - c**2*(3*a*d - 2*b*c)/(4*a**3*x**4) - c*(a*d
 - b*c)**2/(a**4*x**3) - (a*d - 4*b*c)*(a*d - b*c)**2/(2*a**5*x**
2) + b**2*(a*d - b*c)**3/(a**6*(a + b*x)) + b*(a*d - b*c)**2*(2*a
*d - 5*b*c)/(a**6*x) + 3*b**2*(a*d - 2*b*c)*(a*d - b*c)**2*log(x)
/a**7 - 3*b**2*(a*d - 2*b*c)*(a*d - b*c)**2*log(a + b*x)/a**7
```

Mathematica [A] time = 0.155858, size = 189, normalized size = 0.95

$$-\frac{\frac{4a^5c^3}{x^5}+\frac{5a^4c^2(3ad-2bc)}{x^4}+\frac{20a^3c(bc-ad)^2}{x^3}+\frac{10a^2(bc-ad)^2(ad-4bc)}{x^2}-\frac{20ab^2(ad-bc)^3}{a+bx}+60b^2\log(x)(bc-ad)^2(2bc-ad)-60b^2(bc-a}{20a^7}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^3/(x^6*(a + b*x)^2),x]
```

```
[Out] -((4*a^5*c^3)/x^5 + (5*a^4*c^2*(-2*b*c + 3*a*d))/x^4 + (20*a^3*c*
(b*c - a*d)^2)/x^3 + (10*a^2*(b*c - a*d)^2*(-4*b*c + a*d))/x^2 -
(20*a*b*(b*c - a*d)^2*(-5*b*c + 2*a*d))/x - (20*a*b^2*(-(b*c) + a
*d)^3)/(a + b*x) + 60*b^2*(b*c - a*d)^2*(2*b*c - a*d)*Log[x] - 60
*b^2*(b*c - a*d)^2*(2*b*c - a*d)*Log[a + b*x])/(20*a^7)
```

Maple [A] time = 0.022, size = 382, normalized size = 1.9

$$6\,\frac{b^5\ln(bx+a)\,c^3}{a^7}+\frac{d^3b^2}{a^3\,(bx+a)}-\frac{c^3b^5}{a^6\,(bx+a)}+2\,\frac{b^3c^3}{a^5x^2}-\frac{3\,c^2d}{4\,a^2x^4}+\frac{c^3b}{2\,a^3x^4}+2\,\frac{d^3b}{a^3x}$$
$$-5\,\frac{c^3b^4}{a^6x}+3\,\frac{b^2\ln(x)\,d^3}{a^4}-6\,\frac{b^5\ln(x)\,c^3}{a^7}-\frac{cd^2}{a^2x^3}-\frac{c^3b^2}{a^4x^3}-3\,\frac{b^2\ln(bx+a)\,d^3}{a^4}$$
$$+12\,\frac{b^3\ln(bx+a)\,cd^2}{a^5}-15\,\frac{b^4\ln(bx+a)\,c^2d}{a^6}-3\,\frac{cd^2b^3}{a^4\,(bx+a)}+3\,\frac{c^2db^4}{a^5\,(bx+a)}-\frac{9\,c^2db^2}{2\,a^4x^2}$$
$$-9\,\frac{cd^2b^2}{a^4x}+12\,\frac{c^2db^3}{a^5x}+3\,\frac{cd^2b}{a^3x^2}+2\,\frac{c^2db}{a^3x^3}+15\,\frac{b^4\ln(x)\,c^2d}{a^6}-12\,\frac{b^3\ln(x)\,cd^2}{a^5}-\frac{c^3}{5\,a^2x^5}-\frac{d^3}{2\,a^2x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^3/x^6/(b*x+a)^2,x)
```

```
[Out] 6*b^5/a^7*ln(b*x+a)*c^3+b^2/a^3/(b*x+a)*d^3-b^5/a^6/(b*x+a)*c^3+2
/a^5/x^2*b^3*c^3-3/4*c^2/a^2/x^4*d+1/2*c^3/a^3/x^4*b+2*b/a^3/x*d^
3-5*b^4/a^6/x*c^3+3*b^2/a^4*ln(x)*d^3-6*b^5/a^7*ln(x)*c^3-c/a^2/x
^3*d^2-c^3/a^4/x^3*b^2-3*b^2/a^4*ln(b*x+a)*d^3+12*b^3/a^5*ln(b*x+
a)*c*d^2-15*b^4/a^6*ln(b*x+a)*c^2*d-3*b^3/a^4/(b*x+a)*c*d^2+3*b^4
/a^5/(b*x+a)*c^2*d-9/2/a^4/x^2*b^2*c^2*d-9*b^2/a^4/x*c*d^2+12*b^3
/a^5/x*c^2*d+3/a^3/x^2*c*b*d^2+2*c^2/a^3/x^3*b*d+15*b^4/a^6*ln(x)
*c^2*d-12*b^3/a^5*ln(x)*c*d^2-1/5*c^3/a^2/x^5-1/2/a^2/x^2*d^3
```

Maxima [A] time = 1.34687, size = 448, normalized size = 2.25

$$-\frac{4\,a^5c^3+60\left(2\,b^5c^3-5\,ab^4c^2d+4\,a^2b^3cd^2-a^3b^2d^3\right)x^5+30\left(2\,ab^4c^3-5\,a^2b^3c^2d+4\,a^3b^2cd^2-a^4bd^3\right)x^4-10\left(2\,a^2b^3c^3-\right.}{20\left(a^6bx^6+a^7x^5\right)}$$
$$+\frac{3\left(2\,b^5c^3-5\,ab^4c^2d+4\,a^2b^3cd^2-a^3b^2d^3\right)\log(bx+a)}{a^7}$$
$$-\frac{3\left(2\,b^5c^3-5\,ab^4c^2d+4\,a^2b^3cd^2-a^3b^2d^3\right)\log(x)}{a^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/((b*x + a)^2*x^6),x, algorithm="maxima")
```

```
[Out] -1/20*(4*a^5*c^3 + 60*(2*b^5*c^3 - 5*a*b^4*c^2*d + 4*a^2*b^3*c*d^
2 - a^3*b^2*d^3)*x^5 + 30*(2*a*b^4*c^3 - 5*a^2*b^3*c^2*d + 4*a^3*
b^2*c*d^2 - a^4*b*d^3)*x^4 - 10*(2*a^2*b^3*c^3 - 5*a^3*b^2*c^2*d
+ 4*a^4*b*c*d^2 - a^5*d^3)*x^3 + 5*(2*a^3*b^2*c^3 - 5*a^4*b*c^2*d
 + 4*a^5*c*d^2)*x^2 - 3*(2*a^4*b*c^3 - 5*a^5*c^2*d)*x)/(a^6*b*x^6
 + a^7*x^5) + 3*(2*b^5*c^3 - 5*a*b^4*c^2*d + 4*a^2*b^3*c*d^2 - a^
3*b^2*d^3)*log(b*x + a)/a^7 - 3*(2*b^5*c^3 - 5*a*b^4*c^2*d + 4*a^
2*b^3*c*d^2 - a^3*b^2*d^3)*log(x)/a^7
```

Fricas [A] time = 0.217325, size = 591, normalized size = 2.97

$$-\frac{4\,a^6c^3+60\left(2\,ab^5c^3-5\,a^2b^4c^2d+4\,a^3b^3cd^2-a^4b^2d^3\right)x^5+30\left(2\,a^2b^4c^3-5\,a^3b^3c^2d+4\,a^4b^2cd^2-a^5bd^3\right)x^4-10\left(2\,a^3b^3c\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/((b*x + a)^2*x^6),x, algorithm="fricas")
```

```
[Out] -1/20*(4*a^6*c^3 + 60*(2*a*b^5*c^3 - 5*a^2*b^4*c^2*d + 4*a^3*b^3*
c*d^2 - a^4*b^2*d^3)*x^5 + 30*(2*a^2*b^4*c^3 - 5*a^3*b^3*c^2*d +
4*a^4*b^2*c*d^2 - a^5*b*d^3)*x^4 - 10*(2*a^3*b^3*c^3 - 5*a^4*b^2*
c^2*d + 4*a^5*b*c*d^2 - a^6*d^3)*x^3 + 5*(2*a^4*b^2*c^3 - 5*a^5*b
*c^2*d + 4*a^6*c*d^2)*x^2 - 3*(2*a^5*b*c^3 - 5*a^6*c^2*d)*x - 60*
((2*b^6*c^3 - 5*a*b^5*c^2*d + 4*a^2*b^4*c*d^2 - a^3*b^3*d^3)*x^6
+ (2*a*b^5*c^3 - 5*a^2*b^4*c^2*d + 4*a^3*b^3*c*d^2 - a^4*b^2*d^3)
*x^5)*log(b*x + a) + 60*((2*b^6*c^3 - 5*a*b^5*c^2*d + 4*a^2*b^4*c
*d^2 - a^3*b^3*d^3)*x^6 + (2*a*b^5*c^3 - 5*a^2*b^4*c^2*d + 4*a^3*
b^3*c*d^2 - a^4*b^2*d^3)*x^5)*log(x))/(a^7*b*x^6 + a^8*x^5)
```

Sympy [A] time = 13.2188, size = 530, normalized size = 2.66

$$\frac{-4a^5c^3 + x^5\left(60a^3b^2d^3 - 240a^2b^3cd^2 + 300ab^4c^2d - 120b^5c^3\right) + x^4\left(30a^4bd^3 - 120a^3b^2cd^2 + 150a^2b^3c^2d - 60ab^4c^3\right) + x^3\left(\cdots\right.}{20a^7x^5 + 20a^6b\cdots} + \frac{3b^2(ad-2bc)(ad-bc)^2\log\left(x + \frac{3a^4b^2d^3-12a^3b^3cd^2+15a^2b^4c^2d-6ab^5c^3-3ab^2(ad-2bc)(ad-bc)^2}{6a^3b^3d^3-24a^2b^4cd^2+30ab^5c^2d-12b^6c^3}\right)}{a^7} - \frac{3b^2(ad-2bc)(ad-bc)^2\log\left(x + \frac{3a^4b^2d^3-12a^3b^3cd^2+15a^2b^4c^2d-6ab^5c^3+3ab^2(ad-2bc)(ad-bc)^2}{6a^3b^3d^3-24a^2b^4cd^2+30ab^5c^2d-12b^6c^3}\right)}{a^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**3/x**6/(b*x+a)**2,x)
```

```
[Out] (-4*a**5*c**3 + x**5*(60*a**3*b**2*d**3 - 240*a**2*b**3*c*d**2 +
300*a*b**4*c**2*d - 120*b**5*c**3) + x**4*(30*a**4*b*d**3 - 120*a
**3*b**2*c*d**2 + 150*a**2*b**3*c**2*d - 60*a*b**4*c**3) + x**3*(
-10*a**5*d**3 + 40*a**4*b*c*d**2 - 50*a**3*b**2*c**2*d + 20*a**2*
b**3*c**3) + x**2*(-20*a**5*c*d**2 + 25*a**4*b*c**2*d - 10*a**3*b
**2*c**3) + x*(-15*a**5*c**2*d + 6*a**4*b*c**3))/(20*a**7*x**5 +
20*a**6*b*x**6) + 3*b**2*(a*d - 2*b*c)*(a*d - b*c)**2*log(x + (3*
a**4*b**2*d**3 - 12*a**3*b**3*c*d**2 + 15*a**2*b**4*c**2*d - 6*a*
b**5*c**3 - 3*a*b**2*(a*d - 2*b*c)*(a*d - b*c)**2)/(6*a**3*b**3*d
**3 - 24*a**2*b**4*c*d**2 + 30*a*b**5*c**2*d - 12*b**6*c**3))/a**
7 - 3*b**2*(a*d - 2*b*c)*(a*d - b*c)**2*log(x + (3*a**4*b**2*d**3
 - 12*a**3*b**3*c*d**2 + 15*a**2*b**4*c**2*d - 6*a*b**5*c**3 + 3*
a*b**2*(a*d - 2*b*c)*(a*d - b*c)**2)/(6*a**3*b**3*d**3 - 24*a**2*
b**4*c*d**2 + 30*a*b**5*c**2*d - 12*b**6*c**3))/a**7
```

GIAC/XCAS [A] time = 0.309252, size = 589, normalized size = 2.96

$$-\frac{3\left(2b^6c^3 - 5ab^5c^2d + 4a^2b^4cd^2 - a^3b^3d^3\right)\ln\left(\left|-\frac{a}{bx+a}+1\right|\right)}{a^7b} - \frac{\frac{b^{11}c^3}{bx+a} - \frac{3ab^{10}c^2d}{bx+a} + \frac{3a^2b^9cd^2}{bx+a} - \frac{a^3b^8d^3}{bx+a}}{a^6b^6} + \frac{174b^5c^3 - 385ab^4c^2d + 260a^2b^3cd^2 - 50a^3b^2d^3 - \frac{5\left(154ab^6c^3-337a^2b^5c^2d+224a^3b^4cd^2-42a^4b^3d^3\right)}{(bx+a)b} + \frac{10\left(130a^2b^7c^3-280a^3b^6c^2d+182\cdots\right.}{(bx+a)^2b^2}\cdots}{20a^7\left(\frac{a}{bx+a}-1\right)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/((b*x + a)^2*x^6),x, algorithm="giac")
```

```
[Out] -3*(2*b^6*c^3 - 5*a*b^5*c^2*d + 4*a^2*b^4*c*d^2 - a^3*b^3*d^3)*ln
(abs(-a/(b*x + a) + 1))/(a^7*b) - (b^11*c^3/(b*x + a) - 3*a*b^10*
c^2*d/(b*x + a) + 3*a^2*b^9*c*d^2/(b*x + a) - a^3*b^8*d^3/(b*x +
a))/(a^6*b^6) + 1/20*(174*b^5*c^3 - 385*a*b^4*c^2*d + 260*a^2*b^3
*c*d^2 - 50*a^3*b^2*d^3 - 5*(154*a*b^6*c^3 - 337*a^2*b^5*c^2*d +
224*a^3*b^4*c*d^2 - 42*a^4*b^3*d^3)/((b*x + a)*b) + 10*(130*a^2*b
^7*c^3 - 280*a^3*b^6*c^2*d + 182*a^4*b^5*c*d^2 - 33*a^5*b^4*d^3)/
((b*x + a)^2*b^2) - 10*(100*a^3*b^8*c^3 - 210*a^4*b^7*c^2*d + 132
*a^5*b^6*c*d^2 - 23*a^6*b^5*d^3)/((b*x + a)^3*b^3) + 60*(5*a^4*b^
```

```
9*c^3 - 10*a^5*b^8*c^2*d + 6*a^6*b^7*c*d^2 - a^7*b^6*d^3)/((b*x +
 a)^4*b^4))/(a^7*(a/(b*x + a) - 1)^5)
```

3.249 $\int \frac{x^6}{(a+bx)^2(c+dx)^2}\,dx$

Optimal. Leaf size=179

$$-\frac{a^6}{b^5(a+bx)(bc-ad)^2}-\frac{2a^5(3bc-2ad)\log(a+bx)}{b^5(bc-ad)^3}+\frac{x\left(3a^2d^2+4abcd+3b^2c^2\right)}{b^4d^4}-\frac{x^2(ad+bc)}{b^3d^3}-\frac{c^6}{d^5(c+dx)(bc-ad)^2}-\frac{2c^5(2bc-3ad)\log(c+dx)}{d^5(bc-ad)^3}+\frac{x^3}{3b^2d^2}$$

```
[Out] ((3*b^2*c^2 + 4*a*b*c*d + 3*a^2*d^2)*x)/(b^4*d^4) - ((b*c + a*d)*
x^2)/(b^3*d^3) + x^3/(3*b^2*d^2) - a^6/(b^5*(b*c - a*d)^2*(a + b*
x)) - c^6/(d^5*(b*c - a*d)^2*(c + d*x)) - (2*a^5*(3*b*c - 2*a*d)*
Log[a + b*x])/(b^5*(b*c - a*d)^3) - (2*c^5*(2*b*c - 3*a*d)*Log[c
+ d*x])/(d^5*(b*c - a*d)^3)
```

Rubi [A] time = 0.475783, antiderivative size = 179, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{a^6}{b^5(a+bx)(bc-ad)^2}-\frac{2a^5(3bc-2ad)\log(a+bx)}{b^5(bc-ad)^3}+\frac{x\left(3a^2d^2+4abcd+3b^2c^2\right)}{b^4d^4}-\frac{x^2(ad+bc)}{b^3d^3}-\frac{c^6}{d^5(c+dx)(bc-ad)^2}-\frac{2c^5(2bc-3ad)\log(c+dx)}{d^5(bc-ad)^3}+\frac{x^3}{3b^2d^2}$$

Antiderivative was successfully verified.

```
[In]  Int[x^6/((a + b*x)^2*(c + d*x)^2),x]
```

```
[Out] ((3*b^2*c^2 + 4*a*b*c*d + 3*a^2*d^2)*x)/(b^4*d^4) - ((b*c + a*d)*
x^2)/(b^3*d^3) + x^3/(3*b^2*d^2) - a^6/(b^5*(b*c - a*d)^2*(a + b*
x)) - c^6/(d^5*(b*c - a*d)^2*(c + d*x)) - (2*a^5*(3*b*c - 2*a*d)*
Log[a + b*x])/(b^5*(b*c - a*d)^3) - (2*c^5*(2*b*c - 3*a*d)*Log[c
+ d*x])/(d^5*(b*c - a*d)^3)
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{a^6}{b^5\,(a+bx)\,(ad-bc)^2}-\frac{2a^5\,(2ad-3bc)\log\,(a+bx)}{b^5\,(ad-bc)^3}-\frac{c^6}{d^5\,(c+dx)\,(ad-bc)^2}-\frac{2c^5\,(3ad-2bc)\log\,(c+dx)}{d^5\,(ad-bc)^3}+\frac{\left(3a^2d^2+4abcd+3b^2c^2\right)\int\frac{1}{b^4}\,dx}{d^4}+\frac{x^3}{3b^2d^2}-\frac{2\,(ad+bc)\int x\,dx}{b^3d^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**6/(b*x+a)**2/(d*x+c)**2,x)
```

```
[Out] -a**6/(b**5*(a + b*x)*(a*d - b*c)**2) - 2*a**5*(2*a*d - 3*b*c)*lo
g(a + b*x)/(b**5*(a*d - b*c)**3) - c**6/(d**5*(c + d*x)*(a*d - b*
c)**2) - 2*c**5*(3*a*d - 2*b*c)*log(c + d*x)/(d**5*(a*d - b*c)**3
) + (3*a**2*d**2 + 4*a*b*c*d + 3*b**2*c**2)*Integral(b**(-4), x)/
d**4 + x**3/(3*b**2*d**2) - 2*(a*d + b*c)*Integral(x, x)/(b**3*d*
*3)
```

Mathematica [A] time = 0.378939, size = 179, normalized size = 1.

$$-\frac{a^6}{b^5(a+bx)(bc-ad)^2}+\frac{2a^5(2ad-3bc)\log(a+bx)}{b^5(bc-ad)^3}+\frac{x\left(3a^2d^2+4abcd+3b^2c^2\right)}{b^4d^4}-\frac{x^2(ad+bc)}{b^3d^3}-\frac{c^6}{d^5(c+dx)(bc-ad)^2}+\frac{2c^5(2bc-3ad)\log(c+dx)}{d^5(ad-bc)^3}+\frac{x^3}{3b^2d^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^6/((a + b*x)^2*(c + d*x)^2),x]
```

```
[Out] ((3*b^2*c^2 + 4*a*b*c*d + 3*a^2*d^2)*x)/(b^4*d^4) - ((b*c + a*d)*
x^2)/(b^3*d^3) + x^3/(3*b^2*d^2) - a^6/(b^5*(b*c - a*d)^2*(a + b*
x)) - c^6/(d^5*(b*c - a*d)^2*(c + d*x)) + (2*a^5*(-3*b*c + 2*a*d)
*Log[a + b*x])/(b^5*(b*c - a*d)^3) + (2*c^5*(2*b*c - 3*a*d)*Log[c
 + d*x])/(d^5*(-(b*c) + a*d)^3)
```

Maple [A] time = 0.023, size = 222, normalized size = 1.2

$$\frac{x^3}{3\,b^2d^2}-\frac{x^2a}{d^2b^3}-\frac{cx^2}{d^3b^2}+3\,\frac{a^2x}{b^4d^2}+4\,\frac{acx}{b^3d^3}+3\,\frac{c^2x}{b^2d^4}-\frac{c^6}{d^5\left(ad-bc\right)^2\left(dx+c\right)}-6\,\frac{c^5\ln\left(dx+c\right)a}{d^4\left(ad-bc\right)^3}+4\,\frac{c^6\ln\left(dx+c\right)b}{d^5\left(ad-bc\right)^3}-\frac{a^6}{b^5\left(ad-bc\right)^2\left(bx+a\right)}-4\,\frac{a^6\ln\left(bx+a\right)d}{\left(ad-bc\right)^3b^5}+6\,\frac{a^5\ln\left(bx+a\right)c}{b^4\left(ad-bc\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^6/(b*x+a)^2/(d*x+c)^2,x)
```

```
[Out] 1/3*x^3/b^2/d^2-1/b^3/d^2*x^2*a-1/b^2/d^3*x^2*c+3/b^4/d^2*a^2*x+4
/b^3/d^3*a*c*x+3/b^2/d^4*c^2*x-1/d^5*c^6/(a*d-b*c)^2/(d*x+c)-6/d^
4*c^5/(a*d-b*c)^3*ln(d*x+c)*a+4/d^5*c^6/(a*d-b*c)^3*ln(d*x+c)*b-1
/b^5*a^6/(a*d-b*c)^2/(b*x+a)-4/b^5*a^6/(a*d-b*c)^3*ln(b*x+a)*d+6/
b^4*a^5/(a*d-b*c)^3*ln(b*x+a)*c
```

Maxima [A] time = 1.3795, size = 474, normalized size = 2.65

$$-\frac{2\left(3\,a^5bc-2\,a^6d\right)\log\left(bx+a\right)}{b^8c^3-3\,ab^7c^2d+3\,a^2b^6cd^2-a^3b^5d^3}-\frac{2\left(2\,bc^6-3\,ac^5d\right)\log\left(dx+c\right)}{b^3c^3d^5-3\,ab^2c^2d^6+3\,a^2bcd^7-a^3d^8}-\frac{ab^5c^6+a^6cd^5+\left(b^6c^6+a^6d^6\right)x}{ab^7c^3d^5-2\,a^2b^6c^2d^6+a^3b^5cd^7+(b^8c^2d^6-2\,ab^7cd^7+a^2b^6d^8)x^2+(b^8c^3d^5-ab^7c^2d^6-a^2b^6cd^7+a^3b^5d^8)x}+\frac{b^2d^2x^3-3\left(b^2cd+abd^2\right)x^2+3\left(3\,b^2c^2+4\,abcd+3\,a^2d^2\right)x}{3\,b^4d^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^6/((b*x + a)^2*(d*x + c)^2),x, algorithm="maxima")
```

```
[Out] -2*(3*a^5*b*c - 2*a^6*d)*log(b*x + a)/(b^8*c^3 - 3*a*b^7*c^2*d +
3*a^2*b^6*c*d^2 - a^3*b^5*d^3) - 2*(2*b*c^6 - 3*a*c^5*d)*log(d*x
+ c)/(b^3*c^3*d^5 - 3*a*b^2*c^2*d^6 + 3*a^2*b*c*d^7 - a^3*d^8) -
(a*b^5*c^6 + a^6*c*d^5 + (b^6*c^6 + a^6*d^6)*x)/(a*b^7*c^3*d^5 -
2*a^2*b^6*c^2*d^6 + a^3*b^5*c*d^7 + (b^8*c^2*d^6 - 2*a*b^7*c*d^7
+ a^2*b^6*d^8)*x^2 + (b^8*c^3*d^5 - a*b^7*c^2*d^6 - a^2*b^6*c*d^7
 + a^3*b^5*d^8)*x) + 1/3*(b^2*d^2*x^3 - 3*(b^2*c*d + a*b*d^2)*x^2
 + 3*(3*b^2*c^2 + 4*a*b*c*d + 3*a^2*d^2)*x)/(b^4*d^4)
```

Fricas [A] time = 0.272718, size = 945, normalized size = 5.28

$$-\frac{3\,ab^6c^7-3\,a^2b^5c^6d+3\,a^6bc^2d^5-3\,a^7cd^6-\left(b^7c^3d^4-3\,ab^6c^2d^5+3\,a^2b^5cd^6-a^3b^4d^7\right)x^5+2\left(b^7c^4d^3-2\,ab^6c^3d^4+2\,a^3b^4\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^6/((b*x + a)^2*(d*x + c)^2),x, algorithm="fricas")
```

```
[Out] -1/3*(3*a*b^6*c^7 - 3*a^2*b^5*c^6*d + 3*a^6*b*c^2*d^5 - 3*a^7*c*d
^6 - (b^7*c^3*d^4 - 3*a*b^6*c^2*d^5 + 3*a^2*b^5*c*d^6 - a^3*b^4*d
^7)*x^5 + 2*(b^7*c^4*d^3 - 2*a*b^6*c^3*d^4 + 2*a^3*b^4*c*d^6 - a^
4*b^3*d^7)*x^4 - (6*b^7*c^5*d^2 - 11*a*b^6*c^4*d^3 + 3*a^2*b^5*c^
3*d^4 - 3*a^3*b^4*c^2*d^5 + 11*a^4*b^3*c*d^6 - 6*a^5*b^2*d^7)*x^3
 - 9*(b^7*c^6*d - a*b^6*c^5*d^2 - a^2*b^5*c^4*d^3 + a^4*b^3*c^2*d
^5 + a^5*b^2*c*d^6 - a^6*b*d^7)*x^2 + 3*(b^7*c^7 - 4*a*b^6*c^6*d
+ 5*a^2*b^5*c^5*d^2 - 5*a^5*b^2*c^2*d^5 + 4*a^6*b*c*d^6 - a^7*d^7
)*x + 6*(3*a^6*b*c^2*d^5 - 2*a^7*c*d^6 + (3*a^5*b^2*c*d^6 - 2*a^6
*b*d^7)*x^2 + (3*a^5*b^2*c^2*d^5 + a^6*b*c*d^6 - 2*a^7*d^7)*x)*lo
g(b*x + a) + 6*(2*a*b^6*c^7 - 3*a^2*b^5*c^6*d + (2*b^7*c^6*d - 3*
a*b^6*c^5*d^2)*x^2 + (2*b^7*c^7 - a*b^6*c^6*d - 3*a^2*b^5*c^5*d^2
)*x)*log(d*x + c))/(a*b^8*c^4*d^5 - 3*a^2*b^7*c^3*d^6 + 3*a^3*b^6
*c^2*d^7 - a^4*b^5*c*d^8 + (b^9*c^3*d^6 - 3*a*b^8*c^2*d^7 + 3*a^2
*b^7*c*d^8 - a^3*b^6*d^9)*x^2 + (b^9*c^4*d^5 - 2*a*b^8*c^3*d^6 +
2*a^3*b^6*c*d^8 - a^4*b^5*d^9)*x)
```

Sympy [A] time = 35.7922, size = 768, normalized size = 4.29

$$-\frac{2a^5(2ad-3bc)\log\left(x+\frac{\frac{2a^9d^8(2ad-3bc)}{b(ad-bc)^3}-\frac{8a^8cd^7(2ad-3bc)}{(ad-bc)^3}+\frac{12a^7bc^2d^6(2ad-3bc)}{(ad-bc)^3}-\frac{8a^6b^2c^3d^5(2ad-3bc)}{(ad-bc)^3}+4a^6cd^5+\frac{2a^5b^3c^4d^4(2ad-3bc)}{(ad-bc)^3}-6a^5bc^2d^4-6a^2b^4c^5\cdots}{4a^6d^6-6a^5bcd^5-6ab^5c^5d+4b^6c^6}\right)}{b^5(ad-bc)^3}$$

$$-\frac{2c^5(3ad-2bc)\log\left(x+\frac{4a^6cd^5-6a^5bc^2d^4+\frac{2a^4b^4c^5d^3(3ad-2bc)}{(ad-bc)^3}-\frac{8a^3b^5c^6d^2(3ad-2bc)}{(ad-bc)^3}+\frac{12a^2b^6c^7d(3ad-2bc)}{(ad-bc)^3}-6a^2b^4c^5d-\frac{8ab^7c^8(3ad-2bc)}{(ad-bc)^3}+4ab^5c^6+\frac{2b^8c^9\cdots}{d(\cdots)}}{4a^6d^6-6a^5bcd^5-6ab^5c^5d+4b^6c^6}\right)}{d^5(ad-bc)^3}$$

$$-\frac{a^6cd^5+ab^5c^6+x\left(a^6d^6+b^6c^6\right)}{a^3b^5cd^7-2a^2b^6c^2d^6+ab^7c^3d^5+x^2\left(a^2b^6d^8-2ab^7cd^7+b^8c^2d^6\right)+x\left(a^3b^5d^8-a^2b^6cd^7-ab^7c^2d^6+b^8c^3d^5\right)}$$

$$+\frac{x^3}{3b^2d^2}-\frac{x^2(ad+bc)}{b^3d^3}+\frac{x\left(3a^2d^2+4abcd+3b^2c^2\right)}{b^4d^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**6/(b*x+a)**2/(d*x+c)**2,x)
```

```
[Out] -2*a**5*(2*a*d - 3*b*c)*log(x + (2*a**9*d**8*(2*a*d - 3*b*c)/(b*(
a*d - b*c)**3) - 8*a**8*c*d**7*(2*a*d - 3*b*c)/(a*d - b*c)**3 + 1
2*a**7*b*c**2*d**6*(2*a*d - 3*b*c)/(a*d - b*c)**3 - 8*a**6*b**2*c
**3*d**5*(2*a*d - 3*b*c)/(a*d - b*c)**3 + 4*a**6*c*d**5 + 2*a**5*
b**3*c**4*d**4*(2*a*d - 3*b*c)/(a*d - b*c)**3 - 6*a**5*b*c**2*d**
4 - 6*a**2*b**4*c**5*d + 4*a*b**5*c**6)/(4*a**6*d**6 - 6*a**5*b*c
*d**5 - 6*a*b**5*c**5*d + 4*b**6*c**6))/(b**5*(a*d - b*c)**3) - 2
*c**5*(3*a*d - 2*b*c)*log(x + (4*a**6*c*d**5 - 6*a**5*b*c**2*d**4
 + 2*a**4*b**4*c**5*d**3*(3*a*d - 2*b*c)/(a*d - b*c)**3 - 8*a**3*
b**5*c**6*d**2*(3*a*d - 2*b*c)/(a*d - b*c)**3 + 12*a**2*b**6*c**7
*d*(3*a*d - 2*b*c)/(a*d - b*c)**3 - 6*a**2*b**4*c**5*d - 8*a*b**7
*c**8*(3*a*d - 2*b*c)/(a*d - b*c)**3 + 4*a*b**5*c**6 + 2*b**8*c**
9*(3*a*d - 2*b*c)/(d*(a*d - b*c)**3))/(4*a**6*d**6 - 6*a**5*b*c*d
**5 - 6*a*b**5*c**5*d + 4*b**6*c**6))/(d**5*(a*d - b*c)**3) - (a*
*6*c*d**5 + a*b**5*c**6 + x*(a**6*d**6 + b**6*c**6))/(a**3*b**5*c
*d**7 - 2*a**2*b**6*c**2*d**6 + a*b**7*c**3*d**5 + x**2*(a**2*b**
6*d**8 - 2*a*b**7*c*d**7 + b**8*c**2*d**6) + x*(a**3*b**5*d**8 -
a**2*b**6*c*d**7 - a*b**7*c**2*d**6 + b**8*c**3*d**5)) + x**3/(3*
b**2*d**2) - x**2*(a*d + b*c)/(b**3*d**3) + x*(3*a**2*d**2 + 4*a*
b*c*d + 3*b**2*c**2)/(b**4*d**4)
```

GIAC/XCAS [A] time = 0.325949, size = 698, normalized size = 3.9

$$-\frac{a^{6}b^{5}}{(b^{12}c^{2}-2\,ab^{11}cd+a^{2}b^{10}d^{2})(bx+a)}-\frac{2\left(2\,b^{2}c^{6}-3\,abc^{5}d\right)\ln\left(\left|\frac{bc}{bx+a}-\frac{ad}{bx+a}+d\right|\right)}{b^{4}c^{3}d^{5}-3\,ab^{3}c^{2}d^{6}+3\,a^{2}b^{2}cd^{7}-a^{3}bd^{8}}+\frac{2\left(2\,b^{3}c^{3}+3\,ab^{2}c^{2}d+3\,a^{2}bcd^{2}+2\,a^{3}d^{3}\right)\ln\left(\frac{|bx+a|}{(bx+a)^{2}|b|}\right)}{b^{5}d^{5}}+\frac{\left(b^{3}c^{3}d^{4}-3\,ab^{2}c^{2}d^{5}+3\,a^{2}bcd^{6}-a^{3}d^{7}-\frac{2\,b^{5}c^{4}d^{3}+ab^{4}c^{3}d^{4}-15\,a^{2}b^{3}c^{2}d^{5}+19\,a^{3}b^{2}cd^{6}-7\,a^{4}bd^{7}}{(bx+a)b}+\frac{3\left(2\,b^{7}c^{5}d^{2}-ab^{6}c^{4}d^{3}-a^{2}b^{5}c^{3}d^{4}-11\,a^{3}b^{4}c^{2}d^{5}\right.}{(bx+a)^{2}b^{2}}\right.}{3\,(bc-ad)^{3}b^{5}\left(\frac{bc}{bx+a}-\frac{ad}{bx+a}+d\right)d^{5}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^6/((b*x + a)^2*(d*x + c)^2),x, algorithm="giac")
```

```
[Out] -a^6*b^5/((b^12*c^2 - 2*a*b^11*c*d + a^2*b^10*d^2)*(b*x + a)) - 2
*(2*b^2*c^6 - 3*a*b*c^5*d)*ln(abs(b*c/(b*x + a) - a*d/(b*x + a) +
 d))/(b^4*c^3*d^5 - 3*a*b^3*c^2*d^6 + 3*a^2*b^2*c*d^7 - a^3*b*d^8
) + 2*(2*b^3*c^3 + 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 + 2*a^3*d^3)*ln(
abs(b*x + a)/((b*x + a)^2*abs(b)))/(b^5*d^5) + 1/3*(b^3*c^3*d^4 -
 3*a*b^2*c^2*d^5 + 3*a^2*b*c*d^6 - a^3*d^7 - (2*b^5*c^4*d^3 + a*b
^4*c^3*d^4 - 15*a^2*b^3*c^2*d^5 + 19*a^3*b^2*c*d^6 - 7*a^4*b*d^7)
/((b*x + a)*b) + 3*(2*b^7*c^5*d^2 - a*b^6*c^4*d^3 - a^2*b^5*c^3*d
^4 - 11*a^3*b^4*c^2*d^5 + 19*a^4*b^3*c*d^6 - 8*a^5*b^2*d^7)/((b*x
 + a)^2*b^2) + 3*(4*b^9*c^6*d - 6*a*b^8*c^5*d^2 + 15*a^4*b^5*c^2*
d^5 - 18*a^5*b^4*c*d^6 + 6*a^6*b^3*d^7)/((b*x + a)^3*b^3))*(b*x +
 a)^3/((b*c - a*d)^3*b^5*(b*c/(b*x + a) - a*d/(b*x + a) + d)*d^5)
```

3.250 $\int \frac{x^5}{(a+bx)^2(c+dx)^2} \, dx$

Optimal. Leaf size=142

$$\frac{a^5}{b^4(a+bx)(bc-ad)^2}+\frac{a^4(5bc-3ad)\log(a+bx)}{b^4(bc-ad)^3}-\frac{2x(ad+bc)}{b^3d^3}+\frac{c^5}{d^4(c+dx)(bc-ad)^2}+\frac{c^4(3bc-5ad)\log(c+dx)}{d^4(bc-ad)^3}+\frac{x^2}{2b^2d^2}$$

```
[Out] (-2*(b*c + a*d)*x)/(b^3*d^3) + x^2/(2*b^2*d^2) + a^5/(b^4*(b*c -
a*d)^2*(a + b*x)) + c^5/(d^4*(b*c - a*d)^2*(c + d*x)) + (a^4*(5*b
*c - 3*a*d)*Log[a + b*x])/(b^4*(b*c - a*d)^3) + (c^4*(3*b*c - 5*a
*d)*Log[c + d*x])/(d^4*(b*c - a*d)^3)
```

Rubi [A] time = 0.357174, antiderivative size = 142, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.056$

$$\frac{a^5}{b^4(a+bx)(bc-ad)^2}+\frac{a^4(5bc-3ad)\log(a+bx)}{b^4(bc-ad)^3}-\frac{2x(ad+bc)}{b^3d^3}+\frac{c^5}{d^4(c+dx)(bc-ad)^2}+\frac{c^4(3bc-5ad)\log(c+dx)}{d^4(bc-ad)^3}+\frac{x^2}{2b^2d^2}$$

Antiderivative was successfully verified.

```
[In]  Int[x^5/((a + b*x)^2*(c + d*x)^2),x]
```

```
[Out] (-2*(b*c + a*d)*x)/(b^3*d^3) + x^2/(2*b^2*d^2) + a^5/(b^4*(b*c -
a*d)^2*(a + b*x)) + c^5/(d^4*(b*c - a*d)^2*(c + d*x)) + (a^4*(5*b
*c - 3*a*d)*Log[a + b*x])/(b^4*(b*c - a*d)^3) + (c^4*(3*b*c - 5*a
*d)*Log[c + d*x])/(d^4*(b*c - a*d)^3)
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{a^5}{b^4\left(a+bx\right)\left(ad-bc\right)^2}+\frac{a^4\left(3ad-5bc\right)\log\left(a+bx\right)}{b^4\left(ad-bc\right)^3}+\frac{c^5}{d^4\left(c+dx\right)\left(ad-bc\right)^2}+\frac{c^4\left(5ad-3bc\right)\log\left(c+dx\right)}{d^4\left(ad-bc\right)^3}+\frac{\int x\,dx}{b^2d^2}-\frac{2x\left(ad+bc\right)}{b^3d^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**5/(b*x+a)**2/(d*x+c)**2,x)
```

```
[Out] a**5/(b**4*(a + b*x)*(a*d - b*c)**2) + a**4*(3*a*d - 5*b*c)*log(a
 + b*x)/(b**4*(a*d - b*c)**3) + c**5/(d**4*(c + d*x)*(a*d - b*c)*
*2) + c**4*(5*a*d - 3*b*c)*log(c + d*x)/(d**4*(a*d - b*c)**3) + I
ntegral(x, x)/(b**2*d**2) - 2*x*(a*d + b*c)/(b**3*d**3)
```

Mathematica [A] time = 0.272808, size = 142, normalized size = 1.

$$\frac{a^5}{b^4(a+bx)(bc-ad)^2}+\frac{a^4(5bc-3ad)\log(a+bx)}{b^4(bc-ad)^3}-\frac{2x(ad+bc)}{b^3d^3}+\frac{c^5}{d^4(c+dx)(bc-ad)^2}+\frac{c^4(5ad-3bc)\log(c+dx)}{d^4(ad-bc)^3}+\frac{x^2}{2b^2d^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^5/((a + b*x)^2*(c + d*x)^2),x]
```

```
[Out] (-2*(b*c + a*d)*x)/(b^3*d^3) + x^2/(2*b^2*d^2) + a^5/(b^4*(b*c -
a*d)^2*(a + b*x)) + c^5/(d^4*(b*c - a*d)^2*(c + d*x)) + (a^4*(5*b
*c - 3*a*d)*Log[a + b*x])/(b^4*(b*c - a*d)^3) + (c^4*(-3*b*c + 5*
a*d)*Log[c + d*x])/(d^4*(-(b*c) + a*d)^3)
```

Maple [A] time = 0.022, size = 181, normalized size = 1.3

$$\frac{x^2}{2\,b^2d^2}-2\,\frac{ax}{d^2b^3}-2\,\frac{cx}{d^3b^2}+5\,\frac{c^4\ln(dx+c)\,a}{d^3\,(ad-bc)^3}-3\,\frac{c^5\ln(dx+c)\,b}{d^4\,(ad-bc)^3}+\frac{c^5}{d^4\,(ad-bc)^2\,(dx+c)}+3\,\frac{a^5\ln(bx+a)\,d}{(ad-bc)^3\,b^4}-5\,\frac{a^4\ln(bx+a)\,c}{b^3\,(ad-bc)^3}+\frac{a^5}{b^4\,(ad-bc)^2\,(bx+a)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^5/(b*x+a)^2/(d*x+c)^2,x)
```

```
[Out] 1/2*x^2/b^2/d^2-2/b^3/d^2*a*x-2/b^2/d^3*x*c+5/d^3*c^4/(a*d-b*c)^3
*ln(d*x+c)*a-3/d^4*c^5/(a*d-b*c)^3*ln(d*x+c)*b+1/d^4*c^5/(a*d-b*c
)^2/(d*x+c)+3/b^4*a^5/(a*d-b*c)^3*ln(b*x+a)*d-5/b^3*a^4/(a*d-b*c)
^3*ln(b*x+a)*c+1/b^4*a^5/(a*d-b*c)^2/(b*x+a)
```

Maxima [A] time = 1.34891, size = 419, normalized size = 2.95

$$\frac{\left(5\,a^4bc-3\,a^5d\right)\log(bx+a)}{b^7c^3-3\,ab^6c^2d+3\,a^2b^5cd^2-a^3b^4d^3}+\frac{\left(3\,bc^5-5\,ac^4d\right)\log(dx+c)}{b^3c^3d^4-3\,ab^2c^2d^5+3\,a^2bcd^6-a^3d^7}+\frac{ab^4c^5+a^5cd^4+\left(b^5c^5+a^5d^5\right)x}{ab^6c^3d^4-2\,a^2b^5c^2d^5+a^3b^4cd^6+(b^7c^2d^5-2\,ab^6cd^6+a^2b^5d^7)x^2+(b^7c^3d^4-ab^6c^2d^5-a^2b^5cd^6+a^3b^4d^7)x}+\frac{bdx^2-4\,(bc+ad)x}{2\,b^3d^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^5/((b*x + a)^2*(d*x + c)^2),x, algorithm="maxima")
```

```
[Out] (5*a^4*b*c - 3*a^5*d)*log(b*x + a)/(b^7*c^3 - 3*a*b^6*c^2*d + 3*a
^2*b^5*c*d^2 - a^3*b^4*d^3) + (3*b*c^5 - 5*a*c^4*d)*log(d*x + c)/
(b^3*c^3*d^4 - 3*a*b^2*c^2*d^5 + 3*a^2*b*c*d^6 - a^3*d^7) + (a*b^
4*c^5 + a^5*c*d^4 + (b^5*c^5 + a^5*d^5)*x)/(a*b^6*c^3*d^4 - 2*a^2
*b^5*c^2*d^5 + a^3*b^4*c*d^6 + (b^7*c^2*d^5 - 2*a*b^6*c*d^6 + a^2
*b^5*d^7)*x^2 + (b^7*c^3*d^4 - a*b^6*c^2*d^5 - a^2*b^5*c*d^6 + a^
3*b^4*d^7)*x) + 1/2*(b*d*x^2 - 4*(b*c + a*d)*x)/(b^3*d^3)
```

Fricas [A] time = 0.235242, size = 841, normalized size = 5.92

$$\frac{2\,ab^5c^6-2\,a^2b^4c^5d+2\,a^5bc^2d^4-2\,a^6cd^5+\left(b^6c^3d^3-3\,ab^5c^2d^4+3\,a^2b^4cd^5-a^3b^3d^6\right)x^4-3\,\left(b^6c^4d^2-2\,ab^5c^3d^3+2\,a^3b^3c\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^5/((b*x + a)^2*(d*x + c)^2),x, algorithm="fricas")
```

```
[Out] 1/2*(2*a*b^5*c^6 - 2*a^2*b^4*c^5*d + 2*a^5*b*c^2*d^4 - 2*a^6*c*d^
5 + (b^6*c^3*d^3 - 3*a*b^5*c^2*d^4 + 3*a^2*b^4*c*d^5 - a^3*b^3*d^
6)*x^4 - 3*(b^6*c^4*d^2 - 2*a*b^5*c^3*d^3 + 2*a^3*b^3*c*d^5 - a^4
*b^2*d^6)*x^3 - (4*b^6*c^5*d - 5*a*b^5*c^4*d^2 - 5*a^2*b^4*c^3*d^
3 + 5*a^3*b^3*c^2*d^4 + 5*a^4*b^2*c*d^5 - 4*a^5*b*d^6)*x^2 + 2*(b
```

```
^6*c^6 - 3*a*b^5*c^5*d + 4*a^2*b^4*c^4*d^2 - 4*a^4*b^2*c^2*d^4 +
3*a^5*b*c*d^5 - a^6*d^6)*x + 2*(5*a^5*b*c^2*d^4 - 3*a^6*c*d^5 + (
5*a^4*b^2*c*d^5 - 3*a^5*b*d^6)*x^2 + (5*a^4*b^2*c^2*d^4 + 2*a^5*b
*c*d^5 - 3*a^6*d^6)*x)*log(b*x + a) + 2*(3*a*b^5*c^6 - 5*a^2*b^4*
c^5*d + (3*b^6*c^5*d - 5*a*b^5*c^4*d^2)*x^2 + (3*b^6*c^6 - 2*a*b^
5*c^5*d - 5*a^2*b^4*c^4*d^2)*x)*log(d*x + c))/(a*b^7*c^4*d^4 - 3*
a^2*b^6*c^3*d^5 + 3*a^3*b^5*c^2*d^6 - a^4*b^4*c*d^7 + (b^8*c^3*d^
5 - 3*a*b^7*c^2*d^6 + 3*a^2*b^6*c*d^7 - a^3*b^5*d^8)*x^2 + (b^8*c
^4*d^4 - 2*a*b^7*c^3*d^5 + 2*a^3*b^5*c*d^7 - a^4*b^4*d^8)*x)
```

Sympy [A] time = 28.2676, size = 726, normalized size = 5.11

$$\frac{a^4\left(3ad-5bc\right)\log\left(x+\frac{\frac{a^8d^7(3ad-5bc)}{b(ad-bc)^3}-\frac{4a^7cd^6(3ad-5bc)}{(ad-bc)^3}+\frac{6a^6bc^2d^5(3ad-5bc)}{(ad-bc)^3}-\frac{4a^5b^2c^3d^4(3ad-5bc)}{(ad-bc)^3}+3a^5cd^4+\frac{a^4b^3c^4d^3(3ad-5bc)}{(ad-bc)^3}-5a^4bc^2d^3-5a^2b^3c^4d+3ab\cdots}{3a^5d^5-5a^4bcd^4-5ab^4c^4d+3b^5c^5}\cdots}{b^4\left(ad-bc\right)^3}$$
$$+\frac{c^4\left(5ad-3bc\right)\log\left(x+\frac{3a^5cd^4+\frac{a^4b^3c^4d^3(5ad-3bc)}{(ad-bc)^3}-5a^4bc^2d^3-\frac{4a^3b^4c^5d^2(5ad-3bc)}{(ad-bc)^3}+\frac{6a^2b^5c^6d(5ad-3bc)}{(ad-bc)^3}-5a^2b^3c^4d-\frac{4ab^6c^7(5ad-3bc)}{(ad-bc)^3}+3ab^4c^5+\frac{b^7c^8(5ad\cdots}{d(ad-b\cdots}}{3a^5d^5-5a^4bcd^4-5ab^4c^4d+3b^5c^5}\cdots}{d^4\left(ad-bc\right)^3}$$
$$+\frac{a^5cd^4+ab^4c^5+x\left(a^5d^5+b^5c^5\right)}{a^3b^4cd^6-2a^2b^5c^2d^5+ab^6c^3d^4+x^2\left(a^2b^5d^7-2ab^6cd^6+b^7c^2d^5\right)+x\left(a^3b^4d^7-a^2b^5cd^6-ab^6c^2d^5+b^7c^3d^4\right)}$$
$$+\frac{x^2}{2b^2d^2}-\frac{x\left(2ad+2bc\right)}{b^3d^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**5/(b*x+a)**2/(d*x+c)**2,x)
```

```
[Out] a**4*(3*a*d - 5*b*c)*log(x + (a**8*d**7*(3*a*d - 5*b*c)/(b*(a*d -
 b*c)**3) - 4*a**7*c*d**6*(3*a*d - 5*b*c)/(a*d - b*c)**3 + 6*a**6
*b*c**2*d**5*(3*a*d - 5*b*c)/(a*d - b*c)**3 - 4*a**5*b**2*c**3*d*
*4*(3*a*d - 5*b*c)/(a*d - b*c)**3 + 3*a**5*c*d**4 + a**4*b**3*c**
4*d**3*(3*a*d - 5*b*c)/(a*d - b*c)**3 - 5*a**4*b*c**2*d**3 - 5*a*
*2*b**3*c**4*d + 3*a*b**4*c**5)/(3*a**5*d**5 - 5*a**4*b*c*d**4 -
5*a*b**4*c**4*d + 3*b**5*c**5))/(b**4*(a*d - b*c)**3) + c**4*(5*a
*d - 3*b*c)*log(x + (3*a**5*c*d**4 + a**4*b**3*c**4*d**3*(5*a*d -
 3*b*c)/(a*d - b*c)**3 - 5*a**4*b*c**2*d**3 - 4*a**3*b**4*c**5*d*
*2*(5*a*d - 3*b*c)/(a*d - b*c)**3 + 6*a**2*b**5*c**6*d*(5*a*d - 3
*b*c)/(a*d - b*c)**3 - 5*a**2*b**3*c**4*d - 4*a*b**6*c**7*(5*a*d
- 3*b*c)/(a*d - b*c)**3 + 3*a*b**4*c**5 + b**7*c**8*(5*a*d - 3*b*
c)/(d*(a*d - b*c)**3))/(3*a**5*d**5 - 5*a**4*b*c*d**4 - 5*a*b**4*
c**4*d + 3*b**5*c**5))/(d**4*(a*d - b*c)**3) + (a**5*c*d**4 + a*b
**4*c**5 + x*(a**5*d**5 + b**5*c**5))/(a**3*b**4*c*d**6 - 2*a**2*
b**5*c**2*d**5 + a*b**6*c**3*d**4 + x**2*(a**2*b**5*d**7 - 2*a*b*
*6*c*d**6 + b**7*c**2*d**5) + x*(a**3*b**4*d**7 - a**2*b**5*c*d**
6 - a*b**6*c**2*d**5 + b**7*c**3*d**4)) + x**2/(2*b**2*d**2) - x*
(2*a*d + 2*b*c)/(b**3*d**3)
```

GIAC/XCAS [A] time = 0.288231, size = 560, normalized size = 3.94

$$\frac{a^5b^4}{(b^{10}c^2-2\,ab^9cd+a^2b^8d^2)(bx+a)}+\frac{\left(3\,b^2c^5-5\,abc^4d\right)\ln\left(\left|\frac{bc}{bx+a}-\frac{ad}{bx+a}+d\right|\right)}{b^4c^3d^4-3\,ab^3c^2d^5+3\,a^2b^2cd^6-a^3bd^7}$$
$$-\frac{\left(3\,b^2c^2+4\,abcd+3\,a^2d^2\right)\ln\left(\frac{|bx+a|}{(bx+a)^2|b|}\right)}{b^4d^4}$$
$$+\frac{\left(b^3c^3d^3-3\,ab^2c^2d^4+3\,a^2bcd^5-a^3d^6-\frac{3\,b^5c^4d^2-2\,ab^4c^3d^3-12\,a^2b^3c^2d^4+18\,a^3b^2cd^5-7\,a^4bd^6}{(bx+a)b}-\frac{2\,(3\,b^7c^5d-5\,ab^6c^4d^2+10\,a^3b^4c^2d^4-10\,a^4b^3\cdots}{(bx+a)^2b^2}\cdots\right)}{2\,(bc-ad)^3b^4\left(\frac{bc}{bx+a}-\frac{ad}{bx+a}+d\right)d^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^5/((b*x + a)^2*(d*x + c)^2),x, algorithm="giac")
```

```
[Out] a^5*b^4/((b^10*c^2 - 2*a*b^9*c*d + a^2*b^8*d^2)*(b*x + a)) + (3*b
^2*c^5 - 5*a*b*c^4*d)*ln(abs(b*c/(b*x + a) - a*d/(b*x + a) + d))/
(b^4*c^3*d^4 - 3*a*b^3*c^2*d^5 + 3*a^2*b^2*c*d^6 - a^3*b*d^7) - (
3*b^2*c^2 + 4*a*b*c*d + 3*a^2*d^2)*ln(abs(b*x + a)/((b*x + a)^2*a
bs(b)))/(b^4*d^4) + 1/2*(b^3*c^3*d^3 - 3*a*b^2*c^2*d^4 + 3*a^2*b*
c*d^5 - a^3*d^6 - (3*b^5*c^4*d^2 - 2*a*b^4*c^3*d^3 - 12*a^2*b^3*c
^2*d^4 + 18*a^3*b^2*c*d^5 - 7*a^4*b*d^6)/((b*x + a)*b) - 2*(3*b^7
*c^5*d - 5*a*b^6*c^4*d^2 + 10*a^3*b^4*c^2*d^4 - 10*a^4*b^3*c*d^5
+ 3*a^5*b^2*d^6)/((b*x + a)^2*b^2))*(b*x + a)^2/((b*c - a*d)^3*b^
4*(b*c/(b*x + a) - a*d/(b*x + a) + d)*d^4)
```

3.251 $\int \frac{x^4}{(a+bx)^2(c+dx)^2}\,dx$

Optimal. Leaf size=124

$$-\frac{a^4}{b^3(a+bx)(bc-ad)^2}-\frac{2a^3(2bc-ad)\log(a+bx)}{b^3(bc-ad)^3}-\frac{c^4}{d^3(c+dx)(bc-ad)^2}-\frac{2c^3(bc-2ad)\log(c+dx)}{d^3(bc-ad)^3}+\frac{x}{b^2d^2}$$

```
[Out] x/(b^2*d^2) - a^4/(b^3*(b*c - a*d)^2*(a + b*x)) - c^4/(d^3*(b*c -
 a*d)^2*(c + d*x)) - (2*a^3*(2*b*c - a*d)*Log[a + b*x])/(b^3*(b*c
 - a*d)^3) - (2*c^3*(b*c - 2*a*d)*Log[c + d*x])/(d^3*(b*c - a*d)^
3)
```

Rubi [A] time = 0.284685, antiderivative size = 124, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{a^4}{b^3(a+bx)(bc-ad)^2}-\frac{2a^3(2bc-ad)\log(a+bx)}{b^3(bc-ad)^3}-\frac{c^4}{d^3(c+dx)(bc-ad)^2}-\frac{2c^3(bc-2ad)\log(c+dx)}{d^3(bc-ad)^3}+\frac{x}{b^2d^2}$$

Antiderivative was successfully verified.

```
[In]  Int[x^4/((a + b*x)^2*(c + d*x)^2),x]
```

```
[Out] x/(b^2*d^2) - a^4/(b^3*(b*c - a*d)^2*(a + b*x)) - c^4/(d^3*(b*c -
 a*d)^2*(c + d*x)) - (2*a^3*(2*b*c - a*d)*Log[a + b*x])/(b^3*(b*c
 - a*d)^3) - (2*c^3*(b*c - 2*a*d)*Log[c + d*x])/(d^3*(b*c - a*d)^
3)
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{a^4}{b^3\,(a+bx)\,(ad-bc)^2}-\frac{2a^3\,(ad-2bc)\log\,(a+bx)}{b^3\,(ad-bc)^3}-\frac{c^4}{d^3\,(c+dx)\,(ad-bc)^2}-\frac{2c^3\,(2ad-bc)\log\,(c+dx)}{d^3\,(ad-bc)^3}+\frac{\int\frac{1}{b^2}\,dx}{d^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**4/(b*x+a)**2/(d*x+c)**2,x)
```

```
[Out] -a**4/(b**3*(a + b*x)*(a*d - b*c)**2) - 2*a**3*(a*d - 2*b*c)*log(
a + b*x)/(b**3*(a*d - b*c)**3) - c**4/(d**3*(c + d*x)*(a*d - b*c)
**2) - 2*c**3*(2*a*d - b*c)*log(c + d*x)/(d**3*(a*d - b*c)**3) +
Integral(b**(-2), x)/d**2
```

Mathematica [A] time = 0.245627, size = 123, normalized size = 0.99

$$-\frac{a^4}{b^3(a+bx)(bc-ad)^2}+\frac{2a^3(ad-2bc)\log(a+bx)}{b^3(bc-ad)^3}-\frac{c^4}{d^3(c+dx)(bc-ad)^2}+\frac{2c^3(bc-2ad)\log(c+dx)}{d^3(ad-bc)^3}+\frac{x}{b^2d^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^4/((a + b*x)^2*(c + d*x)^2),x]
```

```
[Out] x/(b^2*d^2) - a^4/(b^3*(b*c - a*d)^2*(a + b*x)) - c^4/(d^3*(b*c -
 a*d)^2*(c + d*x)) + (2*a^3*(-2*b*c + a*d)*Log[a + b*x])/(b^3*(b*
c - a*d)^3) + (2*c^3*(b*c - 2*a*d)*Log[c + d*x])/(d^3*(-(b*c) + a
*d)^3)
```

Maple [A] time = 0.023, size = 160, normalized size = 1.3

$$\frac{x}{b^2d^2}-\frac{c^4}{d^3\left(ad-bc\right)^2\left(dx+c\right)}-4\,\frac{c^3\ln\left(dx+c\right)a}{d^2\left(ad-bc\right)^3}+2\,\frac{c^4\ln\left(dx+c\right)b}{d^3\left(ad-bc\right)^3}-\frac{a^4}{b^3\left(ad-bc\right)^2\left(bx+a\right)}-2\,\frac{a^4\ln\left(bx+a\right)d}{b^3\left(ad-bc\right)^3}+4\,\frac{a^3\ln\left(bx+a\right)c}{b^2\left(ad-bc\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^4/(b*x+a)^2/(d*x+c)^2,x)
```

```
[Out] x/b^2/d^2-1/d^3*c^4/(a*d-b*c)^2/(d*x+c)-4/d^2*c^3/(a*d-b*c)^3*ln(
d*x+c)*a+2/d^3*c^4/(a*d-b*c)^3*ln(d*x+c)*b-1/b^3*a^4/(a*d-b*c)^2/
(b*x+a)-2/b^3*a^4/(a*d-b*c)^3*ln(b*x+a)*d+4/b^2*a^3/(a*d-b*c)^3*l
n(b*x+a)*c
```

Maxima [A] time = 1.38025, size = 398, normalized size = 3.21

$$-\frac{2\left(2\,a^3bc-a^4d\right)\log\left(bx+a\right)}{b^6c^3-3\,ab^5c^2d+3\,a^2b^4cd^2-a^3b^3d^3}-\frac{2\left(bc^4-2\,ac^3d\right)\log\left(dx+c\right)}{b^3c^3d^3-3\,ab^2c^2d^4+3\,a^2bcd^5-a^3d^6}-\frac{ab^3c^4+a^4cd^3+\left(b^4c^4+a^4d^4\right)x}{ab^5c^3d^3-2\,a^2b^4c^2d^4+a^3b^3cd^5+(b^6c^2d^4-2\,ab^5cd^5+a^2b^4d^6)x^2+(b^6c^3d^3-ab^5c^2d^4-a^2b^4cd^5+a^3b^3d^6)x}+\frac{x}{b^2d^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^4/((b*x + a)^2*(d*x + c)^2),x, algorithm="maxima")
```

```
[Out] -2*(2*a^3*b*c - a^4*d)*log(b*x + a)/(b^6*c^3 - 3*a*b^5*c^2*d + 3*
a^2*b^4*c*d^2 - a^3*b^3*d^3) - 2*(b*c^4 - 2*a*c^3*d)*log(d*x + c)
/(b^3*c^3*d^3 - 3*a*b^2*c^2*d^4 + 3*a^2*b*c*d^5 - a^3*d^6) - (a*b
^3*c^4 + a^4*c*d^3 + (b^4*c^4 + a^4*d^4)*x)/(a*b^5*c^3*d^3 - 2*a^
2*b^4*c^2*d^4 + a^3*b^3*c*d^5 + (b^6*c^2*d^4 - 2*a*b^5*c*d^5 + a^
2*b^4*d^6)*x^2 + (b^6*c^3*d^3 - a*b^5*c^2*d^4 - a^2*b^4*c*d^5 + a
^3*b^3*d^6)*x) + x/(b^2*d^2)
```

Fricas [A] time = 0.231653, size = 725, normalized size = 5.85

$$-\frac{ab^4c^5-a^2b^3c^4d+a^4bc^2d^3-a^5cd^4-\left(b^5c^3d^2-3\,ab^4c^2d^3+3\,a^2b^3cd^4-a^3b^2d^5\right)x^3-\left(b^5c^4d-2\,ab^4c^3d^2+2\,a^3b^2cd^4-a^4\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^4/((b*x + a)^2*(d*x + c)^2),x, algorithm="fricas")
```

```
[Out] -(a*b^4*c^5 - a^2*b^3*c^4*d + a^4*b*c^2*d^3 - a^5*c*d^4 - (b^5*c^
3*d^2 - 3*a*b^4*c^2*d^3 + 3*a^2*b^3*c*d^4 - a^3*b^2*d^5)*x^3 - (b
^5*c^4*d - 2*a*b^4*c^3*d^2 + 2*a^3*b^2*c*d^4 - a^4*b*d^5)*x^2 + (
b^5*c^5 - 2*a*b^4*c^4*d + 3*a^2*b^3*c^3*d^2 - 3*a^3*b^2*c^2*d^3 +
 2*a^4*b*c*d^4 - a^5*d^5)*x + 2*(2*a^4*b*c^2*d^3 - a^5*c*d^4 + (2
```

```
*a^3*b^2*c*d^4 - a^4*b*d^5)*x^2 + (2*a^3*b^2*c^2*d^3 + a^4*b*c*d^
4 - a^5*d^5)*x)*log(b*x + a) + 2*(a*b^4*c^5 - 2*a^2*b^3*c^4*d + (
b^5*c^4*d - 2*a*b^4*c^3*d^2)*x^2 + (b^5*c^5 - a*b^4*c^4*d - 2*a^2
*b^3*c^3*d^2)*x)*log(d*x + c))/(a*b^6*c^4*d^3 - 3*a^2*b^5*c^3*d^4
 + 3*a^3*b^4*c^2*d^5 - a^4*b^3*c*d^6 + (b^7*c^3*d^4 - 3*a*b^6*c^2
*d^5 + 3*a^2*b^5*c*d^6 - a^3*b^4*d^7)*x^2 + (b^7*c^4*d^3 - 2*a*b^
6*c^3*d^4 + 2*a^3*b^4*c*d^6 - a^4*b^3*d^7)*x)
```

Sympy [A] time = 22.1918, size = 694, normalized size = 5.6

$$-\frac{2a^3\left(ad-2bc\right)\log\left(x+\frac{\frac{2a^7d^6(ad-2bc)}{b(ad-bc)^3}-\frac{8a^6cd^5(ad-2bc)}{(ad-bc)^3}+\frac{12a^5bc^2d^4(ad-2bc)}{(ad-bc)^3}-\frac{8a^4b^2c^3d^3(ad-2bc)}{(ad-bc)^3}+2a^4cd^3+\frac{2a^3b^3c^4d^2(ad-2bc)}{(ad-bc)^3}-4a^3bc^2d^2-4a^2b^2c^3d+2a}{2a^4d^4-4a^3bcd^3-4ab^3c^3d+2b^4c^4}\right.}{b^3\left(ad-bc\right)^3}$$
$$-\frac{2c^3\left(2ad-bc\right)\log\left(x+\frac{\frac{2a^4b^2c^3d^3(2ad-bc)}{(ad-bc)^3}+2a^4cd^3-\frac{8a^3b^3c^4d^2(2ad-bc)}{(ad-bc)^3}-4a^3bc^2d^2+\frac{12a^2b^4c^5d(2ad-bc)}{(ad-bc)^3}-4a^2b^2c^3d-\frac{8ab^5c^6(2ad-bc)}{(ad-bc)^3}+2ab^3c^4+\frac{2b^6c^7(2ad-}{d(ad-bc}}{2a^4d^4-4a^3bcd^3-4ab^3c^3d+2b^4c^4}\right.}{d^3\left(ad-bc\right)^3}$$
$$-\frac{a^4cd^3+ab^3c^4+x\left(a^4d^4+b^4c^4\right)}{a^3b^3cd^5-2a^2b^4c^2d^4+ab^5c^3d^3+x^2\left(a^2b^4d^6-2ab^5cd^5+b^6c^2d^4\right)+x\left(a^3b^3d^6-a^2b^4cd^5-ab^5c^2d^4+b^6c^3d^3\right)}+\frac{x}{b^2d^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**4/(b*x+a)**2/(d*x+c)**2,x)
```

```
[Out] -2*a**3*(a*d - 2*b*c)*log(x + (2*a**7*d**6*(a*d - 2*b*c)/(b*(a*d
- b*c)**3) - 8*a**6*c*d**5*(a*d - 2*b*c)/(a*d - b*c)**3 + 12*a**5
*b*c**2*d**4*(a*d - 2*b*c)/(a*d - b*c)**3 - 8*a**4*b**2*c**3*d**3
*(a*d - 2*b*c)/(a*d - b*c)**3 + 2*a**4*c*d**3 + 2*a**3*b**3*c**4*
d**2*(a*d - 2*b*c)/(a*d - b*c)**3 - 4*a**3*b*c**2*d**2 - 4*a**2*b
**2*c**3*d + 2*a*b**3*c**4)/(2*a**4*d**4 - 4*a**3*b*c*d**3 - 4*a*
b**3*c**3*d + 2*b**4*c**4))/(b**3*(a*d - b*c)**3) - 2*c**3*(2*a*d
 - b*c)*log(x + (2*a**4*b**2*c**3*d**3*(2*a*d - b*c)/(a*d - b*c)*
*3 + 2*a**4*c*d**3 - 8*a**3*b**3*c**4*d**2*(2*a*d - b*c)/(a*d - b
*c)**3 - 4*a**3*b*c**2*d**2 + 12*a**2*b**4*c**5*d*(2*a*d - b*c)/(
a*d - b*c)**3 - 4*a**2*b**2*c**3*d - 8*a*b**5*c**6*(2*a*d - b*c)/
(a*d - b*c)**3 + 2*a*b**3*c**4 + 2*b**6*c**7*(2*a*d - b*c)/(d*(a*
d - b*c)**3))/(2*a**4*d**4 - 4*a**3*b*c*d**3 - 4*a*b**3*c**3*d +
2*b**4*c**4))/(d**3*(a*d - b*c)**3) - (a**4*c*d**3 + a*b**3*c**4
+ x*(a**4*d**4 + b**4*c**4))/(a**3*b**3*c*d**5 - 2*a**2*b**4*c**2
*d**4 + a*b**5*c**3*d**3 + x**2*(a**2*b**4*d**6 - 2*a*b**5*c*d**5
 + b**6*c**2*d**4) + x*(a**3*b**3*d**6 - a**2*b**4*c*d**5 - a*b**
5*c**2*d**4 + b**6*c**3*d**3)) + x/(b**2*d**2)
```

GIAC/XCAS [A] time = 0.27945, size = 421, normalized size = 3.4

$$-\frac{a^4b^3}{(b^8c^2-2\,ab^7cd+a^2b^6d^2)(bx+a)}-\frac{2\left(b^2c^4-2\,abc^3d\right)\ln\left(\left|\frac{bc}{bx+a}-\frac{ad}{bx+a}+d\right|\right)}{b^4c^3d^3-3\,ab^3c^2d^4+3\,a^2b^2cd^5-a^3bd^6}+\frac{2\,(bc+ad)\ln\left(\frac{|bx+a|}{(bx+a)^2|b|}\right)}{b^3d^3}+\frac{\left(b^2c^2d-2\,abcd^2+a^2d^3+\frac{2\,b^5c^4-4\,ab^4c^3d+6\,a^2b^3c^2d^2-4\,a^3b^2cd^3+a^4bd^4}{(bc-ad)(bx+a)b}\right)(bx+a)}{(bc-ad)^2b^3\left(\frac{bc}{bx+a}-\frac{ad}{bx+a}+d\right)d^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^4/((b*x + a)^2*(d*x + c)^2),x, algorithm="giac")
```

```
[Out] -a^4*b^3/((b^8*c^2 - 2*a*b^7*c*d + a^2*b^6*d^2)*(b*x + a)) - 2*(b
^2*c^4 - 2*a*b*c^3*d)*ln(abs(b*c/(b*x + a) - a*d/(b*x + a) + d))/
```

```
(b^4*c^3*d^3 - 3*a*b^3*c^2*d^4 + 3*a^2*b^2*c*d^5 - a^3*b*d^6) + 2
*(b*c + a*d)*ln(abs(b*x + a)/((b*x + a)^2*abs(b)))/(b^3*d^3) + (b
^2*c^2*d - 2*a*b*c*d^2 + a^2*d^3 + (2*b^5*c^4 - 4*a*b^4*c^3*d + 6
*a^2*b^3*c^2*d^2 - 4*a^3*b^2*c*d^3 + a^4*b*d^4)/((b*c - a*d)*(b*x
 + a)*b))*(b*x + a)/((b*c - a*d)^2*b^3*(b*c/(b*x + a) - a*d/(b*x
+ a) + d)*d^2)
```

3.252 $\int \frac{x^3}{(a+bx)^2(c+dx)^2}\,dx$

Optimal. Leaf size=112

$$\frac{a^3}{b^2(a+bx)(bc-ad)^2}+\frac{a^2(3bc-ad)\log(a+bx)}{b^2(bc-ad)^3}+\frac{c^3}{d^2(c+dx)(bc-ad)^2}+\frac{c^2(bc-3ad)\log(c+dx)}{d^2(bc-ad)^3}$$

```
[Out] a^3/(b^2*(b*c - a*d)^2*(a + b*x)) + c^3/(d^2*(b*c - a*d)^2*(c + d
*x)) + (a^2*(3*b*c - a*d)*Log[a + b*x])/(b^2*(b*c - a*d)^3) + (c^
2*(b*c - 3*a*d)*Log[c + d*x])/(d^2*(b*c - a*d)^3)
```

Rubi [A] time = 0.235, antiderivative size = 112, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{a^3}{b^2(a+bx)(bc-ad)^2}+\frac{a^2(3bc-ad)\log(a+bx)}{b^2(bc-ad)^3}+\frac{c^3}{d^2(c+dx)(bc-ad)^2}+\frac{c^2(bc-3ad)\log(c+dx)}{d^2(bc-ad)^3}$$

Antiderivative was successfully verified.

```
[In]  Int[x^3/((a + b*x)^2*(c + d*x)^2),x]
```

```
[Out] a^3/(b^2*(b*c - a*d)^2*(a + b*x)) + c^3/(d^2*(b*c - a*d)^2*(c + d
*x)) + (a^2*(3*b*c - a*d)*Log[a + b*x])/(b^2*(b*c - a*d)^3) + (c^
2*(b*c - 3*a*d)*Log[c + d*x])/(d^2*(b*c - a*d)^3)
```

Rubi in Sympy [A] time = 37.9358, size = 100, normalized size = 0.89

$$\frac{a^3}{b^2\,(a+bx)\,(ad-bc)^2}+\frac{a^2\,(ad-3bc)\log\,(a+bx)}{b^2\,(ad-bc)^3}+\frac{c^3}{d^2\,(c+dx)\,(ad-bc)^2}+\frac{c^2\,(3ad-bc)\log\,(c+dx)}{d^2\,(ad-bc)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3/(b*x+a)**2/(d*x+c)**2,x)
```

```
[Out] a**3/(b**2*(a + b*x)*(a*d - b*c)**2) + a**2*(a*d - 3*b*c)*log(a +
 b*x)/(b**2*(a*d - b*c)**3) + c**3/(d**2*(c + d*x)*(a*d - b*c)**2
) + c**2*(3*a*d - b*c)*log(c + d*x)/(d**2*(a*d - b*c)**3)
```

Mathematica [A] time = 0.286956, size = 105, normalized size = 0.94

$$\frac{\frac{a^3}{b^2(a+bx)}+\frac{c^3}{d^2(c+dx)}}{(bc-ad)^2}+\frac{a^2(3bc-ad)\log(a+bx)}{b^2(bc-ad)^3}+\frac{c^2(3ad-bc)\log(c+dx)}{d^2(ad-bc)^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^3/((a + b*x)^2*(c + d*x)^2),x]
```

```
[Out] (a^3/(b^2*(a + b*x)) + c^3/(d^2*(c + d*x)))/(b*c - a*d)^2 + (a^2*
(3*b*c - a*d)*Log[a + b*x])/(b^2*(b*c - a*d)^3) + (c^2*(-(b*c) +
3*a*d)*Log[c + d*x])/(d^2*(-(b*c) + a*d)^3)
```

Maple [A] time = 0.019, size = 149, normalized size = 1.3

$$3\frac{c^2\ln(dx+c)\,a}{(ad-bc)^3\,d}-\frac{c^3\ln(dx+c)\,b}{(ad-bc)^3\,d^2}+\frac{c^3}{d^2(ad-bc)^2\,(dx+c)}+\frac{a^3\ln(bx+a)\,d}{(ad-bc)^3\,b^2}-3\frac{a^2\ln(bx+a)\,c}{(ad-bc)^3\,b}+\frac{a^3}{b^2(ad-bc)^2\,(bx+a)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int(x^3/(b*x+a)^2/(d*x+c)^2,x)
```

```
[Out] 3*c^2/(a*d-b*c)^3/d*ln(d*x+c)*a-c^3/(a*d-b*c)^3/d^2*ln(d*x+c)*b+c
^3/d^2/(a*d-b*c)^2/(d*x+c)+a^3/(a*d-b*c)^3/b^2*ln(b*x+a)*d-3*a^2/
(a*d-b*c)^3/b*ln(b*x+a)*c+1/b^2/(a*d-b*c)^2*a^3/(b*x+a)
```

Maxima [A] time = 1.3542, size = 383, normalized size = 3.42

$$\frac{(3\,a^2bc-a^3d)\log(bx+a)}{b^5c^3-3\,ab^4c^2d+3\,a^2b^3cd^2-a^3b^2d^3}+\frac{(bc^3-3\,ac^2d)\log(dx+c)}{b^3c^3d^2-3\,ab^2c^2d^3+3\,a^2bcd^4-a^3d^5}+\frac{ab^2c^3+a^3cd^2+(b^3c^3+a^3d^3)\,x}{ab^4c^3d^2-2\,a^2b^3c^2d^3+a^3b^2cd^4+(b^5c^2d^3-2\,ab^4cd^4+a^2b^3d^5)x^2+(b^5c^3d^2-ab^4c^2d^3-a^2b^3cd^4+a^3b^2d^5)x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(x^3/((b*x + a)^2*(d*x + c)^2),x, algorithm="maxima")
```

```
[Out] (3*a^2*b*c - a^3*d)*log(b*x + a)/(b^5*c^3 - 3*a*b^4*c^2*d + 3*a^2
*b^3*c*d^2 - a^3*b^2*d^3) + (b*c^3 - 3*a*c^2*d)*log(d*x + c)/(b^3
*c^3*d^2 - 3*a*b^2*c^2*d^3 + 3*a^2*b*c*d^4 - a^3*d^5) + (a*b^2*c^
3 + a^3*c*d^2 + (b^3*c^3 + a^3*d^3)*x)/(a*b^4*c^3*d^2 - 2*a^2*b^3
*c^2*d^3 + a^3*b^2*c*d^4 + (b^5*c^2*d^3 - 2*a*b^4*c*d^4 + a^2*b^3
*d^5)*x^2 + (b^5*c^3*d^2 - a*b^4*c^2*d^3 - a^2*b^3*c*d^4 + a^3*b^
2*d^5)*x)
```

Fricas [A] time = 0.218228, size = 551, normalized size = 4.92

$$\frac{ab^3c^4-a^2b^2c^3d+a^3bc^2d^2-a^4cd^3+(b^4c^4-ab^3c^3d+a^3bcd^3-a^4d^4)\,x+(3\,a^3bc^2d^2-a^4cd^3+(3\,a^2b^2cd^3-a^3bd^4)\,x^2+(3}{ab^5c^4d^2-3\,a^2b^4c^3d^3+3\,a^3b^3c^2d^4-a^4b^2cd^5+(b^6c^3d^3-3\,ab}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(x^3/((b*x + a)^2*(d*x + c)^2),x, algorithm="fricas")
```

```
[Out] (a*b^3*c^4 - a^2*b^2*c^3*d + a^3*b*c^2*d^2 - a^4*c*d^3 + (b^4*c^4
 - a*b^3*c^3*d + a^3*b*c*d^3 - a^4*d^4)*x + (3*a^3*b*c^2*d^2 - a^
4*c*d^3 + (3*a^2*b^2*c*d^3 - a^3*b*d^4)*x^2 + (3*a^2*b^2*c^2*d^2
+ 2*a^3*b*c*d^3 - a^4*d^4)*x)*log(b*x + a) + (a*b^3*c^4 - 3*a^2*b
^2*c^3*d + (b^4*c^3*d - 3*a*b^3*c^2*d^2)*x^2 + (b^4*c^4 - 2*a*b^3
*c^3*d - 3*a^2*b^2*c^2*d^2)*x)*log(d*x + c))/(a*b^5*c^4*d^2 - 3*a
^2*b^4*c^3*d^3 + 3*a^3*b^3*c^2*d^4 - a^4*b^2*c*d^5 + (b^6*c^3*d^3
 - 3*a*b^5*c^2*d^4 + 3*a^2*b^4*c*d^5 - a^3*b^3*d^6)*x^2 + (b^6*c^
4*d^2 - 2*a*b^5*c^3*d^3 + 2*a^3*b^3*c*d^5 - a^4*b^2*d^6)*x)
```

Sympy [A] time = 15.1727, size = 627, normalized size = 5.6

$$\frac{a^2\left(ad-3bc\right)\log\left(x+\frac{\frac{a^6d^5(ad-3bc)}{b(ad-bc)^3}-\frac{4a^5cd^4(ad-3bc)}{(ad-bc)^3}+\frac{6a^4bc^2d^3(ad-3bc)}{(ad-bc)^3}-\frac{4a^3b^2c^3d^2(ad-3bc)}{(ad-bc)^3}+a^3cd^2+\frac{a^2b^3c^4d(ad-3bc)}{(ad-bc)^3}-6a^2bc^2d+ab^2c^3}{a^3d^3-3a^2bcd^2-3ab^2c^2d+b^3c^3}\right)}{b^2\left(ad-bc\right)^3}+\frac{c^2\left(3ad-bc\right)\log\left(x+\frac{\frac{a^4bc^2d^3(3ad-bc)}{(ad-bc)^3}-\frac{4a^3b^2c^3d^2(3ad-bc)}{(ad-bc)^3}+a^3cd^2+\frac{6a^2b^3c^4d(3ad-bc)}{(ad-bc)^3}-6a^2bc^2d-\frac{4ab^4c^5(3ad-bc)}{(ad-bc)^3}+ab^2c^3+\frac{b^5c^6(3ad-bc)}{d(ad-bc)^3}}{a^3d^3-3a^2bcd^2-3ab^2c^2d+b^3c^3}\right)}{d^2\left(ad-bc\right)^3}+\frac{a^3cd^2+ab^2c^3+x\left(a^3d^3+b^3c^3\right)}{a^3b^2cd^4-2a^2b^3c^2d^3+ab^4c^3d^2+x^2\left(a^2b^3d^5-2ab^4cd^4+b^5c^2d^3\right)+x\left(a^3b^2d^5-a^2b^3cd^4-ab^4c^2d^3+b^5c^3d^2\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**3/(b*x+a)**2/(d*x+c)**2,x)
```

```
[Out] a**2*(a*d - 3*b*c)*log(x + (a**6*d**5*(a*d - 3*b*c)/(b*(a*d - b*c
)**3) - 4*a**5*c*d**4*(a*d - 3*b*c)/(a*d - b*c)**3 + 6*a**4*b*c**
2*d**3*(a*d - 3*b*c)/(a*d - b*c)**3 - 4*a**3*b**2*c**3*d**2*(a*d
- 3*b*c)/(a*d - b*c)**3 + a**3*c*d**2 + a**2*b**3*c**4*d*(a*d - 3
*b*c)/(a*d - b*c)**3 - 6*a**2*b*c**2*d + a*b**2*c**3)/(a**3*d**3
- 3*a**2*b*c*d**2 - 3*a*b**2*c**2*d + b**3*c**3))/(b**2*(a*d - b*
c)**3) + c**2*(3*a*d - b*c)*log(x + (a**4*b*c**2*d**3*(3*a*d - b*
c)/(a*d - b*c)**3 - 4*a**3*b**2*c**3*d**2*(3*a*d - b*c)/(a*d - b*
c)**3 + a**3*c*d**2 + 6*a**2*b**3*c**4*d*(3*a*d - b*c)/(a*d - b*c
)**3 - 6*a**2*b*c**2*d - 4*a*b**4*c**5*(3*a*d - b*c)/(a*d - b*c)*
*3 + a*b**2*c**3 + b**5*c**6*(3*a*d - b*c)/(d*(a*d - b*c)**3))/(a
**3*d**3 - 3*a**2*b*c*d**2 - 3*a*b**2*c**2*d + b**3*c**3))/(d**2*
(a*d - b*c)**3) + (a**3*c*d**2 + a*b**2*c**3 + x*(a**3*d**3 + b**
3*c**3))/(a**3*b**2*c*d**4 - 2*a**2*b**3*c**2*d**3 + a*b**4*c**3*
d**2 + x**2*(a**2*b**3*d**5 - 2*a*b**4*c*d**4 + b**5*c**2*d**3) +
 x*(a**3*b**2*d**5 - a**2*b**3*c*d**4 - a*b**4*c**2*d**3 + b**5*c
**3*d**2))
```

GIAC/XCAS [A] time = 0.299874, size = 273, normalized size = 2.44

$$\frac{a^3b^2}{(b^6c^2-2\,ab^5cd+a^2b^4d^2)(bx+a)}+\frac{\left(b^2c^3-3\,abc^2d\right)\ln\left(\left|\frac{bc}{bx+a}-\frac{ad}{bx+a}+d\right|\right)}{b^4c^3d^2-3\,ab^3c^2d^3+3\,a^2b^2cd^4-a^3bd^5}-\frac{bc^3}{(bc-ad)^3\left(\frac{bc}{bx+a}-\frac{ad}{bx+a}+d\right)d}-\frac{\ln\left(\frac{|bx+a|}{(bx+a)^2|b|}\right)}{b^2d^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^3/((b*x + a)^2*(d*x + c)^2),x, algorithm="giac")
```

```
[Out] a^3*b^2/((b^6*c^2 - 2*a*b^5*c*d + a^2*b^4*d^2)*(b*x + a)) + (b^2*
c^3 - 3*a*b*c^2*d)*ln(abs(b*c/(b*x + a) - a*d/(b*x + a) + d))/(b^
4*c^3*d^2 - 3*a*b^3*c^2*d^3 + 3*a^2*b^2*c*d^4 - a^3*b*d^5) - b*c^
3/((b*c - a*d)^3*(b*c/(b*x + a) - a*d/(b*x + a) + d)*d) - ln(abs(
b*x + a)/((b*x + a)^2*abs(b)))/(b^2*d^2)
```

3.253 $\int \frac{x^2}{(a+bx)^2(c+dx)^2} dx$

Optimal. Leaf size=91

$$-\frac{a^2}{b(a+bx)(bc-ad)^2}-\frac{c^2}{d(c+dx)(bc-ad)^2}-\frac{2ac\log(a+bx)}{(bc-ad)^3}+\frac{2ac\log(c+dx)}{(bc-ad)^3}$$

```
[Out] -(a^2/(b*(b*c - a*d)^2*(a + b*x))) - c^2/(d*(b*c - a*d)^2*(c + d*
x)) - (2*a*c*Log[a + b*x])/(b*c - a*d)^3 + (2*a*c*Log[c + d*x])/(
b*c - a*d)^3
```

Rubi [A] time = 0.149261, antiderivative size = 91, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{a^2}{b(a+bx)(bc-ad)^2}-\frac{c^2}{d(c+dx)(bc-ad)^2}-\frac{2ac\log(a+bx)}{(bc-ad)^3}+\frac{2ac\log(c+dx)}{(bc-ad)^3}$$

Antiderivative was successfully verified.

```
[In]  Int[x^2/((a + b*x)^2*(c + d*x)^2),x]
```

```
[Out] -(a^2/(b*(b*c - a*d)^2*(a + b*x))) - c^2/(d*(b*c - a*d)^2*(c + d*
x)) - (2*a*c*Log[a + b*x])/(b*c - a*d)^3 + (2*a*c*Log[c + d*x])/(
b*c - a*d)^3
```

Rubi in Sympy [A] time = 24.4827, size = 76, normalized size = 0.84

$$-\frac{a^2}{b(a+bx)(ad-bc)^2}+\frac{2ac\log(a+bx)}{(ad-bc)^3}-\frac{2ac\log(c+dx)}{(ad-bc)^3}-\frac{c^2}{d(c+dx)(ad-bc)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2/(b*x+a)**2/(d*x+c)**2,x)
```

```
[Out] -a**2/(b*(a + b*x)*(a*d - b*c)**2) + 2*a*c*log(a + b*x)/(a*d - b*
c)**3 - 2*a*c*log(c + d*x)/(a*d - b*c)**3 - c**2/(d*(c + d*x)*(a*
d - b*c)**2)
```

Mathematica [A] time = 0.258176, size = 71, normalized size = 0.78

$$\frac{-(bc-ad)\left(\frac{a^2}{b(a+bx)}+\frac{c^2}{d(c+dx)}\right)-2ac\log(a+bx)+2ac\log(c+dx)}{(bc-ad)^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^2/((a + b*x)^2*(c + d*x)^2),x]
```

```
[Out] (-((b*c - a*d)*(a^2/(b*(a + b*x)) + c^2/(d*(c + d*x)))) - 2*a*c*L
og[a + b*x] + 2*a*c*Log[c + d*x])/(b*c - a*d)^3
```

Maple [A] time = 0.017, size = 92, normalized size = 1.

$$-\frac{c^2}{(ad-bc)^2 d(dx+c)}-2\frac{ac\ln(dx+c)}{(ad-bc)^3}-\frac{a^2}{(ad-bc)^2 b(bx+a)}+2\frac{ac\ln(bx+a)}{(ad-bc)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2/(b*x+a)^2/(d*x+c)^2,x)
```

```
[Out] -c^2/(a*d-b*c)^2/d/(d*x+c)-2*c*a/(a*d-b*c)^3*ln(d*x+c)-1/(a*d-b*c
)^2*a^2/b/(b*x+a)+2*c*a/(a*d-b*c)^3*ln(b*x+a)
```

Maxima [A] time = 1.36435, size = 327, normalized size = 3.59

$$-\frac{2\,ac\log\left(bx+a\right)}{b^3c^3-3\,ab^2c^2d+3\,a^2bcd^2-a^3d^3}+\frac{2\,ac\log\left(dx+c\right)}{b^3c^3-3\,ab^2c^2d+3\,a^2bcd^2-a^3d^3}-\frac{abc^2+a^2cd+\left(b^2c^2+a^2d^2\right)x}{ab^3c^3d-2\,a^2b^2c^2d^2+a^3bcd^3+(b^4c^2d^2-2\,ab^3cd^3+a^2b^2d^4)x^2+(b^4c^3d-ab^3c^2d^2-a^2b^2cd^3+a^3bd^4)x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2/((b*x + a)^2*(d*x + c)^2),x, algorithm="maxima")
```

```
[Out] -2*a*c*log(b*x + a)/(b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^
3*d^3) + 2*a*c*log(d*x + c)/(b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*
d^2 - a^3*d^3) - (a*b*c^2 + a^2*c*d + (b^2*c^2 + a^2*d^2)*x)/(a*b
^3*c^3*d - 2*a^2*b^2*c^2*d^2 + a^3*b*c*d^3 + (b^4*c^2*d^2 - 2*a*b
^3*c*d^3 + a^2*b^2*d^4)*x^2 + (b^4*c^3*d - a*b^3*c^2*d^2 - a^2*b^
2*c*d^3 + a^3*b*d^4)*x)
```

Fricas [A] time = 0.210395, size = 409, normalized size = 4.49

$$-\frac{ab^2c^3-a^3cd^2+\left(b^3c^3-ab^2c^2d+a^2bcd^2-a^3d^3\right)x+2\left(ab^2cd^2x^2+a^2bc^2d+\left(ab^2c^2d+a^2bcd^2\right)x\right)\log\left(bx+a\right)-2\left(ab^2cd\right.}{ab^4c^4d-3\,a^2b^3c^3d^2+3\,a^3b^2c^2d^3-a^4bcd^4+(b^5c^3d^2-3\,ab^4c^2d^3+3\,a^2b^3cd^4-a^3b^2d^5)x^2+(b^5c^4d-2\,a}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2/((b*x + a)^2*(d*x + c)^2),x, algorithm="fricas")
```

```
[Out] -(a*b^2*c^3 - a^3*c*d^2 + (b^3*c^3 - a*b^2*c^2*d + a^2*b*c*d^2 -
a^3*d^3)*x + 2*(a*b^2*c*d^2*x^2 + a^2*b*c^2*d + (a*b^2*c^2*d + a^
2*b*c*d^2)*x)*log(b*x + a) - 2*(a*b^2*c*d^2*x^2 + a^2*b*c^2*d + (
a*b^2*c^2*d + a^2*b*c*d^2)*x)*log(d*x + c))/(a*b^4*c^4*d - 3*a^2*
b^3*c^3*d^2 + 3*a^3*b^2*c^2*d^3 - a^4*b*c*d^4 + (b^5*c^3*d^2 - 3*
a*b^4*c^2*d^3 + 3*a^2*b^3*c*d^4 - a^3*b^2*d^5)*x^2 + (b^5*c^4*d -
 2*a*b^4*c^3*d^2 + 2*a^3*b^2*c*d^4 - a^4*b*d^5)*x)
```

Sympy [A] time = 8.59822, size = 437, normalized size = 4.8

$$-\frac{2ac\log\left(x+\frac{-\frac{2a^5cd^4}{(ad-bc)^3}+\frac{8a^4bc^2d^3}{(ad-bc)^3}-\frac{12a^3b^2c^3d^2}{(ad-bc)^3}+\frac{8a^2b^3c^4d}{(ad-bc)^3}+2a^2cd-\frac{2ab^4c^5}{(ad-bc)^3}+2abc^2}{4abcd}\right)}{(ad-bc)^3}+\frac{2ac\log\left(x+\frac{\frac{2a^5cd^4}{(ad-bc)^3}-\frac{8a^4bc^2d^3}{(ad-bc)^3}+\frac{12a^3b^2c^3d^2}{(ad-bc)^3}-\frac{8a^2b^3c^4d}{(ad-bc)^3}+2a^2cd+\frac{2ab^4c^5}{(ad-bc)^3}+2abc^2}{4abcd}\right)}{(ad-bc)^3}-\frac{a^2cd+abc^2+x\left(a^2d^2+b^2c^2\right)}{a^3bcd^3-2a^2b^2c^2d^2+ab^3c^3d+x^2\left(a^2b^2d^4-2ab^3cd^3+b^4c^2d^2\right)+x\left(a^3bd^4-a^2b^2cd^3-ab^3c^2d^2+b^4c^3d\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2/(b*x+a)**2/(d*x+c)**2,x)
```

```
[Out] -2*a*c*log(x + (-2*a**5*c*d**4/(a*d - b*c)**3 + 8*a**4*b*c**2*d**
3/(a*d - b*c)**3 - 12*a**3*b**2*c**3*d**2/(a*d - b*c)**3 + 8*a**2
*b**3*c**4*d/(a*d - b*c)**3 + 2*a**2*c*d - 2*a*b**4*c**5/(a*d - b
*c)**3 + 2*a*b*c**2)/(4*a*b*c*d))/(a*d - b*c)**3 + 2*a*c*log(x +
(2*a**5*c*d**4/(a*d - b*c)**3 - 8*a**4*b*c**2*d**3/(a*d - b*c)**3
 + 12*a**3*b**2*c**3*d**2/(a*d - b*c)**3 - 8*a**2*b**3*c**4*d/(a*
d - b*c)**3 + 2*a**2*c*d + 2*a*b**4*c**5/(a*d - b*c)**3 + 2*a*b*c
**2)/(4*a*b*c*d))/(a*d - b*c)**3 - (a**2*c*d + a*b*c**2 + x*(a**2
*d**2 + b**2*c**2))/(a**3*b*c*d**3 - 2*a**2*b**2*c**2*d**2 + a*b*
*3*c**3*d + x**2*(a**2*b**2*d**4 - 2*a*b**3*c*d**3 + b**4*c**2*d*
*2) + x*(a**3*b*d**4 - a**2*b**2*c*d**3 - a*b**3*c**2*d**2 + b**4
*c**3*d))
```

GIAC/XCAS [A] time = 0.275065, size = 207, normalized size = 2.27

$$\frac{2\,abc\ln\left(\left|\frac{bc}{bx+a} - \frac{ad}{bx+a} + d\right|\right)}{b^4c^3 - 3\,ab^3c^2d + 3\,a^2b^2cd^2 - a^3bd^3} - \frac{a^2b}{(b^4c^2 - 2\,ab^3cd + a^2b^2d^2)(bx+a)} + \frac{bc^2}{(bc-ad)^3\left(\frac{bc}{bx+a} - \frac{ad}{bx+a} + d\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2/((b*x + a)^2*(d*x + c)^2),x, algorithm="giac")
```

```
[Out] 2*a*b*c*ln(abs(b*c/(b*x + a) - a*d/(b*x + a) + d))/(b^4*c^3 - 3*a
*b^3*c^2*d + 3*a^2*b^2*c*d^2 - a^3*b*d^3) - a^2*b/((b^4*c^2 - 2*a
*b^3*c*d + a^2*b^2*d^2)*(b*x + a)) + b*c^2/((b*c - a*d)^3*(b*c/(b
*x + a) - a*d/(b*x + a) + d))
```

3.254 $\int \frac{x}{(a+bx)^2(c+dx)^2}\,dx$

Optimal. Leaf size=88

$$\frac{a}{(a+bx)(bc-ad)^2}+\frac{c}{(c+dx)(bc-ad)^2}+\frac{(ad+bc)\log(a+bx)}{(bc-ad)^3}-\frac{(ad+bc)\log(c+dx)}{(bc-ad)^3}$$

```
[Out] a/((b*c - a*d)^2*(a + b*x)) + c/((b*c - a*d)^2*(c + d*x)) + ((b*c
 + a*d)*Log[a + b*x])/(b*c - a*d)^3 - ((b*c + a*d)*Log[c + d*x])/
(b*c - a*d)^3
```

Rubi [A] time = 0.146465, antiderivative size = 88, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$\frac{a}{(a+bx)(bc-ad)^2}+\frac{c}{(c+dx)(bc-ad)^2}+\frac{(ad+bc)\log(a+bx)}{(bc-ad)^3}-\frac{(ad+bc)\log(c+dx)}{(bc-ad)^3}$$

Antiderivative was successfully verified.

```
[In]  Int[x/((a + b*x)^2*(c + d*x)^2),x]
```

```
[Out] a/((b*c - a*d)^2*(a + b*x)) + c/((b*c - a*d)^2*(c + d*x)) + ((b*c
 + a*d)*Log[a + b*x])/(b*c - a*d)^3 - ((b*c + a*d)*Log[c + d*x])/
(b*c - a*d)^3
```

Rubi in Sympy [A] time = 24.5747, size = 73, normalized size = 0.83

$$\frac{a}{(a+bx)(ad-bc)^2}+\frac{c}{(c+dx)(ad-bc)^2}-\frac{(ad+bc)\log(a+bx)}{(ad-bc)^3}+\frac{(ad+bc)\log(c+dx)}{(ad-bc)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x/(b*x+a)**2/(d*x+c)**2,x)
```

```
[Out] a/((a + b*x)*(a*d - b*c)**2) + c/((c + d*x)*(a*d - b*c)**2) - (a*
d + b*c)*log(a + b*x)/(a*d - b*c)**3 + (a*d + b*c)*log(c + d*x)/(
a*d - b*c)**3
```

Mathematica [A] time = 0.0964646, size = 75, normalized size = 0.85

$$\frac{\frac{a(bc-ad)}{a+bx}+\frac{c(bc-ad)}{c+dx}+(ad+bc)\log(a+bx)-(ad+bc)\log(c+dx)}{(bc-ad)^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x/((a + b*x)^2*(c + d*x)^2),x]
```

```
[Out] ((a*(b*c - a*d))/(a + b*x) + (c*(b*c - a*d))/(c + d*x) + (b*c + a
*d)*Log[a + b*x] - (b*c + a*d)*Log[c + d*x])/(b*c - a*d)^3
```

Maple [A] time = 0.017, size = 118, normalized size = 1.3

$$\frac{\ln(dx+c)ad}{(ad-bc)^3}+\frac{\ln(dx+c)bc}{(ad-bc)^3}+\frac{c}{(ad-bc)^2(dx+c)}+\frac{a}{(ad-bc)^2(bx+a)}-\frac{\ln(bx+a)ad}{(ad-bc)^3}-\frac{\ln(bx+a)bc}{(ad-bc)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x/(b*x+a)^2/(d*x+c)^2,x)
```

```
[Out] 1/(a*d-b*c)^3*ln(d*x+c)*a*d+1/(a*d-b*c)^3*ln(d*x+c)*b*c+c/(a*d-b*
c)^2/(d*x+c)+1/(a*d-b*c)^2*a/(b*x+a)-1/(a*d-b*c)^3*ln(b*x+a)*a*d-
1/(a*d-b*c)^3*ln(b*x+a)*b*c
```

Maxima [A] time = 1.35921, size = 294, normalized size = 3.34

$$\frac{(bc+ad)\log(bx+a)}{b^3c^3-3\,ab^2c^2d+3\,a^2bcd^2-a^3d^3}-\frac{(bc+ad)\log(dx+c)}{b^3c^3-3\,ab^2c^2d+3\,a^2bcd^2-a^3d^3}+\frac{2\,ac+(bc+ad)x}{ab^2c^3-2\,a^2bc^2d+a^3cd^2+(b^3c^2d-2\,ab^2cd^2+a^2bd^3)x^2+(b^3c^3-ab^2c^2d-a^2bcd^2+a^3d^3)x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/((b*x + a)^2*(d*x + c)^2),x, algorithm="maxima")
```

```
[Out] (b*c + a*d)*log(b*x + a)/(b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2
 - a^3*d^3) - (b*c + a*d)*log(d*x + c)/(b^3*c^3 - 3*a*b^2*c^2*d +
 3*a^2*b*c*d^2 - a^3*d^3) + (2*a*c + (b*c + a*d)*x)/(a*b^2*c^3 -
2*a^2*b*c^2*d + a^3*c*d^2 + (b^3*c^2*d - 2*a*b^2*c*d^2 + a^2*b*d^
3)*x^2 + (b^3*c^3 - a*b^2*c^2*d - a^2*b*c*d^2 + a^3*d^3)*x)
```

Fricas [A] time = 0.210712, size = 382, normalized size = 4.34

$$\frac{2\,abc^2-2\,a^2cd+\left(b^2c^2-a^2d^2\right)x+\left(abc^2+a^2cd+\left(b^2cd+abd^2\right)x^2+\left(b^2c^2+2\,abcd+a^2d^2\right)x\right)\log(bx+a)-\left(abc^2+a^2cd\right.}{ab^3c^4-3\,a^2b^2c^3d+3\,a^3bc^2d^2-a^4cd^3+(b^4c^3d-3\,ab^3c^2d^2+3\,a^2b^2cd^3-a^3bd^4)x^2+(b^4c^4-}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/((b*x + a)^2*(d*x + c)^2),x, algorithm="fricas")
```

```
[Out] (2*a*b*c^2 - 2*a^2*c*d + (b^2*c^2 - a^2*d^2)*x + (a*b*c^2 + a^2*c
*d + (b^2*c*d + a*b*d^2)*x^2 + (b^2*c^2 + 2*a*b*c*d + a^2*d^2)*x)
*log(b*x + a) - (a*b*c^2 + a^2*c*d + (b^2*c*d + a*b*d^2)*x^2 + (b
^2*c^2 + 2*a*b*c*d + a^2*d^2)*x)*log(d*x + c))/(a*b^3*c^4 - 3*a^2
*b^2*c^3*d + 3*a^3*b*c^2*d^2 - a^4*c*d^3 + (b^4*c^3*d - 3*a*b^3*c
^2*d^2 + 3*a^2*b^2*c*d^3 - a^3*b*d^4)*x^2 + (b^4*c^4 - 2*a*b^3*c^
3*d + 2*a^3*b*c*d^3 - a^4*d^4)*x)
```

Sympy [A] time = 8.67756, size = 483, normalized size = 5.49

$$\frac{2ac+x(ad+bc)}{a^3cd^2-2a^2bc^2d+ab^2c^3+x^2(a^2bd^3-2ab^2cd^2+b^3c^2d)+x(a^3d^3-a^2bcd^2-ab^2c^2d+b^3c^3)}+\frac{(ad+bc)\log\left(x+\frac{-\frac{a^4d^4(ad+bc)}{(ad-bc)^3}+\frac{4a^3bcd^3(ad+bc)}{(ad-bc)^3}-\frac{6a^2b^2c^2d^2(ad+bc)}{(ad-bc)^3}+a^2d^2+\frac{4ab^3c^3d(ad+bc)}{(ad-bc)^3}+2abcd-\frac{b^4c^4(ad+bc)}{(ad-bc)^3}+b^2c^2}{2abd^2+2b^2cd}\right)}{(ad-bc)^3}-\frac{(ad+bc)\log\left(x+\frac{\frac{a^4d^4(ad+bc)}{(ad-bc)^3}-\frac{4a^3bcd^3(ad+bc)}{(ad-bc)^3}+\frac{6a^2b^2c^2d^2(ad+bc)}{(ad-bc)^3}+a^2d^2-\frac{4ab^3c^3d(ad+bc)}{(ad-bc)^3}+2abcd+\frac{b^4c^4(ad+bc)}{(ad-bc)^3}+b^2c^2}{2abd^2+2b^2cd}\right)}{(ad-bc)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/(b*x+a)**2/(d*x+c)**2,x)
```

```
[Out] (2*a*c + x*(a*d + b*c))/(a**3*c*d**2 - 2*a**2*b*c**2*d + a*b**2*c
**3 + x**2*(a**2*b*d**3 - 2*a*b**2*c*d**2 + b**3*c**2*d) + x*(a**
3*d**3 - a**2*b*c*d**2 - a*b**2*c**2*d + b**3*c**3)) + (a*d + b*c
)*log(x + (-a**4*d**4*(a*d + b*c)/(a*d - b*c)**3 + 4*a**3*b*c*d**
3*(a*d + b*c)/(a*d - b*c)**3 - 6*a**2*b**2*c**2*d**2*(a*d + b*c)/
(a*d - b*c)**3 + a**2*d**2 + 4*a*b**3*c**3*d*(a*d + b*c)/(a*d - b
*c)**3 + 2*a*b*c*d - b**4*c**4*(a*d + b*c)/(a*d - b*c)**3 + b**2*
c**2)/(2*a*b*d**2 + 2*b**2*c*d))/(a*d - b*c)**3 - (a*d + b*c)*log
(x + (a**4*d**4*(a*d + b*c)/(a*d - b*c)**3 - 4*a**3*b*c*d**3*(a*d
 + b*c)/(a*d - b*c)**3 + 6*a**2*b**2*c**2*d**2*(a*d + b*c)/(a*d -
 b*c)**3 + a**2*d**2 - 4*a*b**3*c**3*d*(a*d + b*c)/(a*d - b*c)**3
 + 2*a*b*c*d + b**4*c**4*(a*d + b*c)/(a*d - b*c)**3 + b**2*c**2)/
(2*a*b*d**2 + 2*b**2*c*d))/(a*d - b*c)**3
```

GIAC/XCAS [A] time = 0.323034, size = 225, normalized size = 2.56

$$\frac{\frac{ab^3}{(b^4c^2-2\,ab^3cd+a^2b^2d^2)(bx+a)}-\frac{(b^3c+ab^2d)\ln\left(\left|\frac{bc}{bx+a}-\frac{ad}{bx+a}+d\right|\right)}{b^4c^3-3\,ab^3c^2d+3\,a^2b^2cd^2-a^3bd^3}-\frac{b^2cd}{(bc-ad)^3\left(\frac{bc}{bx+a}-\frac{ad}{bx+a}+d\right)}}{b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/((b*x + a)^2*(d*x + c)^2),x, algorithm="giac")
```

```
[Out] (a*b^3/((b^4*c^2 - 2*a*b^3*c*d + a^2*b^2*d^2)*(b*x + a)) - (b^3*c
 + a*b^2*d)*ln(abs(b*c/(b*x + a) - a*d/(b*x + a) + d))/(b^4*c^3 -
 3*a*b^3*c^2*d + 3*a^2*b^2*c*d^2 - a^3*b*d^3) - b^2*c*d/((b*c - a
*d)^3*(b*c/(b*x + a) - a*d/(b*x + a) + d)))/b
```

3.255 $\int \frac{1}{(a+bx)^2(c+dx)^2}\,dx$

Optimal. Leaf size=81

$$-\frac{b}{(a+bx)(bc-ad)^2}-\frac{d}{(c+dx)(bc-ad)^2}-\frac{2bd\log(a+bx)}{(bc-ad)^3}+\frac{2bd\log(c+dx)}{(bc-ad)^3}$$

```
[Out] -(b/((b*c - a*d)^2*(a + b*x))) - d/((b*c - a*d)^2*(c + d*x)) - (2
*b*d*Log[a + b*x])/(b*c - a*d)^3 + (2*b*d*Log[c + d*x])/(b*c - a*
d)^3
```

Rubi [A] time = 0.102352, antiderivative size = 81, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.067

$$-\frac{b}{(a+bx)(bc-ad)^2}-\frac{d}{(c+dx)(bc-ad)^2}-\frac{2bd\log(a+bx)}{(bc-ad)^3}+\frac{2bd\log(c+dx)}{(bc-ad)^3}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((a + b*x)^2*(c + d*x)^2),x]
```

```
[Out] -(b/((b*c - a*d)^2*(a + b*x))) - d/((b*c - a*d)^2*(c + d*x)) - (2
*b*d*Log[a + b*x])/(b*c - a*d)^3 + (2*b*d*Log[c + d*x])/(b*c - a*
d)^3
```

Rubi in Sympy [A] time = 21.7919, size = 70, normalized size = 0.86

$$\frac{2bd\log{(a+bx)}}{(ad-bc)^3}-\frac{2bd\log{(c+dx)}}{(ad-bc)^3}-\frac{b}{(a+bx)(ad-bc)^2}-\frac{d}{(c+dx)(ad-bc)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(b*x+a)**2/(d*x+c)**2,x)
```

```
[Out] 2*b*d*log(a + b*x)/(a*d - b*c)**3 - 2*b*d*log(c + d*x)/(a*d - b*c
)**3 - b/((a + b*x)*(a*d - b*c)**2) - d/((c + d*x)*(a*d - b*c)**2
)
```

Mathematica [A] time = 0.10476, size = 66, normalized size = 0.81

$$\frac{\frac{b(ad-bc)}{a+bx}+\frac{d(ad-bc)}{c+dx}-2bd\log(a+bx)+2bd\log(c+dx)}{(bc-ad)^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((a + b*x)^2*(c + d*x)^2),x]
```

```
[Out] ((b*(-(b*c) + a*d))/(a + b*x) + (d*(-(b*c) + a*d))/(c + d*x) - 2*
b*d*Log[a + b*x] + 2*b*d*Log[c + d*x])/(b*c - a*d)^3
```

Maple [A] time = 0.002, size = 82, normalized size = 1.

$$-\frac{d}{(ad-bc)^2(dx+c)}-2\frac{bd\ln(dx+c)}{(ad-bc)^3}-\frac{b}{(ad-bc)^2(bx+a)}+2\frac{bd\ln(bx+a)}{(ad-bc)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(b*x+a)^2/(d*x+c)^2,x)
```

```
[Out] -d/(a*d-b*c)^2/(d*x+c)-2*d/(a*d-b*c)^3*b*ln(d*x+c)-b/(a*d-b*c)^2/
(b*x+a)+2*d/(a*d-b*c)^3*b*ln(b*x+a)
```

Maxima [A] time = 1.34603, size = 281, normalized size = 3.47

$$-\frac{2\,bd\log\left(bx+a\right)}{b^{3}c^{3}-3\,ab^{2}c^{2}d+3\,a^{2}bcd^{2}-a^{3}d^{3}}+\frac{2\,bd\log\left(dx+c\right)}{b^{3}c^{3}-3\,ab^{2}c^{2}d+3\,a^{2}bcd^{2}-a^{3}d^{3}}-\frac{2\,bdx+bc+ad}{ab^{2}c^{3}-2\,a^{2}bc^{2}d+a^{3}cd^{2}+(b^{3}c^{2}d-2\,ab^{2}cd^{2}+a^{2}bd^{3})x^{2}+(b^{3}c^{3}-ab^{2}c^{2}d-a^{2}bcd^{2}+a^{3}d^{3})x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^2*(d*x + c)^2),x, algorithm="maxima")
```

```
[Out] -2*b*d*log(b*x + a)/(b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^
3*d^3) + 2*b*d*log(d*x + c)/(b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*
d^2 - a^3*d^3) - (2*b*d*x + b*c + a*d)/(a*b^2*c^3 - 2*a^2*b*c^2*d
 + a^3*c*d^2 + (b^3*c^2*d - 2*a*b^2*c*d^2 + a^2*b*d^3)*x^2 + (b^3
*c^3 - a*b^2*c^2*d - a^2*b*c*d^2 + a^3*d^3)*x)
```

Fricas [A] time = 0.209868, size = 325, normalized size = 4.01

$$-\frac{b^{2}c^{2}-a^{2}d^{2}+2\left(b^{2}cd-abd^{2}\right)x+2\left(b^{2}d^{2}x^{2}+abcd+\left(b^{2}cd+abd^{2}\right)x\right)\log\left(bx+a\right)-2\left(b^{2}d^{2}x^{2}+abcd+\left(b^{2}cd+abd^{2}\right)x\right)}{ab^{3}c^{4}-3\,a^{2}b^{2}c^{3}d+3\,a^{3}bc^{2}d^{2}-a^{4}cd^{3}+(b^{4}c^{3}d-3\,ab^{3}c^{2}d^{2}+3\,a^{2}b^{2}cd^{3}-a^{3}bd^{4})x^{2}+(b^{4}c^{4}-2\,ab^{3}c^{3}d+2\,a^{3}bcd^{3}-}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^2*(d*x + c)^2),x, algorithm="fricas")
```

```
[Out] -(b^2*c^2 - a^2*d^2 + 2*(b^2*c*d - a*b*d^2)*x + 2*(b^2*d^2*x^2 +
a*b*c*d + (b^2*c*d + a*b*d^2)*x)*log(b*x + a) - 2*(b^2*d^2*x^2 +
a*b*c*d + (b^2*c*d + a*b*d^2)*x)*log(d*x + c))/(a*b^3*c^4 - 3*a^2
*b^2*c^3*d + 3*a^3*b*c^2*d^2 - a^4*c*d^3 + (b^4*c^3*d - 3*a*b^3*c
^2*d^2 + 3*a^2*b^2*c*d^3 - a^3*b*d^4)*x^2 + (b^4*c^4 - 2*a*b^3*c^
3*d + 2*a^3*b*c*d^3 - a^4*d^4)*x)
```

Sympy [A] time = 7.97766, size = 405, normalized size = 5.

$$-\frac{2bd\log\left(x+\frac{-\frac{2a^{4}bd^{5}}{(ad-bc)^{3}}+\frac{8a^{3}b^{2}cd^{4}}{(ad-bc)^{3}}-\frac{12a^{2}b^{3}c^{2}d^{3}}{(ad-bc)^{3}}+\frac{8ab^{4}c^{3}d^{2}}{(ad-bc)^{3}}+2abd^{2}-\frac{2b^{5}c^{4}d}{(ad-bc)^{3}}+2b^{2}cd}{4b^{2}d^{2}}\right)}{(ad-bc)^{3}}+\frac{2bd\log\left(x+\frac{\frac{2a^{4}bd^{5}}{(ad-bc)^{3}}-\frac{8a^{3}b^{2}cd^{4}}{(ad-bc)^{3}}+\frac{12a^{2}b^{3}c^{2}d^{3}}{(ad-bc)^{3}}-\frac{8ab^{4}c^{3}d^{2}}{(ad-bc)^{3}}+2abd^{2}+\frac{2b^{5}c^{4}d}{(ad-bc)^{3}}+2b^{2}cd}{4b^{2}d^{2}}\right)}{(ad-bc)^{3}}-\frac{ad+bc+2bdx}{a^{3}cd^{2}-2a^{2}bc^{2}d+ab^{2}c^{3}+x^{2}\left(a^{2}bd^{3}-2ab^{2}cd^{2}+b^{3}c^{2}d\right)+x\left(a^{3}d^{3}-a^{2}bcd^{2}-ab^{2}c^{2}d+b^{3}c^{3}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(b*x+a)**2/(d*x+c)**2,x)
```

```
[Out] -2*b*d*log(x + (-2*a**4*b*d**5/(a*d - b*c)**3 + 8*a**3*b**2*c*d**
4/(a*d - b*c)**3 - 12*a**2*b**3*c**2*d**3/(a*d - b*c)**3 + 8*a*b*
```

```
*4*c**3*d**2/(a*d - b*c)**3 + 2*a*b*d**2 - 2*b**5*c**4*d/(a*d - b
*c)**3 + 2*b**2*c*d)/(4*b**2*d**2))/(a*d - b*c)**3 + 2*b*d*log(x
+ (2*a**4*b*d**5/(a*d - b*c)**3 - 8*a**3*b**2*c*d**4/(a*d - b*c)*
*3 + 12*a**2*b**3*c**2*d**3/(a*d - b*c)**3 - 8*a*b**4*c**3*d**2/(
a*d - b*c)**3 + 2*a*b*d**2 + 2*b**5*c**4*d/(a*d - b*c)**3 + 2*b**
2*c*d)/(4*b**2*d**2))/(a*d - b*c)**3 - (a*d + b*c + 2*b*d*x)/(a**
3*c*d**2 - 2*a**2*b*c**2*d + a*b**2*c**3 + x**2*(a**2*b*d**3 - 2*
a*b**2*c*d**2 + b**3*c**2*d) + x*(a**3*d**3 - a**2*b*c*d**2 - a*b
**2*c**2*d + b**3*c**3))
```

GIAC/XCAS [A] time = 0.268109, size = 207, normalized size = 2.56

$$\frac{2\,b^2 d\ln\left(\left|\frac{bc}{bx+a} - \frac{ad}{bx+a} + d\right|\right)}{b^4c^3 - 3\,ab^3c^2d + 3\,a^2b^2cd^2 - a^3bd^3} - \frac{b^3}{(b^4c^2 - 2\,ab^3cd + a^2b^2d^2)(bx+a)} + \frac{bd^2}{(bc-ad)^3\left(\frac{bc}{bx+a} - \frac{ad}{bx+a} + d\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^2*(d*x + c)^2),x, algorithm="giac")
```

```
[Out] 2*b^2*d*ln(abs(b*c/(b*x + a) - a*d/(b*x + a) + d))/(b^4*c^3 - 3*a
*b^3*c^2*d + 3*a^2*b^2*c*d^2 - a^3*b*d^3) - b^3/((b^4*c^2 - 2*a*b
^3*c*d + a^2*b^2*d^2)*(b*x + a)) + b*d^2/((b*c - a*d)^3*(b*c/(b*x
 + a) - a*d/(b*x + a) + d))
```

3.256 $\int \frac{1}{x(a+bx)^2(c+dx)^2}\,dx$

Optimal. Leaf size=123

$$-\frac{b^2(bc-3ad)\log(a+bx)}{a^2(bc-ad)^3}+\frac{\log(x)}{a^2c^2}+\frac{b^2}{a(a+bx)(bc-ad)^2}-\frac{d^2(3bc-ad)\log(c+dx)}{c^2(bc-ad)^3}+\frac{d^2}{c(c+dx)(bc-ad)^2}$$

```
[Out] b^2/(a*(b*c - a*d)^2*(a + b*x)) + d^2/(c*(b*c - a*d)^2*(c + d*x))
 + Log[x]/(a^2*c^2) - (b^2*(b*c - 3*a*d)*Log[a + b*x])/(a^2*(b*c
- a*d)^3) - (d^2*(3*b*c - a*d)*Log[c + d*x])/(c^2*(b*c - a*d)^3)
```

Rubi [A] time = 0.248275, antiderivative size = 123, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{b^2(bc-3ad)\log(a+bx)}{a^2(bc-ad)^3}+\frac{\log(x)}{a^2c^2}+\frac{b^2}{a(a+bx)(bc-ad)^2}-\frac{d^2(3bc-ad)\log(c+dx)}{c^2(bc-ad)^3}+\frac{d^2}{c(c+dx)(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x*(a + b*x)^2*(c + d*x)^2),x]
```

```
[Out] b^2/(a*(b*c - a*d)^2*(a + b*x)) + d^2/(c*(b*c - a*d)^2*(c + d*x))
 + Log[x]/(a^2*c^2) - (b^2*(b*c - 3*a*d)*Log[a + b*x])/(a^2*(b*c
- a*d)^3) - (d^2*(3*b*c - a*d)*Log[c + d*x])/(c^2*(b*c - a*d)^3)
```

Rubi in Sympy [A] time = 43.1903, size = 107, normalized size = 0.87

$$\frac{d^2}{c\,(c+dx)\,(ad-bc)^2}-\frac{d^2\,(ad-3bc)\log\,(c+dx)}{c^2\,(ad-bc)^3}+\frac{b^2}{a\,(a+bx)\,(ad-bc)^2}-\frac{b^2\,(3ad-bc)\log\,(a+bx)}{a^2\,(ad-bc)^3}+\frac{\log\,(x)}{a^2c^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x/(b*x+a)**2/(d*x+c)**2,x)
```

```
[Out] d**2/(c*(c + d*x)*(a*d - b*c)**2) - d**2*(a*d - 3*b*c)*log(c + d*
x)/(c**2*(a*d - b*c)**3) + b**2/(a*(a + b*x)*(a*d - b*c)**2) - b*
*2*(3*a*d - b*c)*log(a + b*x)/(a**2*(a*d - b*c)**3) + log(x)/(a**
2*c**2)
```

Mathematica [A] time = 0.33869, size = 120, normalized size = 0.98

$$\frac{b^2(bc-3ad)\log(a+bx)}{a^2(ad-bc)^3}+\frac{\log(x)}{a^2c^2}+\frac{b^2}{a(a+bx)(bc-ad)^2}+\frac{d^2(ad-3bc)\log(c+dx)}{c^2(bc-ad)^3}+\frac{d^2}{c(c+dx)(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(x*(a + b*x)^2*(c + d*x)^2),x]
```

```
[Out] b^2/(a*(b*c - a*d)^2*(a + b*x)) + d^2/(c*(b*c - a*d)^2*(c + d*x))
 + Log[x]/(a^2*c^2) + (b^2*(b*c - 3*a*d)*Log[a + b*x])/(a^2*(-(b*
c) + a*d)^3) + (d^2*(-3*b*c + a*d)*Log[c + d*x])/(c^2*(b*c - a*d)
^3)
```

Maple [A] time = 0.022, size = 158, normalized size = 1.3

$$\frac{d^2}{c(ad-bc)^2(dx+c)}-\frac{d^3\ln(dx+c)a}{c^2(ad-bc)^3}+3\frac{d^2\ln(dx+c)b}{c(ad-bc)^3}+\frac{\ln(x)}{a^2c^2}+\frac{b^2}{(ad-bc)^2a(bx+a)}-3\frac{b^2\ln(bx+a)d}{(ad-bc)^3a}+\frac{b^3\ln(bx+a)c}{(ad-bc)^3a^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/x/(b*x+a)^2/(d*x+c)^2,x)
```

```
[Out] d^2/c/(a*d-b*c)^2/(d*x+c)-d^3/c^2/(a*d-b*c)^3*ln(d*x+c)*a+3*d^2/c
/(a*d-b*c)^3*ln(d*x+c)*b+ln(x)/a^2/c^2+b^2/(a*d-b*c)^2/a/(b*x+a)-
3*b^2/(a*d-b*c)^3/a*ln(b*x+a)*d+b^3/(a*d-b*c)^3/a^2*ln(b*x+a)*c
```

Maxima [A] time = 1.35011, size = 382, normalized size = 3.11

$$-\frac{(b^3c-3ab^2d)\log(bx+a)}{a^2b^3c^3-3a^3b^2c^2d+3a^4bcd^2-a^5d^3}-\frac{(3bcd^2-ad^3)\log(dx+c)}{b^3c^5-3ab^2c^4d+3a^2bc^3d^2-a^3c^2d^3}+\frac{b^2c^2+a^2d^2+(b^2cd+abd^2)x}{a^2b^2c^4-2a^3bc^3d+a^4c^2d^2+(ab^3c^3d-2a^2b^2c^2d^2+a^3bcd^3)x^2+(ab^3c^4-a^2b^2c^3d-a^3bc^2d^2+a^4cd^3)x}+\frac{\log(x)}{a^2c^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^2*(d*x + c)^2*x),x, algorithm="maxima")
```

```
[Out] -(b^3*c - 3*a*b^2*d)*log(b*x + a)/(a^2*b^3*c^3 - 3*a^3*b^2*c^2*d
+ 3*a^4*b*c*d^2 - a^5*d^3) - (3*b*c*d^2 - a*d^3)*log(d*x + c)/(b^
3*c^5 - 3*a*b^2*c^4*d + 3*a^2*b*c^3*d^2 - a^3*c^2*d^3) + (b^2*c^2
 + a^2*d^2 + (b^2*c*d + a*b*d^2)*x)/(a^2*b^2*c^4 - 2*a^3*b*c^3*d
+ a^4*c^2*d^2 + (a*b^3*c^3*d - 2*a^2*b^2*c^2*d^2 + a^3*b*c*d^3)*x
^2 + (a*b^3*c^4 - a^2*b^2*c^3*d - a^3*b*c^2*d^2 + a^4*c*d^3)*x) +
 log(x)/(a^2*c^2)
```

Fricas [A] time = 5.00338, size = 707, normalized size = 5.75

$$ab^3c^4-a^2b^2c^3d+a^3bc^2d^2-a^4cd^3+(ab^3c^3d-a^3bcd^3)x-(ab^3c^4-3a^2b^2c^3d+(b^4c^3d-3ab^3c^2d^2)x^2+(b^4c^4-2ab^3c^3d$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^2*(d*x + c)^2*x),x, algorithm="fricas")
```

```
[Out] (a*b^3*c^4 - a^2*b^2*c^3*d + a^3*b*c^2*d^2 - a^4*c*d^3 + (a*b^3*c
^3*d - a^3*b*c*d^3)*x - (a*b^3*c^4 - 3*a^2*b^2*c^3*d + (b^4*c^3*d
 - 3*a*b^3*c^2*d^2)*x^2 + (b^4*c^4 - 2*a*b^3*c^3*d - 3*a^2*b^2*c^
2*d^2)*x)*log(b*x + a) - (3*a^3*b*c^2*d^2 - a^4*c*d^3 + (3*a^2*b^
2*c*d^3 - a^3*b*d^4)*x^2 + (3*a^2*b^2*c^2*d^2 + 2*a^3*b*c*d^3 - a
^4*d^4)*x)*log(d*x + c) + (a*b^3*c^4 - 3*a^2*b^2*c^3*d + 3*a^3*b*
c^2*d^2 - a^4*c*d^3 + (b^4*c^3*d - 3*a*b^3*c^2*d^2 + 3*a^2*b^2*c*
d^3 - a^3*b*d^4)*x^2 + (b^4*c^4 - 2*a*b^3*c^3*d + 2*a^3*b*c*d^3 -
 a^4*d^4)*x)*log(x))/(a^3*b^3*c^6 - 3*a^4*b^2*c^5*d + 3*a^5*b*c^4
*d^2 - a^6*c^3*d^3 + (a^2*b^4*c^5*d - 3*a^3*b^3*c^4*d^2 + 3*a^4*b
^2*c^3*d^3 - a^5*b*c^2*d^4)*x^2 + (a^2*b^4*c^6 - 2*a^3*b^3*c^5*d
+ 2*a^5*b*c^3*d^3 - a^6*c^2*d^4)*x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/x/(b*x+a)**2/(d*x+c)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.29681, size = 269, normalized size = 2.19

$$\left(\frac{b^4}{(ab^5c^2 - 2a^2b^4cd + a^3b^3d^2)(bx+a)} - \frac{\left(3bcd^2 - ad^3\right)\ln\left(\left|\frac{bc}{bx+a} - \frac{ad}{bx+a} + d\right|\right)}{b^4c^5 - 3ab^3c^4d + 3a^2b^2c^3d^2 - a^3bc^2d^3} - \frac{d^3}{(bc-ad)^3\left(\frac{bc}{bx+a} - \frac{ad}{bx+a} + d\right)c} + \frac{\ln\left(\left|-\ldots\right.\right.}{a^2\ldots}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^2*(d*x + c)^2*x),x, algorithm="giac")
```

```
[Out] (b^4/((a*b^5*c^2 - 2*a^2*b^4*c*d + a^3*b^3*d^2)*(b*x + a)) - (3*b
*c*d^2 - a*d^3)*ln(abs(b*c/(b*x + a) - a*d/(b*x + a) + d))/(b^4*c
^5 - 3*a*b^3*c^4*d + 3*a^2*b^2*c^3*d^2 - a^3*b*c^2*d^3) - d^3/((b
*c - a*d)^3*(b*c/(b*x + a) - a*d/(b*x + a) + d)*c) + ln(abs(-a/(b
*x + a) + 1))/(a^2*b*c^2))*b
```

3.257 $\int \frac{1}{x^2(a+bx)^2(c+dx)^2}\,dx$

Optimal. Leaf size=144

$$\frac{2b^3(bc-2ad)\log(a+bx)}{a^3(bc-ad)^3}-\frac{2\log(x)(ad+bc)}{a^3c^3}-\frac{b^3}{a^2(a+bx)(bc-ad)^2}-\frac{1}{a^2c^2x}+\frac{2d^3(2bc-ad)\log(c+dx)}{c^3(bc-ad)^3}-\frac{d^3}{c^2(c+dx)(bc-ad)^2}$$

```
[Out] -(1/(a^2*c^2*x)) - b^3/(a^2*(b*c - a*d)^2*(a + b*x)) - d^3/(c^2*(
b*c - a*d)^2*(c + d*x)) - (2*(b*c + a*d)*Log[x])/(a^3*c^3) + (2*b
^3*(b*c - 2*a*d)*Log[a + b*x])/(a^3*(b*c - a*d)^3) + (2*d^3*(2*b*
c - a*d)*Log[c + d*x])/(c^3*(b*c - a*d)^3)
```

Rubi [A] time = 0.329537, antiderivative size = 144, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{2b^3(bc-2ad)\log(a+bx)}{a^3(bc-ad)^3}-\frac{2\log(x)(ad+bc)}{a^3c^3}-\frac{b^3}{a^2(a+bx)(bc-ad)^2}-\frac{1}{a^2c^2x}+\frac{2d^3(2bc-ad)\log(c+dx)}{c^3(bc-ad)^3}-\frac{d^3}{c^2(c+dx)(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x^2*(a + b*x)^2*(c + d*x)^2),x]
```

```
[Out] -(1/(a^2*c^2*x)) - b^3/(a^2*(b*c - a*d)^2*(a + b*x)) - d^3/(c^2*(
b*c - a*d)^2*(c + d*x)) - (2*(b*c + a*d)*Log[x])/(a^3*c^3) + (2*b
^3*(b*c - 2*a*d)*Log[a + b*x])/(a^3*(b*c - a*d)^3) + (2*d^3*(2*b*
c - a*d)*Log[c + d*x])/(c^3*(b*c - a*d)^3)
```

Rubi in Sympy [A] time = 52.7342, size = 133, normalized size = 0.92

$$-\frac{d^3}{c^2\left(c+dx\right)\left(ad-bc\right)^2}+\frac{2d^3\left(ad-2bc\right)\log\left(c+dx\right)}{c^3\left(ad-bc\right)^3}-\frac{b^3}{a^2\left(a+bx\right)\left(ad-bc\right)^2}-\frac{1}{a^2c^2x}+\frac{2b^3\left(2ad-bc\right)\log\left(a+bx\right)}{a^3\left(ad-bc\right)^3}-\frac{2\left(ad+bc\right)\log\left(x\right)}{a^3c^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x**2/(b*x+a)**2/(d*x+c)**2,x)
```

```
[Out] -d**3/(c**2*(c + d*x)*(a*d - b*c)**2) + 2*d**3*(a*d - 2*b*c)*log(
c + d*x)/(c**3*(a*d - b*c)**3) - b**3/(a**2*(a + b*x)*(a*d - b*c)
**2) - 1/(a**2*c**2*x) + 2*b**3*(2*a*d - b*c)*log(a + b*x)/(a**3*
(a*d - b*c)**3) - 2*(a*d + b*c)*log(x)/(a**3*c**3)
```

Mathematica [A] time = 0.310017, size = 145, normalized size = 1.01

$$\frac{2b^3(2ad-bc)\log(a+bx)}{a^3(ad-bc)^3}-\frac{2\log(x)(ad+bc)}{a^3c^3}-\frac{b^3}{a^2(a+bx)(bc-ad)^2}-\frac{1}{a^2c^2x}+\frac{2d^3(2bc-ad)\log(c+dx)}{c^3(bc-ad)^3}-\frac{d^3}{c^2(c+dx)(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(x^2*(a + b*x)^2*(c + d*x)^2),x]
```

```
[Out] -(1/(a^2*c^2*x)) - b^3/(a^2*(b*c - a*d)^2*(a + b*x)) - d^3/(c^2*(
b*c - a*d)^2*(c + d*x)) - (2*(b*c + a*d)*Log[x])/(a^3*c^3) + (2*b
^3*(-(b*c) + 2*a*d)*Log[a + b*x])/(a^3*(-(b*c) + a*d)^3) + (2*d^3
*(2*b*c - a*d)*Log[c + d*x])/(c^3*(b*c - a*d)^3)
```

Maple [A] time = 0.023, size = 185, normalized size = 1.3

$$-\frac{d^3}{c^2\left(ad-bc\right)^2\left(dx+c\right)}+2\,\frac{d^4\ln\left(dx+c\right)a}{c^3\left(ad-bc\right)^3}-4\,\frac{d^3\ln\left(dx+c\right)b}{c^2\left(ad-bc\right)^3}-\frac{1}{a^2c^2x}-2\,\frac{\ln\left(x\right)d}{a^2c^3}-2\,\frac{b\ln\left(x\right)}{a^3c^2}-\frac{b^3}{\left(ad-bc\right)^2a^2\left(bx+a\right)}+4\,\frac{b^3\ln\left(bx+a\right)d}{\left(ad-bc\right)^3a^2}-2\,\frac{b^4\ln\left(bx+a\right)c}{\left(ad-bc\right)^3a^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/x^2/(b*x+a)^2/(d*x+c)^2,x)
```

```
[Out] -d^3/c^2/(a*d-b*c)^2/(d*x+c)+2*d^4/c^3/(a*d-b*c)^3*ln(d*x+c)*a-4*
d^3/c^2/(a*d-b*c)^3*ln(d*x+c)*b-1/a^2/c^2/x-2/a^2/c^3*ln(x)*d-2/a
^3/c^2*ln(x)*b-b^3/(a*d-b*c)^2/a^2/(b*x+a)+4*b^3/(a*d-b*c)^3/a^2*
ln(b*x+a)*d-2*b^4/(a*d-b*c)^3/a^3*ln(b*x+a)*c
```

Maxima [A] time = 1.45148, size = 504, normalized size = 3.5

$$\frac{2\left(b^4c-2\,ab^3d\right)\log\left(bx+a\right)}{a^3b^3c^3-3\,a^4b^2c^2d+3\,a^5bcd^2-a^6d^3}+\frac{2\left(2\,bcd^3-ad^4\right)\log\left(dx+c\right)}{b^3c^6-3\,ab^2c^5d+3\,a^2bc^4d^2-a^3c^3d^3}-\frac{ab^2c^3-2\,a^2bc^2d+a^3cd^2+2\left(b^3c^2d-ab^2cd^2+a^2bd^3\right)x^2+\left(2\,b^3c^3-ab^2c^2d-a^2bcd^2+2\,a^3d^3\right)x}{(a^2b^3c^4d-2\,a^3b^2c^3d^2+a^4bc^2d^3)x^3+(a^2b^3c^5-a^3b^2c^4d-a^4bc^3d^2+a^5c^2d^3)x^2+(a^3b^2c^5-2\,a^4bc^4d+a^5c^3d^2)x}-\frac{2\left(bc+ad\right)\log\left(x\right)}{a^3c^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^2*(d*x + c)^2*x^2),x, algorithm="maxima")
```

```
[Out] 2*(b^4*c - 2*a*b^3*d)*log(b*x + a)/(a^3*b^3*c^3 - 3*a^4*b^2*c^2*d
 + 3*a^5*b*c*d^2 - a^6*d^3) + 2*(2*b*c*d^3 - a*d^4)*log(d*x + c)/
(b^3*c^6 - 3*a*b^2*c^5*d + 3*a^2*b*c^4*d^2 - a^3*c^3*d^3) - (a*b^
2*c^3 - 2*a^2*b*c^2*d + a^3*c*d^2 + 2*(b^3*c^2*d - a*b^2*c*d^2 +
a^2*b*d^3)*x^2 + (2*b^3*c^3 - a*b^2*c^2*d - a^2*b*c*d^2 + 2*a^3*d
^3)*x)/((a^2*b^3*c^4*d - 2*a^3*b^2*c^3*d^2 + a^4*b*c^2*d^3)*x^3 +
 (a^2*b^3*c^5 - a^3*b^2*c^4*d - a^4*b*c^3*d^2 + a^5*c^2*d^3)*x^2
+ (a^3*b^2*c^5 - 2*a^4*b*c^4*d + a^5*c^3*d^2)*x) - 2*(b*c + a*d)*
log(x)/(a^3*c^3)
```

Fricas [A] time = 14.7888, size = 882, normalized size = 6.12

$$-\frac{a^2b^3c^5-3\,a^3b^2c^4d+3\,a^4bc^3d^2-a^5c^2d^3+2\left(ab^4c^4d-2\,a^2b^3c^3d^2+2\,a^3b^2c^2d^3-a^4bcd^4\right)x^2+\left(2\,ab^4c^5-3\,a^2b^3c^4d+3\,a^4b\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^2*(d*x + c)^2*x^2),x, algorithm="fricas")
```

```
[Out] -(a^2*b^3*c^5 - 3*a^3*b^2*c^4*d + 3*a^4*b*c^3*d^2 - a^5*c^2*d^3 +
 2*(a*b^4*c^4*d - 2*a^2*b^3*c^3*d^2 + 2*a^3*b^2*c^2*d^3 - a^4*b*c
*d^4)*x^2 + (2*a*b^4*c^5 - 3*a^2*b^3*c^4*d + 3*a^4*b*c^2*d^3 - 2*
```

```
a^5*c*d^4)*x - 2*((b^5*c^4*d - 2*a*b^4*c^3*d^2)*x^3 + (b^5*c^5 -
a*b^4*c^4*d - 2*a^2*b^3*c^3*d^2)*x^2 + (a*b^4*c^5 - 2*a^2*b^3*c^4
*d)*x)*log(b*x + a) - 2*((2*a^3*b^2*c*d^4 - a^4*b*d^5)*x^3 + (2*a
^3*b^2*c^2*d^3 + a^4*b*c*d^4 - a^5*d^5)*x^2 + (2*a^4*b*c^2*d^3 -
a^5*c*d^4)*x)*log(d*x + c) + 2*((b^5*c^4*d - 2*a*b^4*c^3*d^2 + 2*
a^3*b^2*c*d^4 - a^4*b*d^5)*x^3 + (b^5*c^5 - a*b^4*c^4*d - 2*a^2*b
^3*c^3*d^2 + 2*a^3*b^2*c^2*d^3 + a^4*b*c*d^4 - a^5*d^5)*x^2 + (a*
b^4*c^5 - 2*a^2*b^3*c^4*d + 2*a^4*b*c^2*d^3 - a^5*c*d^4)*x)*log(x
))/((a^3*b^4*c^6*d - 3*a^4*b^3*c^5*d^2 + 3*a^5*b^2*c^4*d^3 - a^6*
b*c^3*d^4)*x^3 + (a^3*b^4*c^7 - 2*a^4*b^3*c^6*d + 2*a^6*b*c^4*d^3
 - a^7*c^3*d^4)*x^2 + (a^4*b^3*c^7 - 3*a^5*b^2*c^6*d + 3*a^6*b*c^
5*d^2 - a^7*c^4*d^3)*x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/x**2/(b*x+a)**2/(d*x+c)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.300718, size = 747, normalized size = 5.19

$$-\frac{b^7}{(a^2b^6c^2-2\,a^3b^5cd+a^4b^4d^2)(bx+a)}-\frac{\left(b^4c-2\,ab^3d\right)\ln\left(\left|-\frac{bc}{bx+a}+\frac{abc}{(bx+a)^2}+\frac{2\,ad}{bx+a}-\frac{a^2d}{(bx+a)^2}-d\right|\right)}{a^3b^3c^3-3\,a^4b^2c^2d+3\,a^5bcd^2-a^6d^3}+\frac{\left(b^6c^4-2\,ab^5c^3d+4\,a^3b^3cd^3-2\,a^4b^2d^4\right)\ln\left(\frac{\left|-\frac{2\,ab^2c}{bx+a}+b^2c-2\,abd+\frac{2\,a^2bd}{bx+a}-b^2|c|\right|}{\left|-\frac{2\,ab^2c}{bx+a}+b^2c-2\,abd+\frac{2\,a^2bd}{bx+a}+b^2|c|\right|}\right)}{(a^3b^3c^5-3\,a^4b^2c^4d+3\,a^5bc^3d^2-a^6c^2d^3)b^2|c|}-\frac{\frac{b^4c^3d-3\,ab^3c^2d^2+3\,a^2b^2cd^3-2\,a^3bd^4}{abc-a^2d}+\frac{b^6c^4-4\,ab^5c^3d+6\,a^2b^4c^2d^2-4\,a^3b^3cd^3+2\,a^4b^2d^4}{(abc-a^2d)(bx+a)b}}{(bc-ad)^2a^2\left(\frac{bc}{bx+a}-\frac{abc}{(bx+a)^2}-\frac{2\,ad}{bx+a}+\frac{a^2d}{(bx+a)^2}+d\right)c^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^2*(d*x + c)^2*x^2),x, algorithm="giac")
```

```
[Out] -b^7/((a^2*b^6*c^2 - 2*a^3*b^5*c*d + a^4*b^4*d^2)*(b*x + a)) - (b
^4*c - 2*a*b^3*d)*ln(abs(-b*c/(b*x + a) + a*b*c/(b*x + a)^2 + 2*a
*d/(b*x + a) - a^2*d/(b*x + a)^2 - d))/(a^3*b^3*c^3 - 3*a^4*b^2*c
^2*d + 3*a^5*b*c*d^2 - a^6*d^3) + (b^6*c^4 - 2*a*b^5*c^3*d + 4*a^
3*b^3*c*d^3 - 2*a^4*b^2*d^4)*ln(abs(-2*a*b^2*c/(b*x + a) + b^2*c
- 2*a*b*d + 2*a^2*b*d/(b*x + a) - b^2*abs(c))/abs(-2*a*b^2*c/(b*x
 + a) + b^2*c - 2*a*b*d + 2*a^2*b*d/(b*x + a) + b^2*abs(c)))/((a^
3*b^3*c^5 - 3*a^4*b^2*c^4*d + 3*a^5*b*c^3*d^2 - a^6*c^2*d^3)*b^2*
abs(c)) - ((b^4*c^3*d - 3*a*b^3*c^2*d^2 + 3*a^2*b^2*c*d^3 - 2*a^3
*b*d^4)/(a*b*c - a^2*d) + (b^6*c^4 - 4*a*b^5*c^3*d + 6*a^2*b^4*c^
2*d^2 - 4*a^3*b^3*c*d^3 + 2*a^4*b^2*d^4)/((a*b*c - a^2*d)*(b*x +
a)*b))/((b*c - a*d)^2*a^2*(b*c/(b*x + a) - a*b*c/(b*x + a)^2 - 2*
a*d/(b*x + a) + a^2*d/(b*x + a)^2 + d)*c^2)
```

3.258 $\int \frac{1}{x^3(a+bx)^2(c+dx)^2}\,dx$

Optimal. Leaf size=178

$$-\frac{b^4(3bc-5ad)\log(a+bx)}{a^4(bc-ad)^3}+\frac{b^4}{a^3(a+bx)(bc-ad)^2}+\frac{2(ad+bc)}{a^3c^3x}-\frac{1}{2a^2c^2x^2}+\frac{\log(x)\left(3a^2d^2+4abcd+3b^2c^2\right)}{a^4c^4}-\frac{d^4(5bc-3ad)\log(c+dx)}{c^4(bc-ad)^3}+\frac{d^4}{c^3(c+dx)(bc-ad)^2}$$

```
[Out] -1/(2*a^2*c^2*x^2) + (2*(b*c + a*d))/(a^3*c^3*x) + b^4/(a^3*(b*c
- a*d)^2*(a + b*x)) + d^4/(c^3*(b*c - a*d)^2*(c + d*x)) + ((3*b^2
*c^2 + 4*a*b*c*d + 3*a^2*d^2)*Log[x])/(a^4*c^4) - (b^4*(3*b*c - 5
*a*d)*Log[a + b*x])/(a^4*(b*c - a*d)^3) - (d^4*(5*b*c - 3*a*d)*Lo
g[c + d*x])/(c^4*(b*c - a*d)^3)
```

Rubi [A] time = 0.429961, antiderivative size = 178, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.056$

$$-\frac{b^4(3bc-5ad)\log(a+bx)}{a^4(bc-ad)^3}+\frac{b^4}{a^3(a+bx)(bc-ad)^2}+\frac{2(ad+bc)}{a^3c^3x}-\frac{1}{2a^2c^2x^2}+\frac{\log(x)\left(3a^2d^2+4abcd+3b^2c^2\right)}{a^4c^4}-\frac{d^4(5bc-3ad)\log(c+dx)}{c^4(bc-ad)^3}+\frac{d^4}{c^3(c+dx)(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x^3*(a + b*x)^2*(c + d*x)^2),x]
```

```
[Out] -1/(2*a^2*c^2*x^2) + (2*(b*c + a*d))/(a^3*c^3*x) + b^4/(a^3*(b*c
- a*d)^2*(a + b*x)) + d^4/(c^3*(b*c - a*d)^2*(c + d*x)) + ((3*b^2
*c^2 + 4*a*b*c*d + 3*a^2*d^2)*Log[x])/(a^4*c^4) - (b^4*(3*b*c - 5
*a*d)*Log[a + b*x])/(a^4*(b*c - a*d)^3) - (d^4*(5*b*c - 3*a*d)*Lo
g[c + d*x])/(c^4*(b*c - a*d)^3)
```

Rubi in Sympy [A] time = 68.2422, size = 172, normalized size = 0.97

$$\frac{d^4}{c^3\left(c+dx\right)\left(ad-bc\right)^2}-\frac{d^4\left(3ad-5bc\right)\log\left(c+dx\right)}{c^4\left(ad-bc\right)^3}-\frac{1}{2a^2c^2x^2}+\frac{b^4}{a^3\left(a+bx\right)\left(ad-bc\right)^2}+\frac{2\left(ad+bc\right)}{a^3c^3x}-\frac{b^4\left(5ad-3bc\right)\log\left(a+bx\right)}{a^4\left(ad-bc\right)^3}+\frac{\left(3a^2d^2+4abcd+3b^2c^2\right)\log\left(x\right)}{a^4c^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x**3/(b*x+a)**2/(d*x+c)**2,x)
```

```
[Out] d**4/(c**3*(c + d*x)*(a*d - b*c)**2) - d**4*(3*a*d - 5*b*c)*log(c
 + d*x)/(c**4*(a*d - b*c)**3) - 1/(2*a**2*c**2*x**2) + b**4/(a**3
*(a + b*x)*(a*d - b*c)**2) + 2*(a*d + b*c)/(a**3*c**3*x) - b**4*(
5*a*d - 3*b*c)*log(a + b*x)/(a**4*(a*d - b*c)**3) + (3*a**2*d**2
+ 4*a*b*c*d + 3*b**2*c**2)*log(x)/(a**4*c**4)
```

Mathematica [A] time = 0.321453, size = 176, normalized size = 0.99

$$\frac{b^4(3bc-5ad)\log(a+bx)}{a^4(ad-bc)^3}+\frac{b^4}{a^3(a+bx)(bc-ad)^2}+\frac{2(ad+bc)}{a^3c^3x}-\frac{1}{2a^2c^2x^2}+\frac{\log(x)\left(3a^2d^2+4abcd+3b^2c^2\right)}{a^4c^4}+\frac{d^4(3ad-5bc)\log(c+dx)}{c^4(bc-ad)^3}+\frac{d^4}{c^3(c+dx)(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(x^3*(a + b*x)^2*(c + d*x)^2),x]
```

```
[Out] -1/(2*a^2*c^2*x^2) + (2*(b*c + a*d))/(a^3*c^3*x) + b^4/(a^3*(b*c
 - a*d)^2*(a + b*x)) + d^4/(c^3*(b*c - a*d)^2*(c + d*x)) + ((3*b^2
*c^2 + 4*a*b*c*d + 3*a^2*d^2)*Log[x])/(a^4*c^4) + (b^4*(3*b*c - 5
*a*d)*Log[a + b*x])/(a^4*(-(b*c) + a*d)^3) + (d^4*(-5*b*c + 3*a*d
)*Log[c + d*x])/(c^4*(b*c - a*d)^3)
```

Maple [A] time = 0.024, size = 223, normalized size = 1.3

$$\frac{d^4}{c^3\left(ad-bc\right)^2\left(dx+c\right)}-3\,\frac{d^5\ln\left(dx+c\right)a}{c^4\left(ad-bc\right)^3}+5\,\frac{d^4\ln\left(dx+c\right)b}{c^3\left(ad-bc\right)^3}-\frac{1}{2\,a^2c^2x^2}+2\,\frac{d}{xa^2c^3}+2\,\frac{b}{xa^3c^2}+3\,\frac{\ln\left(x\right)d^2}{a^2c^4}+4\,\frac{b\ln\left(x\right)d}{a^3c^3}+3\,\frac{\ln\left(x\right)b^2}{a^4c^2}+\frac{b^4}{\left(ad-bc\right)^2a^3\left(bx+a\right)}-5\,\frac{b^4\ln\left(bx+a\right)d}{\left(ad-bc\right)^3a^3}+3\,\frac{b^5\ln\left(bx+a\right)c}{\left(ad-bc\right)^3a^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/x^3/(b*x+a)^2/(d*x+c)^2,x)
```

```
[Out] d^4/c^3/(a*d-b*c)^2/(d*x+c)-3*d^5/c^4/(a*d-b*c)^3*ln(d*x+c)*a+5*d
^4/c^3/(a*d-b*c)^3*ln(d*x+c)*b-1/2/a^2/c^2/x^2+2/x/a^2/c^3*d+2/x/
a^3/c^2*b+3/a^2/c^4*ln(x)*d^2+4/a^3/c^3*ln(x)*b*d+3/a^4/c^2*ln(x)
*b^2+b^4/(a*d-b*c)^2/a^3/(b*x+a)-5*b^4/(a*d-b*c)^3/a^3*ln(b*x+a)*
d+3*b^5/(a*d-b*c)^3/a^4*ln(b*x+a)*c
```

Maxima [A] time = 1.39606, size = 637, normalized size = 3.58

$$-\frac{\left(3\,b^5c-5\,ab^4d\right)\log\left(bx+a\right)}{a^4b^3c^3-3\,a^5b^2c^2d+3\,a^6bcd^2-a^7d^3}-\frac{\left(5\,bcd^4-3\,ad^5\right)\log\left(dx+c\right)}{b^3c^7-3\,ab^2c^6d+3\,a^2bc^5d^2-a^3c^4d^3}-\frac{a^2b^2c^4-2\,a^3bc^3d+a^4c^2d^2-2\left(3\,b^4c^3d-2\,ab^3c^2d^2-2\,a^2b^2cd^3+3\,a^3bd^4\right)x^3-\left(6\,b^4c^4-ab^3c^3d-6\,a^2b^2c^2d^2-a^3bcd^3+\right.}{2\left(\left(a^3b^3c^5d-2\,a^4b^2c^4d^2+a^5bc^3d^3\right)x^4+\left(a^3b^3c^6-a^4b^2c^5d-a^5bc^4d^2+a^6c^3d^3\right)x^3+\left(a^4b^2c^6\right.\right.}+\frac{\left(3\,b^2c^2+4\,abcd+3\,a^2d^2\right)\log\left(x\right)}{a^4c^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^2*(d*x + c)^2*x^3),x, algorithm="maxima")
```

```
[Out] -(3*b^5*c - 5*a*b^4*d)*log(b*x + a)/(a^4*b^3*c^3 - 3*a^5*b^2*c^2*
d + 3*a^6*b*c*d^2 - a^7*d^3) - (5*b*c*d^4 - 3*a*d^5)*log(d*x + c)
/(b^3*c^7 - 3*a*b^2*c^6*d + 3*a^2*b*c^5*d^2 - a^3*c^4*d^3) - 1/2*
(a^2*b^2*c^4 - 2*a^3*b*c^3*d + a^4*c^2*d^2 - 2*(3*b^4*c^3*d - 2*a
*b^3*c^2*d^2 - 2*a^2*b^2*c*d^3 + 3*a^3*b*d^4)*x^3 - (6*b^4*c^4 -
a*b^3*c^3*d - 6*a^2*b^2*c^2*d^2 - a^3*b*c*d^3 + 6*a^4*d^4)*x^2 -
3*(a*b^3*c^4 - a^2*b^2*c^3*d - a^3*b*c^2*d^2 + a^4*c*d^3)*x)/((a^
3*b^3*c^5*d - 2*a^4*b^2*c^4*d^2 + a^5*b*c^3*d^3)*x^4 + (a^3*b^3*c
^6 - a^4*b^2*c^5*d - a^5*b*c^4*d^2 + a^6*c^3*d^3)*x^3 + (a^4*b^2*
c^6 - 2*a^5*b*c^5*d + a^6*c^4*d^2)*x^2) + (3*b^2*c^2 + 4*a*b*c*d
+ 3*a^2*d^2)*log(x)/(a^4*c^4)
```

Fricas [A] time = 30.9264, size = 1013, normalized size = 5.69

$$-\frac{a^3b^3c^6-3\,a^4b^2c^5d+3\,a^5bc^4d^2-a^6c^3d^3-2\left(3\,ab^5c^5d-5\,a^2b^4c^4d^2+5\,a^4b^2c^2d^4-3\,a^5bcd^5\right)x^3-\left(6\,ab^5c^6-7\,a^2b^4c^5d-\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^2*(d*x + c)^2*x^3),x, algorithm="fricas")
```

```
[Out] -1/2*(a^3*b^3*c^6 - 3*a^4*b^2*c^5*d + 3*a^5*b*c^4*d^2 - a^6*c^3*d
^3 - 2*(3*a*b^5*c^5*d - 5*a^2*b^4*c^4*d^2 + 5*a^4*b^2*c^2*d^4 - 3
*a^5*b*c*d^5)*x^3 - (6*a*b^5*c^6 - 7*a^2*b^4*c^5*d - 5*a^3*b^3*c^
4*d^2 + 5*a^4*b^2*c^3*d^3 + 7*a^5*b*c^2*d^4 - 6*a^6*c*d^5)*x^2 -
3*(a^2*b^4*c^6 - 2*a^3*b^3*c^5*d + 2*a^5*b*c^3*d^3 - a^6*c^2*d^4)
*x + 2*((3*b^6*c^5*d - 5*a*b^5*c^4*d^2)*x^4 + (3*b^6*c^6 - 2*a*b^
5*c^5*d - 5*a^2*b^4*c^4*d^2)*x^3 + (3*a*b^5*c^6 - 5*a^2*b^4*c^5*d
)*x^2)*log(b*x + a) + 2*((5*a^4*b^2*c*d^5 - 3*a^5*b*d^6)*x^4 + (5
*a^4*b^2*c^2*d^4 + 2*a^5*b*c*d^5 - 3*a^6*d^6)*x^3 + (5*a^5*b*c^2*
d^4 - 3*a^6*c*d^5)*x^2)*log(d*x + c) - 2*((3*b^6*c^5*d - 5*a*b^5*
c^4*d^2 + 5*a^4*b^2*c*d^5 - 3*a^5*b*d^6)*x^4 + (3*b^6*c^6 - 2*a*b
^5*c^5*d - 5*a^2*b^4*c^4*d^2 + 5*a^4*b^2*c^2*d^4 + 2*a^5*b*c*d^5
- 3*a^6*d^6)*x^3 + (3*a*b^5*c^6 - 5*a^2*b^4*c^5*d + 5*a^5*b*c^2*d
^4 - 3*a^6*c*d^5)*x^2)*log(x))/((a^4*b^4*c^7*d - 3*a^5*b^3*c^6*d^
2 + 3*a^6*b^2*c^5*d^3 - a^7*b*c^4*d^4)*x^4 + (a^4*b^4*c^8 - 2*a^5
*b^3*c^7*d + 2*a^7*b*c^5*d^3 - a^8*c^4*d^4)*x^3 + (a^5*b^3*c^8 -
3*a^6*b^2*c^7*d + 3*a^7*b*c^6*d^2 - a^8*c^5*d^3)*x^2)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/x**3/(b*x+a)**2/(d*x+c)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.314267, size = 620, normalized size = 3.48

$$\frac{b^9}{(a^3b^7c^2 - 2\,a^4b^6cd + a^5b^5d^2)(bx+a)} - \frac{\left(5\,b^2cd^4 - 3\,abd^5\right)\ln\left(\left|\frac{bc}{bx+a} - \frac{ad}{bx+a} + d\right|\right)}{b^4c^7 - 3\,ab^3c^6d + 3\,a^2b^2c^5d^2 - a^3bc^4d^3} + \frac{\left(3\,b^3c^2 + 4\,ab^2cd + 3\,a^2bd^2\right)\ln\left(\left|-\frac{a}{bx+a} + 1\right|\right)}{a^4bc^4} + \frac{5\,b^5c^5d - 11\,ab^4c^4d^2 + 3\,a^2b^3c^3d^3 + 7\,a^3b^2c^2d^4 - 6\,a^4bcd^5 + \frac{5\,b^7c^6 - 22\,ab^6c^5d + 28\,a^2b^5c^4d^2 - 2\,a^3b^4c^3d^3 - 17\,a^4b^3c^2d^4 + 12\,a^5b^2cd^5}{(bx+a)b} - \frac{2\,(3\cdots}{\cdots}}{2\,(bc-ad)^3a^4\left(\frac{bc}{bx+a} - \frac{ad}{bx+a} + d\right)c^4\left(\frac{a}{bx+a} - 1\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^2*(d*x + c)^2*x^3),x, algorithm="giac")
```

```
[Out] b^9/((a^3*b^7*c^2 - 2*a^4*b^6*c*d + a^5*b^5*d^2)*(b*x + a)) - (5*
b^2*c*d^4 - 3*a*b*d^5)*ln(abs(b*c/(b*x + a) - a*d/(b*x + a) + d))
/(b^4*c^7 - 3*a*b^3*c^6*d + 3*a^2*b^2*c^5*d^2 - a^3*b*c^4*d^3) +
(3*b^3*c^2 + 4*a*b^2*c*d + 3*a^2*b*d^2)*ln(abs(-a/(b*x + a) + 1))
/(a^4*b*c^4) + 1/2*(5*b^5*c^5*d - 11*a*b^4*c^4*d^2 + 3*a^2*b^3*c^
3*d^3 + 7*a^3*b^2*c^2*d^4 - 6*a^4*b*c*d^5 + (5*b^7*c^6 - 22*a*b^6
*c^5*d + 28*a^2*b^5*c^4*d^2 - 2*a^3*b^4*c^3*d^3 - 17*a^4*b^3*c^2*
d^4 + 12*a^5*b^2*c*d^5)/((b*x + a)*b) - 2*(3*a*b^8*c^6 - 10*a^2*b
^7*c^5*d + 10*a^3*b^6*c^4*d^2 - 5*a^5*b^4*c^2*d^4 + 3*a^6*b^3*c*d
^5)/((b*x + a)^2*b^2))/((b*c - a*d)^3*a^4*(b*c/(b*x + a) - a*d/(b
*x + a) + d)*c^4*(a/(b*x + a) - 1)^2)
```

3.259 $\int \frac{x^7}{(a+bx)^2(c+dx)^3} dx$

Optimal. Leaf size=231

$$\frac{a^7}{b^5(a+bx)(bc-ad)^3}+\frac{a^6(7bc-4ad)\log(a+bx)}{b^5(bc-ad)^4}-\frac{c^5\left(21a^2d^2-28abcd+10b^2c^2\right)\log(c+dx)}{d^6(bc-ad)^4}+\frac{3x\left(a^2d^2+2abcd+2b^2c^2\right)}{b^4d^5}-\frac{x^2(2ad+3bc)}{2b^3d^4}+\frac{c^7}{2d^6(c+dx)^2(bc-ad)^2}-\frac{c^6(5bc-7ad)}{d^6(c+dx)(bc-ad)^3}+\frac{x^3}{3b^2d^3}$$

```
[Out] (3*(2*b^2*c^2 + 2*a*b*c*d + a^2*d^2)*x)/(b^4*d^5) - ((3*b*c + 2*a
*d)*x^2)/(2*b^3*d^4) + x^3/(3*b^2*d^3) + a^7/(b^5*(b*c - a*d)^3*(
a + b*x)) + c^7/(2*d^6*(b*c - a*d)^2*(c + d*x)^2) - (c^6*(5*b*c -
 7*a*d))/(d^6*(b*c - a*d)^3*(c + d*x)) + (a^6*(7*b*c - 4*a*d)*Log
[a + b*x])/(b^5*(b*c - a*d)^4) - (c^5*(10*b^2*c^2 - 28*a*b*c*d +
21*a^2*d^2)*Log[c + d*x])/(d^6*(b*c - a*d)^4)
```

Rubi [A] time = 0.717254, antiderivative size = 231, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{a^7}{b^5(a+bx)(bc-ad)^3}+\frac{a^6(7bc-4ad)\log(a+bx)}{b^5(bc-ad)^4}-\frac{c^5\left(21a^2d^2-28abcd+10b^2c^2\right)\log(c+dx)}{d^6(bc-ad)^4}+\frac{3x\left(a^2d^2+2abcd+2b^2c^2\right)}{b^4d^5}-\frac{x^2(2ad+3bc)}{2b^3d^4}+\frac{c^7}{2d^6(c+dx)^2(bc-ad)^2}-\frac{c^6(5bc-7ad)}{d^6(c+dx)(bc-ad)^3}+\frac{x^3}{3b^2d^3}$$

Antiderivative was successfully verified.

```
[In]  Int[x^7/((a + b*x)^2*(c + d*x)^3),x]
```

```
[Out] (3*(2*b^2*c^2 + 2*a*b*c*d + a^2*d^2)*x)/(b^4*d^5) - ((3*b*c + 2*a
*d)*x^2)/(2*b^3*d^4) + x^3/(3*b^2*d^3) + a^7/(b^5*(b*c - a*d)^3*(
a + b*x)) + c^7/(2*d^6*(b*c - a*d)^2*(c + d*x)^2) - (c^6*(5*b*c -
 7*a*d))/(d^6*(b*c - a*d)^3*(c + d*x)) + (a^6*(7*b*c - 4*a*d)*Log
[a + b*x])/(b^5*(b*c - a*d)^4) - (c^5*(10*b^2*c^2 - 28*a*b*c*d +
21*a^2*d^2)*Log[c + d*x])/(d^6*(b*c - a*d)^4)
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{a^7}{b^5\left(a+bx\right)\left(ad-bc\right)^3}-\frac{a^6\left(4ad-7bc\right)\log\left(a+bx\right)}{b^5\left(ad-bc\right)^4}+\frac{c^7}{2d^6\left(c+dx\right)^2\left(ad-bc\right)^2}-\frac{c^6\left(7ad-5bc\right)}{d^6\left(c+dx\right)\left(ad-bc\right)^3}-\frac{c^5\left(21a^2d^2-28abcd+10b^2c^2\right)\log\left(c+dx\right)}{d^6\left(ad-bc\right)^4}+\frac{x^3}{3b^2d^3}-\frac{\left(2ad+3bc\right)\int x\,dx}{b^3d^4}+\frac{3x\left(a^2d^2+2abcd+2b^2c^2\right)}{b^4d^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**7/(b*x+a)**2/(d*x+c)**3,x)
```

```
[Out] -a**7/(b**5*(a + b*x)*(a*d - b*c)**3) - a**6*(4*a*d - 7*b*c)*log(
a + b*x)/(b**5*(a*d - b*c)**4) + c**7/(2*d**6*(c + d*x)**2*(a*d -
 b*c)**2) - c**6*(7*a*d - 5*b*c)/(d**6*(c + d*x)*(a*d - b*c)**3)
- c**5*(21*a**2*d**2 - 28*a*b*c*d + 10*b**2*c**2)*log(c + d*x)/(d
**6*(a*d - b*c)**4) + x**3/(3*b**2*d**3) - (2*a*d + 3*b*c)*Integr
al(x, x)/(b**3*d**4) + 3*x*(a**2*d**2 + 2*a*b*c*d + 2*b**2*c**2)/
(b**4*d**5)
```

Mathematica [A] time = 0.573902, size = 230, normalized size = 1.

$$\frac{a^7}{b^5(a+bx)(bc-ad)^3}+\frac{a^6(7bc-4ad)\log(a+bx)}{b^5(bc-ad)^4}-\frac{c^5\left(21a^2d^2-28abcd+10b^2c^2\right)\log(c+dx)}{d^6(bc-ad)^4}+\frac{3x\left(a^2d^2+2abcd+2b^2c^2\right)}{b^4d^5}-\frac{x^2(2ad+3bc)}{2b^3d^4}+\frac{c^7}{2d^6(c+dx)^2(bc-ad)^2}+\frac{c^6(5bc-7ad)}{d^6(c+dx)(ad-bc)^3}+\frac{x^3}{3b^2d^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^7/((a + b*x)^2*(c + d*x)^3),x]
```

```
[Out] (3*(2*b^2*c^2 + 2*a*b*c*d + a^2*d^2)*x)/(b^4*d^5) - ((3*b*c + 2*a
*d)*x^2)/(2*b^3*d^4) + x^3/(3*b^2*d^3) + a^7/(b^5*(b*c - a*d)^3*(
a + b*x)) + c^7/(2*d^6*(b*c - a*d)^2*(c + d*x)^2) + (c^6*(5*b*c -
 7*a*d))/(d^6*(-(b*c) + a*d)^3*(c + d*x)) + (a^6*(7*b*c - 4*a*d)*
Log[a + b*x])/(b^5*(b*c - a*d)^4) - (c^5*(10*b^2*c^2 - 28*a*b*c*d
 + 21*a^2*d^2)*Log[c + d*x])/(d^6*(b*c - a*d)^4)
```

Maple [A] time = 0.026, size = 304, normalized size = 1.3

$$\frac{x^3}{3\,b^2d^3}-\frac{x^2a}{b^3d^3}-\frac{3\,cx^2}{2\,b^2d^4}+3\,\frac{a^2x}{b^4d^3}+6\,\frac{acx}{b^3d^4}+6\,\frac{c^2x}{b^2d^5}-7\,\frac{c^6a}{d^5\,(ad-bc)^3\,(dx+c)}+5\,\frac{c^7b}{(ad-bc)^3\,d^6\,(dx+c)}+\frac{c^7}{2\,d^6\,(ad-bc)^2\,(dx+c)^2}-21\,\frac{c^5\ln(dx+c)\,a^2}{d^4\,(ad-bc)^4}+28\,\frac{c^6\ln(dx+c)\,ab}{d^5\,(ad-bc)^4}-10\,\frac{c^7\ln(dx+c)\,b^2}{d^6\,(ad-bc)^4}-\frac{a^7}{b^5\,(ad-bc)^3\,(bx+a)}-4\,\frac{a^7\ln(bx+a)\,d}{(ad-bc)^4\,b^5}+7\,\frac{a^6\ln(bx+a)\,c}{b^4\,(ad-bc)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^7/(b*x+a)^2/(d*x+c)^3,x)
```

```
[Out] 1/3*x^3/b^2/d^3-1/b^3/d^3*x^2*a-3/2/b^2/d^4*x^2*c+3/b^4/d^3*a^2*x
+6/b^3/d^4*a*c*x+6/b^2/d^5*c^2*x-7/d^5*c^6/(a*d-b*c)^3/(d*x+c)*a+
5/d^6*c^7/(a*d-b*c)^3/(d*x+c)*b+1/2/d^6*c^7/(a*d-b*c)^2/(d*x+c)^2
-21/d^4*c^5/(a*d-b*c)^4*ln(d*x+c)*a^2+28/d^5*c^6/(a*d-b*c)^4*ln(d
*x+c)*a*b-10/d^6*c^7/(a*d-b*c)^4*ln(d*x+c)*b^2-1/b^5*a^7/(a*d-b*c
)^3/(b*x+a)-4/b^5*a^7/(a*d-b*c)^4*ln(b*x+a)*d+7/b^4*a^6/(a*d-b*c)
^4*ln(b*x+a)*c
```

Maxima [A] time = 1.39143, size = 788, normalized size = 3.41

$$\frac{\left(7\,a^6bc-4\,a^7d\right)\log(bx+a)}{b^9c^4-4\,ab^8c^3d+6\,a^2b^7c^2d^2-4\,a^3b^6cd^3+a^4b^5d^4}-\frac{\left(10\,b^2c^7-28\,abc^6d+21\,a^2c^5d^2\right)\log(dx+c)}{b^4c^4d^6-4\,ab^3c^3d^7+6\,a^2b^2c^2d^8-4\,a^3bcd^9+a^4d^{10}}-\frac{9\,ab^6c^8-13\,a^2b^5c^7d-2\,a^7c^2d^6+2\left(5\,b^7c^7d-7\,ab^6c^6d^2-a^7d^8\right)x^2+\cdots}{2\left(ab^8c^5d^6-3\,a^2b^7c^4d^7+3\,a^3b^6c^3d^8-a^4b^5c^2d^9+(b^9c^3d^8-3\,ab^8c^2d^9+3\,a^2b^7cd^{10}-a^3b^6d^{11})x^3+(2\,b^9c^4d^7-5\,ab^8c^3d^8\cdots\right.}+\frac{2\,b^2d^2x^3-3\left(3\,b^2cd+2\,abd^2\right)x^2+18\left(2\,b^2c^2+2\,abcd+a^2d^2\right)x}{6\,b^4d^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^7/((b*x + a)^2*(d*x + c)^3),x, algorithm="maxima")
```

```
[Out] (7*a^6*b*c - 4*a^7*d)*log(b*x + a)/(b^9*c^4 - 4*a*b^8*c^3*d + 6*a
^2*b^7*c^2*d^2 - 4*a^3*b^6*c*d^3 + a^4*b^5*d^4) - (10*b^2*c^7 - 2
8*a*b*c^6*d + 21*a^2*c^5*d^2)*log(d*x + c)/(b^4*c^4*d^6 - 4*a*b^3
*c^3*d^7 + 6*a^2*b^2*c^2*d^8 - 4*a^3*b*c*d^9 + a^4*d^10) - 1/2*(9
*a*b^6*c^8 - 13*a^2*b^5*c^7*d - 2*a^7*c^2*d^6 + 2*(5*b^7*c^7*d -
7*a*b^6*c^6*d^2 - a^7*d^8)*x^2 + (9*b^7*c^8 - 3*a*b^6*c^7*d - 14*
a^2*b^5*c^6*d^2 - 4*a^7*c*d^7)*x)/(a*b^8*c^5*d^6 - 3*a^2*b^7*c^4*
d^7 + 3*a^3*b^6*c^3*d^8 - a^4*b^5*c^2*d^9 + (b^9*c^3*d^8 - 3*a*b^
```

```
8*c^2*d^9 + 3*a^2*b^7*c*d^10 - a^3*b^6*d^11)*x^3 + (2*b^9*c^4*d^7
 - 5*a*b^8*c^3*d^8 + 3*a^2*b^7*c^2*d^9 + a^3*b^6*c*d^10 - a^4*b^5
*d^11)*x^2 + (b^9*c^5*d^6 - a*b^8*c^4*d^7 - 3*a^2*b^7*c^3*d^8 + 5
*a^3*b^6*c^2*d^9 - 2*a^4*b^5*c*d^10)*x) + 1/6*(2*b^2*d^2*x^3 - 3*
(3*b^2*c*d + 2*a*b*d^2)*x^2 + 18*(2*b^2*c^2 + 2*a*b*c*d + a^2*d^2
)*x)/(b^4*d^5)
```

Fricas [A] time = 0.369095, size = 1621, normalized size = 7.02

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^7/((b*x + a)^2*(d*x + c)^3),x, algorithm="fricas")
```

```
[Out] -1/6*(27*a*b^7*c^9 - 66*a^2*b^6*c^8*d + 39*a^3*b^5*c^7*d^2 - 6*a^
7*b*c^3*d^6 + 6*a^8*c^2*d^7 - 2*(b^8*c^4*d^5 - 4*a*b^7*c^3*d^6 +
6*a^2*b^6*c^2*d^7 - 4*a^3*b^5*c*d^8 + a^4*b^4*d^9)*x^6 + (5*b^8*c
^5*d^4 - 16*a*b^7*c^4*d^5 + 14*a^2*b^6*c^3*d^6 + 4*a^3*b^5*c^2*d^
7 - 11*a^4*b^4*c*d^8 + 4*a^5*b^3*d^9)*x^5 - (20*b^8*c^6*d^3 - 61*
a*b^7*c^5*d^4 + 56*a^2*b^6*c^4*d^5 - 14*a^3*b^5*c^3*d^6 + 16*a^4*
b^4*c^2*d^7 - 29*a^5*b^3*c*d^8 + 12*a^6*b^2*d^9)*x^4 - (63*b^8*c^
7*d^2 - 166*a*b^7*c^6*d^3 + 94*a^2*b^6*c^5*d^4 + 42*a^3*b^5*c^4*d
^5 + 7*a^4*b^4*c^3*d^6 - 46*a^5*b^3*c^2*d^7 - 12*a^6*b^2*c*d^8 +
18*a^7*b*d^9)*x^3 - 3*(2*b^8*c^8*d + 9*a*b^7*c^7*d^2 - 46*a^2*b^6
*c^6*d^3 + 50*a^3*b^5*c^5*d^4 - 7*a^5*b^3*c^3*d^6 - 20*a^6*b^2*c^
2*d^7 + 14*a^7*b*c*d^8 - 2*a^8*d^9)*x^2 + 3*(9*b^8*c^9 - 24*a*b^7
*c^8*d + 25*a^2*b^6*c^7*d^2 - 16*a^3*b^5*c^6*d^3 + 12*a^6*b^2*c^3
*d^6 - 10*a^7*b*c^2*d^7 + 4*a^8*c*d^8)*x - 6*(7*a^7*b*c^3*d^6 - 4
*a^8*c^2*d^7 + (7*a^6*b^2*c*d^8 - 4*a^7*b*d^9)*x^3 + (14*a^6*b^2*
c^2*d^7 - a^7*b*c*d^8 - 4*a^8*d^9)*x^2 + (7*a^6*b^2*c^3*d^6 + 10*
a^7*b*c^2*d^7 - 8*a^8*c*d^8)*x)*log(b*x + a) + 6*(10*a*b^7*c^9 -
28*a^2*b^6*c^8*d + 21*a^3*b^5*c^7*d^2 + (10*b^8*c^7*d^2 - 28*a*b^
7*c^6*d^3 + 21*a^2*b^6*c^5*d^4)*x^3 + (20*b^8*c^8*d - 46*a*b^7*c^
7*d^2 + 14*a^2*b^6*c^6*d^3 + 21*a^3*b^5*c^5*d^4)*x^2 + (10*b^8*c^
9 - 8*a*b^7*c^8*d - 35*a^2*b^6*c^7*d^2 + 42*a^3*b^5*c^6*d^3)*x)*l
og(d*x + c))/(a*b^9*c^6*d^6 - 4*a^2*b^8*c^5*d^7 + 6*a^3*b^7*c^4*d
^8 - 4*a^4*b^6*c^3*d^9 + a^5*b^5*c^2*d^10 + (b^10*c^4*d^8 - 4*a*b
^9*c^3*d^9 + 6*a^2*b^8*c^2*d^10 - 4*a^3*b^7*c*d^11 + a^4*b^6*d^12
)*x^3 + (2*b^10*c^5*d^7 - 7*a*b^9*c^4*d^8 + 8*a^2*b^8*c^3*d^9 - 2
*a^3*b^7*c^2*d^10 - 2*a^4*b^6*c*d^11 + a^5*b^5*d^12)*x^2 + (b^10*
c^6*d^6 - 2*a*b^9*c^5*d^7 - 2*a^2*b^8*c^4*d^8 + 8*a^3*b^7*c^3*d^9
 - 7*a^4*b^6*c^2*d^10 + 2*a^5*b^5*c*d^11)*x)
```

Sympy [A] time = 67.7361, size = 1221, normalized size = 5.29

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**7/(b*x+a)**2/(d*x+c)**3,x)
```

```
[Out] -a**6*(4*a*d - 7*b*c)*log(x + (a**11*d**10*(4*a*d - 7*b*c)/(b*(a*
d - b*c)**4) - 5*a**10*c*d**9*(4*a*d - 7*b*c)/(a*d - b*c)**4 + 10
*a**9*b*c**2*d**8*(4*a*d - 7*b*c)/(a*d - b*c)**4 - 10*a**8*b**2*c
**3*d**7*(4*a*d - 7*b*c)/(a*d - b*c)**4 + 5*a**7*b**3*c**4*d**6*(
4*a*d - 7*b*c)/(a*d - b*c)**4 + 4*a**7*c*d**6 - a**6*b**4*c**5*d*
*5*(4*a*d - 7*b*c)/(a*d - b*c)**4 - 7*a**6*b*c**2*d**5 - 21*a**3*
b**4*c**5*d**2 + 28*a**2*b**5*c**6*d - 10*a*b**6*c**7)/(4*a**7*d*
*7 - 7*a**6*b*c*d**6 - 21*a**2*b**5*c**5*d**2 + 28*a*b**6*c**6*d
- 10*b**7*c**7))/(b**5*(a*d - b*c)**4) - c**5*(21*a**2*d**2 - 28*
a*b*c*d + 10*b**2*c**2)*log(x + (4*a**7*c*d**6 - 7*a**6*b*c**2*d*
*5 + a**5*b**4*c**5*d**4*(21*a**2*d**2 - 28*a*b*c*d + 10*b**2*c**
2)/(a*d - b*c)**4 - 5*a**4*b**5*c**6*d**3*(21*a**2*d**2 - 28*a*b*
c*d + 10*b**2*c**2)/(a*d - b*c)**4 + 10*a**3*b**6*c**7*d**2*(21*a
```

```
**2*d**2 - 28*a*b*c*d + 10*b**2*c**2)/(a*d - b*c)**4 - 21*a**3*b*
*4*c**5*d**2 - 10*a**2*b**7*c**8*d*(21*a**2*d**2 - 28*a*b*c*d + 1
0*b**2*c**2)/(a*d - b*c)**4 + 28*a**2*b**5*c**6*d + 5*a*b**8*c**9
*(21*a**2*d**2 - 28*a*b*c*d + 10*b**2*c**2)/(a*d - b*c)**4 - 10*a
*b**6*c**7 - b**9*c**10*(21*a**2*d**2 - 28*a*b*c*d + 10*b**2*c**2
)/(d*(a*d - b*c)**4))/(4*a**7*d**7 - 7*a**6*b*c*d**6 - 21*a**2*b*
*5*c**5*d**2 + 28*a*b**6*c**6*d - 10*b**7*c**7))/(d**6*(a*d - b*c
)**4) - (2*a**7*c**2*d**6 + 13*a**2*b**5*c**7*d - 9*a*b**6*c**8 +
 x**2*(2*a**7*d**8 + 14*a*b**6*c**6*d**2 - 10*b**7*c**7*d) + x*(4
*a**7*c*d**7 + 14*a**2*b**5*c**6*d**2 + 3*a*b**6*c**7*d - 9*b**7*
c**8))/(2*a**4*b**5*c**2*d**9 - 6*a**3*b**6*c**3*d**8 + 6*a**2*b*
*7*c**4*d**7 - 2*a*b**8*c**5*d**6 + x**3*(2*a**3*b**6*d**11 - 6*a
**2*b**7*c*d**10 + 6*a*b**8*c**2*d**9 - 2*b**9*c**3*d**8) + x**2*
(2*a**4*b**5*d**11 - 2*a**3*b**6*c*d**10 - 6*a**2*b**7*c**2*d**9
+ 10*a*b**8*c**3*d**8 - 4*b**9*c**4*d**7) + x*(4*a**4*b**5*c*d**1
0 - 10*a**3*b**6*c**2*d**9 + 6*a**2*b**7*c**3*d**8 + 2*a*b**8*c**
4*d**7 - 2*b**9*c**5*d**6)) + x**3/(3*b**2*d**3) - x**2*(2*a*d +
3*b*c)/(2*b**3*d**4) + x*(3*a**2*d**2 + 6*a*b*c*d + 6*b**2*c**2)/
(b**4*d**5)
```

GIAC/XCAS [A] time = 0.347273, size = 1004, normalized size = 4.35

$$\frac{a^7b^6}{(b^{14}c^3 - 3\,ab^{13}c^2d + 3\,a^2b^{12}cd^2 - a^3b^{11}d^3)(bx+a)} - \frac{\left(10\,b^3c^7 - 28\,ab^2c^6d + 21\,a^2bc^5d^2\right)\ln\left(\left|\frac{bc}{bx+a} - \frac{ad}{bx+a} + d\right|\right)}{b^5c^4d^6 - 4\,ab^4c^3d^7 + 6\,a^2b^3c^2d^8 - 4\,a^3b^2cd^9 + a^4bd^{10}} + \frac{\left(10\,b^3c^3 + 12\,ab^2c^2d + 9\,a^2bcd^2 + 4\,a^3d^3\right)\ln\left(\frac{|bx+a|}{(bx+a)^2|b|}\right)}{b^5d^6} + \frac{\left(2\,b^4c^4d^5 - 8\,ab^3c^3d^6 + 12\,a^2b^2c^2d^7 - 8\,a^3bcd^8 + 2\,a^4d^9 - \frac{5\,b^6c^5d^4 - 4\,ab^5c^4d^5 - 34\,a^2b^4c^3d^6 + 76\,a^3b^3c^2d^7 - 59\,a^4b^2cd^8 + 16\,a^5bd^9}{(bx+a)b} + \frac{2\,(10\,b^{8}}{}\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^7/((b*x + a)^2*(d*x + c)^3),x, algorithm="giac")
```

```
[Out] a^7*b^6/((b^14*c^3 - 3*a*b^13*c^2*d + 3*a^2*b^12*c*d^2 - a^3*b^11
*d^3)*(b*x + a)) - (10*b^3*c^7 - 28*a*b^2*c^6*d + 21*a^2*b*c^5*d^
2)*ln(abs(b*c/(b*x + a) - a*d/(b*x + a) + d))/(b^5*c^4*d^6 - 4*a*
b^4*c^3*d^7 + 6*a^2*b^3*c^2*d^8 - 4*a^3*b^2*c*d^9 + a^4*b*d^10) +
 (10*b^3*c^3 + 12*a*b^2*c^2*d + 9*a^2*b*c*d^2 + 4*a^3*d^3)*ln(abs
(b*x + a)/((b*x + a)^2*abs(b)))/(b^5*d^6) + 1/6*(2*b^4*c^4*d^5 -
8*a*b^3*c^3*d^6 + 12*a^2*b^2*c^2*d^7 - 8*a^3*b*c*d^8 + 2*a^4*d^9
- (5*b^6*c^5*d^4 - 4*a*b^5*c^4*d^5 - 34*a^2*b^4*c^3*d^6 + 76*a^3*
b^3*c^2*d^7 - 59*a^4*b^2*c*d^8 + 16*a^5*b*d^9)/((b*x + a)*b) + 2*
(10*b^8*c^6*d^3 - 18*a*b^7*c^5*d^4 + 3*a^2*b^6*c^4*d^5 - 32*a^3*b
^5*c^3*d^6 + 108*a^4*b^4*c^2*d^7 - 102*a^5*b^3*c*d^8 + 31*a^6*b^2
*d^9)/((b*x + a)^2*b^2) + 3*(30*b^10*c^7*d^2 - 84*a*b^9*c^6*d^3 +
 63*a^2*b^8*c^5*d^4 + 35*a^4*b^6*c^3*d^6 - 126*a^5*b^5*c^2*d^7 +
105*a^6*b^4*c*d^8 - 28*a^7*b^3*d^9)/((b*x + a)^3*b^3) + 6*(10*b^1
2*c^8*d - 38*a*b^11*c^7*d^2 + 49*a^2*b^10*c^6*d^3 - 21*a^3*b^9*c^
5*d^4 - 21*a^5*b^7*c^3*d^6 + 42*a^6*b^6*c^2*d^7 - 27*a^7*b^5*c*d^
8 + 6*a^8*b^4*d^9)/((b*x + a)^4*b^4))*(b*x + a)^3/((b*c - a*d)^4*
b^5*(b*c/(b*x + a) - a*d/(b*x + a) + d)^2*d^6)
```

3.260 $\int \frac{x^6}{(a+bx)^2(c+dx)^3} \, dx$

Optimal. Leaf size=198

$$-\frac{a^6}{b^4(a+bx)(bc-ad)^3}-\frac{3a^5(2bc-ad)\log(a+bx)}{b^4(bc-ad)^4}+\frac{3c^4\left(5a^2d^2-6abcd+2b^2c^2\right)\log(c+dx)}{d^5(bc-ad)^4}-\frac{x(2ad+3bc)}{b^3d^4}-\frac{c^6}{2d^5(c+dx)^2(bc-ad)^2}+\frac{2c^5(2bc-3ad)}{d^5(c+dx)(bc-ad)^3}+\frac{x^2}{2b^2d^3}$$

```
[Out] -(((3*b*c + 2*a*d)*x)/(b^3*d^4)) + x^2/(2*b^2*d^3) - a^6/(b^4*(b*
c - a*d)^3*(a + b*x)) - c^6/(2*d^5*(b*c - a*d)^2*(c + d*x)^2) + (
2*c^5*(2*b*c - 3*a*d))/(d^5*(b*c - a*d)^3*(c + d*x)) - (3*a^5*(2*
b*c - a*d)*Log[a + b*x])/(b^4*(b*c - a*d)^4) + (3*c^4*(2*b^2*c^2
- 6*a*b*c*d + 5*a^2*d^2)*Log[c + d*x])/(d^5*(b*c - a*d)^4)
```

Rubi [A] time = 0.537814, antiderivative size = 198, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{a^6}{b^4(a+bx)(bc-ad)^3}-\frac{3a^5(2bc-ad)\log(a+bx)}{b^4(bc-ad)^4}+\frac{3c^4\left(5a^2d^2-6abcd+2b^2c^2\right)\log(c+dx)}{d^5(bc-ad)^4}-\frac{x(2ad+3bc)}{b^3d^4}-\frac{c^6}{2d^5(c+dx)^2(bc-ad)^2}+\frac{2c^5(2bc-3ad)}{d^5(c+dx)(bc-ad)^3}+\frac{x^2}{2b^2d^3}$$

Antiderivative was successfully verified.

```
[In]  Int[x^6/((a + b*x)^2*(c + d*x)^3),x]
```

```
[Out] -(((3*b*c + 2*a*d)*x)/(b^3*d^4)) + x^2/(2*b^2*d^3) - a^6/(b^4*(b*
c - a*d)^3*(a + b*x)) - c^6/(2*d^5*(b*c - a*d)^2*(c + d*x)^2) + (
2*c^5*(2*b*c - 3*a*d))/(d^5*(b*c - a*d)^3*(c + d*x)) - (3*a^5*(2*
b*c - a*d)*Log[a + b*x])/(b^4*(b*c - a*d)^4) + (3*c^4*(2*b^2*c^2
- 6*a*b*c*d + 5*a^2*d^2)*Log[c + d*x])/(d^5*(b*c - a*d)^4)
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{a^6}{b^4\,(a+bx)\,(ad-bc)^3}+\frac{3a^5\,(ad-2bc)\log{(a+bx)}}{b^4\,(ad-bc)^4}-\frac{c^6}{2d^5\,(c+dx)^2\,(ad-bc)^2}+\frac{2c^5\,(3ad-2bc)}{d^5\,(c+dx)\,(ad-bc)^3}+\frac{3c^4\,\left(5a^2d^2-6abcd+2b^2c^2\right)\log{(c+dx)}}{d^5\,(ad-bc)^4}-\frac{(2ad+3bc)\int\frac{1}{b^3}\,dx}{d^4}+\frac{\int x\,dx}{b^2d^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**6/(b*x+a)**2/(d*x+c)**3,x)
```

```
[Out] a**6/(b**4*(a + b*x)*(a*d - b*c)**3) + 3*a**5*(a*d - 2*b*c)*log(a
 + b*x)/(b**4*(a*d - b*c)**4) - c**6/(2*d**5*(c + d*x)**2*(a*d -
b*c)**2) + 2*c**5*(3*a*d - 2*b*c)/(d**5*(c + d*x)*(a*d - b*c)**3)
 + 3*c**4*(5*a**2*d**2 - 6*a*b*c*d + 2*b**2*c**2)*log(c + d*x)/(d
**5*(a*d - b*c)**4) - (2*a*d + 3*b*c)*Integral(b**(-3), x)/d**4 +
 Integral(x, x)/(b**2*d**3)
```

Mathematica [A] time = 0.461138, size = 198, normalized size = 1.

$$-\frac{a^6}{b^4(a+bx)(bc-ad)^3}+\frac{3a^5(ad-2bc)\log(a+bx)}{b^4(bc-ad)^4}+\frac{3c^4\left(5a^2d^2-6abcd+2b^2c^2\right)\log(c+dx)}{d^5(bc-ad)^4}-\frac{x(2ad+3bc)}{b^3d^4}-\frac{c^6}{2d^5(c+dx)^2(bc-ad)^2}+\frac{6ac^5d-4bc^6}{d^5(c+dx)(ad-bc)^3}+\frac{x^2}{2b^2d^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^6/((a + b*x)^2*(c + d*x)^3),x]
```

```
[Out] -(((3*b*c + 2*a*d)*x)/(b^3*d^4)) + x^2/(2*b^2*d^3) - a^6/(b^4*(b*
c - a*d)^3*(a + b*x)) - c^6/(2*d^5*(b*c - a*d)^2*(c + d*x)^2) + (
-4*b*c^6 + 6*a*c^5*d)/(d^5*(-(b*c) + a*d)^3*(c + d*x)) + (3*a^5*(
-2*b*c + a*d)*Log[a + b*x])/(b^4*(b*c - a*d)^4) + (3*c^4*(2*b^2*c
^2 - 6*a*b*c*d + 5*a^2*d^2)*Log[c + d*x])/(d^5*(b*c - a*d)^4)
```

Maple [A] time = 0.026, size = 264, normalized size = 1.3

$$\frac{x^2}{2b^2d^3} - 2\frac{ax}{d^3b^3} - 3\frac{cx}{b^2d^4} - \frac{c^6}{2d^5(ad-bc)^2(dx+c)^2} + 15\frac{c^4\ln(dx+c)a^2}{d^3(ad-bc)^4} - 18\frac{c^5\ln(dx+c)ab}{d^4(ad-bc)^4} + 6\frac{c^6\ln(dx+c)b^2}{d^5(ad-bc)^4} + 6\frac{c^5a}{d^4(ad-bc)^3(dx+c)} - 4\frac{c^6b}{(ad-bc)^3d^5(dx+c)} + \frac{a^6}{b^4(ad-bc)^3(bx+a)} + 3\frac{a^6\ln(bx+a)d}{b^4(ad-bc)^4} - 6\frac{a^5\ln(bx+a)c}{b^3(ad-bc)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^6/(b*x+a)^2/(d*x+c)^3,x)
```

```
[Out] 1/2*x^2/b^2/d^3-2/b^3/d^3*a*x-3/b^2/d^4*x*c-1/2/d^5*c^6/(a*d-b*c)
^2/(d*x+c)^2+15/d^3*c^4/(a*d-b*c)^4*ln(d*x+c)*a^2-18/d^4*c^5/(a*d
-b*c)^4*ln(d*x+c)*a*b+6/d^5*c^6/(a*d-b*c)^4*ln(d*x+c)*b^2+6/d^4*c
^5/(a*d-b*c)^3/(d*x+c)*a-4/d^5*c^6/(a*d-b*c)^3/(d*x+c)*b+1/b^4*a^
6/(a*d-b*c)^3/(b*x+a)+3/b^4*a^6/(a*d-b*c)^4*ln(b*x+a)*d-6/b^3*a^5
/(a*d-b*c)^4*ln(b*x+a)*c
```

Maxima [A] time = 1.40511, size = 738, normalized size = 3.73

$$-\frac{3\left(2a^5bc - a^6d\right)\log(bx+a)}{b^8c^4 - 4ab^7c^3d + 6a^2b^6c^2d^2 - 4a^3b^5cd^3 + a^4b^4d^4} + \frac{3\left(2b^2c^6 - 6abc^5d + 5a^2c^4d^2\right)\log(dx+c)}{b^4c^4d^5 - 4ab^3c^3d^6 + 6a^2b^2c^2d^7 - 4a^3bcd^8 + a^4d^9} + \frac{7ab^5c^7 - 11a^2b^4c^6d - 2a^6c^2d^5 + 2\left(4b^6c^6d - 6ab^5c^5d^2 - a^6d^7\right)x^2 + (}{2(ab^7c^5d^5 - 3a^2b^6c^4d^6 + 3a^3b^5c^3d^7 - a^4b^4c^2d^8 + (b^8c^3d^7 - 3ab^7c^2d^8 + 3a^2b^6cd^9 - a^3b^5d^{10})x^3 + (2b^8c^4d^6 - 5ab^7c^3d^7 + } + \frac{bdx^2 - 2(3bc+2ad)x}{2b^3d^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^6/((b*x + a)^2*(d*x + c)^3),x, algorithm="maxima")
```

```
[Out] -3*(2*a^5*b*c - a^6*d)*log(b*x + a)/(b^8*c^4 - 4*a*b^7*c^3*d + 6*
a^2*b^6*c^2*d^2 - 4*a^3*b^5*c*d^3 + a^4*b^4*d^4) + 3*(2*b^2*c^6 -
 6*a*b*c^5*d + 5*a^2*c^4*d^2)*log(d*x + c)/(b^4*c^4*d^5 - 4*a*b^3
*c^3*d^6 + 6*a^2*b^2*c^2*d^7 - 4*a^3*b*c*d^8 + a^4*d^9) + 1/2*(7*
a*b^5*c^7 - 11*a^2*b^4*c^6*d - 2*a^6*c^2*d^5 + 2*(4*b^6*c^6*d - 6
*a*b^5*c^5*d^2 - a^6*d^7)*x^2 + (7*b^6*c^7 - 3*a*b^5*c^6*d - 12*a
^2*b^4*c^5*d^2 - 4*a^6*c*d^6)*x)/(a*b^7*c^5*d^5 - 3*a^2*b^6*c^4*d
^6 + 3*a^3*b^5*c^3*d^7 - a^4*b^4*c^2*d^8 + (b^8*c^3*d^7 - 3*a*b^7
*c^2*d^8 + 3*a^2*b^6*c*d^9 - a^3*b^5*d^10)*x^3 + (2*b^8*c^4*d^6 -
 5*a*b^7*c^3*d^7 + 3*a^2*b^6*c^2*d^8 + a^3*b^5*c*d^9 - a^4*b^4*d^
10)*x^2 + (b^8*c^5*d^5 - a*b^7*c^4*d^6 - 3*a^2*b^6*c^3*d^7 + 5*a^
3*b^5*c^2*d^8 - 2*a^4*b^4*c*d^9)*x) + 1/2*(b*d*x^2 - 2*(3*b*c + 2
*a*d)*x)/(b^3*d^4)
```

Fricas [A] time = 0.294318, size = 1459, normalized size = 7.37

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^6/((b*x + a)^2*(d*x + c)^3),x, algorithm="fricas")
```

```
[Out] 1/2*(7*a*b^6*c^8 - 18*a^2*b^5*c^7*d + 11*a^3*b^4*c^6*d^2 - 2*a^6*
b*c^3*d^5 + 2*a^7*c^2*d^6 + (b^7*c^4*d^4 - 4*a*b^6*c^3*d^5 + 6*a^
2*b^5*c^2*d^6 - 4*a^3*b^4*c*d^7 + a^4*b^3*d^8)*x^5 - (4*b^7*c^5*d
^3 - 13*a*b^6*c^4*d^4 + 12*a^2*b^5*c^3*d^5 + 2*a^3*b^4*c^2*d^6 -
8*a^4*b^3*c*d^7 + 3*a^5*b^2*d^8)*x^4 - (11*b^7*c^6*d^2 - 32*a*b^6
*c^5*d^3 + 22*a^2*b^5*c^4*d^4 + 12*a^3*b^4*c^3*d^5 - 13*a^4*b^3*c
^2*d^6 - 4*a^5*b^2*c*d^7 + 4*a^6*b*d^8)*x^3 + (2*b^7*c^7*d - 11*a
*b^6*c^6*d^2 + 28*a^2*b^5*c^5*d^3 - 34*a^3*b^4*c^4*d^4 + 6*a^4*b^
3*c^3*d^5 + 17*a^5*b^2*c^2*d^6 - 10*a^6*b*c*d^7 + 2*a^7*d^8)*x^2
+ (7*b^7*c^8 - 16*a*b^6*c^7*d + 11*a^2*b^5*c^6*d^2 - 8*a^3*b^4*c^
5*d^3 + 10*a^5*b^2*c^3*d^5 - 8*a^6*b*c^2*d^6 + 4*a^7*c*d^7)*x - 6
*(2*a^6*b*c^3*d^5 - a^7*c^2*d^6 + (2*a^5*b^2*c*d^7 - a^6*b*d^8)*x
^3 + (4*a^5*b^2*c^2*d^6 - a^7*d^8)*x^2 + (2*a^5*b^2*c^3*d^5 + 3*a
^6*b*c^2*d^6 - 2*a^7*c*d^7)*x)*log(b*x + a) + 6*(2*a*b^6*c^8 - 6*
a^2*b^5*c^7*d + 5*a^3*b^4*c^6*d^2 + (2*b^7*c^6*d^2 - 6*a*b^6*c^5*
d^3 + 5*a^2*b^5*c^4*d^4)*x^3 + (4*b^7*c^7*d - 10*a*b^6*c^6*d^2 +
4*a^2*b^5*c^5*d^3 + 5*a^3*b^4*c^4*d^4)*x^2 + (2*b^7*c^8 - 2*a*b^6
*c^7*d - 7*a^2*b^5*c^6*d^2 + 10*a^3*b^4*c^5*d^3)*x)*log(d*x + c))
/(a*b^8*c^6*d^5 - 4*a^2*b^7*c^5*d^6 + 6*a^3*b^6*c^4*d^7 - 4*a^4*b
^5*c^3*d^8 + a^5*b^4*c^2*d^9 + (b^9*c^4*d^7 - 4*a*b^8*c^3*d^8 + 6
*a^2*b^7*c^2*d^9 - 4*a^3*b^6*c*d^10 + a^4*b^5*d^11)*x^3 + (2*b^9*
c^5*d^6 - 7*a*b^8*c^4*d^7 + 8*a^2*b^7*c^3*d^8 - 2*a^3*b^6*c^2*d^9
 - 2*a^4*b^5*c*d^10 + a^5*b^4*d^11)*x^2 + (b^9*c^6*d^5 - 2*a*b^8*
c^5*d^6 - 2*a^2*b^7*c^4*d^7 + 8*a^3*b^6*c^3*d^8 - 7*a^4*b^5*c^2*d
^9 + 2*a^5*b^4*c*d^10)*x)
```

Sympy [A] time = 54.4438, size = 1182, normalized size = 5.97

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**6/(b*x+a)**2/(d*x+c)**3,x)
```

```
[Out] 3*a**5*(a*d - 2*b*c)*log(x + (3*a**10*d**9*(a*d - 2*b*c)/(b*(a*d
- b*c)**4) - 15*a**9*c*d**8*(a*d - 2*b*c)/(a*d - b*c)**4 + 30*a**
8*b*c**2*d**7*(a*d - 2*b*c)/(a*d - b*c)**4 - 30*a**7*b**2*c**3*d*
*6*(a*d - 2*b*c)/(a*d - b*c)**4 + 15*a**6*b**3*c**4*d**5*(a*d - 2
*b*c)/(a*d - b*c)**4 + 3*a**6*c*d**5 - 3*a**5*b**4*c**5*d**4*(a*d
 - 2*b*c)/(a*d - b*c)**4 - 6*a**5*b*c**2*d**4 - 15*a**3*b**3*c**4
*d**2 + 18*a**2*b**4*c**5*d - 6*a*b**5*c**6)/(3*a**6*d**6 - 6*a**
5*b*c*d**5 - 15*a**2*b**4*c**4*d**2 + 18*a*b**5*c**5*d - 6*b**6*c
**6))/(b**4*(a*d - b*c)**4) + 3*c**4*(5*a**2*d**2 - 6*a*b*c*d + 2
*b**2*c**2)*log(x + (3*a**6*c*d**5 + 3*a**5*b**3*c**4*d**4*(5*a**
2*d**2 - 6*a*b*c*d + 2*b**2*c**2)/(a*d - b*c)**4 - 6*a**5*b*c**2*
d**4 - 15*a**4*b**4*c**5*d**3*(5*a**2*d**2 - 6*a*b*c*d + 2*b**2*c
**2)/(a*d - b*c)**4 + 30*a**3*b**5*c**6*d**2*(5*a**2*d**2 - 6*a*b
*c*d + 2*b**2*c**2)/(a*d - b*c)**4 - 15*a**3*b**3*c**4*d**2 - 30*
a**2*b**6*c**7*d*(5*a**2*d**2 - 6*a*b*c*d + 2*b**2*c**2)/(a*d - b
*c)**4 + 18*a**2*b**4*c**5*d + 15*a*b**7*c**8*(5*a**2*d**2 - 6*a*
b*c*d + 2*b**2*c**2)/(a*d - b*c)**4 - 6*a*b**5*c**6 - 3*b**8*c**9
*(5*a**2*d**2 - 6*a*b*c*d + 2*b**2*c**2)/(d*(a*d - b*c)**4))/(3*a
**6*d**6 - 6*a**5*b*c*d**5 - 15*a**2*b**4*c**4*d**2 + 18*a*b**5*c
**5*d - 6*b**6*c**6))/(d**5*(a*d - b*c)**4) + (2*a**6*c**2*d**5 +
 11*a**2*b**4*c**6*d - 7*a*b**5*c**7 + x**2*(2*a**6*d**7 + 12*a*b
**5*c**5*d**2 - 8*b**6*c**6*d) + x*(4*a**6*c*d**6 + 12*a**2*b**4*
c**5*d**2 + 3*a*b**5*c**6*d - 7*b**6*c**7))/(2*a**4*b**4*c**2*d**
8 - 6*a**3*b**5*c**3*d**7 + 6*a**2*b**6*c**4*d**6 - 2*a*b**7*c**5
*d**5 + x**3*(2*a**3*b**5*d**10 - 6*a**2*b**6*c*d**9 + 6*a*b**7*c
**2*d**8 - 2*b**8*c**3*d**7) + x**2*(2*a**4*b**4*d**10 - 2*a**3*b
**5*c*d**9 - 6*a**2*b**6*c**2*d**8 + 10*a*b**7*c**3*d**7 - 4*b**8
*c**4*d**6) + x*(4*a**4*b**4*c*d**9 - 10*a**3*b**5*c**2*d**8 + 6*
a**2*b**6*c**3*d**7 + 2*a*b**7*c**4*d**6 - 2*b**8*c**5*d**5)) + x
**2/(2*b**2*d**3) - x*(2*a*d + 3*b*c)/(b**3*d**4)
```

GIAC/XCAS [A] time = 0.27125, size = 838, normalized size = 4.23

$$-\frac{a^{6}b^{5}}{(b^{12}c^{3}-3\,ab^{11}c^{2}d+3\,a^{2}b^{10}cd^{2}-a^{3}b^{9}d^{3})(bx+a)}+\frac{3\,\left(2\,b^{3}c^{6}-6\,ab^{2}c^{5}d+5\,a^{2}bc^{4}d^{2}\right)\ln\left(\left|\frac{bc}{bx+a}-\frac{ad}{bx+a}+d\right|\right)}{b^{5}c^{4}d^{5}-4\,ab^{4}c^{3}d^{6}+6\,a^{2}b^{3}c^{2}d^{7}-4\,a^{3}b^{2}cd^{8}+a^{4}bd^{9}}-\frac{3\,\left(2\,b^{2}c^{2}+2\,abcd+a^{2}d^{2}\right)\ln\left(\frac{|bx+a|}{(bx+a)^{2}|b|}\right)}{b^{4}d^{5}}+\frac{\left(b^{4}c^{4}d^{3}-4\,ab^{3}c^{3}d^{4}+6\,a^{2}b^{2}c^{2}d^{5}-4\,a^{3}bcd^{6}+a^{4}d^{7}-\frac{4\,\left(b^{6}c^{5}d^{2}-2\,ab^{5}c^{4}d^{3}-2\,a^{2}b^{4}c^{3}d^{4}+8\,a^{3}b^{3}c^{2}d^{5}-7\,a^{4}b^{2}cd^{6}+2\,a^{5}bd^{7}\right)}{(bx+a)b}-\frac{18\,b^{8}c^{6}d-54\,a\cdots}{\cdots}\cdots}{2\,(bc-a\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^6/((b*x + a)^2*(d*x + c)^3),x, algorithm="giac")
```

```
[Out] -a^6*b^5/((b^12*c^3 - 3*a*b^11*c^2*d + 3*a^2*b^10*c*d^2 - a^3*b^9
*d^3)*(b*x + a)) + 3*(2*b^3*c^6 - 6*a*b^2*c^5*d + 5*a^2*b*c^4*d^2
)*ln(abs(b*c/(b*x + a) - a*d/(b*x + a) + d))/(b^5*c^4*d^5 - 4*a*b
^4*c^3*d^6 + 6*a^2*b^3*c^2*d^7 - 4*a^3*b^2*c*d^8 + a^4*b*d^9) - 3
*(2*b^2*c^2 + 2*a*b*c*d + a^2*d^2)*ln(abs(b*x + a)/((b*x + a)^2*a
bs(b)))/(b^4*d^5) + 1/2*(b^4*c^4*d^3 - 4*a*b^3*c^3*d^4 + 6*a^2*b^
2*c^2*d^5 - 4*a^3*b*c*d^6 + a^4*d^7 - 4*(b^6*c^5*d^2 - 2*a*b^5*c^
4*d^3 - 2*a^2*b^4*c^3*d^4 + 8*a^3*b^3*c^2*d^5 - 7*a^4*b^2*c*d^6 +
 2*a^5*b*d^7)/((b*x + a)*b) - (18*b^8*c^6*d - 54*a*b^7*c^5*d^2 +
45*a^2*b^6*c^4*d^3 + 20*a^3*b^5*c^3*d^4 - 75*a^4*b^4*c^2*d^5 + 54
*a^5*b^3*c*d^6 - 13*a^6*b^2*d^7)/((b*x + a)^2*b^2) - 6*(2*b^10*c^
7 - 8*a*b^9*c^6*d + 11*a^2*b^8*c^5*d^2 - 5*a^3*b^7*c^4*d^3 - 5*a^
4*b^6*c^3*d^4 + 9*a^5*b^5*c^2*d^5 - 5*a^6*b^4*c*d^6 + a^7*b^3*d^7
)/((b*x + a)^3*b^3))*(b*x + a)^2/((b*c - a*d)^4*b^4*(b*c/(b*x + a
) - a*d/(b*x + a) + d)^2*d^4)
```

3.261 $\int \frac{x^5}{(a+bx)^2(c+dx)^3}\,dx$

Optimal. Leaf size=173

$$\frac{a^5}{b^3(a+bx)(bc-ad)^3}+\frac{a^4(5bc-2ad)\log(a+bx)}{b^3(bc-ad)^4}-\frac{c^3\left(10a^2d^2-10abcd+3b^2c^2\right)\log(c+dx)}{d^4(bc-ad)^4}+\frac{c^5}{2d^4(c+dx)^2(bc-ad)^2}-\frac{c^4(3bc-5ad)}{d^4(c+dx)(bc-ad)^3}+\frac{x}{b^2d^3}$$

```
[Out] x/(b^2*d^3) + a^5/(b^3*(b*c - a*d)^3*(a + b*x)) + c^5/(2*d^4*(b*c
 - a*d)^2*(c + d*x)^2) - (c^4*(3*b*c - 5*a*d))/(d^4*(b*c - a*d)^3
*(c + d*x)) + (a^4*(5*b*c - 2*a*d)*Log[a + b*x])/(b^3*(b*c - a*d)
^4) - (c^3*(3*b^2*c^2 - 10*a*b*c*d + 10*a^2*d^2)*Log[c + d*x])/(d
^4*(b*c - a*d)^4)
```

Rubi [A] time = 0.427657, antiderivative size = 173, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{a^5}{b^3(a+bx)(bc-ad)^3}+\frac{a^4(5bc-2ad)\log(a+bx)}{b^3(bc-ad)^4}-\frac{c^3\left(10a^2d^2-10abcd+3b^2c^2\right)\log(c+dx)}{d^4(bc-ad)^4}+\frac{c^5}{2d^4(c+dx)^2(bc-ad)^2}-\frac{c^4(3bc-5ad)}{d^4(c+dx)(bc-ad)^3}+\frac{x}{b^2d^3}$$

Antiderivative was successfully verified.

```
[In]  Int[x^5/((a + b*x)^2*(c + d*x)^3),x]
```

```
[Out] x/(b^2*d^3) + a^5/(b^3*(b*c - a*d)^3*(a + b*x)) + c^5/(2*d^4*(b*c
 - a*d)^2*(c + d*x)^2) - (c^4*(3*b*c - 5*a*d))/(d^4*(b*c - a*d)^3
*(c + d*x)) + (a^4*(5*b*c - 2*a*d)*Log[a + b*x])/(b^3*(b*c - a*d)
^4) - (c^3*(3*b^2*c^2 - 10*a*b*c*d + 10*a^2*d^2)*Log[c + d*x])/(d
^4*(b*c - a*d)^4)
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{a^5}{b^3\left(a+bx\right)\left(ad-bc\right)^3}-\frac{a^4\left(2ad-5bc\right)\log\left(a+bx\right)}{b^3\left(ad-bc\right)^4}+\frac{c^5}{2d^4\left(c+dx\right)^2\left(ad-bc\right)^2}-\frac{c^4\left(5ad-3bc\right)}{d^4\left(c+dx\right)\left(ad-bc\right)^3}-\frac{c^3\left(10a^2d^2-10abcd+3b^2c^2\right)\log\left(c+dx\right)}{d^4\left(ad-bc\right)^4}+\frac{\int\frac{1}{b^2}\,dx}{d^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**5/(b*x+a)**2/(d*x+c)**3,x)
```

```
[Out] -a**5/(b**3*(a + b*x)*(a*d - b*c)**3) - a**4*(2*a*d - 5*b*c)*log(
a + b*x)/(b**3*(a*d - b*c)**4) + c**5/(2*d**4*(c + d*x)**2*(a*d -
 b*c)**2) - c**4*(5*a*d - 3*b*c)/(d**4*(c + d*x)*(a*d - b*c)**3)
- c**3*(10*a**2*d**2 - 10*a*b*c*d + 3*b**2*c**2)*log(c + d*x)/(d*
*4*(a*d - b*c)**4) + Integral(b**(-2), x)/d**3
```

Mathematica [A] time = 0.408516, size = 172, normalized size = 0.99

$$\frac{a^5}{b^3(a+bx)(bc-ad)^3}+\frac{a^4(5bc-2ad)\log(a+bx)}{b^3(bc-ad)^4}-\frac{c^3\left(10a^2d^2-10abcd+3b^2c^2\right)\log(c+dx)}{d^4(bc-ad)^4}+\frac{c^5}{2d^4(c+dx)^2(bc-ad)^2}+\frac{c^4(3bc-5ad)}{d^4(c+dx)(ad-bc)^3}+\frac{x}{b^2d^3}$$

Antiderivative was successfully verified.

```
[In]   Integrate[x^5/((a + b*x)^2*(c + d*x)^3),x]
```

```
[Out] x/(b^2*d^3) + a^5/(b^3*(b*c - a*d)^3*(a + b*x)) + c^5/(2*d^4*(b*c
 - a*d)^2*(c + d*x)^2) + (c^4*(3*b*c - 5*a*d))/(d^4*(-(b*c) + a*d
)^3*(c + d*x)) + (a^4*(5*b*c - 2*a*d)*Log[a + b*x])/(b^3*(b*c - a
*d)^4) - (c^3*(3*b^2*c^2 - 10*a*b*c*d + 10*a^2*d^2)*Log[c + d*x])
/(d^4*(b*c - a*d)^4)
```

Maple [A] time = 0.023, size = 242, normalized size = 1.4

$$\frac{x}{b^2d^3}-5\,\frac{c^4a}{d^3\,(ad-bc)^3\,(dx+c)}+3\,\frac{bc^5}{(ad-bc)^3\,d^4\,(dx+c)}+\frac{c^5}{2\,d^4\,(ad-bc)^2\,(dx+c)^2}-10\,\frac{c^3\ln(dx+c)\,a^2}{d^2\,(ad-bc)^4}+10\,\frac{c^4\ln(dx+c)\,ab}{d^3\,(ad-bc)^4}-3\,\frac{c^5\ln(dx+c)\,b^2}{d^4\,(ad-bc)^4}-\frac{a^5}{b^3\,(ad-bc)^3\,(bx+a)}-2\,\frac{a^5\ln(bx+a)\,d}{(ad-bc)^4\,b^3}+5\,\frac{a^4\ln(bx+a)\,c}{b^2\,(ad-bc)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int(x^5/(b*x+a)^2/(d*x+c)^3,x)
```

```
[Out] x/b^2/d^3-5/d^3*c^4/(a*d-b*c)^3/(d*x+c)*a+3/d^4*c^5/(a*d-b*c)^3/(
d*x+c)*b+1/2/d^4*c^5/(a*d-b*c)^2/(d*x+c)^2-10/d^2*c^3/(a*d-b*c)^4
*ln(d*x+c)*a^2+10/d^3*c^4/(a*d-b*c)^4*ln(d*x+c)*a*b-3/d^4*c^5/(a*
d-b*c)^4*ln(d*x+c)*b^2-1/b^3*a^5/(a*d-b*c)^3/(b*x+a)-2/b^3*a^5/(a
*d-b*c)^4*ln(b*x+a)*d+5/b^2*a^4/(a*d-b*c)^4*ln(b*x+a)*c
```

Maxima [A] time = 1.3882, size = 711, normalized size = 4.11

$$\frac{\left(5\,a^4bc-2\,a^5d\right)\log(bx+a)}{b^7c^4-4\,ab^6c^3d+6\,a^2b^5c^2d^2-4\,a^3b^4cd^3+a^4b^3d^4}-\frac{\left(3\,b^2c^5-10\,abc^4d+10\,a^2c^3d^2\right)\log(dx+c)}{b^4c^4d^4-4\,ab^3c^3d^5+6\,a^2b^2c^2d^6-4\,a^3bcd^7+a^4d^8}-\frac{5\,ab^4c^6-9\,a^2b^3c^5d-2\,a^5c^2d^4+2\left(3\,b^5c^5d-5\,ab^4c^4d^2-a^5d^6\right)x^2+(\ldots}{2\,(ab^6c^5d^4-3\,a^2b^5c^4d^5+3\,a^3b^4c^3d^6-a^4b^3c^2d^7+(b^7c^3d^6-3\,ab^6c^2d^7+3\,a^2b^5cd^8-a^3b^4d^9)x^3+(2\,b^7c^4d^5-5\,ab^6c^3d^6+\ldots}+\frac{x}{b^2d^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(x^5/((b*x + a)^2*(d*x + c)^3),x, algorithm="maxima")
```

```
[Out] (5*a^4*b*c - 2*a^5*d)*log(b*x + a)/(b^7*c^4 - 4*a*b^6*c^3*d + 6*a
^2*b^5*c^2*d^2 - 4*a^3*b^4*c*d^3 + a^4*b^3*d^4) - (3*b^2*c^5 - 10
*a*b*c^4*d + 10*a^2*c^3*d^2)*log(d*x + c)/(b^4*c^4*d^4 - 4*a*b^3*
c^3*d^5 + 6*a^2*b^2*c^2*d^6 - 4*a^3*b*c*d^7 + a^4*d^8) - 1/2*(5*a
*b^4*c^6 - 9*a^2*b^3*c^5*d - 2*a^5*c^2*d^4 + 2*(3*b^5*c^5*d - 5*a
*b^4*c^4*d^2 - a^5*d^6)*x^2 + (5*b^5*c^6 - 3*a*b^4*c^5*d - 10*a^2
*b^3*c^4*d^2 - 4*a^5*c*d^5)*x)/(a*b^6*c^5*d^4 - 3*a^2*b^5*c^4*d^5
 + 3*a^3*b^4*c^3*d^6 - a^4*b^3*c^2*d^7 + (b^7*c^3*d^6 - 3*a*b^6*c
^2*d^7 + 3*a^2*b^5*c*d^8 - a^3*b^4*d^9)*x^3 + (2*b^7*c^4*d^5 - 5*
a*b^6*c^3*d^6 + 3*a^2*b^5*c^2*d^7 + a^3*b^4*c*d^8 - a^4*b^3*d^9)*
x^2 + (b^7*c^5*d^4 - a*b^6*c^4*d^5 - 3*a^2*b^5*c^3*d^6 + 5*a^3*b^
4*c^2*d^7 - 2*a^4*b^3*c*d^8)*x) + x/(b^2*d^3)
```

Fricas [A] time = 0.291326, size = 1324, normalized size = 7.65

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^5/((b*x + a)^2*(d*x + c)^3),x, algorithm="fricas")
```

```
[Out] -1/2*(5*a*b^5*c^7 - 14*a^2*b^4*c^6*d + 9*a^3*b^3*c^5*d^2 - 2*a^5*
b*c^3*d^4 + 2*a^6*c^2*d^5 - 2*(b^6*c^4*d^3 - 4*a*b^5*c^3*d^4 + 6*
a^2*b^4*c^2*d^5 - 4*a^3*b^3*c*d^6 + a^4*b^2*d^7)*x^4 - 2*(2*b^6*c
^5*d^2 - 7*a*b^5*c^4*d^3 + 8*a^2*b^4*c^3*d^4 - 2*a^3*b^3*c^2*d^5
- 2*a^4*b^2*c*d^6 + a^5*b*d^7)*x^3 + 2*(2*b^6*c^6*d - 6*a*b^5*c^5
*d^2 + 7*a^2*b^4*c^4*d^3 - 8*a^3*b^3*c^3*d^4 + 7*a^4*b^2*c^2*d^5
- 3*a^5*b*c*d^6 + a^6*d^7)*x^2 + (5*b^6*c^7 - 10*a*b^5*c^6*d + a^
2*b^4*c^5*d^2 - 2*a^3*b^3*c^4*d^3 + 8*a^4*b^2*c^3*d^4 - 6*a^5*b*c
^2*d^5 + 4*a^6*c*d^6)*x - 2*(5*a^5*b*c^3*d^4 - 2*a^6*c^2*d^5 + (5
*a^4*b^2*c*d^6 - 2*a^5*b*d^7)*x^3 + (10*a^4*b^2*c^2*d^5 + a^5*b*c
*d^6 - 2*a^6*d^7)*x^2 + (5*a^4*b^2*c^3*d^4 + 8*a^5*b*c^2*d^5 - 4*
a^6*c*d^6)*x)*log(b*x + a) + 2*(3*a*b^5*c^7 - 10*a^2*b^4*c^6*d +
10*a^3*b^3*c^5*d^2 + (3*b^6*c^5*d^2 - 10*a*b^5*c^4*d^3 + 10*a^2*b
^4*c^3*d^4)*x^3 + (6*b^6*c^6*d - 17*a*b^5*c^5*d^2 + 10*a^2*b^4*c^
4*d^3 + 10*a^3*b^3*c^3*d^4)*x^2 + (3*b^6*c^7 - 4*a*b^5*c^6*d - 10
*a^2*b^4*c^5*d^2 + 20*a^3*b^3*c^4*d^3)*x)*log(d*x + c))/(a*b^7*c^
6*d^4 - 4*a^2*b^6*c^5*d^5 + 6*a^3*b^5*c^4*d^6 - 4*a^4*b^4*c^3*d^7
 + a^5*b^3*c^2*d^8 + (b^8*c^4*d^6 - 4*a*b^7*c^3*d^7 + 6*a^2*b^6*c
^2*d^8 - 4*a^3*b^5*c*d^9 + a^4*b^4*d^10)*x^3 + (2*b^8*c^5*d^5 - 7
*a*b^7*c^4*d^6 + 8*a^2*b^6*c^3*d^7 - 2*a^3*b^5*c^2*d^8 - 2*a^4*b^
4*c*d^9 + a^5*b^3*d^10)*x^2 + (b^8*c^6*d^4 - 2*a*b^7*c^5*d^5 - 2*
a^2*b^6*c^4*d^6 + 8*a^3*b^5*c^3*d^7 - 7*a^4*b^4*c^2*d^8 + 2*a^5*b
^3*c*d^9)*x)
```

Sympy [A] time = 42.7543, size = 1161, normalized size = 6.71

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**5/(b*x+a)**2/(d*x+c)**3,x)
```

```
[Out] -a**4*(2*a*d - 5*b*c)*log(x + (a**9*d**8*(2*a*d - 5*b*c)/(b*(a*d
- b*c)**4) - 5*a**8*c*d**7*(2*a*d - 5*b*c)/(a*d - b*c)**4 + 10*a*
*7*b*c**2*d**6*(2*a*d - 5*b*c)/(a*d - b*c)**4 - 10*a**6*b**2*c**3
*d**5*(2*a*d - 5*b*c)/(a*d - b*c)**4 + 5*a**5*b**3*c**4*d**4*(2*a
*d - 5*b*c)/(a*d - b*c)**4 + 2*a**5*c*d**4 - a**4*b**4*c**5*d**3*
(2*a*d - 5*b*c)/(a*d - b*c)**4 - 5*a**4*b*c**2*d**3 - 10*a**3*b**
2*c**3*d**2 + 10*a**2*b**3*c**4*d - 3*a*b**4*c**5)/(2*a**5*d**5 -
 5*a**4*b*c*d**4 - 10*a**2*b**3*c**3*d**2 + 10*a*b**4*c**4*d - 3*
b**5*c**5))/(b**3*(a*d - b*c)**4) - c**3*(10*a**2*d**2 - 10*a*b*c
*d + 3*b**2*c**2)*log(x + (a**5*b**2*c**3*d**4*(10*a**2*d**2 - 10
*a*b*c*d + 3*b**2*c**2)/(a*d - b*c)**4 + 2*a**5*c*d**4 - 5*a**4*b
**3*c**4*d**3*(10*a**2*d**2 - 10*a*b*c*d + 3*b**2*c**2)/(a*d - b*
c)**4 - 5*a**4*b*c**2*d**3 + 10*a**3*b**4*c**5*d**2*(10*a**2*d**2
 - 10*a*b*c*d + 3*b**2*c**2)/(a*d - b*c)**4 - 10*a**3*b**2*c**3*d
**2 - 10*a**2*b**5*c**6*d*(10*a**2*d**2 - 10*a*b*c*d + 3*b**2*c**
2)/(a*d - b*c)**4 + 10*a**2*b**3*c**4*d + 5*a*b**6*c**7*(10*a**2*
d**2 - 10*a*b*c*d + 3*b**2*c**2)/(a*d - b*c)**4 - 3*a*b**4*c**5 -
 b**7*c**8*(10*a**2*d**2 - 10*a*b*c*d + 3*b**2*c**2)/(d*(a*d - b*
c)**4))/(2*a**5*d**5 - 5*a**4*b*c*d**4 - 10*a**2*b**3*c**3*d**2 +
 10*a*b**4*c**4*d - 3*b**5*c**5))/(d**4*(a*d - b*c)**4) - (2*a**5
*c**2*d**4 + 9*a**2*b**3*c**5*d - 5*a*b**4*c**6 + x**2*(2*a**5*d*
*6 + 10*a*b**4*c**4*d**2 - 6*b**5*c**5*d) + x*(4*a**5*c*d**5 + 10
*a**2*b**3*c**4*d**2 + 3*a*b**4*c**5*d - 5*b**5*c**6))/(2*a**4*b*
*3*c**2*d**7 - 6*a**3*b**4*c**3*d**6 + 6*a**2*b**5*c**4*d**5 - 2*
a*b**6*c**5*d**4 + x**3*(2*a**3*b**4*d**9 - 6*a**2*b**5*c*d**8 +
6*a*b**6*c**2*d**7 - 2*b**7*c**3*d**6) + x**2*(2*a**4*b**3*d**9 -
 2*a**3*b**4*c*d**8 - 6*a**2*b**5*c**2*d**7 + 10*a*b**6*c**3*d**6
 - 4*b**7*c**4*d**5) + x*(4*a**4*b**3*c*d**8 - 10*a**3*b**4*c**2*
d**7 + 6*a**2*b**5*c**3*d**6 + 2*a*b**6*c**4*d**5 - 2*b**7*c**5*d
**4)) + x/(b**2*d**3)
```

GIAC/XCAS [A] time = 0.396414, size = 670, normalized size = 3.87

$$\frac{a^5b^4}{(b^{10}c^3 - 3\,ab^9c^2d + 3\,a^2b^8cd^2 - a^3b^7d^3)(bx + a)} - \frac{\left(3\,b^3c^5 - 10\,ab^2c^4d + 10\,a^2bc^3d^2\right)\ln\left(\left|\frac{bc}{bx+a} - \frac{ad}{bx+a} + d\right|\right)}{b^5c^4d^4 - 4\,ab^4c^3d^5 + 6\,a^2b^3c^2d^6 - 4\,a^3b^2cd^7 + a^4bd^8} + \frac{(3\,bc + 2\,ad)\ln\left(\frac{|bx+a|}{(bx+a)^2|b|}\right)}{b^3d^4} + \frac{\left(2\,b^4c^4d^3 - 8\,ab^3c^3d^4 + 12\,a^2b^2c^2d^5 - 8\,a^3bcd^6 + 2\,a^4d^7 + \frac{9\,b^6c^5d^2 - 30\,ab^5c^4d^3 + 40\,a^2b^4c^3d^4 - 40\,a^3b^3c^2d^5 + 20\,a^4b^2cd^6 - 4\,a^5bd^7}{(bx+a)b} + \frac{2\,(3\,b^8c \cdots}{\cdots}\right.}{2\,(bc - ad)^4b^3\left(\frac{bc}{bx+a} - \frac{ad}{bx+a} + d\right)^2d^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^5/((b*x + a)^2*(d*x + c)^3),x, algorithm="giac")
```

```
[Out] a^5*b^4/((b^10*c^3 - 3*a*b^9*c^2*d + 3*a^2*b^8*c*d^2 - a^3*b^7*d^
3)*(b*x + a)) - (3*b^3*c^5 - 10*a*b^2*c^4*d + 10*a^2*b*c^3*d^2)*l
n(abs(b*c/(b*x + a) - a*d/(b*x + a) + d))/(b^5*c^4*d^4 - 4*a*b^4*
c^3*d^5 + 6*a^2*b^3*c^2*d^6 - 4*a^3*b^2*c*d^7 + a^4*b*d^8) + (3*b
*c + 2*a*d)*ln(abs(b*x + a)/((b*x + a)^2*abs(b)))/(b^3*d^4) + 1/2
*(2*b^4*c^4*d^3 - 8*a*b^3*c^3*d^4 + 12*a^2*b^2*c^2*d^5 - 8*a^3*b*
c*d^6 + 2*a^4*d^7 + (9*b^6*c^5*d^2 - 30*a*b^5*c^4*d^3 + 40*a^2*b^
4*c^3*d^4 - 40*a^3*b^3*c^2*d^5 + 20*a^4*b^2*c*d^6 - 4*a^5*b*d^7)/
((b*x + a)*b) + 2*(3*b^8*c^6*d - 13*a*b^7*c^5*d^2 + 20*a^2*b^6*c^
4*d^3 - 20*a^3*b^5*c^3*d^4 + 15*a^4*b^4*c^2*d^5 - 6*a^5*b^3*c*d^6
 + a^6*b^2*d^7)/((b*x + a)^2*b^2))*(b*x + a)/((b*c - a*d)^4*b^3*(
b*c/(b*x + a) - a*d/(b*x + a) + d)^2*d^4)
```

3.262 $\int \frac{x^4}{(a+bx)^2(c+dx)^3} dx$

Optimal. Leaf size=164

$$-\frac{a^4}{b^2(a+bx)(bc-ad)^3}-\frac{a^3(4bc-ad)\log(a+bx)}{b^2(bc-ad)^4}+\frac{c^2\left(6a^2d^2-4abcd+b^2c^2\right)\log(c+dx)}{d^3(bc-ad)^4}-\frac{c^4}{2d^3(c+dx)^2(bc-ad)^2}+\frac{2c^3(bc-2ad)}{d^3(c+dx)(bc-ad)^3}$$

```
[Out] -(a^4/(b^2*(b*c - a*d)^3*(a + b*x))) - c^4/(2*d^3*(b*c - a*d)^2*(
c + d*x)^2) + (2*c^3*(b*c - 2*a*d))/(d^3*(b*c - a*d)^3*(c + d*x))
 - (a^3*(4*b*c - a*d)*Log[a + b*x])/(b^2*(b*c - a*d)^4) + (c^2*(b
^2*c^2 - 4*a*b*c*d + 6*a^2*d^2)*Log[c + d*x])/(d^3*(b*c - a*d)^4)
```

Rubi [A] time = 0.353745, antiderivative size = 164, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.056$

$$-\frac{a^4}{b^2(a+bx)(bc-ad)^3}-\frac{a^3(4bc-ad)\log(a+bx)}{b^2(bc-ad)^4}+\frac{c^2\left(6a^2d^2-4abcd+b^2c^2\right)\log(c+dx)}{d^3(bc-ad)^4}-\frac{c^4}{2d^3(c+dx)^2(bc-ad)^2}+\frac{2c^3(bc-2ad)}{d^3(c+dx)(bc-ad)^3}$$

Antiderivative was successfully verified.

```
[In]  Int[x^4/((a + b*x)^2*(c + d*x)^3),x]
```

```
[Out] -(a^4/(b^2*(b*c - a*d)^3*(a + b*x))) - c^4/(2*d^3*(b*c - a*d)^2*(
c + d*x)^2) + (2*c^3*(b*c - 2*a*d))/(d^3*(b*c - a*d)^3*(c + d*x))
 - (a^3*(4*b*c - a*d)*Log[a + b*x])/(b^2*(b*c - a*d)^4) + (c^2*(b
^2*c^2 - 4*a*b*c*d + 6*a^2*d^2)*Log[c + d*x])/(d^3*(b*c - a*d)^4)
```

Rubi in Sympy [A] time = 63.3011, size = 150, normalized size = 0.91

$$\frac{a^4}{b^2\left(a+bx\right)\left(ad-bc\right)^3}+\frac{a^3\left(ad-4bc\right)\log\left(a+bx\right)}{b^2\left(ad-bc\right)^4}-\frac{c^4}{2d^3\left(c+dx\right)^2\left(ad-bc\right)^2}+\frac{2c^3\left(2ad-bc\right)}{d^3\left(c+dx\right)\left(ad-bc\right)^3}+\frac{c^2\left(6a^2d^2-4abcd+b^2c^2\right)\log\left(c+dx\right)}{d^3\left(ad-bc\right)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**4/(b*x+a)**2/(d*x+c)**3,x)
```

```
[Out] a**4/(b**2*(a + b*x)*(a*d - b*c)**3) + a**3*(a*d - 4*b*c)*log(a +
 b*x)/(b**2*(a*d - b*c)**4) - c**4/(2*d**3*(c + d*x)**2*(a*d - b*
c)**2) + 2*c**3*(2*a*d - b*c)/(d**3*(c + d*x)*(a*d - b*c)**3) + c
**2*(6*a**2*d**2 - 4*a*b*c*d + b**2*c**2)*log(c + d*x)/(d**3*(a*d
 - b*c)**4)
```

Mathematica [A] time = 0.396927, size = 162, normalized size = 0.99

$$-\frac{a^4}{b^2(a+bx)(bc-ad)^3}+\frac{a^3(ad-4bc)\log(a+bx)}{b^2(bc-ad)^4}+\frac{c^2\left(6a^2d^2-4abcd+b^2c^2\right)\log(c+dx)}{d^3(bc-ad)^4}-\frac{c^4}{2d^3(c+dx)^2(bc-ad)^2}-\frac{2c^3(bc-2ad)}{d^3(c+dx)(ad-bc)^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^4/((a + b*x)^2*(c + d*x)^3),x]
```

```
[Out] -(a^4/(b^2*(b*c - a*d)^3*(a + b*x))) - c^4/(2*d^3*(b*c - a*d)^2*(
c + d*x)^2) - (2*c^3*(b*c - 2*a*d))/(d^3*(-(b*c) + a*d)^3*(c + d*
x)) + (a^3*(-4*b*c + a*d)*Log[a + b*x])/(b^2*(b*c - a*d)^4) + (c^
2*(b^2*c^2 - 4*a*b*c*d + 6*a^2*d^2)*Log[c + d*x])/(d^3*(b*c - a*d
)^4)
```

Maple [A] time = 0.02, size = 231, normalized size = 1.4

$$-\frac{c^{4}}{2\,d^{3}\left(ad-bc\right)^{2}\left(dx+c\right)^{2}}+6\,\frac{c^{2}\ln\left(dx+c\right)a^{2}}{\left(ad-bc\right)^{4}d}-4\,\frac{c^{3}\ln\left(dx+c\right)ab}{\left(ad-bc\right)^{4}d^{2}}+\frac{c^{4}\ln\left(dx+c\right)b^{2}}{\left(ad-bc\right)^{4}d^{3}}+4\,\frac{c^{3}a}{d^{2}\left(ad-bc\right)^{3}\left(dx+c\right)}-2\,\frac{c^{4}b}{d^{3}\left(ad-bc\right)^{3}\left(dx+c\right)}+\frac{a^{4}\ln\left(bx+a\right)d}{\left(ad-bc\right)^{4}b^{2}}-4\,\frac{a^{3}\ln\left(bx+a\right)c}{\left(ad-bc\right)^{4}b}+\frac{a^{4}}{b^{2}\left(ad-bc\right)^{3}\left(bx+a\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^4/(b*x+a)^2/(d*x+c)^3,x)
```

```
[Out] -1/2*c^4/d^3/(a*d-b*c)^2/(d*x+c)^2+6*c^2/(a*d-b*c)^4/d*ln(d*x+c)*
a^2-4*c^3/(a*d-b*c)^4/d^2*ln(d*x+c)*a*b+c^4/(a*d-b*c)^4/d^3*ln(d*
x+c)*b^2+4*c^3/d^2/(a*d-b*c)^3/(d*x+c)*a-2*c^4/d^3/(a*d-b*c)^3/(d
*x+c)*b+a^4/(a*d-b*c)^4/b^2*ln(b*x+a)*d-4*a^3/(a*d-b*c)^4/b*ln(b*
x+a)*c+1/b^2/(a*d-b*c)^3*a^4/(b*x+a)
```

Maxima [A] time = 1.38679, size = 699, normalized size = 4.26

$$-\frac{\left(4\,a^{3}bc-a^{4}d\right)\log\left(bx+a\right)}{b^{6}c^{4}-4\,ab^{5}c^{3}d+6\,a^{2}b^{4}c^{2}d^{2}-4\,a^{3}b^{3}cd^{3}+a^{4}b^{2}d^{4}}+\frac{\left(b^{2}c^{4}-4\,abc^{3}d+6\,a^{2}c^{2}d^{2}\right)\log\left(dx+c\right)}{b^{4}c^{4}d^{3}-4\,ab^{3}c^{3}d^{4}+6\,a^{2}b^{2}c^{2}d^{5}-4\,a^{3}bcd^{6}+a^{4}d^{7}}+\frac{3\,ab^{3}c^{5}-7\,a^{2}b^{2}c^{4}d-2\,a^{4}c^{2}d^{3}+2\left(2\,b^{4}c^{4}d-4\,ab^{3}c^{3}d^{2}-a^{4}d^{5}\right)x^{2}+(\cdots}{2\left(ab^{5}c^{5}d^{3}-3\,a^{2}b^{4}c^{4}d^{4}+3\,a^{3}b^{3}c^{3}d^{5}-a^{4}b^{2}c^{2}d^{6}+\left(b^{6}c^{3}d^{5}-3\,ab^{5}c^{2}d^{6}+3\,a^{2}b^{4}cd^{7}-a^{3}b^{3}d^{8}\right)x^{3}+\left(2\,b^{6}c^{4}d^{4}-5\,ab^{5}c^{3}d^{5}+3\cdots\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^4/((b*x + a)^2*(d*x + c)^3),x, algorithm="maxima")
```

```
[Out] -(4*a^3*b*c - a^4*d)*log(b*x + a)/(b^6*c^4 - 4*a*b^5*c^3*d + 6*a^
2*b^4*c^2*d^2 - 4*a^3*b^3*c*d^3 + a^4*b^2*d^4) + (b^2*c^4 - 4*a*b
*c^3*d + 6*a^2*c^2*d^2)*log(d*x + c)/(b^4*c^4*d^3 - 4*a*b^3*c^3*d
^4 + 6*a^2*b^2*c^2*d^5 - 4*a^3*b*c*d^6 + a^4*d^7) + 1/2*(3*a*b^3*
c^5 - 7*a^2*b^2*c^4*d - 2*a^4*c^2*d^3 + 2*(2*b^4*c^4*d - 4*a*b^3*
c^3*d^2 - a^4*d^5)*x^2 + (3*b^4*c^5 - 3*a*b^3*c^4*d - 8*a^2*b^2*c
^3*d^2 - 4*a^4*c*d^4)*x)/(a*b^5*c^5*d^3 - 3*a^2*b^4*c^4*d^4 + 3*a
^3*b^3*c^3*d^5 - a^4*b^2*c^2*d^6 + (b^6*c^3*d^5 - 3*a*b^5*c^2*d^6
 + 3*a^2*b^4*c*d^7 - a^3*b^3*d^8)*x^3 + (2*b^6*c^4*d^4 - 5*a*b^5*
c^3*d^5 + 3*a^2*b^4*c^2*d^6 + a^3*b^3*c*d^7 - a^4*b^2*d^8)*x^2 +
(b^6*c^5*d^3 - a*b^5*c^4*d^4 - 3*a^2*b^4*c^3*d^5 + 5*a^3*b^3*c^2*
d^6 - 2*a^4*b^2*c*d^7)*x)
```

Fricas [A] time = 0.247689, size = 1076, normalized size = 6.56

$$\frac{3\,ab^{4}c^{6}-10\,a^{2}b^{3}c^{5}d+7\,a^{3}b^{2}c^{4}d^{2}-2\,a^{4}bc^{3}d^{3}+2\,a^{5}c^{2}d^{4}+2\left(2\,b^{5}c^{5}d-6\,ab^{4}c^{4}d^{2}+4\,a^{2}b^{3}c^{3}d^{3}-a^{4}bcd^{5}+a^{5}d^{6}\right)x^{2}+\left(3\,b^{5}c^{\cdots}\right.}{2\left(\cdots\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^4/((b*x + a)^2*(d*x + c)^3),x, algorithm="fricas")
```

```
[Out] 1/2*(3*a*b^4*c^6 - 10*a^2*b^3*c^5*d + 7*a^3*b^2*c^4*d^2 - 2*a^4*b
*c^3*d^3 + 2*a^5*c^2*d^4 + 2*(2*b^5*c^5*d - 6*a*b^4*c^4*d^2 + 4*a
^2*b^3*c^3*d^3 - a^4*b*c*d^5 + a^5*d^6)*x^2 + (3*b^5*c^6 - 6*a*b^
4*c^5*d - 5*a^2*b^3*c^4*d^2 + 8*a^3*b^2*c^3*d^3 - 4*a^4*b*c^2*d^4
 + 4*a^5*c*d^5)*x - 2*(4*a^4*b*c^3*d^3 - a^5*c^2*d^4 + (4*a^3*b^2
*c*d^5 - a^4*b*d^6)*x^3 + (8*a^3*b^2*c^2*d^4 + 2*a^4*b*c*d^5 - a^
5*d^6)*x^2 + (4*a^3*b^2*c^3*d^3 + 7*a^4*b*c^2*d^4 - 2*a^5*c*d^5)*
x)*log(b*x + a) + 2*(a*b^4*c^6 - 4*a^2*b^3*c^5*d + 6*a^3*b^2*c^4*
d^2 + (b^5*c^4*d^2 - 4*a*b^4*c^3*d^3 + 6*a^2*b^3*c^2*d^4)*x^3 + (
2*b^5*c^5*d - 7*a*b^4*c^4*d^2 + 8*a^2*b^3*c^3*d^3 + 6*a^3*b^2*c^2
*d^4)*x^2 + (b^5*c^6 - 2*a*b^4*c^5*d - 2*a^2*b^3*c^4*d^2 + 12*a^3
*b^2*c^3*d^3)*x)*log(d*x + c))/(a*b^6*c^6*d^3 - 4*a^2*b^5*c^5*d^4
 + 6*a^3*b^4*c^4*d^5 - 4*a^4*b^3*c^3*d^6 + a^5*b^2*c^2*d^7 + (b^7
*c^4*d^5 - 4*a*b^6*c^3*d^6 + 6*a^2*b^5*c^2*d^7 - 4*a^3*b^4*c*d^8
+ a^4*b^3*d^9)*x^3 + (2*b^7*c^5*d^4 - 7*a*b^6*c^4*d^5 + 8*a^2*b^5
*c^3*d^6 - 2*a^3*b^4*c^2*d^7 - 2*a^4*b^3*c*d^8 + a^5*b^2*d^9)*x^2
 + (b^7*c^6*d^3 - 2*a*b^6*c^5*d^4 - 2*a^2*b^5*c^4*d^5 + 8*a^3*b^4
*c^3*d^6 - 7*a^4*b^3*c^2*d^7 + 2*a^5*b^2*c*d^8)*x)
```

Sympy [A] time = 27.159, size = 1083, normalized size = 6.6

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**4/(b*x+a)**2/(d*x+c)**3,x)
```

```
[Out] a**3*(a*d - 4*b*c)*log(x + (a**8*d**7*(a*d - 4*b*c)/(b*(a*d - b*c
)**4) - 5*a**7*c*d**6*(a*d - 4*b*c)/(a*d - b*c)**4 + 10*a**6*b*c*
*2*d**5*(a*d - 4*b*c)/(a*d - b*c)**4 - 10*a**5*b**2*c**3*d**4*(a*
d - 4*b*c)/(a*d - b*c)**4 + 5*a**4*b**3*c**4*d**3*(a*d - 4*b*c)/(
a*d - b*c)**4 + a**4*c*d**3 - a**3*b**4*c**5*d**2*(a*d - 4*b*c)/(
a*d - b*c)**4 - 10*a**3*b*c**2*d**2 + 4*a**2*b**2*c**3*d - a*b**3
*c**4)/(a**4*d**4 - 4*a**3*b*c*d**3 - 6*a**2*b**2*c**2*d**2 + 4*a
*b**3*c**3*d - b**4*c**4))/(b**2*(a*d - b*c)**4) + c**2*(6*a**2*d
**2 - 4*a*b*c*d + b**2*c**2)*log(x + (a**5*b*c**2*d**4*(6*a**2*d*
*2 - 4*a*b*c*d + b**2*c**2)/(a*d - b*c)**4 - 5*a**4*b**2*c**3*d**
3*(6*a**2*d**2 - 4*a*b*c*d + b**2*c**2)/(a*d - b*c)**4 + a**4*c*d
**3 + 10*a**3*b**3*c**4*d**2*(6*a**2*d**2 - 4*a*b*c*d + b**2*c**2
)/(a*d - b*c)**4 - 10*a**3*b*c**2*d**2 - 10*a**2*b**4*c**5*d*(6*a
**2*d**2 - 4*a*b*c*d + b**2*c**2)/(a*d - b*c)**4 + 4*a**2*b**2*c*
*3*d + 5*a*b**5*c**6*(6*a**2*d**2 - 4*a*b*c*d + b**2*c**2)/(a*d -
 b*c)**4 - a*b**3*c**4 - b**6*c**7*(6*a**2*d**2 - 4*a*b*c*d + b**
2*c**2)/(d*(a*d - b*c)**4))/(a**4*d**4 - 4*a**3*b*c*d**3 - 6*a**2
*b**2*c**2*d**2 + 4*a*b**3*c**3*d - b**4*c**4))/(d**3*(a*d - b*c)
**4) + (2*a**4*c**2*d**3 + 7*a**2*b**2*c**4*d - 3*a*b**3*c**5 + x
**2*(2*a**4*d**5 + 8*a*b**3*c**3*d**2 - 4*b**4*c**4*d) + x*(4*a**
4*c*d**4 + 8*a**2*b**2*c**3*d**2 + 3*a*b**3*c**4*d - 3*b**4*c**5)
)/(2*a**4*b**2*c**2*d**6 - 6*a**3*b**3*c**3*d**5 + 6*a**2*b**4*c*
*4*d**4 - 2*a*b**5*c**5*d**3 + x**3*(2*a**3*b**3*d**8 - 6*a**2*b*
*4*c*d**7 + 6*a*b**5*c**2*d**6 - 2*b**6*c**3*d**5) + x**2*(2*a**4
*b**2*d**8 - 2*a**3*b**3*c*d**7 - 6*a**2*b**4*c**2*d**6 + 10*a*b*
*5*c**3*d**5 - 4*b**6*c**4*d**4) + x*(4*a**4*b**2*c*d**7 - 10*a**
3*b**3*c**2*d**6 + 6*a**2*b**4*c**3*d**5 + 2*a*b**5*c**4*d**4 - 2
*b**6*c**5*d**3))
```

GIAC/XCAS [A] time = 0.332874, size = 419, normalized size = 2.55

$$-\frac{a^4b^3}{(b^8c^3 - 3\,ab^7c^2d + 3\,a^2b^6cd^2 - a^3b^5d^3)(bx+a)} + \frac{\left(b^3c^4 - 4\,ab^2c^3d + 6\,a^2bc^2d^2\right)\ln\left(\left|\frac{bc}{bx+a} - \frac{ad}{bx+a} + d\right|\right)}{b^5c^4d^3 - 4\,ab^4c^3d^4 + 6\,a^2b^3c^2d^5 - 4\,a^3b^2cd^6 + a^4bd^7} - \frac{\ln\left(\frac{|bx+a|}{(bx+a)^2|b|}\right)}{b^2d^3} - \frac{3\,b^2c^4d^2 - 8\,abc^3d^3 + \frac{2\left(b^4c^5d - 5\,ab^3c^4d^2 + 4\,a^2b^2c^3d^3\right)}{(bx+a)b}}{2\,(bc-ad)^4\left(\frac{bc}{bx+a} - \frac{ad}{bx+a} + d\right)^2 d^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^4/((b*x + a)^2*(d*x + c)^3),x, algorithm="giac")
```

```
[Out] -a^4*b^3/((b^8*c^3 - 3*a*b^7*c^2*d + 3*a^2*b^6*c*d^2 - a^3*b^5*d^
3)*(b*x + a)) + (b^3*c^4 - 4*a*b^2*c^3*d + 6*a^2*b*c^2*d^2)*ln(ab
s(b*c/(b*x + a) - a*d/(b*x + a) + d))/(b^5*c^4*d^3 - 4*a*b^4*c^3*
d^4 + 6*a^2*b^3*c^2*d^5 - 4*a^3*b^2*c*d^6 + a^4*b*d^7) - ln(abs(b
*x + a)/((b*x + a)^2*abs(b)))/(b^2*d^3) - 1/2*(3*b^2*c^4*d^2 - 8*
a*b*c^3*d^3 + 2*(b^4*c^5*d - 5*a*b^3*c^4*d^2 + 4*a^2*b^2*c^3*d^3)
/((b*x + a)*b))/((b*c - a*d)^4*(b*c/(b*x + a) - a*d/(b*x + a) + d
)^2*d^3)
```

3.263 $\int \frac{x^3}{(a+bx)^2(c+dx)^3}\,dx$

Optimal. Leaf size=129

$$\frac{a^3}{b(a+bx)(bc-ad)^3}+\frac{3a^2c\log(a+bx)}{(bc-ad)^4}-\frac{3a^2c\log(c+dx)}{(bc-ad)^4}+\frac{c^3}{2d^2(c+dx)^2(bc-ad)^2}-\frac{c^2(bc-3ad)}{d^2(c+dx)(bc-ad)^3}$$

```
[Out] a^3/(b*(b*c - a*d)^3*(a + b*x)) + c^3/(2*d^2*(b*c - a*d)^2*(c + d
*x)^2) - (c^2*(b*c - 3*a*d))/(d^2*(b*c - a*d)^3*(c + d*x)) + (3*a
^2*c*Log[a + b*x])/(b*c - a*d)^4 - (3*a^2*c*Log[c + d*x])/(b*c -
a*d)^4
```

Rubi [A] time = 0.27398, antiderivative size = 129, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{a^3}{b(a+bx)(bc-ad)^3}+\frac{3a^2c\log(a+bx)}{(bc-ad)^4}-\frac{3a^2c\log(c+dx)}{(bc-ad)^4}+\frac{c^3}{2d^2(c+dx)^2(bc-ad)^2}-\frac{c^2(bc-3ad)}{d^2(c+dx)(bc-ad)^3}$$

Antiderivative was successfully verified.

```
[In]  Int[x^3/((a + b*x)^2*(c + d*x)^3),x]
```

```
[Out] a^3/(b*(b*c - a*d)^3*(a + b*x)) + c^3/(2*d^2*(b*c - a*d)^2*(c + d
*x)^2) - (c^2*(b*c - 3*a*d))/(d^2*(b*c - a*d)^3*(c + d*x)) + (3*a
^2*c*Log[a + b*x])/(b*c - a*d)^4 - (3*a^2*c*Log[c + d*x])/(b*c -
a*d)^4
```

Rubi in Sympy [A] time = 48.0768, size = 114, normalized size = 0.88

$$-\frac{a^3}{b\left(a+bx\right)\left(ad-bc\right)^3}+\frac{3a^2c\log\left(a+bx\right)}{\left(ad-bc\right)^4}-\frac{3a^2c\log\left(c+dx\right)}{\left(ad-bc\right)^4}+\frac{c^3}{2d^2\left(c+dx\right)^2\left(ad-bc\right)^2}-\frac{c^2\left(3ad-bc\right)}{d^2\left(c+dx\right)\left(ad-bc\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3/(b*x+a)**2/(d*x+c)**3,x)
```

```
[Out] -a**3/(b*(a + b*x)*(a*d - b*c)**3) + 3*a**2*c*log(a + b*x)/(a*d -
 b*c)**4 - 3*a**2*c*log(c + d*x)/(a*d - b*c)**4 + c**3/(2*d**2*(c
 + d*x)**2*(a*d - b*c)**2) - c**2*(3*a*d - b*c)/(d**2*(c + d*x)*(
a*d - b*c)**3)
```

Mathematica [A] time = 0.28675, size = 130, normalized size = 1.01

$$\frac{a^3}{b(a+bx)(bc-ad)^3}+\frac{3a^2c\log(a+bx)}{(bc-ad)^4}-\frac{3a^2c\log(c+dx)}{(bc-ad)^4}+\frac{c^3}{2d^2(c+dx)^2(ad-bc)^2}+\frac{bc^3-3ac^2d}{d^2(c+dx)(ad-bc)^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^3/((a + b*x)^2*(c + d*x)^3),x]
```

```
[Out] a^3/(b*(b*c - a*d)^3*(a + b*x)) + c^3/(2*d^2*(-(b*c) + a*d)^2*(c
+ d*x)^2) + (b*c^3 - 3*a*c^2*d)/(d^2*(-(b*c) + a*d)^3*(c + d*x))
+ (3*a^2*c*Log[a + b*x])/(b*c - a*d)^4 - (3*a^2*c*Log[c + d*x])/(
b*c - a*d)^4
```

Maple [A] time = 0.019, size = 147, normalized size = 1.1

$$-3\,\frac{c^2a}{(ad-bc)^3\,d\,(dx+c)}+\frac{c^3b}{(ad-bc)^3\,d^2\,(dx+c)}+\frac{c^3}{2\,d^2\,(ad-bc)^2\,(dx+c)^2}-3\,\frac{ca^2\ln(dx+c)}{(ad-bc)^4}-\frac{a^3}{(ad-bc)^3\,b\,(bx+a)}+3\,\frac{ca^2\ln(bx+a)}{(ad-bc)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^3/(b*x+a)^2/(d*x+c)^3,x)
```

```
[Out] -3*c^2/(a*d-b*c)^3/d/(d*x+c)*a+c^3/(a*d-b*c)^3/d^2/(d*x+c)*b+1/2*
c^3/d^2/(a*d-b*c)^2/(d*x+c)^2-3*c*a^2/(a*d-b*c)^4*ln(d*x+c)-1/(a*
d-b*c)^3*a^3/b/(b*x+a)+3*c*a^2/(a*d-b*c)^4*ln(b*x+a)
```

Maxima [A] time = 1.38595, size = 625, normalized size = 4.84

$$\frac{3\,a^2c\log(bx+a)}{b^4c^4-4\,ab^3c^3d+6\,a^2b^2c^2d^2-4\,a^3bcd^3+a^4d^4}-\frac{3\,a^2c\log(dx+c)}{b^4c^4-4\,ab^3c^3d+6\,a^2b^2c^2d^2-4\,a^3bcd^3+a^4d^4}-\frac{ab^2c^4-5\,a^2bc^3d-2\,a^3c^2d^2+2\left(b^3c^3d-3\,ab^2c^2d^2-a^3d^4\right)x^2+\left(b^3\right.}{2\left(ab^4c^5d^2-3\,a^2b^3c^4d^3+3\,a^3b^2c^3d^4-a^4bc^2d^5+(b^5c^3d^4-3\,ab^4c^2d^5+3\,a^2b^3cd^6-a^3b^2d^7)x^3+(2\,b^5c^4d^3-5\,ab^4c^3d^4+3\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^3/((b*x + a)^2*(d*x + c)^3),x, algorithm="maxima")
```

```
[Out] 3*a^2*c*log(b*x + a)/(b^4*c^4 - 4*a*b^3*c^3*d + 6*a^2*b^2*c^2*d^2
 - 4*a^3*b*c*d^3 + a^4*d^4) - 3*a^2*c*log(d*x + c)/(b^4*c^4 - 4*a
*b^3*c^3*d + 6*a^2*b^2*c^2*d^2 - 4*a^3*b*c*d^3 + a^4*d^4) - 1/2*(
a*b^2*c^4 - 5*a^2*b*c^3*d - 2*a^3*c^2*d^2 + 2*(b^3*c^3*d - 3*a*b^
2*c^2*d^2 - a^3*d^4)*x^2 + (b^3*c^4 - 3*a*b^2*c^3*d - 6*a^2*b*c^2
*d^2 - 4*a^3*c*d^3)*x)/(a*b^4*c^5*d^2 - 3*a^2*b^3*c^4*d^3 + 3*a^3
*b^2*c^3*d^4 - a^4*b*c^2*d^5 + (b^5*c^3*d^4 - 3*a*b^4*c^2*d^5 + 3
*a^2*b^3*c*d^6 - a^3*b^2*d^7)*x^3 + (2*b^5*c^4*d^3 - 5*a*b^4*c^3*
d^4 + 3*a^2*b^3*c^2*d^5 + a^3*b^2*c*d^6 - a^4*b*d^7)*x^2 + (b^5*c
^5*d^2 - a*b^4*c^4*d^3 - 3*a^2*b^3*c^3*d^4 + 5*a^3*b^2*c^2*d^5 -
2*a^4*b*c*d^6)*x)
```

Fricas [A] time = 0.222153, size = 838, normalized size = 6.5

$$-\frac{ab^3c^5-6\,a^2b^2c^4d+3\,a^3bc^3d^2+2\,a^4c^2d^3+2\left(b^4c^4d-4\,ab^3c^3d^2+3\,a^2b^2c^2d^3-a^3bcd^4+a^4d^5\right)x^2+\left(b^4c^5-4\,ab^3c^4d-3\,a\right.}{2\left(ab^5c^6d^2-4\,a^2b^4c^5d^3+6\,a^3b^3c^4d^4-4\,a^4b^2c^3d^5+a^5bc^2d^6+(b^6c^4d^4-4\,ab^5c^3d^5+6\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^3/((b*x + a)^2*(d*x + c)^3),x, algorithm="fricas")
```

```
[Out] -1/2*(a*b^3*c^5 - 6*a^2*b^2*c^4*d + 3*a^3*b*c^3*d^2 + 2*a^4*c^2*d
^3 + 2*(b^4*c^4*d - 4*a*b^3*c^3*d^2 + 3*a^2*b^2*c^2*d^3 - a^3*b*c
*d^4 + a^4*d^5)*x^2 + (b^4*c^5 - 4*a*b^3*c^4*d - 3*a^2*b^2*c^3*d^
2 + 2*a^3*b*c^2*d^3 + 4*a^4*c*d^4)*x - 6*(a^2*b^2*c*d^4*x^3 + a^3
*b*c^3*d^2 + (2*a^2*b^2*c^2*d^3 + a^3*b*c*d^4)*x^2 + (a^2*b^2*c^3
*d^2 + 2*a^3*b*c^2*d^3)*x)*log(b*x + a) + 6*(a^2*b^2*c*d^4*x^3 +
a^3*b*c^3*d^2 + (2*a^2*b^2*c^2*d^3 + a^3*b*c*d^4)*x^2 + (a^2*b^2*
c^3*d^2 + 2*a^3*b*c^2*d^3)*x)*log(d*x + c))/(a*b^5*c^6*d^2 - 4*a^
2*b^4*c^5*d^3 + 6*a^3*b^3*c^4*d^4 - 4*a^4*b^2*c^3*d^5 + a^5*b*c^2
*d^6 + (b^6*c^4*d^4 - 4*a*b^5*c^3*d^5 + 6*a^2*b^4*c^2*d^6 - 4*a^3
*b^3*c*d^7 + a^4*b^2*d^8)*x^3 + (2*b^6*c^5*d^3 - 7*a*b^5*c^4*d^4
+ 8*a^2*b^4*c^3*d^5 - 2*a^3*b^3*c^2*d^6 - 2*a^4*b^2*c*d^7 + a^5*b
*d^8)*x^2 + (b^6*c^6*d^2 - 2*a*b^5*c^5*d^3 - 2*a^2*b^4*c^4*d^4 +
```

```
8*a^3*b^3*c^3*d^5 - 7*a^4*b^2*c^2*d^6 + 2*a^5*b*c*d^7)*x)
```

Sympy [A] time = 14.1307, size = 717, normalized size = 5.56

$$-\frac{3a^2c\log\left(x+\frac{-\frac{3a^7cd^5}{(ad-bc)^4}+\frac{15a^6bc^2d^4}{(ad-bc)^4}-\frac{30a^5b^2c^3d^3}{(ad-bc)^4}+\frac{30a^4b^3c^4d^2}{(ad-bc)^4}-\frac{15a^3b^4c^5d}{(ad-bc)^4}+3a^3cd+\frac{3a^2b^5c^6}{(ad-bc)^4}+3a^2bc^2}{6a^2bcd}\right)}{(ad-bc)^4}+\frac{3a^2c\log\left(x+\frac{\frac{3a^7cd^5}{(ad-bc)^4}-\frac{15a^6bc^2d^4}{(ad-bc)^4}+\frac{30a^5b^2c^3d^3}{(ad-bc)^4}-\frac{30a^4b^3c^4d^2}{(ad-bc)^4}+\frac{15a^3b^4c^5d}{(ad-bc)^4}+3a^3cd-\frac{3a^2b^5c^6}{(ad-bc)^4}+3a^2bc^2}{6a^2bcd}\right)}{(ad-bc)^4}-\frac{2a^3c^2d^2+5a^2bc^3d-ab^2c^4+x^2\left(2a^3d^4+6ab^2c^2d^2-2b^3c^3d\right)+}{2a^4bc^2d^5-6a^3b^2c^3d^4+6a^2b^3c^4d^3-2ab^4c^5d^2+x^3\left(2a^3b^2d^7-6a^2b^3cd^6+6ab^4c^2d^5-2b^5c^3d^4\right)+x^2\left(2a^4bd^7-2a^3b^2cd^6-\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**3/(b*x+a)**2/(d*x+c)**3,x)
```

```
[Out] -3*a**2*c*log(x + (-3*a**7*c*d**5/(a*d - b*c)**4 + 15*a**6*b*c**2
*d**4/(a*d - b*c)**4 - 30*a**5*b**2*c**3*d**3/(a*d - b*c)**4 + 30
*a**4*b**3*c**4*d**2/(a*d - b*c)**4 - 15*a**3*b**4*c**5*d/(a*d -
b*c)**4 + 3*a**3*c*d + 3*a**2*b**5*c**6/(a*d - b*c)**4 + 3*a**2*b
*c**2)/(6*a**2*b*c*d))/(a*d - b*c)**4 + 3*a**2*c*log(x + (3*a**7*
c*d**5/(a*d - b*c)**4 - 15*a**6*b*c**2*d**4/(a*d - b*c)**4 + 30*a
**5*b**2*c**3*d**3/(a*d - b*c)**4 - 30*a**4*b**3*c**4*d**2/(a*d -
 b*c)**4 + 15*a**3*b**4*c**5*d/(a*d - b*c)**4 + 3*a**3*c*d - 3*a*
*2*b**5*c**6/(a*d - b*c)**4 + 3*a**2*b*c**2)/(6*a**2*b*c*d))/(a*d
 - b*c)**4 - (2*a**3*c**2*d**2 + 5*a**2*b*c**3*d - a*b**2*c**4 +
x**2*(2*a**3*d**4 + 6*a*b**2*c**2*d**2 - 2*b**3*c**3*d) + x*(4*a*
*3*c*d**3 + 6*a**2*b*c**2*d**2 + 3*a*b**2*c**3*d - b**3*c**4))/(2
*a**4*b*c**2*d**5 - 6*a**3*b**2*c**3*d**4 + 6*a**2*b**3*c**4*d**3
 - 2*a*b**4*c**5*d**2 + x**3*(2*a**3*b**2*d**7 - 6*a**2*b**3*c*d*
*6 + 6*a*b**4*c**2*d**5 - 2*b**5*c**3*d**4) + x**2*(2*a**4*b*d**7
 - 2*a**3*b**2*c*d**6 - 6*a**2*b**3*c**2*d**5 + 10*a*b**4*c**3*d*
*4 - 4*b**5*c**4*d**3) + x*(4*a**4*b*c*d**6 - 10*a**3*b**2*c**2*d
**5 + 6*a**2*b**3*c**3*d**4 + 2*a*b**4*c**4*d**3 - 2*b**5*c**5*d*
*2))
```

GIAC/XCAS [A] time = 0.280665, size = 311, normalized size = 2.41

$$-\frac{3\,a^2bc\ln\left(\left|\frac{bc}{bx+a}-\frac{ad}{bx+a}+d\right|\right)}{b^5c^4-4\,ab^4c^3d+6\,a^2b^3c^2d^2-4\,a^3b^2cd^3+a^4bd^4}+\frac{a^3b^2}{(b^6c^3-3\,ab^5c^2d+3\,a^2b^4cd^2-a^3b^3d^3)(bx+a)}+\frac{b^2c^3-6\,abc^2d-\frac{6\,(ab^3c^3-a^2b^2c^2d)}{(bx+a)b}}{2\,(bc-ad)^4\left(\frac{bc}{bx+a}-\frac{ad}{bx+a}+d\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^3/((b*x + a)^2*(d*x + c)^3),x, algorithm="giac")
```

```
[Out] -3*a^2*b*c*ln(abs(b*c/(b*x + a) - a*d/(b*x + a) + d))/(b^5*c^4 -
4*a*b^4*c^3*d + 6*a^2*b^3*c^2*d^2 - 4*a^3*b^2*c*d^3 + a^4*b*d^4)
+ a^3*b^2/((b^6*c^3 - 3*a*b^5*c^2*d + 3*a^2*b^4*c*d^2 - a^3*b^3*d
^3)*(b*x + a)) + 1/2*(b^2*c^3 - 6*a*b*c^2*d - 6*(a*b^3*c^3 - a^2*
b^2*c^2*d)/((b*x + a)*b))/((b*c - a*d)^4*(b*c/(b*x + a) - a*d/(b*
x + a) + d)^2)
```

3.264 $\int \frac{x^2}{(a+bx)^2(c+dx)^3}\,dx$

Optimal. Leaf size=124

$$-\frac{a^2}{(a+bx)(bc-ad)^3}-\frac{c^2}{2d(c+dx)^2(bc-ad)^2}-\frac{2ac}{(c+dx)(bc-ad)^3}-\frac{a(ad+2bc)\log(a+bx)}{(bc-ad)^4}+\frac{a(ad+2bc)\log(c+dx)}{(bc-ad)^4}$$

```
[Out] -(a^2/((b*c - a*d)^3*(a + b*x))) - c^2/(2*d*(b*c - a*d)^2*(c + d*
x)^2) - (2*a*c)/((b*c - a*d)^3*(c + d*x)) - (a*(2*b*c + a*d)*Log[
a + b*x])/(b*c - a*d)^4 + (a*(2*b*c + a*d)*Log[c + d*x])/(b*c - a
*d)^4
```

Rubi [A] time = 0.237453, antiderivative size = 124, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{a^2}{(a+bx)(bc-ad)^3}-\frac{c^2}{2d(c+dx)^2(bc-ad)^2}-\frac{2ac}{(c+dx)(bc-ad)^3}-\frac{a(ad+2bc)\log(a+bx)}{(bc-ad)^4}+\frac{a(ad+2bc)\log(c+dx)}{(bc-ad)^4}$$

Antiderivative was successfully verified.

```
[In]  Int[x^2/((a + b*x)^2*(c + d*x)^3),x]
```

```
[Out] -(a^2/((b*c - a*d)^3*(a + b*x))) - c^2/(2*d*(b*c - a*d)^2*(c + d*
x)^2) - (2*a*c)/((b*c - a*d)^3*(c + d*x)) - (a*(2*b*c + a*d)*Log[
a + b*x])/(b*c - a*d)^4 + (a*(2*b*c + a*d)*Log[c + d*x])/(b*c - a
*d)^4
```

Rubi in Sympy [A] time = 40.8114, size = 107, normalized size = 0.86

$$\frac{a^2}{(a+bx)(ad-bc)^3}+\frac{2ac}{(c+dx)(ad-bc)^3}-\frac{a(ad+2bc)\log(a+bx)}{(ad-bc)^4}+\frac{a(ad+2bc)\log(c+dx)}{(ad-bc)^4}-\frac{c^2}{2d(c+dx)^2(ad-bc)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2/(b*x+a)**2/(d*x+c)**3,x)
```

```
[Out] a**2/((a + b*x)*(a*d - b*c)**3) + 2*a*c/((c + d*x)*(a*d - b*c)**3
) - a*(a*d + 2*b*c)*log(a + b*x)/(a*d - b*c)**4 + a*(a*d + 2*b*c)
*log(c + d*x)/(a*d - b*c)**4 - c**2/(2*d*(c + d*x)**2*(a*d - b*c)
**2)
```

Mathematica [A] time = 0.240947, size = 123, normalized size = 0.99

$$\frac{a^2}{(a+bx)(ad-bc)^3}-\frac{c^2}{2d(c+dx)^2(bc-ad)^2}-\frac{2ac}{(c+dx)(bc-ad)^3}-\frac{a(ad+2bc)\log(a+bx)}{(bc-ad)^4}+\frac{a(ad+2bc)\log(c+dx)}{(bc-ad)^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^2/((a + b*x)^2*(c + d*x)^3),x]
```

```
[Out] a^2/((-(b*c) + a*d)^3*(a + b*x)) - c^2/(2*d*(b*c - a*d)^2*(c + d*
x)^2) - (2*a*c)/((b*c - a*d)^3*(c + d*x)) - (a*(2*b*c + a*d)*Log[
a + b*x])/(b*c - a*d)^4 + (a*(2*b*c + a*d)*Log[c + d*x])/(b*c - a
*d)^4
```

Maple [A] time = 0.017, size = 154, normalized size = 1.2

$$-\frac{c^2}{2\,(ad-bc)^2\,d\,(dx+c)^2}+\frac{a^2\ln(dx+c)\,d}{(ad-bc)^4}+2\,\frac{a\ln(dx+c)\,bc}{(ad-bc)^4}+2\,\frac{ac}{(ad-bc)^3\,(dx+c)}+\frac{a^2}{(ad-bc)^3\,(bx+a)}-\frac{a^2\ln(bx+a)\,d}{(ad-bc)^4}-2\,\frac{a\ln(bx+a)\,bc}{(ad-bc)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2/(b*x+a)^2/(d*x+c)^3,x)
```

```
[Out] -1/2*c^2/(a*d-b*c)^2/d/(d*x+c)^2+a^2/(a*d-b*c)^4*ln(d*x+c)*d+2*a/
(a*d-b*c)^4*ln(d*x+c)*b*c+2*c*a/(a*d-b*c)^3/(d*x+c)+1/(a*d-b*c)^3
*a^2/(b*x+a)-a^2/(a*d-b*c)^4*ln(b*x+a)*d-2*a/(a*d-b*c)^4*ln(b*x+a
)*b*c
```

Maxima [A] time = 1.37663, size = 567, normalized size = 4.57

$$-\frac{\left(2\,abc+a^2d\right)\log(bx+a)}{b^4c^4-4\,ab^3c^3d+6\,a^2b^2c^2d^2-4\,a^3bcd^3+a^4d^4}+\frac{\left(2\,abc+a^2d\right)\log(dx+c)}{b^4c^4-4\,ab^3c^3d+6\,a^2b^2c^2d^2-4\,a^3bcd^3+a^4d^4}-\frac{abc^3+5\,a^2c^2d+2\left(2\,abcd^2+a^2d^3\right)x^2+\left(b^2c^3+3\,abc\right.}{2\,(ab^3c^5d-3\,a^2b^2c^4d^2+3\,a^3bc^3d^3-a^4c^2d^4+(b^4c^3d^3-3\,ab^3c^2d^4+3\,a^2b^2cd^5-a^3bd^6)x^3+(2\,b^4c^4d^2-5\,ab^3c^3d^3+3\,a^2b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2/((b*x + a)^2*(d*x + c)^3),x, algorithm="maxima")
```

```
[Out] -(2*a*b*c + a^2*d)*log(b*x + a)/(b^4*c^4 - 4*a*b^3*c^3*d + 6*a^2*
b^2*c^2*d^2 - 4*a^3*b*c*d^3 + a^4*d^4) + (2*a*b*c + a^2*d)*log(d*
x + c)/(b^4*c^4 - 4*a*b^3*c^3*d + 6*a^2*b^2*c^2*d^2 - 4*a^3*b*c*d
^3 + a^4*d^4) - 1/2*(a*b*c^3 + 5*a^2*c^2*d + 2*(2*a*b*c*d^2 + a^2
*d^3)*x^2 + (b^2*c^3 + 3*a*b*c^2*d + 8*a^2*c*d^2)*x)/(a*b^3*c^5*d
 - 3*a^2*b^2*c^4*d^2 + 3*a^3*b*c^3*d^3 - a^4*c^2*d^4 + (b^4*c^3*d
^3 - 3*a*b^3*c^2*d^4 + 3*a^2*b^2*c*d^5 - a^3*b*d^6)*x^3 + (2*b^4*
c^4*d^2 - 5*a*b^3*c^3*d^3 + 3*a^2*b^2*c^2*d^4 + a^3*b*c*d^5 - a^4
*d^6)*x^2 + (b^4*c^5*d - a*b^3*c^4*d^2 - 3*a^2*b^2*c^3*d^3 + 5*a^
3*b*c^2*d^4 - 2*a^4*c*d^5)*x)
```

Fricas [A] time = 0.222026, size = 833, normalized size = 6.72

$$-\frac{ab^2c^4+4\,a^2bc^3d-5\,a^3c^2d^2+2\left(2\,ab^2c^2d^2-a^2bcd^3-a^3d^4\right)x^2+\left(b^3c^4+2\,ab^2c^3d+5\,a^2bc^2d^2-8\,a^3cd^3\right)x+2\left(2\,a^2bc^3d+\right.}{2\,(ab^4c^6d-4\,a^2b^3c^5d^2+6\,a^3b^2c^4d^3-4\,a^4bc^3d^4+a^5c^2d^5+(b^5c^4d^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2/((b*x + a)^2*(d*x + c)^3),x, algorithm="fricas")
```

```
[Out] -1/2*(a*b^2*c^4 + 4*a^2*b*c^3*d - 5*a^3*c^2*d^2 + 2*(2*a*b^2*c^2*
d^2 - a^2*b*c*d^3 - a^3*d^4)*x^2 + (b^3*c^4 + 2*a*b^2*c^3*d + 5*a
^2*b*c^2*d^2 - 8*a^3*c*d^3)*x + 2*(2*a^2*b*c^3*d + a^3*c^2*d^2 +
(2*a*b^2*c*d^3 + a^2*b*d^4)*x^3 + (4*a*b^2*c^2*d^2 + 4*a^2*b*c*d^
```

```
3 + a^3*d^4)*x^2 + (2*a*b^2*c^3*d + 5*a^2*b*c^2*d^2 + 2*a^3*c*d^3
)*x)*log(b*x + a) - 2*(2*a^2*b*c^3*d + a^3*c^2*d^2 + (2*a*b^2*c*d
^3 + a^2*b*d^4)*x^3 + (4*a*b^2*c^2*d^2 + 4*a^2*b*c*d^3 + a^3*d^4)
*x^2 + (2*a*b^2*c^3*d + 5*a^2*b*c^2*d^2 + 2*a^3*c*d^3)*x)*log(d*x
 + c))/(a*b^4*c^6*d - 4*a^2*b^3*c^5*d^2 + 6*a^3*b^2*c^4*d^3 - 4*a
^4*b*c^3*d^4 + a^5*c^2*d^5 + (b^5*c^4*d^3 - 4*a*b^4*c^3*d^4 + 6*a
^2*b^3*c^2*d^5 - 4*a^3*b^2*c*d^6 + a^4*b*d^7)*x^3 + (2*b^5*c^5*d^
2 - 7*a*b^4*c^4*d^3 + 8*a^2*b^3*c^3*d^4 - 2*a^3*b^2*c^2*d^5 - 2*a
^4*b*c*d^6 + a^5*d^7)*x^2 + (b^5*c^6*d - 2*a*b^4*c^5*d^2 - 2*a^2*
b^3*c^4*d^3 + 8*a^3*b^2*c^3*d^4 - 7*a^4*b*c^2*d^5 + 2*a^5*c*d^6)*
x)
```

Sympy [A] time = 13.2625, size = 787, normalized size = 6.35

$$\frac{a\left(ad+2bc\right)\log\left(x+\frac{-\frac{a^6d^5(ad+2bc)}{(ad-bc)^4}+\frac{5a^5bcd^4(ad+2bc)}{(ad-bc)^4}-\frac{10a^4b^2c^2d^3(ad+2bc)}{(ad-bc)^4}+\frac{10a^3b^3c^3d^2(ad+2bc)}{(ad-bc)^4}+a^3d^2-\frac{5a^2b^4c^4d(ad+2bc)}{(ad-bc)^4}+3a^2bcd+\frac{ab^5c^5(ad+2bc)}{(ad-bc)^4}+2ab^2c^2}{2a^2bd^2+4ab^2cd}\right)}{(ad-bc)^4}-\frac{a\left(ad+2bc\right)\log\left(x+\frac{\frac{a^6d^5(ad+2bc)}{(ad-bc)^4}-\frac{5a^5bcd^4(ad+2bc)}{(ad-bc)^4}+\frac{10a^4b^2c^2d^3(ad+2bc)}{(ad-bc)^4}-\frac{10a^3b^3c^3d^2(ad+2bc)}{(ad-bc)^4}+a^3d^2+\frac{5a^2b^4c^4d(ad+2bc)}{(ad-bc)^4}+3a^2bcd-\frac{ab^5c^5(ad+2bc)}{(ad-bc)^4}+2ab^2c^2}{2a^2bd^2+4ab^2cd}\right)}{(ad-bc)^4}+\frac{5a^2c^2d+abc^3+x^2\left(2a^2d^3+4abcd^2\right)+x\left(8a^2cd^2+\cdots\right)}{2a^4c^2d^4-6a^3bc^3d^3+6a^2b^2c^4d^2-2ab^3c^5d+x^3\left(2a^3bd^6-6a^2b^2cd^5+6ab^3c^2d^4-2b^4c^3d^3\right)+x^2\left(2a^4d^6-2a^3bcd^5-6a^2b^2\cdots\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2/(b*x+a)**2/(d*x+c)**3,x)
```

```
[Out] a*(a*d + 2*b*c)*log(x + (-a**6*d**5*(a*d + 2*b*c)/(a*d - b*c)**4
+ 5*a**5*b*c*d**4*(a*d + 2*b*c)/(a*d - b*c)**4 - 10*a**4*b**2*c**
2*d**3*(a*d + 2*b*c)/(a*d - b*c)**4 + 10*a**3*b**3*c**3*d**2*(a*d
 + 2*b*c)/(a*d - b*c)**4 + a**3*d**2 - 5*a**2*b**4*c**4*d*(a*d +
2*b*c)/(a*d - b*c)**4 + 3*a**2*b*c*d + a*b**5*c**5*(a*d + 2*b*c)/
(a*d - b*c)**4 + 2*a*b**2*c**2)/(2*a**2*b*d**2 + 4*a*b**2*c*d))/(
a*d - b*c)**4 - a*(a*d + 2*b*c)*log(x + (a**6*d**5*(a*d + 2*b*c)/
(a*d - b*c)**4 - 5*a**5*b*c*d**4*(a*d + 2*b*c)/(a*d - b*c)**4 + 1
0*a**4*b**2*c**2*d**3*(a*d + 2*b*c)/(a*d - b*c)**4 - 10*a**3*b**3
*c**3*d**2*(a*d + 2*b*c)/(a*d - b*c)**4 + a**3*d**2 + 5*a**2*b**4
*c**4*d*(a*d + 2*b*c)/(a*d - b*c)**4 + 3*a**2*b*c*d - a*b**5*c**5
*(a*d + 2*b*c)/(a*d - b*c)**4 + 2*a*b**2*c**2)/(2*a**2*b*d**2 + 4
*a*b**2*c*d))/(a*d - b*c)**4 + (5*a**2*c**2*d + a*b*c**3 + x**2*(
2*a**2*d**3 + 4*a*b*c*d**2) + x*(8*a**2*c*d**2 + 3*a*b*c**2*d + b
**2*c**3))/(2*a**4*c**2*d**4 - 6*a**3*b*c**3*d**3 + 6*a**2*b**2*c
**4*d**2 - 2*a*b**3*c**5*d + x**3*(2*a**3*b*d**6 - 6*a**2*b**2*c*
d**5 + 6*a*b**3*c**2*d**4 - 2*b**4*c**3*d**3) + x**2*(2*a**4*d**6
 - 2*a**3*b*c*d**5 - 6*a**2*b**2*c**2*d**4 + 10*a*b**3*c**3*d**3
- 4*b**4*c**4*d**2) + x*(4*a**4*c*d**5 - 10*a**3*b*c**2*d**4 + 6*
a**2*b**2*c**3*d**3 + 2*a*b**3*c**4*d**2 - 2*b**4*c**5*d))
```

GIAC/XCAS [A] time = 0.282836, size = 335, normalized size = 2.7

$$-\frac{a^2b^3}{(b^6c^3-3\,ab^5c^2d+3\,a^2b^4cd^2-a^3b^3d^3)(bx+a)}+\frac{\left(2\,ab^2c+a^2bd\right)\ln\left(\left|\frac{bc}{bx+a}-\frac{ad}{bx+a}+d\right|\right)}{b^5c^4-4\,ab^4c^3d+6\,a^2b^3c^2d^2-4\,a^3b^2cd^3+a^4bd^4}+\frac{b^2c^2d+4\,abcd^2+\frac{2\left(b^4c^3+ab^3c^2d-2\,a^2b^2cd^2\right)}{(bx+a)b}}{2\,(bc-ad)^4\left(\frac{bc}{bx+a}-\frac{ad}{bx+a}+d\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2/((b*x + a)^2*(d*x + c)^3),x, algorithm="giac")
```

```
[Out] -a^2*b^3/((b^6*c^3 - 3*a*b^5*c^2*d + 3*a^2*b^4*c*d^2 - a^3*b^3*d^
3)*(b*x + a)) + (2*a*b^2*c + a^2*b*d)*ln(abs(b*c/(b*x + a) - a*d/
```

```
(b*x + a) + d))/(b^5*c^4 - 4*a*b^4*c^3*d + 6*a^2*b^3*c^2*d^2 - 4*
a^3*b^2*c*d^3 + a^4*b*d^4) + 1/2*(b^2*c^2*d + 4*a*b*c*d^2 + 2*(b^
4*c^3 + a*b^3*c^2*d - 2*a^2*b^2*c*d^2)/((b*x + a)*b))/((b*c - a*d
)^4*(b*c/(b*x + a) - a*d/(b*x + a) + d)^2)
```

3.265 $\int \frac{x}{(a+bx)^2(c+dx)^3}\,dx$

Optimal. Leaf size=121

$$\frac{ab}{(a+bx)(bc-ad)^3}+\frac{ad+bc}{(c+dx)(bc-ad)^3}+\frac{c}{2(c+dx)^2(bc-ad)^2}+\frac{b(2ad+bc)\log(a+bx)}{(bc-ad)^4}-\frac{b(2ad+bc)\log(c+dx)}{(bc-ad)^4}$$

```
[Out] (a*b)/((b*c - a*d)^3*(a + b*x)) + c/(2*(b*c - a*d)^2*(c + d*x)^2)
 + (b*c + a*d)/((b*c - a*d)^3*(c + d*x)) + (b*(b*c + 2*a*d)*Log[a
 + b*x])/(b*c - a*d)^4 - (b*(b*c + 2*a*d)*Log[c + d*x])/(b*c - a*
d)^4
```

Rubi [A] time = 0.221149, antiderivative size = 121, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$\frac{ab}{(a+bx)(bc-ad)^3}+\frac{ad+bc}{(c+dx)(bc-ad)^3}+\frac{c}{2(c+dx)^2(bc-ad)^2}+\frac{b(2ad+bc)\log(a+bx)}{(bc-ad)^4}-\frac{b(2ad+bc)\log(c+dx)}{(bc-ad)^4}$$

Antiderivative was successfully verified.

```
[In]  Int[x/((a + b*x)^2*(c + d*x)^3),x]
```

```
[Out] (a*b)/((b*c - a*d)^3*(a + b*x)) + c/(2*(b*c - a*d)^2*(c + d*x)^2)
 + (b*c + a*d)/((b*c - a*d)^3*(c + d*x)) + (b*(b*c + 2*a*d)*Log[a
 + b*x])/(b*c - a*d)^4 - (b*(b*c + 2*a*d)*Log[c + d*x])/(b*c - a*
d)^4
```

Rubi in Sympy [A] time = 38.8412, size = 105, normalized size = 0.87

$$-\frac{ab}{(a+bx)(ad-bc)^3}+\frac{b(2ad+bc)\log(a+bx)}{(ad-bc)^4}-\frac{b(2ad+bc)\log(c+dx)}{(ad-bc)^4}+\frac{c}{2(c+dx)^2(ad-bc)^2}-\frac{ad+bc}{(c+dx)(ad-bc)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x/(b*x+a)**2/(d*x+c)**3,x)
```

```
[Out] -a*b/((a + b*x)*(a*d - b*c)**3) + b*(2*a*d + b*c)*log(a + b*x)/(a
*d - b*c)**4 - b*(2*a*d + b*c)*log(c + d*x)/(a*d - b*c)**4 + c/(2
*(c + d*x)**2*(a*d - b*c)**2) - (a*d + b*c)/((c + d*x)*(a*d - b*c
)**3)
```

Mathematica [A] time = 0.166561, size = 111, normalized size = 0.92

$$\frac{\frac{c(bc-ad)^2}{(c+dx)^2}+\frac{2ab(bc-ad)}{a+bx}+\frac{2(ad+bc)(bc-ad)}{c+dx}+2b(2ad+bc)\log(a+bx)-2b(2ad+bc)\log(c+dx)}{2(bc-ad)^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x/((a + b*x)^2*(c + d*x)^3),x]
```

```
[Out] ((2*a*b*(b*c - a*d))/(a + b*x) + (c*(b*c - a*d)^2)/(c + d*x)^2 +
(2*(b*c - a*d)*(b*c + a*d))/(c + d*x) + 2*b*(b*c + 2*a*d)*Log[a +
 b*x] - 2*b*(b*c + 2*a*d)*Log[c + d*x])/(2*(b*c - a*d)^4)
```

Maple [A] time = 0.019, size = 170, normalized size = 1.4

$$-\frac{ad}{\left(ad-bc\right)^{3}\left(dx+c\right)}-\frac{bc}{\left(ad-bc\right)^{3}\left(dx+c\right)}+\frac{c}{2\left(ad-bc\right)^{2}\left(dx+c\right)^{2}}-2\,\frac{b\ln\left(dx+c\right)ad}{\left(ad-bc\right)^{4}}-\frac{b^{2}\ln\left(dx+c\right)c}{\left(ad-bc\right)^{4}}-\frac{ab}{\left(ad-bc\right)^{3}\left(bx+a\right)}+2\,\frac{b\ln\left(bx+a\right)ad}{\left(ad-bc\right)^{4}}+\frac{b^{2}\ln\left(bx+a\right)c}{\left(ad-bc\right)^{4}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x/(b*x+a)^2/(d*x+c)^3,x)
```

```
[Out] -1/(a*d-b*c)^3/(d*x+c)*a*d-1/(a*d-b*c)^3/(d*x+c)*b*c+1/2*c/(a*d-b
*c)^2/(d*x+c)^2-2*b/(a*d-b*c)^4*ln(d*x+c)*a*d-b^2/(a*d-b*c)^4*ln(
d*x+c)*c-b/(a*d-b*c)^3*a/(b*x+a)+2*b/(a*d-b*c)^4*ln(b*x+a)*a*d+b^
2/(a*d-b*c)^4*ln(b*x+a)*c
```

Maxima [A] time = 1.40096, size = 548, normalized size = 4.53

$$\frac{\left(b^{2}c+2\,abd\right)\log\left(bx+a\right)}{b^{4}c^{4}-4\,ab^{3}c^{3}d+6\,a^{2}b^{2}c^{2}d^{2}-4\,a^{3}bcd^{3}+a^{4}d^{4}}-\frac{\left(b^{2}c+2\,abd\right)\log\left(dx+c\right)}{b^{4}c^{4}-4\,ab^{3}c^{3}d+6\,a^{2}b^{2}c^{2}d^{2}-4\,a^{3}bcd^{3}+a^{4}d^{4}}+\frac{5\,abc^{2}+a^{2}cd+2\left(b^{2}cd+2\,abd^{2}\right)x^{2}+\left(3\,b^{2}c^{2}+7\,abcd+\cdots\right.}{2\left(ab^{3}c^{5}-3\,a^{2}b^{2}c^{4}d+3\,a^{3}bc^{3}d^{2}-a^{4}c^{2}d^{3}+\left(b^{4}c^{3}d^{2}-3\,ab^{3}c^{2}d^{3}+3\,a^{2}b^{2}cd^{4}-a^{3}bd^{5}\right)x^{3}+\left(2\,b^{4}c^{4}d-5\,ab^{3}c^{3}d^{2}+3\,a^{2}b^{2}c^{2}d\cdots\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/((b*x + a)^2*(d*x + c)^3),x, algorithm="maxima")
```

```
[Out] (b^2*c + 2*a*b*d)*log(b*x + a)/(b^4*c^4 - 4*a*b^3*c^3*d + 6*a^2*b
^2*c^2*d^2 - 4*a^3*b*c*d^3 + a^4*d^4) - (b^2*c + 2*a*b*d)*log(d*x
 + c)/(b^4*c^4 - 4*a*b^3*c^3*d + 6*a^2*b^2*c^2*d^2 - 4*a^3*b*c*d^
3 + a^4*d^4) + 1/2*(5*a*b*c^2 + a^2*c*d + 2*(b^2*c*d + 2*a*b*d^2)
*x^2 + (3*b^2*c^2 + 7*a*b*c*d + 2*a^2*d^2)*x)/(a*b^3*c^5 - 3*a^2*
b^2*c^4*d + 3*a^3*b*c^3*d^2 - a^4*c^2*d^3 + (b^4*c^3*d^2 - 3*a*b^
3*c^2*d^3 + 3*a^2*b^2*c*d^4 - a^3*b*d^5)*x^3 + (2*b^4*c^4*d - 5*a
*b^3*c^3*d^2 + 3*a^2*b^2*c^2*d^3 + a^3*b*c*d^4 - a^4*d^5)*x^2 + (
b^4*c^5 - a*b^3*c^4*d - 3*a^2*b^2*c^3*d^2 + 5*a^3*b*c^2*d^3 - 2*a
^4*c*d^4)*x)
```

Fricas [A] time = 0.224082, size = 791, normalized size = 6.54

$$\frac{5\,ab^{2}c^{3}-4\,a^{2}bc^{2}d-a^{3}cd^{2}+2\left(b^{3}c^{2}d+ab^{2}cd^{2}-2\,a^{2}bd^{3}\right)x^{2}+\left(3\,b^{3}c^{3}+4\,ab^{2}c^{2}d-5\,a^{2}bcd^{2}-2\,a^{3}d^{3}\right)x+2\left(ab^{2}c^{3}+2\,a^{2}bc\cdots\right.}{2\left(ab^{4}c^{6}-4\,a^{2}b^{3}c^{5}d+6\,a^{3}b^{2}c^{4}d^{2}-4\,a^{4}bc^{3}d^{3}+a^{5}c^{2}d^{4}+\left(b^{5}c^{4}d^{2}-4\,ab^{4}\cdots\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/((b*x + a)^2*(d*x + c)^3),x, algorithm="fricas")
```

```
[Out] 1/2*(5*a*b^2*c^3 - 4*a^2*b*c^2*d - a^3*c*d^2 + 2*(b^3*c^2*d + a*b
^2*c*d^2 - 2*a^2*b*d^3)*x^2 + (3*b^3*c^3 + 4*a*b^2*c^2*d - 5*a^2*
b*c*d^2 - 2*a^3*d^3)*x + 2*(a*b^2*c^3 + 2*a^2*b*c^2*d + (b^3*c*d^
2 + 2*a*b^2*d^3)*x^3 + (2*b^3*c^2*d + 5*a*b^2*c*d^2 + 2*a^2*b*d^3
)*x^2 + (b^3*c^3 + 4*a*b^2*c^2*d + 4*a^2*b*c*d^2)*x)*log(b*x + a)
 - 2*(a*b^2*c^3 + 2*a^2*b*c^2*d + (b^3*c*d^2 + 2*a*b^2*d^3)*x^3 +
 (2*b^3*c^2*d + 5*a*b^2*c*d^2 + 2*a^2*b*d^3)*x^2 + (b^3*c^3 + 4*a
*b^2*c^2*d + 4*a^2*b*c*d^2)*x)*log(d*x + c))/(a*b^4*c^6 - 4*a^2*b
```

```
^3*c^5*d + 6*a^3*b^2*c^4*d^2 - 4*a^4*b*c^3*d^3 + a^5*c^2*d^4 + (b
^5*c^4*d^2 - 4*a*b^4*c^3*d^3 + 6*a^2*b^3*c^2*d^4 - 4*a^3*b^2*c*d^
5 + a^4*b*d^6)*x^3 + (2*b^5*c^5*d - 7*a*b^4*c^4*d^2 + 8*a^2*b^3*c
^3*d^3 - 2*a^3*b^2*c^2*d^4 - 2*a^4*b*c*d^5 + a^5*d^6)*x^2 + (b^5*
c^6 - 2*a*b^4*c^5*d - 2*a^2*b^3*c^4*d^2 + 8*a^3*b^2*c^3*d^3 - 7*a
^4*b*c^2*d^4 + 2*a^5*c*d^5)*x)
```

Sympy [A] time = 13.2472, size = 770, normalized size = 6.36

$$-\frac{b(2ad+bc)\log\left(x+\frac{-\frac{a^5bd^5(2ad+bc)}{(ad-bc)^4}+\frac{5a^4b^2cd^4(2ad+bc)}{(ad-bc)^4}-\frac{10a^3b^3c^2d^3(2ad+bc)}{(ad-bc)^4}+\frac{10a^2b^4c^3d^2(2ad+bc)}{(ad-bc)^4}+2a^2bd^2-\frac{5ab^5c^4d(2ad+bc)}{(ad-bc)^4}+3ab^2cd+\frac{b^6c^5(2ad+bc)}{(ad-bc)^4}+b^{\cdots}}{4ab^2d^2+2b^3cd}\right.}{(ad-bc)^4}$$
$$+\frac{b(2ad+bc)\log\left(x+\frac{\frac{a^5bd^5(2ad+bc)}{(ad-bc)^4}-\frac{5a^4b^2cd^4(2ad+bc)}{(ad-bc)^4}+\frac{10a^3b^3c^2d^3(2ad+bc)}{(ad-bc)^4}-\frac{10a^2b^4c^3d^2(2ad+bc)}{(ad-bc)^4}+2a^2bd^2+\frac{5ab^5c^4d(2ad+bc)}{(ad-bc)^4}+3ab^2cd-\frac{b^6c^5(2ad+bc)}{(ad-bc)^4}+b^3c^{\cdots}}{4ab^2d^2+2b^3cd}\right.}{(ad-bc)^4}$$
$$-\frac{a^2cd+5abc^2+x^2\left(4abd^2+2b^2cd\right)+x\left(2a^2d^2+7a\cdots\right.}{2a^4c^2d^3-6a^3bc^3d^2+6a^2b^2c^4d-2ab^3c^5+x^3\left(2a^3bd^5-6a^2b^2cd^4+6ab^3c^2d^3-2b^4c^3d^2\right)+x^2\left(2a^4d^5-2a^3bcd^4-6a^2b^2c^2\cdots\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/(b*x+a)**2/(d*x+c)**3,x)
```

```
[Out] -b*(2*a*d + b*c)*log(x + (-a**5*b*d**5*(2*a*d + b*c)/(a*d - b*c)*
*4 + 5*a**4*b**2*c*d**4*(2*a*d + b*c)/(a*d - b*c)**4 - 10*a**3*b*
*3*c**2*d**3*(2*a*d + b*c)/(a*d - b*c)**4 + 10*a**2*b**4*c**3*d**
2*(2*a*d + b*c)/(a*d - b*c)**4 + 2*a**2*b*d**2 - 5*a*b**5*c**4*d*
(2*a*d + b*c)/(a*d - b*c)**4 + 3*a*b**2*c*d + b**6*c**5*(2*a*d +
b*c)/(a*d - b*c)**4 + b**3*c**2)/(4*a*b**2*d**2 + 2*b**3*c*d))/(a
*d - b*c)**4 + b*(2*a*d + b*c)*log(x + (a**5*b*d**5*(2*a*d + b*c)
/(a*d - b*c)**4 - 5*a**4*b**2*c*d**4*(2*a*d + b*c)/(a*d - b*c)**4
 + 10*a**3*b**3*c**2*d**3*(2*a*d + b*c)/(a*d - b*c)**4 - 10*a**2*
b**4*c**3*d**2*(2*a*d + b*c)/(a*d - b*c)**4 + 2*a**2*b*d**2 + 5*a
*b**5*c**4*d*(2*a*d + b*c)/(a*d - b*c)**4 + 3*a*b**2*c*d - b**6*c
**5*(2*a*d + b*c)/(a*d - b*c)**4 + b**3*c**2)/(4*a*b**2*d**2 + 2*
b**3*c*d))/(a*d - b*c)**4 - (a**2*c*d + 5*a*b*c**2 + x**2*(4*a*b*
d**2 + 2*b**2*c*d) + x*(2*a**2*d**2 + 7*a*b*c*d + 3*b**2*c**2))/(
2*a**4*c**2*d**3 - 6*a**3*b*c**3*d**2 + 6*a**2*b**2*c**4*d - 2*a*
b**3*c**5 + x**3*(2*a**3*b*d**5 - 6*a**2*b**2*c*d**4 + 6*a*b**3*c
**2*d**3 - 2*b**4*c**3*d**2) + x**2*(2*a**4*d**5 - 2*a**3*b*c*d**
4 - 6*a**2*b**2*c**2*d**3 + 10*a*b**3*c**3*d**2 - 4*b**4*c**4*d)
+ x*(4*a**4*c*d**4 - 10*a**3*b*c**2*d**3 + 6*a**2*b**2*c**3*d**2
+ 2*a*b**3*c**4*d - 2*b**4*c**5))
```

GIAC/XCAS [A] time = 0.262889, size = 344, normalized size = 2.84

$$\frac{\frac{2\,ab^5}{\left(b^6c^3-3\,ab^5c^2d+3\,a^2b^4cd^2-a^3b^3d^3\right)(bx+a)}-\frac{2\left(b^4c+2\,ab^3d\right)\ln\left(\left|\frac{bc}{bx+a}-\frac{ad}{bx+a}+d\right|\right)}{b^5c^4-4\,ab^4c^3d+6\,a^2b^3c^2d^2-4\,a^3b^2cd^3+a^4bd^4}-\frac{3\,b^3cd^2+2\,ab^2d^3+\frac{2\left(2\,b^5c^2d-ab^4cd^2-a^2b^3d^3\right)}{(bx+a)b}}{(bc-ad)^4\left(\frac{bc}{bx+a}-\frac{ad}{bx+a}+d\right)^2}}{2\,b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/((b*x + a)^2*(d*x + c)^3),x, algorithm="giac")
```

```
[Out] 1/2*(2*a*b^5/((b^6*c^3 - 3*a*b^5*c^2*d + 3*a^2*b^4*c*d^2 - a^3*b^
3*d^3)*(b*x + a)) - 2*(b^4*c + 2*a*b^3*d)*ln(abs(b*c/(b*x + a) -
a*d/(b*x + a) + d))/(b^5*c^4 - 4*a*b^4*c^3*d + 6*a^2*b^3*c^2*d^2
- 4*a^3*b^2*c*d^3 + a^4*b*d^4) - (3*b^3*c*d^2 + 2*a*b^2*d^3 + 2*(
2*b^5*c^2*d - a*b^4*c*d^2 - a^2*b^3*d^3)/((b*x + a)*b))/((b*c - a
*d)^4*(b*c/(b*x + a) - a*d/(b*x + a) + d)^2))/b
```

3.266 $\int \frac{1}{(a+bx)^2(c+dx)^3}\,dx$

Optimal. Leaf size=110

$$-\frac{b^2}{(a+bx)(bc-ad)^3}-\frac{3b^2d\log(a+bx)}{(bc-ad)^4}+\frac{3b^2d\log(c+dx)}{(bc-ad)^4}-\frac{2bd}{(c+dx)(bc-ad)^3}-\frac{d}{2(c+dx)^2(bc-ad)^2}$$

```
[Out] -(b^2/((b*c - a*d)^3*(a + b*x))) - d/(2*(b*c - a*d)^2*(c + d*x)^2
) - (2*b*d)/((b*c - a*d)^3*(c + d*x)) - (3*b^2*d*Log[a + b*x])/(b
*c - a*d)^4 + (3*b^2*d*Log[c + d*x])/(b*c - a*d)^4
```

Rubi [A] time = 0.159511, antiderivative size = 110, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.067

$$-\frac{b^2}{(a+bx)(bc-ad)^3}-\frac{3b^2d\log(a+bx)}{(bc-ad)^4}+\frac{3b^2d\log(c+dx)}{(bc-ad)^4}-\frac{2bd}{(c+dx)(bc-ad)^3}-\frac{d}{2(c+dx)^2(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((a + b*x)^2*(c + d*x)^3),x]
```

```
[Out] -(b^2/((b*c - a*d)^3*(a + b*x))) - d/(2*(b*c - a*d)^2*(c + d*x)^2
) - (2*b*d)/((b*c - a*d)^3*(c + d*x)) - (3*b^2*d*Log[a + b*x])/(b
*c - a*d)^4 + (3*b^2*d*Log[c + d*x])/(b*c - a*d)^4
```

Rubi in Sympy [A] time = 36.3159, size = 97, normalized size = 0.88

$$-\frac{3b^2d\log(a+bx)}{(ad-bc)^4}+\frac{3b^2d\log(c+dx)}{(ad-bc)^4}+\frac{b^2}{(a+bx)(ad-bc)^3}+\frac{2bd}{(c+dx)(ad-bc)^3}-\frac{d}{2(c+dx)^2(ad-bc)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(b*x+a)**2/(d*x+c)**3,x)
```

```
[Out] -3*b**2*d*log(a + b*x)/(a*d - b*c)**4 + 3*b**2*d*log(c + d*x)/(a*
d - b*c)**4 + b**2/((a + b*x)*(a*d - b*c)**3) + 2*b*d/((c + d*x)*
(a*d - b*c)**3) - d/(2*(c + d*x)**2*(a*d - b*c)**2)
```

Mathematica [A] time = 0.167068, size = 97, normalized size = 0.88

$$-\frac{\frac{2b^2(bc-ad)}{a+bx}+6b^2d\log(a+bx)+\frac{4bd(bc-ad)}{c+dx}+\frac{d(bc-ad)^2}{(c+dx)^2}-6b^2d\log(c+dx)}{2(bc-ad)^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((a + b*x)^2*(c + d*x)^3),x]
```

```
[Out] -((2*b^2*(b*c - a*d))/(a + b*x) + (d*(b*c - a*d)^2)/(c + d*x)^2 +
 (4*b*d*(b*c - a*d))/(c + d*x) + 6*b^2*d*Log[a + b*x] - 6*b^2*d*L
og[c + d*x])/(2*(b*c - a*d)^4)
```

Maple [A] time = 0.002, size = 108, normalized size = 1.

$$-\frac{d}{2(ad-bc)^2(dx+c)^2}+3\frac{b^2d\ln(dx+c)}{(ad-bc)^4}+2\frac{bd}{(ad-bc)^3(dx+c)}+\frac{b^2}{(ad-bc)^3(bx+a)}-3\frac{b^2d\ln(bx+a)}{(ad-bc)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(b*x+a)^2/(d*x+c)^3,x)
```

```
[Out] -1/2*d/(a*d-b*c)^2/(d*x+c)^2+3*d/(a*d-b*c)^4*b^2*ln(d*x+c)+2*d/(a
*d-b*c)^3*b/(d*x+c)+b^2/(a*d-b*c)^3/(b*x+a)-3*d/(a*d-b*c)^4*b^2*l
n(b*x+a)
```

Maxima [A] time = 1.37654, size = 521, normalized size = 4.74

$$-\frac{3\,b^2 d \log\left(bx+a\right)}{b^4c^4 - 4\,ab^3c^3d + 6\,a^2b^2c^2d^2 - 4\,a^3bcd^3 + a^4d^4} + \frac{3\,b^2 d \log\left(dx+c\right)}{b^4c^4 - 4\,ab^3c^3d + 6\,a^2b^2c^2d^2 - 4\,a^3bcd^3 + a^4d^4} - \frac{6\,b^2d^2x^2 + 2\,b^2c^2 + 5\,abcd - a^2d^2 + 3\,(3\,b^2cd + ab}{2\,(ab^3c^5 - 3\,a^2b^2c^4d + 3\,a^3bc^3d^2 - a^4c^2d^3 + (b^4c^3d^2 - 3\,ab^3c^2d^3 + 3\,a^2b^2cd^4 - a^3bd^5)x^3 + (2\,b^4c^4d - 5\,ab^3c^3d^2 + 3\,a^2b^2c^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^2*(d*x + c)^3),x, algorithm="maxima")
```

```
[Out] -3*b^2*d*log(b*x + a)/(b^4*c^4 - 4*a*b^3*c^3*d + 6*a^2*b^2*c^2*d^
2 - 4*a^3*b*c*d^3 + a^4*d^4) + 3*b^2*d*log(d*x + c)/(b^4*c^4 - 4*
a*b^3*c^3*d + 6*a^2*b^2*c^2*d^2 - 4*a^3*b*c*d^3 + a^4*d^4) - 1/2*
(6*b^2*d^2*x^2 + 2*b^2*c^2 + 5*a*b*c*d - a^2*d^2 + 3*(3*b^2*c*d +
 a*b*d^2)*x)/(a*b^3*c^5 - 3*a^2*b^2*c^4*d + 3*a^3*b*c^3*d^2 - a^4
*c^2*d^3 + (b^4*c^3*d^2 - 3*a*b^3*c^2*d^3 + 3*a^2*b^2*c*d^4 - a^3
*b*d^5)*x^3 + (2*b^4*c^4*d - 5*a*b^3*c^3*d^2 + 3*a^2*b^2*c^2*d^3
+ a^3*b*c*d^4 - a^4*d^5)*x^2 + (b^4*c^5 - a*b^3*c^4*d - 3*a^2*b^2
*c^3*d^2 + 5*a^3*b*c^2*d^3 - 2*a^4*c*d^4)*x)
```

Fricas [A] time = 0.219392, size = 668, normalized size = 6.07

$$-\frac{2\,b^3c^3 + 3\,ab^2c^2d - 6\,a^2bcd^2 + a^3d^3 + 6\left(b^3cd^2 - ab^2d^3\right)x^2 + 3\left(3\,b^3c^2d - 2\,ab^2cd^2 - a^2bd^3\right)x + 6\left(b^3d^3x^3 + ab^2c^2d + (2\,b^3}{2\,(ab^4c^6 - 4\,a^2b^3c^5d + 6\,a^3b^2c^4d^2 - 4\,a^4bc^3d^3 + a^5c^2d^4 + (b^5c^4d^2 - 4\,ab^4c^3d^3 + 6\,a^2b^3c^2d^4 - 4\,a^3b^2cd^5 + a^4bd^6)x^3 + (2\,b^5c}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^2*(d*x + c)^3),x, algorithm="fricas")
```

```
[Out] -1/2*(2*b^3*c^3 + 3*a*b^2*c^2*d - 6*a^2*b*c*d^2 + a^3*d^3 + 6*(b^
3*c*d^2 - a*b^2*d^3)*x^2 + 3*(3*b^3*c^2*d - 2*a*b^2*c*d^2 - a^2*b
*d^3)*x + 6*(b^3*d^3*x^3 + a*b^2*c^2*d + (2*b^3*c*d^2 + a*b^2*d^3
)*x^2 + (b^3*c^2*d + 2*a*b^2*c*d^2)*x)*log(b*x + a) - 6*(b^3*d^3*
x^3 + a*b^2*c^2*d + (2*b^3*c*d^2 + a*b^2*d^3)*x^2 + (b^3*c^2*d +
2*a*b^2*c*d^2)*x)*log(d*x + c))/(a*b^4*c^6 - 4*a^2*b^3*c^5*d + 6*
a^3*b^2*c^4*d^2 - 4*a^4*b*c^3*d^3 + a^5*c^2*d^4 + (b^5*c^4*d^2 -
4*a*b^4*c^3*d^3 + 6*a^2*b^3*c^2*d^4 - 4*a^3*b^2*c*d^5 + a^4*b*d^6
)*x^3 + (2*b^5*c^5*d - 7*a*b^4*c^4*d^2 + 8*a^2*b^3*c^3*d^3 - 2*a^
3*b^2*c^2*d^4 - 2*a^4*b*c*d^5 + a^5*d^6)*x^2 + (b^5*c^6 - 2*a*b^4
*c^5*d - 2*a^2*b^3*c^4*d^2 + 8*a^3*b^2*c^3*d^3 - 7*a^4*b*c^2*d^4
+ 2*a^5*c*d^5)*x)
```

Sympy [A] time = 11.8284, size = 632, normalized size = 5.75

$$\frac{3b^2d\log\left(x+\frac{-\frac{3a^5b^2d^6}{(ad-bc)^4}+\frac{15a^4b^3cd^5}{(ad-bc)^4}-\frac{30a^3b^4c^2d^4}{(ad-bc)^4}+\frac{30a^2b^5c^3d^3}{(ad-bc)^4}-\frac{15ab^6c^4d^2}{(ad-bc)^4}+3ab^2d^2+\frac{3b^7c^5d}{(ad-bc)^4}+3b^3cd}{6b^3d^2}\right)}{(ad-bc)^4} - \frac{3b^2d\log\left(x+\frac{\frac{3a^5b^2d^6}{(ad-bc)^4}-\frac{15a^4b^3cd^5}{(ad-bc)^4}+\frac{30a^3b^4c^2d^4}{(ad-bc)^4}-\frac{30a^2b^5c^3d^3}{(ad-bc)^4}+\frac{15ab^6c^4d^2}{(ad-bc)^4}+3ab^2d^2-\frac{3b^7c^5d}{(ad-bc)^4}+3b^3cd}{6b^3d^2}\right)}{(ad-bc)^4} + \frac{-a^2d^2+5abcd+2b^2c^2+6b^2d^2x^2+x\left(3abd^2+\dots\right.}{2a^4c^2d^3-6a^3bc^3d^2+6a^2b^2c^4d-2ab^3c^5+x^3\left(2a^3bd^5-6a^2b^2cd^4+6ab^3c^2d^3-2b^4c^3d^2\right)+x^2\left(2a^4d^5-2a^3bcd^4-6a^2b^2c^2\dots\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(b*x+a)**2/(d*x+c)**3,x)
```

```
[Out] 3*b**2*d*log(x + (-3*a**5*b**2*d**6/(a*d - b*c)**4 + 15*a**4*b**3
*c*d**5/(a*d - b*c)**4 - 30*a**3*b**4*c**2*d**4/(a*d - b*c)**4 +
30*a**2*b**5*c**3*d**3/(a*d - b*c)**4 - 15*a*b**6*c**4*d**2/(a*d
- b*c)**4 + 3*a*b**2*d**2 + 3*b**7*c**5*d/(a*d - b*c)**4 + 3*b**3
*c*d)/(6*b**3*d**2))/(a*d - b*c)**4 - 3*b**2*d*log(x + (3*a**5*b*
*2*d**6/(a*d - b*c)**4 - 15*a**4*b**3*c*d**5/(a*d - b*c)**4 + 30*
a**3*b**4*c**2*d**4/(a*d - b*c)**4 - 30*a**2*b**5*c**3*d**3/(a*d
- b*c)**4 + 15*a*b**6*c**4*d**2/(a*d - b*c)**4 + 3*a*b**2*d**2 -
3*b**7*c**5*d/(a*d - b*c)**4 + 3*b**3*c*d)/(6*b**3*d**2))/(a*d -
b*c)**4 + (-a**2*d**2 + 5*a*b*c*d + 2*b**2*c**2 + 6*b**2*d**2*x**
2 + x*(3*a*b*d**2 + 9*b**2*c*d))/(2*a**4*c**2*d**3 - 6*a**3*b*c**
3*d**2 + 6*a**2*b**2*c**4*d - 2*a*b**3*c**5 + x**3*(2*a**3*b*d**5
 - 6*a**2*b**2*c*d**4 + 6*a*b**3*c**2*d**3 - 2*b**4*c**3*d**2) +
x**2*(2*a**4*d**5 - 2*a**3*b*c*d**4 - 6*a**2*b**2*c**2*d**3 + 10*
a*b**3*c**3*d**2 - 4*b**4*c**4*d) + x*(4*a**4*c*d**4 - 10*a**3*b*
c**2*d**3 + 6*a**2*b**2*c**3*d**2 + 2*a*b**3*c**4*d - 2*b**4*c**5
))
```

GIAC/XCAS [A] time = 0.305189, size = 293, normalized size = 2.66

$$\frac{3\,b^3d\ln\left(\left|\frac{bc}{bx+a}-\frac{ad}{bx+a}+d\right|\right)}{b^5c^4-4\,ab^4c^3d+6\,a^2b^3c^2d^2-4\,a^3b^2cd^3+a^4bd^4} - \frac{b^5}{(b^6c^3-3\,ab^5c^2d+3\,a^2b^4cd^2-a^3b^3d^3)(bx+a)} + \frac{5\,b^2d^3+\frac{6\,(b^4cd^2-ab^3d^3)}{(bx+a)b}}{2\,(bc-ad)^4\left(\frac{bc}{bx+a}-\frac{ad}{bx+a}+d\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^2*(d*x + c)^3),x, algorithm="giac")
```

```
[Out] 3*b^3*d*ln(abs(b*c/(b*x + a) - a*d/(b*x + a) + d))/(b^5*c^4 - 4*a
*b^4*c^3*d + 6*a^2*b^3*c^2*d^2 - 4*a^3*b^2*c*d^3 + a^4*b*d^4) - b
^5/((b^6*c^3 - 3*a*b^5*c^2*d + 3*a^2*b^4*c*d^2 - a^3*b^3*d^3)*(b*
x + a)) + 1/2*(5*b^2*d^3 + 6*(b^4*c*d^2 - a*b^3*d^3)/((b*x + a)*b
))/((b*c - a*d)^4*(b*c/(b*x + a) - a*d/(b*x + a) + d)^2)
```

3.267 $\int \frac{1}{x(a+bx)^2(c+dx)^3} dx$

Optimal. Leaf size=172

$$-\frac{b^3(bc-4ad)\log(a+bx)}{a^2(bc-ad)^4}-\frac{d^2\left(a^2d^2-4abcd+6b^2c^2\right)\log(c+dx)}{c^3(bc-ad)^4}+\frac{\log(x)}{a^2c^3}+\frac{b^3}{a(a+bx)(bc-ad)^3}+\frac{d^2(3bc-ad)}{c^2(c+dx)(bc-ad)^3}+\frac{d^2}{2c(c+dx)^2(bc-ad)^2}$$

```
[Out] b^3/(a*(b*c - a*d)^3*(a + b*x)) + d^2/(2*c*(b*c - a*d)^2*(c + d*x
)^2) + (d^2*(3*b*c - a*d))/(c^2*(b*c - a*d)^3*(c + d*x)) + Log[x]
/(a^2*c^3) - (b^3*(b*c - 4*a*d)*Log[a + b*x])/(a^2*(b*c - a*d)^4)
 - (d^2*(6*b^2*c^2 - 4*a*b*c*d + a^2*d^2)*Log[c + d*x])/(c^3*(b*c
 - a*d)^4)
```

Rubi [A] time = 0.373259, antiderivative size = 172, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.056$

$$-\frac{b^3(bc-4ad)\log(a+bx)}{a^2(bc-ad)^4}-\frac{d^2\left(a^2d^2-4abcd+6b^2c^2\right)\log(c+dx)}{c^3(bc-ad)^4}+\frac{\log(x)}{a^2c^3}+\frac{b^3}{a(a+bx)(bc-ad)^3}+\frac{d^2(3bc-ad)}{c^2(c+dx)(bc-ad)^3}+\frac{d^2}{2c(c+dx)^2(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x*(a + b*x)^2*(c + d*x)^3),x]
```

```
[Out] b^3/(a*(b*c - a*d)^3*(a + b*x)) + d^2/(2*c*(b*c - a*d)^2*(c + d*x
)^2) + (d^2*(3*b*c - a*d))/(c^2*(b*c - a*d)^3*(c + d*x)) + Log[x]
/(a^2*c^3) - (b^3*(b*c - 4*a*d)*Log[a + b*x])/(a^2*(b*c - a*d)^4)
 - (d^2*(6*b^2*c^2 - 4*a*b*c*d + a^2*d^2)*Log[c + d*x])/(c^3*(b*c
 - a*d)^4)
```

Rubi in Sympy [A] time = 84.5068, size = 155, normalized size = 0.9

$$\frac{d^2}{2c\left(c+dx\right)^2\left(ad-bc\right)^2}+\frac{d^2\left(ad-3bc\right)}{c^2\left(c+dx\right)\left(ad-bc\right)^3}-\frac{d^2\left(a^2d^2-4abcd+6b^2c^2\right)\log\left(c+dx\right)}{c^3\left(ad-bc\right)^4}-\frac{b^3}{a\left(a+bx\right)\left(ad-bc\right)^3}+\frac{b^3\left(4ad-bc\right)\log\left(a+bx\right)}{a^2\left(ad-bc\right)^4}+\frac{\log\left(x\right)}{a^2c^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x/(b*x+a)**2/(d*x+c)**3,x)
```

```
[Out] d**2/(2*c*(c + d*x)**2*(a*d - b*c)**2) + d**2*(a*d - 3*b*c)/(c**2
*(c + d*x)*(a*d - b*c)**3) - d**2*(a**2*d**2 - 4*a*b*c*d + 6*b**2
*c**2)*log(c + d*x)/(c**3*(a*d - b*c)**4) - b**3/(a*(a + b*x)*(a*
d - b*c)**3) + b**3*(4*a*d - b*c)*log(a + b*x)/(a**2*(a*d - b*c)*
*4) + log(x)/(a**2*c**3)
```

Mathematica [A] time = 0.476633, size = 173, normalized size = 1.01

$$\frac{b^3(4ad-bc)\log(a+bx)}{a^2(bc-ad)^4}-\frac{d^2\left(a^2d^2-4abcd+6b^2c^2\right)\log(c+dx)}{c^3(bc-ad)^4}+\frac{\log(x)}{a^2c^3}-\frac{b^3}{a(a+bx)(ad-bc)^3}+\frac{d^2(3bc-ad)}{c^2(c+dx)(bc-ad)^3}+\frac{d^2}{2c(c+dx)^2(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(x*(a + b*x)^2*(c + d*x)^3),x]
```

```
[Out] -(b^3/(a*(-(b*c) + a*d)^3*(a + b*x))) + d^2/(2*c*(b*c - a*d)^2*(c
 + d*x)^2) + (d^2*(3*b*c - a*d))/(c^2*(b*c - a*d)^3*(c + d*x)) +
Log[x]/(a^2*c^3) + (b^3*(-(b*c) + 4*a*d)*Log[a + b*x])/(a^2*(b*c
- a*d)^4) - (d^2*(6*b^2*c^2 - 4*a*b*c*d + a^2*d^2)*Log[c + d*x])/
(c^3*(b*c - a*d)^4)
```

Maple [A] time = 0.023, size = 242, normalized size = 1.4

$$\frac{d^2}{2c(ad-bc)^2(dx+c)^2}+\frac{d^3a}{c^2(ad-bc)^3(dx+c)}-3\frac{d^2b}{c(ad-bc)^3(dx+c)}-\frac{d^4\ln(dx+c)a^2}{c^3(ad-bc)^4}+4\frac{d^3\ln(dx+c)ab}{c^2(ad-bc)^4}-6\frac{d^2\ln(dx+c)b^2}{c(ad-bc)^4}+\frac{\ln(x)}{a^2c^3}-\frac{b^3}{(ad-bc)^3a(bx+a)}+4\frac{b^3\ln(bx+a)d}{(ad-bc)^4a}-\frac{b^4\ln(bx+a)c}{(ad-bc)^4a^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/x/(b*x+a)^2/(d*x+c)^3,x)
```

```
[Out] 1/2*d^2/c/(a*d-b*c)^2/(d*x+c)^2+d^3/c^2/(a*d-b*c)^3/(d*x+c)*a-3*d
^2/c/(a*d-b*c)^3/(d*x+c)*b-d^4/c^3/(a*d-b*c)^4*ln(d*x+c)*a^2+4*d^
3/c^2/(a*d-b*c)^4*ln(d*x+c)*a*b-6*d^2/c/(a*d-b*c)^4*ln(d*x+c)*b^2
+ln(x)/a^2/c^3-b^3/(a*d-b*c)^3/a/(b*x+a)+4*b^3/(a*d-b*c)^4/a*ln(b
*x+a)*d-b^4/(a*d-b*c)^4/a^2*ln(b*x+a)*c
```

Maxima [A] time = 1.38341, size = 697, normalized size = 4.05

$$-\frac{\left(b^4c-4ab^3d\right)\log(bx+a)}{a^2b^4c^4-4a^3b^3c^3d+6a^4b^2c^2d^2-4a^5bcd^3+a^6d^4}-\frac{\left(6b^2c^2d^2-4abcd^3+a^2d^4\right)\log(dx+c)}{b^4c^7-4ab^3c^6d+6a^2b^2c^5d^2-4a^3bc^4d^3+a^4c^3d^4}+\frac{2b^3c^4+7a^2bc^2d^2-3a^3cd^3+2\left(b^3c^2d^2+3ab^2cd^3-a^2bd^4\right)x^2+\left(4b\cdots\right.}{2\left(a^2b^3c^7-3a^3b^2c^6d+3a^4bc^5d^2-a^5c^4d^3+\left(ab^4c^5d^2-3a^2b^3c^4d^3+3a^3b^2c^3d^4-a^4bc^2d^5\right)x^3+\left(2ab^4c^6d-5a^2b^3c^5d^2+3\cdots\right.\right.}+\frac{\log(x)}{a^2c^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^2*(d*x + c)^3*x),x, algorithm="maxima")
```

```
[Out] -(b^4*c - 4*a*b^3*d)*log(b*x + a)/(a^2*b^4*c^4 - 4*a^3*b^3*c^3*d
+ 6*a^4*b^2*c^2*d^2 - 4*a^5*b*c*d^3 + a^6*d^4) - (6*b^2*c^2*d^2 -
 4*a*b*c*d^3 + a^2*d^4)*log(d*x + c)/(b^4*c^7 - 4*a*b^3*c^6*d + 6
*a^2*b^2*c^5*d^2 - 4*a^3*b*c^4*d^3 + a^4*c^3*d^4) + 1/2*(2*b^3*c^
4 + 7*a^2*b*c^2*d^2 - 3*a^3*c*d^3 + 2*(b^3*c^2*d^2 + 3*a*b^2*c*d^
3 - a^2*b*d^4)*x^2 + (4*b^3*c^3*d + 7*a*b^2*c^2*d^2 + 3*a^2*b*c*d
^3 - 2*a^3*d^4)*x)/(a^2*b^3*c^7 - 3*a^3*b^2*c^6*d + 3*a^4*b*c^5*d
^2 - a^5*c^4*d^3 + (a*b^4*c^5*d^2 - 3*a^2*b^3*c^4*d^3 + 3*a^3*b^2
*c^3*d^4 - a^4*b*c^2*d^5)*x^3 + (2*a*b^4*c^6*d - 5*a^2*b^3*c^5*d^
2 + 3*a^3*b^2*c^4*d^3 + a^4*b*c^3*d^4 - a^5*c^2*d^5)*x^2 + (a*b^4
*c^7 - a^2*b^3*c^6*d - 3*a^3*b^2*c^5*d^2 + 5*a^4*b*c^4*d^3 - 2*a^
5*c^3*d^4)*x) + log(x)/(a^2*c^3)
```

Fricas [A] time = 14.9862, size = 1409, normalized size = 8.19

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^2*(d*x + c)^3*x),x, algorithm="fricas")
```

```
[Out] 1/2*(2*a*b^4*c^6 - 2*a^2*b^3*c^5*d + 7*a^3*b^2*c^4*d^2 - 10*a^4*b
*c^3*d^3 + 3*a^5*c^2*d^4 + 2*(a*b^4*c^4*d^2 + 2*a^2*b^3*c^3*d^3 -
 4*a^3*b^2*c^2*d^4 + a^4*b*c*d^5)*x^2 + (4*a*b^4*c^5*d + 3*a^2*b^
3*c^4*d^2 - 4*a^3*b^2*c^3*d^3 - 5*a^4*b*c^2*d^4 + 2*a^5*c*d^5)*x
- 2*(a*b^4*c^6 - 4*a^2*b^3*c^5*d + (b^5*c^4*d^2 - 4*a*b^4*c^3*d^3
)*x^3 + (2*b^5*c^5*d - 7*a*b^4*c^4*d^2 - 4*a^2*b^3*c^3*d^3)*x^2 +
 (b^5*c^6 - 2*a*b^4*c^5*d - 8*a^2*b^3*c^4*d^2)*x)*log(b*x + a) -
2*(6*a^3*b^2*c^4*d^2 - 4*a^4*b*c^3*d^3 + a^5*c^2*d^4 + (6*a^2*b^3
*c^2*d^4 - 4*a^3*b^2*c*d^5 + a^4*b*d^6)*x^3 + (12*a^2*b^3*c^3*d^3
 - 2*a^3*b^2*c^2*d^4 - 2*a^4*b*c*d^5 + a^5*d^6)*x^2 + (6*a^2*b^3*
c^4*d^2 + 8*a^3*b^2*c^3*d^3 - 7*a^4*b*c^2*d^4 + 2*a^5*c*d^5)*x)*l
og(d*x + c) + 2*(a*b^4*c^6 - 4*a^2*b^3*c^5*d + 6*a^3*b^2*c^4*d^2
- 4*a^4*b*c^3*d^3 + a^5*c^2*d^4 + (b^5*c^4*d^2 - 4*a*b^4*c^3*d^3
+ 6*a^2*b^3*c^2*d^4 - 4*a^3*b^2*c*d^5 + a^4*b*d^6)*x^3 + (2*b^5*c
^5*d - 7*a*b^4*c^4*d^2 + 8*a^2*b^3*c^3*d^3 - 2*a^3*b^2*c^2*d^4 -
2*a^4*b*c*d^5 + a^5*d^6)*x^2 + (b^5*c^6 - 2*a*b^4*c^5*d - 2*a^2*b
^3*c^4*d^2 + 8*a^3*b^2*c^3*d^3 - 7*a^4*b*c^2*d^4 + 2*a^5*c*d^5)*x
)*log(x))/(a^3*b^4*c^9 - 4*a^4*b^3*c^8*d + 6*a^5*b^2*c^7*d^2 - 4*
a^6*b*c^6*d^3 + a^7*c^5*d^4 + (a^2*b^5*c^7*d^2 - 4*a^3*b^4*c^6*d^
3 + 6*a^4*b^3*c^5*d^4 - 4*a^5*b^2*c^4*d^5 + a^6*b*c^3*d^6)*x^3 +
(2*a^2*b^5*c^8*d - 7*a^3*b^4*c^7*d^2 + 8*a^4*b^3*c^6*d^3 - 2*a^5*
b^2*c^5*d^4 - 2*a^6*b*c^4*d^5 + a^7*c^3*d^6)*x^2 + (a^2*b^5*c^9 -
 2*a^3*b^4*c^8*d - 2*a^4*b^3*c^7*d^2 + 8*a^5*b^2*c^6*d^3 - 7*a^6*
b*c^5*d^4 + 2*a^7*c^4*d^5)*x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/x/(b*x+a)**2/(d*x+c)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.381848, size = 419, normalized size = 2.44

$$\frac{1}{2}\left(\frac{2\,b^6}{(ab^7c^3 - 3\,a^2b^6c^2d + 3\,a^3b^5cd^2 - a^4b^4d^3)(bx+a)} - \frac{2\left(6\,b^2c^2d^2 - 4\,abcd^3 + a^2d^4\right)\ln\left(\left|\frac{bc}{bx+a} - \frac{ad}{bx+a} + d\right|\right)}{b^5c^7 - 4\,ab^4c^6d + 6\,a^2b^3c^5d^2 - 4\,a^3b^2c^4d^3 + a^4bc^3d^4} + \frac{2\ln\left(\left|-\frac{a}{bx+a}\right.\right.}{a^2bc^3}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^2*(d*x + c)^3*x),x, algorithm="giac")
```

```
[Out] 1/2*(2*b^6/((a*b^7*c^3 - 3*a^2*b^6*c^2*d + 3*a^3*b^5*c*d^2 - a^4*
b^4*d^3)*(b*x + a)) - 2*(6*b^2*c^2*d^2 - 4*a*b*c*d^3 + a^2*d^4)*l
n(abs(b*c/(b*x + a) - a*d/(b*x + a) + d))/(b^5*c^7 - 4*a*b^4*c^6*
d + 6*a^2*b^3*c^5*d^2 - 4*a^3*b^2*c^4*d^3 + a^4*b*c^3*d^4) + 2*ln
(abs(-a/(b*x + a) + 1))/(a^2*b*c^3) - (7*b^2*c^2*d^4 - 2*a*b*c*d^
5 + 2*(4*b^4*c^3*d^3 - 5*a*b^3*c^2*d^4 + a^2*b^2*c*d^5)/((b*x + a
)*b))/((b*c - a*d)^4*b*(b*c/(b*x + a) - a*d/(b*x + a) + d)^2*c^3)
)*b
```

3.268 $\int \frac{1}{x^2(a+bx)^2(c+dx)^3}\,dx$

Optimal. Leaf size=195

$$\frac{b^4(2bc-5ad)\log(a+bx)}{a^3(bc-ad)^4}-\frac{\log(x)(3ad+2bc)}{a^3c^4}-\frac{b^4}{a^2(a+bx)(bc-ad)^3}+\frac{d^3\left(3a^2d^2-10abcd+10b^2c^2\right)\log(c+dx)}{c^4(bc-ad)^4}-\frac{1}{a^2c^3x}-\frac{2d^3(2bc-ad)}{c^3(c+dx)(bc-ad)^3}-\frac{d^3}{2c^2(c+dx)^2(bc-ad)^2}$$

```
[Out] -(1/(a^2*c^3*x)) - b^4/(a^2*(b*c - a*d)^3*(a + b*x)) - d^3/(2*c^2
*(b*c - a*d)^2*(c + d*x)^2) - (2*d^3*(2*b*c - a*d))/(c^3*(b*c - a
*d)^3*(c + d*x)) - ((2*b*c + 3*a*d)*Log[x])/(a^3*c^4) + (b^4*(2*b
*c - 5*a*d)*Log[a + b*x])/(a^3*(b*c - a*d)^4) + (d^3*(10*b^2*c^2
- 10*a*b*c*d + 3*a^2*d^2)*Log[c + d*x])/(c^4*(b*c - a*d)^4)
```

Rubi [A] time = 0.476372, antiderivative size = 195, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{b^4(2bc-5ad)\log(a+bx)}{a^3(bc-ad)^4}-\frac{\log(x)(3ad+2bc)}{a^3c^4}-\frac{b^4}{a^2(a+bx)(bc-ad)^3}+\frac{d^3\left(3a^2d^2-10abcd+10b^2c^2\right)\log(c+dx)}{c^4(bc-ad)^4}-\frac{1}{a^2c^3x}-\frac{2d^3(2bc-ad)}{c^3(c+dx)(bc-ad)^3}-\frac{d^3}{2c^2(c+dx)^2(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x^2*(a + b*x)^2*(c + d*x)^3),x]
```

```
[Out] -(1/(a^2*c^3*x)) - b^4/(a^2*(b*c - a*d)^3*(a + b*x)) - d^3/(2*c^2
*(b*c - a*d)^2*(c + d*x)^2) - (2*d^3*(2*b*c - a*d))/(c^3*(b*c - a
*d)^3*(c + d*x)) - ((2*b*c + 3*a*d)*Log[x])/(a^3*c^4) + (b^4*(2*b
*c - 5*a*d)*Log[a + b*x])/(a^3*(b*c - a*d)^4) + (d^3*(10*b^2*c^2
- 10*a*b*c*d + 3*a^2*d^2)*Log[c + d*x])/(c^4*(b*c - a*d)^4)
```

Rubi in Sympy [A] time = 107.153, size = 184, normalized size = 0.94

$$-\frac{d^3}{2c^2\left(c+dx\right)^2\left(ad-bc\right)^2}-\frac{2d^3\left(ad-2bc\right)}{c^3\left(c+dx\right)\left(ad-bc\right)^3}+\frac{d^3\left(3a^2d^2-10abcd+10b^2c^2\right)\log\left(c+dx\right)}{c^4\left(ad-bc\right)^4}+\frac{b^4}{a^2\left(a+bx\right)\left(ad-bc\right)^3}-\frac{1}{a^2c^3x}-\frac{b^4\left(5ad-2bc\right)\log\left(a+bx\right)}{a^3\left(ad-bc\right)^4}-\frac{\left(3ad+2bc\right)\log\left(x\right)}{a^3c^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x**2/(b*x+a)**2/(d*x+c)**3,x)
```

```
[Out] -d**3/(2*c**2*(c + d*x)**2*(a*d - b*c)**2) - 2*d**3*(a*d - 2*b*c)
/(c**3*(c + d*x)*(a*d - b*c)**3) + d**3*(3*a**2*d**2 - 10*a*b*c*d
 + 10*b**2*c**2)*log(c + d*x)/(c**4*(a*d - b*c)**4) + b**4/(a**2*
(a + b*x)*(a*d - b*c)**3) - 1/(a**2*c**3*x) - b**4*(5*a*d - 2*b*c
)*log(a + b*x)/(a**3*(a*d - b*c)**4) - (3*a*d + 2*b*c)*log(x)/(a*
*3*c**4)
```

Mathematica [A] time = 0.469531, size = 193, normalized size = 0.99

$$\frac{b^4(2bc-5ad)\log(a+bx)}{a^3(bc-ad)^4}-\frac{\log(x)(3ad+2bc)}{a^3c^4}+\frac{b^4}{a^2(a+bx)(ad-bc)^3}+\frac{d^3\left(3a^2d^2-10abcd+10b^2c^2\right)\log(c+dx)}{c^4(bc-ad)^4}-\frac{1}{a^2c^3x}+\frac{2d^3(ad-2bc)}{c^3(c+dx)(bc-ad)^3}-\frac{d^3}{2c^2(c+dx)^2(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]   Integrate[1/(x^2*(a + b*x)^2*(c + d*x)^3),x]
```

```
[Out] -(1/(a^2*c^3*x)) + b^4/(a^2*(-(b*c) + a*d)^3*(a + b*x)) - d^3/(2*
c^2*(b*c - a*d)^2*(c + d*x)^2) + (2*d^3*(-2*b*c + a*d))/(c^3*(b*c
 - a*d)^3*(c + d*x)) - ((2*b*c + 3*a*d)*Log[x])/(a^3*c^4) + (b^4*
(2*b*c - 5*a*d)*Log[a + b*x])/(a^3*(b*c - a*d)^4) + (d^3*(10*b^2*
c^2 - 10*a*b*c*d + 3*a^2*d^2)*Log[c + d*x])/(c^4*(b*c - a*d)^4)
```

Maple [A] time = 0.027, size = 266, normalized size = 1.4

$$
-\frac{d^3}{2\,c^2\,(ad-bc)^2\,(dx+c)^2}+3\,\frac{d^5\ln(dx+c)\,a^2}{c^4\,(ad-bc)^4}-10\,\frac{d^4\ln(dx+c)\,ab}{c^3\,(ad-bc)^4}+10\,\frac{d^3\ln(dx+c)\,b^2}{c^2\,(ad-bc)^4}-2\,\frac{d^4a}{c^3\,(ad-bc)^3\,(dx+c)}+4\,\frac{d^3b}{c^2\,(ad-bc)^3\,(dx+c)}-\frac{1}{a^2c^3x}-3\,\frac{\ln(x)\,d}{a^2c^4}-2\,\frac{b\ln(x)}{a^3c^3}+\frac{b^4}{(ad-bc)^3\,a^2\,(bx+a)}-5\,\frac{b^4\ln(bx+a)\,d}{(ad-bc)^4\,a^2}+2\,\frac{b^5\ln(bx+a)\,c}{(ad-bc)^4\,a^3}
$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int(1/x^2/(b*x+a)^2/(d*x+c)^3,x)
```

```
[Out] -1/2*d^3/c^2/(a*d-b*c)^2/(d*x+c)^2+3*d^5/c^4/(a*d-b*c)^4*ln(d*x+c
)*a^2-10*d^4/c^3/(a*d-b*c)^4*ln(d*x+c)*a*b+10*d^3/c^2/(a*d-b*c)^4
*ln(d*x+c)*b^2-2*d^4/c^3/(a*d-b*c)^3/(d*x+c)*a+4*d^3/c^2/(a*d-b*c
)^3/(d*x+c)*b-1/a^2/c^3/x-3/a^2/c^4*ln(x)*d-2/a^3/c^3*ln(x)*b+b^4
/(a*d-b*c)^3/a^2/(b*x+a)-5*b^4/(a*d-b*c)^4/a^2*ln(b*x+a)*d+2*b^5/
(a*d-b*c)^4/a^3*ln(b*x+a)*c
```

Maxima [A] time = 1.41735, size = 863, normalized size = 4.43

$$
\frac{\left(2\,b^5c-5\,ab^4d\right)\log(bx+a)}{a^3b^4c^4-4\,a^4b^3c^3d+6\,a^5b^2c^2d^2-4\,a^6bcd^3+a^7d^4}+\frac{\left(10\,b^2c^2d^3-10\,abcd^4+3\,a^2d^5\right)\log(dx+c)}{b^4c^8-4\,ab^3c^7d+6\,a^2b^2c^6d^2-4\,a^3bc^5d^3+a^4c^4d^4}-\frac{2\,ab^3c^5-6\,a^2b^2c^4d+6\,a^3bc^3d^2-2\,a^4c^2d^3+2\left(2\,b^4c^3d^2-3\,ab^3c^2d^3+7\,a^2b^2cd^4-3\,a^3bd^5\right)x^3+\left(8\,b^4c^4d-10\,ab^3c^3d^2\right.}{2\left((a^2b^4c^6d^2-3\,a^3b^3c^5d^3+3\,a^4b^2c^4d^4-a^5bc^3d^5)x^4+(2\,a^2b^4c^7d-5\,a^3b^3c^6d^2+3\,a^4b^2c^5d^3+a^5bc^4d^4-a^6c^3d^5)x^3+(a^2b^4\right.}-\frac{(2\,bc+3\,ad)\log(x)}{a^3c^4}
$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(1/((b*x + a)^2*(d*x + c)^3*x^2),x, algorithm="maxima")
```

```
[Out] (2*b^5*c - 5*a*b^4*d)*log(b*x + a)/(a^3*b^4*c^4 - 4*a^4*b^3*c^3*d
 + 6*a^5*b^2*c^2*d^2 - 4*a^6*b*c*d^3 + a^7*d^4) + (10*b^2*c^2*d^3
 - 10*a*b*c*d^4 + 3*a^2*d^5)*log(d*x + c)/(b^4*c^8 - 4*a*b^3*c^7*
d + 6*a^2*b^2*c^6*d^2 - 4*a^3*b*c^5*d^3 + a^4*c^4*d^4) - 1/2*(2*a
*b^3*c^5 - 6*a^2*b^2*c^4*d + 6*a^3*b*c^3*d^2 - 2*a^4*c^2*d^3 + 2*
(2*b^4*c^3*d^2 - 3*a*b^3*c^2*d^3 + 7*a^2*b^2*c*d^4 - 3*a^3*b*d^5)
*x^3 + (8*b^4*c^4*d - 10*a*b^3*c^3*d^2 + 15*a^2*b^2*c^2*d^3 + 5*a
^3*b*c*d^4 - 6*a^4*d^5)*x^2 + (4*b^4*c^5 - 2*a*b^3*c^4*d - 6*a^2*
b^2*c^3*d^2 + 19*a^3*b*c^2*d^3 - 9*a^4*c*d^4)*x)/((a^2*b^4*c^6*d^
2 - 3*a^3*b^3*c^5*d^3 + 3*a^4*b^2*c^4*d^4 - a^5*b*c^3*d^5)*x^4 +
(2*a^2*b^4*c^7*d - 5*a^3*b^3*c^6*d^2 + 3*a^4*b^2*c^5*d^3 + a^5*b*
c^4*d^4 - a^6*c^3*d^5)*x^3 + (a^2*b^4*c^8 - a^3*b^3*c^7*d - 3*a^4
*b^2*c^6*d^2 + 5*a^5*b*c^5*d^3 - 2*a^6*c^4*d^4)*x^2 + (a^3*b^3*c^
8 - 3*a^4*b^2*c^7*d + 3*a^5*b*c^6*d^2 - a^6*c^5*d^3)*x) - (2*b*c
+ 3*a*d)*log(x)/(a^3*c^4)
```

Fricas [A] time = 54.9218, size = 1638, normalized size = 8.4

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^2*(d*x + c)^3*x^2),x, algorithm="fricas")
```

```
[Out] -1/2*(2*a^2*b^4*c^7 - 8*a^3*b^3*c^6*d + 12*a^4*b^2*c^5*d^2 - 8*a^
5*b*c^4*d^3 + 2*a^6*c^3*d^4 + 2*(2*a*b^5*c^5*d^2 - 5*a^2*b^4*c^4*
d^3 + 10*a^3*b^3*c^3*d^4 - 10*a^4*b^2*c^2*d^5 + 3*a^5*b*c*d^6)*x^
3 + (8*a*b^5*c^6*d - 18*a^2*b^4*c^5*d^2 + 25*a^3*b^3*c^4*d^3 - 10
*a^4*b^2*c^3*d^4 - 11*a^5*b*c^2*d^5 + 6*a^6*c*d^6)*x^2 + (4*a*b^5
*c^7 - 6*a^2*b^4*c^6*d - 4*a^3*b^3*c^5*d^2 + 25*a^4*b^2*c^4*d^3 -
 28*a^5*b*c^3*d^4 + 9*a^6*c^2*d^5)*x - 2*((2*b^6*c^5*d^2 - 5*a*b^
5*c^4*d^3)*x^4 + (4*b^6*c^6*d - 8*a*b^5*c^5*d^2 - 5*a^2*b^4*c^4*d
^3)*x^3 + (2*b^6*c^7 - a*b^5*c^6*d - 10*a^2*b^4*c^5*d^2)*x^2 + (2
*a*b^5*c^7 - 5*a^2*b^4*c^6*d)*x)*log(b*x + a) - 2*((10*a^3*b^3*c^
2*d^5 - 10*a^4*b^2*c*d^6 + 3*a^5*b*d^7)*x^4 + (20*a^3*b^3*c^3*d^4
 - 10*a^4*b^2*c^2*d^5 - 4*a^5*b*c*d^6 + 3*a^6*d^7)*x^3 + (10*a^3*
b^3*c^4*d^3 + 10*a^4*b^2*c^3*d^4 - 17*a^5*b*c^2*d^5 + 6*a^6*c*d^6
)*x^2 + (10*a^4*b^2*c^4*d^3 - 10*a^5*b*c^3*d^4 + 3*a^6*c^2*d^5)*x
)*log(d*x + c) + 2*((2*b^6*c^5*d^2 - 5*a*b^5*c^4*d^3 + 10*a^3*b^3
*c^2*d^5 - 10*a^4*b^2*c*d^6 + 3*a^5*b*d^7)*x^4 + (4*b^6*c^6*d - 8
*a*b^5*c^5*d^2 - 5*a^2*b^4*c^4*d^3 + 20*a^3*b^3*c^3*d^4 - 10*a^4*
b^2*c^2*d^5 - 4*a^5*b*c*d^6 + 3*a^6*d^7)*x^3 + (2*b^6*c^7 - a*b^5
*c^6*d - 10*a^2*b^4*c^5*d^2 + 10*a^3*b^3*c^4*d^3 + 10*a^4*b^2*c^3
*d^4 - 17*a^5*b*c^2*d^5 + 6*a^6*c*d^6)*x^2 + (2*a*b^5*c^7 - 5*a^2
*b^4*c^6*d + 10*a^4*b^2*c^4*d^3 - 10*a^5*b*c^3*d^4 + 3*a^6*c^2*d^
5)*x)*log(x))/((a^3*b^5*c^8*d^2 - 4*a^4*b^4*c^7*d^3 + 6*a^5*b^3*c
^6*d^4 - 4*a^6*b^2*c^5*d^5 + a^7*b*c^4*d^6)*x^4 + (2*a^3*b^5*c^9*
d - 7*a^4*b^4*c^8*d^2 + 8*a^5*b^3*c^7*d^3 - 2*a^6*b^2*c^6*d^4 - 2
*a^7*b*c^5*d^5 + a^8*c^4*d^6)*x^3 + (a^3*b^5*c^10 - 2*a^4*b^4*c^9
*d - 2*a^5*b^3*c^8*d^2 + 8*a^6*b^2*c^7*d^3 - 7*a^7*b*c^6*d^4 + 2*
a^8*c^5*d^5)*x^2 + (a^4*b^4*c^10 - 4*a^5*b^3*c^9*d + 6*a^6*b^2*c^
8*d^2 - 4*a^7*b*c^7*d^3 + a^8*c^6*d^4)*x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/x**2/(b*x+a)**2/(d*x+c)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.362477, size = 698, normalized size = 3.58

$$-\frac{b^{9}}{(a^{2}b^{8}c^{3} - 3\,a^{3}b^{7}c^{2}d + 3\,a^{4}b^{6}cd^{2} - a^{5}b^{5}d^{3})(bx + a)} + \frac{\left(10\,b^{3}c^{2}d^{3} - 10\,ab^{2}cd^{4} + 3\,a^{2}bd^{5}\right)\ln\left(\left|\frac{bc}{bx+a} - \frac{ad}{bx+a} + d\right|\right)}{b^{5}c^{8} - 4\,ab^{4}c^{7}d + 6\,a^{2}b^{3}c^{6}d^{2} - 4\,a^{3}b^{2}c^{5}d^{3} + a^{4}bc^{4}d^{4}} - \frac{\left(2\,b^{2}c + 3\,abd\right)\ln\left(\left|-\frac{a}{bx+a} + 1\right|\right)}{a^{3}bc^{4}} + \frac{2\,b^{5}c^{5}d^{2} - 8\,ab^{4}c^{4}d^{3} + 12\,a^{2}b^{3}c^{3}d^{4} - 17\,a^{3}b^{2}c^{2}d^{5} + 6\,a^{4}bcd^{6} + \frac{4\,b^{7}c^{6}d - 20\,ab^{6}c^{5}d^{2} + 40\,a^{2}b^{5}c^{4}d^{3} - 50\,a^{3}b^{4}c^{3}d^{4} + 43\,a^{4}b^{3}c^{2}d^{5} - 12\,a^{5}b^{2}cd^{6}}{(bx+a)b} +}{2\,(bc - ad)^{4}a^{3}\left(\frac{bc}{bx+a} - \frac{ad}{bx+a} + d\right)^{2}c^{4}\left(\frac{a}{bx+a} - 1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^2*(d*x + c)^3*x^2),x, algorithm="giac")
```

```
[Out] -b^9/((a^2*b^8*c^3 - 3*a^3*b^7*c^2*d + 3*a^4*b^6*c*d^2 - a^5*b^5*
d^3)*(b*x + a)) + (10*b^3*c^2*d^3 - 10*a*b^2*c*d^4 + 3*a^2*b*d^5)
*ln(abs(b*c/(b*x + a) - a*d/(b*x + a) + d))/(b^5*c^8 - 4*a*b^4*c^
7*d + 6*a^2*b^3*c^6*d^2 - 4*a^3*b^2*c^5*d^3 + a^4*b*c^4*d^4) - (2
*b^2*c + 3*a*b*d)*ln(abs(-a/(b*x + a) + 1))/(a^3*b*c^4) + 1/2*(2*
b^5*c^5*d^2 - 8*a*b^4*c^4*d^3 + 12*a^2*b^3*c^3*d^4 - 17*a^3*b^2*c
^2*d^5 + 6*a^4*b*c*d^6 + (4*b^7*c^6*d - 20*a*b^6*c^5*d^2 + 40*a^2
*b^5*c^4*d^3 - 50*a^3*b^4*c^3*d^4 + 43*a^4*b^3*c^2*d^5 - 12*a^5*b
^2*c*d^6)/((b*x + a)*b) + 2*(b^9*c^7 - 6*a*b^8*c^6*d + 15*a^2*b^7
*c^5*d^2 - 20*a^3*b^6*c^4*d^3 + 20*a^4*b^5*c^3*d^4 - 13*a^5*b^4*c
^2*d^5 + 3*a^6*b^3*c*d^6)/((b*x + a)^2*b^2))/((b*c - a*d)^4*a^3*(
b*c/(b*x + a) - a*d/(b*x + a) + d)^2*c^4*(a/(b*x + a) - 1))
```

3.269 $\int \frac{1}{x^3(a+bx)^2(c+dx)^3}\,dx$

Optimal. Leaf size=228

$$-\frac{3b^5(bc-2ad)\log(a+bx)}{a^4(bc-ad)^4}+\frac{b^5}{a^3(a+bx)(bc-ad)^3}+\frac{3ad+2bc}{a^3c^4x}-\frac{3d^4\left(2a^2d^2-6abcd+5b^2c^2\right)\log(c+dx)}{c^5(bc-ad)^4}-\frac{1}{2a^2c^3x^2}+\frac{3\log(x)\left(2a^2d^2+2abcd+b^2c^2\right)}{a^4c^5}+\frac{d^4(5bc-3ad)}{c^4(c+dx)(bc-ad)^3}+\frac{d^4}{2c^3(c+dx)^2(bc-ad)^2}$$

```
[Out] -1/(2*a^2*c^3*x^2) + (2*b*c + 3*a*d)/(a^3*c^4*x) + b^5/(a^3*(b*c
- a*d)^3*(a + b*x)) + d^4/(2*c^3*(b*c - a*d)^2*(c + d*x)^2) + (d^
4*(5*b*c - 3*a*d))/(c^4*(b*c - a*d)^3*(c + d*x)) + (3*(b^2*c^2 +
2*a*b*c*d + 2*a^2*d^2)*Log[x])/(a^4*c^5) - (3*b^5*(b*c - 2*a*d)*L
og[a + b*x])/(a^4*(b*c - a*d)^4) - (3*d^4*(5*b^2*c^2 - 6*a*b*c*d
+ 2*a^2*d^2)*Log[c + d*x])/(c^5*(b*c - a*d)^4)
```

Rubi [A] time = 0.61653, antiderivative size = 228, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{3b^5(bc-2ad)\log(a+bx)}{a^4(bc-ad)^4}+\frac{b^5}{a^3(a+bx)(bc-ad)^3}+\frac{3ad+2bc}{a^3c^4x}-\frac{3d^4\left(2a^2d^2-6abcd+5b^2c^2\right)\log(c+dx)}{c^5(bc-ad)^4}-\frac{1}{2a^2c^3x^2}+\frac{3\log(x)\left(2a^2d^2+2abcd+b^2c^2\right)}{a^4c^5}+\frac{d^4(5bc-3ad)}{c^4(c+dx)(bc-ad)^3}+\frac{d^4}{2c^3(c+dx)^2(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x^3*(a + b*x)^2*(c + d*x)^3),x]
```

```
[Out] -1/(2*a^2*c^3*x^2) + (2*b*c + 3*a*d)/(a^3*c^4*x) + b^5/(a^3*(b*c
- a*d)^3*(a + b*x)) + d^4/(2*c^3*(b*c - a*d)^2*(c + d*x)^2) + (d^
4*(5*b*c - 3*a*d))/(c^4*(b*c - a*d)^3*(c + d*x)) + (3*(b^2*c^2 +
2*a*b*c*d + 2*a^2*d^2)*Log[x])/(a^4*c^5) - (3*b^5*(b*c - 2*a*d)*L
og[a + b*x])/(a^4*(b*c - a*d)^4) - (3*d^4*(5*b^2*c^2 - 6*a*b*c*d
+ 2*a^2*d^2)*Log[c + d*x])/(c^5*(b*c - a*d)^4)
```

Rubi in Sympy [A] time = 154.082, size = 223, normalized size = 0.98

$$\frac{d^4}{2c^3\left(c+dx\right)^2\left(ad-bc\right)^2}+\frac{d^4\left(3ad-5bc\right)}{c^4\left(c+dx\right)\left(ad-bc\right)^3}-\frac{3d^4\left(2a^2d^2-6abcd+5b^2c^2\right)\log\left(c+dx\right)}{c^5\left(ad-bc\right)^4}-\frac{1}{2a^2c^3x^2}-\frac{b^5}{a^3\left(a+bx\right)\left(ad-bc\right)^3}+\frac{3ad+2bc}{a^3c^4x}+\frac{3b^5\left(2ad-bc\right)\log\left(a+bx\right)}{a^4\left(ad-bc\right)^4}+\frac{3\left(2a^2d^2+2abcd+b^2c^2\right)\log\left(x\right)}{a^4c^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x**3/(b*x+a)**2/(d*x+c)**3,x)
```

```
[Out] d**4/(2*c**3*(c + d*x)**2*(a*d - b*c)**2) + d**4*(3*a*d - 5*b*c)/
(c**4*(c + d*x)*(a*d - b*c)**3) - 3*d**4*(2*a**2*d**2 - 6*a*b*c*d
 + 5*b**2*c**2)*log(c + d*x)/(c**5*(a*d - b*c)**4) - 1/(2*a**2*c*
*3*x**2) - b**5/(a**3*(a + b*x)*(a*d - b*c)**3) + (3*a*d + 2*b*c)
/(a**3*c**4*x) + 3*b**5*(2*a*d - b*c)*log(a + b*x)/(a**4*(a*d - b
*c)**4) + 3*(2*a**2*d**2 + 2*a*b*c*d + b**2*c**2)*log(x)/(a**4*c*
*5)
```

Mathematica [A] time = 0.557149, size = 230, normalized size = 1.01

$$\frac{3b^5(2ad-bc)\log(a+bx)}{a^4(bc-ad)^4}-\frac{b^5}{a^3(a+bx)(ad-bc)^3}+\frac{3ad+2bc}{a^3c^4x}-\frac{3d^4\left(2a^2d^2-6abcd+5b^2c^2\right)\log(c+dx)}{c^5(bc-ad)^4}-\frac{1}{2a^2c^3x^2}+\frac{3\log(x)\left(2a^2d^2+2abcd+b^2c^2\right)}{a^4c^5}+\frac{d^4(5bc-3ad)}{c^4(c+dx)(bc-ad)^3}+\frac{d^4}{2c^3(c+dx)^2(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(x^3*(a + b*x)^2*(c + d*x)^3),x]
```

```
[Out] -1/(2*a^2*c^3*x^2) + (2*b*c + 3*a*d)/(a^3*c^4*x) - b^5/(a^3*(-(b*
c) + a*d)^3*(a + b*x)) + d^4/(2*c^3*(b*c - a*d)^2*(c + d*x)^2) +
(d^4*(5*b*c - 3*a*d))/(c^4*(b*c - a*d)^3*(c + d*x)) + (3*(b^2*c^2
 + 2*a*b*c*d + 2*a^2*d^2)*Log[x])/(a^4*c^5) + (3*b^5*(-(b*c) + 2*
a*d)*Log[a + b*x])/(a^4*(b*c - a*d)^4) - (3*d^4*(5*b^2*c^2 - 6*a*
b*c*d + 2*a^2*d^2)*Log[c + d*x])/(c^5*(b*c - a*d)^4)
```

Maple [A] time = 0.027, size = 307, normalized size = 1.4

$$\frac{d^4}{2\,c^3\,(ad-bc)^2\,(dx+c)^2}+3\,\frac{d^5a}{c^4\,(ad-bc)^3\,(dx+c)}-5\,\frac{d^4b}{c^3\,(ad-bc)^3\,(dx+c)}-6\,\frac{d^6\ln(dx+c)\,a^2}{c^5\,(ad-bc)^4}+18\,\frac{d^5\ln(dx+c)\,ab}{c^4\,(ad-bc)^4}-15\,\frac{d^4\ln(dx+c)\,b^2}{c^3\,(ad-bc)^4}-\frac{1}{2\,a^2c^3x^2}+3\,\frac{d}{xa^2c^4}+2\,\frac{b}{xa^3c^3}+6\,\frac{\ln(x)\,d^2}{a^2c^5}+6\,\frac{b\ln(x)\,d}{a^3c^4}+3\,\frac{\ln(x)\,b^2}{a^4c^3}-\frac{b^5}{(ad-bc)^3\,a^3\,(bx+a)}+6\,\frac{b^5\ln(bx+a)\,d}{(ad-bc)^4\,a^3}-3\,\frac{b^6\ln(bx+a)\,c}{(ad-bc)^4\,a^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/x^3/(b*x+a)^2/(d*x+c)^3,x)
```

```
[Out] 1/2*d^4/c^3/(a*d-b*c)^2/(d*x+c)^2+3*d^5/c^4/(a*d-b*c)^3/(d*x+c)*a
-5*d^4/c^3/(a*d-b*c)^3/(d*x+c)*b-6*d^6/c^5/(a*d-b*c)^4*ln(d*x+c)*
a^2+18*d^5/c^4/(a*d-b*c)^4*ln(d*x+c)*a*b-15*d^4/c^3/(a*d-b*c)^4*l
n(d*x+c)*b^2-1/2/a^2/c^3/x^2+3/x/a^2/c^4*d+2/x/a^3/c^3*b+6/a^2/c^
5*ln(x)*d^2+6/a^3/c^4*ln(x)*b*d+3/a^4/c^3*ln(x)*b^2-b^5/(a*d-b*c)
^3/a^3/(b*x+a)+6*b^5/(a*d-b*c)^4/a^3*ln(b*x+a)*d-3*b^6/(a*d-b*c)^
4/a^4*ln(b*x+a)*c
```

Maxima [A] time = 1.4093, size = 1017, normalized size = 4.46

$$-\frac{3\left(b^6c-2\,ab^5d\right)\log(bx+a)}{a^4b^4c^4-4\,a^5b^3c^3d+6\,a^6b^2c^2d^2-4\,a^7bcd^3+a^8d^4}-\frac{3\left(5\,b^2c^2d^4-6\,abcd^5+2\,a^2d^6\right)\log(dx+c)}{b^4c^9-4\,ab^3c^8d+6\,a^2b^2c^7d^2-4\,a^3bc^6d^3+a^4c^5d^4}-\frac{a^2b^3c^6-3\,a^3b^2c^5d+3\,a^4bc^4d^2-a^5c^3d^3-6\left(b^5c^4d^2-ab^4c^3d^3-a^2b^3c^2d^4+4\,a^3b^2cd^5-2\,a^4bd^6\right)x^4-3\left(4\,b^5c^5d-3\,ab^4c\right.}{2\left((a^3b^4c^7d^2-3\,a^4b^3c^6d^3+3\,a^5b^2c^5d^4-a^6bc^4d^5)x^5+(2\,a^3b^4c^8d-5\,a^4b^3c^7d^2+3\right.}+\frac{3\left(b^2c^2+2\,abcd+2\,a^2d^2\right)\log(x)}{a^4c^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^2*(d*x + c)^3*x^3),x, algorithm="maxima")
```

```
[Out] -3*(b^6*c - 2*a*b^5*d)*log(b*x + a)/(a^4*b^4*c^4 - 4*a^5*b^3*c^3*
d + 6*a^6*b^2*c^2*d^2 - 4*a^7*b*c*d^3 + a^8*d^4) - 3*(5*b^2*c^2*d
^4 - 6*a*b*c*d^5 + 2*a^2*d^6)*log(d*x + c)/(b^4*c^9 - 4*a*b^3*c^8
*d + 6*a^2*b^2*c^7*d^2 - 4*a^3*b*c^6*d^3 + a^4*c^5*d^4) - 1/2*(a^
2*b^3*c^6 - 3*a^3*b^2*c^5*d + 3*a^4*b*c^4*d^2 - a^5*c^3*d^3 - 6*(
```

```
b^5*c^4*d^2 - a*b^4*c^3*d^3 - a^2*b^3*c^2*d^4 + 4*a^3*b^2*c*d^5 -
 2*a^4*b*d^6)*x^4 - 3*(4*b^5*c^5*d - 3*a*b^4*c^4*d^2 - 5*a^2*b^3*
c^3*d^3 + 10*a^3*b^2*c^2*d^4 + 2*a^4*b*c*d^5 - 4*a^5*d^6)*x^3 - (
6*b^5*c^6 - 13*a^2*b^3*c^4*d^2 - a^3*b^2*c^3*d^3 + 32*a^4*b*c^2*d
^4 - 18*a^5*c*d^5)*x^2 - (3*a*b^4*c^6 - 5*a^2*b^3*c^5*d - 3*a^3*b
^2*c^4*d^2 + 9*a^4*b*c^3*d^3 - 4*a^5*c^2*d^4)*x)/((a^3*b^4*c^7*d^
2 - 3*a^4*b^3*c^6*d^3 + 3*a^5*b^2*c^5*d^4 - a^6*b*c^4*d^5)*x^5 +
(2*a^3*b^4*c^8*d - 5*a^4*b^3*c^7*d^2 + 3*a^5*b^2*c^6*d^3 + a^6*b*
c^5*d^4 - a^7*c^4*d^5)*x^4 + (a^3*b^4*c^9 - a^4*b^3*c^8*d - 3*a^5
*b^2*c^7*d^2 + 5*a^6*b*c^6*d^3 - 2*a^7*c^5*d^4)*x^3 + (a^4*b^3*c^
9 - 3*a^5*b^2*c^8*d + 3*a^6*b*c^7*d^2 - a^7*c^6*d^3)*x^2) + 3*(b^
2*c^2 + 2*a*b*c*d + 2*a^2*d^2)*log(x)/(a^4*c^5)
```

Fricas [A] time = 65.1588, size = 1758, normalized size = 7.71

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^2*(d*x + c)^3*x^3),x, algorithm="fricas")
```

```
[Out] -1/2*(a^3*b^4*c^8 - 4*a^4*b^3*c^7*d + 6*a^5*b^2*c^6*d^2 - 4*a^6*b
*c^5*d^3 + a^7*c^4*d^4 - 6*(a*b^6*c^6*d^2 - 2*a^2*b^5*c^5*d^3 + 5
*a^4*b^3*c^3*d^5 - 6*a^5*b^2*c^2*d^6 + 2*a^6*b*c*d^7)*x^4 - 3*(4*
a*b^6*c^7*d - 7*a^2*b^5*c^6*d^2 - 2*a^3*b^4*c^5*d^3 + 15*a^4*b^3*
c^4*d^4 - 8*a^5*b^2*c^3*d^5 - 6*a^6*b*c^2*d^6 + 4*a^7*c*d^7)*x^3
- (6*a*b^6*c^8 - 6*a^2*b^5*c^7*d - 13*a^3*b^4*c^6*d^2 + 12*a^4*b^
3*c^5*d^3 + 33*a^5*b^2*c^4*d^4 - 50*a^6*b*c^3*d^5 + 18*a^7*c^2*d^
6)*x^2 - (3*a^2*b^5*c^8 - 8*a^3*b^4*c^7*d + 2*a^4*b^3*c^6*d^2 + 1
2*a^5*b^2*c^5*d^3 - 13*a^6*b*c^4*d^4 + 4*a^7*c^3*d^5)*x + 6*((b^7
*c^6*d^2 - 2*a*b^6*c^5*d^3)*x^5 + (2*b^7*c^7*d - 3*a*b^6*c^6*d^2
- 2*a^2*b^5*c^5*d^3)*x^4 + (b^7*c^8 - 4*a^2*b^5*c^6*d^2)*x^3 + (a
*b^6*c^8 - 2*a^2*b^5*c^7*d)*x^2)*log(b*x + a) + 6*((5*a^4*b^3*c^2
*d^6 - 6*a^5*b^2*c*d^7 + 2*a^6*b*d^8)*x^5 + (10*a^4*b^3*c^3*d^5 -
 7*a^5*b^2*c^2*d^6 - 2*a^6*b*c*d^7 + 2*a^7*d^8)*x^4 + (5*a^4*b^3*
c^4*d^4 + 4*a^5*b^2*c^3*d^5 - 10*a^6*b*c^2*d^6 + 4*a^7*c*d^7)*x^3
 + (5*a^5*b^2*c^4*d^4 - 6*a^6*b*c^3*d^5 + 2*a^7*c^2*d^6)*x^2)*log
(d*x + c) - 6*((b^7*c^6*d^2 - 2*a*b^6*c^5*d^3 + 5*a^4*b^3*c^2*d^6
 - 6*a^5*b^2*c*d^7 + 2*a^6*b*d^8)*x^5 + (2*b^7*c^7*d - 3*a*b^6*c^
6*d^2 - 2*a^2*b^5*c^5*d^3 + 10*a^4*b^3*c^3*d^5 - 7*a^5*b^2*c^2*d^
6 - 2*a^6*b*c*d^7 + 2*a^7*d^8)*x^4 + (b^7*c^8 - 4*a^2*b^5*c^6*d^2
 + 5*a^4*b^3*c^4*d^4 + 4*a^5*b^2*c^3*d^5 - 10*a^6*b*c^2*d^6 + 4*a
^7*c*d^7)*x^3 + (a*b^6*c^8 - 2*a^2*b^5*c^7*d + 5*a^5*b^2*c^4*d^4
- 6*a^6*b*c^3*d^5 + 2*a^7*c^2*d^6)*x^2)*log(x))/((a^4*b^5*c^9*d^2
 - 4*a^5*b^4*c^8*d^3 + 6*a^6*b^3*c^7*d^4 - 4*a^7*b^2*c^6*d^5 + a^
8*b*c^5*d^6)*x^5 + (2*a^4*b^5*c^10*d - 7*a^5*b^4*c^9*d^2 + 8*a^6*
b^3*c^8*d^3 - 2*a^7*b^2*c^7*d^4 - 2*a^8*b*c^6*d^5 + a^9*c^5*d^6)*
x^4 + (a^4*b^5*c^11 - 2*a^5*b^4*c^10*d - 2*a^6*b^3*c^9*d^2 + 8*a^
7*b^2*c^8*d^3 - 7*a^8*b*c^7*d^4 + 2*a^9*c^6*d^5)*x^3 + (a^5*b^4*c
^11 - 4*a^6*b^3*c^10*d + 6*a^7*b^2*c^9*d^2 - 4*a^8*b*c^8*d^3 + a^
9*c^7*d^4)*x^2)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/x**3/(b*x+a)**2/(d*x+c)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.309697, size = 1168, normalized size = 5.12

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^2*(d*x + c)^3*x^3),x, algorithm="giac")
```

```
[Out] b^11/((a^3*b^9*c^3 - 3*a^4*b^8*c^2*d + 3*a^5*b^7*c*d^2 - a^6*b^6*
d^3)*(b*x + a)) + 3/2*(b^6*c - 2*a*b^5*d)*ln(abs(-b*c/(b*x + a) +
 a*b*c/(b*x + a)^2 + 2*a*d/(b*x + a) - a^2*d/(b*x + a)^2 - d))/(a
^4*b^4*c^4 - 4*a^5*b^3*c^3*d + 6*a^6*b^2*c^2*d^2 - 4*a^7*b*c*d^3
+ a^8*d^4) - 3/2*(b^8*c^6 - 2*a*b^7*c^5*d + 10*a^4*b^4*c^2*d^4 -
12*a^5*b^3*c*d^5 + 4*a^6*b^2*d^6)*ln(abs(-2*a*b^2*c/(b*x + a) + b
^2*c - 2*a*b*d + 2*a^2*b*d/(b*x + a) - b^2*abs(c))/abs(-2*a*b^2*c
/(b*x + a) + b^2*c - 2*a*b*d + 2*a^2*b*d/(b*x + a) + b^2*abs(c)))
/((a^4*b^4*c^8 - 4*a^5*b^3*c^7*d + 6*a^6*b^2*c^6*d^2 - 4*a^7*b*c^
5*d^3 + a^8*c^4*d^4)*b^2*abs(c)) + 1/2*(5*b^6*c^5*d^2 - 14*a*b^5*
c^4*d^3 + 6*a^2*b^4*c^3*d^4 + 16*a^3*b^3*c^2*d^5 - 30*a^4*b^2*c*d
^6 + 12*a^5*b*d^7 + 2*(5*b^8*c^6*d - 22*a*b^7*c^5*d^2 + 29*a^2*b^
6*c^4*d^3 + 4*a^3*b^5*c^3*d^4 - 47*a^4*b^4*c^2*d^5 + 54*a^5*b^3*c
*d^6 - 18*a^6*b^2*d^7)/((b*x + a)*b) + (5*b^10*c^7 - 36*a*b^9*c^6
*d + 87*a^2*b^8*c^5*d^2 - 70*a^3*b^7*c^4*d^3 - 45*a^4*b^6*c^3*d^4
 + 144*a^5*b^5*c^2*d^5 - 126*a^6*b^4*c*d^6 + 36*a^7*b^3*d^7)/((b*
x + a)^2*b^2) - 6*(a*b^11*c^7 - 5*a^2*b^10*c^6*d + 9*a^3*b^9*c^5*
d^2 - 5*a^4*b^8*c^4*d^3 - 5*a^5*b^7*c^3*d^4 + 11*a^6*b^6*c^2*d^5
- 8*a^7*b^5*c*d^6 + 2*a^8*b^4*d^7)/((b*x + a)^3*b^3))/((b*c - a*d
)^4*a^4*(b*c/(b*x + a) - a*b*c/(b*x + a)^2 - 2*a*d/(b*x + a) + a^
2*d/(b*x + a)^2 + d)^2*c^4)
```

3.270 $\int \frac{x^2}{(-1+x)^2(1+x)^2} dx$

Optimal. Leaf size=21

$$\frac{x}{2(1-x^2)} - \frac{1}{2}\tanh^{-1}(x)$$

```
[Out] x/(2*(1 - x^2)) - ArcTanh[x]/2
```

Rubi [A] time = 0.0290426, antiderivative size = 21, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 14, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{x}{2(1-x^2)} - \frac{1}{2}\tanh^{-1}(x)$$

Antiderivative was successfully verified.

```
[In] Int[x^2/((-1 + x)^2*(1 + x)^2),x]

[Out] x/(2*(1 - x^2)) - ArcTanh[x]/2
```

Rubi in Sympy [A] time = 4.66501, size = 12, normalized size = 0.57

$$\frac{x}{2(-x^2+1)} - \frac{\operatorname{atanh}(x)}{2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(x**2/(-1+x)**2/(1+x)**2,x)

[Out] x/(2*(-x**2 + 1)) - atanh(x)/2
```

Mathematica [A] time = 0.0194022, size = 27, normalized size = 1.29

$$\frac{1}{4}\left(-\frac{2x}{x^2-1} + \log(1-x) - \log(x+1)\right)$$

Antiderivative was successfully verified.

```
[In] Integrate[x^2/((-1 + x)^2*(1 + x)^2),x]

[Out] ((-2*x)/(-1 + x^2) + Log[1 - x] - Log[1 + x])/4
```

Maple [A] time = 0.014, size = 28, normalized size = 1.3

$$-\frac{1}{-4+4x} + \frac{\ln(-1+x)}{4} - \frac{1}{4+4x} - \frac{\ln(1+x)}{4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^2/(-1+x)^2/(1+x)^2,x)

[Out] -1/4/(-1+x)+1/4*ln(-1+x)-1/4/(1+x)-1/4*ln(1+x)
```

Maxima [A] time = 1.3357, size = 31, normalized size = 1.48

$$-\frac{x}{2(x^2-1)} - \frac{1}{4}\log(x+1) + \frac{1}{4}\log(x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2/((x + 1)^2*(x - 1)^2),x, algorithm="maxima")
```

```
[Out] -1/2*x/(x^2 - 1) - 1/4*log(x + 1) + 1/4*log(x - 1)
```

Fricas [A] time = 0.207633, size = 46, normalized size = 2.19

$$-\frac{(x^2-1)\log(x+1) - (x^2-1)\log(x-1) + 2x}{4(x^2-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2/((x + 1)^2*(x - 1)^2),x, algorithm="fricas")
```

```
[Out] -1/4*((x^2 - 1)*log(x + 1) - (x^2 - 1)*log(x - 1) + 2*x)/(x^2 - 1
)
```

Sympy [A] time = 0.346662, size = 20, normalized size = 0.95

$$-\frac{x}{2x^2-2} + \frac{\log(x-1)}{4} - \frac{\log(x+1)}{4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2/(-1+x)**2/(1+x)**2,x)
```

```
[Out] -x/(2*x**2 - 2) + log(x - 1)/4 - log(x + 1)/4
```

GIAC/XCAS [A] time = 0.330437, size = 46, normalized size = 2.19

$$-\frac{1}{4(x+1)} + \frac{1}{8\left(\frac{2}{x+1}-1\right)} + \frac{1}{4}\ln\left(\left|-\frac{2}{x+1}+1\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2/((x + 1)^2*(x - 1)^2),x, algorithm="giac")
```

```
[Out] -1/4/(x + 1) + 1/8/(2/(x + 1) - 1) + 1/4*ln(abs(-2/(x + 1) + 1))
```

3.271 $\int \frac{x^3(c+dx)^3}{(a+bx)^3}\,dx$

Optimal. Leaf size=196

$$\frac{a^3(bc-ad)^3}{2b^7(a+bx)^2}-\frac{3a^2(bc-2ad)(bc-ad)^2}{b^7(a+bx)}-\frac{3a(bc-ad)\left(5a^2d^2-5abcd+b^2c^2\right)\log(a+bx)}{b^7}+\frac{x(bc-ad)\left(10a^2d^2-8abcd+b^2c^2\right)}{b^6}+\frac{3dx^2(bc-2ad)(bc-ad)}{2b^5}+\frac{d^2x^3(bc-ad)}{b^4}+\frac{d^3x^4}{4b^3}$$

```
[Out] ((b*c - a*d)*(b^2*c^2 - 8*a*b*c*d + 10*a^2*d^2)*x)/b^6 + (3*d*(b*
c - 2*a*d)*(b*c - a*d)*x^2)/(2*b^5) + (d^2*(b*c - a*d)*x^3)/b^4 +
 (d^3*x^4)/(4*b^3) + (a^3*(b*c - a*d)^3)/(2*b^7*(a + b*x)^2) - (3
*a^2*(b*c - 2*a*d)*(b*c - a*d)^2)/(b^7*(a + b*x)) - (3*a*(b*c - a
*d)*(b^2*c^2 - 5*a*b*c*d + 5*a^2*d^2)*Log[a + b*x])/b^7
```

Rubi [A] time = 0.509277, antiderivative size = 196, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{a^3(bc-ad)^3}{2b^7(a+bx)^2}-\frac{3a^2(bc-2ad)(bc-ad)^2}{b^7(a+bx)}-\frac{3a(bc-ad)\left(5a^2d^2-5abcd+b^2c^2\right)\log(a+bx)}{b^7}+\frac{x(bc-ad)\left(10a^2d^2-8abcd+b^2c^2\right)}{b^6}+\frac{3dx^2(bc-2ad)(bc-ad)}{2b^5}+\frac{d^2x^3(bc-ad)}{b^4}+\frac{d^3x^4}{4b^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^3*(c + d*x)^3)/(a + b*x)^3,x]
```

```
[Out] ((b*c - a*d)*(b^2*c^2 - 8*a*b*c*d + 10*a^2*d^2)*x)/b^6 + (3*d*(b*
c - 2*a*d)*(b*c - a*d)*x^2)/(2*b^5) + (d^2*(b*c - a*d)*x^3)/b^4 +
 (d^3*x^4)/(4*b^3) + (a^3*(b*c - a*d)^3)/(2*b^7*(a + b*x)^2) - (3
*a^2*(b*c - 2*a*d)*(b*c - a*d)^2)/(b^7*(a + b*x)) - (3*a*(b*c - a
*d)*(b^2*c^2 - 5*a*b*c*d + 5*a^2*d^2)*Log[a + b*x])/b^7
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{a^3\left(ad-bc\right)^3}{2b^7\left(a+bx\right)^2}+\frac{3a^2\left(ad-bc\right)^2\left(2ad-bc\right)}{b^7\left(a+bx\right)}+\frac{3a\left(ad-bc\right)\left(5a^2d^2-5abcd+b^2c^2\right)\log\left(a+bx\right)}{b^7}-\left(ad-bc\right)\left(10a^2d^2-8abcd+b^2c^2\right)\int\frac{1}{b^6}\,dx+\frac{d^3x^4}{4b^3}-\frac{d^2x^3\left(ad-bc\right)}{b^4}+\frac{3d\left(ad-bc\right)\left(2ad-bc\right)\int x\,dx}{b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3*(d*x+c)**3/(b*x+a)**3,x)
```

```
[Out] -a**3*(a*d - b*c)**3/(2*b**7*(a + b*x)**2) + 3*a**2*(a*d - b*c)**
2*(2*a*d - b*c)/(b**7*(a + b*x)) + 3*a*(a*d - b*c)*(5*a**2*d**2 -
 5*a*b*c*d + b**2*c**2)*log(a + b*x)/b**7 - (a*d - b*c)*(10*a**2*
d**2 - 8*a*b*c*d + b**2*c**2)*Integral(b**(-6), x) + d**3*x**4/(4
*b**3) - d**2*x**3*(a*d - b*c)/b**4 + 3*d*(a*d - b*c)*(2*a*d - b*
c)*Integral(x, x)/b**5
```

Mathematica [A] time = 0.274869, size = 207, normalized size = 1.06

$$\frac{\frac{2a^3(bc-ad)^3}{(a+bx)^2}+6b^2dx^2\left(2a^2d^2-3abcd+b^2c^2\right)+\frac{12a^2(bc-ad)^2(2ad-bc)}{a+bx}+4bx\left(-10a^3d^3+18a^2bcd^2-9ab^2c^2d+b^3c^3\right)+12a\left(5a\right.}{4b^7}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^3*(c + d*x)^3)/(a + b*x)^3,x]
```

```
[Out] (4*b*(b^3*c^3 - 9*a*b^2*c^2*d + 18*a^2*b*c*d^2 - 10*a^3*d^3)*x +
6*b^2*d*(b^2*c^2 - 3*a*b*c*d + 2*a^2*d^2)*x^2 + 4*b^3*d^2*(b*c -
a*d)*x^3 + b^4*d^3*x^4 + (2*a^3*(b*c - a*d)^3)/(a + b*x)^2 + (12*
a^2*(b*c - a*d)^2*(-(b*c) + 2*a*d))/(a + b*x) + 12*a*(-(b^3*c^3)
+ 6*a*b^2*c^2*d - 10*a^2*b*c*d^2 + 5*a^3*d^3)*Log[a + b*x])/(4*b^
7)
```

Maple [A] time = 0.016, size = 335, normalized size = 1.7

$$\frac{d^3x^4}{4\,b^3} - \frac{x^3ad^3}{b^4} + \frac{cx^3d^2}{b^3} + 3\,\frac{a^2x^2d^3}{b^5} - \frac{9\,x^2acd^2}{2\,b^4} + \frac{3\,x^2c^2d}{2\,b^3} - 10\,\frac{a^3d^3x}{b^6} + 18\,\frac{a^2cd^2x}{b^5} - 9\,\frac{ac^2dx}{b^4} + \frac{c^3x}{b^3} + 15\,\frac{a^4\ln(bx+a)\,d^3}{b^7} - 30\,\frac{a^3\ln(bx+a)\,cd^2}{b^6} + 18\,\frac{a^2\ln(bx+a)\,c^2d}{b^5} - 3\,\frac{a\ln(bx+a)\,c^3}{b^4} + 6\,\frac{a^5d^3}{b^7\,(bx+a)} - 15\,\frac{a^4cd^2}{b^6\,(bx+a)} + 12\,\frac{a^3c^2d}{b^5\,(bx+a)} - 3\,\frac{a^2c^3}{b^4\,(bx+a)} - \frac{a^6d^3}{2\,b^7\,(bx+a)^2} + \frac{3\,a^5cd^2}{2\,b^6\,(bx+a)^2} - \frac{3\,a^4c^2d}{2\,b^5\,(bx+a)^2} + \frac{a^3c^3}{2\,b^4\,(bx+a)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^3*(d*x+c)^3/(b*x+a)^3,x)
```

```
[Out] 1/4*d^3*x^4/b^3-1/b^4*x^3*a*d^3+1/b^3*x^3*c*d^2+3/b^5*x^2*a^2*d^3
-9/2/b^4*x^2*a*c*d^2+3/2/b^3*x^2*c^2*d-10/b^6*a^3*d^3*x+18/b^5*a^
2*c*d^2*x-9/b^4*a*c^2*d*x+1/b^3*c^3*x+15*a^4/b^7*ln(b*x+a)*d^3-30
*a^3/b^6*ln(b*x+a)*c*d^2+18*a^2/b^5*ln(b*x+a)*c^2*d-3*a/b^4*ln(b*
x+a)*c^3+6*a^5/b^7/(b*x+a)*d^3-15*a^4/b^6/(b*x+a)*c*d^2+12*a^3/b^
5/(b*x+a)*c^2*d-3*a^2/b^4/(b*x+a)*c^3-1/2*a^6/b^7/(b*x+a)^2*d^3+3
/2*a^5/b^6/(b*x+a)^2*c*d^2-3/2*a^4/b^5/(b*x+a)^2*c^2*d+1/2*a^3/b^
4/(b*x+a)^2*c^3
```

Maxima [A] time = 1.36812, size = 374, normalized size = 1.91

$$-\frac{5\,a^3b^3c^3 - 21\,a^4b^2c^2d + 27\,a^5bcd^2 - 11\,a^6d^3 + 6\left(a^2b^4c^3 - 4\,a^3b^3c^2d + 5\,a^4b^2cd^2 - 2\,a^5bd^3\right)x}{2\left(b^9x^2 + 2\,ab^8x + a^2b^7\right)} + \frac{b^3d^3x^4 + 4\left(b^3cd^2 - ab^2d^3\right)x^3 + 6\left(b^3c^2d - 3\,ab^2cd^2 + 2\,a^2bd^3\right)x^2 + 4\left(b^3c^3 - 9\,ab^2c^2d + 18\,a^2bcd^2 - 10\,a^3d^3\right)x}{4\,b^6} - \frac{3\left(ab^3c^3 - 6\,a^2b^2c^2d + 10\,a^3bcd^2 - 5\,a^4d^3\right)\log(bx+a)}{b^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3*x^3/(b*x + a)^3,x, algorithm="maxima")
```

```
[Out] -1/2*(5*a^3*b^3*c^3 - 21*a^4*b^2*c^2*d + 27*a^5*b*c*d^2 - 11*a^6*
d^3 + 6*(a^2*b^4*c^3 - 4*a^3*b^3*c^2*d + 5*a^4*b^2*c*d^2 - 2*a^5*
b*d^3)*x)/(b^9*x^2 + 2*a*b^8*x + a^2*b^7) + 1/4*(b^3*d^3*x^4 + 4*
(b^3*c*d^2 - a*b^2*d^3)*x^3 + 6*(b^3*c^2*d - 3*a*b^2*c*d^2 + 2*a^
2*b*d^3)*x^2 + 4*(b^3*c^3 - 9*a*b^2*c^2*d + 18*a^2*b*c*d^2 - 10*a
^3*d^3)*x)/b^6 - 3*(a*b^3*c^3 - 6*a^2*b^2*c^2*d + 10*a^3*b*c*d^2
- 5*a^4*d^3)*log(b*x + a)/b^7
```

Fricas [A] time = 0.218484, size = 574, normalized size = 2.93

$$b^6d^3x^6 - 10\,a^3b^3c^3 + 42\,a^4b^2c^2d - 54\,a^5bcd^2 + 22\,a^6d^3 + 2\left(2\,b^6cd^2 - ab^5d^3\right)x^5 + \left(6\,b^6c^2d - 10\,ab^5cd^2 + 5\,a^2b^4d^3\right)x^4 + 4\,(b$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3*x^3/(b*x + a)^3,x, algorithm="fricas")
```

```
[Out] 1/4*(b^6*d^3*x^6 - 10*a^3*b^3*c^3 + 42*a^4*b^2*c^2*d - 54*a^5*b*c
*d^2 + 22*a^6*d^3 + 2*(2*b^6*c*d^2 - a*b^5*d^3)*x^5 + (6*b^6*c^2*
d - 10*a*b^5*c*d^2 + 5*a^2*b^4*d^3)*x^4 + 4*(b^6*c^3 - 6*a*b^5*c^
2*d + 10*a^2*b^4*c*d^2 - 5*a^3*b^3*d^3)*x^3 + 2*(4*a*b^5*c^3 - 33
*a^2*b^4*c^2*d + 63*a^3*b^3*c*d^2 - 34*a^4*b^2*d^3)*x^2 - 4*(2*a^
2*b^4*c^3 - 3*a^3*b^3*c^2*d - 3*a^4*b^2*c*d^2 + 4*a^5*b*d^3)*x -
12*(a^3*b^3*c^3 - 6*a^4*b^2*c^2*d + 10*a^5*b*c*d^2 - 5*a^6*d^3 +
(a*b^5*c^3 - 6*a^2*b^4*c^2*d + 10*a^3*b^3*c*d^2 - 5*a^4*b^2*d^3)*
x^2 + 2*(a^2*b^4*c^3 - 6*a^3*b^3*c^2*d + 10*a^4*b^2*c*d^2 - 5*a^5
*b*d^3)*x)*log(b*x + a))/(b^9*x^2 + 2*a*b^8*x + a^2*b^7)
```

Sympy [A] time = 10.5548, size = 277, normalized size = 1.41

$$\frac{3a\left(ad-bc\right)\left(5a^2d^2-5abcd+b^2c^2\right)\log\left(a+bx\right)}{b^7}+\frac{11a^6d^3-27a^5bcd^2+21a^4b^2c^2d-5a^3b^3c^3+x\left(12a^5bd^3-30a^4b^2cd^2+24a^3b^3c^2d-6a^2b^4c^3\right)}{2a^2b^7+4ab^8x+2b^9x^2}+\frac{d^3x^4}{4b^3}-\frac{x^3\left(ad^3-bcd^2\right)}{b^4}+\frac{x^2\left(6a^2d^3-9abcd^2+3b^2c^2d\right)}{2b^5}-\frac{x\left(10a^3d^3-18a^2bcd^2+9ab^2c^2d-b^3c^3\right)}{b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**3*(d*x+c)**3/(b*x+a)**3,x)
```

```
[Out] 3*a*(a*d - b*c)*(5*a**2*d**2 - 5*a*b*c*d + b**2*c**2)*log(a + b*x
)/b**7 + (11*a**6*d**3 - 27*a**5*b*c*d**2 + 21*a**4*b**2*c**2*d -
 5*a**3*b**3*c**3 + x*(12*a**5*b*d**3 - 30*a**4*b**2*c*d**2 + 24*
a**3*b**3*c**2*d - 6*a**2*b**4*c**3))/(2*a**2*b**7 + 4*a*b**8*x +
 2*b**9*x**2) + d**3*x**4/(4*b**3) - x**3*(a*d**3 - b*c*d**2)/b**
4 + x**2*(6*a**2*d**3 - 9*a*b*c*d**2 + 3*b**2*c**2*d)/(2*b**5) -
x*(10*a**3*d**3 - 18*a**2*b*c*d**2 + 9*a*b**2*c**2*d - b**3*c**3)
/b**6
```

GIAC/XCAS [A] time = 0.261819, size = 374, normalized size = 1.91

$$-\frac{3\left(ab^3c^3-6\,a^2b^2c^2d+10\,a^3bcd^2-5\,a^4d^3\right)\ln\left(\left|bx+a\right|\right)}{b^7}-\frac{5\,a^3b^3c^3-21\,a^4b^2c^2d+27\,a^5bcd^2-11\,a^6d^3+6\left(a^2b^4c^3-4\,a^3b^3c^2d+5\,a^4b^2cd^2-2\,a^5bd^3\right)x}{2\left(bx+a\right)^2b^7}+\frac{b^9d^3x^4+4\,b^9cd^2x^3-4\,ab^8d^3x^3+6\,b^9c^2dx^2-18\,ab^8cd^2x^2+12\,a^2b^7d^3x^2+4\,b^9c^3x-36\,ab^8c^2dx+72\,a^2b^7cd^2x-40\,a^3b^6}{4\,b^{12}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3*x^3/(b*x + a)^3,x, algorithm="giac")
```

```
[Out] -3*(a*b^3*c^3 - 6*a^2*b^2*c^2*d + 10*a^3*b*c*d^2 - 5*a^4*d^3)*ln(
abs(b*x + a))/b^7 - 1/2*(5*a^3*b^3*c^3 - 21*a^4*b^2*c^2*d + 27*a^
5*b*c*d^2 - 11*a^6*d^3 + 6*(a^2*b^4*c^3 - 4*a^3*b^3*c^2*d + 5*a^4
*b^2*c*d^2 - 2*a^5*b*d^3)*x)/((b*x + a)^2*b^7) + 1/4*(b^9*d^3*x^4
 + 4*b^9*c*d^2*x^3 - 4*a*b^8*d^3*x^3 + 6*b^9*c^2*d*x^2 - 18*a*b^8
*c*d^2*x^2 + 12*a^2*b^7*d^3*x^2 + 4*b^9*c^3*x - 36*a*b^8*c^2*d*x
+ 72*a^2*b^7*c*d^2*x - 40*a^3*b^6*d^3*x)/b^12
```

3.272 $\int \frac{x^2(c+dx)^3}{(a+bx)^3}\,dx$

Optimal. Leaf size=156

$$-\frac{a^2(bc-ad)^3}{2b^6(a+bx)^2}+\frac{\left(10a^2d^2-8abcd+b^2c^2\right)(bc-ad)\log(a+bx)}{b^6}+\frac{a(2bc-5ad)(bc-ad)^2}{b^6(a+bx)}+\frac{3dx(bc-2ad)(bc-ad)}{b^5}+\frac{3d^2x^2(bc-ad)}{2b^4}+\frac{d^3x^3}{3b^3}$$

```
[Out] (3*d*(b*c - 2*a*d)*(b*c - a*d)*x)/b^5 + (3*d^2*(b*c - a*d)*x^2)/(
2*b^4) + (d^3*x^3)/(3*b^3) - (a^2*(b*c - a*d)^3)/(2*b^6*(a + b*x)
^2) + (a*(2*b*c - 5*a*d)*(b*c - a*d)^2)/(b^6*(a + b*x)) + ((b*c -
 a*d)*(b^2*c^2 - 8*a*b*c*d + 10*a^2*d^2)*Log[a + b*x])/b^6
```

Rubi [A] time = 0.368462, antiderivative size = 156, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{a^2(bc-ad)^3}{2b^6(a+bx)^2}+\frac{\left(10a^2d^2-8abcd+b^2c^2\right)(bc-ad)\log(a+bx)}{b^6}+\frac{a(2bc-5ad)(bc-ad)^2}{b^6(a+bx)}+\frac{3dx(bc-2ad)(bc-ad)}{b^5}+\frac{3d^2x^2(bc-ad)}{2b^4}+\frac{d^3x^3}{3b^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^2*(c + d*x)^3)/(a + b*x)^3,x]
```

```
[Out] (3*d*(b*c - 2*a*d)*(b*c - a*d)*x)/b^5 + (3*d^2*(b*c - a*d)*x^2)/(
2*b^4) + (d^3*x^3)/(3*b^3) - (a^2*(b*c - a*d)^3)/(2*b^6*(a + b*x)
^2) + (a*(2*b*c - 5*a*d)*(b*c - a*d)^2)/(b^6*(a + b*x)) + ((b*c -
 a*d)*(b^2*c^2 - 8*a*b*c*d + 10*a^2*d^2)*Log[a + b*x])/b^6
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{a^2\left(ad-bc\right)^3}{2b^6\left(a+bx\right)^2}-\frac{a\left(ad-bc\right)^2\left(5ad-2bc\right)}{b^6\left(a+bx\right)}+\frac{d^3x^3}{3b^3}-\frac{3d^2\left(ad-bc\right)\int x\,dx}{b^4}+\frac{3dx\left(ad-bc\right)\left(2ad-bc\right)}{b^5}-\frac{\left(ad-bc\right)\left(10a^2d^2-8abcd+b^2c^2\right)\log\left(a+bx\right)}{b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(d*x+c)**3/(b*x+a)**3,x)
```

```
[Out] a**2*(a*d - b*c)**3/(2*b**6*(a + b*x)**2) - a*(a*d - b*c)**2*(5*a
*d - 2*b*c)/(b**6*(a + b*x)) + d**3*x**3/(3*b**3) - 3*d**2*(a*d -
 b*c)*Integral(x, x)/b**4 + 3*d*x*(a*d - b*c)*(2*a*d - b*c)/b**5
- (a*d - b*c)*(10*a**2*d**2 - 8*a*b*c*d + b**2*c**2)*log(a + b*x)
/b**6
```

Mathematica [A] time = 0.145483, size = 160, normalized size = 1.03

$$\frac{18bdx\left(2a^2d^2-3abcd+b^2c^2\right)+\frac{3a^2(ad-bc)^3}{(a+bx)^2}+6\left(-10a^3d^3+18a^2bcd^2-9ab^2c^2d+b^3c^3\right)\log(a+bx)+9b^2d^2x^2(bc-ad)-}{6b^6}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^2*(c + d*x)^3)/(a + b*x)^3,x]
```

```
[Out] (18*b*d*(b^2*c^2 - 3*a*b*c*d + 2*a^2*d^2)*x + 9*b^2*d^2*(b*c - a*
d)*x^2 + 2*b^3*d^3*x^3 + (3*a^2*(-(b*c) + a*d)^3)/(a + b*x)^2 - (
6*a*(b*c - a*d)^2*(-2*b*c + 5*a*d))/(a + b*x) + 6*(b^3*c^3 - 9*a*
b^2*c^2*d + 18*a^2*b*c*d^2 - 10*a^3*d^3)*Log[a + b*x])/(6*b^6)
```

Maple [A] time = 0.014, size = 280, normalized size = 1.8

$$\frac{d^3x^3}{3\,b^3}-\frac{3\,d^3x^2a}{2\,b^4}+\frac{3\,d^2x^2c}{2\,b^3}+6\,\frac{a^2d^3x}{b^5}-9\,\frac{acd^2x}{b^4}+3\,\frac{c^2dx}{b^3}-10\,\frac{\ln(bx+a)\,a^3d^3}{b^6}+18\,\frac{\ln(bx+a)\,a^2cd^2}{b^5}-9\,\frac{\ln(bx+a)\,ac^2d}{b^4}+\frac{\ln(bx+a)\,c^3}{b^3}-5\,\frac{a^4d^3}{b^6(bx+a)}+12\,\frac{a^3cd^2}{b^5(bx+a)}-9\,\frac{a^2c^2d}{b^4(bx+a)}+2\,\frac{ac^3}{b^3(bx+a)}+\frac{a^5d^3}{2\,b^6(bx+a)^2}-\frac{3\,a^4cd^2}{2\,b^5(bx+a)^2}+\frac{3\,a^3c^2d}{2\,b^4(bx+a)^2}-\frac{a^2c^3}{2\,b^3(bx+a)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(d*x+c)^3/(b*x+a)^3,x)
```

```
[Out] 1/3*d^3*x^3/b^3-3/2*d^3/b^4*x^2*a+3/2*d^2/b^3*x^2*c+6*d^3/b^5*a^2
*x-9*d^2/b^4*a*c*x+3*d/b^3*c^2*x-10/b^6*ln(b*x+a)*a^3*d^3+18/b^5*
ln(b*x+a)*a^2*c*d^2-9/b^4*ln(b*x+a)*a*c^2*d+1/b^3*ln(b*x+a)*c^3-5
*a^4/b^6/(b*x+a)*d^3+12*a^3/b^5/(b*x+a)*c*d^2-9*a^2/b^4/(b*x+a)*c
^2*d+2*a/b^3/(b*x+a)*c^3+1/2*a^5/b^6/(b*x+a)^2*d^3-3/2*a^4/b^5/(b
*x+a)^2*c*d^2+3/2*a^3/b^4/(b*x+a)^2*c^2*d-1/2*a^2/b^3/(b*x+a)^2*c
^3
```

Maxima [A] time = 1.36273, size = 306, normalized size = 1.96

$$\frac{3\,a^2b^3c^3-15\,a^3b^2c^2d+21\,a^4bcd^2-9\,a^5d^3+2\left(2\,ab^4c^3-9\,a^2b^3c^2d+12\,a^3b^2cd^2-5\,a^4bd^3\right)x}{2\left(b^8x^2+2\,ab^7x+a^2b^6\right)}+\frac{2\,b^2d^3x^3+9\left(b^2cd^2-abd^3\right)x^2+18\left(b^2c^2d-3\,abcd^2+2\,a^2d^3\right)x}{6\,b^5}+\frac{\left(b^3c^3-9\,ab^2c^2d+18\,a^2bcd^2-10\,a^3d^3\right)\log(bx+a)}{b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3*x^2/(b*x + a)^3,x, algorithm="maxima")
```

```
[Out] 1/2*(3*a^2*b^3*c^3 - 15*a^3*b^2*c^2*d + 21*a^4*b*c*d^2 - 9*a^5*d^
3 + 2*(2*a*b^4*c^3 - 9*a^2*b^3*c^2*d + 12*a^3*b^2*c*d^2 - 5*a^4*b
*d^3)*x)/(b^8*x^2 + 2*a*b^7*x + a^2*b^6) + 1/6*(2*b^2*d^3*x^3 + 9
*(b^2*c*d^2 - a*b*d^3)*x^2 + 18*(b^2*c^2*d - 3*a*b*c*d^2 + 2*a^2*
d^3)*x)/b^5 + (b^3*c^3 - 9*a*b^2*c^2*d + 18*a^2*b*c*d^2 - 10*a^3*
d^3)*log(b*x + a)/b^6
```

Fricas [A] time = 0.209433, size = 487, normalized size = 3.12

$$2\,b^5d^3x^5+9\,a^2b^3c^3-45\,a^3b^2c^2d+63\,a^4bcd^2-27\,a^5d^3+\left(9\,b^5cd^2-5\,ab^4d^3\right)x^4+2\left(9\,b^5c^2d-18\,ab^4cd^2+10\,a^2b^3d^3\right)x^3+9$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3*x^2/(b*x + a)^3,x, algorithm="fricas")
```

```
[Out] 1/6*(2*b^5*d^3*x^5 + 9*a^2*b^3*c^3 - 45*a^3*b^2*c^2*d + 63*a^4*b*
c*d^2 - 27*a^5*d^3 + (9*b^5*c*d^2 - 5*a*b^4*d^3)*x^4 + 2*(9*b^5*c
^2*d - 18*a*b^4*c*d^2 + 10*a^2*b^3*d^3)*x^3 + 9*(4*a*b^4*c^2*d -
```

```
11*a^2*b^3*c*d^2 + 7*a^3*b^2*d^3)*x^2 + 6*(2*a*b^4*c^3 - 6*a^2*b^
3*c^2*d + 3*a^3*b^2*c*d^2 + a^4*b*d^3)*x + 6*(a^2*b^3*c^3 - 9*a^3
*b^2*c^2*d + 18*a^4*b*c*d^2 - 10*a^5*d^3 + (b^5*c^3 - 9*a*b^4*c^2
*d + 18*a^2*b^3*c*d^2 - 10*a^3*b^2*d^3)*x^2 + 2*(a*b^4*c^3 - 9*a^
2*b^3*c^2*d + 18*a^3*b^2*c*d^2 - 10*a^4*b*d^3)*x)*log(b*x + a))/(
b^8*x^2 + 2*a*b^7*x + a^2*b^6)
```

Sympy [A] time = 9.42366, size = 230, normalized size = 1.47

$$-\frac{9a^5d^3-21a^4bcd^2+15a^3b^2c^2d-3a^2b^3c^3+x\left(10a^4bd^3-24a^3b^2cd^2+18a^2b^3c^2d-4ab^4c^3\right)}{2a^2b^6+4ab^7x+2b^8x^2}+\frac{d^3x^3}{3b^3}-\frac{x^2\left(3ad^3-3bcd^2\right)}{2b^4}+\frac{x\left(6a^2d^3-9abcd^2+3b^2c^2d\right)}{b^5}-\frac{(ad-bc)\left(10a^2d^2-8abcd+b^2c^2\right)\log(a+bx)}{b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(d*x+c)**3/(b*x+a)**3,x)
```

```
[Out] -(9*a**5*d**3 - 21*a**4*b*c*d**2 + 15*a**3*b**2*c**2*d - 3*a**2*b
**3*c**3 + x*(10*a**4*b*d**3 - 24*a**3*b**2*c*d**2 + 18*a**2*b**3
*c**2*d - 4*a*b**4*c**3))/(2*a**2*b**6 + 4*a*b**7*x + 2*b**8*x**2
) + d**3*x**3/(3*b**3) - x**2*(3*a*d**3 - 3*b*c*d**2)/(2*b**4) +
x*(6*a**2*d**3 - 9*a*b*c*d**2 + 3*b**2*c**2*d)/b**5 - (a*d - b*c)
*(10*a**2*d**2 - 8*a*b*c*d + b**2*c**2)*log(a + b*x)/b**6
```

GIAC/XCAS [A] time = 0.276668, size = 300, normalized size = 1.92

$$\frac{\left(b^3c^3-9\,ab^2c^2d+18\,a^2bcd^2-10\,a^3d^3\right)\ln\left(|bx+a|\right)}{b^6}+\frac{3\,a^2b^3c^3-15\,a^3b^2c^2d+21\,a^4bcd^2-9\,a^5d^3+2\left(2\,ab^4c^3-9\,a^2b^3c^2d+12\,a^3b^2cd^2-5\,a^4bd^3\right)x}{2\,(bx+a)^2b^6}+\frac{2\,b^6d^3x^3+9\,b^6cd^2x^2-9\,ab^5d^3x^2+18\,b^6c^2dx-54\,ab^5cd^2x+36\,a^2b^4d^3x}{6\,b^9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3*x^2/(b*x + a)^3,x, algorithm="giac")
```

```
[Out] (b^3*c^3 - 9*a*b^2*c^2*d + 18*a^2*b*c*d^2 - 10*a^3*d^3)*ln(abs(b*
x + a))/b^6 + 1/2*(3*a^2*b^3*c^3 - 15*a^3*b^2*c^2*d + 21*a^4*b*c*
d^2 - 9*a^5*d^3 + 2*(2*a*b^4*c^3 - 9*a^2*b^3*c^2*d + 12*a^3*b^2*c
*d^2 - 5*a^4*b*d^3)*x)/((b*x + a)^2*b^6) + 1/6*(2*b^6*d^3*x^3 + 9
*b^6*c*d^2*x^2 - 9*a*b^5*d^3*x^2 + 18*b^6*c^2*d*x - 54*a*b^5*c*d^
2*x + 36*a^2*b^4*d^3*x)/b^9
```

3.273 $\int \frac{x(c+dx)^3}{(a+bx)^3} dx$

Optimal. Leaf size=114

$$-\frac{(bc-4ad)(bc-ad)^2}{b^5(a+bx)}+\frac{a(bc-ad)^3}{2b^5(a+bx)^2}+\frac{3d(bc-2ad)(bc-ad)\log(a+bx)}{b^5}+\frac{3d^2x(bc-ad)}{b^4}+\frac{d^3x^2}{2b^3}$$

```
[Out] (3*d^2*(b*c - a*d)*x)/b^4 + (d^3*x^2)/(2*b^3) + (a*(b*c - a*d)^3)
/(2*b^5*(a + b*x)^2) - ((b*c - 4*a*d)*(b*c - a*d)^2)/(b^5*(a + b*
x)) + (3*d*(b*c - 2*a*d)*(b*c - a*d)*Log[a + b*x])/b^5
```

Rubi [A] time = 0.241155, antiderivative size = 114, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{(bc-4ad)(bc-ad)^2}{b^5(a+bx)}+\frac{a(bc-ad)^3}{2b^5(a+bx)^2}+\frac{3d(bc-2ad)(bc-ad)\log(a+bx)}{b^5}+\frac{3d^2x(bc-ad)}{b^4}+\frac{d^3x^2}{2b^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(x*(c + d*x)^3)/(a + b*x)^3,x]
```

```
[Out] (3*d^2*(b*c - a*d)*x)/b^4 + (d^3*x^2)/(2*b^3) + (a*(b*c - a*d)^3)
/(2*b^5*(a + b*x)^2) - ((b*c - 4*a*d)*(b*c - a*d)^2)/(b^5*(a + b*
x)) + (3*d*(b*c - 2*a*d)*(b*c - a*d)*Log[a + b*x])/b^5
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{a(ad-bc)^3}{2b^5(a+bx)^2}+\frac{d^3\int x\,dx}{b^3}-\frac{3d^2x(ad-bc)}{b^4}+\frac{3d(ad-bc)(2ad-bc)\log(a+bx)}{b^5}+\frac{(ad-bc)^2(4ad-bc)}{b^5(a+bx)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(d*x+c)**3/(b*x+a)**3,x)
```

```
[Out] -a*(a*d - b*c)**3/(2*b**5*(a + b*x)**2) + d**3*Integral(x, x)/b**
3 - 3*d**2*x*(a*d - b*c)/b**4 + 3*d*(a*d - b*c)*(2*a*d - b*c)*log
(a + b*x)/b**5 + (a*d - b*c)**2*(4*a*d - b*c)/(b**5*(a + b*x))
```

Mathematica [A] time = 0.101583, size = 165, normalized size = 1.45

$$\frac{7a^4d^3+a^3bd^2(2dx-15c)+a^2b^2d\left(9c^2-12cdx-11d^2x^2\right)+6d(a+bx)^2\left(2a^2d^2-3abcd+b^2c^2\right)\log(a+bx)-ab^3\left(c^3-12\right.}{2b^5(a+bx)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x*(c + d*x)^3)/(a + b*x)^3,x]
```

```
[Out] (7*a^4*d^3 + a^3*b*d^2*(-15*c + 2*d*x) + a^2*b^2*d*(9*c^2 - 12*c*
d*x - 11*d^2*x^2) + b^4*x*(-2*c^3 + 6*c*d^2*x^2 + d^3*x^3) - a*b^
3*(c^3 - 12*c^2*d*x - 12*c*d^2*x^2 + 4*d^3*x^3) + 6*d*(b^2*c^2 -
3*a*b*c*d + 2*a^2*d^2)*(a + b*x)^2*Log[a + b*x])/(2*b^5*(a + b*x)
^2)
```

Maple [B] time = 0.013, size = 222, normalized size = 2.

$$\frac{d^3x^2}{2\,b^3}-3\,\frac{ad^3x}{b^4}+3\,\frac{d^2xc}{b^3}+6\,\frac{d^3\ln\left(bx+a\right)a^2}{b^5}-9\,\frac{d^2\ln\left(bx+a\right)ac}{b^4}+3\,\frac{d\ln\left(bx+a\right)c^2}{b^3}+4\,\frac{a^3d^3}{b^5\left(bx+a\right)}-9\,\frac{a^2cd^2}{b^4\left(bx+a\right)}+6\,\frac{ac^2d}{b^3\left(bx+a\right)}-\frac{c^3}{b^2\left(bx+a\right)}-\frac{a^4d^3}{2\,b^5\left(bx+a\right)^2}+\frac{3\,a^3cd^2}{2\,b^4\left(bx+a\right)^2}-\frac{3\,a^2c^2d}{2\,b^3\left(bx+a\right)^2}+\frac{ac^3}{2\,b^2\left(bx+a\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int(x*(d*x+c)^3/(b*x+a)^3,x)
```

```
[Out] 1/2*d^3*x^2/b^3-3*d^3/b^4*a*x+3*d^2/b^3*x*c+6/b^5*d^3*ln(b*x+a)*a
^2-9/b^4*d^2*ln(b*x+a)*a*c+3/b^3*d*ln(b*x+a)*c^2+4/b^5/(b*x+a)*a^
3*d^3-9/b^4/(b*x+a)*a^2*c*d^2+6/b^3/(b*x+a)*a*c^2*d-1/b^2/(b*x+a)
*c^3-1/2*a^4/b^5/(b*x+a)^2*d^3+3/2*a^3/b^4/(b*x+a)^2*c*d^2-3/2*a^
2/b^3/(b*x+a)^2*c^2*d+1/2*a/b^2/(b*x+a)^2*c^3
```

Maxima [A] time = 1.34911, size = 235, normalized size = 2.06

$$-\frac{ab^3c^3-9\,a^2b^2c^2d+15\,a^3bcd^2-7\,a^4d^3+2\left(b^4c^3-6\,ab^3c^2d+9\,a^2b^2cd^2-4\,a^3bd^3\right)x}{2\left(b^7x^2+2\,ab^6x+a^2b^5\right)}+\frac{bd^3x^2+6\left(bcd^2-ad^3\right)x}{2\,b^4}+\frac{3\left(b^2c^2d-3\,abcd^2+2\,a^2d^3\right)\log\left(bx+a\right)}{b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((d*x + c)^3*x/(b*x + a)^3,x, algorithm="maxima")
```

```
[Out] -1/2*(a*b^3*c^3 - 9*a^2*b^2*c^2*d + 15*a^3*b*c*d^2 - 7*a^4*d^3 +
2*(b^4*c^3 - 6*a*b^3*c^2*d + 9*a^2*b^2*c*d^2 - 4*a^3*b*d^3)*x)/(b
^7*x^2 + 2*a*b^6*x + a^2*b^5) + 1/2*(b*d^3*x^2 + 6*(b*c*d^2 - a*d
^3)*x)/b^4 + 3*(b^2*c^2*d - 3*a*b*c*d^2 + 2*a^2*d^3)*log(b*x + a)
/b^5
```

Fricas [A] time = 0.205261, size = 370, normalized size = 3.25

$$\frac{b^4d^3x^4-ab^3c^3+9\,a^2b^2c^2d-15\,a^3bcd^2+7\,a^4d^3+2\left(3\,b^4cd^2-2\,ab^3d^3\right)x^3+\left(12\,ab^3cd^2-11\,a^2b^2d^3\right)x^2-2\left(b^4c^3-6\,ab^3c^2\right.}{2\,(}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((d*x + c)^3*x/(b*x + a)^3,x, algorithm="fricas")
```

```
[Out] 1/2*(b^4*d^3*x^4 - a*b^3*c^3 + 9*a^2*b^2*c^2*d - 15*a^3*b*c*d^2 +
 7*a^4*d^3 + 2*(3*b^4*c*d^2 - 2*a*b^3*d^3)*x^3 + (12*a*b^3*c*d^2
- 11*a^2*b^2*d^3)*x^2 - 2*(b^4*c^3 - 6*a*b^3*c^2*d + 6*a^2*b^2*c*
d^2 - a^3*b*d^3)*x + 6*(a^2*b^2*c^2*d - 3*a^3*b*c*d^2 + 2*a^4*d^3
 + (b^4*c^2*d - 3*a*b^3*c*d^2 + 2*a^2*b^2*d^3)*x^2 + 2*(a*b^3*c^2
*d - 3*a^2*b^2*c*d^2 + 2*a^3*b*d^3)*x)*log(b*x + a))/(b^7*x^2 + 2
*a*b^6*x + a^2*b^5)
```

Sympy [A] time = 7.87648, size = 173, normalized size = 1.52

$$\frac{7a^4d^3-15a^3bcd^2+9a^2b^2c^2d-ab^3c^3+x\left(8a^3bd^3-18a^2b^2cd^2+12ab^3c^2d-2b^4c^3\right)}{2a^2b^5+4ab^6x+2b^7x^2}+\frac{d^3x^2}{2b^3}-\frac{x\left(3ad^3-3bcd^2\right)}{b^4}+\frac{3d\left(ad-bc\right)\left(2ad-bc\right)\log\left(a+bx\right)}{b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(d*x+c)**3/(b*x+a)**3,x)
```

```
[Out] (7*a**4*d**3 - 15*a**3*b*c*d**2 + 9*a**2*b**2*c**2*d - a*b**3*c**
3 + x*(8*a**3*b*d**3 - 18*a**2*b**2*c*d**2 + 12*a*b**3*c**2*d - 2
*b**4*c**3))/(2*a**2*b**5 + 4*a*b**6*x + 2*b**7*x**2) + d**3*x**2
/(2*b**3) - x*(3*a*d**3 - 3*b*c*d**2)/b**4 + 3*d*(a*d - b*c)*(2*a
*d - b*c)*log(a + b*x)/b**5
```

GIAC/XCAS [A] time = 0.285362, size = 225, normalized size = 1.97

$$\frac{3\left(b^{2}c^{2}d-3\,abcd^{2}+2\,a^{2}d^{3}\right)\ln\left(|bx+a|\right)}{b^{5}}+\frac{b^{3}d^{3}x^{2}+6\,b^{3}cd^{2}x-6\,ab^{2}d^{3}x}{2\,b^{6}}-\frac{ab^{3}c^{3}-9\,a^{2}b^{2}c^{2}d+15\,a^{3}bcd^{2}-7\,a^{4}d^{3}+2\left(b^{4}c^{3}-6\,ab^{3}c^{2}d+9\,a^{2}b^{2}cd^{2}-4\,a^{3}bd^{3}\right)x}{2\left(bx+a\right)^{2}b^{5}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3*x/(b*x + a)^3,x, algorithm="giac")
```

```
[Out] 3*(b^2*c^2*d - 3*a*b*c*d^2 + 2*a^2*d^3)*ln(abs(b*x + a))/b^5 + 1/
2*(b^3*d^3*x^2 + 6*b^3*c*d^2*x - 6*a*b^2*d^3*x)/b^6 - 1/2*(a*b^3*
c^3 - 9*a^2*b^2*c^2*d + 15*a^3*b*c*d^2 - 7*a^4*d^3 + 2*(b^4*c^3 -
 6*a*b^3*c^2*d + 9*a^2*b^2*c*d^2 - 4*a^3*b*d^3)*x)/((b*x + a)^2*b
^5)
```

3.274 $\int \frac{(c+dx)^3}{(a+bx)^3} dx$

Optimal. Leaf size=78

$$\frac{3d^2(bc-ad)\log(a+bx)}{b^4}-\frac{3d(bc-ad)^2}{b^4(a+bx)}-\frac{(bc-ad)^3}{2b^4(a+bx)^2}+\frac{d^3x}{b^3}$$

```
[Out] (d^3*x)/b^3 - (b*c - a*d)^3/(2*b^4*(a + b*x)^2) - (3*d*(b*c - a*d
)^2)/(b^4*(a + b*x)) + (3*d^2*(b*c - a*d)*Log[a + b*x])/b^4
```

Rubi [A] time = 0.128119, antiderivative size = 78, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}} = 0.067$

$$\frac{3d^2(bc-ad)\log(a+bx)}{b^4}-\frac{3d(bc-ad)^2}{b^4(a+bx)}-\frac{(bc-ad)^3}{2b^4(a+bx)^2}+\frac{d^3x}{b^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^3/(a + b*x)^3,x]
```

```
[Out] (d^3*x)/b^3 - (b*c - a*d)^3/(2*b^4*(a + b*x)^2) - (3*d*(b*c - a*d
)^2)/(b^4*(a + b*x)) + (3*d^2*(b*c - a*d)*Log[a + b*x])/b^4
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$d^3\int \frac{1}{b^3}\,dx-\frac{3d^2\left(ad-bc\right)\log\left(a+bx\right)}{b^4}-\frac{3d\left(ad-bc\right)^2}{b^4\left(a+bx\right)}+\frac{\left(ad-bc\right)^3}{2b^4\left(a+bx\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**3/(b*x+a)**3,x)
```

```
[Out] d**3*Integral(b**(-3), x) - 3*d**2*(a*d - b*c)*log(a + b*x)/b**4
- 3*d*(a*d - b*c)**2/(b**4*(a + b*x)) + (a*d - b*c)**3/(2*b**4*(a
 + b*x)**2)
```

Mathematica [A] time = 0.0710404, size = 114, normalized size = 1.46

$$\frac{-5a^3d^3+a^2bd^2(9c-4dx)+ab^2d\left(-3c^2+12cdx+4d^2x^2\right)-6d^2(a+bx)^2(ad-bc)\log(a+bx)+b^3\left(-\left(c^3+6c^2dx-2d^3x^3\right)\right)}{2b^4(a+bx)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^3/(a + b*x)^3,x]
```

```
[Out] (-5*a^3*d^3 + a^2*b*d^2*(9*c - 4*d*x) + a*b^2*d*(-3*c^2 + 12*c*d*
x + 4*d^2*x^2) - b^3*(c^3 + 6*c^2*d*x - 2*d^3*x^3) - 6*d^2*(-(b*c
) + a*d)*(a + b*x)^2*Log[a + b*x])/(2*b^4*(a + b*x)^2)
```

Maple [B] time = 0.002, size = 160, normalized size = 2.1

$$\frac{d^3x}{b^3}-3\,\frac{d^3\ln(bx+a)\,a}{b^4}+3\,\frac{d^2\ln(bx+a)\,c}{b^3}+\frac{a^3d^3}{2\,b^4\,(bx+a)^2}-\frac{3\,a^2cd^2}{2\,b^3\,(bx+a)^2}+\frac{3\,ac^2d}{2\,b^2\,(bx+a)^2}-\frac{c^3}{2\,b\,(bx+a)^2}-3\,\frac{d^3a^2}{b^4\,(bx+a)}+6\,\frac{d^2ac}{b^3\,(bx+a)}-3\,\frac{dc^2}{b^2\,(bx+a)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^3/(b*x+a)^3,x)
```

```
[Out] d^3*x/b^3-3/b^4*d^3*ln(b*x+a)*a+3/b^3*d^2*ln(b*x+a)*c+1/2/b^4/(b*
x+a)^2*a^3*d^3-3/2/b^3/(b*x+a)^2*a^2*c*d^2+3/2/b^2/(b*x+a)^2*a*c^
2*d-1/2/b/(b*x+a)^2*c^3-3/b^4*d^3/(b*x+a)*a^2+6/b^3*d^2/(b*x+a)*a
*c-3/b^2*d/(b*x+a)*c^2
```

Maxima [A] time = 1.34743, size = 169, normalized size = 2.17

$$\frac{d^3x}{b^3} - \frac{b^3c^3 + 3\,ab^2c^2d - 9\,a^2bcd^2 + 5\,a^3d^3 + 6\left(b^3c^2d - 2\,ab^2cd^2 + a^2bd^3\right)x}{2\left(b^6x^2 + 2\,ab^5x + a^2b^4\right)} + \frac{3\left(bcd^2 - ad^3\right)\log\left(bx + a\right)}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/(b*x + a)^3,x, algorithm="maxima")
```

```
[Out] d^3*x/b^3 - 1/2*(b^3*c^3 + 3*a*b^2*c^2*d - 9*a^2*b*c*d^2 + 5*a^3*
d^3 + 6*(b^3*c^2*d - 2*a*b^2*c*d^2 + a^2*b*d^3)*x)/(b^6*x^2 + 2*a
*b^5*x + a^2*b^4) + 3*(b*c*d^2 - a*d^3)*log(b*x + a)/b^4
```

Fricas [A] time = 0.205746, size = 254, normalized size = 3.26

$$\frac{2\,b^3d^3x^3 + 4\,ab^2d^3x^2 - b^3c^3 - 3\,ab^2c^2d + 9\,a^2bcd^2 - 5\,a^3d^3 - 2\left(3\,b^3c^2d - 6\,ab^2cd^2 + 2\,a^2bd^3\right)x + 6\left(a^2bcd^2 - a^3d^3 + \left(b^3cd\right.\right.}{2\left(b^6x^2 + 2\,ab^5x + a^2b^4\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/(b*x + a)^3,x, algorithm="fricas")
```

```
[Out] 1/2*(2*b^3*d^3*x^3 + 4*a*b^2*d^3*x^2 - b^3*c^3 - 3*a*b^2*c^2*d +
9*a^2*b*c*d^2 - 5*a^3*d^3 - 2*(3*b^3*c^2*d - 6*a*b^2*c*d^2 + 2*a^
2*b*d^3)*x + 6*(a^2*b*c*d^2 - a^3*d^3 + (b^3*c*d^2 - a*b^2*d^3)*x
^2 + 2*(a*b^2*c*d^2 - a^2*b*d^3)*x)*log(b*x + a))/(b^6*x^2 + 2*a*
b^5*x + a^2*b^4)
```

Sympy [A] time = 6.43255, size = 128, normalized size = 1.64

$$-\frac{5a^3d^3 - 9a^2bcd^2 + 3ab^2c^2d + b^3c^3 + x\left(6a^2bd^3 - 12ab^2cd^2 + 6b^3c^2d\right)}{2a^2b^4 + 4ab^5x + 2b^6x^2} + \frac{d^3x}{b^3} - \frac{3d^2\left(ad - bc\right)\log\left(a + bx\right)}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**3/(b*x+a)**3,x)
```

```
[Out] -(5*a**3*d**3 - 9*a**2*b*c*d**2 + 3*a*b**2*c**2*d + b**3*c**3 + x
*(6*a**2*b*d**3 - 12*a*b**2*c*d**2 + 6*b**3*c**2*d))/(2*a**2*b**4
 + 4*a*b**5*x + 2*b**6*x**2) + d**3*x/b**3 - 3*d**2*(a*d - b*c)*l
og(a + b*x)/b**4
```

GIAC/XCAS [A] time = 0.311862, size = 151, normalized size = 1.94

$$\frac{d^3x}{b^3} + \frac{3\left(bcd^2 - ad^3\right)\ln\left(|bx + a|\right)}{b^4} - \frac{b^3c^3 + 3\,ab^2c^2d - 9\,a^2bcd^2 + 5\,a^3d^3 + 6\left(b^3c^2d - 2\,ab^2cd^2 + a^2bd^3\right)x}{2\left(bx + a\right)^2b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/(b*x + a)^3,x, algorithm="giac")
```

```
[Out] d^3*x/b^3 + 3*(b*c*d^2 - a*d^3)*ln(abs(b*x + a))/b^4 - 1/2*(b^3*c
^3 + 3*a*b^2*c^2*d - 9*a^2*b*c*d^2 + 5*a^3*d^3 + 6*(b^3*c^2*d - 2
*a*b^2*c*d^2 + a^2*b*d^3)*x)/((b*x + a)^2*b^4)
```

3.275 $\int \frac{(c+dx)^3}{x(a+bx)^3}\,dx$

Optimal. Leaf size=93

$$-\left(\frac{c^3}{a^3}-\frac{d^3}{b^3}\right)\log(a+bx)+\frac{c^3\log(x)}{a^3}+\frac{(bc-ad)^2(2ad+bc)}{a^2b^3(a+bx)}+\frac{(bc-ad)^3}{2ab^3(a+bx)^2}$$

```
[Out] (b*c - a*d)^3/(2*a*b^3*(a + b*x)^2) + ((b*c - a*d)^2*(b*c + 2*a*d
))/(a^2*b^3*(a + b*x)) + (c^3*Log[x])/a^3 - (c^3/a^3 - d^3/b^3)*L
og[a + b*x]
```

Rubi [A] time = 0.171949, antiderivative size = 93, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\left(\frac{c^3}{a^3}-\frac{d^3}{b^3}\right)\log(a+bx)+\frac{c^3\log(x)}{a^3}+\frac{(bc-ad)^2(2ad+bc)}{a^2b^3(a+bx)}+\frac{(bc-ad)^3}{2ab^3(a+bx)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^3/(x*(a + b*x)^3),x]
```

```
[Out] (b*c - a*d)^3/(2*a*b^3*(a + b*x)^2) + ((b*c - a*d)^2*(b*c + 2*a*d
))/(a^2*b^3*(a + b*x)) + (c^3*Log[x])/a^3 - (c^3/a^3 - d^3/b^3)*L
og[a + b*x]
```

Rubi in Sympy [A] time = 28.9731, size = 80, normalized size = 0.86

$$-\left(-\frac{d^3}{b^3}+\frac{c^3}{a^3}\right)\log(a+bx)-\frac{(ad-bc)^3}{2ab^3(a+bx)^2}+\frac{(ad-bc)^2(2ad+bc)}{a^2b^3(a+bx)}+\frac{c^3\log(x)}{a^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**3/x/(b*x+a)**3,x)
```

```
[Out] -(-d**3/b**3 + c**3/a**3)*log(a + b*x) - (a*d - b*c)**3/(2*a*b**3
*(a + b*x)**2) + (a*d - b*c)**2*(2*a*d + b*c)/(a**2*b**3*(a + b*x
)) + c**3*log(x)/a**3
```

Mathematica [A] time = 0.14313, size = 88, normalized size = 0.95

$$\frac{\frac{2(a^3d^3-b^3c^3)\log(a+bx)+\frac{a(bc-ad)^2(3a^2d+ab(3c+4dx)+2b^2cx)}{(a+bx)^2}}{b^3}+2c^3\log(x)}{2a^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^3/(x*(a + b*x)^3),x]
```

```
[Out] (2*c^3*Log[x] + ((a*(b*c - a*d)^2*(3*a^2*d + 2*b^2*c*x + a*b*(3*c
 + 4*d*x)))/(a + b*x)^2 + 2*(-(b^3*c^3) + a^3*d^3)*Log[a + b*x])/
b^3)/(2*a^3)
```

Maple [A] time = 0.015, size = 150, normalized size = 1.6

$$\frac{c^3\ln(x)}{a^3}+\frac{\ln(bx+a)\,d^3}{b^3}-\frac{\ln(bx+a)\,c^3}{a^3}+2\,\frac{d^3a}{b^3\,(bx+a)}-3\,\frac{cd^2}{b^2\,(bx+a)}+\frac{c^3}{a^2\,(bx+a)}-\frac{d^3a^2}{2\,b^3\,(bx+a)^2}+\frac{3\,cd^2a}{2\,b^2\,(bx+a)^2}-\frac{3\,c^2d}{2\,b\,(bx+a)^2}+\frac{c^3}{2\,a\,(bx+a)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((d*x+c)^3/x/(b*x+a)^3,x)
```

```
[Out] c^3*ln(x)/a^3+1/b^3*ln(b*x+a)*d^3-1/a^3*ln(b*x+a)*c^3+2/b^3*a/(b*
x+a)*d^3-3/b^2/(b*x+a)*c*d^2+1/a^2/(b*x+a)*c^3-1/2/b^3*a^2/(b*x+a
)^2*d^3+3/2/b^2*a/(b*x+a)^2*c*d^2-3/2/b/(b*x+a)^2*c^2*d+1/2/a/(b*
x+a)^2*c^3
```

Maxima [A] time = 1.3577, size = 193, normalized size = 2.08

$$\frac{c^3\log(x)}{a^3}+\frac{3\,ab^3c^3-3\,a^2b^2c^2d-3\,a^3bcd^2+3\,a^4d^3+2\left(b^4c^3-3\,a^2b^2cd^2+2\,a^3bd^3\right)x}{2\left(a^2b^5x^2+2\,a^3b^4x+a^4b^3\right)}-\frac{\left(b^3c^3-a^3d^3\right)\log(bx+a)}{a^3b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((d*x + c)^3/((b*x + a)^3*x),x, algorithm="maxima")
```

```
[Out] c^3*log(x)/a^3 + 1/2*(3*a*b^3*c^3 - 3*a^2*b^2*c^2*d - 3*a^3*b*c*d
^2 + 3*a^4*d^3 + 2*(b^4*c^3 - 3*a^2*b^2*c*d^2 + 2*a^3*b*d^3)*x)/(
a^2*b^5*x^2 + 2*a^3*b^4*x + a^4*b^3) - (b^3*c^3 - a^3*d^3)*log(b*
x + a)/(a^3*b^3)
```

Fricas [A] time = 0.227859, size = 286, normalized size = 3.08

$$\frac{3\,a^2b^3c^3-3\,a^3b^2c^2d-3\,a^4bcd^2+3\,a^5d^3+2\left(ab^4c^3-3\,a^3b^2cd^2+2\,a^4bd^3\right)x-2\left(a^2b^3c^3-a^5d^3+\left(b^5c^3-a^3b^2d^3\right)x^2+2\left(a\right.\right.}{2\left(a^3b^5x^2+2\,a^4b^4x+a^5b^3\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((d*x + c)^3/((b*x + a)^3*x),x, algorithm="fricas")
```

```
[Out] 1/2*(3*a^2*b^3*c^3 - 3*a^3*b^2*c^2*d - 3*a^4*b*c*d^2 + 3*a^5*d^3
+ 2*(a*b^4*c^3 - 3*a^3*b^2*c*d^2 + 2*a^4*b*d^3)*x - 2*(a^2*b^3*c^
3 - a^5*d^3 + (b^5*c^3 - a^3*b^2*d^3)*x^2 + 2*(a*b^4*c^3 - a^4*b*
d^3)*x)*log(b*x + a) + 2*(b^5*c^3*x^2 + 2*a*b^4*c^3*x + a^2*b^3*c
^3)*log(x))/(a^3*b^5*x^2 + 2*a^4*b^4*x + a^5*b^3)
```

Sympy [A] time = 9.33862, size = 209, normalized size = 2.25

$$\frac{3a^4d^3-3a^3bcd^2-3a^2b^2c^2d+3ab^3c^3+x\left(4a^3bd^3-6a^2b^2cd^2+2b^4c^3\right)}{2a^4b^3+4a^3b^4x+2a^2b^5x^2}+\frac{c^3\log(x)}{a^3}+\frac{(ad-bc)\left(a^2d^2+abcd+b^2c^2\right)\log\left(x+\frac{-ab^2c^3+\frac{a(ad-bc)\left(a^2d^2+abcd+b^2c^2\right)}{b}}{a^3d^3-2b^3c^3}\right)}{a^3b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**3/x/(b*x+a)**3,x)
```

```
[Out] (3*a**4*d**3 - 3*a**3*b*c*d**2 - 3*a**2*b**2*c**2*d + 3*a*b**3*c*
*3 + x*(4*a**3*b*d**3 - 6*a**2*b**2*c*d**2 + 2*b**4*c**3))/(2*a**
4*b**3 + 4*a**3*b**4*x + 2*a**2*b**5*x**2) + c**3*log(x)/a**3 + (
a*d - b*c)*(a**2*d**2 + a*b*c*d + b**2*c**2)*log(x + (-a*b**2*c**
3 + a*(a*d - b*c)*(a**2*d**2 + a*b*c*d + b**2*c**2)/b)/(a**3*d**3
 - 2*b**3*c**3))/(a**3*b**3)
```

GIAC/XCAS [A] time = 0.282489, size = 180, normalized size = 1.94

$$\frac{c^3 \ln(|x|)}{a^3} - \frac{(b^3c^3 - a^3d^3)\ln(|bx+a|)}{a^3b^3} + \frac{2\left(ab^3c^3 - 3\,a^3bcd^2 + 2\,a^4d^3\right)x + \frac{3\left(a^2b^3c^3 - a^3b^2c^2d - a^4bcd^2 + a^5d^3\right)}{b}}{2\,(bx+a)^2a^3b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/((b*x + a)^3*x),x, algorithm="giac")
```

```
[Out] c^3*ln(abs(x))/a^3 - (b^3*c^3 - a^3*d^3)*ln(abs(b*x + a))/(a^3*b^
3) + 1/2*(2*(a*b^3*c^3 - 3*a^3*b*c*d^2 + 2*a^4*d^3)*x + 3*(a^2*b^
3*c^3 - a^3*b^2*c^2*d - a^4*b*c*d^2 + a^5*d^3)/b)/((b*x + a)^2*a^
3*b^2)
```

3.276 $\int \frac{(c+dx)^3}{x^2(a+bx)^3} dx$

Optimal. Leaf size=112

$$-\frac{3c^2\log(x)(bc-ad)}{a^4}+\frac{3c^2(bc-ad)\log(a+bx)}{a^4}-\frac{(bc-ad)^2(ad+2bc)}{a^3b^2(a+bx)}-\frac{c^3}{a^3x}-\frac{(bc-ad)^3}{2a^2b^2(a+bx)^2}$$

```
[Out] -(c^3/(a^3*x)) - (b*c - a*d)^3/(2*a^2*b^2*(a + b*x)^2) - ((b*c -
a*d)^2*(2*b*c + a*d))/(a^3*b^2*(a + b*x)) - (3*c^2*(b*c - a*d)*Lo
g[x])/a^4 + (3*c^2*(b*c - a*d)*Log[a + b*x])/a^4
```

Rubi [A] time = 0.209486, antiderivative size = 112, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{3c^2\log(x)(bc-ad)}{a^4}+\frac{3c^2(bc-ad)\log(a+bx)}{a^4}-\frac{(bc-ad)^2(ad+2bc)}{a^3b^2(a+bx)}-\frac{c^3}{a^3x}-\frac{(bc-ad)^3}{2a^2b^2(a+bx)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^3/(x^2*(a + b*x)^3),x]
```

```
[Out] -(c^3/(a^3*x)) - (b*c - a*d)^3/(2*a^2*b^2*(a + b*x)^2) - ((b*c -
a*d)^2*(2*b*c + a*d))/(a^3*b^2*(a + b*x)) - (3*c^2*(b*c - a*d)*Lo
g[x])/a^4 + (3*c^2*(b*c - a*d)*Log[a + b*x])/a^4
```

Rubi in Sympy [A] time = 33.4712, size = 100, normalized size = 0.89

$$\frac{(ad-bc)^3}{2a^2b^2\left(a+bx\right)^2}-\frac{c^3}{a^3x}-\frac{(ad-bc)^2\left(ad+2bc\right)}{a^3b^2\left(a+bx\right)}+\frac{3c^2\left(ad-bc\right)\log\left(x\right)}{a^4}-\frac{3c^2\left(ad-bc\right)\log\left(a+bx\right)}{a^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**3/x**2/(b*x+a)**3,x)
```

```
[Out] (a*d - b*c)**3/(2*a**2*b**2*(a + b*x)**2) - c**3/(a**3*x) - (a*d
- b*c)**2*(a*d + 2*b*c)/(a**3*b**2*(a + b*x)) + 3*c**2*(a*d - b*c
)*log(x)/a**4 - 3*c**2*(a*d - b*c)*log(a + b*x)/a**4
```

Mathematica [A] time = 0.164433, size = 106, normalized size = 0.95

$$\frac{\frac{a^2(ad-bc)^3}{b^2(a+bx)^2}-\frac{2a(bc-ad)^2(ad+2bc)}{b^2(a+bx)}+6c^2\log(x)(ad-bc)+6c^2(bc-ad)\log(a+bx)-\frac{2ac^3}{x}}{2a^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^3/(x^2*(a + b*x)^3),x]
```

```
[Out] ((-2*a*c^3)/x + (a^2*(-(b*c) + a*d)^3)/(b^2*(a + b*x)^2) - (2*a*(
b*c - a*d)^2*(2*b*c + a*d))/(b^2*(a + b*x)) + 6*c^2*(-(b*c) + a*d
)*Log[x] + 6*c^2*(b*c - a*d)*Log[a + b*x])/(2*a^4)
```

Maple [A] time = 0.017, size = 176, normalized size = 1.6

$$-\frac{c^{3}}{a^{3}x}+3\,\frac{c^{2}\ln\left(x\right)d}{a^{3}}-3\,\frac{c^{3}\ln\left(x\right)b}{a^{4}}-\frac{d^{3}}{b^{2}\left(bx+a\right)}+3\,\frac{c^{2}d}{a^{2}\left(bx+a\right)}-2\,\frac{c^{3}b}{a^{3}\left(bx+a\right)}+\frac{d^{3}a}{2\,b^{2}\left(bx+a\right)^{2}}-\frac{3\,cd^{2}}{2\,b\left(bx+a\right)^{2}}+\frac{3\,c^{2}d}{2\,a\left(bx+a\right)^{2}}-\frac{c^{3}b}{2\,a^{2}\left(bx+a\right)^{2}}-3\,\frac{c^{2}\ln\left(bx+a\right)d}{a^{3}}+3\,\frac{c^{3}\ln\left(bx+a\right)b}{a^{4}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((d*x+c)^3/x^2/(b*x+a)^3,x)
```

```
[Out] -c^3/a^3/x+3*c^2/a^3*ln(x)*d-3*c^3/a^4*ln(x)*b-1/b^2/(b*x+a)*d^3+
3/a^2/(b*x+a)*c^2*d-2/a^3*b/(b*x+a)*c^3+1/2/b^2*a/(b*x+a)^2*d^3-3
/2/b/(b*x+a)^2*c*d^2+3/2/a/(b*x+a)^2*c^2*d-1/2*b/a^2/(b*x+a)^2*c^
3-3*c^2/a^3*ln(b*x+a)*d+3*c^3/a^4*ln(b*x+a)*b
```

Maxima [A] time = 1.36405, size = 221, normalized size = 1.97

$$-\frac{2\,a^{2}b^{2}c^{3}+2\,\left(3\,b^{4}c^{3}-3\,ab^{3}c^{2}d+a^{3}bd^{3}\right)x^{2}+\left(9\,ab^{3}c^{3}-9\,a^{2}b^{2}c^{2}d+3\,a^{3}bcd^{2}+a^{4}d^{3}\right)x}{2\left(a^{3}b^{4}x^{3}+2\,a^{4}b^{3}x^{2}+a^{5}b^{2}x\right)}+\frac{3\left(bc^{3}-ac^{2}d\right)\log\left(bx+a\right)}{a^{4}}-\frac{3\left(bc^{3}-ac^{2}d\right)\log\left(x\right)}{a^{4}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((d*x + c)^3/((b*x + a)^3*x^2),x, algorithm="maxima")
```

```
[Out] -1/2*(2*a^2*b^2*c^3 + 2*(3*b^4*c^3 - 3*a*b^3*c^2*d + a^3*b*d^3)*x
^2 + (9*a*b^3*c^3 - 9*a^2*b^2*c^2*d + 3*a^3*b*c*d^2 + a^4*d^3)*x)
/(a^3*b^4*x^3 + 2*a^4*b^3*x^2 + a^5*b^2*x) + 3*(b*c^3 - a*c^2*d)*
log(b*x + a)/a^4 - 3*(b*c^3 - a*c^2*d)*log(x)/a^4
```

Fricas [A] time = 0.2199, size = 383, normalized size = 3.42

$$-\frac{2\,a^{3}b^{2}c^{3}+2\left(3\,ab^{4}c^{3}-3\,a^{2}b^{3}c^{2}d+a^{4}bd^{3}\right)x^{2}+\left(9\,a^{2}b^{3}c^{3}-9\,a^{3}b^{2}c^{2}d+3\,a^{4}bcd^{2}+a^{5}d^{3}\right)x-6\left(\left(b^{5}c^{3}-ab^{4}c^{2}d\right)x^{3}+2\left(ab^{4}\ldots\right.\right.}{2\left(a^{4}b^{4}x^{3}\ldots\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((d*x + c)^3/((b*x + a)^3*x^2),x, algorithm="fricas")
```

```
[Out] -1/2*(2*a^3*b^2*c^3 + 2*(3*a*b^4*c^3 - 3*a^2*b^3*c^2*d + a^4*b*d^
3)*x^2 + (9*a^2*b^3*c^3 - 9*a^3*b^2*c^2*d + 3*a^4*b*c*d^2 + a^5*d
^3)*x - 6*((b^5*c^3 - a*b^4*c^2*d)*x^3 + 2*(a*b^4*c^3 - a^2*b^3*c
^2*d)*x^2 + (a^2*b^3*c^3 - a^3*b^2*c^2*d)*x)*log(b*x + a) + 6*((b
^5*c^3 - a*b^4*c^2*d)*x^3 + 2*(a*b^4*c^3 - a^2*b^3*c^2*d)*x^2 + (
a^2*b^3*c^3 - a^3*b^2*c^2*d)*x)*log(x))/(a^4*b^4*x^3 + 2*a^5*b^3*
x^2 + a^6*b^2*x)
```

Sympy [A] time = 9.80018, size = 262, normalized size = 2.34

$$-\frac{2a^{2}b^{2}c^{3}+x^{2}\left(2a^{3}bd^{3}-6ab^{3}c^{2}d+6b^{4}c^{3}\right)+x\left(a^{4}d^{3}+3a^{3}bcd^{2}-9a^{2}b^{2}c^{2}d+9ab^{3}c^{3}\right)}{2a^{5}b^{2}x+4a^{4}b^{3}x^{2}+2a^{3}b^{4}x^{3}}+\frac{3c^{2}\left(ad-bc\right)\log\left(x+\frac{3a^{2}c^{2}d-3abc^{3}-3ac^{2}(ad-bc)}{6abc^{2}d-6b^{2}c^{3}}\right)}{a^{4}}-\frac{3c^{2}\left(ad-bc\right)\log\left(x+\frac{3a^{2}c^{2}d-3abc^{3}+3ac^{2}(ad-bc)}{6abc^{2}d-6b^{2}c^{3}}\right)}{a^{4}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**3/x**2/(b*x+a)**3,x)
```

```
[Out] -(2*a**2*b**2*c**3 + x**2*(2*a**3*b*d**3 - 6*a*b**3*c**2*d + 6*b*
*4*c**3) + x*(a**4*d**3 + 3*a**3*b*c*d**2 - 9*a**2*b**2*c**2*d +
9*a*b**3*c**3))/(2*a**5*b**2*x + 4*a**4*b**3*x**2 + 2*a**3*b**4*x
**3) + 3*c**2*(a*d - b*c)*log(x + (3*a**2*c**2*d - 3*a*b*c**3 - 3
*a*c**2*(a*d - b*c))/(6*a*b*c**2*d - 6*b**2*c**3))/a**4 - 3*c**2*
(a*d - b*c)*log(x + (3*a**2*c**2*d - 3*a*b*c**3 + 3*a*c**2*(a*d -
 b*c))/(6*a*b*c**2*d - 6*b**2*c**3))/a**4
```

GIAC/XCAS [A] time = 0.258102, size = 217, normalized size = 1.94

$$-\frac{3\left(bc^3-ac^2d\right)\ln\left(|x|\right)}{a^4}+\frac{3\left(b^2c^3-abc^2d\right)\ln\left(|bx+a|\right)}{a^4b}-\frac{2\,a^3b^2c^3+2\left(3\,ab^4c^3-3\,a^2b^3c^2d+a^4bd^3\right)x^2+\left(9\,a^2b^3c^3-9\,a^3b^2c^2d+3\,a^4bcd^2+a^5d^3\right)x}{2\left(bx+a\right)^2a^4b^2x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/((b*x + a)^3*x^2),x, algorithm="giac")
```

```
[Out] -3*(b*c^3 - a*c^2*d)*ln(abs(x))/a^4 + 3*(b^2*c^3 - a*b*c^2*d)*ln(
abs(b*x + a))/(a^4*b) - 1/2*(2*a^3*b^2*c^3 + 2*(3*a*b^4*c^3 - 3*a
^2*b^3*c^2*d + a^4*b*d^3)*x^2 + (9*a^2*b^3*c^3 - 9*a^3*b^2*c^2*d
+ 3*a^4*b*c*d^2 + a^5*d^3)*x)/((b*x + a)^2*a^4*b^2*x)
```

3.277 $\int \frac{(c+dx)^3}{x^3(a+bx)^3} dx$

Optimal. Leaf size=137

$$\frac{3c\log(x)(bc-ad)(2bc-ad)}{a^5}-\frac{3c(bc-ad)(2bc-ad)\log(a+bx)}{a^5}+\frac{3c^2(bc-ad)}{a^4x}+\frac{3c(bc-ad)^2}{a^4(a+bx)}+\frac{(bc-ad)^3}{2a^3b(a+bx)^2}-\frac{c^3}{2a^3x^2}$$

```
[Out] -c^3/(2*a^3*x^2) + (3*c^2*(b*c - a*d))/(a^4*x) + (b*c - a*d)^3/(2
*a^3*b*(a + b*x)^2) + (3*c*(b*c - a*d)^2)/(a^4*(a + b*x)) + (3*c*
(b*c - a*d)*(2*b*c - a*d)*Log[x])/a^5 - (3*c*(b*c - a*d)*(2*b*c -
 a*d)*Log[a + b*x])/a^5
```

Rubi [A] time = 0.285196, antiderivative size = 137, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{3c\log(x)(bc-ad)(2bc-ad)}{a^5}-\frac{3c(bc-ad)(2bc-ad)\log(a+bx)}{a^5}+\frac{3c^2(bc-ad)}{a^4x}+\frac{3c(bc-ad)^2}{a^4(a+bx)}+\frac{(bc-ad)^3}{2a^3b(a+bx)^2}-\frac{c^3}{2a^3x^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^3/(x^3*(a + b*x)^3),x]
```

```
[Out] -c^3/(2*a^3*x^2) + (3*c^2*(b*c - a*d))/(a^4*x) + (b*c - a*d)^3/(2
*a^3*b*(a + b*x)^2) + (3*c*(b*c - a*d)^2)/(a^4*(a + b*x)) + (3*c*
(b*c - a*d)*(2*b*c - a*d)*Log[x])/a^5 - (3*c*(b*c - a*d)*(2*b*c -
 a*d)*Log[a + b*x])/a^5
```

Rubi in Sympy [A] time = 34.1652, size = 124, normalized size = 0.91

$$-\frac{c^3}{2a^3x^2}-\frac{(ad-bc)^3}{2a^3b\,(a+bx)^2}-\frac{3c^2\,(ad-bc)}{a^4x}+\frac{3c\,(ad-bc)^2}{a^4\,(a+bx)}+\frac{3c\,(ad-2bc)\,(ad-bc)\log{(x)}}{a^5}-\frac{3c\,(ad-2bc)\,(ad-bc)\log{(a+bx)}}{a^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**3/x**3/(b*x+a)**3,x)
```

```
[Out] -c**3/(2*a**3*x**2) - (a*d - b*c)**3/(2*a**3*b*(a + b*x)**2) - 3*
c**2*(a*d - b*c)/(a**4*x) + 3*c*(a*d - b*c)**2/(a**4*(a + b*x)) +
 3*c*(a*d - 2*b*c)*(a*d - b*c)*log(x)/a**5 - 3*c*(a*d - 2*b*c)*(a
*d - b*c)*log(a + b*x)/a**5
```

Mathematica [A] time = 0.28118, size = 138, normalized size = 1.01

$$-\frac{-6c\log(x)\left(a^2d^2-3abcd+2b^2c^2\right)+6c\left(a^2d^2-3abcd+2b^2c^2\right)\log(a+bx)+\frac{a^2(ad-bc)^3}{b(a+bx)^2}+\frac{a^2c^3}{x^2}+\frac{6ac^2(ad-bc)}{x}-\frac{6ac(bc-ad)^2}{a+bx}}{2a^5}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^3/(x^3*(a + b*x)^3),x]
```

```
[Out] -((a^2*c^3)/x^2 + (6*a*c^2*(-(b*c) + a*d))/x + (a^2*(-(b*c) + a*d
)^3)/(b*(a + b*x)^2) - (6*a*c*(b*c - a*d)^2)/(a + b*x) - 6*c*(2*b
^2*c^2 - 3*a*b*c*d + a^2*d^2)*Log[x] + 6*c*(2*b^2*c^2 - 3*a*b*c*d
 + a^2*d^2)*Log[a + b*x])/(2*a^5)
```

Maple [A] time = 0.02, size = 238, normalized size = 1.7

$$-\frac{c^3}{2a^3x^2}+3\frac{c\ln(x)\,d^2}{a^3}-9\frac{c^2\ln(x)\,bd}{a^4}+6\frac{c^3\ln(x)\,b^2}{a^5}-3\frac{c^2d}{a^3x}+3\frac{c^3b}{a^4x}-\frac{d^3}{2b(bx+a)^2}+\frac{3cd^2}{2a(bx+a)^2}-\frac{3c^2db}{2a^2(bx+a)^2}+\frac{c^3b^2}{2a^3(bx+a)^2}-3\frac{c\ln(bx+a)\,d^2}{a^3}+9\frac{c^2\ln(bx+a)\,bd}{a^4}-6\frac{c^3\ln(bx+a)\,b^2}{a^5}+3\frac{cd^2}{a^2(bx+a)}-6\frac{c^2db}{a^3(bx+a)}+3\frac{c^3b^2}{a^4(bx+a)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((d*x+c)^3/x^3/(b*x+a)^3,x)
```

```
[Out] -1/2*c^3/a^3/x^2+3*c/a^3*ln(x)*d^2-9*c^2/a^4*ln(x)*b*d+6*c^3/a^5*
ln(x)*b^2-3*c^2/a^3/x*d+3*c^3/a^4/x*b-1/2/b/(b*x+a)^2*d^3+3/2/a/(
b*x+a)^2*c*d^2-3/2/a^2*b/(b*x+a)^2*c^2*d+1/2/a^3*b^2/(b*x+a)^2*c^
3-3*c/a^3*ln(b*x+a)*d^2+9*c^2/a^4*ln(b*x+a)*b*d-6*c^3/a^5*ln(b*x+
a)*b^2+3*c/a^2/(b*x+a)*d^2-6*c^2/a^3/(b*x+a)*b*d+3*c^3/a^4/(b*x+a
)*b^2
```

Maxima [A] time = 1.35966, size = 293, normalized size = 2.14

$$-\frac{a^3bc^3-6\left(2b^4c^3-3ab^3c^2d+a^2b^2cd^2\right)x^3-\left(18ab^3c^3-27a^2b^2c^2d+9a^3bcd^2-a^4d^3\right)x^2-2\left(2a^2b^2c^3-3a^3bc^2d\right)x}{2\left(a^4b^3x^4+2a^5b^2x^3+a^6bx^2\right)}-\frac{3\left(2b^2c^3-3abc^2d+a^2cd^2\right)\log(bx+a)}{a^5}+\frac{3\left(2b^2c^3-3abc^2d+a^2cd^2\right)\log(x)}{a^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((d*x + c)^3/((b*x + a)^3*x^3),x, algorithm="maxima")
```

```
[Out] -1/2*(a^3*b*c^3 - 6*(2*b^4*c^3 - 3*a*b^3*c^2*d + a^2*b^2*c*d^2)*x
^3 - (18*a*b^3*c^3 - 27*a^2*b^2*c^2*d + 9*a^3*b*c*d^2 - a^4*d^3)*
x^2 - 2*(2*a^2*b^2*c^3 - 3*a^3*b*c^2*d)*x)/(a^4*b^3*x^4 + 2*a^5*b
^2*x^3 + a^6*b*x^2) - 3*(2*b^2*c^3 - 3*a*b*c^2*d + a^2*c*d^2)*log
(b*x + a)/a^5 + 3*(2*b^2*c^3 - 3*a*b*c^2*d + a^2*c*d^2)*log(x)/a^
5
```

Fricas [A] time = 0.220369, size = 520, normalized size = 3.8

$$-\frac{a^4bc^3-6\left(2ab^4c^3-3a^2b^3c^2d+a^3b^2cd^2\right)x^3-\left(18a^2b^3c^3-27a^3b^2c^2d+9a^4bcd^2-a^5d^3\right)x^2-2\left(2a^3b^2c^3-3a^4bc^2d\right)x+\cdots}{\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((d*x + c)^3/((b*x + a)^3*x^3),x, algorithm="fricas")
```

```
[Out] -1/2*(a^4*b*c^3 - 6*(2*a*b^4*c^3 - 3*a^2*b^3*c^2*d + a^3*b^2*c*d^
2)*x^3 - (18*a^2*b^3*c^3 - 27*a^3*b^2*c^2*d + 9*a^4*b*c*d^2 - a^5
*d^3)*x^2 - 2*(2*a^3*b^2*c^3 - 3*a^4*b*c^2*d)*x + 6*((2*b^5*c^3 -
 3*a*b^4*c^2*d + a^2*b^3*c*d^2)*x^4 + 2*(2*a*b^4*c^3 - 3*a^2*b^3*
c^2*d + a^3*b^2*c*d^2)*x^3 + (2*a^2*b^3*c^3 - 3*a^3*b^2*c^2*d + a
^4*b*c*d^2)*x^2)*log(b*x + a) - 6*((2*b^5*c^3 - 3*a*b^4*c^2*d + a
^2*b^3*c*d^2)*x^4 + 2*(2*a*b^4*c^3 - 3*a^2*b^3*c^2*d + a^3*b^2*c*
```

```
d^2)*x^3 + (2*a^2*b^3*c^3 - 3*a^3*b^2*c^2*d + a^4*b*c*d^2)*x^2)*l
og(x))/(a^5*b^3*x^4 + 2*a^6*b^2*x^3 + a^7*b*x^2)
```

Sympy [A] time = 11.5944, size = 371, normalized size = 2.71

$$\frac{-a^3bc^3+x^3\left(6a^2b^2cd^2-18ab^3c^2d+12b^4c^3\right)+x^2\left(-a^4d^3+9a^3bcd^2-27a^2b^2c^2d+18ab^3c^3\right)+x\left(-6a^3bc^2d+4a^2b^2c^3\right)}{2a^6bx^2+4a^5b^2x^3+2a^4b^3x^4}+\frac{3c\left(ad-2bc\right)\left(ad-bc\right)\log\left(x+\frac{3a^3cd^2-9a^2bc^2d+6ab^2c^3-3ac(ad-2bc)(ad-bc)}{6a^2bcd^2-18ab^2c^2d+12b^3c^3}\right)}{a^5}-\frac{3c\left(ad-2bc\right)\left(ad-bc\right)\log\left(x+\frac{3a^3cd^2-9a^2bc^2d+6ab^2c^3+3ac(ad-2bc)(ad-bc)}{6a^2bcd^2-18ab^2c^2d+12b^3c^3}\right)}{a^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**3/x**3/(b*x+a)**3,x)
```

```
[Out] (-a**3*b*c**3 + x**3*(6*a**2*b**2*c*d**2 - 18*a*b**3*c**2*d + 12*
b**4*c**3) + x**2*(-a**4*d**3 + 9*a**3*b*c*d**2 - 27*a**2*b**2*c*
*2*d + 18*a*b**3*c**3) + x*(-6*a**3*b*c**2*d + 4*a**2*b**2*c**3))
/(2*a**6*b*x**2 + 4*a**5*b**2*x**3 + 2*a**4*b**3*x**4) + 3*c*(a*d
 - 2*b*c)*(a*d - b*c)*log(x + (3*a**3*c*d**2 - 9*a**2*b*c**2*d +
6*a*b**2*c**3 - 3*a*c*(a*d - 2*b*c)*(a*d - b*c))/(6*a**2*b*c*d**2
 - 18*a*b**2*c**2*d + 12*b**3*c**3))/a**5 - 3*c*(a*d - 2*b*c)*(a*
d - b*c)*log(x + (3*a**3*c*d**2 - 9*a**2*b*c**2*d + 6*a*b**2*c**3
 + 3*a*c*(a*d - 2*b*c)*(a*d - b*c))/(6*a**2*b*c*d**2 - 18*a*b**2*
c**2*d + 12*b**3*c**3))/a**5
```

GIAC/XCAS [A] time = 0.252893, size = 296, normalized size = 2.16

$$\frac{3\left(2\,b^2c^3-3\,abc^2d+a^2cd^2\right)\ln\left(|x|\right)}{a^5}-\frac{3\left(2\,b^3c^3-3\,ab^2c^2d+a^2bcd^2\right)\ln\left(|bx+a|\right)}{a^5b}+\frac{12\,b^4c^3x^3-18\,ab^3c^2dx^3+6\,a^2b^2cd^2x^3+18\,ab^3c^3x^2-27\,a^2b^2c^2dx^2+9\,a^3bcd^2x^2-a^4d^3x^2+4\,a^2b^2c^3x-6\,a^3bc^2dx-a^3b}{2\left(bx^2+ax\right)^2a^4b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/((b*x + a)^3*x^3),x, algorithm="giac")
```

```
[Out] 3*(2*b^2*c^3 - 3*a*b*c^2*d + a^2*c*d^2)*ln(abs(x))/a^5 - 3*(2*b^3
*c^3 - 3*a*b^2*c^2*d + a^2*b*c*d^2)*ln(abs(b*x + a))/(a^5*b) + 1/
2*(12*b^4*c^3*x^3 - 18*a*b^3*c^2*d*x^3 + 6*a^2*b^2*c*d^2*x^3 + 18
*a*b^3*c^3*x^2 - 27*a^2*b^2*c^2*d*x^2 + 9*a^3*b*c*d^2*x^2 - a^4*d
^3*x^2 + 4*a^2*b^2*c^3*x - 6*a^3*b*c^2*d*x - a^3*b*c^3)/((b*x^2 +
 a*x)^2*a^4*b)
```

3.278 $\int \frac{(c+dx)^3}{x^4(a+bx)^3} \, dx$

Optimal. Leaf size=193

$$-\frac{3c(bc-ad)(2bc-ad)}{a^5x}-\frac{(bc-ad)^2(4bc-ad)}{a^5(a+bx)}+\frac{3c^2(bc-ad)}{2a^4x^2}-\frac{(bc-ad)^3}{2a^4(a+bx)^2}-\frac{c^3}{3a^3x^3}-\frac{\log(x)(bc-ad)\left(a^2d^2-8abcd+10b^2c^2\right)}{a^6}+\frac{(bc-ad)\left(a^2d^2-8abcd+10b^2c^2\right)\log(a+bx)}{a^6}$$

```
[Out] -c^3/(3*a^3*x^3) + (3*c^2*(b*c - a*d))/(2*a^4*x^2) - (3*c*(b*c -
a*d)*(2*b*c - a*d))/(a^5*x) - (b*c - a*d)^3/(2*a^4*(a + b*x)^2) -
 ((b*c - a*d)^2*(4*b*c - a*d))/(a^5*(a + b*x)) - ((b*c - a*d)*(10
*b^2*c^2 - 8*a*b*c*d + a^2*d^2)*Log[x])/a^6 + ((b*c - a*d)*(10*b^
2*c^2 - 8*a*b*c*d + a^2*d^2)*Log[a + b*x])/a^6
```

Rubi [A] time = 0.392736, antiderivative size = 193, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{3c(bc-ad)(2bc-ad)}{a^5x}-\frac{(bc-ad)^2(4bc-ad)}{a^5(a+bx)}+\frac{3c^2(bc-ad)}{2a^4x^2}-\frac{(bc-ad)^3}{2a^4(a+bx)^2}-\frac{c^3}{3a^3x^3}-\frac{\log(x)(bc-ad)\left(a^2d^2-8abcd+10b^2c^2\right)}{a^6}+\frac{(bc-ad)\left(a^2d^2-8abcd+10b^2c^2\right)\log(a+bx)}{a^6}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^3/(x^4*(a + b*x)^3),x]
```

```
[Out] -c^3/(3*a^3*x^3) + (3*c^2*(b*c - a*d))/(2*a^4*x^2) - (3*c*(b*c -
a*d)*(2*b*c - a*d))/(a^5*x) - (b*c - a*d)^3/(2*a^4*(a + b*x)^2) -
 ((b*c - a*d)^2*(4*b*c - a*d))/(a^5*(a + b*x)) - ((b*c - a*d)*(10
*b^2*c^2 - 8*a*b*c*d + a^2*d^2)*Log[x])/a^6 + ((b*c - a*d)*(10*b^
2*c^2 - 8*a*b*c*d + a^2*d^2)*Log[a + b*x])/a^6
```

Rubi in Sympy [A] time = 49.8548, size = 178, normalized size = 0.92

$$-\frac{c^3}{3a^3x^3}-\frac{3c^2\left(ad-bc\right)}{2a^4x^2}+\frac{\left(ad-bc\right)^3}{2a^4\left(a+bx\right)^2}-\frac{3c\left(ad-2bc\right)\left(ad-bc\right)}{a^5x}+\frac{\left(ad-4bc\right)\left(ad-bc\right)^2}{a^5\left(a+bx\right)}+\frac{\left(ad-bc\right)\left(a^2d^2-8abcd+10b^2c^2\right)\log\left(x\right)}{a^6}-\frac{\left(ad-bc\right)\left(a^2d^2-8abcd+10b^2c^2\right)\log\left(a+bx\right)}{a^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**3/x**4/(b*x+a)**3,x)
```

```
[Out] -c**3/(3*a**3*x**3) - 3*c**2*(a*d - b*c)/(2*a**4*x**2) + (a*d - b
*c)**3/(2*a**4*(a + b*x)**2) - 3*c*(a*d - 2*b*c)*(a*d - b*c)/(a**
5*x) + (a*d - 4*b*c)*(a*d - b*c)**2/(a**5*(a + b*x)) + (a*d - b*c
)*(a**2*d**2 - 8*a*b*c*d + 10*b**2*c**2)*log(x)/a**6 - (a*d - b*c
)*(a**2*d**2 - 8*a*b*c*d + 10*b**2*c**2)*log(a + b*x)/a**6
```

Mathematica [A] time = 0.250721, size = 202, normalized size = 1.05

$$\frac{-\frac{2a^3c^3}{x^3}-\frac{18ac\left(a^2d^2-3abcd+2b^2c^2\right)}{x}-\frac{9a^2c^2(ad-bc)}{x^2}+\frac{3a^2(ad-bc)^3}{(a+bx)^2}+6\log(x)\left(a^3d^3-9a^2bcd^2+18ab^2c^2d-10b^3c^3\right)+6\left(-a^3d^3+9\right.}{6a^6}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^3/(x^4*(a + b*x)^3),x]
```

```
[Out] ((-2*a^3*c^3)/x^3 - (9*a^2*c^2*(-(b*c) + a*d))/x^2 - (18*a*c*(2*b
^2*c^2 - 3*a*b*c*d + a^2*d^2))/x + (3*a^2*(-(b*c) + a*d)^3)/(a +
b*x)^2 + (6*a*(b*c - a*d)^2*(-4*b*c + a*d))/(a + b*x) + 6*(-10*b^
3*c^3 + 18*a*b^2*c^2*d - 9*a^2*b*c*d^2 + a^3*d^3)*Log[x] + 6*(10*
b^3*c^3 - 18*a*b^2*c^2*d + 9*a^2*b*c*d^2 - a^3*d^3)*Log[a + b*x])
/(6*a^6)
```

Maple [A] time = 0.02, size = 326, normalized size = 1.7

$$-\frac{c^3}{3a^3x^3}+\frac{\ln(x)\,d^3}{a^3}-9\,\frac{\ln(x)\,cbd^2}{a^4}+18\,\frac{\ln(x)\,b^2c^2d}{a^5}-10\,\frac{\ln(x)\,b^3c^3}{a^6}-3\,\frac{cd^2}{a^3x}+9\,\frac{c^2db}{a^4x}-6\,\frac{c^3b^2}{a^5x}-\frac{3\,c^2d}{2\,a^3x^2}+\frac{3\,c^3b}{2\,a^4x^2}-\frac{\ln(bx+a)\,d^3}{a^3}+9\,\frac{\ln(bx+a)\,cbd^2}{a^4}-18\,\frac{\ln(bx+a)\,b^2c^2d}{a^5}+10\,\frac{\ln(bx+a)\,b^3c^3}{a^6}+\frac{d^3}{a^2(bx+a)}-6\,\frac{cd^2b}{a^3(bx+a)}+9\,\frac{c^2db^2}{a^4(bx+a)}-4\,\frac{b^3c^3}{a^5(bx+a)}+\frac{d^3}{2\,a\,(bx+a)^2}-\frac{3\,cd^2b}{2\,a^2(bx+a)^2}+\frac{3\,c^2db^2}{2\,a^3(bx+a)^2}-\frac{b^3c^3}{2\,a^4(bx+a)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^3/x^4/(b*x+a)^3,x)
```

```
[Out] -1/3*c^3/a^3/x^3+1/a^3*ln(x)*d^3-9/a^4*ln(x)*c*b*d^2+18/a^5*ln(x)
*b^2*c^2*d-10/a^6*ln(x)*b^3*c^3-3*c/a^3/x*d^2+9*c^2/a^4/x*b*d-6*c
^3/a^5/x*b^2-3/2*c^2/a^3/x^2*d+3/2*c^3/a^4/x^2*b-1/a^3*ln(b*x+a)*
d^3+9/a^4*ln(b*x+a)*c*b*d^2-18/a^5*ln(b*x+a)*b^2*c^2*d+10/a^6*ln(
b*x+a)*b^3*c^3+1/a^2/(b*x+a)*d^3-6/a^3/(b*x+a)*c*b*d^2+9/a^4/(b*x
+a)*b^2*c^2*d-4/a^5/(b*x+a)*b^3*c^3+1/2/a/(b*x+a)^2*d^3-3/2/a^2/(
b*x+a)^2*c*b*d^2+3/2/a^3/(b*x+a)^2*b^2*c^2*d-1/2/a^4/(b*x+a)^2*b^
3*c^3
```

Maxima [A] time = 1.35599, size = 378, normalized size = 1.96

$$-\frac{2\,a^4c^3+6\left(10\,b^4c^3-18\,ab^3c^2d+9\,a^2b^2cd^2-a^3bd^3\right)x^4+9\left(10\,ab^3c^3-18\,a^2b^2c^2d+9\,a^3bcd^2-a^4d^3\right)x^3+2\left(10\,a^2b^2c^3-\right.}{6\left(a^5b^2x^5+2\,a^6bx^4+a^7x^3\right)}+\frac{\left(10\,b^3c^3-18\,ab^2c^2d+9\,a^2bcd^2-a^3d^3\right)\log(bx+a)}{a^6}-\frac{\left(10\,b^3c^3-18\,ab^2c^2d+9\,a^2bcd^2-a^3d^3\right)\log(x)}{a^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/((b*x + a)^3*x^4),x, algorithm="maxima")
```

```
[Out] -1/6*(2*a^4*c^3 + 6*(10*b^4*c^3 - 18*a*b^3*c^2*d + 9*a^2*b^2*c*d^
2 - a^3*b*d^3)*x^4 + 9*(10*a*b^3*c^3 - 18*a^2*b^2*c^2*d + 9*a^3*b
*c*d^2 - a^4*d^3)*x^3 + 2*(10*a^2*b^2*c^3 - 18*a^3*b*c^2*d + 9*a^
4*c*d^2)*x^2 - (5*a^3*b*c^3 - 9*a^4*c^2*d)*x)/(a^5*b^2*x^5 + 2*a^
6*b*x^4 + a^7*x^3) + (10*b^3*c^3 - 18*a*b^2*c^2*d + 9*a^2*b*c*d^2
 - a^3*d^3)*log(b*x + a)/a^6 - (10*b^3*c^3 - 18*a*b^2*c^2*d + 9*a
^2*b*c*d^2 - a^3*d^3)*log(x)/a^6
```

Fricas [A] time = 0.222145, size = 657, normalized size = 3.4

$$-\frac{2\,a^5c^3+6\left(10\,ab^4c^3-18\,a^2b^3c^2d+9\,a^3b^2cd^2-a^4bd^3\right)x^4+9\left(10\,a^2b^3c^3-18\,a^3b^2c^2d+9\,a^4bcd^2-a^5d^3\right)x^3+2\left(10\,a^3b^2c^3\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/((b*x + a)^3*x^4),x, algorithm="fricas")
```

```
[Out] -1/6*(2*a^5*c^3 + 6*(10*a*b^4*c^3 - 18*a^2*b^3*c^2*d + 9*a^3*b^2*
c*d^2 - a^4*b*d^3)*x^4 + 9*(10*a^2*b^3*c^3 - 18*a^3*b^2*c^2*d + 9
*a^4*b*c*d^2 - a^5*d^3)*x^3 + 2*(10*a^3*b^2*c^3 - 18*a^4*b*c^2*d
+ 9*a^5*c*d^2)*x^2 - (5*a^4*b*c^3 - 9*a^5*c^2*d)*x - 6*((10*b^5*c
^3 - 18*a*b^4*c^2*d + 9*a^2*b^3*c*d^2 - a^3*b^2*d^3)*x^5 + 2*(10*
a*b^4*c^3 - 18*a^2*b^3*c^2*d + 9*a^3*b^2*c*d^2 - a^4*b*d^3)*x^4 +
 (10*a^2*b^3*c^3 - 18*a^3*b^2*c^2*d + 9*a^4*b*c*d^2 - a^5*d^3)*x^
3)*log(b*x + a) + 6*((10*b^5*c^3 - 18*a*b^4*c^2*d + 9*a^2*b^3*c*d
^2 - a^3*b^2*d^3)*x^5 + 2*(10*a*b^4*c^3 - 18*a^2*b^3*c^2*d + 9*a^
3*b^2*c*d^2 - a^4*b*d^3)*x^4 + (10*a^2*b^3*c^3 - 18*a^3*b^2*c^2*d
 + 9*a^4*b*c*d^2 - a^5*d^3)*x^3)*log(x))/(a^6*b^2*x^5 + 2*a^7*b*x
^4 + a^8*x^3)
```

Sympy [A] time = 13.3149, size = 505, normalized size = 2.62

$$\frac{-2a^4c^3 + x^4\left(6a^3bd^3 - 54a^2b^2cd^2 + 108ab^3c^2d - 60b^4c^3\right) + x^3\left(9a^4d^3 - 81a^3bcd^2 + 162a^2b^2c^2d - 90ab^3c^3\right) + x^2\left(-18a^4cd^2\right.}{6a^7x^3 + 12a^6bx^4 + 6a^5b^2x^5} + \frac{(ad-bc)\left(a^2d^2 - 8abcd + 10b^2c^2\right)\log\left(x + \frac{a^4d^3 - 9a^3bcd^2 + 18a^2b^2c^2d - 10ab^3c^3 - a(ad-bc)\left(a^2d^2-8abcd+10b^2c^2\right)}{2a^3bd^3 - 18a^2b^2cd^2 + 36ab^3c^2d - 20b^4c^3}\right)}{a^6} - \frac{(ad-bc)\left(a^2d^2 - 8abcd + 10b^2c^2\right)\log\left(x + \frac{a^4d^3 - 9a^3bcd^2 + 18a^2b^2c^2d - 10ab^3c^3 + a(ad-bc)\left(a^2d^2-8abcd+10b^2c^2\right)}{2a^3bd^3 - 18a^2b^2cd^2 + 36ab^3c^2d - 20b^4c^3}\right)}{a^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**3/x**4/(b*x+a)**3,x)
```

```
[Out] (-2*a**4*c**3 + x**4*(6*a**3*b*d**3 - 54*a**2*b**2*c*d**2 + 108*a
*b**3*c**2*d - 60*b**4*c**3) + x**3*(9*a**4*d**3 - 81*a**3*b*c*d*
*2 + 162*a**2*b**2*c**2*d - 90*a*b**3*c**3) + x**2*(-18*a**4*c*d*
*2 + 36*a**3*b*c**2*d - 20*a**2*b**2*c**3) + x*(-9*a**4*c**2*d +
5*a**3*b*c**3))/(6*a**7*x**3 + 12*a**6*b*x**4 + 6*a**5*b**2*x**5)
 + (a*d - b*c)*(a**2*d**2 - 8*a*b*c*d + 10*b**2*c**2)*log(x + (a*
*4*d**3 - 9*a**3*b*c*d**2 + 18*a**2*b**2*c**2*d - 10*a*b**3*c**3
- a*(a*d - b*c)*(a**2*d**2 - 8*a*b*c*d + 10*b**2*c**2))/(2*a**3*b
*d**3 - 18*a**2*b**2*c*d**2 + 36*a*b**3*c**2*d - 20*b**4*c**3))/a
**6 - (a*d - b*c)*(a**2*d**2 - 8*a*b*c*d + 10*b**2*c**2)*log(x +
(a**4*d**3 - 9*a**3*b*c*d**2 + 18*a**2*b**2*c**2*d - 10*a*b**3*c*
*3 + a*(a*d - b*c)*(a**2*d**2 - 8*a*b*c*d + 10*b**2*c**2))/(2*a**
3*b*d**3 - 18*a**2*b**2*c*d**2 + 36*a*b**3*c**2*d - 20*b**4*c**3)
)/a**6
```

GIAC/XCAS [A] time = 0.280598, size = 374, normalized size = 1.94

$$-\frac{\left(10\,b^3c^3 - 18\,ab^2c^2d + 9\,a^2bcd^2 - a^3d^3\right)\ln\left(|x|\right)}{a^6} + \frac{\left(10\,b^4c^3 - 18\,ab^3c^2d + 9\,a^2b^2cd^2 - a^3bd^3\right)\ln\left(|bx+a|\right)}{a^6b} - \frac{2\,a^5c^3 + 6\left(10\,ab^4c^3 - 18\,a^2b^3c^2d + 9\,a^3b^2cd^2 - a^4bd^3\right)x^4 + 9\left(10\,a^2b^3c^3 - 18\,a^3b^2c^2d + 9\,a^4bcd^2 - a^5d^3\right)x^3 + 2\left(10\,a^3b^2c^3\right.}{6\,(bx+a)^2a^6x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3/((b*x + a)^3*x^4),x, algorithm="giac")
```

```
[Out] -(10*b^3*c^3 - 18*a*b^2*c^2*d + 9*a^2*b*c*d^2 - a^3*d^3)*ln(abs(x
))/a^6 + (10*b^4*c^3 - 18*a*b^3*c^2*d + 9*a^2*b^2*c*d^2 - a^3*b*d
^3)*ln(abs(b*x + a))/(a^6*b) - 1/6*(2*a^5*c^3 + 6*(10*a*b^4*c^3 -
 18*a^2*b^3*c^2*d + 9*a^3*b^2*c*d^2 - a^4*b*d^3)*x^4 + 9*(10*a^2*
b^3*c^3 - 18*a^3*b^2*c^2*d + 9*a^4*b*c*d^2 - a^5*d^3)*x^3 + 2*(10
*a^3*b^2*c^3 - 18*a^4*b*c^2*d + 9*a^5*c*d^2)*x^2 - (5*a^4*b*c^3 -
 9*a^5*c^2*d)*x)/((b*x + a)^2*a^6*x^3)
```

3.279 $\int \frac{x^7}{(a+bx)^3(c+dx)^3}\,dx$

Optimal. Leaf size=245

$$\frac{a^7}{2b^5(a+bx)^2(bc-ad)^3}-\frac{a^6(7bc-4ad)}{b^5(a+bx)(bc-ad)^4}+\frac{3c^5\left(7a^2d^2-7abcd+2b^2c^2\right)\log(c+dx)}{d^5(bc-ad)^5}-\frac{3a^5\left(2a^2d^2-7abcd+7b^2c^2\right)\log(a+bx)}{b^5(bc-ad)^5}-\frac{3x(ad+bc)}{b^4d^4}-\frac{c^7}{2d^5(c+dx)^2(bc-ad)^3}+\frac{c^6(4bc-7ad)}{d^5(c+dx)(bc-ad)^4}+\frac{x^2}{2b^3d^3}$$

```
[Out] (-3*(b*c + a*d)*x)/(b^4*d^4) + x^2/(2*b^3*d^3) + a^7/(2*b^5*(b*c
- a*d)^3*(a + b*x)^2) - (a^6*(7*b*c - 4*a*d))/(b^5*(b*c - a*d)^4*
(a + b*x)) - c^7/(2*d^5*(b*c - a*d)^3*(c + d*x)^2) + (c^6*(4*b*c
- 7*a*d))/(d^5*(b*c - a*d)^4*(c + d*x)) - (3*a^5*(7*b^2*c^2 - 7*a
*b*c*d + 2*a^2*d^2)*Log[a + b*x])/(b^5*(b*c - a*d)^5) + (3*c^5*(2
*b^2*c^2 - 7*a*b*c*d + 7*a^2*d^2)*Log[c + d*x])/(d^5*(b*c - a*d)^
5)
```

Rubi [A] time = 0.776104, antiderivative size = 245, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{a^7}{2b^5(a+bx)^2(bc-ad)^3}-\frac{a^6(7bc-4ad)}{b^5(a+bx)(bc-ad)^4}+\frac{3c^5\left(7a^2d^2-7abcd+2b^2c^2\right)\log(c+dx)}{d^5(bc-ad)^5}-\frac{3a^5\left(2a^2d^2-7abcd+7b^2c^2\right)\log(a+bx)}{b^5(bc-ad)^5}-\frac{3x(ad+bc)}{b^4d^4}-\frac{c^7}{2d^5(c+dx)^2(bc-ad)^3}+\frac{c^6(4bc-7ad)}{d^5(c+dx)(bc-ad)^4}+\frac{x^2}{2b^3d^3}$$

Antiderivative was successfully verified.

```
[In]  Int[x^7/((a + b*x)^3*(c + d*x)^3),x]
```

```
[Out] (-3*(b*c + a*d)*x)/(b^4*d^4) + x^2/(2*b^3*d^3) + a^7/(2*b^5*(b*c
- a*d)^3*(a + b*x)^2) - (a^6*(7*b*c - 4*a*d))/(b^5*(b*c - a*d)^4*
(a + b*x)) - c^7/(2*d^5*(b*c - a*d)^3*(c + d*x)^2) + (c^6*(4*b*c
- 7*a*d))/(d^5*(b*c - a*d)^4*(c + d*x)) - (3*a^5*(7*b^2*c^2 - 7*a
*b*c*d + 2*a^2*d^2)*Log[a + b*x])/(b^5*(b*c - a*d)^5) + (3*c^5*(2
*b^2*c^2 - 7*a*b*c*d + 7*a^2*d^2)*Log[c + d*x])/(d^5*(b*c - a*d)^
5)
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**7/(b*x+a)**3/(d*x+c)**3,x)
```

```
[Out] Timed out
```

Mathematica [A] time = 0.814025, size = 241, normalized size = 0.98

$$\frac{1}{2}\left(\frac{a^7}{b^5(a+bx)^2(bc-ad)^3}+\frac{2a^6(4ad-7bc)}{b^5(a+bx)(bc-ad)^4}-\frac{6c^5\left(7a^2d^2-7abcd+2b^2c^2\right)\log(c+dx)}{d^5(ad-bc)^5}-\frac{6a^5\left(2a^2d^2-7abcd+7b^2c^2\right)\log(a+bx)}{b^5(bc-ad)^5}-\frac{6x(ad+bc)}{b^4d^4}+\frac{c^7}{d^5(c+dx)^2(ad-bc)^3}+\frac{2c^6(4bc-7ad)}{d^5(c+dx)(bc-ad)^4}+\frac{x^2}{b^3d^3}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^7/((a + b*x)^3*(c + d*x)^3),x]
```

```
[Out] ((-6*(b*c + a*d)*x)/(b^4*d^4) + x^2/(b^3*d^3) + a^7/(b^5*(b*c - a
*d)^3*(a + b*x)^2) + (2*a^6*(-7*b*c + 4*a*d))/(b^5*(b*c - a*d)^4*
(a + b*x)) + c^7/(d^5*(-(b*c) + a*d)^3*(c + d*x)^2) + (2*c^6*(4*b
*c - 7*a*d))/(d^5*(b*c - a*d)^4*(c + d*x)) - (6*a^5*(7*b^2*c^2 -
7*a*b*c*d + 2*a^2*d^2)*Log[a + b*x])/(b^5*(b*c - a*d)^5) - (6*c^5
*(2*b^2*c^2 - 7*a*b*c*d + 7*a^2*d^2)*Log[c + d*x])/(d^5*(-(b*c) +
 a*d)^5))/2
```

Maple [A] time = 0.031, size = 347, normalized size = 1.4

$$\frac{x^2}{2\,b^3d^3}-3\,\frac{ax}{d^3b^4}-3\,\frac{cx}{d^4b^3}-7\,\frac{c^6a}{d^4\,(ad-bc)^4\,(dx+c)}+4\,\frac{c^7b}{(ad-bc)^4\,d^5\,(dx+c)}+\frac{c^7}{2\,d^5\,(ad-bc)^3\,(dx+c)^2}-21\,\frac{c^5\ln(dx+c)\,a^2}{d^3\,(ad-bc)^5}+21\,\frac{c^6\ln(dx+c)\,ab}{d^4\,(ad-bc)^5}-6\,\frac{c^7\ln(dx+c)\,b^2}{d^5\,(ad-bc)^5}-\frac{a^7}{2\,b^5\,(ad-bc)^3\,(bx+a)^2}+6\,\frac{a^7\ln(bx+a)\,d^2}{b^5\,(ad-bc)^5}-21\,\frac{a^6\ln(bx+a)\,cd}{b^4\,(ad-bc)^5}+21\,\frac{a^5\ln(bx+a)\,c^2}{b^3\,(ad-bc)^5}+4\,\frac{a^7d}{(ad-bc)^4\,b^5\,(bx+a)}-7\,\frac{a^6c}{b^4\,(ad-bc)^4\,(bx+a)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^7/(b*x+a)^3/(d*x+c)^3,x)
```

```
[Out] 1/2*x^2/b^3/d^3-3/b^4/d^3*a*x-3/b^3/d^4*x*c-7/d^4*c^6/(a*d-b*c)^4
/(d*x+c)*a+4/d^5*c^7/(a*d-b*c)^4/(d*x+c)*b+1/2/d^5*c^7/(a*d-b*c)^
3/(d*x+c)^2-21/d^3*c^5/(a*d-b*c)^5*ln(d*x+c)*a^2+21/d^4*c^6/(a*d-
b*c)^5*ln(d*x+c)*a*b-6/d^5*c^7/(a*d-b*c)^5*ln(d*x+c)*b^2-1/2/b^5*
a^7/(a*d-b*c)^3/(b*x+a)^2+6/b^5*a^7/(a*d-b*c)^5*ln(b*x+a)*d^2-21/
b^4*a^6/(a*d-b*c)^5*ln(b*x+a)*c*d+21/b^3*a^5/(a*d-b*c)^5*ln(b*x+a
)*c^2+4/b^5*a^7/(a*d-b*c)^4/(b*x+a)*d-7/b^4*a^6/(a*d-b*c)^4/(b*x+
a)*c
```

Maxima [A] time = 1.42103, size = 1135, normalized size = 4.63

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^7/((b*x + a)^3*(d*x + c)^3),x, algorithm="maxima")
```

```
[Out] -3*(7*a^5*b^2*c^2 - 7*a^6*b*c*d + 2*a^7*d^2)*log(b*x + a)/(b^10*c
^5 - 5*a*b^9*c^4*d + 10*a^2*b^8*c^3*d^2 - 10*a^3*b^7*c^2*d^3 + 5*
a^4*b^6*c*d^4 - a^5*b^5*d^5) + 3*(2*b^2*c^7 - 7*a*b*c^6*d + 7*a^2
*c^5*d^2)*log(d*x + c)/(b^5*c^5*d^5 - 5*a*b^4*c^4*d^6 + 10*a^2*b^
3*c^3*d^7 - 10*a^3*b^2*c^2*d^8 + 5*a^4*b*c*d^9 - a^5*d^10) + 1/2*
(7*a^2*b^6*c^8 - 13*a^3*b^5*c^7*d - 13*a^7*b*c^3*d^5 + 7*a^8*c^2*
d^6 + 2*(4*b^8*c^7*d - 7*a*b^7*c^6*d^2 - 7*a^6*b^2*c*d^7 + 4*a^7*
b*d^8)*x^3 + (7*b^8*c^8 + 3*a*b^7*c^7*d - 28*a^2*b^6*c^6*d^2 - 28
*a^6*b^2*c^2*d^6 + 3*a^7*b*c*d^7 + 7*a^8*d^8)*x^2 + 2*(7*a*b^7*c^
8 - 9*a^2*b^6*c^7*d - 7*a^3*b^5*c^6*d^2 - 7*a^6*b^2*c^3*d^5 - 9*a
^7*b*c^2*d^6 + 7*a^8*c*d^7)*x)/(a^2*b^9*c^6*d^5 - 4*a^3*b^8*c^5*d
^6 + 6*a^4*b^7*c^4*d^7 - 4*a^5*b^6*c^3*d^8 + a^6*b^5*c^2*d^9 + (b
^11*c^4*d^7 - 4*a*b^10*c^3*d^8 + 6*a^2*b^9*c^2*d^9 - 4*a^3*b^8*c*
d^10 + a^4*b^7*d^11)*x^4 + 2*(b^11*c^5*d^6 - 3*a*b^10*c^4*d^7 + 2
*a^2*b^9*c^3*d^8 + 2*a^3*b^8*c^2*d^9 - 3*a^4*b^7*c*d^10 + a^5*b^6
*d^11)*x^3 + (b^11*c^6*d^5 - 9*a^2*b^9*c^4*d^7 + 16*a^3*b^8*c^3*d
^8 - 9*a^4*b^7*c^2*d^9 + a^6*b^5*d^11)*x^2 + 2*(a*b^10*c^6*d^5 -
3*a^2*b^9*c^5*d^6 + 2*a^3*b^8*c^4*d^7 + 2*a^4*b^7*c^3*d^8 - 3*a^5
```

```
*b^6*c^2*d^9 + a^6*b^5*c*d^10)*x) + 1/2*(b*d*x^2 - 6*(b*c + a*d)*
x)/(b^4*d^4)
```

Fricas [A] time = 0.367481, size = 2115, normalized size = 8.63

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^7/((b*x + a)^3*(d*x + c)^3),x, algorithm="fricas")
```

```
[Out] 1/2*(7*a^2*b^7*c^9 - 20*a^3*b^6*c^8*d + 13*a^4*b^5*c^7*d^2 - 13*a
^7*b^2*c^4*d^5 + 20*a^8*b*c^3*d^6 - 7*a^9*c^2*d^7 + (b^9*c^5*d^4
- 5*a*b^8*c^4*d^5 + 10*a^2*b^7*c^3*d^6 - 10*a^3*b^6*c^2*d^7 + 5*a
^4*b^5*c*d^8 - a^5*b^4*d^9)*x^6 - 4*(b^9*c^6*d^3 - 4*a*b^8*c^5*d^
4 + 5*a^2*b^7*c^4*d^5 - 5*a^4*b^5*c^2*d^7 + 4*a^5*b^4*c*d^8 - a^6
*b^3*d^9)*x^5 - (11*b^9*c^7*d^2 - 35*a*b^8*c^6*d^3 + 21*a^2*b^7*c
^5*d^4 + 35*a^3*b^6*c^4*d^5 - 35*a^4*b^5*c^3*d^6 - 21*a^5*b^4*c^2
*d^7 + 35*a^6*b^3*c*d^8 - 11*a^7*b^2*d^9)*x^4 + 2*(b^9*c^8*d - 10
*a*b^8*c^7*d^2 + 33*a^2*b^7*c^6*d^3 - 43*a^3*b^6*c^5*d^4 + 43*a^5
*b^4*c^3*d^6 - 33*a^6*b^3*c^2*d^7 + 10*a^7*b^2*c*d^8 - a^8*b*d^9)
*x^3 + (7*b^9*c^9 - 16*a*b^8*c^8*d + 6*a^2*b^7*c^7*d^2 + 11*a^3*b
^6*c^6*d^3 - 50*a^4*b^5*c^5*d^4 + 50*a^5*b^4*c^4*d^5 - 11*a^6*b^3
*c^3*d^6 - 6*a^7*b^2*c^2*d^7 + 16*a^8*b*c*d^8 - 7*a^9*d^9)*x^2 +
2*(7*a*b^8*c^9 - 19*a^2*b^7*c^8*d + 14*a^3*b^6*c^7*d^2 - 8*a^4*b^
5*c^6*d^3 + 8*a^6*b^3*c^4*d^5 - 14*a^7*b^2*c^3*d^6 + 19*a^8*b*c^2
*d^7 - 7*a^9*c*d^8)*x - 6*(7*a^7*b^2*c^4*d^5 - 7*a^8*b*c^3*d^6 +
2*a^9*c^2*d^7 + (7*a^5*b^4*c^2*d^7 - 7*a^6*b^3*c*d^8 + 2*a^7*b^2*
d^9)*x^4 + 2*(7*a^5*b^4*c^3*d^6 - 5*a^7*b^2*c*d^8 + 2*a^8*b*d^9)*
x^3 + (7*a^5*b^4*c^4*d^5 + 21*a^6*b^3*c^3*d^6 - 19*a^7*b^2*c^2*d^
7 + a^8*b*c*d^8 + 2*a^9*d^9)*x^2 + 2*(7*a^6*b^3*c^4*d^5 - 5*a^8*b
*c^2*d^7 + 2*a^9*c*d^8)*x)*log(b*x + a) + 6*(2*a^2*b^7*c^9 - 7*a^
3*b^6*c^8*d + 7*a^4*b^5*c^7*d^2 + (2*b^9*c^7*d^2 - 7*a*b^8*c^6*d^
3 + 7*a^2*b^7*c^5*d^4)*x^4 + 2*(2*b^9*c^8*d - 5*a*b^8*c^7*d^2 + 7
*a^3*b^6*c^5*d^4)*x^3 + (2*b^9*c^9 + a*b^8*c^8*d - 19*a^2*b^7*c^7
*d^2 + 21*a^3*b^6*c^6*d^3 + 7*a^4*b^5*c^5*d^4)*x^2 + 2*(2*a*b^8*c
^9 - 5*a^2*b^7*c^8*d + 7*a^4*b^5*c^6*d^3)*x)*log(d*x + c))/(a^2*b
^10*c^7*d^5 - 5*a^3*b^9*c^6*d^6 + 10*a^4*b^8*c^5*d^7 - 10*a^5*b^7
*c^4*d^8 + 5*a^6*b^6*c^3*d^9 - a^7*b^5*c^2*d^10 + (b^12*c^5*d^7 -
 5*a*b^11*c^4*d^8 + 10*a^2*b^10*c^3*d^9 - 10*a^3*b^9*c^2*d^10 + 5
*a^4*b^8*c*d^11 - a^5*b^7*d^12)*x^4 + 2*(b^12*c^6*d^6 - 4*a*b^11*
c^5*d^7 + 5*a^2*b^10*c^4*d^8 - 5*a^4*b^8*c^2*d^10 + 4*a^5*b^7*c*d
^11 - a^6*b^6*d^12)*x^3 + (b^12*c^7*d^5 - a*b^11*c^6*d^6 - 9*a^2*
b^10*c^5*d^7 + 25*a^3*b^9*c^4*d^8 - 25*a^4*b^8*c^3*d^9 + 9*a^5*b^
7*c^2*d^10 + a^6*b^6*c*d^11 - a^7*b^5*d^12)*x^2 + 2*(a*b^11*c^7*d
^5 - 4*a^2*b^10*c^6*d^6 + 5*a^3*b^9*c^5*d^7 - 5*a^5*b^7*c^3*d^9 +
 4*a^6*b^6*c^2*d^10 - a^7*b^5*c*d^11)*x)
```

Sympy [A] time = 109.558, size = 1737, normalized size = 7.09

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**7/(b*x+a)**3/(d*x+c)**3,x)
```

```
[Out] 3*a**5*(2*a**2*d**2 - 7*a*b*c*d + 7*b**2*c**2)*log(x + (3*a**11*d
**10*(2*a**2*d**2 - 7*a*b*c*d + 7*b**2*c**2)/(b*(a*d - b*c)**5) -
 18*a**10*c*d**9*(2*a**2*d**2 - 7*a*b*c*d + 7*b**2*c**2)/(a*d - b
*c)**5 + 45*a**9*b*c**2*d**8*(2*a**2*d**2 - 7*a*b*c*d + 7*b**2*c*
*2)/(a*d - b*c)**5 - 60*a**8*b**2*c**3*d**7*(2*a**2*d**2 - 7*a*b*
c*d + 7*b**2*c**2)/(a*d - b*c)**5 + 45*a**7*b**3*c**4*d**6*(2*a**
2*d**2 - 7*a*b*c*d + 7*b**2*c**2)/(a*d - b*c)**5 + 6*a**7*c*d**6
- 18*a**6*b**4*c**5*d**5*(2*a**2*d**2 - 7*a*b*c*d + 7*b**2*c**2)/
(a*d - b*c)**5 - 21*a**6*b*c**2*d**5 + 3*a**5*b**5*c**6*d**4*(2*a
```

```
**2*d**2 - 7*a*b*c*d + 7*b**2*c**2)/(a*d - b*c)**5 + 21*a**5*b**2
*c**3*d**4 + 21*a**3*b**4*c**5*d**2 - 21*a**2*b**5*c**6*d + 6*a*b
**6*c**7)/(6*a**7*d**7 - 21*a**6*b*c*d**6 + 21*a**5*b**2*c**2*d**
5 + 21*a**2*b**5*c**5*d**2 - 21*a*b**6*c**6*d + 6*b**7*c**7))/(b*
*5*(a*d - b*c)**5) - 3*c**5*(7*a**2*d**2 - 7*a*b*c*d + 2*b**2*c**
2)*log(x + (6*a**7*c*d**6 - 3*a**6*b**4*c**5*d**5*(7*a**2*d**2 -
7*a*b*c*d + 2*b**2*c**2)/(a*d - b*c)**5 - 21*a**6*b*c**2*d**5 + 1
8*a**5*b**5*c**6*d**4*(7*a**2*d**2 - 7*a*b*c*d + 2*b**2*c**2)/(a*
d - b*c)**5 + 21*a**5*b**2*c**3*d**4 - 45*a**4*b**6*c**7*d**3*(7*
a**2*d**2 - 7*a*b*c*d + 2*b**2*c**2)/(a*d - b*c)**5 + 60*a**3*b**
7*c**8*d**2*(7*a**2*d**2 - 7*a*b*c*d + 2*b**2*c**2)/(a*d - b*c)**
5 + 21*a**3*b**4*c**5*d**2 - 45*a**2*b**8*c**9*d*(7*a**2*d**2 - 7
*a*b*c*d + 2*b**2*c**2)/(a*d - b*c)**5 - 21*a**2*b**5*c**6*d + 18
*a*b**9*c**10*(7*a**2*d**2 - 7*a*b*c*d + 2*b**2*c**2)/(a*d - b*c)
**5 + 6*a*b**6*c**7 - 3*b**10*c**11*(7*a**2*d**2 - 7*a*b*c*d + 2*
b**2*c**2)/(d*(a*d - b*c)**5))/(6*a**7*d**7 - 21*a**6*b*c*d**6 +
21*a**5*b**2*c**2*d**5 + 21*a**2*b**5*c**5*d**2 - 21*a*b**6*c**6*
d + 6*b**7*c**7))/(d**5*(a*d - b*c)**5) + (7*a**8*c**2*d**6 - 13*
a**7*b*c**3*d**5 - 13*a**3*b**5*c**7*d + 7*a**2*b**6*c**8 + x**3*
(8*a**7*b*d**8 - 14*a**6*b**2*c*d**7 - 14*a*b**7*c**6*d**2 + 8*b*
*8*c**7*d) + x**2*(7*a**8*d**8 + 3*a**7*b*c*d**7 - 28*a**6*b**2*c
**2*d**6 - 28*a**2*b**6*c**6*d**2 + 3*a*b**7*c**7*d + 7*b**8*c**8
) + x*(14*a**8*c*d**7 - 18*a**7*b*c**2*d**6 - 14*a**6*b**2*c**3*d
**5 - 14*a**3*b**5*c**6*d**2 - 18*a**2*b**6*c**7*d + 14*a*b**7*c*
*8))/(2*a**6*b**5*c**2*d**9 - 8*a**5*b**6*c**3*d**8 + 12*a**4*b**
7*c**4*d**7 - 8*a**3*b**8*c**5*d**6 + 2*a**2*b**9*c**6*d**5 + x**
4*(2*a**4*b**7*d**11 - 8*a**3*b**8*c*d**10 + 12*a**2*b**9*c**2*d*
*9 - 8*a*b**10*c**3*d**8 + 2*b**11*c**4*d**7) + x**3*(4*a**5*b**6
*d**11 - 12*a**4*b**7*c*d**10 + 8*a**3*b**8*c**2*d**9 + 8*a**2*b*
*9*c**3*d**8 - 12*a*b**10*c**4*d**7 + 4*b**11*c**5*d**6) + x**2*(
2*a**6*b**5*d**11 - 18*a**4*b**7*c**2*d**9 + 32*a**3*b**8*c**3*d*
*8 - 18*a**2*b**9*c**4*d**7 + 2*b**11*c**6*d**5) + x*(4*a**6*b**5
*c*d**10 - 12*a**5*b**6*c**2*d**9 + 8*a**4*b**7*c**3*d**8 + 8*a**
3*b**8*c**4*d**7 - 12*a**2*b**9*c**5*d**6 + 4*a*b**10*c**6*d**5))
 + x**2/(2*b**3*d**3) - x*(3*a*d + 3*b*c)/(b**4*d**4)
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^7/((b*x + a)^3*(d*x + c)^3),x, algorithm="giac")
```

```
[Out] Exception raised: NotImplementedError
```

3.280 $\int \frac{x^6}{(a+bx)^3(c+dx)^3} \, dx$

Optimal. Leaf size=222

$$-\frac{a^6}{2b^4(a+bx)^2(bc-ad)^3}+\frac{3a^5(2bc-ad)}{b^4(a+bx)(bc-ad)^4}-\frac{3c^4\left(5a^2d^2-4abcd+b^2c^2\right)\log(c+dx)}{d^4(bc-ad)^5}+\frac{3a^4\left(a^2d^2-4abcd+5b^2c^2\right)\log(a+bx)}{b^4(bc-ad)^5}+\frac{c^6}{2d^4(c+dx)^2(bc-ad)^3}-\frac{3c^5(bc-2ad)}{d^4(c+dx)(bc-ad)^4}+\frac{x}{b^3d^3}$$

```
[Out] x/(b^3*d^3) - a^6/(2*b^4*(b*c - a*d)^3*(a + b*x)^2) + (3*a^5*(2*b
*c - a*d))/(b^4*(b*c - a*d)^4*(a + b*x)) + c^6/(2*d^4*(b*c - a*d)
^3*(c + d*x)^2) - (3*c^5*(b*c - 2*a*d))/(d^4*(b*c - a*d)^4*(c + d
*x)) + (3*a^4*(5*b^2*c^2 - 4*a*b*c*d + a^2*d^2)*Log[a + b*x])/(b^
4*(b*c - a*d)^5) - (3*c^4*(b^2*c^2 - 4*a*b*c*d + 5*a^2*d^2)*Log[c
 + d*x])/(d^4*(b*c - a*d)^5)
```

Rubi [A] time = 0.596448, antiderivative size = 222, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{a^6}{2b^4(a+bx)^2(bc-ad)^3}+\frac{3a^5(2bc-ad)}{b^4(a+bx)(bc-ad)^4}-\frac{3c^4\left(5a^2d^2-4abcd+b^2c^2\right)\log(c+dx)}{d^4(bc-ad)^5}+\frac{3a^4\left(a^2d^2-4abcd+5b^2c^2\right)\log(a+bx)}{b^4(bc-ad)^5}+\frac{c^6}{2d^4(c+dx)^2(bc-ad)^3}-\frac{3c^5(bc-2ad)}{d^4(c+dx)(bc-ad)^4}+\frac{x}{b^3d^3}$$

Antiderivative was successfully verified.

```
[In]  Int[x^6/((a + b*x)^3*(c + d*x)^3),x]
```

```
[Out] x/(b^3*d^3) - a^6/(2*b^4*(b*c - a*d)^3*(a + b*x)^2) + (3*a^5*(2*b
*c - a*d))/(b^4*(b*c - a*d)^4*(a + b*x)) + c^6/(2*d^4*(b*c - a*d)
^3*(c + d*x)^2) - (3*c^5*(b*c - 2*a*d))/(d^4*(b*c - a*d)^4*(c + d
*x)) + (3*a^4*(5*b^2*c^2 - 4*a*b*c*d + a^2*d^2)*Log[a + b*x])/(b^
4*(b*c - a*d)^5) - (3*c^4*(b^2*c^2 - 4*a*b*c*d + 5*a^2*d^2)*Log[c
 + d*x])/(d^4*(b*c - a*d)^5)
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**6/(b*x+a)**3/(d*x+c)**3,x)
```

```
[Out] Timed out
```

Mathematica [A] time = 0.636215, size = 221, normalized size = 1.

$$-\frac{a^6}{2b^4(a+bx)^2(bc-ad)^3}-\frac{3a^5(ad-2bc)}{b^4(a+bx)(bc-ad)^4}+\frac{3c^4\left(5a^2d^2-4abcd+b^2c^2\right)\log(c+dx)}{d^4(ad-bc)^5}+\frac{3a^4\left(a^2d^2-4abcd+5b^2c^2\right)\log(a+bx)}{b^4(bc-ad)^5}-\frac{c^6}{2d^4(c+dx)^2(ad-bc)^3}-\frac{3c^5(bc-2ad)}{d^4(c+dx)(bc-ad)^4}+\frac{x}{b^3d^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^6/((a + b*x)^3*(c + d*x)^3),x]
```

```
[Out] x/(b^3*d^3) - a^6/(2*b^4*(b*c - a*d)^3*(a + b*x)^2) - (3*a^5*(-2*
b*c + a*d))/(b^4*(b*c - a*d)^4*(a + b*x)) - c^6/(2*d^4*(-(b*c) +
a*d)^3*(c + d*x)^2) - (3*c^5*(b*c - 2*a*d))/(d^4*(b*c - a*d)^4*(c
 + d*x)) + (3*a^4*(5*b^2*c^2 - 4*a*b*c*d + a^2*d^2)*Log[a + b*x])
/(b^4*(b*c - a*d)^5) + (3*c^4*(b^2*c^2 - 4*a*b*c*d + 5*a^2*d^2)*L
og[c + d*x])/(d^4*(-(b*c) + a*d)^5)
```

Maple [A] time = 0.026, size = 324, normalized size = 1.5

$$\frac{x}{b^3d^3} - \frac{c^6}{2\,d^4\,(ad-bc)^3\,(dx+c)^2} + 15\,\frac{c^4\ln(dx+c)\,a^2}{d^2\,(ad-bc)^5} - 12\,\frac{c^5\ln(dx+c)\,ab}{d^3\,(ad-bc)^5} + 3\,\frac{c^6\ln(dx+c)\,b^2}{d^4\,(ad-bc)^5} + 6\,\frac{c^5a}{d^3\,(ad-bc)^4\,(dx+c)} - 3\,\frac{c^6b}{(ad-bc)^4\,d^4\,(dx+c)} + \frac{a^6}{2\,b^4\,(ad-bc)^3\,(bx+a)^2} - 3\,\frac{a^6\ln(bx+a)\,d^2}{(ad-bc)^5\,b^4} + 12\,\frac{a^5\ln(bx+a)\,cd}{b^3\,(ad-bc)^5} - 15\,\frac{a^4\ln(bx+a)\,c^2}{b^2\,(ad-bc)^5} - 3\,\frac{a^6d}{b^4\,(ad-bc)^4\,(bx+a)} + 6\,\frac{a^5c}{b^3\,(ad-bc)^4\,(bx+a)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^6/(b*x+a)^3/(d*x+c)^3,x)
```

```
[Out] x/b^3/d^3-1/2/d^4*c^6/(a*d-b*c)^3/(d*x+c)^2+15/d^2*c^4/(a*d-b*c)^
5*ln(d*x+c)*a^2-12/d^3*c^5/(a*d-b*c)^5*ln(d*x+c)*a*b+3/d^4*c^6/(a
*d-b*c)^5*ln(d*x+c)*b^2+6/d^3*c^5/(a*d-b*c)^4/(d*x+c)*a-3/d^4*c^6
/(a*d-b*c)^4/(d*x+c)*b+1/2/b^4*a^6/(a*d-b*c)^3/(b*x+a)^2-3/b^4*a^
6/(a*d-b*c)^5*ln(b*x+a)*d^2+12/b^3*a^5/(a*d-b*c)^5*ln(b*x+a)*c*d-
15/b^2*a^4/(a*d-b*c)^5*ln(b*x+a)*c^2-3/b^4*a^6/(a*d-b*c)^4/(b*x+a
)*d+6/b^3*a^5/(a*d-b*c)^4/(b*x+a)*c
```

Maxima [A] time = 1.4257, size = 1104, normalized size = 4.97

$$\frac{3\left(5\,a^4b^2c^2 - 4\,a^5bcd + a^6d^2\right)\log(bx+a)}{b^9c^5 - 5\,ab^8c^4d + 10\,a^2b^7c^3d^2 - 10\,a^3b^6c^2d^3 + 5\,a^4b^5cd^4 - a^5b^4d^5} - \frac{3\left(b^2c^6 - 4\,abc^5d + 5\,a^2c^4d^2\right)\log(dx+c)}{b^5c^5d^4 - 5\,ab^4c^4d^5 + 10\,a^2b^3c^3d^6 - 10\,a^3b^2c^2d^7 + 5\,a^4bcd^8 - a^5d^9} - \frac{5\,a^2b^5c^7 - 11\,a^3b^4c^6d - 11\,a^6bc^3d^4 + 5\,a^7c^2d^5 + 6\left(b^7c^6d - 2\,ab^6c^5d^2\right.}{2\left(a^2b^8c^6d^4 - 4\,a^3b^7c^5d^5 + 6\,a^4b^6c^4d^6 - 4\,a^5b^5c^3d^7 + a^6b^4c^2d^8 + \left(b^{10}c^4d^6 - 4\,ab^9c^3d^7 + 6\,a^2b^8c^2d^8 - 4\,a^3b^7cd^9 + a^4b^6d^{10}\right)\right.} + \frac{x}{b^3d^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^6/((b*x + a)^3*(d*x + c)^3),x, algorithm="maxima")
```

```
[Out] 3*(5*a^4*b^2*c^2 - 4*a^5*b*c*d + a^6*d^2)*log(b*x + a)/(b^9*c^5 -
 5*a*b^8*c^4*d + 10*a^2*b^7*c^3*d^2 - 10*a^3*b^6*c^2*d^3 + 5*a^4*
b^5*c*d^4 - a^5*b^4*d^5) - 3*(b^2*c^6 - 4*a*b*c^5*d + 5*a^2*c^4*d
^2)*log(d*x + c)/(b^5*c^5*d^4 - 5*a*b^4*c^4*d^5 + 10*a^2*b^3*c^3*
d^6 - 10*a^3*b^2*c^2*d^7 + 5*a^4*b*c*d^8 - a^5*d^9) - 1/2*(5*a^2*
b^5*c^7 - 11*a^3*b^4*c^6*d - 11*a^6*b*c^3*d^4 + 5*a^7*c^2*d^5 + 6
*(b^7*c^6*d - 2*a*b^6*c^5*d^2 - 2*a^5*b^2*c*d^6 + a^6*b*d^7)*x^3
+ (5*b^7*c^7 + a*b^6*c^6*d - 24*a^2*b^5*c^5*d^2 - 24*a^5*b^2*c^2*
d^5 + a^6*b*c*d^6 + 5*a^7*d^7)*x^2 + 2*(5*a*b^6*c^7 - 8*a^2*b^5*c
^6*d - 6*a^3*b^4*c^5*d^2 - 6*a^5*b^2*c^3*d^4 - 8*a^6*b*c^2*d^5 +
5*a^7*c*d^6)*x)/(a^2*b^8*c^6*d^4 - 4*a^3*b^7*c^5*d^5 + 6*a^4*b^6*
c^4*d^6 - 4*a^5*b^5*c^3*d^7 + a^6*b^4*c^2*d^8 + (b^10*c^4*d^6 - 4
*a*b^9*c^3*d^7 + 6*a^2*b^8*c^2*d^8 - 4*a^3*b^7*c*d^9 + a^4*b^6*d^
10)*x^4 + 2*(b^10*c^5*d^5 - 3*a*b^9*c^4*d^6 + 2*a^2*b^8*c^3*d^7 +
 2*a^3*b^7*c^2*d^8 - 3*a^4*b^6*c*d^9 + a^5*b^5*d^10)*x^3 + (b^10*
c^6*d^4 - 9*a^2*b^8*c^4*d^6 + 16*a^3*b^7*c^3*d^7 - 9*a^4*b^6*c^2*
d^8 + a^6*b^4*d^10)*x^2 + 2*(a*b^9*c^6*d^4 - 3*a^2*b^8*c^5*d^5 +
2*a^3*b^7*c^4*d^6 + 2*a^4*b^6*c^3*d^7 - 3*a^5*b^5*c^2*d^8 + a^6*b
^4*c*d^9)*x) + x/(b^3*d^3)
```

Fricas [A] time = 0.343992, size = 1967, normalized size = 8.86

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^6/((b*x + a)^3*(d*x + c)^3),x, algorithm="fricas")
```

```
[Out] -1/2*(5*a^2*b^6*c^8 - 16*a^3*b^5*c^7*d + 11*a^4*b^4*c^6*d^2 - 11*
a^6*b^2*c^4*d^4 + 16*a^7*b*c^3*d^5 - 5*a^8*c^2*d^6 - 2*(b^8*c^5*d
^3 - 5*a*b^7*c^4*d^4 + 10*a^2*b^6*c^3*d^5 - 10*a^3*b^5*c^2*d^6 +
5*a^4*b^4*c*d^7 - a^5*b^3*d^8)*x^5 - 4*(b^8*c^6*d^2 - 4*a*b^7*c^5
*d^3 + 5*a^2*b^6*c^4*d^4 - 5*a^4*b^4*c^2*d^6 + 4*a^5*b^3*c*d^7 -
a^6*b^2*d^8)*x^4 + 2*(2*b^8*c^7*d - 8*a*b^7*c^6*d^2 + 15*a^2*b^6*
c^5*d^3 - 25*a^3*b^5*c^4*d^4 + 25*a^4*b^4*c^3*d^5 - 15*a^5*b^3*c^
2*d^6 + 8*a^6*b^2*c*d^7 - 2*a^7*b*d^8)*x^3 + (5*b^8*c^8 - 8*a*b^7
*c^7*d - 9*a^2*b^6*c^6*d^2 + 4*a^3*b^5*c^5*d^3 - 4*a^5*b^3*c^3*d^
5 + 9*a^6*b^2*c^2*d^6 + 8*a^7*b*c*d^7 - 5*a^8*d^8)*x^2 + 2*(5*a*b
^7*c^8 - 14*a^2*b^6*c^7*d + 7*a^3*b^5*c^6*d^2 - 4*a^4*b^4*c^5*d^3
 + 4*a^5*b^3*c^4*d^4 - 7*a^6*b^2*c^3*d^5 + 14*a^7*b*c^2*d^6 - 5*a
^8*c*d^7)*x - 6*(5*a^6*b^2*c^4*d^4 - 4*a^7*b*c^3*d^5 + a^8*c^2*d^
6 + (5*a^4*b^4*c^2*d^6 - 4*a^5*b^3*c*d^7 + a^6*b^2*d^8)*x^4 + 2*(
5*a^4*b^4*c^3*d^5 + a^5*b^3*c^2*d^6 - 3*a^6*b^2*c*d^7 + a^7*b*d^8
)*x^3 + (5*a^4*b^4*c^4*d^4 + 16*a^5*b^3*c^3*d^5 - 10*a^6*b^2*c^2*
d^6 + a^8*d^8)*x^2 + 2*(5*a^5*b^3*c^4*d^4 + a^6*b^2*c^3*d^5 - 3*a
^7*b*c^2*d^6 + a^8*c*d^7)*x)*log(b*x + a) + 6*(a^2*b^6*c^8 - 4*a^
3*b^5*c^7*d + 5*a^4*b^4*c^6*d^2 + (b^8*c^6*d^2 - 4*a*b^7*c^5*d^3
+ 5*a^2*b^6*c^4*d^4)*x^4 + 2*(b^8*c^7*d - 3*a*b^7*c^6*d^2 + a^2*b
^6*c^5*d^3 + 5*a^3*b^5*c^4*d^4)*x^3 + (b^8*c^8 - 10*a^2*b^6*c^6*d
^2 + 16*a^3*b^5*c^5*d^3 + 5*a^4*b^4*c^4*d^4)*x^2 + 2*(a*b^7*c^8 -
 3*a^2*b^6*c^7*d + a^3*b^5*c^6*d^2 + 5*a^4*b^4*c^5*d^3)*x)*log(d*
x + c))/(a^2*b^9*c^7*d^4 - 5*a^3*b^8*c^6*d^5 + 10*a^4*b^7*c^5*d^6
 - 10*a^5*b^6*c^4*d^7 + 5*a^6*b^5*c^3*d^8 - a^7*b^4*c^2*d^9 + (b^
11*c^5*d^6 - 5*a*b^10*c^4*d^7 + 10*a^2*b^9*c^3*d^8 - 10*a^3*b^8*c
^2*d^9 + 5*a^4*b^7*c*d^10 - a^5*b^6*d^11)*x^4 + 2*(b^11*c^6*d^5 -
 4*a*b^10*c^5*d^6 + 5*a^2*b^9*c^4*d^7 - 5*a^4*b^7*c^2*d^9 + 4*a^5
*b^6*c*d^10 - a^6*b^5*d^11)*x^3 + (b^11*c^7*d^4 - a*b^10*c^6*d^5
- 9*a^2*b^9*c^5*d^6 + 25*a^3*b^8*c^4*d^7 - 25*a^4*b^7*c^3*d^8 + 9
*a^5*b^6*c^2*d^9 + a^6*b^5*c*d^10 - a^7*b^4*d^11)*x^2 + 2*(a*b^10
*c^7*d^4 - 4*a^2*b^9*c^6*d^5 + 5*a^3*b^8*c^5*d^6 - 5*a^5*b^6*c^3*
d^8 + 4*a^6*b^5*c^2*d^9 - a^7*b^4*c*d^10)*x)
```

Sympy [A] time = 81.8311, size = 1685, normalized size = 7.59

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**6/(b*x+a)**3/(d*x+c)**3,x)
```

```
[Out] -3*a**4*(a**2*d**2 - 4*a*b*c*d + 5*b**2*c**2)*log(x + (3*a**10*d*
*9*(a**2*d**2 - 4*a*b*c*d + 5*b**2*c**2)/(b*(a*d - b*c)**5) - 18*
a**9*c*d**8*(a**2*d**2 - 4*a*b*c*d + 5*b**2*c**2)/(a*d - b*c)**5
+ 45*a**8*b*c**2*d**7*(a**2*d**2 - 4*a*b*c*d + 5*b**2*c**2)/(a*d
- b*c)**5 - 60*a**7*b**2*c**3*d**6*(a**2*d**2 - 4*a*b*c*d + 5*b**
2*c**2)/(a*d - b*c)**5 + 45*a**6*b**3*c**4*d**5*(a**2*d**2 - 4*a*
b*c*d + 5*b**2*c**2)/(a*d - b*c)**5 + 3*a**6*c*d**5 - 18*a**5*b**
4*c**5*d**4*(a**2*d**2 - 4*a*b*c*d + 5*b**2*c**2)/(a*d - b*c)**5
- 12*a**5*b*c**2*d**4 + 3*a**4*b**5*c**6*d**3*(a**2*d**2 - 4*a*b*
c*d + 5*b**2*c**2)/(a*d - b*c)**5 + 15*a**4*b**2*c**3*d**3 + 15*a
**3*b**3*c**4*d**2 - 12*a**2*b**4*c**5*d + 3*a*b**5*c**6)/(3*a**6
*d**6 - 12*a**5*b*c*d**5 + 15*a**4*b**2*c**2*d**4 + 15*a**2*b**4*
c**4*d**2 - 12*a*b**5*c**5*d + 3*b**6*c**6))/(b**4*(a*d - b*c)**5
) + 3*c**4*(5*a**2*d**2 - 4*a*b*c*d + b**2*c**2)*log(x + (-3*a**6
*b**3*c**4*d**5*(5*a**2*d**2 - 4*a*b*c*d + b**2*c**2)/(a*d - b*c)
**5 + 3*a**6*c*d**5 + 18*a**5*b**4*c**5*d**4*(5*a**2*d**2 - 4*a*b
```

```
*c*d + b**2*c**2)/(a*d - b*c)**5 - 12*a**5*b*c**2*d**4 - 45*a**4*
b**5*c**6*d**3*(5*a**2*d**2 - 4*a*b*c*d + b**2*c**2)/(a*d - b*c)*
*5 + 15*a**4*b**2*c**3*d**3 + 60*a**3*b**6*c**7*d**2*(5*a**2*d**2
 - 4*a*b*c*d + b**2*c**2)/(a*d - b*c)**5 + 15*a**3*b**3*c**4*d**2
 - 45*a**2*b**7*c**8*d*(5*a**2*d**2 - 4*a*b*c*d + b**2*c**2)/(a*d
 - b*c)**5 - 12*a**2*b**4*c**5*d + 18*a*b**8*c**9*(5*a**2*d**2 -
4*a*b*c*d + b**2*c**2)/(a*d - b*c)**5 + 3*a*b**5*c**6 - 3*b**9*c*
*10*(5*a**2*d**2 - 4*a*b*c*d + b**2*c**2)/(d*(a*d - b*c)**5))/(3*
a**6*d**6 - 12*a**5*b*c*d**5 + 15*a**4*b**2*c**2*d**4 + 15*a**2*b
**4*c**4*d**2 - 12*a*b**5*c**5*d + 3*b**6*c**6))/(d**4*(a*d - b*c
)**5) - (5*a**7*c**2*d**5 - 11*a**6*b*c**3*d**4 - 11*a**3*b**4*c*
*6*d + 5*a**2*b**5*c**7 + x**3*(6*a**6*b*d**7 - 12*a**5*b**2*c*d*
*6 - 12*a*b**6*c**5*d**2 + 6*b**7*c**6*d) + x**2*(5*a**7*d**7 + a
**6*b*c*d**6 - 24*a**5*b**2*c**2*d**5 - 24*a**2*b**5*c**5*d**2 +
a*b**6*c**6*d + 5*b**7*c**7) + x*(10*a**7*c*d**6 - 16*a**6*b*c**2
*d**5 - 12*a**5*b**2*c**3*d**4 - 12*a**3*b**4*c**5*d**2 - 16*a**2
*b**5*c**6*d + 10*a*b**6*c**7))/(2*a**6*b**4*c**2*d**8 - 8*a**5*b
**5*c**3*d**7 + 12*a**4*b**6*c**4*d**6 - 8*a**3*b**7*c**5*d**5 +
2*a**2*b**8*c**6*d**4 + x**4*(2*a**4*b**6*d**10 - 8*a**3*b**7*c*d
**9 + 12*a**2*b**8*c**2*d**8 - 8*a*b**9*c**3*d**7 + 2*b**10*c**4*
d**6) + x**3*(4*a**5*b**5*d**10 - 12*a**4*b**6*c*d**9 + 8*a**3*b*
*7*c**2*d**8 + 8*a**2*b**8*c**3*d**7 - 12*a*b**9*c**4*d**6 + 4*b*
*10*c**5*d**5) + x**2*(2*a**6*b**4*d**10 - 18*a**4*b**6*c**2*d**8
 + 32*a**3*b**7*c**3*d**7 - 18*a**2*b**8*c**4*d**6 + 2*b**10*c**6
*d**4) + x*(4*a**6*b**4*c*d**9 - 12*a**5*b**5*c**2*d**8 + 8*a**4*
b**6*c**3*d**7 + 8*a**3*b**7*c**4*d**6 - 12*a**2*b**8*c**5*d**5 +
 4*a*b**9*c**6*d**4)) + x/(b**3*d**3)
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^6/((b*x + a)^3*(d*x + c)^3),x, algorithm="giac")
```

```
[Out] Exception raised: NotImplementedError
```

3.281 $\int \frac{x^5}{(a+bx)^3(c+dx)^3}\,dx$

Optimal. Leaf size=213

$$\frac{a^5}{2b^3(a+bx)^2(bc-ad)^3}-\frac{a^4(5bc-2ad)}{b^3(a+bx)(bc-ad)^4}+\frac{c^3\left(10a^2d^2-5abcd+b^2c^2\right)\log(c+dx)}{d^3(bc-ad)^5}-\frac{a^3\left(a^2d^2-5abcd+10b^2c^2\right)\log(a+bx)}{b^3(bc-ad)^5}-\frac{c^5}{2d^3(c+dx)^2(bc-ad)^3}+\frac{c^4(2bc-5ad)}{d^3(c+dx)(bc-ad)^4}$$

```
[Out] a^5/(2*b^3*(b*c - a*d)^3*(a + b*x)^2) - (a^4*(5*b*c - 2*a*d))/(b^
3*(b*c - a*d)^4*(a + b*x)) - c^5/(2*d^3*(b*c - a*d)^3*(c + d*x)^2
) + (c^4*(2*b*c - 5*a*d))/(d^3*(b*c - a*d)^4*(c + d*x)) - (a^3*(1
0*b^2*c^2 - 5*a*b*c*d + a^2*d^2)*Log[a + b*x])/(b^3*(b*c - a*d)^5
) + (c^3*(b^2*c^2 - 5*a*b*c*d + 10*a^2*d^2)*Log[c + d*x])/(d^3*(b
*c - a*d)^5)
```

Rubi [A] time = 0.535407, antiderivative size = 213, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{a^5}{2b^3(a+bx)^2(bc-ad)^3}-\frac{a^4(5bc-2ad)}{b^3(a+bx)(bc-ad)^4}+\frac{c^3\left(10a^2d^2-5abcd+b^2c^2\right)\log(c+dx)}{d^3(bc-ad)^5}-\frac{a^3\left(a^2d^2-5abcd+10b^2c^2\right)\log(a+bx)}{b^3(bc-ad)^5}-\frac{c^5}{2d^3(c+dx)^2(bc-ad)^3}+\frac{c^4(2bc-5ad)}{d^3(c+dx)(bc-ad)^4}$$

Antiderivative was successfully verified.

```
[In]  Int[x^5/((a + b*x)^3*(c + d*x)^3),x]
```

```
[Out] a^5/(2*b^3*(b*c - a*d)^3*(a + b*x)^2) - (a^4*(5*b*c - 2*a*d))/(b^
3*(b*c - a*d)^4*(a + b*x)) - c^5/(2*d^3*(b*c - a*d)^3*(c + d*x)^2
) + (c^4*(2*b*c - 5*a*d))/(d^3*(b*c - a*d)^4*(c + d*x)) - (a^3*(1
0*b^2*c^2 - 5*a*b*c*d + a^2*d^2)*Log[a + b*x])/(b^3*(b*c - a*d)^5
) + (c^3*(b^2*c^2 - 5*a*b*c*d + 10*a^2*d^2)*Log[c + d*x])/(d^3*(b
*c - a*d)^5)
```

Rubi in Sympy [A] time = 135.958, size = 199, normalized size = 0.93

$$-\frac{a^5}{2b^3(a+bx)^2(ad-bc)^3}+\frac{a^4(2ad-5bc)}{b^3(a+bx)(ad-bc)^4}+\frac{a^3\left(a^2d^2-5abcd+10b^2c^2\right)\log(a+bx)}{b^3(ad-bc)^5}+\frac{c^5}{2d^3(c+dx)^2(ad-bc)^3}-\frac{c^4(5ad-2bc)}{d^3(c+dx)(ad-bc)^4}-\frac{c^3\left(10a^2d^2-5abcd+b^2c^2\right)\log(c+dx)}{d^3(ad-bc)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**5/(b*x+a)**3/(d*x+c)**3,x)
```

```
[Out] -a**5/(2*b**3*(a + b*x)**2*(a*d - b*c)**3) + a**4*(2*a*d - 5*b*c)
/(b**3*(a + b*x)*(a*d - b*c)**4) + a**3*(a**2*d**2 - 5*a*b*c*d +
10*b**2*c**2)*log(a + b*x)/(b**3*(a*d - b*c)**5) + c**5/(2*d**3*(
c + d*x)**2*(a*d - b*c)**3) - c**4*(5*a*d - 2*b*c)/(d**3*(c + d*x
)*(a*d - b*c)**4) - c**3*(10*a**2*d**2 - 5*a*b*c*d + b**2*c**2)*l
og(c + d*x)/(d**3*(a*d - b*c)**5)
```

Mathematica [A] time = 0.633414, size = 213, normalized size = 1.

$$\frac{a^5}{2b^3(a+bx)^2(bc-ad)^3}+\frac{a^4(2ad-5bc)}{b^3(a+bx)(bc-ad)^4}-\frac{c^3\left(10a^2d^2-5abcd+b^2c^2\right)\log(c+dx)}{d^3(ad-bc)^5}-\frac{a^3\left(a^2d^2-5abcd+10b^2c^2\right)\log(a+bx)}{b^3(bc-ad)^5}+\frac{c^5}{2d^3(c+dx)^2(ad-bc)^3}+\frac{c^4(2bc-5ad)}{d^3(c+dx)(bc-ad)^4}$$

Antiderivative was successfully verified.

```
[In]   Integrate[x^5/((a + b*x)^3*(c + d*x)^3),x]
```

```
[Out] a^5/(2*b^3*(b*c - a*d)^3*(a + b*x)^2) + (a^4*(-5*b*c + 2*a*d))/(b
^3*(b*c - a*d)^4*(a + b*x)) + c^5/(2*d^3*(-(b*c) + a*d)^3*(c + d*
x)^2) + (c^4*(2*b*c - 5*a*d))/(d^3*(b*c - a*d)^4*(c + d*x)) - (a^
3*(10*b^2*c^2 - 5*a*b*c*d + a^2*d^2)*Log[a + b*x])/(b^3*(b*c - a*
d)^5) - (c^3*(b^2*c^2 - 5*a*b*c*d + 10*a^2*d^2)*Log[c + d*x])/(d^
3*(-(b*c) + a*d)^5)
```

Maple [A] time = 0.023, size = 315, normalized size = 1.5

$$-5\,{\frac{{c}^{4}a}{{d}^{2} \left(ad-bc \right) ^{4} \left(dx+c \right) }}+2\,{\frac{b{c}^{5}}{{d}^{3} \left(ad-bc \right) ^{4} \left(dx+c \right) }}+{\frac{{c}^{5}}{2\,{d}^{3} \left(ad-bc \right) ^{3} \left(dx+c \right) ^{2}}}-10\,{\frac{{c}^{3}\ln \left(dx+c \right) {a}^{2}}{ \left(ad-bc \right) ^{5}d}}+5\,{\frac{{c}^{4}\ln \left(dx+c \right) ab}{ \left(ad-bc \right) ^{5}{d}^{2}}}-{\frac{{c}^{5}\ln \left(dx+c \right) {b}^{2}}{ \left(ad-bc \right) ^{5}{d}^{3}}}-{\frac{{a}^{5}}{2\,{b}^{3} \left(ad-bc \right) ^{3} \left(bx+a \right) ^{2}}}+{\frac{{a}^{5}\ln \left(bx+a \right) {d}^{2}}{ \left(ad-bc \right) ^{5}{b}^{3}}}-5\,{\frac{{a}^{4}\ln \left(bx+a \right) cd}{ \left(ad-bc \right) ^{5}{b}^{2}}}+10\,{\frac{{a}^{3}\ln \left(bx+a \right) {c}^{2}}{ \left(ad-bc \right) ^{5}b}}+2\,{\frac{{a}^{5}d}{{b}^{3} \left(ad-bc \right) ^{4} \left(bx+a \right) }}-5\,{\frac{{a}^{4}c}{{b}^{2} \left(ad-bc \right) ^{4} \left(bx+a \right) }}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int(x^5/(b*x+a)^3/(d*x+c)^3,x)
```

```
[Out] -5*c^4/d^2/(a*d-b*c)^4/(d*x+c)*a+2*c^5/d^3/(a*d-b*c)^4/(d*x+c)*b+
1/2*c^5/d^3/(a*d-b*c)^3/(d*x+c)^2-10*c^3/(a*d-b*c)^5/d*ln(d*x+c)*
a^2+5*c^4/(a*d-b*c)^5/d^2*ln(d*x+c)*a*b-c^5/(a*d-b*c)^5/d^3*ln(d*
x+c)*b^2-1/2/b^3/(a*d-b*c)^3*a^5/(b*x+a)^2+a^5/(a*d-b*c)^5/b^3*ln
(b*x+a)*d^2-5*a^4/(a*d-b*c)^5/b^2*ln(b*x+a)*c*d+10*a^3/(a*d-b*c)^
5/b*ln(b*x+a)*c^2+2*a^5/b^3/(a*d-b*c)^4/(b*x+a)*d-5*a^4/b^2/(a*d-
b*c)^4/(b*x+a)*c
```

Maxima [A] time = 1.41524, size = 1098, normalized size = 5.15

$$-\frac{\left(10\,a^{3}b^{2}c^{2}-5\,a^{4}bcd+a^{5}d^{2}\right)\log\left(bx+a\right)}{b^{8}c^{5}-5\,ab^{7}c^{4}d+10\,a^{2}b^{6}c^{3}d^{2}-10\,a^{3}b^{5}c^{2}d^{3}+5\,a^{4}b^{4}cd^{4}-a^{5}b^{3}d^{5}}+\frac{\left(b^{2}c^{5}-5\,abc^{4}d+10\,a^{2}c^{3}d^{2}\right)\log\left(dx+c\right)}{b^{5}c^{5}d^{3}-5\,ab^{4}c^{4}d^{4}+10\,a^{2}b^{3}c^{3}d^{5}-10\,a^{3}b^{2}c^{2}d^{6}+5\,a^{4}bcd^{7}-a^{5}d^{8}}+\frac{3\,a^{2}b^{4}c^{6}-9\,a^{3}b^{3}c^{5}d-9\,a^{5}bc^{3}d^{3}+3\,a^{6}c^{2}d^{4}+2\left(2\,b^{6}c^{5}d-5\,ab^{5}c^{4}d^{2}-5\,\cdots\right.}{2\left(a^{2}b^{7}c^{6}d^{3}-4\,a^{3}b^{6}c^{5}d^{4}+6\,a^{4}b^{5}c^{4}d^{5}-4\,a^{5}b^{4}c^{3}d^{6}+a^{6}b^{3}c^{2}d^{7}+\left(b^{9}c^{4}d^{5}-4\,ab^{8}c^{3}d^{6}+6\,a^{2}b^{7}c^{2}d^{7}-4\,a^{3}b^{6}cd^{8}+a^{4}b^{5}d^{9}\right)x^{4}\cdots\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(x^5/((b*x + a)^3*(d*x + c)^3),x, algorithm="maxima")
```

```
[Out] -(10*a^3*b^2*c^2 - 5*a^4*b*c*d + a^5*d^2)*log(b*x + a)/(b^8*c^5 -
 5*a*b^7*c^4*d + 10*a^2*b^6*c^3*d^2 - 10*a^3*b^5*c^2*d^3 + 5*a^4*
b^4*c*d^4 - a^5*b^3*d^5) + (b^2*c^5 - 5*a*b*c^4*d + 10*a^2*c^3*d^
2)*log(d*x + c)/(b^5*c^5*d^3 - 5*a*b^4*c^4*d^4 + 10*a^2*b^3*c^3*d
^5 - 10*a^3*b^2*c^2*d^6 + 5*a^4*b*c*d^7 - a^5*d^8) + 1/2*(3*a^2*b
^4*c^6 - 9*a^3*b^3*c^5*d - 9*a^5*b*c^3*d^3 + 3*a^6*c^2*d^4 + 2*(2
*b^6*c^5*d - 5*a*b^5*c^4*d^2 - 5*a^4*b^2*c*d^5 + 2*a^5*b*d^6)*x^3
 + (3*b^6*c^6 - a*b^5*c^5*d - 20*a^2*b^4*c^4*d^2 - 20*a^4*b^2*c^2
*d^4 - a^5*b*c*d^5 + 3*a^6*d^6)*x^2 + 2*(3*a*b^5*c^6 - 7*a^2*b^4*
c^5*d - 5*a^3*b^3*c^4*d^2 - 5*a^4*b^2*c^3*d^3 - 7*a^5*b*c^2*d^4 +
 3*a^6*c*d^5)*x)/(a^2*b^7*c^6*d^3 - 4*a^3*b^6*c^5*d^4 + 6*a^4*b^5
*c^4*d^5 - 4*a^5*b^4*c^3*d^6 + a^6*b^3*c^2*d^7 + (b^9*c^4*d^5 - 4
*a*b^8*c^3*d^6 + 6*a^2*b^7*c^2*d^7 - 4*a^3*b^6*c*d^8 + a^4*b^5*d^
9)*x^4 + 2*(b^9*c^5*d^4 - 3*a*b^8*c^4*d^5 + 2*a^2*b^7*c^3*d^6 + 2
*a^3*b^6*c^2*d^7 - 3*a^4*b^5*c*d^8 + a^5*b^4*d^9)*x^3 + (b^9*c^6*
d^3 - 9*a^2*b^7*c^4*d^5 + 16*a^3*b^6*c^3*d^6 - 9*a^4*b^5*c^2*d^7
+ a^6*b^3*d^9)*x^2 + 2*(a*b^8*c^6*d^3 - 3*a^2*b^7*c^5*d^4 + 2*a^3
```

```
*b^6*c^4*d^5 + 2*a^4*b^5*c^3*d^6 - 3*a^5*b^4*c^2*d^7 + a^6*b^3*c*
d^8)*x)
```

Fricas [A] time = 0.273908, size = 1710, normalized size = 8.03

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^5/((b*x + a)^3*(d*x + c)^3),x, algorithm="fricas")
```

```
[Out] 1/2*(3*a^2*b^5*c^7 - 12*a^3*b^4*c^6*d + 9*a^4*b^3*c^5*d^2 - 9*a^5
*b^2*c^4*d^3 + 12*a^6*b*c^3*d^4 - 3*a^7*c^2*d^5 + 2*(2*b^7*c^6*d
- 7*a*b^6*c^5*d^2 + 5*a^2*b^5*c^4*d^3 - 5*a^4*b^3*c^2*d^5 + 7*a^5
*b^2*c*d^6 - 2*a^6*b*d^7)*x^3 + (3*b^7*c^7 - 4*a*b^6*c^6*d - 19*a
^2*b^5*c^5*d^2 + 20*a^3*b^4*c^4*d^3 - 20*a^4*b^3*c^3*d^4 + 19*a^5
*b^2*c^2*d^5 + 4*a^6*b*c*d^6 - 3*a^7*d^7)*x^2 + 2*(3*a*b^6*c^7 -
10*a^2*b^5*c^6*d + 2*a^3*b^4*c^5*d^2 - 2*a^5*b^2*c^3*d^4 + 10*a^6
*b*c^2*d^5 - 3*a^7*c*d^6)*x - 2*(10*a^5*b^2*c^4*d^3 - 5*a^6*b*c^3
*d^4 + a^7*c^2*d^5 + (10*a^3*b^4*c^2*d^5 - 5*a^4*b^3*c*d^6 + a^5*
b^2*d^7)*x^4 + 2*(10*a^3*b^4*c^3*d^4 + 5*a^4*b^3*c^2*d^5 - 4*a^5*
b^2*c*d^6 + a^6*b*d^7)*x^3 + (10*a^3*b^4*c^4*d^3 + 35*a^4*b^3*c^3
*d^4 - 9*a^5*b^2*c^2*d^5 - a^6*b*c*d^6 + a^7*d^7)*x^2 + 2*(10*a^4
*b^3*c^4*d^3 + 5*a^5*b^2*c^3*d^4 - 4*a^6*b*c^2*d^5 + a^7*c*d^6)*x
)*log(b*x + a) + 2*(a^2*b^5*c^7 - 5*a^3*b^4*c^6*d + 10*a^4*b^3*c^
5*d^2 + (b^7*c^5*d^2 - 5*a*b^6*c^4*d^3 + 10*a^2*b^5*c^3*d^4)*x^4
+ 2*(b^7*c^6*d - 4*a*b^6*c^5*d^2 + 5*a^2*b^5*c^4*d^3 + 10*a^3*b^4
*c^3*d^4)*x^3 + (b^7*c^7 - a*b^6*c^6*d - 9*a^2*b^5*c^5*d^2 + 35*a
^3*b^4*c^4*d^3 + 10*a^4*b^3*c^3*d^4)*x^2 + 2*(a*b^6*c^7 - 4*a^2*b
^5*c^6*d + 5*a^3*b^4*c^5*d^2 + 10*a^4*b^3*c^4*d^3)*x)*log(d*x + c
))/(a^2*b^8*c^7*d^3 - 5*a^3*b^7*c^6*d^4 + 10*a^4*b^6*c^5*d^5 - 10
*a^5*b^5*c^4*d^6 + 5*a^6*b^4*c^3*d^7 - a^7*b^3*c^2*d^8 + (b^10*c^
5*d^5 - 5*a*b^9*c^4*d^6 + 10*a^2*b^8*c^3*d^7 - 10*a^3*b^7*c^2*d^8
 + 5*a^4*b^6*c*d^9 - a^5*b^5*d^10)*x^4 + 2*(b^10*c^6*d^4 - 4*a*b^
9*c^5*d^5 + 5*a^2*b^8*c^4*d^6 - 5*a^4*b^6*c^2*d^8 + 4*a^5*b^5*c*d
^9 - a^6*b^4*d^10)*x^3 + (b^10*c^7*d^3 - a*b^9*c^6*d^4 - 9*a^2*b^
8*c^5*d^5 + 25*a^3*b^7*c^4*d^6 - 25*a^4*b^6*c^3*d^7 + 9*a^5*b^5*c
^2*d^8 + a^6*b^4*c*d^9 - a^7*b^3*d^10)*x^2 + 2*(a*b^9*c^7*d^3 - 4
*a^2*b^8*c^6*d^4 + 5*a^3*b^7*c^5*d^5 - 5*a^5*b^5*c^3*d^7 + 4*a^6*
b^4*c^2*d^8 - a^7*b^3*c*d^9)*x)
```

Sympy [A] time = 47.7727, size = 1622, normalized size = 7.62

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**5/(b*x+a)**3/(d*x+c)**3,x)
```

```
[Out] a**3*(a**2*d**2 - 5*a*b*c*d + 10*b**2*c**2)*log(x + (a**9*d**8*(a
**2*d**2 - 5*a*b*c*d + 10*b**2*c**2)/(b*(a*d - b*c)**5) - 6*a**8*
c*d**7*(a**2*d**2 - 5*a*b*c*d + 10*b**2*c**2)/(a*d - b*c)**5 + 15
*a**7*b*c**2*d**6*(a**2*d**2 - 5*a*b*c*d + 10*b**2*c**2)/(a*d - b
*c)**5 - 20*a**6*b**2*c**3*d**5*(a**2*d**2 - 5*a*b*c*d + 10*b**2*
c**2)/(a*d - b*c)**5 + 15*a**5*b**3*c**4*d**4*(a**2*d**2 - 5*a*b*
c*d + 10*b**2*c**2)/(a*d - b*c)**5 + a**5*c*d**4 - 6*a**4*b**4*c*
*5*d**3*(a**2*d**2 - 5*a*b*c*d + 10*b**2*c**2)/(a*d - b*c)**5 - 5
*a**4*b*c**2*d**3 + a**3*b**5*c**6*d**2*(a**2*d**2 - 5*a*b*c*d +
10*b**2*c**2)/(a*d - b*c)**5 + 20*a**3*b**2*c**3*d**2 - 5*a**2*b*
*3*c**4*d + a*b**4*c**5)/(a**5*d**5 - 5*a**4*b*c*d**4 + 10*a**3*b
**2*c**2*d**3 + 10*a**2*b**3*c**3*d**2 - 5*a*b**4*c**4*d + b**5*c
**5))/(b**3*(a*d - b*c)**5) - c**3*(10*a**2*d**2 - 5*a*b*c*d + b*
*2*c**2)*log(x + (-a**6*b**2*c**3*d**5*(10*a**2*d**2 - 5*a*b*c*d
+ b**2*c**2)/(a*d - b*c)**5 + 6*a**5*b**3*c**4*d**4*(10*a**2*d**2
 - 5*a*b*c*d + b**2*c**2)/(a*d - b*c)**5 + a**5*c*d**4 - 15*a**4*
```

```
b**4*c**5*d**3*(10*a**2*d**2 - 5*a*b*c*d + b**2*c**2)/(a*d - b*c)
**5 - 5*a**4*b*c**2*d**3 + 20*a**3*b**5*c**6*d**2*(10*a**2*d**2 -
 5*a*b*c*d + b**2*c**2)/(a*d - b*c)**5 + 20*a**3*b**2*c**3*d**2 -
 15*a**2*b**6*c**7*d*(10*a**2*d**2 - 5*a*b*c*d + b**2*c**2)/(a*d
- b*c)**5 - 5*a**2*b**3*c**4*d + 6*a*b**7*c**8*(10*a**2*d**2 - 5*
a*b*c*d + b**2*c**2)/(a*d - b*c)**5 + a*b**4*c**5 - b**8*c**9*(10
*a**2*d**2 - 5*a*b*c*d + b**2*c**2)/(d*(a*d - b*c)**5))/(a**5*d**
5 - 5*a**4*b*c*d**4 + 10*a**3*b**2*c**2*d**3 + 10*a**2*b**3*c**3*
d**2 - 5*a*b**4*c**4*d + b**5*c**5))/(d**3*(a*d - b*c)**5) + (3*a
**6*c**2*d**4 - 9*a**5*b*c**3*d**3 - 9*a**3*b**3*c**5*d + 3*a**2*
b**4*c**6 + x**3*(4*a**5*b*d**6 - 10*a**4*b**2*c*d**5 - 10*a*b**5
*c**4*d**2 + 4*b**6*c**5*d) + x**2*(3*a**6*d**6 - a**5*b*c*d**5 -
 20*a**4*b**2*c**2*d**4 - 20*a**2*b**4*c**4*d**2 - a*b**5*c**5*d
+ 3*b**6*c**6) + x*(6*a**6*c*d**5 - 14*a**5*b*c**2*d**4 - 10*a**4
*b**2*c**3*d**3 - 10*a**3*b**3*c**4*d**2 - 14*a**2*b**4*c**5*d +
6*a*b**5*c**6))/(2*a**6*b**3*c**2*d**7 - 8*a**5*b**4*c**3*d**6 +
12*a**4*b**5*c**4*d**5 - 8*a**3*b**6*c**5*d**4 + 2*a**2*b**7*c**6
*d**3 + x**4*(2*a**4*b**5*d**9 - 8*a**3*b**6*c*d**8 + 12*a**2*b**
7*c**2*d**7 - 8*a*b**8*c**3*d**6 + 2*b**9*c**4*d**5) + x**3*(4*a*
*5*b**4*d**9 - 12*a**4*b**5*c*d**8 + 8*a**3*b**6*c**2*d**7 + 8*a*
*2*b**7*c**3*d**6 - 12*a*b**8*c**4*d**5 + 4*b**9*c**5*d**4) + x**
2*(2*a**6*b**3*d**9 - 18*a**4*b**5*c**2*d**7 + 32*a**3*b**6*c**3*
d**6 - 18*a**2*b**7*c**4*d**5 + 2*b**9*c**6*d**3) + x*(4*a**6*b**
3*c*d**8 - 12*a**5*b**4*c**2*d**7 + 8*a**4*b**5*c**3*d**6 + 8*a**
3*b**6*c**4*d**5 - 12*a**2*b**7*c**5*d**4 + 4*a*b**8*c**6*d**3))
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^5/((b*x + a)^3*(d*x + c)^3),x, algorithm="giac")
```

```
[Out] Exception raised: NotImplementedError
```

3.282 $\int \frac{x^4}{(a+bx)^3(c+dx)^3}\,dx$

Optimal. Leaf size=169

$$-\frac{a^4}{2b^2(a+bx)^2(bc-ad)^3}+\frac{a^3(4bc-ad)}{b^2(a+bx)(bc-ad)^4}+\frac{6a^2c^2\log(a+bx)}{(bc-ad)^5}-\frac{6a^2c^2\log(c+dx)}{(bc-ad)^5}+\frac{c^4}{2d^2(c+dx)^2(bc-ad)^3}-\frac{c^3(bc-4ad)}{d^2(c+dx)(bc-ad)^4}$$

```
[Out] -a^4/(2*b^2*(b*c - a*d)^3*(a + b*x)^2) + (a^3*(4*b*c - a*d))/(b^2
*(b*c - a*d)^4*(a + b*x)) + c^4/(2*d^2*(b*c - a*d)^3*(c + d*x)^2)
 - (c^3*(b*c - 4*a*d))/(d^2*(b*c - a*d)^4*(c + d*x)) + (6*a^2*c^2
*Log[a + b*x])/(b*c - a*d)^5 - (6*a^2*c^2*Log[c + d*x])/(b*c - a*
d)^5
```

Rubi [A] time = 0.402205, antiderivative size = 169, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{a^4}{2b^2(a+bx)^2(bc-ad)^3}+\frac{a^3(4bc-ad)}{b^2(a+bx)(bc-ad)^4}+\frac{6a^2c^2\log(a+bx)}{(bc-ad)^5}-\frac{6a^2c^2\log(c+dx)}{(bc-ad)^5}+\frac{c^4}{2d^2(c+dx)^2(bc-ad)^3}-\frac{c^3(bc-4ad)}{d^2(c+dx)(bc-ad)^4}$$

Antiderivative was successfully verified.

```
[In]  Int[x^4/((a + b*x)^3*(c + d*x)^3),x]
```

```
[Out] -a^4/(2*b^2*(b*c - a*d)^3*(a + b*x)^2) + (a^3*(4*b*c - a*d))/(b^2
*(b*c - a*d)^4*(a + b*x)) + c^4/(2*d^2*(b*c - a*d)^3*(c + d*x)^2)
 - (c^3*(b*c - 4*a*d))/(d^2*(b*c - a*d)^4*(c + d*x)) + (6*a^2*c^2
*Log[a + b*x])/(b*c - a*d)^5 - (6*a^2*c^2*Log[c + d*x])/(b*c - a*
d)^5
```

Rubi in Sympy [A] time = 97.3552, size = 151, normalized size = 0.89

$$\frac{a^4}{2b^2(a+bx)^2(ad-bc)^3}-\frac{a^3(ad-4bc)}{b^2(a+bx)(ad-bc)^4}-\frac{6a^2c^2\log(a+bx)}{(ad-bc)^5}+\frac{6a^2c^2\log(c+dx)}{(ad-bc)^5}-\frac{c^4}{2d^2(c+dx)^2(ad-bc)^3}+\frac{c^3(4ad-bc)}{d^2(c+dx)(ad-bc)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**4/(b*x+a)**3/(d*x+c)**3,x)
```

```
[Out] a**4/(2*b**2*(a + b*x)**2*(a*d - b*c)**3) - a**3*(a*d - 4*b*c)/(b
**2*(a + b*x)*(a*d - b*c)**4) - 6*a**2*c**2*log(a + b*x)/(a*d - b
*c)**5 + 6*a**2*c**2*log(c + d*x)/(a*d - b*c)**5 - c**4/(2*d**2*(
c + d*x)**2*(a*d - b*c)**3) + c**3*(4*a*d - b*c)/(d**2*(c + d*x)*
(a*d - b*c)**4)
```

Mathematica [A] time = 0.438368, size = 171, normalized size = 1.01

$$-\frac{a^4}{2b^2(a+bx)^2(bc-ad)^3}+\frac{6a^2c^2\log(a+bx)}{(bc-ad)^5}-\frac{6a^2c^2\log(c+dx)}{(bc-ad)^5}+\frac{4a^3bc-a^4d}{b^2(a+bx)(bc-ad)^4}-\frac{c^4}{2d^2(c+dx)^2(ad-bc)^3}-\frac{c^3(bc-4ad)}{d^2(c+dx)(ad-bc)^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^4/((a + b*x)^3*(c + d*x)^3),x]
```

```
[Out] -a^4/(2*b^2*(b*c - a*d)^3*(a + b*x)^2) + (4*a^3*b*c - a^4*d)/(b^2
*(b*c - a*d)^4*(a + b*x)) - c^4/(2*d^2*(-(b*c) + a*d)^3*(c + d*x)
^2) - (c^3*(b*c - 4*a*d))/(d^2*(-(b*c) + a*d)^4*(c + d*x)) + (6*a
^2*c^2*Log[a + b*x])/(b*c - a*d)^5 - (6*a^2*c^2*Log[c + d*x])/(b*
c - a*d)^5
```

Maple [A] time = 0.02, size = 204, normalized size = 1.2

$$-\frac{c^4}{2\,d^2\,(ad-bc)^3\,(dx+c)^2}+6\,\frac{a^2c^2\ln(dx+c)}{(ad-bc)^5}+4\,\frac{c^3a}{(ad-bc)^4\,d\,(dx+c)}-\frac{c^4b}{(ad-bc)^4\,d^2\,(dx+c)}-\frac{da^4}{(ad-bc)^4\,b^2\,(bx+a)}+4\,\frac{a^3c}{(ad-bc)^4\,b\,(bx+a)}+\frac{a^4}{2\,b^2\,(ad-bc)^3\,(bx+a)^2}-6\,\frac{a^2c^2\ln(bx+a)}{(ad-bc)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^4/(b*x+a)^3/(d*x+c)^3,x)
```

```
[Out] -1/2*c^4/d^2/(a*d-b*c)^3/(d*x+c)^2+6*c^2*a^2/(a*d-b*c)^5*ln(d*x+c
)+4*c^3/(a*d-b*c)^4/d/(d*x+c)*a-c^4/(a*d-b*c)^4/d^2/(d*x+c)*b-a^4
/(a*d-b*c)^4/b^2/(b*x+a)*d+4*a^3/(a*d-b*c)^4/b/(b*x+a)*c+1/2/b^2/
(a*d-b*c)^3*a^4/(b*x+a)^2-6*c^2*a^2/(a*d-b*c)^5*ln(b*x+a)
```

Maxima [A] time = 1.39971, size = 999, normalized size = 5.91

$$\frac{6\,a^2c^2\log(bx+a)}{b^5c^5-5\,ab^4c^4d+10\,a^2b^3c^3d^2-10\,a^3b^2c^2d^3+5\,a^4bcd^4-a^5d^5}-\frac{6\,a^2c^2\log(dx+c)}{b^5c^5-5\,ab^4c^4d+10\,a^2b^3c^3d^2-10\,a^3b^2c^2d^3+5\,a^4bcd^4-a^5d^5}-\frac{a^2b^3c^5-7\,a^3b^2c^4d-7\,a^4bc^3d^2+a^5c^2d^3+2\left(b^5c^4d-4\,ab^4c^3\right.}{2\left(a^2b^6c^6d^2-4\,a^3b^5c^5d^3+6\,a^4b^4c^4d^4-4\,a^5b^3c^3d^5+a^6b^2c^2d^6+(b^8c^4d^4-4\,ab^7c^3d^5+6\,a^2b^6c^2d^6-4\,a^3b^5cd^7+a^4b^4d^8)x^4\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^4/((b*x + a)^3*(d*x + c)^3),x, algorithm="maxima")
```

```
[Out] 6*a^2*c^2*log(b*x + a)/(b^5*c^5 - 5*a*b^4*c^4*d + 10*a^2*b^3*c^3*
d^2 - 10*a^3*b^2*c^2*d^3 + 5*a^4*b*c*d^4 - a^5*d^5) - 6*a^2*c^2*l
og(d*x + c)/(b^5*c^5 - 5*a*b^4*c^4*d + 10*a^2*b^3*c^3*d^2 - 10*a^
3*b^2*c^2*d^3 + 5*a^4*b*c*d^4 - a^5*d^5) - 1/2*(a^2*b^3*c^5 - 7*a
^3*b^2*c^4*d - 7*a^4*b*c^3*d^2 + a^5*c^2*d^3 + 2*(b^5*c^4*d - 4*a
*b^4*c^3*d^2 - 4*a^3*b^2*c*d^4 + a^4*b*d^5)*x^3 + (b^5*c^5 - 3*a*
b^4*c^4*d - 16*a^2*b^3*c^3*d^2 - 16*a^3*b^2*c^2*d^3 - 3*a^4*b*c*d
^4 + a^5*d^5)*x^2 + 2*(a*b^4*c^5 - 6*a^2*b^3*c^4*d - 8*a^3*b^2*c^
3*d^2 - 6*a^4*b*c^2*d^3 + a^5*c*d^4)*x)/(a^2*b^6*c^6*d^2 - 4*a^3*
b^5*c^5*d^3 + 6*a^4*b^4*c^4*d^4 - 4*a^5*b^3*c^3*d^5 + a^6*b^2*c^2
*d^6 + (b^8*c^4*d^4 - 4*a*b^7*c^3*d^5 + 6*a^2*b^6*c^2*d^6 - 4*a^3
*b^5*c*d^7 + a^4*b^4*d^8)*x^4 + 2*(b^8*c^5*d^3 - 3*a*b^7*c^4*d^4
+ 2*a^2*b^6*c^3*d^5 + 2*a^3*b^5*c^2*d^6 - 3*a^4*b^4*c*d^7 + a^5*b
^3*d^8)*x^3 + (b^8*c^6*d^2 - 9*a^2*b^6*c^4*d^4 + 16*a^3*b^5*c^3*d
^5 - 9*a^4*b^4*c^2*d^6 + a^6*b^2*d^8)*x^2 + 2*(a*b^7*c^6*d^2 - 3*
a^2*b^6*c^5*d^3 + 2*a^3*b^5*c^4*d^4 + 2*a^4*b^4*c^3*d^5 - 3*a^5*b
^3*c^2*d^6 + a^6*b^2*c*d^7)*x)
```

Fricas [A] time = 0.230256, size = 1330, normalized size = 7.87

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^4/((b*x + a)^3*(d*x + c)^3),x, algorithm="fricas")
```

```
[Out] -1/2*(a^2*b^4*c^6 - 8*a^3*b^3*c^5*d + 8*a^5*b*c^3*d^3 - a^6*c^2*d
^4 + 2*(b^6*c^5*d - 5*a*b^5*c^4*d^2 + 4*a^2*b^4*c^3*d^3 - 4*a^3*b
^3*c^2*d^4 + 5*a^4*b^2*c*d^5 - a^5*b*d^6)*x^3 + (b^6*c^6 - 4*a*b^
5*c^5*d - 13*a^2*b^4*c^4*d^2 + 13*a^4*b^2*c^2*d^4 + 4*a^5*b*c*d^5
 - a^6*d^6)*x^2 + 2*(a*b^5*c^6 - 7*a^2*b^4*c^5*d - 2*a^3*b^3*c^4*
d^2 + 2*a^4*b^2*c^3*d^3 + 7*a^5*b*c^2*d^4 - a^6*c*d^5)*x - 12*(a^
2*b^4*c^2*d^4*x^4 + a^4*b^2*c^4*d^2 + 2*(a^2*b^4*c^3*d^3 + a^3*b^
3*c^2*d^4)*x^3 + (a^2*b^4*c^4*d^2 + 4*a^3*b^3*c^3*d^3 + a^4*b^2*c
^2*d^4)*x^2 + 2*(a^3*b^3*c^4*d^2 + a^4*b^2*c^3*d^3)*x)*log(b*x +
a) + 12*(a^2*b^4*c^2*d^4*x^4 + a^4*b^2*c^4*d^2 + 2*(a^2*b^4*c^3*d
^3 + a^3*b^3*c^2*d^4)*x^3 + (a^2*b^4*c^4*d^2 + 4*a^3*b^3*c^3*d^3
+ a^4*b^2*c^2*d^4)*x^2 + 2*(a^3*b^3*c^4*d^2 + a^4*b^2*c^3*d^3)*x)
*log(d*x + c))/(a^2*b^7*c^7*d^2 - 5*a^3*b^6*c^6*d^3 + 10*a^4*b^5*
c^5*d^4 - 10*a^5*b^4*c^4*d^5 + 5*a^6*b^3*c^3*d^6 - a^7*b^2*c^2*d^
7 + (b^9*c^5*d^4 - 5*a*b^8*c^4*d^5 + 10*a^2*b^7*c^3*d^6 - 10*a^3*
b^6*c^2*d^7 + 5*a^4*b^5*c*d^8 - a^5*b^4*d^9)*x^4 + 2*(b^9*c^6*d^3
 - 4*a*b^8*c^5*d^4 + 5*a^2*b^7*c^4*d^5 - 5*a^4*b^5*c^2*d^7 + 4*a^
5*b^4*c*d^8 - a^6*b^3*d^9)*x^3 + (b^9*c^7*d^2 - a*b^8*c^6*d^3 - 9
*a^2*b^7*c^5*d^4 + 25*a^3*b^6*c^4*d^5 - 25*a^4*b^5*c^3*d^6 + 9*a^
5*b^4*c^2*d^7 + a^6*b^3*c*d^8 - a^7*b^2*d^9)*x^2 + 2*(a*b^8*c^7*d
^2 - 4*a^2*b^7*c^6*d^3 + 5*a^3*b^6*c^5*d^4 - 5*a^5*b^4*c^3*d^6 +
4*a^6*b^3*c^2*d^7 - a^7*b^2*c*d^8)*x)
```

Sympy [A] time = 23.2544, size = 1046, normalized size = 6.19

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**4/(b*x+a)**3/(d*x+c)**3,x)
```

```
[Out] 6*a**2*c**2*log(x + (-6*a**8*c**2*d**6/(a*d - b*c)**5 + 36*a**7*b
*c**3*d**5/(a*d - b*c)**5 - 90*a**6*b**2*c**4*d**4/(a*d - b*c)**5
 + 120*a**5*b**3*c**5*d**3/(a*d - b*c)**5 - 90*a**4*b**4*c**6*d**
2/(a*d - b*c)**5 + 36*a**3*b**5*c**7*d/(a*d - b*c)**5 + 6*a**3*c*
*2*d - 6*a**2*b**6*c**8/(a*d - b*c)**5 + 6*a**2*b*c**3)/(12*a**2*
b*c**2*d))/(a*d - b*c)**5 - 6*a**2*c**2*log(x + (6*a**8*c**2*d**6
/(a*d - b*c)**5 - 36*a**7*b*c**3*d**5/(a*d - b*c)**5 + 90*a**6*b*
*2*c**4*d**4/(a*d - b*c)**5 - 120*a**5*b**3*c**5*d**3/(a*d - b*c)
**5 + 90*a**4*b**4*c**6*d**2/(a*d - b*c)**5 - 36*a**3*b**5*c**7*d
/(a*d - b*c)**5 + 6*a**3*c**2*d + 6*a**2*b**6*c**8/(a*d - b*c)**5
 + 6*a**2*b*c**3)/(12*a**2*b*c**2*d))/(a*d - b*c)**5 - (a**5*c**2
*d**3 - 7*a**4*b*c**3*d**2 - 7*a**3*b**2*c**4*d + a**2*b**3*c**5
+ x**3*(2*a**4*b*d**5 - 8*a**3*b**2*c*d**4 - 8*a*b**4*c**3*d**2 +
 2*b**5*c**4*d) + x**2*(a**5*d**5 - 3*a**4*b*c*d**4 - 16*a**3*b**
2*c**2*d**3 - 16*a**2*b**3*c**3*d**2 - 3*a*b**4*c**4*d + b**5*c**
5) + x*(2*a**5*c*d**4 - 12*a**4*b*c**2*d**3 - 16*a**3*b**2*c**3*d
**2 - 12*a**2*b**3*c**4*d + 2*a*b**4*c**5))/(2*a**6*b**2*c**2*d**
6 - 8*a**5*b**3*c**3*d**5 + 12*a**4*b**4*c**4*d**4 - 8*a**3*b**5*
c**5*d**3 + 2*a**2*b**6*c**6*d**2 + x**4*(2*a**4*b**4*d**8 - 8*a*
*3*b**5*c*d**7 + 12*a**2*b**6*c**2*d**6 - 8*a*b**7*c**3*d**5 + 2*
b**8*c**4*d**4) + x**3*(4*a**5*b**3*d**8 - 12*a**4*b**4*c*d**7 +
8*a**3*b**5*c**2*d**6 + 8*a**2*b**6*c**3*d**5 - 12*a*b**7*c**4*d*
*4 + 4*b**8*c**5*d**3) + x**2*(2*a**6*b**2*d**8 - 18*a**4*b**4*c*
*2*d**6 + 32*a**3*b**5*c**3*d**5 - 18*a**2*b**6*c**4*d**4 + 2*b**
8*c**6*d**2) + x*(4*a**6*b**2*c*d**7 - 12*a**5*b**3*c**2*d**6 + 8
*a**4*b**4*c**3*d**5 + 8*a**3*b**5*c**4*d**4 - 12*a**2*b**6*c**5*
d**3 + 4*a*b**7*c**6*d**2))
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^4/((b*x + a)^3*(d*x + c)^3),x, algorithm="giac")
```

```
[Out] Exception raised: NotImplementedError
```

3.283 $\int \frac{x^3}{(a+bx)^3(c+dx)^3}\,dx$

Optimal. Leaf size=155

$$\frac{a^3}{2b(a+bx)^2(bc-ad)^3}-\frac{3a^2c}{(a+bx)(bc-ad)^4}-\frac{c^3}{2d(c+dx)^2(bc-ad)^3}-\frac{3ac^2}{(c+dx)(bc-ad)^4}-\frac{3ac(ad+bc)\log(a+bx)}{(bc-ad)^5}+\frac{3ac(ad+bc)\log(c+dx)}{(bc-ad)^5}$$

```
[Out] a^3/(2*b*(b*c - a*d)^3*(a + b*x)^2) - (3*a^2*c)/((b*c - a*d)^4*(a
 + b*x)) - c^3/(2*d*(b*c - a*d)^3*(c + d*x)^2) - (3*a*c^2)/((b*c
- a*d)^4*(c + d*x)) - (3*a*c*(b*c + a*d)*Log[a + b*x])/(b*c - a*d
)^5 + (3*a*c*(b*c + a*d)*Log[c + d*x])/(b*c - a*d)^5
```

Rubi [A] time = 0.357196, antiderivative size = 155, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{a^3}{2b(a+bx)^2(bc-ad)^3}-\frac{3a^2c}{(a+bx)(bc-ad)^4}-\frac{c^3}{2d(c+dx)^2(bc-ad)^3}-\frac{3ac^2}{(c+dx)(bc-ad)^4}-\frac{3ac(ad+bc)\log(a+bx)}{(bc-ad)^5}+\frac{3ac(ad+bc)\log(c+dx)}{(bc-ad)^5}$$

Antiderivative was successfully verified.

```
[In]  Int[x^3/((a + b*x)^3*(c + d*x)^3),x]
```

```
[Out] a^3/(2*b*(b*c - a*d)^3*(a + b*x)^2) - (3*a^2*c)/((b*c - a*d)^4*(a
 + b*x)) - c^3/(2*d*(b*c - a*d)^3*(c + d*x)^2) - (3*a*c^2)/((b*c
- a*d)^4*(c + d*x)) - (3*a*c*(b*c + a*d)*Log[a + b*x])/(b*c - a*d
)^5 + (3*a*c*(b*c + a*d)*Log[c + d*x])/(b*c - a*d)^5
```

Rubi in Sympy [A] time = 78.8252, size = 138, normalized size = 0.89

$$-\frac{a^3}{2b\left(a+bx\right)^2\left(ad-bc\right)^3}-\frac{3a^2c}{\left(a+bx\right)\left(ad-bc\right)^4}-\frac{3ac^2}{\left(c+dx\right)\left(ad-bc\right)^4}+\frac{3ac\left(ad+bc\right)\log\left(a+bx\right)}{\left(ad-bc\right)^5}-\frac{3ac\left(ad+bc\right)\log\left(c+dx\right)}{\left(ad-bc\right)^5}+\frac{c^3}{2d\left(c+dx\right)^2\left(ad-bc\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3/(b*x+a)**3/(d*x+c)**3,x)
```

```
[Out] -a**3/(2*b*(a + b*x)**2*(a*d - b*c)**3) - 3*a**2*c/((a + b*x)*(a*
d - b*c)**4) - 3*a*c**2/((c + d*x)*(a*d - b*c)**4) + 3*a*c*(a*d +
 b*c)*log(a + b*x)/(a*d - b*c)**5 - 3*a*c*(a*d + b*c)*log(c + d*x
)/(a*d - b*c)**5 + c**3/(2*d*(c + d*x)**2*(a*d - b*c)**3)
```

Mathematica [A] time = 0.54028, size = 153, normalized size = 0.99

$$\frac{1}{2}\left(\frac{a^3}{b(a+bx)^2(bc-ad)^3}-\frac{6a^2c}{(a+bx)(bc-ad)^4}+\frac{c^3}{d(c+dx)^2(ad-bc)^3}-\frac{6ac^2}{(c+dx)(bc-ad)^4}-\frac{6ac(ad+bc)\log(a+bx)}{(bc-ad)^5}+\frac{6ac(ad+bc)\log(c+dx)}{(bc-ad)^5}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^3/((a + b*x)^3*(c + d*x)^3),x]
```

```
[Out] (a^3/(b*(b*c - a*d)^3*(a + b*x)^2) - (6*a^2*c)/((b*c - a*d)^4*(a
+ b*x)) + c^3/(d*(-(b*c) + a*d)^3*(c + d*x)^2) - (6*a*c^2)/((b*c
- a*d)^4*(c + d*x)) - (6*a*c*(b*c + a*d)*Log[a + b*x])/(b*c - a*d
)^5 + (6*a*c*(b*c + a*d)*Log[c + d*x])/(b*c - a*d)^5)/2
```

Maple [A] time = 0.022, size = 190, normalized size = 1.2

$$\frac{c^3}{2\,(ad-bc)^3\,d\,(dx+c)^2}-3\,\frac{c^2a}{(ad-bc)^4\,(dx+c)}-3\,\frac{a^2c\ln(dx+c)\,d}{(ad-bc)^5}-3\,\frac{c^2a\ln(dx+c)\,b}{(ad-bc)^5}-\frac{a^3}{2\,(ad-bc)^3\,b\,(bx+a)^2}-3\,\frac{a^2c}{(ad-bc)^4\,(bx+a)}+3\,\frac{a^2c\ln(bx+a)\,d}{(ad-bc)^5}+3\,\frac{c^2a\ln(bx+a)\,b}{(ad-bc)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^3/(b*x+a)^3/(d*x+c)^3,x)
```

```
[Out] 1/2*c^3/(a*d-b*c)^3/d/(d*x+c)^2-3*c^2*a/(a*d-b*c)^4/(d*x+c)-3*c*a
^2/(a*d-b*c)^5*ln(d*x+c)*d-3*c^2*a/(a*d-b*c)^5*ln(d*x+c)*b-1/2/(a
*d-b*c)^3*a^3/b/(b*x+a)^2-3*a^2*c/(a*d-b*c)^4/(b*x+a)+3*c*a^2/(a*
d-b*c)^5*ln(b*x+a)*d+3*c^2*a/(a*d-b*c)^5*ln(b*x+a)*b
```

Maxima [A] time = 1.40328, size = 921, normalized size = 5.94

$$-\frac{3\left(abc^2+a^2cd\right)\log(bx+a)}{b^5c^5-5\,ab^4c^4d+10\,a^2b^3c^3d^2-10\,a^3b^2c^2d^3+5\,a^4bcd^4-a^5d^5}+\frac{3\left(abc^2+a^2cd\right)\log(dx+c)}{b^5c^5-5\,ab^4c^4d+10\,a^2b^3c^3d^2-10\,a^3b^2c^2d^3+5\,a^4bcd^4-a^5d^5}-\frac{a^2b^2c^4+10\,a^3bc^3d+a^4c^2d^2+6\,(}{2\,(a^2b^5c^6d-4\,a^3b^4c^5d^2+6\,a^4b^3c^4d^3-4\,a^5b^2c^3d^4+a^6bc^2d^5+(b^7c^4d^3-4\,ab^6c^3d^4+6\,a^2b^5c^2d^5-4\,a^3b^4cd^6+a^4b^3d^7)x^4+}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^3/((b*x + a)^3*(d*x + c)^3),x, algorithm="maxima")
```

```
[Out] -3*(a*b*c^2 + a^2*c*d)*log(b*x + a)/(b^5*c^5 - 5*a*b^4*c^4*d + 10
*a^2*b^3*c^3*d^2 - 10*a^3*b^2*c^2*d^3 + 5*a^4*b*c*d^4 - a^5*d^5)
+ 3*(a*b*c^2 + a^2*c*d)*log(d*x + c)/(b^5*c^5 - 5*a*b^4*c^4*d + 1
0*a^2*b^3*c^3*d^2 - 10*a^3*b^2*c^2*d^3 + 5*a^4*b*c*d^4 - a^5*d^5)
 - 1/2*(a^2*b^2*c^4 + 10*a^3*b*c^3*d + a^4*c^2*d^2 + 6*(a*b^3*c^2
*d^2 + a^2*b^2*c*d^3)*x^3 + (b^4*c^4 + 5*a*b^3*c^3*d + 24*a^2*b^2
*c^2*d^2 + 5*a^3*b*c*d^3 + a^4*d^4)*x^2 + 2*(a*b^3*c^4 + 8*a^2*b^
2*c^3*d + 8*a^3*b*c^2*d^2 + a^4*c*d^3)*x)/(a^2*b^5*c^6*d - 4*a^3*
b^4*c^5*d^2 + 6*a^4*b^3*c^4*d^3 - 4*a^5*b^2*c^3*d^4 + a^6*b*c^2*d
^5 + (b^7*c^4*d^3 - 4*a*b^6*c^3*d^4 + 6*a^2*b^5*c^2*d^5 - 4*a^3*b
^4*c*d^6 + a^4*b^3*d^7)*x^4 + 2*(b^7*c^5*d^2 - 3*a*b^6*c^4*d^3 +
2*a^2*b^5*c^3*d^4 + 2*a^3*b^4*c^2*d^5 - 3*a^4*b^3*c*d^6 + a^5*b^2
*d^7)*x^3 + (b^7*c^6*d - 9*a^2*b^5*c^4*d^3 + 16*a^3*b^4*c^3*d^4 -
 9*a^4*b^3*c^2*d^5 + a^6*b*d^7)*x^2 + 2*(a*b^6*c^6*d - 3*a^2*b^5*
c^5*d^2 + 2*a^3*b^4*c^4*d^3 + 2*a^4*b^3*c^3*d^4 - 3*a^5*b^2*c^2*d
^5 + a^6*b*c*d^6)*x)
```

Fricas [A] time = 0.232716, size = 1338, normalized size = 8.63

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^3/((b*x + a)^3*(d*x + c)^3),x, algorithm="fricas")
```

```
[Out] -1/2*(a^2*b^3*c^5 + 9*a^3*b^2*c^4*d - 9*a^4*b*c^3*d^2 - a^5*c^2*d
^3 + 6*(a*b^4*c^3*d^2 - a^3*b^2*c*d^4)*x^3 + (b^5*c^5 + 4*a*b^4*c
^4*d + 19*a^2*b^3*c^3*d^2 - 19*a^3*b^2*c^2*d^3 - 4*a^4*b*c*d^4 -
a^5*d^5)*x^2 + 2*(a*b^4*c^5 + 7*a^2*b^3*c^4*d - 7*a^4*b*c^2*d^3 -
 a^5*c*d^4)*x + 6*(a^3*b^2*c^4*d + a^4*b*c^3*d^2 + (a*b^4*c^2*d^3
 + a^2*b^3*c*d^4)*x^4 + 2*(a*b^4*c^3*d^2 + 2*a^2*b^3*c^2*d^3 + a^
3*b^2*c*d^4)*x^3 + (a*b^4*c^4*d + 5*a^2*b^3*c^3*d^2 + 5*a^3*b^2*c
^2*d^3 + a^4*b*c*d^4)*x^2 + 2*(a^2*b^3*c^4*d + 2*a^3*b^2*c^3*d^2
+ a^4*b*c^2*d^3)*x)*log(b*x + a) - 6*(a^3*b^2*c^4*d + a^4*b*c^3*d
^2 + (a*b^4*c^2*d^3 + a^2*b^3*c*d^4)*x^4 + 2*(a*b^4*c^3*d^2 + 2*a
^2*b^3*c^2*d^3 + a^3*b^2*c*d^4)*x^3 + (a*b^4*c^4*d + 5*a^2*b^3*c^
3*d^2 + 5*a^3*b^2*c^2*d^3 + a^4*b*c*d^4)*x^2 + 2*(a^2*b^3*c^4*d +
 2*a^3*b^2*c^3*d^2 + a^4*b*c^2*d^3)*x)*log(d*x + c))/(a^2*b^6*c^7
*d - 5*a^3*b^5*c^6*d^2 + 10*a^4*b^4*c^5*d^3 - 10*a^5*b^3*c^4*d^4
+ 5*a^6*b^2*c^3*d^5 - a^7*b*c^2*d^6 + (b^8*c^5*d^3 - 5*a*b^7*c^4*
d^4 + 10*a^2*b^6*c^3*d^5 - 10*a^3*b^5*c^2*d^6 + 5*a^4*b^4*c*d^7 -
 a^5*b^3*d^8)*x^4 + 2*(b^8*c^6*d^2 - 4*a*b^7*c^5*d^3 + 5*a^2*b^6*
c^4*d^4 - 5*a^4*b^4*c^2*d^6 + 4*a^5*b^3*c*d^7 - a^6*b^2*d^8)*x^3
+ (b^8*c^7*d - a*b^7*c^6*d^2 - 9*a^2*b^6*c^5*d^3 + 25*a^3*b^5*c^4
*d^4 - 25*a^4*b^4*c^3*d^5 + 9*a^5*b^3*c^2*d^6 + a^6*b^2*c*d^7 - a
^7*b*d^8)*x^2 + 2*(a*b^7*c^7*d - 4*a^2*b^6*c^6*d^2 + 5*a^3*b^5*c^
5*d^3 - 5*a^5*b^3*c^3*d^5 + 4*a^6*b^2*c^2*d^6 - a^7*b*c*d^7)*x)
```

Sympy [A] time = 19.8449, size = 1112, normalized size = 7.17

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**3/(b*x+a)**3/(d*x+c)**3,x)
```

```
[Out] -3*a*c*(a*d + b*c)*log(x + (-3*a**7*c*d**6*(a*d + b*c)/(a*d - b*c
)**5 + 18*a**6*b*c**2*d**5*(a*d + b*c)/(a*d - b*c)**5 - 45*a**5*b
**2*c**3*d**4*(a*d + b*c)/(a*d - b*c)**5 + 60*a**4*b**3*c**4*d**3
*(a*d + b*c)/(a*d - b*c)**5 - 45*a**3*b**4*c**5*d**2*(a*d + b*c)/
(a*d - b*c)**5 + 3*a**3*c*d**2 + 18*a**2*b**5*c**6*d*(a*d + b*c)/
(a*d - b*c)**5 + 6*a**2*b*c**2*d - 3*a*b**6*c**7*(a*d + b*c)/(a*d
 - b*c)**5 + 3*a*b**2*c**3)/(6*a**2*b*c*d**2 + 6*a*b**2*c**2*d))/
(a*d - b*c)**5 + 3*a*c*(a*d + b*c)*log(x + (3*a**7*c*d**6*(a*d +
b*c)/(a*d - b*c)**5 - 18*a**6*b*c**2*d**5*(a*d + b*c)/(a*d - b*c)
**5 + 45*a**5*b**2*c**3*d**4*(a*d + b*c)/(a*d - b*c)**5 - 60*a**4
*b**3*c**4*d**3*(a*d + b*c)/(a*d - b*c)**5 + 45*a**3*b**4*c**5*d*
*2*(a*d + b*c)/(a*d - b*c)**5 + 3*a**3*c*d**2 - 18*a**2*b**5*c**6
*d*(a*d + b*c)/(a*d - b*c)**5 + 6*a**2*b*c**2*d + 3*a*b**6*c**7*(
a*d + b*c)/(a*d - b*c)**5 + 3*a*b**2*c**3)/(6*a**2*b*c*d**2 + 6*a
*b**2*c**2*d))/(a*d - b*c)**5 - (a**4*c**2*d**2 + 10*a**3*b*c**3*
d + a**2*b**2*c**4 + x**3*(6*a**2*b**2*c*d**3 + 6*a*b**3*c**2*d**
2) + x**2*(a**4*d**4 + 5*a**3*b*c*d**3 + 24*a**2*b**2*c**2*d**2 +
 5*a*b**3*c**3*d + b**4*c**4) + x*(2*a**4*c*d**3 + 16*a**3*b*c**2
*d**2 + 16*a**2*b**2*c**3*d + 2*a*b**3*c**4))/(2*a**6*b*c**2*d**5
 - 8*a**5*b**2*c**3*d**4 + 12*a**4*b**3*c**4*d**3 - 8*a**3*b**4*c
**5*d**2 + 2*a**2*b**5*c**6*d + x**4*(2*a**4*b**3*d**7 - 8*a**3*b
**4*c*d**6 + 12*a**2*b**5*c**2*d**5 - 8*a*b**6*c**3*d**4 + 2*b**7
*c**4*d**3) + x**3*(4*a**5*b**2*d**7 - 12*a**4*b**3*c*d**6 + 8*a*
*3*b**4*c**2*d**5 + 8*a**2*b**5*c**3*d**4 - 12*a*b**6*c**4*d**3 +
 4*b**7*c**5*d**2) + x**2*(2*a**6*b*d**7 - 18*a**4*b**3*c**2*d**5
 + 32*a**3*b**4*c**3*d**4 - 18*a**2*b**5*c**4*d**3 + 2*b**7*c**6*
d) + x*(4*a**6*b*c*d**6 - 12*a**5*b**2*c**2*d**5 + 8*a**4*b**3*c*
*3*d**4 + 8*a**3*b**4*c**4*d**3 - 12*a**2*b**5*c**5*d**2 + 4*a*b*
*6*c**6*d))
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^3/((b*x + a)^3*(d*x + c)^3),x, algorithm="giac")
```

```
[Out] Exception raised: NotImplementedError
```

3.284 $\int \frac{x^2}{(a+bx)^3(c+dx)^3} \, dx$

Optimal. Leaf size=180

$$\frac{(a^2d^2+4abcd+b^2c^2)\log(a+bx)}{(bc-ad)^5}-\frac{(a^2d^2+4abcd+b^2c^2)\log(c+dx)}{(bc-ad)^5}-\frac{a^2}{2(a+bx)^2(bc-ad)^3}+\frac{c^2}{2(c+dx)^2(bc-ad)^3}+\frac{a(ad+2bc)}{(a+bx)(bc-ad)^4}+\frac{c(2ad+bc)}{(c+dx)(bc-ad)^4}$$

```
[Out] -a^2/(2*(b*c - a*d)^3*(a + b*x)^2) + (a*(2*b*c + a*d))/((b*c - a*
d)^4*(a + b*x)) + c^2/(2*(b*c - a*d)^3*(c + d*x)^2) + (c*(b*c + 2
*a*d))/((b*c - a*d)^4*(c + d*x)) + ((b^2*c^2 + 4*a*b*c*d + a^2*d^
2)*Log[a + b*x])/(b*c - a*d)^5 - ((b^2*c^2 + 4*a*b*c*d + a^2*d^2)
*Log[c + d*x])/(b*c - a*d)^5
```

Rubi [A] time = 0.366659, antiderivative size = 180, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{(a^2d^2+4abcd+b^2c^2)\log(a+bx)}{(bc-ad)^5}-\frac{(a^2d^2+4abcd+b^2c^2)\log(c+dx)}{(bc-ad)^5}-\frac{a^2}{2(a+bx)^2(bc-ad)^3}+\frac{c^2}{2(c+dx)^2(bc-ad)^3}+\frac{a(ad+2bc)}{(a+bx)(bc-ad)^4}+\frac{c(2ad+bc)}{(c+dx)(bc-ad)^4}$$

Antiderivative was successfully verified.

```
[In]  Int[x^2/((a + b*x)^3*(c + d*x)^3),x]
```

```
[Out] -a^2/(2*(b*c - a*d)^3*(a + b*x)^2) + (a*(2*b*c + a*d))/((b*c - a*
d)^4*(a + b*x)) + c^2/(2*(b*c - a*d)^3*(c + d*x)^2) + (c*(b*c + 2
*a*d))/((b*c - a*d)^4*(c + d*x)) + ((b^2*c^2 + 4*a*b*c*d + a^2*d^
2)*Log[a + b*x])/(b*c - a*d)^5 - ((b^2*c^2 + 4*a*b*c*d + a^2*d^2)
*Log[c + d*x])/(b*c - a*d)^5
```

Rubi in Sympy [A] time = 86.8179, size = 162, normalized size = 0.9

$$\frac{a^2}{2\left(a+bx\right)^2\left(ad-bc\right)^3}+\frac{a\left(ad+2bc\right)}{\left(a+bx\right)\left(ad-bc\right)^4}-\frac{c^2}{2\left(c+dx\right)^2\left(ad-bc\right)^3}+\frac{c\left(2ad+bc\right)}{\left(c+dx\right)\left(ad-bc\right)^4}-\frac{(a^2d^2+4abcd+b^2c^2)\log\left(a+bx\right)}{\left(ad-bc\right)^5}+\frac{(a^2d^2+4abcd+b^2c^2)\log\left(c+dx\right)}{\left(ad-bc\right)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2/(b*x+a)**3/(d*x+c)**3,x)
```

```
[Out] a**2/(2*(a + b*x)**2*(a*d - b*c)**3) + a*(a*d + 2*b*c)/((a + b*x)
*(a*d - b*c)**4) - c**2/(2*(c + d*x)**2*(a*d - b*c)**3) + c*(2*a*
d + b*c)/((c + d*x)*(a*d - b*c)**4) - (a**2*d**2 + 4*a*b*c*d + b*
*2*c**2)*log(a + b*x)/(a*d - b*c)**5 + (a**2*d**2 + 4*a*b*c*d + b
**2*c**2)*log(c + d*x)/(a*d - b*c)**5
```

Mathematica [A] time = 0.26788, size = 168, normalized size = 0.93

$$\frac{2\left(a^2d^2+4abcd+b^2c^2\right)\log(a+bx)-2\left(a^2d^2+4abcd+b^2c^2\right)\log(c+dx)-\frac{a^2(bc-ad)^2}{(a+bx)^2}+\frac{c^2(bc-ad)^2}{(c+dx)^2}+\frac{2a(ad+2bc)(bc-ad)}{a+bx}+\frac{2c(2}{}}{2(bc-ad)^5}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^2/((a + b*x)^3*(c + d*x)^3),x]
```

```
[Out] (-((a^2*(b*c - a*d)^2)/(a + b*x)^2) + (2*a*(b*c - a*d)*(2*b*c + a
*d))/(a + b*x) + (c^2*(b*c - a*d)^2)/(c + d*x)^2 + (2*c*(b*c - a*
d)*(b*c + 2*a*d))/(c + d*x) + 2*(b^2*c^2 + 4*a*b*c*d + a^2*d^2)*L
og[a + b*x] - 2*(b^2*c^2 + 4*a*b*c*d + a^2*d^2)*Log[c + d*x])/(2*
(b*c - a*d)^5)
```

Maple [A] time = 0.022, size = 272, normalized size = 1.5

$$-\frac{c^2}{2\,(ad-bc)^3\,(dx+c)^2}+\frac{\ln(dx+c)\,a^2d^2}{(ad-bc)^5}+4\,\frac{\ln(dx+c)\,abcd}{(ad-bc)^5}+\frac{\ln(dx+c)\,b^2c^2}{(ad-bc)^5}+2\,\frac{acd}{(ad-bc)^4\,(dx+c)}+\frac{c^2b}{(ad-bc)^4\,(dx+c)}+\frac{a^2}{2\,(ad-bc)^3\,(bx+a)^2}-\frac{\ln(bx+a)\,a^2d^2}{(ad-bc)^5}-4\,\frac{\ln(bx+a)\,abcd}{(ad-bc)^5}-\frac{\ln(bx+a)\,b^2c^2}{(ad-bc)^5}+\frac{a^2d}{(ad-bc)^4\,(bx+a)}+2\,\frac{abc}{(ad-bc)^4\,(bx+a)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2/(b*x+a)^3/(d*x+c)^3,x)
```

```
[Out] -1/2*c^2/(a*d-b*c)^3/(d*x+c)^2+1/(a*d-b*c)^5*ln(d*x+c)*a^2*d^2+4/
(a*d-b*c)^5*ln(d*x+c)*a*b*c*d+1/(a*d-b*c)^5*ln(d*x+c)*b^2*c^2+2*c
/(a*d-b*c)^4/(d*x+c)*a*d+c^2/(a*d-b*c)^4/(d*x+c)*b+1/2/(a*d-b*c)^
3*a^2/(b*x+a)^2-1/(a*d-b*c)^5*ln(b*x+a)*a^2*d^2-4/(a*d-b*c)^5*ln(
b*x+a)*a*b*c*d-1/(a*d-b*c)^5*ln(b*x+a)*b^2*c^2+a^2/(a*d-b*c)^4/(b
*x+a)*d+2*a/(a*d-b*c)^4/(b*x+a)*b*c
```

Maxima [A] time = 1.41306, size = 872, normalized size = 4.84

$$\frac{\left(b^2c^2+4\,abcd+a^2d^2\right)\log(bx+a)}{b^5c^5-5\,ab^4c^4d+10\,a^2b^3c^3d^2-10\,a^3b^2c^2d^3+5\,a^4bcd^4-a^5d^5}-\frac{\left(b^2c^2+4\,abcd+a^2d^2\right)\log(dx+c)}{b^5c^5-5\,ab^4c^4d+10\,a^2b^3c^3d^2-10\,a^3b^2c^2d^3+5\,a^4bcd^4-a^5d^5}+\frac{6\,a^2bc^3+6\,a^3c^2d+2\,\left(b^3c^2a\right.}{2\,(a^2b^4c^6-4\,a^3b^3c^5d+6\,a^4b^2c^4d^2-4\,a^5bc^3d^3+a^6c^2d^4+(b^6c^4d^2-4\,ab^5c^3d^3+6\,a^2b^4c^2d^4-4\,a^3b^3cd^5+a^4b^2d^6)x^4+2\,(b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2/((b*x + a)^3*(d*x + c)^3),x, algorithm="maxima")
```

```
[Out] (b^2*c^2 + 4*a*b*c*d + a^2*d^2)*log(b*x + a)/(b^5*c^5 - 5*a*b^4*c
^4*d + 10*a^2*b^3*c^3*d^2 - 10*a^3*b^2*c^2*d^3 + 5*a^4*b*c*d^4 -
a^5*d^5) - (b^2*c^2 + 4*a*b*c*d + a^2*d^2)*log(d*x + c)/(b^5*c^5
- 5*a*b^4*c^4*d + 10*a^2*b^3*c^3*d^2 - 10*a^3*b^2*c^2*d^3 + 5*a^4
*b*c*d^4 - a^5*d^5) + 1/2*(6*a^2*b*c^3 + 6*a^3*c^2*d + 2*(b^3*c^2
*d + 4*a*b^2*c*d^2 + a^2*b*d^3)*x^3 + 3*(b^3*c^3 + 5*a*b^2*c^2*d
+ 5*a^2*b*c*d^2 + a^3*d^3)*x^2 + 2*(5*a*b^2*c^3 + 8*a^2*b*c^2*d +
 5*a^3*c*d^2)*x)/(a^2*b^4*c^6 - 4*a^3*b^3*c^5*d + 6*a^4*b^2*c^4*d
^2 - 4*a^5*b*c^3*d^3 + a^6*c^2*d^4 + (b^6*c^4*d^2 - 4*a*b^5*c^3*d
^3 + 6*a^2*b^4*c^2*d^4 - 4*a^3*b^3*c*d^5 + a^4*b^2*d^6)*x^4 + 2*(
b^6*c^5*d - 3*a*b^5*c^4*d^2 + 2*a^2*b^4*c^3*d^3 + 2*a^3*b^3*c^2*d
^4 - 3*a^4*b^2*c*d^5 + a^5*b*d^6)*x^3 + (b^6*c^6 - 9*a^2*b^4*c^4*
d^2 + 16*a^3*b^3*c^3*d^3 - 9*a^4*b^2*c^2*d^4 + a^6*d^6)*x^2 + 2*(
a*b^5*c^6 - 3*a^2*b^4*c^5*d + 2*a^3*b^3*c^4*d^2 + 2*a^4*b^2*c^3*d
^3 - 3*a^5*b*c^2*d^4 + a^6*c*d^5)*x)
```

Fricas [A] time = 0.236636, size = 1337, normalized size = 7.43

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2/((b*x + a)^3*(d*x + c)^3),x, algorithm="fricas")
```

```
[Out] 1/2*(6*a^2*b^2*c^4 - 6*a^4*c^2*d^2 + 2*(b^4*c^3*d + 3*a*b^3*c^2*d
^2 - 3*a^2*b^2*c*d^3 - a^3*b*d^4)*x^3 + 3*(b^4*c^4 + 4*a*b^3*c^3*
d - 4*a^3*b*c*d^3 - a^4*d^4)*x^2 + 2*(5*a*b^3*c^4 + 3*a^2*b^2*c^3
*d - 3*a^3*b*c^2*d^2 - 5*a^4*c*d^3)*x + 2*(a^2*b^2*c^4 + 4*a^3*b*
c^3*d + a^4*c^2*d^2 + (b^4*c^2*d^2 + 4*a*b^3*c*d^3 + a^2*b^2*d^4)
*x^4 + 2*(b^4*c^3*d + 5*a*b^3*c^2*d^2 + 5*a^2*b^2*c*d^3 + a^3*b*d
^4)*x^3 + (b^4*c^4 + 8*a*b^3*c^3*d + 18*a^2*b^2*c^2*d^2 + 8*a^3*b
*c*d^3 + a^4*d^4)*x^2 + 2*(a*b^3*c^4 + 5*a^2*b^2*c^3*d + 5*a^3*b*
c^2*d^2 + a^4*c*d^3)*x)*log(b*x + a) - 2*(a^2*b^2*c^4 + 4*a^3*b*c
^3*d + a^4*c^2*d^2 + (b^4*c^2*d^2 + 4*a*b^3*c*d^3 + a^2*b^2*d^4)*
x^4 + 2*(b^4*c^3*d + 5*a*b^3*c^2*d^2 + 5*a^2*b^2*c*d^3 + a^3*b*d^
4)*x^3 + (b^4*c^4 + 8*a*b^3*c^3*d + 18*a^2*b^2*c^2*d^2 + 8*a^3*b*
c*d^3 + a^4*d^4)*x^2 + 2*(a*b^3*c^4 + 5*a^2*b^2*c^3*d + 5*a^3*b*c
^2*d^2 + a^4*c*d^3)*x)*log(d*x + c))/(a^2*b^5*c^7 - 5*a^3*b^4*c^6
*d + 10*a^4*b^3*c^5*d^2 - 10*a^5*b^2*c^4*d^3 + 5*a^6*b*c^3*d^4 -
a^7*c^2*d^5 + (b^7*c^5*d^2 - 5*a*b^6*c^4*d^3 + 10*a^2*b^5*c^3*d^4
 - 10*a^3*b^4*c^2*d^5 + 5*a^4*b^3*c*d^6 - a^5*b^2*d^7)*x^4 + 2*(b
^7*c^6*d - 4*a*b^6*c^5*d^2 + 5*a^2*b^5*c^4*d^3 - 5*a^4*b^3*c^2*d^
5 + 4*a^5*b^2*c*d^6 - a^6*b*d^7)*x^3 + (b^7*c^7 - a*b^6*c^6*d - 9
*a^2*b^5*c^5*d^2 + 25*a^3*b^4*c^4*d^3 - 25*a^4*b^3*c^3*d^4 + 9*a^
5*b^2*c^2*d^5 + a^6*b*c*d^6 - a^7*d^7)*x^2 + 2*(a*b^6*c^7 - 4*a^2
*b^5*c^6*d + 5*a^3*b^4*c^5*d^2 - 5*a^5*b^2*c^3*d^4 + 4*a^6*b*c^2*
d^5 - a^7*c*d^6)*x)
```

Sympy [A] time = 19.1782, size = 1299, normalized size = 7.22

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2/(b*x+a)**3/(d*x+c)**3,x)
```

```
[Out] (6*a**3*c**2*d + 6*a**2*b*c**3 + x**3*(2*a**2*b*d**3 + 8*a*b**2*c
*d**2 + 2*b**3*c**2*d) + x**2*(3*a**3*d**3 + 15*a**2*b*c*d**2 + 1
5*a*b**2*c**2*d + 3*b**3*c**3) + x*(10*a**3*c*d**2 + 16*a**2*b*c*
*2*d + 10*a*b**2*c**3))/(2*a**6*c**2*d**4 - 8*a**5*b*c**3*d**3 +
12*a**4*b**2*c**4*d**2 - 8*a**3*b**3*c**5*d + 2*a**2*b**4*c**6 +
x**4*(2*a**4*b**2*d**6 - 8*a**3*b**3*c*d**5 + 12*a**2*b**4*c**2*d
**4 - 8*a*b**5*c**3*d**3 + 2*b**6*c**4*d**2) + x**3*(4*a**5*b*d**
6 - 12*a**4*b**2*c*d**5 + 8*a**3*b**3*c**2*d**4 + 8*a**2*b**4*c**
3*d**3 - 12*a*b**5*c**4*d**2 + 4*b**6*c**5*d) + x**2*(2*a**6*d**6
 - 18*a**4*b**2*c**2*d**4 + 32*a**3*b**3*c**3*d**3 - 18*a**2*b**4
*c**4*d**2 + 2*b**6*c**6) + x*(4*a**6*c*d**5 - 12*a**5*b*c**2*d**
4 + 8*a**4*b**2*c**3*d**3 + 8*a**3*b**3*c**4*d**2 - 12*a**2*b**4*
c**5*d + 4*a*b**5*c**6)) + (a**2*d**2 + 4*a*b*c*d + b**2*c**2)*lo
g(x + (-a**6*d**6*(a**2*d**2 + 4*a*b*c*d + b**2*c**2)/(a*d - b*c)
**5 + 6*a**5*b*c*d**5*(a**2*d**2 + 4*a*b*c*d + b**2*c**2)/(a*d -
b*c)**5 - 15*a**4*b**2*c**2*d**4*(a**2*d**2 + 4*a*b*c*d + b**2*c*
*2)/(a*d - b*c)**5 + 20*a**3*b**3*c**3*d**3*(a**2*d**2 + 4*a*b*c*
d + b**2*c**2)/(a*d - b*c)**5 + a**3*d**3 - 15*a**2*b**4*c**4*d**
2*(a**2*d**2 + 4*a*b*c*d + b**2*c**2)/(a*d - b*c)**5 + 5*a**2*b*c
*d**2 + 6*a*b**5*c**5*d*(a**2*d**2 + 4*a*b*c*d + b**2*c**2)/(a*d
- b*c)**5 + 5*a*b**2*c**2*d - b**6*c**6*(a**2*d**2 + 4*a*b*c*d +
b**2*c**2)/(a*d - b*c)**5 + b**3*c**3)/(2*a**2*b*d**3 + 8*a*b**2*
c*d**2 + 2*b**3*c**2*d))/(a*d - b*c)**5 - (a**2*d**2 + 4*a*b*c*d
+ b**2*c**2)*log(x + (a**6*d**6*(a**2*d**2 + 4*a*b*c*d + b**2*c**
2)/(a*d - b*c)**5 - 6*a**5*b*c*d**5*(a**2*d**2 + 4*a*b*c*d + b**2
*c**2)/(a*d - b*c)**5 + 15*a**4*b**2*c**2*d**4*(a**2*d**2 + 4*a*b
*c*d + b**2*c**2)/(a*d - b*c)**5 - 20*a**3*b**3*c**3*d**3*(a**2*d
**2 + 4*a*b*c*d + b**2*c**2)/(a*d - b*c)**5 + a**3*d**3 + 15*a**2
*b**4*c**4*d**2*(a**2*d**2 + 4*a*b*c*d + b**2*c**2)/(a*d - b*c)**
5 + 5*a**2*b*c*d**2 - 6*a*b**5*c**5*d*(a**2*d**2 + 4*a*b*c*d + b*
*2*c**2)/(a*d - b*c)**5 + 5*a*b**2*c**2*d + b**6*c**6*(a**2*d**2
+ 4*a*b*c*d + b**2*c**2)/(a*d - b*c)**5 + b**3*c**3)/(2*a**2*b*d*
*3 + 8*a*b**2*c*d**2 + 2*b**3*c**2*d))/(a*d - b*c)**5
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2/((b*x + a)^3*(d*x + c)^3),x, algorithm="giac")
```

```
[Out] Exception raised: NotImplementedError
```

3.285 $\int \frac{x}{(a+bx)^3(c+dx)^3} dx$

Optimal. Leaf size=157

$$-\frac{b(2ad+bc)}{(a+bx)(bc-ad)^4}+\frac{ab}{2(a+bx)^2(bc-ad)^3}-\frac{d(ad+2bc)}{(c+dx)(bc-ad)^4}-\frac{cd}{2(c+dx)^2(bc-ad)^3}-\frac{3bd(ad+bc)\log(a+bx)}{(bc-ad)^5}+\frac{3bd(ad+bc)\log(c+dx)}{(bc-ad)^5}$$

```
[Out] (a*b)/(2*(b*c - a*d)^3*(a + b*x)^2) - (b*(b*c + 2*a*d))/((b*c - a
*d)^4*(a + b*x)) - (c*d)/(2*(b*c - a*d)^3*(c + d*x)^2) - (d*(2*b*
c + a*d))/((b*c - a*d)^4*(c + d*x)) - (3*b*d*(b*c + a*d)*Log[a +
b*x])/(b*c - a*d)^5 + (3*b*d*(b*c + a*d)*Log[c + d*x])/(b*c - a*d
)^5
```

Rubi [A] time = 0.311724, antiderivative size = 157, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}} = 0.062$

$$-\frac{b(2ad+bc)}{(a+bx)(bc-ad)^4}+\frac{ab}{2(a+bx)^2(bc-ad)^3}-\frac{d(ad+2bc)}{(c+dx)(bc-ad)^4}-\frac{cd}{2(c+dx)^2(bc-ad)^3}-\frac{3bd(ad+bc)\log(a+bx)}{(bc-ad)^5}+\frac{3bd(ad+bc)\log(c+dx)}{(bc-ad)^5}$$

Antiderivative was successfully verified.

```
[In]  Int[x/((a + b*x)^3*(c + d*x)^3),x]
```

```
[Out] (a*b)/(2*(b*c - a*d)^3*(a + b*x)^2) - (b*(b*c + 2*a*d))/((b*c - a
*d)^4*(a + b*x)) - (c*d)/(2*(b*c - a*d)^3*(c + d*x)^2) - (d*(2*b*
c + a*d))/((b*c - a*d)^4*(c + d*x)) - (3*b*d*(b*c + a*d)*Log[a +
b*x])/(b*c - a*d)^5 + (3*b*d*(b*c + a*d)*Log[c + d*x])/(b*c - a*d
)^5
```

Rubi in Sympy [A] time = 77.5712, size = 141, normalized size = 0.9

$$-\frac{ab}{2(a+bx)^2(ad-bc)^3}+\frac{3bd(ad+bc)\log(a+bx)}{(ad-bc)^5}-\frac{3bd(ad+bc)\log(c+dx)}{(ad-bc)^5}-\frac{b(2ad+bc)}{(a+bx)(ad-bc)^4}+\frac{cd}{2(c+dx)^2(ad-bc)^3}-\frac{d(ad+2bc)}{(c+dx)(ad-bc)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x/(b*x+a)**3/(d*x+c)**3,x)
```

```
[Out] -a*b/(2*(a + b*x)**2*(a*d - b*c)**3) + 3*b*d*(a*d + b*c)*log(a +
b*x)/(a*d - b*c)**5 - 3*b*d*(a*d + b*c)*log(c + d*x)/(a*d - b*c)*
*5 - b*(2*a*d + b*c)/((a + b*x)*(a*d - b*c)**4) + c*d/(2*(c + d*x
)**2*(a*d - b*c)**3) - d*(a*d + 2*b*c)/((c + d*x)*(a*d - b*c)**4)
```

Mathematica [A] time = 0.260098, size = 142, normalized size = 0.9

$$\frac{\frac{ab(bc-ad)^2}{(a+bx)^2}-\frac{cd(bc-ad)^2}{(c+dx)^2}-\frac{2b(2ad+bc)(bc-ad)}{a+bx}+\frac{2d(ad-bc)(ad+2bc)}{c+dx}-6bd(ad+bc)\log(a+bx)+6bd(ad+bc)\log(c+dx)}{2(bc-ad)^5}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x/((a + b*x)^3*(c + d*x)^3),x]
```

```
[Out] ((a*b*(b*c - a*d)^2)/(a + b*x)^2 - (2*b*(b*c - a*d)*(b*c + 2*a*d)
)/(a + b*x) - (c*d*(b*c - a*d)^2)/(c + d*x)^2 + (2*d*(-(b*c) + a*
d)*(2*b*c + a*d))/(c + d*x) - 6*b*d*(b*c + a*d)*Log[a + b*x] + 6*
b*d*(b*c + a*d)*Log[c + d*x])/(2*(b*c - a*d)^5)
```

Maple [A] time = 0.02, size = 226, normalized size = 1.4

$$-\frac{d^2a}{(ad-bc)^4(dx+c)}-2\frac{bdc}{(ad-bc)^4(dx+c)}+\frac{cd}{2(ad-bc)^3(dx+c)^2}-3\frac{d^2b\ln(dx+c)a}{(ad-bc)^5}-3\frac{b^2d\ln(dx+c)c}{(ad-bc)^5}-\frac{ab}{2(ad-bc)^3(bx+a)^2}-2\frac{abd}{(ad-bc)^4(bx+a)}-\frac{b^2c}{(ad-bc)^4(bx+a)}+3\frac{d^2b\ln(bx+a)a}{(ad-bc)^5}+3\frac{b^2d\ln(bx+a)c}{(ad-bc)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x/(b*x+a)^3/(d*x+c)^3,x)
```

```
[Out] -d^2/(a*d-b*c)^4/(d*x+c)*a-2*d/(a*d-b*c)^4/(d*x+c)*b*c+1/2*c*d/(a
*d-b*c)^3/(d*x+c)^2-3*d^2*b/(a*d-b*c)^5*ln(d*x+c)*a-3*d*b^2/(a*d-
b*c)^5*ln(d*x+c)*c-1/2*b/(a*d-b*c)^3*a/(b*x+a)^2-2*b/(a*d-b*c)^4/
(b*x+a)*a*d-b^2/(a*d-b*c)^4/(b*x+a)*c+3*d^2*b/(a*d-b*c)^5*ln(b*x+
a)*a+3*d*b^2/(a*d-b*c)^5*ln(b*x+a)*c
```

Maxima [A] time = 1.38963, size = 846, normalized size = 5.39

$$-\frac{3\left(b^2cd+abd^2\right)\log(bx+a)}{b^5c^5-5\,ab^4c^4d+10\,a^2b^3c^3d^2-10\,a^3b^2c^2d^3+5\,a^4bcd^4-a^5d^5}+\frac{3\left(b^2cd+abd^2\right)\log(dx+c)}{b^5c^5-5\,ab^4c^4d+10\,a^2b^3c^3d^2-10\,a^3b^2c^2d^3+5\,a^4bcd^4-a^5d^5}-\frac{ab^2c^3+10\,a^2bc^2d+a^3c\cdots}{2\left(a^2b^4c^6-4\,a^3b^3c^5d+6\,a^4b^2c^4d^2-4\,a^5bc^3d^3+a^6c^2d^4+\left(b^6c^4d^2-4\,ab^5c^3d^3+6\,a^2b^4c^2d^4-4\,a^3b^3cd^5+a^4b^2d^6\right)x^4+2\left(b\cdots\right.\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/((b*x + a)^3*(d*x + c)^3),x, algorithm="maxima")
```

```
[Out] -3*(b^2*c*d + a*b*d^2)*log(b*x + a)/(b^5*c^5 - 5*a*b^4*c^4*d + 10
*a^2*b^3*c^3*d^2 - 10*a^3*b^2*c^2*d^3 + 5*a^4*b*c*d^4 - a^5*d^5)
+ 3*(b^2*c*d + a*b*d^2)*log(d*x + c)/(b^5*c^5 - 5*a*b^4*c^4*d + 1
0*a^2*b^3*c^3*d^2 - 10*a^3*b^2*c^2*d^3 + 5*a^4*b*c*d^4 - a^5*d^5)
 - 1/2*(a*b^2*c^3 + 10*a^2*b*c^2*d + a^3*c*d^2 + 6*(b^3*c*d^2 + a
*b^2*d^3)*x^3 + 9*(b^3*c^2*d + 2*a*b^2*c*d^2 + a^2*b*d^3)*x^2 + 2
*(b^3*c^3 + 8*a*b^2*c^2*d + 8*a^2*b*c*d^2 + a^3*d^3)*x)/(a^2*b^4*
c^6 - 4*a^3*b^3*c^5*d + 6*a^4*b^2*c^4*d^2 - 4*a^5*b*c^3*d^3 + a^6
*c^2*d^4 + (b^6*c^4*d^2 - 4*a*b^5*c^3*d^3 + 6*a^2*b^4*c^2*d^4 - 4
*a^3*b^3*c*d^5 + a^4*b^2*d^6)*x^4 + 2*(b^6*c^5*d - 3*a*b^5*c^4*d^
2 + 2*a^2*b^4*c^3*d^3 + 2*a^3*b^3*c^2*d^4 - 3*a^4*b^2*c*d^5 + a^5
*b*d^6)*x^3 + (b^6*c^6 - 9*a^2*b^4*c^4*d^2 + 16*a^3*b^3*c^3*d^3 -
 9*a^4*b^2*c^2*d^4 + a^6*d^6)*x^2 + 2*(a*b^5*c^6 - 3*a^2*b^4*c^5*
d + 2*a^3*b^3*c^4*d^2 + 2*a^4*b^2*c^3*d^3 - 3*a^5*b*c^2*d^4 + a^6
*c*d^5)*x)
```

Fricas [A] time = 0.230147, size = 1203, normalized size = 7.66

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/((b*x + a)^3*(d*x + c)^3),x, algorithm="fricas")
```

```
[Out] -1/2*(a*b^3*c^4 + 9*a^2*b^2*c^3*d - 9*a^3*b*c^2*d^2 - a^4*c*d^3 +
 6*(b^4*c^2*d^2 - a^2*b^2*d^4)*x^3 + 9*(b^4*c^3*d + a*b^3*c^2*d^2
 - a^2*b^2*c*d^3 - a^3*b*d^4)*x^2 + 2*(b^4*c^4 + 7*a*b^3*c^3*d -
7*a^3*b*c*d^3 - a^4*d^4)*x + 6*(a^2*b^2*c^3*d + a^3*b*c^2*d^2 + (
b^4*c*d^3 + a*b^3*d^4)*x^4 + 2*(b^4*c^2*d^2 + 2*a*b^3*c*d^3 + a^2
*b^2*d^4)*x^3 + (b^4*c^3*d + 5*a*b^3*c^2*d^2 + 5*a^2*b^2*c*d^3 +
a^3*b*d^4)*x^2 + 2*(a*b^3*c^3*d + 2*a^2*b^2*c^2*d^2 + a^3*b*c*d^3
)*x)*log(b*x + a) - 6*(a^2*b^2*c^3*d + a^3*b*c^2*d^2 + (b^4*c*d^3
 + a*b^3*d^4)*x^4 + 2*(b^4*c^2*d^2 + 2*a*b^3*c*d^3 + a^2*b^2*d^4)
*x^3 + (b^4*c^3*d + 5*a*b^3*c^2*d^2 + 5*a^2*b^2*c*d^3 + a^3*b*d^4
)*x^2 + 2*(a*b^3*c^3*d + 2*a^2*b^2*c^2*d^2 + a^3*b*c*d^3)*x)*log(
d*x + c))/(a^2*b^5*c^7 - 5*a^3*b^4*c^6*d + 10*a^4*b^3*c^5*d^2 - 1
0*a^5*b^2*c^4*d^3 + 5*a^6*b*c^3*d^4 - a^7*c^2*d^5 + (b^7*c^5*d^2
- 5*a*b^6*c^4*d^3 + 10*a^2*b^5*c^3*d^4 - 10*a^3*b^4*c^2*d^5 + 5*a
^4*b^3*c*d^6 - a^5*b^2*d^7)*x^4 + 2*(b^7*c^6*d - 4*a*b^6*c^5*d^2
+ 5*a^2*b^5*c^4*d^3 - 5*a^4*b^3*c^2*d^5 + 4*a^5*b^2*c*d^6 - a^6*b
*d^7)*x^3 + (b^7*c^7 - a*b^6*c^6*d - 9*a^2*b^5*c^5*d^2 + 25*a^3*b
^4*c^4*d^3 - 25*a^4*b^3*c^3*d^4 + 9*a^5*b^2*c^2*d^5 + a^6*b*c*d^6
 - a^7*d^7)*x^2 + 2*(a*b^6*c^7 - 4*a^2*b^5*c^6*d + 5*a^3*b^4*c^5*
d^2 - 5*a^5*b^2*c^3*d^4 + 4*a^6*b*c^2*d^5 - a^7*c*d^6)*x)
```

Sympy [A] time = 18.5963, size = 1047, normalized size = 6.67

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/(b*x+a)**3/(d*x+c)**3,x)
```

```
[Out] -3*b*d*(a*d + b*c)*log(x + (-3*a**6*b*d**7*(a*d + b*c)/(a*d - b*c
)**5 + 18*a**5*b**2*c*d**6*(a*d + b*c)/(a*d - b*c)**5 - 45*a**4*b
**3*c**2*d**5*(a*d + b*c)/(a*d - b*c)**5 + 60*a**3*b**4*c**3*d**4
*(a*d + b*c)/(a*d - b*c)**5 - 45*a**2*b**5*c**4*d**3*(a*d + b*c)/
(a*d - b*c)**5 + 3*a**2*b*d**3 + 18*a*b**6*c**5*d**2*(a*d + b*c)/
(a*d - b*c)**5 + 6*a*b**2*c*d**2 - 3*b**7*c**6*d*(a*d + b*c)/(a*d
 - b*c)**5 + 3*b**3*c**2*d)/(6*a*b**2*d**3 + 6*b**3*c*d**2))/(a*d
 - b*c)**5 + 3*b*d*(a*d + b*c)*log(x + (3*a**6*b*d**7*(a*d + b*c)
/(a*d - b*c)**5 - 18*a**5*b**2*c*d**6*(a*d + b*c)/(a*d - b*c)**5
+ 45*a**4*b**3*c**2*d**5*(a*d + b*c)/(a*d - b*c)**5 - 60*a**3*b**
4*c**3*d**4*(a*d + b*c)/(a*d - b*c)**5 + 45*a**2*b**5*c**4*d**3*(
a*d + b*c)/(a*d - b*c)**5 + 3*a**2*b*d**3 - 18*a*b**6*c**5*d**2*(
a*d + b*c)/(a*d - b*c)**5 + 6*a*b**2*c*d**2 + 3*b**7*c**6*d*(a*d
+ b*c)/(a*d - b*c)**5 + 3*b**3*c**2*d)/(6*a*b**2*d**3 + 6*b**3*c*
d**2))/(a*d - b*c)**5 - (a**3*c*d**2 + 10*a**2*b*c**2*d + a*b**2*
c**3 + x**3*(6*a*b**2*d**3 + 6*b**3*c*d**2) + x**2*(9*a**2*b*d**3
 + 18*a*b**2*c*d**2 + 9*b**3*c**2*d) + x*(2*a**3*d**3 + 16*a**2*b
*c*d**2 + 16*a*b**2*c**2*d + 2*b**3*c**3))/(2*a**6*c**2*d**4 - 8*
a**5*b*c**3*d**3 + 12*a**4*b**2*c**4*d**2 - 8*a**3*b**3*c**5*d +
2*a**2*b**4*c**6 + x**4*(2*a**4*b**2*d**6 - 8*a**3*b**3*c*d**5 +
12*a**2*b**4*c**2*d**4 - 8*a*b**5*c**3*d**3 + 2*b**6*c**4*d**2) +
 x**3*(4*a**5*b*d**6 - 12*a**4*b**2*c*d**5 + 8*a**3*b**3*c**2*d**
4 + 8*a**2*b**4*c**3*d**3 - 12*a*b**5*c**4*d**2 + 4*b**6*c**5*d)
+ x**2*(2*a**6*d**6 - 18*a**4*b**2*c**2*d**4 + 32*a**3*b**3*c**3*
d**3 - 18*a**2*b**4*c**4*d**2 + 2*b**6*c**6) + x*(4*a**6*c*d**5 -
 12*a**5*b*c**2*d**4 + 8*a**4*b**2*c**3*d**3 + 8*a**3*b**3*c**4*d
**2 - 12*a**2*b**4*c**5*d + 4*a*b**5*c**6))
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/((b*x + a)^3*(d*x + c)^3),x, algorithm="giac")

[Out] Exception raised: NotImplementedError
```

3.286 $\int \frac{1}{(a+bx)^3(c+dx)^3}\,dx$

Optimal. Leaf size=143

$$\frac{6b^2d^2\log(a+bx)}{(bc-ad)^5}-\frac{6b^2d^2\log(c+dx)}{(bc-ad)^5}+\frac{3b^2d}{(a+bx)(bc-ad)^4}-\frac{b^2}{2(a+bx)^2(bc-ad)^3}+\frac{3bd^2}{(c+dx)(bc-ad)^4}+\frac{d^2}{2(c+dx)^2(bc-ad)^3}$$

```
[Out] -b^2/(2*(b*c - a*d)^3*(a + b*x)^2) + (3*b^2*d)/((b*c - a*d)^4*(a
+ b*x)) + d^2/(2*(b*c - a*d)^3*(c + d*x)^2) + (3*b*d^2)/((b*c - a
*d)^4*(c + d*x)) + (6*b^2*d^2*Log[a + b*x])/(b*c - a*d)^5 - (6*b^
2*d^2*Log[c + d*x])/(b*c - a*d)^5
```

Rubi [A] time = 0.222495, antiderivative size = 143, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.067

$$\frac{6b^2d^2\log(a+bx)}{(bc-ad)^5}-\frac{6b^2d^2\log(c+dx)}{(bc-ad)^5}+\frac{3b^2d}{(a+bx)(bc-ad)^4}-\frac{b^2}{2(a+bx)^2(bc-ad)^3}+\frac{3bd^2}{(c+dx)(bc-ad)^4}+\frac{d^2}{2(c+dx)^2(bc-ad)^3}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((a + b*x)^3*(c + d*x)^3),x]
```

```
[Out] -b^2/(2*(b*c - a*d)^3*(a + b*x)^2) + (3*b^2*d)/((b*c - a*d)^4*(a
+ b*x)) + d^2/(2*(b*c - a*d)^3*(c + d*x)^2) + (3*b*d^2)/((b*c - a
*d)^4*(c + d*x)) + (6*b^2*d^2*Log[a + b*x])/(b*c - a*d)^5 - (6*b^
2*d^2*Log[c + d*x])/(b*c - a*d)^5
```

Rubi in Sympy [A] time = 73.8338, size = 128, normalized size = 0.9

$$-\frac{6b^2d^2\log(a+bx)}{(ad-bc)^5}+\frac{6b^2d^2\log(c+dx)}{(ad-bc)^5}+\frac{3b^2d}{(a+bx)(ad-bc)^4}+\frac{b^2}{2(a+bx)^2(ad-bc)^3}+\frac{3bd^2}{(c+dx)(ad-bc)^4}-\frac{d^2}{2(c+dx)^2(ad-bc)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(b*x+a)**3/(d*x+c)**3,x)
```

```
[Out] -6*b**2*d**2*log(a + b*x)/(a*d - b*c)**5 + 6*b**2*d**2*log(c + d*
x)/(a*d - b*c)**5 + 3*b**2*d/((a + b*x)*(a*d - b*c)**4) + b**2/(2
*(a + b*x)**2*(a*d - b*c)**3) + 3*b*d**2/((c + d*x)*(a*d - b*c)**
4) - d**2/(2*(c + d*x)**2*(a*d - b*c)**3)
```

Mathematica [A] time = 0.173046, size = 128, normalized size = 0.9

$$\frac{\frac{6b^2d(bc-ad)}{a+bx}-\frac{b^2(bc-ad)^2}{(a+bx)^2}+12b^2d^2\log(a+bx)+\frac{6bd^2(bc-ad)}{c+dx}+\frac{d^2(bc-ad)^2}{(c+dx)^2}-12b^2d^2\log(c+dx)}{2(bc-ad)^5}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((a + b*x)^3*(c + d*x)^3),x]
```

```
[Out] (-((b^2*(b*c - a*d)^2)/(a + b*x)^2) + (6*b^2*d*(b*c - a*d))/(a +
b*x) + (d^2*(b*c - a*d)^2)/(c + d*x)^2 + (6*b*d^2*(b*c - a*d))/(c
 + d*x) + 12*b^2*d^2*Log[a + b*x] - 12*b^2*d^2*Log[c + d*x])/(2*(
b*c - a*d)^5)
```

Maple [A] time = 0.001, size = 140, normalized size = 1.

$$-\frac{d^2}{2\,(ad-bc)^3\,(dx+c)^2}+6\,\frac{d^2b^2\ln(dx+c)}{(ad-bc)^5}+3\,\frac{d^2b}{(ad-bc)^4\,(dx+c)}+\frac{b^2}{2\,(ad-bc)^3\,(bx+a)^2}-6\,\frac{d^2b^2\ln(bx+a)}{(ad-bc)^5}+3\,\frac{b^2d}{(ad-bc)^4\,(bx+a)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(b*x+a)^3/(d*x+c)^3,x)
```

```
[Out] -1/2*d^2/(a*d-b*c)^3/(d*x+c)^2+6*d^2/(a*d-b*c)^5*b^2*ln(d*x+c)+3*
d^2/(a*d-b*c)^4*b/(d*x+c)+1/2*b^2/(a*d-b*c)^3/(b*x+a)^2-6*d^2/(a*
d-b*c)^5*b^2*ln(b*x+a)+3*b^2/(a*d-b*c)^4*d/(b*x+a)
```

Maxima [A] time = 1.3725, size = 802, normalized size = 5.61

$$\frac{6\,b^2d^2\log(bx+a)}{b^5c^5-5\,ab^4c^4d+10\,a^2b^3c^3d^2-10\,a^3b^2c^2d^3+5\,a^4bcd^4-a^5d^5}-\frac{6\,b^2d^2\log(dx+c)}{b^5c^5-5\,ab^4c^4d+10\,a^2b^3c^3d^2-10\,a^3b^2c^2d^3+5\,a^4bcd^4-a^5d^5}+\frac{12\,b^3d^3x^3-b^3}{2\,(a^2b^4c^6-4\,a^3b^3c^5d+6\,a^4b^2c^4d^2-4\,a^5bc^3d^3+a^6c^2d^4+(b^6c^4d^2-4\,ab^5c^3d^3+6\,a^2b^4c^2d^4-4\,a^3b^3cd^5+a^4b^2d^6)x^4+2\,(b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^3*(d*x + c)^3),x, algorithm="maxima")
```

```
[Out] 6*b^2*d^2*log(b*x + a)/(b^5*c^5 - 5*a*b^4*c^4*d + 10*a^2*b^3*c^3*
d^2 - 10*a^3*b^2*c^2*d^3 + 5*a^4*b*c*d^4 - a^5*d^5) - 6*b^2*d^2*l
og(d*x + c)/(b^5*c^5 - 5*a*b^4*c^4*d + 10*a^2*b^3*c^3*d^2 - 10*a^
3*b^2*c^2*d^3 + 5*a^4*b*c*d^4 - a^5*d^5) + 1/2*(12*b^3*d^3*x^3 -
b^3*c^3 + 7*a*b^2*c^2*d + 7*a^2*b*c*d^2 - a^3*d^3 + 18*(b^3*c*d^2
 + a*b^2*d^3)*x^2 + 4*(b^3*c^2*d + 7*a*b^2*c*d^2 + a^2*b*d^3)*x)/
(a^2*b^4*c^6 - 4*a^3*b^3*c^5*d + 6*a^4*b^2*c^4*d^2 - 4*a^5*b*c^3*
d^3 + a^6*c^2*d^4 + (b^6*c^4*d^2 - 4*a*b^5*c^3*d^3 + 6*a^2*b^4*c^
2*d^4 - 4*a^3*b^3*c*d^5 + a^4*b^2*d^6)*x^4 + 2*(b^6*c^5*d - 3*a*b
^5*c^4*d^2 + 2*a^2*b^4*c^3*d^3 + 2*a^3*b^3*c^2*d^4 - 3*a^4*b^2*c*
d^5 + a^5*b*d^6)*x^3 + (b^6*c^6 - 9*a^2*b^4*c^4*d^2 + 16*a^3*b^3*
c^3*d^3 - 9*a^4*b^2*c^2*d^4 + a^6*d^6)*x^2 + 2*(a*b^5*c^6 - 3*a^2
*b^4*c^5*d + 2*a^3*b^3*c^4*d^2 + 2*a^4*b^2*c^3*d^3 - 3*a^5*b*c^2*
d^4 + a^6*c*d^5)*x)
```

Fricas [A] time = 0.22737, size = 1026, normalized size = 7.17

$$-\frac{b^4c^4-8\,ab^3c^3d+8\,a^3bcd^3-a^4d^4-12\,(b^4cd^3-ab^3d^4)\,x^3-18\,(b^4c^2d^2-a^2b^2d^4)\,x^2-4\,(b^4c^3d+6\,ab^3c^2d^2-6\,a^2b^2}{2\,(a^2b^5c^7-5\,a^3b^4c^6d+10\,a^4b^3c^5d^2-10\,a^5b^2c^4d^3+5\,a^6bc^3d^4-a^7c^2d^5+(b^7c^5d^2-5\,ab^6c^4d^3+10\,a^2b^5c^3d^4-10\,a^3b^4c^2d^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^3*(d*x + c)^3),x, algorithm="fricas")
```

```
[Out] -1/2*(b^4*c^4 - 8*a*b^3*c^3*d + 8*a^3*b*c*d^3 - a^4*d^4 - 12*(b^4
*c*d^3 - a*b^3*d^4)*x^3 - 18*(b^4*c^2*d^2 - a^2*b^2*d^4)*x^2 - 4*
```

```
(b^4*c^3*d + 6*a*b^3*c^2*d^2 - 6*a^2*b^2*c*d^3 - a^3*b*d^4)*x - 1
2*(b^4*d^4*x^4 + a^2*b^2*c^2*d^2 + 2*(b^4*c*d^3 + a*b^3*d^4)*x^3
+ (b^4*c^2*d^2 + 4*a*b^3*c*d^3 + a^2*b^2*d^4)*x^2 + 2*(a*b^3*c^2*
d^2 + a^2*b^2*c*d^3)*x)*log(b*x + a) + 12*(b^4*d^4*x^4 + a^2*b^2*
c^2*d^2 + 2*(b^4*c*d^3 + a*b^3*d^4)*x^3 + (b^4*c^2*d^2 + 4*a*b^3*
c*d^3 + a^2*b^2*d^4)*x^2 + 2*(a*b^3*c^2*d^2 + a^2*b^2*c*d^3)*x)*l
og(d*x + c))/(a^2*b^5*c^7 - 5*a^3*b^4*c^6*d + 10*a^4*b^3*c^5*d^2
- 10*a^5*b^2*c^4*d^3 + 5*a^6*b*c^3*d^4 - a^7*c^2*d^5 + (b^7*c^5*d
^2 - 5*a*b^6*c^4*d^3 + 10*a^2*b^5*c^3*d^4 - 10*a^3*b^4*c^2*d^5 +
5*a^4*b^3*c*d^6 - a^5*b^2*d^7)*x^4 + 2*(b^7*c^6*d - 4*a*b^6*c^5*d
^2 + 5*a^2*b^5*c^4*d^3 - 5*a^4*b^3*c^2*d^5 + 4*a^5*b^2*c*d^6 - a^
6*b*d^7)*x^3 + (b^7*c^7 - a*b^6*c^6*d - 9*a^2*b^5*c^5*d^2 + 25*a^
3*b^4*c^4*d^3 - 25*a^4*b^3*c^3*d^4 + 9*a^5*b^2*c^2*d^5 + a^6*b*c*
d^6 - a^7*d^7)*x^2 + 2*(a*b^6*c^7 - 4*a^2*b^5*c^6*d + 5*a^3*b^4*c
^5*d^2 - 5*a^5*b^2*c^3*d^4 + 4*a^6*b*c^2*d^5 - a^7*c*d^6)*x)
```

Sympy [A] time = 16.5969, size = 881, normalized size = 6.16

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(b*x+a)**3/(d*x+c)**3,x)
```

```
[Out] 6*b**2*d**2*log(x + (-6*a**6*b**2*d**8/(a*d - b*c)**5 + 36*a**5*b
**3*c*d**7/(a*d - b*c)**5 - 90*a**4*b**4*c**2*d**6/(a*d - b*c)**5
 + 120*a**3*b**5*c**3*d**5/(a*d - b*c)**5 - 90*a**2*b**6*c**4*d**
4/(a*d - b*c)**5 + 36*a*b**7*c**5*d**3/(a*d - b*c)**5 + 6*a*b**2*
d**3 - 6*b**8*c**6*d**2/(a*d - b*c)**5 + 6*b**3*c*d**2)/(12*b**3*
d**3))/(a*d - b*c)**5 - 6*b**2*d**2*log(x + (6*a**6*b**2*d**8/(a*
d - b*c)**5 - 36*a**5*b**3*c*d**7/(a*d - b*c)**5 + 90*a**4*b**4*c
**2*d**6/(a*d - b*c)**5 - 120*a**3*b**5*c**3*d**5/(a*d - b*c)**5
+ 90*a**2*b**6*c**4*d**4/(a*d - b*c)**5 - 36*a*b**7*c**5*d**3/(a*
d - b*c)**5 + 6*a*b**2*d**3 + 6*b**8*c**6*d**2/(a*d - b*c)**5 + 6
*b**3*c*d**2)/(12*b**3*d**3))/(a*d - b*c)**5 + (-a**3*d**3 + 7*a*
*2*b*c*d**2 + 7*a*b**2*c**2*d - b**3*c**3 + 12*b**3*d**3*x**3 + x
**2*(18*a*b**2*d**3 + 18*b**3*c*d**2) + x*(4*a**2*b*d**3 + 28*a*b
**2*c*d**2 + 4*b**3*c**2*d))/(2*a**6*c**2*d**4 - 8*a**5*b*c**3*d*
*3 + 12*a**4*b**2*c**4*d**2 - 8*a**3*b**3*c**5*d + 2*a**2*b**4*c*
*6 + x**4*(2*a**4*b**2*d**6 - 8*a**3*b**3*c*d**5 + 12*a**2*b**4*c
**2*d**4 - 8*a*b**5*c**3*d**3 + 2*b**6*c**4*d**2) + x**3*(4*a**5*
b*d**6 - 12*a**4*b**2*c*d**5 + 8*a**3*b**3*c**2*d**4 + 8*a**2*b**
4*c**3*d**3 - 12*a*b**5*c**4*d**2 + 4*b**6*c**5*d) + x**2*(2*a**6
*d**6 - 18*a**4*b**2*c**2*d**4 + 32*a**3*b**3*c**3*d**3 - 18*a**2
*b**4*c**4*d**2 + 2*b**6*c**6) + x*(4*a**6*c*d**5 - 12*a**5*b*c**
2*d**4 + 8*a**4*b**2*c**3*d**3 + 8*a**3*b**3*c**4*d**2 - 12*a**2*
b**4*c**5*d + 4*a*b**5*c**6))
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^3*(d*x + c)^3),x, algorithm="giac")
```

```
[Out] Exception raised: NotImplementedError
```

3.287 $\int \frac{1}{x(a+bx)^3(c+dx)^3}\,dx$

Optimal. Leaf size=221

$$\frac{\log(x)}{a^3c^3}+\frac{b^3(bc-4ad)}{a^2(a+bx)(bc-ad)^4}+\frac{d^3\left(a^2d^2-5abcd+10b^2c^2\right)\log(c+dx)}{c^3(bc-ad)^5}-\frac{b^3\left(10a^2d^2-5abcd+b^2c^2\right)\log(a+bx)}{a^3(bc-ad)^5}+\frac{b^3}{2a(a+bx)^2(bc-ad)^3}-\frac{d^3(4bc-ad)}{c^2(c+dx)(bc-ad)^4}-\frac{d^3}{2c(c+dx)^2(bc-ad)^3}$$

```
[Out] b^3/(2*a*(b*c - a*d)^3*(a + b*x)^2) + (b^3*(b*c - 4*a*d))/(a^2*(b
*c - a*d)^4*(a + b*x)) - d^3/(2*c*(b*c - a*d)^3*(c + d*x)^2) - (d
^3*(4*b*c - a*d))/(c^2*(b*c - a*d)^4*(c + d*x)) + Log[x]/(a^3*c^3
) - (b^3*(b^2*c^2 - 5*a*b*c*d + 10*a^2*d^2)*Log[a + b*x])/(a^3*(b
*c - a*d)^5) + (d^3*(10*b^2*c^2 - 5*a*b*c*d + a^2*d^2)*Log[c + d*
x])/(c^3*(b*c - a*d)^5)
```

Rubi [A] time = 0.528035, antiderivative size = 221, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{\log(x)}{a^3c^3}+\frac{b^3(bc-4ad)}{a^2(a+bx)(bc-ad)^4}+\frac{d^3\left(a^2d^2-5abcd+10b^2c^2\right)\log(c+dx)}{c^3(bc-ad)^5}-\frac{b^3\left(10a^2d^2-5abcd+b^2c^2\right)\log(a+bx)}{a^3(bc-ad)^5}+\frac{b^3}{2a(a+bx)^2(bc-ad)^3}-\frac{d^3(4bc-ad)}{c^2(c+dx)(bc-ad)^4}-\frac{d^3}{2c(c+dx)^2(bc-ad)^3}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x*(a + b*x)^3*(c + d*x)^3),x]
```

```
[Out] b^3/(2*a*(b*c - a*d)^3*(a + b*x)^2) + (b^3*(b*c - 4*a*d))/(a^2*(b
*c - a*d)^4*(a + b*x)) - d^3/(2*c*(b*c - a*d)^3*(c + d*x)^2) - (d
^3*(4*b*c - a*d))/(c^2*(b*c - a*d)^4*(c + d*x)) + Log[x]/(a^3*c^3
) - (b^3*(b^2*c^2 - 5*a*b*c*d + 10*a^2*d^2)*Log[a + b*x])/(a^3*(b
*c - a*d)^5) + (d^3*(10*b^2*c^2 - 5*a*b*c*d + a^2*d^2)*Log[c + d*
x])/(c^3*(b*c - a*d)^5)
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x/(b*x+a)**3/(d*x+c)**3,x)
```

```
[Out] Timed out
```

Mathematica [A] time = 0.637465, size = 218, normalized size = 0.99

$$\frac{\log(x)}{a^3c^3}+\frac{b^3(bc-4ad)}{a^2(a+bx)(bc-ad)^4}+\frac{d^3\left(a^2d^2-5abcd+10b^2c^2\right)\log(c+dx)}{c^3(bc-ad)^5}+\frac{b^3\left(10a^2d^2-5abcd+b^2c^2\right)\log(a+bx)}{a^3(ad-bc)^5}-\frac{b^3}{2a(a+bx)^2(ad-bc)^3}+\frac{d^3(ad-4bc)}{c^2(c+dx)(bc-ad)^4}-\frac{d^3}{2c(c+dx)^2(bc-ad)^3}$$

Antiderivative was successfully verified.

```
[In]   Integrate[1/(x*(a + b*x)^3*(c + d*x)^3),x]
```

```
[Out] -b^3/(2*a*(-(b*c) + a*d)^3*(a + b*x)^2) + (b^3*(b*c - 4*a*d))/(a^
2*(b*c - a*d)^4*(a + b*x)) - d^3/(2*c*(b*c - a*d)^3*(c + d*x)^2)
+ (d^3*(-4*b*c + a*d))/(c^2*(b*c - a*d)^4*(c + d*x)) + Log[x]/(a^
3*c^3) + (b^3*(b^2*c^2 - 5*a*b*c*d + 10*a^2*d^2)*Log[a + b*x])/(a
^3*(-(b*c) + a*d)^5) + (d^3*(10*b^2*c^2 - 5*a*b*c*d + a^2*d^2)*Lo
g[c + d*x])/(c^3*(b*c - a*d)^5)
```

Maple [A] time = 0.025, size = 322, normalized size = 1.5

$$\frac{d^3}{2c(ad-bc)^3(dx+c)^2}+\frac{d^4a}{c^2(ad-bc)^4(dx+c)}-4\frac{d^3b}{c(ad-bc)^4(dx+c)}-\frac{d^5\ln(dx+c)a^2}{c^3(ad-bc)^5}+5\frac{d^4\ln(dx+c)ab}{c^2(ad-bc)^5}-10\frac{d^3\ln(dx+c)b^2}{c(ad-bc)^5}+\frac{\ln(x)}{a^3c^3}-\frac{b^3}{2(ad-bc)^3a(bx+a)^2}-4\frac{b^3d}{(ad-bc)^4a(bx+a)}+\frac{b^4c}{(ad-bc)^4a^2(bx+a)}+10\frac{b^3\ln(bx+a)d^2}{(ad-bc)^5a}-5\frac{b^4\ln(bx+a)cd}{(ad-bc)^5a^2}+\frac{b^5\ln(bx+a)c^2}{(ad-bc)^5a^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int(1/x/(b*x+a)^3/(d*x+c)^3,x)
```

```
[Out] 1/2*d^3/c/(a*d-b*c)^3/(d*x+c)^2+d^4/c^2/(a*d-b*c)^4/(d*x+c)*a-4*d
^3/c/(a*d-b*c)^4/(d*x+c)*b-d^5/c^3/(a*d-b*c)^5*ln(d*x+c)*a^2+5*d^
4/c^2/(a*d-b*c)^5*ln(d*x+c)*a*b-10*d^3/c/(a*d-b*c)^5*ln(d*x+c)*b^
2+ln(x)/a^3/c^3-1/2*b^3/(a*d-b*c)^3/a/(b*x+a)^2-4*b^3/(a*d-b*c)^4
/a/(b*x+a)*d+b^4/(a*d-b*c)^4/a^2/(b*x+a)*c+10*b^3/(a*d-b*c)^5/a*l
n(b*x+a)*d^2-5*b^4/(a*d-b*c)^5/a^2*ln(b*x+a)*c*d+b^5/(a*d-b*c)^5/
a^3*ln(b*x+a)*c^2
```

Maxima [A] time = 1.4323, size = 1085, normalized size = 4.91

$$-\frac{(b^5c^2-5ab^4cd+10a^2b^3d^2)\log(bx+a)}{a^3b^5c^5-5a^4b^4c^4d+10a^5b^3c^3d^2-10a^6b^2c^2d^3+5a^7bcd^4-a^8d^5}+\frac{(10b^2c^2d^3-5abcd^4+a^2d^5)\log(dx+c)}{b^5c^8-5ab^4c^7d+10a^2b^3c^6d^2-10a^3b^2c^5d^3+5a^4bc^4d^4-a^5c^3d^5}+\frac{3ab^4c^5-9a^2b^3c^4d-9a^4bc^2d^3+3a^5cd^4+2(b^5c^3d^2-4ab^4c^2d}{2(a^4b^4c^8-4a^5b^3c^7d+6a^6b^2c^6d^2-4a^7bc^5d^3+a^8c^4d^4+(a^2b^6c^6d^2-4a^3b^5c^5d^3+6a^4b^4c^4d^4-4a^5b^3c^3d^5+a^6b^2c^2d^6)x^4}+\frac{\log(x)}{a^3c^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(1/((b*x + a)^3*(d*x + c)^3*x),x, algorithm="maxima")
```

```
[Out] -(b^5*c^2 - 5*a*b^4*c*d + 10*a^2*b^3*d^2)*log(b*x + a)/(a^3*b^5*c
^5 - 5*a^4*b^4*c^4*d + 10*a^5*b^3*c^3*d^2 - 10*a^6*b^2*c^2*d^3 +
5*a^7*b*c*d^4 - a^8*d^5) + (10*b^2*c^2*d^3 - 5*a*b*c*d^4 + a^2*d^
5)*log(d*x + c)/(b^5*c^8 - 5*a*b^4*c^7*d + 10*a^2*b^3*c^6*d^2 - 1
0*a^3*b^2*c^5*d^3 + 5*a^4*b*c^4*d^4 - a^5*c^3*d^5) + 1/2*(3*a*b^4
*c^5 - 9*a^2*b^3*c^4*d - 9*a^4*b*c^2*d^3 + 3*a^5*c*d^4 + 2*(b^5*c
^3*d^2 - 4*a*b^4*c^2*d^3 - 4*a^2*b^3*c*d^4 + a^3*b^2*d^5)*x^3 + (
4*b^5*c^4*d - 13*a*b^4*c^3*d^2 - 18*a^2*b^3*c^2*d^3 - 13*a^3*b^2*
c*d^4 + 4*a^4*b*d^5)*x^2 + 2*(b^5*c^5 - a*b^4*c^4*d - 9*a^2*b^3*c
^3*d^2 - 9*a^3*b^2*c^2*d^3 - a^4*b*c*d^4 + a^5*d^5)*x)/(a^4*b^4*c
^8 - 4*a^5*b^3*c^7*d + 6*a^6*b^2*c^6*d^2 - 4*a^7*b*c^5*d^3 + a^8*
c^4*d^4 + (a^2*b^6*c^6*d^2 - 4*a^3*b^5*c^5*d^3 + 6*a^4*b^4*c^4*d^
4 - 4*a^5*b^3*c^3*d^5 + a^6*b^2*c^2*d^6)*x^4 + 2*(a^2*b^6*c^7*d -
 3*a^3*b^5*c^6*d^2 + 2*a^4*b^4*c^5*d^3 + 2*a^5*b^3*c^4*d^4 - 3*a^
6*b^2*c^3*d^5 + a^7*b*c^2*d^6)*x^3 + (a^2*b^6*c^8 - 9*a^4*b^4*c^6
```

```
*d^2 + 16*a^5*b^3*c^5*d^3 - 9*a^6*b^2*c^4*d^4 + a^8*c^2*d^6)*x^2
+ 2*(a^3*b^5*c^8 - 3*a^4*b^4*c^7*d + 2*a^5*b^3*c^6*d^2 + 2*a^6*b^
2*c^5*d^3 - 3*a^7*b*c^4*d^4 + a^8*c^3*d^5)*x) + log(x)/(a^3*c^3)
```

Fricas [A] time = 48.9203, size = 2201, normalized size = 9.96

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^3*(d*x + c)^3*x),x, algorithm="fricas")
```

```
[Out] 1/2*(3*a^2*b^5*c^7 - 12*a^3*b^4*c^6*d + 9*a^4*b^3*c^5*d^2 - 9*a^5
*b^2*c^4*d^3 + 12*a^6*b*c^3*d^4 - 3*a^7*c^2*d^5 + 2*(a*b^6*c^5*d^
2 - 5*a^2*b^5*c^4*d^3 + 5*a^4*b^3*c^2*d^5 - a^5*b^2*c*d^6)*x^3 +
(4*a*b^6*c^6*d - 17*a^2*b^5*c^5*d^2 - 5*a^3*b^4*c^4*d^3 + 5*a^4*b
^3*c^3*d^4 + 17*a^5*b^2*c^2*d^5 - 4*a^6*b*c*d^6)*x^2 + 2*(a*b^6*c
^7 - 2*a^2*b^5*c^6*d - 8*a^3*b^4*c^5*d^2 + 8*a^5*b^2*c^3*d^4 + 2*
a^6*b*c^2*d^5 - a^7*c*d^6)*x - 2*(a^2*b^5*c^7 - 5*a^3*b^4*c^6*d +
 10*a^4*b^3*c^5*d^2 + (b^7*c^5*d^2 - 5*a*b^6*c^4*d^3 + 10*a^2*b^5
*c^3*d^4)*x^4 + 2*(b^7*c^6*d - 4*a*b^6*c^5*d^2 + 5*a^2*b^5*c^4*d^
3 + 10*a^3*b^4*c^3*d^4)*x^3 + (b^7*c^7 - a*b^6*c^6*d - 9*a^2*b^5*
c^5*d^2 + 35*a^3*b^4*c^4*d^3 + 10*a^4*b^3*c^3*d^4)*x^2 + 2*(a*b^6
*c^7 - 4*a^2*b^5*c^6*d + 5*a^3*b^4*c^5*d^2 + 10*a^4*b^3*c^4*d^3)*
x)*log(b*x + a) + 2*(10*a^5*b^2*c^4*d^3 - 5*a^6*b*c^3*d^4 + a^7*c
^2*d^5 + (10*a^3*b^4*c^2*d^5 - 5*a^4*b^3*c*d^6 + a^5*b^2*d^7)*x^4
 + 2*(10*a^3*b^4*c^3*d^4 + 5*a^4*b^3*c^2*d^5 - 4*a^5*b^2*c*d^6 +
a^6*b*d^7)*x^3 + (10*a^3*b^4*c^4*d^3 + 35*a^4*b^3*c^3*d^4 - 9*a^5
*b^2*c^2*d^5 - a^6*b*c*d^6 + a^7*d^7)*x^2 + 2*(10*a^4*b^3*c^4*d^3
 + 5*a^5*b^2*c^3*d^4 - 4*a^6*b*c^2*d^5 + a^7*c*d^6)*x)*log(d*x +
c) + 2*(a^2*b^5*c^7 - 5*a^3*b^4*c^6*d + 10*a^4*b^3*c^5*d^2 - 10*a
^5*b^2*c^4*d^3 + 5*a^6*b*c^3*d^4 - a^7*c^2*d^5 + (b^7*c^5*d^2 - 5
*a*b^6*c^4*d^3 + 10*a^2*b^5*c^3*d^4 - 10*a^3*b^4*c^2*d^5 + 5*a^4*
b^3*c*d^6 - a^5*b^2*d^7)*x^4 + 2*(b^7*c^6*d - 4*a*b^6*c^5*d^2 + 5
*a^2*b^5*c^4*d^3 - 5*a^4*b^3*c^2*d^5 + 4*a^5*b^2*c*d^6 - a^6*b*d^
7)*x^3 + (b^7*c^7 - a*b^6*c^6*d - 9*a^2*b^5*c^5*d^2 + 25*a^3*b^4*
c^4*d^3 - 25*a^4*b^3*c^3*d^4 + 9*a^5*b^2*c^2*d^5 + a^6*b*c*d^6 -
a^7*d^7)*x^2 + 2*(a*b^6*c^7 - 4*a^2*b^5*c^6*d + 5*a^3*b^4*c^5*d^2
 - 5*a^5*b^2*c^3*d^4 + 4*a^6*b*c^2*d^5 - a^7*c*d^6)*x)*log(x))/(a
^5*b^5*c^10 - 5*a^6*b^4*c^9*d + 10*a^7*b^3*c^8*d^2 - 10*a^8*b^2*c
^7*d^3 + 5*a^9*b*c^6*d^4 - a^10*c^5*d^5 + (a^3*b^7*c^8*d^2 - 5*a^
4*b^6*c^7*d^3 + 10*a^5*b^5*c^6*d^4 - 10*a^6*b^4*c^5*d^5 + 5*a^7*b
^3*c^4*d^6 - a^8*b^2*c^3*d^7)*x^4 + 2*(a^3*b^7*c^9*d - 4*a^4*b^6*
c^8*d^2 + 5*a^5*b^5*c^7*d^3 - 5*a^7*b^3*c^5*d^5 + 4*a^8*b^2*c^4*d
^6 - a^9*b*c^3*d^7)*x^3 + (a^3*b^7*c^10 - a^4*b^6*c^9*d - 9*a^5*b
^5*c^8*d^2 + 25*a^6*b^4*c^7*d^3 - 25*a^7*b^3*c^6*d^4 + 9*a^8*b^2*
c^5*d^5 + a^9*b*c^4*d^6 - a^10*c^3*d^7)*x^2 + 2*(a^4*b^6*c^10 - 4
*a^5*b^5*c^9*d + 5*a^6*b^4*c^8*d^2 - 5*a^8*b^2*c^6*d^4 + 4*a^9*b*
c^5*d^5 - a^10*c^4*d^6)*x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/x/(b*x+a)**3/(d*x+c)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^3*(d*x + c)^3*x),x, algorithm="giac")
```

```
[Out] Exception raised: NotImplementedError
```

3.288 $\int \frac{1}{x^2(a+bx)^3(c+dx)^3} dx$

Optimal. Leaf size=242

$$-\frac{3\log(x)(ad+bc)}{a^4c^4}-\frac{b^4(2bc-5ad)}{a^3(a+bx)(bc-ad)^4}-\frac{1}{a^3c^3x}-\frac{b^4}{2a^2(a+bx)^2(bc-ad)^3}-\frac{3d^4\left(a^2d^2-4abcd+5b^2c^2\right)\log(c+dx)}{c^4(bc-ad)^5}+\frac{3b^4\left(5a^2d^2-4abcd+b^2c^2\right)\log(a+bx)}{a^4(bc-ad)^5}+\frac{d^4(5bc-2ad)}{c^3(c+dx)(bc-ad)^4}+\frac{d^4}{2c^2(c+dx)^2(bc-ad)^3}$$

```
[Out] -(1/(a^3*c^3*x)) - b^4/(2*a^2*(b*c - a*d)^3*(a + b*x)^2) - (b^4*(
2*b*c - 5*a*d))/(a^3*(b*c - a*d)^4*(a + b*x)) + d^4/(2*c^2*(b*c -
 a*d)^3*(c + d*x)^2) + (d^4*(5*b*c - 2*a*d))/(c^3*(b*c - a*d)^4*(
c + d*x)) - (3*(b*c + a*d)*Log[x])/(a^4*c^4) + (3*b^4*(b^2*c^2 -
4*a*b*c*d + 5*a^2*d^2)*Log[a + b*x])/(a^4*(b*c - a*d)^5) - (3*d^4
*(5*b^2*c^2 - 4*a*b*c*d + a^2*d^2)*Log[c + d*x])/(c^4*(b*c - a*d)
^5)
```

Rubi [A] time = 0.662074, antiderivative size = 242, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.056$

$$-\frac{3\log(x)(ad+bc)}{a^4c^4}-\frac{b^4(2bc-5ad)}{a^3(a+bx)(bc-ad)^4}-\frac{1}{a^3c^3x}-\frac{b^4}{2a^2(a+bx)^2(bc-ad)^3}-\frac{3d^4\left(a^2d^2-4abcd+5b^2c^2\right)\log(c+dx)}{c^4(bc-ad)^5}+\frac{3b^4\left(5a^2d^2-4abcd+b^2c^2\right)\log(a+bx)}{a^4(bc-ad)^5}+\frac{d^4(5bc-2ad)}{c^3(c+dx)(bc-ad)^4}+\frac{d^4}{2c^2(c+dx)^2(bc-ad)^3}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x^2*(a + b*x)^3*(c + d*x)^3),x]
```

```
[Out] -(1/(a^3*c^3*x)) - b^4/(2*a^2*(b*c - a*d)^3*(a + b*x)^2) - (b^4*(
2*b*c - 5*a*d))/(a^3*(b*c - a*d)^4*(a + b*x)) + d^4/(2*c^2*(b*c -
 a*d)^3*(c + d*x)^2) + (d^4*(5*b*c - 2*a*d))/(c^3*(b*c - a*d)^4*(
c + d*x)) - (3*(b*c + a*d)*Log[x])/(a^4*c^4) + (3*b^4*(b^2*c^2 -
4*a*b*c*d + 5*a^2*d^2)*Log[a + b*x])/(a^4*(b*c - a*d)^5) - (3*d^4
*(5*b^2*c^2 - 4*a*b*c*d + a^2*d^2)*Log[c + d*x])/(c^4*(b*c - a*d)
^5)
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x**2/(b*x+a)**3/(d*x+c)**3,x)
```

```
[Out] Timed out
```

Mathematica [A] time = 0.750275, size = 241, normalized size = 1.

$$-\frac{3\log(x)(ad+bc)}{a^4c^4}+\frac{b^4(5ad-2bc)}{a^3(a+bx)(bc-ad)^4}-\frac{1}{a^3c^3x}+\frac{b^4}{2a^2(a+bx)^2(ad-bc)^3}-\frac{3d^4\left(a^2d^2-4abcd+5b^2c^2\right)\log(c+dx)}{c^4(bc-ad)^5}-\frac{3b^4\left(5a^2d^2-4abcd+b^2c^2\right)\log(a+bx)}{a^4(ad-bc)^5}+\frac{d^4(5bc-2ad)}{c^3(c+dx)(bc-ad)^4}+\frac{d^4}{2c^2(c+dx)^2(bc-ad)^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(x^2*(a + b*x)^3*(c + d*x)^3),x]
```

```
[Out] -(1/(a^3*c^3*x)) + b^4/(2*a^2*(-(b*c) + a*d)^3*(a + b*x)^2) + (b^
4*(-2*b*c + 5*a*d))/(a^3*(b*c - a*d)^4*(a + b*x)) + d^4/(2*c^2*(b
*c - a*d)^3*(c + d*x)^2) + (d^4*(5*b*c - 2*a*d))/(c^3*(b*c - a*d)
^4*(c + d*x)) - (3*(b*c + a*d)*Log[x])/(a^4*c^4) - (3*b^4*(b^2*c^
2 - 4*a*b*c*d + 5*a^2*d^2)*Log[a + b*x])/(a^4*(-(b*c) + a*d)^5) -
 (3*d^4*(5*b^2*c^2 - 4*a*b*c*d + a^2*d^2)*Log[c + d*x])/(c^4*(b*c
 - a*d)^5)
```

Maple [A] time = 0.029, size = 349, normalized size = 1.4

$$-\frac{d^4}{2c^2(ad-bc)^3(dx+c)^2}-2\frac{d^5a}{c^3(ad-bc)^4(dx+c)}+5\frac{d^4b}{c^2(ad-bc)^4(dx+c)}+3\frac{d^6\ln(dx+c)a^2}{c^4(ad-bc)^5}-12\frac{d^5\ln(dx+c)ab}{c^3(ad-bc)^5}+15\frac{d^4\ln(dx+c)b^2}{c^2(ad-bc)^5}-\frac{1}{a^3c^3x}-3\frac{\ln(x)d}{a^3c^4}-3\frac{b\ln(x)}{a^4c^3}+\frac{b^4}{2(ad-bc)^3a^2(bx+a)^2}+5\frac{b^4d}{(ad-bc)^4a^2(bx+a)}-2\frac{b^5c}{(ad-bc)^4a^3(bx+a)}-15\frac{b^4\ln(bx+a)d^2}{(ad-bc)^5a^2}+12\frac{b^5\ln(bx+a)cd}{(ad-bc)^5a^3}-3\frac{b^6\ln(bx+a)c^2}{(ad-bc)^5a^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/x^2/(b*x+a)^3/(d*x+c)^3,x)
```

```
[Out] -1/2*d^4/c^2/(a*d-b*c)^3/(d*x+c)^2-2*d^5/c^3/(a*d-b*c)^4/(d*x+c)*
a+5*d^4/c^2/(a*d-b*c)^4/(d*x+c)*b+3*d^6/c^4/(a*d-b*c)^5*ln(d*x+c)
*a^2-12*d^5/c^3/(a*d-b*c)^5*ln(d*x+c)*a*b+15*d^4/c^2/(a*d-b*c)^5*
ln(d*x+c)*b^2-1/a^3/c^3/x-3/a^3/c^4*ln(x)*d-3/a^4/c^3*ln(x)*b+1/2
*b^4/(a*d-b*c)^3/a^2/(b*x+a)^2+5*b^4/(a*d-b*c)^4/a^2/(b*x+a)*d-2*
b^5/(a*d-b*c)^4/a^3/(b*x+a)*c-15*b^4/(a*d-b*c)^5/a^2*ln(b*x+a)*d^
2+12*b^5/(a*d-b*c)^5/a^3*ln(b*x+a)*c*d-3*b^6/(a*d-b*c)^5/a^4*ln(b
*x+a)*c^2
```

Maxima [A] time = 1.42545, size = 1264, normalized size = 5.22

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^3*(d*x + c)^3*x^2),x, algorithm="maxima")
```

```
[Out] 3*(b^6*c^2 - 4*a*b^5*c*d + 5*a^2*b^4*d^2)*log(b*x + a)/(a^4*b^5*c
^5 - 5*a^5*b^4*c^4*d + 10*a^6*b^3*c^3*d^2 - 10*a^7*b^2*c^2*d^3 +
5*a^8*b*c*d^4 - a^9*d^5) - 3*(5*b^2*c^2*d^4 - 4*a*b*c*d^5 + a^2*d
^6)*log(d*x + c)/(b^5*c^9 - 5*a*b^4*c^8*d + 10*a^2*b^3*c^7*d^2 -
10*a^3*b^2*c^6*d^3 + 5*a^4*b*c^5*d^4 - a^5*c^4*d^5) - 1/2*(2*a^2*
b^4*c^6 - 8*a^3*b^3*c^5*d + 12*a^4*b^2*c^4*d^2 - 8*a^5*b*c^3*d^3
+ 2*a^6*c^2*d^4 + 6*(b^6*c^4*d^2 - 3*a*b^5*c^3*d^3 + 2*a^2*b^4*c^
2*d^4 - 3*a^3*b^3*c*d^5 + a^4*b^2*d^6)*x^4 + 3*(4*b^6*c^5*d - 9*a
*b^5*c^4*d^2 - a^2*b^4*c^3*d^3 - a^3*b^3*c^2*d^4 - 9*a^4*b^2*c*d^
5 + 4*a^5*b*d^6)*x^3 + 2*(3*b^6*c^6 - 20*a^2*b^4*c^4*d^2 + 16*a^3
*b^3*c^3*d^3 - 20*a^4*b^2*c^2*d^4 + 3*a^6*d^6)*x^2 + (9*a*b^5*c^6
 - 23*a^2*b^4*c^5*d + 8*a^3*b^3*c^4*d^2 + 8*a^4*b^2*c^3*d^3 - 23*
a^5*b*c^2*d^4 + 9*a^6*c*d^5)*x)/((a^3*b^6*c^7*d^2 - 4*a^4*b^5*c^6
*d^3 + 6*a^5*b^4*c^5*d^4 - 4*a^6*b^3*c^4*d^5 + a^7*b^2*c^3*d^6)*x
^5 + 2*(a^3*b^6*c^8*d - 3*a^4*b^5*c^7*d^2 + 2*a^5*b^4*c^6*d^3 + 2
*a^6*b^3*c^5*d^4 - 3*a^7*b^2*c^4*d^5 + a^8*b*c^3*d^6)*x^4 + (a^3*
b^6*c^9 - 9*a^5*b^4*c^7*d^2 + 16*a^6*b^3*c^6*d^3 - 9*a^7*b^2*c^5*
d^4 + a^9*c^3*d^6)*x^3 + 2*(a^4*b^5*c^9 - 3*a^5*b^4*c^8*d + 2*a^6
```

```
*b^3*c^7*d^2 + 2*a^7*b^2*c^6*d^3 - 3*a^8*b*c^5*d^4 + a^9*c^4*d^5)
*x^2 + (a^5*b^4*c^9 - 4*a^6*b^3*c^8*d + 6*a^7*b^2*c^7*d^2 - 4*a^8
*b*c^6*d^3 + a^9*c^5*d^4)*x) - 3*(b*c + a*d)*log(x)/(a^4*c^4)
```

Fricas [A] time = 80.0516, size = 2427, normalized size = 10.03

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^3*(d*x + c)^3*x^2),x, algorithm="fricas")
```

```
[Out] -1/2*(2*a^3*b^5*c^8 - 10*a^4*b^4*c^7*d + 20*a^5*b^3*c^6*d^2 - 20*
a^6*b^2*c^5*d^3 + 10*a^7*b*c^4*d^4 - 2*a^8*c^3*d^5 + 6*(a*b^7*c^6
*d^2 - 4*a^2*b^6*c^5*d^3 + 5*a^3*b^5*c^4*d^4 - 5*a^4*b^4*c^3*d^5
+ 4*a^5*b^3*c^2*d^6 - a^6*b^2*c*d^7)*x^4 + 3*(4*a*b^7*c^7*d - 13*
a^2*b^6*c^6*d^2 + 8*a^3*b^5*c^5*d^3 - 8*a^5*b^3*c^3*d^5 + 13*a^6*
b^2*c^2*d^6 - 4*a^7*b*c*d^7)*x^3 + 2*(3*a*b^7*c^8 - 3*a^2*b^6*c^7
*d - 20*a^3*b^5*c^6*d^2 + 36*a^4*b^4*c^5*d^3 - 36*a^5*b^3*c^4*d^4
 + 20*a^6*b^2*c^3*d^5 + 3*a^7*b*c^2*d^6 - 3*a^8*c*d^7)*x^2 + (9*a
^2*b^6*c^8 - 32*a^3*b^5*c^7*d + 31*a^4*b^4*c^6*d^2 - 31*a^6*b^2*c
^4*d^4 + 32*a^7*b*c^3*d^5 - 9*a^8*c^2*d^6)*x - 6*((b^8*c^6*d^2 -
4*a*b^7*c^5*d^3 + 5*a^2*b^6*c^4*d^4)*x^5 + 2*(b^8*c^7*d - 3*a*b^7
*c^6*d^2 + a^2*b^6*c^5*d^3 + 5*a^3*b^5*c^4*d^4)*x^4 + (b^8*c^8 -
10*a^2*b^6*c^6*d^2 + 16*a^3*b^5*c^5*d^3 + 5*a^4*b^4*c^4*d^4)*x^3
+ 2*(a*b^7*c^8 - 3*a^2*b^6*c^7*d + a^3*b^5*c^6*d^2 + 5*a^4*b^4*c^
5*d^3)*x^2 + (a^2*b^6*c^8 - 4*a^3*b^5*c^7*d + 5*a^4*b^4*c^6*d^2)*
x)*log(b*x + a) + 6*((5*a^4*b^4*c^2*d^6 - 4*a^5*b^3*c*d^7 + a^6*b
^2*d^8)*x^5 + 2*(5*a^4*b^4*c^3*d^5 + a^5*b^3*c^2*d^6 - 3*a^6*b^2*
c*d^7 + a^7*b*d^8)*x^4 + (5*a^4*b^4*c^4*d^4 + 16*a^5*b^3*c^3*d^5
- 10*a^6*b^2*c^2*d^6 + a^8*d^8)*x^3 + 2*(5*a^5*b^3*c^4*d^4 + a^6*
b^2*c^3*d^5 - 3*a^7*b*c^2*d^6 + a^8*c*d^7)*x^2 + (5*a^6*b^2*c^4*d
^4 - 4*a^7*b*c^3*d^5 + a^8*c^2*d^6)*x)*log(d*x + c) + 6*((b^8*c^6
*d^2 - 4*a*b^7*c^5*d^3 + 5*a^2*b^6*c^4*d^4 - 5*a^4*b^4*c^2*d^6 +
4*a^5*b^3*c*d^7 - a^6*b^2*d^8)*x^5 + 2*(b^8*c^7*d - 3*a*b^7*c^6*d
^2 + a^2*b^6*c^5*d^3 + 5*a^3*b^5*c^4*d^4 - 5*a^4*b^4*c^3*d^5 - a^
5*b^3*c^2*d^6 + 3*a^6*b^2*c*d^7 - a^7*b*d^8)*x^4 + (b^8*c^8 - 10*
a^2*b^6*c^6*d^2 + 16*a^3*b^5*c^5*d^3 - 16*a^5*b^3*c^3*d^5 + 10*a^
6*b^2*c^2*d^6 - a^8*d^8)*x^3 + 2*(a*b^7*c^8 - 3*a^2*b^6*c^7*d + a
^3*b^5*c^6*d^2 + 5*a^4*b^4*c^5*d^3 - 5*a^5*b^3*c^4*d^4 - a^6*b^2*
c^3*d^5 + 3*a^7*b*c^2*d^6 - a^8*c*d^7)*x^2 + (a^2*b^6*c^8 - 4*a^3
*b^5*c^7*d + 5*a^4*b^4*c^6*d^2 - 5*a^6*b^2*c^4*d^4 + 4*a^7*b*c^3*
d^5 - a^8*c^2*d^6)*x)*log(x))/((a^4*b^7*c^9*d^2 - 5*a^5*b^6*c^8*d
^3 + 10*a^6*b^5*c^7*d^4 - 10*a^7*b^4*c^6*d^5 + 5*a^8*b^3*c^5*d^6
- a^9*b^2*c^4*d^7)*x^5 + 2*(a^4*b^7*c^10*d - 4*a^5*b^6*c^9*d^2 +
5*a^6*b^5*c^8*d^3 - 5*a^8*b^3*c^6*d^5 + 4*a^9*b^2*c^5*d^6 - a^10*
b*c^4*d^7)*x^4 + (a^4*b^7*c^11 - a^5*b^6*c^10*d - 9*a^6*b^5*c^9*d
^2 + 25*a^7*b^4*c^8*d^3 - 25*a^8*b^3*c^7*d^4 + 9*a^9*b^2*c^6*d^5
+ a^10*b*c^5*d^6 - a^11*c^4*d^7)*x^3 + 2*(a^5*b^6*c^11 - 4*a^6*b^
5*c^10*d + 5*a^7*b^4*c^9*d^2 - 5*a^9*b^2*c^7*d^4 + 4*a^10*b*c^6*d
^5 - a^11*c^5*d^6)*x^2 + (a^6*b^5*c^11 - 5*a^7*b^4*c^10*d + 10*a^
8*b^3*c^9*d^2 - 10*a^9*b^2*c^8*d^3 + 5*a^10*b*c^7*d^4 - a^11*c^6*
d^5)*x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/x**2/(b*x+a)**3/(d*x+c)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^3*(d*x + c)^3*x^2),x, algorithm="giac")

[Out] Exception raised: NotImplementedError
```

3.289 $\int x^{7/2}(a+bx)(A+Bx)\,dx$

Optimal. Leaf size=39

$$\frac{2}{11}x^{11/2}(aB+Ab)+\frac{2}{9}aAx^{9/2}+\frac{2}{13}bBx^{13/2}$$

```
[Out] (2*a*A*x^(9/2))/9 + (2*(A*b + a*B)*x^(11/2))/11 + (2*b*B*x^(13/2)
)/13
```

Rubi [A] time = 0.0455569, antiderivative size = 39, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$\frac{2}{11}x^{11/2}(aB+Ab)+\frac{2}{9}aAx^{9/2}+\frac{2}{13}bBx^{13/2}$$

Antiderivative was successfully verified.

```
[In] Int[x^(7/2)*(a + b*x)*(A + B*x),x]
```

```
[Out] (2*a*A*x^(9/2))/9 + (2*(A*b + a*B)*x^(11/2))/11 + (2*b*B*x^(13/2)
)/13
```

Rubi in Sympy [A] time = 5.25872, size = 41, normalized size = 1.05

$$\frac{2Aax^{\frac{9}{2}}}{9}+\frac{2Bbx^{\frac{13}{2}}}{13}+x^{\frac{11}{2}}\left(\frac{2Ab}{11}+\frac{2Ba}{11}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(x**(7/2)*(b*x+a)*(B*x+A),x)
```

```
[Out] 2*A*a*x**(9/2)/9 + 2*B*b*x**(13/2)/13 + x**(11/2)*(2*A*b/11 + 2*B
*a/11)
```

Mathematica [A] time = 0.0200495, size = 31, normalized size = 0.79

$$\frac{2x^{9/2}\left(117x(aB+Ab)+143aA+99bBx^2\right)}{1287}$$

Antiderivative was successfully verified.

```
[In] Integrate[x^(7/2)*(a + b*x)*(A + B*x),x]
```

```
[Out] (2*x^(9/2)*(143*a*A + 117*(A*b + a*B)*x + 99*b*B*x^2))/1287
```

Maple [A] time = 0.005, size = 28, normalized size = 0.7

$$\frac{198\,bBx^2+234\,Abx+234\,Bax+286\,Aa}{1287}x^{\frac{9}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^(7/2)*(b*x+a)*(B*x+A),x)
```

```
[Out] 2/1287*x^(9/2)*(99*B*b*x^2+117*A*b*x+117*B*a*x+143*A*a)
```

Maxima [A] time = 1.3275, size = 36, normalized size = 0.92

$$\frac{2}{13} Bbx^{\frac{13}{2}} + \frac{2}{9} Aax^{\frac{9}{2}} + \frac{2}{11} (Ba + Ab)x^{\frac{11}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*x^(7/2),x, algorithm="maxima")
```

```
[Out] 2/13*B*b*x^(13/2) + 2/9*A*a*x^(9/2) + 2/11*(B*a + A*b)*x^(11/2)
```

Fricas [A] time = 0.207598, size = 43, normalized size = 1.1

$$\frac{2}{1287} \left(99 \, Bbx^{6} + 143 \, Aax^{4} + 117 \, (Ba + Ab)x^{5}\right) \sqrt{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*x^(7/2),x, algorithm="fricas")
```

```
[Out] 2/1287*(99*B*b*x^6 + 143*A*a*x^4 + 117*(B*a + A*b)*x^5)*sqrt(x)
```

Sympy [A] time = 17.7725, size = 46, normalized size = 1.18

$$\frac{2Aax^{\frac{9}{2}}}{9} + \frac{2Abx^{\frac{11}{2}}}{11} + \frac{2Bax^{\frac{11}{2}}}{11} + \frac{2Bbx^{\frac{13}{2}}}{13}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**(7/2)*(b*x+a)*(B*x+A),x)
```

```
[Out] 2*A*a*x**(9/2)/9 + 2*A*b*x**(11/2)/11 + 2*B*a*x**(11/2)/11 + 2*B*
b*x**(13/2)/13
```

GIAC/XCAS [A] time = 0.25235, size = 39, normalized size = 1.

$$\frac{2}{13} Bbx^{\frac{13}{2}} + \frac{2}{11} Bax^{\frac{11}{2}} + \frac{2}{11} Abx^{\frac{11}{2}} + \frac{2}{9} Aax^{\frac{9}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*x^(7/2),x, algorithm="giac")
```

```
[Out] 2/13*B*b*x^(13/2) + 2/11*B*a*x^(11/2) + 2/11*A*b*x^(11/2) + 2/9*A
*a*x^(9/2)
```

3.290 $\int x^{5/2}(a+bx)(A+Bx)\,dx$

Optimal. Leaf size=39

$$\frac{2}{9}x^{9/2}(aB+Ab)+\frac{2}{7}aAx^{7/2}+\frac{2}{11}bBx^{11/2}$$

```
[Out] (2*a*A*x^(7/2))/7 + (2*(A*b + a*B)*x^(9/2))/9 + (2*b*B*x^(11/2))/
11
```

Rubi [A] time = 0.0438114, antiderivative size = 39, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$\frac{2}{9}x^{9/2}(aB+Ab)+\frac{2}{7}aAx^{7/2}+\frac{2}{11}bBx^{11/2}$$

Antiderivative was successfully verified.

```
[In]  Int[x^(5/2)*(a + b*x)*(A + B*x),x]
```

```
[Out] (2*a*A*x^(7/2))/7 + (2*(A*b + a*B)*x^(9/2))/9 + (2*b*B*x^(11/2))/
11
```

Rubi in Sympy [A] time = 5.21104, size = 41, normalized size = 1.05

$$\frac{2Aax^{\frac{7}{2}}}{7}+\frac{2Bbx^{\frac{11}{2}}}{11}+x^{\frac{9}{2}}\left(\frac{2Ab}{9}+\frac{2Ba}{9}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**(5/2)*(b*x+a)*(B*x+A),x)
```

```
[Out] 2*A*a*x**(7/2)/7 + 2*B*b*x**(11/2)/11 + x**(9/2)*(2*A*b/9 + 2*B*a
/9)
```

Mathematica [A] time = 0.0159246, size = 31, normalized size = 0.79

$$\frac{2}{693}x^{7/2}\left(77x(aB+Ab)+99aA+63bBx^2\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^(5/2)*(a + b*x)*(A + B*x),x]
```

```
[Out] (2*x^(7/2)*(99*a*A + 77*(A*b + a*B)*x + 63*b*B*x^2))/693
```

Maple [A] time = 0.006, size = 28, normalized size = 0.7

$$\frac{126\,bBx^2+154\,Abx+154\,Bax+198\,Aa}{693}x^{\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^(5/2)*(b*x+a)*(B*x+A),x)
```

```
[Out] 2/693*x^(7/2)*(63*B*b*x^2+77*A*b*x+77*B*a*x+99*A*a)
```

Maxima [A] time = 1.33149, size = 36, normalized size = 0.92

$$\frac{2}{11}Bbx^{\frac{11}{2}}+\frac{2}{7}Aax^{\frac{7}{2}}+\frac{2}{9}(Ba+Ab)x^{\frac{9}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*x^(5/2),x, algorithm="maxima")
```

```
[Out] 2/11*B*b*x^(11/2) + 2/7*A*a*x^(7/2) + 2/9*(B*a + A*b)*x^(9/2)
```

Fricas [A] time = 0.210153, size = 43, normalized size = 1.1

$$\frac{2}{693}\left(63\,Bbx^{5}+99\,Aax^{3}+77\,(Ba+Ab)x^{4}\right)\sqrt{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*x^(5/2),x, algorithm="fricas")
```

```
[Out] 2/693*(63*B*b*x^5 + 99*A*a*x^3 + 77*(B*a + A*b)*x^4)*sqrt(x)
```

Sympy [A] time = 7.43079, size = 46, normalized size = 1.18

$$\frac{2Aax^{\frac{7}{2}}}{7}+\frac{2Abx^{\frac{9}{2}}}{9}+\frac{2Bax^{\frac{9}{2}}}{9}+\frac{2Bbx^{\frac{11}{2}}}{11}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**(5/2)*(b*x+a)*(B*x+A),x)
```

```
[Out] 2*A*a*x**(7/2)/7 + 2*A*b*x**(9/2)/9 + 2*B*a*x**(9/2)/9 + 2*B*b*x*
*(11/2)/11
```

GIAC/XCAS [A] time = 0.261211, size = 39, normalized size = 1.

$$\frac{2}{11}Bbx^{\frac{11}{2}}+\frac{2}{9}Bax^{\frac{9}{2}}+\frac{2}{9}Abx^{\frac{9}{2}}+\frac{2}{7}Aax^{\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*x^(5/2),x, algorithm="giac")
```

```
[Out] 2/11*B*b*x^(11/2) + 2/9*B*a*x^(9/2) + 2/9*A*b*x^(9/2) + 2/7*A*a*x
^(7/2)
```

3.291 $\int x^{3/2}(a+bx)(A+Bx)\,dx$

Optimal. Leaf size=39

$$\frac{2}{7}x^{7/2}(aB+Ab)+\frac{2}{5}aAx^{5/2}+\frac{2}{9}bBx^{9/2}$$

```
[Out] (2*a*A*x^(5/2))/5 + (2*(A*b + a*B)*x^(7/2))/7 + (2*b*B*x^(9/2))/9
```

Rubi [A] time = 0.0432953, antiderivative size = 39, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$\frac{2}{7}x^{7/2}(aB+Ab)+\frac{2}{5}aAx^{5/2}+\frac{2}{9}bBx^{9/2}$$

Antiderivative was successfully verified.

```
[In]  Int[x^(3/2)*(a + b*x)*(A + B*x),x]
```

```
[Out] (2*a*A*x^(5/2))/5 + (2*(A*b + a*B)*x^(7/2))/7 + (2*b*B*x^(9/2))/9
```

Rubi in Sympy [A] time = 5.31347, size = 41, normalized size = 1.05

$$\frac{2Aax^{\frac{5}{2}}}{5}+\frac{2Bbx^{\frac{9}{2}}}{9}+x^{\frac{7}{2}}\left(\frac{2Ab}{7}+\frac{2Ba}{7}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**(3/2)*(b*x+a)*(B*x+A),x)
```

```
[Out] 2*A*a*x**(5/2)/5 + 2*B*b*x**(9/2)/9 + x**(7/2)*(2*A*b/7 + 2*B*a/7
)
```

Mathematica [A] time = 0.0169053, size = 33, normalized size = 0.85

$$\frac{2}{315}x^{5/2}(9a(7A+5Bx)+5bx(9A+7Bx))$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^(3/2)*(a + b*x)*(A + B*x),x]
```

```
[Out] (2*x^(5/2)*(9*a*(7*A + 5*B*x) + 5*b*x*(9*A + 7*B*x)))/315
```

Maple [A] time = 0.006, size = 28, normalized size = 0.7

$$\frac{70\,bBx^2+90\,Abx+90\,Bax+126\,Aa}{315}x^{\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^(3/2)*(b*x+a)*(B*x+A),x)
```

```
[Out] 2/315*x^(5/2)*(35*B*b*x^2+45*A*b*x+45*B*a*x+63*A*a)
```

Maxima [A] time = 1.32123, size = 36, normalized size = 0.92

$$\frac{2}{9}\,Bbx^{\frac{9}{2}} + \frac{2}{5}\,Aax^{\frac{5}{2}} + \frac{2}{7}\,(Ba + Ab)x^{\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*x^(3/2),x, algorithm="maxima")

[Out] 2/9*B*b*x^(9/2) + 2/5*A*a*x^(5/2) + 2/7*(B*a + A*b)*x^(7/2)
```

Fricas [A] time = 0.204479, size = 43, normalized size = 1.1

$$\frac{2}{315}\,\left(35\,Bbx^{4} + 63\,Aax^{2} + 45\,(Ba + Ab)x^{3}\right)\sqrt{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*x^(3/2),x, algorithm="fricas")

[Out] 2/315*(35*B*b*x^4 + 63*A*a*x^2 + 45*(B*a + A*b)*x^3)*sqrt(x)
```

Sympy [A] time = 4.63503, size = 46, normalized size = 1.18

$$\frac{2Aax^{\frac{5}{2}}}{5} + \frac{2Abx^{\frac{7}{2}}}{7} + \frac{2Bax^{\frac{7}{2}}}{7} + \frac{2Bbx^{\frac{9}{2}}}{9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**(3/2)*(b*x+a)*(B*x+A),x)

[Out] 2*A*a*x**(5/2)/5 + 2*A*b*x**(7/2)/7 + 2*B*a*x**(7/2)/7 + 2*B*b*x*
*(9/2)/9
```

GIAC/XCAS [A] time = 0.290109, size = 39, normalized size = 1.

$$\frac{2}{9}\,Bbx^{\frac{9}{2}} + \frac{2}{7}\,Bax^{\frac{7}{2}} + \frac{2}{7}\,Abx^{\frac{7}{2}} + \frac{2}{5}\,Aax^{\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*x^(3/2),x, algorithm="giac")

[Out] 2/9*B*b*x^(9/2) + 2/7*B*a*x^(7/2) + 2/7*A*b*x^(7/2) + 2/5*A*a*x^(
5/2)
```

3.292 $\int \sqrt{x}(a+bx)(A+Bx)\,dx$

Optimal. Leaf size=39

$$\frac{2}{5}x^{5/2}(aB+Ab)+\frac{2}{3}aAx^{3/2}+\frac{2}{7}bBx^{7/2}$$

```
[Out] (2*a*A*x^(3/2))/3 + (2*(A*b + a*B)*x^(5/2))/5 + (2*b*B*x^(7/2))/7
```

Rubi [A] time = 0.0419955, antiderivative size = 39, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$\frac{2}{5}x^{5/2}(aB+Ab)+\frac{2}{3}aAx^{3/2}+\frac{2}{7}bBx^{7/2}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[x]*(a + b*x)*(A + B*x),x]
```

```
[Out] (2*a*A*x^(3/2))/3 + (2*(A*b + a*B)*x^(5/2))/5 + (2*b*B*x^(7/2))/7
```

Rubi in Sympy [A] time = 5.17717, size = 41, normalized size = 1.05

$$\frac{2Aax^{\frac{3}{2}}}{3}+\frac{2Bbx^{\frac{7}{2}}}{7}+x^{\frac{5}{2}}\left(\frac{2Ab}{5}+\frac{2Ba}{5}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(B*x+A)*x**(1/2),x)
```

```
[Out] 2*A*a*x**(3/2)/3 + 2*B*b*x**(7/2)/7 + x**(5/2)*(2*A*b/5 + 2*B*a/5
)
```

Mathematica [A] time = 0.0157931, size = 33, normalized size = 0.85

$$\frac{2}{105}x^{3/2}(7a(5A+3Bx)+3bx(7A+5Bx))$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[x]*(a + b*x)*(A + B*x),x]
```

```
[Out] (2*x^(3/2)*(7*a*(5*A + 3*B*x) + 3*b*x*(7*A + 5*B*x)))/105
```

Maple [A] time = 0.006, size = 28, normalized size = 0.7

$$\frac{30\,bBx^2+42\,Abx+42\,Bax+70\,Aa}{105}x^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(B*x+A)*x^(1/2),x)
```

```
[Out] 2/105*x^(3/2)*(15*B*b*x^2+21*A*b*x+21*B*a*x+35*A*a)
```

Maxima [A] time = 1.35339, size = 36, normalized size = 0.92

$$\frac{2}{7} Bbx^{\frac{7}{2}} + \frac{2}{3} Aax^{\frac{3}{2}} + \frac{2}{5} (Ba + Ab)x^{\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*sqrt(x),x, algorithm="maxima")
```

```
[Out] 2/7*B*b*x^(7/2) + 2/3*A*a*x^(3/2) + 2/5*(B*a + A*b)*x^(5/2)
```

Fricas [A] time = 0.205526, size = 41, normalized size = 1.05

$$\frac{2}{105} \left(15 Bbx^3 + 35 Aax + 21 (Ba + Ab)x^2\right) \sqrt{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*sqrt(x),x, algorithm="fricas")
```

```
[Out] 2/105*(15*B*b*x^3 + 35*A*a*x + 21*(B*a + A*b)*x^2)*sqrt(x)
```

Sympy [A] time = 4.2038, size = 37, normalized size = 0.95

$$\frac{2Aax^{\frac{3}{2}}}{3} + \frac{2Bbx^{\frac{7}{2}}}{7} + \frac{2x^{\frac{5}{2}} (Ab + Ba)}{5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(B*x+A)*x**(1/2),x)
```

```
[Out] 2*A*a*x**(3/2)/3 + 2*B*b*x**(7/2)/7 + 2*x**(5/2)*(A*b + B*a)/5
```

GIAC/XCAS [A] time = 0.249327, size = 39, normalized size = 1.

$$\frac{2}{7} Bbx^{\frac{7}{2}} + \frac{2}{5} Bax^{\frac{5}{2}} + \frac{2}{5} Abx^{\frac{5}{2}} + \frac{2}{3} Aax^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*sqrt(x),x, algorithm="giac")
```

```
[Out] 2/7*B*b*x^(7/2) + 2/5*B*a*x^(5/2) + 2/5*A*b*x^(5/2) + 2/3*A*a*x^(
3/2)
```

3.293 $\int \frac{(a+bx)(A+Bx)}{\sqrt{x}} dx$

Optimal. Leaf size=37

$$\frac{2}{3}x^{3/2}(aB+Ab)+2aA\sqrt{x}+\frac{2}{5}bBx^{5/2}$$

```
[Out] 2*a*A*Sqrt[x] + (2*(A*b + a*B)*x^(3/2))/3 + (2*b*B*x^(5/2))/5
```

Rubi [A] time = 0.0422918, antiderivative size = 37, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$\frac{2}{3}x^{3/2}(aB+Ab)+2aA\sqrt{x}+\frac{2}{5}bBx^{5/2}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(A + B*x))/Sqrt[x],x]

[Out] 2*a*A*Sqrt[x] + (2*(A*b + a*B)*x^(3/2))/3 + (2*b*B*x^(5/2))/5
```

Rubi in Sympy [A] time = 5.31753, size = 39, normalized size = 1.05

$$2Aa\sqrt{x}+\frac{2Bbx^{\frac{5}{2}}}{5}+x^{\frac{3}{2}}\left(\frac{2Ab}{3}+\frac{2Ba}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(B*x+A)/x**(1/2),x)

[Out] 2*A*a*sqrt(x) + 2*B*b*x**(5/2)/5 + x**(3/2)*(2*A*b/3 + 2*B*a/3)
```

Mathematica [A] time = 0.0153496, size = 31, normalized size = 0.84

$$\frac{2}{15}\sqrt{x}(5a(3A+Bx)+bx(5A+3Bx))$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(A + B*x))/Sqrt[x],x]

[Out] (2*Sqrt[x]*(5*a*(3*A + B*x) + b*x*(5*A + 3*B*x)))/15
```

Maple [A] time = 0.006, size = 28, normalized size = 0.8

$$\frac{6\,bBx^{2}+10\,Abx+10\,Bax+30\,Aa}{15}\sqrt{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(B*x+A)/x^(1/2),x)

[Out] 2/15*x^(1/2)*(3*B*b*x^2+5*A*b*x+5*B*a*x+15*A*a)
```

Maxima [A] time = 1.32874, size = 36, normalized size = 0.97

$$\frac{2}{5} Bbx^{\frac{5}{2}} + 2 Aa\sqrt{x} + \frac{2}{3} (Ba + Ab)x^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/sqrt(x),x, algorithm="maxima")
```

```
[Out] 2/5*B*b*x^(5/2) + 2*A*a*sqrt(x) + 2/3*(B*a + A*b)*x^(3/2)
```

Fricas [A] time = 0.206699, size = 36, normalized size = 0.97

$$\frac{2}{15} \left(3 Bbx^2 + 15 Aa + 5 (Ba + Ab)x\right) \sqrt{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/sqrt(x),x, algorithm="fricas")
```

```
[Out] 2/15*(3*B*b*x^2 + 15*A*a + 5*(B*a + A*b)*x)*sqrt(x)
```

Sympy [A] time = 5.04412, size = 44, normalized size = 1.19

$$2Aa\sqrt{x} + \frac{2Abx^{\frac{3}{2}}}{3} + \frac{2Bax^{\frac{3}{2}}}{3} + \frac{2Bbx^{\frac{5}{2}}}{5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(B*x+A)/x**(1/2),x)
```

```
[Out] 2*A*a*sqrt(x) + 2*A*b*x**(3/2)/3 + 2*B*a*x**(3/2)/3 + 2*B*b*x**(5
/2)/5
```

GIAC/XCAS [A] time = 0.261892, size = 39, normalized size = 1.05

$$\frac{2}{5} Bbx^{\frac{5}{2}} + \frac{2}{3} Bax^{\frac{3}{2}} + \frac{2}{3} Abx^{\frac{3}{2}} + 2 Aa\sqrt{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/sqrt(x),x, algorithm="giac")
```

```
[Out] 2/5*B*b*x^(5/2) + 2/3*B*a*x^(3/2) + 2/3*A*b*x^(3/2) + 2*A*a*sqrt(
x)
```

3.294 $\int \frac{(a+bx)(A+Bx)}{x^{3/2}}\,dx$

Optimal. Leaf size=35

$$2\sqrt{x}(aB+Ab)-\frac{2aA}{\sqrt{x}}+\frac{2}{3}bBx^{3/2}$$

```
[Out] (-2*a*A)/Sqrt[x] + 2*(A*b + a*B)*Sqrt[x] + (2*b*B*x^(3/2))/3
```

Rubi [A] time = 0.0438658, antiderivative size = 35, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$2\sqrt{x}(aB+Ab)-\frac{2aA}{\sqrt{x}}+\frac{2}{3}bBx^{3/2}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(A + B*x))/x^(3/2),x]

[Out] (-2*a*A)/Sqrt[x] + 2*(A*b + a*B)*Sqrt[x] + (2*b*B*x^(3/2))/3
```

Rubi in Sympy [A] time = 5.38978, size = 36, normalized size = 1.03

$$-\frac{2Aa}{\sqrt{x}}+\frac{2Bbx^{\frac{3}{2}}}{3}+\sqrt{x}\,(2Ab+2Ba)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(B*x+A)/x**(3/2),x)

[Out] -2*A*a/sqrt(x) + 2*B*b*x**(3/2)/3 + sqrt(x)*(2*A*b + 2*B*a)
```

Mathematica [A] time = 0.0175277, size = 29, normalized size = 0.83

$$\frac{2(bx(3A+Bx)-3a(A-Bx))}{3\sqrt{x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(A + B*x))/x^(3/2),x]

[Out] (2*(-3*a*(A - B*x) + b*x*(3*A + B*x)))/(3*Sqrt[x])
```

Maple [A] time = 0.004, size = 28, normalized size = 0.8

$$-\frac{-2\,bBx^{2}-6\,Abx-6\,Bax+6\,Aa}{3}\frac{1}{\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(B*x+A)/x^(3/2),x)

[Out] -2/3*(-B*b*x^2-3*A*b*x-3*B*a*x+3*A*a)/x^(1/2)
```

Maxima [A] time = 1.344, size = 36, normalized size = 1.03

$$\frac{2}{3}\,Bbx^{\frac{3}{2}} - \frac{2\,Aa}{\sqrt{x}} + 2\,(Ba + Ab)\sqrt{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/x^(3/2),x, algorithm="maxima")
```

```
[Out] 2/3*B*b*x^(3/2) - 2*A*a/sqrt(x) + 2*(B*a + A*b)*sqrt(x)
```

Fricas [A] time = 0.208627, size = 35, normalized size = 1.

$$\frac{2\,\left(Bbx^2 - 3\,Aa + 3\,(Ba + Ab)x\right)}{3\,\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/x^(3/2),x, algorithm="fricas")
```

```
[Out] 2/3*(B*b*x^2 - 3*A*a + 3*(B*a + A*b)*x)/sqrt(x)
```

Sympy [A] time = 5.1316, size = 41, normalized size = 1.17

$$-\frac{2Aa}{\sqrt{x}} + 2Ab\sqrt{x} + 2Ba\sqrt{x} + \frac{2Bbx^{\frac{3}{2}}}{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(B*x+A)/x**(3/2),x)
```

```
[Out] -2*A*a/sqrt(x) + 2*A*b*sqrt(x) + 2*B*a*sqrt(x) + 2*B*b*x**(3/2)/3
```

GIAC/XCAS [A] time = 0.253459, size = 39, normalized size = 1.11

$$\frac{2}{3}\,Bbx^{\frac{3}{2}} + 2\,Ba\sqrt{x} + 2\,Ab\sqrt{x} - \frac{2\,Aa}{\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/x^(3/2),x, algorithm="giac")
```

```
[Out] 2/3*B*b*x^(3/2) + 2*B*a*sqrt(x) + 2*A*b*sqrt(x) - 2*A*a/sqrt(x)
```

3.295 $\int \frac{(a+bx)(A+Bx)}{x^{5/2}} dx$

Optimal. Leaf size=35

$$-\frac{2(aB+Ab)}{\sqrt{x}}-\frac{2aA}{3x^{3/2}}+2bB\sqrt{x}$$

```
[Out] (-2*a*A)/(3*x^(3/2)) - (2*(A*b + a*B))/Sqrt[x] + 2*b*B*Sqrt[x]
```

Rubi [A] time = 0.0427225, antiderivative size = 35, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{2(aB+Ab)}{\sqrt{x}}-\frac{2aA}{3x^{3/2}}+2bB\sqrt{x}$$

Antiderivative was successfully verified.

```
[In] Int[((a + b*x)*(A + B*x))/x^(5/2),x]

[Out] (-2*a*A)/(3*x^(3/2)) - (2*(A*b + a*B))/Sqrt[x] + 2*b*B*Sqrt[x]
```

Rubi in Sympy [A] time = 5.21823, size = 36, normalized size = 1.03

$$-\frac{2Aa}{3x^{\frac{3}{2}}}+2Bb\sqrt{x}-\frac{2Ab+2Ba}{\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)*(B*x+A)/x**(5/2),x)

[Out] -2*A*a/(3*x**(3/2)) + 2*B*b*sqrt(x) - (2*A*b + 2*B*a)/sqrt(x)
```

Mathematica [A] time = 0.0150795, size = 28, normalized size = 0.8

$$-\frac{2(a(A+3Bx)+3bx(A-Bx))}{3x^{3/2}}$$

Antiderivative was successfully verified.

```
[In] Integrate[((a + b*x)*(A + B*x))/x^(5/2),x]

[Out] (-2*(3*b*x*(A - B*x) + a*(A + 3*B*x)))/(3*x^(3/2))
```

Maple [A] time = 0.006, size = 27, normalized size = 0.8

$$-\frac{-6\,bBx^{2}+6\,Abx+6\,Bax+2\,Aa}{3}x^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((b*x+a)*(B*x+A)/x^(5/2),x)

[Out] -2/3*(-3*B*b*x^2+3*A*b*x+3*B*a*x+A*a)/x^(3/2)
```

Maxima [A] time = 1.3415, size = 36, normalized size = 1.03

$$2\,Bb\sqrt{x} - \frac{2\,(Aa + 3\,(Ba + Ab)x)}{3\,x^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/x^(5/2),x, algorithm="maxima")
```

```
[Out] 2*B*b*sqrt(x) - 2/3*(A*a + 3*(B*a + A*b)*x)/x^(3/2)
```

Fricas [A] time = 0.206176, size = 36, normalized size = 1.03

$$\frac{2\left(3\,Bbx^2 - Aa - 3\,(Ba + Ab)x\right)}{3\,x^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/x^(5/2),x, algorithm="fricas")
```

```
[Out] 2/3*(3*B*b*x^2 - A*a - 3*(B*a + A*b)*x)/x^(3/2)
```

Sympy [A] time = 3.64516, size = 41, normalized size = 1.17

$$-\frac{2Aa}{3x^{\frac{3}{2}}} - \frac{2Ab}{\sqrt{x}} - \frac{2Ba}{\sqrt{x}} + 2Bb\sqrt{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(B*x+A)/x**(5/2),x)
```

```
[Out] -2*A*a/(3*x**(3/2)) - 2*A*b/sqrt(x) - 2*B*a/sqrt(x) + 2*B*b*sqrt(
x)
```

GIAC/XCAS [A] time = 0.257555, size = 36, normalized size = 1.03

$$2\,Bb\sqrt{x} - \frac{2\,(3\,Bax + 3\,Abx + Aa)}{3\,x^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/x^(5/2),x, algorithm="giac")
```

```
[Out] 2*B*b*sqrt(x) - 2/3*(3*B*a*x + 3*A*b*x + A*a)/x^(3/2)
```

3.296 $\int \frac{(a+bx)(A+Bx)}{x^{7/2}} dx$

Optimal. Leaf size=37

$$-\frac{2(aB+Ab)}{3x^{3/2}}-\frac{2aA}{5x^{5/2}}-\frac{2bB}{\sqrt{x}}$$

```
[Out] (-2*a*A)/(5*x^(5/2)) - (2*(A*b + a*B))/(3*x^(3/2)) - (2*b*B)/Sqrt
[x]
```

Rubi [A] time = 0.0501797, antiderivative size = 37, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{2(aB+Ab)}{3x^{3/2}}-\frac{2aA}{5x^{5/2}}-\frac{2bB}{\sqrt{x}}$$

Antiderivative was successfully verified.

```
[In] Int[((a + b*x)*(A + B*x))/x^(7/2),x]
```

```
[Out] (-2*a*A)/(5*x^(5/2)) - (2*(A*b + a*B))/(3*x^(3/2)) - (2*b*B)/Sqrt
[x]
```

Rubi in Sympy [A] time = 5.29976, size = 41, normalized size = 1.11

$$-\frac{2Aa}{5x^{\frac{5}{2}}}-\frac{2Bb}{\sqrt{x}}-\frac{\frac{2Ab}{3}+\frac{2Ba}{3}}{x^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)*(B*x+A)/x**(7/2),x)
```

```
[Out] -2*A*a/(5*x**(5/2)) - 2*B*b/sqrt(x) - (2*A*b/3 + 2*B*a/3)/x**(3/2
)
```

Mathematica [A] time = 0.0157182, size = 30, normalized size = 0.81

$$-\frac{2(a(3A+5Bx)+5bx(A+3Bx))}{15x^{5/2}}$$

Antiderivative was successfully verified.

```
[In] Integrate[((a + b*x)*(A + B*x))/x^(7/2),x]
```

```
[Out] (-2*(5*b*x*(A + 3*B*x) + a*(3*A + 5*B*x)))/(15*x^(5/2))
```

Maple [A] time = 0.006, size = 28, normalized size = 0.8

$$-\frac{30\,bBx^2+10\,Abx+10\,Bax+6\,Aa}{15}x^{-\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((b*x+a)*(B*x+A)/x^(7/2),x)
```

```
[Out] -2/15*(15*B*b*x^2+5*A*b*x+5*B*a*x+3*A*a)/x^(5/2)
```

Maxima [A] time = 1.33285, size = 36, normalized size = 0.97

$$-\frac{2\left(15\,Bbx^2+3\,Aa+5\,(Ba+Ab)x\right)}{15\,x^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/x^(7/2),x, algorithm="maxima")
```

```
[Out] -2/15*(15*B*b*x^2 + 3*A*a + 5*(B*a + A*b)*x)/x^(5/2)
```

Fricas [A] time = 0.20682, size = 36, normalized size = 0.97

$$-\frac{2\left(15\,Bbx^2+3\,Aa+5\,(Ba+Ab)x\right)}{15\,x^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/x^(7/2),x, algorithm="fricas")
```

```
[Out] -2/15*(15*B*b*x^2 + 3*A*a + 5*(B*a + A*b)*x)/x^(5/2)
```

Sympy [A] time = 7.60234, size = 46, normalized size = 1.24

$$-\frac{2Aa}{5x^{\frac{5}{2}}}-\frac{2Ab}{3x^{\frac{3}{2}}}-\frac{2Ba}{3x^{\frac{3}{2}}}-\frac{2Bb}{\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(B*x+A)/x**(7/2),x)
```

```
[Out] -2*A*a/(5*x**(5/2)) - 2*A*b/(3*x**(3/2)) - 2*B*a/(3*x**(3/2)) - 2
*B*b/sqrt(x)
```

GIAC/XCAS [A] time = 0.262276, size = 36, normalized size = 0.97

$$-\frac{2\left(15\,Bbx^2+5\,Bax+5\,Abx+3\,Aa\right)}{15\,x^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/x^(7/2),x, algorithm="giac")
```

```
[Out] -2/15*(15*B*b*x^2 + 5*B*a*x + 5*A*b*x + 3*A*a)/x^(5/2)
```

3.297 $\int x^{7/2}(a+bx)^2(A+Bx)\,dx$

Optimal. Leaf size=63

$$\frac{2}{9}a^2Ax^{9/2}+\frac{2}{13}bx^{13/2}(2aB+Ab)+\frac{2}{11}ax^{11/2}(aB+2Ab)+\frac{2}{15}b^2Bx^{15/2}$$

```
[Out] (2*a^2*A*x^(9/2))/9 + (2*a*(2*A*b + a*B)*x^(11/2))/11 + (2*b*(A*b
 + 2*a*B)*x^(13/2))/13 + (2*b^2*B*x^(15/2))/15
```

Rubi [A] time = 0.0884939, antiderivative size = 63, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{2}{9}a^2Ax^{9/2}+\frac{2}{13}bx^{13/2}(2aB+Ab)+\frac{2}{11}ax^{11/2}(aB+2Ab)+\frac{2}{15}b^2Bx^{15/2}$$

Antiderivative was successfully verified.

```
[In] Int[x^(7/2)*(a + b*x)^2*(A + B*x),x]
```

```
[Out] (2*a^2*A*x^(9/2))/9 + (2*a*(2*A*b + a*B)*x^(11/2))/11 + (2*b*(A*b
 + 2*a*B)*x^(13/2))/13 + (2*b^2*B*x^(15/2))/15
```

Rubi in Sympy [A] time = 9.28176, size = 63, normalized size = 1.

$$\frac{2Aa^2x^{\frac{9}{2}}}{9}+\frac{2Bb^2x^{\frac{15}{2}}}{15}+\frac{2ax^{\frac{11}{2}}(2Ab+Ba)}{11}+\frac{2bx^{\frac{13}{2}}(Ab+2Ba)}{13}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(x**(7/2)*(b*x+a)**2*(B*x+A),x)
```

```
[Out] 2*A*a**2*x**(9/2)/9 + 2*B*b**2*x**(15/2)/15 + 2*a*x**(11/2)*(2*A*
b + B*a)/11 + 2*b*x**(13/2)*(A*b + 2*B*a)/13
```

Mathematica [A] time = 0.0316591, size = 51, normalized size = 0.81

$$\frac{2x^{9/2}\left(715a^2A+495bx^2(2aB+Ab)+585ax(aB+2Ab)+429b^2Bx^3\right)}{6435}$$

Antiderivative was successfully verified.

```
[In] Integrate[x^(7/2)*(a + b*x)^2*(A + B*x),x]
```

```
[Out] (2*x^(9/2)*(715*a^2*A + 585*a*(2*A*b + a*B)*x + 495*b*(A*b + 2*a*
B)*x^2 + 429*b^2*B*x^3))/6435
```

Maple [A] time = 0.007, size = 52, normalized size = 0.8

$$\frac{858\,Bb^2x^3+990\,Ab^2x^2+1980\,Bx^2ab+2340\,aAbx+1170\,a^2Bx+1430\,a^2A}{6435}x^{\frac{9}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^(7/2)*(b*x+a)^2*(B*x+A),x)
```

```
[Out] 2/6435*x^(9/2)*(429*B*b^2*x^3+495*A*b^2*x^2+990*B*a*b*x^2+1170*A*
a*b*x+585*B*a^2*x+715*A*a^2)
```

Maxima [A] time = 1.339, size = 69, normalized size = 1.1

$$\frac{2}{15}\,Bb^2x^{\frac{15}{2}}+\frac{2}{9}\,Aa^2x^{\frac{9}{2}}+\frac{2}{13}\,\left(2\,Bab+Ab^2\right)x^{\frac{13}{2}}+\frac{2}{11}\,\left(Ba^2+2\,Aab\right)x^{\frac{11}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*x^(7/2),x, algorithm="maxima")
```

```
[Out] 2/15*B*b^2*x^(15/2) + 2/9*A*a^2*x^(9/2) + 2/13*(2*B*a*b + A*b^2)*
x^(13/2) + 2/11*(B*a^2 + 2*A*a*b)*x^(11/2)
```

Fricas [A] time = 0.205497, size = 76, normalized size = 1.21

$$\frac{2}{6435}\,\left(429\,Bb^2x^7+715\,Aa^2x^4+495\,\left(2\,Bab+Ab^2\right)x^6+585\,\left(Ba^2+2\,Aab\right)x^5\right)\sqrt{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*x^(7/2),x, algorithm="fricas")
```

```
[Out] 2/6435*(429*B*b^2*x^7 + 715*A*a^2*x^4 + 495*(2*B*a*b + A*b^2)*x^6
 + 585*(B*a^2 + 2*A*a*b)*x^5)*sqrt(x)
```

Sympy [A] time = 22.6499, size = 80, normalized size = 1.27

$$\frac{2Aa^2x^{\frac{9}{2}}}{9}+\frac{4Aabx^{\frac{11}{2}}}{11}+\frac{2Ab^2x^{\frac{13}{2}}}{13}+\frac{2Ba^2x^{\frac{11}{2}}}{11}+\frac{4Babx^{\frac{13}{2}}}{13}+\frac{2Bb^2x^{\frac{15}{2}}}{15}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**(7/2)*(b*x+a)**2*(B*x+A),x)
```

```
[Out] 2*A*a**2*x**(9/2)/9 + 4*A*a*b*x**(11/2)/11 + 2*A*b**2*x**(13/2)/1
3 + 2*B*a**2*x**(11/2)/11 + 4*B*a*b*x**(13/2)/13 + 2*B*b**2*x**(1
5/2)/15
```

GIAC/XCAS [A] time = 0.253962, size = 72, normalized size = 1.14

$$\frac{2}{15}\,Bb^2x^{\frac{15}{2}}+\frac{4}{13}\,Babx^{\frac{13}{2}}+\frac{2}{13}\,Ab^2x^{\frac{13}{2}}+\frac{2}{11}\,Ba^2x^{\frac{11}{2}}+\frac{4}{11}\,Aabx^{\frac{11}{2}}+\frac{2}{9}\,Aa^2x^{\frac{9}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*x^(7/2),x, algorithm="giac")
```

```
[Out] 2/15*B*b^2*x^(15/2) + 4/13*B*a*b*x^(13/2) + 2/13*A*b^2*x^(13/2) +
 2/11*B*a^2*x^(11/2) + 4/11*A*a*b*x^(11/2) + 2/9*A*a^2*x^(9/2)
```

3.298 $\int x^{5/2}(a+bx)^2(A+Bx)\,dx$

Optimal. Leaf size=63

$$\frac{2}{7}a^2Ax^{7/2}+\frac{2}{11}bx^{11/2}(2aB+Ab)+\frac{2}{9}ax^{9/2}(aB+2Ab)+\frac{2}{13}b^2Bx^{13/2}$$

```
[Out] (2*a^2*A*x^(7/2))/7 + (2*a*(2*A*b + a*B)*x^(9/2))/9 + (2*b*(A*b +
 2*a*B)*x^(11/2))/11 + (2*b^2*B*x^(13/2))/13
```

Rubi [A] time = 0.0829703, antiderivative size = 63, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{2}{7}a^2Ax^{7/2}+\frac{2}{11}bx^{11/2}(2aB+Ab)+\frac{2}{9}ax^{9/2}(aB+2Ab)+\frac{2}{13}b^2Bx^{13/2}$$

Antiderivative was successfully verified.

```
[In]  Int[x^(5/2)*(a + b*x)^2*(A + B*x),x]
```

```
[Out] (2*a^2*A*x^(7/2))/7 + (2*a*(2*A*b + a*B)*x^(9/2))/9 + (2*b*(A*b +
 2*a*B)*x^(11/2))/11 + (2*b^2*B*x^(13/2))/13
```

Rubi in Sympy [A] time = 9.15124, size = 63, normalized size = 1.

$$\frac{2Aa^2x^{\frac{7}{2}}}{7}+\frac{2Bb^2x^{\frac{13}{2}}}{13}+\frac{2ax^{\frac{9}{2}}\left(2Ab+Ba\right)}{9}+\frac{2bx^{\frac{11}{2}}\left(Ab+2Ba\right)}{11}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**(5/2)*(b*x+a)**2*(B*x+A),x)
```

```
[Out] 2*A*a**2*x**(7/2)/7 + 2*B*b**2*x**(13/2)/13 + 2*a*x**(9/2)*(2*A*b
 + B*a)/9 + 2*b*x**(11/2)*(A*b + 2*B*a)/11
```

Mathematica [A] time = 0.0272165, size = 52, normalized size = 0.83

$$\frac{2x^{7/2}\left(143a^2(9A+7Bx)+182abx(11A+9Bx)+63b^2x^2(13A+11Bx)\right)}{9009}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^(5/2)*(a + b*x)^2*(A + B*x),x]
```

```
[Out] (2*x^(7/2)*(143*a^2*(9*A + 7*B*x) + 182*a*b*x*(11*A + 9*B*x) + 63
*b^2*x^2*(13*A + 11*B*x)))/9009
```

Maple [A] time = 0.008, size = 52, normalized size = 0.8

$$\frac{1386\,Bb^2x^3+1638\,Ab^2x^2+3276\,Bx^2ab+4004\,aAbx+2002\,a^2Bx+2574\,a^2A}{9009}x^{\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^(5/2)*(b*x+a)^2*(B*x+A),x)
```

```
[Out] 2/9009*x^(7/2)*(693*B*b^2*x^3+819*A*b^2*x^2+1638*B*a*b*x^2+2002*A
*a*b*x+1001*B*a^2*x+1287*A*a^2)
```

Maxima [A] time = 1.33361, size = 69, normalized size = 1.1

$$\frac{2}{13}\,Bb^2x^{\frac{13}{2}}+\frac{2}{7}\,Aa^2x^{\frac{7}{2}}+\frac{2}{11}\left(2\,Bab+Ab^2\right)x^{\frac{11}{2}}+\frac{2}{9}\left(Ba^2+2\,Aab\right)x^{\frac{9}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*x^(5/2),x, algorithm="maxima")
```

```
[Out] 2/13*B*b^2*x^(13/2) + 2/7*A*a^2*x^(7/2) + 2/11*(2*B*a*b + A*b^2)*
x^(11/2) + 2/9*(B*a^2 + 2*A*a*b)*x^(9/2)
```

Fricas [A] time = 0.206919, size = 76, normalized size = 1.21

$$\frac{2}{9009}\left(693\,Bb^2x^6+1287\,Aa^2x^3+819\left(2\,Bab+Ab^2\right)x^5+1001\left(Ba^2+2\,Aab\right)x^4\right)\sqrt{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*x^(5/2),x, algorithm="fricas")
```

```
[Out] 2/9009*(693*B*b^2*x^6 + 1287*A*a^2*x^3 + 819*(2*B*a*b + A*b^2)*x^
5 + 1001*(B*a^2 + 2*A*a*b)*x^4)*sqrt(x)
```

Sympy [A] time = 10.3218, size = 80, normalized size = 1.27

$$\frac{2Aa^2x^{\frac{7}{2}}}{7}+\frac{4Aabx^{\frac{9}{2}}}{9}+\frac{2Ab^2x^{\frac{11}{2}}}{11}+\frac{2Ba^2x^{\frac{9}{2}}}{9}+\frac{4Babx^{\frac{11}{2}}}{11}+\frac{2Bb^2x^{\frac{13}{2}}}{13}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**(5/2)*(b*x+a)**2*(B*x+A),x)
```

```
[Out] 2*A*a**2*x**(7/2)/7 + 4*A*a*b*x**(9/2)/9 + 2*A*b**2*x**(11/2)/11
+ 2*B*a**2*x**(9/2)/9 + 4*B*a*b*x**(11/2)/11 + 2*B*b**2*x**(13/2)
/13
```

GIAC/XCAS [A] time = 0.270339, size = 72, normalized size = 1.14

$$\frac{2}{13}\,Bb^2x^{\frac{13}{2}}+\frac{4}{11}\,Babx^{\frac{11}{2}}+\frac{2}{11}\,Ab^2x^{\frac{11}{2}}+\frac{2}{9}\,Ba^2x^{\frac{9}{2}}+\frac{4}{9}\,Aabx^{\frac{9}{2}}+\frac{2}{7}\,Aa^2x^{\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*x^(5/2),x, algorithm="giac")
```

```
[Out] 2/13*B*b^2*x^(13/2) + 4/11*B*a*b*x^(11/2) + 2/11*A*b^2*x^(11/2) +
 2/9*B*a^2*x^(9/2) + 4/9*A*a*b*x^(9/2) + 2/7*A*a^2*x^(7/2)
```

3.299 $\int x^{3/2}(a+bx)^2(A+Bx)\,dx$

Optimal. Leaf size=63

$$\frac{2}{5}a^2Ax^{5/2}+\frac{2}{9}bx^{9/2}(2aB+Ab)+\frac{2}{7}ax^{7/2}(aB+2Ab)+\frac{2}{11}b^2Bx^{11/2}$$

```
[Out] (2*a^2*A*x^(5/2))/5 + (2*a*(2*A*b + a*B)*x^(7/2))/7 + (2*b*(A*b +
 2*a*B)*x^(9/2))/9 + (2*b^2*B*x^(11/2))/11
```

Rubi [A] time = 0.0805116, antiderivative size = 63, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{2}{5}a^2Ax^{5/2}+\frac{2}{9}bx^{9/2}(2aB+Ab)+\frac{2}{7}ax^{7/2}(aB+2Ab)+\frac{2}{11}b^2Bx^{11/2}$$

Antiderivative was successfully verified.

```
[In] Int[x^(3/2)*(a + b*x)^2*(A + B*x),x]
```

```
[Out] (2*a^2*A*x^(5/2))/5 + (2*a*(2*A*b + a*B)*x^(7/2))/7 + (2*b*(A*b +
 2*a*B)*x^(9/2))/9 + (2*b^2*B*x^(11/2))/11
```

Rubi in Sympy [A] time = 9.01741, size = 63, normalized size = 1.

$$\frac{2Aa^2x^{\frac{5}{2}}}{5}+\frac{2Bb^2x^{\frac{11}{2}}}{11}+\frac{2ax^{\frac{7}{2}}(2Ab+Ba)}{7}+\frac{2bx^{\frac{9}{2}}(Ab+2Ba)}{9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(x**(3/2)*(b*x+a)**2*(B*x+A),x)
```

```
[Out] 2*A*a**2*x**(5/2)/5 + 2*B*b**2*x**(11/2)/11 + 2*a*x**(7/2)*(2*A*b
 + B*a)/7 + 2*b*x**(9/2)*(A*b + 2*B*a)/9
```

Mathematica [A] time = 0.0277345, size = 52, normalized size = 0.83

$$\frac{2x^{5/2}\left(99a^2(7A+5Bx)+110abx(9A+7Bx)+35b^2x^2(11A+9Bx)\right)}{3465}$$

Antiderivative was successfully verified.

```
[In] Integrate[x^(3/2)*(a + b*x)^2*(A + B*x),x]
```

```
[Out] (2*x^(5/2)*(99*a^2*(7*A + 5*B*x) + 110*a*b*x*(9*A + 7*B*x) + 35*b
^2*x^2*(11*A + 9*B*x)))/3465
```

Maple [A] time = 0.007, size = 52, normalized size = 0.8

$$\frac{630\,Bb^2x^3+770\,Ab^2x^2+1540\,Bx^2ab+1980\,aAbx+990\,a^2Bx+1386\,a^2A}{3465}x^{\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^(3/2)*(b*x+a)^2*(B*x+A),x)
```

```
[Out] 2/3465*x^(5/2)*(315*B*b^2*x^3+385*A*b^2*x^2+770*B*a*b*x^2+990*A*a
*b*x+495*B*a^2*x+693*A*a^2)
```

Maxima [A] time = 1.34737, size = 69, normalized size = 1.1

$$\frac{2}{11}\,Bb^2x^{\frac{11}{2}}+\frac{2}{5}\,Aa^2x^{\frac{5}{2}}+\frac{2}{9}\left(2\,Bab+Ab^2\right)x^{\frac{9}{2}}+\frac{2}{7}\left(Ba^2+2\,Aab\right)x^{\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*x^(3/2),x, algorithm="maxima")
```

```
[Out] 2/11*B*b^2*x^(11/2) + 2/5*A*a^2*x^(5/2) + 2/9*(2*B*a*b + A*b^2)*x
^(9/2) + 2/7*(B*a^2 + 2*A*a*b)*x^(7/2)
```

Fricas [A] time = 0.207027, size = 76, normalized size = 1.21

$$\frac{2}{3465}\left(315\,Bb^2x^5+693\,Aa^2x^2+385\left(2\,Bab+Ab^2\right)x^4+495\left(Ba^2+2\,Aab\right)x^3\right)\sqrt{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*x^(3/2),x, algorithm="fricas")
```

```
[Out] 2/3465*(315*B*b^2*x^5 + 693*A*a^2*x^2 + 385*(2*B*a*b + A*b^2)*x^4
 + 495*(B*a^2 + 2*A*a*b)*x^3)*sqrt(x)
```

Sympy [A] time = 5.06056, size = 80, normalized size = 1.27

$$\frac{2Aa^2x^{\frac{5}{2}}}{5}+\frac{4Aabx^{\frac{7}{2}}}{7}+\frac{2Ab^2x^{\frac{9}{2}}}{9}+\frac{2Ba^2x^{\frac{7}{2}}}{7}+\frac{4Babx^{\frac{9}{2}}}{9}+\frac{2Bb^2x^{\frac{11}{2}}}{11}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**(3/2)*(b*x+a)**2*(B*x+A),x)
```

```
[Out] 2*A*a**2*x**(5/2)/5 + 4*A*a*b*x**(7/2)/7 + 2*A*b**2*x**(9/2)/9 +
2*B*a**2*x**(7/2)/7 + 4*B*a*b*x**(9/2)/9 + 2*B*b**2*x**(11/2)/11
```

GIAC/XCAS [A] time = 0.251279, size = 72, normalized size = 1.14

$$\frac{2}{11}\,Bb^2x^{\frac{11}{2}}+\frac{4}{9}\,Babx^{\frac{9}{2}}+\frac{2}{9}\,Ab^2x^{\frac{9}{2}}+\frac{2}{7}\,Ba^2x^{\frac{7}{2}}+\frac{4}{7}\,Aabx^{\frac{7}{2}}+\frac{2}{5}\,Aa^2x^{\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*x^(3/2),x, algorithm="giac")
```

```
[Out] 2/11*B*b^2*x^(11/2) + 4/9*B*a*b*x^(9/2) + 2/9*A*b^2*x^(9/2) + 2/7
*B*a^2*x^(7/2) + 4/7*A*a*b*x^(7/2) + 2/5*A*a^2*x^(5/2)
```

3.300 $\int \sqrt{x}(a+bx)^2(A+Bx)\,dx$

Optimal. Leaf size=63

$$\frac{2}{3}a^2Ax^{3/2}+\frac{2}{7}bx^{7/2}(2aB+Ab)+\frac{2}{5}ax^{5/2}(aB+2Ab)+\frac{2}{9}b^2Bx^{9/2}$$

```
[Out] (2*a^2*A*x^(3/2))/3 + (2*a*(2*A*b + a*B)*x^(5/2))/5 + (2*b*(A*b +
 2*a*B)*x^(7/2))/7 + (2*b^2*B*x^(9/2))/9
```

Rubi [A] time = 0.0771655, antiderivative size = 63, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{2}{3}a^2Ax^{3/2}+\frac{2}{7}bx^{7/2}(2aB+Ab)+\frac{2}{5}ax^{5/2}(aB+2Ab)+\frac{2}{9}b^2Bx^{9/2}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[x]*(a + b*x)^2*(A + B*x),x]
```

```
[Out] (2*a^2*A*x^(3/2))/3 + (2*a*(2*A*b + a*B)*x^(5/2))/5 + (2*b*(A*b +
 2*a*B)*x^(7/2))/7 + (2*b^2*B*x^(9/2))/9
```

Rubi in Sympy [A] time = 9.02685, size = 63, normalized size = 1.

$$\frac{2Aa^2x^{\frac{3}{2}}}{3}+\frac{2Bb^2x^{\frac{9}{2}}}{9}+\frac{2ax^{\frac{5}{2}}\left(2Ab+Ba\right)}{5}+\frac{2bx^{\frac{7}{2}}\left(Ab+2Ba\right)}{7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**2*(B*x+A)*x**(1/2),x)
```

```
[Out] 2*A*a**2*x**(3/2)/3 + 2*B*b**2*x**(9/2)/9 + 2*a*x**(5/2)*(2*A*b +
 B*a)/5 + 2*b*x**(7/2)*(A*b + 2*B*a)/7
```

Mathematica [A] time = 0.0271333, size = 52, normalized size = 0.83

$$\frac{2}{315}x^{3/2}\left(21a^2(5A+3Bx)+18abx(7A+5Bx)+5b^2x^2(9A+7Bx)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[x]*(a + b*x)^2*(A + B*x),x]
```

```
[Out] (2*x^(3/2)*(21*a^2*(5*A + 3*B*x) + 18*a*b*x*(7*A + 5*B*x) + 5*b^2
*x^2*(9*A + 7*B*x)))/315
```

Maple [A] time = 0.007, size = 52, normalized size = 0.8

$$\frac{70\,Bb^2x^3+90\,Ab^2x^2+180\,Bx^2ab+252\,aAbx+126\,a^2Bx+210\,a^2A}{315}x^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^2*(B*x+A)*x^(1/2),x)
```

```
[Out] 2/315*x^(3/2)*(35*B*b^2*x^3+45*A*b^2*x^2+90*B*a*b*x^2+126*A*a*b*x
+63*B*a^2*x+105*A*a^2)
```

Maxima [A] time = 1.35597, size = 69, normalized size = 1.1

$$\frac{2}{9} Bb^2x^{\frac{9}{2}} + \frac{2}{3} Aa^2x^{\frac{3}{2}} + \frac{2}{7} \left(2 Bab + Ab^2\right) x^{\frac{7}{2}} + \frac{2}{5} \left(Ba^2 + 2 Aab\right) x^{\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*sqrt(x),x, algorithm="maxima")
```

```
[Out] 2/9*B*b^2*x^(9/2) + 2/3*A*a^2*x^(3/2) + 2/7*(2*B*a*b + A*b^2)*x^(
7/2) + 2/5*(B*a^2 + 2*A*a*b)*x^(5/2)
```

Fricas [A] time = 0.20871, size = 73, normalized size = 1.16

$$\frac{2}{315} \left(35 Bb^2x^4 + 105 Aa^2x + 45 \left(2 Bab + Ab^2\right) x^3 + 63 \left(Ba^2 + 2 Aab\right) x^2\right) \sqrt{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*sqrt(x),x, algorithm="fricas")
```

```
[Out] 2/315*(35*B*b^2*x^4 + 105*A*a^2*x + 45*(2*B*a*b + A*b^2)*x^3 + 63
*(B*a^2 + 2*A*a*b)*x^2)*sqrt(x)
```

Sympy [A] time = 4.23366, size = 66, normalized size = 1.05

$$\frac{2Aa^2x^{\frac{3}{2}}}{3} + \frac{2Bb^2x^{\frac{9}{2}}}{9} + \frac{2x^{\frac{7}{2}} \left(Ab^2 + 2Bab\right)}{7} + \frac{2x^{\frac{5}{2}} \left(2Aab + Ba^2\right)}{5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**2*(B*x+A)*x**(1/2),x)
```

```
[Out] 2*A*a**2*x**(3/2)/3 + 2*B*b**2*x**(9/2)/9 + 2*x**(7/2)*(A*b**2 +
2*B*a*b)/7 + 2*x**(5/2)*(2*A*a*b + B*a**2)/5
```

GIAC/XCAS [A] time = 0.248239, size = 72, normalized size = 1.14

$$\frac{2}{9} Bb^2x^{\frac{9}{2}} + \frac{4}{7} Babx^{\frac{7}{2}} + \frac{2}{7} Ab^2x^{\frac{7}{2}} + \frac{2}{5} Ba^2x^{\frac{5}{2}} + \frac{4}{5} Aabx^{\frac{5}{2}} + \frac{2}{3} Aa^2x^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*sqrt(x),x, algorithm="giac")
```

```
[Out] 2/9*B*b^2*x^(9/2) + 4/7*B*a*b*x^(7/2) + 2/7*A*b^2*x^(7/2) + 2/5*B
*a^2*x^(5/2) + 4/5*A*a*b*x^(5/2) + 2/3*A*a^2*x^(3/2)
```

3.301 $\int \frac{(a+bx)^2(A+Bx)}{\sqrt{x}}\,dx$

Optimal. Leaf size=61

$$2a^2A\sqrt{x}+\frac{2}{5}bx^{5/2}(2aB+Ab)+\frac{2}{3}ax^{3/2}(aB+2Ab)+\frac{2}{7}b^2Bx^{7/2}$$

```
[Out] 2*a^2*A*Sqrt[x] + (2*a*(2*A*b + a*B)*x^(3/2))/3 + (2*b*(A*b + 2*a
*B)*x^(5/2))/5 + (2*b^2*B*x^(7/2))/7
```

Rubi [A] time = 0.0769108, antiderivative size = 61, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$2a^2A\sqrt{x}+\frac{2}{5}bx^{5/2}(2aB+Ab)+\frac{2}{3}ax^{3/2}(aB+2Ab)+\frac{2}{7}b^2Bx^{7/2}$$

Antiderivative was successfully verified.

```
[In] Int[((a + b*x)^2*(A + B*x))/Sqrt[x],x]
```

```
[Out] 2*a^2*A*Sqrt[x] + (2*a*(2*A*b + a*B)*x^(3/2))/3 + (2*b*(A*b + 2*a
*B)*x^(5/2))/5 + (2*b^2*B*x^(7/2))/7
```

Rubi in Sympy [A] time = 8.98865, size = 61, normalized size = 1.

$$2Aa^2\sqrt{x}+\frac{2Bb^2x^{\frac{7}{2}}}{7}+\frac{2ax^{\frac{3}{2}}\left(2Ab+Ba\right)}{3}+\frac{2bx^{\frac{5}{2}}\left(Ab+2Ba\right)}{5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)**2*(B*x+A)/x**(1/2),x)
```

```
[Out] 2*A*a**2*sqrt(x) + 2*B*b**2*x**(7/2)/7 + 2*a*x**(3/2)*(2*A*b + B*
a)/3 + 2*b*x**(5/2)*(A*b + 2*B*a)/5
```

Mathematica [A] time = 0.0272869, size = 51, normalized size = 0.84

$$\frac{2}{105}\sqrt{x}\left(35a^2(3A+Bx)+14abx(5A+3Bx)+3b^2x^2(7A+5Bx)\right)$$

Antiderivative was successfully verified.

```
[In] Integrate[((a + b*x)^2*(A + B*x))/Sqrt[x],x]
```

```
[Out] (2*Sqrt[x]*(35*a^2*(3*A + B*x) + 14*a*b*x*(5*A + 3*B*x) + 3*b^2*x
^2*(7*A + 5*B*x)))/105
```

Maple [A] time = 0.009, size = 52, normalized size = 0.9

$$\frac{30\,Bb^2x^3+42\,Ab^2x^2+84\,Bx^2ab+140\,aAbx+70\,a^2Bx+210\,a^2A}{105}\sqrt{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((b*x+a)^2*(B*x+A)/x^(1/2),x)
```

```
[Out] 2/105*x^(1/2)*(15*B*b^2*x^3+21*A*b^2*x^2+42*B*a*b*x^2+70*A*a*b*x+
35*B*a^2*x+105*A*a^2)
```

Maxima [A] time = 1.36247, size = 69, normalized size = 1.13

$$\frac{2}{7}\,Bb^{2}x^{\frac{7}{2}} + 2\,Aa^{2}\sqrt{x} + \frac{2}{5}\left(2\,Bab + Ab^{2}\right)x^{\frac{5}{2}} + \frac{2}{3}\left(Ba^{2} + 2\,Aab\right)x^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*(b*x + a)^2/sqrt(x),x, algorithm="maxima")
```

```
[Out] 2/7*B*b^2*x^(7/2) + 2*A*a^2*sqrt(x) + 2/5*(2*B*a*b + A*b^2)*x^(5/
2) + 2/3*(B*a^2 + 2*A*a*b)*x^(3/2)
```

Fricas [A] time = 0.205841, size = 69, normalized size = 1.13

$$\frac{2}{105}\left(15\,Bb^{2}x^{3} + 105\,Aa^{2} + 21\left(2\,Bab + Ab^{2}\right)x^{2} + 35\left(Ba^{2} + 2\,Aab\right)x\right)\sqrt{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*(b*x + a)^2/sqrt(x),x, algorithm="fricas")
```

```
[Out] 2/105*(15*B*b^2*x^3 + 105*A*a^2 + 21*(2*B*a*b + A*b^2)*x^2 + 35*(
B*a^2 + 2*A*a*b)*x)*sqrt(x)
```

Sympy [A] time = 7.0341, size = 78, normalized size = 1.28

$$2Aa^{2}\sqrt{x} + \frac{4Aabx^{\frac{3}{2}}}{3} + \frac{2Ab^{2}x^{\frac{5}{2}}}{5} + \frac{2Ba^{2}x^{\frac{3}{2}}}{3} + \frac{4Babx^{\frac{5}{2}}}{5} + \frac{2Bb^{2}x^{\frac{7}{2}}}{7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((b*x+a)**2*(B*x+A)/x**(1/2),x)
```

```
[Out] 2*A*a**2*sqrt(x) + 4*A*a*b*x**(3/2)/3 + 2*A*b**2*x**(5/2)/5 + 2*B
*a**2*x**(3/2)/3 + 4*B*a*b*x**(5/2)/5 + 2*B*b**2*x**(7/2)/7
```

GIAC/XCAS [A] time = 0.259753, size = 72, normalized size = 1.18

$$\frac{2}{7}\,Bb^{2}x^{\frac{7}{2}} + \frac{4}{5}\,Babx^{\frac{5}{2}} + \frac{2}{5}\,Ab^{2}x^{\frac{5}{2}} + \frac{2}{3}\,Ba^{2}x^{\frac{3}{2}} + \frac{4}{3}\,Aabx^{\frac{3}{2}} + 2\,Aa^{2}\sqrt{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*(b*x + a)^2/sqrt(x),x, algorithm="giac")
```

```
[Out] 2/7*B*b^2*x^(7/2) + 4/5*B*a*b*x^(5/2) + 2/5*A*b^2*x^(5/2) + 2/3*B
*a^2*x^(3/2) + 4/3*A*a*b*x^(3/2) + 2*A*a^2*sqrt(x)
```

3.302 $\int \frac{(a+bx)^2(A+Bx)}{x^{3/2}} \, dx$

Optimal. Leaf size=59

$$-\frac{2a^2A}{\sqrt{x}}+\frac{2}{3}bx^{3/2}(2aB+Ab)+2a\sqrt{x}(aB+2Ab)+\frac{2}{5}b^2Bx^{5/2}$$

```
[Out] (-2*a^2*A)/Sqrt[x] + 2*a*(2*A*b + a*B)*Sqrt[x] + (2*b*(A*b + 2*a*
B)*x^(3/2))/3 + (2*b^2*B*x^(5/2))/5
```

Rubi [A] time = 0.0787782, antiderivative size = 59, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{2a^2A}{\sqrt{x}}+\frac{2}{3}bx^{3/2}(2aB+Ab)+2a\sqrt{x}(aB+2Ab)+\frac{2}{5}b^2Bx^{5/2}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^2*(A + B*x))/x^(3/2),x]
```

```
[Out] (-2*a^2*A)/Sqrt[x] + 2*a*(2*A*b + a*B)*Sqrt[x] + (2*b*(A*b + 2*a*
B)*x^(3/2))/3 + (2*b^2*B*x^(5/2))/5
```

Rubi in Sympy [A] time = 8.92913, size = 60, normalized size = 1.02

$$-\frac{2Aa^2}{\sqrt{x}}+\frac{2Bb^2x^{\frac{5}{2}}}{5}+2a\sqrt{x}\,(2Ab+Ba)+\frac{2bx^{\frac{3}{2}}\,(Ab+2Ba)}{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**2*(B*x+A)/x**(3/2),x)
```

```
[Out] -2*A*a**2/sqrt(x) + 2*B*b**2*x**(5/2)/5 + 2*a*sqrt(x)*(2*A*b + B*
a) + 2*b*x**(3/2)*(A*b + 2*B*a)/3
```

Mathematica [A] time = 0.0239133, size = 49, normalized size = 0.83

$$\frac{-30a^2(A-Bx)+20abx(3A+Bx)+2b^2x^2(5A+3Bx)}{15\sqrt{x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^2*(A + B*x))/x^(3/2),x]
```

```
[Out] (-30*a^2*(A - B*x) + 20*a*b*x*(3*A + B*x) + 2*b^2*x^2*(5*A + 3*B*
x))/(15*Sqrt[x])
```

Maple [A] time = 0.007, size = 52, normalized size = 0.9

$$-\frac{-6\,Bb^2x^3-10\,Ab^2x^2-20\,Bx^2ab-60\,aAbx-30\,a^2Bx+30\,a^2A}{15}\frac{1}{\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^2*(B*x+A)/x^(3/2),x)
```

```
[Out] -2/15*(-3*B*b^2*x^3-5*A*b^2*x^2-10*B*a*b*x^2-30*A*a*b*x-15*B*a^2*
x+15*A*a^2)/x^(1/2)
```

Maxima [A] time = 1.3502, size = 69, normalized size = 1.17

$$\frac{2}{5}\,Bb^2x^{\frac{5}{2}}-\frac{2\,Aa^2}{\sqrt{x}}+\frac{2}{3}\left(2\,Bab+Ab^2\right)x^{\frac{3}{2}}+2\left(Ba^2+2\,Aab\right)\sqrt{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/x^(3/2),x, algorithm="maxima")
```

```
[Out] 2/5*B*b^2*x^(5/2) - 2*A*a^2/sqrt(x) + 2/3*(2*B*a*b + A*b^2)*x^(3/
2) + 2*(B*a^2 + 2*A*a*b)*sqrt(x)
```

Fricas [A] time = 0.207468, size = 69, normalized size = 1.17

$$\frac{2\left(3\,Bb^2x^3-15\,Aa^2+5\left(2\,Bab+Ab^2\right)x^2+15\left(Ba^2+2\,Aab\right)x\right)}{15\,\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/x^(3/2),x, algorithm="fricas")
```

```
[Out] 2/15*(3*B*b^2*x^3 - 15*A*a^2 + 5*(2*B*a*b + A*b^2)*x^2 + 15*(B*a^
2 + 2*A*a*b)*x)/sqrt(x)
```

Sympy [A] time = 7.09412, size = 75, normalized size = 1.27

$$-\frac{2Aa^2}{\sqrt{x}}+4Aab\sqrt{x}+\frac{2Ab^2x^{\frac{3}{2}}}{3}+2Ba^2\sqrt{x}+\frac{4Babx^{\frac{3}{2}}}{3}+\frac{2Bb^2x^{\frac{5}{2}}}{5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**2*(B*x+A)/x**(3/2),x)
```

```
[Out] -2*A*a**2/sqrt(x) + 4*A*a*b*sqrt(x) + 2*A*b**2*x**(3/2)/3 + 2*B*a
**2*sqrt(x) + 4*B*a*b*x**(3/2)/3 + 2*B*b**2*x**(5/2)/5
```

GIAC/XCAS [A] time = 0.273094, size = 72, normalized size = 1.22

$$\frac{2}{5}\,Bb^2x^{\frac{5}{2}}+\frac{4}{3}\,Babx^{\frac{3}{2}}+\frac{2}{3}\,Ab^2x^{\frac{3}{2}}+2\,Ba^2\sqrt{x}+4\,Aab\sqrt{x}-\frac{2\,Aa^2}{\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/x^(3/2),x, algorithm="giac")
```

```
[Out] 2/5*B*b^2*x^(5/2) + 4/3*B*a*b*x^(3/2) + 2/3*A*b^2*x^(3/2) + 2*B*a
^2*sqrt(x) + 4*A*a*b*sqrt(x) - 2*A*a^2/sqrt(x)
```

3.303 $\int \frac{(a+bx)^2(A+Bx)}{x^{5/2}}\,dx$

Optimal. Leaf size=59

$$-\frac{2a^2A}{3x^{3/2}}-\frac{2a(aB+2Ab)}{\sqrt{x}}+2b\sqrt{x}(2aB+Ab)+\frac{2}{3}b^2Bx^{3/2}$$

```
[Out] (-2*a^2*A)/(3*x^(3/2)) - (2*a*(2*A*b + a*B))/Sqrt[x] + 2*b*(A*b +
 2*a*B)*Sqrt[x] + (2*b^2*B*x^(3/2))/3
```

Rubi [A] time = 0.0807813, antiderivative size = 59, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{2a^2A}{3x^{3/2}}-\frac{2a(aB+2Ab)}{\sqrt{x}}+2b\sqrt{x}(2aB+Ab)+\frac{2}{3}b^2Bx^{3/2}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^2*(A + B*x))/x^(5/2),x]
```

```
[Out] (-2*a^2*A)/(3*x^(3/2)) - (2*a*(2*A*b + a*B))/Sqrt[x] + 2*b*(A*b +
 2*a*B)*Sqrt[x] + (2*b^2*B*x^(3/2))/3
```

Rubi in Sympy [A] time = 8.93085, size = 60, normalized size = 1.02

$$-\frac{2Aa^2}{3x^{\frac{3}{2}}}+\frac{2Bb^2x^{\frac{3}{2}}}{3}-\frac{2a\,(2Ab+Ba)}{\sqrt{x}}+2b\sqrt{x}\,(Ab+2Ba)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**2*(B*x+A)/x**(5/2),x)
```

```
[Out] -2*A*a**2/(3*x**(3/2)) + 2*B*b**2*x**(3/2)/3 - 2*a*(2*A*b + B*a)/
sqrt(x) + 2*b*sqrt(x)*(A*b + 2*B*a)
```

Mathematica [A] time = 0.0265938, size = 47, normalized size = 0.8

$$\frac{2\left(a^2(-(A+3Bx))+6abx(Bx-A)+b^2x^2(3A+Bx)\right)}{3x^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^2*(A + B*x))/x^(5/2),x]
```

```
[Out] (2*(6*a*b*x*(-A + B*x) + b^2*x^2*(3*A + B*x) - a^2*(A + 3*B*x)))/
(3*x^(3/2))
```

Maple [A] time = 0.007, size = 51, normalized size = 0.9

$$-\frac{-2\,Bb^2x^3-6\,Ab^2x^2-12\,Bx^2ab+12\,aAbx+6\,a^2Bx+2\,a^2A}{3}x^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^2*(B*x+A)/x^(5/2),x)
```

```
[Out] -2/3*(-B*b^2*x^3-3*A*b^2*x^2-6*B*a*b*x^2+6*A*a*b*x+3*B*a^2*x+A*a^
2)/x^(3/2)
```

Maxima [A] time = 1.36297, size = 69, normalized size = 1.17

$$\frac{2}{3}\,Bb^2x^{\frac{3}{2}}+2\left(2\,Bab+Ab^2\right)\sqrt{x}-\frac{2\left(Aa^2+3\left(Ba^2+2\,Aab\right)x\right)}{3\,x^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/x^(5/2),x, algorithm="maxima")
```

```
[Out] 2/3*B*b^2*x^(3/2) + 2*(2*B*a*b + A*b^2)*sqrt(x) - 2/3*(A*a^2 + 3*
(B*a^2 + 2*A*a*b)*x)/x^(3/2)
```

Fricas [A] time = 0.210387, size = 68, normalized size = 1.15

$$\frac{2\left(Bb^2x^3-Aa^2+3\left(2\,Bab+Ab^2\right)x^2-3\left(Ba^2+2\,Aab\right)x\right)}{3\,x^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/x^(5/2),x, algorithm="fricas")
```

```
[Out] 2/3*(B*b^2*x^3 - A*a^2 + 3*(2*B*a*b + A*b^2)*x^2 - 3*(B*a^2 + 2*A
*a*b)*x)/x^(3/2)
```

Sympy [A] time = 4.1754, size = 73, normalized size = 1.24

$$-\frac{2Aa^2}{3x^{\frac{3}{2}}}-\frac{4Aab}{\sqrt{x}}+2Ab^2\sqrt{x}-\frac{2Ba^2}{\sqrt{x}}+4Bab\sqrt{x}+\frac{2Bb^2x^{\frac{3}{2}}}{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**2*(B*x+A)/x**(5/2),x)
```

```
[Out] -2*A*a**2/(3*x**(3/2)) - 4*A*a*b/sqrt(x) + 2*A*b**2*sqrt(x) - 2*B
*a**2/sqrt(x) + 4*B*a*b*sqrt(x) + 2*B*b**2*x**(3/2)/3
```

GIAC/XCAS [A] time = 0.280151, size = 69, normalized size = 1.17

$$\frac{2}{3}\,Bb^2x^{\frac{3}{2}}+4\,Bab\sqrt{x}+2\,Ab^2\sqrt{x}-\frac{2\left(3\,Ba^2x+6\,Aabx+Aa^2\right)}{3\,x^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/x^(5/2),x, algorithm="giac")
```

```
[Out] 2/3*B*b^2*x^(3/2) + 4*B*a*b*sqrt(x) + 2*A*b^2*sqrt(x) - 2/3*(3*B*
a^2*x + 6*A*a*b*x + A*a^2)/x^(3/2)
```

3.304 $\int \frac{(a+bx)^2(A+Bx)}{x^{7/2}}\,dx$

Optimal. Leaf size=59

$$-\frac{2a^2A}{5x^{5/2}}-\frac{2a(aB+2Ab)}{3x^{3/2}}-\frac{2b(2aB+Ab)}{\sqrt{x}}+2b^2B\sqrt{x}$$

```
[Out] (-2*a^2*A)/(5*x^(5/2)) - (2*a*(2*A*b + a*B))/(3*x^(3/2)) - (2*b*(
A*b + 2*a*B))/Sqrt[x] + 2*b^2*B*Sqrt[x]
```

Rubi [A] time = 0.0782995, antiderivative size = 59, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{2a^2A}{5x^{5/2}}-\frac{2a(aB+2Ab)}{3x^{3/2}}-\frac{2b(2aB+Ab)}{\sqrt{x}}+2b^2B\sqrt{x}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^2*(A + B*x))/x^(7/2),x]
```

```
[Out] (-2*a^2*A)/(5*x^(5/2)) - (2*a*(2*A*b + a*B))/(3*x^(3/2)) - (2*b*(
A*b + 2*a*B))/Sqrt[x] + 2*b^2*B*Sqrt[x]
```

Rubi in Sympy [A] time = 8.95764, size = 60, normalized size = 1.02

$$-\frac{2Aa^2}{5x^{\frac{5}{2}}}+2Bb^2\sqrt{x}-\frac{2a\left(2Ab+Ba\right)}{3x^{\frac{3}{2}}}-\frac{2b\left(Ab+2Ba\right)}{\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**2*(B*x+A)/x**(7/2),x)
```

```
[Out] -2*A*a**2/(5*x**(5/2)) + 2*B*b**2*sqrt(x) - 2*a*(2*A*b + B*a)/(3*
x**(3/2)) - 2*b*(A*b + 2*B*a)/sqrt(x)
```

Mathematica [A] time = 0.027899, size = 47, normalized size = 0.8

$$-\frac{2\left(a^2(3A+5Bx)+10abx(A+3Bx)+15b^2x^2(A-Bx)\right)}{15x^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^2*(A + B*x))/x^(7/2),x]
```

```
[Out] (-2*(15*b^2*x^2*(A - B*x) + 10*a*b*x*(A + 3*B*x) + a^2*(3*A + 5*B
*x)))/(15*x^(5/2))
```

Maple [A] time = 0.009, size = 52, normalized size = 0.9

$$-\frac{-30\,Bb^2x^3+30\,Ab^2x^2+60\,Bx^2ab+20\,aAbx+10\,a^2Bx+6\,a^2A}{15}x^{-\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^2*(B*x+A)/x^(7/2),x)
```

```
[Out] -2/15*(-15*B*b^2*x^3+15*A*b^2*x^2+30*B*a*b*x^2+10*A*a*b*x+5*B*a^2
*x+3*A*a^2)/x^(5/2)
```

Maxima [A] time = 1.38821, size = 70, normalized size = 1.19

$$2\,Bb^2\sqrt{x} - \frac{2\left(3\,Aa^2 + 15\left(2\,Bab + Ab^2\right)x^2 + 5\left(Ba^2 + 2\,Aab\right)x\right)}{15\,x^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/x^(7/2),x, algorithm="maxima")
```

```
[Out] 2*B*b^2*sqrt(x) - 2/15*(3*A*a^2 + 15*(2*B*a*b + A*b^2)*x^2 + 5*(B
*a^2 + 2*A*a*b)*x)/x^(5/2)
```

Fricas [A] time = 0.20564, size = 69, normalized size = 1.17

$$\frac{2\left(15\,Bb^2x^3 - 3\,Aa^2 - 15\left(2\,Bab + Ab^2\right)x^2 - 5\left(Ba^2 + 2\,Aab\right)x\right)}{15\,x^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/x^(7/2),x, algorithm="fricas")
```

```
[Out] 2/15*(15*B*b^2*x^3 - 3*A*a^2 - 15*(2*B*a*b + A*b^2)*x^2 - 5*(B*a^
2 + 2*A*a*b)*x)/x^(5/2)
```

Sympy [A] time = 8.60836, size = 75, normalized size = 1.27

$$-\frac{2Aa^2}{5x^{\frac{5}{2}}} - \frac{4Aab}{3x^{\frac{3}{2}}} - \frac{2Ab^2}{\sqrt{x}} - \frac{2Ba^2}{3x^{\frac{3}{2}}} - \frac{4Bab}{\sqrt{x}} + 2Bb^2\sqrt{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**2*(B*x+A)/x**(7/2),x)
```

```
[Out] -2*A*a**2/(5*x**(5/2)) - 4*A*a*b/(3*x**(3/2)) - 2*A*b**2/sqrt(x)
- 2*B*a**2/(3*x**(3/2)) - 4*B*a*b/sqrt(x) + 2*B*b**2*sqrt(x)
```

GIAC/XCAS [A] time = 0.261992, size = 70, normalized size = 1.19

$$2\,Bb^2\sqrt{x} - \frac{2\left(30\,Babx^2 + 15\,Ab^2x^2 + 5\,Ba^2x + 10\,Aabx + 3\,Aa^2\right)}{15\,x^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/x^(7/2),x, algorithm="giac")
```

```
[Out] 2*B*b^2*sqrt(x) - 2/15*(30*B*a*b*x^2 + 15*A*b^2*x^2 + 5*B*a^2*x +
 10*A*a*b*x + 3*A*a^2)/x^(5/2)
```

3.305 $\int x^{7/2}(a+bx)^3(A+Bx)\,dx$

Optimal. Leaf size=85

$$\frac{2}{9}a^3Ax^{9/2}+\frac{2}{11}a^2x^{11/2}(aB+3Ab)+\frac{2}{15}b^2x^{15/2}(3aB+Ab)+\frac{6}{13}abx^{13/2}(aB+Ab)+\frac{2}{17}b^3Bx^{17/2}$$

```
[Out] (2*a^3*A*x^(9/2))/9 + (2*a^2*(3*A*b + a*B)*x^(11/2))/11 + (6*a*b*
(A*b + a*B)*x^(13/2))/13 + (2*b^2*(A*b + 3*a*B)*x^(15/2))/15 + (2
*b^3*B*x^(17/2))/17
```

Rubi [A] time = 0.110355, antiderivative size = 85, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{2}{9}a^3Ax^{9/2}+\frac{2}{11}a^2x^{11/2}(aB+3Ab)+\frac{2}{15}b^2x^{15/2}(3aB+Ab)+\frac{6}{13}abx^{13/2}(aB+Ab)+\frac{2}{17}b^3Bx^{17/2}$$

Antiderivative was successfully verified.

```
[In]  Int[x^(7/2)*(a + b*x)^3*(A + B*x),x]
```

```
[Out] (2*a^3*A*x^(9/2))/9 + (2*a^2*(3*A*b + a*B)*x^(11/2))/11 + (6*a*b*
(A*b + a*B)*x^(13/2))/13 + (2*b^2*(A*b + 3*a*B)*x^(15/2))/15 + (2
*b^3*B*x^(17/2))/17
```

Rubi in Sympy [A] time = 12.3685, size = 85, normalized size = 1.

$$\frac{2Aa^3x^{\frac{9}{2}}}{9}+\frac{2Bb^3x^{\frac{17}{2}}}{17}+\frac{2a^2x^{\frac{11}{2}}\,(3Ab+Ba)}{11}+\frac{6abx^{\frac{13}{2}}\,(Ab+Ba)}{13}+\frac{2b^2x^{\frac{15}{2}}\,(Ab+3Ba)}{15}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**(7/2)*(b*x+a)**3*(B*x+A),x)
```

```
[Out] 2*A*a**3*x**(9/2)/9 + 2*B*b**3*x**(17/2)/17 + 2*a**2*x**(11/2)*(3
*A*b + B*a)/11 + 6*a*b*x**(13/2)*(A*b + B*a)/13 + 2*b**2*x**(15/2
)*(A*b + 3*B*a)/15
```

Mathematica [A] time = 0.0420973, size = 69, normalized size = 0.81

$$\frac{2x^{9/2}\left(12155a^3A+9945a^2x(aB+3Ab)+7293b^2x^3(3aB+Ab)+25245abx^2(aB+Ab)+6435b^3Bx^4\right)}{109395}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^(7/2)*(a + b*x)^3*(A + B*x),x]
```

```
[Out] (2*x^(9/2)*(12155*a^3*A + 9945*a^2*(3*A*b + a*B)*x + 25245*a*b*(A
*b + a*B)*x^2 + 7293*b^2*(A*b + 3*a*B)*x^3 + 6435*b^3*B*x^4))/109
395
```

Maple [A] time = 0.008, size = 76, normalized size = 0.9

$$\frac{12870\,Bb^3x^4+14586\,Ab^3x^3+43758\,Bx^3ab^2+50490\,aAb^2x^2+50490\,Bx^2a^2b+59670\,a^2Abx+19890\,a^3Bx+24310\,a^3A}{109395}x^{\frac{9}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^(7/2)*(b*x+a)^3*(B*x+A),x)
```

```
[Out] 2/109395*x^(9/2)*(6435*B*b^3*x^4+7293*A*b^3*x^3+21879*B*a*b^2*x^3
+25245*A*a*b^2*x^2+25245*B*a^2*b*x^2+29835*A*a^2*b*x+9945*B*a^3*x
+12155*A*a^3)
```

Maxima [A] time = 1.37426, size = 99, normalized size = 1.16

$$\frac{2}{17}\,Bb^3x^{\frac{17}{2}}+\frac{2}{9}\,Aa^3x^{\frac{9}{2}}+\frac{2}{15}\,\left(3\,Bab^2+Ab^3\right)x^{\frac{15}{2}}+\frac{6}{13}\,\left(Ba^2b+Aab^2\right)x^{\frac{13}{2}}+\frac{2}{11}\,\left(Ba^3+3\,Aa^2b\right)x^{\frac{11}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*x^(7/2),x, algorithm="maxima")
```

```
[Out] 2/17*B*b^3*x^(17/2) + 2/9*A*a^3*x^(9/2) + 2/15*(3*B*a*b^2 + A*b^3
)*x^(15/2) + 6/13*(B*a^2*b + A*a*b^2)*x^(13/2) + 2/11*(B*a^3 + 3*
A*a^2*b)*x^(11/2)
```

Fricas [A] time = 0.207559, size = 105, normalized size = 1.24

$$\frac{2}{109395}\,\left(6435\,Bb^3x^8+12155\,Aa^3x^4+7293\,\left(3\,Bab^2+Ab^3\right)x^7+25245\,\left(Ba^2b+Aab^2\right)x^6+9945\,\left(Ba^3+3\,Aa^2b\right)x^5\right)\sqrt{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*x^(7/2),x, algorithm="fricas")
```

```
[Out] 2/109395*(6435*B*b^3*x^8 + 12155*A*a^3*x^4 + 7293*(3*B*a*b^2 + A*
b^3)*x^7 + 25245*(B*a^2*b + A*a*b^2)*x^6 + 9945*(B*a^3 + 3*A*a^2*
b)*x^5)*sqrt(x)
```

Sympy [A] time = 30.6434, size = 114, normalized size = 1.34

$$\frac{2Aa^3x^{\frac{9}{2}}}{9}+\frac{6Aa^2bx^{\frac{11}{2}}}{11}+\frac{6Aab^2x^{\frac{13}{2}}}{13}+\frac{2Ab^3x^{\frac{15}{2}}}{15}+\frac{2Ba^3x^{\frac{11}{2}}}{11}+\frac{6Ba^2bx^{\frac{13}{2}}}{13}+\frac{2Bab^2x^{\frac{15}{2}}}{5}+\frac{2Bb^3x^{\frac{17}{2}}}{17}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**(7/2)*(b*x+a)**3*(B*x+A),x)
```

```
[Out] 2*A*a**3*x**(9/2)/9 + 6*A*a**2*b*x**(11/2)/11 + 6*A*a*b**2*x**(13
/2)/13 + 2*A*b**3*x**(15/2)/15 + 2*B*a**3*x**(11/2)/11 + 6*B*a**2
*b*x**(13/2)/13 + 2*B*a*b**2*x**(15/2)/5 + 2*B*b**3*x**(17/2)/17
```

GIAC/XCAS [A] time = 0.251853, size = 104, normalized size = 1.22

$$\frac{2}{17}\,Bb^3x^{\frac{17}{2}}+\frac{2}{5}\,Bab^2x^{\frac{15}{2}}+\frac{2}{15}\,Ab^3x^{\frac{15}{2}}+\frac{6}{13}\,Ba^2bx^{\frac{13}{2}}+\frac{6}{13}\,Aab^2x^{\frac{13}{2}}+\frac{2}{11}\,Ba^3x^{\frac{11}{2}}+\frac{6}{11}\,Aa^2bx^{\frac{11}{2}}+\frac{2}{9}\,Aa^3x^{\frac{9}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*x^(7/2),x, algorithm="giac")
```

```
[Out] 2/17*B*b^3*x^(17/2) + 2/5*B*a*b^2*x^(15/2) + 2/15*A*b^3*x^(15/2)
+ 6/13*B*a^2*b*x^(13/2) + 6/13*A*a*b^2*x^(13/2) + 2/11*B*a^3*x^(1
1/2) + 6/11*A*a^2*b*x^(11/2) + 2/9*A*a^3*x^(9/2)
```

3.306 $\int x^{5/2}(a+bx)^3(A+Bx)\,dx$

Optimal. Leaf size=85

$$\frac{2}{7}a^3Ax^{7/2}+\frac{2}{9}a^2x^{9/2}(aB+3Ab)+\frac{2}{13}b^2x^{13/2}(3aB+Ab)+\frac{6}{11}abx^{11/2}(aB+Ab)+\frac{2}{15}b^3Bx^{15/2}$$

```
[Out] (2*a^3*A*x^(7/2))/7 + (2*a^2*(3*A*b + a*B)*x^(9/2))/9 + (6*a*b*(A
*b + a*B)*x^(11/2))/11 + (2*b^2*(A*b + 3*a*B)*x^(13/2))/13 + (2*b
^3*B*x^(15/2))/15
```

Rubi [A] time = 0.108089, antiderivative size = 85, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{2}{7}a^3Ax^{7/2}+\frac{2}{9}a^2x^{9/2}(aB+3Ab)+\frac{2}{13}b^2x^{13/2}(3aB+Ab)+\frac{6}{11}abx^{11/2}(aB+Ab)+\frac{2}{15}b^3Bx^{15/2}$$

Antiderivative was successfully verified.

```
[In] Int[x^(5/2)*(a + b*x)^3*(A + B*x),x]
```

```
[Out] (2*a^3*A*x^(7/2))/7 + (2*a^2*(3*A*b + a*B)*x^(9/2))/9 + (6*a*b*(A
*b + a*B)*x^(11/2))/11 + (2*b^2*(A*b + 3*a*B)*x^(13/2))/13 + (2*b
^3*B*x^(15/2))/15
```

Rubi in Sympy [A] time = 12.44, size = 85, normalized size = 1.

$$\frac{2Aa^3x^{\frac{7}{2}}}{7}+\frac{2Bb^3x^{\frac{15}{2}}}{15}+\frac{2a^2x^{\frac{9}{2}}\left(3Ab+Ba\right)}{9}+\frac{6abx^{\frac{11}{2}}\left(Ab+Ba\right)}{11}+\frac{2b^2x^{\frac{13}{2}}\left(Ab+3Ba\right)}{13}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(x**(5/2)*(b*x+a)**3*(B*x+A),x)
```

```
[Out] 2*A*a**3*x**(7/2)/7 + 2*B*b**3*x**(15/2)/15 + 2*a**2*x**(9/2)*(3*
A*b + B*a)/9 + 6*a*b*x**(11/2)*(A*b + B*a)/11 + 2*b**2*x**(13/2)*
(A*b + 3*B*a)/13
```

Mathematica [A] time = 0.0407242, size = 71, normalized size = 0.84

$$\frac{2x^{7/2}\left(715a^3(9A+7Bx)+1365a^2bx(11A+9Bx)+945ab^2x^2(13A+11Bx)+231b^3x^3(15A+13Bx)\right)}{45045}$$

Antiderivative was successfully verified.

```
[In] Integrate[x^(5/2)*(a + b*x)^3*(A + B*x),x]
```

```
[Out] (2*x^(7/2)*(715*a^3*(9*A + 7*B*x) + 1365*a^2*b*x*(11*A + 9*B*x) +
 945*a*b^2*x^2*(13*A + 11*B*x) + 231*b^3*x^3*(15*A + 13*B*x)))/45
045
```

Maple [A] time = 0.007, size = 76, normalized size = 0.9

$$\frac{6006\,Bb^3x^4+6930\,Ab^3x^3+20790\,Bx^3ab^2+24570\,aAb^2x^2+24570\,Bx^2a^2b+30030\,a^2Abx+10010\,a^3Bx+12870\,a^3A}{45045}x^{\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^(5/2)*(b*x+a)^3*(B*x+A),x)
```

```
[Out] 2/45045*x^(7/2)*(3003*B*b^3*x^4+3465*A*b^3*x^3+10395*B*a*b^2*x^3+
12285*A*a*b^2*x^2+12285*B*a^2*b*x^2+15015*A*a^2*b*x+5005*B*a^3*x+
6435*A*a^3)
```

Maxima [A] time = 1.39021, size = 99, normalized size = 1.16

$$\frac{2}{15}\,Bb^3x^{\frac{15}{2}} + \frac{2}{7}\,Aa^3x^{\frac{7}{2}} + \frac{2}{13}\,\left(3\,Bab^2 + Ab^3\right)x^{\frac{13}{2}} + \frac{6}{11}\,\left(Ba^2b + Aab^2\right)x^{\frac{11}{2}} + \frac{2}{9}\,\left(Ba^3 + 3\,Aa^2b\right)x^{\frac{9}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*x^(5/2),x, algorithm="maxima")
```

```
[Out] 2/15*B*b^3*x^(15/2) + 2/7*A*a^3*x^(7/2) + 2/13*(3*B*a*b^2 + A*b^3
)*x^(13/2) + 6/11*(B*a^2*b + A*a*b^2)*x^(11/2) + 2/9*(B*a^3 + 3*A
*a^2*b)*x^(9/2)
```

Fricas [A] time = 0.205881, size = 105, normalized size = 1.24

$$\frac{2}{45045}\,\left(3003\,Bb^3x^7 + 6435\,Aa^3x^3 + 3465\,\left(3\,Bab^2 + Ab^3\right)x^6 + 12285\,\left(Ba^2b + Aab^2\right)x^5 + 5005\,\left(Ba^3 + 3\,Aa^2b\right)x^4\right)\sqrt{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*x^(5/2),x, algorithm="fricas")
```

```
[Out] 2/45045*(3003*B*b^3*x^7 + 6435*A*a^3*x^3 + 3465*(3*B*a*b^2 + A*b^
3)*x^6 + 12285*(B*a^2*b + A*a*b^2)*x^5 + 5005*(B*a^3 + 3*A*a^2*b)
*x^4)*sqrt(x)
```

Sympy [A] time = 8.01276, size = 114, normalized size = 1.34

$$\frac{2Aa^3x^{\frac{7}{2}}}{7} + \frac{2Aa^2bx^{\frac{9}{2}}}{3} + \frac{6Aab^2x^{\frac{11}{2}}}{11} + \frac{2Ab^3x^{\frac{13}{2}}}{13} + \frac{2Ba^3x^{\frac{9}{2}}}{9} + \frac{6Ba^2bx^{\frac{11}{2}}}{11} + \frac{6Bab^2x^{\frac{13}{2}}}{13} + \frac{2Bb^3x^{\frac{15}{2}}}{15}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**(5/2)*(b*x+a)**3*(B*x+A),x)
```

```
[Out] 2*A*a**3*x**(7/2)/7 + 2*A*a**2*b*x**(9/2)/3 + 6*A*a*b**2*x**(11/2
)/11 + 2*A*b**3*x**(13/2)/13 + 2*B*a**3*x**(9/2)/9 + 6*B*a**2*b*x
**(11/2)/11 + 6*B*a*b**2*x**(13/2)/13 + 2*B*b**3*x**(15/2)/15
```

GIAC/XCAS [A] time = 0.259042, size = 104, normalized size = 1.22

$$\frac{2}{15}\,Bb^3x^{\frac{15}{2}} + \frac{6}{13}\,Bab^2x^{\frac{13}{2}} + \frac{2}{13}\,Ab^3x^{\frac{13}{2}} + \frac{6}{11}\,Ba^2bx^{\frac{11}{2}} + \frac{6}{11}\,Aab^2x^{\frac{11}{2}} + \frac{2}{9}\,Ba^3x^{\frac{9}{2}} + \frac{2}{3}\,Aa^2bx^{\frac{9}{2}} + \frac{2}{7}\,Aa^3x^{\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*x^(5/2),x, algorithm="giac")
```

```
[Out] 2/15*B*b^3*x^(15/2) + 6/13*B*a*b^2*x^(13/2) + 2/13*A*b^3*x^(13/2)
 + 6/11*B*a^2*b*x^(11/2) + 6/11*A*a*b^2*x^(11/2) + 2/9*B*a^3*x^(9
/2) + 2/3*A*a^2*b*x^(9/2) + 2/7*A*a^3*x^(7/2)
```

3.307 $\int x^{3/2}(a+bx)^3(A+Bx)\,dx$

Optimal. Leaf size=85

$$\frac{2}{5}a^3Ax^{5/2}+\frac{2}{7}a^2x^{7/2}(aB+3Ab)+\frac{2}{11}b^2x^{11/2}(3aB+Ab)+\frac{2}{3}abx^{9/2}(aB+Ab)+\frac{2}{13}b^3Bx^{13/2}$$

```
[Out] (2*a^3*A*x^(5/2))/5 + (2*a^2*(3*A*b + a*B)*x^(7/2))/7 + (2*a*b*(A
*b + a*B)*x^(9/2))/3 + (2*b^2*(A*b + 3*a*B)*x^(11/2))/11 + (2*b^3
*B*x^(13/2))/13
```

Rubi [A] time = 0.104972, antiderivative size = 85, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.056$

$$\frac{2}{5}a^3Ax^{5/2}+\frac{2}{7}a^2x^{7/2}(aB+3Ab)+\frac{2}{11}b^2x^{11/2}(3aB+Ab)+\frac{2}{3}abx^{9/2}(aB+Ab)+\frac{2}{13}b^3Bx^{13/2}$$

Antiderivative was successfully verified.

```
[In] Int[x^(3/2)*(a + b*x)^3*(A + B*x),x]
```

```
[Out] (2*a^3*A*x^(5/2))/5 + (2*a^2*(3*A*b + a*B)*x^(7/2))/7 + (2*a*b*(A
*b + a*B)*x^(9/2))/3 + (2*b^2*(A*b + 3*a*B)*x^(11/2))/11 + (2*b^3
*B*x^(13/2))/13
```

Rubi in Sympy [A] time = 12.5153, size = 85, normalized size = 1.

$$\frac{2Aa^3x^{\frac{5}{2}}}{5}+\frac{2Bb^3x^{\frac{13}{2}}}{13}+\frac{2a^2x^{\frac{7}{2}}(3Ab+Ba)}{7}+\frac{2abx^{\frac{9}{2}}(Ab+Ba)}{3}+\frac{2b^2x^{\frac{11}{2}}(Ab+3Ba)}{11}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(x**(3/2)*(b*x+a)**3*(B*x+A),x)
```

```
[Out] 2*A*a**3*x**(5/2)/5 + 2*B*b**3*x**(13/2)/13 + 2*a**2*x**(7/2)*(3*
A*b + B*a)/7 + 2*a*b*x**(9/2)*(A*b + B*a)/3 + 2*b**2*x**(11/2)*(A
*b + 3*B*a)/11
```

Mathematica [A] time = 0.0361539, size = 71, normalized size = 0.84

$$\frac{2x^{5/2}\left(429a^3(7A+5Bx)+715a^2bx(9A+7Bx)+455ab^2x^2(11A+9Bx)+105b^3x^3(13A+11Bx)\right)}{15015}$$

Antiderivative was successfully verified.

```
[In] Integrate[x^(3/2)*(a + b*x)^3*(A + B*x),x]
```

```
[Out] (2*x^(5/2)*(429*a^3*(7*A + 5*B*x) + 715*a^2*b*x*(9*A + 7*B*x) + 4
55*a*b^2*x^2*(11*A + 9*B*x) + 105*b^3*x^3*(13*A + 11*B*x)))/15015
```

Maple [A] time = 0.007, size = 76, normalized size = 0.9

$$\frac{2310\,Bb^3x^4+2730\,Ab^3x^3+8190\,Bx^3ab^2+10010\,aAb^2x^2+10010\,Bx^2a^2b+12870\,a^2Abx+4290\,a^3Bx+6006\,a^3A}{15015}x^{\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^(3/2)*(b*x+a)^3*(B*x+A),x)
```

```
[Out] 2/15015*x^(5/2)*(1155*B*b^3*x^4+1365*A*b^3*x^3+4095*B*a*b^2*x^3+5
005*A*a*b^2*x^2+5005*B*a^2*b*x^2+6435*A*a^2*b*x+2145*B*a^3*x+3003
*A*a^3)
```

Maxima [A] time = 1.34545, size = 99, normalized size = 1.16

$$\frac{2}{13}Bb^3x^{\frac{13}{2}} + \frac{2}{5}Aa^3x^{\frac{5}{2}} + \frac{2}{11}\left(3\,Bab^2 + Ab^3\right)x^{\frac{11}{2}} + \frac{2}{3}\left(Ba^2b + Aab^2\right)x^{\frac{9}{2}} + \frac{2}{7}\left(Ba^3 + 3\,Aa^2b\right)x^{\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*x^(3/2),x, algorithm="maxima")
```

```
[Out] 2/13*B*b^3*x^(13/2) + 2/5*A*a^3*x^(5/2) + 2/11*(3*B*a*b^2 + A*b^3
)*x^(11/2) + 2/3*(B*a^2*b + A*a*b^2)*x^(9/2) + 2/7*(B*a^3 + 3*A*a
^2*b)*x^(7/2)
```

Fricas [A] time = 0.208591, size = 105, normalized size = 1.24

$$\frac{2}{15015}\left(1155\,Bb^3x^6 + 3003\,Aa^3x^2 + 1365\left(3\,Bab^2 + Ab^3\right)x^5 + 5005\left(Ba^2b + Aab^2\right)x^4 + 2145\left(Ba^3 + 3\,Aa^2b\right)x^3\right)\sqrt{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*x^(3/2),x, algorithm="fricas")
```

```
[Out] 2/15015*(1155*B*b^3*x^6 + 3003*A*a^3*x^2 + 1365*(3*B*a*b^2 + A*b^
3)*x^5 + 5005*(B*a^2*b + A*a*b^2)*x^4 + 2145*(B*a^3 + 3*A*a^2*b)*
x^3)*sqrt(x)
```

Sympy [A] time = 5.27254, size = 114, normalized size = 1.34

$$\frac{2Aa^3x^{\frac{5}{2}}}{5} + \frac{6Aa^2bx^{\frac{7}{2}}}{7} + \frac{2Aab^2x^{\frac{9}{2}}}{3} + \frac{2Ab^3x^{\frac{11}{2}}}{11} + \frac{2Ba^3x^{\frac{7}{2}}}{7} + \frac{2Ba^2bx^{\frac{9}{2}}}{3} + \frac{6Bab^2x^{\frac{11}{2}}}{11} + \frac{2Bb^3x^{\frac{13}{2}}}{13}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**(3/2)*(b*x+a)**3*(B*x+A),x)
```

```
[Out] 2*A*a**3*x**(5/2)/5 + 6*A*a**2*b*x**(7/2)/7 + 2*A*a*b**2*x**(9/2)
/3 + 2*A*b**3*x**(11/2)/11 + 2*B*a**3*x**(7/2)/7 + 2*B*a**2*b*x**
(9/2)/3 + 6*B*a*b**2*x**(11/2)/11 + 2*B*b**3*x**(13/2)/13
```

GIAC/XCAS [A] time = 0.278187, size = 104, normalized size = 1.22

$$\frac{2}{13}Bb^3x^{\frac{13}{2}} + \frac{6}{11}Bab^2x^{\frac{11}{2}} + \frac{2}{11}Ab^3x^{\frac{11}{2}} + \frac{2}{3}Ba^2bx^{\frac{9}{2}} + \frac{2}{3}Aab^2x^{\frac{9}{2}} + \frac{2}{7}Ba^3x^{\frac{7}{2}} + \frac{6}{7}Aa^2bx^{\frac{7}{2}} + \frac{2}{5}Aa^3x^{\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*x^(3/2),x, algorithm="giac")
```

```
[Out] 2/13*B*b^3*x^(13/2) + 6/11*B*a*b^2*x^(11/2) + 2/11*A*b^3*x^(11/2)
 + 2/3*B*a^2*b*x^(9/2) + 2/3*A*a*b^2*x^(9/2) + 2/7*B*a^3*x^(7/2)
+ 6/7*A*a^2*b*x^(7/2) + 2/5*A*a^3*x^(5/2)
```

3.308 $\int \sqrt{x}(a+bx)^3(A+Bx)\,dx$

Optimal. Leaf size=85

$$\frac{2}{3}a^3Ax^{3/2}+\frac{2}{5}a^2x^{5/2}(aB+3Ab)+\frac{2}{9}b^2x^{9/2}(3aB+Ab)+\frac{6}{7}abx^{7/2}(aB+Ab)+\frac{2}{11}b^3Bx^{11/2}$$

```
[Out] (2*a^3*A*x^(3/2))/3 + (2*a^2*(3*A*b + a*B)*x^(5/2))/5 + (6*a*b*(A
*b + a*B)*x^(7/2))/7 + (2*b^2*(A*b + 3*a*B)*x^(9/2))/9 + (2*b^3*B
*x^(11/2))/11
```

Rubi [A] time = 0.102884, antiderivative size = 85, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{2}{3}a^3Ax^{3/2}+\frac{2}{5}a^2x^{5/2}(aB+3Ab)+\frac{2}{9}b^2x^{9/2}(3aB+Ab)+\frac{6}{7}abx^{7/2}(aB+Ab)+\frac{2}{11}b^3Bx^{11/2}$$

Antiderivative was successfully verified.

```
[In] Int[Sqrt[x]*(a + b*x)^3*(A + B*x),x]
```

```
[Out] (2*a^3*A*x^(3/2))/3 + (2*a^2*(3*A*b + a*B)*x^(5/2))/5 + (6*a*b*(A
*b + a*B)*x^(7/2))/7 + (2*b^2*(A*b + 3*a*B)*x^(9/2))/9 + (2*b^3*B
*x^(11/2))/11
```

Rubi in Sympy [A] time = 12.4658, size = 85, normalized size = 1.

$$\frac{2Aa^3x^{\frac{3}{2}}}{3}+\frac{2Bb^3x^{\frac{11}{2}}}{11}+\frac{2a^2x^{\frac{5}{2}}\left(3Ab+Ba\right)}{5}+\frac{6abx^{\frac{7}{2}}\left(Ab+Ba\right)}{7}+\frac{2b^2x^{\frac{9}{2}}\left(Ab+3Ba\right)}{9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)**3*(B*x+A)*x**(1/2),x)
```

```
[Out] 2*A*a**3*x**(3/2)/3 + 2*B*b**3*x**(11/2)/11 + 2*a**2*x**(5/2)*(3*
A*b + B*a)/5 + 6*a*b*x**(7/2)*(A*b + B*a)/7 + 2*b**2*x**(9/2)*(A*
b + 3*B*a)/9
```

Mathematica [A] time = 0.034857, size = 71, normalized size = 0.84

$$\frac{2x^{3/2}\left(231a^3(5A+3Bx)+297a^2bx(7A+5Bx)+165ab^2x^2(9A+7Bx)+35b^3x^3(11A+9Bx)\right)}{3465}$$

Antiderivative was successfully verified.

```
[In] Integrate[Sqrt[x]*(a + b*x)^3*(A + B*x),x]
```

```
[Out] (2*x^(3/2)*(231*a^3*(5*A + 3*B*x) + 297*a^2*b*x*(7*A + 5*B*x) + 1
65*a*b^2*x^2*(9*A + 7*B*x) + 35*b^3*x^3*(11*A + 9*B*x)))/3465
```

Maple [A] time = 0.009, size = 76, normalized size = 0.9

$$\frac{630\,Bb^3x^4+770\,Ab^3x^3+2310\,Bx^3ab^2+2970\,aAb^2x^2+2970\,Bx^2a^2b+4158\,a^2Abx+1386\,a^3Bx+2310\,a^3A}{3465}x^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3*(B*x+A)*x^(1/2),x)
```

```
[Out] 2/3465*x^(3/2)*(315*B*b^3*x^4+385*A*b^3*x^3+1155*B*a*b^2*x^3+1485
*A*a*b^2*x^2+1485*B*a^2*b*x^2+2079*A*a^2*b*x+693*B*a^3*x+1155*A*a
^3)
```

Maxima [A] time = 1.35337, size = 99, normalized size = 1.16

$$\frac{2}{11}\,Bb^3x^{\frac{11}{2}} + \frac{2}{3}\,Aa^3x^{\frac{3}{2}} + \frac{2}{9}\left(3\,Bab^2 + Ab^3\right)x^{\frac{9}{2}} + \frac{6}{7}\left(Ba^2b + Aab^2\right)x^{\frac{7}{2}} + \frac{2}{5}\left(Ba^3 + 3\,Aa^2b\right)x^{\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*sqrt(x),x, algorithm="maxima")
```

```
[Out] 2/11*B*b^3*x^(11/2) + 2/3*A*a^3*x^(3/2) + 2/9*(3*B*a*b^2 + A*b^3)
*x^(9/2) + 6/7*(B*a^2*b + A*a*b^2)*x^(7/2) + 2/5*(B*a^3 + 3*A*a^2
*b)*x^(5/2)
```

Fricas [A] time = 0.205723, size = 103, normalized size = 1.21

$$\frac{2}{3465}\left(315\,Bb^3x^5 + 1155\,Aa^3x + 385\left(3\,Bab^2 + Ab^3\right)x^4 + 1485\left(Ba^2b + Aab^2\right)x^3 + 693\left(Ba^3 + 3\,Aa^2b\right)x^2\right)\sqrt{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*sqrt(x),x, algorithm="fricas")
```

```
[Out] 2/3465*(315*B*b^3*x^5 + 1155*A*a^3*x + 385*(3*B*a*b^2 + A*b^3)*x^
4 + 1485*(B*a^2*b + A*a*b^2)*x^3 + 693*(B*a^3 + 3*A*a^2*b)*x^2)*s
qrt(x)
```

Sympy [A] time = 4.60759, size = 95, normalized size = 1.12

$$\frac{2Aa^3x^{\frac{3}{2}}}{3} + \frac{2Bb^3x^{\frac{11}{2}}}{11} + \frac{2x^{\frac{9}{2}}\left(Ab^3 + 3Bab^2\right)}{9} + \frac{2x^{\frac{7}{2}}\left(3Aab^2 + 3Ba^2b\right)}{7} + \frac{2x^{\frac{5}{2}}\left(3Aa^2b + Ba^3\right)}{5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**3*(B*x+A)*x**(1/2),x)
```

```
[Out] 2*A*a**3*x**(3/2)/3 + 2*B*b**3*x**(11/2)/11 + 2*x**(9/2)*(A*b**3
+ 3*B*a*b**2)/9 + 2*x**(7/2)*(3*A*a*b**2 + 3*B*a**2*b)/7 + 2*x**(
5/2)*(3*A*a**2*b + B*a**3)/5
```

GIAC/XCAS [A] time = 0.283161, size = 104, normalized size = 1.22

$$\frac{2}{11}\,Bb^3x^{\frac{11}{2}} + \frac{2}{3}\,Bab^2x^{\frac{9}{2}} + \frac{2}{9}\,Ab^3x^{\frac{9}{2}} + \frac{6}{7}\,Ba^2bx^{\frac{7}{2}} + \frac{6}{7}\,Aab^2x^{\frac{7}{2}} + \frac{2}{5}\,Ba^3x^{\frac{5}{2}} + \frac{6}{5}\,Aa^2bx^{\frac{5}{2}} + \frac{2}{3}\,Aa^3x^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*sqrt(x),x, algorithm="giac")
```

```
[Out] 2/11*B*b^3*x^(11/2) + 2/3*B*a*b^2*x^(9/2) + 2/9*A*b^3*x^(9/2) + 6
/7*B*a^2*b*x^(7/2) + 6/7*A*a*b^2*x^(7/2) + 2/5*B*a^3*x^(5/2) + 6/
5*A*a^2*b*x^(5/2) + 2/3*A*a^3*x^(3/2)
```

3.309 $\int \frac{(a+bx)^3(A+Bx)}{\sqrt{x}}\,dx$

Optimal. Leaf size=83

$$2a^3A\sqrt{x}+\frac{2}{3}a^2x^{3/2}(aB+3Ab)+\frac{2}{7}b^2x^{7/2}(3aB+Ab)+\frac{6}{5}abx^{5/2}(aB+Ab)+\frac{2}{9}b^3Bx^{9/2}$$

```
[Out] 2*a^3*A*Sqrt[x] + (2*a^2*(3*A*b + a*B)*x^(3/2))/3 + (6*a*b*(A*b +
 a*B)*x^(5/2))/5 + (2*b^2*(A*b + 3*a*B)*x^(7/2))/7 + (2*b^3*B*x^(
9/2))/9
```

Rubi [A] time = 0.103278, antiderivative size = 83, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$2a^3A\sqrt{x}+\frac{2}{3}a^2x^{3/2}(aB+3Ab)+\frac{2}{7}b^2x^{7/2}(3aB+Ab)+\frac{6}{5}abx^{5/2}(aB+Ab)+\frac{2}{9}b^3Bx^{9/2}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^3*(A + B*x))/Sqrt[x],x]
```

```
[Out] 2*a^3*A*Sqrt[x] + (2*a^2*(3*A*b + a*B)*x^(3/2))/3 + (6*a*b*(A*b +
 a*B)*x^(5/2))/5 + (2*b^2*(A*b + 3*a*B)*x^(7/2))/7 + (2*b^3*B*x^(
9/2))/9
```

Rubi in Sympy [A] time = 12.5049, size = 82, normalized size = 0.99

$$2Aa^3\sqrt{x}+\frac{2Bb^3x^{\frac{9}{2}}}{9}+2a^2x^{\frac{3}{2}}\left(Ab+\frac{Ba}{3}\right)+\frac{6abx^{\frac{5}{2}}\,(Ab+Ba)}{5}+\frac{2b^2x^{\frac{7}{2}}\,(Ab+3Ba)}{7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**3*(B*x+A)/x**(1/2),x)
```

```
[Out] 2*A*a**3*sqrt(x) + 2*B*b**3*x**(9/2)/9 + 2*a**2*x**(3/2)*(A*b + B
*a/3) + 6*a*b*x**(5/2)*(A*b + B*a)/5 + 2*b**2*x**(7/2)*(A*b + 3*B
*a)/7
```

Mathematica [A] time = 0.0363696, size = 70, normalized size = 0.84

$$\frac{2}{315}\sqrt{x}\left(105a^3(3A+Bx)+63a^2bx(5A+3Bx)+27ab^2x^2(7A+5Bx)+5b^3x^3(9A+7Bx)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^3*(A + B*x))/Sqrt[x],x]
```

```
[Out] (2*Sqrt[x]*(105*a^3*(3*A + B*x) + 63*a^2*b*x*(5*A + 3*B*x) + 27*a
*b^2*x^2*(7*A + 5*B*x) + 5*b^3*x^3*(9*A + 7*B*x)))/315
```

Maple [A] time = 0.007, size = 76, normalized size = 0.9

$$\frac{70\,Bb^3x^4+90\,Ab^3x^3+270\,Bx^3ab^2+378\,aAb^2x^2+378\,Bx^2a^2b+630\,a^2Abx+210\,a^3Bx+630\,a^3A}{315}\sqrt{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3*(B*x+A)/x^(1/2),x)
```

```
[Out] 2/315*x^(1/2)*(35*B*b^3*x^4+45*A*b^3*x^3+135*B*a*b^2*x^3+189*A*a*
b^2*x^2+189*B*a^2*b*x^2+315*A*a^2*b*x+105*B*a^3*x+315*A*a^3)
```

Maxima [A] time = 1.37516, size = 99, normalized size = 1.19

$$\frac{2}{9}Bb^3x^{\frac{9}{2}} + 2Aa^3\sqrt{x} + \frac{2}{7}\left(3Bab^2 + Ab^3\right)x^{\frac{7}{2}} + \frac{6}{5}\left(Ba^2b + Aab^2\right)x^{\frac{5}{2}} + \frac{2}{3}\left(Ba^3 + 3Aa^2b\right)x^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/sqrt(x),x, algorithm="maxima")
```

```
[Out] 2/9*B*b^3*x^(9/2) + 2*A*a^3*sqrt(x) + 2/7*(3*B*a*b^2 + A*b^3)*x^(
7/2) + 6/5*(B*a^2*b + A*a*b^2)*x^(5/2) + 2/3*(B*a^3 + 3*A*a^2*b)*
x^(3/2)
```

Fricas [A] time = 0.208043, size = 99, normalized size = 1.19

$$\frac{2}{315}\left(35Bb^3x^4 + 315Aa^3 + 45\left(3Bab^2 + Ab^3\right)x^3 + 189\left(Ba^2b + Aab^2\right)x^2 + 105\left(Ba^3 + 3Aa^2b\right)x\right)\sqrt{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/sqrt(x),x, algorithm="fricas")
```

```
[Out] 2/315*(35*B*b^3*x^4 + 315*A*a^3 + 45*(3*B*a*b^2 + A*b^3)*x^3 + 18
9*(B*a^2*b + A*a*b^2)*x^2 + 105*(B*a^3 + 3*A*a^2*b)*x)*sqrt(x)
```

Sympy [A] time = 10.3442, size = 110, normalized size = 1.33

$$2Aa^3\sqrt{x} + 2Aa^2bx^{\frac{3}{2}} + \frac{6Aab^2x^{\frac{5}{2}}}{5} + \frac{2Ab^3x^{\frac{7}{2}}}{7} + \frac{2Ba^3x^{\frac{3}{2}}}{3} + \frac{6Ba^2bx^{\frac{5}{2}}}{5} + \frac{6Bab^2x^{\frac{7}{2}}}{7} + \frac{2Bb^3x^{\frac{9}{2}}}{9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**3*(B*x+A)/x**(1/2),x)
```

```
[Out] 2*A*a**3*sqrt(x) + 2*A*a**2*b*x**(3/2) + 6*A*a*b**2*x**(5/2)/5 +
2*A*b**3*x**(7/2)/7 + 2*B*a**3*x**(3/2)/3 + 6*B*a**2*b*x**(5/2)/5
 + 6*B*a*b**2*x**(7/2)/7 + 2*B*b**3*x**(9/2)/9
```

GIAC/XCAS [A] time = 0.272453, size = 104, normalized size = 1.25

$$\frac{2}{9}Bb^3x^{\frac{9}{2}} + \frac{6}{7}Bab^2x^{\frac{7}{2}} + \frac{2}{7}Ab^3x^{\frac{7}{2}} + \frac{6}{5}Ba^2bx^{\frac{5}{2}} + \frac{6}{5}Aab^2x^{\frac{5}{2}} + \frac{2}{3}Ba^3x^{\frac{3}{2}} + 2Aa^2bx^{\frac{3}{2}} + 2Aa^3\sqrt{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/sqrt(x),x, algorithm="giac")
```

```
[Out] 2/9*B*b^3*x^(9/2) + 6/7*B*a*b^2*x^(7/2) + 2/7*A*b^3*x^(7/2) + 6/5
*B*a^2*b*x^(5/2) + 6/5*A*a*b^2*x^(5/2) + 2/3*B*a^3*x^(3/2) + 2*A*
a^2*b*x^(3/2) + 2*A*a^3*sqrt(x)
```

3.310 $\int \frac{(a+bx)^3(A+Bx)}{x^{3/2}}\,dx$

Optimal. Leaf size=79

$$-\frac{2a^3A}{\sqrt{x}}+2a^2\sqrt{x}(aB+3Ab)+\frac{2}{5}b^2x^{5/2}(3aB+Ab)+2abx^{3/2}(aB+Ab)+\frac{2}{7}b^3Bx^{7/2}$$

```
[Out] (-2*a^3*A)/Sqrt[x] + 2*a^2*(3*A*b + a*B)*Sqrt[x] + 2*a*b*(A*b + a
*B)*x^(3/2) + (2*b^2*(A*b + 3*a*B)*x^(5/2))/5 + (2*b^3*B*x^(7/2))
/7
```

Rubi [A] time = 0.10635, antiderivative size = 79, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{2a^3A}{\sqrt{x}}+2a^2\sqrt{x}(aB+3Ab)+\frac{2}{5}b^2x^{5/2}(3aB+Ab)+2abx^{3/2}(aB+Ab)+\frac{2}{7}b^3Bx^{7/2}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^3*(A + B*x))/x^(3/2),x]
```

```
[Out] (-2*a^3*A)/Sqrt[x] + 2*a^2*(3*A*b + a*B)*Sqrt[x] + 2*a*b*(A*b + a
*B)*x^(3/2) + (2*b^2*(A*b + 3*a*B)*x^(5/2))/5 + (2*b^3*B*x^(7/2))
/7
```

Rubi in Sympy [A] time = 12.4234, size = 80, normalized size = 1.01

$$-\frac{2Aa^3}{\sqrt{x}}+\frac{2Bb^3x^{\frac{7}{2}}}{7}+2a^2\sqrt{x}\,(3Ab+Ba)+2abx^{\frac{3}{2}}\,(Ab+Ba)+\frac{2b^2x^{\frac{5}{2}}\,(Ab+3Ba)}{5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**3*(B*x+A)/x**(3/2),x)
```

```
[Out] -2*A*a**3/sqrt(x) + 2*B*b**3*x**(7/2)/7 + 2*a**2*sqrt(x)*(3*A*b +
 B*a) + 2*a*b*x**(3/2)*(A*b + B*a) + 2*b**2*x**(5/2)*(A*b + 3*B*a
)/5
```

Mathematica [A] time = 0.0328219, size = 67, normalized size = 0.85

$$\frac{2\left(-35a^3(A-Bx)+35a^2bx(3A+Bx)+7ab^2x^2(5A+3Bx)+b^3x^3(7A+5Bx)\right)}{35\sqrt{x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^3*(A + B*x))/x^(3/2),x]
```

```
[Out] (2*(-35*a^3*(A - B*x) + 35*a^2*b*x*(3*A + B*x) + 7*a*b^2*x^2*(5*A
 + 3*B*x) + b^3*x^3*(7*A + 5*B*x)))/(35*Sqrt[x])
```

Maple [A] time = 0.007, size = 76, normalized size = 1.

$$-\frac{-10\,Bb^3x^4-14\,Ab^3x^3-42\,Bx^3ab^2-70\,aAb^2x^2-70\,Bx^2a^2b-210\,a^2Abx-70\,a^3Bx+70\,a^3A}{35}\frac{1}{\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3*(B*x+A)/x^(3/2),x)
```

```
[Out] -2/35*(-5*B*b^3*x^4-7*A*b^3*x^3-21*B*a*b^2*x^3-35*A*a*b^2*x^2-35*
B*a^2*b*x^2-105*A*a^2*b*x-35*B*a^3*x+35*A*a^3)/x^(1/2)
```

Maxima [A] time = 1.39061, size = 99, normalized size = 1.25

$$\frac{2}{7}\,Bb^3x^{\frac{7}{2}} - \frac{2\,Aa^3}{\sqrt{x}} + \frac{2}{5}\left(3\,Bab^2 + Ab^3\right)x^{\frac{5}{2}} + 2\left(Ba^2b + Aab^2\right)x^{\frac{3}{2}} + 2\left(Ba^3 + 3\,Aa^2b\right)\sqrt{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/x^(3/2),x, algorithm="maxima")
```

```
[Out] 2/7*B*b^3*x^(7/2) - 2*A*a^3/sqrt(x) + 2/5*(3*B*a*b^2 + A*b^3)*x^(
5/2) + 2*(B*a^2*b + A*a*b^2)*x^(3/2) + 2*(B*a^3 + 3*A*a^2*b)*sqrt
(x)
```

Fricas [A] time = 0.205025, size = 99, normalized size = 1.25

$$\frac{2\left(5\,Bb^3x^4 - 35\,Aa^3 + 7\left(3\,Bab^2 + Ab^3\right)x^3 + 35\left(Ba^2b + Aab^2\right)x^2 + 35\left(Ba^3 + 3\,Aa^2b\right)x\right)}{35\,\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/x^(3/2),x, algorithm="fricas")
```

```
[Out] 2/35*(5*B*b^3*x^4 - 35*A*a^3 + 7*(3*B*a*b^2 + A*b^3)*x^3 + 35*(B*
a^2*b + A*a*b^2)*x^2 + 35*(B*a^3 + 3*A*a^2*b)*x)/sqrt(x)
```

Sympy [A] time = 10.3925, size = 105, normalized size = 1.33

$$-\frac{2Aa^3}{\sqrt{x}} + 6Aa^2b\sqrt{x} + 2Aab^2x^{\frac{3}{2}} + \frac{2Ab^3x^{\frac{5}{2}}}{5} + 2Ba^3\sqrt{x} + 2Ba^2bx^{\frac{3}{2}} + \frac{6Bab^2x^{\frac{5}{2}}}{5} + \frac{2Bb^3x^{\frac{7}{2}}}{7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**3*(B*x+A)/x**(3/2),x)
```

```
[Out] -2*A*a**3/sqrt(x) + 6*A*a**2*b*sqrt(x) + 2*A*a*b**2*x**(3/2) + 2*
A*b**3*x**(5/2)/5 + 2*B*a**3*sqrt(x) + 2*B*a**2*b*x**(3/2) + 6*B*
a*b**2*x**(5/2)/5 + 2*B*b**3*x**(7/2)/7
```

GIAC/XCAS [A] time = 0.25515, size = 104, normalized size = 1.32

$$\frac{2}{7}\,Bb^3x^{\frac{7}{2}} + \frac{6}{5}\,Bab^2x^{\frac{5}{2}} + \frac{2}{5}\,Ab^3x^{\frac{5}{2}} + 2\,Ba^2bx^{\frac{3}{2}} + 2\,Aab^2x^{\frac{3}{2}} + 2\,Ba^3\sqrt{x} + 6\,Aa^2b\sqrt{x} - \frac{2\,Aa^3}{\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/x^(3/2),x, algorithm="giac")
```

```
[Out] 2/7*B*b^3*x^(7/2) + 6/5*B*a*b^2*x^(5/2) + 2/5*A*b^3*x^(5/2) + 2*B
*a^2*b*x^(3/2) + 2*A*a*b^2*x^(3/2) + 2*B*a^3*sqrt(x) + 6*A*a^2*b*
sqrt(x) - 2*A*a^3/sqrt(x)
```

3.311 $\int \frac{(a+bx)^3(A+Bx)}{x^{5/2}}\,dx$

Optimal. Leaf size=81

$$-\frac{2a^3A}{3x^{3/2}}-\frac{2a^2(aB+3Ab)}{\sqrt{x}}+\frac{2}{3}b^2x^{3/2}(3aB+Ab)+6ab\sqrt{x}(aB+Ab)+\frac{2}{5}b^3Bx^{5/2}$$

```
[Out] (-2*a^3*A)/(3*x^(3/2)) - (2*a^2*(3*A*b + a*B))/Sqrt[x] + 6*a*b*(A
*b + a*B)*Sqrt[x] + (2*b^2*(A*b + 3*a*B)*x^(3/2))/3 + (2*b^3*B*x^
(5/2))/5
```

Rubi [A] time = 0.106121, antiderivative size = 81, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{2a^3A}{3x^{3/2}}-\frac{2a^2(aB+3Ab)}{\sqrt{x}}+\frac{2}{3}b^2x^{3/2}(3aB+Ab)+6ab\sqrt{x}(aB+Ab)+\frac{2}{5}b^3Bx^{5/2}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^3*(A + B*x))/x^(5/2),x]
```

```
[Out] (-2*a^3*A)/(3*x^(3/2)) - (2*a^2*(3*A*b + a*B))/Sqrt[x] + 6*a*b*(A
*b + a*B)*Sqrt[x] + (2*b^2*(A*b + 3*a*B)*x^(3/2))/3 + (2*b^3*B*x^
(5/2))/5
```

Rubi in Sympy [A] time = 12.4531, size = 80, normalized size = 0.99

$$-\frac{2Aa^3}{3x^{\frac{3}{2}}}+\frac{2Bb^3x^{\frac{5}{2}}}{5}-\frac{2a^2\left(3Ab+Ba\right)}{\sqrt{x}}+6ab\sqrt{x}\left(Ab+Ba\right)+2b^2x^{\frac{3}{2}}\left(\frac{Ab}{3}+Ba\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**3*(B*x+A)/x**(5/2),x)
```

```
[Out] -2*A*a**3/(3*x**(3/2)) + 2*B*b**3*x**(5/2)/5 - 2*a**2*(3*A*b + B*
a)/sqrt(x) + 6*a*b*sqrt(x)*(A*b + B*a) + 2*b**2*x**(3/2)*(A*b/3 +
 B*a)
```

Mathematica [A] time = 0.0341342, size = 66, normalized size = 0.81

$$\frac{2\left(-5a^3(A+3Bx)+45a^2bx(Bx-A)+15ab^2x^2(3A+Bx)+b^3x^3(5A+3Bx)\right)}{15x^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^3*(A + B*x))/x^(5/2),x]
```

```
[Out] (2*(45*a^2*b*x*(-A + B*x) + 15*a*b^2*x^2*(3*A + B*x) - 5*a^3*(A +
 3*B*x) + b^3*x^3*(5*A + 3*B*x)))/(15*x^(3/2))
```

Maple [A] time = 0.009, size = 76, normalized size = 0.9

$$-\frac{-6\,Bb^3x^4-10\,Ab^3x^3-30\,Bx^3ab^2-90\,aAb^2x^2-90\,Bx^2a^2b+90\,a^2Abx+30\,a^3Bx+10\,a^3A}{15}x^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3*(B*x+A)/x^(5/2),x)
```

```
[Out] -2/15*(-3*B*b^3*x^4-5*A*b^3*x^3-15*B*a*b^2*x^3-45*A*a*b^2*x^2-45*
B*a^2*b*x^2+45*A*a^2*b*x+15*B*a^3*x+5*A*a^3)/x^(3/2)
```

Maxima [A] time = 1.32527, size = 99, normalized size = 1.22

$$\frac{2}{5}\,Bb^3x^{\frac{5}{2}} + \frac{2}{3}\left(3\,Bab^2 + Ab^3\right)x^{\frac{3}{2}} + 6\left(Ba^2b + Aab^2\right)\sqrt{x} - \frac{2\left(Aa^3 + 3\left(Ba^3 + 3\,Aa^2b\right)x\right)}{3\,x^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/x^(5/2),x, algorithm="maxima")
```

```
[Out] 2/5*B*b^3*x^(5/2) + 2/3*(3*B*a*b^2 + A*b^3)*x^(3/2) + 6*(B*a^2*b
+ A*a*b^2)*sqrt(x) - 2/3*(A*a^3 + 3*(B*a^3 + 3*A*a^2*b)*x)/x^(3/2
)
```

Fricas [A] time = 0.210056, size = 99, normalized size = 1.22

$$\frac{2\left(3\,Bb^3x^4 - 5\,Aa^3 + 5\left(3\,Bab^2 + Ab^3\right)x^3 + 45\left(Ba^2b + Aab^2\right)x^2 - 15\left(Ba^3 + 3\,Aa^2b\right)x\right)}{15\,x^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/x^(5/2),x, algorithm="fricas")
```

```
[Out] 2/15*(3*B*b^3*x^4 - 5*A*a^3 + 5*(3*B*a*b^2 + A*b^3)*x^3 + 45*(B*a
^2*b + A*a*b^2)*x^2 - 15*(B*a^3 + 3*A*a^2*b)*x)/x^(3/2)
```

Sympy [A] time = 10.9619, size = 105, normalized size = 1.3

$$-\frac{2Aa^3}{3x^{\frac{3}{2}}} - \frac{6Aa^2b}{\sqrt{x}} + 6Aab^2\sqrt{x} + \frac{2Ab^3x^{\frac{3}{2}}}{3} - \frac{2Ba^3}{\sqrt{x}} + 6Ba^2b\sqrt{x} + 2Bab^2x^{\frac{3}{2}} + \frac{2Bb^3x^{\frac{5}{2}}}{5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**3*(B*x+A)/x**(5/2),x)
```

```
[Out] -2*A*a**3/(3*x**(3/2)) - 6*A*a**2*b/sqrt(x) + 6*A*a*b**2*sqrt(x)
+ 2*A*b**3*x**(3/2)/3 - 2*B*a**3/sqrt(x) + 6*B*a**2*b*sqrt(x) + 2
*B*a*b**2*x**(3/2) + 2*B*b**3*x**(5/2)/5
```

GIAC/XCAS [A] time = 0.254932, size = 101, normalized size = 1.25

$$\frac{2}{5}\,Bb^3x^{\frac{5}{2}} + 2\,Bab^2x^{\frac{3}{2}} + \frac{2}{3}\,Ab^3x^{\frac{3}{2}} + 6\,Ba^2b\sqrt{x} + 6\,Aab^2\sqrt{x} - \frac{2\left(3\,Ba^3x + 9\,Aa^2bx + Aa^3\right)}{3\,x^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/x^(5/2),x, algorithm="giac")
```

```
[Out] 2/5*B*b^3*x^(5/2) + 2*B*a*b^2*x^(3/2) + 2/3*A*b^3*x^(3/2) + 6*B*a
^2*b*sqrt(x) + 6*A*a*b^2*sqrt(x) - 2/3*(3*B*a^3*x + 9*A*a^2*b*x +
 A*a^3)/x^(3/2)
```

3.312 $\int \frac{(a+bx)^3(A+Bx)}{x^{7/2}}\,dx$

Optimal. Leaf size=81

$$-\frac{2a^3A}{5x^{5/2}}-\frac{2a^2(aB+3Ab)}{3x^{3/2}}+2b^2\sqrt{x}(3aB+Ab)-\frac{6ab(aB+Ab)}{\sqrt{x}}+\frac{2}{3}b^3Bx^{3/2}$$

```
[Out] (-2*a^3*A)/(5*x^(5/2)) - (2*a^2*(3*A*b + a*B))/(3*x^(3/2)) - (6*a
*b*(A*b + a*B))/Sqrt[x] + 2*b^2*(A*b + 3*a*B)*Sqrt[x] + (2*b^3*B*
x^(3/2))/3
```

Rubi [A] time = 0.10629, antiderivative size = 81, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{2a^3A}{5x^{5/2}}-\frac{2a^2(aB+3Ab)}{3x^{3/2}}+2b^2\sqrt{x}(3aB+Ab)-\frac{6ab(aB+Ab)}{\sqrt{x}}+\frac{2}{3}b^3Bx^{3/2}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^3*(A + B*x))/x^(7/2),x]
```

```
[Out] (-2*a^3*A)/(5*x^(5/2)) - (2*a^2*(3*A*b + a*B))/(3*x^(3/2)) - (6*a
*b*(A*b + a*B))/Sqrt[x] + 2*b^2*(A*b + 3*a*B)*Sqrt[x] + (2*b^3*B*
x^(3/2))/3
```

Rubi in Sympy [A] time = 12.7423, size = 80, normalized size = 0.99

$$-\frac{2Aa^3}{5x^{\frac{5}{2}}}+\frac{2Bb^3x^{\frac{3}{2}}}{3}-\frac{2a^2\left(Ab+\frac{Ba}{3}\right)}{x^{\frac{3}{2}}}-\frac{6ab\left(Ab+Ba\right)}{\sqrt{x}}+2b^2\sqrt{x}\left(Ab+3Ba\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**3*(B*x+A)/x**(7/2),x)
```

```
[Out] -2*A*a**3/(5*x**(5/2)) + 2*B*b**3*x**(3/2)/3 - 2*a**2*(A*b + B*a/
3)/x**(3/2) - 6*a*b*(A*b + B*a)/sqrt(x) + 2*b**2*sqrt(x)*(A*b + 3
*B*a)
```

Mathematica [A] time = 0.0371318, size = 65, normalized size = 0.8

$$-\frac{2\left(a^3(3A+5Bx)+15a^2bx(A+3Bx)+45ab^2x^2(A-Bx)-5b^3x^3(3A+Bx)\right)}{15x^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^3*(A + B*x))/x^(7/2),x]
```

```
[Out] (-2*(45*a*b^2*x^2*(A - B*x) - 5*b^3*x^3*(3*A + B*x) + 15*a^2*b*x*
(A + 3*B*x) + a^3*(3*A + 5*B*x)))/(15*x^(5/2))
```

Maple [A] time = 0.008, size = 76, normalized size = 0.9

$$-\frac{-10\,Bb^3x^4-30\,Ab^3x^3-90\,Bx^3ab^2+90\,aAb^2x^2+90\,Bx^2a^2b+30\,a^2Abx+10\,a^3Bx+6\,a^3A}{15}x^{-\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((b*x+a)^3*(B*x+A)/x^(7/2),x)
```

```
[Out] -2/15*(-5*B*b^3*x^4-15*A*b^3*x^3-45*B*a*b^2*x^3+45*A*a*b^2*x^2+45
*B*a^2*b*x^2+15*A*a^2*b*x+5*B*a^3*x+3*A*a^3)/x^(5/2)
```

Maxima [A] time = 1.38376, size = 100, normalized size = 1.23

$$\frac{2}{3}\,Bb^3x^{\frac{3}{2}} + 2\left(3\,Bab^2 + Ab^3\right)\sqrt{x} - \frac{2\left(3\,Aa^3 + 45\left(Ba^2b + Aab^2\right)x^2 + 5\left(Ba^3 + 3\,Aa^2b\right)x\right)}{15\,x^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*(b*x + a)^3/x^(7/2),x, algorithm="maxima")
```

```
[Out] 2/3*B*b^3*x^(3/2) + 2*(3*B*a*b^2 + A*b^3)*sqrt(x) - 2/15*(3*A*a^3
 + 45*(B*a^2*b + A*a*b^2)*x^2 + 5*(B*a^3 + 3*A*a^2*b)*x)/x^(5/2)
```

Fricas [A] time = 0.205568, size = 99, normalized size = 1.22

$$\frac{2\left(5\,Bb^3x^4 - 3\,Aa^3 + 15\left(3\,Bab^2 + Ab^3\right)x^3 - 45\left(Ba^2b + Aab^2\right)x^2 - 5\left(Ba^3 + 3\,Aa^2b\right)x\right)}{15\,x^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*(b*x + a)^3/x^(7/2),x, algorithm="fricas")
```

```
[Out] 2/15*(5*B*b^3*x^4 - 3*A*a^3 + 15*(3*B*a*b^2 + A*b^3)*x^3 - 45*(B*
a^2*b + A*a*b^2)*x^2 - 5*(B*a^3 + 3*A*a^2*b)*x)/x^(5/2)
```

Sympy [A] time = 9.84656, size = 105, normalized size = 1.3

$$-\frac{2Aa^3}{5x^{\frac{5}{2}}} - \frac{2Aa^2b}{x^{\frac{3}{2}}} - \frac{6Aab^2}{\sqrt{x}} + 2Ab^3\sqrt{x} - \frac{2Ba^3}{3x^{\frac{3}{2}}} - \frac{6Ba^2b}{\sqrt{x}} + 6Bab^2\sqrt{x} + \frac{2Bb^3x^{\frac{3}{2}}}{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((b*x+a)**3*(B*x+A)/x**(7/2),x)
```

```
[Out] -2*A*a**3/(5*x**(5/2)) - 2*A*a**2*b/x**(3/2) - 6*A*a*b**2/sqrt(x)
 + 2*A*b**3*sqrt(x) - 2*B*a**3/(3*x**(3/2)) - 6*B*a**2*b/sqrt(x)
+ 6*B*a*b**2*sqrt(x) + 2*B*b**3*x**(3/2)/3
```

GIAC/XCAS [A] time = 0.255578, size = 103, normalized size = 1.27

$$\frac{2}{3}\,Bb^3x^{\frac{3}{2}} + 6\,Bab^2\sqrt{x} + 2\,Ab^3\sqrt{x} - \frac{2\left(45\,Ba^2bx^2 + 45\,Aab^2x^2 + 5\,Ba^3x + 15\,Aa^2bx + 3\,Aa^3\right)}{15\,x^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*(b*x + a)^3/x^(7/2),x, algorithm="giac")
```

```
[Out] 2/3*B*b^3*x^(3/2) + 6*B*a*b^2*sqrt(x) + 2*A*b^3*sqrt(x) - 2/15*(4
5*B*a^2*b*x^2 + 45*A*a*b^2*x^2 + 5*B*a^3*x + 15*A*a^2*b*x + 3*A*a
^3)/x^(5/2)
```

3.313 $\int \frac{(2-3x)^3\sqrt{x}}{(1+x)^2}\,dx$

Optimal. Leaf size=44

$$-\frac{54x^{5/2}}{5}+72x^{3/2}-\frac{125\sqrt{x}}{x+1}-450\sqrt{x}+575\tan^{-1}\left(\sqrt{x}\right)$$

```
[Out] -450*Sqrt[x] + 72*x^(3/2) - (54*x^(5/2))/5 - (125*Sqrt[x])/(1 + x
) + 575*ArcTan[Sqrt[x]]
```

Rubi [A] time = 0.0809778, antiderivative size = 58, normalized size of antiderivative = 1.32, number of steps used = 5, number of rules used = 5, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.278

$$-\frac{\sqrt{x}(2-3x)^3}{x+1}-\frac{21}{5}\sqrt{x}(2-3x)^2-\frac{3}{5}(917-171x)\sqrt{x}+575\tan^{-1}\left(\sqrt{x}\right)$$

Antiderivative was successfully verified.

```
[In] Int[((2 - 3*x)^3*Sqrt[x])/(1 + x)^2,x]
```

```
[Out] (-3*(917 - 171*x)*Sqrt[x])/5 - (21*(2 - 3*x)^2*Sqrt[x])/5 - ((2 -
 3*x)^3*Sqrt[x])/(1 + x) + 575*ArcTan[Sqrt[x]]
```

Rubi in Sympy [A] time = 11.6609, size = 54, normalized size = 1.23

$$-\frac{8\sqrt{x}\left(-\frac{1539x}{8}+\frac{8253}{8}\right)}{15}-\frac{\sqrt{x}\left(-3x+2\right)^3}{x+1}-\frac{21\sqrt{x}\left(-3x+2\right)^2}{5}+575\,\mathrm{atan}\left(\sqrt{x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2-3*x)**3*x**(1/2)/(1+x)**2,x)
```

```
[Out] -8*sqrt(x)*(-1539*x/8 + 8253/8)/15 - sqrt(x)*(-3*x + 2)**3/(x + 1
) - 21*sqrt(x)*(-3*x + 2)**2/5 + 575*atan(sqrt(x))
```

Mathematica [A] time = 0.0367129, size = 38, normalized size = 0.86

$$575\tan^{-1}\left(\sqrt{x}\right)-\frac{\sqrt{x}\left(54x^3-306x^2+1890x+2875\right)}{5(x+1)}$$

Antiderivative was successfully verified.

```
[In] Integrate[((2 - 3*x)^3*Sqrt[x])/(1 + x)^2,x]
```

```
[Out] -(Sqrt[x]*(2875 + 1890*x - 306*x^2 + 54*x^3))/(5*(1 + x)) + 575*A
rcTan[Sqrt[x]]
```

Maple [A] time = 0.018, size = 33, normalized size = 0.8

$$72\,x^{3/2}-\frac{54}{5}x^{\frac{5}{2}}+575\,\arctan\left(\sqrt{x}\right)-450\,\sqrt{x}-125\,\frac{\sqrt{x}}{1+x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2-3*x)^3*x^(1/2)/(1+x)^2,x)
```

```
[Out] 72*x^(3/2)-54/5*x^(5/2)+575*arctan(x^(1/2))-450*x^(1/2)-125*x^(1/
2)/(1+x)
```

Maxima [A] time = 1.57159, size = 43, normalized size = 0.98

$$-\frac{54}{5}\,x^{\frac{5}{2}}+72\,x^{\frac{3}{2}}-450\,\sqrt{x}-\frac{125\,\sqrt{x}}{x+1}+575\,\arctan\left(\sqrt{x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x - 2)^3*sqrt(x)/(x + 1)^2,x, algorithm="maxima")
```

```
[Out] -54/5*x^(5/2) + 72*x^(3/2) - 450*sqrt(x) - 125*sqrt(x)/(x + 1) +
575*arctan(sqrt(x))
```

Fricas [A] time = 0.212857, size = 50, normalized size = 1.14

$$\frac{2875\,(x+1)\arctan\left(\sqrt{x}\right)-\left(54\,x^3-306\,x^2+1890\,x+2875\right)\sqrt{x}}{5\,(x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x - 2)^3*sqrt(x)/(x + 1)^2,x, algorithm="fricas")
```

```
[Out] 1/5*(2875*(x + 1)*arctan(sqrt(x)) - (54*x^3 - 306*x^2 + 1890*x +
2875)*sqrt(x))/(x + 1)
```

Sympy [A] time = 26.8666, size = 39, normalized size = 0.89

$$-\frac{54x^{\frac{5}{2}}}{5}+72x^{\frac{3}{2}}-450\sqrt{x}-\frac{125\sqrt{x}}{x+1}+575\operatorname{atan}\left(\sqrt{x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2-3*x)**3*x**(1/2)/(1+x)**2,x)
```

```
[Out] -54*x**(5/2)/5 + 72*x**(3/2) - 450*sqrt(x) - 125*sqrt(x)/(x + 1)
+ 575*atan(sqrt(x))
```

GIAC/XCAS [A] time = 0.269752, size = 43, normalized size = 0.98

$$-\frac{54}{5}\,x^{\frac{5}{2}}+72\,x^{\frac{3}{2}}-450\,\sqrt{x}-\frac{125\,\sqrt{x}}{x+1}+575\,\arctan\left(\sqrt{x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x - 2)^3*sqrt(x)/(x + 1)^2,x, algorithm="giac")
```

```
[Out] -54/5*x^(5/2) + 72*x^(3/2) - 450*sqrt(x) - 125*sqrt(x)/(x + 1) +
575*arctan(sqrt(x))
```

3.314 $\int \frac{x^{7/2}(A+Bx)}{a+bx}\,dx$

Optimal. Leaf size=136

$$\frac{2a^{7/2}(Ab-aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{b^{11/2}}-\frac{2a^3\sqrt{x}(Ab-aB)}{b^5}+\frac{2a^2x^{3/2}(Ab-aB)}{3b^4}-\frac{2ax^{5/2}(Ab-aB)}{5b^3}+\frac{2x^{7/2}(Ab-aB)}{7b^2}+\frac{2Bx^{9/2}}{9b}$$

```
[Out] (-2*a^3*(A*b - a*B)*Sqrt[x])/b^5 + (2*a^2*(A*b - a*B)*x^(3/2))/(3
*b^4) - (2*a*(A*b - a*B)*x^(5/2))/(5*b^3) + (2*(A*b - a*B)*x^(7/2
))/(7*b^2) + (2*B*x^(9/2))/(9*b) + (2*a^(7/2)*(A*b - a*B)*ArcTan[
(Sqrt[b]*Sqrt[x])/Sqrt[a]])/b^(11/2)
```

Rubi [A] time = 0.211681, antiderivative size = 136, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.222

$$\frac{2a^{7/2}(Ab-aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{b^{11/2}}-\frac{2a^3\sqrt{x}(Ab-aB)}{b^5}+\frac{2a^2x^{3/2}(Ab-aB)}{3b^4}-\frac{2ax^{5/2}(Ab-aB)}{5b^3}+\frac{2x^{7/2}(Ab-aB)}{7b^2}+\frac{2Bx^{9/2}}{9b}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^(7/2)*(A + B*x))/(a + b*x),x]
```

```
[Out] (-2*a^3*(A*b - a*B)*Sqrt[x])/b^5 + (2*a^2*(A*b - a*B)*x^(3/2))/(3
*b^4) - (2*a*(A*b - a*B)*x^(5/2))/(5*b^3) + (2*(A*b - a*B)*x^(7/2
))/(7*b^2) + (2*B*x^(9/2))/(9*b) + (2*a^(7/2)*(A*b - a*B)*ArcTan[
(Sqrt[b]*Sqrt[x])/Sqrt[a]])/b^(11/2)
```

Rubi in Sympy [A] time = 23.7586, size = 128, normalized size = 0.94

$$\frac{2Bx^{\frac{9}{2}}}{9b}+\frac{2a^{\frac{7}{2}}\left(Ab-Ba\right)\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{b^{\frac{11}{2}}}-\frac{2a^3\sqrt{x}\left(Ab-Ba\right)}{b^5}+\frac{2a^2x^{\frac{3}{2}}\left(Ab-Ba\right)}{3b^4}-\frac{2ax^{\frac{5}{2}}\left(Ab-Ba\right)}{5b^3}+\frac{2x^{\frac{7}{2}}\left(Ab-Ba\right)}{7b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**(7/2)*(B*x+A)/(b*x+a),x)
```

```
[Out] 2*B*x**(9/2)/(9*b) + 2*a**(7/2)*(A*b - B*a)*atan(sqrt(b)*sqrt(x)/
sqrt(a))/b**(11/2) - 2*a**3*sqrt(x)*(A*b - B*a)/b**5 + 2*a**2*x**
(3/2)*(A*b - B*a)/(3*b**4) - 2*a*x**(5/2)*(A*b - B*a)/(5*b**3) +
2*x**(7/2)*(A*b - B*a)/(7*b**2)
```

Mathematica [A] time = 0.182093, size = 120, normalized size = 0.88

$$\frac{2\sqrt{x}\left(315a^4B-105a^3b(3A+Bx)+21a^2b^2x(5A+3Bx)-9ab^3x^2(7A+5Bx)+5b^4x^3(9A+7Bx)\right)}{315b^5}-\frac{2a^{7/2}(aB-Ab)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{b^{11/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^(7/2)*(A + B*x))/(a + b*x),x]
```

```
[Out] (2*Sqrt[x]*(315*a^4*B - 105*a^3*b*(3*A + B*x) + 21*a^2*b^2*x*(5*A
 + 3*B*x) - 9*a*b^3*x^2*(7*A + 5*B*x) + 5*b^4*x^3*(9*A + 7*B*x)))
/(315*b^5) - (2*a^(7/2)*(-(A*b) + a*B)*ArcTan[(Sqrt[b]*Sqrt[x])/S
qrt[a]])/b^(11/2)
```

Maple [A] time = 0.013, size = 150, normalized size = 1.1

$$\frac{2B}{9b}x^{\frac{9}{2}}+\frac{2A}{7b}x^{\frac{7}{2}}-\frac{2Ba}{7b^2}x^{\frac{7}{2}}-\frac{2Aa}{5b^2}x^{\frac{5}{2}}+\frac{2Ba^2}{5b^3}x^{\frac{5}{2}}+\frac{2Aa^2}{3b^3}x^{\frac{3}{2}}-\frac{2Ba^3}{3b^4}x^{\frac{3}{2}}\\-2\frac{a^3A\sqrt{x}}{b^4}+2\frac{Ba^4\sqrt{x}}{b^5}+2\frac{a^4A}{b^4\sqrt{ab}}\arctan\left(\frac{\sqrt{x}b}{\sqrt{ab}}\right)-2\frac{Ba^5}{b^5\sqrt{ab}}\arctan\left(\frac{\sqrt{x}b}{\sqrt{ab}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^(7/2)*(B*x+A)/(b*x+a),x)
```

```
[Out] 2/9*B*x^(9/2)/b+2/7/b*A*x^(7/2)-2/7/b^2*B*x^(7/2)*a-2/5/b^2*A*x^(
5/2)*a+2/5/b^3*B*x^(5/2)*a^2+2/3/b^3*A*x^(3/2)*a^2-2/3/b^4*B*x^(3
/2)*a^3-2/b^4*A*a^3*x^(1/2)+2/b^5*B*a^4*x^(1/2)+2*a^4/b^4/(a*b)^(
1/2)*arctan(x^(1/2)*b/(a*b)^(1/2))*A-2*a^5/b^5/(a*b)^(1/2)*arctan
(x^(1/2)*b/(a*b)^(1/2))*B
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(7/2)/(b*x + a),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.221586, size = 1, normalized size = 0.01

$$\left[-\frac{315\left(Ba^4-Aa^3b\right)\sqrt{-\frac{a}{b}}\log\left(\frac{bx+2b\sqrt{x}\sqrt{-\frac{a}{b}}-a}{bx+a}\right)-2\left(35Bb^4x^4+315Ba^4-315Aa^3b-45\left(Bab^3-Ab^4\right)x^3+63\left(Ba^2b^2-A\right.\right.}{315b^5}\right.\\-\frac{2\left(315\left(Ba^4-Aa^3b\right)\sqrt{\frac{a}{b}}\arctan\left(\frac{\sqrt{x}}{\sqrt{\frac{a}{b}}}\right)-\left(35Bb^4x^4+315Ba^4-315Aa^3b-45\left(Bab^3-Ab^4\right)x^3+63\left(Ba^2b^2-Aab^3\right)x^2-\right.\right.}{315b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(7/2)/(b*x + a),x, algorithm="fricas")
```

```
[Out] [-1/315*(315*(B*a^4 - A*a^3*b)*sqrt(-a/b)*log((b*x + 2*b*sqrt(x)*
sqrt(-a/b) - a)/(b*x + a)) - 2*(35*B*b^4*x^4 + 315*B*a^4 - 315*A*
a^3*b - 45*(B*a*b^3 - A*b^4)*x^3 + 63*(B*a^2*b^2 - A*a*b^3)*x^2 -
 105*(B*a^3*b - A*a^2*b^2)*x)*sqrt(x))/b^5, -2/315*(315*(B*a^4 -
A*a^3*b)*sqrt(a/b)*arctan(sqrt(x)/sqrt(a/b)) - (35*B*b^4*x^4 + 31
5*B*a^4 - 315*A*a^3*b - 45*(B*a*b^3 - A*b^4)*x^3 + 63*(B*a^2*b^2
```

```
- A*a*b^3)*x^2 - 105*(B*a^3*b - A*a^2*b^2)*x)*sqrt(x))/b^5]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**(7/2)*(B*x+A)/(b*x+a),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.259712, size = 188, normalized size = 1.38

$$-\frac{2\,\left(Ba^{5}-Aa^{4}b\right)\arctan\left(\frac{b\sqrt{x}}{\sqrt{ab}}\right)}{\sqrt{ab}b^{5}}+\frac{2\,\left(35\,Bb^{8}x^{\frac{9}{2}}-45\,Bab^{7}x^{\frac{7}{2}}+45\,Ab^{8}x^{\frac{7}{2}}+63\,Ba^{2}b^{6}x^{\frac{5}{2}}-63\,Aab^{7}x^{\frac{5}{2}}-105\,Ba^{3}b^{5}x^{\frac{3}{2}}+105\,Aa^{2}b^{6}x^{\frac{3}{2}}+315\,Ba^{4}b^{4}\sqrt{x}-315\,Aa^{3}\right.}{315\,b^{9}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(7/2)/(b*x + a),x, algorithm="giac")
```

```
[Out] -2*(B*a^5 - A*a^4*b)*arctan(b*sqrt(x)/sqrt(a*b))/(sqrt(a*b)*b^5)
+ 2/315*(35*B*b^8*x^(9/2) - 45*B*a*b^7*x^(7/2) + 45*A*b^8*x^(7/2)
 + 63*B*a^2*b^6*x^(5/2) - 63*A*a*b^7*x^(5/2) - 105*B*a^3*b^5*x^(3
/2) + 105*A*a^2*b^6*x^(3/2) + 315*B*a^4*b^4*sqrt(x) - 315*A*a^3*b
^5*sqrt(x))/b^9
```

3.315 $\int \frac{x^{5/2}(A+Bx)}{a+bx}\,dx$

Optimal. Leaf size=113

$$-\frac{2a^{5/2}(Ab-aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{b^{9/2}}+\frac{2a^2\sqrt{x}(Ab-aB)}{b^4}-\frac{2ax^{3/2}(Ab-aB)}{3b^3}+\frac{2x^{5/2}(Ab-aB)}{5b^2}+\frac{2Bx^{7/2}}{7b}$$

```
[Out] (2*a^2*(A*b - a*B)*Sqrt[x])/b^4 - (2*a*(A*b - a*B)*x^(3/2))/(3*b^
3) + (2*(A*b - a*B)*x^(5/2))/(5*b^2) + (2*B*x^(7/2))/(7*b) - (2*a
^(5/2)*(A*b - a*B)*ArcTan[(Sqrt[b]*Sqrt[x])/Sqrt[a]])/b^(9/2)
```

Rubi [A] time = 0.142805, antiderivative size = 113, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.222

$$-\frac{2a^{5/2}(Ab-aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{b^{9/2}}+\frac{2a^2\sqrt{x}(Ab-aB)}{b^4}-\frac{2ax^{3/2}(Ab-aB)}{3b^3}+\frac{2x^{5/2}(Ab-aB)}{5b^2}+\frac{2Bx^{7/2}}{7b}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^(5/2)*(A + B*x))/(a + b*x),x]
```

```
[Out] (2*a^2*(A*b - a*B)*Sqrt[x])/b^4 - (2*a*(A*b - a*B)*x^(3/2))/(3*b^
3) + (2*(A*b - a*B)*x^(5/2))/(5*b^2) + (2*B*x^(7/2))/(7*b) - (2*a
^(5/2)*(A*b - a*B)*ArcTan[(Sqrt[b]*Sqrt[x])/Sqrt[a]])/b^(9/2)
```

Rubi in Sympy [A] time = 18.8372, size = 105, normalized size = 0.93

$$\frac{2Bx^{\frac{7}{2}}}{7b}-\frac{2a^{\frac{5}{2}}(Ab-Ba)\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{b^{\frac{9}{2}}}+\frac{2a^2\sqrt{x}(Ab-Ba)}{b^4}-\frac{2ax^{\frac{3}{2}}(Ab-Ba)}{3b^3}+\frac{2x^{\frac{5}{2}}(Ab-Ba)}{5b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**(5/2)*(B*x+A)/(b*x+a),x)
```

```
[Out] 2*B*x**(7/2)/(7*b) - 2*a**(5/2)*(A*b - B*a)*atan(sqrt(b)*sqrt(x)/
sqrt(a))/b**(9/2) + 2*a**2*sqrt(x)*(A*b - B*a)/b**4 - 2*a*x**(3/2
)*(A*b - B*a)/(3*b**3) + 2*x**(5/2)*(A*b - B*a)/(5*b**2)
```

Mathematica [A] time = 0.119589, size = 101, normalized size = 0.89

$$\frac{2a^{5/2}(aB-Ab)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{b^{9/2}}+\frac{2\sqrt{x}\left(-105a^3B+35a^2b(3A+Bx)-7ab^2x(5A+3Bx)+3b^3x^2(7A+5Bx)\right)}{105b^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^(5/2)*(A + B*x))/(a + b*x),x]
```

```
[Out] (2*Sqrt[x]*(-105*a^3*B + 35*a^2*b*(3*A + B*x) - 7*a*b^2*x*(5*A +
3*B*x) + 3*b^3*x^2*(7*A + 5*B*x)))/(105*b^4) + (2*a^(5/2)*(-(A*b)
 + a*B)*ArcTan[(Sqrt[b]*Sqrt[x])/Sqrt[a]])/b^(9/2)
```

Maple [A] time = 0.01, size = 126, normalized size = 1.1

$$\frac{2B}{7b}x^{\frac{7}{2}}+\frac{2A}{5b}x^{\frac{5}{2}}-\frac{2Ba}{5b^{2}}x^{\frac{5}{2}}-\frac{2Aa}{3b^{2}}x^{\frac{3}{2}}+\frac{2Ba^{2}}{3b^{3}}x^{\frac{3}{2}}+2\frac{a^{2}A\sqrt{x}}{b^{3}}-2\frac{Ba^{3}\sqrt{x}}{b^{4}}-2\frac{a^{3}A}{b^{3}\sqrt{ab}}\arctan\left(\frac{\sqrt{x}b}{\sqrt{ab}}\right)+2\frac{Ba^{4}}{b^{4}\sqrt{ab}}\arctan\left(\frac{\sqrt{x}b}{\sqrt{ab}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^(5/2)*(B*x+A)/(b*x+a),x)
```

```
[Out] 2/7*B*x^(7/2)/b+2/5/b*A*x^(5/2)-2/5/b^2*B*x^(5/2)*a-2/3/b^2*A*x^(
3/2)*a+2/3/b^3*B*x^(3/2)*a^2+2/b^3*a^2*A*x^(1/2)-2/b^4*a^3*B*x^(1
/2)-2*a^3/b^3/(a*b)^(1/2)*arctan(x^(1/2)*b/(a*b)^(1/2))*A+2*a^4/b
^4/(a*b)^(1/2)*arctan(x^(1/2)*b/(a*b)^(1/2))*B
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(5/2)/(b*x + a),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.220915, size = 1, normalized size = 0.01

$$\left[-\frac{105\left(Ba^{3}-Aa^{2}b\right)\sqrt{-\frac{a}{b}}\log\left(\frac{bx-2b\sqrt{x}\sqrt{-\frac{a}{b}}-a}{bx+a}\right)-2\left(15Bb^{3}x^{3}-105Ba^{3}+105Aa^{2}b-21\left(Bab^{2}-Ab^{3}\right)x^{2}+35\left(Ba^{2}b-Aa\right.\right.}{105b^{4}}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(5/2)/(b*x + a),x, algorithm="fricas")
```

```
[Out] [-1/105*(105*(B*a^3 - A*a^2*b)*sqrt(-a/b)*log((b*x - 2*b*sqrt(x)*
sqrt(-a/b) - a)/(b*x + a)) - 2*(15*B*b^3*x^3 - 105*B*a^3 + 105*A*
a^2*b - 21*(B*a*b^2 - A*b^3)*x^2 + 35*(B*a^2*b - A*a*b^2)*x)*sqrt
(x))/b^4, 2/105*(105*(B*a^3 - A*a^2*b)*sqrt(a/b)*arctan(sqrt(x)/s
qrt(a/b)) + (15*B*b^3*x^3 - 105*B*a^3 + 105*A*a^2*b - 21*(B*a*b^2
 - A*b^3)*x^2 + 35*(B*a^2*b - A*a*b^2)*x)*sqrt(x))/b^4]
```

Sympy [A] time = 52.3262, size = 162, normalized size = 1.43

$$-\frac{2Aa^{\frac{5}{2}}\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{b^{\frac{7}{2}}}+\frac{2Aa^{2}\sqrt{x}}{b^{3}}-\frac{2Aax^{\frac{3}{2}}}{3b^{2}}+\frac{2Ax^{\frac{5}{2}}}{5b}+\frac{2Ba^{\frac{7}{2}}\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{b^{\frac{9}{2}}}-\frac{2Ba^{3}\sqrt{x}}{b^{4}}+\frac{2Ba^{2}x^{\frac{3}{2}}}{3b^{3}}-\frac{2Bax^{\frac{5}{2}}}{5b^{2}}+\frac{2Bx^{\frac{7}{2}}}{7b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**(5/2)*(B*x+A)/(b*x+a),x)
```

```
[Out] -2*A*a**(5/2)*atan(sqrt(b)*sqrt(x)/sqrt(a))/b**(7/2) + 2*A*a**2*s
qrt(x)/b**3 - 2*A*a*x**(3/2)/(3*b**2) + 2*A*x**(5/2)/(5*b) + 2*B*
a**(7/2)*atan(sqrt(b)*sqrt(x)/sqrt(a))/b**(9/2) - 2*B*a**3*sqrt(x
)/b**4 + 2*B*a**2*x**(3/2)/(3*b**3) - 2*B*a*x**(5/2)/(5*b**2) + 2
*B*x**(7/2)/(7*b)
```

GIAC/XCAS [A] time = 0.256701, size = 155, normalized size = 1.37

$$\frac{2\,\left(Ba^4 - Aa^3b\right)\,\arctan\left(\frac{b\sqrt{x}}{\sqrt{ab}}\right)}{\sqrt{ab}b^4} + \frac{2\,\left(15\,Bb^6x^{\frac{7}{2}} - 21\,Bab^5x^{\frac{5}{2}} + 21\,Ab^6x^{\frac{5}{2}} + 35\,Ba^2b^4x^{\frac{3}{2}} - 35\,Aab^5x^{\frac{3}{2}} - 105\,Ba^3b^3\sqrt{x} + 105\,Aa^2b^4\sqrt{x}\right)}{105\,b^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(5/2)/(b*x + a),x, algorithm="giac")
```

```
[Out] 2*(B*a^4 - A*a^3*b)*arctan(b*sqrt(x)/sqrt(a*b))/(sqrt(a*b)*b^4) +
 2/105*(15*B*b^6*x^(7/2) - 21*B*a*b^5*x^(5/2) + 21*A*b^6*x^(5/2)
+ 35*B*a^2*b^4*x^(3/2) - 35*A*a*b^5*x^(3/2) - 105*B*a^3*b^3*sqrt(
x) + 105*A*a^2*b^4*sqrt(x))/b^7
```

3.316 $\int \frac{x^{3/2}(A+Bx)}{a+bx}\,dx$

Optimal. Leaf size=90

$$\frac{2a^{3/2}(Ab-aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{b^{7/2}}-\frac{2a\sqrt{x}(Ab-aB)}{b^3}+\frac{2x^{3/2}(Ab-aB)}{3b^2}+\frac{2Bx^{5/2}}{5b}$$

```
[Out] (-2*a*(A*b - a*B)*Sqrt[x])/b^3 + (2*(A*b - a*B)*x^(3/2))/(3*b^2)
+ (2*B*x^(5/2))/(5*b) + (2*a^(3/2)*(A*b - a*B)*ArcTan[(Sqrt[b]*Sq
rt[x])/Sqrt[a]])/b^(7/2)
```

Rubi [A] time = 0.115959, antiderivative size = 90, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.222

$$\frac{2a^{3/2}(Ab-aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{b^{7/2}}-\frac{2a\sqrt{x}(Ab-aB)}{b^3}+\frac{2x^{3/2}(Ab-aB)}{3b^2}+\frac{2Bx^{5/2}}{5b}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^(3/2)*(A + B*x))/(a + b*x),x]
```

```
[Out] (-2*a*(A*b - a*B)*Sqrt[x])/b^3 + (2*(A*b - a*B)*x^(3/2))/(3*b^2)
+ (2*B*x^(5/2))/(5*b) + (2*a^(3/2)*(A*b - a*B)*ArcTan[(Sqrt[b]*Sq
rt[x])/Sqrt[a]])/b^(7/2)
```

Rubi in Sympy [A] time = 14.5253, size = 83, normalized size = 0.92

$$\frac{2Bx^{\frac{5}{2}}}{5b}+\frac{2a^{\frac{3}{2}}\left(Ab-Ba\right)\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{b^{\frac{7}{2}}}-\frac{2a\sqrt{x}\left(Ab-Ba\right)}{b^3}+\frac{2x^{\frac{3}{2}}\left(Ab-Ba\right)}{3b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**(3/2)*(B*x+A)/(b*x+a),x)
```

```
[Out] 2*B*x**(5/2)/(5*b) + 2*a**(3/2)*(A*b - B*a)*atan(sqrt(b)*sqrt(x)/
sqrt(a))/b**(7/2) - 2*a*sqrt(x)*(A*b - B*a)/b**3 + 2*x**(3/2)*(A*
b - B*a)/(3*b**2)
```

Mathematica [A] time = 0.115593, size = 81, normalized size = 0.9

$$\frac{2\sqrt{x}\left(15a^2B-5ab(3A+Bx)+b^2x(5A+3Bx)\right)}{15b^3}-\frac{2a^{3/2}(aB-Ab)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{b^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^(3/2)*(A + B*x))/(a + b*x),x]
```

```
[Out] (2*Sqrt[x]*(15*a^2*B - 5*a*b*(3*A + B*x) + b^2*x*(5*A + 3*B*x)))/
(15*b^3) - (2*a^(3/2)*(-(A*b) + a*B)*ArcTan[(Sqrt[b]*Sqrt[x])/Sqr
t[a]])/b^(7/2)
```

Maple [A] time = 0.012, size = 102, normalized size = 1.1

$$\frac{2B}{5b}x^{\frac{5}{2}}+\frac{2A}{3b}x^{\frac{3}{2}}-\frac{2Ba}{3b^{2}}x^{\frac{3}{2}}-2\frac{aA\sqrt{x}}{b^{2}}+2\frac{Ba^{2}\sqrt{x}}{b^{3}}+2\frac{a^{2}A}{b^{2}\sqrt{ab}}\arctan\left(\frac{\sqrt{x}b}{\sqrt{ab}}\right)-2\frac{Ba^{3}}{b^{3}\sqrt{ab}}\arctan\left(\frac{\sqrt{x}b}{\sqrt{ab}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^(3/2)*(B*x+A)/(b*x+a),x)
```

```
[Out] 2/5*B*x^(5/2)/b+2/3/b*A*x^(3/2)-2/3/b^2*B*x^(3/2)*a-2/b^2*a*A*x^(
1/2)+2/b^3*a^2*B*x^(1/2)+2*a^2/b^2/(a*b)^(1/2)*arctan(x^(1/2)*b/(
a*b)^(1/2))*A-2*a^3/b^3/(a*b)^(1/2)*arctan(x^(1/2)*b/(a*b)^(1/2))
*B
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(3/2)/(b*x + a),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.220483, size = 1, normalized size = 0.01

$$\left[-\frac{15\left(Ba^{2}-Aab\right)\sqrt{-\frac{a}{b}}\log\left(\frac{bx+2\,b\sqrt{x}\sqrt{-\frac{a}{b}}-a}{bx+a}\right)-2\left(3\,Bb^{2}x^{2}+15\,Ba^{2}-15\,Aab-5\left(Bab-Ab^{2}\right)x\right)\sqrt{x}}{15\,b^{3}},\ -\frac{2\left(15\left(Ba^{2}-Aab\right)\sqrt{\frac{a}{b}}\arctan\left(\frac{\sqrt{x}}{\sqrt{\frac{a}{b}}}\right)-\left(3\,Bb^{2}x^{2}+15\,Ba^{2}-15\,Aab-5\left(Bab-Ab^{2}\right)x\right)\sqrt{x}\right)}{15\,b^{3}}\right]$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(3/2)/(b*x + a),x, algorithm="fricas")
```

```
[Out] [-1/15*(15*(B*a^2 - A*a*b)*sqrt(-a/b)*log((b*x + 2*b*sqrt(x)*sqrt
(-a/b) - a)/(b*x + a)) - 2*(3*B*b^2*x^2 + 15*B*a^2 - 15*A*a*b - 5
*(B*a*b - A*b^2)*x)*sqrt(x))/b^3, -2/15*(15*(B*a^2 - A*a*b)*sqrt(
a/b)*arctan(sqrt(x)/sqrt(a/b)) - (3*B*b^2*x^2 + 15*B*a^2 - 15*A*a
*b - 5*(B*a*b - A*b^2)*x)*sqrt(x))/b^3]
```

Sympy [A] time = 28.2249, size = 128, normalized size = 1.42

$$\frac{2Aa^{\frac{3}{2}}\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{b^{\frac{5}{2}}}-\frac{2Aa\sqrt{x}}{b^{2}}+\frac{2Ax^{\frac{3}{2}}}{3b}-\frac{2Ba^{\frac{5}{2}}\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{b^{\frac{7}{2}}}+\frac{2Ba^{2}\sqrt{x}}{b^{3}}-\frac{2Bax^{\frac{3}{2}}}{3b^{2}}+\frac{2Bx^{\frac{5}{2}}}{5b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**(3/2)*(B*x+A)/(b*x+a),x)
```

```
[Out] 2*A*a**(3/2)*atan(sqrt(b)*sqrt(x)/sqrt(a))/b**(5/2) - 2*A*a*sqrt(
x)/b**2 + 2*A*x**(3/2)/(3*b) - 2*B*a**(5/2)*atan(sqrt(b)*sqrt(x)/
sqrt(a))/b**(7/2) + 2*B*a**2*sqrt(x)/b**3 - 2*B*a*x**(3/2)/(3*b**
2) + 2*B*x**(5/2)/(5*b)
```

GIAC/XCAS [A] time = 0.263589, size = 123, normalized size = 1.37

$$-\frac{2\left(Ba^3 - Aa^2b\right)\arctan\left(\frac{b\sqrt{x}}{\sqrt{ab}}\right)}{\sqrt{ab}b^3} + \frac{2\left(3\,Bb^4x^{\frac{5}{2}} - 5\,Bab^3x^{\frac{3}{2}} + 5\,Ab^4x^{\frac{3}{2}} + 15\,Ba^2b^2\sqrt{x} - 15\,Aab^3\sqrt{x}\right)}{15\,b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(3/2)/(b*x + a),x, algorithm="giac")
```

```
[Out] -2*(B*a^3 - A*a^2*b)*arctan(b*sqrt(x)/sqrt(a*b))/(sqrt(a*b)*b^3)
+ 2/15*(3*B*b^4*x^(5/2) - 5*B*a*b^3*x^(3/2) + 5*A*b^4*x^(3/2) + 1
5*B*a^2*b^2*sqrt(x) - 15*A*a*b^3*sqrt(x))/b^5
```

3.317 $\int \frac{\sqrt{x}(A+Bx)}{a+bx}\,dx$

Optimal. Leaf size=69

$$-\frac{2\sqrt{a}(Ab-aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{b^{5/2}}+\frac{2\sqrt{x}(Ab-aB)}{b^2}+\frac{2Bx^{3/2}}{3b}$$

```
[Out] (2*(A*b - a*B)*Sqrt[x])/b^2 + (2*B*x^(3/2))/(3*b) - (2*Sqrt[a]*(A
*b - a*B)*ArcTan[(Sqrt[b]*Sqrt[x])/Sqrt[a]])/b^(5/2)
```

Rubi [A] time = 0.0846432, antiderivative size = 69, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.222

$$-\frac{2\sqrt{a}(Ab-aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{b^{5/2}}+\frac{2\sqrt{x}(Ab-aB)}{b^2}+\frac{2Bx^{3/2}}{3b}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[x]*(A + B*x))/(a + b*x),x]
```

```
[Out] (2*(A*b - a*B)*Sqrt[x])/b^2 + (2*B*x^(3/2))/(3*b) - (2*Sqrt[a]*(A
*b - a*B)*ArcTan[(Sqrt[b]*Sqrt[x])/Sqrt[a]])/b^(5/2)
```

Rubi in Sympy [A] time = 10.9137, size = 63, normalized size = 0.91

$$\frac{2Bx^{\frac{3}{2}}}{3b}-\frac{2\sqrt{a}\,(Ab-Ba)\,\mathrm{atan}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{b^{\frac{5}{2}}}+\frac{2\sqrt{x}\,(Ab-Ba)}{b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*x**(1/2)/(b*x+a),x)
```

```
[Out] 2*B*x**(3/2)/(3*b) - 2*sqrt(a)*(A*b - B*a)*atan(sqrt(b)*sqrt(x)/s
qrt(a))/b**(5/2) + 2*sqrt(x)*(A*b - B*a)/b**2
```

Mathematica [A] time = 0.0667923, size = 63, normalized size = 0.91

$$\frac{2\sqrt{a}(aB-Ab)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{b^{5/2}}+\frac{2\sqrt{x}(-3aB+3Ab+bBx)}{3b^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[x]*(A + B*x))/(a + b*x),x]
```

```
[Out] (2*Sqrt[x]*(3*A*b - 3*a*B + b*B*x))/(3*b^2) + (2*Sqrt[a]*(-(A*b)
+ a*B)*ArcTan[(Sqrt[b]*Sqrt[x])/Sqrt[a]])/b^(5/2)
```

Maple [A] time = 0.01, size = 78, normalized size = 1.1

$$\frac{2\,B}{3\,b}x^{\frac{3}{2}}+2\,\frac{A\sqrt{x}}{b}-2\,\frac{Ba\sqrt{x}}{b^2}-2\,\frac{Aa}{b\sqrt{ab}}\arctan\left(\frac{\sqrt{x}b}{\sqrt{ab}}\right)+2\,\frac{Ba^2}{b^2\sqrt{ab}}\arctan\left(\frac{\sqrt{x}b}{\sqrt{ab}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*x^(1/2)/(b*x+a),x)
```

```
[Out] 2/3*B*x^(3/2)/b+2/b*A*x^(1/2)-2/b^2*B*a*x^(1/2)-2*a/b/(a*b)^(1/2)
*arctan(x^(1/2)*b/(a*b)^(1/2))*A+2*a^2/b^2/(a*b)^(1/2)*arctan(x^(
1/2)*b/(a*b)^(1/2))*B
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(x)/(b*x + a),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.22367, size = 1, normalized size = 0.01

$$\left[-\frac{3\,(Ba-Ab)\sqrt{-\frac{a}{b}}\log\left(\frac{bx-2\,b\sqrt{x}\sqrt{-\frac{a}{b}}-a}{bx+a}\right)-2\,(Bbx-3\,Ba+3\,Ab)\sqrt{x}}{3\,b^2},\ \frac{2\left(3\,(Ba-Ab)\sqrt{\frac{a}{b}}\arctan\left(\frac{\sqrt{x}}{\sqrt{\frac{a}{b}}}\right)+(Bbx-3\,Ba+3\,Ab\right.}{3\,b^2}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(x)/(b*x + a),x, algorithm="fricas")
```

```
[Out] [-1/3*(3*(B*a - A*b)*sqrt(-a/b)*log((b*x - 2*b*sqrt(x)*sqrt(-a/b)
 - a)/(b*x + a)) - 2*(B*b*x - 3*B*a + 3*A*b)*sqrt(x))/b^2, 2/3*(3
*(B*a - A*b)*sqrt(a/b)*arctan(sqrt(x)/sqrt(a/b)) + (B*b*x - 3*B*a
 + 3*A*b)*sqrt(x))/b^2]
```

Sympy [A] time = 7.21998, size = 131, normalized size = 1.9

$$\frac{2Bx^{\frac{3}{2}}}{3b}+\frac{2a\,(-Ab+Ba)\left(\begin{cases}\frac{\operatorname{atan}\left(\frac{\sqrt{x}}{\sqrt{\frac{a}{b}}}\right)}{b\sqrt{\frac{a}{b}}} & \text{for}\ \frac{a}{b}>0\\ -\frac{\operatorname{acoth}\left(\frac{\sqrt{x}}{\sqrt{-\frac{a}{b}}}\right)}{b\sqrt{-\frac{a}{b}}} & \text{for}\ x>-\frac{a}{b}\wedge\frac{a}{b}<0\\ -\frac{\operatorname{atanh}\left(\frac{\sqrt{x}}{\sqrt{-\frac{a}{b}}}\right)}{b\sqrt{-\frac{a}{b}}} & \text{for}\ x<-\frac{a}{b}\wedge\frac{a}{b}<0\end{cases}\right)}{b^2}+\frac{2\sqrt{x}\,(Ab-Ba)}{b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*x**(1/2)/(b*x+a),x)
```

```
[Out] 2*B*x**(3/2)/(3*b) + 2*a*(-A*b + B*a)*Piecewise((atan(sqrt(x)/sqr
t(a/b))/(b*sqrt(a/b)), a/b > 0), (-acoth(sqrt(x)/sqrt(-a/b))/(b*s
qrt(-a/b)), (a/b < 0) & (x > -a/b)), (-atanh(sqrt(x)/sqrt(-a/b))/
(b*sqrt(-a/b)), (a/b < 0) & (x < -a/b)))/b**2 + 2*sqrt(x)*(A*b -
B*a)/b**2
```

GIAC/XCAS [A] time = 0.271619, size = 86, normalized size = 1.25

$$\frac{2\left(Ba^{2}-Aab\right)\arctan\left(\frac{b\sqrt{x}}{\sqrt{ab}}\right)}{\sqrt{ab}b^{2}}+\frac{2\left(Bb^{2}x^{\frac{3}{2}}-3\,Bab\sqrt{x}+3\,Ab^{2}\sqrt{x}\right)}{3\,b^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(x)/(b*x + a),x, algorithm="giac")
```

```
[Out] 2*(B*a^2 - A*a*b)*arctan(b*sqrt(x)/sqrt(a*b))/(sqrt(a*b)*b^2) + 2
/3*(B*b^2*x^(3/2) - 3*B*a*b*sqrt(x) + 3*A*b^2*sqrt(x))/b^3
```

3.318 $\int \frac{A+Bx}{\sqrt{x}(a+bx)} dx$

Optimal. Leaf size=49

$$\frac{2(Ab-aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{\sqrt{a}b^{3/2}}+\frac{2B\sqrt{x}}{b}$$

```
[Out] (2*B*Sqrt[x])/b + (2*(A*b - a*B)*ArcTan[(Sqrt[b]*Sqrt[x])/Sqrt[a]
])/(Sqrt[a]*b^(3/2))
```

Rubi [A] time = 0.0599834, antiderivative size = 49, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$\frac{2(Ab-aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{\sqrt{a}b^{3/2}}+\frac{2B\sqrt{x}}{b}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(Sqrt[x]*(a + b*x)),x]
```

```
[Out] (2*B*Sqrt[x])/b + (2*(A*b - a*B)*ArcTan[(Sqrt[b]*Sqrt[x])/Sqrt[a]
])/(Sqrt[a]*b^(3/2))
```

Rubi in Sympy [A] time = 7.96058, size = 44, normalized size = 0.9

$$\frac{2B\sqrt{x}}{b}+\frac{2\left(Ab-Ba\right)\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{\sqrt{a}b^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(b*x+a)/x**(1/2),x)
```

```
[Out] 2*B*sqrt(x)/b + 2*(A*b - B*a)*atan(sqrt(b)*sqrt(x)/sqrt(a))/(sqrt
(a)*b**(3/2))
```

Mathematica [A] time = 0.0555414, size = 49, normalized size = 1.

$$\frac{2B\sqrt{x}}{b}-\frac{2(aB-Ab)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{\sqrt{a}b^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(Sqrt[x]*(a + b*x)),x]
```

```
[Out] (2*B*Sqrt[x])/b - (2*(-(A*b) + a*B)*ArcTan[(Sqrt[b]*Sqrt[x])/Sqrt
[a]])/(Sqrt[a]*b^(3/2))
```

Maple [A] time = 0.009, size = 53, normalized size = 1.1

$$2\,{\frac{B\sqrt{x}}{b}}+2\,{\frac{A}{\sqrt{ab}}\arctan\left({\frac{\sqrt{x}b}{\sqrt{ab}}}\right)}-2\,{\frac{Ba}{b\sqrt{ab}}\arctan\left({\frac{\sqrt{x}b}{\sqrt{ab}}}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((B*x+A)/(b*x+a)/x^(1/2),x)
```

```
[Out] 2*B*x^(1/2)/b+2/(a*b)^(1/2)*arctan(x^(1/2)*b/(a*b)^(1/2))*A-2/b/(
a*b)^(1/2)*arctan(x^(1/2)*b/(a*b)^(1/2))*B*a
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)/((b*x + a)*sqrt(x)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.221423, size = 1, normalized size = 0.02

$$\left[\frac{2\sqrt{-ab}B\sqrt{x}-(Ba-Ab)\log\left(\frac{2\,ab\sqrt{x}+\sqrt{-ab}(bx-a)}{bx+a}\right)}{\sqrt{-ab}b},\ \frac{2\left(\sqrt{ab}B\sqrt{x}+(Ba-Ab)\arctan\left(\frac{a}{\sqrt{ab}\sqrt{x}}\right)\right)}{\sqrt{ab}b}\right]$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)/((b*x + a)*sqrt(x)),x, algorithm="fricas")
```

```
[Out] [(2*sqrt(-a*b)*B*sqrt(x) - (B*a - A*b)*log((2*a*b*sqrt(x) + sqrt(
-a*b)*(b*x - a))/(b*x + a)))/(sqrt(-a*b)*b), 2*(sqrt(a*b)*B*sqrt(
x) + (B*a - A*b)*arctan(a/(sqrt(a*b)*sqrt(x))))/(sqrt(a*b)*b)]
```

Sympy [A] time = 13.7342, size = 202, normalized size = 4.12

$$A\left(\begin{cases}\frac{\tilde{\infty}}{\sqrt{x}} & \text{for}\ a=0\wedge b=0\\ \frac{2\sqrt{x}}{a} & \text{for}\ b=0\\ -\frac{2}{b\sqrt{x}} & \text{for}\ a=0\\ -\frac{i\log\left(-i\sqrt{a}\sqrt{\frac{1}{b}}+\sqrt{x}\right)}{\sqrt{a}b\sqrt{\frac{1}{b}}}+\frac{i\log\left(i\sqrt{a}\sqrt{\frac{1}{b}}+\sqrt{x}\right)}{\sqrt{a}b\sqrt{\frac{1}{b}}} & \text{otherwise}\end{cases}\right)-\frac{2Ba\left(\begin{cases}\frac{\operatorname{atan}\left(\frac{\sqrt{x}}{\sqrt{\frac{a}{b}}}\right)}{b\sqrt{\frac{a}{b}}} & \text{for}\ \frac{a}{b}>0\\ -\frac{\operatorname{acoth}\left(\frac{\sqrt{x}}{\sqrt{-\frac{a}{b}}}\right)}{b\sqrt{-\frac{a}{b}}} & \text{for}\ x>-\frac{a}{b}\wedge\frac{a}{b}<0\\ -\frac{\operatorname{atanh}\left(\frac{\sqrt{x}}{\sqrt{-\frac{a}{b}}}\right)}{b\sqrt{-\frac{a}{b}}} & \text{for}\ x<-\frac{a}{b}\wedge\frac{a}{b}<0\end{cases}\right)}{b}+\frac{2B\sqrt{x}}{b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x+A)/(b*x+a)/x**(1/2),x)
```

```
[Out] A*Piecewise((zoo/sqrt(x), Eq(a, 0) & Eq(b, 0)), (2*sqrt(x)/a, Eq(
b, 0)), (-2/(b*sqrt(x)), Eq(a, 0)), (-I*log(-I*sqrt(a)*sqrt(1/b)
```

```
+ sqrt(x))/(sqrt(a)*b*sqrt(1/b)) + I*log(I*sqrt(a)*sqrt(1/b) + sq
rt(x))/(sqrt(a)*b*sqrt(1/b)), True)) - 2*B*a*Piecewise((atan(sqrt
(x)/sqrt(a/b))/(b*sqrt(a/b)), a/b > 0), (-acoth(sqrt(x)/sqrt(-a/b
))/(b*sqrt(-a/b)), (a/b < 0) & (x > -a/b)), (-atanh(sqrt(x)/sqrt(
-a/b))/(b*sqrt(-a/b)), (a/b < 0) & (x < -a/b)))/b + 2*B*sqrt(x)/b
```

GIAC/XCAS [A] time = 0.229671, size = 53, normalized size = 1.08

$$\frac{2 B\sqrt{x}}{b} - \frac{2 (Ba - Ab)\arctan\left(\frac{b\sqrt{x}}{\sqrt{ab}}\right)}{\sqrt{ab}b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*sqrt(x)),x, algorithm="giac")
```

```
[Out] 2*B*sqrt(x)/b - 2*(B*a - A*b)*arctan(b*sqrt(x)/sqrt(a*b))/(sqrt(a
*b)*b)
```

3.319 $\int \frac{A+Bx}{x^{3/2}(a+bx)}\,dx$

Optimal. Leaf size=49

$$-\frac{2(Ab-aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{a^{3/2}\sqrt{b}}-\frac{2A}{a\sqrt{x}}$$

```
[Out] (-2*A)/(a*Sqrt[x]) - (2*(A*b - a*B)*ArcTan[(Sqrt[b]*Sqrt[x])/Sqrt
[a]])/(a^(3/2)*Sqrt[b])
```

Rubi [A] time = 0.0701896, antiderivative size = 49, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$-\frac{2(Ab-aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{a^{3/2}\sqrt{b}}-\frac{2A}{a\sqrt{x}}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^(3/2)*(a + b*x)),x]
```

```
[Out] (-2*A)/(a*Sqrt[x]) - (2*(A*b - a*B)*ArcTan[(Sqrt[b]*Sqrt[x])/Sqrt
[a]])/(a^(3/2)*Sqrt[b])
```

Rubi in Sympy [A] time = 8.35686, size = 46, normalized size = 0.94

$$-\frac{2A}{a\sqrt{x}}-\frac{2\left(Ab-Ba\right)\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{a^{\frac{3}{2}}\sqrt{b}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**(3/2)/(b*x+a),x)
```

```
[Out] -2*A/(a*sqrt(x)) - 2*(A*b - B*a)*atan(sqrt(b)*sqrt(x)/sqrt(a))/(a
**(3/2)*sqrt(b))
```

Mathematica [A] time = 0.0517566, size = 49, normalized size = 1.

$$\frac{2(aB-Ab)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{a^{3/2}\sqrt{b}}-\frac{2A}{a\sqrt{x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^(3/2)*(a + b*x)),x]
```

```
[Out] (-2*A)/(a*Sqrt[x]) + (2*(-(A*b) + a*B)*ArcTan[(Sqrt[b]*Sqrt[x])/S
qrt[a]])/(a^(3/2)*Sqrt[b])
```

Maple [A] time = 0.013, size = 53, normalized size = 1.1

$$-2\,\frac{A}{a\sqrt{x}}-2\,\frac{Ab}{a\sqrt{ab}}\arctan\left(\frac{\sqrt{x}b}{\sqrt{ab}}\right)+2\,\frac{B}{\sqrt{ab}}\arctan\left(\frac{\sqrt{x}b}{\sqrt{ab}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^(3/2)/(b*x+a),x)
```

```
[Out] -2*A/a/x^(1/2)-2/a/(a*b)^(1/2)*arctan(x^(1/2)*b/(a*b)^(1/2))*A*b+
2/(a*b)^(1/2)*arctan(x^(1/2)*b/(a*b)^(1/2))*B
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*x^(3/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.222826, size = 1, normalized size = 0.02

$$\left[-\frac{(Ba-Ab)\sqrt{x}\log\left(-\frac{2\,ab\sqrt{x}-\sqrt{-ab}(bx-a)}{bx+a}\right)+2\sqrt{-ab}A}{\sqrt{-ab}a\sqrt{x}},-\frac{2\left((Ba-Ab)\sqrt{x}\arctan\left(\frac{a}{\sqrt{ab}\sqrt{x}}\right)+\sqrt{ab}A\right)}{\sqrt{ab}a\sqrt{x}}\right]$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*x^(3/2)),x, algorithm="fricas")
```

```
[Out] [-((B*a - A*b)*sqrt(x)*log(-(2*a*b*sqrt(x) - sqrt(-a*b)*(b*x - a)
)/(b*x + a)) + 2*sqrt(-a*b)*A)/(sqrt(-a*b)*a*sqrt(x)), -2*((B*a -
 A*b)*sqrt(x)*arctan(a/(sqrt(a*b)*sqrt(x))) + sqrt(a*b)*A)/(sqrt(
a*b)*a*sqrt(x))]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{A+Bx}{x^{\frac{3}{2}}\,(a+bx)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**(3/2)/(b*x+a),x)
```

```
[Out] Integral((A + B*x)/(x**(3/2)*(a + b*x)), x)
```

GIAC/XCAS [A] time = 0.213324, size = 53, normalized size = 1.08

$$\frac{2\,(Ba-Ab)\arctan\left(\frac{b\sqrt{x}}{\sqrt{ab}}\right)}{\sqrt{ab}a}-\frac{2\,A}{a\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*x^(3/2)),x, algorithm="giac")
```

```
[Out] 2*(B*a - A*b)*arctan(b*sqrt(x)/sqrt(a*b))/(sqrt(a*b)*a) - 2*A/(a*
sqrt(x))
```

3.320 $\int \frac{A+Bx}{x^{5/2}(a+bx)}\,dx$

Optimal. Leaf size=69

$$\frac{2\sqrt{b}(Ab-aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{a^{5/2}}+\frac{2(Ab-aB)}{a^2\sqrt{x}}-\frac{2A}{3ax^{3/2}}$$

```
[Out] (-2*A)/(3*a*x^(3/2)) + (2*(A*b - a*B))/(a^2*Sqrt[x]) + (2*Sqrt[b]
*(A*b - a*B)*ArcTan[(Sqrt[b]*Sqrt[x])/Sqrt[a]])/a^(5/2)
```

Rubi [A] time = 0.102135, antiderivative size = 69, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.222

$$\frac{2\sqrt{b}(Ab-aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{a^{5/2}}+\frac{2(Ab-aB)}{a^2\sqrt{x}}-\frac{2A}{3ax^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^(5/2)*(a + b*x)),x]
```

```
[Out] (-2*A)/(3*a*x^(3/2)) + (2*(A*b - a*B))/(a^2*Sqrt[x]) + (2*Sqrt[b]
*(A*b - a*B)*ArcTan[(Sqrt[b]*Sqrt[x])/Sqrt[a]])/a^(5/2)
```

Rubi in Sympy [A] time = 11.5715, size = 65, normalized size = 0.94

$$-\frac{2A}{3ax^{\frac{3}{2}}}+\frac{2\left(Ab-Ba\right)}{a^2\sqrt{x}}+\frac{2\sqrt{b}\left(Ab-Ba\right)\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{a^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**(5/2)/(b*x+a),x)
```

```
[Out] -2*A/(3*a*x**(3/2)) + 2*(A*b - B*a)/(a**2*sqrt(x)) + 2*sqrt(b)*(A
*b - B*a)*atan(sqrt(b)*sqrt(x)/sqrt(a))/a**(5/2)
```

Mathematica [A] time = 0.0808479, size = 64, normalized size = 0.93

$$\frac{2\sqrt{b}(Ab-aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{a^{5/2}}-\frac{2(a(A+3Bx)-3Abx)}{3a^2x^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^(5/2)*(a + b*x)),x]
```

```
[Out] (-2*(-3*A*b*x + a*(A + 3*B*x)))/(3*a^2*x^(3/2)) + (2*Sqrt[b]*(A*b
 - a*B)*ArcTan[(Sqrt[b]*Sqrt[x])/Sqrt[a]])/a^(5/2)
```

Maple [A] time = 0.016, size = 78, normalized size = 1.1

$$-\frac{2\,A}{3\,a}x^{-\frac{3}{2}}+2\,\frac{Ab}{\sqrt{x}a^2}-2\,\frac{B}{\sqrt{x}a}+2\,\frac{Ab^2}{a^2\sqrt{ab}}\arctan\left(\frac{\sqrt{x}b}{\sqrt{ab}}\right)-2\,\frac{Bb}{a\sqrt{ab}}\arctan\left(\frac{\sqrt{x}b}{\sqrt{ab}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^(5/2)/(b*x+a),x)
```

```
[Out] -2/3*A/a/x^(3/2)+2/x^(1/2)/a^2*A*b-2/x^(1/2)/a*B+2*b^2/a^2/(a*b)^
(1/2)*arctan(x^(1/2)*b/(a*b)^(1/2))*A-2*b/a/(a*b)^(1/2)*arctan(x^
(1/2)*b/(a*b)^(1/2))*B
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*x^(5/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.221126, size = 1, normalized size = 0.01

$$\Bigg[-\frac{3\,(Ba-Ab)x^{\frac{3}{2}}\sqrt{-\frac{b}{a}}\log\left(\frac{bx+2\,a\sqrt{x}\sqrt{-\frac{b}{a}}-a}{bx+a}\right)+2\,Aa+6\,(Ba-Ab)x}{3\,a^2x^{\frac{3}{2}}},\ \frac{2\,\Bigg(3\,(Ba-Ab)x^{\frac{3}{2}}\sqrt{\frac{b}{a}}\arctan\left(\frac{a\sqrt{\frac{b}{a}}}{b\sqrt{x}}\right)-Aa-3\,(Ba-Ab}{3\,a^2x^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*x^(5/2)),x, algorithm="fricas")
```

```
[Out] [-1/3*(3*(B*a - A*b)*x^(3/2)*sqrt(-b/a)*log((b*x + 2*a*sqrt(x)*sq
rt(-b/a) - a)/(b*x + a)) + 2*A*a + 6*(B*a - A*b)*x)/(a^2*x^(3/2))
, 2/3*(3*(B*a - A*b)*x^(3/2)*sqrt(b/a)*arctan(a*sqrt(b/a)/(b*sqrt
(x))) - A*a - 3*(B*a - A*b)*x)/(a^2*x^(3/2))]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{A+Bx}{x^{\frac{5}{2}}\,(a+bx)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**(5/2)/(b*x+a),x)
```

```
[Out] Integral((A + B*x)/(x**(5/2)*(a + b*x)), x)
```

GIAC/XCAS [A] time = 0.214453, size = 74, normalized size = 1.07

$$-\frac{2\left(Bab-Ab^2\right)\arctan\left(\frac{b\sqrt{x}}{\sqrt{ab}}\right)}{\sqrt{ab}a^2}-\frac{2\,(3\,Bax-3\,Abx+Aa)}{3\,a^2x^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*x^(5/2)),x, algorithm="giac")
```

```
[Out] -2*(B*a*b - A*b^2)*arctan(b*sqrt(x)/sqrt(a*b))/(sqrt(a*b)*a^2) -
2/3*(3*B*a*x - 3*A*b*x + A*a)/(a^2*x^(3/2))
```

3.321 $\int \frac{A+Bx}{x^{7/2}(a+bx)}\,dx$

Optimal. Leaf size=90

$$-\frac{2b^{3/2}(Ab-aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{a^{7/2}}-\frac{2b(Ab-aB)}{a^3\sqrt{x}}+\frac{2(Ab-aB)}{3a^2x^{3/2}}-\frac{2A}{5ax^{5/2}}$$

```
[Out] (-2*A)/(5*a*x^(5/2)) + (2*(A*b - a*B))/(3*a^2*x^(3/2)) - (2*b*(A*
b - a*B))/(a^3*Sqrt[x]) - (2*b^(3/2)*(A*b - a*B)*ArcTan[(Sqrt[b]*
Sqrt[x])/Sqrt[a]])/a^(7/2)
```

Rubi [A] time = 0.127212, antiderivative size = 90, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.222

$$-\frac{2b^{3/2}(Ab-aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{a^{7/2}}-\frac{2b(Ab-aB)}{a^3\sqrt{x}}+\frac{2(Ab-aB)}{3a^2x^{3/2}}-\frac{2A}{5ax^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^(7/2)*(a + b*x)),x]
```

```
[Out] (-2*A)/(5*a*x^(5/2)) + (2*(A*b - a*B))/(3*a^2*x^(3/2)) - (2*b*(A*
b - a*B))/(a^3*Sqrt[x]) - (2*b^(3/2)*(A*b - a*B)*ArcTan[(Sqrt[b]*
Sqrt[x])/Sqrt[a]])/a^(7/2)
```

Rubi in Sympy [A] time = 15.0477, size = 85, normalized size = 0.94

$$-\frac{2A}{5ax^{\frac{5}{2}}}+\frac{2\left(Ab-Ba\right)}{3a^2x^{\frac{3}{2}}}-\frac{2b\left(Ab-Ba\right)}{a^3\sqrt{x}}-\frac{2b^{\frac{3}{2}}\left(Ab-Ba\right)\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{a^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**(7/2)/(b*x+a),x)
```

```
[Out] -2*A/(5*a*x**(5/2)) + 2*(A*b - B*a)/(3*a**2*x**(3/2)) - 2*b*(A*b
- B*a)/(a**3*sqrt(x)) - 2*b**(3/2)*(A*b - B*a)*atan(sqrt(b)*sqrt(
x)/sqrt(a))/a**(7/2)
```

Mathematica [A] time = 0.112648, size = 83, normalized size = 0.92

$$\frac{2b^{3/2}(aB-Ab)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{a^{7/2}}-\frac{2\left(a^2(3A+5Bx)-5abx(A+3Bx)+15Ab^2x^2\right)}{15a^3x^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^(7/2)*(a + b*x)),x]
```

```
[Out] (-2*(15*A*b^2*x^2 - 5*a*b*x*(A + 3*B*x) + a^2*(3*A + 5*B*x)))/(15
*a^3*x^(5/2)) + (2*b^(3/2)*(-(A*b) + a*B)*ArcTan[(Sqrt[b]*Sqrt[x]
)/Sqrt[a]])/a^(7/2)
```

Maple [A] time = 0.017, size = 102, normalized size = 1.1

$$-\frac{2A}{5a}x^{-\frac{5}{2}}+\frac{2Ab}{3a^2}x^{-\frac{3}{2}}-\frac{2B}{3a}x^{-\frac{3}{2}}-2\frac{b^2A}{a^3\sqrt{x}}+2\frac{Bb}{a^2\sqrt{x}}-2\frac{Ab^3}{a^3\sqrt{ab}}\arctan\left(\frac{\sqrt{x}b}{\sqrt{ab}}\right)+2\frac{b^2B}{a^2\sqrt{ab}}\arctan\left(\frac{\sqrt{x}b}{\sqrt{ab}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^(7/2)/(b*x+a),x)
```

```
[Out] -2/5*A/a/x^(5/2)+2/3/x^(3/2)/a^2*A*b-2/3/x^(3/2)/a*B-2/a^3*b^2/x^
(1/2)*A+2/a^2*b/x^(1/2)*B-2*b^3/a^3/(a*b)^(1/2)*arctan(x^(1/2)*b/
(a*b)^(1/2))*A+2*b^2/a^2/(a*b)^(1/2)*arctan(x^(1/2)*b/(a*b)^(1/2)
)*B
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*x^(7/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.218835, size = 1, normalized size = 0.01

$$\left[-\frac{15\left(Bab-Ab^2\right)x^{\frac{5}{2}}\sqrt{-\frac{b}{a}}\log\left(\frac{bx-2a\sqrt{x}\sqrt{-\frac{b}{a}}-a}{bx+a}\right)+6Aa^2-30\left(Bab-Ab^2\right)x^2+10\left(Ba^2-Aab\right)x}{15a^3x^{\frac{5}{2}}},\right.$$
$$\left.-\frac{2\left(15\left(Bab-Ab^2\right)x^{\frac{5}{2}}\sqrt{\frac{b}{a}}\arctan\left(\frac{a\sqrt{\frac{b}{a}}}{b\sqrt{x}}\right)+3Aa^2-15\left(Bab-Ab^2\right)x^2+5\left(Ba^2-Aab\right)x\right)}{15a^3x^{\frac{5}{2}}}\right]$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*x^(7/2)),x, algorithm="fricas")
```

```
[Out] [-1/15*(15*(B*a*b - A*b^2)*x^(5/2)*sqrt(-b/a)*log((b*x - 2*a*sqrt
(x)*sqrt(-b/a) - a)/(b*x + a)) + 6*A*a^2 - 30*(B*a*b - A*b^2)*x^2
 + 10*(B*a^2 - A*a*b)*x)/(a^3*x^(5/2)), -2/15*(15*(B*a*b - A*b^2)
*x^(5/2)*sqrt(b/a)*arctan(a*sqrt(b/a)/(b*sqrt(x))) + 3*A*a^2 - 15
*(B*a*b - A*b^2)*x^2 + 5*(B*a^2 - A*a*b)*x)/(a^3*x^(5/2))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**(7/2)/(b*x+a),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.214657, size = 108, normalized size = 1.2

$$\frac{2\left(Bab^2 - Ab^3\right)\arctan\left(\frac{b\sqrt{x}}{\sqrt{ab}}\right)}{\sqrt{ab}a^3} + \frac{2\left(15\,Babx^2 - 15\,Ab^2x^2 - 5\,Ba^2x + 5\,Aabx - 3\,Aa^2\right)}{15\,a^3x^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*x^(7/2)),x, algorithm="giac")
```

```
[Out] 2*(B*a*b^2 - A*b^3)*arctan(b*sqrt(x)/sqrt(a*b))/(sqrt(a*b)*a^3) +
 2/15*(15*B*a*b*x^2 - 15*A*b^2*x^2 - 5*B*a^2*x + 5*A*a*b*x - 3*A*
a^2)/(a^3*x^(5/2))
```

3.322 $\int \frac{A+Bx}{x^{9/2}(a+bx)}\,dx$

Optimal. Leaf size=113

$$\frac{2b^{5/2}(Ab-aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{a^{9/2}}+\frac{2b^2(Ab-aB)}{a^4\sqrt{x}}-\frac{2b(Ab-aB)}{3a^3x^{3/2}}+\frac{2(Ab-aB)}{5a^2x^{5/2}}-\frac{2A}{7ax^{7/2}}$$

```
[Out] (-2*A)/(7*a*x^(7/2)) + (2*(A*b - a*B))/(5*a^2*x^(5/2)) - (2*b*(A*
b - a*B))/(3*a^3*x^(3/2)) + (2*b^2*(A*b - a*B))/(a^4*Sqrt[x]) + (
2*b^(5/2)*(A*b - a*B)*ArcTan[(Sqrt[b]*Sqrt[x])/Sqrt[a]])/a^(9/2)
```

Rubi [A] time = 0.158595, antiderivative size = 113, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.222

$$\frac{2b^{5/2}(Ab-aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{a^{9/2}}+\frac{2b^2(Ab-aB)}{a^4\sqrt{x}}-\frac{2b(Ab-aB)}{3a^3x^{3/2}}+\frac{2(Ab-aB)}{5a^2x^{5/2}}-\frac{2A}{7ax^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^(9/2)*(a + b*x)),x]
```

```
[Out] (-2*A)/(7*a*x^(7/2)) + (2*(A*b - a*B))/(5*a^2*x^(5/2)) - (2*b*(A*
b - a*B))/(3*a^3*x^(3/2)) + (2*b^2*(A*b - a*B))/(a^4*Sqrt[x]) + (
2*b^(5/2)*(A*b - a*B)*ArcTan[(Sqrt[b]*Sqrt[x])/Sqrt[a]])/a^(9/2)
```

Rubi in Sympy [A] time = 19.5921, size = 107, normalized size = 0.95

$$-\frac{2A}{7ax^{\frac{7}{2}}}+\frac{2\left(Ab-Ba\right)}{5a^2x^{\frac{5}{2}}}-\frac{2b\left(Ab-Ba\right)}{3a^3x^{\frac{3}{2}}}+\frac{2b^2\left(Ab-Ba\right)}{a^4\sqrt{x}}+\frac{2b^{\frac{5}{2}}\left(Ab-Ba\right)\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{a^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**(9/2)/(b*x+a),x)
```

```
[Out] -2*A/(7*a*x**(7/2)) + 2*(A*b - B*a)/(5*a**2*x**(5/2)) - 2*b*(A*b
- B*a)/(3*a**3*x**(3/2)) + 2*b**2*(A*b - B*a)/(a**4*sqrt(x)) + 2*
b**(5/2)*(A*b - B*a)*atan(sqrt(b)*sqrt(x)/sqrt(a))/a**(9/2)
```

Mathematica [A] time = 0.141294, size = 103, normalized size = 0.91

$$\frac{2b^{5/2}(Ab-aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{a^{9/2}}+\frac{-6a^3(5A+7Bx)+14a^2bx(3A+5Bx)-70ab^2x^2(A+3Bx)+210Ab^3x^3}{105a^4x^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^(9/2)*(a + b*x)),x]
```

```
[Out] (210*A*b^3*x^3 - 70*a*b^2*x^2*(A + 3*B*x) + 14*a^2*b*x*(3*A + 5*B
*x) - 6*a^3*(5*A + 7*B*x))/(105*a^4*x^(7/2)) + (2*b^(5/2)*(A*b -
a*B)*ArcTan[(Sqrt[b]*Sqrt[x])/Sqrt[a]])/a^(9/2)
```

Maple [A] time = 0.017, size = 126, normalized size = 1.1

$$-\frac{2A}{7a}x^{-\frac{7}{2}}+\frac{2Ab}{5a^2}x^{-\frac{5}{2}}-\frac{2B}{5a}x^{-\frac{5}{2}}-\frac{2b^2A}{3a^3}x^{-\frac{3}{2}}+\frac{2Bb}{3a^2}x^{-\frac{3}{2}}+2\frac{b^3A}{a^4\sqrt{x}}-2\frac{b^2B}{a^3\sqrt{x}}+2\frac{Ab^4}{a^4\sqrt{ab}}\arctan\left(\frac{\sqrt{x}b}{\sqrt{ab}}\right)-2\frac{b^3B}{a^3\sqrt{ab}}\arctan\left(\frac{\sqrt{x}b}{\sqrt{ab}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^(9/2)/(b*x+a),x)
```

```
[Out] -2/7*A/a/x^(7/2)+2/5/a^2/x^(5/2)*A*b-2/5/a/x^(5/2)*B-2/3/a^3*b^2/
x^(3/2)*A+2/3/a^2*b/x^(3/2)*B+2/a^4*b^3/x^(1/2)*A-2/a^3*b^2/x^(1/
2)*B+2*b^4/a^4/(a*b)^(1/2)*arctan(x^(1/2)*b/(a*b)^(1/2))*A-2*b^3/
a^3/(a*b)^(1/2)*arctan(x^(1/2)*b/(a*b)^(1/2))*B
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*x^(9/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.223307, size = 1, normalized size = 0.01

$$\left[-\frac{105\left(Bab^2-Ab^3\right)x^{\frac{7}{2}}\sqrt{-\frac{b}{a}}\log\left(\frac{bx+2a\sqrt{x}\sqrt{-\frac{b}{a}}-a}{bx+a}\right)+30Aa^3+210\left(Bab^2-Ab^3\right)x^3-70\left(Ba^2b-Aab^2\right)x^2+42\left(Ba^3-Aa^2b\right.}{105a^4x^{\frac{7}{2}}}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*x^(9/2)),x, algorithm="fricas")
```

```
[Out] [-1/105*(105*(B*a*b^2 - A*b^3)*x^(7/2)*sqrt(-b/a)*log((b*x + 2*a*
sqrt(x)*sqrt(-b/a) - a)/(b*x + a)) + 30*A*a^3 + 210*(B*a*b^2 - A*
b^3)*x^3 - 70*(B*a^2*b - A*a*b^2)*x^2 + 42*(B*a^3 - A*a^2*b)*x)/(
a^4*x^(7/2)), 2/105*(105*(B*a*b^2 - A*b^3)*x^(7/2)*sqrt(b/a)*arct
an(a*sqrt(b/a)/(b*sqrt(x))) - 15*A*a^3 - 105*(B*a*b^2 - A*b^3)*x^
3 + 35*(B*a^2*b - A*a*b^2)*x^2 - 21*(B*a^3 - A*a^2*b)*x)/(a^4*x^(
7/2))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**(9/2)/(b*x+a),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.213955, size = 140, normalized size = 1.24

$$-\frac{2\left(Bab^{3}-Ab^{4}\right)\arctan\left(\frac{b\sqrt{x}}{\sqrt{ab}}\right)}{\sqrt{ab}a^{4}}-\frac{2\left(105\,Bab^{2}x^{3}-105\,Ab^{3}x^{3}-35\,Ba^{2}bx^{2}+35\,Aab^{2}x^{2}+21\,Ba^{3}x-21\,Aa^{2}bx+15\,Aa^{3}\right)}{105\,a^{4}x^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*x^(9/2)),x, algorithm="giac")
```

```
[Out] -2*(B*a*b^3 - A*b^4)*arctan(b*sqrt(x)/sqrt(a*b))/(sqrt(a*b)*a^4)
- 2/105*(105*B*a*b^2*x^3 - 105*A*b^3*x^3 - 35*B*a^2*b*x^2 + 35*A*
a*b^2*x^2 + 21*B*a^3*x - 21*A*a^2*b*x + 15*A*a^3)/(a^4*x^(7/2))
```

3.323 $\int \frac{A+Bx}{x^{11/2}(a+bx)}\,dx$

Optimal. Leaf size=136

$$-\frac{2b^{7/2}(Ab-aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{a^{11/2}}-\frac{2b^3(Ab-aB)}{a^5\sqrt{x}}+\frac{2b^2(Ab-aB)}{3a^4x^{3/2}}-\frac{2b(Ab-aB)}{5a^3x^{5/2}}+\frac{2(Ab-aB)}{7a^2x^{7/2}}-\frac{2A}{9ax^{9/2}}$$

```
[Out] (-2*A)/(9*a*x^(9/2)) + (2*(A*b - a*B))/(7*a^2*x^(7/2)) - (2*b*(A*
b - a*B))/(5*a^3*x^(5/2)) + (2*b^2*(A*b - a*B))/(3*a^4*x^(3/2)) -
 (2*b^3*(A*b - a*B))/(a^5*Sqrt[x]) - (2*b^(7/2)*(A*b - a*B)*ArcTa
n[(Sqrt[b]*Sqrt[x])/Sqrt[a]])/a^(11/2)
```

Rubi [A] time = 0.191084, antiderivative size = 136, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.222$

$$-\frac{2b^{7/2}(Ab-aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{a^{11/2}}-\frac{2b^3(Ab-aB)}{a^5\sqrt{x}}+\frac{2b^2(Ab-aB)}{3a^4x^{3/2}}-\frac{2b(Ab-aB)}{5a^3x^{5/2}}+\frac{2(Ab-aB)}{7a^2x^{7/2}}-\frac{2A}{9ax^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^(11/2)*(a + b*x)),x]
```

```
[Out] (-2*A)/(9*a*x^(9/2)) + (2*(A*b - a*B))/(7*a^2*x^(7/2)) - (2*b*(A*
b - a*B))/(5*a^3*x^(5/2)) + (2*b^2*(A*b - a*B))/(3*a^4*x^(3/2)) -
 (2*b^3*(A*b - a*B))/(a^5*Sqrt[x]) - (2*b^(7/2)*(A*b - a*B)*ArcTa
n[(Sqrt[b]*Sqrt[x])/Sqrt[a]])/a^(11/2)
```

Rubi in Sympy [A] time = 24.4444, size = 129, normalized size = 0.95

$$-\frac{2A}{9ax^{\frac{9}{2}}}+\frac{2\,(Ab-Ba)}{7a^2x^{\frac{7}{2}}}-\frac{2b\,(Ab-Ba)}{5a^3x^{\frac{5}{2}}}+\frac{2b^2\,(Ab-Ba)}{3a^4x^{\frac{3}{2}}}-\frac{2b^3\,(Ab-Ba)}{a^5\sqrt{x}}-\frac{2b^{\frac{7}{2}}\,(Ab-Ba)\,\mathrm{atan}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{a^{\frac{11}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**(11/2)/(b*x+a),x)
```

```
[Out] -2*A/(9*a*x**(9/2)) + 2*(A*b - B*a)/(7*a**2*x**(7/2)) - 2*b*(A*b
- B*a)/(5*a**3*x**(5/2)) + 2*b**2*(A*b - B*a)/(3*a**4*x**(3/2)) -
 2*b**3*(A*b - B*a)/(a**5*sqrt(x)) - 2*b**(7/2)*(A*b - B*a)*atan(
sqrt(b)*sqrt(x)/sqrt(a))/a**(11/2)
```

Mathematica [A] time = 0.175334, size = 122, normalized size = 0.9

$$\frac{2b^{7/2}(aB-Ab)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{a^{11/2}}-\frac{2\left(5a^4(7A+9Bx)-9a^3bx(5A+7Bx)+21a^2b^2x^2(3A+5Bx)-105ab^3x^3(A+3Bx)+315Ab^4x^4\right)}{315a^5x^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^(11/2)*(a + b*x)),x]
```

```
[Out] (-2*(315*A*b^4*x^4 - 105*a*b^3*x^3*(A + 3*B*x) + 21*a^2*b^2*x^2*(
3*A + 5*B*x) - 9*a^3*b*x*(5*A + 7*B*x) + 5*a^4*(7*A + 9*B*x)))/(3
```

```
15*a^5*x^(9/2)) + (2*b^(7/2)*(-(A*b) + a*B)*ArcTan[(Sqrt[b]*Sqrt[
x])/Sqrt[a]])/a^(11/2)
```

Maple [A] time = 0.017, size = 150, normalized size = 1.1

$$-\frac{2A}{9a}x^{-\frac{9}{2}}+\frac{2Ab}{7a^2}x^{-\frac{7}{2}}-\frac{2B}{7a}x^{-\frac{7}{2}}-2\frac{b^4A}{a^5\sqrt{x}}+2\frac{b^3B}{a^4\sqrt{x}}-\frac{2b^2A}{5a^3}x^{-\frac{5}{2}}+\frac{2Bb}{5a^2}x^{-\frac{5}{2}}+\frac{2b^3A}{3a^4}x^{-\frac{3}{2}}-\frac{2b^2B}{3a^3}x^{-\frac{3}{2}}-2\frac{Ab^5}{a^5\sqrt{ab}}\arctan\left(\frac{\sqrt{x}b}{\sqrt{ab}}\right)+2\frac{b^4B}{a^4\sqrt{ab}}\arctan\left(\frac{\sqrt{x}b}{\sqrt{ab}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^(11/2)/(b*x+a),x)
```

```
[Out] -2/9*A/a/x^(9/2)+2/7/a^2/x^(7/2)*A*b-2/7/a/x^(7/2)*B-2/a^5*b^4/x^
(1/2)*A+2/a^4*b^3/x^(1/2)*B-2/5/a^3*b^2/x^(5/2)*A+2/5/a^2*b/x^(5/
2)*B+2/3/a^4*b^3/x^(3/2)*A-2/3/a^3*b^2/x^(3/2)*B-2*b^5/a^5/(a*b)^
(1/2)*arctan(x^(1/2)*b/(a*b)^(1/2))*A+2*b^4/a^4/(a*b)^(1/2)*arcta
n(x^(1/2)*b/(a*b)^(1/2))*B
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*x^(11/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.224919, size = 1, normalized size = 0.01

$$\left[-\frac{315\left(Bab^3-Ab^4\right)x^{\frac{9}{2}}\sqrt{-\frac{b}{a}}\log\left(\frac{bx-2a\sqrt{x}\sqrt{-\frac{b}{a}}-a}{bx+a}\right)+70Aa^4-630\left(Bab^3-Ab^4\right)x^4+210\left(Ba^2b^2-Aab^3\right)x^3-126\left(Ba^3b-\right.}{315a^5x^{\frac{9}{2}}}\right.$$

$$-\frac{2\left(315\left(Bab^3-Ab^4\right)x^{\frac{9}{2}}\sqrt{\frac{b}{a}}\arctan\left(\frac{a\sqrt{\frac{b}{a}}}{b\sqrt{x}}\right)+35Aa^4-315\left(Bab^3-Ab^4\right)x^4+105\left(Ba^2b^2-Aab^3\right)x^3-63\left(Ba^3b-Aa^2b^2\right)\right.}{315a^5x^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*x^(11/2)),x, algorithm="fricas")
```

```
[Out] [-1/315*(315*(B*a*b^3 - A*b^4)*x^(9/2)*sqrt(-b/a)*log((b*x - 2*a*
sqrt(x)*sqrt(-b/a) - a)/(b*x + a)) + 70*A*a^4 - 630*(B*a*b^3 - A*
b^4)*x^4 + 210*(B*a^2*b^2 - A*a*b^3)*x^3 - 126*(B*a^3*b - A*a^2*b
^2)*x^2 + 90*(B*a^4 - A*a^3*b)*x)/(a^5*x^(9/2)), -2/315*(315*(B*a
*b^3 - A*b^4)*x^(9/2)*sqrt(b/a)*arctan(a*sqrt(b/a)/(b*sqrt(x))) +
 35*A*a^4 - 315*(B*a*b^3 - A*b^4)*x^4 + 105*(B*a^2*b^2 - A*a*b^3)
*x^3 - 63*(B*a^3*b - A*a^2*b^2)*x^2 + 45*(B*a^4 - A*a^3*b)*x)/(a^
5*x^(9/2))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**(11/2)/(b*x+a),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.219479, size = 173, normalized size = 1.27

$$\frac{2\left(Bab^4 - Ab^5\right)\arctan\left(\frac{b\sqrt{x}}{\sqrt{ab}}\right)}{\sqrt{ab}a^5} + \frac{2\left(315\,Bab^3x^4 - 315\,Ab^4x^4 - 105\,Ba^2b^2x^3 + 105\,Aab^3x^3 + 63\,Ba^3bx^2 - 63\,Aa^2b^2x^2 - 45\,Ba^4x + 45\,Aa^3bx - 35\,Aa^4\right)}{315\,a^5x^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*x^(11/2)),x, algorithm="giac")
```

```
[Out] 2*(B*a*b^4 - A*b^5)*arctan(b*sqrt(x)/sqrt(a*b))/(sqrt(a*b)*a^5) +
 2/315*(315*B*a*b^3*x^4 - 315*A*b^4*x^4 - 105*B*a^2*b^2*x^3 + 105
*A*a*b^3*x^3 + 63*B*a^3*b*x^2 - 63*A*a^2*b^2*x^2 - 45*B*a^4*x + 4
5*A*a^3*b*x - 35*A*a^4)/(a^5*x^(9/2))
```

3.324 $\int \frac{x^{7/2}(A+Bx)}{(a+bx)^2}\,dx$

Optimal. Leaf size=154

$$-\frac{a^{5/2}(7Ab-9aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{b^{11/2}}+\frac{a^2\sqrt{x}(7Ab-9aB)}{b^5}-\frac{ax^{3/2}(7Ab-9aB)}{3b^4}+\frac{x^{5/2}(7Ab-9aB)}{5b^3}-\frac{x^{7/2}(7Ab-9aB)}{7ab^2}+\frac{x^{9/2}(Ab-aB)}{ab(a+bx)}$$

```
[Out] (a^2*(7*A*b - 9*a*B)*Sqrt[x])/b^5 - (a*(7*A*b - 9*a*B)*x^(3/2))/(
3*b^4) + ((7*A*b - 9*a*B)*x^(5/2))/(5*b^3) - ((7*A*b - 9*a*B)*x^(
7/2))/(7*a*b^2) + ((A*b - a*B)*x^(9/2))/(a*b*(a + b*x)) - (a^(5/2
)*(7*A*b - 9*a*B)*ArcTan[(Sqrt[b]*Sqrt[x])/Sqrt[a]])/b^(11/2)
```

Rubi [A] time = 0.206829, antiderivative size = 154, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.222

$$-\frac{a^{5/2}(7Ab-9aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{b^{11/2}}+\frac{a^2\sqrt{x}(7Ab-9aB)}{b^5}-\frac{ax^{3/2}(7Ab-9aB)}{3b^4}+\frac{x^{5/2}(7Ab-9aB)}{5b^3}-\frac{x^{7/2}(7Ab-9aB)}{7ab^2}+\frac{x^{9/2}(Ab-aB)}{ab(a+bx)}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^(7/2)*(A + B*x))/(a + b*x)^2,x]
```

```
[Out] (a^2*(7*A*b - 9*a*B)*Sqrt[x])/b^5 - (a*(7*A*b - 9*a*B)*x^(3/2))/(
3*b^4) + ((7*A*b - 9*a*B)*x^(5/2))/(5*b^3) - ((7*A*b - 9*a*B)*x^(
7/2))/(7*a*b^2) + ((A*b - a*B)*x^(9/2))/(a*b*(a + b*x)) - (a^(5/2
)*(7*A*b - 9*a*B)*ArcTan[(Sqrt[b]*Sqrt[x])/Sqrt[a]])/b^(11/2)
```

Rubi in Sympy [A] time = 26.3781, size = 143, normalized size = 0.93

$$-\frac{a^{\frac{5}{2}}\left(7Ab-9Ba\right)\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{b^{\frac{11}{2}}}+\frac{a^2\sqrt{x}\left(7Ab-9Ba\right)}{b^5}-\frac{ax^{\frac{3}{2}}\left(7Ab-9Ba\right)}{3b^4}+\frac{x^{\frac{5}{2}}\left(7Ab-9Ba\right)}{5b^3}+\frac{x^{\frac{9}{2}}\left(Ab-Ba\right)}{ab\left(a+bx\right)}-\frac{x^{\frac{7}{2}}\left(7Ab-9Ba\right)}{7ab^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**(7/2)*(B*x+A)/(b*x+a)**2,x)
```

```
[Out] -a**(5/2)*(7*A*b - 9*B*a)*atan(sqrt(b)*sqrt(x)/sqrt(a))/b**(11/2)
 + a**2*sqrt(x)*(7*A*b - 9*B*a)/b**5 - a*x**(3/2)*(7*A*b - 9*B*a)
/(3*b**4) + x**(5/2)*(7*A*b - 9*B*a)/(5*b**3) + x**(9/2)*(A*b - B
*a)/(a*b*(a + b*x)) - x**(7/2)*(7*A*b - 9*B*a)/(7*a*b**2)
```

Mathematica [A] time = 0.173133, size = 128, normalized size = 0.83

$$\frac{a^{5/2}(9aB-7Ab)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{b^{11/2}}+\frac{\sqrt{x}\left(-945a^4B+105a^3b(7A-6Bx)+14a^2b^2x(35A+9Bx)-2ab^3x^2(49A+27Bx)+6b^4x^3(7A+5Bx)\right)}{105b^5(a+bx)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^(7/2)*(A + B*x))/(a + b*x)^2,x]
```

```
[Out] (Sqrt[x]*(-945*a^4*B + 105*a^3*b*(7*A - 6*B*x) + 6*b^4*x^3*(7*A +
 5*B*x) + 14*a^2*b^2*x*(35*A + 9*B*x) - 2*a*b^3*x^2*(49*A + 27*B*
x)))/(105*b^5*(a + b*x)) + (a^(5/2)*(-7*A*b + 9*a*B)*ArcTan[(Sqrt
[b]*Sqrt[x])/Sqrt[a]])/b^(11/2)
```

Maple [A] time = 0.02, size = 163, normalized size = 1.1

$$\frac{2B}{7b^2}x^{\frac{7}{2}}+\frac{2A}{5b^2}x^{\frac{5}{2}}-\frac{4Ba}{5b^3}x^{\frac{5}{2}}-\frac{4Aa}{3b^3}x^{\frac{3}{2}}+2\frac{Bx^{3/2}a^2}{b^4}+6\frac{a^2A\sqrt{x}}{b^4}-8\frac{Ba^3\sqrt{x}}{b^5}+\frac{Aa^3}{b^4(bx+a)}\sqrt{x}-\frac{Ba^4}{b^5(bx+a)}\sqrt{x}-7\frac{Aa^3}{b^4\sqrt{ab}}\arctan\left(\frac{\sqrt{x}b}{\sqrt{ab}}\right)+9\frac{Ba^4}{b^5\sqrt{ab}}\arctan\left(\frac{\sqrt{x}b}{\sqrt{ab}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^(7/2)*(B*x+A)/(b*x+a)^2,x)
```

```
[Out] 2/7/b^2*B*x^(7/2)+2/5/b^2*A*x^(5/2)-4/5/b^3*B*x^(5/2)*a-4/3/b^3*A
*x^(3/2)*a+2/b^4*B*x^(3/2)*a^2+6/b^4*a^2*A*x^(1/2)-8/b^5*a^3*B*x^
(1/2)+a^3/b^4*x^(1/2)/(b*x+a)*A-a^4/b^5*x^(1/2)/(b*x+a)*B-7*a^3/b
^4/(a*b)^(1/2)*arctan(x^(1/2)*b/(a*b)^(1/2))*A+9*a^4/b^5/(a*b)^(1
/2)*arctan(x^(1/2)*b/(a*b)^(1/2))*B
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(7/2)/(b*x + a)^2,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.23292, size = 1, normalized size = 0.01

$$\left[-\frac{105\left(9Ba^4-7Aa^3b+\left(9Ba^3b-7Aa^2b^2\right)x\right)\sqrt{-\frac{a}{b}}\log\left(\frac{bx-2b\sqrt{x}\sqrt{-\frac{a}{b}}-a}{bx+a}\right)-2\left(30Bb^4x^4-945Ba^4+735Aa^3b-6\left(9Bab^3\right.\right.}{210\left(b^6x+ab^5\right)}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(7/2)/(b*x + a)^2,x, algorithm="fricas")
```

```
[Out] [-1/210*(105*(9*B*a^4 - 7*A*a^3*b + (9*B*a^3*b - 7*A*a^2*b^2)*x)*
sqrt(-a/b)*log((b*x - 2*b*sqrt(x)*sqrt(-a/b) - a)/(b*x + a)) - 2*
(30*B*b^4*x^4 - 945*B*a^4 + 735*A*a^3*b - 6*(9*B*a*b^3 - 7*A*b^4)
*x^3 + 14*(9*B*a^2*b^2 - 7*A*a*b^3)*x^2 - 70*(9*B*a^3*b - 7*A*a^2
*b^2)*x)*sqrt(x))/(b^6*x + a*b^5), 1/105*(105*(9*B*a^4 - 7*A*a^3*
b + (9*B*a^3*b - 7*A*a^2*b^2)*x)*sqrt(a/b)*arctan(sqrt(x)/sqrt(a/
b)) + (30*B*b^4*x^4 - 945*B*a^4 + 735*A*a^3*b - 6*(9*B*a*b^3 - 7*
A*b^4)*x^3 + 14*(9*B*a^2*b^2 - 7*A*a*b^3)*x^2 - 70*(9*B*a^3*b - 7
*A*a^2*b^2)*x)*sqrt(x))/(b^6*x + a*b^5)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**(7/2)*(B*x+A)/(b*x+a)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.219989, size = 197, normalized size = 1.28

$$\frac{\left(9\,Ba^{4}-7\,Aa^{3}b\right)\arctan\left(\frac{b\sqrt{x}}{\sqrt{ab}}\right)}{\sqrt{ab}b^{5}}-\frac{Ba^{4}\sqrt{x}-Aa^{3}b\sqrt{x}}{(bx+a)b^{5}}+\frac{2\left(15\,Bb^{12}x^{\frac{7}{2}}-42\,Bab^{11}x^{\frac{5}{2}}+21\,Ab^{12}x^{\frac{5}{2}}+105\,Ba^{2}b^{10}x^{\frac{3}{2}}-70\,Aab^{11}x^{\frac{3}{2}}-420\,Ba^{3}b^{9}\sqrt{x}+315\,Aa^{2}b^{10}\sqrt{x}\right)}{105\,b^{14}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(7/2)/(b*x + a)^2,x, algorithm="giac")
```

```
[Out] (9*B*a^4 - 7*A*a^3*b)*arctan(b*sqrt(x)/sqrt(a*b))/(sqrt(a*b)*b^5)
 - (B*a^4*sqrt(x) - A*a^3*b*sqrt(x))/((b*x + a)*b^5) + 2/105*(15*
B*b^12*x^(7/2) - 42*B*a*b^11*x^(5/2) + 21*A*b^12*x^(5/2) + 105*B*
a^2*b^10*x^(3/2) - 70*A*a*b^11*x^(3/2) - 420*B*a^3*b^9*sqrt(x) +
315*A*a^2*b^10*sqrt(x))/b^14
```

3.325 $\int \frac{x^{5/2}(A+Bx)}{(a+bx)^2} dx$

Optimal. Leaf size=130

$$\frac{a^{3/2}(5Ab-7aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{b^{9/2}}-\frac{a\sqrt{x}(5Ab-7aB)}{b^4}+\frac{x^{3/2}(5Ab-7aB)}{3b^3}-\frac{x^{5/2}(5Ab-7aB)}{5ab^2}+\frac{x^{7/2}(Ab-aB)}{ab(a+bx)}$$

```
[Out] -((a*(5*A*b - 7*a*B)*Sqrt[x])/b^4) + ((5*A*b - 7*a*B)*x^(3/2))/(3
*b^3) - ((5*A*b - 7*a*B)*x^(5/2))/(5*a*b^2) + ((A*b - a*B)*x^(7/2
))/(a*b*(a + b*x)) + (a^(3/2)*(5*A*b - 7*a*B)*ArcTan[(Sqrt[b]*Sqr
t[x])/Sqrt[a]])/b^(9/2)
```

Rubi [A] time = 0.167313, antiderivative size = 130, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.222

$$\frac{a^{3/2}(5Ab-7aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{b^{9/2}}-\frac{a\sqrt{x}(5Ab-7aB)}{b^4}+\frac{x^{3/2}(5Ab-7aB)}{3b^3}-\frac{x^{5/2}(5Ab-7aB)}{5ab^2}+\frac{x^{7/2}(Ab-aB)}{ab(a+bx)}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^(5/2)*(A + B*x))/(a + b*x)^2,x]
```

```
[Out] -((a*(5*A*b - 7*a*B)*Sqrt[x])/b^4) + ((5*A*b - 7*a*B)*x^(3/2))/(3
*b^3) - ((5*A*b - 7*a*B)*x^(5/2))/(5*a*b^2) + ((A*b - a*B)*x^(7/2
))/(a*b*(a + b*x)) + (a^(3/2)*(5*A*b - 7*a*B)*ArcTan[(Sqrt[b]*Sqr
t[x])/Sqrt[a]])/b^(9/2)
```

Rubi in Sympy [A] time = 21.1689, size = 119, normalized size = 0.92

$$\frac{a^{\frac{3}{2}}\left(5Ab-7Ba\right)\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{b^{\frac{9}{2}}}-\frac{a\sqrt{x}\left(5Ab-7Ba\right)}{b^4}+\frac{x^{\frac{3}{2}}\left(5Ab-7Ba\right)}{3b^3}+\frac{x^{\frac{7}{2}}\left(Ab-Ba\right)}{ab\left(a+bx\right)}-\frac{x^{\frac{5}{2}}\left(5Ab-7Ba\right)}{5ab^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**(5/2)*(B*x+A)/(b*x+a)**2,x)
```

```
[Out] a**(3/2)*(5*A*b - 7*B*a)*atan(sqrt(b)*sqrt(x)/sqrt(a))/b**(9/2) -
 a*sqrt(x)*(5*A*b - 7*B*a)/b**4 + x**(3/2)*(5*A*b - 7*B*a)/(3*b**
3) + x**(7/2)*(A*b - B*a)/(a*b*(a + b*x)) - x**(5/2)*(5*A*b - 7*B
*a)/(5*a*b**2)
```

Mathematica [A] time = 0.147406, size = 110, normalized size = 0.85

$$\frac{\sqrt{x}\left(105a^3B+a^2(70bBx-75Ab)-2ab^2x(25A+7Bx)+2b^3x^2(5A+3Bx)\right)}{15b^4(a+bx)}-\frac{a^{3/2}(7aB-5Ab)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{b^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^(5/2)*(A + B*x))/(a + b*x)^2,x]
```

```
[Out] (Sqrt[x]*(105*a^3*B + 2*b^3*x^2*(5*A + 3*B*x) - 2*a*b^2*x*(25*A +
 7*B*x) + a^2*(-75*A*b + 70*b*B*x)))/(15*b^4*(a + b*x)) - (a^(3/2
)*(-5*A*b + 7*a*B)*ArcTan[(Sqrt[b]*Sqrt[x])/Sqrt[a]])/b^(9/2)
```

Maple [A] time = 0.019, size = 139, normalized size = 1.1

$$\frac{2B}{5b^2}x^{\frac{5}{2}}+\frac{2A}{3b^2}x^{\frac{3}{2}}-\frac{4Ba}{3b^3}x^{\frac{3}{2}}-4\frac{aA\sqrt{x}}{b^3}+6\frac{Ba^2\sqrt{x}}{b^4}-\frac{Aa^2}{b^3(bx+a)}\sqrt{x}+\frac{Ba^3}{b^4(bx+a)}\sqrt{x}+5\frac{Aa^2}{b^3\sqrt{ab}}\arctan\left(\frac{\sqrt{x}b}{\sqrt{ab}}\right)-7\frac{Ba^3}{b^4\sqrt{ab}}\arctan\left(\frac{\sqrt{x}b}{\sqrt{ab}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^(5/2)*(B*x+A)/(b*x+a)^2,x)
```

```
[Out] 2/5/b^2*B*x^(5/2)+2/3/b^2*A*x^(3/2)-4/3/b^3*B*x^(3/2)*a-4/b^3*a*A
*x^(1/2)+6/b^4*a^2*B*x^(1/2)-a^2/b^3*x^(1/2)/(b*x+a)*A+a^3/b^4*x^
(1/2)/(b*x+a)*B+5*a^2/b^3/(a*b)^(1/2)*arctan(x^(1/2)*b/(a*b)^(1/2
))*A-7*a^3/b^4/(a*b)^(1/2)*arctan(x^(1/2)*b/(a*b)^(1/2))*B
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(5/2)/(b*x + a)^2,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.232353, size = 1, normalized size = 0.01

$$\left[-\frac{15\left(7Ba^3-5Aa^2b+\left(7Ba^2b-5Aab^2\right)x\right)\sqrt{-\frac{a}{b}}\log\left(\frac{bx+2b\sqrt{x}\sqrt{-\frac{a}{b}}-a}{bx+a}\right)-2\left(6Bb^3x^3+105Ba^3-75Aa^2b-2\left(7Bab^2-5A\right.\right.}{30\left(b^5x+ab^4\right)}\right.$$

$$-\frac{15\left(7Ba^3-5Aa^2b+\left(7Ba^2b-5Aab^2\right)x\right)\sqrt{\frac{a}{b}}\arctan\left(\frac{\sqrt{x}}{\sqrt{\frac{a}{b}}}\right)-\left(6Bb^3x^3+105Ba^3-75Aa^2b-2\left(7Bab^2-5Ab^3\right)x^2+10\right.}{15\left(b^5x+ab^4\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(5/2)/(b*x + a)^2,x, algorithm="fricas")
```

```
[Out] [-1/30*(15*(7*B*a^3 - 5*A*a^2*b + (7*B*a^2*b - 5*A*a*b^2)*x)*sqrt
(-a/b)*log((b*x + 2*b*sqrt(x)*sqrt(-a/b) - a)/(b*x + a)) - 2*(6*B
*b^3*x^3 + 105*B*a^3 - 75*A*a^2*b - 2*(7*B*a*b^2 - 5*A*b^3)*x^2 +
 10*(7*B*a^2*b - 5*A*a*b^2)*x)*sqrt(x))/(b^5*x + a*b^4), -1/15*(1
5*(7*B*a^3 - 5*A*a^2*b + (7*B*a^2*b - 5*A*a*b^2)*x)*sqrt(a/b)*arc
tan(sqrt(x)/sqrt(a/b)) - (6*B*b^3*x^3 + 105*B*a^3 - 75*A*a^2*b -
2*(7*B*a*b^2 - 5*A*b^3)*x^2 + 10*(7*B*a^2*b - 5*A*a*b^2)*x)*sqrt(
x))/(b^5*x + a*b^4)]
```

Sympy [A] time = 150.419, size = 563, normalized size = 4.33

$$A\left(\frac{15a^{\frac{61}{2}}b^{17}x^{\frac{41}{2}}\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{3a^{29}b^{\frac{41}{2}}x^{\frac{41}{2}}+3a^{28}b^{\frac{43}{2}}x^{\frac{43}{2}}}+\frac{15a^{\frac{59}{2}}b^{18}x^{\frac{43}{2}}\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{3a^{29}b^{\frac{41}{2}}x^{\frac{41}{2}}+3a^{28}b^{\frac{43}{2}}x^{\frac{43}{2}}}-\frac{15a^{30}b^{\frac{35}{2}}x^{21}}{3a^{29}b^{\frac{41}{2}}x^{\frac{41}{2}}+3a^{28}b^{\frac{43}{2}}x^{\frac{43}{2}}}-\frac{10a^{29}b^{\frac{37}{2}}x^{22}}{3a^{29}b^{\frac{41}{2}}x^{\frac{41}{2}}+3a^{28}b^{\frac{43}{2}}x^{\frac{43}{2}}}+\frac{2a^{28}b^{\frac{39}{2}}x^{23}}{3a^{29}b^{\frac{41}{2}}x^{\frac{41}{2}}+3a^{28}b^{\frac{43}{2}}x^{\frac{43}{2}}}\right)+B\left(-\frac{105a^{\frac{121}{2}}b^{30}x^{\frac{69}{2}}\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{15a^{58}b^{\frac{69}{2}}x^{\frac{69}{2}}+15a^{57}b^{\frac{71}{2}}x^{\frac{71}{2}}}-\frac{105a^{\frac{119}{2}}b^{31}x^{\frac{71}{2}}\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{15a^{58}b^{\frac{69}{2}}x^{\frac{69}{2}}+15a^{57}b^{\frac{71}{2}}x^{\frac{71}{2}}}+\frac{105a^{60}b^{\frac{61}{2}}x^{35}}{15a^{58}b^{\frac{69}{2}}x^{\frac{69}{2}}+15a^{57}b^{\frac{71}{2}}x^{\frac{71}{2}}}+\frac{70a^{59}b^{\frac{63}{2}}x^{36}}{15a^{58}b^{\frac{69}{2}}x^{\frac{69}{2}}+15a^{57}b^{\frac{71}{2}}x^{\frac{71}{2}}}-\frac{14a^{58}b^{\frac{65}{2}}x^{37}}{15a^{58}b^{\frac{69}{2}}x^{\frac{69}{2}}+15a^{57}b^{\frac{71}{2}}x^{\frac{71}{2}}}+\frac{6a^{57}b^{\frac{67}{2}}x^{38}}{15a^{58}b^{\frac{69}{2}}x^{\frac{69}{2}}+15a^{57}b^{\frac{71}{2}}x^{\frac{71}{2}}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**(5/2)*(B*x+A)/(b*x+a)**2,x)
```

```
[Out] A*(15*a**(61/2)*b**17*x**(41/2)*atan(sqrt(b)*sqrt(x)/sqrt(a))/(3*
a**29*b**(41/2)*x**(41/2) + 3*a**28*b**(43/2)*x**(43/2)) + 15*a**
(59/2)*b**18*x**(43/2)*atan(sqrt(b)*sqrt(x)/sqrt(a))/(3*a**29*b**
(41/2)*x**(41/2) + 3*a**28*b**(43/2)*x**(43/2)) - 15*a**30*b**(35
/2)*x**21/(3*a**29*b**(41/2)*x**(41/2) + 3*a**28*b**(43/2)*x**(43
/2)) - 10*a**29*b**(37/2)*x**22/(3*a**29*b**(41/2)*x**(41/2) + 3*
a**28*b**(43/2)*x**(43/2)) + 2*a**28*b**(39/2)*x**23/(3*a**29*b**
(41/2)*x**(41/2) + 3*a**28*b**(43/2)*x**(43/2))) + B*(-105*a**(12
1/2)*b**30*x**(69/2)*atan(sqrt(b)*sqrt(x)/sqrt(a))/(15*a**58*b**(
69/2)*x**(69/2) + 15*a**57*b**(71/2)*x**(71/2)) - 105*a**(119/2)*
b**31*x**(71/2)*atan(sqrt(b)*sqrt(x)/sqrt(a))/(15*a**58*b**(69/2)
*x**(69/2) + 15*a**57*b**(71/2)*x**(71/2)) + 105*a**60*b**(61/2)*
x**35/(15*a**58*b**(69/2)*x**(69/2) + 15*a**57*b**(71/2)*x**(71/2
)) + 70*a**59*b**(63/2)*x**36/(15*a**58*b**(69/2)*x**(69/2) + 15*
a**57*b**(71/2)*x**(71/2)) - 14*a**58*b**(65/2)*x**37/(15*a**58*b
**(69/2)*x**(69/2) + 15*a**57*b**(71/2)*x**(71/2)) + 6*a**57*b**(
67/2)*x**38/(15*a**58*b**(69/2)*x**(69/2) + 15*a**57*b**(71/2)*x*
*(71/2)))
```

GIAC/XCAS [A] time = 0.212025, size = 165, normalized size = 1.27

$$-\frac{\left(7\,Ba^{3}-5\,Aa^{2}b\right)\arctan\left(\frac{b\sqrt{x}}{\sqrt{ab}}\right)}{\sqrt{ab}b^{4}}+\frac{Ba^{3}\sqrt{x}-Aa^{2}b\sqrt{x}}{(bx+a)b^{4}}+\frac{2\left(3\,Bb^{8}x^{\frac{5}{2}}-10\,Bab^{7}x^{\frac{3}{2}}+5\,Ab^{8}x^{\frac{3}{2}}+45\,Ba^{2}b^{6}\sqrt{x}-30\,Aab^{7}\sqrt{x}\right)}{15\,b^{10}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(5/2)/(b*x + a)^2,x, algorithm="giac")
```

```
[Out] -(7*B*a^3 - 5*A*a^2*b)*arctan(b*sqrt(x)/sqrt(a*b))/(sqrt(a*b)*b^4
) + (B*a^3*sqrt(x) - A*a^2*b*sqrt(x))/((b*x + a)*b^4) + 2/15*(3*B
*b^8*x^(5/2) - 10*B*a*b^7*x^(3/2) + 5*A*b^8*x^(3/2) + 45*B*a^2*b^
6*sqrt(x) - 30*A*a*b^7*sqrt(x))/b^10
```

3.326 $\int \frac{x^{3/2}(A+Bx)}{(a+bx)^2}\,dx$

Optimal. Leaf size=108

$$-\frac{\sqrt{a}(3Ab-5aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{b^{7/2}}+\frac{\sqrt{x}(3Ab-5aB)}{b^3}-\frac{x^{3/2}(3Ab-5aB)}{3ab^2}+\frac{x^{5/2}(Ab-aB)}{ab(a+bx)}$$

```
[Out] ((3*A*b - 5*a*B)*Sqrt[x])/b^3 - ((3*A*b - 5*a*B)*x^(3/2))/(3*a*b^
2) + ((A*b - a*B)*x^(5/2))/(a*b*(a + b*x)) - (Sqrt[a]*(3*A*b - 5*
a*B)*ArcTan[(Sqrt[b]*Sqrt[x])/Sqrt[a]])/b^(7/2)
```

Rubi [A] time = 0.134549, antiderivative size = 108, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.222

$$-\frac{\sqrt{a}(3Ab-5aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{b^{7/2}}+\frac{\sqrt{x}(3Ab-5aB)}{b^3}-\frac{x^{3/2}(3Ab-5aB)}{3ab^2}+\frac{x^{5/2}(Ab-aB)}{ab(a+bx)}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^(3/2)*(A + B*x))/(a + b*x)^2,x]
```

```
[Out] ((3*A*b - 5*a*B)*Sqrt[x])/b^3 - ((3*A*b - 5*a*B)*x^(3/2))/(3*a*b^
2) + ((A*b - a*B)*x^(5/2))/(a*b*(a + b*x)) - (Sqrt[a]*(3*A*b - 5*
a*B)*ArcTan[(Sqrt[b]*Sqrt[x])/Sqrt[a]])/b^(7/2)
```

Rubi in Sympy [A] time = 16.9273, size = 97, normalized size = 0.9

$$-\frac{\sqrt{a}\,(3Ab-5Ba)\,\mathrm{atan}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{b^{\frac{7}{2}}}+\frac{\sqrt{x}\,(3Ab-5Ba)}{b^3}+\frac{x^{\frac{5}{2}}\,(Ab-Ba)}{ab\,(a+bx)}-\frac{x^{\frac{3}{2}}\,(3Ab-5Ba)}{3ab^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**(3/2)*(B*x+A)/(b*x+a)**2,x)
```

```
[Out] -sqrt(a)*(3*A*b - 5*B*a)*atan(sqrt(b)*sqrt(x)/sqrt(a))/b**(7/2) +
 sqrt(x)*(3*A*b - 5*B*a)/b**3 + x**(5/2)*(A*b - B*a)/(a*b*(a + b*
x)) - x**(3/2)*(3*A*b - 5*B*a)/(3*a*b**2)
```

Mathematica [A] time = 0.163777, size = 88, normalized size = 0.81

$$\frac{\sqrt{x}\left(-15a^2B+ab(9A-10Bx)+2b^2x(3A+Bx)\right)}{3b^3(a+bx)}+\frac{\sqrt{a}(5aB-3Ab)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{b^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^(3/2)*(A + B*x))/(a + b*x)^2,x]
```

```
[Out] (Sqrt[x]*(-15*a^2*B + a*b*(9*A - 10*B*x) + 2*b^2*x*(3*A + B*x)))/
(3*b^3*(a + b*x)) + (Sqrt[a]*(-3*A*b + 5*a*B)*ArcTan[(Sqrt[b]*Sqr
t[x])/Sqrt[a]])/b^(7/2)
```

Maple [A] time = 0.02, size = 113, normalized size = 1.1

$$\frac{2\,B}{3\,b^2}x^{\frac{3}{2}}+2\,\frac{A\sqrt{x}}{b^2}-4\,\frac{Ba\sqrt{x}}{b^3}+\frac{Aa}{b^2\,(bx+a)}\sqrt{x}-\frac{Ba^2}{b^3\,(bx+a)}\sqrt{x}-3\,\frac{Aa}{b^2\sqrt{ab}}\arctan\left(\frac{\sqrt{x}b}{\sqrt{ab}}\right)+5\,\frac{Ba^2}{b^3\sqrt{ab}}\arctan\left(\frac{\sqrt{x}b}{\sqrt{ab}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int(x^(3/2)*(B*x+A)/(b*x+a)^2,x)
```

```
[Out] 2/3/b^2*B*x^(3/2)+2/b^2*A*x^(1/2)-4/b^3*B*a*x^(1/2)+a/b^2*x^(1/2)
/(b*x+a)*A-a^2/b^3*x^(1/2)/(b*x+a)*B-3*a/b^2/(a*b)^(1/2)*arctan(x
^(1/2)*b/(a*b)^(1/2))*A+5*a^2/b^3/(a*b)^(1/2)*arctan(x^(1/2)*b/(a
*b)^(1/2))*B
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*x^(3/2)/(b*x + a)^2,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.228538, size = 1, normalized size = 0.01

$$\left[-\frac{3\left(5\,Ba^2-3\,Aab+\left(5\,Bab-3\,Ab^2\right)x\right)\sqrt{-\frac{a}{b}}\log\left(\frac{bx-2\,b\sqrt{x}\sqrt{-\frac{a}{b}}-a}{bx+a}\right)-2\left(2\,Bb^2x^2-15\,Ba^2+9\,Aab-2\left(5\,Bab-3\,Ab^2\right)x\right)\sqrt{\vphantom{x}}}{6\left(b^4x+ab^3\right)}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*x^(3/2)/(b*x + a)^2,x, algorithm="fricas")
```

```
[Out] [-1/6*(3*(5*B*a^2 - 3*A*a*b + (5*B*a*b - 3*A*b^2)*x)*sqrt(-a/b)*l
og((b*x - 2*b*sqrt(x)*sqrt(-a/b) - a)/(b*x + a)) - 2*(2*B*b^2*x^2
 - 15*B*a^2 + 9*A*a*b - 2*(5*B*a*b - 3*A*b^2)*x)*sqrt(x))/(b^4*x
+ a*b^3), 1/3*(3*(5*B*a^2 - 3*A*a*b + (5*B*a*b - 3*A*b^2)*x)*sqrt
(a/b)*arctan(sqrt(x)/sqrt(a/b)) + (2*B*b^2*x^2 - 15*B*a^2 + 9*A*a
*b - 2*(5*B*a*b - 3*A*b^2)*x)*sqrt(x))/(b^4*x + a*b^3)]
```

Sympy [A] time = 45.8553, size = 461, normalized size = 4.27

$$A\left(-\frac{3a^{\frac{17}{2}}b^4x^{\frac{13}{2}}\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{a^8b^{\frac{13}{2}}x^{\frac{13}{2}}+a^7b^{\frac{15}{2}}x^{\frac{15}{2}}}-\frac{3a^{\frac{15}{2}}b^5x^{\frac{15}{2}}\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{a^8b^{\frac{13}{2}}x^{\frac{13}{2}}+a^7b^{\frac{15}{2}}x^{\frac{15}{2}}}+\frac{3a^8b^{\frac{9}{2}}x^7}{a^8b^{\frac{13}{2}}x^{\frac{13}{2}}+a^7b^{\frac{15}{2}}x^{\frac{15}{2}}}+\frac{2a^7b^{\frac{11}{2}}x^8}{a^8b^{\frac{13}{2}}x^{\frac{13}{2}}+a^7b^{\frac{15}{2}}x^{\frac{15}{2}}}\right)+B\left(\frac{15a^{\frac{61}{2}}b^{17}x^{\frac{41}{2}}\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{3a^{29}b^{\frac{41}{2}}x^{\frac{41}{2}}+3a^{28}b^{\frac{43}{2}}x^{\frac{43}{2}}}+\frac{15a^{\frac{59}{2}}b^{18}x^{\frac{43}{2}}\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{3a^{29}b^{\frac{41}{2}}x^{\frac{41}{2}}+3a^{28}b^{\frac{43}{2}}x^{\frac{43}{2}}}-\frac{15a^{30}b^{\frac{35}{2}}x^{21}}{3a^{29}b^{\frac{41}{2}}x^{\frac{41}{2}}+3a^{28}b^{\frac{43}{2}}x^{\frac{43}{2}}}-\frac{10a^{29}b^{\frac{37}{2}}x^{22}}{3a^{29}b^{\frac{41}{2}}x^{\frac{41}{2}}+3a^{28}b^{\frac{43}{2}}x^{\frac{43}{2}}}+\frac{2a^{28}b^{\frac{39}{2}}x^{23}}{3a^{29}b^{\frac{41}{2}}x^{\frac{41}{2}}+3a^{28}b^{\frac{43}{2}}x^{\frac{43}{2}}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**(3/2)*(B*x+A)/(b*x+a)**2,x)
```

```
[Out] A*(-3*a**(17/2)*b**4*x**(13/2)*atan(sqrt(b)*sqrt(x)/sqrt(a))/(a**
8*b**(13/2)*x**(13/2) + a**7*b**(15/2)*x**(15/2)) - 3*a**(15/2)*b
**5*x**(15/2)*atan(sqrt(b)*sqrt(x)/sqrt(a))/(a**8*b**(13/2)*x**(1
3/2) + a**7*b**(15/2)*x**(15/2)) + 3*a**8*b**(9/2)*x**7/(a**8*b**
(13/2)*x**(13/2) + a**7*b**(15/2)*x**(15/2)) + 2*a**7*b**(11/2)*x
**8/(a**8*b**(13/2)*x**(13/2) + a**7*b**(15/2)*x**(15/2))) + B*(1
5*a**(61/2)*b**17*x**(41/2)*atan(sqrt(b)*sqrt(x)/sqrt(a))/(3*a**2
9*b**(41/2)*x**(41/2) + 3*a**28*b**(43/2)*x**(43/2)) + 15*a**(59/
2)*b**18*x**(43/2)*atan(sqrt(b)*sqrt(x)/sqrt(a))/(3*a**29*b**(41/
2)*x**(41/2) + 3*a**28*b**(43/2)*x**(43/2)) - 15*a**30*b**(35/2)*
x**21/(3*a**29*b**(41/2)*x**(41/2) + 3*a**28*b**(43/2)*x**(43/2))
 - 10*a**29*b**(37/2)*x**22/(3*a**29*b**(41/2)*x**(41/2) + 3*a**2
8*b**(43/2)*x**(43/2)) + 2*a**28*b**(39/2)*x**23/(3*a**29*b**(41/
2)*x**(41/2) + 3*a**28*b**(43/2)*x**(43/2)))
```

GIAC/XCAS [A] time = 0.220508, size = 128, normalized size = 1.19

$$\frac{\left(5\,Ba^2 - 3\,Aab\right)\arctan\left(\frac{b\sqrt{x}}{\sqrt{ab}}\right)}{\sqrt{ab}b^3} - \frac{Ba^2\sqrt{x} - Aab\sqrt{x}}{(bx+a)b^3} + \frac{2\left(Bb^4x^{\frac{3}{2}} - 6\,Bab^3\sqrt{x} + 3\,Ab^4\sqrt{x}\right)}{3\,b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(3/2)/(b*x + a)^2,x, algorithm="giac")
```

```
[Out] (5*B*a^2 - 3*A*a*b)*arctan(b*sqrt(x)/sqrt(a*b))/(sqrt(a*b)*b^3) -
 (B*a^2*sqrt(x) - A*a*b*sqrt(x))/((b*x + a)*b^3) + 2/3*(B*b^4*x^(
3/2) - 6*B*a*b^3*sqrt(x) + 3*A*b^4*sqrt(x))/b^6
```

3.327 $\int \frac{\sqrt{x}(A+Bx)}{(a+bx)^2} dx$

Optimal. Leaf size=85

$$\frac{(Ab-3aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{\sqrt{a}b^{5/2}}-\frac{\sqrt{x}(Ab-3aB)}{ab^2}+\frac{x^{3/2}(Ab-aB)}{ab(a+bx)}$$

```
[Out] -(((A*b - 3*a*B)*Sqrt[x])/(a*b^2)) + ((A*b - a*B)*x^(3/2))/(a*b*(
a + b*x)) + ((A*b - 3*a*B)*ArcTan[(Sqrt[b]*Sqrt[x])/Sqrt[a]])/(Sq
rt[a]*b^(5/2))
```

Rubi [A] time = 0.101311, antiderivative size = 85, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.222

$$\frac{(Ab-3aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{\sqrt{a}b^{5/2}}-\frac{\sqrt{x}(Ab-3aB)}{ab^2}+\frac{x^{3/2}(Ab-aB)}{ab(a+bx)}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[x]*(A + B*x))/(a + b*x)^2,x]
```

```
[Out] -(((A*b - 3*a*B)*Sqrt[x])/(a*b^2)) + ((A*b - a*B)*x^(3/2))/(a*b*(
a + b*x)) + ((A*b - 3*a*B)*ArcTan[(Sqrt[b]*Sqrt[x])/Sqrt[a]])/(Sq
rt[a]*b^(5/2))
```

Rubi in Sympy [A] time = 13.1369, size = 73, normalized size = 0.86

$$\frac{x^{\frac{3}{2}}(Ab-Ba)}{ab(a+bx)}-\frac{\sqrt{x}(Ab-3Ba)}{ab^2}+\frac{(Ab-3Ba)\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{\sqrt{a}b^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*x**(1/2)/(b*x+a)**2,x)
```

```
[Out] x**(3/2)*(A*b - B*a)/(a*b*(a + b*x)) - sqrt(x)*(A*b - 3*B*a)/(a*b
**2) + (A*b - 3*B*a)*atan(sqrt(b)*sqrt(x)/sqrt(a))/(sqrt(a)*b**(5
/2))
```

Mathematica [A] time = 0.0948398, size = 67, normalized size = 0.79

$$\frac{(Ab-3aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{\sqrt{a}b^{5/2}}+\frac{\sqrt{x}(3aB-Ab+2bBx)}{b^2(a+bx)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[x]*(A + B*x))/(a + b*x)^2,x]
```

```
[Out] (Sqrt[x]*(-(A*b) + 3*a*B + 2*b*B*x))/(b^2*(a + b*x)) + ((A*b - 3*
a*B)*ArcTan[(Sqrt[b]*Sqrt[x])/Sqrt[a]])/(Sqrt[a]*b^(5/2))
```

Maple [A] time = 0.018, size = 87, normalized size = 1.

$$2\frac{B\sqrt{x}}{b^2}-\frac{A}{b(bx+a)}\sqrt{x}+\frac{Ba}{b^2(bx+a)}\sqrt{x}+\frac{A}{b}\arctan\left(b\sqrt{x}\frac{1}{\sqrt{ab}}\right)\frac{1}{\sqrt{ab}}-3\frac{Ba}{b^2\sqrt{ab}}\arctan\left(\frac{\sqrt{x}b}{\sqrt{ab}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*x^(1/2)/(b*x+a)^2,x)
```

```
[Out] 2*B/b^2*x^(1/2)-1/b*x^(1/2)/(b*x+a)*A+1/b^2*x^(1/2)/(b*x+a)*B*a+1
/b/(a*b)^(1/2)*arctan(x^(1/2)*b/(a*b)^(1/2))*A-3/b^2/(a*b)^(1/2)*
arctan(x^(1/2)*b/(a*b)^(1/2))*B*a
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(x)/(b*x + a)^2,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.221, size = 1, normalized size = 0.01

$$\left[\frac{2(2Bbx+3Ba-Ab)\sqrt{-ab}\sqrt{x}-\left(3Ba^2-Aab+\left(3Bab-Ab^2\right)x\right)\log\left(\frac{2ab\sqrt{x}+\sqrt{-ab}(bx-a)}{bx+a}\right)}{2\left(b^3x+ab^2\right)\sqrt{-ab}},\frac{(2Bbx+3Ba-Ab)\sqrt{ab}\sqrt{x}+}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(x)/(b*x + a)^2,x, algorithm="fricas")
```

```
[Out] [1/2*(2*(2*B*b*x + 3*B*a - A*b)*sqrt(-a*b)*sqrt(x) - (3*B*a^2 - A
*a*b + (3*B*a*b - A*b^2)*x)*log((2*a*b*sqrt(x) + sqrt(-a*b)*(b*x
- a))/(b*x + a)))/((b^3*x + a*b^2)*sqrt(-a*b)), ((2*B*b*x + 3*B*a
 - A*b)*sqrt(a*b)*sqrt(x) + (3*B*a^2 - A*a*b + (3*B*a*b - A*b^2)*
x)*arctan(a/(sqrt(a*b)*sqrt(x))))/((b^3*x + a*b^2)*sqrt(a*b))]
```

Sympy [A] time = 17.5392, size = 428, normalized size = 5.04

$$-\frac{2Aa\sqrt{x}}{2a^2b+2ab^2x}+\frac{Aa\sqrt{-\frac{1}{a^3b}}\log\left(-a^2\sqrt{-\frac{1}{a^3b}}+\sqrt{x}\right)}{2b}-\frac{Aa\sqrt{-\frac{1}{a^3b}}\log\left(a^2\sqrt{-\frac{1}{a^3b}}+\sqrt{x}\right)}{2b}+\frac{2A\left(\begin{cases}\frac{\operatorname{atan}\left(\frac{\sqrt{x}}{\sqrt{\frac{a}{b}}}\right)}{b\sqrt{\frac{a}{b}}} & \text{for } \frac{a}{b}>0\\ -\frac{\operatorname{acoth}\left(\frac{\sqrt{x}}{\sqrt{-\frac{a}{b}}}\right)}{b\sqrt{-\frac{a}{b}}} & \text{for } x>-\frac{a}{b}\wedge\frac{a}{b}<0\\ -\frac{\operatorname{atanh}\left(\frac{\sqrt{x}}{\sqrt{-\frac{a}{b}}}\right)}{b\sqrt{-\frac{a}{b}}} & \text{for } x<-\frac{a}{b}\wedge\frac{a}{b}<0\end{cases}\right)}{b}+\frac{2Ba^2\sqrt{x}}{2a^2b^2+2ab^3x}-\frac{Ba^2\sqrt{-\frac{1}{a^3b}}\log\left(-a^2\sqrt{-\frac{1}{a^3b}}+\sqrt{x}\right)}{2b^2}$$
$$+\frac{Ba^2\sqrt{-\frac{1}{a^3b}}\log\left(a^2\sqrt{-\frac{1}{a^3b}}+\sqrt{x}\right)}{2b^2}-\frac{4Ba\left(\begin{cases}\frac{\operatorname{atan}\left(\frac{\sqrt{x}}{\sqrt{\frac{a}{b}}}\right)}{b\sqrt{\frac{a}{b}}} & \text{for } \frac{a}{b}>0\\ -\frac{\operatorname{acoth}\left(\frac{\sqrt{x}}{\sqrt{-\frac{a}{b}}}\right)}{b\sqrt{-\frac{a}{b}}} & \text{for } x>-\frac{a}{b}\wedge\frac{a}{b}<0\\ -\frac{\operatorname{atanh}\left(\frac{\sqrt{x}}{\sqrt{-\frac{a}{b}}}\right)}{b\sqrt{-\frac{a}{b}}} & \text{for } x<-\frac{a}{b}\wedge\frac{a}{b}<0\end{cases}\right)}{b^2}+\frac{2B\sqrt{x}}{b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*x**(1/2)/(b*x+a)**2,x)
```

```
[Out] -2*A*a*sqrt(x)/(2*a**2*b + 2*a*b**2*x) + A*a*sqrt(-1/(a**3*b))*lo
g(-a**2*sqrt(-1/(a**3*b)) + sqrt(x))/(2*b) - A*a*sqrt(-1/(a**3*b)
)*log(a**2*sqrt(-1/(a**3*b)) + sqrt(x))/(2*b) + 2*A*Piecewise((at
an(sqrt(x)/sqrt(a/b))/(b*sqrt(a/b)), a/b > 0), (-acoth(sqrt(x)/sq
rt(-a/b))/(b*sqrt(-a/b)), (a/b < 0) & (x > -a/b)), (-atanh(sqrt(x
)/sqrt(-a/b))/(b*sqrt(-a/b)), (a/b < 0) & (x < -a/b)))/b + 2*B*a*
*2*sqrt(x)/(2*a**2*b**2 + 2*a*b**3*x) - B*a**2*sqrt(-1/(a**3*b))*
log(-a**2*sqrt(-1/(a**3*b)) + sqrt(x))/(2*b**2) + B*a**2*sqrt(-1/
(a**3*b))*log(a**2*sqrt(-1/(a**3*b)) + sqrt(x))/(2*b**2) - 4*B*a*
Piecewise((atan(sqrt(x)/sqrt(a/b))/(b*sqrt(a/b)), a/b > 0), (-aco
th(sqrt(x)/sqrt(-a/b))/(b*sqrt(-a/b)), (a/b < 0) & (x > -a/b)), (
-atanh(sqrt(x)/sqrt(-a/b))/(b*sqrt(-a/b)), (a/b < 0) & (x < -a/b)
))/b**2 + 2*B*sqrt(x)/b**2
```

GIAC/XCAS [A] time = 0.214183, size = 88, normalized size = 1.04

$$\frac{2\,B\sqrt{x}}{b^2}-\frac{(3\,Ba-Ab)\arctan\left(\frac{b\sqrt{x}}{\sqrt{ab}}\right)}{\sqrt{ab}b^2}+\frac{Ba\sqrt{x}-Ab\sqrt{x}}{(bx+a)b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(x)/(b*x + a)^2,x, algorithm="giac")
```

```
[Out] 2*B*sqrt(x)/b^2 - (3*B*a - A*b)*arctan(b*sqrt(x)/sqrt(a*b))/(sqrt
(a*b)*b^2) + (B*a*sqrt(x) - A*b*sqrt(x))/((b*x + a)*b^2)
```

3.328 $\int \frac{A+Bx}{\sqrt{x}(a+bx)^2}\,dx$

Optimal. Leaf size=63

$$\frac{(aB+Ab)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{a^{3/2}b^{3/2}}+\frac{\sqrt{x}(Ab-aB)}{ab(a+bx)}$$

```
[Out] ((A*b - a*B)*Sqrt[x])/(a*b*(a + b*x)) + ((A*b + a*B)*ArcTan[(Sqrt
[b]*Sqrt[x])/Sqrt[a]])/(a^(3/2)*b^(3/2))
```

Rubi [A] time = 0.0791702, antiderivative size = 63, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$\frac{(aB+Ab)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{a^{3/2}b^{3/2}}+\frac{\sqrt{x}(Ab-aB)}{ab(a+bx)}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(Sqrt[x]*(a + b*x)^2),x]
```

```
[Out] ((A*b - a*B)*Sqrt[x])/(a*b*(a + b*x)) + ((A*b + a*B)*ArcTan[(Sqrt
[b]*Sqrt[x])/Sqrt[a]])/(a^(3/2)*b^(3/2))
```

Rubi in Sympy [A] time = 9.64479, size = 53, normalized size = 0.84

$$\frac{\sqrt{x}\,(Ab-Ba)}{ab\,(a+bx)}+\frac{(Ab+Ba)\,\mathrm{atan}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{a^{\frac{3}{2}}b^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(b*x+a)**2/x**(1/2),x)
```

```
[Out] sqrt(x)*(A*b - B*a)/(a*b*(a + b*x)) + (A*b + B*a)*atan(sqrt(b)*sq
rt(x)/sqrt(a))/(a**(3/2)*b**(3/2))
```

Mathematica [A] time = 0.0606157, size = 64, normalized size = 1.02

$$\frac{(aB+Ab)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{a^{3/2}b^{3/2}}-\frac{\sqrt{x}(aB-Ab)}{ab(a+bx)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(Sqrt[x]*(a + b*x)^2),x]
```

```
[Out] -(((-(A*b) + a*B)*Sqrt[x])/(a*b*(a + b*x))) + ((A*b + a*B)*ArcTan
[(Sqrt[b]*Sqrt[x])/Sqrt[a]])/(a^(3/2)*b^(3/2))
```

Maple [A] time = 0.017, size = 69, normalized size = 1.1

$$\frac{Ab-Ba}{ab\,(bx+a)}\sqrt{x}+\frac{A}{a}\arctan\left(b\sqrt{x}\frac{1}{\sqrt{ab}}\right)\frac{1}{\sqrt{ab}}+\frac{B}{b}\arctan\left(b\sqrt{x}\frac{1}{\sqrt{ab}}\right)\frac{1}{\sqrt{ab}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(b*x+a)^2/x^(1/2),x)
```

```
[Out] (A*b-B*a)*x^(1/2)/a/b/(b*x+a)+1/a/(a*b)^(1/2)*arctan(x^(1/2)*b/(a*b)^(1/2))*A+1/b/(a*b)^(1/2)*arctan(x^(1/2)*b/(a*b)^(1/2))*B
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^2*sqrt(x)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.229398, size = 1, normalized size = 0.02

$$\left[-\frac{2\,(Ba-Ab)\sqrt{-ab}\sqrt{x}-\left(Ba^2+Aab+\left(Bab+Ab^2\right)x\right)\log\left(\frac{2\,ab\sqrt{x}+\sqrt{-ab}(bx-a)}{bx+a}\right)}{2\,(ab^2x+a^2b)\sqrt{-ab}},\right.$$
$$\left.-\frac{(Ba-Ab)\sqrt{ab}\sqrt{x}+\left(Ba^2+Aab+\left(Bab+Ab^2\right)x\right)\arctan\left(\frac{a}{\sqrt{ab}\sqrt{x}}\right)}{(ab^2x+a^2b)\sqrt{ab}}\right]$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^2*sqrt(x)),x, algorithm="fricas")
```

```
[Out] [-1/2*(2*(B*a - A*b)*sqrt(-a*b)*sqrt(x) - (B*a^2 + A*a*b + (B*a*b + A*b^2)*x)*log((2*a*b*sqrt(x) + sqrt(-a*b)*(b*x - a))/(b*x + a)))/((a*b^2*x + a^2*b)*sqrt(-a*b)), -((B*a - A*b)*sqrt(a*b)*sqrt(x) + (B*a^2 + A*a*b + (B*a*b + A*b^2)*x)*arctan(a/(sqrt(a*b)*sqrt(x))))/((a*b^2*x + a^2*b)*sqrt(a*b))]
```

Sympy [A] time = 69.5385, size = 532, normalized size = 8.44

$$A\left(\begin{cases}\frac{\tilde{\infty}}{x^{\frac{3}{2}}} & \text{for } a \\ -\frac{2}{3b^2x^{\frac{3}{2}}} & \text{for } a \\ \frac{2\sqrt{x}}{a^2} & \text{for } b \\ \frac{2i\sqrt{a}b\sqrt{x}\sqrt{\frac{1}{b}}}{2ia^{\frac{5}{2}}b\sqrt{\frac{1}{b}}+2ia^{\frac{3}{2}}b^2x\sqrt{\frac{1}{b}}}+\frac{a\log\left(-i\sqrt{a}\sqrt{\frac{1}{b}}+\sqrt{x}\right)}{2ia^{\frac{5}{2}}b\sqrt{\frac{1}{b}}+2ia^{\frac{3}{2}}b^2x\sqrt{\frac{1}{b}}}-\frac{a\log\left(i\sqrt{a}\sqrt{\frac{1}{b}}+\sqrt{x}\right)}{2ia^{\frac{5}{2}}b\sqrt{\frac{1}{b}}+2ia^{\frac{3}{2}}b^2x\sqrt{\frac{1}{b}}}+\frac{bx\log\left(-i\sqrt{a}\sqrt{\frac{1}{b}}+\sqrt{x}\right)}{2ia^{\frac{5}{2}}b\sqrt{\frac{1}{b}}+2ia^{\frac{3}{2}}b^2x\sqrt{\frac{1}{b}}}-\frac{bx\log\left(i\sqrt{a}\sqrt{\frac{1}{b}}+\sqrt{x}\right)}{2ia^{\frac{5}{2}}b\sqrt{\frac{1}{b}}+2ia^{\frac{3}{2}}b^2x\sqrt{\frac{1}{b}}} & \text{other} \end{cases}\right.$$
$$-\frac{2Ba\sqrt{x}}{2a^2b+2ab^2x}+\frac{Ba\sqrt{-\frac{1}{a^3b}}\log\left(-a^2\sqrt{-\frac{1}{a^3b}}+\sqrt{x}\right)}{2b}$$
$$-\frac{Ba\sqrt{-\frac{1}{a^3b}}\log\left(a^2\sqrt{-\frac{1}{a^3b}}+\sqrt{x}\right)}{2b}+\frac{2B\left(\begin{cases}\frac{\operatorname{atan}\left(\frac{\sqrt{x}}{\sqrt{\frac{a}{b}}}\right)}{b\sqrt{\frac{a}{b}}} & \text{for } \frac{a}{b}>0 \\ -\frac{\operatorname{acoth}\left(\frac{\sqrt{x}}{\sqrt{-\frac{a}{b}}}\right)}{b\sqrt{-\frac{a}{b}}} & \text{for } x>-\frac{a}{b}\wedge\frac{a}{b}<0 \\ -\frac{\operatorname{atanh}\left(\frac{\sqrt{x}}{\sqrt{-\frac{a}{b}}}\right)}{b\sqrt{-\frac{a}{b}}} & \text{for } x<-\frac{a}{b}\wedge\frac{a}{b}<0\end{cases}\right)}{b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(b*x+a)**2/x**(1/2),x)
```

```
[Out] A*Piecewise((zoo/x**(3/2), Eq(a, 0) & Eq(b, 0)), (-2/(3*b**2*x**(
3/2)), Eq(a, 0)), (2*sqrt(x)/a**2, Eq(b, 0)), (2*I*sqrt(a)*b*sqrt
(x)*sqrt(1/b)/(2*I*a**(5/2)*b*sqrt(1/b) + 2*I*a**(3/2)*b**2*x*sqr
t(1/b)) + a*log(-I*sqrt(a)*sqrt(1/b) + sqrt(x))/(2*I*a**(5/2)*b*s
qrt(1/b) + 2*I*a**(3/2)*b**2*x*sqrt(1/b)) - a*log(I*sqrt(a)*sqrt(
1/b) + sqrt(x))/(2*I*a**(5/2)*b*sqrt(1/b) + 2*I*a**(3/2)*b**2*x*s
qrt(1/b)) + b*x*log(-I*sqrt(a)*sqrt(1/b) + sqrt(x))/(2*I*a**(5/2)
*b*sqrt(1/b) + 2*I*a**(3/2)*b**2*x*sqrt(1/b)) - b*x*log(I*sqrt(a)
*sqrt(1/b) + sqrt(x))/(2*I*a**(5/2)*b*sqrt(1/b) + 2*I*a**(3/2)*b*
*2*x*sqrt(1/b)), True)) - 2*B*a*sqrt(x)/(2*a**2*b + 2*a*b**2*x) +
 B*a*sqrt(-1/(a**3*b))*log(-a**2*sqrt(-1/(a**3*b)) + sqrt(x))/(2*
b) - B*a*sqrt(-1/(a**3*b))*log(a**2*sqrt(-1/(a**3*b)) + sqrt(x))/
(2*b) + 2*B*Piecewise((atan(sqrt(x)/sqrt(a/b))/(b*sqrt(a/b)), a/b
 > 0), (-acoth(sqrt(x)/sqrt(-a/b))/(b*sqrt(-a/b)), (a/b < 0) & (x
 > -a/b)), (-atanh(sqrt(x)/sqrt(-a/b))/(b*sqrt(-a/b)), (a/b < 0)
& (x < -a/b)))/b
```

GIAC/XCAS [A] time = 0.236155, size = 81, normalized size = 1.29

$$\frac{(Ba + Ab)\arctan\left(\frac{b\sqrt{x}}{\sqrt{ab}}\right)}{\sqrt{ab}ab} - \frac{Ba\sqrt{x} - Ab\sqrt{x}}{(bx + a)ab}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^2*sqrt(x)),x, algorithm="giac")
```

```
[Out] (B*a + A*b)*arctan(b*sqrt(x)/sqrt(a*b))/(sqrt(a*b)*a*b) - (B*a*sq
rt(x) - A*b*sqrt(x))/((b*x + a)*a*b)
```

3.329 $\int \frac{A+Bx}{x^{3/2}(a+bx)^2}\,dx$

Optimal. Leaf size=88

$$-\frac{(3Ab-aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{a^{5/2}\sqrt{b}}-\frac{3Ab-aB}{a^2b\sqrt{x}}+\frac{Ab-aB}{ab\sqrt{x}(a+bx)}$$

```
[Out] -((3*A*b - a*B)/(a^2*b*Sqrt[x])) + (A*b - a*B)/(a*b*Sqrt[x]*(a +
b*x)) - ((3*A*b - a*B)*ArcTan[(Sqrt[b]*Sqrt[x])/Sqrt[a]])/(a^(5/2
)*Sqrt[b])
```

Rubi [A] time = 0.110698, antiderivative size = 88, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.222

$$-\frac{(3Ab-aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{a^{5/2}\sqrt{b}}-\frac{3Ab-aB}{a^2b\sqrt{x}}+\frac{Ab-aB}{ab\sqrt{x}(a+bx)}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^(3/2)*(a + b*x)^2),x]
```

```
[Out] -((3*A*b - a*B)/(a^2*b*Sqrt[x])) + (A*b - a*B)/(a*b*Sqrt[x]*(a +
b*x)) - ((3*A*b - a*B)*ArcTan[(Sqrt[b]*Sqrt[x])/Sqrt[a]])/(a^(5/2
)*Sqrt[b])
```

Rubi in Sympy [A] time = 12.9975, size = 73, normalized size = 0.83

$$\frac{Ab-Ba}{ab\sqrt{x}\,(a+bx)}-\frac{3Ab-Ba}{a^2b\sqrt{x}}-\frac{(3Ab-Ba)\,\mathrm{atan}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{a^{\frac{5}{2}}\sqrt{b}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**(3/2)/(b*x+a)**2,x)
```

```
[Out] (A*b - B*a)/(a*b*sqrt(x)*(a + b*x)) - (3*A*b - B*a)/(a**2*b*sqrt(
x)) - (3*A*b - B*a)*atan(sqrt(b)*sqrt(x)/sqrt(a))/(a**(5/2)*sqrt(
b))
```

Mathematica [A] time = 0.0764868, size = 67, normalized size = 0.76

$$\frac{(aB-3Ab)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{a^{5/2}\sqrt{b}}+\frac{-2aA+aBx-3Abx}{a^2\sqrt{x}(a+bx)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^(3/2)*(a + b*x)^2),x]
```

```
[Out] (-2*a*A - 3*A*b*x + a*B*x)/(a^2*Sqrt[x]*(a + b*x)) + ((-3*A*b + a
*B)*ArcTan[(Sqrt[b]*Sqrt[x])/Sqrt[a]])/(a^(5/2)*Sqrt[b])
```

Maple [A] time = 0.022, size = 87, normalized size = 1.

$$-2\,\frac{A}{a^2\sqrt{x}}-\frac{Ab}{a^2\,(bx+a)}\sqrt{x}+\frac{B}{a\,(bx+a)}\sqrt{x}-3\,\frac{Ab}{a^2\sqrt{ab}}\arctan\left(\frac{\sqrt{x}b}{\sqrt{ab}}\right)+\frac{B}{a}\arctan\left(b\sqrt{x}\frac{1}{\sqrt{ab}}\right)\frac{1}{\sqrt{ab}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^(3/2)/(b*x+a)^2,x)
```

```
[Out] -2*A/a^2/x^(1/2)-1/a^2*x^(1/2)/(b*x+a)*A*b+1/a*x^(1/2)/(b*x+a)*B-
3/a^2/(a*b)^(1/2)*arctan(x^(1/2)*b/(a*b)^(1/2))*A*b+1/a/(a*b)^(1/
2)*arctan(x^(1/2)*b/(a*b)^(1/2))*B
```

Maxima [F]   time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^2*x^(3/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A]   time = 0.231419, size = 1, normalized size = 0.01

$$\left[-\frac{\left(Ba^2 - 3\,Aab + \left(Bab - 3\,Ab^2\right)x\right)\sqrt{x}\log\left(-\frac{2\,ab\sqrt{x} - \sqrt{-ab}(bx - a)}{bx + a}\right) + 2\,(2\,Aa - (Ba - 3\,Ab)x)\sqrt{-ab}}{2\,(a^2bx + a^3)\sqrt{-ab}\sqrt{x}}, -\frac{\left(Ba^2 - 3\,Aab + \left(Bab - 3\,Ab^2\right)x\right)\sqrt{x}\arctan\left(\frac{a}{\sqrt{ab}\sqrt{x}}\right) + (2\,Aa - (Ba - 3\,Ab)x)\sqrt{ab}}{(a^2bx + a^3)\sqrt{ab}\sqrt{x}}\right]$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^2*x^(3/2)),x, algorithm="fricas")
```

```
[Out] [-1/2*((B*a^2 - 3*A*a*b + (B*a*b - 3*A*b^2)*x)*sqrt(x)*log(-(2*a*
b*sqrt(x) - sqrt(-a*b)*(b*x - a))/(b*x + a)) + 2*(2*A*a - (B*a -
3*A*b)*x)*sqrt(-a*b))/((a^2*b*x + a^3)*sqrt(-a*b)*sqrt(x)), -((B*
a^2 - 3*A*a*b + (B*a*b - 3*A*b^2)*x)*sqrt(x)*arctan(a/(sqrt(a*b)*
sqrt(x))) + (2*A*a - (B*a - 3*A*b)*x)*sqrt(a*b))/((a^2*b*x + a^3)
*sqrt(a*b)*sqrt(x))]
```

Sympy [F(-1)]   time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**(3/2)/(b*x+a)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A]   time = 0.236879, size = 81, normalized size = 0.92

$$\frac{(Ba - 3\,Ab)\arctan\left(\frac{b\sqrt{x}}{\sqrt{ab}}\right)}{\sqrt{ab}a^2} + \frac{Bax - 3\,Abx - 2\,Aa}{\left(bx^{\frac{3}{2}} + a\sqrt{x}\right)a^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^2*x^(3/2)),x, algorithm="giac")
```

```
[Out] (B*a - 3*A*b)*arctan(b*sqrt(x)/sqrt(a*b))/(sqrt(a*b)*a^2) + (B*a*
x - 3*A*b*x - 2*A*a)/((b*x^(3/2) + a*sqrt(x))*a^2)
```

3.330 $\int \frac{A+Bx}{x^{5/2}(a+bx)^2}\,dx$

Optimal. Leaf size=107

$$\frac{\sqrt{b}(5Ab-3aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{a^{7/2}}+\frac{5Ab-3aB}{a^3\sqrt{x}}-\frac{5Ab-3aB}{3a^2bx^{3/2}}+\frac{Ab-aB}{abx^{3/2}(a+bx)}$$

```
[Out] -(5*A*b - 3*a*B)/(3*a^2*b*x^(3/2)) + (5*A*b - 3*a*B)/(a^3*Sqrt[x]
) + (A*b - a*B)/(a*b*x^(3/2)*(a + b*x)) + (Sqrt[b]*(5*A*b - 3*a*B
)*ArcTan[(Sqrt[b]*Sqrt[x])/Sqrt[a]])/a^(7/2)
```

Rubi [A] time = 0.138668, antiderivative size = 107, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.222

$$\frac{\sqrt{b}(5Ab-3aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{a^{7/2}}+\frac{5Ab-3aB}{a^3\sqrt{x}}-\frac{5Ab-3aB}{3a^2bx^{3/2}}+\frac{Ab-aB}{abx^{3/2}(a+bx)}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^(5/2)*(a + b*x)^2),x]
```

```
[Out] -(5*A*b - 3*a*B)/(3*a^2*b*x^(3/2)) + (5*A*b - 3*a*B)/(a^3*Sqrt[x]
) + (A*b - a*B)/(a*b*x^(3/2)*(a + b*x)) + (Sqrt[b]*(5*A*b - 3*a*B
)*ArcTan[(Sqrt[b]*Sqrt[x])/Sqrt[a]])/a^(7/2)
```

Rubi in Sympy [A] time = 16.8235, size = 97, normalized size = 0.91

$$\frac{Ab-Ba}{abx^{\frac{3}{2}}(a+bx)}-\frac{5Ab-3Ba}{3a^2bx^{\frac{3}{2}}}+\frac{5Ab-3Ba}{a^3\sqrt{x}}+\frac{\sqrt{b}\,(5Ab-3Ba)\,\mathrm{atan}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{a^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**(5/2)/(b*x+a)**2,x)
```

```
[Out] (A*b - B*a)/(a*b*x**(3/2)*(a + b*x)) - (5*A*b - 3*B*a)/(3*a**2*b*
x**(3/2)) + (5*A*b - 3*B*a)/(a**3*sqrt(x)) + sqrt(b)*(5*A*b - 3*B
*a)*atan(sqrt(b)*sqrt(x)/sqrt(a))/a**(7/2)
```

Mathematica [A] time = 0.15924, size = 90, normalized size = 0.84

$$\frac{\sqrt{b}(5Ab-3aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{a^{7/2}}+\frac{-2a^2(A+3Bx)+abx(10A-9Bx)+15Ab^2x^2}{3a^3x^{3/2}(a+bx)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^(5/2)*(a + b*x)^2),x]
```

```
[Out] (15*A*b^2*x^2 + a*b*x*(10*A - 9*B*x) - 2*a^2*(A + 3*B*x))/(3*a^3*
x^(3/2)*(a + b*x)) + (Sqrt[b]*(5*A*b - 3*a*B)*ArcTan[(Sqrt[b]*Sqr
t[x])/Sqrt[a]])/a^(7/2)
```

Maple [A] time = 0.024, size = 113, normalized size = 1.1

$$-\frac{2A}{3a^2}x^{-\frac{3}{2}}+4\frac{Ab}{\sqrt{x}a^3}-2\frac{B}{\sqrt{x}a^2}+\frac{b^2A}{a^3(bx+a)}\sqrt{x}-\frac{Bb}{a^2(bx+a)}\sqrt{x}+5\frac{b^2A}{a^3\sqrt{ab}}\arctan\left(\frac{\sqrt{x}b}{\sqrt{ab}}\right)-3\frac{Bb}{a^2\sqrt{ab}}\arctan\left(\frac{\sqrt{x}b}{\sqrt{ab}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^(5/2)/(b*x+a)^2,x)
```

```
[Out] -2/3*A/a^2/x^(3/2)+4/x^(1/2)/a^3*A*b-2/x^(1/2)/a^2*B+1/a^3*b^2*x^
(1/2)/(b*x+a)*A-1/a^2*b*x^(1/2)/(b*x+a)*B+5/a^3*b^2/(a*b)^(1/2)*a
rctan(x^(1/2)*b/(a*b)^(1/2))*A-3/a^2*b/(a*b)^(1/2)*arctan(x^(1/2)
*b/(a*b)^(1/2))*B
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^2*x^(5/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.235961, size = 1, normalized size = 0.01

$$\left[-\frac{4Aa^2+6\left(3Bab-5Ab^2\right)x^2+3\left(\left(3Bab-5Ab^2\right)x^2+\left(3Ba^2-5Aab\right)x\right)\sqrt{x}\sqrt{-\frac{b}{a}}\log\left(\frac{bx+2a\sqrt{x}\sqrt{-\frac{b}{a}}-a}{bx+a}\right)+4\left(3Ba^2-5A\right.}{6\left(a^3bx^2+a^4x\right)\sqrt{x}}\right.$$
$$\left.-\frac{2Aa^2+3\left(3Bab-5Ab^2\right)x^2-3\left(\left(3Bab-5Ab^2\right)x^2+\left(3Ba^2-5Aab\right)x\right)\sqrt{x}\sqrt{\frac{b}{a}}\arctan\left(\frac{a\sqrt{\frac{b}{a}}}{b\sqrt{x}}\right)+2\left(3Ba^2-5Aab\right)x}{3\left(a^3bx^2+a^4x\right)\sqrt{x}}\right]$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^2*x^(5/2)),x, algorithm="fricas")
```

```
[Out] [-1/6*(4*A*a^2 + 6*(3*B*a*b - 5*A*b^2)*x^2 + 3*((3*B*a*b - 5*A*b^
2)*x^2 + (3*B*a^2 - 5*A*a*b)*x)*sqrt(x)*sqrt(-b/a)*log((b*x + 2*a
*sqrt(x)*sqrt(-b/a) - a)/(b*x + a)) + 4*(3*B*a^2 - 5*A*a*b)*x)/((
a^3*b*x^2 + a^4*x)*sqrt(x)), -1/3*(2*A*a^2 + 3*(3*B*a*b - 5*A*b^2
)*x^2 - 3*((3*B*a*b - 5*A*b^2)*x^2 + (3*B*a^2 - 5*A*a*b)*x)*sqrt(
x)*sqrt(b/a)*arctan(a*sqrt(b/a)/(b*sqrt(x))) + 2*(3*B*a^2 - 5*A*a
*b)*x)/((a^3*b*x^2 + a^4*x)*sqrt(x))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**(5/2)/(b*x+a)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.23504, size = 115, normalized size = 1.07

$$-\frac{\left(3\,Bab - 5\,Ab^2\right)\arctan\left(\frac{b\sqrt{x}}{\sqrt{ab}}\right)}{\sqrt{ab}a^3} - \frac{Bab\sqrt{x} - Ab^2\sqrt{x}}{(bx+a)a^3} - \frac{2\,(3\,Bax - 6\,Abx + Aa)}{3\,a^3x^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^2*x^(5/2)),x, algorithm="giac")
```

```
[Out] -(3*B*a*b - 5*A*b^2)*arctan(b*sqrt(x)/sqrt(a*b))/(sqrt(a*b)*a^3)
- (B*a*b*sqrt(x) - A*b^2*sqrt(x))/((b*x + a)*a^3) - 2/3*(3*B*a*x
- 6*A*b*x + A*a)/(a^3*x^(3/2))
```

3.331 $\int \frac{A+Bx}{x^{7/2}(a+bx)^2}\,dx$

Optimal. Leaf size=131

$$-\frac{b^{3/2}(7Ab-5aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{a^{9/2}}-\frac{b(7Ab-5aB)}{a^4\sqrt{x}}+\frac{7Ab-5aB}{3a^3x^{3/2}}-\frac{7Ab-5aB}{5a^2bx^{5/2}}+\frac{Ab-aB}{abx^{5/2}(a+bx)}$$

```
[Out] -(7*A*b - 5*a*B)/(5*a^2*b*x^(5/2)) + (7*A*b - 5*a*B)/(3*a^3*x^(3/
2)) - (b*(7*A*b - 5*a*B))/(a^4*Sqrt[x]) + (A*b - a*B)/(a*b*x^(5/2
)*(a + b*x)) - (b^(3/2)*(7*A*b - 5*a*B)*ArcTan[(Sqrt[b]*Sqrt[x])/
Sqrt[a]])/a^(9/2)
```

Rubi [A] time = 0.169168, antiderivative size = 131, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.222

$$-\frac{b^{3/2}(7Ab-5aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{a^{9/2}}-\frac{b(7Ab-5aB)}{a^4\sqrt{x}}+\frac{7Ab-5aB}{3a^3x^{3/2}}-\frac{7Ab-5aB}{5a^2bx^{5/2}}+\frac{Ab-aB}{abx^{5/2}(a+bx)}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^(7/2)*(a + b*x)^2),x]
```

```
[Out] -(7*A*b - 5*a*B)/(5*a^2*b*x^(5/2)) + (7*A*b - 5*a*B)/(3*a^3*x^(3/
2)) - (b*(7*A*b - 5*a*B))/(a^4*Sqrt[x]) + (A*b - a*B)/(a*b*x^(5/2
)*(a + b*x)) - (b^(3/2)*(7*A*b - 5*a*B)*ArcTan[(Sqrt[b]*Sqrt[x])/
Sqrt[a]])/a^(9/2)
```

Rubi in Sympy [A] time = 21.1886, size = 119, normalized size = 0.91

$$\frac{Ab-Ba}{abx^{\frac{5}{2}}(a+bx)}-\frac{7Ab-5Ba}{5a^2bx^{\frac{5}{2}}}+\frac{7Ab-5Ba}{3a^3x^{\frac{3}{2}}}-\frac{b(7Ab-5Ba)}{a^4\sqrt{x}}-\frac{b^{\frac{3}{2}}(7Ab-5Ba)\,\mathrm{atan}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{a^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**(7/2)/(b*x+a)**2,x)
```

```
[Out] (A*b - B*a)/(a*b*x**(5/2)*(a + b*x)) - (7*A*b - 5*B*a)/(5*a**2*b*
x**(5/2)) + (7*A*b - 5*B*a)/(3*a**3*x**(3/2)) - b*(7*A*b - 5*B*a)
/(a**4*sqrt(x)) - b**(3/2)*(7*A*b - 5*B*a)*atan(sqrt(b)*sqrt(x)/s
qrt(a))/a**(9/2)
```

Mathematica [A] time = 0.177261, size = 112, normalized size = 0.85

$$\frac{b^{3/2}(5aB-7Ab)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{a^{9/2}}+\frac{-2a^3(3A+5Bx)+2a^2bx(7A+25Bx)+5ab^2x^2(15Bx-14A)-105Ab^3x^3}{15a^4x^{5/2}(a+bx)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^(7/2)*(a + b*x)^2),x]
```

```
[Out] (-105*A*b^3*x^3 - 2*a^3*(3*A + 5*B*x) + 5*a*b^2*x^2*(-14*A + 15*B
*x) + 2*a^2*b*x*(7*A + 25*B*x))/(15*a^4*x^(5/2)*(a + b*x)) + (b^(
3/2)*(-7*A*b + 5*a*B)*ArcTan[(Sqrt[b]*Sqrt[x])/Sqrt[a]])/a^(9/2)
```

Maple [A] time = 0.026, size = 139, normalized size = 1.1

$$-\frac{2A}{5a^2}x^{-\frac{5}{2}}+\frac{4Ab}{3a^3}x^{-\frac{3}{2}}-\frac{2B}{3a^2}x^{-\frac{3}{2}}-6\frac{Ab^2}{a^4\sqrt{x}}+4\frac{Bb}{a^3\sqrt{x}}-\frac{b^3A}{a^4(bx+a)}\sqrt{x}+\frac{b^2B}{a^3(bx+a)}\sqrt{x}-7\frac{b^3A}{a^4\sqrt{ab}}\arctan\left(\frac{\sqrt{x}b}{\sqrt{ab}}\right)+5\frac{b^2B}{a^3\sqrt{ab}}\arctan\left(\frac{\sqrt{x}b}{\sqrt{ab}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^(7/2)/(b*x+a)^2,x)
```

```
[Out] -2/5*A/a^2/x^(5/2)+4/3/a^3/x^(3/2)*A*b-2/3/a^2/x^(3/2)*B-6*b^2/a^
4/x^(1/2)*A+4*b/a^3/x^(1/2)*B-1/a^4*b^3*x^(1/2)/(b*x+a)*A+1/a^3*b
^2*x^(1/2)/(b*x+a)*B-7/a^4*b^3/(a*b)^(1/2)*arctan(x^(1/2)*b/(a*b)
^(1/2))*A+5/a^3*b^2/(a*b)^(1/2)*arctan(x^(1/2)*b/(a*b)^(1/2))*B
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^2*x^(7/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.220725, size = 1, normalized size = 0.01

$$\left[-\frac{12\,Aa^3-30\left(5\,Bab^2-7\,Ab^3\right)x^3-20\left(5\,Ba^2b-7\,Aab^2\right)x^2+15\left(\left(5\,Bab^2-7\,Ab^3\right)x^3+\left(5\,Ba^2b-7\,Aab^2\right)x^2\right)\sqrt{x}\sqrt{-\frac{b}{a}}\log}{30\left(a^4bx^3+a^5x^2\right)\sqrt{x}}\right.$$

$$-\frac{6\,Aa^3-15\left(5\,Bab^2-7\,Ab^3\right)x^3-10\left(5\,Ba^2b-7\,Aab^2\right)x^2+15\left(\left(5\,Bab^2-7\,Ab^3\right)x^3+\left(5\,Ba^2b-7\,Aab^2\right)x^2\right)\sqrt{x}\sqrt{\frac{b}{a}}\arctan}{15\left(a^4bx^3+a^5x^2\right)\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^2*x^(7/2)),x, algorithm="fricas")
```

```
[Out] [-1/30*(12*A*a^3 - 30*(5*B*a*b^2 - 7*A*b^3)*x^3 - 20*(5*B*a^2*b -
 7*A*a*b^2)*x^2 + 15*((5*B*a*b^2 - 7*A*b^3)*x^3 + (5*B*a^2*b - 7*
A*a*b^2)*x^2)*sqrt(x)*sqrt(-b/a)*log((b*x - 2*a*sqrt(x)*sqrt(-b/a
) - a)/(b*x + a)) + 4*(5*B*a^3 - 7*A*a^2*b)*x)/((a^4*b*x^3 + a^5*
x^2)*sqrt(x)), -1/15*(6*A*a^3 - 15*(5*B*a*b^2 - 7*A*b^3)*x^3 - 10
*(5*B*a^2*b - 7*A*a*b^2)*x^2 + 15*((5*B*a*b^2 - 7*A*b^3)*x^3 + (5
*B*a^2*b - 7*A*a*b^2)*x^2)*sqrt(x)*sqrt(b/a)*arctan(a*sqrt(b/a)/(
b*sqrt(x))) + 2*(5*B*a^3 - 7*A*a^2*b)*x)/((a^4*b*x^3 + a^5*x^2)*s
qrt(x))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**(7/2)/(b*x+a)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.224645, size = 149, normalized size = 1.14

$$\frac{\left(5\,Bab^2 - 7\,Ab^3\right)\arctan\left(\frac{b\sqrt{x}}{\sqrt{ab}}\right)}{\sqrt{ab}a^4} + \frac{Bab^2\sqrt{x} - Ab^3\sqrt{x}}{(bx+a)a^4} + \frac{2\left(30\,Babx^2 - 45\,Ab^2x^2 - 5\,Ba^2x + 10\,Aabx - 3\,Aa^2\right)}{15\,a^4x^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^2*x^(7/2)),x, algorithm="giac")
```

```
[Out] (5*B*a*b^2 - 7*A*b^3)*arctan(b*sqrt(x)/sqrt(a*b))/(sqrt(a*b)*a^4)
 + (B*a*b^2*sqrt(x) - A*b^3*sqrt(x))/((b*x + a)*a^4) + 2/15*(30*B
*a*b*x^2 - 45*A*b^2*x^2 - 5*B*a^2*x + 10*A*a*b*x - 3*A*a^2)/(a^4*
x^(5/2))
```

3.332 $\int \frac{A+Bx}{x^{9/2}(a+bx)^2}\,dx$

Optimal. Leaf size=153

$$\frac{b^{5/2}(9Ab-7aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{a^{11/2}}+\frac{b^2(9Ab-7aB)}{a^5\sqrt{x}}-\frac{b(9Ab-7aB)}{3a^4x^{3/2}}+\frac{9Ab-7aB}{5a^3x^{5/2}}-\frac{9Ab-7aB}{7a^2bx^{7/2}}+\frac{Ab-aB}{abx^{7/2}(a+bx)}$$

```
[Out] -(9*A*b - 7*a*B)/(7*a^2*b*x^(7/2)) + (9*A*b - 7*a*B)/(5*a^3*x^(5/
2)) - (b*(9*A*b - 7*a*B))/(3*a^4*x^(3/2)) + (b^2*(9*A*b - 7*a*B))
/(a^5*Sqrt[x]) + (A*b - a*B)/(a*b*x^(7/2)*(a + b*x)) + (b^(5/2)*(
9*A*b - 7*a*B)*ArcTan[(Sqrt[b]*Sqrt[x])/Sqrt[a]])/a^(11/2)
```

Rubi [A] time = 0.208247, antiderivative size = 153, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.222$

$$\frac{b^{5/2}(9Ab-7aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{a^{11/2}}+\frac{b^2(9Ab-7aB)}{a^5\sqrt{x}}-\frac{b(9Ab-7aB)}{3a^4x^{3/2}}+\frac{9Ab-7aB}{5a^3x^{5/2}}-\frac{9Ab-7aB}{7a^2bx^{7/2}}+\frac{Ab-aB}{abx^{7/2}(a+bx)}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^(9/2)*(a + b*x)^2),x]
```

```
[Out] -(9*A*b - 7*a*B)/(7*a^2*b*x^(7/2)) + (9*A*b - 7*a*B)/(5*a^3*x^(5/
2)) - (b*(9*A*b - 7*a*B))/(3*a^4*x^(3/2)) + (b^2*(9*A*b - 7*a*B))
/(a^5*Sqrt[x]) + (A*b - a*B)/(a*b*x^(7/2)*(a + b*x)) + (b^(5/2)*(
9*A*b - 7*a*B)*ArcTan[(Sqrt[b]*Sqrt[x])/Sqrt[a]])/a^(11/2)
```

Rubi in Sympy [A] time = 27.0137, size = 143, normalized size = 0.93

$$\frac{Ab-Ba}{abx^{\frac{7}{2}}(a+bx)}-\frac{9Ab-7Ba}{7a^2bx^{\frac{7}{2}}}+\frac{9Ab-7Ba}{5a^3x^{\frac{5}{2}}}-\frac{b(9Ab-7Ba)}{3a^4x^{\frac{3}{2}}}+\frac{b^2(9Ab-7Ba)}{a^5\sqrt{x}}+\frac{b^{\frac{5}{2}}(9Ab-7Ba)\,\mathrm{atan}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{a^{\frac{11}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**(9/2)/(b*x+a)**2,x)
```

```
[Out] (A*b - B*a)/(a*b*x**(7/2)*(a + b*x)) - (9*A*b - 7*B*a)/(7*a**2*b*
x**(7/2)) + (9*A*b - 7*B*a)/(5*a**3*x**(5/2)) - b*(9*A*b - 7*B*a)
/(3*a**4*x**(3/2)) + b**2*(9*A*b - 7*B*a)/(a**5*sqrt(x)) + b**(5/
2)*(9*A*b - 7*B*a)*atan(sqrt(b)*sqrt(x)/sqrt(a))/a**(11/2)
```

Mathematica [A] time = 0.171236, size = 131, normalized size = 0.86

$$\frac{b^{5/2}(9Ab-7aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{a^{11/2}}+\frac{-6a^4(5A+7Bx)+2a^3bx(27A+49Bx)-14a^2b^2x^2(9A+35Bx)+105ab^3x^3(6A-7Bx)+945Ab^4x^4}{105a^5x^{7/2}(a+bx)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^(9/2)*(a + b*x)^2),x]
```

```
[Out] (945*A*b^4*x^4 + 105*a*b^3*x^3*(6*A - 7*B*x) - 6*a^4*(5*A + 7*B*x
) - 14*a^2*b^2*x^2*(9*A + 35*B*x) + 2*a^3*b*x*(27*A + 49*B*x))/(1
```

```
05*a^5*x^(7/2)*(a + b*x)) + (b^(5/2)*(9*A*b - 7*a*B)*ArcTan[(Sqrt
[b]*Sqrt[x])/Sqrt[a]])/a^(11/2)
```

Maple [A] time = 0.027, size = 163, normalized size = 1.1

$$-\frac{2A}{7a^2}x^{-\frac{7}{2}}+\frac{4Ab}{5a^3}x^{-\frac{5}{2}}-\frac{2B}{5a^2}x^{-\frac{5}{2}}-2\frac{Ab^2}{a^4x^{3/2}}+\frac{4Bb}{3a^3}x^{-\frac{3}{2}}+8\frac{Ab^3}{a^5\sqrt{x}}-6\frac{Bb^2}{a^4\sqrt{x}}+\frac{b^4A}{a^5(bx+a)}\sqrt{x}-\frac{b^3B}{a^4(bx+a)}\sqrt{x}+9\frac{b^4A}{a^5\sqrt{ab}}\arctan\left(\frac{\sqrt{x}b}{\sqrt{ab}}\right)-7\frac{b^3B}{a^4\sqrt{ab}}\arctan\left(\frac{\sqrt{x}b}{\sqrt{ab}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((B*x+A)/x^(9/2)/(b*x+a)^2,x)
```

```
[Out] -2/7*A/a^2/x^(7/2)+4/5/a^3/x^(5/2)*A*b-2/5/a^2/x^(5/2)*B-2*b^2/a^
4/x^(3/2)*A+4/3*b/a^3/x^(3/2)*B+8*b^3/a^5/x^(1/2)*A-6*b^2/a^4/x^(
1/2)*B+1/a^5*b^4*x^(1/2)/(b*x+a)*A-1/a^4*b^3*x^(1/2)/(b*x+a)*B+9/
a^5*b^4/(a*b)^(1/2)*arctan(x^(1/2)*b/(a*b)^(1/2))*A-7/a^4*b^3/(a*
b)^(1/2)*arctan(x^(1/2)*b/(a*b)^(1/2))*B
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)/((b*x + a)^2*x^(9/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.222839, size = 1, normalized size = 0.01

$$\left[-\frac{60\,Aa^4+210\left(7\,Bab^3-9\,Ab^4\right)x^4+140\left(7\,Ba^2b^2-9\,Aab^3\right)x^3-28\left(7\,Ba^3b-9\,Aa^2b^2\right)x^2+105\left(\left(7\,Bab^3-9\,Ab^4\right)x^4+(7\right.}{210\left(a^5bx^4+a^6x^3\right)\sqrt{x}}\right.$$

$$-\frac{30\,Aa^4+105\left(7\,Bab^3-9\,Ab^4\right)x^4+70\left(7\,Ba^2b^2-9\,Aab^3\right)x^3-14\left(7\,Ba^3b-9\,Aa^2b^2\right)x^2-105\left(\left(7\,Bab^3-9\,Ab^4\right)x^4+(7\,B\right.}{105\left(a^5bx^4+a^6x^3\right)\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)/((b*x + a)^2*x^(9/2)),x, algorithm="fricas")
```

```
[Out] [-1/210*(60*A*a^4 + 210*(7*B*a*b^3 - 9*A*b^4)*x^4 + 140*(7*B*a^2*
b^2 - 9*A*a*b^3)*x^3 - 28*(7*B*a^3*b - 9*A*a^2*b^2)*x^2 + 105*((7
*B*a*b^3 - 9*A*b^4)*x^4 + (7*B*a^2*b^2 - 9*A*a*b^3)*x^3)*sqrt(x)*
sqrt(-b/a)*log((b*x + 2*a*sqrt(x)*sqrt(-b/a) - a)/(b*x + a)) + 12
*(7*B*a^4 - 9*A*a^3*b)*x)/((a^5*b*x^4 + a^6*x^3)*sqrt(x)), -1/105
*(30*A*a^4 + 105*(7*B*a*b^3 - 9*A*b^4)*x^4 + 70*(7*B*a^2*b^2 - 9*
A*a*b^3)*x^3 - 14*(7*B*a^3*b - 9*A*a^2*b^2)*x^2 - 105*((7*B*a*b^3
 - 9*A*b^4)*x^4 + (7*B*a^2*b^2 - 9*A*a*b^3)*x^3)*sqrt(x)*sqrt(b/a
)*arctan(a*sqrt(b/a)/(b*sqrt(x))) + 6*(7*B*a^4 - 9*A*a^3*b)*x)/((
a^5*b*x^4 + a^6*x^3)*sqrt(x))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**(9/2)/(b*x+a)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.217963, size = 184, normalized size = 1.2

$$-\frac{\left(7 \, B a b^{3} - 9 \, A b^{4}\right) \arctan\left(\frac{b \sqrt{x}}{\sqrt{a b}}\right)}{\sqrt{a b} a^{5}} - \frac{B a b^{3} \sqrt{x} - A b^{4} \sqrt{x}}{{\left(b x + a\right)} a^{5}} - \frac{2 \, {\left(315 \, B a b^{2} x^{3} - 420 \, A b^{3} x^{3} - 70 \, B a^{2} b x^{2} + 105 \, A a b^{2} x^{2} + 21 \, B a^{3} x - 42 \, A a^{2} b x + 15 \, A a^{3}\right)}}{105 \, a^{5} x^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^2*x^(9/2)),x, algorithm="giac")
```

```
[Out] -(7*B*a*b^3 - 9*A*b^4)*arctan(b*sqrt(x)/sqrt(a*b))/(sqrt(a*b)*a^5
) - (B*a*b^3*sqrt(x) - A*b^4*sqrt(x))/((b*x + a)*a^5) - 2/105*(31
5*B*a*b^2*x^3 - 420*A*b^3*x^3 - 70*B*a^2*b*x^2 + 105*A*a*b^2*x^2
+ 21*B*a^3*x - 42*A*a^2*b*x + 15*A*a^3)/(a^5*x^(7/2))
```

3.333 $\int \frac{x^{7/2}(A+Bx)}{(a+bx)^3}\,dx$

Optimal. Leaf size=169

$$\frac{7a^{3/2}(5Ab-9aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{4b^{11/2}}-\frac{7a\sqrt{x}(5Ab-9aB)}{4b^5}+\frac{7x^{3/2}(5Ab-9aB)}{12b^4}-\frac{7x^{5/2}(5Ab-9aB)}{20ab^3}+\frac{x^{7/2}(5Ab-9aB)}{4ab^2(a+bx)}+\frac{x^{9/2}(Ab-aB)}{2ab(a+bx)^2}$$

```
[Out] (-7*a*(5*A*b - 9*a*B)*Sqrt[x])/(4*b^5) + (7*(5*A*b - 9*a*B)*x^(3/
2))/(12*b^4) - (7*(5*A*b - 9*a*B)*x^(5/2))/(20*a*b^3) + ((A*b - a
*B)*x^(9/2))/(2*a*b*(a + b*x)^2) + ((5*A*b - 9*a*B)*x^(7/2))/(4*a
*b^2*(a + b*x)) + (7*a^(3/2)*(5*A*b - 9*a*B)*ArcTan[(Sqrt[b]*Sqrt
[x])/Sqrt[a]])/(4*b^(11/2))
```

Rubi [A] time = 0.207055, antiderivative size = 169, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.278

$$\frac{7a^{3/2}(5Ab-9aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{4b^{11/2}}-\frac{7a\sqrt{x}(5Ab-9aB)}{4b^5}+\frac{7x^{3/2}(5Ab-9aB)}{12b^4}-\frac{7x^{5/2}(5Ab-9aB)}{20ab^3}+\frac{x^{7/2}(5Ab-9aB)}{4ab^2(a+bx)}+\frac{x^{9/2}(Ab-aB)}{2ab(a+bx)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^(7/2)*(A + B*x))/(a + b*x)^3,x]
```

```
[Out] (-7*a*(5*A*b - 9*a*B)*Sqrt[x])/(4*b^5) + (7*(5*A*b - 9*a*B)*x^(3/
2))/(12*b^4) - (7*(5*A*b - 9*a*B)*x^(5/2))/(20*a*b^3) + ((A*b - a
*B)*x^(9/2))/(2*a*b*(a + b*x)^2) + ((5*A*b - 9*a*B)*x^(7/2))/(4*a
*b^2*(a + b*x)) + (7*a^(3/2)*(5*A*b - 9*a*B)*ArcTan[(Sqrt[b]*Sqrt
[x])/Sqrt[a]])/(4*b^(11/2))
```

Rubi in Sympy [A] time = 26.7531, size = 160, normalized size = 0.95

$$\frac{7a^{\frac{3}{2}}\left(5Ab-9Ba\right)\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{4b^{\frac{11}{2}}}-\frac{7a\sqrt{x}\left(5Ab-9Ba\right)}{4b^5}+\frac{7x^{\frac{3}{2}}\left(5Ab-9Ba\right)}{12b^4}+\frac{x^{\frac{9}{2}}\left(Ab-Ba\right)}{2ab\left(a+bx\right)^2}+\frac{x^{\frac{7}{2}}\left(5Ab-9Ba\right)}{4ab^2\left(a+bx\right)}-\frac{7x^{\frac{5}{2}}\left(5Ab-9Ba\right)}{20ab^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**(7/2)*(B*x+A)/(b*x+a)**3,x)
```

```
[Out] 7*a**(3/2)*(5*A*b - 9*B*a)*atan(sqrt(b)*sqrt(x)/sqrt(a))/(4*b**(1
1/2)) - 7*a*sqrt(x)*(5*A*b - 9*B*a)/(4*b**5) + 7*x**(3/2)*(5*A*b
- 9*B*a)/(12*b**4) + x**(9/2)*(A*b - B*a)/(2*a*b*(a + b*x)**2) +
x**(7/2)*(5*A*b - 9*B*a)/(4*a*b**2*(a + b*x)) - 7*x**(5/2)*(5*A*b
 - 9*B*a)/(20*a*b**3)
```

Mathematica [A] time = 0.198916, size = 129, normalized size = 0.76

$$\frac{\sqrt{x}\left(945a^4B-525a^3b(A-3Bx)+7a^2b^2x(72Bx-125A)-8ab^3x^2(35A+9Bx)+8b^4x^3(5A+3Bx)\right)}{60b^5(a+bx)^2}-\frac{7a^{3/2}(9aB-5Ab)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{4b^{11/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^(7/2)*(A + B*x))/(a + b*x)^3,x]
```

```
[Out] (Sqrt[x]*(945*a^4*B - 525*a^3*b*(A - 3*B*x) + 8*b^4*x^3*(5*A + 3*
B*x) - 8*a*b^3*x^2*(35*A + 9*B*x) + 7*a^2*b^2*x*(-125*A + 72*B*x)
))/(60*b^5*(a + b*x)^2) - (7*a^(3/2)*(-5*A*b + 9*a*B)*ArcTan[(Sqr
t[b]*Sqrt[x])/Sqrt[a]])/(4*b^(11/2))
```

Maple [A] time = 0.022, size = 178, normalized size = 1.1

$$\frac{2B}{5b^3}x^{\frac{5}{2}} + \frac{2A}{3b^3}x^{\frac{3}{2}} - 2\frac{Bx^{3/2}a}{b^4} - 6\frac{aA\sqrt{x}}{b^4} + 12\frac{Ba^2\sqrt{x}}{b^5} - \frac{13Aa^2}{4b^3(bx+a)^2}x^{\frac{3}{2}} + \frac{17Ba^3}{4b^4(bx+a)^2}x^{\frac{3}{2}} - \frac{11Aa^3}{4b^4(bx+a)^2}\sqrt{x} + \frac{15Ba^4}{4b^5(bx+a)^2}\sqrt{x} + \frac{35Aa^2}{4b^4}\arctan\left(b\sqrt{x}\frac{1}{\sqrt{ab}}\right)\frac{1}{\sqrt{ab}} - \frac{63Ba^3}{4b^5}\arctan\left(b\sqrt{x}\frac{1}{\sqrt{ab}}\right)\frac{1}{\sqrt{ab}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^(7/2)*(B*x+A)/(b*x+a)^3,x)
```

```
[Out] 2/5/b^3*B*x^(5/2)+2/3/b^3*A*x^(3/2)-2/b^4*B*x^(3/2)*a-6/b^4*a*A*x
^(1/2)+12/b^5*a^2*B*x^(1/2)-13/4*a^2/b^3/(b*x+a)^2*A*x^(3/2)+17/4
*a^3/b^4/(b*x+a)^2*B*x^(3/2)-11/4*a^3/b^4/(b*x+a)^2*A*x^(1/2)+15/
4*a^4/b^5/(b*x+a)^2*B*x^(1/2)+35/4*a^2/b^4/(a*b)^(1/2)*arctan(x^(
1/2)*b/(a*b)^(1/2))*A-63/4*a^3/b^5/(a*b)^(1/2)*arctan(x^(1/2)*b/(
a*b)^(1/2))*B
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(7/2)/(b*x + a)^3,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.220675, size = 1, normalized size = 0.01

$$\left[-\frac{105\left(9Ba^4 - 5Aa^3b + \left(9Ba^2b^2 - 5Aab^3\right)x^2 + 2\left(9Ba^3b - 5Aa^2b^2\right)x\right)\sqrt{-\frac{a}{b}}\log\left(\frac{bx+2b\sqrt{x}\sqrt{-\frac{a}{b}}-a}{bx+a}\right) - 2\left(24Bb^4x^4 + 945Ba\ldots\right.}{120\left(b^7x^2 + 2ab^6x + a^2b^5\ldots\right.}\right.$$

$$-\frac{105\left(9Ba^4 - 5Aa^3b + \left(9Ba^2b^2 - 5Aab^3\right)x^2 + 2\left(9Ba^3b - 5Aa^2b^2\right)x\right)\sqrt{\frac{a}{b}}\arctan\left(\frac{\sqrt{x}}{\sqrt{\frac{a}{b}}}\right) - \left(24Bb^4x^4 + 945Ba^4 - 525Aa^3\ldots\right.}{60\left(b^7x^2 + 2ab^6x + a^2b^5\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(7/2)/(b*x + a)^3,x, algorithm="fricas")
```

```
[Out] [-1/120*(105*(9*B*a^4 - 5*A*a^3*b + (9*B*a^2*b^2 - 5*A*a*b^3)*x^2
 + 2*(9*B*a^3*b - 5*A*a^2*b^2)*x)*sqrt(-a/b)*log((b*x + 2*b*sqrt(
x)*sqrt(-a/b) - a)/(b*x + a)) - 2*(24*B*b^4*x^4 + 945*B*a^4 - 525
*A*a^3*b - 8*(9*B*a*b^3 - 5*A*b^4)*x^3 + 56*(9*B*a^2*b^2 - 5*A*a*
b^3)*x^2 + 175*(9*B*a^3*b - 5*A*a^2*b^2)*x)*sqrt(x))/(b^7*x^2 + 2
*a*b^6*x + a^2*b^5), -1/60*(105*(9*B*a^4 - 5*A*a^3*b + (9*B*a^2*b
^2 - 5*A*a*b^3)*x^2 + 2*(9*B*a^3*b - 5*A*a^2*b^2)*x)*sqrt(a/b)*ar
ctan(sqrt(x)/sqrt(a/b)) - (24*B*b^4*x^4 + 945*B*a^4 - 525*A*a^3*b
 - 8*(9*B*a*b^3 - 5*A*b^4)*x^3 + 56*(9*B*a^2*b^2 - 5*A*a*b^3)*x^2
 + 175*(9*B*a^3*b - 5*A*a^2*b^2)*x)*sqrt(x))/(b^7*x^2 + 2*a*b^6*x
 + a^2*b^5)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**(7/2)*(B*x+A)/(b*x+a)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.214186, size = 197, normalized size = 1.17

$$-\frac{7\left(9\,Ba^3-5\,Aa^2b\right)\arctan\left(\frac{b\sqrt{x}}{\sqrt{ab}}\right)}{4\,\sqrt{ab}b^5}+\frac{17\,Ba^3bx^{\frac{3}{2}}-13\,Aa^2b^2x^{\frac{3}{2}}+15\,Ba^4\sqrt{x}-11\,Aa^3b\sqrt{x}}{4\,(bx+a)^2b^5}+\frac{2\left(3\,Bb^{12}x^{\frac{5}{2}}-15\,Bab^{11}x^{\frac{3}{2}}+5\,Ab^{12}x^{\frac{3}{2}}+90\,Ba^2b^{10}\sqrt{x}-45\,Aab^{11}\sqrt{x}\right)}{15\,b^{15}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(7/2)/(b*x + a)^3,x, algorithm="giac")
```

```
[Out] -7/4*(9*B*a^3 - 5*A*a^2*b)*arctan(b*sqrt(x)/sqrt(a*b))/(sqrt(a*b)
*b^5) + 1/4*(17*B*a^3*b*x^(3/2) - 13*A*a^2*b^2*x^(3/2) + 15*B*a^4
*sqrt(x) - 11*A*a^3*b*sqrt(x))/((b*x + a)^2*b^5) + 2/15*(3*B*b^12
*x^(5/2) - 15*B*a*b^11*x^(3/2) + 5*A*b^12*x^(3/2) + 90*B*a^2*b^10
*sqrt(x) - 45*A*a*b^11*sqrt(x))/b^15
```

3.334 $\int \frac{x^{5/2}(A+Bx)}{(a+bx)^3}\,dx$

Optimal. Leaf size=147

$$-\frac{5\sqrt{a}(3Ab-7aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{4b^{9/2}}+\frac{5\sqrt{x}(3Ab-7aB)}{4b^4}-\frac{5x^{3/2}(3Ab-7aB)}{12ab^3}+\frac{x^{5/2}(3Ab-7aB)}{4ab^2(a+bx)}+\frac{x^{7/2}(Ab-aB)}{2ab(a+bx)^2}$$

```
[Out] (5*(3*A*b - 7*a*B)*Sqrt[x])/(4*b^4) - (5*(3*A*b - 7*a*B)*x^(3/2))
/(12*a*b^3) + ((A*b - a*B)*x^(7/2))/(2*a*b*(a + b*x)^2) + ((3*A*b
 - 7*a*B)*x^(5/2))/(4*a*b^2*(a + b*x)) - (5*Sqrt[a]*(3*A*b - 7*a*
B)*ArcTan[(Sqrt[b]*Sqrt[x])/Sqrt[a]])/(4*b^(9/2))
```

Rubi [A] time = 0.170531, antiderivative size = 147, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.278

$$-\frac{5\sqrt{a}(3Ab-7aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{4b^{9/2}}+\frac{5\sqrt{x}(3Ab-7aB)}{4b^4}-\frac{5x^{3/2}(3Ab-7aB)}{12ab^3}+\frac{x^{5/2}(3Ab-7aB)}{4ab^2(a+bx)}+\frac{x^{7/2}(Ab-aB)}{2ab(a+bx)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^(5/2)*(A + B*x))/(a + b*x)^3,x]
```

```
[Out] (5*(3*A*b - 7*a*B)*Sqrt[x])/(4*b^4) - (5*(3*A*b - 7*a*B)*x^(3/2))
/(12*a*b^3) + ((A*b - a*B)*x^(7/2))/(2*a*b*(a + b*x)^2) + ((3*A*b
 - 7*a*B)*x^(5/2))/(4*a*b^2*(a + b*x)) - (5*Sqrt[a]*(3*A*b - 7*a*
B)*ArcTan[(Sqrt[b]*Sqrt[x])/Sqrt[a]])/(4*b^(9/2))
```

Rubi in Sympy [A] time = 21.7829, size = 136, normalized size = 0.93

$$-\frac{5\sqrt{a}\left(3Ab-7Ba\right)\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{4b^{\frac{9}{2}}}+\frac{5\sqrt{x}\left(3Ab-7Ba\right)}{4b^4}+\frac{x^{\frac{7}{2}}\left(Ab-Ba\right)}{2ab\left(a+bx\right)^2}+\frac{x^{\frac{5}{2}}\left(3Ab-7Ba\right)}{4ab^2\left(a+bx\right)}-\frac{5x^{\frac{3}{2}}\left(3Ab-7Ba\right)}{12ab^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**(5/2)*(B*x+A)/(b*x+a)**3,x)
```

```
[Out] -5*sqrt(a)*(3*A*b - 7*B*a)*atan(sqrt(b)*sqrt(x)/sqrt(a))/(4*b**(9
/2)) + 5*sqrt(x)*(3*A*b - 7*B*a)/(4*b**4) + x**(7/2)*(A*b - B*a)/
(2*a*b*(a + b*x)**2) + x**(5/2)*(3*A*b - 7*B*a)/(4*a*b**2*(a + b*
x)) - 5*x**(3/2)*(3*A*b - 7*B*a)/(12*a*b**3)
```

Mathematica [A] time = 0.19429, size = 110, normalized size = 0.75

$$\frac{\sqrt{x}\left(-105a^3B+5a^2b(9A-35Bx)+ab^2x(75A-56Bx)+8b^3x^2(3A+Bx)\right)}{12b^4(a+bx)^2}+\frac{5\sqrt{a}(7aB-3Ab)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{4b^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^(5/2)*(A + B*x))/(a + b*x)^3,x]
```

```
[Out] (Sqrt[x]*(-105*a^3*B + a*b^2*x*(75*A - 56*B*x) + 5*a^2*b*(9*A - 3
5*B*x) + 8*b^3*x^2*(3*A + B*x)))/(12*b^4*(a + b*x)^2) + (5*Sqrt[a
]*(-3*A*b + 7*a*B)*ArcTan[(Sqrt[b]*Sqrt[x])/Sqrt[a]])/(4*b^(9/2))
```

Maple [A] time = 0.022, size = 152, normalized size = 1.

$$\frac{2B}{3b^3}x^{\frac{3}{2}}+2\frac{A\sqrt{x}}{b^3}-6\frac{Ba\sqrt{x}}{b^4}+\frac{9Aa}{4b^2(bx+a)^2}x^{\frac{3}{2}}-\frac{13Ba^2}{4b^3(bx+a)^2}x^{\frac{3}{2}}+\frac{7Aa^2}{4b^3(bx+a)^2}\sqrt{x}-\frac{11Ba^3}{4b^4(bx+a)^2}\sqrt{x}-\frac{15Aa}{4b^3}\arctan\left(b\sqrt{x}\frac{1}{\sqrt{ab}}\right)\frac{1}{\sqrt{ab}}+\frac{35Ba^2}{4b^4}\arctan\left(b\sqrt{x}\frac{1}{\sqrt{ab}}\right)\frac{1}{\sqrt{ab}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^(5/2)*(B*x+A)/(b*x+a)^3,x)
```

```
[Out] 2/3/b^3*B*x^(3/2)+2/b^3*A*x^(1/2)-6/b^4*B*a*x^(1/2)+9/4*a/b^2/(b*
x+a)^2*x^(3/2)*A-13/4*a^2/b^3/(b*x+a)^2*x^(3/2)*B+7/4*a^2/b^3/(b*
x+a)^2*A*x^(1/2)-11/4*a^3/b^4/(b*x+a)^2*B*x^(1/2)-15/4*a/b^3/(a*b
)^(1/2)*arctan(x^(1/2)*b/(a*b)^(1/2))*A+35/4*a^2/b^4/(a*b)^(1/2)*
arctan(x^(1/2)*b/(a*b)^(1/2))*B
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(5/2)/(b*x + a)^3,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.225116, size = 1, normalized size = 0.01

$$\left[-\frac{15\left(7Ba^3-3Aa^2b+\left(7Bab^2-3Ab^3\right)x^2+2\left(7Ba^2b-3Aab^2\right)x\right)\sqrt{-\frac{a}{b}}\log\left(\frac{bx-2b\sqrt{x}\sqrt{-\frac{a}{b}}-a}{bx+a}\right)-2\left(8Bb^3x^3-105Ba^3+4\right.}{24\left(b^6x^2+2ab^5x+a^2b^4\right)}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(5/2)/(b*x + a)^3,x, algorithm="fricas")
```

```
[Out] [-1/24*(15*(7*B*a^3 - 3*A*a^2*b + (7*B*a*b^2 - 3*A*b^3)*x^2 + 2*(
7*B*a^2*b - 3*A*a*b^2)*x)*sqrt(-a/b)*log((b*x - 2*b*sqrt(x)*sqrt(
-a/b) - a)/(b*x + a)) - 2*(8*B*b^3*x^3 - 105*B*a^3 + 45*A*a^2*b -
 8*(7*B*a*b^2 - 3*A*b^3)*x^2 - 25*(7*B*a^2*b - 3*A*a*b^2)*x)*sqrt
(x))/(b^6*x^2 + 2*a*b^5*x + a^2*b^4), 1/12*(15*(7*B*a^3 - 3*A*a^2
*b + (7*B*a*b^2 - 3*A*b^3)*x^2 + 2*(7*B*a^2*b - 3*A*a*b^2)*x)*sqr
t(a/b)*arctan(sqrt(x)/sqrt(a/b)) + (8*B*b^3*x^3 - 105*B*a^3 + 45*
A*a^2*b - 8*(7*B*a*b^2 - 3*A*b^3)*x^2 - 25*(7*B*a^2*b - 3*A*a*b^2
)*x)*sqrt(x))/(b^6*x^2 + 2*a*b^5*x + a^2*b^4)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**(5/2)*(B*x+A)/(b*x+a)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.215067, size = 161, normalized size = 1.1

$$\frac{5\left(7\,Ba^{2}-3\,Aab\right)\arctan\left(\frac{b\sqrt{x}}{\sqrt{ab}}\right)}{4\,\sqrt{ab}b^{4}}-\frac{13\,Ba^{2}bx^{\frac{3}{2}}-9\,Aab^{2}x^{\frac{3}{2}}+11\,Ba^{3}\sqrt{x}-7\,Aa^{2}b\sqrt{x}}{4\,(bx+a)^{2}b^{4}}+\frac{2\left(Bb^{6}x^{\frac{3}{2}}-9\,Bab^{5}\sqrt{x}+3\,Ab^{6}\sqrt{x}\right)}{3\,b^{9}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(5/2)/(b*x + a)^3,x, algorithm="giac")
```

```
[Out] 5/4*(7*B*a^2 - 3*A*a*b)*arctan(b*sqrt(x)/sqrt(a*b))/(sqrt(a*b)*b^
4) - 1/4*(13*B*a^2*b*x^(3/2) - 9*A*a*b^2*x^(3/2) + 11*B*a^3*sqrt(
x) - 7*A*a^2*b*sqrt(x))/((b*x + a)^2*b^4) + 2/3*(B*b^6*x^(3/2) -
9*B*a*b^5*sqrt(x) + 3*A*b^6*sqrt(x))/b^9
```

3.335 $\int \frac{x^{3/2}(A+Bx)}{(a+bx)^3} dx$

Optimal. Leaf size=123

$$\frac{3(Ab-5aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{4\sqrt{a}b^{7/2}}-\frac{3\sqrt{x}(Ab-5aB)}{4ab^3}+\frac{x^{3/2}(Ab-5aB)}{4ab^2(a+bx)}+\frac{x^{5/2}(Ab-aB)}{2ab(a+bx)^2}$$

```
[Out] (-3*(A*b - 5*a*B)*Sqrt[x])/(4*a*b^3) + ((A*b - a*B)*x^(5/2))/(2*a
*b*(a + b*x)^2) + ((A*b - 5*a*B)*x^(3/2))/(4*a*b^2*(a + b*x)) + (
3*(A*b - 5*a*B)*ArcTan[(Sqrt[b]*Sqrt[x])/Sqrt[a]])/(4*Sqrt[a]*b^(
7/2))
```

Rubi [A] time = 0.137369, antiderivative size = 123, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.278

$$\frac{3(Ab-5aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{4\sqrt{a}b^{7/2}}-\frac{3\sqrt{x}(Ab-5aB)}{4ab^3}+\frac{x^{3/2}(Ab-5aB)}{4ab^2(a+bx)}+\frac{x^{5/2}(Ab-aB)}{2ab(a+bx)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^(3/2)*(A + B*x))/(a + b*x)^3,x]
```

```
[Out] (-3*(A*b - 5*a*B)*Sqrt[x])/(4*a*b^3) + ((A*b - a*B)*x^(5/2))/(2*a
*b*(a + b*x)^2) + ((A*b - 5*a*B)*x^(3/2))/(4*a*b^2*(a + b*x)) + (
3*(A*b - 5*a*B)*ArcTan[(Sqrt[b]*Sqrt[x])/Sqrt[a]])/(4*Sqrt[a]*b^(
7/2))
```

Rubi in Sympy [A] time = 17.5841, size = 109, normalized size = 0.89

$$\frac{x^{\frac{5}{2}}\left(Ab-Ba\right)}{2ab\left(a+bx\right)^{2}}+\frac{x^{\frac{3}{2}}\left(Ab-5Ba\right)}{4ab^{2}\left(a+bx\right)}-\frac{3\sqrt{x}\left(Ab-5Ba\right)}{4ab^{3}}+\frac{3\left(Ab-5Ba\right)\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{4\sqrt{a}b^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**(3/2)*(B*x+A)/(b*x+a)**3,x)
```

```
[Out] x**(5/2)*(A*b - B*a)/(2*a*b*(a + b*x)**2) + x**(3/2)*(A*b - 5*B*a
)/(4*a*b**2*(a + b*x)) - 3*sqrt(x)*(A*b - 5*B*a)/(4*a*b**3) + 3*(
A*b - 5*B*a)*atan(sqrt(b)*sqrt(x)/sqrt(a))/(4*sqrt(a)*b**(7/2))
```

Mathematica [A] time = 0.136131, size = 91, normalized size = 0.74

$$\frac{\sqrt{x}\left(15a^2B+a(25bBx-3Ab)+b^2x(8Bx-5A)\right)}{4b^3(a+bx)^2}+\frac{3(Ab-5aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{4\sqrt{a}b^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^(3/2)*(A + B*x))/(a + b*x)^3,x]
```

```
[Out] (Sqrt[x]*(15*a^2*B + b^2*x*(-5*A + 8*B*x) + a*(-3*A*b + 25*b*B*x)
))/(4*b^3*(a + b*x)^2) + (3*(A*b - 5*a*B)*ArcTan[(Sqrt[b]*Sqrt[x]
)/Sqrt[a]])/(4*Sqrt[a]*b^(7/2))
```

Maple [A] time = 0.022, size = 125, normalized size = 1.

$$2\,{\frac{B\sqrt{x}}{{b}^{3}}}-{\frac{5\,A}{4\,b\left(bx+a\right)^{2}}{x}^{{\frac{3}{2}}}}+{\frac{9\,Ba}{4\,{b}^{2}\left(bx+a\right)^{2}}{x}^{{\frac{3}{2}}}}-{\frac{3\,Aa}{4\,{b}^{2}\left(bx+a\right)^{2}}\sqrt{x}}+{\frac{7\,B{a}^{2}}{4\,{b}^{3}\left(bx+a\right)^{2}}\sqrt{x}}+{\frac{3\,A}{4\,{b}^{2}}\arctan\left(b\sqrt{x}{\frac{1}{\sqrt{ab}}}\right)\frac{1}{\sqrt{ab}}}-{\frac{15\,Ba}{4\,{b}^{3}}\arctan\left(b\sqrt{x}{\frac{1}{\sqrt{ab}}}\right)\frac{1}{\sqrt{ab}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^(3/2)*(B*x+A)/(b*x+a)^3,x)
```

```
[Out] 2*B/b^3*x^(1/2)-5/4/b/(b*x+a)^2*x^(3/2)*A+9/4/b^2/(b*x+a)^2*x^(3/
2)*B*a-3/4/b^2/(b*x+a)^2*A*x^(1/2)*a+7/4/b^3/(b*x+a)^2*B*x^(1/2)*
a^2+3/4/b^2/(a*b)^(1/2)*arctan(x^(1/2)*b/(a*b)^(1/2))*A-15/4/b^3/
(a*b)^(1/2)*arctan(x^(1/2)*b/(a*b)^(1/2))*B*a
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(3/2)/(b*x + a)^3,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.227286, size = 1, normalized size = 0.01

$$\left[\frac{2\left(8\,Bb^{2}x^{2}+15\,Ba^{2}-3\,Aab+5\left(5\,Bab-Ab^{2}\right)x\right)\sqrt{-ab}\sqrt{x}-3\left(5\,Ba^{3}-Aa^{2}b+\left(5\,Bab^{2}-Ab^{3}\right)x^{2}+2\left(5\,Ba^{2}b-Aab^{2}\right)x\right)l}{8\left(b^{5}x^{2}+2\,ab^{4}x+a^{2}b^{3}\right)\sqrt{-ab}}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(3/2)/(b*x + a)^3,x, algorithm="fricas")
```

```
[Out] [1/8*(2*(8*B*b^2*x^2 + 15*B*a^2 - 3*A*a*b + 5*(5*B*a*b - A*b^2)*x
)*sqrt(-a*b)*sqrt(x) - 3*(5*B*a^3 - A*a^2*b + (5*B*a*b^2 - A*b^3)
*x^2 + 2*(5*B*a^2*b - A*a*b^2)*x)*log((2*a*b*sqrt(x) + sqrt(-a*b)
*(b*x - a))/(b*x + a)))/((b^5*x^2 + 2*a*b^4*x + a^2*b^3)*sqrt(-a*
b)), 1/4*((8*B*b^2*x^2 + 15*B*a^2 - 3*A*a*b + 5*(5*B*a*b - A*b^2)
*x)*sqrt(a*b)*sqrt(x) + 3*(5*B*a^3 - A*a^2*b + (5*B*a*b^2 - A*b^3
)*x^2 + 2*(5*B*a^2*b - A*a*b^2)*x)*arctan(a/(sqrt(a*b)*sqrt(x))))
/((b^5*x^2 + 2*a*b^4*x + a^2*b^3)*sqrt(a*b))]
```

Sympy [A] time = 77.0144, size = 5435, normalized size = 44.19

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**(3/2)*(B*x+A)/(b*x+a)**3,x)
```

```
[Out] A*(3*a**(83/2)*b**12*x**(29/2)*atan(sqrt(b)*sqrt(x)/sqrt(a))/(4*a
**42*b**(29/2)*x**(29/2) + 44*a**41*b**(31/2)*x**(31/2) + 220*a**
```

40*b**(33/2)*x**(33/2) + 660*a**39*b**(35/2)*x**(35/2) + 1320*a**
38*b**(37/2)*x**(37/2) + 1848*a**37*b**(39/2)*x**(39/2) + 1848*a*
*36*b**(41/2)*x**(41/2) + 1320*a**35*b**(43/2)*x**(43/2) + 660*a*
*34*b**(45/2)*x**(45/2) + 220*a**33*b**(47/2)*x**(47/2) + 44*a**3
2*b**(49/2)*x**(49/2) + 4*a**31*b**(51/2)*x**(51/2)) + 33*a**(81/
2)*b**13*x**(31/2)*atan(sqrt(b)*sqrt(x)/sqrt(a))/(4*a**42*b**(29/
2)*x**(29/2) + 44*a**41*b**(31/2)*x**(31/2) + 220*a**40*b**(33/2)
*x**(33/2) + 660*a**39*b**(35/2)*x**(35/2) + 1320*a**38*b**(37/2)
*x**(37/2) + 1848*a**37*b**(39/2)*x**(39/2) + 1848*a**36*b**(41/2
)*x**(41/2) + 1320*a**35*b**(43/2)*x**(43/2) + 660*a**34*b**(45/2
)*x**(45/2) + 220*a**33*b**(47/2)*x**(47/2) + 44*a**32*b**(49/2)*
x**(49/2) + 4*a**31*b**(51/2)*x**(51/2)) + 165*a**(79/2)*b**14*x*
*(33/2)*atan(sqrt(b)*sqrt(x)/sqrt(a))/(4*a**42*b**(29/2)*x**(29/2
) + 44*a**41*b**(31/2)*x**(31/2) + 220*a**40*b**(33/2)*x**(33/2)
+ 660*a**39*b**(35/2)*x**(35/2) + 1320*a**38*b**(37/2)*x**(37/2)
+ 1848*a**37*b**(39/2)*x**(39/2) + 1848*a**36*b**(41/2)*x**(41/2)
 + 1320*a**35*b**(43/2)*x**(43/2) + 660*a**34*b**(45/2)*x**(45/2)
 + 220*a**33*b**(47/2)*x**(47/2) + 44*a**32*b**(49/2)*x**(49/2) +
 4*a**31*b**(51/2)*x**(51/2)) + 495*a**(77/2)*b**15*x**(35/2)*ata
n(sqrt(b)*sqrt(x)/sqrt(a))/(4*a**42*b**(29/2)*x**(29/2) + 44*a**4
1*b**(31/2)*x**(31/2) + 220*a**40*b**(33/2)*x**(33/2) + 660*a**39
*b**(35/2)*x**(35/2) + 1320*a**38*b**(37/2)*x**(37/2) + 1848*a**3
7*b**(39/2)*x**(39/2) + 1848*a**36*b**(41/2)*x**(41/2) + 1320*a**
35*b**(43/2)*x**(43/2) + 660*a**34*b**(45/2)*x**(45/2) + 220*a**3
3*b**(47/2)*x**(47/2) + 44*a**32*b**(49/2)*x**(49/2) + 4*a**31*b*
*(51/2)*x**(51/2)) + 990*a**(75/2)*b**16*x**(37/2)*atan(sqrt(b)*s
qrt(x)/sqrt(a))/(4*a**42*b**(29/2)*x**(29/2) + 44*a**41*b**(31/2)
*x**(31/2) + 220*a**40*b**(33/2)*x**(33/2) + 660*a**39*b**(35/2)*
x**(35/2) + 1320*a**38*b**(37/2)*x**(37/2) + 1848*a**37*b**(39/2)
*x**(39/2) + 1848*a**36*b**(41/2)*x**(41/2) + 1320*a**35*b**(43/2
)*x**(43/2) + 660*a**34*b**(45/2)*x**(45/2) + 220*a**33*b**(47/2)
*x**(47/2) + 44*a**32*b**(49/2)*x**(49/2) + 4*a**31*b**(51/2)*x**
(51/2)) + 1386*a**(73/2)*b**17*x**(39/2)*atan(sqrt(b)*sqrt(x)/sqr
t(a))/(4*a**42*b**(29/2)*x**(29/2) + 44*a**41*b**(31/2)*x**(31/2)
 + 220*a**40*b**(33/2)*x**(33/2) + 660*a**39*b**(35/2)*x**(35/2)
+ 1320*a**38*b**(37/2)*x**(37/2) + 1848*a**37*b**(39/2)*x**(39/2)
 + 1848*a**36*b**(41/2)*x**(41/2) + 1320*a**35*b**(43/2)*x**(43/2
) + 660*a**34*b**(45/2)*x**(45/2) + 220*a**33*b**(47/2)*x**(47/2)
 + 44*a**32*b**(49/2)*x**(49/2) + 4*a**31*b**(51/2)*x**(51/2)) +
1386*a**(71/2)*b**18*x**(41/2)*atan(sqrt(b)*sqrt(x)/sqrt(a))/(4*a
42*b(29/2)*x**(29/2) + 44*a**41*b**(31/2)*x**(31/2) + 220*a**
40*b**(33/2)*x**(33/2) + 660*a**39*b**(35/2)*x**(35/2) + 1320*a**
38*b**(37/2)*x**(37/2) + 1848*a**37*b**(39/2)*x**(39/2) + 1848*a*
*36*b**(41/2)*x**(41/2) + 1320*a**35*b**(43/2)*x**(43/2) + 660*a*
*34*b**(45/2)*x**(45/2) + 220*a**33*b**(47/2)*x**(47/2) + 44*a**3
2*b**(49/2)*x**(49/2) + 4*a**31*b**(51/2)*x**(51/2)) + 990*a**(69
/2)*b**19*x**(43/2)*atan(sqrt(b)*sqrt(x)/sqrt(a))/(4*a**42*b**(29
/2)*x**(29/2) + 44*a**41*b**(31/2)*x**(31/2) + 220*a**40*b**(33/2
)*x**(33/2) + 660*a**39*b**(35/2)*x**(35/2) + 1320*a**38*b**(37/2
)*x**(37/2) + 1848*a**37*b**(39/2)*x**(39/2) + 1848*a**36*b**(41/
2)*x**(41/2) + 1320*a**35*b**(43/2)*x**(43/2) + 660*a**34*b**(45/
2)*x**(45/2) + 220*a**33*b**(47/2)*x**(47/2) + 44*a**32*b**(49/2)
*x**(49/2) + 4*a**31*b**(51/2)*x**(51/2)) + 495*a**(67/2)*b**20*x
(45/2)*atan(sqrt(b)*sqrt(x)/sqrt(a))/(4*a42*b**(29/2)*x**(29/
2) + 44*a**41*b**(31/2)*x**(31/2) + 220*a**40*b**(33/2)*x**(33/2)
 + 660*a**39*b**(35/2)*x**(35/2) + 1320*a**38*b**(37/2)*x**(37/2)
 + 1848*a**37*b**(39/2)*x**(39/2) + 1848*a**36*b**(41/2)*x**(41/2
) + 1320*a**35*b**(43/2)*x**(43/2) + 660*a**34*b**(45/2)*x**(45/2
) + 220*a**33*b**(47/2)*x**(47/2) + 44*a**32*b**(49/2)*x**(49/2)
+ 4*a**31*b**(51/2)*x**(51/2)) + 165*a**(65/2)*b**21*x**(47/2)*at
an(sqrt(b)*sqrt(x)/sqrt(a))/(4*a**42*b**(29/2)*x**(29/2) + 44*a**
41*b**(31/2)*x**(31/2) + 220*a**40*b**(33/2)*x**(33/2) + 660*a**3
9*b**(35/2)*x**(35/2) + 1320*a**38*b**(37/2)*x**(37/2) + 1848*a**
37*b**(39/2)*x**(39/2) + 1848*a**36*b**(41/2)*x**(41/2) + 1320*a*
*35*b**(43/2)*x**(43/2) + 660*a**34*b**(45/2)*x**(45/2) + 220*a**
33*b**(47/2)*x**(47/2) + 44*a**32*b**(49/2)*x**(49/2) + 4*a**31*b
(51/2)*x(51/2)) + 33*a**(63/2)*b**22*x**(49/2)*atan(sqrt(b)*s
qrt(x)/sqrt(a))/(4*a**42*b**(29/2)*x**(29/2) + 44*a**41*b**(31/2)
*x**(31/2) + 220*a**40*b**(33/2)*x**(33/2) + 660*a**39*b**(35/2)*
x**(35/2) + 1320*a**38*b**(37/2)*x**(37/2) + 1848*a**37*b**(39/2)
*x**(39/2) + 1848*a**36*b**(41/2)*x**(41/2) + 1320*a**35*b**(43/2
)*x**(43/2) + 660*a**34*b**(45/2)*x**(45/2) + 220*a**33*b**(47/2)
*x**(47/2) + 44*a**32*b**(49/2)*x**(49/2) + 4*a**31*b**(51/2)*x**
(51/2)) + 3*a**(61/2)*b**23*x**(51/2)*atan(sqrt(b)*sqrt(x)/sqrt(a

))/(4*a**42*b**(29/2)*x**(29/2) + 44*a**41*b**(31/2)*x**(31/2) +
220*a**40*b**(33/2)*x**(33/2) + 660*a**39*b**(35/2)*x**(35/2) + 1
320*a**38*b**(37/2)*x**(37/2) + 1848*a**37*b**(39/2)*x**(39/2) +
1848*a**36*b**(41/2)*x**(41/2) + 1320*a**35*b**(43/2)*x**(43/2) +
660*a**34*b**(45/2)*x**(45/2) + 220*a**33*b**(47/2)*x**(47/2) +
44*a**32*b**(49/2)*x**(49/2) + 4*a**31*b**(51/2)*x**(51/2)) - 3*a
41*b(25/2)*x**15/(4*a**42*b**(29/2)*x**(29/2) + 44*a**41*b**(
31/2)*x**(31/2) + 220*a**40*b**(33/2)*x**(33/2) + 660*a**39*b**(3
5/2)*x**(35/2) + 1320*a**38*b**(37/2)*x**(37/2) + 1848*a**37*b**(
39/2)*x**(39/2) + 1848*a**36*b**(41/2)*x**(41/2) + 1320*a**35*b**
(43/2)*x**(43/2) + 660*a**34*b**(45/2)*x**(45/2) + 220*a**33*b**(
47/2)*x**(47/2) + 44*a**32*b**(49/2)*x**(49/2) + 4*a**31*b**(51/2
)*x**(51/2)) - 32*a**40*b**(27/2)*x**16/(4*a**42*b**(29/2)*x**(29
/2) + 44*a**41*b**(31/2)*x**(31/2) + 220*a**40*b**(33/2)*x**(33/2
) + 660*a**39*b**(35/2)*x**(35/2) + 1320*a**38*b**(37/2)*x**(37/2
) + 1848*a**37*b**(39/2)*x**(39/2) + 1848*a**36*b**(41/2)*x**(41/
2) + 1320*a**35*b**(43/2)*x**(43/2) + 660*a**34*b**(45/2)*x**(45/
2) + 220*a**33*b**(47/2)*x**(47/2) + 44*a**32*b**(49/2)*x**(49/2)
 + 4*a**31*b**(51/2)*x**(51/2)) - 153*a**39*b**(29/2)*x**17/(4*a*
*42*b**(29/2)*x**(29/2) + 44*a**41*b**(31/2)*x**(31/2) + 220*a**4
0*b**(33/2)*x**(33/2) + 660*a**39*b**(35/2)*x**(35/2) + 1320*a**3
8*b**(37/2)*x**(37/2) + 1848*a**37*b**(39/2)*x**(39/2) + 1848*a**
36*b**(41/2)*x**(41/2) + 1320*a**35*b**(43/2)*x**(43/2) + 660*a**
34*b**(45/2)*x**(45/2) + 220*a**33*b**(47/2)*x**(47/2) + 44*a**32
*b**(49/2)*x**(49/2) + 4*a**31*b**(51/2)*x**(51/2)) - 432*a**38*b
(31/2)*x18/(4*a**42*b**(29/2)*x**(29/2) + 44*a**41*b**(31/2)*
x**(31/2) + 220*a**40*b**(33/2)*x**(33/2) + 660*a**39*b**(35/2)*x
(35/2) + 1320*a38*b**(37/2)*x**(37/2) + 1848*a**37*b**(39/2)*
x**(39/2) + 1848*a**36*b**(41/2)*x**(41/2) + 1320*a**35*b**(43/2)
*x**(43/2) + 660*a**34*b**(45/2)*x**(45/2) + 220*a**33*b**(47/2)*
x**(47/2) + 44*a**32*b**(49/2)*x**(49/2) + 4*a**31*b**(51/2)*x**(
51/2)) - 798*a**37*b**(33/2)*x**19/(4*a**42*b**(29/2)*x**(29/2) +
 44*a**41*b**(31/2)*x**(31/2) + 220*a**40*b**(33/2)*x**(33/2) + 6
60*a**39*b**(35/2)*x**(35/2) + 1320*a**38*b**(37/2)*x**(37/2) + 1
848*a**37*b**(39/2)*x**(39/2) + 1848*a**36*b**(41/2)*x**(41/2) +
1320*a**35*b**(43/2)*x**(43/2) + 660*a**34*b**(45/2)*x**(45/2) +
220*a**33*b**(47/2)*x**(47/2) + 44*a**32*b**(49/2)*x**(49/2) + 4*
a**31*b**(51/2)*x**(51/2)) - 1008*a**36*b**(35/2)*x**20/(4*a**42*
b**(29/2)*x**(29/2) + 44*a**41*b**(31/2)*x**(31/2) + 220*a**40*b*
*(33/2)*x**(33/2) + 660*a**39*b**(35/2)*x**(35/2) + 1320*a**38*b*
*(37/2)*x**(37/2) + 1848*a**37*b**(39/2)*x**(39/2) + 1848*a**36*b
(41/2)*x(41/2) + 1320*a**35*b**(43/2)*x**(43/2) + 660*a**34*b
(45/2)*x(45/2) + 220*a**33*b**(47/2)*x**(47/2) + 44*a**32*b**
(49/2)*x**(49/2) + 4*a**31*b**(51/2)*x**(51/2)) - 882*a**35*b**(3
7/2)*x**21/(4*a**42*b**(29/2)*x**(29/2) + 44*a**41*b**(31/2)*x**(
31/2) + 220*a**40*b**(33/2)*x**(33/2) + 660*a**39*b**(35/2)*x**(3
5/2) + 1320*a**38*b**(37/2)*x**(37/2) + 1848*a**37*b**(39/2)*x**(
39/2) + 1848*a**36*b**(41/2)*x**(41/2) + 1320*a**35*b**(43/2)*x**
(43/2) + 660*a**34*b**(45/2)*x**(45/2) + 220*a**33*b**(47/2)*x**(
47/2) + 44*a**32*b**(49/2)*x**(49/2) + 4*a**31*b**(51/2)*x**(51/2
)) - 528*a**34*b**(39/2)*x**22/(4*a**42*b**(29/2)*x**(29/2) + 44*
a**41*b**(31/2)*x**(31/2) + 220*a**40*b**(33/2)*x**(33/2) + 660*a
39*b(35/2)*x**(35/2) + 1320*a**38*b**(37/2)*x**(37/2) + 1848*
a**37*b**(39/2)*x**(39/2) + 1848*a**36*b**(41/2)*x**(41/2) + 1320
*a**35*b**(43/2)*x**(43/2) + 660*a**34*b**(45/2)*x**(45/2) + 220*
a**33*b**(47/2)*x**(47/2) + 44*a**32*b**(49/2)*x**(49/2) + 4*a**3
1*b**(51/2)*x**(51/2)) - 207*a**33*b**(41/2)*x**23/(4*a**42*b**(2
9/2)*x**(29/2) + 44*a**41*b**(31/2)*x**(31/2) + 220*a**40*b**(33/
2)*x**(33/2) + 660*a**39*b**(35/2)*x**(35/2) + 1320*a**38*b**(37/
2)*x**(37/2) + 1848*a**37*b**(39/2)*x**(39/2) + 1848*a**36*b**(41
/2)*x**(41/2) + 1320*a**35*b**(43/2)*x**(43/2) + 660*a**34*b**(45
/2)*x**(45/2) + 220*a**33*b**(47/2)*x**(47/2) + 44*a**32*b**(49/2
)*x**(49/2) + 4*a**31*b**(51/2)*x**(51/2)) - 48*a**32*b**(43/2)*x
24/(4*a42*b**(29/2)*x**(29/2) + 44*a**41*b**(31/2)*x**(31/2)
+ 220*a**40*b**(33/2)*x**(33/2) + 660*a**39*b**(35/2)*x**(35/2) +
 1320*a**38*b**(37/2)*x**(37/2) + 1848*a**37*b**(39/2)*x**(39/2)
+ 1848*a**36*b**(41/2)*x**(41/2) + 1320*a**35*b**(43/2)*x**(43/2)
 + 660*a**34*b**(45/2)*x**(45/2) + 220*a**33*b**(47/2)*x**(47/2)
+ 44*a**32*b**(49/2)*x**(49/2) + 4*a**31*b**(51/2)*x**(51/2)) - 5
*a**31*b**(45/2)*x**25/(4*a**42*b**(29/2)*x**(29/2) + 44*a**41*b*
*(31/2)*x**(31/2) + 220*a**40*b**(33/2)*x**(33/2) + 660*a**39*b**
(35/2)*x**(35/2) + 1320*a**38*b**(37/2)*x**(37/2) + 1848*a**37*b*
*(39/2)*x**(39/2) + 1848*a**36*b**(41/2)*x**(41/2) + 1320*a**35*b
(43/2)*x(43/2) + 660*a**34*b**(45/2)*x**(45/2) + 220*a**33*b*

```
*(47/2)*x**(47/2) + 44*a**32*b**(49/2)*x**(49/2) + 4*a**31*b**(51
/2)*x**(51/2))) + B*(-15*a**(53/2)*b**9*x**(25/2)*atan(sqrt(b)*sq
rt(x)/sqrt(a))/(4*a**26*b**(25/2)*x**(25/2) + 12*a**25*b**(27/2)*
x**(27/2) + 12*a**24*b**(29/2)*x**(29/2) + 4*a**23*b**(31/2)*x**(
31/2)) - 45*a**(51/2)*b**10*x**(27/2)*atan(sqrt(b)*sqrt(x)/sqrt(a
))/(4*a**26*b**(25/2)*x**(25/2) + 12*a**25*b**(27/2)*x**(27/2) +
12*a**24*b**(29/2)*x**(29/2) + 4*a**23*b**(31/2)*x**(31/2)) - 45*
a**(49/2)*b**11*x**(29/2)*atan(sqrt(b)*sqrt(x)/sqrt(a))/(4*a**26*
b**(25/2)*x**(25/2) + 12*a**25*b**(27/2)*x**(27/2) + 12*a**24*b**
(29/2)*x**(29/2) + 4*a**23*b**(31/2)*x**(31/2)) - 15*a**(47/2)*b*
*12*x**(31/2)*atan(sqrt(b)*sqrt(x)/sqrt(a))/(4*a**26*b**(25/2)*x*
*(25/2) + 12*a**25*b**(27/2)*x**(27/2) + 12*a**24*b**(29/2)*x**(2
9/2) + 4*a**23*b**(31/2)*x**(31/2)) + 15*a**26*b**(19/2)*x**13/(4
*a**26*b**(25/2)*x**(25/2) + 12*a**25*b**(27/2)*x**(27/2) + 12*a*
*24*b**(29/2)*x**(29/2) + 4*a**23*b**(31/2)*x**(31/2)) + 40*a**25
*b**(21/2)*x**14/(4*a**26*b**(25/2)*x**(25/2) + 12*a**25*b**(27/2
)*x**(27/2) + 12*a**24*b**(29/2)*x**(29/2) + 4*a**23*b**(31/2)*x*
*(31/2)) + 33*a**24*b**(23/2)*x**15/(4*a**26*b**(25/2)*x**(25/2)
+ 12*a**25*b**(27/2)*x**(27/2) + 12*a**24*b**(29/2)*x**(29/2) + 4
*a**23*b**(31/2)*x**(31/2)) + 8*a**23*b**(25/2)*x**16/(4*a**26*b*
*(25/2)*x**(25/2) + 12*a**25*b**(27/2)*x**(27/2) + 12*a**24*b**(2
9/2)*x**(29/2) + 4*a**23*b**(31/2)*x**(31/2)))
```

GIAC/XCAS [A] time = 0.216167, size = 117, normalized size = 0.95

$$\frac{2\,B\sqrt{x}}{b^3} - \frac{3\,(5\,Ba - Ab)\arctan\left(\frac{b\sqrt{x}}{\sqrt{ab}}\right)}{4\,\sqrt{ab}b^3} + \frac{9\,Babx^{\frac{3}{2}} - 5\,Ab^2x^{\frac{3}{2}} + 7\,Ba^2\sqrt{x} - 3\,Aab\sqrt{x}}{4\,(bx + a)^2b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(3/2)/(b*x + a)^3,x, algorithm="giac")
```

```
[Out] 2*B*sqrt(x)/b^3 - 3/4*(5*B*a - A*b)*arctan(b*sqrt(x)/sqrt(a*b))/(
sqrt(a*b)*b^3) + 1/4*(9*B*a*b*x^(3/2) - 5*A*b^2*x^(3/2) + 7*B*a^2
*sqrt(x) - 3*A*a*b*sqrt(x))/((b*x + a)^2*b^3)
```

3.336 $\int \frac{\sqrt{x}(A+Bx)}{(a+bx)^3}\,dx$

Optimal. Leaf size=100

$$\frac{(3aB+Ab)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{4a^{3/2}b^{5/2}}-\frac{\sqrt{x}(3aB+Ab)}{4ab^2(a+bx)}+\frac{x^{3/2}(Ab-aB)}{2ab(a+bx)^2}$$

```
[Out] ((A*b - a*B)*x^(3/2))/(2*a*b*(a + b*x)^2) - ((A*b + 3*a*B)*Sqrt[x
])/(4*a*b^2*(a + b*x)) + ((A*b + 3*a*B)*ArcTan[(Sqrt[b]*Sqrt[x])/
Sqrt[a]])/(4*a^(3/2)*b^(5/2))
```

Rubi [A] time = 0.115351, antiderivative size = 100, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.222

$$\frac{(3aB+Ab)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{4a^{3/2}b^{5/2}}-\frac{\sqrt{x}(3aB+Ab)}{4ab^2(a+bx)}+\frac{x^{3/2}(Ab-aB)}{2ab(a+bx)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[x]*(A + B*x))/(a + b*x)^3,x]
```

```
[Out] ((A*b - a*B)*x^(3/2))/(2*a*b*(a + b*x)^2) - ((A*b + 3*a*B)*Sqrt[x
])/(4*a*b^2*(a + b*x)) + ((A*b + 3*a*B)*ArcTan[(Sqrt[b]*Sqrt[x])/
Sqrt[a]])/(4*a^(3/2)*b^(5/2))
```

Rubi in Sympy [A] time = 14.276, size = 85, normalized size = 0.85

$$\frac{x^{\frac{3}{2}}\left(Ab-Ba\right)}{2ab\left(a+bx\right)^2}-\frac{\sqrt{x}\left(Ab+3Ba\right)}{4ab^2\left(a+bx\right)}+\frac{(Ab+3Ba)\,\mathrm{atan}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{4a^{\frac{3}{2}}b^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*x**(1/2)/(b*x+a)**3,x)
```

```
[Out] x**(3/2)*(A*b - B*a)/(2*a*b*(a + b*x)**2) - sqrt(x)*(A*b + 3*B*a)
/(4*a*b**2*(a + b*x)) + (A*b + 3*B*a)*atan(sqrt(b)*sqrt(x)/sqrt(a
))/(4*a**(3/2)*b**(5/2))
```

Mathematica [A] time = 0.150251, size = 85, normalized size = 0.85

$$\frac{\frac{(3aB+Ab)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{a^{3/2}}+\frac{\sqrt{b}\sqrt{x}\left(-3a^2B-ab(A+5Bx)+Ab^2x\right)}{a(a+bx)^2}}{4b^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[x]*(A + B*x))/(a + b*x)^3,x]
```

```
[Out] ((Sqrt[b]*Sqrt[x]*(-3*a^2*B + A*b^2*x - a*b*(A + 5*B*x)))/(a*(a +
 b*x)^2) + ((A*b + 3*a*B)*ArcTan[(Sqrt[b]*Sqrt[x]])/Sqrt[a]])/a^(3
/2))/(4*b^(5/2))
```

Maple [A] time = 0.018, size = 94, normalized size = 0.9

$$2\frac{1}{(bx+a)^2}\left(1/8\,\frac{(Ab-5\,Ba)\,x^{3/2}}{ab}-1/8\,\frac{(Ab+3\,Ba)\,\sqrt{x}}{b^2}\right)+\frac{A}{4\,ab}\arctan\left(b\sqrt{x}\frac{1}{\sqrt{ab}}\right)\frac{1}{\sqrt{ab}}+\frac{3\,B}{4\,b^2}\arctan\left(b\sqrt{x}\frac{1}{\sqrt{ab}}\right)\frac{1}{\sqrt{ab}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*x^(1/2)/(b*x+a)^3,x)
```

```
[Out] 2*(1/8*(A*b-5*B*a)/a/b*x^(3/2)-1/8*(A*b+3*B*a)/b^2*x^(1/2))/(b*x+
a)^2+1/4/b/a/(a*b)^(1/2)*arctan(x^(1/2)*b/(a*b)^(1/2))*A+3/4/b^2/
(a*b)^(1/2)*arctan(x^(1/2)*b/(a*b)^(1/2))*B
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(x)/(b*x + a)^3,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.225934, size = 1, normalized size = 0.01

$$\left[-\frac{2\left(3\,Ba^2+Aab+\left(5\,Bab-Ab^2\right)x\right)\sqrt{-ab}\sqrt{x}-\left(3\,Ba^3+Aa^2b+\left(3\,Bab^2+Ab^3\right)x^2+2\left(3\,Ba^2b+Aab^2\right)x\right)\log\left(\frac{2\,ab\sqrt{x}+\sqrt{-ab}\,(bx-a)}{bx+a}\right)}{8\,(ab^4x^2+2\,a^2b^3x+a^3b^2)\sqrt{-ab}},\ -\frac{\left(3\,Ba^2+Aab+\left(5\,Bab-Ab^2\right)x\right)\sqrt{ab}\sqrt{x}+\left(3\,Ba^3+Aa^2b+\left(3\,Bab^2+Ab^3\right)x^2+2\left(3\,Ba^2b+Aab^2\right)x\right)\arctan\left(\frac{a}{\sqrt{ab}\sqrt{x}}\right)}{4\,(ab^4x^2+2\,a^2b^3x+a^3b^2)\sqrt{ab}}\right]$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(x)/(b*x + a)^3,x, algorithm="fricas")
```

```
[Out] [-1/8*(2*(3*B*a^2 + A*a*b + (5*B*a*b - A*b^2)*x)*sqrt(-a*b)*sqrt(
x) - (3*B*a^3 + A*a^2*b + (3*B*a*b^2 + A*b^3)*x^2 + 2*(3*B*a^2*b
+ A*a*b^2)*x)*log((2*a*b*sqrt(x) + sqrt(-a*b)*(b*x - a))/(b*x + a
)))/((a*b^4*x^2 + 2*a^2*b^3*x + a^3*b^2)*sqrt(-a*b)), -1/4*((3*B*
a^2 + A*a*b + (5*B*a*b - A*b^2)*x)*sqrt(a*b)*sqrt(x) + (3*B*a^3 +
 A*a^2*b + (3*B*a*b^2 + A*b^3)*x^2 + 2*(3*B*a^2*b + A*a*b^2)*x)*a
rctan(a/(sqrt(a*b)*sqrt(x))))/((a*b^4*x^2 + 2*a^2*b^3*x + a^3*b^2
)*sqrt(a*b))]
```

Sympy [A] time = 29.4178, size = 643, normalized size = 6.43

$$-\frac{10Aa^2\sqrt{x}}{8a^4b+16a^3b^2x+8a^2b^3x^2}-\frac{6Aax^{\frac{3}{2}}}{8a^4+16a^3bx+8a^2b^2x^2}+\frac{3Aa\sqrt{-\frac{1}{a^5b}}\log\left(-a^3\sqrt{-\frac{1}{a^5b}}+\sqrt{x}\right)}{8b}-\frac{3Aa\sqrt{-\frac{1}{a^5b}}\log\left(a^3\sqrt{-\frac{1}{a^5b}}+\sqrt{x}\right)}{8b}+\frac{2A\sqrt{x}}{2a^2b+2ab^2x}-\frac{A\sqrt{-\frac{1}{a^3b}}\log\left(-a^2\sqrt{-\frac{1}{a^3b}}+\sqrt{x}\right)}{2b}+\frac{A\sqrt{-\frac{1}{a^3b}}\log\left(a^2\sqrt{-\frac{1}{a^3b}}+\sqrt{x}\right)}{2b}+\frac{10Ba^3\sqrt{x}}{8a^4b^2+16a^3b^3x+8a^2b^4x^2}+\frac{6Ba^2x^{\frac{3}{2}}}{8a^4b+16a^3b^2x+8a^2b^3x^2}-\frac{3Ba^2\sqrt{-\frac{1}{a^5b}}\log\left(-a^3\sqrt{-\frac{1}{a^5b}}+\sqrt{x}\right)}{8b^2}+\frac{3Ba^2\sqrt{-\frac{1}{a^5b}}\log\left(a^3\sqrt{-\frac{1}{a^5b}}+\sqrt{x}\right)}{8b^2}-\frac{4Ba\sqrt{x}}{2a^2b^2+2ab^3x}+\frac{Ba\sqrt{-\frac{1}{a^3b}}\log\left(-a^2\sqrt{-\frac{1}{a^3b}}+\sqrt{x}\right)}{b^2}-\frac{Ba\sqrt{-\frac{1}{a^3b}}\log\left(a^2\sqrt{-\frac{1}{a^3b}}+\sqrt{x}\right)}{b^2}+\frac{2B\left(\begin{cases}\frac{\operatorname{atan}\left(\frac{\sqrt{x}}{\sqrt{\frac{a}{b}}}\right)}{b\sqrt{\frac{a}{b}}} & \text{for}\ \frac{a}{b}>0\\ -\frac{\operatorname{acoth}\left(\frac{\sqrt{x}}{\sqrt{-\frac{a}{b}}}\right)}{b\sqrt{-\frac{a}{b}}} & \text{for}\ x>-\frac{a}{b}\wedge\frac{a}{b}<0\\ -\frac{\operatorname{atanh}\left(\frac{\sqrt{x}}{\sqrt{-\frac{a}{b}}}\right)}{b\sqrt{-\frac{a}{b}}} & \text{for}\ x<-\frac{a}{b}\wedge\frac{a}{b}<0\end{cases}\right)}{b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x+A)*x**(1/2)/(b*x+a)**3,x)
```

```
[Out] -10*A*a**2*sqrt(x)/(8*a**4*b + 16*a**3*b**2*x + 8*a**2*b**3*x**2)
 - 6*A*a*x**(3/2)/(8*a**4 + 16*a**3*b*x + 8*a**2*b**2*x**2) + 3*A
*a*sqrt(-1/(a**5*b))*log(-a**3*sqrt(-1/(a**5*b)) + sqrt(x))/(8*b)
 - 3*A*a*sqrt(-1/(a**5*b))*log(a**3*sqrt(-1/(a**5*b)) + sqrt(x))/
(8*b) + 2*A*sqrt(x)/(2*a**2*b + 2*a*b**2*x) - A*sqrt(-1/(a**3*b))
*log(-a**2*sqrt(-1/(a**3*b)) + sqrt(x))/(2*b) + A*sqrt(-1/(a**3*b
))*log(a**2*sqrt(-1/(a**3*b)) + sqrt(x))/(2*b) + 10*B*a**3*sqrt(x
)/(8*a**4*b**2 + 16*a**3*b**3*x + 8*a**2*b**4*x**2) + 6*B*a**2*x*
*(3/2)/(8*a**4*b + 16*a**3*b**2*x + 8*a**2*b**3*x**2) - 3*B*a**2*
sqrt(-1/(a**5*b))*log(-a**3*sqrt(-1/(a**5*b)) + sqrt(x))/(8*b**2)
 + 3*B*a**2*sqrt(-1/(a**5*b))*log(a**3*sqrt(-1/(a**5*b)) + sqrt(x
))/(8*b**2) - 4*B*a*sqrt(x)/(2*a**2*b**2 + 2*a*b**3*x) + B*a*sqrt
(-1/(a**3*b))*log(-a**2*sqrt(-1/(a**3*b)) + sqrt(x))/b**2 - B*a*s
qrt(-1/(a**3*b))*log(a**2*sqrt(-1/(a**3*b)) + sqrt(x))/b**2 + 2*B
*Piecewise((atan(sqrt(x)/sqrt(a/b))/(b*sqrt(a/b)), a/b > 0), (-ac
oth(sqrt(x)/sqrt(-a/b))/(b*sqrt(-a/b)), (a/b < 0) & (x > -a/b)),
(-atanh(sqrt(x)/sqrt(-a/b))/(b*sqrt(-a/b)), (a/b < 0) & (x < -a/b
)))/b**2
```

GIAC/XCAS [A] time = 0.219045, size = 111, normalized size = 1.11

$$\frac{(3\,Ba+Ab)\arctan\left(\frac{b\sqrt{x}}{\sqrt{ab}}\right)}{4\,\sqrt{ab}ab^2}-\frac{5\,Babx^{\frac{3}{2}}-Ab^2x^{\frac{3}{2}}+3\,Ba^2\sqrt{x}+Aab\sqrt{x}}{4\,(bx+a)^2ab^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*sqrt(x)/(b*x + a)^3,x, algorithm="giac")
```

```
[Out] 1/4*(3*B*a + A*b)*arctan(b*sqrt(x)/sqrt(a*b))/(sqrt(a*b)*a*b^2) -
 1/4*(5*B*a*b*x^(3/2) - A*b^2*x^(3/2) + 3*B*a^2*sqrt(x) + A*a*b*s
qrt(x))/((b*x + a)^2*a*b^2)
```

3.337 $\int \frac{A+Bx}{\sqrt{x}(a+bx)^3} \, dx$

Optimal. Leaf size=100

$$\frac{(aB+3Ab)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{4a^{5/2}b^{3/2}}+\frac{\sqrt{x}(aB+3Ab)}{4a^2b(a+bx)}+\frac{\sqrt{x}(Ab-aB)}{2ab(a+bx)^2}$$

```
[Out] ((A*b - a*B)*Sqrt[x])/(2*a*b*(a + b*x)^2) + ((3*A*b + a*B)*Sqrt[x
])/(4*a^2*b*(a + b*x)) + ((3*A*b + a*B)*ArcTan[(Sqrt[b]*Sqrt[x])/
Sqrt[a]])/(4*a^(5/2)*b^(3/2))
```

Rubi [A] time = 0.113157, antiderivative size = 100, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.222

$$\frac{(aB+3Ab)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{4a^{5/2}b^{3/2}}+\frac{\sqrt{x}(aB+3Ab)}{4a^2b(a+bx)}+\frac{\sqrt{x}(Ab-aB)}{2ab(a+bx)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(Sqrt[x]*(a + b*x)^3),x]
```

```
[Out] ((A*b - a*B)*Sqrt[x])/(2*a*b*(a + b*x)^2) + ((3*A*b + a*B)*Sqrt[x
])/(4*a^2*b*(a + b*x)) + ((3*A*b + a*B)*ArcTan[(Sqrt[b]*Sqrt[x])/
Sqrt[a]])/(4*a^(5/2)*b^(3/2))
```

Rubi in Sympy [A] time = 14.177, size = 85, normalized size = 0.85

$$\frac{\sqrt{x}\,(Ab-Ba)}{2ab\,(a+bx)^2}+\frac{\sqrt{x}\,(3Ab+Ba)}{4a^2b\,(a+bx)}+\frac{(3Ab+Ba)\,\text{atan}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{4a^{\frac{5}{2}}b^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(b*x+a)**3/x**(1/2),x)
```

```
[Out] sqrt(x)*(A*b - B*a)/(2*a*b*(a + b*x)**2) + sqrt(x)*(3*A*b + B*a)/
(4*a**2*b*(a + b*x)) + (3*A*b + B*a)*atan(sqrt(b)*sqrt(x)/sqrt(a)
)/(4*a**(5/2)*b**(3/2))
```

Mathematica [A] time = 0.127217, size = 86, normalized size = 0.86

$$\frac{(aB+3Ab)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{4a^{5/2}b^{3/2}}+\frac{\sqrt{x}\left(a^2(-B)+ab(5A+Bx)+3Ab^2x\right)}{4a^2b(a+bx)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(Sqrt[x]*(a + b*x)^3),x]
```

```
[Out] (Sqrt[x]*(-(a^2*B) + 3*A*b^2*x + a*b*(5*A + B*x)))/(4*a^2*b*(a +
b*x)^2) + ((3*A*b + a*B)*ArcTan[(Sqrt[b]*Sqrt[x])/Sqrt[a]])/(4*a^
(5/2)*b^(3/2))
```

Maple [A] time = 0.019, size = 95, normalized size = 1.

$$2\,\frac{1}{(bx+a)^2}\left(1/8\,\frac{(3\,Ab+Ba)\,x^{3/2}}{a^2}+1/8\,\frac{(5\,Ab-Ba)\,\sqrt{x}}{ab}\right)+\frac{3\,A}{4\,a^2}\arctan\left(b\sqrt{x}\frac{1}{\sqrt{ab}}\right)\frac{1}{\sqrt{ab}}+\frac{B}{4\,ab}\arctan\left(b\sqrt{x}\frac{1}{\sqrt{ab}}\right)\frac{1}{\sqrt{ab}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(b*x+a)^3/x^(1/2),x)
```

```
[Out] 2*(1/8*(3*A*b+B*a)/a^2*x^(3/2)+1/8*(5*A*b-B*a)/a/b*x^(1/2))/(b*x+
a)^2+3/4/a^2/(a*b)^(1/2)*arctan(x^(1/2)*b/(a*b)^(1/2))*A+1/4/a/b/
(a*b)^(1/2)*arctan(x^(1/2)*b/(a*b)^(1/2))*B
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^3*sqrt(x)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.229633, size = 1, normalized size = 0.01

$$\left[-\frac{2\left(Ba^2-5\,Aab-\left(Bab+3\,Ab^2\right)x\right)\sqrt{-ab}\sqrt{x}-\left(Ba^3+3\,Aa^2b+\left(Bab^2+3\,Ab^3\right)x^2+2\left(Ba^2b+3\,Aab^2\right)x\right)\log\left(\frac{2\,ab\sqrt{x}+\sqrt{-ab}(bx-a)}{bx+a}\right)}{8\left(a^2b^3x^2+2\,a^3b^2x+a^4b\right)\sqrt{-ab}},\ -\frac{\left(Ba^2-5\,Aab-\left(Bab+3\,Ab^2\right)x\right)\sqrt{ab}\sqrt{x}+\left(Ba^3+3\,Aa^2b+\left(Bab^2+3\,Ab^3\right)x^2+2\left(Ba^2b+3\,Aab^2\right)x\right)\arctan\left(\frac{a}{\sqrt{ab}\sqrt{x}}\right)}{4\left(a^2b^3x^2+2\,a^3b^2x+a^4b\right)\sqrt{ab}}\right]$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^3*sqrt(x)),x, algorithm="fricas")
```

```
[Out] [-1/8*(2*(B*a^2 - 5*A*a*b - (B*a*b + 3*A*b^2)*x)*sqrt(-a*b)*sqrt(
x) - (B*a^3 + 3*A*a^2*b + (B*a*b^2 + 3*A*b^3)*x^2 + 2*(B*a^2*b +
3*A*a*b^2)*x)*log((2*a*b*sqrt(x) + sqrt(-a*b)*(b*x - a))/(b*x + a
)))/((a^2*b^3*x^2 + 2*a^3*b^2*x + a^4*b)*sqrt(-a*b)), -1/4*((B*a^
2 - 5*A*a*b - (B*a*b + 3*A*b^2)*x)*sqrt(a*b)*sqrt(x) + (B*a^3 + 3
*A*a^2*b + (B*a*b^2 + 3*A*b^3)*x^2 + 2*(B*a^2*b + 3*A*a*b^2)*x)*a
rctan(a/(sqrt(a*b)*sqrt(x))))/((a^2*b^3*x^2 + 2*a^3*b^2*x + a^4*b
)*sqrt(a*b))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(b*x+a)**3/x**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.212181, size = 111, normalized size = 1.11

$$\frac{(Ba + 3\,Ab)\arctan\left(\frac{b\sqrt{x}}{\sqrt{ab}}\right)}{4\,\sqrt{ab}a^2b} + \frac{Babx^{\frac{3}{2}} + 3\,Ab^2x^{\frac{3}{2}} - Ba^2\sqrt{x} + 5\,Aab\sqrt{x}}{4\,(bx+a)^2a^2b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^3*sqrt(x)),x, algorithm="giac")
```

```
[Out] 1/4*(B*a + 3*A*b)*arctan(b*sqrt(x)/sqrt(a*b))/(sqrt(a*b)*a^2*b) +
 1/4*(B*a*b*x^(3/2) + 3*A*b^2*x^(3/2) - B*a^2*sqrt(x) + 5*A*a*b*s
qrt(x))/((b*x + a)^2*a^2*b)
```

3.338 $\int \frac{A+Bx}{x^{3/2}(a+bx)^3}\,dx$

Optimal. Leaf size=126

$$-\frac{3(5Ab-aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{4a^{7/2}\sqrt{b}}-\frac{3(5Ab-aB)}{4a^3b\sqrt{x}}+\frac{5Ab-aB}{4a^2b\sqrt{x}(a+bx)}+\frac{Ab-aB}{2ab\sqrt{x}(a+bx)^2}$$

```
[Out] (-3*(5*A*b - a*B))/(4*a^3*b*Sqrt[x]) + (A*b - a*B)/(2*a*b*Sqrt[x]
*(a + b*x)^2) + (5*A*b - a*B)/(4*a^2*b*Sqrt[x]*(a + b*x)) - (3*(5
*A*b - a*B)*ArcTan[(Sqrt[b]*Sqrt[x])/Sqrt[a]])/(4*a^(7/2)*Sqrt[b]
)
```

Rubi [A] time = 0.142911, antiderivative size = 126, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.278

$$-\frac{3(5Ab-aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{4a^{7/2}\sqrt{b}}-\frac{3(5Ab-aB)}{4a^3b\sqrt{x}}+\frac{5Ab-aB}{4a^2b\sqrt{x}(a+bx)}+\frac{Ab-aB}{2ab\sqrt{x}(a+bx)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^(3/2)*(a + b*x)^3),x]
```

```
[Out] (-3*(5*A*b - a*B))/(4*a^3*b*Sqrt[x]) + (A*b - a*B)/(2*a*b*Sqrt[x]
*(a + b*x)^2) + (5*A*b - a*B)/(4*a^2*b*Sqrt[x]*(a + b*x)) - (3*(5
*A*b - a*B)*ArcTan[(Sqrt[b]*Sqrt[x])/Sqrt[a]])/(4*a^(7/2)*Sqrt[b]
)
```

Rubi in Sympy [A] time = 17.6048, size = 109, normalized size = 0.87

$$\frac{Ab-Ba}{2ab\sqrt{x}\,(a+bx)^2}+\frac{5Ab-Ba}{4a^2b\sqrt{x}\,(a+bx)}-\frac{3\,(5Ab-Ba)}{4a^3b\sqrt{x}}-\frac{3\,(5Ab-Ba)\,\mathrm{atan}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{4a^{\frac{7}{2}}\sqrt{b}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**(3/2)/(b*x+a)**3,x)
```

```
[Out] (A*b - B*a)/(2*a*b*sqrt(x)*(a + b*x)**2) + (5*A*b - B*a)/(4*a**2*
b*sqrt(x)*(a + b*x)) - 3*(5*A*b - B*a)/(4*a**3*b*sqrt(x)) - 3*(5*
A*b - B*a)*atan(sqrt(b)*sqrt(x)/sqrt(a))/(4*a**(7/2)*sqrt(b))
```

Mathematica [A] time = 0.115873, size = 93, normalized size = 0.74

$$\frac{3(aB-5Ab)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{4a^{7/2}\sqrt{b}}+\frac{a^2(5Bx-8A)+abx(3Bx-25A)-15Ab^2x^2}{4a^3\sqrt{x}(a+bx)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^(3/2)*(a + b*x)^3),x]
```

```
[Out] (-15*A*b^2*x^2 + a*b*x*(-25*A + 3*B*x) + a^2*(-8*A + 5*B*x))/(4*a
^3*Sqrt[x]*(a + b*x)^2) + (3*(-5*A*b + a*B)*ArcTan[(Sqrt[b]*Sqrt[
x])/Sqrt[a]])/(4*a^(7/2)*Sqrt[b])
```

Maple [A] time = 0.024, size = 125, normalized size = 1.

$$-2\frac{A}{a^{3}\sqrt{x}}-\frac{7\,b^{2}A}{4\,a^{3}\,(bx+a)^{2}}x^{\frac{3}{2}}+\frac{3\,Bb}{4\,a^{2}\,(bx+a)^{2}}x^{\frac{3}{2}}-\frac{9\,Ab}{4\,a^{2}\,(bx+a)^{2}}\sqrt{x}+\frac{5\,B}{4\,a\,(bx+a)^{2}}\sqrt{x}-\frac{15\,Ab}{4\,a^{3}}\arctan\left(b\sqrt{x}\frac{1}{\sqrt{ab}}\right)\frac{1}{\sqrt{ab}}+\frac{3\,B}{4\,a^{2}}\arctan\left(b\sqrt{x}\frac{1}{\sqrt{ab}}\right)\frac{1}{\sqrt{ab}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^(3/2)/(b*x+a)^3,x)
```

```
[Out] -2*A/a^3/x^(1/2)-7/4/a^3/(b*x+a)^2*x^(3/2)*b^2*A+3/4/a^2/(b*x+a)^
2*x^(3/2)*B*b-9/4/a^2/(b*x+a)^2*A*x^(1/2)*b+5/4/a/(b*x+a)^2*B*x^(
1/2)-15/4/a^3/(a*b)^(1/2)*arctan(x^(1/2)*b/(a*b)^(1/2))*A*b+3/4/a
^2/(a*b)^(1/2)*arctan(x^(1/2)*b/(a*b)^(1/2))*B
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^3*x^(3/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.227963, size = 1, normalized size = 0.01

$$\left[-\frac{3\left(Ba^{3}-5\,Aa^{2}b+\left(Bab^{2}-5\,Ab^{3}\right)x^{2}+2\left(Ba^{2}b-5\,Aab^{2}\right)x\right)\sqrt{x}\log\left(-\frac{2\,ab\sqrt{x}-\sqrt{-ab}(bx-a)}{bx+a}\right)+2\left(8\,Aa^{2}-3\left(Bab-5\,Ab^{2}\right)x^{2} \cdots\right.}{8\left(a^{3}b^{2}x^{2}+2\,a^{4}bx+a^{5}\right)\sqrt{-ab}\sqrt{x}}\right.$$

$$-\frac{3\left(Ba^{3}-5\,Aa^{2}b+\left(Bab^{2}-5\,Ab^{3}\right)x^{2}+2\left(Ba^{2}b-5\,Aab^{2}\right)x\right)\sqrt{x}\arctan\left(\frac{a}{\sqrt{ab}\sqrt{x}}\right)+\left(8\,Aa^{2}-3\left(Bab-5\,Ab^{2}\right)x^{2}-5\left(Ba^{2}-\cdots\right.\right.}{4\left(a^{3}b^{2}x^{2}+2\,a^{4}bx+a^{5}\right)\sqrt{ab}\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^3*x^(3/2)),x, algorithm="fricas")
```

```
[Out] [-1/8*(3*(B*a^3 - 5*A*a^2*b + (B*a*b^2 - 5*A*b^3)*x^2 + 2*(B*a^2*
b - 5*A*a*b^2)*x)*sqrt(x)*log(-(2*a*b*sqrt(x) - sqrt(-a*b)*(b*x -
 a))/(b*x + a)) + 2*(8*A*a^2 - 3*(B*a*b - 5*A*b^2)*x^2 - 5*(B*a^2
 - 5*A*a*b)*x)*sqrt(-a*b))/((a^3*b^2*x^2 + 2*a^4*b*x + a^5)*sqrt(
-a*b)*sqrt(x)), -1/4*(3*(B*a^3 - 5*A*a^2*b + (B*a*b^2 - 5*A*b^3)*
x^2 + 2*(B*a^2*b - 5*A*a*b^2)*x)*sqrt(x)*arctan(a/(sqrt(a*b)*sqrt
(x))) + (8*A*a^2 - 3*(B*a*b - 5*A*b^2)*x^2 - 5*(B*a^2 - 5*A*a*b)*
x)*sqrt(a*b))/((a^3*b^2*x^2 + 2*a^4*b*x + a^5)*sqrt(a*b)*sqrt(x))
]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**(3/2)/(b*x+a)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.213831, size = 116, normalized size = 0.92

$$\frac{3\,(Ba-5\,Ab)\arctan\left(\frac{b\sqrt{x}}{\sqrt{ab}}\right)}{4\,\sqrt{ab}a^3}-\frac{2\,A}{a^3\sqrt{x}}+\frac{3\,Babx^{\frac{3}{2}}-7\,Ab^2x^{\frac{3}{2}}+5\,Ba^2\sqrt{x}-9\,Aab\sqrt{x}}{4\,(bx+a)^2a^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^3*x^(3/2)),x, algorithm="giac")
```

```
[Out] 3/4*(B*a - 5*A*b)*arctan(b*sqrt(x)/sqrt(a*b))/(sqrt(a*b)*a^3) - 2
*A/(a^3*sqrt(x)) + 1/4*(3*B*a*b*x^(3/2) - 7*A*b^2*x^(3/2) + 5*B*a
^2*sqrt(x) - 9*A*a*b*sqrt(x))/((b*x + a)^2*a^3)
```

3.339 $\int \frac{A+Bx}{x^{5/2}(a+bx)^3}\,dx$

Optimal. Leaf size=147

$$\frac{5\sqrt{b}(7Ab-3aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{4a^{9/2}}+\frac{5(7Ab-3aB)}{4a^4\sqrt{x}}-\frac{5(7Ab-3aB)}{12a^3bx^{3/2}}+\frac{7Ab-3aB}{4a^2bx^{3/2}(a+bx)}+\frac{Ab-aB}{2abx^{3/2}(a+bx)^2}$$

```
[Out] (-5*(7*A*b - 3*a*B))/(12*a^3*b*x^(3/2)) + (5*(7*A*b - 3*a*B))/(4*
a^4*Sqrt[x]) + (A*b - a*B)/(2*a*b*x^(3/2)*(a + b*x)^2) + (7*A*b -
 3*a*B)/(4*a^2*b*x^(3/2)*(a + b*x)) + (5*Sqrt[b]*(7*A*b - 3*a*B)*
ArcTan[(Sqrt[b]*Sqrt[x])/Sqrt[a]])/(4*a^(9/2))
```

Rubi [A] time = 0.178685, antiderivative size = 147, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.278

$$\frac{5\sqrt{b}(7Ab-3aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{4a^{9/2}}+\frac{5(7Ab-3aB)}{4a^4\sqrt{x}}-\frac{5(7Ab-3aB)}{12a^3bx^{3/2}}+\frac{7Ab-3aB}{4a^2bx^{3/2}(a+bx)}+\frac{Ab-aB}{2abx^{3/2}(a+bx)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^(5/2)*(a + b*x)^3),x]
```

```
[Out] (-5*(7*A*b - 3*a*B))/(12*a^3*b*x^(3/2)) + (5*(7*A*b - 3*a*B))/(4*
a^4*Sqrt[x]) + (A*b - a*B)/(2*a*b*x^(3/2)*(a + b*x)^2) + (7*A*b -
 3*a*B)/(4*a^2*b*x^(3/2)*(a + b*x)) + (5*Sqrt[b]*(7*A*b - 3*a*B)*
ArcTan[(Sqrt[b]*Sqrt[x])/Sqrt[a]])/(4*a^(9/2))
```

Rubi in Sympy [A] time = 21.3654, size = 133, normalized size = 0.9

$$\frac{Ab-Ba}{2abx^{\frac{3}{2}}\left(a+bx\right)^2}+\frac{7Ab-3Ba}{4a^2bx^{\frac{3}{2}}\left(a+bx\right)}-\frac{5\left(7Ab-3Ba\right)}{12a^3bx^{\frac{3}{2}}}+\frac{5\left(7Ab-3Ba\right)}{4a^4\sqrt{x}}+\frac{5\sqrt{b}\left(7Ab-3Ba\right)\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{4a^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**(5/2)/(b*x+a)**3,x)
```

```
[Out] (A*b - B*a)/(2*a*b*x**(3/2)*(a + b*x)**2) + (7*A*b - 3*B*a)/(4*a*
*2*b*x**(3/2)*(a + b*x)) - 5*(7*A*b - 3*B*a)/(12*a**3*b*x**(3/2))
 + 5*(7*A*b - 3*B*a)/(4*a**4*sqrt(x)) + 5*sqrt(b)*(7*A*b - 3*B*a)
*atan(sqrt(b)*sqrt(x)/sqrt(a))/(4*a**(9/2))
```

Mathematica [A] time = 0.17563, size = 112, normalized size = 0.76

$$\frac{5\sqrt{b}(7Ab-3aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{4a^{9/2}}+\frac{-8a^3(A+3Bx)+a^2bx(56A-75Bx)+5ab^2x^2(35A-9Bx)+105Ab^3x^3}{12a^4x^{3/2}(a+bx)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^(5/2)*(a + b*x)^3),x]
```

```
[Out] (105*A*b^3*x^3 + a^2*b*x*(56*A - 75*B*x) + 5*a*b^2*x^2*(35*A - 9*
B*x) - 8*a^3*(A + 3*B*x))/(12*a^4*x^(3/2)*(a + b*x)^2) + (5*Sqrt[
b]*(7*A*b - 3*a*B)*ArcTan[(Sqrt[b]*Sqrt[x])/Sqrt[a]])/(4*a^(9/2))
```

Maple [A] time = 0.027, size = 152, normalized size = 1.

$$-\frac{2A}{3a^3}x^{-\frac{3}{2}}+6\frac{Ab}{\sqrt{x}a^4}-2\frac{B}{\sqrt{x}a^3}+\frac{11b^3A}{4a^4(bx+a)^2}x^{\frac{3}{2}}-\frac{7b^2B}{4a^3(bx+a)^2}x^{\frac{3}{2}}+\frac{13b^2A}{4a^3(bx+a)^2}\sqrt{x}-\frac{9Bb}{4a^2(bx+a)^2}\sqrt{x}+\frac{35b^2A}{4a^4}\arctan\left(b\sqrt{x}\frac{1}{\sqrt{ab}}\right)\frac{1}{\sqrt{ab}}-\frac{15Bb}{4a^3}\arctan\left(b\sqrt{x}\frac{1}{\sqrt{ab}}\right)\frac{1}{\sqrt{ab}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^(5/2)/(b*x+a)^3,x)
```

```
[Out] -2/3*A/a^3/x^(3/2)+6/x^(1/2)/a^4*A*b-2/x^(1/2)/a^3*B+11/4/a^4*b^3
/(b*x+a)^2*x^(3/2)*A-7/4/a^3*b^2/(b*x+a)^2*x^(3/2)*B+13/4/a^3*b^2
/(b*x+a)^2*A*x^(1/2)-9/4/a^2*b/(b*x+a)^2*B*x^(1/2)+35/4/a^4*b^2/(
a*b)^(1/2)*arctan(x^(1/2)*b/(a*b)^(1/2))*A-15/4/a^3*b/(a*b)^(1/2)
*arctan(x^(1/2)*b/(a*b)^(1/2))*B
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^3*x^(5/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.226128, size = 1, normalized size = 0.01

$$\left[-\frac{16Aa^3+30\left(3Bab^2-7Ab^3\right)x^3+50\left(3Ba^2b-7Aab^2\right)x^2+15\left(\left(3Bab^2-7Ab^3\right)x^3+2\left(3Ba^2b-7Aab^2\right)x^2+\left(3Ba^3-\cdots\right.\right.}{24\left(a^4b^2x^3+2a^5bx^2+a^6x\right)\sqrt{x}}\right.$$

$$-\frac{8Aa^3+15\left(3Bab^2-7Ab^3\right)x^3+25\left(3Ba^2b-7Aab^2\right)x^2-15\left(\left(3Bab^2-7Ab^3\right)x^3+2\left(3Ba^2b-7Aab^2\right)x^2+\left(3Ba^3-7\cdots\right.\right.}{12\left(a^4b^2x^3+2a^5bx^2+a^6x\right)\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^3*x^(5/2)),x, algorithm="fricas")
```

```
[Out] [-1/24*(16*A*a^3 + 30*(3*B*a*b^2 - 7*A*b^3)*x^3 + 50*(3*B*a^2*b -
 7*A*a*b^2)*x^2 + 15*((3*B*a*b^2 - 7*A*b^3)*x^3 + 2*(3*B*a^2*b -
7*A*a*b^2)*x^2 + (3*B*a^3 - 7*A*a^2*b)*x)*sqrt(x)*sqrt(-b/a)*log(
(b*x + 2*a*sqrt(x)*sqrt(-b/a) - a)/(b*x + a)) + 16*(3*B*a^3 - 7*A
*a^2*b)*x)/((a^4*b^2*x^3 + 2*a^5*b*x^2 + a^6*x)*sqrt(x)), -1/12*(
8*A*a^3 + 15*(3*B*a*b^2 - 7*A*b^3)*x^3 + 25*(3*B*a^2*b - 7*A*a*b^
2)*x^2 - 15*((3*B*a*b^2 - 7*A*b^3)*x^3 + 2*(3*B*a^2*b - 7*A*a*b^2
)*x^2 + (3*B*a^3 - 7*A*a^2*b)*x)*sqrt(x)*sqrt(b/a)*arctan(a*sqrt(
b/a)/(b*sqrt(x))) + 8*(3*B*a^3 - 7*A*a^2*b)*x)/((a^4*b^2*x^3 + 2*
a^5*b*x^2 + a^6*x)*sqrt(x))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**(5/2)/(b*x+a)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A]   time = 0.216221, size = 146, normalized size = 0.99

$$-\frac{5\left(3\,Bab-7\,Ab^{2}\right)\arctan\left(\frac{b\sqrt{x}}{\sqrt{ab}}\right)}{4\,\sqrt{ab}a^{4}}-\frac{2\left(3\,Bax-9\,Abx+Aa\right)}{3\,a^{4}x^{\frac{3}{2}}}-\frac{7\,Bab^{2}x^{\frac{3}{2}}-11\,Ab^{3}x^{\frac{3}{2}}+9\,Ba^{2}b\sqrt{x}-13\,Aab^{2}\sqrt{x}}{4\left(bx+a\right)^{2}a^{4}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^3*x^(5/2)),x, algorithm="giac")
```

```
[Out] -5/4*(3*B*a*b - 7*A*b^2)*arctan(b*sqrt(x)/sqrt(a*b))/(sqrt(a*b)*a
^4) - 2/3*(3*B*a*x - 9*A*b*x + A*a)/(a^4*x^(3/2)) - 1/4*(7*B*a*b^
2*x^(3/2) - 11*A*b^3*x^(3/2) + 9*B*a^2*b*sqrt(x) - 13*A*a*b^2*sqr
t(x))/((b*x + a)^2*a^4)
```

3.340 $\int \frac{A+Bx}{x^{7/2}(a+bx)^3}\,dx$

Optimal. Leaf size=169

$$-\frac{7b^{3/2}(9Ab-5aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{4a^{11/2}}-\frac{7b(9Ab-5aB)}{4a^5\sqrt{x}}+\frac{7(9Ab-5aB)}{12a^4x^{3/2}}-\frac{7(9Ab-5aB)}{20a^3bx^{5/2}}+\frac{9Ab-5aB}{4a^2bx^{5/2}(a+bx)}+\frac{Ab-aB}{2abx^{5/2}(a+bx)^2}$$

```
[Out] (-7*(9*A*b - 5*a*B))/(20*a^3*b*x^(5/2)) + (7*(9*A*b - 5*a*B))/(12
*a^4*x^(3/2)) - (7*b*(9*A*b - 5*a*B))/(4*a^5*Sqrt[x]) + (A*b - a*
B)/(2*a*b*x^(5/2)*(a + b*x)^2) + (9*A*b - 5*a*B)/(4*a^2*b*x^(5/2)
*(a + b*x)) - (7*b^(3/2)*(9*A*b - 5*a*B)*ArcTan[(Sqrt[b]*Sqrt[x])
/Sqrt[a]])/(4*a^(11/2))
```

Rubi [A] time = 0.213976, antiderivative size = 169, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.278$

$$-\frac{7b^{3/2}(9Ab-5aB)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{4a^{11/2}}-\frac{7b(9Ab-5aB)}{4a^5\sqrt{x}}+\frac{7(9Ab-5aB)}{12a^4x^{3/2}}-\frac{7(9Ab-5aB)}{20a^3bx^{5/2}}+\frac{9Ab-5aB}{4a^2bx^{5/2}(a+bx)}+\frac{Ab-aB}{2abx^{5/2}(a+bx)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^(7/2)*(a + b*x)^3),x]
```

```
[Out] (-7*(9*A*b - 5*a*B))/(20*a^3*b*x^(5/2)) + (7*(9*A*b - 5*a*B))/(12
*a^4*x^(3/2)) - (7*b*(9*A*b - 5*a*B))/(4*a^5*Sqrt[x]) + (A*b - a*
B)/(2*a*b*x^(5/2)*(a + b*x)^2) + (9*A*b - 5*a*B)/(4*a^2*b*x^(5/2)
*(a + b*x)) - (7*b^(3/2)*(9*A*b - 5*a*B)*ArcTan[(Sqrt[b]*Sqrt[x])
/Sqrt[a]])/(4*a^(11/2))
```

Rubi in Sympy [A] time = 26.3772, size = 156, normalized size = 0.92

$$\frac{Ab-Ba}{2abx^{\frac{5}{2}}(a+bx)^2}+\frac{9Ab-5Ba}{4a^2bx^{\frac{5}{2}}(a+bx)}-\frac{7(9Ab-5Ba)}{20a^3bx^{\frac{5}{2}}}+\frac{7(9Ab-5Ba)}{12a^4x^{\frac{3}{2}}}-\frac{7b(9Ab-5Ba)}{4a^5\sqrt{x}}-\frac{7b^{\frac{3}{2}}(9Ab-5Ba)\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{4a^{\frac{11}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**(7/2)/(b*x+a)**3,x)
```

```
[Out] (A*b - B*a)/(2*a*b*x**(5/2)*(a + b*x)**2) + (9*A*b - 5*B*a)/(4*a*
*2*b*x**(5/2)*(a + b*x)) - 7*(9*A*b - 5*B*a)/(20*a**3*b*x**(5/2))
 + 7*(9*A*b - 5*B*a)/(12*a**4*x**(3/2)) - 7*b*(9*A*b - 5*B*a)/(4*
a**5*sqrt(x)) - 7*b**(3/2)*(9*A*b - 5*B*a)*atan(sqrt(b)*sqrt(x)/s
qrt(a))/(4*a**(11/2))
```

Mathematica [A] time = 0.192197, size = 133, normalized size = 0.79

$$\frac{7b^{3/2}(5aB-9Ab)\tan^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{4a^{11/2}}+\frac{-8a^4(3A+5Bx)+8a^3bx(9A+35Bx)+7a^2b^2x^2(125Bx-72A)+525ab^3x^3(Bx-3A)-945Ab^4x^4}{60a^5x^{5/2}(a+bx)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^(7/2)*(a + b*x)^3),x]
```

```
[Out] (-945*A*b^4*x^4 + 525*a*b^3*x^3*(-3*A + B*x) - 8*a^4*(3*A + 5*B*x
) + 8*a^3*b*x*(9*A + 35*B*x) + 7*a^2*b^2*x^2*(-72*A + 125*B*x))/(
60*a^5*x^(5/2)*(a + b*x)^2) + (7*b^(3/2)*(-9*A*b + 5*a*B)*ArcTan[
(Sqrt[b]*Sqrt[x])/Sqrt[a]])/(4*a^(11/2))
```

Maple [A] time = 0.027, size = 178, normalized size = 1.1

$$-\frac{2A}{5a^3}x^{-\frac{5}{2}}+2\frac{Ab}{a^4x^{3/2}}-\frac{2B}{3a^3}x^{-\frac{3}{2}}-12\frac{b^2A}{a^5\sqrt{x}}+6\frac{Bb}{a^4\sqrt{x}}-\frac{15b^4A}{4a^5(bx+a)^2}x^{\frac{3}{2}}+\frac{11b^3B}{4a^4(bx+a)^2}x^{\frac{3}{2}}-\frac{17b^3A}{4a^4(bx+a)^2}\sqrt{x}+\frac{13b^2B}{4a^3(bx+a)^2}\sqrt{x}-\frac{63b^3A}{4a^5}\arctan\left(b\sqrt{x}\frac{1}{\sqrt{ab}}\right)\frac{1}{\sqrt{ab}}+\frac{35b^2B}{4a^4}\arctan\left(b\sqrt{x}\frac{1}{\sqrt{ab}}\right)\frac{1}{\sqrt{ab}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^(7/2)/(b*x+a)^3,x)
```

```
[Out] -2/5*A/a^3/x^(5/2)+2/a^4/x^(3/2)*A*b-2/3/a^3/x^(3/2)*B-12*b^2/a^5
/x^(1/2)*A+6*b/a^4/x^(1/2)*B-15/4/a^5*b^4/(b*x+a)^2*x^(3/2)*A+11/
4/a^4*b^3/(b*x+a)^2*x^(3/2)*B-17/4/a^4*b^3/(b*x+a)^2*A*x^(1/2)+13
/4/a^3*b^2/(b*x+a)^2*B*x^(1/2)-63/4/a^5*b^3/(a*b)^(1/2)*arctan(x^
(1/2)*b/(a*b)^(1/2))*A+35/4/a^4*b^2/(a*b)^(1/2)*arctan(x^(1/2)*b/
(a*b)^(1/2))*B
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^3*x^(7/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.223936, size = 1, normalized size = 0.01

$$\left[-\frac{48Aa^4-210\left(5Bab^3-9Ab^4\right)x^4-350\left(5Ba^2b^2-9Aab^3\right)x^3-112\left(5Ba^3b-9Aa^2b^2\right)x^2+105\left(\left(5Bab^3-9Ab^4\right)x^4+2\right.}{120\left(a^5b^2x^4+2a^6bx^3+a\right.}\right.$$

$$-\frac{24Aa^4-105\left(5Bab^3-9Ab^4\right)x^4-175\left(5Ba^2b^2-9Aab^3\right)x^3-56\left(5Ba^3b-9Aa^2b^2\right)x^2+105\left(\left(5Bab^3-9Ab^4\right)x^4+2\left(5\right.\right.}{60\left(a^5b^2x^4+2a^6bx^3+a^7x^2\right)\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^3*x^(7/2)),x, algorithm="fricas")
```

```
[Out] [-1/120*(48*A*a^4 - 210*(5*B*a*b^3 - 9*A*b^4)*x^4 - 350*(5*B*a^2*
b^2 - 9*A*a*b^3)*x^3 - 112*(5*B*a^3*b - 9*A*a^2*b^2)*x^2 + 105*((
5*B*a*b^3 - 9*A*b^4)*x^4 + 2*(5*B*a^2*b^2 - 9*A*a*b^3)*x^3 + (5*B
*a^3*b - 9*A*a^2*b^2)*x^2)*sqrt(x)*sqrt(-b/a)*log((b*x - 2*a*sqrt
(x)*sqrt(-b/a) - a)/(b*x + a)) + 16*(5*B*a^4 - 9*A*a^3*b)*x)/((a^
5*b^2*x^4 + 2*a^6*b*x^3 + a^7*x^2)*sqrt(x)), -1/60*(24*A*a^4 - 10
5*(5*B*a*b^3 - 9*A*b^4)*x^4 - 175*(5*B*a^2*b^2 - 9*A*a*b^3)*x^3 -
 56*(5*B*a^3*b - 9*A*a^2*b^2)*x^2 + 105*((5*B*a*b^3 - 9*A*b^4)*x^
4 + 2*(5*B*a^2*b^2 - 9*A*a*b^3)*x^3 + (5*B*a^3*b - 9*A*a^2*b^2)*x
^2)*sqrt(x)*sqrt(b/a)*arctan(a*sqrt(b/a)/(b*sqrt(x))) + 8*(5*B*a^
4 - 9*A*a^3*b)*x)/((a^5*b^2*x^4 + 2*a^6*b*x^3 + a^7*x^2)*sqrt(x))
]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**(7/2)/(b*x+a)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.215497, size = 182, normalized size = 1.08

$$\frac{7\left(5\,Bab^2-9\,Ab^3\right)\arctan\left(\frac{b\sqrt{x}}{\sqrt{ab}}\right)}{4\,\sqrt{ab}a^5}+\frac{11\,Bab^3x^{\frac{3}{2}}-15\,Ab^4x^{\frac{3}{2}}+13\,Ba^2b^2\sqrt{x}-17\,Aab^3\sqrt{x}}{4\,(bx+a)^2a^5}+\frac{2\left(45\,Babx^2-90\,Ab^2x^2-5\,Ba^2x+15\,Aabx-3\,Aa^2\right)}{15\,a^5x^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^3*x^(7/2)),x, algorithm="giac")
```

```
[Out] 7/4*(5*B*a*b^2 - 9*A*b^3)*arctan(b*sqrt(x)/sqrt(a*b))/(sqrt(a*b)*
a^5) + 1/4*(11*B*a*b^3*x^(3/2) - 15*A*b^4*x^(3/2) + 13*B*a^2*b^2*
sqrt(x) - 17*A*a*b^3*sqrt(x))/((b*x + a)^2*a^5) + 2/15*(45*B*a*b*
x^2 - 90*A*b^2*x^2 - 5*B*a^2*x + 15*A*a*b*x - 3*A*a^2)/(a^5*x^(5/
2))
```

3.341 $\int x^m(a+bx)^4(A+Bx)\,dx$

Optimal. Leaf size=125

$$\frac{a^4Ax^{m+1}}{m+1}+\frac{a^3x^{m+2}(aB+4Ab)}{m+2}+\frac{2a^2bx^{m+3}(2aB+3Ab)}{m+3}+\frac{b^3x^{m+5}(4aB+Ab)}{m+5}+\frac{2ab^2x^{m+4}(3aB+2Ab)}{m+4}+\frac{b^4Bx^{m+6}}{m+6}$$

```
[Out] (a^4*A*x^(1 + m))/(1 + m) + (a^3*(4*A*b + a*B)*x^(2 + m))/(2 + m)
 + (2*a^2*b*(3*A*b + 2*a*B)*x^(3 + m))/(3 + m) + (2*a*b^2*(2*A*b
+ 3*a*B)*x^(4 + m))/(4 + m) + (b^3*(A*b + 4*a*B)*x^(5 + m))/(5 +
m) + (b^4*B*x^(6 + m))/(6 + m)
```

Rubi [A] time = 0.184894, antiderivative size = 125, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$\frac{a^4Ax^{m+1}}{m+1}+\frac{a^3x^{m+2}(aB+4Ab)}{m+2}+\frac{2a^2bx^{m+3}(2aB+3Ab)}{m+3}+\frac{b^3x^{m+5}(4aB+Ab)}{m+5}+\frac{2ab^2x^{m+4}(3aB+2Ab)}{m+4}+\frac{b^4Bx^{m+6}}{m+6}$$

Antiderivative was successfully verified.

```
[In]  Int[x^m*(a + b*x)^4*(A + B*x),x]
```

```
[Out] (a^4*A*x^(1 + m))/(1 + m) + (a^3*(4*A*b + a*B)*x^(2 + m))/(2 + m)
 + (2*a^2*b*(3*A*b + 2*a*B)*x^(3 + m))/(3 + m) + (2*a*b^2*(2*A*b
+ 3*a*B)*x^(4 + m))/(4 + m) + (b^3*(A*b + 4*a*B)*x^(5 + m))/(5 +
m) + (b^4*B*x^(6 + m))/(6 + m)
```

Rubi in Sympy [A] time = 22.225, size = 117, normalized size = 0.94

$$\frac{Aa^4x^{m+1}}{m+1}+\frac{Bb^4x^{m+6}}{m+6}+\frac{a^3x^{m+2}\left(4Ab+Ba\right)}{m+2}+\frac{2a^2bx^{m+3}\left(3Ab+2Ba\right)}{m+3}+\frac{2ab^2x^{m+4}\left(2Ab+3Ba\right)}{m+4}+\frac{b^3x^{m+5}\left(Ab+4Ba\right)}{m+5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**m*(b*x+a)**4*(B*x+A),x)
```

```
[Out] A*a**4*x**(m + 1)/(m + 1) + B*b**4*x**(m + 6)/(m + 6) + a**3*x**(
m + 2)*(4*A*b + B*a)/(m + 2) + 2*a**2*b*x**(m + 3)*(3*A*b + 2*B*a
)/(m + 3) + 2*a*b**2*x**(m + 4)*(2*A*b + 3*B*a)/(m + 4) + b**3*x*
*(m + 5)*(A*b + 4*B*a)/(m + 5)
```

Mathematica [A] time = 0.170899, size = 115, normalized size = 0.92

$$x^m\left(\frac{a^4Ax}{m+1}+\frac{a^3x^2(aB+4Ab)}{m+2}+\frac{2a^2bx^3(2aB+3Ab)}{m+3}+\frac{b^3x^5(4aB+Ab)}{m+5}+\frac{2ab^2x^4(3aB+2Ab)}{m+4}+\frac{b^4Bx^6}{m+6}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^m*(a + b*x)^4*(A + B*x),x]
```

```
[Out] x^m*((a^4*A*x)/(1 + m) + (a^3*(4*A*b + a*B)*x^2)/(2 + m) + (2*a^2
*b*(3*A*b + 2*a*B)*x^3)/(3 + m) + (2*a*b^2*(2*A*b + 3*a*B)*x^4)/(
```

```
4 + m) + (b^3*(A*b + 4*a*B)*x^5)/(5 + m) + (b^4*B*x^6)/(6 + m))
```

Maple [B] time = 0.008, size = 722, normalized size = 5.8

$$\frac{x^{1+m} \left(Bb^4m^5x^5 + Ab^4m^5x^4 + 4\,Bab^3m^5x^4 + 15\,Bb^4m^4x^5 + 4\,Aab^3m^5x^3 + 16\,Ab^4m^4x^4 + 6\,Ba^2b^2m^5x^3 + 64\,Bab^3m^4x^4 + 85\,B\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^m*(b*x+a)^4*(B*x+A),x)
```

```
[Out] x^(1+m)*(B*b^4*m^5*x^5+A*b^4*m^5*x^4+4*B*a*b^3*m^5*x^4+15*B*b^4*m
^4*x^5+4*A*a*b^3*m^5*x^3+16*A*b^4*m^4*x^4+6*B*a^2*b^2*m^5*x^3+64*
B*a*b^3*m^4*x^4+85*B*b^4*m^3*x^5+6*A*a^2*b^2*m^5*x^2+68*A*a*b^3*m
^4*x^3+95*A*b^4*m^3*x^4+4*B*a^3*b*m^5*x^2+102*B*a^2*b^2*m^4*x^3+3
80*B*a*b^3*m^3*x^4+225*B*b^4*m^2*x^5+4*A*a^3*b*m^5*x+108*A*a^2*b^
2*m^4*x^2+428*A*a*b^3*m^3*x^3+260*A*b^4*m^2*x^4+B*a^4*m^5*x+72*B*
a^3*b*m^4*x^2+642*B*a^2*b^2*m^3*x^3+1040*B*a*b^3*m^2*x^4+274*B*b^
4*m*x^5+A*a^4*m^5+76*A*a^3*b*m^4*x+726*A*a^2*b^2*m^3*x^2+1228*A*a
*b^3*m^2*x^3+324*A*b^4*m*x^4+19*B*a^4*m^4*x+484*B*a^3*b*m^3*x^2+1
842*B*a^2*b^2*m^2*x^3+1296*B*a*b^3*m*x^4+120*B*b^4*x^5+20*A*a^4*m
^4+548*A*a^3*b*m^3*x+2232*A*a^2*b^2*m^2*x^2+1584*A*a*b^3*m*x^3+14
4*A*b^4*x^4+137*B*a^4*m^3*x+1488*B*a^3*b*m^2*x^2+2376*B*a^2*b^2*m
*x^3+576*B*a*b^3*x^4+155*A*a^4*m^3+1844*A*a^3*b*m^2*x+3048*A*a^2*
b^2*m*x^2+720*A*a*b^3*x^3+461*B*a^4*m^2*x+2032*B*a^3*b*m*x^2+1080
*B*a^2*b^2*x^3+580*A*a^4*m^2+2808*A*a^3*b*m*x+1440*A*a^2*b^2*x^2+
702*B*a^4*m*x+960*B*a^3*b*x^2+1044*A*a^4*m+1440*A*a^3*b*x+360*B*a
^4*x+720*A*a^4)/(6+m)/(5+m)/(4+m)/(3+m)/(2+m)/(1+m)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^4*x^m,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.22504, size = 819, normalized size = 6.55

$$\frac{\left(\left(Bb^4m^5 + 15\,Bb^4m^4 + 85\,Bb^3m^3 + 225\,Bb^4m^2 + 274\,Bb^4m + 120\,Bb^4\right)x^6 + \left(\left(4\,Bab^3 + Ab^4\right)m^5 + 576\,Bab^3 + 144\,Ab^4 + 16\,\left(4\right.\right.\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^4*x^m,x, algorithm="fricas")
```

```
[Out] ((B*b^4*m^5 + 15*B*b^4*m^4 + 85*B*b^4*m^3 + 225*B*b^4*m^2 + 274*B
*b^4*m + 120*B*b^4)*x^6 + ((4*B*a*b^3 + A*b^4)*m^5 + 576*B*a*b^3
+ 144*A*b^4 + 16*(4*B*a*b^3 + A*b^4)*m^4 + 95*(4*B*a*b^3 + A*b^4)
*m^3 + 260*(4*B*a*b^3 + A*b^4)*m^2 + 324*(4*B*a*b^3 + A*b^4)*m)*x
^5 + 2*((3*B*a^2*b^2 + 2*A*a*b^3)*m^5 + 540*B*a^2*b^2 + 360*A*a*b
^3 + 17*(3*B*a^2*b^2 + 2*A*a*b^3)*m^4 + 107*(3*B*a^2*b^2 + 2*A*a*
b^3)*m^3 + 307*(3*B*a^2*b^2 + 2*A*a*b^3)*m^2 + 396*(3*B*a^2*b^2 +
 2*A*a*b^3)*m)*x^4 + 2*((2*B*a^3*b + 3*A*a^2*b^2)*m^5 + 480*B*a^3
*b + 720*A*a^2*b^2 + 18*(2*B*a^3*b + 3*A*a^2*b^2)*m^4 + 121*(2*B*
a^3*b + 3*A*a^2*b^2)*m^3 + 372*(2*B*a^3*b + 3*A*a^2*b^2)*m^2 + 50
8*(2*B*a^3*b + 3*A*a^2*b^2)*m)*x^3 + ((B*a^4 + 4*A*a^3*b)*m^5 + 3
60*B*a^4 + 1440*A*a^3*b + 19*(B*a^4 + 4*A*a^3*b)*m^4 + 137*(B*a^4
```

```
 + 4*A*a^3*b)*m^3 + 461*(B*a^4 + 4*A*a^3*b)*m^2 + 702*(B*a^4 + 4*
A*a^3*b)*m)*x^2 + (A*a^4*m^5 + 20*A*a^4*m^4 + 155*A*a^4*m^3 + 580
*A*a^4*m^2 + 1044*A*a^4*m + 720*A*a^4)*x)*x^m/(m^6 + 21*m^5 + 175
*m^4 + 735*m^3 + 1624*m^2 + 1764*m + 720)
```

Sympy [A] time = 6.97318, size = 3417, normalized size = 27.34

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**m*(b*x+a)**4*(B*x+A),x)
```

```
[Out] Piecewise((-A*a**4/(5*x**5) - A*a**3*b/x**4 - 2*A*a**2*b**2/x**3
- 2*A*a*b**3/x**2 - A*b**4/x - B*a**4/(4*x**4) - 4*B*a**3*b/(3*x*
*3) - 3*B*a**2*b**2/x**2 - 4*B*a*b**3/x + B*b**4*log(x), Eq(m, -6
)), (-A*a**4/(4*x**4) - 4*A*a**3*b/(3*x**3) - 3*A*a**2*b**2/x**2
- 4*A*a*b**3/x + A*b**4*log(x) - B*a**4/(3*x**3) - 2*B*a**3*b/x**
2 - 6*B*a**2*b**2/x + 4*B*a*b**3*log(x) + B*b**4*x, Eq(m, -5)), (
-A*a**4/(3*x**3) - 2*A*a**3*b/x**2 - 6*A*a**2*b**2/x + 4*A*a*b**3
*log(x) + A*b**4*x - B*a**4/(2*x**2) - 4*B*a**3*b/x + 6*B*a**2*b*
*2*log(x) + 4*B*a*b**3*x + B*b**4*x**2/2, Eq(m, -4)), (-A*a**4/(2
*x**2) - 4*A*a**3*b/x + 6*A*a**2*b**2*log(x) + 4*A*a*b**3*x + A*b
**4*x**2/2 - B*a**4/x + 4*B*a**3*b*log(x) + 6*B*a**2*b**2*x + 2*B
*a*b**3*x**2 + B*b**4*x**3/3, Eq(m, -3)), (-A*a**4/x + 4*A*a**3*b
*log(x) + 6*A*a**2*b**2*x + 2*A*a*b**3*x**2 + A*b**4*x**3/3 + B*a
**4*log(x) + 4*B*a**3*b*x + 3*B*a**2*b**2*x**2 + 4*B*a*b**3*x**3/
3 + B*b**4*x**4/4, Eq(m, -2)), (A*a**4*log(x) + 4*A*a**3*b*x + 3*
A*a**2*b**2*x**2 + 4*A*a*b**3*x**3/3 + A*b**4*x**4/4 + B*a**4*x +
 2*B*a**3*b*x**2 + 2*B*a**2*b**2*x**3 + B*a*b**3*x**4 + B*b**4*x*
*5/5, Eq(m, -1)), (A*a**4*m**5*x*x**m/(m**6 + 21*m**5 + 175*m**4
+ 735*m**3 + 1624*m**2 + 1764*m + 720) + 20*A*a**4*m**4*x*x**m/(m
**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) +
 155*A*a**4*m**3*x*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1
624*m**2 + 1764*m + 720) + 580*A*a**4*m**2*x*x**m/(m**6 + 21*m**5
 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) + 1044*A*a**4*
m*x*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764
*m + 720) + 720*A*a**4*x*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m*
*3 + 1624*m**2 + 1764*m + 720) + 4*A*a**3*b*m**5*x**2*x**m/(m**6
+ 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) + 76*
A*a**3*b*m**4*x**2*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1
624*m**2 + 1764*m + 720) + 548*A*a**3*b*m**3*x**2*x**m/(m**6 + 21
*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) + 1844*A*
a**3*b*m**2*x**2*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 162
4*m**2 + 1764*m + 720) + 2808*A*a**3*b*m*x**2*x**m/(m**6 + 21*m**
5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) + 1440*A*a**3
*b*x**2*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 +
1764*m + 720) + 6*A*a**2*b**2*m**5*x**3*x**m/(m**6 + 21*m**5 + 17
5*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) + 108*A*a**2*b**2*m
**4*x**3*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 +
 1764*m + 720) + 726*A*a**2*b**2*m**3*x**3*x**m/(m**6 + 21*m**5 +
 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) + 2232*A*a**2*b*
*2*m**2*x**3*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m*
*2 + 1764*m + 720) + 3048*A*a**2*b**2*m*x**3*x**m/(m**6 + 21*m**5
 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) + 1440*A*a**2*
b**2*x**3*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2
+ 1764*m + 720) + 4*A*a*b**3*m**5*x**4*x**m/(m**6 + 21*m**5 + 175
*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) + 68*A*a*b**3*m**4*x
**4*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764
*m + 720) + 428*A*a*b**3*m**3*x**4*x**m/(m**6 + 21*m**5 + 175*m**
4 + 735*m**3 + 1624*m**2 + 1764*m + 720) + 1228*A*a*b**3*m**2*x**
4*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m
 + 720) + 1584*A*a*b**3*m*x**4*x**m/(m**6 + 21*m**5 + 175*m**4 +
735*m**3 + 1624*m**2 + 1764*m + 720) + 720*A*a*b**3*x**4*x**m/(m*
*6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) +
A*b**4*m**5*x**5*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 162
4*m**2 + 1764*m + 720) + 16*A*b**4*m**4*x**5*x**m/(m**6 + 21*m**5
 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) + 95*A*b**4*m*
*3*x**5*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 +
1764*m + 720) + 260*A*b**4*m**2*x**5*x**m/(m**6 + 21*m**5 + 175*m
```

```
**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) + 324*A*b**4*m*x**5*x*
*m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 7
20) + 144*A*b**4*x**5*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3
+ 1624*m**2 + 1764*m + 720) + B*a**4*m**5*x**2*x**m/(m**6 + 21*m*
*5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) + 19*B*a**4*
m**4*x**2*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2
+ 1764*m + 720) + 137*B*a**4*m**3*x**2*x**m/(m**6 + 21*m**5 + 175
*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) + 461*B*a**4*m**2*x*
*2*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*
m + 720) + 702*B*a**4*m*x**2*x**m/(m**6 + 21*m**5 + 175*m**4 + 73
5*m**3 + 1624*m**2 + 1764*m + 720) + 360*B*a**4*x**2*x**m/(m**6 +
 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) + 4*B*
a**3*b*m**5*x**3*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 162
4*m**2 + 1764*m + 720) + 72*B*a**3*b*m**4*x**3*x**m/(m**6 + 21*m*
*5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) + 484*B*a**3
*b*m**3*x**3*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m*
*2 + 1764*m + 720) + 1488*B*a**3*b*m**2*x**3*x**m/(m**6 + 21*m**5
 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) + 2032*B*a**3*
b*m*x**3*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 +
 1764*m + 720) + 960*B*a**3*b*x**3*x**m/(m**6 + 21*m**5 + 175*m**
4 + 735*m**3 + 1624*m**2 + 1764*m + 720) + 6*B*a**2*b**2*m**5*x**
4*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m
 + 720) + 102*B*a**2*b**2*m**4*x**4*x**m/(m**6 + 21*m**5 + 175*m*
*4 + 735*m**3 + 1624*m**2 + 1764*m + 720) + 642*B*a**2*b**2*m**3*
x**4*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 176
4*m + 720) + 1842*B*a**2*b**2*m**2*x**4*x**m/(m**6 + 21*m**5 + 17
5*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) + 2376*B*a**2*b**2*
m*x**4*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1
764*m + 720) + 1080*B*a**2*b**2*x**4*x**m/(m**6 + 21*m**5 + 175*m
**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) + 4*B*a*b**3*m**5*x**5
*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m
+ 720) + 64*B*a*b**3*m**4*x**5*x**m/(m**6 + 21*m**5 + 175*m**4 +
735*m**3 + 1624*m**2 + 1764*m + 720) + 380*B*a*b**3*m**3*x**5*x**
m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 72
0) + 1040*B*a*b**3*m**2*x**5*x**m/(m**6 + 21*m**5 + 175*m**4 + 73
5*m**3 + 1624*m**2 + 1764*m + 720) + 1296*B*a*b**3*m*x**5*x**m/(m
**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) +
 576*B*a*b**3*x**5*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1
624*m**2 + 1764*m + 720) + B*b**4*m**5*x**6*x**m/(m**6 + 21*m**5
+ 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) + 15*B*b**4*m**
4*x**6*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1
764*m + 720) + 85*B*b**4*m**3*x**6*x**m/(m**6 + 21*m**5 + 175*m**
4 + 735*m**3 + 1624*m**2 + 1764*m + 720) + 225*B*b**4*m**2*x**6*x
**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m +
720) + 274*B*b**4*m*x**6*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m*
*3 + 1624*m**2 + 1764*m + 720) + 120*B*b**4*x**6*x**m/(m**6 + 21*
m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720), True))
```

GIAC/XCAS [A] time = 0.218635, size = 1, normalized size = 0.01

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^4*x^m,x, algorithm="giac")
```

```
[Out] Done
```

3.342 $\int x^m(a+bx)^3(A+Bx)\,dx$

Optimal. Leaf size=96

$$\frac{a^3Ax^{m+1}}{m+1}+\frac{a^2x^{m+2}(aB+3Ab)}{m+2}+\frac{b^2x^{m+4}(3aB+Ab)}{m+4}+\frac{3abx^{m+3}(aB+Ab)}{m+3}+\frac{b^3Bx^{m+5}}{m+5}$$

```
[Out] (a^3*A*x^(1 + m))/(1 + m) + (a^2*(3*A*b + a*B)*x^(2 + m))/(2 + m)
 + (3*a*b*(A*b + a*B)*x^(3 + m))/(3 + m) + (b^2*(A*b + 3*a*B)*x^(
4 + m))/(4 + m) + (b^3*B*x^(5 + m))/(5 + m)
```

Rubi [A] time = 0.134228, antiderivative size = 96, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}=0.062$

$$\frac{a^3Ax^{m+1}}{m+1}+\frac{a^2x^{m+2}(aB+3Ab)}{m+2}+\frac{b^2x^{m+4}(3aB+Ab)}{m+4}+\frac{3abx^{m+3}(aB+Ab)}{m+3}+\frac{b^3Bx^{m+5}}{m+5}$$

Antiderivative was successfully verified.

```
[In]  Int[x^m*(a + b*x)^3*(A + B*x),x]
```

```
[Out] (a^3*A*x^(1 + m))/(1 + m) + (a^2*(3*A*b + a*B)*x^(2 + m))/(2 + m)
 + (3*a*b*(A*b + a*B)*x^(3 + m))/(3 + m) + (b^2*(A*b + 3*a*B)*x^(
4 + m))/(4 + m) + (b^3*B*x^(5 + m))/(5 + m)
```

Rubi in Sympy [A] time = 17.4506, size = 87, normalized size = 0.91

$$\frac{Aa^3x^{m+1}}{m+1}+\frac{Bb^3x^{m+5}}{m+5}+\frac{a^2x^{m+2}\left(3Ab+Ba\right)}{m+2}+\frac{3abx^{m+3}\left(Ab+Ba\right)}{m+3}+\frac{b^2x^{m+4}\left(Ab+3Ba\right)}{m+4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**m*(b*x+a)**3*(B*x+A),x)
```

```
[Out] A*a**3*x**(m + 1)/(m + 1) + B*b**3*x**(m + 5)/(m + 5) + a**2*x**(
m + 2)*(3*A*b + B*a)/(m + 2) + 3*a*b*x**(m + 3)*(A*b + B*a)/(m +
3) + b**2*x**(m + 4)*(A*b + 3*B*a)/(m + 4)
```

Mathematica [A] time = 0.115422, size = 88, normalized size = 0.92

$$x^m\left(\frac{a^3Ax}{m+1}+\frac{a^2x^2(aB+3Ab)}{m+2}+\frac{b^2x^4(3aB+Ab)}{m+4}+\frac{3abx^3(aB+Ab)}{m+3}+\frac{b^3Bx^5}{m+5}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^m*(a + b*x)^3*(A + B*x),x]
```

```
[Out] x^m*((a^3*A*x)/(1 + m) + (a^2*(3*A*b + a*B)*x^2)/(2 + m) + (3*a*b
*(A*b + a*B)*x^3)/(3 + m) + (b^2*(A*b + 3*a*B)*x^4)/(4 + m) + (b^
3*B*x^5)/(5 + m))
```

Maple [B] time = 0.007, size = 454, normalized size = 4.7

$$x^{1+m}\left(Bb^3m^4x^4+Ab^3m^4x^3+3\,Bab^2m^4x^3+10\,Bb^3m^3x^4+3\,Aab^2m^4x^2+11\,Ab^3m^3x^3+3\,Ba^2bm^4x^2+33\,Bab^2m^3x^3+35\,Bb\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^m*(b*x+a)^3*(B*x+A),x)
```

```
[Out] x^(1+m)*(B*b^3*m^4*x^4+A*b^3*m^4*x^3+3*B*a*b^2*m^4*x^3+10*B*b^3*m
^3*x^4+3*A*a*b^2*m^4*x^2+11*A*b^3*m^3*x^3+3*B*a^2*b*m^4*x^2+33*B*
a*b^2*m^3*x^3+35*B*b^3*m^2*x^4+3*A*a^2*b*m^4*x+36*A*a*b^2*m^3*x^2
+41*A*b^3*m^2*x^3+B*a^3*m^4*x+36*B*a^2*b*m^3*x^2+123*B*a*b^2*m^2*
x^3+50*B*b^3*m*x^4+A*a^3*m^4+39*A*a^2*b*m^3*x+147*A*a*b^2*m^2*x^2
+61*A*b^3*m*x^3+13*B*a^3*m^3*x+147*B*a^2*b*m^2*x^2+183*B*a*b^2*m*
x^3+24*B*b^3*x^4+14*A*a^3*m^3+177*A*a^2*b*m^2*x+234*A*a*b^2*m*x^2
+30*A*b^3*x^3+59*B*a^3*m^2*x+234*B*a^2*b*m*x^2+90*B*a*b^2*x^3+71*
A*a^3*m^2+321*A*a^2*b*m*x+120*A*a*b^2*x^2+107*B*a^3*m*x+120*B*a^2
*b*x^2+154*A*a^3*m+180*A*a^2*b*x+60*B*a^3*x+120*A*a^3)/(5+m)/(4+m
)/(3+m)/(2+m)/(1+m)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*x^m,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.22289, size = 512, normalized size = 5.33

$$\frac{\left(\left(Bb^3m^4 + 10\,Bb^3m^3 + 35\,Bb^3m^2 + 50\,Bb^3m + 24\,Bb^3\right)x^5 + \left(\left(3\,Bab^2 + Ab^3\right)m^4 + 90\,Bab^2 + 30\,Ab^3 + 11\left(3\,Bab^2 + Ab^3\right)m^3 + \right.\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*x^m,x, algorithm="fricas")
```

```
[Out] ((B*b^3*m^4 + 10*B*b^3*m^3 + 35*B*b^3*m^2 + 50*B*b^3*m + 24*B*b^3
)*x^5 + ((3*B*a*b^2 + A*b^3)*m^4 + 90*B*a*b^2 + 30*A*b^3 + 11*(3*
B*a*b^2 + A*b^3)*m^3 + 41*(3*B*a*b^2 + A*b^3)*m^2 + 61*(3*B*a*b^2
 + A*b^3)*m)*x^4 + 3*((B*a^2*b + A*a*b^2)*m^4 + 40*B*a^2*b + 40*A
*a*b^2 + 12*(B*a^2*b + A*a*b^2)*m^3 + 49*(B*a^2*b + A*a*b^2)*m^2
+ 78*(B*a^2*b + A*a*b^2)*m)*x^3 + ((B*a^3 + 3*A*a^2*b)*m^4 + 60*B
*a^3 + 180*A*a^2*b + 13*(B*a^3 + 3*A*a^2*b)*m^3 + 59*(B*a^3 + 3*A
*a^2*b)*m^2 + 107*(B*a^3 + 3*A*a^2*b)*m)*x^2 + (A*a^3*m^4 + 14*A*
a^3*m^3 + 71*A*a^3*m^2 + 154*A*a^3*m + 120*A*a^3)*x)*x^m/(m^5 + 1
5*m^4 + 85*m^3 + 225*m^2 + 274*m + 120)
```

Sympy [A] time = 4.7732, size = 2018, normalized size = 21.02

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**m*(b*x+a)**3*(B*x+A),x)
```

```
[Out] Piecewise((-A*a**3/(4*x**4) - A*a**2*b/x**3 - 3*A*a*b**2/(2*x**2)
 - A*b**3/x - B*a**3/(3*x**3) - 3*B*a**2*b/(2*x**2) - 3*B*a*b**2/
x + B*b**3*log(x), Eq(m, -5)), (-A*a**3/(3*x**3) - 3*A*a**2*b/(2*
x**2) - 3*A*a*b**2/x + A*b**3*log(x) - B*a**3/(2*x**2) - 3*B*a**2
*b/x + 3*B*a*b**2*log(x) + B*b**3*x, Eq(m, -4)), (-A*a**3/(2*x**2
```

```
) - 3*A*a**2*b/x + 3*A*a*b**2*log(x) + A*b**3*x - B*a**3/x + 3*B*
a**2*b*log(x) + 3*B*a*b**2*x + B*b**3*x**2/2, Eq(m, -3)), (-A*a**
3/x + 3*A*a**2*b*log(x) + 3*A*a*b**2*x + A*b**3*x**2/2 + B*a**3*l
og(x) + 3*B*a**2*b*x + 3*B*a*b**2*x**2/2 + B*b**3*x**3/3, Eq(m, -
2)), (A*a**3*log(x) + 3*A*a**2*b*x + 3*A*a*b**2*x**2/2 + A*b**3*x
**3/3 + B*a**3*x + 3*B*a**2*b*x**2/2 + B*a*b**2*x**3 + B*b**3*x**
4/4, Eq(m, -1)), (A*a**3*m**4*x*x**m/(m**5 + 15*m**4 + 85*m**3 +
225*m**2 + 274*m + 120) + 14*A*a**3*m**3*x*x**m/(m**5 + 15*m**4 +
 85*m**3 + 225*m**2 + 274*m + 120) + 71*A*a**3*m**2*x*x**m/(m**5
+ 15*m**4 + 85*m**3 + 225*m**2 + 274*m + 120) + 154*A*a**3*m*x*x*
*m/(m**5 + 15*m**4 + 85*m**3 + 225*m**2 + 274*m + 120) + 120*A*a*
*3*x*x**m/(m**5 + 15*m**4 + 85*m**3 + 225*m**2 + 274*m + 120) + 3
*A*a**2*b*m**4*x**2*x**m/(m**5 + 15*m**4 + 85*m**3 + 225*m**2 + 2
74*m + 120) + 39*A*a**2*b*m**3*x**2*x**m/(m**5 + 15*m**4 + 85*m**
3 + 225*m**2 + 274*m + 120) + 177*A*a**2*b*m**2*x**2*x**m/(m**5 +
 15*m**4 + 85*m**3 + 225*m**2 + 274*m + 120) + 321*A*a**2*b*m*x**
2*x**m/(m**5 + 15*m**4 + 85*m**3 + 225*m**2 + 274*m + 120) + 180*
A*a**2*b*x**2*x**m/(m**5 + 15*m**4 + 85*m**3 + 225*m**2 + 274*m +
 120) + 3*A*a*b**2*m**4*x**3*x**m/(m**5 + 15*m**4 + 85*m**3 + 225
*m**2 + 274*m + 120) + 36*A*a*b**2*m**3*x**3*x**m/(m**5 + 15*m**4
 + 85*m**3 + 225*m**2 + 274*m + 120) + 147*A*a*b**2*m**2*x**3*x**
m/(m**5 + 15*m**4 + 85*m**3 + 225*m**2 + 274*m + 120) + 234*A*a*b
**2*m*x**3*x**m/(m**5 + 15*m**4 + 85*m**3 + 225*m**2 + 274*m + 12
0) + 120*A*a*b**2*x**3*x**m/(m**5 + 15*m**4 + 85*m**3 + 225*m**2
+ 274*m + 120) + A*b**3*m**4*x**4*x**m/(m**5 + 15*m**4 + 85*m**3
+ 225*m**2 + 274*m + 120) + 11*A*b**3*m**3*x**4*x**m/(m**5 + 15*m
**4 + 85*m**3 + 225*m**2 + 274*m + 120) + 41*A*b**3*m**2*x**4*x**
m/(m**5 + 15*m**4 + 85*m**3 + 225*m**2 + 274*m + 120) + 61*A*b**3
*m*x**4*x**m/(m**5 + 15*m**4 + 85*m**3 + 225*m**2 + 274*m + 120)
+ 30*A*b**3*x**4*x**m/(m**5 + 15*m**4 + 85*m**3 + 225*m**2 + 274*
m + 120) + B*a**3*m**4*x**2*x**m/(m**5 + 15*m**4 + 85*m**3 + 225*
m**2 + 274*m + 120) + 13*B*a**3*m**3*x**2*x**m/(m**5 + 15*m**4 +
85*m**3 + 225*m**2 + 274*m + 120) + 59*B*a**3*m**2*x**2*x**m/(m**
5 + 15*m**4 + 85*m**3 + 225*m**2 + 274*m + 120) + 107*B*a**3*m*x*
*2*x**m/(m**5 + 15*m**4 + 85*m**3 + 225*m**2 + 274*m + 120) + 60*
B*a**3*x**2*x**m/(m**5 + 15*m**4 + 85*m**3 + 225*m**2 + 274*m + 1
20) + 3*B*a**2*b*m**4*x**3*x**m/(m**5 + 15*m**4 + 85*m**3 + 225*m
**2 + 274*m + 120) + 36*B*a**2*b*m**3*x**3*x**m/(m**5 + 15*m**4 +
 85*m**3 + 225*m**2 + 274*m + 120) + 147*B*a**2*b*m**2*x**3*x**m/
(m**5 + 15*m**4 + 85*m**3 + 225*m**2 + 274*m + 120) + 234*B*a**2*
b*m*x**3*x**m/(m**5 + 15*m**4 + 85*m**3 + 225*m**2 + 274*m + 120)
 + 120*B*a**2*b*x**3*x**m/(m**5 + 15*m**4 + 85*m**3 + 225*m**2 +
274*m + 120) + 3*B*a*b**2*m**4*x**4*x**m/(m**5 + 15*m**4 + 85*m**
3 + 225*m**2 + 274*m + 120) + 33*B*a*b**2*m**3*x**4*x**m/(m**5 +
15*m**4 + 85*m**3 + 225*m**2 + 274*m + 120) + 123*B*a*b**2*m**2*x
**4*x**m/(m**5 + 15*m**4 + 85*m**3 + 225*m**2 + 274*m + 120) + 18
3*B*a*b**2*m*x**4*x**m/(m**5 + 15*m**4 + 85*m**3 + 225*m**2 + 274
*m + 120) + 90*B*a*b**2*x**4*x**m/(m**5 + 15*m**4 + 85*m**3 + 225
*m**2 + 274*m + 120) + B*b**3*m**4*x**5*x**m/(m**5 + 15*m**4 + 85
*m**3 + 225*m**2 + 274*m + 120) + 10*B*b**3*m**3*x**5*x**m/(m**5
+ 15*m**4 + 85*m**3 + 225*m**2 + 274*m + 120) + 35*B*b**3*m**2*x*
*5*x**m/(m**5 + 15*m**4 + 85*m**3 + 225*m**2 + 274*m + 120) + 50*
B*b**3*m*x**5*x**m/(m**5 + 15*m**4 + 85*m**3 + 225*m**2 + 274*m +
 120) + 24*B*b**3*x**5*x**m/(m**5 + 15*m**4 + 85*m**3 + 225*m**2
+ 274*m + 120), True))
```

GIAC/XCAS [A] time = 0.220019, size = 909, normalized size = 9.47

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*x^m,x, algorithm="giac")
```

```
[Out] (B*b^3*m^4*x^5*e^(m*ln(x)) + 3*B*a*b^2*m^4*x^4*e^(m*ln(x)) + A*b^
3*m^4*x^4*e^(m*ln(x)) + 10*B*b^3*m^3*x^5*e^(m*ln(x)) + 3*B*a^2*b*
m^4*x^3*e^(m*ln(x)) + 3*A*a*b^2*m^4*x^3*e^(m*ln(x)) + 33*B*a*b^2*
m^3*x^4*e^(m*ln(x)) + 11*A*b^3*m^3*x^4*e^(m*ln(x)) + 35*B*b^3*m^2
*x^5*e^(m*ln(x)) + B*a^3*m^4*x^2*e^(m*ln(x)) + 3*A*a^2*b*m^4*x^2*
e^(m*ln(x)) + 36*B*a^2*b*m^3*x^3*e^(m*ln(x)) + 36*A*a*b^2*m^3*x^3
```

```
*e^(m*ln(x)) + 123*B*a*b^2*m^2*x^4*e^(m*ln(x)) + 41*A*b^3*m^2*x^4
*e^(m*ln(x)) + 50*B*b^3*m*x^5*e^(m*ln(x)) + A*a^3*m^4*x*e^(m*ln(x
)) + 13*B*a^3*m^3*x^2*e^(m*ln(x)) + 39*A*a^2*b*m^3*x^2*e^(m*ln(x)
) + 147*B*a^2*b*m^2*x^3*e^(m*ln(x)) + 147*A*a*b^2*m^2*x^3*e^(m*ln
(x)) + 183*B*a*b^2*m*x^4*e^(m*ln(x)) + 61*A*b^3*m*x^4*e^(m*ln(x))
 + 24*B*b^3*x^5*e^(m*ln(x)) + 14*A*a^3*m^3*x*e^(m*ln(x)) + 59*B*a
^3*m^2*x^2*e^(m*ln(x)) + 177*A*a^2*b*m^2*x^2*e^(m*ln(x)) + 234*B*
a^2*b*m*x^3*e^(m*ln(x)) + 234*A*a*b^2*m*x^3*e^(m*ln(x)) + 90*B*a*
b^2*x^4*e^(m*ln(x)) + 30*A*b^3*x^4*e^(m*ln(x)) + 71*A*a^3*m^2*x*e
^(m*ln(x)) + 107*B*a^3*m*x^2*e^(m*ln(x)) + 321*A*a^2*b*m*x^2*e^(m
*ln(x)) + 120*B*a^2*b*x^3*e^(m*ln(x)) + 120*A*a*b^2*x^3*e^(m*ln(x
)) + 154*A*a^3*m*x*e^(m*ln(x)) + 60*B*a^3*x^2*e^(m*ln(x)) + 180*A
*a^2*b*x^2*e^(m*ln(x)) + 120*A*a^3*x*e^(m*ln(x)))/(m^5 + 15*m^4 +
 85*m^3 + 225*m^2 + 274*m + 120)
```

3.343 $\int x^m(a+bx)^2(A+Bx)\,dx$

Optimal. Leaf size=71

$$\frac{a^2Ax^{m+1}}{m+1}+\frac{ax^{m+2}(aB+2Ab)}{m+2}+\frac{bx^{m+3}(2aB+Ab)}{m+3}+\frac{b^2Bx^{m+4}}{m+4}$$

```
[Out] (a^2*A*x^(1 + m))/(1 + m) + (a*(2*A*b + a*B)*x^(2 + m))/(2 + m) +
 (b*(A*b + 2*a*B)*x^(3 + m))/(3 + m) + (b^2*B*x^(4 + m))/(4 + m)
```

Rubi [A] time = 0.0981001, antiderivative size = 71, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$\frac{a^2Ax^{m+1}}{m+1}+\frac{ax^{m+2}(aB+2Ab)}{m+2}+\frac{bx^{m+3}(2aB+Ab)}{m+3}+\frac{b^2Bx^{m+4}}{m+4}$$

Antiderivative was successfully verified.

```
[In]  Int[x^m*(a + b*x)^2*(A + B*x),x]
```

```
[Out] (a^2*A*x^(1 + m))/(1 + m) + (a*(2*A*b + a*B)*x^(2 + m))/(2 + m) +
 (b*(A*b + 2*a*B)*x^(3 + m))/(3 + m) + (b^2*B*x^(4 + m))/(4 + m)
```

Rubi in Sympy [A] time = 12.8523, size = 63, normalized size = 0.89

$$\frac{Aa^2x^{m+1}}{m+1}+\frac{Bb^2x^{m+4}}{m+4}+\frac{ax^{m+2}\left(2Ab+Ba\right)}{m+2}+\frac{bx^{m+3}\left(Ab+2Ba\right)}{m+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**m*(b*x+a)**2*(B*x+A),x)
```

```
[Out] A*a**2*x**(m + 1)/(m + 1) + B*b**2*x**(m + 4)/(m + 4) + a*x**(m +
 2)*(2*A*b + B*a)/(m + 2) + b*x**(m + 3)*(A*b + 2*B*a)/(m + 3)
```

Mathematica [A] time = 0.0736252, size = 65, normalized size = 0.92

$$x^m\left(\frac{a^2Ax}{m+1}+\frac{bx^3(2aB+Ab)}{m+3}+\frac{ax^2(aB+2Ab)}{m+2}+\frac{b^2Bx^4}{m+4}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^m*(a + b*x)^2*(A + B*x),x]
```

```
[Out] x^m*((a^2*A*x)/(1 + m) + (a*(2*A*b + a*B)*x^2)/(2 + m) + (b*(A*b
+ 2*a*B)*x^3)/(3 + m) + (b^2*B*x^4)/(4 + m))
```

Maple [B] time = 0.007, size = 246, normalized size = 3.5

$$x^{1+m}\left(Bb^2m^3x^3+Ab^2m^3x^2+2\,Babm^3x^2+6\,Bb^2m^2x^3+2\,Aabm^3x+7\,Ab^2m^2x^2+Ba^2m^3x+14\,Babm^2x^2+11\,Bb^2mx^3+Aa\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^m*(b*x+a)^2*(B*x+A),x)
```

```
[Out] x^(1+m)*(B*b^2*m^3*x^3+A*b^2*m^3*x^2+2*B*a*b*m^3*x^2+6*B*b^2*m^2*
x^3+2*A*a*b*m^3*x+7*A*b^2*m^2*x^2+B*a^2*m^3*x+14*B*a*b*m^2*x^2+11
*B*b^2*m*x^3+A*a^2*m^3+16*A*a*b*m^2*x+14*A*b^2*m*x^2+8*B*a^2*m^2*
x+28*B*a*b*m*x^2+6*B*b^2*x^3+9*A*a^2*m^2+38*A*a*b*m*x+8*A*b^2*x^2
+19*B*a^2*m*x+16*B*a*b*x^2+26*A*a^2*m+24*A*a*b*x+12*B*a^2*x+24*A*
a^2)/(4+m)/(3+m)/(2+m)/(1+m)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*x^m,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.221886, size = 290, normalized size = 4.08

$$\frac{\left(\left(Bb^2m^3 + 6\,Bb^2m^2 + 11\,Bb^2m + 6\,Bb^2\right)x^4 + \left(\left(2\,Bab + Ab^2\right)m^3 + 16\,Bab + 8\,Ab^2 + 7\,\left(2\,Bab + Ab^2\right)m^2 + 14\,\left(2\,Bab + Ab^2\right)m}{m^4 + 10}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*x^m,x, algorithm="fricas")
```

```
[Out] ((B*b^2*m^3 + 6*B*b^2*m^2 + 11*B*b^2*m + 6*B*b^2)*x^4 + ((2*B*a*b
 + A*b^2)*m^3 + 16*B*a*b + 8*A*b^2 + 7*(2*B*a*b + A*b^2)*m^2 + 14
*(2*B*a*b + A*b^2)*m)*x^3 + ((B*a^2 + 2*A*a*b)*m^3 + 12*B*a^2 + 2
4*A*a*b + 8*(B*a^2 + 2*A*a*b)*m^2 + 19*(B*a^2 + 2*A*a*b)*m)*x^2 +
 (A*a^2*m^3 + 9*A*a^2*m^2 + 26*A*a^2*m + 24*A*a^2)*x)*x^m/(m^4 +
10*m^3 + 35*m^2 + 50*m + 24)
```

Sympy [A] time = 3.04478, size = 1020, normalized size = 14.37

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**m*(b*x+a)**2*(B*x+A),x)
```

```
[Out] Piecewise((-A*a**2/(3*x**3) - A*a*b/x**2 - A*b**2/x - B*a**2/(2*x
**2) - 2*B*a*b/x + B*b**2*log(x), Eq(m, -4)), (-A*a**2/(2*x**2) -
 2*A*a*b/x + A*b**2*log(x) - B*a**2/x + 2*B*a*b*log(x) + B*b**2*x
, Eq(m, -3)), (-A*a**2/x + 2*A*a*b*log(x) + A*b**2*x + B*a**2*log
(x) + 2*B*a*b*x + B*b**2*x**2/2, Eq(m, -2)), (A*a**2*log(x) + 2*A
*a*b*x + A*b**2*x**2/2 + B*a**2*x + B*a*b*x**2 + B*b**2*x**3/3, E
q(m, -1)), (A*a**2*m**3*x*x**m/(m**4 + 10*m**3 + 35*m**2 + 50*m +
 24) + 9*A*a**2*m**2*x*x**m/(m**4 + 10*m**3 + 35*m**2 + 50*m + 24
) + 26*A*a**2*m*x*x**m/(m**4 + 10*m**3 + 35*m**2 + 50*m + 24) + 2
4*A*a**2*x*x**m/(m**4 + 10*m**3 + 35*m**2 + 50*m + 24) + 2*A*a*b*
m**3*x**2*x**m/(m**4 + 10*m**3 + 35*m**2 + 50*m + 24) + 16*A*a*b*
m**2*x**2*x**m/(m**4 + 10*m**3 + 35*m**2 + 50*m + 24) + 38*A*a*b*
m*x**2*x**m/(m**4 + 10*m**3 + 35*m**2 + 50*m + 24) + 24*A*a*b*x**
2*x**m/(m**4 + 10*m**3 + 35*m**2 + 50*m + 24) + A*b**2*m**3*x**3*
x**m/(m**4 + 10*m**3 + 35*m**2 + 50*m + 24) + 7*A*b**2*m**2*x**3*
x**m/(m**4 + 10*m**3 + 35*m**2 + 50*m + 24) + 14*A*b**2*m*x**3*x*
*m/(m**4 + 10*m**3 + 35*m**2 + 50*m + 24) + 8*A*b**2*x**3*x**m/(m
```

```
**4 + 10*m**3 + 35*m**2 + 50*m + 24) + B*a**2*m**3*x**2*x**m/(m**
4 + 10*m**3 + 35*m**2 + 50*m + 24) + 8*B*a**2*m**2*x**2*x**m/(m**
4 + 10*m**3 + 35*m**2 + 50*m + 24) + 19*B*a**2*m*x**2*x**m/(m**4
+ 10*m**3 + 35*m**2 + 50*m + 24) + 12*B*a**2*x**2*x**m/(m**4 + 10
*m**3 + 35*m**2 + 50*m + 24) + 2*B*a*b*m**3*x**3*x**m/(m**4 + 10*
m**3 + 35*m**2 + 50*m + 24) + 14*B*a*b*m**2*x**3*x**m/(m**4 + 10*
m**3 + 35*m**2 + 50*m + 24) + 28*B*a*b*m*x**3*x**m/(m**4 + 10*m**
3 + 35*m**2 + 50*m + 24) + 16*B*a*b*x**3*x**m/(m**4 + 10*m**3 + 3
5*m**2 + 50*m + 24) + B*b**2*m**3*x**4*x**m/(m**4 + 10*m**3 + 35*
m**2 + 50*m + 24) + 6*B*b**2*m**2*x**4*x**m/(m**4 + 10*m**3 + 35*
m**2 + 50*m + 24) + 11*B*b**2*m*x**4*x**m/(m**4 + 10*m**3 + 35*m*
*2 + 50*m + 24) + 6*B*b**2*x**4*x**m/(m**4 + 10*m**3 + 35*m**2 +
50*m + 24), True))
```

GIAC/XCAS [A] time = 0.216361, size = 513, normalized size = 7.23

$$\frac{Bb^2m^3x^4e^{(m\ln(x))} + 2\,Babm^3x^3e^{(m\ln(x))} + Ab^2m^3x^3e^{(m\ln(x))} + 6\,Bb^2m^2x^4e^{(m\ln(x))} + Ba^2m^3x^2e^{(m\ln(x))} + 2\,Aabm^3x^2e^{(m\ln(x))} + 1}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*x^m,x, algorithm="giac")
```

```
[Out] (B*b^2*m^3*x^4*e^(m*ln(x)) + 2*B*a*b*m^3*x^3*e^(m*ln(x)) + A*b^2*
m^3*x^3*e^(m*ln(x)) + 6*B*b^2*m^2*x^4*e^(m*ln(x)) + B*a^2*m^3*x^2
*e^(m*ln(x)) + 2*A*a*b*m^3*x^2*e^(m*ln(x)) + 14*B*a*b*m^2*x^3*e^(
m*ln(x)) + 7*A*b^2*m^2*x^3*e^(m*ln(x)) + 11*B*b^2*m*x^4*e^(m*ln(x
)) + A*a^2*m^3*x*e^(m*ln(x)) + 8*B*a^2*m^2*x^2*e^(m*ln(x)) + 16*A
*a*b*m^2*x^2*e^(m*ln(x)) + 28*B*a*b*m*x^3*e^(m*ln(x)) + 14*A*b^2*
m*x^3*e^(m*ln(x)) + 6*B*b^2*x^4*e^(m*ln(x)) + 9*A*a^2*m^2*x*e^(m*
ln(x)) + 19*B*a^2*m*x^2*e^(m*ln(x)) + 38*A*a*b*m*x^2*e^(m*ln(x))
+ 16*B*a*b*x^3*e^(m*ln(x)) + 8*A*b^2*x^3*e^(m*ln(x)) + 26*A*a^2*m
*x*e^(m*ln(x)) + 12*B*a^2*x^2*e^(m*ln(x)) + 24*A*a*b*x^2*e^(m*ln(
x)) + 24*A*a^2*x*e^(m*ln(x)))/(m^4 + 10*m^3 + 35*m^2 + 50*m + 24)
```

3.344 $\int x^m(a+bx)(A+Bx)\,dx$

Optimal. Leaf size=45

$$\frac{x^{m+2}(aB+Ab)}{m+2}+\frac{aAx^{m+1}}{m+1}+\frac{bBx^{m+3}}{m+3}$$

```
[Out] (a*A*x^(1 + m))/(1 + m) + ((A*b + a*B)*x^(2 + m))/(2 + m) + (b*B*
x^(3 + m))/(3 + m)
```

Rubi [A] time = 0.0549507, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 14, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.071

$$\frac{x^{m+2}(aB+Ab)}{m+2}+\frac{aAx^{m+1}}{m+1}+\frac{bBx^{m+3}}{m+3}$$

Antiderivative was successfully verified.

```
[In] Int[x^m*(a + b*x)*(A + B*x),x]
```

```
[Out] (a*A*x^(1 + m))/(1 + m) + ((A*b + a*B)*x^(2 + m))/(2 + m) + (b*B*
x^(3 + m))/(3 + m)
```

Rubi in Sympy [A] time = 7.9168, size = 37, normalized size = 0.82

$$\frac{Aax^{m+1}}{m+1}+\frac{Bbx^{m+3}}{m+3}+\frac{x^{m+2}\left(Ab+Ba\right)}{m+2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(x**m*(b*x+a)*(B*x+A),x)
```

```
[Out] A*a*x**(m + 1)/(m + 1) + B*b*x**(m + 3)/(m + 3) + x**(m + 2)*(A*b
 + B*a)/(m + 2)
```

Mathematica [A] time = 0.0432342, size = 41, normalized size = 0.91

$$x^m\left(\frac{x^2(aB+Ab)}{m+2}+\frac{aAx}{m+1}+\frac{bBx^3}{m+3}\right)$$

Antiderivative was successfully verified.

```
[In] Integrate[x^m*(a + b*x)*(A + B*x),x]
```

```
[Out] x^m*((a*A*x)/(1 + m) + ((A*b + a*B)*x^2)/(2 + m) + (b*B*x^3)/(3 +
 m))
```

Maple [B] time = 0.004, size = 98, normalized size = 2.2

$$\frac{x^{1+m}\left(Bbm^2x^2+Abm^2x+Bam^2x+3\,Bbmx^2+Aam^2+4\,Abmx+4\,Bamx+2\,bBx^2+5\,Aam+3\,Abx+3\,Bax+6\,Aa\right)}{(3+m)\,(2+m)\,(1+m)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^m*(b*x+a)*(B*x+A),x)
```

```
[Out] x^(1+m)*(B*b*m^2*x^2+A*b*m^2*x+B*a*m^2*x+3*B*b*m*x^2+A*a*m^2+4*A*
b*m*x+4*B*a*m*x+2*B*b*x^2+5*A*a*m+3*A*b*x+3*B*a*x+6*A*a)/(3+m)/(2
+m)/(1+m)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*x^m,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.219533, size = 124, normalized size = 2.76

$$\frac{\left(\left(Bbm^{2} + 3\,Bbm + 2\,Bb\right)x^{3} + \left((Ba + Ab)m^{2} + 3\,Ba + 3\,Ab + 4\,(Ba + Ab)m\right)x^{2} + \left(Aam^{2} + 5\,Aam + 6\,Aa\right)x\right)x^{m}}{m^{3} + 6\,m^{2} + 11\,m + 6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*x^m,x, algorithm="fricas")
```

```
[Out] ((B*b*m^2 + 3*B*b*m + 2*B*b)*x^3 + ((B*a + A*b)*m^2 + 3*B*a + 3*A
*b + 4*(B*a + A*b)*m)*x^2 + (A*a*m^2 + 5*A*a*m + 6*A*a)*x)*x^m/(m
^3 + 6*m^2 + 11*m + 6)
```

Sympy [A] time = 1.64109, size = 389, normalized size = 8.64

$$\begin{cases} -\frac{Aa}{2x^{2}} - \frac{Ab}{x} - \frac{Ba}{x} + Bb\log(x) \\ -\frac{Aa}{x} + Ab\log(x) + Ba\log(x) + Bbx \\ Aa\log(x) + Abx + Bax + \frac{Bbx^{2}}{2} \\ \frac{Aam^{2}xx^{m}}{m^{3}+6m^{2}+11m+6} + \frac{5Aamxx^{m}}{m^{3}+6m^{2}+11m+6} + \frac{6Aaxx^{m}}{m^{3}+6m^{2}+11m+6} + \frac{Abm^{2}x^{2}x^{m}}{m^{3}+6m^{2}+11m+6} + \frac{4Abmx^{2}x^{m}}{m^{3}+6m^{2}+11m+6} + \frac{3Abx^{2}x^{m}}{m^{3}+6m^{2}+11m+6} + \frac{Bam^{2}x^{2}x^{m}}{m^{3}+6m^{2}+11m+6} + \frac{4Bamx^{2}}{m^{3}+6m^{2}+1} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**m*(b*x+a)*(B*x+A),x)
```

```
[Out] Piecewise((-A*a/(2*x**2) - A*b/x - B*a/x + B*b*log(x), Eq(m, -3))
, (-A*a/x + A*b*log(x) + B*a*log(x) + B*b*x, Eq(m, -2)), (A*a*log
(x) + A*b*x + B*a*x + B*b*x**2/2, Eq(m, -1)), (A*a*m**2*x*x**m/(m
**3 + 6*m**2 + 11*m + 6) + 5*A*a*m*x*x**m/(m**3 + 6*m**2 + 11*m +
 6) + 6*A*a*x*x**m/(m**3 + 6*m**2 + 11*m + 6) + A*b*m**2*x**2*x**
m/(m**3 + 6*m**2 + 11*m + 6) + 4*A*b*m*x**2*x**m/(m**3 + 6*m**2 +
 11*m + 6) + 3*A*b*x**2*x**m/(m**3 + 6*m**2 + 11*m + 6) + B*a*m**
2*x**2*x**m/(m**3 + 6*m**2 + 11*m + 6) + 4*B*a*m*x**2*x**m/(m**3
+ 6*m**2 + 11*m + 6) + 3*B*a*x**2*x**m/(m**3 + 6*m**2 + 11*m + 6)
 + B*b*m**2*x**3*x**m/(m**3 + 6*m**2 + 11*m + 6) + 3*B*b*m*x**3*x
**m/(m**3 + 6*m**2 + 11*m + 6) + 2*B*b*x**3*x**m/(m**3 + 6*m**2 +
 11*m + 6), True))
```

GIAC/XCAS [A] time = 0.213786, size = 225, normalized size = 5.

$$\frac{Bbm^{2}x^{3}e^{(m\ln(x))} + Bam^{2}x^{2}e^{(m\ln(x))} + Abm^{2}x^{2}e^{(m\ln(x))} + 3\,Bbmx^{3}e^{(m\ln(x))} + Aam^{2}xe^{(m\ln(x))} + 4\,Bamx^{2}e^{(m\ln(x))} + 4\,Abmx^{2}e^{(ml}}{m^{3} + 6\,m^{2} + 11\,m + 6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*x^m,x, algorithm="giac")
```

```
[Out] (B*b*m^2*x^3*e^(m*ln(x)) + B*a*m^2*x^2*e^(m*ln(x)) + A*b*m^2*x^2*
e^(m*ln(x)) + 3*B*b*m*x^3*e^(m*ln(x)) + A*a*m^2*x*e^(m*ln(x)) + 4
*B*a*m*x^2*e^(m*ln(x)) + 4*A*b*m*x^2*e^(m*ln(x)) + 2*B*b*x^3*e^(m
*ln(x)) + 5*A*a*m*x*e^(m*ln(x)) + 3*B*a*x^2*e^(m*ln(x)) + 3*A*b*x
^2*e^(m*ln(x)) + 6*A*a*x*e^(m*ln(x)))/(m^3 + 6*m^2 + 11*m + 6)
```

3.345 $\int \frac{x^m(A+Bx)}{a+bx}\,dx$

Optimal. Leaf size=56

$$\frac{x^{m+1}(Ab-aB)\,{}_2F_1\left(1,m+1;m+2;-\frac{bx}{a}\right)}{ab(m+1)}+\frac{Bx^{m+1}}{b(m+1)}$$

```
[Out] (B*x^(1 + m))/(b*(1 + m)) + ((A*b - a*B)*x^(1 + m)*Hypergeometric
2F1[1, 1 + m, 2 + m, -((b*x)/a)])/(a*b*(1 + m))
```

Rubi [A] time = 0.0748232, antiderivative size = 56, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$\frac{x^{m+1}(Ab-aB)\,{}_2F_1\left(1,m+1;m+2;-\frac{bx}{a}\right)}{ab(m+1)}+\frac{Bx^{m+1}}{b(m+1)}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^m*(A + B*x))/(a + b*x),x]
```

```
[Out] (B*x^(1 + m))/(b*(1 + m)) + ((A*b - a*B)*x^(1 + m)*Hypergeometric
2F1[1, 1 + m, 2 + m, -((b*x)/a)])/(a*b*(1 + m))
```

Rubi in Sympy [A] time = 7.43386, size = 41, normalized size = 0.73

$$\frac{Bx^{m+1}}{b\,(m+1)}+\frac{x^{m+1}\,(Ab-Ba)\,{}_2F_1\left(\begin{matrix}1,m+1\\ m+2\end{matrix}\middle|-\frac{bx}{a}\right)}{ab\,(m+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**m*(B*x+A)/(b*x+a),x)
```

```
[Out] B*x**(m + 1)/(b*(m + 1)) + x**(m + 1)*(A*b - B*a)*hyper((1, m + 1
), (m + 2,), -b*x/a)/(a*b*(m + 1))
```

Mathematica [A] time = 0.0579569, size = 45, normalized size = 0.8

$$\frac{x^{m+1}\left((Ab-aB)\,{}_2F_1\left(1,m+1;m+2;-\frac{bx}{a}\right)+aB\right)}{ab(m+1)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^m*(A + B*x))/(a + b*x),x]
```

```
[Out] (x^(1 + m)*(a*B + (A*b - a*B)*Hypergeometric2F1[1, 1 + m, 2 + m,
-((b*x)/a)]))/(a*b*(1 + m))
```

Maple [F] time = 0.061, size = 0, normalized size = 0.

$$\int \frac{x^m\,(Bx+A)}{bx+a}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^m*(B*x+A)/(b*x+a),x)
```

```
[Out] int(x^m*(B*x+A)/(b*x+a),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(Bx + A)x^m}{bx + a}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^m/(b*x + a),x, algorithm="maxima")
```

```
[Out] integrate((B*x + A)*x^m/(b*x + a), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(Bx + A)x^m}{bx + a}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^m/(b*x + a),x, algorithm="fricas")
```

```
[Out] integral((B*x + A)*x^m/(b*x + a), x)
```

Sympy [A] time = 6.21045, size = 136, normalized size = 2.43

$$\frac{Amxx^m\left(\frac{bxe^{i\pi}}{a}, 1, m+1\right)(m+1)}{a(m+2)} + \frac{Axx^m\left(\frac{bxe^{i\pi}}{a}, 1, m+1\right)(m+1)}{a(m+2)} + \frac{Bmx^2x^m\left(\frac{bxe^{i\pi}}{a}, 1, m+2\right)(m+2)}{a(m+3)} + \frac{2Bx^2x^m\left(\frac{bxe^{i\pi}}{a}, 1, m+2\right)(m+2)}{a(m+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**m*(B*x+A)/(b*x+a),x)
```

```
[Out] A*m*x*x**m*lerchphi(b*x*exp_polar(I*pi)/a, 1, m + 1)*gamma(m + 1)
/(a*gamma(m + 2)) + A*x*x**m*lerchphi(b*x*exp_polar(I*pi)/a, 1, m
 + 1)*gamma(m + 1)/(a*gamma(m + 2)) + B*m*x**2*x**m*lerchphi(b*x*
exp_polar(I*pi)/a, 1, m + 2)*gamma(m + 2)/(a*gamma(m + 3)) + 2*B*
x**2*x**m*lerchphi(b*x*exp_polar(I*pi)/a, 1, m + 2)*gamma(m + 2)/
(a*gamma(m + 3))
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(Bx + A)x^m}{bx + a}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^m/(b*x + a),x, algorithm="giac")

[Out] integrate((B*x + A)*x^m/(b*x + a), x)
```

3.346 $\int \frac{x^m(A+Bx)}{(a+bx)^2}\,dx$

Optimal. Leaf size=73

$$\frac{x^{m+1}(Ab-aB)}{ab(a+bx)}-\frac{x^{m+1}(Abm-aB(m+1))\,{}_2F_1\left(1,m+1;m+2;-\frac{bx}{a}\right)}{a^2b(m+1)}$$

```
[Out] ((A*b - a*B)*x^(1 + m))/(a*b*(a + b*x)) - ((A*b*m - a*B*(1 + m))*
x^(1 + m)*Hypergeometric2F1[1, 1 + m, 2 + m, -((b*x)/a)])/(a^2*b*
(1 + m))
```

Rubi [A] time = 0.0841456, antiderivative size = 73, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$\frac{x^{m+1}(Ab-aB)}{ab(a+bx)}-\frac{x^{m+1}(Abm-aB(m+1))\,{}_2F_1\left(1,m+1;m+2;-\frac{bx}{a}\right)}{a^2b(m+1)}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^m*(A + B*x))/(a + b*x)^2,x]
```

```
[Out] ((A*b - a*B)*x^(1 + m))/(a*b*(a + b*x)) - ((A*b*m - a*B*(1 + m))*
x^(1 + m)*Hypergeometric2F1[1, 1 + m, 2 + m, -((b*x)/a)])/(a^2*b*
(1 + m))
```

Rubi in Sympy [A] time = 8.76028, size = 56, normalized size = 0.77

$$\frac{x^{m+1}\left(Ab-Ba\right)}{ab\left(a+bx\right)}-\frac{x^{m+1}\left(Abm-Ba\left(m+1\right)\right){}_2F_1\left(\begin{matrix}1,m+1\\m+2\end{matrix}\middle|-\frac{bx}{a}\right)}{a^2b\left(m+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**m*(B*x+A)/(b*x+a)**2,x)
```

```
[Out] x**(m + 1)*(A*b - B*a)/(a*b*(a + b*x)) - x**(m + 1)*(A*b*m - B*a*
(m + 1))*hyper((1, m + 1), (m + 2,), -b*x/a)/(a**2*b*(m + 1))
```

Mathematica [A] time = 0.0635272, size = 60, normalized size = 0.82

$$\frac{x^{m+1}\left((Ab-aB)\,{}_2F_1\left(2,m+1;m+2;-\frac{bx}{a}\right)+aB\,{}_2F_1\left(1,m+1;m+2;-\frac{bx}{a}\right)\right)}{a^2b(m+1)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^m*(A + B*x))/(a + b*x)^2,x]
```

```
[Out] (x^(1 + m)*(a*B*Hypergeometric2F1[1, 1 + m, 2 + m, -((b*x)/a)] +
(A*b - a*B)*Hypergeometric2F1[2, 1 + m, 2 + m, -((b*x)/a)]))/(a^2
*b*(1 + m))
```

Maple [F] time = 0.052, size = 0, normalized size = 0.

$$\int \frac{x^m (Bx + A)}{(bx + a)^2} dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^m*(B*x+A)/(b*x+a)^2,x)
```

```
[Out] int(x^m*(B*x+A)/(b*x+a)^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(Bx + A)x^m}{(bx + a)^2} dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*x^m/(b*x + a)^2,x, algorithm="maxima")
```

```
[Out] integrate((B*x + A)*x^m/(b*x + a)^2, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(Bx + A)x^m}{b^2x^2 + 2\,abx + a^2}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*x^m/(b*x + a)^2,x, algorithm="fricas")
```

```
[Out] integral((B*x + A)*x^m/(b^2*x^2 + 2*a*b*x + a^2), x)
```

Sympy [A] time = 11.4786, size = 639, normalized size = 8.75

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**m*(B*x+A)/(b*x+a)**2,x)
```

```
[Out] A*(-a*m**2*x*x**m*lerchphi(b*x*exp_polar(I*pi)/a, 1, m + 1)*gamma
(m + 1)/(a**3*gamma(m + 2) + a**2*b*x*gamma(m + 2)) - a*m*x*x**m*
lerchphi(b*x*exp_polar(I*pi)/a, 1, m + 1)*gamma(m + 1)/(a**3*gamm
a(m + 2) + a**2*b*x*gamma(m + 2)) + a*m*x*x**m*gamma(m + 1)/(a**3
*gamma(m + 2) + a**2*b*x*gamma(m + 2)) + a*x*x**m*gamma(m + 1)/(a
**3*gamma(m + 2) + a**2*b*x*gamma(m + 2)) - b*m**2*x**2*x**m*lerc
hphi(b*x*exp_polar(I*pi)/a, 1, m + 1)*gamma(m + 1)/(a**3*gamma(m
+ 2) + a**2*b*x*gamma(m + 2)) - b*m*x**2*x**m*lerchphi(b*x*exp_po
lar(I*pi)/a, 1, m + 1)*gamma(m + 1)/(a**3*gamma(m + 2) + a**2*b*x
*gamma(m + 2))) + B*(-a*m**2*x**2*x**m*lerchphi(b*x*exp_polar(I*p
i)/a, 1, m + 2)*gamma(m + 2)/(a**3*gamma(m + 3) + a**2*b*x*gamma(
m + 3)) - 3*a*m*x**2*x**m*lerchphi(b*x*exp_polar(I*pi)/a, 1, m +
2)*gamma(m + 2)/(a**3*gamma(m + 3) + a**2*b*x*gamma(m + 3)) + a*m
*x**2*x**m*gamma(m + 2)/(a**3*gamma(m + 3) + a**2*b*x*gamma(m + 3
)) - 2*a*x**2*x**m*lerchphi(b*x*exp_polar(I*pi)/a, 1, m + 2)*gamm
a(m + 2)/(a**3*gamma(m + 3) + a**2*b*x*gamma(m + 3)) + 2*a*x**2*x
```

```
**m*gamma(m + 2)/(a**3*gamma(m + 3) + a**2*b*x*gamma(m + 3)) - b*
m**2*x**3*x**m*lerchphi(b*x*exp_polar(I*pi)/a, 1, m + 2)*gamma(m
+ 2)/(a**3*gamma(m + 3) + a**2*b*x*gamma(m + 3)) - 3*b*m*x**3*x**
m*lerchphi(b*x*exp_polar(I*pi)/a, 1, m + 2)*gamma(m + 2)/(a**3*ga
mma(m + 3) + a**2*b*x*gamma(m + 3)) - 2*b*x**3*x**m*lerchphi(b*x*
exp_polar(I*pi)/a, 1, m + 2)*gamma(m + 2)/(a**3*gamma(m + 3) + a*
*2*b*x*gamma(m + 3)))
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(Bx + A)x^m}{(bx + a)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^m/(b*x + a)^2,x, algorithm="giac")
```

```
[Out] integrate((B*x + A)*x^m/(b*x + a)^2, x)
```

3.347 $\int \frac{x^m(A+Bx)}{(a+bx)^3}\,dx$

Optimal. Leaf size=81

$$\frac{x^{m+1}(aB(m+1)+Ab(1-m))\,{}_2F_1\left(2,m+1;m+2;-\frac{bx}{a}\right)}{2a^3b(m+1)}+\frac{x^{m+1}(Ab-aB)}{2ab(a+bx)^2}$$

```
[Out] ((A*b - a*B)*x^(1 + m))/(2*a*b*(a + b*x)^2) + ((A*b*(1 - m) + a*B
*(1 + m))*x^(1 + m)*Hypergeometric2F1[2, 1 + m, 2 + m, -((b*x)/a)
])/(2*a^3*b*(1 + m))
```

Rubi [A] time = 0.100127, antiderivative size = 81, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}} = 0.125$

$$\frac{x^{m+1}(aB(m+1)+A(b-bm))\,{}_2F_1\left(2,m+1;m+2;-\frac{bx}{a}\right)}{2a^3b(m+1)}+\frac{x^{m+1}(Ab-aB)}{2ab(a+bx)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^m*(A + B*x))/(a + b*x)^3,x]
```

```
[Out] ((A*b - a*B)*x^(1 + m))/(2*a*b*(a + b*x)^2) + ((a*B*(1 + m) + A*(
b - b*m))*x^(1 + m)*Hypergeometric2F1[2, 1 + m, 2 + m, -((b*x)/a)
])/(2*a^3*b*(1 + m))
```

Rubi in Sympy [A] time = 8.91922, size = 63, normalized size = 0.78

$$\frac{x^{m+1}\left(Ab-Ba\right)}{2ab\left(a+bx\right)^2}+\frac{x^{m+1}\left(Ab\left(-m+1\right)+Ba\left(m+1\right)\right){}_2F_1\left(\left.\begin{matrix}2,m+1\\m+2\end{matrix}\right|-\frac{bx}{a}\right)}{2a^3b\left(m+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**m*(B*x+A)/(b*x+a)**3,x)
```

```
[Out] x**(m + 1)*(A*b - B*a)/(2*a*b*(a + b*x)**2) + x**(m + 1)*(A*b*(-m
 + 1) + B*a*(m + 1))*hyper((2, m + 1), (m + 2,), -b*x/a)/(2*a**3*
b*(m + 1))
```

Mathematica [A] time = 0.0702465, size = 60, normalized size = 0.74

$$\frac{x^{m+1}\left((Ab-aB)\,{}_2F_1\left(3,m+1;m+2;-\frac{bx}{a}\right)+aB\,{}_2F_1\left(2,m+1;m+2;-\frac{bx}{a}\right)\right)}{a^3b(m+1)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^m*(A + B*x))/(a + b*x)^3,x]
```

```
[Out] (x^(1 + m)*(a*B*Hypergeometric2F1[2, 1 + m, 2 + m, -((b*x)/a)] +
(A*b - a*B)*Hypergeometric2F1[3, 1 + m, 2 + m, -((b*x)/a)]))/(a^3
*b*(1 + m))
```

Maple [F] time = 0.067, size = 0, normalized size = 0.

$$\int \frac{x^m (Bx + A)}{(bx + a)^3}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^m*(B*x+A)/(b*x+a)^3,x)
```

```
[Out] int(x^m*(B*x+A)/(b*x+a)^3,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(Bx + A)x^m}{(bx + a)^3}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^m/(b*x + a)^3,x, algorithm="maxima")
```

```
[Out] integrate((B*x + A)*x^m/(b*x + a)^3, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(Bx + A)x^m}{b^3x^3 + 3\,ab^2x^2 + 3\,a^2bx + a^3}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^m/(b*x + a)^3,x, algorithm="fricas")
```

```
[Out] integral((B*x + A)*x^m/(b^3*x^3 + 3*a*b^2*x^2 + 3*a^2*b*x + a^3),
 x)
```

Sympy [A] time = 16.4864, size = 1680, normalized size = 20.74

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**m*(B*x+A)/(b*x+a)**3,x)
```

```
[Out] A*(a**2*m**3*x*x**m*lerchphi(b*x*exp_polar(I*pi)/a, 1, m + 1)*gam
ma(m + 1)/(2*a**5*gamma(m + 2) + 4*a**4*b*x*gamma(m + 2) + 2*a**3
*b**2*x**2*gamma(m + 2)) - a**2*m**2*x*x**m*gamma(m + 1)/(2*a**5*
gamma(m + 2) + 4*a**4*b*x*gamma(m + 2) + 2*a**3*b**2*x**2*gamma(m
 + 2)) - a**2*m*x*x**m*lerchphi(b*x*exp_polar(I*pi)/a, 1, m + 1)*
gamma(m + 1)/(2*a**5*gamma(m + 2) + 4*a**4*b*x*gamma(m + 2) + 2*a
**3*b**2*x**2*gamma(m + 2)) + a**2*m*x*x**m*gamma(m + 1)/(2*a**5*
gamma(m + 2) + 4*a**4*b*x*gamma(m + 2) + 2*a**3*b**2*x**2*gamma(m
 + 2)) + 2*a**2*x*x**m*gamma(m + 1)/(2*a**5*gamma(m + 2) + 4*a**4
*b*x*gamma(m + 2) + 2*a**3*b**2*x**2*gamma(m + 2)) + 2*a*b*m**3*x
**2*x**m*lerchphi(b*x*exp_polar(I*pi)/a, 1, m + 1)*gamma(m + 1)/(
2*a**5*gamma(m + 2) + 4*a**4*b*x*gamma(m + 2) + 2*a**3*b**2*x**2*
gamma(m + 2)) - a*b*m**2*x**2*x**m*gamma(m + 1)/(2*a**5*gamma(m +
 2) + 4*a**4*b*x*gamma(m + 2) + 2*a**3*b**2*x**2*gamma(m + 2)) -
2*a*b*m*x**2*x**m*lerchphi(b*x*exp_polar(I*pi)/a, 1, m + 1)*gamma
```

```
(m + 1)/(2*a**5*gamma(m + 2) + 4*a**4*b*x*gamma(m + 2) + 2*a**3*b
**2*x**2*gamma(m + 2)) + a*b*x**2*x**m*gamma(m + 1)/(2*a**5*gamma
(m + 2) + 4*a**4*b*x*gamma(m + 2) + 2*a**3*b**2*x**2*gamma(m + 2)
) + b**2*m**3*x**3*x**m*lerchphi(b*x*exp_polar(I*pi)/a, 1, m + 1)
*gamma(m + 1)/(2*a**5*gamma(m + 2) + 4*a**4*b*x*gamma(m + 2) + 2*
a**3*b**2*x**2*gamma(m + 2)) - b**2*m*x**3*x**m*lerchphi(b*x*exp_
polar(I*pi)/a, 1, m + 1)*gamma(m + 1)/(2*a**5*gamma(m + 2) + 4*a*
*4*b*x*gamma(m + 2) + 2*a**3*b**2*x**2*gamma(m + 2))) + B*(a**2*m
**3*x**2*x**m*lerchphi(b*x*exp_polar(I*pi)/a, 1, m + 2)*gamma(m +
 2)/(2*a**5*gamma(m + 3) + 4*a**4*b*x*gamma(m + 3) + 2*a**3*b**2*
x**2*gamma(m + 3)) + 3*a**2*m**2*x**2*x**m*lerchphi(b*x*exp_polar
(I*pi)/a, 1, m + 2)*gamma(m + 2)/(2*a**5*gamma(m + 3) + 4*a**4*b*
x*gamma(m + 3) + 2*a**3*b**2*x**2*gamma(m + 3)) - a**2*m**2*x**2*
x**m*gamma(m + 2)/(2*a**5*gamma(m + 3) + 4*a**4*b*x*gamma(m + 3)
+ 2*a**3*b**2*x**2*gamma(m + 3)) + 2*a**2*m*x**2*x**m*lerchphi(b*
x*exp_polar(I*pi)/a, 1, m + 2)*gamma(m + 2)/(2*a**5*gamma(m + 3)
+ 4*a**4*b*x*gamma(m + 3) + 2*a**3*b**2*x**2*gamma(m + 3)) - a**2
*m*x**2*x**m*gamma(m + 2)/(2*a**5*gamma(m + 3) + 4*a**4*b*x*gamma
(m + 3) + 2*a**3*b**2*x**2*gamma(m + 3)) + 2*a**2*x**2*x**m*gamma
(m + 2)/(2*a**5*gamma(m + 3) + 4*a**4*b*x*gamma(m + 3) + 2*a**3*b
**2*x**2*gamma(m + 3)) + 2*a*b*m**3*x**3*x**m*lerchphi(b*x*exp_po
lar(I*pi)/a, 1, m + 2)*gamma(m + 2)/(2*a**5*gamma(m + 3) + 4*a**4
*b*x*gamma(m + 3) + 2*a**3*b**2*x**2*gamma(m + 3)) + 6*a*b*m**2*x
**3*x**m*lerchphi(b*x*exp_polar(I*pi)/a, 1, m + 2)*gamma(m + 2)/(
2*a**5*gamma(m + 3) + 4*a**4*b*x*gamma(m + 3) + 2*a**3*b**2*x**2*
gamma(m + 3)) - a*b*m**2*x**3*x**m*gamma(m + 2)/(2*a**5*gamma(m +
 3) + 4*a**4*b*x*gamma(m + 3) + 2*a**3*b**2*x**2*gamma(m + 3)) +
4*a*b*m*x**3*x**m*lerchphi(b*x*exp_polar(I*pi)/a, 1, m + 2)*gamma
(m + 2)/(2*a**5*gamma(m + 3) + 4*a**4*b*x*gamma(m + 3) + 2*a**3*b
**2*x**2*gamma(m + 3)) - 2*a*b*m*x**3*x**m*gamma(m + 2)/(2*a**5*g
amma(m + 3) + 4*a**4*b*x*gamma(m + 3) + 2*a**3*b**2*x**2*gamma(m
+ 3)) + b**2*m**3*x**4*x**m*lerchphi(b*x*exp_polar(I*pi)/a, 1, m
+ 2)*gamma(m + 2)/(2*a**5*gamma(m + 3) + 4*a**4*b*x*gamma(m + 3)
+ 2*a**3*b**2*x**2*gamma(m + 3)) + 3*b**2*m**2*x**4*x**m*lerchphi
(b*x*exp_polar(I*pi)/a, 1, m + 2)*gamma(m + 2)/(2*a**5*gamma(m +
3) + 4*a**4*b*x*gamma(m + 3) + 2*a**3*b**2*x**2*gamma(m + 3)) + 2
*b**2*m*x**4*x**m*lerchphi(b*x*exp_polar(I*pi)/a, 1, m + 2)*gamma
(m + 2)/(2*a**5*gamma(m + 3) + 4*a**4*b*x*gamma(m + 3) + 2*a**3*b
**2*x**2*gamma(m + 3)))
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(Bx+A)x^m}{(bx+a)^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^m/(b*x + a)^3,x, algorithm="giac")
```

```
[Out] integrate((B*x + A)*x^m/(b*x + a)^3, x)
```

3.348 $\int x^m(a+bx)^2(c+dx)^5\,dx$

Optimal. Leaf size=231

$$\frac{5c^2dx^{m+4}\left(2a^2d^2+4abcd+b^2c^2\right)}{m+4}+\frac{5cd^2x^{m+5}\left(a^2d^2+4abcd+2b^2c^2\right)}{m+5}+\frac{d^3x^{m+6}\left(a^2d^2+10abcd+10b^2c^2\right)}{m+6}+\frac{c^3x^{m+3}\left(10a^2d^2+10abcd+b^2c^2\right)}{m+3}+\frac{a^2c^5x^{m+1}}{m+1}+\frac{ac^4x^{m+2}(5ad+2bc)}{m+2}+\frac{bd^4x^{m+7}(2ad+5bc)}{m+7}+\frac{b^2d^5x^{m+8}}{m+8}$$

```
[Out] (a^2*c^5*x^(1 + m))/(1 + m) + (a*c^4*(2*b*c + 5*a*d)*x^(2 + m))/(
2 + m) + (c^3*(b^2*c^2 + 10*a*b*c*d + 10*a^2*d^2)*x^(3 + m))/(3 +
 m) + (5*c^2*d*(b^2*c^2 + 4*a*b*c*d + 2*a^2*d^2)*x^(4 + m))/(4 +
m) + (5*c*d^2*(2*b^2*c^2 + 4*a*b*c*d + a^2*d^2)*x^(5 + m))/(5 + m
) + (d^3*(10*b^2*c^2 + 10*a*b*c*d + a^2*d^2)*x^(6 + m))/(6 + m) +
 (b*d^4*(5*b*c + 2*a*d)*x^(7 + m))/(7 + m) + (b^2*d^5*x^(8 + m))/
(8 + m)
```

Rubi [A] time = 0.337795, antiderivative size = 231, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.056$

$$\frac{5c^2dx^{m+4}\left(2a^2d^2+4abcd+b^2c^2\right)}{m+4}+\frac{5cd^2x^{m+5}\left(a^2d^2+4abcd+2b^2c^2\right)}{m+5}+\frac{d^3x^{m+6}\left(a^2d^2+10abcd+10b^2c^2\right)}{m+6}+\frac{c^3x^{m+3}\left(10a^2d^2+10abcd+b^2c^2\right)}{m+3}+\frac{a^2c^5x^{m+1}}{m+1}+\frac{ac^4x^{m+2}(5ad+2bc)}{m+2}+\frac{bd^4x^{m+7}(2ad+5bc)}{m+7}+\frac{b^2d^5x^{m+8}}{m+8}$$

Antiderivative was successfully verified.

```
[In]  Int[x^m*(a + b*x)^2*(c + d*x)^5,x]
```

```
[Out] (a^2*c^5*x^(1 + m))/(1 + m) + (a*c^4*(2*b*c + 5*a*d)*x^(2 + m))/(
2 + m) + (c^3*(b^2*c^2 + 10*a*b*c*d + 10*a^2*d^2)*x^(3 + m))/(3 +
 m) + (5*c^2*d*(b^2*c^2 + 4*a*b*c*d + 2*a^2*d^2)*x^(4 + m))/(4 +
m) + (5*c*d^2*(2*b^2*c^2 + 4*a*b*c*d + a^2*d^2)*x^(5 + m))/(5 + m
) + (d^3*(10*b^2*c^2 + 10*a*b*c*d + a^2*d^2)*x^(6 + m))/(6 + m) +
 (b*d^4*(5*b*c + 2*a*d)*x^(7 + m))/(7 + m) + (b^2*d^5*x^(8 + m))/
(8 + m)
```

Rubi in Sympy [A] time = 52.872, size = 226, normalized size = 0.98

$$\frac{a^2c^5x^{m+1}}{m+1}+\frac{ac^4x^{m+2}\left(5ad+2bc\right)}{m+2}+\frac{b^2d^5x^{m+8}}{m+8}+\frac{bd^4x^{m+7}\left(2ad+5bc\right)}{m+7}+\frac{c^3x^{m+3}\left(10a^2d^2+10abcd+b^2c^2\right)}{m+3}+\frac{5c^2dx^{m+4}\left(2a^2d^2+4abcd+b^2c^2\right)}{m+4}+\frac{5cd^2x^{m+5}\left(a^2d^2+4abcd+2b^2c^2\right)}{m+5}+\frac{d^3x^{m+6}\left(a^2d^2+10abcd+10b^2c^2\right)}{m+6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**m*(b*x+a)**2*(d*x+c)**5,x)
```

```
[Out] a**2*c**5*x**(m + 1)/(m + 1) + a*c**4*x**(m + 2)*(5*a*d + 2*b*c)/
(m + 2) + b**2*d**5*x**(m + 8)/(m + 8) + b*d**4*x**(m + 7)*(2*a*d
 + 5*b*c)/(m + 7) + c**3*x**(m + 3)*(10*a**2*d**2 + 10*a*b*c*d +
b**2*c**2)/(m + 3) + 5*c**2*d*x**(m + 4)*(2*a**2*d**2 + 4*a*b*c*d
 + b**2*c**2)/(m + 4) + 5*c*d**2*x**(m + 5)*(a**2*d**2 + 4*a*b*c*
d + 2*b**2*c**2)/(m + 5) + d**3*x**(m + 6)*(a**2*d**2 + 10*a*b*c*
```

```
d + 10*b**2*c**2)/(m + 6)
```

Mathematica [A] time = 0.327851, size = 217, normalized size = 0.94

$$x^m\left(\frac{5cd^2x^5\left(a^2d^2+4abcd+2b^2c^2\right)}{m+5}+\frac{5c^2dx^4\left(2a^2d^2+4abcd+b^2c^2\right)}{m+4}+\frac{d^3x^6\left(a^2d^2+10abcd+10b^2c^2\right)}{m+6}+\frac{c^3x^3\left(10a^2d^2+10abcd+b^2c^2\right)}{m+3}+\frac{a^2c^5x}{m+1}+\frac{ac^4x^2(5ad+2bc)}{m+2}+\frac{bd^4x^7(2ad+5bc)}{m+7}+\frac{b^2d^5x^8}{m+8}\right)$$

Antiderivative was successfully verified.

```
[In]   Integrate[x^m*(a + b*x)^2*(c + d*x)^5,x]
```

```
[Out] x^m*((a^2*c^5*x)/(1 + m) + (a*c^4*(2*b*c + 5*a*d)*x^2)/(2 + m) +
(c^3*(b^2*c^2 + 10*a*b*c*d + 10*a^2*d^2)*x^3)/(3 + m) + (5*c^2*d*
(b^2*c^2 + 4*a*b*c*d + 2*a^2*d^2)*x^4)/(4 + m) + (5*c*d^2*(2*b^2*
c^2 + 4*a*b*c*d + a^2*d^2)*x^5)/(5 + m) + (d^3*(10*b^2*c^2 + 10*a
*b*c*d + a^2*d^2)*x^6)/(6 + m) + (b*d^4*(5*b*c + 2*a*d)*x^7)/(7 +
 m) + (b^2*d^5*x^8)/(8 + m))
```

Maple [B] time = 0.011, size = 2058, normalized size = 8.9

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int(x^m*(b*x+a)^2*(d*x+c)^5,x)
```

```
[Out] x^(1+m)*(b^2*d^5*m^7*x^7+2*a*b*d^5*m^7*x^6+5*b^2*c*d^4*m^7*x^6+28
*b^2*d^5*m^6*x^7+a^2*d^5*m^7*x^5+10*a*b*c*d^4*m^7*x^5+58*a*b*d^5*
m^6*x^6+10*b^2*c^2*d^3*m^7*x^5+145*b^2*c*d^4*m^6*x^6+322*b^2*d^5*
m^5*x^7+5*a^2*c*d^4*m^7*x^4+30*a^2*d^5*m^6*x^5+20*a*b*c^2*d^3*m^7
*x^4+300*a*b*c*d^4*m^6*x^5+686*a*b*d^5*m^5*x^6+10*b^2*c^3*d^2*m^7
*x^4+300*b^2*c^2*d^3*m^6*x^5+1715*b^2*c*d^4*m^5*x^6+1960*b^2*d^5*
m^4*x^7+10*a^2*c^2*d^3*m^7*x^3+155*a^2*c*d^4*m^6*x^4+366*a^2*d^5*
m^5*x^5+20*a*b*c^3*d^2*m^7*x^3+620*a*b*c^2*d^3*m^6*x^4+3660*a*b*c
*d^4*m^5*x^5+4270*a*b*d^5*m^4*x^6+5*b^2*c^4*d*m^7*x^3+310*b^2*c^3
*d^2*m^6*x^4+3660*b^2*c^2*d^3*m^5*x^5+10675*b^2*c*d^4*m^4*x^6+676
9*b^2*d^5*m^3*x^7+10*a^2*c^3*d^2*m^7*x^2+320*a^2*c^2*d^3*m^6*x^3+
1955*a^2*c*d^4*m^5*x^4+2340*a^2*d^5*m^4*x^5+10*a*b*c^4*d*m^7*x^2+
640*a*b*c^3*d^2*m^6*x^3+7820*a*b*c^2*d^3*m^5*x^4+23400*a*b*c*d^4*
m^4*x^5+15008*a*b*d^5*m^3*x^6+b^2*c^5*m^7*x^2+160*b^2*c^4*d*m^6*x
^3+3910*b^2*c^3*d^2*m^5*x^4+23400*b^2*c^2*d^3*m^4*x^5+37520*b^2*c
*d^4*m^3*x^6+13132*b^2*d^5*m^2*x^7+5*a^2*c^4*d*m^7*x+330*a^2*c^3*
d^2*m^6*x^2+4180*a^2*c^2*d^3*m^5*x^3+12905*a^2*c*d^4*m^4*x^4+8409
*a^2*d^5*m^3*x^5+2*a*b*c^5*m^7*x+330*a*b*c^4*d*m^6*x^2+8360*a*b*c
^3*d^2*m^5*x^3+51620*a*b*c^2*d^3*m^4*x^4+84090*a*b*c*d^4*m^3*x^5+
29512*a*b*d^5*m^2*x^6+33*b^2*c^5*m^6*x^2+2090*b^2*c^4*d*m^5*x^3+2
5810*b^2*c^3*d^2*m^4*x^4+84090*b^2*c^2*d^3*m^3*x^5+73780*b^2*c*d^
4*m^2*x^6+13068*b^2*d^5*m*x^7+a^2*c^5*m^7+170*a^2*c^4*d*m^6*x+447
0*a^2*c^3*d^2*m^5*x^2+28640*a^2*c^2*d^3*m^4*x^3+47720*a^2*c*d^4*m
^3*x^4+16830*a^2*d^5*m^2*x^5+68*a*b*c^5*m^6*x+4470*a*b*c^4*d*m^5*
x^2+57280*a*b*c^3*d^2*m^4*x^3+190880*a*b*c^2*d^3*m^3*x^4+168300*a
*b*c*d^4*m^2*x^5+29664*a*b*d^5*m*x^6+447*b^2*c^5*m^5*x^2+14320*b^
2*c^4*d*m^4*x^3+95440*b^2*c^3*d^2*m^3*x^4+168300*b^2*c^2*d^3*m^2*
x^5+74160*b^2*c*d^4*m*x^6+5040*b^2*d^5*x^7+35*a^2*c^5*m^6+2390*a^
2*c^4*d*m^5*x+31950*a^2*c^3*d^2*m^4*x^2+109930*a^2*c^2*d^3*m^3*x^
3+97820*a^2*c*d^4*m^2*x^4+17144*a^2*d^5*m*x^5+956*a*b*c^5*m^5*x+3
1950*a*b*c^4*d*m^4*x^2+219860*a*b*c^3*d^2*m^3*x^3+391280*a*b*c^2*
d^3*m^2*x^4+171440*a*b*c*d^4*m*x^5+11520*a*b*d^5*x^6+3195*b^2*c^5
*m^4*x^2+54965*b^2*c^4*d*m^3*x^3+195640*b^2*c^3*d^2*m^2*x^4+17144
0*b^2*c^2*d^3*m*x^5+28800*b^2*c*d^4*x^6+511*a^2*c^5*m^5+17900*a^2
```

```
*c^4*d*m^4*x+128640*a^2*c^3*d^2*m^3*x^2+233120*a^2*c^2*d^3*m^2*x^
3+101520*a^2*c*d^4*m*x^4+6720*a^2*d^5*x^5+7160*a*b*c^5*m^4*x+1286
40*a*b*c^4*d*m^3*x^2+466240*a*b*c^3*d^2*m^2*x^3+406080*a*b*c^2*d^
3*m*x^4+67200*a*b*c*d^4*x^5+12864*b^2*c^5*m^3*x^2+116560*b^2*c^4*
d*m^2*x^3+203040*b^2*c^3*d^2*m*x^4+67200*b^2*c^2*d^3*x^5+4025*a^2
*c^5*m^4+76445*a^2*c^4*d*m^3*x+286920*a^2*c^3*d^2*m^2*x^2+248760*
a^2*c^2*d^3*m*x^3+40320*a^2*c*d^4*x^4+30578*a*b*c^5*m^3*x+286920*
a*b*c^4*d*m^2*x^2+497520*a*b*c^3*d^2*m*x^3+161280*a*b*c^2*d^3*x^4
+28692*b^2*c^5*m^2*x^2+124380*b^2*c^4*d*m*x^3+80640*b^2*c^3*d^2*x
^4+18424*a^2*c^5*m^3+183530*a^2*c^4*d*m^2*x+320480*a^2*c^3*d^2*m*
x^2+100800*a^2*c^2*d^3*x^3+73412*a*b*c^5*m^2*x+320480*a*b*c^4*d*m
*x^2+201600*a*b*c^3*d^2*x^3+32048*b^2*c^5*m*x^2+50400*b^2*c^4*d*x
^3+48860*a^2*c^5*m^2+223560*a^2*c^4*d*m*x+134400*a^2*c^3*d^2*x^2+
89424*a*b*c^5*m*x+134400*a*b*c^4*d*x^2+13440*b^2*c^5*x^2+69264*a^
2*c^5*m+100800*a^2*c^4*d*x+40320*a*b*c^5*x+40320*a^2*c^5)/(8+m)/(
7+m)/(6+m)/(5+m)/(4+m)/(3+m)/(2+m)/(1+m)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^2*(d*x + c)^5*x^m,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.231193, size = 2191, normalized size = 9.48

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^2*(d*x + c)^5*x^m,x, algorithm="fricas")
```

```
[Out] ((b^2*d^5*m^7 + 28*b^2*d^5*m^6 + 322*b^2*d^5*m^5 + 1960*b^2*d^5*m
^4 + 6769*b^2*d^5*m^3 + 13132*b^2*d^5*m^2 + 13068*b^2*d^5*m + 504
0*b^2*d^5)*x^8 + ((5*b^2*c*d^4 + 2*a*b*d^5)*m^7 + 28800*b^2*c*d^4
 + 11520*a*b*d^5 + 29*(5*b^2*c*d^4 + 2*a*b*d^5)*m^6 + 343*(5*b^2*
c*d^4 + 2*a*b*d^5)*m^5 + 2135*(5*b^2*c*d^4 + 2*a*b*d^5)*m^4 + 750
4*(5*b^2*c*d^4 + 2*a*b*d^5)*m^3 + 14756*(5*b^2*c*d^4 + 2*a*b*d^5)
*m^2 + 14832*(5*b^2*c*d^4 + 2*a*b*d^5)*m)*x^7 + ((10*b^2*c^2*d^3
+ 10*a*b*c*d^4 + a^2*d^5)*m^7 + 67200*b^2*c^2*d^3 + 67200*a*b*c*d
^4 + 6720*a^2*d^5 + 30*(10*b^2*c^2*d^3 + 10*a*b*c*d^4 + a^2*d^5)*
m^6 + 366*(10*b^2*c^2*d^3 + 10*a*b*c*d^4 + a^2*d^5)*m^5 + 2340*(1
0*b^2*c^2*d^3 + 10*a*b*c*d^4 + a^2*d^5)*m^4 + 8409*(10*b^2*c^2*d^
3 + 10*a*b*c*d^4 + a^2*d^5)*m^3 + 16830*(10*b^2*c^2*d^3 + 10*a*b*
c*d^4 + a^2*d^5)*m^2 + 17144*(10*b^2*c^2*d^3 + 10*a*b*c*d^4 + a^2
*d^5)*m)*x^6 + 5*((2*b^2*c^3*d^2 + 4*a*b*c^2*d^3 + a^2*c*d^4)*m^7
 + 16128*b^2*c^3*d^2 + 32256*a*b*c^2*d^3 + 8064*a^2*c*d^4 + 31*(2
*b^2*c^3*d^2 + 4*a*b*c^2*d^3 + a^2*c*d^4)*m^6 + 391*(2*b^2*c^3*d^
2 + 4*a*b*c^2*d^3 + a^2*c*d^4)*m^5 + 2581*(2*b^2*c^3*d^2 + 4*a*b*
c^2*d^3 + a^2*c*d^4)*m^4 + 9544*(2*b^2*c^3*d^2 + 4*a*b*c^2*d^3 +
a^2*c*d^4)*m^3 + 19564*(2*b^2*c^3*d^2 + 4*a*b*c^2*d^3 + a^2*c*d^4
)*m^2 + 20304*(2*b^2*c^3*d^2 + 4*a*b*c^2*d^3 + a^2*c*d^4)*m)*x^5
+ 5*((b^2*c^4*d + 4*a*b*c^3*d^2 + 2*a^2*c^2*d^3)*m^7 + 10080*b^2*
c^4*d + 40320*a*b*c^3*d^2 + 20160*a^2*c^2*d^3 + 32*(b^2*c^4*d + 4
*a*b*c^3*d^2 + 2*a^2*c^2*d^3)*m^6 + 418*(b^2*c^4*d + 4*a*b*c^3*d^
2 + 2*a^2*c^2*d^3)*m^5 + 2864*(b^2*c^4*d + 4*a*b*c^3*d^2 + 2*a^2*
c^2*d^3)*m^4 + 10993*(b^2*c^4*d + 4*a*b*c^3*d^2 + 2*a^2*c^2*d^3)*
m^3 + 23312*(b^2*c^4*d + 4*a*b*c^3*d^2 + 2*a^2*c^2*d^3)*m^2 + 248
76*(b^2*c^4*d + 4*a*b*c^3*d^2 + 2*a^2*c^2*d^3)*m)*x^4 + ((b^2*c^5
 + 10*a*b*c^4*d + 10*a^2*c^3*d^2)*m^7 + 13440*b^2*c^5 + 134400*a*
b*c^4*d + 134400*a^2*c^3*d^2 + 33*(b^2*c^5 + 10*a*b*c^4*d + 10*a^
2*c^3*d^2)*m^6 + 447*(b^2*c^5 + 10*a*b*c^4*d + 10*a^2*c^3*d^2)*m^
```

```
5 + 3195*(b^2*c^5 + 10*a*b*c^4*d + 10*a^2*c^3*d^2)*m^4 + 12864*(b
^2*c^5 + 10*a*b*c^4*d + 10*a^2*c^3*d^2)*m^3 + 28692*(b^2*c^5 + 10
*a*b*c^4*d + 10*a^2*c^3*d^2)*m^2 + 32048*(b^2*c^5 + 10*a*b*c^4*d
+ 10*a^2*c^3*d^2)*m)*x^3 + ((2*a*b*c^5 + 5*a^2*c^4*d)*m^7 + 40320
*a*b*c^5 + 100800*a^2*c^4*d + 34*(2*a*b*c^5 + 5*a^2*c^4*d)*m^6 +
478*(2*a*b*c^5 + 5*a^2*c^4*d)*m^5 + 3580*(2*a*b*c^5 + 5*a^2*c^4*d
)*m^4 + 15289*(2*a*b*c^5 + 5*a^2*c^4*d)*m^3 + 36706*(2*a*b*c^5 +
5*a^2*c^4*d)*m^2 + 44712*(2*a*b*c^5 + 5*a^2*c^4*d)*m)*x^2 + (a^2*
c^5*m^7 + 35*a^2*c^5*m^6 + 511*a^2*c^5*m^5 + 4025*a^2*c^5*m^4 + 1
8424*a^2*c^5*m^3 + 48860*a^2*c^5*m^2 + 69264*a^2*c^5*m + 40320*a^
2*c^5)*x)*x^m/(m^8 + 36*m^7 + 546*m^6 + 4536*m^5 + 22449*m^4 + 67
284*m^3 + 118124*m^2 + 109584*m + 40320)
```

Sympy [A] time = 15.5358, size = 10401, normalized size = 45.03

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**m*(b*x+a)**2*(d*x+c)**5,x)
```

```
[Out] Piecewise((-a**2*c**5/(7*x**7) - 5*a**2*c**4*d/(6*x**6) - 2*a**2*
c**3*d**2/x**5 - 5*a**2*c**2*d**3/(2*x**4) - 5*a**2*c*d**4/(3*x**
3) - a**2*d**5/(2*x**2) - a*b*c**5/(3*x**6) - 2*a*b*c**4*d/x**5 -
 5*a*b*c**3*d**2/x**4 - 20*a*b*c**2*d**3/(3*x**3) - 5*a*b*c*d**4/
x**2 - 2*a*b*d**5/x - b**2*c**5/(5*x**5) - 5*b**2*c**4*d/(4*x**4)
 - 10*b**2*c**3*d**2/(3*x**3) - 5*b**2*c**2*d**3/x**2 - 5*b**2*c*
d**4/x + b**2*d**5*log(x), Eq(m, -8)), (-a**2*c**5/(6*x**6) - a**
2*c**4*d/x**5 - 5*a**2*c**3*d**2/(2*x**4) - 10*a**2*c**2*d**3/(3*
x**3) - 5*a**2*c*d**4/(2*x**2) - a**2*d**5/x - 2*a*b*c**5/(5*x**5
) - 5*a*b*c**4*d/(2*x**4) - 20*a*b*c**3*d**2/(3*x**3) - 10*a*b*c*
*2*d**3/x**2 - 10*a*b*c*d**4/x + 2*a*b*d**5*log(x) - b**2*c**5/(4
*x**4) - 5*b**2*c**4*d/(3*x**3) - 5*b**2*c**3*d**2/x**2 - 10*b**2
*c**2*d**3/x + 5*b**2*c*d**4*log(x) + b**2*d**5*x, Eq(m, -7)), (-
a**2*c**5/(5*x**5) - 5*a**2*c**4*d/(4*x**4) - 10*a**2*c**3*d**2/(
3*x**3) - 5*a**2*c**2*d**3/x**2 - 5*a**2*c*d**4/x + a**2*d**5*log
(x) - a*b*c**5/(2*x**4) - 10*a*b*c**4*d/(3*x**3) - 10*a*b*c**3*d*
*2/x**2 - 20*a*b*c**2*d**3/x + 10*a*b*c*d**4*log(x) + 2*a*b*d**5*
x - b**2*c**5/(3*x**3) - 5*b**2*c**4*d/(2*x**2) - 10*b**2*c**3*d*
*2/x + 10*b**2*c**2*d**3*log(x) + 5*b**2*c*d**4*x + b**2*d**5*x**
2/2, Eq(m, -6)), (-a**2*c**5/(4*x**4) - 5*a**2*c**4*d/(3*x**3) -
5*a**2*c**3*d**2/x**2 - 10*a**2*c**2*d**3/x + 5*a**2*c*d**4*log(x
) + a**2*d**5*x - 2*a*b*c**5/(3*x**3) - 5*a*b*c**4*d/x**2 - 20*a*
b*c**3*d**2/x + 20*a*b*c**2*d**3*log(x) + 10*a*b*c*d**4*x + a*b*d
**5*x**2 - b**2*c**5/(2*x**2) - 5*b**2*c**4*d/x + 10*b**2*c**3*d*
*2*log(x) + 10*b**2*c**2*d**3*x + 5*b**2*c*d**4*x**2/2 + b**2*d**
5*x**3/3, Eq(m, -5)), (-a**2*c**5/(3*x**3) - 5*a**2*c**4*d/(2*x**
2) - 10*a**2*c**3*d**2/x + 10*a**2*c**2*d**3*log(x) + 5*a**2*c*d*
*4*x + a**2*d**5*x**2/2 - a*b*c**5/x**2 - 10*a*b*c**4*d/x + 20*a*
b*c**3*d**2*log(x) + 20*a*b*c**2*d**3*x + 5*a*b*c*d**4*x**2 + 2*a
*b*d**5*x**3/3 - b**2*c**5/x + 5*b**2*c**4*d*log(x) + 10*b**2*c**
3*d**2*x + 5*b**2*c**2*d**3*x**2 + 5*b**2*c*d**4*x**3/3 + b**2*d*
*5*x**4/4, Eq(m, -4)), (-a**2*c**5/(2*x**2) - 5*a**2*c**4*d/x + 1
0*a**2*c**3*d**2*log(x) + 10*a**2*c**2*d**3*x + 5*a**2*c*d**4*x**
2/2 + a**2*d**5*x**3/3 - 2*a*b*c**5/x + 10*a*b*c**4*d*log(x) + 20
*a*b*c**3*d**2*x + 10*a*b*c**2*d**3*x**2 + 10*a*b*c*d**4*x**3/3 +
 a*b*d**5*x**4/2 + b**2*c**5*log(x) + 5*b**2*c**4*d*x + 5*b**2*c*
*3*d**2*x**2 + 10*b**2*c**2*d**3*x**3/3 + 5*b**2*c*d**4*x**4/4 +
b**2*d**5*x**5/5, Eq(m, -3)), (-a**2*c**5/x + 5*a**2*c**4*d*log(x
) + 10*a**2*c**3*d**2*x + 5*a**2*c**2*d**3*x**2 + 5*a**2*c*d**4*x
**3/3 + a**2*d**5*x**4/4 + 2*a*b*c**5*log(x) + 10*a*b*c**4*d*x +
10*a*b*c**3*d**2*x**2 + 20*a*b*c**2*d**3*x**3/3 + 5*a*b*c*d**4*x*
*4/2 + 2*a*b*d**5*x**5/5 + b**2*c**5*x + 5*b**2*c**4*d*x**2/2 + 1
0*b**2*c**3*d**2*x**3/3 + 5*b**2*c**2*d**3*x**4/2 + b**2*c*d**4*x
**5 + b**2*d**5*x**6/6, Eq(m, -2)), (a**2*c**5*log(x) + 5*a**2*c*
*4*d*x + 5*a**2*c**3*d**2*x**2 + 10*a**2*c**2*d**3*x**3/3 + 5*a**
2*c*d**4*x**4/4 + a**2*d**5*x**5/5 + 2*a*b*c**5*x + 5*a*b*c**4*d*
x**2 + 20*a*b*c**3*d**2*x**3/3 + 5*a*b*c**2*d**3*x**4 + 2*a*b*c*d
**4*x**5 + a*b*d**5*x**6/3 + b**2*c**5*x**2/2 + 5*b**2*c**4*d*x**
3/3 + 5*b**2*c**3*d**2*x**4/2 + 2*b**2*c**2*d**3*x**5 + 5*b**2*c*
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d**4*x**6/6 + b**2*d**5*x**7/7, Eq(m, -1)), (a**2*c**5*m**7*x*x**
m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**
3 + 118124*m**2 + 109584*m + 40320) + 35*a**2*c**5*m**6*x*x**m/(m
**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 +
118124*m**2 + 109584*m + 40320) + 511*a**2*c**5*m**5*x*x**m/(m**8
 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118
124*m**2 + 109584*m + 40320) + 4025*a**2*c**5*m**4*x*x**m/(m**8 +
 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 11812
4*m**2 + 109584*m + 40320) + 18424*a**2*c**5*m**3*x*x**m/(m**8 +
36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124
*m**2 + 109584*m + 40320) + 48860*a**2*c**5*m**2*x*x**m/(m**8 + 3
6*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*
m**2 + 109584*m + 40320) + 69264*a**2*c**5*m*x*x**m/(m**8 + 36*m*
*7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2
 + 109584*m + 40320) + 40320*a**2*c**5*x*x**m/(m**8 + 36*m**7 + 5
46*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109
584*m + 40320) + 5*a**2*c**4*d*m**7*x**2*x**m/(m**8 + 36*m**7 + 5
46*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109
584*m + 40320) + 170*a**2*c**4*d*m**6*x**2*x**m/(m**8 + 36*m**7 +
 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 1
09584*m + 40320) + 2390*a**2*c**4*d*m**5*x**2*x**m/(m**8 + 36*m**
7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2
+ 109584*m + 40320) + 17900*a**2*c**4*d*m**4*x**2*x**m/(m**8 + 36
*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m
**2 + 109584*m + 40320) + 76445*a**2*c**4*d*m**3*x**2*x**m/(m**8
+ 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 1181
24*m**2 + 109584*m + 40320) + 183530*a**2*c**4*d*m**2*x**2*x**m/(
m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 +
 118124*m**2 + 109584*m + 40320) + 223560*a**2*c**4*d*m*x**2*x**m
/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3
 + 118124*m**2 + 109584*m + 40320) + 100800*a**2*c**4*d*x**2*x**m
/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3
 + 118124*m**2 + 109584*m + 40320) + 10*a**2*c**3*d**2*m**7*x**3*
x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*
m**3 + 118124*m**2 + 109584*m + 40320) + 330*a**2*c**3*d**2*m**6*
x**3*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 6
7284*m**3 + 118124*m**2 + 109584*m + 40320) + 4470*a**2*c**3*d**2
*m**5*x**3*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m*
*4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320) + 31950*a**2*c*
*3*d**2*m**4*x**3*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 2
2449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320) + 128640
*a**2*c**3*d**2*m**3*x**3*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*
m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320)
+ 286920*a**2*c**3*d**2*m**2*x**3*x**m/(m**8 + 36*m**7 + 546*m**6
 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m +
 40320) + 320480*a**2*c**3*d**2*m*x**3*x**m/(m**8 + 36*m**7 + 546
*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 10958
4*m + 40320) + 134400*a**2*c**3*d**2*x**3*x**m/(m**8 + 36*m**7 +
546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 10
9584*m + 40320) + 10*a**2*c**2*d**3*m**7*x**4*x**m/(m**8 + 36*m**
7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2
+ 109584*m + 40320) + 320*a**2*c**2*d**3*m**6*x**4*x**m/(m**8 + 3
6*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*
m**2 + 109584*m + 40320) + 4180*a**2*c**2*d**3*m**5*x**4*x**m/(m*
*8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 1
18124*m**2 + 109584*m + 40320) + 28640*a**2*c**2*d**3*m**4*x**4*x
**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m
**3 + 118124*m**2 + 109584*m + 40320) + 109930*a**2*c**2*d**3*m**
3*x**4*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 +
 67284*m**3 + 118124*m**2 + 109584*m + 40320) + 233120*a**2*c**2*
d**3*m**2*x**4*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 2244
9*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320) + 248760*a*
*2*c**2*d**3*m*x**4*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 +
 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320) + 1008
00*a**2*c**2*d**3*x**4*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**
5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320) + 5
*a**2*c*d**4*m**7*x**5*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**
5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320) + 1
55*a**2*c*d**4*m**6*x**5*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m
**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320) +
 1955*a**2*c*d**4*m**5*x**5*x**m/(m**8 + 36*m**7 + 546*m**6 + 453
6*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320
) + 12905*a**2*c*d**4*m**4*x**5*x**m/(m**8 + 36*m**7 + 546*m**6 +
 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 4
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0320) + 47720*a**2*c*d**4*m**3*x**5*x**m/(m**8 + 36*m**7 + 546*m*
*6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m
 + 40320) + 97820*a**2*c*d**4*m**2*x**5*x**m/(m**8 + 36*m**7 + 54
6*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 1095
84*m + 40320) + 101520*a**2*c*d**4*m*x**5*x**m/(m**8 + 36*m**7 +
546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 10
9584*m + 40320) + 40320*a**2*c*d**4*x**5*x**m/(m**8 + 36*m**7 + 5
46*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109
584*m + 40320) + a**2*d**5*m**7*x**6*x**m/(m**8 + 36*m**7 + 546*m
6 + 4536*m5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*
m + 40320) + 30*a**2*d**5*m**6*x**6*x**m/(m**8 + 36*m**7 + 546*m*
*6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m
 + 40320) + 366*a**2*d**5*m**5*x**6*x**m/(m**8 + 36*m**7 + 546*m*
*6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m
 + 40320) + 2340*a**2*d**5*m**4*x**6*x**m/(m**8 + 36*m**7 + 546*m
6 + 4536*m5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*
m + 40320) + 8409*a**2*d**5*m**3*x**6*x**m/(m**8 + 36*m**7 + 546*
m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584
*m + 40320) + 16830*a**2*d**5*m**2*x**6*x**m/(m**8 + 36*m**7 + 54
6*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 1095
84*m + 40320) + 17144*a**2*d**5*m*x**6*x**m/(m**8 + 36*m**7 + 546
*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 10958
4*m + 40320) + 6720*a**2*d**5*x**6*x**m/(m**8 + 36*m**7 + 546*m**
6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m
+ 40320) + 2*a*b*c**5*m**7*x**2*x**m/(m**8 + 36*m**7 + 546*m**6 +
 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 4
0320) + 68*a*b*c**5*m**6*x**2*x**m/(m**8 + 36*m**7 + 546*m**6 + 4
536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 403
20) + 956*a*b*c**5*m**5*x**2*x**m/(m**8 + 36*m**7 + 546*m**6 + 45
36*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 4032
0) + 7160*a*b*c**5*m**4*x**2*x**m/(m**8 + 36*m**7 + 546*m**6 + 45
36*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 4032
0) + 30578*a*b*c**5*m**3*x**2*x**m/(m**8 + 36*m**7 + 546*m**6 + 4
536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 403
20) + 73412*a*b*c**5*m**2*x**2*x**m/(m**8 + 36*m**7 + 546*m**6 +
4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 40
320) + 89424*a*b*c**5*m*x**2*x**m/(m**8 + 36*m**7 + 546*m**6 + 45
36*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 4032
0) + 40320*a*b*c**5*x**2*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m
5 + 22449*m4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320) +
 10*a*b*c**4*d*m**7*x**3*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m
5 + 22449*m4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320) +
 330*a*b*c**4*d*m**6*x**3*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*
m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320)
+ 4470*a*b*c**4*d*m**5*x**3*x**m/(m**8 + 36*m**7 + 546*m**6 + 453
6*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320
) + 31950*a*b*c**4*d*m**4*x**3*x**m/(m**8 + 36*m**7 + 546*m**6 +
4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 40
320) + 128640*a*b*c**4*d*m**3*x**3*x**m/(m**8 + 36*m**7 + 546*m**
6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m
+ 40320) + 286920*a*b*c**4*d*m**2*x**3*x**m/(m**8 + 36*m**7 + 546
*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 10958
4*m + 40320) + 320480*a*b*c**4*d*m*x**3*x**m/(m**8 + 36*m**7 + 54
6*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 1095
84*m + 40320) + 134400*a*b*c**4*d*x**3*x**m/(m**8 + 36*m**7 + 546
*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 10958
4*m + 40320) + 20*a*b*c**3*d**2*m**7*x**4*x**m/(m**8 + 36*m**7 +
546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 10
9584*m + 40320) + 640*a*b*c**3*d**2*m**6*x**4*x**m/(m**8 + 36*m**
7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2
+ 109584*m + 40320) + 8360*a*b*c**3*d**2*m**5*x**4*x**m/(m**8 + 3
6*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*
m**2 + 109584*m + 40320) + 57280*a*b*c**3*d**2*m**4*x**4*x**m/(m*
*8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 1
18124*m**2 + 109584*m + 40320) + 219860*a*b*c**3*d**2*m**3*x**4*x
m/(m8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m
3 + 118124*m2 + 109584*m + 40320) + 466240*a*b*c**3*d**2*m**2
*x**4*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 +
67284*m**3 + 118124*m**2 + 109584*m + 40320) + 497520*a*b*c**3*d*
*2*m*x**4*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**
4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320) + 201600*a*b*c**
3*d**2*x**4*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m
4 + 67284*m3 + 118124*m**2 + 109584*m + 40320) + 20*a*b*c**2*
d**3*m**7*x**5*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 2244

9*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320) + 620*a*b*c
2*d3*m**6*x**5*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 +
22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320) + 7820*
a*b*c**2*d**3*m**5*x**5*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m*
*5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320) +
51620*a*b*c**2*d**3*m**4*x**5*x**m/(m**8 + 36*m**7 + 546*m**6 + 4
536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 403
20) + 190880*a*b*c**2*d**3*m**3*x**5*x**m/(m**8 + 36*m**7 + 546*m
6 + 4536*m5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*
m + 40320) + 391280*a*b*c**2*d**3*m**2*x**5*x**m/(m**8 + 36*m**7
+ 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 +
109584*m + 40320) + 406080*a*b*c**2*d**3*m*x**5*x**m/(m**8 + 36*m
7 + 546*m6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**
2 + 109584*m + 40320) + 161280*a*b*c**2*d**3*x**5*x**m/(m**8 + 36
*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m
2 + 109584*m + 40320) + 10*a*b*c*d4*m**7*x**6*x**m/(m**8 + 36
*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m
2 + 109584*m + 40320) + 300*a*b*c*d4*m**6*x**6*x**m/(m**8 + 3
6*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*
m**2 + 109584*m + 40320) + 3660*a*b*c*d**4*m**5*x**6*x**m/(m**8 +
 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 11812
4*m**2 + 109584*m + 40320) + 23400*a*b*c*d**4*m**4*x**6*x**m/(m**
8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 11
8124*m**2 + 109584*m + 40320) + 84090*a*b*c*d**4*m**3*x**6*x**m/(
m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 +
 118124*m**2 + 109584*m + 40320) + 168300*a*b*c*d**4*m**2*x**6*x*
*m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m*
*3 + 118124*m**2 + 109584*m + 40320) + 171440*a*b*c*d**4*m*x**6*x
m/(m8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m
3 + 118124*m2 + 109584*m + 40320) + 67200*a*b*c*d**4*x**6*x**
m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**
3 + 118124*m**2 + 109584*m + 40320) + 2*a*b*d**5*m**7*x**7*x**m/(
m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 +
 118124*m**2 + 109584*m + 40320) + 58*a*b*d**5*m**6*x**7*x**m/(m*
*8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 1
18124*m**2 + 109584*m + 40320) + 686*a*b*d**5*m**5*x**7*x**m/(m**
8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 11
8124*m**2 + 109584*m + 40320) + 4270*a*b*d**5*m**4*x**7*x**m/(m**
8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 11
8124*m**2 + 109584*m + 40320) + 15008*a*b*d**5*m**3*x**7*x**m/(m*
*8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 1
18124*m**2 + 109584*m + 40320) + 29512*a*b*d**5*m**2*x**7*x**m/(m
8 + 36*m7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 +
118124*m**2 + 109584*m + 40320) + 29664*a*b*d**5*m*x**7*x**m/(m**
8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 11
8124*m**2 + 109584*m + 40320) + 11520*a*b*d**5*x**7*x**m/(m**8 +
36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124
*m**2 + 109584*m + 40320) + b**2*c**5*m**7*x**3*x**m/(m**8 + 36*m
7 + 546*m6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**
2 + 109584*m + 40320) + 33*b**2*c**5*m**6*x**3*x**m/(m**8 + 36*m*
*7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2
 + 109584*m + 40320) + 447*b**2*c**5*m**5*x**3*x**m/(m**8 + 36*m*
*7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2
 + 109584*m + 40320) + 3195*b**2*c**5*m**4*x**3*x**m/(m**8 + 36*m
7 + 546*m6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**
2 + 109584*m + 40320) + 12864*b**2*c**5*m**3*x**3*x**m/(m**8 + 36
*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m
2 + 109584*m + 40320) + 28692*b2*c**5*m**2*x**3*x**m/(m**8 +
36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124
*m**2 + 109584*m + 40320) + 32048*b**2*c**5*m*x**3*x**m/(m**8 + 3
6*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*
m**2 + 109584*m + 40320) + 13440*b**2*c**5*x**3*x**m/(m**8 + 36*m
7 + 546*m6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**
2 + 109584*m + 40320) + 5*b**2*c**4*d*m**7*x**4*x**m/(m**8 + 36*m
7 + 546*m6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**
2 + 109584*m + 40320) + 160*b**2*c**4*d*m**6*x**4*x**m/(m**8 + 36
*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m
2 + 109584*m + 40320) + 2090*b2*c**4*d*m**5*x**4*x**m/(m**8 +
 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 11812
4*m**2 + 109584*m + 40320) + 14320*b**2*c**4*d*m**4*x**4*x**m/(m*
*8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 1
18124*m**2 + 109584*m + 40320) + 54965*b**2*c**4*d*m**3*x**4*x**m
/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3
 + 118124*m**2 + 109584*m + 40320) + 116560*b**2*c**4*d*m**2*x**4

```
*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284
*m**3 + 118124*m**2 + 109584*m + 40320) + 124380*b**2*c**4*d*m*x*
*4*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 672
84*m**3 + 118124*m**2 + 109584*m + 40320) + 50400*b**2*c**4*d*x**
4*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 6728
4*m**3 + 118124*m**2 + 109584*m + 40320) + 10*b**2*c**3*d**2*m**7
*x**5*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 +
67284*m**3 + 118124*m**2 + 109584*m + 40320) + 310*b**2*c**3*d**2
*m**6*x**5*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m*
*4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320) + 3910*b**2*c**
3*d**2*m**5*x**5*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22
449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320) + 25810*b
**2*c**3*d**2*m**4*x**5*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m*
*5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320) +
95440*b**2*c**3*d**2*m**3*x**5*x**m/(m**8 + 36*m**7 + 546*m**6 +
4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 40
320) + 195640*b**2*c**3*d**2*m**2*x**5*x**m/(m**8 + 36*m**7 + 546
*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 10958
4*m + 40320) + 203040*b**2*c**3*d**2*m*x**5*x**m/(m**8 + 36*m**7
+ 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 +
109584*m + 40320) + 80640*b**2*c**3*d**2*x**5*x**m/(m**8 + 36*m**
7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2
+ 109584*m + 40320) + 10*b**2*c**2*d**3*m**7*x**6*x**m/(m**8 + 36
*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m
**2 + 109584*m + 40320) + 300*b**2*c**2*d**3*m**6*x**6*x**m/(m**8
 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118
124*m**2 + 109584*m + 40320) + 3660*b**2*c**2*d**3*m**5*x**6*x**m
/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3
 + 118124*m**2 + 109584*m + 40320) + 23400*b**2*c**2*d**3*m**4*x*
*6*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 672
84*m**3 + 118124*m**2 + 109584*m + 40320) + 84090*b**2*c**2*d**3*
m**3*x**6*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**
4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320) + 168300*b**2*c*
*2*d**3*m**2*x**6*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 2
2449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320) + 171440
*b**2*c**2*d**3*m*x**6*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**
5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320) + 6
7200*b**2*c**2*d**3*x**6*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m
**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320) +
 5*b**2*c*d**4*m**7*x**7*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m
**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320) +
 145*b**2*c*d**4*m**6*x**7*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536
*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320)
 + 1715*b**2*c*d**4*m**5*x**7*x**m/(m**8 + 36*m**7 + 546*m**6 + 4
536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 403
20) + 10675*b**2*c*d**4*m**4*x**7*x**m/(m**8 + 36*m**7 + 546*m**6
 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m +
 40320) + 37520*b**2*c*d**4*m**3*x**7*x**m/(m**8 + 36*m**7 + 546*
m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584
*m + 40320) + 73780*b**2*c*d**4*m**2*x**7*x**m/(m**8 + 36*m**7 +
546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 10
9584*m + 40320) + 74160*b**2*c*d**4*m*x**7*x**m/(m**8 + 36*m**7 +
 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 1
09584*m + 40320) + 28800*b**2*c*d**4*x**7*x**m/(m**8 + 36*m**7 +
546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 10
9584*m + 40320) + b**2*d**5*m**7*x**8*x**m/(m**8 + 36*m**7 + 546*
m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584
*m + 40320) + 28*b**2*d**5*m**6*x**8*x**m/(m**8 + 36*m**7 + 546*m
**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*
m + 40320) + 322*b**2*d**5*m**5*x**8*x**m/(m**8 + 36*m**7 + 546*m
**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*
m + 40320) + 1960*b**2*d**5*m**4*x**8*x**m/(m**8 + 36*m**7 + 546*
m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584
*m + 40320) + 6769*b**2*d**5*m**3*x**8*x**m/(m**8 + 36*m**7 + 546
*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 10958
4*m + 40320) + 13132*b**2*d**5*m**2*x**8*x**m/(m**8 + 36*m**7 + 5
46*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109
584*m + 40320) + 13068*b**2*d**5*m*x**8*x**m/(m**8 + 36*m**7 + 54
6*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 1095
84*m + 40320) + 5040*b**2*d**5*x**8*x**m/(m**8 + 36*m**7 + 546*m*
*6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m
 + 40320), True))
```

GIAC/XCAS [A] time = 0.215046, size = 1, normalized size = 0.

$$\text{Done}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^2*(d*x + c)^5*x^m,x, algorithm="giac")
```

```
[Out] Done
```

3.349 $\int \frac{x^m(c+dx)^3}{a+bx}\,dx$

Optimal. Leaf size=127

$$\frac{dx^{m+1}\left(a^2d^2-3abcd+3b^2c^2\right)}{b^3(m+1)}+\frac{x^{m+1}(bc-ad)^3\,{}_2F_1\left(1,1;1-m;\frac{a}{a+bx}\right)}{b^3m(a+bx)}+\frac{d^2x^{m+2}(3bc-ad)}{b^2(m+2)}+\frac{d^3x^{m+3}}{b(m+3)}$$

```
[Out] (d*(3*b^2*c^2 - 3*a*b*c*d + a^2*d^2)*x^(1 + m))/(b^3*(1 + m)) + (
d^2*(3*b*c - a*d)*x^(2 + m))/(b^2*(2 + m)) + (d^3*x^(3 + m))/(b*(
3 + m)) + ((b*c - a*d)^3*x^(1 + m)*Hypergeometric2F1[1, 1, 1 - m,
 a/(a + b*x)])/(b^3*m*(a + b*x))
```

Rubi [A] time = 0.250571, antiderivative size = 171, normalized size of antiderivative = 1.35, number of steps used = 7, number of rules used = 3, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$\frac{x^{m+1}(bc-ad)^3\,{}_2F_1\left(1,m+1;m+2;-\frac{bx}{a}\right)}{ab^3(m+1)}+\frac{dx^{m+1}(bc-ad)^2}{b^3(m+1)}+\frac{d^2x^{m+2}(bc-ad)}{b^2(m+2)}+\frac{cdx^{m+1}(bc-ad)}{b^2(m+1)}+\frac{c^2dx^{m+1}}{b(m+1)}+\frac{2cd^2x^{m+2}}{b(m+2)}+\frac{d^3x^{m+3}}{b(m+3)}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^m*(c + d*x)^3)/(a + b*x),x]
```

```
[Out] (c^2*d*x^(1 + m))/(b*(1 + m)) + (c*d*(b*c - a*d)*x^(1 + m))/(b^2*
(1 + m)) + (d*(b*c - a*d)^2*x^(1 + m))/(b^3*(1 + m)) + (2*c*d^2*x
^(2 + m))/(b*(2 + m)) + (d^2*(b*c - a*d)*x^(2 + m))/(b^2*(2 + m))
 + (d^3*x^(3 + m))/(b*(3 + m)) + ((b*c - a*d)^3*x^(1 + m)*Hyperge
ometric2F1[1, 1 + m, 2 + m, -((b*x)/a)])/(a*b^3*(1 + m))
```

Rubi in Sympy [A] time = 39.2944, size = 144, normalized size = 1.13

$$\frac{c^2dx^{m+1}}{b(m+1)}+\frac{2cd^2x^{m+2}}{b(m+2)}+\frac{d^3x^{m+3}}{b(m+3)}-\frac{cdx^{m+1}(ad-bc)}{b^2(m+1)}-\frac{d^2x^{m+2}(ad-bc)}{b^2(m+2)}+\frac{dx^{m+1}(ad-bc)^2}{b^3(m+1)}-\frac{x^{m+1}(ad-bc)^3\,{}_2F_1\left(\begin{matrix}1,m+1\\m+2\end{matrix}\middle|-\frac{bx}{a}\right)}{ab^3(m+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**m*(d*x+c)**3/(b*x+a),x)
```

```
[Out] c**2*d*x**(m + 1)/(b*(m + 1)) + 2*c*d**2*x**(m + 2)/(b*(m + 2)) +
 d**3*x**(m + 3)/(b*(m + 3)) - c*d*x**(m + 1)*(a*d - b*c)/(b**2*(
m + 1)) - d**2*x**(m + 2)*(a*d - b*c)/(b**2*(m + 2)) + d*x**(m +
1)*(a*d - b*c)**2/(b**3*(m + 1)) - x**(m + 1)*(a*d - b*c)**3*hype
r((1, m + 1), (m + 2,), -b*x/a)/(a*b**3*(m + 1))
```

Mathematica [A] time = 0.227463, size = 113, normalized size = 0.89

$$\frac{x^{m+1}\left(\frac{c^3\,{}_2F_1\left(1,m+1;m+2;-\frac{bx}{a}\right)}{m+1}+dx\left(\frac{3c^2\,{}_2F_1\left(1,m+2;m+3;-\frac{bx}{a}\right)}{m+2}+dx\left(\frac{3c\,{}_2F_1\left(1,m+3;m+4;-\frac{bx}{a}\right)}{m+3}+\frac{dx\,{}_2F_1\left(1,m+4;m+5;-\frac{bx}{a}\right)}{m+4}\right)\right)\right)}{a}$$

Antiderivative was successfully verified.

```
[In]   Integrate[(x^m*(c + d*x)^3)/(a + b*x),x]
```

```
[Out] (x^(1 + m)*((c^3*Hypergeometric2F1[1, 1 + m, 2 + m, -((b*x)/a)])/
(1 + m) + d*x*((3*c^2*Hypergeometric2F1[1, 2 + m, 3 + m, -((b*x)/
a)])/(2 + m) + d*x*((3*c*Hypergeometric2F1[1, 3 + m, 4 + m, -((b*
x)/a)])/(3 + m) + (d*x*Hypergeometric2F1[1, 4 + m, 5 + m, -((b*x)
/a)])/(4 + m)))))/a
```

Maple [F] time = 0.056, size = 0, normalized size = 0.

$$\int \frac{x^{m} \left(dx+c\right)^{3}}{bx+a}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int(x^m*(d*x+c)^3/(b*x+a),x)
```

```
[Out] int(x^m*(d*x+c)^3/(b*x+a),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(dx+c)^{3} x^{m}}{bx+a}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((d*x + c)^3*x^m/(b*x + a),x, algorithm="maxima")
```

```
[Out] integrate((d*x + c)^3*x^m/(b*x + a), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(d^{3} x^{3}+3\, c d^{2} x^{2}+3\, c^{2} d x+c^{3}\right) x^{m}}{bx+a}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((d*x + c)^3*x^m/(b*x + a),x, algorithm="fricas")
```

```
[Out] integral((d^3*x^3 + 3*c*d^2*x^2 + 3*c^2*d*x + c^3)*x^m/(b*x + a),
 x)
```

Sympy [A] time = 10.9081, size = 303, normalized size = 2.39

$$\frac{c^{3} m x x^{m} \Phi\left(\frac{b x e^{i\pi}}{a}, 1, m+1\right) \Gamma\left(m+1\right)}{a \Gamma\left(m+2\right)} + \frac{c^{3} x x^{m} \Phi\left(\frac{b x e^{i\pi}}{a}, 1, m+1\right) \Gamma\left(m+1\right)}{a \Gamma\left(m+2\right)} + \frac{3 c^{2} d m x^{2} x^{m} \Phi\left(\frac{b x e^{i\pi}}{a}, 1, m+2\right) \Gamma\left(m+2\right)}{a \Gamma\left(m+3\right)} + \frac{6 c^{2} d x^{2} x^{m} \Phi\left(\frac{b x e^{i\pi}}{a}, 1, m+2\right) \Gamma\left(m+2\right)}{a \Gamma\left(m+3\right)} + \frac{3 c d^{2} m x^{3} x^{m} \Phi\left(\frac{b x e^{i\pi}}{a}, 1, m+3\right) \Gamma\left(m+3\right)}{a \Gamma\left(m+4\right)} + \frac{9 c d^{2} x^{3} x^{m} \Phi\left(\frac{b x e^{i\pi}}{a}, 1, m+3\right) \Gamma\left(m+3\right)}{a \Gamma\left(m+4\right)} + \frac{d^{3} m x^{4} x^{m} \Phi\left(\frac{b x e^{i\pi}}{a}, 1, m+4\right) \Gamma\left(m+4\right)}{a \Gamma\left(m+5\right)} + \frac{4 d^{3} x^{4} x^{m} \Phi\left(\frac{b x e^{i\pi}}{a}, 1, m+4\right) \Gamma\left(m+4\right)}{a \Gamma\left(m+5\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**m*(d*x+c)**3/(b*x+a),x)
```

```
[Out] c**3*m*x*x**m*lerchphi(b*x*exp_polar(I*pi)/a, 1, m + 1)*gamma(m +
 1)/(a*gamma(m + 2)) + c**3*x*x**m*lerchphi(b*x*exp_polar(I*pi)/a
, 1, m + 1)*gamma(m + 1)/(a*gamma(m + 2)) + 3*c**2*d*m*x**2*x**m*
lerchphi(b*x*exp_polar(I*pi)/a, 1, m + 2)*gamma(m + 2)/(a*gamma(m
 + 3)) + 6*c**2*d*x**2*x**m*lerchphi(b*x*exp_polar(I*pi)/a, 1, m
+ 2)*gamma(m + 2)/(a*gamma(m + 3)) + 3*c*d**2*m*x**3*x**m*lerchph
i(b*x*exp_polar(I*pi)/a, 1, m + 3)*gamma(m + 3)/(a*gamma(m + 4))
+ 9*c*d**2*x**3*x**m*lerchphi(b*x*exp_polar(I*pi)/a, 1, m + 3)*ga
mma(m + 3)/(a*gamma(m + 4)) + d**3*m*x**4*x**m*lerchphi(b*x*exp_p
olar(I*pi)/a, 1, m + 4)*gamma(m + 4)/(a*gamma(m + 5)) + 4*d**3*x*
*4*x**m*lerchphi(b*x*exp_polar(I*pi)/a, 1, m + 4)*gamma(m + 4)/(a
*gamma(m + 5))
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(dx+c)^3 x^m}{bx+a}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3*x^m/(b*x + a),x, algorithm="giac")
```

```
[Out] integrate((d*x + c)^3*x^m/(b*x + a), x)
```

3.350 $\int \frac{x^m(c+dx)^2}{a+bx} \, dx$

Optimal. Leaf size=99

$$\frac{x^{m+1}(bc-ad)^2 \, {}_2F_1\left(1, m+1; m+2; -\frac{bx}{a}\right)}{ab^2(m+1)} + \frac{dx^{m+1}(bc-ad)}{b^2(m+1)} + \frac{cdx^{m+1}}{b(m+1)} + \frac{d^2x^{m+2}}{b(m+2)}$$

```
[Out] (c*d*x^(1 + m))/(b*(1 + m)) + (d*(b*c - a*d)*x^(1 + m))/(b^2*(1 +
 m)) + (d^2*x^(2 + m))/(b*(2 + m)) + ((b*c - a*d)^2*x^(1 + m)*Hyp
ergeometric2F1[1, 1 + m, 2 + m, -((b*x)/a)])/(a*b^2*(1 + m))
```

Rubi [A] time = 0.138152, antiderivative size = 99, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$\frac{x^{m+1}(bc-ad)^2 \, {}_2F_1\left(1, m+1; m+2; -\frac{bx}{a}\right)}{ab^2(m+1)} + \frac{dx^{m+1}(bc-ad)}{b^2(m+1)} + \frac{cdx^{m+1}}{b(m+1)} + \frac{d^2x^{m+2}}{b(m+2)}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^m*(c + d*x)^2)/(a + b*x),x]
```

```
[Out] (c*d*x^(1 + m))/(b*(1 + m)) + (d*(b*c - a*d)*x^(1 + m))/(b^2*(1 +
 m)) + (d^2*x^(2 + m))/(b*(2 + m)) + ((b*c - a*d)^2*x^(1 + m)*Hyp
ergeometric2F1[1, 1 + m, 2 + m, -((b*x)/a)])/(a*b^2*(1 + m))
```

Rubi in Sympy [A] time = 22.2243, size = 80, normalized size = 0.81

$$\frac{cdx^{m+1}}{b\,(m+1)} + \frac{d^2x^{m+2}}{b\,(m+2)} - \frac{dx^{m+1}\,(ad-bc)}{b^2\,(m+1)} + \frac{x^{m+1}\,(ad-bc)^2 \, {}_2F_1\left(\begin{matrix} 1, m+1 \\ m+2 \end{matrix}\middle| -\frac{bx}{a}\right)}{ab^2\,(m+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**m*(d*x+c)**2/(b*x+a),x)
```

```
[Out] c*d*x**(m + 1)/(b*(m + 1)) + d**2*x**(m + 2)/(b*(m + 2)) - d*x**(
m + 1)*(a*d - b*c)/(b**2*(m + 1)) + x**(m + 1)*(a*d - b*c)**2*hyp
er((1, m + 1), (m + 2,), -b*x/a)/(a*b**2*(m + 1))
```

Mathematica [A] time = 0.130349, size = 84, normalized size = 0.85

$$\frac{x^{m+1}\left(\frac{c^2 \, {}_2F_1\left(1,m+1;m+2;-\frac{bx}{a}\right)}{m+1} + dx\left(\frac{2c \, {}_2F_1\left(1,m+2;m+3;-\frac{bx}{a}\right)}{m+2} + \frac{dx \, {}_2F_1\left(1,m+3;m+4;-\frac{bx}{a}\right)}{m+3}\right)\right)}{a}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^m*(c + d*x)^2)/(a + b*x),x]
```

```
[Out] (x^(1 + m)*((c^2*Hypergeometric2F1[1, 1 + m, 2 + m, -((b*x)/a)])/
(1 + m) + d*x*((2*c*Hypergeometric2F1[1, 2 + m, 3 + m, -((b*x)/a)
])/(2 + m) + (d*x*Hypergeometric2F1[1, 3 + m, 4 + m, -((b*x)/a)])
/(3 + m))))/a
```

Maple [F] time = 0.053, size = 0, normalized size = 0.

$$\int \frac{x^m (dx+c)^2}{bx+a}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^m*(d*x+c)^2/(b*x+a),x)
```

```
[Out] int(x^m*(d*x+c)^2/(b*x+a),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(dx+c)^2 x^m}{bx+a}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2*x^m/(b*x + a),x, algorithm="maxima")
```

```
[Out] integrate((d*x + c)^2*x^m/(b*x + a), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(d^2x^2 + 2\,cdx + c^2)\,x^m}{bx+a}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2*x^m/(b*x + a),x, algorithm="fricas")
```

```
[Out] integral((d^2*x^2 + 2*c*d*x + c^2)*x^m/(b*x + a), x)
```

Sympy [A] time = 8.1215, size = 219, normalized size = 2.21

$$\frac{c^2mxx^m\left(\frac{bxe^{i\pi}}{a},1,m+1\right)(m+1)}{a\,(m+2)} + \frac{c^2xx^m\left(\frac{bxe^{i\pi}}{a},1,m+1\right)(m+1)}{a\,(m+2)} + \frac{2cdmx^2x^m\left(\frac{bxe^{i\pi}}{a},1,m+2\right)(m+2)}{a\,(m+3)} + \frac{4cdx^2x^m\left(\frac{bxe^{i\pi}}{a},1,m+2\right)(m+2)}{a\,(m+3)} + \frac{d^2mx^3x^m\left(\frac{bxe^{i\pi}}{a},1,m+3\right)(m+3)}{a\,(m+4)} + \frac{3d^2x^3x^m\left(\frac{bxe^{i\pi}}{a},1,m+3\right)(m+3)}{a\,(m+4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**m*(d*x+c)**2/(b*x+a),x)
```

```
[Out] c**2*m*x*x**m*lerchphi(b*x*exp_polar(I*pi)/a, 1, m + 1)*gamma(m +
 1)/(a*gamma(m + 2)) + c**2*x*x**m*lerchphi(b*x*exp_polar(I*pi)/a
, 1, m + 1)*gamma(m + 1)/(a*gamma(m + 2)) + 2*c*d*m*x**2*x**m*ler
chphi(b*x*exp_polar(I*pi)/a, 1, m + 2)*gamma(m + 2)/(a*gamma(m +
3)) + 4*c*d*x**2*x**m*lerchphi(b*x*exp_polar(I*pi)/a, 1, m + 2)*g
amma(m + 2)/(a*gamma(m + 3)) + d**2*m*x**3*x**m*lerchphi(b*x*exp_
```

```
polar(I*pi)/a, 1, m + 3)*gamma(m + 3)/(a*gamma(m + 4)) + 3*d**2*x
**3*x**m*lerchphi(b*x*exp_polar(I*pi)/a, 1, m + 3)*gamma(m + 3)/(
a*gamma(m + 4))
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(dx + c)^2 x^m}{bx + a}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2*x^m/(b*x + a),x, algorithm="giac")
```

```
[Out] integrate((d*x + c)^2*x^m/(b*x + a), x)
```

3.351 $\int \frac{x^m(c+dx)}{a+bx}\,dx$

Optimal. Leaf size=56

$$\frac{x^{m+1}(bc-ad)\,{}_2F_1\left(1,m+1;m+2;-\frac{bx}{a}\right)}{ab(m+1)}+\frac{dx^{m+1}}{b(m+1)}$$

```
[Out] (d*x^(1 + m))/(b*(1 + m)) + ((b*c - a*d)*x^(1 + m)*Hypergeometric
2F1[1, 1 + m, 2 + m, -((b*x)/a)])/(a*b*(1 + m))
```

Rubi [A] time = 0.0725885, antiderivative size = 56, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$\frac{x^{m+1}(bc-ad)\,{}_2F_1\left(1,m+1;m+2;-\frac{bx}{a}\right)}{ab(m+1)}+\frac{dx^{m+1}}{b(m+1)}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^m*(c + d*x))/(a + b*x),x]
```

```
[Out] (d*x^(1 + m))/(b*(1 + m)) + ((b*c - a*d)*x^(1 + m)*Hypergeometric
2F1[1, 1 + m, 2 + m, -((b*x)/a)])/(a*b*(1 + m))
```

Rubi in Sympy [A] time = 7.41627, size = 41, normalized size = 0.73

$$\frac{dx^{m+1}}{b\,(m+1)}-\frac{x^{m+1}\,(ad-bc)\,{}_2F_1\left(\begin{matrix}1,m+1\\m+2\end{matrix}\middle|-\frac{bx}{a}\right)}{ab\,(m+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**m*(d*x+c)/(b*x+a),x)
```

```
[Out] d*x**(m + 1)/(b*(m + 1)) - x**(m + 1)*(a*d - b*c)*hyper((1, m + 1
), (m + 2,), -b*x/a)/(a*b*(m + 1))
```

Mathematica [A] time = 0.0532666, size = 45, normalized size = 0.8

$$\frac{x^{m+1}\left((bc-ad)\,{}_2F_1\left(1,m+1;m+2;-\frac{bx}{a}\right)+ad\right)}{ab(m+1)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^m*(c + d*x))/(a + b*x),x]
```

```
[Out] (x^(1 + m)*(a*d + (b*c - a*d)*Hypergeometric2F1[1, 1 + m, 2 + m,
-((b*x)/a)]))/(a*b*(1 + m))
```

Maple [F] time = 0.042, size = 0, normalized size = 0.

$$\int \frac{x^m\,(dx+c)}{bx+a}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^m*(d*x+c)/(b*x+a),x)
```

```
[Out] int(x^m*(d*x+c)/(b*x+a),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(dx+c)x^m}{bx+a}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)*x^m/(b*x + a),x, algorithm="maxima")
```

```
[Out] integrate((d*x + c)*x^m/(b*x + a), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{(dx+c)x^m}{bx+a}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)*x^m/(b*x + a),x, algorithm="fricas")
```

```
[Out] integral((d*x + c)*x^m/(b*x + a), x)
```

Sympy [A] time = 5.92727, size = 136, normalized size = 2.43

$$\frac{cmxx^m\left(\frac{bxe^{i\pi}}{a}, 1, m+1\right)(m+1)}{a(m+2)} + \frac{cxx^m\left(\frac{bxe^{i\pi}}{a}, 1, m+1\right)(m+1)}{a(m+2)} + \frac{dmx^2x^m\left(\frac{bxe^{i\pi}}{a}, 1, m+2\right)(m+2)}{a(m+3)} + \frac{2dx^2x^m\left(\frac{bxe^{i\pi}}{a}, 1, m+2\right)(m+2)}{a(m+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**m*(d*x+c)/(b*x+a),x)
```

```
[Out] c*m*x*x**m*lerchphi(b*x*exp_polar(I*pi)/a, 1, m + 1)*gamma(m + 1)
/(a*gamma(m + 2)) + c*x*x**m*lerchphi(b*x*exp_polar(I*pi)/a, 1, m
 + 1)*gamma(m + 1)/(a*gamma(m + 2)) + d*m*x**2*x**m*lerchphi(b*x*
exp_polar(I*pi)/a, 1, m + 2)*gamma(m + 2)/(a*gamma(m + 3)) + 2*d*
x**2*x**m*lerchphi(b*x*exp_polar(I*pi)/a, 1, m + 2)*gamma(m + 2)/
(a*gamma(m + 3))
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(dx+c)x^m}{bx+a}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)*x^m/(b*x + a),x, algorithm="giac")

[Out] integrate((d*x + c)*x^m/(b*x + a), x)
```

3.352 $\int \frac{x^m}{(a+bx)(c+dx)}\,dx$

Optimal. Leaf size=82

$$\frac{bx^{m+1}\,{}_2F_1\left(1,m+1;m+2;-\frac{bx}{a}\right)}{a(m+1)(bc-ad)}-\frac{dx^{m+1}\,{}_2F_1\left(1,m+1;m+2;-\frac{dx}{c}\right)}{c(m+1)(bc-ad)}$$

```
[Out] (b*x^(1 + m)*Hypergeometric2F1[1, 1 + m, 2 + m, -((b*x)/a)])/(a*(
b*c - a*d)*(1 + m)) - (d*x^(1 + m)*Hypergeometric2F1[1, 1 + m, 2
+ m, -((d*x)/c)])/(c*(b*c - a*d)*(1 + m))
```

Rubi [A] time = 0.0920652, antiderivative size = 82, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 2, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.111$

$$\frac{bx^{m+1}\,{}_2F_1\left(1,m+1;m+2;-\frac{bx}{a}\right)}{a(m+1)(bc-ad)}-\frac{dx^{m+1}\,{}_2F_1\left(1,m+1;m+2;-\frac{dx}{c}\right)}{c(m+1)(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[x^m/((a + b*x)*(c + d*x)),x]
```

```
[Out] (b*x^(1 + m)*Hypergeometric2F1[1, 1 + m, 2 + m, -((b*x)/a)])/(a*(
b*c - a*d)*(1 + m)) - (d*x^(1 + m)*Hypergeometric2F1[1, 1 + m, 2
+ m, -((d*x)/c)])/(c*(b*c - a*d)*(1 + m))
```

Rubi in Sympy [A] time = 11.7752, size = 60, normalized size = 0.73

$$\frac{dx^{m+1}{}_2F_1\left(\begin{matrix}1,m+1\\m+2\end{matrix}\middle|-\frac{dx}{c}\right)}{c\,(m+1)\,(ad-bc)}-\frac{bx^{m+1}{}_2F_1\left(\begin{matrix}1,m+1\\m+2\end{matrix}\middle|-\frac{bx}{a}\right)}{a\,(m+1)\,(ad-bc)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**m/(b*x+a)/(d*x+c),x)
```

```
[Out] d*x**(m + 1)*hyper((1, m + 1), (m + 2,), -d*x/c)/(c*(m + 1)*(a*d
- b*c)) - b*x**(m + 1)*hyper((1, m + 1), (m + 2,), -b*x/a)/(a*(m
+ 1)*(a*d - b*c))
```

Mathematica [A] time = 0.0659747, size = 65, normalized size = 0.79

$$\frac{x^{m+1}\left(ad\,{}_2F_1\left(1,m+1;m+2;-\frac{dx}{c}\right)-bc\,{}_2F_1\left(1,m+1;m+2;-\frac{bx}{a}\right)\right)}{ac(m+1)(ad-bc)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^m/((a + b*x)*(c + d*x)),x]
```

```
[Out] (x^(1 + m)*(-(b*c*Hypergeometric2F1[1, 1 + m, 2 + m, -((b*x)/a)])
 + a*d*Hypergeometric2F1[1, 1 + m, 2 + m, -((d*x)/c)]))/(a*c*(-(b
*c) + a*d)*(1 + m))
```

Maple [F] time = 0.062, size = 0, normalized size = 0.

$$\int \frac{x^{m}}{\left(bx+a\right)\left(dx+c\right)}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^m/(b*x+a)/(d*x+c),x)
```

```
[Out] int(x^m/(b*x+a)/(d*x+c),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x^{m}}{(bx+a)(dx+c)}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^m/((b*x + a)*(d*x + c)),x, algorithm="maxima")
```

```
[Out] integrate(x^m/((b*x + a)*(d*x + c)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{x^{m}}{bdx^{2}+ac+(bc+ad)x}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^m/((b*x + a)*(d*x + c)),x, algorithm="fricas")
```

```
[Out] integral(x^m/(b*d*x^2 + a*c + (b*c + a*d)*x), x)
```

Sympy [A] time = 5.45528, size = 102, normalized size = 1.24

$$-\frac{b^{m}mx^{m}\left(\frac{bxe^{i\pi}}{a},1,m\right)(-m)}{ab^{m}d(-m+1)-bb^{m}c(-m+1)}+\frac{b^{m}mx^{m}\left(\frac{ce^{i\pi}}{dx},1,me^{i\pi}\right)(-m)}{ab^{m}d(-m+1)-bb^{m}c(-m+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**m/(b*x+a)/(d*x+c),x)
```

```
[Out] -b**m*m*x**m*lerchphi(b*x*exp_polar(I*pi)/a, 1, m)*gamma(-m)/(a*b
**m*d*gamma(-m + 1) - b*b**m*c*gamma(-m + 1)) + b**m*m*x**m*lerch
phi(c*exp_polar(I*pi)/(d*x), 1, m*exp_polar(I*pi))*gamma(-m)/(a*b
**m*d*gamma(-m + 1) - b*b**m*c*gamma(-m + 1))
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x^{m}}{(bx+a)(dx+c)}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^m/((b*x + a)*(d*x + c)),x, algorithm="giac")

[Out] integrate(x^m/((b*x + a)*(d*x + c)), x)
```

3.353 $\int \frac{x^m}{(a+bx)(c+dx)^2} dx$

Optimal. Leaf size=125

$$\frac{b^2x^{m+1}\,{}_2F_1\left(1,m+1;m+2;-\frac{bx}{a}\right)}{a(m+1)(bc-ad)^2}-\frac{dx^{m+1}(adm+bc(1-m))\,{}_2F_1\left(1,m+1;m+2;-\frac{dx}{c}\right)}{c^2(m+1)(bc-ad)^2}-\frac{dx^{m+1}}{c(c+dx)(bc-ad)}$$

```
[Out] -((d*x^(1 + m))/(c*(b*c - a*d)*(c + d*x))) + (b^2*x^(1 + m)*Hyper
geometric2F1[1, 1 + m, 2 + m, -((b*x)/a)])/(a*(b*c - a*d)^2*(1 +
m)) - (d*(b*c*(1 - m) + a*d*m)*x^(1 + m)*Hypergeometric2F1[1, 1 +
 m, 2 + m, -((d*x)/c)])/(c^2*(b*c - a*d)^2*(1 + m))
```

Rubi [A] time = 0.291238, antiderivative size = 125, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$\frac{b^2x^{m+1}\,{}_2F_1\left(1,m+1;m+2;-\frac{bx}{a}\right)}{a(m+1)(bc-ad)^2}-\frac{dx^{m+1}(adm+b(c-cm))\,{}_2F_1\left(1,m+1;m+2;-\frac{dx}{c}\right)}{c^2(m+1)(bc-ad)^2}-\frac{dx^{m+1}}{c(c+dx)(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[x^m/((a + b*x)*(c + d*x)^2),x]
```

```
[Out] -((d*x^(1 + m))/(c*(b*c - a*d)*(c + d*x))) + (b^2*x^(1 + m)*Hyper
geometric2F1[1, 1 + m, 2 + m, -((b*x)/a)])/(a*(b*c - a*d)^2*(1 +
m)) - (d*(a*d*m + b*(c - c*m))*x^(1 + m)*Hypergeometric2F1[1, 1 +
 m, 2 + m, -((d*x)/c)])/(c^2*(b*c - a*d)^2*(1 + m))
```

Rubi in Sympy [A] time = 50.2244, size = 100, normalized size = 0.8

$$\frac{dx^{m+1}}{c\,(c+dx)\,(ad-bc)}-\frac{dx^{m+1}\,(adm-bcm+bc)\,{}_2F_1\left(\begin{matrix}1,m+1\\m+2\end{matrix}\middle|-\frac{dx}{c}\right)}{c^2\,(m+1)\,(ad-bc)^2}+\frac{b^2x^{m+1}{}_2F_1\left(\begin{matrix}1,m+1\\m+2\end{matrix}\middle|-\frac{bx}{a}\right)}{a\,(m+1)\,(ad-bc)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**m/(b*x+a)/(d*x+c)**2,x)
```

```
[Out] d*x**(m + 1)/(c*(c + d*x)*(a*d - b*c)) - d*x**(m + 1)*(a*d*m - b*
c*m + b*c)*hyper((1, m + 1), (m + 2,), -d*x/c)/(c**2*(m + 1)*(a*d
 - b*c)**2) + b**2*x**(m + 1)*hyper((1, m + 1), (m + 2,), -b*x/a)
/(a*(m + 1)*(a*d - b*c)**2)
```

Mathematica [C] time = 0.349384, size = 142, normalized size = 1.14

$$\frac{ac(m+2)x^{m+1}F_1\left(m+1;2,1;m+2;-\frac{dx}{c},-\frac{bx}{a}\right)}{(m+1)(a+bx)(c+dx)^2\left(ac(m+2)F_1\left(m+1;2,1;m+2;-\frac{dx}{c},-\frac{bx}{a}\right)-x\left(bcF_1\left(m+2;2,2;m+3;-\frac{dx}{c},-\frac{bx}{a}\right)+2adF_1\left(m+\right.\right.\right.}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[x^m/((a + b*x)*(c + d*x)^2),x]
```

```
[Out] (a*c*(2 + m)*x^(1 + m)*AppellF1[1 + m, 2, 1, 2 + m, -((d*x)/c), -
((b*x)/a)])/((1 + m)*(a + b*x)*(c + d*x)^2*(a*c*(2 + m)*AppellF1[
```

```
1 + m, 2, 1, 2 + m, -((d*x)/c), -((b*x)/a)] - x*(b*c*AppellF1[2 +
 m, 2, 2, 3 + m, -((d*x)/c), -((b*x)/a)] + 2*a*d*AppellF1[2 + m,
3, 1, 3 + m, -((d*x)/c), -((b*x)/a)])))
```

Maple [F] time = 0.085, size = 0, normalized size = 0.

$$\int \frac{x^m}{(bx+a)(dx+c)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^m/(b*x+a)/(d*x+c)^2,x)
```

```
[Out] int(x^m/(b*x+a)/(d*x+c)^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x^m}{(bx+a)(dx+c)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^m/((b*x + a)*(d*x + c)^2),x, algorithm="maxima")
```

```
[Out] integrate(x^m/((b*x + a)*(d*x + c)^2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{x^m}{bd^2x^3+ac^2+(2\,bcd+ad^2)x^2+(bc^2+2\,acd)x},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^m/((b*x + a)*(d*x + c)^2),x, algorithm="fricas")
```

```
[Out] integral(x^m/(b*d^2*x^3 + a*c^2 + (2*b*c*d + a*d^2)*x^2 + (b*c^2
+ 2*a*c*d)*x), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**m/(b*x+a)/(d*x+c)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x^m}{(bx+a)(dx+c)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^m/((b*x + a)*(d*x + c)^2),x, algorithm="giac")

[Out] integrate(x^m/((b*x + a)*(d*x + c)^2), x)
```

3.354 $\int \frac{x^m}{(a+bx)(c+dx)^3} dx$

Optimal. Leaf size=206

$$\frac{dx^{m+1}\left(a^2d^2(1-m)m-2abcd(2-m)m-b^2c^2\left(m^2-3m+2\right)\right)\ {}_2F_1\left(1,m+1;m+2;-\frac{dx}{c}\right)}{2c^3(m+1)(bc-ad)^3} + \frac{b^3x^{m+1}\ {}_2F_1\left(1,m+1;m+2;-\frac{bx}{a}\right)}{a(m+1)(bc-ad)^3} + \frac{dx^{m+1}(ad(1-m)-bc(3-m))}{2c^2(c+dx)(bc-ad)^2} - \frac{dx^{m+1}}{2c(c+dx)^2(bc-ad)}$$

```
[Out] -(d*x^(1 + m))/(2*c*(b*c - a*d)*(c + d*x)^2) + (d*(a*d*(1 - m) -
b*c*(3 - m))*x^(1 + m))/(2*c^2*(b*c - a*d)^2*(c + d*x)) + (b^3*x^
(1 + m)*Hypergeometric2F1[1, 1 + m, 2 + m, -((b*x)/a)])/(a*(b*c -
 a*d)^3*(1 + m)) + (d*(a^2*d^2*(1 - m)*m - 2*a*b*c*d*(2 - m)*m -
b^2*c^2*(2 - 3*m + m^2))*x^(1 + m)*Hypergeometric2F1[1, 1 + m, 2
+ m, -((d*x)/c)])/(2*c^3*(b*c - a*d)^3*(1 + m))
```

Rubi [A] time = 0.685384, antiderivative size = 206, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.222

$$\frac{dx^{m+1}\left(a^2d^2(1-m)m-2abcd(2-m)m-b^2c^2\left(m^2-3m+2\right)\right)\ {}_2F_1\left(1,m+1;m+2;-\frac{dx}{c}\right)}{2c^3(m+1)(bc-ad)^3} + \frac{b^3x^{m+1}\ {}_2F_1\left(1,m+1;m+2;-\frac{bx}{a}\right)}{a(m+1)(bc-ad)^3} + \frac{dx^{m+1}(ad(1-m)-bc(3-m))}{2c^2(c+dx)(bc-ad)^2} - \frac{dx^{m+1}}{2c(c+dx)^2(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[x^m/((a + b*x)*(c + d*x)^3),x]
```

```
[Out] -(d*x^(1 + m))/(2*c*(b*c - a*d)*(c + d*x)^2) + (d*(a*d*(1 - m) -
b*c*(3 - m))*x^(1 + m))/(2*c^2*(b*c - a*d)^2*(c + d*x)) + (b^3*x^
(1 + m)*Hypergeometric2F1[1, 1 + m, 2 + m, -((b*x)/a)])/(a*(b*c -
 a*d)^3*(1 + m)) + (d*(a^2*d^2*(1 - m)*m - 2*a*b*c*d*(2 - m)*m -
b^2*c^2*(2 - 3*m + m^2))*x^(1 + m)*Hypergeometric2F1[1, 1 + m, 2
+ m, -((d*x)/c)])/(2*c^3*(b*c - a*d)^3*(1 + m))
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**m/(b*x+a)/(d*x+c)**3,x)
```

```
[Out] Timed out
```

Mathematica [C] time = 0.375888, size = 142, normalized size = 0.69

$$\frac{ac(m+2)x^{m+1}F_1\left(m+1;3,1;m+2;-\frac{dx}{c},-\frac{bx}{a}\right)}{(m+1)(a+bx)(c+dx)^3\left(ac(m+2)F_1\left(m+1;3,1;m+2;-\frac{dx}{c},-\frac{bx}{a}\right)-x\left(bcF_1\left(m+2;3,2;m+3;-\frac{dx}{c},-\frac{bx}{a}\right)+3adF_1\left(m+\right.\right.\right.}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[x^m/((a + b*x)*(c + d*x)^3),x]
```

```
[Out] (a*c*(2 + m)*x^(1 + m)*AppellF1[1 + m, 3, 1, 2 + m, -((d*x)/c), -
((b*x)/a)])/((1 + m)*(a + b*x)*(c + d*x)^3*(a*c*(2 + m)*AppellF1[
1 + m, 3, 1, 2 + m, -((d*x)/c), -((b*x)/a)] - x*(b*c*AppellF1[2 +
 m, 3, 2, 3 + m, -((d*x)/c), -((b*x)/a)] + 3*a*d*AppellF1[2 + m,
4, 1, 3 + m, -((d*x)/c), -((b*x)/a)])))
```

Maple [F] time = 0.129, size = 0, normalized size = 0.

$$\int \frac{x^m}{(bx+a)(dx+c)^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^m/(b*x+a)/(d*x+c)^3,x)
```

```
[Out] int(x^m/(b*x+a)/(d*x+c)^3,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x^m}{(bx+a)(dx+c)^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^m/((b*x + a)*(d*x + c)^3),x, algorithm="maxima")
```

```
[Out] integrate(x^m/((b*x + a)*(d*x + c)^3), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{x^m}{bd^3x^4+ac^3+(3\,bcd^2+ad^3)x^3+3\,(bc^2d+acd^2)x^2+(bc^3+3\,ac^2d)x},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^m/((b*x + a)*(d*x + c)^3),x, algorithm="fricas")
```

```
[Out] integral(x^m/(b*d^3*x^4 + a*c^3 + (3*b*c*d^2 + a*d^3)*x^3 + 3*(b*
c^2*d + a*c*d^2)*x^2 + (b*c^3 + 3*a*c^2*d)*x), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**m/(b*x+a)/(d*x+c)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x^m}{(bx+a)(dx+c)^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^m/((b*x + a)*(d*x + c)^3),x, algorithm="giac")
```

```
[Out] integrate(x^m/((b*x + a)*(d*x + c)^3), x)
```

3.355 $\int (ex)^m(2-2ax)^3(1+ax)^4\,dx$

Optimal. Leaf size=156

$$-\frac{8a^7(ex)^{m+8}}{e^8(m+8)}-\frac{8a^6(ex)^{m+7}}{e^7(m+7)}+\frac{24a^5(ex)^{m+6}}{e^6(m+6)}+\frac{24a^4(ex)^{m+5}}{e^5(m+5)}-\frac{24a^3(ex)^{m+4}}{e^4(m+4)}-\frac{24a^2(ex)^{m+3}}{e^3(m+3)}+\frac{8a(ex)^{m+2}}{e^2(m+2)}+\frac{8(ex)^{m+1}}{e(m+1)}$$

```
[Out] (8*(e*x)^(1 + m))/(e*(1 + m)) + (8*a*(e*x)^(2 + m))/(e^2*(2 + m))
 - (24*a^2*(e*x)^(3 + m))/(e^3*(3 + m)) - (24*a^3*(e*x)^(4 + m))/
(e^4*(4 + m)) + (24*a^4*(e*x)^(5 + m))/(e^5*(5 + m)) + (24*a^5*(e
*x)^(6 + m))/(e^6*(6 + m)) - (8*a^6*(e*x)^(7 + m))/(e^7*(7 + m))
- (8*a^7*(e*x)^(8 + m))/(e^8*(8 + m))
```

Rubi [A] time = 0.204006, antiderivative size = 156, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 21, $\frac{\text{number of rules}}{\text{integrand size}} = 0.048$

$$-\frac{8a^7(ex)^{m+8}}{e^8(m+8)}-\frac{8a^6(ex)^{m+7}}{e^7(m+7)}+\frac{24a^5(ex)^{m+6}}{e^6(m+6)}+\frac{24a^4(ex)^{m+5}}{e^5(m+5)}-\frac{24a^3(ex)^{m+4}}{e^4(m+4)}-\frac{24a^2(ex)^{m+3}}{e^3(m+3)}+\frac{8a(ex)^{m+2}}{e^2(m+2)}+\frac{8(ex)^{m+1}}{e(m+1)}$$

Antiderivative was successfully verified.

```
[In]  Int[(e*x)^m*(2 - 2*a*x)^3*(1 + a*x)^4,x]
```

```
[Out] (8*(e*x)^(1 + m))/(e*(1 + m)) + (8*a*(e*x)^(2 + m))/(e^2*(2 + m))
 - (24*a^2*(e*x)^(3 + m))/(e^3*(3 + m)) - (24*a^3*(e*x)^(4 + m))/
(e^4*(4 + m)) + (24*a^4*(e*x)^(5 + m))/(e^5*(5 + m)) + (24*a^5*(e
*x)^(6 + m))/(e^6*(6 + m)) - (8*a^6*(e*x)^(7 + m))/(e^7*(7 + m))
- (8*a^7*(e*x)^(8 + m))/(e^8*(8 + m))
```

Rubi in Sympy [A] time = 36.8618, size = 141, normalized size = 0.9

$$-\frac{8a^7\left(ex\right)^{m+8}}{e^8\left(m+8\right)}-\frac{8a^6\left(ex\right)^{m+7}}{e^7\left(m+7\right)}+\frac{24a^5\left(ex\right)^{m+6}}{e^6\left(m+6\right)}+\frac{24a^4\left(ex\right)^{m+5}}{e^5\left(m+5\right)}-\frac{24a^3\left(ex\right)^{m+4}}{e^4\left(m+4\right)}-\frac{24a^2\left(ex\right)^{m+3}}{e^3\left(m+3\right)}+\frac{8a\left(ex\right)^{m+2}}{e^2\left(m+2\right)}+\frac{8\left(ex\right)^{m+1}}{e\left(m+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((e*x)**m*(-2*a*x+2)**3*(a*x+1)**4,x)
```

```
[Out] -8*a**7*(e*x)**(m + 8)/(e**8*(m + 8)) - 8*a**6*(e*x)**(m + 7)/(e*
*7*(m + 7)) + 24*a**5*(e*x)**(m + 6)/(e**6*(m + 6)) + 24*a**4*(e*
x)**(m + 5)/(e**5*(m + 5)) - 24*a**3*(e*x)**(m + 4)/(e**4*(m + 4)
) - 24*a**2*(e*x)**(m + 3)/(e**3*(m + 3)) + 8*a*(e*x)**(m + 2)/(e
**2*(m + 2)) + 8*(e*x)**(m + 1)/(e*(m + 1))
```

Mathematica [A] time = 0.0912675, size = 100, normalized size = 0.64

$$8x\left(-\frac{a^7x^7}{m+8}-\frac{a^6x^6}{m+7}+\frac{3a^5x^5}{m+6}+\frac{3a^4x^4}{m+5}-\frac{3a^3x^3}{m+4}-\frac{3a^2x^2}{m+3}+\frac{ax}{m+2}+\frac{1}{m+1}\right)(ex)^m$$

Antiderivative was successfully verified.

```
[In]  Integrate[(e*x)^m*(2 - 2*a*x)^3*(1 + a*x)^4,x]
```

```
[Out] 8*x*(e*x)^m*((1 + m)^(-1) + (a*x)/(2 + m) - (3*a^2*x^2)/(3 + m) -
 (3*a^3*x^3)/(4 + m) + (3*a^4*x^4)/(5 + m) + (3*a^5*x^5)/(6 + m)
- (a^6*x^6)/(7 + m) - (a^7*x^7)/(8 + m))
```

Maple [B] time = 0.011, size = 631, normalized size = 4.

$$-8\,\frac{(ex)^{m}\left(a^{7}m^{7}x^{7}+28\,a^{7}m^{6}x^{7}+322\,a^{7}m^{5}x^{7}+a^{6}m^{7}x^{6}+1960\,a^{7}m^{4}x^{7}+29\,a^{6}m^{6}x^{6}+6769\,a^{7}m^{3}x^{7}+343\,a^{6}m^{5}x^{6}-3\,a^{5}m^{7}x\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((e*x)^m*(-2*a*x+2)^3*(a*x+1)^4,x)
```

```
[Out] -8*(e*x)^m*(a^7*m^7*x^7+28*a^7*m^6*x^7+322*a^7*m^5*x^7+a^6*m^7*x^
6+1960*a^7*m^4*x^7+29*a^6*m^6*x^6+6769*a^7*m^3*x^7+343*a^6*m^5*x^
6-3*a^5*m^7*x^5+13132*a^7*m^2*x^7+2135*a^6*m^4*x^6-90*a^5*m^6*x^5
+13068*a^7*m*x^7+7504*a^6*m^3*x^6-1098*a^5*m^5*x^5-3*a^4*m^7*x^4+
5040*a^7*x^7+14756*a^6*m^2*x^6-7020*a^5*m^4*x^5-93*a^4*m^6*x^4+14
832*a^6*m*x^6-25227*a^5*m^3*x^5-1173*a^4*m^5*x^4+3*a^3*m^7*x^3+57
60*a^6*x^6-50490*a^5*m^2*x^5-7743*a^4*m^4*x^4+96*a^3*m^6*x^3-5143
2*a^5*m*x^5-28632*a^4*m^3*x^4+1254*a^3*m^5*x^3+3*a^2*m^7*x^2-2016
0*a^5*x^5-58692*a^4*m^2*x^4+8592*a^3*m^4*x^3+99*a^2*m^6*x^2-60912
*a^4*m*x^4+32979*a^3*m^3*x^3+1341*a^2*m^5*x^2-a*m^7*x-24192*a^4*x
^4+69936*a^3*m^2*x^3+9585*a^2*m^4*x^2-34*a*m^6*x+74628*a^3*m*x^3+
38592*a^2*m^3*x^2-478*a*m^5*x-m^7+30240*a^3*x^3+86076*a^2*m^2*x^2
-3580*a*m^4*x-35*m^6+96144*a^2*m*x^2-15289*a*m^3*x-511*m^5+40320*
a^2*x^2-36706*a*m^2*x-4025*m^4-44712*a*m*x-18424*m^3-20160*a*x-48
860*m^2-69264*m-40320)*x/(8+m)/(7+m)/(6+m)/(5+m)/(4+m)/(3+m)/(2+m
)/(1+m)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-8*(a*x + 1)^4*(a*x - 1)^3*(e*x)^m,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.218824, size = 694, normalized size = 4.45

$$-\frac{8\left(\left(a^{7}m^{7}+28\,a^{7}m^{6}+322\,a^{7}m^{5}+1960\,a^{7}m^{4}+6769\,a^{7}m^{3}+13132\,a^{7}m^{2}+13068\,a^{7}m+5040\,a^{7}\right)x^{8}+\left(a^{6}m^{7}+29\,a^{6}m^{6}+34\right.\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-8*(a*x + 1)^4*(a*x - 1)^3*(e*x)^m,x, algorithm="fricas")
```

```
[Out] -8*((a^7*m^7 + 28*a^7*m^6 + 322*a^7*m^5 + 1960*a^7*m^4 + 6769*a^7
*m^3 + 13132*a^7*m^2 + 13068*a^7*m + 5040*a^7)*x^8 + (a^6*m^7 + 2
9*a^6*m^6 + 343*a^6*m^5 + 2135*a^6*m^4 + 7504*a^6*m^3 + 14756*a^6
*m^2 + 14832*a^6*m + 5760*a^6)*x^7 - 3*(a^5*m^7 + 30*a^5*m^6 + 36
6*a^5*m^5 + 2340*a^5*m^4 + 8409*a^5*m^3 + 16830*a^5*m^2 + 17144*a
^5*m + 6720*a^5)*x^6 - 3*(a^4*m^7 + 31*a^4*m^6 + 391*a^4*m^5 + 25
81*a^4*m^4 + 9544*a^4*m^3 + 19564*a^4*m^2 + 20304*a^4*m + 8064*a^
4)*x^5 + 3*(a^3*m^7 + 32*a^3*m^6 + 418*a^3*m^5 + 2864*a^3*m^4 + 1
```

```
0993*a^3*m^3 + 23312*a^3*m^2 + 24876*a^3*m + 10080*a^3)*x^4 + 3*(
a^2*m^7 + 33*a^2*m^6 + 447*a^2*m^5 + 3195*a^2*m^4 + 12864*a^2*m^3
 + 28692*a^2*m^2 + 32048*a^2*m + 13440*a^2)*x^3 - (a*m^7 + 34*a*m
^6 + 478*a*m^5 + 3580*a*m^4 + 15289*a*m^3 + 36706*a*m^2 + 44712*a
*m + 20160*a)*x^2 - (m^7 + 35*m^6 + 511*m^5 + 4025*m^4 + 18424*m^
3 + 48860*m^2 + 69264*m + 40320)*x)*(e*x)^m/(m^8 + 36*m^7 + 546*m
^6 + 4536*m^5 + 22449*m^4 + 67284*m^3 + 118124*m^2 + 109584*m + 4
0320)
```

Sympy [A] time = 9.29967, size = 4136, normalized size = 26.51

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((e*x)**m*(-2*a*x+2)**3*(a*x+1)**4,x)
```

```
[Out] Piecewise(((-8*a**7*log(x) + 8*a**6/x - 12*a**5/x**2 - 8*a**4/x**
3 + 6*a**3/x**4 + 24*a**2/(5*x**5) - 4*a/(3*x**6) - 8/(7*x**7))/e
**8, Eq(m, -8)), ((-8*a**7*x - 8*a**6*log(x) - 24*a**5/x - 12*a**
4/x**2 + 8*a**3/x**3 + 6*a**2/x**4 - 8*a/(5*x**5) - 4/(3*x**6))/e
**7, Eq(m, -7)), ((-4*a**7*x**2 - 8*a**6*x + 24*a**5*log(x) - 24*
a**4/x + 12*a**3/x**2 + 8*a**2/x**3 - 2*a/x**4 - 8/(5*x**5))/e**6
, Eq(m, -6)), ((-8*a**7*x**3/3 - 4*a**6*x**2 + 24*a**5*x + 24*a**
4*log(x) + 24*a**3/x + 12*a**2/x**2 - 8*a/(3*x**3) - 2/x**4)/e**5
, Eq(m, -5)), ((-2*a**7*x**4 - 8*a**6*x**3/3 + 12*a**5*x**2 + 24*
a**4*x - 24*a**3*log(x) + 24*a**2/x - 4*a/x**2 - 8/(3*x**3))/e**4
, Eq(m, -4)), ((-8*a**7*x**5/5 - 2*a**6*x**4 + 8*a**5*x**3 + 12*a
**4*x**2 - 24*a**3*x - 24*a**2*log(x) - 8*a/x - 4/x**2)/e**3, Eq(
m, -3)), ((-4*a**7*x**6/3 - 8*a**6*x**5/5 + 6*a**5*x**4 + 8*a**4*
x**3 - 12*a**3*x**2 - 24*a**2*x + 8*a*log(x) - 8/x)/e**2, Eq(m, -
2)), ((-8*a**7*x**7/7 - 4*a**6*x**6/3 + 24*a**5*x**5/5 + 6*a**4*x
**4 - 8*a**3*x**3 - 12*a**2*x**2 + 8*a*x + 8*log(x))/e, Eq(m, -1)
), (-8*a**7*e**m*m**7*x**8*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536
*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320)
 - 224*a**7*e**m*m**6*x**8*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536
*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320)
 - 2576*a**7*e**m*m**5*x**8*x**m/(m**8 + 36*m**7 + 546*m**6 + 453
6*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320
) - 15680*a**7*e**m*m**4*x**8*x**m/(m**8 + 36*m**7 + 546*m**6 + 4
536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 403
20) - 54152*a**7*e**m*m**3*x**8*x**m/(m**8 + 36*m**7 + 546*m**6 +
 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 4
0320) - 105056*a**7*e**m*m**2*x**8*x**m/(m**8 + 36*m**7 + 546*m**
6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m
+ 40320) - 104544*a**7*e**m*m*x**8*x**m/(m**8 + 36*m**7 + 546*m**
6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m
+ 40320) - 40320*a**7*e**m*x**8*x**m/(m**8 + 36*m**7 + 546*m**6 +
 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 4
0320) - 8*a**6*e**m*m**7*x**7*x**m/(m**8 + 36*m**7 + 546*m**6 + 4
536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 403
20) - 232*a**6*e**m*m**6*x**7*x**m/(m**8 + 36*m**7 + 546*m**6 + 4
536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 403
20) - 2744*a**6*e**m*m**5*x**7*x**m/(m**8 + 36*m**7 + 546*m**6 +
4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 40
320) - 17080*a**6*e**m*m**4*x**7*x**m/(m**8 + 36*m**7 + 546*m**6
+ 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m +
40320) - 60032*a**6*e**m*m**3*x**7*x**m/(m**8 + 36*m**7 + 546*m**
6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m
+ 40320) - 118048*a**6*e**m*m**2*x**7*x**m/(m**8 + 36*m**7 + 546*
m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584
*m + 40320) - 118656*a**6*e**m*m*x**7*x**m/(m**8 + 36*m**7 + 546*
m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584
*m + 40320) - 46080*a**6*e**m*x**7*x**m/(m**8 + 36*m**7 + 546*m**
6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m
+ 40320) + 24*a**5*e**m*m**7*x**6*x**m/(m**8 + 36*m**7 + 546*m**6
 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m +
 40320) + 720*a**5*e**m*m**6*x**6*x**m/(m**8 + 36*m**7 + 546*m**6
 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m +
 40320) + 8784*a**5*e**m*m**5*x**6*x**m/(m**8 + 36*m**7 + 546*m**
```

```
6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m
+ 40320) + 56160*a**5*e**m*m**4*x**6*x**m/(m**8 + 36*m**7 + 546*m
**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*
m + 40320) + 201816*a**5*e**m*m**3*x**6*x**m/(m**8 + 36*m**7 + 54
6*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 1095
84*m + 40320) + 403920*a**5*e**m*m**2*x**6*x**m/(m**8 + 36*m**7 +
 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 1
09584*m + 40320) + 411456*a**5*e**m*m*x**6*x**m/(m**8 + 36*m**7 +
 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 1
09584*m + 40320) + 161280*a**5*e**m*x**6*x**m/(m**8 + 36*m**7 + 5
46*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109
584*m + 40320) + 24*a**4*e**m*m**7*x**5*x**m/(m**8 + 36*m**7 + 54
6*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 1095
84*m + 40320) + 744*a**4*e**m*m**6*x**5*x**m/(m**8 + 36*m**7 + 54
6*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 1095
84*m + 40320) + 9384*a**4*e**m*m**5*x**5*x**m/(m**8 + 36*m**7 + 5
46*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109
584*m + 40320) + 61944*a**4*e**m*m**4*x**5*x**m/(m**8 + 36*m**7 +
 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 1
09584*m + 40320) + 229056*a**4*e**m*m**3*x**5*x**m/(m**8 + 36*m**
7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2
+ 109584*m + 40320) + 469536*a**4*e**m*m**2*x**5*x**m/(m**8 + 36*
m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m*
*2 + 109584*m + 40320) + 487296*a**4*e**m*m*x**5*x**m/(m**8 + 36*
m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m*
*2 + 109584*m + 40320) + 193536*a**4*e**m*x**5*x**m/(m**8 + 36*m*
*7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2
 + 109584*m + 40320) - 24*a**3*e**m*m**7*x**4*x**m/(m**8 + 36*m**
7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2
+ 109584*m + 40320) - 768*a**3*e**m*m**6*x**4*x**m/(m**8 + 36*m**
7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2
+ 109584*m + 40320) - 10032*a**3*e**m*m**5*x**4*x**m/(m**8 + 36*m
**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**
2 + 109584*m + 40320) - 68736*a**3*e**m*m**4*x**4*x**m/(m**8 + 36
*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m
**2 + 109584*m + 40320) - 263832*a**3*e**m*m**3*x**4*x**m/(m**8 +
 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 11812
4*m**2 + 109584*m + 40320) - 559488*a**3*e**m*m**2*x**4*x**m/(m**
8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 11
8124*m**2 + 109584*m + 40320) - 597024*a**3*e**m*m*x**4*x**m/(m**
8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 11
8124*m**2 + 109584*m + 40320) - 241920*a**3*e**m*x**4*x**m/(m**8
+ 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 1181
24*m**2 + 109584*m + 40320) - 24*a**2*e**m*m**7*x**3*x**m/(m**8 +
 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 11812
4*m**2 + 109584*m + 40320) - 792*a**2*e**m*m**6*x**3*x**m/(m**8 +
 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 11812
4*m**2 + 109584*m + 40320) - 10728*a**2*e**m*m**5*x**3*x**m/(m**8
 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118
124*m**2 + 109584*m + 40320) - 76680*a**2*e**m*m**4*x**3*x**m/(m*
*8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 1
18124*m**2 + 109584*m + 40320) - 308736*a**2*e**m*m**3*x**3*x**m/
(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3
+ 118124*m**2 + 109584*m + 40320) - 688608*a**2*e**m*m**2*x**3*x*
*m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m*
*3 + 118124*m**2 + 109584*m + 40320) - 769152*a**2*e**m*m*x**3*x*
*m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m*
*3 + 118124*m**2 + 109584*m + 40320) - 322560*a**2*e**m*x**3*x**m
/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3
 + 118124*m**2 + 109584*m + 40320) + 8*a*e**m*m**7*x**2*x**m/(m**
8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 11
8124*m**2 + 109584*m + 40320) + 272*a*e**m*m**6*x**2*x**m/(m**8 +
 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 11812
4*m**2 + 109584*m + 40320) + 3824*a*e**m*m**5*x**2*x**m/(m**8 + 3
6*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*
m**2 + 109584*m + 40320) + 28640*a*e**m*m**4*x**2*x**m/(m**8 + 36
*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m
**2 + 109584*m + 40320) + 122312*a*e**m*m**3*x**2*x**m/(m**8 + 36
*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m
**2 + 109584*m + 40320) + 293648*a*e**m*m**2*x**2*x**m/(m**8 + 36
*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m
**2 + 109584*m + 40320) + 357696*a*e**m*m*x**2*x**m/(m**8 + 36*m*
*7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2
 + 109584*m + 40320) + 161280*a*e**m*x**2*x**m/(m**8 + 36*m**7 +
```

```
546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 10
9584*m + 40320) + 8*e**m*m**7*x*x**m/(m**8 + 36*m**7 + 546*m**6 +
 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 4
0320) + 280*e**m*m**6*x*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m*
*5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320) +
4088*e**m*m**5*x*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22
449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320) + 32200*e
**m*m**4*x*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m*
*4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320) + 147392*e**m*m
**3*x*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 +
67284*m**3 + 118124*m**2 + 109584*m + 40320) + 390880*e**m*m**2*x
*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284
*m**3 + 118124*m**2 + 109584*m + 40320) + 554112*e**m*m*x*x**m/(m
**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 +
118124*m**2 + 109584*m + 40320) + 322560*e**m*x*x**m/(m**8 + 36*m
**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**
2 + 109584*m + 40320), True))
```

GIAC/XCAS [A] time = 0.212407, size = 1, normalized size = 0.01

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-8*(a*x + 1)^4*(a*x - 1)^3*(e*x)^m,x, algorithm="giac")
```

```
[Out] Done
```

3.356 $\int (ex)^m(2-2ax)^2(1+ax)^3\,dx$

Optimal. Leaf size=116

$$\frac{4a^5(ex)^{m+6}}{e^6(m+6)}+\frac{4a^4(ex)^{m+5}}{e^5(m+5)}-\frac{8a^3(ex)^{m+4}}{e^4(m+4)}-\frac{8a^2(ex)^{m+3}}{e^3(m+3)}+\frac{4a(ex)^{m+2}}{e^2(m+2)}+\frac{4(ex)^{m+1}}{e(m+1)}$$

```
[Out] (4*(e*x)^(1 + m))/(e*(1 + m)) + (4*a*(e*x)^(2 + m))/(e^2*(2 + m))
 - (8*a^2*(e*x)^(3 + m))/(e^3*(3 + m)) - (8*a^3*(e*x)^(4 + m))/(e
^4*(4 + m)) + (4*a^4*(e*x)^(5 + m))/(e^5*(5 + m)) + (4*a^5*(e*x)^
(6 + m))/(e^6*(6 + m))
```

Rubi [A] time = 0.138221, antiderivative size = 116, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 21, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.048

$$\frac{4a^5(ex)^{m+6}}{e^6(m+6)}+\frac{4a^4(ex)^{m+5}}{e^5(m+5)}-\frac{8a^3(ex)^{m+4}}{e^4(m+4)}-\frac{8a^2(ex)^{m+3}}{e^3(m+3)}+\frac{4a(ex)^{m+2}}{e^2(m+2)}+\frac{4(ex)^{m+1}}{e(m+1)}$$

Antiderivative was successfully verified.

```
[In]  Int[(e*x)^m*(2 - 2*a*x)^2*(1 + a*x)^3,x]
```

```
[Out] (4*(e*x)^(1 + m))/(e*(1 + m)) + (4*a*(e*x)^(2 + m))/(e^2*(2 + m))
 - (8*a^2*(e*x)^(3 + m))/(e^3*(3 + m)) - (8*a^3*(e*x)^(4 + m))/(e
^4*(4 + m)) + (4*a^4*(e*x)^(5 + m))/(e^5*(5 + m)) + (4*a^5*(e*x)^
(6 + m))/(e^6*(6 + m))
```

Rubi in Sympy [A] time = 28.0979, size = 104, normalized size = 0.9

$$\frac{4a^5\,(ex)^{m+6}}{e^6\,(m+6)}+\frac{4a^4\,(ex)^{m+5}}{e^5\,(m+5)}-\frac{8a^3\,(ex)^{m+4}}{e^4\,(m+4)}-\frac{8a^2\,(ex)^{m+3}}{e^3\,(m+3)}+\frac{4a\,(ex)^{m+2}}{e^2\,(m+2)}+\frac{4\,(ex)^{m+1}}{e\,(m+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((e*x)**m*(-2*a*x+2)**2*(a*x+1)**3,x)
```

```
[Out] 4*a**5*(e*x)**(m + 6)/(e**6*(m + 6)) + 4*a**4*(e*x)**(m + 5)/(e**
5*(m + 5)) - 8*a**3*(e*x)**(m + 4)/(e**4*(m + 4)) - 8*a**2*(e*x)*
*(m + 3)/(e**3*(m + 3)) + 4*a*(e*x)**(m + 2)/(e**2*(m + 2)) + 4*(
e*x)**(m + 1)/(e*(m + 1))
```

Mathematica [A] time = 0.0592756, size = 72, normalized size = 0.62

$$4x\left(\frac{a^5x^5}{m+6}+\frac{a^4x^4}{m+5}-\frac{2a^3x^3}{m+4}-\frac{2a^2x^2}{m+3}+\frac{ax}{m+2}+\frac{1}{m+1}\right)(ex)^m$$

Antiderivative was successfully verified.

```
[In]  Integrate[(e*x)^m*(2 - 2*a*x)^2*(1 + a*x)^3,x]
```

```
[Out] 4*x*(e*x)^m*((1 + m)^(-1) + (a*x)/(2 + m) - (2*a^2*x^2)/(3 + m) -
 (2*a^3*x^3)/(4 + m) + (a^4*x^4)/(5 + m) + (a^5*x^5)/(6 + m))
```

Maple [B] time = 0.01, size = 340, normalized size = 2.9

$$4\,\frac{(ex)^m\left(a^5m^5x^5+15\,a^5m^4x^5+85\,a^5m^3x^5+a^4m^5x^4+225\,a^5m^2x^5+16\,a^4m^4x^4+274\,a^5mx^5+95\,a^4m^3x^4-2\,a^3m^5x^3+120\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((e*x)^m*(-2*a*x+2)^2*(a*x+1)^3,x)
```

```
[Out] 4*(e*x)^m*(a^5*m^5*x^5+15*a^5*m^4*x^5+85*a^5*m^3*x^5+a^4*m^5*x^4+
225*a^5*m^2*x^5+16*a^4*m^4*x^4+274*a^5*m*x^5+95*a^4*m^3*x^4-2*a^3
*m^5*x^3+120*a^5*x^5+260*a^4*m^2*x^4-34*a^3*m^4*x^3+324*a^4*m*x^4
-214*a^3*m^3*x^3-2*a^2*m^5*x^2+144*a^4*x^4-614*a^3*m^2*x^3-36*a^2
*m^4*x^2-792*a^3*m*x^3-242*a^2*m^3*x^2+a*m^5*x-360*a^3*x^3-744*a^
2*m^2*x^2+19*a*m^4*x-1016*a^2*m*x^2+137*a*m^3*x+m^5-480*a^2*x^2+4
61*a*m^2*x+20*m^4+702*a*m*x+155*m^3+360*a*x+580*m^2+1044*m+720)*x
/(6+m)/(5+m)/(4+m)/(3+m)/(2+m)/(1+m)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(4*(a*x + 1)^3*(a*x - 1)^2*(e*x)^m,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.220208, size = 389, normalized size = 3.35

$$\frac{4\left(\left(a^5m^5 + 15\,a^5m^4 + 85\,a^5m^3 + 225\,a^5m^2 + 274\,a^5m + 120\,a^5\right)x^6 + \left(a^4m^5 + 16\,a^4m^4 + 95\,a^4m^3 + 260\,a^4m^2 + 324\,a^4m + 144\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(4*(a*x + 1)^3*(a*x - 1)^2*(e*x)^m,x, algorithm="fricas")
```

```
[Out] 4*((a^5*m^5 + 15*a^5*m^4 + 85*a^5*m^3 + 225*a^5*m^2 + 274*a^5*m +
 120*a^5)*x^6 + (a^4*m^5 + 16*a^4*m^4 + 95*a^4*m^3 + 260*a^4*m^2
+ 324*a^4*m + 144*a^4)*x^5 - 2*(a^3*m^5 + 17*a^3*m^4 + 107*a^3*m^
3 + 307*a^3*m^2 + 396*a^3*m + 180*a^3)*x^4 - 2*(a^2*m^5 + 18*a^2*
m^4 + 121*a^2*m^3 + 372*a^2*m^2 + 508*a^2*m + 240*a^2)*x^3 + (a*m
^5 + 19*a*m^4 + 137*a*m^3 + 461*a*m^2 + 702*a*m + 360*a)*x^2 + (m
^5 + 20*m^4 + 155*m^3 + 580*m^2 + 1044*m + 720)*x)*(e*x)^m/(m^6 +
 21*m^5 + 175*m^4 + 735*m^3 + 1624*m^2 + 1764*m + 720)
```

Sympy [A] time = 5.12744, size = 1928, normalized size = 16.62

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((e*x)**m*(-2*a*x+2)**2*(a*x+1)**3,x)
```

```
[Out] Piecewise(((4*a**5*log(x) - 4*a**4/x + 4*a**3/x**2 + 8*a**2/(3*x*
*3) - a/x**4 - 4/(5*x**5))/e**6, Eq(m, -6)), ((4*a**5*x + 4*a**4*
log(x) + 8*a**3/x + 4*a**2/x**2 - 4*a/(3*x**3) - 1/x**4)/e**5, Eq
(m, -5)), ((2*a**5*x**2 + 4*a**4*x - 8*a**3*log(x) + 8*a**2/x - 2
*a/x**2 - 4/(3*x**3))/e**4, Eq(m, -4)), ((4*a**5*x**3/3 + 2*a**4*
x**2 - 8*a**3*x - 8*a**2*log(x) - 4*a/x - 2/x**2)/e**3, Eq(m, -3)
), ((a**5*x**4 + 4*a**4*x**3/3 - 4*a**3*x**2 - 8*a**2*x + 4*a*log
(x) - 4/x)/e**2, Eq(m, -2)), ((4*a**5*x**5/5 + a**4*x**4 - 8*a**3
*x**3/3 - 4*a**2*x**2 + 4*a*x + 4*log(x))/e, Eq(m, -1)), (4*a**5*
e**m*m**5*x**6*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*
```

```
m**2 + 1764*m + 720) + 60*a**5*e**m*m**4*x**6*x**m/(m**6 + 21*m**
5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) + 340*a**5*e*
*m*m**3*x**6*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m*
*2 + 1764*m + 720) + 900*a**5*e**m*m**2*x**6*x**m/(m**6 + 21*m**5
 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) + 1096*a**5*e*
*m*m*x**6*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2
+ 1764*m + 720) + 480*a**5*e**m*x**6*x**m/(m**6 + 21*m**5 + 175*m
**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) + 4*a**4*e**m*m**5*x**
5*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m
 + 720) + 64*a**4*e**m*m**4*x**5*x**m/(m**6 + 21*m**5 + 175*m**4
+ 735*m**3 + 1624*m**2 + 1764*m + 720) + 380*a**4*e**m*m**3*x**5*
x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m +
 720) + 1040*a**4*e**m*m**2*x**5*x**m/(m**6 + 21*m**5 + 175*m**4
+ 735*m**3 + 1624*m**2 + 1764*m + 720) + 1296*a**4*e**m*m*x**5*x*
*m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 7
20) + 576*a**4*e**m*x**5*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m*
*3 + 1624*m**2 + 1764*m + 720) - 8*a**3*e**m*m**5*x**4*x**m/(m**6
 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) - 13
6*a**3*e**m*m**4*x**4*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3
+ 1624*m**2 + 1764*m + 720) - 856*a**3*e**m*m**3*x**4*x**m/(m**6
+ 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) - 245
6*a**3*e**m*m**2*x**4*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3
+ 1624*m**2 + 1764*m + 720) - 3168*a**3*e**m*m*x**4*x**m/(m**6 +
21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) - 1440*
a**3*e**m*x**4*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*
m**2 + 1764*m + 720) - 8*a**2*e**m*m**5*x**3*x**m/(m**6 + 21*m**5
 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) - 144*a**2*e**
m*m**4*x**3*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**
2 + 1764*m + 720) - 968*a**2*e**m*m**3*x**3*x**m/(m**6 + 21*m**5
+ 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) - 2976*a**2*e**
m*m**2*x**3*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**
2 + 1764*m + 720) - 4064*a**2*e**m*m*x**3*x**m/(m**6 + 21*m**5 +
175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) - 1920*a**2*e**m*
x**3*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 176
4*m + 720) + 4*a*e**m*m**5*x**2*x**m/(m**6 + 21*m**5 + 175*m**4 +
 735*m**3 + 1624*m**2 + 1764*m + 720) + 76*a*e**m*m**4*x**2*x**m/
(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720)
 + 548*a*e**m*m**3*x**2*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**
3 + 1624*m**2 + 1764*m + 720) + 1844*a*e**m*m**2*x**2*x**m/(m**6
+ 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) + 280
8*a*e**m*m*x**2*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624
*m**2 + 1764*m + 720) + 1440*a*e**m*x**2*x**m/(m**6 + 21*m**5 + 1
75*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) + 4*e**m*m**5*x*x*
*m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 7
20) + 80*e**m*m**4*x*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 +
 1624*m**2 + 1764*m + 720) + 620*e**m*m**3*x*x**m/(m**6 + 21*m**5
 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) + 2320*e**m*m*
*2*x*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 176
4*m + 720) + 4176*e**m*m*x*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*
m**3 + 1624*m**2 + 1764*m + 720) + 2880*e**m*x*x**m/(m**6 + 21*m*
*5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720), True))
```

GIAC/XCAS [A] time = 0.212899, size = 817, normalized size = 7.04

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(4*(a*x + 1)^3*(a*x - 1)^2*(e*x)^m,x, algorithm="giac")
```

```
[Out] 4*(a^5*m^5*x^6*e^(m*ln(x) + m) + 15*a^5*m^4*x^6*e^(m*ln(x) + m) +
 a^4*m^5*x^5*e^(m*ln(x) + m) + 85*a^5*m^3*x^6*e^(m*ln(x) + m) + 1
6*a^4*m^4*x^5*e^(m*ln(x) + m) + 225*a^5*m^2*x^6*e^(m*ln(x) + m) -
 2*a^3*m^5*x^4*e^(m*ln(x) + m) + 95*a^4*m^3*x^5*e^(m*ln(x) + m) +
 274*a^5*m*x^6*e^(m*ln(x) + m) - 34*a^3*m^4*x^4*e^(m*ln(x) + m) +
 260*a^4*m^2*x^5*e^(m*ln(x) + m) + 120*a^5*x^6*e^(m*ln(x) + m) -
2*a^2*m^5*x^3*e^(m*ln(x) + m) - 214*a^3*m^3*x^4*e^(m*ln(x) + m) +
 324*a^4*m*x^5*e^(m*ln(x) + m) - 36*a^2*m^4*x^3*e^(m*ln(x) + m) -
 614*a^3*m^2*x^4*e^(m*ln(x) + m) + 144*a^4*x^5*e^(m*ln(x) + m) +
a*m^5*x^2*e^(m*ln(x) + m) - 242*a^2*m^3*x^3*e^(m*ln(x) + m) - 792
```

```
*a^3*m*x^4*e^(m*ln(x) + m) + 19*a*m^4*x^2*e^(m*ln(x) + m) - 744*a
^2*m^2*x^3*e^(m*ln(x) + m) - 360*a^3*x^4*e^(m*ln(x) + m) + m^5*x*
e^(m*ln(x) + m) + 137*a*m^3*x^2*e^(m*ln(x) + m) - 1016*a^2*m*x^3*
e^(m*ln(x) + m) + 20*m^4*x*e^(m*ln(x) + m) + 461*a*m^2*x^2*e^(m*l
n(x) + m) - 480*a^2*x^3*e^(m*ln(x) + m) + 155*m^3*x*e^(m*ln(x) +
m) + 702*a*m*x^2*e^(m*ln(x) + m) + 580*m^2*x*e^(m*ln(x) + m) + 36
0*a*x^2*e^(m*ln(x) + m) + 1044*m*x*e^(m*ln(x) + m) + 720*x*e^(m*l
n(x) + m))/(m^6 + 21*m^5 + 175*m^4 + 735*m^3 + 1624*m^2 + 1764*m
+ 720)
```

3.357 $\int (ex)^m(2-2ax)(1+ax)^2\,dx$

Optimal. Leaf size=76

$$-\frac{2a^3(ex)^{m+4}}{e^4(m+4)}-\frac{2a^2(ex)^{m+3}}{e^3(m+3)}+\frac{2a(ex)^{m+2}}{e^2(m+2)}+\frac{2(ex)^{m+1}}{e(m+1)}$$

```
[Out] (2*(e*x)^(1 + m))/(e*(1 + m)) + (2*a*(e*x)^(2 + m))/(e^2*(2 + m))
 - (2*a^2*(e*x)^(3 + m))/(e^3*(3 + m)) - (2*a^3*(e*x)^(4 + m))/(e
^4*(4 + m))
```

Rubi [A] time = 0.0824718, antiderivative size = 76, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.053

$$-\frac{2a^3(ex)^{m+4}}{e^4(m+4)}-\frac{2a^2(ex)^{m+3}}{e^3(m+3)}+\frac{2a(ex)^{m+2}}{e^2(m+2)}+\frac{2(ex)^{m+1}}{e(m+1)}$$

Antiderivative was successfully verified.

```
[In]  Int[(e*x)^m*(2 - 2*a*x)*(1 + a*x)^2,x]
```

```
[Out] (2*(e*x)^(1 + m))/(e*(1 + m)) + (2*a*(e*x)^(2 + m))/(e^2*(2 + m))
 - (2*a^2*(e*x)^(3 + m))/(e^3*(3 + m)) - (2*a^3*(e*x)^(4 + m))/(e
^4*(4 + m))
```

Rubi in Sympy [A] time = 17.7893, size = 66, normalized size = 0.87

$$-\frac{2a^3\,(ex)^{m+4}}{e^4\,(m+4)}-\frac{2a^2\,(ex)^{m+3}}{e^3\,(m+3)}+\frac{2a\,(ex)^{m+2}}{e^2\,(m+2)}+\frac{2\,(ex)^{m+1}}{e\,(m+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((e*x)**m*(-2*a*x+2)*(a*x+1)**2,x)
```

```
[Out] -2*a**3*(e*x)**(m + 4)/(e**4*(m + 4)) - 2*a**2*(e*x)**(m + 3)/(e*
*3*(m + 3)) + 2*a*(e*x)**(m + 2)/(e**2*(m + 2)) + 2*(e*x)**(m + 1
)/(e*(m + 1))
```

Mathematica [A] time = 0.0562629, size = 116, normalized size = 1.53

$$-\frac{2x\left(6a^3x^3+8a^2x^2+m^2\left(6a^3x^3+7a^2x^2-8ax-9\right)+m\left(11a^3x^3+14a^2x^2-19ax-26\right)+m^3(ax-1)(ax+1)^2-12ax-2}{(m+1)(m+2)(m+3)(m+4)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(e*x)^m*(2 - 2*a*x)*(1 + a*x)^2,x]
```

```
[Out] (-2*x*(e*x)^m*(-24 - 12*a*x + 8*a^2*x^2 + 6*a^3*x^3 + m^3*(-1 + a
*x)*(1 + a*x)^2 + m^2*(-9 - 8*a*x + 7*a^2*x^2 + 6*a^3*x^3) + m*(-
26 - 19*a*x + 14*a^2*x^2 + 11*a^3*x^3)))/((1 + m)*(2 + m)*(3 + m)
*(4 + m))
```

Maple [A] time = 0.008, size = 143, normalized size = 1.9

$$-2\,\frac{(ex)^m\left(a^3m^3x^3+6\,a^3m^2x^3+11\,a^3mx^3+a^2m^3x^2+6\,a^3x^3+7\,a^2m^2x^2+14\,a^2mx^2-am^3x+8\,a^2x^2-8\,am^2x-19\,amx-}{(4+m)\,(3+m)\,(2+m)\,(1+m)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((e*x)^m*(-2*a*x+2)*(a*x+1)^2,x)
```

```
[Out] -2*(e*x)^m*(a^3*m^3*x^3+6*a^3*m^2*x^3+11*a^3*m*x^3+a^2*m^3*x^2+6*
a^3*x^3+7*a^2*m^2*x^2+14*a^2*m*x^2-a*m^3*x+8*a^2*x^2-8*a*m^2*x-19
*a*m*x-m^3-12*a*x-9*m^2-26*m-24)*x/(4+m)/(3+m)/(2+m)/(1+m)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-2*(a*x + 1)^2*(a*x - 1)*(e*x)^m,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.218068, size = 176, normalized size = 2.32

$$-\frac{2\left(\left(a^3m^3+6\,a^3m^2+11\,a^3m+6\,a^3\right)x^4+\left(a^2m^3+7\,a^2m^2+14\,a^2m+8\,a^2\right)x^3-\left(am^3+8\,am^2+19\,am+12\,a\right)x^2-\left(m^3+9\,\right.\right.}{m^4+10\,m^3+35\,m^2+50\,m+24}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-2*(a*x + 1)^2*(a*x - 1)*(e*x)^m,x, algorithm="fricas")
```

```
[Out] -2*((a^3*m^3 + 6*a^3*m^2 + 11*a^3*m + 6*a^3)*x^4 + (a^2*m^3 + 7*a
^2*m^2 + 14*a^2*m + 8*a^2)*x^3 - (a*m^3 + 8*a*m^2 + 19*a*m + 12*a
)*x^2 - (m^3 + 9*m^2 + 26*m + 24)*x)*(e*x)^m/(m^4 + 10*m^3 + 35*m
^2 + 50*m + 24)
```

Sympy [A] time = 2.49559, size = 668, normalized size = 8.79

$$\begin{cases} \frac{-2a^3\log(x)+\frac{2a^2}{x}-\frac{a}{x^2}-\frac{2}{3x^3}}{e^4} \\ \frac{-2a^3x-2a^2\log(x)-\frac{2a}{x}-\frac{1}{x^2}}{e^3} \\ \frac{-a^3x^2-2a^2x+2a\log(x)-\frac{2}{x}}{e^2} \\ \frac{-\frac{2a^3x^3}{3}-a^2x^2+2ax+2\log(x)}{e} \\ -\frac{2a^3e^mm^3x^4x^m}{m^4+10m^3+35m^2+50m+24}-\frac{12a^3e^mm^2x^4x^m}{m^4+10m^3+35m^2+50m+24}-\frac{22a^3e^mmx^4x^m}{m^4+10m^3+35m^2+50m+24}-\frac{12a^3e^mx^4x^m}{m^4+10m^3+35m^2+50m+24}-\frac{2a^2e^mm^3x^3x^m}{m^4+10m^3+35m^2+50m+24}-\frac{}{m^4+} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((e*x)**m*(-2*a*x+2)*(a*x+1)**2,x)
```

```
[Out] Piecewise((((-2*a**3*log(x) + 2*a**2/x - a/x**2 - 2/(3*x**3))/e**4
, Eq(m, -4)), ((-2*a**3*x - 2*a**2*log(x) - 2*a/x - 1/x**2)/e**3,
 Eq(m, -3)), ((-a**3*x**2 - 2*a**2*x + 2*a*log(x) - 2/x)/e**2, Eq
(m, -2)), ((-2*a**3*x**3/3 - a**2*x**2 + 2*a*x + 2*log(x))/e, Eq(
m, -1)), (-2*a**3*e**m*m**3*x**4*x**m/(m**4 + 10*m**3 + 35*m**2 +
 50*m + 24) - 12*a**3*e**m*m**2*x**4*x**m/(m**4 + 10*m**3 + 35*m*
*2 + 50*m + 24) - 22*a**3*e**m*m*x**4*x**m/(m**4 + 10*m**3 + 35*m
**2 + 50*m + 24) - 12*a**3*e**m*x**4*x**m/(m**4 + 10*m**3 + 35*m*
*2 + 50*m + 24) - 2*a**2*e**m*m**3*x**3*x**m/(m**4 + 10*m**3 + 35
*m**2 + 50*m + 24) - 14*a**2*e**m*m**2*x**3*x**m/(m**4 + 10*m**3
+ 35*m**2 + 50*m + 24) - 28*a**2*e**m*m*x**3*x**m/(m**4 + 10*m**3
 + 35*m**2 + 50*m + 24) - 16*a**2*e**m*x**3*x**m/(m**4 + 10*m**3
```

```
+ 35*m**2 + 50*m + 24) + 2*a*e**m*m**3*x**2*x**m/(m**4 + 10*m**3
+ 35*m**2 + 50*m + 24) + 16*a*e**m*m**2*x**2*x**m/(m**4 + 10*m**3
 + 35*m**2 + 50*m + 24) + 38*a*e**m*m*x**2*x**m/(m**4 + 10*m**3 +
 35*m**2 + 50*m + 24) + 24*a*e**m*x**2*x**m/(m**4 + 10*m**3 + 35*
m**2 + 50*m + 24) + 2*e**m*m**3*x*x**m/(m**4 + 10*m**3 + 35*m**2
+ 50*m + 24) + 18*e**m*m**2*x*x**m/(m**4 + 10*m**3 + 35*m**2 + 50
*m + 24) + 52*e**m*m*x*x**m/(m**4 + 10*m**3 + 35*m**2 + 50*m + 24
) + 48*e**m*x*x**m/(m**4 + 10*m**3 + 35*m**2 + 50*m + 24), True))
```

GIAC/XCAS [A] time = 0.216983, size = 352, normalized size = 4.63

$$-\frac{2\left(a^3m^3x^4e^{(m\ln(x)+m)} + 6\,a^3m^2x^4e^{(m\ln(x)+m)} + a^2m^3x^3e^{(m\ln(x)+m)} + 11\,a^3mx^4e^{(m\ln(x)+m)} + 7\,a^2m^2x^3e^{(m\ln(x)+m)} + 6\,a^3x^4e^{(m\ln}\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-2*(a*x + 1)^2*(a*x - 1)*(e*x)^m,x, algorithm="giac")
```

```
[Out] -2*(a^3*m^3*x^4*e^(m*ln(x) + m) + 6*a^3*m^2*x^4*e^(m*ln(x) + m) +
 a^2*m^3*x^3*e^(m*ln(x) + m) + 11*a^3*m*x^4*e^(m*ln(x) + m) + 7*a
^2*m^2*x^3*e^(m*ln(x) + m) + 6*a^3*x^4*e^(m*ln(x) + m) - a*m^3*x^
2*e^(m*ln(x) + m) + 14*a^2*m*x^3*e^(m*ln(x) + m) - 8*a*m^2*x^2*e^
(m*ln(x) + m) + 8*a^2*x^3*e^(m*ln(x) + m) - m^3*x*e^(m*ln(x) + m)
 - 19*a*m*x^2*e^(m*ln(x) + m) - 9*m^2*x*e^(m*ln(x) + m) - 12*a*x^
2*e^(m*ln(x) + m) - 26*m*x*e^(m*ln(x) + m) - 24*x*e^(m*ln(x) + m)
)/(m^4 + 10*m^3 + 35*m^2 + 50*m + 24)
```

3.358 $\int \frac{(ex)^m}{(2-2ax)^2(1+ax)}\,dx$

Optimal. Leaf size=86

$$\frac{a(ex)^{m+2}\,{}_2F_1\left(2,\frac{m+2}{2};\frac{m+4}{2};a^2x^2\right)}{4e^2(m+2)}+\frac{(ex)^{m+1}\,{}_2F_1\left(2,\frac{m+1}{2};\frac{m+3}{2};a^2x^2\right)}{4e(m+1)}$$

```
[Out] ((e*x)^(1 + m)*Hypergeometric2F1[2, (1 + m)/2, (3 + m)/2, a^2*x^2
])/(4*e*(1 + m)) + (a*(e*x)^(2 + m)*Hypergeometric2F1[2, (2 + m)/
2, (4 + m)/2, a^2*x^2])/(4*e^2*(2 + m))
```

Rubi [A] time = 0.126994, antiderivative size = 86, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 21, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.143

$$\frac{a(ex)^{m+2}\,{}_2F_1\left(2,\frac{m+2}{2};\frac{m+4}{2};a^2x^2\right)}{4e^2(m+2)}+\frac{(ex)^{m+1}\,{}_2F_1\left(2,\frac{m+1}{2};\frac{m+3}{2};a^2x^2\right)}{4e(m+1)}$$

Antiderivative was successfully verified.

```
[In]  Int[(e*x)^m/((2 - 2*a*x)^2*(1 + a*x)),x]
```

```
[Out] ((e*x)^(1 + m)*Hypergeometric2F1[2, (1 + m)/2, (3 + m)/2, a^2*x^2
])/(4*e*(1 + m)) + (a*(e*x)^(2 + m)*Hypergeometric2F1[2, (2 + m)/
2, (4 + m)/2, a^2*x^2])/(4*e^2*(2 + m))
```

Rubi in Sympy [A] time = 14.5979, size = 63, normalized size = 0.73

$$\frac{a\,(ex)^{m+2}\,{}_2F_1\left(\begin{matrix}2,\frac{m}{2}+1\\\frac{m}{2}+2\end{matrix}\middle|a^2x^2\right)}{4e^2\,(m+2)}+\frac{(ex)^{m+1}\,{}_2F_1\left(\begin{matrix}2,\frac{m}{2}+\frac{1}{2}\\\frac{m}{2}+\frac{3}{2}\end{matrix}\middle|a^2x^2\right)}{4e\,(m+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((e*x)**m/(-2*a*x+2)**2/(a*x+1),x)
```

```
[Out] a*(e*x)**(m + 2)*hyper((2, m/2 + 1), (m/2 + 2,), a**2*x**2)/(4*e*
*2*(m + 2)) + (e*x)**(m + 1)*hyper((2, m/2 + 1/2), (m/2 + 3/2,),
a**2*x**2)/(4*e*(m + 1))
```

Mathematica [A] time = 0.0557756, size = 52, normalized size = 0.6

$$\frac{x(ex)^m\left({}_2F_1(1,m+1;m+2;-ax)+{}_2F_1(1,m+1;m+2;ax)+2\,{}_2F_1(2,m+1;m+2;ax)\right)}{16(m+1)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(e*x)^m/((2 - 2*a*x)^2*(1 + a*x)),x]
```

```
[Out] (x*(e*x)^m*(Hypergeometric2F1[1, 1 + m, 2 + m, -(a*x)] + Hypergeo
metric2F1[1, 1 + m, 2 + m, a*x] + 2*Hypergeometric2F1[2, 1 + m, 2
 + m, a*x]))/(16*(1 + m))
```

Maple [F] time = 0.069, size = 0, normalized size = 0.

$$\int \frac{(ex)^m}{(-2\,ax+2)^2\,(ax+1)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((e*x)^m/(-2*a*x+2)^2/(a*x+1),x)
```

```
[Out] int((e*x)^m/(-2*a*x+2)^2/(a*x+1),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\frac{1}{4}\int\frac{(ex)^m}{(ax+1)(ax-1)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/4*(e*x)^m/((a*x + 1)*(a*x - 1)^2),x, algorithm="maxima")
```

```
[Out] 1/4*integrate((e*x)^m/((a*x + 1)*(a*x - 1)^2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(ex)^m}{4\left(a^3x^3-a^2x^2-ax+1\right)},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/4*(e*x)^m/((a*x + 1)*(a*x - 1)^2),x, algorithm="fricas")
```

```
[Out] integral(1/4*(e*x)^m/(a^3*x^3 - a^2*x^2 - a*x + 1), x)
```

Sympy [A] time = 7.67705, size = 337, normalized size = 3.92

$$\frac{2ae^m m^2 x x^m \Phi\left(\frac{1}{ax},1,me^{i\pi}\right)\Gamma(-m)}{16a^2x\Gamma(-m+1)-16a\Gamma(-m+1)}-\frac{ae^m m x x^m \Phi\left(\frac{1}{ax},1,me^{i\pi}\right)\Gamma(-m)}{16a^2x\Gamma(-m+1)-16a\Gamma(-m+1)}+\frac{ae^m m x x^m \Phi\left(\frac{e^{i\pi}}{ax},1,me^{i\pi}\right)\Gamma(-m)}{16a^2x\Gamma(-m+1)-16a\Gamma(-m+1)}+\frac{2ae^m m x x^m\Gamma(-m)}{16a^2x\Gamma(-m+1)-16a\Gamma(-m+1)}-\frac{2e^m m^2 x^m \Phi\left(\frac{1}{ax},1,me^{i\pi}\right)\Gamma(-m)}{16a^2x\Gamma(-m+1)-16a\Gamma(-m+1)}+\frac{e^m m x^m \Phi\left(\frac{1}{ax},1,me^{i\pi}\right)\Gamma(-m)}{16a^2x\Gamma(-m+1)-16a\Gamma(-m+1)}-\frac{e^m m x^m \Phi\left(\frac{e^{i\pi}}{ax},1,me^{i\pi}\right)\Gamma(-m)}{16a^2x\Gamma(-m+1)-16a\Gamma(-m+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((e*x)**m/(-2*a*x+2)**2/(a*x+1),x)
```

```
[Out] 2*a*e**m*m**2*x*x**m*lerchphi(1/(a*x), 1, m*exp_polar(I*pi))*gamm
a(-m)/(16*a**2*x*gamma(-m + 1) - 16*a*gamma(-m + 1)) - a*e**m*m*x
*x**m*lerchphi(1/(a*x), 1, m*exp_polar(I*pi))*gamma(-m)/(16*a**2*
x*gamma(-m + 1) - 16*a*gamma(-m + 1)) + a*e**m*m*x*x**m*lerchphi(
exp_polar(I*pi)/(a*x), 1, m*exp_polar(I*pi))*gamma(-m)/(16*a**2*x
*gamma(-m + 1) - 16*a*gamma(-m + 1)) + 2*a*e**m*m*x*x**m*gamma(-m
)/(16*a**2*x*gamma(-m + 1) - 16*a*gamma(-m + 1)) - 2*e**m*m**2*x*
*m*lerchphi(1/(a*x), 1, m*exp_polar(I*pi))*gamma(-m)/(16*a**2*x*g
amma(-m + 1) - 16*a*gamma(-m + 1)) + e**m*m*x**m*lerchphi(1/(a*x)
, 1, m*exp_polar(I*pi))*gamma(-m)/(16*a**2*x*gamma(-m + 1) - 16*a
*gamma(-m + 1)) - e**m*m*x**m*lerchphi(exp_polar(I*pi)/(a*x), 1,
m*exp_polar(I*pi))*gamma(-m)/(16*a**2*x*gamma(-m + 1) - 16*a*gamm
```

```
a(-m + 1))
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(ex)^m}{4\,(ax+1)(ax-1)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/4*(e*x)^m/((a*x + 1)*(a*x - 1)^2),x, algorithm="giac")
```

```
[Out] integrate(1/4*(e*x)^m/((a*x + 1)*(a*x - 1)^2), x)
```

3.359 $\int \frac{(ex)^m}{(2-2ax)^3(1+ax)^2}\,dx$

Optimal. Leaf size=86

$$\frac{a(ex)^{m+2}\,{}_2F_1\left(3,\frac{m+2}{2};\frac{m+4}{2};a^2x^2\right)}{8e^2(m+2)}+\frac{(ex)^{m+1}\,{}_2F_1\left(3,\frac{m+1}{2};\frac{m+3}{2};a^2x^2\right)}{8e(m+1)}$$

```
[Out] ((e*x)^(1 + m)*Hypergeometric2F1[3, (1 + m)/2, (3 + m)/2, a^2*x^2
])/(8*e*(1 + m)) + (a*(e*x)^(2 + m)*Hypergeometric2F1[3, (2 + m)/
2, (4 + m)/2, a^2*x^2])/(8*e^2*(2 + m))
```

Rubi [A] time = 0.130722, antiderivative size = 86, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 21, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.143

$$\frac{a(ex)^{m+2}\,{}_2F_1\left(3,\frac{m+2}{2};\frac{m+4}{2};a^2x^2\right)}{8e^2(m+2)}+\frac{(ex)^{m+1}\,{}_2F_1\left(3,\frac{m+1}{2};\frac{m+3}{2};a^2x^2\right)}{8e(m+1)}$$

Antiderivative was successfully verified.

```
[In]  Int[(e*x)^m/((2 - 2*a*x)^3*(1 + a*x)^2),x]
```

```
[Out] ((e*x)^(1 + m)*Hypergeometric2F1[3, (1 + m)/2, (3 + m)/2, a^2*x^2
])/(8*e*(1 + m)) + (a*(e*x)^(2 + m)*Hypergeometric2F1[3, (2 + m)/
2, (4 + m)/2, a^2*x^2])/(8*e^2*(2 + m))
```

Rubi in Sympy [A] time = 14.6483, size = 63, normalized size = 0.73

$$\frac{a\left(ex\right)^{m+2}{}_2F_1\left(\begin{matrix}3,\frac{m}{2}+1\\\frac{m}{2}+2\end{matrix}\middle|a^2x^2\right)}{8e^2\left(m+2\right)}+\frac{\left(ex\right)^{m+1}{}_2F_1\left(\begin{matrix}3,\frac{m}{2}+\frac{1}{2}\\\frac{m}{2}+\frac{3}{2}\end{matrix}\middle|a^2x^2\right)}{8e\left(m+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((e*x)**m/(-2*a*x+2)**3/(a*x+1)**2,x)
```

```
[Out] a*(e*x)**(m + 2)*hyper((3, m/2 + 1), (m/2 + 2,), a**2*x**2)/(8*e
**2*(m + 2)) + (e*x)**(m + 1)*hyper((3, m/2 + 1/2), (m/2 + 3/2,),
a**2*x**2)/(8*e*(m + 1))
```

Mathematica [A] time = 0.0776352, size = 83, normalized size = 0.97

$$\frac{x(ex)^m(3\,{}_2F_1(1,m+1;m+2;-ax)+3\,{}_2F_1(1,m+1;m+2;ax)+2\,{}_2F_1(2,m+1;m+2;-ax)+4\,{}_2F_1(2,m+1;m+2;ax)+4\,{}_2F}{128(m+1)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(e*x)^m/((2 - 2*a*x)^3*(1 + a*x)^2),x]
```

```
[Out] (x*(e*x)^m*(3*Hypergeometric2F1[1, 1 + m, 2 + m, -(a*x)] + 3*Hype
rgeometric2F1[1, 1 + m, 2 + m, a*x] + 2*Hypergeometric2F1[2, 1 +
m, 2 + m, -(a*x)] + 4*Hypergeometric2F1[2, 1 + m, 2 + m, a*x] + 4
*Hypergeometric2F1[3, 1 + m, 2 + m, a*x]))/(128*(1 + m))
```

Maple [F] time = 0.092, size = 0, normalized size = 0.

$$\int \frac{(ex)^m}{(-2\,ax+2)^3\,(ax+1)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((e*x)^m/(-2*a*x+2)^3/(a*x+1)^2,x)

[Out] int((e*x)^m/(-2*a*x+2)^3/(a*x+1)^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$-\frac{1}{8}\int \frac{(ex)^m}{(ax+1)^2(ax-1)^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-1/8*(e*x)^m/((a*x + 1)^2*(a*x - 1)^3),x, algorithm="maxima")

[Out] -1/8*integrate((e*x)^m/((a*x + 1)^2*(a*x - 1)^3), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{(ex)^m}{8\,(a^5x^5-a^4x^4-2\,a^3x^3+2\,a^2x^2+ax-1)},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-1/8*(e*x)^m/((a*x + 1)^2*(a*x - 1)^3),x, algorithm="fricas")

[Out] integral(-1/8*(e*x)^m/(a^5*x^5 - a^4*x^4 - 2*a^3*x^3 + 2*a^2*x^2
+ a*x - 1), x)
```

Sympy [A] time = 14.518, size = 1972, normalized size = 22.93

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((e*x)**m/(-2*a*x+2)**3/(a*x+1)**2,x)

[Out] -2*a**3*e**m*m**3*x**3*x**m*lerchphi(1/(a*x), 1, m*exp_polar(I*pi
))*gamma(-m)/(128*a**4*x**3*gamma(-m + 1) - 128*a**3*x**2*gamma(-
m + 1) - 128*a**2*x*gamma(-m + 1) + 128*a*gamma(-m + 1)) + 6*a**3
*e**m*m**2*x**3*x**m*lerchphi(1/(a*x), 1, m*exp_polar(I*pi))*gamm
a(-m)/(128*a**4*x**3*gamma(-m + 1) - 128*a**3*x**2*gamma(-m + 1)
- 128*a**2*x*gamma(-m + 1) + 128*a*gamma(-m + 1)) - 2*a**3*e**m*m
**2*x**3*x**m*lerchphi(exp_polar(I*pi)/(a*x), 1, m*exp_polar(I*pi
))*gamma(-m)/(128*a**4*x**3*gamma(-m + 1) - 128*a**3*x**2*gamma(-
m + 1) - 128*a**2*x*gamma(-m + 1) + 128*a*gamma(-m + 1)) - 2*a**3
*e**m*m**2*x**3*x**m*gamma(-m)/(128*a**4*x**3*gamma(-m + 1) - 128
*a**3*x**2*gamma(-m + 1) - 128*a**2*x*gamma(-m + 1) + 128*a*gamma
(-m + 1)) - 3*a**3*e**m*m*x**3*x**m*lerchphi(1/(a*x), 1, m*exp_po
lar(I*pi))*gamma(-m)/(128*a**4*x**3*gamma(-m + 1) - 128*a**3*x**2
*gamma(-m + 1) - 128*a**2*x*gamma(-m + 1) + 128*a*gamma(-m + 1))
+ 3*a**3*e**m*m*x**3*x**m*lerchphi(exp_polar(I*pi)/(a*x), 1, m*ex
```

```
p_polar(I*pi))*gamma(-m)/(128*a**4*x**3*gamma(-m + 1) - 128*a**3*
x**2*gamma(-m + 1) - 128*a**2*x*gamma(-m + 1) + 128*a*gamma(-m +
1)) + 4*a**3*e**m*m*x**3*x**m*gamma(-m)/(128*a**4*x**3*gamma(-m +
 1) - 128*a**3*x**2*gamma(-m + 1) - 128*a**2*x*gamma(-m + 1) + 12
8*a*gamma(-m + 1)) + 2*a**2*e**m*m**3*x**2*x**m*lerchphi(1/(a*x),
 1, m*exp_polar(I*pi))*gamma(-m)/(128*a**4*x**3*gamma(-m + 1) - 1
28*a**3*x**2*gamma(-m + 1) - 128*a**2*x*gamma(-m + 1) + 128*a*gam
ma(-m + 1)) - 6*a**2*e**m*m**2*x**2*x**m*lerchphi(1/(a*x), 1, m*e
xp_polar(I*pi))*gamma(-m)/(128*a**4*x**3*gamma(-m + 1) - 128*a**3
*x**2*gamma(-m + 1) - 128*a**2*x*gamma(-m + 1) + 128*a*gamma(-m +
 1)) + 2*a**2*e**m*m**2*x**2*x**m*lerchphi(exp_polar(I*pi)/(a*x),
 1, m*exp_polar(I*pi))*gamma(-m)/(128*a**4*x**3*gamma(-m + 1) - 1
28*a**3*x**2*gamma(-m + 1) - 128*a**2*x*gamma(-m + 1) + 128*a*gam
ma(-m + 1)) + 3*a**2*e**m*m*x**2*x**m*lerchphi(1/(a*x), 1, m*exp_
polar(I*pi))*gamma(-m)/(128*a**4*x**3*gamma(-m + 1) - 128*a**3*x*
*2*gamma(-m + 1) - 128*a**2*x*gamma(-m + 1) + 128*a*gamma(-m + 1)
) - 3*a**2*e**m*m*x**2*x**m*lerchphi(exp_polar(I*pi)/(a*x), 1, m*
exp_polar(I*pi))*gamma(-m)/(128*a**4*x**3*gamma(-m + 1) - 128*a**
3*x**2*gamma(-m + 1) - 128*a**2*x*gamma(-m + 1) + 128*a*gamma(-m
+ 1)) + 2*a**2*e**m*m*x**2*x**m*gamma(-m)/(128*a**4*x**3*gamma(-m
 + 1) - 128*a**3*x**2*gamma(-m + 1) - 128*a**2*x*gamma(-m + 1) +
128*a*gamma(-m + 1)) + 2*a*e**m*m**3*x*x**m*lerchphi(1/(a*x), 1,
m*exp_polar(I*pi))*gamma(-m)/(128*a**4*x**3*gamma(-m + 1) - 128*a
**3*x**2*gamma(-m + 1) - 128*a**2*x*gamma(-m + 1) + 128*a*gamma(-
m + 1)) - 6*a*e**m*m**2*x*x**m*lerchphi(1/(a*x), 1, m*exp_polar(I
*pi))*gamma(-m)/(128*a**4*x**3*gamma(-m + 1) - 128*a**3*x**2*gamm
a(-m + 1) - 128*a**2*x*gamma(-m + 1) + 128*a*gamma(-m + 1)) + 2*a
*e**m*m**2*x*x**m*lerchphi(exp_polar(I*pi)/(a*x), 1, m*exp_polar(
I*pi))*gamma(-m)/(128*a**4*x**3*gamma(-m + 1) - 128*a**3*x**2*gam
ma(-m + 1) - 128*a**2*x*gamma(-m + 1) + 128*a*gamma(-m + 1)) + 2*
a*e**m*m**2*x*x**m*gamma(-m)/(128*a**4*x**3*gamma(-m + 1) - 128*a
**3*x**2*gamma(-m + 1) - 128*a**2*x*gamma(-m + 1) + 128*a*gamma(-
m + 1)) + 3*a*e**m*m*x*x**m*lerchphi(1/(a*x), 1, m*exp_polar(I*pi
))*gamma(-m)/(128*a**4*x**3*gamma(-m + 1) - 128*a**3*x**2*gamma(-
m + 1) - 128*a**2*x*gamma(-m + 1) + 128*a*gamma(-m + 1)) - 3*a*e*
*m*m*x*x**m*lerchphi(exp_polar(I*pi)/(a*x), 1, m*exp_polar(I*pi))
*gamma(-m)/(128*a**4*x**3*gamma(-m + 1) - 128*a**3*x**2*gamma(-m
+ 1) - 128*a**2*x*gamma(-m + 1) + 128*a*gamma(-m + 1)) - 10*a*e**
m*m*x*x**m*gamma(-m)/(128*a**4*x**3*gamma(-m + 1) - 128*a**3*x**2
*gamma(-m + 1) - 128*a**2*x*gamma(-m + 1) + 128*a*gamma(-m + 1))
- 2*e**m*m**3*x**m*lerchphi(1/(a*x), 1, m*exp_polar(I*pi))*gamma(
-m)/(128*a**4*x**3*gamma(-m + 1) - 128*a**3*x**2*gamma(-m + 1) -
128*a**2*x*gamma(-m + 1) + 128*a*gamma(-m + 1)) + 6*e**m*m**2*x**
m*lerchphi(1/(a*x), 1, m*exp_polar(I*pi))*gamma(-m)/(128*a**4*x**
3*gamma(-m + 1) - 128*a**3*x**2*gamma(-m + 1) - 128*a**2*x*gamma(
-m + 1) + 128*a*gamma(-m + 1)) - 2*e**m*m**2*x**m*lerchphi(exp_po
lar(I*pi)/(a*x), 1, m*exp_polar(I*pi))*gamma(-m)/(128*a**4*x**3*g
amma(-m + 1) - 128*a**3*x**2*gamma(-m + 1) - 128*a**2*x*gamma(-m
+ 1) + 128*a*gamma(-m + 1)) - 3*e**m*m*x**m*lerchphi(1/(a*x), 1,
m*exp_polar(I*pi))*gamma(-m)/(128*a**4*x**3*gamma(-m + 1) - 128*a
**3*x**2*gamma(-m + 1) - 128*a**2*x*gamma(-m + 1) + 128*a*gamma(-
m + 1)) + 3*e**m*m*x**m*lerchphi(exp_polar(I*pi)/(a*x), 1, m*exp_
polar(I*pi))*gamma(-m)/(128*a**4*x**3*gamma(-m + 1) - 128*a**3*x*
*2*gamma(-m + 1) - 128*a**2*x*gamma(-m + 1) + 128*a*gamma(-m + 1)
)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int -\frac{(ex)^m}{8\,(ax+1)^2(ax-1)^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-1/8*(e*x)^m/((a*x + 1)^2*(a*x - 1)^3),x, algorithm="giac")
```

```
[Out] integrate(-1/8*(e*x)^m/((a*x + 1)^2*(a*x - 1)^3), x)
```

3.360 $\int \frac{(ex)^m}{(2-2ax)^4(1+ax)^3}\,dx$

Optimal. Leaf size=86

$$\frac{a(ex)^{m+2}\,{}_2F_1\left(4,\frac{m+2}{2};\frac{m+4}{2};a^2x^2\right)}{16e^2(m+2)}+\frac{(ex)^{m+1}\,{}_2F_1\left(4,\frac{m+1}{2};\frac{m+3}{2};a^2x^2\right)}{16e(m+1)}$$

```
[Out] ((e*x)^(1 + m)*Hypergeometric2F1[4, (1 + m)/2, (3 + m)/2, a^2*x^2
])/(16*e*(1 + m)) + (a*(e*x)^(2 + m)*Hypergeometric2F1[4, (2 + m)
/2, (4 + m)/2, a^2*x^2])/(16*e^2*(2 + m))
```

Rubi [A] time = 0.125512, antiderivative size = 86, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 21, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.143

$$\frac{a(ex)^{m+2}\,{}_2F_1\left(4,\frac{m+2}{2};\frac{m+4}{2};a^2x^2\right)}{16e^2(m+2)}+\frac{(ex)^{m+1}\,{}_2F_1\left(4,\frac{m+1}{2};\frac{m+3}{2};a^2x^2\right)}{16e(m+1)}$$

Antiderivative was successfully verified.

```
[In]  Int[(e*x)^m/((2 - 2*a*x)^4*(1 + a*x)^3),x]
```

```
[Out] ((e*x)^(1 + m)*Hypergeometric2F1[4, (1 + m)/2, (3 + m)/2, a^2*x^2
])/(16*e*(1 + m)) + (a*(e*x)^(2 + m)*Hypergeometric2F1[4, (2 + m)
/2, (4 + m)/2, a^2*x^2])/(16*e^2*(2 + m))
```

Rubi in Sympy [A] time = 14.5287, size = 63, normalized size = 0.73

$$\frac{a\,(ex)^{m+2}\,{}_2F_1\left(\left.\begin{matrix}4,\frac{m}{2}+1\\ \frac{m}{2}+2\end{matrix}\right|a^2x^2\right)}{16e^2\,(m+2)}+\frac{(ex)^{m+1}\,{}_2F_1\left(\left.\begin{matrix}4,\frac{m}{2}+\frac{1}{2}\\ \frac{m}{2}+\frac{3}{2}\end{matrix}\right|a^2x^2\right)}{16e\,(m+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((e*x)**m/(-2*a*x+2)**4/(a*x+1)**3,x)
```

```
[Out] a*(e*x)**(m + 2)*hyper((4, m/2 + 1), (m/2 + 2,), a**2*x**2)/(16*e
**2*(m + 2)) + (e*x)**(m + 1)*hyper((4, m/2 + 1/2), (m/2 + 3/2,),
 a**2*x**2)/(16*e*(m + 1))
```

Mathematica [C] time = 0.304195, size = 120, normalized size = 1.4

$$\frac{(m+2)x(ex)^m F_1(m+1;4,3;m+2;ax,-ax)}{16(m+1)(ax-1)^4(ax+1)^3\left(ax\left(4F_1(m+2;5,3;m+3;ax,-ax)-3\,{}_2F_1\left(4,\frac{m}{2}+1;\frac{m}{2}+2;a^2x^2\right)\right)+(m+2)F_1(m+1;4,3;m+$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(e*x)^m/((2 - 2*a*x)^4*(1 + a*x)^3),x]
```

```
[Out] ((2 + m)*x*(e*x)^m*AppellF1[1 + m, 4, 3, 2 + m, a*x, -(a*x)])/(16
*(1 + m)*(-1 + a*x)^4*(1 + a*x)^3*((2 + m)*AppellF1[1 + m, 4, 3,
2 + m, a*x, -(a*x)] + a*x*(4*AppellF1[2 + m, 5, 3, 3 + m, a*x, -(
a*x)] - 3*HypergeometricPFQ[{4, 1 + m/2}, {2 + m/2}, a^2*x^2])))
```

Maple [F] time = 0.138, size = 0, normalized size = 0.

$$\int \frac{(ex)^m}{(-2\,ax+2)^4\,(ax+1)^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((e*x)^m/(-2*a*x+2)^4/(a*x+1)^3,x)
```

```
[Out] int((e*x)^m/(-2*a*x+2)^4/(a*x+1)^3,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\frac{1}{16}\int \frac{(ex)^m}{(ax+1)^3(ax-1)^4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/16*(e*x)^m/((a*x + 1)^3*(a*x - 1)^4),x, algorithm="maxima")
```

```
[Out] 1/16*integrate((e*x)^m/((a*x + 1)^3*(a*x - 1)^4), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(ex)^m}{16\,(a^7x^7-a^6x^6-3\,a^5x^5+3\,a^4x^4+3\,a^3x^3-3\,a^2x^2-ax+1)},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/16*(e*x)^m/((a*x + 1)^3*(a*x - 1)^4),x, algorithm="fricas")
```

```
[Out] integral(1/16*(e*x)^m/(a^7*x^7 - a^6*x^6 - 3*a^5*x^5 + 3*a^4*x^4
+ 3*a^3*x^3 - 3*a^2*x^2 - a*x + 1), x)
```

Sympy [A] time = 29.81, size = 5872, normalized size = 68.28

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((e*x)**m/(-2*a*x+2)**4/(a*x+1)**3,x)
```

```
[Out] 2*a**5*e**m*m**4*x**5*x**m*lerchphi(1/(a*x), 1, m*exp_polar(I*pi)
)*gamma(-m)/(1536*a**6*x**5*gamma(-m + 1) - 1536*a**5*x**4*gamma(
-m + 1) - 3072*a**4*x**3*gamma(-m + 1) + 3072*a**3*x**2*gamma(-m
+ 1) + 1536*a**2*x*gamma(-m + 1) - 1536*a*gamma(-m + 1)) - 15*a**
5*e**m*m**3*x**5*x**m*lerchphi(1/(a*x), 1, m*exp_polar(I*pi))*gam
ma(-m)/(1536*a**6*x**5*gamma(-m + 1) - 1536*a**5*x**4*gamma(-m +
1) - 3072*a**4*x**3*gamma(-m + 1) + 3072*a**3*x**2*gamma(-m + 1)
+ 1536*a**2*x*gamma(-m + 1) - 1536*a*gamma(-m + 1)) + 3*a**5*e**m
*m**3*x**5*x**m*lerchphi(exp_polar(I*pi)/(a*x), 1, m*exp_polar(I*
pi))*gamma(-m)/(1536*a**6*x**5*gamma(-m + 1) - 1536*a**5*x**4*gam
ma(-m + 1) - 3072*a**4*x**3*gamma(-m + 1) + 3072*a**3*x**2*gamma(
-m + 1) + 1536*a**2*x*gamma(-m + 1) - 1536*a*gamma(-m + 1)) + 2*a
**5*e**m*m**3*x**5*x**m*gamma(-m)/(1536*a**6*x**5*gamma(-m + 1) -
 1536*a**5*x**4*gamma(-m + 1) - 3072*a**4*x**3*gamma(-m + 1) + 30
72*a**3*x**2*gamma(-m + 1) + 1536*a**2*x*gamma(-m + 1) - 1536*a*g
```

```
amma(-m + 1)) + 31*a**5*e**m*m**2*x**5*x**m*lerchphi(1/(a*x), 1,
m*exp_polar(I*pi))*gamma(-m)/(1536*a**6*x**5*gamma(-m + 1) - 1536
*a**5*x**4*gamma(-m + 1) - 3072*a**4*x**3*gamma(-m + 1) + 3072*a*
*3*x**2*gamma(-m + 1) + 1536*a**2*x*gamma(-m + 1) - 1536*a*gamma(
-m + 1)) - 15*a**5*e**m*m**2*x**5*x**m*lerchphi(exp_polar(I*pi)/(
a*x), 1, m*exp_polar(I*pi))*gamma(-m)/(1536*a**6*x**5*gamma(-m +
1) - 1536*a**5*x**4*gamma(-m + 1) - 3072*a**4*x**3*gamma(-m + 1)
+ 3072*a**3*x**2*gamma(-m + 1) + 1536*a**2*x*gamma(-m + 1) - 1536
*a*gamma(-m + 1)) - 12*a**5*e**m*m**2*x**5*x**m*gamma(-m)/(1536*a
**6*x**5*gamma(-m + 1) - 1536*a**5*x**4*gamma(-m + 1) - 3072*a**4
*x**3*gamma(-m + 1) + 3072*a**3*x**2*gamma(-m + 1) + 1536*a**2*x*
gamma(-m + 1) - 1536*a*gamma(-m + 1)) - 15*a**5*e**m*m*x**5*x**m*
lerchphi(1/(a*x), 1, m*exp_polar(I*pi))*gamma(-m)/(1536*a**6*x**5
*gamma(-m + 1) - 1536*a**5*x**4*gamma(-m + 1) - 3072*a**4*x**3*ga
mma(-m + 1) + 3072*a**3*x**2*gamma(-m + 1) + 1536*a**2*x*gamma(-m
 + 1) - 1536*a*gamma(-m + 1)) + 15*a**5*e**m*m*x**5*x**m*lerchphi
(exp_polar(I*pi)/(a*x), 1, m*exp_polar(I*pi))*gamma(-m)/(1536*a**
6*x**5*gamma(-m + 1) - 1536*a**5*x**4*gamma(-m + 1) - 3072*a**4*x
**3*gamma(-m + 1) + 3072*a**3*x**2*gamma(-m + 1) + 1536*a**2*x*ga
mma(-m + 1) - 1536*a*gamma(-m + 1)) + 16*a**5*e**m*m*x**5*x**m*ga
mma(-m)/(1536*a**6*x**5*gamma(-m + 1) - 1536*a**5*x**4*gamma(-m +
 1) - 3072*a**4*x**3*gamma(-m + 1) + 3072*a**3*x**2*gamma(-m + 1)
 + 1536*a**2*x*gamma(-m + 1) - 1536*a*gamma(-m + 1)) - 2*a**4*e**
m*m**4*x**4*x**m*lerchphi(1/(a*x), 1, m*exp_polar(I*pi))*gamma(-m
)/(1536*a**6*x**5*gamma(-m + 1) - 1536*a**5*x**4*gamma(-m + 1) -
3072*a**4*x**3*gamma(-m + 1) + 3072*a**3*x**2*gamma(-m + 1) + 153
6*a**2*x*gamma(-m + 1) - 1536*a*gamma(-m + 1)) + 15*a**4*e**m*m**
3*x**4*x**m*lerchphi(1/(a*x), 1, m*exp_polar(I*pi))*gamma(-m)/(15
36*a**6*x**5*gamma(-m + 1) - 1536*a**5*x**4*gamma(-m + 1) - 3072*
a**4*x**3*gamma(-m + 1) + 3072*a**3*x**2*gamma(-m + 1) + 1536*a**
2*x*gamma(-m + 1) - 1536*a*gamma(-m + 1)) - 3*a**4*e**m*m**3*x**4
*x**m*lerchphi(exp_polar(I*pi)/(a*x), 1, m*exp_polar(I*pi))*gamma
(-m)/(1536*a**6*x**5*gamma(-m + 1) - 1536*a**5*x**4*gamma(-m + 1)
 - 3072*a**4*x**3*gamma(-m + 1) + 3072*a**3*x**2*gamma(-m + 1) +
1536*a**2*x*gamma(-m + 1) - 1536*a*gamma(-m + 1)) - 31*a**4*e**m*
m**2*x**4*x**m*lerchphi(1/(a*x), 1, m*exp_polar(I*pi))*gamma(-m)/
(1536*a**6*x**5*gamma(-m + 1) - 1536*a**5*x**4*gamma(-m + 1) - 30
72*a**4*x**3*gamma(-m + 1) + 3072*a**3*x**2*gamma(-m + 1) + 1536*
a**2*x*gamma(-m + 1) - 1536*a*gamma(-m + 1)) + 15*a**4*e**m*m**2*
x**4*x**m*lerchphi(exp_polar(I*pi)/(a*x), 1, m*exp_polar(I*pi))*g
amma(-m)/(1536*a**6*x**5*gamma(-m + 1) - 1536*a**5*x**4*gamma(-m
+ 1) - 3072*a**4*x**3*gamma(-m + 1) + 3072*a**3*x**2*gamma(-m + 1
) + 1536*a**2*x*gamma(-m + 1) - 1536*a*gamma(-m + 1)) - 4*a**4*e*
*m*m**2*x**4*x**m*gamma(-m)/(1536*a**6*x**5*gamma(-m + 1) - 1536*
a**5*x**4*gamma(-m + 1) - 3072*a**4*x**3*gamma(-m + 1) + 3072*a**
3*x**2*gamma(-m + 1) + 1536*a**2*x*gamma(-m + 1) - 1536*a*gamma(-
m + 1)) + 15*a**4*e**m*m*x**4*x**m*lerchphi(1/(a*x), 1, m*exp_pol
ar(I*pi))*gamma(-m)/(1536*a**6*x**5*gamma(-m + 1) - 1536*a**5*x**
4*gamma(-m + 1) - 3072*a**4*x**3*gamma(-m + 1) + 3072*a**3*x**2*g
amma(-m + 1) + 1536*a**2*x*gamma(-m + 1) - 1536*a*gamma(-m + 1))
- 15*a**4*e**m*m*x**4*x**m*lerchphi(exp_polar(I*pi)/(a*x), 1, m*e
xp_polar(I*pi))*gamma(-m)/(1536*a**6*x**5*gamma(-m + 1) - 1536*a*
*5*x**4*gamma(-m + 1) - 3072*a**4*x**3*gamma(-m + 1) + 3072*a**3*
x**2*gamma(-m + 1) + 1536*a**2*x*gamma(-m + 1) - 1536*a*gamma(-m
+ 1)) + 14*a**4*e**m*m*x**4*x**m*gamma(-m)/(1536*a**6*x**5*gamma(
-m + 1) - 1536*a**5*x**4*gamma(-m + 1) - 3072*a**4*x**3*gamma(-m
+ 1) + 3072*a**3*x**2*gamma(-m + 1) + 1536*a**2*x*gamma(-m + 1) -
 1536*a*gamma(-m + 1)) - 4*a**3*e**m*m**4*x**3*x**m*lerchphi(1/(a
*x), 1, m*exp_polar(I*pi))*gamma(-m)/(1536*a**6*x**5*gamma(-m + 1
) - 1536*a**5*x**4*gamma(-m + 1) - 3072*a**4*x**3*gamma(-m + 1) +
 3072*a**3*x**2*gamma(-m + 1) + 1536*a**2*x*gamma(-m + 1) - 1536*
a*gamma(-m + 1)) + 30*a**3*e**m*m**3*x**3*x**m*lerchphi(1/(a*x),
1, m*exp_polar(I*pi))*gamma(-m)/(1536*a**6*x**5*gamma(-m + 1) - 1
536*a**5*x**4*gamma(-m + 1) - 3072*a**4*x**3*gamma(-m + 1) + 3072
*a**3*x**2*gamma(-m + 1) + 1536*a**2*x*gamma(-m + 1) - 1536*a*gam
ma(-m + 1)) - 6*a**3*e**m*m**3*x**3*x**m*lerchphi(exp_polar(I*pi)
/(a*x), 1, m*exp_polar(I*pi))*gamma(-m)/(1536*a**6*x**5*gamma(-m
+ 1) - 1536*a**5*x**4*gamma(-m + 1) - 3072*a**4*x**3*gamma(-m + 1
) + 3072*a**3*x**2*gamma(-m + 1) + 1536*a**2*x*gamma(-m + 1) - 15
36*a*gamma(-m + 1)) - 4*a**3*e**m*m**3*x**3*x**m*gamma(-m)/(1536*
a**6*x**5*gamma(-m + 1) - 1536*a**5*x**4*gamma(-m + 1) - 3072*a**
4*x**3*gamma(-m + 1) + 3072*a**3*x**2*gamma(-m + 1) + 1536*a**2*x
*gamma(-m + 1) - 1536*a*gamma(-m + 1)) - 62*a**3*e**m*m**2*x**3*x
**m*lerchphi(1/(a*x), 1, m*exp_polar(I*pi))*gamma(-m)/(1536*a**6*
```

x**5*gamma(-m + 1) - 1536*a**5*x**4*gamma(-m + 1) - 3072*a**4*x**
3*gamma(-m + 1) + 3072*a**3*x**2*gamma(-m + 1) + 1536*a**2*x*gamm
a(-m + 1) - 1536*a*gamma(-m + 1)) + 30*a**3*e**m*m**2*x**3*x**m*l
erchphi(exp_polar(I*pi)/(a*x), 1, m*exp_polar(I*pi))*gamma(-m)/(1
536*a**6*x**5*gamma(-m + 1) - 1536*a**5*x**4*gamma(-m + 1) - 3072
*a**4*x**3*gamma(-m + 1) + 3072*a**3*x**2*gamma(-m + 1) + 1536*a*
*2*x*gamma(-m + 1) - 1536*a*gamma(-m + 1)) + 32*a**3*e**m*m**2*x*
*3*x**m*gamma(-m)/(1536*a**6*x**5*gamma(-m + 1) - 1536*a**5*x**4*
gamma(-m + 1) - 3072*a**4*x**3*gamma(-m + 1) + 3072*a**3*x**2*gam
ma(-m + 1) + 1536*a**2*x*gamma(-m + 1) - 1536*a*gamma(-m + 1)) +
30*a**3*e**m*m*x**3*x**m*lerchphi(1/(a*x), 1, m*exp_polar(I*pi))*
gamma(-m)/(1536*a**6*x**5*gamma(-m + 1) - 1536*a**5*x**4*gamma(-m
 + 1) - 3072*a**4*x**3*gamma(-m + 1) + 3072*a**3*x**2*gamma(-m +
1) + 1536*a**2*x*gamma(-m + 1) - 1536*a*gamma(-m + 1)) - 30*a**3*
e**m*m*x**3*x**m*lerchphi(exp_polar(I*pi)/(a*x), 1, m*exp_polar(I
*pi))*gamma(-m)/(1536*a**6*x**5*gamma(-m + 1) - 1536*a**5*x**4*ga
mma(-m + 1) - 3072*a**4*x**3*gamma(-m + 1) + 3072*a**3*x**2*gamma
(-m + 1) + 1536*a**2*x*gamma(-m + 1) - 1536*a*gamma(-m + 1)) - 62
*a**3*e**m*m*x**3*x**m*gamma(-m)/(1536*a**6*x**5*gamma(-m + 1) -
1536*a**5*x**4*gamma(-m + 1) - 3072*a**4*x**3*gamma(-m + 1) + 307
2*a**3*x**2*gamma(-m + 1) + 1536*a**2*x*gamma(-m + 1) - 1536*a*ga
mma(-m + 1)) + 4*a**2*e**m*m**4*x**2*x**m*lerchphi(1/(a*x), 1, m*
exp_polar(I*pi))*gamma(-m)/(1536*a**6*x**5*gamma(-m + 1) - 1536*a
5*x4*gamma(-m + 1) - 3072*a**4*x**3*gamma(-m + 1) + 3072*a**3
*x**2*gamma(-m + 1) + 1536*a**2*x*gamma(-m + 1) - 1536*a*gamma(-m
 + 1)) - 30*a**2*e**m*m**3*x**2*x**m*lerchphi(1/(a*x), 1, m*exp_p
olar(I*pi))*gamma(-m)/(1536*a**6*x**5*gamma(-m + 1) - 1536*a**5*x
4*gamma(-m + 1) - 3072*a4*x**3*gamma(-m + 1) + 3072*a**3*x**2
*gamma(-m + 1) + 1536*a**2*x*gamma(-m + 1) - 1536*a*gamma(-m + 1)
) + 6*a**2*e**m*m**3*x**2*x**m*lerchphi(exp_polar(I*pi)/(a*x), 1,
 m*exp_polar(I*pi))*gamma(-m)/(1536*a**6*x**5*gamma(-m + 1) - 153
6*a**5*x**4*gamma(-m + 1) - 3072*a**4*x**3*gamma(-m + 1) + 3072*a
3*x2*gamma(-m + 1) + 1536*a**2*x*gamma(-m + 1) - 1536*a*gamma
(-m + 1)) + 62*a**2*e**m*m**2*x**2*x**m*lerchphi(1/(a*x), 1, m*ex
p_polar(I*pi))*gamma(-m)/(1536*a**6*x**5*gamma(-m + 1) - 1536*a**
5*x**4*gamma(-m + 1) - 3072*a**4*x**3*gamma(-m + 1) + 3072*a**3*x
2*gamma(-m + 1) + 1536*a2*x*gamma(-m + 1) - 1536*a*gamma(-m +
 1)) - 30*a**2*e**m*m**2*x**2*x**m*lerchphi(exp_polar(I*pi)/(a*x)
, 1, m*exp_polar(I*pi))*gamma(-m)/(1536*a**6*x**5*gamma(-m + 1) -
 1536*a**5*x**4*gamma(-m + 1) - 3072*a**4*x**3*gamma(-m + 1) + 30
72*a**3*x**2*gamma(-m + 1) + 1536*a**2*x*gamma(-m + 1) - 1536*a*g
amma(-m + 1)) + 4*a**2*e**m*m**2*x**2*x**m*gamma(-m)/(1536*a**6*x
5*gamma(-m + 1) - 1536*a5*x**4*gamma(-m + 1) - 3072*a**4*x**3
*gamma(-m + 1) + 3072*a**3*x**2*gamma(-m + 1) + 1536*a**2*x*gamma
(-m + 1) - 1536*a*gamma(-m + 1)) - 30*a**2*e**m*m*x**2*x**m*lerch
phi(1/(a*x), 1, m*exp_polar(I*pi))*gamma(-m)/(1536*a**6*x**5*gamm
a(-m + 1) - 1536*a**5*x**4*gamma(-m + 1) - 3072*a**4*x**3*gamma(-
m + 1) + 3072*a**3*x**2*gamma(-m + 1) + 1536*a**2*x*gamma(-m + 1)
 - 1536*a*gamma(-m + 1)) + 30*a**2*e**m*m*x**2*x**m*lerchphi(exp_
polar(I*pi)/(a*x), 1, m*exp_polar(I*pi))*gamma(-m)/(1536*a**6*x**
5*gamma(-m + 1) - 1536*a**5*x**4*gamma(-m + 1) - 3072*a**4*x**3*g
amma(-m + 1) + 3072*a**3*x**2*gamma(-m + 1) + 1536*a**2*x*gamma(-
m + 1) - 1536*a*gamma(-m + 1)) - 18*a**2*e**m*m*x**2*x**m*gamma(-
m)/(1536*a**6*x**5*gamma(-m + 1) - 1536*a**5*x**4*gamma(-m + 1) -
 3072*a**4*x**3*gamma(-m + 1) + 3072*a**3*x**2*gamma(-m + 1) + 15
36*a**2*x*gamma(-m + 1) - 1536*a*gamma(-m + 1)) + 2*a*e**m*m**4*x
*x**m*lerchphi(1/(a*x), 1, m*exp_polar(I*pi))*gamma(-m)/(1536*a**
6*x**5*gamma(-m + 1) - 1536*a**5*x**4*gamma(-m + 1) - 3072*a**4*x
3*gamma(-m + 1) + 3072*a3*x**2*gamma(-m + 1) + 1536*a**2*x*ga
mma(-m + 1) - 1536*a*gamma(-m + 1)) - 15*a*e**m*m**3*x*x**m*lerch
phi(1/(a*x), 1, m*exp_polar(I*pi))*gamma(-m)/(1536*a**6*x**5*gamm
a(-m + 1) - 1536*a**5*x**4*gamma(-m + 1) - 3072*a**4*x**3*gamma(-
m + 1) + 3072*a**3*x**2*gamma(-m + 1) + 1536*a**2*x*gamma(-m + 1)
 - 1536*a*gamma(-m + 1)) + 3*a*e**m*m**3*x*x**m*lerchphi(exp_pola
r(I*pi)/(a*x), 1, m*exp_polar(I*pi))*gamma(-m)/(1536*a**6*x**5*ga
mma(-m + 1) - 1536*a**5*x**4*gamma(-m + 1) - 3072*a**4*x**3*gamma
(-m + 1) + 3072*a**3*x**2*gamma(-m + 1) + 1536*a**2*x*gamma(-m +
1) - 1536*a*gamma(-m + 1)) + 2*a*e**m*m**3*x*x**m*gamma(-m)/(1536
*a**6*x**5*gamma(-m + 1) - 1536*a**5*x**4*gamma(-m + 1) - 3072*a*
*4*x**3*gamma(-m + 1) + 3072*a**3*x**2*gamma(-m + 1) + 1536*a**2*
x*gamma(-m + 1) - 1536*a*gamma(-m + 1)) + 31*a*e**m*m**2*x*x**m*l
erchphi(1/(a*x), 1, m*exp_polar(I*pi))*gamma(-m)/(1536*a**6*x**5*
gamma(-m + 1) - 1536*a**5*x**4*gamma(-m + 1) - 3072*a**4*x**3*gam
ma(-m + 1) + 3072*a**3*x**2*gamma(-m + 1) + 1536*a**2*x*gamma(-m

```
+ 1) - 1536*a*gamma(-m + 1)) - 15*a*e**m*m**2*x*x**m*lerchphi(exp
_polar(I*pi)/(a*x), 1, m*exp_polar(I*pi))*gamma(-m)/(1536*a**6*x*
*5*gamma(-m + 1) - 1536*a**5*x**4*gamma(-m + 1) - 3072*a**4*x**3*
gamma(-m + 1) + 3072*a**3*x**2*gamma(-m + 1) + 1536*a**2*x*gamma(
-m + 1) - 1536*a*gamma(-m + 1)) - 20*a*e**m*m**2*x*x**m*gamma(-m)
/(1536*a**6*x**5*gamma(-m + 1) - 1536*a**5*x**4*gamma(-m + 1) - 3
072*a**4*x**3*gamma(-m + 1) + 3072*a**3*x**2*gamma(-m + 1) + 1536
*a**2*x*gamma(-m + 1) - 1536*a*gamma(-m + 1)) - 15*a*e**m*m*x*x**
m*lerchphi(1/(a*x), 1, m*exp_polar(I*pi))*gamma(-m)/(1536*a**6*x*
*5*gamma(-m + 1) - 1536*a**5*x**4*gamma(-m + 1) - 3072*a**4*x**3*
gamma(-m + 1) + 3072*a**3*x**2*gamma(-m + 1) + 1536*a**2*x*gamma(
-m + 1) - 1536*a*gamma(-m + 1)) + 15*a*e**m*m*x*x**m*lerchphi(exp
_polar(I*pi)/(a*x), 1, m*exp_polar(I*pi))*gamma(-m)/(1536*a**6*x*
*5*gamma(-m + 1) - 1536*a**5*x**4*gamma(-m + 1) - 3072*a**4*x**3*
gamma(-m + 1) + 3072*a**3*x**2*gamma(-m + 1) + 1536*a**2*x*gamma(
-m + 1) - 1536*a*gamma(-m + 1)) + 66*a*e**m*m*x*x**m*gamma(-m)/(1
536*a**6*x**5*gamma(-m + 1) - 1536*a**5*x**4*gamma(-m + 1) - 3072
*a**4*x**3*gamma(-m + 1) + 3072*a**3*x**2*gamma(-m + 1) + 1536*a*
*2*x*gamma(-m + 1) - 1536*a*gamma(-m + 1)) - 2*e**m*m**4*x**m*ler
chphi(1/(a*x), 1, m*exp_polar(I*pi))*gamma(-m)/(1536*a**6*x**5*ga
mma(-m + 1) - 1536*a**5*x**4*gamma(-m + 1) - 3072*a**4*x**3*gamma
(-m + 1) + 3072*a**3*x**2*gamma(-m + 1) + 1536*a**2*x*gamma(-m +
1) - 1536*a*gamma(-m + 1)) + 15*e**m*m**3*x**m*lerchphi(1/(a*x),
1, m*exp_polar(I*pi))*gamma(-m)/(1536*a**6*x**5*gamma(-m + 1) - 1
536*a**5*x**4*gamma(-m + 1) - 3072*a**4*x**3*gamma(-m + 1) + 3072
*a**3*x**2*gamma(-m + 1) + 1536*a**2*x*gamma(-m + 1) - 1536*a*gam
ma(-m + 1)) - 3*e**m*m**3*x**m*lerchphi(exp_polar(I*pi)/(a*x), 1,
 m*exp_polar(I*pi))*gamma(-m)/(1536*a**6*x**5*gamma(-m + 1) - 153
6*a**5*x**4*gamma(-m + 1) - 3072*a**4*x**3*gamma(-m + 1) + 3072*a
**3*x**2*gamma(-m + 1) + 1536*a**2*x*gamma(-m + 1) - 1536*a*gamma
(-m + 1)) - 31*e**m*m**2*x**m*lerchphi(1/(a*x), 1, m*exp_polar(I*
pi))*gamma(-m)/(1536*a**6*x**5*gamma(-m + 1) - 1536*a**5*x**4*gam
ma(-m + 1) - 3072*a**4*x**3*gamma(-m + 1) + 3072*a**3*x**2*gamma(
-m + 1) + 1536*a**2*x*gamma(-m + 1) - 1536*a*gamma(-m + 1)) + 15*
e**m*m**2*x**m*lerchphi(exp_polar(I*pi)/(a*x), 1, m*exp_polar(I*p
i))*gamma(-m)/(1536*a**6*x**5*gamma(-m + 1) - 1536*a**5*x**4*gamm
a(-m + 1) - 3072*a**4*x**3*gamma(-m + 1) + 3072*a**3*x**2*gamma(-
m + 1) + 1536*a**2*x*gamma(-m + 1) - 1536*a*gamma(-m + 1)) + 15*e
**m*m*x**m*lerchphi(1/(a*x), 1, m*exp_polar(I*pi))*gamma(-m)/(153
6*a**6*x**5*gamma(-m + 1) - 1536*a**5*x**4*gamma(-m + 1) - 3072*a
**4*x**3*gamma(-m + 1) + 3072*a**3*x**2*gamma(-m + 1) + 1536*a**2
*x*gamma(-m + 1) - 1536*a*gamma(-m + 1)) - 15*e**m*m*x**m*lerchph
i(exp_polar(I*pi)/(a*x), 1, m*exp_polar(I*pi))*gamma(-m)/(1536*a*
*6*x**5*gamma(-m + 1) - 1536*a**5*x**4*gamma(-m + 1) - 3072*a**4*
x**3*gamma(-m + 1) + 3072*a**3*x**2*gamma(-m + 1) + 1536*a**2*x*g
amma(-m + 1) - 1536*a*gamma(-m + 1))
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(ex)^m}{16\,(ax+1)^3(ax-1)^4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/16*(e*x)^m/((a*x + 1)^3*(a*x - 1)^4),x, algorithm="giac")
```

```
[Out] integrate(1/16*(e*x)^m/((a*x + 1)^3*(a*x - 1)^4), x)
```

3.361 $\int (ex)^m(a+bx)^4(ad-bdx)^3\,dx$

Optimal. Leaf size=197

$$\frac{a^7d^3(ex)^{m+1}}{e(m+1)}+\frac{a^6bd^3(ex)^{m+2}}{e^2(m+2)}-\frac{3a^5b^2d^3(ex)^{m+3}}{e^3(m+3)}-\frac{3a^4b^3d^3(ex)^{m+4}}{e^4(m+4)}+\frac{3a^3b^4d^3(ex)^{m+5}}{e^5(m+5)}+\frac{3a^2b^5d^3(ex)^{m+6}}{e^6(m+6)}-\frac{ab^6d^3(ex)^{m+7}}{e^7(m+7)}-\frac{b^7d^3(ex)^{m+8}}{e^8(m+8)}$$

```
[Out] (a^7*d^3*(e*x)^(1 + m))/(e*(1 + m)) + (a^6*b*d^3*(e*x)^(2 + m))/(
e^2*(2 + m)) - (3*a^5*b^2*d^3*(e*x)^(3 + m))/(e^3*(3 + m)) - (3*a
^4*b^3*d^3*(e*x)^(4 + m))/(e^4*(4 + m)) + (3*a^3*b^4*d^3*(e*x)^(5
 + m))/(e^5*(5 + m)) + (3*a^2*b^5*d^3*(e*x)^(6 + m))/(e^6*(6 + m)
) - (a*b^6*d^3*(e*x)^(7 + m))/(e^7*(7 + m)) - (b^7*d^3*(e*x)^(8 +
 m))/(e^8*(8 + m))
```

Rubi [A] time = 0.357984, antiderivative size = 197, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.042

$$\frac{a^7d^3(ex)^{m+1}}{e(m+1)}+\frac{a^6bd^3(ex)^{m+2}}{e^2(m+2)}-\frac{3a^5b^2d^3(ex)^{m+3}}{e^3(m+3)}-\frac{3a^4b^3d^3(ex)^{m+4}}{e^4(m+4)}+\frac{3a^3b^4d^3(ex)^{m+5}}{e^5(m+5)}+\frac{3a^2b^5d^3(ex)^{m+6}}{e^6(m+6)}-\frac{ab^6d^3(ex)^{m+7}}{e^7(m+7)}-\frac{b^7d^3(ex)^{m+8}}{e^8(m+8)}$$

Antiderivative was successfully verified.

```
[In]  Int[(e*x)^m*(a + b*x)^4*(a*d - b*d*x)^3,x]
```

```
[Out] (a^7*d^3*(e*x)^(1 + m))/(e*(1 + m)) + (a^6*b*d^3*(e*x)^(2 + m))/(
e^2*(2 + m)) - (3*a^5*b^2*d^3*(e*x)^(3 + m))/(e^3*(3 + m)) - (3*a
^4*b^3*d^3*(e*x)^(4 + m))/(e^4*(4 + m)) + (3*a^3*b^4*d^3*(e*x)^(5
 + m))/(e^5*(5 + m)) + (3*a^2*b^5*d^3*(e*x)^(6 + m))/(e^6*(6 + m)
) - (a*b^6*d^3*(e*x)^(7 + m))/(e^7*(7 + m)) - (b^7*d^3*(e*x)^(8 +
 m))/(e^8*(8 + m))
```

Rubi in Sympy [A] time = 74.5828, size = 184, normalized size = 0.93

$$\frac{a^7d^3\left(ex\right)^{m+1}}{e\left(m+1\right)}+\frac{a^6bd^3\left(ex\right)^{m+2}}{e^2\left(m+2\right)}-\frac{3a^5b^2d^3\left(ex\right)^{m+3}}{e^3\left(m+3\right)}-\frac{3a^4b^3d^3\left(ex\right)^{m+4}}{e^4\left(m+4\right)}+\frac{3a^3b^4d^3\left(ex\right)^{m+5}}{e^5\left(m+5\right)}+\frac{3a^2b^5d^3\left(ex\right)^{m+6}}{e^6\left(m+6\right)}-\frac{ab^6d^3\left(ex\right)^{m+7}}{e^7\left(m+7\right)}-\frac{b^7d^3\left(ex\right)^{m+8}}{e^8\left(m+8\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((e*x)**m*(b*x+a)**4*(-b*d*x+a*d)**3,x)
```

```
[Out] a**7*d**3*(e*x)**(m + 1)/(e*(m + 1)) + a**6*b*d**3*(e*x)**(m + 2)
/(e**2*(m + 2)) - 3*a**5*b**2*d**3*(e*x)**(m + 3)/(e**3*(m + 3))
- 3*a**4*b**3*d**3*(e*x)**(m + 4)/(e**4*(m + 4)) + 3*a**3*b**4*d*
*3*(e*x)**(m + 5)/(e**5*(m + 5)) + 3*a**2*b**5*d**3*(e*x)**(m + 6
)/(e**6*(m + 6)) - a*b**6*d**3*(e*x)**(m + 7)/(e**7*(m + 7)) - b*
*7*d**3*(e*x)**(m + 8)/(e**8*(m + 8))
```

Mathematica [A] time = 0.119282, size = 124, normalized size = 0.63

$$d^3(ex)^m\left(\frac{a^7x}{m+1}+\frac{a^6bx^2}{m+2}-\frac{3a^5b^2x^3}{m+3}-\frac{3a^4b^3x^4}{m+4}+\frac{3a^3b^4x^5}{m+5}+\frac{3a^2b^5x^6}{m+6}-\frac{ab^6x^7}{m+7}-\frac{b^7x^8}{m+8}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(e*x)^m*(a + b*x)^4*(a*d - b*d*x)^3,x]
```

```
[Out] d^3*(e*x)^m*((a^7*x)/(1 + m) + (a^6*b*x^2)/(2 + m) - (3*a^5*b^2*x
^3)/(3 + m) - (3*a^4*b^3*x^4)/(4 + m) + (3*a^3*b^4*x^5)/(5 + m) +
 (3*a^2*b^5*x^6)/(6 + m) - (a*b^6*x^7)/(7 + m) - (b^7*x^8)/(8 + m
))
```

Maple [B] time = 0.011, size = 786, normalized size = 4.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((e*x)^m*(b*x+a)^4*(-b*d*x+a*d)^3,x)
```

```
[Out] d^3*(e*x)^m*(-b^7*m^7*x^7-a*b^6*m^7*x^6-28*b^7*m^6*x^7+3*a^2*b^5*
m^7*x^5-29*a*b^6*m^6*x^6-322*b^7*m^5*x^7+3*a^3*b^4*m^7*x^4+90*a^2
*b^5*m^6*x^5-343*a*b^6*m^5*x^6-1960*b^7*m^4*x^7-3*a^4*b^3*m^7*x^3
+93*a^3*b^4*m^6*x^4+1098*a^2*b^5*m^5*x^5-2135*a*b^6*m^4*x^6-6769*
b^7*m^3*x^7-3*a^5*b^2*m^7*x^2-96*a^4*b^3*m^6*x^3+1173*a^3*b^4*m^5
*x^4+7020*a^2*b^5*m^4*x^5-7504*a*b^6*m^3*x^6-13132*b^7*m^2*x^7+a^
6*b*m^7*x-99*a^5*b^2*m^6*x^2-1254*a^4*b^3*m^5*x^3+7743*a^3*b^4*m^
4*x^4+25227*a^2*b^5*m^3*x^5-14756*a*b^6*m^2*x^6-13068*b^7*m*x^7+a
^7*m^7+34*a^6*b*m^6*x-1341*a^5*b^2*m^5*x^2-8592*a^4*b^3*m^4*x^3+2
8632*a^3*b^4*m^3*x^4+50490*a^2*b^5*m^2*x^5-14832*a*b^6*m*x^6-5040
*b^7*x^7+35*a^7*m^6+478*a^6*b*m^5*x-9585*a^5*b^2*m^4*x^2-32979*a^
4*b^3*m^3*x^3+58692*a^3*b^4*m^2*x^4+51432*a^2*b^5*m*x^5-5760*a*b^
6*x^6+511*a^7*m^5+3580*a^6*b*m^4*x-38592*a^5*b^2*m^3*x^2-69936*a^
4*b^3*m^2*x^3+60912*a^3*b^4*m*x^4+20160*a^2*b^5*x^5+4025*a^7*m^4+
15289*a^6*b*m^3*x-86076*a^5*b^2*m^2*x^2-74628*a^4*b^3*m*x^3+24192
*a^3*b^4*x^4+18424*a^7*m^3+36706*a^6*b*m^2*x-96144*a^5*b^2*m*x^2-
30240*a^4*b^3*x^3+48860*a^7*m^2+44712*a^6*b*m*x-40320*a^5*b^2*x^2
+69264*a^7*m+20160*a^6*b*x+40320*a^7)*x/(8+m)/(7+m)/(6+m)/(5+m)/(
4+m)/(3+m)/(2+m)/(1+m)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*d*x - a*d)^3*(b*x + a)^4*(e*x)^m,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.222801, size = 1161, normalized size = 5.89

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*d*x - a*d)^3*(b*x + a)^4*(e*x)^m,x, algorithm="fricas")
```

```
[Out] -((b^7*d^3*m^7 + 28*b^7*d^3*m^6 + 322*b^7*d^3*m^5 + 1960*b^7*d^3*
m^4 + 6769*b^7*d^3*m^3 + 13132*b^7*d^3*m^2 + 13068*b^7*d^3*m + 50
40*b^7*d^3)*x^8 + (a*b^6*d^3*m^7 + 29*a*b^6*d^3*m^6 + 343*a*b^6*d
^3*m^5 + 2135*a*b^6*d^3*m^4 + 7504*a*b^6*d^3*m^3 + 14756*a*b^6*d^
```

```
3*m^2 + 14832*a*b^6*d^3*m + 5760*a*b^6*d^3)*x^7 - 3*(a^2*b^5*d^3*
m^7 + 30*a^2*b^5*d^3*m^6 + 366*a^2*b^5*d^3*m^5 + 2340*a^2*b^5*d^3
*m^4 + 8409*a^2*b^5*d^3*m^3 + 16830*a^2*b^5*d^3*m^2 + 17144*a^2*b
^5*d^3*m + 6720*a^2*b^5*d^3)*x^6 - 3*(a^3*b^4*d^3*m^7 + 31*a^3*b^
4*d^3*m^6 + 391*a^3*b^4*d^3*m^5 + 2581*a^3*b^4*d^3*m^4 + 9544*a^3
*b^4*d^3*m^3 + 19564*a^3*b^4*d^3*m^2 + 20304*a^3*b^4*d^3*m + 8064
*a^3*b^4*d^3)*x^5 + 3*(a^4*b^3*d^3*m^7 + 32*a^4*b^3*d^3*m^6 + 418
*a^4*b^3*d^3*m^5 + 2864*a^4*b^3*d^3*m^4 + 10993*a^4*b^3*d^3*m^3 +
 23312*a^4*b^3*d^3*m^2 + 24876*a^4*b^3*d^3*m + 10080*a^4*b^3*d^3)
*x^4 + 3*(a^5*b^2*d^3*m^7 + 33*a^5*b^2*d^3*m^6 + 447*a^5*b^2*d^3*
m^5 + 3195*a^5*b^2*d^3*m^4 + 12864*a^5*b^2*d^3*m^3 + 28692*a^5*b^
2*d^3*m^2 + 32048*a^5*b^2*d^3*m + 13440*a^5*b^2*d^3)*x^3 - (a^6*b
*d^3*m^7 + 34*a^6*b*d^3*m^6 + 478*a^6*b*d^3*m^5 + 3580*a^6*b*d^3*
m^4 + 15289*a^6*b*d^3*m^3 + 36706*a^6*b*d^3*m^2 + 44712*a^6*b*d^3
*m + 20160*a^6*b*d^3)*x^2 - (a^7*d^3*m^7 + 35*a^7*d^3*m^6 + 511*a
^7*d^3*m^5 + 4025*a^7*d^3*m^4 + 18424*a^7*d^3*m^3 + 48860*a^7*d^3
*m^2 + 69264*a^7*d^3*m + 40320*a^7*d^3)*x)*(e*x)^m/(m^8 + 36*m^7
+ 546*m^6 + 4536*m^5 + 22449*m^4 + 67284*m^3 + 118124*m^2 + 10958
4*m + 40320)
```

Sympy [A] time = 10.6162, size = 4888, normalized size = 24.81

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((e*x)**m*(b*x+a)**4*(-b*d*x+a*d)**3,x)
```

```
[Out] Piecewise(((-a**7*d**3/(7*x**7) - a**6*b*d**3/(6*x**6) + 3*a**5*b
**2*d**3/(5*x**5) + 3*a**4*b**3*d**3/(4*x**4) - a**3*b**4*d**3/x*
*3 - 3*a**2*b**5*d**3/(2*x**2) + a*b**6*d**3/x - b**7*d**3*log(x)
)/e**8, Eq(m, -8)), ((-a**7*d**3/(6*x**6) - a**6*b*d**3/(5*x**5)
+ 3*a**5*b**2*d**3/(4*x**4) + a**4*b**3*d**3/x**3 - 3*a**3*b**4*d
**3/(2*x**2) - 3*a**2*b**5*d**3/x - a*b**6*d**3*log(x) - b**7*d**
3*x)/e**7, Eq(m, -7)), ((-a**7*d**3/(5*x**5) - a**6*b*d**3/(4*x**
4) + a**5*b**2*d**3/x**3 + 3*a**4*b**3*d**3/(2*x**2) - 3*a**3*b**
4*d**3/x + 3*a**2*b**5*d**3*log(x) - a*b**6*d**3*x - b**7*d**3*x*
*2/2)/e**6, Eq(m, -6)), ((-a**7*d**3/(4*x**4) - a**6*b*d**3/(3*x*
*3) + 3*a**5*b**2*d**3/(2*x**2) + 3*a**4*b**3*d**3/x + 3*a**3*b**
4*d**3*log(x) + 3*a**2*b**5*d**3*x - a*b**6*d**3*x**2/2 - b**7*d*
*3*x**3/3)/e**5, Eq(m, -5)), ((-a**7*d**3/(3*x**3) - a**6*b*d**3/
(2*x**2) + 3*a**5*b**2*d**3/x - 3*a**4*b**3*d**3*log(x) + 3*a**3*
b**4*d**3*x + 3*a**2*b**5*d**3*x**2/2 - a*b**6*d**3*x**3/3 - b**7
*d**3*x**4/4)/e**4, Eq(m, -4)), ((-a**7*d**3/(2*x**2) - a**6*b*d*
*3/x - 3*a**5*b**2*d**3*log(x) - 3*a**4*b**3*d**3*x + 3*a**3*b**4
*d**3*x**2/2 + a**2*b**5*d**3*x**3 - a*b**6*d**3*x**4/4 - b**7*d*
*3*x**5/5)/e**3, Eq(m, -3)), ((-a**7*d**3/x + a**6*b*d**3*log(x)
- 3*a**5*b**2*d**3*x - 3*a**4*b**3*d**3*x**2/2 + a**3*b**4*d**3*x
**3 + 3*a**2*b**5*d**3*x**4/4 - a*b**6*d**3*x**5/5 - b**7*d**3*x*
*6/6)/e**2, Eq(m, -2)), ((a**7*d**3*log(x) + a**6*b*d**3*x - 3*a*
*5*b**2*d**3*x**2/2 - a**4*b**3*d**3*x**3 + 3*a**3*b**4*d**3*x**4
/4 + 3*a**2*b**5*d**3*x**5/5 - a*b**6*d**3*x**6/6 - b**7*d**3*x**
7/7)/e, Eq(m, -1)), (a**7*d**3*e**m*m**7*x*x**m/(m**8 + 36*m**7 +
 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 1
09584*m + 40320) + 35*a**7*d**3*e**m*m**6*x*x**m/(m**8 + 36*m**7
+ 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 +
109584*m + 40320) + 511*a**7*d**3*e**m*m**5*x*x**m/(m**8 + 36*m**
7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2
+ 109584*m + 40320) + 4025*a**7*d**3*e**m*m**4*x*x**m/(m**8 + 36*
m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m*
*2 + 109584*m + 40320) + 18424*a**7*d**3*e**m*m**3*x*x**m/(m**8 +
 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 11812
4*m**2 + 109584*m + 40320) + 48860*a**7*d**3*e**m*m**2*x*x**m/(m*
*8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 1
18124*m**2 + 109584*m + 40320) + 69264*a**7*d**3*e**m*m*x*x**m/(m
**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 +
118124*m**2 + 109584*m + 40320) + 40320*a**7*d**3*e**m*x*x**m/(m*
*8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 1
18124*m**2 + 109584*m + 40320) + a**6*b*d**3*e**m*m**7*x**2*x**m/
(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3
```

```
+ 118124*m**2 + 109584*m + 40320) + 34*a**6*b*d**3*e**m*m**6*x**2
*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284
*m**3 + 118124*m**2 + 109584*m + 40320) + 478*a**6*b*d**3*e**m*m*
*5*x**2*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4
+ 67284*m**3 + 118124*m**2 + 109584*m + 40320) + 3580*a**6*b*d**3
*e**m*m**4*x**2*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 224
49*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320) + 15289*a*
*6*b*d**3*e**m*m**3*x**2*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m
**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320) +
 36706*a**6*b*d**3*e**m*m**2*x**2*x**m/(m**8 + 36*m**7 + 546*m**6
 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m +
 40320) + 44712*a**6*b*d**3*e**m*m*x**2*x**m/(m**8 + 36*m**7 + 54
6*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 1095
84*m + 40320) + 20160*a**6*b*d**3*e**m*x**2*x**m/(m**8 + 36*m**7
+ 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 +
109584*m + 40320) - 3*a**5*b**2*d**3*e**m*m**7*x**3*x**m/(m**8 +
36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124
*m**2 + 109584*m + 40320) - 99*a**5*b**2*d**3*e**m*m**6*x**3*x**m
/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3
 + 118124*m**2 + 109584*m + 40320) - 1341*a**5*b**2*d**3*e**m*m**
5*x**3*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 +
 67284*m**3 + 118124*m**2 + 109584*m + 40320) - 9585*a**5*b**2*d*
*3*e**m*m**4*x**3*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 2
2449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320) - 38592*
a**5*b**2*d**3*e**m*m**3*x**3*x**m/(m**8 + 36*m**7 + 546*m**6 + 4
536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 403
20) - 86076*a**5*b**2*d**3*e**m*m**2*x**3*x**m/(m**8 + 36*m**7 +
546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 10
9584*m + 40320) - 96144*a**5*b**2*d**3*e**m*m*x**3*x**m/(m**8 + 3
6*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*
m**2 + 109584*m + 40320) - 40320*a**5*b**2*d**3*e**m*x**3*x**m/(m
**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 +
118124*m**2 + 109584*m + 40320) - 3*a**4*b**3*d**3*e**m*m**7*x**4
*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284
*m**3 + 118124*m**2 + 109584*m + 40320) - 96*a**4*b**3*d**3*e**m*
m**6*x**4*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**
4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320) - 1254*a**4*b**3
*d**3*e**m*m**5*x**4*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5
+ 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320) - 859
2*a**4*b**3*d**3*e**m*m**4*x**4*x**m/(m**8 + 36*m**7 + 546*m**6 +
 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 4
0320) - 32979*a**4*b**3*d**3*e**m*m**3*x**4*x**m/(m**8 + 36*m**7
+ 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 +
109584*m + 40320) - 69936*a**4*b**3*d**3*e**m*m**2*x**4*x**m/(m**
8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 11
8124*m**2 + 109584*m + 40320) - 74628*a**4*b**3*d**3*e**m*m*x**4*
x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*
m**3 + 118124*m**2 + 109584*m + 40320) - 30240*a**4*b**3*d**3*e**
m*x**4*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 +
 67284*m**3 + 118124*m**2 + 109584*m + 40320) + 3*a**3*b**4*d**3*
e**m*m**7*x**5*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 2244
9*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320) + 93*a**3*b
**4*d**3*e**m*m**6*x**5*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m*
*5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320) +
1173*a**3*b**4*d**3*e**m*m**5*x**5*x**m/(m**8 + 36*m**7 + 546*m**
6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m
+ 40320) + 7743*a**3*b**4*d**3*e**m*m**4*x**5*x**m/(m**8 + 36*m**
7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2
+ 109584*m + 40320) + 28632*a**3*b**4*d**3*e**m*m**3*x**5*x**m/(m
**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 +
118124*m**2 + 109584*m + 40320) + 58692*a**3*b**4*d**3*e**m*m**2*
x**5*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 6
7284*m**3 + 118124*m**2 + 109584*m + 40320) + 60912*a**3*b**4*d**
3*e**m*m*x**5*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449
*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320) + 24192*a**3
*b**4*d**3*e**m*x**5*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5
+ 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320) + 3*a
**2*b**5*d**3*e**m*m**7*x**6*x**m/(m**8 + 36*m**7 + 546*m**6 + 45
36*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 4032
0) + 90*a**2*b**5*d**3*e**m*m**6*x**6*x**m/(m**8 + 36*m**7 + 546*
m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584
*m + 40320) + 1098*a**2*b**5*d**3*e**m*m**5*x**6*x**m/(m**8 + 36*
m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m*
*2 + 109584*m + 40320) + 7020*a**2*b**5*d**3*e**m*m**4*x**6*x**m/
```

```
(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3
+ 118124*m**2 + 109584*m + 40320) + 25227*a**2*b**5*d**3*e**m*m**
3*x**6*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 +
 67284*m**3 + 118124*m**2 + 109584*m + 40320) + 50490*a**2*b**5*d
**3*e**m*m**2*x**6*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 +
22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320) + 51432
*a**2*b**5*d**3*e**m*m*x**6*x**m/(m**8 + 36*m**7 + 546*m**6 + 453
6*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320
) + 20160*a**2*b**5*d**3*e**m*x**6*x**m/(m**8 + 36*m**7 + 546*m**
6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m
+ 40320) - a*b**6*d**3*e**m*m**7*x**7*x**m/(m**8 + 36*m**7 + 546*
m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584
*m + 40320) - 29*a*b**6*d**3*e**m*m**6*x**7*x**m/(m**8 + 36*m**7
+ 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 +
109584*m + 40320) - 343*a*b**6*d**3*e**m*m**5*x**7*x**m/(m**8 + 3
6*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*
m**2 + 109584*m + 40320) - 2135*a*b**6*d**3*e**m*m**4*x**7*x**m/(
m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 +
 118124*m**2 + 109584*m + 40320) - 7504*a*b**6*d**3*e**m*m**3*x**
7*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 6728
4*m**3 + 118124*m**2 + 109584*m + 40320) - 14756*a*b**6*d**3*e**m
*m**2*x**7*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m*
*4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320) - 14832*a*b**6*
d**3*e**m*m*x**7*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 + 22
449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320) - 5760*a*
b**6*d**3*e**m*x**7*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5 +
 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320) - b**7
*d**3*e**m*m**7*x**8*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m**5
+ 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320) - 28*
b**7*d**3*e**m*m**6*x**8*x**m/(m**8 + 36*m**7 + 546*m**6 + 4536*m
**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 40320) -
 322*b**7*d**3*e**m*m**5*x**8*x**m/(m**8 + 36*m**7 + 546*m**6 + 4
536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m + 403
20) - 1960*b**7*d**3*e**m*m**4*x**8*x**m/(m**8 + 36*m**7 + 546*m*
*6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 109584*m
 + 40320) - 6769*b**7*d**3*e**m*m**3*x**8*x**m/(m**8 + 36*m**7 +
546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m**2 + 10
9584*m + 40320) - 13132*b**7*d**3*e**m*m**2*x**8*x**m/(m**8 + 36*
m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 118124*m*
*2 + 109584*m + 40320) - 13068*b**7*d**3*e**m*m*x**8*x**m/(m**8 +
 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 11812
4*m**2 + 109584*m + 40320) - 5040*b**7*d**3*e**m*x**8*x**m/(m**8
+ 36*m**7 + 546*m**6 + 4536*m**5 + 22449*m**4 + 67284*m**3 + 1181
24*m**2 + 109584*m + 40320), True))
```

GIAC/XCAS [A] time = 0.219595, size = 1, normalized size = 0.01

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*d*x - a*d)^3*(b*x + a)^4*(e*x)^m,x, algorithm="giac")
```

```
[Out] Done
```

3.362 $\int (ex)^m(a+bx)^3(ad-bdx)^2\,dx$

Optimal. Leaf size=143

$$\frac{a^5d^2(ex)^{m+1}}{e(m+1)}+\frac{a^4bd^2(ex)^{m+2}}{e^2(m+2)}-\frac{2a^3b^2d^2(ex)^{m+3}}{e^3(m+3)}-\frac{2a^2b^3d^2(ex)^{m+4}}{e^4(m+4)}+\frac{ab^4d^2(ex)^{m+5}}{e^5(m+5)}+\frac{b^5d^2(ex)^{m+6}}{e^6(m+6)}$$

```
[Out] (a^5*d^2*(e*x)^(1 + m))/(e*(1 + m)) + (a^4*b*d^2*(e*x)^(2 + m))/(
e^2*(2 + m)) - (2*a^3*b^2*d^2*(e*x)^(3 + m))/(e^3*(3 + m)) - (2*a
^2*b^3*d^2*(e*x)^(4 + m))/(e^4*(4 + m)) + (a*b^4*d^2*(e*x)^(5 + m
))/(e^5*(5 + m)) + (b^5*d^2*(e*x)^(6 + m))/(e^6*(6 + m))
```

Rubi [A] time = 0.22143, antiderivative size = 143, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.042

$$\frac{a^5d^2(ex)^{m+1}}{e(m+1)}+\frac{a^4bd^2(ex)^{m+2}}{e^2(m+2)}-\frac{2a^3b^2d^2(ex)^{m+3}}{e^3(m+3)}-\frac{2a^2b^3d^2(ex)^{m+4}}{e^4(m+4)}+\frac{ab^4d^2(ex)^{m+5}}{e^5(m+5)}+\frac{b^5d^2(ex)^{m+6}}{e^6(m+6)}$$

Antiderivative was successfully verified.

```
[In] Int[(e*x)^m*(a + b*x)^3*(a*d - b*d*x)^2,x]
```

```
[Out] (a^5*d^2*(e*x)^(1 + m))/(e*(1 + m)) + (a^4*b*d^2*(e*x)^(2 + m))/(
e^2*(2 + m)) - (2*a^3*b^2*d^2*(e*x)^(3 + m))/(e^3*(3 + m)) - (2*a
^2*b^3*d^2*(e*x)^(4 + m))/(e^4*(4 + m)) + (a*b^4*d^2*(e*x)^(5 + m
))/(e^5*(5 + m)) + (b^5*d^2*(e*x)^(6 + m))/(e^6*(6 + m))
```

Rubi in Sympy [A] time = 53.062, size = 133, normalized size = 0.93

$$\frac{a^5d^2\,(ex)^{m+1}}{e\,(m+1)}+\frac{a^4bd^2\,(ex)^{m+2}}{e^2\,(m+2)}-\frac{2a^3b^2d^2\,(ex)^{m+3}}{e^3\,(m+3)}-\frac{2a^2b^3d^2\,(ex)^{m+4}}{e^4\,(m+4)}+\frac{ab^4d^2\,(ex)^{m+5}}{e^5\,(m+5)}+\frac{b^5d^2\,(ex)^{m+6}}{e^6\,(m+6)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((e*x)**m*(b*x+a)**3*(-b*d*x+a*d)**2,x)
```

```
[Out] a**5*d**2*(e*x)**(m + 1)/(e*(m + 1)) + a**4*b*d**2*(e*x)**(m + 2)
/(e**2*(m + 2)) - 2*a**3*b**2*d**2*(e*x)**(m + 3)/(e**3*(m + 3))
- 2*a**2*b**3*d**2*(e*x)**(m + 4)/(e**4*(m + 4)) + a*b**4*d**2*(e
*x)**(m + 5)/(e**5*(m + 5)) + b**5*d**2*(e*x)**(m + 6)/(e**6*(m +
 6))
```

Mathematica [A] time = 0.0761384, size = 90, normalized size = 0.63

$$d^2(ex)^m\left(\frac{a^5x}{m+1}+\frac{a^4bx^2}{m+2}-\frac{2a^3b^2x^3}{m+3}-\frac{2a^2b^3x^4}{m+4}+\frac{ab^4x^5}{m+5}+\frac{b^5x^6}{m+6}\right)$$

Antiderivative was successfully verified.

```
[In] Integrate[(e*x)^m*(a + b*x)^3*(a*d - b*d*x)^2,x]
```

```
[Out] d^2*(e*x)^m*((a^5*x)/(1 + m) + (a^4*b*x^2)/(2 + m) - (2*a^3*b^2*x
^3)/(3 + m) - (2*a^2*b^3*x^4)/(4 + m) + (a*b^4*x^5)/(5 + m) + (b^
5*x^6)/(6 + m))
```

Maple [B] time = 0.01, size = 422, normalized size = 3.

$$\frac{d^{2} (ex)^{m} \left(b^{5}m^{5}x^{5} + ab^{4}m^{5}x^{4} + 15\, b^{5}m^{4}x^{5} - 2\, a^{2}b^{3}m^{5}x^{3} + 16\, ab^{4}m^{4}x^{4} + 85\, b^{5}m^{3}x^{5} - 2\, a^{3}b^{2}m^{5}x^{2} - 34\, a^{2}b^{3}m^{4}x^{3} + 95\, ab^{4}m\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((e*x)^m*(b*x+a)^3*(-b*d*x+a*d)^2,x)
```

```
[Out] d^2*(e*x)^m*(b^5*m^5*x^5+a*b^4*m^5*x^4+15*b^5*m^4*x^5-2*a^2*b^3*m
^5*x^3+16*a*b^4*m^4*x^4+85*b^5*m^3*x^5-2*a^3*b^2*m^5*x^2-34*a^2*b
^3*m^4*x^3+95*a*b^4*m^3*x^4+225*b^5*m^2*x^5+a^4*b*m^5*x-36*a^3*b^
2*m^4*x^2-214*a^2*b^3*m^3*x^3+260*a*b^4*m^2*x^4+274*b^5*m*x^5+a^5
*m^5+19*a^4*b*m^4*x-242*a^3*b^2*m^3*x^2-614*a^2*b^3*m^2*x^3+324*a
*b^4*m*x^4+120*b^5*x^5+20*a^5*m^4+137*a^4*b*m^3*x-744*a^3*b^2*m^2
*x^2-792*a^2*b^3*m*x^3+144*a*b^4*x^4+155*a^5*m^3+461*a^4*b*m^2*x-
1016*a^3*b^2*m*x^2-360*a^2*b^3*x^3+580*a^5*m^2+702*a^4*b*m*x-480*
a^3*b^2*x^2+1044*a^5*m+360*a^4*b*x+720*a^5)*x/(6+m)/(5+m)/(4+m)/(
3+m)/(2+m)/(1+m)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*d*x - a*d)^2*(b*x + a)^3*(e*x)^m,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.22076, size = 641, normalized size = 4.48

$$\frac{\left(\left(b^{5}d^{2}m^{5} + 15\, b^{5}d^{2}m^{4} + 85\, b^{5}d^{2}m^{3} + 225\, b^{5}d^{2}m^{2} + 274\, b^{5}d^{2}m + 120\, b^{5}d^{2}\right)x^{6} + \left(ab^{4}d^{2}m^{5} + 16\, ab^{4}d^{2}m^{4} + 95\, ab^{4}d^{2}m^{3} + 260\right.\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*d*x - a*d)^2*(b*x + a)^3*(e*x)^m,x, algorithm="fricas")
```

```
[Out] ((b^5*d^2*m^5 + 15*b^5*d^2*m^4 + 85*b^5*d^2*m^3 + 225*b^5*d^2*m^2
 + 274*b^5*d^2*m + 120*b^5*d^2)*x^6 + (a*b^4*d^2*m^5 + 16*a*b^4*d
^2*m^4 + 95*a*b^4*d^2*m^3 + 260*a*b^4*d^2*m^2 + 324*a*b^4*d^2*m +
 144*a*b^4*d^2)*x^5 - 2*(a^2*b^3*d^2*m^5 + 17*a^2*b^3*d^2*m^4 + 1
07*a^2*b^3*d^2*m^3 + 307*a^2*b^3*d^2*m^2 + 396*a^2*b^3*d^2*m + 18
0*a^2*b^3*d^2)*x^4 - 2*(a^3*b^2*d^2*m^5 + 18*a^3*b^2*d^2*m^4 + 12
1*a^3*b^2*d^2*m^3 + 372*a^3*b^2*d^2*m^2 + 508*a^3*b^2*d^2*m + 240
*a^3*b^2*d^2)*x^3 + (a^4*b*d^2*m^5 + 19*a^4*b*d^2*m^4 + 137*a^4*b
*d^2*m^3 + 461*a^4*b*d^2*m^2 + 702*a^4*b*d^2*m + 360*a^4*b*d^2)*x
^2 + (a^5*d^2*m^5 + 20*a^5*d^2*m^4 + 155*a^5*d^2*m^3 + 580*a^5*d^
2*m^2 + 1044*a^5*d^2*m + 720*a^5*d^2)*x)*(e*x)^m/(m^6 + 21*m^5 +
175*m^4 + 735*m^3 + 1624*m^2 + 1764*m + 720)
```

Sympy [A] time = 5.8795, size = 2320, normalized size = 16.22

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((e*x)**m*(b*x+a)**3*(-b*d*x+a*d)**2,x)
```

```
[Out] Piecewise(((-a**5*d**2/(5*x**5) - a**4*b*d**2/(4*x**4) + 2*a**3*b
**2*d**2/(3*x**3) + a**2*b**3*d**2/x**2 - a*b**4*d**2/x + b**5*d*
*2*log(x))/e**6, Eq(m, -6)), ((-a**5*d**2/(4*x**4) - a**4*b*d**2/
(3*x**3) + a**3*b**2*d**2/x**2 + 2*a**2*b**3*d**2/x + a*b**4*d**2
*log(x) + b**5*d**2*x)/e**5, Eq(m, -5)), ((-a**5*d**2/(3*x**3) -
a**4*b*d**2/(2*x**2) + 2*a**3*b**2*d**2/x - 2*a**2*b**3*d**2*log(
x) + a*b**4*d**2*x + b**5*d**2*x**2/2)/e**4, Eq(m, -4)), ((-a**5*
d**2/(2*x**2) - a**4*b*d**2/x - 2*a**3*b**2*d**2*log(x) - 2*a**2*
b**3*d**2*x + a*b**4*d**2*x**2/2 + b**5*d**2*x**3/3)/e**3, Eq(m,
-3)), ((-a**5*d**2/x + a**4*b*d**2*log(x) - 2*a**3*b**2*d**2*x -
a**2*b**3*d**2*x**2 + a*b**4*d**2*x**3/3 + b**5*d**2*x**4/4)/e**2
, Eq(m, -2)), ((a**5*d**2*log(x) + a**4*b*d**2*x - a**3*b**2*d**2
*x**2 - 2*a**2*b**3*d**2*x**3/3 + a*b**4*d**2*x**4/4 + b**5*d**2*
x**5/5)/e, Eq(m, -1)), (a**5*d**2*e**m*m**5*x*x**m/(m**6 + 21*m**
5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) + 20*a**5*d**
2*e**m*m**4*x*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m
**2 + 1764*m + 720) + 155*a**5*d**2*e**m*m**3*x*x**m/(m**6 + 21*m
**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) + 580*a**5*
d**2*e**m*m**2*x*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 162
4*m**2 + 1764*m + 720) + 1044*a**5*d**2*e**m*m*x*x**m/(m**6 + 21*
m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) + 720*a**5
*d**2*e**m*x*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m*
*2 + 1764*m + 720) + a**4*b*d**2*e**m*m**5*x**2*x**m/(m**6 + 21*m
**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) + 19*a**4*b
*d**2*e**m*m**4*x**2*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 +
 1624*m**2 + 1764*m + 720) + 137*a**4*b*d**2*e**m*m**3*x**2*x**m/
(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720)
 + 461*a**4*b*d**2*e**m*m**2*x**2*x**m/(m**6 + 21*m**5 + 175*m**4
 + 735*m**3 + 1624*m**2 + 1764*m + 720) + 702*a**4*b*d**2*e**m*m*
x**2*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 176
4*m + 720) + 360*a**4*b*d**2*e**m*x**2*x**m/(m**6 + 21*m**5 + 175
*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) - 2*a**3*b**2*d**2*e
**m*m**5*x**3*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m
**2 + 1764*m + 720) - 36*a**3*b**2*d**2*e**m*m**4*x**3*x**m/(m**6
 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) - 24
2*a**3*b**2*d**2*e**m*m**3*x**3*x**m/(m**6 + 21*m**5 + 175*m**4 +
 735*m**3 + 1624*m**2 + 1764*m + 720) - 744*a**3*b**2*d**2*e**m*m
**2*x**3*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 +
 1764*m + 720) - 1016*a**3*b**2*d**2*e**m*m*x**3*x**m/(m**6 + 21*
m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) - 480*a**3
*b**2*d**2*e**m*x**3*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 +
 1624*m**2 + 1764*m + 720) - 2*a**2*b**3*d**2*e**m*m**5*x**4*x**m
/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720
) - 34*a**2*b**3*d**2*e**m*m**4*x**4*x**m/(m**6 + 21*m**5 + 175*m
**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) - 214*a**2*b**3*d**2*e
**m*m**3*x**4*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m
**2 + 1764*m + 720) - 614*a**2*b**3*d**2*e**m*m**2*x**4*x**m/(m**
6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) - 7
92*a**2*b**3*d**2*e**m*m*x**4*x**m/(m**6 + 21*m**5 + 175*m**4 + 7
35*m**3 + 1624*m**2 + 1764*m + 720) - 360*a**2*b**3*d**2*e**m*x**
4*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m
 + 720) + a*b**4*d**2*e**m*m**5*x**5*x**m/(m**6 + 21*m**5 + 175*m
**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) + 16*a*b**4*d**2*e**m*
m**4*x**5*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2
+ 1764*m + 720) + 95*a*b**4*d**2*e**m*m**3*x**5*x**m/(m**6 + 21*m
**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) + 260*a*b**
4*d**2*e**m*m**2*x**5*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3
+ 1624*m**2 + 1764*m + 720) + 324*a*b**4*d**2*e**m*m*x**5*x**m/(m
**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) +
 144*a*b**4*d**2*e**m*x**5*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*
m**3 + 1624*m**2 + 1764*m + 720) + b**5*d**2*e**m*m**5*x**6*x**m/
(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720)
 + 15*b**5*d**2*e**m*m**4*x**6*x**m/(m**6 + 21*m**5 + 175*m**4 +
735*m**3 + 1624*m**2 + 1764*m + 720) + 85*b**5*d**2*e**m*m**3*x**
6*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m
 + 720) + 225*b**5*d**2*e**m*m**2*x**6*x**m/(m**6 + 21*m**5 + 175
*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) + 274*b**5*d**2*e**m
*m*x**6*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 +
1764*m + 720) + 120*b**5*d**2*e**m*x**6*x**m/(m**6 + 21*m**5 + 17
5*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720), True))
```

GIAC/XCAS [A] time = 0.218918, size = 1067, normalized size = 7.46

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*d*x - a*d)^2*(b*x + a)^3*(e*x)^m,x, algorithm="giac")
```

```
[Out] (b^5*d^2*m^5*x^6*e^(m*ln(x) + m) + a*b^4*d^2*m^5*x^5*e^(m*ln(x) +
 m) + 15*b^5*d^2*m^4*x^6*e^(m*ln(x) + m) - 2*a^2*b^3*d^2*m^5*x^4*
e^(m*ln(x) + m) + 16*a*b^4*d^2*m^4*x^5*e^(m*ln(x) + m) + 85*b^5*d
^2*m^3*x^6*e^(m*ln(x) + m) - 2*a^3*b^2*d^2*m^5*x^3*e^(m*ln(x) + m
) - 34*a^2*b^3*d^2*m^4*x^4*e^(m*ln(x) + m) + 95*a*b^4*d^2*m^3*x^5
*e^(m*ln(x) + m) + 225*b^5*d^2*m^2*x^6*e^(m*ln(x) + m) + a^4*b*d^
2*m^5*x^2*e^(m*ln(x) + m) - 36*a^3*b^2*d^2*m^4*x^3*e^(m*ln(x) + m
) - 214*a^2*b^3*d^2*m^3*x^4*e^(m*ln(x) + m) + 260*a*b^4*d^2*m^2*x
^5*e^(m*ln(x) + m) + 274*b^5*d^2*m*x^6*e^(m*ln(x) + m) + a^5*d^2*
m^5*x*e^(m*ln(x) + m) + 19*a^4*b*d^2*m^4*x^2*e^(m*ln(x) + m) - 24
2*a^3*b^2*d^2*m^3*x^3*e^(m*ln(x) + m) - 614*a^2*b^3*d^2*m^2*x^4*e
^(m*ln(x) + m) + 324*a*b^4*d^2*m*x^5*e^(m*ln(x) + m) + 120*b^5*d^
2*x^6*e^(m*ln(x) + m) + 20*a^5*d^2*m^4*x*e^(m*ln(x) + m) + 137*a^
4*b*d^2*m^3*x^2*e^(m*ln(x) + m) - 744*a^3*b^2*d^2*m^2*x^3*e^(m*ln
(x) + m) - 792*a^2*b^3*d^2*m*x^4*e^(m*ln(x) + m) + 144*a*b^4*d^2*
x^5*e^(m*ln(x) + m) + 155*a^5*d^2*m^3*x*e^(m*ln(x) + m) + 461*a^4
*b*d^2*m^2*x^2*e^(m*ln(x) + m) - 1016*a^3*b^2*d^2*m*x^3*e^(m*ln(x
) + m) - 360*a^2*b^3*d^2*x^4*e^(m*ln(x) + m) + 580*a^5*d^2*m^2*x*
e^(m*ln(x) + m) + 702*a^4*b*d^2*m*x^2*e^(m*ln(x) + m) - 480*a^3*b
^2*d^2*x^3*e^(m*ln(x) + m) + 1044*a^5*d^2*m*x*e^(m*ln(x) + m) + 3
60*a^4*b*d^2*x^2*e^(m*ln(x) + m) + 720*a^5*d^2*x*e^(m*ln(x) + m))
/(m^6 + 21*m^5 + 175*m^4 + 735*m^3 + 1624*m^2 + 1764*m + 720)
```

3.363 $\int (ex)^m(a+bx)^2(ad-bdx)\,dx$

Optimal. Leaf size=85

$$\frac{a^3d(ex)^{m+1}}{e(m+1)}+\frac{a^2bd(ex)^{m+2}}{e^2(m+2)}-\frac{ab^2d(ex)^{m+3}}{e^3(m+3)}-\frac{b^3d(ex)^{m+4}}{e^4(m+4)}$$

```
[Out] (a^3*d*(e*x)^(1 + m))/(e*(1 + m)) + (a^2*b*d*(e*x)^(2 + m))/(e^2*
(2 + m)) - (a*b^2*d*(e*x)^(3 + m))/(e^3*(3 + m)) - (b^3*d*(e*x)^(
4 + m))/(e^4*(4 + m))
```

Rubi [A] time = 0.116872, antiderivative size = 85, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{a^3d(ex)^{m+1}}{e(m+1)}+\frac{a^2bd(ex)^{m+2}}{e^2(m+2)}-\frac{ab^2d(ex)^{m+3}}{e^3(m+3)}-\frac{b^3d(ex)^{m+4}}{e^4(m+4)}$$

Antiderivative was successfully verified.

```
[In]  Int[(e*x)^m*(a + b*x)^2*(a*d - b*d*x),x]
```

```
[Out] (a^3*d*(e*x)^(1 + m))/(e*(1 + m)) + (a^2*b*d*(e*x)^(2 + m))/(e^2*
(2 + m)) - (a*b^2*d*(e*x)^(3 + m))/(e^3*(3 + m)) - (b^3*d*(e*x)^(
4 + m))/(e^4*(4 + m))
```

Rubi in Sympy [A] time = 24.2574, size = 75, normalized size = 0.88

$$\frac{a^3d\,(ex)^{m+1}}{e\,(m+1)}+\frac{a^2bd\,(ex)^{m+2}}{e^2\,(m+2)}-\frac{ab^2d\,(ex)^{m+3}}{e^3\,(m+3)}-\frac{b^3d\,(ex)^{m+4}}{e^4\,(m+4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((e*x)**m*(b*x+a)**2*(-b*d*x+a*d),x)
```

```
[Out] a**3*d*(e*x)**(m + 1)/(e*(m + 1)) + a**2*b*d*(e*x)**(m + 2)/(e**2
*(m + 2)) - a*b**2*d*(e*x)**(m + 3)/(e**3*(m + 3)) - b**3*d*(e*x)
**(m + 4)/(e**4*(m + 4))
```

Mathematica [A] time = 0.0478563, size = 58, normalized size = 0.68

$$d(ex)^m\left(\frac{a^3x}{m+1}+\frac{a^2bx^2}{m+2}-\frac{ab^2x^3}{m+3}-\frac{b^3x^4}{m+4}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(e*x)^m*(a + b*x)^2*(a*d - b*d*x),x]
```

```
[Out] d*(e*x)^m*((a^3*x)/(1 + m) + (a^2*b*x^2)/(2 + m) - (a*b^2*x^3)/(3
 + m) - (b^3*x^4)/(4 + m))
```

Maple [B] time = 0.008, size = 172, normalized size = 2.

$$\frac{d\,(ex)^m\,\left(-b^3m^3x^3-ab^2m^3x^2-6\,b^3m^2x^3+a^2bm^3x-7\,ab^2m^2x^2-11\,b^3mx^3+a^3m^3+8\,a^2bm^2x-14\,ab^2mx^2-6\,b^3x^3+9\right.}{(4+m)\,(3+m)\,(2+m)\,(1+m)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((e*x)^m*(b*x+a)^2*(-b*d*x+a*d),x)
```

```
[Out] d*(e*x)^m*(-b^3*m^3*x^3-a*b^2*m^3*x^2-6*b^3*m^2*x^3+a^2*b*m^3*x-7
*a*b^2*m^2*x^2-11*b^3*m*x^3+a^3*m^3+8*a^2*b*m^2*x-14*a*b^2*m*x^2-
6*b^3*x^3+9*a^3*m^2+19*a^2*b*m*x-8*a*b^2*x^2+26*a^3*m+12*a^2*b*x+
24*a^3)*x/(4+m)/(3+m)/(2+m)/(1+m)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*d*x - a*d)*(b*x + a)^2*(e*x)^m,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.218646, size = 238, normalized size = 2.8

$$-\frac{\left(\left(b^3dm^3+6\,b^3dm^2+11\,b^3dm+6\,b^3d\right)x^4+\left(ab^2dm^3+7\,ab^2dm^2+14\,ab^2dm+8\,ab^2d\right)x^3-\left(a^2bdm^3+8\,a^2bdm^2+19\,a^2b\cdots\right.\right.}{m^4+10\,m^3+35\,m^2+50\,m+24}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*d*x - a*d)*(b*x + a)^2*(e*x)^m,x, algorithm="fricas")
```

```
[Out] -((b^3*d*m^3 + 6*b^3*d*m^2 + 11*b^3*d*m + 6*b^3*d)*x^4 + (a*b^2*d
*m^3 + 7*a*b^2*d*m^2 + 14*a*b^2*d*m + 8*a*b^2*d)*x^3 - (a^2*b*d*m
^3 + 8*a^2*b*d*m^2 + 19*a^2*b*d*m + 12*a^2*b*d)*x^2 - (a^3*d*m^3
+ 9*a^3*d*m^2 + 26*a^3*d*m + 24*a^3*d)*x)*(e*x)^m/(m^4 + 10*m^3 +
 35*m^2 + 50*m + 24)
```

Sympy [A] time = 2.76079, size = 768, normalized size = 9.04

$$\begin{cases} \frac{-\frac{a^3d}{3x^3}-\frac{a^2bd}{2x^2}+\frac{ab^2d}{x}-b^3d\log(x)}{e^4} \\ \frac{-\frac{a^3d}{2x^2}-\frac{a^2bd}{x}-ab^2d\log(x)-b^3dx}{e^3} \\ \frac{-\frac{a^3d}{x}+a^2bd\log(x)-ab^2dx-\frac{b^3dx^2}{2}}{e^2} \\ \frac{a^3d\log(x)+a^2bdx-\frac{ab^2dx^2}{2}-\frac{b^3dx^3}{3}}{e} \\ \frac{a^3de^mm^3xx^m}{m^4+10m^3+35m^2+50m+24}+\frac{9a^3de^mm^2xx^m}{m^4+10m^3+35m^2+50m+24}+\frac{26a^3de^mmxx^m}{m^4+10m^3+35m^2+50m+24}+\frac{24a^3de^mxx^m}{m^4+10m^3+35m^2+50m+24}+\frac{a^2bde^mm^3x^2x^m}{m^4+10m^3+35m^2+50m+24}+\frac{8a^2b\cdots}{m^4+10m\cdots} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((e*x)**m*(b*x+a)**2*(-b*d*x+a*d),x)
```

```
[Out] Piecewise(((-a**3*d/(3*x**3) - a**2*b*d/(2*x**2) + a*b**2*d/x - b
**3*d*log(x))/e**4, Eq(m, -4)), ((-a**3*d/(2*x**2) - a**2*b*d/x -
 a*b**2*d*log(x) - b**3*d*x)/e**3, Eq(m, -3)), ((-a**3*d/x + a**2
*b*d*log(x) - a*b**2*d*x - b**3*d*x**2/2)/e**2, Eq(m, -2)), ((a**
3*d*log(x) + a**2*b*d*x - a*b**2*d*x**2/2 - b**3*d*x**3/3)/e, Eq(
m, -1)), (a**3*d*e**m*m**3*x*x**m/(m**4 + 10*m**3 + 35*m**2 + 50*
m + 24) + 9*a**3*d*e**m*m**2*x*x**m/(m**4 + 10*m**3 + 35*m**2 + 5
0*m + 24) + 26*a**3*d*e**m*m*x*x**m/(m**4 + 10*m**3 + 35*m**2 + 5
0*m + 24) + 24*a**3*d*e**m*x*x**m/(m**4 + 10*m**3 + 35*m**2 + 50*
m + 24) + a**2*b*d*e**m*m**3*x**2*x**m/(m**4 + 10*m**3 + 35*m**2
```

```
+ 50*m + 24) + 8*a**2*b*d*e**m*m**2*x**2*x**m/(m**4 + 10*m**3 + 3
5*m**2 + 50*m + 24) + 19*a**2*b*d*e**m*m*x**2*x**m/(m**4 + 10*m**
3 + 35*m**2 + 50*m + 24) + 12*a**2*b*d*e**m*x**2*x**m/(m**4 + 10*
m**3 + 35*m**2 + 50*m + 24) - a*b**2*d*e**m*m**3*x**3*x**m/(m**4
+ 10*m**3 + 35*m**2 + 50*m + 24) - 7*a*b**2*d*e**m*m**2*x**3*x**m
/(m**4 + 10*m**3 + 35*m**2 + 50*m + 24) - 14*a*b**2*d*e**m*m*x**3
*x**m/(m**4 + 10*m**3 + 35*m**2 + 50*m + 24) - 8*a*b**2*d*e**m*x*
*3*x**m/(m**4 + 10*m**3 + 35*m**2 + 50*m + 24) - b**3*d*e**m*m**3
*x**4*x**m/(m**4 + 10*m**3 + 35*m**2 + 50*m + 24) - 6*b**3*d*e**m
*m**2*x**4*x**m/(m**4 + 10*m**3 + 35*m**2 + 50*m + 24) - 11*b**3*
d*e**m*m*x**4*x**m/(m**4 + 10*m**3 + 35*m**2 + 50*m + 24) - 6*b**
3*d*e**m*x**4*x**m/(m**4 + 10*m**3 + 35*m**2 + 50*m + 24), True))
```

GIAC/XCAS [A] time = 0.212356, size = 412, normalized size = 4.85

$$-\frac{b^3dm^3x^4e^{(m\ln(x)+m)} + ab^2dm^3x^3e^{(m\ln(x)+m)} + 6\,b^3dm^2x^4e^{(m\ln(x)+m)} - a^2bdm^3x^2e^{(m\ln(x)+m)} + 7\,ab^2dm^2x^3e^{(m\ln(x)+m)} + 11\,b^3 \cdots}{\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*d*x - a*d)*(b*x + a)^2*(e*x)^m,x, algorithm="giac")
```

```
[Out] -(b^3*d*m^3*x^4*e^(m*ln(x) + m) + a*b^2*d*m^3*x^3*e^(m*ln(x) + m)
 + 6*b^3*d*m^2*x^4*e^(m*ln(x) + m) - a^2*b*d*m^3*x^2*e^(m*ln(x) +
 m) + 7*a*b^2*d*m^2*x^3*e^(m*ln(x) + m) + 11*b^3*d*m*x^4*e^(m*ln(
x) + m) - a^3*d*m^3*x*e^(m*ln(x) + m) - 8*a^2*b*d*m^2*x^2*e^(m*ln
(x) + m) + 14*a*b^2*d*m*x^3*e^(m*ln(x) + m) + 6*b^3*d*x^4*e^(m*ln
(x) + m) - 9*a^3*d*m^2*x*e^(m*ln(x) + m) - 19*a^2*b*d*m*x^2*e^(m*
ln(x) + m) + 8*a*b^2*d*x^3*e^(m*ln(x) + m) - 26*a^3*d*m*x*e^(m*ln
(x) + m) - 12*a^2*b*d*x^2*e^(m*ln(x) + m) - 24*a^3*d*x*e^(m*ln(x)
 + m))/(m^4 + 10*m^3 + 35*m^2 + 50*m + 24)
```

3.364 $\int \frac{(ex)^m}{(a+bx)(ad-bdx)^2}\,dx$

Optimal. Leaf size=98

$$\frac{b(ex)^{m+2}\,{}_2F_1\left(2,\frac{m+2}{2};\frac{m+4}{2};\frac{b^2x^2}{a^2}\right)}{a^4d^2e^2(m+2)}+\frac{(ex)^{m+1}\,{}_2F_1\left(2,\frac{m+1}{2};\frac{m+3}{2};\frac{b^2x^2}{a^2}\right)}{a^3d^2e(m+1)}$$

```
[Out] ((e*x)^(1 + m)*Hypergeometric2F1[2, (1 + m)/2, (3 + m)/2, (b^2*x^
2)/a^2])/(a^3*d^2*e*(1 + m)) + (b*(e*x)^(2 + m)*Hypergeometric2F1
[2, (2 + m)/2, (4 + m)/2, (b^2*x^2)/a^2])/(a^4*d^2*e^2*(2 + m))
```

Rubi [A] time = 0.178545, antiderivative size = 98, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$\frac{b(ex)^{m+2}\,{}_2F_1\left(2,\frac{m+2}{2};\frac{m+4}{2};\frac{b^2x^2}{a^2}\right)}{a^4d^2e^2(m+2)}+\frac{(ex)^{m+1}\,{}_2F_1\left(2,\frac{m+1}{2};\frac{m+3}{2};\frac{b^2x^2}{a^2}\right)}{a^3d^2e(m+1)}$$

Antiderivative was successfully verified.

```
[In] Int[(e*x)^m/((a + b*x)*(a*d - b*d*x)^2),x]
```

```
[Out] ((e*x)^(1 + m)*Hypergeometric2F1[2, (1 + m)/2, (3 + m)/2, (b^2*x^
2)/a^2])/(a^3*d^2*e*(1 + m)) + (b*(e*x)^(2 + m)*Hypergeometric2F1
[2, (2 + m)/2, (4 + m)/2, (b^2*x^2)/a^2])/(a^4*d^2*e^2*(2 + m))
```

Rubi in Sympy [A] time = 25.2905, size = 80, normalized size = 0.82

$$\frac{(ex)^{m+1}\,{}_2F_1\left(\begin{matrix}2,\frac{m}{2}+\frac{1}{2}\\ \frac{m}{2}+\frac{3}{2}\end{matrix}\middle|\frac{b^2x^2}{a^2}\right)}{a^3d^2e\,(m+1)}+\frac{b\,(ex)^{m+2}\,{}_2F_1\left(\begin{matrix}2,\frac{m}{2}+1\\ \frac{m}{2}+2\end{matrix}\middle|\frac{b^2x^2}{a^2}\right)}{a^4d^2e^2\,(m+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((e*x)**m/(b*x+a)/(-b*d*x+a*d)**2,x)
```

```
[Out] (e*x)**(m + 1)*hyper((2, m/2 + 1/2), (m/2 + 3/2,), b**2*x**2/a**2
)/(a**3*d**2*e*(m + 1)) + b*(e*x)**(m + 2)*hyper((2, m/2 + 1), (m
/2 + 2,), b**2*x**2/a**2)/(a**4*d**2*e**2*(m + 2))
```

Mathematica [A] time = 0.0774445, size = 67, normalized size = 0.68

$$\frac{x(ex)^m\left({}_2F_1\left(1,m+1;m+2;-\frac{bx}{a}\right)+{}_2F_1\left(1,m+1;m+2;\frac{bx}{a}\right)+2\,{}_2F_1\left(2,m+1;m+2;\frac{bx}{a}\right)\right)}{4a^3d^2(m+1)}$$

Antiderivative was successfully verified.

```
[In] Integrate[(e*x)^m/((a + b*x)*(a*d - b*d*x)^2),x]
```

```
[Out] (x*(e*x)^m*(Hypergeometric2F1[1, 1 + m, 2 + m, -((b*x)/a)] + Hype
rgeometric2F1[1, 1 + m, 2 + m, (b*x)/a] + 2*Hypergeometric2F1[2,
1 + m, 2 + m, (b*x)/a]))/(4*a^3*d^2*(1 + m))
```

Maple [F] time = 0.076, size = 0, normalized size = 0.

$$\int \frac{(ex)^m}{(bx+a)(-bdx+ad)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((e*x)^m/(b*x+a)/(-b*d*x+a*d)^2,x)

[Out] int((e*x)^m/(b*x+a)/(-b*d*x+a*d)^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(ex)^m}{(bdx-ad)^2(bx+a)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x)^m/((b*d*x - a*d)^2*(b*x + a)),x, algorithm="maxima")

[Out] integrate((e*x)^m/((b*d*x - a*d)^2*(b*x + a)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(ex)^m}{b^3d^2x^3-ab^2d^2x^2-a^2bd^2x+a^3d^2},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x)^m/((b*d*x - a*d)^2*(b*x + a)),x, algorithm="fricas")

[Out] integral((e*x)^m/(b^3*d^2*x^3 - a*b^2*d^2*x^2 - a^2*b*d^2*x + a^3
*d^2), x)
```

Sympy [A] time = 9.51517, size = 440, normalized size = 4.49

$$-\frac{2ae^m m^2 x^m \Phi\left(\frac{a}{bx},1,me^{i\pi}\right)\Gamma(-m)}{-4a^3bd^2\Gamma(-m+1)+4a^2b^2d^2x\Gamma(-m+1)}+\frac{ae^m mx^m \Phi\left(\frac{a}{bx},1,me^{i\pi}\right)\Gamma(-m)}{-4a^3bd^2\Gamma(-m+1)+4a^2b^2d^2x\Gamma(-m+1)}-\frac{ae^m mx^m \Phi\left(\frac{ae^{i\pi}}{bx},1,me^{i\pi}\right)\Gamma(-m)}{-4a^3bd^2\Gamma(-m+1)+4a^2b^2d^2x\Gamma(-m+1)}+\frac{2be^m m^2 xx^m \Phi\left(\frac{a}{bx},1,me^{i\pi}\right)\Gamma(-m)}{-4a^3bd^2\Gamma(-m+1)+4a^2b^2d^2x\Gamma(-m+1)}-\frac{be^m mxx^m \Phi\left(\frac{a}{bx},1,me^{i\pi}\right)\Gamma(-m)}{-4a^3bd^2\Gamma(-m+1)+4a^2b^2d^2x\Gamma(-m+1)}+\frac{be^m mxx^m \Phi\left(\frac{ae^{i\pi}}{bx},1,me^{i\pi}\right)\Gamma(-m)}{-4a^3bd^2\Gamma(-m+1)+4a^2b^2d^2x\Gamma(-m+1)}+\frac{2be^m mxx^m\Gamma(-m)}{-4a^3bd^2\Gamma(-m+1)+4a^2b^2d^2x\Gamma(-m+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((e*x)**m/(b*x+a)/(-b*d*x+a*d)**2,x)

[Out] -2*a*e**m*m**2*x**m*lerchphi(a/(b*x), 1, m*exp_polar(I*pi))*gamma
(-m)/(-4*a**3*b*d**2*gamma(-m + 1) + 4*a**2*b**2*d**2*x*gamma(-m
+ 1)) + a*e**m*m*x**m*lerchphi(a/(b*x), 1, m*exp_polar(I*pi))*gam
ma(-m)/(-4*a**3*b*d**2*gamma(-m + 1) + 4*a**2*b**2*d**2*x*gamma(-
m + 1)) - a*e**m*m*x**m*lerchphi(a*exp_polar(I*pi)/(b*x), 1, m*ex
p_polar(I*pi))*gamma(-m)/(-4*a**3*b*d**2*gamma(-m + 1) + 4*a**2*b
```

```
**2*d**2*x*gamma(-m + 1)) + 2*b*e**m*m**2*x*x**m*lerchphi(a/(b*x)
, 1, m*exp_polar(I*pi))*gamma(-m)/(-4*a**3*b*d**2*gamma(-m + 1) +
 4*a**2*b**2*d**2*x*gamma(-m + 1)) - b*e**m*m*x*x**m*lerchphi(a/(
b*x), 1, m*exp_polar(I*pi))*gamma(-m)/(-4*a**3*b*d**2*gamma(-m +
1) + 4*a**2*b**2*d**2*x*gamma(-m + 1)) + b*e**m*m*x*x**m*lerchphi
(a*exp_polar(I*pi)/(b*x), 1, m*exp_polar(I*pi))*gamma(-m)/(-4*a**
3*b*d**2*gamma(-m + 1) + 4*a**2*b**2*d**2*x*gamma(-m + 1)) + 2*b*
e**m*m*x*x**m*gamma(-m)/(-4*a**3*b*d**2*gamma(-m + 1) + 4*a**2*b*
*2*d**2*x*gamma(-m + 1))
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(ex)^m}{(bdx-ad)^2(bx+a)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((e*x)^m/((b*d*x - a*d)^2*(b*x + a)),x, algorithm="giac")
```

```
[Out] integrate((e*x)^m/((b*d*x - a*d)^2*(b*x + a)), x)
```

3.365 $\int \frac{(ex)^m}{(a+bx)^2(ad-bdx)^3}\,dx$

Optimal. Leaf size=98

$$\frac{b(ex)^{m+2}\,{}_2F_1\left(3,\frac{m+2}{2};\frac{m+4}{2};\frac{b^2x^2}{a^2}\right)}{a^6d^3e^2(m+2)}+\frac{(ex)^{m+1}\,{}_2F_1\left(3,\frac{m+1}{2};\frac{m+3}{2};\frac{b^2x^2}{a^2}\right)}{a^5d^3e(m+1)}$$

```
[Out] ((e*x)^(1 + m)*Hypergeometric2F1[3, (1 + m)/2, (3 + m)/2, (b^2*x^
2)/a^2])/(a^5*d^3*e*(1 + m)) + (b*(e*x)^(2 + m)*Hypergeometric2F1
[3, (2 + m)/2, (4 + m)/2, (b^2*x^2)/a^2])/(a^6*d^3*e^2*(2 + m))
```

Rubi [A] time = 0.181576, antiderivative size = 98, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$\frac{b(ex)^{m+2}\,{}_2F_1\left(3,\frac{m+2}{2};\frac{m+4}{2};\frac{b^2x^2}{a^2}\right)}{a^6d^3e^2(m+2)}+\frac{(ex)^{m+1}\,{}_2F_1\left(3,\frac{m+1}{2};\frac{m+3}{2};\frac{b^2x^2}{a^2}\right)}{a^5d^3e(m+1)}$$

Antiderivative was successfully verified.

```
[In]  Int[(e*x)^m/((a + b*x)^2*(a*d - b*d*x)^3),x]
```

```
[Out] ((e*x)^(1 + m)*Hypergeometric2F1[3, (1 + m)/2, (3 + m)/2, (b^2*x^
2)/a^2])/(a^5*d^3*e*(1 + m)) + (b*(e*x)^(2 + m)*Hypergeometric2F1
[3, (2 + m)/2, (4 + m)/2, (b^2*x^2)/a^2])/(a^6*d^3*e^2*(2 + m))
```

Rubi in Sympy [A] time = 25.3218, size = 80, normalized size = 0.82

$$\frac{(ex)^{m+1}\,{}_2F_1\left(\begin{matrix}3,\frac{m}{2}+\frac{1}{2}\\ \frac{m}{2}+\frac{3}{2}\end{matrix}\middle|\frac{b^2x^2}{a^2}\right)}{a^5d^3e\,(m+1)}+\frac{b\,(ex)^{m+2}\,{}_2F_1\left(\begin{matrix}3,\frac{m}{2}+1\\ \frac{m}{2}+2\end{matrix}\middle|\frac{b^2x^2}{a^2}\right)}{a^6d^3e^2\,(m+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((e*x)**m/(b*x+a)**2/(-b*d*x+a*d)**3,x)
```

```
[Out] (e*x)**(m + 1)*hyper((3, m/2 + 1/2), (m/2 + 3/2,), b**2*x**2/a**2
)/(a**5*d**3*e*(m + 1)) + b*(e*x)**(m + 2)*hyper((3, m/2 + 1), (m
/2 + 2,), b**2*x**2/a**2)/(a**6*d**3*e**2*(m + 2))
```

Mathematica [C] time = 0.282687, size = 144, normalized size = 1.47

$$\frac{a(m+2)x(ex)^mF_1\left(m+1;3,2;m+2;\frac{bx}{a},-\frac{bx}{a}\right)}{d^3(m+1)(a-bx)^3(a+bx)^2\left(bx\left(3F_1\left(m+2;4,2;m+3;\frac{bx}{a},-\frac{bx}{a}\right)-2\,{}_2F_1\left(3,\frac{m}{2}+1;\frac{m}{2}+2;\frac{b^2x^2}{a^2}\right)\right)+a(m+2)F_1\left(m+1;3,2\right.\right.}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(e*x)^m/((a + b*x)^2*(a*d - b*d*x)^3),x]
```

```
[Out] (a*(2 + m)*x*(e*x)^m*AppellF1[1 + m, 3, 2, 2 + m, (b*x)/a, -((b*x
)/a)])/(d^3*(1 + m)*(a - b*x)^3*(a + b*x)^2*(a*(2 + m)*AppellF1[1
 + m, 3, 2, 2 + m, (b*x)/a, -((b*x)/a)] + b*x*(3*AppellF1[2 + m,
4, 2, 3 + m, (b*x)/a, -((b*x)/a)] - 2*HypergeometricPFQ[{3, 1 + m
/2}, {2 + m/2}, (b^2*x^2)/a^2])))
```

Maple [F] time = 0.099, size = 0, normalized size = 0.

$$\int \frac{(ex)^m}{(bx + a)^2 (-bdx + ad)^3} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((e*x)^m/(b*x+a)^2/(-b*d*x+a*d)^3,x)
```

```
[Out] int((e*x)^m/(b*x+a)^2/(-b*d*x+a*d)^3,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$-\int \frac{(ex)^m}{(bdx - ad)^3 (bx + a)^2} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(e*x)^m/((b*d*x - a*d)^3*(b*x + a)^2),x, algorithm="maxima")
```

```
[Out] -integrate((e*x)^m/((b*d*x - a*d)^3*(b*x + a)^2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{(ex)^m}{b^5 d^3 x^5 - a b^4 d^3 x^4 - 2\, a^2 b^3 d^3 x^3 + 2\, a^3 b^2 d^3 x^2 + a^4 b d^3 x - a^5 d^3}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(e*x)^m/((b*d*x - a*d)^3*(b*x + a)^2),x, algorithm="fricas")
```

```
[Out] integral(-(e*x)^m/(b^5*d^3*x^5 - a*b^4*d^3*x^4 - 2*a^2*b^3*d^3*x^
3 + 2*a^3*b^2*d^3*x^2 + a^4*b*d^3*x - a^5*d^3), x)
```

Sympy [A] time = 17.3325, size = 2717, normalized size = 27.72

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((e*x)**m/(b*x+a)**2/(-b*d*x+a*d)**3,x)
```

```
[Out] -2*a**3*e**m*m**3*x**m*lerchphi(a/(b*x), 1, m*exp_polar(I*pi))*ga
mma(-m)/(16*a**7*b*d**3*gamma(-m + 1) - 16*a**6*b**2*d**3*x*gamma
(-m + 1) - 16*a**5*b**3*d**3*x**2*gamma(-m + 1) + 16*a**4*b**4*d*
*3*x**3*gamma(-m + 1)) + 6*a**3*e**m*m**2*x**m*lerchphi(a/(b*x),
1, m*exp_polar(I*pi))*gamma(-m)/(16*a**7*b*d**3*gamma(-m + 1) - 1
6*a**6*b**2*d**3*x*gamma(-m + 1) - 16*a**5*b**3*d**3*x**2*gamma(-
m + 1) + 16*a**4*b**4*d**3*x**3*gamma(-m + 1)) - 2*a**3*e**m*m**2
*x**m*lerchphi(a*exp_polar(I*pi)/(b*x), 1, m*exp_polar(I*pi))*gam
ma(-m)/(16*a**7*b*d**3*gamma(-m + 1) - 16*a**6*b**2*d**3*x*gamma(
-m + 1) - 16*a**5*b**3*d**3*x**2*gamma(-m + 1) + 16*a**4*b**4*d**
3*x**3*gamma(-m + 1)) - 3*a**3*e**m*m*x**m*lerchphi(a/(b*x), 1, m
*exp_polar(I*pi))*gamma(-m)/(16*a**7*b*d**3*gamma(-m + 1) - 16*a*
*6*b**2*d**3*x*gamma(-m + 1) - 16*a**5*b**3*d**3*x**2*gamma(-m +
1) + 16*a**4*b**4*d**3*x**3*gamma(-m + 1)) + 3*a**3*e**m*m*x**m*l
```

```
erchphi(a*exp_polar(I*pi)/(b*x), 1, m*exp_polar(I*pi))*gamma(-m)/
(16*a**7*b*d**3*gamma(-m + 1) - 16*a**6*b**2*d**3*x*gamma(-m + 1)
 - 16*a**5*b**3*d**3*x**2*gamma(-m + 1) + 16*a**4*b**4*d**3*x**3*
gamma(-m + 1)) + 2*a**2*b*e**m*m**3*x*x**m*lerchphi(a/(b*x), 1, m
*exp_polar(I*pi))*gamma(-m)/(16*a**7*b*d**3*gamma(-m + 1) - 16*a*
*6*b**2*d**3*x*gamma(-m + 1) - 16*a**5*b**3*d**3*x**2*gamma(-m +
1) + 16*a**4*b**4*d**3*x**3*gamma(-m + 1)) - 6*a**2*b*e**m*m**2*x
*x**m*lerchphi(a/(b*x), 1, m*exp_polar(I*pi))*gamma(-m)/(16*a**7*
b*d**3*gamma(-m + 1) - 16*a**6*b**2*d**3*x*gamma(-m + 1) - 16*a**
5*b**3*d**3*x**2*gamma(-m + 1) + 16*a**4*b**4*d**3*x**3*gamma(-m
+ 1)) + 2*a**2*b*e**m*m**2*x*x**m*lerchphi(a*exp_polar(I*pi)/(b*x
), 1, m*exp_polar(I*pi))*gamma(-m)/(16*a**7*b*d**3*gamma(-m + 1)
- 16*a**6*b**2*d**3*x*gamma(-m + 1) - 16*a**5*b**3*d**3*x**2*gamm
a(-m + 1) + 16*a**4*b**4*d**3*x**3*gamma(-m + 1)) + 2*a**2*b*e**m
*m**2*x*x**m*gamma(-m)/(16*a**7*b*d**3*gamma(-m + 1) - 16*a**6*b*
*2*d**3*x*gamma(-m + 1) - 16*a**5*b**3*d**3*x**2*gamma(-m + 1) +
16*a**4*b**4*d**3*x**3*gamma(-m + 1)) + 3*a**2*b*e**m*m*x*x**m*le
rchphi(a/(b*x), 1, m*exp_polar(I*pi))*gamma(-m)/(16*a**7*b*d**3*g
amma(-m + 1) - 16*a**6*b**2*d**3*x*gamma(-m + 1) - 16*a**5*b**3*d
**3*x**2*gamma(-m + 1) + 16*a**4*b**4*d**3*x**3*gamma(-m + 1)) -
3*a**2*b*e**m*m*x*x**m*lerchphi(a*exp_polar(I*pi)/(b*x), 1, m*exp
_polar(I*pi))*gamma(-m)/(16*a**7*b*d**3*gamma(-m + 1) - 16*a**6*b
**2*d**3*x*gamma(-m + 1) - 16*a**5*b**3*d**3*x**2*gamma(-m + 1) +
 16*a**4*b**4*d**3*x**3*gamma(-m + 1)) - 10*a**2*b*e**m*m*x*x**m*
gamma(-m)/(16*a**7*b*d**3*gamma(-m + 1) - 16*a**6*b**2*d**3*x*gam
ma(-m + 1) - 16*a**5*b**3*d**3*x**2*gamma(-m + 1) + 16*a**4*b**4*
d**3*x**3*gamma(-m + 1)) + 2*a*b**2*e**m*m**3*x**2*x**m*lerchphi(
a/(b*x), 1, m*exp_polar(I*pi))*gamma(-m)/(16*a**7*b*d**3*gamma(-m
 + 1) - 16*a**6*b**2*d**3*x*gamma(-m + 1) - 16*a**5*b**3*d**3*x**
2*gamma(-m + 1) + 16*a**4*b**4*d**3*x**3*gamma(-m + 1)) - 6*a*b**
2*e**m*m**2*x**2*x**m*lerchphi(a/(b*x), 1, m*exp_polar(I*pi))*gam
ma(-m)/(16*a**7*b*d**3*gamma(-m + 1) - 16*a**6*b**2*d**3*x*gamma(
-m + 1) - 16*a**5*b**3*d**3*x**2*gamma(-m + 1) + 16*a**4*b**4*d**
3*x**3*gamma(-m + 1)) + 2*a*b**2*e**m*m**2*x**2*x**m*lerchphi(a*e
xp_polar(I*pi)/(b*x), 1, m*exp_polar(I*pi))*gamma(-m)/(16*a**7*b*
d**3*gamma(-m + 1) - 16*a**6*b**2*d**3*x*gamma(-m + 1) - 16*a**5*
b**3*d**3*x**2*gamma(-m + 1) + 16*a**4*b**4*d**3*x**3*gamma(-m +
1)) + 3*a*b**2*e**m*m*x**2*x**m*lerchphi(a/(b*x), 1, m*exp_polar(
I*pi))*gamma(-m)/(16*a**7*b*d**3*gamma(-m + 1) - 16*a**6*b**2*d**
3*x*gamma(-m + 1) - 16*a**5*b**3*d**3*x**2*gamma(-m + 1) + 16*a**
4*b**4*d**3*x**3*gamma(-m + 1)) - 3*a*b**2*e**m*m*x**2*x**m*lerch
phi(a*exp_polar(I*pi)/(b*x), 1, m*exp_polar(I*pi))*gamma(-m)/(16*
a**7*b*d**3*gamma(-m + 1) - 16*a**6*b**2*d**3*x*gamma(-m + 1) - 1
6*a**5*b**3*d**3*x**2*gamma(-m + 1) + 16*a**4*b**4*d**3*x**3*gamm
a(-m + 1)) + 2*a*b**2*e**m*m*x**2*x**m*gamma(-m)/(16*a**7*b*d**3*
gamma(-m + 1) - 16*a**6*b**2*d**3*x*gamma(-m + 1) - 16*a**5*b**3*
d**3*x**2*gamma(-m + 1) + 16*a**4*b**4*d**3*x**3*gamma(-m + 1)) -
 2*b**3*e**m*m**3*x**3*x**m*lerchphi(a/(b*x), 1, m*exp_polar(I*pi
))*gamma(-m)/(16*a**7*b*d**3*gamma(-m + 1) - 16*a**6*b**2*d**3*x*
gamma(-m + 1) - 16*a**5*b**3*d**3*x**2*gamma(-m + 1) + 16*a**4*b*
*4*d**3*x**3*gamma(-m + 1)) + 6*b**3*e**m*m**2*x**3*x**m*lerchphi
(a/(b*x), 1, m*exp_polar(I*pi))*gamma(-m)/(16*a**7*b*d**3*gamma(-
m + 1) - 16*a**6*b**2*d**3*x*gamma(-m + 1) - 16*a**5*b**3*d**3*x*
*2*gamma(-m + 1) + 16*a**4*b**4*d**3*x**3*gamma(-m + 1)) - 2*b**3
*e**m*m**2*x**3*x**m*lerchphi(a*exp_polar(I*pi)/(b*x), 1, m*exp_p
olar(I*pi))*gamma(-m)/(16*a**7*b*d**3*gamma(-m + 1) - 16*a**6*b**
2*d**3*x*gamma(-m + 1) - 16*a**5*b**3*d**3*x**2*gamma(-m + 1) + 1
6*a**4*b**4*d**3*x**3*gamma(-m + 1)) - 2*b**3*e**m*m**2*x**3*x**m
*gamma(-m)/(16*a**7*b*d**3*gamma(-m + 1) - 16*a**6*b**2*d**3*x*ga
mma(-m + 1) - 16*a**5*b**3*d**3*x**2*gamma(-m + 1) + 16*a**4*b**4
*d**3*x**3*gamma(-m + 1)) - 3*b**3*e**m*m*x**3*x**m*lerchphi(a/(b
*x), 1, m*exp_polar(I*pi))*gamma(-m)/(16*a**7*b*d**3*gamma(-m + 1
) - 16*a**6*b**2*d**3*x*gamma(-m + 1) - 16*a**5*b**3*d**3*x**2*ga
mma(-m + 1) + 16*a**4*b**4*d**3*x**3*gamma(-m + 1)) + 3*b**3*e**m
*m*x**3*x**m*lerchphi(a*exp_polar(I*pi)/(b*x), 1, m*exp_polar(I*p
i))*gamma(-m)/(16*a**7*b*d**3*gamma(-m + 1) - 16*a**6*b**2*d**3*x
*gamma(-m + 1) - 16*a**5*b**3*d**3*x**2*gamma(-m + 1) + 16*a**4*b
**4*d**3*x**3*gamma(-m + 1)) + 4*b**3*e**m*m*x**3*x**m*gamma(-m)/
(16*a**7*b*d**3*gamma(-m + 1) - 16*a**6*b**2*d**3*x*gamma(-m + 1)
 - 16*a**5*b**3*d**3*x**2*gamma(-m + 1) + 16*a**4*b**4*d**3*x**3*
gamma(-m + 1))
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int -\frac{(ex)^m}{(bdx - ad)^3(bx + a)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(e*x)^m/((b*d*x - a*d)^3*(b*x + a)^2),x, algorithm="giac")
```

```
[Out] integrate(-(e*x)^m/((b*d*x - a*d)^3*(b*x + a)^2), x)
```

3.366 $\int \frac{(ex)^m}{(a+bx)^3(ad-bdx)^4}\,dx$

Optimal. Leaf size=98

$$\frac{b(ex)^{m+2}\,{}_2F_1\left(4,\frac{m+2}{2};\frac{m+4}{2};\frac{b^2x^2}{a^2}\right)}{a^8d^4e^2(m+2)}+\frac{(ex)^{m+1}\,{}_2F_1\left(4,\frac{m+1}{2};\frac{m+3}{2};\frac{b^2x^2}{a^2}\right)}{a^7d^4e(m+1)}$$

```
[Out] ((e*x)^(1 + m)*Hypergeometric2F1[4, (1 + m)/2, (3 + m)/2, (b^2*x^
2)/a^2])/(a^7*d^4*e*(1 + m)) + (b*(e*x)^(2 + m)*Hypergeometric2F1
[4, (2 + m)/2, (4 + m)/2, (b^2*x^2)/a^2])/(a^8*d^4*e^2*(2 + m))
```

Rubi [A] time = 0.177765, antiderivative size = 98, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$\frac{b(ex)^{m+2}\,{}_2F_1\left(4,\frac{m+2}{2};\frac{m+4}{2};\frac{b^2x^2}{a^2}\right)}{a^8d^4e^2(m+2)}+\frac{(ex)^{m+1}\,{}_2F_1\left(4,\frac{m+1}{2};\frac{m+3}{2};\frac{b^2x^2}{a^2}\right)}{a^7d^4e(m+1)}$$

Antiderivative was successfully verified.

```
[In]  Int[(e*x)^m/((a + b*x)^3*(a*d - b*d*x)^4),x]
```

```
[Out] ((e*x)^(1 + m)*Hypergeometric2F1[4, (1 + m)/2, (3 + m)/2, (b^2*x^
2)/a^2])/(a^7*d^4*e*(1 + m)) + (b*(e*x)^(2 + m)*Hypergeometric2F1
[4, (2 + m)/2, (4 + m)/2, (b^2*x^2)/a^2])/(a^8*d^4*e^2*(2 + m))
```

Rubi in Sympy [A] time = 25.3392, size = 80, normalized size = 0.82

$$\frac{(ex)^{m+1}\,{}_2F_1\left(\begin{matrix}4,\frac{m}{2}+\frac{1}{2}\\ \frac{m}{2}+\frac{3}{2}\end{matrix}\middle|\frac{b^2x^2}{a^2}\right)}{a^7d^4e\,(m+1)}+\frac{b\,(ex)^{m+2}\,{}_2F_1\left(\begin{matrix}4,\frac{m}{2}+1\\ \frac{m}{2}+2\end{matrix}\middle|\frac{b^2x^2}{a^2}\right)}{a^8d^4e^2\,(m+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((e*x)**m/(b*x+a)**3/(-b*d*x+a*d)**4,x)
```

```
[Out] (e*x)**(m + 1)*hyper((4, m/2 + 1/2), (m/2 + 3/2,), b**2*x**2/a**2
)/(a**7*d**4*e*(m + 1)) + b*(e*x)**(m + 2)*hyper((4, m/2 + 1), (m
/2 + 2,), b**2*x**2/a**2)/(a**8*d**4*e**2*(m + 2))
```

Mathematica [C] time = 0.363841, size = 144, normalized size = 1.47

$$\frac{a(m+2)x(ex)^mF_1\left(m+1;4,3;m+2;\frac{bx}{a},-\frac{bx}{a}\right)}{d^4(m+1)(a-bx)^4(a+bx)^3\left(bx\left(4F_1\left(m+2;5,3;m+3;\frac{bx}{a},-\frac{bx}{a}\right)-3\,{}_2F_1\left(4,\frac{m}{2}+1;\frac{m}{2}+2;\frac{b^2x^2}{a^2}\right)\right)+a(m+2)F_1\left(m+1;4,3\right.\right.}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(e*x)^m/((a + b*x)^3*(a*d - b*d*x)^4),x]
```

```
[Out] (a*(2 + m)*x*(e*x)^m*AppellF1[1 + m, 4, 3, 2 + m, (b*x)/a, -((b*x
)/a)])/(d^4*(1 + m)*(a - b*x)^4*(a + b*x)^3*(a*(2 + m)*AppellF1[1
 + m, 4, 3, 2 + m, (b*x)/a, -((b*x)/a)] + b*x*(4*AppellF1[2 + m,
5, 3, 3 + m, (b*x)/a, -((b*x)/a)] - 3*HypergeometricPFQ[{4, 1 + m
/2}, {2 + m/2}, (b^2*x^2)/a^2])))
```

Maple [F] time = 0.145, size = 0, normalized size = 0.

$$\int \frac{(ex)^m}{(bx+a)^3(-bdx+ad)^4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((e*x)^m/(b*x+a)^3/(-b*d*x+a*d)^4,x)
```

```
[Out] int((e*x)^m/(b*x+a)^3/(-b*d*x+a*d)^4,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(ex)^m}{(bdx-ad)^4(bx+a)^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x)^m/((b*d*x - a*d)^4*(b*x + a)^3),x, algorithm="maxima")
```

```
[Out] integrate((e*x)^m/((b*d*x - a*d)^4*(b*x + a)^3), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(ex)^m}{b^7d^4x^7 - ab^6d^4x^6 - 3\,a^2b^5d^4x^5 + 3\,a^3b^4d^4x^4 + 3\,a^4b^3d^4x^3 - 3\,a^5b^2d^4x^2 - a^6bd^4x + a^7d^4}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x)^m/((b*d*x - a*d)^4*(b*x + a)^3),x, algorithm="fricas")
```

```
[Out] integral((e*x)^m/(b^7*d^4*x^7 - a*b^6*d^4*x^6 - 3*a^2*b^5*d^4*x^5
 + 3*a^3*b^4*d^4*x^4 + 3*a^4*b^3*d^4*x^3 - 3*a^5*b^2*d^4*x^2 - a^
6*b*d^4*x + a^7*d^4), x)
```

Sympy [A] time = 35.3895, size = 8284, normalized size = 84.53

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((e*x)**m/(b*x+a)**3/(-b*d*x+a*d)**4,x)
```

```
[Out] -2*a**5*e**m*m**4*x**m*lerchphi(a/(b*x), 1, m*exp_polar(I*pi))*ga
mma(-m)/(-96*a**11*b*d**4*gamma(-m + 1) + 96*a**10*b**2*d**4*x*ga
mma(-m + 1) + 192*a**9*b**3*d**4*x**2*gamma(-m + 1) - 192*a**8*b*
*4*d**4*x**3*gamma(-m + 1) - 96*a**7*b**5*d**4*x**4*gamma(-m + 1)
 + 96*a**6*b**6*d**4*x**5*gamma(-m + 1)) + 15*a**5*e**m*m**3*x**m
*lerchphi(a/(b*x), 1, m*exp_polar(I*pi))*gamma(-m)/(-96*a**11*b*d
**4*gamma(-m + 1) + 96*a**10*b**2*d**4*x*gamma(-m + 1) + 192*a**9
*b**3*d**4*x**2*gamma(-m + 1) - 192*a**8*b**4*d**4*x**3*gamma(-m
+ 1) - 96*a**7*b**5*d**4*x**4*gamma(-m + 1) + 96*a**6*b**6*d**4*x
**5*gamma(-m + 1)) - 3*a**5*e**m*m**3*x**m*lerchphi(a*exp_polar(I
*pi)/(b*x), 1, m*exp_polar(I*pi))*gamma(-m)/(-96*a**11*b*d**4*gam
ma(-m + 1) + 96*a**10*b**2*d**4*x*gamma(-m + 1) + 192*a**9*b**3*d
**4*x**2*gamma(-m + 1) - 192*a**8*b**4*d**4*x**3*gamma(-m + 1) -
```

```
96*a**7*b**5*d**4*x**4*gamma(-m + 1) + 96*a**6*b**6*d**4*x**5*gam
ma(-m + 1)) - 31*a**5*e**m*m**2*x**m*lerchphi(a/(b*x), 1, m*exp_p
olar(I*pi))*gamma(-m)/(-96*a**11*b*d**4*gamma(-m + 1) + 96*a**10*
b**2*d**4*x*gamma(-m + 1) + 192*a**9*b**3*d**4*x**2*gamma(-m + 1)
 - 192*a**8*b**4*d**4*x**3*gamma(-m + 1) - 96*a**7*b**5*d**4*x**4
*gamma(-m + 1) + 96*a**6*b**6*d**4*x**5*gamma(-m + 1)) + 15*a**5*
e**m*m**2*x**m*lerchphi(a*exp_polar(I*pi)/(b*x), 1, m*exp_polar(I
*pi))*gamma(-m)/(-96*a**11*b*d**4*gamma(-m + 1) + 96*a**10*b**2*d
**4*x*gamma(-m + 1) + 192*a**9*b**3*d**4*x**2*gamma(-m + 1) - 192
*a**8*b**4*d**4*x**3*gamma(-m + 1) - 96*a**7*b**5*d**4*x**4*gamma
(-m + 1) + 96*a**6*b**6*d**4*x**5*gamma(-m + 1)) + 15*a**5*e**m*m
*x**m*lerchphi(a/(b*x), 1, m*exp_polar(I*pi))*gamma(-m)/(-96*a**1
1*b*d**4*gamma(-m + 1) + 96*a**10*b**2*d**4*x*gamma(-m + 1) + 192
*a**9*b**3*d**4*x**2*gamma(-m + 1) - 192*a**8*b**4*d**4*x**3*gamm
a(-m + 1) - 96*a**7*b**5*d**4*x**4*gamma(-m + 1) + 96*a**6*b**6*d
**4*x**5*gamma(-m + 1)) - 15*a**5*e**m*m*x**m*lerchphi(a*exp_pola
r(I*pi)/(b*x), 1, m*exp_polar(I*pi))*gamma(-m)/(-96*a**11*b*d**4*
gamma(-m + 1) + 96*a**10*b**2*d**4*x*gamma(-m + 1) + 192*a**9*b**
3*d**4*x**2*gamma(-m + 1) - 192*a**8*b**4*d**4*x**3*gamma(-m + 1)
 - 96*a**7*b**5*d**4*x**4*gamma(-m + 1) + 96*a**6*b**6*d**4*x**5*
gamma(-m + 1)) + 2*a**4*b*e**m*m**4*x*x**m*lerchphi(a/(b*x), 1, m
*exp_polar(I*pi))*gamma(-m)/(-96*a**11*b*d**4*gamma(-m + 1) + 96*
a**10*b**2*d**4*x*gamma(-m + 1) + 192*a**9*b**3*d**4*x**2*gamma(-
m + 1) - 192*a**8*b**4*d**4*x**3*gamma(-m + 1) - 96*a**7*b**5*d**
4*x**4*gamma(-m + 1) + 96*a**6*b**6*d**4*x**5*gamma(-m + 1)) - 15
*a**4*b*e**m*m**3*x*x**m*lerchphi(a/(b*x), 1, m*exp_polar(I*pi))*
gamma(-m)/(-96*a**11*b*d**4*gamma(-m + 1) + 96*a**10*b**2*d**4*x*
gamma(-m + 1) + 192*a**9*b**3*d**4*x**2*gamma(-m + 1) - 192*a**8*
b**4*d**4*x**3*gamma(-m + 1) - 96*a**7*b**5*d**4*x**4*gamma(-m +
1) + 96*a**6*b**6*d**4*x**5*gamma(-m + 1)) + 3*a**4*b*e**m*m**3*x
*x**m*lerchphi(a*exp_polar(I*pi)/(b*x), 1, m*exp_polar(I*pi))*gam
ma(-m)/(-96*a**11*b*d**4*gamma(-m + 1) + 96*a**10*b**2*d**4*x*gam
ma(-m + 1) + 192*a**9*b**3*d**4*x**2*gamma(-m + 1) - 192*a**8*b**
4*d**4*x**3*gamma(-m + 1) - 96*a**7*b**5*d**4*x**4*gamma(-m + 1)
+ 96*a**6*b**6*d**4*x**5*gamma(-m + 1)) + 2*a**4*b*e**m*m**3*x*x*
*m*gamma(-m)/(-96*a**11*b*d**4*gamma(-m + 1) + 96*a**10*b**2*d**4
*x*gamma(-m + 1) + 192*a**9*b**3*d**4*x**2*gamma(-m + 1) - 192*a*
*8*b**4*d**4*x**3*gamma(-m + 1) - 96*a**7*b**5*d**4*x**4*gamma(-m
 + 1) + 96*a**6*b**6*d**4*x**5*gamma(-m + 1)) + 31*a**4*b*e**m*m*
*2*x*x**m*lerchphi(a/(b*x), 1, m*exp_polar(I*pi))*gamma(-m)/(-96*
a**11*b*d**4*gamma(-m + 1) + 96*a**10*b**2*d**4*x*gamma(-m + 1) +
 192*a**9*b**3*d**4*x**2*gamma(-m + 1) - 192*a**8*b**4*d**4*x**3*
gamma(-m + 1) - 96*a**7*b**5*d**4*x**4*gamma(-m + 1) + 96*a**6*b*
*6*d**4*x**5*gamma(-m + 1)) - 15*a**4*b*e**m*m**2*x*x**m*lerchphi
(a*exp_polar(I*pi)/(b*x), 1, m*exp_polar(I*pi))*gamma(-m)/(-96*a*
*11*b*d**4*gamma(-m + 1) + 96*a**10*b**2*d**4*x*gamma(-m + 1) + 1
92*a**9*b**3*d**4*x**2*gamma(-m + 1) - 192*a**8*b**4*d**4*x**3*ga
mma(-m + 1) - 96*a**7*b**5*d**4*x**4*gamma(-m + 1) + 96*a**6*b**6
*d**4*x**5*gamma(-m + 1)) - 20*a**4*b*e**m*m**2*x*x**m*gamma(-m)/
(-96*a**11*b*d**4*gamma(-m + 1) + 96*a**10*b**2*d**4*x*gamma(-m +
 1) + 192*a**9*b**3*d**4*x**2*gamma(-m + 1) - 192*a**8*b**4*d**4*
x**3*gamma(-m + 1) - 96*a**7*b**5*d**4*x**4*gamma(-m + 1) + 96*a*
*6*b**6*d**4*x**5*gamma(-m + 1)) - 15*a**4*b*e**m*m*x*x**m*lerchp
hi(a/(b*x), 1, m*exp_polar(I*pi))*gamma(-m)/(-96*a**11*b*d**4*gam
ma(-m + 1) + 96*a**10*b**2*d**4*x*gamma(-m + 1) + 192*a**9*b**3*d
**4*x**2*gamma(-m + 1) - 192*a**8*b**4*d**4*x**3*gamma(-m + 1) -
96*a**7*b**5*d**4*x**4*gamma(-m + 1) + 96*a**6*b**6*d**4*x**5*gam
ma(-m + 1)) + 15*a**4*b*e**m*m*x*x**m*lerchphi(a*exp_polar(I*pi)/
(b*x), 1, m*exp_polar(I*pi))*gamma(-m)/(-96*a**11*b*d**4*gamma(-m
 + 1) + 96*a**10*b**2*d**4*x*gamma(-m + 1) + 192*a**9*b**3*d**4*x
**2*gamma(-m + 1) - 192*a**8*b**4*d**4*x**3*gamma(-m + 1) - 96*a*
*7*b**5*d**4*x**4*gamma(-m + 1) + 96*a**6*b**6*d**4*x**5*gamma(-m
 + 1)) + 66*a**4*b*e**m*m*x*x**m*gamma(-m)/(-96*a**11*b*d**4*gamm
a(-m + 1) + 96*a**10*b**2*d**4*x*gamma(-m + 1) + 192*a**9*b**3*d*
*4*x**2*gamma(-m + 1) - 192*a**8*b**4*d**4*x**3*gamma(-m + 1) - 9
6*a**7*b**5*d**4*x**4*gamma(-m + 1) + 96*a**6*b**6*d**4*x**5*gamm
a(-m + 1)) + 4*a**3*b**2*e**m*m**4*x**2*x**m*lerchphi(a/(b*x), 1,
 m*exp_polar(I*pi))*gamma(-m)/(-96*a**11*b*d**4*gamma(-m + 1) + 9
6*a**10*b**2*d**4*x*gamma(-m + 1) + 192*a**9*b**3*d**4*x**2*gamma
(-m + 1) - 192*a**8*b**4*d**4*x**3*gamma(-m + 1) - 96*a**7*b**5*d
**4*x**4*gamma(-m + 1) + 96*a**6*b**6*d**4*x**5*gamma(-m + 1)) -
30*a**3*b**2*e**m*m**3*x**2*x**m*lerchphi(a/(b*x), 1, m*exp_polar
(I*pi))*gamma(-m)/(-96*a**11*b*d**4*gamma(-m + 1) + 96*a**10*b**2
*d**4*x*gamma(-m + 1) + 192*a**9*b**3*d**4*x**2*gamma(-m + 1) - 1
```

```
92*a**8*b**4*d**4*x**3*gamma(-m + 1) - 96*a**7*b**5*d**4*x**4*gam
ma(-m + 1) + 96*a**6*b**6*d**4*x**5*gamma(-m + 1)) + 6*a**3*b**2*
e**m*m**3*x**2*x**m*lerchphi(a*exp_polar(I*pi)/(b*x), 1, m*exp_po
lar(I*pi))*gamma(-m)/(-96*a**11*b*d**4*gamma(-m + 1) + 96*a**10*b
**2*d**4*x*gamma(-m + 1) + 192*a**9*b**3*d**4*x**2*gamma(-m + 1)
- 192*a**8*b**4*d**4*x**3*gamma(-m + 1) - 96*a**7*b**5*d**4*x**4*
gamma(-m + 1) + 96*a**6*b**6*d**4*x**5*gamma(-m + 1)) + 62*a**3*b
**2*e**m*m**2*x**2*x**m*lerchphi(a/(b*x), 1, m*exp_polar(I*pi))*g
amma(-m)/(-96*a**11*b*d**4*gamma(-m + 1) + 96*a**10*b**2*d**4*x*g
amma(-m + 1) + 192*a**9*b**3*d**4*x**2*gamma(-m + 1) - 192*a**8*b
**4*d**4*x**3*gamma(-m + 1) - 96*a**7*b**5*d**4*x**4*gamma(-m + 1
) + 96*a**6*b**6*d**4*x**5*gamma(-m + 1)) - 30*a**3*b**2*e**m*m**
2*x**2*x**m*lerchphi(a*exp_polar(I*pi)/(b*x), 1, m*exp_polar(I*pi
))*gamma(-m)/(-96*a**11*b*d**4*gamma(-m + 1) + 96*a**10*b**2*d**4
*x*gamma(-m + 1) + 192*a**9*b**3*d**4*x**2*gamma(-m + 1) - 192*a*
*8*b**4*d**4*x**3*gamma(-m + 1) - 96*a**7*b**5*d**4*x**4*gamma(-m
 + 1) + 96*a**6*b**6*d**4*x**5*gamma(-m + 1)) + 4*a**3*b**2*e**m*
m**2*x**2*x**m*gamma(-m)/(-96*a**11*b*d**4*gamma(-m + 1) + 96*a**
10*b**2*d**4*x*gamma(-m + 1) + 192*a**9*b**3*d**4*x**2*gamma(-m +
 1) - 192*a**8*b**4*d**4*x**3*gamma(-m + 1) - 96*a**7*b**5*d**4*x
**4*gamma(-m + 1) + 96*a**6*b**6*d**4*x**5*gamma(-m + 1)) - 30*a*
*3*b**2*e**m*m*x**2*x**m*lerchphi(a/(b*x), 1, m*exp_polar(I*pi))*
gamma(-m)/(-96*a**11*b*d**4*gamma(-m + 1) + 96*a**10*b**2*d**4*x*
gamma(-m + 1) + 192*a**9*b**3*d**4*x**2*gamma(-m + 1) - 192*a**8*
b**4*d**4*x**3*gamma(-m + 1) - 96*a**7*b**5*d**4*x**4*gamma(-m +
1) + 96*a**6*b**6*d**4*x**5*gamma(-m + 1)) + 30*a**3*b**2*e**m*m*
x**2*x**m*lerchphi(a*exp_polar(I*pi)/(b*x), 1, m*exp_polar(I*pi))
*gamma(-m)/(-96*a**11*b*d**4*gamma(-m + 1) + 96*a**10*b**2*d**4*x
*gamma(-m + 1) + 192*a**9*b**3*d**4*x**2*gamma(-m + 1) - 192*a**8
*b**4*d**4*x**3*gamma(-m + 1) - 96*a**7*b**5*d**4*x**4*gamma(-m +
 1) + 96*a**6*b**6*d**4*x**5*gamma(-m + 1)) - 18*a**3*b**2*e**m*m
*x**2*x**m*gamma(-m)/(-96*a**11*b*d**4*gamma(-m + 1) + 96*a**10*b
**2*d**4*x*gamma(-m + 1) + 192*a**9*b**3*d**4*x**2*gamma(-m + 1)
- 192*a**8*b**4*d**4*x**3*gamma(-m + 1) - 96*a**7*b**5*d**4*x**4*
gamma(-m + 1) + 96*a**6*b**6*d**4*x**5*gamma(-m + 1)) - 4*a**2*b*
*3*e**m*m**4*x**3*x**m*lerchphi(a/(b*x), 1, m*exp_polar(I*pi))*ga
mma(-m)/(-96*a**11*b*d**4*gamma(-m + 1) + 96*a**10*b**2*d**4*x*ga
mma(-m + 1) + 192*a**9*b**3*d**4*x**2*gamma(-m + 1) - 192*a**8*b*
*4*d**4*x**3*gamma(-m + 1) - 96*a**7*b**5*d**4*x**4*gamma(-m + 1)
 + 96*a**6*b**6*d**4*x**5*gamma(-m + 1)) + 30*a**2*b**3*e**m*m**3
*x**3*x**m*lerchphi(a/(b*x), 1, m*exp_polar(I*pi))*gamma(-m)/(-96
*a**11*b*d**4*gamma(-m + 1) + 96*a**10*b**2*d**4*x*gamma(-m + 1)
+ 192*a**9*b**3*d**4*x**2*gamma(-m + 1) - 192*a**8*b**4*d**4*x**3
*gamma(-m + 1) - 96*a**7*b**5*d**4*x**4*gamma(-m + 1) + 96*a**6*b
**6*d**4*x**5*gamma(-m + 1)) - 6*a**2*b**3*e**m*m**3*x**3*x**m*le
rchphi(a*exp_polar(I*pi)/(b*x), 1, m*exp_polar(I*pi))*gamma(-m)/(
-96*a**11*b*d**4*gamma(-m + 1) + 96*a**10*b**2*d**4*x*gamma(-m +
1) + 192*a**9*b**3*d**4*x**2*gamma(-m + 1) - 192*a**8*b**4*d**4*x
**3*gamma(-m + 1) - 96*a**7*b**5*d**4*x**4*gamma(-m + 1) + 96*a**
6*b**6*d**4*x**5*gamma(-m + 1)) - 4*a**2*b**3*e**m*m**3*x**3*x**m
*gamma(-m)/(-96*a**11*b*d**4*gamma(-m + 1) + 96*a**10*b**2*d**4*x
*gamma(-m + 1) + 192*a**9*b**3*d**4*x**2*gamma(-m + 1) - 192*a**8
*b**4*d**4*x**3*gamma(-m + 1) - 96*a**7*b**5*d**4*x**4*gamma(-m +
 1) + 96*a**6*b**6*d**4*x**5*gamma(-m + 1)) - 62*a**2*b**3*e**m*m
**2*x**3*x**m*lerchphi(a/(b*x), 1, m*exp_polar(I*pi))*gamma(-m)/(
-96*a**11*b*d**4*gamma(-m + 1) + 96*a**10*b**2*d**4*x*gamma(-m +
1) + 192*a**9*b**3*d**4*x**2*gamma(-m + 1) - 192*a**8*b**4*d**4*x
**3*gamma(-m + 1) - 96*a**7*b**5*d**4*x**4*gamma(-m + 1) + 96*a**
6*b**6*d**4*x**5*gamma(-m + 1)) + 30*a**2*b**3*e**m*m**2*x**3*x**
m*lerchphi(a*exp_polar(I*pi)/(b*x), 1, m*exp_polar(I*pi))*gamma(-
m)/(-96*a**11*b*d**4*gamma(-m + 1) + 96*a**10*b**2*d**4*x*gamma(-
m + 1) + 192*a**9*b**3*d**4*x**2*gamma(-m + 1) - 192*a**8*b**4*d*
*4*x**3*gamma(-m + 1) - 96*a**7*b**5*d**4*x**4*gamma(-m + 1) + 96
*a**6*b**6*d**4*x**5*gamma(-m + 1)) + 32*a**2*b**3*e**m*m**2*x**3
*x**m*gamma(-m)/(-96*a**11*b*d**4*gamma(-m + 1) + 96*a**10*b**2*d
**4*x*gamma(-m + 1) + 192*a**9*b**3*d**4*x**2*gamma(-m + 1) - 192
*a**8*b**4*d**4*x**3*gamma(-m + 1) - 96*a**7*b**5*d**4*x**4*gamma
(-m + 1) + 96*a**6*b**6*d**4*x**5*gamma(-m + 1)) + 30*a**2*b**3*e
**m*m*x**3*x**m*lerchphi(a/(b*x), 1, m*exp_polar(I*pi))*gamma(-m)
/(-96*a**11*b*d**4*gamma(-m + 1) + 96*a**10*b**2*d**4*x*gamma(-m
+ 1) + 192*a**9*b**3*d**4*x**2*gamma(-m + 1) - 192*a**8*b**4*d**4
*x**3*gamma(-m + 1) - 96*a**7*b**5*d**4*x**4*gamma(-m + 1) + 96*a
**6*b**6*d**4*x**5*gamma(-m + 1)) - 30*a**2*b**3*e**m*m*x**3*x**m
*lerchphi(a*exp_polar(I*pi)/(b*x), 1, m*exp_polar(I*pi))*gamma(-m
```

```
)/(-96*a**11*b*d**4*gamma(-m + 1) + 96*a**10*b**2*d**4*x*gamma(-m
 + 1) + 192*a**9*b**3*d**4*x**2*gamma(-m + 1) - 192*a**8*b**4*d**
4*x**3*gamma(-m + 1) - 96*a**7*b**5*d**4*x**4*gamma(-m + 1) + 96*
a**6*b**6*d**4*x**5*gamma(-m + 1)) - 62*a**2*b**3*e**m*m*x**3*x**
m*gamma(-m)/(-96*a**11*b*d**4*gamma(-m + 1) + 96*a**10*b**2*d**4*
x*gamma(-m + 1) + 192*a**9*b**3*d**4*x**2*gamma(-m + 1) - 192*a**
8*b**4*d**4*x**3*gamma(-m + 1) - 96*a**7*b**5*d**4*x**4*gamma(-m
+ 1) + 96*a**6*b**6*d**4*x**5*gamma(-m + 1)) - 2*a*b**4*e**m*m**4
*x**4*x**m*lerchphi(a/(b*x), 1, m*exp_polar(I*pi))*gamma(-m)/(-96
*a**11*b*d**4*gamma(-m + 1) + 96*a**10*b**2*d**4*x*gamma(-m + 1)
+ 192*a**9*b**3*d**4*x**2*gamma(-m + 1) - 192*a**8*b**4*d**4*x**3
*gamma(-m + 1) - 96*a**7*b**5*d**4*x**4*gamma(-m + 1) + 96*a**6*b
**6*d**4*x**5*gamma(-m + 1)) + 15*a*b**4*e**m*m**3*x**4*x**m*lerc
hphi(a/(b*x), 1, m*exp_polar(I*pi))*gamma(-m)/(-96*a**11*b*d**4*g
amma(-m + 1) + 96*a**10*b**2*d**4*x*gamma(-m + 1) + 192*a**9*b**3
*d**4*x**2*gamma(-m + 1) - 192*a**8*b**4*d**4*x**3*gamma(-m + 1)
- 96*a**7*b**5*d**4*x**4*gamma(-m + 1) + 96*a**6*b**6*d**4*x**5*g
amma(-m + 1)) - 3*a*b**4*e**m*m**3*x**4*x**m*lerchphi(a*exp_polar
(I*pi)/(b*x), 1, m*exp_polar(I*pi))*gamma(-m)/(-96*a**11*b*d**4*g
amma(-m + 1) + 96*a**10*b**2*d**4*x*gamma(-m + 1) + 192*a**9*b**3
*d**4*x**2*gamma(-m + 1) - 192*a**8*b**4*d**4*x**3*gamma(-m + 1)
- 96*a**7*b**5*d**4*x**4*gamma(-m + 1) + 96*a**6*b**6*d**4*x**5*g
amma(-m + 1)) - 31*a*b**4*e**m*m**2*x**4*x**m*lerchphi(a/(b*x), 1
, m*exp_polar(I*pi))*gamma(-m)/(-96*a**11*b*d**4*gamma(-m + 1) +
96*a**10*b**2*d**4*x*gamma(-m + 1) + 192*a**9*b**3*d**4*x**2*gamm
a(-m + 1) - 192*a**8*b**4*d**4*x**3*gamma(-m + 1) - 96*a**7*b**5*
d**4*x**4*gamma(-m + 1) + 96*a**6*b**6*d**4*x**5*gamma(-m + 1)) +
 15*a*b**4*e**m*m**2*x**4*x**m*lerchphi(a*exp_polar(I*pi)/(b*x),
1, m*exp_polar(I*pi))*gamma(-m)/(-96*a**11*b*d**4*gamma(-m + 1) +
 96*a**10*b**2*d**4*x*gamma(-m + 1) + 192*a**9*b**3*d**4*x**2*gam
ma(-m + 1) - 192*a**8*b**4*d**4*x**3*gamma(-m + 1) - 96*a**7*b**5
*d**4*x**4*gamma(-m + 1) + 96*a**6*b**6*d**4*x**5*gamma(-m + 1))
- 4*a*b**4*e**m*m**2*x**4*x**m*gamma(-m)/(-96*a**11*b*d**4*gamma(
-m + 1) + 96*a**10*b**2*d**4*x*gamma(-m + 1) + 192*a**9*b**3*d**4
*x**2*gamma(-m + 1) - 192*a**8*b**4*d**4*x**3*gamma(-m + 1) - 96*
a**7*b**5*d**4*x**4*gamma(-m + 1) + 96*a**6*b**6*d**4*x**5*gamma(
-m + 1)) + 15*a*b**4*e**m*m*x**4*x**m*lerchphi(a/(b*x), 1, m*exp_
polar(I*pi))*gamma(-m)/(-96*a**11*b*d**4*gamma(-m + 1) + 96*a**10
*b**2*d**4*x*gamma(-m + 1) + 192*a**9*b**3*d**4*x**2*gamma(-m + 1
) - 192*a**8*b**4*d**4*x**3*gamma(-m + 1) - 96*a**7*b**5*d**4*x**
4*gamma(-m + 1) + 96*a**6*b**6*d**4*x**5*gamma(-m + 1)) - 15*a*b*
*4*e**m*m*x**4*x**m*lerchphi(a*exp_polar(I*pi)/(b*x), 1, m*exp_po
lar(I*pi))*gamma(-m)/(-96*a**11*b*d**4*gamma(-m + 1) + 96*a**10*b
**2*d**4*x*gamma(-m + 1) + 192*a**9*b**3*d**4*x**2*gamma(-m + 1)
- 192*a**8*b**4*d**4*x**3*gamma(-m + 1) - 96*a**7*b**5*d**4*x**4*
gamma(-m + 1) + 96*a**6*b**6*d**4*x**5*gamma(-m + 1)) + 14*a*b**4
*e**m*m*x**4*x**m*gamma(-m)/(-96*a**11*b*d**4*gamma(-m + 1) + 96*
a**10*b**2*d**4*x*gamma(-m + 1) + 192*a**9*b**3*d**4*x**2*gamma(-
m + 1) - 192*a**8*b**4*d**4*x**3*gamma(-m + 1) - 96*a**7*b**5*d**
4*x**4*gamma(-m + 1) + 96*a**6*b**6*d**4*x**5*gamma(-m + 1)) + 2*
b**5*e**m*m**4*x**5*x**m*lerchphi(a/(b*x), 1, m*exp_polar(I*pi))*
gamma(-m)/(-96*a**11*b*d**4*gamma(-m + 1) + 96*a**10*b**2*d**4*x*
gamma(-m + 1) + 192*a**9*b**3*d**4*x**2*gamma(-m + 1) - 192*a**8*
b**4*d**4*x**3*gamma(-m + 1) - 96*a**7*b**5*d**4*x**4*gamma(-m +
1) + 96*a**6*b**6*d**4*x**5*gamma(-m + 1)) - 15*b**5*e**m*m**3*x*
*5*x**m*lerchphi(a/(b*x), 1, m*exp_polar(I*pi))*gamma(-m)/(-96*a*
*11*b*d**4*gamma(-m + 1) + 96*a**10*b**2*d**4*x*gamma(-m + 1) + 1
92*a**9*b**3*d**4*x**2*gamma(-m + 1) - 192*a**8*b**4*d**4*x**3*ga
mma(-m + 1) - 96*a**7*b**5*d**4*x**4*gamma(-m + 1) + 96*a**6*b**6
*d**4*x**5*gamma(-m + 1)) + 3*b**5*e**m*m**3*x**5*x**m*lerchphi(a
*exp_polar(I*pi)/(b*x), 1, m*exp_polar(I*pi))*gamma(-m)/(-96*a**1
1*b*d**4*gamma(-m + 1) + 96*a**10*b**2*d**4*x*gamma(-m + 1) + 192
*a**9*b**3*d**4*x**2*gamma(-m + 1) - 192*a**8*b**4*d**4*x**3*gamm
a(-m + 1) - 96*a**7*b**5*d**4*x**4*gamma(-m + 1) + 96*a**6*b**6*d
**4*x**5*gamma(-m + 1)) + 2*b**5*e**m*m**3*x**5*x**m*gamma(-m)/(-
96*a**11*b*d**4*gamma(-m + 1) + 96*a**10*b**2*d**4*x*gamma(-m + 1
) + 192*a**9*b**3*d**4*x**2*gamma(-m + 1) - 192*a**8*b**4*d**4*x*
*3*gamma(-m + 1) - 96*a**7*b**5*d**4*x**4*gamma(-m + 1) + 96*a**6
*b**6*d**4*x**5*gamma(-m + 1)) + 31*b**5*e**m*m**2*x**5*x**m*lerc
hphi(a/(b*x), 1, m*exp_polar(I*pi))*gamma(-m)/(-96*a**11*b*d**4*g
amma(-m + 1) + 96*a**10*b**2*d**4*x*gamma(-m + 1) + 192*a**9*b**3
*d**4*x**2*gamma(-m + 1) - 192*a**8*b**4*d**4*x**3*gamma(-m + 1)
- 96*a**7*b**5*d**4*x**4*gamma(-m + 1) + 96*a**6*b**6*d**4*x**5*g
amma(-m + 1)) - 15*b**5*e**m*m**2*x**5*x**m*lerchphi(a*exp_polar(
```

```
I*pi)/(b*x), 1, m*exp_polar(I*pi))*gamma(-m)/(-96*a**11*b*d**4*ga
mma(-m + 1) + 96*a**10*b**2*d**4*x*gamma(-m + 1) + 192*a**9*b**3*
d**4*x**2*gamma(-m + 1) - 192*a**8*b**4*d**4*x**3*gamma(-m + 1) -
 96*a**7*b**5*d**4*x**4*gamma(-m + 1) + 96*a**6*b**6*d**4*x**5*ga
mma(-m + 1)) - 12*b**5*e**m*m**2*x**5*x**m*gamma(-m)/(-96*a**11*b
*d**4*gamma(-m + 1) + 96*a**10*b**2*d**4*x*gamma(-m + 1) + 192*a*
*9*b**3*d**4*x**2*gamma(-m + 1) - 192*a**8*b**4*d**4*x**3*gamma(-
m + 1) - 96*a**7*b**5*d**4*x**4*gamma(-m + 1) + 96*a**6*b**6*d**4
*x**5*gamma(-m + 1)) - 15*b**5*e**m*m*x**5*x**m*lerchphi(a/(b*x),
 1, m*exp_polar(I*pi))*gamma(-m)/(-96*a**11*b*d**4*gamma(-m + 1)
+ 96*a**10*b**2*d**4*x*gamma(-m + 1) + 192*a**9*b**3*d**4*x**2*ga
mma(-m + 1) - 192*a**8*b**4*d**4*x**3*gamma(-m + 1) - 96*a**7*b**
5*d**4*x**4*gamma(-m + 1) + 96*a**6*b**6*d**4*x**5*gamma(-m + 1))
 + 15*b**5*e**m*m*x**5*x**m*lerchphi(a*exp_polar(I*pi)/(b*x), 1,
m*exp_polar(I*pi))*gamma(-m)/(-96*a**11*b*d**4*gamma(-m + 1) + 96
*a**10*b**2*d**4*x*gamma(-m + 1) + 192*a**9*b**3*d**4*x**2*gamma(
-m + 1) - 192*a**8*b**4*d**4*x**3*gamma(-m + 1) - 96*a**7*b**5*d*
*4*x**4*gamma(-m + 1) + 96*a**6*b**6*d**4*x**5*gamma(-m + 1)) + 1
6*b**5*e**m*m*x**5*x**m*gamma(-m)/(-96*a**11*b*d**4*gamma(-m + 1)
 + 96*a**10*b**2*d**4*x*gamma(-m + 1) + 192*a**9*b**3*d**4*x**2*g
amma(-m + 1) - 192*a**8*b**4*d**4*x**3*gamma(-m + 1) - 96*a**7*b*
*5*d**4*x**4*gamma(-m + 1) + 96*a**6*b**6*d**4*x**5*gamma(-m + 1)
)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(ex)^m}{(bdx-ad)^4(bx+a)^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((e*x)^m/((b*d*x - a*d)^4*(b*x + a)^3),x, algorithm="giac")
```

```
[Out] integrate((e*x)^m/((b*d*x - a*d)^4*(b*x + a)^3), x)
```

3.367 $\int (ex)^m(a+bx)(ac-bcx)^4\,dx$

Optimal. Leaf size=145

$$\frac{a^5c^4(ex)^{m+1}}{e(m+1)}-\frac{3a^4bc^4(ex)^{m+2}}{e^2(m+2)}+\frac{2a^3b^2c^4(ex)^{m+3}}{e^3(m+3)}+\frac{2a^2b^3c^4(ex)^{m+4}}{e^4(m+4)}-\frac{3ab^4c^4(ex)^{m+5}}{e^5(m+5)}+\frac{b^5c^4(ex)^{m+6}}{e^6(m+6)}$$

```
[Out] (a^5*c^4*(e*x)^(1 + m))/(e*(1 + m)) - (3*a^4*b*c^4*(e*x)^(2 + m))
/(e^2*(2 + m)) + (2*a^3*b^2*c^4*(e*x)^(3 + m))/(e^3*(3 + m)) + (2
*a^2*b^3*c^4*(e*x)^(4 + m))/(e^4*(4 + m)) - (3*a*b^4*c^4*(e*x)^(5
 + m))/(e^5*(5 + m)) + (b^5*c^4*(e*x)^(6 + m))/(e^6*(6 + m))
```

Rubi [A] time = 0.229892, antiderivative size = 145, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{a^5c^4(ex)^{m+1}}{e(m+1)}-\frac{3a^4bc^4(ex)^{m+2}}{e^2(m+2)}+\frac{2a^3b^2c^4(ex)^{m+3}}{e^3(m+3)}+\frac{2a^2b^3c^4(ex)^{m+4}}{e^4(m+4)}-\frac{3ab^4c^4(ex)^{m+5}}{e^5(m+5)}+\frac{b^5c^4(ex)^{m+6}}{e^6(m+6)}$$

Antiderivative was successfully verified.

```
[In]  Int[(e*x)^m*(a + b*x)*(a*c - b*c*x)^4,x]
```

```
[Out] (a^5*c^4*(e*x)^(1 + m))/(e*(1 + m)) - (3*a^4*b*c^4*(e*x)^(2 + m))
/(e^2*(2 + m)) + (2*a^3*b^2*c^4*(e*x)^(3 + m))/(e^3*(3 + m)) + (2
*a^2*b^3*c^4*(e*x)^(4 + m))/(e^4*(4 + m)) - (3*a*b^4*c^4*(e*x)^(5
 + m))/(e^5*(5 + m)) + (b^5*c^4*(e*x)^(6 + m))/(e^6*(6 + m))
```

Rubi in Sympy [A] time = 52.452, size = 136, normalized size = 0.94

$$\frac{a^5c^4\left(ex\right)^{m+1}}{e\left(m+1\right)}-\frac{3a^4bc^4\left(ex\right)^{m+2}}{e^2\left(m+2\right)}+\frac{2a^3b^2c^4\left(ex\right)^{m+3}}{e^3\left(m+3\right)}+\frac{2a^2b^3c^4\left(ex\right)^{m+4}}{e^4\left(m+4\right)}-\frac{3ab^4c^4\left(ex\right)^{m+5}}{e^5\left(m+5\right)}+\frac{b^5c^4\left(ex\right)^{m+6}}{e^6\left(m+6\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((e*x)**m*(b*x+a)*(-b*c*x+a*c)**4,x)
```

```
[Out] a**5*c**4*(e*x)**(m + 1)/(e*(m + 1)) - 3*a**4*b*c**4*(e*x)**(m +
2)/(e**2*(m + 2)) + 2*a**3*b**2*c**4*(e*x)**(m + 3)/(e**3*(m + 3)
) + 2*a**2*b**3*c**4*(e*x)**(m + 4)/(e**4*(m + 4)) - 3*a*b**4*c**
4*(e*x)**(m + 5)/(e**5*(m + 5)) + b**5*c**4*(e*x)**(m + 6)/(e**6*
(m + 6))
```

Mathematica [A] time = 0.191307, size = 228, normalized size = 1.57

$$\frac{c^4x(ex)^m\left(a^5\left(m^5+20m^4+155m^3+580m^2+1044m+720\right)-3a^4b\left(m^5+19m^4+137m^3+461m^2+702m+360\right)x+2a^3b^2\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(e*x)^m*(a + b*x)*(a*c - b*c*x)^4,x]
```

```
[Out] (c^4*x*(e*x)^m*(a^5*(720 + 1044*m + 580*m^2 + 155*m^3 + 20*m^4 +
m^5) - 3*a^4*b*(360 + 702*m + 461*m^2 + 137*m^3 + 19*m^4 + m^5)*x
 + 2*a^3*b^2*(240 + 508*m + 372*m^2 + 121*m^3 + 18*m^4 + m^5)*x^2
 + 2*a^2*b^3*(180 + 396*m + 307*m^2 + 107*m^3 + 17*m^4 + m^5)*x^3
 - 3*a*b^4*(144 + 324*m + 260*m^2 + 95*m^3 + 16*m^4 + m^5)*x^4 +
b^5*(120 + 274*m + 225*m^2 + 85*m^3 + 15*m^4 + m^5)*x^5))/((1 + m
```

```
)*(2 + m)*(3 + m)*(4 + m)*(5 + m)*(6 + m))
```

Maple [B] time = 0.01, size = 424, normalized size = 2.9

$$c^4 (ex)^m \left(b^5m^5x^5 - 3\,ab^4m^5x^4 + 15\,b^5m^4x^5 + 2\,a^2b^3m^5x^3 - 48\,ab^4m^4x^4 + 85\,b^5m^3x^5 + 2\,a^3b^2m^5x^2 + 34\,a^2b^3m^4x^3 - 285\,ab^4\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((e*x)^m*(b*x+a)*(-b*c*x+a*c)^4,x)
```

```
[Out] c^4*(e*x)^m*(b^5*m^5*x^5-3*a*b^4*m^5*x^4+15*b^5*m^4*x^5+2*a^2*b^3
*m^5*x^3-48*a*b^4*m^4*x^4+85*b^5*m^3*x^5+2*a^3*b^2*m^5*x^2+34*a^2
*b^3*m^4*x^3-285*a*b^4*m^3*x^4+225*b^5*m^2*x^5-3*a^4*b*m^5*x+36*a
^3*b^2*m^4*x^2+214*a^2*b^3*m^3*x^3-780*a*b^4*m^2*x^4+274*b^5*m*x^
5+a^5*m^5-57*a^4*b*m^4*x+242*a^3*b^2*m^3*x^2+614*a^2*b^3*m^2*x^3-
972*a*b^4*m*x^4+120*b^5*x^5+20*a^5*m^4-411*a^4*b*m^3*x+744*a^3*b^
2*m^2*x^2+792*a^2*b^3*m*x^3-432*a*b^4*x^4+155*a^5*m^3-1383*a^4*b*
m^2*x+1016*a^3*b^2*m*x^2+360*a^2*b^3*x^3+580*a^5*m^2-2106*a^4*b*m
*x+480*a^3*b^2*x^2+1044*a^5*m-1080*a^4*b*x+720*a^5)*x/(6+m)/(5+m)
/(4+m)/(3+m)/(2+m)/(1+m)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^4*(b*x + a)*(e*x)^m,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.223694, size = 644, normalized size = 4.44

$$\left(\left(b^5c^4m^5 + 15\,b^5c^4m^4 + 85\,b^5c^4m^3 + 225\,b^5c^4m^2 + 274\,b^5c^4m + 120\,b^5c^4\right)x^6 - 3\left(ab^4c^4m^5 + 16\,ab^4c^4m^4 + 95\,ab^4c^4m^3 + 260\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^4*(b*x + a)*(e*x)^m,x, algorithm="fricas")
```

```
[Out] ((b^5*c^4*m^5 + 15*b^5*c^4*m^4 + 85*b^5*c^4*m^3 + 225*b^5*c^4*m^2
 + 274*b^5*c^4*m + 120*b^5*c^4)*x^6 - 3*(a*b^4*c^4*m^5 + 16*a*b^4
*c^4*m^4 + 95*a*b^4*c^4*m^3 + 260*a*b^4*c^4*m^2 + 324*a*b^4*c^4*m
 + 144*a*b^4*c^4)*x^5 + 2*(a^2*b^3*c^4*m^5 + 17*a^2*b^3*c^4*m^4 +
 107*a^2*b^3*c^4*m^3 + 307*a^2*b^3*c^4*m^2 + 396*a^2*b^3*c^4*m +
180*a^2*b^3*c^4)*x^4 + 2*(a^3*b^2*c^4*m^5 + 18*a^3*b^2*c^4*m^4 +
121*a^3*b^2*c^4*m^3 + 372*a^3*b^2*c^4*m^2 + 508*a^3*b^2*c^4*m + 2
40*a^3*b^2*c^4)*x^3 - 3*(a^4*b*c^4*m^5 + 19*a^4*b*c^4*m^4 + 137*a
^4*b*c^4*m^3 + 461*a^4*b*c^4*m^2 + 702*a^4*b*c^4*m + 360*a^4*b*c^
4)*x^2 + (a^5*c^4*m^5 + 20*a^5*c^4*m^4 + 155*a^5*c^4*m^3 + 580*a^
5*c^4*m^2 + 1044*a^5*c^4*m + 720*a^5*c^4)*x)*(e*x)^m/(m^6 + 21*m^
5 + 175*m^4 + 735*m^3 + 1624*m^2 + 1764*m + 720)
```

Sympy [A] time = 5.72525, size = 2338, normalized size = 16.12

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((e*x)**m*(b*x+a)*(-b*c*x+a*c)**4,x)
```

```
[Out] Piecewise(((-a**5*c**4/(5*x**5) + 3*a**4*b*c**4/(4*x**4) - 2*a**3
*b**2*c**4/(3*x**3) - a**2*b**3*c**4/x**2 + 3*a*b**4*c**4/x + b**
5*c**4*log(x))/e**6, Eq(m, -6)), ((-a**5*c**4/(4*x**4) + a**4*b*c
**4/x**3 - a**3*b**2*c**4/x**2 - 2*a**2*b**3*c**4/x - 3*a*b**4*c*
*4*log(x) + b**5*c**4*x)/e**5, Eq(m, -5)), ((-a**5*c**4/(3*x**3)
+ 3*a**4*b*c**4/(2*x**2) - 2*a**3*b**2*c**4/x + 2*a**2*b**3*c**4*
log(x) - 3*a*b**4*c**4*x + b**5*c**4*x**2/2)/e**4, Eq(m, -4)), ((
-a**5*c**4/(2*x**2) + 3*a**4*b*c**4/x + 2*a**3*b**2*c**4*log(x) +
 2*a**2*b**3*c**4*x - 3*a*b**4*c**4*x**2/2 + b**5*c**4*x**3/3)/e*
*3, Eq(m, -3)), ((-a**5*c**4/x - 3*a**4*b*c**4*log(x) + 2*a**3*b*
*2*c**4*x + a**2*b**3*c**4*x**2 - a*b**4*c**4*x**3 + b**5*c**4*x*
*4/4)/e**2, Eq(m, -2)), ((a**5*c**4*log(x) - 3*a**4*b*c**4*x + a*
*3*b**2*c**4*x**2 + 2*a**2*b**3*c**4*x**3/3 - 3*a*b**4*c**4*x**4/
4 + b**5*c**4*x**5/5)/e, Eq(m, -1)), (a**5*c**4*e**m*m**5*x*x**m/
(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720)
 + 20*a**5*c**4*e**m*m**4*x*x**m/(m**6 + 21*m**5 + 175*m**4 + 735
*m**3 + 1624*m**2 + 1764*m + 720) + 155*a**5*c**4*e**m*m**3*x*x**
m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 72
0) + 580*a**5*c**4*e**m*m**2*x*x**m/(m**6 + 21*m**5 + 175*m**4 +
735*m**3 + 1624*m**2 + 1764*m + 720) + 1044*a**5*c**4*e**m*m*x*x*
*m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 7
20) + 720*a**5*c**4*e**m*x*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*
m**3 + 1624*m**2 + 1764*m + 720) - 3*a**4*b*c**4*e**m*m**5*x**2*x
**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m +
720) - 57*a**4*b*c**4*e**m*m**4*x**2*x**m/(m**6 + 21*m**5 + 175*m
**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) - 411*a**4*b*c**4*e**m
*m**3*x**2*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2
 + 1764*m + 720) - 1383*a**4*b*c**4*e**m*m**2*x**2*x**m/(m**6 + 2
1*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) - 2106*a
**4*b*c**4*e**m*m*x**2*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3
 + 1624*m**2 + 1764*m + 720) - 1080*a**4*b*c**4*e**m*x**2*x**m/(m
**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) +
 2*a**3*b**2*c**4*e**m*m**5*x**3*x**m/(m**6 + 21*m**5 + 175*m**4
+ 735*m**3 + 1624*m**2 + 1764*m + 720) + 36*a**3*b**2*c**4*e**m*m
**4*x**3*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 +
 1764*m + 720) + 242*a**3*b**2*c**4*e**m*m**3*x**3*x**m/(m**6 + 2
1*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) + 744*a*
*3*b**2*c**4*e**m*m**2*x**3*x**m/(m**6 + 21*m**5 + 175*m**4 + 735
*m**3 + 1624*m**2 + 1764*m + 720) + 1016*a**3*b**2*c**4*e**m*m*x*
*3*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*
m + 720) + 480*a**3*b**2*c**4*e**m*x**3*x**m/(m**6 + 21*m**5 + 17
5*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) + 2*a**2*b**3*c**4*
e**m*m**5*x**4*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*
m**2 + 1764*m + 720) + 34*a**2*b**3*c**4*e**m*m**4*x**4*x**m/(m**
6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) + 2
14*a**2*b**3*c**4*e**m*m**3*x**4*x**m/(m**6 + 21*m**5 + 175*m**4
+ 735*m**3 + 1624*m**2 + 1764*m + 720) + 614*a**2*b**3*c**4*e**m*
m**2*x**4*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2
+ 1764*m + 720) + 792*a**2*b**3*c**4*e**m*m*x**4*x**m/(m**6 + 21*
m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) + 360*a**2
*b**3*c**4*e**m*x**4*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 +
 1624*m**2 + 1764*m + 720) - 3*a*b**4*c**4*e**m*m**5*x**5*x**m/(m
**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) -
 48*a*b**4*c**4*e**m*m**4*x**5*x**m/(m**6 + 21*m**5 + 175*m**4 +
735*m**3 + 1624*m**2 + 1764*m + 720) - 285*a*b**4*c**4*e**m*m**3*
x**5*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 176
4*m + 720) - 780*a*b**4*c**4*e**m*m**2*x**5*x**m/(m**6 + 21*m**5
+ 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) - 972*a*b**4*c*
*4*e**m*m*x**5*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*
m**2 + 1764*m + 720) - 432*a*b**4*c**4*e**m*x**5*x**m/(m**6 + 21*
m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) + b**5*c**
4*e**m*m**5*x**6*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 162
4*m**2 + 1764*m + 720) + 15*b**5*c**4*e**m*m**4*x**6*x**m/(m**6 +
 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720) + 85*b
**5*c**4*e**m*m**3*x**6*x**m/(m**6 + 21*m**5 + 175*m**4 + 735*m**
3 + 1624*m**2 + 1764*m + 720) + 225*b**5*c**4*e**m*m**2*x**6*x**m
/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 720
) + 274*b**5*c**4*e**m*m*x**6*x**m/(m**6 + 21*m**5 + 175*m**4 + 7
35*m**3 + 1624*m**2 + 1764*m + 720) + 120*b**5*c**4*e**m*x**6*x**
```

```
m/(m**6 + 21*m**5 + 175*m**4 + 735*m**3 + 1624*m**2 + 1764*m + 72
0), True))
```

GIAC/XCAS [A] time = 0.232284, size = 1069, normalized size = 7.37

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^4*(b*x + a)*(e*x)^m,x, algorithm="giac")
```

```
[Out] (b^5*c^4*m^5*x^6*e^(m*ln(x) + m) - 3*a*b^4*c^4*m^5*x^5*e^(m*ln(x)
 + m) + 15*b^5*c^4*m^4*x^6*e^(m*ln(x) + m) + 2*a^2*b^3*c^4*m^5*x^
4*e^(m*ln(x) + m) - 48*a*b^4*c^4*m^4*x^5*e^(m*ln(x) + m) + 85*b^5
*c^4*m^3*x^6*e^(m*ln(x) + m) + 2*a^3*b^2*c^4*m^5*x^3*e^(m*ln(x) +
 m) + 34*a^2*b^3*c^4*m^4*x^4*e^(m*ln(x) + m) - 285*a*b^4*c^4*m^3*
x^5*e^(m*ln(x) + m) + 225*b^5*c^4*m^2*x^6*e^(m*ln(x) + m) - 3*a^4
*b*c^4*m^5*x^2*e^(m*ln(x) + m) + 36*a^3*b^2*c^4*m^4*x^3*e^(m*ln(x
) + m) + 214*a^2*b^3*c^4*m^3*x^4*e^(m*ln(x) + m) - 780*a*b^4*c^4*
m^2*x^5*e^(m*ln(x) + m) + 274*b^5*c^4*m*x^6*e^(m*ln(x) + m) + a^5
*c^4*m^5*x*e^(m*ln(x) + m) - 57*a^4*b*c^4*m^4*x^2*e^(m*ln(x) + m)
 + 242*a^3*b^2*c^4*m^3*x^3*e^(m*ln(x) + m) + 614*a^2*b^3*c^4*m^2*
x^4*e^(m*ln(x) + m) - 972*a*b^4*c^4*m*x^5*e^(m*ln(x) + m) + 120*b
^5*c^4*x^6*e^(m*ln(x) + m) + 20*a^5*c^4*m^4*x*e^(m*ln(x) + m) - 4
11*a^4*b*c^4*m^3*x^2*e^(m*ln(x) + m) + 744*a^3*b^2*c^4*m^2*x^3*e^
(m*ln(x) + m) + 792*a^2*b^3*c^4*m*x^4*e^(m*ln(x) + m) - 432*a*b^4
*c^4*x^5*e^(m*ln(x) + m) + 155*a^5*c^4*m^3*x*e^(m*ln(x) + m) - 13
83*a^4*b*c^4*m^2*x^2*e^(m*ln(x) + m) + 1016*a^3*b^2*c^4*m*x^3*e^(
m*ln(x) + m) + 360*a^2*b^3*c^4*x^4*e^(m*ln(x) + m) + 580*a^5*c^4*
m^2*x*e^(m*ln(x) + m) - 2106*a^4*b*c^4*m*x^2*e^(m*ln(x) + m) + 48
0*a^3*b^2*c^4*x^3*e^(m*ln(x) + m) + 1044*a^5*c^4*m*x*e^(m*ln(x) +
 m) - 1080*a^4*b*c^4*x^2*e^(m*ln(x) + m) + 720*a^5*c^4*x*e^(m*ln(
x) + m))/(m^6 + 21*m^5 + 175*m^4 + 735*m^3 + 1624*m^2 + 1764*m +
720)
```

3.368 $\int (ex)^m(a+bx)(ac-bcx)^3\,dx$

Optimal. Leaf size=94

$$\frac{a^4c^3(ex)^{m+1}}{e(m+1)}-\frac{2a^3bc^3(ex)^{m+2}}{e^2(m+2)}+\frac{2ab^3c^3(ex)^{m+4}}{e^4(m+4)}-\frac{b^4c^3(ex)^{m+5}}{e^5(m+5)}$$

```
[Out] (a^4*c^3*(e*x)^(1 + m))/(e*(1 + m)) - (2*a^3*b*c^3*(e*x)^(2 + m))
/(e^2*(2 + m)) + (2*a*b^3*c^3*(e*x)^(4 + m))/(e^4*(4 + m)) - (b^4
*c^3*(e*x)^(5 + m))/(e^5*(5 + m))
```

Rubi [A] time = 0.142111, antiderivative size = 94, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{a^4c^3(ex)^{m+1}}{e(m+1)}-\frac{2a^3bc^3(ex)^{m+2}}{e^2(m+2)}+\frac{2ab^3c^3(ex)^{m+4}}{e^4(m+4)}-\frac{b^4c^3(ex)^{m+5}}{e^5(m+5)}$$

Antiderivative was successfully verified.

```
[In]  Int[(e*x)^m*(a + b*x)*(a*c - b*c*x)^3,x]
```

```
[Out] (a^4*c^3*(e*x)^(1 + m))/(e*(1 + m)) - (2*a^3*b*c^3*(e*x)^(2 + m))
/(e^2*(2 + m)) + (2*a*b^3*c^3*(e*x)^(4 + m))/(e^4*(4 + m)) - (b^4
*c^3*(e*x)^(5 + m))/(e^5*(5 + m))
```

Rubi in Sympy [A] time = 31.3657, size = 85, normalized size = 0.9

$$\frac{a^4c^3\left(ex\right)^{m+1}}{e\left(m+1\right)}-\frac{2a^3bc^3\left(ex\right)^{m+2}}{e^2\left(m+2\right)}+\frac{2ab^3c^3\left(ex\right)^{m+4}}{e^4\left(m+4\right)}-\frac{b^4c^3\left(ex\right)^{m+5}}{e^5\left(m+5\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((e*x)**m*(b*x+a)*(-b*c*x+a*c)**3,x)
```

```
[Out] a**4*c**3*(e*x)**(m + 1)/(e*(m + 1)) - 2*a**3*b*c**3*(e*x)**(m +
2)/(e**2*(m + 2)) + 2*a*b**3*c**3*(e*x)**(m + 4)/(e**4*(m + 4)) -
 b**4*c**3*(e*x)**(m + 5)/(e**5*(m + 5))
```

Mathematica [A] time = 0.0844646, size = 112, normalized size = 1.19

$$-\frac{c^3x(ex)^m\left(a^4\left(-\left(m^3+11m^2+38m+40\right)\right)+2a^3b\left(m^3+10m^2+29m+20\right)x-2ab^3\left(m^3+8m^2+17m+10\right)x^3+b^4\left(m^3+\right.\right.}{(m+1)(m+2)(m+4)(m+5)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(e*x)^m*(a + b*x)*(a*c - b*c*x)^3,x]
```

```
[Out] -((c^3*x*(e*x)^m*(-(a^4*(40 + 38*m + 11*m^2 + m^3)) + 2*a^3*b*(20
 + 29*m + 10*m^2 + m^3)*x - 2*a*b^3*(10 + 17*m + 8*m^2 + m^3)*x^3
 + b^4*(8 + 14*m + 7*m^2 + m^3)*x^4))/((1 + m)*(2 + m)*(4 + m)*(5
 + m)))
```

Maple [A] time = 0.008, size = 175, normalized size = 1.9

$$\frac{c^3\left(ex\right)^m\left(-b^4m^3x^4+2\,ab^3m^3x^3-7\,b^4m^2x^4+16\,ab^3m^2x^3-14\,b^4mx^4-2\,a^3bm^3x+34\,ab^3mx^3-8\,b^4x^4+a^4m^3-20\,a^3bm^2\right.}{\left(5+m\right)\left(4+m\right)\left(2+m\right)\left(1+m\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((e*x)^m*(b*x+a)*(-b*c*x+a*c)^3,x)
```

```
[Out] c^3*(e*x)^m*(-b^4*m^3*x^4+2*a*b^3*m^3*x^3-7*b^4*m^2*x^4+16*a*b^3*
m^2*x^3-14*b^4*m*x^4-2*a^3*b*m^3*x+34*a*b^3*m*x^3-8*b^4*x^4+a^4*m
^3-20*a^3*b*m^2*x+20*a*b^3*x^3+11*a^4*m^2-58*a^3*b*m*x+38*a^4*m-4
0*a^3*b*x+40*a^4)*x/(5+m)/(4+m)/(2+m)/(1+m)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^3*(b*x + a)*(e*x)^m,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.223986, size = 282, normalized size = 3.

$$-\frac{\left(\left(b^4c^3m^3 + 7\,b^4c^3m^2 + 14\,b^4c^3m + 8\,b^4c^3\right)x^5 - 2\left(ab^3c^3m^3 + 8\,ab^3c^3m^2 + 17\,ab^3c^3m + 10\,ab^3c^3\right)x^4 + 2\left(a^3bc^3m^3 + 10\,a^3bc\right.\right.}{m^4 + 12\,m^3 + 49\,m^2 + 78\,m + 40}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^3*(b*x + a)*(e*x)^m,x, algorithm="fricas")
```

```
[Out] -((b^4*c^3*m^3 + 7*b^4*c^3*m^2 + 14*b^4*c^3*m + 8*b^4*c^3)*x^5 -
2*(a*b^3*c^3*m^3 + 8*a*b^3*c^3*m^2 + 17*a*b^3*c^3*m + 10*a*b^3*c^
3)*x^4 + 2*(a^3*b*c^3*m^3 + 10*a^3*b*c^3*m^2 + 29*a^3*b*c^3*m + 2
0*a^3*b*c^3)*x^2 - (a^4*c^3*m^3 + 11*a^4*c^3*m^2 + 38*a^4*c^3*m +
 40*a^4*c^3)*x)*(e*x)^m/(m^4 + 12*m^3 + 49*m^2 + 78*m + 40)
```

Sympy [A] time = 3.53939, size = 838, normalized size = 8.91

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((e*x)**m*(b*x+a)*(-b*c*x+a*c)**3,x)
```

```
[Out] Piecewise(((-a**4*c**3/(4*x**4) + 2*a**3*b*c**3/(3*x**3) - 2*a*b*
*3*c**3/x - b**4*c**3*log(x))/e**5, Eq(m, -5)), ((-a**4*c**3/(3*x
**3) + a**3*b*c**3/x**2 + 2*a*b**3*c**3*log(x) - b**4*c**3*x)/e**
4, Eq(m, -4)), ((-a**4*c**3/x - 2*a**3*b*c**3*log(x) + a*b**3*c**
3*x**2 - b**4*c**3*x**3/3)/e**2, Eq(m, -2)), ((a**4*c**3*log(x) -
 2*a**3*b*c**3*x + 2*a*b**3*c**3*x**3/3 - b**4*c**3*x**4/4)/e, Eq
(m, -1)), (a**4*c**3*e**m*m**3*x*x**m/(m**4 + 12*m**3 + 49*m**2 +
 78*m + 40) + 11*a**4*c**3*e**m*m**2*x*x**m/(m**4 + 12*m**3 + 49*
m**2 + 78*m + 40) + 38*a**4*c**3*e**m*m*x*x**m/(m**4 + 12*m**3 +
49*m**2 + 78*m + 40) + 40*a**4*c**3*e**m*x*x**m/(m**4 + 12*m**3 +
 49*m**2 + 78*m + 40) - 2*a**3*b*c**3*e**m*m**3*x**2*x**m/(m**4 +
 12*m**3 + 49*m**2 + 78*m + 40) - 20*a**3*b*c**3*e**m*m**2*x**2*x
**m/(m**4 + 12*m**3 + 49*m**2 + 78*m + 40) - 58*a**3*b*c**3*e**m*
m*x**2*x**m/(m**4 + 12*m**3 + 49*m**2 + 78*m + 40) - 40*a**3*b*c*
*3*e**m*x**2*x**m/(m**4 + 12*m**3 + 49*m**2 + 78*m + 40) + 2*a*b*
*3*c**3*e**m*m**3*x**4*x**m/(m**4 + 12*m**3 + 49*m**2 + 78*m + 40
) + 16*a*b**3*c**3*e**m*m**2*x**4*x**m/(m**4 + 12*m**3 + 49*m**2
```

```
+ 78*m + 40) + 34*a*b**3*c**3*e**m*m*x**4*x**m/(m**4 + 12*m**3 +
49*m**2 + 78*m + 40) + 20*a*b**3*c**3*e**m*x**4*x**m/(m**4 + 12*m
**3 + 49*m**2 + 78*m + 40) - b**4*c**3*e**m*m**3*x**5*x**m/(m**4
+ 12*m**3 + 49*m**2 + 78*m + 40) - 7*b**4*c**3*e**m*m**2*x**5*x**
m/(m**4 + 12*m**3 + 49*m**2 + 78*m + 40) - 14*b**4*c**3*e**m*m*x*
*5*x**m/(m**4 + 12*m**3 + 49*m**2 + 78*m + 40) - 8*b**4*c**3*e**m
*x**5*x**m/(m**4 + 12*m**3 + 49*m**2 + 78*m + 40), True))
```

GIAC/XCAS [A] time = 0.214333, size = 456, normalized size = 4.85

$$-\frac{b^4c^3m^3x^5e^{(m\ln(x)+m)} - 2\,ab^3c^3m^3x^4e^{(m\ln(x)+m)} + 7\,b^4c^3m^2x^5e^{(m\ln(x)+m)} - 16\,ab^3c^3m^2x^4e^{(m\ln(x)+m)} + 14\,b^4c^3mx^5e^{(m\ln(x)+m)}}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)^3*(b*x + a)*(e*x)^m,x, algorithm="giac")
```

```
[Out] -(b^4*c^3*m^3*x^5*e^(m*ln(x) + m) - 2*a*b^3*c^3*m^3*x^4*e^(m*ln(x
) + m) + 7*b^4*c^3*m^2*x^5*e^(m*ln(x) + m) - 16*a*b^3*c^3*m^2*x^4
*e^(m*ln(x) + m) + 14*b^4*c^3*m*x^5*e^(m*ln(x) + m) + 2*a^3*b*c^3
*m^3*x^2*e^(m*ln(x) + m) - 34*a*b^3*c^3*m*x^4*e^(m*ln(x) + m) + 8
*b^4*c^3*x^5*e^(m*ln(x) + m) - a^4*c^3*m^3*x*e^(m*ln(x) + m) + 20
*a^3*b*c^3*m^2*x^2*e^(m*ln(x) + m) - 20*a*b^3*c^3*x^4*e^(m*ln(x)
+ m) - 11*a^4*c^3*m^2*x*e^(m*ln(x) + m) + 58*a^3*b*c^3*m*x^2*e^(m
*ln(x) + m) - 38*a^4*c^3*m*x*e^(m*ln(x) + m) + 40*a^3*b*c^3*x^2*e
^(m*ln(x) + m) - 40*a^4*c^3*x*e^(m*ln(x) + m))/(m^4 + 12*m^3 + 49
*m^2 + 78*m + 40)
```

3.369 $\int (ex)^m(a+bx)(ac-bcx)^2\,dx$

Optimal. Leaf size=93

$$\frac{a^3c^2(ex)^{m+1}}{e(m+1)}-\frac{a^2bc^2(ex)^{m+2}}{e^2(m+2)}-\frac{ab^2c^2(ex)^{m+3}}{e^3(m+3)}+\frac{b^3c^2(ex)^{m+4}}{e^4(m+4)}$$

```
[Out] (a^3*c^2*(e*x)^(1 + m))/(e*(1 + m)) - (a^2*b*c^2*(e*x)^(2 + m))/(
e^2*(2 + m)) - (a*b^2*c^2*(e*x)^(3 + m))/(e^3*(3 + m)) + (b^3*c^2
*(e*x)^(4 + m))/(e^4*(4 + m))
```

Rubi [A] time = 0.134304, antiderivative size = 93, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{a^3c^2(ex)^{m+1}}{e(m+1)}-\frac{a^2bc^2(ex)^{m+2}}{e^2(m+2)}-\frac{ab^2c^2(ex)^{m+3}}{e^3(m+3)}+\frac{b^3c^2(ex)^{m+4}}{e^4(m+4)}$$

Antiderivative was successfully verified.

```
[In]  Int[(e*x)^m*(a + b*x)*(a*c - b*c*x)^2,x]
```

```
[Out] (a^3*c^2*(e*x)^(1 + m))/(e*(1 + m)) - (a^2*b*c^2*(e*x)^(2 + m))/(
e^2*(2 + m)) - (a*b^2*c^2*(e*x)^(3 + m))/(e^3*(3 + m)) + (b^3*c^2
*(e*x)^(4 + m))/(e^4*(4 + m))
```

Rubi in Sympy [A] time = 29.9057, size = 82, normalized size = 0.88

$$\frac{a^3c^2\,(ex)^{m+1}}{e\,(m+1)}-\frac{a^2bc^2\,(ex)^{m+2}}{e^2\,(m+2)}-\frac{ab^2c^2\,(ex)^{m+3}}{e^3\,(m+3)}+\frac{b^3c^2\,(ex)^{m+4}}{e^4\,(m+4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((e*x)**m*(b*x+a)*(-b*c*x+a*c)**2,x)
```

```
[Out] a**3*c**2*(e*x)**(m + 1)/(e*(m + 1)) - a**2*b*c**2*(e*x)**(m + 2)
/(e**2*(m + 2)) - a*b**2*c**2*(e*x)**(m + 3)/(e**3*(m + 3)) + b**
3*c**2*(e*x)**(m + 4)/(e**4*(m + 4))
```

Mathematica [A] time = 0.0781005, size = 110, normalized size = 1.18

$$\frac{c^2x(ex)^m\left(a^3\left(m^3+9m^2+26m+24\right)-a^2b\left(m^3+8m^2+19m+12\right)x-ab^2\left(m^3+7m^2+14m+8\right)x^2+b^3\left(m^3+6m^2+11m\right.\right.}{(m+1)(m+2)(m+3)(m+4)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(e*x)^m*(a + b*x)*(a*c - b*c*x)^2,x]
```

```
[Out] (c^2*x*(e*x)^m*(a^3*(24 + 26*m + 9*m^2 + m^3) - a^2*b*(12 + 19*m
+ 8*m^2 + m^3)*x - a*b^2*(8 + 14*m + 7*m^2 + m^3)*x^2 + b^3*(6 +
11*m + 6*m^2 + m^3)*x^3))/((1 + m)*(2 + m)*(3 + m)*(4 + m))
```

Maple [A] time = 0.009, size = 174, normalized size = 1.9

$$\frac{c^2\,(ex)^m\left(b^3m^3x^3-ab^2m^3x^2+6\,b^3m^2x^3-a^2bm^3x-7\,ab^2m^2x^2+11\,b^3mx^3+a^3m^3-8\,a^2bm^2x-14\,ab^2mx^2+6\,b^3x^3+9\,a\right.}{(4+m)\,(3+m)\,(2+m)\,(1+m)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((e*x)^m*(b*x+a)*(-b*c*x+a*c)^2,x)
```

```
[Out] c^2*(e*x)^m*(b^3*m^3*x^3-a*b^2*m^3*x^2+6*b^3*m^2*x^3-a^2*b*m^3*x-
7*a*b^2*m^2*x^2+11*b^3*m*x^3+a^3*m^3-8*a^2*b*m^2*x-14*a*b^2*m*x^2
+6*b^3*x^3+9*a^3*m^2-19*a^2*b*m*x-8*a*b^2*x^2+26*a^3*m-12*a^2*b*x
+24*a^3)*x/(4+m)/(3+m)/(2+m)/(1+m)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^2*(b*x + a)*(e*x)^m,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.22265, size = 279, normalized size = 3.

$$\frac{\left(\left(b^3c^2m^3 + 6\,b^3c^2m^2 + 11\,b^3c^2m + 6\,b^3c^2\right)x^4 - \left(ab^2c^2m^3 + 7\,ab^2c^2m^2 + 14\,ab^2c^2m + 8\,ab^2c^2\right)x^3 - \left(a^2bc^2m^3 + 8\,a^2bc^2m^2 + 1\right.}{m^4 + 10\,m^3 + 35\,m^2 + 50\,m + 24}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^2*(b*x + a)*(e*x)^m,x, algorithm="fricas")
```

```
[Out] ((b^3*c^2*m^3 + 6*b^3*c^2*m^2 + 11*b^3*c^2*m + 6*b^3*c^2)*x^4 - (
a*b^2*c^2*m^3 + 7*a*b^2*c^2*m^2 + 14*a*b^2*c^2*m + 8*a*b^2*c^2)*x
^3 - (a^2*b*c^2*m^3 + 8*a^2*b*c^2*m^2 + 19*a^2*b*c^2*m + 12*a^2*b
*c^2)*x^2 + (a^3*c^2*m^3 + 9*a^3*c^2*m^2 + 26*a^3*c^2*m + 24*a^3*
c^2)*x)*(e*x)^m/(m^4 + 10*m^3 + 35*m^2 + 50*m + 24)
```

Sympy [A] time = 2.75496, size = 821, normalized size = 8.83

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((e*x)**m*(b*x+a)*(-b*c*x+a*c)**2,x)
```

```
[Out] Piecewise(((-a**3*c**2/(3*x**3) + a**2*b*c**2/(2*x**2) + a*b**2*c
**2/x + b**3*c**2*log(x))/e**4, Eq(m, -4)), ((-a**3*c**2/(2*x**2)
 + a**2*b*c**2/x - a*b**2*c**2*log(x) + b**3*c**2*x)/e**3, Eq(m,
-3)), ((-a**3*c**2/x - a**2*b*c**2*log(x) - a*b**2*c**2*x + b**3*
c**2*x**2/2)/e**2, Eq(m, -2)), ((a**3*c**2*log(x) - a**2*b*c**2*x
 - a*b**2*c**2*x**2/2 + b**3*c**2*x**3/3)/e, Eq(m, -1)), (a**3*c*
*2*e**m*m**3*x*x**m/(m**4 + 10*m**3 + 35*m**2 + 50*m + 24) + 9*a*
*3*c**2*e**m*m**2*x*x**m/(m**4 + 10*m**3 + 35*m**2 + 50*m + 24) +
 26*a**3*c**2*e**m*m*x*x**m/(m**4 + 10*m**3 + 35*m**2 + 50*m + 24
) + 24*a**3*c**2*e**m*x*x**m/(m**4 + 10*m**3 + 35*m**2 + 50*m + 2
4) - a**2*b*c**2*e**m*m**3*x**2*x**m/(m**4 + 10*m**3 + 35*m**2 +
50*m + 24) - 8*a**2*b*c**2*e**m*m**2*x**2*x**m/(m**4 + 10*m**3 +
35*m**2 + 50*m + 24) - 19*a**2*b*c**2*e**m*m*x**2*x**m/(m**4 + 10
*m**3 + 35*m**2 + 50*m + 24) - 12*a**2*b*c**2*e**m*x**2*x**m/(m**
4 + 10*m**3 + 35*m**2 + 50*m + 24) - a*b**2*c**2*e**m*m**3*x**3*x
**m/(m**4 + 10*m**3 + 35*m**2 + 50*m + 24) - 7*a*b**2*c**2*e**m*m
**2*x**3*x**m/(m**4 + 10*m**3 + 35*m**2 + 50*m + 24) - 14*a*b**2*
```

```
c**2*e**m*m*x**3*x**m/(m**4 + 10*m**3 + 35*m**2 + 50*m + 24) - 8*
a*b**2*c**2*e**m*x**3*x**m/(m**4 + 10*m**3 + 35*m**2 + 50*m + 24)
 + b**3*c**2*e**m*m**3*x**4*x**m/(m**4 + 10*m**3 + 35*m**2 + 50*m
 + 24) + 6*b**3*c**2*e**m*m**2*x**4*x**m/(m**4 + 10*m**3 + 35*m**
2 + 50*m + 24) + 11*b**3*c**2*e**m*m*x**4*x**m/(m**4 + 10*m**3 +
35*m**2 + 50*m + 24) + 6*b**3*c**2*e**m*x**4*x**m/(m**4 + 10*m**3
 + 35*m**2 + 50*m + 24), True))
```

GIAC/XCAS [A] time = 0.214632, size = 454, normalized size = 4.88

$$\frac{b^3c^2m^3x^4e^{(m\ln(x)+m)} - ab^2c^2m^3x^3e^{(m\ln(x)+m)} + 6\,b^3c^2m^2x^4e^{(m\ln(x)+m)} - a^2bc^2m^3x^2e^{(m\ln(x)+m)} - 7\,ab^2c^2m^2x^3e^{(m\ln(x)+m)} + 11}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*c*x - a*c)^2*(b*x + a)*(e*x)^m,x, algorithm="giac")
```

```
[Out] (b^3*c^2*m^3*x^4*e^(m*ln(x) + m) - a*b^2*c^2*m^3*x^3*e^(m*ln(x) +
 m) + 6*b^3*c^2*m^2*x^4*e^(m*ln(x) + m) - a^2*b*c^2*m^3*x^2*e^(m*
ln(x) + m) - 7*a*b^2*c^2*m^2*x^3*e^(m*ln(x) + m) + 11*b^3*c^2*m*x
^4*e^(m*ln(x) + m) + a^3*c^2*m^3*x*e^(m*ln(x) + m) - 8*a^2*b*c^2*
m^2*x^2*e^(m*ln(x) + m) - 14*a*b^2*c^2*m*x^3*e^(m*ln(x) + m) + 6*
b^3*c^2*x^4*e^(m*ln(x) + m) + 9*a^3*c^2*m^2*x*e^(m*ln(x) + m) - 1
9*a^2*b*c^2*m*x^2*e^(m*ln(x) + m) - 8*a*b^2*c^2*x^3*e^(m*ln(x) +
m) + 26*a^3*c^2*m*x*e^(m*ln(x) + m) - 12*a^2*b*c^2*x^2*e^(m*ln(x)
 + m) + 24*a^3*c^2*x*e^(m*ln(x) + m))/(m^4 + 10*m^3 + 35*m^2 + 50
*m + 24)
```

3.370 $\int (ex)^m(a+bx)(ac-bcx)\,dx$

Optimal. Leaf size=42

$$\frac{a^2c(ex)^{m+1}}{e(m+1)}-\frac{b^2c(ex)^{m+3}}{e^3(m+3)}$$

```
[Out] (a^2*c*(e*x)^(1 + m))/(e*(1 + m)) - (b^2*c*(e*x)^(3 + m))/(e^3*(3
 + m))
```

Rubi [A] time = 0.0565567, antiderivative size = 42, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 2, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.1

$$\frac{a^2c(ex)^{m+1}}{e(m+1)}-\frac{b^2c(ex)^{m+3}}{e^3(m+3)}$$

Antiderivative was successfully verified.

```
[In]  Int[(e*x)^m*(a + b*x)*(a*c - b*c*x),x]
```

```
[Out] (a^2*c*(e*x)^(1 + m))/(e*(1 + m)) - (b^2*c*(e*x)^(3 + m))/(e^3*(3
 + m))
```

Rubi in Sympy [A] time = 14.6794, size = 34, normalized size = 0.81

$$\frac{a^2c\,(ex)^{m+1}}{e\,(m+1)}-\frac{b^2c\,(ex)^{m+3}}{e^3\,(m+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((e*x)**m*(b*x+a)*(-b*c*x+a*c),x)
```

```
[Out] a**2*c*(e*x)**(m + 1)/(e*(m + 1)) - b**2*c*(e*x)**(m + 3)/(e**3*(
m + 3))
```

Mathematica [A] time = 0.0307721, size = 31, normalized size = 0.74

$$c(ex)^m\left(\frac{a^2x}{m+1}-\frac{b^2x^3}{m+3}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(e*x)^m*(a + b*x)*(a*c - b*c*x),x]
```

```
[Out] c*(e*x)^m*((a^2*x)/(1 + m) - (b^2*x^3)/(3 + m))
```

Maple [A] time = 0.003, size = 47, normalized size = 1.1

$$\frac{c\,(ex)^m\left(-b^2mx^2-b^2x^2+a^2m+3\,a^2\right)x}{(3+m)\,(1+m)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((e*x)^m*(b*x+a)*(-b*c*x+a*c),x)
```

```
[Out] c*(e*x)^m*(-b^2*m*x^2-b^2*x^2+a^2*m+3*a^2)*x/(3+m)/(1+m)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)*(b*x + a)*(e*x)^m,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.21958, size = 68, normalized size = 1.62

$$-\frac{\left(\left(b^2cm+b^2c\right)x^3-\left(a^2cm+3\,a^2c\right)x\right)(ex)^m}{m^2+4\,m+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)*(b*x + a)*(e*x)^m,x, algorithm="fricas")
```

```
[Out] -((b^2*c*m + b^2*c)*x^3 - (a^2*c*m + 3*a^2*c)*x)*(e*x)^m/(m^2 + 4
*m + 3)
```

Sympy [A] time = 1.30074, size = 141, normalized size = 3.36

$$\begin{cases} \frac{-\frac{a^2c}{2x^2}-b^2c\log(x)}{e^3} & \text{for } m=-3 \\ \frac{a^2c\log(x)-\frac{b^2cx^2}{2}}{e} & \text{for } m=-1 \\ \frac{a^2ce^m mxx^m}{m^2+4m+3}+\frac{3a^2ce^m xx^m}{m^2+4m+3}-\frac{b^2ce^m mx^3x^m}{m^2+4m+3}-\frac{b^2ce^m x^3x^m}{m^2+4m+3} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((e*x)**m*(b*x+a)*(-b*c*x+a*c),x)
```

```
[Out] Piecewise(((-a**2*c/(2*x**2) - b**2*c*log(x))/e**3, Eq(m, -3)), (
(a**2*c*log(x) - b**2*c*x**2/2)/e, Eq(m, -1)), (a**2*c*e**m*m*x*x
**m/(m**2 + 4*m + 3) + 3*a**2*c*e**m*x*x**m/(m**2 + 4*m + 3) - b*
*2*c*e**m*m*x**3*x**m/(m**2 + 4*m + 3) - b**2*c*e**m*x**3*x**m/(m
**2 + 4*m + 3), True))
```

GIAC/XCAS [A] time = 0.211266, size = 99, normalized size = 2.36

$$-\frac{b^2cmx^3e^{(m\ln(x)+m)}+b^2cx^3e^{(m\ln(x)+m)}-a^2cmxe^{(m\ln(x)+m)}-3\,a^2cxe^{(m\ln(x)+m)}}{m^2+4\,m+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*c*x - a*c)*(b*x + a)*(e*x)^m,x, algorithm="giac")
```

```
[Out] -(b^2*c*m*x^3*e^(m*ln(x) + m) + b^2*c*x^3*e^(m*ln(x) + m) - a^2*c
*m*x*e^(m*ln(x) + m) - 3*a^2*c*x*e^(m*ln(x) + m))/(m^2 + 4*m + 3)
```

3.371 $\int \frac{(ex)^m(a+bx)}{ac-bcx}\,dx$

Optimal. Leaf size=55

$$\frac{2(ex)^{m+1}\,{}_2F_1\left(1,m+1;m+2;\frac{bx}{a}\right)}{ce(m+1)}-\frac{(ex)^{m+1}}{ce(m+1)}$$

```
[Out] -((e*x)^(1 + m)/(c*e*(1 + m))) + (2*(e*x)^(1 + m)*Hypergeometric2
F1[1, 1 + m, 2 + m, (b*x)/a])/(c*e*(1 + m))
```

Rubi [A] time = 0.0687365, antiderivative size = 55, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.091

$$\frac{2(ex)^{m+1}\,{}_2F_1\left(1,m+1;m+2;\frac{bx}{a}\right)}{ce(m+1)}-\frac{(ex)^{m+1}}{ce(m+1)}$$

Antiderivative was successfully verified.

```
[In]  Int[((e*x)^m*(a + b*x))/(a*c - b*c*x),x]
```

```
[Out] -((e*x)^(1 + m)/(c*e*(1 + m))) + (2*(e*x)^(1 + m)*Hypergeometric2
F1[1, 1 + m, 2 + m, (b*x)/a])/(c*e*(1 + m))
```

Rubi in Sympy [A] time = 10.3751, size = 37, normalized size = 0.67

$$\frac{2\left(ex\right)^{m+1}{}_{2}F_{1}\left(\begin{matrix}1,m+1\\m+2\end{matrix}\middle|\frac{bx}{a}\right)}{ce\left(m+1\right)}-\frac{\left(ex\right)^{m+1}}{ce\left(m+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((e*x)**m*(b*x+a)/(-b*c*x+a*c),x)
```

```
[Out] 2*(e*x)**(m + 1)*hyper((1, m + 1), (m + 2,), b*x/a)/(c*e*(m + 1))
 - (e*x)**(m + 1)/(c*e*(m + 1))
```

Mathematica [A] time = 0.0398232, size = 33, normalized size = 0.6

$$\frac{x(ex)^m\left(2\,{}_2F_1\left(1,m+1;m+2;\frac{bx}{a}\right)-1\right)}{c(m+1)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((e*x)^m*(a + b*x))/(a*c - b*c*x),x]
```

```
[Out] (x*(e*x)^m*(-1 + 2*Hypergeometric2F1[1, 1 + m, 2 + m, (b*x)/a]))/
(c*(1 + m))
```

Maple [F] time = 0.045, size = 0, normalized size = 0.

$$\int \frac{(ex)^m\,(bx+a)}{-bcx+ac}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((e*x)^m*(b*x+a)/(-b*c*x+a*c),x)
```

```
[Out] int((e*x)^m*(b*x+a)/(-b*c*x+a*c),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$-\int \frac{(bx+a)\,(ex)^m}{bcx-ac}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*x + a)*(e*x)^m/(b*c*x - a*c),x, algorithm="maxima")
```

```
[Out] -integrate((b*x + a)*(e*x)^m/(b*c*x - a*c), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{(bx+a)\,(ex)^m}{bcx-ac}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*x + a)*(e*x)^m/(b*c*x - a*c),x, algorithm="fricas")
```

```
[Out] integral(-(b*x + a)*(e*x)^m/(b*c*x - a*c), x)
```

Sympy [A] time = 7.22665, size = 129, normalized size = 2.35

$$\frac{e^m m x x^m \left(\frac{bx}{a}, 1, m+1\right)\,(m+1)}{c\,(m+2)} + \frac{e^m x x^m \left(\frac{bx}{a}, 1, m+1\right)\,(m+1)}{c\,(m+2)} + \frac{b e^m m x^2 x^m \left(\frac{bx}{a}, 1, m+2\right)\,(m+2)}{ac\,(m+3)} + \frac{2b e^m x^2 x^m \left(\frac{bx}{a}, 1, m+2\right)\,(m+2)}{ac\,(m+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((e*x)**m*(b*x+a)/(-b*c*x+a*c),x)
```

```
[Out] e**m*m*x*x**m*lerchphi(b*x/a, 1, m + 1)*gamma(m + 1)/(c*gamma(m +
 2)) + e**m*x*x**m*lerchphi(b*x/a, 1, m + 1)*gamma(m + 1)/(c*gamm
a(m + 2)) + b*e**m*m*x**2*x**m*lerchphi(b*x/a, 1, m + 2)*gamma(m
+ 2)/(a*c*gamma(m + 3)) + 2*b*e**m*x**2*x**m*lerchphi(b*x/a, 1, m
 + 2)*gamma(m + 2)/(a*c*gamma(m + 3))
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int -\frac{(bx+a)\,(ex)^m}{bcx-ac}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(b*x + a)*(e*x)^m/(b*c*x - a*c),x, algorithm="giac")
```

```
[Out] integrate(-(b*x + a)*(e*x)^m/(b*c*x - a*c), x)
```

3.372 $\int \frac{(ex)^m(a+bx)}{(ac-bcx)^2}\,dx$

Optimal. Leaf size=66

$$\frac{2(ex)^{m+1}}{c^2e(a-bx)}-\frac{(2m+1)(ex)^{m+1}\,{}_2F_1\left(1,m+1;m+2;\frac{bx}{a}\right)}{ac^2e(m+1)}$$

```
[Out] (2*(e*x)^(1 + m))/(c^2*e*(a - b*x)) - ((1 + 2*m)*(e*x)^(1 + m)*Hy
pergeometric2F1[1, 1 + m, 2 + m, (b*x)/a])/(a*c^2*e*(1 + m))
```

Rubi [A] time = 0.0843184, antiderivative size = 66, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.091

$$\frac{2(ex)^{m+1}}{c^2e(a-bx)}-\frac{(2m+1)(ex)^{m+1}\,{}_2F_1\left(1,m+1;m+2;\frac{bx}{a}\right)}{ac^2e(m+1)}$$

Antiderivative was successfully verified.

```
[In] Int[((e*x)^m*(a + b*x))/(a*c - b*c*x)^2,x]
```

```
[Out] (2*(e*x)^(1 + m))/(c^2*e*(a - b*x)) - ((1 + 2*m)*(e*x)^(1 + m)*Hy
pergeometric2F1[1, 1 + m, 2 + m, (b*x)/a])/(a*c^2*e*(1 + m))
```

Rubi in Sympy [A] time = 12.3447, size = 49, normalized size = 0.74

$$\frac{2\,(ex)^{m+1}}{c^2e\,(a-bx)}-\frac{(ex)^{m+1}\,(2m+1)\,{}_2F_1\left(\begin{matrix}1,m+1\\ m+2\end{matrix}\middle|\frac{bx}{a}\right)}{ac^2e\,(m+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((e*x)**m*(b*x+a)/(-b*c*x+a*c)**2,x)
```

```
[Out] 2*(e*x)**(m + 1)/(c**2*e*(a - b*x)) - (e*x)**(m + 1)*(2*m + 1)*hy
per((1, m + 1), (m + 2,), b*x/a)/(a*c**2*e*(m + 1))
```

Mathematica [A] time = 0.119589, size = 103, normalized size = 1.56

$$\frac{(ex)^m\left(\frac{bx}{bx-a}\right)^{1-m}\left(2am\,{}_2F_1\left(1-m,-m;2-m;\frac{a}{a-bx}\right)-(m-1)(a-bx)\,{}_2F_1\left(-m,-m;1-m;\frac{a}{a-bx}\right)\right)}{b^2c^2(m-1)mx}$$

Antiderivative was successfully verified.

```
[In] Integrate[((e*x)^m*(a + b*x))/(a*c - b*c*x)^2,x]
```

```
[Out] ((e*x)^m*((b*x)/(-a + b*x))^(1 - m)*(2*a*m*Hypergeometric2F1[1 -
m, -m, 2 - m, a/(a - b*x)] - (-1 + m)*(a - b*x)*Hypergeometric2F1
[-m, -m, 1 - m, a/(a - b*x)]))/(b^2*c^2*(-1 + m)*m*x)
```

Maple [F] time = 0.047, size = 0, normalized size = 0.

$$\int \frac{(ex)^m\,(bx+a)}{(-bcx+ac)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((e*x)^m*(b*x+a)/(-b*c*x+a*c)^2,x)
```

```
[Out] int((e*x)^m*(b*x+a)/(-b*c*x+a*c)^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)\,(ex)^m}{(bcx-ac)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)*(e*x)^m/(b*c*x - a*c)^2,x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)*(e*x)^m/(b*c*x - a*c)^2, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)\,(ex)^m}{b^2c^2x^2-2\,abc^2x+a^2c^2},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)*(e*x)^m/(b*c*x - a*c)^2,x, algorithm="fricas")
```

```
[Out] integral((b*x + a)*(e*x)^m/(b^2*c^2*x^2 - 2*a*b*c^2*x + a^2*c^2),
 x)
```

Sympy [A] time = 13.1543, size = 799, normalized size = 12.11

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((e*x)**m*(b*x+a)/(-b*c*x+a*c)**2,x)
```

```
[Out] a*(a*e**m*m**2*x*x**m*lerchphi(b*x*exp_polar(2*I*pi)/a, 1, m + 1)
*gamma(m + 1)/(-a**3*c**2*gamma(m + 2) + a**2*b*c**2*x*gamma(m +
2)) + a*e**m*m*x*x**m*lerchphi(b*x*exp_polar(2*I*pi)/a, 1, m + 1)
*gamma(m + 1)/(-a**3*c**2*gamma(m + 2) + a**2*b*c**2*x*gamma(m +
2)) - a*e**m*m*x*x**m*gamma(m + 1)/(-a**3*c**2*gamma(m + 2) + a**
2*b*c**2*x*gamma(m + 2)) - a*e**m*x*x**m*gamma(m + 1)/(-a**3*c**2
*gamma(m + 2) + a**2*b*c**2*x*gamma(m + 2)) - b*e**m*m**2*x**2*x*
*m*lerchphi(b*x*exp_polar(2*I*pi)/a, 1, m + 1)*gamma(m + 1)/(-a**
3*c**2*gamma(m + 2) + a**2*b*c**2*x*gamma(m + 2)) - b*e**m*m*x**2
*x**m*lerchphi(b*x*exp_polar(2*I*pi)/a, 1, m + 1)*gamma(m + 1)/(-
a**3*c**2*gamma(m + 2) + a**2*b*c**2*x*gamma(m + 2))) + b*(a*e**m
*m**2*x**2*x**m*lerchphi(b*x*exp_polar(2*I*pi)/a, 1, m + 2)*gamma
(m + 2)/(-a**3*c**2*gamma(m + 3) + a**2*b*c**2*x*gamma(m + 3)) +
3*a*e**m*m*x**2*x**m*lerchphi(b*x*exp_polar(2*I*pi)/a, 1, m + 2)*
gamma(m + 2)/(-a**3*c**2*gamma(m + 3) + a**2*b*c**2*x*gamma(m + 3
)) - a*e**m*m*x**2*x**m*gamma(m + 2)/(-a**3*c**2*gamma(m + 3) + a
**2*b*c**2*x*gamma(m + 3)) + 2*a*e**m*x**2*x**m*lerchphi(b*x*exp_
polar(2*I*pi)/a, 1, m + 2)*gamma(m + 2)/(-a**3*c**2*gamma(m + 3)
+ a**2*b*c**2*x*gamma(m + 3)) - 2*a*e**m*x**2*x**m*gamma(m + 2)/(
-a**3*c**2*gamma(m + 3) + a**2*b*c**2*x*gamma(m + 3)) - b*e**m*m*
*2*x**3*x**m*lerchphi(b*x*exp_polar(2*I*pi)/a, 1, m + 2)*gamma(m
+ 2)/(-a**3*c**2*gamma(m + 3) + a**2*b*c**2*x*gamma(m + 3)) - 3*b
```

```
*e**m*m*x**3*x**m*lerchphi(b*x*exp_polar(2*I*pi)/a, 1, m + 2)*gam
ma(m + 2)/(-a**3*c**2*gamma(m + 3) + a**2*b*c**2*x*gamma(m + 3))
- 2*b*e**m*x**3*x**m*lerchphi(b*x*exp_polar(2*I*pi)/a, 1, m + 2)*
gamma(m + 2)/(-a**3*c**2*gamma(m + 3) + a**2*b*c**2*x*gamma(m + 3
)))
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)(ex)^m}{(bcx-ac)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)*(e*x)^m/(b*c*x - a*c)^2,x, algorithm="giac")
```

```
[Out] integrate((b*x + a)*(e*x)^m/(b*c*x - a*c)^2, x)
```

3.373 $\int \frac{b^2x^m}{(b+ax^2)^2}\,dx$

Optimal. Leaf size=36

$$\frac{x^{m+1}\,{}_2F_1\left(2,\frac{m+1}{2};\frac{m+3}{2};-\frac{ax^2}{b}\right)}{m+1}$$

```
[Out] (x^(1 + m)*Hypergeometric2F1[2, (1 + m)/2, (3 + m)/2, -((a*x^2)/b
)])/(1 + m)
```

Rubi [A] time = 0.0320034, antiderivative size = 36, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$\frac{x^{m+1}\,{}_2F_1\left(2,\frac{m+1}{2};\frac{m+3}{2};-\frac{ax^2}{b}\right)}{m+1}$$

Antiderivative was successfully verified.

```
[In]  Int[(b^2*x^m)/(b + a*x^2)^2,x]
```

```
[Out] (x^(1 + m)*Hypergeometric2F1[2, (1 + m)/2, (3 + m)/2, -((a*x^2)/b
)])/(1 + m)
```

Rubi in Sympy [A] time = 5.27253, size = 27, normalized size = 0.75

$$\frac{x^{m+1}{}_2F_1\left(\begin{matrix} 2, \frac{m}{2}+\frac{1}{2} \\ \frac{m}{2}+\frac{3}{2} \end{matrix}\middle| -\frac{ax^2}{b}\right)}{m+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(b**2*x**m/(a*x**2+b)**2,x)
```

```
[Out] x**(m + 1)*hyper((2, m/2 + 1/2), (m/2 + 3/2,), -a*x**2/b)/(m + 1)
```

Mathematica [A] time = 0.0304073, size = 38, normalized size = 1.06

$$\frac{x^{m+1}\,{}_2F_1\left(2,\frac{m+1}{2};\frac{m+1}{2}+1;-\frac{ax^2}{b}\right)}{m+1}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(b^2*x^m)/(b + a*x^2)^2,x]
```

```
[Out] (x^(1 + m)*Hypergeometric2F1[2, (1 + m)/2, 1 + (1 + m)/2, -((a*x^
2)/b)])/(1 + m)
```

Maple [F] time = 0.065, size = 0, normalized size = 0.

$$\int \frac{b^2x^m}{(ax^2+b)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(b^2*x^m/(a*x^2+b)^2,x)

[Out] int(b^2*x^m/(a*x^2+b)^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$b^2 \int \frac{x^m}{(ax^2+b)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(b^2*x^m/(a*x^2 + b)^2,x, algorithm="maxima")

[Out] b^2*integrate(x^m/(a*x^2 + b)^2, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{b^2x^m}{a^2x^4+2\,abx^2+b^2}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(b^2*x^m/(a*x^2 + b)^2,x, algorithm="fricas")

[Out] integral(b^2*x^m/(a^2*x^4 + 2*a*b*x^2 + b^2), x)
```

Sympy [A] time = 28.4571, size = 377, normalized size = 10.47

$$b^2\left(-\frac{am^2x^3x^m\left(\frac{ax^2e^{i\pi}}{b},1,\frac{m}{2}+\frac{1}{2}\right)\left(\frac{m}{2}+\frac{1}{2}\right)}{8ab^2x^2\left(\frac{m}{2}+\frac{3}{2}\right)+8b^3\left(\frac{m}{2}+\frac{3}{2}\right)}+\frac{ax^3x^m\left(\frac{ax^2e^{i\pi}}{b},1,\frac{m}{2}+\frac{1}{2}\right)\left(\frac{m}{2}+\frac{1}{2}\right)}{8ab^2x^2\left(\frac{m}{2}+\frac{3}{2}\right)+8b^3\left(\frac{m}{2}+\frac{3}{2}\right)}-\frac{bm^2xx^m\left(\frac{ax^2e^{i\pi}}{b},1,\frac{m}{2}+\frac{1}{2}\right)\left(\frac{m}{2}+\frac{1}{2}\right)}{8ab^2x^2\left(\frac{m}{2}+\frac{3}{2}\right)+8b^3\left(\frac{m}{2}+\frac{3}{2}\right)}+\frac{2bmxx^m\left(\frac{m}{2}+\frac{1}{2}\right)}{8ab^2x^2\left(\frac{m}{2}+\frac{3}{2}\right)+8b^3\left(\frac{m}{2}+\frac{3}{2}\right)}+\frac{bxx^m\left(\frac{ax^2e^{i\pi}}{b},1,\frac{m}{2}+\frac{1}{2}\right)\left(\frac{m}{2}+\frac{1}{2}\right)}{8ab^2x^2\left(\frac{m}{2}+\frac{3}{2}\right)+8b^3\left(\frac{m}{2}+\frac{3}{2}\right)}+\frac{2bxx^m\left(\frac{m}{2}+\frac{1}{2}\right)}{8ab^2x^2\left(\frac{m}{2}+\frac{3}{2}\right)+8b^3\left(\frac{m}{2}+\frac{3}{2}\right)}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(b**2*x**m/(a*x**2+b)**2,x)

[Out] b**2*(-a*m**2*x**3*x**m*lerchphi(a*x**2*exp_polar(I*pi)/b, 1, m/2
 + 1/2)*gamma(m/2 + 1/2)/(8*a*b**2*x**2*gamma(m/2 + 3/2) + 8*b**3
*gamma(m/2 + 3/2)) + a*x**3*x**m*lerchphi(a*x**2*exp_polar(I*pi)/
b, 1, m/2 + 1/2)*gamma(m/2 + 1/2)/(8*a*b**2*x**2*gamma(m/2 + 3/2)
 + 8*b**3*gamma(m/2 + 3/2)) - b*m**2*x*x**m*lerchphi(a*x**2*exp_p
olar(I*pi)/b, 1, m/2 + 1/2)*gamma(m/2 + 1/2)/(8*a*b**2*x**2*gamma
(m/2 + 3/2) + 8*b**3*gamma(m/2 + 3/2)) + 2*b*m*x*x**m*gamma(m/2 +
 1/2)/(8*a*b**2*x**2*gamma(m/2 + 3/2) + 8*b**3*gamma(m/2 + 3/2))
+ b*x*x**m*lerchphi(a*x**2*exp_polar(I*pi)/b, 1, m/2 + 1/2)*gamma
(m/2 + 1/2)/(8*a*b**2*x**2*gamma(m/2 + 3/2) + 8*b**3*gamma(m/2 +
3/2)) + 2*b*x*x**m*gamma(m/2 + 1/2)/(8*a*b**2*x**2*gamma(m/2 + 3/
2) + 8*b**3*gamma(m/2 + 3/2)))
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{b^2 x^m}{(ax^2 + b)^2}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(b^2*x^m/(a*x^2 + b)^2,x, algorithm="giac")
```

```
[Out] integrate(b^2*x^m/(a*x^2 + b)^2, x)
```

3.374 $\int \frac{x^m}{\left(1-\frac{\sqrt{a}x}{\sqrt{-b}}\right)^2\left(1+\frac{\sqrt{a}x}{\sqrt{-b}}\right)^2}\,dx$

Optimal. Leaf size=36

$$\frac{x^{m+1}\,{}_2F_1\left(2,\frac{m+1}{2};\frac{m+3}{2};-\frac{ax^2}{b}\right)}{m+1}$$

```
[Out] (x^(1 + m)*Hypergeometric2F1[2, (1 + m)/2, (3 + m)/2, -((a*x^2)/b
)])/(1 + m)
```

Rubi [A] time = 0.060137, antiderivative size = 36, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 41, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.049

$$\frac{x^{m+1}\,{}_2F_1\left(2,\frac{m+1}{2};\frac{m+3}{2};-\frac{ax^2}{b}\right)}{m+1}$$

Antiderivative was successfully verified.

```
[In] Int[x^m/((1 - (Sqrt[a]*x)/Sqrt[-b])^2*(1 + (Sqrt[a]*x)/Sqrt[-b])^2),x]
```

```
[Out] (x^(1 + m)*Hypergeometric2F1[2, (1 + m)/2, (3 + m)/2, -((a*x^2)/b
)])/(1 + m)
```

Rubi in Sympy [A] time = 8.94023, size = 27, normalized size = 0.75

$$\frac{x^{m+1}{}_2F_1\left(\begin{matrix}2,\frac{m}{2}+\frac{1}{2}\\ \frac{m}{2}+\frac{3}{2}\end{matrix}\middle|-\frac{ax^2}{b}\right)}{m+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(x**m/(1-x*a**(1/2)/(-b)**(1/2))**2/(1+x*a**(1/2)/(-
b)**(1/2))**2,x)
```

```
[Out] x**(m + 1)*hyper((2, m/2 + 1/2), (m/2 + 3/2,), -a*x**2/b)/(m + 1)
```

Mathematica [A] time = 0.0188131, size = 38, normalized size = 1.06

$$\frac{x^{m+1}\,{}_2F_1\left(2,\frac{m+1}{2};\frac{m+1}{2}+1;-\frac{ax^2}{b}\right)}{m+1}$$

Antiderivative was successfully verified.

```
[In] Integrate[x^m/((1 - (Sqrt[a]*x)/Sqrt[-b])^2*(1 + (Sqrt[a]*x)/Sqrt[-
b])^2),x]
```

```
[Out] (x^(1 + m)*Hypergeometric2F1[2, (1 + m)/2, 1 + (1 + m)/2, -((a*x^
2)/b)])/(1 + m)
```

Maple [F] time = 0.185, size = 0, normalized size = 0.

$$\int x^m\left(1-x\sqrt{a}\frac{1}{\sqrt{-b}}\right)^{-2}\left(1+x\sqrt{a}\frac{1}{\sqrt{-b}}\right)^{-2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^m/(1-x*a^(1/2)/(-b)^(1/2))^2/(1+x*a^(1/2)/(-b)^(1/2))^2,x)
```

```
[Out] int(x^m/(1-x*a^(1/2)/(-b)^(1/2))^2/(1+x*a^(1/2)/(-b)^(1/2))^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x^m}{\left(\frac{\sqrt{a}x}{\sqrt{-b}}+1\right)^2\left(\frac{\sqrt{a}x}{\sqrt{-b}}-1\right)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^m/((sqrt(a)*x/sqrt(-b) + 1)^2*(sqrt(a)*x/sqrt(-b) - 1)^2),x, algorit
```

```
[Out] integrate(x^m/((sqrt(a)*x/sqrt(-b) + 1)^2*(sqrt(a)*x/sqrt(-b) - 1
)^2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{b^2x^m}{a^2x^4+2\,abx^2+b^2},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^m/((sqrt(a)*x/sqrt(-b) + 1)^2*(sqrt(a)*x/sqrt(-b) - 1)^2),x, algorit
```

```
[Out] integral(b^2*x^m/(a^2*x^4 + 2*a*b*x^2 + b^2), x)
```

Sympy [A] time = 33.8287, size = 541, normalized size = 15.03

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**m/(1-x*a**(1/2)/(-b)**(1/2))**2/(1+x*a**(1/2)/(-b)**(1/2))**2,x)
```

```
[Out] a*b**2*m**2*x**m*lerchphi(b*exp_polar(I*pi)/(a*x**2), 1, -m/2 + 3
/2)*gamma(-m/2 + 3/2)/(x*(8*a**3*x**2*gamma(-m/2 + 5/2) + 8*a**2*
b*gamma(-m/2 + 5/2))) - 4*a*b**2*m*x**m*lerchphi(b*exp_polar(I*pi
)/(a*x**2), 1, -m/2 + 3/2)*gamma(-m/2 + 3/2)/(x*(8*a**3*x**2*gamm
a(-m/2 + 5/2) + 8*a**2*b*gamma(-m/2 + 5/2))) + 2*a*b**2*m*x**m*ga
mma(-m/2 + 3/2)/(x*(8*a**3*x**2*gamma(-m/2 + 5/2) + 8*a**2*b*gamm
a(-m/2 + 5/2))) + 3*a*b**2*x**m*lerchphi(b*exp_polar(I*pi)/(a*x**
2), 1, -m/2 + 3/2)*gamma(-m/2 + 3/2)/(x*(8*a**3*x**2*gamma(-m/2 +
 5/2) + 8*a**2*b*gamma(-m/2 + 5/2))) - 6*a*b**2*x**m*gamma(-m/2 +
 3/2)/(x*(8*a**3*x**2*gamma(-m/2 + 5/2) + 8*a**2*b*gamma(-m/2 + 5
/2))) + b**3*m**2*x**m*lerchphi(b*exp_polar(I*pi)/(a*x**2), 1, -m
/2 + 3/2)*gamma(-m/2 + 3/2)/(x**3*(8*a**3*x**2*gamma(-m/2 + 5/2)
+ 8*a**2*b*gamma(-m/2 + 5/2))) - 4*b**3*m*x**m*lerchphi(b*exp_pol
ar(I*pi)/(a*x**2), 1, -m/2 + 3/2)*gamma(-m/2 + 3/2)/(x**3*(8*a**3
*x**2*gamma(-m/2 + 5/2) + 8*a**2*b*gamma(-m/2 + 5/2))) + 3*b**3*x
**m*lerchphi(b*exp_polar(I*pi)/(a*x**2), 1, -m/2 + 3/2)*gamma(-m/
2 + 3/2)/(x**3*(8*a**3*x**2*gamma(-m/2 + 5/2) + 8*a**2*b*gamma(-m
/2 + 5/2)))
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^m/((sqrt(a)*x/sqrt(-b) + 1)^2*(sqrt(a)*x/sqrt(-b) - 1)^2),x, algorit
```

```
[Out] Exception raised: TypeError
```

3.375 $\int x^4\sqrt{a+bx}(A+Bx)\,dx$

Optimal. Leaf size=151

$$\frac{2a^4(a+bx)^{3/2}(Ab-aB)}{3b^6}-\frac{2a^3(a+bx)^{5/2}(4Ab-5aB)}{5b^6}+\frac{4a^2(a+bx)^{7/2}(3Ab-5aB)}{7b^6}+\frac{2(a+bx)^{11/2}(Ab-5aB)}{11b^6}-\frac{4a(a+bx)^{9/2}(2Ab-5aB)}{9b^6}+\frac{2B(a+bx)^{13/2}}{13b^6}$$

```
[Out] (2*a^4*(A*b - a*B)*(a + b*x)^(3/2))/(3*b^6) - (2*a^3*(4*A*b - 5*a
*B)*(a + b*x)^(5/2))/(5*b^6) + (4*a^2*(3*A*b - 5*a*B)*(a + b*x)^(
7/2))/(7*b^6) - (4*a*(2*A*b - 5*a*B)*(a + b*x)^(9/2))/(9*b^6) + (
2*(A*b - 5*a*B)*(a + b*x)^(11/2))/(11*b^6) + (2*B*(a + b*x)^(13/2
))/(13*b^6)
```

Rubi [A] time = 0.194332, antiderivative size = 151, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{2a^4(a+bx)^{3/2}(Ab-aB)}{3b^6}-\frac{2a^3(a+bx)^{5/2}(4Ab-5aB)}{5b^6}+\frac{4a^2(a+bx)^{7/2}(3Ab-5aB)}{7b^6}+\frac{2(a+bx)^{11/2}(Ab-5aB)}{11b^6}-\frac{4a(a+bx)^{9/2}(2Ab-5aB)}{9b^6}+\frac{2B(a+bx)^{13/2}}{13b^6}$$

Antiderivative was successfully verified.

```
[In]  Int[x^4*Sqrt[a + b*x]*(A + B*x),x]
```

```
[Out] (2*a^4*(A*b - a*B)*(a + b*x)^(3/2))/(3*b^6) - (2*a^3*(4*A*b - 5*a
*B)*(a + b*x)^(5/2))/(5*b^6) + (4*a^2*(3*A*b - 5*a*B)*(a + b*x)^(
7/2))/(7*b^6) - (4*a*(2*A*b - 5*a*B)*(a + b*x)^(9/2))/(9*b^6) + (
2*(A*b - 5*a*B)*(a + b*x)^(11/2))/(11*b^6) + (2*B*(a + b*x)^(13/2
))/(13*b^6)
```

Rubi in Sympy [A] time = 27.9621, size = 150, normalized size = 0.99

$$\frac{2B\left(a+bx\right)^{\frac{13}{2}}}{13b^6}+\frac{2a^4\left(a+bx\right)^{\frac{3}{2}}\left(Ab-Ba\right)}{3b^6}-\frac{2a^3\left(a+bx\right)^{\frac{5}{2}}\left(4Ab-5Ba\right)}{5b^6}+\frac{4a^2\left(a+bx\right)^{\frac{7}{2}}\left(3Ab-5Ba\right)}{7b^6}-\frac{4a\left(a+bx\right)^{\frac{9}{2}}\left(2Ab-5Ba\right)}{9b^6}+\frac{2\left(a+bx\right)^{\frac{11}{2}}\left(Ab-5Ba\right)}{11b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**4*(B*x+A)*(b*x+a)**(1/2),x)
```

```
[Out] 2*B*(a + b*x)**(13/2)/(13*b**6) + 2*a**4*(a + b*x)**(3/2)*(A*b -
B*a)/(3*b**6) - 2*a**3*(a + b*x)**(5/2)*(4*A*b - 5*B*a)/(5*b**6)
+ 4*a**2*(a + b*x)**(7/2)*(3*A*b - 5*B*a)/(7*b**6) - 4*a*(a + b*x
)**(9/2)*(2*A*b - 5*B*a)/(9*b**6) + 2*(a + b*x)**(11/2)*(A*b - 5*
B*a)/(11*b**6)
```

Mathematica [A] time = 0.102584, size = 106, normalized size = 0.7

$$\frac{2(a+bx)^{3/2}\left(-1280a^5B+128a^4b(13A+15Bx)-96a^3b^2x(26A+25Bx)+80a^2b^3x^2(39A+35Bx)-70ab^4x^3(52A+45Bx)+\right.}{45045b^6}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^4*Sqrt[a + b*x]*(A + B*x),x]
```

```
[Out] (2*(a + b*x)^(3/2)*(-1280*a^5*B + 315*b^5*x^4*(13*A + 11*B*x) + 1
28*a^4*b*(13*A + 15*B*x) - 96*a^3*b^2*x*(26*A + 25*B*x) + 80*a^2*
b^3*x^2*(39*A + 35*B*x) - 70*a*b^4*x^3*(52*A + 45*B*x)))/(45045*b
^6)
```

Maple [A] time = 0.009, size = 119, normalized size = 0.8

$$\frac{6930\,b^5Bx^5+8190\,Ax^4b^5-6300\,Bx^4ab^4-7280\,Ax^3ab^4+5600\,Bx^3a^2b^3+6240\,Ax^2a^2b^3-4800\,Bx^2a^3b^2-4992\,Axa^3b^2+3}{45045\,b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^4*(B*x+A)*(b*x+a)^(1/2),x)
```

```
[Out] 2/45045*(b*x+a)^(3/2)*(3465*B*b^5*x^5+4095*A*b^5*x^4-3150*B*a*b^4
*x^4-3640*A*a*b^4*x^3+2800*B*a^2*b^3*x^3+3120*A*a^2*b^3*x^2-2400*
B*a^3*b^2*x^2-2496*A*a^3*b^2*x+1920*B*a^4*b*x+1664*A*a^4*b-1280*B
*a^5)/b^6
```

Maxima [A] time = 1.37293, size = 166, normalized size = 1.1

$$\frac{2\left(3465\,(bx+a)^{\frac{13}{2}}B-4095\,(5\,Ba-Ab)(bx+a)^{\frac{11}{2}}+10010\,\left(5\,Ba^2-2\,Aab\right)(bx+a)^{\frac{9}{2}}-12870\,\left(5\,Ba^3-3\,Aa^2b\right)(bx+a)^{\frac{7}{2}}+90\right.}{45045\,b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)*x^4,x, algorithm="maxima")
```

```
[Out] 2/45045*(3465*(b*x + a)^(13/2)*B - 4095*(5*B*a - A*b)*(b*x + a)^(
11/2) + 10010*(5*B*a^2 - 2*A*a*b)*(b*x + a)^(9/2) - 12870*(5*B*a^
3 - 3*A*a^2*b)*(b*x + a)^(7/2) + 9009*(5*B*a^4 - 4*A*a^3*b)*(b*x
+ a)^(5/2) - 15015*(B*a^5 - A*a^4*b)*(b*x + a)^(3/2))/b^6
```

Fricas [A] time = 0.213216, size = 193, normalized size = 1.28

$$\frac{2\left(3465\,Bb^6x^6-1280\,Ba^6+1664\,Aa^5b+315\,\left(Bab^5+13\,Ab^6\right)x^5-35\,\left(10\,Ba^2b^4-13\,Aab^5\right)x^4+40\,\left(10\,Ba^3b^3-13\,Aa^2b^4\right)x^3\right.}{45045\,b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)*x^4,x, algorithm="fricas")
```

```
[Out] 2/45045*(3465*B*b^6*x^6 - 1280*B*a^6 + 1664*A*a^5*b + 315*(B*a*b^
5 + 13*A*b^6)*x^5 - 35*(10*B*a^2*b^4 - 13*A*a*b^5)*x^4 + 40*(10*B
*a^3*b^3 - 13*A*a^2*b^4)*x^3 - 48*(10*B*a^4*b^2 - 13*A*a^3*b^3)*x
^2 + 64*(10*B*a^5*b - 13*A*a^4*b^2)*x)*sqrt(b*x + a)/b^6
```

Sympy [A] time = 3.75217, size = 150, normalized size = 0.99

$$\frac{2\left(\frac{B(a+bx)^{\frac{13}{2}}}{13b}+\frac{(a+bx)^{\frac{11}{2}}(Ab-5Ba)}{11b}+\frac{(a+bx)^{\frac{9}{2}}(-4Aab+10Ba^2)}{9b}+\frac{(a+bx)^{\frac{7}{2}}(6Aa^2b-10Ba^3)}{7b}+\frac{(a+bx)^{\frac{5}{2}}(-4Aa^3b+5Ba^4)}{5b}+\frac{(a+bx)^{\frac{3}{2}}(Aa^4b-Ba^5)}{3b}\right)}{b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**4*(B*x+A)*(b*x+a)**(1/2),x)
```

```
[Out] 2*(B*(a + b*x)**(13/2)/(13*b) + (a + b*x)**(11/2)*(A*b - 5*B*a)/(
11*b) + (a + b*x)**(9/2)*(-4*A*a*b + 10*B*a**2)/(9*b) + (a + b*x)
**(7/2)*(6*A*a**2*b - 10*B*a**3)/(7*b) + (a + b*x)**(5/2)*(-4*A*a
**3*b + 5*B*a**4)/(5*b) + (a + b*x)**(3/2)*(A*a**4*b - B*a**5)/(3
*b))/b**5
```

GIAC/XCAS [A] time = 0.211069, size = 236, normalized size = 1.56

$$\frac{2\left(\frac{13\left(315\,(bx+a)^{\frac{11}{2}}\,b^{40}-1540\,(bx+a)^{\frac{9}{2}}\,ab^{40}+2970\,(bx+a)^{\frac{7}{2}}\,a^{2}b^{40}-2772\,(bx+a)^{\frac{5}{2}}\,a^{3}b^{40}+1155\,(bx+a)^{\frac{3}{2}}\,a^{4}b^{40}\right)A}{b^{44}}+\frac{5\left(693\,(bx+a)^{\frac{13}{2}}\,b^{60}-4095\,(bx+a)^{\frac{11}{2}}\,ab^{60}+100\cdots\right.}{\cdots}\right.}{45045\,b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)*x^4,x, algorithm="giac")
```

```
[Out] 2/45045*(13*(315*(b*x + a)^(11/2)*b^40 - 1540*(b*x + a)^(9/2)*a*b
^40 + 2970*(b*x + a)^(7/2)*a^2*b^40 - 2772*(b*x + a)^(5/2)*a^3*b^
40 + 1155*(b*x + a)^(3/2)*a^4*b^40)*A/b^44 + 5*(693*(b*x + a)^(13
/2)*b^60 - 4095*(b*x + a)^(11/2)*a*b^60 + 10010*(b*x + a)^(9/2)*a
^2*b^60 - 12870*(b*x + a)^(7/2)*a^3*b^60 + 9009*(b*x + a)^(5/2)*a
^4*b^60 - 3003*(b*x + a)^(3/2)*a^5*b^60)*B/b^65)/b
```

3.376 $\int x^3\sqrt{a+bx}(A+Bx)\,dx$

Optimal. Leaf size=122

$$-\frac{2a^3(a+bx)^{3/2}(Ab-aB)}{3b^5}+\frac{2a^2(a+bx)^{5/2}(3Ab-4aB)}{5b^5}+\frac{2(a+bx)^{9/2}(Ab-4aB)}{9b^5}-\frac{6a(a+bx)^{7/2}(Ab-2aB)}{7b^5}+\frac{2B(a+bx)^{11/2}}{11b^5}$$

```
[Out] (-2*a^3*(A*b - a*B)*(a + b*x)^(3/2))/(3*b^5) + (2*a^2*(3*A*b - 4*
a*B)*(a + b*x)^(5/2))/(5*b^5) - (6*a*(A*b - 2*a*B)*(a + b*x)^(7/2
))/(7*b^5) + (2*(A*b - 4*a*B)*(a + b*x)^(9/2))/(9*b^5) + (2*B*(a
+ b*x)^(11/2))/(11*b^5)
```

Rubi [A] time = 0.16052, antiderivative size = 122, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{2a^3(a+bx)^{3/2}(Ab-aB)}{3b^5}+\frac{2a^2(a+bx)^{5/2}(3Ab-4aB)}{5b^5}+\frac{2(a+bx)^{9/2}(Ab-4aB)}{9b^5}-\frac{6a(a+bx)^{7/2}(Ab-2aB)}{7b^5}+\frac{2B(a+bx)^{11/2}}{11b^5}$$

Antiderivative was successfully verified.

```
[In]  Int[x^3*Sqrt[a + b*x]*(A + B*x),x]
```

```
[Out] (-2*a^3*(A*b - a*B)*(a + b*x)^(3/2))/(3*b^5) + (2*a^2*(3*A*b - 4*
a*B)*(a + b*x)^(5/2))/(5*b^5) - (6*a*(A*b - 2*a*B)*(a + b*x)^(7/2
))/(7*b^5) + (2*(A*b - 4*a*B)*(a + b*x)^(9/2))/(9*b^5) + (2*B*(a
+ b*x)^(11/2))/(11*b^5)
```

Rubi in Sympy [A] time = 22.4369, size = 119, normalized size = 0.98

$$\frac{2B\left(a+bx\right)^{\frac{11}{2}}}{11b^5}-\frac{2a^3\left(a+bx\right)^{\frac{3}{2}}\left(Ab-Ba\right)}{3b^5}+\frac{2a^2\left(a+bx\right)^{\frac{5}{2}}\left(3Ab-4Ba\right)}{5b^5}-\frac{6a\left(a+bx\right)^{\frac{7}{2}}\left(Ab-2Ba\right)}{7b^5}+\frac{2\left(a+bx\right)^{\frac{9}{2}}\left(Ab-4Ba\right)}{9b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3*(B*x+A)*(b*x+a)**(1/2),x)
```

```
[Out] 2*B*(a + b*x)**(11/2)/(11*b**5) - 2*a**3*(a + b*x)**(3/2)*(A*b -
B*a)/(3*b**5) + 2*a**2*(a + b*x)**(5/2)*(3*A*b - 4*B*a)/(5*b**5)
- 6*a*(a + b*x)**(7/2)*(A*b - 2*B*a)/(7*b**5) + 2*(a + b*x)**(9/2
)*(A*b - 4*B*a)/(9*b**5)
```

Mathematica [A] time = 0.0694437, size = 87, normalized size = 0.71

$$\frac{2(a+bx)^{3/2}\left(128a^4B-16a^3b(11A+12Bx)+24a^2b^2x(11A+10Bx)-10ab^3x^2(33A+28Bx)+35b^4x^3(11A+9Bx)\right)}{3465b^5}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^3*Sqrt[a + b*x]*(A + B*x),x]
```

```
[Out] (2*(a + b*x)^(3/2)*(128*a^4*B + 35*b^4*x^3*(11*A + 9*B*x) + 24*a^
2*b^2*x*(11*A + 10*B*x) - 16*a^3*b*(11*A + 12*B*x) - 10*a*b^3*x^2
*(33*A + 28*B*x)))/(3465*b^5)
```

Maple [A] time = 0.009, size = 95, normalized size = 0.8

$$-\frac{-630\,Bx^4b^4-770\,Ab^4x^3+560\,Bab^3x^3+660\,Aab^3x^2-480\,Ba^2b^2x^2-528\,Aa^2b^2x+384\,Ba^3bx+352\,Aa^3b-256\,Ba^4}{3465\,b^5}(bx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^3*(B*x+A)*(b*x+a)^(1/2),x)
```

```
[Out] -2/3465*(b*x+a)^(3/2)*(-315*B*b^4*x^4-385*A*b^4*x^3+280*B*a*b^3*x
^3+330*A*a*b^3*x^2-240*B*a^2*b^2*x^2-264*A*a^2*b^2*x+192*B*a^3*b*
x+176*A*a^3*b-128*B*a^4)/b^5
```

Maxima [A] time = 1.339, size = 135, normalized size = 1.11

$$\frac{2\left(315\,(bx+a)^{\frac{11}{2}}B-385\,(4\,Ba-Ab)(bx+a)^{\frac{9}{2}}+1485\,\left(2\,Ba^2-Aab\right)(bx+a)^{\frac{7}{2}}-693\,\left(4\,Ba^3-3\,Aa^2b\right)(bx+a)^{\frac{5}{2}}+1155\,\left(Ba^4\right.\right.}{3465\,b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)*x^3,x, algorithm="maxima")
```

```
[Out] 2/3465*(315*(b*x + a)^(11/2)*B - 385*(4*B*a - A*b)*(b*x + a)^(9/2
) + 1485*(2*B*a^2 - A*a*b)*(b*x + a)^(7/2) - 693*(4*B*a^3 - 3*A*a
^2*b)*(b*x + a)^(5/2) + 1155*(B*a^4 - A*a^3*b)*(b*x + a)^(3/2))/b
^5
```

Fricas [A] time = 0.204084, size = 161, normalized size = 1.32

$$\frac{2\left(315\,Bb^5x^5+128\,Ba^5-176\,Aa^4b+35\,\left(Bab^4+11\,Ab^5\right)x^4-5\,\left(8\,Ba^2b^3-11\,Aab^4\right)x^3+6\,\left(8\,Ba^3b^2-11\,Aa^2b^3\right)x^2-8\,\left(8\,B\right.\right.}{3465\,b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)*x^3,x, algorithm="fricas")
```

```
[Out] 2/3465*(315*B*b^5*x^5 + 128*B*a^5 - 176*A*a^4*b + 35*(B*a*b^4 + 1
1*A*b^5)*x^4 - 5*(8*B*a^2*b^3 - 11*A*a*b^4)*x^3 + 6*(8*B*a^3*b^2
- 11*A*a^2*b^3)*x^2 - 8*(8*B*a^4*b - 11*A*a^3*b^2)*x)*sqrt(b*x +
a)/b^5
```

Sympy [A] time = 3.49493, size = 121, normalized size = 0.99

$$\frac{2\left(\frac{B(a+bx)^{\frac{11}{2}}}{11b}+\frac{(a+bx)^{\frac{9}{2}}(Ab-4Ba)}{9b}+\frac{(a+bx)^{\frac{7}{2}}(-3Aab+6Ba^2)}{7b}+\frac{(a+bx)^{\frac{5}{2}}(3Aa^2b-4Ba^3)}{5b}+\frac{(a+bx)^{\frac{3}{2}}(-Aa^3b+Ba^4)}{3b}\right)}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**3*(B*x+A)*(b*x+a)**(1/2),x)
```

```
[Out] 2*(B*(a + b*x)**(11/2)/(11*b) + (a + b*x)**(9/2)*(A*b - 4*B*a)/(9
*b) + (a + b*x)**(7/2)*(-3*A*a*b + 6*B*a**2)/(7*b) + (a + b*x)**(
5/2)*(3*A*a**2*b - 4*B*a**3)/(5*b) + (a + b*x)**(3/2)*(-A*a**3*b
+ B*a**4)/(3*b))/b**4
```

GIAC/XCAS [A] time = 0.210246, size = 194, normalized size = 1.59

$$\frac{2\left(\frac{11\left(35\,(bx+a)^{\frac{9}{2}}b^{24}-135\,(bx+a)^{\frac{7}{2}}ab^{24}+189\,(bx+a)^{\frac{5}{2}}a^2b^{24}-105\,(bx+a)^{\frac{3}{2}}a^3b^{24}\right)A}{b^{27}}+\frac{\left(315\,(bx+a)^{\frac{11}{2}}b^{40}-1540\,(bx+a)^{\frac{9}{2}}ab^{40}+2970\,(bx+a)^{\frac{7}{2}}a^2b^{40}-2772\,(bx+a\right.}{b^{44}}\right.}{3465\,b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)*x^3,x, algorithm="giac")
```

```
[Out] 2/3465*(11*(35*(b*x + a)^(9/2)*b^24 - 135*(b*x + a)^(7/2)*a*b^24
+ 189*(b*x + a)^(5/2)*a^2*b^24 - 105*(b*x + a)^(3/2)*a^3*b^24)*A/
b^27 + (315*(b*x + a)^(11/2)*b^40 - 1540*(b*x + a)^(9/2)*a*b^40 +
 2970*(b*x + a)^(7/2)*a^2*b^40 - 2772*(b*x + a)^(5/2)*a^3*b^40 +
1155*(b*x + a)^(3/2)*a^4*b^40)*B/b^44)/b
```

3.377 $\int x^2\sqrt{a+bx}(A+Bx)\,dx$

Optimal. Leaf size=95

$$\frac{2a^2(a+bx)^{3/2}(Ab-aB)}{3b^4}+\frac{2(a+bx)^{7/2}(Ab-3aB)}{7b^4}-\frac{2a(a+bx)^{5/2}(2Ab-3aB)}{5b^4}+\frac{2B(a+bx)^{9/2}}{9b^4}$$

```
[Out] (2*a^2*(A*b - a*B)*(a + b*x)^(3/2))/(3*b^4) - (2*a*(2*A*b - 3*a*B
)*(a + b*x)^(5/2))/(5*b^4) + (2*(A*b - 3*a*B)*(a + b*x)^(7/2))/(7
*b^4) + (2*B*(a + b*x)^(9/2))/(9*b^4)
```

Rubi [A] time = 0.124619, antiderivative size = 95, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{2a^2(a+bx)^{3/2}(Ab-aB)}{3b^4}+\frac{2(a+bx)^{7/2}(Ab-3aB)}{7b^4}-\frac{2a(a+bx)^{5/2}(2Ab-3aB)}{5b^4}+\frac{2B(a+bx)^{9/2}}{9b^4}$$

Antiderivative was successfully verified.

```
[In] Int[x^2*Sqrt[a + b*x]*(A + B*x),x]
```

```
[Out] (2*a^2*(A*b - a*B)*(a + b*x)^(3/2))/(3*b^4) - (2*a*(2*A*b - 3*a*B
)*(a + b*x)^(5/2))/(5*b^4) + (2*(A*b - 3*a*B)*(a + b*x)^(7/2))/(7
*b^4) + (2*B*(a + b*x)^(9/2))/(9*b^4)
```

Rubi in Sympy [A] time = 17.1586, size = 92, normalized size = 0.97

$$\frac{2B\left(a+bx\right)^{\frac{9}{2}}}{9b^4}+\frac{2a^2\left(a+bx\right)^{\frac{3}{2}}\left(Ab-Ba\right)}{3b^4}-\frac{2a\left(a+bx\right)^{\frac{5}{2}}\left(2Ab-3Ba\right)}{5b^4}+\frac{2\left(a+bx\right)^{\frac{7}{2}}\left(Ab-3Ba\right)}{7b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(x**2*(B*x+A)*(b*x+a)**(1/2),x)
```

```
[Out] 2*B*(a + b*x)**(9/2)/(9*b**4) + 2*a**2*(a + b*x)**(3/2)*(A*b - B*
a)/(3*b**4) - 2*a*(a + b*x)**(5/2)*(2*A*b - 3*B*a)/(5*b**4) + 2*(
a + b*x)**(7/2)*(A*b - 3*B*a)/(7*b**4)
```

Mathematica [A] time = 0.0693454, size = 65, normalized size = 0.68

$$\frac{2(a+bx)^{3/2}\left(-16a^3B+24a^2b(A+Bx)-6ab^2x(6A+5Bx)+5b^3x^2(9A+7Bx)\right)}{315b^4}$$

Antiderivative was successfully verified.

```
[In] Integrate[x^2*Sqrt[a + b*x]*(A + B*x),x]
```

```
[Out] (2*(a + b*x)^(3/2)*(-16*a^3*B + 24*a^2*b*(A + B*x) - 6*a*b^2*x*(6
*A + 5*B*x) + 5*b^3*x^2*(9*A + 7*B*x)))/(315*b^4)
```

Maple [A] time = 0.009, size = 71, normalized size = 0.8

$$\frac{70\,b^3Bx^3+90\,Ax^2b^3-60\,Bx^2ab^2-72\,Axab^2+48\,Bxa^2b+48\,Aa^2b-32\,Ba^3}{315\,b^4}(bx+a)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int(x^2*(B*x+A)*(b*x+a)^(1/2),x)
```

```
[Out] 2/315*(b*x+a)^(3/2)*(35*B*b^3*x^3+45*A*b^3*x^2-30*B*a*b^2*x^2-36*
A*a*b^2*x+24*B*a^2*b*x+24*A*a^2*b-16*B*a^3)/b^4
```

Maxima [A] time = 1.36407, size = 104, normalized size = 1.09

$$\frac{2\left(35\,(bx+a)^{\frac{9}{2}}B-45\,(3\,Ba-Ab)(bx+a)^{\frac{7}{2}}+63\,\left(3\,Ba^2-2\,Aab\right)(bx+a)^{\frac{5}{2}}-105\,\left(Ba^3-Aa^2b\right)(bx+a)^{\frac{3}{2}}\right)}{315\,b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*sqrt(b*x + a)*x^2,x, algorithm="maxima")
```

```
[Out] 2/315*(35*(b*x + a)^(9/2)*B - 45*(3*B*a - A*b)*(b*x + a)^(7/2) +
63*(3*B*a^2 - 2*A*a*b)*(b*x + a)^(5/2) - 105*(B*a^3 - A*a^2*b)*(b
*x + a)^(3/2))/b^4
```

Fricas [A] time = 0.207722, size = 128, normalized size = 1.35

$$\frac{2\,\left(35\,Bb^4x^4-16\,Ba^4+24\,Aa^3b+5\,\left(Bab^3+9\,Ab^4\right)x^3-3\,\left(2\,Ba^2b^2-3\,Aab^3\right)x^2+4\,\left(2\,Ba^3b-3\,Aa^2b^2\right)x\right)\sqrt{bx+a}}{315\,b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*sqrt(b*x + a)*x^2,x, algorithm="fricas")
```

```
[Out] 2/315*(35*B*b^4*x^4 - 16*B*a^4 + 24*A*a^3*b + 5*(B*a*b^3 + 9*A*b^
4)*x^3 - 3*(2*B*a^2*b^2 - 3*A*a*b^3)*x^2 + 4*(2*B*a^3*b - 3*A*a^2
*b^2)*x)*sqrt(b*x + a)/b^4
```

Sympy [A] time = 3.21127, size = 92, normalized size = 0.97

$$\frac{2\left(\frac{B(a+bx)^{\frac{9}{2}}}{9b}+\frac{(a+bx)^{\frac{7}{2}}(Ab-3Ba)}{7b}+\frac{(a+bx)^{\frac{5}{2}}(-2Aab+3Ba^2)}{5b}+\frac{(a+bx)^{\frac{3}{2}}(Aa^2b-Ba^3)}{3b}\right)}{b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(x**2*(B*x+A)*(b*x+a)**(1/2),x)
```

```
[Out] 2*(B*(a + b*x)**(9/2)/(9*b) + (a + b*x)**(7/2)*(A*b - 3*B*a)/(7*b
) + (a + b*x)**(5/2)*(-2*A*a*b + 3*B*a**2)/(5*b) + (a + b*x)**(3/
2)*(A*a**2*b - B*a**3)/(3*b))/b**3
```

GIAC/XCAS [A] time = 0.212718, size = 154, normalized size = 1.62

$$\frac{2\left(\frac{3\left(15\,(bx+a)^{\frac{7}{2}}b^{12}-42\,(bx+a)^{\frac{5}{2}}ab^{12}+35\,(bx+a)^{\frac{3}{2}}a^2b^{12}\right)A}{b^{14}}+\frac{\left(35\,(bx+a)^{\frac{9}{2}}b^{24}-135\,(bx+a)^{\frac{7}{2}}ab^{24}+189\,(bx+a)^{\frac{5}{2}}a^2b^{24}-105\,(bx+a)^{\frac{3}{2}}a^3b^{24}\right)B}{b^{27}}\right)}{315\,b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)*x^2,x, algorithm="giac")
```

```
[Out] 2/315*(3*(15*(b*x + a)^(7/2)*b^12 - 42*(b*x + a)^(5/2)*a*b^12 + 3
5*(b*x + a)^(3/2)*a^2*b^12)*A/b^14 + (35*(b*x + a)^(9/2)*b^24 - 1
35*(b*x + a)^(7/2)*a*b^24 + 189*(b*x + a)^(5/2)*a^2*b^24 - 105*(b
*x + a)^(3/2)*a^3*b^24)*B/b^27)/b
```

3.378 $\int x\sqrt{a+bx}(A+Bx)\,dx$

Optimal. Leaf size=67

$$\frac{2(a+bx)^{5/2}(Ab-2aB)}{5b^3}-\frac{2a(a+bx)^{3/2}(Ab-aB)}{3b^3}+\frac{2B(a+bx)^{7/2}}{7b^3}$$

```
[Out] (-2*a*(A*b - a*B)*(a + b*x)^(3/2))/(3*b^3) + (2*(A*b - 2*a*B)*(a
+ b*x)^(5/2))/(5*b^3) + (2*B*(a + b*x)^(7/2))/(7*b^3)
```

Rubi [A] time = 0.0815349, antiderivative size = 67, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$\frac{2(a+bx)^{5/2}(Ab-2aB)}{5b^3}-\frac{2a(a+bx)^{3/2}(Ab-aB)}{3b^3}+\frac{2B(a+bx)^{7/2}}{7b^3}$$

Antiderivative was successfully verified.

```
[In]  Int[x*Sqrt[a + b*x]*(A + B*x),x]
```

```
[Out] (-2*a*(A*b - a*B)*(a + b*x)^(3/2))/(3*b^3) + (2*(A*b - 2*a*B)*(a
+ b*x)^(5/2))/(5*b^3) + (2*B*(a + b*x)^(7/2))/(7*b^3)
```

Rubi in Sympy [A] time = 11.807, size = 63, normalized size = 0.94

$$\frac{2B\left(a+bx\right)^{\frac{7}{2}}}{7b^3}-\frac{2a\left(a+bx\right)^{\frac{3}{2}}\left(Ab-Ba\right)}{3b^3}+\frac{2\left(a+bx\right)^{\frac{5}{2}}\left(Ab-2Ba\right)}{5b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(B*x+A)*(b*x+a)**(1/2),x)
```

```
[Out] 2*B*(a + b*x)**(7/2)/(7*b**3) - 2*a*(a + b*x)**(3/2)*(A*b - B*a)/
(3*b**3) + 2*(a + b*x)**(5/2)*(A*b - 2*B*a)/(5*b**3)
```

Mathematica [A] time = 0.042855, size = 49, normalized size = 0.73

$$\frac{2(a+bx)^{3/2}\left(8a^2B-2ab(7A+6Bx)+3b^2x(7A+5Bx)\right)}{105b^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x*Sqrt[a + b*x]*(A + B*x),x]
```

```
[Out] (2*(a + b*x)^(3/2)*(8*a^2*B + 3*b^2*x*(7*A + 5*B*x) - 2*a*b*(7*A
+ 6*B*x)))/(105*b^3)
```

Maple [A] time = 0.006, size = 47, normalized size = 0.7

$$-\frac{-30\,b^2Bx^2-42\,Axb^2+24\,Bxab+28\,Aab-16\,Ba^2}{105\,b^3}(bx+a)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(B*x+A)*(b*x+a)^(1/2),x)
```

```
[Out] -2/105*(b*x+a)^(3/2)*(-15*B*b^2*x^2-21*A*b^2*x+12*B*a*b*x+14*A*a*
b-8*B*a^2)/b^3
```

Maxima [A] time = 1.34578, size = 73, normalized size = 1.09

$$\frac{2\left(15\,(bx+a)^{\frac{7}{2}}B - 21\,(2\,Ba - Ab)(bx+a)^{\frac{5}{2}} + 35\,\left(Ba^2 - Aab\right)(bx+a)^{\frac{3}{2}}\right)}{105\,b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)*x,x, algorithm="maxima")
```

```
[Out] 2/105*(15*(b*x + a)^(7/2)*B - 21*(2*B*a - A*b)*(b*x + a)^(5/2) +
35*(B*a^2 - A*a*b)*(b*x + a)^(3/2))/b^3
```

Fricas [A] time = 0.207886, size = 96, normalized size = 1.43

$$\frac{2\left(15\,Bb^3x^3 + 8\,Ba^3 - 14\,Aa^2b + 3\left(Bab^2 + 7\,Ab^3\right)x^2 - \left(4\,Ba^2b - 7\,Aab^2\right)x\right)\sqrt{bx+a}}{105\,b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)*x,x, algorithm="fricas")
```

```
[Out] 2/105*(15*B*b^3*x^3 + 8*B*a^3 - 14*A*a^2*b + 3*(B*a*b^2 + 7*A*b^3
)*x^2 - (4*B*a^2*b - 7*A*a*b^2)*x)*sqrt(b*x + a)/b^3
```

Sympy [A] time = 2.99707, size = 63, normalized size = 0.94

$$\frac{2\left(\frac{B(a+bx)^{\frac{7}{2}}}{7b} + \frac{(a+bx)^{\frac{5}{2}}(Ab-2Ba)}{5b} + \frac{(a+bx)^{\frac{3}{2}}(-Aab+Ba^2)}{3b}\right)}{b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(B*x+A)*(b*x+a)**(1/2),x)
```

```
[Out] 2*(B*(a + b*x)**(7/2)/(7*b) + (a + b*x)**(5/2)*(A*b - 2*B*a)/(5*b
) + (a + b*x)**(3/2)*(-A*a*b + B*a**2)/(3*b))/b**2
```

GIAC/XCAS [A] time = 0.237735, size = 105, normalized size = 1.57

$$\frac{2\left(\frac{7\left(3\,(bx+a)^{\frac{5}{2}} - 5\,(bx+a)^{\frac{3}{2}}a\right)A}{b} + \frac{\left(15\,(bx+a)^{\frac{7}{2}}b^{12} - 42\,(bx+a)^{\frac{5}{2}}ab^{12} + 35\,(bx+a)^{\frac{3}{2}}a^2b^{12}\right)B}{b^{14}}\right)}{105\,b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)*x,x, algorithm="giac")
```

```
[Out] 2/105*(7*(3*(b*x + a)^(5/2) - 5*(b*x + a)^(3/2)*a)*A/b + (15*(b*x
 + a)^(7/2)*b^12 - 42*(b*x + a)^(5/2)*a*b^12 + 35*(b*x + a)^(3/2)
*a^2*b^12)*B/b^14)/b
```

3.379 $\int \sqrt{a+bx}(A+Bx)\,dx$

Optimal. Leaf size=42

$$\frac{2(a+bx)^{3/2}(Ab-aB)}{3b^2}+\frac{2B(a+bx)^{5/2}}{5b^2}$$

```
[Out] (2*(A*b - a*B)*(a + b*x)^(3/2))/(3*b^2) + (2*B*(a + b*x)^(5/2))/(
5*b^2)
```

Rubi [A] time = 0.0443624, antiderivative size = 42, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.067

$$\frac{2(a+bx)^{3/2}(Ab-aB)}{3b^2}+\frac{2B(a+bx)^{5/2}}{5b^2}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[a + b*x]*(A + B*x),x]
```

```
[Out] (2*(A*b - a*B)*(a + b*x)^(3/2))/(3*b^2) + (2*B*(a + b*x)^(5/2))/(
5*b^2)
```

Rubi in Sympy [A] time = 7.5907, size = 37, normalized size = 0.88

$$\frac{2B\left(a+bx\right)^{\frac{5}{2}}}{5b^2}+\frac{2\left(a+bx\right)^{\frac{3}{2}}\left(Ab-Ba\right)}{3b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(b*x+a)**(1/2),x)
```

```
[Out] 2*B*(a + b*x)**(5/2)/(5*b**2) + 2*(a + b*x)**(3/2)*(A*b - B*a)/(3
*b**2)
```

Mathematica [A] time = 0.0302595, size = 30, normalized size = 0.71

$$\frac{2(a+bx)^{3/2}(-2aB+5Ab+3bBx)}{15b^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[a + b*x]*(A + B*x),x]
```

```
[Out] (2*(a + b*x)^(3/2)*(5*A*b - 2*a*B + 3*b*B*x))/(15*b^2)
```

Maple [A] time = 0.006, size = 27, normalized size = 0.6

$$\frac{6\,bBx+10\,Ab-4\,Ba}{15\,b^2}\left(bx+a\right)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(b*x+a)^(1/2),x)
```

```
[Out] 2/15*(b*x+a)^(3/2)*(3*B*b*x+5*A*b-2*B*a)/b^2
```

Maxima [A] time = 1.33108, size = 45, normalized size = 1.07

$$\frac{2\left(3\,(bx+a)^{\frac{5}{2}}B-5\,(Ba-Ab)(bx+a)^{\frac{3}{2}}\right)}{15\,b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a),x, algorithm="maxima")
```

```
[Out] 2/15*(3*(b*x + a)^(5/2)*B - 5*(B*a - A*b)*(b*x + a)^(3/2))/b^2
```

Fricas [A] time = 0.206835, size = 62, normalized size = 1.48

$$\frac{2\left(3\,Bb^2x^2-2\,Ba^2+5\,Aab+\left(Bab+5\,Ab^2\right)x\right)\sqrt{bx+a}}{15\,b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a),x, algorithm="fricas")
```

```
[Out] 2/15*(3*B*b^2*x^2 - 2*B*a^2 + 5*A*a*b + (B*a*b + 5*A*b^2)*x)*sqrt
(b*x + a)/b^2
```

Sympy [A] time = 2.51613, size = 36, normalized size = 0.86

$$\frac{2\left(\frac{B(a+bx)^{\frac{5}{2}}}{5b}+\frac{(a+bx)^{\frac{3}{2}}(Ab-Ba)}{3b}\right)}{b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(b*x+a)**(1/2),x)
```

```
[Out] 2*(B*(a + b*x)**(5/2)/(5*b) + (a + b*x)**(3/2)*(A*b - B*a)/(3*b))
/b
```

GIAC/XCAS [A] time = 0.226182, size = 55, normalized size = 1.31

$$\frac{2\left(5\,(bx+a)^{\frac{3}{2}}A+\frac{\left(3\,(bx+a)^{\frac{5}{2}}-5\,(bx+a)^{\frac{3}{2}}a\right)B}{b}\right)}{15\,b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a),x, algorithm="giac")
```

```
[Out] 2/15*(5*(b*x + a)^(3/2)*A + (3*(b*x + a)^(5/2) - 5*(b*x + a)^(3/2
)*a)*B/b)/b
```

3.380 $\int \frac{\sqrt{a+bx}(A+Bx)}{x}\,dx$

Optimal. Leaf size=54

$$2A\sqrt{a+bx}-2\sqrt{a}A\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)+\frac{2B(a+bx)^{3/2}}{3b}$$

```
[Out] 2*A*Sqrt[a + b*x] + (2*B*(a + b*x)^(3/2))/(3*b) - 2*Sqrt[a]*A*Arc
Tanh[Sqrt[a + b*x]/Sqrt[a]]
```

Rubi [A] time = 0.0675193, antiderivative size = 54, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.222

$$2A\sqrt{a+bx}-2\sqrt{a}A\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)+\frac{2B(a+bx)^{3/2}}{3b}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[a + b*x]*(A + B*x))/x,x]
```

```
[Out] 2*A*Sqrt[a + b*x] + (2*B*(a + b*x)^(3/2))/(3*b) - 2*Sqrt[a]*A*Arc
Tanh[Sqrt[a + b*x]/Sqrt[a]]
```

Rubi in Sympy [A] time = 7.61309, size = 49, normalized size = 0.91

$$-2A\sqrt{a}\,\text{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)+2A\sqrt{a+bx}+\frac{2B\,(a+bx)^{\frac{3}{2}}}{3b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(b*x+a)**(1/2)/x,x)
```

```
[Out] -2*A*sqrt(a)*atanh(sqrt(a + b*x)/sqrt(a)) + 2*A*sqrt(a + b*x) + 2
*B*(a + b*x)**(3/2)/(3*b)
```

Mathematica [A] time = 0.0721094, size = 53, normalized size = 0.98

$$\frac{2\sqrt{a+bx}(B(a+bx)+3Ab)}{3b}-2\sqrt{a}A\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[a + b*x]*(A + B*x))/x,x]
```

```
[Out] (2*Sqrt[a + b*x]*(3*A*b + B*(a + b*x)))/(3*b) - 2*Sqrt[a]*A*ArcTa
nh[Sqrt[a + b*x]/Sqrt[a]]
```

Maple [A] time = 0.009, size = 46, normalized size = 0.9

$$2\,\frac{1}{b}\left(1/3\,B\,(bx+a)^{3/2}+Ab\sqrt{bx+a}-A\sqrt{a}bArtanh\left(\frac{\sqrt{bx+a}}{\sqrt{a}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(b*x+a)^(1/2)/x,x)
```

```
[Out] 2/b*(1/3*B*(b*x+a)^(3/2)+A*b*(b*x+a)^(1/2)-A*a^(1/2)*b*arctanh((b
*x+a)^(1/2)/a^(1/2)))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/x,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.218239, size = 1, normalized size = 0.02

$$\left[\frac{3\,A\sqrt{a}b\log\left(\frac{bx-2\,\sqrt{bx+a}\sqrt{a}+2\,a}{x}\right)+2\,(Bbx+Ba+3\,Ab)\sqrt{bx+a}}{3\,b},\ -\frac{2\left(3\,A\sqrt{-a}b\arctan\left(\frac{\sqrt{bx+a}}{\sqrt{-a}}\right)-(Bbx+Ba+3\,Ab)\sqrt{bx+a}\right)}{3\,b}\right]$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/x,x, algorithm="fricas")
```

```
[Out] [1/3*(3*A*sqrt(a)*b*log((b*x - 2*sqrt(b*x + a)*sqrt(a) + 2*a)/x)
+ 2*(B*b*x + B*a + 3*A*b)*sqrt(b*x + a))/b, -2/3*(3*A*sqrt(-a)*b*
arctan(sqrt(b*x + a)/sqrt(-a)) - (B*b*x + B*a + 3*A*b)*sqrt(b*x +
 a))/b]
```

Sympy [A] time = 6.18803, size = 110, normalized size = 2.04

$$-2Aa\left(\begin{cases}-\frac{\operatorname{atan}\left(\frac{\sqrt{a+bx}}{\sqrt{-a}}\right)}{\sqrt{-a}} & \text{for}\ -a>0\\ \frac{\operatorname{acoth}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{\sqrt{a}} & \text{for}\ -a<0\wedge a<a+bx\\ \frac{\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{\sqrt{a}} & \text{for}\ a>a+bx\wedge -a<0\end{cases}\right)+2A\sqrt{a+bx}+\frac{2B(a+bx)^{\frac{3}{2}}}{3b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(b*x+a)**(1/2)/x,x)
```

```
[Out] -2*A*a*Piecewise((-atan(sqrt(a + b*x)/sqrt(-a))/sqrt(-a), -a > 0)
, (acoth(sqrt(a + b*x)/sqrt(a))/sqrt(a), (-a < 0) & (a < a + b*x)
), (atanh(sqrt(a + b*x)/sqrt(a))/sqrt(a), (-a < 0) & (a > a + b*x
))) + 2*A*sqrt(a + b*x) + 2*B*(a + b*x)**(3/2)/(3*b)
```

GIAC/XCAS [A] time = 0.227568, size = 74, normalized size = 1.37

$$\frac{2\,Aa\arctan\left(\frac{\sqrt{bx+a}}{\sqrt{-a}}\right)}{\sqrt{-a}}+\frac{2\,\left((bx+a)^{\frac{3}{2}}Bb^{2}+3\,\sqrt{bx+a}Ab^{3}\right)}{3\,b^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/x,x, algorithm="giac")
```

```
[Out] 2*A*a*arctan(sqrt(b*x + a)/sqrt(-a))/sqrt(-a) + 2/3*((b*x + a)^(3
/2)*B*b^2 + 3*sqrt(b*x + a)*A*b^3)/b^3
```

3.381 $\int \frac{\sqrt{a+bx}(A+Bx)}{x^2} dx$

Optimal. Leaf size=71

$$\frac{\sqrt{a+bx}(2aB+Ab)}{a}-\frac{(2aB+Ab)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{\sqrt{a}}-\frac{A(a+bx)^{3/2}}{ax}$$

```
[Out] ((A*b + 2*a*B)*Sqrt[a + b*x])/a - (A*(a + b*x)^(3/2))/(a*x) - ((A
*b + 2*a*B)*ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/Sqrt[a]
```

Rubi [A] time = 0.104875, antiderivative size = 71, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.222

$$\frac{\sqrt{a+bx}(2aB+Ab)}{a}-\frac{(2aB+Ab)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{\sqrt{a}}-\frac{A(a+bx)^{3/2}}{ax}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[a + b*x]*(A + B*x))/x^2,x]
```

```
[Out] ((A*b + 2*a*B)*Sqrt[a + b*x])/a - (A*(a + b*x)^(3/2))/(a*x) - ((A
*b + 2*a*B)*ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/Sqrt[a]
```

Rubi in Sympy [A] time = 9.45249, size = 63, normalized size = 0.89

$$-\frac{A(a+bx)^{\frac{3}{2}}}{ax}+\frac{2\sqrt{a+bx}\left(\frac{Ab}{2}+Ba\right)}{a}-\frac{2\left(\frac{Ab}{2}+Ba\right)\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{\sqrt{a}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(b*x+a)**(1/2)/x**2,x)
```

```
[Out] -A*(a + b*x)**(3/2)/(a*x) + 2*sqrt(a + b*x)*(A*b/2 + B*a)/a - 2*(
A*b/2 + B*a)*atanh(sqrt(a + b*x)/sqrt(a))/sqrt(a)
```

Mathematica [A] time = 0.0652823, size = 52, normalized size = 0.73

$$\sqrt{a+bx}\left(2B-\frac{A}{x}\right)-\frac{(2aB+Ab)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{\sqrt{a}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[a + b*x]*(A + B*x))/x^2,x]
```

```
[Out] (2*B - A/x)*Sqrt[a + b*x] - ((A*b + 2*a*B)*ArcTanh[Sqrt[a + b*x]/
Sqrt[a]])/Sqrt[a]
```

Maple [A] time = 0.017, size = 50, normalized size = 0.7

$$2B\sqrt{bx+a}-\frac{A}{x}\sqrt{bx+a}-(Ab+2Ba)Artanh\left(1\sqrt{bx+a}\frac{1}{\sqrt{a}}\right)\frac{1}{\sqrt{a}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(b*x+a)^(1/2)/x^2,x)
```

```
[Out] 2*B*(b*x+a)^(1/2)-A*(b*x+a)^(1/2)/x-(A*b+2*B*a)*arctanh((b*x+a)^(
1/2)/a^(1/2))/a^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/x^2,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.219278, size = 1, normalized size = 0.01

$$\left[\frac{(2\,Ba+Ab)x\log\left(\frac{(bx+2\,a)\sqrt{a}-2\,\sqrt{bx+a}a}{x}\right)+2\,(2\,Bx-A)\sqrt{bx+a}\sqrt{a}}{2\,\sqrt{a}x},\ \frac{(2\,Ba+Ab)x\arctan\left(\frac{a}{\sqrt{bx+a}\sqrt{-a}}\right)+(2\,Bx-A)\sqrt{bx+a}\sqrt{-a}}{\sqrt{-a}x}\right]$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/x^2,x, algorithm="fricas")
```

```
[Out] [1/2*((2*B*a + A*b)*x*log(((b*x + 2*a)*sqrt(a) - 2*sqrt(b*x + a)*
a)/x) + 2*(2*B*x - A)*sqrt(b*x + a)*sqrt(a))/(sqrt(a)*x), ((2*B*a
 + A*b)*x*arctan(a/(sqrt(b*x + a)*sqrt(-a))) + (2*B*x - A)*sqrt(b
*x + a)*sqrt(-a))/(sqrt(-a)*x)]
```

Sympy [A] time = 13.5127, size = 267, normalized size = 3.76

$$-\frac{Aab\sqrt{\frac{1}{a^3}}\log\left(-a^2\sqrt{\frac{1}{a^3}}+\sqrt{a+bx}\right)}{2}+\frac{Aab\sqrt{\frac{1}{a^3}}\log\left(a^2\sqrt{\frac{1}{a^3}}+\sqrt{a+bx}\right)}{2}-2Ab\left(\begin{cases}-\frac{\operatorname{atan}\left(\frac{\sqrt{a+bx}}{\sqrt{-a}}\right)}{\sqrt{-a}} & \text{for}\ -a>0\\ \frac{\operatorname{acoth}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{\sqrt{a}} & \text{for}\ -a<0\wedge a<a+bx\\ \frac{\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{\sqrt{a}} & \text{for}\ a>a+bx\wedge -a<0\end{cases}\right)-\frac{A\sqrt{a+bx}}{x}-2Ba\left(\begin{cases}-\frac{\operatorname{atan}\left(\frac{\sqrt{a+bx}}{\sqrt{-a}}\right)}{\sqrt{-a}} & \text{for}\ -a>0\\ \frac{\operatorname{acoth}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{\sqrt{a}} & \text{for}\ -a<0\wedge a<a+bx\\ \frac{\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{\sqrt{a}} & \text{for}\ a>a+bx\wedge -a<0\end{cases}\right)+2B\sqrt{a+bx}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(b*x+a)**(1/2)/x**2,x)
```

```
[Out] -A*a*b*sqrt(a**(-3))*log(-a**2*sqrt(a**(-3)) + sqrt(a + b*x))/2 +
 A*a*b*sqrt(a**(-3))*log(a**2*sqrt(a**(-3)) + sqrt(a + b*x))/2 -
2*A*b*Piecewise((-atan(sqrt(a + b*x)/sqrt(-a))/sqrt(-a), -a > 0),
 (acoth(sqrt(a + b*x)/sqrt(a))/sqrt(a), (-a < 0) & (a < a + b*x))
```

```
, (atanh(sqrt(a + b*x)/sqrt(a))/sqrt(a), (-a < 0) & (a > a + b*x)
)) - A*sqrt(a + b*x)/x - 2*B*a*Piecewise((-atan(sqrt(a + b*x)/sqr
t(-a))/sqrt(-a), -a > 0), (acoth(sqrt(a + b*x)/sqrt(a))/sqrt(a),
(-a < 0) & (a < a + b*x)), (atanh(sqrt(a + b*x)/sqrt(a))/sqrt(a),
 (-a < 0) & (a > a + b*x))) + 2*B*sqrt(a + b*x)
```

GIAC/XCAS [A] time = 0.226117, size = 82, normalized size = 1.15

$$\frac{2\sqrt{bx+a}Bb - \frac{\sqrt{bx+a}Ab}{x} + \frac{\left(2\,Bab+Ab^2\right)\arctan\left(\frac{\sqrt{bx+a}}{\sqrt{-a}}\right)}{\sqrt{-a}}}{b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/x^2,x, algorithm="giac")
```

```
[Out] (2*sqrt(b*x + a)*B*b - sqrt(b*x + a)*A*b/x + (2*B*a*b + A*b^2)*ar
ctan(sqrt(b*x + a)/sqrt(-a))/sqrt(-a))/b
```

3.382 $\int \frac{\sqrt{a+bx}(A+Bx)}{x^3}\,dx$

Optimal. Leaf size=82

$$\frac{b(Ab-4aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{4a^{3/2}}+\frac{\sqrt{a+bx}(Ab-4aB)}{4ax}-\frac{A(a+bx)^{3/2}}{2ax^2}$$

```
[Out] ((A*b - 4*a*B)*Sqrt[a + b*x])/(4*a*x) - (A*(a + b*x)^(3/2))/(2*a*
x^2) + (b*(A*b - 4*a*B)*ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/(4*a^(3/2
))
```

Rubi [A] time = 0.114176, antiderivative size = 82, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.222

$$\frac{b(Ab-4aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{4a^{3/2}}+\frac{\sqrt{a+bx}(Ab-4aB)}{4ax}-\frac{A(a+bx)^{3/2}}{2ax^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[a + b*x]*(A + B*x))/x^3,x]
```

```
[Out] ((A*b - 4*a*B)*Sqrt[a + b*x])/(4*a*x) - (A*(a + b*x)^(3/2))/(2*a*
x^2) + (b*(A*b - 4*a*B)*ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/(4*a^(3/2
))
```

Rubi in Sympy [A] time = 9.82648, size = 70, normalized size = 0.85

$$-\frac{A\left(a+bx\right)^{\frac{3}{2}}}{2ax^2}+\frac{\sqrt{a+bx}\left(Ab-4Ba\right)}{4ax}+\frac{b\left(Ab-4Ba\right)\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{4a^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(b*x+a)**(1/2)/x**3,x)
```

```
[Out] -A*(a + b*x)**(3/2)/(2*a*x**2) + sqrt(a + b*x)*(A*b - 4*B*a)/(4*a
*x) + b*(A*b - 4*B*a)*atanh(sqrt(a + b*x)/sqrt(a))/(4*a**(3/2))
```

Mathematica [A] time = 0.0949322, size = 68, normalized size = 0.83

$$\frac{b(Ab-4aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{4a^{3/2}}-\frac{\sqrt{a+bx}(2a(A+2Bx)+Abx)}{4ax^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[a + b*x]*(A + B*x))/x^3,x]
```

```
[Out] -(Sqrt[a + b*x]*(A*b*x + 2*a*(A + 2*B*x)))/(4*a*x^2) + (b*(A*b -
4*a*B)*ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/(4*a^(3/2))
```

Maple [A] time = 0.02, size = 75, normalized size = 0.9

$$2\,b\left(\frac{1}{b^2x^2}\left(-1/8\,\frac{(Ab+4\,Ba)\,(bx+a)^{3/2}}{a}+(1/2\,Ba-1/8\,Ab)\,\sqrt{bx+a}\right)+1/8\,\frac{Ab-4\,Ba}{a^{3/2}}Artanh\left(\frac{\sqrt{bx+a}}{\sqrt{a}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(b*x+a)^(1/2)/x^3,x)
```

```
[Out] 2*b*((-1/8*(A*b+4*B*a)/a*(b*x+a)^(3/2)+(1/2*B*a-1/8*A*b)*(b*x+a)^
(1/2))/x^2/b^2+1/8*(A*b-4*B*a)/a^(3/2)*arctanh((b*x+a)^(1/2)/a^(1
/2)))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/x^3,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.220675, size = 1, normalized size = 0.01

$$\left[-\frac{\left(4\,Bab-Ab^{2}\right)x^{2}\log\left(\frac{(bx+2\,a)\sqrt{a}+2\,\sqrt{bx+a}a}{x}\right)+2\,(2\,Aa+(4\,Ba+Ab)x)\sqrt{bx+a}\sqrt{a}}{8\,a^{\frac{3}{2}}x^{2}},\ \frac{\left(4\,Bab-Ab^{2}\right)x^{2}\arctan\left(\frac{a}{\sqrt{bx+a}\sqrt{-a}}\right)-(}{4\,\sqrt{-a}ax}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/x^3,x, algorithm="fricas")
```

```
[Out] [-1/8*((4*B*a*b - A*b^2)*x^2*log(((b*x + 2*a)*sqrt(a) + 2*sqrt(b*
x + a)*a)/x) + 2*(2*A*a + (4*B*a + A*b)*x)*sqrt(b*x + a)*sqrt(a))
/(a^(3/2)*x^2), 1/4*((4*B*a*b - A*b^2)*x^2*arctan(a/(sqrt(b*x + a
)*sqrt(-a))) - (2*A*a + (4*B*a + A*b)*x)*sqrt(b*x + a)*sqrt(-a))/
(sqrt(-a)*a*x^2)]
```

Sympy [A] time = 26.8639, size = 428, normalized size = 5.22

$$-\frac{10Aa^{2}b^{2}\sqrt{a+bx}}{-8a^{4}-16a^{3}bx+8a^{2}(a+bx)^{2}}+\frac{6Aab^{2}(a+bx)^{\frac{3}{2}}}{-8a^{4}-16a^{3}bx+8a^{2}(a+bx)^{2}}+\frac{3Aab^{2}\sqrt{\frac{1}{a^{5}}}\log\left(-a^{3}\sqrt{\frac{1}{a^{5}}}+\sqrt{a+bx}\right)}{8}-\frac{3Aab^{2}\sqrt{\frac{1}{a^{5}}}\log\left(a^{3}\sqrt{\frac{1}{a^{5}}}+\sqrt{a+bx}\right)}{8}-\frac{Ab^{2}\sqrt{\frac{1}{a^{3}}}\log\left(-a^{2}\sqrt{\frac{1}{a^{3}}}+\sqrt{a+bx}\right)}{2}+\frac{Ab^{2}\sqrt{\frac{1}{a^{3}}}\log\left(a^{2}\sqrt{\frac{1}{a^{3}}}+\sqrt{a+bx}\right)}{2}-\frac{Ab\sqrt{a+bx}}{ax}-\frac{Bab\sqrt{\frac{1}{a^{3}}}\log\left(-a^{2}\sqrt{\frac{1}{a^{3}}}+\sqrt{a+bx}\right)}{2}+\frac{Bab\sqrt{\frac{1}{a^{3}}}\log\left(a^{2}\sqrt{\frac{1}{a^{3}}}+\sqrt{a+bx}\right)}{2}-2Bb\left(\begin{cases}-\frac{\operatorname{atan}\left(\frac{\sqrt{a+bx}}{\sqrt{-a}}\right)}{\sqrt{-a}} & \text{for } -a>0\\ \frac{\operatorname{acoth}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{\sqrt{a}} & \text{for } -a<0\wedge a<a+bx\\ \frac{\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{\sqrt{a}} & \text{for } a>a+bx\wedge -a<0\end{cases}\right)-\frac{B\sqrt{a+bx}}{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(b*x+a)**(1/2)/x**3,x)
```

```
[Out] -10*A*a**2*b**2*sqrt(a + b*x)/(-8*a**4 - 16*a**3*b*x + 8*a**2*(a
+ b*x)**2) + 6*A*a*b**2*(a + b*x)**(3/2)/(-8*a**4 - 16*a**3*b*x +
 8*a**2*(a + b*x)**2) + 3*A*a*b**2*sqrt(a**(-5))*log(-a**3*sqrt(a
**(-5)) + sqrt(a + b*x))/8 - 3*A*a*b**2*sqrt(a**(-5))*log(a**3*sq
rt(a**(-5)) + sqrt(a + b*x))/8 - A*b**2*sqrt(a**(-3))*log(-a**2*s
qrt(a**(-3)) + sqrt(a + b*x))/2 + A*b**2*sqrt(a**(-3))*log(a**2*s
qrt(a**(-3)) + sqrt(a + b*x))/2 - A*b*sqrt(a + b*x)/(a*x) - B*a*b
*sqrt(a**(-3))*log(-a**2*sqrt(a**(-3)) + sqrt(a + b*x))/2 + B*a*b
*sqrt(a**(-3))*log(a**2*sqrt(a**(-3)) + sqrt(a + b*x))/2 - 2*B*b*
Piecewise((-atan(sqrt(a + b*x)/sqrt(-a))/sqrt(-a), -a > 0), (acot
h(sqrt(a + b*x)/sqrt(a))/sqrt(a), (-a < 0) & (a < a + b*x)), (ata
nh(sqrt(a + b*x)/sqrt(a))/sqrt(a), (-a < 0) & (a > a + b*x))) - B
*sqrt(a + b*x)/x
```

GIAC/XCAS [A] time = 0.270893, size = 149, normalized size = 1.82

$$\frac{\frac{\left(4\,Bab^2-Ab^3\right)\arctan\left(\frac{\sqrt{bx+a}}{\sqrt{-a}}\right)}{\sqrt{-a}a}-\frac{4\,(bx+a)^{\frac{3}{2}}Bab^2-4\,\sqrt{bx+a}Ba^2b^2+(bx+a)^{\frac{3}{2}}Ab^3+\sqrt{bx+a}Aab^3}{ab^2x^2}}{4\,b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/x^3,x, algorithm="giac")
```

```
[Out] 1/4*((4*B*a*b^2 - A*b^3)*arctan(sqrt(b*x + a)/sqrt(-a))/(sqrt(-a)
*a) - (4*(b*x + a)^(3/2)*B*a*b^2 - 4*sqrt(b*x + a)*B*a^2*b^2 + (b
*x + a)^(3/2)*A*b^3 + sqrt(b*x + a)*A*a*b^3)/(a*b^2*x^2))/b
```

3.383 $\int \frac{\sqrt{a+bx}(A+Bx)}{x^4}\,dx$

Optimal. Leaf size=112

$$-\frac{b^2(Ab-2aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{8a^{5/2}}+\frac{b\sqrt{a+bx}(Ab-2aB)}{8a^2x}+\frac{\sqrt{a+bx}(Ab-2aB)}{4ax^2}-\frac{A(a+bx)^{3/2}}{3ax^3}$$

```
[Out] ((A*b - 2*a*B)*Sqrt[a + b*x])/(4*a*x^2) + (b*(A*b - 2*a*B)*Sqrt[a
 + b*x])/(8*a^2*x) - (A*(a + b*x)^(3/2))/(3*a*x^3) - (b^2*(A*b -
2*a*B)*ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/(8*a^(5/2))
```

Rubi [A] time = 0.155907, antiderivative size = 112, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.278

$$-\frac{b^2(Ab-2aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{8a^{5/2}}+\frac{b\sqrt{a+bx}(Ab-2aB)}{8a^2x}+\frac{\sqrt{a+bx}(Ab-2aB)}{4ax^2}-\frac{A(a+bx)^{3/2}}{3ax^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[a + b*x]*(A + B*x))/x^4,x]
```

```
[Out] ((A*b - 2*a*B)*Sqrt[a + b*x])/(4*a*x^2) + (b*(A*b - 2*a*B)*Sqrt[a
 + b*x])/(8*a^2*x) - (A*(a + b*x)^(3/2))/(3*a*x^3) - (b^2*(A*b -
2*a*B)*ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/(8*a^(5/2))
```

Rubi in Sympy [A] time = 13.505, size = 99, normalized size = 0.88

$$-\frac{A\left(a+bx\right)^{\frac{3}{2}}}{3ax^3}+\frac{\sqrt{a+bx}\left(\frac{Ab}{2}-Ba\right)}{2ax^2}+\frac{b\sqrt{a+bx}\left(Ab-2Ba\right)}{8a^2x}-\frac{b^2\left(\frac{Ab}{2}-Ba\right)\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{4a^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(b*x+a)**(1/2)/x**4,x)
```

```
[Out] -A*(a + b*x)**(3/2)/(3*a*x**3) + sqrt(a + b*x)*(A*b/2 - B*a)/(2*a
*x**2) + b*sqrt(a + b*x)*(A*b - 2*B*a)/(8*a**2*x) - b**2*(A*b/2 -
 B*a)*atanh(sqrt(a + b*x)/sqrt(a))/(4*a**(5/2))
```

Mathematica [A] time = 0.165876, size = 91, normalized size = 0.81

$$\frac{b^2(2aB-Ab)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{8a^{5/2}}+\frac{\sqrt{a+bx}\left(-4a^2(2A+3Bx)-2abx(A+3Bx)+3Ab^2x^2\right)}{24a^2x^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[a + b*x]*(A + B*x))/x^4,x]
```

```
[Out] (Sqrt[a + b*x]*(3*A*b^2*x^2 - 2*a*b*x*(A + 3*B*x) - 4*a^2*(2*A +
3*B*x)))/(24*a^2*x^3) + (b^2*(-(A*b) + 2*a*B)*ArcTanh[Sqrt[a + b*
x]/Sqrt[a]])/(8*a^(5/2))
```

Maple [A] time = 0.019, size = 91, normalized size = 0.8

$$2\,b^{2}\left(\frac{1}{x^{3}b^{3}}\left(1/16\,\frac{(Ab-2\,Ba)\,(bx+a)^{5/2}}{a^{2}}-1/6\,\frac{Ab\,(bx+a)^{3/2}}{a}+(-1/16\,Ab+1/8\,Ba)\,\sqrt{bx+a}\right)-1/16\,\frac{Ab-2\,Ba}{a^{5/2}}Artanh\left(\frac{\sqrt{bx+a}}{\sqrt{a}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(b*x+a)^(1/2)/x^4,x)
```

```
[Out] 2*b^2*((1/16*(A*b-2*B*a)/a^2*(b*x+a)^(5/2)-1/6*A*b/a*(b*x+a)^(3/2
)+(-1/16*A*b+1/8*B*a)*(b*x+a)^(1/2))/x^3/b^3-1/16*(A*b-2*B*a)/a^(
5/2)*arctanh((b*x+a)^(1/2)/a^(1/2)))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/x^4,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.221291, size = 1, normalized size = 0.01

$$\left[-\frac{3\left(2\,Bab^{2}-Ab^{3}\right)x^{3}\log\left(\frac{(bx+2\,a)\sqrt{a}-2\,\sqrt{bx+a}a}{x}\right)+2\left(8\,Aa^{2}+3\left(2\,Bab-Ab^{2}\right)x^{2}+2\left(6\,Ba^{2}+Aab\right)x\right)\sqrt{bx+a}\sqrt{a}}{48\,a^{\frac{5}{2}}x^{3}},\ -\frac{3\left(2\,Bab^{2}-Ab^{3}\right)x^{3}\arctan\left(\frac{a}{\sqrt{bx+a}\sqrt{-a}}\right)+\left(8\,Aa^{2}+3\left(2\,Bab-Ab^{2}\right)x^{2}+2\left(6\,Ba^{2}+Aab\right)x\right)\sqrt{bx+a}\sqrt{-a}}{24\,\sqrt{-a}a^{2}x^{3}}\right]$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/x^4,x, algorithm="fricas")
```

```
[Out] [-1/48*(3*(2*B*a*b^2 - A*b^3)*x^3*log(((b*x + 2*a)*sqrt(a) - 2*sq
rt(b*x + a)*a)/x) + 2*(8*A*a^2 + 3*(2*B*a*b - A*b^2)*x^2 + 2*(6*B
*a^2 + A*a*b)*x)*sqrt(b*x + a)*sqrt(a))/(a^(5/2)*x^3), -1/24*(3*(
2*B*a*b^2 - A*b^3)*x^3*arctan(a/(sqrt(b*x + a)*sqrt(-a))) + (8*A*
a^2 + 3*(2*B*a*b - A*b^2)*x^2 + 2*(6*B*a^2 + A*a*b)*x)*sqrt(b*x +
 a)*sqrt(-a))/(sqrt(-a)*a^2*x^3)]
```

Sympy [A] time = 31.1645, size = 666, normalized size = 5.95

$$-\frac{66Aa^3b^3\sqrt{a+bx}}{96a^6+144a^5bx-144a^4(a+bx)^2+48a^3(a+bx)^3}+\frac{80Aa^2b^3(a+bx)^{\frac{3}{2}}}{96a^6+144a^5bx-144a^4(a+bx)^2+48a^3(a+bx)^3}-\frac{30Aab^3(a+bx)^{\frac{5}{2}}}{96a^6+144a^5bx-144a^4(a+bx)^2+48a^3(a+bx)^3}-\frac{10Aab^3\sqrt{a+bx}}{-8a^4-16a^3bx+8a^2(a+bx)^2}-\frac{5Aab^3\sqrt{\frac{1}{a^7}}\log\left(-a^4\sqrt{\frac{1}{a^7}}+\sqrt{a+bx}\right)}{16}+\frac{5Aab^3\sqrt{\frac{1}{a^7}}\log\left(a^4\sqrt{\frac{1}{a^7}}+\sqrt{a+bx}\right)}{16}+\frac{6Ab^3(a+bx)^{\frac{3}{2}}}{-8a^4-16a^3bx+8a^2(a+bx)^2}+\frac{3Ab^3\sqrt{\frac{1}{a^5}}\log\left(-a^3\sqrt{\frac{1}{a^5}}+\sqrt{a+bx}\right)}{8}-\frac{3Ab^3\sqrt{\frac{1}{a^5}}\log\left(a^3\sqrt{\frac{1}{a^5}}+\sqrt{a+bx}\right)}{8}-\frac{10Ba^2b^2\sqrt{a+bx}}{-8a^4-16a^3bx+8a^2(a+bx)^2}+\frac{6Bab^2(a+bx)^{\frac{3}{2}}}{-8a^4-16a^3bx+8a^2(a+bx)^2}+\frac{3Bab^2\sqrt{\frac{1}{a^5}}\log\left(-a^3\sqrt{\frac{1}{a^5}}+\sqrt{a+bx}\right)}{8}-\frac{3Bab^2\sqrt{\frac{1}{a^5}}\log\left(a^3\sqrt{\frac{1}{a^5}}+\sqrt{a+bx}\right)}{8}-\frac{Bb^2\sqrt{\frac{1}{a^3}}\log\left(-a^2\sqrt{\frac{1}{a^3}}+\sqrt{a+bx}\right)}{2}+\frac{Bb^2\sqrt{\frac{1}{a^3}}\log\left(a^2\sqrt{\frac{1}{a^3}}+\sqrt{a+bx}\right)}{2}-\frac{Bb\sqrt{a+bx}}{ax}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(b*x+a)**(1/2)/x**4,x)
```

```
[Out] -66*A*a**3*b**3*sqrt(a + b*x)/(96*a**6 + 144*a**5*b*x - 144*a**4*
(a + b*x)**2 + 48*a**3*(a + b*x)**3) + 80*A*a**2*b**3*(a + b*x)**
(3/2)/(96*a**6 + 144*a**5*b*x - 144*a**4*(a + b*x)**2 + 48*a**3*(
a + b*x)**3) - 30*A*a*b**3*(a + b*x)**(5/2)/(96*a**6 + 144*a**5*b
*x - 144*a**4*(a + b*x)**2 + 48*a**3*(a + b*x)**3) - 10*A*a*b**3*
sqrt(a + b*x)/(-8*a**4 - 16*a**3*b*x + 8*a**2*(a + b*x)**2) - 5*A
*a*b**3*sqrt(a**(-7))*log(-a**4*sqrt(a**(-7)) + sqrt(a + b*x))/16
 + 5*A*a*b**3*sqrt(a**(-7))*log(a**4*sqrt(a**(-7)) + sqrt(a + b*x
))/16 + 6*A*b**3*(a + b*x)**(3/2)/(-8*a**4 - 16*a**3*b*x + 8*a**2
*(a + b*x)**2) + 3*A*b**3*sqrt(a**(-5))*log(-a**3*sqrt(a**(-5)) +
 sqrt(a + b*x))/8 - 3*A*b**3*sqrt(a**(-5))*log(a**3*sqrt(a**(-5))
 + sqrt(a + b*x))/8 - 10*B*a**2*b**2*sqrt(a + b*x)/(-8*a**4 - 16*
a**3*b*x + 8*a**2*(a + b*x)**2) + 6*B*a*b**2*(a + b*x)**(3/2)/(-8
*a**4 - 16*a**3*b*x + 8*a**2*(a + b*x)**2) + 3*B*a*b**2*sqrt(a**(
-5))*log(-a**3*sqrt(a**(-5)) + sqrt(a + b*x))/8 - 3*B*a*b**2*sqrt
(a**(-5))*log(a**3*sqrt(a**(-5)) + sqrt(a + b*x))/8 - B*b**2*sqrt
(a**(-3))*log(-a**2*sqrt(a**(-3)) + sqrt(a + b*x))/2 + B*b**2*sqr
t(a**(-3))*log(a**2*sqrt(a**(-3)) + sqrt(a + b*x))/2 - B*b*sqrt(a
 + b*x)/(a*x)
```

GIAC/XCAS [A] time = 0.227746, size = 173, normalized size = 1.54

$$-\frac{\frac{3\,(2\,Bab^3-Ab^4)\arctan\left(\frac{\sqrt{bx+a}}{\sqrt{-a}}\right)}{\sqrt{-a}a^2}+\frac{6\,(bx+a)^{\frac{5}{2}}Bab^3-6\,\sqrt{bx+a}Ba^3b^3-3\,(bx+a)^{\frac{5}{2}}Ab^4+8\,(bx+a)^{\frac{3}{2}}Aab^4+3\,\sqrt{bx+a}Aa^2b^4}{a^2b^3x^3}}{24\,b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/x^4,x, algorithm="giac")
```

```
[Out] -1/24*(3*(2*B*a*b^3 - A*b^4)*arctan(sqrt(b*x + a)/sqrt(-a))/(sqrt
(-a)*a^2) + (6*(b*x + a)^(5/2)*B*a*b^3 - 6*sqrt(b*x + a)*B*a^3*b^
3 - 3*(b*x + a)^(5/2)*A*b^4 + 8*(b*x + a)^(3/2)*A*a*b^4 + 3*sqrt(
b*x + a)*A*a^2*b^4)/(a^2*b^3*x^3))/b
```

3.384 $\int \frac{\sqrt{a+bx}(A+Bx)}{x^5}\,dx$

Optimal. Leaf size=146

$$\frac{b^3(5Ab-8aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{64a^{7/2}}-\frac{b^2\sqrt{a+bx}(5Ab-8aB)}{64a^3x}+\frac{b\sqrt{a+bx}(5Ab-8aB)}{96a^2x^2}+\frac{\sqrt{a+bx}(5Ab-8aB)}{24ax^3}-\frac{A(a+bx)^{3/2}}{4ax^4}$$

```
[Out] ((5*A*b - 8*a*B)*Sqrt[a + b*x])/(24*a*x^3) + (b*(5*A*b - 8*a*B)*S
qrt[a + b*x])/(96*a^2*x^2) - (b^2*(5*A*b - 8*a*B)*Sqrt[a + b*x])/
(64*a^3*x) - (A*(a + b*x)^(3/2))/(4*a*x^4) + (b^3*(5*A*b - 8*a*B)
*ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/(64*a^(7/2))
```

Rubi [A] time = 0.198887, antiderivative size = 146, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.278

$$\frac{b^3(5Ab-8aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{64a^{7/2}}-\frac{b^2\sqrt{a+bx}(5Ab-8aB)}{64a^3x}+\frac{b\sqrt{a+bx}(5Ab-8aB)}{96a^2x^2}+\frac{\sqrt{a+bx}(5Ab-8aB)}{24ax^3}-\frac{A(a+bx)^{3/2}}{4ax^4}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[a + b*x]*(A + B*x))/x^5,x]
```

```
[Out] ((5*A*b - 8*a*B)*Sqrt[a + b*x])/(24*a*x^3) + (b*(5*A*b - 8*a*B)*S
qrt[a + b*x])/(96*a^2*x^2) - (b^2*(5*A*b - 8*a*B)*Sqrt[a + b*x])/
(64*a^3*x) - (A*(a + b*x)^(3/2))/(4*a*x^4) + (b^3*(5*A*b - 8*a*B)
*ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/(64*a^(7/2))
```

Rubi in Sympy [A] time = 17.6599, size = 134, normalized size = 0.92

$$-\frac{A\left(a+bx\right)^{\frac{3}{2}}}{4ax^4}+\frac{\sqrt{a+bx}\left(5Ab-8Ba\right)}{24ax^3}+\frac{b\sqrt{a+bx}\left(5Ab-8Ba\right)}{96a^2x^2}-\frac{b^2\sqrt{a+bx}\left(5Ab-8Ba\right)}{64a^3x}+\frac{b^3\left(5Ab-8Ba\right)\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{64a^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(b*x+a)**(1/2)/x**5,x)
```

```
[Out] -A*(a + b*x)**(3/2)/(4*a*x**4) + sqrt(a + b*x)*(5*A*b - 8*B*a)/(2
4*a*x**3) + b*sqrt(a + b*x)*(5*A*b - 8*B*a)/(96*a**2*x**2) - b**2
*sqrt(a + b*x)*(5*A*b - 8*B*a)/(64*a**3*x) + b**3*(5*A*b - 8*B*a)
*atanh(sqrt(a + b*x)/sqrt(a))/(64*a**(7/2))
```

Mathematica [A] time = 0.17541, size = 110, normalized size = 0.75

$$\frac{b^3(5Ab-8aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{64a^{7/2}}-\frac{\sqrt{a+bx}\left(16a^3(3A+4Bx)+8a^2bx(A+2Bx)-2ab^2x^2(5A+12Bx)+15Ab^3x^3\right)}{192a^3x^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[a + b*x]*(A + B*x))/x^5,x]
```

```
[Out] -(Sqrt[a + b*x]*(15*A*b^3*x^3 + 8*a^2*b*x*(A + 2*B*x) + 16*a^3*(3
*A + 4*B*x) - 2*a*b^2*x^2*(5*A + 12*B*x)))/(192*a^3*x^4) + (b^3*(
5*A*b - 8*a*B)*ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/(64*a^(7/2))
```

Maple [A] time = 0.018, size = 121, normalized size = 0.8

$$2\,b^{3}\left(\frac{1}{x^{4}b^{4}}\left(-\frac{(5\,Ab-8\,Ba)\,(bx+a)^{7/2}}{128\,a^{3}}+\frac{(55\,Ab-88\,Ba)\,(bx+a)^{5/2}}{384\,a^{2}}-\frac{(73\,Ab-40\,Ba)\,(bx+a)^{3/2}}{384\,a}+\left(-\frac{5\,Ab}{128}+1/16\,Ba\right)\sqrt{\cdot}\right.\right.$$
$$\left.\left.+\frac{5\,Ab-8\,Ba}{128\,a^{7/2}}Artanh\left(\frac{\sqrt{bx+a}}{\sqrt{a}}\right)\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(b*x+a)^(1/2)/x^5,x)
```

```
[Out] 2*b^3*((-1/128*(5*A*b-8*B*a)/a^3*(b*x+a)^(7/2)+11/384/a^2*(5*A*b-
8*B*a)*(b*x+a)^(5/2)-1/384*(73*A*b-40*B*a)/a*(b*x+a)^(3/2)+(-5/12
8*A*b+1/16*B*a)*(b*x+a)^(1/2))/x^4/b^4+1/128*(5*A*b-8*B*a)/a^(7/2
)*arctanh((b*x+a)^(1/2)/a^(1/2)))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/x^5,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.224252, size = 1, normalized size = 0.01

$$\left[-\frac{3\left(8\,Bab^{3}-5\,Ab^{4}\right)x^{4}\log\left(\frac{(bx+2\,a)\sqrt{a}+2\,\sqrt{bx+a}a}{x}\right)+2\left(48\,Aa^{3}-3\left(8\,Bab^{2}-5\,Ab^{3}\right)x^{3}+2\left(8\,Ba^{2}b-5\,Aab^{2}\right)x^{2}+8\left(8\,Ba^{3}+\cdots\right.\right.}{384\,a^{\frac{7}{2}}x^{4}}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/x^5,x, algorithm="fricas")
```

```
[Out] [-1/384*(3*(8*B*a*b^3 - 5*A*b^4)*x^4*log(((b*x + 2*a)*sqrt(a) + 2
*sqrt(b*x + a)*a)/x) + 2*(48*A*a^3 - 3*(8*B*a*b^2 - 5*A*b^3)*x^3
+ 2*(8*B*a^2*b - 5*A*a*b^2)*x^2 + 8*(8*B*a^3 + A*a^2*b)*x)*sqrt(b
*x + a)*sqrt(a))/(a^(7/2)*x^4), 1/192*(3*(8*B*a*b^3 - 5*A*b^4)*x^
4*arctan(a/(sqrt(b*x + a)*sqrt(-a))) - (48*A*a^3 - 3*(8*B*a*b^2 -
 5*A*b^3)*x^3 + 2*(8*B*a^2*b - 5*A*a*b^2)*x^2 + 8*(8*B*a^3 + A*a^
2*b)*x)*sqrt(b*x + a)*sqrt(-a))/(sqrt(-a)*a^3*x^4)]
```

Sympy [A] time = 58.3618, size = 1001, normalized size = 6.86

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(b*x+a)**(1/2)/x**5,x)
```

```
[Out] -558*A*a**4*b**4*sqrt(a + b*x)/(-1152*a**8 - 1536*a**7*b*x + 2304
*a**6*(a + b*x)**2 - 1536*a**5*(a + b*x)**3 + 384*a**4*(a + b*x)*
*4) + 1022*A*a**3*b**4*(a + b*x)**(3/2)/(-1152*a**8 - 1536*a**7*b
*x + 2304*a**6*(a + b*x)**2 - 1536*a**5*(a + b*x)**3 + 384*a**4*(
a + b*x)**4) - 770*A*a**2*b**4*(a + b*x)**(5/2)/(-1152*a**8 - 153
6*a**7*b*x + 2304*a**6*(a + b*x)**2 - 1536*a**5*(a + b*x)**3 + 38
4*a**4*(a + b*x)**4) - 66*A*a**2*b**4*sqrt(a + b*x)/(96*a**6 + 14
4*a**5*b*x - 144*a**4*(a + b*x)**2 + 48*a**3*(a + b*x)**3) + 210*
A*a*b**4*(a + b*x)**(7/2)/(-1152*a**8 - 1536*a**7*b*x + 2304*a**6
*(a + b*x)**2 - 1536*a**5*(a + b*x)**3 + 384*a**4*(a + b*x)**4) +
 80*A*a*b**4*(a + b*x)**(3/2)/(96*a**6 + 144*a**5*b*x - 144*a**4*
(a + b*x)**2 + 48*a**3*(a + b*x)**3) + 35*A*a*b**4*sqrt(a**(-9))*
log(-a**5*sqrt(a**(-9)) + sqrt(a + b*x))/128 - 35*A*a*b**4*sqrt(a
**(-9))*log(a**5*sqrt(a**(-9)) + sqrt(a + b*x))/128 - 30*A*b**4*(
a + b*x)**(5/2)/(96*a**6 + 144*a**5*b*x - 144*a**4*(a + b*x)**2 +
 48*a**3*(a + b*x)**3) - 5*A*b**4*sqrt(a**(-7))*log(-a**4*sqrt(a*
*(-7)) + sqrt(a + b*x))/16 + 5*A*b**4*sqrt(a**(-7))*log(a**4*sqrt
(a**(-7)) + sqrt(a + b*x))/16 - 66*B*a**3*b**3*sqrt(a + b*x)/(96*
a**6 + 144*a**5*b*x - 144*a**4*(a + b*x)**2 + 48*a**3*(a + b*x)**
3) + 80*B*a**2*b**3*(a + b*x)**(3/2)/(96*a**6 + 144*a**5*b*x - 14
4*a**4*(a + b*x)**2 + 48*a**3*(a + b*x)**3) - 30*B*a*b**3*(a + b*
x)**(5/2)/(96*a**6 + 144*a**5*b*x - 144*a**4*(a + b*x)**2 + 48*a*
*3*(a + b*x)**3) - 10*B*a*b**3*sqrt(a + b*x)/(-8*a**4 - 16*a**3*b
*x + 8*a**2*(a + b*x)**2) - 5*B*a*b**3*sqrt(a**(-7))*log(-a**4*sq
rt(a**(-7)) + sqrt(a + b*x))/16 + 5*B*a*b**3*sqrt(a**(-7))*log(a*
*4*sqrt(a**(-7)) + sqrt(a + b*x))/16 + 6*B*b**3*(a + b*x)**(3/2)/
(-8*a**4 - 16*a**3*b*x + 8*a**2*(a + b*x)**2) + 3*B*b**3*sqrt(a**
(-5))*log(-a**3*sqrt(a**(-5)) + sqrt(a + b*x))/8 - 3*B*b**3*sqrt(
a**(-5))*log(a**3*sqrt(a**(-5)) + sqrt(a + b*x))/8
```

GIAC/XCAS [A] time = 0.237769, size = 238, normalized size = 1.63

$$\frac{\frac{3\left(8\,Bab^4-5\,Ab^5\right)\arctan\left(\frac{\sqrt{bx+a}}{\sqrt{-a}}\right)}{\sqrt{-a}a^3}+\frac{24\,(bx+a)^{\frac{7}{2}}Bab^4-88\,(bx+a)^{\frac{5}{2}}Ba^2b^4+40\,(bx+a)^{\frac{3}{2}}Ba^3b^4+24\,\sqrt{bx+a}Ba^4b^4-15\,(bx+a)^{\frac{7}{2}}Ab^5+55\,(bx+a)^{\frac{5}{2}}Aab^5-73\,(bx+a)}{a^3b^4x^4}}{192\,b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/x^5,x, algorithm="giac")
```

```
[Out] 1/192*(3*(8*B*a*b^4 - 5*A*b^5)*arctan(sqrt(b*x + a)/sqrt(-a))/(sq
rt(-a)*a^3) + (24*(b*x + a)^(7/2)*B*a*b^4 - 88*(b*x + a)^(5/2)*B*
a^2*b^4 + 40*(b*x + a)^(3/2)*B*a^3*b^4 + 24*sqrt(b*x + a)*B*a^4*b
^4 - 15*(b*x + a)^(7/2)*A*b^5 + 55*(b*x + a)^(5/2)*A*a*b^5 - 73*(
b*x + a)^(3/2)*A*a^2*b^5 - 15*sqrt(b*x + a)*A*a^3*b^5)/(a^3*b^4*x
^4))/b
```

3.385 $\int \frac{\sqrt{a+bx}(A+Bx)}{x^6}\,dx$

Optimal. Leaf size=177

$$-\frac{b^4(7Ab-10aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{128a^{9/2}}+\frac{b^3\sqrt{a+bx}(7Ab-10aB)}{128a^4x}-\frac{b^2\sqrt{a+bx}(7Ab-10aB)}{192a^3x^2}+\frac{b\sqrt{a+bx}(7Ab-10aB)}{240a^2x^3}+\frac{\sqrt{a+bx}(7Ab-10aB)}{40ax^4}-\frac{A(a+bx)^{3/2}}{5ax^5}$$

```
[Out] ((7*A*b - 10*a*B)*Sqrt[a + b*x])/(40*a*x^4) + (b*(7*A*b - 10*a*B)
*Sqrt[a + b*x])/(240*a^2*x^3) - (b^2*(7*A*b - 10*a*B)*Sqrt[a + b*
x])/(192*a^3*x^2) + (b^3*(7*A*b - 10*a*B)*Sqrt[a + b*x])/(128*a^4
*x) - (A*(a + b*x)^(3/2))/(5*a*x^5) - (b^4*(7*A*b - 10*a*B)*ArcTa
nh[Sqrt[a + b*x]/Sqrt[a]])/(128*a^(9/2))
```

Rubi [A] time = 0.242388, antiderivative size = 177, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.278$

$$-\frac{b^4(7Ab-10aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{128a^{9/2}}+\frac{b^3\sqrt{a+bx}(7Ab-10aB)}{128a^4x}-\frac{b^2\sqrt{a+bx}(7Ab-10aB)}{192a^3x^2}+\frac{b\sqrt{a+bx}(7Ab-10aB)}{240a^2x^3}+\frac{\sqrt{a+bx}(7Ab-10aB)}{40ax^4}-\frac{A(a+bx)^{3/2}}{5ax^5}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[a + b*x]*(A + B*x))/x^6,x]
```

```
[Out] ((7*A*b - 10*a*B)*Sqrt[a + b*x])/(40*a*x^4) + (b*(7*A*b - 10*a*B)
*Sqrt[a + b*x])/(240*a^2*x^3) - (b^2*(7*A*b - 10*a*B)*Sqrt[a + b*
x])/(192*a^3*x^2) + (b^3*(7*A*b - 10*a*B)*Sqrt[a + b*x])/(128*a^4
*x) - (A*(a + b*x)^(3/2))/(5*a*x^5) - (b^4*(7*A*b - 10*a*B)*ArcTa
nh[Sqrt[a + b*x]/Sqrt[a]])/(128*a^(9/2))
```

Rubi in Sympy [A] time = 22.7244, size = 165, normalized size = 0.93

$$-\frac{A\left(a+bx\right)^{\frac{3}{2}}}{5ax^5}+\frac{\sqrt{a+bx}\left(7Ab-10Ba\right)}{40ax^4}+\frac{b\sqrt{a+bx}\left(7Ab-10Ba\right)}{240a^2x^3}-\frac{b^2\sqrt{a+bx}\left(7Ab-10Ba\right)}{192a^3x^2}+\frac{b^3\sqrt{a+bx}\left(7Ab-10Ba\right)}{128a^4x}-\frac{b^4\left(7Ab-10Ba\right)\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{128a^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(b*x+a)**(1/2)/x**6,x)
```

```
[Out] -A*(a + b*x)**(3/2)/(5*a*x**5) + sqrt(a + b*x)*(7*A*b - 10*B*a)/(
40*a*x**4) + b*sqrt(a + b*x)*(7*A*b - 10*B*a)/(240*a**2*x**3) - b
**2*sqrt(a + b*x)*(7*A*b - 10*B*a)/(192*a**3*x**2) + b**3*sqrt(a
+ b*x)*(7*A*b - 10*B*a)/(128*a**4*x) - b**4*(7*A*b - 10*B*a)*atan
h(sqrt(a + b*x)/sqrt(a))/(128*a**(9/2))
```

Mathematica [A] time = 0.26069, size = 132, normalized size = 0.75

$$\frac{\frac{\sqrt{a}\sqrt{a+bx}\left(-96a^4(4A+5Bx)-16a^3bx(3A+5Bx)+4a^2b^2x^2(14A+25Bx)-10ab^3x^3(7A+15Bx)+105Ab^4x^4\right)}{x^5}-15b^4(7Ab-10aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{1920a^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[a + b*x]*(A + B*x))/x^6,x]
```

```
[Out] ((Sqrt[a]*Sqrt[a + b*x]*(105*A*b^4*x^4 - 16*a^3*b*x*(3*A + 5*B*x)
 - 96*a^4*(4*A + 5*B*x) - 10*a*b^3*x^3*(7*A + 15*B*x) + 4*a^2*b^2
*x^2*(14*A + 25*B*x)))/x^5 - 15*b^4*(7*A*b - 10*a*B)*ArcTanh[Sqrt
[a + b*x]/Sqrt[a]])/(1920*a^(9/2))
```

Maple [A] time = 0.022, size = 142, normalized size = 0.8

$$2\,b^4\left(\frac{1}{b^5x^5}\left(\frac{(7\,Ab-10\,Ba)\,(bx+a)^{9/2}}{256\,a^4}-\frac{(49\,Ab-70\,Ba)\,(bx+a)^{7/2}}{384\,a^3}+1/30\,\frac{(7\,Ab-10\,Ba)\,(bx+a)^{5/2}}{a^2}-\frac{(79\,Ab-58\,Ba)\,(b\right.\right.$$
$$\left.\left.-\frac{7\,Ab-10\,Ba}{256\,a^{9/2}}\mathrm{Artanh}\left(\frac{\sqrt{bx+a}}{\sqrt{a}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(b*x+a)^(1/2)/x^6,x)
```

```
[Out] 2*b^4*((1/256*(7*A*b-10*B*a)/a^4*(b*x+a)^(9/2)-7/384/a^3*(7*A*b-1
0*B*a)*(b*x+a)^(7/2)+1/30/a^2*(7*A*b-10*B*a)*(b*x+a)^(5/2)-1/384*
(79*A*b-58*B*a)/a*(b*x+a)^(3/2)+(-7/256*A*b+5/128*B*a)*(b*x+a)^(1
/2))/x^5/b^5-1/256*(7*A*b-10*B*a)/a^(9/2)*arctanh((b*x+a)^(1/2)/a
^(1/2)))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/x^6,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.222426, size = 1, normalized size = 0.01

$$\left[-\frac{15\left(10\,Bab^4-7\,Ab^5\right)x^5\log\left(\frac{(bx+2\,a)\sqrt{a}-2\,\sqrt{bx+a}a}{x}\right)+2\left(384\,Aa^4+15\left(10\,Bab^3-7\,Ab^4\right)x^4-10\left(10\,Ba^2b^2-7\,Aab^3\right)x^3+8\right.}{3840\,a^{\frac{9}{2}}x^5}\right.$$
$$-\frac{15\left(10\,Bab^4-7\,Ab^5\right)x^5\arctan\left(\frac{a}{\sqrt{bx+a}\sqrt{-a}}\right)+\left(384\,Aa^4+15\left(10\,Bab^3-7\,Ab^4\right)x^4-10\left(10\,Ba^2b^2-7\,Aab^3\right)x^3+8\left(10\,Ba^3b\right.}{1920\,\sqrt{-a}a^4x^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/x^6,x, algorithm="fricas")
```

```
[Out] [-1/3840*(15*(10*B*a*b^4 - 7*A*b^5)*x^5*log(((b*x + 2*a)*sqrt(a)
- 2*sqrt(b*x + a)*a)/x) + 2*(384*A*a^4 + 15*(10*B*a*b^3 - 7*A*b^4
)*x^4 - 10*(10*B*a^2*b^2 - 7*A*a*b^3)*x^3 + 8*(10*B*a^3*b - 7*A*a
^2*b^2)*x^2 + 48*(10*B*a^4 + A*a^3*b)*x)*sqrt(b*x + a)*sqrt(a))/(
a^(9/2)*x^5), -1/1920*(15*(10*B*a*b^4 - 7*A*b^5)*x^5*arctan(a/(sq
rt(b*x + a)*sqrt(-a))) + (384*A*a^4 + 15*(10*B*a*b^3 - 7*A*b^4)*x
^4 - 10*(10*B*a^2*b^2 - 7*A*a*b^3)*x^3 + 8*(10*B*a^3*b - 7*A*a^2*
```

```
b^2)*x^2 + 48*(10*B*a^4 + A*a^3*b)*x)*sqrt(b*x + a)*sqrt(-a))/(sq
rt(-a)*a^4*x^5)]
```

Sympy [A] time = 76.3841, size = 1416, normalized size = 8.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(b*x+a)**(1/2)/x**6,x)
```

```
[Out] -1930*A*a**5*b**5*sqrt(a + b*x)/(5120*a**10 + 6400*a**9*b*x - 128
00*a**8*(a + b*x)**2 + 12800*a**7*(a + b*x)**3 - 6400*a**6*(a + b
*x)**4 + 1280*a**5*(a + b*x)**5) + 4740*A*a**4*b**5*(a + b*x)**(3
/2)/(5120*a**10 + 6400*a**9*b*x - 12800*a**8*(a + b*x)**2 + 12800
*a**7*(a + b*x)**3 - 6400*a**6*(a + b*x)**4 + 1280*a**5*(a + b*x)
**5) - 5376*A*a**3*b**5*(a + b*x)**(5/2)/(5120*a**10 + 6400*a**9*
b*x - 12800*a**8*(a + b*x)**2 + 12800*a**7*(a + b*x)**3 - 6400*a*
*6*(a + b*x)**4 + 1280*a**5*(a + b*x)**5) - 558*A*a**3*b**5*sqrt(
a + b*x)/(-1152*a**8 - 1536*a**7*b*x + 2304*a**6*(a + b*x)**2 - 1
536*a**5*(a + b*x)**3 + 384*a**4*(a + b*x)**4) + 2940*A*a**2*b**5
*(a + b*x)**(7/2)/(5120*a**10 + 6400*a**9*b*x - 12800*a**8*(a + b
*x)**2 + 12800*a**7*(a + b*x)**3 - 6400*a**6*(a + b*x)**4 + 1280*
a**5*(a + b*x)**5) + 1022*A*a**2*b**5*(a + b*x)**(3/2)/(-1152*a**
8 - 1536*a**7*b*x + 2304*a**6*(a + b*x)**2 - 1536*a**5*(a + b*x)*
*3 + 384*a**4*(a + b*x)**4) - 630*A*a*b**5*(a + b*x)**(9/2)/(5120
*a**10 + 6400*a**9*b*x - 12800*a**8*(a + b*x)**2 + 12800*a**7*(a
+ b*x)**3 - 6400*a**6*(a + b*x)**4 + 1280*a**5*(a + b*x)**5) - 77
0*A*a*b**5*(a + b*x)**(5/2)/(-1152*a**8 - 1536*a**7*b*x + 2304*a*
*6*(a + b*x)**2 - 1536*a**5*(a + b*x)**3 + 384*a**4*(a + b*x)**4)
 - 63*A*a*b**5*sqrt(a**(-11))*log(-a**6*sqrt(a**(-11)) + sqrt(a +
 b*x))/256 + 63*A*a*b**5*sqrt(a**(-11))*log(a**6*sqrt(a**(-11)) +
 sqrt(a + b*x))/256 + 210*A*b**5*(a + b*x)**(7/2)/(-1152*a**8 - 1
536*a**7*b*x + 2304*a**6*(a + b*x)**2 - 1536*a**5*(a + b*x)**3 +
384*a**4*(a + b*x)**4) + 35*A*b**5*sqrt(a**(-9))*log(-a**5*sqrt(a
**(-9)) + sqrt(a + b*x))/128 - 35*A*b**5*sqrt(a**(-9))*log(a**5*s
qrt(a**(-9)) + sqrt(a + b*x))/128 - 558*B*a**4*b**4*sqrt(a + b*x)
/(-1152*a**8 - 1536*a**7*b*x + 2304*a**6*(a + b*x)**2 - 1536*a**5
*(a + b*x)**3 + 384*a**4*(a + b*x)**4) + 1022*B*a**3*b**4*(a + b*
x)**(3/2)/(-1152*a**8 - 1536*a**7*b*x + 2304*a**6*(a + b*x)**2 -
1536*a**5*(a + b*x)**3 + 384*a**4*(a + b*x)**4) - 770*B*a**2*b**4
*(a + b*x)**(5/2)/(-1152*a**8 - 1536*a**7*b*x + 2304*a**6*(a + b*
x)**2 - 1536*a**5*(a + b*x)**3 + 384*a**4*(a + b*x)**4) - 66*B*a*
*2*b**4*sqrt(a + b*x)/(96*a**6 + 144*a**5*b*x - 144*a**4*(a + b*x
)**2 + 48*a**3*(a + b*x)**3) + 210*B*a*b**4*(a + b*x)**(7/2)/(-11
52*a**8 - 1536*a**7*b*x + 2304*a**6*(a + b*x)**2 - 1536*a**5*(a +
 b*x)**3 + 384*a**4*(a + b*x)**4) + 80*B*a*b**4*(a + b*x)**(3/2)/
(96*a**6 + 144*a**5*b*x - 144*a**4*(a + b*x)**2 + 48*a**3*(a + b*
x)**3) + 35*B*a*b**4*sqrt(a**(-9))*log(-a**5*sqrt(a**(-9)) + sqrt
(a + b*x))/128 - 35*B*a*b**4*sqrt(a**(-9))*log(a**5*sqrt(a**(-9))
 + sqrt(a + b*x))/128 - 30*B*b**4*(a + b*x)**(5/2)/(96*a**6 + 144
*a**5*b*x - 144*a**4*(a + b*x)**2 + 48*a**3*(a + b*x)**3) - 5*B*b
**4*sqrt(a**(-7))*log(-a**4*sqrt(a**(-7)) + sqrt(a + b*x))/16 + 5
*B*b**4*sqrt(a**(-7))*log(a**4*sqrt(a**(-7)) + sqrt(a + b*x))/16
```

GIAC/XCAS [A] time = 0.214152, size = 281, normalized size = 1.59

$$-\frac{\frac{15\left(10\,Bab^{5}-7\,Ab^{6}\right)\arctan\left(\frac{\sqrt{bx+a}}{\sqrt{-a}}\right)}{\sqrt{-a}a^{4}}+\frac{150\,(bx+a)^{\frac{9}{2}}Bab^{5}-700\,(bx+a)^{\frac{7}{2}}Ba^{2}b^{5}+1280\,(bx+a)^{\frac{5}{2}}Ba^{3}b^{5}-580\,(bx+a)^{\frac{3}{2}}Ba^{4}b^{5}-150\sqrt{bx+a}Ba^{5}b^{5}-105\,(bx+a)^{\frac{9}{2}}A\cdots}{a^{4}b^{5}x^{5}}}{1920\,b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/x^6,x, algorithm="giac")
```

```
[Out] -1/1920*(15*(10*B*a*b^5 - 7*A*b^6)*arctan(sqrt(b*x + a)/sqrt(-a))
/(sqrt(-a)*a^4) + (150*(b*x + a)^(9/2)*B*a*b^5 - 700*(b*x + a)^(7
/2)*B*a^2*b^5 + 1280*(b*x + a)^(5/2)*B*a^3*b^5 - 580*(b*x + a)^(3
/2)*B*a^4*b^5 - 150*sqrt(b*x + a)*B*a^5*b^5 - 105*(b*x + a)^(9/2)
*A*b^6 + 490*(b*x + a)^(7/2)*A*a*b^6 - 896*(b*x + a)^(5/2)*A*a^2*
b^6 + 790*(b*x + a)^(3/2)*A*a^3*b^6 + 105*sqrt(b*x + a)*A*a^4*b^6
)/(a^4*b^5*x^5))/b
```

3.386 $\int x^4(a+bx)^{3/2}(A+Bx)\,dx$

Optimal. Leaf size=151

$$\frac{2a^4(a+bx)^{5/2}(Ab-aB)}{5b^6}-\frac{2a^3(a+bx)^{7/2}(4Ab-5aB)}{7b^6}+\frac{4a^2(a+bx)^{9/2}(3Ab-5aB)}{9b^6}+\frac{2(a+bx)^{13/2}(Ab-5aB)}{13b^6}-\frac{4a(a+bx)^{11/2}(2Ab-5aB)}{11b^6}+\frac{2B(a+bx)^{15/2}}{15b^6}$$

```
[Out] (2*a^4*(A*b - a*B)*(a + b*x)^(5/2))/(5*b^6) - (2*a^3*(4*A*b - 5*a
*B)*(a + b*x)^(7/2))/(7*b^6) + (4*a^2*(3*A*b - 5*a*B)*(a + b*x)^(
9/2))/(9*b^6) - (4*a*(2*A*b - 5*a*B)*(a + b*x)^(11/2))/(11*b^6) +
 (2*(A*b - 5*a*B)*(a + b*x)^(13/2))/(13*b^6) + (2*B*(a + b*x)^(15
/2))/(15*b^6)
```

Rubi [A] time = 0.190845, antiderivative size = 151, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{2a^4(a+bx)^{5/2}(Ab-aB)}{5b^6}-\frac{2a^3(a+bx)^{7/2}(4Ab-5aB)}{7b^6}+\frac{4a^2(a+bx)^{9/2}(3Ab-5aB)}{9b^6}+\frac{2(a+bx)^{13/2}(Ab-5aB)}{13b^6}-\frac{4a(a+bx)^{11/2}(2Ab-5aB)}{11b^6}+\frac{2B(a+bx)^{15/2}}{15b^6}$$

Antiderivative was successfully verified.

```
[In]  Int[x^4*(a + b*x)^(3/2)*(A + B*x),x]
```

```
[Out] (2*a^4*(A*b - a*B)*(a + b*x)^(5/2))/(5*b^6) - (2*a^3*(4*A*b - 5*a
*B)*(a + b*x)^(7/2))/(7*b^6) + (4*a^2*(3*A*b - 5*a*B)*(a + b*x)^(
9/2))/(9*b^6) - (4*a*(2*A*b - 5*a*B)*(a + b*x)^(11/2))/(11*b^6) +
 (2*(A*b - 5*a*B)*(a + b*x)^(13/2))/(13*b^6) + (2*B*(a + b*x)^(15
/2))/(15*b^6)
```

Rubi in Sympy [A] time = 27.544, size = 150, normalized size = 0.99

$$\frac{2B\left(a+bx\right)^{\frac{15}{2}}}{15b^6}+\frac{2a^4\left(a+bx\right)^{\frac{5}{2}}\left(Ab-Ba\right)}{5b^6}-\frac{2a^3\left(a+bx\right)^{\frac{7}{2}}\left(4Ab-5Ba\right)}{7b^6}+\frac{4a^2\left(a+bx\right)^{\frac{9}{2}}\left(3Ab-5Ba\right)}{9b^6}-\frac{4a\left(a+bx\right)^{\frac{11}{2}}\left(2Ab-5Ba\right)}{11b^6}+\frac{2\left(a+bx\right)^{\frac{13}{2}}\left(Ab-5Ba\right)}{13b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**4*(b*x+a)**(3/2)*(B*x+A),x)
```

```
[Out] 2*B*(a + b*x)**(15/2)/(15*b**6) + 2*a**4*(a + b*x)**(5/2)*(A*b -
B*a)/(5*b**6) - 2*a**3*(a + b*x)**(7/2)*(4*A*b - 5*B*a)/(7*b**6)
+ 4*a**2*(a + b*x)**(9/2)*(3*A*b - 5*B*a)/(9*b**6) - 4*a*(a + b*x
)**(11/2)*(2*A*b - 5*B*a)/(11*b**6) + 2*(a + b*x)**(13/2)*(A*b -
5*B*a)/(13*b**6)
```

Mathematica [A] time = 0.118098, size = 103, normalized size = 0.68

$$\frac{2(a+bx)^{5/2}\left(-256a^5B+128a^4b(3A+5Bx)-160a^3b^2x(6A+7Bx)+1680a^2b^3x^2(A+Bx)-210ab^4x^3(12A+11Bx)+231b^5x\right.}{45045b^6}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^4*(a + b*x)^(3/2)*(A + B*x),x]
```

```
[Out] (2*(a + b*x)^(5/2)*(-256*a^5*B + 1680*a^2*b^3*x^2*(A + B*x) + 128
*a^4*b*(3*A + 5*B*x) - 160*a^3*b^2*x*(6*A + 7*B*x) - 210*a*b^4*x^
3*(12*A + 11*B*x) + 231*b^5*x^4*(15*A + 13*B*x)))/(45045*b^6)
```

Maple [A] time = 0.009, size = 119, normalized size = 0.8

$$\frac{6006\,b^5Bx^5+6930\,Ax^4b^5-4620\,Bx^4ab^4-5040\,Ax^3ab^4+3360\,Bx^3a^2b^3+3360\,Ax^2a^2b^3-2240\,Bx^2a^3b^2-1920\,Axa^3b^2+1}{45045\,b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^4*(b*x+a)^(3/2)*(B*x+A),x)
```

```
[Out] 2/45045*(b*x+a)^(5/2)*(3003*B*b^5*x^5+3465*A*b^5*x^4-2310*B*a*b^4
*x^4-2520*A*a*b^4*x^3+1680*B*a^2*b^3*x^3+1680*A*a^2*b^3*x^2-1120*
B*a^3*b^2*x^2-960*A*a^3*b^2*x+640*B*a^4*b*x+384*A*a^4*b-256*B*a^5
)/b^6
```

Maxima [A] time = 1.35144, size = 166, normalized size = 1.1

$$\frac{2\left(3003\,(bx+a)^{\frac{15}{2}}B-3465\,(5\,Ba-Ab)(bx+a)^{\frac{13}{2}}+8190\,\left(5\,Ba^2-2\,Aab\right)(bx+a)^{\frac{11}{2}}-10010\,\left(5\,Ba^3-3\,Aa^2b\right)(bx+a)^{\frac{9}{2}}+64}{45045\,b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)*x^4,x, algorithm="maxima")
```

```
[Out] 2/45045*(3003*(b*x + a)^(15/2)*B - 3465*(5*B*a - A*b)*(b*x + a)^(
13/2) + 8190*(5*B*a^2 - 2*A*a*b)*(b*x + a)^(11/2) - 10010*(5*B*a^
3 - 3*A*a^2*b)*(b*x + a)^(9/2) + 6435*(5*B*a^4 - 4*A*a^3*b)*(b*x
+ a)^(7/2) - 9009*(B*a^5 - A*a^4*b)*(b*x + a)^(5/2))/b^6
```

Fricas [A] time = 0.206736, size = 225, normalized size = 1.49

$$\frac{2\left(3003\,Bb^7x^7-256\,Ba^7+384\,Aa^6b+231\left(16\,Bab^6+15\,Ab^7\right)x^6+63\left(Ba^2b^5+70\,Aab^6\right)x^5-35\left(2\,Ba^3b^4-3\,Aa^2b^5\right)x^4+4}{45045\,b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)*x^4,x, algorithm="fricas")
```

```
[Out] 2/45045*(3003*B*b^7*x^7 - 256*B*a^7 + 384*A*a^6*b + 231*(16*B*a*b
^6 + 15*A*b^7)*x^6 + 63*(B*a^2*b^5 + 70*A*a*b^6)*x^5 - 35*(2*B*a^
3*b^4 - 3*A*a^2*b^5)*x^4 + 40*(2*B*a^4*b^3 - 3*A*a^3*b^4)*x^3 - 4
8*(2*B*a^5*b^2 - 3*A*a^4*b^3)*x^2 + 64*(2*B*a^6*b - 3*A*a^5*b^2)*
x)*sqrt(b*x + a)/b^6
```

Sympy [A] time = 5.91899, size = 355, normalized size = 2.35

$$\frac{2Aa\left(\frac{a^4(a+bx)^{\frac{3}{2}}}{3}-\frac{4a^3(a+bx)^{\frac{5}{2}}}{5}+\frac{6a^2(a+bx)^{\frac{7}{2}}}{7}-\frac{4a(a+bx)^{\frac{9}{2}}}{9}+\frac{(a+bx)^{\frac{11}{2}}}{11}\right)}{b^5}+\frac{2A\left(-\frac{a^5(a+bx)^{\frac{3}{2}}}{3}+a^4(a+bx)^{\frac{5}{2}}-\frac{10a^3(a+bx)^{\frac{7}{2}}}{7}+\frac{10a^2(a+bx)^{\frac{9}{2}}}{9}-\frac{5a(a+bx)^{\frac{11}{2}}}{11}+\frac{(a+bx)^{\frac{13}{2}}}{13}\right)}{b^5}+\frac{2Ba\left(-\frac{a^5(a+bx)^{\frac{3}{2}}}{3}+a^4(a+bx)^{\frac{5}{2}}-\frac{10a^3(a+bx)^{\frac{7}{2}}}{7}+\frac{10a^2(a+bx)^{\frac{9}{2}}}{9}-\frac{5a(a+bx)^{\frac{11}{2}}}{11}+\frac{(a+bx)^{\frac{13}{2}}}{13}\right)}{b^6}+\frac{2B\left(\frac{a^6(a+bx)^{\frac{3}{2}}}{3}-\frac{6a^5(a+bx)^{\frac{5}{2}}}{5}+\frac{15a^4(a+bx)^{\frac{7}{2}}}{7}-\frac{20a^3(a+bx)^{\frac{9}{2}}}{9}+\frac{15a^2(a+bx)^{\frac{11}{2}}}{11}-\frac{6a(a+bx)^{\frac{13}{2}}}{13}+\frac{(a+bx)^{\frac{15}{2}}}{15}\right)}{b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**4*(b*x+a)**(3/2)*(B*x+A),x)
```

```
[Out] 2*A*a*(a**4*(a + b*x)**(3/2)/3 - 4*a**3*(a + b*x)**(5/2)/5 + 6*a*
*2*(a + b*x)**(7/2)/7 - 4*a*(a + b*x)**(9/2)/9 + (a + b*x)**(11/2
)/11)/b**5 + 2*A*(-a**5*(a + b*x)**(3/2)/3 + a**4*(a + b*x)**(5/2
) - 10*a**3*(a + b*x)**(7/2)/7 + 10*a**2*(a + b*x)**(9/2)/9 - 5*a
*(a + b*x)**(11/2)/11 + (a + b*x)**(13/2)/13)/b**5 + 2*B*a*(-a**5
*(a + b*x)**(3/2)/3 + a**4*(a + b*x)**(5/2) - 10*a**3*(a + b*x)**
(7/2)/7 + 10*a**2*(a + b*x)**(9/2)/9 - 5*a*(a + b*x)**(11/2)/11 +
 (a + b*x)**(13/2)/13)/b**6 + 2*B*(a**6*(a + b*x)**(3/2)/3 - 6*a*
*5*(a + b*x)**(5/2)/5 + 15*a**4*(a + b*x)**(7/2)/7 - 20*a**3*(a +
 b*x)**(9/2)/9 + 15*a**2*(a + b*x)**(11/2)/11 - 6*a*(a + b*x)**(1
3/2)/13 + (a + b*x)**(15/2)/15)/b**6
```

GIAC/XCAS [A] time = 0.216821, size = 506, normalized size = 3.35

$$2\left(\frac{13\left(315\,(bx+a)^{\frac{11}{2}}b^{40}-1540\,(bx+a)^{\frac{9}{2}}ab^{40}+2970\,(bx+a)^{\frac{7}{2}}a^2b^{40}-2772\,(bx+a)^{\frac{5}{2}}a^3b^{40}+1155\,(bx+a)^{\frac{3}{2}}a^4b^{40}\right)Aa}{b^{44}}+\frac{5\left(693\,(bx+a)^{\frac{13}{2}}b^{60}-4095\,(bx+a)^{\frac{11}{2}}ab^{60}+10\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)*x^4,x, algorithm="giac")
```

```
[Out] 2/45045*(13*(315*(b*x + a)^(11/2)*b^40 - 1540*(b*x + a)^(9/2)*a*b
^40 + 2970*(b*x + a)^(7/2)*a^2*b^40 - 2772*(b*x + a)^(5/2)*a^3*b^
40 + 1155*(b*x + a)^(3/2)*a^4*b^40)*A*a/b^44 + 5*(693*(b*x + a)^(
13/2)*b^60 - 4095*(b*x + a)^(11/2)*a*b^60 + 10010*(b*x + a)^(9/2)
*a^2*b^60 - 12870*(b*x + a)^(7/2)*a^3*b^60 + 9009*(b*x + a)^(5/2)
*a^4*b^60 - 3003*(b*x + a)^(3/2)*a^5*b^60)*B*a/b^65 + 5*(693*(b*x
 + a)^(13/2)*b^60 - 4095*(b*x + a)^(11/2)*a*b^60 + 10010*(b*x + a
)^(9/2)*a^2*b^60 - 12870*(b*x + a)^(7/2)*a^3*b^60 + 9009*(b*x + a
)^(5/2)*a^4*b^60 - 3003*(b*x + a)^(3/2)*a^5*b^60)*A/b^64 + (3003*
(b*x + a)^(15/2)*b^84 - 20790*(b*x + a)^(13/2)*a*b^84 + 61425*(b*
x + a)^(11/2)*a^2*b^84 - 100100*(b*x + a)^(9/2)*a^3*b^84 + 96525*
(b*x + a)^(7/2)*a^4*b^84 - 54054*(b*x + a)^(5/2)*a^5*b^84 + 15015
*(b*x + a)^(3/2)*a^6*b^84)*B/b^89)/b
```

3.387 $\int x^3(a+bx)^{3/2}(A+Bx)\,dx$

Optimal. Leaf size=122

$$-\frac{2a^3(a+bx)^{5/2}(Ab-aB)}{5b^5}+\frac{2a^2(a+bx)^{7/2}(3Ab-4aB)}{7b^5}+\frac{2(a+bx)^{11/2}(Ab-4aB)}{11b^5}-\frac{2a(a+bx)^{9/2}(Ab-2aB)}{3b^5}+\frac{2B(a+bx)^{13/2}}{13b^5}$$

```
[Out] (-2*a^3*(A*b - a*B)*(a + b*x)^(5/2))/(5*b^5) + (2*a^2*(3*A*b - 4*
a*B)*(a + b*x)^(7/2))/(7*b^5) - (2*a*(A*b - 2*a*B)*(a + b*x)^(9/2
))/(3*b^5) + (2*(A*b - 4*a*B)*(a + b*x)^(11/2))/(11*b^5) + (2*B*(
a + b*x)^(13/2))/(13*b^5)
```

Rubi [A] time = 0.15479, antiderivative size = 122, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{2a^3(a+bx)^{5/2}(Ab-aB)}{5b^5}+\frac{2a^2(a+bx)^{7/2}(3Ab-4aB)}{7b^5}+\frac{2(a+bx)^{11/2}(Ab-4aB)}{11b^5}-\frac{2a(a+bx)^{9/2}(Ab-2aB)}{3b^5}+\frac{2B(a+bx)^{13/2}}{13b^5}$$

Antiderivative was successfully verified.

```
[In]  Int[x^3*(a + b*x)^(3/2)*(A + B*x),x]
```

```
[Out] (-2*a^3*(A*b - a*B)*(a + b*x)^(5/2))/(5*b^5) + (2*a^2*(3*A*b - 4*
a*B)*(a + b*x)^(7/2))/(7*b^5) - (2*a*(A*b - 2*a*B)*(a + b*x)^(9/2
))/(3*b^5) + (2*(A*b - 4*a*B)*(a + b*x)^(11/2))/(11*b^5) + (2*B*(
a + b*x)^(13/2))/(13*b^5)
```

Rubi in Sympy [A] time = 21.9568, size = 119, normalized size = 0.98

$$\frac{2B(a+bx)^{\frac{13}{2}}}{13b^5}-\frac{2a^3(a+bx)^{\frac{5}{2}}(Ab-Ba)}{5b^5}+\frac{2a^2(a+bx)^{\frac{7}{2}}(3Ab-4Ba)}{7b^5}-\frac{2a(a+bx)^{\frac{9}{2}}(Ab-2Ba)}{3b^5}+\frac{2(a+bx)^{\frac{11}{2}}(Ab-4Ba)}{11b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3*(b*x+a)**(3/2)*(B*x+A),x)
```

```
[Out] 2*B*(a + b*x)**(13/2)/(13*b**5) - 2*a**3*(a + b*x)**(5/2)*(A*b -
B*a)/(5*b**5) + 2*a**2*(a + b*x)**(7/2)*(3*A*b - 4*B*a)/(7*b**5)
- 2*a*(a + b*x)**(9/2)*(A*b - 2*B*a)/(3*b**5) + 2*(a + b*x)**(11/
2)*(A*b - 4*B*a)/(11*b**5)
```

Mathematica [A] time = 0.084017, size = 87, normalized size = 0.71

$$\frac{2(a+bx)^{5/2}\left(128a^4B-16a^3b(13A+20Bx)+40a^2b^2x(13A+14Bx)-70ab^3x^2(13A+12Bx)+105b^4x^3(13A+11Bx)\right)}{15015b^5}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^3*(a + b*x)^(3/2)*(A + B*x),x]
```

```
[Out] (2*(a + b*x)^(5/2)*(128*a^4*B + 105*b^4*x^3*(13*A + 11*B*x) - 70*
a*b^3*x^2*(13*A + 12*B*x) + 40*a^2*b^2*x*(13*A + 14*B*x) - 16*a^3
```

```
*b*(13*A + 20*B*x)))/(15015*b^5)
```

Maple [A] time = 0.008, size = 95, normalized size = 0.8

$$-\frac{-2310\,Bx^4b^4-2730\,Ab^4x^3+1680\,Bab^3x^3+1820\,Aab^3x^2-1120\,Ba^2b^2x^2-1040\,Aa^2b^2x+640\,Ba^3bx+416\,Aa^3b-256\,B}{15015\,b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^3*(b*x+a)^(3/2)*(B*x+A),x)
```

```
[Out] -2/15015*(b*x+a)^(5/2)*(-1155*B*b^4*x^4-1365*A*b^4*x^3+840*B*a*b^
3*x^3+910*A*a*b^3*x^2-560*B*a^2*b^2*x^2-520*A*a^2*b^2*x+320*B*a^3
*b*x+208*A*a^3*b-128*B*a^4)/b^5
```

Maxima [A] time = 1.35179, size = 135, normalized size = 1.11

$$\frac{2\left(1155\,(bx+a)^{\frac{13}{2}}B-1365\,(4\,Ba-Ab)(bx+a)^{\frac{11}{2}}+5005\,\left(2\,Ba^2-Aab\right)(bx+a)^{\frac{9}{2}}-2145\,\left(4\,Ba^3-3\,Aa^2b\right)(bx+a)^{\frac{7}{2}}+3003\,(\right.}{15015\,b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)*x^3,x, algorithm="maxima")
```

```
[Out] 2/15015*(1155*(b*x + a)^(13/2)*B - 1365*(4*B*a - A*b)*(b*x + a)^(
11/2) + 5005*(2*B*a^2 - A*a*b)*(b*x + a)^(9/2) - 2145*(4*B*a^3 -
3*A*a^2*b)*(b*x + a)^(7/2) + 3003*(B*a^4 - A*a^3*b)*(b*x + a)^(5/
2))/b^5
```

Fricas [A] time = 0.207632, size = 193, normalized size = 1.58

$$\frac{2\left(1155\,Bb^6x^6+128\,Ba^6-208\,Aa^5b+105\left(14\,Bab^5+13\,Ab^6\right)x^5+35\left(Ba^2b^4+52\,Aab^5\right)x^4-5\left(8\,Ba^3b^3-13\,Aa^2b^4\right)x^3+6\right.}{15015\,b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)*x^3,x, algorithm="fricas")
```

```
[Out] 2/15015*(1155*B*b^6*x^6 + 128*B*a^6 - 208*A*a^5*b + 105*(14*B*a*b
^5 + 13*A*b^6)*x^5 + 35*(B*a^2*b^4 + 52*A*a*b^5)*x^4 - 5*(8*B*a^3
*b^3 - 13*A*a^2*b^4)*x^3 + 6*(8*B*a^4*b^2 - 13*A*a^3*b^3)*x^2 - 8
*(8*B*a^5*b - 13*A*a^4*b^2)*x)*sqrt(b*x + a)/b^5
```

Sympy [A] time = 5.39257, size = 298, normalized size = 2.44

$$\frac{2Aa\left(-\frac{a^3(a+bx)^{\frac{3}{2}}}{3}+\frac{3a^2(a+bx)^{\frac{5}{2}}}{5}-\frac{3a(a+bx)^{\frac{7}{2}}}{7}+\frac{(a+bx)^{\frac{9}{2}}}{9}\right)}{b^4}+\frac{2A\left(\frac{a^4(a+bx)^{\frac{3}{2}}}{3}-\frac{4a^3(a+bx)^{\frac{5}{2}}}{5}+\frac{6a^2(a+bx)^{\frac{7}{2}}}{7}-\frac{4a(a+bx)^{\frac{9}{2}}}{9}+\frac{(a+bx)^{\frac{11}{2}}}{11}\right)}{b^4}+\frac{2Ba\left(\frac{a^4(a+bx)^{\frac{3}{2}}}{3}-\frac{4a^3(a+bx)^{\frac{5}{2}}}{5}+\frac{6a^2(a+bx)^{\frac{7}{2}}}{7}-\frac{4a(a+bx)^{\frac{9}{2}}}{9}+\frac{(a+bx)^{\frac{11}{2}}}{11}\right)}{b^5}+\frac{2B\left(-\frac{a^5(a+bx)^{\frac{3}{2}}}{3}+a^4\left(a+bx\right)^{\frac{5}{2}}-\frac{10a^3(a+bx)^{\frac{7}{2}}}{7}+\frac{10a^2(a+bx)^{\frac{9}{2}}}{9}-\frac{5a(a+bx)^{\frac{11}{2}}}{11}+\frac{(a+bx)^{\frac{13}{2}}}{13}\right)}{b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**3*(b*x+a)**(3/2)*(B*x+A),x)
```

```
[Out] 2*A*a*(-a**3*(a + b*x)**(3/2)/3 + 3*a**2*(a + b*x)**(5/2)/5 - 3*a
*(a + b*x)**(7/2)/7 + (a + b*x)**(9/2)/9)/b**4 + 2*A*(a**4*(a + b
*x)**(3/2)/3 - 4*a**3*(a + b*x)**(5/2)/5 + 6*a**2*(a + b*x)**(7/2
)/7 - 4*a*(a + b*x)**(9/2)/9 + (a + b*x)**(11/2)/11)/b**4 + 2*B*a
*(a**4*(a + b*x)**(3/2)/3 - 4*a**3*(a + b*x)**(5/2)/5 + 6*a**2*(a
 + b*x)**(7/2)/7 - 4*a*(a + b*x)**(9/2)/9 + (a + b*x)**(11/2)/11)
/b**5 + 2*B*(-a**5*(a + b*x)**(3/2)/3 + a**4*(a + b*x)**(5/2) - 1
0*a**3*(a + b*x)**(7/2)/7 + 10*a**2*(a + b*x)**(9/2)/9 - 5*a*(a +
 b*x)**(11/2)/11 + (a + b*x)**(13/2)/13)/b**5
```

GIAC/XCAS [A] time = 0.216745, size = 427, normalized size = 3.5

$$2\left(\frac{143\left(35\,(bx+a)^{\frac{9}{2}}\,b^{24}-135\,(bx+a)^{\frac{7}{2}}\,ab^{24}+189\,(bx+a)^{\frac{5}{2}}\,a^{2}b^{24}-105\,(bx+a)^{\frac{3}{2}}\,a^{3}b^{24}\right)Aa}{b^{27}}+\frac{13\left(315\,(bx+a)^{\frac{11}{2}}\,b^{40}-1540\,(bx+a)^{\frac{9}{2}}\,ab^{40}+2970\,(bx+a)^{\frac{7}{2}}\,a^{2}b^{40}-2772\,(\right.}{b^{44}}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)*x^3,x, algorithm="giac")
```

```
[Out] 2/45045*(143*(35*(b*x + a)^(9/2)*b^24 - 135*(b*x + a)^(7/2)*a*b^2
4 + 189*(b*x + a)^(5/2)*a^2*b^24 - 105*(b*x + a)^(3/2)*a^3*b^24)*
A*a/b^27 + 13*(315*(b*x + a)^(11/2)*b^40 - 1540*(b*x + a)^(9/2)*a
*b^40 + 2970*(b*x + a)^(7/2)*a^2*b^40 - 2772*(b*x + a)^(5/2)*a^3*
b^40 + 1155*(b*x + a)^(3/2)*a^4*b^40)*B*a/b^44 + 13*(315*(b*x + a
)^(11/2)*b^40 - 1540*(b*x + a)^(9/2)*a*b^40 + 2970*(b*x + a)^(7/2
)*a^2*b^40 - 2772*(b*x + a)^(5/2)*a^3*b^40 + 1155*(b*x + a)^(3/2)
*a^4*b^40)*A/b^43 + 5*(693*(b*x + a)^(13/2)*b^60 - 4095*(b*x + a)
^(11/2)*a*b^60 + 10010*(b*x + a)^(9/2)*a^2*b^60 - 12870*(b*x + a)
^(7/2)*a^3*b^60 + 9009*(b*x + a)^(5/2)*a^4*b^60 - 3003*(b*x + a)^
(3/2)*a^5*b^60)*B/b^64)/b
```

3.388 $\int x^2(a+bx)^{3/2}(A+Bx)\,dx$

Optimal. Leaf size=95

$$\frac{2a^2(a+bx)^{5/2}(Ab-aB)}{5b^4}+\frac{2(a+bx)^{9/2}(Ab-3aB)}{9b^4}-\frac{2a(a+bx)^{7/2}(2Ab-3aB)}{7b^4}+\frac{2B(a+bx)^{11/2}}{11b^4}$$

```
[Out] (2*a^2*(A*b - a*B)*(a + b*x)^(5/2))/(5*b^4) - (2*a*(2*A*b - 3*a*B
)*(a + b*x)^(7/2))/(7*b^4) + (2*(A*b - 3*a*B)*(a + b*x)^(9/2))/(9
*b^4) + (2*B*(a + b*x)^(11/2))/(11*b^4)
```

Rubi [A] time = 0.123772, antiderivative size = 95, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{2a^2(a+bx)^{5/2}(Ab-aB)}{5b^4}+\frac{2(a+bx)^{9/2}(Ab-3aB)}{9b^4}-\frac{2a(a+bx)^{7/2}(2Ab-3aB)}{7b^4}+\frac{2B(a+bx)^{11/2}}{11b^4}$$

Antiderivative was successfully verified.

```
[In]  Int[x^2*(a + b*x)^(3/2)*(A + B*x),x]
```

```
[Out] (2*a^2*(A*b - a*B)*(a + b*x)^(5/2))/(5*b^4) - (2*a*(2*A*b - 3*a*B
)*(a + b*x)^(7/2))/(7*b^4) + (2*(A*b - 3*a*B)*(a + b*x)^(9/2))/(9
*b^4) + (2*B*(a + b*x)^(11/2))/(11*b^4)
```

Rubi in Sympy [A] time = 16.8154, size = 92, normalized size = 0.97

$$\frac{2B\left(a+bx\right)^{\frac{11}{2}}}{11b^4}+\frac{2a^2\left(a+bx\right)^{\frac{5}{2}}\left(Ab-Ba\right)}{5b^4}-\frac{2a\left(a+bx\right)^{\frac{7}{2}}\left(2Ab-3Ba\right)}{7b^4}+\frac{2\left(a+bx\right)^{\frac{9}{2}}\left(Ab-3Ba\right)}{9b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(b*x+a)**(3/2)*(B*x+A),x)
```

```
[Out] 2*B*(a + b*x)**(11/2)/(11*b**4) + 2*a**2*(a + b*x)**(5/2)*(A*b -
B*a)/(5*b**4) - 2*a*(a + b*x)**(7/2)*(2*A*b - 3*B*a)/(7*b**4) + 2
*(a + b*x)**(9/2)*(A*b - 3*B*a)/(9*b**4)
```

Mathematica [A] time = 0.0821374, size = 68, normalized size = 0.72

$$\frac{2(a+bx)^{5/2}\left(-48a^3B+8a^2b(11A+15Bx)-10ab^2x(22A+21Bx)+35b^3x^2(11A+9Bx)\right)}{3465b^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^2*(a + b*x)^(3/2)*(A + B*x),x]
```

```
[Out] (2*(a + b*x)^(5/2)*(-48*a^3*B + 35*b^3*x^2*(11*A + 9*B*x) + 8*a^2
*b*(11*A + 15*B*x) - 10*a*b^2*x*(22*A + 21*B*x)))/(3465*b^4)
```

Maple [A] time = 0.009, size = 71, normalized size = 0.8

$$\frac{630\,b^3Bx^3+770\,Ax^2b^3-420\,Bx^2ab^2-440\,Axab^2+240\,Bxa^2b+176\,Aa^2b-96\,Ba^3}{3465\,b^4}\left(bx+a\right)^{\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int(x^2*(b*x+a)^(3/2)*(B*x+A),x)
```

```
[Out] 2/3465*(b*x+a)^(5/2)*(315*B*b^3*x^3+385*A*b^3*x^2-210*B*a*b^2*x^2
-220*A*a*b^2*x+120*B*a^2*b*x+88*A*a^2*b-48*B*a^3)/b^4
```

Maxima [A] time = 1.45899, size = 104, normalized size = 1.09

$$\frac{2\left(315\,(bx+a)^{\frac{11}{2}}B-385\,(3\,Ba-Ab)(bx+a)^{\frac{9}{2}}+495\,\left(3\,Ba^2-2\,Aab\right)(bx+a)^{\frac{7}{2}}-693\,\left(Ba^3-Aa^2b\right)(bx+a)^{\frac{5}{2}}\right)}{3465\,b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*(b*x + a)^(3/2)*x^2,x, algorithm="maxima")
```

```
[Out] 2/3465*(315*(b*x + a)^(11/2)*B - 385*(3*B*a - A*b)*(b*x + a)^(9/2
) + 495*(3*B*a^2 - 2*A*a*b)*(b*x + a)^(7/2) - 693*(B*a^3 - A*a^2*
b)*(b*x + a)^(5/2))/b^4
```

Fricas [A] time = 0.203761, size = 162, normalized size = 1.71

$$\frac{2\left(315\,Bb^5x^5-48\,Ba^5+88\,Aa^4b+35\left(12\,Bab^4+11\,Ab^5\right)x^4+5\left(3\,Ba^2b^3+110\,Aab^4\right)x^3-3\left(6\,Ba^3b^2-11\,Aa^2b^3\right)x^2+4\left(6\right.\right.}{3465\,b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*(b*x + a)^(3/2)*x^2,x, algorithm="fricas")
```

```
[Out] 2/3465*(315*B*b^5*x^5 - 48*B*a^5 + 88*A*a^4*b + 35*(12*B*a*b^4 +
11*A*b^5)*x^4 + 5*(3*B*a^2*b^3 + 110*A*a*b^4)*x^3 - 3*(6*B*a^3*b^
2 - 11*A*a^2*b^3)*x^2 + 4*(6*B*a^4*b - 11*A*a^3*b^2)*x)*sqrt(b*x
+ a)/b^4
```

Sympy [A] time = 5.13319, size = 240, normalized size = 2.53

$$\frac{2Aa\left(\frac{a^2(a+bx)^{\frac{3}{2}}}{3}-\frac{2a(a+bx)^{\frac{5}{2}}}{5}+\frac{(a+bx)^{\frac{7}{2}}}{7}\right)}{b^3}+\frac{2A\left(-\frac{a^3(a+bx)^{\frac{3}{2}}}{3}+\frac{3a^2(a+bx)^{\frac{5}{2}}}{5}-\frac{3a(a+bx)^{\frac{7}{2}}}{7}+\frac{(a+bx)^{\frac{9}{2}}}{9}\right)}{b^3}+\frac{2Ba\left(-\frac{a^3(a+bx)^{\frac{3}{2}}}{3}+\frac{3a^2(a+bx)^{\frac{5}{2}}}{5}-\frac{3a(a+bx)^{\frac{7}{2}}}{7}+\frac{(a+bx)^{\frac{9}{2}}}{9}\right)}{b^4}+\frac{2B\left(\frac{a^4(a+bx)^{\frac{3}{2}}}{3}-\frac{4a^3(a+bx)^{\frac{5}{2}}}{5}+\frac{6a^2(a+bx)^{\frac{7}{2}}}{7}-\frac{4a(a+bx)^{\frac{9}{2}}}{9}+\frac{(a+bx)^{\frac{11}{2}}}{11}\right)}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(x**2*(b*x+a)**(3/2)*(B*x+A),x)
```

```
[Out] 2*A*a*(a**2*(a + b*x)**(3/2)/3 - 2*a*(a + b*x)**(5/2)/5 + (a + b*
x)**(7/2)/7)/b**3 + 2*A*(-a**3*(a + b*x)**(3/2)/3 + 3*a**2*(a + b
*x)**(5/2)/5 - 3*a*(a + b*x)**(7/2)/7 + (a + b*x)**(9/2)/9)/b**3
+ 2*B*a*(-a**3*(a + b*x)**(3/2)/3 + 3*a**2*(a + b*x)**(5/2)/5 - 3
*a*(a + b*x)**(7/2)/7 + (a + b*x)**(9/2)/9)/b**4 + 2*B*(a**4*(a +
 b*x)**(3/2)/3 - 4*a**3*(a + b*x)**(5/2)/5 + 6*a**2*(a + b*x)**(7
/2)/7 - 4*a*(a + b*x)**(9/2)/9 + (a + b*x)**(11/2)/11)/b**4
```

GIAC/XCAS [A] time = 0.214493, size = 344, normalized size = 3.62

$$2\left(\frac{33\left(15\,(bx+a)^{\frac{7}{2}}\,b^{12}-42\,(bx+a)^{\frac{5}{2}}\,ab^{12}+35\,(bx+a)^{\frac{3}{2}}\,a^{2}b^{12}\right)Aa}{b^{14}}+\frac{11\left(35\,(bx+a)^{\frac{9}{2}}\,b^{24}-135\,(bx+a)^{\frac{7}{2}}\,ab^{24}+189\,(bx+a)^{\frac{5}{2}}\,a^{2}b^{24}-105\,(bx+a)^{\frac{3}{2}}\,a^{3}b^{24}\right)Ba}{b^{27}}+\frac{11\left(35\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)*x^2,x, algorithm="giac")
```

```
[Out] 2/3465*(33*(15*(b*x + a)^(7/2)*b^12 - 42*(b*x + a)^(5/2)*a*b^12 +
 35*(b*x + a)^(3/2)*a^2*b^12)*A*a/b^14 + 11*(35*(b*x + a)^(9/2)*b
^24 - 135*(b*x + a)^(7/2)*a*b^24 + 189*(b*x + a)^(5/2)*a^2*b^24 -
 105*(b*x + a)^(3/2)*a^3*b^24)*B*a/b^27 + 11*(35*(b*x + a)^(9/2)*
b^24 - 135*(b*x + a)^(7/2)*a*b^24 + 189*(b*x + a)^(5/2)*a^2*b^24
- 105*(b*x + a)^(3/2)*a^3*b^24)*A/b^26 + (315*(b*x + a)^(11/2)*b^
40 - 1540*(b*x + a)^(9/2)*a*b^40 + 2970*(b*x + a)^(7/2)*a^2*b^40
- 2772*(b*x + a)^(5/2)*a^3*b^40 + 1155*(b*x + a)^(3/2)*a^4*b^40)*
B/b^43)/b
```

3.389 $\int x(a+bx)^{3/2}(A+Bx)\,dx$

Optimal. Leaf size=67

$$\frac{2(a+bx)^{7/2}(Ab-2aB)}{7b^3}-\frac{2a(a+bx)^{5/2}(Ab-aB)}{5b^3}+\frac{2B(a+bx)^{9/2}}{9b^3}$$

```
[Out] (-2*a*(A*b - a*B)*(a + b*x)^(5/2))/(5*b^3) + (2*(A*b - 2*a*B)*(a
+ b*x)^(7/2))/(7*b^3) + (2*B*(a + b*x)^(9/2))/(9*b^3)
```

Rubi [A] time = 0.0822411, antiderivative size = 67, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}} = 0.062$

$$\frac{2(a+bx)^{7/2}(Ab-2aB)}{7b^3}-\frac{2a(a+bx)^{5/2}(Ab-aB)}{5b^3}+\frac{2B(a+bx)^{9/2}}{9b^3}$$

Antiderivative was successfully verified.

```
[In]  Int[x*(a + b*x)^(3/2)*(A + B*x),x]
```

```
[Out] (-2*a*(A*b - a*B)*(a + b*x)^(5/2))/(5*b^3) + (2*(A*b - 2*a*B)*(a
+ b*x)^(7/2))/(7*b^3) + (2*B*(a + b*x)^(9/2))/(9*b^3)
```

Rubi in Sympy [A] time = 11.9073, size = 63, normalized size = 0.94

$$\frac{2B\left(a+bx\right)^{\frac{9}{2}}}{9b^3}-\frac{2a\left(a+bx\right)^{\frac{5}{2}}\left(Ab-Ba\right)}{5b^3}+\frac{2\left(a+bx\right)^{\frac{7}{2}}\left(Ab-2Ba\right)}{7b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(b*x+a)**(3/2)*(B*x+A),x)
```

```
[Out] 2*B*(a + b*x)**(9/2)/(9*b**3) - 2*a*(a + b*x)**(5/2)*(A*b - B*a)/
(5*b**3) + 2*(a + b*x)**(7/2)*(A*b - 2*B*a)/(7*b**3)
```

Mathematica [A] time = 0.0526935, size = 49, normalized size = 0.73

$$\frac{2(a+bx)^{5/2}\left(8a^2B-2ab(9A+10Bx)+5b^2x(9A+7Bx)\right)}{315b^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x*(a + b*x)^(3/2)*(A + B*x),x]
```

```
[Out] (2*(a + b*x)^(5/2)*(8*a^2*B + 5*b^2*x*(9*A + 7*B*x) - 2*a*b*(9*A
+ 10*B*x)))/(315*b^3)
```

Maple [A] time = 0.006, size = 47, normalized size = 0.7

$$-\frac{-70\,b^2Bx^2-90\,Axb^2+40\,Bxab+36\,Aab-16\,Ba^2}{315\,b^3}\left(bx+a\right)^{\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(b*x+a)^(3/2)*(B*x+A),x)
```

```
[Out] -2/315*(b*x+a)^(5/2)*(-35*B*b^2*x^2-45*A*b^2*x+20*B*a*b*x+18*A*a*
b-8*B*a^2)/b^3
```

Maxima [A] time = 1.37418, size = 73, normalized size = 1.09

$$\frac{2\left(35\,(bx+a)^{\frac{9}{2}}B-45\,(2\,Ba-Ab)(bx+a)^{\frac{7}{2}}+63\,\left(Ba^{2}-Aab\right)(bx+a)^{\frac{5}{2}}\right)}{315\,b^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)*x,x, algorithm="maxima")
```

```
[Out] 2/315*(35*(b*x + a)^(9/2)*B - 45*(2*B*a - A*b)*(b*x + a)^(7/2) +
63*(B*a^2 - A*a*b)*(b*x + a)^(5/2))/b^3
```

Fricas [A] time = 0.205634, size = 128, normalized size = 1.91

$$\frac{2\left(35\,Bb^{4}x^{4}+8\,Ba^{4}-18\,Aa^{3}b+5\left(10\,Bab^{3}+9\,Ab^{4}\right)x^{3}+3\left(Ba^{2}b^{2}+24\,Aab^{3}\right)x^{2}-\left(4\,Ba^{3}b-9\,Aa^{2}b^{2}\right)x\right)\sqrt{bx+a}}{315\,b^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)*x,x, algorithm="fricas")
```

```
[Out] 2/315*(35*B*b^4*x^4 + 8*B*a^4 - 18*A*a^3*b + 5*(10*B*a*b^3 + 9*A*
b^4)*x^3 + 3*(B*a^2*b^2 + 24*A*a*b^3)*x^2 - (4*B*a^3*b - 9*A*a^2*
b^2)*x)*sqrt(b*x + a)/b^3
```

Sympy [A] time = 4.68946, size = 178, normalized size = 2.66

$$\frac{2Aa\left(-\frac{a(a+bx)^{\frac{3}{2}}}{3}+\frac{(a+bx)^{\frac{5}{2}}}{5}\right)}{b^{2}}+\frac{2A\left(\frac{a^{2}(a+bx)^{\frac{3}{2}}}{3}-\frac{2a(a+bx)^{\frac{5}{2}}}{5}+\frac{(a+bx)^{\frac{7}{2}}}{7}\right)}{b^{2}}+\frac{2Ba\left(\frac{a^{2}(a+bx)^{\frac{3}{2}}}{3}-\frac{2a(a+bx)^{\frac{5}{2}}}{5}+\frac{(a+bx)^{\frac{7}{2}}}{7}\right)}{b^{3}}+\frac{2B\left(-\frac{a^{3}(a+bx)^{\frac{3}{2}}}{3}+\frac{3a^{2}(a+bx)^{\frac{5}{2}}}{5}-\frac{3a(a+bx)^{\frac{7}{2}}}{7}+\frac{(a+bx)^{\frac{9}{2}}}{9}\right)}{b^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(b*x+a)**(3/2)*(B*x+A),x)
```

```
[Out] 2*A*a*(-a*(a + b*x)**(3/2)/3 + (a + b*x)**(5/2)/5)/b**2 + 2*A*(a*
*2*(a + b*x)**(3/2)/3 - 2*a*(a + b*x)**(5/2)/5 + (a + b*x)**(7/2)
/7)/b**2 + 2*B*a*(a**2*(a + b*x)**(3/2)/3 - 2*a*(a + b*x)**(5/2)/
5 + (a + b*x)**(7/2)/7)/b**3 + 2*B*(-a**3*(a + b*x)**(3/2)/3 + 3*
a**2*(a + b*x)**(5/2)/5 - 3*a*(a + b*x)**(7/2)/7 + (a + b*x)**(9/
2)/9)/b**3
```

GIAC/XCAS [A] time = 0.211581, size = 255, normalized size = 3.81

$$\frac{2\left(\frac{21\left(3\,(bx+a)^{\frac{5}{2}}-5\,(bx+a)^{\frac{3}{2}}\,a\right)Aa}{b}+\frac{3\left(15\,(bx+a)^{\frac{7}{2}}\,b^{12}-42\,(bx+a)^{\frac{5}{2}}\,ab^{12}+35\,(bx+a)^{\frac{3}{2}}\,a^{2}b^{12}\right)Ba}{b^{14}}+\frac{3\left(15\,(bx+a)^{\frac{7}{2}}\,b^{12}-42\,(bx+a)^{\frac{5}{2}}\,ab^{12}+35\,(bx+a)^{\frac{3}{2}}\,a^{2}b^{12}\right)A}{b^{13}}\right.}{315\,b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)*x,x, algorithm="giac")
```

```
[Out] 2/315*(21*(3*(b*x + a)^(5/2) - 5*(b*x + a)^(3/2)*a)*A*a/b + 3*(15
*(b*x + a)^(7/2)*b^12 - 42*(b*x + a)^(5/2)*a*b^12 + 35*(b*x + a)^
(3/2)*a^2*b^12)*B*a/b^14 + 3*(15*(b*x + a)^(7/2)*b^12 - 42*(b*x +
 a)^(5/2)*a*b^12 + 35*(b*x + a)^(3/2)*a^2*b^12)*A/b^13 + (35*(b*x
 + a)^(9/2)*b^24 - 135*(b*x + a)^(7/2)*a*b^24 + 189*(b*x + a)^(5/
2)*a^2*b^24 - 105*(b*x + a)^(3/2)*a^3*b^24)*B/b^26)/b
```

3.390 $\int (a+bx)^{3/2}(A+Bx)\,dx$

Optimal. Leaf size=42

$$\frac{2(a+bx)^{5/2}(Ab-aB)}{5b^2}+\frac{2B(a+bx)^{7/2}}{7b^2}$$

```
[Out] (2*(A*b - a*B)*(a + b*x)^(5/2))/(5*b^2) + (2*B*(a + b*x)^(7/2))/(
7*b^2)
```

Rubi [A] time = 0.0446655, antiderivative size = 42, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.067

$$\frac{2(a+bx)^{5/2}(Ab-aB)}{5b^2}+\frac{2B(a+bx)^{7/2}}{7b^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(3/2)*(A + B*x),x]
```

```
[Out] (2*(A*b - a*B)*(a + b*x)^(5/2))/(5*b^2) + (2*B*(a + b*x)^(7/2))/(
7*b^2)
```

Rubi in Sympy [A] time = 7.37228, size = 37, normalized size = 0.88

$$\frac{2B\left(a+bx\right)^{\frac{7}{2}}}{7b^2}+\frac{2\left(a+bx\right)^{\frac{5}{2}}\left(Ab-Ba\right)}{5b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(B*x+A),x)
```

```
[Out] 2*B*(a + b*x)**(7/2)/(7*b**2) + 2*(a + b*x)**(5/2)*(A*b - B*a)/(5
*b**2)
```

Mathematica [A] time = 0.0381289, size = 30, normalized size = 0.71

$$\frac{2(a+bx)^{5/2}(-2aB+7Ab+5bBx)}{35b^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(3/2)*(A + B*x),x]
```

```
[Out] (2*(a + b*x)^(5/2)*(7*A*b - 2*a*B + 5*b*B*x))/(35*b^2)
```

Maple [A] time = 0.004, size = 27, normalized size = 0.6

$$\frac{10\,bBx+14\,Ab-4\,Ba}{35\,b^2}\left(bx+a\right)^{\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(B*x+A),x)
```

```
[Out] 2/35*(b*x+a)^(5/2)*(5*B*b*x+7*A*b-2*B*a)/b^2
```

Maxima [A] time = 1.41908, size = 45, normalized size = 1.07

$$\frac{2\left(5\,(bx+a)^{\frac{7}{2}}B-7\,(Ba-Ab)(bx+a)^{\frac{5}{2}}\right)}{35\,b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2),x, algorithm="maxima")
```

```
[Out] 2/35*(5*(b*x + a)^(7/2)*B - 7*(B*a - A*b)*(b*x + a)^(5/2))/b^2
```

Fricas [A] time = 0.204942, size = 93, normalized size = 2.21

$$\frac{2\left(5\,Bb^3x^3-2\,Ba^3+7\,Aa^2b+\left(8\,Bab^2+7\,Ab^3\right)x^2+\left(Ba^2b+14\,Aab^2\right)x\right)\sqrt{bx+a}}{35\,b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2),x, algorithm="fricas")
```

```
[Out] 2/35*(5*B*b^3*x^3 - 2*B*a^3 + 7*A*a^2*b + (8*B*a*b^2 + 7*A*b^3)*x
^2 + (B*a^2*b + 14*A*a*b^2)*x)*sqrt(b*x + a)/b^2
```

Sympy [A] time = 1.88818, size = 146, normalized size = 3.48

$$\begin{cases} \frac{2Aa^2\sqrt{a+bx}}{5b}+\frac{4Aax\sqrt{a+bx}}{5}+\frac{2Abx^2\sqrt{a+bx}}{5}-\frac{4Ba^3\sqrt{a+bx}}{35b^2}+\frac{2Ba^2x\sqrt{a+bx}}{35b}+\frac{16Bax^2\sqrt{a+bx}}{35}+\frac{2Bbx^3\sqrt{a+bx}}{7} & \text{for } b\neq 0 \\ a^{\frac{3}{2}}\left(Ax+\frac{Bx^2}{2}\right) & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)*(B*x+A),x)
```

```
[Out] Piecewise((2*A*a**2*sqrt(a + b*x)/(5*b) + 4*A*a*x*sqrt(a + b*x)/5
 + 2*A*b*x**2*sqrt(a + b*x)/5 - 4*B*a**3*sqrt(a + b*x)/(35*b**2)
+ 2*B*a**2*x*sqrt(a + b*x)/(35*b) + 16*B*a*x**2*sqrt(a + b*x)/35
+ 2*B*b*x**3*sqrt(a + b*x)/7, Ne(b, 0)), (a**(3/2)*(A*x + B*x**2/
2), True))
```

GIAC/XCAS [A] time = 0.208919, size = 153, normalized size = 3.64

$$\frac{2\left(35\,(bx+a)^{\frac{3}{2}}Aa+7\left(3\,(bx+a)^{\frac{5}{2}}-5\,(bx+a)^{\frac{3}{2}}a\right)A+\frac{7\left(3\,(bx+a)^{\frac{5}{2}}-5\,(bx+a)^{\frac{3}{2}}a\right)Ba}{b}+\frac{\left(15\,(bx+a)^{\frac{7}{2}}b^{12}-42\,(bx+a)^{\frac{5}{2}}ab^{12}+35\,(bx+a)^{\frac{3}{2}}a^2b^{12}\right)}{b^{13}}\right.}{105\,b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2),x, algorithm="giac")
```

```
[Out] 2/105*(35*(b*x + a)^(3/2)*A*a + 7*(3*(b*x + a)^(5/2) - 5*(b*x + a
)^(3/2)*a)*A + 7*(3*(b*x + a)^(5/2) - 5*(b*x + a)^(3/2)*a)*B*a/b
+ (15*(b*x + a)^(7/2)*b^12 - 42*(b*x + a)^(5/2)*a*b^12 + 35*(b*x
+ a)^(3/2)*a^2*b^12)*B/b^13)/b
```

3.391 $\int \frac{(a+bx)^{3/2}(A+Bx)}{x}\,dx$

Optimal. Leaf size=69

$$-2a^{3/2}A\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)+\frac{2}{3}A(a+bx)^{3/2}+2aA\sqrt{a+bx}+\frac{2B(a+bx)^{5/2}}{5b}$$

```
[Out] 2*a*A*Sqrt[a + b*x] + (2*A*(a + b*x)^(3/2))/3 + (2*B*(a + b*x)^(5
/2))/(5*b) - 2*a^(3/2)*A*ArcTanh[Sqrt[a + b*x]/Sqrt[a]]
```

Rubi [A] time = 0.0874744, antiderivative size = 69, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.222

$$-2a^{3/2}A\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)+\frac{2}{3}A(a+bx)^{3/2}+2aA\sqrt{a+bx}+\frac{2B(a+bx)^{5/2}}{5b}$$

Antiderivative was successfully verified.

```
[In] Int[((a + b*x)^(3/2)*(A + B*x))/x,x]
```

```
[Out] 2*a*A*Sqrt[a + b*x] + (2*A*(a + b*x)^(3/2))/3 + (2*B*(a + b*x)^(5
/2))/(5*b) - 2*a^(3/2)*A*ArcTanh[Sqrt[a + b*x]/Sqrt[a]]
```

Rubi in Sympy [A] time = 9.35232, size = 65, normalized size = 0.94

$$-2Aa^{\frac{3}{2}}\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)+2Aa\sqrt{a+bx}+\frac{2A\left(a+bx\right)^{\frac{3}{2}}}{3}+\frac{2B\left(a+bx\right)^{\frac{5}{2}}}{5b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)**(3/2)*(B*x+A)/x,x)
```

```
[Out] -2*A*a**(3/2)*atanh(sqrt(a + b*x)/sqrt(a)) + 2*A*a*sqrt(a + b*x)
+ 2*A*(a + b*x)**(3/2)/3 + 2*B*(a + b*x)**(5/2)/(5*b)
```

Mathematica [A] time = 0.135795, size = 73, normalized size = 1.06

$$\frac{2\sqrt{a+bx}\left(3a^2B+a(20Ab+6bBx)+b^2x(5A+3Bx)\right)}{15b}-2a^{3/2}A\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)$$

Antiderivative was successfully verified.

```
[In] Integrate[((a + b*x)^(3/2)*(A + B*x))/x,x]
```

```
[Out] (2*Sqrt[a + b*x]*(3*a^2*B + b^2*x*(5*A + 3*B*x) + a*(20*A*b + 6*b
*B*x)))/(15*b) - 2*a^(3/2)*A*ArcTanh[Sqrt[a + b*x]/Sqrt[a]]
```

Maple [A] time = 0.01, size = 58, normalized size = 0.8

$$2\frac{1}{b}\left(1/5\,B\,(bx+a)^{5/2}+1/3\,Ab\,(bx+a)^{3/2}+abA\sqrt{bx+a}-Aa^{3/2}bArtanh\left(\frac{\sqrt{bx+a}}{\sqrt{a}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(B*x+A)/x,x)
```

```
[Out] 2/b*(1/5*B*(b*x+a)^(5/2)+1/3*A*b*(b*x+a)^(3/2)+a*b*A*(b*x+a)^(1/2
)-A*a^(3/2)*b*arctanh((b*x+a)^(1/2)/a^(1/2)))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/x,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.227443, size = 1, normalized size = 0.01

$$\left[\frac{15\,Aa^{\frac{3}{2}}b\log\left(\frac{bx-2\,\sqrt{bx+a}\sqrt{a}+2\,a}{x}\right)+2\,\left(3\,Bb^2x^2+3\,Ba^2+20\,Aab+\left(6\,Bab+5\,Ab^2\right)x\right)\sqrt{bx+a}}{15\,b},\right.$$
$$\left.-\frac{2\,\left(15\,A\sqrt{-a}ab\arctan\left(\frac{\sqrt{bx+a}}{\sqrt{-a}}\right)-\left(3\,Bb^2x^2+3\,Ba^2+20\,Aab+\left(6\,Bab+5\,Ab^2\right)x\right)\sqrt{bx+a}\right)}{15\,b}\right]$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/x,x, algorithm="fricas")
```

```
[Out] [1/15*(15*A*a^(3/2)*b*log((b*x - 2*sqrt(b*x + a)*sqrt(a) + 2*a)/x
) + 2*(3*B*b^2*x^2 + 3*B*a^2 + 20*A*a*b + (6*B*a*b + 5*A*b^2)*x)*
sqrt(b*x + a))/b, -2/15*(15*A*sqrt(-a)*a*b*arctan(sqrt(b*x + a)/s
qrt(-a)) - (3*B*b^2*x^2 + 3*B*a^2 + 20*A*a*b + (6*B*a*b + 5*A*b^2
)*x)*sqrt(b*x + a))/b]
```

Sympy [A] time = 11.2265, size = 128, normalized size = 1.86

$$-2Aa^2\left(\begin{cases}-\frac{\operatorname{atan}\left(\frac{\sqrt{a+bx}}{\sqrt{-a}}\right)}{\sqrt{-a}} & \text{for}\ -a>0\\ \frac{\operatorname{acoth}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{\sqrt{a}} & \text{for}\ -a<0\wedge a<a+bx\\ \frac{\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{\sqrt{a}} & \text{for}\ a>a+bx\wedge -a<0\end{cases}\right)+2Aa\sqrt{a+bx}+\frac{2A(a+bx)^{\frac{3}{2}}}{3}+\frac{2B(a+bx)^{\frac{5}{2}}}{5b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)*(B*x+A)/x,x)
```

```
[Out] -2*A*a**2*Piecewise((-atan(sqrt(a + b*x)/sqrt(-a))/sqrt(-a), -a >
 0), (acoth(sqrt(a + b*x)/sqrt(a))/sqrt(a), (-a < 0) & (a < a + b
*x)), (atanh(sqrt(a + b*x)/sqrt(a))/sqrt(a), (-a < 0) & (a > a +
b*x))) + 2*A*a*sqrt(a + b*x) + 2*A*(a + b*x)**(3/2)/3 + 2*B*(a +
b*x)**(5/2)/(5*b)
```

GIAC/XCAS [A] time = 0.210209, size = 97, normalized size = 1.41

$$\frac{2\,Aa^{2}\arctan\left(\frac{\sqrt{bx+a}}{\sqrt{-a}}\right)}{\sqrt{-a}}+\frac{2\,\left(3\,(bx+a)^{\frac{5}{2}}Bb^{4}+5\,(bx+a)^{\frac{3}{2}}Ab^{5}+15\,\sqrt{bx+a}Aab^{5}\right)}{15\,b^{5}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/x,x, algorithm="giac")
```

```
[Out] 2*A*a^2*arctan(sqrt(b*x + a)/sqrt(-a))/sqrt(-a) + 2/15*(3*(b*x +
a)^(5/2)*B*b^4 + 5*(b*x + a)^(3/2)*A*b^5 + 15*sqrt(b*x + a)*A*a*b
^5)/b^5
```

3.392 $\int \frac{(a+bx)^{3/2}(A+Bx)}{x^2}\,dx$

Optimal. Leaf size=95

$$\frac{(a+bx)^{3/2}(2aB+3Ab)}{3a}+\sqrt{a+bx}(2aB+3Ab)-\sqrt{a}(2aB+3Ab)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)-\frac{A(a+bx)^{5/2}}{ax}$$

```
[Out] (3*A*b + 2*a*B)*Sqrt[a + b*x] + ((3*A*b + 2*a*B)*(a + b*x)^(3/2))
/(3*a) - (A*(a + b*x)^(5/2))/(a*x) - Sqrt[a]*(3*A*b + 2*a*B)*ArcT
anh[Sqrt[a + b*x]/Sqrt[a]]
```

Rubi [A] time = 0.135588, antiderivative size = 95, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.222

$$\frac{(a+bx)^{3/2}(2aB+3Ab)}{3a}+\sqrt{a+bx}(2aB+3Ab)-\sqrt{a}(2aB+3Ab)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)-\frac{A(a+bx)^{5/2}}{ax}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(3/2)*(A + B*x))/x^2,x]
```

```
[Out] (3*A*b + 2*a*B)*Sqrt[a + b*x] + ((3*A*b + 2*a*B)*(a + b*x)^(3/2))
/(3*a) - (A*(a + b*x)^(5/2))/(a*x) - Sqrt[a]*(3*A*b + 2*a*B)*ArcT
anh[Sqrt[a + b*x]/Sqrt[a]]
```

Rubi in Sympy [A] time = 11.5949, size = 87, normalized size = 0.92

$$-\frac{A(a+bx)^{\frac{5}{2}}}{ax}-2\sqrt{a}\left(\frac{3Ab}{2}+Ba\right)\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)+\sqrt{a+bx}\,(3Ab+2Ba)+\frac{2(a+bx)^{\frac{3}{2}}\left(\frac{3Ab}{2}+Ba\right)}{3a}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(B*x+A)/x**2,x)
```

```
[Out] -A*(a + b*x)**(5/2)/(a*x) - 2*sqrt(a)*(3*A*b/2 + B*a)*atanh(sqrt(
a + b*x)/sqrt(a)) + sqrt(a + b*x)*(3*A*b + 2*B*a) + 2*(a + b*x)**
(3/2)*(3*A*b/2 + B*a)/(3*a)
```

Mathematica [A] time = 0.0996302, size = 71, normalized size = 0.75

$$\sqrt{a+bx}\left(\frac{2}{3}(4aB+3Ab)-\frac{aA}{x}+\frac{2bBx}{3}\right)-\sqrt{a}(2aB+3Ab)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(3/2)*(A + B*x))/x^2,x]
```

```
[Out] Sqrt[a + b*x]*((2*(3*A*b + 4*a*B))/3 - (a*A)/x + (2*b*B*x)/3) - S
qrt[a]*(3*A*b + 2*a*B)*ArcTanh[Sqrt[a + b*x]/Sqrt[a]]
```

Maple [A] time = 0.017, size = 77, normalized size = 0.8

$$\frac{2B}{3}(bx+a)^{\frac{3}{2}}+2Ab\sqrt{bx+a}+2Ba\sqrt{bx+a}+2a\left(-1/2\frac{A\sqrt{bx+a}}{x}-1/2\frac{3Ab+2Ba}{\sqrt{a}}\mathit{Artanh}\left(\frac{\sqrt{bx+a}}{\sqrt{a}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(B*x+A)/x^2,x)
```

```
[Out] 2/3*B*(b*x+a)^(3/2)+2*A*b*(b*x+a)^(1/2)+2*B*a*(b*x+a)^(1/2)+2*a*(
-1/2*A*(b*x+a)^(1/2)/x-1/2*(3*A*b+2*B*a)/a^(1/2)*arctanh((b*x+a)^
(1/2)/a^(1/2)))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/x^2,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.222003, size = 1, normalized size = 0.01

$$\left[\frac{3\,(2\,Ba + 3\,Ab)\sqrt{a}x\log\left(\frac{bx-2\,\sqrt{bx+a}\sqrt{a}+2\,a}{x}\right) + 2\left(2\,Bbx^2 - 3\,Aa + 2\,(4\,Ba + 3\,Ab)x\right)\sqrt{bx+a}}{6\,x}, -\frac{3\,(2\,Ba + 3\,Ab)\sqrt{-a}x\arctan\left(\frac{\sqrt{bx+a}}{\sqrt{-a}}\right) - \left(2\,Bbx^2 - 3\,Aa + 2\,(4\,Ba + 3\,Ab)x\right)\sqrt{bx+a}}{3\,x}\right]$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/x^2,x, algorithm="fricas")
```

```
[Out] [1/6*(3*(2*B*a + 3*A*b)*sqrt(a)*x*log((b*x - 2*sqrt(b*x + a)*sqrt
(a) + 2*a)/x) + 2*(2*B*b*x^2 - 3*A*a + 2*(4*B*a + 3*A*b)*x)*sqrt(
b*x + a))/x, -1/3*(3*(2*B*a + 3*A*b)*sqrt(-a)*x*arctan(sqrt(b*x +
 a)/sqrt(-a)) - (2*B*b*x^2 - 3*A*a + 2*(4*B*a + 3*A*b)*x)*sqrt(b*
x + a))/x]
```

Sympy [A] time = 23.3673, size = 314, normalized size = 3.31

$$-\frac{Aa^2b\sqrt{\frac{1}{a^3}}\log\left(-a^2\sqrt{\frac{1}{a^3}} + \sqrt{a+bx}\right)}{2} + \frac{Aa^2b\sqrt{\frac{1}{a^3}}\log\left(a^2\sqrt{\frac{1}{a^3}} + \sqrt{a+bx}\right)}{2} - 4Aab\left(\begin{cases} -\frac{\operatorname{atan}\left(\frac{\sqrt{a+bx}}{\sqrt{-a}}\right)}{\sqrt{-a}} & \text{for}\ -a > 0 \\ \frac{\operatorname{acoth}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{\sqrt{a}} & \text{for}\ -a < 0 \wedge a < a + bx \\ \frac{\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{\sqrt{a}} & \text{for}\ a > a + bx \wedge -a < 0 \end{cases}\right) - \frac{Aa\sqrt{a+bx}}{x} + 2Ab\sqrt{a+bx} - 2Ba^2\left(\begin{cases} -\frac{\operatorname{atan}\left(\frac{\sqrt{a+bx}}{\sqrt{-a}}\right)}{\sqrt{-a}} & \text{for}\ -a > 0 \\ \frac{\operatorname{acoth}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{\sqrt{a}} & \text{for}\ -a < 0 \wedge a < a + bx \\ \frac{\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{\sqrt{a}} & \text{for}\ a > a + bx \wedge -a < 0 \end{cases}\right) + 2Ba\sqrt{a+bx} + Bb\left(\begin{cases} \sqrt{a}x & \text{for}\ b = 0 \\ \frac{2(a+bx)^{\frac{3}{2}}}{3b} & \text{otherwise} \end{cases}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)*(B*x+A)/x**2,x)
```

```
[Out] -A*a**2*b*sqrt(a**(-3))*log(-a**2*sqrt(a**(-3)) + sqrt(a + b*x))/
2 + A*a**2*b*sqrt(a**(-3))*log(a**2*sqrt(a**(-3)) + sqrt(a + b*x)
)/2 - 4*A*a*b*Piecewise((-atan(sqrt(a + b*x)/sqrt(-a))/sqrt(-a),
-a > 0), (acoth(sqrt(a + b*x)/sqrt(a))/sqrt(a), (-a < 0) & (a < a
 + b*x)), (atanh(sqrt(a + b*x)/sqrt(a))/sqrt(a), (-a < 0) & (a >
a + b*x))) - A*a*sqrt(a + b*x)/x + 2*A*b*sqrt(a + b*x) - 2*B*a**2
*Piecewise((-atan(sqrt(a + b*x)/sqrt(-a))/sqrt(-a), -a > 0), (aco
th(sqrt(a + b*x)/sqrt(a))/sqrt(a), (-a < 0) & (a < a + b*x)), (at
anh(sqrt(a + b*x)/sqrt(a))/sqrt(a), (-a < 0) & (a > a + b*x))) +
2*B*a*sqrt(a + b*x) + B*b*Piecewise((sqrt(a)*x, Eq(b, 0)), (2*(a
+ b*x)**(3/2)/(3*b), True))
```

GIAC/XCAS [A] time = 0.213141, size = 126, normalized size = 1.33

$$\frac{2\,(bx+a)^{\frac{3}{2}}Bb+6\,\sqrt{bx+a}Bab+6\,\sqrt{bx+a}Ab^2-\frac{3\,\sqrt{bx+a}Aab}{x}+\frac{3\,(2\,Ba^2b+3\,Aab^2)\arctan\left(\frac{\sqrt{bx+a}}{\sqrt{-a}}\right)}{\sqrt{-a}}}{3\,b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/x^2,x, algorithm="giac")
```

```
[Out] 1/3*(2*(b*x + a)^(3/2)*B*b + 6*sqrt(b*x + a)*B*a*b + 6*sqrt(b*x +
 a)*A*b^2 - 3*sqrt(b*x + a)*A*a*b/x + 3*(2*B*a^2*b + 3*A*a*b^2)*a
rctan(sqrt(b*x + a)/sqrt(-a))/sqrt(-a))/b
```

3.393 $\int \frac{(a+bx)^{3/2}(A+Bx)}{x^3} dx$

Optimal. Leaf size=107

$$-\frac{(a+bx)^{3/2}(4aB+Ab)}{4ax}+\frac{3b\sqrt{a+bx}(4aB+Ab)}{4a}-\frac{3b(4aB+Ab)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{4\sqrt{a}}-\frac{A(a+bx)^{5/2}}{2ax^2}$$

```
[Out] (3*b*(A*b + 4*a*B)*Sqrt[a + b*x])/(4*a) - ((A*b + 4*a*B)*(a + b*x
)^(3/2))/(4*a*x) - (A*(a + b*x)^(5/2))/(2*a*x^2) - (3*b*(A*b + 4*
a*B)*ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/(4*Sqrt[a])
```

Rubi [A] time = 0.138254, antiderivative size = 107, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.278$

$$-\frac{(a+bx)^{3/2}(4aB+Ab)}{4ax}+\frac{3b\sqrt{a+bx}(4aB+Ab)}{4a}-\frac{3b(4aB+Ab)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{4\sqrt{a}}-\frac{A(a+bx)^{5/2}}{2ax^2}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(3/2)*(A + B*x))/x^3,x]
```

```
[Out] (3*b*(A*b + 4*a*B)*Sqrt[a + b*x])/(4*a) - ((A*b + 4*a*B)*(a + b*x
)^(3/2))/(4*a*x) - (A*(a + b*x)^(5/2))/(2*a*x^2) - (3*b*(A*b + 4*
a*B)*ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/(4*Sqrt[a])
```

Rubi in Sympy [A] time = 11.7369, size = 95, normalized size = 0.89

$$-\frac{A\left(a+bx\right)^{\frac{5}{2}}}{2ax^2}+\frac{3b\sqrt{a+bx}\left(Ab+4Ba\right)}{4a}-\frac{\left(a+bx\right)^{\frac{3}{2}}\left(Ab+4Ba\right)}{4ax}-\frac{3b\left(Ab+4Ba\right)\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{4\sqrt{a}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(B*x+A)/x**3,x)
```

```
[Out] -A*(a + b*x)**(5/2)/(2*a*x**2) + 3*b*sqrt(a + b*x)*(A*b + 4*B*a)/
(4*a) - (a + b*x)**(3/2)*(A*b + 4*B*a)/(4*a*x) - 3*b*(A*b + 4*B*a
)*atanh(sqrt(a + b*x)/sqrt(a))/(4*sqrt(a))
```

Mathematica [A] time = 0.145586, size = 72, normalized size = 0.67

$$-\frac{\sqrt{a+bx}(2a(A+2Bx)+bx(5A-8Bx))}{4x^2}-\frac{3b(4aB+Ab)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{4\sqrt{a}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(3/2)*(A + B*x))/x^3,x]
```

```
[Out] -(Sqrt[a + b*x]*(b*x*(5*A - 8*B*x) + 2*a*(A + 2*B*x)))/(4*x^2) -
(3*b*(A*b + 4*a*B)*ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/(4*Sqrt[a])
```

Maple [A] time = 0.019, size = 84, normalized size = 0.8

$$2b\left(B\sqrt{bx+a}+\frac{(-5/8\,Ab-1/2\,Ba)\,(bx+a)^{3/2}+\left(1/2\,Ba^2+3/8\,Aab\right)\sqrt{bx+a}}{b^2x^2}-3/8\,\frac{Ab+4\,Ba}{\sqrt{a}}Artanh\left(\frac{\sqrt{bx+a}}{\sqrt{a}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(B*x+A)/x^3,x)
```

```
[Out] 2*b*(B*(b*x+a)^(1/2)+((-5/8*A*b-1/2*B*a)*(b*x+a)^(3/2)+(1/2*B*a^2
+3/8*A*a*b)*(b*x+a)^(1/2))/x^2/b^2-3/8*(A*b+4*B*a)/a^(1/2)*arctan
h((b*x+a)^(1/2)/a^(1/2)))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/x^3,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.232996, size = 1, normalized size = 0.01

$$\left[\frac{3\left(4\,Bab+Ab^2\right)x^2\log\left(\frac{(bx+2\,a)\sqrt{a}-2\,\sqrt{bx+a}a}{x}\right)+2\left(8\,Bbx^2-2\,Aa-(4\,Ba+5\,Ab)x\right)\sqrt{bx+a}\sqrt{a}}{8\,\sqrt{a}x^2},\ \frac{3\left(4\,Bab+Ab^2\right)x^2\arctan\left(\frac{-}{\sqrt{}}\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/x^3,x, algorithm="fricas")
```

```
[Out] [1/8*(3*(4*B*a*b + A*b^2)*x^2*log(((b*x + 2*a)*sqrt(a) - 2*sqrt(b
*x + a)*a)/x) + 2*(8*B*b*x^2 - 2*A*a - (4*B*a + 5*A*b)*x)*sqrt(b*
x + a)*sqrt(a))/(sqrt(a)*x^2), 1/4*(3*(4*B*a*b + A*b^2)*x^2*arcta
n(a/(sqrt(b*x + a)*sqrt(-a))) + (8*B*b*x^2 - 2*A*a - (4*B*a + 5*A
*b)*x)*sqrt(b*x + a)*sqrt(-a))/(sqrt(-a)*x^2)]
```

Sympy [A] time = 49.6004, size = 541, normalized size = 5.06

$$-\frac{10Aa^3b^2\sqrt{a+bx}}{-8a^4-16a^3bx+8a^2(a+bx)^2}+\frac{6Aa^2b^2(a+bx)^{\frac{3}{2}}}{-8a^4-16a^3bx+8a^2(a+bx)^2} + \frac{3Aa^2b^2\sqrt{\frac{1}{a^5}}\log\left(-a^3\sqrt{\frac{1}{a^5}}+\sqrt{a+bx}\right)}{8}-\frac{3Aa^2b^2\sqrt{\frac{1}{a^5}}\log\left(a^3\sqrt{\frac{1}{a^5}}+\sqrt{a+bx}\right)}{8} - Aab^2\sqrt{\frac{1}{a^3}}\log\left(-a^2\sqrt{\frac{1}{a^3}}+\sqrt{a+bx}\right)+Aab^2\sqrt{\frac{1}{a^3}}\log\left(a^2\sqrt{\frac{1}{a^3}}+\sqrt{a+bx}\right) - 2Ab^2\left(\begin{cases}-\frac{\operatorname{atan}\left(\frac{\sqrt{a+bx}}{\sqrt{-a}}\right)}{\sqrt{-a}} & \text{for } -a>0\\ \frac{\operatorname{acoth}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{\sqrt{a}} & \text{for } -a<0\wedge a<a+bx\\ \frac{\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{\sqrt{a}} & \text{for } a>a+bx\wedge -a<0\end{cases}\right)-\frac{2Ab\sqrt{a+bx}}{x} - \frac{Ba^2b\sqrt{\frac{1}{a^3}}\log\left(-a^2\sqrt{\frac{1}{a^3}}+\sqrt{a+bx}\right)}{2}+\frac{Ba^2b\sqrt{\frac{1}{a^3}}\log\left(a^2\sqrt{\frac{1}{a^3}}+\sqrt{a+bx}\right)}{2} - 4Bab\left(\begin{cases}-\frac{\operatorname{atan}\left(\frac{\sqrt{a+bx}}{\sqrt{-a}}\right)}{\sqrt{-a}} & \text{for } -a>0\\ \frac{\operatorname{acoth}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{\sqrt{a}} & \text{for } -a<0\wedge a<a+bx\\ \frac{\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{\sqrt{a}} & \text{for } a>a+bx\wedge -a<0\end{cases}\right)-\frac{Ba\sqrt{a+bx}}{x}+2Bb\sqrt{a+bx}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((b*x+a)**(3/2)*(B*x+A)/x**3,x)
```

```
[Out] -10*A*a**3*b**2*sqrt(a + b*x)/(-8*a**4 - 16*a**3*b*x + 8*a**2*(a
+ b*x)**2) + 6*A*a**2*b**2*(a + b*x)**(3/2)/(-8*a**4 - 16*a**3*b*
x + 8*a**2*(a + b*x)**2) + 3*A*a**2*b**2*sqrt(a**(-5))*log(-a**3*
sqrt(a**(-5)) + sqrt(a + b*x))/8 - 3*A*a**2*b**2*sqrt(a**(-5))*lo
g(a**3*sqrt(a**(-5)) + sqrt(a + b*x))/8 - A*a*b**2*sqrt(a**(-3))*
log(-a**2*sqrt(a**(-3)) + sqrt(a + b*x)) + A*a*b**2*sqrt(a**(-3))
*log(a**2*sqrt(a**(-3)) + sqrt(a + b*x)) - 2*A*b**2*Piecewise((-a
tan(sqrt(a + b*x)/sqrt(-a))/sqrt(-a), -a > 0), (acoth(sqrt(a + b*
x)/sqrt(a))/sqrt(a), (-a < 0) & (a < a + b*x)), (atanh(sqrt(a + b
*x)/sqrt(a))/sqrt(a), (-a < 0) & (a > a + b*x))) - 2*A*b*sqrt(a +
 b*x)/x - B*a**2*b*sqrt(a**(-3))*log(-a**2*sqrt(a**(-3)) + sqrt(a
 + b*x))/2 + B*a**2*b*sqrt(a**(-3))*log(a**2*sqrt(a**(-3)) + sqrt
(a + b*x))/2 - 4*B*a*b*Piecewise((-atan(sqrt(a + b*x)/sqrt(-a))/s
qrt(-a), -a > 0), (acoth(sqrt(a + b*x)/sqrt(a))/sqrt(a), (-a < 0)
 & (a < a + b*x)), (atanh(sqrt(a + b*x)/sqrt(a))/sqrt(a), (-a < 0
) & (a > a + b*x))) - B*a*sqrt(a + b*x)/x + 2*B*b*sqrt(a + b*x)
```

GIAC/XCAS [A] time = 0.228823, size = 161, normalized size = 1.5

$$\frac{8\sqrt{bx+a}Bb^2+\frac{3\left(4Bab^2+Ab^3\right)\arctan\left(\frac{\sqrt{bx+a}}{\sqrt{-a}}\right)}{\sqrt{-a}}-\frac{4(bx+a)^{\frac{3}{2}}Bab^2-4\sqrt{bx+a}Ba^2b^2+5(bx+a)^{\frac{3}{2}}Ab^3-3\sqrt{bx+a}Aab^3}{b^2x^2}}{4b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*(b*x + a)^(3/2)/x^3,x, algorithm="giac")
```

```
[Out] 1/4*(8*sqrt(b*x + a)*B*b^2 + 3*(4*B*a*b^2 + A*b^3)*arctan(sqrt(b*
x + a)/sqrt(-a))/sqrt(-a) - (4*(b*x + a)^(3/2)*B*a*b^2 - 4*sqrt(b
*x + a)*B*a^2*b^2 + 5*(b*x + a)^(3/2)*A*b^3 - 3*sqrt(b*x + a)*A*a
*b^3)/(b^2*x^2))/b
```

3.394 $\int \frac{(a+bx)^{3/2}(A+Bx)}{x^4}\,dx$

Optimal. Leaf size=112

$$\frac{b^2(Ab-6aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{8a^{3/2}}+\frac{(a+bx)^{3/2}(Ab-6aB)}{12ax^2}+\frac{b\sqrt{a+bx}(Ab-6aB)}{8ax}-\frac{A(a+bx)^{5/2}}{3ax^3}$$

```
[Out] (b*(A*b - 6*a*B)*Sqrt[a + b*x])/(8*a*x) + ((A*b - 6*a*B)*(a + b*x
)^(3/2))/(12*a*x^2) - (A*(a + b*x)^(5/2))/(3*a*x^3) + (b^2*(A*b -
 6*a*B)*ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/(8*a^(3/2))
```

Rubi [A] time = 0.150309, antiderivative size = 112, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.222

$$\frac{b^2(Ab-6aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{8a^{3/2}}+\frac{(a+bx)^{3/2}(Ab-6aB)}{12ax^2}+\frac{b\sqrt{a+bx}(Ab-6aB)}{8ax}-\frac{A(a+bx)^{5/2}}{3ax^3}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(3/2)*(A + B*x))/x^4,x]
```

```
[Out] (b*(A*b - 6*a*B)*Sqrt[a + b*x])/(8*a*x) + ((A*b - 6*a*B)*(a + b*x
)^(3/2))/(12*a*x^2) - (A*(a + b*x)^(5/2))/(3*a*x^3) + (b^2*(A*b -
 6*a*B)*ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/(8*a^(3/2))
```

Rubi in Sympy [A] time = 12.7519, size = 97, normalized size = 0.87

$$-\frac{A\left(a+bx\right)^{\frac{5}{2}}}{3ax^3}+\frac{b\sqrt{a+bx}\left(Ab-6Ba\right)}{8ax}+\frac{\left(a+bx\right)^{\frac{3}{2}}\left(Ab-6Ba\right)}{12ax^2}+\frac{b^2\left(Ab-6Ba\right)\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{8a^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(B*x+A)/x**4,x)
```

```
[Out] -A*(a + b*x)**(5/2)/(3*a*x**3) + b*sqrt(a + b*x)*(A*b - 6*B*a)/(8
*a*x) + (a + b*x)**(3/2)*(A*b - 6*B*a)/(12*a*x**2) + b**2*(A*b -
6*B*a)*atanh(sqrt(a + b*x)/sqrt(a))/(8*a**(3/2))
```

Mathematica [A] time = 0.134278, size = 93, normalized size = 0.83

$$\sqrt{a+bx}\left(\frac{-6aB-7Ab}{12x^2}-\frac{b(10aB+Ab)}{8ax}-\frac{aA}{3x^3}\right)-\frac{b^2(6aB-Ab)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{8a^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(3/2)*(A + B*x))/x^4,x]
```

```
[Out] (-(a*A)/(3*x^3) + (-7*A*b - 6*a*B)/(12*x^2) - (b*(A*b + 10*a*B))/
(8*a*x))*Sqrt[a + b*x] - (b^2*(-(A*b) + 6*a*B)*ArcTanh[Sqrt[a + b
*x]/Sqrt[a]])/(8*a^(3/2))
```

Maple [A] time = 0.019, size = 96, normalized size = 0.9

$$2\,b^{2}\left(\frac{1}{x^{3}b^{3}}\left(-1/16\,\frac{(Ab+10\,Ba)\,(bx+a)^{5/2}}{a}+(-1/6\,Ab+Ba)\,(bx+a)^{3/2}+\left(-3/8\,Ba^{2}+1/16\,Aab\right)\sqrt{bx+a}\right)+1/16\,\frac{Ab-6\,Ba}{a^{3/2}}Artanh\left(\frac{\sqrt{bx+a}}{\sqrt{a}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(B*x+A)/x^4,x)
```

```
[Out] 2*b^2*((-1/16*(A*b+10*B*a)/a*(b*x+a)^(5/2)+(-1/6*A*b+B*a)*(b*x+a)
^(3/2)+(-3/8*B*a^2+1/16*A*a*b)*(b*x+a)^(1/2))/x^3/b^3+1/16*(A*b-6
*B*a)/a^(3/2)*arctanh((b*x+a)^(1/2)/a^(1/2)))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/x^4,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.221777, size = 1, normalized size = 0.01

$$\left[-\frac{3\left(6\,Bab^{2}-Ab^{3}\right)x^{3}\log\left(\frac{(bx+2\,a)\sqrt{a}+2\,\sqrt{bx+a}a}{x}\right)+2\left(8\,Aa^{2}+3\left(10\,Bab+Ab^{2}\right)x^{2}+2\left(6\,Ba^{2}+7\,Aab\right)x\right)\sqrt{bx+a}\sqrt{a}}{48\,a^{\frac{3}{2}}x^{3}},\ \frac{3\left(6\,Ba\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/x^4,x, algorithm="fricas")
```

```
[Out] [-1/48*(3*(6*B*a*b^2 - A*b^3)*x^3*log(((b*x + 2*a)*sqrt(a) + 2*sq
rt(b*x + a)*a)/x) + 2*(8*A*a^2 + 3*(10*B*a*b + A*b^2)*x^2 + 2*(6*
B*a^2 + 7*A*a*b)*x)*sqrt(b*x + a)*sqrt(a))/(a^(3/2)*x^3), 1/24*(3
*(6*B*a*b^2 - A*b^3)*x^3*arctan(a/(sqrt(b*x + a)*sqrt(-a))) - (8*
A*a^2 + 3*(10*B*a*b + A*b^2)*x^2 + 2*(6*B*a^2 + 7*A*a*b)*x)*sqrt(
b*x + a)*sqrt(-a))/(sqrt(-a)*a*x^3)]
```

Sympy [A] time = 78.317, size = 862, normalized size = 7.7

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)*(B*x+A)/x**4,x)
```

```
[Out] -66*A*a**4*b**3*sqrt(a + b*x)/(96*a**6 + 144*a**5*b*x - 144*a**4*
(a + b*x)**2 + 48*a**3*(a + b*x)**3) + 80*A*a**3*b**3*(a + b*x)**
(3/2)/(96*a**6 + 144*a**5*b*x - 144*a**4*(a + b*x)**2 + 48*a**3*(
a + b*x)**3) - 30*A*a**2*b**3*(a + b*x)**(5/2)/(96*a**6 + 144*a**
5*b*x - 144*a**4*(a + b*x)**2 + 48*a**3*(a + b*x)**3) - 20*A*a**2
```

```
*b**3*sqrt(a + b*x)/(-8*a**4 - 16*a**3*b*x + 8*a**2*(a + b*x)**2)
 - 5*A*a**2*b**3*sqrt(a**(-7))*log(-a**4*sqrt(a**(-7)) + sqrt(a +
 b*x))/16 + 5*A*a**2*b**3*sqrt(a**(-7))*log(a**4*sqrt(a**(-7)) +
sqrt(a + b*x))/16 + 12*A*a*b**3*(a + b*x)**(3/2)/(-8*a**4 - 16*a*
*3*b*x + 8*a**2*(a + b*x)**2) + 3*A*a*b**3*sqrt(a**(-5))*log(-a**
3*sqrt(a**(-5)) + sqrt(a + b*x))/4 - 3*A*a*b**3*sqrt(a**(-5))*log
(a**3*sqrt(a**(-5)) + sqrt(a + b*x))/4 - A*b**3*sqrt(a**(-3))*log
(-a**2*sqrt(a**(-3)) + sqrt(a + b*x))/2 + A*b**3*sqrt(a**(-3))*lo
g(a**2*sqrt(a**(-3)) + sqrt(a + b*x))/2 - A*b**2*sqrt(a + b*x)/(a
*x) - 10*B*a**3*b**2*sqrt(a + b*x)/(-8*a**4 - 16*a**3*b*x + 8*a**
2*(a + b*x)**2) + 6*B*a**2*b**2*(a + b*x)**(3/2)/(-8*a**4 - 16*a*
*3*b*x + 8*a**2*(a + b*x)**2) + 3*B*a**2*b**2*sqrt(a**(-5))*log(-
a**3*sqrt(a**(-5)) + sqrt(a + b*x))/8 - 3*B*a**2*b**2*sqrt(a**(-5
))*log(a**3*sqrt(a**(-5)) + sqrt(a + b*x))/8 - B*a*b**2*sqrt(a**(
-3))*log(-a**2*sqrt(a**(-3)) + sqrt(a + b*x)) + B*a*b**2*sqrt(a**
(-3))*log(a**2*sqrt(a**(-3)) + sqrt(a + b*x)) - 2*B*b**2*Piecewis
e((-atan(sqrt(a + b*x)/sqrt(-a))/sqrt(-a), -a > 0), (acoth(sqrt(a
 + b*x)/sqrt(a))/sqrt(a), (-a < 0) & (a < a + b*x)), (atanh(sqrt(
a + b*x)/sqrt(a))/sqrt(a), (-a < 0) & (a > a + b*x))) - 2*B*b*sqr
t(a + b*x)/x
```

GIAC/XCAS [A] time = 0.234752, size = 196, normalized size = 1.75

$$\frac{\frac{3\,\left(6\,Bab^{3}-Ab^{4}\right)\,\arctan\left(\frac{\sqrt{bx+a}}{\sqrt{-a}}\right)}{\sqrt{-a}a}-\frac{30\,(bx+a)^{\frac{5}{2}}\,Bab^{3}-48\,(bx+a)^{\frac{3}{2}}\,Ba^{2}b^{3}+18\,\sqrt{bx+a}Ba^{3}b^{3}+3\,(bx+a)^{\frac{5}{2}}\,Ab^{4}+8\,(bx+a)^{\frac{3}{2}}\,Aab^{4}-3\,\sqrt{bx+a}Aa^{2}b^{4}}{ab^{3}x^{3}}}{24\,b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/x^4,x, algorithm="giac")
```

```
[Out] 1/24*(3*(6*B*a*b^3 - A*b^4)*arctan(sqrt(b*x + a)/sqrt(-a))/(sqrt(
-a)*a) - (30*(b*x + a)^(5/2)*B*a*b^3 - 48*(b*x + a)^(3/2)*B*a^2*b
^3 + 18*sqrt(b*x + a)*B*a^3*b^3 + 3*(b*x + a)^(5/2)*A*b^4 + 8*(b*
x + a)^(3/2)*A*a*b^4 - 3*sqrt(b*x + a)*A*a^2*b^4)/(a*b^3*x^3))/b
```

3.395 $\int \frac{(a+bx)^{3/2}(A+Bx)}{x^5}\,dx$

Optimal. Leaf size=146

$$-\frac{b^3(3Ab-8aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{64a^{5/2}}+\frac{b^2\sqrt{a+bx}(3Ab-8aB)}{64a^2x}+\frac{(a+bx)^{3/2}(3Ab-8aB)}{24ax^3}+\frac{b\sqrt{a+bx}(3Ab-8aB)}{32ax^2}-\frac{A(a+bx)^{5/2}}{4ax^4}$$

```
[Out] (b*(3*A*b - 8*a*B)*Sqrt[a + b*x])/(32*a*x^2) + (b^2*(3*A*b - 8*a*
B)*Sqrt[a + b*x])/(64*a^2*x) + ((3*A*b - 8*a*B)*(a + b*x)^(3/2))/
(24*a*x^3) - (A*(a + b*x)^(5/2))/(4*a*x^4) - (b^3*(3*A*b - 8*a*B)
*ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/(64*a^(5/2))
```

Rubi [A] time = 0.193849, antiderivative size = 146, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.278

$$-\frac{b^3(3Ab-8aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{64a^{5/2}}+\frac{b^2\sqrt{a+bx}(3Ab-8aB)}{64a^2x}+\frac{(a+bx)^{3/2}(3Ab-8aB)}{24ax^3}+\frac{b\sqrt{a+bx}(3Ab-8aB)}{32ax^2}-\frac{A(a+bx)^{5/2}}{4ax^4}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(3/2)*(A + B*x))/x^5,x]
```

```
[Out] (b*(3*A*b - 8*a*B)*Sqrt[a + b*x])/(32*a*x^2) + (b^2*(3*A*b - 8*a*
B)*Sqrt[a + b*x])/(64*a^2*x) + ((3*A*b - 8*a*B)*(a + b*x)^(3/2))/
(24*a*x^3) - (A*(a + b*x)^(5/2))/(4*a*x^4) - (b^3*(3*A*b - 8*a*B)
*ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/(64*a^(5/2))
```

Rubi in Sympy [A] time = 16.7178, size = 133, normalized size = 0.91

$$-\frac{A\,(a+bx)^{\frac{5}{2}}}{4ax^4}+\frac{b\sqrt{a+bx}\,(3Ab-8Ba)}{32ax^2}+\frac{(a+bx)^{\frac{3}{2}}\,(3Ab-8Ba)}{24ax^3}+\frac{b^2\sqrt{a+bx}\,(3Ab-8Ba)}{64a^2x}-\frac{b^3\,(3Ab-8Ba)\,\text{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{64a^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(B*x+A)/x**5,x)
```

```
[Out] -A*(a + b*x)**(5/2)/(4*a*x**4) + b*sqrt(a + b*x)*(3*A*b - 8*B*a)/
(32*a*x**2) + (a + b*x)**(3/2)*(3*A*b - 8*B*a)/(24*a*x**3) + b**2
*sqrt(a + b*x)*(3*A*b - 8*B*a)/(64*a**2*x) - b**3*(3*A*b - 8*B*a)
*atanh(sqrt(a + b*x)/sqrt(a))/(64*a**(5/2))
```

Mathematica [A] time = 0.183218, size = 110, normalized size = 0.75

$$\frac{b^3(8aB-3Ab)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{64a^{5/2}}-\frac{\sqrt{a+bx}\left(16a^3(3A+4Bx)+8a^2bx(9A+14Bx)+6ab^2x^2(A+4Bx)-9Ab^3x^3\right)}{192a^2x^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(3/2)*(A + B*x))/x^5,x]
```

```
[Out] -(Sqrt[a + b*x]*(-9*A*b^3*x^3 + 6*a*b^2*x^2*(A + 4*B*x) + 16*a^3*
(3*A + 4*B*x) + 8*a^2*b*x*(9*A + 14*B*x)))/(192*a^2*x^4) + (b^3*(
-3*A*b + 8*a*B)*ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/(64*a^(5/2))
```

Maple [A] time = 0.019, size = 119, normalized size = 0.8

$$2\,b^{3}\left(\frac{1}{x^{4}b^{4}}\left(\frac{(3\,Ab-8\,Ba)\,(bx+a)^{7/2}}{128\,a^{2}}-\frac{(33\,Ab+40\,Ba)\,(bx+a)^{5/2}}{384\,a}+\left(-\frac{11\,Ab}{128}+\frac{11\,Ba}{48}\right)(bx+a)^{3/2}+\frac{a\,(3\,Ab-8\,Ba)\,\sqrt{bx+a}}{128}\right)-\frac{3\,Ab-8\,Ba}{128\,a^{5/2}}\mathit{Artanh}\left(\frac{\sqrt{bx+a}}{\sqrt{a}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(B*x+A)/x^5,x)
```

```
[Out] 2*b^3*((1/128*(3*A*b-8*B*a)/a^2*(b*x+a)^(7/2)-1/384*(33*A*b+40*B*
a)/a*(b*x+a)^(5/2)+(-11/128*A*b+11/48*B*a)*(b*x+a)^(3/2)+1/128*a*
(3*A*b-8*B*a)*(b*x+a)^(1/2))/x^4/b^4-1/128*(3*A*b-8*B*a)/a^(5/2)*
arctanh((b*x+a)^(1/2)/a^(1/2)))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/x^5,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.225498, size = 1, normalized size = 0.01

$$\left[-\frac{3\left(8\,Bab^{3}-3\,Ab^{4}\right)x^{4}\log\left(\frac{(bx+2\,a)\sqrt{a}-2\,\sqrt{bx+a}a}{x}\right)+2\left(48\,Aa^{3}+3\left(8\,Bab^{2}-3\,Ab^{3}\right)x^{3}+2\left(56\,Ba^{2}b+3\,Aab^{2}\right)x^{2}+8\left(8\,Ba^{3}+9\,Aa^{2}b\right)x\right)\sqrt{bx+a}\sqrt{a}}{384\,a^{\frac{5}{2}}x^{4}},\ -\frac{3\left(8\,Bab^{3}-3\,Ab^{4}\right)x^{4}\arctan\left(\frac{a}{\sqrt{bx+a}\sqrt{-a}}\right)+\left(48\,Aa^{3}+3\left(8\,Bab^{2}-3\,Ab^{3}\right)x^{3}+2\left(56\,Ba^{2}b+3\,Aab^{2}\right)x^{2}+8\left(8\,Ba^{3}+9\,Aa^{2}b\right)x\right)\sqrt{bx+a}\sqrt{-a}}{192\,\sqrt{-a}a^{2}x^{4}}\right]$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/x^5,x, algorithm="fricas")
```

```
[Out] [-1/384*(3*(8*B*a*b^3 - 3*A*b^4)*x^4*log(((b*x + 2*a)*sqrt(a) - 2
*sqrt(b*x + a)*a)/x) + 2*(48*A*a^3 + 3*(8*B*a*b^2 - 3*A*b^3)*x^3
+ 2*(56*B*a^2*b + 3*A*a*b^2)*x^2 + 8*(8*B*a^3 + 9*A*a^2*b)*x)*sqr
t(b*x + a)*sqrt(a))/(a^(5/2)*x^4), -1/192*(3*(8*B*a*b^3 - 3*A*b^4
)*x^4*arctan(a/(sqrt(b*x + a)*sqrt(-a))) + (48*A*a^3 + 3*(8*B*a*b
^2 - 3*A*b^3)*x^3 + 2*(56*B*a^2*b + 3*A*a*b^2)*x^2 + 8*(8*B*a^3 +
 9*A*a^2*b)*x)*sqrt(b*x + a)*sqrt(-a))/(sqrt(-a)*a^2*x^4)]
```

Sympy [A] time = 132.397, size = 1278, normalized size = 8.75

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)*(B*x+A)/x**5,x)
```

```
[Out] -558*A*a**5*b**4*sqrt(a + b*x)/(-1152*a**8 - 1536*a**7*b*x + 2304
*a**6*(a + b*x)**2 - 1536*a**5*(a + b*x)**3 + 384*a**4*(a + b*x)*
*4) + 1022*A*a**4*b**4*(a + b*x)**(3/2)/(-1152*a**8 - 1536*a**7*b
*x + 2304*a**6*(a + b*x)**2 - 1536*a**5*(a + b*x)**3 + 384*a**4*(
a + b*x)**4) - 770*A*a**3*b**4*(a + b*x)**(5/2)/(-1152*a**8 - 153
6*a**7*b*x + 2304*a**6*(a + b*x)**2 - 1536*a**5*(a + b*x)**3 + 38
4*a**4*(a + b*x)**4) - 132*A*a**3*b**4*sqrt(a + b*x)/(96*a**6 + 1
44*a**5*b*x - 144*a**4*(a + b*x)**2 + 48*a**3*(a + b*x)**3) + 210
*A*a**2*b**4*(a + b*x)**(7/2)/(-1152*a**8 - 1536*a**7*b*x + 2304*
a**6*(a + b*x)**2 - 1536*a**5*(a + b*x)**3 + 384*a**4*(a + b*x)**
4) + 160*A*a**2*b**4*(a + b*x)**(3/2)/(96*a**6 + 144*a**5*b*x - 1
44*a**4*(a + b*x)**2 + 48*a**3*(a + b*x)**3) + 35*A*a**2*b**4*sqr
t(a**(-9))*log(-a**5*sqrt(a**(-9)) + sqrt(a + b*x))/128 - 35*A*a*
*2*b**4*sqrt(a**(-9))*log(a**5*sqrt(a**(-9)) + sqrt(a + b*x))/128
 - 60*A*a*b**4*(a + b*x)**(5/2)/(96*a**6 + 144*a**5*b*x - 144*a**
4*(a + b*x)**2 + 48*a**3*(a + b*x)**3) - 10*A*a*b**4*sqrt(a + b*x
)/(-8*a**4 - 16*a**3*b*x + 8*a**2*(a + b*x)**2) - 5*A*a*b**4*sqrt
(a**(-7))*log(-a**4*sqrt(a**(-7)) + sqrt(a + b*x))/8 + 5*A*a*b**4
*sqrt(a**(-7))*log(a**4*sqrt(a**(-7)) + sqrt(a + b*x))/8 + 6*A*b*
*4*(a + b*x)**(3/2)/(-8*a**4 - 16*a**3*b*x + 8*a**2*(a + b*x)**2)
 + 3*A*b**4*sqrt(a**(-5))*log(-a**3*sqrt(a**(-5)) + sqrt(a + b*x)
)/8 - 3*A*b**4*sqrt(a**(-5))*log(a**3*sqrt(a**(-5)) + sqrt(a + b*
x))/8 - 66*B*a**4*b**3*sqrt(a + b*x)/(96*a**6 + 144*a**5*b*x - 14
4*a**4*(a + b*x)**2 + 48*a**3*(a + b*x)**3) + 80*B*a**3*b**3*(a +
 b*x)**(3/2)/(96*a**6 + 144*a**5*b*x - 144*a**4*(a + b*x)**2 + 48
*a**3*(a + b*x)**3) - 30*B*a**2*b**3*(a + b*x)**(5/2)/(96*a**6 +
144*a**5*b*x - 144*a**4*(a + b*x)**2 + 48*a**3*(a + b*x)**3) - 20
*B*a**2*b**3*sqrt(a + b*x)/(-8*a**4 - 16*a**3*b*x + 8*a**2*(a + b
*x)**2) - 5*B*a**2*b**3*sqrt(a**(-7))*log(-a**4*sqrt(a**(-7)) + s
qrt(a + b*x))/16 + 5*B*a**2*b**3*sqrt(a**(-7))*log(a**4*sqrt(a**(
-7)) + sqrt(a + b*x))/16 + 12*B*a*b**3*(a + b*x)**(3/2)/(-8*a**4
- 16*a**3*b*x + 8*a**2*(a + b*x)**2) + 3*B*a*b**3*sqrt(a**(-5))*l
og(-a**3*sqrt(a**(-5)) + sqrt(a + b*x))/4 - 3*B*a*b**3*sqrt(a**(-
5))*log(a**3*sqrt(a**(-5)) + sqrt(a + b*x))/4 - B*b**3*sqrt(a**(-
3))*log(-a**2*sqrt(a**(-3)) + sqrt(a + b*x))/2 + B*b**3*sqrt(a**(
-3))*log(a**2*sqrt(a**(-3)) + sqrt(a + b*x))/2 - B*b**2*sqrt(a +
b*x)/(a*x)
```

GIAC/XCAS [A] time = 0.232803, size = 238, normalized size = 1.63

$$-\frac{\frac{3\left(8\,Bab^4-3\,Ab^5\right)\arctan\left(\frac{\sqrt{bx+a}}{\sqrt{-a}}\right)}{\sqrt{-a}a^2}+\frac{24\,(bx+a)^{\frac{7}{2}}Bab^4+40\,(bx+a)^{\frac{5}{2}}Ba^2b^4-88\,(bx+a)^{\frac{3}{2}}Ba^3b^4+24\,\sqrt{bx+a}Ba^4b^4-9\,(bx+a)^{\frac{7}{2}}Ab^5+33\,(bx+a)^{\frac{5}{2}}Aab^5+33\,(bx+a)}{a^2b^4x^4}}{192\,b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/x^5,x, algorithm="giac")
```

```
[Out] -1/192*(3*(8*B*a*b^4 - 3*A*b^5)*arctan(sqrt(b*x + a)/sqrt(-a))/(s
qrt(-a)*a^2) + (24*(b*x + a)^(7/2)*B*a*b^4 + 40*(b*x + a)^(5/2)*B
*a^2*b^4 - 88*(b*x + a)^(3/2)*B*a^3*b^4 + 24*sqrt(b*x + a)*B*a^4*
b^4 - 9*(b*x + a)^(7/2)*A*b^5 + 33*(b*x + a)^(5/2)*A*a*b^5 + 33*(
b*x + a)^(3/2)*A*a^2*b^5 - 9*sqrt(b*x + a)*A*a^3*b^5)/(a^2*b^4*x^
4))/b
```

3.396 $\int \frac{(a+bx)^{3/2}(A+Bx)}{x^6}\,dx$

Optimal. Leaf size=172

$$\frac{3b^4(Ab-2aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{128a^{7/2}}-\frac{3b^3\sqrt{a+bx}(Ab-2aB)}{128a^3x}+\frac{b^2\sqrt{a+bx}(Ab-2aB)}{64a^2x^2}+\frac{(a+bx)^{3/2}(Ab-2aB)}{8ax^4}+\frac{b\sqrt{a+bx}(Ab-2aB)}{16ax^3}-\frac{A(a+bx)^{5/2}}{5ax^5}$$

```
[Out] (b*(A*b - 2*a*B)*Sqrt[a + b*x])/(16*a*x^3) + (b^2*(A*b - 2*a*B)*S
qrt[a + b*x])/(64*a^2*x^2) - (3*b^3*(A*b - 2*a*B)*Sqrt[a + b*x])/
(128*a^3*x) + ((A*b - 2*a*B)*(a + b*x)^(3/2))/(8*a*x^4) - (A*(a +
 b*x)^(5/2))/(5*a*x^5) + (3*b^4*(A*b - 2*a*B)*ArcTanh[Sqrt[a + b*
x]/Sqrt[a]])/(128*a^(7/2))
```

Rubi [A] time = 0.233561, antiderivative size = 172, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.278$

$$\frac{3b^4(Ab-2aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{128a^{7/2}}-\frac{3b^3\sqrt{a+bx}(Ab-2aB)}{128a^3x}+\frac{b^2\sqrt{a+bx}(Ab-2aB)}{64a^2x^2}+\frac{(a+bx)^{3/2}(Ab-2aB)}{8ax^4}+\frac{b\sqrt{a+bx}(Ab-2aB)}{16ax^3}-\frac{A(a+bx)^{5/2}}{5ax^5}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(3/2)*(A + B*x))/x^6,x]
```

```
[Out] (b*(A*b - 2*a*B)*Sqrt[a + b*x])/(16*a*x^3) + (b^2*(A*b - 2*a*B)*S
qrt[a + b*x])/(64*a^2*x^2) - (3*b^3*(A*b - 2*a*B)*Sqrt[a + b*x])/
(128*a^3*x) + ((A*b - 2*a*B)*(a + b*x)^(3/2))/(8*a*x^4) - (A*(a +
 b*x)^(5/2))/(5*a*x^5) + (3*b^4*(A*b - 2*a*B)*ArcTanh[Sqrt[a + b*
x]/Sqrt[a]])/(128*a^(7/2))
```

Rubi in Sympy [A] time = 22.6135, size = 158, normalized size = 0.92

$$-\frac{A\left(a+bx\right)^{\frac{5}{2}}}{5ax^5}+\frac{b\sqrt{a+bx}\left(Ab-2Ba\right)}{16ax^3}+\frac{\left(a+bx\right)^{\frac{3}{2}}\left(\frac{Ab}{2}-Ba\right)}{4ax^4}+\frac{b^2\sqrt{a+bx}\left(\frac{Ab}{2}-Ba\right)}{32a^2x^2}-\frac{3b^3\sqrt{a+bx}\left(\frac{Ab}{2}-Ba\right)}{64a^3x}+\frac{3b^4\left(\frac{Ab}{2}-Ba\right)\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{64a^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(B*x+A)/x**6,x)
```

```
[Out] -A*(a + b*x)**(5/2)/(5*a*x**5) + b*sqrt(a + b*x)*(A*b - 2*B*a)/(1
6*a*x**3) + (a + b*x)**(3/2)*(A*b/2 - B*a)/(4*a*x**4) + b**2*sqrt
(a + b*x)*(A*b/2 - B*a)/(32*a**2*x**2) - 3*b**3*sqrt(a + b*x)*(A*
b/2 - B*a)/(64*a**3*x) + 3*b**4*(A*b/2 - B*a)*atanh(sqrt(a + b*x)
/sqrt(a))/(64*a**(7/2))
```

Mathematica [A] time = 0.209933, size = 128, normalized size = 0.74

$$\frac{3b^4(Ab-2aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{128a^{7/2}}-\frac{\sqrt{a+bx}\left(32a^4(4A+5Bx)+16a^3bx(11A+15Bx)+4a^2b^2x^2(2A+5Bx)-10ab^3x^3(A+3Bx)+15Ab^4x^4\right)}{640a^3x^5}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(3/2)*(A + B*x))/x^6,x]
```

```
[Out] -(Sqrt[a + b*x]*(15*A*b^4*x^4 - 10*a*b^3*x^3*(A + 3*B*x) + 4*a^2*
b^2*x^2*(2*A + 5*B*x) + 32*a^4*(4*A + 5*B*x) + 16*a^3*b*x*(11*A +
 15*B*x)))/(640*a^3*x^5) + (3*b^4*(A*b - 2*a*B)*ArcTanh[Sqrt[a +
b*x]/Sqrt[a]])/(128*a^(7/2))
```

Maple [A] time = 0.021, size = 129, normalized size = 0.8

$$2\,b^{4}\left(\frac{1}{b^{5}x^{5}}\left(-\frac{(3\,Ab-6\,Ba)\,(bx+a)^{9/2}}{256\,a^{3}}+\frac{(7\,Ab-14\,Ba)\,(bx+a)^{7/2}}{128\,a^{2}}-1/10\,\frac{Ab\,(bx+a)^{5/2}}{a}+\left(-\frac{7\,Ab}{128}+\frac{7\,Ba}{64}\right)(bx+a)^{3/2}+\cdots\right.\right.$$
$$\left.\left.+\frac{3\,Ab-6\,Ba}{256\,a^{7/2}}Artanh\left(\frac{\sqrt{bx+a}}{\sqrt{a}}\right)\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(B*x+A)/x^6,x)
```

```
[Out] 2*b^4*((-3/256*(A*b-2*B*a)/a^3*(b*x+a)^(9/2)+7/128*(A*b-2*B*a)/a^
2*(b*x+a)^(7/2)-1/10*A*b/a*(b*x+a)^(5/2)+(-7/128*A*b+7/64*B*a)*(b
*x+a)^(3/2)+3/256*a*(A*b-2*B*a)*(b*x+a)^(1/2))/x^5/b^5+3/256*(A*b
-2*B*a)/a^(7/2)*arctanh((b*x+a)^(1/2)/a^(1/2)))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/x^6,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.230262, size = 1, normalized size = 0.01

$$\left[-\frac{15\left(2\,Bab^{4}-Ab^{5}\right)x^{5}\log\left(\frac{(bx+2\,a)\sqrt{a}+2\,\sqrt{bx+a}a}{x}\right)+2\left(128\,Aa^{4}-15\left(2\,Bab^{3}-Ab^{4}\right)x^{4}+10\left(2\,Ba^{2}b^{2}-Aab^{3}\right)x^{3}+8\left(30\,Ba^{3}b\cdots\right.\right.}{1280\,a^{\frac{7}{2}}x^{5}}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/x^6,x, algorithm="fricas")
```

```
[Out] [-1/1280*(15*(2*B*a*b^4 - A*b^5)*x^5*log(((b*x + 2*a)*sqrt(a) + 2
*sqrt(b*x + a)*a)/x) + 2*(128*A*a^4 - 15*(2*B*a*b^3 - A*b^4)*x^4
+ 10*(2*B*a^2*b^2 - A*a*b^3)*x^3 + 8*(30*B*a^3*b + A*a^2*b^2)*x^2
 + 16*(10*B*a^4 + 11*A*a^3*b)*x)*sqrt(b*x + a)*sqrt(a))/(a^(7/2)*
x^5), 1/640*(15*(2*B*a*b^4 - A*b^5)*x^5*arctan(a/(sqrt(b*x + a)*s
qrt(-a))) - (128*A*a^4 - 15*(2*B*a*b^3 - A*b^4)*x^4 + 10*(2*B*a^2
*b^2 - A*a*b^3)*x^3 + 8*(30*B*a^3*b + A*a^2*b^2)*x^2 + 16*(10*B*a
^4 + 11*A*a^3*b)*x)*sqrt(b*x + a)*sqrt(-a))/(sqrt(-a)*a^3*x^5)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)*(B*x+A)/x**6,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.215287, size = 259, normalized size = 1.51

$$\frac{\frac{15\,\left(2\,Bab^{5}-Ab^{6}\right)\,\arctan\left(\frac{\sqrt{bx+a}}{\sqrt{-a}}\right)}{\sqrt{-a}a^{3}}+\frac{30\,(bx+a)^{\frac{9}{2}}\,Bab^{5}-140\,(bx+a)^{\frac{7}{2}}\,Ba^{2}b^{5}+140\,(bx+a)^{\frac{3}{2}}\,Ba^{4}b^{5}-30\,\sqrt{bx+a}Ba^{5}b^{5}-15\,(bx+a)^{\frac{9}{2}}\,Ab^{6}+70\,(bx+a)^{\frac{7}{2}}\,Aab^{6}-128\,(bx+}{a^{3}b^{5}x^{5}}}{640\,b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/x^6,x, algorithm="giac")
```

```
[Out] 1/640*(15*(2*B*a*b^5 - A*b^6)*arctan(sqrt(b*x + a)/sqrt(-a))/(sqr
t(-a)*a^3) + (30*(b*x + a)^(9/2)*B*a*b^5 - 140*(b*x + a)^(7/2)*B*
a^2*b^5 + 140*(b*x + a)^(3/2)*B*a^4*b^5 - 30*sqrt(b*x + a)*B*a^5*
b^5 - 15*(b*x + a)^(9/2)*A*b^6 + 70*(b*x + a)^(7/2)*A*a*b^6 - 128
*(b*x + a)^(5/2)*A*a^2*b^6 - 70*(b*x + a)^(3/2)*A*a^3*b^6 + 15*sq
rt(b*x + a)*A*a^4*b^6)/(a^3*b^5*x^5))/b
```

3.397 $\int \frac{(a+bx)^{3/2}(A+Bx)}{x^7}\,dx$

Optimal. Leaf size=208

$$-\frac{b^5(7Ab-12aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{512a^{9/2}}+\frac{b^4\sqrt{a+bx}(7Ab-12aB)}{512a^4x}-\frac{b^3\sqrt{a+bx}(7Ab-12aB)}{768a^3x^2}+\frac{b^2\sqrt{a+bx}(7Ab-12aB)}{960a^2x^3}+\frac{(a+bx)^{3/2}(7Ab-12aB)}{60ax^5}+\frac{b\sqrt{a+bx}(7Ab-12aB)}{160ax^4}-\frac{A(a+bx)^{5/2}}{6ax^6}$$

```
[Out] (b*(7*A*b - 12*a*B)*Sqrt[a + b*x])/(160*a*x^4) + (b^2*(7*A*b - 12
*a*B)*Sqrt[a + b*x])/(960*a^2*x^3) - (b^3*(7*A*b - 12*a*B)*Sqrt[a
 + b*x])/(768*a^3*x^2) + (b^4*(7*A*b - 12*a*B)*Sqrt[a + b*x])/(51
2*a^4*x) + ((7*A*b - 12*a*B)*(a + b*x)^(3/2))/(60*a*x^5) - (A*(a
+ b*x)^(5/2))/(6*a*x^6) - (b^5*(7*A*b - 12*a*B)*ArcTanh[Sqrt[a +
b*x]/Sqrt[a]])/(512*a^(9/2))
```

Rubi [A] time = 0.287058, antiderivative size = 208, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.278

$$-\frac{b^5(7Ab-12aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{512a^{9/2}}+\frac{b^4\sqrt{a+bx}(7Ab-12aB)}{512a^4x}-\frac{b^3\sqrt{a+bx}(7Ab-12aB)}{768a^3x^2}+\frac{b^2\sqrt{a+bx}(7Ab-12aB)}{960a^2x^3}+\frac{(a+bx)^{3/2}(7Ab-12aB)}{60ax^5}+\frac{b\sqrt{a+bx}(7Ab-12aB)}{160ax^4}-\frac{A(a+bx)^{5/2}}{6ax^6}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(3/2)*(A + B*x))/x^7,x]
```

```
[Out] (b*(7*A*b - 12*a*B)*Sqrt[a + b*x])/(160*a*x^4) + (b^2*(7*A*b - 12
*a*B)*Sqrt[a + b*x])/(960*a^2*x^3) - (b^3*(7*A*b - 12*a*B)*Sqrt[a
 + b*x])/(768*a^3*x^2) + (b^4*(7*A*b - 12*a*B)*Sqrt[a + b*x])/(51
2*a^4*x) + ((7*A*b - 12*a*B)*(a + b*x)^(3/2))/(60*a*x^5) - (A*(a
+ b*x)^(5/2))/(6*a*x^6) - (b^5*(7*A*b - 12*a*B)*ArcTanh[Sqrt[a +
b*x]/Sqrt[a]])/(512*a^(9/2))
```

Rubi in Sympy [A] time = 27.4312, size = 194, normalized size = 0.93

$$-\frac{A\left(a+bx\right)^{\frac{5}{2}}}{6ax^6}+\frac{b\sqrt{a+bx}\left(7Ab-12Ba\right)}{160ax^4}+\frac{\left(a+bx\right)^{\frac{3}{2}}\left(7Ab-12Ba\right)}{60ax^5}+\frac{b^2\sqrt{a+bx}\left(7Ab-12Ba\right)}{960a^2x^3}-\frac{b^3\sqrt{a+bx}\left(7Ab-12Ba\right)}{768a^3x^2}+\frac{b^4\sqrt{a+bx}\left(7Ab-12Ba\right)}{512a^4x}-\frac{b^5\left(7Ab-12Ba\right)\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{512a^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(B*x+A)/x**7,x)
```

```
[Out] -A*(a + b*x)**(5/2)/(6*a*x**6) + b*sqrt(a + b*x)*(7*A*b - 12*B*a)
/(160*a*x**4) + (a + b*x)**(3/2)*(7*A*b - 12*B*a)/(60*a*x**5) + b
**2*sqrt(a + b*x)*(7*A*b - 12*B*a)/(960*a**2*x**3) - b**3*sqrt(a
+ b*x)*(7*A*b - 12*B*a)/(768*a**3*x**2) + b**4*sqrt(a + b*x)*(7*A
*b - 12*B*a)/(512*a**4*x) - b**5*(7*A*b - 12*B*a)*atanh(sqrt(a +
b*x)/sqrt(a))/(512*a**(9/2))
```

Mathematica [A] time = 0.275244, size = 148, normalized size = 0.71

$$\frac{b^5(12aB-7Ab)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{512a^{9/2}} - \frac{\sqrt{a+bx}\left(256a^5(5A+6Bx)+64a^4bx(26A+33Bx)+48a^3b^2x^2(A+2Bx)-8a^2b^3x^3(7A+15Bx)+10ab^4x^4(7A+18Bx)-10\right.}{7680a^4x^6}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(3/2)*(A + B*x))/x^7,x]
```

```
[Out] -(Sqrt[a + b*x]*(-105*A*b^5*x^5 + 48*a^3*b^2*x^2*(A + 2*B*x) + 25
6*a^5*(5*A + 6*B*x) - 8*a^2*b^3*x^3*(7*A + 15*B*x) + 10*a*b^4*x^4
*(7*A + 18*B*x) + 64*a^4*b*x*(26*A + 33*B*x)))/(7680*a^4*x^6) + (
b^5*(-7*A*b + 12*a*B)*ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/(512*a^(9/2
))
```

Maple [A] time = 0.021, size = 161, normalized size = 0.8

$$2\,b^5\left(\frac{1}{x^6b^6}\left(\frac{(7\,Ab-12\,Ba)\,(bx+a)^{11/2}}{1024\,a^4}-\frac{(119\,Ab-204\,Ba)\,(bx+a)^{9/2}}{3072\,a^3}+\frac{(231\,Ab-396\,Ba)\,(bx+a)^{7/2}}{2560\,a^2}-\frac{(281\,Ab-116\,Ba}{2560}\right.\right. - \frac{7\,Ab-12\,Ba}{1024\,a^{9/2}}Artanh\left(\frac{\sqrt{bx+a}}{\sqrt{a}}\right)\Bigg)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(B*x+A)/x^7,x)
```

```
[Out] 2*b^5*((1/1024*(7*A*b-12*B*a)/a^4*(b*x+a)^(11/2)-17/3072/a^3*(7*A
*b-12*B*a)*(b*x+a)^(9/2)+33/2560/a^2*(7*A*b-12*B*a)*(b*x+a)^(7/2)
-1/2560*(281*A*b-116*B*a)/a*(b*x+a)^(5/2)+(-119/3072*A*b+17/256*B
*a)*(b*x+a)^(3/2)+1/1024*a*(7*A*b-12*B*a)*(b*x+a)^(1/2))/x^6/b^6-
1/1024*(7*A*b-12*B*a)/a^(9/2)*arctanh((b*x+a)^(1/2)/a^(1/2)))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/x^7,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.229503, size = 1, normalized size = 0.

$$\left[-\frac{15\left(12\,Bab^5-7\,Ab^6\right)x^6\log\left(\frac{(bx+2\,a)\sqrt{a}-2\,\sqrt{bx+a}a}{x}\right)+2\left(1280\,Aa^5+15\left(12\,Bab^4-7\,Ab^5\right)x^5-10\left(12\,Ba^2b^3-7\,Aab^4\right)x^4+\right.}{15360\,a^{\frac{9}{2}}x^6}\right.$$
$$-\frac{15\left(12\,Bab^5-7\,Ab^6\right)x^6\arctan\left(\frac{a}{\sqrt{bx+a}\sqrt{-a}}\right)+\left(1280\,Aa^5+15\left(12\,Bab^4-7\,Ab^5\right)x^5-10\left(12\,Ba^2b^3-7\,Aab^4\right)x^4+8\left(12\,Ba\right.\right.}{7680\,\sqrt{-a}a^4x^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/x^7,x, algorithm="fricas")
```

```
[Out] [-1/15360*(15*(12*B*a*b^5 - 7*A*b^6)*x^6*log(((b*x + 2*a)*sqrt(a)
 - 2*sqrt(b*x + a)*a)/x) + 2*(1280*A*a^5 + 15*(12*B*a*b^4 - 7*A*b
^5)*x^5 - 10*(12*B*a^2*b^3 - 7*A*a*b^4)*x^4 + 8*(12*B*a^3*b^2 - 7
*A*a^2*b^3)*x^3 + 48*(44*B*a^4*b + A*a^3*b^2)*x^2 + 128*(12*B*a^5
 + 13*A*a^4*b)*x)*sqrt(b*x + a)*sqrt(a))/(a^(9/2)*x^6), -1/7680*(
15*(12*B*a*b^5 - 7*A*b^6)*x^6*arctan(a/(sqrt(b*x + a)*sqrt(-a)))
+ (1280*A*a^5 + 15*(12*B*a*b^4 - 7*A*b^5)*x^5 - 10*(12*B*a^2*b^3
- 7*A*a*b^4)*x^4 + 8*(12*B*a^3*b^2 - 7*A*a^2*b^3)*x^3 + 48*(44*B*
a^4*b + A*a^3*b^2)*x^2 + 128*(12*B*a^5 + 13*A*a^4*b)*x)*sqrt(b*x
+ a)*sqrt(-a))/(sqrt(-a)*a^4*x^6)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)*(B*x+A)/x**7,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.216084, size = 324, normalized size = 1.56

$$-\frac{\frac{15\left(12\,Bab^{6}-7\,Ab^{7}\right)\arctan\left(\frac{\sqrt{bx+a}}{\sqrt{-a}}\right)}{\sqrt{-a}a^{4}}+\frac{180\,(bx+a)^{\frac{11}{2}}Bab^{6}-1020\,(bx+a)^{\frac{9}{2}}Ba^{2}b^{6}+2376\,(bx+a)^{\frac{7}{2}}Ba^{3}b^{6}-696\,(bx+a)^{\frac{5}{2}}Ba^{4}b^{6}-1020\,(bx+a)^{\frac{3}{2}}Ba^{5}b^{6}+180\,\sqrt{bx+a}}{}}{7680\,b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/x^7,x, algorithm="giac")
```

```
[Out] -1/7680*(15*(12*B*a*b^6 - 7*A*b^7)*arctan(sqrt(b*x + a)/sqrt(-a))
/(sqrt(-a)*a^4) + (180*(b*x + a)^(11/2)*B*a*b^6 - 1020*(b*x + a)^
(9/2)*B*a^2*b^6 + 2376*(b*x + a)^(7/2)*B*a^3*b^6 - 696*(b*x + a)^
(5/2)*B*a^4*b^6 - 1020*(b*x + a)^(3/2)*B*a^5*b^6 + 180*sqrt(b*x +
 a)*B*a^6*b^6 - 105*(b*x + a)^(11/2)*A*b^7 + 595*(b*x + a)^(9/2)*
A*a*b^7 - 1386*(b*x + a)^(7/2)*A*a^2*b^7 + 1686*(b*x + a)^(5/2)*A
*a^3*b^7 + 595*(b*x + a)^(3/2)*A*a^4*b^7 - 105*sqrt(b*x + a)*A*a^
5*b^7)/(a^4*b^6*x^6))/b
```

3.398 $\int x^4(a+bx)^{5/2}(A+Bx)\,dx$

Optimal. Leaf size=151

$$\frac{2a^4(a+bx)^{7/2}(Ab-aB)}{7b^6}-\frac{2a^3(a+bx)^{9/2}(4Ab-5aB)}{9b^6}+\frac{4a^2(a+bx)^{11/2}(3Ab-5aB)}{11b^6}+\frac{2(a+bx)^{15/2}(Ab-5aB)}{15b^6}-\frac{4a(a+bx)^{13/2}(2Ab-5aB)}{13b^6}+\frac{2B(a+bx)^{17/2}}{17b^6}$$

```
[Out] (2*a^4*(A*b - a*B)*(a + b*x)^(7/2))/(7*b^6) - (2*a^3*(4*A*b - 5*a
*B)*(a + b*x)^(9/2))/(9*b^6) + (4*a^2*(3*A*b - 5*a*B)*(a + b*x)^(
11/2))/(11*b^6) - (4*a*(2*A*b - 5*a*B)*(a + b*x)^(13/2))/(13*b^6)
 + (2*(A*b - 5*a*B)*(a + b*x)^(15/2))/(15*b^6) + (2*B*(a + b*x)^(
17/2))/(17*b^6)
```

Rubi [A] time = 0.184901, antiderivative size = 151, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{2a^4(a+bx)^{7/2}(Ab-aB)}{7b^6}-\frac{2a^3(a+bx)^{9/2}(4Ab-5aB)}{9b^6}+\frac{4a^2(a+bx)^{11/2}(3Ab-5aB)}{11b^6}+\frac{2(a+bx)^{15/2}(Ab-5aB)}{15b^6}-\frac{4a(a+bx)^{13/2}(2Ab-5aB)}{13b^6}+\frac{2B(a+bx)^{17/2}}{17b^6}$$

Antiderivative was successfully verified.

```
[In]  Int[x^4*(a + b*x)^(5/2)*(A + B*x),x]
```

```
[Out] (2*a^4*(A*b - a*B)*(a + b*x)^(7/2))/(7*b^6) - (2*a^3*(4*A*b - 5*a
*B)*(a + b*x)^(9/2))/(9*b^6) + (4*a^2*(3*A*b - 5*a*B)*(a + b*x)^(
11/2))/(11*b^6) - (4*a*(2*A*b - 5*a*B)*(a + b*x)^(13/2))/(13*b^6)
 + (2*(A*b - 5*a*B)*(a + b*x)^(15/2))/(15*b^6) + (2*B*(a + b*x)^(
17/2))/(17*b^6)
```

Rubi in Sympy [A] time = 28.8968, size = 150, normalized size = 0.99

$$\frac{2B(a+bx)^{\frac{17}{2}}}{17b^6}+\frac{2a^4(a+bx)^{\frac{7}{2}}(Ab-Ba)}{7b^6}-\frac{2a^3(a+bx)^{\frac{9}{2}}(4Ab-5Ba)}{9b^6}+\frac{4a^2(a+bx)^{\frac{11}{2}}(3Ab-5Ba)}{11b^6}-\frac{4a(a+bx)^{\frac{13}{2}}(2Ab-5Ba)}{13b^6}+\frac{2(a+bx)^{\frac{15}{2}}(Ab-5Ba)}{15b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**4*(b*x+a)**(5/2)*(B*x+A),x)
```

```
[Out] 2*B*(a + b*x)**(17/2)/(17*b**6) + 2*a**4*(a + b*x)**(7/2)*(A*b -
B*a)/(7*b**6) - 2*a**3*(a + b*x)**(9/2)*(4*A*b - 5*B*a)/(9*b**6)
+ 4*a**2*(a + b*x)**(11/2)*(3*A*b - 5*B*a)/(11*b**6) - 4*a*(a + b
*x)**(13/2)*(2*A*b - 5*B*a)/(13*b**6) + 2*(a + b*x)**(15/2)*(A*b
- 5*B*a)/(15*b**6)
```

Mathematica [A] time = 0.133344, size = 106, normalized size = 0.7

$$\frac{2(a+bx)^{7/2}\left(-1280a^5B+128a^4b(17A+35Bx)-224a^3b^2x(34A+45Bx)+336a^2b^3x^2(51A+55Bx)-462ab^4x^3(68A+65Bx\right.}{765765b^6}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^4*(a + b*x)^(5/2)*(A + B*x),x]
```

```
[Out] (2*(a + b*x)^(7/2)*(-1280*a^5*B + 3003*b^5*x^4*(17*A + 15*B*x) +
128*a^4*b*(17*A + 35*B*x) - 224*a^3*b^2*x*(34*A + 45*B*x) + 336*a
^2*b^3*x^2*(51*A + 55*B*x) - 462*a*b^4*x^3*(68*A + 65*B*x)))/(765
765*b^6)
```

Maple [A] time = 0.008, size = 119, normalized size = 0.8

$$\frac{90090\, b^5 B x^5 + 102102\, A x^4 b^5 - 60060\, B x^4 a b^4 - 62832\, A x^3 a b^4 + 36960\, B x^3 a^2 b^3 + 34272\, A x^2 a^2 b^3 - 20160\, B x^2 a^3 b^2 - 15232}{765765\, b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^4*(b*x+a)^(5/2)*(B*x+A),x)
```

```
[Out] 2/765765*(b*x+a)^(7/2)*(45045*B*b^5*x^5+51051*A*b^5*x^4-30030*B*a
*b^4*x^4-31416*A*a*b^4*x^3+18480*B*a^2*b^3*x^3+17136*A*a^2*b^3*x^
2-10080*B*a^3*b^2*x^2-7616*A*a^3*b^2*x+4480*B*a^4*b*x+2176*A*a^4*
b-1280*B*a^5)/b^6
```

Maxima [A] time = 1.35449, size = 166, normalized size = 1.1

$$\frac{2\left(45045\,(bx+a)^{\frac{17}{2}}B - 51051\,(5\,Ba - Ab)(bx+a)^{\frac{15}{2}} + 117810\,\left(5\,Ba^2 - 2\,Aab\right)(bx+a)^{\frac{13}{2}} - 139230\,\left(5\,Ba^3 - 3\,Aa^2b\right)(bx+a)\right.}{765765\, b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)*x^4,x, algorithm="maxima")
```

```
[Out] 2/765765*(45045*(b*x + a)^(17/2)*B - 51051*(5*B*a - A*b)*(b*x + a
)^(15/2) + 117810*(5*B*a^2 - 2*A*a*b)*(b*x + a)^(13/2) - 139230*(
5*B*a^3 - 3*A*a^2*b)*(b*x + a)^(11/2) + 85085*(5*B*a^4 - 4*A*a^3*
b)*(b*x + a)^(9/2) - 109395*(B*a^5 - A*a^4*b)*(b*x + a)^(7/2))/b^
6
```

Fricas [A] time = 0.214363, size = 259, normalized size = 1.72

$$2\left(45045\, Bb^8x^8 - 1280\, Ba^8 + 2176\, Aa^7b + 3003\left(35\, Bab^7 + 17\, Ab^8\right)x^7 + 231\left(275\, Ba^2b^6 + 527\, Aab^7\right)x^6 + 63\left(5\, Ba^3b^5 + 1207\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)*x^4,x, algorithm="fricas")
```

```
[Out] 2/765765*(45045*B*b^8*x^8 - 1280*B*a^8 + 2176*A*a^7*b + 3003*(35*
B*a*b^7 + 17*A*b^8)*x^7 + 231*(275*B*a^2*b^6 + 527*A*a*b^7)*x^6 +
 63*(5*B*a^3*b^5 + 1207*A*a^2*b^6)*x^5 - 35*(10*B*a^4*b^4 - 17*A*
a^3*b^5)*x^4 + 40*(10*B*a^5*b^3 - 17*A*a^4*b^4)*x^3 - 48*(10*B*a^
6*b^2 - 17*A*a^5*b^3)*x^2 + 64*(10*B*a^7*b - 17*A*a^6*b^2)*x)*sqr
t(b*x + a)/b^6
```

Sympy [A] time = 9.33036, size = 586, normalized size = 3.88

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**4*(b*x+a)**(5/2)*(B*x+A),x)
```

```
[Out] 2*A*a**2*(a**4*(a + b*x)**(3/2)/3 - 4*a**3*(a + b*x)**(5/2)/5 + 6
*a**2*(a + b*x)**(7/2)/7 - 4*a*(a + b*x)**(9/2)/9 + (a + b*x)**(1
1/2)/11)/b**5 + 4*A*a*(-a**5*(a + b*x)**(3/2)/3 + a**4*(a + b*x)*
*(5/2) - 10*a**3*(a + b*x)**(7/2)/7 + 10*a**2*(a + b*x)**(9/2)/9
- 5*a*(a + b*x)**(11/2)/11 + (a + b*x)**(13/2)/13)/b**5 + 2*A*(a*
*6*(a + b*x)**(3/2)/3 - 6*a**5*(a + b*x)**(5/2)/5 + 15*a**4*(a +
b*x)**(7/2)/7 - 20*a**3*(a + b*x)**(9/2)/9 + 15*a**2*(a + b*x)**(
11/2)/11 - 6*a*(a + b*x)**(13/2)/13 + (a + b*x)**(15/2)/15)/b**5
+ 2*B*a**2*(-a**5*(a + b*x)**(3/2)/3 + a**4*(a + b*x)**(5/2) - 10
*a**3*(a + b*x)**(7/2)/7 + 10*a**2*(a + b*x)**(9/2)/9 - 5*a*(a +
b*x)**(11/2)/11 + (a + b*x)**(13/2)/13)/b**6 + 4*B*a*(a**6*(a + b
*x)**(3/2)/3 - 6*a**5*(a + b*x)**(5/2)/5 + 15*a**4*(a + b*x)**(7/
2)/7 - 20*a**3*(a + b*x)**(9/2)/9 + 15*a**2*(a + b*x)**(11/2)/11
- 6*a*(a + b*x)**(13/2)/13 + (a + b*x)**(15/2)/15)/b**6 + 2*B*(-a
**7*(a + b*x)**(3/2)/3 + 7*a**6*(a + b*x)**(5/2)/5 - 3*a**5*(a +
b*x)**(7/2) + 35*a**4*(a + b*x)**(9/2)/9 - 35*a**3*(a + b*x)**(11
/2)/11 + 21*a**2*(a + b*x)**(13/2)/13 - 7*a*(a + b*x)**(15/2)/15
+ (a + b*x)**(17/2)/17)/b**6
```

GIAC/XCAS [A] time = 0.217592, size = 1, normalized size = 0.01

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)*x^4,x, algorithm="giac")
```

```
[Out] Done
```

3.399 $\int x^3(a+bx)^{5/2}(A+Bx)\,dx$

Optimal. Leaf size=122

$$-\frac{2a^3(a+bx)^{7/2}(Ab-aB)}{7b^5}+\frac{2a^2(a+bx)^{9/2}(3Ab-4aB)}{9b^5}+\frac{2(a+bx)^{13/2}(Ab-4aB)}{13b^5}-\frac{6a(a+bx)^{11/2}(Ab-2aB)}{11b^5}+\frac{2B(a+bx)^{15/2}}{15b^5}$$

```
[Out] (-2*a^3*(A*b - a*B)*(a + b*x)^(7/2))/(7*b^5) + (2*a^2*(3*A*b - 4*
a*B)*(a + b*x)^(9/2))/(9*b^5) - (6*a*(A*b - 2*a*B)*(a + b*x)^(11/
2))/(11*b^5) + (2*(A*b - 4*a*B)*(a + b*x)^(13/2))/(13*b^5) + (2*B
*(a + b*x)^(15/2))/(15*b^5)
```

Rubi [A] time = 0.156884, antiderivative size = 122, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{2a^3(a+bx)^{7/2}(Ab-aB)}{7b^5}+\frac{2a^2(a+bx)^{9/2}(3Ab-4aB)}{9b^5}+\frac{2(a+bx)^{13/2}(Ab-4aB)}{13b^5}-\frac{6a(a+bx)^{11/2}(Ab-2aB)}{11b^5}+\frac{2B(a+bx)^{15/2}}{15b^5}$$

Antiderivative was successfully verified.

```
[In]  Int[x^3*(a + b*x)^(5/2)*(A + B*x),x]
```

```
[Out] (-2*a^3*(A*b - a*B)*(a + b*x)^(7/2))/(7*b^5) + (2*a^2*(3*A*b - 4*
a*B)*(a + b*x)^(9/2))/(9*b^5) - (6*a*(A*b - 2*a*B)*(a + b*x)^(11/
2))/(11*b^5) + (2*(A*b - 4*a*B)*(a + b*x)^(13/2))/(13*b^5) + (2*B
*(a + b*x)^(15/2))/(15*b^5)
```

Rubi in Sympy [A] time = 27.1526, size = 119, normalized size = 0.98

$$\frac{2B\left(a+bx\right)^{\frac{15}{2}}}{15b^5}-\frac{2a^3\left(a+bx\right)^{\frac{7}{2}}\left(Ab-Ba\right)}{7b^5}+\frac{2a^2\left(a+bx\right)^{\frac{9}{2}}\left(3Ab-4Ba\right)}{9b^5}-\frac{6a\left(a+bx\right)^{\frac{11}{2}}\left(Ab-2Ba\right)}{11b^5}+\frac{2\left(a+bx\right)^{\frac{13}{2}}\left(Ab-4Ba\right)}{13b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3*(b*x+a)**(5/2)*(B*x+A),x)
```

```
[Out] 2*B*(a + b*x)**(15/2)/(15*b**5) - 2*a**3*(a + b*x)**(7/2)*(A*b -
B*a)/(7*b**5) + 2*a**2*(a + b*x)**(9/2)*(3*A*b - 4*B*a)/(9*b**5)
- 6*a*(a + b*x)**(11/2)*(A*b - 2*B*a)/(11*b**5) + 2*(a + b*x)**(1
3/2)*(A*b - 4*B*a)/(13*b**5)
```

Mathematica [A] time = 0.0945166, size = 87, normalized size = 0.71

$$\frac{2(a+bx)^{7/2}\left(128a^4B-16a^3b(15A+28Bx)+168a^2b^2x(5A+6Bx)-42ab^3x^2(45A+44Bx)+231b^4x^3(15A+13Bx)\right)}{45045b^5}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^3*(a + b*x)^(5/2)*(A + B*x),x]
```

```
[Out] (2*(a + b*x)^(7/2)*(128*a^4*B + 168*a^2*b^2*x*(5*A + 6*B*x) + 231
*b^4*x^3*(15*A + 13*B*x) - 16*a^3*b*(15*A + 28*B*x) - 42*a*b^3*x^
```

```
2*(45*A + 44*B*x)))/(45045*b^5)
```

Maple [A] time = 0.009, size = 95, normalized size = 0.8

$$-\frac{-6006\,Bx^4b^4 - 6930\,Ab^4x^3 + 3696\,Bab^3x^3 + 3780\,Aab^3x^2 - 2016\,Ba^2b^2x^2 - 1680\,Aa^2b^2x + 896\,Ba^3bx + 480\,Aa^3b - 256\,B}{45045\,b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^3*(b*x+a)^(5/2)*(B*x+A),x)
```

```
[Out] -2/45045*(b*x+a)^(7/2)*(-3003*B*b^4*x^4-3465*A*b^4*x^3+1848*B*a*b
^3*x^3+1890*A*a*b^3*x^2-1008*B*a^2*b^2*x^2-840*A*a^2*b^2*x+448*B*
a^3*b*x+240*A*a^3*b-128*B*a^4)/b^5
```

Maxima [A] time = 1.36065, size = 135, normalized size = 1.11

$$\frac{2\left(3003\,(bx+a)^{\frac{15}{2}}B - 3465\,(4\,Ba - Ab)(bx+a)^{\frac{13}{2}} + 12285\,\left(2\,Ba^2 - Aab\right)(bx+a)^{\frac{11}{2}} - 5005\,\left(4\,Ba^3 - 3\,Aa^2b\right)(bx+a)^{\frac{9}{2}} + 643\right.}{45045\,b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)*x^3,x, algorithm="maxima")
```

```
[Out] 2/45045*(3003*(b*x + a)^(15/2)*B - 3465*(4*B*a - A*b)*(b*x + a)^(
13/2) + 12285*(2*B*a^2 - A*a*b)*(b*x + a)^(11/2) - 5005*(4*B*a^3
- 3*A*a^2*b)*(b*x + a)^(9/2) + 6435*(B*a^4 - A*a^3*b)*(b*x + a)^(
7/2))/b^5
```

Fricas [A] time = 0.207357, size = 225, normalized size = 1.84

$$\frac{2\left(3003\,Bb^7x^7 + 128\,Ba^7 - 240\,Aa^6b + 231\,\left(31\,Bab^6 + 15\,Ab^7\right)x^6 + 63\,\left(71\,Ba^2b^5 + 135\,Aab^6\right)x^5 + 35\,\left(Ba^3b^4 + 159\,Aa^2b^5\right)x^4\right.}{45045\,b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)*x^3,x, algorithm="fricas")
```

```
[Out] 2/45045*(3003*B*b^7*x^7 + 128*B*a^7 - 240*A*a^6*b + 231*(31*B*a*b
^6 + 15*A*b^7)*x^6 + 63*(71*B*a^2*b^5 + 135*A*a*b^6)*x^5 + 35*(B*
a^3*b^4 + 159*A*a^2*b^5)*x^4 - 5*(8*B*a^4*b^3 - 15*A*a^3*b^4)*x^3
 + 6*(8*B*a^5*b^2 - 15*A*a^4*b^3)*x^2 - 8*(8*B*a^6*b - 15*A*a^5*b
^2)*x)*sqrt(b*x + a)/b^5
```

Sympy [A] time = 8.728, size = 496, normalized size = 4.07

$$\frac{2Aa^2\left(-\frac{a^3(a+bx)^{\frac{3}{2}}}{3}+\frac{3a^2(a+bx)^{\frac{5}{2}}}{5}-\frac{3a(a+bx)^{\frac{7}{2}}}{7}+\frac{(a+bx)^{\frac{9}{2}}}{9}\right)}{b^4}+\frac{4Aa\left(\frac{a^4(a+bx)^{\frac{3}{2}}}{3}-\frac{4a^3(a+bx)^{\frac{5}{2}}}{5}+\frac{6a^2(a+bx)^{\frac{7}{2}}}{7}-\frac{4a(a+bx)^{\frac{9}{2}}}{9}+\frac{(a+bx)^{\frac{11}{2}}}{11}\right)}{b^4}+\frac{2A\left(-\frac{a^5(a+bx)^{\frac{3}{2}}}{3}+a^4(a+bx)^{\frac{5}{2}}-\frac{10a^3(a+bx)^{\frac{7}{2}}}{7}+\frac{10a^2(a+bx)^{\frac{9}{2}}}{9}-\frac{5a(a+bx)^{\frac{11}{2}}}{11}+\frac{(a+bx)^{\frac{13}{2}}}{13}\right)}{b^4}+\frac{2Ba^2\left(\frac{a^4(a+bx)^{\frac{3}{2}}}{3}-\frac{4a^3(a+bx)^{\frac{5}{2}}}{5}+\frac{6a^2(a+bx)^{\frac{7}{2}}}{7}-\frac{4a(a+bx)^{\frac{9}{2}}}{9}+\frac{(a+bx)^{\frac{11}{2}}}{11}\right)}{b^5}+\frac{4Ba\left(-\frac{a^5(a+bx)^{\frac{3}{2}}}{3}+a^4(a+bx)^{\frac{5}{2}}-\frac{10a^3(a+bx)^{\frac{7}{2}}}{7}+\frac{10a^2(a+bx)^{\frac{9}{2}}}{9}-\frac{5a(a+bx)^{\frac{11}{2}}}{11}+\frac{(a+bx)^{\frac{13}{2}}}{13}\right)}{b^5}+\frac{2B\left(\frac{a^6(a+bx)^{\frac{3}{2}}}{3}-\frac{6a^5(a+bx)^{\frac{5}{2}}}{5}+\frac{15a^4(a+bx)^{\frac{7}{2}}}{7}-\frac{20a^3(a+bx)^{\frac{9}{2}}}{9}+\frac{15a^2(a+bx)^{\frac{11}{2}}}{11}-\frac{6a(a+bx)^{\frac{13}{2}}}{13}+\frac{(a+bx)^{\frac{15}{2}}}{15}\right)}{b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**3*(b*x+a)**(5/2)*(B*x+A),x)
```

```
[Out] 2*A*a**2*(-a**3*(a + b*x)**(3/2)/3 + 3*a**2*(a + b*x)**(5/2)/5 -
3*a*(a + b*x)**(7/2)/7 + (a + b*x)**(9/2)/9)/b**4 + 4*A*a*(a**4*(
a + b*x)**(3/2)/3 - 4*a**3*(a + b*x)**(5/2)/5 + 6*a**2*(a + b*x)*
*(7/2)/7 - 4*a*(a + b*x)**(9/2)/9 + (a + b*x)**(11/2)/11)/b**4 +
2*A*(-a**5*(a + b*x)**(3/2)/3 + a**4*(a + b*x)**(5/2) - 10*a**3*(
a + b*x)**(7/2)/7 + 10*a**2*(a + b*x)**(9/2)/9 - 5*a*(a + b*x)**(
11/2)/11 + (a + b*x)**(13/2)/13)/b**4 + 2*B*a**2*(a**4*(a + b*x)*
*(3/2)/3 - 4*a**3*(a + b*x)**(5/2)/5 + 6*a**2*(a + b*x)**(7/2)/7
- 4*a*(a + b*x)**(9/2)/9 + (a + b*x)**(11/2)/11)/b**5 + 4*B*a*(-a
**5*(a + b*x)**(3/2)/3 + a**4*(a + b*x)**(5/2) - 10*a**3*(a + b*x
)**(7/2)/7 + 10*a**2*(a + b*x)**(9/2)/9 - 5*a*(a + b*x)**(11/2)/1
1 + (a + b*x)**(13/2)/13)/b**5 + 2*B*(a**6*(a + b*x)**(3/2)/3 - 6
*a**5*(a + b*x)**(5/2)/5 + 15*a**4*(a + b*x)**(7/2)/7 - 20*a**3*(
a + b*x)**(9/2)/9 + 15*a**2*(a + b*x)**(11/2)/11 - 6*a*(a + b*x)*
*(13/2)/13 + (a + b*x)**(15/2)/15)/b**5
```

GIAC/XCAS [A] time = 0.24979, size = 702, normalized size = 5.75

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)*x^3,x, algorithm="giac")
```

```
[Out] 2/45045*(143*(35*(b*x + a)^(9/2)*b^24 - 135*(b*x + a)^(7/2)*a*b^2
4 + 189*(b*x + a)^(5/2)*a^2*b^24 - 105*(b*x + a)^(3/2)*a^3*b^24)*
A*a^2/b^27 + 13*(315*(b*x + a)^(11/2)*b^40 - 1540*(b*x + a)^(9/2)
*a*b^40 + 2970*(b*x + a)^(7/2)*a^2*b^40 - 2772*(b*x + a)^(5/2)*a^
3*b^40 + 1155*(b*x + a)^(3/2)*a^4*b^40)*B*a^2/b^44 + 26*(315*(b*x
 + a)^(11/2)*b^40 - 1540*(b*x + a)^(9/2)*a*b^40 + 2970*(b*x + a)^
(7/2)*a^2*b^40 - 2772*(b*x + a)^(5/2)*a^3*b^40 + 1155*(b*x + a)^(
3/2)*a^4*b^40)*A*a/b^43 + 10*(693*(b*x + a)^(13/2)*b^60 - 4095*(b
*x + a)^(11/2)*a*b^60 + 10010*(b*x + a)^(9/2)*a^2*b^60 - 12870*(b
*x + a)^(7/2)*a^3*b^60 + 9009*(b*x + a)^(5/2)*a^4*b^60 - 3003*(b*
x + a)^(3/2)*a^5*b^60)*B*a/b^64 + 5*(693*(b*x + a)^(13/2)*b^60 -
4095*(b*x + a)^(11/2)*a*b^60 + 10010*(b*x + a)^(9/2)*a^2*b^60 - 1
2870*(b*x + a)^(7/2)*a^3*b^60 + 9009*(b*x + a)^(5/2)*a^4*b^60 - 3
003*(b*x + a)^(3/2)*a^5*b^60)*A/b^63 + (3003*(b*x + a)^(15/2)*b^8
4 - 20790*(b*x + a)^(13/2)*a*b^84 + 61425*(b*x + a)^(11/2)*a^2*b^
84 - 100100*(b*x + a)^(9/2)*a^3*b^84 + 96525*(b*x + a)^(7/2)*a^4*
```

```
b^84 - 54054*(b*x + a)^(5/2)*a^5*b^84 + 15015*(b*x + a)^(3/2)*a^6
*b^84)*B/b^88)/b
```

3.400 $\int x^2(a+bx)^{5/2}(A+Bx)\,dx$

Optimal. Leaf size=95

$$\frac{2a^2(a+bx)^{7/2}(Ab-aB)}{7b^4}+\frac{2(a+bx)^{11/2}(Ab-3aB)}{11b^4}-\frac{2a(a+bx)^{9/2}(2Ab-3aB)}{9b^4}+\frac{2B(a+bx)^{13/2}}{13b^4}$$

```
[Out] (2*a^2*(A*b - a*B)*(a + b*x)^(7/2))/(7*b^4) - (2*a*(2*A*b - 3*a*B
)*(a + b*x)^(9/2))/(9*b^4) + (2*(A*b - 3*a*B)*(a + b*x)^(11/2))/(
11*b^4) + (2*B*(a + b*x)^(13/2))/(13*b^4)
```

Rubi [A] time = 0.12443, antiderivative size = 95, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.056$

$$\frac{2a^2(a+bx)^{7/2}(Ab-aB)}{7b^4}+\frac{2(a+bx)^{11/2}(Ab-3aB)}{11b^4}-\frac{2a(a+bx)^{9/2}(2Ab-3aB)}{9b^4}+\frac{2B(a+bx)^{13/2}}{13b^4}$$

Antiderivative was successfully verified.

```
[In]  Int[x^2*(a + b*x)^(5/2)*(A + B*x),x]
```

```
[Out] (2*a^2*(A*b - a*B)*(a + b*x)^(7/2))/(7*b^4) - (2*a*(2*A*b - 3*a*B
)*(a + b*x)^(9/2))/(9*b^4) + (2*(A*b - 3*a*B)*(a + b*x)^(11/2))/(
11*b^4) + (2*B*(a + b*x)^(13/2))/(13*b^4)
```

Rubi in Sympy [A] time = 18.3557, size = 92, normalized size = 0.97

$$\frac{2B\left(a+bx\right)^{\frac{13}{2}}}{13b^4}+\frac{2a^2\left(a+bx\right)^{\frac{7}{2}}\left(Ab-Ba\right)}{7b^4}-\frac{2a\left(a+bx\right)^{\frac{9}{2}}\left(2Ab-3Ba\right)}{9b^4}+\frac{2\left(a+bx\right)^{\frac{11}{2}}\left(Ab-3Ba\right)}{11b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(b*x+a)**(5/2)*(B*x+A),x)
```

```
[Out] 2*B*(a + b*x)**(13/2)/(13*b**4) + 2*a**2*(a + b*x)**(7/2)*(A*b -
B*a)/(7*b**4) - 2*a*(a + b*x)**(9/2)*(2*A*b - 3*B*a)/(9*b**4) + 2
*(a + b*x)**(11/2)*(A*b - 3*B*a)/(11*b**4)
```

Mathematica [A] time = 0.0992616, size = 68, normalized size = 0.72

$$\frac{2(a+bx)^{7/2}\left(-48a^3B+8a^2b(13A+21Bx)-14ab^2x(26A+27Bx)+63b^3x^2(13A+11Bx)\right)}{9009b^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^2*(a + b*x)^(5/2)*(A + B*x),x]
```

```
[Out] (2*(a + b*x)^(7/2)*(-48*a^3*B + 63*b^3*x^2*(13*A + 11*B*x) + 8*a^
2*b*(13*A + 21*B*x) - 14*a*b^2*x*(26*A + 27*B*x)))/(9009*b^4)
```

Maple [A] time = 0.007, size = 71, normalized size = 0.8

$$\frac{1386\,b^3Bx^3+1638\,Ax^2b^3-756\,Bx^2ab^2-728\,Axab^2+336\,Bxa^2b+208\,Aa^2b-96\,Ba^3}{9009\,b^4}\left(bx+a\right)^{\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(b*x+a)^(5/2)*(B*x+A),x)
```

```
[Out] 2/9009*(b*x+a)^(7/2)*(693*B*b^3*x^3+819*A*b^3*x^2-378*B*a*b^2*x^2
-364*A*a*b^2*x+168*B*a^2*b*x+104*A*a^2*b-48*B*a^3)/b^4
```

Maxima [A] time = 1.35417, size = 104, normalized size = 1.09

$$\frac{2\left(693\,(bx+a)^{\frac{13}{2}}B-819\,(3\,Ba-Ab)(bx+a)^{\frac{11}{2}}+1001\,\left(3\,Ba^2-2\,Aab\right)(bx+a)^{\frac{9}{2}}-1287\,\left(Ba^3-Aa^2b\right)(bx+a)^{\frac{7}{2}}\right)}{9009\,b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)*x^2,x, algorithm="maxima")
```

```
[Out] 2/9009*(693*(b*x + a)^(13/2)*B - 819*(3*B*a - A*b)*(b*x + a)^(11/
2) + 1001*(3*B*a^2 - 2*A*a*b)*(b*x + a)^(9/2) - 1287*(B*a^3 - A*a
^2*b)*(b*x + a)^(7/2))/b^4
```

Fricas [A] time = 0.20383, size = 193, normalized size = 2.03

$$\frac{2\left(693\,Bb^6x^6-48\,Ba^6+104\,Aa^5b+63\left(27\,Bab^5+13\,Ab^6\right)x^5+7\left(159\,Ba^2b^4+299\,Aab^5\right)x^4+\left(15\,Ba^3b^3+1469\,Aa^2b^4\right)x^3-\cdots\right.}{9009\,b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)*x^2,x, algorithm="fricas")
```

```
[Out] 2/9009*(693*B*b^6*x^6 - 48*B*a^6 + 104*A*a^5*b + 63*(27*B*a*b^5 +
 13*A*b^6)*x^5 + 7*(159*B*a^2*b^4 + 299*A*a*b^5)*x^4 + (15*B*a^3*
b^3 + 1469*A*a^2*b^4)*x^3 - 3*(6*B*a^4*b^2 - 13*A*a^3*b^3)*x^2 +
4*(6*B*a^5*b - 13*A*a^4*b^2)*x)*sqrt(b*x + a)/b^4
```

Sympy [A] time = 12.3751, size = 292, normalized size = 3.07

$$\begin{cases}\frac{16Aa^5\sqrt{a+bx}}{693b^3}-\frac{8Aa^4x\sqrt{a+bx}}{693b^2}+\frac{2Aa^3x^2\sqrt{a+bx}}{231b}+\frac{226Aa^2x^3\sqrt{a+bx}}{693}+\frac{46Aabx^4\sqrt{a+bx}}{99}+\frac{2Ab^2x^5\sqrt{a+bx}}{11}-\frac{32Ba^6\sqrt{a+bx}}{3003b^4}+\frac{16Ba^5x\sqrt{a+bx}}{3003b^3}-\frac{4B\cdots}{} \\ a^{\frac{5}{2}}\left(\frac{Ax^3}{3}+\frac{Bx^4}{4}\right)\end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(b*x+a)**(5/2)*(B*x+A),x)
```

```
[Out] Piecewise((16*A*a**5*sqrt(a + b*x)/(693*b**3) - 8*A*a**4*x*sqrt(a
 + b*x)/(693*b**2) + 2*A*a**3*x**2*sqrt(a + b*x)/(231*b) + 226*A*
a**2*x**3*sqrt(a + b*x)/693 + 46*A*a*b*x**4*sqrt(a + b*x)/99 + 2*
A*b**2*x**5*sqrt(a + b*x)/11 - 32*B*a**6*sqrt(a + b*x)/(3003*b**4
) + 16*B*a**5*x*sqrt(a + b*x)/(3003*b**3) - 4*B*a**4*x**2*sqrt(a
+ b*x)/(1001*b**2) + 10*B*a**3*x**3*sqrt(a + b*x)/(3003*b) + 106*
B*a**2*x**4*sqrt(a + b*x)/429 + 54*B*a*b*x**5*sqrt(a + b*x)/143 +
 2*B*b**2*x**6*sqrt(a + b*x)/13, Ne(b, 0)), (a**(5/2)*(A*x**3/3 +
 B*x**4/4), True))
```

GIAC/XCAS [A] time = 0.226312, size = 582, normalized size = 6.13

$$2\left(\frac{429\left(15\,(bx+a)^{\frac{7}{2}}\,b^{12}-42\,(bx+a)^{\frac{5}{2}}\,ab^{12}+35\,(bx+a)^{\frac{3}{2}}\,a^2b^{12}\right)Aa^2}{b^{14}}+\frac{143\left(35\,(bx+a)^{\frac{9}{2}}\,b^{24}-135\,(bx+a)^{\frac{7}{2}}\,ab^{24}+189\,(bx+a)^{\frac{5}{2}}\,a^2b^{24}-105\,(bx+a)^{\frac{3}{2}}\,a^3b^{24}\right)Ba^2}{b^{27}}+\frac{28}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)*x^2,x, algorithm="giac")
```

```
[Out] 2/45045*(429*(15*(b*x + a)^(7/2)*b^12 - 42*(b*x + a)^(5/2)*a*b^12
 + 35*(b*x + a)^(3/2)*a^2*b^12)*A*a^2/b^14 + 143*(35*(b*x + a)^(9
/2)*b^24 - 135*(b*x + a)^(7/2)*a*b^24 + 189*(b*x + a)^(5/2)*a^2*b
^24 - 105*(b*x + a)^(3/2)*a^3*b^24)*B*a^2/b^27 + 286*(35*(b*x + a
)^(9/2)*b^24 - 135*(b*x + a)^(7/2)*a*b^24 + 189*(b*x + a)^(5/2)*a
^2*b^24 - 105*(b*x + a)^(3/2)*a^3*b^24)*A*a/b^26 + 26*(315*(b*x +
 a)^(11/2)*b^40 - 1540*(b*x + a)^(9/2)*a*b^40 + 2970*(b*x + a)^(7
/2)*a^2*b^40 - 2772*(b*x + a)^(5/2)*a^3*b^40 + 1155*(b*x + a)^(3/
2)*a^4*b^40)*B*a/b^43 + 13*(315*(b*x + a)^(11/2)*b^40 - 1540*(b*x
 + a)^(9/2)*a*b^40 + 2970*(b*x + a)^(7/2)*a^2*b^40 - 2772*(b*x +
a)^(5/2)*a^3*b^40 + 1155*(b*x + a)^(3/2)*a^4*b^40)*A/b^42 + 5*(69
3*(b*x + a)^(13/2)*b^60 - 4095*(b*x + a)^(11/2)*a*b^60 + 10010*(b
*x + a)^(9/2)*a^2*b^60 - 12870*(b*x + a)^(7/2)*a^3*b^60 + 9009*(b
*x + a)^(5/2)*a^4*b^60 - 3003*(b*x + a)^(3/2)*a^5*b^60)*B/b^63)/b
```

3.401 $\int x(a+bx)^{5/2}(A+Bx)\,dx$

Optimal. Leaf size=67

$$\frac{2(a+bx)^{9/2}(Ab-2aB)}{9b^3}-\frac{2a(a+bx)^{7/2}(Ab-aB)}{7b^3}+\frac{2B(a+bx)^{11/2}}{11b^3}$$

```
[Out] (-2*a*(A*b - a*B)*(a + b*x)^(7/2))/(7*b^3) + (2*(A*b - 2*a*B)*(a
+ b*x)^(9/2))/(9*b^3) + (2*B*(a + b*x)^(11/2))/(11*b^3)
```

Rubi [A] time = 0.0838112, antiderivative size = 67, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}} = 0.062$

$$\frac{2(a+bx)^{9/2}(Ab-2aB)}{9b^3}-\frac{2a(a+bx)^{7/2}(Ab-aB)}{7b^3}+\frac{2B(a+bx)^{11/2}}{11b^3}$$

Antiderivative was successfully verified.

```
[In] Int[x*(a + b*x)^(5/2)*(A + B*x),x]
```

```
[Out] (-2*a*(A*b - a*B)*(a + b*x)^(7/2))/(7*b^3) + (2*(A*b - 2*a*B)*(a
+ b*x)^(9/2))/(9*b^3) + (2*B*(a + b*x)^(11/2))/(11*b^3)
```

Rubi in Sympy [A] time = 12.8592, size = 63, normalized size = 0.94

$$\frac{2B\left(a+bx\right)^{\frac{11}{2}}}{11b^3}-\frac{2a\left(a+bx\right)^{\frac{7}{2}}\left(Ab-Ba\right)}{7b^3}+\frac{2\left(a+bx\right)^{\frac{9}{2}}\left(Ab-2Ba\right)}{9b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(x*(b*x+a)**(5/2)*(B*x+A),x)
```

```
[Out] 2*B*(a + b*x)**(11/2)/(11*b**3) - 2*a*(a + b*x)**(7/2)*(A*b - B*a
)/(7*b**3) + 2*(a + b*x)**(9/2)*(A*b - 2*B*a)/(9*b**3)
```

Mathematica [A] time = 0.0656525, size = 49, normalized size = 0.73

$$\frac{2(a+bx)^{7/2}\left(8a^2B-2ab(11A+14Bx)+7b^2x(11A+9Bx)\right)}{693b^3}$$

Antiderivative was successfully verified.

```
[In] Integrate[x*(a + b*x)^(5/2)*(A + B*x),x]
```

```
[Out] (2*(a + b*x)^(7/2)*(8*a^2*B + 7*b^2*x*(11*A + 9*B*x) - 2*a*b*(11*
A + 14*B*x)))/(693*b^3)
```

Maple [A] time = 0.006, size = 47, normalized size = 0.7

$$-{\frac{-126\,{b}^{2}B{x}^{2}-154\,Ax{b}^{2}+56\,Bxab+44\,Aab-16\,B{a}^{2}}{693\,{b}^{3}}\left(bx+a\right)^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(b*x+a)^(5/2)*(B*x+A),x)
```

```
[Out] -2/693*(b*x+a)^(7/2)*(-63*B*b^2*x^2-77*A*b^2*x+28*B*a*b*x+22*A*a*
b-8*B*a^2)/b^3
```

Maxima [A] time = 1.36436, size = 73, normalized size = 1.09

$$\frac{2\left(63\,(bx+a)^{\frac{11}{2}}B - 77\,(2\,Ba - Ab)(bx+a)^{\frac{9}{2}} + 99\,\left(Ba^2 - Aab\right)(bx+a)^{\frac{7}{2}}\right)}{693\,b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)*x,x, algorithm="maxima")
```

```
[Out] 2/693*(63*(b*x + a)^(11/2)*B - 77*(2*B*a - A*b)*(b*x + a)^(9/2) +
 99*(B*a^2 - A*a*b)*(b*x + a)^(7/2))/b^3
```

Fricas [A] time = 0.208668, size = 159, normalized size = 2.37

$$\frac{2\left(63\,Bb^5x^5 + 8\,Ba^5 - 22\,Aa^4b + 7\left(23\,Bab^4 + 11\,Ab^5\right)x^4 + \left(113\,Ba^2b^3 + 209\,Aab^4\right)x^3 + 3\left(Ba^3b^2 + 55\,Aa^2b^3\right)x^2 - \left(4\,Ba^4b - \right.\right.}{693\,b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)*x,x, algorithm="fricas")
```

```
[Out] 2/693*(63*B*b^5*x^5 + 8*B*a^5 - 22*A*a^4*b + 7*(23*B*a*b^4 + 11*A
*b^5)*x^4 + (113*B*a^2*b^3 + 209*A*a*b^4)*x^3 + 3*(B*a^3*b^2 + 55
*A*a^2*b^3)*x^2 - (4*B*a^4*b - 11*A*a^3*b^2)*x)*sqrt(b*x + a)/b^3
```

Sympy [A] time = 9.54332, size = 245, normalized size = 3.66

$$\begin{cases} -\frac{4Aa^4\sqrt{a+bx}}{63b^2} + \frac{2Aa^3x\sqrt{a+bx}}{63b} + \frac{10Aa^2x^2\sqrt{a+bx}}{21} + \frac{38Aabx^3\sqrt{a+bx}}{63} + \frac{2Ab^2x^4\sqrt{a+bx}}{9} + \frac{16Ba^5\sqrt{a+bx}}{693b^3} - \frac{8Ba^4x\sqrt{a+bx}}{693b^2} + \frac{2Ba^3x^2\sqrt{a+bx}}{231b} + \frac{226B}{} \\ a^{\frac{5}{2}}\left(\frac{Ax^2}{2} + \frac{Bx^3}{3}\right) \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(b*x+a)**(5/2)*(B*x+A),x)
```

```
[Out] Piecewise((-4*A*a**4*sqrt(a + b*x)/(63*b**2) + 2*A*a**3*x*sqrt(a
+ b*x)/(63*b) + 10*A*a**2*x**2*sqrt(a + b*x)/21 + 38*A*a*b*x**3*s
qrt(a + b*x)/63 + 2*A*b**2*x**4*sqrt(a + b*x)/9 + 16*B*a**5*sqrt(
a + b*x)/(693*b**3) - 8*B*a**4*x*sqrt(a + b*x)/(693*b**2) + 2*B*a
**3*x**2*sqrt(a + b*x)/(231*b) + 226*B*a**2*x**3*sqrt(a + b*x)/69
3 + 46*B*a*b*x**4*sqrt(a + b*x)/99 + 2*B*b**2*x**5*sqrt(a + b*x)/
11, Ne(b, 0)), (a**(5/2)*(A*x**2/2 + B*x**3/3), True))
```

GIAC/XCAS [A] time = 0.218, size = 451, normalized size = 6.73

$$\frac{2\left(\frac{231\left(3\,(bx+a)^{\frac{5}{2}} - 5\,(bx+a)^{\frac{3}{2}}a\right)Aa^2}{b} + \frac{33\left(15\,(bx+a)^{\frac{7}{2}}b^{12} - 42\,(bx+a)^{\frac{5}{2}}ab^{12} + 35\,(bx+a)^{\frac{3}{2}}a^2b^{12}\right)Ba^2}{b^{14}} + \frac{66\left(15\,(bx+a)^{\frac{7}{2}}b^{12} - 42\,(bx+a)^{\frac{5}{2}}ab^{12} + 35\,(bx+a)^{\frac{3}{2}}a^2b\right.}{b^{13}}\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)*x,x, algorithm="giac")
```

```
[Out] 2/3465*(231*(3*(b*x + a)^(5/2) - 5*(b*x + a)^(3/2)*a)*A*a^2/b + 3
3*(15*(b*x + a)^(7/2)*b^12 - 42*(b*x + a)^(5/2)*a*b^12 + 35*(b*x
+ a)^(3/2)*a^2*b^12)*B*a^2/b^14 + 66*(15*(b*x + a)^(7/2)*b^12 - 4
2*(b*x + a)^(5/2)*a*b^12 + 35*(b*x + a)^(3/2)*a^2*b^12)*A*a/b^13
+ 22*(35*(b*x + a)^(9/2)*b^24 - 135*(b*x + a)^(7/2)*a*b^24 + 189*
(b*x + a)^(5/2)*a^2*b^24 - 105*(b*x + a)^(3/2)*a^3*b^24)*B*a/b^26
 + 11*(35*(b*x + a)^(9/2)*b^24 - 135*(b*x + a)^(7/2)*a*b^24 + 189
*(b*x + a)^(5/2)*a^2*b^24 - 105*(b*x + a)^(3/2)*a^3*b^24)*A/b^25
+ (315*(b*x + a)^(11/2)*b^40 - 1540*(b*x + a)^(9/2)*a*b^40 + 2970
*(b*x + a)^(7/2)*a^2*b^40 - 2772*(b*x + a)^(5/2)*a^3*b^40 + 1155*
(b*x + a)^(3/2)*a^4*b^40)*B/b^42)/b
```

3.402 $\int (a+bx)^{5/2}(A+Bx)\,dx$

Optimal. Leaf size=42

$$\frac{2(a+bx)^{7/2}(Ab-aB)}{7b^2}+\frac{2B(a+bx)^{9/2}}{9b^2}$$

```
[Out] (2*(A*b - a*B)*(a + b*x)^(7/2))/(7*b^2) + (2*B*(a + b*x)^(9/2))/(
9*b^2)
```

Rubi [A] time = 0.044717, antiderivative size = 42, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}} = 0.067$

$$\frac{2(a+bx)^{7/2}(Ab-aB)}{7b^2}+\frac{2B(a+bx)^{9/2}}{9b^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(5/2)*(A + B*x),x]
```

```
[Out] (2*(A*b - a*B)*(a + b*x)^(7/2))/(7*b^2) + (2*B*(a + b*x)^(9/2))/(
9*b^2)
```

Rubi in Sympy [A] time = 7.92321, size = 37, normalized size = 0.88

$$\frac{2B\left(a+bx\right)^{\frac{9}{2}}}{9b^2}+\frac{2\left(a+bx\right)^{\frac{7}{2}}\left(Ab-Ba\right)}{7b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(B*x+A),x)
```

```
[Out] 2*B*(a + b*x)**(9/2)/(9*b**2) + 2*(a + b*x)**(7/2)*(A*b - B*a)/(7
*b**2)
```

Mathematica [A] time = 0.0489212, size = 30, normalized size = 0.71

$$\frac{2(a+bx)^{7/2}(-2aB+9Ab+7bBx)}{63b^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(5/2)*(A + B*x),x]
```

```
[Out] (2*(a + b*x)^(7/2)*(9*A*b - 2*a*B + 7*b*B*x))/(63*b^2)
```

Maple [A] time = 0.006, size = 27, normalized size = 0.6

$$\frac{14\,bBx+18\,Ab-4\,Ba}{63\,b^2}\left(bx+a\right)^{\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(B*x+A),x)
```

```
[Out] 2/63*(b*x+a)^(7/2)*(7*B*b*x+9*A*b-2*B*a)/b^2
```

Maxima [A] time = 1.34411, size = 45, normalized size = 1.07

$$\frac{2\left(7\,(bx+a)^{\frac{9}{2}}B-9\,(Ba-Ab)(bx+a)^{\frac{7}{2}}\right)}{63\,b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2),x, algorithm="maxima")
```

```
[Out] 2/63*(7*(b*x + a)^(9/2)*B - 9*(B*a - A*b)*(b*x + a)^(7/2))/b^2
```

Fricas [A] time = 0.207943, size = 126, normalized size = 3.

$$\frac{2\left(7\,Bb^4x^4-2\,Ba^4+9\,Aa^3b+\left(19\,Bab^3+9\,Ab^4\right)x^3+3\left(5\,Ba^2b^2+9\,Aab^3\right)x^2+\left(Ba^3b+27\,Aa^2b^2\right)x\right)\sqrt{bx+a}}{63\,b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2),x, algorithm="fricas")
```

```
[Out] 2/63*(7*B*b^4*x^4 - 2*B*a^4 + 9*A*a^3*b + (19*B*a*b^3 + 9*A*b^4)*
x^3 + 3*(5*B*a^2*b^2 + 9*A*a*b^3)*x^2 + (B*a^3*b + 27*A*a^2*b^2)*
x)*sqrt(b*x + a)/b^2
```

Sympy [A] time = 6.38216, size = 194, normalized size = 4.62

$$\begin{cases}\frac{2Aa^3\sqrt{a+bx}}{7b}+\frac{6Aa^2x\sqrt{a+bx}}{7}+\frac{6Aabx^2\sqrt{a+bx}}{7}+\frac{2Ab^2x^3\sqrt{a+bx}}{7}-\frac{4Ba^4\sqrt{a+bx}}{63b^2}+\frac{2Ba^3x\sqrt{a+bx}}{63b}+\frac{10Ba^2x^2\sqrt{a+bx}}{21}+\frac{38Babx^3\sqrt{a+bx}}{63}+\frac{2Bb^2x^4}{9} \\ a^{\frac{5}{2}}\left(Ax+\frac{Bx^2}{2}\right)\end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(B*x+A),x)
```

```
[Out] Piecewise((2*A*a**3*sqrt(a + b*x)/(7*b) + 6*A*a**2*x*sqrt(a + b*x
)/7 + 6*A*a*b*x**2*sqrt(a + b*x)/7 + 2*A*b**2*x**3*sqrt(a + b*x)/
7 - 4*B*a**4*sqrt(a + b*x)/(63*b**2) + 2*B*a**3*x*sqrt(a + b*x)/(
63*b) + 10*B*a**2*x**2*sqrt(a + b*x)/21 + 38*B*a*b*x**3*sqrt(a +
b*x)/63 + 2*B*b**2*x**4*sqrt(a + b*x)/9, Ne(b, 0)), (a**(5/2)*(A*
x + B*x**2/2), True))
```

GIAC/XCAS [A] time = 0.212739, size = 308, normalized size = 7.33

$$\frac{2\left(105\,(bx+a)^{\frac{3}{2}}Aa^2+42\left(3\,(bx+a)^{\frac{5}{2}}-5\,(bx+a)^{\frac{3}{2}}a\right)Aa+\frac{21\left(3\,(bx+a)^{\frac{5}{2}}-5\,(bx+a)^{\frac{3}{2}}a\right)Ba^2}{b}+\frac{6\left(15\,(bx+a)^{\frac{7}{2}}b^{12}-42\,(bx+a)^{\frac{5}{2}}ab^{12}+35\,(bx+a\right.}{b^{13}}}{315}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2),x, algorithm="giac")
```

```
[Out] 2/315*(105*(b*x + a)^(3/2)*A*a^2 + 42*(3*(b*x + a)^(5/2) - 5*(b*x
 + a)^(3/2)*a)*A*a + 21*(3*(b*x + a)^(5/2) - 5*(b*x + a)^(3/2)*a)
```

```
*B*a^2/b + 6*(15*(b*x + a)^(7/2)*b^12 - 42*(b*x + a)^(5/2)*a*b^12
 + 35*(b*x + a)^(3/2)*a^2*b^12)*B*a/b^13 + 3*(15*(b*x + a)^(7/2)*
b^12 - 42*(b*x + a)^(5/2)*a*b^12 + 35*(b*x + a)^(3/2)*a^2*b^12)*A
/b^12 + (35*(b*x + a)^(9/2)*b^24 - 135*(b*x + a)^(7/2)*a*b^24 + 1
89*(b*x + a)^(5/2)*a^2*b^24 - 105*(b*x + a)^(3/2)*a^3*b^24)*B/b^2
5)/b
```

3.403 $\int \frac{(a+bx)^{5/2}(A+Bx)}{x} dx$

Optimal. Leaf size=86

$$-2a^{5/2}A\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)+2a^2A\sqrt{a+bx}+\frac{2}{5}A(a+bx)^{5/2}+\frac{2}{3}aA(a+bx)^{3/2}+\frac{2B(a+bx)^{7/2}}{7b}$$

```
[Out] 2*a^2*A*Sqrt[a + b*x] + (2*a*A*(a + b*x)^(3/2))/3 + (2*A*(a + b*x
)^(5/2))/5 + (2*B*(a + b*x)^(7/2))/(7*b) - 2*a^(5/2)*A*ArcTanh[Sq
rt[a + b*x]/Sqrt[a]]
```

Rubi [A] time = 0.107123, antiderivative size = 86, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.222

$$-2a^{5/2}A\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)+2a^2A\sqrt{a+bx}+\frac{2}{5}A(a+bx)^{5/2}+\frac{2}{3}aA(a+bx)^{3/2}+\frac{2B(a+bx)^{7/2}}{7b}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(5/2)*(A + B*x))/x,x]
```

```
[Out] 2*a^2*A*Sqrt[a + b*x] + (2*a*A*(a + b*x)^(3/2))/3 + (2*A*(a + b*x
)^(5/2))/5 + (2*B*(a + b*x)^(7/2))/(7*b) - 2*a^(5/2)*A*ArcTanh[Sq
rt[a + b*x]/Sqrt[a]]
```

Rubi in Sympy [A] time = 13.0702, size = 82, normalized size = 0.95

$$-2Aa^{\frac{5}{2}}\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)+2Aa^2\sqrt{a+bx}+\frac{2Aa\,(a+bx)^{\frac{3}{2}}}{3}+\frac{2A\,(a+bx)^{\frac{5}{2}}}{5}+\frac{2B\,(a+bx)^{\frac{7}{2}}}{7b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(B*x+A)/x,x)
```

```
[Out] -2*A*a**(5/2)*atanh(sqrt(a + b*x)/sqrt(a)) + 2*A*a**2*sqrt(a + b*
x) + 2*A*a*(a + b*x)**(3/2)/3 + 2*A*(a + b*x)**(5/2)/5 + 2*B*(a +
 b*x)**(7/2)/(7*b)
```

Mathematica [A] time = 0.136087, size = 91, normalized size = 1.06

$$\frac{2\sqrt{a+bx}\left(15a^3B+a^2b(161A+45Bx)+ab^2x(77A+45Bx)+3b^3x^2(7A+5Bx)\right)}{105b}-2a^{5/2}A\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(5/2)*(A + B*x))/x,x]
```

```
[Out] (2*Sqrt[a + b*x]*(15*a^3*B + 3*b^3*x^2*(7*A + 5*B*x) + a*b^2*x*(7
7*A + 45*B*x) + a^2*b*(161*A + 45*B*x)))/(105*b) - 2*a^(5/2)*A*Ar
cTanh[Sqrt[a + b*x]/Sqrt[a]]
```

Maple [A] time = 0.01, size = 72, normalized size = 0.8

$$2\,{\frac {1}{b} \left(1/7\,B \left(bx+a \right) ^{7/2}+1/5\,Ab \left(bx+a \right) ^{5/2}+1/3\,Aab \left(bx+a \right) ^{3/2}+{a}^{2}bA\sqrt {bx+a}-A{a}^{5/2}bArtanh \left({\frac {\sqrt {bx+a}}{\sqrt {a}}} \right) \right) }$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(B*x+A)/x,x)
```

```
[Out] 2/b*(1/7*B*(b*x+a)^(7/2)+1/5*A*b*(b*x+a)^(5/2)+1/3*A*a*b*(b*x+a)^
(3/2)+a^2*b*A*(b*x+a)^(1/2)-A*a^(5/2)*b*arctanh((b*x+a)^(1/2)/a^(
1/2)))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.224334, size = 1, normalized size = 0.01

$$\left[\frac{105\,Aa^{\frac{5}{2}}b\log\left(\frac{bx-2\,\sqrt{bx+a}\sqrt{a}+2\,a}{x}\right)+2\,\left(15\,Bb^{3}x^{3}+15\,Ba^{3}+161\,Aa^{2}b+3\,\left(15\,Bab^{2}+7\,Ab^{3}\right)x^{2}+\left(45\,Ba^{2}b+77\,Aab^{2}\right)x\right)\sqrt{bx}}{105\,b}\right.$$
$$-\frac{2\left(105\,A\sqrt{-a}a^{2}b\arctan\left(\frac{\sqrt{bx+a}}{\sqrt{-a}}\right)-\left(15\,Bb^{3}x^{3}+15\,Ba^{3}+161\,Aa^{2}b+3\,\left(15\,Bab^{2}+7\,Ab^{3}\right)x^{2}+\left(45\,Ba^{2}b+77\,Aab^{2}\right)x\right)\sqrt{bx}}{105\,b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x,x, algorithm="fricas")
```

```
[Out] [1/105*(105*A*a^(5/2)*b*log((b*x - 2*sqrt(b*x + a)*sqrt(a) + 2*a)
/x) + 2*(15*B*b^3*x^3 + 15*B*a^3 + 161*A*a^2*b + 3*(15*B*a*b^2 +
7*A*b^3)*x^2 + (45*B*a^2*b + 77*A*a*b^2)*x)*sqrt(b*x + a))/b, -2/
105*(105*A*sqrt(-a)*a^2*b*arctan(sqrt(b*x + a)/sqrt(-a)) - (15*B*
b^3*x^3 + 15*B*a^3 + 161*A*a^2*b + 3*(15*B*a*b^2 + 7*A*b^3)*x^2 +
 (45*B*a^2*b + 77*A*a*b^2)*x)*sqrt(b*x + a))/b]
```

Sympy [A] time = 18.3216, size = 144, normalized size = 1.67

$$- 2 A a^{3} \left(\begin{cases} - \frac{\operatorname{atan}{\left(\frac{\sqrt{a + b x}}{\sqrt{- a}} \right)}}{\sqrt{- a}} & \text{for}\: - a > 0 \\\frac{\operatorname{acoth}{\left(\frac{\sqrt{a + b x}}{\sqrt{a}} \right)}}{\sqrt{a}} & \text{for}\: - a < 0 \wedge a < a + b x \\\frac{\operatorname{atanh}{\left(\frac{\sqrt{a + b x}}{\sqrt{a}} \right)}}{\sqrt{a}} & \text{for}\: a > a + b x \wedge - a < 0 \end{cases}\right) + 2 A a^{2} \sqrt{a + b x} + \frac{2 A a \left(a + b x\right)^{\frac{3}{2}}}{3} + \frac{2 A \left(a + b x\right)^{\frac{5}{2}}}{5} + \frac{2 B \left(a + b x\right)^{\frac{7}{2}}}{7 b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(B*x+A)/x,x)
```

```
[Out] -2*A*a**3*Piecewise((-atan(sqrt(a + b*x)/sqrt(-a))/sqrt(-a), -a >
 0), (acoth(sqrt(a + b*x)/sqrt(a))/sqrt(a), (-a < 0) & (a < a + b
*x)), (atanh(sqrt(a + b*x)/sqrt(a))/sqrt(a), (-a < 0) & (a > a +
b*x))) + 2*A*a**2*sqrt(a + b*x) + 2*A*a*(a + b*x)**(3/2)/3 + 2*A*
(a + b*x)**(5/2)/5 + 2*B*(a + b*x)**(7/2)/(7*b)
```

GIAC/XCAS [A] time = 0.214688, size = 119, normalized size = 1.38

$$\frac{2\,Aa^3\arctan\left(\frac{\sqrt{bx+a}}{\sqrt{-a}}\right)}{\sqrt{-a}}+\frac{2\left(15\,(bx+a)^{\frac{7}{2}}Bb^6+21\,(bx+a)^{\frac{5}{2}}Ab^7+35\,(bx+a)^{\frac{3}{2}}Aab^7+105\,\sqrt{bx+a}Aa^2b^7\right)}{105\,b^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x,x, algorithm="giac")
```

```
[Out] 2*A*a^3*arctan(sqrt(b*x + a)/sqrt(-a))/sqrt(-a) + 2/105*(15*(b*x
+ a)^(7/2)*B*b^6 + 21*(b*x + a)^(5/2)*A*b^7 + 35*(b*x + a)^(3/2)*
A*a*b^7 + 105*sqrt(b*x + a)*A*a^2*b^7)/b^7
```

3.404 $\int \frac{(a+bx)^{5/2}(A+Bx)}{x^2}\,dx$

Optimal. Leaf size=118

$$-a^{3/2}(2aB+5Ab)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)+\frac{(a+bx)^{5/2}(2aB+5Ab)}{5a}$$
$$+\frac{1}{3}(a+bx)^{3/2}(2aB+5Ab)+a\sqrt{a+bx}(2aB+5Ab)-\frac{A(a+bx)^{7/2}}{ax}$$

```
[Out] a*(5*A*b + 2*a*B)*Sqrt[a + b*x] + ((5*A*b + 2*a*B)*(a + b*x)^(3/2
))/3 + ((5*A*b + 2*a*B)*(a + b*x)^(5/2))/(5*a) - (A*(a + b*x)^(7/
2))/(a*x) - a^(3/2)*(5*A*b + 2*a*B)*ArcTanh[Sqrt[a + b*x]/Sqrt[a]
]
```

Rubi [A] time = 0.160128, antiderivative size = 118, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.222

$$-a^{3/2}(2aB+5Ab)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)+\frac{(a+bx)^{5/2}(2aB+5Ab)}{5a}$$
$$+\frac{1}{3}(a+bx)^{3/2}(2aB+5Ab)+a\sqrt{a+bx}(2aB+5Ab)-\frac{A(a+bx)^{7/2}}{ax}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(5/2)*(A + B*x))/x^2,x]
```

```
[Out] a*(5*A*b + 2*a*B)*Sqrt[a + b*x] + ((5*A*b + 2*a*B)*(a + b*x)^(3/2
))/3 + ((5*A*b + 2*a*B)*(a + b*x)^(5/2))/(5*a) - (A*(a + b*x)^(7/
2))/(a*x) - a^(3/2)*(5*A*b + 2*a*B)*ArcTanh[Sqrt[a + b*x]/Sqrt[a]
]
```

Rubi in Sympy [A] time = 16.9449, size = 110, normalized size = 0.93

$$-\frac{A(a+bx)^{\frac{7}{2}}}{ax}-2a^{\frac{3}{2}}\left(\frac{5Ab}{2}+Ba\right)\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)+a\sqrt{a+bx}\,(5Ab+2Ba)$$
$$+(a+bx)^{\frac{3}{2}}\left(\frac{5Ab}{3}+\frac{2Ba}{3}\right)+\frac{2(a+bx)^{\frac{5}{2}}\left(\frac{5Ab}{2}+Ba\right)}{5a}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(B*x+A)/x**2,x)
```

```
[Out] -A*(a + b*x)**(7/2)/(a*x) - 2*a**(3/2)*(5*A*b/2 + B*a)*atanh(sqrt
(a + b*x)/sqrt(a)) + a*sqrt(a + b*x)*(5*A*b + 2*B*a) + (a + b*x)*
*(3/2)*(5*A*b/3 + 2*B*a/3) + 2*(a + b*x)**(5/2)*(5*A*b/2 + B*a)/(
5*a)
```

Mathematica [A] time = 0.145423, size = 93, normalized size = 0.79

$$\sqrt{a+bx}\left(-\frac{a^2A}{x}+\frac{2}{15}bx(11aB+5Ab)+\frac{2}{15}a(23aB+35Ab)+\frac{2}{5}b^2Bx^2\right)-a^{3/2}(2aB+5Ab)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(5/2)*(A + B*x))/x^2,x]
```

```
[Out] Sqrt[a + b*x]*((2*a*(35*A*b + 23*a*B))/15 - (a^2*A)/x + (2*b*(5*A
*b + 11*a*B)*x)/15 + (2*b^2*B*x^2)/5) - a^(3/2)*(5*A*b + 2*a*B)*A
rcTanh[Sqrt[a + b*x]/Sqrt[a]]
```

Maple [A] time = 0.018, size = 104, normalized size = 0.9

$$\frac{2B}{5}(bx+a)^{\frac{5}{2}}+\frac{2Ab}{3}(bx+a)^{\frac{3}{2}}+\frac{2Ba}{3}(bx+a)^{\frac{3}{2}}+4abA\sqrt{bx+a}+2a^2B\sqrt{bx+a} \\ +2a^2\left(-1/2\frac{A\sqrt{bx+a}}{x}-1/2\frac{5Ab+2Ba}{\sqrt{a}}Artanh\left(\frac{\sqrt{bx+a}}{\sqrt{a}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(B*x+A)/x^2,x)
```

```
[Out] 2/5*B*(b*x+a)^(5/2)+2/3*A*b*(b*x+a)^(3/2)+2/3*B*(b*x+a)^(3/2)*a+4
*a*b*A*(b*x+a)^(1/2)+2*a^2*B*(b*x+a)^(1/2)+2*a^2*(-1/2*A*(b*x+a)^
(1/2)/x-1/2*(5*A*b+2*B*a)/a^(1/2)*arctanh((b*x+a)^(1/2)/a^(1/2)))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^2,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.226917, size = 1, normalized size = 0.01

$$\left[\frac{15\left(2Ba^2+5Aab\right)\sqrt{a}x\log\left(\frac{bx-2\sqrt{bx+a}\sqrt{a}+2a}{x}\right)+2\left(6Bb^2x^3-15Aa^2+2\left(11Bab+5Ab^2\right)x^2+2\left(23Ba^2+35Aab\right)x\right)\sqrt{bx+a}}{30x}, \\ -\frac{15\left(2Ba^2+5Aab\right)\sqrt{-a}x\arctan\left(\frac{\sqrt{bx+a}}{\sqrt{-a}}\right)-\left(6Bb^2x^3-15Aa^2+2\left(11Bab+5Ab^2\right)x^2+2\left(23Ba^2+35Aab\right)x\right)\sqrt{bx+a}}{15x}\right]$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^2,x, algorithm="fricas")
```

```
[Out] [1/30*(15*(2*B*a^2 + 5*A*a*b)*sqrt(a)*x*log((b*x - 2*sqrt(b*x + a
)*sqrt(a) + 2*a)/x) + 2*(6*B*b^2*x^3 - 15*A*a^2 + 2*(11*B*a*b + 5
*A*b^2)*x^2 + 2*(23*B*a^2 + 35*A*a*b)*x)*sqrt(b*x + a))/x, -1/15*
(15*(2*B*a^2 + 5*A*a*b)*sqrt(-a)*x*arctan(sqrt(b*x + a)/sqrt(-a))
 - (6*B*b^2*x^3 - 15*A*a^2 + 2*(11*B*a*b + 5*A*b^2)*x^2 + 2*(23*B
*a^2 + 35*A*a*b)*x)*sqrt(b*x + a))/x]
```

Sympy [A] time = 30.8081, size = 379, normalized size = 3.21

$$-\frac{Aa^3b\sqrt{\frac{1}{a^3}}\log\left(-a^2\sqrt{\frac{1}{a^3}}+\sqrt{a+bx}\right)}{2}+\frac{Aa^3b\sqrt{\frac{1}{a^3}}\log\left(a^2\sqrt{\frac{1}{a^3}}+\sqrt{a+bx}\right)}{2}$$
$$-6Aa^2b\left(\begin{cases}-\frac{\operatorname{atan}\left(\frac{\sqrt{a+bx}}{\sqrt{-a}}\right)}{\sqrt{-a}} & \text{for } -a>0\\ \frac{\operatorname{acoth}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{\sqrt{a}} & \text{for } -a<0\wedge a<a+bx\\ \frac{\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{\sqrt{a}} & \text{for } a>a+bx\wedge -a<0\end{cases}\right)-\frac{Aa^2\sqrt{a+bx}}{x}+4Aab\sqrt{a+bx}$$
$$+Ab^2\left(\begin{cases}\sqrt{a}x & \text{for } b=0\\ \frac{2(a+bx)^{\frac{3}{2}}}{3b} & \text{otherwise}\end{cases}\right)-2Ba^3\left(\begin{cases}-\frac{\operatorname{atan}\left(\frac{\sqrt{a+bx}}{\sqrt{-a}}\right)}{\sqrt{-a}} & \text{for } -a>0\\ \frac{\operatorname{acoth}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{\sqrt{a}} & \text{for } -a<0\wedge a<a+bx\\ \frac{\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{\sqrt{a}} & \text{for } a>a+bx\wedge -a<0\end{cases}\right)$$
$$+2Ba^2\sqrt{a+bx}+2Bab\left(\begin{cases}\sqrt{a}x & \text{for } b=0\\ \frac{2(a+bx)^{\frac{3}{2}}}{3b} & \text{otherwise}\end{cases}\right)-\frac{2Ba(a+bx)^{\frac{3}{2}}}{3}+\frac{2B(a+bx)^{\frac{5}{2}}}{5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(B*x+A)/x**2,x)
```

```
[Out] -A*a**3*b*sqrt(a**(-3))*log(-a**2*sqrt(a**(-3)) + sqrt(a + b*x))/
2 + A*a**3*b*sqrt(a**(-3))*log(a**2*sqrt(a**(-3)) + sqrt(a + b*x)
)/2 - 6*A*a**2*b*Piecewise((-atan(sqrt(a + b*x)/sqrt(-a))/sqrt(-a
), -a > 0), (acoth(sqrt(a + b*x)/sqrt(a))/sqrt(a), (-a < 0) & (a
< a + b*x)), (atanh(sqrt(a + b*x)/sqrt(a))/sqrt(a), (-a < 0) & (a
 > a + b*x))) - A*a**2*sqrt(a + b*x)/x + 4*A*a*b*sqrt(a + b*x) +
A*b**2*Piecewise((sqrt(a)*x, Eq(b, 0)), (2*(a + b*x)**(3/2)/(3*b)
, True)) - 2*B*a**3*Piecewise((-atan(sqrt(a + b*x)/sqrt(-a))/sqrt
(-a), -a > 0), (acoth(sqrt(a + b*x)/sqrt(a))/sqrt(a), (-a < 0) &
(a < a + b*x)), (atanh(sqrt(a + b*x)/sqrt(a))/sqrt(a), (-a < 0) &
 (a > a + b*x))) + 2*B*a**2*sqrt(a + b*x) + 2*B*a*b*Piecewise((sq
rt(a)*x, Eq(b, 0)), (2*(a + b*x)**(3/2)/(3*b), True)) - 2*B*a*(a
+ b*x)**(3/2)/3 + 2*B*(a + b*x)**(5/2)/5
```

GIAC/XCAS [A] time = 0.2358, size = 169, normalized size = 1.43

$$\frac{6\,(bx+a)^{\frac{5}{2}}Bb+10\,(bx+a)^{\frac{3}{2}}Bab+30\,\sqrt{bx+a}Ba^2b+10\,(bx+a)^{\frac{3}{2}}Ab^2+60\,\sqrt{bx+a}Aab^2-\frac{15\,\sqrt{bx+a}Aa^2b}{x}+\frac{15\,(2\,Ba^3b+5\,Aa^2b^2)\,\cdots}{\sqrt{-a}}}{15\,b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^2,x, algorithm="giac")
```

```
[Out] 1/15*(6*(b*x + a)^(5/2)*B*b + 10*(b*x + a)^(3/2)*B*a*b + 30*sqrt(
b*x + a)*B*a^2*b + 10*(b*x + a)^(3/2)*A*b^2 + 60*sqrt(b*x + a)*A*
a*b^2 - 15*sqrt(b*x + a)*A*a^2*b/x + 15*(2*B*a^3*b + 5*A*a^2*b^2)
*arctan(sqrt(b*x + a)/sqrt(-a))/sqrt(-a))/b
```

3.405 $\int \frac{(a+bx)^{5/2}(A+Bx)}{x^3} dx$

Optimal. Leaf size=133

$$-\frac{(a+bx)^{5/2}(4aB+3Ab)}{4ax}+\frac{5b(a+bx)^{3/2}(4aB+3Ab)}{12a}+\frac{5}{4}b\sqrt{a+bx}(4aB+3Ab)-\frac{5}{4}\sqrt{a}b(4aB+3Ab)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)-\frac{A(a+bx)^{7/2}}{2ax^2}$$

```
[Out] (5*b*(3*A*b + 4*a*B)*Sqrt[a + b*x])/4 + (5*b*(3*A*b + 4*a*B)*(a +
 b*x)^(3/2))/(12*a) - ((3*A*b + 4*a*B)*(a + b*x)^(5/2))/(4*a*x) -
 (A*(a + b*x)^(7/2))/(2*a*x^2) - (5*Sqrt[a]*b*(3*A*b + 4*a*B)*Arc
Tanh[Sqrt[a + b*x]/Sqrt[a]])/4
```

Rubi [A] time = 0.166418, antiderivative size = 133, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.278

$$-\frac{(a+bx)^{5/2}(4aB+3Ab)}{4ax}+\frac{5b(a+bx)^{3/2}(4aB+3Ab)}{12a}+\frac{5}{4}b\sqrt{a+bx}(4aB+3Ab)-\frac{5}{4}\sqrt{a}b(4aB+3Ab)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)-\frac{A(a+bx)^{7/2}}{2ax^2}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(5/2)*(A + B*x))/x^3,x]
```

```
[Out] (5*b*(3*A*b + 4*a*B)*Sqrt[a + b*x])/4 + (5*b*(3*A*b + 4*a*B)*(a +
 b*x)^(3/2))/(12*a) - ((3*A*b + 4*a*B)*(a + b*x)^(5/2))/(4*a*x) -
 (A*(a + b*x)^(7/2))/(2*a*x^2) - (5*Sqrt[a]*b*(3*A*b + 4*a*B)*Arc
Tanh[Sqrt[a + b*x]/Sqrt[a]])/4
```

Rubi in Sympy [A] time = 14.9733, size = 124, normalized size = 0.93

$$-\frac{A\left(a+bx\right)^{\frac{7}{2}}}{2ax^2}-\frac{5\sqrt{a}b\left(3Ab+4Ba\right)\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{4}+\frac{5b\sqrt{a+bx}\left(3Ab+4Ba\right)}{4}+\frac{5b\left(a+bx\right)^{\frac{3}{2}}\left(3Ab+4Ba\right)}{12a}-\frac{\left(a+bx\right)^{\frac{5}{2}}\left(3Ab+4Ba\right)}{4ax}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(B*x+A)/x**3,x)
```

```
[Out] -A*(a + b*x)**(7/2)/(2*a*x**2) - 5*sqrt(a)*b*(3*A*b + 4*B*a)*atan
h(sqrt(a + b*x)/sqrt(a))/4 + 5*b*sqrt(a + b*x)*(3*A*b + 4*B*a)/4
+ 5*b*(a + b*x)**(3/2)*(3*A*b + 4*B*a)/(12*a) - (a + b*x)**(5/2)*
(3*A*b + 4*B*a)/(4*a*x)
```

Mathematica [A] time = 0.1485, size = 91, normalized size = 0.68

$$\frac{\sqrt{a+bx}\left(-6a^2(A+2Bx)+abx(56Bx-27A)+8b^2x^2(3A+Bx)\right)}{12x^2}-\frac{5}{4}\sqrt{a}b(4aB+3Ab)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(5/2)*(A + B*x))/x^3,x]
```

```
[Out] (Sqrt[a + b*x]*(8*b^2*x^2*(3*A + B*x) - 6*a^2*(A + 2*B*x) + a*b*x
*(-27*A + 56*B*x)))/(12*x^2) - (5*Sqrt[a]*b*(3*A*b + 4*a*B)*ArcTa
nh[Sqrt[a + b*x]/Sqrt[a]])/4
```

Maple [A] time = 0.019, size = 110, normalized size = 0.8

$$2b\left(1/3B(bx+a)^{3/2}+Ab\sqrt{bx+a}+2Ba\sqrt{bx+a}+a\left(\frac{1}{b^2x^2}\left(\left(-\frac{9Ab}{8}-1/2Ba\right)(bx+a)^{3/2}+\left(\frac{7Aab}{8}+1/2Ba^2\right)\sqrt{bx+a}\right)-5/8\frac{3Ab+4Ba}{\sqrt{a}}\mathrm{Artanh}\left(\frac{\sqrt{bx+a}}{\sqrt{a}}\right)\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(B*x+A)/x^3,x)
```

```
[Out] 2*b*(1/3*B*(b*x+a)^(3/2)+A*b*(b*x+a)^(1/2)+2*B*a*(b*x+a)^(1/2)+a*
(((-9/8*A*b-1/2*B*a)*(b*x+a)^(3/2)+(7/8*A*a*b+1/2*B*a^2)*(b*x+a)^
(1/2))/x^2/b^2-5/8*(3*A*b+4*B*a)/a^(1/2)*arctanh((b*x+a)^(1/2)/a^
(1/2))))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^3,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.223489, size = 1, normalized size = 0.01

$$\left[\frac{15\left(4Bab+3Ab^2\right)\sqrt{a}x^2\log\left(\frac{bx-2\sqrt{bx+a}\sqrt{a}+2a}{x}\right)+2\left(8Bb^2x^3-6Aa^2+8\left(7Bab+3Ab^2\right)x^2-3\left(4Ba^2+9Aab\right)x\right)\sqrt{bx+a}}{24x^2},-\frac{15\left(4Bab+3Ab^2\right)\sqrt{-a}x^2\arctan\left(\frac{\sqrt{bx+a}}{\sqrt{-a}}\right)-\left(8Bb^2x^3-6Aa^2+8\left(7Bab+3Ab^2\right)x^2-3\left(4Ba^2+9Aab\right)x\right)\sqrt{bx+a}}{12x^2}\right]$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^3,x, algorithm="fricas")
```

```
[Out] [1/24*(15*(4*B*a*b + 3*A*b^2)*sqrt(a)*x^2*log((b*x - 2*sqrt(b*x +
 a)*sqrt(a) + 2*a)/x) + 2*(8*B*b^2*x^3 - 6*A*a^2 + 8*(7*B*a*b + 3
*A*b^2)*x^2 - 3*(4*B*a^2 + 9*A*a*b)*x)*sqrt(b*x + a))/x^2, -1/12*
(15*(4*B*a*b + 3*A*b^2)*sqrt(-a)*x^2*arctan(sqrt(b*x + a)/sqrt(-a
)) - (8*B*b^2*x^3 - 6*A*a^2 + 8*(7*B*a*b + 3*A*b^2)*x^2 - 3*(4*B*
a^2 + 9*A*a*b)*x)*sqrt(b*x + a))/x^2]
```

Sympy [A] time = 59.3872, size = 600, normalized size = 4.51

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(B*x+A)/x**3,x)
```

```
[Out] -10*A*a**4*b**2*sqrt(a + b*x)/(-8*a**4 - 16*a**3*b*x + 8*a**2*(a
+ b*x)**2) + 6*A*a**3*b**2*(a + b*x)**(3/2)/(-8*a**4 - 16*a**3*b*
x + 8*a**2*(a + b*x)**2) + 3*A*a**3*b**2*sqrt(a**(-5))*log(-a**3*
sqrt(a**(-5)) + sqrt(a + b*x))/8 - 3*A*a**3*b**2*sqrt(a**(-5))*lo
g(a**3*sqrt(a**(-5)) + sqrt(a + b*x))/8 - 3*A*a**2*b**2*sqrt(a**(
-3))*log(-a**2*sqrt(a**(-3)) + sqrt(a + b*x))/2 + 3*A*a**2*b**2*s
qrt(a**(-3))*log(a**2*sqrt(a**(-3)) + sqrt(a + b*x))/2 - 6*A*a*b*
*2*Piecewise((-atan(sqrt(a + b*x)/sqrt(-a))/sqrt(-a), -a > 0), (a
coth(sqrt(a + b*x)/sqrt(a))/sqrt(a), (-a < 0) & (a < a + b*x)), (
atanh(sqrt(a + b*x)/sqrt(a))/sqrt(a), (-a < 0) & (a > a + b*x)))
- 3*A*a*b*sqrt(a + b*x)/x + 2*A*b**2*sqrt(a + b*x) - B*a**3*b*sqr
t(a**(-3))*log(-a**2*sqrt(a**(-3)) + sqrt(a + b*x))/2 + B*a**3*b*
sqrt(a**(-3))*log(a**2*sqrt(a**(-3)) + sqrt(a + b*x))/2 - 6*B*a**
2*b*Piecewise((-atan(sqrt(a + b*x)/sqrt(-a))/sqrt(-a), -a > 0), (
acoth(sqrt(a + b*x)/sqrt(a))/sqrt(a), (-a < 0) & (a < a + b*x)),
(atanh(sqrt(a + b*x)/sqrt(a))/sqrt(a), (-a < 0) & (a > a + b*x)))
 - B*a**2*sqrt(a + b*x)/x + 4*B*a*b*sqrt(a + b*x) + B*b**2*Piecew
ise((sqrt(a)*x, Eq(b, 0)), (2*(a + b*x)**(3/2)/(3*b), True))
```

GIAC/XCAS [A] time = 0.224622, size = 209, normalized size = 1.57

$$\frac{8\,(bx+a)^{\frac{3}{2}}Bb^2 + 48\,\sqrt{bx+a}Bab^2 + 24\,\sqrt{bx+a}Ab^3 + \frac{15\,\left(4\,Ba^2b^2+3\,Aab^3\right)\arctan\left(\frac{\sqrt{bx+a}}{\sqrt{-a}}\right)}{\sqrt{-a}} - \frac{3\,\left(4\,(bx+a)^{\frac{3}{2}}Ba^2b^2-4\,\sqrt{bx+a}Ba^3b^2+9\,(bx+a)^{\frac{3}{2}}\cdots\right.}{b^2x^2}}{12\,b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^3,x, algorithm="giac")
```

```
[Out] 1/12*(8*(b*x + a)^(3/2)*B*b^2 + 48*sqrt(b*x + a)*B*a*b^2 + 24*sqr
t(b*x + a)*A*b^3 + 15*(4*B*a^2*b^2 + 3*A*a*b^3)*arctan(sqrt(b*x +
 a)/sqrt(-a))/sqrt(-a) - 3*(4*(b*x + a)^(3/2)*B*a^2*b^2 - 4*sqrt(
b*x + a)*B*a^3*b^2 + 9*(b*x + a)^(3/2)*A*a*b^3 - 7*sqrt(b*x + a)*
A*a^2*b^3)/(b^2*x^2))/b
```

3.406 $\int \frac{(a+bx)^{5/2}(A+Bx)}{x^4} dx$

Optimal. Leaf size=139

$$\frac{5b^2\sqrt{a+bx}(6aB+Ab)}{8a}-\frac{5b^2(6aB+Ab)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{8\sqrt{a}}-\frac{(a+bx)^{5/2}(6aB+Ab)}{12ax^2}-\frac{5b(a+bx)^{3/2}(6aB+Ab)}{24ax}-\frac{A(a+bx)^{7/2}}{3ax^3}$$

```
[Out] (5*b^2*(A*b + 6*a*B)*Sqrt[a + b*x])/(8*a) - (5*b*(A*b + 6*a*B)*(a
 + b*x)^(3/2))/(24*a*x) - ((A*b + 6*a*B)*(a + b*x)^(5/2))/(12*a*x
^2) - (A*(a + b*x)^(7/2))/(3*a*x^3) - (5*b^2*(A*b + 6*a*B)*ArcTan
h[Sqrt[a + b*x]/Sqrt[a]])/(8*Sqrt[a])
```

Rubi [A] time = 0.173162, antiderivative size = 139, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.278

$$\frac{5b^2\sqrt{a+bx}(6aB+Ab)}{8a}-\frac{5b^2(6aB+Ab)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{8\sqrt{a}}-\frac{(a+bx)^{5/2}(6aB+Ab)}{12ax^2}-\frac{5b(a+bx)^{3/2}(6aB+Ab)}{24ax}-\frac{A(a+bx)^{7/2}}{3ax^3}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(5/2)*(A + B*x))/x^4,x]
```

```
[Out] (5*b^2*(A*b + 6*a*B)*Sqrt[a + b*x])/(8*a) - (5*b*(A*b + 6*a*B)*(a
 + b*x)^(3/2))/(24*a*x) - ((A*b + 6*a*B)*(a + b*x)^(5/2))/(12*a*x
^2) - (A*(a + b*x)^(7/2))/(3*a*x^3) - (5*b^2*(A*b + 6*a*B)*ArcTan
h[Sqrt[a + b*x]/Sqrt[a]])/(8*Sqrt[a])
```

Rubi in Sympy [A] time = 15.5618, size = 126, normalized size = 0.91

$$-\frac{A\left(a+bx\right)^{\frac{7}{2}}}{3ax^3}+\frac{5b^2\sqrt{a+bx}\left(Ab+6Ba\right)}{8a}-\frac{5b\left(a+bx\right)^{\frac{3}{2}}\left(Ab+6Ba\right)}{24ax}-\frac{\left(a+bx\right)^{\frac{5}{2}}\left(Ab+6Ba\right)}{12ax^2}-\frac{5b^2\left(Ab+6Ba\right)\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{8\sqrt{a}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(B*x+A)/x**4,x)
```

```
[Out] -A*(a + b*x)**(7/2)/(3*a*x**3) + 5*b**2*sqrt(a + b*x)*(A*b + 6*B*
a)/(8*a) - 5*b*(a + b*x)**(3/2)*(A*b + 6*B*a)/(24*a*x) - (a + b*x
)**(5/2)*(A*b + 6*B*a)/(12*a*x**2) - 5*b**2*(A*b + 6*B*a)*atanh(s
qrt(a + b*x)/sqrt(a))/(8*sqrt(a))
```

Mathematica [A] time = 0.179172, size = 96, normalized size = 0.69

$$-\frac{\sqrt{a+bx}\left(4a^2(2A+3Bx)+2abx(13A+27Bx)+3b^2x^2(11A-16Bx)\right)}{24x^3}-\frac{5b^2(6aB+Ab)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{8\sqrt{a}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(5/2)*(A + B*x))/x^4,x]
```

```
[Out] -(Sqrt[a + b*x]*(3*b^2*x^2*(11*A - 16*B*x) + 4*a^2*(2*A + 3*B*x)
+ 2*a*b*x*(13*A + 27*B*x)))/(24*x^3) - (5*b^2*(A*b + 6*a*B)*ArcTa
nh[Sqrt[a + b*x]/Sqrt[a]])/(8*Sqrt[a])
```

Maple [A] time = 0.02, size = 108, normalized size = 0.8

$$2b^2\left(B\sqrt{bx+a} + \frac{1}{x^3b^3}\left(\left(-\frac{11\,Ab}{16}-\frac{9\,Ba}{8}\right)(bx+a)^{5/2}+\left(5/6\,Aab+2\,Ba^2\right)(bx+a)^{3/2}+\left(-\frac{7\,Ba^3}{8}-\frac{5\,Aa^2b}{16}\right)\sqrt{bx+a}\right) - \frac{5\,Ab+30\,Ba}{16\,\sqrt{a}}Artanh\left(\frac{\sqrt{bx+a}}{\sqrt{a}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(B*x+A)/x^4,x)
```

```
[Out] 2*b^2*(B*(b*x+a)^(1/2)+((-11/16*A*b-9/8*B*a)*(b*x+a)^(5/2)+(5/6*A
*a*b+2*B*a^2)*(b*x+a)^(3/2)+(-7/8*B*a^3-5/16*A*a^2*b)*(b*x+a)^(1/
2))/x^3/b^3-5/16*(A*b+6*B*a)/a^(1/2)*arctanh((b*x+a)^(1/2)/a^(1/2
)))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^4,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.222134, size = 1, normalized size = 0.01

$$\left[\frac{15\left(6\,Bab^2+Ab^3\right)x^3\log\left(\frac{(bx+2\,a)\sqrt{a}-2\,\sqrt{bx+a}a}{x}\right)+2\left(48\,Bb^2x^3-8\,Aa^2-3\left(18\,Bab+11\,Ab^2\right)x^2-2\left(6\,Ba^2+13\,Aab\right)x\right)\sqrt{bx}}{48\,\sqrt{a}x^3}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^4,x, algorithm="fricas")
```

```
[Out] [1/48*(15*(6*B*a*b^2 + A*b^3)*x^3*log(((b*x + 2*a)*sqrt(a) - 2*sq
rt(b*x + a)*a)/x) + 2*(48*B*b^2*x^3 - 8*A*a^2 - 3*(18*B*a*b + 11*
A*b^2)*x^2 - 2*(6*B*a^2 + 13*A*a*b)*x)*sqrt(b*x + a)*sqrt(a))/(sq
rt(a)*x^3), 1/24*(15*(6*B*a*b^2 + A*b^3)*x^3*arctan(a/(sqrt(b*x +
 a)*sqrt(-a))) + (48*B*b^2*x^3 - 8*A*a^2 - 3*(18*B*a*b + 11*A*b^2
)*x^2 - 2*(6*B*a^2 + 13*A*a*b)*x)*sqrt(b*x + a)*sqrt(-a))/(sqrt(-
a)*x^3)]
```

Sympy [A] time = 90.7369, size = 989, normalized size = 7.12

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(B*x+A)/x**4,x)
```

```
[Out] -66*A*a**5*b**3*sqrt(a + b*x)/(96*a**6 + 144*a**5*b*x - 144*a**4*
(a + b*x)**2 + 48*a**3*(a + b*x)**3) + 80*A*a**4*b**3*(a + b*x)**
(3/2)/(96*a**6 + 144*a**5*b*x - 144*a**4*(a + b*x)**2 + 48*a**3*(
a + b*x)**3) - 30*A*a**3*b**3*(a + b*x)**(5/2)/(96*a**6 + 144*a**
5*b*x - 144*a**4*(a + b*x)**2 + 48*a**3*(a + b*x)**3) - 30*A*a**3
*b**3*sqrt(a + b*x)/(-8*a**4 - 16*a**3*b*x + 8*a**2*(a + b*x)**2)
 - 5*A*a**3*b**3*sqrt(a**(-7))*log(-a**4*sqrt(a**(-7)) + sqrt(a +
 b*x))/16 + 5*A*a**3*b**3*sqrt(a**(-7))*log(a**4*sqrt(a**(-7)) +
sqrt(a + b*x))/16 + 18*A*a**2*b**3*(a + b*x)**(3/2)/(-8*a**4 - 16
*a**3*b*x + 8*a**2*(a + b*x)**2) + 9*A*a**2*b**3*sqrt(a**(-5))*lo
g(-a**3*sqrt(a**(-5)) + sqrt(a + b*x))/8 - 9*A*a**2*b**3*sqrt(a**
(-5))*log(a**3*sqrt(a**(-5)) + sqrt(a + b*x))/8 - 3*A*a*b**3*sqrt
(a**(-3))*log(-a**2*sqrt(a**(-3)) + sqrt(a + b*x))/2 + 3*A*a*b**3
*sqrt(a**(-3))*log(a**2*sqrt(a**(-3)) + sqrt(a + b*x))/2 - 2*A*b*
*3*Piecewise((-atan(sqrt(a + b*x)/sqrt(-a))/sqrt(-a), -a > 0), (a
coth(sqrt(a + b*x)/sqrt(a))/sqrt(a), (-a < 0) & (a < a + b*x)), (
atanh(sqrt(a + b*x)/sqrt(a))/sqrt(a), (-a < 0) & (a > a + b*x)))
- 3*A*b**2*sqrt(a + b*x)/x - 10*B*a**4*b**2*sqrt(a + b*x)/(-8*a**
4 - 16*a**3*b*x + 8*a**2*(a + b*x)**2) + 6*B*a**3*b**2*(a + b*x)*
*(3/2)/(-8*a**4 - 16*a**3*b*x + 8*a**2*(a + b*x)**2) + 3*B*a**3*b
**2*sqrt(a**(-5))*log(-a**3*sqrt(a**(-5)) + sqrt(a + b*x))/8 - 3*
B*a**3*b**2*sqrt(a**(-5))*log(a**3*sqrt(a**(-5)) + sqrt(a + b*x))
/8 - 3*B*a**2*b**2*sqrt(a**(-3))*log(-a**2*sqrt(a**(-3)) + sqrt(a
 + b*x))/2 + 3*B*a**2*b**2*sqrt(a**(-3))*log(a**2*sqrt(a**(-3)) +
 sqrt(a + b*x))/2 - 6*B*a*b**2*Piecewise((-atan(sqrt(a + b*x)/sqr
t(-a))/sqrt(-a), -a > 0), (acoth(sqrt(a + b*x)/sqrt(a))/sqrt(a),
(-a < 0) & (a < a + b*x)), (atanh(sqrt(a + b*x)/sqrt(a))/sqrt(a),
 (-a < 0) & (a > a + b*x))) - 3*B*a*b*sqrt(a + b*x)/x + 2*B*b**2*
sqrt(a + b*x)
```

GIAC/XCAS [A] time = 0.226386, size = 204, normalized size = 1.47

$$\frac{48\,\sqrt{bx+a}Bb^3+\frac{15\left(6\,Bab^3+Ab^4\right)\arctan\left(\frac{\sqrt{bx+a}}{\sqrt{-a}}\right)}{\sqrt{-a}}-\frac{54\,(bx+a)^{\frac{5}{2}}Bab^3-96\,(bx+a)^{\frac{3}{2}}Ba^2b^3+42\,\sqrt{bx+a}Ba^3b^3+33\,(bx+a)^{\frac{5}{2}}Ab^4-40\,(bx+a)^{\frac{3}{2}}Aab^4+15\,\sqrt{bx}}{b^3x^3}}{24\,b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^4,x, algorithm="giac")
```

```
[Out] 1/24*(48*sqrt(b*x + a)*B*b^3 + 15*(6*B*a*b^3 + A*b^4)*arctan(sqrt
(b*x + a)/sqrt(-a))/sqrt(-a) - (54*(b*x + a)^(5/2)*B*a*b^3 - 96*(
b*x + a)^(3/2)*B*a^2*b^3 + 42*sqrt(b*x + a)*B*a^3*b^3 + 33*(b*x +
 a)^(5/2)*A*b^4 - 40*(b*x + a)^(3/2)*A*a*b^4 + 15*sqrt(b*x + a)*A
*a^2*b^4)/(b^3*x^3))/b
```

3.407 $\int \frac{(a+bx)^{5/2}(A+Bx)}{x^5} dx$

Optimal. Leaf size=142

$$\frac{5b^3(Ab-8aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{64a^{3/2}}+\frac{5b^2\sqrt{a+bx}(Ab-8aB)}{64ax}+\frac{(a+bx)^{5/2}(Ab-8aB)}{24ax^3}+\frac{5b(a+bx)^{3/2}(Ab-8aB)}{96ax^2}-\frac{A(a+bx)^{7/2}}{4ax^4}$$

```
[Out] (5*b^2*(A*b - 8*a*B)*Sqrt[a + b*x])/(64*a*x) + (5*b*(A*b - 8*a*B)
*(a + b*x)^(3/2))/(96*a*x^2) + ((A*b - 8*a*B)*(a + b*x)^(5/2))/(2
4*a*x^3) - (A*(a + b*x)^(7/2))/(4*a*x^4) + (5*b^3*(A*b - 8*a*B)*A
rcTanh[Sqrt[a + b*x]/Sqrt[a]])/(64*a^(3/2))
```

Rubi [A] time = 0.186407, antiderivative size = 142, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.222

$$\frac{5b^3(Ab-8aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{64a^{3/2}}+\frac{5b^2\sqrt{a+bx}(Ab-8aB)}{64ax}+\frac{(a+bx)^{5/2}(Ab-8aB)}{24ax^3}+\frac{5b(a+bx)^{3/2}(Ab-8aB)}{96ax^2}-\frac{A(a+bx)^{7/2}}{4ax^4}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(5/2)*(A + B*x))/x^5,x]
```

```
[Out] (5*b^2*(A*b - 8*a*B)*Sqrt[a + b*x])/(64*a*x) + (5*b*(A*b - 8*a*B)
*(a + b*x)^(3/2))/(96*a*x^2) + ((A*b - 8*a*B)*(a + b*x)^(5/2))/(2
4*a*x^3) - (A*(a + b*x)^(7/2))/(4*a*x^4) + (5*b^3*(A*b - 8*a*B)*A
rcTanh[Sqrt[a + b*x]/Sqrt[a]])/(64*a^(3/2))
```

Rubi in Sympy [A] time = 16.3237, size = 129, normalized size = 0.91

$$-\frac{A(a+bx)^{\frac{7}{2}}}{4ax^4}+\frac{5b^2\sqrt{a+bx}\,(Ab-8Ba)}{64ax}+\frac{5b\,(a+bx)^{\frac{3}{2}}\,(Ab-8Ba)}{96ax^2}+\frac{(a+bx)^{\frac{5}{2}}\,(Ab-8Ba)}{24ax^3}+\frac{5b^3\,(Ab-8Ba)\,\mathrm{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{64a^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(B*x+A)/x**5,x)
```

```
[Out] -A*(a + b*x)**(7/2)/(4*a*x**4) + 5*b**2*sqrt(a + b*x)*(A*b - 8*B*
a)/(64*a*x) + 5*b*(a + b*x)**(3/2)*(A*b - 8*B*a)/(96*a*x**2) + (a
 + b*x)**(5/2)*(A*b - 8*B*a)/(24*a*x**3) + 5*b**3*(A*b - 8*B*a)*a
tanh(sqrt(a + b*x)/sqrt(a))/(64*a**(3/2))
```

Mathematica [A] time = 0.186023, size = 111, normalized size = 0.78

$$\frac{5b^3(Ab-8aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{64a^{3/2}}-\frac{\sqrt{a+bx}\left(16a^3(3A+4Bx)+8a^2bx(17A+26Bx)+2ab^2x^2(59A+132Bx)+15Ab^3x^3\right)}{192ax^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(5/2)*(A + B*x))/x^5,x]
```

```
[Out] -(Sqrt[a + b*x]*(15*A*b^3*x^3 + 16*a^3*(3*A + 4*B*x) + 8*a^2*b*x*
(17*A + 26*B*x) + 2*a*b^2*x^2*(59*A + 132*B*x)))/(192*a*x^4) + (5
*b^3*(A*b - 8*a*B)*ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/(64*a^(3/2))
```

Maple [A] time = 0.02, size = 118, normalized size = 0.8

$$2\,b^{3}\left(\frac{1}{x^{4}b^{4}}\left(-\frac{(5\,Ab+88\,Ba)\,(bx+a)^{7/2}}{128\,a}+\left(\frac{73\,Ba}{48}-\frac{73\,Ab}{384}\right)(bx+a)^{5/2}+\frac{55\,a\,(Ab-8\,Ba)\,(bx+a)^{3/2}}{384}+\left(\frac{5\,Ba^{3}}{16}-\frac{5\,Aa^{2}b}{128}\right)\right.\right.$$
$$\left.\left.+\frac{5\,Ab-40\,Ba}{128\,a^{3/2}}Artanh\left(\frac{\sqrt{bx+a}}{\sqrt{a}}\right)\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(B*x+A)/x^5,x)
```

```
[Out] 2*b^3*((-1/128*(5*A*b+88*B*a)/a*(b*x+a)^(7/2)+(73/48*B*a-73/384*A
*b)*(b*x+a)^(5/2)+55/384*a*(A*b-8*B*a)*(b*x+a)^(3/2)+(5/16*B*a^3-
5/128*A*a^2*b)*(b*x+a)^(1/2))/x^4/b^4+5/128*(A*b-8*B*a)/a^(3/2)*a
rctanh((b*x+a)^(1/2)/a^(1/2)))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^5,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.219428, size = 1, normalized size = 0.01

$$\left[-\frac{15\left(8\,Bab^{3}-Ab^{4}\right)x^{4}\log\left(\frac{(bx+2\,a)\sqrt{a}+2\,\sqrt{bx+a}a}{x}\right)+2\left(48\,Aa^{3}+3\left(88\,Bab^{2}+5\,Ab^{3}\right)x^{3}+2\left(104\,Ba^{2}b+59\,Aab^{2}\right)x^{2}+8\left(8\,Ba\right.\right.}{384\,a^{\frac{3}{2}}x^{4}}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^5,x, algorithm="fricas")
```

```
[Out] [-1/384*(15*(8*B*a*b^3 - A*b^4)*x^4*log(((b*x + 2*a)*sqrt(a) + 2*
sqrt(b*x + a)*a)/x) + 2*(48*A*a^3 + 3*(88*B*a*b^2 + 5*A*b^3)*x^3
+ 2*(104*B*a^2*b + 59*A*a*b^2)*x^2 + 8*(8*B*a^3 + 17*A*a^2*b)*x)*
sqrt(b*x + a)*sqrt(a))/(a^(3/2)*x^4), 1/192*(15*(8*B*a*b^3 - A*b^
4)*x^4*arctan(a/(sqrt(b*x + a)*sqrt(-a))) - (48*A*a^3 + 3*(88*B*a
*b^2 + 5*A*b^3)*x^3 + 2*(104*B*a^2*b + 59*A*a*b^2)*x^2 + 8*(8*B*a
^3 + 17*A*a^2*b)*x)*sqrt(b*x + a)*sqrt(-a))/(sqrt(-a)*a*x^4)]
```

Sympy [A] time = 159.828, size = 1481, normalized size = 10.43

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(B*x+A)/x**5,x)
```

```
[Out] -558*A*a**6*b**4*sqrt(a + b*x)/(-1152*a**8 - 1536*a**7*b*x + 2304
*a**6*(a + b*x)**2 - 1536*a**5*(a + b*x)**3 + 384*a**4*(a + b*x)*
*4) + 1022*A*a**5*b**4*(a + b*x)**(3/2)/(-1152*a**8 - 1536*a**7*b
*x + 2304*a**6*(a + b*x)**2 - 1536*a**5*(a + b*x)**3 + 384*a**4*(
a + b*x)**4) - 770*A*a**4*b**4*(a + b*x)**(5/2)/(-1152*a**8 - 153
6*a**7*b*x + 2304*a**6*(a + b*x)**2 - 1536*a**5*(a + b*x)**3 + 38
4*a**4*(a + b*x)**4) - 198*A*a**4*b**4*sqrt(a + b*x)/(96*a**6 + 1
44*a**5*b*x - 144*a**4*(a + b*x)**2 + 48*a**3*(a + b*x)**3) + 210
*A*a**3*b**4*(a + b*x)**(7/2)/(-1152*a**8 - 1536*a**7*b*x + 2304*
a**6*(a + b*x)**2 - 1536*a**5*(a + b*x)**3 + 384*a**4*(a + b*x)**
4) + 240*A*a**3*b**4*(a + b*x)**(3/2)/(96*a**6 + 144*a**5*b*x - 1
44*a**4*(a + b*x)**2 + 48*a**3*(a + b*x)**3) + 35*A*a**3*b**4*sqr
t(a**(-9))*log(-a**5*sqrt(a**(-9)) + sqrt(a + b*x))/128 - 35*A*a*
*3*b**4*sqrt(a**(-9))*log(a**5*sqrt(a**(-9)) + sqrt(a + b*x))/128
 - 90*A*a**2*b**4*(a + b*x)**(5/2)/(96*a**6 + 144*a**5*b*x - 144*
a**4*(a + b*x)**2 + 48*a**3*(a + b*x)**3) - 30*A*a**2*b**4*sqrt(a
 + b*x)/(-8*a**4 - 16*a**3*b*x + 8*a**2*(a + b*x)**2) - 15*A*a**2
*b**4*sqrt(a**(-7))*log(-a**4*sqrt(a**(-7)) + sqrt(a + b*x))/16 +
 15*A*a**2*b**4*sqrt(a**(-7))*log(a**4*sqrt(a**(-7)) + sqrt(a + b
*x))/16 + 18*A*a*b**4*(a + b*x)**(3/2)/(-8*a**4 - 16*a**3*b*x + 8
*a**2*(a + b*x)**2) + 9*A*a*b**4*sqrt(a**(-5))*log(-a**3*sqrt(a**
(-5)) + sqrt(a + b*x))/8 - 9*A*a*b**4*sqrt(a**(-5))*log(a**3*sqrt
(a**(-5)) + sqrt(a + b*x))/8 - A*b**4*sqrt(a**(-3))*log(-a**2*sqr
t(a**(-3)) + sqrt(a + b*x))/2 + A*b**4*sqrt(a**(-3))*log(a**2*sqr
t(a**(-3)) + sqrt(a + b*x))/2 - A*b**3*sqrt(a + b*x)/(a*x) - 66*B
*a**5*b**3*sqrt(a + b*x)/(96*a**6 + 144*a**5*b*x - 144*a**4*(a +
b*x)**2 + 48*a**3*(a + b*x)**3) + 80*B*a**4*b**3*(a + b*x)**(3/2)
/(96*a**6 + 144*a**5*b*x - 144*a**4*(a + b*x)**2 + 48*a**3*(a + b
*x)**3) - 30*B*a**3*b**3*(a + b*x)**(5/2)/(96*a**6 + 144*a**5*b*x
 - 144*a**4*(a + b*x)**2 + 48*a**3*(a + b*x)**3) - 30*B*a**3*b**3
*sqrt(a + b*x)/(-8*a**4 - 16*a**3*b*x + 8*a**2*(a + b*x)**2) - 5*
B*a**3*b**3*sqrt(a**(-7))*log(-a**4*sqrt(a**(-7)) + sqrt(a + b*x)
)/16 + 5*B*a**3*b**3*sqrt(a**(-7))*log(a**4*sqrt(a**(-7)) + sqrt(
a + b*x))/16 + 18*B*a**2*b**3*(a + b*x)**(3/2)/(-8*a**4 - 16*a**3
*b*x + 8*a**2*(a + b*x)**2) + 9*B*a**2*b**3*sqrt(a**(-5))*log(-a*
*3*sqrt(a**(-5)) + sqrt(a + b*x))/8 - 9*B*a**2*b**3*sqrt(a**(-5))
*log(a**3*sqrt(a**(-5)) + sqrt(a + b*x))/8 - 3*B*a*b**3*sqrt(a**(
-3))*log(-a**2*sqrt(a**(-3)) + sqrt(a + b*x))/2 + 3*B*a*b**3*sqrt
(a**(-3))*log(a**2*sqrt(a**(-3)) + sqrt(a + b*x))/2 - 2*B*b**3*Pi
ecewise((-atan(sqrt(a + b*x)/sqrt(-a))/sqrt(-a), -a > 0), (acoth(
sqrt(a + b*x)/sqrt(a))/sqrt(a), (-a < 0) & (a < a + b*x)), (atanh
(sqrt(a + b*x)/sqrt(a))/sqrt(a), (-a < 0) & (a > a + b*x))) - 3*B
*b**2*sqrt(a + b*x)/x
```

GIAC/XCAS [A] time = 0.216125, size = 239, normalized size = 1.68

$$\frac{\frac{15\,(8\,Bab^4-Ab^5)\arctan\left(\frac{\sqrt{bx+a}}{\sqrt{-a}}\right)}{\sqrt{-a}a}-\frac{264\,(bx+a)^{\frac{7}{2}}Bab^4-584\,(bx+a)^{\frac{5}{2}}Ba^2b^4+440\,(bx+a)^{\frac{3}{2}}Ba^3b^4-120\,\sqrt{bx+a}Ba^4b^4+15\,(bx+a)^{\frac{7}{2}}Ab^5+73\,(bx+a)^{\frac{5}{2}}Aab^5-55\,(bx}{ab^4x^4}}{192\,b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^5,x, algorithm="giac")
```

```
[Out] 1/192*(15*(8*B*a*b^4 - A*b^5)*arctan(sqrt(b*x + a)/sqrt(-a))/(sqr
t(-a)*a) - (264*(b*x + a)^(7/2)*B*a*b^4 - 584*(b*x + a)^(5/2)*B*a
^2*b^4 + 440*(b*x + a)^(3/2)*B*a^3*b^4 - 120*sqrt(b*x + a)*B*a^4*
b^4 + 15*(b*x + a)^(7/2)*A*b^5 + 73*(b*x + a)^(5/2)*A*a*b^5 - 55*
(b*x + a)^(3/2)*A*a^2*b^5 + 15*sqrt(b*x + a)*A*a^3*b^5)/(a*b^4*x^
4))/b
```

3.408 $\int \frac{(a+bx)^{5/2}(A+Bx)}{x^6} dx$

Optimal. Leaf size=177

$$-\frac{b^4(3Ab-10aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{128a^{5/2}}+\frac{b^3\sqrt{a+bx}(3Ab-10aB)}{128a^2x}+\frac{b^2\sqrt{a+bx}(3Ab-10aB)}{64ax^2}+\frac{(a+bx)^{5/2}(3Ab-10aB)}{40ax^4}+\frac{b(a+bx)^{3/2}(3Ab-10aB)}{48ax^3}-\frac{A(a+bx)^{7/2}}{5ax^5}$$

```
[Out] (b^2*(3*A*b - 10*a*B)*Sqrt[a + b*x])/(64*a*x^2) + (b^3*(3*A*b - 1
0*a*B)*Sqrt[a + b*x])/(128*a^2*x) + (b*(3*A*b - 10*a*B)*(a + b*x)
^(3/2))/(48*a*x^3) + ((3*A*b - 10*a*B)*(a + b*x)^(5/2))/(40*a*x^4
) - (A*(a + b*x)^(7/2))/(5*a*x^5) - (b^4*(3*A*b - 10*a*B)*ArcTanh
[Sqrt[a + b*x]/Sqrt[a]])/(128*a^(5/2))
```

Rubi [A] time = 0.233506, antiderivative size = 177, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.278

$$-\frac{b^4(3Ab-10aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{128a^{5/2}}+\frac{b^3\sqrt{a+bx}(3Ab-10aB)}{128a^2x}+\frac{b^2\sqrt{a+bx}(3Ab-10aB)}{64ax^2}+\frac{(a+bx)^{5/2}(3Ab-10aB)}{40ax^4}+\frac{b(a+bx)^{3/2}(3Ab-10aB)}{48ax^3}-\frac{A(a+bx)^{7/2}}{5ax^5}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(5/2)*(A + B*x))/x^6,x]
```

```
[Out] (b^2*(3*A*b - 10*a*B)*Sqrt[a + b*x])/(64*a*x^2) + (b^3*(3*A*b - 1
0*a*B)*Sqrt[a + b*x])/(128*a^2*x) + (b*(3*A*b - 10*a*B)*(a + b*x)
^(3/2))/(48*a*x^3) + ((3*A*b - 10*a*B)*(a + b*x)^(5/2))/(40*a*x^4
) - (A*(a + b*x)^(7/2))/(5*a*x^5) - (b^4*(3*A*b - 10*a*B)*ArcTanh
[Sqrt[a + b*x]/Sqrt[a]])/(128*a^(5/2))
```

Rubi in Sympy [A] time = 20.869, size = 162, normalized size = 0.92

$$-\frac{A\left(a+bx\right)^{\frac{7}{2}}}{5ax^5}+\frac{b^2\sqrt{a+bx}\left(3Ab-10Ba\right)}{64ax^2}+\frac{b\left(a+bx\right)^{\frac{3}{2}}\left(3Ab-10Ba\right)}{48ax^3}+\frac{\left(a+bx\right)^{\frac{5}{2}}\left(3Ab-10Ba\right)}{40ax^4}+\frac{b^3\sqrt{a+bx}\left(3Ab-10Ba\right)}{128a^2x}-\frac{b^4\left(3Ab-10Ba\right)\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{128a^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(B*x+A)/x**6,x)
```

```
[Out] -A*(a + b*x)**(7/2)/(5*a*x**5) + b**2*sqrt(a + b*x)*(3*A*b - 10*B
*a)/(64*a*x**2) + b*(a + b*x)**(3/2)*(3*A*b - 10*B*a)/(48*a*x**3)
 + (a + b*x)**(5/2)*(3*A*b - 10*B*a)/(40*a*x**4) + b**3*sqrt(a +
b*x)*(3*A*b - 10*B*a)/(128*a**2*x) - b**4*(3*A*b - 10*B*a)*atanh(
sqrt(a + b*x)/sqrt(a))/(128*a**(5/2))
```

Mathematica [A] time = 0.226187, size = 129, normalized size = 0.73

$$\frac{b^4(10aB-3Ab)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{128a^{5/2}}-\frac{\sqrt{a+bx}\left(96a^4(4A+5Bx)+16a^3bx(63A+85Bx)+4a^2b^2x^2(186A+295Bx)+30ab^3x^3(A+5Bx)-45Ab^4x^4\right)}{1920a^2x^5}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(5/2)*(A + B*x))/x^6,x]
```

```
[Out] -(Sqrt[a + b*x]*(-45*A*b^4*x^4 + 30*a*b^3*x^3*(A + 5*B*x) + 96*a^
4*(4*A + 5*B*x) + 16*a^3*b*x*(63*A + 85*B*x) + 4*a^2*b^2*x^2*(186
*A + 295*B*x)))/(1920*a^2*x^5) + (b^4*(-3*A*b + 10*a*B)*ArcTanh[S
qrt[a + b*x]/Sqrt[a]])/(128*a^(5/2))
```

Maple [A] time = 0.02, size = 140, normalized size = 0.8

$$2\,b^{4}\left(\frac{1}{b^{5}x^{5}}\left(\frac{(3\,Ab-10\,Ba)\,(bx+a)^{9/2}}{256\,a^{2}}-\frac{(21\,Ab+58\,Ba)\,(bx+a)^{7/2}}{384\,a}+(-1/10\,Ab+1/3\,Ba)\,(bx+a)^{5/2}+\frac{7\,a\,(3\,Ab-10\,Ba)\,(}{384}\right.\right.$$
$$\left.\left.-\frac{3\,Ab-10\,Ba}{256\,a^{5/2}}Artanh\left(\frac{\sqrt{bx+a}}{\sqrt{a}}\right)\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(B*x+A)/x^6,x)
```

```
[Out] 2*b^4*((1/256*(3*A*b-10*B*a)/a^2*(b*x+a)^(9/2)-1/384*(21*A*b+58*B
*a)/a*(b*x+a)^(7/2)+(-1/10*A*b+1/3*B*a)*(b*x+a)^(5/2)+7/384*a*(3*
A*b-10*B*a)*(b*x+a)^(3/2)-1/256*a^2*(3*A*b-10*B*a)*(b*x+a)^(1/2))
/x^5/b^5-1/256*(3*A*b-10*B*a)/a^(5/2)*arctanh((b*x+a)^(1/2)/a^(1/
2)))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^6,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.219548, size = 1, normalized size = 0.01

$$\left[-\frac{15\left(10\,Bab^{4}-3\,Ab^{5}\right)x^{5}\log\left(\frac{(bx+2\,a)\sqrt{a}-2\,\sqrt{bx+a}a}{x}\right)+2\left(384\,Aa^{4}+15\left(10\,Bab^{3}-3\,Ab^{4}\right)x^{4}+10\left(118\,Ba^{2}b^{2}+3\,Aab^{3}\right)x^{3}+8\right.}{3840\,a^{\frac{5}{2}}x^{5}}\right.$$
$$-\frac{15\left(10\,Bab^{4}-3\,Ab^{5}\right)x^{5}\arctan\left(\frac{a}{\sqrt{bx+a}\sqrt{-a}}\right)+\left(384\,Aa^{4}+15\left(10\,Bab^{3}-3\,Ab^{4}\right)x^{4}+10\left(118\,Ba^{2}b^{2}+3\,Aab^{3}\right)x^{3}+8\left(170\,Ba\right.\right.}{1920\,\sqrt{-a}a^{2}x^{5}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^6,x, algorithm="fricas")
```

```
[Out] [-1/3840*(15*(10*B*a*b^4 - 3*A*b^5)*x^5*log(((b*x + 2*a)*sqrt(a)
- 2*sqrt(b*x + a)*a)/x) + 2*(384*A*a^4 + 15*(10*B*a*b^3 - 3*A*b^4
)*x^4 + 10*(118*B*a^2*b^2 + 3*A*a*b^3)*x^3 + 8*(170*B*a^3*b + 93*
A*a^2*b^2)*x^2 + 48*(10*B*a^4 + 21*A*a^3*b)*x)*sqrt(b*x + a)*sqrt
(a))/(a^(5/2)*x^5), -1/1920*(15*(10*B*a*b^4 - 3*A*b^5)*x^5*arctan
(a/(sqrt(b*x + a)*sqrt(-a))) + (384*A*a^4 + 15*(10*B*a*b^3 - 3*A*
b^4)*x^4 + 10*(118*B*a^2*b^2 + 3*A*a*b^3)*x^3 + 8*(170*B*a^3*b +
```

```
93*A*a^2*b^2)*x^2 + 48*(10*B*a^4 + 21*A*a^3*b)*x)*sqrt(b*x + a)*s
qrt(-a))/(sqrt(-a)*a^2*x^5)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(B*x+A)/x**6,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.220334, size = 281, normalized size = 1.59

$$-\frac{\frac{15\,(10\,Bab^5-3\,Ab^6)\arctan\left(\frac{\sqrt{bx+a}}{\sqrt{-a}}\right)}{\sqrt{-a}a^2}+\frac{150\,(bx+a)^{\frac{9}{2}}Bab^5+580\,(bx+a)^{\frac{7}{2}}Ba^2b^5-1280\,(bx+a)^{\frac{5}{2}}Ba^3b^5+700\,(bx+a)^{\frac{3}{2}}Ba^4b^5-150\,\sqrt{bx+a}Ba^5b^5-45\,(bx+a)^{\frac{9}{2}}Ab^6}{a^2b^5x^5}}{1920\,b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^6,x, algorithm="giac")
```

```
[Out] -1/1920*(15*(10*B*a*b^5 - 3*A*b^6)*arctan(sqrt(b*x + a)/sqrt(-a))
/(sqrt(-a)*a^2) + (150*(b*x + a)^(9/2)*B*a*b^5 + 580*(b*x + a)^(7
/2)*B*a^2*b^5 - 1280*(b*x + a)^(5/2)*B*a^3*b^5 + 700*(b*x + a)^(3
/2)*B*a^4*b^5 - 150*sqrt(b*x + a)*B*a^5*b^5 - 45*(b*x + a)^(9/2)*
A*b^6 + 210*(b*x + a)^(7/2)*A*a*b^6 + 384*(b*x + a)^(5/2)*A*a^2*b
^6 - 210*(b*x + a)^(3/2)*A*a^3*b^6 + 45*sqrt(b*x + a)*A*a^4*b^6)/
(a^2*b^5*x^5))/b
```

3.409 $\int \frac{(a+bx)^{5/2}(A+Bx)}{x^7} dx$

Optimal. Leaf size=208

$$\frac{b^5(5Ab-12aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{512a^{7/2}}-\frac{b^4\sqrt{a+bx}(5Ab-12aB)}{512a^3x}+\frac{b^3\sqrt{a+bx}(5Ab-12aB)}{768a^2x^2}+\frac{b^2\sqrt{a+bx}(5Ab-12aB)}{192ax^3}+\frac{(a+bx)^{5/2}(5Ab-12aB)}{60ax^5}+\frac{b(a+bx)^{3/2}(5Ab-12aB)}{96ax^4}-\frac{A(a+bx)^{7/2}}{6ax^6}$$

```
[Out] (b^2*(5*A*b - 12*a*B)*Sqrt[a + b*x])/(192*a*x^3) + (b^3*(5*A*b -
12*a*B)*Sqrt[a + b*x])/(768*a^2*x^2) - (b^4*(5*A*b - 12*a*B)*Sqrt
[a + b*x])/(512*a^3*x) + (b*(5*A*b - 12*a*B)*(a + b*x)^(3/2))/(96
*a*x^4) + ((5*A*b - 12*a*B)*(a + b*x)^(5/2))/(60*a*x^5) - (A*(a +
 b*x)^(7/2))/(6*a*x^6) + (b^5*(5*A*b - 12*a*B)*ArcTanh[Sqrt[a + b
*x]/Sqrt[a]])/(512*a^(7/2))
```

Rubi [A] time = 0.280252, antiderivative size = 208, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.278

$$\frac{b^5(5Ab-12aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{512a^{7/2}}-\frac{b^4\sqrt{a+bx}(5Ab-12aB)}{512a^3x}+\frac{b^3\sqrt{a+bx}(5Ab-12aB)}{768a^2x^2}+\frac{b^2\sqrt{a+bx}(5Ab-12aB)}{192ax^3}+\frac{(a+bx)^{5/2}(5Ab-12aB)}{60ax^5}+\frac{b(a+bx)^{3/2}(5Ab-12aB)}{96ax^4}-\frac{A(a+bx)^{7/2}}{6ax^6}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(5/2)*(A + B*x))/x^7,x]
```

```
[Out] (b^2*(5*A*b - 12*a*B)*Sqrt[a + b*x])/(192*a*x^3) + (b^3*(5*A*b -
12*a*B)*Sqrt[a + b*x])/(768*a^2*x^2) - (b^4*(5*A*b - 12*a*B)*Sqrt
[a + b*x])/(512*a^3*x) + (b*(5*A*b - 12*a*B)*(a + b*x)^(3/2))/(96
*a*x^4) + ((5*A*b - 12*a*B)*(a + b*x)^(5/2))/(60*a*x^5) - (A*(a +
 b*x)^(7/2))/(6*a*x^6) + (b^5*(5*A*b - 12*a*B)*ArcTanh[Sqrt[a + b
*x]/Sqrt[a]])/(512*a^(7/2))
```

Rubi in Sympy [A] time = 26.0781, size = 192, normalized size = 0.92

$$-\frac{A(a+bx)^{\frac{7}{2}}}{6ax^6}+\frac{b^2\sqrt{a+bx}\,(5Ab-12Ba)}{192ax^3}+\frac{b\,(a+bx)^{\frac{3}{2}}\,(5Ab-12Ba)}{96ax^4}+\frac{(a+bx)^{\frac{5}{2}}\,(5Ab-12Ba)}{60ax^5}+\frac{b^3\sqrt{a+bx}\,(5Ab-12Ba)}{768a^2x^2}-\frac{b^4\sqrt{a+bx}\,(5Ab-12Ba)}{512a^3x}+\frac{b^5\,(5Ab-12Ba)\,\mathrm{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{512a^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(B*x+A)/x**7,x)
```

```
[Out] -A*(a + b*x)**(7/2)/(6*a*x**6) + b**2*sqrt(a + b*x)*(5*A*b - 12*B
*a)/(192*a*x**3) + b*(a + b*x)**(3/2)*(5*A*b - 12*B*a)/(96*a*x**4
) + (a + b*x)**(5/2)*(5*A*b - 12*B*a)/(60*a*x**5) + b**3*sqrt(a +
 b*x)*(5*A*b - 12*B*a)/(768*a**2*x**2) - b**4*sqrt(a + b*x)*(5*A*
b - 12*B*a)/(512*a**3*x) + b**5*(5*A*b - 12*B*a)*atanh(sqrt(a + b
*x)/sqrt(a))/(512*a**(7/2))
```

Mathematica [A] time = 0.248139, size = 148, normalized size = 0.71

$$\frac{b^5(5Ab-12aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{512a^{7/2}}-\frac{\sqrt{a+bx}\,(256a^5(5A+6Bx)+64a^4bx(50A+63Bx)+48a^3b^2x^2(45A+62Bx)+40a^2b^3x^3(A+3Bx)-10ab^4x^4(5A+18Bx)+}{7680a^3x^6}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(5/2)*(A + B*x))/x^7,x]
```

```
[Out] -(Sqrt[a + b*x]*(75*A*b^5*x^5 + 40*a^2*b^3*x^3*(A + 3*B*x) + 256*
a^5*(5*A + 6*B*x) - 10*a*b^4*x^4*(5*A + 18*B*x) + 48*a^3*b^2*x^2*
(45*A + 62*B*x) + 64*a^4*b*x*(50*A + 63*B*x)))/(7680*a^3*x^6) + (
b^5*(5*A*b - 12*a*B)*ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/(512*a^(7/2)
)
```

Maple [A] time = 0.023, size = 161, normalized size = 0.8

$$2\,b^5\left(\frac{1}{x^6b^6}\left(-\frac{(5\,Ab-12\,Ba)\,(bx+a)^{11/2}}{1024\,a^3}+\frac{(85\,Ab-204\,Ba)\,(bx+a)^{9/2}}{3072\,a^2}-\frac{(165\,Ab+116\,Ba)\,(bx+a)^{7/2}}{2560\,a}+\left(-\frac{33\,Ab}{512}+\frac{99\,Ba}{640}\right.\right.\right.$$
$$+\frac{5\,Ab-12\,Ba}{1024\,a^{7/2}}Artanh\left(\frac{\sqrt{bx+a}}{\sqrt{a}}\right)\Bigg)\Bigg)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(B*x+A)/x^7,x)
```

```
[Out] 2*b^5*((-1/1024*(5*A*b-12*B*a)/a^3*(b*x+a)^(11/2)+17/3072/a^2*(5*
A*b-12*B*a)*(b*x+a)^(9/2)-1/2560*(165*A*b+116*B*a)/a*(b*x+a)^(7/2
)+(-33/512*A*b+99/640*B*a)*(b*x+a)^(5/2)+17/3072*a*(5*A*b-12*B*a)
*(b*x+a)^(3/2)-1/1024*a^2*(5*A*b-12*B*a)*(b*x+a)^(1/2))/x^6/b^6+1
/1024*(5*A*b-12*B*a)/a^(7/2)*arctanh((b*x+a)^(1/2)/a^(1/2)))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^7,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.219935, size = 1, normalized size = 0.

$$\left[-\frac{15\left(12\,Bab^5-5\,Ab^6\right)x^6\log\left(\frac{(bx+2\,a)\sqrt{a}+2\,\sqrt{bx+a}a}{x}\right)+2\left(1280\,Aa^5-15\left(12\,Bab^4-5\,Ab^5\right)x^5+10\left(12\,Ba^2b^3-5\,Aab^4\right)x^4+\right.}{15360\,a^{\frac{7}{2}}x^6}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^7,x, algorithm="fricas")
```

```
[Out] [-1/15360*(15*(12*B*a*b^5 - 5*A*b^6)*x^6*log(((b*x + 2*a)*sqrt(a)
 + 2*sqrt(b*x + a)*a)/x) + 2*(1280*A*a^5 - 15*(12*B*a*b^4 - 5*A*b
^5)*x^5 + 10*(12*B*a^2*b^3 - 5*A*a*b^4)*x^4 + 8*(372*B*a^3*b^2 +
5*A*a^2*b^3)*x^3 + 144*(28*B*a^4*b + 15*A*a^3*b^2)*x^2 + 128*(12*
B*a^5 + 25*A*a^4*b)*x)*sqrt(b*x + a)*sqrt(a))/(a^(7/2)*x^6), 1/76
80*(15*(12*B*a*b^5 - 5*A*b^6)*x^6*arctan(a/(sqrt(b*x + a)*sqrt(-a
))) - (1280*A*a^5 - 15*(12*B*a*b^4 - 5*A*b^5)*x^5 + 10*(12*B*a^2*
b^3 - 5*A*a*b^4)*x^4 + 8*(372*B*a^3*b^2 + 5*A*a^2*b^3)*x^3 + 144*
(28*B*a^4*b + 15*A*a^3*b^2)*x^2 + 128*(12*B*a^5 + 25*A*a^4*b)*x)*
sqrt(b*x + a)*sqrt(-a))/(sqrt(-a)*a^3*x^6)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(B*x+A)/x**7,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.218313, size = 324, normalized size = 1.56

$$\frac{\frac{15\left(12\,Bab^{6}-5\,Ab^{7}\right)\arctan\left(\frac{\sqrt{bx+a}}{\sqrt{-a}}\right)}{\sqrt{-a}a^{3}}+\frac{180\,(bx+a)^{\frac{11}{2}}Bab^{6}-1020\,(bx+a)^{\frac{9}{2}}Ba^{2}b^{6}-696\,(bx+a)^{\frac{7}{2}}Ba^{3}b^{6}+2376\,(bx+a)^{\frac{5}{2}}Ba^{4}b^{6}-1020\,(bx+a)^{\frac{3}{2}}Ba^{5}b^{6}+180\,\sqrt{bx+a}B}{a}}{7680\,b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^7,x, algorithm="giac")
```

```
[Out] 1/7680*(15*(12*B*a*b^6 - 5*A*b^7)*arctan(sqrt(b*x + a)/sqrt(-a))/
(sqrt(-a)*a^3) + (180*(b*x + a)^(11/2)*B*a*b^6 - 1020*(b*x + a)^(
9/2)*B*a^2*b^6 - 696*(b*x + a)^(7/2)*B*a^3*b^6 + 2376*(b*x + a)^(
5/2)*B*a^4*b^6 - 1020*(b*x + a)^(3/2)*B*a^5*b^6 + 180*sqrt(b*x +
a)*B*a^6*b^6 - 75*(b*x + a)^(11/2)*A*b^7 + 425*(b*x + a)^(9/2)*A*
a*b^7 - 990*(b*x + a)^(7/2)*A*a^2*b^7 - 990*(b*x + a)^(5/2)*A*a^3
*b^7 + 425*(b*x + a)^(3/2)*A*a^4*b^7 - 75*sqrt(b*x + a)*A*a^5*b^7
)/(a^3*b^6*x^6))/b
```

3.410 $\int \frac{(a+bx)^{5/2}(A+Bx)}{x^8}\,dx$

Optimal. Leaf size=232

$$-\frac{5b^6(Ab-2aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{1024a^{9/2}}+\frac{5b^5\sqrt{a+bx}(Ab-2aB)}{1024a^4x}-\frac{5b^4\sqrt{a+bx}(Ab-2aB)}{1536a^3x^2}+\frac{b^3\sqrt{a+bx}(Ab-2aB)}{384a^2x^3}+\frac{b^2\sqrt{a+bx}(Ab-2aB)}{64ax^4}+\frac{(a+bx)^{5/2}(Ab-2aB)}{12ax^6}+\frac{b(a+bx)^{3/2}(Ab-2aB)}{24ax^5}-\frac{A(a+bx)^{7/2}}{7ax^7}$$

```
[Out] (b^2*(A*b - 2*a*B)*Sqrt[a + b*x])/(64*a*x^4) + (b^3*(A*b - 2*a*B)
*Sqrt[a + b*x])/(384*a^2*x^3) - (5*b^4*(A*b - 2*a*B)*Sqrt[a + b*x
])/(1536*a^3*x^2) + (5*b^5*(A*b - 2*a*B)*Sqrt[a + b*x])/(1024*a^4
*x) + (b*(A*b - 2*a*B)*(a + b*x)^(3/2))/(24*a*x^5) + ((A*b - 2*a*
B)*(a + b*x)^(5/2))/(12*a*x^6) - (A*(a + b*x)^(7/2))/(7*a*x^7) -
(5*b^6*(A*b - 2*a*B)*ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/(1024*a^(9/2
))
```

Rubi [A] time = 0.325765, antiderivative size = 232, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 5, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.278

$$-\frac{5b^6(Ab-2aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{1024a^{9/2}}+\frac{5b^5\sqrt{a+bx}(Ab-2aB)}{1024a^4x}-\frac{5b^4\sqrt{a+bx}(Ab-2aB)}{1536a^3x^2}+\frac{b^3\sqrt{a+bx}(Ab-2aB)}{384a^2x^3}+\frac{b^2\sqrt{a+bx}(Ab-2aB)}{64ax^4}+\frac{(a+bx)^{5/2}(Ab-2aB)}{12ax^6}+\frac{b(a+bx)^{3/2}(Ab-2aB)}{24ax^5}-\frac{A(a+bx)^{7/2}}{7ax^7}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(5/2)*(A + B*x))/x^8,x]
```

```
[Out] (b^2*(A*b - 2*a*B)*Sqrt[a + b*x])/(64*a*x^4) + (b^3*(A*b - 2*a*B)
*Sqrt[a + b*x])/(384*a^2*x^3) - (5*b^4*(A*b - 2*a*B)*Sqrt[a + b*x
])/(1536*a^3*x^2) + (5*b^5*(A*b - 2*a*B)*Sqrt[a + b*x])/(1024*a^4
*x) + (b*(A*b - 2*a*B)*(a + b*x)^(3/2))/(24*a*x^5) + ((A*b - 2*a*
B)*(a + b*x)^(5/2))/(12*a*x^6) - (A*(a + b*x)^(7/2))/(7*a*x^7) -
(5*b^6*(A*b - 2*a*B)*ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/(1024*a^(9/2
))
```

Rubi in Sympy [A] time = 32.7061, size = 216, normalized size = 0.93

$$-\frac{A\left(a+bx\right)^{\frac{7}{2}}}{7ax^7}+\frac{b^2\sqrt{a+bx}\left(\frac{Ab}{2}-Ba\right)}{32ax^4}+\frac{b\left(a+bx\right)^{\frac{3}{2}}\left(Ab-2Ba\right)}{24ax^5}+\frac{\left(a+bx\right)^{\frac{5}{2}}\left(\frac{Ab}{2}-Ba\right)}{6ax^6}+\frac{b^3\sqrt{a+bx}\left(\frac{Ab}{2}-Ba\right)}{192a^2x^3}-\frac{5b^4\sqrt{a+bx}\left(\frac{Ab}{2}-Ba\right)}{768a^3x^2}+\frac{5b^5\sqrt{a+bx}\left(\frac{Ab}{2}-Ba\right)}{512a^4x}-\frac{5b^6\left(\frac{Ab}{2}-Ba\right)\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{512a^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(B*x+A)/x**8,x)
```

```
[Out] -A*(a + b*x)**(7/2)/(7*a*x**7) + b**2*sqrt(a + b*x)*(A*b/2 - B*a)
/(32*a*x**4) + b*(a + b*x)**(3/2)*(A*b - 2*B*a)/(24*a*x**5) + (a
+ b*x)**(5/2)*(A*b/2 - B*a)/(6*a*x**6) + b**3*sqrt(a + b*x)*(A*b/
```

```
2 - B*a)/(192*a**2*x**3) - 5*b**4*sqrt(a + b*x)*(A*b/2 - B*a)/(76
8*a**3*x**2) + 5*b**5*sqrt(a + b*x)*(A*b/2 - B*a)/(512*a**4*x) -
5*b**6*(A*b/2 - B*a)*atanh(sqrt(a + b*x)/sqrt(a))/(512*a**(9/2))
```

Mathematica [A] time = 0.282374, size = 167, normalized size = 0.72

$$\frac{5b^6(2aB-Ab)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{1024a^{9/2}} - \frac{\sqrt{a+bx}\left(512a^6(6A+7Bx)+256a^5bx(29A+35Bx)+32a^4b^2x^2(148A+189Bx)+16a^3b^3x^3(3A+7Bx)-28a^2b^4x^4(2A+5B\right.}{21504a^4x^7}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(5/2)*(A + B*x))/x^8,x]
```

```
[Out] -(Sqrt[a + b*x]*(-105*A*b^6*x^6 + 70*a*b^5*x^5*(A + 3*B*x) - 28*a
^2*b^4*x^4*(2*A + 5*B*x) + 16*a^3*b^3*x^3*(3*A + 7*B*x) + 512*a^6
*(6*A + 7*B*x) + 256*a^5*b*x*(29*A + 35*B*x) + 32*a^4*b^2*x^2*(14
8*A + 189*B*x)))/(21504*a^4*x^7) + (5*b^6*(-(A*b) + 2*a*B)*ArcTan
h[Sqrt[a + b*x]/Sqrt[a]])/(1024*a^(9/2))
```

Maple [A] time = 0.023, size = 169, normalized size = 0.7

$$2\,b^6\left(\frac{1}{b^7x^7}\left(\frac{(5\,Ab-10\,Ba)\,(bx+a)^{13/2}}{2048\,a^4}-\frac{(25\,Ab-50\,Ba)\,(bx+a)^{11/2}}{1536\,a^3}+\frac{(283\,Ab-566\,Ba)\,(bx+a)^{9/2}}{6144\,a^2}-1/14\,\frac{Ab\,(bx+a)^{7/}}{a}\right.\right.$$
$$\left.\left.-\frac{5\,Ab-10\,Ba}{2048\,a^{9/2}}Artanh\left(\frac{\sqrt{bx+a}}{\sqrt{a}}\right)\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(B*x+A)/x^8,x)
```

```
[Out] 2*b^6*((5/2048*(A*b-2*B*a)/a^4*(b*x+a)^(13/2)-25/1536*(A*b-2*B*a)
/a^3*(b*x+a)^(11/2)+283/6144*(A*b-2*B*a)/a^2*(b*x+a)^(9/2)-1/14*A
*b/a*(b*x+a)^(7/2)+(-283/6144*A*b+283/3072*B*a)*(b*x+a)^(5/2)+25/
1536*a*(A*b-2*B*a)*(b*x+a)^(3/2)-5/2048*a^2*(A*b-2*B*a)*(b*x+a)^(
1/2))/x^7/b^7-5/2048*(A*b-2*B*a)/a^(9/2)*arctanh((b*x+a)^(1/2)/a^
(1/2)))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^8,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.223688, size = 1, normalized size = 0.

$$\left[-\frac{105\left(2\,Bab^{6}-Ab^{7}\right)x^{7}\log\left(\frac{(bx+2\,a)\sqrt{a}-2\,\sqrt{bx+a}a}{x}\right)+2\left(3072\,Aa^{6}+105\left(2\,Bab^{5}-Ab^{6}\right)x^{6}-70\left(2\,Ba^{2}b^{4}-Aab^{5}\right)x^{5}+56\,(2\,B\right.}{43008\,a}\right.$$

$$-\frac{105\left(2\,Bab^{6}-Ab^{7}\right)x^{7}\arctan\left(\frac{a}{\sqrt{bx+a}\sqrt{-a}}\right)+\left(3072\,Aa^{6}+105\left(2\,Bab^{5}-Ab^{6}\right)x^{6}-70\left(2\,Ba^{2}b^{4}-Aab^{5}\right)x^{5}+56\left(2\,Ba^{3}b^{3}-\right.\right.}{21504\,\sqrt{-a}a^{4}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^8,x, algorithm="fricas")
```

```
[Out] [-1/43008*(105*(2*B*a*b^6 - A*b^7)*x^7*log(((b*x + 2*a)*sqrt(a) -
 2*sqrt(b*x + a)*a)/x) + 2*(3072*A*a^6 + 105*(2*B*a*b^5 - A*b^6)*
x^6 - 70*(2*B*a^2*b^4 - A*a*b^5)*x^5 + 56*(2*B*a^3*b^3 - A*a^2*b^
4)*x^4 + 48*(126*B*a^4*b^2 + A*a^3*b^3)*x^3 + 128*(70*B*a^5*b + 3
7*A*a^4*b^2)*x^2 + 256*(14*B*a^6 + 29*A*a^5*b)*x)*sqrt(b*x + a)*s
qrt(a))/(a^(9/2)*x^7), -1/21504*(105*(2*B*a*b^6 - A*b^7)*x^7*arct
an(a/(sqrt(b*x + a)*sqrt(-a))) + (3072*A*a^6 + 105*(2*B*a*b^5 - A
*b^6)*x^6 - 70*(2*B*a^2*b^4 - A*a*b^5)*x^5 + 56*(2*B*a^3*b^3 - A*
a^2*b^4)*x^4 + 48*(126*B*a^4*b^2 + A*a^3*b^3)*x^3 + 128*(70*B*a^5
*b + 37*A*a^4*b^2)*x^2 + 256*(14*B*a^6 + 29*A*a^5*b)*x)*sqrt(b*x
+ a)*sqrt(-a))/(sqrt(-a)*a^4*x^7)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(B*x+A)/x**8,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.237674, size = 346, normalized size = 1.49

$$-\frac{\frac{105\left(2\,Bab^{7}-Ab^{8}\right)\arctan\left(\frac{\sqrt{bx+a}}{\sqrt{-a}}\right)}{\sqrt{-a}a^{4}}+\frac{210\,(bx+a)^{\frac{13}{2}}Bab^{7}-1400\,(bx+a)^{\frac{11}{2}}Ba^{2}b^{7}+3962\,(bx+a)^{\frac{9}{2}}Ba^{3}b^{7}-3962\,(bx+a)^{\frac{5}{2}}Ba^{5}b^{7}+1400\,(bx+a)^{\frac{3}{2}}Ba^{6}b^{7}-210\,\sqrt{bx+a}\cdots}{}}{21504}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^8,x, algorithm="giac")
```

```
[Out] -1/21504*(105*(2*B*a*b^7 - A*b^8)*arctan(sqrt(b*x + a)/sqrt(-a))/
(sqrt(-a)*a^4) + (210*(b*x + a)^(13/2)*B*a*b^7 - 1400*(b*x + a)^(
11/2)*B*a^2*b^7 + 3962*(b*x + a)^(9/2)*B*a^3*b^7 - 3962*(b*x + a)
^(5/2)*B*a^5*b^7 + 1400*(b*x + a)^(3/2)*B*a^6*b^7 - 210*sqrt(b*x
+ a)*B*a^7*b^7 - 105*(b*x + a)^(13/2)*A*b^8 + 700*(b*x + a)^(11/2
)*A*a*b^8 - 1981*(b*x + a)^(9/2)*A*a^2*b^8 + 3072*(b*x + a)^(7/2)
*A*a^3*b^8 + 1981*(b*x + a)^(5/2)*A*a^4*b^8 - 700*(b*x + a)^(3/2)
*A*a^5*b^8 + 105*sqrt(b*x + a)*A*a^6*b^8)/(a^4*b^7*x^7))/b
```

3.411 $\int \frac{x^4(A+Bx)}{\sqrt{a+bx}}\,dx$

Optimal. Leaf size=149

$$\frac{2a^4\sqrt{a+bx}(Ab-aB)}{b^6}-\frac{2a^3(a+bx)^{3/2}(4Ab-5aB)}{3b^6}+\frac{4a^2(a+bx)^{5/2}(3Ab-5aB)}{5b^6}+\frac{2(a+bx)^{9/2}(Ab-5aB)}{9b^6}-\frac{4a(a+bx)^{7/2}(2Ab-5aB)}{7b^6}+\frac{2B(a+bx)^{11/2}}{11b^6}$$

```
[Out] (2*a^4*(A*b - a*B)*Sqrt[a + b*x])/b^6 - (2*a^3*(4*A*b - 5*a*B)*(a
 + b*x)^(3/2))/(3*b^6) + (4*a^2*(3*A*b - 5*a*B)*(a + b*x)^(5/2))/
(5*b^6) - (4*a*(2*A*b - 5*a*B)*(a + b*x)^(7/2))/(7*b^6) + (2*(A*b
 - 5*a*B)*(a + b*x)^(9/2))/(9*b^6) + (2*B*(a + b*x)^(11/2))/(11*b
^6)
```

Rubi [A] time = 0.187226, antiderivative size = 149, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.056$

$$\frac{2a^4\sqrt{a+bx}(Ab-aB)}{b^6}-\frac{2a^3(a+bx)^{3/2}(4Ab-5aB)}{3b^6}+\frac{4a^2(a+bx)^{5/2}(3Ab-5aB)}{5b^6}+\frac{2(a+bx)^{9/2}(Ab-5aB)}{9b^6}-\frac{4a(a+bx)^{7/2}(2Ab-5aB)}{7b^6}+\frac{2B(a+bx)^{11/2}}{11b^6}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^4*(A + B*x))/Sqrt[a + b*x],x]
```

```
[Out] (2*a^4*(A*b - a*B)*Sqrt[a + b*x])/b^6 - (2*a^3*(4*A*b - 5*a*B)*(a
 + b*x)^(3/2))/(3*b^6) + (4*a^2*(3*A*b - 5*a*B)*(a + b*x)^(5/2))/
(5*b^6) - (4*a*(2*A*b - 5*a*B)*(a + b*x)^(7/2))/(7*b^6) + (2*(A*b
 - 5*a*B)*(a + b*x)^(9/2))/(9*b^6) + (2*B*(a + b*x)^(11/2))/(11*b
^6)
```

Rubi in Sympy [A] time = 26.566, size = 148, normalized size = 0.99

$$\frac{2B\left(a+bx\right)^{\frac{11}{2}}}{11b^6}+\frac{2a^4\sqrt{a+bx}\left(Ab-Ba\right)}{b^6}-\frac{2a^3\left(a+bx\right)^{\frac{3}{2}}\left(4Ab-5Ba\right)}{3b^6}+\frac{4a^2\left(a+bx\right)^{\frac{5}{2}}\left(3Ab-5Ba\right)}{5b^6}-\frac{4a\left(a+bx\right)^{\frac{7}{2}}\left(2Ab-5Ba\right)}{7b^6}+\frac{2\left(a+bx\right)^{\frac{9}{2}}\left(Ab-5Ba\right)}{9b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**4*(B*x+A)/(b*x+a)**(1/2),x)
```

```
[Out] 2*B*(a + b*x)**(11/2)/(11*b**6) + 2*a**4*sqrt(a + b*x)*(A*b - B*a
)/b**6 - 2*a**3*(a + b*x)**(3/2)*(4*A*b - 5*B*a)/(3*b**6) + 4*a**
2*(a + b*x)**(5/2)*(3*A*b - 5*B*a)/(5*b**6) - 4*a*(a + b*x)**(7/2
)*(2*A*b - 5*B*a)/(7*b**6) + 2*(a + b*x)**(9/2)*(A*b - 5*B*a)/(9*
b**6)
```

Mathematica [A] time = 0.084113, size = 106, normalized size = 0.71

$$\frac{2\sqrt{a+bx}\left(-1280a^5B+128a^4b(11A+5Bx)-32a^3b^2x(22A+15Bx)+16a^2b^3x^2(33A+25Bx)-10ab^4x^3(44A+35Bx)+35b^5\right.}{3465b^6}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^4*(A + B*x))/Sqrt[a + b*x],x]
```

```
[Out] (2*Sqrt[a + b*x]*(-1280*a^5*B + 128*a^4*b*(11*A + 5*B*x) + 35*b^5
*x^4*(11*A + 9*B*x) - 32*a^3*b^2*x*(22*A + 15*B*x) + 16*a^2*b^3*x
^2*(33*A + 25*B*x) - 10*a*b^4*x^3*(44*A + 35*B*x)))/(3465*b^6)
```

Maple [A] time = 0.009, size = 119, normalized size = 0.8

$$\frac{630\,b^5Bx^5+770\,Ax^4b^5-700\,Bx^4ab^4-880\,Ax^3ab^4+800\,Bx^3a^2b^3+1056\,Ax^2a^2b^3-960\,Bx^2a^3b^2-1408\,Axa^3b^2+1280\,Bx}{3465\,b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^4*(B*x+A)/(b*x+a)^(1/2),x)
```

```
[Out] 2/3465*(b*x+a)^(1/2)*(315*B*b^5*x^5+385*A*b^5*x^4-350*B*a*b^4*x^4
-440*A*a*b^4*x^3+400*B*a^2*b^3*x^3+528*A*a^2*b^3*x^2-480*B*a^3*b^
2*x^2-704*A*a^3*b^2*x+640*B*a^4*b*x+1408*A*a^4*b-1280*B*a^5)/b^6
```

Maxima [A] time = 1.37061, size = 166, normalized size = 1.11

$$\frac{2\left(315\,(bx+a)^{\frac{11}{2}}B-385\,(5\,Ba-Ab)(bx+a)^{\frac{9}{2}}+990\,\left(5\,Ba^2-2\,Aab\right)(bx+a)^{\frac{7}{2}}-1386\,\left(5\,Ba^3-3\,Aa^2b\right)(bx+a)^{\frac{5}{2}}+1155\,(5\,B}{3465\,b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^4/sqrt(b*x + a),x, algorithm="maxima")
```

```
[Out] 2/3465*(315*(b*x + a)^(11/2)*B - 385*(5*B*a - A*b)*(b*x + a)^(9/2
) + 990*(5*B*a^2 - 2*A*a*b)*(b*x + a)^(7/2) - 1386*(5*B*a^3 - 3*A
*a^2*b)*(b*x + a)^(5/2) + 1155*(5*B*a^4 - 4*A*a^3*b)*(b*x + a)^(3
/2) - 3465*(B*a^5 - A*a^4*b)*sqrt(b*x + a))/b^6
```

Fricas [A] time = 0.204328, size = 162, normalized size = 1.09

$$\frac{2\left(315\,Bb^5x^5-1280\,Ba^5+1408\,Aa^4b-35\,\left(10\,Bab^4-11\,Ab^5\right)x^4+40\,\left(10\,Ba^2b^3-11\,Aab^4\right)x^3-48\,\left(10\,Ba^3b^2-11\,Aa^2b^3\right)x}{3465\,b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^4/sqrt(b*x + a),x, algorithm="fricas")
```

```
[Out] 2/3465*(315*B*b^5*x^5 - 1280*B*a^5 + 1408*A*a^4*b - 35*(10*B*a*b^
4 - 11*A*b^5)*x^4 + 40*(10*B*a^2*b^3 - 11*A*a*b^4)*x^3 - 48*(10*B
*a^3*b^2 - 11*A*a^2*b^3)*x^2 + 64*(10*B*a^4*b - 11*A*a^3*b^2)*x)*
sqrt(b*x + a)/b^6
```

Sympy [A] time = 35.1862, size = 362, normalized size = 2.43

$$\begin{cases} -\frac{\frac{2Aa\left(\frac{a^4}{\sqrt{a+bx}}+4a^3\sqrt{a+bx}-2a^2(a+bx)^{\frac{3}{2}}+\frac{4a(a+bx)^{\frac{5}{2}}}{5}-\frac{(a+bx)^{\frac{7}{2}}}{7}\right)}{b^4}+\frac{2A\left(-\frac{a^5}{\sqrt{a+bx}}-5a^4\sqrt{a+bx}+\frac{10a^3(a+bx)^{\frac{3}{2}}}{3}-2a^2(a+bx)^{\frac{5}{2}}+\frac{5a(a+bx)^{\frac{7}{2}}}{7}-\frac{(a+bx)^{\frac{9}{2}}}{9}\right)}{b^4}+\frac{2Ba\left(-\frac{a^5}{\sqrt{a+bx}}-5a^4\sqrt{a+bx}+1\right.}{}}{b} \\ \frac{\frac{Ax^5}{5}+\frac{Bx^6}{6}}{\sqrt{a}} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**4*(B*x+A)/(b*x+a)**(1/2),x)
```

```
[Out] Piecewise((-(2*A*a*(a**4/sqrt(a + b*x) + 4*a**3*sqrt(a + b*x) - 2
*a**2*(a + b*x)**(3/2) + 4*a*(a + b*x)**(5/2)/5 - (a + b*x)**(7/2
)/7)/b**4 + 2*A*(-a**5/sqrt(a + b*x) - 5*a**4*sqrt(a + b*x) + 10*
a**3*(a + b*x)**(3/2)/3 - 2*a**2*(a + b*x)**(5/2) + 5*a*(a + b*x)
**(7/2)/7 - (a + b*x)**(9/2)/9)/b**4 + 2*B*a*(-a**5/sqrt(a + b*x)
 - 5*a**4*sqrt(a + b*x) + 10*a**3*(a + b*x)**(3/2)/3 - 2*a**2*(a
+ b*x)**(5/2) + 5*a*(a + b*x)**(7/2)/7 - (a + b*x)**(9/2)/9)/b**5
 + 2*B*(a**6/sqrt(a + b*x) + 6*a**5*sqrt(a + b*x) - 5*a**4*(a + b
*x)**(3/2) + 4*a**3*(a + b*x)**(5/2) - 15*a**2*(a + b*x)**(7/2)/7
 + 2*a*(a + b*x)**(9/2)/3 - (a + b*x)**(11/2)/11)/b**5)/b, Ne(b,
0)), ((A*x**5/5 + B*x**6/6)/sqrt(a), True))
```

GIAC/XCAS [A] time = 0.218176, size = 236, normalized size = 1.58

$$\frac{2\left(\frac{11\left(35\,(bx+a)^{\frac{9}{2}}b^{32}-180\,(bx+a)^{\frac{7}{2}}ab^{32}+378\,(bx+a)^{\frac{5}{2}}a^{2}b^{32}-420\,(bx+a)^{\frac{3}{2}}a^{3}b^{32}+315\,\sqrt{bx+a}a^{4}b^{32}\right)A}{b^{36}}+\frac{5\left(63\,(bx+a)^{\frac{11}{2}}b^{50}-385\,(bx+a)^{\frac{9}{2}}ab^{50}+990\,(bx+a)^{\frac{7}{2}}\cdots\right.}{\cdots}\right.}{3465\,b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^4/sqrt(b*x + a),x, algorithm="giac")
```

```
[Out] 2/3465*(11*(35*(b*x + a)^(9/2)*b^32 - 180*(b*x + a)^(7/2)*a*b^32
+ 378*(b*x + a)^(5/2)*a^2*b^32 - 420*(b*x + a)^(3/2)*a^3*b^32 + 3
15*sqrt(b*x + a)*a^4*b^32)*A/b^36 + 5*(63*(b*x + a)^(11/2)*b^50 -
 385*(b*x + a)^(9/2)*a*b^50 + 990*(b*x + a)^(7/2)*a^2*b^50 - 1386
*(b*x + a)^(5/2)*a^3*b^50 + 1155*(b*x + a)^(3/2)*a^4*b^50 - 693*s
qrt(b*x + a)*a^5*b^50)*B/b^55)/b
```

3.412 $\int \frac{x^3(A+Bx)}{\sqrt{a+bx}}\,dx$

Optimal. Leaf size=120

$$-\frac{2a^3\sqrt{a+bx}(Ab-aB)}{b^5}+\frac{2a^2(a+bx)^{3/2}(3Ab-4aB)}{3b^5}+\frac{2(a+bx)^{7/2}(Ab-4aB)}{7b^5}-\frac{6a(a+bx)^{5/2}(Ab-2aB)}{5b^5}+\frac{2B(a+bx)^{9/2}}{9b^5}$$

```
[Out] (-2*a^3*(A*b - a*B)*Sqrt[a + b*x])/b^5 + (2*a^2*(3*A*b - 4*a*B)*(
a + b*x)^(3/2))/(3*b^5) - (6*a*(A*b - 2*a*B)*(a + b*x)^(5/2))/(5*
b^5) + (2*(A*b - 4*a*B)*(a + b*x)^(7/2))/(7*b^5) + (2*B*(a + b*x)
^(9/2))/(9*b^5)
```

Rubi [A] time = 0.155866, antiderivative size = 120, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{2a^3\sqrt{a+bx}(Ab-aB)}{b^5}+\frac{2a^2(a+bx)^{3/2}(3Ab-4aB)}{3b^5}+\frac{2(a+bx)^{7/2}(Ab-4aB)}{7b^5}-\frac{6a(a+bx)^{5/2}(Ab-2aB)}{5b^5}+\frac{2B(a+bx)^{9/2}}{9b^5}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^3*(A + B*x))/Sqrt[a + b*x],x]
```

```
[Out] (-2*a^3*(A*b - a*B)*Sqrt[a + b*x])/b^5 + (2*a^2*(3*A*b - 4*a*B)*(
a + b*x)^(3/2))/(3*b^5) - (6*a*(A*b - 2*a*B)*(a + b*x)^(5/2))/(5*
b^5) + (2*(A*b - 4*a*B)*(a + b*x)^(7/2))/(7*b^5) + (2*B*(a + b*x)
^(9/2))/(9*b^5)
```

Rubi in Sympy [A] time = 21.247, size = 117, normalized size = 0.98

$$\frac{2B\left(a+bx\right)^{\frac{9}{2}}}{9b^5}-\frac{2a^3\sqrt{a+bx}\left(Ab-Ba\right)}{b^5}+\frac{2a^2\left(a+bx\right)^{\frac{3}{2}}\left(3Ab-4Ba\right)}{3b^5}-\frac{6a\left(a+bx\right)^{\frac{5}{2}}\left(Ab-2Ba\right)}{5b^5}+\frac{2\left(a+bx\right)^{\frac{7}{2}}\left(Ab-4Ba\right)}{7b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3*(B*x+A)/(b*x+a)**(1/2),x)
```

```
[Out] 2*B*(a + b*x)**(9/2)/(9*b**5) - 2*a**3*sqrt(a + b*x)*(A*b - B*a)/
b**5 + 2*a**2*(a + b*x)**(3/2)*(3*A*b - 4*B*a)/(3*b**5) - 6*a*(a
+ b*x)**(5/2)*(A*b - 2*B*a)/(5*b**5) + 2*(a + b*x)**(7/2)*(A*b -
4*B*a)/(7*b**5)
```

Mathematica [A] time = 0.0654845, size = 87, normalized size = 0.72

$$\frac{2\sqrt{a+bx}\left(128a^4B-16a^3b(9A+4Bx)+24a^2b^2x(3A+2Bx)-2ab^3x^2(27A+20Bx)+5b^4x^3(9A+7Bx)\right)}{315b^5}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^3*(A + B*x))/Sqrt[a + b*x],x]
```

```
[Out] (2*Sqrt[a + b*x]*(128*a^4*B + 24*a^2*b^2*x*(3*A + 2*B*x) - 16*a^3
*b*(9*A + 4*B*x) + 5*b^4*x^3*(9*A + 7*B*x) - 2*a*b^3*x^2*(27*A +
20*B*x)))/(315*b^5)
```

Maple [A] time = 0.01, size = 95, normalized size = 0.8

$$-\frac{-70\,Bx^4b^4-90\,Ab^4x^3+80\,Bab^3x^3+108\,Aab^3x^2-96\,Ba^2b^2x^2-144\,Aa^2b^2x+128\,Ba^3bx+288\,Aa^3b-256\,Ba^4}{315\,b^5}\sqrt{bx+a}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^3*(B*x+A)/(b*x+a)^(1/2),x)
```

```
[Out] -2/315*(b*x+a)^(1/2)*(-35*B*b^4*x^4-45*A*b^4*x^3+40*B*a*b^3*x^3+5
4*A*a*b^3*x^2-48*B*a^2*b^2*x^2-72*A*a^2*b^2*x+64*B*a^3*b*x+144*A*
a^3*b-128*B*a^4)/b^5
```

Maxima [A] time = 1.35018, size = 135, normalized size = 1.12

$$\frac{2\left(35\,(bx+a)^{\frac{9}{2}}B-45\,(4\,Ba-Ab)(bx+a)^{\frac{7}{2}}+189\,\left(2\,Ba^2-Aab\right)(bx+a)^{\frac{5}{2}}-105\,\left(4\,Ba^3-3\,Aa^2b\right)(bx+a)^{\frac{3}{2}}+315\,\left(Ba^4-Aa\right.}{315\,b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^3/sqrt(b*x + a),x, algorithm="maxima")
```

```
[Out] 2/315*(35*(b*x + a)^(9/2)*B - 45*(4*B*a - A*b)*(b*x + a)^(7/2) +
189*(2*B*a^2 - A*a*b)*(b*x + a)^(5/2) - 105*(4*B*a^3 - 3*A*a^2*b)
*(b*x + a)^(3/2) + 315*(B*a^4 - A*a^3*b)*sqrt(b*x + a))/b^5
```

Fricas [A] time = 0.203521, size = 130, normalized size = 1.08

$$\frac{2\left(35\,Bb^4x^4+128\,Ba^4-144\,Aa^3b-5\left(8\,Bab^3-9\,Ab^4\right)x^3+6\left(8\,Ba^2b^2-9\,Aab^3\right)x^2-8\left(8\,Ba^3b-9\,Aa^2b^2\right)x\right)\sqrt{bx+a}}{315\,b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^3/sqrt(b*x + a),x, algorithm="fricas")
```

```
[Out] 2/315*(35*B*b^4*x^4 + 128*B*a^4 - 144*A*a^3*b - 5*(8*B*a*b^3 - 9*
A*b^4)*x^3 + 6*(8*B*a^2*b^2 - 9*A*a*b^3)*x^2 - 8*(8*B*a^3*b - 9*A
*a^2*b^2)*x)*sqrt(b*x + a)/b^5
```

Sympy [A] time = 28.5304, size = 301, normalized size = 2.51

$$\begin{cases} -\frac{\frac{2Aa\left(-\frac{a^3}{\sqrt{a+bx}}-3a^2\sqrt{a+bx}+a(a+bx)^{\frac{3}{2}}-\frac{(a+bx)^{\frac{5}{2}}}{5}\right)}{b^3}+\frac{2A\left(\frac{a^4}{\sqrt{a+bx}}+4a^3\sqrt{a+bx}-2a^2(a+bx)^{\frac{3}{2}}+\frac{4a(a+bx)^{\frac{5}{2}}}{5}-\frac{(a+bx)^{\frac{7}{2}}}{7}\right)}{b^3}+\frac{2Ba\left(\frac{a^4}{\sqrt{a+bx}}+4a^3\sqrt{a+bx}-2a^2(a+bx)^{\frac{3}{2}}+\frac{4a(a+bx)^{\frac{5}{2}}}{5}-\frac{(a+bx}{7}\right.}{b^4}}{b} \\ \frac{\frac{Ax^4}{4}+\frac{Bx^5}{5}}{\sqrt{a}} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**3*(B*x+A)/(b*x+a)**(1/2),x)
```

```
[Out] Piecewise((-(2*A*a*(-a**3/sqrt(a + b*x) - 3*a**2*sqrt(a + b*x) +
a*(a + b*x)**(3/2) - (a + b*x)**(5/2)/5)/b**3 + 2*A*(a**4/sqrt(a
+ b*x) + 4*a**3*sqrt(a + b*x) - 2*a**2*(a + b*x)**(3/2) + 4*a*(a
+ b*x)**(5/2)/5 - (a + b*x)**(7/2)/7)/b**3 + 2*B*a*(a**4/sqrt(a +
 b*x) + 4*a**3*sqrt(a + b*x) - 2*a**2*(a + b*x)**(3/2) + 4*a*(a +
 b*x)**(5/2)/5 - (a + b*x)**(7/2)/7)/b**4 + 2*B*(-a**5/sqrt(a + b
*x) - 5*a**4*sqrt(a + b*x) + 10*a**3*(a + b*x)**(3/2)/3 - 2*a**2*
(a + b*x)**(5/2) + 5*a*(a + b*x)**(7/2)/7 - (a + b*x)**(9/2)/9)/b
**4)/b, Ne(b, 0)), ((A*x**4/4 + B*x**5/5)/sqrt(a), True))
```

GIAC/XCAS [A] time = 0.209101, size = 194, normalized size = 1.62

$$\frac{2\left(\frac{9\left(5\,(bx+a)^{\frac{7}{2}}b^{18}-21\,(bx+a)^{\frac{5}{2}}ab^{18}+35\,(bx+a)^{\frac{3}{2}}a^{2}b^{18}-35\,\sqrt{bx+a}a^{3}b^{18}\right)A}{b^{21}}+\frac{\left(35\,(bx+a)^{\frac{9}{2}}b^{32}-180\,(bx+a)^{\frac{7}{2}}ab^{32}+378\,(bx+a)^{\frac{5}{2}}a^{2}b^{32}-420\,(bx+a)^{\frac{3}{2}}a^{3}b^{32}+31\ldots}{b^{36}}\right.}{315\,b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^3/sqrt(b*x + a),x, algorithm="giac")
```

```
[Out] 2/315*(9*(5*(b*x + a)^(7/2)*b^18 - 21*(b*x + a)^(5/2)*a*b^18 + 35
*(b*x + a)^(3/2)*a^2*b^18 - 35*sqrt(b*x + a)*a^3*b^18)*A/b^21 + (
35*(b*x + a)^(9/2)*b^32 - 180*(b*x + a)^(7/2)*a*b^32 + 378*(b*x +
 a)^(5/2)*a^2*b^32 - 420*(b*x + a)^(3/2)*a^3*b^32 + 315*sqrt(b*x
+ a)*a^4*b^32)*B/b^36)/b
```

3.413 $\int \frac{x^2(A+Bx)}{\sqrt{a+bx}}\,dx$

Optimal. Leaf size=93

$$\frac{2a^2\sqrt{a+bx}(Ab-aB)}{b^4}+\frac{2(a+bx)^{5/2}(Ab-3aB)}{5b^4}-\frac{2a(a+bx)^{3/2}(2Ab-3aB)}{3b^4}+\frac{2B(a+bx)^{7/2}}{7b^4}$$

```
[Out] (2*a^2*(A*b - a*B)*Sqrt[a + b*x])/b^4 - (2*a*(2*A*b - 3*a*B)*(a +
 b*x)^(3/2))/(3*b^4) + (2*(A*b - 3*a*B)*(a + b*x)^(5/2))/(5*b^4)
+ (2*B*(a + b*x)^(7/2))/(7*b^4)
```

Rubi [A] time = 0.121947, antiderivative size = 93, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{2a^2\sqrt{a+bx}(Ab-aB)}{b^4}+\frac{2(a+bx)^{5/2}(Ab-3aB)}{5b^4}-\frac{2a(a+bx)^{3/2}(2Ab-3aB)}{3b^4}+\frac{2B(a+bx)^{7/2}}{7b^4}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^2*(A + B*x))/Sqrt[a + b*x],x]
```

```
[Out] (2*a^2*(A*b - a*B)*Sqrt[a + b*x])/b^4 - (2*a*(2*A*b - 3*a*B)*(a +
 b*x)^(3/2))/(3*b^4) + (2*(A*b - 3*a*B)*(a + b*x)^(5/2))/(5*b^4)
+ (2*B*(a + b*x)^(7/2))/(7*b^4)
```

Rubi in Sympy [A] time = 16.4181, size = 90, normalized size = 0.97

$$\frac{2B\,(a+bx)^{\frac{7}{2}}}{7b^4}+\frac{2a^2\sqrt{a+bx}\,(Ab-Ba)}{b^4}-\frac{2a\,(a+bx)^{\frac{3}{2}}\,(2Ab-3Ba)}{3b^4}+\frac{2\,(a+bx)^{\frac{5}{2}}\,(Ab-3Ba)}{5b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(B*x+A)/(b*x+a)**(1/2),x)
```

```
[Out] 2*B*(a + b*x)**(7/2)/(7*b**4) + 2*a**2*sqrt(a + b*x)*(A*b - B*a)/
b**4 - 2*a*(a + b*x)**(3/2)*(2*A*b - 3*B*a)/(3*b**4) + 2*(a + b*x
)**(5/2)*(A*b - 3*B*a)/(5*b**4)
```

Mathematica [A] time = 0.0573486, size = 68, normalized size = 0.73

$$\frac{2\sqrt{a+bx}\left(-48a^3B+8a^2b(7A+3Bx)-2ab^2x(14A+9Bx)+3b^3x^2(7A+5Bx)\right)}{105b^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^2*(A + B*x))/Sqrt[a + b*x],x]
```

```
[Out] (2*Sqrt[a + b*x]*(-48*a^3*B + 8*a^2*b*(7*A + 3*B*x) + 3*b^3*x^2*(
7*A + 5*B*x) - 2*a*b^2*x*(14*A + 9*B*x)))/(105*b^4)
```

Maple [A] time = 0.009, size = 71, normalized size = 0.8

$$\frac{30\,b^3Bx^3+42\,Ax^2b^3-36\,Bx^2ab^2-56\,Axab^2+48\,Bxa^2b+112\,Aa^2b-96\,Ba^3}{105\,b^4}\sqrt{bx+a}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(B*x+A)/(b*x+a)^(1/2),x)
```

```
[Out] 2/105*(b*x+a)^(1/2)*(15*B*b^3*x^3+21*A*b^3*x^2-18*B*a*b^2*x^2-28*
A*a*b^2*x+24*B*a^2*b*x+56*A*a^2*b-48*B*a^3)/b^4
```

Maxima [A] time = 1.35205, size = 104, normalized size = 1.12

$$\frac{2\left(15\,(bx+a)^{\frac{7}{2}}B - 21\,(3\,Ba - Ab)(bx+a)^{\frac{5}{2}} + 35\,\left(3\,Ba^2 - 2\,Aab\right)(bx+a)^{\frac{3}{2}} - 105\,\left(Ba^3 - Aa^2b\right)\sqrt{bx+a}\right)}{105\,b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^2/sqrt(b*x + a),x, algorithm="maxima")
```

```
[Out] 2/105*(15*(b*x + a)^(7/2)*B - 21*(3*B*a - A*b)*(b*x + a)^(5/2) +
35*(3*B*a^2 - 2*A*a*b)*(b*x + a)^(3/2) - 105*(B*a^3 - A*a^2*b)*sq
rt(b*x + a))/b^4
```

Fricas [A] time = 0.204595, size = 97, normalized size = 1.04

$$\frac{2\,\left(15\,Bb^3x^3 - 48\,Ba^3 + 56\,Aa^2b - 3\,\left(6\,Bab^2 - 7\,Ab^3\right)x^2 + 4\,\left(6\,Ba^2b - 7\,Aab^2\right)x\right)\sqrt{bx+a}}{105\,b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^2/sqrt(b*x + a),x, algorithm="fricas")
```

```
[Out] 2/105*(15*B*b^3*x^3 - 48*B*a^3 + 56*A*a^2*b - 3*(6*B*a*b^2 - 7*A*
b^3)*x^2 + 4*(6*B*a^2*b - 7*A*a*b^2)*x)*sqrt(b*x + a)/b^4
```

Sympy [A] time = 20.1068, size = 240, normalized size = 2.58

$$\begin{cases} -\frac{\frac{2Aa\left(\frac{a^2}{\sqrt{a+bx}}+2a\sqrt{a+bx}-\frac{(a+bx)^{\frac{3}{2}}}{3}\right)}{b^2}+\frac{2A\left(-\frac{a^3}{\sqrt{a+bx}}-3a^2\sqrt{a+bx}+a(a+bx)^{\frac{3}{2}}-\frac{(a+bx)^{\frac{5}{2}}}{5}\right)}{b^2}+\frac{2Ba\left(-\frac{a^3}{\sqrt{a+bx}}-3a^2\sqrt{a+bx}+a(a+bx)^{\frac{3}{2}}-\frac{(a+bx)^{\frac{5}{2}}}{5}\right)}{b^3}+\frac{2B\left(\frac{a^4}{\sqrt{a+bx}}+4a^3\sqrt{a+bx}-2a^2(a+bx)^{\frac{3}{2}} \cdots\right.}{b^3}}{b} \\ \frac{\frac{Ax^3}{3}+\frac{Bx^4}{4}}{\sqrt{a}} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(B*x+A)/(b*x+a)**(1/2),x)
```

```
[Out] Piecewise((-(2*A*a*(a**2/sqrt(a + b*x) + 2*a*sqrt(a + b*x) - (a +
 b*x)**(3/2)/3)/b**2 + 2*A*(-a**3/sqrt(a + b*x) - 3*a**2*sqrt(a +
 b*x) + a*(a + b*x)**(3/2) - (a + b*x)**(5/2)/5)/b**2 + 2*B*a*(-a
**3/sqrt(a + b*x) - 3*a**2*sqrt(a + b*x) + a*(a + b*x)**(3/2) - (
a + b*x)**(5/2)/5)/b**3 + 2*B*(a**4/sqrt(a + b*x) + 4*a**3*sqrt(a
 + b*x) - 2*a**2*(a + b*x)**(3/2) + 4*a*(a + b*x)**(5/2)/5 - (a +
 b*x)**(7/2)/7)/b**3)/b, Ne(b, 0)), ((A*x**3/3 + B*x**4/4)/sqrt(a
), True))
```

GIAC/XCAS [A] time = 0.231039, size = 155, normalized size = 1.67

$$\frac{2\left(\frac{7\left(3\,(bx+a)^{\frac{5}{2}}b^8-10\,(bx+a)^{\frac{3}{2}}ab^8+15\,\sqrt{bx+a}a^2b^8\right)A}{b^{10}}+\frac{3\left(5\,(bx+a)^{\frac{7}{2}}b^{18}-21\,(bx+a)^{\frac{5}{2}}ab^{18}+35\,(bx+a)^{\frac{3}{2}}a^2b^{18}-35\,\sqrt{bx+a}a^3b^{18}\right)B}{b^{21}}\right)}{105\,b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^2/sqrt(b*x + a),x, algorithm="giac")
```

```
[Out] 2/105*(7*(3*(b*x + a)^(5/2)*b^8 - 10*(b*x + a)^(3/2)*a*b^8 + 15*s
qrt(b*x + a)*a^2*b^8)*A/b^10 + 3*(5*(b*x + a)^(7/2)*b^18 - 21*(b*
x + a)^(5/2)*a*b^18 + 35*(b*x + a)^(3/2)*a^2*b^18 - 35*sqrt(b*x +
 a)*a^3*b^18)*B/b^21)/b
```

3.414 $\int \frac{x(A+Bx)}{\sqrt{a+bx}}\,dx$

Optimal. Leaf size=65

$$\frac{2(a+bx)^{3/2}(Ab-2aB)}{3b^3}-\frac{2a\sqrt{a+bx}(Ab-aB)}{b^3}+\frac{2B(a+bx)^{5/2}}{5b^3}$$

```
[Out] (-2*a*(A*b - a*B)*Sqrt[a + b*x])/b^3 + (2*(A*b - 2*a*B)*(a + b*x)
^(3/2))/(3*b^3) + (2*B*(a + b*x)^(5/2))/(5*b^3)
```

Rubi [A] time = 0.0796262, antiderivative size = 65, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$\frac{2(a+bx)^{3/2}(Ab-2aB)}{3b^3}-\frac{2a\sqrt{a+bx}(Ab-aB)}{b^3}+\frac{2B(a+bx)^{5/2}}{5b^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(x*(A + B*x))/Sqrt[a + b*x],x]
```

```
[Out] (-2*a*(A*b - a*B)*Sqrt[a + b*x])/b^3 + (2*(A*b - 2*a*B)*(a + b*x)
^(3/2))/(3*b^3) + (2*B*(a + b*x)^(5/2))/(5*b^3)
```

Rubi in Sympy [A] time = 11.4027, size = 61, normalized size = 0.94

$$\frac{2B\left(a+bx\right)^{\frac{5}{2}}}{5b^3}-\frac{2a\sqrt{a+bx}\left(Ab-Ba\right)}{b^3}+\frac{2\left(a+bx\right)^{\frac{3}{2}}\left(Ab-2Ba\right)}{3b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(B*x+A)/(b*x+a)**(1/2),x)
```

```
[Out] 2*B*(a + b*x)**(5/2)/(5*b**3) - 2*a*sqrt(a + b*x)*(A*b - B*a)/b**
3 + 2*(a + b*x)**(3/2)*(A*b - 2*B*a)/(3*b**3)
```

Mathematica [A] time = 0.0393419, size = 48, normalized size = 0.74

$$\frac{2\sqrt{a+bx}\left(8a^2B-2ab(5A+2Bx)+b^2x(5A+3Bx)\right)}{15b^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x*(A + B*x))/Sqrt[a + b*x],x]
```

```
[Out] (2*Sqrt[a + b*x]*(8*a^2*B - 2*a*b*(5*A + 2*B*x) + b^2*x*(5*A + 3*
B*x)))/(15*b^3)
```

Maple [A] time = 0.006, size = 47, normalized size = 0.7

$$-\frac{-6\,b^2Bx^2-10\,Axb^2+8\,Bxab+20\,Aab-16\,Ba^2}{15\,b^3}\sqrt{bx+a}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int(x*(B*x+A)/(b*x+a)^(1/2),x)
```

```
[Out] -2/15*(b*x+a)^(1/2)*(-3*B*b^2*x^2-5*A*b^2*x+4*B*a*b*x+10*A*a*b-8*
B*a^2)/b^3
```

Maxima [A]   time = 1.36451, size = 73, normalized size = 1.12

$$\frac{2\left(3\,(bx+a)^{\frac{5}{2}}B - 5\,(2\,Ba - Ab)(bx+a)^{\frac{3}{2}} + 15\,\left(Ba^2 - Aab\right)\sqrt{bx+a}\right)}{15\,b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*x/sqrt(b*x + a),x, algorithm="maxima")
```

```
[Out] 2/15*(3*(b*x + a)^(5/2)*B - 5*(2*B*a - A*b)*(b*x + a)^(3/2) + 15*
(B*a^2 - A*a*b)*sqrt(b*x + a))/b^3
```

Fricas [A]   time = 0.20583, size = 65, normalized size = 1.

$$\frac{2\left(3\,Bb^2x^2 + 8\,Ba^2 - 10\,Aab - \left(4\,Bab - 5\,Ab^2\right)x\right)\sqrt{bx+a}}{15\,b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*x/sqrt(b*x + a),x, algorithm="fricas")
```

```
[Out] 2/15*(3*B*b^2*x^2 + 8*B*a^2 - 10*A*a*b - (4*B*a*b - 5*A*b^2)*x)*s
qrt(b*x + a)/b^3
```

Sympy [A]   time = 13.0325, size = 182, normalized size = 2.8

$$\begin{cases} -\frac{\frac{2Aa\left(-\frac{a}{\sqrt{a+bx}}-\sqrt{a+bx}\right)}{b}+\frac{2A\left(\frac{a^2}{\sqrt{a+bx}}+2a\sqrt{a+bx}-\frac{(a+bx)^{\frac{3}{2}}}{3}\right)}{b}+\frac{2Ba\left(\frac{a^2}{\sqrt{a+bx}}+2a\sqrt{a+bx}-\frac{(a+bx)^{\frac{3}{2}}}{3}\right)}{b^2}+\frac{2B\left(-\frac{a^3}{\sqrt{a+bx}}-3a^2\sqrt{a+bx}+a(a+bx)^{\frac{3}{2}}-\frac{(a+bx)^{\frac{5}{2}}}{5}\right)}{b^2}}{b} & \text{for } b \neq 0 \\ \frac{\frac{Ax^2}{2}+\frac{Bx^3}{3}}{\sqrt{a}} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(x*(B*x+A)/(b*x+a)**(1/2),x)
```

```
[Out] Piecewise((-(2*A*a*(-a/sqrt(a + b*x) - sqrt(a + b*x))/b + 2*A*(a*
*2/sqrt(a + b*x) + 2*a*sqrt(a + b*x) - (a + b*x)**(3/2)/3)/b + 2*
B*a*(a**2/sqrt(a + b*x) + 2*a*sqrt(a + b*x) - (a + b*x)**(3/2)/3)
/b**2 + 2*B*(-a**3/sqrt(a + b*x) - 3*a**2*sqrt(a + b*x) + a*(a +
b*x)**(3/2) - (a + b*x)**(5/2)/5)/b**2)/b, Ne(b, 0)), ((A*x**2/2
+ B*x**3/3)/sqrt(a), True))
```

GIAC/XCAS [A]   time = 0.227501, size = 103, normalized size = 1.58

$$\frac{2\left(\frac{5\left((bx+a)^{\frac{3}{2}}-3\sqrt{bx+a}a\right)A}{b}+\frac{\left(3\,(bx+a)^{\frac{5}{2}}b^8-10\,(bx+a)^{\frac{3}{2}}ab^8+15\sqrt{bx+a}a^2b^8\right)B}{b^{10}}\right)}{15\,b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x/sqrt(b*x + a),x, algorithm="giac")
```

```
[Out] 2/15*(5*((b*x + a)^(3/2) - 3*sqrt(b*x + a)*a)*A/b + (3*(b*x + a)^
(5/2)*b^8 - 10*(b*x + a)^(3/2)*a*b^8 + 15*sqrt(b*x + a)*a^2*b^8)*
B/b^10)/b
```

3.415 $\int \frac{A+Bx}{\sqrt{a+bx}}\,dx$

Optimal. Leaf size=40

$$\frac{2\sqrt{a+bx}(Ab-aB)}{b^2}+\frac{2B(a+bx)^{3/2}}{3b^2}$$

```
[Out] (2*(A*b - a*B)*Sqrt[a + b*x])/b^2 + (2*B*(a + b*x)^(3/2))/(3*b^2)
```

Rubi [A] time = 0.043014, antiderivative size = 40, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.067

$$\frac{2\sqrt{a+bx}(Ab-aB)}{b^2}+\frac{2B(a+bx)^{3/2}}{3b^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/Sqrt[a + b*x],x]

[Out] (2*(A*b - a*B)*Sqrt[a + b*x])/b^2 + (2*B*(a + b*x)^(3/2))/(3*b^2)
```

Rubi in Sympy [A] time = 7.38789, size = 36, normalized size = 0.9

$$\frac{2B\left(a+bx\right)^{\frac{3}{2}}}{3b^2}+\frac{2\sqrt{a+bx}\left(Ab-Ba\right)}{b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(b*x+a)**(1/2),x)

[Out] 2*B*(a + b*x)**(3/2)/(3*b**2) + 2*sqrt(a + b*x)*(A*b - B*a)/b**2
```

Mathematica [A] time = 0.0235354, size = 29, normalized size = 0.72

$$\frac{2\sqrt{a+bx}(-2aB+3Ab+bBx)}{3b^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/Sqrt[a + b*x],x]

[Out] (2*Sqrt[a + b*x]*(3*A*b - 2*a*B + b*B*x))/(3*b^2)
```

Maple [A] time = 0.006, size = 26, normalized size = 0.7

$$\frac{2\,bBx+6\,Ab-4\,Ba}{3\,b^2}\sqrt{bx+a}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(b*x+a)^(1/2),x)

[Out] 2/3*(b*x+a)^(1/2)*(B*b*x+3*A*b-2*B*a)/b^2
```

Maxima [A] time = 1.34971, size = 53, normalized size = 1.32

$$\frac{2\left(3\sqrt{bx+a}A+\frac{\left((bx+a)^{\frac{3}{2}}-3\sqrt{bx+a}a\right)B}{b}\right)}{3b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/sqrt(b*x + a),x, algorithm="maxima")
```

```
[Out] 2/3*(3*sqrt(b*x + a)*A + ((b*x + a)^(3/2) - 3*sqrt(b*x + a)*a)*B/
b)/b
```

Fricas [A] time = 0.209875, size = 34, normalized size = 0.85

$$\frac{2\left(Bbx-2Ba+3Ab\right)\sqrt{bx+a}}{3b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/sqrt(b*x + a),x, algorithm="fricas")
```

```
[Out] 2/3*(B*b*x - 2*B*a + 3*A*b)*sqrt(b*x + a)/b^2
```

Sympy [A] time = 4.54192, size = 121, normalized size = 3.02

$$\begin{cases} -\frac{\frac{2Aa}{\sqrt{a+bx}}+2A\left(-\frac{a}{\sqrt{a+bx}}-\sqrt{a+bx}\right)+\frac{2Ba\left(-\frac{a}{\sqrt{a+bx}}-\sqrt{a+bx}\right)}{b}+\frac{2B\left(\frac{a^2}{\sqrt{a+bx}}+2a\sqrt{a+bx}-\frac{(a+bx)^{\frac{3}{2}}}{3}\right)}{b}}{b} & \text{for } b\neq 0 \\ \frac{Ax+\frac{Bx^2}{2}}{\sqrt{a}} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(b*x+a)**(1/2),x)
```

```
[Out] Piecewise((-(2*A*a/sqrt(a + b*x) + 2*A*(-a/sqrt(a + b*x) - sqrt(a
 + b*x)) + 2*B*a*(-a/sqrt(a + b*x) - sqrt(a + b*x))/b + 2*B*(a**2
/sqrt(a + b*x) + 2*a*sqrt(a + b*x) - (a + b*x)**(3/2)/3)/b)/b, Ne
(b, 0)), ((A*x + B*x**2/2)/sqrt(a), True))
```

GIAC/XCAS [A] time = 0.219, size = 53, normalized size = 1.32

$$\frac{2\left(3\sqrt{bx+a}A+\frac{\left((bx+a)^{\frac{3}{2}}-3\sqrt{bx+a}a\right)B}{b}\right)}{3b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/sqrt(b*x + a),x, algorithm="giac")
```

```
[Out] 2/3*(3*sqrt(b*x + a)*A + ((b*x + a)^(3/2) - 3*sqrt(b*x + a)*a)*B/
b)/b
```

3.416 $\int \frac{A+Bx}{x\sqrt{a+bx}}\,dx$

Optimal. Leaf size=40

$$\frac{2B\sqrt{a+bx}}{b}-\frac{2A\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{\sqrt{a}}$$

```
[Out] (2*B*Sqrt[a + b*x])/b - (2*A*ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/Sqrt
[a]
```

Rubi [A] time = 0.0521687, antiderivative size = 40, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$\frac{2B\sqrt{a+bx}}{b}-\frac{2A\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{\sqrt{a}}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x*Sqrt[a + b*x]),x]

[Out] (2*B*Sqrt[a + b*x])/b - (2*A*ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/Sqrt
[a]
```

Rubi in Sympy [A] time = 5.69373, size = 36, normalized size = 0.9

$$-\frac{2A\,\mathrm{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{\sqrt{a}}+\frac{2B\sqrt{a+bx}}{b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x/(b*x+a)**(1/2),x)

[Out] -2*A*atanh(sqrt(a + b*x)/sqrt(a))/sqrt(a) + 2*B*sqrt(a + b*x)/b
```

Mathematica [A] time = 0.0399851, size = 40, normalized size = 1.

$$\frac{2B\sqrt{a+bx}}{b}-\frac{2A\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{\sqrt{a}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x*Sqrt[a + b*x]),x]

[Out] (2*B*Sqrt[a + b*x])/b - (2*A*ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/Sqrt
[a]
```

Maple [A] time = 0.01, size = 35, normalized size = 0.9

$$2\,\frac{1}{b}\left(B\sqrt{bx+a}-\frac{Ab}{\sqrt{a}}\mathit{Artanh}\left(\frac{\sqrt{bx+a}}{\sqrt{a}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x/(b*x+a)^(1/2),x)
```

```
[Out] 2/b*(B*(b*x+a)^(1/2)-A*b/a^(1/2)*arctanh((b*x+a)^(1/2)/a^(1/2)))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*x),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.2303, size = 1, normalized size = 0.02

$$\left[\frac{Ab\log\left(\frac{(bx+2a)\sqrt{a}-2\sqrt{bx+a}a}{x}\right)+2\sqrt{bx+a}B\sqrt{a}}{\sqrt{a}b}, \frac{2\left(Ab\arctan\left(\frac{a}{\sqrt{bx+a}\sqrt{-a}}\right)+\sqrt{bx+a}B\sqrt{-a}\right)}{\sqrt{-a}b}\right]$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*x),x, algorithm="fricas")
```

```
[Out] [(A*b*log(((b*x + 2*a)*sqrt(a) - 2*sqrt(b*x + a)*a)/x) + 2*sqrt(b
*x + a)*B*sqrt(a))/(sqrt(a)*b), 2*(A*b*arctan(a/(sqrt(b*x + a)*sq
rt(-a))) + sqrt(b*x + a)*B*sqrt(-a))/(sqrt(-a)*b)]
```

Sympy [A] time = 8.59006, size = 129, normalized size = 3.22

$$2A\left(\begin{cases}\frac{\operatorname{atan}\left(\frac{1}{\sqrt{-\frac{1}{a}}\sqrt{a+bx}}\right)}{a\sqrt{-\frac{1}{a}}} & \text{for}\ -\frac{1}{a}>0\\ -\frac{\operatorname{acoth}\left(\frac{1}{\sqrt{a+bx}\sqrt{\frac{1}{a}}}\right)}{a\sqrt{\frac{1}{a}}} & \text{for}\ -\frac{1}{a}<0\wedge\frac{1}{a}<\frac{1}{a+bx}\\ -\frac{\operatorname{atanh}\left(\frac{1}{\sqrt{a+bx}\sqrt{\frac{1}{a}}}\right)}{a\sqrt{\frac{1}{a}}} & \text{for}\ \frac{1}{a}>\frac{1}{a+bx}\wedge-\frac{1}{a}<0\end{cases}\right)+\frac{2B\sqrt{a+bx}}{b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x/(b*x+a)**(1/2),x)
```

```
[Out] 2*A*Piecewise((atan(1/(sqrt(-1/a)*sqrt(a + b*x)))/(a*sqrt(-1/a)),
 -1/a > 0), (-acoth(1/(sqrt(a + b*x)*sqrt(1/a)))/(a*sqrt(1/a)), (
-1/a < 0) & (1/a < 1/(a + b*x))), (-atanh(1/(sqrt(a + b*x)*sqrt(1
/a)))/(a*sqrt(1/a)), (-1/a < 0) & (1/a > 1/(a + b*x)))) + 2*B*sqr
t(a + b*x)/b
```

GIAC/XCAS [A] time = 0.215158, size = 49, normalized size = 1.22

$$\frac{2A\arctan\left(\frac{\sqrt{bx+a}}{\sqrt{-a}}\right)}{\sqrt{-a}}+\frac{2\sqrt{bx+a}B}{b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*x),x, algorithm="giac")
```

```
[Out] 2*A*arctan(sqrt(b*x + a)/sqrt(-a))/sqrt(-a) + 2*sqrt(b*x + a)*B/b
```

3.417 $\int \frac{A+Bx}{x^2\sqrt{a+bx}}\,dx$

Optimal. Leaf size=49

$$\frac{(Ab-2aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{a^{3/2}}-\frac{A\sqrt{a+bx}}{ax}$$

```
[Out] -((A*Sqrt[a + b*x])/(a*x)) + ((A*b - 2*a*B)*ArcTanh[Sqrt[a + b*x]
/Sqrt[a]])/a^(3/2)
```

Rubi [A] time = 0.0742844, antiderivative size = 49, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$\frac{(Ab-2aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{a^{3/2}}-\frac{A\sqrt{a+bx}}{ax}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^2*Sqrt[a + b*x]),x]
```

```
[Out] -((A*Sqrt[a + b*x])/(a*x)) + ((A*b - 2*a*B)*ArcTanh[Sqrt[a + b*x]
/Sqrt[a]])/a^(3/2)
```

Rubi in Sympy [A] time = 6.97793, size = 42, normalized size = 0.86

$$-\frac{A\sqrt{a+bx}}{ax}+\frac{2\left(\frac{Ab}{2}-Ba\right)\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{a^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**2/(b*x+a)**(1/2),x)
```

```
[Out] -A*sqrt(a + b*x)/(a*x) + 2*(A*b/2 - B*a)*atanh(sqrt(a + b*x)/sqrt
(a))/a**(3/2)
```

Mathematica [A] time = 0.0657315, size = 51, normalized size = 1.04

$$-\frac{(2aB-Ab)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{a^{3/2}}-\frac{A\sqrt{a+bx}}{ax}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^2*Sqrt[a + b*x]),x]
```

```
[Out] -((A*Sqrt[a + b*x])/(a*x)) - ((-(A*b) + 2*a*B)*ArcTanh[Sqrt[a + b
*x]/Sqrt[a]])/a^(3/2)
```

Maple [A] time = 0.016, size = 42, normalized size = 0.9

$$(Ab-2\,Ba)Artanh\left(1\sqrt{bx+a}\frac{1}{\sqrt{a}}\right)a^{-\frac{3}{2}}-\frac{A}{ax}\sqrt{bx+a}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^2/(b*x+a)^(1/2),x)
```

```
[Out] (A*b-2*B*a)*arctanh((b*x+a)^(1/2)/a^(1/2))/a^(3/2)-A*(b*x+a)^(1/2
)/a/x
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*x^2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.23151, size = 1, normalized size = 0.02

$$\left[-\frac{(2\,Ba-Ab)x\log\left(\frac{(bx+2\,a)\sqrt{a}+2\,\sqrt{bx+a}a}{x}\right)+2\,\sqrt{bx+a}A\sqrt{a}}{2\,a^{\frac{3}{2}}x},\ \frac{(2\,Ba-Ab)x\arctan\left(\frac{a}{\sqrt{bx+a}\sqrt{-a}}\right)-\sqrt{bx+a}A\sqrt{-a}}{\sqrt{-a}ax}\right]$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*x^2),x, algorithm="fricas")
```

```
[Out] [-1/2*((2*B*a - A*b)*x*log(((b*x + 2*a)*sqrt(a) + 2*sqrt(b*x + a)
*a)/x) + 2*sqrt(b*x + a)*A*sqrt(a))/(a^(3/2)*x), ((2*B*a - A*b)*x
*arctan(a/(sqrt(b*x + a)*sqrt(-a))) - sqrt(b*x + a)*A*sqrt(-a))/(
sqrt(-a)*a*x)]
```

Sympy [A] time = 26.1596, size = 165, normalized size = 3.37

$$-\frac{A\sqrt{b}\sqrt{\frac{a}{bx}+1}}{a\sqrt{x}}+\frac{Ab\operatorname{asinh}\left(\frac{\sqrt{a}}{\sqrt{b}\sqrt{x}}\right)}{a^{\frac{3}{2}}}+2B\left(\begin{cases}\frac{\operatorname{atan}\left(\frac{1}{\sqrt{-\frac{1}{a}}\sqrt{a+bx}}\right)}{a\sqrt{-\frac{1}{a}}} & \text{for } -\frac{1}{a}>0\\ -\frac{\operatorname{acoth}\left(\frac{1}{\sqrt{a+bx}\sqrt{\frac{1}{a}}}\right)}{a\sqrt{\frac{1}{a}}} & \text{for } -\frac{1}{a}<0\wedge\frac{1}{a}<\frac{1}{a+bx}\\ -\frac{\operatorname{atanh}\left(\frac{1}{\sqrt{a+bx}\sqrt{\frac{1}{a}}}\right)}{a\sqrt{\frac{1}{a}}} & \text{for } \frac{1}{a}>\frac{1}{a+bx}\wedge-\frac{1}{a}<0\end{cases}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**2/(b*x+a)**(1/2),x)
```

```
[Out] -A*sqrt(b)*sqrt(a/(b*x) + 1)/(a*sqrt(x)) + A*b*asinh(sqrt(a)/(sqr
t(b)*sqrt(x)))/a**(3/2) + 2*B*Piecewise((atan(1/(sqrt(-1/a)*sqrt(
a + b*x)))/(a*sqrt(-1/a)), -1/a > 0), (-acoth(1/(sqrt(a + b*x)*sq
rt(1/a)))/(a*sqrt(1/a)), (-1/a < 0) & (1/a < 1/(a + b*x))), (-ata
nh(1/(sqrt(a + b*x)*sqrt(1/a)))/(a*sqrt(1/a)), (-1/a < 0) & (1/a
> 1/(a + b*x))))
```

GIAC/XCAS [A] time = 0.213989, size = 78, normalized size = 1.59

$$-\frac{\frac{\sqrt{bx+a}Ab}{ax}-\frac{\left(2\,Bab-Ab^2\right)\arctan\left(\frac{\sqrt{bx+a}}{\sqrt{-a}}\right)}{\sqrt{-a}a}}{b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*x^2),x, algorithm="giac")
```

```
[Out] -(sqrt(b*x + a)*A*b/(a*x) - (2*B*a*b - A*b^2)*arctan(sqrt(b*x + a
)/sqrt(-a))/(sqrt(-a)*a))/b
```

3.418 $\int \frac{A+Bx}{x^3\sqrt{a+bx}}\,dx$

Optimal. Leaf size=84

$$-\frac{b(3Ab-4aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{4a^{5/2}}+\frac{\sqrt{a+bx}(3Ab-4aB)}{4a^2x}-\frac{A\sqrt{a+bx}}{2ax^2}$$

```
[Out] -(A*Sqrt[a + b*x])/(2*a*x^2) + ((3*A*b - 4*a*B)*Sqrt[a + b*x])/(4
*a^2*x) - (b*(3*A*b - 4*a*B)*ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/(4*a
^(5/2))
```

Rubi [A] time = 0.113998, antiderivative size = 84, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.222

$$-\frac{b(3Ab-4aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{4a^{5/2}}+\frac{\sqrt{a+bx}(3Ab-4aB)}{4a^2x}-\frac{A\sqrt{a+bx}}{2ax^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^3*Sqrt[a + b*x]),x]
```

```
[Out] -(A*Sqrt[a + b*x])/(2*a*x^2) + ((3*A*b - 4*a*B)*Sqrt[a + b*x])/(4
*a^2*x) - (b*(3*A*b - 4*a*B)*ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/(4*a
^(5/2))
```

Rubi in Sympy [A] time = 9.27761, size = 75, normalized size = 0.89

$$-\frac{A\sqrt{a+bx}}{2ax^2}+\frac{\sqrt{a+bx}\,(3Ab-4Ba)}{4a^2x}-\frac{b\,(3Ab-4Ba)\,\mathrm{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{4a^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**3/(b*x+a)**(1/2),x)
```

```
[Out] -A*sqrt(a + b*x)/(2*a*x**2) + sqrt(a + b*x)*(3*A*b - 4*B*a)/(4*a*
*2*x) - b*(3*A*b - 4*B*a)*atanh(sqrt(a + b*x)/sqrt(a))/(4*a**(5/2
))
```

Mathematica [A] time = 0.128369, size = 70, normalized size = 0.83

$$\frac{\frac{\sqrt{a}\sqrt{a+bx}(3Abx-2a(A+2Bx))}{x^2}+b(4aB-3Ab)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{4a^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^3*Sqrt[a + b*x]),x]
```

```
[Out] ((Sqrt[a]*Sqrt[a + b*x]*(3*A*b*x - 2*a*(A + 2*B*x)))/x^2 + b*(-3*
A*b + 4*a*B)*ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/(4*a^(5/2))
```

Maple [A] time = 0.016, size = 81, normalized size = 1.

$$2\,b\left(\frac{1}{b^2x^2}\left(1/8\,\frac{(3\,Ab-4\,Ba)\,(bx+a)^{3/2}}{a^2}-1/8\,\frac{(5\,Ab-4\,Ba)\,\sqrt{bx+a}}{a}\right)-1/8\,\frac{3\,Ab-4\,Ba}{a^{5/2}}Artanh\left(\frac{\sqrt{bx+a}}{\sqrt{a}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^3/(b*x+a)^(1/2),x)
```

```
[Out] 2*b*((1/8*(3*A*b-4*B*a)/a^2*(b*x+a)^(3/2)-1/8*(5*A*b-4*B*a)/a*(b*
x+a)^(1/2))/x^2/b^2-1/8*(3*A*b-4*B*a)/a^(5/2)*arctanh((b*x+a)^(1/
2)/a^(1/2)))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*x^3),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.226759, size = 1, normalized size = 0.01

$$\left[-\frac{\left(4\,Bab - 3\,Ab^2\right)x^2\log\left(\frac{(bx+2\,a)\sqrt{a}-2\,\sqrt{bx+a}a}{x}\right) + 2\,(2\,Aa + (4\,Ba - 3\,Ab)x)\sqrt{bx+a}\sqrt{a}}{8\,a^{\frac{5}{2}}x^2}, -\frac{\left(4\,Bab - 3\,Ab^2\right)x^2\arctan\left(\frac{a}{\sqrt{bx+a}\sqrt{-a}}\right) + (2\,Aa + (4\,Ba - 3\,Ab)x)\sqrt{bx+a}\sqrt{-a}}{4\,\sqrt{-a}a^2x^2}\right]$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*x^3),x, algorithm="fricas")
```

```
[Out] [-1/8*((4*B*a*b - 3*A*b^2)*x^2*log(((b*x + 2*a)*sqrt(a) - 2*sqrt(
b*x + a)*a)/x) + 2*(2*A*a + (4*B*a - 3*A*b)*x)*sqrt(b*x + a)*sqrt
(a))/(a^(5/2)*x^2), -1/4*((4*B*a*b - 3*A*b^2)*x^2*arctan(a/(sqrt(
b*x + a)*sqrt(-a))) + (2*A*a + (4*B*a - 3*A*b)*x)*sqrt(b*x + a)*s
qrt(-a))/(sqrt(-a)*a^2*x^2)]
```

Sympy [A] time = 55.0013, size = 156, normalized size = 1.86

$$-\frac{A}{2\sqrt{b}x^{\frac{5}{2}}\sqrt{\frac{a}{bx}+1}} + \frac{A\sqrt{b}}{4ax^{\frac{3}{2}}\sqrt{\frac{a}{bx}+1}} + \frac{3Ab^{\frac{3}{2}}}{4a^2\sqrt{x}\sqrt{\frac{a}{bx}+1}} - \frac{3Ab^2\operatorname{asinh}\left(\frac{\sqrt{a}}{\sqrt{b}\sqrt{x}}\right)}{4a^{\frac{5}{2}}} - \frac{B\sqrt{b}\sqrt{\frac{a}{bx}+1}}{a\sqrt{x}} + \frac{Bb\operatorname{asinh}\left(\frac{\sqrt{a}}{\sqrt{b}\sqrt{x}}\right)}{a^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**3/(b*x+a)**(1/2),x)
```

```
[Out] -A/(2*sqrt(b)*x**(5/2)*sqrt(a/(b*x) + 1)) + A*sqrt(b)/(4*a*x**(3/
2)*sqrt(a/(b*x) + 1)) + 3*A*b**(3/2)/(4*a**2*sqrt(x)*sqrt(a/(b*x)
 + 1)) - 3*A*b**2*asinh(sqrt(a)/(sqrt(b)*sqrt(x)))/(4*a**(5/2)) -
 B*sqrt(b)*sqrt(a/(b*x) + 1)/(a*sqrt(x)) + B*b*asinh(sqrt(a)/(sqr
t(b)*sqrt(x)))/a**(3/2)
```

GIAC/XCAS [A] time = 0.214951, size = 150, normalized size = 1.79

$$-\frac{\frac{\left(4\,Bab^{2}-3\,Ab^{3}\right)\arctan\left(\frac{\sqrt{bx+a}}{\sqrt{-a}}\right)}{\sqrt{-a}a^{2}}+\frac{4\,(bx+a)^{\frac{3}{2}}\,Bab^{2}-4\,\sqrt{bx+a}Ba^{2}b^{2}-3\,(bx+a)^{\frac{3}{2}}\,Ab^{3}+5\,\sqrt{bx+a}Aab^{3}}{a^{2}b^{2}x^{2}}}{4\,b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*x^3),x, algorithm="giac")
```

```
[Out] -1/4*((4*B*a*b^2 - 3*A*b^3)*arctan(sqrt(b*x + a)/sqrt(-a))/(sqrt(
-a)*a^2) + (4*(b*x + a)^(3/2)*B*a*b^2 - 4*sqrt(b*x + a)*B*a^2*b^2
 - 3*(b*x + a)^(3/2)*A*b^3 + 5*sqrt(b*x + a)*A*a*b^3)/(a^2*b^2*x^
2))/b
```

3.419 $\int \frac{A+Bx}{x^4\sqrt{a+bx}}\,dx$

Optimal. Leaf size=115

$$\frac{b^2(5Ab-6aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{8a^{7/2}}-\frac{b\sqrt{a+bx}(5Ab-6aB)}{8a^3x}+\frac{\sqrt{a+bx}(5Ab-6aB)}{12a^2x^2}-\frac{A\sqrt{a+bx}}{3ax^3}$$

```
[Out] -(A*Sqrt[a + b*x])/(3*a*x^3) + ((5*A*b - 6*a*B)*Sqrt[a + b*x])/(1
2*a^2*x^2) - (b*(5*A*b - 6*a*B)*Sqrt[a + b*x])/(8*a^3*x) + (b^2*(
5*A*b - 6*a*B)*ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/(8*a^(7/2))
```

Rubi [A] time = 0.151893, antiderivative size = 115, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.222

$$\frac{b^2(5Ab-6aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{8a^{7/2}}-\frac{b\sqrt{a+bx}(5Ab-6aB)}{8a^3x}+\frac{\sqrt{a+bx}(5Ab-6aB)}{12a^2x^2}-\frac{A\sqrt{a+bx}}{3ax^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^4*Sqrt[a + b*x]),x]
```

```
[Out] -(A*Sqrt[a + b*x])/(3*a*x^3) + ((5*A*b - 6*a*B)*Sqrt[a + b*x])/(1
2*a^2*x^2) - (b*(5*A*b - 6*a*B)*Sqrt[a + b*x])/(8*a^3*x) + (b^2*(
5*A*b - 6*a*B)*ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/(8*a^(7/2))
```

Rubi in Sympy [A] time = 12.7658, size = 105, normalized size = 0.91

$$-\frac{A\sqrt{a+bx}}{3ax^3}+\frac{\sqrt{a+bx}\,(5Ab-6Ba)}{12a^2x^2}-\frac{b\sqrt{a+bx}\,(5Ab-6Ba)}{8a^3x}+\frac{b^2\,(5Ab-6Ba)\,\mathrm{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{8a^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**4/(b*x+a)**(1/2),x)
```

```
[Out] -A*sqrt(a + b*x)/(3*a*x**3) + sqrt(a + b*x)*(5*A*b - 6*B*a)/(12*a
**2*x**2) - b*sqrt(a + b*x)*(5*A*b - 6*B*a)/(8*a**3*x) + b**2*(5*
A*b - 6*B*a)*atanh(sqrt(a + b*x)/sqrt(a))/(8*a**(7/2))
```

Mathematica [A] time = 0.155461, size = 93, normalized size = 0.81

$$\frac{b^2(5Ab-6aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{8a^{7/2}}+\frac{\sqrt{a+bx}\left(-4a^2(2A+3Bx)+2abx(5A+9Bx)-15Ab^2x^2\right)}{24a^3x^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^4*Sqrt[a + b*x]),x]
```

```
[Out] (Sqrt[a + b*x]*(-15*A*b^2*x^2 - 4*a^2*(2*A + 3*B*x) + 2*a*b*x*(5*
A + 9*B*x)))/(24*a^3*x^3) + (b^2*(5*A*b - 6*a*B)*ArcTanh[Sqrt[a +
 b*x]/Sqrt[a]])/(8*a^(7/2))
```

Maple [A] time = 0.017, size = 104, normalized size = 0.9

$$2\,b^{2}\left(\frac{1}{x^{3}b^{3}}\left(-1/16\,\frac{(5\,Ab-6\,Ba)\,(bx+a)^{5/2}}{a^{3}}+1/6\,\frac{(5\,Ab-6\,Ba)\,(bx+a)^{3/2}}{a^{2}}-1/16\,\frac{(11\,Ab-10\,Ba)\,\sqrt{bx+a}}{a}\right)+1/16\,\frac{5\,Ab-6\,Ba}{a^{7/2}}Artanh\left(\frac{\sqrt{bx+a}}{\sqrt{a}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^4/(b*x+a)^(1/2),x)
```

```
[Out] 2*b^2*((-1/16*(5*A*b-6*B*a)/a^3*(b*x+a)^(5/2)+1/6/a^2*(5*A*b-6*B*
a)*(b*x+a)^(3/2)-1/16*(11*A*b-10*B*a)/a*(b*x+a)^(1/2))/x^3/b^3+1/
16*(5*A*b-6*B*a)/a^(7/2)*arctanh((b*x+a)^(1/2)/a^(1/2)))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*x^4),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.229695, size = 1, normalized size = 0.01

$$\left[-\frac{3\left(6\,Bab^{2}-5\,Ab^{3}\right)x^{3}\log\left(\frac{(bx+2\,a)\sqrt{a}+2\,\sqrt{bx+a}a}{x}\right)+2\left(8\,Aa^{2}-3\left(6\,Bab-5\,Ab^{2}\right)x^{2}+2\left(6\,Ba^{2}-5\,Aab\right)x\right)\sqrt{bx+a}\sqrt{a}}{48\,a^{\frac{7}{2}}x^{3}},\;\frac{3\,(6\,\ldots}{\ldots}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*x^4),x, algorithm="fricas")
```

```
[Out] [-1/48*(3*(6*B*a*b^2 - 5*A*b^3)*x^3*log(((b*x + 2*a)*sqrt(a) + 2*
sqrt(b*x + a)*a)/x) + 2*(8*A*a^2 - 3*(6*B*a*b - 5*A*b^2)*x^2 + 2*
(6*B*a^2 - 5*A*a*b)*x)*sqrt(b*x + a)*sqrt(a))/(a^(7/2)*x^3), 1/24
*(3*(6*B*a*b^2 - 5*A*b^3)*x^3*arctan(a/(sqrt(b*x + a)*sqrt(-a)))
- (8*A*a^2 - 3*(6*B*a*b - 5*A*b^2)*x^2 + 2*(6*B*a^2 - 5*A*a*b)*x)
*sqrt(b*x + a)*sqrt(-a))/(sqrt(-a)*a^3*x^3)]
```

Sympy [A] time = 90.4866, size = 245, normalized size = 2.13

$$-\frac{A}{3\sqrt{b}x^{\frac{7}{2}}\sqrt{\frac{a}{bx}+1}}+\frac{A\sqrt{b}}{12ax^{\frac{5}{2}}\sqrt{\frac{a}{bx}+1}}-\frac{5Ab^{\frac{3}{2}}}{24a^{2}x^{\frac{3}{2}}\sqrt{\frac{a}{bx}+1}}-\frac{5Ab^{\frac{5}{2}}}{8a^{3}\sqrt{x}\sqrt{\frac{a}{bx}+1}}+\frac{5Ab^{3}\operatorname{asinh}\left(\frac{\sqrt{a}}{\sqrt{b}\sqrt{x}}\right)}{8a^{\frac{7}{2}}}-\frac{B}{2\sqrt{b}x^{\frac{5}{2}}\sqrt{\frac{a}{bx}+1}}+\frac{B\sqrt{b}}{4ax^{\frac{3}{2}}\sqrt{\frac{a}{bx}+1}}+\frac{3Bb^{\frac{3}{2}}}{4a^{2}\sqrt{x}\sqrt{\frac{a}{bx}+1}}-\frac{3Bb^{2}\operatorname{asinh}\left(\frac{\sqrt{a}}{\sqrt{b}\sqrt{x}}\right)}{4a^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**4/(b*x+a)**(1/2),x)
```

```
[Out] -A/(3*sqrt(b)*x**(7/2)*sqrt(a/(b*x) + 1)) + A*sqrt(b)/(12*a*x**(5
/2)*sqrt(a/(b*x) + 1)) - 5*A*b**(3/2)/(24*a**2*x**(3/2)*sqrt(a/(b
*x) + 1)) - 5*A*b**(5/2)/(8*a**3*sqrt(x)*sqrt(a/(b*x) + 1)) + 5*A
*b**3*asinh(sqrt(a)/(sqrt(b)*sqrt(x)))/(8*a**(7/2)) - B/(2*sqrt(b
)*x**(5/2)*sqrt(a/(b*x) + 1)) + B*sqrt(b)/(4*a*x**(3/2)*sqrt(a/(b
*x) + 1)) + 3*B*b**(3/2)/(4*a**2*sqrt(x)*sqrt(a/(b*x) + 1)) - 3*B
*b**2*asinh(sqrt(a)/(sqrt(b)*sqrt(x)))/(4*a**(5/2))
```

GIAC/XCAS [A] time = 0.214179, size = 194, normalized size = 1.69

$$\frac{\frac{3\left(6\,Bab^{3}-5\,Ab^{4}\right)\arctan\left(\frac{\sqrt{bx+a}}{\sqrt{-a}}\right)}{\sqrt{-a}a^{3}}+\frac{18\,(bx+a)^{\frac{5}{2}}\,Bab^{3}-48\,(bx+a)^{\frac{3}{2}}\,Ba^{2}b^{3}+30\,\sqrt{bx+a}Ba^{3}b^{3}-15\,(bx+a)^{\frac{5}{2}}\,Ab^{4}+40\,(bx+a)^{\frac{3}{2}}\,Aab^{4}-33\,\sqrt{bx+a}Aa^{2}b^{4}}{a^{3}b^{3}x^{3}}}{24\,b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*x^4),x, algorithm="giac")
```

```
[Out] 1/24*(3*(6*B*a*b^3 - 5*A*b^4)*arctan(sqrt(b*x + a)/sqrt(-a))/(sqr
t(-a)*a^3) + (18*(b*x + a)^(5/2)*B*a*b^3 - 48*(b*x + a)^(3/2)*B*a
^2*b^3 + 30*sqrt(b*x + a)*B*a^3*b^3 - 15*(b*x + a)^(5/2)*A*b^4 +
40*(b*x + a)^(3/2)*A*a*b^4 - 33*sqrt(b*x + a)*A*a^2*b^4)/(a^3*b^3
*x^3))/b
```

3.420 $\int \frac{A+Bx}{x^5\sqrt{a+bx}}\,dx$

Optimal. Leaf size=146

$$-\frac{5b^3(7Ab-8aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{64a^{9/2}}+\frac{5b^2\sqrt{a+bx}(7Ab-8aB)}{64a^4x}-\frac{5b\sqrt{a+bx}(7Ab-8aB)}{96a^3x^2}+\frac{\sqrt{a+bx}(7Ab-8aB)}{24a^2x^3}-\frac{A\sqrt{a+bx}}{4ax^4}$$

```
[Out] -(A*Sqrt[a + b*x])/(4*a*x^4) + ((7*A*b - 8*a*B)*Sqrt[a + b*x])/(2
4*a^2*x^3) - (5*b*(7*A*b - 8*a*B)*Sqrt[a + b*x])/(96*a^3*x^2) + (
5*b^2*(7*A*b - 8*a*B)*Sqrt[a + b*x])/(64*a^4*x) - (5*b^3*(7*A*b -
 8*a*B)*ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/(64*a^(9/2))
```

Rubi [A] time = 0.191999, antiderivative size = 146, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.222

$$-\frac{5b^3(7Ab-8aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{64a^{9/2}}+\frac{5b^2\sqrt{a+bx}(7Ab-8aB)}{64a^4x}-\frac{5b\sqrt{a+bx}(7Ab-8aB)}{96a^3x^2}+\frac{\sqrt{a+bx}(7Ab-8aB)}{24a^2x^3}-\frac{A\sqrt{a+bx}}{4ax^4}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^5*Sqrt[a + b*x]),x]
```

```
[Out] -(A*Sqrt[a + b*x])/(4*a*x^4) + ((7*A*b - 8*a*B)*Sqrt[a + b*x])/(2
4*a^2*x^3) - (5*b*(7*A*b - 8*a*B)*Sqrt[a + b*x])/(96*a^3*x^2) + (
5*b^2*(7*A*b - 8*a*B)*Sqrt[a + b*x])/(64*a^4*x) - (5*b^3*(7*A*b -
 8*a*B)*ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/(64*a^(9/2))
```

Rubi in Sympy [A] time = 17.2389, size = 141, normalized size = 0.97

$$-\frac{A\sqrt{a+bx}}{4ax^4}+\frac{\sqrt{a+bx}\,(7Ab-8Ba)}{24a^2x^3}-\frac{5b\sqrt{a+bx}\,(7Ab-8Ba)}{96a^3x^2}+\frac{5b^2\sqrt{a+bx}\,(7Ab-8Ba)}{64a^4x}-\frac{5b^3\,(7Ab-8Ba)\,\mathrm{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{64a^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**5/(b*x+a)**(1/2),x)
```

```
[Out] -A*sqrt(a + b*x)/(4*a*x**4) + sqrt(a + b*x)*(7*A*b - 8*B*a)/(24*a
**2*x**3) - 5*b*sqrt(a + b*x)*(7*A*b - 8*B*a)/(96*a**3*x**2) + 5*
b**2*sqrt(a + b*x)*(7*A*b - 8*B*a)/(64*a**4*x) - 5*b**3*(7*A*b -
8*B*a)*atanh(sqrt(a + b*x)/sqrt(a))/(64*a**(9/2))
```

Mathematica [A] time = 0.213222, size = 112, normalized size = 0.77

$$\frac{5b^3(8aB-7Ab)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{64a^{9/2}}+\frac{\sqrt{a+bx}\left(-16a^3(3A+4Bx)+8a^2bx(7A+10Bx)-10ab^2x^2(7A+12Bx)+105Ab^3x^3\right)}{192a^4x^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^5*Sqrt[a + b*x]),x]
```

```
[Out] (Sqrt[a + b*x]*(105*A*b^3*x^3 - 16*a^3*(3*A + 4*B*x) + 8*a^2*b*x*
(7*A + 10*B*x) - 10*a*b^2*x^2*(7*A + 12*B*x)))/(192*a^4*x^4) + (5
*b^3*(-7*A*b + 8*a*B)*ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/(64*a^(9/2)
)
```

Maple [A] time = 0.019, size = 125, normalized size = 0.9

$$2\,b^{3}\left(\frac{1}{x^{4}b^{4}}\left(\frac{(35\,Ab-40\,Ba)\,(bx+a)^{7/2}}{128\,a^{4}}-\frac{(385\,Ab-440\,Ba)\,(bx+a)^{5/2}}{384\,a^{3}}+\frac{(511\,Ab-584\,Ba)\,(bx+a)^{3/2}}{384\,a^{2}}-\frac{(93\,Ab-88\,Ba)}{128\,a}\right.\right.$$
$$\left.\left.-\frac{35\,Ab-40\,Ba}{128\,a^{9/2}}Artanh\left(\frac{\sqrt{bx+a}}{\sqrt{a}}\right)\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^5/(b*x+a)^(1/2),x)
```

```
[Out] 2*b^3*((5/128*(7*A*b-8*B*a)/a^4*(b*x+a)^(7/2)-55/384/a^3*(7*A*b-8
*B*a)*(b*x+a)^(5/2)+73/384/a^2*(7*A*b-8*B*a)*(b*x+a)^(3/2)-1/128*
(93*A*b-88*B*a)/a*(b*x+a)^(1/2))/x^4/b^4-5/128*(7*A*b-8*B*a)/a^(9
/2)*arctanh((b*x+a)^(1/2)/a^(1/2)))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*x^5),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.23173, size = 1, normalized size = 0.01

$$\left[-\frac{15\left(8\,Bab^{3}-7\,Ab^{4}\right)x^{4}\log\left(\frac{(bx+2\,a)\sqrt{a}-2\,\sqrt{bx+a}a}{x}\right)+2\left(48\,Aa^{3}+15\left(8\,Bab^{2}-7\,Ab^{3}\right)x^{3}-10\left(8\,Ba^{2}b-7\,Aab^{2}\right)x^{2}+8\left(8\,Ba\right.\right.}{384\,a^{\frac{9}{2}}x^{4}}\right.$$
$$-\frac{15\left(8\,Bab^{3}-7\,Ab^{4}\right)x^{4}\arctan\left(\frac{a}{\sqrt{bx+a}\sqrt{-a}}\right)+\left(48\,Aa^{3}+15\left(8\,Bab^{2}-7\,Ab^{3}\right)x^{3}-10\left(8\,Ba^{2}b-7\,Aab^{2}\right)x^{2}+8\left(8\,Ba^{3}-7\,Aa\right.\right.}{192\,\sqrt{-a}a^{4}x^{4}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*x^5),x, algorithm="fricas")
```

```
[Out] [-1/384*(15*(8*B*a*b^3 - 7*A*b^4)*x^4*log(((b*x + 2*a)*sqrt(a) -
2*sqrt(b*x + a)*a)/x) + 2*(48*A*a^3 + 15*(8*B*a*b^2 - 7*A*b^3)*x^
3 - 10*(8*B*a^2*b - 7*A*a*b^2)*x^2 + 8*(8*B*a^3 - 7*A*a^2*b)*x)*s
qrt(b*x + a)*sqrt(a))/(a^(9/2)*x^4), -1/192*(15*(8*B*a*b^3 - 7*A*
b^4)*x^4*arctan(a/(sqrt(b*x + a)*sqrt(-a))) + (48*A*a^3 + 15*(8*B
*a*b^2 - 7*A*b^3)*x^3 - 10*(8*B*a^2*b - 7*A*a*b^2)*x^2 + 8*(8*B*a
^3 - 7*A*a^2*b)*x)*sqrt(b*x + a)*sqrt(-a))/(sqrt(-a)*a^4*x^4)]
```

Sympy [A] time = 146.252, size = 303, normalized size = 2.08

$$-\frac{A}{4\sqrt{b}x^{\frac{9}{2}}\sqrt{\frac{a}{bx}+1}}+\frac{A\sqrt{b}}{24ax^{\frac{7}{2}}\sqrt{\frac{a}{bx}+1}}-\frac{7Ab^{\frac{3}{2}}}{96a^2x^{\frac{5}{2}}\sqrt{\frac{a}{bx}+1}}+\frac{35Ab^{\frac{5}{2}}}{192a^3x^{\frac{3}{2}}\sqrt{\frac{a}{bx}+1}}+\frac{35Ab^{\frac{7}{2}}}{64a^4\sqrt{x}\sqrt{\frac{a}{bx}+1}}-\frac{35Ab^4\operatorname{asinh}\left(\frac{\sqrt{a}}{\sqrt{b}\sqrt{x}}\right)}{64a^{\frac{9}{2}}}-\frac{B}{3\sqrt{b}x^{\frac{7}{2}}\sqrt{\frac{a}{bx}+1}}+\frac{B\sqrt{b}}{12ax^{\frac{5}{2}}\sqrt{\frac{a}{bx}+1}}-\frac{5Bb^{\frac{3}{2}}}{24a^2x^{\frac{3}{2}}\sqrt{\frac{a}{bx}+1}}-\frac{5Bb^{\frac{5}{2}}}{8a^3\sqrt{x}\sqrt{\frac{a}{bx}+1}}+\frac{5Bb^3\operatorname{asinh}\left(\frac{\sqrt{a}}{\sqrt{b}\sqrt{x}}\right)}{8a^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**5/(b*x+a)**(1/2),x)
```

```
[Out] -A/(4*sqrt(b)*x**(9/2)*sqrt(a/(b*x) + 1)) + A*sqrt(b)/(24*a*x**(7
/2)*sqrt(a/(b*x) + 1)) - 7*A*b**(3/2)/(96*a**2*x**(5/2)*sqrt(a/(b
*x) + 1)) + 35*A*b**(5/2)/(192*a**3*x**(3/2)*sqrt(a/(b*x) + 1)) +
 35*A*b**(7/2)/(64*a**4*sqrt(x)*sqrt(a/(b*x) + 1)) - 35*A*b**4*as
inh(sqrt(a)/(sqrt(b)*sqrt(x)))/(64*a**(9/2)) - B/(3*sqrt(b)*x**(7
/2)*sqrt(a/(b*x) + 1)) + B*sqrt(b)/(12*a*x**(5/2)*sqrt(a/(b*x) +
1)) - 5*B*b**(3/2)/(24*a**2*x**(3/2)*sqrt(a/(b*x) + 1)) - 5*B*b**
(5/2)/(8*a**3*sqrt(x)*sqrt(a/(b*x) + 1)) + 5*B*b**3*asinh(sqrt(a)
/(sqrt(b)*sqrt(x)))/(8*a**(7/2))
```

GIAC/XCAS [A] time = 0.212373, size = 238, normalized size = 1.63

$$-\frac{\frac{15\left(8Bab^4-7Ab^5\right)\arctan\left(\frac{\sqrt{bx+a}}{\sqrt{-a}}\right)}{\sqrt{-a}a^4}+\frac{120(bx+a)^{\frac{7}{2}}Bab^4-440(bx+a)^{\frac{5}{2}}Ba^2b^4+584(bx+a)^{\frac{3}{2}}Ba^3b^4-264\sqrt{bx+a}Ba^4b^4-105(bx+a)^{\frac{7}{2}}Ab^5+385(bx+a)^{\frac{5}{2}}Aab^5-}{a^4b^4x^4}}{192b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*x^5),x, algorithm="giac")
```

```
[Out] -1/192*(15*(8*B*a*b^4 - 7*A*b^5)*arctan(sqrt(b*x + a)/sqrt(-a))/(
sqrt(-a)*a^4) + (120*(b*x + a)^(7/2)*B*a*b^4 - 440*(b*x + a)^(5/2
)*B*a^2*b^4 + 584*(b*x + a)^(3/2)*B*a^3*b^4 - 264*sqrt(b*x + a)*B
*a^4*b^4 - 105*(b*x + a)^(7/2)*A*b^5 + 385*(b*x + a)^(5/2)*A*a*b^
5 - 511*(b*x + a)^(3/2)*A*a^2*b^5 + 279*sqrt(b*x + a)*A*a^3*b^5)/
(a^4*b^4*x^4))/b
```

3.421 $\int \frac{A+Bx}{x^6\sqrt{a+bx}}\,dx$

Optimal. Leaf size=177

$$\frac{7b^4(9Ab-10aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{128a^{11/2}}-\frac{7b^3\sqrt{a+bx}(9Ab-10aB)}{128a^5x}+\frac{7b^2\sqrt{a+bx}(9Ab-10aB)}{192a^4x^2}-\frac{7b\sqrt{a+bx}(9Ab-10aB)}{240a^3x^3}+\frac{\sqrt{a+bx}(9Ab-10aB)}{40a^2x^4}-\frac{A\sqrt{a+bx}}{5ax^5}$$

```
[Out] -(A*Sqrt[a + b*x])/(5*a*x^5) + ((9*A*b - 10*a*B)*Sqrt[a + b*x])/(
40*a^2*x^4) - (7*b*(9*A*b - 10*a*B)*Sqrt[a + b*x])/(240*a^3*x^3)
+ (7*b^2*(9*A*b - 10*a*B)*Sqrt[a + b*x])/(192*a^4*x^2) - (7*b^3*(
9*A*b - 10*a*B)*Sqrt[a + b*x])/(128*a^5*x) + (7*b^4*(9*A*b - 10*a
*B)*ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/(128*a^(11/2))
```

Rubi [A] time = 0.239845, antiderivative size = 177, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.222

$$\frac{7b^4(9Ab-10aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{128a^{11/2}}-\frac{7b^3\sqrt{a+bx}(9Ab-10aB)}{128a^5x}+\frac{7b^2\sqrt{a+bx}(9Ab-10aB)}{192a^4x^2}-\frac{7b\sqrt{a+bx}(9Ab-10aB)}{240a^3x^3}+\frac{\sqrt{a+bx}(9Ab-10aB)}{40a^2x^4}-\frac{A\sqrt{a+bx}}{5ax^5}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^6*Sqrt[a + b*x]),x]
```

```
[Out] -(A*Sqrt[a + b*x])/(5*a*x^5) + ((9*A*b - 10*a*B)*Sqrt[a + b*x])/(
40*a^2*x^4) - (7*b*(9*A*b - 10*a*B)*Sqrt[a + b*x])/(240*a^3*x^3)
+ (7*b^2*(9*A*b - 10*a*B)*Sqrt[a + b*x])/(192*a^4*x^2) - (7*b^3*(
9*A*b - 10*a*B)*Sqrt[a + b*x])/(128*a^5*x) + (7*b^4*(9*A*b - 10*a
*B)*ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/(128*a^(11/2))
```

Rubi in Sympy [A] time = 22.2395, size = 173, normalized size = 0.98

$$-\frac{A\sqrt{a+bx}}{5ax^5}+\frac{\sqrt{a+bx}\,(9Ab-10Ba)}{40a^2x^4}-\frac{7b\sqrt{a+bx}\,(9Ab-10Ba)}{240a^3x^3}+\frac{7b^2\sqrt{a+bx}\,(9Ab-10Ba)}{192a^4x^2}-\frac{7b^3\sqrt{a+bx}\,(9Ab-10Ba)}{128a^5x}+\frac{7b^4\,(9Ab-10Ba)\,\mathrm{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{128a^{\frac{11}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**6/(b*x+a)**(1/2),x)
```

```
[Out] -A*sqrt(a + b*x)/(5*a*x**5) + sqrt(a + b*x)*(9*A*b - 10*B*a)/(40*
a**2*x**4) - 7*b*sqrt(a + b*x)*(9*A*b - 10*B*a)/(240*a**3*x**3) +
 7*b**2*sqrt(a + b*x)*(9*A*b - 10*B*a)/(192*a**4*x**2) - 7*b**3*s
qrt(a + b*x)*(9*A*b - 10*B*a)/(128*a**5*x) + 7*b**4*(9*A*b - 10*B
*a)*atanh(sqrt(a + b*x)/sqrt(a))/(128*a**(11/2))
```

Mathematica [A] time = 0.243972, size = 131, normalized size = 0.74

$$\frac{7b^4(9Ab-10aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{128a^{11/2}}+\frac{\sqrt{a+bx}\left(-96a^4(4A+5Bx)+16a^3bx(27A+35Bx)-28a^2b^2x^2(18A+25Bx)+210ab^3x^3(3A+5Bx)-945Ab^4x^4\right)}{1920a^5x^5}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^6*Sqrt[a + b*x]),x]
```

```
[Out] (Sqrt[a + b*x]*(-945*A*b^4*x^4 + 210*a*b^3*x^3*(3*A + 5*B*x) - 96
*a^4*(4*A + 5*B*x) - 28*a^2*b^2*x^2*(18*A + 25*B*x) + 16*a^3*b*x*
(27*A + 35*B*x)))/(1920*a^5*x^5) + (7*b^4*(9*A*b - 10*a*B)*ArcTan
h[Sqrt[a + b*x]/Sqrt[a]])/(128*a^(11/2))
```

Maple [A] time = 0.02, size = 146, normalized size = 0.8

$$2\,b^4\left(\frac{1}{b^5x^5}\left(-\frac{(63\,Ab-70\,Ba)\,(bx+a)^{9/2}}{256\,a^5}+\frac{(441\,Ab-490\,Ba)\,(bx+a)^{7/2}}{384\,a^4}-\frac{(63\,Ab-70\,Ba)\,(bx+a)^{5/2}}{30\,a^3}+\frac{(711\,Ab-790\,Ba}{384\,a^2}\right.\right.$$
$$\left.\left.+\frac{63\,Ab-70\,Ba}{256\,a^{11/2}}Artanh\left(\frac{\sqrt{bx+a}}{\sqrt{a}}\right)\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^6/(b*x+a)^(1/2),x)
```

```
[Out] 2*b^4*((-7/256*(9*A*b-10*B*a)/a^5*(b*x+a)^(9/2)+49/384/a^4*(9*A*b
-10*B*a)*(b*x+a)^(7/2)-7/30/a^3*(9*A*b-10*B*a)*(b*x+a)^(5/2)+79/3
84/a^2*(9*A*b-10*B*a)*(b*x+a)^(3/2)-1/256*(193*A*b-186*B*a)/a*(b*
x+a)^(1/2))/x^5/b^5+7/256*(9*A*b-10*B*a)/a^(11/2)*arctanh((b*x+a)
^(1/2)/a^(1/2)))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*x^6),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.225951, size = 1, normalized size = 0.01

$$\left[-\frac{105\left(10\,Bab^4-9\,Ab^5\right)x^5\log\left(\frac{(bx+2\,a)\sqrt{a}+2\,\sqrt{bx+a}a}{x}\right)+2\left(384\,Aa^4-105\left(10\,Bab^3-9\,Ab^4\right)x^4+70\left(10\,Ba^2b^2-9\,Aab^3\right)x^3-\right.}{3840\,a^{\frac{11}{2}}x^5}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*x^6),x, algorithm="fricas")
```

```
[Out] [-1/3840*(105*(10*B*a*b^4 - 9*A*b^5)*x^5*log(((b*x + 2*a)*sqrt(a)
 + 2*sqrt(b*x + a)*a)/x) + 2*(384*A*a^4 - 105*(10*B*a*b^3 - 9*A*b
^4)*x^4 + 70*(10*B*a^2*b^2 - 9*A*a*b^3)*x^3 - 56*(10*B*a^3*b - 9*
A*a^2*b^2)*x^2 + 48*(10*B*a^4 - 9*A*a^3*b)*x)*sqrt(b*x + a)*sqrt(
a))/(a^(11/2)*x^5), 1/1920*(105*(10*B*a*b^4 - 9*A*b^5)*x^5*arctan
(a/(sqrt(b*x + a)*sqrt(-a))) - (384*A*a^4 - 105*(10*B*a*b^3 - 9*A
*b^4)*x^4 + 70*(10*B*a^2*b^2 - 9*A*a*b^3)*x^3 - 56*(10*B*a^3*b -
9*A*a^2*b^2)*x^2 + 48*(10*B*a^4 - 9*A*a^3*b)*x)*sqrt(b*x + a)*sqr
t(-a))/(sqrt(-a)*a^5*x^5)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**6/(b*x+a)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.212279, size = 281, normalized size = 1.59

$$\frac{\frac{105\left(10\,Bab^5-9\,Ab^6\right)\arctan\left(\frac{\sqrt{bx+a}}{\sqrt{-a}}\right)}{\sqrt{-a}a^5}+\frac{1050\,(bx+a)^{\frac{9}{2}}\,Bab^5-4900\,(bx+a)^{\frac{7}{2}}\,Ba^2b^5+8960\,(bx+a)^{\frac{5}{2}}\,Ba^3b^5-7900\,(bx+a)^{\frac{3}{2}}\,Ba^4b^5+2790\,\sqrt{bx+a}Ba^5b^5-945\,(bx+a)}{a^5b^5x^5}}{1920\,b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*x^6),x, algorithm="giac")
```

```
[Out] 1/1920*(105*(10*B*a*b^5 - 9*A*b^6)*arctan(sqrt(b*x + a)/sqrt(-a))
/(sqrt(-a)*a^5) + (1050*(b*x + a)^(9/2)*B*a*b^5 - 4900*(b*x + a)^
(7/2)*B*a^2*b^5 + 8960*(b*x + a)^(5/2)*B*a^3*b^5 - 7900*(b*x + a)
^(3/2)*B*a^4*b^5 + 2790*sqrt(b*x + a)*B*a^5*b^5 - 945*(b*x + a)^(
9/2)*A*b^6 + 4410*(b*x + a)^(7/2)*A*a*b^6 - 8064*(b*x + a)^(5/2)*
A*a^2*b^6 + 7110*(b*x + a)^(3/2)*A*a^3*b^6 - 2895*sqrt(b*x + a)*A
*a^4*b^6)/(a^5*b^5*x^5))/b
```

3.422 $\int \frac{x^4(A+Bx)}{(a+bx)^{3/2}}\,dx$

Optimal. Leaf size=147

$$-\frac{2a^4(Ab-aB)}{b^6\sqrt{a+bx}}-\frac{2a^3\sqrt{a+bx}(4Ab-5aB)}{b^6}+\frac{4a^2(a+bx)^{3/2}(3Ab-5aB)}{3b^6}+\frac{2(a+bx)^{7/2}(Ab-5aB)}{7b^6}-\frac{4a(a+bx)^{5/2}(2Ab-5aB)}{5b^6}+\frac{2B(a+bx)^{9/2}}{9b^6}$$

```
[Out] (-2*a^4*(A*b - a*B))/(b^6*Sqrt[a + b*x]) - (2*a^3*(4*A*b - 5*a*B)
*Sqrt[a + b*x])/b^6 + (4*a^2*(3*A*b - 5*a*B)*(a + b*x)^(3/2))/(3*
b^6) - (4*a*(2*A*b - 5*a*B)*(a + b*x)^(5/2))/(5*b^6) + (2*(A*b -
5*a*B)*(a + b*x)^(7/2))/(7*b^6) + (2*B*(a + b*x)^(9/2))/(9*b^6)
```

Rubi [A] time = 0.180593, antiderivative size = 147, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{2a^4(Ab-aB)}{b^6\sqrt{a+bx}}-\frac{2a^3\sqrt{a+bx}(4Ab-5aB)}{b^6}+\frac{4a^2(a+bx)^{3/2}(3Ab-5aB)}{3b^6}+\frac{2(a+bx)^{7/2}(Ab-5aB)}{7b^6}-\frac{4a(a+bx)^{5/2}(2Ab-5aB)}{5b^6}+\frac{2B(a+bx)^{9/2}}{9b^6}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^4*(A + B*x))/(a + b*x)^(3/2),x]
```

```
[Out] (-2*a^4*(A*b - a*B))/(b^6*Sqrt[a + b*x]) - (2*a^3*(4*A*b - 5*a*B)
*Sqrt[a + b*x])/b^6 + (4*a^2*(3*A*b - 5*a*B)*(a + b*x)^(3/2))/(3*
b^6) - (4*a*(2*A*b - 5*a*B)*(a + b*x)^(5/2))/(5*b^6) + (2*(A*b -
5*a*B)*(a + b*x)^(7/2))/(7*b^6) + (2*B*(a + b*x)^(9/2))/(9*b^6)
```

Rubi in Sympy [A] time = 26.9958, size = 146, normalized size = 0.99

$$\frac{2B\left(a+bx\right)^{\frac{9}{2}}}{9b^6}-\frac{2a^4\left(Ab-Ba\right)}{b^6\sqrt{a+bx}}-\frac{2a^3\sqrt{a+bx}\left(4Ab-5Ba\right)}{b^6}+\frac{4a^2\left(a+bx\right)^{\frac{3}{2}}\left(3Ab-5Ba\right)}{3b^6}-\frac{4a\left(a+bx\right)^{\frac{5}{2}}\left(2Ab-5Ba\right)}{5b^6}+\frac{2\left(a+bx\right)^{\frac{7}{2}}\left(Ab-5Ba\right)}{7b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**4*(B*x+A)/(b*x+a)**(3/2),x)
```

```
[Out] 2*B*(a + b*x)**(9/2)/(9*b**6) - 2*a**4*(A*b - B*a)/(b**6*sqrt(a +
 b*x)) - 2*a**3*sqrt(a + b*x)*(4*A*b - 5*B*a)/b**6 + 4*a**2*(a +
b*x)**(3/2)*(3*A*b - 5*B*a)/(3*b**6) - 4*a*(a + b*x)**(5/2)*(2*A*
b - 5*B*a)/(5*b**6) + 2*(a + b*x)**(7/2)*(A*b - 5*B*a)/(7*b**6)
```

Mathematica [A] time = 0.0971584, size = 106, normalized size = 0.72

$$\frac{2560a^5B-256a^4b(9A-5Bx)-64a^3b^2x(18A+5Bx)+32a^2b^3x^2(9A+5Bx)-4ab^4x^3(36A+25Bx)+10b^5x^4(9A+7Bx)}{315b^6\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^4*(A + B*x))/(a + b*x)^(3/2),x]
```

```
[Out] (2560*a^5*B - 256*a^4*b*(9*A - 5*B*x) + 32*a^2*b^3*x^2*(9*A + 5*B
*x) - 64*a^3*b^2*x*(18*A + 5*B*x) + 10*b^5*x^4*(9*A + 7*B*x) - 4*
a*b^4*x^3*(36*A + 25*B*x))/(315*b^6*Sqrt[a + b*x])
```

Maple [A] time = 0.008, size = 119, normalized size = 0.8

$$-\frac{-70\,b^5Bx^5-90\,Ax^4b^5+100\,Bx^4ab^4+144\,Ax^3ab^4-160\,Bx^3a^2b^3-288\,Ax^2a^2b^3+320\,Bx^2a^3b^2+1152\,Axa^3b^2-1280\,Bx}{315\,b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^4*(B*x+A)/(b*x+a)^(3/2),x)
```

```
[Out] -2/315/(b*x+a)^(1/2)*(-35*B*b^5*x^5-45*A*b^5*x^4+50*B*a*b^4*x^4+7
2*A*a*b^4*x^3-80*B*a^2*b^3*x^3-144*A*a^2*b^3*x^2+160*B*a^3*b^2*x^
2+576*A*a^3*b^2*x-640*B*a^4*b*x+1152*A*a^4*b-1280*B*a^5)/b^6
```

Maxima [A] time = 1.33015, size = 177, normalized size = 1.2

$$\frac{2\left(\frac{35\,(bx+a)^{\frac{9}{2}}B-45\,(5\,Ba-Ab)(bx+a)^{\frac{7}{2}}+126\,\left(5\,Ba^2-2\,Aab\right)(bx+a)^{\frac{5}{2}}-210\,\left(5\,Ba^3-3\,Aa^2b\right)(bx+a)^{\frac{3}{2}}+315\,\left(5\,Ba^4-4\,Aa^3b\right)\sqrt{bx+a}}{b}+\frac{315\,\left(Ba^5-Aa^4b\right)}{\sqrt{bx+a}b}\right)}{315\,b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^4/(b*x + a)^(3/2),x, algorithm="maxima")
```

```
[Out] 2/315*((35*(b*x + a)^(9/2)*B - 45*(5*B*a - A*b)*(b*x + a)^(7/2) +
 126*(5*B*a^2 - 2*A*a*b)*(b*x + a)^(5/2) - 210*(5*B*a^3 - 3*A*a^2
*b)*(b*x + a)^(3/2) + 315*(5*B*a^4 - 4*A*a^3*b)*sqrt(b*x + a))/b
+ 315*(B*a^5 - A*a^4*b)/(sqrt(b*x + a)*b))/b^5
```

Fricas [A] time = 0.218162, size = 162, normalized size = 1.1

$$\frac{2\left(35\,Bb^5x^5+1280\,Ba^5-1152\,Aa^4b-5\left(10\,Bab^4-9\,Ab^5\right)x^4+8\left(10\,Ba^2b^3-9\,Aab^4\right)x^3-16\left(10\,Ba^3b^2-9\,Aa^2b^3\right)x^2+64\right.}{315\,\sqrt{bx+a}b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^4/(b*x + a)^(3/2),x, algorithm="fricas")
```

```
[Out] 2/315*(35*B*b^5*x^5 + 1280*B*a^5 - 1152*A*a^4*b - 5*(10*B*a*b^4 -
 9*A*b^5)*x^4 + 8*(10*B*a^2*b^3 - 9*A*a*b^4)*x^3 - 16*(10*B*a^3*b
^2 - 9*A*a^2*b^3)*x^2 + 64*(10*B*a^4*b - 9*A*a^3*b^2)*x)/(sqrt(b*
x + a)*b^6)
```

Sympy [A] time = 46.1723, size = 10953, normalized size = 74.51

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**4*(B*x+A)/(b*x+a)**(3/2),x)
```

```
[Out] A*(-256*a**(87/2)*sqrt(1 + b*x/a)/(35*a**40*b**5 + 350*a**39*b**6
*x + 1575*a**38*b**7*x**2 + 4200*a**37*b**8*x**3 + 7350*a**36*b**
```

```
9*x**4 + 8820*a**35*b**10*x**5 + 7350*a**34*b**11*x**6 + 4200*a**
33*b**12*x**7 + 1575*a**32*b**13*x**8 + 350*a**31*b**14*x**9 + 35
*a**30*b**15*x**10) + 256*a**(87/2)/(35*a**40*b**5 + 350*a**39*b*
*6*x + 1575*a**38*b**7*x**2 + 4200*a**37*b**8*x**3 + 7350*a**36*b
**9*x**4 + 8820*a**35*b**10*x**5 + 7350*a**34*b**11*x**6 + 4200*a
**33*b**12*x**7 + 1575*a**32*b**13*x**8 + 350*a**31*b**14*x**9 +
35*a**30*b**15*x**10) - 2432*a**(85/2)*b*x*sqrt(1 + b*x/a)/(35*a*
*40*b**5 + 350*a**39*b**6*x + 1575*a**38*b**7*x**2 + 4200*a**37*b
**8*x**3 + 7350*a**36*b**9*x**4 + 8820*a**35*b**10*x**5 + 7350*a*
*34*b**11*x**6 + 4200*a**33*b**12*x**7 + 1575*a**32*b**13*x**8 +
350*a**31*b**14*x**9 + 35*a**30*b**15*x**10) + 2560*a**(85/2)*b*x
/(35*a**40*b**5 + 350*a**39*b**6*x + 1575*a**38*b**7*x**2 + 4200*
a**37*b**8*x**3 + 7350*a**36*b**9*x**4 + 8820*a**35*b**10*x**5 +
7350*a**34*b**11*x**6 + 4200*a**33*b**12*x**7 + 1575*a**32*b**13*
x**8 + 350*a**31*b**14*x**9 + 35*a**30*b**15*x**10) - 10336*a**(8
3/2)*b**2*x**2*sqrt(1 + b*x/a)/(35*a**40*b**5 + 350*a**39*b**6*x
+ 1575*a**38*b**7*x**2 + 4200*a**37*b**8*x**3 + 7350*a**36*b**9*x
**4 + 8820*a**35*b**10*x**5 + 7350*a**34*b**11*x**6 + 4200*a**33*
b**12*x**7 + 1575*a**32*b**13*x**8 + 350*a**31*b**14*x**9 + 35*a*
*30*b**15*x**10) + 11520*a**(83/2)*b**2*x**2/(35*a**40*b**5 + 350
*a**39*b**6*x + 1575*a**38*b**7*x**2 + 4200*a**37*b**8*x**3 + 735
0*a**36*b**9*x**4 + 8820*a**35*b**10*x**5 + 7350*a**34*b**11*x**6
 + 4200*a**33*b**12*x**7 + 1575*a**32*b**13*x**8 + 350*a**31*b**1
4*x**9 + 35*a**30*b**15*x**10) - 25840*a**(81/2)*b**3*x**3*sqrt(1
 + b*x/a)/(35*a**40*b**5 + 350*a**39*b**6*x + 1575*a**38*b**7*x**
2 + 4200*a**37*b**8*x**3 + 7350*a**36*b**9*x**4 + 8820*a**35*b**1
0*x**5 + 7350*a**34*b**11*x**6 + 4200*a**33*b**12*x**7 + 1575*a**
32*b**13*x**8 + 350*a**31*b**14*x**9 + 35*a**30*b**15*x**10) + 30
720*a**(81/2)*b**3*x**3/(35*a**40*b**5 + 350*a**39*b**6*x + 1575*
a**38*b**7*x**2 + 4200*a**37*b**8*x**3 + 7350*a**36*b**9*x**4 + 8
820*a**35*b**10*x**5 + 7350*a**34*b**11*x**6 + 4200*a**33*b**12*x
**7 + 1575*a**32*b**13*x**8 + 350*a**31*b**14*x**9 + 35*a**30*b**
15*x**10) - 41990*a**(79/2)*b**4*x**4*sqrt(1 + b*x/a)/(35*a**40*b
**5 + 350*a**39*b**6*x + 1575*a**38*b**7*x**2 + 4200*a**37*b**8*x
**3 + 7350*a**36*b**9*x**4 + 8820*a**35*b**10*x**5 + 7350*a**34*b
**11*x**6 + 4200*a**33*b**12*x**7 + 1575*a**32*b**13*x**8 + 350*a
**31*b**14*x**9 + 35*a**30*b**15*x**10) + 53760*a**(79/2)*b**4*x*
*4/(35*a**40*b**5 + 350*a**39*b**6*x + 1575*a**38*b**7*x**2 + 420
0*a**37*b**8*x**3 + 7350*a**36*b**9*x**4 + 8820*a**35*b**10*x**5
+ 7350*a**34*b**11*x**6 + 4200*a**33*b**12*x**7 + 1575*a**32*b**1
3*x**8 + 350*a**31*b**14*x**9 + 35*a**30*b**15*x**10) - 46182*a**
(77/2)*b**5*x**5*sqrt(1 + b*x/a)/(35*a**40*b**5 + 350*a**39*b**6*
x + 1575*a**38*b**7*x**2 + 4200*a**37*b**8*x**3 + 7350*a**36*b**9
*x**4 + 8820*a**35*b**10*x**5 + 7350*a**34*b**11*x**6 + 4200*a**3
3*b**12*x**7 + 1575*a**32*b**13*x**8 + 350*a**31*b**14*x**9 + 35*
a**30*b**15*x**10) + 64512*a**(77/2)*b**5*x**5/(35*a**40*b**5 + 3
50*a**39*b**6*x + 1575*a**38*b**7*x**2 + 4200*a**37*b**8*x**3 + 7
350*a**36*b**9*x**4 + 8820*a**35*b**10*x**5 + 7350*a**34*b**11*x*
*6 + 4200*a**33*b**12*x**7 + 1575*a**32*b**13*x**8 + 350*a**31*b*
*14*x**9 + 35*a**30*b**15*x**10) - 34584*a**(75/2)*b**6*x**6*sqrt
(1 + b*x/a)/(35*a**40*b**5 + 350*a**39*b**6*x + 1575*a**38*b**7*x
**2 + 4200*a**37*b**8*x**3 + 7350*a**36*b**9*x**4 + 8820*a**35*b*
*10*x**5 + 7350*a**34*b**11*x**6 + 4200*a**33*b**12*x**7 + 1575*a
**32*b**13*x**8 + 350*a**31*b**14*x**9 + 35*a**30*b**15*x**10) +
53760*a**(75/2)*b**6*x**6/(35*a**40*b**5 + 350*a**39*b**6*x + 157
5*a**38*b**7*x**2 + 4200*a**37*b**8*x**3 + 7350*a**36*b**9*x**4 +
 8820*a**35*b**10*x**5 + 7350*a**34*b**11*x**6 + 4200*a**33*b**12
*x**7 + 1575*a**32*b**13*x**8 + 350*a**31*b**14*x**9 + 35*a**30*b
**15*x**10) - 17112*a**(73/2)*b**7*x**7*sqrt(1 + b*x/a)/(35*a**40
*b**5 + 350*a**39*b**6*x + 1575*a**38*b**7*x**2 + 4200*a**37*b**8
*x**3 + 7350*a**36*b**9*x**4 + 8820*a**35*b**10*x**5 + 7350*a**34
*b**11*x**6 + 4200*a**33*b**12*x**7 + 1575*a**32*b**13*x**8 + 350
*a**31*b**14*x**9 + 35*a**30*b**15*x**10) + 30720*a**(73/2)*b**7*
x**7/(35*a**40*b**5 + 350*a**39*b**6*x + 1575*a**38*b**7*x**2 + 4
200*a**37*b**8*x**3 + 7350*a**36*b**9*x**4 + 8820*a**35*b**10*x**
5 + 7350*a**34*b**11*x**6 + 4200*a**33*b**12*x**7 + 1575*a**32*b*
*13*x**8 + 350*a**31*b**14*x**9 + 35*a**30*b**15*x**10) - 4980*a*
*(71/2)*b**8*x**8*sqrt(1 + b*x/a)/(35*a**40*b**5 + 350*a**39*b**6
*x + 1575*a**38*b**7*x**2 + 4200*a**37*b**8*x**3 + 7350*a**36*b**
9*x**4 + 8820*a**35*b**10*x**5 + 7350*a**34*b**11*x**6 + 4200*a**
33*b**12*x**7 + 1575*a**32*b**13*x**8 + 350*a**31*b**14*x**9 + 35
*a**30*b**15*x**10) + 11520*a**(71/2)*b**8*x**8/(35*a**40*b**5 +
350*a**39*b**6*x + 1575*a**38*b**7*x**2 + 4200*a**37*b**8*x**3 +
7350*a**36*b**9*x**4 + 8820*a**35*b**10*x**5 + 7350*a**34*b**11*x
```

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**6 + 4200*a**33*b**12*x**7 + 1575*a**32*b**13*x**8 + 350*a**31*b
**14*x**9 + 35*a**30*b**15*x**10) - 340*a**(69/2)*b**9*x**9*sqrt(
1 + b*x/a)/(35*a**40*b**5 + 350*a**39*b**6*x + 1575*a**38*b**7*x*
*2 + 4200*a**37*b**8*x**3 + 7350*a**36*b**9*x**4 + 8820*a**35*b**
10*x**5 + 7350*a**34*b**11*x**6 + 4200*a**33*b**12*x**7 + 1575*a*
*32*b**13*x**8 + 350*a**31*b**14*x**9 + 35*a**30*b**15*x**10) + 2
560*a**(69/2)*b**9*x**9/(35*a**40*b**5 + 350*a**39*b**6*x + 1575*
a**38*b**7*x**2 + 4200*a**37*b**8*x**3 + 7350*a**36*b**9*x**4 + 8
820*a**35*b**10*x**5 + 7350*a**34*b**11*x**6 + 4200*a**33*b**12*x
**7 + 1575*a**32*b**13*x**8 + 350*a**31*b**14*x**9 + 35*a**30*b**
15*x**10) + 424*a**(67/2)*b**10*x**10*sqrt(1 + b*x/a)/(35*a**40*b
**5 + 350*a**39*b**6*x + 1575*a**38*b**7*x**2 + 4200*a**37*b**8*x
**3 + 7350*a**36*b**9*x**4 + 8820*a**35*b**10*x**5 + 7350*a**34*b
**11*x**6 + 4200*a**33*b**12*x**7 + 1575*a**32*b**13*x**8 + 350*a
**31*b**14*x**9 + 35*a**30*b**15*x**10) + 256*a**(67/2)*b**10*x**
10/(35*a**40*b**5 + 350*a**39*b**6*x + 1575*a**38*b**7*x**2 + 420
0*a**37*b**8*x**3 + 7350*a**36*b**9*x**4 + 8820*a**35*b**10*x**5
+ 7350*a**34*b**11*x**6 + 4200*a**33*b**12*x**7 + 1575*a**32*b**1
3*x**8 + 350*a**31*b**14*x**9 + 35*a**30*b**15*x**10) + 248*a**(6
5/2)*b**11*x**11*sqrt(1 + b*x/a)/(35*a**40*b**5 + 350*a**39*b**6*
x + 1575*a**38*b**7*x**2 + 4200*a**37*b**8*x**3 + 7350*a**36*b**9
*x**4 + 8820*a**35*b**10*x**5 + 7350*a**34*b**11*x**6 + 4200*a**3
3*b**12*x**7 + 1575*a**32*b**13*x**8 + 350*a**31*b**14*x**9 + 35*
a**30*b**15*x**10) + 74*a**(63/2)*b**12*x**12*sqrt(1 + b*x/a)/(35
*a**40*b**5 + 350*a**39*b**6*x + 1575*a**38*b**7*x**2 + 4200*a**3
7*b**8*x**3 + 7350*a**36*b**9*x**4 + 8820*a**35*b**10*x**5 + 7350
*a**34*b**11*x**6 + 4200*a**33*b**12*x**7 + 1575*a**32*b**13*x**8
 + 350*a**31*b**14*x**9 + 35*a**30*b**15*x**10) + 10*a**(61/2)*b*
*13*x**13*sqrt(1 + b*x/a)/(35*a**40*b**5 + 350*a**39*b**6*x + 157
5*a**38*b**7*x**2 + 4200*a**37*b**8*x**3 + 7350*a**36*b**9*x**4 +
 8820*a**35*b**10*x**5 + 7350*a**34*b**11*x**6 + 4200*a**33*b**12
*x**7 + 1575*a**32*b**13*x**8 + 350*a**31*b**14*x**9 + 35*a**30*b
**15*x**10)) + B*(512*a**(149/2)*sqrt(1 + b*x/a)/(63*a**70*b**6 +
 945*a**69*b**7*x + 6615*a**68*b**8*x**2 + 28665*a**67*b**9*x**3
+ 85995*a**66*b**10*x**4 + 189189*a**65*b**11*x**5 + 315315*a**64
*b**12*x**6 + 405405*a**63*b**13*x**7 + 405405*a**62*b**14*x**8 +
 315315*a**61*b**15*x**9 + 189189*a**60*b**16*x**10 + 85995*a**59
*b**17*x**11 + 28665*a**58*b**18*x**12 + 6615*a**57*b**19*x**13 +
 945*a**56*b**20*x**14 + 63*a**55*b**21*x**15) - 512*a**(149/2)/(
63*a**70*b**6 + 945*a**69*b**7*x + 6615*a**68*b**8*x**2 + 28665*a
**67*b**9*x**3 + 85995*a**66*b**10*x**4 + 189189*a**65*b**11*x**5
 + 315315*a**64*b**12*x**6 + 405405*a**63*b**13*x**7 + 405405*a**
62*b**14*x**8 + 315315*a**61*b**15*x**9 + 189189*a**60*b**16*x**1
0 + 85995*a**59*b**17*x**11 + 28665*a**58*b**18*x**12 + 6615*a**5
7*b**19*x**13 + 945*a**56*b**20*x**14 + 63*a**55*b**21*x**15) + 7
424*a**(147/2)*b*x*sqrt(1 + b*x/a)/(63*a**70*b**6 + 945*a**69*b**
7*x + 6615*a**68*b**8*x**2 + 28665*a**67*b**9*x**3 + 85995*a**66*
b**10*x**4 + 189189*a**65*b**11*x**5 + 315315*a**64*b**12*x**6 +
405405*a**63*b**13*x**7 + 405405*a**62*b**14*x**8 + 315315*a**61*
b**15*x**9 + 189189*a**60*b**16*x**10 + 85995*a**59*b**17*x**11 +
 28665*a**58*b**18*x**12 + 6615*a**57*b**19*x**13 + 945*a**56*b**
20*x**14 + 63*a**55*b**21*x**15) - 7680*a**(147/2)*b*x/(63*a**70*
b**6 + 945*a**69*b**7*x + 6615*a**68*b**8*x**2 + 28665*a**67*b**9
*x**3 + 85995*a**66*b**10*x**4 + 189189*a**65*b**11*x**5 + 315315
*a**64*b**12*x**6 + 405405*a**63*b**13*x**7 + 405405*a**62*b**14*
x**8 + 315315*a**61*b**15*x**9 + 189189*a**60*b**16*x**10 + 85995
*a**59*b**17*x**11 + 28665*a**58*b**18*x**12 + 6615*a**57*b**19*x
**13 + 945*a**56*b**20*x**14 + 63*a**55*b**21*x**15) + 50112*a**(
145/2)*b**2*x**2*sqrt(1 + b*x/a)/(63*a**70*b**6 + 945*a**69*b**7*
x + 6615*a**68*b**8*x**2 + 28665*a**67*b**9*x**3 + 85995*a**66*b*
*10*x**4 + 189189*a**65*b**11*x**5 + 315315*a**64*b**12*x**6 + 40
5405*a**63*b**13*x**7 + 405405*a**62*b**14*x**8 + 315315*a**61*b*
*15*x**9 + 189189*a**60*b**16*x**10 + 85995*a**59*b**17*x**11 + 2
8665*a**58*b**18*x**12 + 6615*a**57*b**19*x**13 + 945*a**56*b**20
*x**14 + 63*a**55*b**21*x**15) - 53760*a**(145/2)*b**2*x**2/(63*a
**70*b**6 + 945*a**69*b**7*x + 6615*a**68*b**8*x**2 + 28665*a**67
*b**9*x**3 + 85995*a**66*b**10*x**4 + 189189*a**65*b**11*x**5 + 3
15315*a**64*b**12*x**6 + 405405*a**63*b**13*x**7 + 405405*a**62*b
**14*x**8 + 315315*a**61*b**15*x**9 + 189189*a**60*b**16*x**10 +
85995*a**59*b**17*x**11 + 28665*a**58*b**18*x**12 + 6615*a**57*b*
*19*x**13 + 945*a**56*b**20*x**14 + 63*a**55*b**21*x**15) + 20880
0*a**(143/2)*b**3*x**3*sqrt(1 + b*x/a)/(63*a**70*b**6 + 945*a**69
*b**7*x + 6615*a**68*b**8*x**2 + 28665*a**67*b**9*x**3 + 85995*a*
*66*b**10*x**4 + 189189*a**65*b**11*x**5 + 315315*a**64*b**12*x**
```

6 + 405405*a**63*b**13*x**7 + 405405*a**62*b**14*x**8 + 315315*a*
*61*b**15*x**9 + 189189*a**60*b**16*x**10 + 85995*a**59*b**17*x**
11 + 28665*a**58*b**18*x**12 + 6615*a**57*b**19*x**13 + 945*a**56
*b**20*x**14 + 63*a**55*b**21*x**15) - 232960*a**(143/2)*b**3*x**
3/(63*a**70*b**6 + 945*a**69*b**7*x + 6615*a**68*b**8*x**2 + 2866
5*a**67*b**9*x**3 + 85995*a**66*b**10*x**4 + 189189*a**65*b**11*x
5 + 315315*a64*b**12*x**6 + 405405*a**63*b**13*x**7 + 405405*
a**62*b**14*x**8 + 315315*a**61*b**15*x**9 + 189189*a**60*b**16*x
10 + 85995*a59*b**17*x**11 + 28665*a**58*b**18*x**12 + 6615*a
57*b19*x**13 + 945*a**56*b**20*x**14 + 63*a**55*b**21*x**15)
+ 600300*a**(141/2)*b**4*x**4*sqrt(1 + b*x/a)/(63*a**70*b**6 + 94
5*a**69*b**7*x + 6615*a**68*b**8*x**2 + 28665*a**67*b**9*x**3 + 8
5995*a**66*b**10*x**4 + 189189*a**65*b**11*x**5 + 315315*a**64*b*
*12*x**6 + 405405*a**63*b**13*x**7 + 405405*a**62*b**14*x**8 + 31
5315*a**61*b**15*x**9 + 189189*a**60*b**16*x**10 + 85995*a**59*b*
*17*x**11 + 28665*a**58*b**18*x**12 + 6615*a**57*b**19*x**13 + 94
5*a**56*b**20*x**14 + 63*a**55*b**21*x**15) - 698880*a**(141/2)*b
4*x4/(63*a**70*b**6 + 945*a**69*b**7*x + 6615*a**68*b**8*x**2
 + 28665*a**67*b**9*x**3 + 85995*a**66*b**10*x**4 + 189189*a**65*
b**11*x**5 + 315315*a**64*b**12*x**6 + 405405*a**63*b**13*x**7 +
405405*a**62*b**14*x**8 + 315315*a**61*b**15*x**9 + 189189*a**60*
b**16*x**10 + 85995*a**59*b**17*x**11 + 28665*a**58*b**18*x**12 +
 6615*a**57*b**19*x**13 + 945*a**56*b**20*x**14 + 63*a**55*b**21*
x**15) + 1260630*a**(139/2)*b**5*x**5*sqrt(1 + b*x/a)/(63*a**70*b
6 + 945*a69*b**7*x + 6615*a**68*b**8*x**2 + 28665*a**67*b**9*
x**3 + 85995*a**66*b**10*x**4 + 189189*a**65*b**11*x**5 + 315315*
a**64*b**12*x**6 + 405405*a**63*b**13*x**7 + 405405*a**62*b**14*x
8 + 315315*a61*b**15*x**9 + 189189*a**60*b**16*x**10 + 85995*
a**59*b**17*x**11 + 28665*a**58*b**18*x**12 + 6615*a**57*b**19*x*
*13 + 945*a**56*b**20*x**14 + 63*a**55*b**21*x**15) - 1537536*a**
(139/2)*b**5*x**5/(63*a**70*b**6 + 945*a**69*b**7*x + 6615*a**68*
b**8*x**2 + 28665*a**67*b**9*x**3 + 85995*a**66*b**10*x**4 + 1891
89*a**65*b**11*x**5 + 315315*a**64*b**12*x**6 + 405405*a**63*b**1
3*x**7 + 405405*a**62*b**14*x**8 + 315315*a**61*b**15*x**9 + 1891
89*a**60*b**16*x**10 + 85995*a**59*b**17*x**11 + 28665*a**58*b**1
8*x**12 + 6615*a**57*b**19*x**13 + 945*a**56*b**20*x**14 + 63*a**
55*b**21*x**15) + 1996008*a**(137/2)*b**6*x**6*sqrt(1 + b*x/a)/(6
3*a**70*b**6 + 945*a**69*b**7*x + 6615*a**68*b**8*x**2 + 28665*a*
*67*b**9*x**3 + 85995*a**66*b**10*x**4 + 189189*a**65*b**11*x**5
+ 315315*a**64*b**12*x**6 + 405405*a**63*b**13*x**7 + 405405*a**6
2*b**14*x**8 + 315315*a**61*b**15*x**9 + 189189*a**60*b**16*x**10
 + 85995*a**59*b**17*x**11 + 28665*a**58*b**18*x**12 + 6615*a**57
*b**19*x**13 + 945*a**56*b**20*x**14 + 63*a**55*b**21*x**15) - 25
62560*a**(137/2)*b**6*x**6/(63*a**70*b**6 + 945*a**69*b**7*x + 66
15*a**68*b**8*x**2 + 28665*a**67*b**9*x**3 + 85995*a**66*b**10*x*
*4 + 189189*a**65*b**11*x**5 + 315315*a**64*b**12*x**6 + 405405*a
63*b13*x**7 + 405405*a**62*b**14*x**8 + 315315*a**61*b**15*x*
*9 + 189189*a**60*b**16*x**10 + 85995*a**59*b**17*x**11 + 28665*a
58*b18*x**12 + 6615*a**57*b**19*x**13 + 945*a**56*b**20*x**14
 + 63*a**55*b**21*x**15) + 2423850*a**(135/2)*b**7*x**7*sqrt(1 +
b*x/a)/(63*a**70*b**6 + 945*a**69*b**7*x + 6615*a**68*b**8*x**2 +
 28665*a**67*b**9*x**3 + 85995*a**66*b**10*x**4 + 189189*a**65*b*
*11*x**5 + 315315*a**64*b**12*x**6 + 405405*a**63*b**13*x**7 + 40
5405*a**62*b**14*x**8 + 315315*a**61*b**15*x**9 + 189189*a**60*b*
*16*x**10 + 85995*a**59*b**17*x**11 + 28665*a**58*b**18*x**12 + 6
615*a**57*b**19*x**13 + 945*a**56*b**20*x**14 + 63*a**55*b**21*x*
*15) - 3294720*a**(135/2)*b**7*x**7/(63*a**70*b**6 + 945*a**69*b*
*7*x + 6615*a**68*b**8*x**2 + 28665*a**67*b**9*x**3 + 85995*a**66
*b**10*x**4 + 189189*a**65*b**11*x**5 + 315315*a**64*b**12*x**6 +
 405405*a**63*b**13*x**7 + 405405*a**62*b**14*x**8 + 315315*a**61
*b**15*x**9 + 189189*a**60*b**16*x**10 + 85995*a**59*b**17*x**11
+ 28665*a**58*b**18*x**12 + 6615*a**57*b**19*x**13 + 945*a**56*b*
*20*x**14 + 63*a**55*b**21*x**15) + 2273076*a**(133/2)*b**8*x**8*
sqrt(1 + b*x/a)/(63*a**70*b**6 + 945*a**69*b**7*x + 6615*a**68*b*
*8*x**2 + 28665*a**67*b**9*x**3 + 85995*a**66*b**10*x**4 + 189189
*a**65*b**11*x**5 + 315315*a**64*b**12*x**6 + 405405*a**63*b**13*
x**7 + 405405*a**62*b**14*x**8 + 315315*a**61*b**15*x**9 + 189189
*a**60*b**16*x**10 + 85995*a**59*b**17*x**11 + 28665*a**58*b**18*
x**12 + 6615*a**57*b**19*x**13 + 945*a**56*b**20*x**14 + 63*a**55
*b**21*x**15) - 3294720*a**(133/2)*b**8*x**8/(63*a**70*b**6 + 945
*a**69*b**7*x + 6615*a**68*b**8*x**2 + 28665*a**67*b**9*x**3 + 85
995*a**66*b**10*x**4 + 189189*a**65*b**11*x**5 + 315315*a**64*b**
12*x**6 + 405405*a**63*b**13*x**7 + 405405*a**62*b**14*x**8 + 315
315*a**61*b**15*x**9 + 189189*a**60*b**16*x**10 + 85995*a**59*b**

```
17*x**11 + 28665*a**58*b**18*x**12 + 6615*a**57*b**19*x**13 + 945
*a**56*b**20*x**14 + 63*a**55*b**21*x**15) + 1644214*a**(131/2)*b
**9*x**9*sqrt(1 + b*x/a)/(63*a**70*b**6 + 945*a**69*b**7*x + 6615
*a**68*b**8*x**2 + 28665*a**67*b**9*x**3 + 85995*a**66*b**10*x**4
 + 189189*a**65*b**11*x**5 + 315315*a**64*b**12*x**6 + 405405*a**
63*b**13*x**7 + 405405*a**62*b**14*x**8 + 315315*a**61*b**15*x**9
 + 189189*a**60*b**16*x**10 + 85995*a**59*b**17*x**11 + 28665*a**
58*b**18*x**12 + 6615*a**57*b**19*x**13 + 945*a**56*b**20*x**14 +
 63*a**55*b**21*x**15) - 2562560*a**(131/2)*b**9*x**9/(63*a**70*b
**6 + 945*a**69*b**7*x + 6615*a**68*b**8*x**2 + 28665*a**67*b**9*
x**3 + 85995*a**66*b**10*x**4 + 189189*a**65*b**11*x**5 + 315315*
a**64*b**12*x**6 + 405405*a**63*b**13*x**7 + 405405*a**62*b**14*x
**8 + 315315*a**61*b**15*x**9 + 189189*a**60*b**16*x**10 + 85995*
a**59*b**17*x**11 + 28665*a**58*b**18*x**12 + 6615*a**57*b**19*x*
*13 + 945*a**56*b**20*x**14 + 63*a**55*b**21*x**15) + 910624*a**(
129/2)*b**10*x**10*sqrt(1 + b*x/a)/(63*a**70*b**6 + 945*a**69*b**
7*x + 6615*a**68*b**8*x**2 + 28665*a**67*b**9*x**3 + 85995*a**66*
b**10*x**4 + 189189*a**65*b**11*x**5 + 315315*a**64*b**12*x**6 +
405405*a**63*b**13*x**7 + 405405*a**62*b**14*x**8 + 315315*a**61*
b**15*x**9 + 189189*a**60*b**16*x**10 + 85995*a**59*b**17*x**11 +
 28665*a**58*b**18*x**12 + 6615*a**57*b**19*x**13 + 945*a**56*b**
20*x**14 + 63*a**55*b**21*x**15) - 1537536*a**(129/2)*b**10*x**10
/(63*a**70*b**6 + 945*a**69*b**7*x + 6615*a**68*b**8*x**2 + 28665
*a**67*b**9*x**3 + 85995*a**66*b**10*x**4 + 189189*a**65*b**11*x*
*5 + 315315*a**64*b**12*x**6 + 405405*a**63*b**13*x**7 + 405405*a
**62*b**14*x**8 + 315315*a**61*b**15*x**9 + 189189*a**60*b**16*x*
*10 + 85995*a**59*b**17*x**11 + 28665*a**58*b**18*x**12 + 6615*a*
*57*b**19*x**13 + 945*a**56*b**20*x**14 + 63*a**55*b**21*x**15) +
 383994*a**(127/2)*b**11*x**11*sqrt(1 + b*x/a)/(63*a**70*b**6 + 9
45*a**69*b**7*x + 6615*a**68*b**8*x**2 + 28665*a**67*b**9*x**3 +
85995*a**66*b**10*x**4 + 189189*a**65*b**11*x**5 + 315315*a**64*b
**12*x**6 + 405405*a**63*b**13*x**7 + 405405*a**62*b**14*x**8 + 3
15315*a**61*b**15*x**9 + 189189*a**60*b**16*x**10 + 85995*a**59*b
**17*x**11 + 28665*a**58*b**18*x**12 + 6615*a**57*b**19*x**13 + 9
45*a**56*b**20*x**14 + 63*a**55*b**21*x**15) - 698880*a**(127/2)*
b**11*x**11/(63*a**70*b**6 + 945*a**69*b**7*x + 6615*a**68*b**8*x
**2 + 28665*a**67*b**9*x**3 + 85995*a**66*b**10*x**4 + 189189*a**
65*b**11*x**5 + 315315*a**64*b**12*x**6 + 405405*a**63*b**13*x**7
 + 405405*a**62*b**14*x**8 + 315315*a**61*b**15*x**9 + 189189*a**
60*b**16*x**10 + 85995*a**59*b**17*x**11 + 28665*a**58*b**18*x**1
2 + 6615*a**57*b**19*x**13 + 945*a**56*b**20*x**14 + 63*a**55*b**
21*x**15) + 127764*a**(125/2)*b**12*x**12*sqrt(1 + b*x/a)/(63*a**
70*b**6 + 945*a**69*b**7*x + 6615*a**68*b**8*x**2 + 28665*a**67*b
**9*x**3 + 85995*a**66*b**10*x**4 + 189189*a**65*b**11*x**5 + 315
315*a**64*b**12*x**6 + 405405*a**63*b**13*x**7 + 405405*a**62*b**
14*x**8 + 315315*a**61*b**15*x**9 + 189189*a**60*b**16*x**10 + 85
995*a**59*b**17*x**11 + 28665*a**58*b**18*x**12 + 6615*a**57*b**1
9*x**13 + 945*a**56*b**20*x**14 + 63*a**55*b**21*x**15) - 232960*
a**(125/2)*b**12*x**12/(63*a**70*b**6 + 945*a**69*b**7*x + 6615*a
**68*b**8*x**2 + 28665*a**67*b**9*x**3 + 85995*a**66*b**10*x**4 +
 189189*a**65*b**11*x**5 + 315315*a**64*b**12*x**6 + 405405*a**63
*b**13*x**7 + 405405*a**62*b**14*x**8 + 315315*a**61*b**15*x**9 +
 189189*a**60*b**16*x**10 + 85995*a**59*b**17*x**11 + 28665*a**58
*b**18*x**12 + 6615*a**57*b**19*x**13 + 945*a**56*b**20*x**14 + 6
3*a**55*b**21*x**15) + 41202*a**(123/2)*b**13*x**13*sqrt(1 + b*x/
a)/(63*a**70*b**6 + 945*a**69*b**7*x + 6615*a**68*b**8*x**2 + 286
65*a**67*b**9*x**3 + 85995*a**66*b**10*x**4 + 189189*a**65*b**11*
x**5 + 315315*a**64*b**12*x**6 + 405405*a**63*b**13*x**7 + 405405
*a**62*b**14*x**8 + 315315*a**61*b**15*x**9 + 189189*a**60*b**16*
x**10 + 85995*a**59*b**17*x**11 + 28665*a**58*b**18*x**12 + 6615*
a**57*b**19*x**13 + 945*a**56*b**20*x**14 + 63*a**55*b**21*x**15)
 - 53760*a**(123/2)*b**13*x**13/(63*a**70*b**6 + 945*a**69*b**7*x
 + 6615*a**68*b**8*x**2 + 28665*a**67*b**9*x**3 + 85995*a**66*b**
10*x**4 + 189189*a**65*b**11*x**5 + 315315*a**64*b**12*x**6 + 405
405*a**63*b**13*x**7 + 405405*a**62*b**14*x**8 + 315315*a**61*b**
15*x**9 + 189189*a**60*b**16*x**10 + 85995*a**59*b**17*x**11 + 28
665*a**58*b**18*x**12 + 6615*a**57*b**19*x**13 + 945*a**56*b**20*
x**14 + 63*a**55*b**21*x**15) + 17928*a**(121/2)*b**14*x**14*sqrt
(1 + b*x/a)/(63*a**70*b**6 + 945*a**69*b**7*x + 6615*a**68*b**8*x
**2 + 28665*a**67*b**9*x**3 + 85995*a**66*b**10*x**4 + 189189*a**
65*b**11*x**5 + 315315*a**64*b**12*x**6 + 405405*a**63*b**13*x**7
 + 405405*a**62*b**14*x**8 + 315315*a**61*b**15*x**9 + 189189*a**
60*b**16*x**10 + 85995*a**59*b**17*x**11 + 28665*a**58*b**18*x**1
2 + 6615*a**57*b**19*x**13 + 945*a**56*b**20*x**14 + 63*a**55*b**
```

```
21*x**15) - 7680*a**(121/2)*b**14*x**14/(63*a**70*b**6 + 945*a**6
9*b**7*x + 6615*a**68*b**8*x**2 + 28665*a**67*b**9*x**3 + 85995*a
**66*b**10*x**4 + 189189*a**65*b**11*x**5 + 315315*a**64*b**12*x*
*6 + 405405*a**63*b**13*x**7 + 405405*a**62*b**14*x**8 + 315315*a
**61*b**15*x**9 + 189189*a**60*b**16*x**10 + 85995*a**59*b**17*x*
*11 + 28665*a**58*b**18*x**12 + 6615*a**57*b**19*x**13 + 945*a**5
6*b**20*x**14 + 63*a**55*b**21*x**15) + 9006*a**(119/2)*b**15*x**
15*sqrt(1 + b*x/a)/(63*a**70*b**6 + 945*a**69*b**7*x + 6615*a**68
*b**8*x**2 + 28665*a**67*b**9*x**3 + 85995*a**66*b**10*x**4 + 189
189*a**65*b**11*x**5 + 315315*a**64*b**12*x**6 + 405405*a**63*b**
13*x**7 + 405405*a**62*b**14*x**8 + 315315*a**61*b**15*x**9 + 189
189*a**60*b**16*x**10 + 85995*a**59*b**17*x**11 + 28665*a**58*b**
18*x**12 + 6615*a**57*b**19*x**13 + 945*a**56*b**20*x**14 + 63*a*
*55*b**21*x**15) - 512*a**(119/2)*b**15*x**15/(63*a**70*b**6 + 94
5*a**69*b**7*x + 6615*a**68*b**8*x**2 + 28665*a**67*b**9*x**3 + 8
5995*a**66*b**10*x**4 + 189189*a**65*b**11*x**5 + 315315*a**64*b*
*12*x**6 + 405405*a**63*b**13*x**7 + 405405*a**62*b**14*x**8 + 31
5315*a**61*b**15*x**9 + 189189*a**60*b**16*x**10 + 85995*a**59*b*
*17*x**11 + 28665*a**58*b**18*x**12 + 6615*a**57*b**19*x**13 + 94
5*a**56*b**20*x**14 + 63*a**55*b**21*x**15) + 3660*a**(117/2)*b**
16*x**16*sqrt(1 + b*x/a)/(63*a**70*b**6 + 945*a**69*b**7*x + 6615
*a**68*b**8*x**2 + 28665*a**67*b**9*x**3 + 85995*a**66*b**10*x**4
 + 189189*a**65*b**11*x**5 + 315315*a**64*b**12*x**6 + 405405*a**
63*b**13*x**7 + 405405*a**62*b**14*x**8 + 315315*a**61*b**15*x**9
 + 189189*a**60*b**16*x**10 + 85995*a**59*b**17*x**11 + 28665*a**
58*b**18*x**12 + 6615*a**57*b**19*x**13 + 945*a**56*b**20*x**14 +
 63*a**55*b**21*x**15) + 1026*a**(115/2)*b**17*x**17*sqrt(1 + b*x
/a)/(63*a**70*b**6 + 945*a**69*b**7*x + 6615*a**68*b**8*x**2 + 28
665*a**67*b**9*x**3 + 85995*a**66*b**10*x**4 + 189189*a**65*b**11
*x**5 + 315315*a**64*b**12*x**6 + 405405*a**63*b**13*x**7 + 40540
5*a**62*b**14*x**8 + 315315*a**61*b**15*x**9 + 189189*a**60*b**16
*x**10 + 85995*a**59*b**17*x**11 + 28665*a**58*b**18*x**12 + 6615
*a**57*b**19*x**13 + 945*a**56*b**20*x**14 + 63*a**55*b**21*x**15
) + 176*a**(113/2)*b**18*x**18*sqrt(1 + b*x/a)/(63*a**70*b**6 + 9
45*a**69*b**7*x + 6615*a**68*b**8*x**2 + 28665*a**67*b**9*x**3 +
85995*a**66*b**10*x**4 + 189189*a**65*b**11*x**5 + 315315*a**64*b
**12*x**6 + 405405*a**63*b**13*x**7 + 405405*a**62*b**14*x**8 + 3
15315*a**61*b**15*x**9 + 189189*a**60*b**16*x**10 + 85995*a**59*b
**17*x**11 + 28665*a**58*b**18*x**12 + 6615*a**57*b**19*x**13 + 9
45*a**56*b**20*x**14 + 63*a**55*b**21*x**15) + 14*a**(111/2)*b**1
9*x**19*sqrt(1 + b*x/a)/(63*a**70*b**6 + 945*a**69*b**7*x + 6615*
a**68*b**8*x**2 + 28665*a**67*b**9*x**3 + 85995*a**66*b**10*x**4
+ 189189*a**65*b**11*x**5 + 315315*a**64*b**12*x**6 + 405405*a**6
3*b**13*x**7 + 405405*a**62*b**14*x**8 + 315315*a**61*b**15*x**9
+ 189189*a**60*b**16*x**10 + 85995*a**59*b**17*x**11 + 28665*a**5
8*b**18*x**12 + 6615*a**57*b**19*x**13 + 945*a**56*b**20*x**14 +
63*a**55*b**21*x**15))
```

GIAC/XCAS [A] time = 0.21449, size = 224, normalized size = 1.52

$$\frac{2\left(Ba^5 - Aa^4b\right)}{\sqrt{bx+a}b^6} + \frac{2\left(35\,(bx+a)^{\frac{9}{2}}Bb^{48} - 225\,(bx+a)^{\frac{7}{2}}Bab^{48} + 630\,(bx+a)^{\frac{5}{2}}Ba^2b^{48} - 1050\,(bx+a)^{\frac{3}{2}}Ba^3b^{48} + 1575\,\sqrt{bx+a}Ba^4b^{48} + 45\,(bx+\right.}{315\,b^{54}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^4/(b*x + a)^(3/2),x, algorithm="giac")
```

```
[Out] 2*(B*a^5 - A*a^4*b)/(sqrt(b*x + a)*b^6) + 2/315*(35*(b*x + a)^(9/
2)*B*b^48 - 225*(b*x + a)^(7/2)*B*a*b^48 + 630*(b*x + a)^(5/2)*B*
a^2*b^48 - 1050*(b*x + a)^(3/2)*B*a^3*b^48 + 1575*sqrt(b*x + a)*B
*a^4*b^48 + 45*(b*x + a)^(7/2)*A*b^49 - 252*(b*x + a)^(5/2)*A*a*b
^49 + 630*(b*x + a)^(3/2)*A*a^2*b^49 - 1260*sqrt(b*x + a)*A*a^3*b
^49)/b^54
```

3.423 $\int \frac{x^3(A+Bx)}{(a+bx)^{3/2}}\,dx$

Optimal. Leaf size=116

$$\frac{2a^3(Ab-aB)}{b^5\sqrt{a+bx}}+\frac{2a^2\sqrt{a+bx}(3Ab-4aB)}{b^5}+\frac{2(a+bx)^{5/2}(Ab-4aB)}{5b^5}-\frac{2a(a+bx)^{3/2}(Ab-2aB)}{b^5}+\frac{2B(a+bx)^{7/2}}{7b^5}$$

```
[Out] (2*a^3*(A*b - a*B))/(b^5*Sqrt[a + b*x]) + (2*a^2*(3*A*b - 4*a*B)*
Sqrt[a + b*x])/b^5 - (2*a*(A*b - 2*a*B)*(a + b*x)^(3/2))/b^5 + (2
*(A*b - 4*a*B)*(a + b*x)^(5/2))/(5*b^5) + (2*B*(a + b*x)^(7/2))/(
7*b^5)
```

Rubi [A] time = 0.150607, antiderivative size = 116, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.056$

$$\frac{2a^3(Ab-aB)}{b^5\sqrt{a+bx}}+\frac{2a^2\sqrt{a+bx}(3Ab-4aB)}{b^5}+\frac{2(a+bx)^{5/2}(Ab-4aB)}{5b^5}-\frac{2a(a+bx)^{3/2}(Ab-2aB)}{b^5}+\frac{2B(a+bx)^{7/2}}{7b^5}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^3*(A + B*x))/(a + b*x)^(3/2),x]
```

```
[Out] (2*a^3*(A*b - a*B))/(b^5*Sqrt[a + b*x]) + (2*a^2*(3*A*b - 4*a*B)*
Sqrt[a + b*x])/b^5 - (2*a*(A*b - 2*a*B)*(a + b*x)^(3/2))/b^5 + (2
*(A*b - 4*a*B)*(a + b*x)^(5/2))/(5*b^5) + (2*B*(a + b*x)^(7/2))/(
7*b^5)
```

Rubi in Sympy [A] time = 21.7531, size = 114, normalized size = 0.98

$$\frac{2B\left(a+bx\right)^{\frac{7}{2}}}{7b^5}+\frac{2a^3\left(Ab-Ba\right)}{b^5\sqrt{a+bx}}+\frac{2a^2\sqrt{a+bx}\left(3Ab-4Ba\right)}{b^5}-\frac{2a\left(a+bx\right)^{\frac{3}{2}}\left(Ab-2Ba\right)}{b^5}+\frac{2\left(a+bx\right)^{\frac{5}{2}}\left(Ab-4Ba\right)}{5b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3*(B*x+A)/(b*x+a)**(3/2),x)
```

```
[Out] 2*B*(a + b*x)**(7/2)/(7*b**5) + 2*a**3*(A*b - B*a)/(b**5*sqrt(a +
 b*x)) + 2*a**2*sqrt(a + b*x)*(3*A*b - 4*B*a)/b**5 - 2*a*(a + b*x
)**(3/2)*(A*b - 2*B*a)/b**5 + 2*(a + b*x)**(5/2)*(A*b - 4*B*a)/(5
*b**5)
```

Mathematica [A] time = 0.0772596, size = 86, normalized size = 0.74

$$\frac{2\left(-128a^4B+16a^3b(7A-4Bx)+8a^2b^2x(7A+2Bx)-2ab^3x^2(7A+4Bx)+b^4x^3(7A+5Bx)\right)}{35b^5\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^3*(A + B*x))/(a + b*x)^(3/2),x]
```

```
[Out] (2*(-128*a^4*B + 16*a^3*b*(7*A - 4*B*x) + 8*a^2*b^2*x*(7*A + 2*B*
x) - 2*a*b^3*x^2*(7*A + 4*B*x) + b^4*x^3*(7*A + 5*B*x)))/(35*b^5*
Sqrt[a + b*x])
```

Maple [A] time = 0.009, size = 95, normalized size = 0.8

$$\frac{10 Bx^4b^4 + 14 Ab^4x^3 - 16 Bab^3x^3 - 28 Aab^3x^2 + 32 Ba^2b^2x^2 + 112 Aa^2b^2x - 128 Ba^3bx + 224 Aa^3b - 256 Ba^4}{35 b^5} \frac{1}{\sqrt{bx + a}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^3*(B*x+A)/(b*x+a)^(3/2),x)
```

```
[Out] 2/35/(b*x+a)^(1/2)*(5*B*b^4*x^4+7*A*b^4*x^3-8*B*a*b^3*x^3-14*A*a*
b^3*x^2+16*B*a^2*b^2*x^2+56*A*a^2*b^2*x-64*B*a^3*b*x+112*A*a^3*b-
128*B*a^4)/b^5
```

Maxima [A] time = 1.33945, size = 146, normalized size = 1.26

$$\frac{2\left(\frac{5\,(bx+a)^{\frac{7}{2}}B-7\,(4\,Ba-Ab)(bx+a)^{\frac{5}{2}}+35\left(2\,Ba^2-Aab\right)(bx+a)^{\frac{3}{2}}-35\left(4\,Ba^3-3\,Aa^2b\right)\sqrt{bx+a}}{b}-\frac{35\left(Ba^4-Aa^3b\right)}{\sqrt{bx+a}b}\right)}{35\,b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^3/(b*x + a)^(3/2),x, algorithm="maxima")
```

```
[Out] 2/35*((5*(b*x + a)^(7/2)*B - 7*(4*B*a - A*b)*(b*x + a)^(5/2) + 35
*(2*B*a^2 - A*a*b)*(b*x + a)^(3/2) - 35*(4*B*a^3 - 3*A*a^2*b)*sqr
t(b*x + a))/b - 35*(B*a^4 - A*a^3*b)/(sqrt(b*x + a)*b))/b^4
```

Fricas [A] time = 0.216857, size = 130, normalized size = 1.12

$$\frac{2\left(5\,Bb^4x^4-128\,Ba^4+112\,Aa^3b-\left(8\,Bab^3-7\,Ab^4\right)x^3+2\left(8\,Ba^2b^2-7\,Aab^3\right)x^2-8\left(8\,Ba^3b-7\,Aa^2b^2\right)x\right)}{35\,\sqrt{bx+a}b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^3/(b*x + a)^(3/2),x, algorithm="fricas")
```

```
[Out] 2/35*(5*B*b^4*x^4 - 128*B*a^4 + 112*A*a^3*b - (8*B*a*b^3 - 7*A*b^
4)*x^3 + 2*(8*B*a^2*b^2 - 7*A*a*b^3)*x^2 - 8*(8*B*a^3*b - 7*A*a^2
*b^2)*x)/(sqrt(b*x + a)*b^5)
```

Sympy [A] time = 25.5408, size = 5149, normalized size = 44.39

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**3*(B*x+A)/(b*x+a)**(3/2),x)
```

```
[Out] A*(32*a**(45/2)*sqrt(1 + b*x/a)/(5*a**20*b**4 + 30*a**19*b**5*x +
 75*a**18*b**6*x**2 + 100*a**17*b**7*x**3 + 75*a**16*b**8*x**4 +
30*a**15*b**9*x**5 + 5*a**14*b**10*x**6) - 32*a**(45/2)/(5*a**20*
b**4 + 30*a**19*b**5*x + 75*a**18*b**6*x**2 + 100*a**17*b**7*x**3
 + 75*a**16*b**8*x**4 + 30*a**15*b**9*x**5 + 5*a**14*b**10*x**6)
+ 176*a**(43/2)*b*x*sqrt(1 + b*x/a)/(5*a**20*b**4 + 30*a**19*b**5
*x + 75*a**18*b**6*x**2 + 100*a**17*b**7*x**3 + 75*a**16*b**8*x**
4 + 30*a**15*b**9*x**5 + 5*a**14*b**10*x**6) - 192*a**(43/2)*b*x/
(5*a**20*b**4 + 30*a**19*b**5*x + 75*a**18*b**6*x**2 + 100*a**17*
```

b**7*x**3 + 75*a**16*b**8*x**4 + 30*a**15*b**9*x**5 + 5*a**14*b**
10*x**6) + 396*a**(41/2)*b**2*x**2*sqrt(1 + b*x/a)/(5*a**20*b**4
+ 30*a**19*b**5*x + 75*a**18*b**6*x**2 + 100*a**17*b**7*x**3 + 75
*a**16*b**8*x**4 + 30*a**15*b**9*x**5 + 5*a**14*b**10*x**6) - 480
*a**(41/2)*b**2*x**2/(5*a**20*b**4 + 30*a**19*b**5*x + 75*a**18*b
6*x2 + 100*a**17*b**7*x**3 + 75*a**16*b**8*x**4 + 30*a**15*b*
*9*x**5 + 5*a**14*b**10*x**6) + 462*a**(39/2)*b**3*x**3*sqrt(1 +
b*x/a)/(5*a**20*b**4 + 30*a**19*b**5*x + 75*a**18*b**6*x**2 + 100
*a**17*b**7*x**3 + 75*a**16*b**8*x**4 + 30*a**15*b**9*x**5 + 5*a*
*14*b**10*x**6) - 640*a**(39/2)*b**3*x**3/(5*a**20*b**4 + 30*a**1
9*b**5*x + 75*a**18*b**6*x**2 + 100*a**17*b**7*x**3 + 75*a**16*b*
*8*x**4 + 30*a**15*b**9*x**5 + 5*a**14*b**10*x**6) + 290*a**(37/2
)*b**4*x**4*sqrt(1 + b*x/a)/(5*a**20*b**4 + 30*a**19*b**5*x + 75*
a**18*b**6*x**2 + 100*a**17*b**7*x**3 + 75*a**16*b**8*x**4 + 30*a
15*b9*x**5 + 5*a**14*b**10*x**6) - 480*a**(37/2)*b**4*x**4/(5
*a**20*b**4 + 30*a**19*b**5*x + 75*a**18*b**6*x**2 + 100*a**17*b*
*7*x**3 + 75*a**16*b**8*x**4 + 30*a**15*b**9*x**5 + 5*a**14*b**10
*x**6) + 92*a**(35/2)*b**5*x**5*sqrt(1 + b*x/a)/(5*a**20*b**4 + 3
0*a**19*b**5*x + 75*a**18*b**6*x**2 + 100*a**17*b**7*x**3 + 75*a*
*16*b**8*x**4 + 30*a**15*b**9*x**5 + 5*a**14*b**10*x**6) - 192*a*
*(35/2)*b**5*x**5/(5*a**20*b**4 + 30*a**19*b**5*x + 75*a**18*b**6
*x**2 + 100*a**17*b**7*x**3 + 75*a**16*b**8*x**4 + 30*a**15*b**9*
x**5 + 5*a**14*b**10*x**6) + 16*a**(33/2)*b**6*x**6*sqrt(1 + b*x/
a)/(5*a**20*b**4 + 30*a**19*b**5*x + 75*a**18*b**6*x**2 + 100*a**
17*b**7*x**3 + 75*a**16*b**8*x**4 + 30*a**15*b**9*x**5 + 5*a**14*
b**10*x**6) - 32*a**(33/2)*b**6*x**6/(5*a**20*b**4 + 30*a**19*b**
5*x + 75*a**18*b**6*x**2 + 100*a**17*b**7*x**3 + 75*a**16*b**8*x*
*4 + 30*a**15*b**9*x**5 + 5*a**14*b**10*x**6) + 6*a**(31/2)*b**7*
x**7*sqrt(1 + b*x/a)/(5*a**20*b**4 + 30*a**19*b**5*x + 75*a**18*b
6*x2 + 100*a**17*b**7*x**3 + 75*a**16*b**8*x**4 + 30*a**15*b*
*9*x**5 + 5*a**14*b**10*x**6) + 2*a**(29/2)*b**8*x**8*sqrt(1 + b*
x/a)/(5*a**20*b**4 + 30*a**19*b**5*x + 75*a**18*b**6*x**2 + 100*a
17*b7*x**3 + 75*a**16*b**8*x**4 + 30*a**15*b**9*x**5 + 5*a**1
4*b**10*x**6)) + B*(-256*a**(87/2)*sqrt(1 + b*x/a)/(35*a**40*b**5
+ 350*a**39*b**6*x + 1575*a**38*b**7*x**2 + 4200*a**37*b**8*x**3
+ 7350*a**36*b**9*x**4 + 8820*a**35*b**10*x**5 + 7350*a**34*b**1
1*x**6 + 4200*a**33*b**12*x**7 + 1575*a**32*b**13*x**8 + 350*a**3
1*b**14*x**9 + 35*a**30*b**15*x**10) + 256*a**(87/2)/(35*a**40*b*
*5 + 350*a**39*b**6*x + 1575*a**38*b**7*x**2 + 4200*a**37*b**8*x*
*3 + 7350*a**36*b**9*x**4 + 8820*a**35*b**10*x**5 + 7350*a**34*b*
*11*x**6 + 4200*a**33*b**12*x**7 + 1575*a**32*b**13*x**8 + 350*a*
*31*b**14*x**9 + 35*a**30*b**15*x**10) - 2432*a**(85/2)*b*x*sqrt(
1 + b*x/a)/(35*a**40*b**5 + 350*a**39*b**6*x + 1575*a**38*b**7*x*
*2 + 4200*a**37*b**8*x**3 + 7350*a**36*b**9*x**4 + 8820*a**35*b**
10*x**5 + 7350*a**34*b**11*x**6 + 4200*a**33*b**12*x**7 + 1575*a*
*32*b**13*x**8 + 350*a**31*b**14*x**9 + 35*a**30*b**15*x**10) + 2
560*a**(85/2)*b*x/(35*a**40*b**5 + 350*a**39*b**6*x + 1575*a**38*
b**7*x**2 + 4200*a**37*b**8*x**3 + 7350*a**36*b**9*x**4 + 8820*a*
*35*b**10*x**5 + 7350*a**34*b**11*x**6 + 4200*a**33*b**12*x**7 +
1575*a**32*b**13*x**8 + 350*a**31*b**14*x**9 + 35*a**30*b**15*x**
10) - 10336*a**(83/2)*b**2*x**2*sqrt(1 + b*x/a)/(35*a**40*b**5 +
350*a**39*b**6*x + 1575*a**38*b**7*x**2 + 4200*a**37*b**8*x**3 +
7350*a**36*b**9*x**4 + 8820*a**35*b**10*x**5 + 7350*a**34*b**11*x
6 + 4200*a33*b**12*x**7 + 1575*a**32*b**13*x**8 + 350*a**31*b
14*x9 + 35*a**30*b**15*x**10) + 11520*a**(83/2)*b**2*x**2/(35
*a**40*b**5 + 350*a**39*b**6*x + 1575*a**38*b**7*x**2 + 4200*a**3
7*b**8*x**3 + 7350*a**36*b**9*x**4 + 8820*a**35*b**10*x**5 + 7350
*a**34*b**11*x**6 + 4200*a**33*b**12*x**7 + 1575*a**32*b**13*x**8
+ 350*a**31*b**14*x**9 + 35*a**30*b**15*x**10) - 25840*a**(81/2)
*b**3*x**3*sqrt(1 + b*x/a)/(35*a**40*b**5 + 350*a**39*b**6*x + 15
75*a**38*b**7*x**2 + 4200*a**37*b**8*x**3 + 7350*a**36*b**9*x**4
+ 8820*a**35*b**10*x**5 + 7350*a**34*b**11*x**6 + 4200*a**33*b**1
2*x**7 + 1575*a**32*b**13*x**8 + 350*a**31*b**14*x**9 + 35*a**30*
b**15*x**10) + 30720*a**(81/2)*b**3*x**3/(35*a**40*b**5 + 350*a**
39*b**6*x + 1575*a**38*b**7*x**2 + 4200*a**37*b**8*x**3 + 7350*a*
*36*b**9*x**4 + 8820*a**35*b**10*x**5 + 7350*a**34*b**11*x**6 + 4
200*a**33*b**12*x**7 + 1575*a**32*b**13*x**8 + 350*a**31*b**14*x*
*9 + 35*a**30*b**15*x**10) - 41990*a**(79/2)*b**4*x**4*sqrt(1 + b
*x/a)/(35*a**40*b**5 + 350*a**39*b**6*x + 1575*a**38*b**7*x**2 +
4200*a**37*b**8*x**3 + 7350*a**36*b**9*x**4 + 8820*a**35*b**10*x*
*5 + 7350*a**34*b**11*x**6 + 4200*a**33*b**12*x**7 + 1575*a**32*b
13*x8 + 350*a**31*b**14*x**9 + 35*a**30*b**15*x**10) + 53760*
a**(79/2)*b**4*x**4/(35*a**40*b**5 + 350*a**39*b**6*x + 1575*a**3
8*b**7*x**2 + 4200*a**37*b**8*x**3 + 7350*a**36*b**9*x**4 + 8820*

```
a**35*b**10*x**5 + 7350*a**34*b**11*x**6 + 4200*a**33*b**12*x**7
+ 1575*a**32*b**13*x**8 + 350*a**31*b**14*x**9 + 35*a**30*b**15*x
**10) - 46182*a**(77/2)*b**5*x**5*sqrt(1 + b*x/a)/(35*a**40*b**5
+ 350*a**39*b**6*x + 1575*a**38*b**7*x**2 + 4200*a**37*b**8*x**3
+ 7350*a**36*b**9*x**4 + 8820*a**35*b**10*x**5 + 7350*a**34*b**11
*x**6 + 4200*a**33*b**12*x**7 + 1575*a**32*b**13*x**8 + 350*a**31
*b**14*x**9 + 35*a**30*b**15*x**10) + 64512*a**(77/2)*b**5*x**5/(
35*a**40*b**5 + 350*a**39*b**6*x + 1575*a**38*b**7*x**2 + 4200*a*
*37*b**8*x**3 + 7350*a**36*b**9*x**4 + 8820*a**35*b**10*x**5 + 73
50*a**34*b**11*x**6 + 4200*a**33*b**12*x**7 + 1575*a**32*b**13*x*
*8 + 350*a**31*b**14*x**9 + 35*a**30*b**15*x**10) - 34584*a**(75/
2)*b**6*x**6*sqrt(1 + b*x/a)/(35*a**40*b**5 + 350*a**39*b**6*x +
1575*a**38*b**7*x**2 + 4200*a**37*b**8*x**3 + 7350*a**36*b**9*x**
4 + 8820*a**35*b**10*x**5 + 7350*a**34*b**11*x**6 + 4200*a**33*b*
*12*x**7 + 1575*a**32*b**13*x**8 + 350*a**31*b**14*x**9 + 35*a**3
0*b**15*x**10) + 53760*a**(75/2)*b**6*x**6/(35*a**40*b**5 + 350*a
**39*b**6*x + 1575*a**38*b**7*x**2 + 4200*a**37*b**8*x**3 + 7350*
a**36*b**9*x**4 + 8820*a**35*b**10*x**5 + 7350*a**34*b**11*x**6 +
 4200*a**33*b**12*x**7 + 1575*a**32*b**13*x**8 + 350*a**31*b**14*
x**9 + 35*a**30*b**15*x**10) - 17112*a**(73/2)*b**7*x**7*sqrt(1 +
 b*x/a)/(35*a**40*b**5 + 350*a**39*b**6*x + 1575*a**38*b**7*x**2
+ 4200*a**37*b**8*x**3 + 7350*a**36*b**9*x**4 + 8820*a**35*b**10*
x**5 + 7350*a**34*b**11*x**6 + 4200*a**33*b**12*x**7 + 1575*a**32
*b**13*x**8 + 350*a**31*b**14*x**9 + 35*a**30*b**15*x**10) + 3072
0*a**(73/2)*b**7*x**7/(35*a**40*b**5 + 350*a**39*b**6*x + 1575*a*
*38*b**7*x**2 + 4200*a**37*b**8*x**3 + 7350*a**36*b**9*x**4 + 882
0*a**35*b**10*x**5 + 7350*a**34*b**11*x**6 + 4200*a**33*b**12*x**
7 + 1575*a**32*b**13*x**8 + 350*a**31*b**14*x**9 + 35*a**30*b**15
*x**10) - 4980*a**(71/2)*b**8*x**8*sqrt(1 + b*x/a)/(35*a**40*b**5
 + 350*a**39*b**6*x + 1575*a**38*b**7*x**2 + 4200*a**37*b**8*x**3
 + 7350*a**36*b**9*x**4 + 8820*a**35*b**10*x**5 + 7350*a**34*b**1
1*x**6 + 4200*a**33*b**12*x**7 + 1575*a**32*b**13*x**8 + 350*a**3
1*b**14*x**9 + 35*a**30*b**15*x**10) + 11520*a**(71/2)*b**8*x**8/
(35*a**40*b**5 + 350*a**39*b**6*x + 1575*a**38*b**7*x**2 + 4200*a
**37*b**8*x**3 + 7350*a**36*b**9*x**4 + 8820*a**35*b**10*x**5 + 7
350*a**34*b**11*x**6 + 4200*a**33*b**12*x**7 + 1575*a**32*b**13*x
**8 + 350*a**31*b**14*x**9 + 35*a**30*b**15*x**10) - 340*a**(69/2
)*b**9*x**9*sqrt(1 + b*x/a)/(35*a**40*b**5 + 350*a**39*b**6*x + 1
575*a**38*b**7*x**2 + 4200*a**37*b**8*x**3 + 7350*a**36*b**9*x**4
 + 8820*a**35*b**10*x**5 + 7350*a**34*b**11*x**6 + 4200*a**33*b**
12*x**7 + 1575*a**32*b**13*x**8 + 350*a**31*b**14*x**9 + 35*a**30
*b**15*x**10) + 2560*a**(69/2)*b**9*x**9/(35*a**40*b**5 + 350*a**
39*b**6*x + 1575*a**38*b**7*x**2 + 4200*a**37*b**8*x**3 + 7350*a*
*36*b**9*x**4 + 8820*a**35*b**10*x**5 + 7350*a**34*b**11*x**6 + 4
200*a**33*b**12*x**7 + 1575*a**32*b**13*x**8 + 350*a**31*b**14*x*
*9 + 35*a**30*b**15*x**10) + 424*a**(67/2)*b**10*x**10*sqrt(1 + b
*x/a)/(35*a**40*b**5 + 350*a**39*b**6*x + 1575*a**38*b**7*x**2 +
4200*a**37*b**8*x**3 + 7350*a**36*b**9*x**4 + 8820*a**35*b**10*x*
*5 + 7350*a**34*b**11*x**6 + 4200*a**33*b**12*x**7 + 1575*a**32*b
**13*x**8 + 350*a**31*b**14*x**9 + 35*a**30*b**15*x**10) + 256*a*
*(67/2)*b**10*x**10/(35*a**40*b**5 + 350*a**39*b**6*x + 1575*a**3
8*b**7*x**2 + 4200*a**37*b**8*x**3 + 7350*a**36*b**9*x**4 + 8820*
a**35*b**10*x**5 + 7350*a**34*b**11*x**6 + 4200*a**33*b**12*x**7
+ 1575*a**32*b**13*x**8 + 350*a**31*b**14*x**9 + 35*a**30*b**15*x
**10) + 248*a**(65/2)*b**11*x**11*sqrt(1 + b*x/a)/(35*a**40*b**5
+ 350*a**39*b**6*x + 1575*a**38*b**7*x**2 + 4200*a**37*b**8*x**3
+ 7350*a**36*b**9*x**4 + 8820*a**35*b**10*x**5 + 7350*a**34*b**11
*x**6 + 4200*a**33*b**12*x**7 + 1575*a**32*b**13*x**8 + 350*a**31
*b**14*x**9 + 35*a**30*b**15*x**10) + 74*a**(63/2)*b**12*x**12*sq
rt(1 + b*x/a)/(35*a**40*b**5 + 350*a**39*b**6*x + 1575*a**38*b**7
*x**2 + 4200*a**37*b**8*x**3 + 7350*a**36*b**9*x**4 + 8820*a**35*
b**10*x**5 + 7350*a**34*b**11*x**6 + 4200*a**33*b**12*x**7 + 1575
*a**32*b**13*x**8 + 350*a**31*b**14*x**9 + 35*a**30*b**15*x**10)
+ 10*a**(61/2)*b**13*x**13*sqrt(1 + b*x/a)/(35*a**40*b**5 + 350*a
**39*b**6*x + 1575*a**38*b**7*x**2 + 4200*a**37*b**8*x**3 + 7350*
a**36*b**9*x**4 + 8820*a**35*b**10*x**5 + 7350*a**34*b**11*x**6 +
 4200*a**33*b**12*x**7 + 1575*a**32*b**13*x**8 + 350*a**31*b**14*
x**9 + 35*a**30*b**15*x**10))
```

GIAC/XCAS [A] time = 0.215253, size = 181, normalized size = 1.56

$$-\frac{2\left(Ba^4 - Aa^3b\right)}{\sqrt{bx+a}b^5} + \frac{2\left(5\,(bx+a)^{\frac{7}{2}}Bb^{30} - 28\,(bx+a)^{\frac{5}{2}}Bab^{30} + 70\,(bx+a)^{\frac{3}{2}}Ba^2b^{30} - 140\,\sqrt{bx+a}Ba^3b^{30} + 7\,(bx+a)^{\frac{5}{2}}Ab^{31} - 35\,(bx+a)^{\frac{3}{2}}Aab^{31}\right.}{35\,b^{35}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^3/(b*x + a)^(3/2),x, algorithm="giac")
```

```
[Out] -2*(B*a^4 - A*a^3*b)/(sqrt(b*x + a)*b^5) + 2/35*(5*(b*x + a)^(7/2
)*B*b^30 - 28*(b*x + a)^(5/2)*B*a*b^30 + 70*(b*x + a)^(3/2)*B*a^2
*b^30 - 140*sqrt(b*x + a)*B*a^3*b^30 + 7*(b*x + a)^(5/2)*A*b^31 -
 35*(b*x + a)^(3/2)*A*a*b^31 + 105*sqrt(b*x + a)*A*a^2*b^31)/b^35
```

3.424 $\int \frac{x^2(A+Bx)}{(a+bx)^{3/2}}\,dx$

Optimal. Leaf size=91

$$-\frac{2a^2(Ab-aB)}{b^4\sqrt{a+bx}}+\frac{2(a+bx)^{3/2}(Ab-3aB)}{3b^4}-\frac{2a\sqrt{a+bx}(2Ab-3aB)}{b^4}+\frac{2B(a+bx)^{5/2}}{5b^4}$$

```
[Out] (-2*a^2*(A*b - a*B))/(b^4*Sqrt[a + b*x]) - (2*a*(2*A*b - 3*a*B)*S
qrt[a + b*x])/b^4 + (2*(A*b - 3*a*B)*(a + b*x)^(3/2))/(3*b^4) + (
2*B*(a + b*x)^(5/2))/(5*b^4)
```

Rubi [A] time = 0.120091, antiderivative size = 91, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{2a^2(Ab-aB)}{b^4\sqrt{a+bx}}+\frac{2(a+bx)^{3/2}(Ab-3aB)}{3b^4}-\frac{2a\sqrt{a+bx}(2Ab-3aB)}{b^4}+\frac{2B(a+bx)^{5/2}}{5b^4}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^2*(A + B*x))/(a + b*x)^(3/2),x]
```

```
[Out] (-2*a^2*(A*b - a*B))/(b^4*Sqrt[a + b*x]) - (2*a*(2*A*b - 3*a*B)*S
qrt[a + b*x])/b^4 + (2*(A*b - 3*a*B)*(a + b*x)^(3/2))/(3*b^4) + (
2*B*(a + b*x)^(5/2))/(5*b^4)
```

Rubi in Sympy [A] time = 16.1526, size = 88, normalized size = 0.97

$$\frac{2B\left(a+bx\right)^{\frac{5}{2}}}{5b^4}-\frac{2a^2\left(Ab-Ba\right)}{b^4\sqrt{a+bx}}-\frac{2a\sqrt{a+bx}\left(2Ab-3Ba\right)}{b^4}+\frac{2\left(a+bx\right)^{\frac{3}{2}}\left(Ab-3Ba\right)}{3b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(B*x+A)/(b*x+a)**(3/2),x)
```

```
[Out] 2*B*(a + b*x)**(5/2)/(5*b**4) - 2*a**2*(A*b - B*a)/(b**4*sqrt(a +
 b*x)) - 2*a*sqrt(a + b*x)*(2*A*b - 3*B*a)/b**4 + 2*(a + b*x)**(3
/2)*(A*b - 3*B*a)/(3*b**4)
```

Mathematica [A] time = 0.062989, size = 67, normalized size = 0.74

$$\frac{2\left(48a^3B-8a^2b(5A-3Bx)-2ab^2x(10A+3Bx)+b^3x^2(5A+3Bx)\right)}{15b^4\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^2*(A + B*x))/(a + b*x)^(3/2),x]
```

```
[Out] (2*(48*a^3*B - 8*a^2*b*(5*A - 3*B*x) + b^3*x^2*(5*A + 3*B*x) - 2*
a*b^2*x*(10*A + 3*B*x)))/(15*b^4*Sqrt[a + b*x])
```

Maple [A] time = 0.008, size = 71, normalized size = 0.8

$$-\frac{-6\,b^3Bx^3-10\,Ax^2b^3+12\,Bx^2ab^2+40\,Axab^2-48\,Bxa^2b+80\,Aa^2b-96\,Ba^3}{15\,b^4}\frac{1}{\sqrt{bx+a}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(B*x+A)/(b*x+a)^(3/2),x)
```

```
[Out] -2/15/(b*x+a)^(1/2)*(-3*B*b^3*x^3-5*A*b^3*x^2+6*B*a*b^2*x^2+20*A*
a*b^2*x-24*B*a^2*b*x+40*A*a^2*b-48*B*a^3)/b^4
```

Maxima [A] time = 1.32583, size = 115, normalized size = 1.26

$$\frac{2\left(\frac{3(bx+a)^{\frac{5}{2}}B-5(3Ba-Ab)(bx+a)^{\frac{3}{2}}+15(3Ba^2-2Aab)\sqrt{bx+a}}{b}+\frac{15(Ba^3-Aa^2b)}{\sqrt{bx+a}b}\right)}{15b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^2/(b*x + a)^(3/2),x, algorithm="maxima")
```

```
[Out] 2/15*((3*(b*x + a)^(5/2)*B - 5*(3*B*a - A*b)*(b*x + a)^(3/2) + 15
*(3*B*a^2 - 2*A*a*b)*sqrt(b*x + a))/b + 15*(B*a^3 - A*a^2*b)/(sqr
t(b*x + a)*b))/b^3
```

Fricas [A] time = 0.213886, size = 97, normalized size = 1.07

$$\frac{2\left(3Bb^3x^3+48Ba^3-40Aa^2b-\left(6Bab^2-5Ab^3\right)x^2+4\left(6Ba^2b-5Aab^2\right)x\right)}{15\sqrt{bx+a}b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^2/(b*x + a)^(3/2),x, algorithm="fricas")
```

```
[Out] 2/15*(3*B*b^3*x^3 + 48*B*a^3 - 40*A*a^2*b - (6*B*a*b^2 - 5*A*b^3)
*x^2 + 4*(6*B*a^2*b - 5*A*a*b^2)*x)/(sqrt(b*x + a)*b^4)
```

Sympy [A] time = 16.7459, size = 2077, normalized size = 22.82

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(B*x+A)/(b*x+a)**(3/2),x)
```

```
[Out] A*(-16*a**(19/2)*sqrt(1 + b*x/a)/(3*a**8*b**3 + 9*a**7*b**4*x + 9
*a**6*b**5*x**2 + 3*a**5*b**6*x**3) + 16*a**(19/2)/(3*a**8*b**3 +
 9*a**7*b**4*x + 9*a**6*b**5*x**2 + 3*a**5*b**6*x**3) - 40*a**(17
/2)*b*x*sqrt(1 + b*x/a)/(3*a**8*b**3 + 9*a**7*b**4*x + 9*a**6*b**
5*x**2 + 3*a**5*b**6*x**3) + 48*a**(17/2)*b*x/(3*a**8*b**3 + 9*a*
*7*b**4*x + 9*a**6*b**5*x**2 + 3*a**5*b**6*x**3) - 30*a**(15/2)*b
**2*x**2*sqrt(1 + b*x/a)/(3*a**8*b**3 + 9*a**7*b**4*x + 9*a**6*b*
*5*x**2 + 3*a**5*b**6*x**3) + 48*a**(15/2)*b**2*x**2/(3*a**8*b**3
 + 9*a**7*b**4*x + 9*a**6*b**5*x**2 + 3*a**5*b**6*x**3) - 4*a**(1
3/2)*b**3*x**3*sqrt(1 + b*x/a)/(3*a**8*b**3 + 9*a**7*b**4*x + 9*a
**6*b**5*x**2 + 3*a**5*b**6*x**3) + 16*a**(13/2)*b**3*x**3/(3*a**
8*b**3 + 9*a**7*b**4*x + 9*a**6*b**5*x**2 + 3*a**5*b**6*x**3) + 2
*a**(11/2)*b**4*x**4*sqrt(1 + b*x/a)/(3*a**8*b**3 + 9*a**7*b**4*x
 + 9*a**6*b**5*x**2 + 3*a**5*b**6*x**3)) + B*(32*a**(45/2)*sqrt(1
 + b*x/a)/(5*a**20*b**4 + 30*a**19*b**5*x + 75*a**18*b**6*x**2 +
100*a**17*b**7*x**3 + 75*a**16*b**8*x**4 + 30*a**15*b**9*x**5 + 5
*a**14*b**10*x**6) - 32*a**(45/2)/(5*a**20*b**4 + 30*a**19*b**5*x
 + 75*a**18*b**6*x**2 + 100*a**17*b**7*x**3 + 75*a**16*b**8*x**4
```

```
+ 30*a**15*b**9*x**5 + 5*a**14*b**10*x**6) + 176*a**(43/2)*b*x*sq
rt(1 + b*x/a)/(5*a**20*b**4 + 30*a**19*b**5*x + 75*a**18*b**6*x**
2 + 100*a**17*b**7*x**3 + 75*a**16*b**8*x**4 + 30*a**15*b**9*x**5
 + 5*a**14*b**10*x**6) - 192*a**(43/2)*b*x/(5*a**20*b**4 + 30*a**
19*b**5*x + 75*a**18*b**6*x**2 + 100*a**17*b**7*x**3 + 75*a**16*b
**8*x**4 + 30*a**15*b**9*x**5 + 5*a**14*b**10*x**6) + 396*a**(41/
2)*b**2*x**2*sqrt(1 + b*x/a)/(5*a**20*b**4 + 30*a**19*b**5*x + 75
*a**18*b**6*x**2 + 100*a**17*b**7*x**3 + 75*a**16*b**8*x**4 + 30*
a**15*b**9*x**5 + 5*a**14*b**10*x**6) - 480*a**(41/2)*b**2*x**2/(
5*a**20*b**4 + 30*a**19*b**5*x + 75*a**18*b**6*x**2 + 100*a**17*b
**7*x**3 + 75*a**16*b**8*x**4 + 30*a**15*b**9*x**5 + 5*a**14*b**1
0*x**6) + 462*a**(39/2)*b**3*x**3*sqrt(1 + b*x/a)/(5*a**20*b**4 +
 30*a**19*b**5*x + 75*a**18*b**6*x**2 + 100*a**17*b**7*x**3 + 75*
a**16*b**8*x**4 + 30*a**15*b**9*x**5 + 5*a**14*b**10*x**6) - 640*
a**(39/2)*b**3*x**3/(5*a**20*b**4 + 30*a**19*b**5*x + 75*a**18*b*
*6*x**2 + 100*a**17*b**7*x**3 + 75*a**16*b**8*x**4 + 30*a**15*b**
9*x**5 + 5*a**14*b**10*x**6) + 290*a**(37/2)*b**4*x**4*sqrt(1 + b
*x/a)/(5*a**20*b**4 + 30*a**19*b**5*x + 75*a**18*b**6*x**2 + 100*
a**17*b**7*x**3 + 75*a**16*b**8*x**4 + 30*a**15*b**9*x**5 + 5*a**
14*b**10*x**6) - 480*a**(37/2)*b**4*x**4/(5*a**20*b**4 + 30*a**19
*b**5*x + 75*a**18*b**6*x**2 + 100*a**17*b**7*x**3 + 75*a**16*b**
8*x**4 + 30*a**15*b**9*x**5 + 5*a**14*b**10*x**6) + 92*a**(35/2)*
b**5*x**5*sqrt(1 + b*x/a)/(5*a**20*b**4 + 30*a**19*b**5*x + 75*a*
*18*b**6*x**2 + 100*a**17*b**7*x**3 + 75*a**16*b**8*x**4 + 30*a**
15*b**9*x**5 + 5*a**14*b**10*x**6) - 192*a**(35/2)*b**5*x**5/(5*a
**20*b**4 + 30*a**19*b**5*x + 75*a**18*b**6*x**2 + 100*a**17*b**7
*x**3 + 75*a**16*b**8*x**4 + 30*a**15*b**9*x**5 + 5*a**14*b**10*x
**6) + 16*a**(33/2)*b**6*x**6*sqrt(1 + b*x/a)/(5*a**20*b**4 + 30*
a**19*b**5*x + 75*a**18*b**6*x**2 + 100*a**17*b**7*x**3 + 75*a**1
6*b**8*x**4 + 30*a**15*b**9*x**5 + 5*a**14*b**10*x**6) - 32*a**(3
3/2)*b**6*x**6/(5*a**20*b**4 + 30*a**19*b**5*x + 75*a**18*b**6*x*
*2 + 100*a**17*b**7*x**3 + 75*a**16*b**8*x**4 + 30*a**15*b**9*x**
5 + 5*a**14*b**10*x**6) + 6*a**(31/2)*b**7*x**7*sqrt(1 + b*x/a)/(
5*a**20*b**4 + 30*a**19*b**5*x + 75*a**18*b**6*x**2 + 100*a**17*b
**7*x**3 + 75*a**16*b**8*x**4 + 30*a**15*b**9*x**5 + 5*a**14*b**1
0*x**6) + 2*a**(29/2)*b**8*x**8*sqrt(1 + b*x/a)/(5*a**20*b**4 + 3
0*a**19*b**5*x + 75*a**18*b**6*x**2 + 100*a**17*b**7*x**3 + 75*a*
*16*b**8*x**4 + 30*a**15*b**9*x**5 + 5*a**14*b**10*x**6))
```

GIAC/XCAS [A] time = 0.223806, size = 138, normalized size = 1.52

$$\frac{2\left(Ba^3 - Aa^2b\right)}{\sqrt{bx + a}b^4} + \frac{2\left(3\,(bx + a)^{\frac{5}{2}}Bb^{16} - 15\,(bx + a)^{\frac{3}{2}}Bab^{16} + 45\,\sqrt{bx + a}Ba^2b^{16} + 5\,(bx + a)^{\frac{3}{2}}Ab^{17} - 30\,\sqrt{bx + a}Aab^{17}\right)}{15\,b^{20}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^2/(b*x + a)^(3/2),x, algorithm="giac")
```

```
[Out] 2*(B*a^3 - A*a^2*b)/(sqrt(b*x + a)*b^4) + 2/15*(3*(b*x + a)^(5/2)
*B*b^16 - 15*(b*x + a)^(3/2)*B*a*b^16 + 45*sqrt(b*x + a)*B*a^2*b^
16 + 5*(b*x + a)^(3/2)*A*b^17 - 30*sqrt(b*x + a)*A*a*b^17)/b^20
```

3.425 $\int \frac{x(A+Bx)}{(a+bx)^{3/2}}\,dx$

Optimal. Leaf size=63

$$\frac{2\sqrt{a+bx}(Ab-2aB)}{b^3}+\frac{2a(Ab-aB)}{b^3\sqrt{a+bx}}+\frac{2B(a+bx)^{3/2}}{3b^3}$$

```
[Out] (2*a*(A*b - a*B))/(b^3*Sqrt[a + b*x]) + (2*(A*b - 2*a*B)*Sqrt[a +
 b*x])/b^3 + (2*B*(a + b*x)^(3/2))/(3*b^3)
```

Rubi [A] time = 0.0789107, antiderivative size = 63, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$\frac{2\sqrt{a+bx}(Ab-2aB)}{b^3}+\frac{2a(Ab-aB)}{b^3\sqrt{a+bx}}+\frac{2B(a+bx)^{3/2}}{3b^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(x*(A + B*x))/(a + b*x)^(3/2),x]
```

```
[Out] (2*a*(A*b - a*B))/(b^3*Sqrt[a + b*x]) + (2*(A*b - 2*a*B)*Sqrt[a +
 b*x])/b^3 + (2*B*(a + b*x)^(3/2))/(3*b^3)
```

Rubi in Sympy [A] time = 11.6889, size = 60, normalized size = 0.95

$$\frac{2B\,(a+bx)^{\frac{3}{2}}}{3b^3}+\frac{2a\,(Ab-Ba)}{b^3\sqrt{a+bx}}+\frac{2\sqrt{a+bx}\,(Ab-2Ba)}{b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(B*x+A)/(b*x+a)**(3/2),x)
```

```
[Out] 2*B*(a + b*x)**(3/2)/(3*b**3) + 2*a*(A*b - B*a)/(b**3*sqrt(a + b*
x)) + 2*sqrt(a + b*x)*(A*b - 2*B*a)/b**3
```

Mathematica [A] time = 0.0447637, size = 47, normalized size = 0.75

$$\frac{2\left(-8a^2B+a(6Ab-4bBx)+b^2x(3A+Bx)\right)}{3b^3\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x*(A + B*x))/(a + b*x)^(3/2),x]
```

```
[Out] (2*(-8*a^2*B + b^2*x*(3*A + B*x) + a*(6*A*b - 4*b*B*x)))/(3*b^3*S
qrt[a + b*x])
```

Maple [A] time = 0.006, size = 46, normalized size = 0.7

$$\frac{2\,b^2Bx^2+6\,Axb^2-8\,Bxab+12\,Aab-16\,Ba^2}{3\,b^3}\frac{1}{\sqrt{bx+a}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(B*x+A)/(b*x+a)^(3/2),x)
```

```
[Out] 2/3/(b*x+a)^(1/2)*(B*b^2*x^2+3*A*b^2*x-4*B*a*b*x+6*A*a*b-8*B*a^2)
/b^3
```

Maxima [A] time = 1.34032, size = 82, normalized size = 1.3

$$\frac{2\left(\frac{(bx+a)^{\frac{3}{2}}B-3\,(2\,Ba-Ab)\sqrt{bx+a}}{b}-\frac{3\,(Ba^2-Aab)}{\sqrt{bx+a}b}\right)}{3\,b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x/(b*x + a)^(3/2),x, algorithm="maxima")
```

```
[Out] 2/3*(((b*x + a)^(3/2)*B - 3*(2*B*a - A*b)*sqrt(b*x + a))/b - 3*(B
*a^2 - A*a*b)/(sqrt(b*x + a)*b))/b^2
```

Fricas [A] time = 0.209956, size = 63, normalized size = 1.

$$\frac{2\left(Bb^2x^2-8\,Ba^2+6\,Aab-\left(4\,Bab-3\,Ab^2\right)x\right)}{3\,\sqrt{bx+a}b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x/(b*x + a)^(3/2),x, algorithm="fricas")
```

```
[Out] 2/3*(B*b^2*x^2 - 8*B*a^2 + 6*A*a*b - (4*B*a*b - 3*A*b^2)*x)/(sqrt
(b*x + a)*b^3)
```

Sympy [A] time = 10.7912, size = 576, normalized size = 9.14

$$A\left(\begin{cases}\frac{4a}{b^2\sqrt{a+bx}}+\frac{2x}{b\sqrt{a+bx}} & \text{for } b\neq 0\\ \frac{x^2}{2a^{\frac{3}{2}}} & \text{otherwise}\end{cases}\right)+B\left(-\frac{16a^{\frac{19}{2}}\sqrt{1+\frac{bx}{a}}}{3a^8b^3+9a^7b^4x+9a^6b^5x^2+3a^5b^6x^3}\right.$$
$$+\frac{16a^{\frac{19}{2}}}{3a^8b^3+9a^7b^4x+9a^6b^5x^2+3a^5b^6x^3}-\frac{40a^{\frac{17}{2}}bx\sqrt{1+\frac{bx}{a}}}{3a^8b^3+9a^7b^4x+9a^6b^5x^2+3a^5b^6x^3}$$
$$+\frac{48a^{\frac{17}{2}}bx}{3a^8b^3+9a^7b^4x+9a^6b^5x^2+3a^5b^6x^3}-\frac{30a^{\frac{15}{2}}b^2x^2\sqrt{1+\frac{bx}{a}}}{3a^8b^3+9a^7b^4x+9a^6b^5x^2+3a^5b^6x^3}$$
$$+\frac{48a^{\frac{15}{2}}b^2x^2}{3a^8b^3+9a^7b^4x+9a^6b^5x^2+3a^5b^6x^3}-\frac{4a^{\frac{13}{2}}b^3x^3\sqrt{1+\frac{bx}{a}}}{3a^8b^3+9a^7b^4x+9a^6b^5x^2+3a^5b^6x^3}$$
$$\left.+\frac{16a^{\frac{13}{2}}b^3x^3}{3a^8b^3+9a^7b^4x+9a^6b^5x^2+3a^5b^6x^3}+\frac{2a^{\frac{11}{2}}b^4x^4\sqrt{1+\frac{bx}{a}}}{3a^8b^3+9a^7b^4x+9a^6b^5x^2+3a^5b^6x^3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(B*x+A)/(b*x+a)**(3/2),x)
```

```
[Out] A*Piecewise((4*a/(b**2*sqrt(a + b*x)) + 2*x/(b*sqrt(a + b*x)), Ne
(b, 0)), (x**2/(2*a**(3/2)), True)) + B*(-16*a**(19/2)*sqrt(1 + b
*x/a)/(3*a**8*b**3 + 9*a**7*b**4*x + 9*a**6*b**5*x**2 + 3*a**5*b*
*6*x**3) + 16*a**(19/2)/(3*a**8*b**3 + 9*a**7*b**4*x + 9*a**6*b**
5*x**2 + 3*a**5*b**6*x**3) - 40*a**(17/2)*b*x*sqrt(1 + b*x/a)/(3*
```

```
a**8*b**3 + 9*a**7*b**4*x + 9*a**6*b**5*x**2 + 3*a**5*b**6*x**3)
+ 48*a**(17/2)*b*x/(3*a**8*b**3 + 9*a**7*b**4*x + 9*a**6*b**5*x**
2 + 3*a**5*b**6*x**3) - 30*a**(15/2)*b**2*x**2*sqrt(1 + b*x/a)/(3
*a**8*b**3 + 9*a**7*b**4*x + 9*a**6*b**5*x**2 + 3*a**5*b**6*x**3)
 + 48*a**(15/2)*b**2*x**2/(3*a**8*b**3 + 9*a**7*b**4*x + 9*a**6*b
**5*x**2 + 3*a**5*b**6*x**3) - 4*a**(13/2)*b**3*x**3*sqrt(1 + b*x
/a)/(3*a**8*b**3 + 9*a**7*b**4*x + 9*a**6*b**5*x**2 + 3*a**5*b**6
*x**3) + 16*a**(13/2)*b**3*x**3/(3*a**8*b**3 + 9*a**7*b**4*x + 9*
a**6*b**5*x**2 + 3*a**5*b**6*x**3) + 2*a**(11/2)*b**4*x**4*sqrt(1
 + b*x/a)/(3*a**8*b**3 + 9*a**7*b**4*x + 9*a**6*b**5*x**2 + 3*a**
5*b**6*x**3))
```

GIAC/XCAS [A] time = 0.22947, size = 93, normalized size = 1.48

$$-\frac{2\left(Ba^2 - Aab\right)}{\sqrt{bx + a}b^3} + \frac{2\left((bx + a)^{\frac{3}{2}}Bb^6 - 6\sqrt{bx + a}Bab^6 + 3\sqrt{bx + a}Ab^7\right)}{3\,b^9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x/(b*x + a)^(3/2),x, algorithm="giac")
```

```
[Out] -2*(B*a^2 - A*a*b)/(sqrt(b*x + a)*b^3) + 2/3*((b*x + a)^(3/2)*B*b
^6 - 6*sqrt(b*x + a)*B*a*b^6 + 3*sqrt(b*x + a)*A*b^7)/b^9
```

3.426 $\int \frac{A+Bx}{(a+bx)^{3/2}}\,dx$

Optimal. Leaf size=38

$$\frac{2B\sqrt{a+bx}}{b^2}-\frac{2(Ab-aB)}{b^2\sqrt{a+bx}}$$

```
[Out] (-2*(A*b - a*B))/(b^2*Sqrt[a + b*x]) + (2*B*Sqrt[a + b*x])/b^2
```

Rubi [A] time = 0.0435026, antiderivative size = 38, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.067

$$\frac{2B\sqrt{a+bx}}{b^2}-\frac{2(Ab-aB)}{b^2\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(a + b*x)^(3/2),x]

[Out] (-2*(A*b - a*B))/(b^2*Sqrt[a + b*x]) + (2*B*Sqrt[a + b*x])/b^2
```

Rubi in Sympy [A] time = 7.57542, size = 36, normalized size = 0.95

$$\frac{2B\sqrt{a+bx}}{b^2}-\frac{2\left(Ab-Ba\right)}{b^2\sqrt{a+bx}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(b*x+a)**(3/2),x)

[Out] 2*B*sqrt(a + b*x)/b**2 - 2*(A*b - B*a)/(b**2*sqrt(a + b*x))
```

Mathematica [A] time = 0.0266815, size = 27, normalized size = 0.71

$$\frac{2(2aB-Ab+bBx)}{b^2\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(a + b*x)^(3/2),x]

[Out] (2*(-(A*b) + 2*a*B + b*B*x))/(b^2*Sqrt[a + b*x])
```

Maple [A] time = 0.006, size = 26, normalized size = 0.7

$$-2\,{\frac{-bBx+Ab-2\,Ba}{\sqrt{bx+a}{b}^{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(b*x+a)^(3/2),x)
```

```
[Out] -2/(b*x+a)^(1/2)*(-B*b*x+A*b-2*B*a)/b^2
```

Maxima [A] time = 1.33647, size = 50, normalized size = 1.32

$$\frac{2\left(\frac{\sqrt{bx+a}B}{b}+\frac{Ba-Ab}{\sqrt{bx+a}b}\right)}{b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(b*x + a)^(3/2),x, algorithm="maxima")
```

```
[Out] 2*(sqrt(b*x + a)*B/b + (B*a - A*b)/(sqrt(b*x + a)*b))/b
```

Fricas [A] time = 0.205247, size = 34, normalized size = 0.89

$$\frac{2\,(Bbx+2\,Ba-Ab)}{\sqrt{bx+a}b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(b*x + a)^(3/2),x, algorithm="fricas")
```

```
[Out] 2*(B*b*x + 2*B*a - A*b)/(sqrt(b*x + a)*b^2)
```

Sympy [A] time = 2.21517, size = 60, normalized size = 1.58

$$\begin{cases} -\frac{2A}{b\sqrt{a+bx}}+\frac{4Ba}{b^2\sqrt{a+bx}}+\frac{2Bx}{b\sqrt{a+bx}} & \text{for } b\neq 0 \\ \frac{Ax+\frac{Bx^2}{2}}{a^{\frac{3}{2}}} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(b*x+a)**(3/2),x)
```

```
[Out] Piecewise((-2*A/(b*sqrt(a + b*x)) + 4*B*a/(b**2*sqrt(a + b*x)) +
2*B*x/(b*sqrt(a + b*x)), Ne(b, 0)), ((A*x + B*x**2/2)/a**(3/2), T
rue))
```

GIAC/XCAS [A] time = 0.249777, size = 46, normalized size = 1.21

$$\frac{2\sqrt{bx+a}B}{b^2}+\frac{2\,(Ba-Ab)}{\sqrt{bx+a}b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(b*x + a)^(3/2),x, algorithm="giac")
```

```
[Out] 2*sqrt(b*x + a)*B/b^2 + 2*(B*a - A*b)/(sqrt(b*x + a)*b^2)
```

3.427 $\int \frac{A+Bx}{x(a+bx)^{3/2}}\,dx$

Optimal. Leaf size=50

$$\frac{2(Ab-aB)}{ab\sqrt{a+bx}}-\frac{2A\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{a^{3/2}}$$

```
[Out] (2*(A*b - a*B))/(a*b*Sqrt[a + b*x]) - (2*A*ArcTanh[Sqrt[a + b*x]/
Sqrt[a]])/a^(3/2)
```

Rubi [A] time = 0.0651117, antiderivative size = 50, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$\frac{2(Ab-aB)}{ab\sqrt{a+bx}}-\frac{2A\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{a^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x*(a + b*x)^(3/2)),x]
```

```
[Out] (2*(A*b - a*B))/(a*b*Sqrt[a + b*x]) - (2*A*ArcTanh[Sqrt[a + b*x]/
Sqrt[a]])/a^(3/2)
```

Rubi in Sympy [A] time = 6.93303, size = 44, normalized size = 0.88

$$-\frac{2A\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{a^{\frac{3}{2}}}+\frac{2\,(Ab-Ba)}{ab\sqrt{a+bx}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x/(b*x+a)**(3/2),x)
```

```
[Out] -2*A*atanh(sqrt(a + b*x)/sqrt(a))/a**(3/2) + 2*(A*b - B*a)/(a*b*s
qrt(a + b*x))
```

Mathematica [A] time = 0.0787094, size = 50, normalized size = 1.

$$-\frac{2A\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{a^{3/2}}-\frac{2(aB-Ab)}{ab\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x*(a + b*x)^(3/2)),x]
```

```
[Out] (-2*(-(A*b) + a*B))/(a*b*Sqrt[a + b*x]) - (2*A*ArcTanh[Sqrt[a + b
*x]/Sqrt[a]])/a^(3/2)
```

Maple [A] time = 0.013, size = 46, normalized size = 0.9

$$2\,\frac{1}{b}\left(-\frac{-Ab+Ba}{a\sqrt{bx+a}}-\frac{Ab}{a^{3/2}}Artanh\left(\frac{\sqrt{bx+a}}{\sqrt{a}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x/(b*x+a)^(3/2),x)
```

```
[Out] 2/b*(-(-A*b+B*a)/a/(b*x+a)^(1/2)-A*b/a^(3/2)*arctanh((b*x+a)^(1/2
)/a^(1/2)))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(3/2)*x),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.23013, size = 1, normalized size = 0.02

$$\left[\frac{\sqrt{bx+a}Ab\log\left(\frac{(bx+2a)\sqrt{a}-2\sqrt{bx+a}a}{x}\right)-2(Ba-Ab)\sqrt{a}}{\sqrt{bx+a}a^{\frac{3}{2}}b}, \frac{2\left(\sqrt{bx+a}Ab\arctan\left(\frac{a}{\sqrt{bx+a}\sqrt{-a}}\right)-(Ba-Ab)\sqrt{-a}\right)}{\sqrt{bx+a}\sqrt{-a}ab}\right]$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(3/2)*x),x, algorithm="fricas")
```

```
[Out] [(sqrt(b*x + a)*A*b*log(((b*x + 2*a)*sqrt(a) - 2*sqrt(b*x + a)*a)
/x) - 2*(B*a - A*b)*sqrt(a))/(sqrt(b*x + a)*a^(3/2)*b), 2*(sqrt(b
*x + a)*A*b*arctan(a/(sqrt(b*x + a)*sqrt(-a))) - (B*a - A*b)*sqrt
(-a))/(sqrt(b*x + a)*sqrt(-a)*a*b)]
```

Sympy [A] time = 11.1826, size = 162, normalized size = 3.24

$$A\left(\frac{2a^3\sqrt{1+\frac{bx}{a}}}{a^{\frac{9}{2}}+a^{\frac{7}{2}}bx}+\frac{a^3\log\left(\frac{bx}{a}\right)}{a^{\frac{9}{2}}+a^{\frac{7}{2}}bx}-\frac{2a^3\log\left(\sqrt{1+\frac{bx}{a}}+1\right)}{a^{\frac{9}{2}}+a^{\frac{7}{2}}bx}+\frac{a^2bx\log\left(\frac{bx}{a}\right)}{a^{\frac{9}{2}}+a^{\frac{7}{2}}bx}-\frac{2a^2bx\log\left(\sqrt{1+\frac{bx}{a}}+1\right)}{a^{\frac{9}{2}}+a^{\frac{7}{2}}bx}\right)-\frac{2B}{b\sqrt{a+bx}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x/(b*x+a)**(3/2),x)
```

```
[Out] A*(2*a**3*sqrt(1 + b*x/a)/(a**(9/2) + a**(7/2)*b*x) + a**3*log(b*
x/a)/(a**(9/2) + a**(7/2)*b*x) - 2*a**3*log(sqrt(1 + b*x/a) + 1)/
(a**(9/2) + a**(7/2)*b*x) + a**2*b*x*log(b*x/a)/(a**(9/2) + a**(7
/2)*b*x) - 2*a**2*b*x*log(sqrt(1 + b*x/a) + 1)/(a**(9/2) + a**(7/
2)*b*x)) - 2*B/(b*sqrt(a + b*x))
```

GIAC/XCAS [A] time = 0.233856, size = 66, normalized size = 1.32

$$\frac{2A\arctan\left(\frac{\sqrt{bx+a}}{\sqrt{-a}}\right)}{\sqrt{-a}a}-\frac{2(Ba-Ab)}{\sqrt{bx+a}ab}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(3/2)*x),x, algorithm="giac")
```

```
[Out] 2*A*arctan(sqrt(b*x + a)/sqrt(-a))/(sqrt(-a)*a) - 2*(B*a - A*b)/(
sqrt(b*x + a)*a*b)
```

3.428 $\int \frac{A+Bx}{x^2(a+bx)^{3/2}}\,dx$

Optimal. Leaf size=73

$$\frac{(3Ab-2aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{a^{5/2}}-\frac{3Ab-2aB}{a^2\sqrt{a+bx}}-\frac{A}{ax\sqrt{a+bx}}$$

```
[Out] -((3*A*b - 2*a*B)/(a^2*Sqrt[a + b*x])) - A/(a*x*Sqrt[a + b*x]) +
((3*A*b - 2*a*B)*ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/a^(5/2)
```

Rubi [A] time = 0.110473, antiderivative size = 73, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.222$

$$\frac{(3Ab-2aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{a^{5/2}}-\frac{3Ab-2aB}{a^2\sqrt{a+bx}}-\frac{A}{ax\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^2*(a + b*x)^(3/2)),x]
```

```
[Out] -((3*A*b - 2*a*B)/(a^2*Sqrt[a + b*x])) - A/(a*x*Sqrt[a + b*x]) +
((3*A*b - 2*a*B)*ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/a^(5/2)
```

Rubi in Sympy [A] time = 9.81852, size = 66, normalized size = 0.9

$$-\frac{A}{ax\sqrt{a+bx}}-\frac{2\left(\frac{3Ab}{2}-Ba\right)}{a^2\sqrt{a+bx}}+\frac{2\left(\frac{3Ab}{2}-Ba\right)\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{a^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**2/(b*x+a)**(3/2),x)
```

```
[Out] -A/(a*x*sqrt(a + b*x)) - 2*(3*A*b/2 - B*a)/(a**2*sqrt(a + b*x)) +
 2*(3*A*b/2 - B*a)*atanh(sqrt(a + b*x)/sqrt(a))/a**(5/2)
```

Mathematica [A] time = 0.118068, size = 63, normalized size = 0.86

$$\frac{(3Ab-2aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{a^{5/2}}+\frac{-aA+2aBx-3Abx}{a^2x\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^2*(a + b*x)^(3/2)),x]
```

```
[Out] (-(a*A) - 3*A*b*x + 2*a*B*x)/(a^2*x*Sqrt[a + b*x]) + ((3*A*b - 2*
a*B)*ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/a^(5/2)
```

Maple [A] time = 0.021, size = 67, normalized size = 0.9

$$-2\,\frac{Ab-Ba}{a^2\sqrt{bx+a}}-2\,\frac{1}{a^2}\left(1/2\,\frac{A\sqrt{bx+a}}{x}-1/2\,\frac{3\,Ab-2\,Ba}{\sqrt{a}}Artanh\left(\frac{\sqrt{bx+a}}{\sqrt{a}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^2/(b*x+a)^(3/2),x)
```

```
[Out] -2*(A*b-B*a)/a^2/(b*x+a)^(1/2)-2/a^2*(1/2*A*(b*x+a)^(1/2)/x-1/2*(
3*A*b-2*B*a)/a^(1/2)*arctanh((b*x+a)^(1/2)/a^(1/2)))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(3/2)*x^2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.234111, size = 1, normalized size = 0.01

$$\left[-\frac{(2\,Ba-3\,Ab)\sqrt{bx+a}x\log\left(\frac{(bx+2\,a)\sqrt{a}+2\,\sqrt{bx+a}a}{x}\right)+2\,(Aa-(2\,Ba-3\,Ab)x)\sqrt{a}}{2\,\sqrt{bx+a}a^{\frac{5}{2}}x},\ \frac{(2\,Ba-3\,Ab)\sqrt{bx+a}x\arctan\left(\frac{a}{\sqrt{bx+a}\sqrt{-a}}\right)}{\sqrt{bx+a}\sqrt{-a}a}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(3/2)*x^2),x, algorithm="fricas")
```

```
[Out] [-1/2*((2*B*a - 3*A*b)*sqrt(b*x + a)*x*log(((b*x + 2*a)*sqrt(a) +
 2*sqrt(b*x + a)*a)/x) + 2*(A*a - (2*B*a - 3*A*b)*x)*sqrt(a))/(sq
rt(b*x + a)*a^(5/2)*x), ((2*B*a - 3*A*b)*sqrt(b*x + a)*x*arctan(a
/(sqrt(b*x + a)*sqrt(-a))) - (A*a - (2*B*a - 3*A*b)*x)*sqrt(-a))/
(sqrt(b*x + a)*sqrt(-a)*a^2*x)]
```

Sympy [A] time = 23.839, size = 224, normalized size = 3.07

$$A\left(-\frac{1}{a\sqrt{b}x^{\frac{3}{2}}\sqrt{\frac{a}{bx}+1}}-\frac{3\sqrt{b}}{a^{2}\sqrt{x}\sqrt{\frac{a}{bx}+1}}+\frac{3b\operatorname{asinh}\left(\frac{\sqrt{a}}{\sqrt{b}\sqrt{x}}\right)}{a^{\frac{5}{2}}}\right)+B\left(\frac{2a^{3}\sqrt{1+\frac{bx}{a}}}{a^{\frac{9}{2}}+a^{\frac{7}{2}}bx}+\frac{a^{3}\log\left(\frac{bx}{a}\right)}{a^{\frac{9}{2}}+a^{\frac{7}{2}}bx}-\frac{2a^{3}\log\left(\sqrt{1+\frac{bx}{a}}+1\right)}{a^{\frac{9}{2}}+a^{\frac{7}{2}}bx}+\frac{a^{2}bx\log\left(\frac{bx}{a}\right)}{a^{\frac{9}{2}}+a^{\frac{7}{2}}bx}-\frac{2a^{2}bx\log\left(\sqrt{1+\frac{bx}{a}}+1\right)}{a^{\frac{9}{2}}+a^{\frac{7}{2}}bx}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**2/(b*x+a)**(3/2),x)
```

```
[Out] A*(-1/(a*sqrt(b)*x**(3/2)*sqrt(a/(b*x) + 1)) - 3*sqrt(b)/(a**2*sq
rt(x)*sqrt(a/(b*x) + 1)) + 3*b*asinh(sqrt(a)/(sqrt(b)*sqrt(x)))/a
**(5/2)) + B*(2*a**3*sqrt(1 + b*x/a)/(a**(9/2) + a**(7/2)*b*x) +
a**3*log(b*x/a)/(a**(9/2) + a**(7/2)*b*x) - 2*a**3*log(sqrt(1 + b
*x/a) + 1)/(a**(9/2) + a**(7/2)*b*x) + a**2*b*x*log(b*x/a)/(a**(9
/2) + a**(7/2)*b*x) - 2*a**2*b*x*log(sqrt(1 + b*x/a) + 1)/(a**(9/
2) + a**(7/2)*b*x))
```

GIAC/XCAS [A] time = 0.216325, size = 117, normalized size = 1.6

$$\frac{(2\,Ba - 3\,Ab)\arctan\left(\frac{\sqrt{bx+a}}{\sqrt{-a}}\right)}{\sqrt{-a}a^2} + \frac{2\,(bx + a)Ba - 2\,Ba^2 - 3\,(bx + a)Ab + 2\,Aab}{\left((bx + a)^{\frac{3}{2}} - \sqrt{bx + a}a\right)a^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(3/2)*x^2),x, algorithm="giac")
```

```
[Out] (2*B*a - 3*A*b)*arctan(sqrt(b*x + a)/sqrt(-a))/(sqrt(-a)*a^2) + (
2*(b*x + a)*B*a - 2*B*a^2 - 3*(b*x + a)*A*b + 2*A*a*b)/(((b*x + a
)^(3/2) - sqrt(b*x + a)*a)*a^2)
```

3.429 $\int \frac{A+Bx}{x^3(a+bx)^{3/2}}\,dx$

Optimal. Leaf size=112

$$-\frac{3b(5Ab-4aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{4a^{7/2}}+\frac{3\sqrt{a+bx}(5Ab-4aB)}{4a^3x}-\frac{5Ab-4aB}{2a^2x\sqrt{a+bx}}-\frac{A}{2ax^2\sqrt{a+bx}}$$

```
[Out] -A/(2*a*x^2*Sqrt[a + b*x]) - (5*A*b - 4*a*B)/(2*a^2*x*Sqrt[a + b*x]) + (3*(5*A*b - 4*a*B)*Sqrt[a + b*x])/(4*a^3*x) - (3*b*(5*A*b - 4*a*B)*ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/(4*a^(7/2))
```

Rubi [A] time = 0.148271, antiderivative size = 112, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.222

$$-\frac{3b(5Ab-4aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{4a^{7/2}}+\frac{3\sqrt{a+bx}(5Ab-4aB)}{4a^3x}-\frac{5Ab-4aB}{2a^2x\sqrt{a+bx}}-\frac{A}{2ax^2\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^3*(a + b*x)^(3/2)),x]
```

```
[Out] -A/(2*a*x^2*Sqrt[a + b*x]) - (5*A*b - 4*a*B)/(2*a^2*x*Sqrt[a + b*x]) + (3*(5*A*b - 4*a*B)*Sqrt[a + b*x])/(4*a^3*x) - (3*b*(5*A*b - 4*a*B)*ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/(4*a^(7/2))
```

Rubi in Sympy [A] time = 12.8986, size = 104, normalized size = 0.93

$$-\frac{A}{2ax^2\sqrt{a+bx}}-\frac{5Ab-4Ba}{2a^2x\sqrt{a+bx}}+\frac{3\sqrt{a+bx}\,(5Ab-4Ba)}{4a^3x}-\frac{3b\,(5Ab-4Ba)\,\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{4a^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**3/(b*x+a)**(3/2),x)
```

```
[Out] -A/(2*a*x**2*sqrt(a + b*x)) - (5*A*b - 4*B*a)/(2*a**2*x*sqrt(a + b*x)) + 3*sqrt(a + b*x)*(5*A*b - 4*B*a)/(4*a**3*x) - 3*b*(5*A*b - 4*B*a)*atanh(sqrt(a + b*x)/sqrt(a))/(4*a**(7/2))
```

Mathematica [A] time = 0.159402, size = 88, normalized size = 0.79

$$\frac{3b(4aB-5Ab)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{4a^{7/2}}+\frac{-2a^2(A+2Bx)+abx(5A-12Bx)+15Ab^2x^2}{4a^3x^2\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^3*(a + b*x)^(3/2)),x]
```

```
[Out] (15*A*b^2*x^2 + a*b*x*(5*A - 12*B*x) - 2*a^2*(A + 2*B*x))/(4*a^3*x^2*Sqrt[a + b*x]) + (3*b*(-5*A*b + 4*a*B)*ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/(4*a^(7/2))
```

Maple [A] time = 0.02, size = 101, normalized size = 0.9

$$2b\left(-\frac{-Ab+Ba}{a^3\sqrt{bx+a}}+\frac{1}{a^3}\left(\frac{1}{b^2x^2}\left(\left(\frac{7\,Ab}{8}-1/2\,Ba\right)(bx+a)^{3/2}+\left(-\frac{9\,Aab}{8}+1/2\,Ba^2\right)\sqrt{bx+a}\right)-3/8\,\frac{5\,Ab-4\,Ba}{\sqrt{a}}Artanh\left(\frac{\sqrt{bx+a}}{\sqrt{a}}\right)\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^3/(b*x+a)^(3/2),x)
```

```
[Out] 2*b*(-1/a^3*(-A*b+B*a)/(b*x+a)^(1/2)+1/a^3*(((7/8*A*b-1/2*B*a)*(b
*x+a)^(3/2)+(-9/8*A*a*b+1/2*B*a^2)*(b*x+a)^(1/2))/x^2/b^2-3/8*(5*
A*b-4*B*a)/a^(1/2)*arctanh((b*x+a)^(1/2)/a^(1/2))))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(3/2)*x^3),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.232918, size = 1, normalized size = 0.01

$$\left[-\frac{3\left(4\,Bab-5\,Ab^2\right)\sqrt{bx+a}x^2\log\left(\frac{(bx+2\,a)\sqrt{a}-2\,\sqrt{bx+a}a}{x}\right)+2\left(2\,Aa^2+3\left(4\,Bab-5\,Ab^2\right)x^2+\left(4\,Ba^2-5\,Aab\right)x\right)\sqrt{a}}{8\,\sqrt{bx+a}a^{\frac{7}{2}}x^2},\ -\frac{3\left(4\,Bab-5\,Ab^2\right)\sqrt{bx+a}x^2\arctan\left(\frac{a}{\sqrt{bx+a}\sqrt{-a}}\right)+\left(2\,Aa^2+3\left(4\,Bab-5\,Ab^2\right)x^2+\left(4\,Ba^2-5\,Aab\right)x\right)\sqrt{-a}}{4\,\sqrt{bx+a}\sqrt{-a}a^3x^2}\right]$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(3/2)*x^3),x, algorithm="fricas")
```

```
[Out] [-1/8*(3*(4*B*a*b - 5*A*b^2)*sqrt(b*x + a)*x^2*log(((b*x + 2*a)*s
qrt(a) - 2*sqrt(b*x + a)*a)/x) + 2*(2*A*a^2 + 3*(4*B*a*b - 5*A*b^
2)*x^2 + (4*B*a^2 - 5*A*a*b)*x)*sqrt(a))/(sqrt(b*x + a)*a^(7/2)*x
^2), -1/4*(3*(4*B*a*b - 5*A*b^2)*sqrt(b*x + a)*x^2*arctan(a/(sqrt
(b*x + a)*sqrt(-a))) + (2*A*a^2 + 3*(4*B*a*b - 5*A*b^2)*x^2 + (4*
B*a^2 - 5*A*a*b)*x)*sqrt(-a))/(sqrt(b*x + a)*sqrt(-a)*a^3*x^2)]
```

Sympy [A] time = 38.2708, size = 185, normalized size = 1.65

$$A\left(-\frac{1}{2a\sqrt{b}x^{\frac{5}{2}}\sqrt{\frac{a}{bx}+1}}+\frac{5\sqrt{b}}{4a^2x^{\frac{3}{2}}\sqrt{\frac{a}{bx}+1}}+\frac{15b^{\frac{3}{2}}}{4a^3\sqrt{x}\sqrt{\frac{a}{bx}+1}}-\frac{15b^2\operatorname{asinh}\left(\frac{\sqrt{a}}{\sqrt{b}\sqrt{x}}\right)}{4a^{\frac{7}{2}}}\right)+B\left(-\frac{1}{a\sqrt{b}x^{\frac{3}{2}}\sqrt{\frac{a}{bx}+1}}-\frac{3\sqrt{b}}{a^2\sqrt{x}\sqrt{\frac{a}{bx}+1}}+\frac{3b\operatorname{asinh}\left(\frac{\sqrt{a}}{\sqrt{b}\sqrt{x}}\right)}{a^{\frac{5}{2}}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**3/(b*x+a)**(3/2),x)
```

```
[Out] A*(-1/(2*a*sqrt(b)*x**(5/2)*sqrt(a/(b*x) + 1)) + 5*sqrt(b)/(4*a**
2*x**(3/2)*sqrt(a/(b*x) + 1)) + 15*b**(3/2)/(4*a**3*sqrt(x)*sqrt(
a/(b*x) + 1)) - 15*b**2*asinh(sqrt(a)/(sqrt(b)*sqrt(x)))/(4*a**(7
/2))) + B*(-1/(a*sqrt(b)*x**(3/2)*sqrt(a/(b*x) + 1)) - 3*sqrt(b)/
(a**2*sqrt(x)*sqrt(a/(b*x) + 1)) + 3*b*asinh(sqrt(a)/(sqrt(b)*sqr
t(x)))/a**(5/2))
```

GIAC/XCAS [A] time = 0.218802, size = 169, normalized size = 1.51

$$-\frac{3\left(4\,Bab-5\,Ab^2\right)\arctan\left(\frac{\sqrt{bx+a}}{\sqrt{-a}}\right)}{4\,\sqrt{-a}a^3}-\frac{2\left(Bab-Ab^2\right)}{\sqrt{bx+a}a^3}-\frac{4\,(bx+a)^{\frac{3}{2}}Bab-4\,\sqrt{bx+a}Ba^2b-7\,(bx+a)^{\frac{3}{2}}Ab^2+9\,\sqrt{bx+a}Aab^2}{4\,a^3b^2x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(3/2)*x^3),x, algorithm="giac")
```

```
[Out] -3/4*(4*B*a*b - 5*A*b^2)*arctan(sqrt(b*x + a)/sqrt(-a))/(sqrt(-a)
*a^3) - 2*(B*a*b - A*b^2)/(sqrt(b*x + a)*a^3) - 1/4*(4*(b*x + a)^
(3/2)*B*a*b - 4*sqrt(b*x + a)*B*a^2*b - 7*(b*x + a)^(3/2)*A*b^2 +
 9*sqrt(b*x + a)*A*a*b^2)/(a^3*b^2*x^2)
```

3.430 $\int \frac{A+Bx}{x^4(a+bx)^{3/2}}\,dx$

Optimal. Leaf size=143

$$\frac{5b^2(7Ab-6aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{8a^{9/2}}-\frac{5b\sqrt{a+bx}(7Ab-6aB)}{8a^4x}+\frac{5\sqrt{a+bx}(7Ab-6aB)}{12a^3x^2}-\frac{7Ab-6aB}{3a^2x^2\sqrt{a+bx}}-\frac{A}{3ax^3\sqrt{a+bx}}$$

```
[Out] -A/(3*a*x^3*Sqrt[a + b*x]) - (7*A*b - 6*a*B)/(3*a^2*x^2*Sqrt[a +
b*x]) + (5*(7*A*b - 6*a*B)*Sqrt[a + b*x])/(12*a^3*x^2) - (5*b*(7*
A*b - 6*a*B)*Sqrt[a + b*x])/(8*a^4*x) + (5*b^2*(7*A*b - 6*a*B)*Ar
cTanh[Sqrt[a + b*x]/Sqrt[a]])/(8*a^(9/2))
```

Rubi [A] time = 0.192136, antiderivative size = 143, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.222

$$\frac{5b^2(7Ab-6aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{8a^{9/2}}-\frac{5b\sqrt{a+bx}(7Ab-6aB)}{8a^4x}+\frac{5\sqrt{a+bx}(7Ab-6aB)}{12a^3x^2}-\frac{7Ab-6aB}{3a^2x^2\sqrt{a+bx}}-\frac{A}{3ax^3\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^4*(a + b*x)^(3/2)),x]
```

```
[Out] -A/(3*a*x^3*Sqrt[a + b*x]) - (7*A*b - 6*a*B)/(3*a^2*x^2*Sqrt[a +
b*x]) + (5*(7*A*b - 6*a*B)*Sqrt[a + b*x])/(12*a^3*x^2) - (5*b*(7*
A*b - 6*a*B)*Sqrt[a + b*x])/(8*a^4*x) + (5*b^2*(7*A*b - 6*a*B)*Ar
cTanh[Sqrt[a + b*x]/Sqrt[a]])/(8*a^(9/2))
```

Rubi in Sympy [A] time = 17.2234, size = 138, normalized size = 0.97

$$-\frac{A}{3ax^3\sqrt{a+bx}}-\frac{7Ab-6Ba}{3a^2x^2\sqrt{a+bx}}+\frac{5\sqrt{a+bx}\,(7Ab-6Ba)}{12a^3x^2}-\frac{5b\sqrt{a+bx}\,(7Ab-6Ba)}{8a^4x}+\frac{5b^2\,(7Ab-6Ba)\,\mathrm{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{8a^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**4/(b*x+a)**(3/2),x)
```

```
[Out] -A/(3*a*x**3*sqrt(a + b*x)) - (7*A*b - 6*B*a)/(3*a**2*x**2*sqrt(a
 + b*x)) + 5*sqrt(a + b*x)*(7*A*b - 6*B*a)/(12*a**3*x**2) - 5*b*s
qrt(a + b*x)*(7*A*b - 6*B*a)/(8*a**4*x) + 5*b**2*(7*A*b - 6*B*a)*
atanh(sqrt(a + b*x)/sqrt(a))/(8*a**(9/2))
```

Mathematica [A] time = 0.212838, size = 112, normalized size = 0.78

$$\frac{5b^2(7Ab-6aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{8a^{9/2}}+\frac{-4a^3(2A+3Bx)+2a^2bx(7A+15Bx)+5ab^2x^2(18Bx-7A)-105Ab^3x^3}{24a^4x^3\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^4*(a + b*x)^(3/2)),x]
```

```
[Out] (-105*A*b^3*x^3 - 4*a^3*(2*A + 3*B*x) + 2*a^2*b*x*(7*A + 15*B*x)
+ 5*a*b^2*x^2*(-7*A + 18*B*x))/(24*a^4*x^3*Sqrt[a + b*x]) + (5*b^
2*(7*A*b - 6*a*B)*ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/(8*a^(9/2))
```

Maple [A] time = 0.024, size = 126, normalized size = 0.9

$$2\,b^{2}\left(-\frac{Ab-Ba}{a^{4}\sqrt{bx+a}}-\frac{1}{a^{4}}\left(\frac{1}{x^{3}b^{3}}\left(\left(\frac{19\,Ab}{16}-\frac{7\,Ba}{8}\right)(bx+a)^{5/2}+\left(-\frac{17\,Aab}{6}+2\,Ba^{2}\right)(bx+a)^{3/2}+\left(\frac{29\,Aa^{2}b}{16}-\frac{9\,Ba^{3}}{8}\right)\sqrt{bx+a}\right)-\frac{35\,Ab-30\,Ba}{16\,\sqrt{a}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^4/(b*x+a)^(3/2),x)
```

```
[Out] 2*b^2*(-(A*b-B*a)/a^4/(b*x+a)^(1/2)-1/a^4*(((19/16*A*b-7/8*B*a)*(
b*x+a)^(5/2)+(-17/6*A*a*b+2*B*a^2)*(b*x+a)^(3/2)+(29/16*A*a^2*b-9
/8*B*a^3)*(b*x+a)^(1/2))/x^3/b^3-5/16*(7*A*b-6*B*a)/a^(1/2)*arcta
nh((b*x+a)^(1/2)/a^(1/2))))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(3/2)*x^4),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.227935, size = 1, normalized size = 0.01

$$\left[-\frac{15\left(6\,Bab^{2}-7\,Ab^{3}\right)\sqrt{bx+a}x^{3}\log\left(\frac{(bx+2\,a)\sqrt{a}+2\,\sqrt{bx+a}a}{x}\right)+2\left(8\,Aa^{3}-15\left(6\,Bab^{2}-7\,Ab^{3}\right)x^{3}-5\left(6\,Ba^{2}b-7\,Aab^{2}\right)x^{2}+2\right.}{48\,\sqrt{bx+a}a^{\frac{9}{2}}x^{3}}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(3/2)*x^4),x, algorithm="fricas")
```

```
[Out] [-1/48*(15*(6*B*a*b^2 - 7*A*b^3)*sqrt(b*x + a)*x^3*log(((b*x + 2*
a)*sqrt(a) + 2*sqrt(b*x + a)*a)/x) + 2*(8*A*a^3 - 15*(6*B*a*b^2 -
 7*A*b^3)*x^3 - 5*(6*B*a^2*b - 7*A*a*b^2)*x^2 + 2*(6*B*a^3 - 7*A*
a^2*b)*x)*sqrt(a))/(sqrt(b*x + a)*a^(9/2)*x^3), 1/24*(15*(6*B*a*b
^2 - 7*A*b^3)*sqrt(b*x + a)*x^3*arctan(a/(sqrt(b*x + a)*sqrt(-a))
) - (8*A*a^3 - 15*(6*B*a*b^2 - 7*A*b^3)*x^3 - 5*(6*B*a^2*b - 7*A*
a*b^2)*x^2 + 2*(6*B*a^3 - 7*A*a^2*b)*x)*sqrt(-a))/(sqrt(b*x + a)*
sqrt(-a)*a^4*x^3)]
```

Sympy [A] time = 55.8453, size = 246, normalized size = 1.72

$$A\left(-\frac{1}{3a\sqrt{b}x^{\frac{7}{2}}\sqrt{\frac{a}{bx}+1}}+\frac{7\sqrt{b}}{12a^2x^{\frac{5}{2}}\sqrt{\frac{a}{bx}+1}}-\frac{35b^{\frac{3}{2}}}{24a^3x^{\frac{3}{2}}\sqrt{\frac{a}{bx}+1}}-\frac{35b^{\frac{5}{2}}}{8a^4\sqrt{x}\sqrt{\frac{a}{bx}+1}}+\frac{35b^3\operatorname{asinh}\left(\frac{\sqrt{a}}{\sqrt{b}\sqrt{x}}\right)}{8a^{\frac{9}{2}}}\right)+B\left(-\frac{1}{2a\sqrt{b}x^{\frac{5}{2}}\sqrt{\frac{a}{bx}+1}}+\frac{5\sqrt{b}}{4a^2x^{\frac{3}{2}}\sqrt{\frac{a}{bx}+1}}+\frac{15b^{\frac{3}{2}}}{4a^3\sqrt{x}\sqrt{\frac{a}{bx}+1}}-\frac{15b^2\operatorname{asinh}\left(\frac{\sqrt{a}}{\sqrt{b}\sqrt{x}}\right)}{4a^{\frac{7}{2}}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**4/(b*x+a)**(3/2),x)
```

```
[Out] A*(-1/(3*a*sqrt(b)*x**(7/2)*sqrt(a/(b*x) + 1)) + 7*sqrt(b)/(12*a*
*2*x**(5/2)*sqrt(a/(b*x) + 1)) - 35*b**(3/2)/(24*a**3*x**(3/2)*sq
rt(a/(b*x) + 1)) - 35*b**(5/2)/(8*a**4*sqrt(x)*sqrt(a/(b*x) + 1))
 + 35*b**3*asinh(sqrt(a)/(sqrt(b)*sqrt(x)))/(8*a**(9/2))) + B*(-1
/(2*a*sqrt(b)*x**(5/2)*sqrt(a/(b*x) + 1)) + 5*sqrt(b)/(4*a**2*x**
(3/2)*sqrt(a/(b*x) + 1)) + 15*b**(3/2)/(4*a**3*sqrt(x)*sqrt(a/(b*
x) + 1)) - 15*b**2*asinh(sqrt(a)/(sqrt(b)*sqrt(x)))/(4*a**(7/2)))
```

GIAC/XCAS [A] time = 0.217093, size = 223, normalized size = 1.56

$$\frac{5\left(6Bab^2-7Ab^3\right)\arctan\left(\frac{\sqrt{bx+a}}{\sqrt{-a}}\right)}{8\sqrt{-a}a^4}+\frac{2\left(Bab^2-Ab^3\right)}{\sqrt{bx+a}a^4}+\frac{42(bx+a)^{\frac{5}{2}}Bab^2-96(bx+a)^{\frac{3}{2}}Ba^2b^2+54\sqrt{bx+a}Ba^3b^2-57(bx+a)^{\frac{5}{2}}Ab^3+136(bx+a)^{\frac{3}{2}}Aab^3-87\sqrt{bx+a}Aa^2b^3}{24a^4b^3x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(3/2)*x^4),x, algorithm="giac")
```

```
[Out] 5/8*(6*B*a*b^2 - 7*A*b^3)*arctan(sqrt(b*x + a)/sqrt(-a))/(sqrt(-a
)*a^4) + 2*(B*a*b^2 - A*b^3)/(sqrt(b*x + a)*a^4) + 1/24*(42*(b*x
+ a)^(5/2)*B*a*b^2 - 96*(b*x + a)^(3/2)*B*a^2*b^2 + 54*sqrt(b*x +
 a)*B*a^3*b^2 - 57*(b*x + a)^(5/2)*A*b^3 + 136*(b*x + a)^(3/2)*A*
a*b^3 - 87*sqrt(b*x + a)*A*a^2*b^3)/(a^4*b^3*x^3)
```

3.431 $\int \frac{A+Bx}{x^5(a+bx)^{3/2}}\,dx$

Optimal. Leaf size=174

$$-\frac{35b^3(9Ab-8aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{64a^{11/2}}+\frac{35b^2\sqrt{a+bx}(9Ab-8aB)}{64a^5x}-\frac{35b\sqrt{a+bx}(9Ab-8aB)}{96a^4x^2}+\frac{7\sqrt{a+bx}(9Ab-8aB)}{24a^3x^3}-\frac{9Ab-8aB}{4a^2x^3\sqrt{a+bx}}-\frac{A}{4ax^4\sqrt{a+bx}}$$

```
[Out] -A/(4*a*x^4*Sqrt[a + b*x]) - (9*A*b - 8*a*B)/(4*a^2*x^3*Sqrt[a +
b*x]) + (7*(9*A*b - 8*a*B)*Sqrt[a + b*x])/(24*a^3*x^3) - (35*b*(9
*A*b - 8*a*B)*Sqrt[a + b*x])/(96*a^4*x^2) + (35*b^2*(9*A*b - 8*a*
B)*Sqrt[a + b*x])/(64*a^5*x) - (35*b^3*(9*A*b - 8*a*B)*ArcTanh[Sq
rt[a + b*x]/Sqrt[a]])/(64*a^(11/2))
```

Rubi [A] time = 0.240391, antiderivative size = 174, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.222

$$-\frac{35b^3(9Ab-8aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{64a^{11/2}}+\frac{35b^2\sqrt{a+bx}(9Ab-8aB)}{64a^5x}-\frac{35b\sqrt{a+bx}(9Ab-8aB)}{96a^4x^2}+\frac{7\sqrt{a+bx}(9Ab-8aB)}{24a^3x^3}-\frac{9Ab-8aB}{4a^2x^3\sqrt{a+bx}}-\frac{A}{4ax^4\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^5*(a + b*x)^(3/2)),x]
```

```
[Out] -A/(4*a*x^4*Sqrt[a + b*x]) - (9*A*b - 8*a*B)/(4*a^2*x^3*Sqrt[a +
b*x]) + (7*(9*A*b - 8*a*B)*Sqrt[a + b*x])/(24*a^3*x^3) - (35*b*(9
*A*b - 8*a*B)*Sqrt[a + b*x])/(96*a^4*x^2) + (35*b^2*(9*A*b - 8*a*
B)*Sqrt[a + b*x])/(64*a^5*x) - (35*b^3*(9*A*b - 8*a*B)*ArcTanh[Sq
rt[a + b*x]/Sqrt[a]])/(64*a^(11/2))
```

Rubi in Sympy [A] time = 22.3211, size = 170, normalized size = 0.98

$$-\frac{A}{4ax^4\sqrt{a+bx}}-\frac{9Ab-8Ba}{4a^2x^3\sqrt{a+bx}}+\frac{7\sqrt{a+bx}\,(9Ab-8Ba)}{24a^3x^3}-\frac{35b\sqrt{a+bx}\,(9Ab-8Ba)}{96a^4x^2}+\frac{35b^2\sqrt{a+bx}\,(9Ab-8Ba)}{64a^5x}-\frac{35b^3\,(9Ab-8Ba)\,\mathrm{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{64a^{\frac{11}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**5/(b*x+a)**(3/2),x)
```

```
[Out] -A/(4*a*x**4*sqrt(a + b*x)) - (9*A*b - 8*B*a)/(4*a**2*x**3*sqrt(a
 + b*x)) + 7*sqrt(a + b*x)*(9*A*b - 8*B*a)/(24*a**3*x**3) - 35*b*
sqrt(a + b*x)*(9*A*b - 8*B*a)/(96*a**4*x**2) + 35*b**2*sqrt(a + b
*x)*(9*A*b - 8*B*a)/(64*a**5*x) - 35*b**3*(9*A*b - 8*B*a)*atanh(s
qrt(a + b*x)/sqrt(a))/(64*a**(11/2))
```

Mathematica [A] time = 0.294283, size = 131, normalized size = 0.75

$$\frac{35b^3(8aB-9Ab)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{64a^{11/2}}+\frac{-16a^4(3A+4Bx)+8a^3bx(9A+14Bx)-14a^2b^2x^2(9A+20Bx)+105ab^3x^3(3A-8Bx)+945Ab^4x^4}{192a^5x^4\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^5*(a + b*x)^(3/2)),x]
```

```
[Out] (945*A*b^4*x^4 + 105*a*b^3*x^3*(3*A - 8*B*x) - 16*a^4*(3*A + 4*B*
x) + 8*a^3*b*x*(9*A + 14*B*x) - 14*a^2*b^2*x^2*(9*A + 20*B*x))/(1
92*a^5*x^4*Sqrt[a + b*x]) + (35*b^3*(-9*A*b + 8*a*B)*ArcTanh[Sqrt
[a + b*x]/Sqrt[a]])/(64*a^(11/2))
```

Maple [A] time = 0.026, size = 147, normalized size = 0.8

$$2\,b^{3}\left(-\frac{-Ab+Ba}{a^{5}\sqrt{bx+a}}\right.$$
$$+\frac{1}{a^{5}}\left(\frac{1}{x^{4}b^{4}}\left(\left(\frac{187\,Ab}{128}-\frac{19\,Ba}{16}\right)(bx+a)^{7/2}+\left(-\frac{643\,Aab}{128}+\frac{193\,Ba^{2}}{48}\right)(bx+a)^{5/2}+\left(\frac{765\,Aa^{2}b}{128}-\frac{223\,Ba^{3}}{48}\right)(bx+a)^{3/2}+\left(-\right.\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^5/(b*x+a)^(3/2),x)
```

```
[Out] 2*b^3*(-1/a^5*(-A*b+B*a)/(b*x+a)^(1/2)+1/a^5*(((187/128*A*b-19/16
*B*a)*(b*x+a)^(7/2)+(-643/128*A*a*b+193/48*B*a^2)*(b*x+a)^(5/2)+(
765/128*A*a^2*b-223/48*B*a^3)*(b*x+a)^(3/2)+(-325/128*A*a^3*b+29/
16*B*a^4)*(b*x+a)^(1/2))/x^4/b^4-35/128*(9*A*b-8*B*a)/a^(1/2)*arc
tanh((b*x+a)^(1/2)/a^(1/2))))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(3/2)*x^5),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.233475, size = 1, normalized size = 0.01

$$\left[-\frac{105\left(8\,Bab^{3}-9\,Ab^{4}\right)\sqrt{bx+a}x^{4}\log\left(\frac{(bx+2\,a)\sqrt{a}-2\,\sqrt{bx+a}a}{x}\right)+2\left(48\,Aa^{4}+105\left(8\,Bab^{3}-9\,Ab^{4}\right)x^{4}+35\left(8\,Ba^{2}b^{2}-9\,Aab^{3}\right)x\right.}{384\,\sqrt{bx+a}a^{\frac{11}{2}}x^{4}}\right.$$

$$-\frac{105\left(8\,Bab^{3}-9\,Ab^{4}\right)\sqrt{bx+a}x^{4}\arctan\left(\frac{a}{\sqrt{bx+a}\sqrt{-a}}\right)+\left(48\,Aa^{4}+105\left(8\,Bab^{3}-9\,Ab^{4}\right)x^{4}+35\left(8\,Ba^{2}b^{2}-9\,Aab^{3}\right)x^{3}-14\left(\right.}{192\,\sqrt{bx+a}\sqrt{-a}a^{5}x^{4}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(3/2)*x^5),x, algorithm="fricas")
```

```
[Out] [-1/384*(105*(8*B*a*b^3 - 9*A*b^4)*sqrt(b*x + a)*x^4*log(((b*x +
2*a)*sqrt(a) - 2*sqrt(b*x + a)*a)/x) + 2*(48*A*a^4 + 105*(8*B*a*b
^3 - 9*A*b^4)*x^4 + 35*(8*B*a^2*b^2 - 9*A*a*b^3)*x^3 - 14*(8*B*a^
3*b - 9*A*a^2*b^2)*x^2 + 8*(8*B*a^4 - 9*A*a^3*b)*x)*sqrt(a))/(sqr
t(b*x + a)*a^(11/2)*x^4), -1/192*(105*(8*B*a*b^3 - 9*A*b^4)*sqrt(
b*x + a)*x^4*arctan(a/(sqrt(b*x + a)*sqrt(-a))) + (48*A*a^4 + 105
*(8*B*a*b^3 - 9*A*b^4)*x^4 + 35*(8*B*a^2*b^2 - 9*A*a*b^3)*x^3 - 1
```

```
4*(8*B*a^3*b - 9*A*a^2*b^2)*x^2 + 8*(8*B*a^4 - 9*A*a^3*b)*x)*sqrt
(-a))/(sqrt(b*x + a)*sqrt(-a)*a^5*x^4)]
```

Sympy [A] time = 81.554, size = 301, normalized size = 1.73

$$A\left(-\frac{1}{4a\sqrt{b}x^{\frac{9}{2}}\sqrt{\frac{a}{bx}+1}}+\frac{3\sqrt{b}}{8a^2x^{\frac{7}{2}}\sqrt{\frac{a}{bx}+1}}-\frac{21b^{\frac{3}{2}}}{32a^3x^{\frac{5}{2}}\sqrt{\frac{a}{bx}+1}}+\frac{105b^{\frac{5}{2}}}{64a^4x^{\frac{3}{2}}\sqrt{\frac{a}{bx}+1}}+\frac{315b^{\frac{7}{2}}}{64a^5\sqrt{x}\sqrt{\frac{a}{bx}+1}}-\frac{315b^4\operatorname{asinh}\left(\frac{\sqrt{a}}{\sqrt{b}\sqrt{x}}\right)}{64a^{\frac{11}{2}}}\right)+B\left(-\frac{1}{3a\sqrt{b}x^{\frac{7}{2}}\sqrt{\frac{a}{bx}+1}}+\frac{7\sqrt{b}}{12a^2x^{\frac{5}{2}}\sqrt{\frac{a}{bx}+1}}-\frac{35b^{\frac{3}{2}}}{24a^3x^{\frac{3}{2}}\sqrt{\frac{a}{bx}+1}}-\frac{35b^{\frac{5}{2}}}{8a^4\sqrt{x}\sqrt{\frac{a}{bx}+1}}+\frac{35b^3\operatorname{asinh}\left(\frac{\sqrt{a}}{\sqrt{b}\sqrt{x}}\right)}{8a^{\frac{9}{2}}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**5/(b*x+a)**(3/2),x)
```

```
[Out] A*(-1/(4*a*sqrt(b)*x**(9/2)*sqrt(a/(b*x) + 1)) + 3*sqrt(b)/(8*a**
2*x**(7/2)*sqrt(a/(b*x) + 1)) - 21*b**(3/2)/(32*a**3*x**(5/2)*sqr
t(a/(b*x) + 1)) + 105*b**(5/2)/(64*a**4*x**(3/2)*sqrt(a/(b*x) + 1
)) + 315*b**(7/2)/(64*a**5*sqrt(x)*sqrt(a/(b*x) + 1)) - 315*b**4*
asinh(sqrt(a)/(sqrt(b)*sqrt(x)))/(64*a**(11/2))) + B*(-1/(3*a*sqr
t(b)*x**(7/2)*sqrt(a/(b*x) + 1)) + 7*sqrt(b)/(12*a**2*x**(5/2)*sq
rt(a/(b*x) + 1)) - 35*b**(3/2)/(24*a**3*x**(3/2)*sqrt(a/(b*x) + 1
)) - 35*b**(5/2)/(8*a**4*sqrt(x)*sqrt(a/(b*x) + 1)) + 35*b**3*asi
nh(sqrt(a)/(sqrt(b)*sqrt(x)))/(8*a**(9/2)))
```

GIAC/XCAS [A] time = 0.215155, size = 266, normalized size = 1.53

$$-\frac{35\left(8\,Bab^3-9\,Ab^4\right)\arctan\left(\frac{\sqrt{bx+a}}{\sqrt{-a}}\right)}{64\,\sqrt{-a}a^5}-\frac{2\left(Bab^3-Ab^4\right)}{\sqrt{bx+a}a^5}-\frac{456\,(bx+a)^{\frac{7}{2}}Bab^3-1544\,(bx+a)^{\frac{5}{2}}Ba^2b^3+1784\,(bx+a)^{\frac{3}{2}}Ba^3b^3-696\,\sqrt{bx+a}Ba^4b^3-561\,(bx+a)^{\frac{7}{2}}Ab^4+1929\,(bx+a)}{192\,a^5b^4x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(3/2)*x^5),x, algorithm="giac")
```

```
[Out] -35/64*(8*B*a*b^3 - 9*A*b^4)*arctan(sqrt(b*x + a)/sqrt(-a))/(sqrt
(-a)*a^5) - 2*(B*a*b^3 - A*b^4)/(sqrt(b*x + a)*a^5) - 1/192*(456*
(b*x + a)^(7/2)*B*a*b^3 - 1544*(b*x + a)^(5/2)*B*a^2*b^3 + 1784*(
b*x + a)^(3/2)*B*a^3*b^3 - 696*sqrt(b*x + a)*B*a^4*b^3 - 561*(b*x
 + a)^(7/2)*A*b^4 + 1929*(b*x + a)^(5/2)*A*a*b^4 - 2295*(b*x + a)
^(3/2)*A*a^2*b^4 + 975*sqrt(b*x + a)*A*a^3*b^4)/(a^5*b^4*x^4)
```

3.432 $\int \frac{x^4(A+Bx)}{(a+bx)^{5/2}}\,dx$

Optimal. Leaf size=147

$$-\frac{2a^4(Ab-aB)}{3b^6(a+bx)^{3/2}}+\frac{2a^3(4Ab-5aB)}{b^6\sqrt{a+bx}}+\frac{4a^2\sqrt{a+bx}(3Ab-5aB)}{b^6}-\frac{4a(a+bx)^{3/2}(2Ab-5aB)}{3b^6}+\frac{2(a+bx)^{5/2}(Ab-5aB)}{5b^6}+\frac{2B(a+bx)^{7/2}}{7b^6}$$

```
[Out] (-2*a^4*(A*b - a*B))/(3*b^6*(a + b*x)^(3/2)) + (2*a^3*(4*A*b - 5*
a*B))/(b^6*Sqrt[a + b*x]) + (4*a^2*(3*A*b - 5*a*B)*Sqrt[a + b*x])
/b^6 - (4*a*(2*A*b - 5*a*B)*(a + b*x)^(3/2))/(3*b^6) + (2*(A*b -
5*a*B)*(a + b*x)^(5/2))/(5*b^6) + (2*B*(a + b*x)^(7/2))/(7*b^6)
```

Rubi [A] time = 0.183338, antiderivative size = 147, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{2a^4(Ab-aB)}{3b^6(a+bx)^{3/2}}+\frac{2a^3(4Ab-5aB)}{b^6\sqrt{a+bx}}+\frac{4a^2\sqrt{a+bx}(3Ab-5aB)}{b^6}-\frac{4a(a+bx)^{3/2}(2Ab-5aB)}{3b^6}+\frac{2(a+bx)^{5/2}(Ab-5aB)}{5b^6}+\frac{2B(a+bx)^{7/2}}{7b^6}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^4*(A + B*x))/(a + b*x)^(5/2),x]
```

```
[Out] (-2*a^4*(A*b - a*B))/(3*b^6*(a + b*x)^(3/2)) + (2*a^3*(4*A*b - 5*
a*B))/(b^6*Sqrt[a + b*x]) + (4*a^2*(3*A*b - 5*a*B)*Sqrt[a + b*x])
/b^6 - (4*a*(2*A*b - 5*a*B)*(a + b*x)^(3/2))/(3*b^6) + (2*(A*b -
5*a*B)*(a + b*x)^(5/2))/(5*b^6) + (2*B*(a + b*x)^(7/2))/(7*b^6)
```

Rubi in Sympy [A] time = 26.968, size = 146, normalized size = 0.99

$$\frac{2B(a+bx)^{\frac{7}{2}}}{7b^6}-\frac{2a^4(Ab-Ba)}{3b^6(a+bx)^{\frac{3}{2}}}+\frac{2a^3(4Ab-5Ba)}{b^6\sqrt{a+bx}}+\frac{4a^2\sqrt{a+bx}(3Ab-5Ba)}{b^6}-\frac{4a(a+bx)^{\frac{3}{2}}(2Ab-5Ba)}{3b^6}+\frac{2(a+bx)^{\frac{5}{2}}(Ab-5Ba)}{5b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**4*(B*x+A)/(b*x+a)**(5/2),x)
```

```
[Out] 2*B*(a + b*x)**(7/2)/(7*b**6) - 2*a**4*(A*b - B*a)/(3*b**6*(a + b
*x)**(3/2)) + 2*a**3*(4*A*b - 5*B*a)/(b**6*sqrt(a + b*x)) + 4*a**
2*sqrt(a + b*x)*(3*A*b - 5*B*a)/b**6 - 4*a*(a + b*x)**(3/2)*(2*A*
b - 5*B*a)/(3*b**6) + 2*(a + b*x)**(5/2)*(A*b - 5*B*a)/(5*b**6)
```

Mathematica [A] time = 0.116713, size = 106, normalized size = 0.72

$$\frac{-2560a^5B+256a^4b(7A-15Bx)+192a^3b^2x(14A-5Bx)+32a^2b^3x^2(21A+5Bx)-4ab^4x^3(28A+15Bx)+6b^5x^4(7A+5Bx)}{105b^6(a+bx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^4*(A + B*x))/(a + b*x)^(5/2),x]
```

```
[Out] (-2560*a^5*B + 256*a^4*b*(7*A - 15*B*x) + 192*a^3*b^2*x*(14*A - 5
*B*x) + 6*b^5*x^4*(7*A + 5*B*x) + 32*a^2*b^3*x^2*(21*A + 5*B*x) -
 4*a*b^4*x^3*(28*A + 15*B*x))/(105*b^6*(a + b*x)^(3/2))
```

Maple [A] time = 0.008, size = 119, normalized size = 0.8

$$\frac{30\,b^5Bx^5+42\,Ax^4b^5-60\,Bx^4ab^4-112\,Ax^3ab^4+160\,Bx^3a^2b^3+672\,Ax^2a^2b^3-960\,Bx^2a^3b^2+2688\,Axa^3b^2-3840\,Bxa^4b}{105\,b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^4*(B*x+A)/(b*x+a)^(5/2),x)
```

```
[Out] 2/105/(b*x+a)^(3/2)*(15*B*b^5*x^5+21*A*b^5*x^4-30*B*a*b^4*x^4-56*
A*a*b^4*x^3+80*B*a^2*b^3*x^3+336*A*a^2*b^3*x^2-480*B*a^3*b^2*x^2+
1344*A*a^3*b^2*x-1920*B*a^4*b*x+896*A*a^4*b-1280*B*a^5)/b^6
```

Maxima [A] time = 1.35215, size = 174, normalized size = 1.18

$$\frac{2\left(\frac{15\,(bx+a)^{\frac{7}{2}}B-21\,(5\,Ba-Ab)(bx+a)^{\frac{5}{2}}+70\,\left(5\,Ba^2-2\,Aab\right)(bx+a)^{\frac{3}{2}}-210\,\left(5\,Ba^3-3\,Aa^2b\right)\sqrt{bx+a}}{b}+\frac{35\,\left(Ba^5-Aa^4b-3\,\left(5\,Ba^4-4\,Aa^3b\right)(bx+a)\right)}{(bx+a)^{\frac{3}{2}}\,b}\right)}{105\,b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^4/(b*x + a)^(5/2),x, algorithm="maxima")
```

```
[Out] 2/105*((15*(b*x + a)^(7/2)*B - 21*(5*B*a - A*b)*(b*x + a)^(5/2) +
 70*(5*B*a^2 - 2*A*a*b)*(b*x + a)^(3/2) - 210*(5*B*a^3 - 3*A*a^2*
b)*sqrt(b*x + a))/b + 35*(B*a^5 - A*a^4*b - 3*(5*B*a^4 - 4*A*a^3*
b)*(b*x + a))/((b*x + a)^(3/2)*b))/b^5
```

Fricas [A] time = 0.215891, size = 176, normalized size = 1.2

$$\frac{2\left(15\,Bb^5x^5-1280\,Ba^5+896\,Aa^4b-3\left(10\,Bab^4-7\,Ab^5\right)x^4+8\left(10\,Ba^2b^3-7\,Aab^4\right)x^3-48\left(10\,Ba^3b^2-7\,Aa^2b^3\right)x^2-192}{105\,(b^7x+ab^6)\sqrt{bx+a}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^4/(b*x + a)^(5/2),x, algorithm="fricas")
```

```
[Out] 2/105*(15*B*b^5*x^5 - 1280*B*a^5 + 896*A*a^4*b - 3*(10*B*a*b^4 -
7*A*b^5)*x^4 + 8*(10*B*a^2*b^3 - 7*A*a*b^4)*x^3 - 48*(10*B*a^3*b^
2 - 7*A*a^2*b^3)*x^2 - 192*(10*B*a^4*b - 7*A*a^3*b^2)*x)/((b^7*x
+ a*b^6)*sqrt(b*x + a))
```

Sympy [A] time = 47.3056, size = 10594, normalized size = 72.07

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**4*(B*x+A)/(b*x+a)**(5/2),x)
```

```
[Out] A*(256*a**(85/2)*sqrt(1 + b*x/a)/(15*a**40*b**5 + 150*a**39*b**6*
x + 675*a**38*b**7*x**2 + 1800*a**37*b**8*x**3 + 3150*a**36*b**9*
```

```
x**4 + 3780*a**35*b**10*x**5 + 3150*a**34*b**11*x**6 + 1800*a**33
*b**12*x**7 + 675*a**32*b**13*x**8 + 150*a**31*b**14*x**9 + 15*a*
*30*b**15*x**10) - 256*a**(85/2)/(15*a**40*b**5 + 150*a**39*b**6*
x + 675*a**38*b**7*x**2 + 1800*a**37*b**8*x**3 + 3150*a**36*b**9*
x**4 + 3780*a**35*b**10*x**5 + 3150*a**34*b**11*x**6 + 1800*a**33
*b**12*x**7 + 675*a**32*b**13*x**8 + 150*a**31*b**14*x**9 + 15*a*
*30*b**15*x**10) + 2432*a**(83/2)*b*x*sqrt(1 + b*x/a)/(15*a**40*b
**5 + 150*a**39*b**6*x + 675*a**38*b**7*x**2 + 1800*a**37*b**8*x*
*3 + 3150*a**36*b**9*x**4 + 3780*a**35*b**10*x**5 + 3150*a**34*b*
*11*x**6 + 1800*a**33*b**12*x**7 + 675*a**32*b**13*x**8 + 150*a**
31*b**14*x**9 + 15*a**30*b**15*x**10) - 2560*a**(83/2)*b*x/(15*a*
*40*b**5 + 150*a**39*b**6*x + 675*a**38*b**7*x**2 + 1800*a**37*b*
*8*x**3 + 3150*a**36*b**9*x**4 + 3780*a**35*b**10*x**5 + 3150*a**
34*b**11*x**6 + 1800*a**33*b**12*x**7 + 675*a**32*b**13*x**8 + 15
0*a**31*b**14*x**9 + 15*a**30*b**15*x**10) + 10336*a**(81/2)*b**2
*x**2*sqrt(1 + b*x/a)/(15*a**40*b**5 + 150*a**39*b**6*x + 675*a**
38*b**7*x**2 + 1800*a**37*b**8*x**3 + 3150*a**36*b**9*x**4 + 3780
*a**35*b**10*x**5 + 3150*a**34*b**11*x**6 + 1800*a**33*b**12*x**7
 + 675*a**32*b**13*x**8 + 150*a**31*b**14*x**9 + 15*a**30*b**15*x
**10) - 11520*a**(81/2)*b**2*x**2/(15*a**40*b**5 + 150*a**39*b**6
*x + 675*a**38*b**7*x**2 + 1800*a**37*b**8*x**3 + 3150*a**36*b**9
*x**4 + 3780*a**35*b**10*x**5 + 3150*a**34*b**11*x**6 + 1800*a**3
3*b**12*x**7 + 675*a**32*b**13*x**8 + 150*a**31*b**14*x**9 + 15*a
**30*b**15*x**10) + 25840*a**(79/2)*b**3*x**3*sqrt(1 + b*x/a)/(15
*a**40*b**5 + 150*a**39*b**6*x + 675*a**38*b**7*x**2 + 1800*a**37
*b**8*x**3 + 3150*a**36*b**9*x**4 + 3780*a**35*b**10*x**5 + 3150*
a**34*b**11*x**6 + 1800*a**33*b**12*x**7 + 675*a**32*b**13*x**8 +
 150*a**31*b**14*x**9 + 15*a**30*b**15*x**10) - 30720*a**(79/2)*b
**3*x**3/(15*a**40*b**5 + 150*a**39*b**6*x + 675*a**38*b**7*x**2
+ 1800*a**37*b**8*x**3 + 3150*a**36*b**9*x**4 + 3780*a**35*b**10*
x**5 + 3150*a**34*b**11*x**6 + 1800*a**33*b**12*x**7 + 675*a**32*
b**13*x**8 + 150*a**31*b**14*x**9 + 15*a**30*b**15*x**10) + 41990
*a**(77/2)*b**4*x**4*sqrt(1 + b*x/a)/(15*a**40*b**5 + 150*a**39*b
**6*x + 675*a**38*b**7*x**2 + 1800*a**37*b**8*x**3 + 3150*a**36*b
**9*x**4 + 3780*a**35*b**10*x**5 + 3150*a**34*b**11*x**6 + 1800*a
**33*b**12*x**7 + 675*a**32*b**13*x**8 + 150*a**31*b**14*x**9 + 1
5*a**30*b**15*x**10) - 53760*a**(77/2)*b**4*x**4/(15*a**40*b**5 +
 150*a**39*b**6*x + 675*a**38*b**7*x**2 + 1800*a**37*b**8*x**3 +
3150*a**36*b**9*x**4 + 3780*a**35*b**10*x**5 + 3150*a**34*b**11*x
**6 + 1800*a**33*b**12*x**7 + 675*a**32*b**13*x**8 + 150*a**31*b*
*14*x**9 + 15*a**30*b**15*x**10) + 46192*a**(75/2)*b**5*x**5*sqrt
(1 + b*x/a)/(15*a**40*b**5 + 150*a**39*b**6*x + 675*a**38*b**7*x*
*2 + 1800*a**37*b**8*x**3 + 3150*a**36*b**9*x**4 + 3780*a**35*b**
10*x**5 + 3150*a**34*b**11*x**6 + 1800*a**33*b**12*x**7 + 675*a**
32*b**13*x**8 + 150*a**31*b**14*x**9 + 15*a**30*b**15*x**10) - 64
512*a**(75/2)*b**5*x**5/(15*a**40*b**5 + 150*a**39*b**6*x + 675*a
**38*b**7*x**2 + 1800*a**37*b**8*x**3 + 3150*a**36*b**9*x**4 + 37
80*a**35*b**10*x**5 + 3150*a**34*b**11*x**6 + 1800*a**33*b**12*x*
*7 + 675*a**32*b**13*x**8 + 150*a**31*b**14*x**9 + 15*a**30*b**15
*x**10) + 34664*a**(73/2)*b**6*x**6*sqrt(1 + b*x/a)/(15*a**40*b**
5 + 150*a**39*b**6*x + 675*a**38*b**7*x**2 + 1800*a**37*b**8*x**3
 + 3150*a**36*b**9*x**4 + 3780*a**35*b**10*x**5 + 3150*a**34*b**1
1*x**6 + 1800*a**33*b**12*x**7 + 675*a**32*b**13*x**8 + 150*a**31
*b**14*x**9 + 15*a**30*b**15*x**10) - 53760*a**(73/2)*b**6*x**6/(
15*a**40*b**5 + 150*a**39*b**6*x + 675*a**38*b**7*x**2 + 1800*a**
37*b**8*x**3 + 3150*a**36*b**9*x**4 + 3780*a**35*b**10*x**5 + 315
0*a**34*b**11*x**6 + 1800*a**33*b**12*x**7 + 675*a**32*b**13*x**8
 + 150*a**31*b**14*x**9 + 15*a**30*b**15*x**10) + 17392*a**(71/2)
*b**7*x**7*sqrt(1 + b*x/a)/(15*a**40*b**5 + 150*a**39*b**6*x + 67
5*a**38*b**7*x**2 + 1800*a**37*b**8*x**3 + 3150*a**36*b**9*x**4 +
 3780*a**35*b**10*x**5 + 3150*a**34*b**11*x**6 + 1800*a**33*b**12
*x**7 + 675*a**32*b**13*x**8 + 150*a**31*b**14*x**9 + 15*a**30*b*
*15*x**10) - 30720*a**(71/2)*b**7*x**7/(15*a**40*b**5 + 150*a**39
*b**6*x + 675*a**38*b**7*x**2 + 1800*a**37*b**8*x**3 + 3150*a**36
*b**9*x**4 + 3780*a**35*b**10*x**5 + 3150*a**34*b**11*x**6 + 1800
*a**33*b**12*x**7 + 675*a**32*b**13*x**8 + 150*a**31*b**14*x**9 +
 15*a**30*b**15*x**10) + 5540*a**(69/2)*b**8*x**8*sqrt(1 + b*x/a)
/(15*a**40*b**5 + 150*a**39*b**6*x + 675*a**38*b**7*x**2 + 1800*a
**37*b**8*x**3 + 3150*a**36*b**9*x**4 + 3780*a**35*b**10*x**5 + 3
150*a**34*b**11*x**6 + 1800*a**33*b**12*x**7 + 675*a**32*b**13*x*
*8 + 150*a**31*b**14*x**9 + 15*a**30*b**15*x**10) - 11520*a**(69/
2)*b**8*x**8/(15*a**40*b**5 + 150*a**39*b**6*x + 675*a**38*b**7*x
**2 + 1800*a**37*b**8*x**3 + 3150*a**36*b**9*x**4 + 3780*a**35*b*
*10*x**5 + 3150*a**34*b**11*x**6 + 1800*a**33*b**12*x**7 + 675*a*
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*32*b**13*x**8 + 150*a**31*b**14*x**9 + 15*a**30*b**15*x**10) + 1
040*a**(67/2)*b**9*x**9*sqrt(1 + b*x/a)/(15*a**40*b**5 + 150*a**3
9*b**6*x + 675*a**38*b**7*x**2 + 1800*a**37*b**8*x**3 + 3150*a**3
6*b**9*x**4 + 3780*a**35*b**10*x**5 + 3150*a**34*b**11*x**6 + 180
0*a**33*b**12*x**7 + 675*a**32*b**13*x**8 + 150*a**31*b**14*x**9
+ 15*a**30*b**15*x**10) - 2560*a**(67/2)*b**9*x**9/(15*a**40*b**5
 + 150*a**39*b**6*x + 675*a**38*b**7*x**2 + 1800*a**37*b**8*x**3
+ 3150*a**36*b**9*x**4 + 3780*a**35*b**10*x**5 + 3150*a**34*b**11
*x**6 + 1800*a**33*b**12*x**7 + 675*a**32*b**13*x**8 + 150*a**31*
b**14*x**9 + 15*a**30*b**15*x**10) + 136*a**(65/2)*b**10*x**10*sq
rt(1 + b*x/a)/(15*a**40*b**5 + 150*a**39*b**6*x + 675*a**38*b**7*
x**2 + 1800*a**37*b**8*x**3 + 3150*a**36*b**9*x**4 + 3780*a**35*b
**10*x**5 + 3150*a**34*b**11*x**6 + 1800*a**33*b**12*x**7 + 675*a
**32*b**13*x**8 + 150*a**31*b**14*x**9 + 15*a**30*b**15*x**10) -
256*a**(65/2)*b**10*x**10/(15*a**40*b**5 + 150*a**39*b**6*x + 675
*a**38*b**7*x**2 + 1800*a**37*b**8*x**3 + 3150*a**36*b**9*x**4 +
3780*a**35*b**10*x**5 + 3150*a**34*b**11*x**6 + 1800*a**33*b**12*
x**7 + 675*a**32*b**13*x**8 + 150*a**31*b**14*x**9 + 15*a**30*b**
15*x**10) + 32*a**(63/2)*b**11*x**11*sqrt(1 + b*x/a)/(15*a**40*b*
*5 + 150*a**39*b**6*x + 675*a**38*b**7*x**2 + 1800*a**37*b**8*x**
3 + 3150*a**36*b**9*x**4 + 3780*a**35*b**10*x**5 + 3150*a**34*b**
11*x**6 + 1800*a**33*b**12*x**7 + 675*a**32*b**13*x**8 + 150*a**3
1*b**14*x**9 + 15*a**30*b**15*x**10) + 6*a**(61/2)*b**12*x**12*sq
rt(1 + b*x/a)/(15*a**40*b**5 + 150*a**39*b**6*x + 675*a**38*b**7*
x**2 + 1800*a**37*b**8*x**3 + 3150*a**36*b**9*x**4 + 3780*a**35*b
**10*x**5 + 3150*a**34*b**11*x**6 + 1800*a**33*b**12*x**7 + 675*a
**32*b**13*x**8 + 150*a**31*b**14*x**9 + 15*a**30*b**15*x**10)) +
 B*(-512*a**(147/2)*sqrt(1 + b*x/a)/(21*a**70*b**6 + 315*a**69*b*
*7*x + 2205*a**68*b**8*x**2 + 9555*a**67*b**9*x**3 + 28665*a**66*
b**10*x**4 + 63063*a**65*b**11*x**5 + 105105*a**64*b**12*x**6 + 1
35135*a**63*b**13*x**7 + 135135*a**62*b**14*x**8 + 105105*a**61*b
**15*x**9 + 63063*a**60*b**16*x**10 + 28665*a**59*b**17*x**11 + 9
555*a**58*b**18*x**12 + 2205*a**57*b**19*x**13 + 315*a**56*b**20*
x**14 + 21*a**55*b**21*x**15) + 512*a**(147/2)/(21*a**70*b**6 + 3
15*a**69*b**7*x + 2205*a**68*b**8*x**2 + 9555*a**67*b**9*x**3 + 2
8665*a**66*b**10*x**4 + 63063*a**65*b**11*x**5 + 105105*a**64*b**
12*x**6 + 135135*a**63*b**13*x**7 + 135135*a**62*b**14*x**8 + 105
105*a**61*b**15*x**9 + 63063*a**60*b**16*x**10 + 28665*a**59*b**1
7*x**11 + 9555*a**58*b**18*x**12 + 2205*a**57*b**19*x**13 + 315*a
**56*b**20*x**14 + 21*a**55*b**21*x**15) - 7424*a**(145/2)*b*x*sq
rt(1 + b*x/a)/(21*a**70*b**6 + 315*a**69*b**7*x + 2205*a**68*b**8
*x**2 + 9555*a**67*b**9*x**3 + 28665*a**66*b**10*x**4 + 63063*a**
65*b**11*x**5 + 105105*a**64*b**12*x**6 + 135135*a**63*b**13*x**7
 + 135135*a**62*b**14*x**8 + 105105*a**61*b**15*x**9 + 63063*a**6
0*b**16*x**10 + 28665*a**59*b**17*x**11 + 9555*a**58*b**18*x**12
+ 2205*a**57*b**19*x**13 + 315*a**56*b**20*x**14 + 21*a**55*b**21
*x**15) + 7680*a**(145/2)*b*x/(21*a**70*b**6 + 315*a**69*b**7*x +
 2205*a**68*b**8*x**2 + 9555*a**67*b**9*x**3 + 28665*a**66*b**10*
x**4 + 63063*a**65*b**11*x**5 + 105105*a**64*b**12*x**6 + 135135*
a**63*b**13*x**7 + 135135*a**62*b**14*x**8 + 105105*a**61*b**15*x
**9 + 63063*a**60*b**16*x**10 + 28665*a**59*b**17*x**11 + 9555*a*
*58*b**18*x**12 + 2205*a**57*b**19*x**13 + 315*a**56*b**20*x**14
+ 21*a**55*b**21*x**15) - 50112*a**(143/2)*b**2*x**2*sqrt(1 + b*x
/a)/(21*a**70*b**6 + 315*a**69*b**7*x + 2205*a**68*b**8*x**2 + 95
55*a**67*b**9*x**3 + 28665*a**66*b**10*x**4 + 63063*a**65*b**11*x
**5 + 105105*a**64*b**12*x**6 + 135135*a**63*b**13*x**7 + 135135*
a**62*b**14*x**8 + 105105*a**61*b**15*x**9 + 63063*a**60*b**16*x*
*10 + 28665*a**59*b**17*x**11 + 9555*a**58*b**18*x**12 + 2205*a**
57*b**19*x**13 + 315*a**56*b**20*x**14 + 21*a**55*b**21*x**15) +
53760*a**(143/2)*b**2*x**2/(21*a**70*b**6 + 315*a**69*b**7*x + 22
05*a**68*b**8*x**2 + 9555*a**67*b**9*x**3 + 28665*a**66*b**10*x**
4 + 63063*a**65*b**11*x**5 + 105105*a**64*b**12*x**6 + 135135*a**
63*b**13*x**7 + 135135*a**62*b**14*x**8 + 105105*a**61*b**15*x**9
 + 63063*a**60*b**16*x**10 + 28665*a**59*b**17*x**11 + 9555*a**58
*b**18*x**12 + 2205*a**57*b**19*x**13 + 315*a**56*b**20*x**14 + 2
1*a**55*b**21*x**15) - 208800*a**(141/2)*b**3*x**3*sqrt(1 + b*x/a
)/(21*a**70*b**6 + 315*a**69*b**7*x + 2205*a**68*b**8*x**2 + 9555
*a**67*b**9*x**3 + 28665*a**66*b**10*x**4 + 63063*a**65*b**11*x**
5 + 105105*a**64*b**12*x**6 + 135135*a**63*b**13*x**7 + 135135*a*
*62*b**14*x**8 + 105105*a**61*b**15*x**9 + 63063*a**60*b**16*x**1
0 + 28665*a**59*b**17*x**11 + 9555*a**58*b**18*x**12 + 2205*a**57
*b**19*x**13 + 315*a**56*b**20*x**14 + 21*a**55*b**21*x**15) + 23
2960*a**(141/2)*b**3*x**3/(21*a**70*b**6 + 315*a**69*b**7*x + 220
5*a**68*b**8*x**2 + 9555*a**67*b**9*x**3 + 28665*a**66*b**10*x**4
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 + 63063*a**65*b**11*x**5 + 105105*a**64*b**12*x**6 + 135135*a**6
3*b**13*x**7 + 135135*a**62*b**14*x**8 + 105105*a**61*b**15*x**9
+ 63063*a**60*b**16*x**10 + 28665*a**59*b**17*x**11 + 9555*a**58*
b**18*x**12 + 2205*a**57*b**19*x**13 + 315*a**56*b**20*x**14 + 21
*a**55*b**21*x**15) - 600300*a**(139/2)*b**4*x**4*sqrt(1 + b*x/a)
/(21*a**70*b**6 + 315*a**69*b**7*x + 2205*a**68*b**8*x**2 + 9555*
a**67*b**9*x**3 + 28665*a**66*b**10*x**4 + 63063*a**65*b**11*x**5
 + 105105*a**64*b**12*x**6 + 135135*a**63*b**13*x**7 + 135135*a**
62*b**14*x**8 + 105105*a**61*b**15*x**9 + 63063*a**60*b**16*x**10
 + 28665*a**59*b**17*x**11 + 9555*a**58*b**18*x**12 + 2205*a**57*
b**19*x**13 + 315*a**56*b**20*x**14 + 21*a**55*b**21*x**15) + 698
880*a**(139/2)*b**4*x**4/(21*a**70*b**6 + 315*a**69*b**7*x + 2205
*a**68*b**8*x**2 + 9555*a**67*b**9*x**3 + 28665*a**66*b**10*x**4
+ 63063*a**65*b**11*x**5 + 105105*a**64*b**12*x**6 + 135135*a**63
*b**13*x**7 + 135135*a**62*b**14*x**8 + 105105*a**61*b**15*x**9 +
 63063*a**60*b**16*x**10 + 28665*a**59*b**17*x**11 + 9555*a**58*b
**18*x**12 + 2205*a**57*b**19*x**13 + 315*a**56*b**20*x**14 + 21*
a**55*b**21*x**15) - 1260630*a**(137/2)*b**5*x**5*sqrt(1 + b*x/a)
/(21*a**70*b**6 + 315*a**69*b**7*x + 2205*a**68*b**8*x**2 + 9555*
a**67*b**9*x**3 + 28665*a**66*b**10*x**4 + 63063*a**65*b**11*x**5
 + 105105*a**64*b**12*x**6 + 135135*a**63*b**13*x**7 + 135135*a**
62*b**14*x**8 + 105105*a**61*b**15*x**9 + 63063*a**60*b**16*x**10
 + 28665*a**59*b**17*x**11 + 9555*a**58*b**18*x**12 + 2205*a**57*
b**19*x**13 + 315*a**56*b**20*x**14 + 21*a**55*b**21*x**15) + 153
7536*a**(137/2)*b**5*x**5/(21*a**70*b**6 + 315*a**69*b**7*x + 220
5*a**68*b**8*x**2 + 9555*a**67*b**9*x**3 + 28665*a**66*b**10*x**4
 + 63063*a**65*b**11*x**5 + 105105*a**64*b**12*x**6 + 135135*a**6
3*b**13*x**7 + 135135*a**62*b**14*x**8 + 105105*a**61*b**15*x**9
+ 63063*a**60*b**16*x**10 + 28665*a**59*b**17*x**11 + 9555*a**58*
b**18*x**12 + 2205*a**57*b**19*x**13 + 315*a**56*b**20*x**14 + 21
*a**55*b**21*x**15) - 1995994*a**(135/2)*b**6*x**6*sqrt(1 + b*x/a
)/(21*a**70*b**6 + 315*a**69*b**7*x + 2205*a**68*b**8*x**2 + 9555
*a**67*b**9*x**3 + 28665*a**66*b**10*x**4 + 63063*a**65*b**11*x**
5 + 105105*a**64*b**12*x**6 + 135135*a**63*b**13*x**7 + 135135*a*
*62*b**14*x**8 + 105105*a**61*b**15*x**9 + 63063*a**60*b**16*x**1
0 + 28665*a**59*b**17*x**11 + 9555*a**58*b**18*x**12 + 2205*a**57
*b**19*x**13 + 315*a**56*b**20*x**14 + 21*a**55*b**21*x**15) + 25
62560*a**(135/2)*b**6*x**6/(21*a**70*b**6 + 315*a**69*b**7*x + 22
05*a**68*b**8*x**2 + 9555*a**67*b**9*x**3 + 28665*a**66*b**10*x**
4 + 63063*a**65*b**11*x**5 + 105105*a**64*b**12*x**6 + 135135*a**
63*b**13*x**7 + 135135*a**62*b**14*x**8 + 105105*a**61*b**15*x**9
 + 63063*a**60*b**16*x**10 + 28665*a**59*b**17*x**11 + 9555*a**58
*b**18*x**12 + 2205*a**57*b**19*x**13 + 315*a**56*b**20*x**14 + 2
1*a**55*b**21*x**15) - 2423668*a**(133/2)*b**7*x**7*sqrt(1 + b*x/
a)/(21*a**70*b**6 + 315*a**69*b**7*x + 2205*a**68*b**8*x**2 + 955
5*a**67*b**9*x**3 + 28665*a**66*b**10*x**4 + 63063*a**65*b**11*x*
*5 + 105105*a**64*b**12*x**6 + 135135*a**63*b**13*x**7 + 135135*a
**62*b**14*x**8 + 105105*a**61*b**15*x**9 + 63063*a**60*b**16*x**
10 + 28665*a**59*b**17*x**11 + 9555*a**58*b**18*x**12 + 2205*a**5
7*b**19*x**13 + 315*a**56*b**20*x**14 + 21*a**55*b**21*x**15) + 3
294720*a**(133/2)*b**7*x**7/(21*a**70*b**6 + 315*a**69*b**7*x + 2
205*a**68*b**8*x**2 + 9555*a**67*b**9*x**3 + 28665*a**66*b**10*x*
*4 + 63063*a**65*b**11*x**5 + 105105*a**64*b**12*x**6 + 135135*a*
*63*b**13*x**7 + 135135*a**62*b**14*x**8 + 105105*a**61*b**15*x**
9 + 63063*a**60*b**16*x**10 + 28665*a**59*b**17*x**11 + 9555*a**5
8*b**18*x**12 + 2205*a**57*b**19*x**13 + 315*a**56*b**20*x**14 +
21*a**55*b**21*x**15) - 2271984*a**(131/2)*b**8*x**8*sqrt(1 + b*x
/a)/(21*a**70*b**6 + 315*a**69*b**7*x + 2205*a**68*b**8*x**2 + 95
55*a**67*b**9*x**3 + 28665*a**66*b**10*x**4 + 63063*a**65*b**11*x
**5 + 105105*a**64*b**12*x**6 + 135135*a**63*b**13*x**7 + 135135*
a**62*b**14*x**8 + 105105*a**61*b**15*x**9 + 63063*a**60*b**16*x*
*10 + 28665*a**59*b**17*x**11 + 9555*a**58*b**18*x**12 + 2205*a**
57*b**19*x**13 + 315*a**56*b**20*x**14 + 21*a**55*b**21*x**15) +
3294720*a**(131/2)*b**8*x**8/(21*a**70*b**6 + 315*a**69*b**7*x +
2205*a**68*b**8*x**2 + 9555*a**67*b**9*x**3 + 28665*a**66*b**10*x
**4 + 63063*a**65*b**11*x**5 + 105105*a**64*b**12*x**6 + 135135*a
**63*b**13*x**7 + 135135*a**62*b**14*x**8 + 105105*a**61*b**15*x*
*9 + 63063*a**60*b**16*x**10 + 28665*a**59*b**17*x**11 + 9555*a**
58*b**18*x**12 + 2205*a**57*b**19*x**13 + 315*a**56*b**20*x**14 +
 21*a**55*b**21*x**15) - 1640210*a**(129/2)*b**9*x**9*sqrt(1 + b*
x/a)/(21*a**70*b**6 + 315*a**69*b**7*x + 2205*a**68*b**8*x**2 + 9
555*a**67*b**9*x**3 + 28665*a**66*b**10*x**4 + 63063*a**65*b**11*
x**5 + 105105*a**64*b**12*x**6 + 135135*a**63*b**13*x**7 + 135135
*a**62*b**14*x**8 + 105105*a**61*b**15*x**9 + 63063*a**60*b**16*x
```

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**10 + 28665*a**59*b**17*x**11 + 9555*a**58*b**18*x**12 + 2205*a*
*57*b**19*x**13 + 315*a**56*b**20*x**14 + 21*a**55*b**21*x**15) +
 2562560*a**(129/2)*b**9*x**9/(21*a**70*b**6 + 315*a**69*b**7*x +
 2205*a**68*b**8*x**2 + 9555*a**67*b**9*x**3 + 28665*a**66*b**10*
x**4 + 63063*a**65*b**11*x**5 + 105105*a**64*b**12*x**6 + 135135*
a**63*b**13*x**7 + 135135*a**62*b**14*x**8 + 105105*a**61*b**15*x
**9 + 63063*a**60*b**16*x**10 + 28665*a**59*b**17*x**11 + 9555*a*
*58*b**18*x**12 + 2205*a**57*b**19*x**13 + 315*a**56*b**20*x**14
+ 21*a**55*b**21*x**15) - 900614*a**(127/2)*b**10*x**10*sqrt(1 +
b*x/a)/(21*a**70*b**6 + 315*a**69*b**7*x + 2205*a**68*b**8*x**2 +
 9555*a**67*b**9*x**3 + 28665*a**66*b**10*x**4 + 63063*a**65*b**1
1*x**5 + 105105*a**64*b**12*x**6 + 135135*a**63*b**13*x**7 + 1351
35*a**62*b**14*x**8 + 105105*a**61*b**15*x**9 + 63063*a**60*b**16
*x**10 + 28665*a**59*b**17*x**11 + 9555*a**58*b**18*x**12 + 2205*
a**57*b**19*x**13 + 315*a**56*b**20*x**14 + 21*a**55*b**21*x**15)
 + 1537536*a**(127/2)*b**10*x**10/(21*a**70*b**6 + 315*a**69*b**7
*x + 2205*a**68*b**8*x**2 + 9555*a**67*b**9*x**3 + 28665*a**66*b*
*10*x**4 + 63063*a**65*b**11*x**5 + 105105*a**64*b**12*x**6 + 135
135*a**63*b**13*x**7 + 135135*a**62*b**14*x**8 + 105105*a**61*b**
15*x**9 + 63063*a**60*b**16*x**10 + 28665*a**59*b**17*x**11 + 955
5*a**58*b**18*x**12 + 2205*a**57*b**19*x**13 + 315*a**56*b**20*x*
*14 + 21*a**55*b**21*x**15) - 365976*a**(125/2)*b**11*x**11*sqrt(
1 + b*x/a)/(21*a**70*b**6 + 315*a**69*b**7*x + 2205*a**68*b**8*x*
*2 + 9555*a**67*b**9*x**3 + 28665*a**66*b**10*x**4 + 63063*a**65*
b**11*x**5 + 105105*a**64*b**12*x**6 + 135135*a**63*b**13*x**7 +
135135*a**62*b**14*x**8 + 105105*a**61*b**15*x**9 + 63063*a**60*b
**16*x**10 + 28665*a**59*b**17*x**11 + 9555*a**58*b**18*x**12 + 2
205*a**57*b**19*x**13 + 315*a**56*b**20*x**14 + 21*a**55*b**21*x*
*15) + 698880*a**(125/2)*b**11*x**11/(21*a**70*b**6 + 315*a**69*b
**7*x + 2205*a**68*b**8*x**2 + 9555*a**67*b**9*x**3 + 28665*a**66
*b**10*x**4 + 63063*a**65*b**11*x**5 + 105105*a**64*b**12*x**6 +
135135*a**63*b**13*x**7 + 135135*a**62*b**14*x**8 + 105105*a**61*
b**15*x**9 + 63063*a**60*b**16*x**10 + 28665*a**59*b**17*x**11 +
9555*a**58*b**18*x**12 + 2205*a**57*b**19*x**13 + 315*a**56*b**20
*x**14 + 21*a**55*b**21*x**15) - 103740*a**(123/2)*b**12*x**12*sq
rt(1 + b*x/a)/(21*a**70*b**6 + 315*a**69*b**7*x + 2205*a**68*b**8
*x**2 + 9555*a**67*b**9*x**3 + 28665*a**66*b**10*x**4 + 63063*a**
65*b**11*x**5 + 105105*a**64*b**12*x**6 + 135135*a**63*b**13*x**7
 + 135135*a**62*b**14*x**8 + 105105*a**61*b**15*x**9 + 63063*a**6
0*b**16*x**10 + 28665*a**59*b**17*x**11 + 9555*a**58*b**18*x**12
+ 2205*a**57*b**19*x**13 + 315*a**56*b**20*x**14 + 21*a**55*b**21
*x**15) + 232960*a**(123/2)*b**12*x**12/(21*a**70*b**6 + 315*a**6
9*b**7*x + 2205*a**68*b**8*x**2 + 9555*a**67*b**9*x**3 + 28665*a*
*66*b**10*x**4 + 63063*a**65*b**11*x**5 + 105105*a**64*b**12*x**6
 + 135135*a**63*b**13*x**7 + 135135*a**62*b**14*x**8 + 105105*a**
61*b**15*x**9 + 63063*a**60*b**16*x**10 + 28665*a**59*b**17*x**11
 + 9555*a**58*b**18*x**12 + 2205*a**57*b**19*x**13 + 315*a**56*b*
*20*x**14 + 21*a**55*b**21*x**15) - 17178*a**(121/2)*b**13*x**13*
sqrt(1 + b*x/a)/(21*a**70*b**6 + 315*a**69*b**7*x + 2205*a**68*b*
*8*x**2 + 9555*a**67*b**9*x**3 + 28665*a**66*b**10*x**4 + 63063*a
**65*b**11*x**5 + 105105*a**64*b**12*x**6 + 135135*a**63*b**13*x*
*7 + 135135*a**62*b**14*x**8 + 105105*a**61*b**15*x**9 + 63063*a*
*60*b**16*x**10 + 28665*a**59*b**17*x**11 + 9555*a**58*b**18*x**1
2 + 2205*a**57*b**19*x**13 + 315*a**56*b**20*x**14 + 21*a**55*b**
21*x**15) + 53760*a**(121/2)*b**13*x**13/(21*a**70*b**6 + 315*a**
69*b**7*x + 2205*a**68*b**8*x**2 + 9555*a**67*b**9*x**3 + 28665*a
**66*b**10*x**4 + 63063*a**65*b**11*x**5 + 105105*a**64*b**12*x**
6 + 135135*a**63*b**13*x**7 + 135135*a**62*b**14*x**8 + 105105*a*
*61*b**15*x**9 + 63063*a**60*b**16*x**10 + 28665*a**59*b**17*x**1
1 + 9555*a**58*b**18*x**12 + 2205*a**57*b**19*x**13 + 315*a**56*b
**20*x**14 + 21*a**55*b**21*x**15) + 90*a**(119/2)*b**14*x**14*sq
rt(1 + b*x/a)/(21*a**70*b**6 + 315*a**69*b**7*x + 2205*a**68*b**8
*x**2 + 9555*a**67*b**9*x**3 + 28665*a**66*b**10*x**4 + 63063*a**
65*b**11*x**5 + 105105*a**64*b**12*x**6 + 135135*a**63*b**13*x**7
 + 135135*a**62*b**14*x**8 + 105105*a**61*b**15*x**9 + 63063*a**6
0*b**16*x**10 + 28665*a**59*b**17*x**11 + 9555*a**58*b**18*x**12
+ 2205*a**57*b**19*x**13 + 315*a**56*b**20*x**14 + 21*a**55*b**21
*x**15) + 7680*a**(119/2)*b**14*x**14/(21*a**70*b**6 + 315*a**69*
b**7*x + 2205*a**68*b**8*x**2 + 9555*a**67*b**9*x**3 + 28665*a**6
6*b**10*x**4 + 63063*a**65*b**11*x**5 + 105105*a**64*b**12*x**6 +
 135135*a**63*b**13*x**7 + 135135*a**62*b**14*x**8 + 105105*a**61
*b**15*x**9 + 63063*a**60*b**16*x**10 + 28665*a**59*b**17*x**11 +
 9555*a**58*b**18*x**12 + 2205*a**57*b**19*x**13 + 315*a**56*b**2
0*x**14 + 21*a**55*b**21*x**15) + 1004*a**(117/2)*b**15*x**15*sqr
```

```
t(1 + b*x/a)/(21*a**70*b**6 + 315*a**69*b**7*x + 2205*a**68*b**8*
x**2 + 9555*a**67*b**9*x**3 + 28665*a**66*b**10*x**4 + 63063*a**6
5*b**11*x**5 + 105105*a**64*b**12*x**6 + 135135*a**63*b**13*x**7
+ 135135*a**62*b**14*x**8 + 105105*a**61*b**15*x**9 + 63063*a**60
*b**16*x**10 + 28665*a**59*b**17*x**11 + 9555*a**58*b**18*x**12 +
 2205*a**57*b**19*x**13 + 315*a**56*b**20*x**14 + 21*a**55*b**21*
x**15) + 512*a**(117/2)*b**15*x**15/(21*a**70*b**6 + 315*a**69*b*
*7*x + 2205*a**68*b**8*x**2 + 9555*a**67*b**9*x**3 + 28665*a**66*
b**10*x**4 + 63063*a**65*b**11*x**5 + 105105*a**64*b**12*x**6 + 1
35135*a**63*b**13*x**7 + 135135*a**62*b**14*x**8 + 105105*a**61*b
**15*x**9 + 63063*a**60*b**16*x**10 + 28665*a**59*b**17*x**11 + 9
555*a**58*b**18*x**12 + 2205*a**57*b**19*x**13 + 315*a**56*b**20*
x**14 + 21*a**55*b**21*x**15) + 344*a**(115/2)*b**16*x**16*sqrt(1
 + b*x/a)/(21*a**70*b**6 + 315*a**69*b**7*x + 2205*a**68*b**8*x**
2 + 9555*a**67*b**9*x**3 + 28665*a**66*b**10*x**4 + 63063*a**65*b
**11*x**5 + 105105*a**64*b**12*x**6 + 135135*a**63*b**13*x**7 + 1
35135*a**62*b**14*x**8 + 105105*a**61*b**15*x**9 + 63063*a**60*b*
*16*x**10 + 28665*a**59*b**17*x**11 + 9555*a**58*b**18*x**12 + 22
05*a**57*b**19*x**13 + 315*a**56*b**20*x**14 + 21*a**55*b**21*x**
15) + 66*a**(113/2)*b**17*x**17*sqrt(1 + b*x/a)/(21*a**70*b**6 +
315*a**69*b**7*x + 2205*a**68*b**8*x**2 + 9555*a**67*b**9*x**3 +
28665*a**66*b**10*x**4 + 63063*a**65*b**11*x**5 + 105105*a**64*b*
*12*x**6 + 135135*a**63*b**13*x**7 + 135135*a**62*b**14*x**8 + 10
5105*a**61*b**15*x**9 + 63063*a**60*b**16*x**10 + 28665*a**59*b**
17*x**11 + 9555*a**58*b**18*x**12 + 2205*a**57*b**19*x**13 + 315*
a**56*b**20*x**14 + 21*a**55*b**21*x**15) + 6*a**(111/2)*b**18*x*
*18*sqrt(1 + b*x/a)/(21*a**70*b**6 + 315*a**69*b**7*x + 2205*a**6
8*b**8*x**2 + 9555*a**67*b**9*x**3 + 28665*a**66*b**10*x**4 + 630
63*a**65*b**11*x**5 + 105105*a**64*b**12*x**6 + 135135*a**63*b**1
3*x**7 + 135135*a**62*b**14*x**8 + 105105*a**61*b**15*x**9 + 6306
3*a**60*b**16*x**10 + 28665*a**59*b**17*x**11 + 9555*a**58*b**18*
x**12 + 2205*a**57*b**19*x**13 + 315*a**56*b**20*x**14 + 21*a**55
*b**21*x**15))
```

GIAC/XCAS [A] time = 0.214921, size = 212, normalized size = 1.44

$$-\frac{2\left(15\,(bx+a)Ba^4-Ba^5-12\,(bx+a)Aa^3b+Aa^4b\right)}{3\,(bx+a)^{\frac{3}{2}}b^6}+\frac{2\left(15\,(bx+a)^{\frac{7}{2}}Bb^{36}-105\,(bx+a)^{\frac{5}{2}}Bab^{36}+350\,(bx+a)^{\frac{3}{2}}Ba^2b^{36}-1050\,\sqrt{bx+a}Ba^3b^{36}+21\,(bx+a)^{\frac{5}{2}}Ab^{37}-140\,(bx+a)^{\frac{3}{2}}\cdots\right.}{105\,b^{42}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^4/(b*x + a)^(5/2),x, algorithm="giac")
```

```
[Out] -2/3*(15*(b*x + a)*B*a^4 - B*a^5 - 12*(b*x + a)*A*a^3*b + A*a^4*b
)/((b*x + a)^(3/2)*b^6) + 2/105*(15*(b*x + a)^(7/2)*B*b^36 - 105*
(b*x + a)^(5/2)*B*a*b^36 + 350*(b*x + a)^(3/2)*B*a^2*b^36 - 1050*
sqrt(b*x + a)*B*a^3*b^36 + 21*(b*x + a)^(5/2)*A*b^37 - 140*(b*x +
 a)^(3/2)*A*a*b^37 + 630*sqrt(b*x + a)*A*a^2*b^37)/b^42
```

3.433 $\int \frac{x^3(A+Bx)}{(a+bx)^{5/2}}\,dx$

Optimal. Leaf size=118

$$\frac{2a^3(Ab-aB)}{3b^5(a+bx)^{3/2}}-\frac{2a^2(3Ab-4aB)}{b^5\sqrt{a+bx}}-\frac{6a\sqrt{a+bx}(Ab-2aB)}{b^5}+\frac{2(a+bx)^{3/2}(Ab-4aB)}{3b^5}+\frac{2B(a+bx)^{5/2}}{5b^5}$$

```
[Out] (2*a^3*(A*b - a*B))/(3*b^5*(a + b*x)^(3/2)) - (2*a^2*(3*A*b - 4*a
*B))/(b^5*Sqrt[a + b*x]) - (6*a*(A*b - 2*a*B)*Sqrt[a + b*x])/b^5
+ (2*(A*b - 4*a*B)*(a + b*x)^(3/2))/(3*b^5) + (2*B*(a + b*x)^(5/2
))/(5*b^5)
```

Rubi [A] time = 0.154055, antiderivative size = 118, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{2a^3(Ab-aB)}{3b^5(a+bx)^{3/2}}-\frac{2a^2(3Ab-4aB)}{b^5\sqrt{a+bx}}-\frac{6a\sqrt{a+bx}(Ab-2aB)}{b^5}+\frac{2(a+bx)^{3/2}(Ab-4aB)}{3b^5}+\frac{2B(a+bx)^{5/2}}{5b^5}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^3*(A + B*x))/(a + b*x)^(5/2),x]
```

```
[Out] (2*a^3*(A*b - a*B))/(3*b^5*(a + b*x)^(3/2)) - (2*a^2*(3*A*b - 4*a
*B))/(b^5*Sqrt[a + b*x]) - (6*a*(A*b - 2*a*B)*Sqrt[a + b*x])/b^5
+ (2*(A*b - 4*a*B)*(a + b*x)^(3/2))/(3*b^5) + (2*B*(a + b*x)^(5/2
))/(5*b^5)
```

Rubi in Sympy [A] time = 21.9477, size = 116, normalized size = 0.98

$$\frac{2B\left(a+bx\right)^{\frac{5}{2}}}{5b^5}+\frac{2a^3\left(Ab-Ba\right)}{3b^5\left(a+bx\right)^{\frac{3}{2}}}-\frac{2a^2\left(3Ab-4Ba\right)}{b^5\sqrt{a+bx}}-\frac{6a\sqrt{a+bx}\left(Ab-2Ba\right)}{b^5}+\frac{2\left(a+bx\right)^{\frac{3}{2}}\left(Ab-4Ba\right)}{3b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3*(B*x+A)/(b*x+a)**(5/2),x)
```

```
[Out] 2*B*(a + b*x)**(5/2)/(5*b**5) + 2*a**3*(A*b - B*a)/(3*b**5*(a + b
*x)**(3/2)) - 2*a**2*(3*A*b - 4*B*a)/(b**5*sqrt(a + b*x)) - 6*a*s
qrt(a + b*x)*(A*b - 2*B*a)/b**5 + 2*(a + b*x)**(3/2)*(A*b - 4*B*a
)/(3*b**5)
```

Mathematica [A] time = 0.0912995, size = 86, normalized size = 0.73

$$\frac{2\left(128a^4B+a^3(192bBx-80Ab)+24a^2b^2x(2Bx-5A)-2ab^3x^2(15A+4Bx)+b^4x^3(5A+3Bx)\right)}{15b^5(a+bx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^3*(A + B*x))/(a + b*x)^(5/2),x]
```

```
[Out] (2*(128*a^4*B + 24*a^2*b^2*x*(-5*A + 2*B*x) + b^4*x^3*(5*A + 3*B*
x) - 2*a*b^3*x^2*(15*A + 4*B*x) + a^3*(-80*A*b + 192*b*B*x)))/(15
*b^5*(a + b*x)^(3/2))
```

Maple [A] time = 0.007, size = 95, normalized size = 0.8

$$-\frac{-6\,Bx^4b^4-10\,Ab^4x^3+16\,Bab^3x^3+60\,Aab^3x^2-96\,Ba^2b^2x^2+240\,Aa^2b^2x-384\,Ba^3bx+160\,Aa^3b-256\,Ba^4}{15\,b^5}\left(bx+a\right)^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^3*(B*x+A)/(b*x+a)^(5/2),x)
```

```
[Out] -2/15/(b*x+a)^(3/2)*(-3*B*b^4*x^4-5*A*b^4*x^3+8*B*a*b^3*x^3+30*A*
a*b^3*x^2-48*B*a^2*b^2*x^2+120*A*a^2*b^2*x-192*B*a^3*b*x+80*A*a^3
*b-128*B*a^4)/b^5
```

Maxima [A] time = 1.34063, size = 143, normalized size = 1.21

$$\frac{2\left(\frac{3\,(bx+a)^{\frac{5}{2}}B-5\,(4\,Ba-Ab)(bx+a)^{\frac{3}{2}}+45\,(2\,Ba^2-Aab)\sqrt{bx+a}}{b}-\frac{5\,(Ba^4-Aa^3b-3\,(4\,Ba^3-3\,Aa^2b)\,(bx+a))}{(bx+a)^{\frac{3}{2}}\,b}\right)}{15\,b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^3/(b*x + a)^(5/2),x, algorithm="maxima")
```

```
[Out] 2/15*((3*(b*x + a)^(5/2)*B - 5*(4*B*a - A*b)*(b*x + a)^(3/2) + 45
*(2*B*a^2 - A*a*b)*sqrt(b*x + a))/b - 5*(B*a^4 - A*a^3*b - 3*(4*B
*a^3 - 3*A*a^2*b)*(b*x + a))/((b*x + a)^(3/2)*b))/b^4
```

Fricas [A] time = 0.215124, size = 143, normalized size = 1.21

$$\frac{2\left(3\,Bb^4x^4+128\,Ba^4-80\,Aa^3b-\left(8\,Bab^3-5\,Ab^4\right)x^3+6\left(8\,Ba^2b^2-5\,Aab^3\right)x^2+24\left(8\,Ba^3b-5\,Aa^2b^2\right)x\right)}{15\,(b^6x+ab^5)\sqrt{bx+a}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^3/(b*x + a)^(5/2),x, algorithm="fricas")
```

```
[Out] 2/15*(3*B*b^4*x^4 + 128*B*a^4 - 80*A*a^3*b - (8*B*a*b^3 - 5*A*b^4
)*x^3 + 6*(8*B*a^2*b^2 - 5*A*a*b^3)*x^2 + 24*(8*B*a^3*b - 5*A*a^2
*b^2)*x)/((b^6*x + a*b^5)*sqrt(b*x + a))
```

Sympy [A] time = 24.0131, size = 3624, normalized size = 30.71

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**3*(B*x+A)/(b*x+a)**(5/2),x)
```

```
[Out] A*Piecewise((-32*a**3/(3*a*b**4*sqrt(a + b*x) + 3*b**5*x*sqrt(a +
 b*x)) - 48*a**2*b*x/(3*a*b**4*sqrt(a + b*x) + 3*b**5*x*sqrt(a +
b*x)) - 12*a*b**2*x**2/(3*a*b**4*sqrt(a + b*x) + 3*b**5*x*sqrt(a
+ b*x)) + 2*b**3*x**3/(3*a*b**4*sqrt(a + b*x) + 3*b**5*x*sqrt(a +
 b*x)), Ne(b, 0)), (x**4/(4*a**(5/2)), True)) + B*(256*a**(85/2)*
sqrt(1 + b*x/a)/(15*a**40*b**5 + 150*a**39*b**6*x + 675*a**38*b**
7*x**2 + 1800*a**37*b**8*x**3 + 3150*a**36*b**9*x**4 + 3780*a**35
*b**10*x**5 + 3150*a**34*b**11*x**6 + 1800*a**33*b**12*x**7 + 675
*a**32*b**13*x**8 + 150*a**31*b**14*x**9 + 15*a**30*b**15*x**10)
```

```
- 256*a**(85/2)/(15*a**40*b**5 + 150*a**39*b**6*x + 675*a**38*b**
7*x**2 + 1800*a**37*b**8*x**3 + 3150*a**36*b**9*x**4 + 3780*a**35
*b**10*x**5 + 3150*a**34*b**11*x**6 + 1800*a**33*b**12*x**7 + 675
*a**32*b**13*x**8 + 150*a**31*b**14*x**9 + 15*a**30*b**15*x**10)
+ 2432*a**(83/2)*b*x*sqrt(1 + b*x/a)/(15*a**40*b**5 + 150*a**39*b
**6*x + 675*a**38*b**7*x**2 + 1800*a**37*b**8*x**3 + 3150*a**36*b
**9*x**4 + 3780*a**35*b**10*x**5 + 3150*a**34*b**11*x**6 + 1800*a
**33*b**12*x**7 + 675*a**32*b**13*x**8 + 150*a**31*b**14*x**9 + 1
5*a**30*b**15*x**10) - 2560*a**(83/2)*b*x/(15*a**40*b**5 + 150*a*
*39*b**6*x + 675*a**38*b**7*x**2 + 1800*a**37*b**8*x**3 + 3150*a*
*36*b**9*x**4 + 3780*a**35*b**10*x**5 + 3150*a**34*b**11*x**6 + 1
800*a**33*b**12*x**7 + 675*a**32*b**13*x**8 + 150*a**31*b**14*x**
9 + 15*a**30*b**15*x**10) + 10336*a**(81/2)*b**2*x**2*sqrt(1 + b*
x/a)/(15*a**40*b**5 + 150*a**39*b**6*x + 675*a**38*b**7*x**2 + 18
00*a**37*b**8*x**3 + 3150*a**36*b**9*x**4 + 3780*a**35*b**10*x**5
 + 3150*a**34*b**11*x**6 + 1800*a**33*b**12*x**7 + 675*a**32*b**1
3*x**8 + 150*a**31*b**14*x**9 + 15*a**30*b**15*x**10) - 11520*a**
(81/2)*b**2*x**2/(15*a**40*b**5 + 150*a**39*b**6*x + 675*a**38*b*
*7*x**2 + 1800*a**37*b**8*x**3 + 3150*a**36*b**9*x**4 + 3780*a**3
5*b**10*x**5 + 3150*a**34*b**11*x**6 + 1800*a**33*b**12*x**7 + 67
5*a**32*b**13*x**8 + 150*a**31*b**14*x**9 + 15*a**30*b**15*x**10)
 + 25840*a**(79/2)*b**3*x**3*sqrt(1 + b*x/a)/(15*a**40*b**5 + 150
*a**39*b**6*x + 675*a**38*b**7*x**2 + 1800*a**37*b**8*x**3 + 3150
*a**36*b**9*x**4 + 3780*a**35*b**10*x**5 + 3150*a**34*b**11*x**6
+ 1800*a**33*b**12*x**7 + 675*a**32*b**13*x**8 + 150*a**31*b**14*
x**9 + 15*a**30*b**15*x**10) - 30720*a**(79/2)*b**3*x**3/(15*a**4
0*b**5 + 150*a**39*b**6*x + 675*a**38*b**7*x**2 + 1800*a**37*b**8
*x**3 + 3150*a**36*b**9*x**4 + 3780*a**35*b**10*x**5 + 3150*a**34
*b**11*x**6 + 1800*a**33*b**12*x**7 + 675*a**32*b**13*x**8 + 150*
a**31*b**14*x**9 + 15*a**30*b**15*x**10) + 41990*a**(77/2)*b**4*x
**4*sqrt(1 + b*x/a)/(15*a**40*b**5 + 150*a**39*b**6*x + 675*a**38
*b**7*x**2 + 1800*a**37*b**8*x**3 + 3150*a**36*b**9*x**4 + 3780*a
**35*b**10*x**5 + 3150*a**34*b**11*x**6 + 1800*a**33*b**12*x**7 +
 675*a**32*b**13*x**8 + 150*a**31*b**14*x**9 + 15*a**30*b**15*x**
10) - 53760*a**(77/2)*b**4*x**4/(15*a**40*b**5 + 150*a**39*b**6*x
 + 675*a**38*b**7*x**2 + 1800*a**37*b**8*x**3 + 3150*a**36*b**9*x
**4 + 3780*a**35*b**10*x**5 + 3150*a**34*b**11*x**6 + 1800*a**33*
b**12*x**7 + 675*a**32*b**13*x**8 + 150*a**31*b**14*x**9 + 15*a**
30*b**15*x**10) + 46192*a**(75/2)*b**5*x**5*sqrt(1 + b*x/a)/(15*a
**40*b**5 + 150*a**39*b**6*x + 675*a**38*b**7*x**2 + 1800*a**37*b
**8*x**3 + 3150*a**36*b**9*x**4 + 3780*a**35*b**10*x**5 + 3150*a*
*34*b**11*x**6 + 1800*a**33*b**12*x**7 + 675*a**32*b**13*x**8 + 1
50*a**31*b**14*x**9 + 15*a**30*b**15*x**10) - 64512*a**(75/2)*b**
5*x**5/(15*a**40*b**5 + 150*a**39*b**6*x + 675*a**38*b**7*x**2 +
1800*a**37*b**8*x**3 + 3150*a**36*b**9*x**4 + 3780*a**35*b**10*x*
*5 + 3150*a**34*b**11*x**6 + 1800*a**33*b**12*x**7 + 675*a**32*b*
*13*x**8 + 150*a**31*b**14*x**9 + 15*a**30*b**15*x**10) + 34664*a
**(73/2)*b**6*x**6*sqrt(1 + b*x/a)/(15*a**40*b**5 + 150*a**39*b**
6*x + 675*a**38*b**7*x**2 + 1800*a**37*b**8*x**3 + 3150*a**36*b**
9*x**4 + 3780*a**35*b**10*x**5 + 3150*a**34*b**11*x**6 + 1800*a**
33*b**12*x**7 + 675*a**32*b**13*x**8 + 150*a**31*b**14*x**9 + 15*
a**30*b**15*x**10) - 53760*a**(73/2)*b**6*x**6/(15*a**40*b**5 + 1
50*a**39*b**6*x + 675*a**38*b**7*x**2 + 1800*a**37*b**8*x**3 + 31
50*a**36*b**9*x**4 + 3780*a**35*b**10*x**5 + 3150*a**34*b**11*x**
6 + 1800*a**33*b**12*x**7 + 675*a**32*b**13*x**8 + 150*a**31*b**1
4*x**9 + 15*a**30*b**15*x**10) + 17392*a**(71/2)*b**7*x**7*sqrt(1
 + b*x/a)/(15*a**40*b**5 + 150*a**39*b**6*x + 675*a**38*b**7*x**2
 + 1800*a**37*b**8*x**3 + 3150*a**36*b**9*x**4 + 3780*a**35*b**10
*x**5 + 3150*a**34*b**11*x**6 + 1800*a**33*b**12*x**7 + 675*a**32
*b**13*x**8 + 150*a**31*b**14*x**9 + 15*a**30*b**15*x**10) - 3072
0*a**(71/2)*b**7*x**7/(15*a**40*b**5 + 150*a**39*b**6*x + 675*a**
38*b**7*x**2 + 1800*a**37*b**8*x**3 + 3150*a**36*b**9*x**4 + 3780
*a**35*b**10*x**5 + 3150*a**34*b**11*x**6 + 1800*a**33*b**12*x**7
 + 675*a**32*b**13*x**8 + 150*a**31*b**14*x**9 + 15*a**30*b**15*x
**10) + 5540*a**(69/2)*b**8*x**8*sqrt(1 + b*x/a)/(15*a**40*b**5 +
 150*a**39*b**6*x + 675*a**38*b**7*x**2 + 1800*a**37*b**8*x**3 +
3150*a**36*b**9*x**4 + 3780*a**35*b**10*x**5 + 3150*a**34*b**11*x
**6 + 1800*a**33*b**12*x**7 + 675*a**32*b**13*x**8 + 150*a**31*b*
*14*x**9 + 15*a**30*b**15*x**10) - 11520*a**(69/2)*b**8*x**8/(15*
a**40*b**5 + 150*a**39*b**6*x + 675*a**38*b**7*x**2 + 1800*a**37*
b**8*x**3 + 3150*a**36*b**9*x**4 + 3780*a**35*b**10*x**5 + 3150*a
**34*b**11*x**6 + 1800*a**33*b**12*x**7 + 675*a**32*b**13*x**8 +
150*a**31*b**14*x**9 + 15*a**30*b**15*x**10) + 1040*a**(67/2)*b**
9*x**9*sqrt(1 + b*x/a)/(15*a**40*b**5 + 150*a**39*b**6*x + 675*a*
```

```
*38*b**7*x**2 + 1800*a**37*b**8*x**3 + 3150*a**36*b**9*x**4 + 378
0*a**35*b**10*x**5 + 3150*a**34*b**11*x**6 + 1800*a**33*b**12*x**
7 + 675*a**32*b**13*x**8 + 150*a**31*b**14*x**9 + 15*a**30*b**15*
x**10) - 2560*a**(67/2)*b**9*x**9/(15*a**40*b**5 + 150*a**39*b**6
*x + 675*a**38*b**7*x**2 + 1800*a**37*b**8*x**3 + 3150*a**36*b**9
*x**4 + 3780*a**35*b**10*x**5 + 3150*a**34*b**11*x**6 + 1800*a**3
3*b**12*x**7 + 675*a**32*b**13*x**8 + 150*a**31*b**14*x**9 + 15*a
**30*b**15*x**10) + 136*a**(65/2)*b**10*x**10*sqrt(1 + b*x/a)/(15
*a**40*b**5 + 150*a**39*b**6*x + 675*a**38*b**7*x**2 + 1800*a**37
*b**8*x**3 + 3150*a**36*b**9*x**4 + 3780*a**35*b**10*x**5 + 3150*
a**34*b**11*x**6 + 1800*a**33*b**12*x**7 + 675*a**32*b**13*x**8 +
 150*a**31*b**14*x**9 + 15*a**30*b**15*x**10) - 256*a**(65/2)*b**
10*x**10/(15*a**40*b**5 + 150*a**39*b**6*x + 675*a**38*b**7*x**2
+ 1800*a**37*b**8*x**3 + 3150*a**36*b**9*x**4 + 3780*a**35*b**10*
x**5 + 3150*a**34*b**11*x**6 + 1800*a**33*b**12*x**7 + 675*a**32*
b**13*x**8 + 150*a**31*b**14*x**9 + 15*a**30*b**15*x**10) + 32*a*
*(63/2)*b**11*x**11*sqrt(1 + b*x/a)/(15*a**40*b**5 + 150*a**39*b*
*6*x + 675*a**38*b**7*x**2 + 1800*a**37*b**8*x**3 + 3150*a**36*b*
*9*x**4 + 3780*a**35*b**10*x**5 + 3150*a**34*b**11*x**6 + 1800*a*
*33*b**12*x**7 + 675*a**32*b**13*x**8 + 150*a**31*b**14*x**9 + 15
*a**30*b**15*x**10) + 6*a**(61/2)*b**12*x**12*sqrt(1 + b*x/a)/(15
*a**40*b**5 + 150*a**39*b**6*x + 675*a**38*b**7*x**2 + 1800*a**37
*b**8*x**3 + 3150*a**36*b**9*x**4 + 3780*a**35*b**10*x**5 + 3150*
a**34*b**11*x**6 + 1800*a**33*b**12*x**7 + 675*a**32*b**13*x**8 +
 150*a**31*b**14*x**9 + 15*a**30*b**15*x**10))
```

GIAC/XCAS [A] time = 0.21942, size = 169, normalized size = 1.43

$$\frac{2\left(12\,(bx+a)Ba^{3}-Ba^{4}-9\,(bx+a)Aa^{2}b+Aa^{3}b\right)}{3\,(bx+a)^{\frac{3}{2}}b^{5}}+\frac{2\left(3\,(bx+a)^{\frac{5}{2}}Bb^{20}-20\,(bx+a)^{\frac{3}{2}}Bab^{20}+90\,\sqrt{bx+a}Ba^{2}b^{20}+5\,(bx+a)^{\frac{3}{2}}Ab^{21}-45\,\sqrt{bx+a}Aab^{21}\right)}{15\,b^{25}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^3/(b*x + a)^(5/2),x, algorithm="giac")
```

```
[Out] 2/3*(12*(b*x + a)*B*a^3 - B*a^4 - 9*(b*x + a)*A*a^2*b + A*a^3*b)/
((b*x + a)^(3/2)*b^5) + 2/15*(3*(b*x + a)^(5/2)*B*b^20 - 20*(b*x
+ a)^(3/2)*B*a*b^20 + 90*sqrt(b*x + a)*B*a^2*b^20 + 5*(b*x + a)^(
3/2)*A*b^21 - 45*sqrt(b*x + a)*A*a*b^21)/b^25
```

3.434 $\int \frac{x^2(A+Bx)}{(a+bx)^{5/2}}\,dx$

Optimal. Leaf size=91

$$-\frac{2a^2(Ab-aB)}{3b^4(a+bx)^{3/2}}+\frac{2a(2Ab-3aB)}{b^4\sqrt{a+bx}}+\frac{2\sqrt{a+bx}(Ab-3aB)}{b^4}+\frac{2B(a+bx)^{3/2}}{3b^4}$$

```
[Out] (-2*a^2*(A*b - a*B))/(3*b^4*(a + b*x)^(3/2)) + (2*a*(2*A*b - 3*a*
B))/(b^4*Sqrt[a + b*x]) + (2*(A*b - 3*a*B)*Sqrt[a + b*x])/b^4 + (
2*B*(a + b*x)^(3/2))/(3*b^4)
```

Rubi [A] time = 0.120726, antiderivative size = 91, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{2a^2(Ab-aB)}{3b^4(a+bx)^{3/2}}+\frac{2a(2Ab-3aB)}{b^4\sqrt{a+bx}}+\frac{2\sqrt{a+bx}(Ab-3aB)}{b^4}+\frac{2B(a+bx)^{3/2}}{3b^4}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^2*(A + B*x))/(a + b*x)^(5/2),x]
```

```
[Out] (-2*a^2*(A*b - a*B))/(3*b^4*(a + b*x)^(3/2)) + (2*a*(2*A*b - 3*a*
B))/(b^4*Sqrt[a + b*x]) + (2*(A*b - 3*a*B)*Sqrt[a + b*x])/b^4 + (
2*B*(a + b*x)^(3/2))/(3*b^4)
```

Rubi in Sympy [A] time = 16.6402, size = 88, normalized size = 0.97

$$\frac{2B(a+bx)^{\frac{3}{2}}}{3b^4}-\frac{2a^2(Ab-Ba)}{3b^4(a+bx)^{\frac{3}{2}}}+\frac{2a(2Ab-3Ba)}{b^4\sqrt{a+bx}}+\frac{2\sqrt{a+bx}(Ab-3Ba)}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(B*x+A)/(b*x+a)**(5/2),x)
```

```
[Out] 2*B*(a + b*x)**(3/2)/(3*b**4) - 2*a**2*(A*b - B*a)/(3*b**4*(a + b
*x)**(3/2)) + 2*a*(2*A*b - 3*B*a)/(b**4*sqrt(a + b*x)) + 2*sqrt(a
 + b*x)*(A*b - 3*B*a)/b**4
```

Mathematica [A] time = 0.0702667, size = 63, normalized size = 0.69

$$\frac{2\left(-16a^3B+8a^2b(A-3Bx)-6ab^2x(Bx-2A)+b^3x^2(3A+Bx)\right)}{3b^4(a+bx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^2*(A + B*x))/(a + b*x)^(5/2),x]
```

```
[Out] (2*(-16*a^3*B + 8*a^2*b*(A - 3*B*x) - 6*a*b^2*x*(-2*A + B*x) + b^
3*x^2*(3*A + B*x)))/(3*b^4*(a + b*x)^(3/2))
```

Maple [A] time = 0.009, size = 70, normalized size = 0.8

$$\frac{2\,b^3Bx^3+6\,Ax^2b^3-12\,Bx^2ab^2+24\,Axab^2-48\,Bxa^2b+16\,Aa^2b-32\,Ba^3}{3\,b^4}(bx+a)^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(B*x+A)/(b*x+a)^(5/2),x)
```

```
[Out] 2/3/(b*x+a)^(3/2)*(B*b^3*x^3+3*A*b^3*x^2-6*B*a*b^2*x^2+12*A*a*b^2
*x-24*B*a^2*b*x+8*A*a^2*b-16*B*a^3)/b^4
```

Maxima [A] time = 1.3445, size = 109, normalized size = 1.2

$$\frac{2\left(\frac{(bx+a)^{\frac{3}{2}}B-3(3Ba-Ab)\sqrt{bx+a}}{b}+\frac{Ba^3-Aa^2b-3(3Ba^2-2Aab)(bx+a)}{(bx+a)^{\frac{3}{2}}b}\right)}{3b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^2/(b*x + a)^(5/2),x, algorithm="maxima")
```

```
[Out] 2/3*(((b*x + a)^(3/2)*B - 3*(3*B*a - A*b)*sqrt(b*x + a))/b + (B*a
^3 - A*a^2*b - 3*(3*B*a^2 - 2*A*a*b)*(b*x + a))/((b*x + a)^(3/2)*
b))/b^3
```

Fricas [A] time = 0.210516, size = 109, normalized size = 1.2

$$\frac{2\left(Bb^3x^3-16Ba^3+8Aa^2b-3\left(2Bab^2-Ab^3\right)x^2-12\left(2Ba^2b-Aab^2\right)x\right)}{3\left(b^5x+ab^4\right)\sqrt{bx+a}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^2/(b*x + a)^(5/2),x, algorithm="fricas")
```

```
[Out] 2/3*(B*b^3*x^3 - 16*B*a^3 + 8*A*a^2*b - 3*(2*B*a*b^2 - A*b^3)*x^2
 - 12*(2*B*a^2*b - A*a*b^2)*x)/((b^5*x + a*b^4)*sqrt(b*x + a))
```

Sympy [A] time = 4.33084, size = 299, normalized size = 3.29

$$\begin{cases}\frac{16Aa^2b}{3ab^4\sqrt{a+bx}+3b^5x\sqrt{a+bx}}+\frac{24Aab^2x}{3ab^4\sqrt{a+bx}+3b^5x\sqrt{a+bx}}+\frac{6Ab^3x^2}{3ab^4\sqrt{a+bx}+3b^5x\sqrt{a+bx}}-\frac{32Ba^3}{3ab^4\sqrt{a+bx}+3b^5x\sqrt{a+bx}}-\frac{48Ba^2bx}{3ab^4\sqrt{a+bx}+3b^5x\sqrt{a+bx}}-\frac{}{3ab^4} \\ \frac{\frac{Ax^3}{3}+\frac{Bx^4}{4}}{a^{\frac{5}{2}}}\end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(B*x+A)/(b*x+a)**(5/2),x)
```

```
[Out] Piecewise((16*A*a**2*b/(3*a*b**4*sqrt(a + b*x) + 3*b**5*x*sqrt(a
+ b*x)) + 24*A*a*b**2*x/(3*a*b**4*sqrt(a + b*x) + 3*b**5*x*sqrt(a
 + b*x)) + 6*A*b**3*x**2/(3*a*b**4*sqrt(a + b*x) + 3*b**5*x*sqrt(
a + b*x)) - 32*B*a**3/(3*a*b**4*sqrt(a + b*x) + 3*b**5*x*sqrt(a +
 b*x)) - 48*B*a**2*b*x/(3*a*b**4*sqrt(a + b*x) + 3*b**5*x*sqrt(a
+ b*x)) - 12*B*a*b**2*x**2/(3*a*b**4*sqrt(a + b*x) + 3*b**5*x*sqr
t(a + b*x)) + 2*B*b**3*x**3/(3*a*b**4*sqrt(a + b*x) + 3*b**5*x*sq
rt(a + b*x)), Ne(b, 0)), ((A*x**3/3 + B*x**4/4)/a**(5/2), True))
```

GIAC/XCAS [A] time = 0.233547, size = 124, normalized size = 1.36

$$-\frac{2\left(9(bx+a)Ba^2-Ba^3-6(bx+a)Aab+Aa^2b\right)}{3(bx+a)^{\frac{3}{2}}b^4}+\frac{2\left((bx+a)^{\frac{3}{2}}Bb^8-9\sqrt{bx+a}Bab^8+3\sqrt{bx+a}Ab^9\right)}{3b^{12}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^2/(b*x + a)^(5/2),x, algorithm="giac")
```

```
[Out] -2/3*(9*(b*x + a)*B*a^2 - B*a^3 - 6*(b*x + a)*A*a*b + A*a^2*b)/((
b*x + a)^(3/2)*b^4) + 2/3*((b*x + a)^(3/2)*B*b^8 - 9*sqrt(b*x + a
)*B*a*b^8 + 3*sqrt(b*x + a)*A*b^9)/b^12
```

3.435 $\int \frac{x(A+Bx)}{(a+bx)^{5/2}}\,dx$

Optimal. Leaf size=63

$$-\frac{2(Ab-2aB)}{b^3\sqrt{a+bx}}+\frac{2a(Ab-aB)}{3b^3(a+bx)^{3/2}}+\frac{2B\sqrt{a+bx}}{b^3}$$

```
[Out] (2*a*(A*b - a*B))/(3*b^3*(a + b*x)^(3/2)) - (2*(A*b - 2*a*B))/(b^
3*Sqrt[a + b*x]) + (2*B*Sqrt[a + b*x])/b^3
```

Rubi [A] time = 0.0816219, antiderivative size = 63, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{2(Ab-2aB)}{b^3\sqrt{a+bx}}+\frac{2a(Ab-aB)}{3b^3(a+bx)^{3/2}}+\frac{2B\sqrt{a+bx}}{b^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(x*(A + B*x))/(a + b*x)^(5/2),x]
```

```
[Out] (2*a*(A*b - a*B))/(3*b^3*(a + b*x)^(3/2)) - (2*(A*b - 2*a*B))/(b^
3*Sqrt[a + b*x]) + (2*B*Sqrt[a + b*x])/b^3
```

Rubi in Sympy [A] time = 11.9819, size = 60, normalized size = 0.95

$$\frac{2B\sqrt{a+bx}}{b^3}+\frac{2a\left(Ab-Ba\right)}{3b^3\left(a+bx\right)^{\frac{3}{2}}}-\frac{2\left(Ab-2Ba\right)}{b^3\sqrt{a+bx}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(B*x+A)/(b*x+a)**(5/2),x)
```

```
[Out] 2*B*sqrt(a + b*x)/b**3 + 2*a*(A*b - B*a)/(3*b**3*(a + b*x)**(3/2)
) - 2*(A*b - 2*B*a)/(b**3*sqrt(a + b*x))
```

Mathematica [A] time = 0.0534743, size = 46, normalized size = 0.73

$$\frac{16a^2B-4ab(A-6Bx)+6b^2x(Bx-A)}{3b^3(a+bx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x*(A + B*x))/(a + b*x)^(5/2),x]
```

```
[Out] (16*a^2*B - 4*a*b*(A - 6*B*x) + 6*b^2*x*(-A + B*x))/(3*b^3*(a + b
*x)^(3/2))
```

Maple [A] time = 0.006, size = 47, normalized size = 0.8

$$-\frac{-6\,b^2Bx^2+6\,Axb^2-24\,Bxab+4\,Aab-16\,Ba^2}{3\,b^3}\left(bx+a\right)^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(B*x+A)/(b*x+a)^(5/2),x)
```

```
[Out] -2/3/(b*x+a)^(3/2)*(-3*B*b^2*x^2+3*A*b^2*x-12*B*a*b*x+2*A*a*b-8*B
*a^2)/b^3
```

Maxima [A] time = 1.33996, size = 78, normalized size = 1.24

$$\frac{2\left(\frac{3\sqrt{bx+a}B}{b} - \frac{Ba^2 - Aab - 3(2Ba - Ab)(bx+a)}{(bx+a)^{\frac{3}{2}}b}\right)}{3b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x/(b*x + a)^(5/2),x, algorithm="maxima")
```

```
[Out] 2/3*(3*sqrt(b*x + a)*B/b - (B*a^2 - A*a*b - 3*(2*B*a - A*b)*(b*x
+ a))/((b*x + a)^(3/2)*b))/b^2
```

Fricas [A] time = 0.214182, size = 78, normalized size = 1.24

$$\frac{2\left(3Bb^2x^2 + 8Ba^2 - 2Aab + 3\left(4Bab - Ab^2\right)x\right)}{3\left(b^4x + ab^3\right)\sqrt{bx+a}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x/(b*x + a)^(5/2),x, algorithm="fricas")
```

```
[Out] 2/3*(3*B*b^2*x^2 + 8*B*a^2 - 2*A*a*b + 3*(4*B*a*b - A*b^2)*x)/((b
^4*x + a*b^3)*sqrt(b*x + a))
```

Sympy [A] time = 4.07984, size = 211, normalized size = 3.35

$$\begin{cases} -\frac{4Aab}{3ab^3\sqrt{a+bx}+3b^4x\sqrt{a+bx}} - \frac{6Ab^2x}{3ab^3\sqrt{a+bx}+3b^4x\sqrt{a+bx}} + \frac{16Ba^2}{3ab^3\sqrt{a+bx}+3b^4x\sqrt{a+bx}} + \frac{24Babx}{3ab^3\sqrt{a+bx}+3b^4x\sqrt{a+bx}} + \frac{6Bb^2x^2}{3ab^3\sqrt{a+bx}+3b^4x\sqrt{a+bx}} & \text{for} \\ \frac{\frac{Ax^2}{2}+\frac{Bx^3}{3}}{a^{\frac{5}{2}}} & \text{oth} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(B*x+A)/(b*x+a)**(5/2),x)
```

```
[Out] Piecewise((-4*A*a*b/(3*a*b**3*sqrt(a + b*x) + 3*b**4*x*sqrt(a + b
*x)) - 6*A*b**2*x/(3*a*b**3*sqrt(a + b*x) + 3*b**4*x*sqrt(a + b*x
)) + 16*B*a**2/(3*a*b**3*sqrt(a + b*x) + 3*b**4*x*sqrt(a + b*x))
+ 24*B*a*b*x/(3*a*b**3*sqrt(a + b*x) + 3*b**4*x*sqrt(a + b*x)) +
6*B*b**2*x**2/(3*a*b**3*sqrt(a + b*x) + 3*b**4*x*sqrt(a + b*x)),
Ne(b, 0)), ((A*x**2/2 + B*x**3/3)/a**(5/2), True))
```

GIAC/XCAS [A] time = 0.213045, size = 74, normalized size = 1.17

$$\frac{2\sqrt{bx+a}B}{b^3} + \frac{2\left(6(bx+a)Ba - Ba^2 - 3(bx+a)Ab + Aab\right)}{3(bx+a)^{\frac{3}{2}}b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x/(b*x + a)^(5/2),x, algorithm="giac")
```

```
[Out] 2*sqrt(b*x + a)*B/b^3 + 2/3*(6*(b*x + a)*B*a - B*a^2 - 3*(b*x + a
)*A*b + A*a*b)/((b*x + a)^(3/2)*b^3)
```

3.436 $\int \frac{A+Bx}{(a+bx)^{5/2}}\,dx$

Optimal. Leaf size=40

$$-\frac{2(Ab-aB)}{3b^2(a+bx)^{3/2}}-\frac{2B}{b^2\sqrt{a+bx}}$$

```
[Out] (-2*(A*b - a*B))/(3*b^2*(a + b*x)^(3/2)) - (2*B)/(b^2*Sqrt[a + b*
x])
```

Rubi [A] time = 0.0430979, antiderivative size = 40, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}} = 0.067$

$$-\frac{2(Ab-aB)}{3b^2(a+bx)^{3/2}}-\frac{2B}{b^2\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In] Int[(A + B*x)/(a + b*x)^(5/2),x]

[Out] (-2*(A*b - a*B))/(3*b^2*(a + b*x)^(3/2)) - (2*B)/(b^2*Sqrt[a + b*
x])
```

Rubi in Sympy [A] time = 7.50699, size = 39, normalized size = 0.98

$$-\frac{2B}{b^2\sqrt{a+bx}}-\frac{2\,(Ab-Ba)}{3b^2\,(a+bx)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((B*x+A)/(b*x+a)**(5/2),x)

[Out] -2*B/(b**2*sqrt(a + b*x)) - 2*(A*b - B*a)/(3*b**2*(a + b*x)**(3/2
))
```

Mathematica [A] time = 0.0298781, size = 29, normalized size = 0.72

$$-\frac{2(2aB+Ab+3bBx)}{3b^2(a+bx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In] Integrate[(A + B*x)/(a + b*x)^(5/2),x]

[Out] (-2*(A*b + 2*a*B + 3*b*B*x))/(3*b^2*(a + b*x)^(3/2))
```

Maple [A] time = 0.005, size = 26, normalized size = 0.7

$$-\frac{6\,bBx+2\,Ab+4\,Ba}{3\,b^2}(bx+a)^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((B*x+A)/(b*x+a)^(5/2),x)
```

```
[Out] -2/3/(b*x+a)^(3/2)*(3*B*b*x+A*b+2*B*a)/b^2
```

Maxima [A] time = 1.35919, size = 38, normalized size = 0.95

$$-\frac{2\left(3\left(bx+a\right)B-Ba+Ab\right)}{3\left(bx+a\right)^{\frac{3}{2}}b^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(b*x + a)^(5/2),x, algorithm="maxima")
```

```
[Out] -2/3*(3*(b*x + a)*B - B*a + A*b)/((b*x + a)^(3/2)*b^2)
```

Fricas [A] time = 0.211941, size = 47, normalized size = 1.18

$$-\frac{2\left(3\,Bbx+2\,Ba+Ab\right)}{3\left(b^{3}x+ab^{2}\right)\sqrt{bx+a}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(b*x + a)^(5/2),x, algorithm="fricas")
```

```
[Out] -2/3*(3*B*b*x + 2*B*a + A*b)/((b^3*x + a*b^2)*sqrt(b*x + a))
```

Sympy [A] time = 3.78701, size = 124, normalized size = 3.1

$$\begin{cases} -\frac{2Ab}{3ab^{2}\sqrt{a+bx}+3b^{3}x\sqrt{a+bx}}-\frac{4Ba}{3ab^{2}\sqrt{a+bx}+3b^{3}x\sqrt{a+bx}}-\frac{6Bbx}{3ab^{2}\sqrt{a+bx}+3b^{3}x\sqrt{a+bx}} & \text{for}\: b\neq 0\\ \frac{Ax+\frac{Bx^{2}}{2}}{a^{\frac{5}{2}}} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(b*x+a)**(5/2),x)
```

```
[Out] Piecewise((-2*A*b/(3*a*b**2*sqrt(a + b*x) + 3*b**3*x*sqrt(a + b*x
)) - 4*B*a/(3*a*b**2*sqrt(a + b*x) + 3*b**3*x*sqrt(a + b*x)) - 6*
B*b*x/(3*a*b**2*sqrt(a + b*x) + 3*b**3*x*sqrt(a + b*x)), Ne(b, 0)
), ((A*x + B*x**2/2)/a**(5/2), True))
```

GIAC/XCAS [A] time = 0.208154, size = 38, normalized size = 0.95

$$-\frac{2\left(3\left(bx+a\right)B-Ba+Ab\right)}{3\left(bx+a\right)^{\frac{3}{2}}b^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(b*x + a)^(5/2),x, algorithm="giac")
```

```
[Out] -2/3*(3*(b*x + a)*B - B*a + A*b)/((b*x + a)^(3/2)*b^2)
```

3.437 $\int \frac{A+Bx}{x(a+bx)^{5/2}}\,dx$

Optimal. Leaf size=67

$$-\frac{2A\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{a^{5/2}}+\frac{2A}{a^2\sqrt{a+bx}}+\frac{2(Ab-aB)}{3ab(a+bx)^{3/2}}$$

```
[Out] (2*(A*b - a*B))/(3*a*b*(a + b*x)^(3/2)) + (2*A)/(a^2*Sqrt[a + b*x
]) - (2*A*ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/a^(5/2)
```

Rubi [A] time = 0.0813486, antiderivative size = 67, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.222

$$-\frac{2A\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{a^{5/2}}+\frac{2A}{a^2\sqrt{a+bx}}+\frac{2(Ab-aB)}{3ab(a+bx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x*(a + b*x)^(5/2)),x]
```

```
[Out] (2*(A*b - a*B))/(3*a*b*(a + b*x)^(3/2)) + (2*A)/(a^2*Sqrt[a + b*x
]) - (2*A*ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/a^(5/2)
```

Rubi in Sympy [A] time = 9.37235, size = 61, normalized size = 0.91

$$\frac{2A}{a^2\sqrt{a+bx}}-\frac{2A\,\mathrm{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{a^{\frac{5}{2}}}+\frac{2\left(Ab-Ba\right)}{3ab\left(a+bx\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x/(b*x+a)**(5/2),x)
```

```
[Out] 2*A/(a**2*sqrt(a + b*x)) - 2*A*atanh(sqrt(a + b*x)/sqrt(a))/a**(5
/2) + 2*(A*b - B*a)/(3*a*b*(a + b*x)**(3/2))
```

Mathematica [A] time = 0.173855, size = 63, normalized size = 0.94

$$\frac{-2a^2B+8aAb+6Ab^2x}{3a^2b(a+bx)^{3/2}}-\frac{2A\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{a^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x*(a + b*x)^(5/2)),x]
```

```
[Out] (8*a*A*b - 2*a^2*B + 6*A*b^2*x)/(3*a^2*b*(a + b*x)^(3/2)) - (2*A*
ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/a^(5/2)
```

Maple [A] time = 0.014, size = 59, normalized size = 0.9

$$2\,\frac{1}{b}\left(-1/3\,\frac{-Ab+Ba}{a\left(bx+a\right)^{3/2}}+\frac{Ab}{a^2\sqrt{bx+a}}-\frac{Ab}{a^{5/2}}Artanh\left(\frac{\sqrt{bx+a}}{\sqrt{a}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x/(b*x+a)^(5/2),x)
```

```
[Out] 2/b*(-1/3*(-A*b+B*a)/a/(b*x+a)^(3/2)+1/a^2/(b*x+a)^(1/2)*A*b-A*b/
a^(5/2)*arctanh((b*x+a)^(1/2)/a^(1/2)))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(5/2)*x),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.235753, size = 1, normalized size = 0.01

$$\left[\frac{3\left(Ab^2x+Aab\right)\sqrt{bx+a}\log\left(\frac{(bx+2a)\sqrt{a}-2\sqrt{bx+a}a}{x}\right)+2\left(3Ab^2x-Ba^2+4Aab\right)\sqrt{a}}{3\left(a^2b^2x+a^3b\right)\sqrt{bx+a}\sqrt{a}},\ \frac{2\left(3\left(Ab^2x+Aab\right)\sqrt{bx+a}\arctan\left(\frac{}{\sqrt{bx+}}\right.\right.}{3\left(a^2b^2x+a^3b\right.}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(5/2)*x),x, algorithm="fricas")
```

```
[Out] [1/3*(3*(A*b^2*x + A*a*b)*sqrt(b*x + a)*log(((b*x + 2*a)*sqrt(a)
- 2*sqrt(b*x + a)*a)/x) + 2*(3*A*b^2*x - B*a^2 + 4*A*a*b)*sqrt(a)
)/((a^2*b^2*x + a^3*b)*sqrt(b*x + a)*sqrt(a)), 2/3*(3*(A*b^2*x +
A*a*b)*sqrt(b*x + a)*arctan(a/(sqrt(b*x + a)*sqrt(-a))) + (3*A*b^
2*x - B*a^2 + 4*A*a*b)*sqrt(-a))/((a^2*b^2*x + a^3*b)*sqrt(b*x +
a)*sqrt(-a))]
```

Sympy [A] time = 19.2874, size = 714, normalized size = 10.66

$$A\left(\frac{8a^7\sqrt{1+\frac{bx}{a}}}{3a^{\frac{19}{2}}+9a^{\frac{17}{2}}bx+9a^{\frac{15}{2}}b^2x^2+3a^{\frac{13}{2}}b^3x^3}+\frac{3a^7\log\left(\frac{bx}{a}\right)}{3a^{\frac{19}{2}}+9a^{\frac{17}{2}}bx+9a^{\frac{15}{2}}b^2x^2+3a^{\frac{13}{2}}b^3x^3}-\frac{6a^7\log\left(\sqrt{1+\frac{bx}{a}}+1\right)}{3a^{\frac{19}{2}}+9a^{\frac{17}{2}}bx+9a^{\frac{15}{2}}b^2x^2+3a^{\frac{13}{2}}b^3x^3}+\frac{14a^6bx\sqrt{1+\frac{bx}{a}}}{3a^{\frac{19}{2}}+9a^{\frac{17}{2}}bx+9a^{\frac{15}{2}}b^2x^2+3a^{\frac{13}{2}}b^3x^3}+\frac{9a^6bx\log\left(\frac{bx}{a}\right)}{3a^{\frac{19}{2}}+9a^{\frac{17}{2}}bx+9a^{\frac{15}{2}}b^2x^2+3a^{\frac{13}{2}}b^3x^3}-\frac{18a^6bx\log\left(\sqrt{1+\frac{bx}{a}}+1\right)}{3a^{\frac{19}{2}}+9a^{\frac{17}{2}}bx+9a^{\frac{15}{2}}b^2x^2+3a^{\frac{13}{2}}b^3x^3}+\frac{6a^5b^2x^2\sqrt{1+\frac{bx}{a}}}{3a^{\frac{19}{2}}+9a^{\frac{17}{2}}bx+9a^{\frac{15}{2}}b^2x^2+3a^{\frac{13}{2}}b^3x^3}+\frac{9a^5b^2x^2\log\left(\frac{bx}{a}\right)}{3a^{\frac{19}{2}}+9a^{\frac{17}{2}}bx+9a^{\frac{15}{2}}b^2x^2+3a^{\frac{13}{2}}b^3x^3}-\frac{18a^5b^2x^2\log\left(\sqrt{1+\frac{bx}{a}}+1\right)}{3a^{\frac{19}{2}}+9a^{\frac{17}{2}}bx+9a^{\frac{15}{2}}b^2x^2+3a^{\frac{13}{2}}b^3x^3}+\frac{3a^4b^3x^3\log\left(\frac{bx}{a}\right)}{3a^{\frac{19}{2}}+9a^{\frac{17}{2}}bx+9a^{\frac{15}{2}}b^2x^2+3a^{\frac{13}{2}}b^3x^3}-\frac{6a^4b^3x^3\log\left(\sqrt{1+\frac{bx}{a}}+1\right)}{3a^{\frac{19}{2}}+9a^{\frac{17}{2}}bx+9a^{\frac{15}{2}}b^2x^2+3a^{\frac{13}{2}}b^3x^3}\right)-\frac{2B}{3b(a+bx)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x/(b*x+a)**(5/2),x)
```

```
[Out] A*(8*a**7*sqrt(1 + b*x/a)/(3*a**(19/2) + 9*a**(17/2)*b*x + 9*a**(
15/2)*b**2*x**2 + 3*a**(13/2)*b**3*x**3) + 3*a**7*log(b*x/a)/(3*a
**(19/2) + 9*a**(17/2)*b*x + 9*a**(15/2)*b**2*x**2 + 3*a**(13/2)*
b**3*x**3) - 6*a**7*log(sqrt(1 + b*x/a) + 1)/(3*a**(19/2) + 9*a**
(17/2)*b*x + 9*a**(15/2)*b**2*x**2 + 3*a**(13/2)*b**3*x**3) + 14*
a**6*b*x*sqrt(1 + b*x/a)/(3*a**(19/2) + 9*a**(17/2)*b*x + 9*a**(1
5/2)*b**2*x**2 + 3*a**(13/2)*b**3*x**3) + 9*a**6*b*x*log(b*x/a)/(
3*a**(19/2) + 9*a**(17/2)*b*x + 9*a**(15/2)*b**2*x**2 + 3*a**(13/
2)*b**3*x**3) - 18*a**6*b*x*log(sqrt(1 + b*x/a) + 1)/(3*a**(19/2)
 + 9*a**(17/2)*b*x + 9*a**(15/2)*b**2*x**2 + 3*a**(13/2)*b**3*x**
3) + 6*a**5*b**2*x**2*sqrt(1 + b*x/a)/(3*a**(19/2) + 9*a**(17/2)*
b*x + 9*a**(15/2)*b**2*x**2 + 3*a**(13/2)*b**3*x**3) + 9*a**5*b**
2*x**2*log(b*x/a)/(3*a**(19/2) + 9*a**(17/2)*b*x + 9*a**(15/2)*b*
*2*x**2 + 3*a**(13/2)*b**3*x**3) - 18*a**5*b**2*x**2*log(sqrt(1 +
 b*x/a) + 1)/(3*a**(19/2) + 9*a**(17/2)*b*x + 9*a**(15/2)*b**2*x*
*2 + 3*a**(13/2)*b**3*x**3) + 3*a**4*b**3*x**3*log(b*x/a)/(3*a**(
19/2) + 9*a**(17/2)*b*x + 9*a**(15/2)*b**2*x**2 + 3*a**(13/2)*b**
3*x**3) - 6*a**4*b**3*x**3*log(sqrt(1 + b*x/a) + 1)/(3*a**(19/2)
+ 9*a**(17/2)*b*x + 9*a**(15/2)*b**2*x**2 + 3*a**(13/2)*b**3*x**3
)) - 2*B/(3*b*(a + b*x)**(3/2))
```

GIAC/XCAS [A] time = 0.210275, size = 82, normalized size = 1.22

$$\frac{2\,A\arctan\left(\frac{\sqrt{bx+a}}{\sqrt{-a}}\right)}{\sqrt{-a}a^{2}}-\frac{2\,\left(Ba^{2}-3\,(bx+a)Ab-Aab\right)}{3\,(bx+a)^{\frac{3}{2}}a^{2}b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(5/2)*x),x, algorithm="giac")
```

```
[Out] 2*A*arctan(sqrt(b*x + a)/sqrt(-a))/(sqrt(-a)*a^2) - 2/3*(B*a^2 -
3*(b*x + a)*A*b - A*a*b)/((b*x + a)^(3/2)*a^2*b)
```

3.438 $\int \frac{A+Bx}{x^2(a+bx)^{5/2}}\,dx$

Optimal. Leaf size=98

$$\frac{(5Ab-2aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{a^{7/2}}-\frac{5Ab-2aB}{a^3\sqrt{a+bx}}-\frac{5Ab-2aB}{3a^2(a+bx)^{3/2}}-\frac{A}{ax(a+bx)^{3/2}}$$

```
[Out] -(5*A*b - 2*a*B)/(3*a^2*(a + b*x)^(3/2)) - A/(a*x*(a + b*x)^(3/2)
) - (5*A*b - 2*a*B)/(a^3*Sqrt[a + b*x]) + ((5*A*b - 2*a*B)*ArcTan
h[Sqrt[a + b*x]/Sqrt[a]])/a^(7/2)
```

Rubi [A] time = 0.143555, antiderivative size = 98, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.222

$$\frac{(5Ab-2aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{a^{7/2}}-\frac{5Ab-2aB}{a^3\sqrt{a+bx}}-\frac{5Ab-2aB}{3a^2(a+bx)^{3/2}}-\frac{A}{ax(a+bx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^2*(a + b*x)^(5/2)),x]
```

```
[Out] -(5*A*b - 2*a*B)/(3*a^2*(a + b*x)^(3/2)) - A/(a*x*(a + b*x)^(3/2)
) - (5*A*b - 2*a*B)/(a^3*Sqrt[a + b*x]) + ((5*A*b - 2*a*B)*ArcTan
h[Sqrt[a + b*x]/Sqrt[a]])/a^(7/2)
```

Rubi in Sympy [A] time = 13.106, size = 90, normalized size = 0.92

$$-\frac{A}{ax\,(a+bx)^{\frac{3}{2}}}-\frac{2\left(\frac{5Ab}{2}-Ba\right)}{3a^2\,(a+bx)^{\frac{3}{2}}}-\frac{2\left(\frac{5Ab}{2}-Ba\right)}{a^3\sqrt{a+bx}}+\frac{2\left(\frac{5Ab}{2}-Ba\right)\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{a^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**2/(b*x+a)**(5/2),x)
```

```
[Out] -A/(a*x*(a + b*x)**(3/2)) - 2*(5*A*b/2 - B*a)/(3*a**2*(a + b*x)**
(3/2)) - 2*(5*A*b/2 - B*a)/(a**3*sqrt(a + b*x)) + 2*(5*A*b/2 - B*
a)*atanh(sqrt(a + b*x)/sqrt(a))/a**(7/2)
```

Mathematica [A] time = 0.133798, size = 86, normalized size = 0.88

$$\frac{(5Ab-2aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{a^{7/2}}+\frac{a^2(8Bx-3A)+2abx(3Bx-10A)-15Ab^2x^2}{3a^3x(a+bx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^2*(a + b*x)^(5/2)),x]
```

```
[Out] (-15*A*b^2*x^2 + 2*a*b*x*(-10*A + 3*B*x) + a^2*(-3*A + 8*B*x))/(3
*a^3*x*(a + b*x)^(3/2)) + ((5*A*b - 2*a*B)*ArcTanh[Sqrt[a + b*x]/
Sqrt[a]])/a^(7/2)
```

Maple [A] time = 0.023, size = 88, normalized size = 0.9

$$-\frac{2\,Ab-2\,Ba}{3\,a^{2}}(bx+a)^{-\frac{3}{2}}-2\,\frac{2\,Ab-Ba}{a^{3}\sqrt{bx+a}}-2\,\frac{1}{a^{3}}\left(1/2\,\frac{A\sqrt{bx+a}}{x}-1/2\,\frac{5\,Ab-2\,Ba}{\sqrt{a}}Artanh\left(\frac{\sqrt{bx+a}}{\sqrt{a}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^2/(b*x+a)^(5/2),x)
```

```
[Out] -2/3*(A*b-B*a)/a^2/(b*x+a)^(3/2)-2*(2*A*b-B*a)/a^3/(b*x+a)^(1/2)-
2/a^3*(1/2*A*(b*x+a)^(1/2)/x-1/2*(5*A*b-2*B*a)/a^(1/2)*arctanh((b
*x+a)^(1/2)/a^(1/2)))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(5/2)*x^2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.230916, size = 1, normalized size = 0.01

$$\left[-\frac{3\left(\left(2\,Bab-5\,Ab^{2}\right)x^{2}+\left(2\,Ba^{2}-5\,Aab\right)x\right)\sqrt{bx+a}\log\left(\frac{(bx+2\,a)\sqrt{a}+2\,\sqrt{bx+a}a}{x}\right)+2\left(3\,Aa^{2}-3\left(2\,Bab-5\,Ab^{2}\right)x^{2}-4\left(2\,Ba^{2}\right.\right.}{6\left(a^{3}bx^{2}+a^{4}x\right)\sqrt{bx+a}\sqrt{a}}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(5/2)*x^2),x, algorithm="fricas")
```

```
[Out] [-1/6*(3*((2*B*a*b - 5*A*b^2)*x^2 + (2*B*a^2 - 5*A*a*b)*x)*sqrt(b
*x + a)*log(((b*x + 2*a)*sqrt(a) + 2*sqrt(b*x + a)*a)/x) + 2*(3*A
*a^2 - 3*(2*B*a*b - 5*A*b^2)*x^2 - 4*(2*B*a^2 - 5*A*a*b)*x)*sqrt(
a))/((a^3*b*x^2 + a^4*x)*sqrt(b*x + a)*sqrt(a)), 1/3*(3*((2*B*a*b
 - 5*A*b^2)*x^2 + (2*B*a^2 - 5*A*a*b)*x)*sqrt(b*x + a)*arctan(a/(
sqrt(b*x + a)*sqrt(-a))) - (3*A*a^2 - 3*(2*B*a*b - 5*A*b^2)*x^2 -
 4*(2*B*a^2 - 5*A*a*b)*x)*sqrt(-a))/((a^3*b*x^2 + a^4*x)*sqrt(b*x
 + a)*sqrt(-a))]
```

Sympy [A] time = 39.6129, size = 1520, normalized size = 15.51

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**2/(b*x+a)**(5/2),x)
```

```
[Out] A*(-6*a**17*sqrt(1 + b*x/a)/(6*a**(39/2)*x + 18*a**(37/2)*b*x**2
+ 18*a**(35/2)*b**2*x**3 + 6*a**(33/2)*b**3*x**4) - 46*a**16*b*x*
sqrt(1 + b*x/a)/(6*a**(39/2)*x + 18*a**(37/2)*b*x**2 + 18*a**(35/
2)*b**2*x**3 + 6*a**(33/2)*b**3*x**4) - 15*a**16*b*x*log(b*x/a)/(
6*a**(39/2)*x + 18*a**(37/2)*b*x**2 + 18*a**(35/2)*b**2*x**3 + 6*
a**(33/2)*b**3*x**4) + 30*a**16*b*x*log(sqrt(1 + b*x/a) + 1)/(6*a
```

```
**(39/2)*x + 18*a**(37/2)*b*x**2 + 18*a**(35/2)*b**2*x**3 + 6*a**
(33/2)*b**3*x**4) - 70*a**15*b**2*x**2*sqrt(1 + b*x/a)/(6*a**(39/
2)*x + 18*a**(37/2)*b*x**2 + 18*a**(35/2)*b**2*x**3 + 6*a**(33/2)
*b**3*x**4) - 45*a**15*b**2*x**2*log(b*x/a)/(6*a**(39/2)*x + 18*a
**(37/2)*b*x**2 + 18*a**(35/2)*b**2*x**3 + 6*a**(33/2)*b**3*x**4)
 + 90*a**15*b**2*x**2*log(sqrt(1 + b*x/a) + 1)/(6*a**(39/2)*x + 1
8*a**(37/2)*b*x**2 + 18*a**(35/2)*b**2*x**3 + 6*a**(33/2)*b**3*x*
*4) - 30*a**14*b**3*x**3*sqrt(1 + b*x/a)/(6*a**(39/2)*x + 18*a**(
37/2)*b*x**2 + 18*a**(35/2)*b**2*x**3 + 6*a**(33/2)*b**3*x**4) -
45*a**14*b**3*x**3*log(b*x/a)/(6*a**(39/2)*x + 18*a**(37/2)*b*x**
2 + 18*a**(35/2)*b**2*x**3 + 6*a**(33/2)*b**3*x**4) + 90*a**14*b*
*3*x**3*log(sqrt(1 + b*x/a) + 1)/(6*a**(39/2)*x + 18*a**(37/2)*b*
x**2 + 18*a**(35/2)*b**2*x**3 + 6*a**(33/2)*b**3*x**4) - 15*a**13
*b**4*x**4*log(b*x/a)/(6*a**(39/2)*x + 18*a**(37/2)*b*x**2 + 18*a
**(35/2)*b**2*x**3 + 6*a**(33/2)*b**3*x**4) + 30*a**13*b**4*x**4*
log(sqrt(1 + b*x/a) + 1)/(6*a**(39/2)*x + 18*a**(37/2)*b*x**2 + 1
8*a**(35/2)*b**2*x**3 + 6*a**(33/2)*b**3*x**4)) + B*(8*a**7*sqrt(
1 + b*x/a)/(3*a**(19/2) + 9*a**(17/2)*b*x + 9*a**(15/2)*b**2*x**2
 + 3*a**(13/2)*b**3*x**3) + 3*a**7*log(b*x/a)/(3*a**(19/2) + 9*a*
*(17/2)*b*x + 9*a**(15/2)*b**2*x**2 + 3*a**(13/2)*b**3*x**3) - 6*
a**7*log(sqrt(1 + b*x/a) + 1)/(3*a**(19/2) + 9*a**(17/2)*b*x + 9*
a**(15/2)*b**2*x**2 + 3*a**(13/2)*b**3*x**3) + 14*a**6*b*x*sqrt(1
 + b*x/a)/(3*a**(19/2) + 9*a**(17/2)*b*x + 9*a**(15/2)*b**2*x**2
+ 3*a**(13/2)*b**3*x**3) + 9*a**6*b*x*log(b*x/a)/(3*a**(19/2) + 9
*a**(17/2)*b*x + 9*a**(15/2)*b**2*x**2 + 3*a**(13/2)*b**3*x**3) -
 18*a**6*b*x*log(sqrt(1 + b*x/a) + 1)/(3*a**(19/2) + 9*a**(17/2)*
b*x + 9*a**(15/2)*b**2*x**2 + 3*a**(13/2)*b**3*x**3) + 6*a**5*b**
2*x**2*sqrt(1 + b*x/a)/(3*a**(19/2) + 9*a**(17/2)*b*x + 9*a**(15/
2)*b**2*x**2 + 3*a**(13/2)*b**3*x**3) + 9*a**5*b**2*x**2*log(b*x/
a)/(3*a**(19/2) + 9*a**(17/2)*b*x + 9*a**(15/2)*b**2*x**2 + 3*a**
(13/2)*b**3*x**3) - 18*a**5*b**2*x**2*log(sqrt(1 + b*x/a) + 1)/(3
*a**(19/2) + 9*a**(17/2)*b*x + 9*a**(15/2)*b**2*x**2 + 3*a**(13/2
)*b**3*x**3) + 3*a**4*b**3*x**3*log(b*x/a)/(3*a**(19/2) + 9*a**(1
7/2)*b*x + 9*a**(15/2)*b**2*x**2 + 3*a**(13/2)*b**3*x**3) - 6*a**
4*b**3*x**3*log(sqrt(1 + b*x/a) + 1)/(3*a**(19/2) + 9*a**(17/2)*b
*x + 9*a**(15/2)*b**2*x**2 + 3*a**(13/2)*b**3*x**3))
```

GIAC/XCAS [A] time = 0.216973, size = 122, normalized size = 1.24

$$\frac{(2\,Ba-5\,Ab)\arctan\left(\frac{\sqrt{bx+a}}{\sqrt{-a}}\right)}{\sqrt{-a}a^3}-\frac{\sqrt{bx+a}A}{a^3x}+\frac{2\left(3\,(bx+a)Ba+Ba^2-6\,(bx+a)Ab-Aab\right)}{3\,(bx+a)^{\frac{3}{2}}a^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(5/2)*x^2),x, algorithm="giac")
```

```
[Out] (2*B*a - 5*A*b)*arctan(sqrt(b*x + a)/sqrt(-a))/(sqrt(-a)*a^3) - s
qrt(b*x + a)*A/(a^3*x) + 2/3*(3*(b*x + a)*B*a + B*a^2 - 6*(b*x +
a)*A*b - A*a*b)/((b*x + a)^(3/2)*a^3)
```

3.439 $\int \frac{A+Bx}{x^3(a+bx)^{5/2}}\,dx$

Optimal. Leaf size=140

$$-\frac{5b(7Ab-4aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{4a^{9/2}}+\frac{5\sqrt{a+bx}(7Ab-4aB)}{4a^4x}-\frac{5(7Ab-4aB)}{6a^3x\sqrt{a+bx}}-\frac{7Ab-4aB}{6a^2x(a+bx)^{3/2}}-\frac{A}{2ax^2(a+bx)^{3/2}}$$

```
[Out] -A/(2*a*x^2*(a + b*x)^(3/2)) - (7*A*b - 4*a*B)/(6*a^2*x*(a + b*x)
^(3/2)) - (5*(7*A*b - 4*a*B))/(6*a^3*x*Sqrt[a + b*x]) + (5*(7*A*b
 - 4*a*B)*Sqrt[a + b*x])/(4*a^4*x) - (5*b*(7*A*b - 4*a*B)*ArcTanh
[Sqrt[a + b*x]/Sqrt[a]])/(4*a^(9/2))
```

Rubi [A] time = 0.183355, antiderivative size = 140, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.222

$$-\frac{5b(7Ab-4aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{4a^{9/2}}+\frac{5\sqrt{a+bx}(7Ab-4aB)}{4a^4x}-\frac{5(7Ab-4aB)}{6a^3x\sqrt{a+bx}}-\frac{7Ab-4aB}{6a^2x(a+bx)^{3/2}}-\frac{A}{2ax^2(a+bx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^3*(a + b*x)^(5/2)),x]
```

```
[Out] -A/(2*a*x^2*(a + b*x)^(3/2)) - (7*A*b - 4*a*B)/(6*a^2*x*(a + b*x)
^(3/2)) - (5*(7*A*b - 4*a*B))/(6*a^3*x*Sqrt[a + b*x]) + (5*(7*A*b
 - 4*a*B)*Sqrt[a + b*x])/(4*a^4*x) - (5*b*(7*A*b - 4*a*B)*ArcTanh
[Sqrt[a + b*x]/Sqrt[a]])/(4*a^(9/2))
```

Rubi in Sympy [A] time = 16.9104, size = 129, normalized size = 0.92

$$-\frac{A}{2ax^2\left(a+bx\right)^{\frac{3}{2}}}-\frac{7Ab-4Ba}{6a^2x\left(a+bx\right)^{\frac{3}{2}}}-\frac{5\left(7Ab-4Ba\right)}{6a^3x\sqrt{a+bx}}+\frac{5\sqrt{a+bx}\left(7Ab-4Ba\right)}{4a^4x}-\frac{5b\left(7Ab-4Ba\right)\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{4a^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**3/(b*x+a)**(5/2),x)
```

```
[Out] -A/(2*a*x**2*(a + b*x)**(3/2)) - (7*A*b - 4*B*a)/(6*a**2*x*(a + b
*x)**(3/2)) - 5*(7*A*b - 4*B*a)/(6*a**3*x*sqrt(a + b*x)) + 5*sqrt
(a + b*x)*(7*A*b - 4*B*a)/(4*a**4*x) - 5*b*(7*A*b - 4*B*a)*atanh(
sqrt(a + b*x)/sqrt(a))/(4*a**(9/2))
```

Mathematica [A] time = 0.171861, size = 107, normalized size = 0.76

$$\frac{5b(4aB-7Ab)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{4a^{9/2}}+\frac{-6a^3(A+2Bx)+a^2bx(21A-80Bx)+20ab^2x^2(7A-3Bx)+105Ab^3x^3}{12a^4x^2(a+bx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^3*(a + b*x)^(5/2)),x]
```

```
[Out] (105*A*b^3*x^3 + a^2*b*x*(21*A - 80*B*x) + 20*a*b^2*x^2*(7*A - 3*
B*x) - 6*a^3*(A + 2*B*x))/(12*a^4*x^2*(a + b*x)^(3/2)) + (5*b*(-7
*A*b + 4*a*B)*ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/(4*a^(9/2))
```

Maple [A] time = 0.024, size = 122, normalized size = 0.9

$$2\,b\left(-{\frac{-3\,Ab+2\,Ba}{{a}^{4}\sqrt{bx+a}}}-1/3\,{\frac{-Ab+Ba}{{a}^{3}\left(bx+a\right)^{3/2}}}+{\frac{1}{{a}^{4}}}\left({\frac{1}{{b}^{2}{x}^{2}}}\left(\left({\frac{11\,Ab}{8}}-1/2\,Ba\right)\left(bx+a\right)^{3/2}+\left(-{\frac{13\,Aab}{8}}+1/2\,B{a}^{2}\right)\sqrt{bx+a}\right)-5/8\,{\frac{7\,Ab-4\,Ba}{\sqrt{a}}}{\it Artanh}\left({\frac{\sqrt{bx+a}}{\sqrt{a}}}\right)\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^3/(b*x+a)^(5/2),x)
```

```
[Out] 2*b*(-(-3*A*b+2*B*a)/a^4/(b*x+a)^(1/2)-1/3*(-A*b+B*a)/a^3/(b*x+a)
^(3/2)+1/a^4*(((11/8*A*b-1/2*B*a)*(b*x+a)^(3/2)+(-13/8*A*a*b+1/2*
B*a^2)*(b*x+a)^(1/2))/x^2/b^2-5/8*(7*A*b-4*B*a)/a^(1/2)*arctanh((
b*x+a)^(1/2)/a^(1/2))))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(5/2)*x^3),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.235656, size = 1, normalized size = 0.01

$$\left[-\frac{15\left(\left(4\,Bab^{2}-7\,Ab^{3}\right)x^{3}+\left(4\,Ba^{2}b-7\,Aab^{2}\right)x^{2}\right)\sqrt{bx+a}\log\left(\frac{(bx+2\,a)\sqrt{a}-2\,\sqrt{bx+a}a}{x}\right)+2\left(6\,Aa^{3}+15\left(4\,Bab^{2}-7\,Ab^{3}\right)x^{3}+2\right.}{24\left(a^{4}bx^{3}+a^{5}x^{2}\right)\sqrt{bx+a}\sqrt{a}}\right.$$

$$-\frac{15\left(\left(4\,Bab^{2}-7\,Ab^{3}\right)x^{3}+\left(4\,Ba^{2}b-7\,Aab^{2}\right)x^{2}\right)\sqrt{bx+a}\arctan\left(\frac{a}{\sqrt{bx+a}\sqrt{-a}}\right)+\left(6\,Aa^{3}+15\left(4\,Bab^{2}-7\,Ab^{3}\right)x^{3}+20\left(4\,Ba^{2}\right.\right.}{12\left(a^{4}bx^{3}+a^{5}x^{2}\right)\sqrt{bx+a}\sqrt{-a}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(5/2)*x^3),x, algorithm="fricas")
```

```
[Out] [-1/24*(15*((4*B*a*b^2 - 7*A*b^3)*x^3 + (4*B*a^2*b - 7*A*a*b^2)*x
^2)*sqrt(b*x + a)*log(((b*x + 2*a)*sqrt(a) - 2*sqrt(b*x + a)*a)/x
) + 2*(6*A*a^3 + 15*(4*B*a*b^2 - 7*A*b^3)*x^3 + 20*(4*B*a^2*b - 7
*A*a*b^2)*x^2 + 3*(4*B*a^3 - 7*A*a^2*b)*x)*sqrt(a))/((a^4*b*x^3 +
 a^5*x^2)*sqrt(b*x + a)*sqrt(a)), -1/12*(15*((4*B*a*b^2 - 7*A*b^3
)*x^3 + (4*B*a^2*b - 7*A*a*b^2)*x^2)*sqrt(b*x + a)*arctan(a/(sqrt
(b*x + a)*sqrt(-a))) + (6*A*a^3 + 15*(4*B*a*b^2 - 7*A*b^3)*x^3 +
20*(4*B*a^2*b - 7*A*a*b^2)*x^2 + 3*(4*B*a^3 - 7*A*a^2*b)*x)*sqrt(
-a))/((a^4*b*x^3 + a^5*x^2)*sqrt(b*x + a)*sqrt(-a))]
```

Sympy [A] time = 58.8049, size = 1287, normalized size = 9.19

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**3/(b*x+a)**(5/2),x)
```

```
[Out] A*(-6*a**(89/2)*b**75*x**75/(12*a**(93/2)*b**(151/2)*x**(155/2)*s
qrt(a/(b*x) + 1) + 12*a**(91/2)*b**(153/2)*x**(157/2)*sqrt(a/(b*x
) + 1)) + 21*a**(87/2)*b**76*x**76/(12*a**(93/2)*b**(151/2)*x**(1
55/2)*sqrt(a/(b*x) + 1) + 12*a**(91/2)*b**(153/2)*x**(157/2)*sqrt
(a/(b*x) + 1)) + 140*a**(85/2)*b**77*x**77/(12*a**(93/2)*b**(151/
2)*x**(155/2)*sqrt(a/(b*x) + 1) + 12*a**(91/2)*b**(153/2)*x**(157
/2)*sqrt(a/(b*x) + 1)) + 105*a**(83/2)*b**78*x**78/(12*a**(93/2)*
b**(151/2)*x**(155/2)*sqrt(a/(b*x) + 1) + 12*a**(91/2)*b**(153/2)
*x**(157/2)*sqrt(a/(b*x) + 1)) - 105*a**42*b**(155/2)*x**(155/2)*
sqrt(a/(b*x) + 1)*asinh(sqrt(a)/(sqrt(b)*sqrt(x)))/(12*a**(93/2)*
b**(151/2)*x**(155/2)*sqrt(a/(b*x) + 1) + 12*a**(91/2)*b**(153/2)
*x**(157/2)*sqrt(a/(b*x) + 1)) - 105*a**41*b**(157/2)*x**(157/2)*
sqrt(a/(b*x) + 1)*asinh(sqrt(a)/(sqrt(b)*sqrt(x)))/(12*a**(93/2)*
b**(151/2)*x**(155/2)*sqrt(a/(b*x) + 1) + 12*a**(91/2)*b**(153/2)
*x**(157/2)*sqrt(a/(b*x) + 1))) + B*(-6*a**17*sqrt(1 + b*x/a)/(6*
a**(39/2)*x + 18*a**(37/2)*b*x**2 + 18*a**(35/2)*b**2*x**3 + 6*a*
*(33/2)*b**3*x**4) - 46*a**16*b*x*sqrt(1 + b*x/a)/(6*a**(39/2)*x
+ 18*a**(37/2)*b*x**2 + 18*a**(35/2)*b**2*x**3 + 6*a**(33/2)*b**3
*x**4) - 15*a**16*b*x*log(b*x/a)/(6*a**(39/2)*x + 18*a**(37/2)*b*
x**2 + 18*a**(35/2)*b**2*x**3 + 6*a**(33/2)*b**3*x**4) + 30*a**16
*b*x*log(sqrt(1 + b*x/a) + 1)/(6*a**(39/2)*x + 18*a**(37/2)*b*x**
2 + 18*a**(35/2)*b**2*x**3 + 6*a**(33/2)*b**3*x**4) - 70*a**15*b*
*2*x**2*sqrt(1 + b*x/a)/(6*a**(39/2)*x + 18*a**(37/2)*b*x**2 + 18
*a**(35/2)*b**2*x**3 + 6*a**(33/2)*b**3*x**4) - 45*a**15*b**2*x**
2*log(b*x/a)/(6*a**(39/2)*x + 18*a**(37/2)*b*x**2 + 18*a**(35/2)*
b**2*x**3 + 6*a**(33/2)*b**3*x**4) + 90*a**15*b**2*x**2*log(sqrt(
1 + b*x/a) + 1)/(6*a**(39/2)*x + 18*a**(37/2)*b*x**2 + 18*a**(35/
2)*b**2*x**3 + 6*a**(33/2)*b**3*x**4) - 30*a**14*b**3*x**3*sqrt(1
 + b*x/a)/(6*a**(39/2)*x + 18*a**(37/2)*b*x**2 + 18*a**(35/2)*b**
2*x**3 + 6*a**(33/2)*b**3*x**4) - 45*a**14*b**3*x**3*log(b*x/a)/(
6*a**(39/2)*x + 18*a**(37/2)*b*x**2 + 18*a**(35/2)*b**2*x**3 + 6*
a**(33/2)*b**3*x**4) + 90*a**14*b**3*x**3*log(sqrt(1 + b*x/a) + 1
)/(6*a**(39/2)*x + 18*a**(37/2)*b*x**2 + 18*a**(35/2)*b**2*x**3 +
 6*a**(33/2)*b**3*x**4) - 15*a**13*b**4*x**4*log(b*x/a)/(6*a**(39
/2)*x + 18*a**(37/2)*b*x**2 + 18*a**(35/2)*b**2*x**3 + 6*a**(33/2
)*b**3*x**4) + 30*a**13*b**4*x**4*log(sqrt(1 + b*x/a) + 1)/(6*a**
(39/2)*x + 18*a**(37/2)*b*x**2 + 18*a**(35/2)*b**2*x**3 + 6*a**(3
3/2)*b**3*x**4))
```

GIAC/XCAS [A] time = 0.217608, size = 201, normalized size = 1.44

$$-\frac{5\left(4\,Bab-7\,Ab^{2}\right)\arctan\left(\frac{\sqrt{bx+a}}{\sqrt{-a}}\right)}{4\,\sqrt{-a}a^{4}}-\frac{2\left(6\,(bx+a)Bab+Ba^{2}b-9\,(bx+a)Ab^{2}-Aab^{2}\right)}{3\,(bx+a)^{\frac{3}{2}}a^{4}}-\frac{4\,(bx+a)^{\frac{3}{2}}Bab-4\,\sqrt{bx+a}Ba^{2}b-11\,(bx+a)^{\frac{3}{2}}Ab^{2}+13\,\sqrt{bx+a}Aab^{2}}{4\,a^{4}b^{2}x^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(5/2)*x^3),x, algorithm="giac")
```

```
[Out] -5/4*(4*B*a*b - 7*A*b^2)*arctan(sqrt(b*x + a)/sqrt(-a))/(sqrt(-a)
*a^4) - 2/3*(6*(b*x + a)*B*a*b + B*a^2*b - 9*(b*x + a)*A*b^2 - A*
a*b^2)/((b*x + a)^(3/2)*a^4) - 1/4*(4*(b*x + a)^(3/2)*B*a*b - 4*s
qrt(b*x + a)*B*a^2*b - 11*(b*x + a)^(3/2)*A*b^2 + 13*sqrt(b*x + a
)*A*a*b^2)/(a^4*b^2*x^2)
```

3.440 $\int \frac{A+Bx}{x^4(a+bx)^{5/2}}\,dx$

Optimal. Leaf size=171

$$\frac{35b^2(3Ab-2aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{8a^{11/2}}-\frac{35b\sqrt{a+bx}(3Ab-2aB)}{8a^5x}+\frac{35\sqrt{a+bx}(3Ab-2aB)}{12a^4x^2}-\frac{7(3Ab-2aB)}{3a^3x^2\sqrt{a+bx}}-\frac{3Ab-2aB}{3a^2x^2(a+bx)^{3/2}}-\frac{A}{3ax^3(a+bx)^{3/2}}$$

```
[Out] -A/(3*a*x^3*(a + b*x)^(3/2)) - (3*A*b - 2*a*B)/(3*a^2*x^2*(a + b*
x)^(3/2)) - (7*(3*A*b - 2*a*B))/(3*a^3*x^2*Sqrt[a + b*x]) + (35*(
3*A*b - 2*a*B)*Sqrt[a + b*x])/(12*a^4*x^2) - (35*b*(3*A*b - 2*a*B
)*Sqrt[a + b*x])/(8*a^5*x) + (35*b^2*(3*A*b - 2*a*B)*ArcTanh[Sqrt
[a + b*x]/Sqrt[a]])/(8*a^(11/2))
```

Rubi [A] time = 0.232797, antiderivative size = 171, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.222

$$\frac{35b^2(3Ab-2aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{8a^{11/2}}-\frac{35b\sqrt{a+bx}(3Ab-2aB)}{8a^5x}+\frac{35\sqrt{a+bx}(3Ab-2aB)}{12a^4x^2}-\frac{7(3Ab-2aB)}{3a^3x^2\sqrt{a+bx}}-\frac{3Ab-2aB}{3a^2x^2(a+bx)^{3/2}}-\frac{A}{3ax^3(a+bx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^4*(a + b*x)^(5/2)),x]
```

```
[Out] -A/(3*a*x^3*(a + b*x)^(3/2)) - (3*A*b - 2*a*B)/(3*a^2*x^2*(a + b*
x)^(3/2)) - (7*(3*A*b - 2*a*B))/(3*a^3*x^2*Sqrt[a + b*x]) + (35*(
3*A*b - 2*a*B)*Sqrt[a + b*x])/(12*a^4*x^2) - (35*b*(3*A*b - 2*a*B
)*Sqrt[a + b*x])/(8*a^5*x) + (35*b^2*(3*A*b - 2*a*B)*ArcTanh[Sqrt
[a + b*x]/Sqrt[a]])/(8*a^(11/2))
```

Rubi in Sympy [A] time = 22.3841, size = 165, normalized size = 0.96

$$-\frac{A}{3ax^3\left(a+bx\right)^{\frac{3}{2}}}-\frac{2\left(\frac{3Ab}{2}-Ba\right)}{3a^2x^2\left(a+bx\right)^{\frac{3}{2}}}-\frac{14\left(\frac{3Ab}{2}-Ba\right)}{3a^3x^2\sqrt{a+bx}}+\frac{35\sqrt{a+bx}\left(\frac{3Ab}{2}-Ba\right)}{6a^4x^2}-\frac{35b\sqrt{a+bx}\left(3Ab-2Ba\right)}{8a^5x}+\frac{35b^2\left(\frac{3Ab}{2}-Ba\right)\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{4a^{\frac{11}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**4/(b*x+a)**(5/2),x)
```

```
[Out] -A/(3*a*x**3*(a + b*x)**(3/2)) - 2*(3*A*b/2 - B*a)/(3*a**2*x**2*(
a + b*x)**(3/2)) - 14*(3*A*b/2 - B*a)/(3*a**3*x**2*sqrt(a + b*x))
 + 35*sqrt(a + b*x)*(3*A*b/2 - B*a)/(6*a**4*x**2) - 35*b*sqrt(a +
 b*x)*(3*A*b - 2*B*a)/(8*a**5*x) + 35*b**2*(3*A*b/2 - B*a)*atanh(
sqrt(a + b*x)/sqrt(a))/(4*a**(11/2))
```

Mathematica [A] time = 0.207227, size = 130, normalized size = 0.76

$$\frac{35b^2(3Ab-2aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{8a^{11/2}}+\frac{-4a^4(2A+3Bx)+6a^3bx(3A+7Bx)+7a^2b^2x^2(40Bx-9A)+210ab^3x^3(Bx-2A)-315Ab^4x^4}{24a^5x^3(a+bx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^4*(a + b*x)^(5/2)),x]
```

```
[Out] (-315*A*b^4*x^4 + 210*a*b^3*x^3*(-2*A + B*x) - 4*a^4*(2*A + 3*B*x
) + 6*a^3*b*x*(3*A + 7*B*x) + 7*a^2*b^2*x^2*(-9*A + 40*B*x))/(24*
a^5*x^3*(a + b*x)^(3/2)) + (35*b^2*(3*A*b - 2*a*B)*ArcTanh[Sqrt[a
 + b*x]/Sqrt[a]])/(8*a^(11/2))
```

Maple [A] time = 0.026, size = 147, normalized size = 0.9

$$2\,b^2\left(-1/3\,\frac{Ab-Ba}{a^4\,(bx+a)^{3/2}}-\frac{4\,Ab-3\,Ba}{a^5\sqrt{bx+a}}-\frac{1}{a^5}\left(\frac{1}{x^3b^3}\left(\left(\frac{41\,Ab}{16}-\frac{11\,Ba}{8}\right)(bx+a)^{5/2}+\left(-\frac{35\,Aab}{6}+3\,Ba^2\right)(bx+a)^{3/2}+\left(\frac{55\,Aa^2b}{16}-\frac{13\,Ba^3}{8}\right)\sqrt{bx+a}\right)-\frac{105\,Ab-70}{16\,\sqrt{a}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^4/(b*x+a)^(5/2),x)
```

```
[Out] 2*b^2*(-1/3*(A*b-B*a)/a^4/(b*x+a)^(3/2)-(4*A*b-3*B*a)/a^5/(b*x+a)
^(1/2)-1/a^5*(((41/16*A*b-11/8*B*a)*(b*x+a)^(5/2)+(-35/6*A*a*b+3*
B*a^2)*(b*x+a)^(3/2)+(55/16*A*a^2*b-13/8*B*a^3)*(b*x+a)^(1/2))/x^
3/b^3-35/16*(3*A*b-2*B*a)/a^(1/2)*arctanh((b*x+a)^(1/2)/a^(1/2)))
)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(5/2)*x^4),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.239357, size = 1, normalized size = 0.01

$$\left[-\frac{105\left(\left(2\,Bab^3-3\,Ab^4\right)x^4+\left(2\,Ba^2b^2-3\,Aab^3\right)x^3\right)\sqrt{bx+a}\log\left(\frac{(bx+2\,a)\sqrt{a}+2\,\sqrt{bx+a}a}{x}\right)+2\left(8\,Aa^4-105\left(2\,Bab^3-3\,Ab^4\right)x^4\right.}{48\left(a^5bx^4+a^6x^3\right)\sqrt{bx+a}\sqrt{a}}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(5/2)*x^4),x, algorithm="fricas")
```

```
[Out] [-1/48*(105*((2*B*a*b^3 - 3*A*b^4)*x^4 + (2*B*a^2*b^2 - 3*A*a*b^3
)*x^3)*sqrt(b*x + a)*log(((b*x + 2*a)*sqrt(a) + 2*sqrt(b*x + a)*a
)/x) + 2*(8*A*a^4 - 105*(2*B*a*b^3 - 3*A*b^4)*x^4 - 140*(2*B*a^2*
b^2 - 3*A*a*b^3)*x^3 - 21*(2*B*a^3*b - 3*A*a^2*b^2)*x^2 + 6*(2*B*
a^4 - 3*A*a^3*b)*x)*sqrt(a))/((a^5*b*x^4 + a^6*x^3)*sqrt(b*x + a)
*sqrt(a)), 1/24*(105*((2*B*a*b^3 - 3*A*b^4)*x^4 + (2*B*a^2*b^2 -
3*A*a*b^3)*x^3)*sqrt(b*x + a)*arctan(a/(sqrt(b*x + a)*sqrt(-a)))
- (8*A*a^4 - 105*(2*B*a*b^3 - 3*A*b^4)*x^4 - 140*(2*B*a^2*b^2 - 3
*A*a*b^3)*x^3 - 21*(2*B*a^3*b - 3*A*a^2*b^2)*x^2 + 6*(2*B*a^4 - 3
*A*a^3*b)*x)*sqrt(-a))/((a^5*b*x^4 + a^6*x^3)*sqrt(b*x + a)*sqrt(
```

```
-a))]
```

Sympy [A] time = 86.1522, size = 1001, normalized size = 5.85

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**4/(b*x+a)**(5/2),x)
```

```
[Out] A*(-8*a**(133/2)*b**128*x**128/(24*a**(137/2)*b**(257/2)*x**(263/
2)*sqrt(a/(b*x) + 1) + 24*a**(135/2)*b**(259/2)*x**(265/2)*sqrt(a
/(b*x) + 1)) + 18*a**(131/2)*b**129*x**129/(24*a**(137/2)*b**(257
/2)*x**(263/2)*sqrt(a/(b*x) + 1) + 24*a**(135/2)*b**(259/2)*x**(2
65/2)*sqrt(a/(b*x) + 1)) - 63*a**(129/2)*b**130*x**130/(24*a**(13
7/2)*b**(257/2)*x**(263/2)*sqrt(a/(b*x) + 1) + 24*a**(135/2)*b**(
259/2)*x**(265/2)*sqrt(a/(b*x) + 1)) - 420*a**(127/2)*b**131*x**1
31/(24*a**(137/2)*b**(257/2)*x**(263/2)*sqrt(a/(b*x) + 1) + 24*a*
*(135/2)*b**(259/2)*x**(265/2)*sqrt(a/(b*x) + 1)) - 315*a**(125/2
)*b**132*x**132/(24*a**(137/2)*b**(257/2)*x**(263/2)*sqrt(a/(b*x)
 + 1) + 24*a**(135/2)*b**(259/2)*x**(265/2)*sqrt(a/(b*x) + 1)) +
315*a**63*b**(263/2)*x**(263/2)*sqrt(a/(b*x) + 1)*asinh(sqrt(a)/(
sqrt(b)*sqrt(x)))/(24*a**(137/2)*b**(257/2)*x**(263/2)*sqrt(a/(b*
x) + 1) + 24*a**(135/2)*b**(259/2)*x**(265/2)*sqrt(a/(b*x) + 1))
+ 315*a**62*b**(265/2)*x**(265/2)*sqrt(a/(b*x) + 1)*asinh(sqrt(a)
/(sqrt(b)*sqrt(x)))/(24*a**(137/2)*b**(257/2)*x**(263/2)*sqrt(a/(
b*x) + 1) + 24*a**(135/2)*b**(259/2)*x**(265/2)*sqrt(a/(b*x) + 1)
)) + B*(-6*a**(89/2)*b**75*x**75/(12*a**(93/2)*b**(151/2)*x**(155
/2)*sqrt(a/(b*x) + 1) + 12*a**(91/2)*b**(153/2)*x**(157/2)*sqrt(a
/(b*x) + 1)) + 21*a**(87/2)*b**76*x**76/(12*a**(93/2)*b**(151/2)*
x**(155/2)*sqrt(a/(b*x) + 1) + 12*a**(91/2)*b**(153/2)*x**(157/2)
*sqrt(a/(b*x) + 1)) + 140*a**(85/2)*b**77*x**77/(12*a**(93/2)*b**
(151/2)*x**(155/2)*sqrt(a/(b*x) + 1) + 12*a**(91/2)*b**(153/2)*x*
*(157/2)*sqrt(a/(b*x) + 1)) + 105*a**(83/2)*b**78*x**78/(12*a**(9
3/2)*b**(151/2)*x**(155/2)*sqrt(a/(b*x) + 1) + 12*a**(91/2)*b**(1
53/2)*x**(157/2)*sqrt(a/(b*x) + 1)) - 105*a**42*b**(155/2)*x**(15
5/2)*sqrt(a/(b*x) + 1)*asinh(sqrt(a)/(sqrt(b)*sqrt(x)))/(12*a**(9
3/2)*b**(151/2)*x**(155/2)*sqrt(a/(b*x) + 1) + 12*a**(91/2)*b**(1
53/2)*x**(157/2)*sqrt(a/(b*x) + 1)) - 105*a**41*b**(157/2)*x**(15
7/2)*sqrt(a/(b*x) + 1)*asinh(sqrt(a)/(sqrt(b)*sqrt(x)))/(12*a**(9
3/2)*b**(151/2)*x**(155/2)*sqrt(a/(b*x) + 1) + 12*a**(91/2)*b**(1
53/2)*x**(157/2)*sqrt(a/(b*x) + 1)))
```

GIAC/XCAS [A] time = 0.218604, size = 270, normalized size = 1.58

$$\frac{35 \left(2 \, B a b^{2} - 3 \, A b^{3}\right) \arctan\left(\frac{\sqrt{b x + a}}{\sqrt{-a}}\right)}{8 \, \sqrt{-a} a^{5}} + \frac{210 \, (b x + a)^{4} B a b^{2} - 560 \, (b x + a)^{3} B a^{2} b^{2} + 462 \, (b x + a)^{2} B a^{3} b^{2} - 96 \, (b x + a) B a^{4} b^{2} - 16 \, B a^{5} b^{2} - 315 \, (b x + a)^{4} A b^{3} + 840 \, (b x}{24 \, \left((b x + a)^{\frac{3}{2}} - \sqrt{b x + a} a\right)^{3} a^{5}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(5/2)*x^4),x, algorithm="giac")
```

```
[Out] 35/8*(2*B*a*b^2 - 3*A*b^3)*arctan(sqrt(b*x + a)/sqrt(-a))/(sqrt(-
a)*a^5) + 1/24*(210*(b*x + a)^4*B*a*b^2 - 560*(b*x + a)^3*B*a^2*b
^2 + 462*(b*x + a)^2*B*a^3*b^2 - 96*(b*x + a)*B*a^4*b^2 - 16*B*a^
5*b^2 - 315*(b*x + a)^4*A*b^3 + 840*(b*x + a)^3*A*a*b^3 - 693*(b*
x + a)^2*A*a^2*b^3 + 144*(b*x + a)*A*a^3*b^3 + 16*A*a^4*b^3)/(((b
*x + a)^(3/2) - sqrt(b*x + a)*a)^3*a^5)
```

3.441 $\int \frac{A+Bx}{x^5(a+bx)^{5/2}}\,dx$

Optimal. Leaf size=202

$$-\frac{105b^3(11Ab-8aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{64a^{13/2}}+\frac{105b^2\sqrt{a+bx}(11Ab-8aB)}{64a^6x}-\frac{35b\sqrt{a+bx}(11Ab-8aB)}{32a^5x^2}+\frac{7\sqrt{a+bx}(11Ab-8aB)}{8a^4x^3}-\frac{3(11Ab-8aB)}{4a^3x^3\sqrt{a+bx}}-\frac{11Ab-8aB}{12a^2x^3(a+bx)^{3/2}}-\frac{A}{4ax^4(a+bx)^{3/2}}$$

```
[Out] -A/(4*a*x^4*(a + b*x)^(3/2)) - (11*A*b - 8*a*B)/(12*a^2*x^3*(a +
b*x)^(3/2)) - (3*(11*A*b - 8*a*B))/(4*a^3*x^3*Sqrt[a + b*x]) + (7
*(11*A*b - 8*a*B)*Sqrt[a + b*x])/(8*a^4*x^3) - (35*b*(11*A*b - 8*
a*B)*Sqrt[a + b*x])/(32*a^5*x^2) + (105*b^2*(11*A*b - 8*a*B)*Sqrt
[a + b*x])/(64*a^6*x) - (105*b^3*(11*A*b - 8*a*B)*ArcTanh[Sqrt[a
+ b*x]/Sqrt[a]])/(64*a^(13/2))
```

Rubi [A] time = 0.28008, antiderivative size = 202, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.222

$$-\frac{105b^3(11Ab-8aB)\tanh^{-1}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{64a^{13/2}}+\frac{105b^2\sqrt{a+bx}(11Ab-8aB)}{64a^6x}-\frac{35b\sqrt{a+bx}(11Ab-8aB)}{32a^5x^2}+\frac{7\sqrt{a+bx}(11Ab-8aB)}{8a^4x^3}-\frac{3(11Ab-8aB)}{4a^3x^3\sqrt{a+bx}}-\frac{11Ab-8aB}{12a^2x^3(a+bx)^{3/2}}-\frac{A}{4ax^4(a+bx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^5*(a + b*x)^(5/2)),x]
```

```
[Out] -A/(4*a*x^4*(a + b*x)^(3/2)) - (11*A*b - 8*a*B)/(12*a^2*x^3*(a +
b*x)^(3/2)) - (3*(11*A*b - 8*a*B))/(4*a^3*x^3*Sqrt[a + b*x]) + (7
*(11*A*b - 8*a*B)*Sqrt[a + b*x])/(8*a^4*x^3) - (35*b*(11*A*b - 8*
a*B)*Sqrt[a + b*x])/(32*a^5*x^2) + (105*b^2*(11*A*b - 8*a*B)*Sqrt
[a + b*x])/(64*a^6*x) - (105*b^3*(11*A*b - 8*a*B)*ArcTanh[Sqrt[a
+ b*x]/Sqrt[a]])/(64*a^(13/2))
```

Rubi in Sympy [A] time = 27.9217, size = 197, normalized size = 0.98

$$-\frac{A}{4ax^4\left(a+bx\right)^{\frac{3}{2}}}-\frac{11Ab-8Ba}{12a^2x^3\left(a+bx\right)^{\frac{3}{2}}}-\frac{3\left(11Ab-8Ba\right)}{4a^3x^3\sqrt{a+bx}}+\frac{7\sqrt{a+bx}\left(11Ab-8Ba\right)}{8a^4x^3}-\frac{35b\sqrt{a+bx}\left(11Ab-8Ba\right)}{32a^5x^2}+\frac{105b^2\sqrt{a+bx}\left(11Ab-8Ba\right)}{64a^6x}-\frac{105b^3\left(11Ab-8Ba\right)\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{64a^{\frac{13}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**5/(b*x+a)**(5/2),x)
```

```
[Out] -A/(4*a*x**4*(a + b*x)**(3/2)) - (11*A*b - 8*B*a)/(12*a**2*x**3*(
a + b*x)**(3/2)) - 3*(11*A*b - 8*B*a)/(4*a**3*x**3*sqrt(a + b*x))
 + 7*sqrt(a + b*x)*(11*A*b - 8*B*a)/(8*a**4*x**3) - 35*b*sqrt(a +
 b*x)*(11*A*b - 8*B*a)/(32*a**5*x**2) + 105*b**2*sqrt(a + b*x)*(1
1*A*b - 8*B*a)/(64*a**6*x) - 105*b**3*(11*A*b - 8*B*a)*atanh(sqrt
(a + b*x)/sqrt(a))/(64*a**(13/2))
```

Mathematica [A] time = 0.414615, size = 151, normalized size = 0.75

$$\frac{\frac{\sqrt{a}\left(-16a^5(3A+4Bx)+8a^4bx(11A+18Bx)-18a^3b^2x^2(11A+28Bx)+21a^2b^3x^3(33A-160Bx)+420ab^4x^4(11A-6Bx)+3465Ab^5x^5\right)}{x^4(a+bx)^{3/2}}+315b^3(8aB-11Ab)\tanh}{192a^{13/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^5*(a + b*x)^(5/2)),x]
```

```
[Out] ((Sqrt[a]*(3465*A*b^5*x^5 + 21*a^2*b^3*x^3*(33*A - 160*B*x) + 420
*a*b^4*x^4*(11*A - 6*B*x) - 16*a^5*(3*A + 4*B*x) + 8*a^4*b*x*(11*
A + 18*B*x) - 18*a^3*b^2*x^2*(11*A + 28*B*x)))/(x^4*(a + b*x)^(3/
2)) + 315*b^3*(-11*A*b + 8*a*B)*ArcTanh[Sqrt[a + b*x]/Sqrt[a]])/(
192*a^(13/2))
```

Maple [A] time = 0.029, size = 168, normalized size = 0.8

$$2\,b^3\left(-\frac{-5\,Ab+4\,Ba}{a^6\sqrt{bx+a}}-1/3\,\frac{-Ab+Ba}{a^5\,(bx+a)^{3/2}}\right.$$
$$\left.+\frac{1}{a^6}\left(\frac{1}{x^4b^4}\left(\left(\frac{515\,Ab}{128}-\frac{41\,Ba}{16}\right)(bx+a)^{7/2}+\left(-\frac{5153\,Aab}{384}+\frac{403\,Ba^2}{48}\right)(bx+a)^{5/2}+\left(\frac{5855\,Aa^2b}{384}-\frac{445\,Ba^3}{48}\right)(bx+a)^{3/2}+\left(\right.\right.\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^5/(b*x+a)^(5/2),x)
```

```
[Out] 2*b^3*(-(-5*A*b+4*B*a)/a^6/(b*x+a)^(1/2)-1/3*(-A*b+B*a)/a^5/(b*x+
a)^(3/2)+1/a^6*(((515/128*A*b-41/16*B*a)*(b*x+a)^(7/2)+(-5153/384
*A*a*b+403/48*B*a^2)*(b*x+a)^(5/2)+(5855/384*A*a^2*b-445/48*B*a^3
)*(b*x+a)^(3/2)+(-765/128*A*a^3*b+55/16*B*a^4)*(b*x+a)^(1/2))/x^4
/b^4-105/128*(11*A*b-8*B*a)/a^(1/2)*arctanh((b*x+a)^(1/2)/a^(1/2)
)))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(5/2)*x^5),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.241924, size = 1, normalized size = 0.

$$\left[-\frac{315\left(\left(8\,Bab^4-11\,Ab^5\right)x^5+\left(8\,Ba^2b^3-11\,Aab^4\right)x^4\right)\sqrt{bx+a}\log\left(\frac{(bx+2\,a)\sqrt{a}-2\,\sqrt{bx+a}a}{x}\right)+2\left(48\,Aa^5+315\left(8\,Bab^4-11\,Ab\right.\right.}{384\left(a^6bx^5+a^7\right.}\right.$$

$$-\frac{315\left(\left(8\,Bab^4-11\,Ab^5\right)x^5+\left(8\,Ba^2b^3-11\,Aab^4\right)x^4\right)\sqrt{bx+a}\arctan\left(\frac{a}{\sqrt{bx+a}\sqrt{-a}}\right)+\left(48\,Aa^5+315\left(8\,Bab^4-11\,Ab^5\right)x^5+4\right.}{192\left(a^6bx^5+a^7x^4\right)\sqrt{\ }}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(5/2)*x^5),x, algorithm="fricas")
```

```
[Out] [-1/384*(315*((8*B*a*b^4 - 11*A*b^5)*x^5 + (8*B*a^2*b^3 - 11*A*a*
b^4)*x^4)*sqrt(b*x + a)*log(((b*x + 2*a)*sqrt(a) - 2*sqrt(b*x + a
)*a)/x) + 2*(48*A*a^5 + 315*(8*B*a*b^4 - 11*A*b^5)*x^5 + 420*(8*B
*a^2*b^3 - 11*A*a*b^4)*x^4 + 63*(8*B*a^3*b^2 - 11*A*a^2*b^3)*x^3
- 18*(8*B*a^4*b - 11*A*a^3*b^2)*x^2 + 8*(8*B*a^5 - 11*A*a^4*b)*x)
```

```
*sqrt(a))/((a^6*b*x^5 + a^7*x^4)*sqrt(b*x + a)*sqrt(a)), -1/192*(
315*((8*B*a*b^4 - 11*A*b^5)*x^5 + (8*B*a^2*b^3 - 11*A*a*b^4)*x^4)
*sqrt(b*x + a)*arctan(a/(sqrt(b*x + a)*sqrt(-a))) + (48*A*a^5 + 3
15*(8*B*a*b^4 - 11*A*b^5)*x^5 + 420*(8*B*a^2*b^3 - 11*A*a*b^4)*x^
4 + 63*(8*B*a^3*b^2 - 11*A*a^2*b^3)*x^3 - 18*(8*B*a^4*b - 11*A*a^
3*b^2)*x^2 + 8*(8*B*a^5 - 11*A*a^4*b)*x)*sqrt(-a))/((a^6*b*x^5 +
a^7*x^4)*sqrt(b*x + a)*sqrt(-a))]
```

Sympy [A] time = 121.471, size = 1137, normalized size = 5.63

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**5/(b*x+a)**(5/2),x)
```

```
[Out] A*(-48*a**(185/2)*b**201*x**201/(192*a**(189/2)*b**(403/2)*x**(41
1/2)*sqrt(a/(b*x) + 1) + 192*a**(187/2)*b**(405/2)*x**(413/2)*sqr
t(a/(b*x) + 1)) + 88*a**(183/2)*b**202*x**202/(192*a**(189/2)*b**
(403/2)*x**(411/2)*sqrt(a/(b*x) + 1) + 192*a**(187/2)*b**(405/2)*
x**(413/2)*sqrt(a/(b*x) + 1)) - 198*a**(181/2)*b**203*x**203/(192
*a**(189/2)*b**(403/2)*x**(411/2)*sqrt(a/(b*x) + 1) + 192*a**(187
/2)*b**(405/2)*x**(413/2)*sqrt(a/(b*x) + 1)) + 693*a**(179/2)*b**
204*x**204/(192*a**(189/2)*b**(403/2)*x**(411/2)*sqrt(a/(b*x) + 1
) + 192*a**(187/2)*b**(405/2)*x**(413/2)*sqrt(a/(b*x) + 1)) + 462
0*a**(177/2)*b**205*x**205/(192*a**(189/2)*b**(403/2)*x**(411/2)*
sqrt(a/(b*x) + 1) + 192*a**(187/2)*b**(405/2)*x**(413/2)*sqrt(a/(
b*x) + 1)) + 3465*a**(175/2)*b**206*x**206/(192*a**(189/2)*b**(40
3/2)*x**(411/2)*sqrt(a/(b*x) + 1) + 192*a**(187/2)*b**(405/2)*x**
(413/2)*sqrt(a/(b*x) + 1)) - 3465*a**88*b**(411/2)*x**(411/2)*sqr
t(a/(b*x) + 1)*asinh(sqrt(a)/(sqrt(b)*sqrt(x)))/(192*a**(189/2)*b
**(403/2)*x**(411/2)*sqrt(a/(b*x) + 1) + 192*a**(187/2)*b**(405/2
)*x**(413/2)*sqrt(a/(b*x) + 1)) - 3465*a**87*b**(413/2)*x**(413/2
)*sqrt(a/(b*x) + 1)*asinh(sqrt(a)/(sqrt(b)*sqrt(x)))/(192*a**(189
/2)*b**(403/2)*x**(411/2)*sqrt(a/(b*x) + 1) + 192*a**(187/2)*b**(
405/2)*x**(413/2)*sqrt(a/(b*x) + 1))) + B*(-8*a**(133/2)*b**128*x
**128/(24*a**(137/2)*b**(257/2)*x**(263/2)*sqrt(a/(b*x) + 1) + 24
*a**(135/2)*b**(259/2)*x**(265/2)*sqrt(a/(b*x) + 1)) + 18*a**(131
/2)*b**129*x**129/(24*a**(137/2)*b**(257/2)*x**(263/2)*sqrt(a/(b*
x) + 1) + 24*a**(135/2)*b**(259/2)*x**(265/2)*sqrt(a/(b*x) + 1))
- 63*a**(129/2)*b**130*x**130/(24*a**(137/2)*b**(257/2)*x**(263/2
)*sqrt(a/(b*x) + 1) + 24*a**(135/2)*b**(259/2)*x**(265/2)*sqrt(a/
(b*x) + 1)) - 420*a**(127/2)*b**131*x**131/(24*a**(137/2)*b**(257
/2)*x**(263/2)*sqrt(a/(b*x) + 1) + 24*a**(135/2)*b**(259/2)*x**(2
65/2)*sqrt(a/(b*x) + 1)) - 315*a**(125/2)*b**132*x**132/(24*a**(1
37/2)*b**(257/2)*x**(263/2)*sqrt(a/(b*x) + 1) + 24*a**(135/2)*b**
(259/2)*x**(265/2)*sqrt(a/(b*x) + 1)) + 315*a**63*b**(263/2)*x**(
263/2)*sqrt(a/(b*x) + 1)*asinh(sqrt(a)/(sqrt(b)*sqrt(x)))/(24*a**
(137/2)*b**(257/2)*x**(263/2)*sqrt(a/(b*x) + 1) + 24*a**(135/2)*b
**(259/2)*x**(265/2)*sqrt(a/(b*x) + 1)) + 315*a**62*b**(265/2)*x*
*(265/2)*sqrt(a/(b*x) + 1)*asinh(sqrt(a)/(sqrt(b)*sqrt(x)))/(24*a
**(137/2)*b**(257/2)*x**(263/2)*sqrt(a/(b*x) + 1) + 24*a**(135/2)
*b**(259/2)*x**(265/2)*sqrt(a/(b*x) + 1)))
```

GIAC/XCAS [A] time = 0.220759, size = 301, normalized size = 1.49

$$-\frac{105\left(8\,Bab^3-11\,Ab^4\right)\arctan\left(\frac{\sqrt{bx+a}}{\sqrt{-a}}\right)}{64\sqrt{-a}a^6}-\frac{2\left(12\,(bx+a)Bab^3+Ba^2b^3-15\,(bx+a)Ab^4-Aab^4\right)}{3\,(bx+a)^{\frac{3}{2}}a^6}-\frac{984\,(bx+a)^{\frac{7}{2}}Bab^3-3224\,(bx+a)^{\frac{5}{2}}Ba^2b^3+3560\,(bx+a)^{\frac{3}{2}}Ba^3b^3-1320\sqrt{bx+a}Ba^4b^3-1545\,(bx+a)^{\frac{7}{2}}Ab^4+5153\,(bx+}{192\,a^6b^4x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(5/2)*x^5),x, algorithm="giac")
```

```
[Out] -105/64*(8*B*a*b^3 - 11*A*b^4)*arctan(sqrt(b*x + a)/sqrt(-a))/(sq
rt(-a)*a^6) - 2/3*(12*(b*x + a)*B*a*b^3 + B*a^2*b^3 - 15*(b*x + a
)*A*b^4 - A*a*b^4)/((b*x + a)^(3/2)*a^6) - 1/192*(984*(b*x + a)^(
7/2)*B*a*b^3 - 3224*(b*x + a)^(5/2)*B*a^2*b^3 + 3560*(b*x + a)^(3
/2)*B*a^3*b^3 - 1320*sqrt(b*x + a)*B*a^4*b^3 - 1545*(b*x + a)^(7/
2)*A*b^4 + 5153*(b*x + a)^(5/2)*A*a*b^4 - 5855*(b*x + a)^(3/2)*A*
a^2*b^4 + 2295*sqrt(b*x + a)*A*a^3*b^4)/(a^6*b^4*x^4)
```

3.442 $\int \frac{(a+bx)^2}{x^2\sqrt{c+dx}}\,dx$

Optimal. Leaf size=71

$$-\frac{a^2\sqrt{c+dx}}{cx}-\frac{a(4bc-ad)\tanh^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{c^{3/2}}+\frac{2b^2\sqrt{c+dx}}{d}$$

```
[Out] (2*b^2*Sqrt[c + d*x])/d - (a^2*Sqrt[c + d*x])/(c*x) - (a*(4*b*c -
 a*d)*ArcTanh[Sqrt[c + d*x]/Sqrt[c]])/c^(3/2)
```

Rubi [A] time = 0.133403, antiderivative size = 71, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.2

$$-\frac{a^2\sqrt{c+dx}}{cx}-\frac{a(4bc-ad)\tanh^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{c^{3/2}}+\frac{2b^2\sqrt{c+dx}}{d}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^2/(x^2*Sqrt[c + d*x]),x]
```

```
[Out] (2*b^2*Sqrt[c + d*x])/d - (a^2*Sqrt[c + d*x])/(c*x) - (a*(4*b*c -
 a*d)*ArcTanh[Sqrt[c + d*x]/Sqrt[c]])/c^(3/2)
```

Rubi in Sympy [A] time = 12.6624, size = 60, normalized size = 0.85

$$-\frac{a^2\sqrt{c+dx}}{cx}+\frac{a\,(ad-4bc)\,\operatorname{atanh}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{c^{\frac{3}{2}}}+\frac{2b^2\sqrt{c+dx}}{d}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**2/x**2/(d*x+c)**(1/2),x)
```

```
[Out] -a**2*sqrt(c + d*x)/(c*x) + a*(a*d - 4*b*c)*atanh(sqrt(c + d*x)/s
qrt(c))/c**(3/2) + 2*b**2*sqrt(c + d*x)/d
```

Mathematica [A] time = 0.105209, size = 62, normalized size = 0.87

$$\sqrt{c+dx}\left(\frac{2b^2}{d}-\frac{a^2}{cx}\right)+\frac{a(ad-4bc)\tanh^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{c^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^2/(x^2*Sqrt[c + d*x]),x]
```

```
[Out] ((2*b^2)/d - a^2/(c*x))*Sqrt[c + d*x] + (a*(-4*b*c + a*d)*ArcTanh
[Sqrt[c + d*x]/Sqrt[c]])/c^(3/2)
```

Maple [A] time = 0.018, size = 63, normalized size = 0.9

$$2\,\frac{1}{d}\left(b^2\sqrt{dx+c}+ad\left(-1/2\,\frac{a\sqrt{dx+c}}{cx}+1/2\,\frac{ad-4\,bc}{c^{3/2}}Artanh\left(\frac{\sqrt{dx+c}}{\sqrt{c}}\right)\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^2/x^2/(d*x+c)^(1/2),x)
```

```
[Out] 2/d*(b^2*(d*x+c)^(1/2)+a*d*(-1/2*a/c*(d*x+c)^(1/2)/x+1/2*(a*d-4*b
*c)/c^(3/2)*arctanh((d*x+c)^(1/2)/c^(1/2))))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^2/(sqrt(d*x + c)*x^2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.231276, size = 1, normalized size = 0.01

$$\left[-\frac{\left(4\,abcd-a^2d^2\right)x\log\left(\frac{(dx+2\,c)\sqrt{c}+2\,\sqrt{dx+c}c}{x}\right)-2\left(2\,b^2cx-a^2d\right)\sqrt{dx+c}\sqrt{c}}{2\,c^{\frac{3}{2}}dx},\frac{\left(4\,abcd-a^2d^2\right)x\arctan\left(\frac{c}{\sqrt{dx+c}\sqrt{-c}}\right)+\left(2\,b^2c\right.}{\sqrt{-c}cdx}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^2/(sqrt(d*x + c)*x^2),x, algorithm="fricas")
```

```
[Out] [-1/2*((4*a*b*c*d - a^2*d^2)*x*log(((d*x + 2*c)*sqrt(c) + 2*sqrt(
d*x + c)*c)/x) - 2*(2*b^2*c*x - a^2*d)*sqrt(d*x + c)*sqrt(c))/(c^
(3/2)*d*x), ((4*a*b*c*d - a^2*d^2)*x*arctan(c/(sqrt(d*x + c)*sqrt
(-c))) + (2*b^2*c*x - a^2*d)*sqrt(d*x + c)*sqrt(-c))/(sqrt(-c)*c*
d*x)]
```

Sympy [A] time = 70.9547, size = 192, normalized size = 2.7

$$-\frac{a^2\sqrt{d}\sqrt{\frac{c}{dx}+1}}{c\sqrt{x}}+\frac{a^2d\operatorname{asinh}\left(\frac{\sqrt{c}}{\sqrt{d}\sqrt{x}}\right)}{c^{\frac{3}{2}}}+4ab\left(\begin{cases}\frac{\operatorname{atan}\left(\frac{1}{\sqrt{-\frac{1}{c}}\sqrt{c+dx}}\right)}{c\sqrt{-\frac{1}{c}}} & \text{for } -\frac{1}{c}>0\\ -\frac{\operatorname{acoth}\left(\frac{1}{\sqrt{c+dx}\sqrt{\frac{1}{c}}}\right)}{c\sqrt{\frac{1}{c}}} & \text{for } -\frac{1}{c}<0\wedge\frac{1}{c}<\frac{1}{c+dx}\\ -\frac{\operatorname{atanh}\left(\frac{1}{\sqrt{c+dx}\sqrt{\frac{1}{c}}}\right)}{c\sqrt{\frac{1}{c}}} & \text{for } \frac{1}{c}>\frac{1}{c+dx}\wedge-\frac{1}{c}<0\end{cases}\right)+b^2\left(\begin{cases}\frac{x}{\sqrt{c}} & \text{for } d=0\\ \frac{2\sqrt{c+dx}}{d} & \text{otherwise}\end{cases}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**2/x**2/(d*x+c)**(1/2),x)
```

```
[Out] -a**2*sqrt(d)*sqrt(c/(d*x) + 1)/(c*sqrt(x)) + a**2*d*asinh(sqrt(c
)/(sqrt(d)*sqrt(x)))/c**(3/2) + 4*a*b*Piecewise((atan(1/(sqrt(-1/
c)*sqrt(c + d*x)))/(c*sqrt(-1/c)), -1/c > 0), (-acoth(1/(sqrt(c +
 d*x)*sqrt(1/c)))/(c*sqrt(1/c)), (-1/c < 0) & (1/c < 1/(c + d*x))
), (-atanh(1/(sqrt(c + d*x)*sqrt(1/c)))/(c*sqrt(1/c)), (-1/c < 0)
```

```
 & (1/c > 1/(c + d*x)))) + b**2*Piecewise((x/sqrt(c), Eq(d, 0)),
(2*sqrt(c + d*x)/d, True))
```

GIAC/XCAS [A] time = 0.215179, size = 100, normalized size = 1.41

$$\frac{2\sqrt{dx+c}b^2 - \frac{\sqrt{dx+c}a^2d}{cx} + \frac{\left(4\,abcd - a^2d^2\right)\arctan\left(\frac{\sqrt{dx+c}}{\sqrt{-c}}\right)}{\sqrt{-c}c}}{d}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^2/(sqrt(d*x + c)*x^2),x, algorithm="giac")
```

```
[Out] (2*sqrt(d*x + c)*b^2 - sqrt(d*x + c)*a^2*d/(c*x) + (4*a*b*c*d - a
^2*d^2)*arctan(sqrt(d*x + c)/sqrt(-c))/(sqrt(-c)*c))/d
```

3.443 $\int \frac{x^3(c+dx)^{5/2}}{a+bx}\,dx$

Optimal. Leaf size=209

$$\frac{2a^3(bc-ad)^{5/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{b^{13/2}}-\frac{2a^3\sqrt{c+dx}(bc-ad)^2}{b^6}-\frac{2a^3(c+dx)^{3/2}(bc-ad)}{3b^5}-\frac{2a^3(c+dx)^{5/2}}{5b^4}+\frac{2(c+dx)^{7/2}\left(a^2d^2+abcd+b^2c^2\right)}{7b^3d^3}-\frac{2(c+dx)^{9/2}(ad+2bc)}{9b^2d^3}+\frac{2(c+dx)^{11/2}}{11bd^3}$$

```
[Out] (-2*a^3*(b*c - a*d)^2*Sqrt[c + d*x])/b^6 - (2*a^3*(b*c - a*d)*(c
+ d*x)^(3/2))/(3*b^5) - (2*a^3*(c + d*x)^(5/2))/(5*b^4) + (2*(b^2
*c^2 + a*b*c*d + a^2*d^2)*(c + d*x)^(7/2))/(7*b^3*d^3) - (2*(2*b*
c + a*d)*(c + d*x)^(9/2))/(9*b^2*d^3) + (2*(c + d*x)^(11/2))/(11*
b*d^3) + (2*a^3*(b*c - a*d)^(5/2)*ArcTanh[(Sqrt[b]*Sqrt[c + d*x])
/Sqrt[b*c - a*d]])/b^(13/2)
```

Rubi [A] time = 0.426761, antiderivative size = 209, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.2

$$\frac{2a^3(bc-ad)^{5/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{b^{13/2}}-\frac{2a^3\sqrt{c+dx}(bc-ad)^2}{b^6}-\frac{2a^3(c+dx)^{3/2}(bc-ad)}{3b^5}-\frac{2a^3(c+dx)^{5/2}}{5b^4}+\frac{2(c+dx)^{7/2}\left(a^2d^2+abcd+b^2c^2\right)}{7b^3d^3}-\frac{2(c+dx)^{9/2}(ad+2bc)}{9b^2d^3}+\frac{2(c+dx)^{11/2}}{11bd^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^3*(c + d*x)^(5/2))/(a + b*x),x]
```

```
[Out] (-2*a^3*(b*c - a*d)^2*Sqrt[c + d*x])/b^6 - (2*a^3*(b*c - a*d)*(c
+ d*x)^(3/2))/(3*b^5) - (2*a^3*(c + d*x)^(5/2))/(5*b^4) + (2*(b^2
*c^2 + a*b*c*d + a^2*d^2)*(c + d*x)^(7/2))/(7*b^3*d^3) - (2*(2*b*
c + a*d)*(c + d*x)^(9/2))/(9*b^2*d^3) + (2*(c + d*x)^(11/2))/(11*
b*d^3) + (2*a^3*(b*c - a*d)^(5/2)*ArcTanh[(Sqrt[b]*Sqrt[c + d*x])
/Sqrt[b*c - a*d]])/b^(13/2)
```

Rubi in Sympy [A] time = 54.0569, size = 197, normalized size = 0.94

$$-\frac{2a^3\left(c+dx\right)^{\frac{5}{2}}}{5b^4}+\frac{2a^3\left(c+dx\right)^{\frac{3}{2}}\left(ad-bc\right)}{3b^5}-\frac{2a^3\sqrt{c+dx}\left(ad-bc\right)^2}{b^6}+\frac{2a^3\left(ad-bc\right)^{\frac{5}{2}}\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{ad-bc}}\right)}{b^{\frac{13}{2}}}+\frac{2\left(c+dx\right)^{\frac{11}{2}}}{11bd^3}-\frac{2\left(c+dx\right)^{\frac{9}{2}}\left(ad+2bc\right)}{9b^2d^3}+\frac{2\left(c+dx\right)^{\frac{7}{2}}\left(a^2d^2+abcd+b^2c^2\right)}{7b^3d^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3*(d*x+c)**(5/2)/(b*x+a),x)
```

```
[Out] -2*a**3*(c + d*x)**(5/2)/(5*b**4) + 2*a**3*(c + d*x)**(3/2)*(a*d
- b*c)/(3*b**5) - 2*a**3*sqrt(c + d*x)*(a*d - b*c)**2/b**6 + 2*a*
*3*(a*d - b*c)**(5/2)*atan(sqrt(b)*sqrt(c + d*x)/sqrt(a*d - b*c))
/b**(13/2) + 2*(c + d*x)**(11/2)/(11*b*d**3) - 2*(c + d*x)**(9/2)
*(a*d + 2*b*c)/(9*b**2*d**3) + 2*(c + d*x)**(7/2)*(a**2*d**2 + a*
b*c*d + b**2*c**2)/(7*b**3*d**3)
```

Mathematica [A] time = 0.306191, size = 196, normalized size = 0.94

$$\frac{2a^3(bc-ad)^{5/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{b^{13/2}}+\frac{2\sqrt{c+dx}\left(-3465a^5d^5+1155a^4bd^4(7c+dx)-231a^3b^2d^3\left(23c^2+11cdx+3d^2x^2\right)+495a^2b^3d^2(c+dx)^3+55ab^4d(2c-7dx$$
$$3465b^6d^3$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^3*(c + d*x)^(5/2))/(a + b*x),x]
```

```
[Out] (2*Sqrt[c + d*x]*(-3465*a^5*d^5 + 495*a^2*b^3*d^2*(c + d*x)^3 + 5
5*a*b^4*d*(2*c - 7*d*x)*(c + d*x)^3 + 1155*a^4*b*d^4*(7*c + d*x)
- 231*a^3*b^2*d^3*(23*c^2 + 11*c*d*x + 3*d^2*x^2) + 5*b^5*(c + d*
x)^3*(8*c^2 - 28*c*d*x + 63*d^2*x^2)))/(3465*b^6*d^3) + (2*a^3*(b
*c - a*d)^(5/2)*ArcTanh[(Sqrt[b]*Sqrt[c + d*x])/Sqrt[b*c - a*d]])
/b^(13/2)
```

Maple [B] time = 0.017, size = 384, normalized size = 1.8

$$\frac{2}{11\,bd^3}(dx+c)^{\frac{11}{2}}-\frac{2\,a}{9\,b^2d^2}(dx+c)^{\frac{9}{2}}-\frac{4\,c}{9\,bd^3}(dx+c)^{\frac{9}{2}}+\frac{2\,a^2}{7\,db^3}(dx+c)^{\frac{7}{2}}+\frac{2\,ac}{7\,b^2d^2}(dx+c)^{\frac{7}{2}}+\frac{2\,c^2}{7\,bd^3}(dx+c)^{\frac{7}{2}}-\frac{2\,a^3}{5\,b^4}(dx+c)^{\frac{5}{2}}+\frac{2\,da^4}{3\,b^5}(dx+c)^{\frac{3}{2}}-\frac{2\,a^3c}{3\,b^4}(dx+c)^{\frac{3}{2}}-2\,\frac{d^2a^5\sqrt{dx+c}}{b^6}+4\,\frac{da^4c\sqrt{dx+c}}{b^5}-2\,\frac{a^3c^2\sqrt{dx+c}}{b^4}+2\,\frac{d^3a^6}{b^6\sqrt{(ad-bc)\,b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)\,b}}\right)-6\,\frac{d^2a^5c}{b^5\sqrt{(ad-bc)\,b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)\,b}}\right)+6\,\frac{da^4c^2}{b^4\sqrt{(ad-bc)\,b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)\,b}}\right)-2\,\frac{a^3c^3}{b^3\sqrt{(ad-bc)\,b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)\,b}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^3*(d*x+c)^(5/2)/(b*x+a),x)
```

```
[Out] 2/11*(d*x+c)^(11/2)/b/d^3-2/9/d^2/b^2*(d*x+c)^(9/2)*a-4/9/d^3/b*(
d*x+c)^(9/2)*c+2/7/d/b^3*(d*x+c)^(7/2)*a^2+2/7/d^2/b^2*(d*x+c)^(7
/2)*a*c+2/7/d^3/b*(d*x+c)^(7/2)*c^2-2/5*a^3*(d*x+c)^(5/2)/b^4+2/3
*d/b^5*(d*x+c)^(3/2)*a^4-2/3/b^4*(d*x+c)^(3/2)*a^3*c-2*d^2/b^6*a^
5*(d*x+c)^(1/2)+4*d/b^5*a^4*c*(d*x+c)^(1/2)-2/b^4*a^3*c^2*(d*x+c)
^(1/2)+2*d^3*a^6/b^6/((a*d-b*c)*b)^(1/2)*arctan((d*x+c)^(1/2)*b/(
(a*d-b*c)*b)^(1/2))-6*d^2*a^5/b^5/((a*d-b*c)*b)^(1/2)*arctan((d*x
+c)^(1/2)*b/((a*d-b*c)*b)^(1/2))*c+6*d*a^4/b^4/((a*d-b*c)*b)^(1/2
)*arctan((d*x+c)^(1/2)*b/((a*d-b*c)*b)^(1/2))*c^2-2*a^3/b^3/((a*d
-b*c)*b)^(1/2)*arctan((d*x+c)^(1/2)*b/((a*d-b*c)*b)^(1/2))*c^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)*x^3/(b*x + a),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.22861, size = 1, normalized size = 0.

$$\left[\frac{3465\left(a^3b^2c^2d^3-2\,a^4bcd^4+a^5d^5\right)\sqrt{\frac{bc-ad}{b}}\log\left(\frac{bdx+2\,bc-ad+2\,\sqrt{dx+c}b\sqrt{\frac{bc-ad}{b}}}{bx+a}\right)+2\left(315\,b^5d^5x^5+40\,b^5c^5+110\,ab^4c^4d+495\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)*x^3/(b*x + a),x, algorithm="fricas")
```

```
[Out] [1/3465*(3465*(a^3*b^2*c^2*d^3 - 2*a^4*b*c*d^4 + a^5*d^5)*sqrt((b
*c - a*d)/b)*log((b*d*x + 2*b*c - a*d + 2*sqrt(d*x + c)*b*sqrt((b
*c - a*d)/b))/(b*x + a)) + 2*(315*b^5*d^5*x^5 + 40*b^5*c^5 + 110*
a*b^4*c^4*d + 495*a^2*b^3*c^3*d^2 - 5313*a^3*b^2*c^2*d^3 + 8085*a
^4*b*c*d^4 - 3465*a^5*d^5 + 35*(23*b^5*c*d^4 - 11*a*b^4*d^5)*x^4
+ 5*(113*b^5*c^2*d^3 - 209*a*b^4*c*d^4 + 99*a^2*b^3*d^5)*x^3 + 3*
(5*b^5*c^3*d^2 - 275*a*b^4*c^2*d^3 + 495*a^2*b^3*c*d^4 - 231*a^3*
b^2*d^5)*x^2 - (20*b^5*c^4*d + 55*a*b^4*c^3*d^2 - 1485*a^2*b^3*c^
2*d^3 + 2541*a^3*b^2*c*d^4 - 1155*a^4*b*d^5)*x)*sqrt(d*x + c))/(b
^6*d^3), 2/3465*(3465*(a^3*b^2*c^2*d^3 - 2*a^4*b*c*d^4 + a^5*d^5)
*sqrt(-(b*c - a*d)/b)*arctan(sqrt(d*x + c)/sqrt(-(b*c - a*d)/b))
+ (315*b^5*d^5*x^5 + 40*b^5*c^5 + 110*a*b^4*c^4*d + 495*a^2*b^3*c
^3*d^2 - 5313*a^3*b^2*c^2*d^3 + 8085*a^4*b*c*d^4 - 3465*a^5*d^5 +
 35*(23*b^5*c*d^4 - 11*a*b^4*d^5)*x^4 + 5*(113*b^5*c^2*d^3 - 209*
a*b^4*c*d^4 + 99*a^2*b^3*d^5)*x^3 + 3*(5*b^5*c^3*d^2 - 275*a*b^4*
c^2*d^3 + 495*a^2*b^3*c*d^4 - 231*a^3*b^2*d^5)*x^2 - (20*b^5*c^4*
d + 55*a*b^4*c^3*d^2 - 1485*a^2*b^3*c^2*d^3 + 2541*a^3*b^2*c*d^4
- 1155*a^4*b*d^5)*x)*sqrt(d*x + c))/(b^6*d^3)]
```

Sympy [A] time = 75.5689, size = 347, normalized size = 1.66

$$-\frac{2a^3(c+dx)^{\frac{5}{2}}}{5b^4}+\frac{2a^3(ad-bc)^3\left(\begin{cases}\frac{\operatorname{atan}\left(\frac{\sqrt{c+dx}}{\sqrt{\frac{ad-bc}{b}}}\right)}{b\sqrt{\frac{ad-bc}{b}}} & \text{for } \frac{ad-bc}{b}>0\\ -\frac{\operatorname{acoth}\left(\frac{\sqrt{c+dx}}{\sqrt{\frac{-ad+bc}{b}}}\right)}{b\sqrt{\frac{-ad+bc}{b}}} & \text{for } c+dx>\frac{-ad+bc}{b}\wedge\frac{ad-bc}{b}<0\\ -\frac{\operatorname{atanh}\left(\frac{\sqrt{c+dx}}{\sqrt{\frac{-ad+bc}{b}}}\right)}{b\sqrt{\frac{-ad+bc}{b}}} & \text{for } \frac{ad-bc}{b}<0\wedge c+dx<\frac{-ad+bc}{b}\end{cases}\right)}{b^6}$$
$$+\frac{2(c+dx)^{\frac{11}{2}}}{11bd^3}+\frac{(c+dx)^{\frac{9}{2}}(-2ad-4bc)}{9b^2d^3}+\frac{(c+dx)^{\frac{7}{2}}\left(2a^2d^2+2abcd+2b^2c^2\right)}{7b^3d^3}$$
$$+\frac{(c+dx)^{\frac{3}{2}}\left(2a^4d-2a^3bc\right)}{3b^5}+\frac{\sqrt{c+dx}\left(-2a^5d^2+4a^4bcd-2a^3b^2c^2\right)}{b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**3*(d*x+c)**(5/2)/(b*x+a),x)
```

```
[Out] -2*a**3*(c + d*x)**(5/2)/(5*b**4) + 2*a**3*(a*d - b*c)**3*Piecewi
se((atan(sqrt(c + d*x)/sqrt((a*d - b*c)/b))/(b*sqrt((a*d - b*c)/b
)), (a*d - b*c)/b > 0), (-acoth(sqrt(c + d*x)/sqrt((-a*d + b*c)/b
))/(b*sqrt((-a*d + b*c)/b)), ((a*d - b*c)/b < 0) & (c + d*x > (-a
*d + b*c)/b)), (-atanh(sqrt(c + d*x)/sqrt((-a*d + b*c)/b))/(b*sqr
t((-a*d + b*c)/b)), ((a*d - b*c)/b < 0) & (c + d*x < (-a*d + b*c)
/b)))/b**6 + 2*(c + d*x)**(11/2)/(11*b*d**3) + (c + d*x)**(9/2)*(
-2*a*d - 4*b*c)/(9*b**2*d**3) + (c + d*x)**(7/2)*(2*a**2*d**2 + 2
*a*b*c*d + 2*b**2*c**2)/(7*b**3*d**3) + (c + d*x)**(3/2)*(2*a**4*
d - 2*a**3*b*c)/(3*b**5) + sqrt(c + d*x)*(-2*a**5*d**2 + 4*a**4*b
*c*d - 2*a**3*b**2*c**2)/b**6
```

GIAC/XCAS [A] time = 0.318899, size = 412, normalized size = 1.97

$$-\frac{2\left(a^{3}b^{3}c^{3}-3\,a^{4}b^{2}c^{2}d+3\,a^{5}bcd^{2}-a^{6}d^{3}\right)\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{-b^{2}c+abd}}\right)}{\sqrt{-b^{2}c+abd}b^{6}}+\frac{2\left(315\,(dx+c)^{\frac{11}{2}}b^{10}d^{30}-770\,(dx+c)^{\frac{9}{2}}b^{10}cd^{30}+495\,(dx+c)^{\frac{7}{2}}b^{10}c^{2}d^{30}-385\,(dx+c)^{\frac{9}{2}}ab^{9}d^{31}+495\,(dx+c)^{\frac{7}{2}}ab^{9}cd^{31}+495\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)*x^3/(b*x + a),x, algorithm="giac")
```

```
[Out] -2*(a^3*b^3*c^3 - 3*a^4*b^2*c^2*d + 3*a^5*b*c*d^2 - a^6*d^3)*arct
an(sqrt(d*x + c)*b/sqrt(-b^2*c + a*b*d))/(sqrt(-b^2*c + a*b*d)*b^
6) + 2/3465*(315*(d*x + c)^(11/2)*b^10*d^30 - 770*(d*x + c)^(9/2)
*b^10*c*d^30 + 495*(d*x + c)^(7/2)*b^10*c^2*d^30 - 385*(d*x + c)^
(9/2)*a*b^9*d^31 + 495*(d*x + c)^(7/2)*a*b^9*c*d^31 + 495*(d*x +
c)^(7/2)*a^2*b^8*d^32 - 693*(d*x + c)^(5/2)*a^3*b^7*d^33 - 1155*(
d*x + c)^(3/2)*a^3*b^7*c*d^33 - 3465*sqrt(d*x + c)*a^3*b^7*c^2*d^
33 + 1155*(d*x + c)^(3/2)*a^4*b^6*d^34 + 6930*sqrt(d*x + c)*a^4*b
^6*c*d^34 - 3465*sqrt(d*x + c)*a^5*b^5*d^35)/(b^11*d^33)
```

3.444 $\int \frac{x^2(c+dx)^{5/2}}{a+bx} dx$

Optimal. Leaf size=169

$$-\frac{2a^2(bc-ad)^{5/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{b^{11/2}}+\frac{2a^2\sqrt{c+dx}(bc-ad)^2}{b^5}+\frac{2a^2(c+dx)^{3/2}(bc-ad)}{3b^4}+\frac{2a^2(c+dx)^{5/2}}{5b^3}-\frac{2(c+dx)^{7/2}(ad+bc)}{7b^2d^2}+\frac{2(c+dx)^{9/2}}{9bd^2}$$

```
[Out] (2*a^2*(b*c - a*d)^2*Sqrt[c + d*x])/b^5 + (2*a^2*(b*c - a*d)*(c +
 d*x)^(3/2))/(3*b^4) + (2*a^2*(c + d*x)^(5/2))/(5*b^3) - (2*(b*c
+ a*d)*(c + d*x)^(7/2))/(7*b^2*d^2) + (2*(c + d*x)^(9/2))/(9*b*d^
2) - (2*a^2*(b*c - a*d)^(5/2)*ArcTanh[(Sqrt[b]*Sqrt[c + d*x])/Sqr
t[b*c - a*d]])/b^(11/2)
```

Rubi [A] time = 0.314229, antiderivative size = 169, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.2$

$$-\frac{2a^2(bc-ad)^{5/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{b^{11/2}}+\frac{2a^2\sqrt{c+dx}(bc-ad)^2}{b^5}+\frac{2a^2(c+dx)^{3/2}(bc-ad)}{3b^4}+\frac{2a^2(c+dx)^{5/2}}{5b^3}-\frac{2(c+dx)^{7/2}(ad+bc)}{7b^2d^2}+\frac{2(c+dx)^{9/2}}{9bd^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^2*(c + d*x)^(5/2))/(a + b*x),x]
```

```
[Out] (2*a^2*(b*c - a*d)^2*Sqrt[c + d*x])/b^5 + (2*a^2*(b*c - a*d)*(c +
 d*x)^(3/2))/(3*b^4) + (2*a^2*(c + d*x)^(5/2))/(5*b^3) - (2*(b*c
+ a*d)*(c + d*x)^(7/2))/(7*b^2*d^2) + (2*(c + d*x)^(9/2))/(9*b*d^
2) - (2*a^2*(b*c - a*d)^(5/2)*ArcTanh[(Sqrt[b]*Sqrt[c + d*x])/Sqr
t[b*c - a*d]])/b^(11/2)
```

Rubi in Sympy [A] time = 45.7572, size = 156, normalized size = 0.92

$$\frac{2a^2\left(c+dx\right)^{\frac{5}{2}}}{5b^3}-\frac{2a^2\left(c+dx\right)^{\frac{3}{2}}\left(ad-bc\right)}{3b^4}+\frac{2a^2\sqrt{c+dx}\left(ad-bc\right)^2}{b^5}-\frac{2a^2\left(ad-bc\right)^{\frac{5}{2}}\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{ad-bc}}\right)}{b^{\frac{11}{2}}}+\frac{2\left(c+dx\right)^{\frac{9}{2}}}{9bd^2}-\frac{2\left(c+dx\right)^{\frac{7}{2}}\left(ad+bc\right)}{7b^2d^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(d*x+c)**(5/2)/(b*x+a),x)
```

```
[Out] 2*a**2*(c + d*x)**(5/2)/(5*b**3) - 2*a**2*(c + d*x)**(3/2)*(a*d -
 b*c)/(3*b**4) + 2*a**2*sqrt(c + d*x)*(a*d - b*c)**2/b**5 - 2*a**
2*(a*d - b*c)**(5/2)*atan(sqrt(b)*sqrt(c + d*x)/sqrt(a*d - b*c))/
b**(11/2) + 2*(c + d*x)**(9/2)/(9*b*d**2) - 2*(c + d*x)**(7/2)*(a
*d + b*c)/(7*b**2*d**2)
```

Mathematica [A] time = 0.231315, size = 159, normalized size = 0.94

$$\frac{2\sqrt{c+dx}\left(315a^4d^4-105a^3bd^3(7c+dx)+21a^2b^2d^2\left(23c^2+11cdx+3d^2x^2\right)-45ab^3d(c+dx)^3-5b^4(2c-7dx)(c+dx)^3\right)}{315b^5d^2}-\frac{2a^2(bc-ad)^{5/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{b^{11/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^2*(c + d*x)^(5/2))/(a + b*x),x]
```

```
[Out] (2*Sqrt[c + d*x]*(315*a^4*d^4 - 45*a*b^3*d*(c + d*x)^3 - 5*b^4*(2
*c - 7*d*x)*(c + d*x)^3 - 105*a^3*b*d^3*(7*c + d*x) + 21*a^2*b^2*
d^2*(23*c^2 + 11*c*d*x + 3*d^2*x^2)))/(315*b^5*d^2) - (2*a^2*(b*c
 - a*d)^(5/2)*ArcTanh[(Sqrt[b]*Sqrt[c + d*x])/Sqrt[b*c - a*d]])/b
^(11/2)
```

Maple [B] time = 0.015, size = 331, normalized size = 2.

$$\frac{2}{9\,bd^2}(dx+c)^{\frac{9}{2}}-\frac{2\,a}{7\,b^2d}(dx+c)^{\frac{7}{2}}-\frac{2\,c}{7\,bd^2}(dx+c)^{\frac{7}{2}}+\frac{2\,a^2}{5\,b^3}(dx+c)^{\frac{5}{2}}-\frac{2\,a^3d}{3\,b^4}(dx+c)^{\frac{3}{2}}+\frac{2\,a^2c}{3\,b^3}(dx+c)^{\frac{3}{2}}+2\,\frac{d^2a^4\sqrt{dx+c}}{b^5}-4\,\frac{a^3cd\sqrt{dx+c}}{b^4}+2\,\frac{a^2c^2\sqrt{dx+c}}{b^3}-2\,\frac{d^3a^5}{b^5\sqrt{(ad-bc)\,b}}\arctan\left(\frac{\sqrt{dx+c}\,b}{\sqrt{(ad-bc)\,b}}\right)+6\,\frac{d^2a^4c}{b^4\sqrt{(ad-bc)\,b}}\arctan\left(\frac{\sqrt{dx+c}\,b}{\sqrt{(ad-bc)\,b}}\right)-6\,\frac{a^3c^2d}{b^3\sqrt{(ad-bc)\,b}}\arctan\left(\frac{\sqrt{dx+c}\,b}{\sqrt{(ad-bc)\,b}}\right)+2\,\frac{a^2c^3}{b^2\sqrt{(ad-bc)\,b}}\arctan\left(\frac{\sqrt{dx+c}\,b}{\sqrt{(ad-bc)\,b}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(d*x+c)^(5/2)/(b*x+a),x)
```

```
[Out] 2/9*(d*x+c)^(9/2)/b/d^2-2/7/d/b^2*(d*x+c)^(7/2)*a-2/7/d^2/b*(d*x+
c)^(7/2)*c+2/5*a^2*(d*x+c)^(5/2)/b^3-2/3*d/b^4*(d*x+c)^(3/2)*a^3+
2/3/b^3*(d*x+c)^(3/2)*a^2*c+2*d^2/b^5*a^4*(d*x+c)^(1/2)-4*d/b^4*a
^3*c*(d*x+c)^(1/2)+2/b^3*a^2*c^2*(d*x+c)^(1/2)-2*d^3*a^5/b^5/((a*
d-b*c)*b)^(1/2)*arctan((d*x+c)^(1/2)*b/((a*d-b*c)*b)^(1/2))+6*d^2
*a^4/b^4/((a*d-b*c)*b)^(1/2)*arctan((d*x+c)^(1/2)*b/((a*d-b*c)*b)
^(1/2))*c-6*d*a^3/b^3/((a*d-b*c)*b)^(1/2)*arctan((d*x+c)^(1/2)*b/
((a*d-b*c)*b)^(1/2))*c^2+2*a^2/b^2/((a*d-b*c)*b)^(1/2)*arctan((d*
x+c)^(1/2)*b/((a*d-b*c)*b)^(1/2))*c^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)*x^2/(b*x + a),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.251144, size = 1, normalized size = 0.01

$$\left[\frac{315\left(a^2b^2c^2d^2-2\,a^3bcd^3+a^4d^4\right)\sqrt{\frac{bc-ad}{b}}\log\left(\frac{bdx+2\,bc-ad-2\,\sqrt{dx+c}\,b\sqrt{\frac{bc-ad}{b}}}{bx+a}\right)+2\left(35\,b^4d^4x^4-10\,b^4c^4-45\,ab^3c^3d+483\,a^2\right.}{}\right.$$

$$-\frac{2\left(315\left(a^2b^2c^2d^2-2\,a^3bcd^3+a^4d^4\right)\sqrt{-\frac{bc-ad}{b}}\arctan\left(\frac{\sqrt{dx+c}}{\sqrt{-\frac{bc-ad}{b}}}\right)-\left(35\,b^4d^4x^4-10\,b^4c^4-45\,ab^3c^3d+483\,a^2b^2c^2d^2-73\right.\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)*x^2/(b*x + a),x, algorithm="fricas")
```

```
[Out] [1/315*(315*(a^2*b^2*c^2*d^2 - 2*a^3*b*c*d^3 + a^4*d^4)*sqrt((b*c
 - a*d)/b)*log((b*d*x + 2*b*c - a*d - 2*sqrt(d*x + c)*b*sqrt((b*c
 - a*d)/b))/(b*x + a)) + 2*(35*b^4*d^4*x^4 - 10*b^4*c^4 - 45*a*b^
3*c^3*d + 483*a^2*b^2*c^2*d^2 - 735*a^3*b*c*d^3 + 315*a^4*d^4 + 5
*(19*b^4*c*d^3 - 9*a*b^3*d^4)*x^3 + 3*(25*b^4*c^2*d^2 - 45*a*b^3*
c*d^3 + 21*a^2*b^2*d^4)*x^2 + (5*b^4*c^3*d - 135*a*b^3*c^2*d^2 +
231*a^2*b^2*c*d^3 - 105*a^3*b*d^4)*x)*sqrt(d*x + c))/(b^5*d^2), -
2/315*(315*(a^2*b^2*c^2*d^2 - 2*a^3*b*c*d^3 + a^4*d^4)*sqrt(-(b*c
 - a*d)/b)*arctan(sqrt(d*x + c)/sqrt(-(b*c - a*d)/b)) - (35*b^4*d
^4*x^4 - 10*b^4*c^4 - 45*a*b^3*c^3*d + 483*a^2*b^2*c^2*d^2 - 735*
a^3*b*c*d^3 + 315*a^4*d^4 + 5*(19*b^4*c*d^3 - 9*a*b^3*d^4)*x^3 +
3*(25*b^4*c^2*d^2 - 45*a*b^3*c*d^3 + 21*a^2*b^2*d^4)*x^2 + (5*b^4
*c^3*d - 135*a*b^3*c^2*d^2 + 231*a^2*b^2*c*d^3 - 105*a^3*b*d^4)*x
)*sqrt(d*x + c))/(b^5*d^2)]
```

Sympy [A] time = 57.7372, size = 304, normalized size = 1.8

$$\frac{2a^2(c+dx)^{\frac{5}{2}}}{5b^3} - \frac{2a^2(ad-bc)^3\left(\begin{cases}\frac{\operatorname{atan}\left(\frac{\sqrt{c+dx}}{\sqrt{\frac{ad-bc}{b}}}\right)}{b\sqrt{\frac{ad-bc}{b}}} & \text{for}\ \frac{ad-bc}{b}>0\\ -\frac{\operatorname{acoth}\left(\frac{\sqrt{c+dx}}{\sqrt{\frac{-ad+bc}{b}}}\right)}{b\sqrt{\frac{-ad+bc}{b}}} & \text{for}\ c+dx>\frac{-ad+bc}{b}\wedge\frac{ad-bc}{b}<0\\ -\frac{\operatorname{atanh}\left(\frac{\sqrt{c+dx}}{\sqrt{\frac{-ad+bc}{b}}}\right)}{b\sqrt{\frac{-ad+bc}{b}}} & \text{for}\ \frac{ad-bc}{b}<0\wedge c+dx<\frac{-ad+bc}{b}\end{cases}\right)}{b^5} + \frac{2(c+dx)^{\frac{9}{2}}}{9bd^2} + \frac{(c+dx)^{\frac{7}{2}}(-2ad-2bc)}{7b^2d^2} + \frac{(c+dx)^{\frac{3}{2}}\left(-2a^3d+2a^2bc\right)}{3b^4} + \frac{\sqrt{c+dx}\left(2a^4d^2-4a^3bcd+2a^2b^2c^2\right)}{b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(d*x+c)**(5/2)/(b*x+a),x)
```

```
[Out] 2*a**2*(c + d*x)**(5/2)/(5*b**3) - 2*a**2*(a*d - b*c)**3*Piecewis
e((atan(sqrt(c + d*x)/sqrt((a*d - b*c)/b))/(b*sqrt((a*d - b*c)/b)
), (a*d - b*c)/b > 0), (-acoth(sqrt(c + d*x)/sqrt((-a*d + b*c)/b)
)/(b*sqrt((-a*d + b*c)/b)), ((a*d - b*c)/b < 0) & (c + d*x > (-a*
d + b*c)/b)), (-atanh(sqrt(c + d*x)/sqrt((-a*d + b*c)/b))/(b*sqrt
((-a*d + b*c)/b)), ((a*d - b*c)/b < 0) & (c + d*x < (-a*d + b*c)/
b)))/b**5 + 2*(c + d*x)**(9/2)/(9*b*d**2) + (c + d*x)**(7/2)*(-2*
a*d - 2*b*c)/(7*b**2*d**2) + (c + d*x)**(3/2)*(-2*a**3*d + 2*a**2
*b*c)/(3*b**4) + sqrt(c + d*x)*(2*a**4*d**2 - 4*a**3*b*c*d + 2*a*
*2*b**2*c**2)/b**5
```

GIAC/XCAS [A] time = 0.325361, size = 340, normalized size = 2.01

$$\frac{2\left(a^2b^3c^3-3\,a^3b^2c^2d+3\,a^4bcd^2-a^5d^3\right)\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{-b^2c+abd}}\right)}{\sqrt{-b^2c+abd}b^5} + \frac{2\left(35\,(dx+c)^{\frac{9}{2}}b^8d^{16}-45\,(dx+c)^{\frac{7}{2}}b^8cd^{16}-45\,(dx+c)^{\frac{7}{2}}ab^7d^{17}+63\,(dx+c)^{\frac{5}{2}}a^2b^6d^{18}+105\,(dx+c)^{\frac{3}{2}}a^2b^6cd^{18}+315\,\sqrt{dx+\cdots}\right.}{315\,b^9d^{18}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)*x^2/(b*x + a),x, algorithm="giac")
```

```
[Out] 2*(a^2*b^3*c^3 - 3*a^3*b^2*c^2*d + 3*a^4*b*c*d^2 - a^5*d^3)*arcta
n(sqrt(d*x + c)*b/sqrt(-b^2*c + a*b*d))/(sqrt(-b^2*c + a*b*d)*b^5
) + 2/315*(35*(d*x + c)^(9/2)*b^8*d^16 - 45*(d*x + c)^(7/2)*b^8*c
*d^16 - 45*(d*x + c)^(7/2)*a*b^7*d^17 + 63*(d*x + c)^(5/2)*a^2*b^
6*d^18 + 105*(d*x + c)^(3/2)*a^2*b^6*c*d^18 + 315*sqrt(d*x + c)*a
^2*b^6*c^2*d^18 - 105*(d*x + c)^(3/2)*a^3*b^5*d^19 - 630*sqrt(d*x
 + c)*a^3*b^5*c*d^19 + 315*sqrt(d*x + c)*a^4*b^4*d^20)/(b^9*d^18)
```

3.445 $\int \frac{x(c+dx)^{5/2}}{a+bx}\,dx$

Optimal. Leaf size=135

$$\frac{2a(bc-ad)^{5/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{b^{9/2}}-\frac{2a\sqrt{c+dx}(bc-ad)^2}{b^4}-\frac{2a(c+dx)^{3/2}(bc-ad)}{3b^3}-\frac{2a(c+dx)^{5/2}}{5b^2}+\frac{2(c+dx)^{7/2}}{7bd}$$

```
[Out] (-2*a*(b*c - a*d)^2*Sqrt[c + d*x])/b^4 - (2*a*(b*c - a*d)*(c + d*
x)^(3/2))/(3*b^3) - (2*a*(c + d*x)^(5/2))/(5*b^2) + (2*(c + d*x)^
(7/2))/(7*b*d) + (2*a*(b*c - a*d)^(5/2)*ArcTanh[(Sqrt[b]*Sqrt[c +
 d*x])/Sqrt[b*c - a*d]])/b^(9/2)
```

Rubi [A] time = 0.2202, antiderivative size = 135, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.222$

$$\frac{2a(bc-ad)^{5/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{b^{9/2}}-\frac{2a\sqrt{c+dx}(bc-ad)^2}{b^4}-\frac{2a(c+dx)^{3/2}(bc-ad)}{3b^3}-\frac{2a(c+dx)^{5/2}}{5b^2}+\frac{2(c+dx)^{7/2}}{7bd}$$

Antiderivative was successfully verified.

```
[In]  Int[(x*(c + d*x)^(5/2))/(a + b*x),x]
```

```
[Out] (-2*a*(b*c - a*d)^2*Sqrt[c + d*x])/b^4 - (2*a*(b*c - a*d)*(c + d*
x)^(3/2))/(3*b^3) - (2*a*(c + d*x)^(5/2))/(5*b^2) + (2*(c + d*x)^
(7/2))/(7*b*d) + (2*a*(b*c - a*d)^(5/2)*ArcTanh[(Sqrt[b]*Sqrt[c +
 d*x])/Sqrt[b*c - a*d]])/b^(9/2)
```

Rubi in Sympy [A] time = 30.3947, size = 122, normalized size = 0.9

$$-\frac{2a\,(c+dx)^{\frac{5}{2}}}{5b^2}+\frac{2a\,(c+dx)^{\frac{3}{2}}\,(ad-bc)}{3b^3}-\frac{2a\sqrt{c+dx}\,(ad-bc)^2}{b^4}+\frac{2a\,(ad-bc)^{\frac{5}{2}}\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{ad-bc}}\right)}{b^{\frac{9}{2}}}+\frac{2\,(c+dx)^{\frac{7}{2}}}{7bd}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(d*x+c)**(5/2)/(b*x+a),x)
```

```
[Out] -2*a*(c + d*x)**(5/2)/(5*b**2) + 2*a*(c + d*x)**(3/2)*(a*d - b*c)
/(3*b**3) - 2*a*sqrt(c + d*x)*(a*d - b*c)**2/b**4 + 2*a*(a*d - b*
c)**(5/2)*atan(sqrt(b)*sqrt(c + d*x)/sqrt(a*d - b*c))/b**(9/2) +
2*(c + d*x)**(7/2)/(7*b*d)
```

Mathematica [A] time = 0.171546, size = 131, normalized size = 0.97

$$\frac{2\sqrt{c+dx}\left(-105a^3d^3+35a^2bd^2(7c+dx)-7ab^2d\left(23c^2+11cdx+3d^2x^2\right)+15b^3(c+dx)^3\right)}{105b^4d}+\frac{2a(bc-ad)^{5/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{b^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x*(c + d*x)^(5/2))/(a + b*x),x]
```

```
[Out] (2*Sqrt[c + d*x]*(-105*a^3*d^3 + 15*b^3*(c + d*x)^3 + 35*a^2*b*d^
2*(7*c + d*x) - 7*a*b^2*d*(23*c^2 + 11*c*d*x + 3*d^2*x^2)))/(105*
b^4*d) + (2*a*(b*c - a*d)^(5/2)*ArcTanh[(Sqrt[b]*Sqrt[c + d*x])/S
qrt[b*c - a*d]])/b^(9/2)
```

Maple [B] time = 0.013, size = 291, normalized size = 2.2

$$\frac{2}{7\,bd}\,(dx+c)^{\frac{7}{2}}-\frac{2\,a}{5\,b^2}\,(dx+c)^{\frac{5}{2}}+\frac{2\,da^2}{3\,b^3}\,(dx+c)^{\frac{3}{2}}-\frac{2\,ac}{3\,b^2}\,(dx+c)^{\frac{3}{2}}
-2\,\frac{d^2a^3\sqrt{dx+c}}{b^4}+4\,\frac{da^2c\sqrt{dx+c}}{b^3}-2\,\frac{ac^2\sqrt{dx+c}}{b^2}
+2\,\frac{d^3a^4}{b^4\sqrt{(ad-bc)\,b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)\,b}}\right)-6\,\frac{d^2a^3c}{b^3\sqrt{(ad-bc)\,b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)\,b}}\right)
+6\,\frac{a^2c^2d}{b^2\sqrt{(ad-bc)\,b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)\,b}}\right)-2\,\frac{ac^3}{b\sqrt{(ad-bc)\,b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)\,b}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(d*x+c)^(5/2)/(b*x+a),x)
```

```
[Out] 2/7*(d*x+c)^(7/2)/b/d-2/5*a*(d*x+c)^(5/2)/b^2+2/3*d/b^3*(d*x+c)^(
3/2)*a^2-2/3/b^2*(d*x+c)^(3/2)*a*c-2*d^2/b^4*a^3*(d*x+c)^(1/2)+4*
d/b^3*a^2*c*(d*x+c)^(1/2)-2/b^2*a*c^2*(d*x+c)^(1/2)+2*d^3*a^4/b^4
/((a*d-b*c)*b)^(1/2)*arctan((d*x+c)^(1/2)*b/((a*d-b*c)*b)^(1/2))-
6*d^2*a^3/b^3/((a*d-b*c)*b)^(1/2)*arctan((d*x+c)^(1/2)*b/((a*d-b*
c)*b)^(1/2))*c+6*d*a^2/b^2/((a*d-b*c)*b)^(1/2)*arctan((d*x+c)^(1/
2)*b/((a*d-b*c)*b)^(1/2))*c^2-2*a/b/((a*d-b*c)*b)^(1/2)*arctan((d
*x+c)^(1/2)*b/((a*d-b*c)*b)^(1/2))*c^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)*x/(b*x + a),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.248069, size = 1, normalized size = 0.01

$$\left[\frac{105\left(ab^2c^2d-2\,a^2bcd^2+a^3d^3\right)\sqrt{\frac{bc-ad}{b}}\log\left(\frac{bdx+2\,bc-ad+2\,\sqrt{dx+c}b\sqrt{\frac{bc-ad}{b}}}{bx+a}\right)+2\left(15\,b^3d^3x^3+15\,b^3c^3-161\,ab^2c^2d+245\,a^2b\right.}{105\,b^4d}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)*x/(b*x + a),x, algorithm="fricas")
```

```
[Out] [1/105*(105*(a*b^2*c^2*d - 2*a^2*b*c*d^2 + a^3*d^3)*sqrt((b*c - a
*d)/b)*log((b*d*x + 2*b*c - a*d + 2*sqrt(d*x + c)*b*sqrt((b*c - a
*d)/b))/(b*x + a)) + 2*(15*b^3*d^3*x^3 + 15*b^3*c^3 - 161*a*b^2*c
^2*d + 245*a^2*b*c*d^2 - 105*a^3*d^3 + 3*(15*b^3*c*d^2 - 7*a*b^2*
```

```
d^3)*x^2 + (45*b^3*c^2*d - 77*a*b^2*c*d^2 + 35*a^2*b*d^3)*x)*sqrt
(d*x + c))/(b^4*d), 2/105*(105*(a*b^2*c^2*d - 2*a^2*b*c*d^2 + a^3
*d^3)*sqrt(-(b*c - a*d)/b)*arctan(sqrt(d*x + c)/sqrt(-(b*c - a*d)
/b)) + (15*b^3*d^3*x^3 + 15*b^3*c^3 - 161*a*b^2*c^2*d + 245*a^2*b
*c*d^2 - 105*a^3*d^3 + 3*(15*b^3*c*d^2 - 7*a*b^2*d^3)*x^2 + (45*b
^3*c^2*d - 77*a*b^2*c*d^2 + 35*a^2*b*d^3)*x)*sqrt(d*x + c))/(b^4*
d)]
```

Sympy [A] time = 43.5803, size = 267, normalized size = 1.98

$$-\frac{2a(c+dx)^{\frac{5}{2}}}{5b^2}+\frac{2a(ad-bc)^3\left(\begin{cases}\frac{\operatorname{atan}\left(\frac{\sqrt{c+dx}}{\sqrt{\frac{ad-bc}{b}}}\right)}{b\sqrt{\frac{ad-bc}{b}}} & \text{for}\ \frac{ad-bc}{b}>0\\ -\frac{\operatorname{acoth}\left(\frac{\sqrt{c+dx}}{\sqrt{\frac{-ad+bc}{b}}}\right)}{b\sqrt{\frac{-ad+bc}{b}}} & \text{for}\ c+dx>\frac{-ad+bc}{b}\wedge\frac{ad-bc}{b}<0\\ -\frac{\operatorname{atanh}\left(\frac{\sqrt{c+dx}}{\sqrt{\frac{-ad+bc}{b}}}\right)}{b\sqrt{\frac{-ad+bc}{b}}} & \text{for}\ \frac{ad-bc}{b}<0\wedge c+dx<\frac{-ad+bc}{b}\end{cases}\right)}{b^4}+\frac{2(c+dx)^{\frac{7}{2}}}{7bd}+\frac{(c+dx)^{\frac{3}{2}}\left(2a^2d-2abc\right)}{3b^3}+\frac{\sqrt{c+dx}\left(-2a^3d^2+4a^2bcd-2ab^2c^2\right)}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(d*x+c)**(5/2)/(b*x+a),x)
```

```
[Out] -2*a*(c + d*x)**(5/2)/(5*b**2) + 2*a*(a*d - b*c)**3*Piecewise((at
an(sqrt(c + d*x)/sqrt((a*d - b*c)/b))/(b*sqrt((a*d - b*c)/b)), (a
*d - b*c)/b > 0), (-acoth(sqrt(c + d*x)/sqrt((-a*d + b*c)/b))/(b*
sqrt((-a*d + b*c)/b)), ((a*d - b*c)/b < 0) & (c + d*x > (-a*d + b
*c)/b)), (-atanh(sqrt(c + d*x)/sqrt((-a*d + b*c)/b))/(b*sqrt((-a*
d + b*c)/b)), ((a*d - b*c)/b < 0) & (c + d*x < (-a*d + b*c)/b)))/
b**4 + 2*(c + d*x)**(7/2)/(7*b*d) + (c + d*x)**(3/2)*(2*a**2*d -
2*a*b*c)/(3*b**3) + sqrt(c + d*x)*(-2*a**3*d**2 + 4*a**2*b*c*d -
2*a*b**2*c**2)/b**4
```

GIAC/XCAS [A] time = 0.256521, size = 286, normalized size = 2.12

$$-\frac{2\left(ab^3c^3-3\,a^2b^2c^2d+3\,a^3bcd^2-a^4d^3\right)\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{-b^2c+abd}}\right)}{\sqrt{-b^2c+abd}b^4}+\frac{2\left(15\,(dx+c)^{\frac{7}{2}}b^6d^6-21\,(dx+c)^{\frac{5}{2}}ab^5d^7-35\,(dx+c)^{\frac{3}{2}}ab^5cd^7-105\,\sqrt{dx+c}ab^5c^2d^7+35\,(dx+c)^{\frac{3}{2}}a^2b^4d^8+210\,\sqrt{dx+c}a^2\cdots\right)}{105\,b^7d^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)*x/(b*x + a),x, algorithm="giac")
```

```
[Out] -2*(a*b^3*c^3 - 3*a^2*b^2*c^2*d + 3*a^3*b*c*d^2 - a^4*d^3)*arctan
(sqrt(d*x + c)*b/sqrt(-b^2*c + a*b*d))/(sqrt(-b^2*c + a*b*d)*b^4)
 + 2/105*(15*(d*x + c)^(7/2)*b^6*d^6 - 21*(d*x + c)^(5/2)*a*b^5*d
^7 - 35*(d*x + c)^(3/2)*a*b^5*c*d^7 - 105*sqrt(d*x + c)*a*b^5*c^2
*d^7 + 35*(d*x + c)^(3/2)*a^2*b^4*d^8 + 210*sqrt(d*x + c)*a^2*b^4
*c*d^8 - 105*sqrt(d*x + c)*a^3*b^3*d^9)/(b^7*d^7)
```

3.446 $\int \frac{(c+dx)^{5/2}}{a+bx} \, dx$

Optimal. Leaf size=112

$$-\frac{2(bc-ad)^{5/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{b^{7/2}}+\frac{2\sqrt{c+dx}(bc-ad)^2}{b^3}+\frac{2(c+dx)^{3/2}(bc-ad)}{3b^2}+\frac{2(c+dx)^{5/2}}{5b}$$

```
[Out] (2*(b*c - a*d)^2*Sqrt[c + d*x])/b^3 + (2*(b*c - a*d)*(c + d*x)^(3
/2))/(3*b^2) + (2*(c + d*x)^(5/2))/(5*b) - (2*(b*c - a*d)^(5/2)*A
rcTanh[(Sqrt[b]*Sqrt[c + d*x])/Sqrt[b*c - a*d]])/b^(7/2)
```

Rubi [A] time = 0.145944, antiderivative size = 112, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 17, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.176

$$-\frac{2(bc-ad)^{5/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{b^{7/2}}+\frac{2\sqrt{c+dx}(bc-ad)^2}{b^3}+\frac{2(c+dx)^{3/2}(bc-ad)}{3b^2}+\frac{2(c+dx)^{5/2}}{5b}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^(5/2)/(a + b*x),x]
```

```
[Out] (2*(b*c - a*d)^2*Sqrt[c + d*x])/b^3 + (2*(b*c - a*d)*(c + d*x)^(3
/2))/(3*b^2) + (2*(c + d*x)^(5/2))/(5*b) - (2*(b*c - a*d)^(5/2)*A
rcTanh[(Sqrt[b]*Sqrt[c + d*x])/Sqrt[b*c - a*d]])/b^(7/2)
```

Rubi in Sympy [A] time = 23.3646, size = 99, normalized size = 0.88

$$\frac{2\,(c+dx)^{\frac{5}{2}}}{5b}-\frac{2\,(c+dx)^{\frac{3}{2}}\,(ad-bc)}{3b^2}+\frac{2\sqrt{c+dx}\,(ad-bc)^2}{b^3}-\frac{2\,(ad-bc)^{\frac{5}{2}}\,\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{ad-bc}}\right)}{b^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(5/2)/(b*x+a),x)
```

```
[Out] 2*(c + d*x)**(5/2)/(5*b) - 2*(c + d*x)**(3/2)*(a*d - b*c)/(3*b**2
) + 2*sqrt(c + d*x)*(a*d - b*c)**2/b**3 - 2*(a*d - b*c)**(5/2)*at
an(sqrt(b)*sqrt(c + d*x)/sqrt(a*d - b*c))/b**(7/2)
```

Mathematica [A] time = 0.124098, size = 108, normalized size = 0.96

$$\frac{2\sqrt{c+dx}\left(15a^2d^2-5abd(7c+dx)+b^2\left(23c^2+11cdx+3d^2x^2\right)\right)}{15b^3}-\frac{2(bc-ad)^{5/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{b^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^(5/2)/(a + b*x),x]
```

```
[Out] (2*Sqrt[c + d*x]*(15*a^2*d^2 - 5*a*b*d*(7*c + d*x) + b^2*(23*c^2
+ 11*c*d*x + 3*d^2*x^2)))/(15*b^3) - (2*(b*c - a*d)^(5/2)*ArcTanh
[(Sqrt[b]*Sqrt[c + d*x])/Sqrt[b*c - a*d]])/b^(7/2)
```

Maple [B] time = 0.007, size = 263, normalized size = 2.4

$$\frac{2}{5b}(dx+c)^{\frac{5}{2}} - \frac{2ad}{3b^2}(dx+c)^{\frac{3}{2}} + \frac{2c}{3b}(dx+c)^{\frac{3}{2}} + 2\frac{a^2d^2\sqrt{dx+c}}{b^3} - 4\frac{acd\sqrt{dx+c}}{b^2} + 2\frac{c^2\sqrt{dx+c}}{b} - 2\frac{a^3d^3}{b^3\sqrt{(ad-bc)b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)b}}\right) + 6\frac{a^2cd^2}{b^2\sqrt{(ad-bc)b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)b}}\right) - 6\frac{ac^2d}{b\sqrt{(ad-bc)b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)b}}\right) + 2\frac{c^3}{\sqrt{(ad-bc)b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)b}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(5/2)/(b*x+a),x)
```

```
[Out] 2/5*(d*x+c)^(5/2)/b-2/3/b^2*(d*x+c)^(3/2)*a*d+2/3/b*(d*x+c)^(3/2)
*c+2/b^3*a^2*d^2*(d*x+c)^(1/2)-4/b^2*a*c*d*(d*x+c)^(1/2)+2/b*c^2*
(d*x+c)^(1/2)-2/b^3/((a*d-b*c)*b)^(1/2)*arctan((d*x+c)^(1/2)*b/((
a*d-b*c)*b)^(1/2))*a^3*d^3+6/b^2/((a*d-b*c)*b)^(1/2)*arctan((d*x+
c)^(1/2)*b/((a*d-b*c)*b)^(1/2))*a^2*c*d^2-6/b/((a*d-b*c)*b)^(1/2)
*arctan((d*x+c)^(1/2)*b/((a*d-b*c)*b)^(1/2))*a*c^2*d+2/((a*d-b*c)
*b)^(1/2)*arctan((d*x+c)^(1/2)*b/((a*d-b*c)*b)^(1/2))*c^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/(b*x + a),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.238921, size = 1, normalized size = 0.01

$$\left[\frac{15\left(b^2c^2-2\,abcd+a^2d^2\right)\sqrt{\frac{bc-ad}{b}}\log\left(\frac{bdx+2\,bc-ad-2\,\sqrt{dx+c}b\sqrt{\frac{bc-ad}{b}}}{bx+a}\right)+2\left(3\,b^2d^2x^2+23\,b^2c^2-35\,abcd+15\,a^2d^2+\left(11\,b^2c\right.\right.}{15\,b^3}\right.$$

$$-\frac{2\left(15\left(b^2c^2-2\,abcd+a^2d^2\right)\sqrt{-\frac{bc-ad}{b}}\arctan\left(\frac{\sqrt{dx+c}}{\sqrt{-\frac{bc-ad}{b}}}\right)-\left(3\,b^2d^2x^2+23\,b^2c^2-35\,abcd+15\,a^2d^2+\left(11\,b^2cd-5\,abd^2\right)x\right.\right.}{15\,b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/(b*x + a),x, algorithm="fricas")
```

```
[Out] [1/15*(15*(b^2*c^2 - 2*a*b*c*d + a^2*d^2)*sqrt((b*c - a*d)/b)*log
((b*d*x + 2*b*c - a*d - 2*sqrt(d*x + c)*b*sqrt((b*c - a*d)/b))/(b
*x + a)) + 2*(3*b^2*d^2*x^2 + 23*b^2*c^2 - 35*a*b*c*d + 15*a^2*d^
2 + (11*b^2*c*d - 5*a*b*d^2)*x)*sqrt(d*x + c))/b^3, -2/15*(15*(b^
2*c^2 - 2*a*b*c*d + a^2*d^2)*sqrt(-(b*c - a*d)/b)*arctan(sqrt(d*x
 + c)/sqrt(-(b*c - a*d)/b)) - (3*b^2*d^2*x^2 + 23*b^2*c^2 - 35*a*
b*c*d + 15*a^2*d^2 + (11*b^2*c*d - 5*a*b*d^2)*x)*sqrt(d*x + c))/b
^3]
```

Sympy [A] time = 28.5752, size = 240, normalized size = 2.14

$$\frac{2(c+dx)^{\frac{5}{2}}}{5b}+\frac{(c+dx)^{\frac{3}{2}}(-2ad+2bc)}{3b^2}+\frac{\sqrt{c+dx}\left(2a^2d^2-4abcd+2b^2c^2\right)}{b^3}-\frac{2(ad-bc)^3\left(\begin{cases}\frac{\operatorname{atan}\left(\frac{\sqrt{c+dx}}{\sqrt{\frac{ad-bc}{b}}}\right)}{b\sqrt{\frac{ad-bc}{b}}} & \text{for } \frac{ad-bc}{b}>0\\ -\frac{\operatorname{acoth}\left(\frac{\sqrt{c+dx}}{\sqrt{\frac{-ad+bc}{b}}}\right)}{b\sqrt{\frac{-ad+bc}{b}}} & \text{for } c+dx>\frac{-ad+bc}{b}\wedge\frac{ad-bc}{b}<0\\ -\frac{\operatorname{atanh}\left(\frac{\sqrt{c+dx}}{\sqrt{\frac{-ad+bc}{b}}}\right)}{b\sqrt{\frac{-ad+bc}{b}}} & \text{for } \frac{ad-bc}{b}<0\wedge c+dx<\frac{-ad+bc}{b}\end{cases}\right)}{b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(5/2)/(b*x+a),x)
```

```
[Out] 2*(c + d*x)**(5/2)/(5*b) + (c + d*x)**(3/2)*(-2*a*d + 2*b*c)/(3*b
**2) + sqrt(c + d*x)*(2*a**2*d**2 - 4*a*b*c*d + 2*b**2*c**2)/b**3
 - 2*(a*d - b*c)**3*Piecewise((atan(sqrt(c + d*x)/sqrt((a*d - b*c
)/b))/(b*sqrt((a*d - b*c)/b)), (a*d - b*c)/b > 0), (-acoth(sqrt(c
 + d*x)/sqrt((-a*d + b*c)/b))/(b*sqrt((-a*d + b*c)/b)), ((a*d - b
*c)/b < 0) & (c + d*x > (-a*d + b*c)/b)), (-atanh(sqrt(c + d*x)/s
qrt((-a*d + b*c)/b))/(b*sqrt((-a*d + b*c)/b)), ((a*d - b*c)/b < 0
) & (c + d*x < (-a*d + b*c)/b)))/b**3
```

GIAC/XCAS [A] time = 0.220888, size = 231, normalized size = 2.06

$$\frac{2\left(b^3c^3-3\,ab^2c^2d+3\,a^2bcd^2-a^3d^3\right)\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{-b^2c+abd}}\right)}{\sqrt{-b^2c+abd}b^3}+\frac{2\left(3\,(dx+c)^{\frac{5}{2}}b^4+5\,(dx+c)^{\frac{3}{2}}b^4c+15\,\sqrt{dx+c}b^4c^2-5\,(dx+c)^{\frac{3}{2}}ab^3d-30\,\sqrt{dx+c}ab^3cd+15\,\sqrt{dx+c}a^2b^2d^2\right)}{15\,b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/(b*x + a),x, algorithm="giac")
```

```
[Out] 2*(b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*arctan(sqrt
(d*x + c)*b/sqrt(-b^2*c + a*b*d))/(sqrt(-b^2*c + a*b*d)*b^3) + 2/
15*(3*(d*x + c)^(5/2)*b^4 + 5*(d*x + c)^(3/2)*b^4*c + 15*sqrt(d*x
 + c)*b^4*c^2 - 5*(d*x + c)^(3/2)*a*b^3*d - 30*sqrt(d*x + c)*a*b^
3*c*d + 15*sqrt(d*x + c)*a^2*b^2*d^2)/b^5
```

3.447 $\int \frac{(c+dx)^{5/2}}{x(a+bx)}\,dx$

Optimal. Leaf size=118

$$\frac{2(bc-ad)^{5/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{ab^{5/2}}+\frac{2d\sqrt{c+dx}(2bc-ad)}{b^2}-\frac{2c^{5/2}\tanh^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{a}+\frac{2d(c+dx)^{3/2}}{3b}$$

```
[Out] (2*d*(2*b*c - a*d)*Sqrt[c + d*x])/b^2 + (2*d*(c + d*x)^(3/2))/(3*
b) - (2*c^(5/2)*ArcTanh[Sqrt[c + d*x]/Sqrt[c]])/a + (2*(b*c - a*d
)^(5/2)*ArcTanh[(Sqrt[b]*Sqrt[c + d*x])/Sqrt[b*c - a*d]])/(a*b^(5
/2))
```

Rubi [A] time = 0.442041, antiderivative size = 118, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.3

$$\frac{2(bc-ad)^{5/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{ab^{5/2}}+\frac{2d\sqrt{c+dx}(2bc-ad)}{b^2}-\frac{2c^{5/2}\tanh^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{a}+\frac{2d(c+dx)^{3/2}}{3b}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^(5/2)/(x*(a + b*x)),x]
```

```
[Out] (2*d*(2*b*c - a*d)*Sqrt[c + d*x])/b^2 + (2*d*(c + d*x)^(3/2))/(3*
b) - (2*c^(5/2)*ArcTanh[Sqrt[c + d*x]/Sqrt[c]])/a + (2*(b*c - a*d
)^(5/2)*ArcTanh[(Sqrt[b]*Sqrt[c + d*x])/Sqrt[b*c - a*d]])/(a*b^(5
/2))
```

Rubi in Sympy [A] time = 45.3331, size = 105, normalized size = 0.89

$$\frac{2d\,(c+dx)^{\frac{3}{2}}}{3b}-\frac{2d\sqrt{c+dx}\,(ad-2bc)}{b^2}-\frac{2c^{\frac{5}{2}}\operatorname{atanh}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{a}+\frac{2\,(ad-bc)^{\frac{5}{2}}\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{ad-bc}}\right)}{ab^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(5/2)/x/(b*x+a),x)
```

```
[Out] 2*d*(c + d*x)**(3/2)/(3*b) - 2*d*sqrt(c + d*x)*(a*d - 2*b*c)/b**2
 - 2*c**(5/2)*atanh(sqrt(c + d*x)/sqrt(c))/a + 2*(a*d - b*c)**(5/
2)*atan(sqrt(b)*sqrt(c + d*x)/sqrt(a*d - b*c))/(a*b**(5/2))
```

Mathematica [A] time = 0.281958, size = 107, normalized size = 0.91

$$\frac{2(bc-ad)^{5/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{ab^{5/2}}+\frac{2d\sqrt{c+dx}(-3ad+7bc+bdx)}{3b^2}-\frac{2c^{5/2}\tanh^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{a}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^(5/2)/(x*(a + b*x)),x]
```

```
[Out] (2*d*Sqrt[c + d*x]*(7*b*c - 3*a*d + b*d*x))/(3*b^2) - (2*c^(5/2)*
ArcTanh[Sqrt[c + d*x]/Sqrt[c]])/a + (2*(b*c - a*d)^(5/2)*ArcTanh[
(Sqrt[b]*Sqrt[c + d*x])/Sqrt[b*c - a*d]])/(a*b^(5/2))
```

Maple [B] time = 0.018, size = 237, normalized size = 2.

$$\frac{2d}{3b}(dx+c)^{\frac{3}{2}}-2\frac{d^2a\sqrt{dx+c}}{b^2}+4\frac{d\sqrt{dx+c}c}{b}-2\frac{c^{5/2}}{a}Artanh\left(\frac{\sqrt{dx+c}}{\sqrt{c}}\right)+2\frac{a^2d^3}{b^2\sqrt{(ad-bc)b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)b}}\right)-6\frac{acd^2}{b\sqrt{(ad-bc)b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)b}}\right)+6\frac{dc^2}{\sqrt{(ad-bc)b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)b}}\right)-2\frac{bc^3}{a\sqrt{(ad-bc)b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)b}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(5/2)/x/(b*x+a),x)
```

```
[Out] 2/3*d*(d*x+c)^(3/2)/b-2/b^2*a*d^2*(d*x+c)^(1/2)+4*d/b*(d*x+c)^(1/
2)*c-2*c^(5/2)*arctanh((d*x+c)^(1/2)/c^(1/2))/a+2/b^2*a^2*d^3/((a
*d-b*c)*b)^(1/2)*arctan((d*x+c)^(1/2)*b/((a*d-b*c)*b)^(1/2))-6/b*
a*d^2/((a*d-b*c)*b)^(1/2)*arctan((d*x+c)^(1/2)*b/((a*d-b*c)*b)^(1
/2))*c+6*d/((a*d-b*c)*b)^(1/2)*arctan((d*x+c)^(1/2)*b/((a*d-b*c)*
b)^(1/2))*c^2-2*b/a/((a*d-b*c)*b)^(1/2)*arctan((d*x+c)^(1/2)*b/((
a*d-b*c)*b)^(1/2))*c^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/((b*x + a)*x),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.401278, size = 1, normalized size = 0.01

$$\left[\frac{3\,b^2c^{\frac{5}{2}}\log\left(\frac{dx-2\sqrt{dx+c}\sqrt{c}+2\,c}{x}\right)+3\left(b^2c^2-2\,abcd+a^2d^2\right)\sqrt{\frac{bc-ad}{b}}\log\left(\frac{bdx+2\,bc-ad+2\sqrt{dx+c}b\sqrt{\frac{bc-ad}{b}}}{bx+a}\right)+2\left(abd^2x+7\,abcd-\right.}{3\,ab^2}\right.$$

$$-\frac{6\,b^2\sqrt{-c}c^2\arctan\left(\frac{\sqrt{dx+c}}{\sqrt{-c}}\right)-3\left(b^2c^2-2\,abcd+a^2d^2\right)\sqrt{\frac{bc-ad}{b}}\log\left(\frac{bdx+2\,bc-ad+2\sqrt{dx+c}b\sqrt{\frac{bc-ad}{b}}}{bx+a}\right)-2\left(abd^2x+7\,abcd-3\right.}{3\,ab^2}$$

$$-\frac{2\left(3\,b^2\sqrt{-c}c^2\arctan\left(\frac{\sqrt{dx+c}}{\sqrt{-c}}\right)-3\left(b^2c^2-2\,abcd+a^2d^2\right)\sqrt{-\frac{bc-ad}{b}}\arctan\left(\frac{\sqrt{dx+c}}{\sqrt{-\frac{bc-ad}{b}}}\right)-\left(abd^2x+7\,abcd-3\,a^2d^2\right)\sqrt{dx+\right.}{3\,ab^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/((b*x + a)*x),x, algorithm="fricas")
```

```
[Out] [1/3*(3*b^2*c^(5/2)*log((d*x - 2*sqrt(d*x + c)*sqrt(c) + 2*c)/x)
+ 3*(b^2*c^2 - 2*a*b*c*d + a^2*d^2)*sqrt((b*c - a*d)/b)*log((b*d*
x + 2*b*c - a*d + 2*sqrt(d*x + c)*b*sqrt((b*c - a*d)/b))/(b*x + a
)) + 2*(a*b*d^2*x + 7*a*b*c*d - 3*a^2*d^2)*sqrt(d*x + c))/(a*b^2)
, 1/3*(3*b^2*c^(5/2)*log((d*x - 2*sqrt(d*x + c)*sqrt(c) + 2*c)/x)
 + 6*(b^2*c^2 - 2*a*b*c*d + a^2*d^2)*sqrt(-(b*c - a*d)/b)*arctan(
sqrt(d*x + c)/sqrt(-(b*c - a*d)/b)) + 2*(a*b*d^2*x + 7*a*b*c*d -
```

```
3*a^2*d^2)*sqrt(d*x + c))/(a*b^2), -1/3*(6*b^2*sqrt(-c)*c^2*arcta
n(sqrt(d*x + c)/sqrt(-c)) - 3*(b^2*c^2 - 2*a*b*c*d + a^2*d^2)*sqr
t((b*c - a*d)/b)*log((b*d*x + 2*b*c - a*d + 2*sqrt(d*x + c)*b*sqr
t((b*c - a*d)/b))/(b*x + a)) - 2*(a*b*d^2*x + 7*a*b*c*d - 3*a^2*d
^2)*sqrt(d*x + c))/(a*b^2), -2/3*(3*b^2*sqrt(-c)*c^2*arctan(sqrt(
d*x + c)/sqrt(-c)) - 3*(b^2*c^2 - 2*a*b*c*d + a^2*d^2)*sqrt(-(b*c
 - a*d)/b)*arctan(sqrt(d*x + c)/sqrt(-(b*c - a*d)/b)) - (a*b*d^2*
x + 7*a*b*c*d - 3*a^2*d^2)*sqrt(d*x + c))/(a*b^2)]
```

Sympy [A] time = 48.9201, size = 294, normalized size = 2.49

$$\frac{2d\left(c+dx\right)^{\frac{3}{2}}}{3b}+\frac{\sqrt{c+dx}\left(-2ad^2+4bcd\right)}{b^2}-\frac{2c^3\left(\begin{cases}-\frac{\operatorname{atan}\left(\frac{\sqrt{c+dx}}{\sqrt{-c}}\right)}{\sqrt{-c}} & \text{for } -c>0\\ \frac{\operatorname{acoth}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{\sqrt{c}} & \text{for } -c<0\wedge c<c+dx\\ \frac{\operatorname{atanh}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{\sqrt{c}} & \text{for } c>c+dx\wedge -c<0\end{cases}\right)}{a}+\frac{2\left(ad-bc\right)^3\left(\begin{cases}\frac{\operatorname{atan}\left(\frac{\sqrt{c+dx}}{\sqrt{\frac{ad-bc}{b}}}\right)}{b\sqrt{\frac{ad-bc}{b}}} & \text{for } \frac{ad-bc}{b}>0\\ -\frac{\operatorname{acoth}\left(\frac{\sqrt{c+dx}}{\sqrt{\frac{-ad+bc}{b}}}\right)}{b\sqrt{\frac{-ad+bc}{b}}} & \text{for } c+dx>\frac{-ad+bc}{b}\wedge\frac{ad-bc}{b}<0\\ -\frac{\operatorname{atanh}\left(\frac{\sqrt{c+dx}}{\sqrt{\frac{-ad+bc}{b}}}\right)}{b\sqrt{\frac{-ad+bc}{b}}} & \text{for } \frac{ad-bc}{b}<0\wedge c+dx<\frac{-ad+bc}{b}\end{cases}\right)}{ab^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((d*x+c)**(5/2)/x/(b*x+a),x)
```

```
[Out] 2*d*(c + d*x)**(3/2)/(3*b) + sqrt(c + d*x)*(-2*a*d**2 + 4*b*c*d)/
b**2 - 2*c**3*Piecewise((-atan(sqrt(c + d*x)/sqrt(-c))/sqrt(-c),
-c > 0), (acoth(sqrt(c + d*x)/sqrt(c))/sqrt(c), (-c < 0) & (c < c
 + d*x)), (atanh(sqrt(c + d*x)/sqrt(c))/sqrt(c), (-c < 0) & (c >
c + d*x)))/a + 2*(a*d - b*c)**3*Piecewise((atan(sqrt(c + d*x)/sqr
t((a*d - b*c)/b))/(b*sqrt((a*d - b*c)/b)), (a*d - b*c)/b > 0), (-
acoth(sqrt(c + d*x)/sqrt((-a*d + b*c)/b))/(b*sqrt((-a*d + b*c)/b)
), ((a*d - b*c)/b < 0) & (c + d*x > (-a*d + b*c)/b)), (-atanh(sqr
t(c + d*x)/sqrt((-a*d + b*c)/b))/(b*sqrt((-a*d + b*c)/b)), ((a*d
- b*c)/b < 0) & (c + d*x < (-a*d + b*c)/b)))/(a*b**2)
```

GIAC/XCAS [A] time = 0.234005, size = 208, normalized size = 1.76

$$\frac{2\,c^3\arctan\left(\frac{\sqrt{dx+c}}{\sqrt{-c}}\right)}{a\sqrt{-c}}-\frac{2\left(b^3c^3-3\,ab^2c^2d+3\,a^2bcd^2-a^3d^3\right)\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{-b^2c+abd}}\right)}{\sqrt{-b^2c+abd}ab^2}+\frac{2\left(\left(dx+c\right)^{\frac{3}{2}}b^2d+6\sqrt{dx+c}b^2cd-3\sqrt{dx+c}abd^2\right)}{3\,b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((d*x + c)^(5/2)/((b*x + a)*x),x, algorithm="giac")
```

```
[Out] 2*c^3*arctan(sqrt(d*x + c)/sqrt(-c))/(a*sqrt(-c)) - 2*(b^3*c^3 -
3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*arctan(sqrt(d*x + c)*b/s
qrt(-b^2*c + a*b*d))/(sqrt(-b^2*c + a*b*d)*a*b^2) + 2/3*((d*x + c
)^(3/2)*b^2*d + 6*sqrt(d*x + c)*b^2*c*d - 3*sqrt(d*x + c)*a*b*d^2
)/b^3
```

3.448 $\int \frac{(c+dx)^{5/2}}{x^2(a+bx)}\,dx$

Optimal. Leaf size=128

$$-\frac{2(bc-ad)^{5/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{a^2b^{3/2}}+\frac{c^{3/2}(2bc-5ad)\tanh^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{a^2}+\frac{d\sqrt{c+dx}(2ad+bc)}{ab}-\frac{c(c+dx)^{3/2}}{ax}$$

```
[Out] (d*(b*c + 2*a*d)*Sqrt[c + d*x])/(a*b) - (c*(c + d*x)^(3/2))/(a*x)
 + (c^(3/2)*(2*b*c - 5*a*d)*ArcTanh[Sqrt[c + d*x]/Sqrt[c]])/a^2 -
 (2*(b*c - a*d)^(5/2)*ArcTanh[(Sqrt[b]*Sqrt[c + d*x])/Sqrt[b*c -
a*d]])/(a^2*b^(3/2))
```

Rubi [A] time = 0.546668, antiderivative size = 128, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.3

$$-\frac{2(bc-ad)^{5/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{a^2b^{3/2}}+\frac{c^{3/2}(2bc-5ad)\tanh^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{a^2}+\frac{d\sqrt{c+dx}(2ad+bc)}{ab}-\frac{c(c+dx)^{3/2}}{ax}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^(5/2)/(x^2*(a + b*x)),x]
```

```
[Out] (d*(b*c + 2*a*d)*Sqrt[c + d*x])/(a*b) - (c*(c + d*x)^(3/2))/(a*x)
 + (c^(3/2)*(2*b*c - 5*a*d)*ArcTanh[Sqrt[c + d*x]/Sqrt[c]])/a^2 -
 (2*(b*c - a*d)^(5/2)*ArcTanh[(Sqrt[b]*Sqrt[c + d*x])/Sqrt[b*c -
a*d]])/(a^2*b^(3/2))
```

Rubi in Sympy [A] time = 52.2457, size = 114, normalized size = 0.89

$$-\frac{c\left(c+dx\right)^{\frac{3}{2}}}{ax}+\frac{d\sqrt{c+dx}\left(2ad+bc\right)}{ab}-\frac{c^{\frac{3}{2}}\left(5ad-2bc\right)\operatorname{atanh}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{a^2}-\frac{2\left(ad-bc\right)^{\frac{5}{2}}\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{ad-bc}}\right)}{a^2b^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(5/2)/x**2/(b*x+a),x)
```

```
[Out] -c*(c + d*x)**(3/2)/(a*x) + d*sqrt(c + d*x)*(2*a*d + b*c)/(a*b) -
 c**(3/2)*(5*a*d - 2*b*c)*atanh(sqrt(c + d*x)/sqrt(c))/a**2 - 2*(
a*d - b*c)**(5/2)*atan(sqrt(b)*sqrt(c + d*x)/sqrt(a*d - b*c))/(a*
*2*b**(3/2))
```

Mathematica [A] time = 0.142932, size = 115, normalized size = 0.9

$$-\frac{2(bc-ad)^{5/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{a^2b^{3/2}}+\frac{c^{3/2}(2bc-5ad)\tanh^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{a^2}+\sqrt{c+dx}\left(\frac{2d^2}{b}-\frac{c^2}{ax}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^(5/2)/(x^2*(a + b*x)),x]
```

```
[Out] ((2*d^2)/b - c^2/(a*x))*Sqrt[c + d*x] + (c^(3/2)*(2*b*c - 5*a*d)*
ArcTanh[Sqrt[c + d*x]/Sqrt[c]])/a^2 - (2*(b*c - a*d)^(5/2)*ArcTan
h[(Sqrt[b]*Sqrt[c + d*x])/Sqrt[b*c - a*d]])/(a^2*b^(3/2))
```

Maple [B] time = 0.027, size = 249, normalized size = 2.

$$2\frac{d^{2}\sqrt{dx+c}}{b}-\frac{c^{2}}{ax}\sqrt{dx+c}-5\frac{dc^{3/2}}{a}Artanh\left(\frac{\sqrt{dx+c}}{\sqrt{c}}\right)+2\frac{c^{5/2}b}{a^{2}}Artanh\left(\frac{\sqrt{dx+c}}{\sqrt{c}}\right)$$
$$-2\frac{d^{3}a}{b\sqrt{(ad-bc)\,b}}\arctan\left(\frac{\sqrt{dx+c}\,b}{\sqrt{(ad-bc)\,b}}\right)+6\frac{d^{2}c}{\sqrt{(ad-bc)\,b}}\arctan\left(\frac{\sqrt{dx+c}\,b}{\sqrt{(ad-bc)\,b}}\right)$$
$$-6\frac{bdc^{2}}{a\sqrt{(ad-bc)\,b}}\arctan\left(\frac{\sqrt{dx+c}\,b}{\sqrt{(ad-bc)\,b}}\right)+2\frac{b^{2}c^{3}}{a^{2}\sqrt{(ad-bc)\,b}}\arctan\left(\frac{\sqrt{dx+c}\,b}{\sqrt{(ad-bc)\,b}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(5/2)/x^2/(b*x+a),x)
```

```
[Out] 2*d^2/b*(d*x+c)^(1/2)-c^2/a*(d*x+c)^(1/2)/x-5*d*c^(3/2)/a*arctanh
((d*x+c)^(1/2)/c^(1/2))+2*c^(5/2)/a^2*arctanh((d*x+c)^(1/2)/c^(1/
2))*b-2*d^3/b*a/((a*d-b*c)*b)^(1/2)*arctan((d*x+c)^(1/2)*b/((a*d-
b*c)*b)^(1/2))+6*d^2/((a*d-b*c)*b)^(1/2)*arctan((d*x+c)^(1/2)*b/(
(a*d-b*c)*b)^(1/2))*c-6*d*b/a/((a*d-b*c)*b)^(1/2)*arctan((d*x+c)^
(1/2)*b/((a*d-b*c)*b)^(1/2))*c^2+2*b^2/a^2/((a*d-b*c)*b)^(1/2)*ar
ctan((d*x+c)^(1/2)*b/((a*d-b*c)*b)^(1/2))*c^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/((b*x + a)*x^2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.397042, size = 1, normalized size = 0.01

$$\left[\frac{2\left(b^{2}c^{2}-2\,abcd+a^{2}d^{2}\right)x\sqrt{\frac{bc-ad}{b}}\log\left(\frac{bdx+2\,bc-ad-2\,\sqrt{dx+c}\,b\sqrt{\frac{bc-ad}{b}}}{bx+a}\right)-\left(2\,b^{2}c^{2}-5\,abcd\right)\sqrt{c}x\log\left(\frac{dx-2\,\sqrt{dx+c}\sqrt{c}+2\,c}{x}\right)+2\,(2\cdots}{2\,a^{2}bx}\right.$$

$$-\frac{4\left(b^{2}c^{2}-2\,abcd+a^{2}d^{2}\right)x\sqrt{-\frac{bc-ad}{b}}\arctan\left(\frac{\sqrt{dx+c}}{\sqrt{-\frac{bc-ad}{b}}}\right)+\left(2\,b^{2}c^{2}-5\,abcd\right)\sqrt{c}x\log\left(\frac{dx-2\,\sqrt{dx+c}\sqrt{c}+2\,c}{x}\right)-2\left(2\,a^{2}d^{2}x-abc^{2}\cdots\right.}{2\,a^{2}bx}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/((b*x + a)*x^2),x, algorithm="fricas")
```

```
[Out] [1/2*(2*(b^2*c^2 - 2*a*b*c*d + a^2*d^2)*x*sqrt((b*c - a*d)/b)*log
((b*d*x + 2*b*c - a*d - 2*sqrt(d*x + c)*b*sqrt((b*c - a*d)/b))/(b
*x + a)) - (2*b^2*c^2 - 5*a*b*c*d)*sqrt(c)*x*log((d*x - 2*sqrt(d*
x + c)*sqrt(c) + 2*c)/x) + 2*(2*a^2*d^2*x - a*b*c^2)*sqrt(d*x + c
))/(a^2*b*x), -1/2*(4*(b^2*c^2 - 2*a*b*c*d + a^2*d^2)*x*sqrt(-(b*
c - a*d)/b)*arctan(sqrt(d*x + c)/sqrt(-(b*c - a*d)/b)) + (2*b^2*c
^2 - 5*a*b*c*d)*sqrt(c)*x*log((d*x - 2*sqrt(d*x + c)*sqrt(c) + 2*
c)/x) - 2*(2*a^2*d^2*x - a*b*c^2)*sqrt(d*x + c))/(a^2*b*x), ((2*b
^2*c^2 - 5*a*b*c*d)*sqrt(-c)*x*arctan(sqrt(d*x + c)/sqrt(-c)) + (
```

```
b^2*c^2 - 2*a*b*c*d + a^2*d^2)*x*sqrt((b*c - a*d)/b)*log((b*d*x +
 2*b*c - a*d - 2*sqrt(d*x + c)*b*sqrt((b*c - a*d)/b))/(b*x + a))
+ (2*a^2*d^2*x - a*b*c^2)*sqrt(d*x + c))/(a^2*b*x), ((2*b^2*c^2 -
 5*a*b*c*d)*sqrt(-c)*x*arctan(sqrt(d*x + c)/sqrt(-c)) - 2*(b^2*c^
2 - 2*a*b*c*d + a^2*d^2)*x*sqrt(-(b*c - a*d)/b)*arctan(sqrt(d*x +
 c)/sqrt(-(b*c - a*d)/b)) + (2*a^2*d^2*x - a*b*c^2)*sqrt(d*x + c)
)/(a^2*b*x)]
```

Sympy [A] time = 113.063, size = 860, normalized size = 6.72

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(5/2)/x**2/(b*x+a),x)
```

```
[Out] -2*a*d**3*Piecewise((atan(sqrt(c + d*x)/sqrt(a*d/b - c))/(b*sqrt(
a*d/b - c)), a*d/b - c > 0), (-acoth(sqrt(c + d*x)/sqrt(-a*d/b +
c))/(b*sqrt(-a*d/b + c)), (a*d/b - c < 0) & (c + d*x > -a*d/b + c
)), (-atanh(sqrt(c + d*x)/sqrt(-a*d/b + c))/(b*sqrt(-a*d/b + c)),
 (a*d/b - c < 0) & (c + d*x < -a*d/b + c)))/b + 6*c*d**2*Piecewis
e((atan(sqrt(c + d*x)/sqrt(a*d/b - c))/(b*sqrt(a*d/b - c)), a*d/b
 - c > 0), (-acoth(sqrt(c + d*x)/sqrt(-a*d/b + c))/(b*sqrt(-a*d/b
 + c)), (a*d/b - c < 0) & (c + d*x > -a*d/b + c)), (-atanh(sqrt(c
 + d*x)/sqrt(-a*d/b + c))/(b*sqrt(-a*d/b + c)), (a*d/b - c < 0) &
 (c + d*x < -a*d/b + c))) + 2*d**2*sqrt(c + d*x)/b - 6*b*c**2*d*P
iecewise((atan(sqrt(c + d*x)/sqrt(a*d/b - c))/(b*sqrt(a*d/b - c))
, a*d/b - c > 0), (-acoth(sqrt(c + d*x)/sqrt(-a*d/b + c))/(b*sqrt
(-a*d/b + c)), (a*d/b - c < 0) & (c + d*x > -a*d/b + c)), (-atanh
(sqrt(c + d*x)/sqrt(-a*d/b + c))/(b*sqrt(-a*d/b + c)), (a*d/b - c
 < 0) & (c + d*x < -a*d/b + c)))/a - c**3*d*sqrt(c**(-3))*log(-c*
*2*sqrt(c**(-3)) + sqrt(c + d*x))/(2*a) + c**3*d*sqrt(c**(-3))*lo
g(c**2*sqrt(c**(-3)) + sqrt(c + d*x))/(2*a) - 6*c**2*d*Piecewise(
(-atan(sqrt(c + d*x)/sqrt(-c))/sqrt(-c), -c > 0), (acoth(sqrt(c +
 d*x)/sqrt(c))/sqrt(c), (-c < 0) & (c < c + d*x)), (atanh(sqrt(c
+ d*x)/sqrt(c))/sqrt(c), (-c < 0) & (c > c + d*x)))/a - c**2*sqrt
(c + d*x)/(a*x) + 2*b**2*c**3*Piecewise((atan(sqrt(c + d*x)/sqrt(
a*d/b - c))/(b*sqrt(a*d/b - c)), a*d/b - c > 0), (-acoth(sqrt(c +
 d*x)/sqrt(-a*d/b + c))/(b*sqrt(-a*d/b + c)), (a*d/b - c < 0) & (
c + d*x > -a*d/b + c)), (-atanh(sqrt(c + d*x)/sqrt(-a*d/b + c))/(
b*sqrt(-a*d/b + c)), (a*d/b - c < 0) & (c + d*x < -a*d/b + c)))/a
**2 + 2*b*c**3*Piecewise((-atan(sqrt(c + d*x)/sqrt(-c))/sqrt(-c),
 -c > 0), (acoth(sqrt(c + d*x)/sqrt(c))/sqrt(c), (-c < 0) & (c <
c + d*x)), (atanh(sqrt(c + d*x)/sqrt(c))/sqrt(c), (-c < 0) & (c >
 c + d*x)))/a**2
```

GIAC/XCAS [A] time = 0.217624, size = 205, normalized size = 1.6

$$\frac{2\sqrt{dx+c}d^2}{b} - \frac{\sqrt{dx+c}c^2}{ax} - \frac{\left(2\,bc^3 - 5\,ac^2d\right)\arctan\left(\frac{\sqrt{dx+c}}{\sqrt{-c}}\right)}{a^2\sqrt{-c}} + \frac{2\left(b^3c^3 - 3\,ab^2c^2d + 3\,a^2bcd^2 - a^3d^3\right)\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{-b^2c+abd}}\right)}{\sqrt{-b^2c+abd}a^2b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/((b*x + a)*x^2),x, algorithm="giac")
```

```
[Out] 2*sqrt(d*x + c)*d^2/b - sqrt(d*x + c)*c^2/(a*x) - (2*b*c^3 - 5*a*
c^2*d)*arctan(sqrt(d*x + c)/sqrt(-c))/(a^2*sqrt(-c)) + 2*(b^3*c^3
 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*arctan(sqrt(d*x + c)*
b/sqrt(-b^2*c + a*b*d))/(sqrt(-b^2*c + a*b*d)*a^2*b)
```

3.449 $\int \frac{(c+dx)^{5/2}}{x^3(a+bx)}\,dx$

Optimal. Leaf size=151

$$\frac{2(bc-ad)^{5/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{a^3\sqrt{b}}+\frac{c\sqrt{c+dx}(4bc-7ad)}{4a^2x}-\frac{\sqrt{c}\left(15a^2d^2-20abcd+8b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{4a^3}-\frac{c(c+dx)^{3/2}}{2ax^2}$$

```
[Out] (c*(4*b*c - 7*a*d)*Sqrt[c + d*x])/(4*a^2*x) - (c*(c + d*x)^(3/2))
/(2*a*x^2) - (Sqrt[c]*(8*b^2*c^2 - 20*a*b*c*d + 15*a^2*d^2)*ArcTa
nh[Sqrt[c + d*x]/Sqrt[c]])/(4*a^3) + (2*(b*c - a*d)^(5/2)*ArcTanh
[(Sqrt[b]*Sqrt[c + d*x])/Sqrt[b*c - a*d]])/(a^3*Sqrt[b])
```

Rubi [A] time = 0.474951, antiderivative size = 151, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.3

$$\frac{2(bc-ad)^{5/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{a^3\sqrt{b}}+\frac{c\sqrt{c+dx}(4bc-7ad)}{4a^2x}-\frac{\sqrt{c}\left(15a^2d^2-20abcd+8b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{4a^3}-\frac{c(c+dx)^{3/2}}{2ax^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^(5/2)/(x^3*(a + b*x)),x]
```

```
[Out] (c*(4*b*c - 7*a*d)*Sqrt[c + d*x])/(4*a^2*x) - (c*(c + d*x)^(3/2))
/(2*a*x^2) - (Sqrt[c]*(8*b^2*c^2 - 20*a*b*c*d + 15*a^2*d^2)*ArcTa
nh[Sqrt[c + d*x]/Sqrt[c]])/(4*a^3) + (2*(b*c - a*d)^(5/2)*ArcTanh
[(Sqrt[b]*Sqrt[c + d*x])/Sqrt[b*c - a*d]])/(a^3*Sqrt[b])
```

Rubi in Sympy [A] time = 51.2073, size = 139, normalized size = 0.92

$$-\frac{c\,(c+dx)^{\frac{3}{2}}}{2ax^2}-\frac{c\sqrt{c+dx}\,(7ad-4bc)}{4a^2x}-\frac{\sqrt{c}\left(15a^2d^2-20abcd+8b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{4a^3}+\frac{2\,(ad-bc)^{\frac{5}{2}}\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{ad-bc}}\right)}{a^3\sqrt{b}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(5/2)/x**3/(b*x+a),x)
```

```
[Out] -c*(c + d*x)**(3/2)/(2*a*x**2) - c*sqrt(c + d*x)*(7*a*d - 4*b*c)/
(4*a**2*x) - sqrt(c)*(15*a**2*d**2 - 20*a*b*c*d + 8*b**2*c**2)*at
anh(sqrt(c + d*x)/sqrt(c))/(4*a**3) + 2*(a*d - b*c)**(5/2)*atan(s
qrt(b)*sqrt(c + d*x)/sqrt(a*d - b*c))/(a**3*sqrt(b))
```

Mathematica [A] time = 0.184538, size = 131, normalized size = 0.87

$$\frac{-\sqrt{c}\left(15a^2d^2-20abcd+8b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)+\frac{ac\sqrt{c+dx}(-2ac-9adx+4bcx)}{x^2}+\frac{8(bc-ad)^{5/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{\sqrt{b}}}{4a^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^(5/2)/(x^3*(a + b*x)),x]
```

```
[Out] ((a*c*Sqrt[c + d*x]*(-2*a*c + 4*b*c*x - 9*a*d*x))/x^2 - Sqrt[c]*(
8*b^2*c^2 - 20*a*b*c*d + 15*a^2*d^2)*ArcTanh[Sqrt[c + d*x]/Sqrt[c
]] + (8*(b*c - a*d)^(5/2)*ArcTanh[(Sqrt[b]*Sqrt[c + d*x])/Sqrt[b*
c - a*d]])/Sqrt[b])/(4*a^3)
```

Maple [B] time = 0.023, size = 321, normalized size = 2.1

$$-\frac{9\,c}{4\,ax^{2}}\left(dx+c\right)^{\frac{3}{2}}+\frac{c^{2}b}{da^{2}x^{2}}\left(dx+c\right)^{\frac{3}{2}}+\frac{7\,c^{2}}{4\,ax^{2}}\sqrt{dx+c}-\frac{c^{3}b}{da^{2}x^{2}}\sqrt{dx+c} -\frac{15\,d^{2}}{4\,a}\sqrt{c}Artanh\left(1\sqrt{dx+c}\frac{1}{\sqrt{c}}\right)+5\,\frac{dc^{3/2}b}{a^{2}}Artanh\left(\frac{\sqrt{dx+c}}{\sqrt{c}}\right)-2\,\frac{c^{5/2}b^{2}}{a^{3}}Artanh\left(\frac{\sqrt{dx+c}}{\sqrt{c}}\right) +2\,\frac{d^{3}}{\sqrt{(ad-bc)\,b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)\,b}}\right)-6\,\frac{d^{2}cb}{a\sqrt{(ad-bc)\,b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)\,b}}\right) +6\,\frac{b^{2}dc^{2}}{a^{2}\sqrt{(ad-bc)\,b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)\,b}}\right)-2\,\frac{b^{3}c^{3}}{a^{3}\sqrt{(ad-bc)\,b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)\,b}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(5/2)/x^3/(b*x+a),x)
```

```
[Out] -9/4*c*(d*x+c)^(3/2)/a/x^2+1/d*c^2/a^2/x^2*(d*x+c)^(3/2)*b+7/4*c^
2/a/x^2*(d*x+c)^(1/2)-1/d*c^3/a^2/x^2*(d*x+c)^(1/2)*b-15/4*d^2*c^
(1/2)/a*arctanh((d*x+c)^(1/2)/c^(1/2))+5*d*c^(3/2)/a^2*arctanh((d
*x+c)^(1/2)/c^(1/2))*b-2*c^(5/2)/a^3*arctanh((d*x+c)^(1/2)/c^(1/2
))*b^2+2*d^3/((a*d-b*c)*b)^(1/2)*arctan((d*x+c)^(1/2)*b/((a*d-b*c
)*b)^(1/2))-6*d^2/a/((a*d-b*c)*b)^(1/2)*arctan((d*x+c)^(1/2)*b/((
a*d-b*c)*b)^(1/2))*c*b+6*d/a^2/((a*d-b*c)*b)^(1/2)*arctan((d*x+c)
^(1/2)*b/((a*d-b*c)*b)^(1/2))*b^2*c^2-2/a^3/((a*d-b*c)*b)^(1/2)*a
rctan((d*x+c)^(1/2)*b/((a*d-b*c)*b)^(1/2))*b^3*c^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/((b*x + a)*x^3),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.403419, size = 1, normalized size = 0.01

$$\left[\frac{8\left(b^{2}c^{2}-2\,abcd+a^{2}d^{2}\right)x^{2}\sqrt{\frac{bc-ad}{b}}\log\left(\frac{bdx+2\,bc-ad+2\,\sqrt{dx+c}b\sqrt{\frac{bc-ad}{b}}}{bx+a}\right)+\left(8\,b^{2}c^{2}-20\,abcd+15\,a^{2}d^{2}\right)\sqrt{c}x^{2}\log\left(\frac{dx-2\,\sqrt{dx+c}}{x}\right.}{8\,a^{3}x^{2}}\right.$$

$$-\frac{\left(8\,b^{2}c^{2}-20\,abcd+15\,a^{2}d^{2}\right)\sqrt{-c}x^{2}\arctan\left(\frac{\sqrt{dx+c}}{\sqrt{-c}}\right)-4\left(b^{2}c^{2}-2\,abcd+a^{2}d^{2}\right)x^{2}\sqrt{\frac{bc-ad}{b}}\log\left(\frac{bdx+2\,bc-ad+2\,\sqrt{dx+c}b\sqrt{\frac{bc-ad}{b}}}{bx+a}\right.}{4\,a^{3}x^{2}}$$

$$-\frac{\left(8\,b^{2}c^{2}-20\,abcd+15\,a^{2}d^{2}\right)\sqrt{-c}x^{2}\arctan\left(\frac{\sqrt{dx+c}}{\sqrt{-c}}\right)-8\left(b^{2}c^{2}-2\,abcd+a^{2}d^{2}\right)x^{2}\sqrt{-\frac{bc-ad}{b}}\arctan\left(\frac{\sqrt{dx+c}}{\sqrt{-\frac{bc-ad}{b}}}\right)+\left(2\,a^{2}c^{2}-\right.}{4\,a^{3}x^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/((b*x + a)*x^3),x, algorithm="fricas")
```

```
[Out] [1/8*(8*(b^2*c^2 - 2*a*b*c*d + a^2*d^2)*x^2*sqrt((b*c - a*d)/b)*l
og((b*d*x + 2*b*c - a*d + 2*sqrt(d*x + c)*b*sqrt((b*c - a*d)/b))/
(b*x + a)) + (8*b^2*c^2 - 20*a*b*c*d + 15*a^2*d^2)*sqrt(c)*x^2*lo
g((d*x - 2*sqrt(d*x + c)*sqrt(c) + 2*c)/x) - 2*(2*a^2*c^2 - (4*a*
b*c^2 - 9*a^2*c*d)*x)*sqrt(d*x + c))/(a^3*x^2), 1/8*(16*(b^2*c^2
- 2*a*b*c*d + a^2*d^2)*x^2*sqrt(-(b*c - a*d)/b)*arctan(sqrt(d*x +
 c)/sqrt(-(b*c - a*d)/b)) + (8*b^2*c^2 - 20*a*b*c*d + 15*a^2*d^2)
*sqrt(c)*x^2*log((d*x - 2*sqrt(d*x + c)*sqrt(c) + 2*c)/x) - 2*(2*
a^2*c^2 - (4*a*b*c^2 - 9*a^2*c*d)*x)*sqrt(d*x + c))/(a^3*x^2), -1
/4*((8*b^2*c^2 - 20*a*b*c*d + 15*a^2*d^2)*sqrt(-c)*x^2*arctan(sqr
t(d*x + c)/sqrt(-c)) - 4*(b^2*c^2 - 2*a*b*c*d + a^2*d^2)*x^2*sqrt
((b*c - a*d)/b)*log((b*d*x + 2*b*c - a*d + 2*sqrt(d*x + c)*b*sqrt
((b*c - a*d)/b))/(b*x + a)) + (2*a^2*c^2 - (4*a*b*c^2 - 9*a^2*c*d
)*x)*sqrt(d*x + c))/(a^3*x^2), -1/4*((8*b^2*c^2 - 20*a*b*c*d + 15
*a^2*d^2)*sqrt(-c)*x^2*arctan(sqrt(d*x + c)/sqrt(-c)) - 8*(b^2*c^
2 - 2*a*b*c*d + a^2*d^2)*x^2*sqrt(-(b*c - a*d)/b)*arctan(sqrt(d*x
 + c)/sqrt(-(b*c - a*d)/b)) + (2*a^2*c^2 - (4*a*b*c^2 - 9*a^2*c*d
)*x)*sqrt(d*x + c))/(a^3*x^2)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(5/2)/x**3/(b*x+a),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.223255, size = 267, normalized size = 1.77

$$-\frac{2\left(b^{3}c^{3}-3\,ab^{2}c^{2}d+3\,a^{2}bcd^{2}-a^{3}d^{3}\right)\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{-b^{2}c+abd}}\right)}{\sqrt{-b^{2}c+abd}a^{3}}+\frac{\left(8\,b^{2}c^{3}-20\,abc^{2}d+15\,a^{2}cd^{2}\right)\arctan\left(\frac{\sqrt{dx+c}}{\sqrt{-c}}\right)}{4\,a^{3}\sqrt{-c}}+\frac{4\,(dx+c)^{\frac{3}{2}}bc^{2}d-4\,\sqrt{dx+c}bc^{3}d-9\,(dx+c)^{\frac{3}{2}}acd^{2}+7\,\sqrt{dx+c}ac^{2}d^{2}}{4\,a^{2}d^{2}x^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/((b*x + a)*x^3),x, algorithm="giac")
```

```
[Out] -2*(b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*arctan(sqr
t(d*x + c)*b/sqrt(-b^2*c + a*b*d))/(sqrt(-b^2*c + a*b*d)*a^3) + 1
/4*(8*b^2*c^3 - 20*a*b*c^2*d + 15*a^2*c*d^2)*arctan(sqrt(d*x + c)
/sqrt(-c))/(a^3*sqrt(-c)) + 1/4*(4*(d*x + c)^(3/2)*b*c^2*d - 4*sq
rt(d*x + c)*b*c^3*d - 9*(d*x + c)^(3/2)*a*c*d^2 + 7*sqrt(d*x + c)
*a*c^2*d^2)/(a^2*d^2*x^2)
```

3.450 $\int \frac{(c+dx)^{5/2}}{x^4(a+bx)} dx$

Optimal. Leaf size=207

$$-\frac{2\sqrt{b}(bc-ad)^{5/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{a^4}+\frac{c\sqrt{c+dx}(2bc-3ad)}{4a^2x^2}-\frac{\sqrt{c+dx}\left(11a^2d^2-18abcd+8b^2c^2\right)}{8a^3x}+\frac{\left(-5a^3d^3+30a^2bcd^2-40ab^2c^2d+16b^3c^3\right)\tanh^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{8a^4\sqrt{c}}-\frac{c(c+dx)^{3/2}}{3ax^3}$$

```
[Out] (c*(2*b*c - 3*a*d)*Sqrt[c + d*x])/(4*a^2*x^2) - ((8*b^2*c^2 - 18*
a*b*c*d + 11*a^2*d^2)*Sqrt[c + d*x])/(8*a^3*x) - (c*(c + d*x)^(3/
2))/(3*a*x^3) + ((16*b^3*c^3 - 40*a*b^2*c^2*d + 30*a^2*b*c*d^2 -
5*a^3*d^3)*ArcTanh[Sqrt[c + d*x]/Sqrt[c]])/(8*a^4*Sqrt[c]) - (2*S
qrt[b]*(b*c - a*d)^(5/2)*ArcTanh[(Sqrt[b]*Sqrt[c + d*x])/Sqrt[b*c
 - a*d]])/a^4
```

Rubi [A] time = 0.7999, antiderivative size = 207, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 7, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.35

$$-\frac{2\sqrt{b}(bc-ad)^{5/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{a^4}+\frac{c\sqrt{c+dx}(2bc-3ad)}{4a^2x^2}-\frac{\sqrt{c+dx}\left(11a^2d^2-18abcd+8b^2c^2\right)}{8a^3x}+\frac{\left(-5a^3d^3+30a^2bcd^2-40ab^2c^2d+16b^3c^3\right)\tanh^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{8a^4\sqrt{c}}-\frac{c(c+dx)^{3/2}}{3ax^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^(5/2)/(x^4*(a + b*x)),x]
```

```
[Out] (c*(2*b*c - 3*a*d)*Sqrt[c + d*x])/(4*a^2*x^2) - ((8*b^2*c^2 - 18*
a*b*c*d + 11*a^2*d^2)*Sqrt[c + d*x])/(8*a^3*x) - (c*(c + d*x)^(3/
2))/(3*a*x^3) + ((16*b^3*c^3 - 40*a*b^2*c^2*d + 30*a^2*b*c*d^2 -
5*a^3*d^3)*ArcTanh[Sqrt[c + d*x]/Sqrt[c]])/(8*a^4*Sqrt[c]) - (2*S
qrt[b]*(b*c - a*d)^(5/2)*ArcTanh[(Sqrt[b]*Sqrt[c + d*x])/Sqrt[b*c
 - a*d]])/a^4
```

Rubi in Sympy [A] time = 88.9877, size = 199, normalized size = 0.96

$$-\frac{c\,(c+dx)^{\frac{3}{2}}}{3ax^3}-\frac{c\sqrt{c+dx}\,(3ad-2bc)}{4a^2x^2}-\frac{\sqrt{c+dx}\,\left(11a^2d^2-18abcd+8b^2c^2\right)}{8a^3x}-\frac{2\sqrt{b}\,(ad-bc)^{\frac{5}{2}}\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{ad-bc}}\right)}{a^4}-\frac{\left(5a^3d^3-30a^2bcd^2+40ab^2c^2d-16b^3c^3\right)\operatorname{atanh}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{8a^4\sqrt{c}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(5/2)/x**4/(b*x+a),x)
```

```
[Out] -c*(c + d*x)**(3/2)/(3*a*x**3) - c*sqrt(c + d*x)*(3*a*d - 2*b*c)/
(4*a**2*x**2) - sqrt(c + d*x)*(11*a**2*d**2 - 18*a*b*c*d + 8*b**2
*c**2)/(8*a**3*x) - 2*sqrt(b)*(a*d - b*c)**(5/2)*atan(sqrt(b)*sqr
t(c + d*x)/sqrt(a*d - b*c))/a**4 - (5*a**3*d**3 - 30*a**2*b*c*d**
2 + 40*a*b**2*c**2*d - 16*b**3*c**3)*atanh(sqrt(c + d*x)/sqrt(c))
/(8*a**4*sqrt(c))
```

Mathematica [A] time = 0.314543, size = 178, normalized size = 0.86

$$-\frac{\frac{a\sqrt{c+dx}\left(a^2\left(8c^2+26cdx+33d^2x^2\right)-6abcx(2c+9dx)+24b^2c^2x^2\right)}{x^3}-\frac{3\left(-5a^3d^3+30a^2bcd^2-40ab^2c^2d+16b^3c^3\right)\tanh^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{\sqrt{c}}+48\sqrt{b}(bc-ad)^{5/2}\tan}{24a^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^(5/2)/(x^4*(a + b*x)),x]
```

```
[Out] -((a*Sqrt[c + d*x]*(24*b^2*c^2*x^2 - 6*a*b*c*x*(2*c + 9*d*x) + a^
2*(8*c^2 + 26*c*d*x + 33*d^2*x^2)))/x^3 - (3*(16*b^3*c^3 - 40*a*b
^2*c^2*d + 30*a^2*b*c*d^2 - 5*a^3*d^3)*ArcTanh[Sqrt[c + d*x]/Sqrt
[c]])/Sqrt[c] + 48*Sqrt[b]*(b*c - a*d)^(5/2)*ArcTanh[(Sqrt[b]*Sqr
t[c + d*x])/Sqrt[b*c - a*d]])/(24*a^4)
```

Maple [B] time = 0.025, size = 461, normalized size = 2.2

$$-\frac{11}{8\,ax^3}(dx+c)^{\frac{5}{2}}+\frac{9\,bc}{4\,da^2x^3}(dx+c)^{\frac{5}{2}}-\frac{b^2c^2}{d^2a^3x^3}(dx+c)^{\frac{5}{2}}+\frac{5\,c}{3\,ax^3}(dx+c)^{\frac{3}{2}}$$
$$-4\,\frac{(dx+c)^{3/2}\,bc^2}{da^2x^3}+2\,\frac{(dx+c)^{3/2}\,b^2c^3}{d^2a^3x^3}+\frac{7\,c^3b}{4\,da^2x^3}\sqrt{dx+c}-\frac{b^2c^4}{d^2a^3x^3}\sqrt{dx+c}$$
$$-\frac{5\,c^2}{8\,ax^3}\sqrt{dx+c}-\frac{5\,d^3}{8\,a}Artanh\left(1\sqrt{dx+c}\frac{1}{\sqrt{c}}\right)\frac{1}{\sqrt{c}}+\frac{15\,d^2b}{4\,a^2}\sqrt{c}Artanh\left(1\sqrt{dx+c}\frac{1}{\sqrt{c}}\right)$$
$$-5\,\frac{dc^{3/2}b^2}{a^3}Artanh\left(\frac{\sqrt{dx+c}}{\sqrt{c}}\right)+2\,\frac{c^{5/2}b^3}{a^4}Artanh\left(\frac{\sqrt{dx+c}}{\sqrt{c}}\right)$$
$$-2\,\frac{d^3b}{a\sqrt{(ad-bc)\,b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)\,b}}\right)+6\,\frac{d^2b^2c}{a^2\sqrt{(ad-bc)\,b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)\,b}}\right)$$
$$-6\,\frac{db^3c^2}{a^3\sqrt{(ad-bc)\,b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)\,b}}\right)+2\,\frac{b^4c^3}{a^4\sqrt{(ad-bc)\,b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)\,b}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(5/2)/x^4/(b*x+a),x)
```

```
[Out] -11/8/a/x^3*(d*x+c)^(5/2)+9/4/d/a^2/x^3*(d*x+c)^(5/2)*c*b-1/d^2/a
^3/x^3*(d*x+c)^(5/2)*b^2*c^2+5/3*c*(d*x+c)^(3/2)/a/x^3-4/d/a^2/x^
3*(d*x+c)^(3/2)*b*c^2+2/d^2/a^3/x^3*(d*x+c)^(3/2)*b^2*c^3+7/4/d/a
^2/x^3*(d*x+c)^(1/2)*b*c^3-1/d^2/a^3/x^3*(d*x+c)^(1/2)*b^2*c^4-5/
8/a/x^3*(d*x+c)^(1/2)*c^2-5/8*d^3/a/c^(1/2)*arctanh((d*x+c)^(1/2)
/c^(1/2))+15/4*d^2/a^2*c^(1/2)*arctanh((d*x+c)^(1/2)/c^(1/2))*b-5
*d/a^3*c^(3/2)*arctanh((d*x+c)^(1/2)/c^(1/2))*b^2+2/a^4*c^(5/2)*a
rctanh((d*x+c)^(1/2)/c^(1/2))*b^3-2*d^3*b/a/((a*d-b*c)*b)^(1/2)*a
rctan((d*x+c)^(1/2)*b/((a*d-b*c)*b)^(1/2))+6*d^2*b^2/a^2/((a*d-b*
c)*b)^(1/2)*arctan((d*x+c)^(1/2)*b/((a*d-b*c)*b)^(1/2))*c-6*d*b^3
/a^3/((a*d-b*c)*b)^(1/2)*arctan((d*x+c)^(1/2)*b/((a*d-b*c)*b)^(1/
2))*c^2+2*b^4/a^4/((a*d-b*c)*b)^(1/2)*arctan((d*x+c)^(1/2)*b/((a*
d-b*c)*b)^(1/2))*c^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/((b*x + a)*x^4),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.580519, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/((b*x + a)*x^4),x, algorithm="fricas")
```

```
[Out] [1/48*(48*(b^2*c^2 - 2*a*b*c*d + a^2*d^2)*sqrt(b^2*c - a*b*d)*sqr
t(c)*x^3*log((b*d*x + 2*b*c - a*d - 2*sqrt(b^2*c - a*b*d)*sqrt(d*
x + c))/(b*x + a)) - 3*(16*b^3*c^3 - 40*a*b^2*c^2*d + 30*a^2*b*c*
d^2 - 5*a^3*d^3)*x^3*log(((d*x + 2*c)*sqrt(c) - 2*sqrt(d*x + c)*c
)/x) - 2*(8*a^3*c^2 + 3*(8*a*b^2*c^2 - 18*a^2*b*c*d + 11*a^3*d^2)
*x^2 - 2*(6*a^2*b*c^2 - 13*a^3*c*d)*x)*sqrt(d*x + c)*sqrt(c))/(a^
4*sqrt(c)*x^3), 1/48*(96*(b^2*c^2 - 2*a*b*c*d + a^2*d^2)*sqrt(-b^
2*c + a*b*d)*sqrt(c)*x^3*arctan(sqrt(-b^2*c + a*b*d)/(sqrt(d*x +
c)*b)) - 3*(16*b^3*c^3 - 40*a*b^2*c^2*d + 30*a^2*b*c*d^2 - 5*a^3*
d^3)*x^3*log(((d*x + 2*c)*sqrt(c) - 2*sqrt(d*x + c)*c)/x) - 2*(8*
a^3*c^2 + 3*(8*a*b^2*c^2 - 18*a^2*b*c*d + 11*a^3*d^2)*x^2 - 2*(6*
a^2*b*c^2 - 13*a^3*c*d)*x)*sqrt(d*x + c)*sqrt(c))/(a^4*sqrt(c)*x^
3), 1/24*(24*(b^2*c^2 - 2*a*b*c*d + a^2*d^2)*sqrt(b^2*c - a*b*d)*
sqrt(-c)*x^3*log((b*d*x + 2*b*c - a*d - 2*sqrt(b^2*c - a*b*d)*sqr
t(d*x + c))/(b*x + a)) - 3*(16*b^3*c^3 - 40*a*b^2*c^2*d + 30*a^2*
b*c*d^2 - 5*a^3*d^3)*x^3*arctan(c/(sqrt(d*x + c)*sqrt(-c))) - (8*
a^3*c^2 + 3*(8*a*b^2*c^2 - 18*a^2*b*c*d + 11*a^3*d^2)*x^2 - 2*(6*
a^2*b*c^2 - 13*a^3*c*d)*x)*sqrt(d*x + c)*sqrt(-c))/(a^4*sqrt(-c)*
x^3), 1/24*(48*(b^2*c^2 - 2*a*b*c*d + a^2*d^2)*sqrt(-b^2*c + a*b*
d)*sqrt(-c)*x^3*arctan(sqrt(-b^2*c + a*b*d)/(sqrt(d*x + c)*b)) -
3*(16*b^3*c^3 - 40*a*b^2*c^2*d + 30*a^2*b*c*d^2 - 5*a^3*d^3)*x^3*
arctan(c/(sqrt(d*x + c)*sqrt(-c))) - (8*a^3*c^2 + 3*(8*a*b^2*c^2
- 18*a^2*b*c*d + 11*a^3*d^2)*x^2 - 2*(6*a^2*b*c^2 - 13*a^3*c*d)*x
)*sqrt(d*x + c)*sqrt(-c))/(a^4*sqrt(-c)*x^3)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(5/2)/x**4/(b*x+a),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.22632, size = 405, normalized size = 1.96

$$\frac{2\left(b^4c^3 - 3\,ab^3c^2d + 3\,a^2b^2cd^2 - a^3bd^3\right)\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{-b^2c+abd}}\right)}{\sqrt{-b^2c+abd}a^4} - \frac{\left(16\,b^3c^3 - 40\,ab^2c^2d + 30\,a^2bcd^2 - 5\,a^3d^3\right)\arctan\left(\frac{\sqrt{dx+c}}{\sqrt{-c}}\right)}{8\,a^4\sqrt{-c}} - \frac{24\,(dx+c)^{\frac{5}{2}}b^2c^2d - 48\,(dx+c)^{\frac{3}{2}}b^2c^3d + 24\,\sqrt{dx+c}b^2c^4d - 54\,(dx+c)^{\frac{5}{2}}abcd^2 + 96\,(dx+c)^{\frac{3}{2}}abc^2d^2 - 42\,\sqrt{dx+c}abc^3d^2 +}{24\,a^3d^3x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/((b*x + a)*x^4),x, algorithm="giac")
```

```
[Out] 2*(b^4*c^3 - 3*a*b^3*c^2*d + 3*a^2*b^2*c*d^2 - a^3*b*d^3)*arctan(
sqrt(d*x + c)*b/sqrt(-b^2*c + a*b*d))/(sqrt(-b^2*c + a*b*d)*a^4)
```

```
- 1/8*(16*b^3*c^3 - 40*a*b^2*c^2*d + 30*a^2*b*c*d^2 - 5*a^3*d^3)*
arctan(sqrt(d*x + c)/sqrt(-c))/(a^4*sqrt(-c)) - 1/24*(24*(d*x + c
)^(5/2)*b^2*c^2*d - 48*(d*x + c)^(3/2)*b^2*c^3*d + 24*sqrt(d*x +
c)*b^2*c^4*d - 54*(d*x + c)^(5/2)*a*b*c*d^2 + 96*(d*x + c)^(3/2)*
a*b*c^2*d^2 - 42*sqrt(d*x + c)*a*b*c^3*d^2 + 33*(d*x + c)^(5/2)*a
^2*d^3 - 40*(d*x + c)^(3/2)*a^2*c*d^3 + 15*sqrt(d*x + c)*a^2*c^2*
d^3)/(a^3*d^3*x^3)
```

3.451 $\int \frac{1}{\sqrt[3]{x}\sqrt{c+dx}(4c+dx)}\,dx$

Optimal. Leaf size=199

$$-\frac{\tan^{-1}\left(\frac{\sqrt{3}\sqrt[6]{c}\left(\sqrt[3]{c}+\sqrt[3]{2}\sqrt[3]{d}\sqrt[3]{x}\right)}{\sqrt{c+dx}}\right)}{2^{2/3}\sqrt{3}c^{5/6}d^{2/3}}+\frac{\tan^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{3}\sqrt{c}}\right)}{2^{2/3}\sqrt{3}c^{5/6}d^{2/3}}-\frac{\tanh^{-1}\left(\frac{\sqrt[6]{c}\left(\sqrt[3]{c}-\sqrt[3]{2}\sqrt[3]{d}\sqrt[3]{x}\right)}{\sqrt{c+dx}}\right)}{2^{2/3}c^{5/6}d^{2/3}}+\frac{\tanh^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{3\ 2^{2/3}c^{5/6}d^{2/3}}$$

```
[Out] -(ArcTan[(Sqrt[3]*c^(1/6)*(c^(1/3) + 2^(1/3)*d^(1/3)*x^(1/3)))/Sq
rt[c + d*x]]/(2^(2/3)*Sqrt[3]*c^(5/6)*d^(2/3))) + ArcTan[Sqrt[c +
 d*x]/(Sqrt[3]*Sqrt[c])]/(2^(2/3)*Sqrt[3]*c^(5/6)*d^(2/3)) - ArcT
anh[(c^(1/6)*(c^(1/3) - 2^(1/3)*d^(1/3)*x^(1/3)))/Sqrt[c + d*x]]/
(2^(2/3)*c^(5/6)*d^(2/3)) + ArcTanh[Sqrt[c + d*x]/Sqrt[c]]/(3*2^(
2/3)*c^(5/6)*d^(2/3))
```

Rubi [A] time = 0.263475, antiderivative size = 199, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.083

$$-\frac{\tan^{-1}\left(\frac{\sqrt{3}\sqrt[6]{c}\left(\sqrt[3]{c}+\sqrt[3]{2}\sqrt[3]{d}\sqrt[3]{x}\right)}{\sqrt{c+dx}}\right)}{2^{2/3}\sqrt{3}c^{5/6}d^{2/3}}+\frac{\tan^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{3}\sqrt{c}}\right)}{2^{2/3}\sqrt{3}c^{5/6}d^{2/3}}-\frac{\tanh^{-1}\left(\frac{\sqrt[6]{c}\left(\sqrt[3]{c}-\sqrt[3]{2}\sqrt[3]{d}\sqrt[3]{x}\right)}{\sqrt{c+dx}}\right)}{2^{2/3}c^{5/6}d^{2/3}}+\frac{\tanh^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{3\ 2^{2/3}c^{5/6}d^{2/3}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x^(1/3)*Sqrt[c + d*x]*(4*c + d*x)),x]
```

```
[Out] -(ArcTan[(Sqrt[3]*c^(1/6)*(c^(1/3) + 2^(1/3)*d^(1/3)*x^(1/3)))/Sq
rt[c + d*x]]/(2^(2/3)*Sqrt[3]*c^(5/6)*d^(2/3))) + ArcTan[Sqrt[c +
 d*x]/(Sqrt[3]*Sqrt[c])]/(2^(2/3)*Sqrt[3]*c^(5/6)*d^(2/3)) - ArcT
anh[(c^(1/6)*(c^(1/3) - 2^(1/3)*d^(1/3)*x^(1/3)))/Sqrt[c + d*x]]/
(2^(2/3)*c^(5/6)*d^(2/3)) + ArcTanh[Sqrt[c + d*x]/Sqrt[c]]/(3*2^(
2/3)*c^(5/6)*d^(2/3))
```

Rubi in Sympy [A] time = 10.034, size = 49, normalized size = 0.25

$$\frac{3x^{\frac{2}{3}}\sqrt{c+dx}\,\mathrm{appellf}_1\left(\frac{2}{3},\frac{1}{2},1,\frac{5}{3},-\frac{dx}{c},-\frac{dx}{4c}\right)}{8c^2\sqrt{1+\frac{dx}{c}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x**(1/3)/(d*x+4*c)/(d*x+c)**(1/2),x)
```

```
[Out] 3*x**(2/3)*sqrt(c + d*x)*appellf1(2/3, 1/2, 1, 5/3, -d*x/c, -d*x/
(4*c))/(8*c**2*sqrt(1 + d*x/c))
```

Mathematica [C] time = 0.232704, size = 147, normalized size = 0.74

$$\frac{30cx^{2/3}F_1\left(\frac{2}{3};\frac{1}{2},1;\frac{5}{3};-\frac{dx}{c},-\frac{dx}{4c}\right)}{\sqrt{c+dx}(4c+dx)\left(20cF_1\left(\frac{2}{3};\frac{1}{2},1;\frac{5}{3};-\frac{dx}{c},-\frac{dx}{4c}\right)-3dx\left(F_1\left(\frac{5}{3};\frac{1}{2},2;\frac{8}{3};-\frac{dx}{c},-\frac{dx}{4c}\right)+2F_1\left(\frac{5}{3};\frac{3}{2},1;\frac{8}{3};-\frac{dx}{c},-\frac{dx}{4c}\right)\right)\right)}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[1/(x^(1/3)*Sqrt[c + d*x]*(4*c + d*x)),x]
```

```
[Out] (30*c*x^(2/3)*AppellF1[2/3, 1/2, 1, 5/3, -((d*x)/c), -(d*x)/(4*c)
])/(Sqrt[c + d*x]*(4*c + d*x)*(20*c*AppellF1[2/3, 1/2, 1, 5/3, -(
(d*x)/c), -(d*x)/(4*c)] - 3*d*x*(AppellF1[5/3, 1/2, 2, 8/3, -((d*
x)/c), -(d*x)/(4*c)] + 2*AppellF1[5/3, 3/2, 1, 8/3, -((d*x)/c), -
(d*x)/(4*c)])))
```

Maple [F] time = 0.082, size = 0, normalized size = 0.

$$\int \frac{1}{dx+4c}\frac{1}{\sqrt[3]{x}}\frac{1}{\sqrt{dx+c}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/x^(1/3)/(d*x+4*c)/(d*x+c)^(1/2),x)
```

```
[Out] int(1/x^(1/3)/(d*x+4*c)/(d*x+c)^(1/2),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(dx+4c)\sqrt{dx+c}x^{\frac{1}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((d*x + 4*c)*sqrt(d*x + c)*x^(1/3)),x, algorithm="maxima")
```

```
[Out] integrate(1/((d*x + 4*c)*sqrt(d*x + c)*x^(1/3)), x)
```

Fricas [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((d*x + 4*c)*sqrt(d*x + c)*x^(1/3)),x, algorithm="fricas")
```

```
[Out] Timed out
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt[3]{x}\sqrt{c+dx}\,(4c+dx)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/x**(1/3)/(d*x+4*c)/(d*x+c)**(1/2),x)
```

```
[Out] Integral(1/(x**(1/3)*sqrt(c + d*x)*(4*c + d*x)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(dx+4\,c)\sqrt{dx+c}x^{\frac{1}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((d*x + 4*c)*sqrt(d*x + c)*x^(1/3)),x, algorithm="giac")
```

```
[Out] integrate(1/((d*x + 4*c)*sqrt(d*x + c)*x^(1/3)), x)
```

3.452 $\int \frac{1}{\sqrt[3]{x}(8c-dx)\sqrt{c+dx}}\,dx$

Optimal. Leaf size=143

$$-\frac{\tan^{-1}\left(\frac{\sqrt{3}\sqrt[6]{c}\left(\sqrt[3]{c}+\sqrt[3]{d}\sqrt[3]{x}\right)}{\sqrt{c+dx}}\right)}{2\sqrt{3}c^{5/6}d^{2/3}}+\frac{\tanh^{-1}\left(\frac{\left(\sqrt[3]{c}+\sqrt[3]{d}\sqrt[3]{x}\right)^2}{3\sqrt[6]{c}\sqrt{c+dx}}\right)}{6c^{5/6}d^{2/3}}-\frac{\tanh^{-1}\left(\frac{\sqrt{c+dx}}{3\sqrt{c}}\right)}{6c^{5/6}d^{2/3}}$$

```
[Out] -ArcTan[(Sqrt[3]*c^(1/6)*(c^(1/3) + d^(1/3)*x^(1/3)))/Sqrt[c + d*
x]]/(2*Sqrt[3]*c^(5/6)*d^(2/3)) + ArcTanh[(c^(1/3) + d^(1/3)*x^(1
/3))^2/(3*c^(1/6)*Sqrt[c + d*x])]/(6*c^(5/6)*d^(2/3)) - ArcTanh[S
qrt[c + d*x]/(3*Sqrt[c])]/(6*c^(5/6)*d^(2/3))
```

Rubi [A] time = 0.876482, antiderivative size = 143, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 9, integrand size = 25, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.36

$$-\frac{\tan^{-1}\left(\frac{\sqrt{3}\sqrt[6]{c}\left(\sqrt[3]{c}+\sqrt[3]{d}\sqrt[3]{x}\right)}{\sqrt{c+dx}}\right)}{2\sqrt{3}c^{5/6}d^{2/3}}+\frac{\tanh^{-1}\left(\frac{\left(\sqrt[3]{c}+\sqrt[3]{d}\sqrt[3]{x}\right)^2}{3\sqrt[6]{c}\sqrt{c+dx}}\right)}{6c^{5/6}d^{2/3}}-\frac{\tanh^{-1}\left(\frac{\sqrt{c+dx}}{3\sqrt{c}}\right)}{6c^{5/6}d^{2/3}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x^(1/3)*(8*c - d*x)*Sqrt[c + d*x]),x]
```

```
[Out] -ArcTan[(Sqrt[3]*c^(1/6)*(c^(1/3) + d^(1/3)*x^(1/3)))/Sqrt[c + d*
x]]/(2*Sqrt[3]*c^(5/6)*d^(2/3)) + ArcTanh[(c^(1/3) + d^(1/3)*x^(1
/3))^2/(3*c^(1/6)*Sqrt[c + d*x])]/(6*c^(5/6)*d^(2/3)) - ArcTanh[S
qrt[c + d*x]/(3*Sqrt[c])]/(6*c^(5/6)*d^(2/3))
```

Rubi in Sympy [A] time = 10.6358, size = 48, normalized size = 0.34

$$\frac{3x^{\frac{2}{3}}\sqrt{c+dx}\,\operatorname{appellf}_1\left(\frac{2}{3},\frac{1}{2},1,\frac{5}{3},-\frac{dx}{c},\frac{dx}{8c}\right)}{16c^2\sqrt{1+\frac{dx}{c}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x**(1/3)/(-d*x+8*c)/(d*x+c)**(1/2),x)
```

```
[Out] 3*x**(2/3)*sqrt(c + d*x)*appellf1(2/3, 1/2, 1, 5/3, -d*x/c, d*x/(
8*c))/(16*c**2*sqrt(1 + d*x/c))
```

Mathematica [C] time = 0.236398, size = 148, normalized size = 1.03

$$\frac{60cx^{2/3}F_1\left(\frac{2}{3};\frac{1}{2},1;\frac{5}{3};-\frac{dx}{c},\frac{dx}{8c}\right)}{(8c-dx)\sqrt{c+dx}\left(40cF_1\left(\frac{2}{3};\frac{1}{2},1;\frac{5}{3};-\frac{dx}{c},\frac{dx}{8c}\right)+3dx\left(F_1\left(\frac{5}{3};\frac{1}{2},2;\frac{8}{3};-\frac{dx}{c},\frac{dx}{8c}\right)-4F_1\left(\frac{5}{3};\frac{3}{2},1;\frac{8}{3};-\frac{dx}{c},\frac{dx}{8c}\right)\right)\right)}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[1/(x^(1/3)*(8*c - d*x)*Sqrt[c + d*x]),x]
```

```
[Out] (60*c*x^(2/3)*AppellF1[2/3, 1/2, 1, 5/3, -((d*x)/c), (d*x)/(8*c)]
)/((8*c - d*x)*Sqrt[c + d*x]*(40*c*AppellF1[2/3, 1/2, 1, 5/3, -((
d*x)/c), (d*x)/(8*c)] + 3*d*x*(AppellF1[5/3, 1/2, 2, 8/3, -((d*x)
/c), (d*x)/(8*c)] - 4*AppellF1[5/3, 3/2, 1, 8/3, -((d*x)/c), (d*x
)/(8*c)])))
```

Maple [F] time = 0.072, size = 0, normalized size = 0.

$$\int \frac{1}{-dx+8\,c}\frac{1}{\sqrt[3]{x}}\frac{1}{\sqrt{dx+c}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/x^(1/3)/(-d*x+8*c)/(d*x+c)^(1/2),x)
```

```
[Out] int(1/x^(1/3)/(-d*x+8*c)/(d*x+c)^(1/2),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$-\int \frac{1}{\sqrt{dx+c}(dx-8\,c)x^{\frac{1}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-1/(sqrt(d*x + c)*(d*x - 8*c)*x^(1/3)),x, algorithm="maxima")
```

```
[Out] -integrate(1/(sqrt(d*x + c)*(d*x - 8*c)*x^(1/3)), x)
```

Fricas [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-1/(sqrt(d*x + c)*(d*x - 8*c)*x^(1/3)),x, algorithm="fricas")
```

```
[Out] Timed out
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\int \frac{1}{-8c\sqrt[3]{x}\sqrt{c+dx}+dx^{\frac{4}{3}}\sqrt{c+dx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/x**(1/3)/(-d*x+8*c)/(d*x+c)**(1/2),x)
```

```
[Out] -Integral(1/(-8*c*x**(1/3)*sqrt(c + d*x) + d*x**(4/3)*sqrt(c + d*
x)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int -\frac{1}{\sqrt{dx+c}(dx-8\,c)x^{\frac{1}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-1/(sqrt(d*x + c)*(d*x - 8*c)*x^(1/3)),x, algorithm="giac")
```

```
[Out] integrate(-1/(sqrt(d*x + c)*(d*x - 8*c)*x^(1/3)), x)
```

3.453 $\int \frac{\sqrt{c+dx}}{x^2(a+bx)^2} \, dx$

Optimal. Leaf size=140

$$-\frac{\sqrt{b}(4bc-3ad)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{a^3\sqrt{bc-ad}}+\frac{(4bc-ad)\tanh^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{a^3\sqrt{c}}-\frac{2b\sqrt{c+dx}}{a^2(a+bx)}-\frac{\sqrt{c+dx}}{ax(a+bx)}$$

```
[Out] (-2*b*Sqrt[c + d*x])/(a^2*(a + b*x)) - Sqrt[c + d*x]/(a*x*(a + b*
x)) + ((4*b*c - a*d)*ArcTanh[Sqrt[c + d*x]/Sqrt[c]])/(a^3*Sqrt[c]
) - (Sqrt[b]*(4*b*c - 3*a*d)*ArcTanh[(Sqrt[b]*Sqrt[c + d*x])/Sqrt
[b*c - a*d]])/(a^3*Sqrt[b*c - a*d])
```

Rubi [A] time = 0.480811, antiderivative size = 140, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.3

$$-\frac{\sqrt{b}(4bc-3ad)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{a^3\sqrt{bc-ad}}+\frac{(4bc-ad)\tanh^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{a^3\sqrt{c}}-\frac{2b\sqrt{c+dx}}{a^2(a+bx)}-\frac{\sqrt{c+dx}}{ax(a+bx)}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[c + d*x]/(x^2*(a + b*x)^2),x]
```

```
[Out] (-2*b*Sqrt[c + d*x])/(a^2*(a + b*x)) - Sqrt[c + d*x]/(a*x*(a + b*
x)) + ((4*b*c - a*d)*ArcTanh[Sqrt[c + d*x]/Sqrt[c]])/(a^3*Sqrt[c]
) - (Sqrt[b]*(4*b*c - 3*a*d)*ArcTanh[(Sqrt[b]*Sqrt[c + d*x])/Sqrt
[b*c - a*d]])/(a^3*Sqrt[b*c - a*d])
```

Rubi in Sympy [A] time = 53.9792, size = 124, normalized size = 0.89

$$-\frac{\sqrt{c+dx}}{ax\,(a+bx)}-\frac{2b\sqrt{c+dx}}{a^2\,(a+bx)}-\frac{\sqrt{b}\,(3ad-4bc)\,\mathrm{atan}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{ad-bc}}\right)}{a^3\sqrt{ad-bc}}-\frac{(ad-4bc)\,\mathrm{atanh}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{a^3\sqrt{c}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(1/2)/x**2/(b*x+a)**2,x)
```

```
[Out] -sqrt(c + d*x)/(a*x*(a + b*x)) - 2*b*sqrt(c + d*x)/(a**2*(a + b*x
)) - sqrt(b)*(3*a*d - 4*b*c)*atan(sqrt(b)*sqrt(c + d*x)/sqrt(a*d
- b*c))/(a**3*sqrt(a*d - b*c)) - (a*d - 4*b*c)*atanh(sqrt(c + d*x
)/sqrt(c))/(a**3*sqrt(c))
```

Mathematica [A] time = 0.344843, size = 119, normalized size = 0.85

$$\frac{-\frac{a(a+2bx)\sqrt{c+dx}}{x(a+bx)}+\frac{(4bc-ad)\tanh^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{\sqrt{c}}+\frac{\sqrt{b}(3ad-4bc)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{\sqrt{bc-ad}}}{a^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[c + d*x]/(x^2*(a + b*x)^2),x]
```

```
[Out] (-((a*(a + 2*b*x)*Sqrt[c + d*x])/(x*(a + b*x))) + ((4*b*c - a*d)*
ArcTanh[Sqrt[c + d*x]/Sqrt[c]])/Sqrt[c] + (Sqrt[b]*(-4*b*c + 3*a*
d)*ArcTanh[(Sqrt[b]*Sqrt[c + d*x])/Sqrt[b*c - a*d]])/Sqrt[b*c - a
```

```
*d])/a^3
```

Maple [A] time = 0.029, size = 167, normalized size = 1.2

$$-\frac{1}{a^{2}x}\sqrt{dx+c}-\frac{d}{a^{2}}Artanh\left(1\sqrt{dx+c}\frac{1}{\sqrt{c}}\right)\frac{1}{\sqrt{c}}+4\frac{\sqrt{c}b}{a^{3}}Artanh\left(\frac{\sqrt{dx+c}}{\sqrt{c}}\right)-\frac{bd}{a^{2}\left(bdx+ad\right)}\sqrt{dx+c}-3\frac{bd}{a^{2}\sqrt{(ad-bc)\,b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)\,b}}\right)+4\frac{b^{2}c}{a^{3}\sqrt{(ad-bc)\,b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)\,b}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(1/2)/x^2/(b*x+a)^2,x)
```

```
[Out] -1/a^2*(d*x+c)^(1/2)/x-d/a^2/c^(1/2)*arctanh((d*x+c)^(1/2)/c^(1/2
))+4/a^3*c^(1/2)*arctanh((d*x+c)^(1/2)/c^(1/2))*b-d/a^2*b*(d*x+c)
^(1/2)/(b*d*x+a*d)-3*d/a^2*b/((a*d-b*c)*b)^(1/2)*arctan((d*x+c)^(
1/2)*b/((a*d-b*c)*b)^(1/2))+4/a^3*b^2/((a*d-b*c)*b)^(1/2)*arctan(
(d*x+c)^(1/2)*b/((a*d-b*c)*b)^(1/2))*c
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(d*x + c)/((b*x + a)^2*x^2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.289208, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(d*x + c)/((b*x + a)^2*x^2),x, algorithm="fricas")
```

```
[Out] [-1/2*(((4*b^2*c - 3*a*b*d)*x^2 + (4*a*b*c - 3*a^2*d)*x)*sqrt(c)*
sqrt(b/(b*c - a*d))*log((b*d*x + 2*b*c - a*d + 2*(b*c - a*d)*sqrt
(d*x + c)*sqrt(b/(b*c - a*d)))/(b*x + a)) + 2*(2*a*b*x + a^2)*sqr
t(d*x + c)*sqrt(c) + ((4*b^2*c - a*b*d)*x^2 + (4*a*b*c - a^2*d)*x
)*log(((d*x + 2*c)*sqrt(c) - 2*sqrt(d*x + c)*c)/x))/((a^3*b*x^2 +
 a^4*x)*sqrt(c)), -1/2*(2*((4*b^2*c - 3*a*b*d)*x^2 + (4*a*b*c - 3
*a^2*d)*x)*sqrt(c)*sqrt(-b/(b*c - a*d))*arctan(-(b*c - a*d)*sqrt(
-b/(b*c - a*d))/(sqrt(d*x + c)*b)) + 2*(2*a*b*x + a^2)*sqrt(d*x +
 c)*sqrt(c) + ((4*b^2*c - a*b*d)*x^2 + (4*a*b*c - a^2*d)*x)*log((
(d*x + 2*c)*sqrt(c) - 2*sqrt(d*x + c)*c)/x))/((a^3*b*x^2 + a^4*x)
*sqrt(c)), -1/2*(((4*b^2*c - 3*a*b*d)*x^2 + (4*a*b*c - 3*a^2*d)*x
)*sqrt(-c)*sqrt(b/(b*c - a*d))*log((b*d*x + 2*b*c - a*d + 2*(b*c
- a*d)*sqrt(d*x + c)*sqrt(b/(b*c - a*d)))/(b*x + a)) + 2*(2*a*b*x
 + a^2)*sqrt(d*x + c)*sqrt(-c) + 2*((4*b^2*c - a*b*d)*x^2 + (4*a*
b*c - a^2*d)*x)*arctan(c/(sqrt(d*x + c)*sqrt(-c))))/((a^3*b*x^2 +
 a^4*x)*sqrt(-c)), -(((4*b^2*c - 3*a*b*d)*x^2 + (4*a*b*c - 3*a^2*
d)*x)*sqrt(-c)*sqrt(-b/(b*c - a*d))*arctan(-(b*c - a*d)*sqrt(-b/(
b*c - a*d))/(sqrt(d*x + c)*b)) + (2*a*b*x + a^2)*sqrt(d*x + c)*sq
rt(-c) + ((4*b^2*c - a*b*d)*x^2 + (4*a*b*c - a^2*d)*x)*arctan(c/(
sqrt(d*x + c)*sqrt(-c))))/((a^3*b*x^2 + a^4*x)*sqrt(-c))]
```

Sympy [A] time = 154.485, size = 1114, normalized size = 7.96

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(1/2)/x**2/(b*x+a)**2,x)
```

```
[Out] 2*b**2*c*d*sqrt(c + d*x)/(2*a**4*d**2 - 2*a**3*b*c*d + 2*a**3*b*d
**2*x - 2*a**2*b**2*c*d*x) - 2*b*d**2*sqrt(c + d*x)/(2*a**3*d**2
- 2*a**2*b*c*d + 2*a**2*b*d**2*x - 2*a*b**2*c*d*x) + b*d**2*sqrt(
-1/(b*(a*d - b*c)**3))*log(-a**2*d**2*sqrt(-1/(b*(a*d - b*c)**3))
 + 2*a*b*c*d*sqrt(-1/(b*(a*d - b*c)**3)) - b**2*c**2*sqrt(-1/(b*(
a*d - b*c)**3)) + sqrt(c + d*x))/(2*a) - b*d**2*sqrt(-1/(b*(a*d -
 b*c)**3))*log(a**2*d**2*sqrt(-1/(b*(a*d - b*c)**3)) - 2*a*b*c*d*
sqrt(-1/(b*(a*d - b*c)**3)) + b**2*c**2*sqrt(-1/(b*(a*d - b*c)**3
)) + sqrt(c + d*x))/(2*a) - b**2*c*d*sqrt(-1/(b*(a*d - b*c)**3))*
log(-a**2*d**2*sqrt(-1/(b*(a*d - b*c)**3)) + 2*a*b*c*d*sqrt(-1/(b
*(a*d - b*c)**3)) - b**2*c**2*sqrt(-1/(b*(a*d - b*c)**3)) + sqrt(
c + d*x))/(2*a**2) + b**2*c*d*sqrt(-1/(b*(a*d - b*c)**3))*log(a**
2*d**2*sqrt(-1/(b*(a*d - b*c)**3)) - 2*a*b*c*d*sqrt(-1/(b*(a*d -
b*c)**3)) + b**2*c**2*sqrt(-1/(b*(a*d - b*c)**3)) + sqrt(c + d*x)
)/(2*a**2) - 2*b*d*Piecewise((atan(sqrt(c + d*x)/sqrt(a*d/b - c))
/(b*sqrt(a*d/b - c)), a*d/b - c > 0), (-acoth(sqrt(c + d*x)/sqrt(
-a*d/b + c))/(b*sqrt(-a*d/b + c)), (a*d/b - c < 0) & (c + d*x > -
a*d/b + c)), (-atanh(sqrt(c + d*x)/sqrt(-a*d/b + c))/(b*sqrt(-a*d
/b + c)), (a*d/b - c < 0) & (c + d*x < -a*d/b + c)))/a**2 - c*d*s
qrt(c**(-3))*log(-c**2*sqrt(c**(-3)) + sqrt(c + d*x))/(2*a**2) +
c*d*sqrt(c**(-3))*log(c**2*sqrt(c**(-3)) + sqrt(c + d*x))/(2*a**2
) - 2*d*Piecewise((-atan(sqrt(c + d*x)/sqrt(-c))/sqrt(-c), -c > 0
), (acoth(sqrt(c + d*x)/sqrt(c))/sqrt(c), (-c < 0) & (c < c + d*x
)), (atanh(sqrt(c + d*x)/sqrt(c))/sqrt(c), (-c < 0) & (c > c + d*
x)))/a**2 - sqrt(c + d*x)/(a**2*x) + 4*b**2*c*Piecewise((atan(sqr
t(c + d*x)/sqrt(a*d/b - c))/(b*sqrt(a*d/b - c)), a*d/b - c > 0),
(-acoth(sqrt(c + d*x)/sqrt(-a*d/b + c))/(b*sqrt(-a*d/b + c)), (a*
d/b - c < 0) & (c + d*x > -a*d/b + c)), (-atanh(sqrt(c + d*x)/sqr
t(-a*d/b + c))/(b*sqrt(-a*d/b + c)), (a*d/b - c < 0) & (c + d*x <
 -a*d/b + c)))/a**3 + 4*b*c*Piecewise((-atan(sqrt(c + d*x)/sqrt(-
c))/sqrt(-c), -c > 0), (acoth(sqrt(c + d*x)/sqrt(c))/sqrt(c), (-c
 < 0) & (c < c + d*x)), (atanh(sqrt(c + d*x)/sqrt(c))/sqrt(c), (-
c < 0) & (c > c + d*x)))/a**3
```

GIAC/XCAS [A] time = 0.236075, size = 224, normalized size = 1.6

$$\frac{\left(4\,b^2c - 3\,abd\right)\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{-b^2c+abd}}\right)}{\sqrt{-b^2c+abd}a^3} - \frac{\left(4\,bc - ad\right)\arctan\left(\frac{\sqrt{dx+c}}{\sqrt{-c}}\right)}{a^3\sqrt{-c}} - \frac{2\,(dx+c)^{\frac{3}{2}}bd - 2\,\sqrt{dx+c}bcd + \sqrt{dx+c}ad^2}{\left((dx+c)^2b - 2\,(dx+c)bc + bc^2 + (dx+c)ad - acd\right)a^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(d*x + c)/((b*x + a)^2*x^2),x, algorithm="giac")
```

```
[Out] (4*b^2*c - 3*a*b*d)*arctan(sqrt(d*x + c)*b/sqrt(-b^2*c + a*b*d))/
(sqrt(-b^2*c + a*b*d)*a^3) - (4*b*c - a*d)*arctan(sqrt(d*x + c)/s
qrt(-c))/(a^3*sqrt(-c)) - (2*(d*x + c)^(3/2)*b*d - 2*sqrt(d*x + c
)*b*c*d + sqrt(d*x + c)*a*d^2)/(((d*x + c)^2*b - 2*(d*x + c)*b*c
+ b*c^2 + (d*x + c)*a*d - a*c*d)*a^2)
```

3.454 $\int \frac{(c+dx)^{3/2}}{x(a+bx)^2}\,dx$

Optimal. Leaf size=115

$$\frac{\sqrt{bc-ad}(ad+2bc)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{a^2b^{3/2}}-\frac{2c^{3/2}\tanh^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{a^2}+\frac{\sqrt{c+dx}(bc-ad)}{ab(a+bx)}$$

```
[Out] ((b*c - a*d)*Sqrt[c + d*x])/(a*b*(a + b*x)) - (2*c^(3/2)*ArcTanh[
Sqrt[c + d*x]/Sqrt[c]])/a^2 + (Sqrt[b*c - a*d]*(2*b*c + a*d)*ArcT
anh[(Sqrt[b]*Sqrt[c + d*x])/Sqrt[b*c - a*d]])/(a^2*b^(3/2))
```

Rubi [A] time = 0.295956, antiderivative size = 115, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$\frac{\sqrt{bc-ad}(ad+2bc)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{a^2b^{3/2}}-\frac{2c^{3/2}\tanh^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{a^2}+\frac{\sqrt{c+dx}(bc-ad)}{ab(a+bx)}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^(3/2)/(x*(a + b*x)^2),x]
```

```
[Out] ((b*c - a*d)*Sqrt[c + d*x])/(a*b*(a + b*x)) - (2*c^(3/2)*ArcTanh[
Sqrt[c + d*x]/Sqrt[c]])/a^2 + (Sqrt[b*c - a*d]*(2*b*c + a*d)*ArcT
anh[(Sqrt[b]*Sqrt[c + d*x])/Sqrt[b*c - a*d]])/(a^2*b^(3/2))
```

Rubi in Sympy [A] time = 32.3172, size = 100, normalized size = 0.87

$$-\frac{\sqrt{c+dx}\,(ad-bc)}{ab\,(a+bx)}-\frac{2c^{\frac{3}{2}}\operatorname{atanh}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{a^2}+\frac{\sqrt{ad-bc}\,(ad+2bc)\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{ad-bc}}\right)}{a^2b^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(3/2)/x/(b*x+a)**2,x)
```

```
[Out] -sqrt(c + d*x)*(a*d - b*c)/(a*b*(a + b*x)) - 2*c**(3/2)*atanh(sqr
t(c + d*x)/sqrt(c))/a**2 + sqrt(a*d - b*c)*(a*d + 2*b*c)*atan(sqr
t(b)*sqrt(c + d*x)/sqrt(a*d - b*c))/(a**2*b**(3/2))
```

Mathematica [A] time = 0.383727, size = 111, normalized size = 0.97

$$\frac{\frac{\sqrt{bc-ad}(ad+2bc)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{b^{3/2}}+\frac{a\sqrt{c+dx}(bc-ad)}{b(a+bx)}-2c^{3/2}\tanh^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{a^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^(3/2)/(x*(a + b*x)^2),x]
```

```
[Out] ((a*(b*c - a*d)*Sqrt[c + d*x])/(b*(a + b*x)) - 2*c^(3/2)*ArcTanh[
Sqrt[c + d*x]/Sqrt[c]] + (Sqrt[b*c - a*d]*(2*b*c + a*d)*ArcTanh[(
Sqrt[b]*Sqrt[c + d*x])/Sqrt[b*c - a*d]])/b^(3/2))/a^2
```

Maple [A] time = 0.02, size = 194, normalized size = 1.7

$$-2\frac{c^{3/2}}{a^2}Artanh\left(\frac{\sqrt{dx+c}}{\sqrt{c}}\right)-\frac{d^2}{b\,(bdx+ad)}\sqrt{dx+c}+\frac{dc}{a\,(bdx+ad)}\sqrt{dx+c}$$
$$+\frac{d^2}{b}\arctan\left(b\sqrt{dx+c}\frac{1}{\sqrt{(ad-bc)\,b}}\right)\frac{1}{\sqrt{(ad-bc)\,b}}$$
$$+\frac{dc}{a}\arctan\left(b\sqrt{dx+c}\frac{1}{\sqrt{(ad-bc)\,b}}\right)\frac{1}{\sqrt{(ad-bc)\,b}}-2\frac{c^2b}{a^2\sqrt{(ad-bc)\,b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)\,b}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(3/2)/x/(b*x+a)^2,x)
```

```
[Out] -2*c^(3/2)*arctanh((d*x+c)^(1/2)/c^(1/2))/a^2-d^2/b*(d*x+c)^(1/2)
/(b*d*x+a*d)+d/a*(d*x+c)^(1/2)/(b*d*x+a*d)*c+d^2/b/((a*d-b*c)*b)^
(1/2)*arctan((d*x+c)^(1/2)*b/((a*d-b*c)*b)^(1/2))+d/a/((a*d-b*c)*
b)^(1/2)*arctan((d*x+c)^(1/2)*b/((a*d-b*c)*b)^(1/2))*c-2/a^2/((a*
d-b*c)*b)^(1/2)*arctan((d*x+c)^(1/2)*b/((a*d-b*c)*b)^(1/2))*c^2*b
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(3/2)/((b*x + a)^2*x),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.282248, size = 1, normalized size = 0.01

$$\left[\frac{\left(2\,abc+a^2d+\left(2\,b^2c+abd\right)x\right)\sqrt{\frac{bc-ad}{b}}\log\left(\frac{bdx+2\,bc-ad+2\,\sqrt{dx+c}b\sqrt{\frac{bc-ad}{b}}}{bx+a}\right)+2\left(b^2cx+abc\right)\sqrt{c}\log\left(\frac{dx-2\,\sqrt{dx+c}\sqrt{c}+2\,c}{x}\right)+2\,(\ldots}{2\,(a^2b^2x+a^3b)}\right.$$
$$-\frac{4\left(b^2cx+abc\right)\sqrt{-c}\arctan\left(\frac{\sqrt{dx+c}}{\sqrt{-c}}\right)-\left(2\,abc+a^2d+\left(2\,b^2c+abd\right)x\right)\sqrt{\frac{bc-ad}{b}}\log\left(\frac{bdx+2\,bc-ad+2\,\sqrt{dx+c}b\sqrt{\frac{bc-ad}{b}}}{bx+a}\right)-2\,(abc\ldots}{2\,(a^2b^2x+a^3b)}$$
$$\left.-\frac{2\left(b^2cx+abc\right)\sqrt{-c}\arctan\left(\frac{\sqrt{dx+c}}{\sqrt{-c}}\right)-\left(2\,abc+a^2d+\left(2\,b^2c+abd\right)x\right)\sqrt{-\frac{bc-ad}{b}}\arctan\left(\frac{\sqrt{dx+c}}{\sqrt{-\frac{bc-ad}{b}}}\right)-\left(abc-a^2d\right)\sqrt{dx+c}}{a^2b^2x+a^3b}\right]$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(3/2)/((b*x + a)^2*x),x, algorithm="fricas")
```

```
[Out] [1/2*((2*a*b*c + a^2*d + (2*b^2*c + a*b*d)*x)*sqrt((b*c - a*d)/b)
*log((b*d*x + 2*b*c - a*d + 2*sqrt(d*x + c)*b*sqrt((b*c - a*d)/b)
)/(b*x + a)) + 2*(b^2*c*x + a*b*c)*sqrt(c)*log((d*x - 2*sqrt(d*x
+ c)*sqrt(c) + 2*c)/x) + 2*(a*b*c - a^2*d)*sqrt(d*x + c))/(a^2*b^
2*x + a^3*b), ((2*a*b*c + a^2*d + (2*b^2*c + a*b*d)*x)*sqrt(-(b*c
 - a*d)/b)*arctan(sqrt(d*x + c)/sqrt(-(b*c - a*d)/b)) + (b^2*c*x
+ a*b*c)*sqrt(c)*log((d*x - 2*sqrt(d*x + c)*sqrt(c) + 2*c)/x) + (
a*b*c - a^2*d)*sqrt(d*x + c))/(a^2*b^2*x + a^3*b), -1/2*(4*(b^2*c
```

```
*x + a*b*c)*sqrt(-c)*arctan(sqrt(d*x + c)/sqrt(-c)) - (2*a*b*c +
a^2*d + (2*b^2*c + a*b*d)*x)*sqrt((b*c - a*d)/b)*log((b*d*x + 2*b
*c - a*d + 2*sqrt(d*x + c)*b*sqrt((b*c - a*d)/b))/(b*x + a)) - 2*
(a*b*c - a^2*d)*sqrt(d*x + c))/(a^2*b^2*x + a^3*b), -(2*(b^2*c*x
+ a*b*c)*sqrt(-c)*arctan(sqrt(d*x + c)/sqrt(-c)) - (2*a*b*c + a^2
*d + (2*b^2*c + a*b*d)*x)*sqrt(-(b*c - a*d)/b)*arctan(sqrt(d*x +
c)/sqrt(-(b*c - a*d)/b)) - (a*b*c - a^2*d)*sqrt(d*x + c))/(a^2*b^
2*x + a^3*b)]
```

Sympy [A] time = 97.4062, size = 1192, normalized size = 10.37

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(3/2)/x/(b*x+a)**2,x)
```

```
[Out] -2*a*d**3*sqrt(c + d*x)/(2*a**2*b*d**2 - 2*a*b**2*c*d + 2*a*b**2*
d**2*x - 2*b**3*c*d*x) + a*d**3*sqrt(-1/(b*(a*d - b*c)**3))*log(-
a**2*d**2*sqrt(-1/(b*(a*d - b*c)**3)) + 2*a*b*c*d*sqrt(-1/(b*(a*d
 - b*c)**3)) - b**2*c**2*sqrt(-1/(b*(a*d - b*c)**3)) + sqrt(c + d
*x))/(2*b) - a*d**3*sqrt(-1/(b*(a*d - b*c)**3))*log(a**2*d**2*sqr
t(-1/(b*(a*d - b*c)**3)) - 2*a*b*c*d*sqrt(-1/(b*(a*d - b*c)**3))
+ b**2*c**2*sqrt(-1/(b*(a*d - b*c)**3)) + sqrt(c + d*x))/(2*b) -
2*b*c**2*d*sqrt(c + d*x)/(2*a**3*d**2 - 2*a**2*b*c*d + 2*a**2*b*d
**2*x - 2*a*b**2*c*d*x) - c*d**2*sqrt(-1/(b*(a*d - b*c)**3))*log(
-a**2*d**2*sqrt(-1/(b*(a*d - b*c)**3)) + 2*a*b*c*d*sqrt(-1/(b*(a*
d - b*c)**3)) - b**2*c**2*sqrt(-1/(b*(a*d - b*c)**3)) + sqrt(c +
d*x)) + c*d**2*sqrt(-1/(b*(a*d - b*c)**3))*log(a**2*d**2*sqrt(-1/
(b*(a*d - b*c)**3)) - 2*a*b*c*d*sqrt(-1/(b*(a*d - b*c)**3)) + b**
2*c**2*sqrt(-1/(b*(a*d - b*c)**3)) + sqrt(c + d*x)) + 4*c*d**2*sq
rt(c + d*x)/(2*a**2*d**2 - 2*a*b*c*d + 2*a*b*d**2*x - 2*b**2*c*d*
x) + 2*d**2*Piecewise((atan(sqrt(c + d*x)/sqrt(a*d/b - c))/(b*sqr
t(a*d/b - c)), a*d/b - c > 0), (-acoth(sqrt(c + d*x)/sqrt(-a*d/b
+ c))/(b*sqrt(-a*d/b + c)), (a*d/b - c < 0) & (c + d*x > -a*d/b +
 c)), (-atanh(sqrt(c + d*x)/sqrt(-a*d/b + c))/(b*sqrt(-a*d/b + c)
), (a*d/b - c < 0) & (c + d*x < -a*d/b + c)))/b + b*c**2*d*sqrt(-
1/(b*(a*d - b*c)**3))*log(-a**2*d**2*sqrt(-1/(b*(a*d - b*c)**3))
+ 2*a*b*c*d*sqrt(-1/(b*(a*d - b*c)**3)) - b**2*c**2*sqrt(-1/(b*(a
*d - b*c)**3)) + sqrt(c + d*x))/(2*a) - b*c**2*d*sqrt(-1/(b*(a*d
- b*c)**3))*log(a**2*d**2*sqrt(-1/(b*(a*d - b*c)**3)) - 2*a*b*c*d
*sqrt(-1/(b*(a*d - b*c)**3)) + b**2*c**2*sqrt(-1/(b*(a*d - b*c)**
3)) + sqrt(c + d*x))/(2*a) - 2*b*c**2*Piecewise((atan(sqrt(c + d*
x)/sqrt(a*d/b - c))/(b*sqrt(a*d/b - c)), a*d/b - c > 0), (-acoth(
sqrt(c + d*x)/sqrt(-a*d/b + c))/(b*sqrt(-a*d/b + c)), (a*d/b - c
< 0) & (c + d*x > -a*d/b + c)), (-atanh(sqrt(c + d*x)/sqrt(-a*d/b
 + c))/(b*sqrt(-a*d/b + c)), (a*d/b - c < 0) & (c + d*x < -a*d/b
+ c)))/a**2 - 2*c**2*Piecewise((-atan(sqrt(c + d*x)/sqrt(-c))/sqr
t(-c), -c > 0), (acoth(sqrt(c + d*x)/sqrt(c))/sqrt(c), (-c < 0) &
 (c < c + d*x)), (atanh(sqrt(c + d*x)/sqrt(c))/sqrt(c), (-c < 0)
& (c > c + d*x)))/a**2
```

GIAC/XCAS [A] time = 0.231175, size = 194, normalized size = 1.69

$$\frac{2\,c^2\arctan\left(\frac{\sqrt{dx+c}}{\sqrt{-c}}\right)}{a^2\sqrt{-c}}-\frac{\left(2\,b^2c^2-abcd-a^2d^2\right)\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{-b^2c+abd}}\right)}{\sqrt{-b^2c+abd}a^2b}+\frac{\sqrt{dx+c}bcd-\sqrt{dx+c}ad^2}{((dx+c)b-bc+ad)ab}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(3/2)/((b*x + a)^2*x),x, algorithm="giac")
```

```
[Out] 2*c^2*arctan(sqrt(d*x + c)/sqrt(-c))/(a^2*sqrt(-c)) - (2*b^2*c^2
- a*b*c*d - a^2*d^2)*arctan(sqrt(d*x + c)*b/sqrt(-b^2*c + a*b*d))
/(sqrt(-b^2*c + a*b*d)*a^2*b) + (sqrt(d*x + c)*b*c*d - sqrt(d*x +
```

```
c)*a*d^2)/(((d*x + c)*b - b*c + a*d)*a*b)
```

3.455 $\int \frac{(c+dx)^{3/2}}{x^2(a+bx)^2}\,dx$

Optimal. Leaf size=149

$$\frac{\sqrt{c}(4bc-3ad)\tanh^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{a^3}-\frac{\sqrt{bc-ad}(4bc-ad)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{a^3\sqrt{b}}-\frac{\sqrt{c+dx}(2bc-ad)}{a^2(a+bx)}-\frac{c\sqrt{c+dx}}{ax(a+bx)}$$

```
[Out] -(((2*b*c - a*d)*Sqrt[c + d*x])/(a^2*(a + b*x))) - (c*Sqrt[c + d*
x])/(a*x*(a + b*x)) + (Sqrt[c]*(4*b*c - 3*a*d)*ArcTanh[Sqrt[c + d
*x]/Sqrt[c]])/a^3 - (Sqrt[b*c - a*d]*(4*b*c - a*d)*ArcTanh[(Sqrt[
b]*Sqrt[c + d*x])/Sqrt[b*c - a*d]])/(a^3*Sqrt[b])
```

Rubi [A] time = 0.562979, antiderivative size = 149, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.3

$$\frac{\sqrt{c}(4bc-3ad)\tanh^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{a^3}-\frac{\sqrt{bc-ad}(4bc-ad)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{a^3\sqrt{b}}-\frac{\sqrt{c+dx}(2bc-ad)}{a^2(a+bx)}-\frac{c\sqrt{c+dx}}{ax(a+bx)}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^(3/2)/(x^2*(a + b*x)^2),x]
```

```
[Out] -(((2*b*c - a*d)*Sqrt[c + d*x])/(a^2*(a + b*x))) - (c*Sqrt[c + d*
x])/(a*x*(a + b*x)) + (Sqrt[c]*(4*b*c - 3*a*d)*ArcTanh[Sqrt[c + d
*x]/Sqrt[c]])/a^3 - (Sqrt[b*c - a*d]*(4*b*c - a*d)*ArcTanh[(Sqrt[
b]*Sqrt[c + d*x])/Sqrt[b*c - a*d]])/(a^3*Sqrt[b])
```

Rubi in Sympy [A] time = 57.6269, size = 129, normalized size = 0.87

$$-\frac{c\sqrt{c+dx}}{ax\,(a+bx)}+\frac{\sqrt{c+dx}\,(ad-2bc)}{a^2\,(a+bx)}-\frac{\sqrt{c}\,(3ad-4bc)\,\mathrm{atanh}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{a^3}+\frac{(ad-4bc)\sqrt{ad-bc}\,\mathrm{atan}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{ad-bc}}\right)}{a^3\sqrt{b}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(3/2)/x**2/(b*x+a)**2,x)
```

```
[Out] -c*sqrt(c + d*x)/(a*x*(a + b*x)) + sqrt(c + d*x)*(a*d - 2*b*c)/(a
**2*(a + b*x)) - sqrt(c)*(3*a*d - 4*b*c)*atanh(sqrt(c + d*x)/sqrt
(c))/a**3 + (a*d - 4*b*c)*sqrt(a*d - b*c)*atan(sqrt(b)*sqrt(c + d
*x)/sqrt(a*d - b*c))/(a**3*sqrt(b))
```

Mathematica [A] time = 0.413918, size = 140, normalized size = 0.94

$$-\frac{\frac{(a^2d^2-5abcd+4b^2c^2)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{\sqrt{b}\sqrt{bc-ad}}+\frac{a\sqrt{c+dx}(-ac+adx-2bcx)}{x(a+bx)}+\sqrt{c}(4bc-3ad)\tanh^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{a^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^(3/2)/(x^2*(a + b*x)^2),x]
```

```
[Out] ((a*Sqrt[c + d*x]*(-(a*c) - 2*b*c*x + a*d*x))/(x*(a + b*x)) + Sqr
t[c]*(4*b*c - 3*a*d)*ArcTanh[Sqrt[c + d*x]/Sqrt[c]] - ((4*b^2*c^2
 - 5*a*b*c*d + a^2*d^2)*ArcTanh[(Sqrt[b]*Sqrt[c + d*x])/Sqrt[b*c
```

```
- a*d]])/(Sqrt[b]*Sqrt[b*c - a*d]))/a^3
```

Maple [A] time = 0.026, size = 237, normalized size = 1.6

$$-\frac{c}{a^2x}\sqrt{dx+c}-3\,\frac{d\sqrt{c}}{a^2}Artanh\left(\frac{\sqrt{dx+c}}{\sqrt{c}}\right)+4\,\frac{c^{3/2}b}{a^3}Artanh\left(\frac{\sqrt{dx+c}}{\sqrt{c}}\right)+\frac{d^2}{a\,(bdx+ad)}\sqrt{dx+c}$$
$$-\frac{bdc}{a^2\,(bdx+ad)}\sqrt{dx+c}+\frac{d^2}{a}\arctan\left(b\sqrt{dx+c}\frac{1}{\sqrt{(ad-bc)\,b}}\right)\frac{1}{\sqrt{(ad-bc)\,b}}$$
$$-5\,\frac{bdc}{a^2\sqrt{(ad-bc)\,b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)\,b}}\right)+4\,\frac{b^2c^2}{a^3\sqrt{(ad-bc)\,b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)\,b}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(3/2)/x^2/(b*x+a)^2,x)
```

```
[Out] -c/a^2*(d*x+c)^(1/2)/x-3*d*c^(1/2)/a^2*arctanh((d*x+c)^(1/2)/c^(1
/2))+4*c^(3/2)/a^3*arctanh((d*x+c)^(1/2)/c^(1/2))*b+d^2/a*(d*x+c)
^(1/2)/(b*d*x+a*d)-d/a^2*(d*x+c)^(1/2)/(b*d*x+a*d)*b*c+d^2/a/((a*
d-b*c)*b)^(1/2)*arctan((d*x+c)^(1/2)*b/((a*d-b*c)*b)^(1/2))-5*d/a
^2/((a*d-b*c)*b)^(1/2)*arctan((d*x+c)^(1/2)*b/((a*d-b*c)*b)^(1/2)
)*b*c+4/a^3/((a*d-b*c)*b)^(1/2)*arctan((d*x+c)^(1/2)*b/((a*d-b*c)
*b)^(1/2))*b^2*c^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(3/2)/((b*x + a)^2*x^2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.285522, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(3/2)/((b*x + a)^2*x^2),x, algorithm="fricas")
```

```
[Out] [-1/2*(((4*b^2*c - a*b*d)*x^2 + (4*a*b*c - a^2*d)*x)*sqrt((b*c -
a*d)/b)*log((b*d*x + 2*b*c - a*d + 2*sqrt(d*x + c)*b*sqrt((b*c -
a*d)/b))/(b*x + a)) + ((4*b^2*c - 3*a*b*d)*x^2 + (4*a*b*c - 3*a^2
*d)*x)*sqrt(c)*log((d*x - 2*sqrt(d*x + c)*sqrt(c) + 2*c)/x) + 2*(
a^2*c + (2*a*b*c - a^2*d)*x)*sqrt(d*x + c))/(a^3*b*x^2 + a^4*x),
-1/2*(2*((4*b^2*c - a*b*d)*x^2 + (4*a*b*c - a^2*d)*x)*sqrt(-(b*c
- a*d)/b)*arctan(sqrt(d*x + c)/sqrt(-(b*c - a*d)/b)) + ((4*b^2*c
- 3*a*b*d)*x^2 + (4*a*b*c - 3*a^2*d)*x)*sqrt(c)*log((d*x - 2*sqrt
(d*x + c)*sqrt(c) + 2*c)/x) + 2*(a^2*c + (2*a*b*c - a^2*d)*x)*sqr
t(d*x + c))/(a^3*b*x^2 + a^4*x), 1/2*(2*((4*b^2*c - 3*a*b*d)*x^2
+ (4*a*b*c - 3*a^2*d)*x)*sqrt(-c)*arctan(sqrt(d*x + c)/sqrt(-c))
- ((4*b^2*c - a*b*d)*x^2 + (4*a*b*c - a^2*d)*x)*sqrt((b*c - a*d)/
b)*log((b*d*x + 2*b*c - a*d + 2*sqrt(d*x + c)*b*sqrt((b*c - a*d)/
b))/(b*x + a)) - 2*(a^2*c + (2*a*b*c - a^2*d)*x)*sqrt(d*x + c))/(
a^3*b*x^2 + a^4*x), (((4*b^2*c - 3*a*b*d)*x^2 + (4*a*b*c - 3*a^2*
d)*x)*sqrt(-c)*arctan(sqrt(d*x + c)/sqrt(-c)) - ((4*b^2*c - a*b*d
)*x^2 + (4*a*b*c - a^2*d)*x)*sqrt(-(b*c - a*d)/b)*arctan(sqrt(d*x
```

```
 + c)/sqrt(-(b*c - a*d)/b)) - (a^2*c + (2*a*b*c - a^2*d)*x)*sqrt(
d*x + c))/(a^3*b*x^2 + a^4*x)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(3/2)/x**2/(b*x+a)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.225548, size = 266, normalized size = 1.79

$$\frac{\left(4\,b^2c^2-5\,abcd+a^2d^2\right)\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{-b^2c+abd}}\right)}{\sqrt{-b^2c+abd}a^3}-\frac{\left(4\,bc^2-3\,acd\right)\arctan\left(\frac{\sqrt{dx+c}}{\sqrt{-c}}\right)}{a^3\sqrt{-c}}-\frac{2\,(dx+c)^{\frac{3}{2}}bcd-2\,\sqrt{dx+c}bc^2d-(dx+c)^{\frac{3}{2}}ad^2+2\,\sqrt{dx+c}acd^2}{\left((dx+c)^2b-2\,(dx+c)bc+bc^2+(dx+c)ad-acd\right)a^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(3/2)/((b*x + a)^2*x^2),x, algorithm="giac")
```

```
[Out] (4*b^2*c^2 - 5*a*b*c*d + a^2*d^2)*arctan(sqrt(d*x + c)*b/sqrt(-b^
2*c + a*b*d))/(sqrt(-b^2*c + a*b*d)*a^3) - (4*b*c^2 - 3*a*c*d)*ar
ctan(sqrt(d*x + c)/sqrt(-c))/(a^3*sqrt(-c)) - (2*(d*x + c)^(3/2)*
b*c*d - 2*sqrt(d*x + c)*b*c^2*d - (d*x + c)^(3/2)*a*d^2 + 2*sqrt(
d*x + c)*a*c*d^2)/(((d*x + c)^2*b - 2*(d*x + c)*b*c + b*c^2 + (d*
x + c)*a*d - a*c*d)*a^2)
```

3.456 $\int \frac{x^3(c+dx)^{5/2}}{(a+bx)^2}\,dx$

Optimal. Leaf size=220

$$-\frac{a^2(6bc-11ad)(bc-ad)^{3/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{b^{13/2}}+\frac{a^2\sqrt{c+dx}(6bc-11ad)(bc-ad)}{b^6}+\frac{a^2(c+dx)^{3/2}(6bc-11ad)}{3b^5}-\frac{(c+dx)^{5/2}\left(-693a^2d^2-5bdx(10bc-99ad)+180abcd+20b^2c^2\right)}{315b^4d^2}-\frac{x^3(c+dx)^{5/2}}{b(a+bx)}+\frac{11x^2(c+dx)^{5/2}}{9b^2}$$

```
[Out] (a^2*(6*b*c - 11*a*d)*(b*c - a*d)*Sqrt[c + d*x])/b^6 + (a^2*(6*b*
c - 11*a*d)*(c + d*x)^(3/2))/(3*b^5) + (11*x^2*(c + d*x)^(5/2))/(
9*b^2) - (x^3*(c + d*x)^(5/2))/(b*(a + b*x)) - ((c + d*x)^(5/2)*(
20*b^2*c^2 + 180*a*b*c*d - 693*a^2*d^2 - 5*b*d*(10*b*c - 99*a*d)*
x))/(315*b^4*d^2) - (a^2*(6*b*c - 11*a*d)*(b*c - a*d)^(3/2)*ArcTa
nh[(Sqrt[b]*Sqrt[c + d*x])/Sqrt[b*c - a*d]])/b^(13/2)
```

Rubi [A] time = 0.608583, antiderivative size = 220, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.3$

$$-\frac{a^2(6bc-11ad)(bc-ad)^{3/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{b^{13/2}}+\frac{a^2\sqrt{c+dx}(6bc-11ad)(bc-ad)}{b^6}+\frac{a^2(c+dx)^{3/2}(6bc-11ad)}{3b^5}-\frac{(c+dx)^{5/2}\left(-693a^2d^2-5bdx(10bc-99ad)+180abcd+20b^2c^2\right)}{315b^4d^2}-\frac{x^3(c+dx)^{5/2}}{b(a+bx)}+\frac{11x^2(c+dx)^{5/2}}{9b^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^3*(c + d*x)^(5/2))/(a + b*x)^2,x]
```

```
[Out] (a^2*(6*b*c - 11*a*d)*(b*c - a*d)*Sqrt[c + d*x])/b^6 + (a^2*(6*b*
c - 11*a*d)*(c + d*x)^(3/2))/(3*b^5) + (11*x^2*(c + d*x)^(5/2))/(
9*b^2) - (x^3*(c + d*x)^(5/2))/(b*(a + b*x)) - ((c + d*x)^(5/2)*(
20*b^2*c^2 + 180*a*b*c*d - 693*a^2*d^2 - 5*b*d*(10*b*c - 99*a*d)*
x))/(315*b^4*d^2) - (a^2*(6*b*c - 11*a*d)*(b*c - a*d)^(3/2)*ArcTa
nh[(Sqrt[b]*Sqrt[c + d*x])/Sqrt[b*c - a*d]])/b^(13/2)
```

Rubi in Sympy [A] time = 61.1699, size = 218, normalized size = 0.99

$$-\frac{a^2\left(c+dx\right)^{\frac{3}{2}}\left(11ad-6bc\right)}{3b^5}+\frac{a^2\sqrt{c+dx}\left(ad-bc\right)\left(11ad-6bc\right)}{b^6}-\frac{a^2\left(ad-bc\right)^{\frac{3}{2}}\left(11ad-6bc\right)\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{ad-bc}}\right)}{b^{\frac{13}{2}}}-\frac{x^3\left(c+dx\right)^{\frac{5}{2}}}{b\left(a+bx\right)}+\frac{11x^2\left(c+dx\right)^{\frac{5}{2}}}{9b^2}+\frac{8\left(c+dx\right)^{\frac{5}{2}}\left(\frac{693a^2d^2}{8}-\frac{45abcd}{2}-\frac{5b^2c^2}{2}-\frac{5bdx(99ad-10bc)}{8}\right)}{315b^4d^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3*(d*x+c)**(5/2)/(b*x+a)**2,x)
```

```
[Out] -a**2*(c + d*x)**(3/2)*(11*a*d - 6*b*c)/(3*b**5) + a**2*sqrt(c +
d*x)*(a*d - b*c)*(11*a*d - 6*b*c)/b**6 - a**2*(a*d - b*c)**(3/2)*
(11*a*d - 6*b*c)*atan(sqrt(b)*sqrt(c + d*x)/sqrt(a*d - b*c))/b**(
13/2) - x**3*(c + d*x)**(5/2)/(b*(a + b*x)) + 11*x**2*(c + d*x)**
(5/2)/(9*b**2) + 8*(c + d*x)**(5/2)*(693*a**2*d**2/8 - 45*a*b*c*d
```

```
/2 - 5*b**2*c**2/2 - 5*b*d*x*(99*a*d - 10*b*c)/8)/(315*b**4*d**2)
```

Mathematica [A] time = 0.418519, size = 223, normalized size = 1.01

$$\frac{\sqrt{c+dx}\left(3465a^5d^4+210a^4bd^3(11dx-31c)-21a^3b^2d^2\left(-153c^2+214cdx+22d^2x^2\right)+18a^2b^3d\left(-10c^3+131c^2dx+47cd^2x\right.\right.}{315b^6d^2(a+bx)}$$
$$-\frac{a^2(6bc-11ad)(bc-ad)^{3/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{b^{13/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^3*(c + d*x)^(5/2))/(a + b*x)^2,x]
```

```
[Out] (Sqrt[c + d*x]*(3465*a^5*d^4 + 10*b^5*x*(c + d*x)^3*(-2*c + 7*d*x
) + 210*a^4*b*d^3*(-31*c + 11*d*x) - 10*a*b^4*(c + d*x)^3*(2*c +
11*d*x) - 21*a^3*b^2*d^2*(-153*c^2 + 214*c*d*x + 22*d^2*x^2) + 18
*a^2*b^3*d*(-10*c^3 + 131*c^2*d*x + 47*c*d^2*x^2 + 11*d^3*x^3)))/
(315*b^6*d^2*(a + b*x)) - (a^2*(6*b*c - 11*a*d)*(b*c - a*d)^(3/2)
*ArcTanh[(Sqrt[b]*Sqrt[c + d*x])/Sqrt[b*c - a*d]])/b^(13/2)
```

Maple [B] time = 0.028, size = 415, normalized size = 1.9

$$\frac{2}{9\,b^2d^2}(dx+c)^{\frac{9}{2}}-\frac{4\,a}{7\,db^3}(dx+c)^{\frac{7}{2}}-\frac{2\,c}{7\,b^2d^2}(dx+c)^{\frac{7}{2}}+\frac{6\,a^2}{5\,b^4}(dx+c)^{\frac{5}{2}}$$
$$-\frac{8\,a^3d}{3\,b^5}(dx+c)^{\frac{3}{2}}+2\,\frac{(dx+c)^{3/2}\,a^2c}{b^4}+10\,\frac{d^2a^4\sqrt{dx+c}}{b^6}-16\,\frac{a^3cd\sqrt{dx+c}}{b^5}$$
$$+6\,\frac{a^2c^2\sqrt{dx+c}}{b^4}+\frac{d^3a^5}{b^6\,(bdx+ad)}\sqrt{dx+c}-2\,\frac{d^2a^4\sqrt{dx+c}c}{b^5\,(bdx+ad)}+\frac{a^3c^2d}{b^4\,(bdx+ad)}\sqrt{dx+c}$$
$$-11\,\frac{d^3a^5}{b^6\sqrt{(ad-bc)\,b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)\,b}}\right)+28\,\frac{d^2a^4c}{b^5\sqrt{(ad-bc)\,b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)\,b}}\right)$$
$$-23\,\frac{a^3c^2d}{b^4\sqrt{(ad-bc)\,b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)\,b}}\right)+6\,\frac{a^2c^3}{b^3\sqrt{(ad-bc)\,b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)\,b}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^3*(d*x+c)^(5/2)/(b*x+a)^2,x)
```

```
[Out] 2/9/d^2/b^2*(d*x+c)^(9/2)-4/7/d/b^3*(d*x+c)^(7/2)*a-2/7/d^2/b^2*(
d*x+c)^(7/2)*c+6/5/b^4*a^2*(d*x+c)^(5/2)-8/3*d/b^5*(d*x+c)^(3/2)*
a^3+2/b^4*(d*x+c)^(3/2)*a^2*c+10*d^2/b^6*a^4*(d*x+c)^(1/2)-16*d/b
^5*a^3*c*(d*x+c)^(1/2)+6/b^4*a^2*c^2*(d*x+c)^(1/2)+d^3*a^5/b^6*(d
*x+c)^(1/2)/(b*d*x+a*d)-2*d^2*a^4/b^5*(d*x+c)^(1/2)/(b*d*x+a*d)*c
+d*a^3/b^4*(d*x+c)^(1/2)/(b*d*x+a*d)*c^2-11*d^3*a^5/b^6/((a*d-b*c
)*b)^(1/2)*arctan((d*x+c)^(1/2)*b/((a*d-b*c)*b)^(1/2))+28*d^2*a^4
/b^5/((a*d-b*c)*b)^(1/2)*arctan((d*x+c)^(1/2)*b/((a*d-b*c)*b)^(1/
2))*c-23*d*a^3/b^4/((a*d-b*c)*b)^(1/2)*arctan((d*x+c)^(1/2)*b/((a
*d-b*c)*b)^(1/2))*c^2+6*a^2/b^3/((a*d-b*c)*b)^(1/2)*arctan((d*x+c
)^(1/2)*b/((a*d-b*c)*b)^(1/2))*c^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)*x^3/(b*x + a)^2,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.303882, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)*x^3/(b*x + a)^2,x, algorithm="fricas")
```

```
[Out] [1/630*(315*(6*a^3*b^2*c^2*d^2 - 17*a^4*b*c*d^3 + 11*a^5*d^4 + (6
*a^2*b^3*c^2*d^2 - 17*a^3*b^2*c*d^3 + 11*a^4*b*d^4)*x)*sqrt((b*c
- a*d)/b)*log((b*d*x + 2*b*c - a*d - 2*sqrt(d*x + c)*b*sqrt((b*c
- a*d)/b))/(b*x + a)) + 2*(70*b^5*d^4*x^5 - 20*a*b^4*c^4 - 180*a^
2*b^3*c^3*d + 3213*a^3*b^2*c^2*d^2 - 6510*a^4*b*c*d^3 + 3465*a^5*
d^4 + 10*(19*b^5*c*d^3 - 11*a*b^4*d^4)*x^4 + 2*(75*b^5*c^2*d^2 -
175*a*b^4*c*d^3 + 99*a^2*b^3*d^4)*x^3 + 2*(5*b^5*c^3*d - 195*a*b^
4*c^2*d^2 + 423*a^2*b^3*c*d^3 - 231*a^3*b^2*d^4)*x^2 - 2*(10*b^5*
c^4 + 85*a*b^4*c^3*d - 1179*a^2*b^3*c^2*d^2 + 2247*a^3*b^2*c*d^3
- 1155*a^4*b*d^4)*x)*sqrt(d*x + c))/(b^7*d^2*x + a*b^6*d^2), -1/3
15*(315*(6*a^3*b^2*c^2*d^2 - 17*a^4*b*c*d^3 + 11*a^5*d^4 + (6*a^2
*b^3*c^2*d^2 - 17*a^3*b^2*c*d^3 + 11*a^4*b*d^4)*x)*sqrt(-(b*c - a
*d)/b)*arctan(sqrt(d*x + c)/sqrt(-(b*c - a*d)/b)) - (70*b^5*d^4*x
^5 - 20*a*b^4*c^4 - 180*a^2*b^3*c^3*d + 3213*a^3*b^2*c^2*d^2 - 65
10*a^4*b*c*d^3 + 3465*a^5*d^4 + 10*(19*b^5*c*d^3 - 11*a*b^4*d^4)*
x^4 + 2*(75*b^5*c^2*d^2 - 175*a*b^4*c*d^3 + 99*a^2*b^3*d^4)*x^3 +
 2*(5*b^5*c^3*d - 195*a*b^4*c^2*d^2 + 423*a^2*b^3*c*d^3 - 231*a^3
*b^2*d^4)*x^2 - 2*(10*b^5*c^4 + 85*a*b^4*c^3*d - 1179*a^2*b^3*c^2
*d^2 + 2247*a^3*b^2*c*d^3 - 1155*a^4*b*d^4)*x)*sqrt(d*x + c))/(b^
7*d^2*x + a*b^6*d^2)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**3*(d*x+c)**(5/2)/(b*x+a)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.233016, size = 436, normalized size = 1.98

$$\frac{\left(6\,a^2b^3c^3-23\,a^3b^2c^2d+28\,a^4bcd^2-11\,a^5d^3\right)\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{-b^2c+abd}}\right)}{\sqrt{-b^2c+abd}b^6}+\frac{\sqrt{dx+c}a^3b^2c^2d-2\sqrt{dx+c}a^4bcd^2+\sqrt{dx+c}a^5d^3}{((dx+c)b-bc+ad)b^6}+\frac{2\left(35\,(dx+c)^{\frac{9}{2}}b^{16}d^{16}-45\,(dx+c)^{\frac{7}{2}}b^{16}cd^{16}-90\,(dx+c)^{\frac{7}{2}}ab^{15}d^{17}+189\,(dx+c)^{\frac{5}{2}}a^2b^{14}d^{18}+315\,(dx+c)^{\frac{3}{2}}a^2b^{14}cd^{18}+945\right.}{315\,b^{18}d^{18}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)*x^3/(b*x + a)^2,x, algorithm="giac")
```

```
[Out] (6*a^2*b^3*c^3 - 23*a^3*b^2*c^2*d + 28*a^4*b*c*d^2 - 11*a^5*d^3)*
arctan(sqrt(d*x + c)*b/sqrt(-b^2*c + a*b*d))/(sqrt(-b^2*c + a*b*d
)*b^6) + (sqrt(d*x + c)*a^3*b^2*c^2*d - 2*sqrt(d*x + c)*a^4*b*c*d
^2 + sqrt(d*x + c)*a^5*d^3)/(((d*x + c)*b - b*c + a*d)*b^6) + 2/3
```

```
15*(35*(d*x + c)^(9/2)*b^16*d^16 - 45*(d*x + c)^(7/2)*b^16*c*d^16
 - 90*(d*x + c)^(7/2)*a*b^15*d^17 + 189*(d*x + c)^(5/2)*a^2*b^14*
d^18 + 315*(d*x + c)^(3/2)*a^2*b^14*c*d^18 + 945*sqrt(d*x + c)*a^
2*b^14*c^2*d^18 - 420*(d*x + c)^(3/2)*a^3*b^13*d^19 - 2520*sqrt(d
*x + c)*a^3*b^13*c*d^19 + 1575*sqrt(d*x + c)*a^4*b^12*d^20)/(b^18
*d^18)
```

3.457 $\int \frac{x^2(c+dx)^{5/2}}{(a+bx)^2}\,dx$

Optimal. Leaf size=204

$$-\frac{a^2(c+dx)^{7/2}}{b^2(a+bx)(bc-ad)}+\frac{a(4bc-9ad)(bc-ad)^{3/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{b^{11/2}}-\frac{a\sqrt{c+dx}(4bc-9ad)(bc-ad)}{b^5}-\frac{a(c+dx)^{3/2}(4bc-9ad)}{3b^4}-\frac{a(c+dx)^{5/2}(4bc-9ad)}{5b^3(bc-ad)}+\frac{2(c+dx)^{7/2}}{7b^2d}$$

```
[Out] -((a*(4*b*c - 9*a*d)*(b*c - a*d)*Sqrt[c + d*x])/b^5) - (a*(4*b*c
- 9*a*d)*(c + d*x)^(3/2))/(3*b^4) - (a*(4*b*c - 9*a*d)*(c + d*x)^
(5/2))/(5*b^3*(b*c - a*d)) + (2*(c + d*x)^(7/2))/(7*b^2*d) - (a^2
*(c + d*x)^(7/2))/(b^2*(b*c - a*d)*(a + b*x)) + (a*(4*b*c - 9*a*d
)*(b*c - a*d)^(3/2)*ArcTanh[(Sqrt[b]*Sqrt[c + d*x])/Sqrt[b*c - a*
d]])/b^(11/2)
```

Rubi [A] time = 0.551751, antiderivative size = 204, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$-\frac{a^2(c+dx)^{7/2}}{b^2(a+bx)(bc-ad)}+\frac{a(4bc-9ad)(bc-ad)^{3/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{b^{11/2}}-\frac{a\sqrt{c+dx}(4bc-9ad)(bc-ad)}{b^5}-\frac{a(c+dx)^{3/2}(4bc-9ad)}{3b^4}-\frac{a(c+dx)^{5/2}(4bc-9ad)}{5b^3(bc-ad)}+\frac{2(c+dx)^{7/2}}{7b^2d}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^2*(c + d*x)^(5/2))/(a + b*x)^2,x]
```

```
[Out] -((a*(4*b*c - 9*a*d)*(b*c - a*d)*Sqrt[c + d*x])/b^5) - (a*(4*b*c
- 9*a*d)*(c + d*x)^(3/2))/(3*b^4) - (a*(4*b*c - 9*a*d)*(c + d*x)^
(5/2))/(5*b^3*(b*c - a*d)) + (2*(c + d*x)^(7/2))/(7*b^2*d) - (a^2
*(c + d*x)^(7/2))/(b^2*(b*c - a*d)*(a + b*x)) + (a*(4*b*c - 9*a*d
)*(b*c - a*d)^(3/2)*ArcTanh[(Sqrt[b]*Sqrt[c + d*x])/Sqrt[b*c - a*
d]])/b^(11/2)
```

Rubi in Sympy [A] time = 50.3252, size = 184, normalized size = 0.9

$$\frac{a^2\left(c+dx\right)^{\frac{7}{2}}}{b^2\left(a+bx\right)\left(ad-bc\right)}-\frac{a\left(c+dx\right)^{\frac{5}{2}}\left(9ad-4bc\right)}{5b^3\left(ad-bc\right)}+\frac{a\left(c+dx\right)^{\frac{3}{2}}\left(9ad-4bc\right)}{3b^4}-\frac{a\sqrt{c+dx}\left(ad-bc\right)\left(9ad-4bc\right)}{b^5}+\frac{a\left(ad-bc\right)^{\frac{3}{2}}\left(9ad-4bc\right)\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{ad-bc}}\right)}{b^{\frac{11}{2}}}+\frac{2\left(c+dx\right)^{\frac{7}{2}}}{7b^2d}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(d*x+c)**(5/2)/(b*x+a)**2,x)
```

```
[Out] a**2*(c + d*x)**(7/2)/(b**2*(a + b*x)*(a*d - b*c)) - a*(c + d*x)*
*(5/2)*(9*a*d - 4*b*c)/(5*b**3*(a*d - b*c)) + a*(c + d*x)**(3/2)*
(9*a*d - 4*b*c)/(3*b**4) - a*sqrt(c + d*x)*(a*d - b*c)*(9*a*d - 4
*b*c)/b**5 + a*(a*d - b*c)**(3/2)*(9*a*d - 4*b*c)*atan(sqrt(b)*sq
rt(c + d*x)/sqrt(a*d - b*c))/b**(11/2) + 2*(c + d*x)**(7/2)/(7*b*
*2*d)
```

Mathematica [A] time = 0.289946, size = 186, normalized size = 0.91

$$\frac{\sqrt{c+dx}\left(-945a^4d^3+210a^3bd^2(8c-3dx)+7a^2b^2d\left(-107c^2+166cdx+18d^2x^2\right)+2ab^3\left(15c^3-277c^2dx-109cd^2x^2-27d\right.\right.}{105b^5d(a+bx)}$$
$$+\frac{a(4bc-9ad)(bc-ad)^{3/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{b^{11/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^2*(c + d*x)^(5/2))/(a + b*x)^2,x]
```

```
[Out] (Sqrt[c + d*x]*(-945*a^4*d^3 + 210*a^3*b*d^2*(8*c - 3*d*x) + 30*b
^4*x*(c + d*x)^3 + 7*a^2*b^2*d*(-107*c^2 + 166*c*d*x + 18*d^2*x^2
) + 2*a*b^3*(15*c^3 - 277*c^2*d*x - 109*c*d^2*x^2 - 27*d^3*x^3)))
/(105*b^5*d*(a + b*x)) + (a*(4*b*c - 9*a*d)*(b*c - a*d)^(3/2)*Arc
Tanh[(Sqrt[b]*Sqrt[c + d*x])/Sqrt[b*c - a*d]])/b^(11/2)
```

Maple [B] time = 0.026, size = 377, normalized size = 1.9

$$\frac{2}{7b^2d}(dx+c)^{\frac{7}{2}}-\frac{4a}{5b^3}(dx+c)^{\frac{5}{2}}+2\frac{d(dx+c)^{3/2}a^2}{b^4}-\frac{4ac}{3b^3}(dx+c)^{\frac{3}{2}}$$
$$-8\frac{d^2a^3\sqrt{dx+c}}{b^5}+12\frac{a^2dc\sqrt{dx+c}}{b^4}-4\frac{ac^2\sqrt{dx+c}}{b^3}$$
$$-\frac{d^3a^4}{b^5(bdx+ad)}\sqrt{dx+c}+2\frac{d^2a^3\sqrt{dx+c}c}{b^4(bdx+ad)}-\frac{a^2c^2d}{b^3(bdx+ad)}\sqrt{dx+c}$$
$$+9\frac{d^3a^4}{b^5\sqrt{(ad-bc)b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)b}}\right)-22\frac{d^2a^3c}{b^4\sqrt{(ad-bc)b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)b}}\right)$$
$$+17\frac{a^2c^2d}{b^3\sqrt{(ad-bc)b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)b}}\right)-4\frac{ac^3}{b^2\sqrt{(ad-bc)b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)b}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(d*x+c)^(5/2)/(b*x+a)^2,x)
```

```
[Out] 2/7*(d*x+c)^(7/2)/b^2/d-4/5/b^3*a*(d*x+c)^(5/2)+2*d/b^4*(d*x+c)^(
3/2)*a^2-4/3/b^3*(d*x+c)^(3/2)*a*c-8*d^2/b^5*a^3*(d*x+c)^(1/2)+12
*d/b^4*a^2*c*(d*x+c)^(1/2)-4/b^3*a*c^2*(d*x+c)^(1/2)-d^3*a^4/b^5*
(d*x+c)^(1/2)/(b*d*x+a*d)+2*d^2*a^3/b^4*(d*x+c)^(1/2)/(b*d*x+a*d)
*c-d*a^2/b^3*(d*x+c)^(1/2)/(b*d*x+a*d)*c^2+9*d^3*a^4/b^5/((a*d-b*
c)*b)^(1/2)*arctan((d*x+c)^(1/2)*b/((a*d-b*c)*b)^(1/2))-22*d^2*a^
3/b^4/((a*d-b*c)*b)^(1/2)*arctan((d*x+c)^(1/2)*b/((a*d-b*c)*b)^(1
/2))*c+17*d*a^2/b^3/((a*d-b*c)*b)^(1/2)*arctan((d*x+c)^(1/2)*b/((
a*d-b*c)*b)^(1/2))*c^2-4*a/b^2/((a*d-b*c)*b)^(1/2)*arctan((d*x+c)
^(1/2)*b/((a*d-b*c)*b)^(1/2))*c^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)*x^2/(b*x + a)^2,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.300533, size = 1, normalized size = 0.

$$\left[\frac{105\left(4a^2b^2c^2d-13a^3bcd^2+9a^4d^3+\left(4ab^3c^2d-13a^2b^2cd^2+9a^3bd^3\right)x\right)\sqrt{\frac{bc-ad}{b}}\log\left(\frac{bdx+2bc-ad+2\sqrt{dx+c}b\sqrt{\frac{bc-ad}{b}}}{bx+a}\right)+2\left(\cdots\right.}{\cdots}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)*x^2/(b*x + a)^2,x, algorithm="fricas")
```

```
[Out] [1/210*(105*(4*a^2*b^2*c^2*d - 13*a^3*b*c*d^2 + 9*a^4*d^3 + (4*a*
b^3*c^2*d - 13*a^2*b^2*c*d^2 + 9*a^3*b*d^3)*x)*sqrt((b*c - a*d)/b
)*log((b*d*x + 2*b*c - a*d + 2*sqrt(d*x + c)*b*sqrt((b*c - a*d)/b
))/(b*x + a)) + 2*(30*b^4*d^3*x^4 + 30*a*b^3*c^3 - 749*a^2*b^2*c^
2*d + 1680*a^3*b*c*d^2 - 945*a^4*d^3 + 18*(5*b^4*c*d^2 - 3*a*b^3*
d^3)*x^3 + 2*(45*b^4*c^2*d - 109*a*b^3*c*d^2 + 63*a^2*b^2*d^3)*x^
2 + 2*(15*b^4*c^3 - 277*a*b^3*c^2*d + 581*a^2*b^2*c*d^2 - 315*a^3
*b*d^3)*x)*sqrt(d*x + c))/(b^6*d*x + a*b^5*d), 1/105*(105*(4*a^2*
b^2*c^2*d - 13*a^3*b*c*d^2 + 9*a^4*d^3 + (4*a*b^3*c^2*d - 13*a^2*
b^2*c*d^2 + 9*a^3*b*d^3)*x)*sqrt(-(b*c - a*d)/b)*arctan(sqrt(d*x
+ c)/sqrt(-(b*c - a*d)/b)) + (30*b^4*d^3*x^4 + 30*a*b^3*c^3 - 749
*a^2*b^2*c^2*d + 1680*a^3*b*c*d^2 - 945*a^4*d^3 + 18*(5*b^4*c*d^2
 - 3*a*b^3*d^3)*x^3 + 2*(45*b^4*c^2*d - 109*a*b^3*c*d^2 + 63*a^2*
b^2*d^3)*x^2 + 2*(15*b^4*c^3 - 277*a*b^3*c^2*d + 581*a^2*b^2*c*d^
2 - 315*a^3*b*d^3)*x)*sqrt(d*x + c))/(b^6*d*x + a*b^5*d)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(d*x+c)**(5/2)/(b*x+a)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.242542, size = 385, normalized size = 1.89

$$-\frac{\left(4ab^3c^3-17a^2b^2c^2d+22a^3bcd^2-9a^4d^3\right)\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{-b^2c+abd}}\right)}{\sqrt{-b^2c+abd}b^5}-\frac{\sqrt{dx+c}a^2b^2c^2d-2\sqrt{dx+c}a^3bcd^2+\sqrt{dx+c}a^4d^3}{((dx+c)b-bc+ad)b^5}+\frac{2\left(15(dx+c)^{\frac{7}{2}}b^{12}d^6-42(dx+c)^{\frac{5}{2}}ab^{11}d^7-70(dx+c)^{\frac{3}{2}}ab^{11}cd^7-210\sqrt{dx+c}ab^{11}c^2d^7+105(dx+c)^{\frac{3}{2}}a^2b^{10}d^8+630\sqrt{dx\cdots}\right.}{105b^{14}d^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)*x^2/(b*x + a)^2,x, algorithm="giac")
```

```
[Out] -(4*a*b^3*c^3 - 17*a^2*b^2*c^2*d + 22*a^3*b*c*d^2 - 9*a^4*d^3)*ar
ctan(sqrt(d*x + c)*b/sqrt(-b^2*c + a*b*d))/(sqrt(-b^2*c + a*b*d)*
b^5) - (sqrt(d*x + c)*a^2*b^2*c^2*d - 2*sqrt(d*x + c)*a^3*b*c*d^2
 + sqrt(d*x + c)*a^4*d^3)/(((d*x + c)*b - b*c + a*d)*b^5) + 2/105
*(15*(d*x + c)^(7/2)*b^12*d^6 - 42*(d*x + c)^(5/2)*a*b^11*d^7 - 7
0*(d*x + c)^(3/2)*a*b^11*c*d^7 - 210*sqrt(d*x + c)*a*b^11*c^2*d^7
 + 105*(d*x + c)^(3/2)*a^2*b^10*d^8 + 630*sqrt(d*x + c)*a^2*b^10*
c*d^8 - 420*sqrt(d*x + c)*a^3*b^9*d^9)/(b^14*d^7)
```

3.458 $\int \frac{x(c+dx)^{5/2}}{(a+bx)^2}\,dx$

Optimal. Leaf size=178

$$-\frac{(2bc-7ad)(bc-ad)^{3/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{b^{9/2}}+\frac{\sqrt{c+dx}(2bc-7ad)(bc-ad)}{b^4}+\frac{(c+dx)^{3/2}(2bc-7ad)}{3b^3}+\frac{(c+dx)^{5/2}(2bc-7ad)}{5b^2(bc-ad)}+\frac{a(c+dx)^{7/2}}{b(a+bx)(bc-ad)}$$

```
[Out] ((2*b*c - 7*a*d)*(b*c - a*d)*Sqrt[c + d*x])/b^4 + ((2*b*c - 7*a*d
)*(c + d*x)^(3/2))/(3*b^3) + ((2*b*c - 7*a*d)*(c + d*x)^(5/2))/(5
*b^2*(b*c - a*d)) + (a*(c + d*x)^(7/2))/(b*(b*c - a*d)*(a + b*x))
 - ((2*b*c - 7*a*d)*(b*c - a*d)^(3/2)*ArcTanh[(Sqrt[b]*Sqrt[c + d
*x])/Sqrt[b*c - a*d]])/b^(9/2)
```

Rubi [A] time = 0.2832, antiderivative size = 178, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.222

$$-\frac{(2bc-7ad)(bc-ad)^{3/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{b^{9/2}}+\frac{\sqrt{c+dx}(2bc-7ad)(bc-ad)}{b^4}+\frac{(c+dx)^{3/2}(2bc-7ad)}{3b^3}+\frac{(c+dx)^{5/2}(2bc-7ad)}{5b^2(bc-ad)}+\frac{a(c+dx)^{7/2}}{b(a+bx)(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[(x*(c + d*x)^(5/2))/(a + b*x)^2,x]
```

```
[Out] ((2*b*c - 7*a*d)*(b*c - a*d)*Sqrt[c + d*x])/b^4 + ((2*b*c - 7*a*d
)*(c + d*x)^(3/2))/(3*b^3) + ((2*b*c - 7*a*d)*(c + d*x)^(5/2))/(5
*b^2*(b*c - a*d)) + (a*(c + d*x)^(7/2))/(b*(b*c - a*d)*(a + b*x))
 - ((2*b*c - 7*a*d)*(b*c - a*d)^(3/2)*ArcTanh[(Sqrt[b]*Sqrt[c + d
*x])/Sqrt[b*c - a*d]])/b^(9/2)
```

Rubi in Sympy [A] time = 38.3309, size = 162, normalized size = 0.91

$$-\frac{a\,(c+dx)^{\frac{7}{2}}}{b\,(a+bx)\,(ad-bc)}+\frac{2\,(c+dx)^{\frac{5}{2}}\left(\frac{7ad}{2}-bc\right)}{5b^2\,(ad-bc)}-\frac{2\,(c+dx)^{\frac{3}{2}}\left(\frac{7ad}{2}-bc\right)}{3b^3}+\frac{\sqrt{c+dx}\,(ad-bc)\,(7ad-2bc)}{b^4}-\frac{2\,(ad-bc)^{\frac{3}{2}}\left(\frac{7ad}{2}-bc\right)\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{ad-bc}}\right)}{b^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(d*x+c)**(5/2)/(b*x+a)**2,x)
```

```
[Out] -a*(c + d*x)**(7/2)/(b*(a + b*x)*(a*d - b*c)) + 2*(c + d*x)**(5/2
)*(7*a*d/2 - b*c)/(5*b**2*(a*d - b*c)) - 2*(c + d*x)**(3/2)*(7*a*
d/2 - b*c)/(3*b**3) + sqrt(c + d*x)*(a*d - b*c)*(7*a*d - 2*b*c)/b
**4 - 2*(a*d - b*c)**(3/2)*(7*a*d/2 - b*c)*atan(sqrt(b)*sqrt(c +
d*x)/sqrt(a*d - b*c))/b**(9/2)
```

Mathematica [A] time = 0.319908, size = 141, normalized size = 0.79

$$\frac{\sqrt{c+dx}\left(90a^2d^2+2bdx(11bc-10ad)+\frac{15a(bc-ad)^2}{a+bx}-140abcd+46b^2c^2+6b^2d^2x^2\right)}{15b^4}-\frac{(2bc-7ad)(bc-ad)^{3/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{b^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x*(c + d*x)^(5/2))/(a + b*x)^2,x]
```

```
[Out] (Sqrt[c + d*x]*(46*b^2*c^2 - 140*a*b*c*d + 90*a^2*d^2 + 2*b*d*(11
*b*c - 10*a*d)*x + 6*b^2*d^2*x^2 + (15*a*(b*c - a*d)^2)/(a + b*x)
))/(15*b^4) - ((2*b*c - 7*a*d)*(b*c - a*d)^(3/2)*ArcTanh[(Sqrt[b]
*Sqrt[c + d*x])/Sqrt[b*c - a*d]])/b^(9/2)
```

Maple [B] time = 0.023, size = 348, normalized size = 2.

$$\frac{2}{5b^2}(dx+c)^{\frac{5}{2}}-\frac{4ad}{3b^3}(dx+c)^{\frac{3}{2}}+\frac{2c}{3b^2}(dx+c)^{\frac{3}{2}}+6\frac{a^2d^2\sqrt{dx+c}}{b^4}-8\frac{acd\sqrt{dx+c}}{b^3}+2\frac{c^2\sqrt{dx+c}}{b^2}+\frac{a^3d^3}{b^4(bdx+ad)}\sqrt{dx+c}-2\frac{\sqrt{dx+c}a^2cd^2}{b^3(bdx+ad)}+\frac{ac^2d}{b^2(bdx+ad)}\sqrt{dx+c}-7\frac{a^3d^3}{b^4\sqrt{(ad-bc)b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)b}}\right)+16\frac{ca^2d^2}{b^3\sqrt{(ad-bc)b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)b}}\right)-11\frac{ac^2d}{b^2\sqrt{(ad-bc)b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)b}}\right)+2\frac{c^3}{b\sqrt{(ad-bc)b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)b}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(d*x+c)^(5/2)/(b*x+a)^2,x)
```

```
[Out] 2/5/b^2*(d*x+c)^(5/2)-4/3/b^3*(d*x+c)^(3/2)*a*d+2/3/b^2*(d*x+c)^(
3/2)*c+6/b^4*a^2*d^2*(d*x+c)^(1/2)-8/b^3*a*c*d*(d*x+c)^(1/2)+2/b^
2*c^2*(d*x+c)^(1/2)+1/b^4*(d*x+c)^(1/2)/(b*d*x+a*d)*a^3*d^3-2/b^3
*(d*x+c)^(1/2)/(b*d*x+a*d)*a^2*c*d^2+1/b^2*(d*x+c)^(1/2)/(b*d*x+a
*d)*a*c^2*d-7/b^4/((a*d-b*c)*b)^(1/2)*arctan((d*x+c)^(1/2)*b/((a*
d-b*c)*b)^(1/2))*a^3*d^3+16/b^3/((a*d-b*c)*b)^(1/2)*arctan((d*x+c
)^(1/2)*b/((a*d-b*c)*b)^(1/2))*a^2*c*d^2-11/b^2/((a*d-b*c)*b)^(1/
2)*arctan((d*x+c)^(1/2)*b/((a*d-b*c)*b)^(1/2))*a*c^2*d+2/b/((a*d-
b*c)*b)^(1/2)*arctan((d*x+c)^(1/2)*b/((a*d-b*c)*b)^(1/2))*c^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)*x/(b*x + a)^2,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.272732, size = 1, normalized size = 0.01

$$\left[\frac{15\left(2ab^2c^2-9a^2bcd+7a^3d^2+\left(2b^3c^2-9ab^2cd+7a^2bd^2\right)x\right)\sqrt{\frac{bc-ad}{b}}\log\left(\frac{bdx+2bc-ad-2\sqrt{dx+c}b\sqrt{\frac{bc-ad}{b}}}{bx+a}\right)+2\left(6b^3d^2x^3+\right.}{30\left(b^5x+ab^4\right)}\right.$$

$$-\frac{15\left(2ab^2c^2-9a^2bcd+7a^3d^2+\left(2b^3c^2-9ab^2cd+7a^2bd^2\right)x\right)\sqrt{-\frac{bc-ad}{b}}\arctan\left(\frac{\sqrt{dx+c}}{\sqrt{-\frac{bc-ad}{b}}}\right)-\left(6b^3d^2x^3+61ab^2c^2-170\right.}{15\left(b^5x+ab^4\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)*x/(b*x + a)^2,x, algorithm="fricas")
```

```
[Out] [1/30*(15*(2*a*b^2*c^2 - 9*a^2*b*c*d + 7*a^3*d^2 + (2*b^3*c^2 - 9
*a*b^2*c*d + 7*a^2*b*d^2)*x)*sqrt((b*c - a*d)/b)*log((b*d*x + 2*b
*c - a*d - 2*sqrt(d*x + c)*b*sqrt((b*c - a*d)/b))/(b*x + a)) + 2*
(6*b^3*d^2*x^3 + 61*a*b^2*c^2 - 170*a^2*b*c*d + 105*a^3*d^2 + 2*(
11*b^3*c*d - 7*a*b^2*d^2)*x^2 + 2*(23*b^3*c^2 - 59*a*b^2*c*d + 35
*a^2*b*d^2)*x)*sqrt(d*x + c))/(b^5*x + a*b^4), -1/15*(15*(2*a*b^2
*c^2 - 9*a^2*b*c*d + 7*a^3*d^2 + (2*b^3*c^2 - 9*a*b^2*c*d + 7*a^2
*b*d^2)*x)*sqrt(-(b*c - a*d)/b)*arctan(sqrt(d*x + c)/sqrt(-(b*c -
 a*d)/b)) - (6*b^3*d^2*x^3 + 61*a*b^2*c^2 - 170*a^2*b*c*d + 105*a
^3*d^2 + 2*(11*b^3*c*d - 7*a*b^2*d^2)*x^2 + 2*(23*b^3*c^2 - 59*a*
b^2*c*d + 35*a^2*b*d^2)*x)*sqrt(d*x + c))/(b^5*x + a*b^4)]
```

Sympy [A] time = 160.4, size = 1846, normalized size = 10.37

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(d*x+c)**(5/2)/(b*x+a)**2,x)
```

```
[Out] 2*a**4*d**4*sqrt(c + d*x)/(2*a**2*b**4*d**2 - 2*a*b**5*c*d + 2*a*
b**5*d**2*x - 2*b**6*c*d*x) - a**4*d**4*sqrt(-1/(b*(a*d - b*c)**3
))*log(-a**2*d**2*sqrt(-1/(b*(a*d - b*c)**3)) + 2*a*b*c*d*sqrt(-1
/(b*(a*d - b*c)**3)) - b**2*c**2*sqrt(-1/(b*(a*d - b*c)**3)) + sq
rt(c + d*x))/(2*b**4) + a**4*d**4*sqrt(-1/(b*(a*d - b*c)**3))*log
(a**2*d**2*sqrt(-1/(b*(a*d - b*c)**3)) - 2*a*b*c*d*sqrt(-1/(b*(a*
d - b*c)**3)) + b**2*c**2*sqrt(-1/(b*(a*d - b*c)**3)) + sqrt(c +
d*x))/(2*b**4) - 6*a**3*c*d**3*sqrt(c + d*x)/(2*a**2*b**3*d**2 -
2*a*b**4*c*d + 2*a*b**4*d**2*x - 2*b**5*c*d*x) + 3*a**3*c*d**3*sq
rt(-1/(b*(a*d - b*c)**3))*log(-a**2*d**2*sqrt(-1/(b*(a*d - b*c)**
3)) + 2*a*b*c*d*sqrt(-1/(b*(a*d - b*c)**3)) - b**2*c**2*sqrt(-1/(
b*(a*d - b*c)**3)) + sqrt(c + d*x))/(2*b**3) - 3*a**3*c*d**3*sqrt
(-1/(b*(a*d - b*c)**3))*log(a**2*d**2*sqrt(-1/(b*(a*d - b*c)**3))
 - 2*a*b*c*d*sqrt(-1/(b*(a*d - b*c)**3)) + b**2*c**2*sqrt(-1/(b*(
a*d - b*c)**3)) + sqrt(c + d*x))/(2*b**3) - 8*a**3*d**3*Piecewise
((atan(sqrt(c + d*x)/sqrt(a*d/b - c))/(b*sqrt(a*d/b - c)), a*d/b
- c > 0), (-acoth(sqrt(c + d*x)/sqrt(-a*d/b + c))/(b*sqrt(-a*d/b
+ c)), (a*d/b - c < 0) & (c + d*x > -a*d/b + c)), (-atanh(sqrt(c
+ d*x)/sqrt(-a*d/b + c))/(b*sqrt(-a*d/b + c)), (a*d/b - c < 0) &
(c + d*x < -a*d/b + c)))/b**4 + 6*a**2*c**2*d**2*sqrt(c + d*x)/(2
*a**2*b**2*d**2 - 2*a*b**3*c*d + 2*a*b**3*d**2*x - 2*b**4*c*d*x)
- 3*a**2*c**2*d**2*sqrt(-1/(b*(a*d - b*c)**3))*log(-a**2*d**2*sqr
t(-1/(b*(a*d - b*c)**3)) + 2*a*b*c*d*sqrt(-1/(b*(a*d - b*c)**3))
- b**2*c**2*sqrt(-1/(b*(a*d - b*c)**3)) + sqrt(c + d*x))/(2*b**2)
 + 3*a**2*c**2*d**2*sqrt(-1/(b*(a*d - b*c)**3))*log(a**2*d**2*sqr
t(-1/(b*(a*d - b*c)**3)) - 2*a*b*c*d*sqrt(-1/(b*(a*d - b*c)**3))
+ b**2*c**2*sqrt(-1/(b*(a*d - b*c)**3)) + sqrt(c + d*x))/(2*b**2)
 + 18*a**2*c*d**2*Piecewise((atan(sqrt(c + d*x)/sqrt(a*d/b - c))/
(b*sqrt(a*d/b - c)), a*d/b - c > 0), (-acoth(sqrt(c + d*x)/sqrt(-
a*d/b + c))/(b*sqrt(-a*d/b + c)), (a*d/b - c < 0) & (c + d*x > -a
*d/b + c)), (-atanh(sqrt(c + d*x)/sqrt(-a*d/b + c))/(b*sqrt(-a*d/
b + c)), (a*d/b - c < 0) & (c + d*x < -a*d/b + c)))/b**3 + 6*a**2
*d**2*sqrt(c + d*x)/b**4 - 2*a*c**3*d*sqrt(c + d*x)/(2*a**2*b*d**
2 - 2*a*b**2*c*d + 2*a*b**2*d**2*x - 2*b**3*c*d*x) + a*c**3*d*sqr
t(-1/(b*(a*d - b*c)**3))*log(-a**2*d**2*sqrt(-1/(b*(a*d - b*c)**3
)) + 2*a*b*c*d*sqrt(-1/(b*(a*d - b*c)**3)) - b**2*c**2*sqrt(-1/(b
*(a*d - b*c)**3)) + sqrt(c + d*x))/(2*b) - a*c**3*d*sqrt(-1/(b*(a
*d - b*c)**3))*log(a**2*d**2*sqrt(-1/(b*(a*d - b*c)**3)) - 2*a*b*
c*d*sqrt(-1/(b*(a*d - b*c)**3)) + b**2*c**2*sqrt(-1/(b*(a*d - b*c
)**3)) + sqrt(c + d*x))/(2*b) - 12*a*c**2*d*Piecewise((atan(sqrt(
c + d*x)/sqrt(a*d/b - c))/(b*sqrt(a*d/b - c)), a*d/b - c > 0), (-
acoth(sqrt(c + d*x)/sqrt(-a*d/b + c))/(b*sqrt(-a*d/b + c)), (a*d/
b - c < 0) & (c + d*x > -a*d/b + c)), (-atanh(sqrt(c + d*x)/sqrt(
-a*d/b + c))/(b*sqrt(-a*d/b + c)), (a*d/b - c < 0) & (c + d*x < -
a*d/b + c)))/b**2 - 8*a*c*d*sqrt(c + d*x)/b**3 - 4*a*d*(c + d*x)*
```

```
*(3/2)/(3*b**3) + 2*c**3*Piecewise((atan(sqrt(c + d*x)/sqrt(a*d/b
 - c))/(b*sqrt(a*d/b - c)), a*d/b - c > 0), (-acoth(sqrt(c + d*x)
/sqrt(-a*d/b + c))/(b*sqrt(-a*d/b + c)), (a*d/b - c < 0) & (c + d
*x > -a*d/b + c)), (-atanh(sqrt(c + d*x)/sqrt(-a*d/b + c))/(b*sqr
t(-a*d/b + c)), (a*d/b - c < 0) & (c + d*x < -a*d/b + c)))/b + 2*
c**2*sqrt(c + d*x)/b**2 + 2*c*(c + d*x)**(3/2)/(3*b**2) + 2*(c +
d*x)**(5/2)/(5*b**2)
```

GIAC/XCAS [A] time = 0.245332, size = 324, normalized size = 1.82

$$\frac{\left(2\,b^3c^3 - 11\,ab^2c^2d + 16\,a^2bcd^2 - 7\,a^3d^3\right)\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{-b^2c+abd}}\right)}{\sqrt{-b^2c+abd}b^4} + \frac{\sqrt{dx+c}ab^2c^2d - 2\sqrt{dx+c}a^2bcd^2 + \sqrt{dx+c}a^3d^3}{((dx+c)b - bc + ad)b^4} + \frac{2\left(3\,(dx+c)^{\frac{5}{2}}b^8 + 5\,(dx+c)^{\frac{3}{2}}b^8c + 15\sqrt{dx+c}b^8c^2 - 10\,(dx+c)^{\frac{3}{2}}ab^7d - 60\sqrt{dx+c}ab^7cd + 45\sqrt{dx+c}a^2b^6d^2\right)}{15\,b^{10}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)*x/(b*x + a)^2,x, algorithm="giac")
```

```
[Out] (2*b^3*c^3 - 11*a*b^2*c^2*d + 16*a^2*b*c*d^2 - 7*a^3*d^3)*arctan(
sqrt(d*x + c)*b/sqrt(-b^2*c + a*b*d))/(sqrt(-b^2*c + a*b*d)*b^4)
+ (sqrt(d*x + c)*a*b^2*c^2*d - 2*sqrt(d*x + c)*a^2*b*c*d^2 + sqrt
(d*x + c)*a^3*d^3)/(((d*x + c)*b - b*c + a*d)*b^4) + 2/15*(3*(d*x
 + c)^(5/2)*b^8 + 5*(d*x + c)^(3/2)*b^8*c + 15*sqrt(d*x + c)*b^8*
c^2 - 10*(d*x + c)^(3/2)*a*b^7*d - 60*sqrt(d*x + c)*a*b^7*c*d + 4
5*sqrt(d*x + c)*a^2*b^6*d^2)/b^10
```

3.459 $\int \frac{(c+dx)^{5/2}}{(a+bx)^2}\,dx$

Optimal. Leaf size=110

$$-\frac{5d(bc-ad)^{3/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{b^{7/2}}+\frac{5d\sqrt{c+dx}(bc-ad)}{b^3}-\frac{(c+dx)^{5/2}}{b(a+bx)}+\frac{5d(c+dx)^{3/2}}{3b^2}$$

```
[Out] (5*d*(b*c - a*d)*Sqrt[c + d*x])/b^3 + (5*d*(c + d*x)^(3/2))/(3*b^
2) - (c + d*x)^(5/2)/(b*(a + b*x)) - (5*d*(b*c - a*d)^(3/2)*ArcTa
nh[(Sqrt[b]*Sqrt[c + d*x])/Sqrt[b*c - a*d]])/b^(7/2)
```

Rubi [A] time = 0.152977, antiderivative size = 110, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 17, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.235

$$-\frac{5d(bc-ad)^{3/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{b^{7/2}}+\frac{5d\sqrt{c+dx}(bc-ad)}{b^3}-\frac{(c+dx)^{5/2}}{b(a+bx)}+\frac{5d(c+dx)^{3/2}}{3b^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^(5/2)/(a + b*x)^2,x]
```

```
[Out] (5*d*(b*c - a*d)*Sqrt[c + d*x])/b^3 + (5*d*(c + d*x)^(3/2))/(3*b^
2) - (c + d*x)^(5/2)/(b*(a + b*x)) - (5*d*(b*c - a*d)^(3/2)*ArcTa
nh[(Sqrt[b]*Sqrt[c + d*x])/Sqrt[b*c - a*d]])/b^(7/2)
```

Rubi in Sympy [A] time = 22.6999, size = 97, normalized size = 0.88

$$-\frac{(c+dx)^{\frac{5}{2}}}{b\,(a+bx)}+\frac{5d\,(c+dx)^{\frac{3}{2}}}{3b^2}-\frac{5d\sqrt{c+dx}\,(ad-bc)}{b^3}+\frac{5d\,(ad-bc)^{\frac{3}{2}}\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{ad-bc}}\right)}{b^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(5/2)/(b*x+a)**2,x)
```

```
[Out] -(c + d*x)**(5/2)/(b*(a + b*x)) + 5*d*(c + d*x)**(3/2)/(3*b**2) -
 5*d*sqrt(c + d*x)*(a*d - b*c)/b**3 + 5*d*(a*d - b*c)**(3/2)*atan
(sqrt(b)*sqrt(c + d*x)/sqrt(a*d - b*c))/b**(7/2)
```

Mathematica [A] time = 0.182145, size = 104, normalized size = 0.95

$$\frac{\sqrt{c+dx}\left(-\frac{3(bc-ad)^2}{a+bx}+2d(7bc-6ad)+2bd^2x\right)}{3b^3}-\frac{5d(bc-ad)^{3/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{b^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^(5/2)/(a + b*x)^2,x]
```

```
[Out] (Sqrt[c + d*x]*(2*d*(7*b*c - 6*a*d) + 2*b*d^2*x - (3*(b*c - a*d)^
2)/(a + b*x)))/(3*b^3) - (5*d*(b*c - a*d)^(3/2)*ArcTanh[(Sqrt[b]*
Sqrt[c + d*x])/Sqrt[b*c - a*d]])/b^(7/2)
```

Maple [B] time = 0.007, size = 258, normalized size = 2.4

$$\frac{2\,d}{3\,b^{2}}\left(dx+c\right)^{\frac{3}{2}}-4\,\frac{d^{2}a\sqrt{dx+c}}{b^{3}}+4\,\frac{d\sqrt{dx+c}c}{b^{2}}-\frac{a^{2}d^{3}}{b^{3}\left(bdx+ad\right)}\sqrt{dx+c}+2\,\frac{\sqrt{dx+c}acd^{2}}{b^{2}\left(bdx+ad\right)}-\frac{dc^{2}}{b\left(bdx+ad\right)}\sqrt{dx+c}+5\,\frac{a^{2}d^{3}}{b^{3}\sqrt{\left(ad-bc\right)b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{\left(ad-bc\right)b}}\right)-10\,\frac{acd^{2}}{b^{2}\sqrt{\left(ad-bc\right)b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{\left(ad-bc\right)b}}\right)+5\,\frac{dc^{2}}{b\sqrt{\left(ad-bc\right)b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{\left(ad-bc\right)b}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(5/2)/(b*x+a)^2,x)
```

```
[Out] 2/3*d*(d*x+c)^(3/2)/b^2-4/b^3*a*d^2*(d*x+c)^(1/2)+4*d/b^2*(d*x+c)
^(1/2)*c-1/b^3*(d*x+c)^(1/2)/(b*d*x+a*d)*a^2*d^3+2/b^2*(d*x+c)^(1
/2)/(b*d*x+a*d)*a*c*d^2-d/b*(d*x+c)^(1/2)/(b*d*x+a*d)*c^2+5/b^3/(
(a*d-b*c)*b)^(1/2)*arctan((d*x+c)^(1/2)*b/((a*d-b*c)*b)^(1/2))*a^
2*d^3-10/b^2/((a*d-b*c)*b)^(1/2)*arctan((d*x+c)^(1/2)*b/((a*d-b*c
)*b)^(1/2))*a*c*d^2+5*d/b/((a*d-b*c)*b)^(1/2)*arctan((d*x+c)^(1/2
)*b/((a*d-b*c)*b)^(1/2))*c^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/(b*x + a)^2,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.261849, size = 1, normalized size = 0.01

$$\left[-\frac{15\left(abcd-a^{2}d^{2}+\left(b^{2}cd-abd^{2}\right)x\right)\sqrt{\frac{bc-ad}{b}}\log\left(\frac{bdx+2\,bc-ad+2\,\sqrt{dx+c}b\sqrt{\frac{bc-ad}{b}}}{bx+a}\right)-2\left(2\,b^{2}d^{2}x^{2}-3\,b^{2}c^{2}+20\,abcd-15\,a^{2}d^{2}\cdots\right.}{6\left(b^{4}x+ab^{3}\right)}\right.$$

$$-\frac{15\left(abcd-a^{2}d^{2}+\left(b^{2}cd-abd^{2}\right)x\right)\sqrt{-\frac{bc-ad}{b}}\arctan\left(\frac{\sqrt{dx+c}}{\sqrt{-\frac{bc-ad}{b}}}\right)-\left(2\,b^{2}d^{2}x^{2}-3\,b^{2}c^{2}+20\,abcd-15\,a^{2}d^{2}+2\left(7\,b^{2}cd-5\cdots\right.\right.}{3\left(b^{4}x+ab^{3}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/(b*x + a)^2,x, algorithm="fricas")
```

```
[Out] [-1/6*(15*(a*b*c*d - a^2*d^2 + (b^2*c*d - a*b*d^2)*x)*sqrt((b*c -
 a*d)/b)*log((b*d*x + 2*b*c - a*d + 2*sqrt(d*x + c)*b*sqrt((b*c -
 a*d)/b))/(b*x + a)) - 2*(2*b^2*d^2*x^2 - 3*b^2*c^2 + 20*a*b*c*d
- 15*a^2*d^2 + 2*(7*b^2*c*d - 5*a*b*d^2)*x)*sqrt(d*x + c))/(b^4*x
 + a*b^3), -1/3*(15*(a*b*c*d - a^2*d^2 + (b^2*c*d - a*b*d^2)*x)*s
qrt(-(b*c - a*d)/b)*arctan(sqrt(d*x + c)/sqrt(-(b*c - a*d)/b)) -
(2*b^2*d^2*x^2 - 3*b^2*c^2 + 20*a*b*c*d - 15*a^2*d^2 + 2*(7*b^2*c
*d - 5*a*b*d^2)*x)*sqrt(d*x + c))/(b^4*x + a*b^3)]
```

Sympy [A] time = 109.835, size = 1622, normalized size = 14.75

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(5/2)/(b*x+a)**2,x)
```

```
[Out] -2*a**3*d**4*sqrt(c + d*x)/(2*a**2*b**3*d**2 - 2*a*b**4*c*d + 2*a
*b**4*d**2*x - 2*b**5*c*d*x) + a**3*d**4*sqrt(-1/(b*(a*d - b*c)**
3))*log(-a**2*d**2*sqrt(-1/(b*(a*d - b*c)**3)) + 2*a*b*c*d*sqrt(-
1/(b*(a*d - b*c)**3)) - b**2*c**2*sqrt(-1/(b*(a*d - b*c)**3)) + s
qrt(c + d*x))/(2*b**3) - a**3*d**4*sqrt(-1/(b*(a*d - b*c)**3))*lo
g(a**2*d**2*sqrt(-1/(b*(a*d - b*c)**3)) - 2*a*b*c*d*sqrt(-1/(b*(a
*d - b*c)**3)) + b**2*c**2*sqrt(-1/(b*(a*d - b*c)**3)) + sqrt(c +
 d*x))/(2*b**3) + 6*a**2*c*d**3*sqrt(c + d*x)/(2*a**2*b**2*d**2 -
 2*a*b**3*c*d + 2*a*b**3*d**2*x - 2*b**4*c*d*x) - 3*a**2*c*d**3*s
qrt(-1/(b*(a*d - b*c)**3))*log(-a**2*d**2*sqrt(-1/(b*(a*d - b*c)*
*3)) + 2*a*b*c*d*sqrt(-1/(b*(a*d - b*c)**3)) - b**2*c**2*sqrt(-1/
(b*(a*d - b*c)**3)) + sqrt(c + d*x))/(2*b**2) + 3*a**2*c*d**3*sqr
t(-1/(b*(a*d - b*c)**3))*log(a**2*d**2*sqrt(-1/(b*(a*d - b*c)**3)
) - 2*a*b*c*d*sqrt(-1/(b*(a*d - b*c)**3)) + b**2*c**2*sqrt(-1/(b*
(a*d - b*c)**3)) + sqrt(c + d*x))/(2*b**2) + 6*a**2*d**3*Piecewis
e((atan(sqrt(c + d*x)/sqrt(a*d/b - c))/(b*sqrt(a*d/b - c)), a*d/b
 - c > 0), (-acoth(sqrt(c + d*x)/sqrt(-a*d/b + c))/(b*sqrt(-a*d/b
 + c)), (a*d/b - c < 0) & (c + d*x > -a*d/b + c)), (-atanh(sqrt(c
 + d*x)/sqrt(-a*d/b + c))/(b*sqrt(-a*d/b + c)), (a*d/b - c < 0) &
 (c + d*x < -a*d/b + c)))/b**3 - 6*a*c**2*d**2*sqrt(c + d*x)/(2*a
**2*b*d**2 - 2*a*b**2*c*d + 2*a*b**2*d**2*x - 2*b**3*c*d*x) + 3*a
*c**2*d**2*sqrt(-1/(b*(a*d - b*c)**3))*log(-a**2*d**2*sqrt(-1/(b*
(a*d - b*c)**3)) + 2*a*b*c*d*sqrt(-1/(b*(a*d - b*c)**3)) - b**2*c
**2*sqrt(-1/(b*(a*d - b*c)**3)) + sqrt(c + d*x))/(2*b) - 3*a*c**2
*d**2*sqrt(-1/(b*(a*d - b*c)**3))*log(a**2*d**2*sqrt(-1/(b*(a*d -
 b*c)**3)) - 2*a*b*c*d*sqrt(-1/(b*(a*d - b*c)**3)) + b**2*c**2*sq
rt(-1/(b*(a*d - b*c)**3)) + sqrt(c + d*x))/(2*b) - 12*a*c*d**2*Pi
ecewise((atan(sqrt(c + d*x)/sqrt(a*d/b - c))/(b*sqrt(a*d/b - c)),
 a*d/b - c > 0), (-acoth(sqrt(c + d*x)/sqrt(-a*d/b + c))/(b*sqrt(
-a*d/b + c)), (a*d/b - c < 0) & (c + d*x > -a*d/b + c)), (-atanh(
sqrt(c + d*x)/sqrt(-a*d/b + c))/(b*sqrt(-a*d/b + c)), (a*d/b - c
< 0) & (c + d*x < -a*d/b + c)))/b**2 - 4*a*d**2*sqrt(c + d*x)/b**
3 - c**3*d*sqrt(-1/(b*(a*d - b*c)**3))*log(-a**2*d**2*sqrt(-1/(b*
(a*d - b*c)**3)) + 2*a*b*c*d*sqrt(-1/(b*(a*d - b*c)**3)) - b**2*c
**2*sqrt(-1/(b*(a*d - b*c)**3)) + sqrt(c + d*x))/2 + c**3*d*sqrt(
-1/(b*(a*d - b*c)**3))*log(a**2*d**2*sqrt(-1/(b*(a*d - b*c)**3))
- 2*a*b*c*d*sqrt(-1/(b*(a*d - b*c)**3)) + b**2*c**2*sqrt(-1/(b*(a
*d - b*c)**3)) + sqrt(c + d*x))/2 + 2*c**3*d*sqrt(c + d*x)/(2*a**
2*d**2 - 2*a*b*c*d + 2*a*b*d**2*x - 2*b**2*c*d*x) + 6*c**2*d*Piec
ewise((atan(sqrt(c + d*x)/sqrt(a*d/b - c))/(b*sqrt(a*d/b - c)), a
*d/b - c > 0), (-acoth(sqrt(c + d*x)/sqrt(-a*d/b + c))/(b*sqrt(-a
*d/b + c)), (a*d/b - c < 0) & (c + d*x > -a*d/b + c)), (-atanh(sq
rt(c + d*x)/sqrt(-a*d/b + c))/(b*sqrt(-a*d/b + c)), (a*d/b - c <
0) & (c + d*x < -a*d/b + c)))/b + 4*c*d*sqrt(c + d*x)/b**2 + 2*d*
(c + d*x)**(3/2)/(3*b**2)
```

GIAC/XCAS [A] time = 0.219088, size = 244, normalized size = 2.22

$$\frac{5\left(b^{2}c^{2}d-2\,abcd^{2}+a^{2}d^{3}\right)\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{-b^{2}c+abd}}\right)}{\sqrt{-b^{2}c+abd}b^{3}}-\frac{\sqrt{dx+c}b^{2}c^{2}d-2\,\sqrt{dx+c}abcd^{2}+\sqrt{dx+c}a^{2}d^{3}}{((dx+c)b-bc+ad)b^{3}}+\frac{2\left((dx+c)^{\frac{3}{2}}b^{4}d+6\,\sqrt{dx+c}b^{4}cd-6\,\sqrt{dx+c}ab^{3}d^{2}\right)}{3\,b^{6}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/(b*x + a)^2,x, algorithm="giac")
```

```
[Out] 5*(b^2*c^2*d - 2*a*b*c*d^2 + a^2*d^3)*arctan(sqrt(d*x + c)*b/sqrt
(-b^2*c + a*b*d))/(sqrt(-b^2*c + a*b*d)*b^3) - (sqrt(d*x + c)*b^2
```

```
*c^2*d - 2*sqrt(d*x + c)*a*b*c*d^2 + sqrt(d*x + c)*a^2*d^3)/(((d*
x + c)*b - b*c + a*d)*b^3) + 2/3*((d*x + c)^(3/2)*b^4*d + 6*sqrt(
d*x + c)*b^4*c*d - 6*sqrt(d*x + c)*a*b^3*d^2)/b^6
```

3.460 $\int \frac{(c+dx)^{5/2}}{x(a+bx)^2}\,dx$

Optimal. Leaf size=142

$$\frac{(bc-ad)^{3/2}(3ad+2bc)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{a^2b^{5/2}}-\frac{2c^{5/2}\tanh^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{a^2}-\frac{d\sqrt{c+dx}(bc-3ad)}{ab^2}+\frac{(c+dx)^{3/2}(bc-ad)}{ab(a+bx)}$$

```
[Out] -((d*(b*c - 3*a*d)*Sqrt[c + d*x])/(a*b^2)) + ((b*c - a*d)*(c + d*
x)^(3/2))/(a*b*(a + b*x)) - (2*c^(5/2)*ArcTanh[Sqrt[c + d*x]/Sqrt
[c]])/a^2 + ((b*c - a*d)^(3/2)*(2*b*c + 3*a*d)*ArcTanh[(Sqrt[b]*S
qrt[c + d*x])/Sqrt[b*c - a*d]])/(a^2*b^(5/2))
```

Rubi [A] time = 0.484099, antiderivative size = 142, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.3$

$$\frac{(bc-ad)^{3/2}(3ad+2bc)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{a^2b^{5/2}}-\frac{2c^{5/2}\tanh^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{a^2}-\frac{d\sqrt{c+dx}(bc-3ad)}{ab^2}+\frac{(c+dx)^{3/2}(bc-ad)}{ab(a+bx)}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^(5/2)/(x*(a + b*x)^2),x]
```

```
[Out] -((d*(b*c - 3*a*d)*Sqrt[c + d*x])/(a*b^2)) + ((b*c - a*d)*(c + d*
x)^(3/2))/(a*b*(a + b*x)) - (2*c^(5/2)*ArcTanh[Sqrt[c + d*x]/Sqrt
[c]])/a^2 + ((b*c - a*d)^(3/2)*(2*b*c + 3*a*d)*ArcTanh[(Sqrt[b]*S
qrt[c + d*x])/Sqrt[b*c - a*d]])/(a^2*b^(5/2))
```

Rubi in Sympy [A] time = 51.2607, size = 126, normalized size = 0.89

$$-\frac{(c+dx)^{\frac{3}{2}}(ad-bc)}{ab(a+bx)}+\frac{d\sqrt{c+dx}\,(3ad-bc)}{ab^2}-\frac{2c^{\frac{5}{2}}\operatorname{atanh}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{a^2}-\frac{(ad-bc)^{\frac{3}{2}}(3ad+2bc)\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{ad-bc}}\right)}{a^2b^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(5/2)/x/(b*x+a)**2,x)
```

```
[Out] -(c + d*x)**(3/2)*(a*d - b*c)/(a*b*(a + b*x)) + d*sqrt(c + d*x)*(
3*a*d - b*c)/(a*b**2) - 2*c**(5/2)*atanh(sqrt(c + d*x)/sqrt(c))/a
**2 - (a*d - b*c)**(3/2)*(3*a*d + 2*b*c)*atan(sqrt(b)*sqrt(c + d*
x)/sqrt(a*d - b*c))/(a**2*b**(5/2))
```

Mathematica [A] time = 0.219618, size = 125, normalized size = 0.88

$$\frac{(bc-ad)^{3/2}(3ad+2bc)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{a^2b^{5/2}}-\frac{2c^{5/2}\tanh^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{a^2}+\frac{\sqrt{c+dx}\left(\frac{(bc-ad)^2}{a(a+bx)}+2d^2\right)}{b^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^(5/2)/(x*(a + b*x)^2),x]
```

```
[Out] (Sqrt[c + d*x]*(2*d^2 + (b*c - a*d)^2/(a*(a + b*x))))/b^2 - (2*c^
(5/2)*ArcTanh[Sqrt[c + d*x]/Sqrt[c]])/a^2 + ((b*c - a*d)^(3/2)*(2
*b*c + 3*a*d)*ArcTanh[(Sqrt[b]*Sqrt[c + d*x])/Sqrt[b*c - a*d]])/(
a^2*b^(5/2))
```

Maple [B] time = 0.024, size = 284, normalized size = 2.

$$2\,\frac{d^2\sqrt{dx+c}}{b^2}-2\,\frac{c^{5/2}}{a^2}\mathit{Artanh}\left(\frac{\sqrt{dx+c}}{\sqrt{c}}\right)+\frac{d^3a}{b^2\,(bdx+ad)}\sqrt{dx+c}-2\,\frac{d^2\sqrt{dx+c}c}{b\,(bdx+ad)}$$
$$+\frac{dc^2}{a\,(bdx+ad)}\sqrt{dx+c}-3\,\frac{d^3a}{b^2\sqrt{(ad-bc)\,b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)\,b}}\right)$$
$$+4\,\frac{d^2c}{b\sqrt{(ad-bc)\,b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)\,b}}\right)+\frac{dc^2}{a}\arctan\left(b\sqrt{dx+c}\frac{1}{\sqrt{(ad-bc)\,b}}\right)\frac{1}{\sqrt{(ad-bc)\,b}}$$
$$-2\,\frac{bc^3}{a^2\sqrt{(ad-bc)\,b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)\,b}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(5/2)/x/(b*x+a)^2,x)
```

```
[Out] 2*d^2/b^2*(d*x+c)^(1/2)-2*c^(5/2)*arctanh((d*x+c)^(1/2)/c^(1/2))/
a^2+d^3/b^2*a*(d*x+c)^(1/2)/(b*d*x+a*d)-2*d^2/b*(d*x+c)^(1/2)/(b*
d*x+a*d)*c+d/a*(d*x+c)^(1/2)/(b*d*x+a*d)*c^2-3*d^3/b^2*a/((a*d-b*
c)*b)^(1/2)*arctan((d*x+c)^(1/2)*b/((a*d-b*c)*b)^(1/2))+4*d^2/b/(
(a*d-b*c)*b)^(1/2)*arctan((d*x+c)^(1/2)*b/((a*d-b*c)*b)^(1/2))*c+
d/a/((a*d-b*c)*b)^(1/2)*arctan((d*x+c)^(1/2)*b/((a*d-b*c)*b)^(1/2
))*c^2-2*b/a^2/((a*d-b*c)*b)^(1/2)*arctan((d*x+c)^(1/2)*b/((a*d-b
*c)*b)^(1/2))*c^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/((b*x + a)^2*x),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.408955, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/((b*x + a)^2*x),x, algorithm="fricas")
```

```
[Out] [-1/2*((2*a*b^2*c^2 + a^2*b*c*d - 3*a^3*d^2 + (2*b^3*c^2 + a*b^2*
c*d - 3*a^2*b*d^2)*x)*sqrt((b*c - a*d)/b)*log((b*d*x + 2*b*c - a*
d - 2*sqrt(d*x + c)*b*sqrt((b*c - a*d)/b))/(b*x + a)) - 2*(b^3*c^
2*x + a*b^2*c^2)*sqrt(c)*log((d*x - 2*sqrt(d*x + c)*sqrt(c) + 2*c
)/x) - 2*(2*a^2*b*d^2*x + a*b^2*c^2 - 2*a^2*b*c*d + 3*a^3*d^2)*sq
rt(d*x + c))/(a^2*b^3*x + a^3*b^2), ((2*a*b^2*c^2 + a^2*b*c*d - 3
*a^3*d^2 + (2*b^3*c^2 + a*b^2*c*d - 3*a^2*b*d^2)*x)*sqrt(-(b*c -
a*d)/b)*arctan(sqrt(d*x + c)/sqrt(-(b*c - a*d)/b)) + (b^3*c^2*x +
 a*b^2*c^2)*sqrt(c)*log((d*x - 2*sqrt(d*x + c)*sqrt(c) + 2*c)/x)
+ (2*a^2*b*d^2*x + a*b^2*c^2 - 2*a^2*b*c*d + 3*a^3*d^2)*sqrt(d*x
```

```
+ c))/(a^2*b^3*x + a^3*b^2), -1/2*(4*(b^3*c^2*x + a*b^2*c^2)*sqrt
(-c)*arctan(sqrt(d*x + c)/sqrt(-c)) + (2*a*b^2*c^2 + a^2*b*c*d -
3*a^3*d^2 + (2*b^3*c^2 + a*b^2*c*d - 3*a^2*b*d^2)*x)*sqrt((b*c -
a*d)/b)*log((b*d*x + 2*b*c - a*d - 2*sqrt(d*x + c)*b*sqrt((b*c -
a*d)/b))/(b*x + a)) - 2*(2*a^2*b*d^2*x + a*b^2*c^2 - 2*a^2*b*c*d
+ 3*a^3*d^2)*sqrt(d*x + c))/(a^2*b^3*x + a^3*b^2), -(2*(b^3*c^2*x
 + a*b^2*c^2)*sqrt(-c)*arctan(sqrt(d*x + c)/sqrt(-c)) - (2*a*b^2*
c^2 + a^2*b*c*d - 3*a^3*d^2 + (2*b^3*c^2 + a*b^2*c*d - 3*a^2*b*d^
2)*x)*sqrt(-(b*c - a*d)/b)*arctan(sqrt(d*x + c)/sqrt(-(b*c - a*d)
/b)) - (2*a^2*b*d^2*x + a*b^2*c^2 - 2*a^2*b*c*d + 3*a^3*d^2)*sqrt
(d*x + c))/(a^2*b^3*x + a^3*b^2)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(5/2)/x/(b*x+a)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.223517, size = 261, normalized size = 1.84

$$\frac{2\,c^3\arctan\left(\frac{\sqrt{dx+c}}{\sqrt{-c}}\right)}{a^2\sqrt{-c}}+\frac{2\,\sqrt{dx+c}d^2}{b^2}-\frac{\left(2\,b^3c^3-ab^2c^2d-4\,a^2bcd^2+3\,a^3d^3\right)\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{-b^2c+abd}}\right)}{\sqrt{-b^2c+abd}a^2b^2}+\frac{\sqrt{dx+c}b^2c^2d-2\,\sqrt{dx+c}abcd^2+\sqrt{dx+c}a^2d^3}{((dx+c)b-bc+ad)ab^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/((b*x + a)^2*x),x, algorithm="giac")
```

```
[Out] 2*c^3*arctan(sqrt(d*x + c)/sqrt(-c))/(a^2*sqrt(-c)) + 2*sqrt(d*x
+ c)*d^2/b^2 - (2*b^3*c^3 - a*b^2*c^2*d - 4*a^2*b*c*d^2 + 3*a^3*d
^3)*arctan(sqrt(d*x + c)*b/sqrt(-b^2*c + a*b*d))/(sqrt(-b^2*c + a
*b*d)*a^2*b^2) + (sqrt(d*x + c)*b^2*c^2*d - 2*sqrt(d*x + c)*a*b*c
*d^2 + sqrt(d*x + c)*a^2*d^3)/(((d*x + c)*b - b*c + a*d)*a*b^2)
```

3.461 $\int \frac{(c+dx)^{5/2}}{x^2(a+bx)^2}\,dx$

Optimal. Leaf size=147

$$-\frac{(bc-ad)^{3/2}(ad+4bc)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{a^3b^{3/2}}+\frac{c^{3/2}(4bc-5ad)\tanh^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{a^3}-\frac{\sqrt{c+dx}(bc-ad)^2}{a^2b(a+bx)}-\frac{c^2\sqrt{c+dx}}{a^2x}$$

```
[Out] -((c^2*Sqrt[c + d*x])/(a^2*x)) - ((b*c - a*d)^2*Sqrt[c + d*x])/(a
^2*b*(a + b*x)) + (c^(3/2)*(4*b*c - 5*a*d)*ArcTanh[Sqrt[c + d*x]/
Sqrt[c]])/a^3 - ((b*c - a*d)^(3/2)*(4*b*c + a*d)*ArcTanh[(Sqrt[b]
*Sqrt[c + d*x])/Sqrt[b*c - a*d]])/(a^3*b^(3/2))
```

Rubi [A] time = 0.566549, antiderivative size = 159, normalized size of antiderivative = 1.08, number of steps used = 7, number of rules used = 6, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.3$

$$-\frac{(bc-ad)^{3/2}(ad+4bc)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{a^3b^{3/2}}+\frac{c^{3/2}(4bc-5ad)\tanh^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{a^3}-\frac{\sqrt{c+dx}(bc-ad)(2bc-ad)}{a^2b(a+bx)}-\frac{c(c+dx)^{3/2}}{ax(a+bx)}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^(5/2)/(x^2*(a + b*x)^2),x]
```

```
[Out] -(((b*c - a*d)*(2*b*c - a*d)*Sqrt[c + d*x])/(a^2*b*(a + b*x))) -
(c*(c + d*x)^(3/2))/(a*x*(a + b*x)) + (c^(3/2)*(4*b*c - 5*a*d)*Ar
cTanh[Sqrt[c + d*x]/Sqrt[c]])/a^3 - ((b*c - a*d)^(3/2)*(4*b*c + a
*d)*ArcTanh[(Sqrt[b]*Sqrt[c + d*x])/Sqrt[b*c - a*d]])/(a^3*b^(3/2
))
```

Rubi in Sympy [A] time = 56.9539, size = 138, normalized size = 0.94

$$-\frac{c\left(c+dx\right)^{\frac{3}{2}}}{ax\left(a+bx\right)}-\frac{\sqrt{c+dx}\left(ad-2bc\right)\left(ad-bc\right)}{a^2b\left(a+bx\right)}-\frac{c^{\frac{3}{2}}\left(5ad-4bc\right)\operatorname{atanh}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{a^3}+\frac{\left(ad-bc\right)^{\frac{3}{2}}\left(ad+4bc\right)\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{ad-bc}}\right)}{a^3b^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(5/2)/x**2/(b*x+a)**2,x)
```

```
[Out] -c*(c + d*x)**(3/2)/(a*x*(a + b*x)) - sqrt(c + d*x)*(a*d - 2*b*c)
*(a*d - b*c)/(a**2*b*(a + b*x)) - c**(3/2)*(5*a*d - 4*b*c)*atanh(
sqrt(c + d*x)/sqrt(c))/a**3 + (a*d - b*c)**(3/2)*(a*d + 4*b*c)*at
an(sqrt(b)*sqrt(c + d*x)/sqrt(a*d - b*c))/(a**3*b**(3/2))
```

Mathematica [A] time = 0.29412, size = 132, normalized size = 0.9

$$\frac{-\frac{(bc-ad)^{3/2}(ad+4bc)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{b^{3/2}}+c^{3/2}(4bc-5ad)\tanh^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)-a\sqrt{c+dx}\left(\frac{(bc-ad)^2}{b(a+bx)}+\frac{c^2}{x}\right)}{a^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^(5/2)/(x^2*(a + b*x)^2),x]
```

```
[Out] (-(a*Sqrt[c + d*x]*(c^2/x + (b*c - a*d)^2/(b*(a + b*x)))) + c^(3/
2)*(4*b*c - 5*a*d)*ArcTanh[Sqrt[c + d*x]/Sqrt[c]] - ((b*c - a*d)^
(3/2)*(4*b*c + a*d)*ArcTanh[(Sqrt[b]*Sqrt[c + d*x])/Sqrt[b*c - a*
d]])/b^(3/2))/a^3
```

Maple [B] time = 0.027, size = 313, normalized size = 2.1

$$-\frac{c^2}{a^2x}\sqrt{dx+c}-5\,\frac{dc^{3/2}}{a^2}Artanh\left(\frac{\sqrt{dx+c}}{\sqrt{c}}\right)+4\,\frac{c^{5/2}b}{a^3}Artanh\left(\frac{\sqrt{dx+c}}{\sqrt{c}}\right)$$
$$-\frac{d^3}{b\,(bdx+ad)}\sqrt{dx+c}+2\,\frac{d^2\sqrt{dx+c}c}{a\,(bdx+ad)}-\frac{bdc^2}{a^2\,(bdx+ad)}\sqrt{dx+c}$$
$$+\frac{d^3}{b}\arctan\left(b\sqrt{dx+c}\frac{1}{\sqrt{(ad-bc)\,b}}\right)\frac{1}{\sqrt{(ad-bc)\,b}}+2\,\frac{d^2c}{a\sqrt{(ad-bc)\,b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)\,b}}\right)$$
$$-7\,\frac{bdc^2}{a^2\sqrt{(ad-bc)\,b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)\,b}}\right)+4\,\frac{c^3b^2}{a^3\sqrt{(ad-bc)\,b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)\,b}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(5/2)/x^2/(b*x+a)^2,x)
```

```
[Out] -c^2*(d*x+c)^(1/2)/a^2/x-5*d/a^2*c^(3/2)*arctanh((d*x+c)^(1/2)/c^
(1/2))+4*c^(5/2)/a^3*arctanh((d*x+c)^(1/2)/c^(1/2))*b-d^3/b*(d*x+
c)^(1/2)/(b*d*x+a*d)+2*d^2/a*(d*x+c)^(1/2)/(b*d*x+a*d)*c-d/a^2*b*
(d*x+c)^(1/2)/(b*d*x+a*d)*c^2+d^3/b/((a*d-b*c)*b)^(1/2)*arctan((d
*x+c)^(1/2)*b/((a*d-b*c)*b)^(1/2))+2*d^2/a/((a*d-b*c)*b)^(1/2)*ar
ctan((d*x+c)^(1/2)*b/((a*d-b*c)*b)^(1/2))*c-7*d/a^2*b/((a*d-b*c)*
b)^(1/2)*arctan((d*x+c)^(1/2)*b/((a*d-b*c)*b)^(1/2))*c^2+4/a^3/((
a*d-b*c)*b)^(1/2)*arctan((d*x+c)^(1/2)*b/((a*d-b*c)*b)^(1/2))*c^3
*b^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/((b*x + a)^2*x^2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.406501, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/((b*x + a)^2*x^2),x, algorithm="fricas")
```

```
[Out] [-1/2*(((4*b^3*c^2 - 3*a*b^2*c*d - a^2*b*d^2)*x^2 + (4*a*b^2*c^2
 - 3*a^2*b*c*d - a^3*d^2)*x)*sqrt((b*c - a*d)/b)*log((b*d*x + 2*b*
c - a*d + 2*sqrt(d*x + c)*b*sqrt((b*c - a*d)/b))/(b*x + a)) + ((4
*b^3*c^2 - 5*a*b^2*c*d)*x^2 + (4*a*b^2*c^2 - 5*a^2*b*c*d)*x)*sqrt
(c)*log((d*x - 2*sqrt(d*x + c)*sqrt(c) + 2*c)/x) + 2*(a^2*b*c^2 +
 (2*a*b^2*c^2 - 2*a^2*b*c*d + a^3*d^2)*x)*sqrt(d*x + c))/(a^3*b^2
```

```
*x^2 + a^4*b*x), -1/2*(2*((4*b^3*c^2 - 3*a*b^2*c*d - a^2*b*d^2)*x
^2 + (4*a*b^2*c^2 - 3*a^2*b*c*d - a^3*d^2)*x)*sqrt(-(b*c - a*d)/b
)*arctan(sqrt(d*x + c)/sqrt(-(b*c - a*d)/b)) + ((4*b^3*c^2 - 5*a*
b^2*c*d)*x^2 + (4*a*b^2*c^2 - 5*a^2*b*c*d)*x)*sqrt(c)*log((d*x -
2*sqrt(d*x + c)*sqrt(c) + 2*c)/x) + 2*(a^2*b*c^2 + (2*a*b^2*c^2 -
 2*a^2*b*c*d + a^3*d^2)*x)*sqrt(d*x + c))/(a^3*b^2*x^2 + a^4*b*x)
, 1/2*(2*((4*b^3*c^2 - 5*a*b^2*c*d)*x^2 + (4*a*b^2*c^2 - 5*a^2*b*
c*d)*x)*sqrt(-c)*arctan(sqrt(d*x + c)/sqrt(-c)) - ((4*b^3*c^2 - 3
*a*b^2*c*d - a^2*b*d^2)*x^2 + (4*a*b^2*c^2 - 3*a^2*b*c*d - a^3*d^
2)*x)*sqrt((b*c - a*d)/b)*log((b*d*x + 2*b*c - a*d + 2*sqrt(d*x +
 c)*b*sqrt((b*c - a*d)/b))/(b*x + a)) - 2*(a^2*b*c^2 + (2*a*b^2*c
^2 - 2*a^2*b*c*d + a^3*d^2)*x)*sqrt(d*x + c))/(a^3*b^2*x^2 + a^4*
b*x), (((4*b^3*c^2 - 5*a*b^2*c*d)*x^2 + (4*a*b^2*c^2 - 5*a^2*b*c*
d)*x)*sqrt(-c)*arctan(sqrt(d*x + c)/sqrt(-c)) - ((4*b^3*c^2 - 3*a
*b^2*c*d - a^2*b*d^2)*x^2 + (4*a*b^2*c^2 - 3*a^2*b*c*d - a^3*d^2)
*x)*sqrt(-(b*c - a*d)/b)*arctan(sqrt(d*x + c)/sqrt(-(b*c - a*d)/b
)) - (a^2*b*c^2 + (2*a*b^2*c^2 - 2*a^2*b*c*d + a^3*d^2)*x)*sqrt(d
*x + c))/(a^3*b^2*x^2 + a^4*b*x)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(5/2)/x**2/(b*x+a)**2,x)

[Out] Timed out
```

GIAC/XCAS [A] time = 0.230165, size = 351, normalized size = 2.39

$$-\frac{\left(4\,bc^{3}-5\,ac^{2}d\right)\arctan\left(\frac{\sqrt{dx+c}}{\sqrt{-c}}\right)}{a^{3}\sqrt{-c}}+\frac{\left(4\,b^{3}c^{3}-7\,ab^{2}c^{2}d+2\,a^{2}bcd^{2}+a^{3}d^{3}\right)\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{-b^{2}c+abd}}\right)}{\sqrt{-b^{2}c+abd}a^{3}b}-\frac{2\,(dx+c)^{\frac{3}{2}}b^{2}c^{2}d-2\,\sqrt{dx+c}b^{2}c^{3}d-2\,(dx+c)^{\frac{3}{2}}abcd^{2}+3\,\sqrt{dx+c}abc^{2}d^{2}+(dx+c)^{\frac{3}{2}}a^{2}d^{3}-\sqrt{dx+c}a^{2}cd^{3}}{\left((dx+c)^{2}b-2\,(dx+c)bc+bc^{2}+(dx+c)ad-acd\right)a^{2}b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/((b*x + a)^2*x^2),x, algorithm="giac")

[Out] -(4*b*c^3 - 5*a*c^2*d)*arctan(sqrt(d*x + c)/sqrt(-c))/(a^3*sqrt(-
c)) + (4*b^3*c^3 - 7*a*b^2*c^2*d + 2*a^2*b*c*d^2 + a^3*d^3)*arcta
n(sqrt(d*x + c)*b/sqrt(-b^2*c + a*b*d))/(sqrt(-b^2*c + a*b*d)*a^3
*b) - (2*(d*x + c)^(3/2)*b^2*c^2*d - 2*sqrt(d*x + c)*b^2*c^3*d -
2*(d*x + c)^(3/2)*a*b*c*d^2 + 3*sqrt(d*x + c)*a*b*c^2*d^2 + (d*x
+ c)^(3/2)*a^2*d^3 - sqrt(d*x + c)*a^2*c*d^3)/(((d*x + c)^2*b - 2
*(d*x + c)*b*c + b*c^2 + (d*x + c)*a*d - a*c*d)*a^2*b)
```

3.462 $\int \frac{(c+dx)^{5/2}}{x^3(a+bx)^2}\,dx$

Optimal. Leaf size=219

$$\frac{(6bc-ad)(bc-ad)^{3/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{a^4\sqrt{b}}+\frac{c\sqrt{c+dx}(6bc-7ad)}{4a^2x(a+bx)}-\frac{\sqrt{c}\left(15a^2d^2-40abcd+24b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{4a^4}+\frac{\sqrt{c+dx}\left(4a^2d^2-17abcd+12b^2c^2\right)}{4a^3(a+bx)}-\frac{c(c+dx)^{3/2}}{2ax^2(a+bx)}$$

```
[Out] ((12*b^2*c^2 - 17*a*b*c*d + 4*a^2*d^2)*Sqrt[c + d*x])/(4*a^3*(a +
 b*x)) + (c*(6*b*c - 7*a*d)*Sqrt[c + d*x])/(4*a^2*x*(a + b*x)) -
(c*(c + d*x)^(3/2))/(2*a*x^2*(a + b*x)) - (Sqrt[c]*(24*b^2*c^2 -
40*a*b*c*d + 15*a^2*d^2)*ArcTanh[Sqrt[c + d*x]/Sqrt[c]])/(4*a^4)
+ ((b*c - a*d)^(3/2)*(6*b*c - a*d)*ArcTanh[(Sqrt[b]*Sqrt[c + d*x]
)/Sqrt[b*c - a*d]])/(a^4*Sqrt[b])
```

Rubi [A] time = 0.75348, antiderivative size = 219, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 7, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.35

$$\frac{(6bc-ad)(bc-ad)^{3/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{a^4\sqrt{b}}+\frac{c\sqrt{c+dx}(6bc-7ad)}{4a^2x(a+bx)}-\frac{\sqrt{c}\left(15a^2d^2-40abcd+24b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{4a^4}+\frac{\sqrt{c+dx}\left(4a^2d^2-17abcd+12b^2c^2\right)}{4a^3(a+bx)}-\frac{c(c+dx)^{3/2}}{2ax^2(a+bx)}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^(5/2)/(x^3*(a + b*x)^2),x]
```

```
[Out] ((12*b^2*c^2 - 17*a*b*c*d + 4*a^2*d^2)*Sqrt[c + d*x])/(4*a^3*(a +
 b*x)) + (c*(6*b*c - 7*a*d)*Sqrt[c + d*x])/(4*a^2*x*(a + b*x)) -
(c*(c + d*x)^(3/2))/(2*a*x^2*(a + b*x)) - (Sqrt[c]*(24*b^2*c^2 -
40*a*b*c*d + 15*a^2*d^2)*ArcTanh[Sqrt[c + d*x]/Sqrt[c]])/(4*a^4)
+ ((b*c - a*d)^(3/2)*(6*b*c - a*d)*ArcTanh[(Sqrt[b]*Sqrt[c + d*x]
)/Sqrt[b*c - a*d]])/(a^4*Sqrt[b])
```

Rubi in Sympy [A] time = 93.0765, size = 206, normalized size = 0.94

$$-\frac{c\left(c+dx\right)^{\frac{3}{2}}}{2ax^2\left(a+bx\right)}-\frac{\sqrt{c+dx}\left(ad-bc\right)\left(2ad-3bc\right)}{2a^2bx\left(a+bx\right)}+\frac{\sqrt{c+dx}\left(4a^2d^2-17abcd+12b^2c^2\right)}{4a^3bx}-\frac{\sqrt{c}\left(15a^2d^2-40abcd+24b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{4a^4}+\frac{\left(ad-6bc\right)\left(ad-bc\right)^{\frac{3}{2}}\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{ad-bc}}\right)}{a^4\sqrt{b}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(5/2)/x**3/(b*x+a)**2,x)
```

```
[Out] -c*(c + d*x)**(3/2)/(2*a*x**2*(a + b*x)) - sqrt(c + d*x)*(a*d - b
*c)*(2*a*d - 3*b*c)/(2*a**2*b*x*(a + b*x)) + sqrt(c + d*x)*(4*a**
2*d**2 - 17*a*b*c*d + 12*b**2*c**2)/(4*a**3*b*x) - sqrt(c)*(15*a*
*2*d**2 - 40*a*b*c*d + 24*b**2*c**2)*atanh(sqrt(c + d*x)/sqrt(c))
/(4*a**4) + (a*d - 6*b*c)*(a*d - b*c)**(3/2)*atan(sqrt(b)*sqrt(c
```

```
+ d*x)/sqrt(a*d - b*c))/(a**4*sqrt(b))
```

Mathematica [A] time = 0.380246, size = 164, normalized size = 0.75

$$\frac{-\sqrt{c}\left(15a^2d^2-40abcd+24b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)+a\sqrt{c+dx}\left(\frac{c(8bc-9ad)}{x}+\frac{4(bc-ad)^2}{a+bx}-\frac{2ac^2}{x^2}\right)+\frac{4(6bc-ad)(bc-ad)^{3/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c}}{\sqrt{bc}}\right.}{\sqrt{b}}}{4a^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^(5/2)/(x^3*(a + b*x)^2),x]
```

```
[Out] (a*Sqrt[c + d*x]*((-2*a*c^2)/x^2 + (c*(8*b*c - 9*a*d))/x + (4*(b*
c - a*d)^2)/(a + b*x)) - Sqrt[c]*(24*b^2*c^2 - 40*a*b*c*d + 15*a^
2*d^2)*ArcTanh[Sqrt[c + d*x]/Sqrt[c]] + (4*(b*c - a*d)^(3/2)*(6*b
*c - a*d)*ArcTanh[(Sqrt[b]*Sqrt[c + d*x])/Sqrt[b*c - a*d]])/Sqrt[
b])/(4*a^4)
```

Maple [B] time = 0.028, size = 403, normalized size = 1.8

$$-\frac{9c}{4a^2x^2}(dx+c)^{\frac{3}{2}}+2\frac{c^2(dx+c)^{3/2}b}{a^3dx^2}+\frac{7c^2}{4a^2x^2}\sqrt{dx+c}-2\frac{c^3\sqrt{dx+c}b}{a^3dx^2}$$
$$-\frac{15d^2}{4a^2}\sqrt{c}Artanh\left(1\sqrt{dx+c}\frac{1}{\sqrt{c}}\right)+10\frac{dc^{3/2}b}{a^3}Artanh\left(\frac{\sqrt{dx+c}}{\sqrt{c}}\right)$$
$$-6\frac{c^{5/2}b^2}{a^4}Artanh\left(\frac{\sqrt{dx+c}}{\sqrt{c}}\right)+\frac{d^3}{a(bdx+ad)}\sqrt{dx+c}-2\frac{d^2\sqrt{dx+c}bc}{a^2(bdx+ad)}+\frac{b^2dc^2}{a^3(bdx+ad)}\sqrt{dx+c}$$
$$+\frac{d^3}{a}\arctan\left(b\sqrt{dx+c}\frac{1}{\sqrt{(ad-bc)b}}\right)\frac{1}{\sqrt{(ad-bc)b}}-8\frac{d^2bc}{a^2\sqrt{(ad-bc)b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)b}}\right)$$
$$+13\frac{b^2dc^2}{a^3\sqrt{(ad-bc)b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)b}}\right)-6\frac{b^3c^3}{a^4\sqrt{(ad-bc)b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)b}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(5/2)/x^3/(b*x+a)^2,x)
```

```
[Out] -9/4*c/a^2/x^2*(d*x+c)^(3/2)+2/d*c^2/a^3/x^2*(d*x+c)^(3/2)*b+7/4*
c^2/a^2/x^2*(d*x+c)^(1/2)-2/d*c^3/a^3/x^2*(d*x+c)^(1/2)*b-15/4*d^
2*c^(1/2)/a^2*arctanh((d*x+c)^(1/2)/c^(1/2))+10*d*c^(3/2)/a^3*arc
tanh((d*x+c)^(1/2)/c^(1/2))*b-6*c^(5/2)/a^4*arctanh((d*x+c)^(1/2)
/c^(1/2))*b^2+d^3/a*(d*x+c)^(1/2)/(b*d*x+a*d)-2*d^2/a^2*(d*x+c)^(
1/2)/(b*d*x+a*d)*b*c+d/a^3*(d*x+c)^(1/2)/(b*d*x+a*d)*b^2*c^2+d^3/
a/((a*d-b*c)*b)^(1/2)*arctan((d*x+c)^(1/2)*b/((a*d-b*c)*b)^(1/2))
-8*d^2/a^2/((a*d-b*c)*b)^(1/2)*arctan((d*x+c)^(1/2)*b/((a*d-b*c)*
b)^(1/2))*b*c+13*d/a^3/((a*d-b*c)*b)^(1/2)*arctan((d*x+c)^(1/2)*b
/((a*d-b*c)*b)^(1/2))*b^2*c^2-6/a^4/((a*d-b*c)*b)^(1/2)*arctan((d
*x+c)^(1/2)*b/((a*d-b*c)*b)^(1/2))*b^3*c^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/((b*x + a)^2*x^3),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.434999, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/((b*x + a)^2*x^3),x, algorithm="fricas")
```

```
[Out] [1/8*(4*((6*b^3*c^2 - 7*a*b^2*c*d + a^2*b*d^2)*x^3 + (6*a*b^2*c^2
 - 7*a^2*b*c*d + a^3*d^2)*x^2)*sqrt((b*c - a*d)/b)*log((b*d*x + 2
*b*c - a*d + 2*sqrt(d*x + c)*b*sqrt((b*c - a*d)/b))/(b*x + a)) +
((24*b^3*c^2 - 40*a*b^2*c*d + 15*a^2*b*d^2)*x^3 + (24*a*b^2*c^2 -
 40*a^2*b*c*d + 15*a^3*d^2)*x^2)*sqrt(c)*log((d*x - 2*sqrt(d*x +
c)*sqrt(c) + 2*c)/x) - 2*(2*a^3*c^2 - (12*a*b^2*c^2 - 17*a^2*b*c*
d + 4*a^3*d^2)*x^2 - 3*(2*a^2*b*c^2 - 3*a^3*c*d)*x)*sqrt(d*x + c)
)/(a^4*b*x^3 + a^5*x^2), 1/8*(8*((6*b^3*c^2 - 7*a*b^2*c*d + a^2*b
*d^2)*x^3 + (6*a*b^2*c^2 - 7*a^2*b*c*d + a^3*d^2)*x^2)*sqrt(-(b*c
 - a*d)/b)*arctan(sqrt(d*x + c)/sqrt(-(b*c - a*d)/b)) + ((24*b^3*
c^2 - 40*a*b^2*c*d + 15*a^2*b*d^2)*x^3 + (24*a*b^2*c^2 - 40*a^2*b
*c*d + 15*a^3*d^2)*x^2)*sqrt(c)*log((d*x - 2*sqrt(d*x + c)*sqrt(c
) + 2*c)/x) - 2*(2*a^3*c^2 - (12*a*b^2*c^2 - 17*a^2*b*c*d + 4*a^3
*d^2)*x^2 - 3*(2*a^2*b*c^2 - 3*a^3*c*d)*x)*sqrt(d*x + c))/(a^4*b*
x^3 + a^5*x^2), -1/4*(((24*b^3*c^2 - 40*a*b^2*c*d + 15*a^2*b*d^2)
*x^3 + (24*a*b^2*c^2 - 40*a^2*b*c*d + 15*a^3*d^2)*x^2)*sqrt(-c)*a
rctan(sqrt(d*x + c)/sqrt(-c)) - 2*((6*b^3*c^2 - 7*a*b^2*c*d + a^2
*b*d^2)*x^3 + (6*a*b^2*c^2 - 7*a^2*b*c*d + a^3*d^2)*x^2)*sqrt((b*
c - a*d)/b)*log((b*d*x + 2*b*c - a*d + 2*sqrt(d*x + c)*b*sqrt((b*
c - a*d)/b))/(b*x + a)) + (2*a^3*c^2 - (12*a*b^2*c^2 - 17*a^2*b*c
*d + 4*a^3*d^2)*x^2 - 3*(2*a^2*b*c^2 - 3*a^3*c*d)*x)*sqrt(d*x + c
))/(a^4*b*x^3 + a^5*x^2), -1/4*(((24*b^3*c^2 - 40*a*b^2*c*d + 15*
a^2*b*d^2)*x^3 + (24*a*b^2*c^2 - 40*a^2*b*c*d + 15*a^3*d^2)*x^2)*
sqrt(-c)*arctan(sqrt(d*x + c)/sqrt(-c)) - 4*((6*b^3*c^2 - 7*a*b^2
*c*d + a^2*b*d^2)*x^3 + (6*a*b^2*c^2 - 7*a^2*b*c*d + a^3*d^2)*x^2
)*sqrt(-(b*c - a*d)/b)*arctan(sqrt(d*x + c)/sqrt(-(b*c - a*d)/b))
 + (2*a^3*c^2 - (12*a*b^2*c^2 - 17*a^2*b*c*d + 4*a^3*d^2)*x^2 - 3
*(2*a^2*b*c^2 - 3*a^3*c*d)*x)*sqrt(d*x + c))/(a^4*b*x^3 + a^5*x^2
)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(5/2)/x**3/(b*x+a)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.226779, size = 358, normalized size = 1.63

$$-\frac{\left(6\,b^3c^3 - 13\,ab^2c^2d + 8\,a^2bcd^2 - a^3d^3\right)\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{-b^2c+abd}}\right)}{\sqrt{-b^2c+abd}a^4} + \frac{\left(24\,b^2c^3 - 40\,abc^2d + 15\,a^2cd^2\right)\arctan\left(\frac{\sqrt{dx+c}}{\sqrt{-c}}\right)}{4\,a^4\sqrt{-c}} + \frac{\sqrt{dx+c}b^2c^2d - 2\,\sqrt{dx+c}abcd^2 + \sqrt{dx+c}a^2d^3}{((dx+c)b - bc + ad)a^3} + \frac{8\,(dx+c)^{\frac{3}{2}}bc^2d - 8\,\sqrt{dx+c}bc^3d - 9\,(dx+c)^{\frac{3}{2}}acd^2 + 7\,\sqrt{dx+c}ac^2d^2}{4\,a^3d^2x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/((b*x + a)^2*x^3),x, algorithm="giac")
```

```
[Out] -(6*b^3*c^3 - 13*a*b^2*c^2*d + 8*a^2*b*c*d^2 - a^3*d^3)*arctan(sq
rt(d*x + c)*b/sqrt(-b^2*c + a*b*d))/(sqrt(-b^2*c + a*b*d)*a^4) +
1/4*(24*b^2*c^3 - 40*a*b*c^2*d + 15*a^2*c*d^2)*arctan(sqrt(d*x +
c)/sqrt(-c))/(a^4*sqrt(-c)) + (sqrt(d*x + c)*b^2*c^2*d - 2*sqrt(d
*x + c)*a*b*c*d^2 + sqrt(d*x + c)*a^2*d^3)/(((d*x + c)*b - b*c +
a*d)*a^3) + 1/4*(8*(d*x + c)^(3/2)*b*c^2*d - 8*sqrt(d*x + c)*b*c^
3*d - 9*(d*x + c)^(3/2)*a*c*d^2 + 7*sqrt(d*x + c)*a*c^2*d^2)/(a^3
*d^2*x^2)
```

3.463 $\int \frac{(c+dx)^{5/2}}{x^4(a+bx)^2}\,dx$

Optimal. Leaf size=284

$$-\frac{\sqrt{b}(8bc-3ad)(bc-ad)^{3/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{a^5}+\frac{c\sqrt{c+dx}(8bc-9ad)}{12a^2x^2(a+bx)}-\frac{b\sqrt{c+dx}\left(19a^2d^2-52abcd+32b^2c^2\right)}{8a^4(a+bx)}-\frac{\sqrt{c+dx}\left(33a^2d^2-82abcd+48b^2c^2\right)}{24a^3x(a+bx)}+\frac{\left(-5a^3d^3+60a^2bcd^2-120ab^2c^2d+64b^3c^3\right)\tanh^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{8a^5\sqrt{c}}-\frac{c(c+dx)^{3/2}}{3ax^3(a+bx)}$$

```
[Out] -(b*(32*b^2*c^2 - 52*a*b*c*d + 19*a^2*d^2)*Sqrt[c + d*x])/(8*a^4*
(a + b*x)) + (c*(8*b*c - 9*a*d)*Sqrt[c + d*x])/(12*a^2*x^2*(a + b
*x)) - ((48*b^2*c^2 - 82*a*b*c*d + 33*a^2*d^2)*Sqrt[c + d*x])/(24
*a^3*x*(a + b*x)) - (c*(c + d*x)^(3/2))/(3*a*x^3*(a + b*x)) + ((6
4*b^3*c^3 - 120*a*b^2*c^2*d + 60*a^2*b*c*d^2 - 5*a^3*d^3)*ArcTanh
[Sqrt[c + d*x]/Sqrt[c]])/(8*a^5*Sqrt[c]) - (Sqrt[b]*(8*b*c - 3*a*
d)*(b*c - a*d)^(3/2)*ArcTanh[(Sqrt[b]*Sqrt[c + d*x])/Sqrt[b*c - a
*d]])/a^5
```

Rubi [A] time = 1.14759, antiderivative size = 284, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 7, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.35

$$-\frac{\sqrt{b}(8bc-3ad)(bc-ad)^{3/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{a^5}+\frac{c\sqrt{c+dx}(8bc-9ad)}{12a^2x^2(a+bx)}-\frac{b\sqrt{c+dx}\left(19a^2d^2-52abcd+32b^2c^2\right)}{8a^4(a+bx)}-\frac{\sqrt{c+dx}\left(33a^2d^2-82abcd+48b^2c^2\right)}{24a^3x(a+bx)}+\frac{\left(-5a^3d^3+60a^2bcd^2-120ab^2c^2d+64b^3c^3\right)\tanh^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{8a^5\sqrt{c}}-\frac{c(c+dx)^{3/2}}{3ax^3(a+bx)}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^(5/2)/(x^4*(a + b*x)^2),x]
```

```
[Out] -(b*(32*b^2*c^2 - 52*a*b*c*d + 19*a^2*d^2)*Sqrt[c + d*x])/(8*a^4*
(a + b*x)) + (c*(8*b*c - 9*a*d)*Sqrt[c + d*x])/(12*a^2*x^2*(a + b
*x)) - ((48*b^2*c^2 - 82*a*b*c*d + 33*a^2*d^2)*Sqrt[c + d*x])/(24
*a^3*x*(a + b*x)) - (c*(c + d*x)^(3/2))/(3*a*x^3*(a + b*x)) + ((6
4*b^3*c^3 - 120*a*b^2*c^2*d + 60*a^2*b*c*d^2 - 5*a^3*d^3)*ArcTanh
[Sqrt[c + d*x]/Sqrt[c]])/(8*a^5*Sqrt[c]) - (Sqrt[b]*(8*b*c - 3*a*
d)*(b*c - a*d)^(3/2)*ArcTanh[(Sqrt[b]*Sqrt[c + d*x])/Sqrt[b*c - a
*d]])/a^5
```

Rubi in Sympy [A] time = 131.717, size = 267, normalized size = 0.94

$$-\frac{c\left(c+dx\right)^{\frac{3}{2}}}{3ax^3\left(a+bx\right)}-\frac{\sqrt{c+dx}\left(ad-bc\right)\left(3ad-4bc\right)}{3a^2bx^2\left(a+bx\right)}+\frac{\sqrt{c+dx}\left(12a^2d^2-37abcd+24b^2c^2\right)}{12a^3bx^2}-\frac{\sqrt{c+dx}\left(19a^2d^2-52abcd+32b^2c^2\right)}{8a^4x}-\frac{\sqrt{b}\left(ad-bc\right)^{\frac{3}{2}}\left(3ad-8bc\right)\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{ad-bc}}\right)}{a^5}-\frac{\left(5a^3d^3-60a^2bcd^2+120ab^2c^2d-64b^3c^3\right)\operatorname{atanh}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{8a^5\sqrt{c}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(5/2)/x**4/(b*x+a)**2,x)
```

```
[Out] -c*(c + d*x)**(3/2)/(3*a*x**3*(a + b*x)) - sqrt(c + d*x)*(a*d - b
*c)*(3*a*d - 4*b*c)/(3*a**2*b*x**2*(a + b*x)) + sqrt(c + d*x)*(12
*a**2*d**2 - 37*a*b*c*d + 24*b**2*c**2)/(12*a**3*b*x**2) - sqrt(c
 + d*x)*(19*a**2*d**2 - 52*a*b*c*d + 32*b**2*c**2)/(8*a**4*x) - s
qrt(b)*(a*d - b*c)**(3/2)*(3*a*d - 8*b*c)*atan(sqrt(b)*sqrt(c + d
*x)/sqrt(a*d - b*c))/a**5 - (5*a**3*d**3 - 60*a**2*b*c*d**2 + 120
*a*b**2*c**2*d - 64*b**3*c**3)*atanh(sqrt(c + d*x)/sqrt(c))/(8*a*
*5*sqrt(c))
```

Mathematica [A] time = 0.483373, size = 223, normalized size = 0.79

$$-\frac{\frac{a\sqrt{c+dx}\left(a^3\left(8c^2+26cdx+33d^2x^2\right)+a^2bx\left(-16c^2-82cdx+57d^2x^2\right)+12ab^2cx^2(4c-13dx)+96b^3c^2x^3\right)}{x^3(a+bx)}-\frac{3\left(-5a^3d^3+60a^2bcd^2-120ab^2c^2d+64b^3c^3\right)\tanh^{-1}\left(\sqrt{c}\right.}{\sqrt{c}}}{24a^5}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^(5/2)/(x^4*(a + b*x)^2),x]
```

```
[Out] -((a*Sqrt[c + d*x]*(96*b^3*c^2*x^3 + 12*a*b^2*c*x^2*(4*c - 13*d*x
) + a^3*(8*c^2 + 26*c*d*x + 33*d^2*x^2) + a^2*b*x*(-16*c^2 - 82*c
*d*x + 57*d^2*x^2)))/(x^3*(a + b*x)) - (3*(64*b^3*c^3 - 120*a*b^2
*c^2*d + 60*a^2*b*c*d^2 - 5*a^3*d^3)*ArcTanh[Sqrt[c + d*x]/Sqrt[c
]])/Sqrt[c] + 24*Sqrt[b]*(8*b*c - 3*a*d)*(b*c - a*d)^(3/2)*ArcTan
h[(Sqrt[b]*Sqrt[c + d*x])/Sqrt[b*c - a*d]])/(24*a^5)
```

Maple [B] time = 0.029, size = 545, normalized size = 1.9

$$\begin{aligned}
&-\frac{11}{8\,a^2x^3}(dx+c)^{\frac{5}{2}}+\frac{9\,bc}{2\,a^3dx^3}(dx+c)^{\frac{5}{2}}-3\,\frac{(dx+c)^{5/2}\,b^2c^2}{d^2a^4x^3}+\frac{5\,c}{3\,a^2x^3}(dx+c)^{\frac{3}{2}}\\
&-8\,\frac{(dx+c)^{3/2}\,bc^2}{a^3dx^3}+6\,\frac{(dx+c)^{3/2}\,b^2c^3}{d^2a^4x^3}+\frac{7\,c^3b}{2\,a^3dx^3}\sqrt{dx+c}-3\,\frac{b^2\sqrt{dx+c}c^4}{d^2a^4x^3}\\
&-\frac{5\,c^2}{8\,a^2x^3}\sqrt{dx+c}-\frac{5\,d^3}{8\,a^2}Artanh\left(1\sqrt{dx+c}\frac{1}{\sqrt{c}}\right)\frac{1}{\sqrt{c}}+\frac{15\,d^2b}{2\,a^3}\sqrt{c}Artanh\left(1\sqrt{dx+c}\frac{1}{\sqrt{c}}\right)\\
&-15\,\frac{dc^{3/2}b^2}{a^4}Artanh\left(\frac{\sqrt{dx+c}}{\sqrt{c}}\right)+8\,\frac{c^{5/2}b^3}{a^5}Artanh\left(\frac{\sqrt{dx+c}}{\sqrt{c}}\right)\\
&-\frac{d^3b}{a^2\,(bdx+ad)}\sqrt{dx+c}+2\,\frac{d^2b^2\sqrt{dx+c}c}{a^3\,(bdx+ad)}-\frac{db^3c^2}{a^4\,(bdx+ad)}\sqrt{dx+c}\\
&-3\,\frac{d^3b}{a^2\sqrt{(ad-bc)\,b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)\,b}}\right)+14\,\frac{d^2b^2c}{a^3\sqrt{(ad-bc)\,b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)\,b}}\right)\\
&-19\,\frac{db^3c^2}{a^4\sqrt{(ad-bc)\,b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)\,b}}\right)+8\,\frac{b^4c^3}{a^5\sqrt{(ad-bc)\,b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)\,b}}\right)
\end{aligned}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(5/2)/x^4/(b*x+a)^2,x)
```

```
[Out] -11/8/a^2/x^3*(d*x+c)^(5/2)+9/2/d/a^3/x^3*(d*x+c)^(5/2)*c*b-3/d^2
/a^4/x^3*(d*x+c)^(5/2)*b^2*c^2+5/3/a^2/x^3*(d*x+c)^(3/2)*c-8/d/a^
3/x^3*(d*x+c)^(3/2)*b*c^2+6/d^2/a^4/x^3*(d*x+c)^(3/2)*b^2*c^3+7/2
/d/a^3/x^3*(d*x+c)^(1/2)*b*c^3-3/d^2/a^4/x^3*(d*x+c)^(1/2)*b^2*c^
4-5/8/a^2/x^3*(d*x+c)^(1/2)*c^2-5/8*d^3/a^2/c^(1/2)*arctanh((d*x+
c)^(1/2)/c^(1/2))+15/2*d^2/a^3*c^(1/2)*arctanh((d*x+c)^(1/2)/c^(1
/2))*b-15*d/a^4*c^(3/2)*arctanh((d*x+c)^(1/2)/c^(1/2))*b^2+8/a^5*
c^(5/2)*arctanh((d*x+c)^(1/2)/c^(1/2))*b^3-d^3*b/a^2*(d*x+c)^(1/2
)/(b*d*x+a*d)+2*d^2*b^2/a^3*(d*x+c)^(1/2)/(b*d*x+a*d)*c-d*b^3/a^4
*(d*x+c)^(1/2)/(b*d*x+a*d)*c^2-3*d^3*b/a^2/((a*d-b*c)*b)^(1/2)*ar
ctan((d*x+c)^(1/2)*b/((a*d-b*c)*b)^(1/2))+14*d^2*b^2/a^3/((a*d-b*
c)*b)^(1/2)*arctan((d*x+c)^(1/2)*b/((a*d-b*c)*b)^(1/2))*c-19*d*b^
3/a^4/((a*d-b*c)*b)^(1/2)*arctan((d*x+c)^(1/2)*b/((a*d-b*c)*b)^(1
```

```
/2))*c^2+8*b^4/a^5/((a*d-b*c)*b)^(1/2)*arctan((d*x+c)^(1/2)*b/((a
*d-b*c)*b)^(1/2))*c^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/((b*x + a)^2*x^4),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.565234, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/((b*x + a)^2*x^4),x, algorithm="fricas")
```

```
[Out] [1/48*(24*((8*b^3*c^2 - 11*a*b^2*c*d + 3*a^2*b*d^2)*x^4 + (8*a*b^
2*c^2 - 11*a^2*b*c*d + 3*a^3*d^2)*x^3)*sqrt(b^2*c - a*b*d)*sqrt(c
)*log((b*d*x + 2*b*c - a*d - 2*sqrt(b^2*c - a*b*d)*sqrt(d*x + c))
/(b*x + a)) - 2*(8*a^4*c^2 + 3*(32*a*b^3*c^2 - 52*a^2*b^2*c*d + 1
9*a^3*b*d^2)*x^3 + (48*a^2*b^2*c^2 - 82*a^3*b*c*d + 33*a^4*d^2)*x
^2 - 2*(8*a^3*b*c^2 - 13*a^4*c*d)*x)*sqrt(d*x + c)*sqrt(c) - 3*((
64*b^4*c^3 - 120*a*b^3*c^2*d + 60*a^2*b^2*c*d^2 - 5*a^3*b*d^3)*x^
4 + (64*a*b^3*c^3 - 120*a^2*b^2*c^2*d + 60*a^3*b*c*d^2 - 5*a^4*d^
3)*x^3)*log(((d*x + 2*c)*sqrt(c) - 2*sqrt(d*x + c)*c)/x))/((a^5*b
*x^4 + a^6*x^3)*sqrt(c)), 1/48*(48*((8*b^3*c^2 - 11*a*b^2*c*d + 3
*a^2*b*d^2)*x^4 + (8*a*b^2*c^2 - 11*a^2*b*c*d + 3*a^3*d^2)*x^3)*s
qrt(-b^2*c + a*b*d)*sqrt(c)*arctan(sqrt(-b^2*c + a*b*d)/(sqrt(d*x
 + c)*b)) - 2*(8*a^4*c^2 + 3*(32*a*b^3*c^2 - 52*a^2*b^2*c*d + 19*
a^3*b*d^2)*x^3 + (48*a^2*b^2*c^2 - 82*a^3*b*c*d + 33*a^4*d^2)*x^2
 - 2*(8*a^3*b*c^2 - 13*a^4*c*d)*x)*sqrt(d*x + c)*sqrt(c) - 3*((64
*b^4*c^3 - 120*a*b^3*c^2*d + 60*a^2*b^2*c*d^2 - 5*a^3*b*d^3)*x^4
+ (64*a*b^3*c^3 - 120*a^2*b^2*c^2*d + 60*a^3*b*c*d^2 - 5*a^4*d^3)
*x^3)*log(((d*x + 2*c)*sqrt(c) - 2*sqrt(d*x + c)*c)/x))/((a^5*b*x
^4 + a^6*x^3)*sqrt(c)), 1/24*(12*((8*b^3*c^2 - 11*a*b^2*c*d + 3*a
^2*b*d^2)*x^4 + (8*a*b^2*c^2 - 11*a^2*b*c*d + 3*a^3*d^2)*x^3)*sqr
t(b^2*c - a*b*d)*sqrt(-c)*log((b*d*x + 2*b*c - a*d - 2*sqrt(b^2*c
 - a*b*d)*sqrt(d*x + c))/(b*x + a)) - (8*a^4*c^2 + 3*(32*a*b^3*c^
2 - 52*a^2*b^2*c*d + 19*a^3*b*d^2)*x^3 + (48*a^2*b^2*c^2 - 82*a^3
*b*c*d + 33*a^4*d^2)*x^2 - 2*(8*a^3*b*c^2 - 13*a^4*c*d)*x)*sqrt(d
*x + c)*sqrt(-c) - 3*((64*b^4*c^3 - 120*a*b^3*c^2*d + 60*a^2*b^2*
c*d^2 - 5*a^3*b*d^3)*x^4 + (64*a*b^3*c^3 - 120*a^2*b^2*c^2*d + 60
*a^3*b*c*d^2 - 5*a^4*d^3)*x^3)*arctan(c/(sqrt(d*x + c)*sqrt(-c)))
)/((a^5*b*x^4 + a^6*x^3)*sqrt(-c)), 1/24*(24*((8*b^3*c^2 - 11*a*b
^2*c*d + 3*a^2*b*d^2)*x^4 + (8*a*b^2*c^2 - 11*a^2*b*c*d + 3*a^3*d
^2)*x^3)*sqrt(-b^2*c + a*b*d)*sqrt(-c)*arctan(sqrt(-b^2*c + a*b*d
)/(sqrt(d*x + c)*b)) - (8*a^4*c^2 + 3*(32*a*b^3*c^2 - 52*a^2*b^2*
c*d + 19*a^3*b*d^2)*x^3 + (48*a^2*b^2*c^2 - 82*a^3*b*c*d + 33*a^4
*d^2)*x^2 - 2*(8*a^3*b*c^2 - 13*a^4*c*d)*x)*sqrt(d*x + c)*sqrt(-c
) - 3*((64*b^4*c^3 - 120*a*b^3*c^2*d + 60*a^2*b^2*c*d^2 - 5*a^3*b
*d^3)*x^4 + (64*a*b^3*c^3 - 120*a^2*b^2*c^2*d + 60*a^3*b*c*d^2 -
5*a^4*d^3)*x^3)*arctan(c/(sqrt(d*x + c)*sqrt(-c))))/((a^5*b*x^4 +
 a^6*x^3)*sqrt(-c))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(5/2)/x**4/(b*x+a)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.231037, size = 500, normalized size = 1.76

$$\frac{\left(8\,b^4c^3 - 19\,ab^3c^2d + 14\,a^2b^2cd^2 - 3\,a^3bd^3\right)\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{-b^2c+abd}}\right)}{\sqrt{-b^2c+abd}a^5} - \frac{\left(64\,b^3c^3 - 120\,ab^2c^2d + 60\,a^2bcd^2 - 5\,a^3d^3\right)\arctan\left(\frac{\sqrt{dx+c}}{\sqrt{-c}}\right)}{8\,a^5\sqrt{-c}} - \frac{\sqrt{dx+c}b^3c^2d - 2\,\sqrt{dx+c}ab^2cd^2 + \sqrt{dx+c}a^2bd^3}{((dx+c)b - bc + ad)a^4} - \frac{72\,(dx+c)^{\frac{5}{2}}b^2c^2d - 144\,(dx+c)^{\frac{3}{2}}b^2c^3d + 72\,\sqrt{dx+c}b^2c^4d - 108\,(dx+c)^{\frac{5}{2}}abcd^2 + 192\,(dx+c)^{\frac{3}{2}}abc^2d^2 - 84\,\sqrt{dx+c}abc^3c}{24\,a^4d^3x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/((b*x + a)^2*x^4),x, algorithm="giac")
```

```
[Out] (8*b^4*c^3 - 19*a*b^3*c^2*d + 14*a^2*b^2*c*d^2 - 3*a^3*b*d^3)*arc
tan(sqrt(d*x + c)*b/sqrt(-b^2*c + a*b*d))/(sqrt(-b^2*c + a*b*d)*a
^5) - 1/8*(64*b^3*c^3 - 120*a*b^2*c^2*d + 60*a^2*b*c*d^2 - 5*a^3*
d^3)*arctan(sqrt(d*x + c)/sqrt(-c))/(a^5*sqrt(-c)) - (sqrt(d*x +
c)*b^3*c^2*d - 2*sqrt(d*x + c)*a*b^2*c*d^2 + sqrt(d*x + c)*a^2*b*
d^3)/(((d*x + c)*b - b*c + a*d)*a^4) - 1/24*(72*(d*x + c)^(5/2)*b
^2*c^2*d - 144*(d*x + c)^(3/2)*b^2*c^3*d + 72*sqrt(d*x + c)*b^2*c
^4*d - 108*(d*x + c)^(5/2)*a*b*c*d^2 + 192*(d*x + c)^(3/2)*a*b*c^
2*d^2 - 84*sqrt(d*x + c)*a*b*c^3*d^2 + 33*(d*x + c)^(5/2)*a^2*d^3
 - 40*(d*x + c)^(3/2)*a^2*c*d^3 + 15*sqrt(d*x + c)*a^2*c^2*d^3)/(
a^4*d^3*x^3)
```

3.464 $\int \frac{1}{x^2(a+bx)^2\sqrt{c+dx}}\,dx$

Optimal. Leaf size=164

$$-\frac{b^{3/2}(4bc-5ad)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{a^3(bc-ad)^{3/2}}+\frac{(ad+4bc)\tanh^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{a^3c^{3/2}}-\frac{b\sqrt{c+dx}(2bc-ad)}{a^2c(a+bx)(bc-ad)}-\frac{\sqrt{c+dx}}{acx(a+bx)}$$

```
[Out] -((b*(2*b*c - a*d)*Sqrt[c + d*x])/(a^2*c*(b*c - a*d)*(a + b*x)))
- Sqrt[c + d*x]/(a*c*x*(a + b*x)) + ((4*b*c + a*d)*ArcTanh[Sqrt[c
 + d*x]/Sqrt[c]])/(a^3*c^(3/2)) - (b^(3/2)*(4*b*c - 5*a*d)*ArcTan
h[(Sqrt[b]*Sqrt[c + d*x])/Sqrt[b*c - a*d]])/(a^3*(b*c - a*d)^(3/2
))
```

Rubi [A] time = 0.579787, antiderivative size = 164, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.3

$$-\frac{b^{3/2}(4bc-5ad)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{a^3(bc-ad)^{3/2}}+\frac{(ad+4bc)\tanh^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{a^3c^{3/2}}-\frac{b\sqrt{c+dx}(2bc-ad)}{a^2c(a+bx)(bc-ad)}-\frac{\sqrt{c+dx}}{acx(a+bx)}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x^2*(a + b*x)^2*Sqrt[c + d*x]),x]
```

```
[Out] -((b*(2*b*c - a*d)*Sqrt[c + d*x])/(a^2*c*(b*c - a*d)*(a + b*x)))
- Sqrt[c + d*x]/(a*c*x*(a + b*x)) + ((4*b*c + a*d)*ArcTanh[Sqrt[c
 + d*x]/Sqrt[c]])/(a^3*c^(3/2)) - (b^(3/2)*(4*b*c - 5*a*d)*ArcTan
h[(Sqrt[b]*Sqrt[c + d*x])/Sqrt[b*c - a*d]])/(a^3*(b*c - a*d)^(3/2
))
```

Rubi in Sympy [A] time = 60.4371, size = 141, normalized size = 0.86

$$-\frac{b\sqrt{c+dx}}{ax\,(a+bx)\,(ad-bc)}-\frac{\sqrt{c+dx}\,(ad-2bc)}{a^2cx\,(ad-bc)}+\frac{b^{\frac{3}{2}}\,(5ad-4bc)\,\mathrm{atan}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{ad-bc}}\right)}{a^3\,(ad-bc)^{\frac{3}{2}}}+\frac{(ad+4bc)\,\mathrm{atanh}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{a^3c^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x**2/(b*x+a)**2/(d*x+c)**(1/2),x)
```

```
[Out] -b*sqrt(c + d*x)/(a*x*(a + b*x)*(a*d - b*c)) - sqrt(c + d*x)*(a*d
 - 2*b*c)/(a**2*c*x*(a*d - b*c)) + b**(3/2)*(5*a*d - 4*b*c)*atan(
sqrt(b)*sqrt(c + d*x)/sqrt(a*d - b*c))/(a**3*(a*d - b*c)**(3/2))
+ (a*d + 4*b*c)*atanh(sqrt(c + d*x)/sqrt(c))/(a**3*c**(3/2))
```

Mathematica [A] time = 0.512727, size = 132, normalized size = 0.8

$$\frac{-\frac{b^{3/2}(4bc-5ad)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{(bc-ad)^{3/2}}+a\sqrt{c+dx}\left(\frac{b^2}{(a+bx)(ad-bc)}-\frac{1}{cx}\right)+\frac{(ad+4bc)\tanh^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{c^{3/2}}}{a^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(x^2*(a + b*x)^2*Sqrt[c + d*x]),x]
```

```
[Out] (a*Sqrt[c + d*x]*(-(1/(c*x)) + b^2/((-(b*c) + a*d)*(a + b*x))) +
((4*b*c + a*d)*ArcTanh[Sqrt[c + d*x]/Sqrt[c]])/c^(3/2) - (b^(3/2)
```

```
*(4*b*c - 5*a*d)*ArcTanh[(Sqrt[b]*Sqrt[c + d*x])/Sqrt[b*c - a*d]]
)/(b*c - a*d)^(3/2))/a^3
```

Maple [A] time = 0.026, size = 202, normalized size = 1.2

$$-\frac{1}{a^2cx}\sqrt{dx+c}+\frac{d}{a^2}Artanh\left(1\sqrt{dx+c}\frac{1}{\sqrt{c}}\right)c^{-\frac{3}{2}}+4\frac{b}{a^3\sqrt{c}}Artanh\left(\frac{\sqrt{dx+c}}{\sqrt{c}}\right)$$
$$+\frac{b^2d}{a^2(ad-bc)(bdx+ad)}\sqrt{dx+c}+5\frac{b^2d}{a^2(ad-bc)\sqrt{(ad-bc)b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)b}}\right)$$
$$-4\frac{b^3c}{a^3(ad-bc)\sqrt{(ad-bc)b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)b}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/x^2/(b*x+a)^2/(d*x+c)^(1/2),x)
```

```
[Out] -1/a^2/c*(d*x+c)^(1/2)/x+d/a^2/c^(3/2)*arctanh((d*x+c)^(1/2)/c^(1
/2))+4/a^3/c^(1/2)*arctanh((d*x+c)^(1/2)/c^(1/2))*b+d*b^2/a^2/(a*
d-b*c)*(d*x+c)^(1/2)/(b*d*x+a*d)+5*d*b^2/a^2/(a*d-b*c)/((a*d-b*c)
*b)^(1/2)*arctan((d*x+c)^(1/2)*b/((a*d-b*c)*b)^(1/2))-4*b^3/a^3/(
a*d-b*c)/((a*d-b*c)*b)^(1/2)*arctan((d*x+c)^(1/2)*b/((a*d-b*c)*b)
^(1/2))*c
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^2*sqrt(d*x + c)*x^2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.942068, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^2*sqrt(d*x + c)*x^2),x, algorithm="fricas")
```

```
[Out] [1/2*(((4*b^3*c^2 - 5*a*b^2*c*d)*x^2 + (4*a*b^2*c^2 - 5*a^2*b*c*d
)*x)*sqrt(c)*sqrt(b/(b*c - a*d))*log((b*d*x + 2*b*c - a*d - 2*(b*
c - a*d)*sqrt(d*x + c)*sqrt(b/(b*c - a*d)))/(b*x + a)) - 2*(a^2*b
*c - a^3*d + (2*a*b^2*c - a^2*b*d)*x)*sqrt(d*x + c)*sqrt(c) + ((4
*b^3*c^2 - 3*a*b^2*c*d - a^2*b*d^2)*x^2 + (4*a*b^2*c^2 - 3*a^2*b*
c*d - a^3*d^2)*x)*log(((d*x + 2*c)*sqrt(c) + 2*sqrt(d*x + c)*c)/x
))/(((a^3*b^2*c^2 - a^4*b*c*d)*x^2 + (a^4*b*c^2 - a^5*c*d)*x)*sqr
t(c)), -1/2*(2*((4*b^3*c^2 - 5*a*b^2*c*d)*x^2 + (4*a*b^2*c^2 - 5*
a^2*b*c*d)*x)*sqrt(c)*sqrt(-b/(b*c - a*d))*arctan(-(b*c - a*d)*sq
rt(-b/(b*c - a*d))/(sqrt(d*x + c)*b)) + 2*(a^2*b*c - a^3*d + (2*a
*b^2*c - a^2*b*d)*x)*sqrt(d*x + c)*sqrt(c) - ((4*b^3*c^2 - 3*a*b^
2*c*d - a^2*b*d^2)*x^2 + (4*a*b^2*c^2 - 3*a^2*b*c*d - a^3*d^2)*x)
*log(((d*x + 2*c)*sqrt(c) + 2*sqrt(d*x + c)*c)/x))/(((a^3*b^2*c^2
 - a^4*b*c*d)*x^2 + (a^4*b*c^2 - a^5*c*d)*x)*sqrt(c)), 1/2*(((4*b
^3*c^2 - 5*a*b^2*c*d)*x^2 + (4*a*b^2*c^2 - 5*a^2*b*c*d)*x)*sqrt(-
c)*sqrt(b/(b*c - a*d))*log((b*d*x + 2*b*c - a*d - 2*(b*c - a*d)*s
qrt(d*x + c)*sqrt(b/(b*c - a*d)))/(b*x + a)) - 2*(a^2*b*c - a^3*d
```

```
 + (2*a*b^2*c - a^2*b*d)*x)*sqrt(d*x + c)*sqrt(-c) - 2*((4*b^3*c^
2 - 3*a*b^2*c*d - a^2*b*d^2)*x^2 + (4*a*b^2*c^2 - 3*a^2*b*c*d - a
^3*d^2)*x)*arctan(c/(sqrt(d*x + c)*sqrt(-c))))/(((a^3*b^2*c^2 - a
^4*b*c*d)*x^2 + (a^4*b*c^2 - a^5*c*d)*x)*sqrt(-c)), -(((4*b^3*c^2
 - 5*a*b^2*c*d)*x^2 + (4*a*b^2*c^2 - 5*a^2*b*c*d)*x)*sqrt(-c)*sqr
t(-b/(b*c - a*d))*arctan(-(b*c - a*d)*sqrt(-b/(b*c - a*d))/(sqrt(
d*x + c)*b)) + (a^2*b*c - a^3*d + (2*a*b^2*c - a^2*b*d)*x)*sqrt(d
*x + c)*sqrt(-c) + ((4*b^3*c^2 - 3*a*b^2*c*d - a^2*b*d^2)*x^2 + (
4*a*b^2*c^2 - 3*a^2*b*c*d - a^3*d^2)*x)*arctan(c/(sqrt(d*x + c)*s
qrt(-c))))/(((a^3*b^2*c^2 - a^4*b*c*d)*x^2 + (a^4*b*c^2 - a^5*c*d
)*x)*sqrt(-c))]
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/x**2/(b*x+a)**2/(d*x+c)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.217068, size = 319, normalized size = 1.95

$$\frac{\left(4\,b^{3}c-5\,ab^{2}d\right)\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{-b^{2}c+abd}}\right)}{\left(a^{3}bc-a^{4}d\right)\sqrt{-b^{2}c+abd}}-\frac{2\,(dx+c)^{\frac{3}{2}}b^{2}cd-2\,\sqrt{dx+c}b^{2}c^{2}d-(dx+c)^{\frac{3}{2}}abd^{2}+2\,\sqrt{dx+c}abcd^{2}-\sqrt{dx+c}a^{2}d^{3}}{\left(a^{2}bc^{2}-a^{3}cd\right)\left((dx+c)^{2}b-2\,(dx+c)bc+bc^{2}+(dx+c)ad-acd\right)}-\frac{\left(4\,bc+ad\right)\arctan\left(\frac{\sqrt{dx+c}}{\sqrt{-c}}\right)}{a^{3}\sqrt{-c}c}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^2*sqrt(d*x + c)*x^2),x, algorithm="giac")
```

```
[Out] (4*b^3*c - 5*a*b^2*d)*arctan(sqrt(d*x + c)*b/sqrt(-b^2*c + a*b*d)
)/((a^3*b*c - a^4*d)*sqrt(-b^2*c + a*b*d)) - (2*(d*x + c)^(3/2)*b
^2*c*d - 2*sqrt(d*x + c)*b^2*c^2*d - (d*x + c)^(3/2)*a*b*d^2 + 2*
sqrt(d*x + c)*a*b*c*d^2 - sqrt(d*x + c)*a^2*d^3)/((a^2*b*c^2 - a^
3*c*d)*((d*x + c)^2*b - 2*(d*x + c)*b*c + b*c^2 + (d*x + c)*a*d -
 a*c*d)) - (4*b*c + a*d)*arctan(sqrt(d*x + c)/sqrt(-c))/(a^3*sqrt
(-c)*c)
```

3.465 $\int \frac{1}{x^2(a+bx)^2(c+dx)^{3/2}}\,dx$

Optimal. Leaf size=216

$$-\frac{b^{5/2}(4bc-7ad)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{a^3(bc-ad)^{5/2}}+\frac{(3ad+4bc)\tanh^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{a^3c^{5/2}}-\frac{d\left(3a^2d^2-2abcd+2b^2c^2\right)}{a^2c^2\sqrt{c+dx}(bc-ad)^2}-\frac{b(2bc-ad)}{a^2c(a+bx)\sqrt{c+dx}(bc-ad)}-\frac{1}{acx(a+bx)\sqrt{c+dx}}$$

```
[Out] -((d*(2*b^2*c^2 - 2*a*b*c*d + 3*a^2*d^2))/(a^2*c^2*(b*c - a*d)^2*
Sqrt[c + d*x])) - (b*(2*b*c - a*d))/(a^2*c*(b*c - a*d)*(a + b*x)*
Sqrt[c + d*x]) - 1/(a*c*x*(a + b*x)*Sqrt[c + d*x]) + ((4*b*c + 3*
a*d)*ArcTanh[Sqrt[c + d*x]/Sqrt[c]])/(a^3*c^(5/2)) - (b^(5/2)*(4*
b*c - 7*a*d)*ArcTanh[(Sqrt[b]*Sqrt[c + d*x])/Sqrt[b*c - a*d]])/(a
^3*(b*c - a*d)^(5/2))
```

Rubi [A] time = 0.917912, antiderivative size = 216, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 7, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.35$

$$-\frac{b^{5/2}(4bc-7ad)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{a^3(bc-ad)^{5/2}}+\frac{(3ad+4bc)\tanh^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{a^3c^{5/2}}-\frac{d\left(3a^2d^2-2abcd+2b^2c^2\right)}{a^2c^2\sqrt{c+dx}(bc-ad)^2}-\frac{b(2bc-ad)}{a^2c(a+bx)\sqrt{c+dx}(bc-ad)}-\frac{1}{acx(a+bx)\sqrt{c+dx}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x^2*(a + b*x)^2*(c + d*x)^(3/2)),x]
```

```
[Out] -((d*(2*b^2*c^2 - 2*a*b*c*d + 3*a^2*d^2))/(a^2*c^2*(b*c - a*d)^2*
Sqrt[c + d*x])) - (b*(2*b*c - a*d))/(a^2*c*(b*c - a*d)*(a + b*x)*
Sqrt[c + d*x]) - 1/(a*c*x*(a + b*x)*Sqrt[c + d*x]) + ((4*b*c + 3*
a*d)*ArcTanh[Sqrt[c + d*x]/Sqrt[c]])/(a^3*c^(5/2)) - (b^(5/2)*(4*
b*c - 7*a*d)*ArcTanh[(Sqrt[b]*Sqrt[c + d*x])/Sqrt[b*c - a*d]])/(a
^3*(b*c - a*d)^(5/2))
```

Rubi in Sympy [A] time = 99.5598, size = 194, normalized size = 0.9

$$-\frac{b}{ax\,(a+bx)\,\sqrt{c+dx}\,(ad-bc)}-\frac{ad-2bc}{a^2cx\sqrt{c+dx}\,(ad-bc)}-\frac{d\left(3a^2d^2-2abcd+2b^2c^2\right)}{a^2c^2\sqrt{c+dx}\,(ad-bc)^2}-\frac{b^{\frac{5}{2}}\,(7ad-4bc)\,\mathrm{atan}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{ad-bc}}\right)}{a^3\,(ad-bc)^{\frac{5}{2}}}+\frac{(3ad+4bc)\,\mathrm{atanh}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{a^3c^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x**2/(b*x+a)**2/(d*x+c)**(3/2),x)
```

```
[Out] -b/(a*x*(a + b*x)*sqrt(c + d*x)*(a*d - b*c)) - (a*d - 2*b*c)/(a**
2*c*x*sqrt(c + d*x)*(a*d - b*c)) - d*(3*a**2*d**2 - 2*a*b*c*d + 2
*b**2*c**2)/(a**2*c**2*sqrt(c + d*x)*(a*d - b*c)**2) - b**(5/2)*(
7*a*d - 4*b*c)*atan(sqrt(b)*sqrt(c + d*x)/sqrt(a*d - b*c))/(a**3*
(a*d - b*c)**(5/2)) + (3*a*d + 4*b*c)*atanh(sqrt(c + d*x)/sqrt(c)
)/(a**3*c**(5/2))
```

Mathematica [A] time = 0.950488, size = 164, normalized size = 0.76

$$-\frac{b^{5/2}(4bc-7ad)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{a^3(bc-ad)^{5/2}}+\frac{(3ad+4bc)\tanh^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{a^3c^{5/2}}+\sqrt{c+dx}\left(-\frac{\frac{b^3}{(a+bx)(bc-ad)^2}+\frac{1}{c^2x}}{a^2}-\frac{2d^3}{c^2(c+dx)(bc-ad)^2}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(x^2*(a + b*x)^2*(c + d*x)^(3/2)),x]
```

```
[Out] Sqrt[c + d*x]*((-2*d^3)/(c^2*(b*c - a*d)^2*(c + d*x)) - (1/(c^2*x
) + b^3/((b*c - a*d)^2*(a + b*x)))/a^2) + ((4*b*c + 3*a*d)*ArcTan
h[Sqrt[c + d*x]/Sqrt[c]])/(a^3*c^(5/2)) - (b^(5/2)*(4*b*c - 7*a*d
)*ArcTanh[(Sqrt[b]*Sqrt[c + d*x])/Sqrt[b*c - a*d]])/(a^3*(b*c - a
*d)^(5/2))
```

Maple [A] time = 0.033, size = 229, normalized size = 1.1

$$-2\frac{d^3}{c^2(ad-bc)^2\sqrt{dx+c}}-\frac{1}{c^2a^2x}\sqrt{dx+c}+3\frac{d}{c^{5/2}a^2}Artanh\left(\frac{\sqrt{dx+c}}{\sqrt{c}}\right)+4\frac{b}{c^{3/2}a^3}Artanh\left(\frac{\sqrt{dx+c}}{\sqrt{c}}\right)-\frac{db^3}{a^2(ad-bc)^2(bdx+ad)}\sqrt{dx+c}-7\frac{db^3}{a^2(ad-bc)^2\sqrt{(ad-bc)b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)b}}\right)+4\frac{b^4c}{a^3(ad-bc)^2\sqrt{(ad-bc)b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)b}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/x^2/(b*x+a)^2/(d*x+c)^(3/2),x)
```

```
[Out] -2*d^3/c^2/(a*d-b*c)^2/(d*x+c)^(1/2)-1/c^2/a^2*(d*x+c)^(1/2)/x+3*
d/c^(5/2)/a^2*arctanh((d*x+c)^(1/2)/c^(1/2))+4/c^(3/2)/a^3*arctan
h((d*x+c)^(1/2)/c^(1/2))*b-d*b^3/a^2/(a*d-b*c)^2*(d*x+c)^(1/2)/(b
*d*x+a*d)-7*d*b^3/a^2/(a*d-b*c)^2/((a*d-b*c)*b)^(1/2)*arctan((d*x
+c)^(1/2)*b/((a*d-b*c)*b)^(1/2))+4*b^4/a^3/(a*d-b*c)^2/((a*d-b*c)
*b)^(1/2)*arctan((d*x+c)^(1/2)*b/((a*d-b*c)*b)^(1/2))*c
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^2*(d*x + c)^(3/2)*x^2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.846414, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((b*x + a)^2*(d*x + c)^(3/2)*x^2),x, algorithm="fricas")
```

```
[Out] [-1/2*(((4*b^4*c^3 - 7*a*b^3*c^2*d)*x^2 + (4*a*b^3*c^3 - 7*a^2*b^
2*c^2*d)*x)*sqrt(d*x + c)*sqrt(c)*sqrt(b/(b*c - a*d))*log((b*d*x
+ 2*b*c - a*d + 2*(b*c - a*d)*sqrt(d*x + c)*sqrt(b/(b*c - a*d)))/
(b*x + a)) - ((4*b^4*c^3 - 5*a*b^3*c^2*d - 2*a^2*b^2*c*d^2 + 3*a^
3*b*d^3)*x^2 + (4*a*b^3*c^3 - 5*a^2*b^2*c^2*d - 2*a^3*b*c*d^2 + 3
*a^4*d^3)*x)*sqrt(d*x + c)*log(((d*x + 2*c)*sqrt(c) + 2*sqrt(d*x
+ c)*c)/x) + 2*(a^2*b^2*c^3 - 2*a^3*b*c^2*d + a^4*c*d^2 + (2*a*b^
3*c^2*d - 2*a^2*b^2*c*d^2 + 3*a^3*b*d^3)*x^2 + (2*a*b^3*c^3 - a^2
*b^2*c^2*d - a^3*b*c*d^2 + 3*a^4*d^3)*x)*sqrt(c))/(((a^3*b^3*c^4
- 2*a^4*b^2*c^3*d + a^5*b*c^2*d^2)*x^2 + (a^4*b^2*c^4 - 2*a^5*b*c
^3*d + a^6*c^2*d^2)*x)*sqrt(d*x + c)*sqrt(c)), -1/2*(2*((4*b^4*c^
3 - 7*a*b^3*c^2*d)*x^2 + (4*a*b^3*c^3 - 7*a^2*b^2*c^2*d)*x)*sqrt(
d*x + c)*sqrt(c)*sqrt(-b/(b*c - a*d))*arctan(-(b*c - a*d)*sqrt(-b
/(b*c - a*d))/(sqrt(d*x + c)*b)) - ((4*b^4*c^3 - 5*a*b^3*c^2*d -
2*a^2*b^2*c*d^2 + 3*a^3*b*d^3)*x^2 + (4*a*b^3*c^3 - 5*a^2*b^2*c^2
*d - 2*a^3*b*c*d^2 + 3*a^4*d^3)*x)*sqrt(d*x + c)*log(((d*x + 2*c)
*sqrt(c) + 2*sqrt(d*x + c)*c)/x) + 2*(a^2*b^2*c^3 - 2*a^3*b*c^2*d
 + a^4*c*d^2 + (2*a*b^3*c^2*d - 2*a^2*b^2*c*d^2 + 3*a^3*b*d^3)*x^
2 + (2*a*b^3*c^3 - a^2*b^2*c^2*d - a^3*b*c*d^2 + 3*a^4*d^3)*x)*sq
rt(c))/(((a^3*b^3*c^4 - 2*a^4*b^2*c^3*d + a^5*b*c^2*d^2)*x^2 + (a
^4*b^2*c^4 - 2*a^5*b*c^3*d + a^6*c^2*d^2)*x)*sqrt(d*x + c)*sqrt(c
)), -1/2*(((4*b^4*c^3 - 7*a*b^3*c^2*d)*x^2 + (4*a*b^3*c^3 - 7*a^2
*b^2*c^2*d)*x)*sqrt(d*x + c)*sqrt(-c)*sqrt(b/(b*c - a*d))*log((b*
d*x + 2*b*c - a*d + 2*(b*c - a*d)*sqrt(d*x + c)*sqrt(b/(b*c - a*d
)))/(b*x + a)) + 2*((4*b^4*c^3 - 5*a*b^3*c^2*d - 2*a^2*b^2*c*d^2
+ 3*a^3*b*d^3)*x^2 + (4*a*b^3*c^3 - 5*a^2*b^2*c^2*d - 2*a^3*b*c*d
^2 + 3*a^4*d^3)*x)*sqrt(d*x + c)*arctan(c/(sqrt(d*x + c)*sqrt(-c)
)) + 2*(a^2*b^2*c^3 - 2*a^3*b*c^2*d + a^4*c*d^2 + (2*a*b^3*c^2*d
- 2*a^2*b^2*c*d^2 + 3*a^3*b*d^3)*x^2 + (2*a*b^3*c^3 - a^2*b^2*c^2
*d - a^3*b*c*d^2 + 3*a^4*d^3)*x)*sqrt(-c))/(((a^3*b^3*c^4 - 2*a^4
*b^2*c^3*d + a^5*b*c^2*d^2)*x^2 + (a^4*b^2*c^4 - 2*a^5*b*c^3*d +
a^6*c^2*d^2)*x)*sqrt(d*x + c)*sqrt(-c)), -(((4*b^4*c^3 - 7*a*b^3*
c^2*d)*x^2 + (4*a*b^3*c^3 - 7*a^2*b^2*c^2*d)*x)*sqrt(d*x + c)*sqr
t(-c)*sqrt(-b/(b*c - a*d))*arctan(-(b*c - a*d)*sqrt(-b/(b*c - a*d
))/(sqrt(d*x + c)*b)) + ((4*b^4*c^3 - 5*a*b^3*c^2*d - 2*a^2*b^2*c
*d^2 + 3*a^3*b*d^3)*x^2 + (4*a*b^3*c^3 - 5*a^2*b^2*c^2*d - 2*a^3*
b*c*d^2 + 3*a^4*d^3)*x)*sqrt(d*x + c)*arctan(c/(sqrt(d*x + c)*sqr
t(-c))) + (a^2*b^2*c^3 - 2*a^3*b*c^2*d + a^4*c*d^2 + (2*a*b^3*c^2
*d - 2*a^2*b^2*c*d^2 + 3*a^3*b*d^3)*x^2 + (2*a*b^3*c^3 - a^2*b^2*
c^2*d - a^3*b*c*d^2 + 3*a^4*d^3)*x)*sqrt(-c))/(((a^3*b^3*c^4 - 2*
a^4*b^2*c^3*d + a^5*b*c^2*d^2)*x^2 + (a^4*b^2*c^4 - 2*a^5*b*c^3*d
 + a^6*c^2*d^2)*x)*sqrt(d*x + c)*sqrt(-c))]
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x**2/(b*x+a)**2/(d*x+c)**(3/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.22767, size = 456, normalized size = 2.11

$$\frac{\left(4\,b^4c - 7\,ab^3d\right)\,\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{-b^2c+abd}}\right)}{\left(a^3b^2c^2 - 2\,a^4bcd + a^5d^2\right)\sqrt{-b^2c+abd}} - \frac{2\,(dx+c)^2b^3c^2d - 2\,(dx+c)b^3c^3d - 2\,(dx+c)^2ab^2cd^2 + 3\,(dx+c)ab^2c^2d^2 + 3\,(dx+c)^2a^2bd^3 - 7\,(dx+c)a^2bcd^3 + 2\,a^2bc^2}{\left(a^2b^2c^4 - 2\,a^3bc^3d + a^4c^2d^2\right)\left((dx+c)^{\frac{5}{2}}b - 2\,(dx+c)^{\frac{3}{2}}bc + \sqrt{dx+c}bc^2 + (dx+c)^{\frac{3}{2}}ad - \sqrt{dx+c}a\right.} - \frac{(4\,bc + 3\,ad)\arctan\left(\frac{\sqrt{dx+c}}{\sqrt{-c}}\right)}{a^3\sqrt{-c}c^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^2*(d*x + c)^(3/2)*x^2),x, algorithm="giac")
```

```
[Out] (4*b^4*c - 7*a*b^3*d)*arctan(sqrt(d*x + c)*b/sqrt(-b^2*c + a*b*d)
)/((a^3*b^2*c^2 - 2*a^4*b*c*d + a^5*d^2)*sqrt(-b^2*c + a*b*d)) -
(2*(d*x + c)^2*b^3*c^2*d - 2*(d*x + c)*b^3*c^3*d - 2*(d*x + c)^2*
a*b^2*c*d^2 + 3*(d*x + c)*a*b^2*c^2*d^2 + 3*(d*x + c)^2*a^2*b*d^3
 - 7*(d*x + c)*a^2*b*c*d^3 + 2*a^2*b*c^2*d^3 + 3*(d*x + c)*a^3*d^
4 - 2*a^3*c*d^4)/((a^2*b^2*c^4 - 2*a^3*b*c^3*d + a^4*c^2*d^2)*((d
*x + c)^(5/2)*b - 2*(d*x + c)^(3/2)*b*c + sqrt(d*x + c)*b*c^2 + (
d*x + c)^(3/2)*a*d - sqrt(d*x + c)*a*c*d)) - (4*b*c + 3*a*d)*arct
an(sqrt(d*x + c)/sqrt(-c))/(a^3*sqrt(-c)*c^2)
```

3.466 $\int \frac{1}{x^2(a+bx)^2(c+dx)^{5/2}}\,dx$

Optimal. Leaf size=277

$$-\frac{b^{7/2}(4bc-9ad)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{a^3(bc-ad)^{7/2}}+\frac{(5ad+4bc)\tanh^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{a^3c^{7/2}}-\frac{d\left(5a^2d^2-6abcd+6b^2c^2\right)}{3a^2c^2(c+dx)^{3/2}(bc-ad)^2}-\frac{d(2bc-ad)\left(5a^2d^2-abcd+b^2c^2\right)}{a^2c^3\sqrt{c+dx}(bc-ad)^3}-\frac{b(2bc-ad)}{a^2c(a+bx)(c+dx)^{3/2}(bc-ad)}-\frac{1}{acx(a+bx)(c+dx)^{3/2}}$$

```
[Out] -(d*(6*b^2*c^2 - 6*a*b*c*d + 5*a^2*d^2))/(3*a^2*c^2*(b*c - a*d)^2
*(c + d*x)^(3/2)) - (b*(2*b*c - a*d))/(a^2*c*(b*c - a*d)*(a + b*x
)*(c + d*x)^(3/2)) - 1/(a*c*x*(a + b*x)*(c + d*x)^(3/2)) - (d*(2*
b*c - a*d)*(b^2*c^2 - a*b*c*d + 5*a^2*d^2))/(a^2*c^3*(b*c - a*d)^
3*Sqrt[c + d*x]) + ((4*b*c + 5*a*d)*ArcTanh[Sqrt[c + d*x]/Sqrt[c]
])/(a^3*c^(7/2)) - (b^(7/2)*(4*b*c - 9*a*d)*ArcTanh[(Sqrt[b]*Sqrt
[c + d*x])/Sqrt[b*c - a*d]])/(a^3*(b*c - a*d)^(7/2))
```

Rubi [A] time = 1.32076, antiderivative size = 277, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 7, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.35

$$-\frac{b^{7/2}(4bc-9ad)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{a^3(bc-ad)^{7/2}}+\frac{(5ad+4bc)\tanh^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{a^3c^{7/2}}-\frac{d\left(5a^2d^2-6abcd+6b^2c^2\right)}{3a^2c^2(c+dx)^{3/2}(bc-ad)^2}-\frac{d(2bc-ad)\left(5a^2d^2-abcd+b^2c^2\right)}{a^2c^3\sqrt{c+dx}(bc-ad)^3}-\frac{b(2bc-ad)}{a^2c(a+bx)(c+dx)^{3/2}(bc-ad)}-\frac{1}{acx(a+bx)(c+dx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x^2*(a + b*x)^2*(c + d*x)^(5/2)),x]
```

```
[Out] -(d*(6*b^2*c^2 - 6*a*b*c*d + 5*a^2*d^2))/(3*a^2*c^2*(b*c - a*d)^2
*(c + d*x)^(3/2)) - (b*(2*b*c - a*d))/(a^2*c*(b*c - a*d)*(a + b*x
)*(c + d*x)^(3/2)) - 1/(a*c*x*(a + b*x)*(c + d*x)^(3/2)) - (d*(2*
b*c - a*d)*(b^2*c^2 - a*b*c*d + 5*a^2*d^2))/(a^2*c^3*(b*c - a*d)^
3*Sqrt[c + d*x]) + ((4*b*c + 5*a*d)*ArcTanh[Sqrt[c + d*x]/Sqrt[c]
])/(a^3*c^(7/2)) - (b^(7/2)*(4*b*c - 9*a*d)*ArcTanh[(Sqrt[b]*Sqrt
[c + d*x])/Sqrt[b*c - a*d]])/(a^3*(b*c - a*d)^(7/2))
```

Rubi in Sympy [A] time = 145.029, size = 252, normalized size = 0.91

$$-\frac{b}{ax\left(a+bx\right)\left(c+dx\right)^{\frac{3}{2}}\left(ad-bc\right)}-\frac{ad-2bc}{a^2cx\left(c+dx\right)^{\frac{3}{2}}\left(ad-bc\right)}-\frac{d\left(5a^2d^2-6abcd+6b^2c^2\right)}{3a^2c^2\left(c+dx\right)^{\frac{3}{2}}\left(ad-bc\right)^2}-\frac{d\left(ad-2bc\right)\left(5a^2d^2-abcd+b^2c^2\right)}{a^2c^3\sqrt{c+dx}\left(ad-bc\right)^3}+\frac{b^{\frac{7}{2}}\left(9ad-4bc\right)\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{ad-bc}}\right)}{a^3\left(ad-bc\right)^{\frac{7}{2}}}+\frac{\left(5ad+4bc\right)\operatorname{atanh}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{a^3c^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x**2/(b*x+a)**2/(d*x+c)**(5/2),x)
```

```
[Out] -b/(a*x*(a + b*x)*(c + d*x)**(3/2)*(a*d - b*c)) - (a*d - 2*b*c)/(
a**2*c*x*(c + d*x)**(3/2)*(a*d - b*c)) - d*(5*a**2*d**2 - 6*a*b*c
*d + 6*b**2*c**2)/(3*a**2*c**2*(c + d*x)**(3/2)*(a*d - b*c)**2) -
 d*(a*d - 2*b*c)*(5*a**2*d**2 - a*b*c*d + b**2*c**2)/(a**2*c**3*s
qrt(c + d*x)*(a*d - b*c)**3) + b**(7/2)*(9*a*d - 4*b*c)*atan(sqrt
(b)*sqrt(c + d*x)/sqrt(a*d - b*c))/(a**3*(a*d - b*c)**(7/2)) + (5
*a*d + 4*b*c)*atanh(sqrt(c + d*x)/sqrt(c))/(a**3*c**(7/2))
```

Mathematica [A] time = 1.46908, size = 200, normalized size = 0.72

$$-\frac{b^{7/2}(4bc-9ad)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{a^3(bc-ad)^{7/2}}+\frac{(5ad+4bc)\tanh^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{c}}\right)}{a^3c^{7/2}}+\sqrt{c+dx}\left(\frac{b^4}{a^2(a+bx)(ad-bc)^3}-\frac{1}{a^2c^3x}+\frac{4d^3(ad-2bc)}{c^3(c+dx)(bc-ad)^3}-\frac{2d^3}{3c^2(c+dx)^2(bc-ad)^2}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(x^2*(a + b*x)^2*(c + d*x)^(5/2)),x]
```

```
[Out] Sqrt[c + d*x]*(-(1/(a^2*c^3*x)) + b^4/(a^2*(-(b*c) + a*d)^3*(a + 
b*x)) - (2*d^3)/(3*c^2*(b*c - a*d)^2*(c + d*x)^2) + (4*d^3*(-2*b*
c + a*d))/(c^3*(b*c - a*d)^3*(c + d*x))) + ((4*b*c + 5*a*d)*ArcTa
nh[Sqrt[c + d*x]/Sqrt[c]])/(a^3*c^(7/2)) - (b^(7/2)*(4*b*c - 9*a*
d)*ArcTanh[(Sqrt[b]*Sqrt[c + d*x])/Sqrt[b*c - a*d]])/(a^3*(b*c - 
a*d)^(7/2))
```

Maple [A] time = 0.039, size = 280, normalized size = 1.

$$-\frac{2d^3}{3c^2(ad-bc)^2}(dx+c)^{-\frac{3}{2}}-4\frac{d^4a}{c^3(ad-bc)^3\sqrt{dx+c}}+8\frac{d^3b}{c^2(ad-bc)^3\sqrt{dx+c}}-\frac{1}{a^2c^3x}\sqrt{dx+c}+5\frac{d}{a^2c^{7/2}}\mathit{Artanh}\left(\frac{\sqrt{dx+c}}{\sqrt{c}}\right)+4\frac{b}{a^3c^{5/2}}\mathit{Artanh}\left(\frac{\sqrt{dx+c}}{\sqrt{c}}\right)+\frac{db^4}{a^2(ad-bc)^3(bdx+ad)}\sqrt{dx+c}+9\frac{db^4}{a^2(ad-bc)^3\sqrt{(ad-bc)b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)b}}\right)-4\frac{b^5c}{a^3(ad-bc)^3\sqrt{(ad-bc)b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)b}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/x^2/(b*x+a)^2/(d*x+c)^(5/2),x)
```

```
[Out] -2/3*d^3/c^2/(a*d-b*c)^2/(d*x+c)^(3/2)-4*d^4/c^3/(a*d-b*c)^3/(d*x
+c)^(1/2)*a+8*d^3/c^2/(a*d-b*c)^3/(d*x+c)^(1/2)*b-1/a^2/c^3*(d*x+
c)^(1/2)/x+5*d/a^2/c^(7/2)*arctanh((d*x+c)^(1/2)/c^(1/2))+4/a^3/c
^(5/2)*arctanh((d*x+c)^(1/2)/c^(1/2))*b+d*b^4/a^2/(a*d-b*c)^3*(d*
x+c)^(1/2)/(b*d*x+a*d)+9*d*b^4/a^2/(a*d-b*c)^3/((a*d-b*c)*b)^(1/2
)*arctan((d*x+c)^(1/2)*b/((a*d-b*c)*b)^(1/2))-4*b^5/a^3/(a*d-b*c)
^3/((a*d-b*c)*b)^(1/2)*arctan((d*x+c)^(1/2)*b/((a*d-b*c)*b)^(1/2)
)*c
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^2*(d*x + c)^(5/2)*x^2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 2.69936, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((b*x + a)^2*(d*x + c)^(5/2)*x^2),x, algorithm="fricas")
```

```
[Out] [1/6*(3*((4*b^5*c^4*d - 9*a*b^4*c^3*d^2)*x^3 + (4*b^5*c^5 - 5*a*b
^4*c^4*d - 9*a^2*b^3*c^3*d^2)*x^2 + (4*a*b^4*c^5 - 9*a^2*b^3*c^4*
d)*x)*sqrt(d*x + c)*sqrt(c)*sqrt(b/(b*c - a*d))*log((b*d*x + 2*b*
c - a*d - 2*(b*c - a*d)*sqrt(d*x + c)*sqrt(b/(b*c - a*d)))/(b*x +
 a)) + 3*((4*b^5*c^4*d - 7*a*b^4*c^3*d^2 - 3*a^2*b^3*c^2*d^3 + 11
*a^3*b^2*c*d^4 - 5*a^4*b*d^5)*x^3 + (4*b^5*c^5 - 3*a*b^4*c^4*d -
10*a^2*b^3*c^3*d^2 + 8*a^3*b^2*c^2*d^3 + 6*a^4*b*c*d^4 - 5*a^5*d^
5)*x^2 + (4*a*b^4*c^5 - 7*a^2*b^3*c^4*d - 3*a^3*b^2*c^3*d^2 + 11*
a^4*b*c^2*d^3 - 5*a^5*c*d^4)*x)*sqrt(d*x + c)*log(((d*x + 2*c)*sq
rt(c) + 2*sqrt(d*x + c)*c)/x) - 2*(3*a^2*b^3*c^5 - 9*a^3*b^2*c^4*
d + 9*a^4*b*c^3*d^2 - 3*a^5*c^2*d^3 + 3*(2*a*b^4*c^3*d^2 - 3*a^2*
b^3*c^2*d^3 + 11*a^3*b^2*c*d^4 - 5*a^4*b*d^5)*x^3 + (12*a*b^4*c^4
*d - 15*a^2*b^3*c^3*d^2 + 35*a^3*b^2*c^2*d^3 + 13*a^4*b*c*d^4 - 1
5*a^5*d^5)*x^2 + (6*a*b^4*c^5 - 3*a^2*b^3*c^4*d - 9*a^3*b^2*c^3*d
^2 + 41*a^4*b*c^2*d^3 - 20*a^5*c*d^4)*x)*sqrt(c))/(((a^3*b^4*c^6*
d - 3*a^4*b^3*c^5*d^2 + 3*a^5*b^2*c^4*d^3 - a^6*b*c^3*d^4)*x^3 +
(a^3*b^4*c^7 - 2*a^4*b^3*c^6*d + 2*a^6*b*c^4*d^3 - a^7*c^3*d^4)*x
^2 + (a^4*b^3*c^7 - 3*a^5*b^2*c^6*d + 3*a^6*b*c^5*d^2 - a^7*c^4*d
^3)*x)*sqrt(d*x + c)*sqrt(c)), -1/6*(6*((4*b^5*c^4*d - 9*a*b^4*c^
3*d^2)*x^3 + (4*b^5*c^5 - 5*a*b^4*c^4*d - 9*a^2*b^3*c^3*d^2)*x^2
+ (4*a*b^4*c^5 - 9*a^2*b^3*c^4*d)*x)*sqrt(d*x + c)*sqrt(c)*sqrt(-
b/(b*c - a*d))*arctan(-(b*c - a*d)*sqrt(-b/(b*c - a*d))/(sqrt(d*x
 + c)*b)) - 3*((4*b^5*c^4*d - 7*a*b^4*c^3*d^2 - 3*a^2*b^3*c^2*d^3
 + 11*a^3*b^2*c*d^4 - 5*a^4*b*d^5)*x^3 + (4*b^5*c^5 - 3*a*b^4*c^4
*d - 10*a^2*b^3*c^3*d^2 + 8*a^3*b^2*c^2*d^3 + 6*a^4*b*c*d^4 - 5*a
^5*d^5)*x^2 + (4*a*b^4*c^5 - 7*a^2*b^3*c^4*d - 3*a^3*b^2*c^3*d^2
+ 11*a^4*b*c^2*d^3 - 5*a^5*c*d^4)*x)*sqrt(d*x + c)*log(((d*x + 2*
c)*sqrt(c) + 2*sqrt(d*x + c)*c)/x) + 2*(3*a^2*b^3*c^5 - 9*a^3*b^2
*c^4*d + 9*a^4*b*c^3*d^2 - 3*a^5*c^2*d^3 + 3*(2*a*b^4*c^3*d^2 - 3
*a^2*b^3*c^2*d^3 + 11*a^3*b^2*c*d^4 - 5*a^4*b*d^5)*x^3 + (12*a*b^
4*c^4*d - 15*a^2*b^3*c^3*d^2 + 35*a^3*b^2*c^2*d^3 + 13*a^4*b*c*d^
4 - 15*a^5*d^5)*x^2 + (6*a*b^4*c^5 - 3*a^2*b^3*c^4*d - 9*a^3*b^2*
c^3*d^2 + 41*a^4*b*c^2*d^3 - 20*a^5*c*d^4)*x)*sqrt(c))/(((a^3*b^4
*c^6*d - 3*a^4*b^3*c^5*d^2 + 3*a^5*b^2*c^4*d^3 - a^6*b*c^3*d^4)*x
^3 + (a^3*b^4*c^7 - 2*a^4*b^3*c^6*d + 2*a^6*b*c^4*d^3 - a^7*c^3*d
^4)*x^2 + (a^4*b^3*c^7 - 3*a^5*b^2*c^6*d + 3*a^6*b*c^5*d^2 - a^7*
c^4*d^3)*x)*sqrt(d*x + c)*sqrt(c)), 1/6*(3*((4*b^5*c^4*d - 9*a*b^
4*c^3*d^2)*x^3 + (4*b^5*c^5 - 5*a*b^4*c^4*d - 9*a^2*b^3*c^3*d^2)*
x^2 + (4*a*b^4*c^5 - 9*a^2*b^3*c^4*d)*x)*sqrt(d*x + c)*sqrt(-c)*s
qrt(b/(b*c - a*d))*log((b*d*x + 2*b*c - a*d - 2*(b*c - a*d)*sqrt(
d*x + c)*sqrt(b/(b*c - a*d)))/(b*x + a)) - 6*((4*b^5*c^4*d - 7*a*
b^4*c^3*d^2 - 3*a^2*b^3*c^2*d^3 + 11*a^3*b^2*c*d^4 - 5*a^4*b*d^5)
*x^3 + (4*b^5*c^5 - 3*a*b^4*c^4*d - 10*a^2*b^3*c^3*d^2 + 8*a^3*b^
2*c^2*d^3 + 6*a^4*b*c*d^4 - 5*a^5*d^5)*x^2 + (4*a*b^4*c^5 - 7*a^2
*b^3*c^4*d - 3*a^3*b^2*c^3*d^2 + 11*a^4*b*c^2*d^3 - 5*a^5*c*d^4)*
x)*sqrt(d*x + c)*arctan(c/(sqrt(d*x + c)*sqrt(-c))) - 2*(3*a^2*b^
3*c^5 - 9*a^3*b^2*c^4*d + 9*a^4*b*c^3*d^2 - 3*a^5*c^2*d^3 + 3*(2*
a*b^4*c^3*d^2 - 3*a^2*b^3*c^2*d^3 + 11*a^3*b^2*c*d^4 - 5*a^4*b*d^
5)*x^3 + (12*a*b^4*c^4*d - 15*a^2*b^3*c^3*d^2 + 35*a^3*b^2*c^2*d^
3 + 13*a^4*b*c*d^4 - 15*a^5*d^5)*x^2 + (6*a*b^4*c^5 - 3*a^2*b^3*c
^4*d - 9*a^3*b^2*c^3*d^2 + 41*a^4*b*c^2*d^3 - 20*a^5*c*d^4)*x)*sq
rt(-c))/(((a^3*b^4*c^6*d - 3*a^4*b^3*c^5*d^2 + 3*a^5*b^2*c^4*d^3
- a^6*b*c^3*d^4)*x^3 + (a^3*b^4*c^7 - 2*a^4*b^3*c^6*d + 2*a^6*b*c
^4*d^3 - a^7*c^3*d^4)*x^2 + (a^4*b^3*c^7 - 3*a^5*b^2*c^6*d + 3*a^
6*b*c^5*d^2 - a^7*c^4*d^3)*x)*sqrt(d*x + c)*sqrt(-c)), -1/3*(3*((
4*b^5*c^4*d - 9*a*b^4*c^3*d^2)*x^3 + (4*b^5*c^5 - 5*a*b^4*c^4*d -
 9*a^2*b^3*c^3*d^2)*x^2 + (4*a*b^4*c^5 - 9*a^2*b^3*c^4*d)*x)*sqrt
(d*x + c)*sqrt(-c)*sqrt(-b/(b*c - a*d))*arctan(-(b*c - a*d)*sqrt(
-b/(b*c - a*d))/(sqrt(d*x + c)*b)) + 3*((4*b^5*c^4*d - 7*a*b^4*c^
3*d^2 - 3*a^2*b^3*c^2*d^3 + 11*a^3*b^2*c*d^4 - 5*a^4*b*d^5)*x^3 +
 (4*b^5*c^5 - 3*a*b^4*c^4*d - 10*a^2*b^3*c^3*d^2 + 8*a^3*b^2*c^2*
d^3 + 6*a^4*b*c*d^4 - 5*a^5*d^5)*x^2 + (4*a*b^4*c^5 - 7*a^2*b^3*c
^4*d - 3*a^3*b^2*c^3*d^2 + 11*a^4*b*c^2*d^3 - 5*a^5*c*d^4)*x)*sqr
t(d*x + c)*arctan(c/(sqrt(d*x + c)*sqrt(-c))) + (3*a^2*b^3*c^5 -
9*a^3*b^2*c^4*d + 9*a^4*b*c^3*d^2 - 3*a^5*c^2*d^3 + 3*(2*a*b^4*c^
3*d^2 - 3*a^2*b^3*c^2*d^3 + 11*a^3*b^2*c*d^4 - 5*a^4*b*d^5)*x^3 +
 (12*a*b^4*c^4*d - 15*a^2*b^3*c^3*d^2 + 35*a^3*b^2*c^2*d^3 + 13*a
^4*b*c*d^4 - 15*a^5*d^5)*x^2 + (6*a*b^4*c^5 - 3*a^2*b^3*c^4*d - 9
*a^3*b^2*c^3*d^2 + 41*a^4*b*c^2*d^3 - 20*a^5*c*d^4)*x)*sqrt(-c))/
```

```
(((a^3*b^4*c^6*d - 3*a^4*b^3*c^5*d^2 + 3*a^5*b^2*c^4*d^3 - a^6*b*
c^3*d^4)*x^3 + (a^3*b^4*c^7 - 2*a^4*b^3*c^6*d + 2*a^6*b*c^4*d^3 -
 a^7*c^3*d^4)*x^2 + (a^4*b^3*c^7 - 3*a^5*b^2*c^6*d + 3*a^6*b*c^5*
d^2 - a^7*c^4*d^3)*x)*sqrt(d*x + c)*sqrt(-c))]
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/x**2/(b*x+a)**2/(d*x+c)**(5/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.259581, size = 635, normalized size = 2.29

$$\frac{\left(4\,b^5c - 9\,ab^4d\right)\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{-b^2c+abd}}\right)}{\left(a^3b^3c^3 - 3\,a^4b^2c^2d + 3\,a^5bcd^2 - a^6d^3\right)\sqrt{-b^2c+abd}} - \frac{2\,(dx+c)^{\frac{3}{2}}b^4c^3d - 2\,\sqrt{dx+c}b^4c^4d - 3\,(dx+c)^{\frac{3}{2}}ab^3c^2d^2 + 4\,\sqrt{dx+c}ab^3c^3d^2 + 3\,(dx+c)^{\frac{3}{2}}a^2b^2cd^3 - 6\,\sqrt{dx+c}a^2b^2c^2d^3 - \cdots}{\left(a^2b^3c^6 - 3\,a^3b^2c^5d + 3\,a^4bc^4d^2 - a^5c^3d^3\right)\left((dx+c)^2b - 2\,(dx+c)bc + bc^2 + (dx+c\cdots\right.} - \frac{2\left(12\,(dx+c)bcd^3 + bc^2d^3 - 6\,(dx+c)ad^4 - acd^4\right)}{3\,(b^3c^6 - 3\,ab^2c^5d + 3\,a^2bc^4d^2 - a^3c^3d^3)(dx+c)^{\frac{3}{2}}} - \frac{(4\,bc + 5\,ad)\arctan\left(\frac{\sqrt{dx+c}}{\sqrt{-c}}\right)}{a^3\sqrt{-c}c^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^2*(d*x + c)^(5/2)*x^2),x, algorithm="giac")
```

```
[Out] (4*b^5*c - 9*a*b^4*d)*arctan(sqrt(d*x + c)*b/sqrt(-b^2*c + a*b*d)
)/((a^3*b^3*c^3 - 3*a^4*b^2*c^2*d + 3*a^5*b*c*d^2 - a^6*d^3)*sqrt
(-b^2*c + a*b*d)) - (2*(d*x + c)^(3/2)*b^4*c^3*d - 2*sqrt(d*x + c
)*b^4*c^4*d - 3*(d*x + c)^(3/2)*a*b^3*c^2*d^2 + 4*sqrt(d*x + c)*a
*b^3*c^3*d^2 + 3*(d*x + c)^(3/2)*a^2*b^2*c*d^3 - 6*sqrt(d*x + c)*
a^2*b^2*c^2*d^3 - (d*x + c)^(3/2)*a^3*b*d^4 + 4*sqrt(d*x + c)*a^3
*b*c*d^4 - sqrt(d*x + c)*a^4*d^5)/((a^2*b^3*c^6 - 3*a^3*b^2*c^5*d
 + 3*a^4*b*c^4*d^2 - a^5*c^3*d^3)*((d*x + c)^2*b - 2*(d*x + c)*b*
c + b*c^2 + (d*x + c)*a*d - a*c*d)) - 2/3*(12*(d*x + c)*b*c*d^3 +
 b*c^2*d^3 - 6*(d*x + c)*a*d^4 - a*c*d^4)/((b^3*c^6 - 3*a*b^2*c^5
*d + 3*a^2*b*c^4*d^2 - a^3*c^3*d^3)*(d*x + c)^(3/2)) - (4*b*c + 5
*a*d)*arctan(sqrt(d*x + c)/sqrt(-c))/(a^3*sqrt(-c)*c^3)
```

3.467 $\int x^{5/2}\sqrt{a+bx}(A+Bx)\,dx$

Optimal. Leaf size=192

$$-\frac{a^4(10Ab-7aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{128b^{9/2}}+\frac{a^3\sqrt{x}\sqrt{a+bx}(10Ab-7aB)}{128b^4}-\frac{a^2x^{3/2}\sqrt{a+bx}(10Ab-7aB)}{192b^3}+\frac{ax^{5/2}\sqrt{a+bx}(10Ab-7aB)}{240b^2}+\frac{x^{7/2}\sqrt{a+bx}(10Ab-7aB)}{40b}+\frac{Bx^{7/2}(a+bx)^{3/2}}{5b}$$

```
[Out] (a^3*(10*A*b - 7*a*B)*Sqrt[x]*Sqrt[a + b*x])/(128*b^4) - (a^2*(10
*A*b - 7*a*B)*x^(3/2)*Sqrt[a + b*x])/(192*b^3) + (a*(10*A*b - 7*a
*B)*x^(5/2)*Sqrt[a + b*x])/(240*b^2) + ((10*A*b - 7*a*B)*x^(7/2)*
Sqrt[a + b*x])/(40*b) + (B*x^(7/2)*(a + b*x)^(3/2))/(5*b) - (a^4*
(10*A*b - 7*a*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a + b*x]])/(128*b
^(9/2))
```

Rubi [A] time = 0.235583, antiderivative size = 192, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.2$

$$-\frac{a^4(10Ab-7aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{128b^{9/2}}+\frac{a^3\sqrt{x}\sqrt{a+bx}(10Ab-7aB)}{128b^4}-\frac{a^2x^{3/2}\sqrt{a+bx}(10Ab-7aB)}{192b^3}+\frac{ax^{5/2}\sqrt{a+bx}(10Ab-7aB)}{240b^2}+\frac{x^{7/2}\sqrt{a+bx}(10Ab-7aB)}{40b}+\frac{Bx^{7/2}(a+bx)^{3/2}}{5b}$$

Antiderivative was successfully verified.

```
[In]  Int[x^(5/2)*Sqrt[a + b*x]*(A + B*x),x]
```

```
[Out] (a^3*(10*A*b - 7*a*B)*Sqrt[x]*Sqrt[a + b*x])/(128*b^4) - (a^2*(10
*A*b - 7*a*B)*x^(3/2)*Sqrt[a + b*x])/(192*b^3) + (a*(10*A*b - 7*a
*B)*x^(5/2)*Sqrt[a + b*x])/(240*b^2) + ((10*A*b - 7*a*B)*x^(7/2)*
Sqrt[a + b*x])/(40*b) + (B*x^(7/2)*(a + b*x)^(3/2))/(5*b) - (a^4*
(10*A*b - 7*a*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a + b*x]])/(128*b
^(9/2))
```

Rubi in Sympy [A] time = 21.6061, size = 182, normalized size = 0.95

$$\frac{Bx^{\frac{7}{2}}(a+bx)^{\frac{3}{2}}}{5b}-\frac{a^4(10Ab-7Ba)\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{b}\sqrt{x}}\right)}{128b^{\frac{9}{2}}}+\frac{a^3\sqrt{x}\sqrt{a+bx}(10Ab-7Ba)}{128b^4}+\frac{a^2x^{\frac{3}{2}}\sqrt{a+bx}(10Ab-7Ba)}{64b^3}-\frac{ax^{\frac{3}{2}}(a+bx)^{\frac{3}{2}}(10Ab-7Ba)}{48b^3}+\frac{x^{\frac{5}{2}}(a+bx)^{\frac{3}{2}}(10Ab-7Ba)}{40b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**(5/2)*(B*x+A)*(b*x+a)**(1/2),x)
```

```
[Out] B*x**(7/2)*(a + b*x)**(3/2)/(5*b) - a**4*(10*A*b - 7*B*a)*atanh(s
qrt(a + b*x)/(sqrt(b)*sqrt(x)))/(128*b**(9/2)) + a**3*sqrt(x)*sqr
t(a + b*x)*(10*A*b - 7*B*a)/(128*b**4) + a**2*x**(3/2)*sqrt(a + b
*x)*(10*A*b - 7*B*a)/(64*b**3) - a*x**(3/2)*(a + b*x)**(3/2)*(10*
A*b - 7*B*a)/(48*b**3) + x**(5/2)*(a + b*x)**(3/2)*(10*A*b - 7*B*
a)/(40*b**2)
```

Mathematica [A] time = 0.165992, size = 139, normalized size = 0.72

$$\frac{15a^4(7aB-10Ab)\log\left(\sqrt{b}\sqrt{a+bx}+b\sqrt{x}\right)+\sqrt{b}\sqrt{x}\sqrt{a+bx}\left(-105a^4B+10a^3b(15A+7Bx)-4a^2b^2x(25A+14Bx)+16ab^3x\right.}{1920b^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^(5/2)*Sqrt[a + b*x]*(A + B*x),x]
```

```
[Out] (Sqrt[b]*Sqrt[x]*Sqrt[a + b*x]*(-105*a^4*B + 16*a*b^3*x^2*(5*A +
3*B*x) + 96*b^4*x^3*(5*A + 4*B*x) + 10*a^3*b*(15*A + 7*B*x) - 4*a
^2*b^2*x*(25*A + 14*B*x)) + 15*a^4*(-10*A*b + 7*a*B)*Log[b*Sqrt[x
] + Sqrt[b]*Sqrt[a + b*x]])/(1920*b^(9/2))
```

Maple [A] time = 0.021, size = 260, normalized size = 1.4

$$-\frac{1}{3840}\sqrt{x}\sqrt{bx+a}\left(-768\,Bx^4b^{9/2}\sqrt{x\,(bx+a)}-960\,Ax^3b^{9/2}\sqrt{x\,(bx+a)}-96\,Bx^3ab^{7/2}\sqrt{x\,(bx+a)}-160\,Ax^2ab^{7/2}\sqrt{x\,(bx+\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^(5/2)*(B*x+A)*(b*x+a)^(1/2),x)
```

```
[Out] -1/3840*x^(1/2)*(b*x+a)^(1/2)/b^(9/2)*(-768*B*x^4*b^(9/2)*(x*(b*x
+a))^(1/2)-960*A*x^3*b^(9/2)*(x*(b*x+a))^(1/2)-96*B*x^3*a*b^(7/2)
*(x*(b*x+a))^(1/2)-160*A*x^2*a*b^(7/2)*(x*(b*x+a))^(1/2)+112*B*x^
2*a^2*b^(5/2)*(x*(b*x+a))^(1/2)+200*A*a^2*(x*(b*x+a))^(1/2)*x*b^(
5/2)-140*B*a^3*(x*(b*x+a))^(1/2)*x*b^(3/2)+150*A*a^4*ln(1/2*(2*(x
*(b*x+a))^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))*b-300*A*a^3*(x*(b*x+a))
^(1/2)*b^(3/2)-105*B*a^5*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1/2)+2*b*
x+a)/b^(1/2))+210*B*a^4*(x*(b*x+a))^(1/2)*b^(1/2))/(x*(b*x+a))^(1
/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)*x^(5/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.245727, size = 1, normalized size = 0.01

$$\left[\frac{2\left(384\,Bb^4x^4-105\,Ba^4+150\,Aa^3b+48\left(Bab^3+10\,Ab^4\right)x^3-8\left(7\,Ba^2b^2-10\,Aab^3\right)x^2+10\left(7\,Ba^3b-10\,Aa^2b^2\right)x\right)\sqrt{bx+}}{3840\,b^{\frac{9}{2}}}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)*x^(5/2),x, algorithm="fricas")
```

```
[Out] [1/3840*(2*(384*B*b^4*x^4 - 105*B*a^4 + 150*A*a^3*b + 48*(B*a*b^3
 + 10*A*b^4)*x^3 - 8*(7*B*a^2*b^2 - 10*A*a*b^3)*x^2 + 10*(7*B*a^3
*b - 10*A*a^2*b^2)*x)*sqrt(b*x + a)*sqrt(b)*sqrt(x) - 15*(7*B*a^5
 - 10*A*a^4*b)*log(-2*sqrt(b*x + a)*b*sqrt(x) + (2*b*x + a)*sqrt(
b)))/b^(9/2), 1/1920*((384*B*b^4*x^4 - 105*B*a^4 + 150*A*a^3*b +
48*(B*a*b^3 + 10*A*b^4)*x^3 - 8*(7*B*a^2*b^2 - 10*A*a*b^3)*x^2 +
10*(7*B*a^3*b - 10*A*a^2*b^2)*x)*sqrt(b*x + a)*sqrt(-b)*sqrt(x) +
 15*(7*B*a^5 - 10*A*a^4*b)*arctan(sqrt(b*x + a)*sqrt(-b)/(b*sqrt(
x))))/(sqrt(-b)*b^4)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**(5/2)*(B*x+A)*(b*x+a)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)*x^(5/2),x, algorithm="giac")
```

```
[Out] Timed out
```

3.468 $\int x^{3/2}\sqrt{a+bx}(A+Bx)\,dx$

Optimal. Leaf size=159

$$\frac{a^3(8Ab-5aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{64b^{7/2}}-\frac{a^2\sqrt{x}\sqrt{a+bx}(8Ab-5aB)}{64b^3}+\frac{ax^{3/2}\sqrt{a+bx}(8Ab-5aB)}{96b^2}+\frac{x^{5/2}\sqrt{a+bx}(8Ab-5aB)}{24b}+\frac{Bx^{5/2}(a+bx)^{3/2}}{4b}$$

```
[Out] -(a^2*(8*A*b - 5*a*B)*Sqrt[x]*Sqrt[a + b*x])/(64*b^3) + (a*(8*A*b
 - 5*a*B)*x^(3/2)*Sqrt[a + b*x])/(96*b^2) + ((8*A*b - 5*a*B)*x^(5
/2)*Sqrt[a + b*x])/(24*b) + (B*x^(5/2)*(a + b*x)^(3/2))/(4*b) + (
a^3*(8*A*b - 5*a*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a + b*x]])/(64
*b^(7/2))
```

Rubi [A] time = 0.180836, antiderivative size = 159, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.2

$$\frac{a^3(8Ab-5aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{64b^{7/2}}-\frac{a^2\sqrt{x}\sqrt{a+bx}(8Ab-5aB)}{64b^3}+\frac{ax^{3/2}\sqrt{a+bx}(8Ab-5aB)}{96b^2}+\frac{x^{5/2}\sqrt{a+bx}(8Ab-5aB)}{24b}+\frac{Bx^{5/2}(a+bx)^{3/2}}{4b}$$

Antiderivative was successfully verified.

```
[In]  Int[x^(3/2)*Sqrt[a + b*x]*(A + B*x),x]
```

```
[Out] -(a^2*(8*A*b - 5*a*B)*Sqrt[x]*Sqrt[a + b*x])/(64*b^3) + (a*(8*A*b
 - 5*a*B)*x^(3/2)*Sqrt[a + b*x])/(96*b^2) + ((8*A*b - 5*a*B)*x^(5
/2)*Sqrt[a + b*x])/(24*b) + (B*x^(5/2)*(a + b*x)^(3/2))/(4*b) + (
a^3*(8*A*b - 5*a*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a + b*x]])/(64
*b^(7/2))
```

Rubi in Sympy [A] time = 16.7685, size = 150, normalized size = 0.94

$$\frac{Bx^{\frac{5}{2}}\left(a+bx\right)^{\frac{3}{2}}}{4b}+\frac{a^3\left(8Ab-5Ba\right)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{64b^{\frac{7}{2}}}+\frac{a^2\sqrt{x}\sqrt{a+bx}\left(8Ab-5Ba\right)}{64b^3}-\frac{a\sqrt{x}\left(a+bx\right)^{\frac{3}{2}}\left(8Ab-5Ba\right)}{32b^3}+\frac{x^{\frac{3}{2}}\left(a+bx\right)^{\frac{3}{2}}\left(8Ab-5Ba\right)}{24b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**(3/2)*(B*x+A)*(b*x+a)**(1/2),x)
```

```
[Out] B*x**(5/2)*(a + b*x)**(3/2)/(4*b) + a**3*(8*A*b - 5*B*a)*atanh(sq
rt(b)*sqrt(x)/sqrt(a + b*x))/(64*b**(7/2)) + a**2*sqrt(x)*sqrt(a
+ b*x)*(8*A*b - 5*B*a)/(64*b**3) - a*sqrt(x)*(a + b*x)**(3/2)*(8*
A*b - 5*B*a)/(32*b**3) + x**(3/2)*(a + b*x)**(3/2)*(8*A*b - 5*B*a
)/(24*b**2)
```

Mathematica [A] time = 0.126127, size = 119, normalized size = 0.75

$$\frac{\sqrt{b}\sqrt{x}\sqrt{a+bx}\left(15a^3B-2a^2b(12A+5Bx)+8ab^2x(2A+Bx)+16b^3x^2(4A+3Bx)\right)-3a^3(5aB-8Ab)\log\left(\sqrt{b}\sqrt{a+bx}+b\sqrt{x}\right.}{192b^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^(3/2)*Sqrt[a + b*x]*(A + B*x),x]
```

```
[Out] (Sqrt[b]*Sqrt[x]*Sqrt[a + b*x]*(15*a^3*B + 8*a*b^2*x*(2*A + B*x)
+ 16*b^3*x^2*(4*A + 3*B*x) - 2*a^2*b*(12*A + 5*B*x)) - 3*a^3*(-8*
A*b + 5*a*B)*Log[b*Sqrt[x] + Sqrt[b]*Sqrt[a + b*x]])/(192*b^(7/2)
)
```

Maple [A] time = 0.027, size = 218, normalized size = 1.4

$$\frac{1}{384}\sqrt{x}\sqrt{bx+a}\left(96\,Bx^3b^{7/2}\sqrt{x\,(bx+a)}+128\,Ax^2b^{7/2}\sqrt{x\,(bx+a)}+16\,Bx^2ab^{5/2}\sqrt{x\,(bx+a)}+32\,Aax\sqrt{x\,(bx+a)}b^{5/2}-20\,B\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^(3/2)*(B*x+A)*(b*x+a)^(1/2),x)
```

```
[Out] 1/384*x^(1/2)*(b*x+a)^(1/2)/b^(7/2)*(96*B*x^3*b^(7/2)*(x*(b*x+a))
^(1/2)+128*A*x^2*b^(7/2)*(x*(b*x+a))^(1/2)+16*B*x^2*a*b^(5/2)*(x*
(b*x+a))^(1/2)+32*A*a*x*(x*(b*x+a))^(1/2)*b^(5/2)-20*B*a^2*x*(x*(
b*x+a))^(1/2)*b^(3/2)+24*A*a^3*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1/2
)+2*b*x+a)/b^(1/2))*b-48*A*a^2*(x*(b*x+a))^(1/2)*b^(3/2)-15*B*a^4
*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))+30*B*a^3*(
x*(b*x+a))^(1/2)*b^(1/2))/(x*(b*x+a))^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)*x^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.247928, size = 1, normalized size = 0.01

$$\left[\frac{2\left(48\,Bb^3x^3+15\,Ba^3-24\,Aa^2b+8\left(Bab^2+8\,Ab^3\right)x^2-2\left(5\,Ba^2b-8\,Aab^2\right)x\right)\sqrt{bx+a}\sqrt{b}\sqrt{x}-3\left(5\,Ba^4-8\,Aa^3b\right)\log\left(2\right.}{384\,b^{\frac{7}{2}}}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)*x^(3/2),x, algorithm="fricas")
```

```
[Out] [1/384*(2*(48*B*b^3*x^3 + 15*B*a^3 - 24*A*a^2*b + 8*(B*a*b^2 + 8*
A*b^3)*x^2 - 2*(5*B*a^2*b - 8*A*a*b^2)*x)*sqrt(b*x + a)*sqrt(b)*s
qrt(x) - 3*(5*B*a^4 - 8*A*a^3*b)*log(2*sqrt(b*x + a)*b*sqrt(x) +
(2*b*x + a)*sqrt(b)))/b^(7/2), 1/192*((48*B*b^3*x^3 + 15*B*a^3 -
24*A*a^2*b + 8*(B*a*b^2 + 8*A*b^3)*x^2 - 2*(5*B*a^2*b - 8*A*a*b^2
)*x)*sqrt(b*x + a)*sqrt(-b)*sqrt(x) - 3*(5*B*a^4 - 8*A*a^3*b)*arc
tan(sqrt(b*x + a)*sqrt(-b)/(b*sqrt(x))))/(sqrt(-b)*b^3)]
```

Sympy [A] time = 81.5794, size = 1527, normalized size = 9.6

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**(3/2)*(B*x+A)*(b*x+a)**(1/2),x)
```

```
[Out] -2*A*a*Piecewise((a**(3/2)*sqrt(a + b*x)/(8*sqrt(b)*sqrt(b*x/a))
- 3*sqrt(a)*(a + b*x)**(3/2)/(8*sqrt(b)*sqrt(b*x/a)) - a**2*acosh
(sqrt(a + b*x)/sqrt(a))/(8*sqrt(b)) + (a + b*x)**(5/2)/(4*sqrt(a)
*sqrt(b)*sqrt(b*x/a)), Abs(1 + b*x/a) > 1), (-I*a**(3/2)*sqrt(a +
 b*x)/(8*sqrt(b)*sqrt(-b*x/a)) + 3*I*sqrt(a)*(a + b*x)**(3/2)/(8*
sqrt(b)*sqrt(-b*x/a)) + I*a**2*asin(sqrt(a + b*x)/sqrt(a))/(8*sqr
t(b)) - I*(a + b*x)**(5/2)/(4*sqrt(a)*sqrt(b)*sqrt(-b*x/a)), True
))/b**2 + 2*A*Piecewise((a**(5/2)*sqrt(a + b*x)/(16*sqrt(b)*sqrt(
b*x/a)) - a**(3/2)*(a + b*x)**(3/2)/(48*sqrt(b)*sqrt(b*x/a)) - 5*
sqrt(a)*(a + b*x)**(5/2)/(24*sqrt(b)*sqrt(b*x/a)) - a**3*acosh(sq
rt(a + b*x)/sqrt(a))/(16*sqrt(b)) + (a + b*x)**(7/2)/(6*sqrt(a)*s
qrt(b)*sqrt(b*x/a)), Abs(1 + b*x/a) > 1), (-I*a**(5/2)*sqrt(a + b
*x)/(16*sqrt(b)*sqrt(-b*x/a)) + I*a**(3/2)*(a + b*x)**(3/2)/(48*s
qrt(b)*sqrt(-b*x/a)) + 5*I*sqrt(a)*(a + b*x)**(5/2)/(24*sqrt(b)*s
qrt(-b*x/a)) + I*a**3*asin(sqrt(a + b*x)/sqrt(a))/(16*sqrt(b)) -
I*(a + b*x)**(7/2)/(6*sqrt(a)*sqrt(b)*sqrt(-b*x/a)), True))/b**2
+ 2*B*a**2*Piecewise((a**(3/2)*sqrt(a + b*x)/(8*sqrt(b)*sqrt(b*x/
a)) - 3*sqrt(a)*(a + b*x)**(3/2)/(8*sqrt(b)*sqrt(b*x/a)) - a**2*a
cosh(sqrt(a + b*x)/sqrt(a))/(8*sqrt(b)) + (a + b*x)**(5/2)/(4*sqr
t(a)*sqrt(b)*sqrt(b*x/a)), Abs(1 + b*x/a) > 1), (-I*a**(3/2)*sqrt
(a + b*x)/(8*sqrt(b)*sqrt(-b*x/a)) + 3*I*sqrt(a)*(a + b*x)**(3/2)
/(8*sqrt(b)*sqrt(-b*x/a)) + I*a**2*asin(sqrt(a + b*x)/sqrt(a))/(8
*sqrt(b)) - I*(a + b*x)**(5/2)/(4*sqrt(a)*sqrt(b)*sqrt(-b*x/a)),
True))/b**3 - 4*B*a*Piecewise((a**(5/2)*sqrt(a + b*x)/(16*sqrt(b)
*sqrt(b*x/a)) - a**(3/2)*(a + b*x)**(3/2)/(48*sqrt(b)*sqrt(b*x/a)
) - 5*sqrt(a)*(a + b*x)**(5/2)/(24*sqrt(b)*sqrt(b*x/a)) - a**3*ac
osh(sqrt(a + b*x)/sqrt(a))/(16*sqrt(b)) + (a + b*x)**(7/2)/(6*sqr
t(a)*sqrt(b)*sqrt(b*x/a)), Abs(1 + b*x/a) > 1), (-I*a**(5/2)*sqrt
(a + b*x)/(16*sqrt(b)*sqrt(-b*x/a)) + I*a**(3/2)*(a + b*x)**(3/2)
/(48*sqrt(b)*sqrt(-b*x/a)) + 5*I*sqrt(a)*(a + b*x)**(5/2)/(24*sqr
t(b)*sqrt(-b*x/a)) + I*a**3*asin(sqrt(a + b*x)/sqrt(a))/(16*sqrt(
b)) - I*(a + b*x)**(7/2)/(6*sqrt(a)*sqrt(b)*sqrt(-b*x/a)), True))
/b**3 + 2*B*Piecewise((5*a**(7/2)*sqrt(a + b*x)/(128*sqrt(b)*sqrt
(b*x/a)) - 5*a**(5/2)*(a + b*x)**(3/2)/(384*sqrt(b)*sqrt(b*x/a))
- a**(3/2)*(a + b*x)**(5/2)/(192*sqrt(b)*sqrt(b*x/a)) - 7*sqrt(a)
*(a + b*x)**(7/2)/(48*sqrt(b)*sqrt(b*x/a)) - 5*a**4*acosh(sqrt(a
+ b*x)/sqrt(a))/(128*sqrt(b)) + (a + b*x)**(9/2)/(8*sqrt(a)*sqrt(
b)*sqrt(b*x/a)), Abs(1 + b*x/a) > 1), (-5*I*a**(7/2)*sqrt(a + b*x
)/(128*sqrt(b)*sqrt(-b*x/a)) + 5*I*a**(5/2)*(a + b*x)**(3/2)/(384
*sqrt(b)*sqrt(-b*x/a)) + I*a**(3/2)*(a + b*x)**(5/2)/(192*sqrt(b)
*sqrt(-b*x/a)) + 7*I*sqrt(a)*(a + b*x)**(7/2)/(48*sqrt(b)*sqrt(-b
*x/a)) + 5*I*a**4*asin(sqrt(a + b*x)/sqrt(a))/(128*sqrt(b)) - I*(
a + b*x)**(9/2)/(8*sqrt(a)*sqrt(b)*sqrt(-b*x/a)), True))/b**3
```

GIAC/XCAS [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)*x^(3/2),x, algorithm="giac")
```

```
[Out] Timed out
```

3.469 $\int \sqrt{x}\sqrt{a+bx}(A+Bx)\,dx$

Optimal. Leaf size=126

$$-\frac{a^2(2Ab-aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{8b^{5/2}}+\frac{a\sqrt{x}\sqrt{a+bx}(2Ab-aB)}{8b^2}+\frac{x^{3/2}\sqrt{a+bx}(2Ab-aB)}{4b}+\frac{Bx^{3/2}(a+bx)^{3/2}}{3b}$$

```
[Out] (a*(2*A*b - a*B)*Sqrt[x]*Sqrt[a + b*x])/(8*b^2) + ((2*A*b - a*B)*
x^(3/2)*Sqrt[a + b*x])/(4*b) + (B*x^(3/2)*(a + b*x)^(3/2))/(3*b)
- (a^2*(2*A*b - a*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a + b*x]])/(8
*b^(5/2))
```

Rubi [A] time = 0.140264, antiderivative size = 126, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.2$

$$-\frac{a^2(2Ab-aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{8b^{5/2}}+\frac{a\sqrt{x}\sqrt{a+bx}(2Ab-aB)}{8b^2}+\frac{x^{3/2}\sqrt{a+bx}(2Ab-aB)}{4b}+\frac{Bx^{3/2}(a+bx)^{3/2}}{3b}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[x]*Sqrt[a + b*x]*(A + B*x),x]
```

```
[Out] (a*(2*A*b - a*B)*Sqrt[x]*Sqrt[a + b*x])/(8*b^2) + ((2*A*b - a*B)*
x^(3/2)*Sqrt[a + b*x])/(4*b) + (B*x^(3/2)*(a + b*x)^(3/2))/(3*b)
- (a^2*(2*A*b - a*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a + b*x]])/(8
*b^(5/2))
```

Rubi in Sympy [A] time = 12.5476, size = 112, normalized size = 0.89

$$\frac{Bx^{\frac{3}{2}}(a+bx)^{\frac{3}{2}}}{3b}-\frac{a^2\left(Ab-\frac{Ba}{2}\right)\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{b}\sqrt{x}}\right)}{4b^{\frac{5}{2}}}-\frac{a\sqrt{x}\sqrt{a+bx}\,(2Ab-Ba)}{8b^2}+\frac{\sqrt{x}\,(a+bx)^{\frac{3}{2}}\left(Ab-\frac{Ba}{2}\right)}{2b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*x**(1/2)*(b*x+a)**(1/2),x)
```

```
[Out] B*x**(3/2)*(a + b*x)**(3/2)/(3*b) - a**2*(A*b - B*a/2)*atanh(sqrt
(a + b*x)/(sqrt(b)*sqrt(x)))/(4*b**(5/2)) - a*sqrt(x)*sqrt(a + b*
x)*(2*A*b - B*a)/(8*b**2) + sqrt(x)*(a + b*x)**(3/2)*(A*b - B*a/2
)/(2*b**2)
```

Mathematica [A] time = 0.102499, size = 99, normalized size = 0.79

$$\frac{\sqrt{b}\sqrt{x}\sqrt{a+bx}\left(-3a^2B+2ab(3A+Bx)+4b^2x(3A+2Bx)\right)+3a^2(aB-2Ab)\log\left(\sqrt{b}\sqrt{a+bx}+b\sqrt{x}\right)}{24b^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[x]*Sqrt[a + b*x]*(A + B*x),x]
```

```
[Out] (Sqrt[b]*Sqrt[x]*Sqrt[a + b*x]*(-3*a^2*B + 2*a*b*(3*A + B*x) + 4*
b^2*x*(3*A + 2*B*x)) + 3*a^2*(-2*A*b + a*B)*Log[b*Sqrt[x] + Sqrt[
b]*Sqrt[a + b*x]])/(24*b^(5/2))
```

Maple [A] time = 0.016, size = 176, normalized size = 1.4

$$-\frac{1}{48}\sqrt{bx+a}\sqrt{x}\left(-16\,Bx^2b^{5/2}\sqrt{x\,(bx+a)}-24\,A\sqrt{x\,(bx+a)}xb^{5/2}-4\,Ba\sqrt{x\,(bx+a)}xb^{3/2}+6\,Aa^2\ln\left(1/2\,\frac{2\,\sqrt{x\,(bx+a)}\sqrt{b}}{\sqrt{b}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*x^(1/2)*(b*x+a)^(1/2),x)
```

```
[Out] -1/48*(b*x+a)^(1/2)*x^(1/2)/b^(5/2)*(-16*B*x^2*b^(5/2)*(x*(b*x+a)
)^(1/2)-24*A*(x*(b*x+a))^(1/2)*x*b^(5/2)-4*B*a*(x*(b*x+a))^(1/2)*
x*b^(3/2)+6*A*a^2*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1/2)+2*b*x+a)/b^
(1/2))*b-12*A*(x*(b*x+a))^(1/2)*a*b^(3/2)-3*B*a^3*ln(1/2*(2*(x*(b
*x+a))^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))+6*B*a^2*(x*(b*x+a))^(1/2)*
b^(1/2))/(x*(b*x+a))^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)*sqrt(x),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.245407, size = 1, normalized size = 0.01

$$\left[\frac{2\left(8\,Bb^2x^2-3\,Ba^2+6\,Aab+2\left(Bab+6\,Ab^2\right)x\right)\sqrt{bx+a}\sqrt{b}\sqrt{x}-3\left(Ba^3-2\,Aa^2b\right)\log\left(-2\,\sqrt{bx+a}b\sqrt{x}+(2\,bx+a)\sqrt{b}\right)}{48\,b^{\frac{5}{2}}},\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)*sqrt(x),x, algorithm="fricas")
```

```
[Out] [1/48*(2*(8*B*b^2*x^2 - 3*B*a^2 + 6*A*a*b + 2*(B*a*b + 6*A*b^2)*x
)*sqrt(b*x + a)*sqrt(b)*sqrt(x) - 3*(B*a^3 - 2*A*a^2*b)*log(-2*sq
rt(b*x + a)*b*sqrt(x) + (2*b*x + a)*sqrt(b)))/b^(5/2), 1/24*((8*B
*b^2*x^2 - 3*B*a^2 + 6*A*a*b + 2*(B*a*b + 6*A*b^2)*x)*sqrt(b*x +
a)*sqrt(-b)*sqrt(x) + 3*(B*a^3 - 2*A*a^2*b)*arctan(sqrt(b*x + a)*
sqrt(-b)/(b*sqrt(x))))/(sqrt(-b)*b^2)]
```

Sympy [A] time = 41.0882, size = 673, normalized size = 5.34

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*x**(1/2)*(b*x+a)**(1/2),x)
```

```
[Out] A*a**(3/2)*sqrt(x)/(4*b*sqrt(1 + b*x/a)) + 3*A*sqrt(a)*x**(3/2)/(
4*sqrt(1 + b*x/a)) - A*a**2*asinh(sqrt(b)*sqrt(x)/sqrt(a))/(4*b**
(3/2)) + A*b*x**(5/2)/(2*sqrt(a)*sqrt(1 + b*x/a)) - 2*B*a*Piecewi
se((a**(3/2)*sqrt(a + b*x)/(8*sqrt(b)*sqrt(b*x/a)) - 3*sqrt(a)*(a
```

```
 + b*x)**(3/2)/(8*sqrt(b)*sqrt(b*x/a)) - a**2*acosh(sqrt(a + b*x)
/sqrt(a))/(8*sqrt(b)) + (a + b*x)**(5/2)/(4*sqrt(a)*sqrt(b)*sqrt(
b*x/a)), Abs(1 + b*x/a) > 1), (-I*a**(3/2)*sqrt(a + b*x)/(8*sqrt(
b)*sqrt(-b*x/a)) + 3*I*sqrt(a)*(a + b*x)**(3/2)/(8*sqrt(b)*sqrt(-
b*x/a)) + I*a**2*asin(sqrt(a + b*x)/sqrt(a))/(8*sqrt(b)) - I*(a +
 b*x)**(5/2)/(4*sqrt(a)*sqrt(b)*sqrt(-b*x/a)), True))/b**2 + 2*B*
Piecewise((a**(5/2)*sqrt(a + b*x)/(16*sqrt(b)*sqrt(b*x/a)) - a**(
3/2)*(a + b*x)**(3/2)/(48*sqrt(b)*sqrt(b*x/a)) - 5*sqrt(a)*(a + b
*x)**(5/2)/(24*sqrt(b)*sqrt(b*x/a)) - a**3*acosh(sqrt(a + b*x)/sq
rt(a))/(16*sqrt(b)) + (a + b*x)**(7/2)/(6*sqrt(a)*sqrt(b)*sqrt(b*
x/a)), Abs(1 + b*x/a) > 1), (-I*a**(5/2)*sqrt(a + b*x)/(16*sqrt(b
)*sqrt(-b*x/a)) + I*a**(3/2)*(a + b*x)**(3/2)/(48*sqrt(b)*sqrt(-b
*x/a)) + 5*I*sqrt(a)*(a + b*x)**(5/2)/(24*sqrt(b)*sqrt(-b*x/a)) +
 I*a**3*asin(sqrt(a + b*x)/sqrt(a))/(16*sqrt(b)) - I*(a + b*x)**(
7/2)/(6*sqrt(a)*sqrt(b)*sqrt(-b*x/a)), True))/b**2
```

GIAC/XCAS [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)*sqrt(x),x, algorithm="giac")
```

```
[Out] Timed out
```

3.470 $\int \frac{\sqrt{a+bx}(A+Bx)}{\sqrt{x}}\,dx$

Optimal. Leaf size=93

$$\frac{a(4Ab-aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{4b^{3/2}}+\frac{\sqrt{x}\sqrt{a+bx}(4Ab-aB)}{4b}+\frac{B\sqrt{x}(a+bx)^{3/2}}{2b}$$

```
[Out] ((4*A*b - a*B)*Sqrt[x]*Sqrt[a + b*x])/(4*b) + (B*Sqrt[x]*(a + b*x
)^(3/2))/(2*b) + (a*(4*A*b - a*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[
a + b*x]])/(4*b^(3/2))
```

Rubi [A] time = 0.105413, antiderivative size = 93, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.2

$$\frac{a(4Ab-aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{4b^{3/2}}+\frac{\sqrt{x}\sqrt{a+bx}(4Ab-aB)}{4b}+\frac{B\sqrt{x}(a+bx)^{3/2}}{2b}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[a + b*x]*(A + B*x))/Sqrt[x],x]
```

```
[Out] ((4*A*b - a*B)*Sqrt[x]*Sqrt[a + b*x])/(4*b) + (B*Sqrt[x]*(a + b*x
)^(3/2))/(2*b) + (a*(4*A*b - a*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[
a + b*x]])/(4*b^(3/2))
```

Rubi in Sympy [A] time = 8.70083, size = 80, normalized size = 0.86

$$\frac{B\sqrt{x}\,(a+bx)^{\frac{3}{2}}}{2b}+\frac{a\,(4Ab-Ba)\,\mathrm{atanh}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{4b^{\frac{3}{2}}}+\frac{\sqrt{x}\sqrt{a+bx}\,(4Ab-Ba)}{4b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(b*x+a)**(1/2)/x**(1/2),x)
```

```
[Out] B*sqrt(x)*(a + b*x)**(3/2)/(2*b) + a*(4*A*b - B*a)*atanh(sqrt(b)*
sqrt(x)/sqrt(a + b*x))/(4*b**(3/2)) + sqrt(x)*sqrt(a + b*x)*(4*A*
b - B*a)/(4*b)
```

Mathematica [A] time = 0.0729657, size = 78, normalized size = 0.84

$$\frac{\sqrt{b}\sqrt{x}\sqrt{a+bx}(B(a+2bx)+4Ab)+a(4Ab-aB)\log\left(\sqrt{b}\sqrt{a+bx}+b\sqrt{x}\right)}{4b^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[a + b*x]*(A + B*x))/Sqrt[x],x]
```

```
[Out] (Sqrt[b]*Sqrt[x]*Sqrt[a + b*x]*(4*A*b + B*(a + 2*b*x)) + a*(4*A*b
 - a*B)*Log[b*Sqrt[x] + Sqrt[b]*Sqrt[a + b*x]])/(4*b^(3/2))
```

Maple [A] time = 0.015, size = 136, normalized size = 1.5

$$\frac{1}{8}\sqrt{bx+a}\sqrt{x}\left(4\,Bxb^{3/2}\sqrt{x\,(bx+a)}+4\,A\ln\left(1/2\,\frac{2\,\sqrt{x\,(bx+a)}\sqrt{b}+2\,bx+a}{\sqrt{b}}\right)ab+8\,Ab^{3/2}\sqrt{x\,(bx+a)}-B\ln\left(\frac{1}{2}\left(2\,\sqrt{x\,(bx\right.\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(b*x+a)^(1/2)/x^(1/2),x)
```

```
[Out] 1/8*(b*x+a)^(1/2)*x^(1/2)/b^(3/2)*(4*B*x*b^(3/2)*(x*(b*x+a))^(1/2
)+4*A*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))*a*b+8
*A*b^(3/2)*(x*(b*x+a))^(1/2)-B*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1/2
)+2*b*x+a)/b^(1/2))*a^2+2*B*a*b^(1/2)*(x*(b*x+a))^(1/2))/(x*(b*x+
a))^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/sqrt(x),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.240535, size = 1, normalized size = 0.01

$$\left[\frac{2\,(2\,Bbx + Ba + 4\,Ab)\sqrt{bx+a}\sqrt{b}\sqrt{x} - \left(Ba^2 - 4\,Aab\right)\log\left(2\,\sqrt{bx+a}b\sqrt{x} + (2\,bx + a)\sqrt{b}\right)}{8\,b^{\frac{3}{2}}}, \frac{(2\,Bbx + Ba + 4\,Ab)\sqrt{bx+a}\sqrt{-\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/sqrt(x),x, algorithm="fricas")
```

```
[Out] [1/8*(2*(2*B*b*x + B*a + 4*A*b)*sqrt(b*x + a)*sqrt(b)*sqrt(x) - (
B*a^2 - 4*A*a*b)*log(2*sqrt(b*x + a)*b*sqrt(x) + (2*b*x + a)*sqrt
(b)))/b^(3/2), 1/4*((2*B*b*x + B*a + 4*A*b)*sqrt(b*x + a)*sqrt(-b
)*sqrt(x) - (B*a^2 - 4*A*a*b)*arctan(sqrt(b*x + a)*sqrt(-b)/(b*sq
rt(x))))/(sqrt(-b)*b)]
```

Sympy [A] time = 25.6781, size = 568, normalized size = 6.11

$$\frac{2A\left(\begin{cases}\frac{\sqrt{a}\sqrt{b}\sqrt{\frac{bx}{a}}\sqrt{a+bx}}{2} + \frac{a\sqrt{b}\operatorname{acosh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{2} & \text{for}\ \left|1+\frac{bx}{a}\right| > 1\\ \frac{i\sqrt{a}\sqrt{b}\sqrt{a+bx}}{2\sqrt{-\frac{bx}{a}}} - \frac{ia\sqrt{b}\operatorname{asin}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{2} - \frac{i\sqrt{b}(a+bx)^{\frac{3}{2}}}{2\sqrt{a}\sqrt{-\frac{bx}{a}}} & \text{otherwise}\end{cases}\right)}{b} - \frac{2Ba\left(\begin{cases}\frac{\sqrt{a}\sqrt{b}\sqrt{\frac{bx}{a}}\sqrt{a+bx}}{2} + \frac{a\sqrt{b}\operatorname{acosh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{2} & \text{for}\ \left|1+\frac{bx}{a}\right| > 1\\ \frac{i\sqrt{a}\sqrt{b}\sqrt{a+bx}}{2\sqrt{-\frac{bx}{a}}} - \frac{ia\sqrt{b}\operatorname{asin}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{2} - \frac{i\sqrt{b}(a+bx)^{\frac{3}{2}}}{2\sqrt{a}\sqrt{-\frac{bx}{a}}} & \text{otherwise}\end{cases}\right)}{b^2} + \frac{2B\left(\begin{cases}-\frac{3a^{\frac{3}{2}}\sqrt{b}\sqrt{a+bx}}{8\sqrt{\frac{bx}{a}}} + \frac{\sqrt{a}\sqrt{b}(a+bx)^{\frac{3}{2}}}{8\sqrt{\frac{bx}{a}}} + \frac{3a^2\sqrt{b}\operatorname{acosh}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{8} + \frac{\sqrt{b}(a+bx)^{\frac{5}{2}}}{4\sqrt{a}\sqrt{\frac{bx}{a}}} & \text{for}\ \left|1+\frac{bx}{a}\right| > 1\\ \frac{3ia^{\frac{3}{2}}\sqrt{b}\sqrt{a+bx}}{8\sqrt{-\frac{bx}{a}}} - \frac{i\sqrt{a}\sqrt{b}(a+bx)^{\frac{3}{2}}}{8\sqrt{-\frac{bx}{a}}} - \frac{3ia^2\sqrt{b}\operatorname{asin}\left(\frac{\sqrt{a+bx}}{\sqrt{a}}\right)}{8} - \frac{i\sqrt{b}(a+bx)^{\frac{5}{2}}}{4\sqrt{a}\sqrt{-\frac{bx}{a}}} & \text{otherwise}\end{cases}\right)}{b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(b*x+a)**(1/2)/x**(1/2),x)
```

```
[Out] 2*A*Piecewise((sqrt(a)*sqrt(b)*sqrt(b*x/a)*sqrt(a + b*x)/2 + a*sq
rt(b)*acosh(sqrt(a + b*x)/sqrt(a))/2, Abs(1 + b*x/a) > 1), (I*sqr
t(a)*sqrt(b)*sqrt(a + b*x)/(2*sqrt(-b*x/a)) - I*a*sqrt(b)*asin(sq
rt(a + b*x)/sqrt(a))/2 - I*sqrt(b)*(a + b*x)**(3/2)/(2*sqrt(a)*sq
rt(-b*x/a)), True))/b - 2*B*a*Piecewise((sqrt(a)*sqrt(b)*sqrt(b*x
/a)*sqrt(a + b*x)/2 + a*sqrt(b)*acosh(sqrt(a + b*x)/sqrt(a))/2, A
bs(1 + b*x/a) > 1), (I*sqrt(a)*sqrt(b)*sqrt(a + b*x)/(2*sqrt(-b*x
/a)) - I*a*sqrt(b)*asin(sqrt(a + b*x)/sqrt(a))/2 - I*sqrt(b)*(a +
 b*x)**(3/2)/(2*sqrt(a)*sqrt(-b*x/a)), True))/b**2 + 2*B*Piecewis
e((-3*a**(3/2)*sqrt(b)*sqrt(a + b*x)/(8*sqrt(b*x/a)) + sqrt(a)*sq
rt(b)*(a + b*x)**(3/2)/(8*sqrt(b*x/a)) + 3*a**2*sqrt(b)*acosh(sqr
t(a + b*x)/sqrt(a))/8 + sqrt(b)*(a + b*x)**(5/2)/(4*sqrt(a)*sqrt(
b*x/a)), Abs(1 + b*x/a) > 1), (3*I*a**(3/2)*sqrt(b)*sqrt(a + b*x)
/(8*sqrt(-b*x/a)) - I*sqrt(a)*sqrt(b)*(a + b*x)**(3/2)/(8*sqrt(-b
*x/a)) - 3*I*a**2*sqrt(b)*asin(sqrt(a + b*x)/sqrt(a))/8 - I*sqrt(
b)*(a + b*x)**(5/2)/(4*sqrt(a)*sqrt(-b*x/a)), True))/b**2
```

GIAC/XCAS [A] time = 12.8024, size = 4, normalized size = 0.04

$$sage_0 x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/sqrt(x),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.471 $\int \frac{\sqrt{a+bx}(A+Bx)}{x^{3/2}}\,dx$

Optimal. Leaf size=82

$$\frac{\sqrt{x}\sqrt{a+bx}(aB+2Ab)}{a}+\frac{(aB+2Ab)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{\sqrt{b}}-\frac{2A(a+bx)^{3/2}}{a\sqrt{x}}$$

```
[Out] ((2*A*b + a*B)*Sqrt[x]*Sqrt[a + b*x])/a - (2*A*(a + b*x)^(3/2))/(
a*Sqrt[x]) + ((2*A*b + a*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a + b*
x]])/Sqrt[b]
```

Rubi [A] time = 0.108, antiderivative size = 82, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.2$

$$\frac{\sqrt{x}\sqrt{a+bx}(aB+2Ab)}{a}+\frac{(aB+2Ab)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{\sqrt{b}}-\frac{2A(a+bx)^{3/2}}{a\sqrt{x}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[a + b*x]*(A + B*x))/x^(3/2),x]
```

```
[Out] ((2*A*b + a*B)*Sqrt[x]*Sqrt[a + b*x])/a - (2*A*(a + b*x)^(3/2))/(
a*Sqrt[x]) + ((2*A*b + a*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a + b*
x]])/Sqrt[b]
```

Rubi in Sympy [A] time = 8.96259, size = 78, normalized size = 0.95

$$-\frac{2A(a+bx)^{\frac{3}{2}}}{a\sqrt{x}}+\frac{2\left(Ab+\frac{Ba}{2}\right)\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{b}\sqrt{x}}\right)}{\sqrt{b}}+\frac{2\sqrt{x}\sqrt{a+bx}\left(Ab+\frac{Ba}{2}\right)}{a}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(b*x+a)**(1/2)/x**(3/2),x)
```

```
[Out] -2*A*(a + b*x)**(3/2)/(a*sqrt(x)) + 2*(A*b + B*a/2)*atanh(sqrt(a
+ b*x)/(sqrt(b)*sqrt(x)))/sqrt(b) + 2*sqrt(x)*sqrt(a + b*x)*(A*b
+ B*a/2)/a
```

Mathematica [A] time = 0.0685122, size = 61, normalized size = 0.74

$$\frac{\sqrt{a+bx}(Bx-2A)}{\sqrt{x}}+\frac{(aB+2Ab)\log\left(\sqrt{b}\sqrt{a+bx}+b\sqrt{x}\right)}{\sqrt{b}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[a + b*x]*(A + B*x))/x^(3/2),x]
```

```
[Out] (Sqrt[a + b*x]*(-2*A + B*x))/Sqrt[x] + ((2*A*b + a*B)*Log[b*Sqrt[
x] + Sqrt[b]*Sqrt[a + b*x]])/Sqrt[b]
```

Maple [A] time = 0.019, size = 118, normalized size = 1.4

$$\frac{1}{2}\sqrt{bx+a}\left(2A\ln\left(1/2\,\frac{2\sqrt{x(bx+a)}\sqrt{b}+2bx+a}{\sqrt{b}}\right)xb+B\ln\left(\frac{1}{2}\left(2\sqrt{x(bx+a)}\sqrt{b}+2bx+a\right)\frac{1}{\sqrt{b}}\right)xa+2Bx\sqrt{x(bx+a)}\sqrt{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(b*x+a)^(1/2)/x^(3/2),x)
```

```
[Out] 1/2*(b*x+a)^(1/2)*(2*A*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1/2)+2*b*x+
a)/b^(1/2))*x*b+B*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1/2)+2*b*x+a)/b^
(1/2))*x*a+2*B*x*(x*(b*x+a))^(1/2)*b^(1/2)-4*A*(x*(b*x+a))^(1/2)*
b^(1/2))/x^(1/2)/(x*(b*x+a))^(1/2)/b^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/x^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.236892, size = 1, normalized size = 0.01

$$\left[\frac{(Ba+2Ab)x\log\left(2\sqrt{bx+a}b\sqrt{x}+(2bx+a)\sqrt{b}\right)+2(Bx-2A)\sqrt{bx+a}\sqrt{b}\sqrt{x}}{2\sqrt{b}x},\ \frac{(Ba+2Ab)x\arctan\left(\frac{\sqrt{bx+a}\sqrt{-b}}{b\sqrt{x}}\right)+(Bx-2\right.}{\sqrt{-b}x}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/x^(3/2),x, algorithm="fricas")
```

```
[Out] [1/2*((B*a + 2*A*b)*x*log(2*sqrt(b*x + a)*b*sqrt(x) + (2*b*x + a)
*sqrt(b)) + 2*(B*x - 2*A)*sqrt(b*x + a)*sqrt(b)*sqrt(x))/(sqrt(b)
*x), ((B*a + 2*A*b)*x*arctan(sqrt(b*x + a)*sqrt(-b)/(b*sqrt(x)))
+ (B*x - 2*A)*sqrt(b*x + a)*sqrt(-b)*sqrt(x))/(sqrt(-b)*x)]
```

Sympy [A] time = 22.4121, size = 116, normalized size = 1.41

$$A\left(-\frac{2\sqrt{a}}{\sqrt{x}\sqrt{1+\frac{bx}{a}}}+2\sqrt{b}\operatorname{asinh}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)-\frac{2b\sqrt{x}}{\sqrt{a}\sqrt{1+\frac{bx}{a}}}\right)+B\left(\sqrt{a}\sqrt{x}\sqrt{1+\frac{bx}{a}}+\frac{a\operatorname{asinh}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{\sqrt{b}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(b*x+a)**(1/2)/x**(3/2),x)
```

```
[Out] A*(-2*sqrt(a)/(sqrt(x)*sqrt(1 + b*x/a)) + 2*sqrt(b)*asinh(sqrt(b)
*sqrt(x)/sqrt(a)) - 2*b*sqrt(x)/(sqrt(a)*sqrt(1 + b*x/a))) + B*(s
qrt(a)*sqrt(x)*sqrt(1 + b*x/a) + a*asinh(sqrt(b)*sqrt(x)/sqrt(a))
/sqrt(b))
```

GIAC/XCAS [A] time = 12.6577, size = 4, normalized size = 0.05

$$sage_0x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/x^(3/2),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.472 $\int \frac{\sqrt{a+bx}(A+Bx)}{x^{5/2}}\,dx$

Optimal. Leaf size=69

$$-\frac{2A(a+bx)^{3/2}}{3ax^{3/2}}-\frac{2B\sqrt{a+bx}}{\sqrt{x}}+2\sqrt{b}B\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)$$

```
[Out] (-2*B*Sqrt[a + b*x])/Sqrt[x] - (2*A*(a + b*x)^(3/2))/(3*a*x^(3/2)
) + 2*Sqrt[b]*B*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a + b*x]]
```

Rubi [A] time = 0.0718976, antiderivative size = 69, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.2$

$$-\frac{2A(a+bx)^{3/2}}{3ax^{3/2}}-\frac{2B\sqrt{a+bx}}{\sqrt{x}}+2\sqrt{b}B\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)$$

Antiderivative was successfully verified.

```
[In] Int[(Sqrt[a + b*x]*(A + B*x))/x^(5/2),x]
```

```
[Out] (-2*B*Sqrt[a + b*x])/Sqrt[x] - (2*A*(a + b*x)^(3/2))/(3*a*x^(3/2)
) + 2*Sqrt[b]*B*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a + b*x]]
```

Rubi in Sympy [A] time = 7.37916, size = 65, normalized size = 0.94

$$-\frac{2A\left(a+bx\right)^{\frac{3}{2}}}{3ax^{\frac{3}{2}}}+2B\sqrt{b}\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)-\frac{2B\sqrt{a+bx}}{\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((B*x+A)*(b*x+a)**(1/2)/x**(5/2),x)
```

```
[Out] -2*A*(a + b*x)**(3/2)/(3*a*x**(3/2)) + 2*B*sqrt(b)*atanh(sqrt(b)*
sqrt(x)/sqrt(a + b*x)) - 2*B*sqrt(a + b*x)/sqrt(x)
```

Mathematica [A] time = 0.0983743, size = 67, normalized size = 0.97

$$2\sqrt{b}B\log\left(\sqrt{b}\sqrt{a+bx}+b\sqrt{x}\right)-\frac{2\sqrt{a+bx}(a(A+3Bx)+Abx)}{3ax^{3/2}}$$

Antiderivative was successfully verified.

```
[In] Integrate[(Sqrt[a + b*x]*(A + B*x))/x^(5/2),x]
```

```
[Out] (-2*Sqrt[a + b*x]*(A*b*x + a*(A + 3*B*x)))/(3*a*x^(3/2)) + 2*Sqrt
[b]*B*Log[b*Sqrt[x] + Sqrt[b]*Sqrt[a + b*x]]
```

Maple [A] time = 0.019, size = 103, normalized size = 1.5

$$-\frac{1}{3\,a}\sqrt{bx+a}\left(-3\,B\sqrt{b}\ln\left(1/2\,\frac{2\,\sqrt{x\left(bx+a\right)}\sqrt{b}+2\,bx+a}{\sqrt{b}}\right)ax^{2}+2\,Axb\sqrt{x\left(bx+a\right)}+6\,Bxa\sqrt{x\left(bx+a\right)}+2\,Aa\sqrt{x\left(bx+a\right)}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(b*x+a)^(1/2)/x^(5/2),x)
```

```
[Out] -1/3*(b*x+a)^(1/2)/x^(3/2)*(-3*B*b^(1/2)*ln(1/2*(2*(x*(b*x+a))^(1
/2)*b^(1/2)+2*b*x+a)/b^(1/2))*a*x^2+2*A*x*b*(x*(b*x+a))^(1/2)+6*B
*x*a*(x*(b*x+a))^(1/2)+2*A*a*(x*(b*x+a))^(1/2))/(x*(b*x+a))^(1/2)
/a
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/x^(5/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.245866, size = 1, normalized size = 0.01

$$\left[\frac{3\,Ba\sqrt{b}x^2\log\left(2\,bx+2\,\sqrt{bx+a}\sqrt{b}\sqrt{x}+a\right)-2\,(Aa+(3\,Ba+Ab)x)\sqrt{bx+a}\sqrt{x}}{3\,ax^2},\frac{2\left(3\,Ba\sqrt{-b}x^2\arctan\left(\frac{\sqrt{bx+a}}{\sqrt{-b}\sqrt{x}}\right)-(Aa+(3\right.}{3\,ax^2}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/x^(5/2),x, algorithm="fricas")
```

```
[Out] [1/3*(3*B*a*sqrt(b)*x^2*log(2*b*x + 2*sqrt(b*x + a)*sqrt(b)*sqrt(
x) + a) - 2*(A*a + (3*B*a + A*b)*x)*sqrt(b*x + a)*sqrt(x))/(a*x^2
), 2/3*(3*B*a*sqrt(-b)*x^2*arctan(sqrt(b*x + a)/(sqrt(-b)*sqrt(x)
)) - (A*a + (3*B*a + A*b)*x)*sqrt(b*x + a)*sqrt(x))/(a*x^2)]
```

Sympy [A] time = 70.4865, size = 114, normalized size = 1.65

$$A\left(-\frac{2\sqrt{b}\sqrt{\frac{a}{bx}+1}}{3x}-\frac{2b^{\frac{3}{2}}\sqrt{\frac{a}{bx}+1}}{3a}\right)+B\left(-\frac{2\sqrt{a}}{\sqrt{x}\sqrt{1+\frac{bx}{a}}}+2\sqrt{b}\operatorname{asinh}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)-\frac{2b\sqrt{x}}{\sqrt{a}\sqrt{1+\frac{bx}{a}}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(b*x+a)**(1/2)/x**(5/2),x)
```

```
[Out] A*(-2*sqrt(b)*sqrt(a/(b*x) + 1)/(3*x) - 2*b**(3/2)*sqrt(a/(b*x) +
 1)/(3*a)) + B*(-2*sqrt(a)/(sqrt(x)*sqrt(1 + b*x/a)) + 2*sqrt(b)*
asinh(sqrt(b)*sqrt(x)/sqrt(a)) - 2*b*sqrt(x)/(sqrt(a)*sqrt(1 + b*
x/a)))
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/x^(5/2),x, algorithm="giac")

[Out] Exception raised: NotImplementedError
```

3.473 $\int \frac{\sqrt{a+bx}(A+Bx)}{x^{7/2}}\,dx$

Optimal. Leaf size=53

$$\frac{2(a+bx)^{3/2}(2Ab-5aB)}{15a^2x^{3/2}}-\frac{2A(a+bx)^{3/2}}{5ax^{5/2}}$$

```
[Out] (-2*A*(a + b*x)^(3/2))/(5*a*x^(5/2)) + (2*(2*A*b - 5*a*B)*(a + b*
x)^(3/2))/(15*a^2*x^(3/2))
```

Rubi [A] time = 0.0669468, antiderivative size = 53, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.1

$$\frac{2(a+bx)^{3/2}(2Ab-5aB)}{15a^2x^{3/2}}-\frac{2A(a+bx)^{3/2}}{5ax^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[a + b*x]*(A + B*x))/x^(7/2),x]
```

```
[Out] (-2*A*(a + b*x)^(3/2))/(5*a*x^(5/2)) + (2*(2*A*b - 5*a*B)*(a + b*
x)^(3/2))/(15*a^2*x^(3/2))
```

Rubi in Sympy [A] time = 5.32053, size = 49, normalized size = 0.92

$$-\frac{2A\left(a+bx\right)^{\frac{3}{2}}}{5ax^{\frac{5}{2}}}+\frac{4\left(a+bx\right)^{\frac{3}{2}}\left(Ab-\frac{5Ba}{2}\right)}{15a^2x^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(b*x+a)**(1/2)/x**(7/2),x)
```

```
[Out] -2*A*(a + b*x)**(3/2)/(5*a*x**(5/2)) + 4*(a + b*x)**(3/2)*(A*b -
5*B*a/2)/(15*a**2*x**(3/2))
```

Mathematica [A] time = 0.0478323, size = 36, normalized size = 0.68

$$-\frac{2(a+bx)^{3/2}(3aA+5aBx-2Abx)}{15a^2x^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[a + b*x]*(A + B*x))/x^(7/2),x]
```

```
[Out] (-2*(a + b*x)^(3/2)*(3*a*A - 2*A*b*x + 5*a*B*x))/(15*a^2*x^(5/2))
```

Maple [A] time = 0.007, size = 31, normalized size = 0.6

$$-\frac{-4\,Abx+10\,Bax+6\,Aa}{15\,a^2}\left(bx+a\right)^{\frac{3}{2}}x^{-\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(b*x+a)^(1/2)/x^(7/2),x)
```

```
[Out] -2/15*(b*x+a)^(3/2)*(-2*A*b*x+5*B*a*x+3*A*a)/x^(5/2)/a^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*sqrt(b*x + a)/x^(7/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.229475, size = 69, normalized size = 1.3

$$-\frac{2\left(3\,Aa^{2}+\left(5\,Bab-2\,Ab^{2}\right)x^{2}+\left(5\,Ba^{2}+Aab\right)x\right)\sqrt{bx+a}}{15\,a^{2}x^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*sqrt(b*x + a)/x^(7/2),x, algorithm="fricas")
```

```
[Out] -2/15*(3*A*a^2 + (5*B*a*b - 2*A*b^2)*x^2 + (5*B*a^2 + A*a*b)*x)*s
qrt(b*x + a)/(a^2*x^(5/2))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x+A)*(b*x+a)**(1/2)/x**(7/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.236642, size = 107, normalized size = 2.02

$$\frac{(bx+a)^{\frac{3}{2}}b\left(\frac{(5\,Bab^{4}-2\,Ab^{5})(bx+a)}{a^{3}b^{9}}-\frac{5\,(Ba^{2}b^{4}-Aab^{5})}{a^{3}b^{9}}\right)}{960\,((bx+a)b-ab)^{\frac{5}{2}}|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*sqrt(b*x + a)/x^(7/2),x, algorithm="giac")
```

```
[Out] 1/960*(b*x + a)^(3/2)*b*((5*B*a*b^4 - 2*A*b^5)*(b*x + a)/(a^3*b^9
) - 5*(B*a^2*b^4 - A*a*b^5)/(a^3*b^9))/(((b*x + a)*b - a*b)^(5/2)
*abs(b))
```

3.474 $\int \frac{\sqrt{a+bx}(A+Bx)}{x^{9/2}}\,dx$

Optimal. Leaf size=84

$$-\frac{4b(a+bx)^{3/2}(4Ab-7aB)}{105a^3x^{3/2}}+\frac{2(a+bx)^{3/2}(4Ab-7aB)}{35a^2x^{5/2}}-\frac{2A(a+bx)^{3/2}}{7ax^{7/2}}$$

```
[Out] (-2*A*(a + b*x)^(3/2))/(7*a*x^(7/2)) + (2*(4*A*b - 7*a*B)*(a + b*
x)^(3/2))/(35*a^2*x^(5/2)) - (4*b*(4*A*b - 7*a*B)*(a + b*x)^(3/2)
)/(105*a^3*x^(3/2))
```

Rubi [A] time = 0.101499, antiderivative size = 84, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.15

$$-\frac{4b(a+bx)^{3/2}(4Ab-7aB)}{105a^3x^{3/2}}+\frac{2(a+bx)^{3/2}(4Ab-7aB)}{35a^2x^{5/2}}-\frac{2A(a+bx)^{3/2}}{7ax^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[a + b*x]*(A + B*x))/x^(9/2),x]
```

```
[Out] (-2*A*(a + b*x)^(3/2))/(7*a*x^(7/2)) + (2*(4*A*b - 7*a*B)*(a + b*
x)^(3/2))/(35*a^2*x^(5/2)) - (4*b*(4*A*b - 7*a*B)*(a + b*x)^(3/2)
)/(105*a^3*x^(3/2))
```

Rubi in Sympy [A] time = 7.74441, size = 82, normalized size = 0.98

$$-\frac{2A(a+bx)^{\frac{3}{2}}}{7ax^{\frac{7}{2}}}+\frac{2(a+bx)^{\frac{3}{2}}(4Ab-7Ba)}{35a^2x^{\frac{5}{2}}}-\frac{4b(a+bx)^{\frac{3}{2}}(4Ab-7Ba)}{105a^3x^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(b*x+a)**(1/2)/x**(9/2),x)
```

```
[Out] -2*A*(a + b*x)**(3/2)/(7*a*x**(7/2)) + 2*(a + b*x)**(3/2)*(4*A*b
- 7*B*a)/(35*a**2*x**(5/2)) - 4*b*(a + b*x)**(3/2)*(4*A*b - 7*B*a
)/(105*a**3*x**(3/2))
```

Mathematica [A] time = 0.064897, size = 57, normalized size = 0.68

$$-\frac{2(a+bx)^{3/2}\left(3a^2(5A+7Bx)-2abx(6A+7Bx)+8Ab^2x^2\right)}{105a^3x^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[a + b*x]*(A + B*x))/x^(9/2),x]
```

```
[Out] (-2*(a + b*x)^(3/2)*(8*A*b^2*x^2 + 3*a^2*(5*A + 7*B*x) - 2*a*b*x*
(6*A + 7*B*x)))/(105*a^3*x^(7/2))
```

Maple [A] time = 0.009, size = 53, normalized size = 0.6

$$-\frac{16\,Ab^2x^2-28\,Bx^2ab-24\,aAbx+42\,a^2Bx+30\,Aa^2}{105\,a^3}(bx+a)^{\frac{3}{2}}x^{-\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(b*x+a)^(1/2)/x^(9/2),x)
```

```
[Out] -2/105*(b*x+a)^(3/2)*(8*A*b^2*x^2-14*B*a*b*x^2-12*A*a*b*x+21*B*a^
2*x+15*A*a^2)/x^(7/2)/a^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/x^(9/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.228814, size = 103, normalized size = 1.23

$$-\frac{2\left(15\,Aa^3 - 2\left(7\,Bab^2 - 4\,Ab^3\right)x^3 + \left(7\,Ba^2b - 4\,Aab^2\right)x^2 + 3\left(7\,Ba^3 + Aa^2b\right)x\right)\sqrt{bx+a}}{105\,a^3x^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/x^(9/2),x, algorithm="fricas")
```

```
[Out] -2/105*(15*A*a^3 - 2*(7*B*a*b^2 - 4*A*b^3)*x^3 + (7*B*a^2*b - 4*A
*a*b^2)*x^2 + 3*(7*B*a^3 + A*a^2*b)*x)*sqrt(b*x + a)/(a^3*x^(7/2)
)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(b*x+a)**(1/2)/x**(9/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.224343, size = 154, normalized size = 1.83

$$-\frac{(bx+a)^{\frac{3}{2}}\left((bx+a)\left(\frac{2\,(7\,Bab^6-4\,Ab^7)(bx+a)}{a^4b^{12}} - \frac{7\,(7\,Ba^2b^6-4\,Aab^7)}{a^4b^{12}}\right) + \frac{35\,(Ba^3b^6-Aa^2b^7)}{a^4b^{12}}\right)b}{80640\,((bx+a)b-ab)^{\frac{7}{2}}|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/x^(9/2),x, algorithm="giac")
```

```
[Out] -1/80640*(b*x + a)^(3/2)*((b*x + a)*(2*(7*B*a*b^6 - 4*A*b^7)*(b*x
 + a)/(a^4*b^12) - 7*(7*B*a^2*b^6 - 4*A*a*b^7)/(a^4*b^12)) + 35*(
B*a^3*b^6 - A*a^2*b^7)/(a^4*b^12))*b/(((b*x + a)*b - a*b)^(7/2)*a
bs(b))
```

3.475 $\int \frac{\sqrt{a+bx}(A+Bx)}{x^{11/2}} dx$

Optimal. Leaf size=117

$$\frac{16b^2(a+bx)^{3/2}(2Ab-3aB)}{315a^4x^{3/2}} - \frac{8b(a+bx)^{3/2}(2Ab-3aB)}{105a^3x^{5/2}} + \frac{2(a+bx)^{3/2}(2Ab-3aB)}{21a^2x^{7/2}} - \frac{2A(a+bx)^{3/2}}{9ax^{9/2}}$$

```
[Out] (-2*A*(a + b*x)^(3/2))/(9*a*x^(9/2)) + (2*(2*A*b - 3*a*B)*(a + b*
x)^(3/2))/(21*a^2*x^(7/2)) - (8*b*(2*A*b - 3*a*B)*(a + b*x)^(3/2)
)/(105*a^3*x^(5/2)) + (16*b^2*(2*A*b - 3*a*B)*(a + b*x)^(3/2))/(3
15*a^4*x^(3/2))
```

Rubi [A] time = 0.140575, antiderivative size = 117, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.15$

$$\frac{16b^2(a+bx)^{3/2}(2Ab-3aB)}{315a^4x^{3/2}} - \frac{8b(a+bx)^{3/2}(2Ab-3aB)}{105a^3x^{5/2}} + \frac{2(a+bx)^{3/2}(2Ab-3aB)}{21a^2x^{7/2}} - \frac{2A(a+bx)^{3/2}}{9ax^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[a + b*x]*(A + B*x))/x^(11/2),x]
```

```
[Out] (-2*A*(a + b*x)^(3/2))/(9*a*x^(9/2)) + (2*(2*A*b - 3*a*B)*(a + b*
x)^(3/2))/(21*a^2*x^(7/2)) - (8*b*(2*A*b - 3*a*B)*(a + b*x)^(3/2)
)/(105*a^3*x^(5/2)) + (16*b^2*(2*A*b - 3*a*B)*(a + b*x)^(3/2))/(3
15*a^4*x^(3/2))
```

Rubi in Sympy [A] time = 11.3241, size = 116, normalized size = 0.99

$$-\frac{2A(a+bx)^{\frac{3}{2}}}{9ax^{\frac{9}{2}}} + \frac{4(a+bx)^{\frac{3}{2}}\left(Ab-\frac{3Ba}{2}\right)}{21a^2x^{\frac{7}{2}}} - \frac{8b(a+bx)^{\frac{3}{2}}(2Ab-3Ba)}{105a^3x^{\frac{5}{2}}} + \frac{32b^2(a+bx)^{\frac{3}{2}}\left(Ab-\frac{3Ba}{2}\right)}{315a^4x^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(b*x+a)**(1/2)/x**(11/2),x)
```

```
[Out] -2*A*(a + b*x)**(3/2)/(9*a*x**(9/2)) + 4*(a + b*x)**(3/2)*(A*b -
3*B*a/2)/(21*a**2*x**(7/2)) - 8*b*(a + b*x)**(3/2)*(2*A*b - 3*B*a
)/(105*a**3*x**(5/2)) + 32*b**2*(a + b*x)**(3/2)*(A*b - 3*B*a/2)/
(315*a**4*x**(3/2))
```

Mathematica [A] time = 0.0808287, size = 73, normalized size = 0.62

$$-\frac{2(a+bx)^{3/2}\left(5a^3(7A+9Bx)-6a^2bx(5A+6Bx)+24ab^2x^2(A+Bx)-16Ab^3x^3\right)}{315a^4x^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[a + b*x]*(A + B*x))/x^(11/2),x]
```

```
[Out] (-2*(a + b*x)^(3/2)*(-16*A*b^3*x^3 + 24*a*b^2*x^2*(A + B*x) - 6*a
^2*b*x*(5*A + 6*B*x) + 5*a^3*(7*A + 9*B*x)))/(315*a^4*x^(9/2))
```

Maple [A] time = 0.008, size = 77, normalized size = 0.7

$$-\frac{-32\,Ab^3x^3+48\,Bx^3ab^2+48\,aAb^2x^2-72\,Bx^2a^2b-60\,a^2Abx+90\,a^3Bx+70\,Aa^3}{315\,a^4}(bx+a)^{\frac{3}{2}}x^{-\frac{9}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(b*x+a)^(1/2)/x^(11/2),x)
```

```
[Out] -2/315*(b*x+a)^(3/2)*(-16*A*b^3*x^3+24*B*a*b^2*x^3+24*A*a*b^2*x^2
-36*B*a^2*b*x^2-30*A*a^2*b*x+45*B*a^3*x+35*A*a^3)/x^(9/2)/a^4
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/x^(11/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.228513, size = 136, normalized size = 1.16

$$-\frac{2\left(35\,Aa^{4}+8\left(3\,Bab^{3}-2\,Ab^{4}\right)x^{4}-4\left(3\,Ba^{2}b^{2}-2\,Aab^{3}\right)x^{3}+3\left(3\,Ba^{3}b-2\,Aa^{2}b^{2}\right)x^{2}+5\left(9\,Ba^{4}+Aa^{3}b\right)x\right)\sqrt{bx+a}}{315\,a^{4}x^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/x^(11/2),x, algorithm="fricas")
```

```
[Out] -2/315*(35*A*a^4 + 8*(3*B*a*b^3 - 2*A*b^4)*x^4 - 4*(3*B*a^2*b^2 -
 2*A*a*b^3)*x^3 + 3*(3*B*a^3*b - 2*A*a^2*b^2)*x^2 + 5*(9*B*a^4 +
A*a^3*b)*x)*sqrt(b*x + a)/(a^4*x^(9/2))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(b*x+a)**(1/2)/x**(11/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.227707, size = 201, normalized size = 1.72

$$\frac{\left((bx+a)\left(4\,(bx+a)\left(\frac{2\left(3\,Bab^{8}-2\,Ab^{9}\right)(bx+a)}{a^{5}b^{15}}-\frac{9\left(3\,Ba^{2}b^{8}-2\,Aab^{9}\right)}{a^{5}b^{15}}\right)+\frac{63\left(3\,Ba^{3}b^{8}-2\,Aa^{2}b^{9}\right)}{a^{5}b^{15}}\right)-\frac{105\left(Ba^{4}b^{8}-Aa^{3}b^{9}\right)}{a^{5}b^{15}}\right)(bx+a)^{\frac{3}{2}}b}{322560\left((bx+a)b-ab\right)^{\frac{9}{2}}|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/x^(11/2),x, algorithm="giac")
```

```
[Out] 1/322560*((b*x + a)*(4*(b*x + a)*(2*(3*B*a*b^8 - 2*A*b^9)*(b*x +
a)/(a^5*b^15) - 9*(3*B*a^2*b^8 - 2*A*a*b^9)/(a^5*b^15)) + 63*(3*B
*a^3*b^8 - 2*A*a^2*b^9)/(a^5*b^15)) - 105*(B*a^4*b^8 - A*a^3*b^9)
/(a^5*b^15))*(b*x + a)^(3/2)*b/(((b*x + a)*b - a*b)^(9/2)*abs(b))
```

3.476 $\int \frac{\sqrt{a+bx}(A+Bx)}{x^{13/2}}\,dx$

Optimal. Leaf size=150

$$-\frac{32b^3(a+bx)^{3/2}(8Ab-11aB)}{3465a^5x^{3/2}}+\frac{16b^2(a+bx)^{3/2}(8Ab-11aB)}{1155a^4x^{5/2}}-\frac{4b(a+bx)^{3/2}(8Ab-11aB)}{231a^3x^{7/2}}+\frac{2(a+bx)^{3/2}(8Ab-11aB)}{99a^2x^{9/2}}-\frac{2A(a+bx)^{3/2}}{11ax^{11/2}}$$

```
[Out] (-2*A*(a + b*x)^(3/2))/(11*a*x^(11/2)) + (2*(8*A*b - 11*a*B)*(a +
 b*x)^(3/2))/(99*a^2*x^(9/2)) - (4*b*(8*A*b - 11*a*B)*(a + b*x)^(
3/2))/(231*a^3*x^(7/2)) + (16*b^2*(8*A*b - 11*a*B)*(a + b*x)^(3/2
))/(1155*a^4*x^(5/2)) - (32*b^3*(8*A*b - 11*a*B)*(a + b*x)^(3/2))
/(3465*a^5*x^(3/2))
```

Rubi [A] time = 0.180673, antiderivative size = 150, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.15

$$-\frac{32b^3(a+bx)^{3/2}(8Ab-11aB)}{3465a^5x^{3/2}}+\frac{16b^2(a+bx)^{3/2}(8Ab-11aB)}{1155a^4x^{5/2}}-\frac{4b(a+bx)^{3/2}(8Ab-11aB)}{231a^3x^{7/2}}+\frac{2(a+bx)^{3/2}(8Ab-11aB)}{99a^2x^{9/2}}-\frac{2A(a+bx)^{3/2}}{11ax^{11/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[a + b*x]*(A + B*x))/x^(13/2),x]
```

```
[Out] (-2*A*(a + b*x)^(3/2))/(11*a*x^(11/2)) + (2*(8*A*b - 11*a*B)*(a +
 b*x)^(3/2))/(99*a^2*x^(9/2)) - (4*b*(8*A*b - 11*a*B)*(a + b*x)^(
3/2))/(231*a^3*x^(7/2)) + (16*b^2*(8*A*b - 11*a*B)*(a + b*x)^(3/2
))/(1155*a^4*x^(5/2)) - (32*b^3*(8*A*b - 11*a*B)*(a + b*x)^(3/2))
/(3465*a^5*x^(3/2))
```

Rubi in Sympy [A] time = 15.0572, size = 150, normalized size = 1.

$$-\frac{2A\left(a+bx\right)^{\frac{3}{2}}}{11ax^{\frac{11}{2}}}+\frac{2\left(a+bx\right)^{\frac{3}{2}}\left(8Ab-11Ba\right)}{99a^2x^{\frac{9}{2}}}-\frac{4b\left(a+bx\right)^{\frac{3}{2}}\left(8Ab-11Ba\right)}{231a^3x^{\frac{7}{2}}}+\frac{16b^2\left(a+bx\right)^{\frac{3}{2}}\left(8Ab-11Ba\right)}{1155a^4x^{\frac{5}{2}}}-\frac{32b^3\left(a+bx\right)^{\frac{3}{2}}\left(8Ab-11Ba\right)}{3465a^5x^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(b*x+a)**(1/2)/x**(13/2),x)
```

```
[Out] -2*A*(a + b*x)**(3/2)/(11*a*x**(11/2)) + 2*(a + b*x)**(3/2)*(8*A*
b - 11*B*a)/(99*a**2*x**(9/2)) - 4*b*(a + b*x)**(3/2)*(8*A*b - 11
*B*a)/(231*a**3*x**(7/2)) + 16*b**2*(a + b*x)**(3/2)*(8*A*b - 11*
B*a)/(1155*a**4*x**(5/2)) - 32*b**3*(a + b*x)**(3/2)*(8*A*b - 11*
B*a)/(3465*a**5*x**(3/2))
```

Mathematica [A] time = 0.103436, size = 95, normalized size = 0.63

$$-\frac{2(a+bx)^{3/2}\left(35a^4(9A+11Bx)-10a^3bx(28A+33Bx)+24a^2b^2x^2(10A+11Bx)-16ab^3x^3(12A+11Bx)+128Ab^4x^4\right)}{3465a^5x^{11/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[a + b*x]*(A + B*x))/x^(13/2),x]
```

```
[Out] (-2*(a + b*x)^(3/2)*(128*A*b^4*x^4 + 35*a^4*(9*A + 11*B*x) + 24*a
^2*b^2*x^2*(10*A + 11*B*x) - 16*a*b^3*x^3*(12*A + 11*B*x) - 10*a^
3*b*x*(28*A + 33*B*x)))/(3465*a^5*x^(11/2))
```

Maple [A] time = 0.008, size = 101, normalized size = 0.7

$$-\frac{256\,Ab^4x^4-352\,Bab^3x^4-384\,Aab^3x^3+528\,Ba^2b^2x^3+480\,Aa^2b^2x^2-660\,Ba^3bx^2-560\,Aa^3bx+770\,Ba^4x+630\,Aa^4}{3465\,a^5}(bx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(b*x+a)^(1/2)/x^(13/2),x)
```

```
[Out] -2/3465*(b*x+a)^(3/2)*(128*A*b^4*x^4-176*B*a*b^3*x^4-192*A*a*b^3*
x^3+264*B*a^2*b^2*x^3+240*A*a^2*b^2*x^2-330*B*a^3*b*x^2-280*A*a^3
*b*x+385*B*a^4*x+315*A*a^4)/x^(11/2)/a^5
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/x^(13/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.234842, size = 169, normalized size = 1.13

$$-\frac{2\left(315\,Aa^5-16\left(11\,Bab^4-8\,Ab^5\right)x^5+8\left(11\,Ba^2b^3-8\,Aab^4\right)x^4-6\left(11\,Ba^3b^2-8\,Aa^2b^3\right)x^3+5\left(11\,Ba^4b-8\,Aa^3b^2\right)x^2+}{3465\,a^5x^{\frac{11}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/x^(13/2),x, algorithm="fricas")
```

```
[Out] -2/3465*(315*A*a^5 - 16*(11*B*a*b^4 - 8*A*b^5)*x^5 + 8*(11*B*a^2*
b^3 - 8*A*a*b^4)*x^4 - 6*(11*B*a^3*b^2 - 8*A*a^2*b^3)*x^3 + 5*(11
*B*a^4*b - 8*A*a^3*b^2)*x^2 + 35*(11*B*a^5 + A*a^4*b)*x)*sqrt(b*x
 + a)/(a^5*x^(11/2))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(b*x+a)**(1/2)/x**(13/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.232671, size = 248, normalized size = 1.65

$$-\frac{\left(\left(2\,(bx+a)\left(4\,(bx+a)\left(\frac{2\,\left(11\,Bab^{10}-8\,Ab^{11}\right)(bx+a)}{a^6b^{18}}-\frac{11\,\left(11\,Ba^2b^{10}-8\,Aab^{11}\right)}{a^6b^{18}}\right)+\frac{99\,\left(11\,Ba^3b^{10}-8\,Aa^2b^{11}\right)}{a^6b^{18}}\right)-\frac{231\,\left(11\,Ba^4b^{10}-8\,Aa^3b^{11}\right)}{a^6b^{18}}\right)(bx$$
$$\overline{\qquad 14192640\,((bx+a)b-ab)^{\frac{11}{2}}\,|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/x^(13/2),x, algorithm="giac")
```

```
[Out] -1/14192640*((2*(b*x + a)*(4*(b*x + a)*(2*(11*B*a*b^10 - 8*A*b^11
)*(b*x + a)/(a^6*b^18) - 11*(11*B*a^2*b^10 - 8*A*a*b^11)/(a^6*b^1
8)) + 99*(11*B*a^3*b^10 - 8*A*a^2*b^11)/(a^6*b^18)) - 231*(11*B*a
^4*b^10 - 8*A*a^3*b^11)/(a^6*b^18))*(b*x + a) + 1155*(B*a^5*b^10
- A*a^4*b^11)/(a^6*b^18))*(b*x + a)^(3/2)*b/(((b*x + a)*b - a*b)^
(11/2)*abs(b))
```

3.477 $\int \frac{\sqrt{a+bx}(A+Bx)}{x^{15/2}} dx$

Optimal. Leaf size=183

$$\frac{256b^4(a+bx)^{3/2}(10Ab-13aB)}{45045a^6x^{3/2}}-\frac{128b^3(a+bx)^{3/2}(10Ab-13aB)}{15015a^5x^{5/2}}+\frac{32b^2(a+bx)^{3/2}(10Ab-13aB)}{3003a^4x^{7/2}}-\frac{16b(a+bx)^{3/2}(10Ab-13aB)}{1287a^3x^{9/2}}+\frac{2(a+bx)^{3/2}(10Ab-13aB)}{143a^2x^{11/2}}-\frac{2A(a+bx)^{3/2}}{13ax^{13/2}}$$

```
[Out] (-2*A*(a + b*x)^(3/2))/(13*a*x^(13/2)) + (2*(10*A*b - 13*a*B)*(a
+ b*x)^(3/2))/(143*a^2*x^(11/2)) - (16*b*(10*A*b - 13*a*B)*(a + b
*x)^(3/2))/(1287*a^3*x^(9/2)) + (32*b^2*(10*A*b - 13*a*B)*(a + b*
x)^(3/2))/(3003*a^4*x^(7/2)) - (128*b^3*(10*A*b - 13*a*B)*(a + b*
x)^(3/2))/(15015*a^5*x^(5/2)) + (256*b^4*(10*A*b - 13*a*B)*(a + b
*x)^(3/2))/(45045*a^6*x^(3/2))
```

Rubi [A] time = 0.226252, antiderivative size = 183, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.15$

$$\frac{256b^4(a+bx)^{3/2}(10Ab-13aB)}{45045a^6x^{3/2}}-\frac{128b^3(a+bx)^{3/2}(10Ab-13aB)}{15015a^5x^{5/2}}+\frac{32b^2(a+bx)^{3/2}(10Ab-13aB)}{3003a^4x^{7/2}}-\frac{16b(a+bx)^{3/2}(10Ab-13aB)}{1287a^3x^{9/2}}+\frac{2(a+bx)^{3/2}(10Ab-13aB)}{143a^2x^{11/2}}-\frac{2A(a+bx)^{3/2}}{13ax^{13/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[a + b*x]*(A + B*x))/x^(15/2),x]
```

```
[Out] (-2*A*(a + b*x)^(3/2))/(13*a*x^(13/2)) + (2*(10*A*b - 13*a*B)*(a
+ b*x)^(3/2))/(143*a^2*x^(11/2)) - (16*b*(10*A*b - 13*a*B)*(a + b
*x)^(3/2))/(1287*a^3*x^(9/2)) + (32*b^2*(10*A*b - 13*a*B)*(a + b*
x)^(3/2))/(3003*a^4*x^(7/2)) - (128*b^3*(10*A*b - 13*a*B)*(a + b*
x)^(3/2))/(15015*a^5*x^(5/2)) + (256*b^4*(10*A*b - 13*a*B)*(a + b
*x)^(3/2))/(45045*a^6*x^(3/2))
```

Rubi in Sympy [A] time = 19.5792, size = 184, normalized size = 1.01

$$-\frac{2A(a+bx)^{\frac{3}{2}}}{13ax^{\frac{13}{2}}}+\frac{2(a+bx)^{\frac{3}{2}}(10Ab-13Ba)}{143a^2x^{\frac{11}{2}}}-\frac{16b(a+bx)^{\frac{3}{2}}(10Ab-13Ba)}{1287a^3x^{\frac{9}{2}}}+\frac{32b^2(a+bx)^{\frac{3}{2}}(10Ab-13Ba)}{3003a^4x^{\frac{7}{2}}}-\frac{128b^3(a+bx)^{\frac{3}{2}}(10Ab-13Ba)}{15015a^5x^{\frac{5}{2}}}+\frac{256b^4(a+bx)^{\frac{3}{2}}(10Ab-13Ba)}{45045a^6x^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(b*x+a)**(1/2)/x**(15/2),x)
```

```
[Out] -2*A*(a + b*x)**(3/2)/(13*a*x**(13/2)) + 2*(a + b*x)**(3/2)*(10*A
*b - 13*B*a)/(143*a**2*x**(11/2)) - 16*b*(a + b*x)**(3/2)*(10*A*b
 - 13*B*a)/(1287*a**3*x**(9/2)) + 32*b**2*(a + b*x)**(3/2)*(10*A*
b - 13*B*a)/(3003*a**4*x**(7/2)) - 128*b**3*(a + b*x)**(3/2)*(10*
A*b - 13*B*a)/(15015*a**5*x**(5/2)) + 256*b**4*(a + b*x)**(3/2)*(
10*A*b - 13*B*a)/(45045*a**6*x**(3/2))
```

Mathematica [A] time = 0.115984, size = 114, normalized size = 0.62

$$-\frac{2(a+bx)^{3/2}\left(315a^5(11A+13Bx)-70a^4bx(45A+52Bx)+80a^3b^2x^2(35A+39Bx)-96a^2b^3x^3(25A+26Bx)+128ab^4x^4(15\right.}{45045a^6x^{13/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[a + b*x]*(A + B*x))/x^(15/2),x]
```

```
[Out] (-2*(a + b*x)^(3/2)*(-1280*A*b^5*x^5 + 315*a^5*(11*A + 13*B*x) +
128*a*b^4*x^4*(15*A + 13*B*x) - 96*a^2*b^3*x^3*(25*A + 26*B*x) +
80*a^3*b^2*x^2*(35*A + 39*B*x) - 70*a^4*b*x*(45*A + 52*B*x)))/(45
045*a^6*x^(13/2))
```

Maple [A] time = 0.008, size = 125, normalized size = 0.7

$$-\frac{-2560\,Ab^5x^5+3328\,Bx^5ab^4+3840\,aAb^4x^4-4992\,Bx^4a^2b^3-4800\,a^2Ab^3x^3+6240\,Bx^3a^3b^2+5600\,a^3Ab^2x^2-7280\,Bx^2a^3}{45045\,a^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(b*x+a)^(1/2)/x^(15/2),x)
```

```
[Out] -2/45045*(b*x+a)^(3/2)*(-1280*A*b^5*x^5+1664*B*a*b^4*x^5+1920*A*a
*b^4*x^4-2496*B*a^2*b^3*x^4-2400*A*a^2*b^3*x^3+3120*B*a^3*b^2*x^3
+2800*A*a^3*b^2*x^2-3640*B*a^4*b*x^2-3150*A*a^4*b*x+4095*B*a^5*x+
3465*A*a^5)/x^(13/2)/a^6
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/x^(15/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.238941, size = 201, normalized size = 1.1

$$-\frac{2\left(3465\,Aa^6+128\left(13\,Bab^5-10\,Ab^6\right)x^6-64\left(13\,Ba^2b^4-10\,Aab^5\right)x^5+48\left(13\,Ba^3b^3-10\,Aa^2b^4\right)x^4-40\left(13\,Ba^4b^2-10\right.}{45045\,a^6x^{\frac{13}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/x^(15/2),x, algorithm="fricas")
```

```
[Out] -2/45045*(3465*A*a^6 + 128*(13*B*a*b^5 - 10*A*b^6)*x^6 - 64*(13*B
*a^2*b^4 - 10*A*a*b^5)*x^5 + 48*(13*B*a^3*b^3 - 10*A*a^2*b^4)*x^4
 - 40*(13*B*a^4*b^2 - 10*A*a^3*b^3)*x^3 + 35*(13*B*a^5*b - 10*A*a
^4*b^2)*x^2 + 315*(13*B*a^6 + A*a^5*b)*x)*sqrt(b*x + a)/(a^6*x^(1
3/2))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(b*x+a)**(1/2)/x**(15/2),x)
```

[Out] Timed out

GIAC/XCAS [A] time = 0.239255, size = 296, normalized size = 1.62

$$\frac{\left(\left(8\left(2\,(bx+a)\left(4\,(bx+a)\left(\frac{2\left(13\,Bab^{12}-10\,Ab^{13}\right)(bx+a)}{a^{7}b^{21}}-\frac{13\left(13\,Ba^{2}b^{12}-10\,Aab^{13}\right)}{a^{7}b^{21}}\right)+\frac{143\left(13\,Ba^{3}b^{12}-10\,Aa^{2}b^{13}\right)}{a^{7}b^{21}}\right)-\frac{429\left(13\,Ba^{4}b^{12}-10\,Aa^{3}b^{13}\right)}{a^{7}b^{21}}\right.\right.\right.}{33210777600\left((bx+a)b-ab\right)^{\frac{13}{2}}|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/x^(15/2),x, algorithm="giac")
```

```
[Out] 1/33210777600*((8*(2*(b*x + a)*(4*(b*x + a)*(2*(13*B*a*b^12 - 10*
A*b^13)*(b*x + a)/(a^7*b^21) - 13*(13*B*a^2*b^12 - 10*A*a*b^13)/(
a^7*b^21)) + 143*(13*B*a^3*b^12 - 10*A*a^2*b^13)/(a^7*b^21)) - 42
9*(13*B*a^4*b^12 - 10*A*a^3*b^13)/(a^7*b^21))*(b*x + a) + 3003*(1
3*B*a^5*b^12 - 10*A*a^4*b^13)/(a^7*b^21))*(b*x + a) - 15015*(B*a^
6*b^12 - A*a^5*b^13)/(a^7*b^21))*(b*x + a)^(3/2)*b/(((b*x + a)*b
- a*b)^(13/2)*abs(b))
```

3.478 $\int x^{5/2}(a+bx)^{3/2}(A+Bx)\,dx$

Optimal. Leaf size=225

$$-\frac{a^5(12Ab-7aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{512b^{9/2}}+\frac{a^4\sqrt{x}\sqrt{a+bx}(12Ab-7aB)}{512b^4}-\frac{a^3x^{3/2}\sqrt{a+bx}(12Ab-7aB)}{768b^3}+\frac{a^2x^{5/2}\sqrt{a+bx}(12Ab-7aB)}{960b^2}+\frac{ax^{7/2}\sqrt{a+bx}(12Ab-7aB)}{160b}+\frac{x^{7/2}(a+bx)^{3/2}(12Ab-7aB)}{60b}+\frac{Bx^{7/2}(a+bx)^{5/2}}{6b}$$

```
[Out] (a^4*(12*A*b - 7*a*B)*Sqrt[x]*Sqrt[a + b*x])/(512*b^4) - (a^3*(12
*A*b - 7*a*B)*x^(3/2)*Sqrt[a + b*x])/(768*b^3) + (a^2*(12*A*b - 7
*a*B)*x^(5/2)*Sqrt[a + b*x])/(960*b^2) + (a*(12*A*b - 7*a*B)*x^(7
/2)*Sqrt[a + b*x])/(160*b) + ((12*A*b - 7*a*B)*x^(7/2)*(a + b*x)^
(3/2))/(60*b) + (B*x^(7/2)*(a + b*x)^(5/2))/(6*b) - (a^5*(12*A*b
- 7*a*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a + b*x]])/(512*b^(9/2))
```

Rubi [A] time = 0.285282, antiderivative size = 225, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.2$

$$-\frac{a^5(12Ab-7aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{512b^{9/2}}+\frac{a^4\sqrt{x}\sqrt{a+bx}(12Ab-7aB)}{512b^4}-\frac{a^3x^{3/2}\sqrt{a+bx}(12Ab-7aB)}{768b^3}+\frac{a^2x^{5/2}\sqrt{a+bx}(12Ab-7aB)}{960b^2}+\frac{ax^{7/2}\sqrt{a+bx}(12Ab-7aB)}{160b}+\frac{x^{7/2}(a+bx)^{3/2}(12Ab-7aB)}{60b}+\frac{Bx^{7/2}(a+bx)^{5/2}}{6b}$$

Antiderivative was successfully verified.

```
[In]  Int[x^(5/2)*(a + b*x)^(3/2)*(A + B*x),x]
```

```
[Out] (a^4*(12*A*b - 7*a*B)*Sqrt[x]*Sqrt[a + b*x])/(512*b^4) - (a^3*(12
*A*b - 7*a*B)*x^(3/2)*Sqrt[a + b*x])/(768*b^3) + (a^2*(12*A*b - 7
*a*B)*x^(5/2)*Sqrt[a + b*x])/(960*b^2) + (a*(12*A*b - 7*a*B)*x^(7
/2)*Sqrt[a + b*x])/(160*b) + ((12*A*b - 7*a*B)*x^(7/2)*(a + b*x)^
(3/2))/(60*b) + (B*x^(7/2)*(a + b*x)^(5/2))/(6*b) - (a^5*(12*A*b
- 7*a*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a + b*x]])/(512*b^(9/2))
```

Rubi in Sympy [A] time = 26.7556, size = 214, normalized size = 0.95

$$\frac{Bx^{\frac{7}{2}}\left(a+bx\right)^{\frac{5}{2}}}{6b}-\frac{a^5\left(12Ab-7Ba\right)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{512b^{\frac{9}{2}}}+\frac{a^4\sqrt{x}\sqrt{a+bx}\left(12Ab-7Ba\right)}{512b^4}+\frac{a^3x^{\frac{3}{2}}\sqrt{a+bx}\left(12Ab-7Ba\right)}{256b^3}+\frac{a^2x^{\frac{3}{2}}\left(a+bx\right)^{\frac{3}{2}}\left(12Ab-7Ba\right)}{192b^3}-\frac{ax^{\frac{3}{2}}\left(a+bx\right)^{\frac{5}{2}}\left(12Ab-7Ba\right)}{96b^3}+\frac{x^{\frac{5}{2}}\left(a+bx\right)^{\frac{5}{2}}\left(12Ab-7Ba\right)}{60b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**(5/2)*(b*x+a)**(3/2)*(B*x+A),x)
```

```
[Out] B*x**(7/2)*(a + b*x)**(5/2)/(6*b) - a**5*(12*A*b - 7*B*a)*atanh(s
qrt(b)*sqrt(x)/sqrt(a + b*x))/(512*b**(9/2)) + a**4*sqrt(x)*sqrt(
a + b*x)*(12*A*b - 7*B*a)/(512*b**4) + a**3*x**(3/2)*sqrt(a + b*x
)*(12*A*b - 7*B*a)/(256*b**3) + a**2*x**(3/2)*(a + b*x)**(3/2)*(1
2*A*b - 7*B*a)/(192*b**3) - a*x**(3/2)*(a + b*x)**(5/2)*(12*A*b -
 7*B*a)/(96*b**3) + x**(5/2)*(a + b*x)**(5/2)*(12*A*b - 7*B*a)/(6
```

```
0*b**2)
```

Mathematica [A] time = 0.196802, size = 157, normalized size = 0.7

$$\frac{15a^5(7aB-12Ab)\log\left(\sqrt{b}\sqrt{a+bx}+b\sqrt{x}\right)+\sqrt{b}\sqrt{x}\sqrt{a+bx}\left(-105a^5B+10a^4b(18A+7Bx)-8a^3b^2x(15A+7Bx)+48a^2b^3x\right.}{7680b^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^(5/2)*(a + b*x)^(3/2)*(A + B*x),x]
```

```
[Out] (Sqrt[b]*Sqrt[x]*Sqrt[a + b*x]*(-105*a^5*B + 48*a^2*b^3*x^2*(2*A
+ B*x) + 256*b^5*x^4*(6*A + 5*B*x) - 8*a^3*b^2*x*(15*A + 7*B*x) +
 10*a^4*b*(18*A + 7*B*x) + 64*a*b^4*x^3*(33*A + 26*B*x)) + 15*a^5
*(-12*A*b + 7*a*B)*Log[b*Sqrt[x] + Sqrt[b]*Sqrt[a + b*x]])/(7680*
b^(9/2))
```

Maple [A] time = 0.02, size = 302, normalized size = 1.3

$$-\frac{1}{15360}\sqrt{x}\sqrt{bx+a}\left(-2560\,Bx^5b^{11/2}\sqrt{x(bx+a)}-3072\,Ax^4b^{11/2}\sqrt{x(bx+a)}-3328\,Bx^4ab^{9/2}\sqrt{x(bx+a)}-4224\,Ax^3ab^{9/2}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^(5/2)*(b*x+a)^(3/2)*(B*x+A),x)
```

```
[Out] -1/15360*x^(1/2)*(b*x+a)^(1/2)/b^(9/2)*(-2560*B*x^5*b^(11/2)*(x*(
b*x+a))^(1/2)-3072*A*x^4*b^(11/2)*(x*(b*x+a))^(1/2)-3328*B*x^4*a*
b^(9/2)*(x*(b*x+a))^(1/2)-4224*A*x^3*a*b^(9/2)*(x*(b*x+a))^(1/2)-
96*B*x^3*a^2*b^(7/2)*(x*(b*x+a))^(1/2)-192*A*x^2*a^2*b^(7/2)*(x*(
b*x+a))^(1/2)+112*B*x^2*a^3*b^(5/2)*(x*(b*x+a))^(1/2)+240*a^3*(x*
(b*x+a))^(1/2)*x*A*b^(5/2)-140*a^4*(x*(b*x+a))^(1/2)*x*B*b^(3/2)+
180*a^5*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))*A*b
-360*a^4*(x*(b*x+a))^(1/2)*A*b^(3/2)-105*a^6*ln(1/2*(2*(x*(b*x+a)
)^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))*B+210*a^5*(x*(b*x+a))^(1/2)*B*b
^(1/2))/(x*(b*x+a))^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)*x^(5/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.244, size = 1, normalized size = 0.

$$\left[\frac{2\left(1280\,Bb^5x^5-105\,Ba^5+180\,Aa^4b+128\left(13\,Bab^4+12\,Ab^5\right)x^4+48\left(Ba^2b^3+44\,Aab^4\right)x^3-8\left(7\,Ba^3b^2-12\,Aa^2b^3\right)x^2+\right.}{15360\,b^{\frac{9}{2}}}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)*x^(5/2),x, algorithm="fricas")
```

```
[Out] [1/15360*(2*(1280*B*b^5*x^5 - 105*B*a^5 + 180*A*a^4*b + 128*(13*B
*a*b^4 + 12*A*b^5)*x^4 + 48*(B*a^2*b^3 + 44*A*a*b^4)*x^3 - 8*(7*B
*a^3*b^2 - 12*A*a^2*b^3)*x^2 + 10*(7*B*a^4*b - 12*A*a^3*b^2)*x)*s
qrt(b*x + a)*sqrt(b)*sqrt(x) - 15*(7*B*a^6 - 12*A*a^5*b)*log(-2*s
qrt(b*x + a)*b*sqrt(x) + (2*b*x + a)*sqrt(b)))/b^(9/2), 1/7680*((
1280*B*b^5*x^5 - 105*B*a^5 + 180*A*a^4*b + 128*(13*B*a*b^4 + 12*A
*b^5)*x^4 + 48*(B*a^2*b^3 + 44*A*a*b^4)*x^3 - 8*(7*B*a^3*b^2 - 12
*A*a^2*b^3)*x^2 + 10*(7*B*a^4*b - 12*A*a^3*b^2)*x)*sqrt(b*x + a)*
sqrt(-b)*sqrt(x) + 15*(7*B*a^6 - 12*A*a^5*b)*arctan(sqrt(b*x + a)
*sqrt(-b)/(b*sqrt(x))))/(sqrt(-b)*b^4)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**(5/2)*(b*x+a)**(3/2)*(B*x+A),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)*x^(5/2),x, algorithm="giac")
```

```
[Out] Timed out
```

3.479 $\int x^{3/2}(a+bx)^{3/2}(A+Bx)\,dx$

Optimal. Leaf size=192

$$\frac{3a^4(2Ab-aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{128b^{7/2}}-\frac{3a^3\sqrt{x}\sqrt{a+bx}(2Ab-aB)}{128b^3}+\frac{a^2x^{3/2}\sqrt{a+bx}(2Ab-aB)}{64b^2}+\frac{ax^{5/2}\sqrt{a+bx}(2Ab-aB)}{16b}+\frac{x^{5/2}(a+bx)^{3/2}(2Ab-aB)}{8b}+\frac{Bx^{5/2}(a+bx)^{5/2}}{5b}$$

```
[Out] (-3*a^3*(2*A*b - a*B)*Sqrt[x]*Sqrt[a + b*x])/(128*b^3) + (a^2*(2*
A*b - a*B)*x^(3/2)*Sqrt[a + b*x])/(64*b^2) + (a*(2*A*b - a*B)*x^(
5/2)*Sqrt[a + b*x])/(16*b) + ((2*A*b - a*B)*x^(5/2)*(a + b*x)^(3/
2))/(8*b) + (B*x^(5/2)*(a + b*x)^(5/2))/(5*b) + (3*a^4*(2*A*b - a
*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a + b*x]])/(128*b^(7/2))
```

Rubi [A] time = 0.227886, antiderivative size = 192, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.2$

$$\frac{3a^4(2Ab-aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{128b^{7/2}}-\frac{3a^3\sqrt{x}\sqrt{a+bx}(2Ab-aB)}{128b^3}+\frac{a^2x^{3/2}\sqrt{a+bx}(2Ab-aB)}{64b^2}+\frac{ax^{5/2}\sqrt{a+bx}(2Ab-aB)}{16b}+\frac{x^{5/2}(a+bx)^{3/2}(2Ab-aB)}{8b}+\frac{Bx^{5/2}(a+bx)^{5/2}}{5b}$$

Antiderivative was successfully verified.

```
[In]  Int[x^(3/2)*(a + b*x)^(3/2)*(A + B*x),x]
```

```
[Out] (-3*a^3*(2*A*b - a*B)*Sqrt[x]*Sqrt[a + b*x])/(128*b^3) + (a^2*(2*
A*b - a*B)*x^(3/2)*Sqrt[a + b*x])/(64*b^2) + (a*(2*A*b - a*B)*x^(
5/2)*Sqrt[a + b*x])/(16*b) + ((2*A*b - a*B)*x^(5/2)*(a + b*x)^(3/
2))/(8*b) + (B*x^(5/2)*(a + b*x)^(5/2))/(5*b) + (3*a^4*(2*A*b - a
*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a + b*x]])/(128*b^(7/2))
```

Rubi in Sympy [A] time = 22.3747, size = 177, normalized size = 0.92

$$\frac{Bx^{\frac{5}{2}}(a+bx)^{\frac{5}{2}}}{5b}+\frac{3a^4\left(Ab-\frac{Ba}{2}\right)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{64b^{\frac{7}{2}}}+\frac{3a^3\sqrt{x}\sqrt{a+bx}\left(Ab-\frac{Ba}{2}\right)}{64b^3}+\frac{a^2\sqrt{x}(a+bx)^{\frac{3}{2}}\left(Ab-\frac{Ba}{2}\right)}{32b^3}-\frac{a\sqrt{x}(a+bx)^{\frac{5}{2}}(2Ab-Ba)}{16b^3}+\frac{x^{\frac{3}{2}}(a+bx)^{\frac{5}{2}}\left(Ab-\frac{Ba}{2}\right)}{4b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**(3/2)*(b*x+a)**(3/2)*(B*x+A),x)
```

```
[Out] B*x**(5/2)*(a + b*x)**(5/2)/(5*b) + 3*a**4*(A*b - B*a/2)*atanh(sq
rt(b)*sqrt(x)/sqrt(a + b*x))/(64*b**(7/2)) + 3*a**3*sqrt(x)*sqrt(
a + b*x)*(A*b - B*a/2)/(64*b**3) + a**2*sqrt(x)*(a + b*x)**(3/2)*
(A*b - B*a/2)/(32*b**3) - a*sqrt(x)*(a + b*x)**(5/2)*(2*A*b - B*a
)/(16*b**3) + x**(3/2)*(a + b*x)**(5/2)*(A*b - B*a/2)/(4*b**2)
```

Mathematica [A] time = 0.155002, size = 137, normalized size = 0.71

$$\frac{\sqrt{b}\sqrt{x}\sqrt{a+bx}\left(15a^4B-10a^3b(3A+Bx)+4a^2b^2x(5A+2Bx)+16ab^3x^2(15A+11Bx)+32b^4x^3(5A+4Bx)\right)-15a^4(aB-2A}{640b^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^(3/2)*(a + b*x)^(3/2)*(A + B*x),x]
```

```
[Out] (Sqrt[b]*Sqrt[x]*Sqrt[a + b*x]*(15*a^4*B - 10*a^3*b*(3*A + B*x) +
 4*a^2*b^2*x*(5*A + 2*B*x) + 32*b^4*x^3*(5*A + 4*B*x) + 16*a*b^3*
x^2*(15*A + 11*B*x)) - 15*a^4*(-2*A*b + a*B)*Log[b*Sqrt[x] + Sqrt
[b]*Sqrt[a + b*x]])/(640*b^(7/2))
```

Maple [A] time = 0.017, size = 260, normalized size = 1.4

$$\frac{1}{1280}\sqrt{x}\sqrt{bx+a}\Bigg(256\,Bx^4b^{9/2}\sqrt{x\,(bx+a)}+320\,Ax^3b^{9/2}\sqrt{x\,(bx+a)}+352\,Bx^3ab^{7/2}\sqrt{x\,(bx+a)}+480\,Ax^2ab^{7/2}\sqrt{x\,(bx+a)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^(3/2)*(b*x+a)^(3/2)*(B*x+A),x)
```

```
[Out] 1/1280*x^(1/2)*(b*x+a)^(1/2)/b^(7/2)*(256*B*x^4*b^(9/2)*(x*(b*x+a
))^(1/2)+320*A*x^3*b^(9/2)*(x*(b*x+a))^(1/2)+352*B*x^3*a*b^(7/2)*
(x*(b*x+a))^(1/2)+480*A*x^2*a*b^(7/2)*(x*(b*x+a))^(1/2)+16*B*x^2*
a^2*b^(5/2)*(x*(b*x+a))^(1/2)+40*A*a^2*(x*(b*x+a))^(1/2)*x*b^(5/2
)-20*B*a^3*(x*(b*x+a))^(1/2)*x*b^(3/2)+30*A*a^4*ln(1/2*(2*(x*(b*x
+a))^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))*b-60*A*a^3*(x*(b*x+a))^(1/2)
*b^(3/2)-15*B*a^5*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1/2)+2*b*x+a)/b^
(1/2))+30*B*a^4*(x*(b*x+a))^(1/2)*b^(1/2))/(x*(b*x+a))^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)*x^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.245723, size = 1, normalized size = 0.01

$$\left[\frac{2\left(128\,Bb^4x^4+15\,Ba^4-30\,Aa^3b+16\left(11\,Bab^3+10\,Ab^4\right)x^3+8\left(Ba^2b^2+30\,Aab^3\right)x^2-10\left(Ba^3b-2\,Aa^2b^2\right)x\right)\sqrt{bx+a}\sqrt{b}}{1280\,b^{\frac{7}{2}}}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)*x^(3/2),x, algorithm="fricas")
```

```
[Out] [1/1280*(2*(128*B*b^4*x^4 + 15*B*a^4 - 30*A*a^3*b + 16*(11*B*a*b^
3 + 10*A*b^4)*x^3 + 8*(B*a^2*b^2 + 30*A*a*b^3)*x^2 - 10*(B*a^3*b
- 2*A*a^2*b^2)*x)*sqrt(b*x + a)*sqrt(b)*sqrt(x) - 15*(B*a^5 - 2*A
*a^4*b)*log(2*sqrt(b*x + a)*b*sqrt(x) + (2*b*x + a)*sqrt(b)))/b^(
7/2), 1/640*((128*B*b^4*x^4 + 15*B*a^4 - 30*A*a^3*b + 16*(11*B*a*
b^3 + 10*A*b^4)*x^3 + 8*(B*a^2*b^2 + 30*A*a*b^3)*x^2 - 10*(B*a^3*
b - 2*A*a^2*b^2)*x)*sqrt(b*x + a)*sqrt(-b)*sqrt(x) - 15*(B*a^5 -
2*A*a^4*b)*arctan(sqrt(b*x + a)*sqrt(-b)/(b*sqrt(x))))/(sqrt(-b)*
b^3)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**(3/2)*(b*x+a)**(3/2)*(B*x+A),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)*x^(3/2),x, algorithm="giac")
```

```
[Out] Timed out
```

3.480 $\int \sqrt{x}(a+bx)^{3/2}(A+Bx)\,dx$

Optimal. Leaf size=159

$$-\frac{a^3(8Ab-3aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{64b^{5/2}}+\frac{a^2\sqrt{x}\sqrt{a+bx}(8Ab-3aB)}{64b^2}+\frac{ax^{3/2}\sqrt{a+bx}(8Ab-3aB)}{32b}+\frac{x^{3/2}(a+bx)^{3/2}(8Ab-3aB)}{24b}+\frac{Bx^{3/2}(a+bx)^{5/2}}{4b}$$

```
[Out] (a^2*(8*A*b - 3*a*B)*Sqrt[x]*Sqrt[a + b*x])/(64*b^2) + (a*(8*A*b
- 3*a*B)*x^(3/2)*Sqrt[a + b*x])/(32*b) + ((8*A*b - 3*a*B)*x^(3/2)
*(a + b*x)^(3/2))/(24*b) + (B*x^(3/2)*(a + b*x)^(5/2))/(4*b) - (a
^3*(8*A*b - 3*a*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a + b*x]])/(64*
b^(5/2))
```

Rubi [A] time = 0.181922, antiderivative size = 159, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.2$

$$-\frac{a^3(8Ab-3aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{64b^{5/2}}+\frac{a^2\sqrt{x}\sqrt{a+bx}(8Ab-3aB)}{64b^2}+\frac{ax^{3/2}\sqrt{a+bx}(8Ab-3aB)}{32b}+\frac{x^{3/2}(a+bx)^{3/2}(8Ab-3aB)}{24b}+\frac{Bx^{3/2}(a+bx)^{5/2}}{4b}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[x]*(a + b*x)^(3/2)*(A + B*x),x]
```

```
[Out] (a^2*(8*A*b - 3*a*B)*Sqrt[x]*Sqrt[a + b*x])/(64*b^2) + (a*(8*A*b
- 3*a*B)*x^(3/2)*Sqrt[a + b*x])/(32*b) + ((8*A*b - 3*a*B)*x^(3/2)
*(a + b*x)^(3/2))/(24*b) + (B*x^(3/2)*(a + b*x)^(5/2))/(4*b) - (a
^3*(8*A*b - 3*a*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a + b*x]])/(64*
b^(5/2))
```

Rubi in Sympy [A] time = 17.1111, size = 150, normalized size = 0.94

$$\frac{Bx^{\frac{3}{2}}(a+bx)^{\frac{5}{2}}}{4b}-\frac{a^3(8Ab-3Ba)\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{b}\sqrt{x}}\right)}{64b^{\frac{5}{2}}}-\frac{a^2\sqrt{x}\sqrt{a+bx}(8Ab-3Ba)}{64b^2}-\frac{a\sqrt{x}(a+bx)^{\frac{3}{2}}(8Ab-3Ba)}{96b^2}+\frac{\sqrt{x}(a+bx)^{\frac{5}{2}}(8Ab-3Ba)}{24b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(B*x+A)*x**(1/2),x)
```

```
[Out] B*x**(3/2)*(a + b*x)**(5/2)/(4*b) - a**3*(8*A*b - 3*B*a)*atanh(sq
rt(a + b*x)/(sqrt(b)*sqrt(x)))/(64*b**(5/2)) - a**2*sqrt(x)*sqrt(
a + b*x)*(8*A*b - 3*B*a)/(64*b**2) - a*sqrt(x)*(a + b*x)**(3/2)*(
8*A*b - 3*B*a)/(96*b**2) + sqrt(x)*(a + b*x)**(5/2)*(8*A*b - 3*B*
a)/(24*b**2)
```

Mathematica [A] time = 0.124982, size = 119, normalized size = 0.75

$$\frac{3a^3(3aB-8Ab)\log\left(\sqrt{b}\sqrt{a+bx}+b\sqrt{x}\right)+\sqrt{b}\sqrt{x}\sqrt{a+bx}\left(-9a^3B+6a^2b(4A+Bx)+8ab^2x(14A+9Bx)+16b^3x^2(4A+3Bx\right.}{192b^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[x]*(a + b*x)^(3/2)*(A + B*x),x]
```

```
[Out] (Sqrt[b]*Sqrt[x]*Sqrt[a + b*x]*(-9*a^3*B + 6*a^2*b*(4*A + B*x) +
16*b^3*x^2*(4*A + 3*B*x) + 8*a*b^2*x*(14*A + 9*B*x)) + 3*a^3*(-8*
A*b + 3*a*B)*Log[b*Sqrt[x] + Sqrt[b]*Sqrt[a + b*x]])/(192*b^(5/2)
)
```

Maple [A] time = 0.017, size = 218, normalized size = 1.4

$$-\frac{1}{384}\sqrt{bx+a}\sqrt{x}\left(-96\,Bx^{3}b^{7/2}\sqrt{x\,(bx+a)}-128\,Ax^{2}b^{7/2}\sqrt{x\,(bx+a)}-144\,Bx^{2}ab^{5/2}\sqrt{x\,(bx+a)}-224\,Aax\sqrt{x\,(bx+a)}b^{5/2}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(B*x+A)*x^(1/2),x)
```

```
[Out] -1/384*(b*x+a)^(1/2)*x^(1/2)/b^(5/2)*(-96*B*x^3*b^(7/2)*(x*(b*x+a
))^(1/2)-128*A*x^2*b^(7/2)*(x*(b*x+a))^(1/2)-144*B*x^2*a*b^(5/2)*
(x*(b*x+a))^(1/2)-224*A*a*x*(x*(b*x+a))^(1/2)*b^(5/2)-12*B*a^2*x*
(x*(b*x+a))^(1/2)*b^(3/2)+24*A*a^3*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^
(1/2)+2*b*x+a)/b^(1/2))*b-48*A*a^2*(x*(b*x+a))^(1/2)*b^(3/2)-9*B*
a^4*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))+18*B*a^
3*(x*(b*x+a))^(1/2)*b^(1/2))/(x*(b*x+a))^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)*sqrt(x),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.233407, size = 1, normalized size = 0.01

$$\left[\frac{2\left(48\,Bb^{3}x^{3}-9\,Ba^{3}+24\,Aa^{2}b+8\left(9\,Bab^{2}+8\,Ab^{3}\right)x^{2}+2\left(3\,Ba^{2}b+56\,Aab^{2}\right)x\right)\sqrt{bx+a}\sqrt{b}\sqrt{x}-3\left(3\,Ba^{4}-8\,Aa^{3}b\right)\log\left(-\right.}{384\,b^{\frac{5}{2}}}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)*sqrt(x),x, algorithm="fricas")
```

```
[Out] [1/384*(2*(48*B*b^3*x^3 - 9*B*a^3 + 24*A*a^2*b + 8*(9*B*a*b^2 + 8
*A*b^3)*x^2 + 2*(3*B*a^2*b + 56*A*a*b^2)*x)*sqrt(b*x + a)*sqrt(b)
*sqrt(x) - 3*(3*B*a^4 - 8*A*a^3*b)*log(-2*sqrt(b*x + a)*b*sqrt(x)
 + (2*b*x + a)*sqrt(b)))/b^(5/2), 1/192*((48*B*b^3*x^3 - 9*B*a^3
+ 24*A*a^2*b + 8*(9*B*a*b^2 + 8*A*b^3)*x^2 + 2*(3*B*a^2*b + 56*A*
a*b^2)*x)*sqrt(b*x + a)*sqrt(-b)*sqrt(x) + 3*(3*B*a^4 - 8*A*a^3*b
)*arctan(sqrt(b*x + a)*sqrt(-b)/(b*sqrt(x))))/(sqrt(-b)*b^2)]
```

Sympy [A] time = 80.4719, size = 298, normalized size = 1.87

$$\frac{Aa^{\frac{5}{2}}\sqrt{x}}{8b\sqrt{1+\frac{bx}{a}}}+\frac{17Aa^{\frac{3}{2}}x^{\frac{3}{2}}}{24\sqrt{1+\frac{bx}{a}}}+\frac{11A\sqrt{a}bx^{\frac{5}{2}}}{12\sqrt{1+\frac{bx}{a}}}-\frac{Aa^{3}\operatorname{asinh}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{8b^{\frac{3}{2}}}+\frac{Ab^{2}x^{\frac{7}{2}}}{3\sqrt{a}\sqrt{1+\frac{bx}{a}}}-\frac{3Ba^{\frac{7}{2}}\sqrt{x}}{64b^{2}\sqrt{1+\frac{bx}{a}}}-\frac{Ba^{\frac{5}{2}}x^{\frac{3}{2}}}{64b\sqrt{1+\frac{bx}{a}}}+\frac{13Ba^{\frac{3}{2}}x^{\frac{5}{2}}}{32\sqrt{1+\frac{bx}{a}}}+\frac{5B\sqrt{a}bx^{\frac{7}{2}}}{8\sqrt{1+\frac{bx}{a}}}+\frac{3Ba^{4}\operatorname{asinh}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{64b^{\frac{5}{2}}}+\frac{Bb^{2}x^{\frac{9}{2}}}{4\sqrt{a}\sqrt{1+\frac{bx}{a}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)*(B*x+A)*x**(1/2),x)
```

```
[Out] A*a**(5/2)*sqrt(x)/(8*b*sqrt(1 + b*x/a)) + 17*A*a**(3/2)*x**(3/2)
/(24*sqrt(1 + b*x/a)) + 11*A*sqrt(a)*b*x**(5/2)/(12*sqrt(1 + b*x/
a)) - A*a**3*asinh(sqrt(b)*sqrt(x)/sqrt(a))/(8*b**(3/2)) + A*b**2
*x**(7/2)/(3*sqrt(a)*sqrt(1 + b*x/a)) - 3*B*a**(7/2)*sqrt(x)/(64*
b**2*sqrt(1 + b*x/a)) - B*a**(5/2)*x**(3/2)/(64*b*sqrt(1 + b*x/a)
) + 13*B*a**(3/2)*x**(5/2)/(32*sqrt(1 + b*x/a)) + 5*B*sqrt(a)*b*x
**(7/2)/(8*sqrt(1 + b*x/a)) + 3*B*a**4*asinh(sqrt(b)*sqrt(x)/sqrt
(a))/(64*b**(5/2)) + B*b**2*x**(9/2)/(4*sqrt(a)*sqrt(1 + b*x/a))
```

GIAC/XCAS [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)*sqrt(x),x, algorithm="giac")
```

```
[Out] Timed out
```

3.481 $\int \frac{(a+bx)^{3/2}(A+Bx)}{\sqrt{x}} \, dx$

Optimal. Leaf size=126

$$\frac{a^2(6Ab-aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{8b^{3/2}}+\frac{\sqrt{x}(a+bx)^{3/2}(6Ab-aB)}{12b}+\frac{a\sqrt{x}\sqrt{a+bx}(6Ab-aB)}{8b}+\frac{B\sqrt{x}(a+bx)^{5/2}}{3b}$$

```
[Out] (a*(6*A*b - a*B)*Sqrt[x]*Sqrt[a + b*x])/(8*b) + ((6*A*b - a*B)*Sq
rt[x]*(a + b*x)^(3/2))/(12*b) + (B*Sqrt[x]*(a + b*x)^(5/2))/(3*b)
 + (a^2*(6*A*b - a*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a + b*x]])/(
8*b^(3/2))
```

Rubi [A] time = 0.139065, antiderivative size = 126, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.2$

$$\frac{a^2(6Ab-aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{8b^{3/2}}+\frac{\sqrt{x}(a+bx)^{3/2}(6Ab-aB)}{12b}+\frac{a\sqrt{x}\sqrt{a+bx}(6Ab-aB)}{8b}+\frac{B\sqrt{x}(a+bx)^{5/2}}{3b}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(3/2)*(A + B*x))/Sqrt[x],x]
```

```
[Out] (a*(6*A*b - a*B)*Sqrt[x]*Sqrt[a + b*x])/(8*b) + ((6*A*b - a*B)*Sq
rt[x]*(a + b*x)^(3/2))/(12*b) + (B*Sqrt[x]*(a + b*x)^(5/2))/(3*b)
 + (a^2*(6*A*b - a*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a + b*x]])/(
8*b^(3/2))
```

Rubi in Sympy [A] time = 11.7932, size = 109, normalized size = 0.87

$$\frac{B\sqrt{x}\,(a+bx)^{\frac{5}{2}}}{3b}+\frac{a^2\,(6Ab-Ba)\,\mathrm{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{b}\sqrt{x}}\right)}{8b^{\frac{3}{2}}}+\frac{a\sqrt{x}\sqrt{a+bx}\,(6Ab-Ba)}{8b}+\frac{\sqrt{x}\,(a+bx)^{\frac{3}{2}}\,(6Ab-Ba)}{12b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(B*x+A)/x**(1/2),x)
```

```
[Out] B*sqrt(x)*(a + b*x)**(5/2)/(3*b) + a**2*(6*A*b - B*a)*atanh(sqrt(
a + b*x)/(sqrt(b)*sqrt(x)))/(8*b**(3/2)) + a*sqrt(x)*sqrt(a + b*x
)*(6*A*b - B*a)/(8*b) + sqrt(x)*(a + b*x)**(3/2)*(6*A*b - B*a)/(1
2*b)
```

Mathematica [A] time = 0.0990434, size = 100, normalized size = 0.79

$$\frac{\sqrt{b}\sqrt{x}\sqrt{a+bx}\left(3a^2B+2ab(15A+7Bx)+4b^2x(3A+2Bx)\right)-3a^2(aB-6Ab)\log\left(\sqrt{b}\sqrt{a+bx}+b\sqrt{x}\right)}{24b^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(3/2)*(A + B*x))/Sqrt[x],x]
```

```
[Out] (Sqrt[b]*Sqrt[x]*Sqrt[a + b*x]*(3*a^2*B + 4*b^2*x*(3*A + 2*B*x) +
 2*a*b*(15*A + 7*B*x)) - 3*a^2*(-6*A*b + a*B)*Log[b*Sqrt[x] + Sqr
t[b]*Sqrt[a + b*x]])/(24*b^(3/2))
```

Maple [A] time = 0.017, size = 176, normalized size = 1.4

$$\frac{1}{48}\sqrt{bx+a}\sqrt{x}\left(16\,Bx^2b^{5/2}\sqrt{x\,(bx+a)}+24\,A\sqrt{x\,(bx+a)}xb^{5/2}+28\,Ba\sqrt{x\,(bx+a)}xb^{3/2}+18\,Aa^2\ln\left(1/2\,\frac{2\,\sqrt{x\,(bx+a)}\sqrt{b}+}{\sqrt{b}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(B*x+A)/x^(1/2),x)
```

```
[Out] 1/48*(b*x+a)^(1/2)*x^(1/2)/b^(3/2)*(16*B*x^2*b^(5/2)*(x*(b*x+a))^
(1/2)+24*A*(x*(b*x+a))^(1/2)*x*b^(5/2)+28*B*a*(x*(b*x+a))^(1/2)*x
*b^(3/2)+18*A*a^2*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1/2)+2*b*x+a)/b^
(1/2))*b+60*A*(x*(b*x+a))^(1/2)*a*b^(3/2)-3*B*a^3*ln(1/2*(2*(x*(b
*x+a))^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))+6*B*a^2*(x*(b*x+a))^(1/2)*
b^(1/2))/(x*(b*x+a))^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/sqrt(x),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.247875, size = 1, normalized size = 0.01

$$\left[\frac{2\left(8\,Bb^2x^2+3\,Ba^2+30\,Aab+2\left(7\,Bab+6\,Ab^2\right)x\right)\sqrt{bx+a}\sqrt{b}\sqrt{x}-3\left(Ba^3-6\,Aa^2b\right)\log\left(2\,\sqrt{bx+a}b\sqrt{x}+(2\,bx+a)\sqrt{b}\right)}{48\,b^{\frac{3}{2}}},\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/sqrt(x),x, algorithm="fricas")
```

```
[Out] [1/48*(2*(8*B*b^2*x^2 + 3*B*a^2 + 30*A*a*b + 2*(7*B*a*b + 6*A*b^2
)*x)*sqrt(b*x + a)*sqrt(b)*sqrt(x) - 3*(B*a^3 - 6*A*a^2*b)*log(2*
sqrt(b*x + a)*b*sqrt(x) + (2*b*x + a)*sqrt(b)))/b^(3/2), 1/24*((8
*B*b^2*x^2 + 3*B*a^2 + 30*A*a*b + 2*(7*B*a*b + 6*A*b^2)*x)*sqrt(b
*x + a)*sqrt(-b)*sqrt(x) - 3*(B*a^3 - 6*A*a^2*b)*arctan(sqrt(b*x
+ a)*sqrt(-b)/(b*sqrt(x))))/(sqrt(-b)*b)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)*(B*x+A)/x**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/sqrt(x),x, algorithm="giac")
```

```
[Out] Exception raised: NotImplementedError
```

3.482 $\int \frac{(a+bx)^{3/2}(A+Bx)}{x^{3/2}}\,dx$

Optimal. Leaf size=115

$$\frac{\sqrt{x}(a+bx)^{3/2}(aB+4Ab)}{2a}+\frac{3}{4}\sqrt{x}\sqrt{a+bx}(aB+4Ab)+\frac{3a(aB+4Ab)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{4\sqrt{b}}-\frac{2A(a+bx)^{5/2}}{a\sqrt{x}}$$

```
[Out] (3*(4*A*b + a*B)*Sqrt[x]*Sqrt[a + b*x])/4 + ((4*A*b + a*B)*Sqrt[x
]*(a + b*x)^(3/2))/(2*a) - (2*A*(a + b*x)^(5/2))/(a*Sqrt[x]) + (3
*a*(4*A*b + a*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a + b*x]])/(4*Sqr
t[b])
```

Rubi [A] time = 0.145777, antiderivative size = 115, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.2

$$\frac{\sqrt{x}(a+bx)^{3/2}(aB+4Ab)}{2a}+\frac{3}{4}\sqrt{x}\sqrt{a+bx}(aB+4Ab)+\frac{3a(aB+4Ab)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{4\sqrt{b}}-\frac{2A(a+bx)^{5/2}}{a\sqrt{x}}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(3/2)*(A + B*x))/x^(3/2),x]
```

```
[Out] (3*(4*A*b + a*B)*Sqrt[x]*Sqrt[a + b*x])/4 + ((4*A*b + a*B)*Sqrt[x
]*(a + b*x)^(3/2))/(2*a) - (2*A*(a + b*x)^(5/2))/(a*Sqrt[x]) + (3
*a*(4*A*b + a*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a + b*x]])/(4*Sqr
t[b])
```

Rubi in Sympy [A] time = 11.5328, size = 107, normalized size = 0.93

$$-\frac{2A\left(a+bx\right)^{\frac{5}{2}}}{a\sqrt{x}}+\frac{3a\left(4Ab+Ba\right)\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{b}\sqrt{x}}\right)}{4\sqrt{b}}+\sqrt{x}\sqrt{a+bx}\left(3Ab+\frac{3Ba}{4}\right)+\frac{\sqrt{x}\left(a+bx\right)^{\frac{3}{2}}\left(4Ab+Ba\right)}{2a}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(B*x+A)/x**(3/2),x)
```

```
[Out] -2*A*(a + b*x)**(5/2)/(a*sqrt(x)) + 3*a*(4*A*b + B*a)*atanh(sqrt(
a + b*x)/(sqrt(b)*sqrt(x)))/(4*sqrt(b)) + sqrt(x)*sqrt(a + b*x)*(
3*A*b + 3*B*a/4) + sqrt(x)*(a + b*x)**(3/2)*(4*A*b + B*a)/(2*a)
```

Mathematica [A] time = 0.141015, size = 82, normalized size = 0.71

$$\frac{1}{4}\left(\frac{\sqrt{a+bx}(a(5Bx-8A)+2bx(2A+Bx))}{\sqrt{x}}+\frac{3a(aB+4Ab)\log\left(\sqrt{b}\sqrt{a+bx}+b\sqrt{x}\right)}{\sqrt{b}}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(3/2)*(A + B*x))/x^(3/2),x]
```

```
[Out] ((Sqrt[a + b*x]*(2*b*x*(2*A + B*x) + a*(-8*A + 5*B*x)))/Sqrt[x] +
 (3*a*(4*A*b + a*B)*Log[b*Sqrt[x] + Sqrt[b]*Sqrt[a + b*x]])/Sqrt[
b])/4
```

Maple [A] time = 0.02, size = 158, normalized size = 1.4

$$\frac{1}{8}\sqrt{bx+a}\left(4\,B{b}^{3/2}\sqrt{x\left(bx+a\right)}{x}^{2}+12\,a\ln\left(1/2\,\frac{2\,\sqrt{x\left(bx+a\right)}\sqrt{b}+2\,bx+a}{\sqrt{b}}\right)bAx+8\,\sqrt{x\left(bx+a\right)}A{b}^{3/2}x+3\,B{a}^{2}\ln\left(1/2\,\frac{2\sqrt{}}{}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(B*x+A)/x^(3/2),x)
```

```
[Out] 1/8*(b*x+a)^(1/2)*(4*B*b^(3/2)*(x*(b*x+a))^(1/2)*x^2+12*a*ln(1/2*
(2*(x*(b*x+a))^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))*b*A*x+8*(x*(b*x+a)
)^(1/2)*A*b^(3/2)*x+3*B*a^2*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1/2)+2
*b*x+a)/b^(1/2))*x+10*B*(x*(b*x+a))^(1/2)*a*b^(1/2)*x-16*A*a*(x*(
b*x+a))^(1/2)*b^(1/2))/x^(1/2)/(x*(b*x+a))^(1/2)/b^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/x^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.247431, size = 1, normalized size = 0.01

$$\left[\frac{3\left(Ba^{2}+4\,Aab\right)x\log\left(2\,\sqrt{bx+a}b\sqrt{x}+\left(2\,bx+a\right)\sqrt{b}\right)+2\left(2\,Bbx^{2}-8\,Aa+\left(5\,Ba+4\,Ab\right)x\right)\sqrt{bx+a}\sqrt{b}\sqrt{x}}{8\,\sqrt{b}x},\ \frac{3\left(Ba^{2}+4\,Aab\right)}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/x^(3/2),x, algorithm="fricas")
```

```
[Out] [1/8*(3*(B*a^2 + 4*A*a*b)*x*log(2*sqrt(b*x + a)*b*sqrt(x) + (2*b*
x + a)*sqrt(b)) + 2*(2*B*b*x^2 - 8*A*a + (5*B*a + 4*A*b)*x)*sqrt(
b*x + a)*sqrt(b)*sqrt(x))/(sqrt(b)*x), 1/4*(3*(B*a^2 + 4*A*a*b)*x
*arctan(sqrt(b*x + a)*sqrt(-b)/(b*sqrt(x))) + (2*B*b*x^2 - 8*A*a
+ (5*B*a + 4*A*b)*x)*sqrt(b*x + a)*sqrt(-b)*sqrt(x))/(sqrt(-b)*x)
]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)*(B*x+A)/x**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/x^(3/2),x, algorithm="giac")

[Out] Exception raised: NotImplementedError
```

3.483 $\int \frac{(a+bx)^{3/2}(A+Bx)}{x^{5/2}} dx$

Optimal. Leaf size=117

$$-\frac{2(a+bx)^{3/2}(3aB+2Ab)}{3a\sqrt{x}}+\frac{b\sqrt{x}\sqrt{a+bx}(3aB+2Ab)}{a}+\sqrt{b}(3aB+2Ab)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)-\frac{2A(a+bx)^{5/2}}{3ax^{3/2}}$$

```
[Out] (b*(2*A*b + 3*a*B)*Sqrt[x]*Sqrt[a + b*x])/a - (2*(2*A*b + 3*a*B)*
(a + b*x)^(3/2))/(3*a*Sqrt[x]) - (2*A*(a + b*x)^(5/2))/(3*a*x^(3/
2)) + Sqrt[b]*(2*A*b + 3*a*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a +
b*x]]
```

Rubi [A] time = 0.143367, antiderivative size = 117, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.25$

$$-\frac{2(a+bx)^{3/2}(3aB+2Ab)}{3a\sqrt{x}}+\frac{b\sqrt{x}\sqrt{a+bx}(3aB+2Ab)}{a}+\sqrt{b}(3aB+2Ab)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)-\frac{2A(a+bx)^{5/2}}{3ax^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(3/2)*(A + B*x))/x^(5/2),x]
```

```
[Out] (b*(2*A*b + 3*a*B)*Sqrt[x]*Sqrt[a + b*x])/a - (2*(2*A*b + 3*a*B)*
(a + b*x)^(3/2))/(3*a*Sqrt[x]) - (2*A*(a + b*x)^(5/2))/(3*a*x^(3/
2)) + Sqrt[b]*(2*A*b + 3*a*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a +
b*x]]
```

Rubi in Sympy [A] time = 11.8721, size = 112, normalized size = 0.96

$$-\frac{2A\left(a+bx\right)^{\frac{5}{2}}}{3ax^{\frac{3}{2}}}+2\sqrt{b}\left(Ab+\frac{3Ba}{2}\right)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)+\frac{b\sqrt{x}\sqrt{a+bx}\left(2Ab+3Ba\right)}{a}-\frac{4\left(a+bx\right)^{\frac{3}{2}}\left(Ab+\frac{3Ba}{2}\right)}{3a\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(B*x+A)/x**(5/2),x)
```

```
[Out] -2*A*(a + b*x)**(5/2)/(3*a*x**(3/2)) + 2*sqrt(b)*(A*b + 3*B*a/2)*
atanh(sqrt(b)*sqrt(x)/sqrt(a + b*x)) + b*sqrt(x)*sqrt(a + b*x)*(2
*A*b + 3*B*a)/a - 4*(a + b*x)**(3/2)*(A*b + 3*B*a/2)/(3*a*sqrt(x)
)
```

Mathematica [A] time = 0.114963, size = 79, normalized size = 0.68

$$\sqrt{b}(3aB+2Ab)\log\left(\sqrt{b}\sqrt{a+bx}+b\sqrt{x}\right)-\frac{\sqrt{a+bx}(2a(A+3Bx)+bx(8A-3Bx))}{3x^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(3/2)*(A + B*x))/x^(5/2),x]
```

```
[Out] -(Sqrt[a + b*x]*(b*x*(8*A - 3*B*x) + 2*a*(A + 3*B*x)))/(3*x^(3/2)
) + Sqrt[b]*(2*A*b + 3*a*B)*Log[b*Sqrt[x] + Sqrt[b]*Sqrt[a + b*x]
]
```

Maple [A] time = 0.019, size = 151, normalized size = 1.3

$$\frac{1}{6}\sqrt{bx+a}\left(6\,A\ln\left(1/2\,\frac{2\,\sqrt{x\,(bx+a)}\sqrt{b}+2\,bx+a}{\sqrt{b}}\right)x^2b^{3/2}+9\,B\sqrt{b}\ln\left(1/2\,\frac{2\,\sqrt{x\,(bx+a)}\sqrt{b}+2\,bx+a}{\sqrt{b}}\right)ax^2+6\,Bx^2b\sqrt{x\,(b$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(B*x+A)/x^(5/2),x)
```

```
[Out] 1/6*(b*x+a)^(1/2)/x^(3/2)*(6*A*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1/2
)+2*b*x+a)/b^(1/2))*x^2*b^(3/2)+9*B*b^(1/2)*ln(1/2*(2*(x*(b*x+a))
^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))*a*x^2+6*B*x^2*b*(x*(b*x+a))^(1/2
)-16*A*x*b*(x*(b*x+a))^(1/2)-12*B*x*a*(x*(b*x+a))^(1/2)-4*A*a*(x*
(b*x+a))^(1/2))/(x*(b*x+a))^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/x^(5/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.248888, size = 1, normalized size = 0.01

$$\left[\frac{3\,(3\,Ba+2\,Ab)\sqrt{b}x^2\log\left(2\,bx+2\,\sqrt{bx+a}\sqrt{b}\sqrt{x}+a\right)+2\,\left(3\,Bbx^2-2\,Aa-2\,(3\,Ba+4\,Ab)x\right)\sqrt{bx+a}\sqrt{x}}{6\,x^2},\frac{3\,(3\,Ba+2\,Ab)\sqrt{\cdot}}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/x^(5/2),x, algorithm="fricas")
```

```
[Out] [1/6*(3*(3*B*a + 2*A*b)*sqrt(b)*x^2*log(2*b*x + 2*sqrt(b*x + a)*s
qrt(b)*sqrt(x) + a) + 2*(3*B*b*x^2 - 2*A*a - 2*(3*B*a + 4*A*b)*x)
*sqrt(b*x + a)*sqrt(x))/x^2, 1/3*(3*(3*B*a + 2*A*b)*sqrt(-b)*x^2*
arctan(sqrt(b*x + a)/(sqrt(-b)*sqrt(x))) + (3*B*b*x^2 - 2*A*a - 2
*(3*B*a + 4*A*b)*x)*sqrt(b*x + a)*sqrt(x))/x^2]
```

Sympy [A] time = 170.571, size = 168, normalized size = 1.44

$$A\left(-\frac{2a\sqrt{b}\sqrt{\frac{a}{bx}+1}}{3x}-\frac{8b^{\frac{3}{2}}\sqrt{\frac{a}{bx}+1}}{3}-b^{\frac{3}{2}}\log\left(\frac{a}{bx}\right)+2b^{\frac{3}{2}}\log\left(\sqrt{\frac{a}{bx}+1}+1\right)\right)$$
$$+B\left(-\frac{2a^{\frac{3}{2}}}{\sqrt{x}\sqrt{1+\frac{bx}{a}}}-\frac{\sqrt{a}b\sqrt{x}}{\sqrt{1+\frac{bx}{a}}}+3a\sqrt{b}\operatorname{asinh}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)+\frac{b^2x^{\frac{3}{2}}}{\sqrt{a}\sqrt{1+\frac{bx}{a}}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)*(B*x+A)/x**(5/2),x)
```

```
[Out] A*(-2*a*sqrt(b)*sqrt(a/(b*x) + 1)/(3*x) - 8*b**(3/2)*sqrt(a/(b*x)
 + 1)/3 - b**(3/2)*log(a/(b*x)) + 2*b**(3/2)*log(sqrt(a/(b*x) + 1
```

```
) + 1)) + B*(-2*a**(3/2)/(sqrt(x)*sqrt(1 + b*x/a)) - sqrt(a)*b*sq
rt(x)/sqrt(1 + b*x/a) + 3*a*sqrt(b)*asinh(sqrt(b)*sqrt(x)/sqrt(a)
) + b**2*x**(3/2)/(sqrt(a)*sqrt(1 + b*x/a)))
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/x^(5/2),x, algorithm="giac")
```

```
[Out] Exception raised: NotImplementedError
```

3.484 $\int \frac{(a+bx)^{3/2}(A+Bx)}{x^{7/2}}\,dx$

Optimal. Leaf size=89

$$-\frac{2A(a+bx)^{5/2}}{5ax^{5/2}}+2b^{3/2}B\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)-\frac{2B(a+bx)^{3/2}}{3x^{3/2}}-\frac{2bB\sqrt{a+bx}}{\sqrt{x}}$$

```
[Out] (-2*b*B*Sqrt[a + b*x])/Sqrt[x] - (2*B*(a + b*x)^(3/2))/(3*x^(3/2)
) - (2*A*(a + b*x)^(5/2))/(5*a*x^(5/2)) + 2*b^(3/2)*B*ArcTanh[(Sq
rt[b]*Sqrt[x])/Sqrt[a + b*x]]
```

Rubi [A] time = 0.0901926, antiderivative size = 89, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.2

$$-\frac{2A(a+bx)^{5/2}}{5ax^{5/2}}+2b^{3/2}B\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)-\frac{2B(a+bx)^{3/2}}{3x^{3/2}}-\frac{2bB\sqrt{a+bx}}{\sqrt{x}}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(3/2)*(A + B*x))/x^(7/2),x]
```

```
[Out] (-2*b*B*Sqrt[a + b*x])/Sqrt[x] - (2*B*(a + b*x)^(3/2))/(3*x^(3/2)
) - (2*A*(a + b*x)^(5/2))/(5*a*x^(5/2)) + 2*b^(3/2)*B*ArcTanh[(Sq
rt[b]*Sqrt[x])/Sqrt[a + b*x]]
```

Rubi in Sympy [A] time = 9.42584, size = 85, normalized size = 0.96

$$-\frac{2A\left(a+bx\right)^{\frac{5}{2}}}{5ax^{\frac{5}{2}}}+2Bb^{\frac{3}{2}}\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{b}\sqrt{x}}\right)-\frac{2Bb\sqrt{a+bx}}{\sqrt{x}}-\frac{2B\left(a+bx\right)^{\frac{3}{2}}}{3x^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(B*x+A)/x**(7/2),x)
```

```
[Out] -2*A*(a + b*x)**(5/2)/(5*a*x**(5/2)) + 2*B*b**(3/2)*atanh(sqrt(a
+ b*x)/(sqrt(b)*sqrt(x))) - 2*B*b*sqrt(a + b*x)/sqrt(x) - 2*B*(a
+ b*x)**(3/2)/(3*x**(3/2))
```

Mathematica [A] time = 0.146091, size = 89, normalized size = 1.

$$2b^{3/2}B\log\left(\sqrt{b}\sqrt{a+bx}+b\sqrt{x}\right)-\frac{2\sqrt{a+bx}\left(a^2(3A+5Bx)+2abx(3A+10Bx)+3Ab^2x^2\right)}{15ax^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(3/2)*(A + B*x))/x^(7/2),x]
```

```
[Out] (-2*Sqrt[a + b*x]*(3*A*b^2*x^2 + a^2*(3*A + 5*B*x) + 2*a*b*x*(3*A
 + 10*B*x)))/(15*a*x^(5/2)) + 2*b^(3/2)*B*Log[b*Sqrt[x] + Sqrt[b]
*Sqrt[a + b*x]]
```

Maple [B] time = 0.02, size = 143, normalized size = 1.6

$$-\frac{1}{15\,a}\sqrt{bx+a}\left(-15\,Bb^{3/2}\ln\left(1/2\,\frac{2\,\sqrt{x\,(bx+a)}\sqrt{b}+2\,bx+a}{\sqrt{b}}\right)ax^3+6\,Ax^2b^2\sqrt{x\,(bx+a)}+40\,Bx^2ab\sqrt{x\,(bx+a)}+12\,Axab\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(B*x+A)/x^(7/2),x)
```

```
[Out] -1/15*(b*x+a)^(1/2)/x^(5/2)*(-15*B*b^(3/2)*ln(1/2*(2*(x*(b*x+a))^
(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))*a*x^3+6*A*x^2*b^2*(x*(b*x+a))^(1/
2)+40*B*x^2*a*b*(x*(b*x+a))^(1/2)+12*A*x*a*b*(x*(b*x+a))^(1/2)+10
*B*x*a^2*(x*(b*x+a))^(1/2)+6*A*a^2*(x*(b*x+a))^(1/2))/a/(x*(b*x+a
))^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/x^(7/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.247758, size = 1, normalized size = 0.01

$$\left[\frac{15\, Bab^{\frac{3}{2}}x^3 \log\left(2\, bx + 2\, \sqrt{bx+a}\sqrt{b}\sqrt{x} + a\right) - 2\left(3\, Aa^2 + \left(20\, Bab + 3\, Ab^2\right)x^2 + \left(5\, Ba^2 + 6\, Aab\right)x\right)\sqrt{bx+a}\sqrt{x}}{15\, ax^3}, \frac{2\left(15\, Ba\sqrt{-\right.}}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/x^(7/2),x, algorithm="fricas")
```

```
[Out] [1/15*(15*B*a*b^(3/2)*x^3*log(2*b*x + 2*sqrt(b*x + a)*sqrt(b)*sqr
t(x) + a) - 2*(3*A*a^2 + (20*B*a*b + 3*A*b^2)*x^2 + (5*B*a^2 + 6*
A*a*b)*x)*sqrt(b*x + a)*sqrt(x))/(a*x^3), 2/15*(15*B*a*sqrt(-b)*b
*x^3*arctan(sqrt(b*x + a)/(sqrt(-b)*sqrt(x))) - (3*A*a^2 + (20*B*
a*b + 3*A*b^2)*x^2 + (5*B*a^2 + 6*A*a*b)*x)*sqrt(b*x + a)*sqrt(x)
)/(a*x^3)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)*(B*x+A)/x**(7/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/x^(7/2),x, algorithm="giac")
```

```
[Out] Exception raised: NotImplementedError
```

3.485 $\int \frac{(a+bx)^{3/2}(A+Bx)}{x^{9/2}} dx$

Optimal. Leaf size=53

$$\frac{2(a+bx)^{5/2}(2Ab-7aB)}{35a^2x^{5/2}}-\frac{2A(a+bx)^{5/2}}{7ax^{7/2}}$$

```
[Out] (-2*A*(a + b*x)^(5/2))/(7*a*x^(7/2)) + (2*(2*A*b - 7*a*B)*(a + b*
x)^(5/2))/(35*a^2*x^(5/2))
```

Rubi [A] time = 0.0674127, antiderivative size = 53, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.1

$$\frac{2(a+bx)^{5/2}(2Ab-7aB)}{35a^2x^{5/2}}-\frac{2A(a+bx)^{5/2}}{7ax^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(3/2)*(A + B*x))/x^(9/2),x]
```

```
[Out] (-2*A*(a + b*x)^(5/2))/(7*a*x^(7/2)) + (2*(2*A*b - 7*a*B)*(a + b*
x)^(5/2))/(35*a^2*x^(5/2))
```

Rubi in Sympy [A] time = 5.29166, size = 49, normalized size = 0.92

$$-\frac{2A\left(a+bx\right)^{\frac{5}{2}}}{7ax^{\frac{7}{2}}}+\frac{4\left(a+bx\right)^{\frac{5}{2}}\left(Ab-\frac{7Ba}{2}\right)}{35a^2x^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(B*x+A)/x**(9/2),x)
```

```
[Out] -2*A*(a + b*x)**(5/2)/(7*a*x**(7/2)) + 4*(a + b*x)**(5/2)*(A*b -
7*B*a/2)/(35*a**2*x**(5/2))
```

Mathematica [A] time = 0.0688664, size = 36, normalized size = 0.68

$$-\frac{2(a+bx)^{5/2}(5aA+7aBx-2Abx)}{35a^2x^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(3/2)*(A + B*x))/x^(9/2),x]
```

```
[Out] (-2*(a + b*x)^(5/2)*(5*a*A - 2*A*b*x + 7*a*B*x))/(35*a^2*x^(7/2))
```

Maple [A] time = 0.007, size = 31, normalized size = 0.6

$$-\frac{-4\,Abx+14\,Bax+10\,Aa}{35\,a^2}(bx+a)^{\frac{5}{2}}x^{-\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(B*x+A)/x^(9/2),x)
```

```
[Out] -2/35*(b*x+a)^(5/2)*(-2*A*b*x+7*B*a*x+5*A*a)/x^(7/2)/a^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(3/2)/x^(9/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.233789, size = 100, normalized size = 1.89

$$-\frac{2\,\left(5\,Aa^{3}+\left(7\,Bab^{2}-2\,Ab^{3}\right)x^{3}+\left(14\,Ba^{2}b+Aab^{2}\right)x^{2}+\left(7\,Ba^{3}+8\,Aa^{2}b\right)x\right)\sqrt{bx+a}}{35\,a^{2}x^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(3/2)/x^(9/2),x, algorithm="fricas")
```

```
[Out] -2/35*(5*A*a^3 + (7*B*a*b^2 - 2*A*b^3)*x^3 + (14*B*a^2*b + A*a*b^
2)*x^2 + (7*B*a^3 + 8*A*a^2*b)*x)*sqrt(b*x + a)/(a^2*x^(7/2))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**(3/2)*(B*x+A)/x**(9/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.245627, size = 113, normalized size = 2.13

$$\frac{(bx+a)^{\frac{5}{2}}b\left(\frac{\left(7\,Ba^{2}b^{6}-2\,Aab^{7}\right)(bx+a)}{a^{4}b^{12}}-\frac{7\,\left(Ba^{3}b^{6}-Aa^{2}b^{7}\right)}{a^{4}b^{12}}\right)}{26880\,((bx+a)b-ab)^{\frac{7}{2}}|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(3/2)/x^(9/2),x, algorithm="giac")
```

```
[Out] 1/26880*(b*x + a)^(5/2)*b*((7*B*a^2*b^6 - 2*A*a*b^7)*(b*x + a)/(a
^4*b^12) - 7*(B*a^3*b^6 - A*a^2*b^7)/(a^4*b^12))/(((b*x + a)*b -
a*b)^(7/2)*abs(b))
```

3.486 $\int \frac{(a+bx)^{3/2}(A+Bx)}{x^{11/2}} dx$

Optimal. Leaf size=84

$$-\frac{4b(a+bx)^{5/2}(4Ab-9aB)}{315a^3x^{5/2}}+\frac{2(a+bx)^{5/2}(4Ab-9aB)}{63a^2x^{7/2}}-\frac{2A(a+bx)^{5/2}}{9ax^{9/2}}$$

```
[Out] (-2*A*(a + b*x)^(5/2))/(9*a*x^(9/2)) + (2*(4*A*b - 9*a*B)*(a + b*
x)^(5/2))/(63*a^2*x^(7/2)) - (4*b*(4*A*b - 9*a*B)*(a + b*x)^(5/2)
)/(315*a^3*x^(5/2))
```

Rubi [A] time = 0.100851, antiderivative size = 84, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.15

$$-\frac{4b(a+bx)^{5/2}(4Ab-9aB)}{315a^3x^{5/2}}+\frac{2(a+bx)^{5/2}(4Ab-9aB)}{63a^2x^{7/2}}-\frac{2A(a+bx)^{5/2}}{9ax^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(3/2)*(A + B*x))/x^(11/2),x]
```

```
[Out] (-2*A*(a + b*x)^(5/2))/(9*a*x^(9/2)) + (2*(4*A*b - 9*a*B)*(a + b*
x)^(5/2))/(63*a^2*x^(7/2)) - (4*b*(4*A*b - 9*a*B)*(a + b*x)^(5/2)
)/(315*a^3*x^(5/2))
```

Rubi in Sympy [A] time = 7.62753, size = 82, normalized size = 0.98

$$-\frac{2A\left(a+bx\right)^{\frac{5}{2}}}{9ax^{\frac{9}{2}}}+\frac{2\left(a+bx\right)^{\frac{5}{2}}\left(4Ab-9Ba\right)}{63a^2x^{\frac{7}{2}}}-\frac{4b\left(a+bx\right)^{\frac{5}{2}}\left(4Ab-9Ba\right)}{315a^3x^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(B*x+A)/x**(11/2),x)
```

```
[Out] -2*A*(a + b*x)**(5/2)/(9*a*x**(9/2)) + 2*(a + b*x)**(5/2)*(4*A*b
- 9*B*a)/(63*a**2*x**(7/2)) - 4*b*(a + b*x)**(5/2)*(4*A*b - 9*B*a
)/(315*a**3*x**(5/2))
```

Mathematica [A] time = 0.0857647, size = 57, normalized size = 0.68

$$-\frac{2(a+bx)^{5/2}\left(5a^2(7A+9Bx)-2abx(10A+9Bx)+8Ab^2x^2\right)}{315a^3x^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(3/2)*(A + B*x))/x^(11/2),x]
```

```
[Out] (-2*(a + b*x)^(5/2)*(8*A*b^2*x^2 + 5*a^2*(7*A + 9*B*x) - 2*a*b*x*
(10*A + 9*B*x)))/(315*a^3*x^(9/2))
```

Maple [A] time = 0.007, size = 53, normalized size = 0.6

$$-\frac{16\,Ab^2x^2-36\,Bx^2ab-40\,aAbx+90\,a^2Bx+70\,Aa^2}{315\,a^3}\left(bx+a\right)^{\frac{5}{2}}x^{-\frac{9}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(B*x+A)/x^(11/2),x)
```

```
[Out] -2/315*(b*x+a)^(5/2)*(8*A*b^2*x^2-18*B*a*b*x^2-20*A*a*b*x+45*B*a^
2*x+35*A*a^2)/x^(9/2)/a^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/x^(11/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.225403, size = 135, normalized size = 1.61

$$-\frac{2\left(35\,Aa^4-2\left(9\,Bab^3-4\,Ab^4\right)x^4+\left(9\,Ba^2b^2-4\,Aab^3\right)x^3+3\left(24\,Ba^3b+Aa^2b^2\right)x^2+5\left(9\,Ba^4+10\,Aa^3b\right)x\right)\sqrt{bx+a}}{315\,a^3x^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/x^(11/2),x, algorithm="fricas")
```

```
[Out] -2/315*(35*A*a^4 - 2*(9*B*a*b^3 - 4*A*b^4)*x^4 + (9*B*a^2*b^2 - 4
*A*a*b^3)*x^3 + 3*(24*B*a^3*b + A*a^2*b^2)*x^2 + 5*(9*B*a^4 + 10*
A*a^3*b)*x)*sqrt(b*x + a)/(a^3*x^(9/2))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)*(B*x+A)/x**(11/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.230529, size = 161, normalized size = 1.92

$$-\frac{(bx+a)^{\frac{5}{2}}\left((bx+a)\left(\frac{2\left(9\,Ba^2b^8-4\,Aab^9\right)(bx+a)}{a^5b^{15}}-\frac{9\left(9\,Ba^3b^8-4\,Aa^2b^9\right)}{a^5b^{15}}\right)+\frac{63\left(Ba^4b^8-Aa^3b^9\right)}{a^5b^{15}}\right)b}{322560\left((bx+a)b-ab\right)^{\frac{9}{2}}|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/x^(11/2),x, algorithm="giac")
```

```
[Out] -1/322560*(b*x + a)^(5/2)*((b*x + a)*(2*(9*B*a^2*b^8 - 4*A*a*b^9)
*(b*x + a)/(a^5*b^15) - 9*(9*B*a^3*b^8 - 4*A*a^2*b^9)/(a^5*b^15))
 + 63*(B*a^4*b^8 - A*a^3*b^9)/(a^5*b^15))*b/(((b*x + a)*b - a*b)^
(9/2)*abs(b))
```

3.487 $\int \frac{(a+bx)^{3/2}(A+Bx)}{x^{13/2}}\,dx$

Optimal. Leaf size=117

$$\frac{16b^2(a+bx)^{5/2}(6Ab-11aB)}{3465a^4x^{5/2}}-\frac{8b(a+bx)^{5/2}(6Ab-11aB)}{693a^3x^{7/2}}+\frac{2(a+bx)^{5/2}(6Ab-11aB)}{99a^2x^{9/2}}-\frac{2A(a+bx)^{5/2}}{11ax^{11/2}}$$

```
[Out] (-2*A*(a + b*x)^(5/2))/(11*a*x^(11/2)) + (2*(6*A*b - 11*a*B)*(a +
 b*x)^(5/2))/(99*a^2*x^(9/2)) - (8*b*(6*A*b - 11*a*B)*(a + b*x)^(
5/2))/(693*a^3*x^(7/2)) + (16*b^2*(6*A*b - 11*a*B)*(a + b*x)^(5/2
))/(3465*a^4*x^(5/2))
```

Rubi [A] time = 0.138476, antiderivative size = 117, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.15

$$\frac{16b^2(a+bx)^{5/2}(6Ab-11aB)}{3465a^4x^{5/2}}-\frac{8b(a+bx)^{5/2}(6Ab-11aB)}{693a^3x^{7/2}}+\frac{2(a+bx)^{5/2}(6Ab-11aB)}{99a^2x^{9/2}}-\frac{2A(a+bx)^{5/2}}{11ax^{11/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(3/2)*(A + B*x))/x^(13/2),x]
```

```
[Out] (-2*A*(a + b*x)^(5/2))/(11*a*x^(11/2)) + (2*(6*A*b - 11*a*B)*(a +
 b*x)^(5/2))/(99*a^2*x^(9/2)) - (8*b*(6*A*b - 11*a*B)*(a + b*x)^(
5/2))/(693*a^3*x^(7/2)) + (16*b^2*(6*A*b - 11*a*B)*(a + b*x)^(5/2
))/(3465*a^4*x^(5/2))
```

Rubi in Sympy [A] time = 10.9886, size = 116, normalized size = 0.99

$$-\frac{2A\left(a+bx\right)^{\frac{5}{2}}}{11ax^{\frac{11}{2}}}+\frac{2\left(a+bx\right)^{\frac{5}{2}}\left(6Ab-11Ba\right)}{99a^2x^{\frac{9}{2}}}-\frac{8b\left(a+bx\right)^{\frac{5}{2}}\left(6Ab-11Ba\right)}{693a^3x^{\frac{7}{2}}}+\frac{16b^2\left(a+bx\right)^{\frac{5}{2}}\left(6Ab-11Ba\right)}{3465a^4x^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(B*x+A)/x**(13/2),x)
```

```
[Out] -2*A*(a + b*x)**(5/2)/(11*a*x**(11/2)) + 2*(a + b*x)**(5/2)*(6*A*
b - 11*B*a)/(99*a**2*x**(9/2)) - 8*b*(a + b*x)**(5/2)*(6*A*b - 11
*B*a)/(693*a**3*x**(7/2)) + 16*b**2*(a + b*x)**(5/2)*(6*A*b - 11*
B*a)/(3465*a**4*x**(5/2))
```

Mathematica [A] time = 0.102718, size = 76, normalized size = 0.65

$$-\frac{2(a+bx)^{5/2}\left(35a^3(9A+11Bx)-10a^2bx(21A+22Bx)+8ab^2x^2(15A+11Bx)-48Ab^3x^3\right)}{3465a^4x^{11/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(3/2)*(A + B*x))/x^(13/2),x]
```

```
[Out] (-2*(a + b*x)^(5/2)*(-48*A*b^3*x^3 + 35*a^3*(9*A + 11*B*x) + 8*a*
b^2*x^2*(15*A + 11*B*x) - 10*a^2*b*x*(21*A + 22*B*x)))/(3465*a^4*
x^(11/2))
```

Maple [A] time = 0.007, size = 77, normalized size = 0.7

$$-\frac{-96\,Ab^{3}x^{3}+176\,Bx^{3}ab^{2}+240\,aAb^{2}x^{2}-440\,Bx^{2}a^{2}b-420\,a^{2}Abx+770\,a^{3}Bx+630\,Aa^{3}}{3465\,a^{4}}(bx+a)^{\frac{5}{2}}x^{-\frac{11}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(B*x+A)/x^(13/2),x)
```

```
[Out] -2/3465*(b*x+a)^(5/2)*(-48*A*b^3*x^3+88*B*a*b^2*x^3+120*A*a*b^2*x
^2-220*B*a^2*b*x^2-210*A*a^2*b*x+385*B*a^3*x+315*A*a^3)/x^(11/2)/
a^4
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/x^(13/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.234155, size = 170, normalized size = 1.45

$$-\frac{2\left(315\,Aa^{5}+8\left(11\,Bab^{4}-6\,Ab^{5}\right)x^{5}-4\left(11\,Ba^{2}b^{3}-6\,Aab^{4}\right)x^{4}+3\left(11\,Ba^{3}b^{2}-6\,Aa^{2}b^{3}\right)x^{3}+5\left(110\,Ba^{4}b+3\,Aa^{3}b^{2}\right)x^{2}+\cdots}{3465\,a^{4}x^{\frac{11}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/x^(13/2),x, algorithm="fricas")
```

```
[Out] -2/3465*(315*A*a^5 + 8*(11*B*a*b^4 - 6*A*b^5)*x^5 - 4*(11*B*a^2*b
^3 - 6*A*a*b^4)*x^4 + 3*(11*B*a^3*b^2 - 6*A*a^2*b^3)*x^3 + 5*(110
*B*a^4*b + 3*A*a^3*b^2)*x^2 + 35*(11*B*a^5 + 12*A*a^4*b)*x)*sqrt(
b*x + a)/(a^4*x^(11/2))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)*(B*x+A)/x**(13/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.238642, size = 208, normalized size = 1.78

$$\frac{\left((bx+a)\left(4\,(bx+a)\left(\frac{2\left(11\,Ba^{2}b^{10}-6\,Aab^{11}\right)(bx+a)}{a^{6}b^{18}}-\frac{11\left(11\,Ba^{3}b^{10}-6\,Aa^{2}b^{11}\right)}{a^{6}b^{18}}\right)+\frac{99\left(11\,Ba^{4}b^{10}-6\,Aa^{3}b^{11}\right)}{a^{6}b^{18}}\right)-\frac{693\left(Ba^{5}b^{10}-Aa^{4}b^{11}\right)}{a^{6}b^{18}}\right)(bx+a)\cdots}{14192640\left((bx+a)b-ab\right)^{\frac{11}{2}}|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/x^(13/2),x, algorithm="giac")
```

```
[Out] 1/14192640*((b*x + a)*(4*(b*x + a)*(2*(11*B*a^2*b^10 - 6*A*a*b^11
)*(b*x + a)/(a^6*b^18) - 11*(11*B*a^3*b^10 - 6*A*a^2*b^11)/(a^6*b
^18)) + 99*(11*B*a^4*b^10 - 6*A*a^3*b^11)/(a^6*b^18)) - 693*(B*a^
5*b^10 - A*a^4*b^11)/(a^6*b^18))*(b*x + a)^(5/2)*b/(((b*x + a)*b
- a*b)^(11/2)*abs(b))
```

3.488 $\int \frac{(a+bx)^{3/2}(A+Bx)}{x^{15/2}}\,dx$

Optimal. Leaf size=150

$$-\frac{32b^3(a+bx)^{5/2}(8Ab-13aB)}{15015a^5x^{5/2}}+\frac{16b^2(a+bx)^{5/2}(8Ab-13aB)}{3003a^4x^{7/2}}-\frac{4b(a+bx)^{5/2}(8Ab-13aB)}{429a^3x^{9/2}}+\frac{2(a+bx)^{5/2}(8Ab-13aB)}{143a^2x^{11/2}}-\frac{2A(a+bx)^{5/2}}{13ax^{13/2}}$$

```
[Out] (-2*A*(a + b*x)^(5/2))/(13*a*x^(13/2)) + (2*(8*A*b - 13*a*B)*(a +
 b*x)^(5/2))/(143*a^2*x^(11/2)) - (4*b*(8*A*b - 13*a*B)*(a + b*x)
^(5/2))/(429*a^3*x^(9/2)) + (16*b^2*(8*A*b - 13*a*B)*(a + b*x)^(5
/2))/(3003*a^4*x^(7/2)) - (32*b^3*(8*A*b - 13*a*B)*(a + b*x)^(5/2
))/(15015*a^5*x^(5/2))
```

Rubi [A] time = 0.176811, antiderivative size = 150, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.15

$$-\frac{32b^3(a+bx)^{5/2}(8Ab-13aB)}{15015a^5x^{5/2}}+\frac{16b^2(a+bx)^{5/2}(8Ab-13aB)}{3003a^4x^{7/2}}-\frac{4b(a+bx)^{5/2}(8Ab-13aB)}{429a^3x^{9/2}}+\frac{2(a+bx)^{5/2}(8Ab-13aB)}{143a^2x^{11/2}}-\frac{2A(a+bx)^{5/2}}{13ax^{13/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(3/2)*(A + B*x))/x^(15/2),x]
```

```
[Out] (-2*A*(a + b*x)^(5/2))/(13*a*x^(13/2)) + (2*(8*A*b - 13*a*B)*(a +
 b*x)^(5/2))/(143*a^2*x^(11/2)) - (4*b*(8*A*b - 13*a*B)*(a + b*x)
^(5/2))/(429*a^3*x^(9/2)) + (16*b^2*(8*A*b - 13*a*B)*(a + b*x)^(5
/2))/(3003*a^4*x^(7/2)) - (32*b^3*(8*A*b - 13*a*B)*(a + b*x)^(5/2
))/(15015*a^5*x^(5/2))
```

Rubi in Sympy [A] time = 14.9635, size = 150, normalized size = 1.

$$-\frac{2A\left(a+bx\right)^{\frac{5}{2}}}{13ax^{\frac{13}{2}}}+\frac{2\left(a+bx\right)^{\frac{5}{2}}\left(8Ab-13Ba\right)}{143a^2x^{\frac{11}{2}}}-\frac{4b\left(a+bx\right)^{\frac{5}{2}}\left(8Ab-13Ba\right)}{429a^3x^{\frac{9}{2}}}+\frac{16b^2\left(a+bx\right)^{\frac{5}{2}}\left(8Ab-13Ba\right)}{3003a^4x^{\frac{7}{2}}}-\frac{32b^3\left(a+bx\right)^{\frac{5}{2}}\left(8Ab-13Ba\right)}{15015a^5x^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(B*x+A)/x**(15/2),x)
```

```
[Out] -2*A*(a + b*x)**(5/2)/(13*a*x**(13/2)) + 2*(a + b*x)**(5/2)*(8*A*
b - 13*B*a)/(143*a**2*x**(11/2)) - 4*b*(a + b*x)**(5/2)*(8*A*b -
13*B*a)/(429*a**3*x**(9/2)) + 16*b**2*(a + b*x)**(5/2)*(8*A*b - 1
3*B*a)/(3003*a**4*x**(7/2)) - 32*b**3*(a + b*x)**(5/2)*(8*A*b - 1
3*B*a)/(15015*a**5*x**(5/2))
```

Mathematica [A] time = 0.118307, size = 95, normalized size = 0.63

$$-\frac{2(a+bx)^{5/2}\left(105a^4(11A+13Bx)-70a^3bx(12A+13Bx)+40a^2b^2x^2(14A+13Bx)-16ab^3x^3(20A+13Bx)+128Ab^4x^4\right)}{15015a^5x^{13/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(3/2)*(A + B*x))/x^(15/2),x]
```

```
[Out] (-2*(a + b*x)^(5/2)*(128*A*b^4*x^4 + 105*a^4*(11*A + 13*B*x) - 70
*a^3*b*x*(12*A + 13*B*x) + 40*a^2*b^2*x^2*(14*A + 13*B*x) - 16*a*
b^3*x^3*(20*A + 13*B*x)))/(15015*a^5*x^(13/2))
```

Maple [A] time = 0.009, size = 101, normalized size = 0.7

$$-\frac{256\,Ab^4x^4 - 416\,Bab^3x^4 - 640\,Aab^3x^3 + 1040\,Ba^2b^2x^3 + 1120\,Aa^2b^2x^2 - 1820\,Ba^3bx^2 - 1680\,Aa^3bx + 2730\,Ba^4x + 2310\,A}{15015\,a^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(B*x+A)/x^(15/2),x)
```

```
[Out] -2/15015*(b*x+a)^(5/2)*(128*A*b^4*x^4-208*B*a*b^3*x^4-320*A*a*b^3
*x^3+520*B*a^2*b^2*x^3+560*A*a^2*b^2*x^2-910*B*a^3*b*x^2-840*A*a^
3*b*x+1365*B*a^4*x+1155*A*a^4)/x^(13/2)/a^5
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/x^(15/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.229469, size = 201, normalized size = 1.34

$$-\frac{2\left(1155\,Aa^6 - 16\left(13\,Bab^5 - 8\,Ab^6\right)x^6 + 8\left(13\,Ba^2b^4 - 8\,Aab^5\right)x^5 - 6\left(13\,Ba^3b^3 - 8\,Aa^2b^4\right)x^4 + 5\left(13\,Ba^4b^2 - 8\,Aa^3b^3\right)x^3}{15015\,a^5x^{\frac{13}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/x^(15/2),x, algorithm="fricas")
```

```
[Out] -2/15015*(1155*A*a^6 - 16*(13*B*a*b^5 - 8*A*b^6)*x^6 + 8*(13*B*a^
2*b^4 - 8*A*a*b^5)*x^5 - 6*(13*B*a^3*b^3 - 8*A*a^2*b^4)*x^4 + 5*(
13*B*a^4*b^2 - 8*A*a^3*b^3)*x^3 + 35*(52*B*a^5*b + A*a^4*b^2)*x^2
 + 105*(13*B*a^6 + 14*A*a^5*b)*x)*sqrt(b*x + a)/(a^5*x^(13/2))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)*(B*x+A)/x**(15/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.249041, size = 255, normalized size = 1.7

$$-\frac{\left(\left(2\,(bx+a)\left(4\,(bx+a)\left(\frac{2\,(13\,Ba^2b^{12}-8\,Aab^{13})(bx+a)}{a^7b^{21}}-\frac{13\,(13\,Ba^3b^{12}-8\,Aa^2b^{13})}{a^7b^{21}}\right)+\frac{143\,(13\,Ba^4b^{12}-8\,Aa^3b^{13})}{a^7b^{21}}\right)-\frac{429\,(13\,Ba^5b^{12}-8\,Aa^4b^{13})}{a^7b^{21}}\right)\cdots}{11070259200\,((bx+a)b-ab)^{\frac{13}{2}}\,|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/x^(15/2),x, algorithm="giac")
```

```
[Out] -1/11070259200*((2*(b*x + a)*(4*(b*x + a)*(2*(13*B*a^2*b^12 - 8*A
*a*b^13)*(b*x + a)/(a^7*b^21) - 13*(13*B*a^3*b^12 - 8*A*a^2*b^13)
/(a^7*b^21)) + 143*(13*B*a^4*b^12 - 8*A*a^3*b^13)/(a^7*b^21)) - 4
29*(13*B*a^5*b^12 - 8*A*a^4*b^13)/(a^7*b^21))*(b*x + a) + 3003*(B
*a^6*b^12 - A*a^5*b^13)/(a^7*b^21))*(b*x + a)^(5/2)*b/(((b*x + a)
*b - a*b)^(13/2)*abs(b))
```

3.489 $\int \frac{(a+bx)^{3/2}(A+Bx)}{x^{17/2}} dx$

Optimal. Leaf size=183

$$\frac{256b^4(a+bx)^{5/2}(2Ab-3aB)}{45045a^6x^{5/2}}-\frac{128b^3(a+bx)^{5/2}(2Ab-3aB)}{9009a^5x^{7/2}}+\frac{32b^2(a+bx)^{5/2}(2Ab-3aB)}{1287a^4x^{9/2}}-\frac{16b(a+bx)^{5/2}(2Ab-3aB)}{429a^3x^{11/2}}+\frac{2(a+bx)^{5/2}(2Ab-3aB)}{39a^2x^{13/2}}-\frac{2A(a+bx)^{5/2}}{15ax^{15/2}}$$

```
[Out] (-2*A*(a + b*x)^(5/2))/(15*a*x^(15/2)) + (2*(2*A*b - 3*a*B)*(a +
b*x)^(5/2))/(39*a^2*x^(13/2)) - (16*b*(2*A*b - 3*a*B)*(a + b*x)^(
5/2))/(429*a^3*x^(11/2)) + (32*b^2*(2*A*b - 3*a*B)*(a + b*x)^(5/2
))/(1287*a^4*x^(9/2)) - (128*b^3*(2*A*b - 3*a*B)*(a + b*x)^(5/2))
/(9009*a^5*x^(7/2)) + (256*b^4*(2*A*b - 3*a*B)*(a + b*x)^(5/2))/(
45045*a^6*x^(5/2))
```

Rubi [A] time = 0.214292, antiderivative size = 183, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.15$

$$\frac{256b^4(a+bx)^{5/2}(2Ab-3aB)}{45045a^6x^{5/2}}-\frac{128b^3(a+bx)^{5/2}(2Ab-3aB)}{9009a^5x^{7/2}}+\frac{32b^2(a+bx)^{5/2}(2Ab-3aB)}{1287a^4x^{9/2}}-\frac{16b(a+bx)^{5/2}(2Ab-3aB)}{429a^3x^{11/2}}+\frac{2(a+bx)^{5/2}(2Ab-3aB)}{39a^2x^{13/2}}-\frac{2A(a+bx)^{5/2}}{15ax^{15/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(3/2)*(A + B*x))/x^(17/2),x]
```

```
[Out] (-2*A*(a + b*x)^(5/2))/(15*a*x^(15/2)) + (2*(2*A*b - 3*a*B)*(a +
b*x)^(5/2))/(39*a^2*x^(13/2)) - (16*b*(2*A*b - 3*a*B)*(a + b*x)^(
5/2))/(429*a^3*x^(11/2)) + (32*b^2*(2*A*b - 3*a*B)*(a + b*x)^(5/2
))/(1287*a^4*x^(9/2)) - (128*b^3*(2*A*b - 3*a*B)*(a + b*x)^(5/2))
/(9009*a^5*x^(7/2)) + (256*b^4*(2*A*b - 3*a*B)*(a + b*x)^(5/2))/(
45045*a^6*x^(5/2))
```

Rubi in Sympy [A] time = 20.0904, size = 184, normalized size = 1.01

$$-\frac{2A\left(a+bx\right)^{\frac{5}{2}}}{15ax^{\frac{15}{2}}}+\frac{4\left(a+bx\right)^{\frac{5}{2}}\left(Ab-\frac{3Ba}{2}\right)}{39a^2x^{\frac{13}{2}}}-\frac{16b\left(a+bx\right)^{\frac{5}{2}}\left(2Ab-3Ba\right)}{429a^3x^{\frac{11}{2}}}+\frac{64b^2\left(a+bx\right)^{\frac{5}{2}}\left(Ab-\frac{3Ba}{2}\right)}{1287a^4x^{\frac{9}{2}}}-\frac{256b^3\left(a+bx\right)^{\frac{5}{2}}\left(Ab-\frac{3Ba}{2}\right)}{9009a^5x^{\frac{7}{2}}}+\frac{512b^4\left(a+bx\right)^{\frac{5}{2}}\left(Ab-\frac{3Ba}{2}\right)}{45045a^6x^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(B*x+A)/x**(17/2),x)
```

```
[Out] -2*A*(a + b*x)**(5/2)/(15*a*x**(15/2)) + 4*(a + b*x)**(5/2)*(A*b
- 3*B*a/2)/(39*a**2*x**(13/2)) - 16*b*(a + b*x)**(5/2)*(2*A*b - 3
*B*a)/(429*a**3*x**(11/2)) + 64*b**2*(a + b*x)**(5/2)*(A*b - 3*B*
a/2)/(1287*a**4*x**(9/2)) - 256*b**3*(a + b*x)**(5/2)*(A*b - 3*B*
a/2)/(9009*a**5*x**(7/2)) + 512*b**4*(a + b*x)**(5/2)*(A*b - 3*B*
a/2)/(45045*a**6*x**(5/2))
```

Mathematica [A] time = 0.145874, size = 111, normalized size = 0.61

$$-\frac{2(a+bx)^{5/2}\left(231a^5(13A+15Bx)-210a^4bx(11A+12Bx)+1680a^3b^2x^2(A+Bx)-160a^2b^3x^3(7A+6Bx)+128ab^4x^4(5A+\right.}{45045a^6x^{15/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(3/2)*(A + B*x))/x^(17/2),x]
```

```
[Out] (-2*(a + b*x)^(5/2)*(-256*A*b^5*x^5 + 1680*a^3*b^2*x^2*(A + B*x)
+ 128*a*b^4*x^4*(5*A + 3*B*x) - 160*a^2*b^3*x^3*(7*A + 6*B*x) - 2
10*a^4*b*x*(11*A + 12*B*x) + 231*a^5*(13*A + 15*B*x)))/(45045*a^6
*x^(15/2))
```

Maple [A] time = 0.01, size = 125, normalized size = 0.7

$$-\frac{-512\,Ab^5x^5+768\,Bx^5ab^4+1280\,aAb^4x^4-1920\,Bx^4a^2b^3-2240\,a^2Ab^3x^3+3360\,Bx^3a^3b^2+3360\,a^3Ab^2x^2-5040\,Bx^2a^4b}{45045\,a^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(B*x+A)/x^(17/2),x)
```

```
[Out] -2/45045*(b*x+a)^(5/2)*(-256*A*b^5*x^5+384*B*a*b^4*x^5+640*A*a*b^
4*x^4-960*B*a^2*b^3*x^4-1120*A*a^2*b^3*x^3+1680*B*a^3*b^2*x^3+168
0*A*a^3*b^2*x^2-2520*B*a^4*b*x^2-2310*A*a^4*b*x+3465*B*a^5*x+3003
*A*a^5)/x^(15/2)/a^6
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/x^(17/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.23084, size = 234, normalized size = 1.28

$$-\frac{2\,\left(3003\,Aa^7+128\,\left(3\,Bab^6-2\,Ab^7\right)x^7-64\,\left(3\,Ba^2b^5-2\,Aab^6\right)x^6+48\,\left(3\,Ba^3b^4-2\,Aa^2b^5\right)x^5-40\,\left(3\,Ba^4b^3-2\,Aa^3b^4\right)x^4}{45045\,a^6x^{\frac{15}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/x^(17/2),x, algorithm="fricas")
```

```
[Out] -2/45045*(3003*A*a^7 + 128*(3*B*a*b^6 - 2*A*b^7)*x^7 - 64*(3*B*a^
2*b^5 - 2*A*a*b^6)*x^6 + 48*(3*B*a^3*b^4 - 2*A*a^2*b^5)*x^5 - 40*
(3*B*a^4*b^3 - 2*A*a^3*b^4)*x^4 + 35*(3*B*a^5*b^2 - 2*A*a^4*b^3)*
x^3 + 63*(70*B*a^6*b + A*a^5*b^2)*x^2 + 231*(15*B*a^7 + 16*A*a^6*
b)*x)*sqrt(b*x + a)/(a^6*x^(15/2))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)*(B*x+A)/x**(17/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.245918, size = 302, normalized size = 1.65

$$\frac{\left(\left(8\left(2\,(bx+a)\left(4\,(bx+a)\left(\frac{2\,(3\,Ba^2b^{14}-2\,Aab^{15})(bx+a)}{a^8b^{24}}-\frac{15\,(3\,Ba^3b^{14}-2\,Aa^2b^{15})}{a^8b^{24}}\right)+\frac{195\,(3\,Ba^4b^{14}-2\,Aa^3b^{15})}{a^8b^{24}}\right)-\frac{715\,(3\,Ba^5b^{14}-2\,Aa^4b^{15})}{a^8b^{24}}\right)(b\cdots}{2952069120\,((bx+a)b-ab)^{\frac{15}{2}}\,|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/x^(17/2),x, algorithm="giac")
```

```
[Out] 1/2952069120*((8*(2*(b*x + a)*(4*(b*x + a)*(2*(3*B*a^2*b^14 - 2*A
*a*b^15)*(b*x + a)/(a^8*b^24) - 15*(3*B*a^3*b^14 - 2*A*a^2*b^15)/
(a^8*b^24)) + 195*(3*B*a^4*b^14 - 2*A*a^3*b^15)/(a^8*b^24)) - 715
*(3*B*a^5*b^14 - 2*A*a^4*b^15)/(a^8*b^24))*(b*x + a) + 6435*(3*B*
a^6*b^14 - 2*A*a^5*b^15)/(a^8*b^24))*(b*x + a) - 9009*(B*a^7*b^14
 - A*a^6*b^15)/(a^8*b^24))*(b*x + a)^(5/2)*b/(((b*x + a)*b - a*b)
^(15/2)*abs(b))
```

3.490 $\int x^{3/2}(a+bx)^{5/2}(A+Bx)\,dx$

Optimal. Leaf size=225

$$\frac{a^5(12Ab-5aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{512b^{7/2}}-\frac{a^4\sqrt{x}\sqrt{a+bx}(12Ab-5aB)}{512b^3}+\frac{a^3x^{3/2}\sqrt{a+bx}(12Ab-5aB)}{768b^2}+\frac{a^2x^{5/2}\sqrt{a+bx}(12Ab-5aB)}{192b}+\frac{ax^{5/2}(a+bx)^{3/2}(12Ab-5aB)}{96b}+\frac{x^{5/2}(a+bx)^{5/2}(12Ab-5aB)}{60b}+\frac{Bx^{5/2}(a+bx)^{7/2}}{6b}$$

```
[Out] -(a^4*(12*A*b - 5*a*B)*Sqrt[x]*Sqrt[a + b*x])/(512*b^3) + (a^3*(1
2*A*b - 5*a*B)*x^(3/2)*Sqrt[a + b*x])/(768*b^2) + (a^2*(12*A*b -
5*a*B)*x^(5/2)*Sqrt[a + b*x])/(192*b) + (a*(12*A*b - 5*a*B)*x^(5/
2)*(a + b*x)^(3/2))/(96*b) + ((12*A*b - 5*a*B)*x^(5/2)*(a + b*x)^
(5/2))/(60*b) + (B*x^(5/2)*(a + b*x)^(7/2))/(6*b) + (a^5*(12*A*b
- 5*a*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a + b*x]])/(512*b^(7/2))
```

Rubi [A] time = 0.268074, antiderivative size = 225, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.2

$$\frac{a^5(12Ab-5aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{512b^{7/2}}-\frac{a^4\sqrt{x}\sqrt{a+bx}(12Ab-5aB)}{512b^3}+\frac{a^3x^{3/2}\sqrt{a+bx}(12Ab-5aB)}{768b^2}+\frac{a^2x^{5/2}\sqrt{a+bx}(12Ab-5aB)}{192b}+\frac{ax^{5/2}(a+bx)^{3/2}(12Ab-5aB)}{96b}+\frac{x^{5/2}(a+bx)^{5/2}(12Ab-5aB)}{60b}+\frac{Bx^{5/2}(a+bx)^{7/2}}{6b}$$

Antiderivative was successfully verified.

```
[In]  Int[x^(3/2)*(a + b*x)^(5/2)*(A + B*x),x]
```

```
[Out] -(a^4*(12*A*b - 5*a*B)*Sqrt[x]*Sqrt[a + b*x])/(512*b^3) + (a^3*(1
2*A*b - 5*a*B)*x^(3/2)*Sqrt[a + b*x])/(768*b^2) + (a^2*(12*A*b -
5*a*B)*x^(5/2)*Sqrt[a + b*x])/(192*b) + (a*(12*A*b - 5*a*B)*x^(5/
2)*(a + b*x)^(3/2))/(96*b) + ((12*A*b - 5*a*B)*x^(5/2)*(a + b*x)^
(5/2))/(60*b) + (B*x^(5/2)*(a + b*x)^(7/2))/(6*b) + (a^5*(12*A*b
- 5*a*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a + b*x]])/(512*b^(7/2))
```

Rubi in Sympy [A] time = 26.2375, size = 214, normalized size = 0.95

$$\frac{Bx^{\frac{5}{2}}\left(a+bx\right)^{\frac{7}{2}}}{6b}+\frac{a^5\left(12Ab-5Ba\right)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{512b^{\frac{7}{2}}}+\frac{a^4\sqrt{x}\sqrt{a+bx}\left(12Ab-5Ba\right)}{512b^3}+\frac{a^3\sqrt{x}\left(a+bx\right)^{\frac{3}{2}}\left(12Ab-5Ba\right)}{768b^3}+\frac{a^2\sqrt{x}\left(a+bx\right)^{\frac{5}{2}}\left(12Ab-5Ba\right)}{960b^3}-\frac{a\sqrt{x}\left(a+bx\right)^{\frac{7}{2}}\left(12Ab-5Ba\right)}{160b^3}+\frac{x^{\frac{3}{2}}\left(a+bx\right)^{\frac{7}{2}}\left(12Ab-5Ba\right)}{60b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**(3/2)*(b*x+a)**(5/2)*(B*x+A),x)
```

```
[Out] B*x**(5/2)*(a + b*x)**(7/2)/(6*b) + a**5*(12*A*b - 5*B*a)*atanh(s
qrt(b)*sqrt(x)/sqrt(a + b*x))/(512*b**(7/2)) + a**4*sqrt(x)*sqrt(
a + b*x)*(12*A*b - 5*B*a)/(512*b**3) + a**3*sqrt(x)*(a + b*x)**(3
/2)*(12*A*b - 5*B*a)/(768*b**3) + a**2*sqrt(x)*(a + b*x)**(5/2)*(
12*A*b - 5*B*a)/(960*b**3) - a*sqrt(x)*(a + b*x)**(7/2)*(12*A*b -
 5*B*a)/(160*b**3) + x**(3/2)*(a + b*x)**(7/2)*(12*A*b - 5*B*a)/(
```

```
60*b**2)
```

Mathematica [A] time = 0.195294, size = 157, normalized size = 0.7

$$\frac{15a^5(12Ab-5aB)\log\left(\sqrt{b}\sqrt{a+bx}+b\sqrt{x}\right)+\sqrt{b}\sqrt{x}\sqrt{a+bx}\left(75a^5B-10a^4b(18A+5Bx)+40a^3b^2x(3A+Bx)+48a^2b^3x^2(6\right.}{7680b^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^(3/2)*(a + b*x)^(5/2)*(A + B*x),x]
```

```
[Out] (Sqrt[b]*Sqrt[x]*Sqrt[a + b*x]*(75*a^5*B + 40*a^3*b^2*x*(3*A + B*
x) + 256*b^5*x^4*(6*A + 5*B*x) - 10*a^4*b*(18*A + 5*B*x) + 48*a^2
*b^3*x^2*(62*A + 45*B*x) + 64*a*b^4*x^3*(63*A + 50*B*x)) + 15*a^5
*(12*A*b - 5*a*B)*Log[b*Sqrt[x] + Sqrt[b]*Sqrt[a + b*x]])/(7680*b
^(7/2))
```

Maple [A] time = 0.02, size = 302, normalized size = 1.3

$$\frac{1}{15360}\sqrt{x}\sqrt{bx+a}\left(2560\,Bx^5b^{11/2}\sqrt{x\,(bx+a)}+3072\,Ax^4b^{11/2}\sqrt{x\,(bx+a)}+6400\,Bx^4ab^{9/2}\sqrt{x\,(bx+a)}+8064\,Ax^3ab^{9/2}\sqrt{x\,(\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^(3/2)*(b*x+a)^(5/2)*(B*x+A),x)
```

```
[Out] 1/15360*x^(1/2)*(b*x+a)^(1/2)/b^(7/2)*(2560*B*x^5*b^(11/2)*(x*(b*
x+a))^(1/2)+3072*A*x^4*b^(11/2)*(x*(b*x+a))^(1/2)+6400*B*x^4*a*b^
(9/2)*(x*(b*x+a))^(1/2)+8064*A*x^3*a*b^(9/2)*(x*(b*x+a))^(1/2)+43
20*B*x^3*a^2*b^(7/2)*(x*(b*x+a))^(1/2)+5952*A*x^2*a^2*b^(7/2)*(x*
(b*x+a))^(1/2)+80*B*x^2*a^3*b^(5/2)*(x*(b*x+a))^(1/2)+240*a^3*(x*
(b*x+a))^(1/2)*x*A*b^(5/2)-100*a^4*(x*(b*x+a))^(1/2)*x*B*b^(3/2)+
180*a^5*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))*A*b
-360*a^4*(x*(b*x+a))^(1/2)*A*b^(3/2)-75*a^6*ln(1/2*(2*(x*(b*x+a))
^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))*B+150*a^5*(x*(b*x+a))^(1/2)*B*b^
(1/2))/(x*(b*x+a))^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)*x^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.242619, size = 1, normalized size = 0.

$$\left[\frac{2\left(1280\,Bb^5x^5+75\,Ba^5-180\,Aa^4b+128\left(25\,Bab^4+12\,Ab^5\right)x^4+144\left(15\,Ba^2b^3+28\,Aab^4\right)x^3+8\left(5\,Ba^3b^2+372\,Aa^2b^3\right)x^2\right.}{15360\,b^{\frac{7}{2}}}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)*x^(3/2),x, algorithm="fricas")
```

```
[Out] [1/15360*(2*(1280*B*b^5*x^5 + 75*B*a^5 - 180*A*a^4*b + 128*(25*B*
a*b^4 + 12*A*b^5)*x^4 + 144*(15*B*a^2*b^3 + 28*A*a*b^4)*x^3 + 8*(
5*B*a^3*b^2 + 372*A*a^2*b^3)*x^2 - 10*(5*B*a^4*b - 12*A*a^3*b^2)*
x)*sqrt(b*x + a)*sqrt(b)*sqrt(x) - 15*(5*B*a^6 - 12*A*a^5*b)*log(
2*sqrt(b*x + a)*b*sqrt(x) + (2*b*x + a)*sqrt(b)))/b^(7/2), 1/7680
*((1280*B*b^5*x^5 + 75*B*a^5 - 180*A*a^4*b + 128*(25*B*a*b^4 + 12
*A*b^5)*x^4 + 144*(15*B*a^2*b^3 + 28*A*a*b^4)*x^3 + 8*(5*B*a^3*b^
2 + 372*A*a^2*b^3)*x^2 - 10*(5*B*a^4*b - 12*A*a^3*b^2)*x)*sqrt(b*
x + a)*sqrt(-b)*sqrt(x) - 15*(5*B*a^6 - 12*A*a^5*b)*arctan(sqrt(b
*x + a)*sqrt(-b)/(b*sqrt(x))))/(sqrt(-b)*b^3)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**(3/2)*(b*x+a)**(5/2)*(B*x+A),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)*x^(3/2),x, algorithm="giac")
```

```
[Out] Timed out
```

3.491 $\int \sqrt{x}(a+bx)^{5/2}(A+Bx)\,dx$

Optimal. Leaf size=192

$$-\frac{a^4(10Ab-3aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{128b^{5/2}}+\frac{a^3\sqrt{x}\sqrt{a+bx}(10Ab-3aB)}{128b^2}+\frac{a^2x^{3/2}\sqrt{a+bx}(10Ab-3aB)}{64b}+\frac{ax^{3/2}(a+bx)^{3/2}(10Ab-3aB)}{48b}+\frac{x^{3/2}(a+bx)^{5/2}(10Ab-3aB)}{40b}+\frac{Bx^{3/2}(a+bx)^{7/2}}{5b}$$

```
[Out] (a^3*(10*A*b - 3*a*B)*Sqrt[x]*Sqrt[a + b*x])/(128*b^2) + (a^2*(10
*A*b - 3*a*B)*x^(3/2)*Sqrt[a + b*x])/(64*b) + (a*(10*A*b - 3*a*B)
*x^(3/2)*(a + b*x)^(3/2))/(48*b) + ((10*A*b - 3*a*B)*x^(3/2)*(a +
 b*x)^(5/2))/(40*b) + (B*x^(3/2)*(a + b*x)^(7/2))/(5*b) - (a^4*(1
0*A*b - 3*a*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a + b*x]])/(128*b^(
5/2))
```

Rubi [A] time = 0.216913, antiderivative size = 192, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.2$

$$-\frac{a^4(10Ab-3aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{128b^{5/2}}+\frac{a^3\sqrt{x}\sqrt{a+bx}(10Ab-3aB)}{128b^2}+\frac{a^2x^{3/2}\sqrt{a+bx}(10Ab-3aB)}{64b}+\frac{ax^{3/2}(a+bx)^{3/2}(10Ab-3aB)}{48b}+\frac{x^{3/2}(a+bx)^{5/2}(10Ab-3aB)}{40b}+\frac{Bx^{3/2}(a+bx)^{7/2}}{5b}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[x]*(a + b*x)^(5/2)*(A + B*x),x]
```

```
[Out] (a^3*(10*A*b - 3*a*B)*Sqrt[x]*Sqrt[a + b*x])/(128*b^2) + (a^2*(10
*A*b - 3*a*B)*x^(3/2)*Sqrt[a + b*x])/(64*b) + (a*(10*A*b - 3*a*B)
*x^(3/2)*(a + b*x)^(3/2))/(48*b) + ((10*A*b - 3*a*B)*x^(3/2)*(a +
 b*x)^(5/2))/(40*b) + (B*x^(3/2)*(a + b*x)^(7/2))/(5*b) - (a^4*(1
0*A*b - 3*a*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a + b*x]])/(128*b^(
5/2))
```

Rubi in Sympy [A] time = 20.5505, size = 182, normalized size = 0.95

$$\frac{Bx^{\frac{3}{2}}(a+bx)^{\frac{7}{2}}}{5b}-\frac{a^4(10Ab-3Ba)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{128b^{\frac{5}{2}}}-\frac{a^3\sqrt{x}\sqrt{a+bx}(10Ab-3Ba)}{128b^2}-\frac{a^2\sqrt{x}(a+bx)^{\frac{3}{2}}(10Ab-3Ba)}{192b^2}-\frac{a\sqrt{x}(a+bx)^{\frac{5}{2}}(10Ab-3Ba)}{240b^2}+\frac{\sqrt{x}(a+bx)^{\frac{7}{2}}(10Ab-3Ba)}{40b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(B*x+A)*x**(1/2),x)
```

```
[Out] B*x**(3/2)*(a + b*x)**(7/2)/(5*b) - a**4*(10*A*b - 3*B*a)*atanh(s
qrt(b)*sqrt(x)/sqrt(a + b*x))/(128*b**(5/2)) - a**3*sqrt(x)*sqrt(
a + b*x)*(10*A*b - 3*B*a)/(128*b**2) - a**2*sqrt(x)*(a + b*x)**(3
/2)*(10*A*b - 3*B*a)/(192*b**2) - a*sqrt(x)*(a + b*x)**(5/2)*(10*
A*b - 3*B*a)/(240*b**2) + sqrt(x)*(a + b*x)**(7/2)*(10*A*b - 3*B*
a)/(40*b**2)
```

Mathematica [A] time = 0.16678, size = 138, normalized size = 0.72

$$\frac{15a^4(3aB-10Ab)\log\left(\sqrt{b}\sqrt{a+bx}+b\sqrt{x}\right)+\sqrt{b}\sqrt{x}\sqrt{a+bx}\left(-45a^4B+30a^3b(5A+Bx)+4a^2b^2x(295A+186Bx)+16ab^3x^2\right.}{1920b^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[x]*(a + b*x)^(5/2)*(A + B*x),x]
```

```
[Out] (Sqrt[b]*Sqrt[x]*Sqrt[a + b*x]*(-45*a^4*B + 30*a^3*b*(5*A + B*x)
+ 96*b^4*x^3*(5*A + 4*B*x) + 16*a*b^3*x^2*(85*A + 63*B*x) + 4*a^2
*b^2*x*(295*A + 186*B*x)) + 15*a^4*(-10*A*b + 3*a*B)*Log[b*Sqrt[x
] + Sqrt[b]*Sqrt[a + b*x]])/(1920*b^(5/2))
```

Maple [A] time = 0.017, size = 260, normalized size = 1.4

$$-\frac{1}{3840}\sqrt{bx+a}\sqrt{x}\left(-768\,Bx^4b^{9/2}\sqrt{x(bx+a)}-960\,Ax^3b^{9/2}\sqrt{x(bx+a)}-2016\,Bx^3ab^{7/2}\sqrt{x(bx+a)}-2720\,Ax^2ab^{7/2}\sqrt{x(b\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(B*x+A)*x^(1/2),x)
```

```
[Out] -1/3840*(b*x+a)^(1/2)*x^(1/2)/b^(5/2)*(-768*B*x^4*b^(9/2)*(x*(b*x
+a))^(1/2)-960*A*x^3*b^(9/2)*(x*(b*x+a))^(1/2)-2016*B*x^3*a*b^(7/
2)*(x*(b*x+a))^(1/2)-2720*A*x^2*a*b^(7/2)*(x*(b*x+a))^(1/2)-1488*
B*x^2*a^2*b^(5/2)*(x*(b*x+a))^(1/2)-2360*A*a^2*(x*(b*x+a))^(1/2)*
x*b^(5/2)-60*B*a^3*(x*(b*x+a))^(1/2)*x*b^(3/2)+150*A*a^4*ln(1/2*(
2*(x*(b*x+a))^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))*b-300*A*a^3*(x*(b*x
+a))^(1/2)*b^(3/2)-45*B*a^5*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1/2)+2
*b*x+a)/b^(1/2))+90*B*a^4*(x*(b*x+a))^(1/2)*b^(1/2))/(x*(b*x+a))^
(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)*sqrt(x),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.246532, size = 1, normalized size = 0.01

$$\left[\frac{2\left(384\,Bb^4x^4-45\,Ba^4+150\,Aa^3b+48\left(21\,Bab^3+10\,Ab^4\right)x^3+8\left(93\,Ba^2b^2+170\,Aab^3\right)x^2+10\left(3\,Ba^3b+118\,Aa^2b^2\right)x\right)\sqrt{b}}{3840\,b^{\frac{5}{2}}}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)*sqrt(x),x, algorithm="fricas")
```

```
[Out] [1/3840*(2*(384*B*b^4*x^4 - 45*B*a^4 + 150*A*a^3*b + 48*(21*B*a*b
^3 + 10*A*b^4)*x^3 + 8*(93*B*a^2*b^2 + 170*A*a*b^3)*x^2 + 10*(3*B
*a^3*b + 118*A*a^2*b^2)*x)*sqrt(b*x + a)*sqrt(b)*sqrt(x) - 15*(3*
B*a^5 - 10*A*a^4*b)*log(-2*sqrt(b*x + a)*b*sqrt(x) + (2*b*x + a)*
sqrt(b)))/b^(5/2), 1/1920*((384*B*b^4*x^4 - 45*B*a^4 + 150*A*a^3*
b + 48*(21*B*a*b^3 + 10*A*b^4)*x^3 + 8*(93*B*a^2*b^2 + 170*A*a*b^
3)*x^2 + 10*(3*B*a^3*b + 118*A*a^2*b^2)*x)*sqrt(b*x + a)*sqrt(-b)
*sqrt(x) + 15*(3*B*a^5 - 10*A*a^4*b)*arctan(sqrt(b*x + a)*sqrt(-b
)/(b*sqrt(x))))/(sqrt(-b)*b^2)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(B*x+A)*x**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)*sqrt(x),x, algorithm="giac")
```

```
[Out] Timed out
```

3.492 $\int \frac{(a+bx)^{5/2}(A+Bx)}{\sqrt{x}}\,dx$

Optimal. Leaf size=159

$$\frac{5a^3(8Ab-aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{64b^{3/2}}+\frac{5a^2\sqrt{x}\sqrt{a+bx}(8Ab-aB)}{64b}+\frac{\sqrt{x}(a+bx)^{5/2}(8Ab-aB)}{24b}+\frac{5a\sqrt{x}(a+bx)^{3/2}(8Ab-aB)}{96b}+\frac{B\sqrt{x}(a+bx)^{7/2}}{4b}$$

```
[Out] (5*a^2*(8*A*b - a*B)*Sqrt[x]*Sqrt[a + b*x])/(64*b) + (5*a*(8*A*b
- a*B)*Sqrt[x]*(a + b*x)^(3/2))/(96*b) + ((8*A*b - a*B)*Sqrt[x]*(
a + b*x)^(5/2))/(24*b) + (B*Sqrt[x]*(a + b*x)^(7/2))/(4*b) + (5*a
^3*(8*A*b - a*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a + b*x]])/(64*b^
(3/2))
```

Rubi [A] time = 0.175914, antiderivative size = 159, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.2

$$\frac{5a^3(8Ab-aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{64b^{3/2}}+\frac{5a^2\sqrt{x}\sqrt{a+bx}(8Ab-aB)}{64b}+\frac{\sqrt{x}(a+bx)^{5/2}(8Ab-aB)}{24b}+\frac{5a\sqrt{x}(a+bx)^{3/2}(8Ab-aB)}{96b}+\frac{B\sqrt{x}(a+bx)^{7/2}}{4b}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(5/2)*(A + B*x))/Sqrt[x],x]
```

```
[Out] (5*a^2*(8*A*b - a*B)*Sqrt[x]*Sqrt[a + b*x])/(64*b) + (5*a*(8*A*b
- a*B)*Sqrt[x]*(a + b*x)^(3/2))/(96*b) + ((8*A*b - a*B)*Sqrt[x]*(
a + b*x)^(5/2))/(24*b) + (B*Sqrt[x]*(a + b*x)^(7/2))/(4*b) + (5*a
^3*(8*A*b - a*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a + b*x]])/(64*b^
(3/2))
```

Rubi in Sympy [A] time = 15.4212, size = 143, normalized size = 0.9

$$\frac{B\sqrt{x}\,(a+bx)^{\frac{7}{2}}}{4b}+\frac{5a^3\,(8Ab-Ba)\,\mathrm{atanh}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{64b^{\frac{3}{2}}}+\frac{5a^2\sqrt{x}\sqrt{a+bx}\,(8Ab-Ba)}{64b}+\frac{5a\sqrt{x}\,(a+bx)^{\frac{3}{2}}\,(8Ab-Ba)}{96b}+\frac{\sqrt{x}\,(a+bx)^{\frac{5}{2}}\,(8Ab-Ba)}{24b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(B*x+A)/x**(1/2),x)
```

```
[Out] B*sqrt(x)*(a + b*x)**(7/2)/(4*b) + 5*a**3*(8*A*b - B*a)*atanh(sqr
t(b)*sqrt(x)/sqrt(a + b*x))/(64*b**(3/2)) + 5*a**2*sqrt(x)*sqrt(a
 + b*x)*(8*A*b - B*a)/(64*b) + 5*a*sqrt(x)*(a + b*x)**(3/2)*(8*A*
b - B*a)/(96*b) + sqrt(x)*(a + b*x)**(5/2)*(8*A*b - B*a)/(24*b)
```

Mathematica [A] time = 0.137843, size = 119, normalized size = 0.75

$$\frac{\sqrt{b}\sqrt{x}\sqrt{a+bx}\left(15a^3B+2a^2b(132A+59Bx)+8ab^2x(26A+17Bx)+16b^3x^2(4A+3Bx)\right)-15a^3(aB-8Ab)\log\left(\sqrt{b}\sqrt{a+bx}\right.}{192b^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(5/2)*(A + B*x))/Sqrt[x],x]
```

```
[Out] (Sqrt[b]*Sqrt[x]*Sqrt[a + b*x]*(15*a^3*B + 16*b^3*x^2*(4*A + 3*B*
x) + 8*a*b^2*x*(26*A + 17*B*x) + 2*a^2*b*(132*A + 59*B*x)) - 15*a
^3*(-8*A*b + a*B)*Log[b*Sqrt[x] + Sqrt[b]*Sqrt[a + b*x]])/(192*b^
(3/2))
```

Maple [A] time = 0.019, size = 218, normalized size = 1.4

$$\frac{1}{384}\sqrt{bx+a}\sqrt{x}\left(96\,Bx^3b^{7/2}\sqrt{x\,(bx+a)}+128\,Ax^2b^{7/2}\sqrt{x\,(bx+a)}+272\,Bx^2ab^{5/2}\sqrt{x\,(bx+a)}+416\,Aax\sqrt{x\,(bx+a)}b^{5/2}+2\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(B*x+A)/x^(1/2),x)
```

```
[Out] 1/384*(b*x+a)^(1/2)*x^(1/2)/b^(3/2)*(96*B*x^3*b^(7/2)*(x*(b*x+a))
^(1/2)+128*A*x^2*b^(7/2)*(x*(b*x+a))^(1/2)+272*B*x^2*a*b^(5/2)*(x
*(b*x+a))^(1/2)+416*A*a*x*(x*(b*x+a))^(1/2)*b^(5/2)+236*B*a^2*x*(
x*(b*x+a))^(1/2)*b^(3/2)+120*A*a^3*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^
(1/2)+2*b*x+a)/b^(1/2))*b+528*A*a^2*(x*(b*x+a))^(1/2)*b^(3/2)-15*
B*a^4*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))+30*B*
a^3*(x*(b*x+a))^(1/2)*b^(1/2))/(x*(b*x+a))^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/sqrt(x),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.237794, size = 1, normalized size = 0.01

$$\left[\frac{2\left(48\,Bb^3x^3+15\,Ba^3+264\,Aa^2b+8\left(17\,Bab^2+8\,Ab^3\right)x^2+2\left(59\,Ba^2b+104\,Aab^2\right)x\right)\sqrt{bx+a}\sqrt{b}\sqrt{x}-15\left(Ba^4-8\,Aa^3b\right)\,\mathrm{l}}{384\,b^{\frac{3}{2}}}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/sqrt(x),x, algorithm="fricas")
```

```
[Out] [1/384*(2*(48*B*b^3*x^3 + 15*B*a^3 + 264*A*a^2*b + 8*(17*B*a*b^2
+ 8*A*b^3)*x^2 + 2*(59*B*a^2*b + 104*A*a*b^2)*x)*sqrt(b*x + a)*sq
rt(b)*sqrt(x) - 15*(B*a^4 - 8*A*a^3*b)*log(2*sqrt(b*x + a)*b*sqrt
(x) + (2*b*x + a)*sqrt(b)))/b^(3/2), 1/192*((48*B*b^3*x^3 + 15*B*
a^3 + 264*A*a^2*b + 8*(17*B*a*b^2 + 8*A*b^3)*x^2 + 2*(59*B*a^2*b
+ 104*A*a*b^2)*x)*sqrt(b*x + a)*sqrt(-b)*sqrt(x) - 15*(B*a^4 - 8*
A*a^3*b)*arctan(sqrt(b*x + a)*sqrt(-b)/(b*sqrt(x))))/(sqrt(-b)*b)
]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(B*x+A)/x**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/sqrt(x),x, algorithm="giac")
```

```
[Out] Exception raised: NotImplementedError
```

3.493 $\int \frac{(a+bx)^{5/2}(A+Bx)}{x^{3/2}}\,dx$

Optimal. Leaf size=144

$$\frac{5a^2(aB+6Ab)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{8\sqrt{b}}+\frac{\sqrt{x}(a+bx)^{5/2}(aB+6Ab)}{3a}+\frac{5}{12}\sqrt{x}(a+bx)^{3/2}(aB+6Ab)+\frac{5}{8}a\sqrt{x}\sqrt{a+bx}(aB+6Ab)-\frac{2A(a+bx)^{7/2}}{a\sqrt{x}}$$

```
[Out] (5*a*(6*A*b + a*B)*Sqrt[x]*Sqrt[a + b*x])/8 + (5*(6*A*b + a*B)*Sq
rt[x]*(a + b*x)^(3/2))/12 + ((6*A*b + a*B)*Sqrt[x]*(a + b*x)^(5/2
))/(3*a) - (2*A*(a + b*x)^(7/2))/(a*Sqrt[x]) + (5*a^2*(6*A*b + a*
B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a + b*x]])/(8*Sqrt[b])
```

Rubi [A] time = 0.176545, antiderivative size = 144, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.2

$$\frac{5a^2(aB+6Ab)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{8\sqrt{b}}+\frac{\sqrt{x}(a+bx)^{5/2}(aB+6Ab)}{3a}+\frac{5}{12}\sqrt{x}(a+bx)^{3/2}(aB+6Ab)+\frac{5}{8}a\sqrt{x}\sqrt{a+bx}(aB+6Ab)-\frac{2A(a+bx)^{7/2}}{a\sqrt{x}}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(5/2)*(A + B*x))/x^(3/2),x]
```

```
[Out] (5*a*(6*A*b + a*B)*Sqrt[x]*Sqrt[a + b*x])/8 + (5*(6*A*b + a*B)*Sq
rt[x]*(a + b*x)^(3/2))/12 + ((6*A*b + a*B)*Sqrt[x]*(a + b*x)^(5/2
))/(3*a) - (2*A*(a + b*x)^(7/2))/(a*Sqrt[x]) + (5*a^2*(6*A*b + a*
B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a + b*x]])/(8*Sqrt[b])
```

Rubi in Sympy [A] time = 14.8557, size = 138, normalized size = 0.96

$$-\frac{2A(a+bx)^{\frac{7}{2}}}{a\sqrt{x}}+\frac{5a^2(6Ab+Ba)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{8\sqrt{b}}+\frac{5a\sqrt{x}\sqrt{a+bx}(6Ab+Ba)}{8}+\sqrt{x}(a+bx)^{\frac{3}{2}}\left(\frac{5Ab}{2}+\frac{5Ba}{12}\right)+\frac{\sqrt{x}(a+bx)^{\frac{5}{2}}(6Ab+Ba)}{3a}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(B*x+A)/x**(3/2),x)
```

```
[Out] -2*A*(a + b*x)**(7/2)/(a*sqrt(x)) + 5*a**2*(6*A*b + B*a)*atanh(sq
rt(b)*sqrt(x)/sqrt(a + b*x))/(8*sqrt(b)) + 5*a*sqrt(x)*sqrt(a + b
*x)*(6*A*b + B*a)/8 + sqrt(x)*(a + b*x)**(3/2)*(5*A*b/2 + 5*B*a/1
2) + sqrt(x)*(a + b*x)**(5/2)*(6*A*b + B*a)/(3*a)
```

Mathematica [A] time = 0.17596, size = 105, normalized size = 0.73

$$\frac{\sqrt{a+bx}\left(a^2(33Bx-48A)+2abx(27A+13Bx)+4b^2x^2(3A+2Bx)\right)}{24\sqrt{x}}+\frac{5a^2(aB+6Ab)\log\left(\sqrt{b}\sqrt{a+bx}+b\sqrt{x}\right)}{8\sqrt{b}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(5/2)*(A + B*x))/x^(3/2),x]
```

```
[Out] (Sqrt[a + b*x]*(4*b^2*x^2*(3*A + 2*B*x) + 2*a*b*x*(27*A + 13*B*x)
 + a^2*(-48*A + 33*B*x)))/(24*Sqrt[x]) + (5*a^2*(6*A*b + a*B)*Log
[b*Sqrt[x] + Sqrt[b]*Sqrt[a + b*x]])/(8*Sqrt[b])
```

Maple [A] time = 0.021, size = 202, normalized size = 1.4

$$\frac{1}{48}\sqrt{bx+a}\left(16\,Bx^3b^{5/2}\sqrt{x\,(bx+a)}+24\,b^{5/2}A\sqrt{x\,(bx+a)}x^2+52\,Bb^{3/2}a\sqrt{x\,(bx+a)}x^2+90\,bAa^2\ln\left(1/2\,\frac{2\,\sqrt{x\,(bx+a)}\sqrt{b}+\cdots}{\sqrt{b}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(B*x+A)/x^(3/2),x)
```

```
[Out] 1/48*(b*x+a)^(1/2)*(16*B*x^3*b^(5/2)*(x*(b*x+a))^(1/2)+24*b^(5/2)
*A*(x*(b*x+a))^(1/2)*x^2+52*B*b^(3/2)*a*(x*(b*x+a))^(1/2)*x^2+90*
b*A*a^2*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))*x+1
08*b^(3/2)*A*(x*(b*x+a))^(1/2)*a*x+15*B*a^3*ln(1/2*(2*(x*(b*x+a))
^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))*x+66*B*a^2*(x*(b*x+a))^(1/2)*x*b
^(1/2)-96*A*a^2*(x*(b*x+a))^(1/2)*b^(1/2))/x^(1/2)/(x*(b*x+a))^(1
/2)/b^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.244613, size = 1, normalized size = 0.01

$$\left[\frac{15\left(Ba^3+6\,Aa^2b\right)x\log\left(2\,\sqrt{bx+a}b\sqrt{x}+(2\,bx+a)\sqrt{b}\right)+2\left(8\,Bb^2x^3-48\,Aa^2+2\left(13\,Bab+6\,Ab^2\right)x^2+3\left(11\,Ba^2+18\,Aab\cdots\right.\right.}{48\,\sqrt{b}x}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^(3/2),x, algorithm="fricas")
```

```
[Out] [1/48*(15*(B*a^3 + 6*A*a^2*b)*x*log(2*sqrt(b*x + a)*b*sqrt(x) + (
2*b*x + a)*sqrt(b)) + 2*(8*B*b^2*x^3 - 48*A*a^2 + 2*(13*B*a*b + 6
*A*b^2)*x^2 + 3*(11*B*a^2 + 18*A*a*b)*x)*sqrt(b*x + a)*sqrt(b)*sq
rt(x))/(sqrt(b)*x), 1/24*(15*(B*a^3 + 6*A*a^2*b)*x*arctan(sqrt(b*
x + a)*sqrt(-b)/(b*sqrt(x))) + (8*B*b^2*x^3 - 48*A*a^2 + 2*(13*B*
a*b + 6*A*b^2)*x^2 + 3*(11*B*a^2 + 18*A*a*b)*x)*sqrt(b*x + a)*sqr
t(-b)*sqrt(x))/(sqrt(-b)*x)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(B*x+A)/x**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^(3/2),x, algorithm="giac")
```

```
[Out] Exception raised: NotImplementedError
```

3.494 $\int \frac{(a+bx)^{5/2}(A+Bx)}{x^{5/2}}\,dx$

Optimal. Leaf size=152

$$-\frac{2(a+bx)^{5/2}(3aB+4Ab)}{3a\sqrt{x}}+\frac{5b\sqrt{x}(a+bx)^{3/2}(3aB+4Ab)}{6a}+\frac{5}{4}b\sqrt{x}\sqrt{a+bx}(3aB+4Ab)+\frac{5}{4}a\sqrt{b}(3aB+4Ab)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)-\frac{2A(a+bx)^{7/2}}{3ax^{3/2}}$$

```
[Out] (5*b*(4*A*b + 3*a*B)*Sqrt[x]*Sqrt[a + b*x])/4 + (5*b*(4*A*b + 3*a
*B)*Sqrt[x]*(a + b*x)^(3/2))/(6*a) - (2*(4*A*b + 3*a*B)*(a + b*x)
^(5/2))/(3*a*Sqrt[x]) - (2*A*(a + b*x)^(7/2))/(3*a*x^(3/2)) + (5*
a*Sqrt[b]*(4*A*b + 3*a*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a + b*x]
])/4
```

Rubi [A] time = 0.173046, antiderivative size = 152, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.25$

$$-\frac{2(a+bx)^{5/2}(3aB+4Ab)}{3a\sqrt{x}}+\frac{5b\sqrt{x}(a+bx)^{3/2}(3aB+4Ab)}{6a}+\frac{5}{4}b\sqrt{x}\sqrt{a+bx}(3aB+4Ab)+\frac{5}{4}a\sqrt{b}(3aB+4Ab)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)-\frac{2A(a+bx)^{7/2}}{3ax^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(5/2)*(A + B*x))/x^(5/2),x]
```

```
[Out] (5*b*(4*A*b + 3*a*B)*Sqrt[x]*Sqrt[a + b*x])/4 + (5*b*(4*A*b + 3*a
*B)*Sqrt[x]*(a + b*x)^(3/2))/(6*a) - (2*(4*A*b + 3*a*B)*(a + b*x)
^(5/2))/(3*a*Sqrt[x]) - (2*A*(a + b*x)^(7/2))/(3*a*x^(3/2)) + (5*
a*Sqrt[b]*(4*A*b + 3*a*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a + b*x]
])/4
```

Rubi in Sympy [A] time = 14.9188, size = 148, normalized size = 0.97

$$-\frac{2A\left(a+bx\right)^{\frac{7}{2}}}{3ax^{\frac{3}{2}}}+\frac{5a\sqrt{b}\left(4Ab+3Ba\right)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{4}+\frac{5b\sqrt{x}\sqrt{a+bx}\left(4Ab+3Ba\right)}{4}+\frac{5b\sqrt{x}\left(a+bx\right)^{\frac{3}{2}}\left(4Ab+3Ba\right)}{6a}-\frac{2\left(a+bx\right)^{\frac{5}{2}}\left(4Ab+3Ba\right)}{3a\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(B*x+A)/x**(5/2),x)
```

```
[Out] -2*A*(a + b*x)**(7/2)/(3*a*x**(3/2)) + 5*a*sqrt(b)*(4*A*b + 3*B*a
)*atanh(sqrt(b)*sqrt(x)/sqrt(a + b*x))/4 + 5*b*sqrt(x)*sqrt(a + b
*x)*(4*A*b + 3*B*a)/4 + 5*b*sqrt(x)*(a + b*x)**(3/2)*(4*A*b + 3*B
*a)/(6*a) - 2*(a + b*x)**(5/2)*(4*A*b + 3*B*a)/(3*a*sqrt(x))
```

Mathematica [A] time = 0.164309, size = 101, normalized size = 0.66

$$\frac{\sqrt{a+bx}\left(-8a^2(A+3Bx)+abx(27Bx-56A)+6b^2x^2(2A+Bx)\right)}{12x^{3/2}}+\frac{5}{4}a\sqrt{b}(3aB+4Ab)\log\left(\sqrt{b}\sqrt{a+bx}+b\sqrt{x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(5/2)*(A + B*x))/x^(5/2),x]
```

```
[Out] (Sqrt[a + b*x]*(6*b^2*x^2*(2*A + B*x) - 8*a^2*(A + 3*B*x) + a*b*x
*(-56*A + 27*B*x)))/(12*x^(3/2)) + (5*a*Sqrt[b]*(4*A*b + 3*a*B)*L
og[b*Sqrt[x] + Sqrt[b]*Sqrt[a + b*x]])/4
```

Maple [A] time = 0.02, size = 196, normalized size = 1.3

$$\frac{1}{24}\sqrt{bx+a}\left(60\,ab^{3/2}\ln\left(1/2\,\frac{2\,\sqrt{x\,(bx+a)}\sqrt{b}+2\,bx+a}{\sqrt{b}}\right)Ax^2+45\,B\sqrt{b}a^2\ln\left(1/2\,\frac{2\,\sqrt{x\,(bx+a)}\sqrt{b}+2\,bx+a}{\sqrt{b}}\right)x^2+12\,b^2B$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(B*x+A)/x^(5/2),x)
```

```
[Out] 1/24*(b*x+a)^(1/2)/x^(3/2)*(60*a*b^(3/2)*ln(1/2*(2*(x*(b*x+a))^(1
/2)*b^(1/2)+2*b*x+a)/b^(1/2))*A*x^2+45*B*b^(1/2)*a^2*ln(1/2*(2*(x
*(b*x+a))^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))*x^2+12*b^2*B*x^3*(x*(b*
x+a))^(1/2)+24*A*x^2*b^2*(x*(b*x+a))^(1/2)+54*B*x^2*a*b*(x*(b*x+a
))^(1/2)-112*A*x*a*b*(x*(b*x+a))^(1/2)-48*B*x*a^2*(x*(b*x+a))^(1/
2)-16*A*a^2*(x*(b*x+a))^(1/2))/(x*(b*x+a))^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^(5/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.228717, size = 1, normalized size = 0.01

$$\left[\frac{15\left(3\,Ba^2+4\,Aab\right)\sqrt{b}x^2\log\left(2\,bx+2\,\sqrt{bx+a}\sqrt{b}\sqrt{x}+a\right)+2\left(6\,Bb^2x^3-8\,Aa^2+3\left(9\,Bab+4\,Ab^2\right)x^2-8\left(3\,Ba^2+7\,Aab\right)x\right.}{24\,x^2}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^(5/2),x, algorithm="fricas")
```

```
[Out] [1/24*(15*(3*B*a^2 + 4*A*a*b)*sqrt(b)*x^2*log(2*b*x + 2*sqrt(b*x
+ a)*sqrt(b)*sqrt(x) + a) + 2*(6*B*b^2*x^3 - 8*A*a^2 + 3*(9*B*a*b
 + 4*A*b^2)*x^2 - 8*(3*B*a^2 + 7*A*a*b)*x)*sqrt(b*x + a)*sqrt(x))
/x^2, 1/12*(15*(3*B*a^2 + 4*A*a*b)*sqrt(-b)*x^2*arctan(sqrt(b*x +
 a)/(sqrt(-b)*sqrt(x))) + (6*B*b^2*x^3 - 8*A*a^2 + 3*(9*B*a*b + 4
*A*b^2)*x^2 - 8*(3*B*a^2 + 7*A*a*b)*x)*sqrt(b*x + a)*sqrt(x))/x^2
]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(B*x+A)/x**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^(5/2),x, algorithm="giac")
```

```
[Out] Exception raised: NotImplementedError
```

3.495 $\int \frac{(a+bx)^{5/2}(A+Bx)}{x^{7/2}}\,dx$

Optimal. Leaf size=150

$$b^{3/2}(5aB+2Ab)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)+\frac{b^2\sqrt{x}\sqrt{a+bx}(5aB+2Ab)}{a}-\frac{2(a+bx)^{5/2}(5aB+2Ab)}{15ax^{3/2}}-\frac{2b(a+bx)^{3/2}(5aB+2Ab)}{3a\sqrt{x}}-\frac{2A(a+bx)^{7/2}}{5ax^{5/2}}$$

```
[Out] (b^2*(2*A*b + 5*a*B)*Sqrt[x]*Sqrt[a + b*x])/a - (2*b*(2*A*b + 5*a
*B)*(a + b*x)^(3/2))/(3*a*Sqrt[x]) - (2*(2*A*b + 5*a*B)*(a + b*x)
^(5/2))/(15*a*x^(3/2)) - (2*A*(a + b*x)^(7/2))/(5*a*x^(5/2)) + b^
(3/2)*(2*A*b + 5*a*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a + b*x]]
```

Rubi [A] time = 0.171194, antiderivative size = 150, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$b^{3/2}(5aB+2Ab)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)+\frac{b^2\sqrt{x}\sqrt{a+bx}(5aB+2Ab)}{a}-\frac{2(a+bx)^{5/2}(5aB+2Ab)}{15ax^{3/2}}-\frac{2b(a+bx)^{3/2}(5aB+2Ab)}{3a\sqrt{x}}-\frac{2A(a+bx)^{7/2}}{5ax^{5/2}}$$

Antiderivative was successfully verified.

```
[In] Int[((a + b*x)^(5/2)*(A + B*x))/x^(7/2),x]
```

```
[Out] (b^2*(2*A*b + 5*a*B)*Sqrt[x]*Sqrt[a + b*x])/a - (2*b*(2*A*b + 5*a
*B)*(a + b*x)^(3/2))/(3*a*Sqrt[x]) - (2*(2*A*b + 5*a*B)*(a + b*x)
^(5/2))/(15*a*x^(3/2)) - (2*A*(a + b*x)^(7/2))/(5*a*x^(5/2)) + b^
(3/2)*(2*A*b + 5*a*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a + b*x]]
```

Rubi in Sympy [A] time = 15.3206, size = 146, normalized size = 0.97

$$-\frac{2A(a+bx)^{\frac{7}{2}}}{5ax^{\frac{5}{2}}}+2b^{\frac{3}{2}}\left(Ab+\frac{5Ba}{2}\right)\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{b}\sqrt{x}}\right)+\frac{2b^2\sqrt{x}\sqrt{a+bx}\left(Ab+\frac{5Ba}{2}\right)}{a}-\frac{2b(a+bx)^{\frac{3}{2}}(2Ab+5Ba)}{3a\sqrt{x}}-\frac{4(a+bx)^{\frac{5}{2}}\left(Ab+\frac{5Ba}{2}\right)}{15ax^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)**(5/2)*(B*x+A)/x**(7/2),x)
```

```
[Out] -2*A*(a + b*x)**(7/2)/(5*a*x**(5/2)) + 2*b**(3/2)*(A*b + 5*B*a/2)
*atanh(sqrt(a + b*x)/(sqrt(b)*sqrt(x))) + 2*b**2*sqrt(x)*sqrt(a +
 b*x)*(A*b + 5*B*a/2)/a - 2*b*(a + b*x)**(3/2)*(2*A*b + 5*B*a)/(3
*a*sqrt(x)) - 4*(a + b*x)**(5/2)*(A*b + 5*B*a/2)/(15*a*x**(3/2))
```

Mathematica [A] time = 0.175857, size = 100, normalized size = 0.67

$$b^{3/2}(5aB+2Ab)\log\left(\sqrt{b}\sqrt{a+bx}+b\sqrt{x}\right)-\frac{\sqrt{a+bx}\left(2a^2(3A+5Bx)+2abx(11A+35Bx)+b^2x^2(46A-15Bx)\right)}{15x^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(5/2)*(A + B*x))/x^(7/2),x]
```

```
[Out] -(Sqrt[a + b*x]*(b^2*x^2*(46*A - 15*B*x) + 2*a^2*(3*A + 5*B*x) +
2*a*b*x*(11*A + 35*B*x)))/(15*x^(5/2)) + b^(3/2)*(2*A*b + 5*a*B)*
Log[b*Sqrt[x] + Sqrt[b]*Sqrt[a + b*x]]
```

Maple [A] time = 0.02, size = 193, normalized size = 1.3

$$\frac{1}{30}\sqrt{bx+a}\Bigg(30\,A\ln\left(1/2\,\frac{2\,\sqrt{x\,(bx+a)}\sqrt{b}+2\,bx+a}{\sqrt{b}}\right)x^3b^{5/2}+75\,Bb^{3/2}\ln\left(1/2\,\frac{2\,\sqrt{x\,(bx+a)}\sqrt{b}+2\,bx+a}{\sqrt{b}}\right)ax^3+30\,b^2Bx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(B*x+A)/x^(7/2),x)
```

```
[Out] 1/30*(b*x+a)^(1/2)/x^(5/2)*(30*A*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1
/2)+2*b*x+a)/b^(1/2))*x^3*b^(5/2)+75*B*b^(3/2)*ln(1/2*(2*(x*(b*x+
a))^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))*a*x^3+30*b^2*B*x^3*(x*(b*x+a)
)^(1/2)-92*A*x^2*b^2*(x*(b*x+a))^(1/2)-140*B*x^2*a*b*(x*(b*x+a))^
(1/2)-44*A*x*a*b*(x*(b*x+a))^(1/2)-20*B*x*a^2*(x*(b*x+a))^(1/2)-1
2*A*a^2*(x*(b*x+a))^(1/2))/(x*(b*x+a))^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^(7/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.238385, size = 1, normalized size = 0.01

$$\Bigg[\frac{15\left(5\,Bab+2\,Ab^2\right)\sqrt{b}x^3\log\left(2\,bx+2\,\sqrt{bx+a}\sqrt{b}\sqrt{x}+a\right)+2\left(15\,Bb^2x^3-6\,Aa^2-2\left(35\,Bab+23\,Ab^2\right)x^2-2\left(5\,Ba^2+11\,A\right.\right.}{30\,x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^(7/2),x, algorithm="fricas")
```

```
[Out] [1/30*(15*(5*B*a*b + 2*A*b^2)*sqrt(b)*x^3*log(2*b*x + 2*sqrt(b*x
+ a)*sqrt(b)*sqrt(x) + a) + 2*(15*B*b^2*x^3 - 6*A*a^2 - 2*(35*B*a
*b + 23*A*b^2)*x^2 - 2*(5*B*a^2 + 11*A*a*b)*x)*sqrt(b*x + a)*sqrt
(x))/x^3, 1/15*(15*(5*B*a*b + 2*A*b^2)*sqrt(-b)*x^3*arctan(sqrt(b
*x + a)/(sqrt(-b)*sqrt(x))) + (15*B*b^2*x^3 - 6*A*a^2 - 2*(35*B*a
*b + 23*A*b^2)*x^2 - 2*(5*B*a^2 + 11*A*a*b)*x)*sqrt(b*x + a)*sqrt
(x))/x^3]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(B*x+A)/x**(7/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^(7/2),x, algorithm="giac")
```

```
[Out] Exception raised: NotImplementedError
```

3.496 $\int \frac{(a+bx)^{5/2}(A+Bx)}{x^{9/2}}\,dx$

Optimal. Leaf size=111

$$-\frac{2A(a+bx)^{7/2}}{7ax^{7/2}}+2b^{5/2}B\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)-\frac{2b^2B\sqrt{a+bx}}{\sqrt{x}}-\frac{2B(a+bx)^{5/2}}{5x^{5/2}}-\frac{2bB(a+bx)^{3/2}}{3x^{3/2}}$$

```
[Out] (-2*b^2*B*Sqrt[a + b*x])/Sqrt[x] - (2*b*B*(a + b*x)^(3/2))/(3*x^(
3/2)) - (2*B*(a + b*x)^(5/2))/(5*x^(5/2)) - (2*A*(a + b*x)^(7/2))
/(7*a*x^(7/2)) + 2*b^(5/2)*B*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a + b
*x]]
```

Rubi [A] time = 0.107823, antiderivative size = 111, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.2$

$$-\frac{2A(a+bx)^{7/2}}{7ax^{7/2}}+2b^{5/2}B\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)-\frac{2b^2B\sqrt{a+bx}}{\sqrt{x}}-\frac{2B(a+bx)^{5/2}}{5x^{5/2}}-\frac{2bB(a+bx)^{3/2}}{3x^{3/2}}$$

Antiderivative was successfully verified.

```
[In] Int[((a + b*x)^(5/2)*(A + B*x))/x^(9/2),x]
```

```
[Out] (-2*b^2*B*Sqrt[a + b*x])/Sqrt[x] - (2*b*B*(a + b*x)^(3/2))/(3*x^(
3/2)) - (2*B*(a + b*x)^(5/2))/(5*x^(5/2)) - (2*A*(a + b*x)^(7/2))
/(7*a*x^(7/2)) + 2*b^(5/2)*B*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a + b
*x]]
```

Rubi in Sympy [A] time = 12.146, size = 107, normalized size = 0.96

$$-\frac{2A\left(a+bx\right)^{\frac{7}{2}}}{7ax^{\frac{7}{2}}}+2Bb^{\frac{5}{2}}\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{b}\sqrt{x}}\right)-\frac{2Bb^2\sqrt{a+bx}}{\sqrt{x}}-\frac{2Bb\left(a+bx\right)^{\frac{3}{2}}}{3x^{\frac{3}{2}}}-\frac{2B\left(a+bx\right)^{\frac{5}{2}}}{5x^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)**(5/2)*(B*x+A)/x**(9/2),x)
```

```
[Out] -2*A*(a + b*x)**(7/2)/(7*a*x**(7/2)) + 2*B*b**(5/2)*atanh(sqrt(a
+ b*x)/(sqrt(b)*sqrt(x))) - 2*B*b**2*sqrt(a + b*x)/sqrt(x) - 2*B*
b*(a + b*x)**(3/2)/(3*x**(3/2)) - 2*B*(a + b*x)**(5/2)/(5*x**(5/2
))
```

Mathematica [A] time = 0.216594, size = 107, normalized size = 0.96

$$2b^{5/2}B\log\left(\sqrt{b}\sqrt{a+bx}+b\sqrt{x}\right)-\frac{2\sqrt{a+bx}\left(3a^3(5A+7Bx)+a^2bx(45A+77Bx)+ab^2x^2(45A+161Bx)+15Ab^3x^3\right)}{105ax^{7/2}}$$

Antiderivative was successfully verified.

```
[In] Integrate[((a + b*x)^(5/2)*(A + B*x))/x^(9/2),x]
```

```
[Out] (-2*Sqrt[a + b*x]*(15*A*b^3*x^3 + 3*a^3*(5*A + 7*B*x) + a^2*b*x*(
45*A + 77*B*x) + a*b^2*x^2*(45*A + 161*B*x)))/(105*a*x^(7/2)) + 2
*b^(5/2)*B*Log[b*Sqrt[x] + Sqrt[b]*Sqrt[a + b*x]]
```

Maple [B] time = 0.021, size = 185, normalized size = 1.7

$$-\frac{1}{105a}\sqrt{bx+a}\left(-105\,Bb^{5/2}\ln\left(1/2\,\frac{2\,\sqrt{x\,(bx+a)}\sqrt{b}+2\,bx+a}{\sqrt{b}}\right)ax^{4}+30\,Ax^{3}b^{3}\sqrt{x\,(bx+a)}+322\,Bx^{3}ab^{2}\sqrt{x\,(bx+a)}+90$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(B*x+A)/x^(9/2),x)
```

```
[Out] -1/105*(b*x+a)^(1/2)/x^(7/2)*(-105*B*b^(5/2)*ln(1/2*(2*(x*(b*x+a)
)^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))*a*x^4+30*A*x^3*b^3*(x*(b*x+a))^
(1/2)+322*B*x^3*a*b^2*(x*(b*x+a))^(1/2)+90*A*x^2*a*b^2*(x*(b*x+a)
)^(1/2)+154*B*x^2*a^2*b*(x*(b*x+a))^(1/2)+90*A*x*a^2*b*(x*(b*x+a)
)^(1/2)+42*B*x*a^3*(x*(b*x+a))^(1/2)+30*A*a^3*(x*(b*x+a))^(1/2))/
a/(x*(b*x+a))^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^(9/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.228677, size = 1, normalized size = 0.01

$$\left[\frac{105\,Bab^{\frac{5}{2}}x^{4}\log\left(2\,bx+2\,\sqrt{bx+a}\sqrt{b}\sqrt{x}+a\right)-2\left(15\,Aa^{3}+\left(161\,Bab^{2}+15\,Ab^{3}\right)x^{3}+\left(77\,Ba^{2}b+45\,Aab^{2}\right)x^{2}+3\left(7\,Ba^{3}+1\right.\right.}{105\,ax^{4}}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^(9/2),x, algorithm="fricas")
```

```
[Out] [1/105*(105*B*a*b^(5/2)*x^4*log(2*b*x + 2*sqrt(b*x + a)*sqrt(b)*s
qrt(x) + a) - 2*(15*A*a^3 + (161*B*a*b^2 + 15*A*b^3)*x^3 + (77*B*
a^2*b + 45*A*a*b^2)*x^2 + 3*(7*B*a^3 + 15*A*a^2*b)*x)*sqrt(b*x +
a)*sqrt(x))/(a*x^4), 2/105*(105*B*a*sqrt(-b)*b^2*x^4*arctan(sqrt(
b*x + a)/(sqrt(-b)*sqrt(x))) - (15*A*a^3 + (161*B*a*b^2 + 15*A*b^
3)*x^3 + (77*B*a^2*b + 45*A*a*b^2)*x^2 + 3*(7*B*a^3 + 15*A*a^2*b)
*x)*sqrt(b*x + a)*sqrt(x))/(a*x^4)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(B*x+A)/x**(9/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^(9/2),x, algorithm="giac")
```

```
[Out] Exception raised: NotImplementedError
```

3.497 $\int \frac{(a+bx)^{5/2}(A+Bx)}{x^{11/2}}\,dx$

Optimal. Leaf size=53

$$\frac{2(a+bx)^{7/2}(2Ab-9aB)}{63a^2x^{7/2}}-\frac{2A(a+bx)^{7/2}}{9ax^{9/2}}$$

```
[Out] (-2*A*(a + b*x)^(7/2))/(9*a*x^(9/2)) + (2*(2*A*b - 9*a*B)*(a + b*
x)^(7/2))/(63*a^2*x^(7/2))
```

Rubi [A] time = 0.0654023, antiderivative size = 53, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.1

$$\frac{2(a+bx)^{7/2}(2Ab-9aB)}{63a^2x^{7/2}}-\frac{2A(a+bx)^{7/2}}{9ax^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(5/2)*(A + B*x))/x^(11/2),x]
```

```
[Out] (-2*A*(a + b*x)^(7/2))/(9*a*x^(9/2)) + (2*(2*A*b - 9*a*B)*(a + b*
x)^(7/2))/(63*a^2*x^(7/2))
```

Rubi in Sympy [A] time = 5.31531, size = 49, normalized size = 0.92

$$-\frac{2A\left(a+bx\right)^{\frac{7}{2}}}{9ax^{\frac{9}{2}}}+\frac{4\left(a+bx\right)^{\frac{7}{2}}\left(Ab-\frac{9Ba}{2}\right)}{63a^2x^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(B*x+A)/x**(11/2),x)
```

```
[Out] -2*A*(a + b*x)**(7/2)/(9*a*x**(9/2)) + 4*(a + b*x)**(7/2)*(A*b -
9*B*a/2)/(63*a**2*x**(7/2))
```

Mathematica [A] time = 0.0923177, size = 36, normalized size = 0.68

$$-\frac{2(a+bx)^{7/2}(7aA+9aBx-2Abx)}{63a^2x^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(5/2)*(A + B*x))/x^(11/2),x]
```

```
[Out] (-2*(a + b*x)^(7/2)*(7*a*A - 2*A*b*x + 9*a*B*x))/(63*a^2*x^(9/2))
```

Maple [A] time = 0.008, size = 31, normalized size = 0.6

$$-\frac{-4\,Abx+18\,Bax+14\,Aa}{63\,a^2}\left(bx+a\right)^{\frac{7}{2}}x^{-\frac{9}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(B*x+A)/x^(11/2),x)
```

```
[Out] -2/63*(b*x+a)^(7/2)*(-2*A*b*x+9*B*a*x+7*A*a)/x^(9/2)/a^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^(11/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.230139, size = 132, normalized size = 2.49

$$-\frac{2\left(7\,Aa^4+\left(9\,Bab^3-2\,Ab^4\right)x^4+\left(27\,Ba^2b^2+Aab^3\right)x^3+3\left(9\,Ba^3b+5\,Aa^2b^2\right)x^2+\left(9\,Ba^4+19\,Aa^3b\right)x\right)\sqrt{bx+a}}{63\,a^2x^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^(11/2),x, algorithm="fricas")
```

```
[Out] -2/63*(7*A*a^4 + (9*B*a*b^3 - 2*A*b^4)*x^4 + (27*B*a^2*b^2 + A*a*
b^3)*x^3 + 3*(9*B*a^3*b + 5*A*a^2*b^2)*x^2 + (9*B*a^4 + 19*A*a^3*
b)*x)*sqrt(b*x + a)/(a^2*x^(9/2))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(B*x+A)/x**(11/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.246361, size = 116, normalized size = 2.19

$$\frac{(bx+a)^{\frac{7}{2}}b\left(\frac{\left(9\,Ba^3b^8-2\,Aa^2b^9\right)(bx+a)}{a^5b^{15}}-\frac{9\left(Ba^4b^8-Aa^3b^9\right)}{a^5b^{15}}\right)}{64512\left((bx+a)b-ab\right)^{\frac{9}{2}}|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^(11/2),x, algorithm="giac")
```

```
[Out] 1/64512*(b*x + a)^(7/2)*b*((9*B*a^3*b^8 - 2*A*a^2*b^9)*(b*x + a)/
(a^5*b^15) - 9*(B*a^4*b^8 - A*a^3*b^9)/(a^5*b^15))/(((b*x + a)*b
- a*b)^(9/2)*abs(b))
```

3.498 $\int \frac{(a+bx)^{5/2}(A+Bx)}{x^{13/2}}\,dx$

Optimal. Leaf size=84

$$-\frac{4b(a+bx)^{7/2}(4Ab-11aB)}{693a^3x^{7/2}}+\frac{2(a+bx)^{7/2}(4Ab-11aB)}{99a^2x^{9/2}}-\frac{2A(a+bx)^{7/2}}{11ax^{11/2}}$$

```
[Out] (-2*A*(a + b*x)^(7/2))/(11*a*x^(11/2)) + (2*(4*A*b - 11*a*B)*(a +
 b*x)^(7/2))/(99*a^2*x^(9/2)) - (4*b*(4*A*b - 11*a*B)*(a + b*x)^(
7/2))/(693*a^3*x^(7/2))
```

Rubi [A] time = 0.100359, antiderivative size = 84, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.15

$$-\frac{4b(a+bx)^{7/2}(4Ab-11aB)}{693a^3x^{7/2}}+\frac{2(a+bx)^{7/2}(4Ab-11aB)}{99a^2x^{9/2}}-\frac{2A(a+bx)^{7/2}}{11ax^{11/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(5/2)*(A + B*x))/x^(13/2),x]
```

```
[Out] (-2*A*(a + b*x)^(7/2))/(11*a*x^(11/2)) + (2*(4*A*b - 11*a*B)*(a +
 b*x)^(7/2))/(99*a^2*x^(9/2)) - (4*b*(4*A*b - 11*a*B)*(a + b*x)^(
7/2))/(693*a^3*x^(7/2))
```

Rubi in Sympy [A] time = 7.72436, size = 82, normalized size = 0.98

$$-\frac{2A\,(a+bx)^{\frac{7}{2}}}{11ax^{\frac{11}{2}}}+\frac{2\,(a+bx)^{\frac{7}{2}}\,(4Ab-11Ba)}{99a^2x^{\frac{9}{2}}}-\frac{4b\,(a+bx)^{\frac{7}{2}}\,(4Ab-11Ba)}{693a^3x^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(B*x+A)/x**(13/2),x)
```

```
[Out] -2*A*(a + b*x)**(7/2)/(11*a*x**(11/2)) + 2*(a + b*x)**(7/2)*(4*A*
b - 11*B*a)/(99*a**2*x**(9/2)) - 4*b*(a + b*x)**(7/2)*(4*A*b - 11
*B*a)/(693*a**3*x**(7/2))
```

Mathematica [A] time = 0.107055, size = 57, normalized size = 0.68

$$-\frac{2(a+bx)^{7/2}\left(7a^2(9A+11Bx)-2abx(14A+11Bx)+8Ab^2x^2\right)}{693a^3x^{11/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(5/2)*(A + B*x))/x^(13/2),x]
```

```
[Out] (-2*(a + b*x)^(7/2)*(8*A*b^2*x^2 + 7*a^2*(9*A + 11*B*x) - 2*a*b*x
*(14*A + 11*B*x)))/(693*a^3*x^(11/2))
```

Maple [A] time = 0.009, size = 53, normalized size = 0.6

$$-\frac{16\,Ab^2x^2-44\,Bx^2ab-56\,aAbx+154\,a^2Bx+126\,Aa^2}{693\,a^3}(bx+a)^{\frac{7}{2}}\,x^{-\frac{11}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(B*x+A)/x^(13/2),x)
```

```
[Out] -2/693*(b*x+a)^(7/2)*(8*A*b^2*x^2-22*B*a*b*x^2-28*A*a*b*x+77*B*a^
2*x+63*A*a^2)/x^(11/2)/a^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^(13/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.227373, size = 166, normalized size = 1.98

$$-\frac{2\left(63\,Aa^5 - 2\left(11\,Bab^4 - 4\,Ab^5\right)x^5 + \left(11\,Ba^2b^3 - 4\,Aab^4\right)x^4 + 3\left(55\,Ba^3b^2 + Aa^2b^3\right)x^3 + \left(209\,Ba^4b + 113\,Aa^3b^2\right)x^2 + 7\,(1}{693\,a^3x^{\frac{11}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^(13/2),x, algorithm="fricas")
```

```
[Out] -2/693*(63*A*a^5 - 2*(11*B*a*b^4 - 4*A*b^5)*x^5 + (11*B*a^2*b^3 -
 4*A*a*b^4)*x^4 + 3*(55*B*a^3*b^2 + A*a^2*b^3)*x^3 + (209*B*a^4*b
 + 113*A*a^3*b^2)*x^2 + 7*(11*B*a^5 + 23*A*a^4*b)*x)*sqrt(b*x + a
)/(a^3*x^(11/2))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(B*x+A)/x**(13/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.246905, size = 163, normalized size = 1.94

$$-\frac{(bx+a)^{\frac{7}{2}}\left((bx+a)\left(\frac{2\left(11\,Ba^3b^{10}-4\,Aa^2b^{11}\right)(bx+a)}{a^6b^{18}} - \frac{11\left(11\,Ba^4b^{10}-4\,Aa^3b^{11}\right)}{a^6b^{18}}\right) + \frac{99\left(Ba^5b^{10}-Aa^4b^{11}\right)}{a^6b^{18}}\right)b}{2838528\left((bx+a)b-ab\right)^{\frac{11}{2}}|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^(13/2),x, algorithm="giac")
```

```
[Out] -1/2838528*(b*x + a)^(7/2)*((b*x + a)*(2*(11*B*a^3*b^10 - 4*A*a^2
*b^11)*(b*x + a)/(a^6*b^18) - 11*(11*B*a^4*b^10 - 4*A*a^3*b^11)/(
a^6*b^18)) + 99*(B*a^5*b^10 - A*a^4*b^11)/(a^6*b^18))*b/(((b*x +
a)*b - a*b)^(11/2)*abs(b))
```

3.499 $\int \frac{(a+bx)^{5/2}(A+Bx)}{x^{15/2}}\,dx$

Optimal. Leaf size=117

$$\frac{16b^2(a+bx)^{7/2}(6Ab-13aB)}{9009a^4x^{7/2}}-\frac{8b(a+bx)^{7/2}(6Ab-13aB)}{1287a^3x^{9/2}}+\frac{2(a+bx)^{7/2}(6Ab-13aB)}{143a^2x^{11/2}}-\frac{2A(a+bx)^{7/2}}{13ax^{13/2}}$$

```
[Out] (-2*A*(a + b*x)^(7/2))/(13*a*x^(13/2)) + (2*(6*A*b - 13*a*B)*(a +
 b*x)^(7/2))/(143*a^2*x^(11/2)) - (8*b*(6*A*b - 13*a*B)*(a + b*x)
^(7/2))/(1287*a^3*x^(9/2)) + (16*b^2*(6*A*b - 13*a*B)*(a + b*x)^(
7/2))/(9009*a^4*x^(7/2))
```

Rubi [A] time = 0.135993, antiderivative size = 117, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.15

$$\frac{16b^2(a+bx)^{7/2}(6Ab-13aB)}{9009a^4x^{7/2}}-\frac{8b(a+bx)^{7/2}(6Ab-13aB)}{1287a^3x^{9/2}}+\frac{2(a+bx)^{7/2}(6Ab-13aB)}{143a^2x^{11/2}}-\frac{2A(a+bx)^{7/2}}{13ax^{13/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(5/2)*(A + B*x))/x^(15/2),x]
```

```
[Out] (-2*A*(a + b*x)^(7/2))/(13*a*x^(13/2)) + (2*(6*A*b - 13*a*B)*(a +
 b*x)^(7/2))/(143*a^2*x^(11/2)) - (8*b*(6*A*b - 13*a*B)*(a + b*x)
^(7/2))/(1287*a^3*x^(9/2)) + (16*b^2*(6*A*b - 13*a*B)*(a + b*x)^(
7/2))/(9009*a^4*x^(7/2))
```

Rubi in Sympy [A] time = 11.0331, size = 116, normalized size = 0.99

$$-\frac{2A\left(a+bx\right)^{\frac{7}{2}}}{13ax^{\frac{13}{2}}}+\frac{2\left(a+bx\right)^{\frac{7}{2}}\left(6Ab-13Ba\right)}{143a^2x^{\frac{11}{2}}}-\frac{8b\left(a+bx\right)^{\frac{7}{2}}\left(6Ab-13Ba\right)}{1287a^3x^{\frac{9}{2}}}+\frac{16b^2\left(a+bx\right)^{\frac{7}{2}}\left(6Ab-13Ba\right)}{9009a^4x^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(B*x+A)/x**(15/2),x)
```

```
[Out] -2*A*(a + b*x)**(7/2)/(13*a*x**(13/2)) + 2*(a + b*x)**(7/2)*(6*A*
b - 13*B*a)/(143*a**2*x**(11/2)) - 8*b*(a + b*x)**(7/2)*(6*A*b -
13*B*a)/(1287*a**3*x**(9/2)) + 16*b**2*(a + b*x)**(7/2)*(6*A*b -
13*B*a)/(9009*a**4*x**(7/2))
```

Mathematica [A] time = 0.125341, size = 76, normalized size = 0.65

$$-\frac{2(a+bx)^{7/2}\left(63a^3(11A+13Bx)-14a^2bx(27A+26Bx)+8ab^2x^2(21A+13Bx)-48Ab^3x^3\right)}{9009a^4x^{13/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(5/2)*(A + B*x))/x^(15/2),x]
```

```
[Out] (-2*(a + b*x)^(7/2)*(-48*A*b^3*x^3 + 63*a^3*(11*A + 13*B*x) + 8*a
*b^2*x^2*(21*A + 13*B*x) - 14*a^2*b*x*(27*A + 26*B*x)))/(9009*a^4
*x^(13/2))
```

Maple [A] time = 0.007, size = 77, normalized size = 0.7

$$-\frac{-96\,Ab^{3}x^{3}+208\,Bx^{3}ab^{2}+336\,aAb^{2}x^{2}-728\,Bx^{2}a^{2}b-756\,a^{2}Abx+1638\,a^{3}Bx+1386\,Aa^{3}}{9009\,a^{4}}(bx+a)^{\frac{7}{2}}x^{-\frac{13}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(B*x+A)/x^(15/2),x)
```

```
[Out] -2/9009*(b*x+a)^(7/2)*(-48*A*b^3*x^3+104*B*a*b^2*x^3+168*A*a*b^2*
x^2-364*B*a^2*b*x^2-378*A*a^2*b*x+819*B*a^3*x+693*A*a^3)/x^(13/2)
/a^4
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^(15/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.26613, size = 201, normalized size = 1.72

$$-\frac{2\left(693\,Aa^{6}+8\left(13\,Bab^{5}-6\,Ab^{6}\right)x^{6}-4\left(13\,Ba^{2}b^{4}-6\,Aab^{5}\right)x^{5}+3\left(13\,Ba^{3}b^{3}-6\,Aa^{2}b^{4}\right)x^{4}+\left(1469\,Ba^{4}b^{2}+15\,Aa^{3}b^{3}\right)x^{3}\cdots}{9009\,a^{4}x^{\frac{13}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^(15/2),x, algorithm="fricas")
```

```
[Out] -2/9009*(693*A*a^6 + 8*(13*B*a*b^5 - 6*A*b^6)*x^6 - 4*(13*B*a^2*b
^4 - 6*A*a*b^5)*x^5 + 3*(13*B*a^3*b^3 - 6*A*a^2*b^4)*x^4 + (1469*
B*a^4*b^2 + 15*A*a^3*b^3)*x^3 + 7*(299*B*a^5*b + 159*A*a^4*b^2)*x
^2 + 63*(13*B*a^6 + 27*A*a^5*b)*x)*sqrt(b*x + a)/(a^4*x^(13/2))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(B*x+A)/x**(15/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.240523, size = 211, normalized size = 1.8

$$\frac{\left((bx+a)\left(4\,(bx+a)\left(\frac{2\left(13\,Ba^{3}b^{12}-6\,Aa^{2}b^{13}\right)(bx+a)}{a^{7}b^{21}}-\frac{13\left(13\,Ba^{4}b^{12}-6\,Aa^{3}b^{13}\right)}{a^{7}b^{21}}\right)+\frac{143\left(13\,Ba^{5}b^{12}-6\,Aa^{4}b^{13}\right)}{a^{7}b^{21}}\right)-\frac{1287\left(Ba^{6}b^{12}-Aa^{5}b^{13}\right)}{a^{7}b^{21}}\right)(bx+\cdots}{6642155520\left((bx+a)b-ab\right)^{\frac{13}{2}}|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^(15/2),x, algorithm="giac")
```

```
[Out] 1/6642155520*((b*x + a)*(4*(b*x + a)*(2*(13*B*a^3*b^12 - 6*A*a^2*
b^13)*(b*x + a)/(a^7*b^21) - 13*(13*B*a^4*b^12 - 6*A*a^3*b^13)/(a
^7*b^21)) + 143*(13*B*a^5*b^12 - 6*A*a^4*b^13)/(a^7*b^21)) - 1287
*(B*a^6*b^12 - A*a^5*b^13)/(a^7*b^21))*(b*x + a)^(7/2)*b/(((b*x +
 a)*b - a*b)^(13/2)*abs(b))
```

3.500 $\int \frac{(a+bx)^{5/2}(A+Bx)}{x^{17/2}}\,dx$

Optimal. Leaf size=150

$$-\frac{32b^3(a+bx)^{7/2}(8Ab-15aB)}{45045a^5x^{7/2}}+\frac{16b^2(a+bx)^{7/2}(8Ab-15aB)}{6435a^4x^{9/2}}-\frac{4b(a+bx)^{7/2}(8Ab-15aB)}{715a^3x^{11/2}}+\frac{2(a+bx)^{7/2}(8Ab-15aB)}{195a^2x^{13/2}}-\frac{2A(a+bx)^{7/2}}{15ax^{15/2}}$$

```
[Out] (-2*A*(a + b*x)^(7/2))/(15*a*x^(15/2)) + (2*(8*A*b - 15*a*B)*(a +
 b*x)^(7/2))/(195*a^2*x^(13/2)) - (4*b*(8*A*b - 15*a*B)*(a + b*x)
^(7/2))/(715*a^3*x^(11/2)) + (16*b^2*(8*A*b - 15*a*B)*(a + b*x)^(
7/2))/(6435*a^4*x^(9/2)) - (32*b^3*(8*A*b - 15*a*B)*(a + b*x)^(7/
2))/(45045*a^5*x^(7/2))
```

Rubi [A] time = 0.180177, antiderivative size = 150, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.15$

$$-\frac{32b^3(a+bx)^{7/2}(8Ab-15aB)}{45045a^5x^{7/2}}+\frac{16b^2(a+bx)^{7/2}(8Ab-15aB)}{6435a^4x^{9/2}}-\frac{4b(a+bx)^{7/2}(8Ab-15aB)}{715a^3x^{11/2}}+\frac{2(a+bx)^{7/2}(8Ab-15aB)}{195a^2x^{13/2}}-\frac{2A(a+bx)^{7/2}}{15ax^{15/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(5/2)*(A + B*x))/x^(17/2),x]
```

```
[Out] (-2*A*(a + b*x)^(7/2))/(15*a*x^(15/2)) + (2*(8*A*b - 15*a*B)*(a +
 b*x)^(7/2))/(195*a^2*x^(13/2)) - (4*b*(8*A*b - 15*a*B)*(a + b*x)
^(7/2))/(715*a^3*x^(11/2)) + (16*b^2*(8*A*b - 15*a*B)*(a + b*x)^(
7/2))/(6435*a^4*x^(9/2)) - (32*b^3*(8*A*b - 15*a*B)*(a + b*x)^(7/
2))/(45045*a^5*x^(7/2))
```

Rubi in Sympy [A] time = 15.0919, size = 150, normalized size = 1.

$$-\frac{2A\,(a+bx)^{\frac{7}{2}}}{15ax^{\frac{15}{2}}}+\frac{2\,(a+bx)^{\frac{7}{2}}\,(8Ab-15Ba)}{195a^2x^{\frac{13}{2}}}-\frac{4b\,(a+bx)^{\frac{7}{2}}\,(8Ab-15Ba)}{715a^3x^{\frac{11}{2}}}+\frac{16b^2\,(a+bx)^{\frac{7}{2}}\,(8Ab-15Ba)}{6435a^4x^{\frac{9}{2}}}-\frac{32b^3\,(a+bx)^{\frac{7}{2}}\,(8Ab-15Ba)}{45045a^5x^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(B*x+A)/x**(17/2),x)
```

```
[Out] -2*A*(a + b*x)**(7/2)/(15*a*x**(15/2)) + 2*(a + b*x)**(7/2)*(8*A*
b - 15*B*a)/(195*a**2*x**(13/2)) - 4*b*(a + b*x)**(7/2)*(8*A*b -
15*B*a)/(715*a**3*x**(11/2)) + 16*b**2*(a + b*x)**(7/2)*(8*A*b -
15*B*a)/(6435*a**4*x**(9/2)) - 32*b**3*(a + b*x)**(7/2)*(8*A*b -
15*B*a)/(45045*a**5*x**(7/2))
```

Mathematica [A] time = 0.14474, size = 95, normalized size = 0.63

$$-\frac{2(a+bx)^{7/2}\left(231a^4(13A+15Bx)-42a^3bx(44A+45Bx)+168a^2b^2x^2(6A+5Bx)-16ab^3x^3(28A+15Bx)+128Ab^4x^4\right)}{45045a^5x^{15/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(5/2)*(A + B*x))/x^(17/2),x]
```

```
[Out] (-2*(a + b*x)^(7/2)*(128*A*b^4*x^4 + 168*a^2*b^2*x^2*(6*A + 5*B*x
) + 231*a^4*(13*A + 15*B*x) - 16*a*b^3*x^3*(28*A + 15*B*x) - 42*a
^3*b*x*(44*A + 45*B*x)))/(45045*a^5*x^(15/2))
```

Maple [A] time = 0.008, size = 101, normalized size = 0.7

$$-\frac{256\,Ab^4x^4-480\,Bab^3x^4-896\,Aab^3x^3+1680\,Ba^2b^2x^3+2016\,Aa^2b^2x^2-3780\,Ba^3bx^2-3696\,Aa^3bx+6930\,Ba^4x+6006\,A}{45045\,a^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(B*x+A)/x^(17/2),x)
```

```
[Out] -2/45045*(b*x+a)^(7/2)*(128*A*b^4*x^4-240*B*a*b^3*x^4-448*A*a*b^3
*x^3+840*B*a^2*b^2*x^3+1008*A*a^2*b^2*x^2-1890*B*a^3*b*x^2-1848*A
*a^3*b*x+3465*B*a^4*x+3003*A*a^4)/x^(15/2)/a^5
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^(17/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.235196, size = 234, normalized size = 1.56

$$-\frac{2\left(3003\,Aa^7-16\left(15\,Bab^6-8\,Ab^7\right)x^7+8\left(15\,Ba^2b^5-8\,Aab^6\right)x^6-6\left(15\,Ba^3b^4-8\,Aa^2b^5\right)x^5+5\left(15\,Ba^4b^3-8\,Aa^3b^4\right)x^4}{45045\,a^5x^{\frac{15}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^(17/2),x, algorithm="fricas")
```

```
[Out] -2/45045*(3003*A*a^7 - 16*(15*B*a*b^6 - 8*A*b^7)*x^7 + 8*(15*B*a^
2*b^5 - 8*A*a*b^6)*x^6 - 6*(15*B*a^3*b^4 - 8*A*a^2*b^5)*x^5 + 5*(
15*B*a^4*b^3 - 8*A*a^3*b^4)*x^4 + 35*(159*B*a^5*b^2 + A*a^4*b^3)*
x^3 + 63*(135*B*a^6*b + 71*A*a^5*b^2)*x^2 + 231*(15*B*a^7 + 31*A*
a^6*b)*x)*sqrt(b*x + a)/(a^5*x^(15/2))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(B*x+A)/x**(17/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.246039, size = 258, normalized size = 1.72

$$-\frac{\left(\left(2\,(bx+a)\left(4\,(bx+a)\left(\frac{2\,(15\,Ba^3b^{14}-8\,Aa^2b^{15})(bx+a)}{a^8b^{24}}-\frac{15\,(15\,Ba^4b^{14}-8\,Aa^3b^{15})}{a^8b^{24}}\right)+\frac{195\,(15\,Ba^5b^{14}-8\,Aa^4b^{15})}{a^8b^{24}}\right)-\frac{715\,(15\,Ba^6b^{14}-8\,Aa^5b^{15})}{a^8b^{24}}\right.}{2952069120\,((bx+a)b-ab)^{\frac{15}{2}}\,|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^(17/2),x, algorithm="giac")
```

```
[Out] -1/2952069120*((2*(b*x + a)*(4*(b*x + a)*(2*(15*B*a^3*b^14 - 8*A*
a^2*b^15)*(b*x + a)/(a^8*b^24) - 15*(15*B*a^4*b^14 - 8*A*a^3*b^15
)/(a^8*b^24)) + 195*(15*B*a^5*b^14 - 8*A*a^4*b^15)/(a^8*b^24)) -
715*(15*B*a^6*b^14 - 8*A*a^5*b^15)/(a^8*b^24))*(b*x + a) + 6435*(
B*a^7*b^14 - A*a^6*b^15)/(a^8*b^24))*(b*x + a)^(7/2)*b/(((b*x + a
)*b - a*b)^(15/2)*abs(b))
```

3.501 $\int \frac{(a+bx)^{5/2}(A+Bx)}{x^{19/2}}\,dx$

Optimal. Leaf size=183

$$\frac{256b^4(a+bx)^{7/2}(10Ab-17aB)}{765765a^6x^{7/2}}-\frac{128b^3(a+bx)^{7/2}(10Ab-17aB)}{109395a^5x^{9/2}}+\frac{32b^2(a+bx)^{7/2}(10Ab-17aB)}{12155a^4x^{11/2}}-\frac{16b(a+bx)^{7/2}(10Ab-17aB)}{3315a^3x^{13/2}}+\frac{2(a+bx)^{7/2}(10Ab-17aB)}{255a^2x^{15/2}}-\frac{2A(a+bx)^{7/2}}{17ax^{17/2}}$$

```
[Out] (-2*A*(a + b*x)^(7/2))/(17*a*x^(17/2)) + (2*(10*A*b - 17*a*B)*(a
+ b*x)^(7/2))/(255*a^2*x^(15/2)) - (16*b*(10*A*b - 17*a*B)*(a + b
*x)^(7/2))/(3315*a^3*x^(13/2)) + (32*b^2*(10*A*b - 17*a*B)*(a + b
*x)^(7/2))/(12155*a^4*x^(11/2)) - (128*b^3*(10*A*b - 17*a*B)*(a +
 b*x)^(7/2))/(109395*a^5*x^(9/2)) + (256*b^4*(10*A*b - 17*a*B)*(a
 + b*x)^(7/2))/(765765*a^6*x^(7/2))
```

Rubi [A] time = 0.228787, antiderivative size = 183, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.15$

$$\frac{256b^4(a+bx)^{7/2}(10Ab-17aB)}{765765a^6x^{7/2}}-\frac{128b^3(a+bx)^{7/2}(10Ab-17aB)}{109395a^5x^{9/2}}+\frac{32b^2(a+bx)^{7/2}(10Ab-17aB)}{12155a^4x^{11/2}}-\frac{16b(a+bx)^{7/2}(10Ab-17aB)}{3315a^3x^{13/2}}+\frac{2(a+bx)^{7/2}(10Ab-17aB)}{255a^2x^{15/2}}-\frac{2A(a+bx)^{7/2}}{17ax^{17/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(5/2)*(A + B*x))/x^(19/2),x]
```

```
[Out] (-2*A*(a + b*x)^(7/2))/(17*a*x^(17/2)) + (2*(10*A*b - 17*a*B)*(a
+ b*x)^(7/2))/(255*a^2*x^(15/2)) - (16*b*(10*A*b - 17*a*B)*(a + b
*x)^(7/2))/(3315*a^3*x^(13/2)) + (32*b^2*(10*A*b - 17*a*B)*(a + b
*x)^(7/2))/(12155*a^4*x^(11/2)) - (128*b^3*(10*A*b - 17*a*B)*(a +
 b*x)^(7/2))/(109395*a^5*x^(9/2)) + (256*b^4*(10*A*b - 17*a*B)*(a
 + b*x)^(7/2))/(765765*a^6*x^(7/2))
```

Rubi in Sympy [A] time = 19.6989, size = 184, normalized size = 1.01

$$-\frac{2A\left(a+bx\right)^{\frac{7}{2}}}{17ax^{\frac{17}{2}}}+\frac{2\left(a+bx\right)^{\frac{7}{2}}\left(10Ab-17Ba\right)}{255a^2x^{\frac{15}{2}}}-\frac{16b\left(a+bx\right)^{\frac{7}{2}}\left(10Ab-17Ba\right)}{3315a^3x^{\frac{13}{2}}}+\frac{32b^2\left(a+bx\right)^{\frac{7}{2}}\left(10Ab-17Ba\right)}{12155a^4x^{\frac{11}{2}}}-\frac{128b^3\left(a+bx\right)^{\frac{7}{2}}\left(10Ab-17Ba\right)}{109395a^5x^{\frac{9}{2}}}+\frac{256b^4\left(a+bx\right)^{\frac{7}{2}}\left(10Ab-17Ba\right)}{765765a^6x^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(B*x+A)/x**(19/2),x)
```

```
[Out] -2*A*(a + b*x)**(7/2)/(17*a*x**(17/2)) + 2*(a + b*x)**(7/2)*(10*A
*b - 17*B*a)/(255*a**2*x**(15/2)) - 16*b*(a + b*x)**(7/2)*(10*A*b
 - 17*B*a)/(3315*a**3*x**(13/2)) + 32*b**2*(a + b*x)**(7/2)*(10*A
*b - 17*B*a)/(12155*a**4*x**(11/2)) - 128*b**3*(a + b*x)**(7/2)*(
10*A*b - 17*B*a)/(109395*a**5*x**(9/2)) + 256*b**4*(a + b*x)**(7/
2)*(10*A*b - 17*B*a)/(765765*a**6*x**(7/2))
```

Mathematica [A] time = 0.16638, size = 114, normalized size = 0.62

$$-\frac{2(a+bx)^{7/2}\left(3003a^5(15A+17Bx)-462a^4bx(65A+68Bx)+336a^3b^2x^2(55A+51Bx)-224a^2b^3x^3(45A+34Bx)+128ab^4x\right.}{765765a^6x^{17/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(5/2)*(A + B*x))/x^(19/2),x]
```

```
[Out] (-2*(a + b*x)^(7/2)*(-1280*A*b^5*x^5 + 3003*a^5*(15*A + 17*B*x) +
 128*a*b^4*x^4*(35*A + 17*B*x) - 224*a^2*b^3*x^3*(45*A + 34*B*x)
+ 336*a^3*b^2*x^2*(55*A + 51*B*x) - 462*a^4*b*x*(65*A + 68*B*x)))
/(765765*a^6*x^(17/2))
```

Maple [A] time = 0.009, size = 125, normalized size = 0.7

$$-\frac{-2560\,Ab^5x^5+4352\,Bx^5ab^4+8960\,aAb^4x^4-15232\,Bx^4a^2b^3-20160\,a^2Ab^3x^3+34272\,Bx^3a^3b^2+36960\,a^3Ab^2x^2-62832}{765765\,a^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(B*x+A)/x^(19/2),x)
```

```
[Out] -2/765765*(b*x+a)^(7/2)*(-1280*A*b^5*x^5+2176*B*a*b^4*x^5+4480*A*
a*b^4*x^4-7616*B*a^2*b^3*x^4-10080*A*a^2*b^3*x^3+17136*B*a^3*b^2*
x^3+18480*A*a^3*b^2*x^2-31416*B*a^4*b*x^2-30030*A*a^4*b*x+51051*B
*a^5*x+45045*A*a^5)/x^(17/2)/a^6
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^(19/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.233411, size = 267, normalized size = 1.46

$$-\frac{2\left(45045\,Aa^8+128\left(17\,Bab^7-10\,Ab^8\right)x^8-64\left(17\,Ba^2b^6-10\,Aab^7\right)x^7+48\left(17\,Ba^3b^5-10\,Aa^2b^6\right)x^6-40\left(17\,Ba^4b^4-10\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^(19/2),x, algorithm="fricas")
```

```
[Out] -2/765765*(45045*A*a^8 + 128*(17*B*a*b^7 - 10*A*b^8)*x^8 - 64*(17
*B*a^2*b^6 - 10*A*a*b^7)*x^7 + 48*(17*B*a^3*b^5 - 10*A*a^2*b^6)*x
^6 - 40*(17*B*a^4*b^4 - 10*A*a^3*b^5)*x^5 + 35*(17*B*a^5*b^3 - 10
*A*a^4*b^4)*x^4 + 63*(1207*B*a^6*b^2 + 5*A*a^5*b^3)*x^3 + 231*(52
7*B*a^7*b + 275*A*a^6*b^2)*x^2 + 3003*(17*B*a^8 + 35*A*a^7*b)*x)*
sqrt(b*x + a)/(a^6*x^(17/2))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(B*x+A)/x**(19/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.251594, size = 305, normalized size = 1.67

$$\frac{\left(\left(8\left(2\,(bx+a)\left(4\,(bx+a)\left(\frac{2\left(17\,Ba^3b^{16}-10\,Aa^2b^{17}\right)(bx+a)}{a^9b^{27}}-\frac{17\left(17\,Ba^4b^{16}-10\,Aa^3b^{17}\right)}{a^9b^{27}}\right)+\frac{255\left(17\,Ba^5b^{16}-10\,Aa^4b^{17}\right)}{a^9b^{27}}\right)-\frac{1105\left(17\,Ba^6b^{16}-10\,A\right.}{a^9b^{27}}\right.\right.}{200740700160\left((bx+a)b-ab\right)^{\frac{17}{2}}|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/x^(19/2),x, algorithm="giac")
```

```
[Out] 1/200740700160*((8*(2*(b*x + a)*(4*(b*x + a)*(2*(17*B*a^3*b^16 -
10*A*a^2*b^17)*(b*x + a)/(a^9*b^27) - 17*(17*B*a^4*b^16 - 10*A*a^
3*b^17)/(a^9*b^27)) + 255*(17*B*a^5*b^16 - 10*A*a^4*b^17)/(a^9*b^
27)) - 1105*(17*B*a^6*b^16 - 10*A*a^5*b^17)/(a^9*b^27))*(b*x + a)
 + 12155*(17*B*a^7*b^16 - 10*A*a^6*b^17)/(a^9*b^27))*(b*x + a) -
109395*(B*a^8*b^16 - A*a^7*b^17)/(a^9*b^27))*(b*x + a)^(7/2)*b/((
(b*x + a)*b - a*b)^(17/2)*abs(b))
```

3.502 $\int \frac{x^{7/2}(A+Bx)}{\sqrt{a+bx}}\,dx$

Optimal. Leaf size=192

$$\frac{7a^4(10Ab-9aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{128b^{11/2}}-\frac{7a^3\sqrt{x}\sqrt{a+bx}(10Ab-9aB)}{128b^5}+\frac{7a^2x^{3/2}\sqrt{a+bx}(10Ab-9aB)}{192b^4}-\frac{7ax^{5/2}\sqrt{a+bx}(10Ab-9aB)}{240b^3}+\frac{x^{7/2}\sqrt{a+bx}(10Ab-9aB)}{40b^2}+\frac{Bx^{9/2}\sqrt{a+bx}}{5b}$$

```
[Out] (-7*a^3*(10*A*b - 9*a*B)*Sqrt[x]*Sqrt[a + b*x])/(128*b^5) + (7*a^
2*(10*A*b - 9*a*B)*x^(3/2)*Sqrt[a + b*x])/(192*b^4) - (7*a*(10*A*
b - 9*a*B)*x^(5/2)*Sqrt[a + b*x])/(240*b^3) + ((10*A*b - 9*a*B)*x
^(7/2)*Sqrt[a + b*x])/(40*b^2) + (B*x^(9/2)*Sqrt[a + b*x])/(5*b)
+ (7*a^4*(10*A*b - 9*a*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a + b*x]
])/(128*b^(11/2))
```

Rubi [A] time = 0.247322, antiderivative size = 192, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.2

$$\frac{7a^4(10Ab-9aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{128b^{11/2}}-\frac{7a^3\sqrt{x}\sqrt{a+bx}(10Ab-9aB)}{128b^5}+\frac{7a^2x^{3/2}\sqrt{a+bx}(10Ab-9aB)}{192b^4}-\frac{7ax^{5/2}\sqrt{a+bx}(10Ab-9aB)}{240b^3}+\frac{x^{7/2}\sqrt{a+bx}(10Ab-9aB)}{40b^2}+\frac{Bx^{9/2}\sqrt{a+bx}}{5b}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^(7/2)*(A + B*x))/Sqrt[a + b*x],x]
```

```
[Out] (-7*a^3*(10*A*b - 9*a*B)*Sqrt[x]*Sqrt[a + b*x])/(128*b^5) + (7*a^
2*(10*A*b - 9*a*B)*x^(3/2)*Sqrt[a + b*x])/(192*b^4) - (7*a*(10*A*
b - 9*a*B)*x^(5/2)*Sqrt[a + b*x])/(240*b^3) + ((10*A*b - 9*a*B)*x
^(7/2)*Sqrt[a + b*x])/(40*b^2) + (B*x^(9/2)*Sqrt[a + b*x])/(5*b)
+ (7*a^4*(10*A*b - 9*a*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a + b*x]
])/(128*b^(11/2))
```

Rubi in Sympy [A] time = 22.29, size = 189, normalized size = 0.98

$$\frac{Bx^{\frac{9}{2}}\sqrt{a+bx}}{5b}+\frac{7a^4\left(10Ab-9Ba\right)\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{b}\sqrt{x}}\right)}{128b^{\frac{11}{2}}}-\frac{7a^3\sqrt{x}\sqrt{a+bx}\left(10Ab-9Ba\right)}{128b^5}+\frac{7a^2x^{\frac{3}{2}}\sqrt{a+bx}\left(10Ab-9Ba\right)}{192b^4}-\frac{7ax^{\frac{5}{2}}\sqrt{a+bx}\left(10Ab-9Ba\right)}{240b^3}+\frac{x^{\frac{7}{2}}\sqrt{a+bx}\left(10Ab-9Ba\right)}{40b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**(7/2)*(B*x+A)/(b*x+a)**(1/2),x)
```

```
[Out] B*x**(9/2)*sqrt(a + b*x)/(5*b) + 7*a**4*(10*A*b - 9*B*a)*atanh(sq
rt(a + b*x)/(sqrt(b)*sqrt(x)))/(128*b**(11/2)) - 7*a**3*sqrt(x)*s
qrt(a + b*x)*(10*A*b - 9*B*a)/(128*b**5) + 7*a**2*x**(3/2)*sqrt(a
 + b*x)*(10*A*b - 9*B*a)/(192*b**4) - 7*a*x**(5/2)*sqrt(a + b*x)*
(10*A*b - 9*B*a)/(240*b**3) + x**(7/2)*sqrt(a + b*x)*(10*A*b - 9*
B*a)/(40*b**2)
```

Mathematica [A] time = 0.182079, size = 139, normalized size = 0.72

$$\frac{\sqrt{b}\sqrt{x}\sqrt{a+bx}\left(945a^4B-210a^3b(5A+3Bx)+28a^2b^2x(25A+18Bx)-16ab^3x^2(35A+27Bx)+96b^4x^3(5A+4Bx)\right)-105a^4(}{1920b^{11/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^(7/2)*(A + B*x))/Sqrt[a + b*x],x]
```

```
[Out] (Sqrt[b]*Sqrt[x]*Sqrt[a + b*x]*(945*a^4*B - 210*a^3*b*(5*A + 3*B*
x) + 96*b^4*x^3*(5*A + 4*B*x) + 28*a^2*b^2*x*(25*A + 18*B*x) - 16
*a*b^3*x^2*(35*A + 27*B*x)) - 105*a^4*(-10*A*b + 9*a*B)*Log[b*Sqr
t[x] + Sqrt[b]*Sqrt[a + b*x]])/(1920*b^(11/2))
```

Maple [A] time = 0.027, size = 260, normalized size = 1.4

$$\frac{1}{3840}\sqrt{x}\sqrt{bx+a}\left(768\,Bx^4b^{9/2}\sqrt{x\,(bx+a)}+960\,Ax^3b^{9/2}\sqrt{x\,(bx+a)}-864\,Bx^3ab^{7/2}\sqrt{x\,(bx+a)}-1120\,Ax^2ab^{7/2}\sqrt{x\,(bx+a)}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^(7/2)*(B*x+A)/(b*x+a)^(1/2),x)
```

```
[Out] 1/3840*x^(1/2)*(b*x+a)^(1/2)/b^(11/2)*(768*B*x^4*b^(9/2)*(x*(b*x+
a))^(1/2)+960*A*x^3*b^(9/2)*(x*(b*x+a))^(1/2)-864*B*x^3*a*b^(7/2)
*(x*(b*x+a))^(1/2)-1120*A*x^2*a*b^(7/2)*(x*(b*x+a))^(1/2)+1008*B*
x^2*a^2*b^(5/2)*(x*(b*x+a))^(1/2)+1400*A*a^2*(x*(b*x+a))^(1/2)*x*
b^(5/2)-1260*B*a^3*(x*(b*x+a))^(1/2)*x*b^(3/2)+1050*A*a^4*ln(1/2*
(2*(x*(b*x+a))^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))*b-2100*A*a^3*(x*(b
*x+a))^(1/2)*b^(3/2)-945*B*a^5*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1/2
)+2*b*x+a)/b^(1/2))+1890*B*a^4*(x*(b*x+a))^(1/2)*b^(1/2))/(x*(b*x
+a))^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(7/2)/sqrt(b*x + a),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.249897, size = 1, normalized size = 0.01

$$\left[\frac{2\left(384\,Bb^4x^4+945\,Ba^4-1050\,Aa^3b-48\left(9\,Bab^3-10\,Ab^4\right)x^3+56\left(9\,Ba^2b^2-10\,Aab^3\right)x^2-70\left(9\,Ba^3b-10\,Aa^2b^2\right)x\right)\sqrt{b}}{3840\,b^{\frac{11}{2}}}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(7/2)/sqrt(b*x + a),x, algorithm="fricas")
```

```
[Out] [1/3840*(2*(384*B*b^4*x^4 + 945*B*a^4 - 1050*A*a^3*b - 48*(9*B*a*
b^3 - 10*A*b^4)*x^3 + 56*(9*B*a^2*b^2 - 10*A*a*b^3)*x^2 - 70*(9*B
*a^3*b - 10*A*a^2*b^2)*x)*sqrt(b*x + a)*sqrt(b)*sqrt(x) - 105*(9*
B*a^5 - 10*A*a^4*b)*log(2*sqrt(b*x + a)*b*sqrt(x) + (2*b*x + a)*s
qrt(b)))/b^(11/2), 1/1920*((384*B*b^4*x^4 + 945*B*a^4 - 1050*A*a^
3*b - 48*(9*B*a*b^3 - 10*A*b^4)*x^3 + 56*(9*B*a^2*b^2 - 10*A*a*b^
3)*x^2 - 70*(9*B*a^3*b - 10*A*a^2*b^2)*x)*sqrt(b*x + a)*sqrt(-b)*
sqrt(x) - 105*(9*B*a^5 - 10*A*a^4*b)*arctan(sqrt(b*x + a)*sqrt(-b
)/(b*sqrt(x))))/(sqrt(-b)*b^5)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**(7/2)*(B*x+A)/(b*x+a)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(7/2)/sqrt(b*x + a),x, algorithm="giac")
```

```
[Out] Timed out
```

3.503 $\int \frac{x^{5/2}(A+Bx)}{\sqrt{a+bx}}\,dx$

Optimal. Leaf size=159

$$-\frac{5a^3(8Ab-7aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{64b^{9/2}}+\frac{5a^2\sqrt{x}\sqrt{a+bx}(8Ab-7aB)}{64b^4}-\frac{5ax^{3/2}\sqrt{a+bx}(8Ab-7aB)}{96b^3}+\frac{x^{5/2}\sqrt{a+bx}(8Ab-7aB)}{24b^2}+\frac{Bx^{7/2}\sqrt{a+bx}}{4b}$$

```
[Out] (5*a^2*(8*A*b - 7*a*B)*Sqrt[x]*Sqrt[a + b*x])/(64*b^4) - (5*a*(8*
A*b - 7*a*B)*x^(3/2)*Sqrt[a + b*x])/(96*b^3) + ((8*A*b - 7*a*B)*x
^(5/2)*Sqrt[a + b*x])/(24*b^2) + (B*x^(7/2)*Sqrt[a + b*x])/(4*b)
- (5*a^3*(8*A*b - 7*a*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a + b*x]]
)/(64*b^(9/2))
```

Rubi [A] time = 0.186749, antiderivative size = 159, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.2

$$-\frac{5a^3(8Ab-7aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{64b^{9/2}}+\frac{5a^2\sqrt{x}\sqrt{a+bx}(8Ab-7aB)}{64b^4}-\frac{5ax^{3/2}\sqrt{a+bx}(8Ab-7aB)}{96b^3}+\frac{x^{5/2}\sqrt{a+bx}(8Ab-7aB)}{24b^2}+\frac{Bx^{7/2}\sqrt{a+bx}}{4b}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^(5/2)*(A + B*x))/Sqrt[a + b*x],x]
```

```
[Out] (5*a^2*(8*A*b - 7*a*B)*Sqrt[x]*Sqrt[a + b*x])/(64*b^4) - (5*a*(8*
A*b - 7*a*B)*x^(3/2)*Sqrt[a + b*x])/(96*b^3) + ((8*A*b - 7*a*B)*x
^(5/2)*Sqrt[a + b*x])/(24*b^2) + (B*x^(7/2)*Sqrt[a + b*x])/(4*b)
- (5*a^3*(8*A*b - 7*a*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a + b*x]]
)/(64*b^(9/2))
```

Rubi in Sympy [A] time = 17.0467, size = 155, normalized size = 0.97

$$\frac{Bx^{\frac{7}{2}}\sqrt{a+bx}}{4b}-\frac{5a^3\left(8Ab-7Ba\right)\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{b}\sqrt{x}}\right)}{64b^{\frac{9}{2}}}+\frac{5a^2\sqrt{x}\sqrt{a+bx}\left(8Ab-7Ba\right)}{64b^4}-\frac{5ax^{\frac{3}{2}}\sqrt{a+bx}\left(8Ab-7Ba\right)}{96b^3}+\frac{x^{\frac{5}{2}}\sqrt{a+bx}\left(8Ab-7Ba\right)}{24b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**(5/2)*(B*x+A)/(b*x+a)**(1/2),x)
```

```
[Out] B*x**(7/2)*sqrt(a + b*x)/(4*b) - 5*a**3*(8*A*b - 7*B*a)*atanh(sqr
t(a + b*x)/(sqrt(b)*sqrt(x)))/(64*b**(9/2)) + 5*a**2*sqrt(x)*sqrt
(a + b*x)*(8*A*b - 7*B*a)/(64*b**4) - 5*a*x**(3/2)*sqrt(a + b*x)*
(8*A*b - 7*B*a)/(96*b**3) + x**(5/2)*sqrt(a + b*x)*(8*A*b - 7*B*a
)/(24*b**2)
```

Mathematica [A] time = 0.139809, size = 120, normalized size = 0.75

$$\frac{15a^3(7aB-8Ab)\log\left(\sqrt{b}\sqrt{a+bx}+b\sqrt{x}\right)+\sqrt{b}\sqrt{x}\sqrt{a+bx}\left(-105a^3B+10a^2b(12A+7Bx)-8ab^2x(10A+7Bx)+16b^3x^2(4A\right.}{192b^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^(5/2)*(A + B*x))/Sqrt[a + b*x],x]
```

```
[Out] (Sqrt[b]*Sqrt[x]*Sqrt[a + b*x]*(-105*a^3*B + 16*b^3*x^2*(4*A + 3*
B*x) - 8*a*b^2*x*(10*A + 7*B*x) + 10*a^2*b*(12*A + 7*B*x)) + 15*a
^3*(-8*A*b + 7*a*B)*Log[b*Sqrt[x] + Sqrt[b]*Sqrt[a + b*x]])/(192*
b^(9/2))
```

Maple [A] time = 0.022, size = 218, normalized size = 1.4

$$-\frac{1}{384}\sqrt{x}\sqrt{bx+a}\left(-96\,Bx^3b^{7/2}\sqrt{x\,(bx+a)}-128\,Ax^2b^{7/2}\sqrt{x\,(bx+a)}+112\,Bx^2ab^{5/2}\sqrt{x\,(bx+a)}+160\,Aax\sqrt{x\,(bx+a)}b^{5/2}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^(5/2)*(B*x+A)/(b*x+a)^(1/2),x)
```

```
[Out] -1/384*x^(1/2)*(b*x+a)^(1/2)/b^(9/2)*(-96*B*x^3*b^(7/2)*(x*(b*x+a
))^(1/2)-128*A*x^2*b^(7/2)*(x*(b*x+a))^(1/2)+112*B*x^2*a*b^(5/2)*
(x*(b*x+a))^(1/2)+160*A*a*x*(x*(b*x+a))^(1/2)*b^(5/2)-140*B*a^2*x
*(x*(b*x+a))^(1/2)*b^(3/2)+120*A*a^3*ln(1/2*(2*(x*(b*x+a))^(1/2)*
b^(1/2)+2*b*x+a)/b^(1/2))*b-240*A*a^2*(x*(b*x+a))^(1/2)*b^(3/2)-1
05*B*a^4*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))+21
0*B*a^3*(x*(b*x+a))^(1/2)*b^(1/2))/(x*(b*x+a))^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(5/2)/sqrt(b*x + a),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.238199, size = 1, normalized size = 0.01

$$\left[\frac{2\left(48\,Bb^3x^3-105\,Ba^3+120\,Aa^2b-8\left(7\,Bab^2-8\,Ab^3\right)x^2+10\left(7\,Ba^2b-8\,Aab^2\right)x\right)\sqrt{bx+a}\sqrt{b}\sqrt{x}-15\left(7\,Ba^4-8\,Aa^3b\right)\,\mathrm{l}}{384\,b^{\frac{9}{2}}}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(5/2)/sqrt(b*x + a),x, algorithm="fricas")
```

```
[Out] [1/384*(2*(48*B*b^3*x^3 - 105*B*a^3 + 120*A*a^2*b - 8*(7*B*a*b^2
- 8*A*b^3)*x^2 + 10*(7*B*a^2*b - 8*A*a*b^2)*x)*sqrt(b*x + a)*sqrt
(b)*sqrt(x) - 15*(7*B*a^4 - 8*A*a^3*b)*log(-2*sqrt(b*x + a)*b*sqr
t(x) + (2*b*x + a)*sqrt(b)))/b^(9/2), 1/192*((48*B*b^3*x^3 - 105*
B*a^3 + 120*A*a^2*b - 8*(7*B*a*b^2 - 8*A*b^3)*x^2 + 10*(7*B*a^2*b
 - 8*A*a*b^2)*x)*sqrt(b*x + a)*sqrt(-b)*sqrt(x) + 15*(7*B*a^4 - 8
*A*a^3*b)*arctan(sqrt(b*x + a)*sqrt(-b)/(b*sqrt(x))))/(sqrt(-b)*b
^4)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**(5/2)*(B*x+A)/(b*x+a)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(5/2)/sqrt(b*x + a),x, algorithm="giac")
```

```
[Out] Timed out
```

3.504 $\int \frac{x^{3/2}(A+Bx)}{\sqrt{a+bx}}\,dx$

Optimal. Leaf size=126

$$\frac{a^2(6Ab-5aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{8b^{7/2}}-\frac{a\sqrt{x}\sqrt{a+bx}(6Ab-5aB)}{8b^3}+\frac{x^{3/2}\sqrt{a+bx}(6Ab-5aB)}{12b^2}+\frac{Bx^{5/2}\sqrt{a+bx}}{3b}$$

```
[Out] -(a*(6*A*b - 5*a*B)*Sqrt[x]*Sqrt[a + b*x])/(8*b^3) + ((6*A*b - 5*
a*B)*x^(3/2)*Sqrt[a + b*x])/(12*b^2) + (B*x^(5/2)*Sqrt[a + b*x])/
(3*b) + (a^2*(6*A*b - 5*a*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a + b
*x]])/(8*b^(7/2))
```

Rubi [A] time = 0.142528, antiderivative size = 126, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.2

$$\frac{a^2(6Ab-5aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{8b^{7/2}}-\frac{a\sqrt{x}\sqrt{a+bx}(6Ab-5aB)}{8b^3}+\frac{x^{3/2}\sqrt{a+bx}(6Ab-5aB)}{12b^2}+\frac{Bx^{5/2}\sqrt{a+bx}}{3b}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^(3/2)*(A + B*x))/Sqrt[a + b*x],x]
```

```
[Out] -(a*(6*A*b - 5*a*B)*Sqrt[x]*Sqrt[a + b*x])/(8*b^3) + ((6*A*b - 5*
a*B)*x^(3/2)*Sqrt[a + b*x])/(12*b^2) + (B*x^(5/2)*Sqrt[a + b*x])/
(3*b) + (a^2*(6*A*b - 5*a*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a + b
*x]])/(8*b^(7/2))
```

Rubi in Sympy [A] time = 12.681, size = 117, normalized size = 0.93

$$\frac{Bx^{\frac{5}{2}}\sqrt{a+bx}}{3b}+\frac{a^2\left(6Ab-5Ba\right)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{8b^{\frac{7}{2}}}-\frac{a\sqrt{x}\sqrt{a+bx}\left(6Ab-5Ba\right)}{8b^3}+\frac{x^{\frac{3}{2}}\sqrt{a+bx}\left(6Ab-5Ba\right)}{12b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**(3/2)*(B*x+A)/(b*x+a)**(1/2),x)
```

```
[Out] B*x**(5/2)*sqrt(a + b*x)/(3*b) + a**2*(6*A*b - 5*B*a)*atanh(sqrt(
b)*sqrt(x)/sqrt(a + b*x))/(8*b**(7/2)) - a*sqrt(x)*sqrt(a + b*x)*
(6*A*b - 5*B*a)/(8*b**3) + x**(3/2)*sqrt(a + b*x)*(6*A*b - 5*B*a)
/(12*b**2)
```

Mathematica [A] time = 0.111185, size = 101, normalized size = 0.8

$$\frac{\sqrt{b}\sqrt{x}\sqrt{a+bx}\left(15a^2B-2ab(9A+5Bx)+4b^2x(3A+2Bx)\right)-3a^2(5aB-6Ab)\log\left(\sqrt{b}\sqrt{a+bx}+b\sqrt{x}\right)}{24b^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^(3/2)*(A + B*x))/Sqrt[a + b*x],x]
```

```
[Out] (Sqrt[b]*Sqrt[x]*Sqrt[a + b*x]*(15*a^2*B + 4*b^2*x*(3*A + 2*B*x)
- 2*a*b*(9*A + 5*B*x)) - 3*a^2*(-6*A*b + 5*a*B)*Log[b*Sqrt[x] + S
qrt[b]*Sqrt[a + b*x]])/(24*b^(7/2))
```

Maple [A] time = 0.022, size = 176, normalized size = 1.4

$$\frac{1}{48}\sqrt{x}\sqrt{bx+a}\left(16\,Bx^2b^{5/2}\sqrt{x\,(bx+a)}+24\,A\sqrt{x\,(bx+a)}xb^{5/2}-20\,Ba\sqrt{x\,(bx+a)}xb^{3/2}+18\,Aa^2\ln\left(1/2\,\frac{2\,\sqrt{x\,(bx+a)}\sqrt{b}+}{\sqrt{b}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^(3/2)*(B*x+A)/(b*x+a)^(1/2),x)
```

```
[Out] 1/48*x^(1/2)*(b*x+a)^(1/2)/b^(7/2)*(16*B*x^2*b^(5/2)*(x*(b*x+a))^
(1/2)+24*A*(x*(b*x+a))^(1/2)*x*b^(5/2)-20*B*a*(x*(b*x+a))^(1/2)*x
*b^(3/2)+18*A*a^2*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1/2)+2*b*x+a)/b^
(1/2))*b-36*A*(x*(b*x+a))^(1/2)*a*b^(3/2)-15*B*a^3*ln(1/2*(2*(x*(
b*x+a))^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))+30*B*a^2*(x*(b*x+a))^(1/2
)*b^(1/2))/(x*(b*x+a))^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(3/2)/sqrt(b*x + a),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.240406, size = 1, normalized size = 0.01

$$\left[\frac{2\left(8\,Bb^2x^2+15\,Ba^2-18\,Aab-2\left(5\,Bab-6\,Ab^2\right)x\right)\sqrt{bx+a}\sqrt{b}\sqrt{x}-3\left(5\,Ba^3-6\,Aa^2b\right)\log\left(2\,\sqrt{bx+a}b\sqrt{x}+(2\,bx+a)\sqrt{}\right.}{48\,b^{\frac{7}{2}}}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(3/2)/sqrt(b*x + a),x, algorithm="fricas")
```

```
[Out] [1/48*(2*(8*B*b^2*x^2 + 15*B*a^2 - 18*A*a*b - 2*(5*B*a*b - 6*A*b^
2)*x)*sqrt(b*x + a)*sqrt(b)*sqrt(x) - 3*(5*B*a^3 - 6*A*a^2*b)*log
(2*sqrt(b*x + a)*b*sqrt(x) + (2*b*x + a)*sqrt(b)))/b^(7/2), 1/24*
((8*B*b^2*x^2 + 15*B*a^2 - 18*A*a*b - 2*(5*B*a*b - 6*A*b^2)*x)*sq
rt(b*x + a)*sqrt(-b)*sqrt(x) - 3*(5*B*a^3 - 6*A*a^2*b)*arctan(sqr
t(b*x + a)*sqrt(-b)/(b*sqrt(x))))/(sqrt(-b)*b^3)]
```

Sympy [A] time = 99.9212, size = 245, normalized size = 1.94

$$-\frac{3Aa^{\frac{3}{2}}\sqrt{x}}{4b^2\sqrt{1+\frac{bx}{a}}}-\frac{A\sqrt{a}x^{\frac{3}{2}}}{4b\sqrt{1+\frac{bx}{a}}}+\frac{3Aa^2\operatorname{asinh}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{4b^{\frac{5}{2}}}+\frac{Ax^{\frac{5}{2}}}{2\sqrt{a}\sqrt{1+\frac{bx}{a}}}+\frac{5Ba^{\frac{5}{2}}\sqrt{x}}{8b^3\sqrt{1+\frac{bx}{a}}}+\frac{5Ba^{\frac{3}{2}}x^{\frac{3}{2}}}{24b^2\sqrt{1+\frac{bx}{a}}}-\frac{B\sqrt{a}x^{\frac{5}{2}}}{12b\sqrt{1+\frac{bx}{a}}}-\frac{5Ba^3\operatorname{asinh}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{8b^{\frac{7}{2}}}+\frac{Bx^{\frac{7}{2}}}{3\sqrt{a}\sqrt{1+\frac{bx}{a}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**(3/2)*(B*x+A)/(b*x+a)**(1/2),x)
```

```
[Out] -3*A*a**(3/2)*sqrt(x)/(4*b**2*sqrt(1 + b*x/a)) - A*sqrt(a)*x**(3/
2)/(4*b*sqrt(1 + b*x/a)) + 3*A*a**2*asinh(sqrt(b)*sqrt(x)/sqrt(a)
)/(4*b**(5/2)) + A*x**(5/2)/(2*sqrt(a)*sqrt(1 + b*x/a)) + 5*B*a**
(5/2)*sqrt(x)/(8*b**3*sqrt(1 + b*x/a)) + 5*B*a**(3/2)*x**(3/2)/(2
4*b**2*sqrt(1 + b*x/a)) - B*sqrt(a)*x**(5/2)/(12*b*sqrt(1 + b*x/a
)) - 5*B*a**3*asinh(sqrt(b)*sqrt(x)/sqrt(a))/(8*b**(7/2)) + B*x**
(7/2)/(3*sqrt(a)*sqrt(1 + b*x/a))
```

GIAC/XCAS [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(3/2)/sqrt(b*x + a),x, algorithm="giac")
```

```
[Out] Timed out
```

3.505 $\int \frac{\sqrt{x}(A+Bx)}{\sqrt{a+bx}} dx$

Optimal. Leaf size=93

$$-\frac{a(4Ab-3aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{4b^{5/2}}+\frac{\sqrt{x}\sqrt{a+bx}(4Ab-3aB)}{4b^2}+\frac{Bx^{3/2}\sqrt{a+bx}}{2b}$$

```
[Out] ((4*A*b - 3*a*B)*Sqrt[x]*Sqrt[a + b*x])/(4*b^2) + (B*x^(3/2)*Sqrt
[a + b*x])/(2*b) - (a*(4*A*b - 3*a*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/S
qrt[a + b*x]])/(4*b^(5/2))
```

Rubi [A] time = 0.103734, antiderivative size = 93, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.2

$$-\frac{a(4Ab-3aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{4b^{5/2}}+\frac{\sqrt{x}\sqrt{a+bx}(4Ab-3aB)}{4b^2}+\frac{Bx^{3/2}\sqrt{a+bx}}{2b}$$

Antiderivative was successfully verified.

```
[In] Int[(Sqrt[x]*(A + B*x))/Sqrt[a + b*x],x]
```

```
[Out] ((4*A*b - 3*a*B)*Sqrt[x]*Sqrt[a + b*x])/(4*b^2) + (B*x^(3/2)*Sqrt
[a + b*x])/(2*b) - (a*(4*A*b - 3*a*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/S
qrt[a + b*x]])/(4*b^(5/2))
```

Rubi in Sympy [A] time = 8.87174, size = 85, normalized size = 0.91

$$\frac{Bx^{\frac{3}{2}}\sqrt{a+bx}}{2b}-\frac{a\,(4Ab-3Ba)\,\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{b}\sqrt{x}}\right)}{4b^{\frac{5}{2}}}+\frac{\sqrt{x}\sqrt{a+bx}\,(4Ab-3Ba)}{4b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((B*x+A)*x**(1/2)/(b*x+a)**(1/2),x)
```

```
[Out] B*x**(3/2)*sqrt(a + b*x)/(2*b) - a*(4*A*b - 3*B*a)*atanh(sqrt(a +
 b*x)/(sqrt(b)*sqrt(x)))/(4*b**(5/2)) + sqrt(x)*sqrt(a + b*x)*(4*
A*b - 3*B*a)/(4*b**2)
```

Mathematica [A] time = 0.0843091, size = 79, normalized size = 0.85

$$\frac{\sqrt{b}\sqrt{x}\sqrt{a+bx}(-3aB+4Ab+2bBx)+a(3aB-4Ab)\log\left(\sqrt{b}\sqrt{a+bx}+b\sqrt{x}\right)}{4b^{5/2}}$$

Antiderivative was successfully verified.

```
[In] Integrate[(Sqrt[x]*(A + B*x))/Sqrt[a + b*x],x]
```

```
[Out] (Sqrt[b]*Sqrt[x]*Sqrt[a + b*x]*(4*A*b - 3*a*B + 2*b*B*x) + a*(-4*
A*b + 3*a*B)*Log[b*Sqrt[x] + Sqrt[b]*Sqrt[a + b*x]])/(4*b^(5/2))
```

Maple [A] time = 0.017, size = 136, normalized size = 1.5

$$-\frac{1}{8}\sqrt{x}\sqrt{bx+a}\left(-4\,Bxb^{3/2}\sqrt{x\,(bx+a)}+4\,A\ln\left(1/2\,\frac{2\,\sqrt{x\,(bx+a)}\sqrt{b}+2\,bx+a}{\sqrt{b}}\right)ab-8\,Ab^{3/2}\sqrt{x\,(bx+a)}-3\,B\ln\left(1/2\,\frac{2\,\sqrt{}}{}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*x^(1/2)/(b*x+a)^(1/2),x)
```

```
[Out] -1/8*x^(1/2)*(b*x+a)^(1/2)/b^(5/2)*(-4*B*x*b^(3/2)*(x*(b*x+a))^(1
/2)+4*A*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))*a*b
-8*A*b^(3/2)*(x*(b*x+a))^(1/2)-3*B*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^
(1/2)+2*b*x+a)/b^(1/2))*a^2+6*B*a*b^(1/2)*(x*(b*x+a))^(1/2))/(x*(
b*x+a))^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(x)/sqrt(b*x + a),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.237557, size = 1, normalized size = 0.01

$$\left[\frac{2\,(2\,Bbx - 3\,Ba + 4\,Ab)\sqrt{bx + a}\sqrt{b}\sqrt{x} - \left(3\,Ba^2 - 4\,Aab\right)\,\log\left(-2\,\sqrt{bx + a}b\sqrt{x} + (2\,bx + a)\sqrt{b}\right)}{8\,b^{\frac{5}{2}}}, \frac{(2\,Bbx - 3\,Ba + 4\,Ab)\sqrt{bx}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(x)/sqrt(b*x + a),x, algorithm="fricas")
```

```
[Out] [1/8*(2*(2*B*b*x - 3*B*a + 4*A*b)*sqrt(b*x + a)*sqrt(b)*sqrt(x) -
 (3*B*a^2 - 4*A*a*b)*log(-2*sqrt(b*x + a)*b*sqrt(x) + (2*b*x + a)
*sqrt(b)))/b^(5/2), 1/4*((2*B*b*x - 3*B*a + 4*A*b)*sqrt(b*x + a)*
sqrt(-b)*sqrt(x) + (3*B*a^2 - 4*A*a*b)*arctan(sqrt(b*x + a)*sqrt(
-b)/(b*sqrt(x))))/(sqrt(-b)*b^2)]
```

Sympy [A] time = 20.9745, size = 156, normalized size = 1.68

$$\frac{A\sqrt{a}\sqrt{x}\sqrt{1 + \frac{bx}{a}}}{b} - \frac{Aa\operatorname{asinh}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{b^{\frac{3}{2}}} - \frac{3Ba^{\frac{3}{2}}\sqrt{x}}{4b^2\sqrt{1 + \frac{bx}{a}}} - \frac{B\sqrt{a}x^{\frac{3}{2}}}{4b\sqrt{1 + \frac{bx}{a}}} + \frac{3Ba^2\operatorname{asinh}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{4b^{\frac{5}{2}}} + \frac{Bx^{\frac{5}{2}}}{2\sqrt{a}\sqrt{1 + \frac{bx}{a}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*x**(1/2)/(b*x+a)**(1/2),x)
```

```
[Out] A*sqrt(a)*sqrt(x)*sqrt(1 + b*x/a)/b - A*a*asinh(sqrt(b)*sqrt(x)/s
qrt(a))/b**(3/2) - 3*B*a**(3/2)*sqrt(x)/(4*b**2*sqrt(1 + b*x/a))
- B*sqrt(a)*x**(3/2)/(4*b*sqrt(1 + b*x/a)) + 3*B*a**2*asinh(sqrt(
b)*sqrt(x)/sqrt(a))/(4*b**(5/2)) + B*x**(5/2)/(2*sqrt(a)*sqrt(1 +
 b*x/a))
```

GIAC/XCAS [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(x)/sqrt(b*x + a),x, algorithm="giac")
```

```
[Out] Timed out
```

3.506 $\int \frac{A+Bx}{\sqrt{x}\sqrt{a+bx}} dx$

Optimal. Leaf size=56

$$\frac{(2Ab-aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{b^{3/2}}+\frac{B\sqrt{x}\sqrt{a+bx}}{b}$$

```
[Out] (B*Sqrt[x]*Sqrt[a + b*x])/b + ((2*A*b - a*B)*ArcTanh[(Sqrt[b]*Sqr
t[x])/Sqrt[a + b*x]])/b^(3/2)
```

Rubi [A] time = 0.070188, antiderivative size = 56, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.15

$$\frac{(2Ab-aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{b^{3/2}}+\frac{B\sqrt{x}\sqrt{a+bx}}{b}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(Sqrt[x]*Sqrt[a + b*x]),x]
```

```
[Out] (B*Sqrt[x]*Sqrt[a + b*x])/b + ((2*A*b - a*B)*ArcTanh[(Sqrt[b]*Sqr
t[x])/Sqrt[a + b*x]])/b^(3/2)
```

Rubi in Sympy [A] time = 6.00705, size = 51, normalized size = 0.91

$$\frac{B\sqrt{x}\sqrt{a+bx}}{b}+\frac{2\left(Ab-\frac{Ba}{2}\right)\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{b}\sqrt{x}}\right)}{b^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**(1/2)/(b*x+a)**(1/2),x)
```

```
[Out] B*sqrt(x)*sqrt(a + b*x)/b + 2*(A*b - B*a/2)*atanh(sqrt(a + b*x)/(
sqrt(b)*sqrt(x)))/b**(3/2)
```

Mathematica [A] time = 0.0542538, size = 59, normalized size = 1.05

$$\frac{(2Ab-aB)\log\left(\sqrt{b}\sqrt{a+bx}+b\sqrt{x}\right)}{b^{3/2}}+\frac{B\sqrt{x}\sqrt{a+bx}}{b}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(Sqrt[x]*Sqrt[a + b*x]),x]
```

```
[Out] (B*Sqrt[x]*Sqrt[a + b*x])/b + ((2*A*b - a*B)*Log[b*Sqrt[x] + Sqrt
[b]*Sqrt[a + b*x]])/b^(3/2)
```

Maple [B] time = 0.02, size = 101, normalized size = 1.8

$$\frac{1}{2}\sqrt{x}\sqrt{bx+a}\left(2A\ln\left(1/2\frac{2\sqrt{x(bx+a)}\sqrt{b}+2bx+a}{\sqrt{b}}\right)b-B\ln\left(\frac{1}{2}\left(2\sqrt{x(bx+a)}\sqrt{b}+2bx+a\right)\frac{1}{\sqrt{b}}\right)a+2B\sqrt{x(bx+a)}\sqrt{b}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^(1/2)/(b*x+a)^(1/2),x)
```

```
[Out] 1/2*x^(1/2)*(b*x+a)^(1/2)/b^(3/2)*(2*A*ln(1/2*(2*(x*(b*x+a))^(1/2
)*b^(1/2)+2*b*x+a)/b^(1/2))*b-B*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1/
2)+2*b*x+a)/b^(1/2))*a+2*B*(x*(b*x+a))^(1/2)*b^(1/2))/(x*(b*x+a))
^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*sqrt(x)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.241709, size = 1, normalized size = 0.02

$$\left[\frac{2\sqrt{bx+a}B\sqrt{b}\sqrt{x}-(Ba-2Ab)\log\left(2\sqrt{bx+a}b\sqrt{x}+(2bx+a)\sqrt{b}\right)}{2b^{\frac{3}{2}}}, \frac{\sqrt{bx+a}B\sqrt{-b}\sqrt{x}-(Ba-2Ab)\arctan\left(\frac{\sqrt{bx+a}\sqrt{-b}}{b\sqrt{x}}\right)}{\sqrt{-b}b}\right]$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*sqrt(x)),x, algorithm="fricas")
```

```
[Out] [1/2*(2*sqrt(b*x + a)*B*sqrt(b)*sqrt(x) - (B*a - 2*A*b)*log(2*sqr
t(b*x + a)*b*sqrt(x) + (2*b*x + a)*sqrt(b)))/b^(3/2), (sqrt(b*x +
 a)*B*sqrt(-b)*sqrt(x) - (B*a - 2*A*b)*arctan(sqrt(b*x + a)*sqrt(
-b)/(b*sqrt(x))))/(sqrt(-b)*b)]
```

Sympy [A] time = 17.0874, size = 73, normalized size = 1.3

$$\frac{2A\operatorname{asinh}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{\sqrt{b}}+\frac{B\sqrt{a}\sqrt{x}\sqrt{1+\frac{bx}{a}}}{b}-\frac{Ba\operatorname{asinh}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{b^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**(1/2)/(b*x+a)**(1/2),x)
```

```
[Out] 2*A*asinh(sqrt(b)*sqrt(x)/sqrt(a))/sqrt(b) + B*sqrt(a)*sqrt(x)*sq
rt(1 + b*x/a)/b - B*a*asinh(sqrt(b)*sqrt(x)/sqrt(a))/b**(3/2)
```

GIAC/XCAS [A] time = 12.746, size = 4, normalized size = 0.07

$$sage_0x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*sqrt(x)),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.507 $\int \frac{A+Bx}{x^{3/2}\sqrt{a+bx}}\,dx$

Optimal. Leaf size=50

$$\frac{2B\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{\sqrt{b}}-\frac{2A\sqrt{a+bx}}{a\sqrt{x}}$$

```
[Out] (-2*A*Sqrt[a + b*x])/(a*Sqrt[x]) + (2*B*ArcTanh[(Sqrt[b]*Sqrt[x])
/Sqrt[a + b*x]])/Sqrt[b]
```

Rubi [A] time = 0.0561823, antiderivative size = 50, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.15

$$\frac{2B\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{\sqrt{b}}-\frac{2A\sqrt{a+bx}}{a\sqrt{x}}$$

Antiderivative was successfully verified.

```
[In] Int[(A + B*x)/(x^(3/2)*Sqrt[a + b*x]),x]
```

```
[Out] (-2*A*Sqrt[a + b*x])/(a*Sqrt[x]) + (2*B*ArcTanh[(Sqrt[b]*Sqrt[x])
/Sqrt[a + b*x]])/Sqrt[b]
```

Rubi in Sympy [A] time = 5.45555, size = 46, normalized size = 0.92

$$-\frac{2A\sqrt{a+bx}}{a\sqrt{x}}+\frac{2B\,\mathrm{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{b}\sqrt{x}}\right)}{\sqrt{b}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((B*x+A)/x**(3/2)/(b*x+a)**(1/2),x)
```

```
[Out] -2*A*sqrt(a + b*x)/(a*sqrt(x)) + 2*B*atanh(sqrt(a + b*x)/(sqrt(b)
*sqrt(x)))/sqrt(b)
```

Mathematica [A] time = 0.0487142, size = 53, normalized size = 1.06

$$\frac{2B\log\left(\sqrt{b}\sqrt{a+bx}+b\sqrt{x}\right)}{\sqrt{b}}-\frac{2A\sqrt{a+bx}}{a\sqrt{x}}$$

Antiderivative was successfully verified.

```
[In] Integrate[(A + B*x)/(x^(3/2)*Sqrt[a + b*x]),x]
```

```
[Out] (-2*A*Sqrt[a + b*x])/(a*Sqrt[x]) + (2*B*Log[b*Sqrt[x] + Sqrt[b]*S
qrt[a + b*x]])/Sqrt[b]
```

Maple [A] time = 0.023, size = 73, normalized size = 1.5

$$\frac{1}{a}\left(B\ln\left(\frac{1}{2}\left(2\sqrt{x(bx+a)}\sqrt{b}+2bx+a\right)\frac{1}{\sqrt{b}}\right)xa-2A\sqrt{x(bx+a)}\sqrt{b}\right)\sqrt{bx+a}\frac{1}{\sqrt{x}}\frac{1}{\sqrt{x(bx+a)}}\frac{1}{\sqrt{b}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^(3/2)/(b*x+a)^(1/2),x)
```

```
[Out] (B*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))*x*a-2*A*
(x*(b*x+a))^(1/2)*b^(1/2))*(b*x+a)^(1/2)/a/x^(1/2)/(x*(b*x+a))^(1
/2)/b^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*x^(3/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.237359, size = 1, normalized size = 0.02

$$\left[\frac{Bax\log\left(2\sqrt{bx+a}b\sqrt{x}+(2bx+a)\sqrt{b}\right)-2\sqrt{bx+a}A\sqrt{b}\sqrt{x}}{a\sqrt{b}x},\frac{2\left(Bax\arctan\left(\frac{\sqrt{bx+a}\sqrt{-b}}{b\sqrt{x}}\right)-\sqrt{bx+a}A\sqrt{-b}\sqrt{x}\right)}{a\sqrt{-b}x}\right]$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*x^(3/2)),x, algorithm="fricas")
```

```
[Out] [(B*a*x*log(2*sqrt(b*x + a)*b*sqrt(x) + (2*b*x + a)*sqrt(b)) - 2*
sqrt(b*x + a)*A*sqrt(b)*sqrt(x))/(a*sqrt(b)*x), 2*(B*a*x*arctan(s
qrt(b*x + a)*sqrt(-b)/(b*sqrt(x))) - sqrt(b*x + a)*A*sqrt(-b)*sqr
t(x))/(a*sqrt(-b)*x)]
```

Sympy [A] time = 19.2886, size = 44, normalized size = 0.88

$$-\frac{2A\sqrt{b}\sqrt{\frac{a}{bx}+1}}{a}+\frac{2B\operatorname{asinh}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{\sqrt{b}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**(3/2)/(b*x+a)**(1/2),x)
```

```
[Out] -2*A*sqrt(b)*sqrt(a/(b*x) + 1)/a + 2*B*asinh(sqrt(b)*sqrt(x)/sqrt
(a))/sqrt(b)
```

GIAC/XCAS [A] time = 12.743, size = 4, normalized size = 0.08

$$sage_0x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*x^(3/2)),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.508 $\int \frac{A+Bx}{x^{5/2}\sqrt{a+bx}}\,dx$

Optimal. Leaf size=53

$$\frac{2\sqrt{a+bx}(2Ab-3aB)}{3a^2\sqrt{x}}-\frac{2A\sqrt{a+bx}}{3ax^{3/2}}$$

```
[Out] (-2*A*Sqrt[a + b*x])/(3*a*x^(3/2)) + (2*(2*A*b - 3*a*B)*Sqrt[a +
b*x])/(3*a^2*Sqrt[x])
```

Rubi [A] time = 0.0667485, antiderivative size = 53, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.1

$$\frac{2\sqrt{a+bx}(2Ab-3aB)}{3a^2\sqrt{x}}-\frac{2A\sqrt{a+bx}}{3ax^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^(5/2)*Sqrt[a + b*x]),x]
```

```
[Out] (-2*A*Sqrt[a + b*x])/(3*a*x^(3/2)) + (2*(2*A*b - 3*a*B)*Sqrt[a +
b*x])/(3*a^2*Sqrt[x])
```

Rubi in Sympy [A] time = 5.31903, size = 49, normalized size = 0.92

$$-\frac{2A\sqrt{a+bx}}{3ax^{\frac{3}{2}}}+\frac{4\sqrt{a+bx}\left(Ab-\frac{3Ba}{2}\right)}{3a^2\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**(5/2)/(b*x+a)**(1/2),x)
```

```
[Out] -2*A*sqrt(a + b*x)/(3*a*x**(3/2)) + 4*sqrt(a + b*x)*(A*b - 3*B*a/
2)/(3*a**2*sqrt(x))
```

Mathematica [A] time = 0.0436959, size = 35, normalized size = 0.66

$$-\frac{2\sqrt{a+bx}(a(A+3Bx)-2Abx)}{3a^2x^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^(5/2)*Sqrt[a + b*x]),x]
```

```
[Out] (-2*Sqrt[a + b*x]*(-2*A*b*x + a*(A + 3*B*x)))/(3*a^2*x^(3/2))
```

Maple [A] time = 0.007, size = 30, normalized size = 0.6

$$-\frac{-4\,Abx+6\,Bax+2\,Aa}{3\,a^2}\sqrt{bx+ax}^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^(5/2)/(b*x+a)^(1/2),x)
```

```
[Out] -2/3*(b*x+a)^(1/2)*(-2*A*b*x+3*B*a*x+A*a)/x^(3/2)/a^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*x^(5/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.241817, size = 41, normalized size = 0.77

$$-\frac{2\,(Aa + (3\,Ba - 2\,Ab)x)\sqrt{bx + a}}{3\,a^2x^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*x^(5/2)),x, algorithm="fricas")
```

```
[Out] -2/3*(A*a + (3*B*a - 2*A*b)*x)*sqrt(b*x + a)/(a^2*x^(3/2))
```

Sympy [A] time = 49.4042, size = 66, normalized size = 1.25

$$-\frac{2A\sqrt{b}\sqrt{\frac{a}{bx}+1}}{3ax} + \frac{4Ab^{\frac{3}{2}}\sqrt{\frac{a}{bx}+1}}{3a^2} - \frac{2B\sqrt{b}\sqrt{\frac{a}{bx}+1}}{a}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**(5/2)/(b*x+a)**(1/2),x)
```

```
[Out] -2*A*sqrt(b)*sqrt(a/(b*x) + 1)/(3*a*x) + 4*A*b**(3/2)*sqrt(a/(b*x
) + 1)/(3*a**2) - 2*B*sqrt(b)*sqrt(a/(b*x) + 1)/a
```

GIAC/XCAS [A] time = 0.222155, size = 107, normalized size = 2.02

$$\frac{\sqrt{bx + a}b\left(\frac{(3\,Bab^2 - 2\,Ab^3)(bx+a)}{a^2b^6} - \frac{3\,(Ba^2b^2 - Aab^3)}{a^2b^6}\right)}{48\,((bx + a)b - ab)^{\frac{3}{2}}|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*x^(5/2)),x, algorithm="giac")
```

```
[Out] 1/48*sqrt(b*x + a)*b*((3*B*a*b^2 - 2*A*b^3)*(b*x + a)/(a^2*b^6) -
 3*(B*a^2*b^2 - A*a*b^3)/(a^2*b^6))/(((b*x + a)*b - a*b)^(3/2)*ab
s(b))
```

3.509 $\int \frac{A+Bx}{x^{7/2}\sqrt{a+bx}}\,dx$

Optimal. Leaf size=84

$$-\frac{4b\sqrt{a+bx}(4Ab-5aB)}{15a^3\sqrt{x}}+\frac{2\sqrt{a+bx}(4Ab-5aB)}{15a^2x^{3/2}}-\frac{2A\sqrt{a+bx}}{5ax^{5/2}}$$

```
[Out] (-2*A*Sqrt[a + b*x])/(5*a*x^(5/2)) + (2*(4*A*b - 5*a*B)*Sqrt[a +
b*x])/(15*a^2*x^(3/2)) - (4*b*(4*A*b - 5*a*B)*Sqrt[a + b*x])/(15*
a^3*Sqrt[x])
```

Rubi [A] time = 0.103743, antiderivative size = 84, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.15$

$$-\frac{4b\sqrt{a+bx}(4Ab-5aB)}{15a^3\sqrt{x}}+\frac{2\sqrt{a+bx}(4Ab-5aB)}{15a^2x^{3/2}}-\frac{2A\sqrt{a+bx}}{5ax^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^(7/2)*Sqrt[a + b*x]),x]
```

```
[Out] (-2*A*Sqrt[a + b*x])/(5*a*x^(5/2)) + (2*(4*A*b - 5*a*B)*Sqrt[a +
b*x])/(15*a^2*x^(3/2)) - (4*b*(4*A*b - 5*a*B)*Sqrt[a + b*x])/(15*
a^3*Sqrt[x])
```

Rubi in Sympy [A] time = 7.76138, size = 82, normalized size = 0.98

$$-\frac{2A\sqrt{a+bx}}{5ax^{\frac{5}{2}}}+\frac{2\sqrt{a+bx}\,(4Ab-5Ba)}{15a^2x^{\frac{3}{2}}}-\frac{4b\sqrt{a+bx}\,(4Ab-5Ba)}{15a^3\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**(7/2)/(b*x+a)**(1/2),x)
```

```
[Out] -2*A*sqrt(a + b*x)/(5*a*x**(5/2)) + 2*sqrt(a + b*x)*(4*A*b - 5*B*
a)/(15*a**2*x**(3/2)) - 4*b*sqrt(a + b*x)*(4*A*b - 5*B*a)/(15*a**
3*sqrt(x))
```

Mathematica [A] time = 0.0610483, size = 56, normalized size = 0.67

$$-\frac{2\sqrt{a+bx}\left(a^2(3A+5Bx)-2abx(2A+5Bx)+8Ab^2x^2\right)}{15a^3x^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^(7/2)*Sqrt[a + b*x]),x]
```

```
[Out] (-2*Sqrt[a + b*x]*(8*A*b^2*x^2 - 2*a*b*x*(2*A + 5*B*x) + a^2*(3*A
 + 5*B*x)))/(15*a^3*x^(5/2))
```

Maple [A] time = 0.006, size = 53, normalized size = 0.6

$$-\frac{16\,Ab^2x^2-20\,Bx^2ab-8\,aAbx+10\,a^2Bx+6\,Aa^2}{15\,a^3}\sqrt{bx+a}x^{-\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^(7/2)/(b*x+a)^(1/2),x)
```

```
[Out] -2/15*(b*x+a)^(1/2)*(8*A*b^2*x^2-10*B*a*b*x^2-4*A*a*b*x+5*B*a^2*x
+3*A*a^2)/x^(5/2)/a^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*x^(7/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.229253, size = 72, normalized size = 0.86

$$-\frac{2\,\left(3\,Aa^{2}-2\,\left(5\,Bab-4\,Ab^{2}\right)x^{2}+\left(5\,Ba^{2}-4\,Aab\right)x\right)\sqrt{bx+a}}{15\,a^{3}x^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*x^(7/2)),x, algorithm="fricas")
```

```
[Out] -2/15*(3*A*a^2 - 2*(5*B*a*b - 4*A*b^2)*x^2 + (5*B*a^2 - 4*A*a*b)*
x)*sqrt(b*x + a)/(a^3*x^(5/2))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**(7/2)/(b*x+a)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.221021, size = 154, normalized size = 1.83

$$-\frac{\sqrt{bx+a}\left((bx+a)\left(\frac{2\,(5\,Bab^{4}-4\,Ab^{5})(bx+a)}{a^{3}b^{9}}-\frac{5\,(5\,Ba^{2}b^{4}-4\,Aab^{5})}{a^{3}b^{9}}\right)+\frac{15\,(Ba^{3}b^{4}-Aa^{2}b^{5})}{a^{3}b^{9}}\right)b}{960\,((bx+a)b-ab)^{\frac{5}{2}}|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*x^(7/2)),x, algorithm="giac")
```

```
[Out] -1/960*sqrt(b*x + a)*((b*x + a)*(2*(5*B*a*b^4 - 4*A*b^5)*(b*x + a
)/(a^3*b^9) - 5*(5*B*a^2*b^4 - 4*A*a*b^5)/(a^3*b^9)) + 15*(B*a^3*
b^4 - A*a^2*b^5)/(a^3*b^9))*b/(((b*x + a)*b - a*b)^(5/2)*abs(b))
```

3.510 $\int \frac{A+Bx}{x^{9/2}\sqrt{a+bx}}\,dx$

Optimal. Leaf size=117

$$\frac{16b^2\sqrt{a+bx}(6Ab-7aB)}{105a^4\sqrt{x}}-\frac{8b\sqrt{a+bx}(6Ab-7aB)}{105a^3x^{3/2}}+\frac{2\sqrt{a+bx}(6Ab-7aB)}{35a^2x^{5/2}}-\frac{2A\sqrt{a+bx}}{7ax^{7/2}}$$

```
[Out] (-2*A*Sqrt[a + b*x])/(7*a*x^(7/2)) + (2*(6*A*b - 7*a*B)*Sqrt[a +
b*x])/(35*a^2*x^(5/2)) - (8*b*(6*A*b - 7*a*B)*Sqrt[a + b*x])/(105
*a^3*x^(3/2)) + (16*b^2*(6*A*b - 7*a*B)*Sqrt[a + b*x])/(105*a^4*S
qrt[x])
```

Rubi [A] time = 0.139437, antiderivative size = 117, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.15

$$\frac{16b^2\sqrt{a+bx}(6Ab-7aB)}{105a^4\sqrt{x}}-\frac{8b\sqrt{a+bx}(6Ab-7aB)}{105a^3x^{3/2}}+\frac{2\sqrt{a+bx}(6Ab-7aB)}{35a^2x^{5/2}}-\frac{2A\sqrt{a+bx}}{7ax^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^(9/2)*Sqrt[a + b*x]),x]
```

```
[Out] (-2*A*Sqrt[a + b*x])/(7*a*x^(7/2)) + (2*(6*A*b - 7*a*B)*Sqrt[a +
b*x])/(35*a^2*x^(5/2)) - (8*b*(6*A*b - 7*a*B)*Sqrt[a + b*x])/(105
*a^3*x^(3/2)) + (16*b^2*(6*A*b - 7*a*B)*Sqrt[a + b*x])/(105*a^4*S
qrt[x])
```

Rubi in Sympy [A] time = 11.125, size = 116, normalized size = 0.99

$$-\frac{2A\sqrt{a+bx}}{7ax^{\frac{7}{2}}}+\frac{2\sqrt{a+bx}\,(6Ab-7Ba)}{35a^2x^{\frac{5}{2}}}-\frac{8b\sqrt{a+bx}\,(6Ab-7Ba)}{105a^3x^{\frac{3}{2}}}+\frac{16b^2\sqrt{a+bx}\,(6Ab-7Ba)}{105a^4\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**(9/2)/(b*x+a)**(1/2),x)
```

```
[Out] -2*A*sqrt(a + b*x)/(7*a*x**(7/2)) + 2*sqrt(a + b*x)*(6*A*b - 7*B*
a)/(35*a**2*x**(5/2)) - 8*b*sqrt(a + b*x)*(6*A*b - 7*B*a)/(105*a*
*3*x**(3/2)) + 16*b**2*sqrt(a + b*x)*(6*A*b - 7*B*a)/(105*a**4*sq
rt(x))
```

Mathematica [A] time = 0.0782835, size = 76, normalized size = 0.65

$$-\frac{2\sqrt{a+bx}\left(3a^3(5A+7Bx)-2a^2bx(9A+14Bx)+8ab^2x^2(3A+7Bx)-48Ab^3x^3\right)}{105a^4x^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^(9/2)*Sqrt[a + b*x]),x]
```

```
[Out] (-2*Sqrt[a + b*x]*(-48*A*b^3*x^3 + 8*a*b^2*x^2*(3*A + 7*B*x) + 3*
a^3*(5*A + 7*B*x) - 2*a^2*b*x*(9*A + 14*B*x)))/(105*a^4*x^(7/2))
```

Maple [A] time = 0.007, size = 77, normalized size = 0.7

$$-\frac{-96\,Ab^{3}x^{3}+112\,Bx^{3}ab^{2}+48\,aAb^{2}x^{2}-56\,Bx^{2}a^{2}b-36\,a^{2}Abx+42\,a^{3}Bx+30\,Aa^{3}}{105\,a^{4}}\sqrt{bx+ax}^{-\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^(9/2)/(b*x+a)^(1/2),x)
```

```
[Out] -2/105*(b*x+a)^(1/2)*(-48*A*b^3*x^3+56*B*a*b^2*x^3+24*A*a*b^2*x^2
-28*B*a^2*b*x^2-18*A*a^2*b*x+21*B*a^3*x+15*A*a^3)/x^(7/2)/a^4
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*x^(9/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.23389, size = 105, normalized size = 0.9

$$-\frac{2\left(15\,Aa^{3}+8\left(7\,Bab^{2}-6\,Ab^{3}\right)x^{3}-4\left(7\,Ba^{2}b-6\,Aab^{2}\right)x^{2}+3\left(7\,Ba^{3}-6\,Aa^{2}b\right)x\right)\sqrt{bx+a}}{105\,a^{4}x^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*x^(9/2)),x, algorithm="fricas")
```

```
[Out] -2/105*(15*A*a^3 + 8*(7*B*a*b^2 - 6*A*b^3)*x^3 - 4*(7*B*a^2*b - 6
*A*a*b^2)*x^2 + 3*(7*B*a^3 - 6*A*a^2*b)*x)*sqrt(b*x + a)/(a^4*x^(
7/2))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**(9/2)/(b*x+a)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.224799, size = 201, normalized size = 1.72

$$\frac{\left(\left(bx+a\right)\left(4\left(bx+a\right)\left(\frac{2\left(7\,Bab^{6}-6\,Ab^{7}\right)\left(bx+a\right)}{a^{4}b^{12}}-\frac{7\left(7\,Ba^{2}b^{6}-6\,Aab^{7}\right)}{a^{4}b^{12}}\right)+\frac{35\left(7\,Ba^{3}b^{6}-6\,Aa^{2}b^{7}\right)}{a^{4}b^{12}}\right)-\frac{105\left(Ba^{4}b^{6}-Aa^{3}b^{7}\right)}{a^{4}b^{12}}\right)\sqrt{bx+a}b}{80640\left(\left(bx+a\right)b-ab\right)^{\frac{7}{2}}|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*x^(9/2)),x, algorithm="giac")
```

```
[Out] 1/80640*((b*x + a)*(4*(b*x + a)*(2*(7*B*a*b^6 - 6*A*b^7)*(b*x + a
)/(a^4*b^12) - 7*(7*B*a^2*b^6 - 6*A*a*b^7)/(a^4*b^12)) + 35*(7*B*
a^3*b^6 - 6*A*a^2*b^7)/(a^4*b^12)) - 105*(B*a^4*b^6 - A*a^3*b^7)/
(a^4*b^12))*sqrt(b*x + a)*b/(((b*x + a)*b - a*b)^(7/2)*abs(b))
```

3.511 $\int \frac{A+Bx}{x^{11/2}\sqrt{a+bx}}\,dx$

Optimal. Leaf size=150

$$-\frac{32b^3\sqrt{a+bx}(8Ab-9aB)}{315a^5\sqrt{x}}+\frac{16b^2\sqrt{a+bx}(8Ab-9aB)}{315a^4x^{3/2}}-\frac{4b\sqrt{a+bx}(8Ab-9aB)}{105a^3x^{5/2}}+\frac{2\sqrt{a+bx}(8Ab-9aB)}{63a^2x^{7/2}}-\frac{2A\sqrt{a+bx}}{9ax^{9/2}}$$

```
[Out] (-2*A*Sqrt[a + b*x])/(9*a*x^(9/2)) + (2*(8*A*b - 9*a*B)*Sqrt[a +
b*x])/(63*a^2*x^(7/2)) - (4*b*(8*A*b - 9*a*B)*Sqrt[a + b*x])/(105
*a^3*x^(5/2)) + (16*b^2*(8*A*b - 9*a*B)*Sqrt[a + b*x])/(315*a^4*x
^(3/2)) - (32*b^3*(8*A*b - 9*a*B)*Sqrt[a + b*x])/(315*a^5*Sqrt[x]
)
```

Rubi [A] time = 0.178147, antiderivative size = 150, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.15$

$$-\frac{32b^3\sqrt{a+bx}(8Ab-9aB)}{315a^5\sqrt{x}}+\frac{16b^2\sqrt{a+bx}(8Ab-9aB)}{315a^4x^{3/2}}-\frac{4b\sqrt{a+bx}(8Ab-9aB)}{105a^3x^{5/2}}+\frac{2\sqrt{a+bx}(8Ab-9aB)}{63a^2x^{7/2}}-\frac{2A\sqrt{a+bx}}{9ax^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^(11/2)*Sqrt[a + b*x]),x]
```

```
[Out] (-2*A*Sqrt[a + b*x])/(9*a*x^(9/2)) + (2*(8*A*b - 9*a*B)*Sqrt[a +
b*x])/(63*a^2*x^(7/2)) - (4*b*(8*A*b - 9*a*B)*Sqrt[a + b*x])/(105
*a^3*x^(5/2)) + (16*b^2*(8*A*b - 9*a*B)*Sqrt[a + b*x])/(315*a^4*x
^(3/2)) - (32*b^3*(8*A*b - 9*a*B)*Sqrt[a + b*x])/(315*a^5*Sqrt[x]
)
```

Rubi in Sympy [A] time = 15.0654, size = 150, normalized size = 1.

$$-\frac{2A\sqrt{a+bx}}{9ax^{\frac{9}{2}}}+\frac{2\sqrt{a+bx}\,(8Ab-9Ba)}{63a^2x^{\frac{7}{2}}}-\frac{4b\sqrt{a+bx}\,(8Ab-9Ba)}{105a^3x^{\frac{5}{2}}}+\frac{16b^2\sqrt{a+bx}\,(8Ab-9Ba)}{315a^4x^{\frac{3}{2}}}-\frac{32b^3\sqrt{a+bx}\,(8Ab-9Ba)}{315a^5\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**(11/2)/(b*x+a)**(1/2),x)
```

```
[Out] -2*A*sqrt(a + b*x)/(9*a*x**(9/2)) + 2*sqrt(a + b*x)*(8*A*b - 9*B*
a)/(63*a**2*x**(7/2)) - 4*b*sqrt(a + b*x)*(8*A*b - 9*B*a)/(105*a*
*3*x**(5/2)) + 16*b**2*sqrt(a + b*x)*(8*A*b - 9*B*a)/(315*a**4*x*
*(3/2)) - 32*b**3*sqrt(a + b*x)*(8*A*b - 9*B*a)/(315*a**5*sqrt(x)
)
```

Mathematica [A] time = 0.0920892, size = 95, normalized size = 0.63

$$-\frac{2\sqrt{a+bx}\left(5a^4(7A+9Bx)-2a^3bx(20A+27Bx)+24a^2b^2x^2(2A+3Bx)-16ab^3x^3(4A+9Bx)+128Ab^4x^4\right)}{315a^5x^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^(11/2)*Sqrt[a + b*x]),x]
```

```
[Out] (-2*Sqrt[a + b*x]*(128*A*b^4*x^4 + 24*a^2*b^2*x^2*(2*A + 3*B*x) -
 16*a*b^3*x^3*(4*A + 9*B*x) + 5*a^4*(7*A + 9*B*x) - 2*a^3*b*x*(20
*A + 27*B*x)))/(315*a^5*x^(9/2))
```

Maple [A] time = 0.009, size = 101, normalized size = 0.7

$$-\frac{256\,Ab^4x^4-288\,Bab^3x^4-128\,Aab^3x^3+144\,Ba^2b^2x^3+96\,Aa^2b^2x^2-108\,Ba^3bx^2-80\,Aa^3bx+90\,Ba^4x+70\,Aa^4}{315\,a^5}\sqrt{bx+a}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^(11/2)/(b*x+a)^(1/2),x)
```

```
[Out] -2/315*(b*x+a)^(1/2)*(128*A*b^4*x^4-144*B*a*b^3*x^4-64*A*a*b^3*x^
3+72*B*a^2*b^2*x^3+48*A*a^2*b^2*x^2-54*B*a^3*b*x^2-40*A*a^3*b*x+4
5*B*a^4*x+35*A*a^4)/x^(9/2)/a^5
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*x^(11/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.223064, size = 138, normalized size = 0.92

$$-\frac{2\left(35\,Aa^4-16\left(9\,Bab^3-8\,Ab^4\right)x^4+8\left(9\,Ba^2b^2-8\,Aab^3\right)x^3-6\left(9\,Ba^3b-8\,Aa^2b^2\right)x^2+5\left(9\,Ba^4-8\,Aa^3b\right)x\right)\sqrt{bx+a}}{315\,a^5x^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*x^(11/2)),x, algorithm="fricas")
```

```
[Out] -2/315*(35*A*a^4 - 16*(9*B*a*b^3 - 8*A*b^4)*x^4 + 8*(9*B*a^2*b^2
- 8*A*a*b^3)*x^3 - 6*(9*B*a^3*b - 8*A*a^2*b^2)*x^2 + 5*(9*B*a^4 -
 8*A*a^3*b)*x)*sqrt(b*x + a)/(a^5*x^(9/2))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**(11/2)/(b*x+a)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.223583, size = 248, normalized size = 1.65

$$-\frac{\left(\left(2\,(bx+a)\left(4\,(bx+a)\left(\frac{2\,(9\,Bab^8-8\,Ab^9)(bx+a)}{a^5b^{15}}-\frac{9\,(9\,Ba^2b^8-8\,Aab^9)}{a^5b^{15}}\right)+\frac{63\,(9\,Ba^3b^8-8\,Aa^2b^9)}{a^5b^{15}}\right)-\frac{105\,(9\,Ba^4b^8-8\,Aa^3b^9)}{a^5b^{15}}\right)(bx+a)+31}{322560\,((bx+a)b-ab)^{\frac{9}{2}}|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*x^(11/2)),x, algorithm="giac")
```

```
[Out] -1/322560*((2*(b*x + a)*(4*(b*x + a)*(2*(9*B*a*b^8 - 8*A*b^9)*(b*
x + a)/(a^5*b^15) - 9*(9*B*a^2*b^8 - 8*A*a*b^9)/(a^5*b^15)) + 63*
(9*B*a^3*b^8 - 8*A*a^2*b^9)/(a^5*b^15)) - 105*(9*B*a^4*b^8 - 8*A*
a^3*b^9)/(a^5*b^15))*(b*x + a) + 315*(B*a^5*b^8 - A*a^4*b^9)/(a^5
*b^15))*sqrt(b*x + a)*b/(((b*x + a)*b - a*b)^(9/2)*abs(b))
```

3.512 $\int \frac{A+Bx}{x^{13/2}\sqrt{a+bx}}\,dx$

Optimal. Leaf size=183

$$\frac{256b^4\sqrt{a+bx}(10Ab-11aB)}{3465a^6\sqrt{x}}-\frac{128b^3\sqrt{a+bx}(10Ab-11aB)}{3465a^5x^{3/2}}+\frac{32b^2\sqrt{a+bx}(10Ab-11aB)}{1155a^4x^{5/2}}-\frac{16b\sqrt{a+bx}(10Ab-11aB)}{693a^3x^{7/2}}+\frac{2\sqrt{a+bx}(10Ab-11aB)}{99a^2x^{9/2}}-\frac{2A\sqrt{a+bx}}{11ax^{11/2}}$$

```
[Out] (-2*A*Sqrt[a + b*x])/(11*a*x^(11/2)) + (2*(10*A*b - 11*a*B)*Sqrt[
a + b*x])/(99*a^2*x^(9/2)) - (16*b*(10*A*b - 11*a*B)*Sqrt[a + b*x
])/(693*a^3*x^(7/2)) + (32*b^2*(10*A*b - 11*a*B)*Sqrt[a + b*x])/(
1155*a^4*x^(5/2)) - (128*b^3*(10*A*b - 11*a*B)*Sqrt[a + b*x])/(34
65*a^5*x^(3/2)) + (256*b^4*(10*A*b - 11*a*B)*Sqrt[a + b*x])/(3465
*a^6*Sqrt[x])
```

Rubi [A] time = 0.224885, antiderivative size = 183, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.15$

$$\frac{256b^4\sqrt{a+bx}(10Ab-11aB)}{3465a^6\sqrt{x}}-\frac{128b^3\sqrt{a+bx}(10Ab-11aB)}{3465a^5x^{3/2}}+\frac{32b^2\sqrt{a+bx}(10Ab-11aB)}{1155a^4x^{5/2}}-\frac{16b\sqrt{a+bx}(10Ab-11aB)}{693a^3x^{7/2}}+\frac{2\sqrt{a+bx}(10Ab-11aB)}{99a^2x^{9/2}}-\frac{2A\sqrt{a+bx}}{11ax^{11/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^(13/2)*Sqrt[a + b*x]),x]
```

```
[Out] (-2*A*Sqrt[a + b*x])/(11*a*x^(11/2)) + (2*(10*A*b - 11*a*B)*Sqrt[
a + b*x])/(99*a^2*x^(9/2)) - (16*b*(10*A*b - 11*a*B)*Sqrt[a + b*x
])/(693*a^3*x^(7/2)) + (32*b^2*(10*A*b - 11*a*B)*Sqrt[a + b*x])/(
1155*a^4*x^(5/2)) - (128*b^3*(10*A*b - 11*a*B)*Sqrt[a + b*x])/(34
65*a^5*x^(3/2)) + (256*b^4*(10*A*b - 11*a*B)*Sqrt[a + b*x])/(3465
*a^6*Sqrt[x])
```

Rubi in Sympy [A] time = 19.8749, size = 184, normalized size = 1.01

$$-\frac{2A\sqrt{a+bx}}{11ax^{\frac{11}{2}}}+\frac{2\sqrt{a+bx}\,(10Ab-11Ba)}{99a^2x^{\frac{9}{2}}}-\frac{16b\sqrt{a+bx}\,(10Ab-11Ba)}{693a^3x^{\frac{7}{2}}}+\frac{32b^2\sqrt{a+bx}\,(10Ab-11Ba)}{1155a^4x^{\frac{5}{2}}}-\frac{128b^3\sqrt{a+bx}\,(10Ab-11Ba)}{3465a^5x^{\frac{3}{2}}}+\frac{256b^4\sqrt{a+bx}\,(10Ab-11Ba)}{3465a^6\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**(13/2)/(b*x+a)**(1/2),x)
```

```
[Out] -2*A*sqrt(a + b*x)/(11*a*x**(11/2)) + 2*sqrt(a + b*x)*(10*A*b - 1
1*B*a)/(99*a**2*x**(9/2)) - 16*b*sqrt(a + b*x)*(10*A*b - 11*B*a)/
(693*a**3*x**(7/2)) + 32*b**2*sqrt(a + b*x)*(10*A*b - 11*B*a)/(11
55*a**4*x**(5/2)) - 128*b**3*sqrt(a + b*x)*(10*A*b - 11*B*a)/(346
5*a**5*x**(3/2)) + 256*b**4*sqrt(a + b*x)*(10*A*b - 11*B*a)/(3465
*a**6*sqrt(x))
```

Mathematica [A] time = 0.110897, size = 114, normalized size = 0.62

$$-\frac{2\sqrt{a+bx}\left(35a^5(9A+11Bx)-10a^4bx(35A+44Bx)+16a^3b^2x^2(25A+33Bx)-32a^2b^3x^3(15A+22Bx)+128ab^4x^4(5A+11\right.}{3465a^6x^{11/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^(13/2)*Sqrt[a + b*x]),x]
```

```
[Out] (-2*Sqrt[a + b*x]*(-1280*A*b^5*x^5 + 128*a*b^4*x^4*(5*A + 11*B*x)
 + 35*a^5*(9*A + 11*B*x) - 32*a^2*b^3*x^3*(15*A + 22*B*x) + 16*a^
3*b^2*x^2*(25*A + 33*B*x) - 10*a^4*b*x*(35*A + 44*B*x)))/(3465*a^
6*x^(11/2))
```

Maple [A] time = 0.007, size = 125, normalized size = 0.7

$$-\frac{-2560\,Ab^5x^5+2816\,Bx^5ab^4+1280\,aAb^4x^4-1408\,Bx^4a^2b^3-960\,a^2Ab^3x^3+1056\,Bx^3a^3b^2+800\,a^3Ab^2x^2-880\,Bx^2a^4b-}{3465\,a^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^(13/2)/(b*x+a)^(1/2),x)
```

```
[Out] -2/3465*(b*x+a)^(1/2)*(-1280*A*b^5*x^5+1408*B*a*b^4*x^5+640*A*a*b
^4*x^4-704*B*a^2*b^3*x^4-480*A*a^2*b^3*x^3+528*B*a^3*b^2*x^3+400*
A*a^3*b^2*x^2-440*B*a^4*b*x^2-350*A*a^4*b*x+385*B*a^5*x+315*A*a^5
)/x^(11/2)/a^6
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*x^(13/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.234775, size = 170, normalized size = 0.93

$$-\frac{2\left(315\,Aa^5+128\left(11\,Bab^4-10\,Ab^5\right)x^5-64\left(11\,Ba^2b^3-10\,Aab^4\right)x^4+48\left(11\,Ba^3b^2-10\,Aa^2b^3\right)x^3-40\left(11\,Ba^4b-10\,Aa\right.}{3465\,a^6x^{\frac{11}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*x^(13/2)),x, algorithm="fricas")
```

```
[Out] -2/3465*(315*A*a^5 + 128*(11*B*a*b^4 - 10*A*b^5)*x^5 - 64*(11*B*a
^2*b^3 - 10*A*a*b^4)*x^4 + 48*(11*B*a^3*b^2 - 10*A*a^2*b^3)*x^3 -
 40*(11*B*a^4*b - 10*A*a^3*b^2)*x^2 + 35*(11*B*a^5 - 10*A*a^4*b)*
x)*sqrt(b*x + a)/(a^6*x^(11/2))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**(13/2)/(b*x+a)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.232184, size = 296, normalized size = 1.62

$$\frac{\left(\left(8\left(2\,(bx+a)\left(4\,(bx+a)\left(\frac{2\,(11\,Bab^{10}-10\,Ab^{11})(bx+a)}{a^6b^{18}}-\frac{11\,(11\,Ba^2b^{10}-10\,Aab^{11})}{a^6b^{18}}\right)+\frac{99\,(11\,Ba^3b^{10}-10\,Aa^2b^{11})}{a^6b^{18}}\right)-\frac{231\,(11\,Ba^4b^{10}-10\,Aa^3b^{11})}{a^6b^{18}}\right.\right.\right.}{14192640\,((bx+a)b-ab)^{\frac{11}{2}}\,|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*x^(13/2)),x, algorithm="giac")
```

```
[Out] 1/14192640*((8*(2*(b*x + a)*(4*(b*x + a)*(2*(11*B*a*b^10 - 10*A*b
^11)*(b*x + a)/(a^6*b^18) - 11*(11*B*a^2*b^10 - 10*A*a*b^11)/(a^6
*b^18)) + 99*(11*B*a^3*b^10 - 10*A*a^2*b^11)/(a^6*b^18)) - 231*(1
1*B*a^4*b^10 - 10*A*a^3*b^11)/(a^6*b^18))*(b*x + a) + 1155*(11*B*
a^5*b^10 - 10*A*a^4*b^11)/(a^6*b^18))*(b*x + a) - 3465*(B*a^6*b^1
0 - A*a^5*b^11)/(a^6*b^18))*sqrt(b*x + a)*b/(((b*x + a)*b - a*b)^
(11/2)*abs(b))
```

3.513 $\int \frac{A+Bx}{x^{15/2}\sqrt{a+bx}}\,dx$

Optimal. Leaf size=216

$$-\frac{512b^5\sqrt{a+bx}(12Ab-13aB)}{9009a^7\sqrt{x}}+\frac{256b^4\sqrt{a+bx}(12Ab-13aB)}{9009a^6x^{3/2}}-\frac{64b^3\sqrt{a+bx}(12Ab-13aB)}{3003a^5x^{5/2}}+\frac{160b^2\sqrt{a+bx}(12Ab-13aB)}{9009a^4x^{7/2}}-\frac{20b\sqrt{a+bx}(12Ab-13aB)}{1287a^3x^{9/2}}+\frac{2\sqrt{a+bx}(12Ab-13aB)}{143a^2x^{11/2}}-\frac{2A\sqrt{a+bx}}{13ax^{13/2}}$$

```
[Out] (-2*A*Sqrt[a + b*x])/(13*a*x^(13/2)) + (2*(12*A*b - 13*a*B)*Sqrt[
a + b*x])/(143*a^2*x^(11/2)) - (20*b*(12*A*b - 13*a*B)*Sqrt[a + b
*x])/(1287*a^3*x^(9/2)) + (160*b^2*(12*A*b - 13*a*B)*Sqrt[a + b*x
])/(9009*a^4*x^(7/2)) - (64*b^3*(12*A*b - 13*a*B)*Sqrt[a + b*x])/
(3003*a^5*x^(5/2)) + (256*b^4*(12*A*b - 13*a*B)*Sqrt[a + b*x])/(9
009*a^6*x^(3/2)) - (512*b^5*(12*A*b - 13*a*B)*Sqrt[a + b*x])/(900
9*a^7*Sqrt[x])
```

Rubi [A] time = 0.267385, antiderivative size = 216, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.15

$$-\frac{512b^5\sqrt{a+bx}(12Ab-13aB)}{9009a^7\sqrt{x}}+\frac{256b^4\sqrt{a+bx}(12Ab-13aB)}{9009a^6x^{3/2}}-\frac{64b^3\sqrt{a+bx}(12Ab-13aB)}{3003a^5x^{5/2}}+\frac{160b^2\sqrt{a+bx}(12Ab-13aB)}{9009a^4x^{7/2}}-\frac{20b\sqrt{a+bx}(12Ab-13aB)}{1287a^3x^{9/2}}+\frac{2\sqrt{a+bx}(12Ab-13aB)}{143a^2x^{11/2}}-\frac{2A\sqrt{a+bx}}{13ax^{13/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^(15/2)*Sqrt[a + b*x]),x]
```

```
[Out] (-2*A*Sqrt[a + b*x])/(13*a*x^(13/2)) + (2*(12*A*b - 13*a*B)*Sqrt[
a + b*x])/(143*a^2*x^(11/2)) - (20*b*(12*A*b - 13*a*B)*Sqrt[a + b
*x])/(1287*a^3*x^(9/2)) + (160*b^2*(12*A*b - 13*a*B)*Sqrt[a + b*x
])/(9009*a^4*x^(7/2)) - (64*b^3*(12*A*b - 13*a*B)*Sqrt[a + b*x])/
(3003*a^5*x^(5/2)) + (256*b^4*(12*A*b - 13*a*B)*Sqrt[a + b*x])/(9
009*a^6*x^(3/2)) - (512*b^5*(12*A*b - 13*a*B)*Sqrt[a + b*x])/(900
9*a^7*Sqrt[x])
```

Rubi in Sympy [A] time = 26.0808, size = 218, normalized size = 1.01

$$-\frac{2A\sqrt{a+bx}}{13ax^{\frac{13}{2}}}+\frac{2\sqrt{a+bx}\,(12Ab-13Ba)}{143a^2x^{\frac{11}{2}}}-\frac{20b\sqrt{a+bx}\,(12Ab-13Ba)}{1287a^3x^{\frac{9}{2}}}+\frac{160b^2\sqrt{a+bx}\,(12Ab-13Ba)}{9009a^4x^{\frac{7}{2}}}-\frac{64b^3\sqrt{a+bx}\,(12Ab-13Ba)}{3003a^5x^{\frac{5}{2}}}+\frac{256b^4\sqrt{a+bx}\,(12Ab-13Ba)}{9009a^6x^{\frac{3}{2}}}-\frac{512b^5\sqrt{a+bx}\,(12Ab-13Ba)}{9009a^7\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**(15/2)/(b*x+a)**(1/2),x)
```

```
[Out] -2*A*sqrt(a + b*x)/(13*a*x**(13/2)) + 2*sqrt(a + b*x)*(12*A*b - 1
3*B*a)/(143*a**2*x**(11/2)) - 20*b*sqrt(a + b*x)*(12*A*b - 13*B*a
)/(1287*a**3*x**(9/2)) + 160*b**2*sqrt(a + b*x)*(12*A*b - 13*B*a)
/(9009*a**4*x**(7/2)) - 64*b**3*sqrt(a + b*x)*(12*A*b - 13*B*a)/(
3003*a**5*x**(5/2)) + 256*b**4*sqrt(a + b*x)*(12*A*b - 13*B*a)/(9
009*a**6*x**(3/2)) - 512*b**5*sqrt(a + b*x)*(12*A*b - 13*B*a)/(90
09*a**7*sqrt(x))
```

Mathematica [A] time = 0.128731, size = 133, normalized size = 0.62

$$-\frac{2\sqrt{a+bx}\,(63a^6(11A+13Bx)-14a^5bx(54A+65Bx)+40a^4b^2x^2(21A+26Bx)-96a^3b^3x^3(10A+13Bx)+128a^2b^4x^4(9A+ \ldots}{9009a^7x^{13/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^(15/2)*Sqrt[a + b*x]),x]
```

```
[Out] (-2*Sqrt[a + b*x]*(3072*A*b^6*x^6 - 256*a*b^5*x^5*(6*A + 13*B*x)
+ 128*a^2*b^4*x^4*(9*A + 13*B*x) - 96*a^3*b^3*x^3*(10*A + 13*B*x)
 + 63*a^6*(11*A + 13*B*x) + 40*a^4*b^2*x^2*(21*A + 26*B*x) - 14*a
^5*b*x*(54*A + 65*B*x)))/(9009*a^7*x^(13/2))
```

Maple [A] time = 0.01, size = 149, normalized size = 0.7

$$-\frac{6144\,Ab^6x^6-6656\,Bab^5x^6-3072\,Aab^5x^5+3328\,Ba^2b^4x^5+2304\,Aa^2b^4x^4-2496\,Ba^3b^3x^4-1920\,Aa^3b^3x^3+2080\,Ba^4b^2x \ldots}{9009\,a^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^(15/2)/(b*x+a)^(1/2),x)
```

```
[Out] -2/9009*(b*x+a)^(1/2)*(3072*A*b^6*x^6-3328*B*a*b^5*x^6-1536*A*a*b
^5*x^5+1664*B*a^2*b^4*x^5+1152*A*a^2*b^4*x^4-1248*B*a^3*b^3*x^4-9
60*A*a^3*b^3*x^3+1040*B*a^4*b^2*x^3+840*A*a^4*b^2*x^2-910*B*a^5*b
*x^2-756*A*a^5*b*x+819*B*a^6*x+693*A*a^6)/x^(13/2)/a^7
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*x^(15/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.233347, size = 203, normalized size = 0.94

$$-\frac{2\left(693\,Aa^6-256\left(13\,Bab^5-12\,Ab^6\right)x^6+128\left(13\,Ba^2b^4-12\,Aab^5\right)x^5-96\left(13\,Ba^3b^3-12\,Aa^2b^4\right)x^4+80\left(13\,Ba^4b^2-12\, \ldots\right.}{9009\,a^7x^{\frac{13}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*x^(15/2)),x, algorithm="fricas")
```

```
[Out] -2/9009*(693*A*a^6 - 256*(13*B*a*b^5 - 12*A*b^6)*x^6 + 128*(13*B*
a^2*b^4 - 12*A*a*b^5)*x^5 - 96*(13*B*a^3*b^3 - 12*A*a^2*b^4)*x^4
+ 80*(13*B*a^4*b^2 - 12*A*a^3*b^3)*x^3 - 70*(13*B*a^5*b - 12*A*a^
4*b^2)*x^2 + 63*(13*B*a^6 - 12*A*a^5*b)*x)*sqrt(b*x + a)/(a^7*x^(
13/2))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**(15/2)/(b*x+a)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.236436, size = 343, normalized size = 1.59

$$-\frac{\left(\left(2\left(8\left(2(bx+a)\left(4(bx+a)\left(\frac{2(13Bab^{12}-12Ab^{13})(bx+a)}{a^7b^{21}}-\frac{13(13Ba^2b^{12}-12Aab^{13})}{a^7b^{21}}\right)+\frac{143(13Ba^3b^{12}-12Aa^2b^{13})}{a^7b^{21}}\right)-\frac{429(13Ba^4b^{12}-12A}{a^7b^{21}}\right.\right.\right.\right.}{6642155520((bx+}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*x^(15/2)),x, algorithm="giac")
```

```
[Out] -1/6642155520*((2*(8*(2*(b*x + a)*(4*(b*x + a)*(2*(13*B*a*b^12 -
12*A*b^13)*(b*x + a)/(a^7*b^21) - 13*(13*B*a^2*b^12 - 12*A*a*b^13
)/(a^7*b^21)) + 143*(13*B*a^3*b^12 - 12*A*a^2*b^13)/(a^7*b^21)) -
 429*(13*B*a^4*b^12 - 12*A*a^3*b^13)/(a^7*b^21))*(b*x + a) + 3003
*(13*B*a^5*b^12 - 12*A*a^4*b^13)/(a^7*b^21))*(b*x + a) - 3003*(13
*B*a^6*b^12 - 12*A*a^5*b^13)/(a^7*b^21))*(b*x + a) + 9009*(B*a^7*
b^12 - A*a^6*b^13)/(a^7*b^21))*sqrt(b*x + a)*b/(((b*x + a)*b - a*
b)^(13/2)*abs(b))
```

3.514 $\int \frac{x^{7/2}(A+Bx)}{(a+bx)^{3/2}}\,dx$

Optimal. Leaf size=200

$$-\frac{35a^3(8Ab-9aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{64b^{11/2}}+\frac{35a^2\sqrt{x}\sqrt{a+bx}(8Ab-9aB)}{64b^5}-\frac{35ax^{3/2}\sqrt{a+bx}(8Ab-9aB)}{96b^4}+\frac{7x^{5/2}\sqrt{a+bx}(8Ab-9aB)}{24b^3}-\frac{x^{7/2}\sqrt{a+bx}(8Ab-9aB)}{4ab^2}+\frac{2x^{9/2}(Ab-aB)}{ab\sqrt{a+bx}}$$

```
[Out] (2*(A*b - a*B)*x^(9/2))/(a*b*Sqrt[a + b*x]) + (35*a^2*(8*A*b - 9*
a*B)*Sqrt[x]*Sqrt[a + b*x])/(64*b^5) - (35*a*(8*A*b - 9*a*B)*x^(3
/2)*Sqrt[a + b*x])/(96*b^4) + (7*(8*A*b - 9*a*B)*x^(5/2)*Sqrt[a +
 b*x])/(24*b^3) - ((8*A*b - 9*a*B)*x^(7/2)*Sqrt[a + b*x])/(4*a*b^
2) - (35*a^3*(8*A*b - 9*a*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a + b
*x]])/(64*b^(11/2))
```

Rubi [A] time = 0.23822, antiderivative size = 200, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.2$

$$-\frac{35a^3(8Ab-9aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{64b^{11/2}}+\frac{35a^2\sqrt{x}\sqrt{a+bx}(8Ab-9aB)}{64b^5}-\frac{35ax^{3/2}\sqrt{a+bx}(8Ab-9aB)}{96b^4}+\frac{7x^{5/2}\sqrt{a+bx}(8Ab-9aB)}{24b^3}-\frac{x^{7/2}\sqrt{a+bx}(8Ab-9aB)}{4ab^2}+\frac{2x^{9/2}(Ab-aB)}{ab\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^(7/2)*(A + B*x))/(a + b*x)^(3/2),x]
```

```
[Out] (2*(A*b - a*B)*x^(9/2))/(a*b*Sqrt[a + b*x]) + (35*a^2*(8*A*b - 9*
a*B)*Sqrt[x]*Sqrt[a + b*x])/(64*b^5) - (35*a*(8*A*b - 9*a*B)*x^(3
/2)*Sqrt[a + b*x])/(96*b^4) + (7*(8*A*b - 9*a*B)*x^(5/2)*Sqrt[a +
 b*x])/(24*b^3) - ((8*A*b - 9*a*B)*x^(7/2)*Sqrt[a + b*x])/(4*a*b^
2) - (35*a^3*(8*A*b - 9*a*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a + b
*x]])/(64*b^(11/2))
```

Rubi in Sympy [A] time = 24.7491, size = 194, normalized size = 0.97

$$-\frac{35a^3\left(8Ab-9Ba\right)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{64b^{\frac{11}{2}}}+\frac{35a^2\sqrt{x}\sqrt{a+bx}\left(8Ab-9Ba\right)}{64b^5}-\frac{35ax^{\frac{3}{2}}\sqrt{a+bx}\left(8Ab-9Ba\right)}{96b^4}+\frac{7x^{\frac{5}{2}}\sqrt{a+bx}\left(8Ab-9Ba\right)}{24b^3}+\frac{2x^{\frac{9}{2}}\left(Ab-Ba\right)}{ab\sqrt{a+bx}}-\frac{x^{\frac{7}{2}}\sqrt{a+bx}\left(8Ab-9Ba\right)}{4ab^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**(7/2)*(B*x+A)/(b*x+a)**(3/2),x)
```

```
[Out] -35*a**3*(8*A*b - 9*B*a)*atanh(sqrt(b)*sqrt(x)/sqrt(a + b*x))/(64
*b**(11/2)) + 35*a**2*sqrt(x)*sqrt(a + b*x)*(8*A*b - 9*B*a)/(64*b
**5) - 35*a*x**(3/2)*sqrt(a + b*x)*(8*A*b - 9*B*a)/(96*b**4) + 7*
x**(5/2)*sqrt(a + b*x)*(8*A*b - 9*B*a)/(24*b**3) + 2*x**(9/2)*(A*
b - B*a)/(a*b*sqrt(a + b*x)) - x**(7/2)*sqrt(a + b*x)*(8*A*b - 9*
B*a)/(4*a*b**2)
```

Mathematica [A] time = 0.235244, size = 138, normalized size = 0.69

$$\frac{35a^3(9aB-8Ab)\log\left(\sqrt{b}\sqrt{a+bx}+b\sqrt{x}\right)}{64b^{11/2}}+\frac{\sqrt{x}\left(-945a^4B+105a^3b(8A-3Bx)+14a^2b^2x(20A+9Bx)-8ab^3x^2(14A+9Bx)+16b^4x^3(4A+3Bx)\right)}{192b^5\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^(7/2)*(A + B*x))/(a + b*x)^(3/2),x]
```

```
[Out] (Sqrt[x]*(-945*a^4*B + 105*a^3*b*(8*A - 3*B*x) + 16*b^4*x^3*(4*A
+ 3*B*x) - 8*a*b^3*x^2*(14*A + 9*B*x) + 14*a^2*b^2*x*(20*A + 9*B*
x)))/(192*b^5*Sqrt[a + b*x]) + (35*a^3*(-8*A*b + 9*a*B)*Log[b*Sqr
t[x] + Sqrt[b]*Sqrt[a + b*x]])/(64*b^(11/2))
```

Maple [B] time = 0.033, size = 330, normalized size = 1.7

$$-\frac{1}{384}\left(-96\,Bx^4b^{9/2}\sqrt{x\,(bx+a)}-128\,Ax^3b^{9/2}\sqrt{x\,(bx+a)}+144\,Bx^3ab^{7/2}\sqrt{x\,(bx+a)}+224\,Ax^2ab^{7/2}\sqrt{x\,(bx+a)}-252\,Bx^2\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^(7/2)*(B*x+A)/(b*x+a)^(3/2),x)
```

```
[Out] -1/384*(-96*B*x^4*b^(9/2)*(x*(b*x+a))^(1/2)-128*A*x^3*b^(9/2)*(x*
(b*x+a))^(1/2)+144*B*x^3*a*b^(7/2)*(x*(b*x+a))^(1/2)+224*A*x^2*a*
b^(7/2)*(x*(b*x+a))^(1/2)-252*B*x^2*a^2*b^(5/2)*(x*(b*x+a))^(1/2)
+840*A*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))*x*a^
3*b^2-560*A*a^2*(x*(b*x+a))^(1/2)*x*b^(5/2)-945*B*ln(1/2*(2*(x*(b
*x+a))^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))*x*a^4*b+630*B*a^3*(x*(b*x+
a))^(1/2)*x*b^(3/2)+840*A*a^4*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1/2)
+2*b*x+a)/b^(1/2))*b-1680*A*a^3*(x*(b*x+a))^(1/2)*b^(3/2)-945*B*a
^5*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))+1890*B*a
^4*(x*(b*x+a))^(1/2)*b^(1/2))/b^(11/2)*x^(1/2)/(x*(b*x+a))^(1/2)/
(b*x+a)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(7/2)/(b*x + a)^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.252899, size = 1, normalized size = 0.

$$\left[-\frac{105\left(9\,Ba^4-8\,Aa^3b\right)\sqrt{bx+a}\sqrt{x}\log\left(-2\,\sqrt{bx+a}b\sqrt{x}+(2\,bx+a)\sqrt{b}\right)-2\left(48\,Bb^4x^5-8\left(9\,Bab^3-8\,Ab^4\right)x^4+14\left(9\,Ba^2\right.\right.}{384\,\sqrt{bx+a}b^{\frac{11}{2}}\sqrt{x}}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(7/2)/(b*x + a)^(3/2),x, algorithm="fricas")
```

```
[Out] [-1/384*(105*(9*B*a^4 - 8*A*a^3*b)*sqrt(b*x + a)*sqrt(x)*log(-2*s
qrt(b*x + a)*b*sqrt(x) + (2*b*x + a)*sqrt(b)) - 2*(48*B*b^4*x^5 -
 8*(9*B*a*b^3 - 8*A*b^4)*x^4 + 14*(9*B*a^2*b^2 - 8*A*a*b^3)*x^3 -
 35*(9*B*a^3*b - 8*A*a^2*b^2)*x^2 - 105*(9*B*a^4 - 8*A*a^3*b)*x)*
sqrt(b))/(sqrt(b*x + a)*b^(11/2)*sqrt(x)), 1/192*(105*(9*B*a^4 -
8*A*a^3*b)*sqrt(b*x + a)*sqrt(x)*arctan(sqrt(b*x + a)*sqrt(-b)/(b
*sqrt(x))) + (48*B*b^4*x^5 - 8*(9*B*a*b^3 - 8*A*b^4)*x^4 + 14*(9*
B*a^2*b^2 - 8*A*a*b^3)*x^3 - 35*(9*B*a^3*b - 8*A*a^2*b^2)*x^2 - 1
05*(9*B*a^4 - 8*A*a^3*b)*x)*sqrt(-b))/(sqrt(b*x + a)*sqrt(-b)*b^5
*sqrt(x))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**(7/2)*(B*x+A)/(b*x+a)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.27467, size = 340, normalized size = 1.7

$$\frac{1}{192}\left(2\,(bx+a)\left(4\,(bx+a)\left(\frac{6\,(bx+a)B|b|}{b^7} - \frac{33\,Bab^{27}|b| - 8\,Ab^{28}|b|}{b^{34}}\right) + \frac{315\,Ba^2b^{27}|b| - 152\,Aab^{28}|b|}{b^{34}}\right) - \frac{3\left(325\,Ba^3b^{27}|b|\right.}{b}\right.$$
$$-\frac{35\left(9\,Ba^4\sqrt{b}|b| - 8\,Aa^3b^{\frac{3}{2}}|b|\right)\ln\left(\left(\sqrt{bx+a}\sqrt{b} - \sqrt{(bx+a)b-ab}\right)^2\right)}{128\,b^7}$$
$$-\frac{4\left(Ba^5\sqrt{b}|b| - Aa^4b^{\frac{3}{2}}|b|\right)}{\left(\left(\sqrt{bx+a}\sqrt{b} - \sqrt{(bx+a)b-ab}\right)^2 + ab\right)b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*x^(7/2)/(b*x + a)^(3/2),x, algorithm="giac")
```

```
[Out] 1/192*(2*(b*x + a)*(4*(b*x + a)*(6*(b*x + a)*B*abs(b)/b^7 - (33*B
*a*b^27*abs(b) - 8*A*b^28*abs(b))/b^34) + (315*B*a^2*b^27*abs(b)
- 152*A*a*b^28*abs(b))/b^34) - 3*(325*B*a^3*b^27*abs(b) - 232*A*a
^2*b^28*abs(b))/b^34)*sqrt((b*x + a)*b - a*b)*sqrt(b*x + a) - 35/
128*(9*B*a^4*sqrt(b)*abs(b) - 8*A*a^3*b^(3/2)*abs(b))*ln((sqrt(b*
x + a)*sqrt(b) - sqrt((b*x + a)*b - a*b))^2)/b^7 - 4*(B*a^5*sqrt(
b)*abs(b) - A*a^4*b^(3/2)*abs(b))/(((sqrt(b*x + a)*sqrt(b) - sqrt
((b*x + a)*b - a*b))^2 + a*b)*b^6)
```

3.515 $\int \frac{x^{5/2}(A+Bx)}{(a+bx)^{3/2}} dx$

Optimal. Leaf size=167

$$\frac{5a^2(6Ab-7aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{8b^{9/2}}-\frac{5a\sqrt{x}\sqrt{a+bx}(6Ab-7aB)}{8b^4}+\frac{5x^{3/2}\sqrt{a+bx}(6Ab-7aB)}{12b^3}-\frac{x^{5/2}\sqrt{a+bx}(6Ab-7aB)}{3ab^2}+\frac{2x^{7/2}(Ab-aB)}{ab\sqrt{a+bx}}$$

```
[Out] (2*(A*b - a*B)*x^(7/2))/(a*b*Sqrt[a + b*x]) - (5*a*(6*A*b - 7*a*B
)*Sqrt[x]*Sqrt[a + b*x])/(8*b^4) + (5*(6*A*b - 7*a*B)*x^(3/2)*Sqr
t[a + b*x])/(12*b^3) - ((6*A*b - 7*a*B)*x^(5/2)*Sqrt[a + b*x])/(3
*a*b^2) + (5*a^2*(6*A*b - 7*a*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a
 + b*x]])/(8*b^(9/2))
```

Rubi [A] time = 0.189823, antiderivative size = 167, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.2

$$\frac{5a^2(6Ab-7aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{8b^{9/2}}-\frac{5a\sqrt{x}\sqrt{a+bx}(6Ab-7aB)}{8b^4}+\frac{5x^{3/2}\sqrt{a+bx}(6Ab-7aB)}{12b^3}-\frac{x^{5/2}\sqrt{a+bx}(6Ab-7aB)}{3ab^2}+\frac{2x^{7/2}(Ab-aB)}{ab\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^(5/2)*(A + B*x))/(a + b*x)^(3/2),x]
```


```
[Out] (2*(A*b - a*B)*x^(7/2))/(a*b*Sqrt[a + b*x]) - (5*a*(6*A*b - 7*a*B
)*Sqrt[x]*Sqrt[a + b*x])/(8*b^4) + (5*(6*A*b - 7*a*B)*x^(3/2)*Sqr
t[a + b*x])/(12*b^3) - ((6*A*b - 7*a*B)*x^(5/2)*Sqrt[a + b*x])/(3
*a*b^2) + (5*a^2*(6*A*b - 7*a*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a
 + b*x]])/(8*b^(9/2))
```

Rubi in Sympy [A] time = 19.209, size = 160, normalized size = 0.96

$$\frac{5a^2\left(6Ab-7Ba\right)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{8b^{\frac{9}{2}}}-\frac{5a\sqrt{x}\sqrt{a+bx}\left(6Ab-7Ba\right)}{8b^4}+\frac{5x^{\frac{3}{2}}\sqrt{a+bx}\left(6Ab-7Ba\right)}{12b^3}+\frac{2x^{\frac{7}{2}}\left(Ab-Ba\right)}{ab\sqrt{a+bx}}-\frac{x^{\frac{5}{2}}\sqrt{a+bx}\left(6Ab-7Ba\right)}{3ab^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**(5/2)*(B*x+A)/(b*x+a)**(3/2),x)
```

```
[Out] 5*a**2*(6*A*b - 7*B*a)*atanh(sqrt(b)*sqrt(x)/sqrt(a + b*x))/(8*b*
*(9/2)) - 5*a*sqrt(x)*sqrt(a + b*x)*(6*A*b - 7*B*a)/(8*b**4) + 5*
x**(3/2)*sqrt(a + b*x)*(6*A*b - 7*B*a)/(12*b**3) + 2*x**(7/2)*(A*
b - B*a)/(a*b*sqrt(a + b*x)) - x**(5/2)*sqrt(a + b*x)*(6*A*b - 7*
B*a)/(3*a*b**2)
```

Mathematica [A] time = 0.191447, size = 119, normalized size = 0.71

$$\frac{\sqrt{x}\left(105a^3B+a^2(35bBx-90Ab)-2ab^2x(15A+7Bx)+4b^3x^2(3A+2Bx)\right)}{24b^4\sqrt{a+bx}}-\frac{5a^2(7aB-6Ab)\log\left(\sqrt{b}\sqrt{a+bx}+b\sqrt{x}\right)}{8b^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^(5/2)*(A + B*x))/(a + b*x)^(3/2),x]
```

```
[Out] (Sqrt[x]*(105*a^3*B + 4*b^3*x^2*(3*A + 2*B*x) - 2*a*b^2*x*(15*A +
 7*B*x) + a^2*(-90*A*b + 35*b*B*x)))/(24*b^4*Sqrt[a + b*x]) - (5*
a^2*(-6*A*b + 7*a*B)*Log[b*Sqrt[x] + Sqrt[b]*Sqrt[a + b*x]])/(8*b
^(9/2))
```

Maple [B] time = 0.027, size = 288, normalized size = 1.7

$$\frac{1}{48}\left(16\,Bx^3b^{7/2}\sqrt{x\,(bx+a)}+24\,Ax^2b^{7/2}\sqrt{x\,(bx+a)}-28\,Bx^2ab^{5/2}\sqrt{x\,(bx+a)}+90\,A\ln\left(1/2\,\frac{2\,\sqrt{x\,(bx+a)}\sqrt{b}+2\,bx+a}{\sqrt{b}}\right)x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^(5/2)*(B*x+A)/(b*x+a)^(3/2),x)
```

```
[Out] 1/48*(16*B*x^3*b^(7/2)*(x*(b*x+a))^(1/2)+24*A*x^2*b^(7/2)*(x*(b*x
+a))^(1/2)-28*B*x^2*a*b^(5/2)*(x*(b*x+a))^(1/2)+90*A*ln(1/2*(2*(x
*(b*x+a))^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))*x*a^2*b^2-60*A*a*x*(x*(
b*x+a))^(1/2)*b^(5/2)-105*B*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1/2)+2
*b*x+a)/b^(1/2))*x*a^3*b+70*B*a^2*x*(x*(b*x+a))^(1/2)*b^(3/2)+90*
A*a^3*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))*b-180
*A*a^2*(x*(b*x+a))^(1/2)*b^(3/2)-105*B*a^4*ln(1/2*(2*(x*(b*x+a))^
(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))+210*B*a^3*(x*(b*x+a))^(1/2)*b^(1/
2))/b^(9/2)*x^(1/2)/(x*(b*x+a))^(1/2)/(b*x+a)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(5/2)/(b*x + a)^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.246775, size = 1, normalized size = 0.01

$$\left[-\frac{15\,\left(7\,Ba^3-6\,Aa^2b\right)\sqrt{bx+a}\sqrt{x}\log\left(2\,\sqrt{bx+a}b\sqrt{x}+(2\,bx+a)\sqrt{b}\right)-2\,\left(8\,Bb^3x^4-2\,\left(7\,Bab^2-6\,Ab^3\right)x^3+5\,\left(7\,Ba^2b-6\right.\right.}{48\,\sqrt{bx+a}b^{\frac{9}{2}}\sqrt{x}}\right.$$

$$-\frac{15\,\left(7\,Ba^3-6\,Aa^2b\right)\sqrt{bx+a}\sqrt{x}\arctan\left(\frac{\sqrt{bx+a}\sqrt{-b}}{b\sqrt{x}}\right)-\left(8\,Bb^3x^4-2\,\left(7\,Bab^2-6\,Ab^3\right)x^3+5\,\left(7\,Ba^2b-6\,Aab^2\right)x^2+15\,\left(7\,Ba\right.\right.}{24\,\sqrt{bx+a}\sqrt{-b}b^4\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(5/2)/(b*x + a)^(3/2),x, algorithm="fricas")
```

```
[Out] [-1/48*(15*(7*B*a^3 - 6*A*a^2*b)*sqrt(b*x + a)*sqrt(x)*log(2*sqrt
(b*x + a)*b*sqrt(x) + (2*b*x + a)*sqrt(b)) - 2*(8*B*b^3*x^4 - 2*(
7*B*a*b^2 - 6*A*b^3)*x^3 + 5*(7*B*a^2*b - 6*A*a*b^2)*x^2 + 15*(7*
B*a^3 - 6*A*a^2*b)*x)*sqrt(b))/(sqrt(b*x + a)*b^(9/2)*sqrt(x)), -
1/24*(15*(7*B*a^3 - 6*A*a^2*b)*sqrt(b*x + a)*sqrt(x)*arctan(sqrt(
b*x + a)*sqrt(-b)/(b*sqrt(x))) - (8*B*b^3*x^4 - 2*(7*B*a*b^2 - 6*
```

```
A*b^3)*x^3 + 5*(7*B*a^2*b - 6*A*a*b^2)*x^2 + 15*(7*B*a^3 - 6*A*a^
2*b)*x)*sqrt(-b))/(sqrt(b*x + a)*sqrt(-b)*b^4*sqrt(x))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**(5/2)*(B*x+A)/(b*x+a)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.263173, size = 293, normalized size = 1.75

$$\frac{1}{24}\sqrt{(bx+a)b-ab}\sqrt{bx+a}\left(2\,(bx+a)\left(\frac{4\,(bx+a)B|b|}{b^6}-\frac{19\,Bab^{17}|b|-6\,Ab^{18}|b|}{b^{23}}\right)+\frac{3\left(29\,Ba^2b^{17}|b|-18\,Aab^{18}|b|\right)}{b^{23}}\right)$$
$$+\frac{5\left(7\,Ba^3\sqrt{b}|b|-6\,Aa^2b^{\frac{3}{2}}|b|\right)\ln\left(\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a)b-ab}\right)^2\right)}{16\,b^6}$$
$$+\frac{4\left(Ba^4\sqrt{b}|b|-Aa^3b^{\frac{3}{2}}|b|\right)}{\left(\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a)b-ab}\right)^2+ab\right)b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(5/2)/(b*x + a)^(3/2),x, algorithm="giac")
```

```
[Out] 1/24*sqrt((b*x + a)*b - a*b)*sqrt(b*x + a)*(2*(b*x + a)*(4*(b*x +
 a)*B*abs(b)/b^6 - (19*B*a*b^17*abs(b) - 6*A*b^18*abs(b))/b^23) +
 3*(29*B*a^2*b^17*abs(b) - 18*A*a*b^18*abs(b))/b^23) + 5/16*(7*B*
a^3*sqrt(b)*abs(b) - 6*A*a^2*b^(3/2)*abs(b))*ln((sqrt(b*x + a)*sq
rt(b) - sqrt((b*x + a)*b - a*b))^2)/b^6 + 4*(B*a^4*sqrt(b)*abs(b)
 - A*a^3*b^(3/2)*abs(b))/(((sqrt(b*x + a)*sqrt(b) - sqrt((b*x + a
)*b - a*b))^2 + a*b)*b^5)
```

3.516 $\int \frac{x^{3/2}(A+Bx)}{(a+bx)^{3/2}}\,dx$

Optimal. Leaf size=134

$$-\frac{3a(4Ab-5aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{4b^{7/2}}+\frac{3\sqrt{x}\sqrt{a+bx}(4Ab-5aB)}{4b^3}-\frac{x^{3/2}\sqrt{a+bx}(4Ab-5aB)}{2ab^2}+\frac{2x^{5/2}(Ab-aB)}{ab\sqrt{a+bx}}$$

```
[Out] (2*(A*b - a*B)*x^(5/2))/(a*b*Sqrt[a + b*x]) + (3*(4*A*b - 5*a*B)*
Sqrt[x]*Sqrt[a + b*x])/(4*b^3) - ((4*A*b - 5*a*B)*x^(3/2)*Sqrt[a
+ b*x])/(2*a*b^2) - (3*a*(4*A*b - 5*a*B)*ArcTanh[(Sqrt[b]*Sqrt[x]
)/Sqrt[a + b*x]])/(4*b^(7/2))
```

Rubi [A] time = 0.149402, antiderivative size = 134, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.2

$$-\frac{3a(4Ab-5aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{4b^{7/2}}+\frac{3\sqrt{x}\sqrt{a+bx}(4Ab-5aB)}{4b^3}-\frac{x^{3/2}\sqrt{a+bx}(4Ab-5aB)}{2ab^2}+\frac{2x^{5/2}(Ab-aB)}{ab\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^(3/2)*(A + B*x))/(a + b*x)^(3/2),x]
```

```
[Out] (2*(A*b - a*B)*x^(5/2))/(a*b*Sqrt[a + b*x]) + (3*(4*A*b - 5*a*B)*
Sqrt[x]*Sqrt[a + b*x])/(4*b^3) - ((4*A*b - 5*a*B)*x^(3/2)*Sqrt[a
+ b*x])/(2*a*b^2) - (3*a*(4*A*b - 5*a*B)*ArcTanh[(Sqrt[b]*Sqrt[x]
)/Sqrt[a + b*x]])/(4*b^(7/2))
```

Rubi in Sympy [A] time = 14.465, size = 126, normalized size = 0.94

$$-\frac{3a\,(4Ab-5Ba)\,\mathrm{atanh}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{4b^{\frac{7}{2}}}+\frac{3\sqrt{x}\sqrt{a+bx}\,(4Ab-5Ba)}{4b^3}+\frac{2x^{\frac{5}{2}}\,(Ab-Ba)}{ab\sqrt{a+bx}}-\frac{x^{\frac{3}{2}}\sqrt{a+bx}\,(4Ab-5Ba)}{2ab^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**(3/2)*(B*x+A)/(b*x+a)**(3/2),x)
```

```
[Out] -3*a*(4*A*b - 5*B*a)*atanh(sqrt(b)*sqrt(x)/sqrt(a + b*x))/(4*b**(
7/2)) + 3*sqrt(x)*sqrt(a + b*x)*(4*A*b - 5*B*a)/(4*b**3) + 2*x**(
5/2)*(A*b - B*a)/(a*b*sqrt(a + b*x)) - x**(3/2)*sqrt(a + b*x)*(4*
A*b - 5*B*a)/(2*a*b**2)
```

Mathematica [A] time = 0.167547, size = 96, normalized size = 0.72

$$\frac{\sqrt{x}\left(-15a^2B+ab(12A-5Bx)+2b^2x(2A+Bx)\right)}{4b^3\sqrt{a+bx}}+\frac{3a(5aB-4Ab)\log\left(\sqrt{b}\sqrt{a+bx}+b\sqrt{x}\right)}{4b^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^(3/2)*(A + B*x))/(a + b*x)^(3/2),x]
```

```
[Out] (Sqrt[x]*(-15*a^2*B + a*b*(12*A - 5*B*x) + 2*b^2*x*(2*A + B*x)))/
(4*b^3*Sqrt[a + b*x]) + (3*a*(-4*A*b + 5*a*B)*Log[b*Sqrt[x] + Sqr
t[b]*Sqrt[a + b*x]])/(4*b^(7/2))
```

Maple [B] time = 0.024, size = 244, normalized size = 1.8

$$-\frac{1}{8}\left(-4\,B{x}^{2}{b}^{5/2}\sqrt{x\left(bx+a\right)}+12\,A\ln\left(1/2\,\frac{2\,\sqrt{x\left(bx+a\right)}\sqrt{b}+2\,bx+a}{\sqrt{b}}\right)xa{b}^{2}-8\,A\sqrt{x\left(bx+a\right)}x{b}^{5/2}-15\,B\ln\left(1/2\,\frac{2\,\sqrt{x\left(bx+a\right)}\ldots\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^(3/2)*(B*x+A)/(b*x+a)^(3/2),x)
```

```
[Out] -1/8*(-4*B*x^2*b^(5/2)*(x*(b*x+a))^(1/2)+12*A*ln(1/2*(2*(x*(b*x+a
))^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))*x*a*b^2-8*A*(x*(b*x+a))^(1/2)*
x*b^(5/2)-15*B*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1/2)+2*b*x+a)/b^(1/
2))*x*a^2*b+10*B*a*(x*(b*x+a))^(1/2)*x*b^(3/2)+12*A*a^2*ln(1/2*(2
*(x*(b*x+a))^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))*b-24*A*(x*(b*x+a))^(
1/2)*a*b^(3/2)-15*B*a^3*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1/2)+2*b*x
+a)/b^(1/2))+30*B*a^2*(x*(b*x+a))^(1/2)*b^(1/2))/b^(7/2)*x^(1/2)/
(x*(b*x+a))^(1/2)/(b*x+a)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(3/2)/(b*x + a)^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.242215, size = 1, normalized size = 0.01

$$\left[-\frac{3\left(5\,Ba^{2}-4\,Aab\right)\sqrt{bx+a}\sqrt{x}\log\left(-2\,\sqrt{bx+a}b\sqrt{x}+\left(2\,bx+a\right)\sqrt{b}\right)-2\left(2\,Bb^{2}x^{3}-\left(5\,Bab-4\,Ab^{2}\right)x^{2}-3\left(5\,Ba^{2}-4\,Aab\ldots\right.\right.}{8\,\sqrt{bx+a}b^{\frac{7}{2}}\sqrt{x}}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(3/2)/(b*x + a)^(3/2),x, algorithm="fricas")
```

```
[Out] [-1/8*(3*(5*B*a^2 - 4*A*a*b)*sqrt(b*x + a)*sqrt(x)*log(-2*sqrt(b*
x + a)*b*sqrt(x) + (2*b*x + a)*sqrt(b)) - 2*(2*B*b^2*x^3 - (5*B*a
*b - 4*A*b^2)*x^2 - 3*(5*B*a^2 - 4*A*a*b)*x)*sqrt(b))/(sqrt(b*x +
 a)*b^(7/2)*sqrt(x)), 1/4*(3*(5*B*a^2 - 4*A*a*b)*sqrt(b*x + a)*sq
rt(x)*arctan(sqrt(b*x + a)*sqrt(-b)/(b*sqrt(x))) + (2*B*b^2*x^3 -
 (5*B*a*b - 4*A*b^2)*x^2 - 3*(5*B*a^2 - 4*A*a*b)*x)*sqrt(-b))/(sq
rt(b*x + a)*sqrt(-b)*b^3*sqrt(x))]
```

Sympy [A] time = 174.608, size = 182, normalized size = 1.36

$$A\left(\frac{3\sqrt{a}\sqrt{x}}{b^{2}\sqrt{1+\frac{bx}{a}}}-\frac{3a\operatorname{asinh}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{b^{\frac{5}{2}}}+\frac{x^{\frac{3}{2}}}{\sqrt{a}b\sqrt{1+\frac{bx}{a}}}\right)+B\left(-\frac{15a^{\frac{3}{2}}\sqrt{x}}{4b^{3}\sqrt{1+\frac{bx}{a}}}-\frac{5\sqrt{a}x^{\frac{3}{2}}}{4b^{2}\sqrt{1+\frac{bx}{a}}}+\frac{15a^{2}\operatorname{asinh}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{4b^{\frac{7}{2}}}+\frac{x^{\frac{5}{2}}}{2\sqrt{a}b\sqrt{1+\frac{bx}{a}}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**(3/2)*(B*x+A)/(b*x+a)**(3/2),x)
```

```
[Out] A*(3*sqrt(a)*sqrt(x)/(b**2*sqrt(1 + b*x/a)) - 3*a*asinh(sqrt(b)*s
qrt(x)/sqrt(a))/b**(5/2) + x**(3/2)/(sqrt(a)*b*sqrt(1 + b*x/a)))
+ B*(-15*a**(3/2)*sqrt(x)/(4*b**3*sqrt(1 + b*x/a)) - 5*sqrt(a)*x*
*(3/2)/(4*b**2*sqrt(1 + b*x/a)) + 15*a**2*asinh(sqrt(b)*sqrt(x)/s
qrt(a))/(4*b**(7/2)) + x**(5/2)/(2*sqrt(a)*b*sqrt(1 + b*x/a)))
```

GIAC/XCAS [A] time = 0.249064, size = 244, normalized size = 1.82

$$\frac{1}{4}\sqrt{(bx+a)b-ab}\sqrt{bx+a}\left(\frac{2\,(bx+a)B|b|}{b^5}-\frac{9\,Bab^9|b|-4\,Ab^{10}|b|}{b^{14}}\right)-\frac{3\left(5\,Ba^2\sqrt{b}|b|-4\,Aab^{\frac{3}{2}}|b|\right)\ln\left(\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a)b-ab}\right)^2\right)}{8\,b^5}-\frac{4\left(Ba^3\sqrt{b}|b|-Aa^2b^{\frac{3}{2}}|b|\right)}{\left(\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a)b-ab}\right)^2+ab\right)b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(3/2)/(b*x + a)^(3/2),x, algorithm="giac")
```

```
[Out] 1/4*sqrt((b*x + a)*b - a*b)*sqrt(b*x + a)*(2*(b*x + a)*B*abs(b)/b
^5 - (9*B*a*b^9*abs(b) - 4*A*b^10*abs(b))/b^14) - 3/8*(5*B*a^2*sq
rt(b)*abs(b) - 4*A*a*b^(3/2)*abs(b))*ln((sqrt(b*x + a)*sqrt(b) -
sqrt((b*x + a)*b - a*b))^2)/b^5 - 4*(B*a^3*sqrt(b)*abs(b) - A*a^2
*b^(3/2)*abs(b))/(((sqrt(b*x + a)*sqrt(b) - sqrt((b*x + a)*b - a*
b))^2 + a*b)*b^4)
```

3.517 $\int \frac{\sqrt{x}(A+Bx)}{(a+bx)^{3/2}}\,dx$

Optimal. Leaf size=98

$$\frac{(2Ab-3aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{b^{5/2}}-\frac{\sqrt{x}\sqrt{a+bx}(2Ab-3aB)}{ab^2}+\frac{2x^{3/2}(Ab-aB)}{ab\sqrt{a+bx}}$$

```
[Out] (2*(A*b - a*B)*x^(3/2))/(a*b*Sqrt[a + b*x]) - ((2*A*b - 3*a*B)*Sq
rt[x]*Sqrt[a + b*x])/(a*b^2) + ((2*A*b - 3*a*B)*ArcTanh[(Sqrt[b]*
Sqrt[x])/Sqrt[a + b*x]])/b^(5/2)
```

Rubi [A] time = 0.111622, antiderivative size = 98, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.2

$$\frac{(2Ab-3aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{b^{5/2}}-\frac{\sqrt{x}\sqrt{a+bx}(2Ab-3aB)}{ab^2}+\frac{2x^{3/2}(Ab-aB)}{ab\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[x]*(A + B*x))/(a + b*x)^(3/2),x]
```

```
[Out] (2*(A*b - a*B)*x^(3/2))/(a*b*Sqrt[a + b*x]) - ((2*A*b - 3*a*B)*Sq
rt[x]*Sqrt[a + b*x])/(a*b^2) + ((2*A*b - 3*a*B)*ArcTanh[(Sqrt[b]*
Sqrt[x])/Sqrt[a + b*x]])/b^(5/2)
```

Rubi in Sympy [A] time = 10.8632, size = 92, normalized size = 0.94

$$\frac{2\left(Ab-\frac{3Ba}{2}\right)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{b^{\frac{5}{2}}}+\frac{2x^{\frac{3}{2}}\left(Ab-Ba\right)}{ab\sqrt{a+bx}}-\frac{2\sqrt{x}\sqrt{a+bx}\left(Ab-\frac{3Ba}{2}\right)}{ab^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*x**(1/2)/(b*x+a)**(3/2),x)
```

```
[Out] 2*(A*b - 3*B*a/2)*atanh(sqrt(b)*sqrt(x)/sqrt(a + b*x))/b**(5/2) +
 2*x**(3/2)*(A*b - B*a)/(a*b*sqrt(a + b*x)) - 2*sqrt(x)*sqrt(a +
b*x)*(A*b - 3*B*a/2)/(a*b**2)
```

Mathematica [A] time = 0.114043, size = 71, normalized size = 0.72

$$\frac{(2Ab-3aB)\log\left(\sqrt{b}\sqrt{a+bx}+b\sqrt{x}\right)}{b^{5/2}}+\frac{\sqrt{x}(3aB-2Ab+bBx)}{b^2\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[x]*(A + B*x))/(a + b*x)^(3/2),x]
```

```
[Out] (Sqrt[x]*(-2*A*b + 3*a*B + b*B*x))/(b^2*Sqrt[a + b*x]) + ((2*A*b
- 3*a*B)*Log[b*Sqrt[x] + Sqrt[b]*Sqrt[a + b*x]])/b^(5/2)
```

Maple [B] time = 0.021, size = 201, normalized size = 2.1

$$\frac{1}{2}\left(2\,A\ln\left(1/2\,\frac{2\,\sqrt{x\,(bx+a)}\sqrt{b}+2\,bx+a}{\sqrt{b}}\right)xb^{2}-3\,B\ln\left(1/2\,\frac{2\,\sqrt{x\,(bx+a)}\sqrt{b}+2\,bx+a}{\sqrt{b}}\right)xab+2\,Bxb^{3/2}\sqrt{x\,(bx+a)}+2\,A\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*x^(1/2)/(b*x+a)^(3/2),x)
```

```
[Out] 1/2*(2*A*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))*x*
b^2-3*B*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))*x*a
*b+2*B*x*b^(3/2)*(x*(b*x+a))^(1/2)+2*A*ln(1/2*(2*(x*(b*x+a))^(1/2
)*b^(1/2)+2*b*x+a)/b^(1/2))*a*b-4*A*b^(3/2)*(x*(b*x+a))^(1/2)-3*B
*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))*a^2+6*B*a*
b^(1/2)*(x*(b*x+a))^(1/2))/b^(5/2)*x^(1/2)/(x*(b*x+a))^(1/2)/(b*x
+a)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(x)/(b*x + a)^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.250395, size = 1, normalized size = 0.01

$$\left[-\frac{(3\,Ba-2\,Ab)\sqrt{bx+a}\sqrt{x}\log\left(2\,\sqrt{bx+a}b\sqrt{x}+(2\,bx+a)\sqrt{b}\right)-2\left(Bbx^{2}+(3\,Ba-2\,Ab)x\right)\sqrt{b}}{2\,\sqrt{bx+a}b^{\frac{5}{2}}\sqrt{x}},\right.$$
$$\left.-\frac{(3\,Ba-2\,Ab)\sqrt{bx+a}\sqrt{x}\arctan\left(\frac{\sqrt{bx+a}\sqrt{-b}}{b\sqrt{x}}\right)-\left(Bbx^{2}+(3\,Ba-2\,Ab)x\right)\sqrt{-b}}{\sqrt{bx+a}\sqrt{-b}b^{2}\sqrt{x}}\right]$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(x)/(b*x + a)^(3/2),x, algorithm="fricas")
```

```
[Out] [-1/2*((3*B*a - 2*A*b)*sqrt(b*x + a)*sqrt(x)*log(2*sqrt(b*x + a)*
b*sqrt(x) + (2*b*x + a)*sqrt(b)) - 2*(B*b*x^2 + (3*B*a - 2*A*b)*x
)*sqrt(b))/(sqrt(b*x + a)*b^(5/2)*sqrt(x)), -((3*B*a - 2*A*b)*sqr
t(b*x + a)*sqrt(x)*arctan(sqrt(b*x + a)*sqrt(-b)/(b*sqrt(x))) - (
B*b*x^2 + (3*B*a - 2*A*b)*x)*sqrt(-b))/(sqrt(b*x + a)*sqrt(-b)*b^
2*sqrt(x))]
```

Sympy [A] time = 28.4063, size = 122, normalized size = 1.24

$$A\left(\frac{2\,\mathrm{asinh}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{b^{\frac{3}{2}}}-\frac{2\sqrt{x}}{\sqrt{a}b\sqrt{1+\frac{bx}{a}}}\right)+B\left(\frac{3\sqrt{a}\sqrt{x}}{b^{2}\sqrt{1+\frac{bx}{a}}}-\frac{3a\,\mathrm{asinh}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{b^{\frac{5}{2}}}+\frac{x^{\frac{3}{2}}}{\sqrt{a}b\sqrt{1+\frac{bx}{a}}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*x**(1/2)/(b*x+a)**(3/2),x)
```

```
[Out] A*(2*asinh(sqrt(b)*sqrt(x)/sqrt(a))/b**(3/2) - 2*sqrt(x)/(sqrt(a)
*b*sqrt(1 + b*x/a))) + B*(3*sqrt(a)*sqrt(x)/(b**2*sqrt(1 + b*x/a)
) - 3*a*asinh(sqrt(b)*sqrt(x)/sqrt(a))/b**(5/2) + x**(3/2)/(sqrt(
a)*b*sqrt(1 + b*x/a)))
```

GIAC/XCAS [A] time = 0.247414, size = 194, normalized size = 1.98

$$\frac{\sqrt{(bx+a)b-ab}\sqrt{bx+a}B|b|}{b^4}+\frac{\left(3\,Ba\sqrt{b}|b|-2\,Ab^{\frac{3}{2}}|b|\right)\ln\left(\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a)b-ab}\right)^2\right)}{2\,b^4}+\frac{4\left(Ba^2\sqrt{b}|b|-Aab^{\frac{3}{2}}|b|\right)}{\left(\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a)b-ab}\right)^2+ab\right)b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(x)/(b*x + a)^(3/2),x, algorithm="giac")
```

```
[Out] sqrt((b*x + a)*b - a*b)*sqrt(b*x + a)*B*abs(b)/b^4 + 1/2*(3*B*a*s
qrt(b)*abs(b) - 2*A*b^(3/2)*abs(b))*ln((sqrt(b*x + a)*sqrt(b) - s
qrt((b*x + a)*b - a*b))^2)/b^4 + 4*(B*a^2*sqrt(b)*abs(b) - A*a*b^
(3/2)*abs(b))/(((sqrt(b*x + a)*sqrt(b) - sqrt((b*x + a)*b - a*b))
^2 + a*b)*b^3)
```

3.518 $\int \frac{A+Bx}{\sqrt{x}(a+bx)^{3/2}}\,dx$

Optimal. Leaf size=60

$$\frac{2\sqrt{x}(Ab-aB)}{ab\sqrt{a+bx}}+\frac{2B\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{b^{3/2}}$$

```
[Out] (2*(A*b - a*B)*Sqrt[x])/(a*b*Sqrt[a + b*x]) + (2*B*ArcTanh[(Sqrt[
b]*Sqrt[x])/Sqrt[a + b*x]])/b^(3/2)
```

Rubi [A] time = 0.0619321, antiderivative size = 60, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.15

$$\frac{2\sqrt{x}(Ab-aB)}{ab\sqrt{a+bx}}+\frac{2B\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{b^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(Sqrt[x]*(a + b*x)^(3/2)),x]
```

```
[Out] (2*(A*b - a*B)*Sqrt[x])/(a*b*Sqrt[a + b*x]) + (2*B*ArcTanh[(Sqrt[
b]*Sqrt[x])/Sqrt[a + b*x]])/b^(3/2)
```

Rubi in Sympy [A] time = 6.4396, size = 53, normalized size = 0.88

$$\frac{2B\,\mathrm{atanh}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{b^{\frac{3}{2}}}+\frac{2\sqrt{x}\,(Ab-Ba)}{ab\sqrt{a+bx}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(b*x+a)**(3/2)/x**(1/2),x)
```

```
[Out] 2*B*atanh(sqrt(b)*sqrt(x)/sqrt(a + b*x))/b**(3/2) + 2*sqrt(x)*(A*
b - B*a)/(a*b*sqrt(a + b*x))
```

Mathematica [A] time = 0.0810571, size = 63, normalized size = 1.05

$$\frac{2B\log\left(\sqrt{b}\sqrt{a+bx}+b\sqrt{x}\right)}{b^{3/2}}-\frac{2\sqrt{x}(aB-Ab)}{ab\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(Sqrt[x]*(a + b*x)^(3/2)),x]
```

```
[Out] (-2*(-(A*b) + a*B)*Sqrt[x])/(a*b*Sqrt[a + b*x]) + (2*B*Log[b*Sqrt
[x] + Sqrt[b]*Sqrt[a + b*x]])/b^(3/2)
```

Maple [B] time = 0.025, size = 121, normalized size = 2.

$$\frac{1}{a}\left(B\ln\left(\frac{1}{2}\left(2\sqrt{x(bx+a)}\sqrt{b}+2bx+a\right)\frac{1}{\sqrt{b}}\right)xab+2Ab^{3/2}\sqrt{x(bx+a)}+B\ln\left(\frac{1}{2}\left(2\sqrt{x(bx+a)}\sqrt{b}+2bx+a\right)\frac{1}{\sqrt{b}}\right)a^2-2\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(b*x+a)^(3/2)/x^(1/2),x)
```

```
[Out] (B*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))*x*a*b+2*
A*b^(3/2)*(x*(b*x+a))^(1/2)+B*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1/2)
+2*b*x+a)/b^(1/2))*a^2-2*B*a*b^(1/2)*(x*(b*x+a))^(1/2))/a/b^(3/2)
*x^(1/2)/(x*(b*x+a))^(1/2)/(b*x+a)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/((b*x + a)^(3/2)*sqrt(x)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.24141, size = 1, normalized size = 0.02

$$\left[\frac{\sqrt{bx+a}Ba\sqrt{x}\log\left(2\sqrt{bx+a}b\sqrt{x}+(2bx+a)\sqrt{b}\right)-2(Ba-Ab)\sqrt{b}x}{\sqrt{bx+a}ab^{\frac{3}{2}}\sqrt{x}}, \frac{2\left(\sqrt{bx+a}Ba\sqrt{x}\arctan\left(\frac{\sqrt{bx+a}\sqrt{-b}}{b\sqrt{x}}\right)-(Ba-Ab)\sqrt{\right.}{\sqrt{bx+a}a\sqrt{-b}b\sqrt{x}}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/((b*x + a)^(3/2)*sqrt(x)),x, algorithm="fricas")
```

```
[Out] [(sqrt(b*x + a)*B*a*sqrt(x)*log(2*sqrt(b*x + a)*b*sqrt(x) + (2*b*
x + a)*sqrt(b)) - 2*(B*a - A*b)*sqrt(b)*x)/(sqrt(b*x + a)*a*b^(3/
2)*sqrt(x)), 2*(sqrt(b*x + a)*B*a*sqrt(x)*arctan(sqrt(b*x + a)*sq
rt(-b)/(b*sqrt(x))) - (B*a - A*b)*sqrt(-b)*x)/(sqrt(b*x + a)*a*sq
rt(-b)*b*sqrt(x))]
```

Sympy [A] time = 37.2562, size = 68, normalized size = 1.13

$$\frac{2A}{a\sqrt{b}\sqrt{\frac{a}{bx}+1}}+B\left(\frac{2\operatorname{asinh}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{b^{\frac{3}{2}}}-\frac{2\sqrt{x}}{\sqrt{a}b\sqrt{1+\frac{bx}{a}}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(b*x+a)**(3/2)/x**(1/2),x)
```

```
[Out] 2*A/(a*sqrt(b)*sqrt(a/(b*x) + 1)) + B*(2*asinh(sqrt(b)*sqrt(x)/sq
rt(a))/b**(3/2) - 2*sqrt(x)/(sqrt(a)*b*sqrt(1 + b*x/a)))
```

GIAC/XCAS [A] time = 0.234905, size = 131, normalized size = 2.18

$$-\frac{B\ln\left(\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a)b-ab}\right)^{2}\right)}{\sqrt{b}|b|}-\frac{4\left(Ba\sqrt{b}-Ab^{\frac{3}{2}}\right)}{\left(\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a)b-ab}\right)^{2}+ab\right)|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(3/2)*sqrt(x)),x, algorithm="giac")
```

```
[Out] -B*ln((sqrt(b*x + a)*sqrt(b) - sqrt((b*x + a)*b - a*b))^2)/(sqrt(
b)*abs(b)) - 4*(B*a*sqrt(b) - A*b^(3/2))/(((sqrt(b*x + a)*sqrt(b)
 - sqrt((b*x + a)*b - a*b))^2 + a*b)*abs(b))
```

3.519 $\int \frac{A+Bx}{x^{3/2}(a+bx)^{3/2}}\,dx$

Optimal. Leaf size=49

$$-\frac{2\sqrt{x}(2Ab-aB)}{a^2\sqrt{a+bx}}-\frac{2A}{a\sqrt{x}\sqrt{a+bx}}$$

```
[Out] (-2*A)/(a*Sqrt[x]*Sqrt[a + b*x]) - (2*(2*A*b - a*B)*Sqrt[x])/(a^2
*Sqrt[a + b*x])
```

Rubi [A] time = 0.0654186, antiderivative size = 49, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.1

$$-\frac{2\sqrt{x}(2Ab-aB)}{a^2\sqrt{a+bx}}-\frac{2A}{a\sqrt{x}\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^(3/2)*(a + b*x)^(3/2)),x]
```

```
[Out] (-2*A)/(a*Sqrt[x]*Sqrt[a + b*x]) - (2*(2*A*b - a*B)*Sqrt[x])/(a^2
*Sqrt[a + b*x])
```

Rubi in Sympy [A] time = 5.24888, size = 46, normalized size = 0.94

$$-\frac{2A}{a\sqrt{x}\sqrt{a+bx}}-\frac{4\sqrt{x}\left(Ab-\frac{Ba}{2}\right)}{a^2\sqrt{a+bx}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**(3/2)/(b*x+a)**(3/2),x)
```

```
[Out] -2*A/(a*sqrt(x)*sqrt(a + b*x)) - 4*sqrt(x)*(A*b - B*a/2)/(a**2*sq
rt(a + b*x))
```

Mathematica [A] time = 0.0448325, size = 33, normalized size = 0.67

$$\frac{2(-aA+aBx-2Abx)}{a^2\sqrt{x}\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^(3/2)*(a + b*x)^(3/2)),x]
```

```
[Out] (2*(-(a*A) - 2*A*b*x + a*B*x))/(a^2*Sqrt[x]*Sqrt[a + b*x])
```

Maple [A] time = 0.007, size = 30, normalized size = 0.6

$$-2\,\frac{2\,Abx-Bax+Aa}{\sqrt{x}\sqrt{bx+a}a^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^(3/2)/(b*x+a)^(3/2),x)
```

```
[Out] -2*(2*A*b*x-B*a*x+A*a)/x^(1/2)/(b*x+a)^(1/2)/a^2
```

Maxima [A] time = 1.34386, size = 74, normalized size = 1.51

$$\frac{2\,Bx}{\sqrt{bx^2+axa}}-\frac{4\,Abx}{\sqrt{bx^2+axa^2}}-\frac{2\,A}{\sqrt{bx^2+axa}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(3/2)*x^(3/2)),x, algorithm="maxima")
```

```
[Out] 2*B*x/(sqrt(b*x^2 + a*x)*a) - 4*A*b*x/(sqrt(b*x^2 + a*x)*a^2) - 2
*A/(sqrt(b*x^2 + a*x)*a)
```

Fricas [A] time = 0.23391, size = 41, normalized size = 0.84

$$-\frac{2\,(Aa-(Ba-2\,Ab)x)}{\sqrt{bx+aa^2}\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(3/2)*x^(3/2)),x, algorithm="fricas")
```

```
[Out] -2*(A*a - (B*a - 2*A*b)*x)/(sqrt(b*x + a)*a^2*sqrt(x))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**(3/2)/(b*x+a)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.234274, size = 126, normalized size = 2.57

$$-\frac{2\sqrt{bx+a}Ab^2}{\sqrt{(bx+a)b-aba^2}|b|}+\frac{4\left(Bab^{\frac{3}{2}}-Ab^{\frac{5}{2}}\right)}{\left(\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a)b-ab}\right)^2+ab\right)a|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(3/2)*x^(3/2)),x, algorithm="giac")
```

```
[Out] -2*sqrt(b*x + a)*A*b^2/(sqrt((b*x + a)*b - a*b)*a^2*abs(b)) + 4*(
B*a*b^(3/2) - A*b^(5/2))/(((sqrt(b*x + a)*sqrt(b) - sqrt((b*x + a
)*b - a*b))^2 + a*b)*a*abs(b))
```

3.520 $\int \frac{A+Bx}{x^{5/2}(a+bx)^{3/2}}\,dx$

Optimal. Leaf size=83

$$\frac{4\sqrt{a+bx}(4Ab-3aB)}{3a^3\sqrt{x}}-\frac{2(4Ab-3aB)}{3a^2\sqrt{x}\sqrt{a+bx}}-\frac{2A}{3ax^{3/2}\sqrt{a+bx}}$$

```
[Out] (-2*A)/(3*a*x^(3/2)*Sqrt[a + b*x]) - (2*(4*A*b - 3*a*B))/(3*a^2*S
qrt[x]*Sqrt[a + b*x]) + (4*(4*A*b - 3*a*B)*Sqrt[a + b*x])/(3*a^3*
Sqrt[x])
```

Rubi [A] time = 0.0971705, antiderivative size = 83, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.15

$$\frac{4\sqrt{a+bx}(4Ab-3aB)}{3a^3\sqrt{x}}-\frac{2(4Ab-3aB)}{3a^2\sqrt{x}\sqrt{a+bx}}-\frac{2A}{3ax^{3/2}\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^(5/2)*(a + b*x)^(3/2)),x]
```

```
[Out] (-2*A)/(3*a*x^(3/2)*Sqrt[a + b*x]) - (2*(4*A*b - 3*a*B))/(3*a^2*S
qrt[x]*Sqrt[a + b*x]) + (4*(4*A*b - 3*a*B)*Sqrt[a + b*x])/(3*a^3*
Sqrt[x])
```

Rubi in Sympy [A] time = 8.09775, size = 78, normalized size = 0.94

$$-\frac{2A}{3ax^{\frac{3}{2}}\sqrt{a+bx}}-\frac{2\left(4Ab-3Ba\right)}{3a^2\sqrt{x}\sqrt{a+bx}}+\frac{4\sqrt{a+bx}\left(4Ab-3Ba\right)}{3a^3\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**(5/2)/(b*x+a)**(3/2),x)
```

```
[Out] -2*A/(3*a*x**(3/2)*sqrt(a + b*x)) - 2*(4*A*b - 3*B*a)/(3*a**2*sqr
t(x)*sqrt(a + b*x)) + 4*sqrt(a + b*x)*(4*A*b - 3*B*a)/(3*a**3*sqr
t(x))
```

Mathematica [A] time = 0.0655463, size = 54, normalized size = 0.65

$$-\frac{2\left(a^2(A+3Bx)+2abx(3Bx-2A)-8Ab^2x^2\right)}{3a^3x^{3/2}\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^(5/2)*(a + b*x)^(3/2)),x]
```

```
[Out] (-2*(-8*A*b^2*x^2 + 2*a*b*x*(-2*A + 3*B*x) + a^2*(A + 3*B*x)))/(3
*a^3*x^(3/2)*Sqrt[a + b*x])
```

Maple [A] time = 0.007, size = 52, normalized size = 0.6

$$-\frac{-16\,Ab^2x^2+12\,Bx^2ab-8\,aAbx+6\,a^2Bx+2\,Aa^2}{3\,a^3}x^{-\frac{3}{2}}\frac{1}{\sqrt{bx+a}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^(5/2)/(b*x+a)^(3/2),x)
```

```
[Out] -2/3*(-8*A*b^2*x^2+6*B*a*b*x^2-4*A*a*b*x+3*B*a^2*x+A*a^2)/x^(3/2)
/(b*x+a)^(1/2)/a^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/((b*x + a)^(3/2)*x^(5/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.217769, size = 70, normalized size = 0.84

$$-\frac{2\left(Aa^2+2\left(3\,Bab-4\,Ab^2\right)x^2+\left(3\,Ba^2-4\,Aab\right)x\right)}{3\,\sqrt{bx+a}a^3x^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/((b*x + a)^(3/2)*x^(5/2)),x, algorithm="fricas")
```

```
[Out] -2/3*(A*a^2 + 2*(3*B*a*b - 4*A*b^2)*x^2 + (3*B*a^2 - 4*A*a*b)*x)/
(sqrt(b*x + a)*a^3*x^(3/2))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**(5/2)/(b*x+a)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.241426, size = 200, normalized size = 2.41

$$\frac{\sqrt{bx+a}\left(\frac{\left(3\,Ba^3b^3|b|-5\,Aa^2b^4|b|\right)(bx+a)}{a^2b^6}-\frac{3\left(Ba^4b^3|b|-2\,Aa^3b^4|b|\right)}{a^2b^6}\right)}{48\left((bx+a)b-ab\right)^{\frac{3}{2}}}-\frac{4\left(Bab^{\frac{5}{2}}-Ab^{\frac{7}{2}}\right)}{\left(\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a)b-ab}\right)^2+ab\right)a^2|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(3/2)*x^(5/2)),x, algorithm="giac")
```

```
[Out] 1/48*sqrt(b*x + a)*((3*B*a^3*b^3*abs(b) - 5*A*a^2*b^4*abs(b))*(b*
x + a)/(a^2*b^6) - 3*(B*a^4*b^3*abs(b) - 2*A*a^3*b^4*abs(b))/(a^2
*b^6))/((b*x + a)*b - a*b)^(3/2) - 4*(B*a*b^(5/2) - A*b^(7/2))/((
(sqrt(b*x + a)*sqrt(b) - sqrt((b*x + a)*b - a*b))^2 + a*b)*a^2*ab
s(b))
```

3.521 $\int \frac{A+Bx}{x^{7/2}(a+bx)^{3/2}} dx$

Optimal. Leaf size=114

$$-\frac{16b\sqrt{a+bx}(6Ab-5aB)}{15a^4\sqrt{x}}+\frac{8\sqrt{a+bx}(6Ab-5aB)}{15a^3x^{3/2}}-\frac{2(6Ab-5aB)}{5a^2x^{3/2}\sqrt{a+bx}}-\frac{2A}{5ax^{5/2}\sqrt{a+bx}}$$

```
[Out] (-2*A)/(5*a*x^(5/2)*Sqrt[a + b*x]) - (2*(6*A*b - 5*a*B))/(5*a^2*x
^(3/2)*Sqrt[a + b*x]) + (8*(6*A*b - 5*a*B)*Sqrt[a + b*x])/(15*a^3
*x^(3/2)) - (16*b*(6*A*b - 5*a*B)*Sqrt[a + b*x])/(15*a^4*Sqrt[x])
```

Rubi [A] time = 0.132678, antiderivative size = 114, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.15

$$-\frac{16b\sqrt{a+bx}(6Ab-5aB)}{15a^4\sqrt{x}}+\frac{8\sqrt{a+bx}(6Ab-5aB)}{15a^3x^{3/2}}-\frac{2(6Ab-5aB)}{5a^2x^{3/2}\sqrt{a+bx}}-\frac{2A}{5ax^{5/2}\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^(7/2)*(a + b*x)^(3/2)),x]
```

```
[Out] (-2*A)/(5*a*x^(5/2)*Sqrt[a + b*x]) - (2*(6*A*b - 5*a*B))/(5*a^2*x
^(3/2)*Sqrt[a + b*x]) + (8*(6*A*b - 5*a*B)*Sqrt[a + b*x])/(15*a^3
*x^(3/2)) - (16*b*(6*A*b - 5*a*B)*Sqrt[a + b*x])/(15*a^4*Sqrt[x])
```

Rubi in Sympy [A] time = 10.8783, size = 110, normalized size = 0.96

$$-\frac{2A}{5ax^{\frac{5}{2}}\sqrt{a+bx}}-\frac{2\left(6Ab-5Ba\right)}{5a^2x^{\frac{3}{2}}\sqrt{a+bx}}+\frac{8\sqrt{a+bx}\left(6Ab-5Ba\right)}{15a^3x^{\frac{3}{2}}}-\frac{16b\sqrt{a+bx}\left(6Ab-5Ba\right)}{15a^4\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**(7/2)/(b*x+a)**(3/2),x)
```

```
[Out] -2*A/(5*a*x**(5/2)*sqrt(a + b*x)) - 2*(6*A*b - 5*B*a)/(5*a**2*x**
(3/2)*sqrt(a + b*x)) + 8*sqrt(a + b*x)*(6*A*b - 5*B*a)/(15*a**3*x
**(3/2)) - 16*b*sqrt(a + b*x)*(6*A*b - 5*B*a)/(15*a**4*sqrt(x))
```

Mathematica [A] time = 0.0888394, size = 75, normalized size = 0.66

$$-\frac{2\left(a^3(3A+5Bx)-2a^2bx(3A+10Bx)+8ab^2x^2(3A-5Bx)+48Ab^3x^3\right)}{15a^4x^{5/2}\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^(7/2)*(a + b*x)^(3/2)),x]
```

```
[Out] (-2*(48*A*b^3*x^3 + 8*a*b^2*x^2*(3*A - 5*B*x) + a^3*(3*A + 5*B*x)
 - 2*a^2*b*x*(3*A + 10*B*x)))/(15*a^4*x^(5/2)*Sqrt[a + b*x])
```

Maple [A] time = 0.008, size = 77, normalized size = 0.7

$$-\frac{96\,Ab^3x^3-80\,Bx^3ab^2+48\,aAb^2x^2-40\,Bx^2a^2b-12\,a^2Abx+10\,a^3Bx+6\,Aa^3}{15\,a^4}x^{-\frac{5}{2}}\frac{1}{\sqrt{bx+a}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^(7/2)/(b*x+a)^(3/2),x)
```

```
[Out] -2/15*(48*A*b^3*x^3-40*B*a*b^2*x^3+24*A*a*b^2*x^2-20*B*a^2*b*x^2-
6*A*a^2*b*x+5*B*a^3*x+3*A*a^3)/x^(5/2)/(b*x+a)^(1/2)/a^4
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(3/2)*x^(7/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.237898, size = 104, normalized size = 0.91

$$-\frac{2\left(3\,Aa^{3}-8\left(5\,Bab^{2}-6\,Ab^{3}\right)x^{3}-4\left(5\,Ba^{2}b-6\,Aab^{2}\right)x^{2}+\left(5\,Ba^{3}-6\,Aa^{2}b\right)x\right)}{15\,\sqrt{bx+a}a^{4}x^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(3/2)*x^(7/2)),x, algorithm="fricas")
```

```
[Out] -2/15*(3*A*a^3 - 8*(5*B*a*b^2 - 6*A*b^3)*x^3 - 4*(5*B*a^2*b - 6*A
*a*b^2)*x^2 + (5*B*a^3 - 6*A*a^2*b)*x)/(sqrt(b*x + a)*a^4*x^(5/2)
)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**(7/2)/(b*x+a)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.250521, size = 236, normalized size = 2.07

$$-\frac{\sqrt{bx+a}\left((bx+a)\left(\frac{\left(25\,Ba^{6}b^{7}-33\,Aa^{5}b^{8}\right)(bx+a)}{a^{3}b^{9}}-\frac{5\left(11\,Ba^{7}b^{7}-15\,Aa^{6}b^{8}\right)}{a^{3}b^{9}}\right)+\frac{15\left(2\,Ba^{8}b^{7}-3\,Aa^{7}b^{8}\right)}{a^{3}b^{9}}\right)}{960\left((bx+a)b-ab\right)^{\frac{5}{2}}}+\frac{4\left(Bab^{\frac{7}{2}}-Ab^{\frac{9}{2}}\right)}{\left(\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a)b-ab}\right)^{2}+ab\right)a^{3}|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(3/2)*x^(7/2)),x, algorithm="giac")
```

```
[Out] -1/960*sqrt(b*x + a)*((b*x + a)*((25*B*a^6*b^7 - 33*A*a^5*b^8)*(b
*x + a)/(a^3*b^9) - 5*(11*B*a^7*b^7 - 15*A*a^6*b^8)/(a^3*b^9)) +
15*(2*B*a^8*b^7 - 3*A*a^7*b^8)/(a^3*b^9))/((b*x + a)*b - a*b)^(5/
2) + 4*(B*a*b^(7/2) - A*b^(9/2))/(((sqrt(b*x + a)*sqrt(b) - sqrt(
(b*x + a)*b - a*b))^2 + a*b)*a^3*abs(b))
```

3.522 $\int \frac{A+Bx}{x^{9/2}(a+bx)^{3/2}} \, dx$

Optimal. Leaf size=147

$$\frac{32b^2\sqrt{a+bx}(8Ab-7aB)}{35a^5\sqrt{x}}-\frac{16b\sqrt{a+bx}(8Ab-7aB)}{35a^4x^{3/2}}+\frac{12\sqrt{a+bx}(8Ab-7aB)}{35a^3x^{5/2}}-\frac{2(8Ab-7aB)}{7a^2x^{5/2}\sqrt{a+bx}}-\frac{2A}{7ax^{7/2}\sqrt{a+bx}}$$

```
[Out] (-2*A)/(7*a*x^(7/2)*Sqrt[a + b*x]) - (2*(8*A*b - 7*a*B))/(7*a^2*x
^(5/2)*Sqrt[a + b*x]) + (12*(8*A*b - 7*a*B)*Sqrt[a + b*x])/(35*a^
3*x^(5/2)) - (16*b*(8*A*b - 7*a*B)*Sqrt[a + b*x])/(35*a^4*x^(3/2)
) + (32*b^2*(8*A*b - 7*a*B)*Sqrt[a + b*x])/(35*a^5*Sqrt[x])
```

Rubi [A] time = 0.170052, antiderivative size = 147, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.15$

$$\frac{32b^2\sqrt{a+bx}(8Ab-7aB)}{35a^5\sqrt{x}}-\frac{16b\sqrt{a+bx}(8Ab-7aB)}{35a^4x^{3/2}}+\frac{12\sqrt{a+bx}(8Ab-7aB)}{35a^3x^{5/2}}-\frac{2(8Ab-7aB)}{7a^2x^{5/2}\sqrt{a+bx}}-\frac{2A}{7ax^{7/2}\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^(9/2)*(a + b*x)^(3/2)),x]
```

```
[Out] (-2*A)/(7*a*x^(7/2)*Sqrt[a + b*x]) - (2*(8*A*b - 7*a*B))/(7*a^2*x
^(5/2)*Sqrt[a + b*x]) + (12*(8*A*b - 7*a*B)*Sqrt[a + b*x])/(35*a^
3*x^(5/2)) - (16*b*(8*A*b - 7*a*B)*Sqrt[a + b*x])/(35*a^4*x^(3/2)
) + (32*b^2*(8*A*b - 7*a*B)*Sqrt[a + b*x])/(35*a^5*Sqrt[x])
```

Rubi in Sympy [A] time = 14.9279, size = 144, normalized size = 0.98

$$-\frac{2A}{7ax^{\frac{7}{2}}\sqrt{a+bx}}-\frac{2\left(8Ab-7Ba\right)}{7a^2x^{\frac{5}{2}}\sqrt{a+bx}}+\frac{12\sqrt{a+bx}\left(8Ab-7Ba\right)}{35a^3x^{\frac{5}{2}}}-\frac{16b\sqrt{a+bx}\left(8Ab-7Ba\right)}{35a^4x^{\frac{3}{2}}}+\frac{32b^2\sqrt{a+bx}\left(8Ab-7Ba\right)}{35a^5\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**(9/2)/(b*x+a)**(3/2),x)
```

```
[Out] -2*A/(7*a*x**(7/2)*sqrt(a + b*x)) - 2*(8*A*b - 7*B*a)/(7*a**2*x**
(5/2)*sqrt(a + b*x)) + 12*sqrt(a + b*x)*(8*A*b - 7*B*a)/(35*a**3*
x**(5/2)) - 16*b*sqrt(a + b*x)*(8*A*b - 7*B*a)/(35*a**4*x**(3/2))
 + 32*b**2*sqrt(a + b*x)*(8*A*b - 7*B*a)/(35*a**5*sqrt(x))
```

Mathematica [A] time = 0.111913, size = 94, normalized size = 0.64

$$-\frac{2\left(a^4(5A+7Bx)-2a^3bx(4A+7Bx)+8a^2b^2x^2(2A+7Bx)+16ab^3x^3(7Bx-4A)-128Ab^4x^4\right)}{35a^5x^{7/2}\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^(9/2)*(a + b*x)^(3/2)),x]
```

```
[Out] (-2*(-128*A*b^4*x^4 + 16*a*b^3*x^3*(-4*A + 7*B*x) + 8*a^2*b^2*x^2
*(2*A + 7*B*x) - 2*a^3*b*x*(4*A + 7*B*x) + a^4*(5*A + 7*B*x)))/(3
5*a^5*x^(7/2)*Sqrt[a + b*x])
```

Maple [A] time = 0.01, size = 101, normalized size = 0.7

$$-\frac{-256\,A b^{4} x^{4}+224\,B a b^{3} x^{4}-128\,A a b^{3} x^{3}+112\,B a^{2} b^{2} x^{3}+32\,A a^{2} b^{2} x^{2}-28\,B a^{3} b x^{2}-16\,A a^{3} b x+14\,B a^{4} x+10\,A a^{4}}{35\,a^{5}} x^{-\frac{7}{2}} \frac{}{\sqrt{bx}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^(9/2)/(b*x+a)^(3/2),x)
```

```
[Out] -2/35*(-128*A*b^4*x^4+112*B*a*b^3*x^4-64*A*a*b^3*x^3+56*B*a^2*b^2
*x^3+16*A*a^2*b^2*x^2-14*B*a^3*b*x^2-8*A*a^3*b*x+7*B*a^4*x+5*A*a^
4)/x^(7/2)/(b*x+a)^(1/2)/a^5
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(3/2)*x^(9/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.23395, size = 136, normalized size = 0.93

$$-\frac{2\,\left(5\,A a^{4}+16\,\left(7\,B a b^{3}-8\,A b^{4}\right) x^{4}+8\,\left(7\,B a^{2} b^{2}-8\,A a b^{3}\right) x^{3}-2\,\left(7\,B a^{3} b-8\,A a^{2} b^{2}\right) x^{2}+\left(7\,B a^{4}-8\,A a^{3} b\right) x\right)}{35\,\sqrt{b x+a} a^{5} x^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(3/2)*x^(9/2)),x, algorithm="fricas")
```

```
[Out] -2/35*(5*A*a^4 + 16*(7*B*a*b^3 - 8*A*b^4)*x^4 + 8*(7*B*a^2*b^2 -
8*A*a*b^3)*x^3 - 2*(7*B*a^3*b - 8*A*a^2*b^2)*x^2 + (7*B*a^4 - 8*A
*a^3*b)*x)/(sqrt(b*x + a)*a^5*x^(7/2))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**(9/2)/(b*x+a)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.257309, size = 304, normalized size = 2.07

$$\frac{\left((bx+a)\left((bx+a)\left(\frac{\left(77\,Ba^{10}b^{9}|b|-93\,Aa^{9}b^{10}|b|\right)(bx+a)}{a^{4}b^{12}}-\frac{28\left(9\,Ba^{11}b^{9}|b|-11\,Aa^{10}b^{10}|b|\right)}{a^{4}b^{12}}\right)+\frac{70\left(4\,Ba^{12}b^{9}|b|-5\,Aa^{11}b^{10}|b|\right)}{a^{4}b^{12}}\right)-\frac{35\left(3\,Ba^{13}b^{9}|b|\right.}{a^{4}}}{26880\left((bx+a)b-ab\right)^{\frac{7}{2}}}$$

$$-\frac{4\left(Bab^{\frac{9}{2}}-Ab^{\frac{11}{2}}\right)}{\left(\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a)b-ab}\right)^{2}+ab\right)a^{4}|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(3/2)*x^(9/2)),x, algorithm="giac")
```

```
[Out] 1/26880*((b*x + a)*((b*x + a)*((77*B*a^10*b^9*abs(b) - 93*A*a^9*b
^10*abs(b))*(b*x + a)/(a^4*b^12) - 28*(9*B*a^11*b^9*abs(b) - 11*A
*a^10*b^10*abs(b))/(a^4*b^12)) + 70*(4*B*a^12*b^9*abs(b) - 5*A*a^
11*b^10*abs(b))/(a^4*b^12)) - 35*(3*B*a^13*b^9*abs(b) - 4*A*a^12*
b^10*abs(b))/(a^4*b^12))*sqrt(b*x + a)/((b*x + a)*b - a*b)^(7/2)
- 4*(B*a*b^(9/2) - A*b^(11/2))/(((sqrt(b*x + a)*sqrt(b) - sqrt((b
*x + a)*b - a*b))^2 + a*b)*a^4*abs(b))
```

3.523 $\int \frac{A+Bx}{x^{11/2}(a+bx)^{3/2}}\,dx$

Optimal. Leaf size=180

$$-\frac{256b^3\sqrt{a+bx}(10Ab-9aB)}{315a^6\sqrt{x}}+\frac{128b^2\sqrt{a+bx}(10Ab-9aB)}{315a^5x^{3/2}}-\frac{32b\sqrt{a+bx}(10Ab-9aB)}{105a^4x^{5/2}}+\frac{16\sqrt{a+bx}(10Ab-9aB)}{63a^3x^{7/2}}-\frac{2(10Ab-9aB)}{9a^2x^{7/2}\sqrt{a+bx}}-\frac{2A}{9ax^{9/2}\sqrt{a+bx}}$$

```
[Out] (-2*A)/(9*a*x^(9/2)*Sqrt[a + b*x]) - (2*(10*A*b - 9*a*B))/(9*a^2*
x^(7/2)*Sqrt[a + b*x]) + (16*(10*A*b - 9*a*B)*Sqrt[a + b*x])/(63*
a^3*x^(7/2)) - (32*b*(10*A*b - 9*a*B)*Sqrt[a + b*x])/(105*a^4*x^(
5/2)) + (128*b^2*(10*A*b - 9*a*B)*Sqrt[a + b*x])/(315*a^5*x^(3/2)
) - (256*b^3*(10*A*b - 9*a*B)*Sqrt[a + b*x])/(315*a^6*Sqrt[x])
```

Rubi [A] time = 0.214812, antiderivative size = 180, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.15

$$-\frac{256b^3\sqrt{a+bx}(10Ab-9aB)}{315a^6\sqrt{x}}+\frac{128b^2\sqrt{a+bx}(10Ab-9aB)}{315a^5x^{3/2}}-\frac{32b\sqrt{a+bx}(10Ab-9aB)}{105a^4x^{5/2}}+\frac{16\sqrt{a+bx}(10Ab-9aB)}{63a^3x^{7/2}}-\frac{2(10Ab-9aB)}{9a^2x^{7/2}\sqrt{a+bx}}-\frac{2A}{9ax^{9/2}\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^(11/2)*(a + b*x)^(3/2)),x]
```

```
[Out] (-2*A)/(9*a*x^(9/2)*Sqrt[a + b*x]) - (2*(10*A*b - 9*a*B))/(9*a^2*
x^(7/2)*Sqrt[a + b*x]) + (16*(10*A*b - 9*a*B)*Sqrt[a + b*x])/(63*
a^3*x^(7/2)) - (32*b*(10*A*b - 9*a*B)*Sqrt[a + b*x])/(105*a^4*x^(
5/2)) + (128*b^2*(10*A*b - 9*a*B)*Sqrt[a + b*x])/(315*a^5*x^(3/2)
) - (256*b^3*(10*A*b - 9*a*B)*Sqrt[a + b*x])/(315*a^6*Sqrt[x])
```

Rubi in Sympy [A] time = 19.5363, size = 178, normalized size = 0.99

$$-\frac{2A}{9ax^{\frac{9}{2}}\sqrt{a+bx}}-\frac{2\,(10Ab-9Ba)}{9a^2x^{\frac{7}{2}}\sqrt{a+bx}}+\frac{16\sqrt{a+bx}\,(10Ab-9Ba)}{63a^3x^{\frac{7}{2}}}-\frac{32b\sqrt{a+bx}\,(10Ab-9Ba)}{105a^4x^{\frac{5}{2}}}+\frac{128b^2\sqrt{a+bx}\,(10Ab-9Ba)}{315a^5x^{\frac{3}{2}}}-\frac{256b^3\sqrt{a+bx}\,(10Ab-9Ba)}{315a^6\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**(11/2)/(b*x+a)**(3/2),x)
```

```
[Out] -2*A/(9*a*x**(9/2)*sqrt(a + b*x)) - 2*(10*A*b - 9*B*a)/(9*a**2*x*
*(7/2)*sqrt(a + b*x)) + 16*sqrt(a + b*x)*(10*A*b - 9*B*a)/(63*a**
3*x**(7/2)) - 32*b*sqrt(a + b*x)*(10*A*b - 9*B*a)/(105*a**4*x**(5
/2)) + 128*b**2*sqrt(a + b*x)*(10*A*b - 9*B*a)/(315*a**5*x**(3/2)
) - 256*b**3*sqrt(a + b*x)*(10*A*b - 9*B*a)/(315*a**6*sqrt(x))
```

Mathematica [A] time = 0.135493, size = 114, normalized size = 0.63

$$-\frac{2\left(5a^5(7A+9Bx)-2a^4bx(25A+36Bx)+16a^3b^2x^2(5A+9Bx)-32a^2b^3x^3(5A+18Bx)+128ab^4x^4(5A-9Bx)+1280Ab^5x\right.}{315a^6x^{9/2}\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^(11/2)*(a + b*x)^(3/2)),x]
```

```
[Out] (-2*(1280*A*b^5*x^5 + 128*a*b^4*x^4*(5*A - 9*B*x) + 16*a^3*b^2*x^
2*(5*A + 9*B*x) + 5*a^5*(7*A + 9*B*x) - 32*a^2*b^3*x^3*(5*A + 18*
B*x) - 2*a^4*b*x*(25*A + 36*B*x)))/(315*a^6*x^(9/2)*Sqrt[a + b*x]
)
```

Maple [A] time = 0.008, size = 125, normalized size = 0.7

$$-\frac{2560\,Ab^5x^5 - 2304\,Bx^5ab^4 + 1280\,aAb^4x^4 - 1152\,Bx^4a^2b^3 - 320\,a^2Ab^3x^3 + 288\,Bx^3a^3b^2 + 160\,a^3Ab^2x^2 - 144\,Bx^2a^4b - 1}{315\,a^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^(11/2)/(b*x+a)^(3/2),x)
```

```
[Out] -2/315*(1280*A*b^5*x^5-1152*B*a*b^4*x^5+640*A*a*b^4*x^4-576*B*a^2
*b^3*x^4-160*A*a^2*b^3*x^3+144*B*a^3*b^2*x^3+80*A*a^3*b^2*x^2-72*
B*a^4*b*x^2-50*A*a^4*b*x+45*B*a^5*x+35*A*a^5)/x^(9/2)/(b*x+a)^(1/
2)/a^6
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(3/2)*x^(11/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.23801, size = 170, normalized size = 0.94

$$-\frac{2\left(35\,Aa^5 - 128\left(9\,Bab^4 - 10\,Ab^5\right)x^5 - 64\left(9\,Ba^2b^3 - 10\,Aab^4\right)x^4 + 16\left(9\,Ba^3b^2 - 10\,Aa^2b^3\right)x^3 - 8\left(9\,Ba^4b - 10\,Aa^3b^2\right)x^2}{315\,\sqrt{bx+a}a^6x^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(3/2)*x^(11/2)),x, algorithm="fricas")
```

```
[Out] -2/315*(35*A*a^5 - 128*(9*B*a*b^4 - 10*A*b^5)*x^5 - 64*(9*B*a^2*b
^3 - 10*A*a*b^4)*x^4 + 16*(9*B*a^3*b^2 - 10*A*a^2*b^3)*x^3 - 8*(9
*B*a^4*b - 10*A*a^3*b^2)*x^2 + 5*(9*B*a^5 - 10*A*a^4*b)*x)/(sqrt(
b*x + a)*a^6*x^(9/2))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**(11/2)/(b*x+a)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.269384, size = 328, normalized size = 1.82

$$-\frac{\left(\left((bx+a)\left((bx+a)\left(\frac{(837\,Ba^{15}b^{13}-965\,Aa^{14}b^{14})(bx+a)}{a^5b^{15}}-\frac{9\,(401\,Ba^{16}b^{13}-465\,Aa^{15}b^{14})}{a^5b^{15}}\right)+\frac{126\,(47\,Ba^{17}b^{13}-55\,Aa^{16}b^{14})}{a^5b^{15}}\right)-\frac{210\,(21\,Ba^{18}b^{13}-25\,A}{a^5b^{15}}\right.}{322560\,((bx+a)b-ab)^{\frac{9}{2}}}$$

$$+\frac{4\left(Bab^{\frac{11}{2}}-Ab^{\frac{13}{2}}\right)}{\left(\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a)b-ab}\right)^2+ab\right)a^5|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(3/2)*x^(11/2)),x, algorithm="giac")
```

```
[Out] -1/322560*(((b*x + a)*((b*x + a)*((837*B*a^15*b^13 - 965*A*a^14*b
^14)*(b*x + a)/(a^5*b^15) - 9*(401*B*a^16*b^13 - 465*A*a^15*b^14)
/(a^5*b^15)) + 126*(47*B*a^17*b^13 - 55*A*a^16*b^14)/(a^5*b^15))
- 210*(21*B*a^18*b^13 - 25*A*a^17*b^14)/(a^5*b^15))*(b*x + a) + 3
15*(4*B*a^19*b^13 - 5*A*a^18*b^14)/(a^5*b^15))*sqrt(b*x + a)/((b*
x + a)*b - a*b)^(9/2) + 4*(B*a*b^(11/2) - A*b^(13/2))/(((sqrt(b*x
 + a)*sqrt(b) - sqrt((b*x + a)*b - a*b))^2 + a*b)*a^5*abs(b))
```

3.524 $\int \frac{A+Bx}{x^{13/2}(a+bx)^{3/2}}\,dx$

Optimal. Leaf size=213

$$\frac{512b^4\sqrt{a+bx}(12Ab-11aB)}{693a^7\sqrt{x}}-\frac{256b^3\sqrt{a+bx}(12Ab-11aB)}{693a^6x^{3/2}}+\frac{64b^2\sqrt{a+bx}(12Ab-11aB)}{231a^5x^{5/2}}-\frac{160b\sqrt{a+bx}(12Ab-11aB)}{693a^4x^{7/2}}+\frac{20\sqrt{a+bx}(12Ab-11aB)}{99a^3x^{9/2}}-\frac{2(12Ab-11aB)}{11a^2x^{9/2}\sqrt{a+bx}}-\frac{2A}{11ax^{11/2}\sqrt{a+bx}}$$

```
[Out] (-2*A)/(11*a*x^(11/2)*Sqrt[a + b*x]) - (2*(12*A*b - 11*a*B))/(11*
a^2*x^(9/2)*Sqrt[a + b*x]) + (20*(12*A*b - 11*a*B)*Sqrt[a + b*x])
/(99*a^3*x^(9/2)) - (160*b*(12*A*b - 11*a*B)*Sqrt[a + b*x])/(693*
a^4*x^(7/2)) + (64*b^2*(12*A*b - 11*a*B)*Sqrt[a + b*x])/(231*a^5*
x^(5/2)) - (256*b^3*(12*A*b - 11*a*B)*Sqrt[a + b*x])/(693*a^6*x^(
3/2)) + (512*b^4*(12*A*b - 11*a*B)*Sqrt[a + b*x])/(693*a^7*Sqrt[x
])
```

Rubi [A] time = 0.264167, antiderivative size = 213, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.15$

$$\frac{512b^4\sqrt{a+bx}(12Ab-11aB)}{693a^7\sqrt{x}}-\frac{256b^3\sqrt{a+bx}(12Ab-11aB)}{693a^6x^{3/2}}+\frac{64b^2\sqrt{a+bx}(12Ab-11aB)}{231a^5x^{5/2}}-\frac{160b\sqrt{a+bx}(12Ab-11aB)}{693a^4x^{7/2}}+\frac{20\sqrt{a+bx}(12Ab-11aB)}{99a^3x^{9/2}}-\frac{2(12Ab-11aB)}{11a^2x^{9/2}\sqrt{a+bx}}-\frac{2A}{11ax^{11/2}\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^(13/2)*(a + b*x)^(3/2)),x]
```

```
[Out] (-2*A)/(11*a*x^(11/2)*Sqrt[a + b*x]) - (2*(12*A*b - 11*a*B))/(11*
a^2*x^(9/2)*Sqrt[a + b*x]) + (20*(12*A*b - 11*a*B)*Sqrt[a + b*x])
/(99*a^3*x^(9/2)) - (160*b*(12*A*b - 11*a*B)*Sqrt[a + b*x])/(693*
a^4*x^(7/2)) + (64*b^2*(12*A*b - 11*a*B)*Sqrt[a + b*x])/(231*a^5*
x^(5/2)) - (256*b^3*(12*A*b - 11*a*B)*Sqrt[a + b*x])/(693*a^6*x^(
3/2)) + (512*b^4*(12*A*b - 11*a*B)*Sqrt[a + b*x])/(693*a^7*Sqrt[x
])
```

Rubi in Sympy [A] time = 24.9925, size = 212, normalized size = 1.

$$-\frac{2A}{11ax^{\frac{11}{2}}\sqrt{a+bx}}-\frac{2\left(12Ab-11Ba\right)}{11a^2x^{\frac{9}{2}}\sqrt{a+bx}}+\frac{20\sqrt{a+bx}\left(12Ab-11Ba\right)}{99a^3x^{\frac{9}{2}}}-\frac{160b\sqrt{a+bx}\left(12Ab-11Ba\right)}{693a^4x^{\frac{7}{2}}}+\frac{64b^2\sqrt{a+bx}\left(12Ab-11Ba\right)}{231a^5x^{\frac{5}{2}}}-\frac{256b^3\sqrt{a+bx}\left(12Ab-11Ba\right)}{693a^6x^{\frac{3}{2}}}+\frac{512b^4\sqrt{a+bx}\left(12Ab-11Ba\right)}{693a^7\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**(13/2)/(b*x+a)**(3/2),x)
```

```
[Out] -2*A/(11*a*x**(11/2)*sqrt(a + b*x)) - 2*(12*A*b - 11*B*a)/(11*a**
2*x**(9/2)*sqrt(a + b*x)) + 20*sqrt(a + b*x)*(12*A*b - 11*B*a)/(9
9*a**3*x**(9/2)) - 160*b*sqrt(a + b*x)*(12*A*b - 11*B*a)/(693*a**
4*x**(7/2)) + 64*b**2*sqrt(a + b*x)*(12*A*b - 11*B*a)/(231*a**5*x
**(5/2)) - 256*b**3*sqrt(a + b*x)*(12*A*b - 11*B*a)/(693*a**6*x**
(3/2)) + 512*b**4*sqrt(a + b*x)*(12*A*b - 11*B*a)/(693*a**7*sqrt(
x))
```

Mathematica [A] time = 0.163643, size = 133, normalized size = 0.62

$$-\frac{2\left(7a^6(9A+11Bx)-2a^5bx(42A+55Bx)+8a^4b^2x^2(15A+22Bx)-32a^3b^3x^3(6A+11Bx)+128a^2b^4x^4(3A+11Bx)+256ab\right.}{693a^7x^{11/2}\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^(13/2)*(a + b*x)^(3/2)),x]
```

```
[Out] (-2*(-3072*A*b^6*x^6 + 256*a*b^5*x^5*(-6*A + 11*B*x) + 128*a^2*b^
4*x^4*(3*A + 11*B*x) - 32*a^3*b^3*x^3*(6*A + 11*B*x) + 7*a^6*(9*A
 + 11*B*x) + 8*a^4*b^2*x^2*(15*A + 22*B*x) - 2*a^5*b*x*(42*A + 55
*B*x)))/(693*a^7*x^(11/2)*Sqrt[a + b*x])
```

Maple [A] time = 0.009, size = 149, normalized size = 0.7

$$-\frac{-6144\,Ab^6x^6+5632\,Bab^5x^6-3072\,Aab^5x^5+2816\,Ba^2b^4x^5+768\,Aa^2b^4x^4-704\,Ba^3b^3x^4-384\,Aa^3b^3x^3+352\,Ba^4b^2x^3+}{693\,a^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^(13/2)/(b*x+a)^(3/2),x)
```

```
[Out] -2/693*(-3072*A*b^6*x^6+2816*B*a*b^5*x^6-1536*A*a*b^5*x^5+1408*B*
a^2*b^4*x^5+384*A*a^2*b^4*x^4-352*B*a^3*b^3*x^4-192*A*a^3*b^3*x^3
+176*B*a^4*b^2*x^3+120*A*a^4*b^2*x^2-110*B*a^5*b*x^2-84*A*a^5*b*x
+77*B*a^6*x+63*A*a^6)/x^(11/2)/(b*x+a)^(1/2)/a^7
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(3/2)*x^(13/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.234888, size = 203, normalized size = 0.95

$$-\frac{2\left(63\,Aa^6+256\left(11\,Bab^5-12\,Ab^6\right)x^6+128\left(11\,Ba^2b^4-12\,Aab^5\right)x^5-32\left(11\,Ba^3b^3-12\,Aa^2b^4\right)x^4+16\left(11\,Ba^4b^2-12\,A\right.\right.}{693\,\sqrt{bx+a}a^7x^{\frac{11}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(3/2)*x^(13/2)),x, algorithm="fricas")
```

```
[Out] -2/693*(63*A*a^6 + 256*(11*B*a*b^5 - 12*A*b^6)*x^6 + 128*(11*B*a^
2*b^4 - 12*A*a*b^5)*x^5 - 32*(11*B*a^3*b^3 - 12*A*a^2*b^4)*x^4 +
16*(11*B*a^4*b^2 - 12*A*a^3*b^3)*x^3 - 10*(11*B*a^5*b - 12*A*a^4*
b^2)*x^2 + 7*(11*B*a^6 - 12*A*a^5*b)*x)/(sqrt(b*x + a)*a^7*x^(11/
2))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**(13/2)/(b*x+a)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.308188, size = 406, normalized size = 1.91

$$\frac{\left(\left(\left((bx+a)\left((bx+a)\left(\frac{(2123\,Ba^{21}b^{15}|b|-2379\,Aa^{20}b^{16}|b|)(bx+a)}{a^{6}b^{18}}-\frac{22\,(515\,Ba^{22}b^{15}|b|-579\,Aa^{21}b^{16}|b|)}{a^{6}b^{18}}\right)+\frac{99\,(247\,Ba^{23}b^{15}|b|-279\,Aa^{22}b^{16}|b|)}{a^{6}b^{18}}\right)\right.\right.\right.}{2838528\,((bx+}$$

$$-\frac{4\left(Bab^{\frac{13}{2}}-Ab^{\frac{15}{2}}\right)}{\left(\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a)b-ab}\right)^{2}+ab\right)a^{6}|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(3/2)*x^(13/2)),x, algorithm="giac")
```

```
[Out] 1/2838528*((((b*x + a)*((b*x + a)*((2123*B*a^21*b^15*abs(b) - 237
9*A*a^20*b^16*abs(b))*(b*x + a)/(a^6*b^18) - 22*(515*B*a^22*b^15*
abs(b) - 579*A*a^21*b^16*abs(b))/(a^6*b^18)) + 99*(247*B*a^23*b^1
5*abs(b) - 279*A*a^22*b^16*abs(b))/(a^6*b^18)) - 924*(29*B*a^24*b
^15*abs(b) - 33*A*a^23*b^16*abs(b))/(a^6*b^18))*(b*x + a) + 1155*
(13*B*a^25*b^15*abs(b) - 15*A*a^24*b^16*abs(b))/(a^6*b^18))*(b*x
+ a) - 693*(5*B*a^26*b^15*abs(b) - 6*A*a^25*b^16*abs(b))/(a^6*b^1
8))*sqrt(b*x + a)/((b*x + a)*b - a*b)^(11/2) - 4*(B*a*b^(13/2) -
A*b^(15/2))/(((sqrt(b*x + a)*sqrt(b) - sqrt((b*x + a)*b - a*b))^2
 + a*b)*a^6*abs(b))
```

3.525 $\int \frac{x^{7/2}(A+Bx)}{(a+bx)^{5/2}}\,dx$

Optimal. Leaf size=200

$$\frac{35a^2(2Ab-3aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{8b^{11/2}}-\frac{35a\sqrt{x}\sqrt{a+bx}(2Ab-3aB)}{8b^5}+\frac{35x^{3/2}\sqrt{a+bx}(2Ab-3aB)}{12b^4}-\frac{7x^{5/2}\sqrt{a+bx}(2Ab-3aB)}{3ab^3}+\frac{2x^{7/2}(2Ab-3aB)}{ab^2\sqrt{a+bx}}+\frac{2x^{9/2}(Ab-aB)}{3ab(a+bx)^{3/2}}$$

```
[Out] (2*(A*b - a*B)*x^(9/2))/(3*a*b*(a + b*x)^(3/2)) + (2*(2*A*b - 3*a
*B)*x^(7/2))/(a*b^2*Sqrt[a + b*x]) - (35*a*(2*A*b - 3*a*B)*Sqrt[x
]*Sqrt[a + b*x])/(8*b^5) + (35*(2*A*b - 3*a*B)*x^(3/2)*Sqrt[a + b
*x])/(12*b^4) - (7*(2*A*b - 3*a*B)*x^(5/2)*Sqrt[a + b*x])/(3*a*b^
3) + (35*a^2*(2*A*b - 3*a*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a + b
*x]])/(8*b^(11/2))
```

Rubi [A] time = 0.234094, antiderivative size = 200, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$\frac{35a^2(2Ab-3aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{8b^{11/2}}-\frac{35a\sqrt{x}\sqrt{a+bx}(2Ab-3aB)}{8b^5}+\frac{35x^{3/2}\sqrt{a+bx}(2Ab-3aB)}{12b^4}-\frac{7x^{5/2}\sqrt{a+bx}(2Ab-3aB)}{3ab^3}+\frac{2x^{7/2}(2Ab-3aB)}{ab^2\sqrt{a+bx}}+\frac{2x^{9/2}(Ab-aB)}{3ab(a+bx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^(7/2)*(A + B*x))/(a + b*x)^(5/2),x]
```

```
[Out] (2*(A*b - a*B)*x^(9/2))/(3*a*b*(a + b*x)^(3/2)) + (2*(2*A*b - 3*a
*B)*x^(7/2))/(a*b^2*Sqrt[a + b*x]) - (35*a*(2*A*b - 3*a*B)*Sqrt[x
]*Sqrt[a + b*x])/(8*b^5) + (35*(2*A*b - 3*a*B)*x^(3/2)*Sqrt[a + b
*x])/(12*b^4) - (7*(2*A*b - 3*a*B)*x^(5/2)*Sqrt[a + b*x])/(3*a*b^
3) + (35*a^2*(2*A*b - 3*a*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a + b
*x]])/(8*b^(11/2))
```

Rubi in Sympy [A] time = 24.7567, size = 194, normalized size = 0.97

$$\frac{35a^2\left(Ab-\frac{3Ba}{2}\right)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{4b^{\frac{11}{2}}}-\frac{35a\sqrt{x}\sqrt{a+bx}\,(2Ab-3Ba)}{8b^5}+\frac{35x^{\frac{3}{2}}\sqrt{a+bx}\left(Ab-\frac{3Ba}{2}\right)}{6b^4}+\frac{2x^{\frac{9}{2}}(Ab-Ba)}{3ab\,(a+bx)^{\frac{3}{2}}}+\frac{4x^{\frac{7}{2}}\left(Ab-\frac{3Ba}{2}\right)}{ab^2\sqrt{a+bx}}-\frac{14x^{\frac{5}{2}}\sqrt{a+bx}\left(Ab-\frac{3Ba}{2}\right)}{3ab^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**(7/2)*(B*x+A)/(b*x+a)**(5/2),x)
```

```
[Out] 35*a**2*(A*b - 3*B*a/2)*atanh(sqrt(b)*sqrt(x)/sqrt(a + b*x))/(4*b
**(11/2)) - 35*a*sqrt(x)*sqrt(a + b*x)*(2*A*b - 3*B*a)/(8*b**5) +
 35*x**(3/2)*sqrt(a + b*x)*(A*b - 3*B*a/2)/(6*b**4) + 2*x**(9/2)*
(A*b - B*a)/(3*a*b*(a + b*x)**(3/2)) + 4*x**(7/2)*(A*b - 3*B*a/2)
/(a*b**2*sqrt(a + b*x)) - 14*x**(5/2)*sqrt(a + b*x)*(A*b - 3*B*a/
2)/(3*a*b**3)
```

Mathematica [A] time = 0.188745, size = 136, normalized size = 0.68

$$\frac{\sqrt{x}\left(315a^4B-210a^3b(A-2Bx)+7a^2b^2x(9Bx-40A)-6ab^3x^2(7A+3Bx)+4b^4x^3(3A+2Bx)\right)}{24b^5(a+bx)^{3/2}}-\frac{35a^2(3aB-2Ab)\log\left(\sqrt{b}\sqrt{a+bx}+b\sqrt{x}\right)}{8b^{11/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^(7/2)*(A + B*x))/(a + b*x)^(5/2),x]
```

```
[Out] (Sqrt[x]*(315*a^4*B - 210*a^3*b*(A - 2*B*x) + 4*b^4*x^3*(3*A + 2*
B*x) - 6*a*b^3*x^2*(7*A + 3*B*x) + 7*a^2*b^2*x*(-40*A + 9*B*x)))/
(24*b^5*(a + b*x)^(3/2)) - (35*a^2*(-2*A*b + 3*a*B)*Log[b*Sqrt[x]
 + Sqrt[b]*Sqrt[a + b*x]])/(8*b^(11/2))
```

Maple [B] time = 0.031, size = 406, normalized size = 2.

$$\frac{1}{48}\left(16\,Bx^4b^{9/2}\sqrt{x\,(bx+a)}+24\,Ax^3b^{9/2}\sqrt{x\,(bx+a)}-36\,Bx^3ab^{7/2}\sqrt{x\,(bx+a)}+210\,A\ln\left(1/2\,\frac{2\,\sqrt{x\,(bx+a)}\sqrt{b}+2\,bx+a}{\sqrt{b}}\right)\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^(7/2)*(B*x+A)/(b*x+a)^(5/2),x)
```

```
[Out] 1/48*(16*B*x^4*b^(9/2)*(x*(b*x+a))^(1/2)+24*A*x^3*b^(9/2)*(x*(b*x
+a))^(1/2)-36*B*x^3*a*b^(7/2)*(x*(b*x+a))^(1/2)+210*A*ln(1/2*(2*(
x*(b*x+a))^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))*x^2*a^2*b^3-84*A*x^2*a
*b^(7/2)*(x*(b*x+a))^(1/2)-315*B*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1
/2)+2*b*x+a)/b^(1/2))*x^2*a^3*b^2+126*B*x^2*a^2*b^(5/2)*(x*(b*x+a
))^(1/2)+420*A*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1/2)+2*b*x+a)/b^(1/
2))*x*a^3*b^2-560*A*a^2*(x*(b*x+a))^(1/2)*x*b^(5/2)-630*B*ln(1/2*
(2*(x*(b*x+a))^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))*x*a^4*b+840*B*a^3*
(x*(b*x+a))^(1/2)*x*b^(3/2)+210*A*a^4*ln(1/2*(2*(x*(b*x+a))^(1/2)
*b^(1/2)+2*b*x+a)/b^(1/2))*b-420*A*a^3*(x*(b*x+a))^(1/2)*b^(3/2)-
315*B*a^5*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))+6
30*B*a^4*(x*(b*x+a))^(1/2)*b^(1/2))/b^(11/2)*x^(1/2)/(x*(b*x+a))^
(1/2)/(b*x+a)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(7/2)/(b*x + a)^(5/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.249162, size = 1, normalized size = 0.

$$\left[-\frac{105\left(3\,Ba^4-2\,Aa^3b+\left(3\,Ba^3b-2\,Aa^2b^2\right)x\right)\sqrt{bx+a}\sqrt{x}\log\left(2\,\sqrt{bx+a}b\sqrt{x}+(2\,bx+a)\sqrt{b}\right)-2\left(8\,Bb^4x^5-6\left(3\,Bab^3-\right.\right.}{48\,(b^6x+ab^5)\sqrt{bx+a}\sqrt{b}\sqrt{x}}\right.$$

$$-\frac{105\left(3\,Ba^4-2\,Aa^3b+\left(3\,Ba^3b-2\,Aa^2b^2\right)x\right)\sqrt{bx+a}\sqrt{x}\arctan\left(\frac{\sqrt{bx+a}\sqrt{-b}}{b\sqrt{x}}\right)-\left(8\,Bb^4x^5-6\left(3\,Bab^3-2\,Ab^4\right)x^4+21\left(3\,Ba\right.\right.}{24\,(b^6x+ab^5)\sqrt{bx+a}\sqrt{-b}\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(7/2)/(b*x + a)^(5/2),x, algorithm="fricas")
```

```
[Out] [-1/48*(105*(3*B*a^4 - 2*A*a^3*b + (3*B*a^3*b - 2*A*a^2*b^2)*x)*s
qrt(b*x + a)*sqrt(x)*log(2*sqrt(b*x + a)*b*sqrt(x) + (2*b*x + a)*
sqrt(b)) - 2*(8*B*b^4*x^5 - 6*(3*B*a*b^3 - 2*A*b^4)*x^4 + 21*(3*B
*a^2*b^2 - 2*A*a*b^3)*x^3 + 140*(3*B*a^3*b - 2*A*a^2*b^2)*x^2 + 1
05*(3*B*a^4 - 2*A*a^3*b)*x)*sqrt(b))/((b^6*x + a*b^5)*sqrt(b*x +
a)*sqrt(b)*sqrt(x)), -1/24*(105*(3*B*a^4 - 2*A*a^3*b + (3*B*a^3*b
 - 2*A*a^2*b^2)*x)*sqrt(b*x + a)*sqrt(x)*arctan(sqrt(b*x + a)*sqr
t(-b)/(b*sqrt(x))) - (8*B*b^4*x^5 - 6*(3*B*a*b^3 - 2*A*b^4)*x^4 +
 21*(3*B*a^2*b^2 - 2*A*a*b^3)*x^3 + 140*(3*B*a^3*b - 2*A*a^2*b^2)
*x^2 + 105*(3*B*a^4 - 2*A*a^3*b)*x)*sqrt(-b))/((b^6*x + a*b^5)*sq
rt(b*x + a)*sqrt(-b)*sqrt(x))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**(7/2)*(B*x+A)/(b*x+a)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.306289, size = 516, normalized size = 2.58

$$\frac{1}{24}\sqrt{(bx+a)b-ab}\sqrt{bx+a}\left(2\,(bx+a)\left(\frac{4\,(bx+a)B|b|}{b^7}-\frac{25\,Bab^{20}|b|-6\,Ab^{21}|b|}{b^{27}}\right)+\frac{3\,\left(55\,Ba^2b^{20}|b|-26\,Aab^{21}|b|\right)}{b^{27}}\right)$$
$$+\frac{35\left(3\,Ba^3\sqrt{b}|b|-2\,Aa^2b^{\frac{3}{2}}|b|\right)\ln\left(\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a)b-ab}\right)^2\right)}{16\,b^7}$$
$$+\frac{4\left(15\,Ba^4\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a)b-ab}\right)^4\sqrt{b}|b|+24\,Ba^5\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a)b-ab}\right)^2b^{\frac{3}{2}}|b|-12\,Aa^3\left(\sqrt{bx+a}\sqrt{b}-\right.\right.}{3\left(\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a)b-\right.\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(7/2)/(b*x + a)^(5/2),x, algorithm="giac")
```

```
[Out] 1/24*sqrt((b*x + a)*b - a*b)*sqrt(b*x + a)*(2*(b*x + a)*(4*(b*x +
 a)*B*abs(b)/b^7 - (25*B*a*b^20*abs(b) - 6*A*b^21*abs(b))/b^27) +
 3*(55*B*a^2*b^20*abs(b) - 26*A*a*b^21*abs(b))/b^27) + 35/16*(3*B
*a^3*sqrt(b)*abs(b) - 2*A*a^2*b^(3/2)*abs(b))*ln((sqrt(b*x + a)*s
qrt(b) - sqrt((b*x + a)*b - a*b))^2)/b^7 + 4/3*(15*B*a^4*(sqrt(b*
x + a)*sqrt(b) - sqrt((b*x + a)*b - a*b))^4*sqrt(b)*abs(b) + 24*B
*a^5*(sqrt(b*x + a)*sqrt(b) - sqrt((b*x + a)*b - a*b))^2*b^(3/2)*
abs(b) - 12*A*a^3*(sqrt(b*x + a)*sqrt(b) - sqrt((b*x + a)*b - a*b
))^4*b^(3/2)*abs(b) + 13*B*a^6*b^(5/2)*abs(b) - 18*A*a^4*(sqrt(b*
x + a)*sqrt(b) - sqrt((b*x + a)*b - a*b))^2*b^(5/2)*abs(b) - 10*A
*a^5*b^(7/2)*abs(b))/(((sqrt(b*x + a)*sqrt(b) - sqrt((b*x + a)*b
- a*b))^2 + a*b)^3*b^6)
```

3.526 $\int \frac{x^{5/2}(A+Bx)}{(a+bx)^{5/2}}\,dx$

Optimal. Leaf size=169

$$-\frac{5a(4Ab-7aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{4b^{9/2}}+\frac{5\sqrt{x}\sqrt{a+bx}(4Ab-7aB)}{4b^4}-\frac{5x^{3/2}\sqrt{a+bx}(4Ab-7aB)}{6ab^3}+\frac{2x^{5/2}(4Ab-7aB)}{3ab^2\sqrt{a+bx}}+\frac{2x^{7/2}(Ab-aB)}{3ab(a+bx)^{3/2}}$$

```
[Out] (2*(A*b - a*B)*x^(7/2))/(3*a*b*(a + b*x)^(3/2)) + (2*(4*A*b - 7*a
*B)*x^(5/2))/(3*a*b^2*Sqrt[a + b*x]) + (5*(4*A*b - 7*a*B)*Sqrt[x]
*Sqrt[a + b*x])/(4*b^4) - (5*(4*A*b - 7*a*B)*x^(3/2)*Sqrt[a + b*x
])/(6*a*b^3) - (5*a*(4*A*b - 7*a*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqr
t[a + b*x]])/(4*b^(9/2))
```

Rubi [A] time = 0.192091, antiderivative size = 169, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$-\frac{5a(4Ab-7aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{4b^{9/2}}+\frac{5\sqrt{x}\sqrt{a+bx}(4Ab-7aB)}{4b^4}-\frac{5x^{3/2}\sqrt{a+bx}(4Ab-7aB)}{6ab^3}+\frac{2x^{5/2}(4Ab-7aB)}{3ab^2\sqrt{a+bx}}+\frac{2x^{7/2}(Ab-aB)}{3ab(a+bx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^(5/2)*(A + B*x))/(a + b*x)^(5/2),x]
```

```
[Out] (2*(A*b - a*B)*x^(7/2))/(3*a*b*(a + b*x)^(3/2)) + (2*(4*A*b - 7*a
*B)*x^(5/2))/(3*a*b^2*Sqrt[a + b*x]) + (5*(4*A*b - 7*a*B)*Sqrt[x]
*Sqrt[a + b*x])/(4*b^4) - (5*(4*A*b - 7*a*B)*x^(3/2)*Sqrt[a + b*x
])/(6*a*b^3) - (5*a*(4*A*b - 7*a*B)*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqr
t[a + b*x]])/(4*b^(9/2))
```

Rubi in Sympy [A] time = 19.0439, size = 162, normalized size = 0.96

$$-\frac{5a\left(4Ab-7Ba\right)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{4b^{\frac{9}{2}}}+\frac{5\sqrt{x}\sqrt{a+bx}\left(4Ab-7Ba\right)}{4b^4}+\frac{2x^{\frac{7}{2}}\left(Ab-Ba\right)}{3ab\left(a+bx\right)^{\frac{3}{2}}}+\frac{2x^{\frac{5}{2}}\left(4Ab-7Ba\right)}{3ab^2\sqrt{a+bx}}-\frac{5x^{\frac{3}{2}}\sqrt{a+bx}\left(4Ab-7Ba\right)}{6ab^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**(5/2)*(B*x+A)/(b*x+a)**(5/2),x)
```

```
[Out] -5*a*(4*A*b - 7*B*a)*atanh(sqrt(b)*sqrt(x)/sqrt(a + b*x))/(4*b**(
9/2)) + 5*sqrt(x)*sqrt(a + b*x)*(4*A*b - 7*B*a)/(4*b**4) + 2*x**(
7/2)*(A*b - B*a)/(3*a*b*(a + b*x)**(3/2)) + 2*x**(5/2)*(4*A*b - 7
*B*a)/(3*a*b**2*sqrt(a + b*x)) - 5*x**(3/2)*sqrt(a + b*x)*(4*A*b
- 7*B*a)/(6*a*b**3)
```

Mathematica [A] time = 0.187098, size = 115, normalized size = 0.68

$$\frac{\sqrt{x}\left(-105a^3B+20a^2b(3A-7Bx)+ab^2x(80A-21Bx)+6b^3x^2(2A+Bx)\right)}{12b^4(a+bx)^{3/2}}+\frac{5a(7aB-4Ab)\log\left(\sqrt{b}\sqrt{a+bx}+b\sqrt{x}\right)}{4b^{9/2}}$$

Antiderivative was successfully verified.

```
[In]   Integrate[(x^(5/2)*(A + B*x))/(a + b*x)^(5/2),x]
```

```
[Out] (Sqrt[x]*(-105*a^3*B + a*b^2*x*(80*A - 21*B*x) + 20*a^2*b*(3*A -
7*B*x) + 6*b^3*x^2*(2*A + B*x)))/(12*b^4*(a + b*x)^(3/2)) + (5*a*
(-4*A*b + 7*a*B)*Log[b*Sqrt[x] + Sqrt[b]*Sqrt[a + b*x]])/(4*b^(9/
2))
```

Maple [B] time = 0.024, size = 362, normalized size = 2.1

$$-\frac{1}{24}\left(-12\,Bx^3b^{7/2}\sqrt{x\,(bx+a)}+60\,A\ln\left(1/2\,\frac{2\,\sqrt{x\,(bx+a)}\sqrt{b}+2\,bx+a}{\sqrt{b}}\right)x^2ab^3-24\,Ax^2b^{7/2}\sqrt{x\,(bx+a)}-105\,B\ln\left(1/2\,\frac{2}{}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int(x^(5/2)*(B*x+A)/(b*x+a)^(5/2),x)
```

```
[Out] -1/24*(-12*B*x^3*b^(7/2)*(x*(b*x+a))^(1/2)+60*A*ln(1/2*(2*(x*(b*x
+a))^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))*x^2*a*b^3-24*A*x^2*b^(7/2)*(
x*(b*x+a))^(1/2)-105*B*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1/2)+2*b*x+
a)/b^(1/2))*x^2*a^2*b^2+42*B*x^2*a*b^(5/2)*(x*(b*x+a))^(1/2)+120*
A*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))*x*a^2*b^2
-160*A*a*x*(x*(b*x+a))^(1/2)*b^(5/2)-210*B*ln(1/2*(2*(x*(b*x+a))^
(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))*x*a^3*b+280*B*a^2*x*(x*(b*x+a))^(
1/2)*b^(3/2)+60*A*a^3*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1/2)+2*b*x+a
)/b^(1/2))*b-120*A*a^2*(x*(b*x+a))^(1/2)*b^(3/2)-105*B*a^4*ln(1/2
*(2*(x*(b*x+a))^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))+210*B*a^3*(x*(b*x
+a))^(1/2)*b^(1/2))/b^(9/2)*x^(1/2)/(x*(b*x+a))^(1/2)/(b*x+a)^(3/
2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*x^(5/2)/(b*x + a)^(5/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.24889, size = 1, normalized size = 0.01

$$\left[-\frac{15\left(7\,Ba^3-4\,Aa^2b+\left(7\,Ba^2b-4\,Aab^2\right)x\right)\sqrt{bx+a}\sqrt{x}\log\left(-2\,\sqrt{bx+a}b\sqrt{x}+(2\,bx+a)\sqrt{b}\right)-2\left(6\,Bb^3x^4-3\left(7\,Bab^2-4\right.\right.}{24\,(b^5x+ab^4)\sqrt{bx+a}\sqrt{b}\sqrt{x}}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*x^(5/2)/(b*x + a)^(5/2),x, algorithm="fricas")
```

```
[Out] [-1/24*(15*(7*B*a^3 - 4*A*a^2*b + (7*B*a^2*b - 4*A*a*b^2)*x)*sqrt
(b*x + a)*sqrt(x)*log(-2*sqrt(b*x + a)*b*sqrt(x) + (2*b*x + a)*sq
rt(b)) - 2*(6*B*b^3*x^4 - 3*(7*B*a*b^2 - 4*A*b^3)*x^3 - 20*(7*B*a
^2*b - 4*A*a*b^2)*x^2 - 15*(7*B*a^3 - 4*A*a^2*b)*x)*sqrt(b))/((b^
5*x + a*b^4)*sqrt(b*x + a)*sqrt(b)*sqrt(x)), 1/12*(15*(7*B*a^3 -
4*A*a^2*b + (7*B*a^2*b - 4*A*a*b^2)*x)*sqrt(b*x + a)*sqrt(x)*arct
an(sqrt(b*x + a)*sqrt(-b)/(b*sqrt(x))) + (6*B*b^3*x^4 - 3*(7*B*a*
```

```
b^2 - 4*A*b^3)*x^3 - 20*(7*B*a^2*b - 4*A*a*b^2)*x^2 - 15*(7*B*a^3
 - 4*A*a^2*b)*x)*sqrt(-b))/((b^5*x + a*b^4)*sqrt(b*x + a)*sqrt(-b
)*sqrt(x))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**(5/2)*(B*x+A)/(b*x+a)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.28652, size = 467, normalized size = 2.76

$$\frac{1}{4}\sqrt{(bx+a)b-ab}\sqrt{bx+a}\left(\frac{2\,(bx+a)B|b|}{b^6}-\frac{13\,Bab^{11}|b|-4\,Ab^{12}|b|}{b^{17}}\right) - \frac{5\left(7\,Ba^2\sqrt{b}|b|-4\,Aab^{\frac{3}{2}}|b|\right)\ln\left(\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a)b-ab}\right)^2\right)}{8\,b^6} - \frac{4\left(12\,Ba^3\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a)b-ab}\right)^4\sqrt{b}|b|+18\,Ba^4\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a)b-ab}\right)^2 b^{\frac{3}{2}}|b|-9\,Aa^2\left(\sqrt{bx+a}\sqrt{b}-\right.\right.}{3\left(\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a)b-a\right.\right.}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(5/2)/(b*x + a)^(5/2),x, algorithm="giac")
```

```
[Out] 1/4*sqrt((b*x + a)*b - a*b)*sqrt(b*x + a)*(2*(b*x + a)*B*abs(b)/b
^6 - (13*B*a*b^11*abs(b) - 4*A*b^12*abs(b))/b^17) - 5/8*(7*B*a^2*
sqrt(b)*abs(b) - 4*A*a*b^(3/2)*abs(b))*ln((sqrt(b*x + a)*sqrt(b)
- sqrt((b*x + a)*b - a*b))^2)/b^6 - 4/3*(12*B*a^3*(sqrt(b*x + a)*
sqrt(b) - sqrt((b*x + a)*b - a*b))^4*sqrt(b)*abs(b) + 18*B*a^4*(s
qrt(b*x + a)*sqrt(b) - sqrt((b*x + a)*b - a*b))^2*b^(3/2)*abs(b)
- 9*A*a^2*(sqrt(b*x + a)*sqrt(b) - sqrt((b*x + a)*b - a*b))^4*b^(
3/2)*abs(b) + 10*B*a^5*b^(5/2)*abs(b) - 12*A*a^3*(sqrt(b*x + a)*s
qrt(b) - sqrt((b*x + a)*b - a*b))^2*b^(5/2)*abs(b) - 7*A*a^4*b^(7
/2)*abs(b))/(((sqrt(b*x + a)*sqrt(b) - sqrt((b*x + a)*b - a*b))^2
 + a*b)^3*b^5)
```

3.527 $\int \frac{x^{3/2}(A+Bx)}{(a+bx)^{5/2}}\,dx$

Optimal. Leaf size=133

$$\frac{(2Ab-5aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{b^{7/2}}-\frac{\sqrt{x}\sqrt{a+bx}(2Ab-5aB)}{ab^3}+\frac{2x^{3/2}(2Ab-5aB)}{3ab^2\sqrt{a+bx}}+\frac{2x^{5/2}(Ab-aB)}{3ab(a+bx)^{3/2}}$$

```
[Out] (2*(A*b - a*B)*x^(5/2))/(3*a*b*(a + b*x)^(3/2)) + (2*(2*A*b - 5*a
*B)*x^(3/2))/(3*a*b^2*Sqrt[a + b*x]) - ((2*A*b - 5*a*B)*Sqrt[x]*S
qrt[a + b*x])/(a*b^3) + ((2*A*b - 5*a*B)*ArcTanh[(Sqrt[b]*Sqrt[x]
)/Sqrt[a + b*x]])/b^(7/2)
```

Rubi [A] time = 0.152166, antiderivative size = 133, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$\frac{(2Ab-5aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{b^{7/2}}-\frac{\sqrt{x}\sqrt{a+bx}(2Ab-5aB)}{ab^3}+\frac{2x^{3/2}(2Ab-5aB)}{3ab^2\sqrt{a+bx}}+\frac{2x^{5/2}(Ab-aB)}{3ab(a+bx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^(3/2)*(A + B*x))/(a + b*x)^(5/2),x]
```

```
[Out] (2*(A*b - a*B)*x^(5/2))/(3*a*b*(a + b*x)^(3/2)) + (2*(2*A*b - 5*a
*B)*x^(3/2))/(3*a*b^2*Sqrt[a + b*x]) - ((2*A*b - 5*a*B)*Sqrt[x]*S
qrt[a + b*x])/(a*b^3) + ((2*A*b - 5*a*B)*ArcTanh[(Sqrt[b]*Sqrt[x]
)/Sqrt[a + b*x]])/b^(7/2)
```

Rubi in Sympy [A] time = 14.819, size = 126, normalized size = 0.95

$$\frac{2\left(Ab-\frac{5Ba}{2}\right)\operatorname{atanh}\left(\frac{\sqrt{a+bx}}{\sqrt{b}\sqrt{x}}\right)}{b^{\frac{7}{2}}}+\frac{2x^{\frac{5}{2}}\left(Ab-Ba\right)}{3ab\left(a+bx\right)^{\frac{3}{2}}}+\frac{4x^{\frac{3}{2}}\left(Ab-\frac{5Ba}{2}\right)}{3ab^2\sqrt{a+bx}}-\frac{2\sqrt{x}\sqrt{a+bx}\left(Ab-\frac{5Ba}{2}\right)}{ab^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**(3/2)*(B*x+A)/(b*x+a)**(5/2),x)
```

```
[Out] 2*(A*b - 5*B*a/2)*atanh(sqrt(a + b*x)/(sqrt(b)*sqrt(x)))/b**(7/2)
 + 2*x**(5/2)*(A*b - B*a)/(3*a*b*(a + b*x)**(3/2)) + 4*x**(3/2)*(
A*b - 5*B*a/2)/(3*a*b**2*sqrt(a + b*x)) - 2*sqrt(x)*sqrt(a + b*x)
*(A*b - 5*B*a/2)/(a*b**3)
```

Mathematica [A] time = 0.145789, size = 93, normalized size = 0.7

$$\frac{\sqrt{x}\left(15a^2B+a(20bBx-6Ab)+b^2x(3Bx-8A)\right)}{3b^3(a+bx)^{3/2}}+\frac{(2Ab-5aB)\log\left(\sqrt{b}\sqrt{a+bx}+b\sqrt{x}\right)}{b^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^(3/2)*(A + B*x))/(a + b*x)^(5/2),x]
```

```
[Out] (Sqrt[x]*(15*a^2*B + b^2*x*(-8*A + 3*B*x) + a*(-6*A*b + 20*b*B*x)
))/(3*b^3*(a + b*x)^(3/2)) + ((2*A*b - 5*a*B)*Log[b*Sqrt[x] + Sqr
t[b]*Sqrt[a + b*x]])/b^(7/2)
```

Maple [B] time = 0.023, size = 315, normalized size = 2.4

$$\frac{1}{6}\left(6\,A\ln\left(1/2\,\frac{2\,\sqrt{x\,(bx+a)}\sqrt{b}+2\,bx+a}{\sqrt{b}}\right)x^2b^3-15\,B\ln\left(1/2\,\frac{2\,\sqrt{x\,(bx+a)}\sqrt{b}+2\,bx+a}{\sqrt{b}}\right)x^2ab^2+6\,Bx^2b^{5/2}\sqrt{x\,(bx+a)}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^(3/2)*(B*x+A)/(b*x+a)^(5/2),x)
```

```
[Out] 1/6*(6*A*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))*x^
2*b^3-15*B*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))*
x^2*a*b^2+6*B*x^2*b^(5/2)*(x*(b*x+a))^(1/2)+12*A*ln(1/2*(2*(x*(b*
x+a))^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))*x*a*b^2-16*A*(x*(b*x+a))^(1
/2)*x*b^(5/2)-30*B*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1/2)+2*b*x+a)/b
^(1/2))*x*a^2*b+40*B*a*(x*(b*x+a))^(1/2)*x*b^(3/2)+6*A*a^2*ln(1/2
*(2*(x*(b*x+a))^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))*b-12*A*(x*(b*x+a)
)^(1/2)*a*b^(3/2)-15*B*a^3*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1/2)+2*
b*x+a)/b^(1/2))+30*B*a^2*(x*(b*x+a))^(1/2)*b^(1/2))/b^(7/2)*x^(1/
2)/(x*(b*x+a))^(1/2)/(b*x+a)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(3/2)/(b*x + a)^(5/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.242317, size = 1, normalized size = 0.01

$$\left[-\frac{3\left(5\,Ba^2-2\,Aab+\left(5\,Bab-2\,Ab^2\right)x\right)\sqrt{bx+a}\sqrt{x}\log\left(2\,\sqrt{bx+a}b\sqrt{x}+(2\,bx+a)\sqrt{b}\right)-2\left(3\,Bb^2x^3+4\left(5\,Bab-2\,Ab^2\right)x^2\right.}{6\,(b^4x+ab^3)\sqrt{bx+a}\sqrt{b}\sqrt{x}}\right.$$

$$-\frac{3\left(5\,Ba^2-2\,Aab+\left(5\,Bab-2\,Ab^2\right)x\right)\sqrt{bx+a}\sqrt{x}\arctan\left(\frac{\sqrt{bx+a}\sqrt{-b}}{b\sqrt{x}}\right)-\left(3\,Bb^2x^3+4\left(5\,Bab-2\,Ab^2\right)x^2+3\left(5\,Ba^2-2\,Aa\right.\right.}{3\,(b^4x+ab^3)\sqrt{bx+a}\sqrt{-b}\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(3/2)/(b*x + a)^(5/2),x, algorithm="fricas")
```

```
[Out] [-1/6*(3*(5*B*a^2 - 2*A*a*b + (5*B*a*b - 2*A*b^2)*x)*sqrt(b*x + a
)*sqrt(x)*log(2*sqrt(b*x + a)*b*sqrt(x) + (2*b*x + a)*sqrt(b)) -
2*(3*B*b^2*x^3 + 4*(5*B*a*b - 2*A*b^2)*x^2 + 3*(5*B*a^2 - 2*A*a*b
)*x)*sqrt(b))/((b^4*x + a*b^3)*sqrt(b*x + a)*sqrt(b)*sqrt(x)), -1
/3*(3*(5*B*a^2 - 2*A*a*b + (5*B*a*b - 2*A*b^2)*x)*sqrt(b*x + a)*s
qrt(x)*arctan(sqrt(b*x + a)*sqrt(-b)/(b*sqrt(x))) - (3*B*b^2*x^3
+ 4*(5*B*a*b - 2*A*b^2)*x^2 + 3*(5*B*a^2 - 2*A*a*b)*x)*sqrt(-b))/
((b^4*x + a*b^3)*sqrt(b*x + a)*sqrt(-b)*sqrt(x))]
```

Sympy [A] time = 140.069, size = 729, normalized size = 5.48

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**(3/2)*(B*x+A)/(b*x+a)**(5/2),x)
```

```
[Out] A*(6*a**(39/2)*b**11*x**(27/2)*sqrt(1 + b*x/a)*asinh(sqrt(b)*sqrt
(x)/sqrt(a))/(3*a**(39/2)*b**(27/2)*x**(27/2)*sqrt(1 + b*x/a) + 3
*a**(37/2)*b**(29/2)*x**(29/2)*sqrt(1 + b*x/a)) + 6*a**(37/2)*b**
12*x**(29/2)*sqrt(1 + b*x/a)*asinh(sqrt(b)*sqrt(x)/sqrt(a))/(3*a*
*(39/2)*b**(27/2)*x**(27/2)*sqrt(1 + b*x/a) + 3*a**(37/2)*b**(29/
2)*x**(29/2)*sqrt(1 + b*x/a)) - 6*a**19*b**(23/2)*x**14/(3*a**(39
/2)*b**(27/2)*x**(27/2)*sqrt(1 + b*x/a) + 3*a**(37/2)*b**(29/2)*x
**(29/2)*sqrt(1 + b*x/a)) - 8*a**18*b**(25/2)*x**15/(3*a**(39/2)*
b**(27/2)*x**(27/2)*sqrt(1 + b*x/a) + 3*a**(37/2)*b**(29/2)*x**(2
9/2)*sqrt(1 + b*x/a))) + B*(-15*a**(81/2)*b**22*x**(51/2)*sqrt(1
+ b*x/a)*asinh(sqrt(b)*sqrt(x)/sqrt(a))/(3*a**(79/2)*b**(51/2)*x*
*(51/2)*sqrt(1 + b*x/a) + 3*a**(77/2)*b**(53/2)*x**(53/2)*sqrt(1
+ b*x/a)) - 15*a**(79/2)*b**23*x**(53/2)*sqrt(1 + b*x/a)*asinh(sq
rt(b)*sqrt(x)/sqrt(a))/(3*a**(79/2)*b**(51/2)*x**(51/2)*sqrt(1 +
b*x/a) + 3*a**(77/2)*b**(53/2)*x**(53/2)*sqrt(1 + b*x/a)) + 15*a*
*40*b**(45/2)*x**26/(3*a**(79/2)*b**(51/2)*x**(51/2)*sqrt(1 + b*x
/a) + 3*a**(77/2)*b**(53/2)*x**(53/2)*sqrt(1 + b*x/a)) + 20*a**39
*b**(47/2)*x**27/(3*a**(79/2)*b**(51/2)*x**(51/2)*sqrt(1 + b*x/a)
 + 3*a**(77/2)*b**(53/2)*x**(53/2)*sqrt(1 + b*x/a)) + 3*a**38*b**
(49/2)*x**28/(3*a**(79/2)*b**(51/2)*x**(51/2)*sqrt(1 + b*x/a) + 3
*a**(77/2)*b**(53/2)*x**(53/2)*sqrt(1 + b*x/a)))
```

GIAC/XCAS [A] time = 0.273975, size = 417, normalized size = 3.14

$$\frac{\sqrt{(bx+a)b-ab}\sqrt{bx+a}B|b|}{b^5}+\frac{\left(5\,Ba\sqrt{b}|b|-2\,Ab^{\frac{3}{2}}|b|\right)\ln\left(\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a)b-ab}\right)^2\right)}{2\,b^5}+\frac{4\left(9\,Ba^2\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a)b-ab}\right)^4\sqrt{b}|b|+12\,Ba^3\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a)b-ab}\right)^2b^{\frac{3}{2}}|b|-6\,Aa\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(\right.\right.}{3\left(\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a)b-ab}\right)\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*x^(3/2)/(b*x + a)^(5/2),x, algorithm="giac")
```

```
[Out] sqrt((b*x + a)*b - a*b)*sqrt(b*x + a)*B*abs(b)/b^5 + 1/2*(5*B*a*s
qrt(b)*abs(b) - 2*A*b^(3/2)*abs(b))*ln((sqrt(b*x + a)*sqrt(b) - s
qrt((b*x + a)*b - a*b))^2)/b^5 + 4/3*(9*B*a^2*(sqrt(b*x + a)*sqrt
(b) - sqrt((b*x + a)*b - a*b))^4*sqrt(b)*abs(b) + 12*B*a^3*(sqrt(
b*x + a)*sqrt(b) - sqrt((b*x + a)*b - a*b))^2*b^(3/2)*abs(b) - 6*
A*a*(sqrt(b*x + a)*sqrt(b) - sqrt((b*x + a)*b - a*b))^4*b^(3/2)*a
bs(b) + 7*B*a^4*b^(5/2)*abs(b) - 6*A*a^2*(sqrt(b*x + a)*sqrt(b) -
 sqrt((b*x + a)*b - a*b))^2*b^(5/2)*abs(b) - 4*A*a^3*b^(7/2)*abs(
b))/(((sqrt(b*x + a)*sqrt(b) - sqrt((b*x + a)*b - a*b))^2 + a*b)^
3*b^4)
```

3.528 $\int \frac{\sqrt{x}(A+Bx)}{(a+bx)^{5/2}}\,dx$

Optimal. Leaf size=82

$$\frac{2x^{3/2}(Ab-aB)}{3ab(a+bx)^{3/2}}+\frac{2B\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{b^{5/2}}-\frac{2B\sqrt{x}}{b^2\sqrt{a+bx}}$$

```
[Out] (2*(A*b - a*B)*x^(3/2))/(3*a*b*(a + b*x)^(3/2)) - (2*B*Sqrt[x])/(
b^2*Sqrt[a + b*x]) + (2*B*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a + b*x]
])/b^(5/2)
```

Rubi [A] time = 0.0815157, antiderivative size = 82, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.2

$$\frac{2x^{3/2}(Ab-aB)}{3ab(a+bx)^{3/2}}+\frac{2B\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{b^{5/2}}-\frac{2B\sqrt{x}}{b^2\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[x]*(A + B*x))/(a + b*x)^(5/2),x]
```

```
[Out] (2*(A*b - a*B)*x^(3/2))/(3*a*b*(a + b*x)^(3/2)) - (2*B*Sqrt[x])/(
b^2*Sqrt[a + b*x]) + (2*B*ArcTanh[(Sqrt[b]*Sqrt[x])/Sqrt[a + b*x]
])/b^(5/2)
```

Rubi in Sympy [A] time = 9.173, size = 75, normalized size = 0.91

$$-\frac{2B\sqrt{x}}{b^2\sqrt{a+bx}}+\frac{2B\,\text{atanh}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a+bx}}\right)}{b^{\frac{5}{2}}}+\frac{2x^{\frac{3}{2}}\left(Ab-Ba\right)}{3ab\left(a+bx\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*x**(1/2)/(b*x+a)**(5/2),x)
```

```
[Out] -2*B*sqrt(x)/(b**2*sqrt(a + b*x)) + 2*B*atanh(sqrt(b)*sqrt(x)/sqr
t(a + b*x))/b**(5/2) + 2*x**(3/2)*(A*b - B*a)/(3*a*b*(a + b*x)**(
3/2))
```

Mathematica [A] time = 0.188397, size = 76, normalized size = 0.93

$$\frac{2\sqrt{x}\left(-3a^2B-4abBx+Ab^2x\right)}{3ab^2(a+bx)^{3/2}}+\frac{2B\log\left(\sqrt{b}\sqrt{a+bx}+b\sqrt{x}\right)}{b^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[x]*(A + B*x))/(a + b*x)^(5/2),x]
```

```
[Out] (2*Sqrt[x]*(-3*a^2*B + A*b^2*x - 4*a*b*B*x))/(3*a*b^2*(a + b*x)^(
3/2)) + (2*B*Log[b*Sqrt[x] + Sqrt[b]*Sqrt[a + b*x]])/b^(5/2)
```

Maple [B] time = 0.023, size = 182, normalized size = 2.2

$$\frac{1}{3a}\left(3B\ln\left(1/2\,\frac{2\sqrt{x(bx+a)}\sqrt{b}+2bx+a}{\sqrt{b}}\right)x^2ab^2+2A\sqrt{x(bx+a)}xb^{5/2}+6B\ln\left(1/2\,\frac{2\sqrt{x(bx+a)}\sqrt{b}+2bx+a}{\sqrt{b}}\right)xa^2b -$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*x^(1/2)/(b*x+a)^(5/2),x)
```

```
[Out] 1/3*(3*B*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))*x^
2*a*b^2+2*A*(x*(b*x+a))^(1/2)*x*b^(5/2)+6*B*ln(1/2*(2*(x*(b*x+a))
^(1/2)*b^(1/2)+2*b*x+a)/b^(1/2))*x*a^2*b-8*B*a*(x*(b*x+a))^(1/2)*
x*b^(3/2)+3*B*a^3*ln(1/2*(2*(x*(b*x+a))^(1/2)*b^(1/2)+2*b*x+a)/b^
(1/2))-6*B*a^2*(x*(b*x+a))^(1/2)*b^(1/2))/b^(5/2)*x^(1/2)/a/(x*(b
*x+a))^(1/2)/(b*x+a)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(x)/(b*x + a)^(5/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.240182, size = 1, normalized size = 0.01

$$\left[\frac{3\left(Babx+Ba^2\right)\sqrt{bx+a}\sqrt{x}\log\left(2\sqrt{bx+a}b\sqrt{x}+(2bx+a)\sqrt{b}\right)-2\left(3Ba^2x+\left(4Bab-Ab^2\right)x^2\right)\sqrt{b}}{3\left(ab^3x+a^2b^2\right)\sqrt{bx+a}\sqrt{b}\sqrt{x}}, \frac{2\left(3\left(Babx+Ba^2\right)\sqrt{b}\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(x)/(b*x + a)^(5/2),x, algorithm="fricas")
```

```
[Out] [1/3*(3*(B*a*b*x + B*a^2)*sqrt(b*x + a)*sqrt(x)*log(2*sqrt(b*x +
a)*b*sqrt(x) + (2*b*x + a)*sqrt(b)) - 2*(3*B*a^2*x + (4*B*a*b - A
*b^2)*x^2)*sqrt(b))/((a*b^3*x + a^2*b^2)*sqrt(b*x + a)*sqrt(b)*sq
rt(x)), 2/3*(3*(B*a*b*x + B*a^2)*sqrt(b*x + a)*sqrt(x)*arctan(sqr
t(b*x + a)*sqrt(-b)/(b*sqrt(x))) - (3*B*a^2*x + (4*B*a*b - A*b^2)
*x^2)*sqrt(-b))/((a*b^3*x + a^2*b^2)*sqrt(b*x + a)*sqrt(-b)*sqrt(
x))]
```

Sympy [A] time = 77.847, size = 376, normalized size = 4.59

$$\frac{2Ax^{\frac{3}{2}}}{3a^{\frac{5}{2}}\sqrt{1+\frac{bx}{a}}+3a^{\frac{3}{2}}bx\sqrt{1+\frac{bx}{a}}}+B\left(\frac{6a^{\frac{39}{2}}b^{11}x^{\frac{27}{2}}\sqrt{1+\frac{bx}{a}}\operatorname{asinh}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{3a^{\frac{39}{2}}b^{\frac{27}{2}}x^{\frac{27}{2}}\sqrt{1+\frac{bx}{a}}+3a^{\frac{37}{2}}b^{\frac{29}{2}}x^{\frac{29}{2}}\sqrt{1+\frac{bx}{a}}}+\frac{6a^{\frac{37}{2}}b^{12}x^{\frac{29}{2}}\sqrt{1+\frac{bx}{a}}\operatorname{asinh}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)}{3a^{\frac{39}{2}}b^{\frac{27}{2}}x^{\frac{27}{2}}\sqrt{1+\frac{bx}{a}}+3a^{\frac{37}{2}}b^{\frac{29}{2}}x^{\frac{29}{2}}\sqrt{1+\frac{bx}{a}}}-\frac{6a^{19}b^{\frac{23}{2}}x^{14}}{3a^{\frac{39}{2}}b^{\frac{27}{2}}x^{\frac{27}{2}}\sqrt{1+\frac{bx}{a}}+3a^{\frac{37}{2}}b^{\frac{29}{2}}x^{\frac{29}{2}}\sqrt{1+\frac{bx}{a}}}-\frac{8a^{18}b^{\frac{25}{2}}x^{15}}{3a^{\frac{39}{2}}b^{\frac{27}{2}}x^{\frac{27}{2}}\sqrt{1+\frac{bx}{a}}+3a^{\frac{37}{2}}b^{\frac{29}{2}}x^{\frac{29}{2}}\sqrt{1+\frac{bx}{a}}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*x**(1/2)/(b*x+a)**(5/2),x)
```

```
[Out] 2*A*x**(3/2)/(3*a**(5/2)*sqrt(1 + b*x/a) + 3*a**(3/2)*b*x*sqrt(1
+ b*x/a)) + B*(6*a**(39/2)*b**11*x**(27/2)*sqrt(1 + b*x/a)*asinh(
sqrt(b)*sqrt(x)/sqrt(a))/(3*a**(39/2)*b**(27/2)*x**(27/2)*sqrt(1
+ b*x/a) + 3*a**(37/2)*b**(29/2)*x**(29/2)*sqrt(1 + b*x/a)) + 6*a
**(37/2)*b**12*x**(29/2)*sqrt(1 + b*x/a)*asinh(sqrt(b)*sqrt(x)/sq
rt(a))/(3*a**(39/2)*b**(27/2)*x**(27/2)*sqrt(1 + b*x/a) + 3*a**(3
7/2)*b**(29/2)*x**(29/2)*sqrt(1 + b*x/a)) - 6*a**19*b**(23/2)*x**
14/(3*a**(39/2)*b**(27/2)*x**(27/2)*sqrt(1 + b*x/a) + 3*a**(37/2)
*b**(29/2)*x**(29/2)*sqrt(1 + b*x/a)) - 8*a**18*b**(25/2)*x**15/(
3*a**(39/2)*b**(27/2)*x**(27/2)*sqrt(1 + b*x/a) + 3*a**(37/2)*b**
(29/2)*x**(29/2)*sqrt(1 + b*x/a)))
```

GIAC/XCAS [A] time = 0.250153, size = 300, normalized size = 3.66

$$-\frac{B|b|\ln\left(\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a)b-ab}\right)^{2}\right)}{b^{\frac{7}{2}}}-\frac{4\left(6\,Ba\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a)b-ab}\right)^{4}\sqrt{b}|b|+6\,Ba^{2}\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a)b-ab}\right)^{2}b^{\frac{3}{2}}|b|-3\,A\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx\right.\right.}{3\left(\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a)b-ab}\right)^{2}+ab\right)^{3}b^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(x)/(b*x + a)^(5/2),x, algorithm="giac")
```

```
[Out] -B*abs(b)*ln((sqrt(b*x + a)*sqrt(b) - sqrt((b*x + a)*b - a*b))^2)
/b^(7/2) - 4/3*(6*B*a*(sqrt(b*x + a)*sqrt(b) - sqrt((b*x + a)*b -
 a*b))^4*sqrt(b)*abs(b) + 6*B*a^2*(sqrt(b*x + a)*sqrt(b) - sqrt((
b*x + a)*b - a*b))^2*b^(3/2)*abs(b) - 3*A*(sqrt(b*x + a)*sqrt(b)
- sqrt((b*x + a)*b - a*b))^4*b^(3/2)*abs(b) + 4*B*a^3*b^(5/2)*abs
(b) - A*a^2*b^(7/2)*abs(b))/(((sqrt(b*x + a)*sqrt(b) - sqrt((b*x
+ a)*b - a*b))^2 + a*b)^3*b^3)
```

3.529 $\int \frac{A+Bx}{\sqrt{x}(a+bx)^{5/2}}\,dx$

Optimal. Leaf size=65

$$\frac{2\sqrt{x}(aB+2Ab)}{3a^2b\sqrt{a+bx}}+\frac{2\sqrt{x}(Ab-aB)}{3ab(a+bx)^{3/2}}$$

```
[Out] (2*(A*b - a*B)*Sqrt[x])/(3*a*b*(a + b*x)^(3/2)) + (2*(2*A*b + a*B
)*Sqrt[x])/(3*a^2*b*Sqrt[a + b*x])
```

Rubi [A] time = 0.0698676, antiderivative size = 65, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.1

$$\frac{2\sqrt{x}(aB+2Ab)}{3a^2b\sqrt{a+bx}}+\frac{2\sqrt{x}(Ab-aB)}{3ab(a+bx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(Sqrt[x]*(a + b*x)^(5/2)),x]
```

```
[Out] (2*(A*b - a*B)*Sqrt[x])/(3*a*b*(a + b*x)^(3/2)) + (2*(2*A*b + a*B
)*Sqrt[x])/(3*a^2*b*Sqrt[a + b*x])
```

Rubi in Sympy [A] time = 6.80071, size = 56, normalized size = 0.86

$$\frac{2\sqrt{x}\,(Ab-Ba)}{3ab\,(a+bx)^{\frac{3}{2}}}+\frac{4\sqrt{x}\,\left(Ab+\frac{Ba}{2}\right)}{3a^2b\sqrt{a+bx}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(b*x+a)**(5/2)/x**(1/2),x)
```

```
[Out] 2*sqrt(x)*(A*b - B*a)/(3*a*b*(a + b*x)**(3/2)) + 4*sqrt(x)*(A*b +
 B*a/2)/(3*a**2*b*sqrt(a + b*x))
```

Mathematica [A] time = 0.043678, size = 35, normalized size = 0.54

$$\frac{2\sqrt{x}(3aA+aBx+2Abx)}{3a^2(a+bx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(Sqrt[x]*(a + b*x)^(5/2)),x]
```

```
[Out] (2*Sqrt[x]*(3*a*A + 2*A*b*x + a*B*x))/(3*a^2*(a + b*x)^(3/2))
```

Maple [A] time = 0.007, size = 30, normalized size = 0.5

$$\frac{4\,Abx+2\,Bax+6\,Aa}{3\,a^2}\sqrt{x}\,(bx+a)^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(b*x+a)^(5/2)/x^(1/2),x)
```

```
[Out] 2/3*x^(1/2)*(2*A*b*x+B*a*x+3*A*a)/(b*x+a)^(3/2)/a^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/((b*x + a)^(5/2)*sqrt(x)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.222385, size = 57, normalized size = 0.88

$$\frac{2\left(3\,Aax + (Ba + 2\,Ab)x^2\right)}{3\,(a^2bx + a^3)\sqrt{bx + a}\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/((b*x + a)^(5/2)*sqrt(x)),x, algorithm="fricas")
```

```
[Out] 2/3*(3*A*a*x + (B*a + 2*A*b)*x^2)/((a^2*b*x + a^3)*sqrt(b*x + a)*
sqrt(x))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(b*x+a)**(5/2)/x**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.231524, size = 176, normalized size = 2.71

$$\frac{4\left(3\,B\left(\sqrt{bx + a}\sqrt{b} - \sqrt{(bx + a)b - ab}\right)^4\sqrt{b} + Ba^2b^{\frac{5}{2}} + 6\,A\left(\sqrt{bx + a}\sqrt{b} - \sqrt{(bx + a)b - ab}\right)^2 b^{\frac{5}{2}} + 2\,Aab^{\frac{7}{2}}\right)}{3\left(\left(\sqrt{bx + a}\sqrt{b} - \sqrt{(bx + a)b - ab}\right)^2 + ab\right)^3 |b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(5/2)*sqrt(x)),x, algorithm="giac")
```

```
[Out] 4/3*(3*B*(sqrt(b*x + a)*sqrt(b) - sqrt((b*x + a)*b - a*b))^4*sqrt
(b) + B*a^2*b^(5/2) + 6*A*(sqrt(b*x + a)*sqrt(b) - sqrt((b*x + a)
*b - a*b))^2*b^(5/2) + 2*A*a*b^(7/2))/(((sqrt(b*x + a)*sqrt(b) -
sqrt((b*x + a)*b - a*b))^2 + a*b)^3*abs(b))
```

3.530 $\int \frac{A+Bx}{x^{3/2}(a+bx)^{5/2}}\,dx$

Optimal. Leaf size=81

$$-\frac{4\sqrt{x}(4Ab-aB)}{3a^3\sqrt{a+bx}}-\frac{2\sqrt{x}(4Ab-aB)}{3a^2(a+bx)^{3/2}}-\frac{2A}{a\sqrt{x}(a+bx)^{3/2}}$$

```
[Out] (-2*A)/(a*Sqrt[x]*(a + b*x)^(3/2)) - (2*(4*A*b - a*B)*Sqrt[x])/(3
*a^2*(a + b*x)^(3/2)) - (4*(4*A*b - a*B)*Sqrt[x])/(3*a^3*Sqrt[a +
 b*x])
```

Rubi [A] time = 0.0972848, antiderivative size = 81, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.15

$$-\frac{4\sqrt{x}(4Ab-aB)}{3a^3\sqrt{a+bx}}-\frac{2\sqrt{x}(4Ab-aB)}{3a^2(a+bx)^{3/2}}-\frac{2A}{a\sqrt{x}(a+bx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^(3/2)*(a + b*x)^(5/2)),x]
```

```
[Out] (-2*A)/(a*Sqrt[x]*(a + b*x)^(3/2)) - (2*(4*A*b - a*B)*Sqrt[x])/(3
*a^2*(a + b*x)^(3/2)) - (4*(4*A*b - a*B)*Sqrt[x])/(3*a^3*Sqrt[a +
 b*x])
```

Rubi in Sympy [A] time = 8.00388, size = 76, normalized size = 0.94

$$-\frac{2A}{a\sqrt{x}\,(a+bx)^{\frac{3}{2}}}-\frac{2\sqrt{x}\,(4Ab-Ba)}{3a^2\,(a+bx)^{\frac{3}{2}}}-\frac{4\sqrt{x}\,(4Ab-Ba)}{3a^3\sqrt{a+bx}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**(3/2)/(b*x+a)**(5/2),x)
```

```
[Out] -2*A/(a*sqrt(x)*(a + b*x)**(3/2)) - 2*sqrt(x)*(4*A*b - B*a)/(3*a*
*2*(a + b*x)**(3/2)) - 4*sqrt(x)*(4*A*b - B*a)/(3*a**3*sqrt(a + b
*x))
```

Mathematica [A] time = 0.0657162, size = 54, normalized size = 0.67

$$\frac{-6a^2(A-Bx)+4abx(Bx-6A)-16Ab^2x^2}{3a^3\sqrt{x}(a+bx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^(3/2)*(a + b*x)^(5/2)),x]
```

```
[Out] (-16*A*b^2*x^2 - 6*a^2*(A - B*x) + 4*a*b*x*(-6*A + B*x))/(3*a^3*S
qrt[x]*(a + b*x)^(3/2))
```

Maple [A] time = 0.006, size = 53, normalized size = 0.7

$$-\frac{16\,Ab^2x^2-4\,Bx^2ab+24\,aAbx-6\,a^2Bx+6\,Aa^2}{3\,a^3}\frac{1}{\sqrt{x}}(bx+a)^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^(3/2)/(b*x+a)^(5/2),x)
```

```
[Out] -2/3*(8*A*b^2*x^2-2*B*a*b*x^2+12*A*a*b*x-3*B*a^2*x+3*A*a^2)/x^(1/
2)/(b*x+a)^(3/2)/a^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/((b*x + a)^(5/2)*x^(3/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.233514, size = 82, normalized size = 1.01

$$-\frac{2\left(3\,Aa^{2}-2\left(Bab-4\,Ab^{2}\right)x^{2}-3\left(Ba^{2}-4\,Aab\right)x\right)}{3\left(a^{3}bx+a^{4}\right)\sqrt{bx+a}\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/((b*x + a)^(5/2)*x^(3/2)),x, algorithm="fricas")
```

```
[Out] -2/3*(3*A*a^2 - 2*(B*a*b - 4*A*b^2)*x^2 - 3*(B*a^2 - 4*A*a*b)*x)/
((a^3*b*x + a^4)*sqrt(b*x + a)*sqrt(x))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**(3/2)/(b*x+a)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.250108, size = 285, normalized size = 3.52

$$-\frac{2\sqrt{bx+a}Ab^{2}}{\sqrt{(bx+a)b-ab}a^{3}|b|}+\frac{4\left(6\,Ba^{2}\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a)b-ab}\right)^{2}b^{\frac{5}{2}}-3\,A\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a)b-ab}\right)^{4}b^{\frac{5}{2}}+2\,Ba^{3}b^{\frac{7}{2}}-12\,Aa\left(\sqrt{bx+a}\sqrt{b}-\cdots\right.\right.}{3\left(\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a)b-ab}\right)^{2}+ab\right)^{3}a^{2}|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(5/2)*x^(3/2)),x, algorithm="giac")
```

```
[Out] -2*sqrt(b*x + a)*A*b^2/(sqrt((b*x + a)*b - a*b)*a^3*abs(b)) + 4/3
*(6*B*a^2*(sqrt(b*x + a)*sqrt(b) - sqrt((b*x + a)*b - a*b))^2*b^(
5/2) - 3*A*(sqrt(b*x + a)*sqrt(b) - sqrt((b*x + a)*b - a*b))^4*b^
(5/2) + 2*B*a^3*b^(7/2) - 12*A*a*(sqrt(b*x + a)*sqrt(b) - sqrt((b
*x + a)*b - a*b))^2*b^(7/2) - 5*A*a^2*b^(9/2))/(((sqrt(b*x + a)*s
qrt(b) - sqrt((b*x + a)*b - a*b))^2 + a*b)^3*a^2*abs(b))
```

3.531 $\int \frac{A+Bx}{x^{5/2}(a+bx)^{5/2}}\,dx$

Optimal. Leaf size=113

$$\frac{16\sqrt{a+bx}(2Ab-aB)}{3a^4\sqrt{x}}-\frac{8(2Ab-aB)}{3a^3\sqrt{x}\sqrt{a+bx}}-\frac{2(2Ab-aB)}{3a^2\sqrt{x}(a+bx)^{3/2}}-\frac{2A}{3ax^{3/2}(a+bx)^{3/2}}$$

```
[Out] (-2*A)/(3*a*x^(3/2)*(a + b*x)^(3/2)) - (2*(2*A*b - a*B))/(3*a^2*S
qrt[x]*(a + b*x)^(3/2)) - (8*(2*A*b - a*B))/(3*a^3*Sqrt[x]*Sqrt[a
 + b*x]) + (16*(2*A*b - a*B)*Sqrt[a + b*x])/(3*a^4*Sqrt[x])
```

Rubi [A] time = 0.130915, antiderivative size = 113, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.15

$$\frac{16\sqrt{a+bx}(2Ab-aB)}{3a^4\sqrt{x}}-\frac{8(2Ab-aB)}{3a^3\sqrt{x}\sqrt{a+bx}}-\frac{2(2Ab-aB)}{3a^2\sqrt{x}(a+bx)^{3/2}}-\frac{2A}{3ax^{3/2}(a+bx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^(5/2)*(a + b*x)^(5/2)),x]
```


```
[Out] (-2*A)/(3*a*x^(3/2)*(a + b*x)^(3/2)) - (2*(2*A*b - a*B))/(3*a^2*S
qrt[x]*(a + b*x)^(3/2)) - (8*(2*A*b - a*B))/(3*a^3*Sqrt[x]*Sqrt[a
 + b*x]) + (16*(2*A*b - a*B)*Sqrt[a + b*x])/(3*a^4*Sqrt[x])
```

Rubi in Sympy [A] time = 11.5106, size = 105, normalized size = 0.93

$$-\frac{2A}{3ax^{\frac{3}{2}}(a+bx)^{\frac{3}{2}}}-\frac{4\left(Ab-\frac{Ba}{2}\right)}{3a^2\sqrt{x}(a+bx)^{\frac{3}{2}}}-\frac{16\left(Ab-\frac{Ba}{2}\right)}{3a^3\sqrt{x}\sqrt{a+bx}}+\frac{32\sqrt{a+bx}\left(Ab-\frac{Ba}{2}\right)}{3a^4\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**(5/2)/(b*x+a)**(5/2),x)
```

```
[Out] -2*A/(3*a*x**(3/2)*(a + b*x)**(3/2)) - 4*(A*b - B*a/2)/(3*a**2*sq
rt(x)*(a + b*x)**(3/2)) - 16*(A*b - B*a/2)/(3*a**3*sqrt(x)*sqrt(a
 + b*x)) + 32*sqrt(a + b*x)*(A*b - B*a/2)/(3*a**4*sqrt(x))
```

Mathematica [A] time = 0.0934232, size = 70, normalized size = 0.62

$$-\frac{2\left(a^3(A+3Bx)-6a^2bx(A-2Bx)+8ab^2x^2(Bx-3A)-16Ab^3x^3\right)}{3a^4x^{3/2}(a+bx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^(5/2)*(a + b*x)^(5/2)),x]
```

```
[Out] (-2*(-16*A*b^3*x^3 - 6*a^2*b*x*(A - 2*B*x) + 8*a*b^2*x^2*(-3*A +
B*x) + a^3*(A + 3*B*x)))/(3*a^4*x^(3/2)*(a + b*x)^(3/2))
```

Maple [A] time = 0.007, size = 76, normalized size = 0.7

$$-\frac{-32\,Ab^3x^3+16\,Bx^3ab^2-48\,aAb^2x^2+24\,Bx^2a^2b-12\,a^2Abx+6\,a^3Bx+2\,Aa^3}{3\,a^4}x^{-\frac{3}{2}}(bx+a)^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^(5/2)/(b*x+a)^(5/2),x)
```

```
[Out] -2/3*(-16*A*b^3*x^3+8*B*a*b^2*x^3-24*A*a*b^2*x^2+12*B*a^2*b*x^2-6
*A*a^2*b*x+3*B*a^3*x+A*a^3)/x^(3/2)/(b*x+a)^(3/2)/a^4
```

Maxima [A] time = 1.33498, size = 176, normalized size = 1.56

$$\frac{2\,Bx}{3\,(bx^2+ax)^{\frac{3}{2}}a} - \frac{16\,Bbx}{3\,\sqrt{bx^2+ax}a^3} - \frac{4\,Abx}{3\,(bx^2+ax)^{\frac{3}{2}}a^2} + \frac{32\,Ab^2x}{3\,\sqrt{bx^2+ax}a^4} - \frac{8\,B}{3\,\sqrt{bx^2+ax}a^2} - \frac{2\,A}{3\,(bx^2+ax)^{\frac{3}{2}}a} + \frac{16\,Ab}{3\,\sqrt{bx^2+ax}a^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(5/2)*x^(5/2)),x, algorithm="maxima")
```

```
[Out] 2/3*B*x/((b*x^2 + a*x)^(3/2)*a) - 16/3*B*b*x/(sqrt(b*x^2 + a*x)*a
^3) - 4/3*A*b*x/((b*x^2 + a*x)^(3/2)*a^2) + 32/3*A*b^2*x/(sqrt(b*
x^2 + a*x)*a^4) - 8/3*B/(sqrt(b*x^2 + a*x)*a^2) - 2/3*A/((b*x^2 +
 a*x)^(3/2)*a) + 16/3*A*b/(sqrt(b*x^2 + a*x)*a^3)
```

Fricas [A] time = 0.234425, size = 117, normalized size = 1.04

$$-\frac{2\,\left(Aa^3+8\,\left(Bab^2-2\,Ab^3\right)x^3+12\,\left(Ba^2b-2\,Aab^2\right)x^2+3\,\left(Ba^3-2\,Aa^2b\right)x\right)}{3\,(a^4bx^2+a^5x)\sqrt{bx+a}\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(5/2)*x^(5/2)),x, algorithm="fricas")
```

```
[Out] -2/3*(A*a^3 + 8*(B*a*b^2 - 2*A*b^3)*x^3 + 12*(B*a^2*b - 2*A*a*b^2
)*x^2 + 3*(B*a^3 - 2*A*a^2*b)*x)/((a^4*b*x^2 + a^5*x)*sqrt(b*x +
a)*sqrt(x))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**(5/2)/(b*x+a)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.280413, size = 409, normalized size = 3.62

$$\frac{\sqrt{bx+a}\left(\frac{(3\,Ba^4b^3|b|-8\,Aa^3b^4|b|)(bx+a)}{a^2b^6}-\frac{3\,(Ba^5b^3|b|-3\,Aa^4b^4|b|)}{a^2b^6}\right)}{48\,((bx+a)b-ab)^{\frac{3}{2}}} - \frac{4\left(3\,Ba\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a)b-ab}\right)^4b^{\frac{5}{2}}+12\,Ba^2\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a)b-ab}\right)^2b^{\frac{7}{2}}-6\,A\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a)b}\cdots\right.\right.}{3\left(\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a)b-ab}\right)^2+ab\right)^3a^{\cdots}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(5/2)*x^(5/2)),x, algorithm="giac")
```

```
[Out] 1/48*sqrt(b*x + a)*((3*B*a^4*b^3*abs(b) - 8*A*a^3*b^4*abs(b))*(b*
x + a)/(a^2*b^6) - 3*(B*a^5*b^3*abs(b) - 3*A*a^4*b^4*abs(b))/(a^2
*b^6))/((b*x + a)*b - a*b)^(3/2) - 4/3*(3*B*a*(sqrt(b*x + a)*sqrt
(b) - sqrt((b*x + a)*b - a*b))^4*b^(5/2) + 12*B*a^2*(sqrt(b*x + a
)*sqrt(b) - sqrt((b*x + a)*b - a*b))^2*b^(7/2) - 6*A*(sqrt(b*x +
a)*sqrt(b) - sqrt((b*x + a)*b - a*b))^4*b^(7/2) + 5*B*a^3*b^(9/2)
 - 18*A*a*(sqrt(b*x + a)*sqrt(b) - sqrt((b*x + a)*b - a*b))^2*b^(
9/2) - 8*A*a^2*b^(11/2))/(((sqrt(b*x + a)*sqrt(b) - sqrt((b*x + a
)*b - a*b))^2 + a*b)^3*a^3*abs(b))
```

3.532 $\int \frac{A+Bx}{x^{7/2}(a+bx)^{5/2}} dx$

Optimal. Leaf size=144

$$-\frac{32b\sqrt{a+bx}(8Ab-5aB)}{15a^5\sqrt{x}}+\frac{16\sqrt{a+bx}(8Ab-5aB)}{15a^4x^{3/2}}-\frac{4(8Ab-5aB)}{5a^3x^{3/2}\sqrt{a+bx}}-\frac{2(8Ab-5aB)}{15a^2x^{3/2}(a+bx)^{3/2}}-\frac{2A}{5ax^{5/2}(a+bx)^{3/2}}$$

```
[Out] (-2*A)/(5*a*x^(5/2)*(a + b*x)^(3/2)) - (2*(8*A*b - 5*a*B))/(15*a^
2*x^(3/2)*(a + b*x)^(3/2)) - (4*(8*A*b - 5*a*B))/(5*a^3*x^(3/2)*S
qrt[a + b*x]) + (16*(8*A*b - 5*a*B)*Sqrt[a + b*x])/(15*a^4*x^(3/2
)) - (32*b*(8*A*b - 5*a*B)*Sqrt[a + b*x])/(15*a^5*Sqrt[x])
```

Rubi [A] time = 0.166089, antiderivative size = 144, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.15

$$-\frac{32b\sqrt{a+bx}(8Ab-5aB)}{15a^5\sqrt{x}}+\frac{16\sqrt{a+bx}(8Ab-5aB)}{15a^4x^{3/2}}-\frac{4(8Ab-5aB)}{5a^3x^{3/2}\sqrt{a+bx}}-\frac{2(8Ab-5aB)}{15a^2x^{3/2}(a+bx)^{3/2}}-\frac{2A}{5ax^{5/2}(a+bx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^(7/2)*(a + b*x)^(5/2)),x]
```

```
[Out] (-2*A)/(5*a*x^(5/2)*(a + b*x)^(3/2)) - (2*(8*A*b - 5*a*B))/(15*a^
2*x^(3/2)*(a + b*x)^(3/2)) - (4*(8*A*b - 5*a*B))/(5*a^3*x^(3/2)*S
qrt[a + b*x]) + (16*(8*A*b - 5*a*B)*Sqrt[a + b*x])/(15*a^4*x^(3/2
)) - (32*b*(8*A*b - 5*a*B)*Sqrt[a + b*x])/(15*a^5*Sqrt[x])
```

Rubi in Sympy [A] time = 14.4117, size = 139, normalized size = 0.97

$$-\frac{2A}{5ax^{\frac{5}{2}}(a+bx)^{\frac{3}{2}}}-\frac{2(8Ab-5Ba)}{15a^2x^{\frac{3}{2}}(a+bx)^{\frac{3}{2}}}-\frac{4(8Ab-5Ba)}{5a^3x^{\frac{3}{2}}\sqrt{a+bx}}+\frac{16\sqrt{a+bx}(8Ab-5Ba)}{15a^4x^{\frac{3}{2}}}-\frac{32b\sqrt{a+bx}(8Ab-5Ba)}{15a^5\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**(7/2)/(b*x+a)**(5/2),x)
```

```
[Out] -2*A/(5*a*x**(5/2)*(a + b*x)**(3/2)) - 2*(8*A*b - 5*B*a)/(15*a**2
*x**(3/2)*(a + b*x)**(3/2)) - 4*(8*A*b - 5*B*a)/(5*a**3*x**(3/2)*
sqrt(a + b*x)) + 16*sqrt(a + b*x)*(8*A*b - 5*B*a)/(15*a**4*x**(3/
2)) - 32*b*sqrt(a + b*x)*(8*A*b - 5*B*a)/(15*a**5*sqrt(x))
```

Mathematica [A] time = 0.119848, size = 94, normalized size = 0.65

$$-\frac{2\left(a^4(3A+5Bx)-2a^3bx(4A+15Bx)+24a^2b^2x^2(2A-5Bx)+16ab^3x^3(12A-5Bx)+128Ab^4x^4\right)}{15a^5x^{5/2}(a+bx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^(7/2)*(a + b*x)^(5/2)),x]
```

```
[Out] (-2*(128*A*b^4*x^4 + 24*a^2*b^2*x^2*(2*A - 5*B*x) + 16*a*b^3*x^3*
(12*A - 5*B*x) + a^4*(3*A + 5*B*x) - 2*a^3*b*x*(4*A + 15*B*x)))/(
```

```
15*a^5*x^(5/2)*(a + b*x)^(3/2))
```

Maple [A] time = 0.008, size = 101, normalized size = 0.7

$$-\frac{256\,Ab^4x^4 - 160\,Bab^3x^4 + 384\,Aab^3x^3 - 240\,Ba^2b^2x^3 + 96\,Aa^2b^2x^2 - 60\,Ba^3bx^2 - 16\,Aa^3bx + 10\,Ba^4x + 6\,Aa^4}{15\,a^5}x^{-\frac{5}{2}}\,(bx + $$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^(7/2)/(b*x+a)^(5/2),x)
```

```
[Out] -2/15*(128*A*b^4*x^4-80*B*a*b^3*x^4+192*A*a*b^3*x^3-120*B*a^2*b^2
*x^3+48*A*a^2*b^2*x^2-30*B*a^3*b*x^2-8*A*a^3*b*x+5*B*a^4*x+3*A*a^
4)/x^(5/2)/(b*x+a)^(3/2)/a^5
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(5/2)*x^(7/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.244121, size = 157, normalized size = 1.09

$$-\frac{2\,\left(3\,Aa^4 - 16\,\left(5\,Bab^3 - 8\,Ab^4\right)x^4 - 24\,\left(5\,Ba^2b^2 - 8\,Aab^3\right)x^3 - 6\,\left(5\,Ba^3b - 8\,Aa^2b^2\right)x^2 + \left(5\,Ba^4 - 8\,Aa^3b\right)x\right)}{15\,\left(a^5bx^3 + a^6x^2\right)\sqrt{bx + a}\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(5/2)*x^(7/2)),x, algorithm="fricas")
```

```
[Out] -2/15*(3*A*a^4 - 16*(5*B*a*b^3 - 8*A*b^4)*x^4 - 24*(5*B*a^2*b^2 -
 8*A*a*b^3)*x^3 - 6*(5*B*a^3*b - 8*A*a^2*b^2)*x^2 + (5*B*a^4 - 8*
A*a^3*b)*x)/((a^5*b*x^3 + a^6*x^2)*sqrt(b*x + a)*sqrt(x))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**(7/2)/(b*x+a)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.296747, size = 444, normalized size = 3.08

$$-\frac{\sqrt{bx+a}\left((bx+a)\left(\frac{(40\,Ba^8b^7-73\,Aa^7b^8)(bx+a)}{a^3b^9}-\frac{5\,(17\,Ba^9b^7-32\,Aa^8b^8)}{a^3b^9}\right)+\frac{45\,(Ba^{10}b^7-2\,Aa^9b^8)}{a^3b^9}\right)}{960\,((bx+a)b-ab)^{\frac{5}{2}}}+\frac{4\left(6\,Ba\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a)b-ab}\right)^4b^{\frac{7}{2}}+18\,Ba^2\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a)b-ab}\right)^2b^{\frac{9}{2}}-9\,A\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a)b}\right.\right.}{3\left(\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a)b-ab}\right)^2+ab\right)^3a}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(5/2)*x^(7/2)),x, algorithm="giac")
```

```
[Out] -1/960*sqrt(b*x + a)*((b*x + a)*((40*B*a^8*b^7 - 73*A*a^7*b^8)*(b
*x + a)/(a^3*b^9) - 5*(17*B*a^9*b^7 - 32*A*a^8*b^8)/(a^3*b^9)) +
45*(B*a^10*b^7 - 2*A*a^9*b^8)/(a^3*b^9))/((b*x + a)*b - a*b)^(5/2
) + 4/3*(6*B*a*(sqrt(b*x + a)*sqrt(b) - sqrt((b*x + a)*b - a*b))^
4*b^(7/2) + 18*B*a^2*(sqrt(b*x + a)*sqrt(b) - sqrt((b*x + a)*b -
a*b))^2*b^(9/2) - 9*A*(sqrt(b*x + a)*sqrt(b) - sqrt((b*x + a)*b -
 a*b))^4*b^(9/2) + 8*B*a^3*b^(11/2) - 24*A*a*(sqrt(b*x + a)*sqrt(
b) - sqrt((b*x + a)*b - a*b))^2*b^(11/2) - 11*A*a^2*b^(13/2))/(((
sqrt(b*x + a)*sqrt(b) - sqrt((b*x + a)*b - a*b))^2 + a*b)^3*a^4*a
bs(b))
```

3.533 $\int \frac{A+Bx}{x^{9/2}(a+bx)^{5/2}}\,dx$

Optimal. Leaf size=177

$$\frac{256b^2\sqrt{a+bx}(10Ab-7aB)}{105a^6\sqrt{x}}-\frac{128b\sqrt{a+bx}(10Ab-7aB)}{105a^5x^{3/2}}+\frac{32\sqrt{a+bx}(10Ab-7aB)}{35a^4x^{5/2}}-\frac{16(10Ab-7aB)}{21a^3x^{5/2}\sqrt{a+bx}}-\frac{2(10Ab-7aB)}{21a^2x^{5/2}(a+bx)^{3/2}}-\frac{2A}{7ax^{7/2}(a+bx)^{3/2}}$$

```
[Out] (-2*A)/(7*a*x^(7/2)*(a + b*x)^(3/2)) - (2*(10*A*b - 7*a*B))/(21*a
^2*x^(5/2)*(a + b*x)^(3/2)) - (16*(10*A*b - 7*a*B))/(21*a^3*x^(5/
2)*Sqrt[a + b*x]) + (32*(10*A*b - 7*a*B)*Sqrt[a + b*x])/(35*a^4*x
^(5/2)) - (128*b*(10*A*b - 7*a*B)*Sqrt[a + b*x])/(105*a^5*x^(3/2)
) + (256*b^2*(10*A*b - 7*a*B)*Sqrt[a + b*x])/(105*a^6*Sqrt[x])
```

Rubi [A] time = 0.208311, antiderivative size = 177, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.15

$$\frac{256b^2\sqrt{a+bx}(10Ab-7aB)}{105a^6\sqrt{x}}-\frac{128b\sqrt{a+bx}(10Ab-7aB)}{105a^5x^{3/2}}+\frac{32\sqrt{a+bx}(10Ab-7aB)}{35a^4x^{5/2}}-\frac{16(10Ab-7aB)}{21a^3x^{5/2}\sqrt{a+bx}}-\frac{2(10Ab-7aB)}{21a^2x^{5/2}(a+bx)^{3/2}}-\frac{2A}{7ax^{7/2}(a+bx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^(9/2)*(a + b*x)^(5/2)),x]
```


```
[Out] (-2*A)/(7*a*x^(7/2)*(a + b*x)^(3/2)) - (2*(10*A*b - 7*a*B))/(21*a
^2*x^(5/2)*(a + b*x)^(3/2)) - (16*(10*A*b - 7*a*B))/(21*a^3*x^(5/
2)*Sqrt[a + b*x]) + (32*(10*A*b - 7*a*B)*Sqrt[a + b*x])/(35*a^4*x
^(5/2)) - (128*b*(10*A*b - 7*a*B)*Sqrt[a + b*x])/(105*a^5*x^(3/2)
) + (256*b^2*(10*A*b - 7*a*B)*Sqrt[a + b*x])/(105*a^6*Sqrt[x])
```

Rubi in Sympy [A] time = 19.2692, size = 173, normalized size = 0.98

$$-\frac{2A}{7ax^{\frac{7}{2}}\left(a+bx\right)^{\frac{3}{2}}}-\frac{2\left(10Ab-7Ba\right)}{21a^2x^{\frac{5}{2}}\left(a+bx\right)^{\frac{3}{2}}}-\frac{16\left(10Ab-7Ba\right)}{21a^3x^{\frac{5}{2}}\sqrt{a+bx}}+\frac{32\sqrt{a+bx}\left(10Ab-7Ba\right)}{35a^4x^{\frac{5}{2}}}-\frac{128b\sqrt{a+bx}\left(10Ab-7Ba\right)}{105a^5x^{\frac{3}{2}}}+\frac{256b^2\sqrt{a+bx}\left(10Ab-7Ba\right)}{105a^6\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**(9/2)/(b*x+a)**(5/2),x)
```

```
[Out] -2*A/(7*a*x**(7/2)*(a + b*x)**(3/2)) - 2*(10*A*b - 7*B*a)/(21*a**
2*x**(5/2)*(a + b*x)**(3/2)) - 16*(10*A*b - 7*B*a)/(21*a**3*x**(5
/2)*sqrt(a + b*x)) + 32*sqrt(a + b*x)*(10*A*b - 7*B*a)/(35*a**4*x
**(5/2)) - 128*b*sqrt(a + b*x)*(10*A*b - 7*B*a)/(105*a**5*x**(3/2
)) + 256*b**2*sqrt(a + b*x)*(10*A*b - 7*B*a)/(105*a**6*sqrt(x))
```

Mathematica [A] time = 0.152065, size = 114, normalized size = 0.64

$$-\frac{2\left(3a^5(5A+7Bx)-2a^4bx(15A+28Bx)+16a^3b^2x^2(5A+21Bx)+96a^2b^3x^3(14Bx-5A)+128ab^4x^4(7Bx-15A)-1280Ab\right.}{105a^6x^{7/2}(a+bx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^(9/2)*(a + b*x)^(5/2)),x]
```

```
[Out] (-2*(-1280*A*b^5*x^5 + 128*a*b^4*x^4*(-15*A + 7*B*x) + 3*a^5*(5*A
 + 7*B*x) + 96*a^2*b^3*x^3*(-5*A + 14*B*x) + 16*a^3*b^2*x^2*(5*A
+ 21*B*x) - 2*a^4*b*x*(15*A + 28*B*x)))/(105*a^6*x^(7/2)*(a + b*x
)^(3/2))
```

Maple [A] time = 0.01, size = 125, normalized size = 0.7

$$-\frac{-2560\,Ab^5x^5+1792\,Bx^5ab^4-3840\,aAb^4x^4+2688\,Bx^4a^2b^3-960\,a^2Ab^3x^3+672\,Bx^3a^3b^2+160\,a^3Ab^2x^2-112\,Bx^2a^4b-}{105\,a^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^(9/2)/(b*x+a)^(5/2),x)
```

```
[Out] -2/105*(-1280*A*b^5*x^5+896*B*a*b^4*x^5-1920*A*a*b^4*x^4+1344*B*a
^2*b^3*x^4-480*A*a^2*b^3*x^3+336*B*a^3*b^2*x^3+80*A*a^3*b^2*x^2-5
6*B*a^4*b*x^2-30*A*a^4*b*x+21*B*a^5*x+15*A*a^5)/x^(7/2)/(b*x+a)^(
3/2)/a^6
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(5/2)*x^(9/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.235308, size = 190, normalized size = 1.07

$$-\frac{2\left(15\,Aa^5+128\left(7\,Bab^4-10\,Ab^5\right)x^5+192\left(7\,Ba^2b^3-10\,Aab^4\right)x^4+48\left(7\,Ba^3b^2-10\,Aa^2b^3\right)x^3-8\left(7\,Ba^4b-10\,Aa^3b^2\right)x}{105\left(a^6bx^4+a^7x^3\right)\sqrt{bx+a}\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(5/2)*x^(9/2)),x, algorithm="fricas")
```

```
[Out] -2/105*(15*A*a^5 + 128*(7*B*a*b^4 - 10*A*b^5)*x^5 + 192*(7*B*a^2*
b^3 - 10*A*a*b^4)*x^4 + 48*(7*B*a^3*b^2 - 10*A*a^2*b^3)*x^3 - 8*(
7*B*a^4*b - 10*A*a^3*b^2)*x^2 + 3*(7*B*a^5 - 10*A*a^4*b)*x)/((a^6
*b*x^4 + a^7*x^3)*sqrt(b*x + a)*sqrt(x))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**(9/2)/(b*x+a)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.313928, size = 513, normalized size = 2.9

$$\frac{\left((bx+a)\left((bx+a)\left(\frac{(511\,Ba^{13}b^9|b|-790\,Aa^{12}b^{10}|b|)(bx+a)}{a^4b^{12}}-\frac{7\,(233\,Ba^{14}b^9|b|-365\,Aa^{13}b^{10}|b|)}{a^4b^{12}}\right)+\frac{350\,(5\,Ba^{15}b^9|b|-8\,Aa^{14}b^{10}|b|)}{a^4b^{12}}\right)-\frac{210\,(3\,Ba\cdots}{\cdots}\cdots}{80640\,((bx+a)b-ab)^{\frac{7}{2}}}-\frac{4\left(9\,Ba\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a)b-ab}\right)^4b^{\frac{9}{2}}+24\,Ba^2\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a)b-ab}\right)^2b^{\frac{11}{2}}-12\,A\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a\cdots}\right.\cdots\right.}{3\left(\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a)b-ab}\right)^2+ab\right)\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(5/2)*x^(9/2)),x, algorithm="giac")
```

```
[Out] 1/80640*((b*x + a)*((b*x + a)*((511*B*a^13*b^9*abs(b) - 790*A*a^1
2*b^10*abs(b))*(b*x + a)/(a^4*b^12) - 7*(233*B*a^14*b^9*abs(b) -
365*A*a^13*b^10*abs(b))/(a^4*b^12)) + 350*(5*B*a^15*b^9*abs(b) -
8*A*a^14*b^10*abs(b))/(a^4*b^12)) - 210*(3*B*a^16*b^9*abs(b) - 5*
A*a^15*b^10*abs(b))/(a^4*b^12))*sqrt(b*x + a)/((b*x + a)*b - a*b)
^(7/2) - 4/3*(9*B*a*(sqrt(b*x + a)*sqrt(b) - sqrt((b*x + a)*b - a
*b))^4*b^(9/2) + 24*B*a^2*(sqrt(b*x + a)*sqrt(b) - sqrt((b*x + a)
*b - a*b))^2*b^(11/2) - 12*A*(sqrt(b*x + a)*sqrt(b) - sqrt((b*x +
 a)*b - a*b))^4*b^(11/2) + 11*B*a^3*b^(13/2) - 30*A*a*(sqrt(b*x +
 a)*sqrt(b) - sqrt((b*x + a)*b - a*b))^2*b^(13/2) - 14*A*a^2*b^(1
5/2))/(((sqrt(b*x + a)*sqrt(b) - sqrt((b*x + a)*b - a*b))^2 + a*b
)^3*a^5*abs(b))
```

3.534 $\int \frac{A+Bx}{x^{11/2}(a+bx)^{5/2}}\,dx$

Optimal. Leaf size=210

$$-\frac{512b^3\sqrt{a+bx}(4Ab-3aB)}{63a^7\sqrt{x}}+\frac{256b^2\sqrt{a+bx}(4Ab-3aB)}{63a^6x^{3/2}}-\frac{64b\sqrt{a+bx}(4Ab-3aB)}{21a^5x^{5/2}}+\frac{160\sqrt{a+bx}(4Ab-3aB)}{63a^4x^{7/2}}-\frac{20(4Ab-3aB)}{9a^3x^{7/2}\sqrt{a+bx}}-\frac{2(4Ab-3aB)}{9a^2x^{7/2}(a+bx)^{3/2}}-\frac{2A}{9ax^{9/2}(a+bx)^{3/2}}$$

```
[Out] (-2*A)/(9*a*x^(9/2)*(a + b*x)^(3/2)) - (2*(4*A*b - 3*a*B))/(9*a^2
*x^(7/2)*(a + b*x)^(3/2)) - (20*(4*A*b - 3*a*B))/(9*a^3*x^(7/2)*S
qrt[a + b*x]) + (160*(4*A*b - 3*a*B)*Sqrt[a + b*x])/(63*a^4*x^(7/
2)) - (64*b*(4*A*b - 3*a*B)*Sqrt[a + b*x])/(21*a^5*x^(5/2)) + (25
6*b^2*(4*A*b - 3*a*B)*Sqrt[a + b*x])/(63*a^6*x^(3/2)) - (512*b^3*
(4*A*b - 3*a*B)*Sqrt[a + b*x])/(63*a^7*Sqrt[x])
```

Rubi [A] time = 0.252535, antiderivative size = 210, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.15

$$-\frac{512b^3\sqrt{a+bx}(4Ab-3aB)}{63a^7\sqrt{x}}+\frac{256b^2\sqrt{a+bx}(4Ab-3aB)}{63a^6x^{3/2}}-\frac{64b\sqrt{a+bx}(4Ab-3aB)}{21a^5x^{5/2}}+\frac{160\sqrt{a+bx}(4Ab-3aB)}{63a^4x^{7/2}}-\frac{20(4Ab-3aB)}{9a^3x^{7/2}\sqrt{a+bx}}-\frac{2(4Ab-3aB)}{9a^2x^{7/2}(a+bx)^{3/2}}-\frac{2A}{9ax^{9/2}(a+bx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(x^(11/2)*(a + b*x)^(5/2)),x]
```

```
[Out] (-2*A)/(9*a*x^(9/2)*(a + b*x)^(3/2)) - (2*(4*A*b - 3*a*B))/(9*a^2
*x^(7/2)*(a + b*x)^(3/2)) - (20*(4*A*b - 3*a*B))/(9*a^3*x^(7/2)*S
qrt[a + b*x]) + (160*(4*A*b - 3*a*B)*Sqrt[a + b*x])/(63*a^4*x^(7/
2)) - (64*b*(4*A*b - 3*a*B)*Sqrt[a + b*x])/(21*a^5*x^(5/2)) + (25
6*b^2*(4*A*b - 3*a*B)*Sqrt[a + b*x])/(63*a^6*x^(3/2)) - (512*b^3*
(4*A*b - 3*a*B)*Sqrt[a + b*x])/(63*a^7*Sqrt[x])
```

Rubi in Sympy [A] time = 24.6152, size = 207, normalized size = 0.99

$$-\frac{2A}{9ax^{\frac{9}{2}}\left(a+bx\right)^{\frac{3}{2}}}-\frac{2\left(4Ab-3Ba\right)}{9a^2x^{\frac{7}{2}}\left(a+bx\right)^{\frac{3}{2}}}-\frac{20\left(4Ab-3Ba\right)}{9a^3x^{\frac{7}{2}}\sqrt{a+bx}}+\frac{160\sqrt{a+bx}\left(4Ab-3Ba\right)}{63a^4x^{\frac{7}{2}}}-\frac{64b\sqrt{a+bx}\left(4Ab-3Ba\right)}{21a^5x^{\frac{5}{2}}}+\frac{256b^2\sqrt{a+bx}\left(4Ab-3Ba\right)}{63a^6x^{\frac{3}{2}}}-\frac{512b^3\sqrt{a+bx}\left(4Ab-3Ba\right)}{63a^7\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/x**(11/2)/(b*x+a)**(5/2),x)
```

```
[Out] -2*A/(9*a*x**(9/2)*(a + b*x)**(3/2)) - 2*(4*A*b - 3*B*a)/(9*a**2*
x**(7/2)*(a + b*x)**(3/2)) - 20*(4*A*b - 3*B*a)/(9*a**3*x**(7/2)*
sqrt(a + b*x)) + 160*sqrt(a + b*x)*(4*A*b - 3*B*a)/(63*a**4*x**(7
/2)) - 64*b*sqrt(a + b*x)*(4*A*b - 3*B*a)/(21*a**5*x**(5/2)) + 25
6*b**2*sqrt(a + b*x)*(4*A*b - 3*B*a)/(63*a**6*x**(3/2)) - 512*b**
3*sqrt(a + b*x)*(4*A*b - 3*B*a)/(63*a**7*sqrt(x))
```

Mathematica [A] time = 0.17499, size = 127, normalized size = 0.6

$$-\frac{2\left(a^6(7A+9Bx)-6a^5bx(2A+3Bx)+24a^4b^2x^2(A+2Bx)-32a^3b^3x^3(2A+9Bx)+384a^2b^4x^4(A-3Bx)-768ab^5x^5(Bx-\right.}{63a^7x^{9/2}(a+bx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(x^(11/2)*(a + b*x)^(5/2)),x]
```

```
[Out] (-2*(1024*A*b^6*x^6 + 384*a^2*b^4*x^4*(A - 3*B*x) - 768*a*b^5*x^5
*(-2*A + B*x) + 24*a^4*b^2*x^2*(A + 2*B*x) - 6*a^5*b*x*(2*A + 3*B
*x) - 32*a^3*b^3*x^3*(2*A + 9*B*x) + a^6*(7*A + 9*B*x)))/(63*a^7*
x^(9/2)*(a + b*x)^(3/2))
```

Maple [A] time = 0.009, size = 149, normalized size = 0.7

$$-\frac{2048\,Ab^6x^6-1536\,Bab^5x^6+3072\,Aab^5x^5-2304\,Ba^2b^4x^5+768\,Aa^2b^4x^4-576\,Ba^3b^3x^4-128\,Aa^3b^3x^3+96\,Ba^4b^2x^3+48}{63\,a^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/x^(11/2)/(b*x+a)^(5/2),x)
```

```
[Out] -2/63*(1024*A*b^6*x^6-768*B*a*b^5*x^6+1536*A*a*b^5*x^5-1152*B*a^2
*b^4*x^5+384*A*a^2*b^4*x^4-288*B*a^3*b^3*x^4-64*A*a^3*b^3*x^3+48*
B*a^4*b^2*x^3+24*A*a^4*b^2*x^2-18*B*a^5*b*x^2-12*A*a^5*b*x+9*B*a^
6*x+7*A*a^6)/x^(9/2)/(b*x+a)^(3/2)/a^7
```

Maple [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(5/2)*x^(11/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.238075, size = 223, normalized size = 1.06

$$-\frac{2\left(7\,Aa^6-256\left(3\,Bab^5-4\,Ab^6\right)x^6-384\left(3\,Ba^2b^4-4\,Aab^5\right)x^5-96\left(3\,Ba^3b^3-4\,Aa^2b^4\right)x^4+16\left(3\,Ba^4b^2-4\,Aa^3b^3\right)x^3-\right.}{63\left(a^7bx^5+a^8x^4\right)\sqrt{bx+a}\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(5/2)*x^(11/2)),x, algorithm="fricas")
```

```
[Out] -2/63*(7*A*a^6 - 256*(3*B*a*b^5 - 4*A*b^6)*x^6 - 384*(3*B*a^2*b^4
 - 4*A*a*b^5)*x^5 - 96*(3*B*a^3*b^3 - 4*A*a^2*b^4)*x^4 + 16*(3*B*
a^4*b^2 - 4*A*a^3*b^3)*x^3 - 6*(3*B*a^5*b - 4*A*a^4*b^2)*x^2 + 3*
(3*B*a^6 - 4*A*a^5*b)*x)/((a^7*b*x^5 + a^8*x^4)*sqrt(b*x + a)*sqr
t(x))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/x**(11/2)/(b*x+a)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.337634, size = 537, normalized size = 2.56

$$-\frac{\left(\left((bx+a)\left((bx+a)\left(\frac{(474\,Ba^{19}b^{13}-667\,Aa^{18}b^{14})(bx+a)}{a^5b^{15}}-\frac{9\,(223\,Ba^{20}b^{13}-316\,Aa^{19}b^{14})}{a^5b^{15}}\right)+\frac{63\,(51\,Ba^{21}b^{13}-73\,Aa^{20}b^{14})}{a^5b^{15}}\right)-\frac{210\,(11\,Ba^{22}b^{13}-16\,A}{a^5b^{15}}\right.}{64512\,((bx+a)b-ab)^{\frac{9}{2}}}+\frac{4\left(12\,Ba\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a)b-ab}\right)^4b^{\frac{11}{2}}+30\,Ba^2\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a)b-ab}\right)^2b^{\frac{13}{2}}-15\,A\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+\right.\right.}{3\left(\left(\sqrt{bx+a}\sqrt{b}-\sqrt{(bx+a)b-ab}\right)^2+ab\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(5/2)*x^(11/2)),x, algorithm="giac")
```

```
[Out] -1/64512*(((b*x + a)*((b*x + a)*((474*B*a^19*b^13 - 667*A*a^18*b^
14)*(b*x + a)/(a^5*b^15) - 9*(223*B*a^20*b^13 - 316*A*a^19*b^14)/
(a^5*b^15)) + 63*(51*B*a^21*b^13 - 73*A*a^20*b^14)/(a^5*b^15)) -
210*(11*B*a^22*b^13 - 16*A*a^21*b^14)/(a^5*b^15))*(b*x + a) + 315
*(2*B*a^23*b^13 - 3*A*a^22*b^14)/(a^5*b^15))*sqrt(b*x + a)/((b*x
+ a)*b - a*b)^(9/2) + 4/3*(12*B*a*(sqrt(b*x + a)*sqrt(b) - sqrt((
b*x + a)*b - a*b))^4*b^(11/2) + 30*B*a^2*(sqrt(b*x + a)*sqrt(b) -
 sqrt((b*x + a)*b - a*b))^2*b^(13/2) - 15*A*(sqrt(b*x + a)*sqrt(b
) - sqrt((b*x + a)*b - a*b))^4*b^(13/2) + 14*B*a^3*b^(15/2) - 36*
A*a*(sqrt(b*x + a)*sqrt(b) - sqrt((b*x + a)*b - a*b))^2*b^(15/2)
- 17*A*a^2*b^(17/2))/(((sqrt(b*x + a)*sqrt(b) - sqrt((b*x + a)*b
- a*b))^2 + a*b)^3*a^6*abs(b))
```

3.535 $\int x^3\sqrt{a+bx}\sqrt{c+dx}\,dx$

Optimal. Leaf size=302

$$\frac{(ad+bc)\left(7a^2d^2+2abcd+7b^2c^2\right)(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{128b^{9/2}d^{9/2}} - \frac{(a+bx)^{3/2}\sqrt{c+dx}(ad+bc)\left(7a^2d^2+2abcd+7b^2c^2\right)}{64b^4d^3} + \frac{(a+bx)^{3/2}(c+dx)^{3/2}\left(35a^2d^2-42bdx(ad+bc)+38abcd+35b^2c^2\right)}{240b^3d^3} - \frac{\sqrt{a+bx}\sqrt{c+dx}\left(-7a^4d^4-2a^3bcd^3+2ab^3c^3d+7b^4c^4\right)}{128b^4d^4} + \frac{x^2(a+bx)^{3/2}(c+dx)^{3/2}}{5bd}$$

```
[Out] -((7*b^4*c^4 + 2*a*b^3*c^3*d - 2*a^3*b*c*d^3 - 7*a^4*d^4)*Sqrt[a
+ b*x]*Sqrt[c + d*x])/(128*b^4*d^4) - ((b*c + a*d)*(7*b^2*c^2 + 2
*a*b*c*d + 7*a^2*d^2)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(64*b^4*d^3)
 + (x^2*(a + b*x)^(3/2)*(c + d*x)^(3/2))/(5*b*d) + ((a + b*x)^(3/
2)*(c + d*x)^(3/2)*(35*b^2*c^2 + 38*a*b*c*d + 35*a^2*d^2 - 42*b*d
*(b*c + a*d)*x))/(240*b^3*d^3) + ((b*c - a*d)^2*(b*c + a*d)*(7*b^
2*c^2 + 2*a*b*c*d + 7*a^2*d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(S
qrt[b]*Sqrt[c + d*x])])/(128*b^(9/2)*d^(9/2))
```

Rubi [A] time = 0.594678, antiderivative size = 302, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$\frac{(ad+bc)\left(7a^2d^2+2abcd+7b^2c^2\right)(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{128b^{9/2}d^{9/2}} - \frac{(a+bx)^{3/2}\sqrt{c+dx}(ad+bc)\left(7a^2d^2+2abcd+7b^2c^2\right)}{64b^4d^3} + \frac{(a+bx)^{3/2}(c+dx)^{3/2}\left(35a^2d^2-42bdx(ad+bc)+38abcd+35b^2c^2\right)}{240b^3d^3} - \frac{\sqrt{a+bx}\sqrt{c+dx}\left(-7a^4d^4-2a^3bcd^3+2ab^3c^3d+7b^4c^4\right)}{128b^4d^4} + \frac{x^2(a+bx)^{3/2}(c+dx)^{3/2}}{5bd}$$

Antiderivative was successfully verified.

```
[In]  Int[x^3*Sqrt[a + b*x]*Sqrt[c + d*x],x]
```

```
[Out] -((7*b^4*c^4 + 2*a*b^3*c^3*d - 2*a^3*b*c*d^3 - 7*a^4*d^4)*Sqrt[a
+ b*x]*Sqrt[c + d*x])/(128*b^4*d^4) - ((b*c + a*d)*(7*b^2*c^2 + 2
*a*b*c*d + 7*a^2*d^2)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(64*b^4*d^3)
 + (x^2*(a + b*x)^(3/2)*(c + d*x)^(3/2))/(5*b*d) + ((a + b*x)^(3/
2)*(c + d*x)^(3/2)*(35*b^2*c^2 + 38*a*b*c*d + 35*a^2*d^2 - 42*b*d
*(b*c + a*d)*x))/(240*b^3*d^3) + ((b*c - a*d)^2*(b*c + a*d)*(7*b^
2*c^2 + 2*a*b*c*d + 7*a^2*d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(S
qrt[b]*Sqrt[c + d*x])])/(128*b^(9/2)*d^(9/2))
```

Rubi in Sympy [A] time = 50.4239, size = 301, normalized size = 1.

$$\frac{x^2(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{3}{2}}}{5bd} + \frac{(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{3}{2}}\left(\frac{35a^2d^2}{4}+\frac{19abcd}{2}+\frac{35b^2c^2}{4}-\frac{21bdx(ad+bc)}{2}\right)}{60b^3d^3} - \frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}\,(ad+bc)\left(7a^2d^2+2abcd+7b^2c^2\right)}{64b^4d^3} + \frac{\sqrt{a+bx}\sqrt{c+dx}\left(7a^4d^4+2a^3bcd^3-2ab^3c^3d-7b^4c^4\right)}{128b^4d^4} + \frac{(ad-bc)^2(ad+bc)\left(7a^2d^2+2abcd+7b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{128b^{\frac{9}{2}}d^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3*(b*x+a)**(1/2)*(d*x+c)**(1/2),x)
```

```
[Out] x**2*(a + b*x)**(3/2)*(c + d*x)**(3/2)/(5*b*d) + (a + b*x)**(3/2)
*(c + d*x)**(3/2)*(35*a**2*d**2/4 + 19*a*b*c*d/2 + 35*b**2*c**2/4
 - 21*b*d*x*(a*d + b*c)/2)/(60*b**3*d**3) - (a + b*x)**(3/2)*sqrt
(c + d*x)*(a*d + b*c)*(7*a**2*d**2 + 2*a*b*c*d + 7*b**2*c**2)/(64
*b**4*d**3) + sqrt(a + b*x)*sqrt(c + d*x)*(7*a**4*d**4 + 2*a**3*b
*c*d**3 - 2*a*b**3*c**3*d - 7*b**4*c**4)/(128*b**4*d**4) + (a*d -
 b*c)**2*(a*d + b*c)*(7*a**2*d**2 + 2*a*b*c*d + 7*b**2*c**2)*atan
h(sqrt(b)*sqrt(c + d*x)/(sqrt(d)*sqrt(a + b*x)))/(128*b**(9/2)*d*
*(9/2))
```

Mathematica [A] time = 0.25678, size = 264, normalized size = 0.87

$$\frac{(ad+bc)\left(7a^2d^2+2abcd+7b^2c^2\right)(bc-ad)^2\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{256b^{9/2}d^{9/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(-105a^4d^4+10a^3bd^3(4c+7dx)-2a^2b^2d^2\left(-17c^2+11cdx+28d^2x^2\right)+2ab^3d\left(20c^3-11c^2dx+8cd^2x^2+\right.\right.}{1920b^4d^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^3*Sqrt[a + b*x]*Sqrt[c + d*x],x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(-105*a^4*d^4 + 10*a^3*b*d^3*(4*c +
7*d*x) - 2*a^2*b^2*d^2*(-17*c^2 + 11*c*d*x + 28*d^2*x^2) + 2*a*b^
3*d*(20*c^3 - 11*c^2*d*x + 8*c*d^2*x^2 + 24*d^3*x^3) + b^4*(-105*
c^4 + 70*c^3*d*x - 56*c^2*d^2*x^2 + 48*c*d^3*x^3 + 384*d^4*x^4)))
/(1920*b^4*d^4) + ((b*c - a*d)^2*(b*c + a*d)*(7*b^2*c^2 + 2*a*b*c
*d + 7*a^2*d^2)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[
a + b*x]*Sqrt[c + d*x]])/(256*b^(9/2)*d^(9/2))
```

Maple [B] time = 0.024, size = 942, normalized size = 3.1

$$\frac{1}{3840\,b^4d^4}\sqrt{bx+a}\sqrt{dx+c}\left(768\,x^4b^4d^4\sqrt{dx^2b+adx+bcx+ac}\sqrt{bd}+96\,x^3ab^3d^4\sqrt{dx^2b+adx+bcx+ac}\sqrt{bd}+96\,x^3b^4cd^3\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^3*(b*x+a)^(1/2)*(d*x+c)^(1/2),x)
```

```
[Out] 1/3840*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(768*x^4*b^4*d^4*(b*d*x^2+a*d*
x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+96*x^3*a*b^3*d^4*(b*d*x^2+a*d*x+b*
c*x+a*c)^(1/2)*(b*d)^(1/2)+96*x^3*b^4*c*d^3*(b*d*x^2+a*d*x+b*c*x+
a*c)^(1/2)*(b*d)^(1/2)-112*x^2*a^2*b^2*d^4*(b*d*x^2+a*d*x+b*c*x+a
*c)^(1/2)*(b*d)^(1/2)+32*x^2*a*b^3*c*d^3*(b*d*x^2+a*d*x+b*c*x+a*c
)^(1/2)*(b*d)^(1/2)-112*x^2*b^4*c^2*d^2*(b*d*x^2+a*d*x+b*c*x+a*c)
^(1/2)*(b*d)^(1/2)+105*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c
)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^5*d^5-75*ln(1/2*(2*b*
d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^
(1/2))*a^4*b*c*d^4-30*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)
^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^3*b^2*c^2*d^3-30*ln(1/
2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)
/(b*d)^(1/2))*a^2*b^3*c^3*d^2-75*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x
+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a*b^4*c^4*d+1
05*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+
a*d+b*c)/(b*d)^(1/2))*b^5*c^5+140*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*
x+a*c)^(1/2)*x*a^3*b*d^4-44*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)
^(1/2)*x*a^2*b^2*c*d^3-44*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(
1/2)*x*a*b^3*c^2*d^2+140*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1
/2)*x*b^4*c^3*d-210*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a
```

```
^4*d^4+80*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a^3*b*c*d^3
+68*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a^2*b^2*c^2*d^2+8
0*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a*b^3*c^3*d-210*(b*
d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*b^4*c^4)/(b*d*x^2+a*d*x+
b*c*x+a*c)^(1/2)/b^4/d^4/(b*d)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*sqrt(d*x + c)*x^3,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.300001, size = 1, normalized size = 0.

$$\left[\frac{4\left(384\,b^4d^4x^4 - 105\,b^4c^4 + 40\,ab^3c^3d + 34\,a^2b^2c^2d^2 + 40\,a^3bcd^3 - 105\,a^4d^4 + 48\left(b^4cd^3 + ab^3d^4\right)x^3 - 8\left(7\,b^4c^2d^2 - 2\,ab^3cd\right.\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*sqrt(d*x + c)*x^3,x, algorithm="fricas")
```

```
[Out] [1/7680*(4*(384*b^4*d^4*x^4 - 105*b^4*c^4 + 40*a*b^3*c^3*d + 34*a
^2*b^2*c^2*d^2 + 40*a^3*b*c*d^3 - 105*a^4*d^4 + 48*(b^4*c*d^3 + a
*b^3*d^4)*x^3 - 8*(7*b^4*c^2*d^2 - 2*a*b^3*c*d^3 + 7*a^2*b^2*d^4)
*x^2 + 2*(35*b^4*c^3*d - 11*a*b^3*c^2*d^2 - 11*a^2*b^2*c*d^3 + 35
*a^3*b*d^4)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 15*(7*b^5*
c^5 - 5*a*b^4*c^4*d - 2*a^2*b^3*c^3*d^2 - 2*a^3*b^2*c^2*d^3 - 5*a
^4*b*c*d^4 + 7*a^5*d^5)*log(4*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*s
qrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d
 + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/(sqrt(b*d)*b^4*
d^4), 1/3840*(2*(384*b^4*d^4*x^4 - 105*b^4*c^4 + 40*a*b^3*c^3*d +
 34*a^2*b^2*c^2*d^2 + 40*a^3*b*c*d^3 - 105*a^4*d^4 + 48*(b^4*c*d^
3 + a*b^3*d^4)*x^3 - 8*(7*b^4*c^2*d^2 - 2*a*b^3*c*d^3 + 7*a^2*b^2
*d^4)*x^2 + 2*(35*b^4*c^3*d - 11*a*b^3*c^2*d^2 - 11*a^2*b^2*c*d^3
 + 35*a^3*b*d^4)*x)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 15*(
7*b^5*c^5 - 5*a*b^4*c^4*d - 2*a^2*b^3*c^3*d^2 - 2*a^3*b^2*c^2*d^3
 - 5*a^4*b*c*d^4 + 7*a^5*d^5)*arctan(1/2*(2*b*d*x + b*c + a*d)*sq
rt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/(sqrt(-b*d)*b^4*d^4)
]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int x^3\sqrt{a + bx}\sqrt{c + dx}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**3*(b*x+a)**(1/2)*(d*x+c)**(1/2),x)
```

```
[Out] Integral(x**3*sqrt(a + b*x)*sqrt(c + d*x), x)
```

GIAC/XCAS [A] time = 0.241833, size = 491, normalized size = 1.63

$$\left(\sqrt{b^2c+(bx+a)bd-abd}\left(2\left(4\,(bx+a)\left(6\,(bx+a)\left(\frac{8\,(bx+a)}{b^3}+\frac{b^{13}cd^7-31\,ab^{12}d^8}{b^{15}d^8}\right)-\frac{7\,b^{14}c^2d^6+16\,ab^{13}cd^7-263\,a^2b^{12}d^8}{b^{15}d^8}\right)+\frac{5\,(7\,b^{15}c^3d^5+\cdots}{\cdots}\right.\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*sqrt(d*x + c)*x^3,x, algorithm="giac")
```

```
[Out] 1/1920*(sqrt(b^2*c + (b*x + a)*b*d - a*b*d)*(2*(4*(b*x + a)*(6*(b
*x + a)*(8*(b*x + a)/b^3 + (b^13*c*d^7 - 31*a*b^12*d^8)/(b^15*d^8
)) - (7*b^14*c^2*d^6 + 16*a*b^13*c*d^7 - 263*a^2*b^12*d^8)/(b^15*
d^8)) + 5*(7*b^15*c^3*d^5 + 9*a*b^14*c^2*d^6 + 9*a^2*b^13*c*d^7 -
 121*a^3*b^12*d^8)/(b^15*d^8))*(b*x + a) - 15*(7*b^16*c^4*d^4 + 2
*a*b^15*c^3*d^5 - 2*a^3*b^13*c*d^7 - 7*a^4*b^12*d^8)/(b^15*d^8))*
sqrt(b*x + a) - 15*(7*b^5*c^5 - 5*a*b^4*c^4*d - 2*a^2*b^3*c^3*d^2
 - 2*a^3*b^2*c^2*d^3 - 5*a^4*b*c*d^4 + 7*a^5*d^5)*ln(abs(-sqrt(b*
d)*sqrt(b*x + a) + sqrt(b^2*c + (b*x + a)*b*d - a*b*d)))/(sqrt(b*
d)*b^2*d^4))*abs(b)/b^3
```

3.536 $\int x^2\sqrt{a+bx}\sqrt{c+dx}\,dx$

Optimal. Leaf size=237

$$\frac{\left(4abcd-5(ad+bc)^2\right)(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{64b^{7/2}d^{7/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}\left(4abcd-5(ad+bc)^2\right)(bc-ad)}{64b^3d^3}-\frac{(a+bx)^{3/2}\sqrt{c+dx}\left(4abcd-5(ad+bc)^2\right)}{32b^3d^2}-\frac{5(a+bx)^{3/2}(c+dx)^{3/2}(ad+bc)}{24b^2d^2}+\frac{x(a+bx)^{3/2}(c+dx)^{3/2}}{4bd}$$

```
[Out] -((b*c - a*d)*(4*a*b*c*d - 5*(b*c + a*d)^2)*Sqrt[a + b*x]*Sqrt[c
+ d*x])/(64*b^3*d^3) - ((4*a*b*c*d - 5*(b*c + a*d)^2)*(a + b*x)^(
3/2)*Sqrt[c + d*x])/(32*b^3*d^2) - (5*(b*c + a*d)*(a + b*x)^(3/2)
*(c + d*x)^(3/2))/(24*b^2*d^2) + (x*(a + b*x)^(3/2)*(c + d*x)^(3/
2))/(4*b*d) + ((b*c - a*d)^2*(4*a*b*c*d - 5*(b*c + a*d)^2)*ArcTan
h[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(64*b^(7/2)*d
^(7/2))
```

Rubi [A] time = 0.472098, antiderivative size = 237, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$\frac{\left(4abcd-5(ad+bc)^2\right)(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{64b^{7/2}d^{7/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}\left(4abcd-5(ad+bc)^2\right)(bc-ad)}{64b^3d^3}-\frac{(a+bx)^{3/2}\sqrt{c+dx}\left(4abcd-5(ad+bc)^2\right)}{32b^3d^2}-\frac{5(a+bx)^{3/2}(c+dx)^{3/2}(ad+bc)}{24b^2d^2}+\frac{x(a+bx)^{3/2}(c+dx)^{3/2}}{4bd}$$

Antiderivative was successfully verified.

```
[In]  Int[x^2*Sqrt[a + b*x]*Sqrt[c + d*x],x]
```

```
[Out] -((b*c - a*d)*(4*a*b*c*d - 5*(b*c + a*d)^2)*Sqrt[a + b*x]*Sqrt[c
+ d*x])/(64*b^3*d^3) - ((4*a*b*c*d - 5*(b*c + a*d)^2)*(a + b*x)^(
3/2)*Sqrt[c + d*x])/(32*b^3*d^2) - (5*(b*c + a*d)*(a + b*x)^(3/2)
*(c + d*x)^(3/2))/(24*b^2*d^2) + (x*(a + b*x)^(3/2)*(c + d*x)^(3/
2))/(4*b*d) + ((b*c - a*d)^2*(4*a*b*c*d - 5*(b*c + a*d)^2)*ArcTan
h[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(64*b^(7/2)*d
^(7/2))
```

Rubi in Sympy [A] time = 39.7355, size = 219, normalized size = 0.92

$$\frac{x\left(a+bx\right)^{\frac{3}{2}}\left(c+dx\right)^{\frac{3}{2}}}{4bd}-\frac{5\left(a+bx\right)^{\frac{3}{2}}\left(c+dx\right)^{\frac{3}{2}}\left(ad+bc\right)}{24b^2d^2}-\frac{\left(a+bx\right)^{\frac{3}{2}}\sqrt{c+dx}\left(abcd-\frac{5(ad+bc)^2}{4}\right)}{8b^3d^2}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(ad-bc\right)\left(4abcd-5\left(ad+bc\right)^2\right)}{64b^3d^3}+\frac{\left(ad-bc\right)^2\left(abcd-\frac{5(ad+bc)^2}{4}\right)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{16b^{\frac{7}{2}}d^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(b*x+a)**(1/2)*(d*x+c)**(1/2),x)
```

```
[Out] x*(a + b*x)**(3/2)*(c + d*x)**(3/2)/(4*b*d) - 5*(a + b*x)**(3/2)*
(c + d*x)**(3/2)*(a*d + b*c)/(24*b**2*d**2) - (a + b*x)**(3/2)*sq
rt(c + d*x)*(a*b*c*d - 5*(a*d + b*c)**2/4)/(8*b**3*d**2) + sqrt(a
 + b*x)*sqrt(c + d*x)*(a*d - b*c)*(4*a*b*c*d - 5*(a*d + b*c)**2)/
(64*b**3*d**3) + (a*d - b*c)**2*(a*b*c*d - 5*(a*d + b*c)**2/4)*at
anh(sqrt(b)*sqrt(c + d*x)/(sqrt(d)*sqrt(a + b*x)))/(16*b**(7/2)*d
```

```
**(7/2))
```

Mathematica [A] time = 0.19506, size = 208, normalized size = 0.88

$$\frac{2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}\left(15a^3d^3-a^2bd^2(7c+10dx)+ab^2d\left(-7c^2+4cdx+8d^2x^2\right)+b^3\left(15c^3-10c^2dx+8cd^2x^2+48d^3x^3\right)\right)}{384b^{7/2}d^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^2*Sqrt[a + b*x]*Sqrt[c + d*x],x]
```

```
[Out] (2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]*(15*a^3*d^3 - a^2*
b*d^2*(7*c + 10*d*x) + a*b^2*d*(-7*c^2 + 4*c*d*x + 8*d^2*x^2) + b
^3*(15*c^3 - 10*c^2*d*x + 8*c*d^2*x^2 + 48*d^3*x^3)) - 3*(b*c - a
*d)^2*(5*b^2*c^2 + 6*a*b*c*d + 5*a^2*d^2)*Log[b*c + a*d + 2*b*d*x
 + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(384*b^(7/2)*d
^(7/2))
```

Maple [B] time = 0.022, size = 686, normalized size = 2.9

$$-\frac{1}{384\,b^3d^3}\sqrt{bx+a}\sqrt{dx+c}\left(-96\,x^3b^3d^3\sqrt{dx^2b+adx+bcx+ac}\sqrt{bd}-16\,x^2ab^2d^3\sqrt{dx^2b+adx+bcx+ac}\sqrt{bd}-16\,x^2b^3cd\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(b*x+a)^(1/2)*(d*x+c)^(1/2),x)
```

```
[Out] -1/384*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(-96*x^3*b^3*d^3*(b*d*x^2+a*d*
x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)-16*x^2*a*b^2*d^3*(b*d*x^2+a*d*x+b*
c*x+a*c)^(1/2)*(b*d)^(1/2)-16*x^2*b^3*c*d^2*(b*d*x^2+a*d*x+b*c*x+
a*c)^(1/2)*(b*d)^(1/2)+15*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+
a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^4*d^4-12*ln(1/2*(2
*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*
d)^(1/2))*a^3*b*c*d^3-6*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*
c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^2*b^2*c^2*d^2-12*ln(
1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*
c)/(b*d)^(1/2))*a*b^3*c^3*d+15*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b
*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*b^4*c^4+20*(b*d
)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*a^2*b*d^3-8*(b*d)^(1/2)
*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*a*b^2*c*d^2+20*(b*d)^(1/2)*(b*
d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*b^3*c^2*d-30*(b*d)^(1/2)*(b*d*x^2+
a*d*x+b*c*x+a*c)^(1/2)*a^3*d^3+14*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*
x+a*c)^(1/2)*a^2*b*c*d^2+14*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)
^(1/2)*a*b^2*c^2*d-30*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)
*b^3*c^3)/(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)/b^3/d^3/(b*d)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*sqrt(d*x + c)*x^2,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.272486, size = 1, normalized size = 0.

$$\left[\frac{4\left(48\,b^3d^3x^3+15\,b^3c^3-7\,ab^2c^2d-7\,a^2bcd^2+15\,a^3d^3+8\left(b^3cd^2+ab^2d^3\right)x^2-2\left(5\,b^3c^2d-2\,ab^2cd^2+5\,a^2bd^3\right)x\right)\sqrt{bd}\sqrt{b}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*sqrt(d*x + c)*x^2,x, algorithm="fricas")
```

```
[Out] [1/768*(4*(48*b^3*d^3*x^3 + 15*b^3*c^3 - 7*a*b^2*c^2*d - 7*a^2*b*
c*d^2 + 15*a^3*d^3 + 8*(b^3*c*d^2 + a*b^2*d^3)*x^2 - 2*(5*b^3*c^2
*d - 2*a*b^2*c*d^2 + 5*a^2*b*d^3)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt
(d*x + c) + 3*(5*b^4*c^4 - 4*a*b^3*c^3*d - 2*a^2*b^2*c^2*d^2 - 4*
a^3*b*c*d^3 + 5*a^4*d^4)*log(-4*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)
*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c
*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/(sqrt(b*d)*b^
3*d^3), 1/384*(2*(48*b^3*d^3*x^3 + 15*b^3*c^3 - 7*a*b^2*c^2*d - 7
*a^2*b*c*d^2 + 15*a^3*d^3 + 8*(b^3*c*d^2 + a*b^2*d^3)*x^2 - 2*(5*
b^3*c^2*d - 2*a*b^2*c*d^2 + 5*a^2*b*d^3)*x)*sqrt(-b*d)*sqrt(b*x +
 a)*sqrt(d*x + c) - 3*(5*b^4*c^4 - 4*a*b^3*c^3*d - 2*a^2*b^2*c^2*
d^2 - 4*a^3*b*c*d^3 + 5*a^4*d^4)*arctan(1/2*(2*b*d*x + b*c + a*d)
*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/(sqrt(-b*d)*b^3*d
^3)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int x^2\sqrt{a+bx}\sqrt{c+dx}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(b*x+a)**(1/2)*(d*x+c)**(1/2),x)
```

```
[Out] Integral(x**2*sqrt(a + b*x)*sqrt(c + d*x), x)
```

GIAC/XCAS [A] time = 0.234062, size = 386, normalized size = 1.63

$$\frac{\left(\sqrt{b^2c+(bx+a)bd-abd}\left(2\,(bx+a)\left(4\,(bx+a)\left(\frac{6\,(bx+a)}{b^2}+\frac{b^7cd^5-17\,ab^6d^6}{b^8d^6}\right)-\frac{5\,b^8c^2d^4+6\,ab^7cd^5-59\,a^2b^6d^6}{b^8d^6}\right)+\frac{3\left(5\,b^9c^3d^3+ab^8c^2d^4-a\right.}{b^8d^6}\right.\right.}{192\,b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*sqrt(d*x + c)*x^2,x, algorithm="giac")
```

```
[Out] 1/192*(sqrt(b^2*c + (b*x + a)*b*d - a*b*d)*(2*(b*x + a)*(4*(b*x +
 a)*(6*(b*x + a)/b^2 + (b^7*c*d^5 - 17*a*b^6*d^6)/(b^8*d^6)) - (5
*b^8*c^2*d^4 + 6*a*b^7*c*d^5 - 59*a^2*b^6*d^6)/(b^8*d^6)) + 3*(5*
b^9*c^3*d^3 + a*b^8*c^2*d^4 - a^2*b^7*c*d^5 - 5*a^3*b^6*d^6)/(b^8
*d^6))*sqrt(b*x + a) + 3*(5*b^4*c^4 - 4*a*b^3*c^3*d - 2*a^2*b^2*c
^2*d^2 - 4*a^3*b*c*d^3 + 5*a^4*d^4)*ln(abs(-sqrt(b*d)*sqrt(b*x +
a) + sqrt(b^2*c + (b*x + a)*b*d - a*b*d)))/(sqrt(b*d)*b*d^3))*abs
(b)/b^3
```

3.537 $\int x\sqrt{a+bx}\sqrt{c+dx}\,dx$

Optimal. Leaf size=163

$$\frac{1}{8}\sqrt{a+bx}\sqrt{c+dx}\left(\frac{a^2}{b^2}-\frac{c^2}{d^2}\right)+\frac{(ad+bc)(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8b^{5/2}d^{5/2}}-\frac{(a+bx)^{3/2}\sqrt{c+dx}(ad+bc)}{4b^2d}+\frac{(a+bx)^{3/2}(c+dx)^{3/2}}{3bd}$$

```
[Out] ((a^2/b^2 - c^2/d^2)*Sqrt[a + b*x]*Sqrt[c + d*x])/8 - ((b*c + a*d
)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(4*b^2*d) + ((a + b*x)^(3/2)*(c
+ d*x)^(3/2))/(3*b*d) + ((b*c - a*d)^2*(b*c + a*d)*ArcTanh[(Sqrt[
d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(8*b^(5/2)*d^(5/2))
```

Rubi [A] time = 0.2346, antiderivative size = 163, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.2

$$\frac{1}{8}\sqrt{a+bx}\sqrt{c+dx}\left(\frac{a^2}{b^2}-\frac{c^2}{d^2}\right)+\frac{(ad+bc)(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8b^{5/2}d^{5/2}}-\frac{(a+bx)^{3/2}\sqrt{c+dx}(ad+bc)}{4b^2d}+\frac{(a+bx)^{3/2}(c+dx)^{3/2}}{3bd}$$

Antiderivative was successfully verified.

```
[In]  Int[x*Sqrt[a + b*x]*Sqrt[c + d*x],x]
```

```
[Out] ((a^2/b^2 - c^2/d^2)*Sqrt[a + b*x]*Sqrt[c + d*x])/8 - ((b*c + a*d
)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(4*b^2*d) + ((a + b*x)^(3/2)*(c
+ d*x)^(3/2))/(3*b*d) + ((b*c - a*d)^2*(b*c + a*d)*ArcTanh[(Sqrt[
d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(8*b^(5/2)*d^(5/2))
```

Rubi in Sympy [A] time = 23.935, size = 141, normalized size = 0.87

$$\sqrt{a+bx}\sqrt{c+dx}\left(\frac{a^2}{8b^2}-\frac{c^2}{8d^2}\right)+\frac{(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{3}{2}}}{3bd}-\frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}\,(ad+bc)}{4b^2d}+\frac{(ad-bc)^2\,(ad+bc)\,\text{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8b^{\frac{5}{2}}d^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(b*x+a)**(1/2)*(d*x+c)**(1/2),x)
```

```
[Out] sqrt(a + b*x)*sqrt(c + d*x)*(a**2/(8*b**2) - c**2/(8*d**2)) + (a
+ b*x)**(3/2)*(c + d*x)**(3/2)/(3*b*d) - (a + b*x)**(3/2)*sqrt(c
+ d*x)*(a*d + b*c)/(4*b**2*d) + (a*d - b*c)**2*(a*d + b*c)*atanh(
sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c + d*x)))/(8*b**(5/2)*d**(5/
2))
```

Mathematica [A] time = 0.11901, size = 145, normalized size = 0.89

$$\frac{\sqrt{a+bx}\sqrt{c+dx}\left(-3a^2d^2+2abd(c+dx)+b^2\left(-3c^2+2cdx+8d^2x^2\right)\right)}{24b^2d^2}+\frac{(ad+bc)(bc-ad)^2\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{16b^{5/2}d^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x*Sqrt[a + b*x]*Sqrt[c + d*x],x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(-3*a^2*d^2 + 2*a*b*d*(c + d*x) + b^
2*(-3*c^2 + 2*c*d*x + 8*d^2*x^2)))/(24*b^2*d^2) + ((b*c - a*d)^2*
(b*c + a*d)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a +
b*x]*Sqrt[c + d*x]])/(16*b^(5/2)*d^(5/2))
```

Maple [B] time = 0.017, size = 472, normalized size = 2.9

$$\frac{1}{48\,b^2d^2}\sqrt{bx+a}\sqrt{dx+c}\left(16\,x^2b^2d^2\sqrt{dx^2b+adx+bcx+ac}\sqrt{bd}+3\,\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{dx^2b+adx+bcx+ac}\sqrt{bd}+ad+b\right.\right.}{\sqrt{bd}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(b*x+a)^(1/2)*(d*x+c)^(1/2),x)
```

```
[Out] 1/48*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(16*x^2*b^2*d^2*(b*d*x^2+a*d*x+b
*c*x+a*c)^(1/2)*(b*d)^(1/2)+3*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*
c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^3*d^3-3*ln(1/2
*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/
(b*d)^(1/2))*a^2*b*c*d^2-3*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x
+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a*b^2*c^2*d+3*ln(1/
2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)
/(b*d)^(1/2))*b^3*c^3+4*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/
2)*x*a*b*d^2+4*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*b^2*
c*d-6*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a^2*d^2+4*(b*d)
^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a*b*c*d-6*(b*d)^(1/2)*(b*d
*x^2+a*d*x+b*c*x+a*c)^(1/2)*b^2*c^2)/(b*d*x^2+a*d*x+b*c*x+a*c)^(1
/2)/b^2/d^2/(b*d)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*sqrt(d*x + c)*x,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.277964, size = 1, normalized size = 0.01

$$\left[\frac{4\left(8\,b^2d^2x^2-3\,b^2c^2+2\,abcd-3\,a^2d^2+2\left(b^2cd+abd^2\right)x\right)\sqrt{bd}\sqrt{bx+a}\sqrt{dx+c}+3\left(b^3c^3-ab^2c^2d-a^2bcd^2+a^3d^3\right)\log\left(\right.}{96\,\sqrt{bd}b^2d^2}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*sqrt(d*x + c)*x,x, algorithm="fricas")
```

```
[Out] [1/96*(4*(8*b^2*d^2*x^2 - 3*b^2*c^2 + 2*a*b*c*d - 3*a^2*d^2 + 2*(
b^2*c*d + a*b*d^2)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 3*(
b^3*c^3 - a*b^2*c^2*d - a^2*b*c*d^2 + a^3*d^3)*log(4*(2*b^2*d^2*x
 + b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^
2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt
(b*d)))/(sqrt(b*d)*b^2*d^2), 1/48*(2*(8*b^2*d^2*x^2 - 3*b^2*c^2 +
```

```
 2*a*b*c*d - 3*a^2*d^2 + 2*(b^2*c*d + a*b*d^2)*x)*sqrt(-b*d)*sqrt
(b*x + a)*sqrt(d*x + c) + 3*(b^3*c^3 - a*b^2*c^2*d - a^2*b*c*d^2
+ a^3*d^3)*arctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x
+ a)*sqrt(d*x + c)*b*d)))/(sqrt(-b*d)*b^2*d^2)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int x\sqrt{a+bx}\sqrt{c+dx}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(b*x+a)**(1/2)*(d*x+c)**(1/2),x)
```

```
[Out] Integral(x*sqrt(a + b*x)*sqrt(c + d*x), x)
```

GIAC/XCAS [A] time = 0.231326, size = 259, normalized size = 1.59

$$\frac{\left(\sqrt{b^2c+(bx+a)bd-abd}\sqrt{bx+a}\left(2\,(bx+a)\left(\frac{4\,(bx+a)}{b^6d^2}+\frac{bcd^3-7\,ad^4}{b^6d^6}\right)-\frac{3\,(b^2c^2d^2-a^2d^4)}{b^6d^6}\right)-\frac{3\,(b^3c^3-ab^2c^2d-a^2bcd^2+a^3d^3)\ln\left(\left|-\sqrt{bd}\sqrt{\right.\right.}{\sqrt{bd}b^5d^4}}{1920\,b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*sqrt(d*x + c)*x,x, algorithm="giac")
```

```
[Out] 1/1920*(sqrt(b^2*c + (b*x + a)*b*d - a*b*d)*sqrt(b*x + a)*(2*(b*x
 + a)*(4*(b*x + a)/(b^6*d^2) + (b*c*d^3 - 7*a*d^4)/(b^6*d^6)) - 3
*(b^2*c^2*d^2 - a^2*d^4)/(b^6*d^6)) - 3*(b^3*c^3 - a*b^2*c^2*d -
a^2*b*c*d^2 + a^3*d^3)*ln(abs(-sqrt(b*d)*sqrt(b*x + a) + sqrt(b^2
*c + (b*x + a)*b*d - a*b*d)))/(sqrt(b*d)*b^5*d^4))*abs(b)/b^4
```

3.538 $\int \sqrt{a+bx}\sqrt{c+dx}\,dx$

Optimal. Leaf size=116

$$-\frac{(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{3/2}d^{3/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}(bc-ad)}{4bd}+\frac{(a+bx)^{3/2}\sqrt{c+dx}}{2b}$$

```
[Out] ((b*c - a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*b*d) + ((a + b*x)^(3
/2)*Sqrt[c + d*x])/(2*b) - ((b*c - a*d)^2*ArcTanh[(Sqrt[d]*Sqrt[a
 + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(4*b^(3/2)*d^(3/2))
```

Rubi [A] time = 0.121118, antiderivative size = 116, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}} = 0.158$

$$-\frac{(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{3/2}d^{3/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}(bc-ad)}{4bd}+\frac{(a+bx)^{3/2}\sqrt{c+dx}}{2b}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[a + b*x]*Sqrt[c + d*x],x]
```

```
[Out] ((b*c - a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*b*d) + ((a + b*x)^(3
/2)*Sqrt[c + d*x])/(2*b) - ((b*c - a*d)^2*ArcTanh[(Sqrt[d]*Sqrt[a
 + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(4*b^(3/2)*d^(3/2))
```

Rubi in Sympy [A] time = 15.5339, size = 97, normalized size = 0.84

$$\frac{\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}}{2d}+\frac{\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)}{4bd}-\frac{(ad-bc)^2\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{\frac{3}{2}}d^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/2)*(d*x+c)**(1/2),x)
```

```
[Out] sqrt(a + b*x)*(c + d*x)**(3/2)/(2*d) + sqrt(a + b*x)*sqrt(c + d*x
)*(a*d - b*c)/(4*b*d) - (a*d - b*c)**2*atanh(sqrt(d)*sqrt(a + b*x
)/(sqrt(b)*sqrt(c + d*x)))/(4*b**(3/2)*d**(3/2))
```

Mathematica [A] time = 0.0685199, size = 110, normalized size = 0.95

$$\sqrt{a+bx}\sqrt{c+dx}\left(\frac{ad+bc}{4bd}+\frac{x}{2}\right)-\frac{(bc-ad)^2\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{8b^{3/2}d^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[a + b*x]*Sqrt[c + d*x],x]
```

```
[Out] ((b*c + a*d)/(4*b*d) + x/2)*Sqrt[a + b*x]*Sqrt[c + d*x] - ((b*c -
 a*d)^2*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]
*Sqrt[c + d*x]])/(8*b^(3/2)*d^(3/2))
```

Maple [B] time = 0., size = 305, normalized size = 2.6

$$\frac{1}{2d}\sqrt{bx+a}\,(dx+c)^{\frac{3}{2}}+\frac{a}{4b}\sqrt{bx+a}\sqrt{dx+c}-\frac{c}{4d}\sqrt{bx+a}\sqrt{dx+c}$$
$$-\frac{da^2}{8b}\sqrt{(bx+a)(dx+c)}\ln\left(1\left(\frac{ad}{2}+\frac{bc}{2}+bdx\right)\frac{1}{\sqrt{bd}}+\sqrt{dx^2b+(ad+bc)x+ac}\right)\frac{1}{\sqrt{bx+a}}\frac{1}{\sqrt{dx+c}}\frac{1}{\sqrt{bd}}$$
$$+\frac{ac}{4}\sqrt{(bx+a)(dx+c)}\ln\left(1\left(\frac{ad}{2}+\frac{bc}{2}+bdx\right)\frac{1}{\sqrt{bd}}+\sqrt{dx^2b+(ad+bc)x+ac}\right)\frac{1}{\sqrt{bx+a}}\frac{1}{\sqrt{dx+c}}\frac{1}{\sqrt{bd}}$$
$$-\frac{c^2b}{8d}\sqrt{(bx+a)(dx+c)}\ln\left(1\left(\frac{ad}{2}+\frac{bc}{2}+bdx\right)\frac{1}{\sqrt{bd}}+\sqrt{dx^2b+(ad+bc)x+ac}\right)\frac{1}{\sqrt{bx+a}}\frac{1}{\sqrt{dx+c}}\frac{1}{\sqrt{bd}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/2)*(d*x+c)^(1/2),x)
```

```
[Out] 1/2/d*(b*x+a)^(1/2)*(d*x+c)^(3/2)+1/4/b*(d*x+c)^(1/2)*(b*x+a)^(1/
2)*a-1/4/d*(d*x+c)^(1/2)*(b*x+a)^(1/2)*c-1/8*d/b*((b*x+a)*(d*x+c)
)^(1/2)/(d*x+c)^(1/2)/(b*x+a)^(1/2)*ln((1/2*a*d+1/2*b*c+b*d*x)/(b
*d)^(1/2)+(d*x^2*b+(a*d+b*c)*x+a*c)^(1/2))/(b*d)^(1/2)*a^2+1/4*((
b*x+a)*(d*x+c))^(1/2)/(d*x+c)^(1/2)/(b*x+a)^(1/2)*ln((1/2*a*d+1/2
*b*c+b*d*x)/(b*d)^(1/2)+(d*x^2*b+(a*d+b*c)*x+a*c)^(1/2))/(b*d)^(1
/2)*a*c-1/8/d*((b*x+a)*(d*x+c))^(1/2)/(d*x+c)^(1/2)/(b*x+a)^(1/2)
*ln((1/2*a*d+1/2*b*c+b*d*x)/(b*d)^(1/2)+(d*x^2*b+(a*d+b*c)*x+a*c)
^(1/2))/(b*d)^(1/2)*c^2*b
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*sqrt(d*x + c),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.256181, size = 1, normalized size = 0.01

$$\left[\frac{4\,(2\,bdx+bc+ad)\sqrt{bd}\sqrt{bx+a}\sqrt{dx+c}+\left(b^2c^2-2\,abcd+a^2d^2\right)\log\left(-4\left(2\,b^2d^2x+b^2cd+abd^2\right)\sqrt{bx+a}\sqrt{dx+c}+\left(8\,b^2d\right.\right.}{16\,\sqrt{bd}bd}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*sqrt(d*x + c),x, algorithm="fricas")
```

```
[Out] [1/16*(4*(2*b*d*x + b*c + a*d)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x +
 c) + (b^2*c^2 - 2*a*b*c*d + a^2*d^2)*log(-4*(2*b^2*d^2*x + b^2*c
*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*
c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/
(sqrt(b*d)*b*d), 1/8*(2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)*sqrt(b*x
 + a)*sqrt(d*x + c) - (b^2*c^2 - 2*a*b*c*d + a^2*d^2)*arctan(1/2*
(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d
)))/(sqrt(-b*d)*b*d)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \sqrt{a+bx}\sqrt{c+dx}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(1/2)*(d*x+c)**(1/2),x)
```

```
[Out] Integral(sqrt(a + b*x)*sqrt(c + d*x), x)
```

GIAC/XCAS [A] time = 0.229924, size = 189, normalized size = 1.63

$$\frac{\left(\sqrt{b^2c + (bx+a)bd - abd}\sqrt{bx+a}\left(\frac{2(bx+a)}{b^4d^2} + \frac{bcd-ad^2}{b^4d^4}\right) + \frac{(b^2c^2-2abcd+a^2d^2)\ln\left(\left|-\sqrt{bd}\sqrt{bx+a}+\sqrt{b^2c+(bx+a)bd-abd}\right|\right)}{\sqrt{bd}b^3d^3}\right)|b|}{96\,b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*sqrt(d*x + c),x, algorithm="giac")
```

```
[Out] 1/96*(sqrt(b^2*c + (b*x + a)*b*d - a*b*d)*sqrt(b*x + a)*(2*(b*x +
 a)/(b^4*d^2) + (b*c*d - a*d^2)/(b^4*d^4)) + (b^2*c^2 - 2*a*b*c*d
 + a^2*d^2)*ln(abs(-sqrt(b*d)*sqrt(b*x + a) + sqrt(b^2*c + (b*x +
 a)*b*d - a*b*d)))/(sqrt(b*d)*b^3*d^3))*abs(b)/b^3
```

3.539 $\int \frac{\sqrt{a+bx}\sqrt{c+dx}}{x}\,dx$

Optimal. Leaf size=110

$$\sqrt{a+bx}\sqrt{c+dx}-2\sqrt{a}\sqrt{c}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)+\frac{(ad+bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{b}\sqrt{d}}$$

```
[Out] Sqrt[a + b*x]*Sqrt[c + d*x] - 2*Sqrt[a]*Sqrt[c]*ArcTanh[(Sqrt[c]*
Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])] + ((b*c + a*d)*ArcTanh[(S
qrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(Sqrt[b]*Sqrt[d])
```

Rubi [A] time = 0.265255, antiderivative size = 110, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.227$

$$\sqrt{a+bx}\sqrt{c+dx}-2\sqrt{a}\sqrt{c}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)+\frac{(ad+bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{b}\sqrt{d}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[a + b*x]*Sqrt[c + d*x])/x,x]
```

```
[Out] Sqrt[a + b*x]*Sqrt[c + d*x] - 2*Sqrt[a]*Sqrt[c]*ArcTanh[(Sqrt[c]*
Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])] + ((b*c + a*d)*ArcTanh[(S
qrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(Sqrt[b]*Sqrt[d])
```

Rubi in Sympy [A] time = 22.7546, size = 102, normalized size = 0.93

$$-2\sqrt{a}\sqrt{c}\,\mathrm{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)+\sqrt{a+bx}\sqrt{c+dx}+\frac{(ad+bc)\,\mathrm{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{\sqrt{b}\sqrt{d}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/2)*(d*x+c)**(1/2)/x,x)
```

```
[Out] -2*sqrt(a)*sqrt(c)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c +
d*x))) + sqrt(a + b*x)*sqrt(c + d*x) + (a*d + b*c)*atanh(sqrt(b)*
sqrt(c + d*x)/(sqrt(d)*sqrt(a + b*x)))/(sqrt(b)*sqrt(d))
```

Mathematica [A] time = 0.167211, size = 153, normalized size = 1.39

$$\sqrt{a+bx}\sqrt{c+dx}-\sqrt{a}\sqrt{c}\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)+\frac{(ad+bc)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{2\sqrt{b}\sqrt{d}}+\sqrt{a}\sqrt{c}\log(x)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[a + b*x]*Sqrt[c + d*x])/x,x]
```

```
[Out] Sqrt[a + b*x]*Sqrt[c + d*x] + Sqrt[a]*Sqrt[c]*Log[x] - Sqrt[a]*Sq
rt[c]*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]
*Sqrt[c + d*x]] + ((b*c + a*d)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b
]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(2*Sqrt[b]*Sqrt[d])
```

Maple [B] time = 0.016, size = 244, normalized size = 2.2

$$\frac{1}{2}\sqrt{bx+a}\sqrt{dx+c}\left(\sqrt{ac}\ln\left(\frac{1}{2}\left(2\,bdx+2\,\sqrt{dx^2b+adx+bcx+ac}\sqrt{bd}+ad+bc\right)\frac{1}{\sqrt{bd}}\right)ad+\sqrt{ac}\ln\left(\frac{1}{2}\left(2\,bdx+2\,\sqrt{dx^2b+}\right.\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/2)*(d*x+c)^(1/2)/x,x)
```

```
[Out] 1/2*(b*x+a)^(1/2)*(d*x+c)^(1/2)*((a*c)^(1/2)*ln(1/2*(2*b*d*x+2*(b
*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a
*d+(a*c)^(1/2)*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*
(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*b*c-2*a*c*ln((a*d*x+b*c*x+2*(a*
c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*(b*d)^(1/2)+2*
(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)*(a*c)^(1/2))/(b*d*x^2
+a*d*x+b*c*x+a*c)^(1/2)/(b*d)^(1/2)/(a*c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*sqrt(d*x + c)/x,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.5504, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*sqrt(d*x + c)/x,x, algorithm="fricas")
```

```
[Out] [1/4*((b*c + a*d)*log(4*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*
x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2
*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)) + 2*sqrt(a*c)*sqrt(b*d
)*log((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a*c
 + (b*c + a*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c) + 8*(a*b*
c^2 + a^2*c*d)*x)/x^2) + 4*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c))
/sqrt(b*d), 1/2*((b*c + a*d)*arctan(1/2*(2*b*d*x + b*c + a*d)*sqr
t(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)) + sqrt(a*c)*sqrt(-b*d)
*log((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a*c
+ (b*c + a*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c) + 8*(a*b*c
^2 + a^2*c*d)*x)/x^2) + 2*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c))
/sqrt(-b*d), -1/4*(4*sqrt(-a*c)*sqrt(b*d)*arctan(1/2*(2*a*c + (b*
c + a*d)*x)/(sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c))) - (b*c + a*
d)*log(4*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x
 + c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c
*d + a*b*d^2)*x)*sqrt(b*d)) - 4*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x
+ c))/sqrt(b*d), -1/2*(2*sqrt(-a*c)*sqrt(-b*d)*arctan(1/2*(2*a*c
+ (b*c + a*d)*x)/(sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c))) - (b*c
 + a*d)*arctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a
)*sqrt(d*x + c)*b*d)) - 2*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c))
/sqrt(-b*d)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{a+bx}\sqrt{c+dx}}{x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(1/2)*(d*x+c)**(1/2)/x,x)
```

```
[Out] Integral(sqrt(a + b*x)*sqrt(c + d*x)/x, x)
```

GIAC/XCAS [A] time = 0.235657, size = 246, normalized size = 2.24

$$-\frac{\frac{4\sqrt{bd}abc\arctan\left(-\frac{b^2c+abd-\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2}{2\sqrt{-abcd}b}\right)}{\sqrt{-abcd}} - 2\sqrt{b^2c+(bx+a)bd-abd}\sqrt{bx+a} + \frac{\left(\sqrt{bd}bc+\sqrt{bd}ad\right)\ln\left(\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b\right.\right.}{d}}{2\,b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*sqrt(d*x + c)/x,x, algorithm="giac")
```

```
[Out] -1/2*(4*sqrt(b*d)*a*b*c*arctan(-1/2*(b^2*c + a*b*d - (sqrt(b*d)*s
qrt(b*x + a) - sqrt(b^2*c + (b*x + a)*b*d - a*b*d))^2)/(sqrt(-a*b
*c*d)*b))/sqrt(-a*b*c*d) - 2*sqrt(b^2*c + (b*x + a)*b*d - a*b*d)*
sqrt(b*x + a) + (sqrt(b*d)*b*c + sqrt(b*d)*a*d)*ln((sqrt(b*d)*sqr
t(b*x + a) - sqrt(b^2*c + (b*x + a)*b*d - a*b*d))^2)/d)*abs(b)/b^
2
```

3.540 $\int \frac{\sqrt{a+bx}\sqrt{c+dx}}{x^2}\,dx$

Optimal. Leaf size=115

$$-\frac{\sqrt{a+bx}\sqrt{c+dx}}{x}-\frac{(ad+bc)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{a}\sqrt{c}}+2\sqrt{b}\sqrt{d}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)$$

```
[Out] -((Sqrt[a + b*x]*Sqrt[c + d*x])/x) - ((b*c + a*d)*ArcTanh[(Sqrt[c
]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(Sqrt[a]*Sqrt[c]) + 2*
Sqrt[b]*Sqrt[d]*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c +
 d*x])]
```

Rubi [A] time = 0.252887, antiderivative size = 115, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.227$

$$-\frac{\sqrt{a+bx}\sqrt{c+dx}}{x}-\frac{(ad+bc)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{a}\sqrt{c}}+2\sqrt{b}\sqrt{d}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[a + b*x]*Sqrt[c + d*x])/x^2,x]
```

```
[Out] -((Sqrt[a + b*x]*Sqrt[c + d*x])/x) - ((b*c + a*d)*ArcTanh[(Sqrt[c
]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(Sqrt[a]*Sqrt[c]) + 2*
Sqrt[b]*Sqrt[d]*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c +
 d*x])]
```

Rubi in Sympy [A] time = 25.9541, size = 104, normalized size = 0.9

$$2\sqrt{b}\sqrt{d}\,\mathrm{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)-\frac{\sqrt{a+bx}\sqrt{c+dx}}{x}-\frac{(ad+bc)\,\mathrm{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{a}\sqrt{c}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/2)*(d*x+c)**(1/2)/x**2,x)
```

```
[Out] 2*sqrt(b)*sqrt(d)*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c + d
*x))) - sqrt(a + b*x)*sqrt(c + d*x)/x - (a*d + b*c)*atanh(sqrt(c)
*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(sqrt(a)*sqrt(c))
```

Mathematica [A] time = 0.128864, size = 170, normalized size = 1.48

$$-\frac{\sqrt{a+bx}\sqrt{c+dx}}{x}-\frac{\log(x)(-ad-bc)}{2\sqrt{a}\sqrt{c}}+\frac{(-ad-bc)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{2\sqrt{a}\sqrt{c}}+\sqrt{b}\sqrt{d}\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[a + b*x]*Sqrt[c + d*x])/x^2,x]
```

```
[Out] -((Sqrt[a + b*x]*Sqrt[c + d*x])/x) - ((-(b*c) - a*d)*Log[x])/(2*S
qrt[a]*Sqrt[c]) + ((-(b*c) - a*d)*Log[2*a*c + b*c*x + a*d*x + 2*S
```

```
qrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(2*Sqrt[a]*Sqrt[c])
+ Sqrt[b]*Sqrt[d]*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqr
t[a + b*x]*Sqrt[c + d*x]]
```

Maple [B] time = 0.017, size = 250, normalized size = 2.2

$$\frac{1}{2x}\sqrt{bx+a}\sqrt{dx+c}\left(2\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{dx^2b+adx+bcx+ac}\sqrt{bd}+ad+bc}{\sqrt{bd}}\right)xbd\sqrt{ac}-\ln\left(\frac{1}{x}\left(adx+bcx+2\,\sqrt{ac}\sqrt{dx^{2}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/2)*(d*x+c)^(1/2)/x^2,x)
```

```
[Out] 1/2*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(2*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d
*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*b*d*(a*c)
^(1/2)-ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1
/2)+2*a*c)/x)*x*a*d*(b*d)^(1/2)-ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*
d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x*b*c*(b*d)^(1/2)-2*(b*d*x
^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)*(a*c)^(1/2))/(b*d*x^2+a*d*x
+b*c*x+a*c)^(1/2)/x/(b*d)^(1/2)/(a*c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*sqrt(d*x + c)/x^2,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.392501, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*sqrt(d*x + c)/x^2,x, algorithm="fricas")
```

```
[Out] [1/4*(2*sqrt(a*c)*sqrt(b*d)*x*log(8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b
*c*d + a^2*d^2 + 4*(2*b*d*x + b*c + a*d)*sqrt(b*d)*sqrt(b*x + a)*
sqrt(d*x + c) + 8*(b^2*c*d + a*b*d^2)*x) + (b*c + a*d)*x*log(-(4*
(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c) -
 (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 +
a^2*c*d)*x)*sqrt(a*c))/x^2) - 4*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x
+ c))/(sqrt(a*c)*x), 1/4*(4*sqrt(a*c)*sqrt(-b*d)*x*arctan(1/2*(2*
b*d*x + b*c + a*d)/(sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c))) + (b
*c + a*d)*x*log(-(4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x
+ a)*sqrt(d*x + c) - (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)
*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2) - 4*sqrt(a*c)*sqr
t(b*x + a)*sqrt(d*x + c))/(sqrt(a*c)*x), -1/2*((b*c + a*d)*x*arct
an(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d*x
 + c)*a*c)) - sqrt(-a*c)*sqrt(b*d)*x*log(8*b^2*d^2*x^2 + b^2*c^2
+ 6*a*b*c*d + a^2*d^2 + 4*(2*b*d*x + b*c + a*d)*sqrt(b*d)*sqrt(b*
x + a)*sqrt(d*x + c) + 8*(b^2*c*d + a*b*d^2)*x) + 2*sqrt(-a*c)*sq
rt(b*x + a)*sqrt(d*x + c))/(sqrt(-a*c)*x), 1/2*(2*sqrt(-a*c)*sqrt
(-b*d)*x*arctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(-b*d)*sqrt(b*x +
a)*sqrt(d*x + c))) - (b*c + a*d)*x*arctan(1/2*(2*a*c + (b*c + a*d
)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d*x + c)*a*c)) - 2*sqrt(-a*c)
```

```
*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(-a*c)*x)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{a+bx}\sqrt{c+dx}}{x^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(1/2)*(d*x+c)**(1/2)/x**2,x)
```

```
[Out] Integral(sqrt(a + b*x)*sqrt(c + d*x)/x**2, x)
```

GIAC/XCAS [A] time = 0.537708, size = 4, normalized size = 0.03

$$sage_0x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*sqrt(d*x + c)/x^2,x, algorithm="giac")
```

```
[Out] sage0*x
```

3.541 $\int \frac{\sqrt{a+bx}\sqrt{c+dx}}{x^3}\,dx$

Optimal. Leaf size=122

$$\frac{(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{3/2}c^{3/2}}-\frac{\sqrt{a+bx}(c+dx)^{3/2}}{2cx^2}-\frac{\sqrt{a+bx}\sqrt{c+dx}(bc-ad)}{4acx}$$

```
[Out] -((b*c - a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*a*c*x) - (Sqrt[a +
b*x]*(c + d*x)^(3/2))/(2*c*x^2) + ((b*c - a*d)^2*ArcTanh[(Sqrt[c]
*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(4*a^(3/2)*c^(3/2))
```

Rubi [A] time = 0.208999, antiderivative size = 122, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.136

$$\frac{(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{3/2}c^{3/2}}-\frac{\sqrt{a+bx}(c+dx)^{3/2}}{2cx^2}-\frac{\sqrt{a+bx}\sqrt{c+dx}(bc-ad)}{4acx}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[a + b*x]*Sqrt[c + d*x])/x^3,x]
```

```
[Out] -((b*c - a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*a*c*x) - (Sqrt[a +
b*x]*(c + d*x)^(3/2))/(2*c*x^2) + ((b*c - a*d)^2*ArcTanh[(Sqrt[c]
*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(4*a^(3/2)*c^(3/2))
```

Rubi in Sympy [A] time = 16.6825, size = 102, normalized size = 0.84

$$-\frac{\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}}{2cx^2}+\frac{\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)}{4acx}+\frac{(ad-bc)^2\,\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{\frac{3}{2}}c^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/2)*(d*x+c)**(1/2)/x**3,x)
```

```
[Out] -sqrt(a + b*x)*(c + d*x)**(3/2)/(2*c*x**2) + sqrt(a + b*x)*sqrt(c
 + d*x)*(a*d - b*c)/(4*a*c*x) + (a*d - b*c)**2*atanh(sqrt(c)*sqrt
(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(4*a**(3/2)*c**(3/2))
```

Mathematica [A] time = 0.106433, size = 136, normalized size = 1.11

$$\frac{x^2\log(x)\left(-(bc-ad)^2\right)+x^2(bc-ad)^2\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)-2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}(2ac+ad}{8a^{3/2}c^{3/2}x^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[a + b*x]*Sqrt[c + d*x])/x^3,x]
```

```
[Out] (-2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]*(2*a*c + b*c*x +
a*d*x) - (b*c - a*d)^2*x^2*Log[x] + (b*c - a*d)^2*x^2*Log[2*a*c +
 b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/
(8*a^(3/2)*c^(3/2)*x^2)
```

Maple [B] time = 0.018, size = 305, normalized size = 2.5

$$\frac{1}{8\,acx^{2}}\sqrt{bx+a}\sqrt{dx+c}\left(\ln\left(\frac{1}{x}\left(adx+bcx+2\sqrt{ac}\sqrt{dx^{2}b+adx+bcx+ac}+2\,ac\right)\right)x^{2}a^{2}d^{2}-2\,\ln\left(\frac{adx+bcx+2\sqrt{ac}\sqrt{dx}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/2)*(d*x+c)^(1/2)/x^3,x)
```

```
[Out] 1/8*(b*x+a)^(1/2)*(d*x+c)^(1/2)/a/c*(ln((a*d*x+b*c*x+2*(a*c)^(1/2
)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^2*a^2*d^2-2*ln((a*d
*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*
x^2*a*b*c*d+ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*
c)^(1/2)+2*a*c)/x)*x^2*b^2*c^2-2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x
+a*c)^(1/2)*x*a*d-2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x
*b*c-4*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a*c*(a*c)^(1/2))/(b*d*x^2+
a*d*x+b*c*x+a*c)^(1/2)/x^2/(a*c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*sqrt(d*x + c)/x^3,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.311441, size = 1, normalized size = 0.01

$$\left[\frac{\left(b^{2}c^{2}-2\,abcd+a^{2}d^{2}\right)x^{2}\log\left(\frac{4\left(2\,a^{2}c^{2}+\left(abc^{2}+a^{2}cd\right)x\right)\sqrt{bx+a}\sqrt{dx+c}+\left(8\,a^{2}c^{2}+\left(b^{2}c^{2}+6\,abcd+a^{2}d^{2}\right)x^{2}+8\left(abc^{2}+a^{2}cd\right)x\right)\sqrt{ac}}{x^{2}}\right)-4\left(2\,ac+(b\right.}{16\sqrt{ac}acx^{2}}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*sqrt(d*x + c)/x^3,x, algorithm="fricas")
```

```
[Out] [1/16*((b^2*c^2 - 2*a*b*c*d + a^2*d^2)*x^2*log((4*(2*a^2*c^2 + (a
*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c) + (8*a^2*c^2 + (
b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqr
t(a*c))/x^2) - 4*(2*a*c + (b*c + a*d)*x)*sqrt(a*c)*sqrt(b*x + a)*
sqrt(d*x + c))/(sqrt(a*c)*a*c*x^2), 1/8*((b^2*c^2 - 2*a*b*c*d + a
^2*d^2)*x^2*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b
*x + a)*sqrt(d*x + c)*a*c)) - 2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c
)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(-a*c)*a*c*x^2)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{\sqrt{a+bx}\sqrt{c+dx}}{x^{3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(1/2)*(d*x+c)**(1/2)/x**3,x)
```

```
[Out] Integral(sqrt(a + b*x)*sqrt(c + d*x)/x**3, x)
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*sqrt(d*x + c)/x^3,x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.542 $\int \frac{\sqrt{a+bx}\sqrt{c+dx}}{x^4}\,dx$

Optimal. Leaf size=172

$$-\frac{(ad+bc)(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{5/2}c^{5/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(\frac{b^2}{a^2}-\frac{d^2}{c^2}\right)}{8x}+\frac{\sqrt{a+bx}(c+dx)^{3/2}(ad+bc)}{4ac^2x^2}-\frac{(a+bx)^{3/2}(c+dx)^{3/2}}{3acx^3}$$

```
[Out] ((b^2/a^2 - d^2/c^2)*Sqrt[a + b*x]*Sqrt[c + d*x])/(8*x) + ((b*c +
 a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(4*a*c^2*x^2) - ((a + b*x)^(
3/2)*(c + d*x)^(3/2))/(3*a*c*x^3) - ((b*c - a*d)^2*(b*c + a*d)*Ar
cTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(8*a^(5/2
)*c^(5/2))
```

Rubi [A] time = 0.319927, antiderivative size = 172, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{(ad+bc)(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{5/2}c^{5/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(\frac{b^2}{a^2}-\frac{d^2}{c^2}\right)}{8x}+\frac{\sqrt{a+bx}(c+dx)^{3/2}(ad+bc)}{4ac^2x^2}-\frac{(a+bx)^{3/2}(c+dx)^{3/2}}{3acx^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[a + b*x]*Sqrt[c + d*x])/x^4,x]
```

```
[Out] ((b^2/a^2 - d^2/c^2)*Sqrt[a + b*x]*Sqrt[c + d*x])/(8*x) + ((b*c +
 a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(4*a*c^2*x^2) - ((a + b*x)^(
3/2)*(c + d*x)^(3/2))/(3*a*c*x^3) - ((b*c - a*d)^2*(b*c + a*d)*Ar
cTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(8*a^(5/2
)*c^(5/2))
```

Rubi in Sympy [A] time = 25.5729, size = 150, normalized size = 0.87

$$-\frac{\sqrt{a+bx}\sqrt{c+dx}\left(-\frac{d^2}{8c^2}+\frac{b^2}{8a^2}\right)}{x}-\frac{(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{3}{2}}}{3acx^3}+\frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}\,(ad+bc)}{4a^2cx^2}-\frac{(ad-bc)^2(ad+bc)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{\frac{5}{2}}c^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/2)*(d*x+c)**(1/2)/x**4,x)
```

```
[Out] -sqrt(a + b*x)*sqrt(c + d*x)*(-d**2/(8*c**2) + b**2/(8*a**2))/x -
 (a + b*x)**(3/2)*(c + d*x)**(3/2)/(3*a*c*x**3) + (a + b*x)**(3/2
)*sqrt(c + d*x)*(a*d + b*c)/(4*a**2*c*x**2) - (a*d - b*c)**2*(a*d
 + b*c)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(8*a
**(5/2)*c**(5/2))
```

Mathematica [A] time = 0.180227, size = 184, normalized size = 1.07

$$\frac{-2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}\left(a^2\left(8c^2+2cdx-3d^2x^2\right)+2abcx(c+dx)-3b^2c^2x^2\right)+3x^3\log(x)(bc-ad)^2(ad+bc)-3x^3(bc-}{48a^{5/2}c^{5/2}x^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[a + b*x]*Sqrt[c + d*x])/x^4,x]
```

```
[Out] (-2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]*(-3*b^2*c^2*x^2 +
 2*a*b*c*x*(c + d*x) + a^2*(8*c^2 + 2*c*d*x - 3*d^2*x^2)) + 3*(b*
c - a*d)^2*(b*c + a*d)*x^3*Log[x] - 3*(b*c - a*d)^2*(b*c + a*d)*x
^3*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sq
rt[c + d*x]])/(48*a^(5/2)*c^(5/2)*x^3)
```

Maple [B] time = 0.021, size = 485, normalized size = 2.8

$$-\frac{1}{48\,a^2c^2x^3}\sqrt{bx+a}\sqrt{dx+c}\left(3\ln\left(\frac{adx+bcx+2\sqrt{ac}\sqrt{dx^2b+adx+bcx+ac}+2\,ac}{x}\right)x^3a^3d^3-3\ln\left(\frac{adx+bcx+2\sqrt{ac}\sqrt{}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/2)*(d*x+c)^(1/2)/x^4,x)
```

```
[Out] -1/48*(b*x+a)^(1/2)*(d*x+c)^(1/2)/a^2/c^2*(3*ln((a*d*x+b*c*x+2*(a
*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^3*a^3*d^3-3
*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*
a*c)/x)*x^3*a^2*b*c*d^2-3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+
a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^3*a*b^2*c^2*d+3*ln((a*d*x+b*c*
x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^3*b^3
*c^3-6*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^2*a^2*d^2+4*
(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^2*a*b*c*d-6*(a*c)^(
1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^2*b^2*c^2+4*(a*c)^(1/2)*(b
*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*a^2*c*d+4*(a*c)^(1/2)*(b*d*x^2+a*
d*x+b*c*x+a*c)^(1/2)*x*a*b*c^2+16*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)
*a^2*c^2*(a*c)^(1/2))/(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)/x^3/(a*c)^(
1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*sqrt(d*x + c)/x^4,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.409841, size = 1, normalized size = 0.01

$$\left[\frac{3\left(b^3c^3-ab^2c^2d-a^2bcd^2+a^3d^3\right)x^3\log\left(-\frac{4\left(2\,a^2c^2+\left(abc^2+a^2cd\right)x\right)\sqrt{bx+a}\sqrt{dx+c}-\left(8\,a^2c^2+\left(b^2c^2+6\,abcd+a^2d^2\right)x^2+8\left(abc^2+a^2cd\right)x\right)\sqrt{ac}}{x^2}\right)}{96\sqrt{ac}a^2c^2x^3}\right.$$

$$-\frac{3\left(b^3c^3-ab^2c^2d-a^2bcd^2+a^3d^3\right)x^3\arctan\left(\frac{\left(2\,ac+\left(bc+ad\right)x\right)\sqrt{-ac}}{2\sqrt{bx+a}\sqrt{dx+cac}}\right)+2\left(8\,a^2c^2-\left(3\,b^2c^2-2\,abcd+3\,a^2d^2\right)x^2+2\left(abc^2+a^2\right.\right.}{48\sqrt{-ac}a^2c^2x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*sqrt(d*x + c)/x^4,x, algorithm="fricas")
```

```
[Out] [1/96*(3*(b^3*c^3 - a*b^2*c^2*d - a^2*b*c*d^2 + a^3*d^3)*x^3*log(
-(4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x +
c) - (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(a*b*c^
2 + a^2*c*d)*x)*sqrt(a*c))/x^2) - 4*(8*a^2*c^2 - (3*b^2*c^2 - 2*a
*b*c*d + 3*a^2*d^2)*x^2 + 2*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c)*sqrt
(b*x + a)*sqrt(d*x + c))/(sqrt(a*c)*a^2*c^2*x^3), -1/48*(3*(b^3*c
^3 - a*b^2*c^2*d - a^2*b*c*d^2 + a^3*d^3)*x^3*arctan(1/2*(2*a*c +
 (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d*x + c)*a*c)) + 2
*(8*a^2*c^2 - (3*b^2*c^2 - 2*a*b*c*d + 3*a^2*d^2)*x^2 + 2*(a*b*c^
2 + a^2*c*d)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(-a*
c)*a^2*c^2*x^3)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{a+bx}\sqrt{c+dx}}{x^4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(1/2)*(d*x+c)**(1/2)/x**4,x)
```

```
[Out] Integral(sqrt(a + b*x)*sqrt(c + d*x)/x**4, x)
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*sqrt(d*x + c)/x^4,x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.543 $\int \frac{\sqrt{a+bx}\sqrt{c+dx}}{x^5}\,dx$

Optimal. Leaf size=256

$$\frac{\sqrt{a+bx}\sqrt{c+dx}\left(5a^2d^2-2abcd+5b^2c^2\right)}{96a^2c^2x^2}+\frac{\left(5a^2d^2+6abcd+5b^2c^2\right)(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{7/2}c^{7/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}(ad+bc)\left(15a^2d^2-22abcd+15b^2c^2\right)}{192a^3c^3x}-\frac{\sqrt{a+bx}\sqrt{c+dx}}{4x^4}-\frac{\sqrt{a+bx}\sqrt{c+dx}(ad+bc)}{24acx^3}$$

```
[Out] -(Sqrt[a + b*x]*Sqrt[c + d*x])/(4*x^4) - ((b*c + a*d)*Sqrt[a + b*
x]*Sqrt[c + d*x])/(24*a*c*x^3) + ((5*b^2*c^2 - 2*a*b*c*d + 5*a^2*
d^2)*Sqrt[a + b*x]*Sqrt[c + d*x])/(96*a^2*c^2*x^2) - ((b*c + a*d)
*(15*b^2*c^2 - 22*a*b*c*d + 15*a^2*d^2)*Sqrt[a + b*x]*Sqrt[c + d*
x])/(192*a^3*c^3*x) + ((b*c - a*d)^2*(5*b^2*c^2 + 6*a*b*c*d + 5*a
^2*d^2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])
/(64*a^(7/2)*c^(7/2))
```

Rubi [A] time = 0.710303, antiderivative size = 256, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$\frac{\sqrt{a+bx}\sqrt{c+dx}\left(5a^2d^2-2abcd+5b^2c^2\right)}{96a^2c^2x^2}+\frac{\left(5a^2d^2+6abcd+5b^2c^2\right)(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{7/2}c^{7/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}(ad+bc)\left(15a^2d^2-22abcd+15b^2c^2\right)}{192a^3c^3x}-\frac{\sqrt{a+bx}\sqrt{c+dx}}{4x^4}-\frac{\sqrt{a+bx}\sqrt{c+dx}(ad+bc)}{24acx^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[a + b*x]*Sqrt[c + d*x])/x^5,x]
```

```
[Out] -(Sqrt[a + b*x]*Sqrt[c + d*x])/(4*x^4) - ((b*c + a*d)*Sqrt[a + b*
x]*Sqrt[c + d*x])/(24*a*c*x^3) + ((5*b^2*c^2 - 2*a*b*c*d + 5*a^2*
d^2)*Sqrt[a + b*x]*Sqrt[c + d*x])/(96*a^2*c^2*x^2) - ((b*c + a*d)
*(15*b^2*c^2 - 22*a*b*c*d + 15*a^2*d^2)*Sqrt[a + b*x]*Sqrt[c + d*
x])/(192*a^3*c^3*x) + ((b*c - a*d)^2*(5*b^2*c^2 + 6*a*b*c*d + 5*a
^2*d^2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])
/(64*a^(7/2)*c^(7/2))
```

Rubi in Sympy [A] time = 96.5852, size = 228, normalized size = 0.89

$$-\frac{\sqrt{a+bx}\sqrt{c+dx}}{4x^4}-\frac{\sqrt{a+bx}\sqrt{c+dx}\,(ad+bc)}{24acx^3}-\frac{\sqrt{a+bx}\sqrt{c+dx}\left(12abcd-5(ad+bc)^2\right)}{96a^2c^2x^2}+\frac{\sqrt{a+bx}\sqrt{c+dx}\,(ad+bc)\left(52abcd-15(ad+bc)^2\right)}{192a^3c^3x}+\frac{(ad-bc)^2\left(5a^2d^2+6abcd+5b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{\frac{7}{2}}c^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/2)*(d*x+c)**(1/2)/x**5,x)
```

```
[Out] -sqrt(a + b*x)*sqrt(c + d*x)/(4*x**4) - sqrt(a + b*x)*sqrt(c + d*
x)*(a*d + b*c)/(24*a*c*x**3) - sqrt(a + b*x)*sqrt(c + d*x)*(12*a*
b*c*d - 5*(a*d + b*c)**2)/(96*a**2*c**2*x**2) + sqrt(a + b*x)*sqr
```

```
t(c + d*x)*(a*d + b*c)*(52*a*b*c*d - 15*(a*d + b*c)**2)/(192*a**3
*c**3*x) + (a*d - b*c)**2*(5*a**2*d**2 + 6*a*b*c*d + 5*b**2*c**2)
*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(64*a**(7/2
)*c**(7/2))
```

Mathematica [A] time = 0.249008, size = 262, normalized size = 1.02

$$\frac{-3x^4\log(x)(bc-ad)^2\left(5a^2d^2+6abcd+5b^2c^2\right)+3x^4(bc-ad)^2\left(5a^2d^2+6abcd+5b^2c^2\right)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[a + b*x]*Sqrt[c + d*x])/x^5,x]
```

```
[Out] (-2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]*(15*b^3*c^3*x^3 -
 a*b^2*c^2*x^2*(10*c + 7*d*x) + a^2*b*c*x*(8*c^2 + 4*c*d*x - 7*d^
2*x^2) + a^3*(48*c^3 + 8*c^2*d*x - 10*c*d^2*x^2 + 15*d^3*x^3)) -
3*(b*c - a*d)^2*(5*b^2*c^2 + 6*a*b*c*d + 5*a^2*d^2)*x^4*Log[x] +
3*(b*c - a*d)^2*(5*b^2*c^2 + 6*a*b*c*d + 5*a^2*d^2)*x^4*Log[2*a*c
 + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]]
)/(384*a^(7/2)*c^(7/2)*x^4)
```

Maple [B] time = 0.023, size = 705, normalized size = 2.8

$$\frac{1}{384\,a^3c^3x^4}\sqrt{bx+a}\sqrt{dx+c}\left(15\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{dx^2b+adx+bcx+ac}+2\,ac}{x}\right)x^4a^4d^4-12\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/2)*(d*x+c)^(1/2)/x^5,x)
```

```
[Out] 1/384*(b*x+a)^(1/2)*(d*x+c)^(1/2)/a^3/c^3*(15*ln((a*d*x+b*c*x+2*(
a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^4*a^4*d^4-
12*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+
2*a*c)/x)*x^4*a^3*b*c*d^3-6*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^
2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^4*a^2*b^2*c^2*d^2-12*ln((a*d
*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*
x^4*a*b^3*c^3*d+15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b
*c*x+a*c)^(1/2)+2*a*c)/x)*x^4*b^4*c^4-30*(a*c)^(1/2)*(b*d*x^2+a*d
*x+b*c*x+a*c)^(1/2)*x^3*a^3*d^3+14*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c
*x+a*c)^(1/2)*x^3*a^2*b*c*d^2+14*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x
+a*c)^(1/2)*x^3*a*b^2*c^2*d-30*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a
*c)^(1/2)*x^3*b^3*c^3+20*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1
/2)*x^2*a^3*c*d^2-8*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x
^2*a^2*b*c^2*d+20*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^2
*a*b^2*c^3-16*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*a^3*c
^2*d-16*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*a^2*b*c^3-9
6*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a^3*c^3*(a*c)^(1/2))/(b*d*x^2+a
*d*x+b*c*x+a*c)^(1/2)/x^4/(a*c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*sqrt(d*x + c)/x^5,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.771619, size = 1, normalized size = 0.

$$\left[\frac{3\left(5\,b^4c^4-4\,ab^3c^3d-2\,a^2b^2c^2d^2-4\,a^3bcd^3+5\,a^4d^4\right)x^4\log\left(\frac{4\left(2\,a^2c^2+\left(abc^2+a^2cd\right)x\right)\sqrt{bx+a}\sqrt{dx+c}+\left(8\,a^2c^2+\left(b^2c^2+6\,abcd+a^2d^2\right)x^2+8\right.}{x^2}\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*sqrt(d*x + c)/x^5,x, algorithm="fricas")
```

```
[Out] [1/768*(3*(5*b^4*c^4 - 4*a*b^3*c^3*d - 2*a^2*b^2*c^2*d^2 - 4*a^3*
b*c*d^3 + 5*a^4*d^4)*x^4*log((4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*
x)*sqrt(b*x + a)*sqrt(d*x + c) + (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*
d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2) - 4*(
48*a^3*c^3 + (15*b^3*c^3 - 7*a*b^2*c^2*d - 7*a^2*b*c*d^2 + 15*a^3
*d^3)*x^3 - 2*(5*a*b^2*c^3 - 2*a^2*b*c^2*d + 5*a^3*c*d^2)*x^2 + 8
*(a^2*b*c^3 + a^3*c^2*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c)
)/(sqrt(a*c)*a^3*c^3*x^4), 1/384*(3*(5*b^4*c^4 - 4*a*b^3*c^3*d -
2*a^2*b^2*c^2*d^2 - 4*a^3*b*c*d^3 + 5*a^4*d^4)*x^4*arctan(1/2*(2*
a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d*x + c)*a*c)
) - 2*(48*a^3*c^3 + (15*b^3*c^3 - 7*a*b^2*c^2*d - 7*a^2*b*c*d^2 +
 15*a^3*d^3)*x^3 - 2*(5*a*b^2*c^3 - 2*a^2*b*c^2*d + 5*a^3*c*d^2)*
x^2 + 8*(a^2*b*c^3 + a^3*c^2*d)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt(
d*x + c))/(sqrt(-a*c)*a^3*c^3*x^4)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{a+bx}\sqrt{c+dx}}{x^5}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(1/2)*(d*x+c)**(1/2)/x**5,x)
```

```
[Out] Integral(sqrt(a + b*x)*sqrt(c + d*x)/x**5, x)
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*sqrt(d*x + c)/x^5,x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.544 $\int \frac{\sqrt{a+bx}\sqrt{c+dx}}{x^6}\,dx$

Optimal. Leaf size=345

$$\frac{\sqrt{a+bx}\sqrt{c+dx}\left(7a^2d^2-2abcd+7b^2c^2\right)}{240a^2c^2x^3}-\frac{(ad+bc)\left(7a^2d^2+2abcd+7b^2c^2\right)(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{128a^{9/2}c^{9/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}(ad+bc)\left(35a^2d^2-46abcd+35b^2c^2\right)}{960a^3c^3x^2}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(105a^4d^4-40a^3bcd^3-34a^2b^2c^2d^2-40ab^3c^3d+105b^4c^4\right)}{1920a^4c^4x}-\frac{\sqrt{a+bx}\sqrt{c+dx}}{5x^5}-\frac{\sqrt{a+bx}\sqrt{c+dx}(ad+bc)}{40acx^4}$$

```
[Out] -(Sqrt[a + b*x]*Sqrt[c + d*x])/(5*x^5) - ((b*c + a*d)*Sqrt[a + b*
x]*Sqrt[c + d*x])/(40*a*c*x^4) + ((7*b^2*c^2 - 2*a*b*c*d + 7*a^2*
d^2)*Sqrt[a + b*x]*Sqrt[c + d*x])/(240*a^2*c^2*x^3) - ((b*c + a*d
)*(35*b^2*c^2 - 46*a*b*c*d + 35*a^2*d^2)*Sqrt[a + b*x]*Sqrt[c + d
*x])/(960*a^3*c^3*x^2) + ((105*b^4*c^4 - 40*a*b^3*c^3*d - 34*a^2*
b^2*c^2*d^2 - 40*a^3*b*c*d^3 + 105*a^4*d^4)*Sqrt[a + b*x]*Sqrt[c
+ d*x])/(1920*a^4*c^4*x) - ((b*c - a*d)^2*(b*c + a*d)*(7*b^2*c^2
+ 2*a*b*c*d + 7*a^2*d^2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]
*Sqrt[c + d*x])])/(128*a^(9/2)*c^(9/2))
```

Rubi [A] time = 1.055, antiderivative size = 345, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$\frac{\sqrt{a+bx}\sqrt{c+dx}\left(7a^2d^2-2abcd+7b^2c^2\right)}{240a^2c^2x^3}-\frac{(ad+bc)\left(7a^2d^2+2abcd+7b^2c^2\right)(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{128a^{9/2}c^{9/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}(ad+bc)\left(35a^2d^2-46abcd+35b^2c^2\right)}{960a^3c^3x^2}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(105a^4d^4-40a^3bcd^3-34a^2b^2c^2d^2-40ab^3c^3d+105b^4c^4\right)}{1920a^4c^4x}-\frac{\sqrt{a+bx}\sqrt{c+dx}}{5x^5}-\frac{\sqrt{a+bx}\sqrt{c+dx}(ad+bc)}{40acx^4}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[a + b*x]*Sqrt[c + d*x])/x^6,x]
```


```
[Out] -(Sqrt[a + b*x]*Sqrt[c + d*x])/(5*x^5) - ((b*c + a*d)*Sqrt[a + b*
x]*Sqrt[c + d*x])/(40*a*c*x^4) + ((7*b^2*c^2 - 2*a*b*c*d + 7*a^2*
d^2)*Sqrt[a + b*x]*Sqrt[c + d*x])/(240*a^2*c^2*x^3) - ((b*c + a*d
)*(35*b^2*c^2 - 46*a*b*c*d + 35*a^2*d^2)*Sqrt[a + b*x]*Sqrt[c + d
*x])/(960*a^3*c^3*x^2) + ((105*b^4*c^4 - 40*a*b^3*c^3*d - 34*a^2*
b^2*c^2*d^2 - 40*a^3*b*c*d^3 + 105*a^4*d^4)*Sqrt[a + b*x]*Sqrt[c
+ d*x])/(1920*a^4*c^4*x) - ((b*c - a*d)^2*(b*c + a*d)*(7*b^2*c^2
+ 2*a*b*c*d + 7*a^2*d^2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]
*Sqrt[c + d*x])])/(128*a^(9/2)*c^(9/2))
```

Rubi in Sympy [A] time = 171.808, size = 306, normalized size = 0.89

$$-\frac{\sqrt{a+bx}\sqrt{c+dx}}{5x^5}-\frac{\sqrt{a+bx}\sqrt{c+dx}\,(ad+bc)}{40acx^4}-\frac{\sqrt{a+bx}\sqrt{c+dx}\,\left(16abcd-7\,(ad+bc)^2\right)}{240a^2c^2x^3}+\frac{\sqrt{a+bx}\sqrt{c+dx}\,(ad+bc)\left(116abcd-35\,(ad+bc)^2\right)}{960a^3c^3x^2}+\frac{\sqrt{a+bx}\sqrt{c+dx}\,\left(256a^2b^2c^2d^2-460abcd\,(ad+bc)^2+105\,(ad+bc)^4\right)}{1920a^4c^4x}-\frac{(ad-bc)^2\,(ad+bc)\left(7a^2d^2+2abcd+7b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{128a^{\frac{9}{2}}c^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/2)*(d*x+c)**(1/2)/x**6,x)
```

```
[Out] -sqrt(a + b*x)*sqrt(c + d*x)/(5*x**5) - sqrt(a + b*x)*sqrt(c + d*
x)*(a*d + b*c)/(40*a*c*x**4) - sqrt(a + b*x)*sqrt(c + d*x)*(16*a*
b*c*d - 7*(a*d + b*c)**2)/(240*a**2*c**2*x**3) + sqrt(a + b*x)*sq
rt(c + d*x)*(a*d + b*c)*(116*a*b*c*d - 35*(a*d + b*c)**2)/(960*a*
*3*c**3*x**2) + sqrt(a + b*x)*sqrt(c + d*x)*(256*a**2*b**2*c**2*d
**2 - 460*a*b*c*d*(a*d + b*c)**2 + 105*(a*d + b*c)**4)/(1920*a**4
*c**4*x) - (a*d - b*c)**2*(a*d + b*c)*(7*a**2*d**2 + 2*a*b*c*d +
7*b**2*c**2)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))
/(128*a**(9/2)*c**(9/2))
```

Mathematica [A] time = 0.330509, size = 332, normalized size = 0.96

$$15x^5\log(x)(bc-ad)^2(ad+bc)\left(7a^2d^2+2abcd+7b^2c^2\right)-15x^5(bc-ad)^2(ad+bc)\left(7a^2d^2+2abcd+7b^2c^2\right)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a}\right.$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[a + b*x]*Sqrt[c + d*x])/x^6,x]
```

```
[Out] (-2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]*(-105*b^4*c^4*x^4
 + 10*a*b^3*c^3*x^3*(7*c + 4*d*x) - 2*a^2*b^2*c^2*x^2*(28*c^2 + 1
1*c*d*x - 17*d^2*x^2) + 2*a^3*b*c*x*(24*c^3 + 8*c^2*d*x - 11*c*d^
2*x^2 + 20*d^3*x^3) + a^4*(384*c^4 + 48*c^3*d*x - 56*c^2*d^2*x^2
+ 70*c*d^3*x^3 - 105*d^4*x^4)) + 15*(b*c - a*d)^2*(b*c + a*d)*(7*
b^2*c^2 + 2*a*b*c*d + 7*a^2*d^2)*x^5*Log[x] - 15*(b*c - a*d)^2*(b
*c + a*d)*(7*b^2*c^2 + 2*a*b*c*d + 7*a^2*d^2)*x^5*Log[2*a*c + b*c
*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(384
0*a^(9/2)*c^(9/2)*x^5)
```

Maple [B] time = 0.029, size = 967, normalized size = 2.8

$$-\frac{1}{3840\,a^4c^4x^5}\sqrt{bx+a}\sqrt{dx+c}\left(105\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{dx^2b+adx+bcx+ac}+2\,ac}{x}\right)x^5a^5d^5-75\,\ln\left(\frac{adx+bcx+2\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/2)*(d*x+c)^(1/2)/x^6,x)
```

```
[Out] -1/3840*(b*x+a)^(1/2)*(d*x+c)^(1/2)/a^4/c^4*(105*ln((a*d*x+b*c*x+
2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^5*a^5*d
^5-75*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/
2)+2*a*c)/x)*x^5*a^4*b*c*d^4-30*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*
d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^5*a^3*b^2*c^2*d^3-30*ln(
(a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)
```

```
/x)*x^5*a^2*b^3*c^3*d^2-75*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2
+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^5*a*b^4*c^4*d+105*ln((a*d*x+b
*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^5*
b^5*c^5-210*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^4*a^4*d
^4+80*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^4*a^3*b*c*d^3
+68*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^4*a^2*b^2*c^2*d
^2+80*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^4*a*b^3*c^3*d
-210*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^4*b^4*c^4+140*
(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^3*a^4*c*d^3-44*(a*c
)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^3*a^3*b*c^2*d^2-44*(a*c
)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^3*a^2*b^2*c^3*d+140*(a*
c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^3*a*b^3*c^4-112*(a*c)^
(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^2*a^4*c^2*d^2+32*(a*c)^(1
/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^2*a^3*b*c^3*d-112*(a*c)^(1/
2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^2*a^2*b^2*c^4+96*(a*c)^(1/2)
*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*a^4*c^3*d+96*(a*c)^(1/2)*(b*d*
x^2+a*d*x+b*c*x+a*c)^(1/2)*x*a^3*b*c^4+768*(b*d*x^2+a*d*x+b*c*x+a
*c)^(1/2)*a^4*c^4*(a*c)^(1/2))/(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)/x^
5/(a*c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*sqrt(d*x + c)/x^6,x, algorithm="maxima")

[Out] Exception raised: ValueError
```

Fricas [A] time = 2.87504, size = 1, normalized size = 0.

$$\left[\frac{15\left(7\,b^5c^5-5\,ab^4c^4d-2\,a^2b^3c^3d^2-2\,a^3b^2c^2d^3-5\,a^4bcd^4+7\,a^5d^5\right)x^5\log\left(-\frac{4\left(2\,a^2c^2+\left(abc^2+a^2cd\right)x\right)\sqrt{bx+a}\sqrt{dx+c}-\left(8\,a^2c^2+\left(b^2c^2\right.\right.}{x^2}\right.}{}\right.$$

$$-\frac{15\left(7\,b^5c^5-5\,ab^4c^4d-2\,a^2b^3c^3d^2-2\,a^3b^2c^2d^3-5\,a^4bcd^4+7\,a^5d^5\right)x^5\arctan\left(\frac{\left(2\,ac+\left(bc+ad\right)x\right)\sqrt{-ac}}{2\,\sqrt{bx+a}\sqrt{dx+c}ac}\right)+2\left(384\,a^4c^4-\left(105\,b\right.\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*sqrt(d*x + c)/x^6,x, algorithm="fricas")

[Out] [1/7680*(15*(7*b^5*c^5 - 5*a*b^4*c^4*d - 2*a^2*b^3*c^3*d^2 - 2*a^
3*b^2*c^2*d^3 - 5*a^4*b*c*d^4 + 7*a^5*d^5)*x^5*log(-(4*(2*a^2*c^2
 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c) - (8*a^2*c^
2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x
)*sqrt(a*c))/x^2) - 4*(384*a^4*c^4 - (105*b^4*c^4 - 40*a*b^3*c^3*
d - 34*a^2*b^2*c^2*d^2 - 40*a^3*b*c*d^3 + 105*a^4*d^4)*x^4 + 2*(3
5*a*b^3*c^4 - 11*a^2*b^2*c^3*d - 11*a^3*b*c^2*d^2 + 35*a^4*c*d^3)
*x^3 - 8*(7*a^2*b^2*c^4 - 2*a^3*b*c^3*d + 7*a^4*c^2*d^2)*x^2 + 48
*(a^3*b*c^4 + a^4*c^3*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c)
)/(sqrt(a*c)*a^4*c^4*x^5), -1/3840*(15*(7*b^5*c^5 - 5*a*b^4*c^4*d
 - 2*a^2*b^3*c^3*d^2 - 2*a^3*b^2*c^2*d^3 - 5*a^4*b*c*d^4 + 7*a^5*
d^5)*x^5*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x
+ a)*sqrt(d*x + c)*a*c)) + 2*(384*a^4*c^4 - (105*b^4*c^4 - 40*a*b
^3*c^3*d - 34*a^2*b^2*c^2*d^2 - 40*a^3*b*c*d^3 + 105*a^4*d^4)*x^4
 + 2*(35*a*b^3*c^4 - 11*a^2*b^2*c^3*d - 11*a^3*b*c^2*d^2 + 35*a^4
*c*d^3)*x^3 - 8*(7*a^2*b^2*c^4 - 2*a^3*b*c^3*d + 7*a^4*c^2*d^2)*x
^2 + 48*(a^3*b*c^4 + a^4*c^3*d)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt(
d*x + c))/(sqrt(-a*c)*a^4*c^4*x^5)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{a+bx}\sqrt{c+dx}}{x^6}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(1/2)*(d*x+c)**(1/2)/x**6,x)
```

```
[Out] Integral(sqrt(a + b*x)*sqrt(c + d*x)/x**6, x)
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*sqrt(d*x + c)/x^6,x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.545 $\int x^2\sqrt{a+bx}(c+dx)^{3/2}\,dx$

Optimal. Leaf size=315

$$-\frac{(7a^2d^2+6abcd+3b^2c^2)(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{128b^{9/2}d^{7/2}}+\frac{(a+bx)^{3/2}\sqrt{c+dx}\,(7a^2d^2+6abcd+3b^2c^2)(bc-ad)}{64b^4d^2}+\frac{\sqrt{a+bx}\sqrt{c+dx}\,(7a^2d^2+6abcd+3b^2c^2)(bc-ad)^2}{128b^4d^3}+\frac{(a+bx)^{3/2}(c+dx)^{3/2}(7a^2d^2+6abcd+3b^2c^2)}{48b^3d^2}-\frac{(a+bx)^{3/2}(c+dx)^{5/2}(7ad+5bc)}{40b^2d^2}+\frac{x(a+bx)^{3/2}(c+dx)^{5/2}}{5bd}$$

```
[Out] ((b*c - a*d)^2*(3*b^2*c^2 + 6*a*b*c*d + 7*a^2*d^2)*Sqrt[a + b*x]*
Sqrt[c + d*x])/(128*b^4*d^3) + ((b*c - a*d)*(3*b^2*c^2 + 6*a*b*c*
d + 7*a^2*d^2)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(64*b^4*d^2) + ((3*
b^2*c^2 + 6*a*b*c*d + 7*a^2*d^2)*(a + b*x)^(3/2)*(c + d*x)^(3/2))
/(48*b^3*d^2) - ((5*b*c + 7*a*d)*(a + b*x)^(3/2)*(c + d*x)^(5/2))
/(40*b^2*d^2) + (x*(a + b*x)^(3/2)*(c + d*x)^(5/2))/(5*b*d) - ((b
*c - a*d)^3*(3*b^2*c^2 + 6*a*b*c*d + 7*a^2*d^2)*ArcTanh[(Sqrt[d]*
Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(128*b^(9/2)*d^(7/2))
```

Rubi [A] time = 0.676292, antiderivative size = 315, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.227$

$$-\frac{(7a^2d^2+6abcd+3b^2c^2)(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{128b^{9/2}d^{7/2}}+\frac{(a+bx)^{3/2}\sqrt{c+dx}\,(7a^2d^2+6abcd+3b^2c^2)(bc-ad)}{64b^4d^2}+\frac{\sqrt{a+bx}\sqrt{c+dx}\,(7a^2d^2+6abcd+3b^2c^2)(bc-ad)^2}{128b^4d^3}+\frac{(a+bx)^{3/2}(c+dx)^{3/2}(7a^2d^2+6abcd+3b^2c^2)}{48b^3d^2}-\frac{(a+bx)^{3/2}(c+dx)^{5/2}(7ad+5bc)}{40b^2d^2}+\frac{x(a+bx)^{3/2}(c+dx)^{5/2}}{5bd}$$

Antiderivative was successfully verified.

```
[In]  Int[x^2*Sqrt[a + b*x]*(c + d*x)^(3/2),x]
```


```
[Out] ((b*c - a*d)^2*(3*b^2*c^2 + 6*a*b*c*d + 7*a^2*d^2)*Sqrt[a + b*x]*
Sqrt[c + d*x])/(128*b^4*d^3) + ((b*c - a*d)*(3*b^2*c^2 + 6*a*b*c*
d + 7*a^2*d^2)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(64*b^4*d^2) + ((3*
b^2*c^2 + 6*a*b*c*d + 7*a^2*d^2)*(a + b*x)^(3/2)*(c + d*x)^(3/2))
/(48*b^3*d^2) - ((5*b*c + 7*a*d)*(a + b*x)^(3/2)*(c + d*x)^(5/2))
/(40*b^2*d^2) + (x*(a + b*x)^(3/2)*(c + d*x)^(5/2))/(5*b*d) - ((b
*c - a*d)^3*(3*b^2*c^2 + 6*a*b*c*d + 7*a^2*d^2)*ArcTanh[(Sqrt[d]*
Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(128*b^(9/2)*d^(7/2))
```

Rubi in Sympy [A] time = 56.6413, size = 301, normalized size = 0.96

$$\frac{x(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{5}{2}}}{5bd}-\frac{(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{5}{2}}(7ad+5bc)}{40b^2d^2}+\frac{(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{3}{2}}\left(7a^2d^2+6abcd+3b^2c^2\right)}{48b^3d^2}-\frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}\,(ad-bc)\left(7a^2d^2+6abcd+3b^2c^2\right)}{64b^4d^2}+\frac{\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)^2\left(7a^2d^2+6abcd+3b^2c^2\right)}{128b^4d^3}+\frac{(ad-bc)^3\left(7a^2d^2+6abcd+3b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{128b^{\frac{9}{2}}d^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(d*x+c)**(3/2)*(b*x+a)**(1/2),x)
```

```
[Out] x*(a + b*x)**(3/2)*(c + d*x)**(5/2)/(5*b*d) - (a + b*x)**(3/2)*(c
 + d*x)**(5/2)*(7*a*d + 5*b*c)/(40*b**2*d**2) + (a + b*x)**(3/2)*
(c + d*x)**(3/2)*(7*a**2*d**2 + 6*a*b*c*d + 3*b**2*c**2)/(48*b**3
*d**2) - (a + b*x)**(3/2)*sqrt(c + d*x)*(a*d - b*c)*(7*a**2*d**2
+ 6*a*b*c*d + 3*b**2*c**2)/(64*b**4*d**2) + sqrt(a + b*x)*sqrt(c
+ d*x)*(a*d - b*c)**2*(7*a**2*d**2 + 6*a*b*c*d + 3*b**2*c**2)/(12
8*b**4*d**3) + (a*d - b*c)**3*(7*a**2*d**2 + 6*a*b*c*d + 3*b**2*c
**2)*atanh(sqrt(b)*sqrt(c + d*x)/(sqrt(d)*sqrt(a + b*x)))/(128*b*
*(9/2)*d**(7/2))
```

Mathematica [A] time = 0.243342, size = 258, normalized size = 0.82

$$\frac{\sqrt{a+bx}\sqrt{c+dx}\left(-105a^4d^4+10a^3bd^3(19c+7dx)-2a^2b^2d^2\left(18c^2+61cdx+28d^2x^2\right)+6ab^3d\left(-5c^3+3c^2dx+16cd^2x^2+8\right.\right.}{1920b^4d^3}-\frac{(bc-ad)^3\left(7a^2d^2+6abcd+3b^2c^2\right)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{256b^{9/2}d^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^2*Sqrt[a + b*x]*(c + d*x)^(3/2),x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(-105*a^4*d^4 + 10*a^3*b*d^3*(19*c +
 7*d*x) - 2*a^2*b^2*d^2*(18*c^2 + 61*c*d*x + 28*d^2*x^2) + 6*a*b^
3*d*(-5*c^3 + 3*c^2*d*x + 16*c*d^2*x^2 + 8*d^3*x^3) + 3*b^4*(15*c
^4 - 10*c^3*d*x + 8*c^2*d^2*x^2 + 176*c*d^3*x^3 + 128*d^4*x^4)))/
(1920*b^4*d^3) - ((b*c - a*d)^3*(3*b^2*c^2 + 6*a*b*c*d + 7*a^2*d^
2)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt
[c + d*x]])/(256*b^(9/2)*d^(7/2))
```

Maple [B] time = 0.023, size = 942, normalized size = 3.

$$\frac{1}{3840\,b^4d^3}\sqrt{bx+a}\sqrt{dx+c}\left(768\,x^4b^4d^4\sqrt{dx^2b+adx+bcx+ac}\sqrt{bd}+96\,x^3ab^3d^4\sqrt{dx^2b+adx+bcx+ac}\sqrt{bd}+1056\,x^3b^4c\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(d*x+c)^(3/2)*(b*x+a)^(1/2),x)
```

```
[Out] 1/3840*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(768*x^4*b^4*d^4*(b*d*x^2+a*d*
x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+96*x^3*a*b^3*d^4*(b*d*x^2+a*d*x+b*
c*x+a*c)^(1/2)*(b*d)^(1/2)+1056*x^3*b^4*c*d^3*(b*d*x^2+a*d*x+b*c*
```

```
x+a*c)^(1/2)*(b*d)^(1/2)-112*x^2*a^2*b^2*d^4*(b*d*x^2+a*d*x+b*c*x
+a*c)^(1/2)*(b*d)^(1/2)+192*x^2*a*b^3*c*d^3*(b*d*x^2+a*d*x+b*c*x+
a*c)^(1/2)*(b*d)^(1/2)+48*x^2*b^4*c^2*d^2*(b*d*x^2+a*d*x+b*c*x+a*
c)^(1/2)*(b*d)^(1/2)+105*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a
*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^5*d^5-225*ln(1/2*(2
*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*
d)^(1/2))*a^4*b*c*d^4+90*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a
*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^3*b^2*c^2*d^3+30*ln
(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b
*c)/(b*d)^(1/2))*a^2*b^3*c^3*d^2+45*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*
d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a*b^4*c^4*
d-45*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2
)+a*d+b*c)/(b*d)^(1/2))*b^5*c^5+140*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*
c*x+a*c)^(1/2)*x*a^3*b*d^4-244*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a
*c)^(1/2)*x*a^2*b^2*c*d^3+36*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c
)^(1/2)*x*a*b^3*c^2*d^2-60*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^
(1/2)*x*b^4*c^3*d-210*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)
*a^4*d^4+380*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a^3*b*c*
d^3-72*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a^2*b^2*c^2*d^
2-60*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a*b^3*c^3*d+90*(
b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*b^4*c^4)/(b*d*x^2+a*d*
x+b*c*x+a*c)^(1/2)/b^4/d^3/(b*d)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(3/2)*x^2,x, algorithm="maxima")

[Out] Exception raised: ValueError
```

Fricas [A] time = 0.290469, size = 1, normalized size = 0.

$$\left[\frac{4\left(384\,b^4d^4x^4 + 45\,b^4c^4 - 30\,ab^3c^3d - 36\,a^2b^2c^2d^2 + 190\,a^3bcd^3 - 105\,a^4d^4 + 48\left(11\,b^4cd^3 + ab^3d^4\right)x^3 + 8\left(3\,b^4c^2d^2 + 12\,a\right.\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(3/2)*x^2,x, algorithm="fricas")

[Out] [1/7680*(4*(384*b^4*d^4*x^4 + 45*b^4*c^4 - 30*a*b^3*c^3*d - 36*a^
2*b^2*c^2*d^2 + 190*a^3*b*c*d^3 - 105*a^4*d^4 + 48*(11*b^4*c*d^3
+ a*b^3*d^4)*x^3 + 8*(3*b^4*c^2*d^2 + 12*a*b^3*c*d^3 - 7*a^2*b^2*
d^4)*x^2 - 2*(15*b^4*c^3*d - 9*a*b^3*c^2*d^2 + 61*a^2*b^2*c*d^3 -
 35*a^3*b*d^4)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) - 15*(3*b
^5*c^5 - 3*a*b^4*c^4*d - 2*a^2*b^3*c^3*d^2 - 6*a^3*b^2*c^2*d^3 +
15*a^4*b*c*d^4 - 7*a^5*d^5)*log(4*(2*b^2*d^2*x + b^2*c*d + a*b*d^
2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b
*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/(sqrt(b*d)*
b^4*d^3), 1/3840*(2*(384*b^4*d^4*x^4 + 45*b^4*c^4 - 30*a*b^3*c^3*
d - 36*a^2*b^2*c^2*d^2 + 190*a^3*b*c*d^3 - 105*a^4*d^4 + 48*(11*b
^4*c*d^3 + a*b^3*d^4)*x^3 + 8*(3*b^4*c^2*d^2 + 12*a*b^3*c*d^3 - 7
*a^2*b^2*d^4)*x^2 - 2*(15*b^4*c^3*d - 9*a*b^3*c^2*d^2 + 61*a^2*b^
2*c*d^3 - 35*a^3*b*d^4)*x)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c)
 - 15*(3*b^5*c^5 - 3*a*b^4*c^4*d - 2*a^2*b^3*c^3*d^2 - 6*a^3*b^2*
c^2*d^3 + 15*a^4*b*c*d^4 - 7*a^5*d^5)*arctan(1/2*(2*b*d*x + b*c +
 a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/(sqrt(-b*d)*
b^4*d^3)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(d*x+c)**(3/2)*(b*x+a)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.282521, size = 887, normalized size = 2.82

$$\frac{\frac{10\left(\sqrt{b^2c+(bx+a)bd-abd}\left(2\,(bx+a)\left(4\,(bx+a)\left(\frac{6\,(bx+a)}{b^2}+\frac{b^7cd^5-17\,ab^6d^6}{b^8d^6}\right)-\frac{5\,b^8c^2d^4+6\,ab^7cd^5-59\,a^2b^6d^6}{b^8d^6}\right)+\frac{3\left(5\,b^9c^3d^3+ab^8c^2d^4-a^2b^7cd^5-5\,a^3b^6d^6\right)}{b^8d^6}\right)\sqrt{bx+a}+\frac{3\left(5\,b \ldots\right.}{}\right.}{b^2}}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(3/2)*x^2,x, algorithm="giac")
```

```
[Out] 1/1920*(10*(sqrt(b^2*c + (b*x + a)*b*d - a*b*d)*(2*(b*x + a)*(4*(
b*x + a)*(6*(b*x + a)/b^2 + (b^7*c*d^5 - 17*a*b^6*d^6)/(b^8*d^6))
 - (5*b^8*c^2*d^4 + 6*a*b^7*c*d^5 - 59*a^2*b^6*d^6)/(b^8*d^6)) +
3*(5*b^9*c^3*d^3 + a*b^8*c^2*d^4 - a^2*b^7*c*d^5 - 5*a^3*b^6*d^6)
/(b^8*d^6))*sqrt(b*x + a) + 3*(5*b^4*c^4 - 4*a*b^3*c^3*d - 2*a^2*
b^2*c^2*d^2 - 4*a^3*b*c*d^3 + 5*a^4*d^4)*ln(abs(-sqrt(b*d)*sqrt(b
*x + a) + sqrt(b^2*c + (b*x + a)*b*d - a*b*d)))/(sqrt(b*d)*b*d^3)
)*c*abs(b)/b^2 + (sqrt(b^2*c + (b*x + a)*b*d - a*b*d)*(2*(4*(b*x
+ a)*(6*(b*x + a)*(8*(b*x + a)/b^3 + (b^13*c*d^7 - 31*a*b^12*d^8)
/(b^15*d^8)) - (7*b^14*c^2*d^6 + 16*a*b^13*c*d^7 - 263*a^2*b^12*d
^8)/(b^15*d^8)) + 5*(7*b^15*c^3*d^5 + 9*a*b^14*c^2*d^6 + 9*a^2*b^
13*c*d^7 - 121*a^3*b^12*d^8)/(b^15*d^8))*(b*x + a) - 15*(7*b^16*c
^4*d^4 + 2*a*b^15*c^3*d^5 - 2*a^3*b^13*c*d^7 - 7*a^4*b^12*d^8)/(b
^15*d^8))*sqrt(b*x + a) - 15*(7*b^5*c^5 - 5*a*b^4*c^4*d - 2*a^2*b
^3*c^3*d^2 - 2*a^3*b^2*c^2*d^3 - 5*a^4*b*c*d^4 + 7*a^5*d^5)*ln(ab
s(-sqrt(b*d)*sqrt(b*x + a) + sqrt(b^2*c + (b*x + a)*b*d - a*b*d))
)/(sqrt(b*d)*b^2*d^4))*d*abs(b)/b^2)/b
```

3.546 $\int x\sqrt{a+bx}(c+dx)^{3/2}\,dx$

Optimal. Leaf size=221

$$\frac{(5ad+3bc)(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{64b^{7/2}d^{5/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}(5ad+3bc)(bc-ad)^2}{64b^3d^2}-\frac{(a+bx)^{3/2}\sqrt{c+dx}(5ad+3bc)(bc-ad)}{32b^3d}-\frac{(a+bx)^{3/2}(c+dx)^{3/2}(5ad+3bc)}{24b^2d}+\frac{(a+bx)^{3/2}(c+dx)^{5/2}}{4bd}$$

```
[Out] -((b*c - a*d)^2*(3*b*c + 5*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(64*
b^3*d^2) - ((b*c - a*d)*(3*b*c + 5*a*d)*(a + b*x)^(3/2)*Sqrt[c +
d*x])/(32*b^3*d) - ((3*b*c + 5*a*d)*(a + b*x)^(3/2)*(c + d*x)^(3/
2))/(24*b^2*d) + ((a + b*x)^(3/2)*(c + d*x)^(5/2))/(4*b*d) + ((b*
c - a*d)^3*(3*b*c + 5*a*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[
b]*Sqrt[c + d*x])])/(64*b^(7/2)*d^(5/2))
```

Rubi [A] time = 0.322321, antiderivative size = 221, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.2

$$\frac{(5ad+3bc)(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{64b^{7/2}d^{5/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}(5ad+3bc)(bc-ad)^2}{64b^3d^2}-\frac{(a+bx)^{3/2}\sqrt{c+dx}(5ad+3bc)(bc-ad)}{32b^3d}-\frac{(a+bx)^{3/2}(c+dx)^{3/2}(5ad+3bc)}{24b^2d}+\frac{(a+bx)^{3/2}(c+dx)^{5/2}}{4bd}$$

Antiderivative was successfully verified.

```
[In]  Int[x*Sqrt[a + b*x]*(c + d*x)^(3/2),x]
```



```
[Out] -((b*c - a*d)^2*(3*b*c + 5*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(64*
b^3*d^2) - ((b*c - a*d)*(3*b*c + 5*a*d)*(a + b*x)^(3/2)*Sqrt[c +
d*x])/(32*b^3*d) - ((3*b*c + 5*a*d)*(a + b*x)^(3/2)*(c + d*x)^(3/
2))/(24*b^2*d) + ((a + b*x)^(3/2)*(c + d*x)^(5/2))/(4*b*d) + ((b*
c - a*d)^3*(3*b*c + 5*a*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[
b]*Sqrt[c + d*x])])/(64*b^(7/2)*d^(5/2))
```

Rubi in Sympy [A] time = 34.853, size = 199, normalized size = 0.9

$$\frac{(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{5}{2}}}{4bd}-\frac{(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{3}{2}}(5ad+3bc)}{24b^2d}+\frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}\,(ad-bc)\,(5ad+3bc)}{32b^3d}-\frac{\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)^2\,(5ad+3bc)}{64b^3d^2}-\frac{(ad-bc)^3\,(5ad+3bc)\,\mathrm{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{64b^{\frac{7}{2}}d^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(d*x+c)**(3/2)*(b*x+a)**(1/2),x)
```

```
[Out] (a + b*x)**(3/2)*(c + d*x)**(5/2)/(4*b*d) - (a + b*x)**(3/2)*(c +
 d*x)**(3/2)*(5*a*d + 3*b*c)/(24*b**2*d) + (a + b*x)**(3/2)*sqrt(
c + d*x)*(a*d - b*c)*(5*a*d + 3*b*c)/(32*b**3*d) - sqrt(a + b*x)*
sqrt(c + d*x)*(a*d - b*c)**2*(5*a*d + 3*b*c)/(64*b**3*d**2) - (a*
d - b*c)**3*(5*a*d + 3*b*c)*atanh(sqrt(b)*sqrt(c + d*x)/(sqrt(d)*
sqrt(a + b*x)))/(64*b**(7/2)*d**(5/2))
```

Mathematica [A] time = 0.192289, size = 194, normalized size = 0.88

$$\frac{3(bc-ad)^3(5ad+3bc)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)-2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}\left(-15a^3d^3+a^2bd^2(31c+1\right.}{384b^{7/2}d^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x*Sqrt[a + b*x]*(c + d*x)^(3/2),x]
```

```
[Out] (-2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]*(-15*a^3*d^3 + a^
2*b*d^2*(31*c + 10*d*x) - a*b^2*d*(9*c^2 + 20*c*d*x + 8*d^2*x^2)
+ b^3*(9*c^3 - 6*c^2*d*x - 72*c*d^2*x^2 - 48*d^3*x^3)) + 3*(b*c -
 a*d)^3*(3*b*c + 5*a*d)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[
d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(384*b^(7/2)*d^(5/2))
```

Maple [B] time = 0.02, size = 686, normalized size = 3.1

$$-\frac{1}{384\,b^3d^2}\sqrt{bx+a}\sqrt{dx+c}\left(-96\,x^3b^3d^3\sqrt{dx^2b+adx+bcx+ac}\sqrt{bd}-16\,x^2ab^2d^3\sqrt{dx^2b+adx+bcx+ac}\sqrt{bd}-144\,x^2b^3c\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(d*x+c)^(3/2)*(b*x+a)^(1/2),x)
```

```
[Out] -1/384*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(-96*x^3*b^3*d^3*(b*d*x^2+a*d*
x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)-16*x^2*a*b^2*d^3*(b*d*x^2+a*d*x+b*
c*x+a*c)^(1/2)*(b*d)^(1/2)-144*x^2*b^3*c*d^2*(b*d*x^2+a*d*x+b*c*x
+a*c)^(1/2)*(b*d)^(1/2)+15*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x
+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^4*d^4-36*ln(1/2*(
2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b
*d)^(1/2))*a^3*b*c*d^3+18*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+
a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^2*b^2*c^2*d^2+12*l
n(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+
b*c)/(b*d)^(1/2))*a*b^3*c^3*d-9*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+
b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*b^4*c^4+20*(b*
d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*a^2*b*d^3-40*(b*d)^(1/
2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*a*b^2*c*d^2-12*(b*d)^(1/2)*(
b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*b^3*c^2*d-30*(b*d)^(1/2)*(b*d*x^
2+a*d*x+b*c*x+a*c)^(1/2)*a^3*d^3+62*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*
c*x+a*c)^(1/2)*a^2*b*c*d^2-18*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*
c)^(1/2)*a*b^2*c^2*d+18*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/
2)*b^3*c^3)/(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)/b^3/d^2/(b*d)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(3/2)*x,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.269836, size = 1, normalized size = 0.

$$\left[\frac{4\left(48\,b^3d^3x^3-9\,b^3c^3+9\,ab^2c^2d-31\,a^2bcd^2+15\,a^3d^3+8\left(9\,b^3cd^2+ab^2d^3\right)x^2+2\left(3\,b^3c^2d+10\,ab^2cd^2-5\,a^2bd^3\right)x\right)\sqrt{bd}\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(3/2)*x,x, algorithm="fricas")
```

```
[Out] [1/768*(4*(48*b^3*d^3*x^3 - 9*b^3*c^3 + 9*a*b^2*c^2*d - 31*a^2*b*
c*d^2 + 15*a^3*d^3 + 8*(9*b^3*c*d^2 + a*b^2*d^3)*x^2 + 2*(3*b^3*c
^2*d + 10*a*b^2*c*d^2 - 5*a^2*b*d^3)*x)*sqrt(b*d)*sqrt(b*x + a)*s
qrt(d*x + c) - 3*(3*b^4*c^4 - 4*a*b^3*c^3*d - 6*a^2*b^2*c^2*d^2 +
 12*a^3*b*c*d^3 - 5*a^4*d^4)*log(-4*(2*b^2*d^2*x + b^2*c*d + a*b*
d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a
*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/(sqrt(b*d
)*b^3*d^2), 1/384*(2*(48*b^3*d^3*x^3 - 9*b^3*c^3 + 9*a*b^2*c^2*d
- 31*a^2*b*c*d^2 + 15*a^3*d^3 + 8*(9*b^3*c*d^2 + a*b^2*d^3)*x^2 +
 2*(3*b^3*c^2*d + 10*a*b^2*c*d^2 - 5*a^2*b*d^3)*x)*sqrt(-b*d)*sqr
t(b*x + a)*sqrt(d*x + c) + 3*(3*b^4*c^4 - 4*a*b^3*c^3*d - 6*a^2*b
^2*c^2*d^2 + 12*a^3*b*c*d^3 - 5*a^4*d^4)*arctan(1/2*(2*b*d*x + b*
c + a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/(sqrt(-b*
d)*b^3*d^2)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(d*x+c)**(3/2)*(b*x+a)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.263997, size = 655, normalized size = 2.96

$$\frac{10\left(\sqrt{b^2c+(bx+a)bd-abd}\left(2\,(bx+a)\left(4\,(bx+a)\left(\frac{6\,(bx+a)}{b^2}+\frac{b^7cd^5-17\,ab^6d^6}{b^8d^6}\right)-\frac{5\,b^8c^2d^4+6\,ab^7cd^5-59\,a^2b^6d^6}{b^8d^6}\right)+\frac{3\left(5\,b^9c^3d^3+ab^8c^2d^4-a^2b^7cd^5-5\,a^3b^6d^6\right)}{b^8d^6}\right)\sqrt{bx+a}+\frac{3\left(5\,b\cdots\right.}{\cdots}\right.}{b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(3/2)*x,x, algorithm="giac")
```

```
[Out] 1/1920*(10*(sqrt(b^2*c + (b*x + a)*b*d - a*b*d)*(2*(b*x + a)*(4*(
b*x + a)*(6*(b*x + a)/b^2 + (b^7*c*d^5 - 17*a*b^6*d^6)/(b^8*d^6))
 - (5*b^8*c^2*d^4 + 6*a*b^7*c*d^5 - 59*a^2*b^6*d^6)/(b^8*d^6)) +
3*(5*b^9*c^3*d^3 + a*b^8*c^2*d^4 - a^2*b^7*c*d^5 - 5*a^3*b^6*d^6)
/(b^8*d^6))*sqrt(b*x + a) + 3*(5*b^4*c^4 - 4*a*b^3*c^3*d - 2*a^2*
b^2*c^2*d^2 - 4*a^3*b*c*d^3 + 5*a^4*d^4)*ln(abs(-sqrt(b*d)*sqrt(b
*x + a) + sqrt(b^2*c + (b*x + a)*b*d - a*b*d)))/(sqrt(b*d)*b*d^3)
)*d*abs(b)/b^2 + (sqrt(b^2*c + (b*x + a)*b*d - a*b*d)*sqrt(b*x +
a)*(2*(b*x + a)*(4*(b*x + a)/(b^6*d^2) + (b*c*d^3 - 7*a*d^4)/(b^6
*d^6)) - 3*(b^2*c^2*d^2 - a^2*d^4)/(b^6*d^6)) - 3*(b^3*c^3 - a*b^
2*c^2*d - a^2*b*c*d^2 + a^3*d^3)*ln(abs(-sqrt(b*d)*sqrt(b*x + a)
+ sqrt(b^2*c + (b*x + a)*b*d - a*b*d)))/(sqrt(b*d)*b^5*d^4))*c*ab
s(b)/b^3)/b
```

3.547 $\int \sqrt{a+bx}(c+dx)^{3/2}\,dx$

Optimal. Leaf size=151

$$-\frac{(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8b^{5/2}d^{3/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^2}{8b^2d}+\frac{(a+bx)^{3/2}\sqrt{c+dx}(bc-ad)}{4b^2}+\frac{(a+bx)^{3/2}(c+dx)^{3/2}}{3b}$$

```
[Out] ((b*c - a*d)^2*Sqrt[a + b*x]*Sqrt[c + d*x])/(8*b^2*d) + ((b*c - a
*d)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(4*b^2) + ((a + b*x)^(3/2)*(c
+ d*x)^(3/2))/(3*b) - ((b*c - a*d)^3*ArcTanh[(Sqrt[d]*Sqrt[a + b*
x])/(Sqrt[b]*Sqrt[c + d*x])])/(8*b^(5/2)*d^(3/2))
```

Rubi [A] time = 0.168518, antiderivative size = 151, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}} = 0.158$

$$-\frac{(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8b^{5/2}d^{3/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^2}{8b^2d}+\frac{(a+bx)^{3/2}\sqrt{c+dx}(bc-ad)}{4b^2}+\frac{(a+bx)^{3/2}(c+dx)^{3/2}}{3b}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[a + b*x]*(c + d*x)^(3/2),x]
```

```
[Out] ((b*c - a*d)^2*Sqrt[a + b*x]*Sqrt[c + d*x])/(8*b^2*d) + ((b*c - a
*d)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(4*b^2) + ((a + b*x)^(3/2)*(c
+ d*x)^(3/2))/(3*b) - ((b*c - a*d)^3*ArcTanh[(Sqrt[d]*Sqrt[a + b*
x])/(Sqrt[b]*Sqrt[c + d*x])])/(8*b^(5/2)*d^(3/2))
```

Rubi in Sympy [A] time = 22.9128, size = 129, normalized size = 0.85

$$\frac{\sqrt{a+bx}\,(c+dx)^{\frac{5}{2}}}{3d}+\frac{\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}\,(ad-bc)}{12bd}-\frac{\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)^2}{8b^2d}+\frac{(ad-bc)^3\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{8b^{\frac{5}{2}}d^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/2)*(d*x+c)**(3/2),x)
```

```
[Out] sqrt(a + b*x)*(c + d*x)**(5/2)/(3*d) + sqrt(a + b*x)*(c + d*x)**(
3/2)*(a*d - b*c)/(12*b*d) - sqrt(a + b*x)*sqrt(c + d*x)*(a*d - b*
c)**2/(8*b**2*d) + (a*d - b*c)**3*atanh(sqrt(b)*sqrt(c + d*x)/(sq
rt(d)*sqrt(a + b*x)))/(8*b**(5/2)*d**(3/2))
```

Mathematica [A] time = 0.120255, size = 140, normalized size = 0.93

$$\frac{\sqrt{a+bx}\sqrt{c+dx}\left(-3a^2d^2+2abd(4c+dx)+b^2\left(3c^2+14cdx+8d^2x^2\right)\right)}{24b^2d}-\frac{(bc-ad)^3\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{16b^{5/2}d^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[a + b*x]*(c + d*x)^(3/2),x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(-3*a^2*d^2 + 2*a*b*d*(4*c + d*x) +
b^2*(3*c^2 + 14*c*d*x + 8*d^2*x^2)))/(24*b^2*d) - ((b*c - a*d)^3*
Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c
+ d*x]])/(16*b^(5/2)*d^(3/2))
```

Maple [B] time = 0., size = 459, normalized size = 3.

$$\frac{1}{3d}\sqrt{bx+a}\,(dx+c)^{\frac{5}{2}}+\frac{a}{12b}\sqrt{bx+a}\,(dx+c)^{\frac{3}{2}}-\frac{c}{12d}\sqrt{bx+a}\,(dx+c)^{\frac{3}{2}}$$
$$-\frac{da^2}{8b^2}\sqrt{bx+a}\sqrt{dx+c}+\frac{ac}{4b}\sqrt{bx+a}\sqrt{dx+c}-\frac{c^2}{8d}\sqrt{bx+a}\sqrt{dx+c}$$
$$+\frac{d^2a^3}{16b^2}\sqrt{(bx+a)(dx+c)}\ln\left(1\left(\frac{ad}{2}+\frac{bc}{2}+bdx\right)\frac{1}{\sqrt{bd}}+\sqrt{dx^2b+(ad+bc)x+ac}\right)\frac{1}{\sqrt{bx+a}}\frac{1}{\sqrt{dx+c}}\frac{1}{\sqrt{bd}}$$
$$-\frac{3da^2c}{16b}\sqrt{(bx+a)(dx+c)}\ln\left(1\left(\frac{ad}{2}+\frac{bc}{2}+bdx\right)\frac{1}{\sqrt{bd}}+\sqrt{dx^2b+(ad+bc)x+ac}\right)\frac{1}{\sqrt{bx+a}}\frac{1}{\sqrt{dx+c}}\frac{1}{\sqrt{bd}}$$
$$+\frac{3ac^2}{16}\sqrt{(bx+a)(dx+c)}\ln\left(1\left(\frac{ad}{2}+\frac{bc}{2}+bdx\right)\frac{1}{\sqrt{bd}}+\sqrt{dx^2b+(ad+bc)x+ac}\right)\frac{1}{\sqrt{bx+a}}\frac{1}{\sqrt{dx+c}}\frac{1}{\sqrt{bd}}$$
$$-\frac{c^3b}{16d}\sqrt{(bx+a)(dx+c)}\ln\left(1\left(\frac{ad}{2}+\frac{bc}{2}+bdx\right)\frac{1}{\sqrt{bd}}+\sqrt{dx^2b+(ad+bc)x+ac}\right)\frac{1}{\sqrt{bx+a}}\frac{1}{\sqrt{dx+c}}\frac{1}{\sqrt{bd}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/2)*(d*x+c)^(3/2),x)
```

```
[Out] 1/3/d*(b*x+a)^(1/2)*(d*x+c)^(5/2)+1/12/b*(d*x+c)^(3/2)*(b*x+a)^(1
/2)*a-1/12/d*(d*x+c)^(3/2)*(b*x+a)^(1/2)*c-1/8*d/b^2*(d*x+c)^(1/2
)*(b*x+a)^(1/2)*a^2+1/4/b*(d*x+c)^(1/2)*(b*x+a)^(1/2)*a*c-1/8/d*(
d*x+c)^(1/2)*(b*x+a)^(1/2)*c^2+1/16*d^2/b^2*((b*x+a)*(d*x+c))^(1/
2)/(d*x+c)^(1/2)/(b*x+a)^(1/2)*ln((1/2*a*d+1/2*b*c+b*d*x)/(b*d)^(
1/2)+(d*x^2*b+(a*d+b*c)*x+a*c)^(1/2))/(b*d)^(1/2)*a^3-3/16*d/b*((
b*x+a)*(d*x+c))^(1/2)/(d*x+c)^(1/2)/(b*x+a)^(1/2)*ln((1/2*a*d+1/2
*b*c+b*d*x)/(b*d)^(1/2)+(d*x^2*b+(a*d+b*c)*x+a*c)^(1/2))/(b*d)^(1
/2)*a^2*c+3/16*((b*x+a)*(d*x+c))^(1/2)/(d*x+c)^(1/2)/(b*x+a)^(1/2
)*ln((1/2*a*d+1/2*b*c+b*d*x)/(b*d)^(1/2)+(d*x^2*b+(a*d+b*c)*x+a*c
)^(1/2))/(b*d)^(1/2)*a*c^2-1/16/d*((b*x+a)*(d*x+c))^(1/2)/(d*x+c)
^(1/2)/(b*x+a)^(1/2)*ln((1/2*a*d+1/2*b*c+b*d*x)/(b*d)^(1/2)+(d*x^
2*b+(a*d+b*c)*x+a*c)^(1/2))/(b*d)^(1/2)*c^3*b
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.255782, size = 1, normalized size = 0.01

$$\left[\frac{4\left(8b^2d^2x^2+3b^2c^2+8abcd-3a^2d^2+2\left(7b^2cd+abd^2\right)x\right)\sqrt{bd}\sqrt{bx+a}\sqrt{dx+c}-3\left(b^3c^3-3ab^2c^2d+3a^2bcd^2-a^3d^3\right)}{96\sqrt{bd}b^2d}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(3/2),x, algorithm="fricas")
```

```
[Out] [1/96*(4*(8*b^2*d^2*x^2 + 3*b^2*c^2 + 8*a*b*c*d - 3*a^2*d^2 + 2*(
7*b^2*c*d + a*b*d^2)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) - 3
*(b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*log(4*(2*b^2
*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*
d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x
)*sqrt(b*d)))/(sqrt(b*d)*b^2*d), 1/48*(2*(8*b^2*d^2*x^2 + 3*b^2*c
^2 + 8*a*b*c*d - 3*a^2*d^2 + 2*(7*b^2*c*d + a*b*d^2)*x)*sqrt(-b*d
)*sqrt(b*x + a)*sqrt(d*x + c) - 3*(b^3*c^3 - 3*a*b^2*c^2*d + 3*a^
2*b*c*d^2 - a^3*d^3)*arctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/
(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/(sqrt(-b*d)*b^2*d)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(1/2)*(d*x+c)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.254998, size = 458, normalized size = 3.03

$$\frac{\frac{20\left(\sqrt{b^2c+(bx+a)bd-abd}\sqrt{bx+a}\left(\frac{2(bx+a)}{b^4d^2}+\frac{bcd-ad^2}{b^4d^4}\right)+\frac{\left(b^2c^2-2abcd+a^2d^2\right)\ln\left(\left|-\sqrt{bd}\sqrt{bx+a}+\sqrt{b^2c+(bx+a)bd-abd}\right|\right)}{\sqrt{bd}b^3d^3}\right)c|b|}{b^2}+\frac{\left(\sqrt{b^2c+(bx+a)bd-abd}\sqrt{bx+a}\left(2(bx\right.\right.}{}}{1920b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(3/2),x, algorithm="giac")
```

```
[Out] 1/1920*(20*(sqrt(b^2*c + (b*x + a)*b*d - a*b*d)*sqrt(b*x + a)*(2*
(b*x + a)/(b^4*d^2) + (b*c*d - a*d^2)/(b^4*d^4)) + (b^2*c^2 - 2*a
*b*c*d + a^2*d^2)*ln(abs(-sqrt(b*d)*sqrt(b*x + a) + sqrt(b^2*c +
(b*x + a)*b*d - a*b*d)))/(sqrt(b*d)*b^3*d^3))*c*abs(b)/b^2 + (sqr
t(b^2*c + (b*x + a)*b*d - a*b*d)*sqrt(b*x + a)*(2*(b*x + a)*(4*(b
*x + a)/(b^6*d^2) + (b*c*d^3 - 7*a*d^4)/(b^6*d^6)) - 3*(b^2*c^2*d
^2 - a^2*d^4)/(b^6*d^6)) - 3*(b^3*c^3 - a*b^2*c^2*d - a^2*b*c*d^2
 + a^3*d^3)*ln(abs(-sqrt(b*d)*sqrt(b*x + a) + sqrt(b^2*c + (b*x +
 a)*b*d - a*b*d)))/(sqrt(b*d)*b^5*d^4))*d*abs(b)/b^3)/b
```

3.548 $\int \frac{\sqrt{a+bx}(c+dx)^{3/2}}{x}\,dx$

Optimal. Leaf size=165

$$\frac{\left(-a^2d^2+6abcd+3b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{3/2}\sqrt{d}} - 2\sqrt{a}c^{3/2}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)+\frac{1}{2}\sqrt{a+bx}(c+dx)^{3/2}+\frac{\sqrt{a+bx}\sqrt{c+dx}(ad+3bc)}{4b}$$

```
[Out] ((3*b*c + a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*b) + (Sqrt[a + b*x
]*(c + d*x)^(3/2))/2 - 2*Sqrt[a]*c^(3/2)*ArcTanh[(Sqrt[c]*Sqrt[a
+ b*x])/(Sqrt[a]*Sqrt[c + d*x])] + ((3*b^2*c^2 + 6*a*b*c*d - a^2*
d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(4
*b^(3/2)*Sqrt[d])
```

Rubi [A] time = 0.461458, antiderivative size = 165, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.273

$$\frac{\left(-a^2d^2+6abcd+3b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{3/2}\sqrt{d}} - 2\sqrt{a}c^{3/2}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)+\frac{1}{2}\sqrt{a+bx}(c+dx)^{3/2}+\frac{\sqrt{a+bx}\sqrt{c+dx}(ad+3bc)}{4b}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[a + b*x]*(c + d*x)^(3/2))/x,x]
```

```
[Out] ((3*b*c + a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*b) + (Sqrt[a + b*x
]*(c + d*x)^(3/2))/2 - 2*Sqrt[a]*c^(3/2)*ArcTanh[(Sqrt[c]*Sqrt[a
+ b*x])/(Sqrt[a]*Sqrt[c + d*x])] + ((3*b^2*c^2 + 6*a*b*c*d - a^2*
d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(4
*b^(3/2)*Sqrt[d])
```

Rubi in Sympy [A] time = 40.1357, size = 151, normalized size = 0.92

$$-2\sqrt{a}c^{\frac{3}{2}}\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)+\frac{\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}}{2}+\frac{\sqrt{a+bx}\sqrt{c+dx}\,(ad+3bc)}{4b}-\frac{\left(a^2d^2-6abcd-3b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{\frac{3}{2}}\sqrt{d}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(3/2)*(b*x+a)**(1/2)/x,x)
```

```
[Out] -2*sqrt(a)*c**(3/2)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c +
 d*x))) + sqrt(a + b*x)*(c + d*x)**(3/2)/2 + sqrt(a + b*x)*sqrt(c
 + d*x)*(a*d + 3*b*c)/(4*b) - (a**2*d**2 - 6*a*b*c*d - 3*b**2*c**
2)*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c + d*x)))/(4*b**(3/
2)*sqrt(d))
```

Mathematica [A] time = 0.312552, size = 188, normalized size = 1.14

$$\frac{(-a^2d^2+6abcd+3b^2c^2)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{8b^{3/2}\sqrt{d}} - \sqrt{a}c^{3/2}\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right) + \frac{\sqrt{a+bx}\sqrt{c+dx}(ad+5bc+2bdx)}{4b} + \sqrt{a}c^{3/2}\log(x)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[a + b*x]*(c + d*x)^(3/2))/x,x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(5*b*c + a*d + 2*b*d*x))/(4*b) + Sqr
t[a]*c^(3/2)*Log[x] - Sqrt[a]*c^(3/2)*Log[2*a*c + b*c*x + a*d*x +
 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]] + ((3*b^2*c^2 + 6
*a*b*c*d - a^2*d^2)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*S
qrt[a + b*x]*Sqrt[c + d*x]])/(8*b^(3/2)*Sqrt[d])
```

Maple [B] time = 0.02, size = 388, normalized size = 2.4

$$-\frac{1}{8b}\sqrt{bx+a}\sqrt{dx+c}\left(d^2\ln\left(\frac{1}{2}\left(2bdx+2\sqrt{dx^2b+adx+bcx+ac}\sqrt{bd}+ad+bc\right)\frac{1}{\sqrt{bd}}\right)a^2\sqrt{ac}-6d\ln\left(1/2\,\frac{2bdx+2\sqrt{d}}{}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(3/2)*(b*x+a)^(1/2)/x,x)
```

```
[Out] -1/8*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(d^2*ln(1/2*(2*b*d*x+2*(b*d*x^2+
a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^2*(a*c
)^(1/2)-6*d*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*
d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a*c*b*(a*c)^(1/2)-3*b^2*ln(1/2*(2*
b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d
)^(1/2))*c^2*(a*c)^(1/2)+8*a*c^2*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b
*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*b*(b*d)^(1/2)-4*d*(b*d*x^
2+a*d*x+b*c*x+a*c)^(1/2)*x*b*(b*d)^(1/2)*(a*c)^(1/2)-2*d*(b*d*x^2
+a*d*x+b*c*x+a*c)^(1/2)*a*(b*d)^(1/2)*(a*c)^(1/2)-10*(b*d*x^2+a*d
*x+b*c*x+a*c)^(1/2)*c*b*(b*d)^(1/2)*(a*c)^(1/2))/(b*d*x^2+a*d*x+b
*c*x+a*c)^(1/2)/b/(b*d)^(1/2)/(a*c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(3/2)/x,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 2.0583, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(3/2)/x,x, algorithm="fricas")
```

```
[Out] [1/16*(8*sqrt(a*c)*sqrt(b*d)*b*c*log((8*a^2*c^2 + (b^2*c^2 + 6*a*
b*c*d + a^2*d^2)*x^2 - 4*(2*a*c + (b*c + a*d)*x)*sqrt(a*c)*sqrt(b
*x + a)*sqrt(d*x + c) + 8*(a*b*c^2 + a^2*c*d)*x)/x^2) + 4*(2*b*d*
x + 5*b*c + a*d)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) - (3*b^2*c
^2 + 6*a*b*c*d - a^2*d^2)*log(-4*(2*b^2*d^2*x + b^2*c*d + a*b*d^2
)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*
c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/(sqrt(b*d)*b
), 1/8*(4*sqrt(a*c)*sqrt(-b*d)*b*c*log((8*a^2*c^2 + (b^2*c^2 + 6*
a*b*c*d + a^2*d^2)*x^2 - 4*(2*a*c + (b*c + a*d)*x)*sqrt(a*c)*sqrt
(b*x + a)*sqrt(d*x + c) + 8*(a*b*c^2 + a^2*c*d)*x)/x^2) + 2*(2*b*
d*x + 5*b*c + a*d)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c) + (3*b^
2*c^2 + 6*a*b*c*d - a^2*d^2)*arctan(1/2*(2*b*d*x + b*c + a*d)*sqr
t(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/(sqrt(-b*d)*b), -1/16
*(16*sqrt(-a*c)*sqrt(b*d)*b*c*arctan(1/2*(2*a*c + (b*c + a*d)*x)/
(sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c))) - 4*(2*b*d*x + 5*b*c +
a*d)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) + (3*b^2*c^2 + 6*a*b*c
*d - a^2*d^2)*log(-4*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*x +
 a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^
2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/(sqrt(b*d)*b), -1/8*(8*s
qrt(-a*c)*sqrt(-b*d)*b*c*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt
(-a*c)*sqrt(b*x + a)*sqrt(d*x + c))) - 2*(2*b*d*x + 5*b*c + a*d)*
sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c) - (3*b^2*c^2 + 6*a*b*c*d -
 a^2*d^2)*arctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x +
 a)*sqrt(d*x + c)*b*d)))/(sqrt(-b*d)*b)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{a + bx}\,(c + dx)^{\frac{3}{2}}}{x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(3/2)*(b*x+a)**(1/2)/x,x)
```

```
[Out] Integral(sqrt(a + b*x)*(c + d*x)**(3/2)/x, x)
```

GIAC/XCAS [A] time = 0.263581, size = 346, normalized size = 2.1

$$-\frac{2\,\sqrt{bd}ac^2|b|\arctan\left(-\frac{b^2c+abd-\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2}{2\,\sqrt{-abcd}b}\right)}{\sqrt{-abcd}b}+\frac{1}{4}\,\sqrt{b^2c+(bx+a)bd-abd}\sqrt{bx+a}\left(\frac{2\,(bx+a)d|b|}{b^3}+\frac{5\,b^4cd^2|b|-ab^3d^3|b|}{b^6d^2}\right)-\frac{\left(3\,\sqrt{bd}b^2c^2|b|+6\,\sqrt{bd}abcd|b|-\sqrt{bd}a^2d^2|b|\right)\ln\left(\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2\right)}{8\,b^3d}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(3/2)/x,x, algorithm="giac")
```

```
[Out] -2*sqrt(b*d)*a*c^2*abs(b)*arctan(-1/2*(b^2*c + a*b*d - (sqrt(b*d)
*sqrt(b*x + a) - sqrt(b^2*c + (b*x + a)*b*d - a*b*d))^2)/(sqrt(-a
*b*c*d)*b))/(sqrt(-a*b*c*d)*b) + 1/4*sqrt(b^2*c + (b*x + a)*b*d -
 a*b*d)*sqrt(b*x + a)*(2*(b*x + a)*d*abs(b)/b^3 + (5*b^4*c*d^2*ab
s(b) - a*b^3*d^3*abs(b))/(b^6*d^2)) - 1/8*(3*sqrt(b*d)*b^2*c^2*ab
s(b) + 6*sqrt(b*d)*a*b*c*d*abs(b) - sqrt(b*d)*a^2*d^2*abs(b))*ln(
(sqrt(b*d)*sqrt(b*x + a) - sqrt(b^2*c + (b*x + a)*b*d - a*b*d))^2
)/(b^3*d)
```

3.549 $\int \frac{\sqrt{a+bx}(c+dx)^{3/2}}{x^2}\,dx$

Optimal. Leaf size=144

$$-\frac{\sqrt{a+bx}(c+dx)^{3/2}}{x}+2d\sqrt{a+bx}\sqrt{c+dx}-\frac{\sqrt{c}(3ad+bc)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{a}}+\frac{\sqrt{d}(ad+3bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{b}}$$

```
[Out] 2*d*Sqrt[a + b*x]*Sqrt[c + d*x] - (Sqrt[a + b*x]*(c + d*x)^(3/2))
/x - (Sqrt[c]*(b*c + 3*a*d)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt
[a]*Sqrt[c + d*x])])/Sqrt[a] + (Sqrt[d]*(3*b*c + a*d)*ArcTanh[(Sq
rt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/Sqrt[b]
```

Rubi [A] time = 0.41615, antiderivative size = 144, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.273

$$-\frac{\sqrt{a+bx}(c+dx)^{3/2}}{x}+2d\sqrt{a+bx}\sqrt{c+dx}-\frac{\sqrt{c}(3ad+bc)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{a}}+\frac{\sqrt{d}(ad+3bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{b}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[a + b*x]*(c + d*x)^(3/2))/x^2,x]
```

```
[Out] 2*d*Sqrt[a + b*x]*Sqrt[c + d*x] - (Sqrt[a + b*x]*(c + d*x)^(3/2))
/x - (Sqrt[c]*(b*c + 3*a*d)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt
[a]*Sqrt[c + d*x])])/Sqrt[a] + (Sqrt[d]*(3*b*c + a*d)*ArcTanh[(Sq
rt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/Sqrt[b]
```

Rubi in Sympy [A] time = 47.7169, size = 133, normalized size = 0.92

$$2d\sqrt{a+bx}\sqrt{c+dx}-\frac{\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}}{x}+\frac{\sqrt{d}\,(ad+3bc)\,\mathrm{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{b}}-\frac{\sqrt{c}\,(3ad+bc)\,\mathrm{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{a}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(3/2)*(b*x+a)**(1/2)/x**2,x)
```

```
[Out] 2*d*sqrt(a + b*x)*sqrt(c + d*x) - sqrt(a + b*x)*(c + d*x)**(3/2)/
x + sqrt(d)*(a*d + 3*b*c)*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sq
rt(c + d*x)))/sqrt(b) - sqrt(c)*(3*a*d + b*c)*atanh(sqrt(c)*sqrt(
a + b*x)/(sqrt(a)*sqrt(c + d*x)))/sqrt(a)
```

Mathematica [A] time = 0.357311, size = 180, normalized size = 1.25

$$\frac{1}{2}\left(2\sqrt{a+bx}\sqrt{c+dx}\left(d-\frac{c}{x}\right)+\frac{\sqrt{c}\log(x)(3ad+bc)}{\sqrt{a}}-\frac{\sqrt{c}(3ad+bc)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{\sqrt{a}}+\frac{\sqrt{d}(ad+3bc)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{\sqrt{b}}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[a + b*x]*(c + d*x)^(3/2))/x^2,x]
```

```
[Out] (2*(d - c/x)*Sqrt[a + b*x]*Sqrt[c + d*x] + (Sqrt[c]*(b*c + 3*a*d)
*Log[x])/Sqrt[a] - (Sqrt[c]*(b*c + 3*a*d)*Log[2*a*c + b*c*x + a*d
*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/Sqrt[a] + (S
qrt[d]*(3*b*c + a*d)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*
Sqrt[a + b*x]*Sqrt[c + d*x]])/Sqrt[b])/2
```

Maple [B] time = 0.021, size = 347, normalized size = 2.4

$$\frac{1}{2x}\sqrt{bx+a}\sqrt{dx+c}\left(\ln\left(\frac{1}{2}\left(2\,bdx+2\,\sqrt{dx^2b+adx+bcx+ac}\sqrt{bd}+ad+bc\right)\frac{1}{\sqrt{bd}}\right)xad^2\sqrt{ac}+3\,\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{dx^2b}}{}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(3/2)*(b*x+a)^(1/2)/x^2,x)
```

```
[Out] 1/2*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x
+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a*d^2*(a*c)
^(1/2)+3*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^
(1/2)+a*d+b*c)/(b*d)^(1/2))*x*b*c*d*(a*c)^(1/2)-3*ln((a*d*x+b*c*x
+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x*a*c*d*
(b*d)^(1/2)-ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*
c)^(1/2)+2*a*c)/x)*x*b*c^2*(b*d)^(1/2)+2*x*d*(a*c)^(1/2)*(b*d*x^2
+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)-2*c*(a*c)^(1/2)*(b*d*x^2+a*d*
x+b*c*x+a*c)^(1/2)*(b*d)^(1/2))/(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)/x
/(b*d)^(1/2)/(a*c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(3/2)/x^2,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.919185, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(3/2)/x^2,x, algorithm="fricas")
```

```
[Out] [1/4*((3*b*c + a*d)*x*sqrt(d/b)*log(8*b^2*d^2*x^2 + b^2*c^2 + 6*a
*b*c*d + a^2*d^2 + 4*(2*b^2*d*x + b^2*c + a*b*d)*sqrt(b*x + a)*sq
rt(d*x + c)*sqrt(d/b) + 8*(b^2*c*d + a*b*d^2)*x) + (b*c + 3*a*d)*
x*sqrt(c/a)*log((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2
- 4*(2*a^2*c + (a*b*c + a^2*d)*x)*sqrt(b*x + a)*sqrt(d*x + c)*sqr
t(c/a) + 8*(a*b*c^2 + a^2*c*d)*x)/x^2) + 4*sqrt(b*x + a)*sqrt(d*x
 + c)*(d*x - c))/x, 1/4*(2*(3*b*c + a*d)*x*sqrt(-d/b)*arctan(1/2*
(2*b*d*x + b*c + a*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*sqrt(-d/b)))
 + (b*c + 3*a*d)*x*sqrt(c/a)*log((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*
d + a^2*d^2)*x^2 - 4*(2*a^2*c + (a*b*c + a^2*d)*x)*sqrt(b*x + a)*
sqrt(d*x + c)*sqrt(c/a) + 8*(a*b*c^2 + a^2*c*d)*x)/x^2) + 4*sqrt(
```

```
b*x + a)*sqrt(d*x + c)*(d*x - c))/x, -1/4*(2*(b*c + 3*a*d)*x*sqrt
(-c/a)*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(b*x + a)*sqrt(d*x
 + c)*a*sqrt(-c/a))) - (3*b*c + a*d)*x*sqrt(d/b)*log(8*b^2*d^2*x^
2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b^2*d*x + b^2*c + a*b*d)
*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(d/b) + 8*(b^2*c*d + a*b*d^2)*x)
 - 4*sqrt(b*x + a)*sqrt(d*x + c)*(d*x - c))/x, -1/2*((b*c + 3*a*d
)*x*sqrt(-c/a)*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(b*x + a)*
sqrt(d*x + c)*a*sqrt(-c/a))) - (3*b*c + a*d)*x*sqrt(-d/b)*arctan(
1/2*(2*b*d*x + b*c + a*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*sqrt(-d/
b))) - 2*sqrt(b*x + a)*sqrt(d*x + c)*(d*x - c))/x]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}}{x^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(3/2)*(b*x+a)**(1/2)/x**2,x)
```

```
[Out] Integral(sqrt(a + b*x)*(c + d*x)**(3/2)/x**2, x)
```

GIAC/XCAS [A] time = 0.601154, size = 4, normalized size = 0.03

$$sage_0 x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(3/2)/x^2,x, algorithm="giac")
```

```
[Out] sage0*x
```

3.550 $\int \frac{\sqrt{a+bx}(c+dx)^{3/2}}{x^3}\,dx$

Optimal. Leaf size=170

$$\frac{(-3a^2d^2-6abcd+b^2c^2)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{3/2}\sqrt{c}}+2\sqrt{b}d^{3/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)-\frac{\sqrt{a+bx}(c+dx)^{3/2}}{2x^2}-\frac{\sqrt{a+bx}\sqrt{c+dx}(3ad+bc)}{4ax}$$

```
[Out] -((b*c + 3*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*a*x) - (Sqrt[a +
b*x]*(c + d*x)^(3/2))/(2*x^2) + ((b^2*c^2 - 6*a*b*c*d - 3*a^2*d^2
)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(4*a^
(3/2)*Sqrt[c]) + 2*Sqrt[b]*d^(3/2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x]
)/(Sqrt[b]*Sqrt[c + d*x])]
```

Rubi [A] time = 0.416805, antiderivative size = 170, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.273

$$\frac{(-3a^2d^2-6abcd+b^2c^2)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{3/2}\sqrt{c}}+2\sqrt{b}d^{3/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)-\frac{\sqrt{a+bx}(c+dx)^{3/2}}{2x^2}-\frac{\sqrt{a+bx}\sqrt{c+dx}(3ad+bc)}{4ax}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[a + b*x]*(c + d*x)^(3/2))/x^3,x]
```

```
[Out] -((b*c + 3*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*a*x) - (Sqrt[a +
b*x]*(c + d*x)^(3/2))/(2*x^2) + ((b^2*c^2 - 6*a*b*c*d - 3*a^2*d^2
)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(4*a^
(3/2)*Sqrt[c]) + 2*Sqrt[b]*d^(3/2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x]
)/(Sqrt[b]*Sqrt[c + d*x])]
```

Rubi in Sympy [A] time = 66.1988, size = 156, normalized size = 0.92

$$2\sqrt{b}d^{\frac{3}{2}}\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)-\frac{\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}}{2x^2}-\frac{\sqrt{a+bx}\sqrt{c+dx}\,(3ad+bc)}{4ax}-\frac{(3a^2d^2+6abcd-b^2c^2)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{\frac{3}{2}}\sqrt{c}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(3/2)*(b*x+a)**(1/2)/x**3,x)
```

```
[Out] 2*sqrt(b)*d**(3/2)*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c +
d*x))) - sqrt(a + b*x)*(c + d*x)**(3/2)/(2*x**2) - sqrt(a + b*x)*
sqrt(c + d*x)*(3*a*d + b*c)/(4*a*x) - (3*a**2*d**2 + 6*a*b*c*d -
b**2*c**2)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(
4*a**(3/2)*sqrt(c))
```

Mathematica [A] time = 0.295547, size = 222, normalized size = 1.31

$$\frac{\log(x)\left(3a^2d^2+6abcd-b^2c^2\right)}{8a^{3/2}\sqrt{c}} - \frac{\left(3a^2d^2+6abcd-b^2c^2\right)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{8a^{3/2}\sqrt{c}} + \sqrt{b}d^{3/2}\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)+\sqrt{a+bx}\sqrt{c+dx}\left(\frac{-5ad-bc}{4ax}-\frac{c}{2x^2}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[a + b*x]*(c + d*x)^(3/2))/x^3,x]
```

```
[Out] (-c/(2*x^2) + (-(b*c) - 5*a*d)/(4*a*x))*Sqrt[a + b*x]*Sqrt[c + d*
x] + ((-(b^2*c^2) + 6*a*b*c*d + 3*a^2*d^2)*Log[x])/(8*a^(3/2)*Sqr
t[c]) - ((-(b^2*c^2) + 6*a*b*c*d + 3*a^2*d^2)*Log[2*a*c + b*c*x +
 a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(8*a^(3/
2)*Sqrt[c]) + Sqrt[b]*d^(3/2)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]
*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]]
```

Maple [B] time = 0.021, size = 401, normalized size = 2.4

$$-\frac{1}{8\,ax^2}\sqrt{bx+a}\sqrt{dx+c}\left(3\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{dx^2b+adx+bcx+ac}+2\,ac}{x}\right)x^2a^2d^2\sqrt{bd}+6\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{}}{}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(3/2)*(b*x+a)^(1/2)/x^3,x)
```

```
[Out] -1/8*(b*x+a)^(1/2)*(d*x+c)^(1/2)/a*(3*ln((a*d*x+b*c*x+2*(a*c)^(1/
2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^2*a^2*d^2*(b*d)^(1
/2)+6*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/
2)+2*a*c)/x)*x^2*a*b*c*d*(b*d)^(1/2)-ln((a*d*x+b*c*x+2*(a*c)^(1/2
)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^2*b^2*c^2*(b*d)^(1/
2)-8*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2
)+a*d+b*c)/(b*d)^(1/2))*x^2*a*b*d^2*(a*c)^(1/2)+10*(b*d*x^2+a*d*x
+b*c*x+a*c)^(1/2)*d*a*x*(a*c)^(1/2)*(b*d)^(1/2)+2*(b*d*x^2+a*d*x+
b*c*x+a*c)^(1/2)*b*x*c*(a*c)^(1/2)*(b*d)^(1/2)+4*(b*d*x^2+a*d*x+b
*c*x+a*c)^(1/2)*a*c*(a*c)^(1/2)*(b*d)^(1/2))/(b*d*x^2+a*d*x+b*c*x
+a*c)^(1/2)/x^2/(a*c)^(1/2)/(b*d)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(3/2)/x^3,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.943529, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(3/2)/x^3,x, algorithm="fricas")
```

```
[Out] [1/16*(8*sqrt(a*c)*sqrt(b*d)*a*d*x^2*log(8*b^2*d^2*x^2 + b^2*c^2
+ 6*a*b*c*d + a^2*d^2 + 4*(2*b*d*x + b*c + a*d)*sqrt(b*d)*sqrt(b*
x + a)*sqrt(d*x + c) + 8*(b^2*c*d + a*b*d^2)*x) - (b^2*c^2 - 6*a*
b*c*d - 3*a^2*d^2)*x^2*log(-(4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x
)*sqrt(b*x + a)*sqrt(d*x + c) - (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d
 + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2) - 4*(2
*a*c + (b*c + 5*a*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c))/(s
qrt(a*c)*a*x^2), 1/16*(16*sqrt(a*c)*sqrt(-b*d)*a*d*x^2*arctan(1/2
*(2*b*d*x + b*c + a*d)/(sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c)))
- (b^2*c^2 - 6*a*b*c*d - 3*a^2*d^2)*x^2*log(-(4*(2*a^2*c^2 + (a*b
*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c) - (8*a^2*c^2 + (b^
2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(
a*c))/x^2) - 4*(2*a*c + (b*c + 5*a*d)*x)*sqrt(a*c)*sqrt(b*x + a)*
sqrt(d*x + c))/(sqrt(a*c)*a*x^2), 1/8*(4*sqrt(-a*c)*sqrt(b*d)*a*d
*x^2*log(8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b*d
*x + b*c + a*d)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 8*(b^2*c*
d + a*b*d^2)*x) + (b^2*c^2 - 6*a*b*c*d - 3*a^2*d^2)*x^2*arctan(1/
2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d*x + c)
*a*c)) - 2*(2*a*c + (b*c + 5*a*d)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqr
t(d*x + c))/(sqrt(-a*c)*a*x^2), 1/8*(8*sqrt(-a*c)*sqrt(-b*d)*a*d*
x^2*arctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(-b*d)*sqrt(b*x + a)*sq
rt(d*x + c))) + (b^2*c^2 - 6*a*b*c*d - 3*a^2*d^2)*x^2*arctan(1/2*
(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d*x + c)*a
*c)) - 2*(2*a*c + (b*c + 5*a*d)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt(
d*x + c))/(sqrt(-a*c)*a*x^2)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{a + bx}\,(c + dx)^{\frac{3}{2}}}{x^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(3/2)*(b*x+a)**(1/2)/x**3,x)
```

```
[Out] Integral(sqrt(a + b*x)*(c + d*x)**(3/2)/x**3, x)
```

GIAC/XCAS [A] time = 0.629906, size = 4, normalized size = 0.02

$$sage_0 x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(3/2)/x^3,x, algorithm="giac")
```

```
[Out] sage0*x
```

3.551 $\int \frac{\sqrt{a+bx}(c+dx)^{3/2}}{x^4}\,dx$

Optimal. Leaf size=163

$$-\frac{(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{5/2}c^{3/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^2}{8a^2cx}-\frac{\sqrt{a+bx}(c+dx)^{5/2}}{3cx^3}-\frac{\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)}{12acx^2}$$

```
[Out] ((b*c - a*d)^2*Sqrt[a + b*x]*Sqrt[c + d*x])/(8*a^2*c*x) - ((b*c -
 a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(12*a*c*x^2) - (Sqrt[a + b*x
]*(c + d*x)^(5/2))/(3*c*x^3) - ((b*c - a*d)^3*ArcTanh[(Sqrt[c]*Sq
rt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(8*a^(5/2)*c^(3/2))
```

Rubi [A] time = 0.288045, antiderivative size = 163, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.136$

$$-\frac{(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{5/2}c^{3/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^2}{8a^2cx}-\frac{\sqrt{a+bx}(c+dx)^{5/2}}{3cx^3}-\frac{\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)}{12acx^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[a + b*x]*(c + d*x)^(3/2))/x^4,x]
```

```
[Out] ((b*c - a*d)^2*Sqrt[a + b*x]*Sqrt[c + d*x])/(8*a^2*c*x) - ((b*c -
 a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(12*a*c*x^2) - (Sqrt[a + b*x
]*(c + d*x)^(5/2))/(3*c*x^3) - ((b*c - a*d)^3*ArcTanh[(Sqrt[c]*Sq
rt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(8*a^(5/2)*c^(3/2))
```

Rubi in Sympy [A] time = 24.9245, size = 138, normalized size = 0.85

$$-\frac{\sqrt{a+bx}\,(c+dx)^{\frac{5}{2}}}{3cx^3}+\frac{\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}\,(ad-bc)}{12acx^2}+\frac{\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)^2}{8a^2cx}+\frac{(ad-bc)^3\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{\frac{5}{2}}c^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(3/2)*(b*x+a)**(1/2)/x**4,x)
```

```
[Out] -sqrt(a + b*x)*(c + d*x)**(5/2)/(3*c*x**3) + sqrt(a + b*x)*(c + d
*x)**(3/2)*(a*d - b*c)/(12*a*c*x**2) + sqrt(a + b*x)*sqrt(c + d*x
)*(a*d - b*c)**2/(8*a**2*c*x) + (a*d - b*c)**3*atanh(sqrt(c)*sqrt
(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(8*a**(5/2)*c**(3/2))
```

Mathematica [A] time = 0.183492, size = 171, normalized size = 1.05

$$\frac{-2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}\left(a^2\left(8c^2+14cdx+3d^2x^2\right)+2abcx(c+4dx)-3b^2c^2x^2\right)+3x^3\log(x)(bc-ad)^3-3x^3(bc-ad)^3\log}{48a^{5/2}c^{3/2}x^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[a + b*x]*(c + d*x)^(3/2))/x^4,x]
```

```
[Out] (-2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]*(-3*b^2*c^2*x^2 +
 2*a*b*c*x*(c + 4*d*x) + a^2*(8*c^2 + 14*c*d*x + 3*d^2*x^2)) + 3*
(b*c - a*d)^3*x^3*Log[x] - 3*(b*c - a*d)^3*x^3*Log[2*a*c + b*c*x
+ a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(48*a^(
5/2)*c^(3/2)*x^3)
```

Maple [B] time = 0.021, size = 485, normalized size = 3.

$$\frac{1}{48\,a^2cx^3}\sqrt{bx+a}\sqrt{dx+c}\left(3\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{dx^2b+adx+bcx+ac}+2\,ac}{x}\right)x^3a^3d^3-9\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{dx}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(3/2)*(b*x+a)^(1/2)/x^4,x)
```

```
[Out] 1/48*(b*x+a)^(1/2)*(d*x+c)^(1/2)/a^2/c*(3*ln((a*d*x+b*c*x+2*(a*c)
^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^3*a^3*d^3-9*ln
((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c
)/x)*x^3*a^2*b*c*d^2+9*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d
*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^3*a*b^2*c^2*d-3*ln((a*d*x+b*c*x+2
*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^3*b^3*c^
3-6*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^2*a^2*d^2-16*(a
*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^2*a*b*c*d+6*(a*c)^(1/
2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^2*b^2*c^2-28*(a*c)^(1/2)*(b*
d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*a^2*c*d-4*(a*c)^(1/2)*(b*d*x^2+a*d
*x+b*c*x+a*c)^(1/2)*x*a*b*c^2-16*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*
a^2*c^2*(a*c)^(1/2))/(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)/x^3/(a*c)^(1
/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(3/2)/x^4,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.558142, size = 1, normalized size = 0.01

$$\left[-\frac{3\left(b^3c^3-3\,ab^2c^2d+3\,a^2bcd^2-a^3d^3\right)x^3\log\left(\frac{4\left(2\,a^2c^2+\left(abc^2+a^2cd\right)x\right)\sqrt{bx+a}\sqrt{dx+c}+\left(8\,a^2c^2+\left(b^2c^2+6\,abcd+a^2d^2\right)x^2+8\left(abc^2+a^2cd\right)x\right)\sqrt{c}}{x^2}\right.}{96\,\sqrt{ac}a^2cx^3}\right.$$

$$-\frac{3\left(b^3c^3-3\,ab^2c^2d+3\,a^2bcd^2-a^3d^3\right)x^3\arctan\left(\frac{(2\,ac+(bc+ad)x)\sqrt{-ac}}{2\,\sqrt{bx+a}\sqrt{dx+c}ac}\right)+2\left(8\,a^2c^2-\left(3\,b^2c^2-8\,abcd-3\,a^2d^2\right)x^2+2\left(abc^2\right.\right.}{48\,\sqrt{-ac}a^2cx^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(3/2)/x^4,x, algorithm="fricas")
```

```
[Out] [-1/96*(3*(b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*x^3
*log((4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*
```

```
x + c) + (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(a*
b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2) + 4*(8*a^2*c^2 - (3*b^2*c^2 -
 8*a*b*c*d - 3*a^2*d^2)*x^2 + 2*(a*b*c^2 + 7*a^2*c*d)*x)*sqrt(a*c
)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(a*c)*a^2*c*x^3), -1/48*(3*(b
^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*x^3*arctan(1/2*
(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d*x + c)*a
*c)) + 2*(8*a^2*c^2 - (3*b^2*c^2 - 8*a*b*c*d - 3*a^2*d^2)*x^2 + 2
*(a*b*c^2 + 7*a^2*c*d)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c))
/(sqrt(-a*c)*a^2*c*x^3)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(3/2)*(b*x+a)**(1/2)/x**4,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(3/2)/x^4,x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.552 $\int \frac{\sqrt{a+bx}(c+dx)^{3/2}}{x^5}\,dx$

Optimal. Leaf size=233

$$\frac{(3ad+5bc)(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{7/2}c^{5/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}(3ad+5bc)(bc-ad)^2}{64a^3c^2x}+\frac{\sqrt{a+bx}(c+dx)^{3/2}(3ad+5bc)(bc-ad)}{96a^2c^2x^2}+\frac{\sqrt{a+bx}(c+dx)^{5/2}(3ad+5bc)}{24ac^2x^3}-\frac{(a+bx)^{3/2}(c+dx)^{5/2}}{4acx^4}$$

```
[Out] -((b*c - a*d)^2*(5*b*c + 3*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(64*
a^3*c^2*x) + ((b*c - a*d)*(5*b*c + 3*a*d)*Sqrt[a + b*x]*(c + d*x)
^(3/2))/(96*a^2*c^2*x^2) + ((5*b*c + 3*a*d)*Sqrt[a + b*x]*(c + d*
x)^(5/2))/(24*a*c^2*x^3) - ((a + b*x)^(3/2)*(c + d*x)^(5/2))/(4*a
*c*x^4) + ((b*c - a*d)^3*(5*b*c + 3*a*d)*ArcTanh[(Sqrt[c]*Sqrt[a
+ b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(64*a^(7/2)*c^(5/2))
```

Rubi [A] time = 0.421311, antiderivative size = 233, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.182$

$$\frac{(3ad+5bc)(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{7/2}c^{5/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}(3ad+5bc)(bc-ad)^2}{64a^3c^2x}+\frac{\sqrt{a+bx}(c+dx)^{3/2}(3ad+5bc)(bc-ad)}{96a^2c^2x^2}+\frac{\sqrt{a+bx}(c+dx)^{5/2}(3ad+5bc)}{24ac^2x^3}-\frac{(a+bx)^{3/2}(c+dx)^{5/2}}{4acx^4}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[a + b*x]*(c + d*x)^(3/2))/x^5,x]
```

```
[Out] -((b*c - a*d)^2*(5*b*c + 3*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(64*
a^3*c^2*x) + ((b*c - a*d)*(5*b*c + 3*a*d)*Sqrt[a + b*x]*(c + d*x)
^(3/2))/(96*a^2*c^2*x^2) + ((5*b*c + 3*a*d)*Sqrt[a + b*x]*(c + d*
x)^(5/2))/(24*a*c^2*x^3) - ((a + b*x)^(3/2)*(c + d*x)^(5/2))/(4*a
*c*x^4) + ((b*c - a*d)^3*(5*b*c + 3*a*d)*ArcTanh[(Sqrt[c]*Sqrt[a
+ b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(64*a^(7/2)*c^(5/2))
```

Rubi in Sympy [A] time = 37.181, size = 211, normalized size = 0.91

$$-\frac{(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{5}{2}}}{4acx^4}+\frac{(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{3}{2}}(3ad+5bc)}{24a^2cx^3}+\frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}\,(ad-bc)(3ad+5bc)}{32a^3cx^2}+\frac{\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)^2(3ad+5bc)}{64a^3c^2x}-\frac{(ad-bc)^3(3ad+5bc)\,\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{\frac{7}{2}}c^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(3/2)*(b*x+a)**(1/2)/x**5,x)
```

```
[Out] -(a + b*x)**(3/2)*(c + d*x)**(5/2)/(4*a*c*x**4) + (a + b*x)**(3/2
)*(c + d*x)**(3/2)*(3*a*d + 5*b*c)/(24*a**2*c*x**3) + (a + b*x)**
(3/2)*sqrt(c + d*x)*(a*d - b*c)*(3*a*d + 5*b*c)/(32*a**3*c*x**2)
+ sqrt(a + b*x)*sqrt(c + d*x)*(a*d - b*c)**2*(3*a*d + 5*b*c)/(64*
a**3*c**2*x) - (a*d - b*c)**3*(3*a*d + 5*b*c)*atanh(sqrt(c)*sqrt(
a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(64*a**(7/2)*c**(5/2))
```

Mathematica [A] time = 0.256089, size = 234, normalized size = 1.

$$\frac{-2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}\left(a^3\left(48c^3+72c^2dx+6cd^2x^2-9d^3x^3\right)+a^2bcx\left(8c^2+20cdx+9d^2x^2\right)-ab^2c^2x^2(10c+31dx)+15\right.}{384a^{7/2}c^{5}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[a + b*x]*(c + d*x)^(3/2))/x^5,x]
```

```
[Out] (-2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]*(15*b^3*c^3*x^3 -
 a*b^2*c^2*x^2*(10*c + 31*d*x) + a^2*b*c*x*(8*c^2 + 20*c*d*x + 9*
d^2*x^2) + a^3*(48*c^3 + 72*c^2*d*x + 6*c*d^2*x^2 - 9*d^3*x^3)) -
 3*(b*c - a*d)^3*(5*b*c + 3*a*d)*x^4*Log[x] + 3*(b*c - a*d)^3*(5*
b*c + 3*a*d)*x^4*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sq
rt[a + b*x]*Sqrt[c + d*x]])/(384*a^(7/2)*c^(5/2)*x^4)
```

Maple [F] time = 180., size = 0, normalized size = 0.

hanged

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(3/2)*(b*x+a)^(1/2)/x^5,x)
```

```
[Out] int((d*x+c)^(3/2)*(b*x+a)^(1/2)/x^5,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(3/2)/x^5,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.743114, size = 1, normalized size = 0.

$$\left[-\frac{3\left(5\,b^4c^4 - 12\,ab^3c^3d + 6\,a^2b^2c^2d^2 + 4\,a^3bcd^3 - 3\,a^4d^4\right)x^4\log\left(-\frac{4\left(2\,a^2c^2+\left(abc^2+a^2cd\right)x\right)\sqrt{bx+a}\sqrt{dx+c}-\left(8\,a^2c^2+\left(b^2c^2+6\,abcd+a^2d^2\right)\right.}{x^2}\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(3/2)/x^5,x, algorithm="fricas")
```

```
[Out] [-1/768*(3*(5*b^4*c^4 - 12*a*b^3*c^3*d + 6*a^2*b^2*c^2*d^2 + 4*a^
3*b*c*d^3 - 3*a^4*d^4)*x^4*log(-(4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*
d)*x)*sqrt(b*x + a)*sqrt(d*x + c) - (8*a^2*c^2 + (b^2*c^2 + 6*a*b
*c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2) +
4*(48*a^3*c^3 + (15*b^3*c^3 - 31*a*b^2*c^2*d + 9*a^2*b*c*d^2 - 9*
a^3*d^3)*x^3 - 2*(5*a*b^2*c^3 - 10*a^2*b*c^2*d - 3*a^3*c*d^2)*x^2
 + 8*(a^2*b*c^3 + 9*a^3*c^2*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*
x + c))/(sqrt(a*c)*a^3*c^2*x^4), 1/384*(3*(5*b^4*c^4 - 12*a*b^3*c
^3*d + 6*a^2*b^2*c^2*d^2 + 4*a^3*b*c*d^3 - 3*a^4*d^4)*x^4*arctan(
1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d*x +
c)*a*c)) - 2*(48*a^3*c^3 + (15*b^3*c^3 - 31*a*b^2*c^2*d + 9*a^2*b
*c*d^2 - 9*a^3*d^3)*x^3 - 2*(5*a*b^2*c^3 - 10*a^2*b*c^2*d - 3*a^3
*c*d^2)*x^2 + 8*(a^2*b*c^3 + 9*a^3*c^2*d)*x)*sqrt(-a*c)*sqrt(b*x
+ a)*sqrt(d*x + c))/(sqrt(-a*c)*a^3*c^2*x^4)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(3/2)*(b*x+a)**(1/2)/x**5,x)

[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(3/2)/x^5,x, algorithm="giac")

[Out] Exception raised: TypeError
```

3.553 $\int \frac{\sqrt{a+bx}(c+dx)^{3/2}}{x^6} dx$

Optimal. Leaf size=340

$$-\frac{(3a^2d^2+6abcd+7b^2c^2)(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{128a^{9/2}c^{7/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}\,(-15a^3d^3+9a^2bcd^2-61ab^2c^2d+35b^3c^3)}{960a^3c^2x^2}+\frac{\sqrt{a+bx}\sqrt{c+dx}\,(-45a^4d^4+30a^3bcd^3+36a^2b^2c^2d^2-190ab^3c^3d+105b^4c^4)}{1920a^4c^3x}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(\frac{7b^2c}{a}-\frac{3ad^2}{c}-12bd\right)}{240ax^3}-\frac{\sqrt{a+bx}(c+dx)^{3/2}}{5x^5}-\frac{\sqrt{a+bx}\sqrt{c+dx}(3ad+bc)}{40ax^4}$$

```
[Out] -((b*c + 3*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(40*a*x^4) + (((7*b^
2*c)/a - 12*b*d - (3*a*d^2)/c)*Sqrt[a + b*x]*Sqrt[c + d*x])/(240*
a*x^3) - ((35*b^3*c^3 - 61*a*b^2*c^2*d + 9*a^2*b*c*d^2 - 15*a^3*d
^3)*Sqrt[a + b*x]*Sqrt[c + d*x])/(960*a^3*c^2*x^2) + ((105*b^4*c^
4 - 190*a*b^3*c^3*d + 36*a^2*b^2*c^2*d^2 + 30*a^3*b*c*d^3 - 45*a^
4*d^4)*Sqrt[a + b*x]*Sqrt[c + d*x])/(1920*a^4*c^3*x) - (Sqrt[a +
b*x]*(c + d*x)^(3/2))/(5*x^5) - ((b*c - a*d)^3*(7*b^2*c^2 + 6*a*b
*c*d + 3*a^2*d^2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c
 + d*x])])/(128*a^(9/2)*c^(7/2))
```

Rubi [A] time = 1.05523, antiderivative size = 340, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.273$

$$-\frac{(3a^2d^2+6abcd+7b^2c^2)(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{128a^{9/2}c^{7/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}\,(-15a^3d^3+9a^2bcd^2-61ab^2c^2d+35b^3c^3)}{960a^3c^2x^2}+\frac{\sqrt{a+bx}\sqrt{c+dx}\,(-45a^4d^4+30a^3bcd^3+36a^2b^2c^2d^2-190ab^3c^3d+105b^4c^4)}{1920a^4c^3x}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(\frac{7b^2c}{a}-\frac{3ad^2}{c}-12bd\right)}{240ax^3}-\frac{\sqrt{a+bx}(c+dx)^{3/2}}{5x^5}-\frac{\sqrt{a+bx}\sqrt{c+dx}(3ad+bc)}{40ax^4}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[a + b*x]*(c + d*x)^(3/2))/x^6,x]
```


```
[Out] -((b*c + 3*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(40*a*x^4) + (((7*b^
2*c)/a - 12*b*d - (3*a*d^2)/c)*Sqrt[a + b*x]*Sqrt[c + d*x])/(240*
a*x^3) - ((35*b^3*c^3 - 61*a*b^2*c^2*d + 9*a^2*b*c*d^2 - 15*a^3*d
^3)*Sqrt[a + b*x]*Sqrt[c + d*x])/(960*a^3*c^2*x^2) + ((105*b^4*c^
4 - 190*a*b^3*c^3*d + 36*a^2*b^2*c^2*d^2 + 30*a^3*b*c*d^3 - 45*a^
4*d^4)*Sqrt[a + b*x]*Sqrt[c + d*x])/(1920*a^4*c^3*x) - (Sqrt[a +
b*x]*(c + d*x)^(3/2))/(5*x^5) - ((b*c - a*d)^3*(7*b^2*c^2 + 6*a*b
*c*d + 3*a^2*d^2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c
 + d*x])])/(128*a^(9/2)*c^(7/2))
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(3/2)*(b*x+a)**(1/2)/x**6,x)
```

[Out] Timed out

Mathematica [A] time = 0.341576, size = 319, normalized size = 0.94

$$15x^5\log(x)(bc-ad)^3\left(3a^2d^2+6abcd+7b^2c^2\right)-15x^5(bc-ad)^3\left(3a^2d^2+6abcd+7b^2c^2\right)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2a\right.$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[a + b*x]*(c + d*x)^(3/2))/x^6,x]
```

```
[Out] (-2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]*(-105*b^4*c^4*x^4
 + 10*a*b^3*c^3*x^3*(7*c + 19*d*x) - 2*a^2*b^2*c^2*x^2*(28*c^2 +
61*c*d*x + 18*d^2*x^2) + 6*a^3*b*c*x*(8*c^3 + 16*c^2*d*x + 3*c*d^
2*x^2 - 5*d^3*x^3) + 3*a^4*(128*c^4 + 176*c^3*d*x + 8*c^2*d^2*x^2
 - 10*c*d^3*x^3 + 15*d^4*x^4)) + 15*(b*c - a*d)^3*(7*b^2*c^2 + 6*
a*b*c*d + 3*a^2*d^2)*x^5*Log[x] - 15*(b*c - a*d)^3*(7*b^2*c^2 + 6
*a*b*c*d + 3*a^2*d^2)*x^5*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*S
qrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(3840*a^(9/2)*c^(7/2)*x^5)
```

Maple [B] time = 0.03, size = 967, normalized size = 2.8

$$\frac{1}{3840\,a^4c^3x^5}\sqrt{bx+a}\sqrt{dx+c}\left(45\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{dx^2b+adx+bcx+ac}+2\,ac}{x}\right)x^5a^5d^5-45\,\ln\left(\frac{adx+bcx+2\,\sqrt{a}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(3/2)*(b*x+a)^(1/2)/x^6,x)
```

```
[Out] 1/3840*(b*x+a)^(1/2)*(d*x+c)^(1/2)/a^4/c^3*(45*ln((a*d*x+b*c*x+2*
(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^5*a^5*d^5
-45*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)
+2*a*c)/x)*x^5*a^4*b*c*d^4-30*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*
x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^5*a^3*b^2*c^2*d^3-90*ln((a
*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x
)*x^5*a^2*b^3*c^3*d^2+225*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+
a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^5*a*b^4*c^4*d-105*ln((a*d*x+b*
c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^5*b
^5*c^5-90*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^4*a^4*d^4
+60*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^4*a^3*b*c*d^3+7
2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^4*a^2*b^2*c^2*d^2
-380*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^4*a*b^3*c^3*d+
210*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^4*b^4*c^4+60*(a
*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^3*a^4*c*d^3-36*(a*c)^
(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^3*a^3*b*c^2*d^2+244*(a*c)
^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^3*a^2*b^2*c^3*d-140*(a*c
)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^3*a*b^3*c^4-48*(a*c)^(1
/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^2*a^4*c^2*d^2-192*(a*c)^(1/
2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^2*a^3*b*c^3*d+112*(a*c)^(1/2
)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^2*a^2*b^2*c^4-1056*(a*c)^(1/2
)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*a^4*c^3*d-96*(a*c)^(1/2)*(b*d
*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*a^3*b*c^4-768*(b*d*x^2+a*d*x+b*c*x+
a*c)^(1/2)*a^4*c^4*(a*c)^(1/2))/(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)/x
^5/(a*c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(3/2)/x^6,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 2.7925, size = 1, normalized size = 0.

$$\left[-\frac{15\left(7 b^5c^5 - 15 ab^4c^4d + 6 a^2b^3c^3d^2 + 2 a^3b^2c^2d^3 + 3 a^4bcd^4 - 3 a^5d^5\right)x^5 \log\left(\frac{4\left(2 a^2c^2+\left(abc^2+a^2cd\right)x\right)\sqrt{bx+a}\sqrt{dx+c}+\left(8 a^2c^2+\left(b^2c\right.\right.}{x^2}\right.}{}\right.$$

$$-\frac{15\left(7 b^5c^5 - 15 ab^4c^4d + 6 a^2b^3c^3d^2 + 2 a^3b^2c^2d^3 + 3 a^4bcd^4 - 3 a^5d^5\right)x^5 \arctan\left(\frac{(2 ac+(bc+ad)x)\sqrt{-ac}}{2\sqrt{bx+a}\sqrt{dx+c}ac}\right) + 2\left(384 a^4c^4 - \left(105\right.\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(3/2)/x^6,x, algorithm="fricas")
```

```
[Out] [-1/7680*(15*(7*b^5*c^5 - 15*a*b^4*c^4*d + 6*a^2*b^3*c^3*d^2 + 2*
a^3*b^2*c^2*d^3 + 3*a^4*b*c*d^4 - 3*a^5*d^5)*x^5*log((4*(2*a^2*c^
2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c) + (8*a^2*c
^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*
x)*sqrt(a*c))/x^2) + 4*(384*a^4*c^4 - (105*b^4*c^4 - 190*a*b^3*c^
3*d + 36*a^2*b^2*c^2*d^2 + 30*a^3*b*c*d^3 - 45*a^4*d^4)*x^4 + 2*(
35*a*b^3*c^4 - 61*a^2*b^2*c^3*d + 9*a^3*b*c^2*d^2 - 15*a^4*c*d^3)
*x^3 - 8*(7*a^2*b^2*c^4 - 12*a^3*b*c^3*d - 3*a^4*c^2*d^2)*x^2 + 4
8*(a^3*b*c^4 + 11*a^4*c^3*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x
+ c))/(sqrt(a*c)*a^4*c^3*x^5), -1/3840*(15*(7*b^5*c^5 - 15*a*b^4*
c^4*d + 6*a^2*b^3*c^3*d^2 + 2*a^3*b^2*c^2*d^3 + 3*a^4*b*c*d^4 - 3
*a^5*d^5)*x^5*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt
(b*x + a)*sqrt(d*x + c)*a*c)) + 2*(384*a^4*c^4 - (105*b^4*c^4 - 1
90*a*b^3*c^3*d + 36*a^2*b^2*c^2*d^2 + 30*a^3*b*c*d^3 - 45*a^4*d^4
)*x^4 + 2*(35*a*b^3*c^4 - 61*a^2*b^2*c^3*d + 9*a^3*b*c^2*d^2 - 15
*a^4*c*d^3)*x^3 - 8*(7*a^2*b^2*c^4 - 12*a^3*b*c^3*d - 3*a^4*c^2*d
^2)*x^2 + 48*(a^3*b*c^4 + 11*a^4*c^3*d)*x)*sqrt(-a*c)*sqrt(b*x +
a)*sqrt(d*x + c))/(sqrt(-a*c)*a^4*c^3*x^5)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(3/2)*(b*x+a)**(1/2)/x**6,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(3/2)/x^6,x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.554 $\int x^2\sqrt{a+bx}(c+dx)^{5/2}\,dx$

Optimal. Leaf size=376

$$-\frac{(21a^2d^2+14abcd+5b^2c^2)(bc-ad)^4\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{512b^{11/2}d^{7/2}}+\frac{(a+bx)^{3/2}\sqrt{c+dx}\,(21a^2d^2+14abcd+5b^2c^2)(bc-ad)^2}{256b^5d^2}+\frac{\sqrt{a+bx}\sqrt{c+dx}\,(21a^2d^2+14abcd+5b^2c^2)(bc-ad)^3}{512b^5d^3}+\frac{(a+bx)^{3/2}(c+dx)^{3/2}(21a^2d^2+14abcd+5b^2c^2)(bc-ad)}{192b^4d^2}+\frac{(a+bx)^{3/2}(c+dx)^{5/2}(21a^2d^2+14abcd+5b^2c^2)}{160b^3d^2}-\frac{(a+bx)^{3/2}(c+dx)^{7/2}(9ad+5bc)}{60b^2d^2}+\frac{x(a+bx)^{3/2}(c+dx)^{7/2}}{6bd}$$

```
[Out] ((b*c - a*d)^3*(5*b^2*c^2 + 14*a*b*c*d + 21*a^2*d^2)*Sqrt[a + b*x
]*Sqrt[c + d*x])/(512*b^5*d^3) + ((b*c - a*d)^2*(5*b^2*c^2 + 14*a
*b*c*d + 21*a^2*d^2)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(256*b^5*d^2)
 + ((b*c - a*d)*(5*b^2*c^2 + 14*a*b*c*d + 21*a^2*d^2)*(a + b*x)^(
3/2)*(c + d*x)^(3/2))/(192*b^4*d^2) + ((5*b^2*c^2 + 14*a*b*c*d +
21*a^2*d^2)*(a + b*x)^(3/2)*(c + d*x)^(5/2))/(160*b^3*d^2) - ((5*
b*c + 9*a*d)*(a + b*x)^(3/2)*(c + d*x)^(7/2))/(60*b^2*d^2) + (x*(
a + b*x)^(3/2)*(c + d*x)^(7/2))/(6*b*d) - ((b*c - a*d)^4*(5*b^2*c
^2 + 14*a*b*c*d + 21*a^2*d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sq
rt[b]*Sqrt[c + d*x])])/(512*b^(11/2)*d^(7/2))
```

Rubi [A] time = 0.818609, antiderivative size = 376, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$-\frac{(21a^2d^2+14abcd+5b^2c^2)(bc-ad)^4\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{512b^{11/2}d^{7/2}}+\frac{(a+bx)^{3/2}\sqrt{c+dx}\,(21a^2d^2+14abcd+5b^2c^2)(bc-ad)^2}{256b^5d^2}+\frac{\sqrt{a+bx}\sqrt{c+dx}\,(21a^2d^2+14abcd+5b^2c^2)(bc-ad)^3}{512b^5d^3}+\frac{(a+bx)^{3/2}(c+dx)^{3/2}(21a^2d^2+14abcd+5b^2c^2)(bc-ad)}{192b^4d^2}+\frac{(a+bx)^{3/2}(c+dx)^{5/2}(21a^2d^2+14abcd+5b^2c^2)}{160b^3d^2}-\frac{(a+bx)^{3/2}(c+dx)^{7/2}(9ad+5bc)}{60b^2d^2}+\frac{x(a+bx)^{3/2}(c+dx)^{7/2}}{6bd}$$

Antiderivative was successfully verified.

```
[In]  Int[x^2*Sqrt[a + b*x]*(c + d*x)^(5/2),x]
```


```
[Out] ((b*c - a*d)^3*(5*b^2*c^2 + 14*a*b*c*d + 21*a^2*d^2)*Sqrt[a + b*x
]*Sqrt[c + d*x])/(512*b^5*d^3) + ((b*c - a*d)^2*(5*b^2*c^2 + 14*a
*b*c*d + 21*a^2*d^2)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(256*b^5*d^2)
 + ((b*c - a*d)*(5*b^2*c^2 + 14*a*b*c*d + 21*a^2*d^2)*(a + b*x)^(
3/2)*(c + d*x)^(3/2))/(192*b^4*d^2) + ((5*b^2*c^2 + 14*a*b*c*d +
21*a^2*d^2)*(a + b*x)^(3/2)*(c + d*x)^(5/2))/(160*b^3*d^2) - ((5*
b*c + 9*a*d)*(a + b*x)^(3/2)*(c + d*x)^(7/2))/(60*b^2*d^2) + (x*(
a + b*x)^(3/2)*(c + d*x)^(7/2))/(6*b*d) - ((b*c - a*d)^4*(5*b^2*c
^2 + 14*a*b*c*d + 21*a^2*d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sq
rt[b]*Sqrt[c + d*x])])/(512*b^(11/2)*d^(7/2))
```

Rubi in Sympy [A] time = 75.1212, size = 360, normalized size = 0.96

$$\frac{x(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{7}{2}}}{6bd}-\frac{(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{7}{2}}(9ad+5bc)}{60b^2d^2}+\frac{(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{5}{2}}\left(21a^2d^2+14abcd+5b^2c^2\right)}{160b^3d^2}-\frac{(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{3}{2}}(ad-bc)\left(21a^2d^2+14abcd+5b^2c^2\right)}{192b^4d^2}+\frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}(ad-bc)^2\left(21a^2d^2+14abcd+5b^2c^2\right)}{256b^5d^2}-\frac{\sqrt{a+bx}\sqrt{c+dx}(ad-bc)^3\left(21a^2d^2+14abcd+5b^2c^2\right)}{512b^5d^3}-\frac{(ad-bc)^4\left(21a^2d^2+14abcd+5b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{512b^{\frac{11}{2}}d^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(d*x+c)**(5/2)*(b*x+a)**(1/2),x)
```

```
[Out] x*(a + b*x)**(3/2)*(c + d*x)**(7/2)/(6*b*d) - (a + b*x)**(3/2)*(c
 + d*x)**(7/2)*(9*a*d + 5*b*c)/(60*b**2*d**2) + (a + b*x)**(3/2)*
(c + d*x)**(5/2)*(21*a**2*d**2 + 14*a*b*c*d + 5*b**2*c**2)/(160*b
**3*d**2) - (a + b*x)**(3/2)*(c + d*x)**(3/2)*(a*d - b*c)*(21*a**
2*d**2 + 14*a*b*c*d + 5*b**2*c**2)/(192*b**4*d**2) + (a + b*x)**(
3/2)*sqrt(c + d*x)*(a*d - b*c)**2*(21*a**2*d**2 + 14*a*b*c*d + 5*
b**2*c**2)/(256*b**5*d**2) - sqrt(a + b*x)*sqrt(c + d*x)*(a*d - b
*c)**3*(21*a**2*d**2 + 14*a*b*c*d + 5*b**2*c**2)/(512*b**5*d**3)
- (a*d - b*c)**4*(21*a**2*d**2 + 14*a*b*c*d + 5*b**2*c**2)*atanh(
sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c + d*x)))/(512*b**(11/2)*d**
(7/2))
```

Mathematica [A] time = 0.318285, size = 320, normalized size = 0.85

$$\sqrt{a+bx}\sqrt{c+dx}\left(315a^5d^5-105a^4bd^4(9c+2dx)+2a^3b^2d^3\left(419c^2+308cdx+84d^2x^2\right)-2a^2b^3d^2\left(45c^3+262c^2dx+244cd^2\right.\right.$$

$$-\frac{(bc-ad)^4\left(21a^2d^2+14abcd+5b^2c^2\right)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{1024b^{11/2}d^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^2*Sqrt[a + b*x]*(c + d*x)^(5/2),x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(315*a^5*d^5 - 105*a^4*b*d^4*(9*c +
2*d*x) + 2*a^3*b^2*d^3*(419*c^2 + 308*c*d*x + 84*d^2*x^2) - 2*a^2
*b^3*d^2*(45*c^3 + 262*c^2*d*x + 244*c*d^2*x^2 + 72*d^3*x^3) + a*
b^4*d*(-65*c^4 + 40*c^3*d*x + 408*c^2*d^2*x^2 + 416*c*d^3*x^3 + 1
28*d^4*x^4) + 5*b^5*(15*c^5 - 10*c^4*d*x + 8*c^3*d^2*x^2 + 432*c^
2*d^3*x^3 + 640*c*d^4*x^4 + 256*d^5*x^5)))/(7680*b^5*d^3) - ((b*c
 - a*d)^4*(5*b^2*c^2 + 14*a*b*c*d + 21*a^2*d^2)*Log[b*c + a*d + 2
*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(1024*b^
(11/2)*d^(7/2))
```

Maple [B] time = 0.032, size = 1240, normalized size = 3.3

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(d*x+c)^(5/2)*(b*x+a)^(1/2),x)
```

```
[Out] -1/15360*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(-336*x^2*a^3*b^2*d^5*(b*d*x
^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)-80*x^2*b^5*c^3*d^2*(b*d*x^2
+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)-256*x^4*a*b^4*d^5*(b*d*x^2+a*
d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)-6400*x^4*b^5*c*d^4*(b*d*x^2+a*d*
x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+288*x^3*a^2*b^3*d^5*(b*d*x^2+a*d*x
+b*c*x+a*c)^(1/2)*(b*d)^(1/2)-4320*x^3*b^5*c^2*d^3*(b*d*x^2+a*d*x
+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+180*c^3*(b*d*x^2+a*d*x+b*c*x+a*c)^(
1/2)*a^2*b^3*d^2*(b*d)^(1/2)+130*c^4*(b*d*x^2+a*d*x+b*c*x+a*c)^(1
/2)*a*b^4*d*(b*d)^(1/2)+420*d^5*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x
*a^4*b*(b*d)^(1/2)+100*c^4*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*b^5*
d*(b*d)^(1/2)+1890*d^4*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a^4*c*b*(b
*d)^(1/2)-1676*c^2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a^3*b^2*d^3*(b
*d)^(1/2)+315*d^6*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/
2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^6+75*c^6*b^6*ln(1/2*(2*b*d
*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(
1/2))-2560*x^5*b^5*d^5*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2
)-630*d^5*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a^5*(b*d)^(1/2)-150*c^5
*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*b^5*(b*d)^(1/2)-1050*d^5*ln(1/2*
(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(
b*d)^(1/2))*a^5*c*b+1125*c^2*d^4*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x
+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^4*b^2-300*c
^3*a^3*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1
/2)+a*d+b*c)/(b*d)^(1/2))*b^3*d^3-75*c^4*ln(1/2*(2*b*d*x+2*(b*d*x
^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^2*b
^4*d^2-90*c^5*a*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)
*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*b^5*d-1232*d^4*(b*d*x^2+a*d*x+
b*c*x+a*c)^(1/2)*x*a^3*c*b^2*(b*d)^(1/2)+1048*c^2*(b*d*x^2+a*d*x+
b*c*x+a*c)^(1/2)*x*a^2*b^3*d^3*(b*d)^(1/2)-80*c^3*(b*d*x^2+a*d*x+
b*c*x+a*c)^(1/2)*x*a*b^4*d^2*(b*d)^(1/2)+976*x^2*a^2*b^3*c*d^4*(b
*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)-816*x^2*a*b^4*c^2*d^3*(
b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)-832*x^3*a*b^4*c*d^4*(b
*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2))/(b*d*x^2+a*d*x+b*c*x+a
*c)^(1/2)/b^5/d^3/(b*d)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(5/2)*x^2,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.286265, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(5/2)*x^2,x, algorithm="fricas")
```

```
[Out] [1/30720*(4*(1280*b^5*d^5*x^5 + 75*b^5*c^5 - 65*a*b^4*c^4*d - 90*
a^2*b^3*c^3*d^2 + 838*a^3*b^2*c^2*d^3 - 945*a^4*b*c*d^4 + 315*a^5
*d^5 + 128*(25*b^5*c*d^4 + a*b^4*d^5)*x^4 + 16*(135*b^5*c^2*d^3 +
 26*a*b^4*c*d^4 - 9*a^2*b^3*d^5)*x^3 + 8*(5*b^5*c^3*d^2 + 51*a*b^
4*c^2*d^3 - 61*a^2*b^3*c*d^4 + 21*a^3*b^2*d^5)*x^2 - 2*(25*b^5*c^
4*d - 20*a*b^4*c^3*d^2 + 262*a^2*b^3*c^2*d^3 - 308*a^3*b^2*c*d^4
+ 105*a^4*b*d^5)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 15*(5
*b^6*c^6 - 6*a*b^5*c^5*d - 5*a^2*b^4*c^4*d^2 - 20*a^3*b^3*c^3*d^3
 + 75*a^4*b^2*c^2*d^4 - 70*a^5*b*c*d^5 + 21*a^6*d^6)*log(-4*(2*b^
2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2
*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*
x)*sqrt(b*d)))/(sqrt(b*d)*b^5*d^3), 1/15360*(2*(1280*b^5*d^5*x^5
+ 75*b^5*c^5 - 65*a*b^4*c^4*d - 90*a^2*b^3*c^3*d^2 + 838*a^3*b^2*
```

```
c^2*d^3 - 945*a^4*b*c*d^4 + 315*a^5*d^5 + 128*(25*b^5*c*d^4 + a*b
^4*d^5)*x^4 + 16*(135*b^5*c^2*d^3 + 26*a*b^4*c*d^4 - 9*a^2*b^3*d^
5)*x^3 + 8*(5*b^5*c^3*d^2 + 51*a*b^4*c^2*d^3 - 61*a^2*b^3*c*d^4 +
 21*a^3*b^2*d^5)*x^2 - 2*(25*b^5*c^4*d - 20*a*b^4*c^3*d^2 + 262*a
^2*b^3*c^2*d^3 - 308*a^3*b^2*c*d^4 + 105*a^4*b*d^5)*x)*sqrt(-b*d)
*sqrt(b*x + a)*sqrt(d*x + c) - 15*(5*b^6*c^6 - 6*a*b^5*c^5*d - 5*
a^2*b^4*c^4*d^2 - 20*a^3*b^3*c^3*d^3 + 75*a^4*b^2*c^2*d^4 - 70*a^
5*b*c*d^5 + 21*a^6*d^6)*arctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*
d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/(sqrt(-b*d)*b^5*d^3)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(d*x+c)**(5/2)*(b*x+a)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.332151, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(5/2)*x^2,x, algorithm="giac")
```

```
[Out] Done
```

3.555 $\int x\sqrt{a+bx}(c+dx)^{5/2}\,dx$

Optimal. Leaf size=268

$$\frac{(7ad+3bc)(bc-ad)^4\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{128b^{9/2}d^{5/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}(7ad+3bc)(bc-ad)^3}{128b^4d^2}-\frac{(a+bx)^{3/2}\sqrt{c+dx}(7ad+3bc)(bc-ad)^2}{64b^4d}-\frac{(a+bx)^{3/2}(c+dx)^{3/2}(7ad+3bc)(bc-ad)}{48b^3d}-\frac{(a+bx)^{3/2}(c+dx)^{5/2}(7ad+3bc)}{40b^2d}+\frac{(a+bx)^{3/2}(c+dx)^{7/2}}{5bd}$$

```
[Out] -((b*c - a*d)^3*(3*b*c + 7*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(128
*b^4*d^2) - ((b*c - a*d)^2*(3*b*c + 7*a*d)*(a + b*x)^(3/2)*Sqrt[c
 + d*x])/(64*b^4*d) - ((b*c - a*d)*(3*b*c + 7*a*d)*(a + b*x)^(3/2
)*(c + d*x)^(3/2))/(48*b^3*d) - ((3*b*c + 7*a*d)*(a + b*x)^(3/2)*
(c + d*x)^(5/2))/(40*b^2*d) + ((a + b*x)^(3/2)*(c + d*x)^(7/2))/(
5*b*d) + ((b*c - a*d)^4*(3*b*c + 7*a*d)*ArcTanh[(Sqrt[d]*Sqrt[a +
 b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(128*b^(9/2)*d^(5/2))
```

Rubi [A] time = 0.405382, antiderivative size = 268, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.2$

$$\frac{(7ad+3bc)(bc-ad)^4\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{128b^{9/2}d^{5/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}(7ad+3bc)(bc-ad)^3}{128b^4d^2}-\frac{(a+bx)^{3/2}\sqrt{c+dx}(7ad+3bc)(bc-ad)^2}{64b^4d}-\frac{(a+bx)^{3/2}(c+dx)^{3/2}(7ad+3bc)(bc-ad)}{48b^3d}-\frac{(a+bx)^{3/2}(c+dx)^{5/2}(7ad+3bc)}{40b^2d}+\frac{(a+bx)^{3/2}(c+dx)^{7/2}}{5bd}$$

Antiderivative was successfully verified.

```
[In]  Int[x*Sqrt[a + b*x]*(c + d*x)^(5/2),x]
```


```
[Out] -((b*c - a*d)^3*(3*b*c + 7*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(128
*b^4*d^2) - ((b*c - a*d)^2*(3*b*c + 7*a*d)*(a + b*x)^(3/2)*Sqrt[c
 + d*x])/(64*b^4*d) - ((b*c - a*d)*(3*b*c + 7*a*d)*(a + b*x)^(3/2
)*(c + d*x)^(3/2))/(48*b^3*d) - ((3*b*c + 7*a*d)*(a + b*x)^(3/2)*
(c + d*x)^(5/2))/(40*b^2*d) + ((a + b*x)^(3/2)*(c + d*x)^(7/2))/(
5*b*d) + ((b*c - a*d)^4*(3*b*c + 7*a*d)*ArcTanh[(Sqrt[d]*Sqrt[a +
 b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(128*b^(9/2)*d^(5/2))
```

Rubi in Sympy [A] time = 47.3705, size = 241, normalized size = 0.9

$$\frac{(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{7}{2}}}{5bd}-\frac{(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{5}{2}}(7ad+3bc)}{40b^2d}+\frac{(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{3}{2}}(ad-bc)(7ad+3bc)}{48b^3d}-\frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}(ad-bc)^2(7ad+3bc)}{64b^4d}+\frac{\sqrt{a+bx}\sqrt{c+dx}(ad-bc)^3(7ad+3bc)}{128b^4d^2}+\frac{(ad-bc)^4(7ad+3bc)\,\mathrm{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{128b^{\frac{9}{2}}d^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(d*x+c)**(5/2)*(b*x+a)**(1/2),x)
```

```
[Out] (a + b*x)**(3/2)*(c + d*x)**(7/2)/(5*b*d) - (a + b*x)**(3/2)*(c +
 d*x)**(5/2)*(7*a*d + 3*b*c)/(40*b**2*d) + (a + b*x)**(3/2)*(c +
d*x)**(3/2)*(a*d - b*c)*(7*a*d + 3*b*c)/(48*b**3*d) - (a + b*x)**
(3/2)*sqrt(c + d*x)*(a*d - b*c)**2*(7*a*d + 3*b*c)/(64*b**4*d) +
```

```
sqrt(a + b*x)*sqrt(c + d*x)*(a*d - b*c)**3*(7*a*d + 3*b*c)/(128*b
**4*d**2) + (a*d - b*c)**4*(7*a*d + 3*b*c)*atanh(sqrt(b)*sqrt(c +
 d*x)/(sqrt(d)*sqrt(a + b*x)))/(128*b**(9/2)*d**(5/2))
```

Mathematica [A] time = 0.23822, size = 243, normalized size = 0.91

$$\frac{\sqrt{a+bx}\sqrt{c+dx}\left(-105a^4d^4+10a^3bd^3(34c+7dx)-2a^2b^2d^2\left(173c^2+111cdx+28d^2x^2\right)+2ab^3d\left(30c^3+109c^2dx+88cd^2x\right.\right.}{1920b^4d^2}+\frac{(7ad+3bc)(bc-ad)^4\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{256b^{9/2}d^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x*Sqrt[a + b*x]*(c + d*x)^(5/2),x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(-105*a^4*d^4 + 10*a^3*b*d^3*(34*c +
 7*d*x) - 2*a^2*b^2*d^2*(173*c^2 + 111*c*d*x + 28*d^2*x^2) + 2*a*
b^3*d*(30*c^3 + 109*c^2*d*x + 88*c*d^2*x^2 + 24*d^3*x^3) + b^4*(-
45*c^4 + 30*c^3*d*x + 744*c^2*d^2*x^2 + 1008*c*d^3*x^3 + 384*d^4*
x^4)))/(1920*b^4*d^2) + ((b*c - a*d)^4*(3*b*c + 7*a*d)*Log[b*c +
a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(
256*b^(9/2)*d^(5/2))
```

Maple [B] time = 0.023, size = 942, normalized size = 3.5

$$\frac{1}{3840\,b^4d^2}\sqrt{bx+a}\sqrt{dx+c}\left(768\,x^4b^4d^4\sqrt{dx^2b+adx+bcx+ac}\sqrt{bd}+96\,x^3ab^3d^4\sqrt{dx^2b+adx+bcx+ac}\sqrt{bd}+2016\,x^3b^4c\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(d*x+c)^(5/2)*(b*x+a)^(1/2),x)
```

```
[Out] 1/3840*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(768*x^4*b^4*d^4*(b*d*x^2+a*d*
x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+96*x^3*a*b^3*d^4*(b*d*x^2+a*d*x+b*
c*x+a*c)^(1/2)*(b*d)^(1/2)+2016*x^3*b^4*c*d^3*(b*d*x^2+a*d*x+b*c*
x+a*c)^(1/2)*(b*d)^(1/2)-112*x^2*a^2*b^2*d^4*(b*d*x^2+a*d*x+b*c*x
+a*c)^(1/2)*(b*d)^(1/2)+352*x^2*a*b^3*c*d^3*(b*d*x^2+a*d*x+b*c*x+
a*c)^(1/2)*(b*d)^(1/2)+1488*x^2*b^4*c^2*d^2*(b*d*x^2+a*d*x+b*c*x+
a*c)^(1/2)*(b*d)^(1/2)+105*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x
+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^5*d^5-375*ln(1/2*
(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(
b*d)^(1/2))*a^4*b*c*d^4+450*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*
x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^3*b^2*c^2*d^3-15
0*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a
*d+b*c)/(b*d)^(1/2))*a^2*b^3*c^3*d^2-75*ln(1/2*(2*b*d*x+2*(b*d*x^
2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a*b^4*
c^4*d+45*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^
(1/2)+a*d+b*c)/(b*d)^(1/2))*b^5*c^5+140*(b*d)^(1/2)*(b*d*x^2+a*d*
x+b*c*x+a*c)^(1/2)*x*a^3*b*d^4-444*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c
*x+a*c)^(1/2)*x*a^2*b^2*c*d^3+436*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*
x+a*c)^(1/2)*x*a*b^3*c^2*d^2+60*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+
a*c)^(1/2)*x*b^4*c^3*d-210*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^
(1/2)*a^4*d^4+680*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a^3
*b*c*d^3-692*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a^2*b^2*
c^2*d^2+120*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a*b^3*c^3
*d-90*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*b^4*c^4)/(b*d*x
^2+a*d*x+b*c*x+a*c)^(1/2)/b^4/d^2/(b*d)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(5/2)*x,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.259734, size = 1, normalized size = 0.

$$\left[\frac{4\left(384\,b^4d^4x^4 - 45\,b^4c^4 + 60\,ab^3c^3d - 346\,a^2b^2c^2d^2 + 340\,a^3bcd^3 - 105\,a^4d^4 + 48\left(21\,b^4cd^3 + ab^3d^4\right)x^3 + 8\left(93\,b^4c^2d^2 + 22\right.\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(5/2)*x,x, algorithm="fricas")
```

```
[Out] [1/7680*(4*(384*b^4*d^4*x^4 - 45*b^4*c^4 + 60*a*b^3*c^3*d - 346*a
^2*b^2*c^2*d^2 + 340*a^3*b*c*d^3 - 105*a^4*d^4 + 48*(21*b^4*c*d^3
 + a*b^3*d^4)*x^3 + 8*(93*b^4*c^2*d^2 + 22*a*b^3*c*d^3 - 7*a^2*b^
2*d^4)*x^2 + 2*(15*b^4*c^3*d + 109*a*b^3*c^2*d^2 - 111*a^2*b^2*c*
d^3 + 35*a^3*b*d^4)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 15
*(3*b^5*c^5 - 5*a*b^4*c^4*d - 10*a^2*b^3*c^3*d^2 + 30*a^3*b^2*c^2
*d^3 - 25*a^4*b*c*d^4 + 7*a^5*d^5)*log(4*(2*b^2*d^2*x + b^2*c*d +
 a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2
+ 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/(sqr
t(b*d)*b^4*d^2), 1/3840*(2*(384*b^4*d^4*x^4 - 45*b^4*c^4 + 60*a*b
^3*c^3*d - 346*a^2*b^2*c^2*d^2 + 340*a^3*b*c*d^3 - 105*a^4*d^4 +
48*(21*b^4*c*d^3 + a*b^3*d^4)*x^3 + 8*(93*b^4*c^2*d^2 + 22*a*b^3*
c*d^3 - 7*a^2*b^2*d^4)*x^2 + 2*(15*b^4*c^3*d + 109*a*b^3*c^2*d^2
- 111*a^2*b^2*c*d^3 + 35*a^3*b*d^4)*x)*sqrt(-b*d)*sqrt(b*x + a)*s
qrt(d*x + c) + 15*(3*b^5*c^5 - 5*a*b^4*c^4*d - 10*a^2*b^3*c^3*d^2
 + 30*a^3*b^2*c^2*d^3 - 25*a^4*b*c*d^4 + 7*a^5*d^5)*arctan(1/2*(2
*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d))
)/(sqrt(-b*d)*b^4*d^2)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(d*x+c)**(5/2)*(b*x+a)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.288925, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(5/2)*x,x, algorithm="giac")
```

```
[Out] Done
```

3.556 $\int \sqrt{a+bx}(c+dx)^{5/2}\,dx$

Optimal. Leaf size=186

$$-\frac{5(bc-ad)^4\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{64b^{7/2}d^{3/2}}+\frac{5\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^3}{64b^3d}+\frac{5(a+bx)^{3/2}\sqrt{c+dx}(bc-ad)^2}{32b^3}+\frac{5(a+bx)^{3/2}(c+dx)^{3/2}(bc-ad)}{24b^2}+\frac{(a+bx)^{3/2}(c+dx)^{5/2}}{4b}$$

```
[Out] (5*(b*c - a*d)^3*Sqrt[a + b*x]*Sqrt[c + d*x])/(64*b^3*d) + (5*(b*
c - a*d)^2*(a + b*x)^(3/2)*Sqrt[c + d*x])/(32*b^3) + (5*(b*c - a*
d)*(a + b*x)^(3/2)*(c + d*x)^(3/2))/(24*b^2) + ((a + b*x)^(3/2)*(
c + d*x)^(5/2))/(4*b) - (5*(b*c - a*d)^4*ArcTanh[(Sqrt[d]*Sqrt[a
+ b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(64*b^(7/2)*d^(3/2))
```

Rubi [A] time = 0.225961, antiderivative size = 186, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 3, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}} = 0.158$

$$-\frac{5(bc-ad)^4\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{64b^{7/2}d^{3/2}}+\frac{5\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^3}{64b^3d}+\frac{5(a+bx)^{3/2}\sqrt{c+dx}(bc-ad)^2}{32b^3}+\frac{5(a+bx)^{3/2}(c+dx)^{3/2}(bc-ad)}{24b^2}+\frac{(a+bx)^{3/2}(c+dx)^{5/2}}{4b}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[a + b*x]*(c + d*x)^(5/2),x]
```

```
[Out] (5*(b*c - a*d)^3*Sqrt[a + b*x]*Sqrt[c + d*x])/(64*b^3*d) + (5*(b*
c - a*d)^2*(a + b*x)^(3/2)*Sqrt[c + d*x])/(32*b^3) + (5*(b*c - a*
d)*(a + b*x)^(3/2)*(c + d*x)^(3/2))/(24*b^2) + ((a + b*x)^(3/2)*(
c + d*x)^(5/2))/(4*b) - (5*(b*c - a*d)^4*ArcTanh[(Sqrt[d]*Sqrt[a
+ b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(64*b^(7/2)*d^(3/2))
```

Rubi in Sympy [A] time = 32.3229, size = 167, normalized size = 0.9

$$\frac{\sqrt{a+bx}\,(c+dx)^{\frac{7}{2}}}{4d}+\frac{\sqrt{a+bx}\,(c+dx)^{\frac{5}{2}}\,(ad-bc)}{24bd}-\frac{5\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}\,(ad-bc)^2}{96b^2d}+\frac{5\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)^3}{64b^3d}-\frac{5\,(ad-bc)^4\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{64b^{\frac{7}{2}}d^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/2)*(d*x+c)**(5/2),x)
```

```
[Out] sqrt(a + b*x)*(c + d*x)**(7/2)/(4*d) + sqrt(a + b*x)*(c + d*x)**(
5/2)*(a*d - b*c)/(24*b*d) - 5*sqrt(a + b*x)*(c + d*x)**(3/2)*(a*d
 - b*c)**2/(96*b**2*d) + 5*sqrt(a + b*x)*sqrt(c + d*x)*(a*d - b*c
)**3/(64*b**3*d) - 5*(a*d - b*c)**4*atanh(sqrt(d)*sqrt(a + b*x)/(
sqrt(b)*sqrt(c + d*x)))/(64*b**(7/2)*d**(3/2))
```

Mathematica [A] time = 0.161118, size = 181, normalized size = 0.97

$$\frac{\sqrt{a+bx}\sqrt{c+dx}\left(15a^3d^3-5a^2bd^2(11c+2dx)+ab^2d\left(73c^2+36cdx+8d^2x^2\right)+b^3\left(15c^3+118c^2dx+136cd^2x^2+48d^3x^3\right)\right)}{192b^3d}-\frac{5(bc-ad)^4\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{128b^{7/2}d^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[a + b*x]*(c + d*x)^(5/2),x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(15*a^3*d^3 - 5*a^2*b*d^2*(11*c + 2*
d*x) + a*b^2*d*(73*c^2 + 36*c*d*x + 8*d^2*x^2) + b^3*(15*c^3 + 11
8*c^2*d*x + 136*c*d^2*x^2 + 48*d^3*x^3)))/(192*b^3*d) - (5*(b*c -
 a*d)^4*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]
*Sqrt[c + d*x]])/(128*b^(7/2)*d^(3/2))
```

Maple [B] time = 0.007, size = 641, normalized size = 3.5

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/2)*(d*x+c)^(5/2),x)
```

```
[Out] 1/4/d*(b*x+a)^(1/2)*(d*x+c)^(7/2)+1/24/b*(d*x+c)^(5/2)*(b*x+a)^(1
/2)*a-1/24/d*(d*x+c)^(5/2)*(b*x+a)^(1/2)*c-5/96*d/b^2*(d*x+c)^(3/
2)*(b*x+a)^(1/2)*a^2+5/48/b*(d*x+c)^(3/2)*(b*x+a)^(1/2)*a*c-5/96/
d*(d*x+c)^(3/2)*(b*x+a)^(1/2)*c^2+5/64*d^2/b^3*(d*x+c)^(1/2)*(b*x
+a)^(1/2)*a^3-15/64*d/b^2*(d*x+c)^(1/2)*(b*x+a)^(1/2)*a^2*c+15/64
/b*(d*x+c)^(1/2)*(b*x+a)^(1/2)*a*c^2-5/64/d*(d*x+c)^(1/2)*(b*x+a)
^(1/2)*c^3-5/128*d^3/b^3*((b*x+a)*(d*x+c))^(1/2)/(d*x+c)^(1/2)/(b
*x+a)^(1/2)*ln((1/2*a*d+1/2*b*c+b*d*x)/(b*d)^(1/2)+(d*x^2*b+(a*d+
b*c)*x+a*c)^(1/2))/(b*d)^(1/2)*a^4+5/32*d^2/b^2*((b*x+a)*(d*x+c))
^(1/2)/(d*x+c)^(1/2)/(b*x+a)^(1/2)*ln((1/2*a*d+1/2*b*c+b*d*x)/(b*
d)^(1/2)+(d*x^2*b+(a*d+b*c)*x+a*c)^(1/2))/(b*d)^(1/2)*a^3*c-15/64
*d/b*((b*x+a)*(d*x+c))^(1/2)/(d*x+c)^(1/2)/(b*x+a)^(1/2)*ln((1/2*
a*d+1/2*b*c+b*d*x)/(b*d)^(1/2)+(d*x^2*b+(a*d+b*c)*x+a*c)^(1/2))/(
b*d)^(1/2)*a^2*c^2+5/32*((b*x+a)*(d*x+c))^(1/2)/(d*x+c)^(1/2)/(b*
x+a)^(1/2)*ln((1/2*a*d+1/2*b*c+b*d*x)/(b*d)^(1/2)+(d*x^2*b+(a*d+b
*c)*x+a*c)^(1/2))/(b*d)^(1/2)*a*c^3-5/128/d*((b*x+a)*(d*x+c))^(1/
2)/(d*x+c)^(1/2)/(b*x+a)^(1/2)*ln((1/2*a*d+1/2*b*c+b*d*x)/(b*d)^(
1/2)+(d*x^2*b+(a*d+b*c)*x+a*c)^(1/2))/(b*d)^(1/2)*c^4*b
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(5/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.247123, size = 1, normalized size = 0.01

$$\left[\frac{4\left(48\,b^{3}d^{3}x^{3}+15\,b^{3}c^{3}+73\,ab^{2}c^{2}d-55\,a^{2}bcd^{2}+15\,a^{3}d^{3}+8\left(17\,b^{3}cd^{2}+ab^{2}d^{3}\right)x^{2}+2\left(59\,b^{3}c^{2}d+18\,ab^{2}cd^{2}-5\,a^{2}bd^{3}\right)x\right)}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(5/2),x, algorithm="fricas")
```

```
[Out] [1/768*(4*(48*b^3*d^3*x^3 + 15*b^3*c^3 + 73*a*b^2*c^2*d - 55*a^2*
b*c*d^2 + 15*a^3*d^3 + 8*(17*b^3*c*d^2 + a*b^2*d^3)*x^2 + 2*(59*b
```

```
^3*c^2*d + 18*a*b^2*c*d^2 - 5*a^2*b*d^3)*x)*sqrt(b*d)*sqrt(b*x +
a)*sqrt(d*x + c) + 15*(b^4*c^4 - 4*a*b^3*c^3*d + 6*a^2*b^2*c^2*d^
2 - 4*a^3*b*c*d^3 + a^4*d^4)*log(-4*(2*b^2*d^2*x + b^2*c*d + a*b*
d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a
*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/(sqrt(b*d
)*b^3*d), 1/384*(2*(48*b^3*d^3*x^3 + 15*b^3*c^3 + 73*a*b^2*c^2*d
- 55*a^2*b*c*d^2 + 15*a^3*d^3 + 8*(17*b^3*c*d^2 + a*b^2*d^3)*x^2
+ 2*(59*b^3*c^2*d + 18*a*b^2*c*d^2 - 5*a^2*b*d^3)*x)*sqrt(-b*d)*s
qrt(b*x + a)*sqrt(d*x + c) - 15*(b^4*c^4 - 4*a*b^3*c^3*d + 6*a^2*
b^2*c^2*d^2 - 4*a^3*b*c*d^3 + a^4*d^4)*arctan(1/2*(2*b*d*x + b*c
+ a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/(sqrt(-b*d)
*b^3*d)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(1/2)*(d*x+c)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.279551, size = 852, normalized size = 4.58

$$\frac{\frac{10\left(\sqrt{b^2c+(bx+a)bd-abd}\sqrt{bx+a}\left(\frac{2(bx+a)}{b^4d^2}+\frac{bcd-ad^2}{b^4d^4}\right)+\frac{\left(b^2c^2-2abcd+a^2d^2\right)\ln\left(\left|-\sqrt{bd}\sqrt{bx+a}+\sqrt{b^2c+(bx+a)bd-abd}\right|\right)}{\sqrt{bd}b^3d^3}\right)c^2|b|}{b^2}+5\left(\sqrt{b^2c+(bx+a)bd-abd}\left(2(bx+a)\left(\cdots\right.\right.\right.}{\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(5/2),x, algorithm="giac")
```

```
[Out] 1/960*(10*(sqrt(b^2*c + (b*x + a)*b*d - a*b*d)*sqrt(b*x + a)*(2*(
b*x + a)/(b^4*d^2) + (b*c*d - a*d^2)/(b^4*d^4)) + (b^2*c^2 - 2*a*
b*c*d + a^2*d^2)*ln(abs(-sqrt(b*d)*sqrt(b*x + a) + sqrt(b^2*c + (
b*x + a)*b*d - a*b*d)))/(sqrt(b*d)*b^3*d^3))*c^2*abs(b)/b^2 + 5*(
sqrt(b^2*c + (b*x + a)*b*d - a*b*d)*(2*(b*x + a)*(4*(b*x + a)*(6*
(b*x + a)/b^2 + (b^7*c*d^5 - 17*a*b^6*d^6)/(b^8*d^6)) - (5*b^8*c^
2*d^4 + 6*a*b^7*c*d^5 - 59*a^2*b^6*d^6)/(b^8*d^6)) + 3*(5*b^9*c^3
*d^3 + a*b^8*c^2*d^4 - a^2*b^7*c*d^5 - 5*a^3*b^6*d^6)/(b^8*d^6))*
sqrt(b*x + a) + 3*(5*b^4*c^4 - 4*a*b^3*c^3*d - 2*a^2*b^2*c^2*d^2
- 4*a^3*b*c*d^3 + 5*a^4*d^4)*ln(abs(-sqrt(b*d)*sqrt(b*x + a) + sq
rt(b^2*c + (b*x + a)*b*d - a*b*d)))/(sqrt(b*d)*b*d^3))*d^2*abs(b)
/b^2 + (sqrt(b^2*c + (b*x + a)*b*d - a*b*d)*sqrt(b*x + a)*(2*(b*x
 + a)*(4*(b*x + a)/(b^6*d^2) + (b*c*d^3 - 7*a*d^4)/(b^6*d^6)) - 3
*(b^2*c^2*d^2 - a^2*d^4)/(b^6*d^6)) - 3*(b^3*c^3 - a*b^2*c^2*d -
a^2*b*c*d^2 + a^3*d^3)*ln(abs(-sqrt(b*d)*sqrt(b*x + a) + sqrt(b^2
*c + (b*x + a)*b*d - a*b*d)))/(sqrt(b*d)*b^5*d^4))*c*d*abs(b)/b^3
)/b
```

3.557 $\int \frac{\sqrt{a+bx}(c+dx)^{5/2}}{x}\,dx$

Optimal. Leaf size=219

$$\frac{\left(a^3d^3-5a^2bcd^2+15ab^2c^2d+5b^3c^3\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8b^{5/2}\sqrt{d}}+\frac{\sqrt{a+bx}\sqrt{c+dx}(5bc-ad)(ad+bc)}{8b^2}-2\sqrt{a}c^{5/2}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)+\frac{1}{3}\sqrt{a+bx}(c+dx)^{5/2}+\frac{\sqrt{a+bx}(c+dx)^{3/2}(ad+5bc)}{12b}$$

```
[Out] ((5*b*c - a*d)*(b*c + a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(8*b^2) +
 ((5*b*c + a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(12*b) + (Sqrt[a +
 b*x]*(c + d*x)^(5/2))/3 - 2*Sqrt[a]*c^(5/2)*ArcTanh[(Sqrt[c]*Sqr
t[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])] + ((5*b^3*c^3 + 15*a*b^2*c^2
*d - 5*a^2*b*c*d^2 + a^3*d^3)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sq
rt[b]*Sqrt[c + d*x])])/(8*b^(5/2)*Sqrt[d])
```

Rubi [A] time = 0.720676, antiderivative size = 219, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.273

$$\frac{\left(a^3d^3-5a^2bcd^2+15ab^2c^2d+5b^3c^3\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8b^{5/2}\sqrt{d}}+\frac{\sqrt{a+bx}\sqrt{c+dx}(5bc-ad)(ad+bc)}{8b^2}-2\sqrt{a}c^{5/2}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)+\frac{1}{3}\sqrt{a+bx}(c+dx)^{5/2}+\frac{\sqrt{a+bx}(c+dx)^{3/2}(ad+5bc)}{12b}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[a + b*x]*(c + d*x)^(5/2))/x,x]
```

```
[Out] ((5*b*c - a*d)*(b*c + a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(8*b^2) +
 ((5*b*c + a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(12*b) + (Sqrt[a +
 b*x]*(c + d*x)^(5/2))/3 - 2*Sqrt[a]*c^(5/2)*ArcTanh[(Sqrt[c]*Sqr
t[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])] + ((5*b^3*c^3 + 15*a*b^2*c^2
*d - 5*a^2*b*c*d^2 + a^3*d^3)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sq
rt[b]*Sqrt[c + d*x])])/(8*b^(5/2)*Sqrt[d])
```

Rubi in Sympy [A] time = 63.0574, size = 199, normalized size = 0.91

$$-2\sqrt{a}c^{\frac{5}{2}}\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)+\frac{\sqrt{a+bx}\,(c+dx)^{\frac{5}{2}}}{3}+\frac{\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}\,(ad+5bc)}{12b}-\frac{\sqrt{a+bx}\sqrt{c+dx}\,(ad-5bc)\,(ad+bc)}{8b^2}+\frac{\left(16ab^2c^2d+(ad-5bc)\,(ad-bc)\,(ad+bc)\right)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{8b^{\frac{5}{2}}\sqrt{d}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(5/2)*(b*x+a)**(1/2)/x,x)
```

```
[Out] -2*sqrt(a)*c**(5/2)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c +
 d*x))) + sqrt(a + b*x)*(c + d*x)**(5/2)/3 + sqrt(a + b*x)*(c + d
*x)**(3/2)*(a*d + 5*b*c)/(12*b) - sqrt(a + b*x)*sqrt(c + d*x)*(a*
d - 5*b*c)*(a*d + b*c)/(8*b**2) + (16*a*b**2*c**2*d + (a*d - 5*b*
c)*(a*d - b*c)*(a*d + b*c))*atanh(sqrt(b)*sqrt(c + d*x)/(sqrt(d)*
sqrt(a + b*x)))/(8*b**(5/2)*sqrt(d))
```

Mathematica [A] time = 0.158314, size = 232, normalized size = 1.06

$$\frac{\sqrt{a+bx}\sqrt{c+dx}\left(-3a^2d^2+2abd(7c+dx)+b^2\left(33c^2+26cdx+8d^2x^2\right)\right)}{24b^2}+\frac{\left(a^3d^3-5a^2bcd^2+15ab^2c^2d+5b^3c^3\right)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{16b^{5/2}\sqrt{d}}-\sqrt{a}c^{5/2}\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)+\sqrt{a}c^{5/2}\log(x)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[a + b*x]*(c + d*x)^(5/2))/x,x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(-3*a^2*d^2 + 2*a*b*d*(7*c + d*x) +
b^2*(33*c^2 + 26*c*d*x + 8*d^2*x^2)))/(24*b^2) + Sqrt[a]*c^(5/2)*
Log[x] - Sqrt[a]*c^(5/2)*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sq
rt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]] + ((5*b^3*c^3 + 15*a*b^2*c^2*d
 - 5*a^2*b*c*d^2 + a^3*d^3)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*S
qrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(16*b^(5/2)*Sqrt[d])
```

Maple [B] time = 0.02, size = 583, normalized size = 2.7

$$\frac{1}{48\,b^2}\sqrt{bx+a}\sqrt{dx+c}\left(16\,x^2b^2d^2\sqrt{ac}\sqrt{dx^2b+adx+bcx+ac}\sqrt{bd}+3\,d^3\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{dx^2b+adx+bcx+ac}\sqrt{bd}+a\right.}{\sqrt{bd}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(5/2)*(b*x+a)^(1/2)/x,x)
```

```
[Out] 1/48*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(16*x^2*b^2*d^2*(a*c)^(1/2)*(b*d
*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+3*d^3*ln(1/2*(2*b*d*x+2*(
b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*
a^3*(a*c)^(1/2)-15*d^2*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c
)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^2*c*(a*c)^(1/2)*b+45*
c^2*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)
+a*d+b*c)/(b*d)^(1/2))*a*d*(a*c)^(1/2)*b^2+15*c^3*ln(1/2*(2*b*d*x
+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/
2))*b^3*(a*c)^(1/2)-48*c^3*a*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x
^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*(b*d)^(1/2)*b^2+4*d^2*(b*d*x^
2+a*d*x+b*c*x+a*c)^(1/2)*x*a*(b*d)^(1/2)*(a*c)^(1/2)*b+52*d*(b*d*
x^2+a*d*x+b*c*x+a*c)^(1/2)*x*c*(b*d)^(1/2)*(a*c)^(1/2)*b^2-6*d^2*
(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a^2*(b*d)^(1/2)*(a*c)^(1/2)+28*d*
(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a*c*(b*d)^(1/2)*(a*c)^(1/2)*b+66*
c^2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)*(a*c)^(1/2)*b^2)/
(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)/(b*d)^(1/2)/(a*c)^(1/2)/b^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(5/2)/x,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 5.96798, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(5/2)/x,x, algorithm="fricas")
```

```
[Out] [1/96*(48*sqrt(a*c)*sqrt(b*d)*b^2*c^2*log((8*a^2*c^2 + (b^2*c^2 +
 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a*c + (b*c + a*d)*x)*sqrt(a*c)*s
qrt(b*x + a)*sqrt(d*x + c) + 8*(a*b*c^2 + a^2*c*d)*x)/x^2) + 4*(8
*b^2*d^2*x^2 + 33*b^2*c^2 + 14*a*b*c*d - 3*a^2*d^2 + 2*(13*b^2*c*
d + a*b*d^2)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 3*(5*b^3*
c^3 + 15*a*b^2*c^2*d - 5*a^2*b*c*d^2 + a^3*d^3)*log(4*(2*b^2*d^2*
x + b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x
^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqr
t(b*d)))/(sqrt(b*d)*b^2), 1/48*(24*sqrt(a*c)*sqrt(-b*d)*b^2*c^2*l
og((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a*c +
(b*c + a*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c) + 8*(a*b*c^2
 + a^2*c*d)*x)/x^2) + 2*(8*b^2*d^2*x^2 + 33*b^2*c^2 + 14*a*b*c*d
- 3*a^2*d^2 + 2*(13*b^2*c*d + a*b*d^2)*x)*sqrt(-b*d)*sqrt(b*x + a
)*sqrt(d*x + c) + 3*(5*b^3*c^3 + 15*a*b^2*c^2*d - 5*a^2*b*c*d^2 +
 a^3*d^3)*arctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x +
 a)*sqrt(d*x + c)*b*d)))/(sqrt(-b*d)*b^2), -1/96*(96*sqrt(-a*c)*s
qrt(b*d)*b^2*c^2*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(-a*c)*s
qrt(b*x + a)*sqrt(d*x + c))) - 4*(8*b^2*d^2*x^2 + 33*b^2*c^2 + 14
*a*b*c*d - 3*a^2*d^2 + 2*(13*b^2*c*d + a*b*d^2)*x)*sqrt(b*d)*sqrt
(b*x + a)*sqrt(d*x + c) - 3*(5*b^3*c^3 + 15*a*b^2*c^2*d - 5*a^2*b
*c*d^2 + a^3*d^3)*log(4*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*
x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2
*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/(sqrt(b*d)*b^2), -1/4
8*(48*sqrt(-a*c)*sqrt(-b*d)*b^2*c^2*arctan(1/2*(2*a*c + (b*c + a*
d)*x)/(sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c))) - 2*(8*b^2*d^2*x^
2 + 33*b^2*c^2 + 14*a*b*c*d - 3*a^2*d^2 + 2*(13*b^2*c*d + a*b*d^2
)*x)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c) - 3*(5*b^3*c^3 + 15*a
*b^2*c^2*d - 5*a^2*b*c*d^2 + a^3*d^3)*arctan(1/2*(2*b*d*x + b*c +
 a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/(sqrt(-b*d)*
b^2)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{a + bx}\,(c + dx)^{\frac{5}{2}}}{x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(5/2)*(b*x+a)**(1/2)/x,x)
```

```
[Out] Integral(sqrt(a + b*x)*(c + d*x)**(5/2)/x, x)
```

GIAC/XCAS [A] time = 0.298736, size = 448, normalized size = 2.05

$$-\frac{2\sqrt{bd}ac^3|b|\arctan\left(-\frac{b^2c+abd-\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2}{2\sqrt{-abcd}b}\right)}{\sqrt{-abcd}b}$$

$$+\frac{1}{24}\sqrt{b^2c+(bx+a)bd-abd}\sqrt{bx+a}\left(2(bx+a)\left(\frac{4(bx+a)d^2|b|}{b^4}+\frac{13b^9cd^5|b|-7ab^8d^6|b|}{b^{12}d^4}\right)+\frac{3\left(11b^{10}c^2d^4|b|-4ab^9cd^5\right.}{b^{12}d^4}\right.$$

$$-\frac{\left(5\sqrt{bd}b^3c^3|b|+15\sqrt{bd}ab^2c^2d|b|-5\sqrt{bd}a^2bcd^2|b|+\sqrt{bd}a^3d^3|b|\right)\ln\left(\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2\right)}{16b^4d}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(5/2)/x,x, algorithm="giac")
```

```
[Out] -2*sqrt(b*d)*a*c^3*abs(b)*arctan(-1/2*(b^2*c + a*b*d - (sqrt(b*d)
*sqrt(b*x + a) - sqrt(b^2*c + (b*x + a)*b*d - a*b*d))^2)/(sqrt(-a
*b*c*d)*b))/(sqrt(-a*b*c*d)*b) + 1/24*sqrt(b^2*c + (b*x + a)*b*d
- a*b*d)*sqrt(b*x + a)*(2*(b*x + a)*(4*(b*x + a)*d^2*abs(b)/b^4 +
 (13*b^9*c*d^5*abs(b) - 7*a*b^8*d^6*abs(b))/(b^12*d^4)) + 3*(11*b
^10*c^2*d^4*abs(b) - 4*a*b^9*c*d^5*abs(b) + a^2*b^8*d^6*abs(b))/(
b^12*d^4)) - 1/16*(5*sqrt(b*d)*b^3*c^3*abs(b) + 15*sqrt(b*d)*a*b^
2*c^2*d*abs(b) - 5*sqrt(b*d)*a^2*b*c*d^2*abs(b) + sqrt(b*d)*a^3*d
^3*abs(b))*ln((sqrt(b*d)*sqrt(b*x + a) - sqrt(b^2*c + (b*x + a)*b
*d - a*b*d))^2)/(b^4*d)
```

3.558 $\int \frac{\sqrt{a+bx}(c+dx)^{5/2}}{x^2}\,dx$

Optimal. Leaf size=198

$$\frac{\sqrt{d}\left(-a^2d^2+10abcd+15b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{3/2}}-\frac{c^{3/2}(5ad+bc)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{a}}-\frac{\sqrt{a+bx}(c+dx)^{5/2}}{x}+\frac{3}{2}d\sqrt{a+bx}(c+dx)^{3/2}+\frac{d\sqrt{a+bx}\sqrt{c+dx}(ad+11bc)}{4b}$$

```
[Out] (d*(11*b*c + a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*b) + (3*d*Sqrt[
a + b*x]*(c + d*x)^(3/2))/2 - (Sqrt[a + b*x]*(c + d*x)^(5/2))/x -
 (c^(3/2)*(b*c + 5*a*d)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*
Sqrt[c + d*x])])/Sqrt[a] + (Sqrt[d]*(15*b^2*c^2 + 10*a*b*c*d - a^
2*d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/
(4*b^(3/2))
```

Rubi [A] time = 0.657025, antiderivative size = 198, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.273

$$\frac{\sqrt{d}\left(-a^2d^2+10abcd+15b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{3/2}}-\frac{c^{3/2}(5ad+bc)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{a}}-\frac{\sqrt{a+bx}(c+dx)^{5/2}}{x}+\frac{3}{2}d\sqrt{a+bx}(c+dx)^{3/2}+\frac{d\sqrt{a+bx}\sqrt{c+dx}(ad+11bc)}{4b}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[a + b*x]*(c + d*x)^(5/2))/x^2,x]
```

```
[Out] (d*(11*b*c + a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*b) + (3*d*Sqrt[
a + b*x]*(c + d*x)^(3/2))/2 - (Sqrt[a + b*x]*(c + d*x)^(5/2))/x -
 (c^(3/2)*(b*c + 5*a*d)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*
Sqrt[c + d*x])])/Sqrt[a] + (Sqrt[d]*(15*b^2*c^2 + 10*a*b*c*d - a^
2*d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/
(4*b^(3/2))
```

Rubi in Sympy [A] time = 69.7545, size = 182, normalized size = 0.92

$$\frac{3d\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}}{2}-\frac{\sqrt{a+bx}\,(c+dx)^{\frac{5}{2}}}{x}+\frac{d\sqrt{a+bx}\sqrt{c+dx}\,(ad+11bc)}{4b}-\frac{\sqrt{d}\left(a^2d^2-10abcd-15b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{\frac{3}{2}}}-\frac{c^{\frac{3}{2}}\,(5ad+bc)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{a}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(5/2)*(b*x+a)**(1/2)/x**2,x)
```

```
[Out] 3*d*sqrt(a + b*x)*(c + d*x)**(3/2)/2 - sqrt(a + b*x)*(c + d*x)**(
5/2)/x + d*sqrt(a + b*x)*sqrt(c + d*x)*(a*d + 11*b*c)/(4*b) - sqr
t(d)*(a**2*d**2 - 10*a*b*c*d - 15*b**2*c**2)*atanh(sqrt(d)*sqrt(a
 + b*x)/(sqrt(b)*sqrt(c + d*x)))/(4*b**(3/2)) - c**(3/2)*(5*a*d +
 b*c)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/sqrt(a
)
```

Mathematica [A] time = 0.553977, size = 214, normalized size = 1.08

$$\frac{1}{8}\left(\frac{\sqrt{d}\left(-a^2d^2+10abcd+15b^2c^2\right)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{b^{3/2}}+\frac{4c^{3/2}\log(x)(5ad+bc)}{\sqrt{a}}-\frac{4c^{3/2}(5ad+bc)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{\sqrt{a}}+2\sqrt{a+bx}\sqrt{c+dx}\left(\frac{d^2(a+2bx)}{b}-\frac{4c^2}{x}+9cd\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[a + b*x]*(c + d*x)^(5/2))/x^2,x]
```

```
[Out] (2*Sqrt[a + b*x]*Sqrt[c + d*x]*(9*c*d - (4*c^2)/x + (d^2*(a + 2*b
*x))/b) + (4*c^(3/2)*(b*c + 5*a*d)*Log[x])/Sqrt[a] - (4*c^(3/2)*(
b*c + 5*a*d)*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a
 + b*x]*Sqrt[c + d*x]])/Sqrt[a] + (Sqrt[d]*(15*b^2*c^2 + 10*a*b*c
*d - a^2*d^2)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a
+ b*x]*Sqrt[c + d*x]])/b^(3/2))/8
```

Maple [B] time = 0.023, size = 503, normalized size = 2.5

$$-\frac{1}{8\,bx}\sqrt{bx+a}\sqrt{dx+c}\left(\ln\left(\frac{1}{2}\left(2\,bdx+2\,\sqrt{dx^2b+adx+bcx+ac}\sqrt{bd}+ad+bc\right)\frac{1}{\sqrt{bd}}\right)xa^2d^3\sqrt{ac}-10\,\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{}}{}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(5/2)*(b*x+a)^(1/2)/x^2,x)
```

```
[Out] -1/8*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*
x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^2*d^3*(a
*c)^(1/2)-10*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b
*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a*b*c*d^2*(a*c)^(1/2)-15*ln(1/2
*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/
(b*d)^(1/2))*x*b^2*c^2*d*(a*c)^(1/2)+20*ln((a*d*x+b*c*x+2*(a*c)^(
1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x*a*b*c^2*d*(b*d)^
(1/2)+4*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(
1/2)+2*a*c)/x)*x*b^2*c^3*(b*d)^(1/2)-4*x^2*b*d^2*(a*c)^(1/2)*(b*d
*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)-2*x*a*d^2*(a*c)^(1/2)*(b*
d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)-18*x*b*c*d*(a*c)^(1/2)*(
b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+8*b*c^2*(a*c)^(1/2)*(b
*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2))/(b*d*x^2+a*d*x+b*c*x+a
*c)^(1/2)/b/(b*d)^(1/2)/x/(a*c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(5/2)/x^2,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 2.8966, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(5/2)/x^2,x, algorithm="fricas")
```

```
[Out] [-1/16*((15*b^2*c^2 + 10*a*b*c*d - a^2*d^2)*x*sqrt(d/b)*log(8*b^2
*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 - 4*(2*b^2*d*x + b^2*c +
 a*b*d)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(d/b) + 8*(b^2*c*d + a*b*
d^2)*x) - 4*(b^2*c^2 + 5*a*b*c*d)*x*sqrt(c/a)*log((8*a^2*c^2 + (b
^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a^2*c + (a*b*c + a^2*d)*
x)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(c/a) + 8*(a*b*c^2 + a^2*c*d)*
x)/x^2) - 4*(2*b*d^2*x^2 - 4*b*c^2 + (9*b*c*d + a*d^2)*x)*sqrt(b*
x + a)*sqrt(d*x + c))/(b*x), 1/8*((15*b^2*c^2 + 10*a*b*c*d - a^2*
d^2)*x*sqrt(-d/b)*arctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(b*x + a)
*sqrt(d*x + c)*b*sqrt(-d/b))) + 2*(b^2*c^2 + 5*a*b*c*d)*x*sqrt(c/
a)*log((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a^
2*c + (a*b*c + a^2*d)*x)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(c/a) +
8*(a*b*c^2 + a^2*c*d)*x)/x^2) + 2*(2*b*d^2*x^2 - 4*b*c^2 + (9*b*c
*d + a*d^2)*x)*sqrt(b*x + a)*sqrt(d*x + c))/(b*x), -1/16*(8*(b^2*
c^2 + 5*a*b*c*d)*x*sqrt(-c/a)*arctan(1/2*(2*a*c + (b*c + a*d)*x)/
(sqrt(b*x + a)*sqrt(d*x + c)*a*sqrt(-c/a))) + (15*b^2*c^2 + 10*a*
b*c*d - a^2*d^2)*x*sqrt(d/b)*log(8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*
c*d + a^2*d^2 - 4*(2*b^2*d*x + b^2*c + a*b*d)*sqrt(b*x + a)*sqrt(
d*x + c)*sqrt(d/b) + 8*(b^2*c*d + a*b*d^2)*x) - 4*(2*b*d^2*x^2 -
4*b*c^2 + (9*b*c*d + a*d^2)*x)*sqrt(b*x + a)*sqrt(d*x + c))/(b*x)
, -1/8*(4*(b^2*c^2 + 5*a*b*c*d)*x*sqrt(-c/a)*arctan(1/2*(2*a*c +
(b*c + a*d)*x)/(sqrt(b*x + a)*sqrt(d*x + c)*a*sqrt(-c/a))) - (15*
b^2*c^2 + 10*a*b*c*d - a^2*d^2)*x*sqrt(-d/b)*arctan(1/2*(2*b*d*x
+ b*c + a*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*sqrt(-d/b))) - 2*(2*b
*d^2*x^2 - 4*b*c^2 + (9*b*c*d + a*d^2)*x)*sqrt(b*x + a)*sqrt(d*x
+ c))/(b*x)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(5/2)*(b*x+a)**(1/2)/x**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.596493, size = 4, normalized size = 0.02

$$sage_0 x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(5/2)/x^2,x, algorithm="giac")
```

```
[Out] sage0*x
```

3.559 $\int \frac{\sqrt{a+bx}(c+dx)^{5/2}}{x^3}\,dx$

Optimal. Leaf size=211

$$\frac{\sqrt{c}\left(-15a^2d^2-10abcd+b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{3/2}}+\frac{d^{3/2}(ad+5bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{b}}-\frac{\sqrt{a+bx}(c+dx)^{5/2}}{2x^2}-\frac{\sqrt{a+bx}(c+dx)^{3/2}(5ad+bc)}{4ax}+\frac{d\sqrt{a+bx}\sqrt{c+dx}(11ad+bc)}{4a}$$

```
[Out] (d*(b*c + 11*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*a) - ((b*c + 5*
a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(4*a*x) - (Sqrt[a + b*x]*(c +
 d*x)^(5/2))/(2*x^2) + (Sqrt[c]*(b^2*c^2 - 10*a*b*c*d - 15*a^2*d^
2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(4*a
^(3/2)) + (d^(3/2)*(5*b*c + a*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/
(Sqrt[b]*Sqrt[c + d*x])])/Sqrt[b]
```

Rubi [A] time = 0.663822, antiderivative size = 211, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 7, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.318$

$$\frac{\sqrt{c}\left(-15a^2d^2-10abcd+b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{3/2}}+\frac{d^{3/2}(ad+5bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{b}}-\frac{\sqrt{a+bx}(c+dx)^{5/2}}{2x^2}-\frac{\sqrt{a+bx}(c+dx)^{3/2}(5ad+bc)}{4ax}+\frac{d\sqrt{a+bx}\sqrt{c+dx}(11ad+bc)}{4a}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[a + b*x]*(c + d*x)^(5/2))/x^3,x]
```

```
[Out] (d*(b*c + 11*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*a) - ((b*c + 5*
a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(4*a*x) - (Sqrt[a + b*x]*(c +
 d*x)^(5/2))/(2*x^2) + (Sqrt[c]*(b^2*c^2 - 10*a*b*c*d - 15*a^2*d^
2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(4*a
^(3/2)) + (d^(3/2)*(5*b*c + a*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/
(Sqrt[b]*Sqrt[c + d*x])])/Sqrt[b]
```

Rubi in Sympy [A] time = 88.6344, size = 194, normalized size = 0.92

$$-\frac{\sqrt{a+bx}\,(c+dx)^{\frac{5}{2}}}{2x^2}+\frac{d^{\frac{3}{2}}\,(ad+5bc)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{b}}+\frac{d\sqrt{a+bx}\sqrt{c+dx}\,(11ad+bc)}{4a}-\frac{\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}\,(5ad+bc)}{4ax}-\frac{\sqrt{c}\left(15a^2d^2+10abcd-b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(5/2)*(b*x+a)**(1/2)/x**3,x)
```

```
[Out] -sqrt(a + b*x)*(c + d*x)**(5/2)/(2*x**2) + d**(3/2)*(a*d + 5*b*c)
*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c + d*x)))/sqrt(b) + d
*sqrt(a + b*x)*sqrt(c + d*x)*(11*a*d + b*c)/(4*a) - sqrt(a + b*x)
*(c + d*x)**(3/2)*(5*a*d + b*c)/(4*a*x) - sqrt(c)*(15*a**2*d**2 +
 10*a*b*c*d - b**2*c**2)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqr
t(c + d*x)))/(4*a**(3/2))
```

Mathematica [A] time = 0.612001, size = 236, normalized size = 1.12

$$-\frac{\sqrt{c}\log(x)\left(-15a^2d^2-10abcd+b^2c^2\right)}{8a^{3/2}}+\frac{\sqrt{c}\left(-15a^2d^2-10abcd+b^2c^2\right)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{8a^{3/2}}+\sqrt{a+bx}\sqrt{c+dx}\left(-\frac{c(9ad+bc)}{4ax}-\frac{c^2}{2x^2}+d^2\right)+\frac{d^{3/2}(ad+5bc)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{2\sqrt{b}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[a + b*x]*(c + d*x)^(5/2))/x^3,x]
```

```
[Out] (d^2 - c^2/(2*x^2) - (c*(b*c + 9*a*d))/(4*a*x))*Sqrt[a + b*x]*Sqr
t[c + d*x] - (Sqrt[c]*(b^2*c^2 - 10*a*b*c*d - 15*a^2*d^2)*Log[x])
/(8*a^(3/2)) + (Sqrt[c]*(b^2*c^2 - 10*a*b*c*d - 15*a^2*d^2)*Log[2
*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d
*x]])/(8*a^(3/2)) + (d^(3/2)*(5*b*c + a*d)*Log[b*c + a*d + 2*b*d*
x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(2*Sqrt[b])
```

Maple [B] time = 0.023, size = 512, normalized size = 2.4

$$-\frac{1}{8\,a{x}^{2}}\sqrt{bx+a}\sqrt{dx+c}\left(15\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{d{x}^{2}b+adx+bcx+ac}+2\,ac}{x}\right){x}^{2}{a}^{2}c{d}^{2}\sqrt{bd}+10\,\ln\left(\frac{adx+bcx+2\,\sqrt{a}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(5/2)*(b*x+a)^(1/2)/x^3,x)
```

```
[Out] -1/8*(b*x+a)^(1/2)*(d*x+c)^(1/2)/a*(15*ln((a*d*x+b*c*x+2*(a*c)^(1
/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^2*a^2*c*d^2*(b*d)
^(1/2)+10*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)
^(1/2)+2*a*c)/x)*x^2*a*b*c^2*d*(b*d)^(1/2)-ln((a*d*x+b*c*x+2*(a*c
)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^2*b^2*c^3*(b*
d)^(1/2)-4*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d
)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a^2*d^3*(a*c)^(1/2)-20*ln(1/2*(
2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b
*d)^(1/2))*x^2*a*b*c*d^2*(a*c)^(1/2)-8*x^2*a*d^2*(b*d)^(1/2)*(a*c
)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+18*x*a*c*d*(b*d)^(1/2)*(a
*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*x*b*c^2*(b*d)^(1/2)*(
a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+4*a*c^2*(b*d)^(1/2)*(a
*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2))/(b*d*x^2+a*d*x+b*c*x+a
*c)^(1/2)/x^2/(a*c)^(1/2)/(b*d)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(5/2)/x^3,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 2.32573, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(5/2)/x^3,x, algorithm="fricas")
```

```
[Out] [1/16*(4*(5*a*b*c*d + a^2*d^2)*x^2*sqrt(d/b)*log(8*b^2*d^2*x^2 +
b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b^2*d*x + b^2*c + a*b*d)*sqr
t(b*x + a)*sqrt(d*x + c)*sqrt(d/b) + 8*(b^2*c*d + a*b*d^2)*x) - (
b^2*c^2 - 10*a*b*c*d - 15*a^2*d^2)*x^2*sqrt(c/a)*log((8*a^2*c^2 +
 (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a^2*c + (a*b*c + a^2*
d)*x)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(c/a) + 8*(a*b*c^2 + a^2*c*
d)*x)/x^2) + 4*(4*a*d^2*x^2 - 2*a*c^2 - (b*c^2 + 9*a*c*d)*x)*sqrt
(b*x + a)*sqrt(d*x + c))/(a*x^2), 1/16*(8*(5*a*b*c*d + a^2*d^2)*x
^2*sqrt(-d/b)*arctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(b*x + a)*sqr
t(d*x + c)*b*sqrt(-d/b))) - (b^2*c^2 - 10*a*b*c*d - 15*a^2*d^2)*x
^2*sqrt(c/a)*log((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2
 - 4*(2*a^2*c + (a*b*c + a^2*d)*x)*sqrt(b*x + a)*sqrt(d*x + c)*sq
rt(c/a) + 8*(a*b*c^2 + a^2*c*d)*x)/x^2) + 4*(4*a*d^2*x^2 - 2*a*c^
2 - (b*c^2 + 9*a*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c))/(a*x^2), 1/
8*((b^2*c^2 - 10*a*b*c*d - 15*a^2*d^2)*x^2*sqrt(-c/a)*arctan(1/2*
(2*a*c + (b*c + a*d)*x)/(sqrt(b*x + a)*sqrt(d*x + c)*a*sqrt(-c/a)
)) + 2*(5*a*b*c*d + a^2*d^2)*x^2*sqrt(d/b)*log(8*b^2*d^2*x^2 + b^
2*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b^2*d*x + b^2*c + a*b*d)*sqrt(
b*x + a)*sqrt(d*x + c)*sqrt(d/b) + 8*(b^2*c*d + a*b*d^2)*x) + 2*(
4*a*d^2*x^2 - 2*a*c^2 - (b*c^2 + 9*a*c*d)*x)*sqrt(b*x + a)*sqrt(d
*x + c))/(a*x^2), 1/8*((b^2*c^2 - 10*a*b*c*d - 15*a^2*d^2)*x^2*sq
rt(-c/a)*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(b*x + a)*sqrt(d
*x + c)*a*sqrt(-c/a))) + 4*(5*a*b*c*d + a^2*d^2)*x^2*sqrt(-d/b)*a
rctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*sq
rt(-d/b))) + 2*(4*a*d^2*x^2 - 2*a*c^2 - (b*c^2 + 9*a*c*d)*x)*sqrt
(b*x + a)*sqrt(d*x + c))/(a*x^2)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(5/2)*(b*x+a)**(1/2)/x**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.626101, size = 4, normalized size = 0.02

$$sage_0 x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(5/2)/x^3,x, algorithm="giac")
```

```
[Out] sage0*x
```

3.560 $\int \frac{\sqrt{a+bx}(c+dx)^{5/2}}{x^4}\,dx$

Optimal. Leaf size=227

$$\frac{\sqrt{a+bx}\sqrt{c+dx}(bc-5ad)(ad+bc)}{8a^2x}-\frac{\left(5a^3d^3+15a^2bcd^2-5ab^2c^2d+b^3c^3\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{5/2}\sqrt{c}}+2\sqrt{b}d^{5/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)-\frac{\sqrt{a+bx}(c+dx)^{5/2}}{3x^3}-\frac{\sqrt{a+bx}(c+dx)^{3/2}(5ad+bc)}{12ax^2}$$

```
[Out] ((b*c - 5*a*d)*(b*c + a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(8*a^2*x)
 - ((b*c + 5*a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(12*a*x^2) - (Sq
rt[a + b*x]*(c + d*x)^(5/2))/(3*x^3) - ((b^3*c^3 - 5*a*b^2*c^2*d
+ 15*a^2*b*c*d^2 + 5*a^3*d^3)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sq
rt[a]*Sqrt[c + d*x])])/(8*a^(5/2)*Sqrt[c]) + 2*Sqrt[b]*d^(5/2)*Ar
cTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])]
```

Rubi [A] time = 0.667691, antiderivative size = 227, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.273$

$$\frac{\sqrt{a+bx}\sqrt{c+dx}(bc-5ad)(ad+bc)}{8a^2x}-\frac{\left(5a^3d^3+15a^2bcd^2-5ab^2c^2d+b^3c^3\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{5/2}\sqrt{c}}+2\sqrt{b}d^{5/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)-\frac{\sqrt{a+bx}(c+dx)^{5/2}}{3x^3}-\frac{\sqrt{a+bx}(c+dx)^{3/2}(5ad+bc)}{12ax^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[a + b*x]*(c + d*x)^(5/2))/x^4,x]
```

```
[Out] ((b*c - 5*a*d)*(b*c + a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(8*a^2*x)
 - ((b*c + 5*a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(12*a*x^2) - (Sq
rt[a + b*x]*(c + d*x)^(5/2))/(3*x^3) - ((b^3*c^3 - 5*a*b^2*c^2*d
+ 15*a^2*b*c*d^2 + 5*a^3*d^3)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sq
rt[a]*Sqrt[c + d*x])])/(8*a^(5/2)*Sqrt[c]) + 2*Sqrt[b]*d^(5/2)*Ar
cTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])]
```

Rubi in Sympy [A] time = 101.529, size = 212, normalized size = 0.93

$$2\sqrt{b}d^{\frac{5}{2}}\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)-\frac{\sqrt{a+bx}\,(c+dx)^{\frac{5}{2}}}{3x^3}-\frac{\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}\,(5ad+bc)}{12ax^2}-\frac{\sqrt{a+bx}\sqrt{c+dx}\,(ad+bc)\,(5ad-bc)}{8a^2x}-\frac{\left(5a^3d^3+15a^2bcd^2-5ab^2c^2d+b^3c^3\right)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{\frac{5}{2}}\sqrt{c}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(5/2)*(b*x+a)**(1/2)/x**4,x)
```

```
[Out] 2*sqrt(b)*d**(5/2)*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c +
d*x))) - sqrt(a + b*x)*(c + d*x)**(5/2)/(3*x**3) - sqrt(a + b*x)*
(c + d*x)**(3/2)*(5*a*d + b*c)/(12*a*x**2) - sqrt(a + b*x)*sqrt(c
 + d*x)*(a*d + b*c)*(5*a*d - b*c)/(8*a**2*x) - (5*a**3*d**3 + 15*
a**2*b*c*d**2 - 5*a*b**2*c**2*d + b**3*c**3)*atanh(sqrt(c)*sqrt(a
 + b*x)/(sqrt(a)*sqrt(c + d*x)))/(8*a**(5/2)*sqrt(c))
```

Mathematica [A] time = 0.5408, size = 283, normalized size = 1.25

$$\sqrt{a+bx}\sqrt{c+dx}\left(\frac{-33a^2d^2-14abcd+3b^2c^2}{24a^2x}-\frac{c(13ad+bc)}{12ax^2}-\frac{c^2}{3x^3}\right)+\frac{\log(x)\left(5a^3d^3+15a^2bcd^2-5ab^2c^2d+b^3c^3\right)}{16a^{5/2}\sqrt{c}}-\frac{\left(5a^3d^3+15a^2bcd^2-5ab^2c^2d+b^3c^3\right)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{16a^{5/2}\sqrt{c}}+\sqrt{b}d^{5/2}\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[a + b*x]*(c + d*x)^(5/2))/x^4,x]
```

```
[Out] (-c^2/(3*x^3) - (c*(b*c + 13*a*d))/(12*a*x^2) + (3*b^2*c^2 - 14*a
*b*c*d - 33*a^2*d^2)/(24*a^2*x))*Sqrt[a + b*x]*Sqrt[c + d*x] + ((
b^3*c^3 - 5*a*b^2*c^2*d + 15*a^2*b*c*d^2 + 5*a^3*d^3)*Log[x])/(16
*a^(5/2)*Sqrt[c]) - ((b^3*c^3 - 5*a*b^2*c^2*d + 15*a^2*b*c*d^2 +
5*a^3*d^3)*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a +
 b*x]*Sqrt[c + d*x]])/(16*a^(5/2)*Sqrt[c]) + Sqrt[b]*d^(5/2)*Log[
b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*
x]]
```

Maple [B] time = 0.024, size = 601, normalized size = 2.7

$$\frac{1}{48\,a^2x^3}\sqrt{bx+a}\sqrt{dx+c}\left(48\,\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{dx^2b+adx+bcx+ac}\sqrt{bd}+ad+bc}{\sqrt{bd}}\right)x^3a^2bd^3\sqrt{ac}-15\,\ln\left(\frac{adx+bcx+2}{}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(5/2)*(b*x+a)^(1/2)/x^4,x)
```

```
[Out] 1/48*(b*x+a)^(1/2)*(d*x+c)^(1/2)/a^2*(48*ln(1/2*(2*b*d*x+2*(b*d*x
^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^3*a
^2*b*d^3*(a*c)^(1/2)-15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*
d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^3*a^3*d^3*(b*d)^(1/2)-45*ln((a*d
*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*
x^3*a^2*b*c*d^2*(b*d)^(1/2)+15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d
*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^3*a*b^2*c^2*d*(b*d)^(1/2)
-3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+
2*a*c)/x)*x^3*b^3*c^3*(b*d)^(1/2)-66*(b*d*x^2+a*d*x+b*c*x+a*c)^(1
/2)*d^2*(b*d)^(1/2)*a^2*(a*c)^(1/2)*x^2-28*(b*d*x^2+a*d*x+b*c*x+a
*c)^(1/2)*d*b*(b*d)^(1/2)*a*(a*c)^(1/2)*x^2*c+6*c^2*(b*d*x^2+a*d*
x+b*c*x+a*c)^(1/2)*b^2*(b*d)^(1/2)*(a*c)^(1/2)*x^2-52*(b*d*x^2+a*
d*x+b*c*x+a*c)^(1/2)*d*(b*d)^(1/2)*a^2*(a*c)^(1/2)*x*c-4*c^2*(b*d
*x^2+a*d*x+b*c*x+a*c)^(1/2)*b*(b*d)^(1/2)*a*(a*c)^(1/2)*x-16*c^2*
(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)*a^2*(a*c)^(1/2))/(b*d
*x^2+a*d*x+b*c*x+a*c)^(1/2)/(b*d)^(1/2)/(a*c)^(1/2)/x^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(5/2)/x^4,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 2.25791, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(5/2)/x^4,x, algorithm="fricas")
```

```
[Out] [1/96*(48*sqrt(a*c)*sqrt(b*d)*a^2*d^2*x^3*log(8*b^2*d^2*x^2 + b^2
*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b*d*x + b*c + a*d)*sqrt(b*d)*sq
rt(b*x + a)*sqrt(d*x + c) + 8*(b^2*c*d + a*b*d^2)*x) + 3*(b^3*c^3
 - 5*a*b^2*c^2*d + 15*a^2*b*c*d^2 + 5*a^3*d^3)*x^3*log(-(4*(2*a^2
*c^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c) - (8*a^
2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*
d)*x)*sqrt(a*c))/x^2) - 4*(8*a^2*c^2 - (3*b^2*c^2 - 14*a*b*c*d -
33*a^2*d^2)*x^2 + 2*(a*b*c^2 + 13*a^2*c*d)*x)*sqrt(a*c)*sqrt(b*x
+ a)*sqrt(d*x + c))/(sqrt(a*c)*a^2*x^3), 1/96*(96*sqrt(a*c)*sqrt(
-b*d)*a^2*d^2*x^3*arctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(-b*d)*sq
rt(b*x + a)*sqrt(d*x + c))) + 3*(b^3*c^3 - 5*a*b^2*c^2*d + 15*a^2
*b*c*d^2 + 5*a^3*d^3)*x^3*log(-(4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d
)*x)*sqrt(b*x + a)*sqrt(d*x + c) - (8*a^2*c^2 + (b^2*c^2 + 6*a*b*
c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2) - 4
*(8*a^2*c^2 - (3*b^2*c^2 - 14*a*b*c*d - 33*a^2*d^2)*x^2 + 2*(a*b*
c^2 + 13*a^2*c*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt
(a*c)*a^2*x^3), 1/48*(24*sqrt(-a*c)*sqrt(b*d)*a^2*d^2*x^3*log(8*b
^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b*d*x + b*c + a
*d)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 8*(b^2*c*d + a*b*d^2)
*x) - 3*(b^3*c^3 - 5*a*b^2*c^2*d + 15*a^2*b*c*d^2 + 5*a^3*d^3)*x^
3*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sq
rt(d*x + c)*a*c)) - 2*(8*a^2*c^2 - (3*b^2*c^2 - 14*a*b*c*d - 33*a
^2*d^2)*x^2 + 2*(a*b*c^2 + 13*a^2*c*d)*x)*sqrt(-a*c)*sqrt(b*x + a
)*sqrt(d*x + c))/(sqrt(-a*c)*a^2*x^3), 1/48*(48*sqrt(-a*c)*sqrt(-
b*d)*a^2*d^2*x^3*arctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(-b*d)*sqr
t(b*x + a)*sqrt(d*x + c))) - 3*(b^3*c^3 - 5*a*b^2*c^2*d + 15*a^2*
b*c*d^2 + 5*a^3*d^3)*x^3*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(
-a*c)/(sqrt(b*x + a)*sqrt(d*x + c)*a*c)) - 2*(8*a^2*c^2 - (3*b^2*
c^2 - 14*a*b*c*d - 33*a^2*d^2)*x^2 + 2*(a*b*c^2 + 13*a^2*c*d)*x)*
sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(-a*c)*a^2*x^3)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(5/2)*(b*x+a)**(1/2)/x**4,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.674676, size = 4, normalized size = 0.02

$$sage_0x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(5/2)/x^4,x, algorithm="giac")
```

```
[Out] sage0*x
```

3.561 $\int \frac{\sqrt{a+bx}(c+dx)^{5/2}}{x^5} dx$

Optimal. Leaf size=204

$$\frac{5(bc-ad)^4 \tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{7/2}c^{3/2}} - \frac{5\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^3}{64a^3cx} + \frac{5\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)^2}{96a^2cx^2} - \frac{\sqrt{a+bx}(c+dx)^{7/2}}{4cx^4} - \frac{\sqrt{a+bx}(c+dx)^{5/2}(bc-ad)}{24acx^3}$$

```
[Out] (-5*(b*c - a*d)^3*Sqrt[a + b*x]*Sqrt[c + d*x])/(64*a^3*c*x) + (5*
(b*c - a*d)^2*Sqrt[a + b*x]*(c + d*x)^(3/2))/(96*a^2*c*x^2) - ((b
*c - a*d)*Sqrt[a + b*x]*(c + d*x)^(5/2))/(24*a*c*x^3) - (Sqrt[a +
 b*x]*(c + d*x)^(7/2))/(4*c*x^4) + (5*(b*c - a*d)^4*ArcTanh[(Sqrt
[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(64*a^(7/2)*c^(3/2))
```

Rubi [A] time = 0.398519, antiderivative size = 204, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.136$

$$\frac{5(bc-ad)^4 \tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{7/2}c^{3/2}} - \frac{5\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^3}{64a^3cx} + \frac{5\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)^2}{96a^2cx^2} - \frac{\sqrt{a+bx}(c+dx)^{7/2}}{4cx^4} - \frac{\sqrt{a+bx}(c+dx)^{5/2}(bc-ad)}{24acx^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[a + b*x]*(c + d*x)^(5/2))/x^5,x]
```

```
[Out] (-5*(b*c - a*d)^3*Sqrt[a + b*x]*Sqrt[c + d*x])/(64*a^3*c*x) + (5*
(b*c - a*d)^2*Sqrt[a + b*x]*(c + d*x)^(3/2))/(96*a^2*c*x^2) - ((b
*c - a*d)*Sqrt[a + b*x]*(c + d*x)^(5/2))/(24*a*c*x^3) - (Sqrt[a +
 b*x]*(c + d*x)^(7/2))/(4*c*x^4) + (5*(b*c - a*d)^4*ArcTanh[(Sqrt
[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(64*a^(7/2)*c^(3/2))
```

Rubi in Sympy [A] time = 35.2123, size = 178, normalized size = 0.87

$$-\frac{\sqrt{a+bx}\,(c+dx)^{\frac{7}{2}}}{4cx^4} + \frac{\sqrt{a+bx}\,(c+dx)^{\frac{5}{2}}\,(ad-bc)}{24acx^3} + \frac{5\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}\,(ad-bc)^2}{96a^2cx^2} + \frac{5\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)^3}{64a^3cx} + \frac{5\,(ad-bc)^4\,\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{\frac{7}{2}}c^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(5/2)*(b*x+a)**(1/2)/x**5,x)
```

```
[Out] -sqrt(a + b*x)*(c + d*x)**(7/2)/(4*c*x**4) + sqrt(a + b*x)*(c + d
*x)**(5/2)*(a*d - b*c)/(24*a*c*x**3) + 5*sqrt(a + b*x)*(c + d*x)*
*(3/2)*(a*d - b*c)**2/(96*a**2*c*x**2) + 5*sqrt(a + b*x)*sqrt(c +
 d*x)*(a*d - b*c)**3/(64*a**3*c*x) + 5*(a*d - b*c)**4*atanh(sqrt(
c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(64*a**(7/2)*c**(3/2))
```

Mathematica [A] time = 0.251114, size = 216, normalized size = 1.06

$$\frac{-2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}\left(a^3\left(48c^3+136c^2dx+118cd^2x^2+15d^3x^3\right)+a^2bcx\left(8c^2+36cdx+73d^2x^2\right)-5ab^2c^2x^2(2c+11dx\right.}{384a^{7/2}c^{3/2}x^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[a + b*x]*(c + d*x)^(5/2))/x^5,x]
```

```
[Out] (-2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]*(15*b^3*c^3*x^3 -
 5*a*b^2*c^2*x^2*(2*c + 11*d*x) + a^2*b*c*x*(8*c^2 + 36*c*d*x + 7
3*d^2*x^2) + a^3*(48*c^3 + 136*c^2*d*x + 118*c*d^2*x^2 + 15*d^3*x
^3)) - 15*(b*c - a*d)^4*x^4*Log[x] + 15*(b*c - a*d)^4*x^4*Log[2*a
*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x
]])/(384*a^(7/2)*c^(3/2)*x^4)
```

Maple [B] time = 0.026, size = 705, normalized size = 3.5

$$\frac{1}{384\,a^3cx^4}\sqrt{bx+a}\sqrt{dx+c}\left(15\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{dx^2b+adx+bcx+ac}+2\,ac}{x}\right)x^4a^4d^4-60\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{}}{}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(5/2)*(b*x+a)^(1/2)/x^5,x)
```

```
[Out] 1/384*(b*x+a)^(1/2)*(d*x+c)^(1/2)/a^3/c*(15*ln((a*d*x+b*c*x+2*(a*
c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^4*a^4*d^4-60
*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*
a*c)/x)*x^4*a^3*b*c*d^3+90*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2
+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^4*a^2*b^2*c^2*d^2-60*ln((a*d*
x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x
^4*a*b^3*c^3*d+15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*
c*x+a*c)^(1/2)+2*a*c)/x)*x^4*b^4*c^4-30*(a*c)^(1/2)*(b*d*x^2+a*d*
x+b*c*x+a*c)^(1/2)*x^3*a^3*d^3-146*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c
*x+a*c)^(1/2)*x^3*a^2*b*c*d^2+110*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*
x+a*c)^(1/2)*x^3*a*b^2*c^2*d-30*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+
a*c)^(1/2)*x^3*b^3*c^3-236*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^
(1/2)*x^2*a^3*c*d^2-72*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2
)*x^2*a^2*b*c^2*d+20*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*
x^2*a*b^2*c^3-272*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*a
^3*c^2*d-16*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*a^2*b*c
^3-96*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a^3*c^3*(a*c)^(1/2))/(b*d*x
^2+a*d*x+b*c*x+a*c)^(1/2)/x^4/(a*c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(5/2)/x^5,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.716462, size = 1, normalized size = 0.

$$\left[\frac{15\left(b^4c^4-4\,ab^3c^3d+6\,a^2b^2c^2d^2-4\,a^3bcd^3+a^4d^4\right)x^4\log\left(\frac{4\left(2\,a^2c^2+\left(abc^2+a^2cd\right)x\right)\sqrt{bx+a}\sqrt{dx+c}+\left(8\,a^2c^2+\left(b^2c^2+6\,abcd+a^2d^2\right)x^2+8\,(a\right.}{x^2}\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(5/2)/x^5,x, algorithm="fricas")
```

```
[Out] [1/768*(15*(b^4*c^4 - 4*a*b^3*c^3*d + 6*a^2*b^2*c^2*d^2 - 4*a^3*b
*c*d^3 + a^4*d^4)*x^4*log((4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*
sqrt(b*x + a)*sqrt(d*x + c) + (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d +
 a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2) - 4*(48*
a^3*c^3 + (15*b^3*c^3 - 55*a*b^2*c^2*d + 73*a^2*b*c*d^2 + 15*a^3*
d^3)*x^3 - 2*(5*a*b^2*c^3 - 18*a^2*b*c^2*d - 59*a^3*c*d^2)*x^2 +
8*(a^2*b*c^3 + 17*a^3*c^2*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x
+ c))/(sqrt(a*c)*a^3*c*x^4), 1/384*(15*(b^4*c^4 - 4*a*b^3*c^3*d +
 6*a^2*b^2*c^2*d^2 - 4*a^3*b*c*d^3 + a^4*d^4)*x^4*arctan(1/2*(2*a
*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d*x + c)*a*c))
 - 2*(48*a^3*c^3 + (15*b^3*c^3 - 55*a*b^2*c^2*d + 73*a^2*b*c*d^2
+ 15*a^3*d^3)*x^3 - 2*(5*a*b^2*c^3 - 18*a^2*b*c^2*d - 59*a^3*c*d^
2)*x^2 + 8*(a^2*b*c^3 + 17*a^3*c^2*d)*x)*sqrt(-a*c)*sqrt(b*x + a)
*sqrt(d*x + c))/(sqrt(-a*c)*a^3*c*x^4)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(5/2)*(b*x+a)**(1/2)/x**5,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(5/2)/x^5,x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.562 $\int \frac{\sqrt{a+bx}(c+dx)^{5/2}}{x^6}\,dx$

Optimal. Leaf size=283

$$-\frac{(3ad+7bc)(bc-ad)^4\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{128a^{9/2}c^{5/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}(3ad+7bc)(bc-ad)^3}{128a^4c^2x}-\frac{\sqrt{a+bx}(c+dx)^{3/2}(3ad+7bc)(bc-ad)^2}{192a^3c^2x^2}+\frac{\sqrt{a+bx}(c+dx)^{5/2}(3ad+7bc)(bc-ad)}{240a^2c^2x^3}+\frac{\sqrt{a+bx}(c+dx)^{7/2}(3ad+7bc)}{40ac^2x^4}-\frac{(a+bx)^{3/2}(c+dx)^{7/2}}{5acx^5}$$

```
[Out] ((b*c - a*d)^3*(7*b*c + 3*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(128*
a^4*c^2*x) - ((b*c - a*d)^2*(7*b*c + 3*a*d)*Sqrt[a + b*x]*(c + d*
x)^(3/2))/(192*a^3*c^2*x^2) + ((b*c - a*d)*(7*b*c + 3*a*d)*Sqrt[a
 + b*x]*(c + d*x)^(5/2))/(240*a^2*c^2*x^3) + ((7*b*c + 3*a*d)*Sqr
t[a + b*x]*(c + d*x)^(7/2))/(40*a*c^2*x^4) - ((a + b*x)^(3/2)*(c
+ d*x)^(7/2))/(5*a*c*x^5) - ((b*c - a*d)^4*(7*b*c + 3*a*d)*ArcTan
h[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(128*a^(9/2)*
c^(5/2))
```

Rubi [A] time = 0.538105, antiderivative size = 283, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.182$

$$-\frac{(3ad+7bc)(bc-ad)^4\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{128a^{9/2}c^{5/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}(3ad+7bc)(bc-ad)^3}{128a^4c^2x}-\frac{\sqrt{a+bx}(c+dx)^{3/2}(3ad+7bc)(bc-ad)^2}{192a^3c^2x^2}+\frac{\sqrt{a+bx}(c+dx)^{5/2}(3ad+7bc)(bc-ad)}{240a^2c^2x^3}+\frac{\sqrt{a+bx}(c+dx)^{7/2}(3ad+7bc)}{40ac^2x^4}-\frac{(a+bx)^{3/2}(c+dx)^{7/2}}{5acx^5}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[a + b*x]*(c + d*x)^(5/2))/x^6,x]
```

```
[Out] ((b*c - a*d)^3*(7*b*c + 3*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(128*
a^4*c^2*x) - ((b*c - a*d)^2*(7*b*c + 3*a*d)*Sqrt[a + b*x]*(c + d*
x)^(3/2))/(192*a^3*c^2*x^2) + ((b*c - a*d)*(7*b*c + 3*a*d)*Sqrt[a
 + b*x]*(c + d*x)^(5/2))/(240*a^2*c^2*x^3) + ((7*b*c + 3*a*d)*Sqr
t[a + b*x]*(c + d*x)^(7/2))/(40*a*c^2*x^4) - ((a + b*x)^(3/2)*(c
+ d*x)^(7/2))/(5*a*c*x^5) - ((b*c - a*d)^4*(7*b*c + 3*a*d)*ArcTan
h[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(128*a^(9/2)*
c^(5/2))
```

Rubi in Sympy [A] time = 50.3565, size = 257, normalized size = 0.91

$$-\frac{(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{7}{2}}}{5acx^5}+\frac{(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{5}{2}}(3ad+7bc)}{40a^2cx^4}+\frac{(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{3}{2}}(ad-bc)(3ad+7bc)}{48a^3cx^3}+\frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}(ad-bc)^2(3ad+7bc)}{64a^4cx^2}+\frac{\sqrt{a+bx}\sqrt{c+dx}(ad-bc)^3(3ad+7bc)}{128a^4c^2x}-\frac{(ad-bc)^4(3ad+7bc)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{128a^{\frac{9}{2}}c^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(5/2)*(b*x+a)**(1/2)/x**6,x)
```

```
[Out] -(a + b*x)**(3/2)*(c + d*x)**(7/2)/(5*a*c*x**5) + (a + b*x)**(3/2
)*(c + d*x)**(5/2)*(3*a*d + 7*b*c)/(40*a**2*c*x**4) + (a + b*x)**
```

```
(3/2)*(c + d*x)**(3/2)*(a*d - b*c)*(3*a*d + 7*b*c)/(48*a**3*c*x**
3) + (a + b*x)**(3/2)*sqrt(c + d*x)*(a*d - b*c)**2*(3*a*d + 7*b*c
)/(64*a**4*c*x**2) + sqrt(a + b*x)*sqrt(c + d*x)*(a*d - b*c)**3*(
3*a*d + 7*b*c)/(128*a**4*c**2*x) - (a*d - b*c)**4*(3*a*d + 7*b*c)
*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(128*a**(9/
2)*c**(5/2))
```

Mathematica [A] time = 0.339603, size = 291, normalized size = 1.03

$$-2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}\left(3a^4\left(128c^4+336c^3dx+248c^2d^2x^2+10cd^3x^3-15d^4x^4\right)+2a^3bcx\left(24c^3+88c^2dx+109cd^2x^2+3\right.\right.$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[a + b*x]*(c + d*x)^(5/2))/x^6,x]
```

```
[Out] (-2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]*(-105*b^4*c^4*x^4
 + 10*a*b^3*c^3*x^3*(7*c + 34*d*x) - 2*a^2*b^2*c^2*x^2*(28*c^2 +
111*c*d*x + 173*d^2*x^2) + 2*a^3*b*c*x*(24*c^3 + 88*c^2*d*x + 109
*c*d^2*x^2 + 30*d^3*x^3) + 3*a^4*(128*c^4 + 336*c^3*d*x + 248*c^2
*d^2*x^2 + 10*c*d^3*x^3 - 15*d^4*x^4)) + 15*(b*c - a*d)^4*(7*b*c
+ 3*a*d)*x^5*Log[x] - 15*(b*c - a*d)^4*(7*b*c + 3*a*d)*x^5*Log[2*
a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*
x]])/(3840*a^(9/2)*c^(5/2)*x^5)
```

Maple [B] time = 0.029, size = 967, normalized size = 3.4

$$-\frac{1}{3840\,a^4c^2x^5}\sqrt{bx+a}\sqrt{dx+c}\left(45\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{dx^2b+adx+bcx+ac}+2\,ac}{x}\right)x^5a^5d^5-75\,\ln\left(\frac{adx+bcx+2\,\sqrt{\right.\right.\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(5/2)*(b*x+a)^(1/2)/x^6,x)
```

```
[Out] -1/3840*(b*x+a)^(1/2)*(d*x+c)^(1/2)/a^4/c^2*(45*ln((a*d*x+b*c*x+2
*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^5*a^5*d^
5-75*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2
)+2*a*c)/x)*x^5*a^4*b*c*d^4-150*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*
d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^5*a^3*b^2*c^2*d^3+450*ln
((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c
)/x)*x^5*a^2*b^3*c^3*d^2-375*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x
^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^5*a*b^4*c^4*d+105*ln((a*d*x
+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^
5*b^5*c^5-90*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^4*a^4*
d^4+120*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^4*a^3*b*c*d
^3-692*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^4*a^2*b^2*c^
2*d^2+680*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^4*a*b^3*c
^3*d-210*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^4*b^4*c^4+
60*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^3*a^4*c*d^3+436*
(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^3*a^3*b*c^2*d^2-444
*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^3*a^2*b^2*c^3*d+14
0*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^3*a*b^3*c^4+1488*
(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^2*a^4*c^2*d^2+352*(
a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^2*a^3*b*c^3*d-112*(a
*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^2*a^2*b^2*c^4+2016*(a
*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*a^4*c^3*d+96*(a*c)^(1
/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*a^3*b*c^4+768*(b*d*x^2+a*d*
x+b*c*x+a*c)^(1/2)*a^4*c^4*(a*c)^(1/2))/(b*d*x^2+a*d*x+b*c*x+a*c)
^(1/2)/x^5/(a*c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(5/2)/x^6,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 2.81009, size = 1, normalized size = 0.

$$\left[\frac{15\left(7\,b^5c^5 - 25\,ab^4c^4d + 30\,a^2b^3c^3d^2 - 10\,a^3b^2c^2d^3 - 5\,a^4bcd^4 + 3\,a^5d^5\right)x^5\log\left(-\frac{4\left(2\,a^2c^2+\left(abc^2+a^2cd\right)x\right)\sqrt{bx+a}\sqrt{dx+c}-\left(8\,a^2c^2+\right(}{x^2}\right.}{}\right.$$

$$-\frac{15\left(7\,b^5c^5 - 25\,ab^4c^4d + 30\,a^2b^3c^3d^2 - 10\,a^3b^2c^2d^3 - 5\,a^4bcd^4 + 3\,a^5d^5\right)x^5\arctan\left(\frac{(2\,ac+(bc+ad)x)\sqrt{-ac}}{2\,\sqrt{bx+a}\sqrt{dx+c}ac}\right) + 2\left(384\,a^4c^4 - \left(10\right.\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(5/2)/x^6,x, algorithm="fricas")
```

```
[Out] [1/7680*(15*(7*b^5*c^5 - 25*a*b^4*c^4*d + 30*a^2*b^3*c^3*d^2 - 10
*a^3*b^2*c^2*d^3 - 5*a^4*b*c*d^4 + 3*a^5*d^5)*x^5*log(-(4*(2*a^2*
c^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c) - (8*a^2
*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d
)*x)*sqrt(a*c))/x^2) - 4*(384*a^4*c^4 - (105*b^4*c^4 - 340*a*b^3*
c^3*d + 346*a^2*b^2*c^2*d^2 - 60*a^3*b*c*d^3 + 45*a^4*d^4)*x^4 +
2*(35*a*b^3*c^4 - 111*a^2*b^2*c^3*d + 109*a^3*b*c^2*d^2 + 15*a^4*
c*d^3)*x^3 - 8*(7*a^2*b^2*c^4 - 22*a^3*b*c^3*d - 93*a^4*c^2*d^2)*
x^2 + 48*(a^3*b*c^4 + 21*a^4*c^3*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sq
rt(d*x + c))/(sqrt(a*c)*a^4*c^2*x^5), -1/3840*(15*(7*b^5*c^5 - 25
*a*b^4*c^4*d + 30*a^2*b^3*c^3*d^2 - 10*a^3*b^2*c^2*d^3 - 5*a^4*b*
c*d^4 + 3*a^5*d^5)*x^5*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a
*c)/(sqrt(b*x + a)*sqrt(d*x + c)*a*c)) + 2*(384*a^4*c^4 - (105*b^
4*c^4 - 340*a*b^3*c^3*d + 346*a^2*b^2*c^2*d^2 - 60*a^3*b*c*d^3 +
45*a^4*d^4)*x^4 + 2*(35*a*b^3*c^4 - 111*a^2*b^2*c^3*d + 109*a^3*b
*c^2*d^2 + 15*a^4*c*d^3)*x^3 - 8*(7*a^2*b^2*c^4 - 22*a^3*b*c^3*d
- 93*a^4*c^2*d^2)*x^2 + 48*(a^3*b*c^4 + 21*a^4*c^3*d)*x)*sqrt(-a*
c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(-a*c)*a^4*c^2*x^5)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(5/2)*(b*x+a)**(1/2)/x**6,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(5/2)/x^6,x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.563 $\int \frac{\sqrt{a+bx}(c+dx)^{5/2}}{x^7}\,dx$

Optimal. Leaf size=436

$$\frac{\sqrt{a+bx}\sqrt{c+dx}\,(-5a^2d^2-6abcd+3b^2c^2)}{160a^2x^4}+\frac{(5a^2d^2+14abcd+21b^2c^2)\,(bc-ad)^4\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{512a^{11/2}c^{7/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}\,(5a^3d^3+51a^2bcd^2-61ab^2c^2d+21b^3c^3)}{960a^3cx^3}+\frac{\sqrt{a+bx}\sqrt{c+dx}\,(25a^4d^4-20a^3bcd^3+262a^2b^2c^2d^2-308ab^3c^3d+105b^4c^4)}{3840a^4c^2x^2}-\frac{\sqrt{a+bx}\sqrt{c+dx}\,(75a^5d^5-65a^4bcd^4-90a^3b^2c^2d^3+838a^2b^3c^3d^2-945ab^4c^4d+315b^5c^5)}{7680a^5c^3x}-\frac{\sqrt{a+bx}(c+dx)^{5/2}}{6x^6}-\frac{\sqrt{a+bx}(c+dx)^{3/2}(5ad+bc)}{60ax^5}$$

```
[Out] ((3*b^2*c^2 - 6*a*b*c*d - 5*a^2*d^2)*Sqrt[a + b*x]*Sqrt[c + d*x])
/(160*a^2*x^4) - ((21*b^3*c^3 - 61*a*b^2*c^2*d + 51*a^2*b*c*d^2 +
 5*a^3*d^3)*Sqrt[a + b*x]*Sqrt[c + d*x])/(960*a^3*c*x^3) + ((105*
b^4*c^4 - 308*a*b^3*c^3*d + 262*a^2*b^2*c^2*d^2 - 20*a^3*b*c*d^3
+ 25*a^4*d^4)*Sqrt[a + b*x]*Sqrt[c + d*x])/(3840*a^4*c^2*x^2) - (
(315*b^5*c^5 - 945*a*b^4*c^4*d + 838*a^2*b^3*c^3*d^2 - 90*a^3*b^2
*c^2*d^3 - 65*a^4*b*c*d^4 + 75*a^5*d^5)*Sqrt[a + b*x]*Sqrt[c + d*
x])/(7680*a^5*c^3*x) - ((b*c + 5*a*d)*Sqrt[a + b*x]*(c + d*x)^(3/
2))/(60*a*x^5) - (Sqrt[a + b*x]*(c + d*x)^(5/2))/(6*x^6) + ((b*c
- a*d)^4*(21*b^2*c^2 + 14*a*b*c*d + 5*a^2*d^2)*ArcTanh[(Sqrt[c]*S
qrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(512*a^(11/2)*c^(7/2))
```

Rubi [A] time = 1.46928, antiderivative size = 436, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.273

$$\frac{\sqrt{a+bx}\sqrt{c+dx}\,(-5a^2d^2-6abcd+3b^2c^2)}{160a^2x^4}+\frac{(5a^2d^2+14abcd+21b^2c^2)\,(bc-ad)^4\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{512a^{11/2}c^{7/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}\,(5a^3d^3+51a^2bcd^2-61ab^2c^2d+21b^3c^3)}{960a^3cx^3}+\frac{\sqrt{a+bx}\sqrt{c+dx}\,(25a^4d^4-20a^3bcd^3+262a^2b^2c^2d^2-308ab^3c^3d+105b^4c^4)}{3840a^4c^2x^2}-\frac{\sqrt{a+bx}\sqrt{c+dx}\,(75a^5d^5-65a^4bcd^4-90a^3b^2c^2d^3+838a^2b^3c^3d^2-945ab^4c^4d+315b^5c^5)}{7680a^5c^3x}-\frac{\sqrt{a+bx}(c+dx)^{5/2}}{6x^6}-\frac{\sqrt{a+bx}(c+dx)^{3/2}(5ad+bc)}{60ax^5}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[a + b*x]*(c + d*x)^(5/2))/x^7,x]
```


```
[Out] ((3*b^2*c^2 - 6*a*b*c*d - 5*a^2*d^2)*Sqrt[a + b*x]*Sqrt[c + d*x])
/(160*a^2*x^4) - ((21*b^3*c^3 - 61*a*b^2*c^2*d + 51*a^2*b*c*d^2 +
 5*a^3*d^3)*Sqrt[a + b*x]*Sqrt[c + d*x])/(960*a^3*c*x^3) + ((105*
b^4*c^4 - 308*a*b^3*c^3*d + 262*a^2*b^2*c^2*d^2 - 20*a^3*b*c*d^3
+ 25*a^4*d^4)*Sqrt[a + b*x]*Sqrt[c + d*x])/(3840*a^4*c^2*x^2) - (
(315*b^5*c^5 - 945*a*b^4*c^4*d + 838*a^2*b^3*c^3*d^2 - 90*a^3*b^2
*c^2*d^3 - 65*a^4*b*c*d^4 + 75*a^5*d^5)*Sqrt[a + b*x]*Sqrt[c + d*
x])/(7680*a^5*c^3*x) - ((b*c + 5*a*d)*Sqrt[a + b*x]*(c + d*x)^(3/
2))/(60*a*x^5) - (Sqrt[a + b*x]*(c + d*x)^(5/2))/(6*x^6) + ((b*c
- a*d)^4*(21*b^2*c^2 + 14*a*b*c*d + 5*a^2*d^2)*ArcTanh[(Sqrt[c]*S
qrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(512*a^(11/2)*c^(7/2))
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(5/2)*(b*x+a)**(1/2)/x**7,x)
```

```
[Out] Timed out
```

Mathematica [A] time = 0.4558, size = 384, normalized size = 0.88

$$-15x^6\log(x)(bc-ad)^4\left(5a^2d^2+14abcd+21b^2c^2\right)+15x^6(bc-ad)^4\left(5a^2d^2+14abcd+21b^2c^2\right)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+d\right.$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[a + b*x]*(c + d*x)^(5/2))/x^7,x]
```

```
[Out] (-2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]*(315*b^5*c^5*x^5
- 105*a*b^4*c^4*x^4*(2*c + 9*d*x) + 2*a^2*b^3*c^3*x^3*(84*c^2 + 3
08*c*d*x + 419*d^2*x^2) - 2*a^3*b^2*c^2*x^2*(72*c^3 + 244*c^2*d*x
 + 262*c*d^2*x^2 + 45*d^3*x^3) + a^4*b*c*x*(128*c^4 + 416*c^3*d*x
 + 408*c^2*d^2*x^2 + 40*c*d^3*x^3 - 65*d^4*x^4) + 5*a^5*(256*c^5
+ 640*c^4*d*x + 432*c^3*d^2*x^2 + 8*c^2*d^3*x^3 - 10*c*d^4*x^4 +
15*d^5*x^5)) - 15*(b*c - a*d)^4*(21*b^2*c^2 + 14*a*b*c*d + 5*a^2*
d^2)*x^6*Log[x] + 15*(b*c - a*d)^4*(21*b^2*c^2 + 14*a*b*c*d + 5*a
^2*d^2)*x^6*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a
+ b*x]*Sqrt[c + d*x]])/(15360*a^(11/2)*c^(7/2)*x^6)
```

Maple [B] time = 0.046, size = 1271, normalized size = 2.9

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(5/2)*(b*x+a)^(1/2)/x^7,x)
```

```
[Out] 1/15360*(b*x+a)^(1/2)*(d*x+c)^(1/2)/a^5/c^3*(-336*c^5*(b*d*x^2+a*
d*x+b*c*x+a*c)^(1/2)*b^3*a^2*(a*c)^(1/2)*x^3-6400*(b*d*x^2+a*d*x+
b*c*x+a*c)^(1/2)*d*a^5*(a*c)^(1/2)*c^4*x-256*c^5*(b*d*x^2+a*d*x+b
*c*x+a*c)^(1/2)*b*a^4*(a*c)^(1/2)*x+100*(b*d*x^2+a*d*x+b*c*x+a*c)
^(1/2)*d^4*a^5*(a*c)^(1/2)*c*x^4-90*ln((a*d*x+b*c*x+2*(a*c)^(1/2)
*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^6*a^5*b*c*d^5-75*ln(
(a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)
/x)*x^6*a^4*b^2*c^2*d^4-300*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^
2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^6*a^3*b^3*c^3*d^3+1125*ln((a
*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x
)*x^6*a^2*b^4*c^4*d^2-1050*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2
+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^6*a*b^5*c^5*d+420*c^5*(b*d*x^
2+a*d*x+b*c*x+a*c)^(1/2)*b^4*a*(a*c)^(1/2)*x^4-80*(b*d*x^2+a*d*x+
b*c*x+a*c)^(1/2)*d^3*a^5*(a*c)^(1/2)*c^2*x^3-4320*(b*d*x^2+a*d*x+
b*c*x+a*c)^(1/2)*d^2*a^5*(a*c)^(1/2)*c^3*x^2+288*c^5*(b*d*x^2+a*d
*x+b*c*x+a*c)^(1/2)*b^2*a^3*(a*c)^(1/2)*x^2-80*(b*d*x^2+a*d*x+b*c
*x+a*c)^(1/2)*d^3*b*a^4*(a*c)^(1/2)*c^2*x^4+976*(b*d*x^2+a*d*x+b*
c*x+a*c)^(1/2)*b^2*d*a^3*(a*c)^(1/2)*c^4*x^3+1048*(b*d*x^2+a*d*x+
b*c*x+a*c)^(1/2)*d^2*b^2*a^3*(a*c)^(1/2)*c^3*x^4-1232*(b*d*x^2+a*
d*x+b*c*x+a*c)^(1/2)*d*b^3*a^2*(a*c)^(1/2)*c^4*x^4-816*(b*d*x^2+a
*d*x+b*c*x+a*c)^(1/2)*b*d^2*a^4*(a*c)^(1/2)*c^3*x^3+130*(b*d*x^2+
a*d*x+b*c*x+a*c)^(1/2)*d^4*b*a^4*(a*c)^(1/2)*c*x^5+180*(b*d*x^2+a
```

```
*d*x+b*c*x+a*c)^(1/2)*d^3*b^2*a^3*(a*c)^(1/2)*c^2*x^5-1676*(b*d*x
^2+a*d*x+b*c*x+a*c)^(1/2)*d^2*b^3*a^2*(a*c)^(1/2)*c^3*x^5-832*(b*
d*x^2+a*d*x+b*c*x+a*c)^(1/2)*d*b*a^4*(a*c)^(1/2)*c^4*x^2+75*ln((a
*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x
)*x^6*a^6*d^6+315*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*
c*x+a*c)^(1/2)+2*a*c)/x)*x^6*b^6*c^6-2560*c^5*(b*d*x^2+a*d*x+b*c*
x+a*c)^(1/2)*a^5*(a*c)^(1/2)-150*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*
d^5*a^5*(a*c)^(1/2)*x^5-630*c^5*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*b
^5*(a*c)^(1/2)*x^5+1890*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*d*b^4*a*(
a*c)^(1/2)*c^4*x^5)/(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)/(a*c)^(1/2)/x
^6
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(5/2)/x^7,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 5.65531, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(5/2)/x^7,x, algorithm="fricas")
```

```
[Out] [1/30720*(15*(21*b^6*c^6 - 70*a*b^5*c^5*d + 75*a^2*b^4*c^4*d^2 -
20*a^3*b^3*c^3*d^3 - 5*a^4*b^2*c^2*d^4 - 6*a^5*b*c*d^5 + 5*a^6*d^
6)*x^6*log((4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*s
qrt(d*x + c) + (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 +
 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2) - 4*(1280*a^5*c^5 + (31
5*b^5*c^5 - 945*a*b^4*c^4*d + 838*a^2*b^3*c^3*d^2 - 90*a^3*b^2*c^
2*d^3 - 65*a^4*b*c*d^4 + 75*a^5*d^5)*x^5 - 2*(105*a*b^4*c^5 - 308
*a^2*b^3*c^4*d + 262*a^3*b^2*c^3*d^2 - 20*a^4*b*c^2*d^3 + 25*a^5*
c*d^4)*x^4 + 8*(21*a^2*b^3*c^5 - 61*a^3*b^2*c^4*d + 51*a^4*b*c^3*
d^2 + 5*a^5*c^2*d^3)*x^3 - 16*(9*a^3*b^2*c^5 - 26*a^4*b*c^4*d - 1
35*a^5*c^3*d^2)*x^2 + 128*(a^4*b*c^5 + 25*a^5*c^4*d)*x)*sqrt(a*c)
*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(a*c)*a^5*c^3*x^6), 1/15360*(1
5*(21*b^6*c^6 - 70*a*b^5*c^5*d + 75*a^2*b^4*c^4*d^2 - 20*a^3*b^3*
c^3*d^3 - 5*a^4*b^2*c^2*d^4 - 6*a^5*b*c*d^5 + 5*a^6*d^6)*x^6*arct
an(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d*x
 + c)*a*c)) - 2*(1280*a^5*c^5 + (315*b^5*c^5 - 945*a*b^4*c^4*d +
838*a^2*b^3*c^3*d^2 - 90*a^3*b^2*c^2*d^3 - 65*a^4*b*c*d^4 + 75*a^
5*d^5)*x^5 - 2*(105*a*b^4*c^5 - 308*a^2*b^3*c^4*d + 262*a^3*b^2*c
^3*d^2 - 20*a^4*b*c^2*d^3 + 25*a^5*c*d^4)*x^4 + 8*(21*a^2*b^3*c^5
 - 61*a^3*b^2*c^4*d + 51*a^4*b*c^3*d^2 + 5*a^5*c^2*d^3)*x^3 - 16*
(9*a^3*b^2*c^5 - 26*a^4*b*c^4*d - 135*a^5*c^3*d^2)*x^2 + 128*(a^4
*b*c^5 + 25*a^5*c^4*d)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c))
/(sqrt(-a*c)*a^5*c^3*x^6)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(5/2)*(b*x+a)**(1/2)/x**7,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(5/2)/x^7,x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.564 $\int \frac{x^3\sqrt{a+bx}}{\sqrt{c+dx}}\,dx$

Optimal. Leaf size=251

$$\frac{(a+bx)^{3/2}\sqrt{c+dx}\left(15a^2d^2-4bdx(5ad+7bc)+22abcd+35b^2c^2\right)}{96b^3d^3}-\frac{\sqrt{a+bx}\sqrt{c+dx}\left(5a^3d^3+9a^2bcd^2+15ab^2c^2d+35b^3c^3\right)}{64b^3d^4}+\frac{(bc-ad)\left(5a^3d^3+9a^2bcd^2+15ab^2c^2d+35b^3c^3\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{64b^{7/2}d^{9/2}}+\frac{x^2(a+bx)^{3/2}\sqrt{c+dx}}{4bd}$$

```
[Out] -((35*b^3*c^3 + 15*a*b^2*c^2*d + 9*a^2*b*c*d^2 + 5*a^3*d^3)*Sqrt[
a + b*x]*Sqrt[c + d*x])/(64*b^3*d^4) + (x^2*(a + b*x)^(3/2)*Sqrt[
c + d*x])/(4*b*d) + ((a + b*x)^(3/2)*Sqrt[c + d*x]*(35*b^2*c^2 +
22*a*b*c*d + 15*a^2*d^2 - 4*b*d*(7*b*c + 5*a*d)*x))/(96*b^3*d^3)
+ ((b*c - a*d)*(35*b^3*c^3 + 15*a*b^2*c^2*d + 9*a^2*b*c*d^2 + 5*a
^3*d^3)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])
/(64*b^(7/2)*d^(9/2))
```

Rubi [A] time = 0.445664, antiderivative size = 251, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$\frac{(a+bx)^{3/2}\sqrt{c+dx}\left(15a^2d^2-4bdx(5ad+7bc)+22abcd+35b^2c^2\right)}{96b^3d^3}-\frac{\sqrt{a+bx}\sqrt{c+dx}\left(5a^3d^3+9a^2bcd^2+15ab^2c^2d+35b^3c^3\right)}{64b^3d^4}+\frac{(bc-ad)\left(5a^3d^3+9a^2bcd^2+15ab^2c^2d+35b^3c^3\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{64b^{7/2}d^{9/2}}+\frac{x^2(a+bx)^{3/2}\sqrt{c+dx}}{4bd}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^3*Sqrt[a + b*x])/Sqrt[c + d*x],x]
```

```
[Out] -((35*b^3*c^3 + 15*a*b^2*c^2*d + 9*a^2*b*c*d^2 + 5*a^3*d^3)*Sqrt[
a + b*x]*Sqrt[c + d*x])/(64*b^3*d^4) + (x^2*(a + b*x)^(3/2)*Sqrt[
c + d*x])/(4*b*d) + ((a + b*x)^(3/2)*Sqrt[c + d*x]*(35*b^2*c^2 +
22*a*b*c*d + 15*a^2*d^2 - 4*b*d*(7*b*c + 5*a*d)*x))/(96*b^3*d^3)
+ ((b*c - a*d)*(35*b^3*c^3 + 15*a*b^2*c^2*d + 9*a^2*b*c*d^2 + 5*a
^3*d^3)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])
/(64*b^(7/2)*d^(9/2))
```

Rubi in Sympy [A] time = 36.3635, size = 250, normalized size = 1.

$$\frac{x^2\left(a+bx\right)^{\frac{3}{2}}\sqrt{c+dx}}{4bd}+\frac{\left(a+bx\right)^{\frac{3}{2}}\sqrt{c+dx}\left(\frac{15a^2d^2}{4}+\frac{11abcd}{2}+\frac{35b^2c^2}{4}-bdx\left(5ad+7bc\right)\right)}{24b^3d^3}-\frac{\sqrt{a+bx}\sqrt{c+dx}\left(5a^3d^3+9a^2bcd^2+15ab^2c^2d+35b^3c^3\right)}{64b^3d^4}-\frac{\left(ad-bc\right)\left(5a^3d^3+9a^2bcd^2+15ab^2c^2d+35b^3c^3\right)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{64b^{\frac{7}{2}}d^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3*(b*x+a)**(1/2)/(d*x+c)**(1/2),x)
```

```
[Out] x**2*(a + b*x)**(3/2)*sqrt(c + d*x)/(4*b*d) + (a + b*x)**(3/2)*sq
rt(c + d*x)*(15*a**2*d**2/4 + 11*a*b*c*d/2 + 35*b**2*c**2/4 - b*d
*x*(5*a*d + 7*b*c))/(24*b**3*d**3) - sqrt(a + b*x)*sqrt(c + d*x)*
```

```
(5*a**3*d**3 + 9*a**2*b*c*d**2 + 15*a*b**2*c**2*d + 35*b**3*c**3)
/(64*b**3*d**4) - (a*d - b*c)*(5*a**3*d**3 + 9*a**2*b*c*d**2 + 15
*a*b**2*c**2*d + 35*b**3*c**3)*atanh(sqrt(b)*sqrt(c + d*x)/(sqrt(
d)*sqrt(a + b*x)))/(64*b**(7/2)*d**(9/2))
```

Mathematica [A] time = 0.207696, size = 219, normalized size = 0.87

$$\frac{3(bc-ad)\left(5a^3d^3+9a^2bcd^2+15ab^2c^2d+35b^3c^3\right)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)-2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+d}}{384b^{7/2}d^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^3*Sqrt[a + b*x])/Sqrt[c + d*x],x]
```

```
[Out] (-2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]*(-15*a^3*d^3 + a^
2*b*d^2*(-17*c + 10*d*x) + a*b^2*d*(-25*c^2 + 12*c*d*x - 8*d^2*x^
2) + b^3*(105*c^3 - 70*c^2*d*x + 56*c*d^2*x^2 - 48*d^3*x^3)) + 3*
(b*c - a*d)*(35*b^3*c^3 + 15*a*b^2*c^2*d + 9*a^2*b*c*d^2 + 5*a^3*
d^3)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sq
rt[c + d*x]])/(384*b^(7/2)*d^(9/2))
```

Maple [B] time = 0.034, size = 574, normalized size = 2.3

$$-\frac{1}{384\,b^3d^4}\sqrt{bx+a}\sqrt{dx+c}\left(-96\,x^3b^3d^3\sqrt{(bx+a)\,(dx+c)}\sqrt{bd}-16\,x^2ab^2d^3\sqrt{(bx+a)\,(dx+c)}\sqrt{bd}+112\,x^2b^3cd^2\sqrt{(bx+a)}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^3*(b*x+a)^(1/2)/(d*x+c)^(1/2),x)
```

```
[Out] -1/384*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(-96*x^3*b^3*d^3*((b*x+a)*(d*x
+c))^(1/2)*(b*d)^(1/2)-16*x^2*a*b^2*d^3*((b*x+a)*(d*x+c))^(1/2)*(
b*d)^(1/2)+112*x^2*b^3*c*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+
15*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)
/(b*d)^(1/2))*a^4*d^4+12*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2
)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^3*b*c*d^3+18*ln(1/2*(2*b*d*
x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^2
*b^2*c^2*d^2+60*c^3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*
d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a*b^3*d-105*c^4*ln(1/2*(2*b*d*x+2*
((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*b^4+20*
(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*x*a^2*b*d^3+24*(b*d)^(1/2)*((
b*x+a)*(d*x+c))^(1/2)*x*a*b^2*c*d^2-140*(b*d)^(1/2)*((b*x+a)*(d*x
+c))^(1/2)*x*b^3*c^2*d-30*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*a^3
*d^3-34*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*a^2*b*c*d^2-50*(b*d)^
(1/2)*((b*x+a)*(d*x+c))^(1/2)*a*b^2*c^2*d+210*c^3*((b*x+a)*(d*x+c
))^(1/2)*b^3*(b*d)^(1/2))/((b*x+a)*(d*x+c))^(1/2)/b^3/d^4/(b*d)^(
1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*x^3/sqrt(d*x + c),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.280097, size = 1, normalized size = 0.

$$\left[\frac{4\left(48\,b^3d^3x^3-105\,b^3c^3+25\,ab^2c^2d+17\,a^2bcd^2+15\,a^3d^3-8\left(7\,b^3cd^2-ab^2d^3\right)x^2+2\left(35\,b^3c^2d-6\,ab^2cd^2-5\,a^2bd^3\right)x\right)\cdots}{\cdots}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*x^3/sqrt(d*x + c),x, algorithm="fricas")
```

```
[Out] [1/768*(4*(48*b^3*d^3*x^3 - 105*b^3*c^3 + 25*a*b^2*c^2*d + 17*a^2
*b*c*d^2 + 15*a^3*d^3 - 8*(7*b^3*c*d^2 - a*b^2*d^3)*x^2 + 2*(35*b
^3*c^2*d - 6*a*b^2*c*d^2 - 5*a^2*b*d^3)*x)*sqrt(b*d)*sqrt(b*x + a
)*sqrt(d*x + c) - 3*(35*b^4*c^4 - 20*a*b^3*c^3*d - 6*a^2*b^2*c^2*
d^2 - 4*a^3*b*c*d^3 - 5*a^4*d^4)*log(-4*(2*b^2*d^2*x + b^2*c*d +
a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2 +
 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/(sqrt
(b*d)*b^3*d^4), 1/384*(2*(48*b^3*d^3*x^3 - 105*b^3*c^3 + 25*a*b^2
*c^2*d + 17*a^2*b*c*d^2 + 15*a^3*d^3 - 8*(7*b^3*c*d^2 - a*b^2*d^3
)*x^2 + 2*(35*b^3*c^2*d - 6*a*b^2*c*d^2 - 5*a^2*b*d^3)*x)*sqrt(-b
*d)*sqrt(b*x + a)*sqrt(d*x + c) + 3*(35*b^4*c^4 - 20*a*b^3*c^3*d
- 6*a^2*b^2*c^2*d^2 - 4*a^3*b*c*d^3 - 5*a^4*d^4)*arctan(1/2*(2*b*
d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/(
sqrt(-b*d)*b^3*d^4)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**3*(b*x+a)**(1/2)/(d*x+c)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.259764, size = 393, normalized size = 1.57

$$\frac{\left(\sqrt{b^2c+(bx+a)bd-abd}\left(2\,(bx+a)\left(4\,(bx+a)\left(\frac{6\,(bx+a)}{b^4d}-\frac{7\,b^{13}cd^5+17\,ab^{12}d^6}{b^{16}d^7}\right)+\frac{35\,b^{14}c^2d^4+50\,ab^{13}cd^5+59\,a^2b^{12}d^6}{b^{16}d^7}\right)-\frac{3\,(35\,b^{15}c^3d^3+1\cdots}{\cdots}\right.\cdots}{192\,|b\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*x^3/sqrt(d*x + c),x, algorithm="giac")
```

```
[Out] 1/192*(sqrt(b^2*c + (b*x + a)*b*d - a*b*d)*(2*(b*x + a)*(4*(b*x +
 a)*(6*(b*x + a)/(b^4*d) - (7*b^13*c*d^5 + 17*a*b^12*d^6)/(b^16*d
^7)) + (35*b^14*c^2*d^4 + 50*a*b^13*c*d^5 + 59*a^2*b^12*d^6)/(b^1
6*d^7)) - 3*(35*b^15*c^3*d^3 + 15*a*b^14*c^2*d^4 + 9*a^2*b^13*c*d
^5 + 5*a^3*b^12*d^6)/(b^16*d^7))*sqrt(b*x + a) - 3*(35*b^4*c^4 -
20*a*b^3*c^3*d - 6*a^2*b^2*c^2*d^2 - 4*a^3*b*c*d^3 - 5*a^4*d^4)*l
n(abs(-sqrt(b*d)*sqrt(b*x + a) + sqrt(b^2*c + (b*x + a)*b*d - a*b
*d)))/(sqrt(b*d)*b^3*d^4))*b/abs(b)
```

3.565 $\int \frac{x^2\sqrt{a+bx}}{\sqrt{c+dx}}\,dx$

Optimal. Leaf size=191

$$\frac{\sqrt{a+bx}\sqrt{c+dx}\left(a^2d^2+2abcd+5b^2c^2\right)}{8b^2d^3}-\frac{(bc-ad)\left(a^2d^2+2abcd+5b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8b^{5/2}d^{7/2}}-\frac{(a+bx)^{3/2}\sqrt{c+dx}(3ad+5bc)}{12b^2d^2}+\frac{x(a+bx)^{3/2}\sqrt{c+dx}}{3bd}$$

```
[Out] ((5*b^2*c^2 + 2*a*b*c*d + a^2*d^2)*Sqrt[a + b*x]*Sqrt[c + d*x])/(
8*b^2*d^3) - ((5*b*c + 3*a*d)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(12*
b^2*d^2) + (x*(a + b*x)^(3/2)*Sqrt[c + d*x])/(3*b*d) - ((b*c - a*
d)*(5*b^2*c^2 + 2*a*b*c*d + a^2*d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*
x])/(Sqrt[b]*Sqrt[c + d*x])])/(8*b^(5/2)*d^(7/2))
```

Rubi [A] time = 0.398857, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$\frac{\sqrt{a+bx}\sqrt{c+dx}\left(a^2d^2+2abcd+5b^2c^2\right)}{8b^2d^3}-\frac{(bc-ad)\left(a^2d^2+2abcd+5b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8b^{5/2}d^{7/2}}-\frac{(a+bx)^{3/2}\sqrt{c+dx}(3ad+5bc)}{12b^2d^2}+\frac{x(a+bx)^{3/2}\sqrt{c+dx}}{3bd}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^2*Sqrt[a + b*x])/Sqrt[c + d*x],x]
```

```
[Out] ((5*b^2*c^2 + 2*a*b*c*d + a^2*d^2)*Sqrt[a + b*x]*Sqrt[c + d*x])/(
8*b^2*d^3) - ((5*b*c + 3*a*d)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(12*
b^2*d^2) + (x*(a + b*x)^(3/2)*Sqrt[c + d*x])/(3*b*d) - ((b*c - a*
d)*(5*b^2*c^2 + 2*a*b*c*d + a^2*d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*
x])/(Sqrt[b]*Sqrt[c + d*x])])/(8*b^(5/2)*d^(7/2))
```

Rubi in Sympy [A] time = 26.7646, size = 178, normalized size = 0.93

$$\frac{x(a+bx)^{\frac{3}{2}}\sqrt{c+dx}}{3bd}-\frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}\,(3ad+5bc)}{12b^2d^2}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(a^2d^2+2abcd+5b^2c^2\right)}{8b^2d^3}+\frac{(ad-bc)\left(a^2d^2+2abcd+5b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8b^{\frac{5}{2}}d^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(b*x+a)**(1/2)/(d*x+c)**(1/2),x)
```

```
[Out] x*(a + b*x)**(3/2)*sqrt(c + d*x)/(3*b*d) - (a + b*x)**(3/2)*sqrt(
c + d*x)*(3*a*d + 5*b*c)/(12*b**2*d**2) + sqrt(a + b*x)*sqrt(c +
d*x)*(a**2*d**2 + 2*a*b*c*d + 5*b**2*c**2)/(8*b**2*d**3) + (a*d -
 b*c)*(a**2*d**2 + 2*a*b*c*d + 5*b**2*c**2)*atanh(sqrt(d)*sqrt(a
+ b*x)/(sqrt(b)*sqrt(c + d*x)))/(8*b**(5/2)*d**(7/2))
```

Mathematica [A] time = 0.131271, size = 160, normalized size = 0.84

$$\frac{\sqrt{a+bx}\sqrt{c+dx}\left(-3a^2d^2+2abd(dx-2c)+b^2\left(15c^2-10cdx+8d^2x^2\right)\right)}{24b^2d^3}-\frac{(bc-ad)\left(a^2d^2+2abcd+5b^2c^2\right)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{16b^{5/2}d^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^2*Sqrt[a + b*x])/Sqrt[c + d*x],x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(-3*a^2*d^2 + 2*a*b*d*(-2*c + d*x) +
 b^2*(15*c^2 - 10*c*d*x + 8*d^2*x^2)))/(24*b^2*d^3) - ((b*c - a*d
)*(5*b^2*c^2 + 2*a*b*c*d + a^2*d^2)*Log[b*c + a*d + 2*b*d*x + 2*S
qrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(16*b^(5/2)*d^(7/2))
```

Maple [B] time = 0.031, size = 395, normalized size = 2.1

$$\frac{1}{48\,b^2d^3}\sqrt{bx+a}\sqrt{dx+c}\left(16\,x^2b^2d^2\sqrt{(bx+a)(dx+c)}\sqrt{bd}+3\,\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{(bx+a)(dx+c)}\sqrt{bd}+ad+bc}{\sqrt{bd}}\right)a^3d^3+3$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(b*x+a)^(1/2)/(d*x+c)^(1/2),x)
```

```
[Out] 1/48*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(16*x^2*b^2*d^2*((b*x+a)*(d*x+c)
)^(1/2)*(b*d)^(1/2)+3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(
b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^3*d^3+3*ln(1/2*(2*b*d*x+2*((b*
x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^2*b*c*d^2
+9*c^2*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+
b*c)/(b*d)^(1/2))*a*b^2*d-15*c^3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+
c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*b^3+4*(b*d)^(1/2)*((b
*x+a)*(d*x+c))^(1/2)*x*a*b*d^2-20*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(
1/2)*x*b^2*c*d-6*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*a^2*d^2-8*(b
*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*a*b*c*d+30*c^2*((b*x+a)*(d*x+c)
)^(1/2)*b^2*(b*d)^(1/2))/((b*x+a)*(d*x+c))^(1/2)/b^2/d^3/(b*d)^(1
/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*x^2/sqrt(d*x + c),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.251883, size = 1, normalized size = 0.01

$$\left[\frac{4\left(8\,b^2d^2x^2+15\,b^2c^2-4\,abcd-3\,a^2d^2-2\left(5\,b^2cd-abd^2\right)x\right)\sqrt{bd}\sqrt{bx+a}\sqrt{dx+c}-3\left(5\,b^3c^3-3\,ab^2c^2d-a^2bcd^2-a^3d^3\right.}{96\,\sqrt{bd}b^2d^3}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*x^2/sqrt(d*x + c),x, algorithm="fricas")
```

```
[Out] [1/96*(4*(8*b^2*d^2*x^2 + 15*b^2*c^2 - 4*a*b*c*d - 3*a^2*d^2 - 2*
(5*b^2*c*d - a*b*d^2)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) -
3*(5*b^3*c^3 - 3*a*b^2*c^2*d - a^2*b*c*d^2 - a^3*d^3)*log(4*(2*b^
2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2
*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*
x)*sqrt(b*d)))/(sqrt(b*d)*b^2*d^3), 1/48*(2*(8*b^2*d^2*x^2 + 15*b
^2*c^2 - 4*a*b*c*d - 3*a^2*d^2 - 2*(5*b^2*c*d - a*b*d^2)*x)*sqrt(
```

```
-b*d)*sqrt(b*x + a)*sqrt(d*x + c) - 3*(5*b^3*c^3 - 3*a*b^2*c^2*d
- a^2*b*c*d^2 - a^3*d^3)*arctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b
*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/(sqrt(-b*d)*b^2*d^3)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(b*x+a)**(1/2)/(d*x+c)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.243134, size = 289, normalized size = 1.51

$$\frac{\left(\sqrt{b^2c+(bx+a)bd-abd}\sqrt{bx+a}\left(2\,(bx+a)\left(\frac{4\,(bx+a)}{b^3d}-\frac{5\,b^7cd^3+7\,ab^6d^4}{b^9d^5}\right)+\frac{3\,(5\,b^8c^2d^2+2\,ab^7cd^3+a^2b^6d^4)}{b^9d^5}\right)+\frac{3\,(5\,b^3c^3-3\,ab^2c^2d-a^2bc\cdots}{\cdots}}{24\,|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*x^2/sqrt(d*x + c),x, algorithm="giac")
```

```
[Out] 1/24*(sqrt(b^2*c + (b*x + a)*b*d - a*b*d)*sqrt(b*x + a)*(2*(b*x +
 a)*(4*(b*x + a)/(b^3*d) - (5*b^7*c*d^3 + 7*a*b^6*d^4)/(b^9*d^5))
 + 3*(5*b^8*c^2*d^2 + 2*a*b^7*c*d^3 + a^2*b^6*d^4)/(b^9*d^5)) + 3
*(5*b^3*c^3 - 3*a*b^2*c^2*d - a^2*b*c*d^2 - a^3*d^3)*ln(abs(-sqrt
(b*d)*sqrt(b*x + a) + sqrt(b^2*c + (b*x + a)*b*d - a*b*d)))/(sqrt
(b*d)*b^2*d^3))*b/abs(b)
```

3.566 $\int \frac{x\sqrt{a+bx}}{\sqrt{c+dx}}\,dx$

Optimal. Leaf size=125

$$\frac{(bc-ad)(ad+3bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{3/2}d^{5/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}(ad+3bc)}{4bd^2}+\frac{(a+bx)^{3/2}\sqrt{c+dx}}{2bd}$$

```
[Out] -((3*b*c + a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*b*d^2) + ((a + b*
x)^(3/2)*Sqrt[c + d*x])/(2*b*d) + ((b*c - a*d)*(3*b*c + a*d)*ArcT
anh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(4*b^(3/2)*
d^(5/2))
```

Rubi [A] time = 0.165917, antiderivative size = 125, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.2$

$$\frac{(bc-ad)(ad+3bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{3/2}d^{5/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}(ad+3bc)}{4bd^2}+\frac{(a+bx)^{3/2}\sqrt{c+dx}}{2bd}$$

Antiderivative was successfully verified.

```
[In]  Int[(x*Sqrt[a + b*x])/Sqrt[c + d*x],x]
```

```
[Out] -((3*b*c + a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*b*d^2) + ((a + b*
x)^(3/2)*Sqrt[c + d*x])/(2*b*d) + ((b*c - a*d)*(3*b*c + a*d)*ArcT
anh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(4*b^(3/2)*
d^(5/2))
```

Rubi in Sympy [A] time = 15.552, size = 109, normalized size = 0.87

$$\frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}}{2bd}-\frac{\sqrt{a+bx}\sqrt{c+dx}\,(ad+3bc)}{4bd^2}-\frac{(ad-bc)\,(ad+3bc)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{4b^{\frac{3}{2}}d^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(b*x+a)**(1/2)/(d*x+c)**(1/2),x)
```

```
[Out] (a + b*x)**(3/2)*sqrt(c + d*x)/(2*b*d) - sqrt(a + b*x)*sqrt(c + d
*x)*(a*d + 3*b*c)/(4*b*d**2) - (a*d - b*c)*(a*d + 3*b*c)*atanh(sq
rt(b)*sqrt(c + d*x)/(sqrt(d)*sqrt(a + b*x)))/(4*b**(3/2)*d**(5/2)
)
```

Mathematica [A] time = 0.0887706, size = 115, normalized size = 0.92

$$\frac{(bc-ad)(ad+3bc)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{8b^{3/2}d^{5/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}(ad-3bc+2bdx)}{4bd^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x*Sqrt[a + b*x])/Sqrt[c + d*x],x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(-3*b*c + a*d + 2*b*d*x))/(4*b*d^2)
+ ((b*c - a*d)*(3*b*c + a*d)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*
Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(8*b^(3/2)*d^(5/2))
```

Maple [B] time = 0.021, size = 250, normalized size = 2.

$$-\frac{1}{8\,d^2b}\sqrt{bx+a}\sqrt{dx+c}\left(\ln\left(\frac{1}{2}\left(2\,bdx+2\,\sqrt{(bx+a)\,(dx+c)}\sqrt{bd}+ad+bc\right)\frac{1}{\sqrt{bd}}\right)a^2d^2+2\,c\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{(bx+a)\,(d}}{\sqrt{b}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(b*x+a)^(1/2)/(d*x+c)^(1/2),x)
```

```
[Out] -1/8*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x
+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^2*d^2+2*c*ln(1/2*(
2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2
))*a*d*b-3*c^2*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1
/2)+a*d+b*c)/(b*d)^(1/2))*b^2-4*x*((b*x+a)*(d*x+c))^(1/2)*d*b*(b*
d)^(1/2)+6*c*((b*x+a)*(d*x+c))^(1/2)*b*(b*d)^(1/2)-2*((b*x+a)*(d*
x+c))^(1/2)*a*d*(b*d)^(1/2))/((b*x+a)*(d*x+c))^(1/2)/d^2/b/(b*d)^
(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*x/sqrt(d*x + c),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.242395, size = 1, normalized size = 0.01

$$\left[\frac{4\,(2\,bdx-3\,bc+ad)\sqrt{bd}\sqrt{bx+a}\sqrt{dx+c}-\left(3\,b^2c^2-2\,abcd-a^2d^2\right)\log\left(-4\,\left(2\,b^2d^2x+b^2cd+abd^2\right)\sqrt{bx+a}\sqrt{dx+c}+(8\right.}{16\,\sqrt{bd}bd^2}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*x/sqrt(d*x + c),x, algorithm="fricas")
```

```
[Out] [1/16*(4*(2*b*d*x - 3*b*c + a*d)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x
 + c) - (3*b^2*c^2 - 2*a*b*c*d - a^2*d^2)*log(-4*(2*b^2*d^2*x + b
^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 +
b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d
)))/(sqrt(b*d)*b*d^2), 1/8*(2*(2*b*d*x - 3*b*c + a*d)*sqrt(-b*d)*
sqrt(b*x + a)*sqrt(d*x + c) + (3*b^2*c^2 - 2*a*b*c*d - a^2*d^2)*a
rctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*
x + c)*b*d)))/(sqrt(-b*d)*b*d^2)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(b*x+a)**(1/2)/(d*x+c)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.232762, size = 193, normalized size = 1.54

$$\frac{\sqrt{b^2c+(bx+a)bd-abd}\sqrt{bx+a}\left(\frac{2\,(bx+a)}{bd}-\frac{3\,b^2cd+abd^2}{b^2d^3}\right)-\frac{\left(3\,b^2c^2-2\,abcd-a^2d^2\right)\ln\left(\left|-\sqrt{bd}\sqrt{bx+a}+\sqrt{b^2c+(bx+a)bd-abd}\right|\right)}{\sqrt{bd}d^2}}{4\,|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*x/sqrt(d*x + c),x, algorithm="giac")
```

```
[Out] 1/4*(sqrt(b^2*c + (b*x + a)*b*d - a*b*d)*sqrt(b*x + a)*(2*(b*x +
a)/(b*d) - (3*b^2*c*d + a*b*d^2)/(b^2*d^3)) - (3*b^2*c^2 - 2*a*b*
c*d - a^2*d^2)*ln(abs(-sqrt(b*d)*sqrt(b*x + a) + sqrt(b^2*c + (b*
x + a)*b*d - a*b*d)))/(sqrt(b*d)*d^2))/abs(b)
```

3.567 $\int \frac{\sqrt{a+bx}}{\sqrt{c+dx}}\,dx$

Optimal. Leaf size=73

$$\frac{\sqrt{a+bx}\sqrt{c+dx}}{d}-\frac{(bc-ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{b}d^{3/2}}$$

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x])/d - ((b*c - a*d)*ArcTanh[(Sqrt[d]*S
qrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(Sqrt[b]*d^(3/2))
```

Rubi [A] time = 0.0803036, antiderivative size = 73, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.158

$$\frac{\sqrt{a+bx}\sqrt{c+dx}}{d}-\frac{(bc-ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{b}d^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[a + b*x]/Sqrt[c + d*x],x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x])/d - ((b*c - a*d)*ArcTanh[(Sqrt[d]*S
qrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(Sqrt[b]*d^(3/2))
```

Rubi in Sympy [A] time = 9.38822, size = 63, normalized size = 0.86

$$\frac{\sqrt{a+bx}\sqrt{c+dx}}{d}+\frac{(ad-bc)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{\sqrt{b}d^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/2)/(d*x+c)**(1/2),x)
```

```
[Out] sqrt(a + b*x)*sqrt(c + d*x)/d + (a*d - b*c)*atanh(sqrt(b)*sqrt(c
+ d*x)/(sqrt(d)*sqrt(a + b*x)))/(sqrt(b)*d**(3/2))
```

Mathematica [A] time = 0.0763227, size = 88, normalized size = 1.21

$$\frac{(ad-bc)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{2\sqrt{b}d^{3/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}}{d}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[a + b*x]/Sqrt[c + d*x],x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x])/d + ((-(b*c) + a*d)*Log[b*c + a*d +
 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(2*Sqr
t[b]*d^(3/2))
```

Maple [A] time = 0.006, size = 107, normalized size = 1.5

$$\frac{1}{d}\sqrt{bx+a}\sqrt{dx+c}$$
$$-\frac{-ad+bc}{2d}\sqrt{(bx+a)(dx+c)}\ln\left(1\left(\frac{ad}{2}+\frac{bc}{2}+bdx\right)\frac{1}{\sqrt{bd}}+\sqrt{dx^2b+(ad+bc)x+ac}\right)\frac{1}{\sqrt{bx+a}}\frac{1}{\sqrt{dx+c}}\frac{1}{\sqrt{bd}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/2)/(d*x+c)^(1/2),x)
```

```
[Out] (b*x+a)^(1/2)*(d*x+c)^(1/2)/d-1/2*(-a*d+b*c)/d*((b*x+a)*(d*x+c))^
(1/2)/(b*x+a)^(1/2)/(d*x+c)^(1/2)*ln((1/2*a*d+1/2*b*c+b*d*x)/(b*d
)^(1/2)+(d*x^2*b+(a*d+b*c)*x+a*c)^(1/2))/(b*d)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/sqrt(d*x + c),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.231217, size = 1, normalized size = 0.01

$$\left[-\frac{(bc-ad)\log\left(4\left(2\,b^2d^2x+b^2cd+abd^2\right)\sqrt{bx+a}\sqrt{dx+c}+\left(8\,b^2d^2x^2+b^2c^2+6\,abcd+a^2d^2+8\left(b^2cd+abd^2\right)x\right)\sqrt{bd}\right)-}{4\sqrt{bd}d}\right.$$

$$\left.-\frac{(bc-ad)\arctan\left(\frac{(2\,bdx+bc+ad)\sqrt{-bd}}{2\sqrt{bx+a}\sqrt{dx+c}bd}\right)-2\sqrt{-bd}\sqrt{bx+a}\sqrt{dx+c}}{2\sqrt{-bd}d}\right]$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/sqrt(d*x + c),x, algorithm="fricas")
```

```
[Out] [-1/4*((b*c - a*d)*log(4*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b
*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^
2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)) - 4*sqrt(b*d)*sqrt(b*
x + a)*sqrt(d*x + c))/(sqrt(b*d)*d), -1/2*((b*c - a*d)*arctan(1/2
*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*
d)) - 2*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(-b*d)*d)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{a+bx}}{\sqrt{c+dx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(1/2)/(d*x+c)**(1/2),x)
```

```
[Out] Integral(sqrt(a + b*x)/sqrt(c + d*x), x)
```

GIAC/XCAS [A] time = 0.230301, size = 131, normalized size = 1.79

$$\frac{b\left(\frac{(bc-ad)\ln\left(\left|-\sqrt{bd}\sqrt{bx+a}+\sqrt{b^2c+(bx+a)bd-abd}\right|\right)}{\sqrt{bd}d}+\frac{\sqrt{b^2c+(bx+a)bd-abd}\sqrt{bx+a}}{bd}\right)}{|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/sqrt(d*x + c),x, algorithm="giac")
```

```
[Out] b*((b*c - a*d)*ln(abs(-sqrt(b*d)*sqrt(b*x + a) + sqrt(b^2*c + (b*
x + a)*b*d - a*b*d)))/(sqrt(b*d)*d) + sqrt(b^2*c + (b*x + a)*b*d
- a*b*d)*sqrt(b*x + a)/(b*d))/abs(b)
```

3.568 $\int \frac{\sqrt{a+bx}}{x\sqrt{c+dx}}\,dx$

Optimal. Leaf size=85

$$\frac{2\sqrt{b}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{d}}-\frac{2\sqrt{a}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{c}}$$

```
[Out] (-2*Sqrt[a]*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x
])])/Sqrt[c] + (2*Sqrt[b]*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b
]*Sqrt[c + d*x])])/Sqrt[d]
```

Rubi [A] time = 0.161382, antiderivative size = 85, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$\frac{2\sqrt{b}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{d}}-\frac{2\sqrt{a}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{c}}$$

Antiderivative was successfully verified.

```
[In] Int[Sqrt[a + b*x]/(x*Sqrt[c + d*x]),x]
```

```
[Out] (-2*Sqrt[a]*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x
])])/Sqrt[c] + (2*Sqrt[b]*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b
]*Sqrt[c + d*x])])/Sqrt[d]
```

Rubi in Sympy [A] time = 14.26, size = 80, normalized size = 0.94

$$-\frac{2\sqrt{a}\,\mathrm{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{c}}+\frac{2\sqrt{b}\,\mathrm{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{\sqrt{d}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)**(1/2)/x/(d*x+c)**(1/2),x)
```

```
[Out] -2*sqrt(a)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/s
qrt(c) + 2*sqrt(b)*atanh(sqrt(b)*sqrt(c + d*x)/(sqrt(d)*sqrt(a +
b*x)))/sqrt(d)
```

Mathematica [A] time = 0.084153, size = 124, normalized size = 1.46

$$-\frac{\sqrt{a}\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{\sqrt{c}}+\frac{\sqrt{b}\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{\sqrt{d}}+\frac{\sqrt{a}\log(x)}{\sqrt{c}}$$

Antiderivative was successfully verified.

```
[In] Integrate[Sqrt[a + b*x]/(x*Sqrt[c + d*x]),x]
```

```
[Out] (Sqrt[a]*Log[x])/Sqrt[c] - (Sqrt[a]*Log[2*a*c + b*c*x + a*d*x + 2
*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/Sqrt[c] + (Sqrt[b]
*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c
```

```
+ d*x]])/Sqrt[d]
```

Maple [B] time = 0.028, size = 133, normalized size = 1.6

$$1\sqrt{bx+a}\sqrt{dx+c}\left(\ln\left(\frac{1}{2}\left(2\,bdx+2\,\sqrt{(bx+a)\,(dx+c)}\sqrt{bd}+ad+bc\right)\frac{1}{\sqrt{bd}}\right)b\sqrt{ac}-\ln\left(\frac{1}{x}\left(adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)\,(d$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/2)/x/(d*x+c)^(1/2),x)
```

```
[Out] (b*x+a)^(1/2)*(d*x+c)^(1/2)*(ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^
(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*b*(a*c)^(1/2)-ln((a*d*x+b
*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*a*(b*d)^(1/2
))/((b*x+a)*(d*x+c))^(1/2)/(b*d)^(1/2)/(a*c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/(sqrt(d*x + c)*x),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.330988, size = 1, normalized size = 0.01

$$\left[\frac{1}{2}\sqrt{\frac{b}{d}}\log\left(8\,b^2d^2x^2+b^2c^2+6\,abcd+a^2d^2\right.\right.$$
$$\left.+4\left(2\,bd^2x+bcd+ad^2\right)\sqrt{bx+a}\sqrt{dx+c}\sqrt{\frac{b}{d}}+8\left(b^2cd+abd^2\right)x\right)$$
$$+\frac{1}{2}\sqrt{\frac{a}{c}}\log\left(\frac{8\,a^2c^2+\left(b^2c^2+6\,abcd+a^2d^2\right)x^2-4\left(2\,ac^2+\left(bc^2+acd\right)x\right)\sqrt{bx+a}\sqrt{dx+c}\sqrt{\frac{a}{c}}+8\left(abc^2+a^2cd\right)x}{x^2}\right),\sqrt{-\frac{b}{d}}\,a$$
$$+\frac{1}{2}\sqrt{\frac{a}{c}}\log\left(\frac{8\,a^2c^2+\left(b^2c^2+6\,abcd+a^2d^2\right)x^2-4\left(2\,ac^2+\left(bc^2+acd\right)x\right)\sqrt{bx+a}\sqrt{dx+c}\sqrt{\frac{a}{c}}+8\left(abc^2+a^2cd\right)x}{x^2}\right),$$
$$-\sqrt{-\frac{a}{c}}\arctan\left(\frac{2\,ac+(bc+ad)x}{2\,\sqrt{bx+a}\sqrt{dx+c}c\sqrt{-\frac{a}{c}}}\right)+\frac{1}{2}\sqrt{\frac{b}{d}}\log\left(8\,b^2d^2x^2+b^2c^2+6\,abcd\right.$$
$$\left.+a^2d^2+4\left(2\,bd^2x+bcd+ad^2\right)\sqrt{bx+a}\sqrt{dx+c}\sqrt{\frac{b}{d}}+8\left(b^2cd+abd^2\right)x\right),$$
$$\left.-\sqrt{-\frac{a}{c}}\arctan\left(\frac{2\,ac+(bc+ad)x}{2\,\sqrt{bx+a}\sqrt{dx+c}c\sqrt{-\frac{a}{c}}}\right)+\sqrt{-\frac{b}{d}}\arctan\left(\frac{2\,bdx+bc+ad}{2\,\sqrt{bx+a}\sqrt{dx+c}d\sqrt{-\frac{b}{d}}}\right)\right]$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/(sqrt(d*x + c)*x),x, algorithm="fricas")
```

```
[Out] [1/2*sqrt(b/d)*log(8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2
+ 4*(2*b*d^2*x + b*c*d + a*d^2)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(
b/d) + 8*(b^2*c*d + a*b*d^2)*x) + 1/2*sqrt(a/c)*log((8*a^2*c^2 +
```

```
(b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a*c^2 + (b*c^2 + a*c*d
)*x)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(a/c) + 8*(a*b*c^2 + a^2*c*d
)*x)/x^2), sqrt(-b/d)*arctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(b*x
+ a)*sqrt(d*x + c)*d*sqrt(-b/d))) + 1/2*sqrt(a/c)*log((8*a^2*c^2
+ (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a*c^2 + (b*c^2 + a*c
*d)*x)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(a/c) + 8*(a*b*c^2 + a^2*c
*d)*x)/x^2), -sqrt(-a/c)*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt
(b*x + a)*sqrt(d*x + c)*c*sqrt(-a/c))) + 1/2*sqrt(b/d)*log(8*b^2*
d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b*d^2*x + b*c*d +
a*d^2)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(b/d) + 8*(b^2*c*d + a*b*d
^2)*x), -sqrt(-a/c)*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(b*x
+ a)*sqrt(d*x + c)*c*sqrt(-a/c))) + sqrt(-b/d)*arctan(1/2*(2*b*d*
x + b*c + a*d)/(sqrt(b*x + a)*sqrt(d*x + c)*d*sqrt(-b/d)))]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{a+bx}}{x\sqrt{c+dx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(1/2)/x/(d*x+c)**(1/2),x)
```

```
[Out] Integral(sqrt(a + b*x)/(x*sqrt(c + d*x)), x)
```

GIAC/XCAS [A] time = 0.231887, size = 197, normalized size = 2.32

$$-\frac{b^2\left(\frac{2\sqrt{bd}\,a\arctan\left(-\frac{b^2c+abd-\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2}{2\sqrt{-abcd}\,b}\right)}{\sqrt{-abcd}\,b}+\frac{\sqrt{bd}\ln\left(\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2\right)}{bd}\right)}{|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/(sqrt(d*x + c)*x),x, algorithm="giac")
```

```
[Out] -b^2*(2*sqrt(b*d)*a*arctan(-1/2*(b^2*c + a*b*d - (sqrt(b*d)*sqrt(
b*x + a) - sqrt(b^2*c + (b*x + a)*b*d - a*b*d))^2)/(sqrt(-a*b*c*d
)*b))/(sqrt(-a*b*c*d)*b) + sqrt(b*d)*ln((sqrt(b*d)*sqrt(b*x + a)
- sqrt(b^2*c + (b*x + a)*b*d - a*b*d))^2)/(b*d))/abs(b)
```

3.569 $\int \frac{\sqrt{a+bx}}{x^2\sqrt{c+dx}}\,dx$

Optimal. Leaf size=77

$$-\frac{(bc-ad)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{a}c^{3/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}}{cx}$$

```
[Out] -((Sqrt[a + b*x]*Sqrt[c + d*x])/(c*x)) - ((b*c - a*d)*ArcTanh[(Sq
rt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(Sqrt[a]*c^(3/2))
```

Rubi [A] time = 0.13005, antiderivative size = 77, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.136

$$-\frac{(bc-ad)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{a}c^{3/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}}{cx}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[a + b*x]/(x^2*Sqrt[c + d*x]),x]
```

```
[Out] -((Sqrt[a + b*x]*Sqrt[c + d*x])/(c*x)) - ((b*c - a*d)*ArcTanh[(Sq
rt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(Sqrt[a]*c^(3/2))
```

Rubi in Sympy [A] time = 10.1969, size = 65, normalized size = 0.84

$$-\frac{\sqrt{a+bx}\sqrt{c+dx}}{cx}+\frac{(ad-bc)\,\mathrm{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{a}c^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/2)/x**2/(d*x+c)**(1/2),x)
```

```
[Out] -sqrt(a + b*x)*sqrt(c + d*x)/(c*x) + (a*d - b*c)*atanh(sqrt(c)*sq
rt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(sqrt(a)*c**(3/2))
```

Mathematica [A] time = 0.0911497, size = 117, normalized size = 1.52

$$-\frac{\log(x)(ad-bc)}{2\sqrt{a}c^{3/2}}+\frac{(ad-bc)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{2\sqrt{a}c^{3/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}}{cx}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[a + b*x]/(x^2*Sqrt[c + d*x]),x]
```

```
[Out] -((Sqrt[a + b*x]*Sqrt[c + d*x])/(c*x)) - ((-(b*c) + a*d)*Log[x])/
(2*Sqrt[a]*c^(3/2)) + ((-(b*c) + a*d)*Log[2*a*c + b*c*x + a*d*x +
 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(2*Sqrt[a]*c^(3/
2))
```

Maple [B] time = 0.029, size = 147, normalized size = 1.9

$$\frac{1}{2\,cx}\sqrt{bx+a}\sqrt{dx+c}\left(\ln\left(\frac{1}{x}\left(adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)(dx+c)}+2\,ac\right)\right)xad-\ln\left(\frac{1}{x}\left(adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)(dx-\right.\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/2)/x^2/(d*x+c)^(1/2),x)
```

```
[Out] 1/2*(b*x+a)^(1/2)*(d*x+c)^(1/2)/c*(ln((a*d*x+b*c*x+2*(a*c)^(1/2)*
((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x*a*d-ln((a*d*x+b*c*x+2*(a*c)^(
1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x*b*c-2*(a*c)^(1/2)*((b*x+
a)*(d*x+c))^(1/2))/((b*x+a)*(d*x+c))^(1/2)/x/(a*c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/(sqrt(d*x + c)*x^2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.269105, size = 1, normalized size = 0.01

$$\left[-\frac{(bc-ad)x\log\left(\frac{4\left(2\,a^2c^2+\left(abc^2+a^2cd\right)x\right)\sqrt{bx+a}\sqrt{dx+c}+\left(8\,a^2c^2+\left(b^2c^2+6\,abcd+a^2d^2\right)x^2+8\left(abc^2+a^2cd\right)x\right)\sqrt{ac}}{x^2}\right)+4\sqrt{ac}\sqrt{bx+a}\sqrt{dx+c}}{4\sqrt{ac}cx},\right.$$
$$\left.-\frac{(bc-ad)x\arctan\left(\frac{(2\,ac+(bc+ad)x)\sqrt{-ac}}{2\sqrt{bx+a}\sqrt{dx+cac}}\right)+2\sqrt{-ac}\sqrt{bx+a}\sqrt{dx+c}}{2\sqrt{-ac}cx}\right]$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/(sqrt(d*x + c)*x^2),x, algorithm="fricas")
```

```
[Out] [-1/4*((b*c - a*d)*x*log((4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*s
qrt(b*x + a)*sqrt(d*x + c) + (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d +
a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2) + 4*sqrt(
a*c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(a*c)*c*x), -1/2*((b*c - a
*d)*x*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a
)*sqrt(d*x + c)*a*c)) + 2*sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c))
/(sqrt(-a*c)*c*x)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(1/2)/x**2/(d*x+c)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/(sqrt(d*x + c)*x^2),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.570 $\int \frac{\sqrt{a+bx}}{x^3\sqrt{c+dx}}\,dx$

Optimal. Leaf size=131

$$\frac{(bc-ad)(3ad+bc)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{3/2}c^{5/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}(3ad+bc)}{4ac^2x}-\frac{(a+bx)^{3/2}\sqrt{c+dx}}{2acx^2}$$

```
[Out] ((b*c + 3*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*a*c^2*x) - ((a + b
*x)^(3/2)*Sqrt[c + d*x])/(2*a*c*x^2) + ((b*c - a*d)*(b*c + 3*a*d)
*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(4*a^(
3/2)*c^(5/2))
```

Rubi [A] time = 0.223305, antiderivative size = 131, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$\frac{(bc-ad)(3ad+bc)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{3/2}c^{5/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}(3ad+bc)}{4ac^2x}-\frac{(a+bx)^{3/2}\sqrt{c+dx}}{2acx^2}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[a + b*x]/(x^3*Sqrt[c + d*x]),x]
```

```
[Out] ((b*c + 3*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*a*c^2*x) - ((a + b
*x)^(3/2)*Sqrt[c + d*x])/(2*a*c*x^2) + ((b*c - a*d)*(b*c + 3*a*d)
*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(4*a^(
3/2)*c^(5/2))
```

Rubi in Sympy [A] time = 17.0343, size = 114, normalized size = 0.87

$$-\frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}}{2acx^2}+\frac{\sqrt{a+bx}\sqrt{c+dx}\,(3ad+bc)}{4ac^2x}-\frac{(ad-bc)\,(3ad+bc)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{\frac{3}{2}}c^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/2)/x**3/(d*x+c)**(1/2),x)
```

```
[Out] -(a + b*x)**(3/2)*sqrt(c + d*x)/(2*a*c*x**2) + sqrt(a + b*x)*sqrt
(c + d*x)*(3*a*d + b*c)/(4*a*c**2*x) - (a*d - b*c)*(3*a*d + b*c)*
atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(4*a**(3/2)*
c**(5/2))
```

Mathematica [A] time = 0.19229, size = 159, normalized size = 1.21

$$-\frac{\log(x)(bc-ad)(3ad+bc)}{8a^{3/2}c^{5/2}}+\frac{(bc-ad)(3ad+bc)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{8a^{3/2}c^{5/2}}+\sqrt{a+bx}\sqrt{c+dx}\left(\frac{3ad-bc}{4ac^2x}-\frac{1}{2cx^2}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[a + b*x]/(x^3*Sqrt[c + d*x]),x]
```

```
[Out] (-1/(2*c*x^2) + (-(b*c) + 3*a*d)/(4*a*c^2*x))*Sqrt[a + b*x]*Sqrt[
c + d*x] - ((b*c - a*d)*(b*c + 3*a*d)*Log[x])/(8*a^(3/2)*c^(5/2))
```

```
+ ((b*c - a*d)*(b*c + 3*a*d)*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[
a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(8*a^(3/2)*c^(5/2))
```

Maple [B] time = 0.031, size = 258, normalized size = 2.

$$-\frac{1}{8\,c^2ax^2}\sqrt{bx+a}\sqrt{dx+c}\left(3\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)\,(dx+c)}+2\,ac}{x}\right)x^2a^2d^2-2\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)\,(}}{x}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/2)/x^3/(d*x+c)^(1/2),x)
```

```
[Out] -1/8*(b*x+a)^(1/2)*(d*x+c)^(1/2)/a/c^2*(3*ln((a*d*x+b*c*x+2*(a*c)
^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a^2*d^2-2*ln((a*d*x+
b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a*b*c*d
-ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*
x^2*b^2*c^2-6*((b*x+a)*(d*x+c))^(1/2)*d*a*x*(a*c)^(1/2)+2*((b*x+a
)*(d*x+c))^(1/2)*b*c*x*(a*c)^(1/2)+4*((b*x+a)*(d*x+c))^(1/2)*c*a*
(a*c)^(1/2))/((b*x+a)*(d*x+c))^(1/2)/x^2/(a*c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/(sqrt(d*x + c)*x^3),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.293353, size = 1, normalized size = 0.01

$$\left[-\frac{\left(b^2c^2+2\,abcd-3\,a^2d^2\right)x^2\log\left(-\frac{4\,(2\,a^2c^2+(abc^2+a^2cd)\,x)\,\sqrt{bx+a}\sqrt{dx+c}-(8\,a^2c^2+(b^2c^2+6\,abcd+a^2d^2)\,x^2+8\,(abc^2+a^2cd)\,x)\,\sqrt{ac}}{x^2}\right)+4\,(2\,ac}{16\,\sqrt{ac}ac^2x^2}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/(sqrt(d*x + c)*x^3),x, algorithm="fricas")
```

```
[Out] [-1/16*((b^2*c^2 + 2*a*b*c*d - 3*a^2*d^2)*x^2*log(-(4*(2*a^2*c^2
+ (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c) - (8*a^2*c^2
+ (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)
*sqrt(a*c))/x^2) + 4*(2*a*c + (b*c - 3*a*d)*x)*sqrt(a*c)*sqrt(b*x
+ a)*sqrt(d*x + c))/(sqrt(a*c)*a*c^2*x^2), 1/8*((b^2*c^2 + 2*a*b
*c*d - 3*a^2*d^2)*x^2*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*
c)/(sqrt(b*x + a)*sqrt(d*x + c)*a*c)) - 2*(2*a*c + (b*c - 3*a*d)*
x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(-a*c)*a*c^2*x^2)
]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{\sqrt{a+bx}}{x^3\sqrt{c+dx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(1/2)/x**3/(d*x+c)**(1/2),x)

[Out] Integral(sqrt(a + b*x)/(x**3*sqrt(c + d*x)), x)
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/(sqrt(d*x + c)*x^3),x, algorithm="giac")

[Out] Exception raised: TypeError
```

3.571 $\int \frac{\sqrt{a+bx}}{x^4\sqrt{c+dx}}\,dx$

Optimal. Leaf size=190

$$\frac{\sqrt{a+bx}\sqrt{c+dx}(3bc-5ad)(3ad+bc)}{24a^2c^3x}-\frac{(bc-ad)\left(5a^2d^2+2abcd+b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{5/2}c^{7/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}(bc-5ad)}{12ac^2x^2}-\frac{\sqrt{a+bx}\sqrt{c+dx}}{3cx^3}$$

```
[Out] -(Sqrt[a + b*x]*Sqrt[c + d*x])/(3*c*x^3) - ((b*c - 5*a*d)*Sqrt[a
+ b*x]*Sqrt[c + d*x])/(12*a*c^2*x^2) + ((3*b*c - 5*a*d)*(b*c + 3*
a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(24*a^2*c^3*x) - ((b*c - a*d)*(
b^2*c^2 + 2*a*b*c*d + 5*a^2*d^2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/
(Sqrt[a]*Sqrt[c + d*x])])/(8*a^(5/2)*c^(7/2))
```

Rubi [A] time = 0.498191, antiderivative size = 190, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$\frac{\sqrt{a+bx}\sqrt{c+dx}(3bc-5ad)(3ad+bc)}{24a^2c^3x}-\frac{(bc-ad)\left(5a^2d^2+2abcd+b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{5/2}c^{7/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}(bc-5ad)}{12ac^2x^2}-\frac{\sqrt{a+bx}\sqrt{c+dx}}{3cx^3}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[a + b*x]/(x^4*Sqrt[c + d*x]),x]
```

```
[Out] -(Sqrt[a + b*x]*Sqrt[c + d*x])/(3*c*x^3) - ((b*c - 5*a*d)*Sqrt[a
+ b*x]*Sqrt[c + d*x])/(12*a*c^2*x^2) + ((3*b*c - 5*a*d)*(b*c + 3*
a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(24*a^2*c^3*x) - ((b*c - a*d)*(
b^2*c^2 + 2*a*b*c*d + 5*a^2*d^2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/
(Sqrt[a]*Sqrt[c + d*x])])/(8*a^(5/2)*c^(7/2))
```

Rubi in Sympy [A] time = 59.5199, size = 175, normalized size = 0.92

$$-\frac{\sqrt{a+bx}\sqrt{c+dx}}{3cx^3}+\frac{\sqrt{a+bx}\sqrt{c+dx}\,(5ad-bc)}{12ac^2x^2}-\frac{\sqrt{a+bx}\sqrt{c+dx}\,(3ad+bc)\,(5ad-3bc)}{24a^2c^3x}+\frac{(ad-bc)\left(5a^2d^2+2abcd+b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{\frac{5}{2}}c^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/2)/x**4/(d*x+c)**(1/2),x)
```

```
[Out] -sqrt(a + b*x)*sqrt(c + d*x)/(3*c*x**3) + sqrt(a + b*x)*sqrt(c +
d*x)*(5*a*d - b*c)/(12*a*c**2*x**2) - sqrt(a + b*x)*sqrt(c + d*x)
*(3*a*d + b*c)*(5*a*d - 3*b*c)/(24*a**2*c**3*x) + (a*d - b*c)*(5*
a**2*d**2 + 2*a*b*c*d + b**2*c**2)*atanh(sqrt(c)*sqrt(a + b*x)/(s
qrt(a)*sqrt(c + d*x)))/(8*a**(5/2)*c**(7/2))
```

Mathematica [A] time = 0.18498, size = 211, normalized size = 1.11

$$\frac{3x^3\log(x)(bc-ad)\left(5a^2d^2+2abcd+b^2c^2\right)-3x^3(bc-ad)\left(5a^2d^2+2abcd+b^2c^2\right)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx\right.}{48a^{5/2}c^{7/2}x^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[a + b*x]/(x^4*Sqrt[c + d*x]),x]
```

```
[Out] (-2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]*(-3*b^2*c^2*x^2 +
 2*a*b*c*x*(c - 2*d*x) + a^2*(8*c^2 - 10*c*d*x + 15*d^2*x^2)) + 3
*(b*c - a*d)*(b^2*c^2 + 2*a*b*c*d + 5*a^2*d^2)*x^3*Log[x] - 3*(b*
c - a*d)*(b^2*c^2 + 2*a*b*c*d + 5*a^2*d^2)*x^3*Log[2*a*c + b*c*x
+ a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(48*a^(
5/2)*c^(7/2)*x^3)
```

Maple [B] time = 0.036, size = 408, normalized size = 2.2

$$\frac{1}{48\,c^3a^2x^3}\sqrt{bx+a}\sqrt{dx+c}\left(15\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)\,(dx+c)}+2\,ac}{x}\right)x^3a^3d^3-9\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a}}{x}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/2)/x^4/(d*x+c)^(1/2),x)
```

```
[Out] 1/48*(b*x+a)^(1/2)*(d*x+c)^(1/2)/a^2/c^3*(15*ln((a*d*x+b*c*x+2*(a
*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^3*d^3-9*ln((a*d
*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^2*
b*c*d^2-3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2
*a*c)/x)*x^3*a*b^2*c^2*d-3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)
*(d*x+c))^(1/2)+2*a*c)/x)*x^3*b^3*c^3-30*((b*x+a)*(d*x+c))^(1/2)*
d^2*a^2*x^2*(a*c)^(1/2)+8*((b*x+a)*(d*x+c))^(1/2)*d*b*c*a*x^2*(a*
c)^(1/2)+6*((b*x+a)*(d*x+c))^(1/2)*b^2*c^2*x^2*(a*c)^(1/2)+20*((b
*x+a)*(d*x+c))^(1/2)*d*c*a^2*x*(a*c)^(1/2)-4*((b*x+a)*(d*x+c))^(1
/2)*b*c^2*a*x*(a*c)^(1/2)-16*((b*x+a)*(d*x+c))^(1/2)*c^2*a^2*(a*c
)^(1/2))/((b*x+a)*(d*x+c))^(1/2)/x^3/(a*c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/(sqrt(d*x + c)*x^4),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.418214, size = 1, normalized size = 0.01

$$\left[-\frac{3\left(b^3c^3+ab^2c^2d+3\,a^2bcd^2-5\,a^3d^3\right)x^3\log\left(\frac{4\left(2\,a^2c^2+\left(abc^2+a^2cd\right)x\right)\sqrt{bx+a}\sqrt{dx+c}+\left(8\,a^2c^2+\left(b^2c^2+6\,abcd+a^2d^2\right)x^2+8\left(abc^2+a^2cd\right)x\right)\sqrt{a}}{x^2}\right.}{96\,\sqrt{ac}a^2c^3x^3}\right.$$

$$-\frac{3\left(b^3c^3+ab^2c^2d+3\,a^2bcd^2-5\,a^3d^3\right)x^3\arctan\left(\frac{(2\,ac+(bc+ad)x)\sqrt{-ac}}{2\,\sqrt{bx+a}\sqrt{dx+cac}}\right)+2\left(8\,a^2c^2-\left(3\,b^2c^2+4\,abcd-15\,a^2d^2\right)x^2+2\left(abc^2\right.\right.}{48\,\sqrt{-ac}a^2c^3x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/(sqrt(d*x + c)*x^4),x, algorithm="fricas")
```

```
[Out] [-1/96*(3*(b^3*c^3 + a*b^2*c^2*d + 3*a^2*b*c*d^2 - 5*a^3*d^3)*x^3
*log((4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*
x + c) + (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(a*
b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2) + 4*(8*a^2*c^2 - (3*b^2*c^2 +
 4*a*b*c*d - 15*a^2*d^2)*x^2 + 2*(a*b*c^2 - 5*a^2*c*d)*x)*sqrt(a*
c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(a*c)*a^2*c^3*x^3), -1/48*(3
*(b^3*c^3 + a*b^2*c^2*d + 3*a^2*b*c*d^2 - 5*a^3*d^3)*x^3*arctan(1
/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d*x + c
)*a*c)) + 2*(8*a^2*c^2 - (3*b^2*c^2 + 4*a*b*c*d - 15*a^2*d^2)*x^2
 + 2*(a*b*c^2 - 5*a^2*c*d)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x +
 c))/(sqrt(-a*c)*a^2*c^3*x^3)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(1/2)/x**4/(d*x+c)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/(sqrt(d*x + c)*x^4),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.572 $\int \frac{\sqrt{a+bx}}{x^5\sqrt{c+dx}}\,dx$

Optimal. Leaf size=279

$$\frac{\sqrt{a+bx}\sqrt{c+dx}\left(-35a^2d^2+6abcd+5b^2c^2\right)}{96a^2c^3x^2}-\frac{\sqrt{a+bx}\sqrt{c+dx}\left(-105a^3d^3+25a^2bcd^2+17ab^2c^2d+15b^3c^3\right)}{192a^3c^4x}+\frac{(bc-ad)\left(35a^3d^3+15a^2bcd^2+9ab^2c^2d+5b^3c^3\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{7/2}c^{9/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}(bc-7ad)}{24ac^2x^3}-\frac{\sqrt{a+bx}\sqrt{c+dx}}{4cx^4}$$

```
[Out] -(Sqrt[a + b*x]*Sqrt[c + d*x])/(4*c*x^4) - ((b*c - 7*a*d)*Sqrt[a
+ b*x]*Sqrt[c + d*x])/(24*a*c^2*x^3) + ((5*b^2*c^2 + 6*a*b*c*d -
35*a^2*d^2)*Sqrt[a + b*x]*Sqrt[c + d*x])/(96*a^2*c^3*x^2) - ((15*
b^3*c^3 + 17*a*b^2*c^2*d + 25*a^2*b*c*d^2 - 105*a^3*d^3)*Sqrt[a +
 b*x]*Sqrt[c + d*x])/(192*a^3*c^4*x) + ((b*c - a*d)*(5*b^3*c^3 +
9*a*b^2*c^2*d + 15*a^2*b*c*d^2 + 35*a^3*d^3)*ArcTanh[(Sqrt[c]*Sqr
t[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(64*a^(7/2)*c^(9/2))
```

Rubi [A] time = 0.778308, antiderivative size = 279, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$\frac{\sqrt{a+bx}\sqrt{c+dx}\left(-35a^2d^2+6abcd+5b^2c^2\right)}{96a^2c^3x^2}-\frac{\sqrt{a+bx}\sqrt{c+dx}\left(-105a^3d^3+25a^2bcd^2+17ab^2c^2d+15b^3c^3\right)}{192a^3c^4x}+\frac{(bc-ad)\left(35a^3d^3+15a^2bcd^2+9ab^2c^2d+5b^3c^3\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{7/2}c^{9/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}(bc-7ad)}{24ac^2x^3}-\frac{\sqrt{a+bx}\sqrt{c+dx}}{4cx^4}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[a + b*x]/(x^5*Sqrt[c + d*x]),x]
```


```
[Out] -(Sqrt[a + b*x]*Sqrt[c + d*x])/(4*c*x^4) - ((b*c - 7*a*d)*Sqrt[a
+ b*x]*Sqrt[c + d*x])/(24*a*c^2*x^3) + ((5*b^2*c^2 + 6*a*b*c*d -
35*a^2*d^2)*Sqrt[a + b*x]*Sqrt[c + d*x])/(96*a^2*c^3*x^2) - ((15*
b^3*c^3 + 17*a*b^2*c^2*d + 25*a^2*b*c*d^2 - 105*a^3*d^3)*Sqrt[a +
 b*x]*Sqrt[c + d*x])/(192*a^3*c^4*x) + ((b*c - a*d)*(5*b^3*c^3 +
9*a*b^2*c^2*d + 15*a^2*b*c*d^2 + 35*a^3*d^3)*ArcTanh[(Sqrt[c]*Sqr
t[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(64*a^(7/2)*c^(9/2))
```

Rubi in Sympy [A] time = 129.182, size = 269, normalized size = 0.96

$$-\frac{\sqrt{a+bx}\sqrt{c+dx}}{4cx^4}+\frac{\sqrt{a+bx}\sqrt{c+dx}\,(7ad-bc)}{24ac^2x^3}-\frac{\sqrt{a+bx}\sqrt{c+dx}\left(35a^2d^2-6abcd-5b^2c^2\right)}{96a^2c^3x^2}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(105a^3d^3-25a^2bcd^2-17ab^2c^2d-15b^3c^3\right)}{192a^3c^4x}-\frac{(ad-bc)\left(35a^3d^3+15a^2bcd^2+9ab^2c^2d+5b^3c^3\right)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{\frac{7}{2}}c^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/2)/x**5/(d*x+c)**(1/2),x)
```

```
[Out] -sqrt(a + b*x)*sqrt(c + d*x)/(4*c*x**4) + sqrt(a + b*x)*sqrt(c +
d*x)*(7*a*d - b*c)/(24*a*c**2*x**3) - sqrt(a + b*x)*sqrt(c + d*x)
*(35*a**2*d**2 - 6*a*b*c*d - 5*b**2*c**2)/(96*a**2*c**3*x**2) + s
qrt(a + b*x)*sqrt(c + d*x)*(105*a**3*d**3 - 25*a**2*b*c*d**2 - 17
*a*b**2*c**2*d - 15*b**3*c**3)/(192*a**3*c**4*x) - (a*d - b*c)*(3
5*a**3*d**3 + 15*a**2*b*c*d**2 + 9*a*b**2*c**2*d + 5*b**3*c**3)*a
tanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(64*a**(7/2)*
c**(9/2))
```

Mathematica [A] time = 0.253508, size = 285, normalized size = 1.02

$$\frac{-3x^4\log(x)(bc-ad)\left(35a^3d^3+15a^2bcd^2+9ab^2c^2d+5b^3c^3\right)+3x^4(bc-ad)\left(35a^3d^3+15a^2bcd^2+9ab^2c^2d+5b^3c^3\right)\log\left(2\cdots\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[a + b*x]/(x^5*Sqrt[c + d*x]),x]
```

```
[Out] (-2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]*(15*b^3*c^3*x^3 +
 a*b^2*c^2*x^2*(-10*c + 17*d*x) + a^2*b*c*x*(8*c^2 - 12*c*d*x + 2
5*d^2*x^2) + a^3*(48*c^3 - 56*c^2*d*x + 70*c*d^2*x^2 - 105*d^3*x^
3)) - 3*(b*c - a*d)*(5*b^3*c^3 + 9*a*b^2*c^2*d + 15*a^2*b*c*d^2 +
 35*a^3*d^3)*x^4*Log[x] + 3*(b*c - a*d)*(5*b^3*c^3 + 9*a*b^2*c^2*
d + 15*a^2*b*c*d^2 + 35*a^3*d^3)*x^4*Log[2*a*c + b*c*x + a*d*x +
2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(384*a^(7/2)*c^(9
/2)*x^4)
```

Maple [B] time = 0.04, size = 593, normalized size = 2.1

$$-\frac{1}{384\,a^3c^4x^4}\sqrt{bx+a}\sqrt{dx+c}\left(105\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)(dx+c)}+2\,ac}{x}\right)x^4a^4d^4-60\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(b\cdots}{x}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/2)/x^5/(d*x+c)^(1/2),x)
```

```
[Out] -1/384*(b*x+a)^(1/2)*(d*x+c)^(1/2)/a^3/c^4*(105*ln((a*d*x+b*c*x+2
*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a^4*d^4-60*ln(
(a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*
a^3*b*c*d^3-18*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1
/2)+2*a*c)/x)*x^4*a^2*b^2*c^2*d^2-12*ln((a*d*x+b*c*x+2*(a*c)^(1/2
)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a*b^3*c^3*d-15*ln((a*d*x+
b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*b^4*c^4
-210*((b*x+a)*(d*x+c))^(1/2)*d^3*a^3*x^3*(a*c)^(1/2)+50*((b*x+a)*
(d*x+c))^(1/2)*d^2*b*c*a^2*x^3*(a*c)^(1/2)+34*((b*x+a)*(d*x+c))^(
1/2)*d*b^2*c^2*a*x^3*(a*c)^(1/2)+30*((b*x+a)*(d*x+c))^(1/2)*b^3*c
^3*x^3*(a*c)^(1/2)+140*((b*x+a)*(d*x+c))^(1/2)*d^2*c*a^3*x^2*(a*c
)^(1/2)-24*((b*x+a)*(d*x+c))^(1/2)*d*b*c^2*a^2*x^2*(a*c)^(1/2)-20
*((b*x+a)*(d*x+c))^(1/2)*b^2*c^3*a*x^2*(a*c)^(1/2)-112*((b*x+a)*(
d*x+c))^(1/2)*d*c^2*a^3*x*(a*c)^(1/2)+16*((b*x+a)*(d*x+c))^(1/2)*
b*c^3*a^2*x*(a*c)^(1/2)+96*((b*x+a)*(d*x+c))^(1/2)*c^3*a^3*(a*c)^
(1/2))/((b*x+a)*(d*x+c))^(1/2)/x^4/(a*c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/(sqrt(d*x + c)*x^5),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.739525, size = 1, normalized size = 0.

$$\left[-\frac{3\left(5\,b^4c^4+4\,ab^3c^3d+6\,a^2b^2c^2d^2+20\,a^3bcd^3-35\,a^4d^4\right)x^4\log\left(-\frac{4\left(2\,a^2c^2+\left(abc^2+a^2cd\right)x\right)\sqrt{bx+a}\sqrt{dx+c}-\left(8\,a^2c^2+\left(b^2c^2+6\,abcd+a^2d\right.\right.}{x^2}\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/(sqrt(d*x + c)*x^5),x, algorithm="fricas")
```

```
[Out] [-1/768*(3*(5*b^4*c^4 + 4*a*b^3*c^3*d + 6*a^2*b^2*c^2*d^2 + 20*a^
3*b*c*d^3 - 35*a^4*d^4)*x^4*log(-(4*(2*a^2*c^2 + (a*b*c^2 + a^2*c
*d)*x)*sqrt(b*x + a)*sqrt(d*x + c) - (8*a^2*c^2 + (b^2*c^2 + 6*a*
b*c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2) +
 4*(48*a^3*c^3 + (15*b^3*c^3 + 17*a*b^2*c^2*d + 25*a^2*b*c*d^2 -
105*a^3*d^3)*x^3 - 2*(5*a*b^2*c^3 + 6*a^2*b*c^2*d - 35*a^3*c*d^2)
*x^2 + 8*(a^2*b*c^3 - 7*a^3*c^2*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqr
t(d*x + c))/(sqrt(a*c)*a^3*c^4*x^4), 1/384*(3*(5*b^4*c^4 + 4*a*b^
3*c^3*d + 6*a^2*b^2*c^2*d^2 + 20*a^3*b*c*d^3 - 35*a^4*d^4)*x^4*ar
ctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d
*x + c)*a*c)) - 2*(48*a^3*c^3 + (15*b^3*c^3 + 17*a*b^2*c^2*d + 25
*a^2*b*c*d^2 - 105*a^3*d^3)*x^3 - 2*(5*a*b^2*c^3 + 6*a^2*b*c^2*d
- 35*a^3*c*d^2)*x^2 + 8*(a^2*b*c^3 - 7*a^3*c^2*d)*x)*sqrt(-a*c)*s
qrt(b*x + a)*sqrt(d*x + c))/(sqrt(-a*c)*a^3*c^4*x^4)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(1/2)/x**5/(d*x+c)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/(sqrt(d*x + c)*x^5),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.573 $\int \frac{x^2\sqrt{a+bx}}{(c+dx)^{3/2}}\,dx$

Optimal. Leaf size=189

$$\frac{\left(-a^2d^2-6abcd+15b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{3/2}d^{7/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(\frac{a^2d}{b}+6ac-\frac{15bc^2}{d}\right)}{4d^2(bc-ad)}+\frac{2c^2(a+bx)^{3/2}}{d^2\sqrt{c+dx}(bc-ad)}+\frac{(a+bx)^{3/2}\sqrt{c+dx}}{2bd^2}$$

```
[Out] (2*c^2*(a + b*x)^(3/2))/(d^2*(b*c - a*d)*Sqrt[c + d*x]) + ((6*a*c
 - (15*b*c^2)/d + (a^2*d)/b)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*d^2*
(b*c - a*d)) + ((a + b*x)^(3/2)*Sqrt[c + d*x])/(2*b*d^2) + ((15*b
^2*c^2 - 6*a*b*c*d - a^2*d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sq
rt[b]*Sqrt[c + d*x])])/(4*b^(3/2)*d^(7/2))
```

Rubi [A] time = 0.442664, antiderivative size = 189, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$\frac{\left(-a^2d^2-6abcd+15b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{3/2}d^{7/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(\frac{a^2d}{b}+6ac-\frac{15bc^2}{d}\right)}{4d^2(bc-ad)}+\frac{2c^2(a+bx)^{3/2}}{d^2\sqrt{c+dx}(bc-ad)}+\frac{(a+bx)^{3/2}\sqrt{c+dx}}{2bd^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^2*Sqrt[a + b*x])/(c + d*x)^(3/2),x]
```

```
[Out] (2*c^2*(a + b*x)^(3/2))/(d^2*(b*c - a*d)*Sqrt[c + d*x]) + ((6*a*c
 - (15*b*c^2)/d + (a^2*d)/b)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*d^2*
(b*c - a*d)) + ((a + b*x)^(3/2)*Sqrt[c + d*x])/(2*b*d^2) + ((15*b
^2*c^2 - 6*a*b*c*d - a^2*d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sq
rt[b]*Sqrt[c + d*x])])/(4*b^(3/2)*d^(7/2))
```

Rubi in Sympy [A] time = 33.2179, size = 173, normalized size = 0.92

$$-\frac{2c^2\,(a+bx)^{\frac{3}{2}}}{d^2\sqrt{c+dx}\,(ad-bc)}+\frac{(a+bx)^{\frac{3}{2}}\,\sqrt{c+dx}}{2bd^2}-\frac{\sqrt{a+bx}\sqrt{c+dx}\,\left(a^2d^2+6abcd-15b^2c^2\right)}{4bd^3\,(ad-bc)}-\frac{\left(a^2d^2+6abcd-15b^2c^2\right)\,\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{\frac{3}{2}}d^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(b*x+a)**(1/2)/(d*x+c)**(3/2),x)
```

```
[Out] -2*c**2*(a + b*x)**(3/2)/(d**2*sqrt(c + d*x)*(a*d - b*c)) + (a +
b*x)**(3/2)*sqrt(c + d*x)/(2*b*d**2) - sqrt(a + b*x)*sqrt(c + d*x
)*(a**2*d**2 + 6*a*b*c*d - 15*b**2*c**2)/(4*b*d**3*(a*d - b*c)) -
 (a**2*d**2 + 6*a*b*c*d - 15*b**2*c**2)*atanh(sqrt(d)*sqrt(a + b*
x)/(sqrt(b)*sqrt(c + d*x)))/(4*b**(3/2)*d**(7/2))
```

Mathematica [A] time = 0.123397, size = 139, normalized size = 0.74

$$\frac{\left(-a^2d^2-6abcd+15b^2c^2\right)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{8b^{3/2}d^{7/2}}+\frac{\sqrt{a+bx}\left(ad(c+dx)+b\left(-15c^2-5cdx+2d^2x^2\right)\right)}{4bd^3\sqrt{c+dx}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^2*Sqrt[a + b*x])/(c + d*x)^(3/2),x]
```

```
[Out] (Sqrt[a + b*x]*(a*d*(c + d*x) + b*(-15*c^2 - 5*c*d*x + 2*d^2*x^2)
))/(4*b*d^3*Sqrt[c + d*x]) + ((15*b^2*c^2 - 6*a*b*c*d - a^2*d^2)*
Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c
+ d*x]])/(8*b^(3/2)*d^(7/2))
```

Maple [B] time = 0.043, size = 456, normalized size = 2.4

$$-\frac{1}{8\,bd^3}\sqrt{bx+a}\left(\ln\left(\frac{1}{2}\left(2\,bdx+2\,\sqrt{(bx+a)\,(dx+c)}\sqrt{bd}+ad+bc\right)\frac{1}{\sqrt{bd}}\right)xa^2d^3+6\,\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{(bx+a)\,(dx+c)}\sqrt{}}{\sqrt{bd}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(b*x+a)^(1/2)/(d*x+c)^(3/2),x)
```

```
[Out] -1/8*(b*x+a)^(1/2)*(ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*
d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^2*d^3+6*ln(1/2*(2*b*d*x+2*((b*
x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a*b*c*d^2
-15*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c
)/(b*d)^(1/2))*x*b^2*c^2*d-4*x^2*b*d^2*((b*x+a)*(d*x+c))^(1/2)*(b
*d)^(1/2)+ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a
*d+b*c)/(b*d)^(1/2))*a^2*c*d^2+6*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+
c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a*b*c^2*d-15*ln(1/2*(
2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2
))*b^2*c^3-2*x*a*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+10*x*b*c
*d*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-2*a*c*d*((b*x+a)*(d*x+c))^
(1/2)*(b*d)^(1/2)+30*b*c^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2))/(
b*d)^(1/2)/b/((b*x+a)*(d*x+c))^(1/2)/d^3/(d*x+c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*x^2/(d*x + c)^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.368483, size = 1, normalized size = 0.01

$$\left[\frac{4\left(2\,bd^2x^2-15\,bc^2+acd-\left(5\,bcd-ad^2\right)x\right)\sqrt{bd}\sqrt{bx+a}\sqrt{dx+c}-\left(15\,b^2c^3-6\,abc^2d-a^2cd^2+\left(15\,b^2c^2d-6\,abcd^2-a^2\right.\right.}{16\left(bd^4x+bc\right.}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*x^2/(d*x + c)^(3/2),x, algorithm="fricas")
```

```
[Out] [1/16*(4*(2*b*d^2*x^2 - 15*b*c^2 + a*c*d - (5*b*c*d - a*d^2)*x)*s
qrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) - (15*b^2*c^3 - 6*a*b*c^2*d
- a^2*c*d^2 + (15*b^2*c^2*d - 6*a*b*c*d^2 - a^2*d^3)*x)*log(-4*(2
*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*
b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^
2)*x)*sqrt(b*d)))/((b*d^4*x + b*c*d^3)*sqrt(b*d)), 1/8*(2*(2*b*d^
```

```
2*x^2 - 15*b*c^2 + a*c*d - (5*b*c*d - a*d^2)*x)*sqrt(-b*d)*sqrt(b
*x + a)*sqrt(d*x + c) + (15*b^2*c^3 - 6*a*b*c^2*d - a^2*c*d^2 + (
15*b^2*c^2*d - 6*a*b*c*d^2 - a^2*d^3)*x)*arctan(1/2*(2*b*d*x + b*
c + a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/((b*d^4*x
 + b*c*d^3)*sqrt(-b*d))]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x^2\sqrt{a+bx}}{(c+dx)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(b*x+a)**(1/2)/(d*x+c)**(3/2),x)
```

```
[Out] Integral(x**2*sqrt(a + b*x)/(c + d*x)**(3/2), x)
```

GIAC/XCAS [A] time = 0.256718, size = 346, normalized size = 1.83

$$-\frac{\left(15\,b^2c^2-6\,abcd-a^2d^2\right)\sqrt{bd}\ln\left(\left|-\sqrt{bd}\sqrt{bx+a}+\sqrt{b^2c+(bx+a)bd-abd}\right|\right)}{384\left(b^7cd^5-ab^6d^6\right)}+\frac{\left(\left(\frac{2\,(bx+a)b^2d^4}{b^8cd^6-ab^7d^7}-\frac{5\,b^3cd^3+3\,ab^2d^4}{b^8cd^6-ab^7d^7}\right)(bx+a)-\frac{15\,b^4c^2d^2-6\,ab^3cd^3-a^2b^2d^4}{b^8cd^6-ab^7d^7}\right)\sqrt{bx+a}}{384\sqrt{b^2c+(bx+a)bd-abd}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*x^2/(d*x + c)^(3/2),x, algorithm="giac")
```

```
[Out] -1/384*(15*b^2*c^2 - 6*a*b*c*d - a^2*d^2)*sqrt(b*d)*ln(abs(-sqrt(
b*d)*sqrt(b*x + a) + sqrt(b^2*c + (b*x + a)*b*d - a*b*d)))/(b^7*c
*d^5 - a*b^6*d^6) + 1/384*((2*(b*x + a)*b^2*d^4/(b^8*c*d^6 - a*b^
7*d^7) - (5*b^3*c*d^3 + 3*a*b^2*d^4)/(b^8*c*d^6 - a*b^7*d^7))*(b*
x + a) - (15*b^4*c^2*d^2 - 6*a*b^3*c*d^3 - a^2*b^2*d^4)/(b^8*c*d^
6 - a*b^7*d^7))*sqrt(b*x + a)/sqrt(b^2*c + (b*x + a)*b*d - a*b*d)
```

3.574 $\int \frac{x\sqrt{a+bx}}{(c+dx)^{3/2}}\, dx$

Optimal. Leaf size=127

$$-\frac{(3bc-ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{b}d^{5/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}(3bc-ad)}{d^2(bc-ad)}-\frac{2c(a+bx)^{3/2}}{d\sqrt{c+dx}(bc-ad)}$$

```
[Out] (-2*c*(a + b*x)^(3/2))/(d*(b*c - a*d)*Sqrt[c + d*x]) + ((3*b*c -
a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(d^2*(b*c - a*d)) - ((3*b*c - a
*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(Sq
rt[b]*d^(5/2))
```

Rubi [A] time = 0.178197, antiderivative size = 127, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.2$

$$-\frac{(3bc-ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{b}d^{5/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}(3bc-ad)}{d^2(bc-ad)}-\frac{2c(a+bx)^{3/2}}{d\sqrt{c+dx}(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[(x*Sqrt[a + b*x])/(c + d*x)^(3/2),x]
```

```
[Out] (-2*c*(a + b*x)^(3/2))/(d*(b*c - a*d)*Sqrt[c + d*x]) + ((3*b*c -
a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(d^2*(b*c - a*d)) - ((3*b*c - a
*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(Sq
rt[b]*d^(5/2))
```

Rubi in Sympy [A] time = 18.6678, size = 110, normalized size = 0.87

$$\frac{2c\,(a+bx)^{\frac{3}{2}}}{d\sqrt{c+dx}\,(ad-bc)}+\frac{\sqrt{a+bx}\sqrt{c+dx}\,(ad-3bc)}{d^2\,(ad-bc)}+\frac{(ad-3bc)\,\mathrm{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{b}d^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(b*x+a)**(1/2)/(d*x+c)**(3/2),x)
```

```
[Out] 2*c*(a + b*x)**(3/2)/(d*sqrt(c + d*x)*(a*d - b*c)) + sqrt(a + b*x
)*sqrt(c + d*x)*(a*d - 3*b*c)/(d**2*(a*d - b*c)) + (a*d - 3*b*c)*
atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c + d*x)))/(sqrt(b)*d**
(5/2))
```

Mathematica [A] time = 0.133551, size = 95, normalized size = 0.75

$$\frac{(ad-3bc)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{2\sqrt{b}d^{5/2}}+\frac{\sqrt{a+bx}(3c+dx)}{d^2\sqrt{c+dx}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x*Sqrt[a + b*x])/(c + d*x)^(3/2),x]
```

```
[Out] (Sqrt[a + b*x]*(3*c + d*x))/(d^2*Sqrt[c + d*x]) + ((-3*b*c + a*d)
*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c
 + d*x]])/(2*Sqrt[b]*d^(5/2))
```

Maple [B] time = 0.029, size = 264, normalized size = 2.1

$$\frac{1}{2\,d^2}\sqrt{bx+a}\left(\ln\left(\frac{1}{2}\left(2\,bdx+2\,\sqrt{(bx+a)\,(dx+c)}\sqrt{bd}+ad+bc\right)\frac{1}{\sqrt{bd}}\right)xad^2-3\,\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{(bx+a)\,(dx+c)}\sqrt{bd}+\cdots}{\sqrt{bd}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(b*x+a)^(1/2)/(d*x+c)^(3/2),x)
```

```
[Out] 1/2*(b*x+a)^(1/2)*(ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d
)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a*d^2-3*ln(1/2*(2*b*d*x+2*((b*x+a
)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*b*c*d+ln(1/2
*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1
/2))*a*c*d-3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2
)+a*d+b*c)/(b*d)^(1/2))*b*c^2+2*x*d*((b*x+a)*(d*x+c))^(1/2)*(b*d)
^(1/2)+6*c*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2))/(b*d)^(1/2)/((b*x
+a)*(d*x+c))^(1/2)/d^2/(d*x+c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*x/(d*x + c)^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.304979, size = 1, normalized size = 0.01

$$\left[\frac{4\,\sqrt{bd}\sqrt{bx+a}(dx+3\,c)\sqrt{dx+c}-\left(3\,bc^2-acd+\left(3\,bcd-ad^2\right)x\right)\log\left(4\,\left(2\,b^2d^2x+b^2cd+abd^2\right)\sqrt{bx+a}\sqrt{dx+c}+\left(8\,b^2d\cdots\right.\right.}{4\left(d^3x+cd^2\right)\sqrt{bd}}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*x/(d*x + c)^(3/2),x, algorithm="fricas")
```

```
[Out] [1/4*(4*sqrt(b*d)*sqrt(b*x + a)*(d*x + 3*c)*sqrt(d*x + c) - (3*b*
c^2 - a*c*d + (3*b*c*d - a*d^2)*x)*log(4*(2*b^2*d^2*x + b^2*c*d +
 a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2
+ 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/((d^
3*x + c*d^2)*sqrt(b*d)), 1/2*(2*sqrt(-b*d)*sqrt(b*x + a)*(d*x + 3
*c)*sqrt(d*x + c) - (3*b*c^2 - a*c*d + (3*b*c*d - a*d^2)*x)*arcta
n(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x +
c)*b*d)))/((d^3*x + c*d^2)*sqrt(-b*d))]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x\sqrt{a+bx}}{(c+dx)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(b*x+a)**(1/2)/(d*x+c)**(3/2),x)
```

```
[Out] Integral(x*sqrt(a + b*x)/(c + d*x)**(3/2), x)
```

GIAC/XCAS [A] time = 0.236759, size = 255, normalized size = 2.01

$$\frac{\frac{(3\,bc|b|-ad|b|)\sqrt{bd}\ln\left(\left|-\sqrt{bd}\sqrt{bx+a}+\sqrt{b^2c+(bx+a)bd-abd}\right|\right)}{b^5cd^4-ab^4d^5}+\frac{\left(\frac{(bx+a)b^2d^2|b|}{b^6cd^4-ab^5d^5}+\frac{3\,b^3cd|b|-ab^2d^2|b|}{b^6cd^4-ab^5d^5}\right)\sqrt{bx+a}}{\sqrt{b^2c+(bx+a)bd-abd}}}{8\,b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*x/(d*x + c)^(3/2),x, algorithm="giac")
```

```
[Out] 1/8*((3*b*c*abs(b) - a*d*abs(b))*sqrt(b*d)*ln(abs(-sqrt(b*d)*sqrt
(b*x + a) + sqrt(b^2*c + (b*x + a)*b*d - a*b*d)))/(b^5*c*d^4 - a*
b^4*d^5) + ((b*x + a)*b^2*d^2*abs(b)/(b^6*c*d^4 - a*b^5*d^5) + (3
*b^3*c*d*abs(b) - a*b^2*d^2*abs(b))/(b^6*c*d^4 - a*b^5*d^5))*sqrt
(b*x + a)/sqrt(b^2*c + (b*x + a)*b*d - a*b*d))/b
```

3.575 $\int \frac{\sqrt{a+bx}}{(c+dx)^{3/2}}\,dx$

Optimal. Leaf size=66

$$\frac{2\sqrt{b}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{d^{3/2}}-\frac{2\sqrt{a+bx}}{d\sqrt{c+dx}}$$

```
[Out] (-2*Sqrt[a + b*x])/(d*Sqrt[c + d*x]) + (2*Sqrt[b]*ArcTanh[(Sqrt[d
]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/d^(3/2)
```

Rubi [A] time = 0.0720375, antiderivative size = 66, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.158

$$\frac{2\sqrt{b}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{d^{3/2}}-\frac{2\sqrt{a+bx}}{d\sqrt{c+dx}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[a + b*x]/(c + d*x)^(3/2),x]
```

```
[Out] (-2*Sqrt[a + b*x])/(d*Sqrt[c + d*x]) + (2*Sqrt[b]*ArcTanh[(Sqrt[d
]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/d^(3/2)
```

Rubi in Sympy [A] time = 10.6235, size = 60, normalized size = 0.91

$$\frac{2\sqrt{b}\,\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{d^{\frac{3}{2}}}-\frac{2\sqrt{a+bx}}{d\sqrt{c+dx}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/2)/(d*x+c)**(3/2),x)
```

```
[Out] 2*sqrt(b)*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c + d*x)))/d*
*(3/2) - 2*sqrt(a + b*x)/(d*sqrt(c + d*x))
```

Mathematica [A] time = 0.0565608, size = 78, normalized size = 1.18

$$\frac{\sqrt{b}\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{d^{3/2}}-\frac{2\sqrt{a+bx}}{d\sqrt{c+dx}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[a + b*x]/(c + d*x)^(3/2),x]
```

```
[Out] (-2*Sqrt[a + b*x])/(d*Sqrt[c + d*x]) + (Sqrt[b]*Log[b*c + a*d + 2
*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/d^(3/2)
```

Maple [F] time = 0., size = 0, normalized size = 0.

$$\int 1\sqrt{bx+a}\,(dx+c)^{-\frac{3}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/2)/(d*x+c)^(3/2),x)
```

```
[Out] int((b*x+a)^(1/2)/(d*x+c)^(3/2),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/(d*x + c)^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.283808, size = 1, normalized size = 0.02

$$\left[\frac{(dx+c)\sqrt{\frac{b}{d}}\log\left(8\,b^2d^2x^2+b^2c^2+6\,abcd+a^2d^2+4\left(2\,bd^2x+bcd+ad^2\right)\sqrt{bx+a}\sqrt{dx+c}\sqrt{\frac{b}{d}}+8\left(b^2cd+abd^2\right)x\right)-4\sqrt{b}}{2\left(d^2x+cd\right)}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/(d*x + c)^(3/2),x, algorithm="fricas")
```

```
[Out] [1/2*((d*x + c)*sqrt(b/d)*log(8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d
 + a^2*d^2 + 4*(2*b*d^2*x + b*c*d + a*d^2)*sqrt(b*x + a)*sqrt(d*x
 + c)*sqrt(b/d) + 8*(b^2*c*d + a*b*d^2)*x) - 4*sqrt(b*x + a)*sqrt
(d*x + c))/(d^2*x + c*d), ((d*x + c)*sqrt(-b/d)*arctan(1/2*(2*b*d
*x + b*c + a*d)/(sqrt(b*x + a)*sqrt(d*x + c)*d*sqrt(-b/d))) - 2*s
qrt(b*x + a)*sqrt(d*x + c))/(d^2*x + c*d)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{a+bx}}{(c+dx)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(1/2)/(d*x+c)**(3/2),x)
```

```
[Out] Integral(sqrt(a + b*x)/(c + d*x)**(3/2), x)
```

GIAC/XCAS [A] time = 0.237695, size = 130, normalized size = 1.97

$$-\frac{2\,b^2\ln\left(\left|-\sqrt{bd}\sqrt{bx+a}+\sqrt{b^2c+(bx+a)bd-abd}\right|\right)}{\sqrt{bd}d|b|}-\frac{2\,\sqrt{bx+a}b^2}{\sqrt{b^2c+(bx+a)bd-abd}d|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/(d*x + c)^(3/2),x, algorithm="giac")
```

```
[Out] -2*b^2*ln(abs(-sqrt(b*d)*sqrt(b*x + a) + sqrt(b^2*c + (b*x + a)*b
*d - a*b*d)))/(sqrt(b*d)*d*abs(b)) - 2*sqrt(b*x + a)*b^2/(sqrt(b^
2*c + (b*x + a)*b*d - a*b*d)*d*abs(b))
```

3.576 $\int \frac{\sqrt{a+bx}}{x(c+dx)^{3/2}} \, dx$

Optimal. Leaf size=66

$$\frac{2\sqrt{a+bx}}{c\sqrt{c+dx}} - \frac{2\sqrt{a}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{c^{3/2}}$$

```
[Out] (2*Sqrt[a + b*x])/(c*Sqrt[c + d*x]) - (2*Sqrt[a]*ArcTanh[(Sqrt[c]
*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/c^(3/2)
```

Rubi [A] time = 0.119295, antiderivative size = 66, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.136

$$\frac{2\sqrt{a+bx}}{c\sqrt{c+dx}} - \frac{2\sqrt{a}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{c^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[a + b*x]/(x*(c + d*x)^(3/2)),x]
```

```
[Out] (2*Sqrt[a + b*x])/(c*Sqrt[c + d*x]) - (2*Sqrt[a]*ArcTanh[(Sqrt[c]
*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/c^(3/2)
```

Rubi in Sympy [A] time = 9.96553, size = 60, normalized size = 0.91

$$-\frac{2\sqrt{a}\,\text{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{c^{\frac{3}{2}}} + \frac{2\sqrt{a+bx}}{c\sqrt{c+dx}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/2)/x/(d*x+c)**(3/2),x)
```

```
[Out] -2*sqrt(a)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/c
**(3/2) + 2*sqrt(a + b*x)/(c*sqrt(c + d*x))
```

Mathematica [A] time = 0.121194, size = 93, normalized size = 1.41

$$-\frac{\sqrt{a}\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{c^{3/2}} + \frac{2\sqrt{a+bx}}{c\sqrt{c+dx}} + \frac{\sqrt{a}\log(x)}{c^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[a + b*x]/(x*(c + d*x)^(3/2)),x]
```

```
[Out] (2*Sqrt[a + b*x])/(c*Sqrt[c + d*x]) + (Sqrt[a]*Log[x])/c^(3/2) -
(Sqrt[a]*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b
*x]*Sqrt[c + d*x]])/c^(3/2)
```

Maple [B] time = 0.035, size = 143, normalized size = 2.2

$$\frac{1}{c}\left(-\ln\left(\frac{1}{x}\left(adx+bcx+2\sqrt{ac}\sqrt{(bx+a)(dx+c)}+2ac\right)\right)xad-\ln\left(\frac{1}{x}\left(adx+bcx+2\sqrt{ac}\sqrt{(bx+a)(dx+c)}+2ac\right)\right)ac+\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/2)/x/(d*x+c)^(3/2),x)
```

```
[Out] (-ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)
*x*a*d-ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*
c)/x)*a*c+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2))*(b*x+a)^(1/2)/c/
(a*c)^(1/2)/((b*x+a)*(d*x+c))^(1/2)/(d*x+c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/((d*x + c)^(3/2)*x),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.283291, size = 1, normalized size = 0.02

$$\left[\frac{(dx+c)\sqrt{\frac{a}{c}}\log\left(\frac{8\,a^2c^2+\left(b^2c^2+6\,abcd+a^2d^2\right)x^2-4\left(2\,ac^2+\left(bc^2+acd\right)x\right)\sqrt{bx+a}\sqrt{dx+c}\sqrt{\frac{a}{c}}+8\left(abc^2+a^2cd\right)x}{x^2}\right)+4\sqrt{bx+a}\sqrt{dx+c}}{2\left(cdx+c^2\right)},\right.$$
$$\left.-\frac{(dx+c)\sqrt{-\frac{a}{c}}\arctan\left(\frac{2\,ac+(bc+ad)x}{2\sqrt{bx+a}\sqrt{dx+c}c\sqrt{-\frac{a}{c}}}\right)-2\sqrt{bx+a}\sqrt{dx+c}}{cdx+c^2}\right]$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/((d*x + c)^(3/2)*x),x, algorithm="fricas")
```

```
[Out] [1/2*((d*x + c)*sqrt(a/c)*log((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d +
 a^2*d^2)*x^2 - 4*(2*a*c^2 + (b*c^2 + a*c*d)*x)*sqrt(b*x + a)*sqr
t(d*x + c)*sqrt(a/c) + 8*(a*b*c^2 + a^2*c*d)*x)/x^2) + 4*sqrt(b*x
 + a)*sqrt(d*x + c))/(c*d*x + c^2), -((d*x + c)*sqrt(-a/c)*arctan
(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(b*x + a)*sqrt(d*x + c)*c*sqrt(
-a/c))) - 2*sqrt(b*x + a)*sqrt(d*x + c))/(c*d*x + c^2)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{\sqrt{a+bx}}{x\left(c+dx\right)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(1/2)/x/(d*x+c)**(3/2),x)
```

```
[Out] Integral(sqrt(a + b*x)/(x*(c + d*x)**(3/2)), x)
```

GIAC/XCAS [A] time = 0.235624, size = 176, normalized size = 2.67

$$-\frac{2\sqrt{bd}ab\arctan\left(-\frac{b^2c+abd-\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2}{2\sqrt{-abcd}b}\right)}{\sqrt{-abcd}c|b|}+\frac{2\sqrt{bx+a}b^2}{\sqrt{b^2c+(bx+a)bd-abd}c|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/((d*x + c)^(3/2)*x),x, algorithm="giac")
```

```
[Out] -2*sqrt(b*d)*a*b*arctan(-1/2*(b^2*c + a*b*d - (sqrt(b*d)*sqrt(b*x
 + a) - sqrt(b^2*c + (b*x + a)*b*d - a*b*d))^2)/(sqrt(-a*b*c*d)*b
))/(sqrt(-a*b*c*d)*c*abs(b)) + 2*sqrt(b*x + a)*b^2/(sqrt(b^2*c +
(b*x + a)*b*d - a*b*d)*c*abs(b))
```

3.577 $\int \frac{\sqrt{a+bx}}{x^2(c+dx)^{3/2}}\,dx$

Optimal. Leaf size=113

$$-\frac{(bc-3ad)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{a}c^{5/2}}+\frac{\sqrt{a+bx}(bc-3ad)}{ac^2\sqrt{c+dx}}-\frac{(a+bx)^{3/2}}{acx\sqrt{c+dx}}$$

```
[Out] ((b*c - 3*a*d)*Sqrt[a + b*x])/(a*c^2*Sqrt[c + d*x]) - (a + b*x)^(
3/2)/(a*c*x*Sqrt[c + d*x]) - ((b*c - 3*a*d)*ArcTanh[(Sqrt[c]*Sqrt
[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(Sqrt[a]*c^(5/2))
```

Rubi [A] time = 0.215937, antiderivative size = 113, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{(bc-3ad)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{a}c^{5/2}}+\frac{\sqrt{a+bx}(bc-3ad)}{ac^2\sqrt{c+dx}}-\frac{(a+bx)^{3/2}}{acx\sqrt{c+dx}}$$

Antiderivative was successfully verified.

```
[In] Int[Sqrt[a + b*x]/(x^2*(c + d*x)^(3/2)),x]
```

```
[Out] ((b*c - 3*a*d)*Sqrt[a + b*x])/(a*c^2*Sqrt[c + d*x]) - (a + b*x)^(
3/2)/(a*c*x*Sqrt[c + d*x]) - ((b*c - 3*a*d)*ArcTanh[(Sqrt[c]*Sqrt
[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(Sqrt[a]*c^(5/2))
```

Rubi in Sympy [A] time = 18.9761, size = 114, normalized size = 1.01

$$\frac{2d(a+bx)^{\frac{3}{2}}}{cx\sqrt{c+dx}\,(ad-bc)}-\frac{\sqrt{a+bx}\sqrt{c+dx}\,(3ad-bc)}{c^2x\,(ad-bc)}+\frac{(3ad-bc)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{a}c^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)**(1/2)/x**2/(d*x+c)**(3/2),x)
```

```
[Out] 2*d*(a + b*x)**(3/2)/(c*x*sqrt(c + d*x)*(a*d - b*c)) - sqrt(a + b
*x)*sqrt(c + d*x)*(3*a*d - b*c)/(c**2*x*(a*d - b*c)) + (3*a*d - b
*c)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(sqrt(a)
*c**(5/2))
```

Mathematica [A] time = 0.242354, size = 119, normalized size = 1.05

$$\frac{-\frac{2\sqrt{c}\sqrt{a+bx}(c+3dx)}{x\sqrt{c+dx}}+\frac{\log(x)(bc-3ad)}{\sqrt{a}}+\frac{(3ad-bc)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{\sqrt{a}}}{2c^{5/2}}$$

Antiderivative was successfully verified.

```
[In] Integrate[Sqrt[a + b*x]/(x^2*(c + d*x)^(3/2)),x]
```

```
[Out] ((-2*Sqrt[c]*Sqrt[a + b*x]*(c + 3*d*x))/(x*Sqrt[c + d*x]) + ((b*c
 - 3*a*d)*Log[x])/Sqrt[a] + ((-(b*c) + 3*a*d)*Log[2*a*c + b*c*x +
 a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/Sqrt[a])
/(2*c^(5/2))
```

Maple [B] time = 0.038, size = 267, normalized size = 2.4

$$\frac{1}{2c^{2}x}\sqrt{bx+a}\left(3\ln\left(\frac{adx+bcx+2\sqrt{ac}\sqrt{(bx+a)(dx+c)}+2ac}{x}\right)x^{2}ad^{2}-\ln\left(\frac{1}{x}\left(adx+bcx+2\sqrt{ac}\sqrt{(bx+a)(dx+c)}+2\right.\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/2)/x^2/(d*x+c)^(3/2),x)
```

```
[Out] 1/2*(b*x+a)^(1/2)/c^2*(3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(
d*x+c))^(1/2)+2*a*c)/x)*x^2*a*d^2-ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(
(b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*b*c*d+3*ln((a*d*x+b*c*x+2*(a
*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x*a*c*d-ln((a*d*x+b*c
*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x*b*c^2-6*x*d*
(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-2*c*(a*c)^(1/2)*((b*x+a)*(d*x
+c))^(1/2))/(a*c)^(1/2)/x/((b*x+a)*(d*x+c))^(1/2)/(d*x+c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/((d*x + c)^(3/2)*x^2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.304105, size = 1, normalized size = 0.01

$$\left[-\frac{4\sqrt{ac}\sqrt{bx+a}(3dx+c)\sqrt{dx+c}+\left(\left(bcd-3ad^{2}\right)x^{2}+\left(bc^{2}-3acd\right)x\right)\log\left(\frac{4\left(2a^{2}c^{2}+\left(abc^{2}+a^{2}cd\right)x\right)\sqrt{bx+a}\sqrt{dx+c}+\left(8a^{2}c^{2}+\left(b^{2}c^{2}+\right.\right.}{x^{2}}\right.}{4\left(c^{2}dx^{2}+c^{3}x\right)\sqrt{ac}}\right.$$

$$\left.-\frac{2\sqrt{-ac}\sqrt{bx+a}(3dx+c)\sqrt{dx+c}+\left(\left(bcd-3ad^{2}\right)x^{2}+\left(bc^{2}-3acd\right)x\right)\arctan\left(\frac{(2ac+(bc+ad)x)\sqrt{-ac}}{2\sqrt{bx+a}\sqrt{dx+c}ac}\right)}{2\left(c^{2}dx^{2}+c^{3}x\right)\sqrt{-ac}}\right]$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/((d*x + c)^(3/2)*x^2),x, algorithm="fricas")
```

```
[Out] [-1/4*(4*sqrt(a*c)*sqrt(b*x + a)*(3*d*x + c)*sqrt(d*x + c) + ((b*
c*d - 3*a*d^2)*x^2 + (b*c^2 - 3*a*c*d)*x)*log((4*(2*a^2*c^2 + (a*
b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c) + (8*a^2*c^2 + (b
^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt
(a*c))/x^2))/((c^2*d*x^2 + c^3*x)*sqrt(a*c)), -1/2*(2*sqrt(-a*c)*
sqrt(b*x + a)*(3*d*x + c)*sqrt(d*x + c) + ((b*c*d - 3*a*d^2)*x^2
+ (b*c^2 - 3*a*c*d)*x)*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a
*c)/(sqrt(b*x + a)*sqrt(d*x + c)*a*c)))/((c^2*d*x^2 + c^3*x)*sqrt
(-a*c))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(1/2)/x**2/(d*x+c)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/((d*x + c)^(3/2)*x^2),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.578 $\int \frac{\sqrt{a+bx}}{x^3(c+dx)^{3/2}} \, dx$

Optimal. Leaf size=171

$$\frac{(-15a^2d^2+6abcd+b^2c^2)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{3/2}c^{7/2}}-\frac{d\sqrt{a+bx}(bc-15ad)}{4ac^3\sqrt{c+dx}}-\frac{\sqrt{a+bx}(bc-5ad)}{4ac^2x\sqrt{c+dx}}-\frac{\sqrt{a+bx}}{2cx^2\sqrt{c+dx}}$$

```
[Out] -(d*(b*c - 15*a*d)*Sqrt[a + b*x])/(4*a*c^3*Sqrt[c + d*x]) - Sqrt[
a + b*x]/(2*c*x^2*Sqrt[c + d*x]) - ((b*c - 5*a*d)*Sqrt[a + b*x])/
(4*a*c^2*x*Sqrt[c + d*x]) + ((b^2*c^2 + 6*a*b*c*d - 15*a^2*d^2)*A
rcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(4*a^(3/
2)*c^(7/2))
```

Rubi [A] time = 0.517432, antiderivative size = 171, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.273

$$\frac{(-15a^2d^2+6abcd+b^2c^2)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{3/2}c^{7/2}}-\frac{d\sqrt{a+bx}(bc-15ad)}{4ac^3\sqrt{c+dx}}-\frac{\sqrt{a+bx}(bc-5ad)}{4ac^2x\sqrt{c+dx}}-\frac{\sqrt{a+bx}}{2cx^2\sqrt{c+dx}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[a + b*x]/(x^3*(c + d*x)^(3/2)),x]
```

```
[Out] -(d*(b*c - 15*a*d)*Sqrt[a + b*x])/(4*a*c^3*Sqrt[c + d*x]) - Sqrt[
a + b*x]/(2*c*x^2*Sqrt[c + d*x]) - ((b*c - 5*a*d)*Sqrt[a + b*x])/
(4*a*c^2*x*Sqrt[c + d*x]) + ((b^2*c^2 + 6*a*b*c*d - 15*a^2*d^2)*A
rcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(4*a^(3/
2)*c^(7/2))
```

Rubi in Sympy [A] time = 73.024, size = 155, normalized size = 0.91

$$-\frac{\sqrt{a+bx}}{2cx^2\sqrt{c+dx}}+\frac{\sqrt{a+bx}\,(5ad-bc)}{4ac^2x\sqrt{c+dx}}+\frac{d\sqrt{a+bx}\,(15ad-bc)}{4ac^3\sqrt{c+dx}}-\frac{(15a^2d^2-6abcd-b^2c^2)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{\frac{3}{2}}c^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/2)/x**3/(d*x+c)**(3/2),x)
```

```
[Out] -sqrt(a + b*x)/(2*c*x**2*sqrt(c + d*x)) + sqrt(a + b*x)*(5*a*d -
b*c)/(4*a*c**2*x*sqrt(c + d*x)) + d*sqrt(a + b*x)*(15*a*d - b*c)/
(4*a*c**3*sqrt(c + d*x)) - (15*a**2*d**2 - 6*a*b*c*d - b**2*c**2)
*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(4*a**(3/2)
*c**(7/2))
```

Mathematica [A] time = 0.208688, size = 173, normalized size = 1.01

$$\frac{-\log(x)(-15a^2d^2+6abcd+b^2c^2)+(-15a^2d^2+6abcd+b^2c^2)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)+\frac{2\sqrt{a}\sqrt{c}\sqrt{a}}{}}{8a^{3/2}c^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[a + b*x]/(x^3*(c + d*x)^(3/2)),x]
```

```
[Out] ((2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*(-(b*c*x*(c + d*x)) + a*(-2*c^2
 + 5*c*d*x + 15*d^2*x^2)))/(x^2*Sqrt[c + d*x]) - (b^2*c^2 + 6*a*b
```

```
*c*d - 15*a^2*d^2)*Log[x] + (b^2*c^2 + 6*a*b*c*d - 15*a^2*d^2)*Lo
g[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c
+ d*x]])/(8*a^(3/2)*c^(7/2))
```

Maple [B] time = 0.045, size = 467, normalized size = 2.7

$$-\frac{1}{8\,c^3ax^2}\sqrt{bx+a}\left(15\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)\,(dx+c)}+2\,ac}{x}\right)x^3a^2d^3-6\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)\,(dx+c}}{x}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/2)/x^3/(d*x+c)^(3/2),x)
```

```
[Out] -1/8*(b*x+a)^(1/2)/a/c^3*(15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+
a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^2*d^3-6*ln((a*d*x+b*c*x+2*(a*c)
^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a*b*c*d^2-ln((a*d*x+
b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*b^2*c^2
*d+15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c
)/x)*x^2*a^2*c*d^2-6*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+
c))^(1/2)+2*a*c)/x)*x^2*a*b*c^2*d-ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(
(b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*b^2*c^3-30*x^2*a*d^2*(a*c)^(
1/2)*((b*x+a)*(d*x+c))^(1/2)+2*x^2*b*c*d*(a*c)^(1/2)*((b*x+a)*(d*
x+c))^(1/2)-10*x*a*c*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*x*b*
c^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+4*a*c^2*(a*c)^(1/2)*((b*x
+a)*(d*x+c))^(1/2))/(a*c)^(1/2)/x^2/((b*x+a)*(d*x+c))^(1/2)/(d*x+
c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/((d*x + c)^(3/2)*x^3),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.383254, size = 1, normalized size = 0.01

$$\left[-\frac{4\left(2\,ac^2+\left(bcd-15\,ad^2\right)x^2+\left(bc^2-5\,acd\right)x\right)\sqrt{ac}\sqrt{bx+a}\sqrt{dx+c}+\left(\left(b^2c^2d+6\,abcd^2-15\,a^2d^3\right)x^3+\left(b^2c^3+6\,abc^2d-\right.\right.}{16\left(ac^3dx^3+ac^4x^2\right)\sqrt{a}}\right.$$

$$-\frac{2\left(2\,ac^2+\left(bcd-15\,ad^2\right)x^2+\left(bc^2-5\,acd\right)x\right)\sqrt{-ac}\sqrt{bx+a}\sqrt{dx+c}-\left(\left(b^2c^2d+6\,abcd^2-15\,a^2d^3\right)x^3+\left(b^2c^3+6\,abc^2d\right.\right.}{8\left(ac^3dx^3+ac^4x^2\right)\sqrt{-ac}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/((d*x + c)^(3/2)*x^3),x, algorithm="fricas")
```

```
[Out] [-1/16*(4*(2*a*c^2 + (b*c*d - 15*a*d^2)*x^2 + (b*c^2 - 5*a*c*d)*x
)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c) + ((b^2*c^2*d + 6*a*b*c*d
^2 - 15*a^2*d^3)*x^3 + (b^2*c^3 + 6*a*b*c^2*d - 15*a^2*c*d^2)*x^2
)*log(-(4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(
d*x + c) - (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(
a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2))/((a*c^3*d*x^3 + a*c^4*x^2)
```

```
*sqrt(a*c)), -1/8*(2*(2*a*c^2 + (b*c*d - 15*a*d^2)*x^2 + (b*c^2 -
 5*a*c*d)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c) - ((b^2*c^2*d
 + 6*a*b*c*d^2 - 15*a^2*d^3)*x^3 + (b^2*c^3 + 6*a*b*c^2*d - 15*a^
2*c*d^2)*x^2)*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt
(b*x + a)*sqrt(d*x + c)*a*c)))/((a*c^3*d*x^3 + a*c^4*x^2)*sqrt(-a
*c))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(1/2)/x**3/(d*x+c)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/((d*x + c)^(3/2)*x^3),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.579 $\int \frac{x^3\sqrt{a+bx}}{(c+dx)^{5/2}}\,dx$

Optimal. Leaf size=218

$$-\frac{\sqrt{a+bx}\sqrt{c+dx}\left(3a^2d^2-2bdx(35bc-31ad)-100abcd+105b^2c^2\right)}{12bd^4(bc-ad)}+\frac{\left(-a^2d^2-10abcd+35b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{3/2}d^{9/2}}-\frac{2x^2\sqrt{a+bx}(7bc-6ad)}{3d^2\sqrt{c+dx}(bc-ad)}-\frac{2x^3\sqrt{a+bx}}{3d(c+dx)^{3/2}}$$

```
[Out] (-2*x^3*Sqrt[a + b*x])/(3*d*(c + d*x)^(3/2)) - (2*(7*b*c - 6*a*d)
*x^2*Sqrt[a + b*x])/(3*d^2*(b*c - a*d)*Sqrt[c + d*x]) - (Sqrt[a +
 b*x]*Sqrt[c + d*x]*(105*b^2*c^2 - 100*a*b*c*d + 3*a^2*d^2 - 2*b*
d*(35*b*c - 31*a*d)*x))/(12*b*d^4*(b*c - a*d)) + ((35*b^2*c^2 - 1
0*a*b*c*d - a^2*d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqr
t[c + d*x])])/(4*b^(3/2)*d^(9/2))
```

Rubi [A] time = 0.525027, antiderivative size = 218, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.227$

$$-\frac{\sqrt{a+bx}\sqrt{c+dx}\left(3a^2d^2-2bdx(35bc-31ad)-100abcd+105b^2c^2\right)}{12bd^4(bc-ad)}+\frac{\left(-a^2d^2-10abcd+35b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{3/2}d^{9/2}}-\frac{2x^2\sqrt{a+bx}(7bc-6ad)}{3d^2\sqrt{c+dx}(bc-ad)}-\frac{2x^3\sqrt{a+bx}}{3d(c+dx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^3*Sqrt[a + b*x])/(c + d*x)^(5/2),x]
```

```
[Out] (-2*x^3*Sqrt[a + b*x])/(3*d*(c + d*x)^(3/2)) - (2*(7*b*c - 6*a*d)
*x^2*Sqrt[a + b*x])/(3*d^2*(b*c - a*d)*Sqrt[c + d*x]) - (Sqrt[a +
 b*x]*Sqrt[c + d*x]*(105*b^2*c^2 - 100*a*b*c*d + 3*a^2*d^2 - 2*b*
d*(35*b*c - 31*a*d)*x))/(12*b*d^4*(b*c - a*d)) + ((35*b^2*c^2 - 1
0*a*b*c*d - a^2*d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqr
t[c + d*x])])/(4*b^(3/2)*d^(9/2))
```

Rubi in Sympy [A] time = 42.13, size = 212, normalized size = 0.97

$$-\frac{2x^3\sqrt{a+bx}}{3d\left(c+dx\right)^{\frac{3}{2}}}-\frac{2x^2\sqrt{a+bx}\left(6ad-7bc\right)}{3d^2\sqrt{c+dx}\left(ad-bc\right)}+\frac{2\sqrt{a+bx}\sqrt{c+dx}\left(\frac{3a^2d^2}{8}-\frac{25abcd}{2}+\frac{105b^2c^2}{8}+\frac{bdx(31ad-35bc)}{4}\right)}{3bd^4\left(ad-bc\right)}-\frac{\left(a^2d^2+10abcd-35b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{\frac{3}{2}}d^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3*(b*x+a)**(1/2)/(d*x+c)**(5/2),x)
```

```
[Out] -2*x**3*sqrt(a + b*x)/(3*d*(c + d*x)**(3/2)) - 2*x**2*sqrt(a + b*
x)*(6*a*d - 7*b*c)/(3*d**2*sqrt(c + d*x)*(a*d - b*c)) + 2*sqrt(a
+ b*x)*sqrt(c + d*x)*(3*a**2*d**2/8 - 25*a*b*c*d/2 + 105*b**2*c**
2/8 + b*d*x*(31*a*d - 35*b*c)/4)/(3*b*d**4*(a*d - b*c)) - (a**2*d
**2 + 10*a*b*c*d - 35*b**2*c**2)*atanh(sqrt(d)*sqrt(a + b*x)/(sqr
t(b)*sqrt(c + d*x)))/(4*b**(3/2)*d**(9/2))
```

Mathematica [A] time = 0.356428, size = 164, normalized size = 0.75

$$\frac{\left(-a^2d^2-10abcd+35b^2c^2\right)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{8b^{3/2}d^{9/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(\frac{8c^2(10bc-9ad)}{(c+dx)(ad-bc)}+\frac{3ad}{b}+\frac{8c^3}{(c+dx)^2}-33c+6dx\right)}{12d^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^3*Sqrt[a + b*x])/(c + d*x)^(5/2),x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(-33*c + (3*a*d)/b + 6*d*x + (8*c^3)
/(c + d*x)^2 + (8*c^2*(10*b*c - 9*a*d))/((-(b*c) + a*d)*(c + d*x)
)))/(12*d^4) + ((35*b^2*c^2 - 10*a*b*c*d - a^2*d^2)*Log[b*c + a*d
 + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(8*b
^(3/2)*d^(9/2))
```

Maple [B] time = 0.043, size = 986, normalized size = 4.5

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^3*(b*x+a)^(1/2)/(d*x+c)^(5/2),x)
```

```
[Out] -1/24*(3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*
d+b*c)/(b*d)^(1/2))*x^2*a^3*d^5+27*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*
x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a^2*b*c*d^4-135
*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(
b*d)^(1/2))*x^2*a*b^2*c^2*d^3+105*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x
+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*b^3*c^3*d^2-12*x
^3*a*b*d^4*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+12*x^3*b^2*c*d^3*(
(b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+6*ln(1/2*(2*b*d*x+2*((b*x+a)*(
d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^3*c*d^4+54*ln
(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d
)^(1/2))*x*a^2*b*c^2*d^3-270*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^
(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a*b^2*c^3*d^2+210*ln(1/
2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(
1/2))*x*b^3*c^4*d-6*x^2*a^2*d^4*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/
2)+48*x^2*a*b*c*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-42*x^2*b^
2*c^2*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+3*ln(1/2*(2*b*d*x+2
*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^3*c^
2*d^3+27*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*
d+b*c)/(b*d)^(1/2))*a^2*b*c^3*d^2-135*ln(1/2*(2*b*d*x+2*((b*x+a)*
(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a*b^2*c^4*d+105*
ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b
*d)^(1/2))*b^3*c^5-12*x*a^2*c*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(
1/2)+276*x*a*b*c^2*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-280*x*
b^2*c^3*d*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-6*a^2*c^2*d^2*((b*x
+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+200*a*b*c^3*d*((b*x+a)*(d*x+c))^(1
/2)*(b*d)^(1/2)-210*b^2*c^4*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2))*
(b*x+a)^(1/2)/(a*d-b*c)/(b*d)^(1/2)/b/((b*x+a)*(d*x+c))^(1/2)/d^4
/(d*x+c)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*x^3/(d*x + c)^(5/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.676638, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*x^3/(d*x + c)^(5/2),x, algorithm="fricas")
```

```
[Out] [-1/48*(4*(105*b^2*c^4 - 100*a*b*c^3*d + 3*a^2*c^2*d^2 - 6*(b^2*c
*d^3 - a*b*d^4)*x^3 + 3*(7*b^2*c^2*d^2 - 8*a*b*c*d^3 + a^2*d^4)*x
^2 + 2*(70*b^2*c^3*d - 69*a*b*c^2*d^2 + 3*a^2*c*d^3)*x)*sqrt(b*d)
*sqrt(b*x + a)*sqrt(d*x + c) + 3*(35*b^3*c^5 - 45*a*b^2*c^4*d + 9
*a^2*b*c^3*d^2 + a^3*c^2*d^3 + (35*b^3*c^3*d^2 - 45*a*b^2*c^2*d^3
 + 9*a^2*b*c*d^4 + a^3*d^5)*x^2 + 2*(35*b^3*c^4*d - 45*a*b^2*c^3*
d^2 + 9*a^2*b*c^2*d^3 + a^3*c*d^4)*x)*log(-4*(2*b^2*d^2*x + b^2*c
*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*
c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/
((b^2*c^3*d^4 - a*b*c^2*d^5 + (b^2*c*d^6 - a*b*d^7)*x^2 + 2*(b^2*
c^2*d^5 - a*b*c*d^6)*x)*sqrt(b*d)), -1/24*(2*(105*b^2*c^4 - 100*a
*b*c^3*d + 3*a^2*c^2*d^2 - 6*(b^2*c*d^3 - a*b*d^4)*x^3 + 3*(7*b^2
*c^2*d^2 - 8*a*b*c*d^3 + a^2*d^4)*x^2 + 2*(70*b^2*c^3*d - 69*a*b*
c^2*d^2 + 3*a^2*c*d^3)*x)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c)
- 3*(35*b^3*c^5 - 45*a*b^2*c^4*d + 9*a^2*b*c^3*d^2 + a^3*c^2*d^3
+ (35*b^3*c^3*d^2 - 45*a*b^2*c^2*d^3 + 9*a^2*b*c*d^4 + a^3*d^5)*x
^2 + 2*(35*b^3*c^4*d - 45*a*b^2*c^3*d^2 + 9*a^2*b*c^2*d^3 + a^3*c
*d^4)*x)*arctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x +
a)*sqrt(d*x + c)*b*d)))/((b^2*c^3*d^4 - a*b*c^2*d^5 + (b^2*c*d^6
- a*b*d^7)*x^2 + 2*(b^2*c^2*d^5 - a*b*c*d^6)*x)*sqrt(-b*d))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**3*(b*x+a)**(1/2)/(d*x+c)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.274925, size = 549, normalized size = 2.52

$$\frac{\left(\left(3\,(bx+a)\left(\frac{2\,\left(b^{5}cd^{6}|b|-ab^{4}d^{7}|b|\right)(bx+a)}{b^{6}cd^{7}-ab^{5}d^{8}}-\frac{7\,b^{6}c^{2}d^{5}|b|-2\,ab^{5}cd^{6}|b|-5\,a^{2}b^{4}d^{7}|b|}{b^{6}cd^{7}-ab^{5}d^{8}}\right)-\frac{4\,\left(35\,b^{7}c^{3}d^{4}|b|-45\,ab^{6}c^{2}d^{5}|b|+9\,a^{2}b^{5}cd^{6}|b|+3\,a^{3}b^{4}d^{7}|b|\right)}{b^{6}cd^{7}-ab^{5}d^{8}}\right.\right.}{12\,(b^{2}c+(bx+a)bd-abd)^{\frac{3}{2}}} - \frac{\left(35\,b^{2}c^{2}|b|-10\,abcd|b|-a^{2}d^{2}|b|\right)\ln\left(\left|-\sqrt{bd}\sqrt{bx+a}+\sqrt{b^{2}c+(bx+a)bd-abd}\right|\right)}{4\,\sqrt{bd}b^{2}d^{4}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*x^3/(d*x + c)^(5/2),x, algorithm="giac")
```

```
[Out] 1/12*((3*(b*x + a)*(2*(b^5*c*d^6*abs(b) - a*b^4*d^7*abs(b))*(b*x
+ a)/(b^6*c*d^7 - a*b^5*d^8) - (7*b^6*c^2*d^5*abs(b) - 2*a*b^5*c*
d^6*abs(b) - 5*a^2*b^4*d^7*abs(b))/(b^6*c*d^7 - a*b^5*d^8)) - 4*(
35*b^7*c^3*d^4*abs(b) - 45*a*b^6*c^2*d^5*abs(b) + 9*a^2*b^5*c*d^6
*abs(b) + 3*a^3*b^4*d^7*abs(b))/(b^6*c*d^7 - a*b^5*d^8))*(b*x + a
) - 3*(35*b^8*c^4*d^3*abs(b) - 80*a*b^7*c^3*d^4*abs(b) + 54*a^2*b
```

```
^6*c^2*d^5*abs(b) - 8*a^3*b^5*c*d^6*abs(b) - a^4*b^4*d^7*abs(b))/
(b^6*c*d^7 - a*b^5*d^8))*sqrt(b*x + a)/(b^2*c + (b*x + a)*b*d - a
*b*d)^(3/2) - 1/4*(35*b^2*c^2*abs(b) - 10*a*b*c*d*abs(b) - a^2*d^
2*abs(b))*ln(abs(-sqrt(b*d)*sqrt(b*x + a) + sqrt(b^2*c + (b*x + a
)*b*d - a*b*d)))/(sqrt(b*d)*b^2*d^4)
```

3.580 $\int \frac{x^2\sqrt{a+bx}}{(c+dx)^{5/2}}\,dx$

Optimal. Leaf size=165

$$\frac{2c^2(a+bx)^{3/2}}{3d^2(c+dx)^{3/2}(bc-ad)}-\frac{(5bc-ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{b}d^{7/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}(5bc-ad)}{d^3(bc-ad)}-\frac{4c(a+bx)^{3/2}}{d^2\sqrt{c+dx}(bc-ad)}$$

```
[Out] (2*c^2*(a + b*x)^(3/2))/(3*d^2*(b*c - a*d)*(c + d*x)^(3/2)) - (4*
c*(a + b*x)^(3/2))/(d^2*(b*c - a*d)*Sqrt[c + d*x]) + ((5*b*c - a*
d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(d^3*(b*c - a*d)) - ((5*b*c - a*d
)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(Sqrt
[b]*d^(7/2))
```

Rubi [A] time = 0.411158, antiderivative size = 165, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$\frac{2c^2(a+bx)^{3/2}}{3d^2(c+dx)^{3/2}(bc-ad)}-\frac{(5bc-ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{b}d^{7/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}(5bc-ad)}{d^3(bc-ad)}-\frac{4c(a+bx)^{3/2}}{d^2\sqrt{c+dx}(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^2*Sqrt[a + b*x])/(c + d*x)^(5/2),x]
```

```
[Out] (2*c^2*(a + b*x)^(3/2))/(3*d^2*(b*c - a*d)*(c + d*x)^(3/2)) - (4*
c*(a + b*x)^(3/2))/(d^2*(b*c - a*d)*Sqrt[c + d*x]) + ((5*b*c - a*
d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(d^3*(b*c - a*d)) - ((5*b*c - a*d
)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(Sqrt
[b]*d^(7/2))
```

Rubi in Sympy [A] time = 28.2619, size = 146, normalized size = 0.88

$$-\frac{2c^2\left(a+bx\right)^{\frac{3}{2}}}{3d^2\left(c+dx\right)^{\frac{3}{2}}\left(ad-bc\right)}+\frac{4c\left(a+bx\right)^{\frac{3}{2}}}{d^2\sqrt{c+dx}\left(ad-bc\right)}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(ad-5bc\right)}{d^3\left(ad-bc\right)}+\frac{\left(ad-5bc\right)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{\sqrt{b}d^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(b*x+a)**(1/2)/(d*x+c)**(5/2),x)
```

```
[Out] -2*c**2*(a + b*x)**(3/2)/(3*d**2*(c + d*x)**(3/2)*(a*d - b*c)) +
4*c*(a + b*x)**(3/2)/(d**2*sqrt(c + d*x)*(a*d - b*c)) + sqrt(a +
b*x)*sqrt(c + d*x)*(a*d - 5*b*c)/(d**3*(a*d - b*c)) + (a*d - 5*b*
c)*atanh(sqrt(b)*sqrt(c + d*x)/(sqrt(d)*sqrt(a + b*x)))/(sqrt(b)*
d**(7/2))
```

Mathematica [A] time = 0.28229, size = 134, normalized size = 0.81

$$\frac{\sqrt{a+bx}\sqrt{c+dx}\left(\frac{2c(7bc-6ad)}{(c+dx)(bc-ad)}-\frac{2c^2}{(c+dx)^2}+3\right)}{3d^3}+\frac{(ad-5bc)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{2\sqrt{b}d^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^2*Sqrt[a + b*x])/(c + d*x)^(5/2),x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(3 - (2*c^2)/(c + d*x)^2 + (2*c*(7*b
*c - 6*a*d))/((b*c - a*d)*(c + d*x))))/(3*d^3) + ((-5*b*c + a*d)*
Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c
+ d*x]])/(2*Sqrt[b]*d^(7/2))
```

Maple [B] time = 0.03, size = 659, normalized size = 4.

$$\frac{1}{(6\,ad-6\,bc)\,d^3}\left(3\,\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{(bx+a)\,(dx+c)}\sqrt{bd}+ad+bc}{\sqrt{bd}}\right)x^2a^2d^4-18\,\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{(bx+a)\,(dx+c)}\sqrt{b}}{\sqrt{bd}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(b*x+a)^(1/2)/(d*x+c)^(5/2),x)
```

```
[Out] 1/6*(3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+
b*c)/(b*d)^(1/2))*x^2*a^2*d^4-18*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+
c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a*b*c*d^3+15*ln(1
/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^
(1/2))*x^2*b^2*c^2*d^2+6*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2
)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^2*c*d^3-36*ln(1/2*(2*b*d*
x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a
*b*c^2*d^2+30*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/
2)+a*d+b*c)/(b*d)^(1/2))*x*b^2*c^3*d+6*x^2*a*d^3*((b*x+a)*(d*x+c)
)^(1/2)*(b*d)^(1/2)-6*x^2*b*c*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(
1/2)+3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+
b*c)/(b*d)^(1/2))*a^2*c^2*d^2-18*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+
c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a*b*c^3*d+15*ln(1/2*(
2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2
))*b^2*c^4+36*x*a*c*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-40*x*
b*c^2*d*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+26*a*c^2*d*((b*x+a)*(
d*x+c))^(1/2)*(b*d)^(1/2)-30*b*c^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^
(1/2))*(b*x+a)^(1/2)/(a*d-b*c)/(b*d)^(1/2)/((b*x+a)*(d*x+c))^(1/2
)/d^3/(d*x+c)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*x^2/(d*x + c)^(5/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.481259, size = 1, normalized size = 0.01

$$\left[\frac{4\left(15\,bc^3-13\,ac^2d+3\left(bcd^2-ad^3\right)x^2+2\left(10\,bc^2d-9\,acd^2\right)x\right)\sqrt{bd}\sqrt{bx+a}\sqrt{dx+c}-3\left(5\,b^2c^4-6\,abc^3d+a^2c^2d^2+\left(5\,b\right.\right.}{12\,(bc}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*x^2/(d*x + c)^(5/2),x, algorithm="fricas")
```

```
[Out] [1/12*(4*(15*b*c^3 - 13*a*c^2*d + 3*(b*c*d^2 - a*d^3)*x^2 + 2*(10
*b*c^2*d - 9*a*c*d^2)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) -
3*(5*b^2*c^4 - 6*a*b*c^3*d + a^2*c^2*d^2 + (5*b^2*c^2*d^2 - 6*a*b
*c*d^3 + a^2*d^4)*x^2 + 2*(5*b^2*c^3*d - 6*a*b*c^2*d^2 + a^2*c*d^
3)*x)*log(4*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(
```

```
d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^
2*c*d + a*b*d^2)*x)*sqrt(b*d)))/((b*c^3*d^3 - a*c^2*d^4 + (b*c*d^
5 - a*d^6)*x^2 + 2*(b*c^2*d^4 - a*c*d^5)*x)*sqrt(b*d)), 1/6*(2*(1
5*b*c^3 - 13*a*c^2*d + 3*(b*c*d^2 - a*d^3)*x^2 + 2*(10*b*c^2*d -
9*a*c*d^2)*x)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c) - 3*(5*b^2*c
^4 - 6*a*b*c^3*d + a^2*c^2*d^2 + (5*b^2*c^2*d^2 - 6*a*b*c*d^3 + a
^2*d^4)*x^2 + 2*(5*b^2*c^3*d - 6*a*b*c^2*d^2 + a^2*c*d^3)*x)*arct
an(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x +
 c)*b*d)))/((b*c^3*d^3 - a*c^2*d^4 + (b*c*d^5 - a*d^6)*x^2 + 2*(b
*c^2*d^4 - a*c*d^5)*x)*sqrt(-b*d))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(b*x+a)**(1/2)/(d*x+c)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.25389, size = 382, normalized size = 2.32

$$\frac{\left((bx+a)\left(\frac{3\left(b^6cd^4-ab^5d^5\right)(bx+a)}{b^4cd^5|b|-ab^3d^6|b|}+\frac{2\left(10\,b^7c^2d^3-12\,ab^6cd^4+3\,a^2b^5d^5\right)}{b^4cd^5|b|-ab^3d^6|b|}\right)+\frac{3\left(5\,b^8c^3d^2-11\,ab^7c^2d^3+7\,a^2b^6cd^4-a^3b^5d^5\right)}{b^4cd^5|b|-ab^3d^6|b|}\right)\sqrt{bx+a}}{3\left(b^2c+(bx+a)bd-abd\right)^{\frac{3}{2}}}+\frac{\left(5\,b^2c-abd\right)\ln\left(\left|-\sqrt{bd}\sqrt{bx+a}+\sqrt{b^2c+(bx+a)bd-abd}\right|\right)}{\sqrt{bd}d^3|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*x^2/(d*x + c)^(5/2),x, algorithm="giac")
```

```
[Out] 1/3*((b*x + a)*(3*(b^6*c*d^4 - a*b^5*d^5)*(b*x + a)/(b^4*c*d^5*ab
s(b) - a*b^3*d^6*abs(b)) + 2*(10*b^7*c^2*d^3 - 12*a*b^6*c*d^4 + 3
*a^2*b^5*d^5)/(b^4*c*d^5*abs(b) - a*b^3*d^6*abs(b))) + 3*(5*b^8*c
^3*d^2 - 11*a*b^7*c^2*d^3 + 7*a^2*b^6*c*d^4 - a^3*b^5*d^5)/(b^4*c
*d^5*abs(b) - a*b^3*d^6*abs(b)))*sqrt(b*x + a)/(b^2*c + (b*x + a)
*b*d - a*b*d)^(3/2) + (5*b^2*c - a*b*d)*ln(abs(-sqrt(b*d)*sqrt(b*
x + a) + sqrt(b^2*c + (b*x + a)*b*d - a*b*d)))/(sqrt(b*d)*d^3*abs
(b))
```

3.581 $\int \frac{x\sqrt{a+bx}}{(c+dx)^{5/2}}\,dx$

Optimal. Leaf size=102

$$\frac{2\sqrt{b}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{d^{5/2}}-\frac{2\sqrt{a+bx}}{d^2\sqrt{c+dx}}-\frac{2c(a+bx)^{3/2}}{3d(c+dx)^{3/2}(bc-ad)}$$

```
[Out] (-2*c*(a + b*x)^(3/2))/(3*d*(b*c - a*d)*(c + d*x)^(3/2)) - (2*Sqr
t[a + b*x])/(d^2*Sqrt[c + d*x]) + (2*Sqrt[b]*ArcTanh[(Sqrt[d]*Sqr
t[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/d^(5/2)
```

Rubi [A] time = 0.145598, antiderivative size = 102, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.2

$$\frac{2\sqrt{b}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{d^{5/2}}-\frac{2\sqrt{a+bx}}{d^2\sqrt{c+dx}}-\frac{2c(a+bx)^{3/2}}{3d(c+dx)^{3/2}(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[(x*Sqrt[a + b*x])/(c + d*x)^(5/2),x]
```

```
[Out] (-2*c*(a + b*x)^(3/2))/(3*d*(b*c - a*d)*(c + d*x)^(3/2)) - (2*Sqr
t[a + b*x])/(d^2*Sqrt[c + d*x]) + (2*Sqrt[b]*ArcTanh[(Sqrt[d]*Sqr
t[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/d^(5/2)
```

Rubi in Sympy [A] time = 13.8274, size = 92, normalized size = 0.9

$$\frac{2\sqrt{b}\,\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{d^{\frac{5}{2}}}+\frac{2c\,(a+bx)^{\frac{3}{2}}}{3d\,(c+dx)^{\frac{3}{2}}\,(ad-bc)}-\frac{2\sqrt{a+bx}}{d^2\sqrt{c+dx}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(b*x+a)**(1/2)/(d*x+c)**(5/2),x)
```

```
[Out] 2*sqrt(b)*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c + d*x)))/d*
*(5/2) + 2*c*(a + b*x)**(3/2)/(3*d*(c + d*x)**(3/2)*(a*d - b*c))
- 2*sqrt(a + b*x)/(d**2*sqrt(c + d*x))
```

Mathematica [A] time = 0.158675, size = 114, normalized size = 1.12

$$\frac{\sqrt{b}\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{d^{5/2}}+\frac{2\sqrt{a+bx}(bc(3c+4dx)-ad(2c+3dx))}{3d^2(c+dx)^{3/2}(ad-bc)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x*Sqrt[a + b*x])/(c + d*x)^(5/2),x]
```

```
[Out] (2*Sqrt[a + b*x]*(-(a*d*(2*c + 3*d*x)) + b*c*(3*c + 4*d*x)))/(3*d
^2*(-(b*c) + a*d)*(c + d*x)^(3/2)) + (Sqrt[b]*Log[b*c + a*d + 2*b
*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/d^(5/2)
```

Maple [B] time = 0.028, size = 442, normalized size = 4.3

$$\frac{1}{(3\,ad-3\,bc)\,d^{2}}\left(3\,\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{(bx+a)\,(dx+c)}\sqrt{bd}+ad+bc}{\sqrt{bd}}\right)x^{2}abd^{3}-3\,\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{(bx+a)\,(dx+c)}\sqrt{bd}}{\sqrt{bd}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(b*x+a)^(1/2)/(d*x+c)^(5/2),x)
```

```
[Out] 1/3*(3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+
b*c)/(b*d)^(1/2))*x^2*a*b*d^3-3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c
))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*b^2*c*d^2+6*ln(1/2
*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1
/2))*x*a*b*c*d^2-6*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d
)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*b^2*c^2*d+3*ln(1/2*(2*b*d*x+2*((b
*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a*b*c^2*d-
3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/
(b*d)^(1/2))*b^2*c^3-6*x*a*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2
)+8*x*b*c*d*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-4*a*c*d*((b*x+a)*
(d*x+c))^(1/2)*(b*d)^(1/2)+6*b*c^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^
(1/2))*(b*x+a)^(1/2)/(b*d)^(1/2)/(a*d-b*c)/((b*x+a)*(d*x+c))^(1/2
)/d^2/(d*x+c)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*x/(d*x + c)^(5/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.364516, size = 1, normalized size = 0.01

$$\left[\frac{3\left(bc^{3}-ac^{2}d+\left(bcd^{2}-ad^{3}\right)x^{2}+2\left(bc^{2}d-acd^{2}\right)x\right)\sqrt{\frac{b}{d}}\log\left(8\,b^{2}d^{2}x^{2}+b^{2}c^{2}+6\,abcd+a^{2}d^{2}+4\left(2\,bd^{2}x+bcd+ad^{2}\right)\sqrt{bx}\right.}{6\,(bc^{3}d^{2}-ac^{2}d^{3}+(bcd^{4}-ad^{5})x^{2}+2\,(bc^{2}}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*x/(d*x + c)^(5/2),x, algorithm="fricas")
```

```
[Out] [1/6*(3*(b*c^3 - a*c^2*d + (b*c*d^2 - a*d^3)*x^2 + 2*(b*c^2*d - a
*c*d^2)*x)*sqrt(b/d)*log(8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^
2*d^2 + 4*(2*b*d^2*x + b*c*d + a*d^2)*sqrt(b*x + a)*sqrt(d*x + c)
*sqrt(b/d) + 8*(b^2*c*d + a*b*d^2)*x) - 4*(3*b*c^2 - 2*a*c*d + (4
*b*c*d - 3*a*d^2)*x)*sqrt(b*x + a)*sqrt(d*x + c))/(b*c^3*d^2 - a*
c^2*d^3 + (b*c*d^4 - a*d^5)*x^2 + 2*(b*c^2*d^3 - a*c*d^4)*x), 1/3
*(3*(b*c^3 - a*c^2*d + (b*c*d^2 - a*d^3)*x^2 + 2*(b*c^2*d - a*c*d
^2)*x)*sqrt(-b/d)*arctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(b*x + a)
*sqrt(d*x + c)*d*sqrt(-b/d))) - 2*(3*b*c^2 - 2*a*c*d + (4*b*c*d -
 3*a*d^2)*x)*sqrt(b*x + a)*sqrt(d*x + c))/(b*c^3*d^2 - a*c^2*d^3
+ (b*c*d^4 - a*d^5)*x^2 + 2*(b*c^2*d^3 - a*c*d^4)*x)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(b*x+a)**(1/2)/(d*x+c)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.256327, size = 317, normalized size = 3.11

$$\frac{\frac{3\,\sqrt{bd}|b|\ln\left(\left|-\sqrt{bd}\sqrt{bx+a}+\sqrt{b^2c+(bx+a)bd-abd}\right|\right)}{b^5cd^4-ab^4d^5}+\frac{\sqrt{bx+a}\left(\frac{\left(4\,b^5cd^2|b|-3\,ab^4d^3|b|\right)(bx+a)}{b^8c^2d^4-2\,ab^7cd^5+a^2b^6d^6}+\frac{3\left(b^6c^2d|b|-2\,ab^5cd^2|b|+a^2b^4d^3|b|\right)}{b^8c^2d^4-2\,ab^7cd^5+a^2b^6d^6}\right)}{\left(b^2c+(bx+a)bd-abd\right)^{\frac{3}{2}}}}{12\,b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*x/(d*x + c)^(5/2),x, algorithm="giac")
```

```
[Out] 1/12*(3*sqrt(b*d)*abs(b)*ln(abs(-sqrt(b*d)*sqrt(b*x + a) + sqrt(b
^2*c + (b*x + a)*b*d - a*b*d)))/(b^5*c*d^4 - a*b^4*d^5) + sqrt(b*
x + a)*((4*b^5*c*d^2*abs(b) - 3*a*b^4*d^3*abs(b))*(b*x + a)/(b^8*
c^2*d^4 - 2*a*b^7*c*d^5 + a^2*b^6*d^6) + 3*(b^6*c^2*d*abs(b) - 2*
a*b^5*c*d^2*abs(b) + a^2*b^4*d^3*abs(b))/(b^8*c^2*d^4 - 2*a*b^7*c
*d^5 + a^2*b^6*d^6))/(b^2*c + (b*x + a)*b*d - a*b*d)^(3/2))/b
```

3.582 $\int \frac{\sqrt{a+bx}}{(c+dx)^{5/2}}\,dx$

Optimal. Leaf size=32

$$\frac{2(a+bx)^{3/2}}{3(c+dx)^{3/2}(bc-ad)}$$

```
[Out] (2*(a + b*x)^(3/2))/(3*(b*c - a*d)*(c + d*x)^(3/2))
```

Rubi [A] time = 0.0222107, antiderivative size = 32, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}} = 0.053$

$$\frac{2(a+bx)^{3/2}}{3(c+dx)^{3/2}(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[a + b*x]/(c + d*x)^(5/2),x]

[Out] (2*(a + b*x)^(3/2))/(3*(b*c - a*d)*(c + d*x)^(3/2))
```

Rubi in Sympy [A] time = 3.51554, size = 27, normalized size = 0.84

$$-\frac{2(a+bx)^{\frac{3}{2}}}{3(c+dx)^{\frac{3}{2}}(ad-bc)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/2)/(d*x+c)**(5/2),x)

[Out] -2*(a + b*x)**(3/2)/(3*(c + d*x)**(3/2)*(a*d - b*c))
```

Mathematica [A] time = 0.0370998, size = 32, normalized size = 1.

$$\frac{2(a+bx)^{3/2}}{3(c+dx)^{3/2}(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[a + b*x]/(c + d*x)^(5/2),x]

[Out] (2*(a + b*x)^(3/2))/(3*(b*c - a*d)*(c + d*x)^(3/2))
```

Maple [A] time = 0., size = 27, normalized size = 0.8

$$-\frac{2}{3\,ad-3\,bc}(bx+a)^{\frac{3}{2}}(dx+c)^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/2)/(d*x+c)^(5/2),x)
```

```
[Out] -2/3*(b*x+a)^(3/2)/(d*x+c)^(3/2)/(a*d-b*c)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/(d*x + c)^(5/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.245887, size = 88, normalized size = 2.75

$$\frac{2\,(bx+a)^{\frac{3}{2}}\sqrt{dx+c}}{3\,(bc^3-ac^2d+(bcd^2-ad^3)x^2+2\,(bc^2d-acd^2)x)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/(d*x + c)^(5/2),x, algorithm="fricas")
```

```
[Out] 2/3*(b*x + a)^(3/2)*sqrt(d*x + c)/(b*c^3 - a*c^2*d + (b*c*d^2 - a
*d^3)*x^2 + 2*(b*c^2*d - a*c*d^2)*x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{a+bx}}{(c+dx)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(1/2)/(d*x+c)**(5/2),x)
```

```
[Out] Integral(sqrt(a + b*x)/(c + d*x)**(5/2), x)
```

GIAC/XCAS [A] time = 0.236444, size = 90, normalized size = 2.81

$$-\frac{(bx+a)^{\frac{3}{2}}b^4d}{24\,(b^8c^2d^4-2\,ab^7cd^5+a^2b^6d^6)(b^2c+(bx+a)bd-abd)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/(d*x + c)^(5/2),x, algorithm="giac")
```

```
[Out] -1/24*(b*x + a)^(3/2)*b^4*d/((b^8*c^2*d^4 - 2*a*b^7*c*d^5 + a^2*b
^6*d^6)*(b^2*c + (b*x + a)*b*d - a*b*d)^(3/2))
```

3.583 $\int \frac{\sqrt{a+bx}}{x(c+dx)^{5/2}}\,dx$

Optimal. Leaf size=102

$$-\frac{2\sqrt{a}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{c^{5/2}}+\frac{2\sqrt{a+bx}}{c^2\sqrt{c+dx}}-\frac{2d(a+bx)^{3/2}}{3c(c+dx)^{3/2}(bc-ad)}$$

```
[Out] (-2*d*(a + b*x)^(3/2))/(3*c*(b*c - a*d)*(c + d*x)^(3/2)) + (2*Sqr
t[a + b*x])/(c^2*Sqrt[c + d*x]) - (2*Sqrt[a]*ArcTanh[(Sqrt[c]*Sqr
t[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/c^(5/2)
```

Rubi [A] time = 0.196291, antiderivative size = 102, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{2\sqrt{a}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{c^{5/2}}+\frac{2\sqrt{a+bx}}{c^2\sqrt{c+dx}}-\frac{2d(a+bx)^{3/2}}{3c(c+dx)^{3/2}(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[a + b*x]/(x*(c + d*x)^(5/2)),x]
```

```
[Out] (-2*d*(a + b*x)^(3/2))/(3*c*(b*c - a*d)*(c + d*x)^(3/2)) + (2*Sqr
t[a + b*x])/(c^2*Sqrt[c + d*x]) - (2*Sqrt[a]*ArcTanh[(Sqrt[c]*Sqr
t[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/c^(5/2)
```

Rubi in Sympy [A] time = 14.8331, size = 92, normalized size = 0.9

$$-\frac{2\sqrt{a}\,\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{c^{\frac{5}{2}}}+\frac{2d\,(a+bx)^{\frac{3}{2}}}{3c\,(c+dx)^{\frac{3}{2}}\,(ad-bc)}+\frac{2\sqrt{a+bx}}{c^2\sqrt{c+dx}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/2)/x/(d*x+c)**(5/2),x)
```

```
[Out] -2*sqrt(a)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/c
**(5/2) + 2*d*(a + b*x)**(3/2)/(3*c*(c + d*x)**(3/2)*(a*d - b*c))
 + 2*sqrt(a + b*x)/(c**2*sqrt(c + d*x))
```

Mathematica [A] time = 0.367501, size = 129, normalized size = 1.26

$$\frac{\frac{2\sqrt{c}\sqrt{a+bx}(bc(3c+2dx)-ad(4c+3dx))}{(c+dx)^{3/2}(bc-ad)}-3\sqrt{a}\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)+3\sqrt{a}\log(x)}{3c^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[a + b*x]/(x*(c + d*x)^(5/2)),x]
```

```
[Out] ((2*Sqrt[c]*Sqrt[a + b*x]*(b*c*(3*c + 2*d*x) - a*d*(4*c + 3*d*x))
)/((b*c - a*d)*(c + d*x)^(3/2)) + 3*Sqrt[a]*Log[x] - 3*Sqrt[a]*Lo
g[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c
+ d*x]])/(3*c^(5/2))
```

Maple [B] time = 0.036, size = 430, normalized size = 4.2

$$-\frac{1}{3c^2(ad-bc)}\left(3\ln\left(\frac{adx+bcx+2\sqrt{ac}\sqrt{(bx+a)(dx+c)}+2ac}{x}\right)x^2a^2d^3-3\ln\left(\frac{adx+bcx+2\sqrt{ac}\sqrt{(bx+a)(dx+c)}+\cdots}{x}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/2)/x/(d*x+c)^(5/2),x)
```

```
[Out] -1/3*(3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a
*c)/x)*x^2*a^2*d^3-3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+
c))^(1/2)+2*a*c)/x)*x^2*a*b*c*d^2+6*ln((a*d*x+b*c*x+2*(a*c)^(1/2)
*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x*a^2*c*d^2-6*ln((a*d*x+b*c*x+
2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x*a*b*c^2*d+3*ln(
(a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*a^2*
c^2*d-3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a
*c)/x)*a*b*c^3-6*x*a*d^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+4*x*
b*c*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-8*a*c*d*(a*c)^(1/2)*((b
*x+a)*(d*x+c))^(1/2)+6*b*c^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2))
/c^2*(b*x+a)^(1/2)/(a*d-b*c)/(a*c)^(1/2)/((b*x+a)*(d*x+c))^(1/2)/
(d*x+c)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/((d*x + c)^(5/2)*x),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.355929, size = 1, normalized size = 0.01

$$\left[\frac{3\left(bc^3-ac^2d+\left(bcd^2-ad^3\right)x^2+2\left(bc^2d-acd^2\right)x\right)\sqrt{\frac{a}{c}}\log\left(\frac{8a^2c^2+\left(b^2c^2+6abcd+a^2d^2\right)x^2-4\left(2ac^2+\left(bc^2+acd\right)x\right)\sqrt{bx+a}\sqrt{dx+c}\sqrt{\frac{a}{c}}+8\left(\cdots\right.}{x^2}\right.}{6\left(bc^5-ac^4d+(bc^3d^2-ac^2d^3)x^2+2\left(bc^4d-ac^3d^2\right)x\right)}\right.$$

$$-\frac{3\left(bc^3-ac^2d+\left(bcd^2-ad^3\right)x^2+2\left(bc^2d-acd^2\right)x\right)\sqrt{-\frac{a}{c}}\arctan\left(\frac{2ac+(bc+ad)x}{2\sqrt{bx+a}\sqrt{dx+c}c\sqrt{-\frac{a}{c}}}\right)-2\left(3bc^2-4acd+\left(2bcd-3ad^2\right)\cdots\right.}{3\left(bc^5-ac^4d+(bc^3d^2-ac^2d^3)x^2+2\left(bc^4d-ac^3d^2\right)x\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/((d*x + c)^(5/2)*x),x, algorithm="fricas")
```

```
[Out] [1/6*(3*(b*c^3 - a*c^2*d + (b*c*d^2 - a*d^3)*x^2 + 2*(b*c^2*d - a
*c*d^2)*x)*sqrt(a/c)*log((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*
d^2)*x^2 - 4*(2*a*c^2 + (b*c^2 + a*c*d)*x)*sqrt(b*x + a)*sqrt(d*x
 + c)*sqrt(a/c) + 8*(a*b*c^2 + a^2*c*d)*x)/x^2) + 4*(3*b*c^2 - 4*
a*c*d + (2*b*c*d - 3*a*d^2)*x)*sqrt(b*x + a)*sqrt(d*x + c))/(b*c^
5 - a*c^4*d + (b*c^3*d^2 - a*c^2*d^3)*x^2 + 2*(b*c^4*d - a*c^3*d^
2)*x), -1/3*(3*(b*c^3 - a*c^2*d + (b*c*d^2 - a*d^3)*x^2 + 2*(b*c^
2*d - a*c*d^2)*x)*sqrt(-a/c)*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(
sqrt(b*x + a)*sqrt(d*x + c)*c*sqrt(-a/c))) - 2*(3*b*c^2 - 4*a*c*d
 + (2*b*c*d - 3*a*d^2)*x)*sqrt(b*x + a)*sqrt(d*x + c))/(b*c^5 - a
*c^4*d + (b*c^3*d^2 - a*c^2*d^3)*x^2 + 2*(b*c^4*d - a*c^3*d^2)*x)
]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(1/2)/x/(d*x+c)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.260392, size = 355, normalized size = 3.48

$$-\frac{\sqrt{bx+a}\left(\frac{\left(2\,b^4c^3d^2|b|-3\,ab^3c^2d^3|b|\right)(bx+a)}{b^8c^2d^4-2\,ab^7cd^5+a^2b^6d^6}+\frac{3\left(b^5c^4d|b|-2\,ab^4c^3d^2|b|+a^2b^3c^2d^3|b|\right)}{b^8c^2d^4-2\,ab^7cd^5+a^2b^6d^6}\right)}{12\left(b^2c+(bx+a)bd-abd\right)^{\frac{3}{2}}}-\frac{2\sqrt{bd}ab\arctan\left(-\frac{b^2c+abd-\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2}{2\sqrt{-abcd}b}\right)}{\sqrt{-abcd}c^2|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/((d*x + c)^(5/2)*x),x, algorithm="giac")
```

```
[Out] -1/12*sqrt(b*x + a)*((2*b^4*c^3*d^2*abs(b) - 3*a*b^3*c^2*d^3*abs(
b))*(b*x + a)/(b^8*c^2*d^4 - 2*a*b^7*c*d^5 + a^2*b^6*d^6) + 3*(b^
5*c^4*d*abs(b) - 2*a*b^4*c^3*d^2*abs(b) + a^2*b^3*c^2*d^3*abs(b))
/(b^8*c^2*d^4 - 2*a*b^7*c*d^5 + a^2*b^6*d^6))/(b^2*c + (b*x + a)*
b*d - a*b*d)^(3/2) - 2*sqrt(b*d)*a*b*arctan(-1/2*(b^2*c + a*b*d -
 (sqrt(b*d)*sqrt(b*x + a) - sqrt(b^2*c + (b*x + a)*b*d - a*b*d))^
2)/(sqrt(-a*b*c*d)*b))/(sqrt(-a*b*c*d)*c^2*abs(b))
```

3.584 $\int \frac{\sqrt{a+bx}}{x^2(c+dx)^{5/2}}\,dx$

Optimal. Leaf size=148

$$-\frac{(bc-5ad)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{a}c^{7/2}}-\frac{d\sqrt{a+bx}(13bc-15ad)}{3c^3\sqrt{c+dx}(bc-ad)}-\frac{5d\sqrt{a+bx}}{3c^2(c+dx)^{3/2}}-\frac{\sqrt{a+bx}}{cx(c+dx)^{3/2}}$$

```
[Out] (-5*d*Sqrt[a + b*x])/(3*c^2*(c + d*x)^(3/2)) - Sqrt[a + b*x]/(c*x
*(c + d*x)^(3/2)) - (d*(13*b*c - 15*a*d)*Sqrt[a + b*x])/(3*c^3*(b
*c - a*d)*Sqrt[c + d*x]) - ((b*c - 5*a*d)*ArcTanh[(Sqrt[c]*Sqrt[a
 + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(Sqrt[a]*c^(7/2))
```

Rubi [A] time = 0.498362, antiderivative size = 148, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.227$

$$-\frac{(bc-5ad)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{a}c^{7/2}}-\frac{d\sqrt{a+bx}(13bc-15ad)}{3c^3\sqrt{c+dx}(bc-ad)}-\frac{5d\sqrt{a+bx}}{3c^2(c+dx)^{3/2}}-\frac{\sqrt{a+bx}}{cx(c+dx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[a + b*x]/(x^2*(c + d*x)^(5/2)),x]
```

```
[Out] (-5*d*Sqrt[a + b*x])/(3*c^2*(c + d*x)^(3/2)) - Sqrt[a + b*x]/(c*x
*(c + d*x)^(3/2)) - (d*(13*b*c - 15*a*d)*Sqrt[a + b*x])/(3*c^3*(b
*c - a*d)*Sqrt[c + d*x]) - ((b*c - 5*a*d)*ArcTanh[(Sqrt[c]*Sqrt[a
 + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(Sqrt[a]*c^(7/2))
```

Rubi in Sympy [A] time = 58.8884, size = 133, normalized size = 0.9

$$-\frac{\sqrt{a+bx}}{cx\,(c+dx)^{\frac{3}{2}}}-\frac{5d\sqrt{a+bx}}{3c^2\,(c+dx)^{\frac{3}{2}}}-\frac{d\sqrt{a+bx}\,(15ad-13bc)}{3c^3\sqrt{c+dx}\,(ad-bc)}+\frac{(5ad-bc)\,\mathrm{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{a}c^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/2)/x**2/(d*x+c)**(5/2),x)
```

```
[Out] -sqrt(a + b*x)/(c*x*(c + d*x)**(3/2)) - 5*d*sqrt(a + b*x)/(3*c**2
*(c + d*x)**(3/2)) - d*sqrt(a + b*x)*(15*a*d - 13*b*c)/(3*c**3*sq
rt(c + d*x)*(a*d - b*c)) + (5*a*d - b*c)*atanh(sqrt(c)*sqrt(a + b
*x)/(sqrt(a)*sqrt(c + d*x)))/(sqrt(a)*c**(7/2))
```

Mathematica [A] time = 0.528113, size = 158, normalized size = 1.07

$$\frac{2\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}\left(\frac{2d(6ad-5bc)}{(c+dx)(bc-ad)}-\frac{2cd}{(c+dx)^2}-\frac{3}{x}\right)+\frac{3\log(x)(bc-5ad)}{\sqrt{a}}+\frac{3(5ad-bc)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{\sqrt{a}}}{6c^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[a + b*x]/(x^2*(c + d*x)^(5/2)),x]
```

```
[Out] (2*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]*(-3/x - (2*c*d)/(c + d*x)^
2 + (2*d*(-5*b*c + 6*a*d))/((b*c - a*d)*(c + d*x))) + (3*(b*c - 5
*a*d)*Log[x])/Sqrt[a] + (3*(-(b*c) + 5*a*d)*Log[2*a*c + b*c*x + a
```

```
*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/Sqrt[a])/(
6*c^(7/2))
```

Maple [B] time = 0.041, size = 653, normalized size = 4.4

$$\frac{1}{6\,c^3\,(ad-bc)\,x}\left(15\ln\left(\frac{adx+bcx+2\sqrt{ac}\sqrt{(bx+a)\,(dx+c)}+2\,ac}{x}\right)x^3a^2d^4-18\ln\left(\frac{adx+bcx+2\sqrt{ac}\sqrt{(bx+a)\,(dx+c)}}{x}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/2)/x^2/(d*x+c)^(5/2),x)
```

```
[Out] 1/6*(15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a
*c)/x)*x^3*a^2*d^4-18*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x
+c))^(1/2)+2*a*c)/x)*x^3*a*b*c*d^3+3*ln((a*d*x+b*c*x+2*(a*c)^(1/2
)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*b^2*c^2*d^2+30*ln((a*d*x+
b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a^2*c*d
^3-36*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c
)/x)*x^2*a*b*c^2*d^2+6*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*
x+c))^(1/2)+2*a*c)/x)*x^2*b^2*c^3*d+15*ln((a*d*x+b*c*x+2*(a*c)^(1
/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x*a^2*c^2*d^2-18*ln((a*d*x+
b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x*a*b*c^3*d
+3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x
)*x*b^2*c^4-30*x^2*a*d^3*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+26*x
^2*b*c*d^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-40*x*a*c*d^2*(a*c)
^(1/2)*((b*x+a)*(d*x+c))^(1/2)+36*x*b*c^2*d*(a*c)^(1/2)*((b*x+a)*
(d*x+c))^(1/2)-6*a*c^2*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+6*b*
c^3*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2))/c^3*(b*x+a)^(1/2)/(a*d-b
*c)/(a*c)^(1/2)/x/((b*x+a)*(d*x+c))^(1/2)/(d*x+c)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/((d*x + c)^(5/2)*x^2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.446685, size = 1, normalized size = 0.01

$$\left[-\frac{4\left(3\,bc^3-3\,ac^2d+\left(13\,bcd^2-15\,ad^3\right)x^2+2\left(9\,bc^2d-10\,acd^2\right)x\right)\sqrt{ac}\sqrt{bx+a}\sqrt{dx+c}+3\left(\left(b^2c^2d^2-6\,abcd^3+5\,a^2d^4\right)x\right.}{12\left((bc^4d^2-ac^3\right.}\right.$$

$$-\frac{2\left(3\,bc^3-3\,ac^2d+\left(13\,bcd^2-15\,ad^3\right)x^2+2\left(9\,bc^2d-10\,acd^2\right)x\right)\sqrt{-ac}\sqrt{bx+a}\sqrt{dx+c}+3\left(\left(b^2c^2d^2-6\,abcd^3+5\,a^2d^4\right)x\right.}{6\left((bc^4d^2-ac^3d^3)x^3+2\left(bc^5d-ac^4d^2\right)x^2+\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/((d*x + c)^(5/2)*x^2),x, algorithm="fricas")
```

```
[Out] [-1/12*(4*(3*b*c^3 - 3*a*c^2*d + (13*b*c*d^2 - 15*a*d^3)*x^2 + 2*
(9*b*c^2*d - 10*a*c*d^2)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c)
 + 3*((b^2*c^2*d^2 - 6*a*b*c*d^3 + 5*a^2*d^4)*x^3 + 2*(b^2*c^3*d
```

```
- 6*a*b*c^2*d^2 + 5*a^2*c*d^3)*x^2 + (b^2*c^4 - 6*a*b*c^3*d + 5*a
^2*c^2*d^2)*x)*log((4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*
x + a)*sqrt(d*x + c) + (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^
2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2))/(((b*c^4*d^2 -
 a*c^3*d^3)*x^3 + 2*(b*c^5*d - a*c^4*d^2)*x^2 + (b*c^6 - a*c^5*d)
*x)*sqrt(a*c)), -1/6*(2*(3*b*c^3 - 3*a*c^2*d + (13*b*c*d^2 - 15*a
*d^3)*x^2 + 2*(9*b*c^2*d - 10*a*c*d^2)*x)*sqrt(-a*c)*sqrt(b*x + a
)*sqrt(d*x + c) + 3*((b^2*c^2*d^2 - 6*a*b*c*d^3 + 5*a^2*d^4)*x^3
+ 2*(b^2*c^3*d - 6*a*b*c^2*d^2 + 5*a^2*c*d^3)*x^2 + (b^2*c^4 - 6*
a*b*c^3*d + 5*a^2*c^2*d^2)*x)*arctan(1/2*(2*a*c + (b*c + a*d)*x)*
sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d*x + c)*a*c)))/(((b*c^4*d^2 - a*c
^3*d^3)*x^3 + 2*(b*c^5*d - a*c^4*d^2)*x^2 + (b*c^6 - a*c^5*d)*x)*
sqrt(-a*c))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(1/2)/x**2/(d*x+c)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/((d*x + c)^(5/2)*x^2),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.585 $\int \frac{\sqrt{a+bx}}{x^3(c+dx)^{5/2}}\,dx$

Optimal. Leaf size=234

$$-\frac{d\sqrt{a+bx}\left(105a^2d^2-100abcd+3b^2c^2\right)}{12ac^4\sqrt{c+dx}(bc-ad)}+\frac{\left(-35a^2d^2+10abcd+b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{3/2}c^{9/2}}-\frac{d\sqrt{a+bx}(3bc-35ad)}{12ac^3(c+dx)^{3/2}}-\frac{\sqrt{a+bx}(bc-7ad)}{4ac^2x(c+dx)^{3/2}}-\frac{\sqrt{a+bx}}{2cx^2(c+dx)^{3/2}}$$

```
[Out] -(d*(3*b*c - 35*a*d)*Sqrt[a + b*x])/(12*a*c^3*(c + d*x)^(3/2)) -
Sqrt[a + b*x]/(2*c*x^2*(c + d*x)^(3/2)) - ((b*c - 7*a*d)*Sqrt[a +
 b*x])/(4*a*c^2*x*(c + d*x)^(3/2)) - (d*(3*b^2*c^2 - 100*a*b*c*d
+ 105*a^2*d^2)*Sqrt[a + b*x])/(12*a*c^4*(b*c - a*d)*Sqrt[c + d*x]
) + ((b^2*c^2 + 10*a*b*c*d - 35*a^2*d^2)*ArcTanh[(Sqrt[c]*Sqrt[a
+ b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(4*a^(3/2)*c^(9/2))
```

Rubi [A] time = 0.783347, antiderivative size = 234, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.273

$$-\frac{d\sqrt{a+bx}\left(105a^2d^2-100abcd+3b^2c^2\right)}{12ac^4\sqrt{c+dx}(bc-ad)}+\frac{\left(-35a^2d^2+10abcd+b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{3/2}c^{9/2}}-\frac{d\sqrt{a+bx}(3bc-35ad)}{12ac^3(c+dx)^{3/2}}-\frac{\sqrt{a+bx}(bc-7ad)}{4ac^2x(c+dx)^{3/2}}-\frac{\sqrt{a+bx}}{2cx^2(c+dx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[a + b*x]/(x^3*(c + d*x)^(5/2)),x]
```


```
[Out] -(d*(3*b*c - 35*a*d)*Sqrt[a + b*x])/(12*a*c^3*(c + d*x)^(3/2)) -
Sqrt[a + b*x]/(2*c*x^2*(c + d*x)^(3/2)) - ((b*c - 7*a*d)*Sqrt[a +
 b*x])/(4*a*c^2*x*(c + d*x)^(3/2)) - (d*(3*b^2*c^2 - 100*a*b*c*d
+ 105*a^2*d^2)*Sqrt[a + b*x])/(12*a*c^4*(b*c - a*d)*Sqrt[c + d*x]
) + ((b^2*c^2 + 10*a*b*c*d - 35*a^2*d^2)*ArcTanh[(Sqrt[c]*Sqrt[a
+ b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(4*a^(3/2)*c^(9/2))
```

Rubi in Sympy [A] time = 114.79, size = 214, normalized size = 0.91

$$-\frac{\sqrt{a+bx}}{2cx^2\left(c+dx\right)^{\frac{3}{2}}}+\frac{\sqrt{a+bx}\left(7ad-bc\right)}{4ac^2x\left(c+dx\right)^{\frac{3}{2}}}+\frac{d\sqrt{a+bx}\left(35ad-3bc\right)}{12ac^3\left(c+dx\right)^{\frac{3}{2}}}+\frac{d\sqrt{a+bx}\left(105a^2d^2-100abcd+3b^2c^2\right)}{12ac^4\sqrt{c+dx}\left(ad-bc\right)}-\frac{\left(35a^2d^2-10abcd-b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{\frac{3}{2}}c^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/2)/x**3/(d*x+c)**(5/2),x)
```

```
[Out] -sqrt(a + b*x)/(2*c*x**2*(c + d*x)**(3/2)) + sqrt(a + b*x)*(7*a*d
 - b*c)/(4*a*c**2*x*(c + d*x)**(3/2)) + d*sqrt(a + b*x)*(35*a*d -
 3*b*c)/(12*a*c**3*(c + d*x)**(3/2)) + d*sqrt(a + b*x)*(105*a**2*
d**2 - 100*a*b*c*d + 3*b**2*c**2)/(12*a*c**4*sqrt(c + d*x)*(a*d -
 b*c)) - (35*a**2*d**2 - 10*a*b*c*d - b**2*c**2)*atanh(sqrt(c)*sq
rt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(4*a**(3/2)*c**(9/2))
```

Mathematica [A] time = 0.857534, size = 206, normalized size = 0.88

$$\frac{-\frac{3\log(x)(-35a^2d^2+10abcd+b^2c^2)}{a^{3/2}}+\frac{3(-35a^2d^2+10abcd+b^2c^2)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{a^{3/2}}+2\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}\left(\frac{8d^2(8bc-9ad)}{(c+dx)(bc-ad)}\right.}{24c^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[a + b*x]/(x^3*(c + d*x)^(5/2)),x]
```

```
[Out] (2*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]*((-6*c)/x^2 + (-3*b*c + 33
*a*d)/(a*x) + (8*c*d^2)/(c + d*x)^2 + (8*d^2*(8*b*c - 9*a*d))/((b
*c - a*d)*(c + d*x))) - (3*(b^2*c^2 + 10*a*b*c*d - 35*a^2*d^2)*Lo
g[x])/a^(3/2) + (3*(b^2*c^2 + 10*a*b*c*d - 35*a^2*d^2)*Log[2*a*c
+ b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])
/a^(3/2))/(24*c^(9/2))
```

Maple [B] time = 0.046, size = 988, normalized size = 4.2

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/2)/x^3/(d*x+c)^(5/2),x)
```

```
[Out] -1/24*(105*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+
2*a*c)/x)*x^4*a^3*d^5-135*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*
(d*x+c))^(1/2)+2*a*c)/x)*x^4*a^2*b*c*d^4+27*ln((a*d*x+b*c*x+2*(a*
c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a*b^2*c^2*d^3+3*ln
((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4
*b^3*c^3*d^2+210*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^
(1/2)+2*a*c)/x)*x^3*a^3*c*d^4-270*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(
(b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^2*b*c^2*d^3+54*ln((a*d*x+b
*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a*b^2*c^
3*d^2+6*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a
*c)/x)*x^3*b^3*c^4*d+105*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(
d*x+c))^(1/2)+2*a*c)/x)*x^2*a^3*c^2*d^3-135*ln((a*d*x+b*c*x+2*(a*
c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a^2*b*c^3*d^2+27*l
n((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^
2*a*b^2*c^4*d+3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(
1/2)+2*a*c)/x)*x^2*b^3*c^5-210*x^3*a^2*d^4*(a*c)^(1/2)*((b*x+a)*(
d*x+c))^(1/2)+200*x^3*a*b*c*d^3*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/
2)-6*x^3*b^2*c^2*d^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-280*x^2*
a^2*c*d^3*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+276*x^2*a*b*c^2*d^2
*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-12*x^2*b^2*c^3*d*(a*c)^(1/2)
*((b*x+a)*(d*x+c))^(1/2)-42*x*a^2*c^2*d^2*(a*c)^(1/2)*((b*x+a)*(d
*x+c))^(1/2)+48*x*a*b*c^3*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-6
*x*b^2*c^4*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+12*a^2*c^3*d*(a*c)
^(1/2)*((b*x+a)*(d*x+c))^(1/2)-12*a*b*c^4*(a*c)^(1/2)*((b*x+a)*(d
*x+c))^(1/2))/c^4/a*(b*x+a)^(1/2)/(a*d-b*c)/(a*c)^(1/2)/x^2/((b*x
+a)*(d*x+c))^(1/2)/(d*x+c)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/((d*x + c)^(5/2)*x^3),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.799214, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/((d*x + c)^(5/2)*x^3),x, algorithm="fricas")
```

```
[Out] [-1/48*(4*(6*a*b*c^4 - 6*a^2*c^3*d + (3*b^2*c^2*d^2 - 100*a*b*c*d
^3 + 105*a^2*d^4)*x^3 + 2*(3*b^2*c^3*d - 69*a*b*c^2*d^2 + 70*a^2*
c*d^3)*x^2 + 3*(b^2*c^4 - 8*a*b*c^3*d + 7*a^2*c^2*d^2)*x)*sqrt(a*
c)*sqrt(b*x + a)*sqrt(d*x + c) + 3*((b^3*c^3*d^2 + 9*a*b^2*c^2*d^
3 - 45*a^2*b*c*d^4 + 35*a^3*d^5)*x^4 + 2*(b^3*c^4*d + 9*a*b^2*c^3
*d^2 - 45*a^2*b*c^2*d^3 + 35*a^3*c*d^4)*x^3 + (b^3*c^5 + 9*a*b^2*
c^4*d - 45*a^2*b*c^3*d^2 + 35*a^3*c^2*d^3)*x^2)*log(-(4*(2*a^2*c^
2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c) - (8*a^2*c
^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*
x)*sqrt(a*c))/x^2))/(((a*b*c^5*d^2 - a^2*c^4*d^3)*x^4 + 2*(a*b*c^
6*d - a^2*c^5*d^2)*x^3 + (a*b*c^7 - a^2*c^6*d)*x^2)*sqrt(a*c)), -
1/24*(2*(6*a*b*c^4 - 6*a^2*c^3*d + (3*b^2*c^2*d^2 - 100*a*b*c*d^3
 + 105*a^2*d^4)*x^3 + 2*(3*b^2*c^3*d - 69*a*b*c^2*d^2 + 70*a^2*c*
d^3)*x^2 + 3*(b^2*c^4 - 8*a*b*c^3*d + 7*a^2*c^2*d^2)*x)*sqrt(-a*c
)*sqrt(b*x + a)*sqrt(d*x + c) - 3*((b^3*c^3*d^2 + 9*a*b^2*c^2*d^3
 - 45*a^2*b*c*d^4 + 35*a^3*d^5)*x^4 + 2*(b^3*c^4*d + 9*a*b^2*c^3*
d^2 - 45*a^2*b*c^2*d^3 + 35*a^3*c*d^4)*x^3 + (b^3*c^5 + 9*a*b^2*c
^4*d - 45*a^2*b*c^3*d^2 + 35*a^3*c^2*d^3)*x^2)*arctan(1/2*(2*a*c
+ (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d*x + c)*a*c)))/(
((a*b*c^5*d^2 - a^2*c^4*d^3)*x^4 + 2*(a*b*c^6*d - a^2*c^5*d^2)*x^
3 + (a*b*c^7 - a^2*c^6*d)*x^2)*sqrt(-a*c))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(1/2)/x**3/(d*x+c)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/((d*x + c)^(5/2)*x^3),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.586 $\int x^2(a+bx)^{3/2}\sqrt{c+dx}\,dx$

Optimal. Leaf size=315

$$\frac{(3a^2d^2+6abcd+7b^2c^2)(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{128b^{7/2}d^{9/2}}+\frac{(a+bx)^{5/2}\sqrt{c+dx}\,(3a^2d^2+6abcd+7b^2c^2)}{48b^3d^2}-\frac{\sqrt{a+bx}\sqrt{c+dx}\,(3a^2d^2+6abcd+7b^2c^2)(bc-ad)^2}{128b^3d^4}+\frac{(a+bx)^{3/2}\sqrt{c+dx}\,(3a^2d^2+6abcd+7b^2c^2)(bc-ad)}{192b^3d^3}-\frac{(a+bx)^{5/2}(c+dx)^{3/2}(5ad+7bc)}{40b^2d^2}+\frac{x(a+bx)^{5/2}(c+dx)^{3/2}}{5bd}$$

```
[Out] -((b*c - a*d)^2*(7*b^2*c^2 + 6*a*b*c*d + 3*a^2*d^2)*Sqrt[a + b*x]
*Sqrt[c + d*x])/(128*b^3*d^4) + ((b*c - a*d)*(7*b^2*c^2 + 6*a*b*c
*d + 3*a^2*d^2)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(192*b^3*d^3) + ((
7*b^2*c^2 + 6*a*b*c*d + 3*a^2*d^2)*(a + b*x)^(5/2)*Sqrt[c + d*x])
/(48*b^3*d^2) - ((7*b*c + 5*a*d)*(a + b*x)^(5/2)*(c + d*x)^(3/2))
/(40*b^2*d^2) + (x*(a + b*x)^(5/2)*(c + d*x)^(3/2))/(5*b*d) + ((b
*c - a*d)^3*(7*b^2*c^2 + 6*a*b*c*d + 3*a^2*d^2)*ArcTanh[(Sqrt[d]*
Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(128*b^(7/2)*d^(9/2))
```

Rubi [A] time = 0.679024, antiderivative size = 315, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$\frac{(3a^2d^2+6abcd+7b^2c^2)(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{128b^{7/2}d^{9/2}}+\frac{(a+bx)^{5/2}\sqrt{c+dx}\,(3a^2d^2+6abcd+7b^2c^2)}{48b^3d^2}-\frac{\sqrt{a+bx}\sqrt{c+dx}\,(3a^2d^2+6abcd+7b^2c^2)(bc-ad)^2}{128b^3d^4}+\frac{(a+bx)^{3/2}\sqrt{c+dx}\,(3a^2d^2+6abcd+7b^2c^2)(bc-ad)}{192b^3d^3}-\frac{(a+bx)^{5/2}(c+dx)^{3/2}(5ad+7bc)}{40b^2d^2}+\frac{x(a+bx)^{5/2}(c+dx)^{3/2}}{5bd}$$

Antiderivative was successfully verified.

```
[In]  Int[x^2*(a + b*x)^(3/2)*Sqrt[c + d*x],x]
```

```
[Out] -((b*c - a*d)^2*(7*b^2*c^2 + 6*a*b*c*d + 3*a^2*d^2)*Sqrt[a + b*x]
*Sqrt[c + d*x])/(128*b^3*d^4) + ((b*c - a*d)*(7*b^2*c^2 + 6*a*b*c
*d + 3*a^2*d^2)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(192*b^3*d^3) + ((
7*b^2*c^2 + 6*a*b*c*d + 3*a^2*d^2)*(a + b*x)^(5/2)*Sqrt[c + d*x])
/(48*b^3*d^2) - ((7*b*c + 5*a*d)*(a + b*x)^(5/2)*(c + d*x)^(3/2))
/(40*b^2*d^2) + (x*(a + b*x)^(5/2)*(c + d*x)^(3/2))/(5*b*d) + ((b
*c - a*d)^3*(7*b^2*c^2 + 6*a*b*c*d + 3*a^2*d^2)*ArcTanh[(Sqrt[d]*
Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(128*b^(7/2)*d^(9/2))
```

Rubi in Sympy [A] time = 56.3686, size = 301, normalized size = 0.96

$$\frac{x(a+bx)^{\frac{5}{2}}(c+dx)^{\frac{3}{2}}}{5bd}-\frac{(a+bx)^{\frac{5}{2}}(c+dx)^{\frac{3}{2}}(5ad+7bc)}{40b^2d^2}+\frac{(a+bx)^{\frac{5}{2}}\sqrt{c+dx}\left(3a^2d^2+6abcd+7b^2c^2\right)}{48b^3d^2}-\frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}\,(ad-bc)\left(3a^2d^2+6abcd+7b^2c^2\right)}{192b^3d^3}-\frac{\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)^2\left(3a^2d^2+6abcd+7b^2c^2\right)}{128b^3d^4}-\frac{(ad-bc)^3\left(3a^2d^2+6abcd+7b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{128b^{\frac{7}{2}}d^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(b*x+a)**(3/2)*(d*x+c)**(1/2),x)
```

```
[Out] x*(a + b*x)**(5/2)*(c + d*x)**(3/2)/(5*b*d) - (a + b*x)**(5/2)*(c
 + d*x)**(3/2)*(5*a*d + 7*b*c)/(40*b**2*d**2) + (a + b*x)**(5/2)*
sqrt(c + d*x)*(3*a**2*d**2 + 6*a*b*c*d + 7*b**2*c**2)/(48*b**3*d*
*2) - (a + b*x)**(3/2)*sqrt(c + d*x)*(a*d - b*c)*(3*a**2*d**2 + 6
*a*b*c*d + 7*b**2*c**2)/(192*b**3*d**3) - sqrt(a + b*x)*sqrt(c +
d*x)*(a*d - b*c)**2*(3*a**2*d**2 + 6*a*b*c*d + 7*b**2*c**2)/(128*
b**3*d**4) - (a*d - b*c)**3*(3*a**2*d**2 + 6*a*b*c*d + 7*b**2*c**
2)*atanh(sqrt(b)*sqrt(c + d*x)/(sqrt(d)*sqrt(a + b*x)))/(128*b**(
7/2)*d**(9/2))
```

Mathematica [A] time = 0.224984, size = 254, normalized size = 0.81

$$\frac{\left(3a^2d^2+6abcd+7b^2c^2\right)(bc-ad)^3\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{256b^{7/2}d^{9/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(45a^4d^4-30a^3bd^3(c+dx)+6a^2b^2d^2\left(-6c^2+3cdx+4d^2x^2\right)+2ab^3d\left(95c^3-61c^2dx+48cd^2x^2+264d^3x\right.\right.}{1920b^3d^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^2*(a + b*x)^(3/2)*Sqrt[c + d*x],x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(45*a^4*d^4 - 30*a^3*b*d^3*(c + d*x)
 + 6*a^2*b^2*d^2*(-6*c^2 + 3*c*d*x + 4*d^2*x^2) + 2*a*b^3*d*(95*c
^3 - 61*c^2*d*x + 48*c*d^2*x^2 + 264*d^3*x^3) + b^4*(-105*c^4 + 7
0*c^3*d*x - 56*c^2*d^2*x^2 + 48*c*d^3*x^3 + 384*d^4*x^4)))/(1920*
b^3*d^4) + ((b*c - a*d)^3*(7*b^2*c^2 + 6*a*b*c*d + 3*a^2*d^2)*Log
[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d
*x]])/(256*b^(7/2)*d^(9/2))
```

Maple [B] time = 0.023, size = 942, normalized size = 3.

$$-\frac{1}{3840\,d^4b^3}\sqrt{bx+a}\sqrt{dx+c}\left(-768\,x^4b^4d^4\sqrt{dx^2b+adx+bcx+ac}\sqrt{bd}-1056\,x^3ab^3d^4\sqrt{dx^2b+adx+bcx+ac}\sqrt{bd}-96\,x^3\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(b*x+a)^(3/2)*(d*x+c)^(1/2),x)
```

```
[Out] -1/3840*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(-768*x^4*b^4*d^4*(b*d*x^2+a*
d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)-1056*x^3*a*b^3*d^4*(b*d*x^2+a*d*
x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)-96*x^3*b^4*c*d^3*(b*d*x^2+a*d*x+b*
```

```
c*x+a*c)^(1/2)*(b*d)^(1/2)-48*x^2*a^2*b^2*d^4*(b*d*x^2+a*d*x+b*c*
x+a*c)^(1/2)*(b*d)^(1/2)-192*x^2*a*b^3*c*d^3*(b*d*x^2+a*d*x+b*c*x
+a*c)^(1/2)*(b*d)^(1/2)+112*x^2*b^4*c^2*d^2*(b*d*x^2+a*d*x+b*c*x+
a*c)^(1/2)*(b*d)^(1/2)+45*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+
a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^5*d^5-45*ln(1/2*(2
*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*
d)^(1/2))*a^4*b*c*d^4-30*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a
*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^3*b^2*c^2*d^3-90*ln
(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b
*c)/(b*d)^(1/2))*a^2*b^3*c^3*d^2+225*ln(1/2*(2*b*d*x+2*(b*d*x^2+a
*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a*b^4*c^4
*d-105*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1
/2)+a*d+b*c)/(b*d)^(1/2))*b^5*c^5+60*(b*d)^(1/2)*(b*d*x^2+a*d*x+b
*c*x+a*c)^(1/2)*x*a^3*b*d^4-36*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a
*c)^(1/2)*x*a^2*b^2*c*d^3+244*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*
c)^(1/2)*x*a*b^3*c^2*d^2-140*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c
)^(1/2)*x*b^4*c^3*d-90*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2
)*a^4*d^4+60*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a^3*b*c*
d^3+72*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a^2*b^2*c^2*d^
2-380*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a*b^3*c^3*d+210
*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*b^4*c^4)/(b*d*x^2+a*
d*x+b*c*x+a*c)^(1/2)/d^4/b^3/(b*d)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*sqrt(d*x + c)*x^2,x, algorithm="maxima")

[Out] Exception raised: ValueError
```

Fricas [A] time = 0.2592, size = 1, normalized size = 0.

$$\left[\frac{4\left(384\,b^4d^4x^4 - 105\,b^4c^4 + 190\,ab^3c^3d - 36\,a^2b^2c^2d^2 - 30\,a^3bcd^3 + 45\,a^4d^4 + 48\left(b^4cd^3 + 11\,ab^3d^4\right)x^3 - 8\left(7\,b^4c^2d^2 - 12\,a\right.\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*sqrt(d*x + c)*x^2,x, algorithm="fricas")

[Out] [1/7680*(4*(384*b^4*d^4*x^4 - 105*b^4*c^4 + 190*a*b^3*c^3*d - 36*
a^2*b^2*c^2*d^2 - 30*a^3*b*c*d^3 + 45*a^4*d^4 + 48*(b^4*c*d^3 + 1
1*a*b^3*d^4)*x^3 - 8*(7*b^4*c^2*d^2 - 12*a*b^3*c*d^3 - 3*a^2*b^2*
d^4)*x^2 + 2*(35*b^4*c^3*d - 61*a*b^3*c^2*d^2 + 9*a^2*b^2*c*d^3 -
 15*a^3*b*d^4)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) - 15*(7*b
^5*c^5 - 15*a*b^4*c^4*d + 6*a^2*b^3*c^3*d^2 + 2*a^3*b^2*c^2*d^3 +
 3*a^4*b*c*d^4 - 3*a^5*d^5)*log(-4*(2*b^2*d^2*x + b^2*c*d + a*b*d
^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*
b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/(sqrt(b*d)
*b^3*d^4), 1/3840*(2*(384*b^4*d^4*x^4 - 105*b^4*c^4 + 190*a*b^3*c
^3*d - 36*a^2*b^2*c^2*d^2 - 30*a^3*b*c*d^3 + 45*a^4*d^4 + 48*(b^4
*c*d^3 + 11*a*b^3*d^4)*x^3 - 8*(7*b^4*c^2*d^2 - 12*a*b^3*c*d^3 -
3*a^2*b^2*d^4)*x^2 + 2*(35*b^4*c^3*d - 61*a*b^3*c^2*d^2 + 9*a^2*b
^2*c*d^3 - 15*a^3*b*d^4)*x)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c
) + 15*(7*b^5*c^5 - 15*a*b^4*c^4*d + 6*a^2*b^3*c^3*d^2 + 2*a^3*b^
2*c^2*d^3 + 3*a^4*b*c*d^4 - 3*a^5*d^5)*arctan(1/2*(2*b*d*x + b*c
+ a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/(sqrt(-b*d)
*b^3*d^4)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(b*x+a)**(3/2)*(d*x+c)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.284303, size = 886, normalized size = 2.81

$$\frac{10\left(\sqrt{b^2c+(bx+a)bd-abd}\left(2\,(bx+a)\left(4\,(bx+a)\left(\frac{6\,(bx+a)}{b^2}+\frac{b^7cd^5-17\,ab^6d^6}{b^8d^6}\right)-\frac{5\,b^8c^2d^4+6\,ab^7cd^5-59\,a^2b^6d^6}{b^8d^6}\right)+\frac{3\left(5\,b^9c^3d^3+ab^8c^2d^4-a^2b^7cd^5-5\,a^3b^6d^6\right)}{b^8d^6}\right)\sqrt{bx+a}+\frac{3\left(5\,b\cdots\right.}{\cdots}\right.}{b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*sqrt(d*x + c)*x^2,x, algorithm="giac")
```

```
[Out] 1/1920*(10*(sqrt(b^2*c + (b*x + a)*b*d - a*b*d)*(2*(b*x + a)*(4*(
b*x + a)*(6*(b*x + a)/b^2 + (b^7*c*d^5 - 17*a*b^6*d^6)/(b^8*d^6))
 - (5*b^8*c^2*d^4 + 6*a*b^7*c*d^5 - 59*a^2*b^6*d^6)/(b^8*d^6)) +
3*(5*b^9*c^3*d^3 + a*b^8*c^2*d^4 - a^2*b^7*c*d^5 - 5*a^3*b^6*d^6)
/(b^8*d^6))*sqrt(b*x + a) + 3*(5*b^4*c^4 - 4*a*b^3*c^3*d - 2*a^2*
b^2*c^2*d^2 - 4*a^3*b*c*d^3 + 5*a^4*d^4)*ln(abs(-sqrt(b*d)*sqrt(b
*x + a) + sqrt(b^2*c + (b*x + a)*b*d - a*b*d)))/(sqrt(b*d)*b*d^3)
)*a*abs(b)/b^2 + (sqrt(b^2*c + (b*x + a)*b*d - a*b*d)*(2*(4*(b*x
+ a)*(6*(b*x + a)*(8*(b*x + a)/b^3 + (b^13*c*d^7 - 31*a*b^12*d^8)
/(b^15*d^8)) - (7*b^14*c^2*d^6 + 16*a*b^13*c*d^7 - 263*a^2*b^12*d
^8)/(b^15*d^8)) + 5*(7*b^15*c^3*d^5 + 9*a*b^14*c^2*d^6 + 9*a^2*b^
13*c*d^7 - 121*a^3*b^12*d^8)/(b^15*d^8))*(b*x + a) - 15*(7*b^16*c
^4*d^4 + 2*a*b^15*c^3*d^5 - 2*a^3*b^13*c*d^7 - 7*a^4*b^12*d^8)/(b
^15*d^8))*sqrt(b*x + a) - 15*(7*b^5*c^5 - 5*a*b^4*c^4*d - 2*a^2*b
^3*c^3*d^2 - 2*a^3*b^2*c^2*d^3 - 5*a^4*b*c*d^4 + 7*a^5*d^5)*ln(ab
s(-sqrt(b*d)*sqrt(b*x + a) + sqrt(b^2*c + (b*x + a)*b*d - a*b*d))
)/(sqrt(b*d)*b^2*d^4))*abs(b)/b)/b
```

3.587 $\int x(a+bx)^{3/2}\sqrt{c+dx}\,dx$

Optimal. Leaf size=221

$$-\frac{(3ad+5bc)(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{64b^{5/2}d^{7/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}(3ad+5bc)(bc-ad)^2}{64b^2d^3}-\frac{(a+bx)^{3/2}\sqrt{c+dx}(3ad+5bc)(bc-ad)}{96b^2d^2}-\frac{(a+bx)^{5/2}\sqrt{c+dx}(3ad+5bc)}{24b^2d}+\frac{(a+bx)^{5/2}(c+dx)^{3/2}}{4bd}$$

```
[Out] ((b*c - a*d)^2*(5*b*c + 3*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(64*b
^2*d^3) - ((b*c - a*d)*(5*b*c + 3*a*d)*(a + b*x)^(3/2)*Sqrt[c + d
*x])/(96*b^2*d^2) - ((5*b*c + 3*a*d)*(a + b*x)^(5/2)*Sqrt[c + d*x
])/(24*b^2*d) + ((a + b*x)^(5/2)*(c + d*x)^(3/2))/(4*b*d) - ((b*c
 - a*d)^3*(5*b*c + 3*a*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b
]*Sqrt[c + d*x])])/(64*b^(5/2)*d^(7/2))
```

Rubi [A] time = 0.327952, antiderivative size = 221, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}=0.2$

$$-\frac{(3ad+5bc)(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{64b^{5/2}d^{7/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}(3ad+5bc)(bc-ad)^2}{64b^2d^3}-\frac{(a+bx)^{3/2}\sqrt{c+dx}(3ad+5bc)(bc-ad)}{96b^2d^2}-\frac{(a+bx)^{5/2}\sqrt{c+dx}(3ad+5bc)}{24b^2d}+\frac{(a+bx)^{5/2}(c+dx)^{3/2}}{4bd}$$

Antiderivative was successfully verified.

```
[In]  Int[x*(a + b*x)^(3/2)*Sqrt[c + d*x],x]
```

```
[Out] ((b*c - a*d)^2*(5*b*c + 3*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(64*b
^2*d^3) - ((b*c - a*d)*(5*b*c + 3*a*d)*(a + b*x)^(3/2)*Sqrt[c + d
*x])/(96*b^2*d^2) - ((5*b*c + 3*a*d)*(a + b*x)^(5/2)*Sqrt[c + d*x
])/(24*b^2*d) + ((a + b*x)^(5/2)*(c + d*x)^(3/2))/(4*b*d) - ((b*c
 - a*d)^3*(5*b*c + 3*a*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b
]*Sqrt[c + d*x])])/(64*b^(5/2)*d^(7/2))
```

Rubi in Sympy [A] time = 34.7387, size = 201, normalized size = 0.91

$$\frac{(a+bx)^{\frac{5}{2}}(c+dx)^{\frac{3}{2}}}{4bd}-\frac{(a+bx)^{\frac{5}{2}}\sqrt{c+dx}\,(3ad+5bc)}{24b^2d}+\frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}\,(ad-bc)\,(3ad+5bc)}{96b^2d^2}+\frac{\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)^2\,(3ad+5bc)}{64b^2d^3}+\frac{(ad-bc)^3\,(3ad+5bc)\,\mathrm{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{64b^{\frac{5}{2}}d^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(b*x+a)**(3/2)*(d*x+c)**(1/2),x)
```

```
[Out] (a + b*x)**(5/2)*(c + d*x)**(3/2)/(4*b*d) - (a + b*x)**(5/2)*sqrt
(c + d*x)*(3*a*d + 5*b*c)/(24*b**2*d) + (a + b*x)**(3/2)*sqrt(c +
 d*x)*(a*d - b*c)*(3*a*d + 5*b*c)/(96*b**2*d**2) + sqrt(a + b*x)*
sqrt(c + d*x)*(a*d - b*c)**2*(3*a*d + 5*b*c)/(64*b**2*d**3) + (a*
d - b*c)**3*(3*a*d + 5*b*c)*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*
sqrt(c + d*x)))/(64*b**(5/2)*d**(7/2))
```

Mathematica [A] time = 0.190529, size = 194, normalized size = 0.88

$$\frac{2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}\left(-9a^3d^3+3a^2bd^2(3c+2dx)+ab^2d\left(-31c^2+20cdx+72d^2x^2\right)+b^3\left(15c^3-10c^2dx+8cd^2x^2+48d\right.\right.}{384b^{5/2}d^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x*(a + b*x)^(3/2)*Sqrt[c + d*x],x]
```

```
[Out] (2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]*(-9*a^3*d^3 + 3*a^
2*b*d^2*(3*c + 2*d*x) + a*b^2*d*(-31*c^2 + 20*c*d*x + 72*d^2*x^2)
 + b^3*(15*c^3 - 10*c^2*d*x + 8*c*d^2*x^2 + 48*d^3*x^3)) - 3*(b*c
 - a*d)^3*(5*b*c + 3*a*d)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqr
t[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(384*b^(5/2)*d^(7/2))
```

Maple [B] time = 0.02, size = 686, normalized size = 3.1

$$\frac{1}{384\,d^3b^2}\sqrt{bx+a}\sqrt{dx+c}\left(96\,x^3b^3d^3\sqrt{dx^2b+adx+bcx+ac}\sqrt{bd}+144\,x^2ab^2d^3\sqrt{dx^2b+adx+bcx+ac}\sqrt{bd}+16\,x^2b^3cd^2\sqrt{\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(b*x+a)^(3/2)*(d*x+c)^(1/2),x)
```

```
[Out] 1/384*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(96*x^3*b^3*d^3*(b*d*x^2+a*d*x+
b*c*x+a*c)^(1/2)*(b*d)^(1/2)+144*x^2*a*b^2*d^3*(b*d*x^2+a*d*x+b*c
*x+a*c)^(1/2)*(b*d)^(1/2)+16*x^2*b^3*c*d^2*(b*d*x^2+a*d*x+b*c*x+a
*c)^(1/2)*(b*d)^(1/2)+9*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*
c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^4*d^4-12*ln(1/2*(2*b
*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)
^(1/2))*a^3*b*c*d^3-18*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c
)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^2*b^2*c^2*d^2+36*ln(1
/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c
)/(b*d)^(1/2))*a*b^3*c^3*d-15*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*
c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*b^4*c^4+12*(b*d)
^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*a^2*b*d^3+40*(b*d)^(1/2)
*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*a*b^2*c*d^2-20*(b*d)^(1/2)*(b*
d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*b^3*c^2*d-18*(b*d)^(1/2)*(b*d*x^2+
a*d*x+b*c*x+a*c)^(1/2)*a^3*d^3+18*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*
x+a*c)^(1/2)*a^2*b*c*d^2-62*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)
^(1/2)*a*b^2*c^2*d+30*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)
*b^3*c^3)/(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)/d^3/b^2/(b*d)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*sqrt(d*x + c)*x,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.24702, size = 1, normalized size = 0.

$$\left[\frac{4\left(48\,b^3d^3x^3+15\,b^3c^3-31\,ab^2c^2d+9\,a^2bcd^2-9\,a^3d^3+8\left(b^3cd^2+9\,ab^2d^3\right)x^2-2\left(5\,b^3c^2d-10\,ab^2cd^2-3\,a^2bd^3\right)x\right)\sqrt{bd}}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*sqrt(d*x + c)*x,x, algorithm="fricas")
```

```
[Out] [1/768*(4*(48*b^3*d^3*x^3 + 15*b^3*c^3 - 31*a*b^2*c^2*d + 9*a^2*b
*c*d^2 - 9*a^3*d^3 + 8*(b^3*c*d^2 + 9*a*b^2*d^3)*x^2 - 2*(5*b^3*c
^2*d - 10*a*b^2*c*d^2 - 3*a^2*b*d^3)*x)*sqrt(b*d)*sqrt(b*x + a)*s
qrt(d*x + c) - 3*(5*b^4*c^4 - 12*a*b^3*c^3*d + 6*a^2*b^2*c^2*d^2
+ 4*a^3*b*c*d^3 - 3*a^4*d^4)*log(4*(2*b^2*d^2*x + b^2*c*d + a*b*d
^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*
b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/(sqrt(b*d)
*b^2*d^3), 1/384*(2*(48*b^3*d^3*x^3 + 15*b^3*c^3 - 31*a*b^2*c^2*d
 + 9*a^2*b*c*d^2 - 9*a^3*d^3 + 8*(b^3*c*d^2 + 9*a*b^2*d^3)*x^2 -
2*(5*b^3*c^2*d - 10*a*b^2*c*d^2 - 3*a^2*b*d^3)*x)*sqrt(-b*d)*sqrt
(b*x + a)*sqrt(d*x + c) - 3*(5*b^4*c^4 - 12*a*b^3*c^3*d + 6*a^2*b
^2*c^2*d^2 + 4*a^3*b*c*d^3 - 3*a^4*d^4)*arctan(1/2*(2*b*d*x + b*c
 + a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/(sqrt(-b*d
)*b^2*d^3)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(b*x+a)**(3/2)*(d*x+c)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.256552, size = 653, normalized size = 2.95

$$\frac{10\left(\sqrt{b^2c+(bx+a)bd-abd}\left(2\,(bx+a)\left(4\,(bx+a)\left(\frac{6\,(bx+a)}{b^2}+\frac{b^7cd^5-17\,ab^6d^6}{b^8d^6}\right)-\frac{5\,b^8c^2d^4+6\,ab^7cd^5-59\,a^2b^6d^6}{b^8d^6}\right)+\frac{3\left(5\,b^9c^3d^3+ab^8c^2d^4-a^2b^7cd^5-5\,a^3b^6d^6\right)}{b^8d^6}\right)\sqrt{bx+a}+\frac{3\left(5\,b\right.}{}}{b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*sqrt(d*x + c)*x,x, algorithm="giac")
```

```
[Out] 1/1920*(10*(sqrt(b^2*c + (b*x + a)*b*d - a*b*d)*(2*(b*x + a)*(4*(
b*x + a)*(6*(b*x + a)/b^2 + (b^7*c*d^5 - 17*a*b^6*d^6)/(b^8*d^6))
 - (5*b^8*c^2*d^4 + 6*a*b^7*c*d^5 - 59*a^2*b^6*d^6)/(b^8*d^6)) +
3*(5*b^9*c^3*d^3 + a*b^8*c^2*d^4 - a^2*b^7*c*d^5 - 5*a^3*b^6*d^6)
/(b^8*d^6))*sqrt(b*x + a) + 3*(5*b^4*c^4 - 4*a*b^3*c^3*d - 2*a^2*
b^2*c^2*d^2 - 4*a^3*b*c*d^3 + 5*a^4*d^4)*ln(abs(-sqrt(b*d)*sqrt(b
*x + a) + sqrt(b^2*c + (b*x + a)*b*d - a*b*d)))/(sqrt(b*d)*b*d^3)
)*abs(b)/b + (sqrt(b^2*c + (b*x + a)*b*d - a*b*d)*sqrt(b*x + a)*(
2*(b*x + a)*(4*(b*x + a)/(b^6*d^2) + (b*c*d^3 - 7*a*d^4)/(b^6*d^6
)) - 3*(b^2*c^2*d^2 - a^2*d^4)/(b^6*d^6)) - 3*(b^3*c^3 - a*b^2*c^
2*d - a^2*b*c*d^2 + a^3*d^3)*ln(abs(-sqrt(b*d)*sqrt(b*x + a) + sq
rt(b^2*c + (b*x + a)*b*d - a*b*d)))/(sqrt(b*d)*b^5*d^4))*a*abs(b)
/b^3)/b
```

3.588 $\int (a+bx)^{3/2}\sqrt{c+dx}\,dx$

Optimal. Leaf size=154

$$\frac{(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8b^{3/2}d^{5/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^2}{8bd^2}+\frac{(a+bx)^{3/2}\sqrt{c+dx}(bc-ad)}{12bd}+\frac{(a+bx)^{5/2}\sqrt{c+dx}}{3b}$$

```
[Out] -((b*c - a*d)^2*Sqrt[a + b*x]*Sqrt[c + d*x])/(8*b*d^2) + ((b*c -
a*d)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(12*b*d) + ((a + b*x)^(5/2)*S
qrt[c + d*x])/(3*b) + ((b*c - a*d)^3*ArcTanh[(Sqrt[d]*Sqrt[a + b*
x])/(Sqrt[b]*Sqrt[c + d*x])])/(8*b^(3/2)*d^(5/2))
```

Rubi [A] time = 0.181701, antiderivative size = 154, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.158

$$\frac{(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8b^{3/2}d^{5/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^2}{8bd^2}+\frac{(a+bx)^{3/2}\sqrt{c+dx}(bc-ad)}{12bd}+\frac{(a+bx)^{5/2}\sqrt{c+dx}}{3b}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(3/2)*Sqrt[c + d*x],x]
```

```
[Out] -((b*c - a*d)^2*Sqrt[a + b*x]*Sqrt[c + d*x])/(8*b*d^2) + ((b*c -
a*d)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(12*b*d) + ((a + b*x)^(5/2)*S
qrt[c + d*x])/(3*b) + ((b*c - a*d)^3*ArcTanh[(Sqrt[d]*Sqrt[a + b*
x])/(Sqrt[b]*Sqrt[c + d*x])])/(8*b^(3/2)*d^(5/2))
```

Rubi in Sympy [A] time = 23.0523, size = 129, normalized size = 0.84

$$\frac{(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{3}{2}}}{3d}+\frac{\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}(ad-bc)}{4d^2}+\frac{\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)^2}{8bd^2}-\frac{(ad-bc)^3\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{8b^{\frac{3}{2}}d^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(d*x+c)**(1/2),x)
```

```
[Out] (a + b*x)**(3/2)*(c + d*x)**(3/2)/(3*d) + sqrt(a + b*x)*(c + d*x)
**(3/2)*(a*d - b*c)/(4*d**2) + sqrt(a + b*x)*sqrt(c + d*x)*(a*d -
 b*c)**2/(8*b*d**2) - (a*d - b*c)**3*atanh(sqrt(b)*sqrt(c + d*x)/
(sqrt(d)*sqrt(a + b*x)))/(8*b**(3/2)*d**(5/2))
```

Mathematica [A] time = 0.11933, size = 141, normalized size = 0.92

$$\frac{\sqrt{a+bx}\sqrt{c+dx}\left(3a^2d^2+2abd(4c+7dx)+b^2\left(-3c^2+2cdx+8d^2x^2\right)\right)}{24bd^2}+\frac{(bc-ad)^3\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{16b^{3/2}d^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(3/2)*Sqrt[c + d*x],x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(3*a^2*d^2 + 2*a*b*d*(4*c + 7*d*x) +
 b^2*(-3*c^2 + 2*c*d*x + 8*d^2*x^2)))/(24*b*d^2) + ((b*c - a*d)^3
*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c
 + d*x]])/(16*b^(3/2)*d^(5/2))
```

Maple [B] time = 0.007, size = 460, normalized size = 3.

$$\frac{1}{3d}(bx+a)^{\frac{3}{2}}(dx+c)^{\frac{3}{2}}+\frac{a}{4d}\sqrt{bx+a}\,(dx+c)^{\frac{3}{2}}-\frac{bc}{4d^2}\sqrt{bx+a}\,(dx+c)^{\frac{3}{2}}$$
$$+\frac{a^2}{8b}\sqrt{bx+a}\sqrt{dx+c}-\frac{ac}{4d}\sqrt{bx+a}\sqrt{dx+c}+\frac{c^2b}{8d^2}\sqrt{bx+a}\sqrt{dx+c}$$
$$-\frac{a^3d}{16b}\sqrt{(bx+a)(dx+c)}\ln\left(1\left(\frac{ad}{2}+\frac{bc}{2}+bdx\right)\frac{1}{\sqrt{bd}}+\sqrt{dx^2b+(ad+bc)x+ac}\right)\frac{1}{\sqrt{bx+a}}\frac{1}{\sqrt{dx+c}}\frac{1}{\sqrt{bd}}$$
$$+\frac{3a^2c}{16}\sqrt{(bx+a)(dx+c)}\ln\left(1\left(\frac{ad}{2}+\frac{bc}{2}+bdx\right)\frac{1}{\sqrt{bd}}+\sqrt{dx^2b+(ad+bc)x+ac}\right)\frac{1}{\sqrt{bx+a}}\frac{1}{\sqrt{dx+c}}\frac{1}{\sqrt{bd}}$$
$$-\frac{3ac^2b}{16d}\sqrt{(bx+a)(dx+c)}\ln\left(1\left(\frac{ad}{2}+\frac{bc}{2}+bdx\right)\frac{1}{\sqrt{bd}}+\sqrt{dx^2b+(ad+bc)x+ac}\right)\frac{1}{\sqrt{bx+a}}\frac{1}{\sqrt{dx+c}}\frac{1}{\sqrt{bd}}$$
$$+\frac{c^3b^2}{16d^2}\sqrt{(bx+a)(dx+c)}\ln\left(1\left(\frac{ad}{2}+\frac{bc}{2}+bdx\right)\frac{1}{\sqrt{bd}}+\sqrt{dx^2b+(ad+bc)x+ac}\right)\frac{1}{\sqrt{bx+a}}\frac{1}{\sqrt{dx+c}}\frac{1}{\sqrt{bd}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(d*x+c)^(1/2),x)
```

```
[Out] 1/3/d*(b*x+a)^(3/2)*(d*x+c)^(3/2)+1/4/d*(b*x+a)^(1/2)*(d*x+c)^(3/
2)*a-1/4/d^2*(b*x+a)^(1/2)*(d*x+c)^(3/2)*b*c+1/8/b*(d*x+c)^(1/2)*
(b*x+a)^(1/2)*a^2-1/4/d*(d*x+c)^(1/2)*(b*x+a)^(1/2)*a*c+1/8/d^2*(
d*x+c)^(1/2)*(b*x+a)^(1/2)*c^2*b-1/16*d/b*((b*x+a)*(d*x+c))^(1/2)
/(d*x+c)^(1/2)/(b*x+a)^(1/2)*ln((1/2*a*d+1/2*b*c+b*d*x)/(b*d)^(1/
2)+(d*x^2*b+(a*d+b*c)*x+a*c)^(1/2))/(b*d)^(1/2)*a^3+3/16*((b*x+a)
*(d*x+c))^(1/2)/(d*x+c)^(1/2)/(b*x+a)^(1/2)*ln((1/2*a*d+1/2*b*c+b
*d*x)/(b*d)^(1/2)+(d*x^2*b+(a*d+b*c)*x+a*c)^(1/2))/(b*d)^(1/2)*a^
2*c-3/16/d*((b*x+a)*(d*x+c))^(1/2)/(d*x+c)^(1/2)/(b*x+a)^(1/2)*ln
((1/2*a*d+1/2*b*c+b*d*x)/(b*d)^(1/2)+(d*x^2*b+(a*d+b*c)*x+a*c)^(1
/2))/(b*d)^(1/2)*a*c^2*b+1/16/d^2*((b*x+a)*(d*x+c))^(1/2)/(d*x+c)
^(1/2)/(b*x+a)^(1/2)*ln((1/2*a*d+1/2*b*c+b*d*x)/(b*d)^(1/2)+(d*x^
2*b+(a*d+b*c)*x+a*c)^(1/2))/(b*d)^(1/2)*c^3*b^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*sqrt(d*x + c),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.233757, size = 1, normalized size = 0.01

$$\left[\frac{4\left(8\,b^2d^2x^2-3\,b^2c^2+8\,abcd+3\,a^2d^2+2\left(b^2cd+7\,abd^2\right)x\right)\sqrt{bd}\sqrt{bx+a}\sqrt{dx+c}-3\left(b^3c^3-3\,ab^2c^2d+3\,a^2bcd^2-a^3d^3\right)}{96\,\sqrt{bd}bd^2}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*sqrt(d*x + c),x, algorithm="fricas")
```

```
[Out] [1/96*(4*(8*b^2*d^2*x^2 - 3*b^2*c^2 + 8*a*b*c*d + 3*a^2*d^2 + 2*(
b^2*c*d + 7*a*b*d^2)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) - 3
*(b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*log(-4*(2*b^
2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2
*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*
x)*sqrt(b*d)))/(sqrt(b*d)*b*d^2), 1/48*(2*(8*b^2*d^2*x^2 - 3*b^2*
c^2 + 8*a*b*c*d + 3*a^2*d^2 + 2*(b^2*c*d + 7*a*b*d^2)*x)*sqrt(-b*
d)*sqrt(b*x + a)*sqrt(d*x + c) + 3*(b^3*c^3 - 3*a*b^2*c^2*d + 3*a
^2*b*c*d^2 - a^3*d^3)*arctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)
/(sqrt(b*x + a)*sqrt(d*x + c)*b*d))/(sqrt(-b*d)*b*d^2)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)*(d*x+c)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.250165, size = 456, normalized size = 2.96

$$\frac{\frac{20\left(\sqrt{b^2c+(bx+a)bd-abd}\sqrt{bx+a}\left(\frac{2(bx+a)}{b^4d^2}+\frac{bcd-ad^2}{b^4d^4}\right)+\frac{\left(b^2c^2-2abcd+a^2d^2\right)\ln\left(\left|-\sqrt{bd}\sqrt{bx+a}+\sqrt{b^2c+(bx+a)bd-abd}\right|\right)}{\sqrt{bd}b^3d^3}\right)a|b|}{b^2}+\frac{\left(\sqrt{b^2c+(bx+a)bd-abd}\sqrt{bx+a}\left(2(bx\cdots\right.\right.}{}}{1920\,b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*sqrt(d*x + c),x, algorithm="giac")
```

```
[Out] 1/1920*(20*(sqrt(b^2*c + (b*x + a)*b*d - a*b*d)*sqrt(b*x + a)*(2*
(b*x + a)/(b^4*d^2) + (b*c*d - a*d^2)/(b^4*d^4)) + (b^2*c^2 - 2*a
*b*c*d + a^2*d^2)*ln(abs(-sqrt(b*d)*sqrt(b*x + a) + sqrt(b^2*c +
(b*x + a)*b*d - a*b*d)))/(sqrt(b*d)*b^3*d^3))*a*abs(b)/b^2 + (sqr
t(b^2*c + (b*x + a)*b*d - a*b*d)*sqrt(b*x + a)*(2*(b*x + a)*(4*(b
*x + a)/(b^6*d^2) + (b*c*d^3 - 7*a*d^4)/(b^6*d^6)) - 3*(b^2*c^2*d
^2 - a^2*d^4)/(b^6*d^6)) - 3*(b^3*c^3 - a*b^2*c^2*d - a^2*b*c*d^2
 + a^3*d^3)*ln(abs(-sqrt(b*d)*sqrt(b*x + a) + sqrt(b^2*c + (b*x +
 a)*b*d - a*b*d)))/(sqrt(b*d)*b^5*d^4))*abs(b)/b^2)/b
```

3.589 $\int \frac{(a+bx)^{3/2}\sqrt{c+dx}}{x}\,dx$

Optimal. Leaf size=164

$$-2a^{3/2}\sqrt{c}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)-\frac{\left(-3a^2d^2-6abcd+b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4\sqrt{b}d^{3/2}}+\frac{1}{2}(a+bx)^{3/2}\sqrt{c+dx}+\frac{\sqrt{a+bx}\sqrt{c+dx}(3ad+bc)}{4d}$$

```
[Out] ((b*c + 3*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*d) + ((a + b*x)^(3
/2)*Sqrt[c + d*x])/2 - 2*a^(3/2)*Sqrt[c]*ArcTanh[(Sqrt[c]*Sqrt[a
+ b*x])/(Sqrt[a]*Sqrt[c + d*x])] - ((b^2*c^2 - 6*a*b*c*d - 3*a^2*
d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(4
*Sqrt[b]*d^(3/2))
```

Rubi [A] time = 0.45831, antiderivative size = 164, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.273

$$-2a^{3/2}\sqrt{c}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)-\frac{\left(-3a^2d^2-6abcd+b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4\sqrt{b}d^{3/2}}+\frac{1}{2}(a+bx)^{3/2}\sqrt{c+dx}+\frac{\sqrt{a+bx}\sqrt{c+dx}(3ad+bc)}{4d}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(3/2)*Sqrt[c + d*x])/x,x]
```

```
[Out] ((b*c + 3*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*d) + ((a + b*x)^(3
/2)*Sqrt[c + d*x])/2 - 2*a^(3/2)*Sqrt[c]*ArcTanh[(Sqrt[c]*Sqrt[a
+ b*x])/(Sqrt[a]*Sqrt[c + d*x])] - ((b^2*c^2 - 6*a*b*c*d - 3*a^2*
d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(4
*Sqrt[b]*d^(3/2))
```

Rubi in Sympy [A] time = 40.956, size = 151, normalized size = 0.92

$$-2a^{\frac{3}{2}}\sqrt{c}\,\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)+\frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}}{2}+\frac{\sqrt{a+bx}\sqrt{c+dx}\,(3ad+bc)}{4d}+\frac{\left(3a^2d^2+6abcd-b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{4\sqrt{b}d^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(d*x+c)**(1/2)/x,x)
```

```
[Out] -2*a**(3/2)*sqrt(c)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c +
 d*x))) + (a + b*x)**(3/2)*sqrt(c + d*x)/2 + sqrt(a + b*x)*sqrt(c
 + d*x)*(3*a*d + b*c)/(4*d) + (3*a**2*d**2 + 6*a*b*c*d - b**2*c**
2)*atanh(sqrt(b)*sqrt(c + d*x)/(sqrt(d)*sqrt(a + b*x)))/(4*sqrt(b
)*d**(3/2))
```

Mathematica [A] time = 0.298467, size = 188, normalized size = 1.15

$$-a^{3/2}\sqrt{c}\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)+a^{3/2}\sqrt{c}\log(x)+\frac{\left(3a^2d^2+6abcd-b^2c^2\right)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{8\sqrt{b}d^{3/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}(5ad+b(c+2dx))}{4d}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(3/2)*Sqrt[c + d*x])/x,x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(5*a*d + b*(c + 2*d*x)))/(4*d) + a^(
3/2)*Sqrt[c]*Log[x] - a^(3/2)*Sqrt[c]*Log[2*a*c + b*c*x + a*d*x +
 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]] + ((-(b^2*c^2) +
6*a*b*c*d + 3*a^2*d^2)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d
]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(8*Sqrt[b]*d^(3/2))
```

Maple [B] time = 0.017, size = 389, normalized size = 2.4

$$\frac{1}{8d}\sqrt{bx+a}\sqrt{dx+c}\left(3d^2\ln\left(1/2\,\frac{2bdx+2\sqrt{dx^2b+adx+bcx+ac}\sqrt{bd}+ad+bc}{\sqrt{bd}}\right)a^2\sqrt{ac}+6d\ln\left(1/2\,\frac{2bdx+2\sqrt{dx^2b+}}{}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(d*x+c)^(1/2)/x,x)
```

```
[Out] 1/8*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(3*d^2*ln(1/2*(2*b*d*x+2*(b*d*x^2
+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^2*(a*
c)^(1/2)+6*d*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b
*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a*c*b*(a*c)^(1/2)-b^2*ln(1/2*(2*b
*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)
^(1/2))*c^2*(a*c)^(1/2)-8*a^2*c*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*
d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*d*(b*d)^(1/2)+4*d*(b*d*x^2
+a*d*x+b*c*x+a*c)^(1/2)*x*b*(b*d)^(1/2)*(a*c)^(1/2)+10*d*(b*d*x^2
+a*d*x+b*c*x+a*c)^(1/2)*a*(b*d)^(1/2)*(a*c)^(1/2)+2*(b*d*x^2+a*d*
x+b*c*x+a*c)^(1/2)*c*b*(b*d)^(1/2)*(a*c)^(1/2))/(b*d*x^2+a*d*x+b*
c*x+a*c)^(1/2)/d/(b*d)^(1/2)/(a*c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*sqrt(d*x + c)/x,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 1.98067, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*sqrt(d*x + c)/x,x, algorithm="fricas")
```

```
[Out] [1/16*(8*sqrt(a*c)*sqrt(b*d)*a*d*log((8*a^2*c^2 + (b^2*c^2 + 6*a*
b*c*d + a^2*d^2)*x^2 - 4*(2*a*c + (b*c + a*d)*x)*sqrt(a*c)*sqrt(b
*x + a)*sqrt(d*x + c) + 8*(a*b*c^2 + a^2*c*d)*x)/x^2) + 4*(2*b*d*
x + b*c + 5*a*d)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) - (b^2*c^2
 - 6*a*b*c*d - 3*a^2*d^2)*log(4*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)
*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c
*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/(sqrt(b*d)*d)
, 1/8*(4*sqrt(a*c)*sqrt(-b*d)*a*d*log((8*a^2*c^2 + (b^2*c^2 + 6*a
*b*c*d + a^2*d^2)*x^2 - 4*(2*a*c + (b*c + a*d)*x)*sqrt(a*c)*sqrt(
b*x + a)*sqrt(d*x + c) + 8*(a*b*c^2 + a^2*c*d)*x)/x^2) + 2*(2*b*d
*x + b*c + 5*a*d)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c) - (b^2*c
^2 - 6*a*b*c*d - 3*a^2*d^2)*arctan(1/2*(2*b*d*x + b*c + a*d)*sqrt
(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/(sqrt(-b*d)*d), -1/16*
(16*sqrt(-a*c)*sqrt(b*d)*a*d*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(
sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c))) - 4*(2*b*d*x + b*c + 5*a
*d)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) + (b^2*c^2 - 6*a*b*c*d
- 3*a^2*d^2)*log(4*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*x + a
)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2
+ 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/(sqrt(b*d)*d), -1/8*(8*sqr
t(-a*c)*sqrt(-b*d)*a*d*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(-
a*c)*sqrt(b*x + a)*sqrt(d*x + c))) - 2*(2*b*d*x + b*c + 5*a*d)*sq
rt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c) + (b^2*c^2 - 6*a*b*c*d - 3*a
^2*d^2)*arctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a
)*sqrt(d*x + c)*b*d)))/(sqrt(-b*d)*d)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}}{x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)*(d*x+c)**(1/2)/x,x)
```

```
[Out] Integral((a + b*x)**(3/2)*sqrt(c + d*x)/x, x)
```

GIAC/XCAS [A] time = 0.261314, size = 336, normalized size = 2.05

$$-\frac{2\sqrt{bd}a^2c|b|\arctan\left(-\frac{b^2c+abd-\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2}{2\sqrt{-abcd}b}\right)}{\sqrt{-abcd}b}+\frac{1}{4}\sqrt{b^2c+(bx+a)bd-abd}\sqrt{bx+a}\left(\frac{2(bx+a)|b|}{b^2}+\frac{b^2cd|b|+3abd^2|b|}{b^3d^2}\right)+\frac{\left(\sqrt{bd}b^2c^2|b|-6\sqrt{bd}abcd|b|-3\sqrt{bd}a^2d^2|b|\right)\ln\left(\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2\right)}{8b^2d^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*sqrt(d*x + c)/x,x, algorithm="giac")
```

```
[Out] -2*sqrt(b*d)*a^2*c*abs(b)*arctan(-1/2*(b^2*c + a*b*d - (sqrt(b*d)
*sqrt(b*x + a) - sqrt(b^2*c + (b*x + a)*b*d - a*b*d))^2)/(sqrt(-a
*b*c*d)*b))/(sqrt(-a*b*c*d)*b) + 1/4*sqrt(b^2*c + (b*x + a)*b*d -
 a*b*d)*sqrt(b*x + a)*(2*(b*x + a)*abs(b)/b^2 + (b^2*c*d*abs(b) +
 3*a*b*d^2*abs(b))/(b^3*d^2)) + 1/8*(sqrt(b*d)*b^2*c^2*abs(b) - 6
*sqrt(b*d)*a*b*c*d*abs(b) - 3*sqrt(b*d)*a^2*d^2*abs(b))*ln((sqrt(
b*d)*sqrt(b*x + a) - sqrt(b^2*c + (b*x + a)*b*d - a*b*d))^2)/(b^2
*d^2)
```

3.590 $\int \frac{(a+bx)^{3/2}\sqrt{c+dx}}{x^2}\,dx$

Optimal. Leaf size=144

$$-\frac{(a+bx)^{3/2}\sqrt{c+dx}}{x}+2b\sqrt{a+bx}\sqrt{c+dx}-\frac{\sqrt{a}(ad+3bc)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{c}}+\frac{\sqrt{b}(3ad+bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{d}}$$

```
[Out] 2*b*Sqrt[a + b*x]*Sqrt[c + d*x] - ((a + b*x)^(3/2)*Sqrt[c + d*x])
/x - (Sqrt[a]*(3*b*c + a*d)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt
[a]*Sqrt[c + d*x])])/Sqrt[c] + (Sqrt[b]*(b*c + 3*a*d)*ArcTanh[(Sq
rt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/Sqrt[d]
```

Rubi [A] time = 0.412674, antiderivative size = 144, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.273

$$-\frac{(a+bx)^{3/2}\sqrt{c+dx}}{x}+2b\sqrt{a+bx}\sqrt{c+dx}-\frac{\sqrt{a}(ad+3bc)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{c}}+\frac{\sqrt{b}(3ad+bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{d}}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(3/2)*Sqrt[c + d*x])/x^2,x]
```

```
[Out] 2*b*Sqrt[a + b*x]*Sqrt[c + d*x] - ((a + b*x)^(3/2)*Sqrt[c + d*x])
/x - (Sqrt[a]*(3*b*c + a*d)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt
[a]*Sqrt[c + d*x])])/Sqrt[c] + (Sqrt[b]*(b*c + 3*a*d)*ArcTanh[(Sq
rt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/Sqrt[d]
```

Rubi in Sympy [A] time = 48.3043, size = 133, normalized size = 0.92

$$-\frac{\sqrt{a}\,(ad+3bc)\,\mathrm{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{c}}+\frac{\sqrt{b}\,(3ad+bc)\,\mathrm{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{d}}+2b\sqrt{a+bx}\sqrt{c+dx}-\frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}}{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(d*x+c)**(1/2)/x**2,x)
```

```
[Out] -sqrt(a)*(a*d + 3*b*c)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(
c + d*x)))/sqrt(c) + sqrt(b)*(3*a*d + b*c)*atanh(sqrt(d)*sqrt(a +
 b*x)/(sqrt(b)*sqrt(c + d*x)))/sqrt(d) + 2*b*sqrt(a + b*x)*sqrt(c
 + d*x) - (a + b*x)**(3/2)*sqrt(c + d*x)/x
```

Mathematica [A] time = 0.392265, size = 180, normalized size = 1.25

$$\frac{1}{2}\left(2\sqrt{a+bx}\left(b-\frac{a}{x}\right)\sqrt{c+dx}+\frac{\sqrt{a}\log(x)(ad+3bc)}{\sqrt{c}}-\frac{\sqrt{a}(ad+3bc)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{\sqrt{c}}+\frac{\sqrt{b}(3ad+bc)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{\sqrt{d}}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(3/2)*Sqrt[c + d*x])/x^2,x]
```

```
[Out] (2*(b - a/x)*Sqrt[a + b*x]*Sqrt[c + d*x] + (Sqrt[a]*(3*b*c + a*d)
*Log[x])/Sqrt[c] - (Sqrt[a]*(3*b*c + a*d)*Log[2*a*c + b*c*x + a*d
*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/Sqrt[c] + (S
qrt[b]*(b*c + 3*a*d)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*
Sqrt[a + b*x]*Sqrt[c + d*x]])/Sqrt[d])/2
```

Maple [B] time = 0.022, size = 347, normalized size = 2.4

$$\frac{1}{2x}\sqrt{bx+a}\sqrt{dx+c}\left(3\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{dx^2b+adx+bcx+ac}\sqrt{bd}+ad+bc}{\sqrt{bd}}\right)xabd\sqrt{ac}+\ln\left(\frac{1}{2}\left(2\,bdx+2\,\sqrt{dx^2b+adx\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(d*x+c)^(1/2)/x^2,x)
```

```
[Out] 1/2*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(3*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d
*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a*b*d*(a*
c)^(1/2)+ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^
(1/2)+a*d+b*c)/(b*d)^(1/2))*x*b^2*c*(a*c)^(1/2)-ln((a*d*x+b*c*x+2
*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x*a^2*d*(b
*d)^(1/2)-3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*
c)^(1/2)+2*a*c)/x)*x*a*b*c*(b*d)^(1/2)+2*x*b*(a*c)^(1/2)*(b*d*x^2
+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)-2*a*(a*c)^(1/2)*(b*d*x^2+a*d*
x+b*c*x+a*c)^(1/2)*(b*d)^(1/2))/(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)/x
/(b*d)^(1/2)/(a*c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*sqrt(d*x + c)/x^2,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.84961, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*sqrt(d*x + c)/x^2,x, algorithm="fricas")
```

```
[Out] [1/4*((b*c + 3*a*d)*x*sqrt(b/d)*log(8*b^2*d^2*x^2 + b^2*c^2 + 6*a
*b*c*d + a^2*d^2 + 4*(2*b*d^2*x + b*c*d + a*d^2)*sqrt(b*x + a)*sq
rt(d*x + c)*sqrt(b/d) + 8*(b^2*c*d + a*b*d^2)*x) + (3*b*c + a*d)*
x*sqrt(a/c)*log((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2
- 4*(2*a*c^2 + (b*c^2 + a*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c)*sqr
t(a/c) + 8*(a*b*c^2 + a^2*c*d)*x)/x^2) + 4*sqrt(b*x + a)*(b*x - a
)*sqrt(d*x + c))/x, 1/4*(2*(b*c + 3*a*d)*x*sqrt(-b/d)*arctan(1/2*
(2*b*d*x + b*c + a*d)/(sqrt(b*x + a)*sqrt(d*x + c)*d*sqrt(-b/d)))
 + (3*b*c + a*d)*x*sqrt(a/c)*log((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*
d + a^2*d^2)*x^2 - 4*(2*a*c^2 + (b*c^2 + a*c*d)*x)*sqrt(b*x + a)*
sqrt(d*x + c)*sqrt(a/c) + 8*(a*b*c^2 + a^2*c*d)*x)/x^2) + 4*sqrt(
```

```
b*x + a)*(b*x - a)*sqrt(d*x + c))/x, -1/4*(2*(3*b*c + a*d)*x*sqrt
(-a/c)*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(b*x + a)*sqrt(d*x
 + c)*c*sqrt(-a/c))) - (b*c + 3*a*d)*x*sqrt(b/d)*log(8*b^2*d^2*x^
2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b*d^2*x + b*c*d + a*d^2)
*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(b/d) + 8*(b^2*c*d + a*b*d^2)*x)
 - 4*sqrt(b*x + a)*(b*x - a)*sqrt(d*x + c))/x, -1/2*((3*b*c + a*d
)*x*sqrt(-a/c)*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(b*x + a)*
sqrt(d*x + c)*c*sqrt(-a/c))) - (b*c + 3*a*d)*x*sqrt(-b/d)*arctan(
1/2*(2*b*d*x + b*c + a*d)/(sqrt(b*x + a)*sqrt(d*x + c)*d*sqrt(-b/
d))) - 2*sqrt(b*x + a)*(b*x - a)*sqrt(d*x + c))/x]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}}{x^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)*(d*x+c)**(1/2)/x**2,x)
```

```
[Out] Integral((a + b*x)**(3/2)*sqrt(c + d*x)/x**2, x)
```

GIAC/XCAS [A] time = 0.602006, size = 4, normalized size = 0.03

$$sage_0 x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*sqrt(d*x + c)/x^2,x, algorithm="giac")
```

```
[Out] sage0*x
```

3.591 $\int \frac{(a+bx)^{3/2}\sqrt{c+dx}}{x^3}\,dx$

Optimal. Leaf size=171

$$-\frac{\left(-a^2d^2+6abcd+3b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4\sqrt{a}c^{3/2}}+2b^{3/2}\sqrt{d}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)-\frac{(a+bx)^{3/2}\sqrt{c+dx}}{2x^2}-\frac{\sqrt{a+bx}\sqrt{c+dx}(ad+3bc)}{4cx}$$

```
[Out] -((3*b*c + a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*c*x) - ((a + b*x)
^(3/2)*Sqrt[c + d*x])/(2*x^2) - ((3*b^2*c^2 + 6*a*b*c*d - a^2*d^2
)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(4*Sq
rt[a]*c^(3/2)) + 2*b^(3/2)*Sqrt[d]*ArcTanh[(Sqrt[d]*Sqrt[a + b*x]
)/(Sqrt[b]*Sqrt[c + d*x])]
```

Rubi [A] time = 0.419658, antiderivative size = 171, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.273

$$-\frac{\left(-a^2d^2+6abcd+3b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4\sqrt{a}c^{3/2}}+2b^{3/2}\sqrt{d}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)-\frac{(a+bx)^{3/2}\sqrt{c+dx}}{2x^2}-\frac{\sqrt{a+bx}\sqrt{c+dx}(ad+3bc)}{4cx}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(3/2)*Sqrt[c + d*x])/x^3,x]
```

```
[Out] -((3*b*c + a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*c*x) - ((a + b*x)
^(3/2)*Sqrt[c + d*x])/(2*x^2) - ((3*b^2*c^2 + 6*a*b*c*d - a^2*d^2
)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(4*Sq
rt[a]*c^(3/2)) + 2*b^(3/2)*Sqrt[d]*ArcTanh[(Sqrt[d]*Sqrt[a + b*x]
)/(Sqrt[b]*Sqrt[c + d*x])]
```

Rubi in Sympy [A] time = 65.7408, size = 156, normalized size = 0.91

$$2b^{\frac{3}{2}}\sqrt{d}\,\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)-\frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}}{2x^2}-\frac{\sqrt{a+bx}\sqrt{c+dx}\,(ad+3bc)}{4cx}+\frac{\left(a^2d^2-6abcd-3b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4\sqrt{a}c^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(d*x+c)**(1/2)/x**3,x)
```

```
[Out] 2*b**(3/2)*sqrt(d)*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c +
d*x))) - (a + b*x)**(3/2)*sqrt(c + d*x)/(2*x**2) - sqrt(a + b*x)*
sqrt(c + d*x)*(a*d + 3*b*c)/(4*c*x) + (a**2*d**2 - 6*a*b*c*d - 3*
b**2*c**2)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(
4*sqrt(a)*c**(3/2))
```

Mathematica [A] time = 0.294842, size = 220, normalized size = 1.29

$$-\frac{\log(x)\left(a^2d^2-6abcd-3b^2c^2\right)}{8\sqrt{a}c^{3/2}}+\frac{\left(a^2d^2-6abcd-3b^2c^2\right)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{8\sqrt{a}c^{3/2}}+b^{3/2}\sqrt{d}\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)+\sqrt{a+bx}\sqrt{c+dx}\left(\frac{-ad-5bc}{4cx}-\frac{a}{2x^2}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(3/2)*Sqrt[c + d*x])/x^3,x]
```

```
[Out] (-a/(2*x^2) + (-5*b*c - a*d)/(4*c*x))*Sqrt[a + b*x]*Sqrt[c + d*x]
 - ((-3*b^2*c^2 - 6*a*b*c*d + a^2*d^2)*Log[x])/(8*Sqrt[a]*c^(3/2)
) + ((-3*b^2*c^2 - 6*a*b*c*d + a^2*d^2)*Log[2*a*c + b*c*x + a*d*x
 + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(8*Sqrt[a]*c^(
3/2)) + b^(3/2)*Sqrt[d]*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[
d]*Sqrt[a + b*x]*Sqrt[c + d*x]]
```

Maple [B] time = 0.022, size = 400, normalized size = 2.3

$$\frac{1}{8\,cx^2}\sqrt{bx+a}\sqrt{dx+c}\left(\ln\left(\frac{1}{x}\left(adx+bcx+2\,\sqrt{ac}\sqrt{dx^2b+adx+bcx+ac}+2\,ac\right)\right)x^2a^2d^2\sqrt{bd}-6\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{}}{}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(d*x+c)^(1/2)/x^3,x)
```

```
[Out] 1/8*(b*x+a)^(1/2)*(d*x+c)^(1/2)/c*(ln((a*d*x+b*c*x+2*(a*c)^(1/2)*
(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^2*a^2*d^2*(b*d)^(1/2)
-6*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+
2*a*c)/x)*x^2*a*b*c*d*(b*d)^(1/2)-3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)
*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^2*b^2*c^2*(b*d)^(1/2
)+8*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)
+a*d+b*c)/(b*d)^(1/2))*x^2*b^2*c*d*(a*c)^(1/2)-2*(b*d*x^2+a*d*x+b
*c*x+a*c)^(1/2)*d*a*x*(a*c)^(1/2)*(b*d)^(1/2)-10*(b*d*x^2+a*d*x+b
*c*x+a*c)^(1/2)*b*x*c*(a*c)^(1/2)*(b*d)^(1/2)-4*(b*d*x^2+a*d*x+b*
c*x+a*c)^(1/2)*a*c*(a*c)^(1/2)*(b*d)^(1/2))/(b*d*x^2+a*d*x+b*c*x+
a*c)^(1/2)/x^2/(a*c)^(1/2)/(b*d)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*sqrt(d*x + c)/x^3,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.88495, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*sqrt(d*x + c)/x^3,x, algorithm="fricas")
```

```
[Out] [1/16*(8*sqrt(a*c)*sqrt(b*d)*b*c*x^2*log(8*b^2*d^2*x^2 + b^2*c^2
+ 6*a*b*c*d + a^2*d^2 + 4*(2*b*d*x + b*c + a*d)*sqrt(b*d)*sqrt(b*
x + a)*sqrt(d*x + c) + 8*(b^2*c*d + a*b*d^2)*x) - (3*b^2*c^2 + 6*
a*b*c*d - a^2*d^2)*x^2*log((4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)
*sqrt(b*x + a)*sqrt(d*x + c) + (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d
+ a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2) - 4*(2*
a*c + (5*b*c + a*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c))/(sq
rt(a*c)*c*x^2), 1/16*(16*sqrt(a*c)*sqrt(-b*d)*b*c*x^2*arctan(1/2*
(2*b*d*x + b*c + a*d)/(sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c))) -
 (3*b^2*c^2 + 6*a*b*c*d - a^2*d^2)*x^2*log((4*(2*a^2*c^2 + (a*b*c
^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c) + (8*a^2*c^2 + (b^2*
c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*
c))/x^2) - 4*(2*a*c + (5*b*c + a*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sq
rt(d*x + c))/(sqrt(a*c)*c*x^2), 1/8*(4*sqrt(-a*c)*sqrt(b*d)*b*c*x
^2*log(8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b*d*x
 + b*c + a*d)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 8*(b^2*c*d
+ a*b*d^2)*x) - (3*b^2*c^2 + 6*a*b*c*d - a^2*d^2)*x^2*arctan(1/2*
(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d*x + c)*a
*c)) - 2*(2*a*c + (5*b*c + a*d)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt(
d*x + c))/(sqrt(-a*c)*c*x^2), 1/8*(8*sqrt(-a*c)*sqrt(-b*d)*b*c*x^
2*arctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(-b*d)*sqrt(b*x + a)*sqrt
(d*x + c))) - (3*b^2*c^2 + 6*a*b*c*d - a^2*d^2)*x^2*arctan(1/2*(2
*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d*x + c)*a*c
)) - 2*(2*a*c + (5*b*c + a*d)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*
x + c))/(sqrt(-a*c)*c*x^2)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}}{x^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)*(d*x+c)**(1/2)/x**3,x)
```

```
[Out] Integral((a + b*x)**(3/2)*sqrt(c + d*x)/x**3, x)
```

GIAC/XCAS [A] time = 0.65473, size = 4, normalized size = 0.02

$$sage_0 x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*sqrt(d*x + c)/x^3,x, algorithm="giac")
```

```
[Out] sage0*x
```

3.592 $\int \frac{(a+bx)^{3/2}\sqrt{c+dx}}{x^4}\,dx$

Optimal. Leaf size=160

$$\frac{(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{3/2}c^{5/2}}-\frac{\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)}{4c^2x^2}-\frac{\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^2}{8ac^2x}-\frac{(a+bx)^{3/2}(c+dx)^{3/2}}{3cx^3}$$

```
[Out] -((b*c - a*d)^2*Sqrt[a + b*x]*Sqrt[c + d*x])/(8*a*c^2*x) - ((b*c
- a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(4*c^2*x^2) - ((a + b*x)^(3
/2)*(c + d*x)^(3/2))/(3*c*x^3) + ((b*c - a*d)^3*ArcTanh[(Sqrt[c]*
Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(8*a^(3/2)*c^(5/2))
```

Rubi [A] time = 0.280793, antiderivative size = 160, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.136$

$$\frac{(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{3/2}c^{5/2}}-\frac{\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)}{4c^2x^2}-\frac{\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^2}{8ac^2x}-\frac{(a+bx)^{3/2}(c+dx)^{3/2}}{3cx^3}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(3/2)*Sqrt[c + d*x])/x^4,x]
```

```
[Out] -((b*c - a*d)^2*Sqrt[a + b*x]*Sqrt[c + d*x])/(8*a*c^2*x) - ((b*c
- a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(4*c^2*x^2) - ((a + b*x)^(3
/2)*(c + d*x)^(3/2))/(3*c*x^3) + ((b*c - a*d)^3*ArcTanh[(Sqrt[c]*
Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(8*a^(3/2)*c^(5/2))
```

Rubi in Sympy [A] time = 25.2888, size = 138, normalized size = 0.86

$$-\frac{(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{3}{2}}}{3cx^3}+\frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}\,(ad-bc)}{4acx^2}+\frac{\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)^2}{8ac^2x}-\frac{(ad-bc)^3\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{\frac{3}{2}}c^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(d*x+c)**(1/2)/x**4,x)
```

```
[Out] -(a + b*x)**(3/2)*(c + d*x)**(3/2)/(3*c*x**3) + (a + b*x)**(3/2)*
sqrt(c + d*x)*(a*d - b*c)/(4*a*c*x**2) + sqrt(a + b*x)*sqrt(c + d
*x)*(a*d - b*c)**2/(8*a*c**2*x) - (a*d - b*c)**3*atanh(sqrt(c)*sq
rt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(8*a**(3/2)*c**(5/2))
```

Mathematica [A] time = 0.174493, size = 173, normalized size = 1.08

$$\frac{-2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}\left(a^2\left(8c^2+2cdx-3d^2x^2\right)+2abcx(7c+4dx)+3b^2c^2x^2\right)-3x^3\log(x)(bc-ad)^3+3x^3(bc-ad)^3\text{lo}}{48a^{3/2}c^{5/2}x^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(3/2)*Sqrt[c + d*x])/x^4,x]
```

```
[Out] (-2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]*(3*b^2*c^2*x^2 +
2*a*b*c*x*(7*c + 4*d*x) + a^2*(8*c^2 + 2*c*d*x - 3*d^2*x^2)) - 3*
(b*c - a*d)^3*x^3*Log[x] + 3*(b*c - a*d)^3*x^3*Log[2*a*c + b*c*x
+ a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(48*a^(
3/2)*c^(5/2)*x^3)
```

Maple [B] time = 0.021, size = 485, normalized size = 3.

$$-\frac{1}{48\,ac^2x^3}\sqrt{bx+a}\sqrt{dx+c}\left(3\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{dx^2b+adx+bcx+ac}+2\,ac}{x}\right)x^3a^3d^3-9\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{d}}{}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(d*x+c)^(1/2)/x^4,x)
```

```
[Out] -1/48*(b*x+a)^(1/2)*(d*x+c)^(1/2)/a/c^2*(3*ln((a*d*x+b*c*x+2*(a*c
)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^3*a^3*d^3-9*l
n((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*
c)/x)*x^3*a^2*b*c*d^2+9*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*
d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^3*a*b^2*c^2*d-3*ln((a*d*x+b*c*x+
2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^3*b^3*c
^3-6*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^2*a^2*d^2+16*(
a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^2*a*b*c*d+6*(a*c)^(1
/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^2*b^2*c^2+4*(a*c)^(1/2)*(b*
d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*a^2*c*d+28*(a*c)^(1/2)*(b*d*x^2+a*
d*x+b*c*x+a*c)^(1/2)*x*a*b*c^2+16*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)
*a^2*c^2*(a*c)^(1/2))/(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)/x^3/(a*c)^(
1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*sqrt(d*x + c)/x^4,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.5065, size = 1, normalized size = 0.01

$$\left[-\frac{3\left(b^3c^3-3\,ab^2c^2d+3\,a^2bcd^2-a^3d^3\right)x^3\log\left(-\frac{4\left(2\,a^2c^2+\left(abc^2+a^2cd\right)x\right)\sqrt{bx+a}\sqrt{dx+c}-\left(8\,a^2c^2+\left(b^2c^2+6\,abcd+a^2d^2\right)x^2+8\left(abc^2+a^2cd\right)x\right)}{x^2}\right.}{96\,\sqrt{ac}ac^2x^3}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*sqrt(d*x + c)/x^4,x, algorithm="fricas")
```

```
[Out] [-1/96*(3*(b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*x^3
*log(-(4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d
*x + c) - (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(a
*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2) + 4*(8*a^2*c^2 + (3*b^2*c^2
+ 8*a*b*c*d - 3*a^2*d^2)*x^2 + 2*(7*a*b*c^2 + a^2*c*d)*x)*sqrt(a*
c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(a*c)*a*c^2*x^3), 1/48*(3*(b
```

```
^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*x^3*arctan(1/2*
(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d*x + c)*a
*c)) - 2*(8*a^2*c^2 + (3*b^2*c^2 + 8*a*b*c*d - 3*a^2*d^2)*x^2 + 2
*(7*a*b*c^2 + a^2*c*d)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c))
/(sqrt(-a*c)*a*c^2*x^3)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)*(d*x+c)**(1/2)/x**4,x)

[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*sqrt(d*x + c)/x^4,x, algorithm="giac")

[Out] Exception raised: TypeError
```

3.593 $\int \frac{(a+bx)^{3/2}\sqrt{c+dx}}{x^5}\,dx$

Optimal. Leaf size=233

$$-\frac{(5ad+3bc)(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{5/2}c^{7/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}(5ad+3bc)(bc-ad)^2}{64a^2c^3x}+\frac{\sqrt{a+bx}(c+dx)^{3/2}(5ad+3bc)(bc-ad)}{32ac^3x^2}+\frac{(a+bx)^{3/2}(c+dx)^{3/2}(5ad+3bc)}{24ac^2x^3}-\frac{(a+bx)^{5/2}(c+dx)^{3/2}}{4acx^4}$$

```
[Out] ((b*c - a*d)^2*(3*b*c + 5*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(64*a
^2*c^3*x) + ((b*c - a*d)*(3*b*c + 5*a*d)*Sqrt[a + b*x]*(c + d*x)^
(3/2))/(32*a*c^3*x^2) + ((3*b*c + 5*a*d)*(a + b*x)^(3/2)*(c + d*x
)^(3/2))/(24*a*c^2*x^3) - ((a + b*x)^(5/2)*(c + d*x)^(3/2))/(4*a*
c*x^4) - ((b*c - a*d)^3*(3*b*c + 5*a*d)*ArcTanh[(Sqrt[c]*Sqrt[a +
 b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(64*a^(5/2)*c^(7/2))
```

Rubi [A] time = 0.408666, antiderivative size = 233, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{(5ad+3bc)(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{5/2}c^{7/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}(5ad+3bc)(bc-ad)^2}{64a^2c^3x}+\frac{\sqrt{a+bx}(c+dx)^{3/2}(5ad+3bc)(bc-ad)}{32ac^3x^2}+\frac{(a+bx)^{3/2}(c+dx)^{3/2}(5ad+3bc)}{24ac^2x^3}-\frac{(a+bx)^{5/2}(c+dx)^{3/2}}{4acx^4}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(3/2)*Sqrt[c + d*x])/x^5,x]
```

```
[Out] ((b*c - a*d)^2*(3*b*c + 5*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(64*a
^2*c^3*x) + ((b*c - a*d)*(3*b*c + 5*a*d)*Sqrt[a + b*x]*(c + d*x)^
(3/2))/(32*a*c^3*x^2) + ((3*b*c + 5*a*d)*(a + b*x)^(3/2)*(c + d*x
)^(3/2))/(24*a*c^2*x^3) - ((a + b*x)^(5/2)*(c + d*x)^(3/2))/(4*a*
c*x^4) - ((b*c - a*d)^3*(3*b*c + 5*a*d)*ArcTanh[(Sqrt[c]*Sqrt[a +
 b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(64*a^(5/2)*c^(7/2))
```

Rubi in Sympy [A] time = 37.1781, size = 212, normalized size = 0.91

$$-\frac{(a+bx)^{\frac{5}{2}}(c+dx)^{\frac{3}{2}}}{4acx^4}+\frac{(a+bx)^{\frac{5}{2}}\sqrt{c+dx}\,(5ad+3bc)}{24a^2cx^3}+\frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}\,(ad-bc)\,(5ad+3bc)}{96a^2c^2x^2}-\frac{\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)^2\,(5ad+3bc)}{64a^2c^3x}+\frac{(ad-bc)^3\,(5ad+3bc)\,\mathrm{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{\frac{5}{2}}c^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(d*x+c)**(1/2)/x**5,x)
```

```
[Out] -(a + b*x)**(5/2)*(c + d*x)**(3/2)/(4*a*c*x**4) + (a + b*x)**(5/2
)*sqrt(c + d*x)*(5*a*d + 3*b*c)/(24*a**2*c*x**3) + (a + b*x)**(3/
2)*sqrt(c + d*x)*(a*d - b*c)*(5*a*d + 3*b*c)/(96*a**2*c**2*x**2)
- sqrt(a + b*x)*sqrt(c + d*x)*(a*d - b*c)**2*(5*a*d + 3*b*c)/(64*
a**2*c**3*x) + (a*d - b*c)**3*(5*a*d + 3*b*c)*atanh(sqrt(c)*sqrt(
a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(64*a**(5/2)*c**(7/2))
```

Mathematica [A] time = 0.253805, size = 234, normalized size = 1.

$$\frac{-2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}\left(a^3\left(48c^3+8c^2dx-10cd^2x^2+15d^3x^3\right)+a^2bcx\left(72c^2+20cdx-31d^2x^2\right)+3ab^2c^2x^2(2c+3dx)-\right.}{384a^{5/2}c}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(3/2)*Sqrt[c + d*x])/x^5,x]
```

```
[Out] (-2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]*(-9*b^3*c^3*x^3 +
 3*a*b^2*c^2*x^2*(2*c + 3*d*x) + a^2*b*c*x*(72*c^2 + 20*c*d*x - 3
1*d^2*x^2) + a^3*(48*c^3 + 8*c^2*d*x - 10*c*d^2*x^2 + 15*d^3*x^3)
) + 3*(b*c - a*d)^3*(3*b*c + 5*a*d)*x^4*Log[x] - 3*(b*c - a*d)^3*
(3*b*c + 5*a*d)*x^4*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]
*Sqrt[a + b*x]*Sqrt[c + d*x]])/(384*a^(5/2)*c^(7/2)*x^4)
```

Maple [B] time = 0.025, size = 705, normalized size = 3.

$$\frac{1}{384\,a^2c^3x^4}\sqrt{bx+a}\sqrt{dx+c}\left(15\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{dx^2b+adx+bcx+ac}+2\,ac}{x}\right)x^4a^4d^4-36\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(d*x+c)^(1/2)/x^5,x)
```

```
[Out] 1/384*(b*x+a)^(1/2)*(d*x+c)^(1/2)/a^2/c^3*(15*ln((a*d*x+b*c*x+2*(
a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^4*a^4*d^4-
36*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+
2*a*c)/x)*x^4*a^3*b*c*d^3+18*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x
^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^4*a^2*b^2*c^2*d^2+12*ln((a*
d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)
*x^4*a*b^3*c^3*d-9*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b
*c*x+a*c)^(1/2)+2*a*c)/x)*x^4*b^4*c^4-30*(a*c)^(1/2)*(b*d*x^2+a*d
*x+b*c*x+a*c)^(1/2)*x^3*a^3*d^3+62*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c
*x+a*c)^(1/2)*x^3*a^2*b*c*d^2-18*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x
+a*c)^(1/2)*x^3*a*b^2*c^2*d+18*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a
*c)^(1/2)*x^3*b^3*c^3+20*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1
/2)*x^2*a^3*c*d^2-40*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*
x^2*a^2*b*c^2*d-12*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^
2*a*b^2*c^3-16*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*a^3*
c^2*d-144*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*a^2*b*c^3
-96*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a^3*c^3*(a*c)^(1/2))/(b*d*x^2
+a*d*x+b*c*x+a*c)^(1/2)/x^4/(a*c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*sqrt(d*x + c)/x^5,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.714509, size = 1, normalized size = 0.

$$\left[-\frac{3\left(3\,b^4c^4-4\,ab^3c^3d-6\,a^2b^2c^2d^2+12\,a^3bcd^3-5\,a^4d^4\right)x^4\log\left(\frac{4\left(2\,a^2c^2+\left(abc^2+a^2cd\right)x\right)\sqrt{bx+a}\sqrt{dx+c}+\left(8\,a^2c^2+\left(b^2c^2+6\,abcd+a^2d^2\right)x\right.}{x^2}\right.}{}\right.$$

$$-\frac{3\left(3\,b^4c^4-4\,ab^3c^3d-6\,a^2b^2c^2d^2+12\,a^3bcd^3-5\,a^4d^4\right)x^4\arctan\left(\frac{(2\,ac+(bc+ad)x)\sqrt{-ac}}{2\,\sqrt{bx+a}\sqrt{dx+c}ac}\right)+2\left(48\,a^3c^3-\left(9\,b^3c^3-9\,ab^2c^2d+\right.\right.}{384\,\sqrt{-ac}a^2c^3x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*sqrt(d*x + c)/x^5,x, algorithm="fricas")
```

```
[Out] [-1/768*(3*(3*b^4*c^4 - 4*a*b^3*c^3*d - 6*a^2*b^2*c^2*d^2 + 12*a^
3*b*c*d^3 - 5*a^4*d^4)*x^4*log((4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d
)*x)*sqrt(b*x + a)*sqrt(d*x + c) + (8*a^2*c^2 + (b^2*c^2 + 6*a*b*
c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2) + 4
*(48*a^3*c^3 - (9*b^3*c^3 - 9*a*b^2*c^2*d + 31*a^2*b*c*d^2 - 15*a
^3*d^3)*x^3 + 2*(3*a*b^2*c^3 + 10*a^2*b*c^2*d - 5*a^3*c*d^2)*x^2
+ 8*(9*a^2*b*c^3 + a^3*c^2*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x
 + c))/(sqrt(a*c)*a^2*c^3*x^4), -1/384*(3*(3*b^4*c^4 - 4*a*b^3*c^
3*d - 6*a^2*b^2*c^2*d^2 + 12*a^3*b*c*d^3 - 5*a^4*d^4)*x^4*arctan(
1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d*x +
c)*a*c)) + 2*(48*a^3*c^3 - (9*b^3*c^3 - 9*a*b^2*c^2*d + 31*a^2*b*
c*d^2 - 15*a^3*d^3)*x^3 + 2*(3*a*b^2*c^3 + 10*a^2*b*c^2*d - 5*a^3
*c*d^2)*x^2 + 8*(9*a^2*b*c^3 + a^3*c^2*d)*x)*sqrt(-a*c)*sqrt(b*x
+ a)*sqrt(d*x + c))/(sqrt(-a*c)*a^2*c^3*x^4)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)*(d*x+c)**(1/2)/x**5,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*sqrt(d*x + c)/x^5,x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.594 $\int \frac{(a+bx)^{3/2}\sqrt{c+dx}}{x^6}\,dx$

Optimal. Leaf size=340

$$\frac{(7a^2d^2+6abcd+3b^2c^2)(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{128a^{7/2}c^{9/2}} + \frac{\sqrt{a+bx}\sqrt{c+dx}\,(-35a^3d^3+61a^2bcd^2-9ab^2c^2d+15b^3c^3)}{960a^2c^3x^2} - \frac{\sqrt{a+bx}\sqrt{c+dx}\,(-105a^4d^4+190a^3bcd^3-36a^2b^2c^2d^2-30ab^3c^3d+45b^4c^4)}{1920a^3c^4x} - \frac{\sqrt{a+bx}\sqrt{c+dx}\left(\frac{3b^2c}{a}-\frac{7ad^2}{c}+12bd\right)}{240cx^3} - \frac{(a+bx)^{3/2}\sqrt{c+dx}}{5x^5} - \frac{\sqrt{a+bx}\sqrt{c+dx}(ad+3bc)}{40cx^4}$$

```
[Out] -((3*b*c + a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(40*c*x^4) - (((3*b^
2*c)/a + 12*b*d - (7*a*d^2)/c)*Sqrt[a + b*x]*Sqrt[c + d*x])/(240*
c*x^3) + ((15*b^3*c^3 - 9*a*b^2*c^2*d + 61*a^2*b*c*d^2 - 35*a^3*d
^3)*Sqrt[a + b*x]*Sqrt[c + d*x])/(960*a^2*c^3*x^2) - ((45*b^4*c^4
 - 30*a*b^3*c^3*d - 36*a^2*b^2*c^2*d^2 + 190*a^3*b*c*d^3 - 105*a^
4*d^4)*Sqrt[a + b*x]*Sqrt[c + d*x])/(1920*a^3*c^4*x) - ((a + b*x)
^(3/2)*Sqrt[c + d*x])/(5*x^5) + ((b*c - a*d)^3*(3*b^2*c^2 + 6*a*b
*c*d + 7*a^2*d^2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c
 + d*x])])/(128*a^(7/2)*c^(9/2))
```

Rubi [A] time = 1.04439, antiderivative size = 340, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.273

$$\frac{(7a^2d^2+6abcd+3b^2c^2)(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{128a^{7/2}c^{9/2}} + \frac{\sqrt{a+bx}\sqrt{c+dx}\,(-35a^3d^3+61a^2bcd^2-9ab^2c^2d+15b^3c^3)}{960a^2c^3x^2} - \frac{\sqrt{a+bx}\sqrt{c+dx}\,(-105a^4d^4+190a^3bcd^3-36a^2b^2c^2d^2-30ab^3c^3d+45b^4c^4)}{1920a^3c^4x} - \frac{\sqrt{a+bx}\sqrt{c+dx}\left(\frac{3b^2c}{a}-\frac{7ad^2}{c}+12bd\right)}{240cx^3} - \frac{(a+bx)^{3/2}\sqrt{c+dx}}{5x^5} - \frac{\sqrt{a+bx}\sqrt{c+dx}(ad+3bc)}{40cx^4}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(3/2)*Sqrt[c + d*x])/x^6,x]
```

```
[Out] -((3*b*c + a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(40*c*x^4) - (((3*b^
2*c)/a + 12*b*d - (7*a*d^2)/c)*Sqrt[a + b*x]*Sqrt[c + d*x])/(240*
c*x^3) + ((15*b^3*c^3 - 9*a*b^2*c^2*d + 61*a^2*b*c*d^2 - 35*a^3*d
^3)*Sqrt[a + b*x]*Sqrt[c + d*x])/(960*a^2*c^3*x^2) - ((45*b^4*c^4
 - 30*a*b^3*c^3*d - 36*a^2*b^2*c^2*d^2 + 190*a^3*b*c*d^3 - 105*a^
4*d^4)*Sqrt[a + b*x]*Sqrt[c + d*x])/(1920*a^3*c^4*x) - ((a + b*x)
^(3/2)*Sqrt[c + d*x])/(5*x^5) + ((b*c - a*d)^3*(3*b^2*c^2 + 6*a*b
*c*d + 7*a^2*d^2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c
 + d*x])])/(128*a^(7/2)*c^(9/2))
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(d*x+c)**(1/2)/x**6,x)
```

```
[Out] Timed out
```

Mathematica [A] time = 0.349407, size = 315, normalized size = 0.93

$$-15x^5\log(x)(bc-ad)^3\left(7a^2d^2+6abcd+3b^2c^2\right)+15x^5(bc-ad)^3\left(7a^2d^2+6abcd+3b^2c^2\right)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2\right.$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(3/2)*Sqrt[c + d*x])/x^6,x]
```

```
[Out] (-2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]*(45*b^4*c^4*x^4 -
 30*a*b^3*c^3*x^3*(c + d*x) + 6*a^2*b^2*c^2*x^2*(4*c^2 + 3*c*d*x
- 6*d^2*x^2) + 2*a^3*b*c*x*(264*c^3 + 48*c^2*d*x - 61*c*d^2*x^2 +
 95*d^3*x^3) + a^4*(384*c^4 + 48*c^3*d*x - 56*c^2*d^2*x^2 + 70*c*
d^3*x^3 - 105*d^4*x^4)) - 15*(b*c - a*d)^3*(3*b^2*c^2 + 6*a*b*c*d
 + 7*a^2*d^2)*x^5*Log[x] + 15*(b*c - a*d)^3*(3*b^2*c^2 + 6*a*b*c*
d + 7*a^2*d^2)*x^5*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*
Sqrt[a + b*x]*Sqrt[c + d*x]])/(3840*a^(7/2)*c^(9/2)*x^5)
```

Maple [B] time = 0.028, size = 967, normalized size = 2.8

$$-\frac{1}{3840\,a^3c^4x^5}\sqrt{bx+a}\sqrt{dx+c}\left(105\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{dx^2b+adx+bcx+ac}+2\,ac}{x}\right)x^5a^5d^5-225\,\ln\left(\frac{adx+bcx+2}{}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(d*x+c)^(1/2)/x^6,x)
```

```
[Out] -1/3840*(b*x+a)^(1/2)*(d*x+c)^(1/2)/a^3/c^4*(105*ln((a*d*x+b*c*x+
2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^5*a^5*d
^5-225*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1
/2)+2*a*c)/x)*x^5*a^4*b*c*d^4+90*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b
*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^5*a^3*b^2*c^2*d^3+30*ln
((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c
)/x)*x^5*a^2*b^3*c^3*d^2+45*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^
2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^5*a*b^4*c^4*d-45*ln((a*d*x+b
*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^5*
b^5*c^5-210*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^4*a^4*d
^4+380*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^4*a^3*b*c*d^
3-72*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^4*a^2*b^2*c^2*
d^2-60*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^4*a*b^3*c^3*
d+90*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^4*b^4*c^4+140*
(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^3*a^4*c*d^3-244*(a*
c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^3*a^3*b*c^2*d^2+36*(a*
c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^3*a^2*b^2*c^3*d-60*(a*
c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^3*a*b^3*c^4-112*(a*c)^
(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^2*a^4*c^2*d^2+192*(a*c)^(
1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^2*a^3*b*c^3*d+48*(a*c)^(1/
2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^2*a^2*b^2*c^4+96*(a*c)^(1/2)
*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*a^4*c^3*d+1056*(a*c)^(1/2)*(b*
d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*a^3*b*c^4+768*(b*d*x^2+a*d*x+b*c*x
+a*c)^(1/2)*a^4*c^4*(a*c)^(1/2))/(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)/
x^5/(a*c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*sqrt(d*x + c)/x^6,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 2.74311, size = 1, normalized size = 0.

$$\left[-\frac{15\left(3\,b^5c^5-3\,ab^4c^4d-2\,a^2b^3c^3d^2-6\,a^3b^2c^2d^3+15\,a^4bcd^4-7\,a^5d^5\right)x^5\log\left(-\frac{4\left(2\,a^2c^2+\left(abc^2+a^2cd\right)x\right)\sqrt{bx+a}\sqrt{dx+c}-\left(8\,a^2c^2+(b\right.}{x^2}\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*sqrt(d*x + c)/x^6,x, algorithm="fricas")
```

```
[Out] [-1/7680*(15*(3*b^5*c^5 - 3*a*b^4*c^4*d - 2*a^2*b^3*c^3*d^2 - 6*a
^3*b^2*c^2*d^3 + 15*a^4*b*c*d^4 - 7*a^5*d^5)*x^5*log(-(4*(2*a^2*c
^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c) - (8*a^2*
c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)
*x)*sqrt(a*c))/x^2) + 4*(384*a^4*c^4 + (45*b^4*c^4 - 30*a*b^3*c^3
*d - 36*a^2*b^2*c^2*d^2 + 190*a^3*b*c*d^3 - 105*a^4*d^4)*x^4 - 2*
(15*a*b^3*c^4 - 9*a^2*b^2*c^3*d + 61*a^3*b*c^2*d^2 - 35*a^4*c*d^3
)*x^3 + 8*(3*a^2*b^2*c^4 + 12*a^3*b*c^3*d - 7*a^4*c^2*d^2)*x^2 +
48*(11*a^3*b*c^4 + a^4*c^3*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x
 + c))/(sqrt(a*c)*a^3*c^4*x^5), 1/3840*(15*(3*b^5*c^5 - 3*a*b^4*c
^4*d - 2*a^2*b^3*c^3*d^2 - 6*a^3*b^2*c^2*d^3 + 15*a^4*b*c*d^4 - 7
*a^5*d^5)*x^5*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt
(b*x + a)*sqrt(d*x + c)*a*c)) - 2*(384*a^4*c^4 + (45*b^4*c^4 - 30
*a*b^3*c^3*d - 36*a^2*b^2*c^2*d^2 + 190*a^3*b*c*d^3 - 105*a^4*d^4
)*x^4 - 2*(15*a*b^3*c^4 - 9*a^2*b^2*c^3*d + 61*a^3*b*c^2*d^2 - 35
*a^4*c*d^3)*x^3 + 8*(3*a^2*b^2*c^4 + 12*a^3*b*c^3*d - 7*a^4*c^2*d
^2)*x^2 + 48*(11*a^3*b*c^4 + a^4*c^3*d)*x)*sqrt(-a*c)*sqrt(b*x +
a)*sqrt(d*x + c))/(sqrt(-a*c)*a^3*c^4*x^5)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)*(d*x+c)**(1/2)/x**6,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*sqrt(d*x + c)/x^6,x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.595 $\int x^2(a+bx)^{3/2}(c+dx)^{3/2}\,dx$

Optimal. Leaf size=349

$$-\frac{\left(4abcd-7(ad+bc)^2\right)(bc-ad)^4\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{512b^{9/2}d^{9/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(4abcd-7(ad+bc)^2\right)(bc-ad)^3}{512b^4d^4}-\frac{(a+bx)^{3/2}\sqrt{c+dx}\left(4abcd-7(ad+bc)^2\right)(bc-ad)^2}{768b^4d^3}-\frac{(a+bx)^{5/2}\sqrt{c+dx}\left(4abcd-7(ad+bc)^2\right)(bc-ad)}{192b^4d^2}-\frac{(a+bx)^{5/2}(c+dx)^{3/2}\left(4abcd-7(ad+bc)^2\right)}{96b^3d^2}-\frac{7(a+bx)^{5/2}(c+dx)^{5/2}(ad+bc)}{60b^2d^2}+\frac{x(a+bx)^{5/2}(c+dx)^{5/2}}{6bd}$$

```
[Out] ((b*c - a*d)^3*(4*a*b*c*d - 7*(b*c + a*d)^2)*Sqrt[a + b*x]*Sqrt[c
 + d*x])/(512*b^4*d^4) - ((b*c - a*d)^2*(4*a*b*c*d - 7*(b*c + a*d
)^2)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(768*b^4*d^3) - ((b*c - a*d)*
(4*a*b*c*d - 7*(b*c + a*d)^2)*(a + b*x)^(5/2)*Sqrt[c + d*x])/(192
*b^4*d^2) - ((4*a*b*c*d - 7*(b*c + a*d)^2)*(a + b*x)^(5/2)*(c + d
*x)^(3/2))/(96*b^3*d^2) - (7*(b*c + a*d)*(a + b*x)^(5/2)*(c + d*x
)^(5/2))/(60*b^2*d^2) + (x*(a + b*x)^(5/2)*(c + d*x)^(5/2))/(6*b*
d) - ((b*c - a*d)^4*(4*a*b*c*d - 7*(b*c + a*d)^2)*ArcTanh[(Sqrt[d
]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(512*b^(9/2)*d^(9/2))
```

Rubi [A] time = 0.723475, antiderivative size = 349, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.227$

$$-\frac{\left(4abcd-7(ad+bc)^2\right)(bc-ad)^4\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{512b^{9/2}d^{9/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(4abcd-7(ad+bc)^2\right)(bc-ad)^3}{512b^4d^4}-\frac{(a+bx)^{3/2}\sqrt{c+dx}\left(4abcd-7(ad+bc)^2\right)(bc-ad)^2}{768b^4d^3}-\frac{(a+bx)^{5/2}\sqrt{c+dx}\left(4abcd-7(ad+bc)^2\right)(bc-ad)}{192b^4d^2}-\frac{(a+bx)^{5/2}(c+dx)^{3/2}\left(4abcd-7(ad+bc)^2\right)}{96b^3d^2}-\frac{7(a+bx)^{5/2}(c+dx)^{5/2}(ad+bc)}{60b^2d^2}+\frac{x(a+bx)^{5/2}(c+dx)^{5/2}}{6bd}$$

Antiderivative was successfully verified.

```
[In]  Int[x^2*(a + b*x)^(3/2)*(c + d*x)^(3/2),x]
```

```
[Out] ((b*c - a*d)^3*(4*a*b*c*d - 7*(b*c + a*d)^2)*Sqrt[a + b*x]*Sqrt[c
 + d*x])/(512*b^4*d^4) - ((b*c - a*d)^2*(4*a*b*c*d - 7*(b*c + a*d
)^2)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(768*b^4*d^3) - ((b*c - a*d)*
(4*a*b*c*d - 7*(b*c + a*d)^2)*(a + b*x)^(5/2)*Sqrt[c + d*x])/(192
*b^4*d^2) - ((4*a*b*c*d - 7*(b*c + a*d)^2)*(a + b*x)^(5/2)*(c + d
*x)^(3/2))/(96*b^3*d^2) - (7*(b*c + a*d)*(a + b*x)^(5/2)*(c + d*x
)^(5/2))/(60*b^2*d^2) + (x*(a + b*x)^(5/2)*(c + d*x)^(5/2))/(6*b*
d) - ((b*c - a*d)^4*(4*a*b*c*d - 7*(b*c + a*d)^2)*ArcTanh[(Sqrt[d
]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(512*b^(9/2)*d^(9/2))
```

Rubi in Sympy [A] time = 71.6006, size = 325, normalized size = 0.93

$$\frac{x(a+bx)^{\frac{5}{2}}(c+dx)^{\frac{5}{2}}}{6bd}-\frac{7(a+bx)^{\frac{5}{2}}(c+dx)^{\frac{5}{2}}(ad+bc)}{60b^2d^2}-\frac{(a+bx)^{\frac{5}{2}}(c+dx)^{\frac{3}{2}}\left(abcd-\frac{7(ad+bc)^2}{4}\right)}{24b^3d^2}+\frac{(a+bx)^{\frac{5}{2}}\sqrt{c+dx}(ad-bc)\left(4abcd-7(ad+bc)^2\right)}{192b^4d^2}-\frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}(ad-bc)^2\left(abcd-\frac{7(ad+bc)^2}{4}\right)}{192b^4d^3}-\frac{\sqrt{a+bx}\sqrt{c+dx}(ad-bc)^3\left(abcd-\frac{7(ad+bc)^2}{4}\right)}{128b^4d^4}-\frac{(ad-bc)^4\left(abcd-\frac{7(ad+bc)^2}{4}\right)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{128b^{\frac{9}{2}}d^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(b*x+a)**(3/2)*(d*x+c)**(3/2),x)
```

```
[Out] x*(a + b*x)**(5/2)*(c + d*x)**(5/2)/(6*b*d) - 7*(a + b*x)**(5/2)*
(c + d*x)**(5/2)*(a*d + b*c)/(60*b**2*d**2) - (a + b*x)**(5/2)*(c
 + d*x)**(3/2)*(a*b*c*d - 7*(a*d + b*c)**2/4)/(24*b**3*d**2) + (a
 + b*x)**(5/2)*sqrt(c + d*x)*(a*d - b*c)*(4*a*b*c*d - 7*(a*d + b*
c)**2)/(192*b**4*d**2) - (a + b*x)**(3/2)*sqrt(c + d*x)*(a*d - b*
c)**2*(a*b*c*d - 7*(a*d + b*c)**2/4)/(192*b**4*d**3) - sqrt(a + b
*x)*sqrt(c + d*x)*(a*d - b*c)**3*(a*b*c*d - 7*(a*d + b*c)**2/4)/(
128*b**4*d**4) - (a*d - b*c)**4*(a*b*c*d - 7*(a*d + b*c)**2/4)*at
anh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c + d*x)))/(128*b**(9/2)*
d**(9/2))
```

Mathematica [A] time = 0.293962, size = 319, normalized size = 0.91

$$\frac{\left(7a^2d^2+10abcd+7b^2c^2\right)(bc-ad)^4\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{1024b^{9/2}d^{9/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(-105a^5d^5+5a^4bd^4(47c+14dx)-2a^3b^2d^3\left(33c^2+76cdx+28d^2x^2\right)+6a^2b^3d^2\left(-11c^3+6c^2dx+20cd^2x\right.\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^2*(a + b*x)^(3/2)*(c + d*x)^(3/2),x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(-105*a^5*d^5 + 5*a^4*b*d^4*(47*c +
14*d*x) - 2*a^3*b^2*d^3*(33*c^2 + 76*c*d*x + 28*d^2*x^2) + 6*a^2*
b^3*d^2*(-11*c^3 + 6*c^2*d*x + 20*c*d^2*x^2 + 8*d^3*x^3) + a*b^4*
d*(235*c^4 - 152*c^3*d*x + 120*c^2*d^2*x^2 + 2336*c*d^3*x^3 + 166
4*d^4*x^4) + b^5*(-105*c^5 + 70*c^4*d*x - 56*c^3*d^2*x^2 + 48*c^2
*d^3*x^3 + 1664*c*d^4*x^4 + 1280*d^5*x^5)))/(7680*b^4*d^4) + ((b*
c - a*d)^4*(7*b^2*c^2 + 10*a*b*c*d + 7*a^2*d^2)*Log[b*c + a*d + 2
*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(1024*b^
(9/2)*d^(9/2))
```

Maple [B] time = 0.027, size = 1240, normalized size = 3.6

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(b*x+a)^(3/2)*(d*x+c)^(3/2),x)
```

```
[Out] 1/15360*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(-112*x^2*a^3*b^2*d^5*(b*d*x^
2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)-112*x^2*b^5*c^3*d^2*(b*d*x^2
+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+3328*x^4*a*b^4*d^5*(b*d*x^2+a
```

```
*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+3328*x^4*b^5*c*d^4*(b*d*x^2+a*d
*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+96*x^3*a^2*b^3*d^5*(b*d*x^2+a*d*x
+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+96*x^3*b^5*c^2*d^3*(b*d*x^2+a*d*x+b
*c*x+a*c)^(1/2)*(b*d)^(1/2)-132*c^3*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/
2)*a^2*b^3*d^2*(b*d)^(1/2)+470*c^4*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2
)*a*b^4*d*(b*d)^(1/2)+140*d^5*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*a
^4*b*(b*d)^(1/2)+140*c^4*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*b^5*d*
(b*d)^(1/2)+470*d^4*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a^4*c*b*(b*d)
^(1/2)-132*c^2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a^3*b^2*d^3*(b*d)^
(1/2)+105*d^6*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(
b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^6+105*c^6*b^6*ln(1/2*(2*b*d*x+
2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2
))+2560*x^5*b^5*d^5*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)-2
10*d^5*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a^5*(b*d)^(1/2)-210*c^5*(b
*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*b^5*(b*d)^(1/2)-270*d^5*ln(1/2*(2*b
*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)
^(1/2))*a^5*c*b+135*c^2*d^4*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*
x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^4*b^2+60*c^3*a^3
*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*
d+b*c)/(b*d)^(1/2))*b^3*d^3+135*c^4*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*
d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^2*b^4*d^
2-270*c^5*a*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*
d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*b^5*d-304*d^4*(b*d*x^2+a*d*x+b*c*x
+a*c)^(1/2)*x*a^3*c*b^2*(b*d)^(1/2)+72*c^2*(b*d*x^2+a*d*x+b*c*x+a
*c)^(1/2)*x*a^2*b^3*d^3*(b*d)^(1/2)-304*c^3*(b*d*x^2+a*d*x+b*c*x+
a*c)^(1/2)*x*a*b^4*d^2*(b*d)^(1/2)+240*x^2*a^2*b^3*c*d^4*(b*d*x^2
+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+240*x^2*a*b^4*c^2*d^3*(b*d*x^
2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+4672*x^3*a*b^4*c*d^4*(b*d*x^
2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2))/(b*d*x^2+a*d*x+b*c*x+a*c)^(
1/2)/d^4/b^4/(b*d)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(3/2)*(d*x + c)^(3/2)*x^2,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.288367, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(3/2)*(d*x + c)^(3/2)*x^2,x, algorithm="fricas")
```

```
[Out] [1/30720*(4*(1280*b^5*d^5*x^5 - 105*b^5*c^5 + 235*a*b^4*c^4*d - 6
6*a^2*b^3*c^3*d^2 - 66*a^3*b^2*c^2*d^3 + 235*a^4*b*c*d^4 - 105*a^
5*d^5 + 1664*(b^5*c*d^4 + a*b^4*d^5)*x^4 + 16*(3*b^5*c^2*d^3 + 14
6*a*b^4*c*d^4 + 3*a^2*b^3*d^5)*x^3 - 8*(7*b^5*c^3*d^2 - 15*a*b^4*
c^2*d^3 - 15*a^2*b^3*c*d^4 + 7*a^3*b^2*d^5)*x^2 + 2*(35*b^5*c^4*d
 - 76*a*b^4*c^3*d^2 + 18*a^2*b^3*c^2*d^3 - 76*a^3*b^2*c*d^4 + 35*
a^4*b*d^5)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 15*(7*b^6*c
^6 - 18*a*b^5*c^5*d + 9*a^2*b^4*c^4*d^2 + 4*a^3*b^3*c^3*d^3 + 9*a
^4*b^2*c^2*d^4 - 18*a^5*b*c*d^5 + 7*a^6*d^6)*log(4*(2*b^2*d^2*x +
 b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2
+ b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b
*d)))/(sqrt(b*d)*b^4*d^4), 1/15360*(2*(1280*b^5*d^5*x^5 - 105*b^5
*c^5 + 235*a*b^4*c^4*d - 66*a^2*b^3*c^3*d^2 - 66*a^3*b^2*c^2*d^3
+ 235*a^4*b*c*d^4 - 105*a^5*d^5 + 1664*(b^5*c*d^4 + a*b^4*d^5)*x^
4 + 16*(3*b^5*c^2*d^3 + 146*a*b^4*c*d^4 + 3*a^2*b^3*d^5)*x^3 - 8*
(7*b^5*c^3*d^2 - 15*a*b^4*c^2*d^3 - 15*a^2*b^3*c*d^4 + 7*a^3*b^2*
```

```
d^5)*x^2 + 2*(35*b^5*c^4*d - 76*a*b^4*c^3*d^2 + 18*a^2*b^3*c^2*d^
3 - 76*a^3*b^2*c*d^4 + 35*a^4*b*d^5)*x)*sqrt(-b*d)*sqrt(b*x + a)*
sqrt(d*x + c) + 15*(7*b^6*c^6 - 18*a*b^5*c^5*d + 9*a^2*b^4*c^4*d^
2 + 4*a^3*b^3*c^3*d^3 + 9*a^4*b^2*c^2*d^4 - 18*a^5*b*c*d^5 + 7*a^
6*d^6)*arctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a)
*sqrt(d*x + c)*b*d)))/(sqrt(-b*d)*b^4*d^4)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int x^2 (a+bx)^{\frac{3}{2}} (c+dx)^{\frac{3}{2}} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(b*x+a)**(3/2)*(d*x+c)**(3/2),x)

[Out] Integral(x**2*(a + b*x)**(3/2)*(c + d*x)**(3/2), x)
```

GIAC/XCAS [A] time = 0.336927, size = 1, normalized size = 0.

$$\text{Done}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*(d*x + c)^(3/2)*x^2,x, algorithm="giac")

[Out] Done
```

3.596 $\int x(a+bx)^{3/2}(c+dx)^{3/2}\,dx$

Optimal. Leaf size=258

$$-\frac{3(ad+bc)(bc-ad)^4\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{128b^{7/2}d^{7/2}}+\frac{3\sqrt{a+bx}\sqrt{c+dx}(ad+bc)(bc-ad)^3}{128b^3d^3}-\frac{(a+bx)^{3/2}\sqrt{c+dx}(ad+bc)(bc-ad)^2}{64b^3d^2}-\frac{(a+bx)^{5/2}\sqrt{c+dx}(ad+bc)(bc-ad)}{16b^3d}-\frac{(a+bx)^{5/2}(c+dx)^{3/2}(ad+bc)}{8b^2d}+\frac{(a+bx)^{5/2}(c+dx)^{5/2}}{5bd}$$

```
[Out] (3*(b*c - a*d)^3*(b*c + a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(128*b^
3*d^3) - ((b*c - a*d)^2*(b*c + a*d)*(a + b*x)^(3/2)*Sqrt[c + d*x]
)/(64*b^3*d^2) - ((b*c - a*d)*(b*c + a*d)*(a + b*x)^(5/2)*Sqrt[c
+ d*x])/(16*b^3*d) - ((b*c + a*d)*(a + b*x)^(5/2)*(c + d*x)^(3/2)
)/(8*b^2*d) + ((a + b*x)^(5/2)*(c + d*x)^(5/2))/(5*b*d) - (3*(b*c
 - a*d)^4*(b*c + a*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sq
rt[c + d*x])])/(128*b^(7/2)*d^(7/2))
```

Rubi [A] time = 0.393207, antiderivative size = 258, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}=0.2$

$$-\frac{3(ad+bc)(bc-ad)^4\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{128b^{7/2}d^{7/2}}+\frac{3\sqrt{a+bx}\sqrt{c+dx}(ad+bc)(bc-ad)^3}{128b^3d^3}-\frac{(a+bx)^{3/2}\sqrt{c+dx}(ad+bc)(bc-ad)^2}{64b^3d^2}-\frac{(a+bx)^{5/2}\sqrt{c+dx}(ad+bc)(bc-ad)}{16b^3d}-\frac{(a+bx)^{5/2}(c+dx)^{3/2}(ad+bc)}{8b^2d}+\frac{(a+bx)^{5/2}(c+dx)^{5/2}}{5bd}$$

Antiderivative was successfully verified.

```
[In]  Int[x*(a + b*x)^(3/2)*(c + d*x)^(3/2),x]
```

```
[Out] (3*(b*c - a*d)^3*(b*c + a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(128*b^
3*d^3) - ((b*c - a*d)^2*(b*c + a*d)*(a + b*x)^(3/2)*Sqrt[c + d*x]
)/(64*b^3*d^2) - ((b*c - a*d)*(b*c + a*d)*(a + b*x)^(5/2)*Sqrt[c
+ d*x])/(16*b^3*d) - ((b*c + a*d)*(a + b*x)^(5/2)*(c + d*x)^(3/2)
)/(8*b^2*d) + ((a + b*x)^(5/2)*(c + d*x)^(5/2))/(5*b*d) - (3*(b*c
 - a*d)^4*(b*c + a*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sq
rt[c + d*x])])/(128*b^(7/2)*d^(7/2))
```

Rubi in Sympy [A] time = 47.4236, size = 230, normalized size = 0.89

$$\frac{(a+bx)^{\frac{5}{2}}(c+dx)^{\frac{5}{2}}}{5bd}-\frac{(a+bx)^{\frac{5}{2}}(c+dx)^{\frac{3}{2}}(ad+bc)}{8b^2d}+\frac{(a+bx)^{\frac{5}{2}}\sqrt{c+dx}\,(ad-bc)\,(ad+bc)}{16b^3d}-\frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}\,(ad-bc)^2\,(ad+bc)}{64b^3d^2}-\frac{3\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)^3\,(ad+bc)}{128b^3d^3}-\frac{3\,(ad-bc)^4\,(ad+bc)\,\mathrm{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{128b^{\frac{7}{2}}d^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(b*x+a)**(3/2)*(d*x+c)**(3/2),x)
```

```
[Out] (a + b*x)**(5/2)*(c + d*x)**(5/2)/(5*b*d) - (a + b*x)**(5/2)*(c +
 d*x)**(3/2)*(a*d + b*c)/(8*b**2*d) + (a + b*x)**(5/2)*sqrt(c + d
*x)*(a*d - b*c)*(a*d + b*c)/(16*b**3*d) - (a + b*x)**(3/2)*sqrt(c
 + d*x)*(a*d - b*c)**2*(a*d + b*c)/(64*b**3*d**2) - 3*sqrt(a + b*
```

```
x)*sqrt(c + d*x)*(a*d - b*c)**3*(a*d + b*c)/(128*b**3*d**3) - 3*(
a*d - b*c)**4*(a*d + b*c)*atanh(sqrt(b)*sqrt(c + d*x)/(sqrt(d)*sq
rt(a + b*x)))/(128*b**(7/2)*d**(7/2))
```

Mathematica [A] time = 0.236855, size = 240, normalized size = 0.93

$$\frac{\sqrt{a+bx}\sqrt{c+dx}\left(15a^4d^4-10a^3bd^3(4c+dx)+2a^2b^2d^2\left(9c^2+13cdx+4d^2x^2\right)+2ab^3d\left(-20c^3+13c^2dx+136cd^2x^2+88d^3\right.\right.}{640b^3d^3}$$
$$-\frac{3(bc-ad)^4(ad+bc)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{256b^{7/2}d^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x*(a + b*x)^(3/2)*(c + d*x)^(3/2),x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(15*a^4*d^4 - 10*a^3*b*d^3*(4*c + d*
x) + 2*a^2*b^2*d^2*(9*c^2 + 13*c*d*x + 4*d^2*x^2) + 2*a*b^3*d*(-2
0*c^3 + 13*c^2*d*x + 136*c*d^2*x^2 + 88*d^3*x^3) + b^4*(15*c^4 -
10*c^3*d*x + 8*c^2*d^2*x^2 + 176*c*d^3*x^3 + 128*d^4*x^4)))/(640*
b^3*d^3) - (3*(b*c - a*d)^4*(b*c + a*d)*Log[b*c + a*d + 2*b*d*x +
 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(256*b^(7/2)*d^(
7/2))
```

Maple [B] time = 0.02, size = 942, normalized size = 3.7

$$-\frac{1}{1280\,b^3d^3}\sqrt{bx+a}\sqrt{dx+c}\left(-256\,x^4b^4d^4\sqrt{dx^2b+adx+bcx+ac}\sqrt{bd}-352\,x^3ab^3d^4\sqrt{dx^2b+adx+bcx+ac}\sqrt{bd}-352\,x^3\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(b*x+a)^(3/2)*(d*x+c)^(3/2),x)
```

```
[Out] -1/1280*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(-256*x^4*b^4*d^4*(b*d*x^2+a*
d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)-352*x^3*a*b^3*d^4*(b*d*x^2+a*d*x
+b*c*x+a*c)^(1/2)*(b*d)^(1/2)-352*x^3*b^4*c*d^3*(b*d*x^2+a*d*x+b*
c*x+a*c)^(1/2)*(b*d)^(1/2)-16*x^2*a^2*b^2*d^4*(b*d*x^2+a*d*x+b*c*
x+a*c)^(1/2)*(b*d)^(1/2)-544*x^2*a*b^3*c*d^3*(b*d*x^2+a*d*x+b*c*x
+a*c)^(1/2)*(b*d)^(1/2)-16*x^2*b^4*c^2*d^2*(b*d*x^2+a*d*x+b*c*x+a
*c)^(1/2)*(b*d)^(1/2)+15*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a
*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^5*d^5-45*ln(1/2*(2*
b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d
)^(1/2))*a^4*b*c*d^4+30*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*
c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^3*b^2*c^2*d^3+30*ln(
1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*
c)/(b*d)^(1/2))*a^2*b^3*c^3*d^2-45*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d
*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a*b^4*c^4*d
+15*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)
+a*d+b*c)/(b*d)^(1/2))*b^5*c^5+20*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*
x+a*c)^(1/2)*x*a^3*b*d^4-52*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)
^(1/2)*x*a^2*b^2*c*d^3-52*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(
1/2)*x*a*b^3*c^2*d^2+20*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/
2)*x*b^4*c^3*d-30*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a^4
*d^4+80*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a^3*b*c*d^3-3
6*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a^2*b^2*c^2*d^2+80*
(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a*b^3*c^3*d-30*(b*d)^
(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*b^4*c^4)/(b*d*x^2+a*d*x+b*c
*x+a*c)^(1/2)/b^3/d^3/(b*d)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*(d*x + c)^(3/2)*x,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.275236, size = 1, normalized size = 0.

$$\left[\frac{4\left(128\,b^4d^4x^4+15\,b^4c^4-40\,ab^3c^3d+18\,a^2b^2c^2d^2-40\,a^3bcd^3+15\,a^4d^4+176\left(b^4cd^3+ab^3d^4\right)x^3+8\left(b^4c^2d^2+34\,ab^3cd^3\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*(d*x + c)^(3/2)*x,x, algorithm="fricas")
```

```
[Out] [1/2560*(4*(128*b^4*d^4*x^4 + 15*b^4*c^4 - 40*a*b^3*c^3*d + 18*a^
2*b^2*c^2*d^2 - 40*a^3*b*c*d^3 + 15*a^4*d^4 + 176*(b^4*c*d^3 + a*
b^3*d^4)*x^3 + 8*(b^4*c^2*d^2 + 34*a*b^3*c*d^3 + a^2*b^2*d^4)*x^2
 - 2*(5*b^4*c^3*d - 13*a*b^3*c^2*d^2 - 13*a^2*b^2*c*d^3 + 5*a^3*b
*d^4)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 15*(b^5*c^5 - 3*
a*b^4*c^4*d + 2*a^2*b^3*c^3*d^2 + 2*a^3*b^2*c^2*d^3 - 3*a^4*b*c*d
^4 + a^5*d^5)*log(-4*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*x +
 a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^
2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/(sqrt(b*d)*b^3*d^3), 1/1
280*(2*(128*b^4*d^4*x^4 + 15*b^4*c^4 - 40*a*b^3*c^3*d + 18*a^2*b^
2*c^2*d^2 - 40*a^3*b*c*d^3 + 15*a^4*d^4 + 176*(b^4*c*d^3 + a*b^3*
d^4)*x^3 + 8*(b^4*c^2*d^2 + 34*a*b^3*c*d^3 + a^2*b^2*d^4)*x^2 - 2
*(5*b^4*c^3*d - 13*a*b^3*c^2*d^2 - 13*a^2*b^2*c*d^3 + 5*a^3*b*d^4
)*x)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c) - 15*(b^5*c^5 - 3*a*b
^4*c^4*d + 2*a^2*b^3*c^3*d^2 + 2*a^3*b^2*c^2*d^3 - 3*a^4*b*c*d^4
+ a^5*d^5)*arctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x
+ a)*sqrt(d*x + c)*b*d)))/(sqrt(-b*d)*b^3*d^3)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int x\,(a+bx)^{\frac{3}{2}}\,(c+dx)^{\frac{3}{2}}\;dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(b*x+a)**(3/2)*(d*x+c)**(3/2),x)
```

```
[Out] Integral(x*(a + b*x)**(3/2)*(c + d*x)**(3/2), x)
```

GIAC/XCAS [A] time = 0.304079, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*(d*x + c)^(3/2)*x,x, algorithm="giac")
```

```
[Out] Done
```

3.597 $\int (a+bx)^{3/2}(c+dx)^{3/2}\,dx$

Optimal. Leaf size=189

$$\frac{3(bc-ad)^4\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{64b^{5/2}d^{5/2}}-\frac{3\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^3}{64b^2d^2}+\frac{(a+bx)^{3/2}\sqrt{c+dx}(bc-ad)^2}{32b^2d}+\frac{(a+bx)^{5/2}\sqrt{c+dx}(bc-ad)}{8b^2}+\frac{(a+bx)^{5/2}(c+dx)^{3/2}}{4b}$$

```
[Out] (-3*(b*c - a*d)^3*Sqrt[a + b*x]*Sqrt[c + d*x])/(64*b^2*d^2) + ((b
*c - a*d)^2*(a + b*x)^(3/2)*Sqrt[c + d*x])/(32*b^2*d) + ((b*c - a
*d)*(a + b*x)^(5/2)*Sqrt[c + d*x])/(8*b^2) + ((a + b*x)^(5/2)*(c
+ d*x)^(3/2))/(4*b) + (3*(b*c - a*d)^4*ArcTanh[(Sqrt[d]*Sqrt[a +
b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(64*b^(5/2)*d^(5/2))
```

Rubi [A] time = 0.234797, antiderivative size = 189, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 3, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}} = 0.158$

$$\frac{3(bc-ad)^4\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{64b^{5/2}d^{5/2}}-\frac{3\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^3}{64b^2d^2}+\frac{(a+bx)^{3/2}\sqrt{c+dx}(bc-ad)^2}{32b^2d}+\frac{(a+bx)^{5/2}\sqrt{c+dx}(bc-ad)}{8b^2}+\frac{(a+bx)^{5/2}(c+dx)^{3/2}}{4b}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(3/2)*(c + d*x)^(3/2),x]
```

```
[Out] (-3*(b*c - a*d)^3*Sqrt[a + b*x]*Sqrt[c + d*x])/(64*b^2*d^2) + ((b
*c - a*d)^2*(a + b*x)^(3/2)*Sqrt[c + d*x])/(32*b^2*d) + ((b*c - a
*d)*(a + b*x)^(5/2)*Sqrt[c + d*x])/(8*b^2) + ((a + b*x)^(5/2)*(c
+ d*x)^(3/2))/(4*b) + (3*(b*c - a*d)^4*ArcTanh[(Sqrt[d]*Sqrt[a +
b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(64*b^(5/2)*d^(5/2))
```

Rubi in Sympy [A] time = 33.0125, size = 167, normalized size = 0.88

$$\frac{(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{5}{2}}}{4d}+\frac{\sqrt{a+bx}\,(c+dx)^{\frac{5}{2}}(ad-bc)}{8d^2}+\frac{\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}(ad-bc)^2}{32bd^2}-\frac{3\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)^3}{64b^2d^2}+\frac{3\,(ad-bc)^4\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{64b^{\frac{5}{2}}d^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(d*x+c)**(3/2),x)
```

```
[Out] (a + b*x)**(3/2)*(c + d*x)**(5/2)/(4*d) + sqrt(a + b*x)*(c + d*x)
**(5/2)*(a*d - b*c)/(8*d**2) + sqrt(a + b*x)*(c + d*x)**(3/2)*(a*
d - b*c)**2/(32*b*d**2) - 3*sqrt(a + b*x)*sqrt(c + d*x)*(a*d - b*
c)**3/(64*b**2*d**2) + 3*(a*d - b*c)**4*atanh(sqrt(b)*sqrt(c + d*
x)/(sqrt(d)*sqrt(a + b*x)))/(64*b**(5/2)*d**(5/2))
```

Mathematica [A] time = 0.187335, size = 180, normalized size = 0.95

$$\frac{\sqrt{a+bx}\sqrt{c+dx}\left(-3a^3d^3+a^2bd^2(11c+2dx)+ab^2d\left(11c^2+44cdx+24d^2x^2\right)+b^3\left(-3c^3+2c^2dx+24cd^2x^2+16d^3x^3\right)\right)}{64b^2d^2}+\frac{3(bc-ad)^4\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{128b^{5/2}d^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(3/2)*(c + d*x)^(3/2),x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(-3*a^3*d^3 + a^2*b*d^2*(11*c + 2*d*
x) + a*b^2*d*(11*c^2 + 44*c*d*x + 24*d^2*x^2) + b^3*(-3*c^3 + 2*c
^2*d*x + 24*c*d^2*x^2 + 16*d^3*x^3)))/(64*b^2*d^2) + (3*(b*c - a*
d)^4*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sq
rt[c + d*x]])/(128*b^(5/2)*d^(5/2))
```

Maple [B] time = 0.007, size = 640, normalized size = 3.4

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(d*x+c)^(3/2),x)
```

```
[Out] 1/4/d*(b*x+a)^(3/2)*(d*x+c)^(5/2)+1/8/d*(b*x+a)^(1/2)*(d*x+c)^(5/
2)*a-1/8/d^2*(b*x+a)^(1/2)*(d*x+c)^(5/2)*b*c+1/32/b*(d*x+c)^(3/2)
*(b*x+a)^(1/2)*a^2-1/16/d*(d*x+c)^(3/2)*(b*x+a)^(1/2)*a*c+1/32/d^
2*(d*x+c)^(3/2)*(b*x+a)^(1/2)*c^2*b-3/64*d/b^2*(d*x+c)^(1/2)*(b*x
+a)^(1/2)*a^3+9/64/b*(d*x+c)^(1/2)*(b*x+a)^(1/2)*a^2*c-9/64/d*(d*
x+c)^(1/2)*(b*x+a)^(1/2)*a*c^2+3/64/d^2*(d*x+c)^(1/2)*(b*x+a)^(1/
2)*c^3*b+3/128*d^2/b^2*((b*x+a)*(d*x+c))^(1/2)/(d*x+c)^(1/2)/(b*x
+a)^(1/2)*ln((1/2*a*d+1/2*b*c+b*d*x)/(b*d)^(1/2)+(d*x^2*b+(a*d+b*
c)*x+a*c)^(1/2))/(b*d)^(1/2)*a^4-3/32*d/b*((b*x+a)*(d*x+c))^(1/2)
/(d*x+c)^(1/2)/(b*x+a)^(1/2)*ln((1/2*a*d+1/2*b*c+b*d*x)/(b*d)^(1/
2)+(d*x^2*b+(a*d+b*c)*x+a*c)^(1/2))/(b*d)^(1/2)*a^3*c+9/64*((b*x+
a)*(d*x+c))^(1/2)/(d*x+c)^(1/2)/(b*x+a)^(1/2)*ln((1/2*a*d+1/2*b*c
+b*d*x)/(b*d)^(1/2)+(d*x^2*b+(a*d+b*c)*x+a*c)^(1/2))/(b*d)^(1/2)*
a^2*c^2-3/32/d*((b*x+a)*(d*x+c))^(1/2)/(d*x+c)^(1/2)/(b*x+a)^(1/2
)*ln((1/2*a*d+1/2*b*c+b*d*x)/(b*d)^(1/2)+(d*x^2*b+(a*d+b*c)*x+a*c
)^(1/2))/(b*d)^(1/2)*a*c^3*b+3/128/d^2*((b*x+a)*(d*x+c))^(1/2)/(d
*x+c)^(1/2)/(b*x+a)^(1/2)*ln((1/2*a*d+1/2*b*c+b*d*x)/(b*d)^(1/2)+
(d*x^2*b+(a*d+b*c)*x+a*c)^(1/2))/(b*d)^(1/2)*c^4*b^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*(d*x + c)^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.242207, size = 1, normalized size = 0.01

$$\left[\frac{4\left(16\,b^3d^3x^3 - 3\,b^3c^3 + 11\,ab^2c^2d + 11\,a^2bcd^2 - 3\,a^3d^3 + 24\,\left(b^3cd^2 + ab^2d^3\right)x^2 + 2\,\left(b^3c^2d + 22\,ab^2cd^2 + a^2bd^3\right)x\right)\sqrt{bd}\sqrt{bx}}{\ }\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*(d*x + c)^(3/2),x, algorithm="fricas")
```

```
[Out] [1/256*(4*(16*b^3*d^3*x^3 - 3*b^3*c^3 + 11*a*b^2*c^2*d + 11*a^2*b
*c*d^2 - 3*a^3*d^3 + 24*(b^3*c*d^2 + a*b^2*d^3)*x^2 + 2*(b^3*c^2*
```

```
d + 22*a*b^2*c*d^2 + a^2*b*d^3)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d
*x + c) + 3*(b^4*c^4 - 4*a*b^3*c^3*d + 6*a^2*b^2*c^2*d^2 - 4*a^3*
b*c*d^3 + a^4*d^4)*log(4*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b
*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^
2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/(sqrt(b*d)*b^2*d^2),
 1/128*(2*(16*b^3*d^3*x^3 - 3*b^3*c^3 + 11*a*b^2*c^2*d + 11*a^2*b
*c*d^2 - 3*a^3*d^3 + 24*(b^3*c*d^2 + a*b^2*d^3)*x^2 + 2*(b^3*c^2*
d + 22*a*b^2*c*d^2 + a^2*b*d^3)*x)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(
d*x + c) + 3*(b^4*c^4 - 4*a*b^3*c^3*d + 6*a^2*b^2*c^2*d^2 - 4*a^3
*b*c*d^3 + a^4*d^4)*arctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(
sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/(sqrt(-b*d)*b^2*d^2)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int (a + bx)^{\frac{3}{2}} (c + dx)^{\frac{3}{2}} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)*(d*x+c)**(3/2),x)
```

```
[Out] Integral((a + b*x)**(3/2)*(c + d*x)**(3/2), x)
```

GIAC/XCAS [A] time = 0.295599, size = 1, normalized size = 0.01

$$\mathit{Done}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*(d*x + c)^(3/2),x, algorithm="giac")
```

```
[Out] Done
```

3.598 $\int \frac{(a+bx)^{3/2}(c+dx)^{3/2}}{x}\,dx$

Optimal. Leaf size=213

$$-2a^{3/2}c^{3/2}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)-\frac{(ad+bc)\left(a^2d^2-10abcd+b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8b^{3/2}d^{3/2}}+\frac{1}{8}\sqrt{a+bx}\sqrt{c+dx}\left(\frac{a^2d}{b}+8ac-\frac{bc^2}{d}\right)+\frac{1}{3}(a+bx)^{3/2}(c+dx)^{3/2}+\frac{\sqrt{a+bx}(c+dx)^{3/2}(ad+bc)}{4d}$$

```
[Out] ((8*a*c - (b*c^2)/d + (a^2*d)/b)*Sqrt[a + b*x]*Sqrt[c + d*x])/8 +
 ((b*c + a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(4*d) + ((a + b*x)^(
3/2)*(c + d*x)^(3/2))/3 - 2*a^(3/2)*c^(3/2)*ArcTanh[(Sqrt[c]*Sqrt
[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])] - ((b*c + a*d)*(b^2*c^2 - 10*
a*b*c*d + a^2*d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[
c + d*x])])/(8*b^(3/2)*d^(3/2))
```

Rubi [A] time = 0.670329, antiderivative size = 213, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.273

$$-2a^{3/2}c^{3/2}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)-\frac{(ad+bc)\left(a^2d^2-10abcd+b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8b^{3/2}d^{3/2}}+\frac{1}{8}\sqrt{a+bx}\sqrt{c+dx}\left(\frac{a^2d}{b}+8ac-\frac{bc^2}{d}\right)+\frac{1}{3}(a+bx)^{3/2}(c+dx)^{3/2}+\frac{\sqrt{a+bx}(c+dx)^{3/2}(ad+bc)}{4d}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(3/2)*(c + d*x)^(3/2))/x,x]
```

```
[Out] ((8*a*c - (b*c^2)/d + (a^2*d)/b)*Sqrt[a + b*x]*Sqrt[c + d*x])/8 +
 ((b*c + a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(4*d) + ((a + b*x)^(
3/2)*(c + d*x)^(3/2))/3 - 2*a^(3/2)*c^(3/2)*ArcTanh[(Sqrt[c]*Sqrt
[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])] - ((b*c + a*d)*(b^2*c^2 - 10*
a*b*c*d + a^2*d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[
c + d*x])])/(8*b^(3/2)*d^(3/2))
```

Rubi in Sympy [A] time = 65.3372, size = 199, normalized size = 0.93

$$-2a^{\frac{3}{2}}c^{\frac{3}{2}}\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)+\frac{(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{3}{2}}}{3}+\frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}\,(ad+bc)}{4b}-\frac{\sqrt{a+bx}\sqrt{c+dx}\left(a^2d^2-8abcd-b^2c^2\right)}{8bd}-\frac{(ad+bc)\left(a^2d^2-10abcd+b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8b^{\frac{3}{2}}d^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(d*x+c)**(3/2)/x,x)
```

```
[Out] -2*a**(3/2)*c**(3/2)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c
+ d*x))) + (a + b*x)**(3/2)*(c + d*x)**(3/2)/3 + (a + b*x)**(3/2)
*sqrt(c + d*x)*(a*d + b*c)/(4*b) - sqrt(a + b*x)*sqrt(c + d*x)*(a
**2*d**2 - 8*a*b*c*d - b**2*c**2)/(8*b*d) - (a*d + b*c)*(a**2*d**
2 - 10*a*b*c*d + b**2*c**2)*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*
sqrt(c + d*x)))/(8*b**(3/2)*d**(3/2))
```

Mathematica [A] time = 0.418157, size = 236, normalized size = 1.11

$$-a^{3/2}c^{3/2}\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)$$
$$+a^{3/2}c^{3/2}\log(x)+\sqrt{a+bx}\sqrt{c+dx}\left(\frac{3a^2d^2+38abcd+3b^2c^2}{24bd}+\frac{7}{12}x(ad+bc)+\frac{1}{3}bdx^2\right)-\frac{\left(a^3d^3-9a^2bcd^2-9ab^2c^2d+b^3c^3\right)\log}{1}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(3/2)*(c + d*x)^(3/2))/x,x]
```

```
[Out] Sqrt[a + b*x]*Sqrt[c + d*x]*((3*b^2*c^2 + 38*a*b*c*d + 3*a^2*d^2)
/(24*b*d) + (7*(b*c + a*d)*x)/12 + (b*d*x^2)/3) + a^(3/2)*c^(3/2)
*Log[x] - a^(3/2)*c^(3/2)*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*S
qrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]] - ((b^3*c^3 - 9*a*b^2*c^2*d -
 9*a^2*b*c*d^2 + a^3*d^3)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqr
t[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(16*b^(3/2)*d^(3/2))
```

Maple [B] time = 0.021, size = 587, normalized size = 2.8

$$-\frac{1}{48\,bd}\sqrt{bx+a}\sqrt{dx+c}\left(-16\,x^2b^2d^2\sqrt{ac}\sqrt{dx^2b+adx+bcx+ac}\sqrt{bd}+3\,d^3\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{dx^2b+adx+bcx+ac}\sqrt{bd}}{\sqrt{bd}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(d*x+c)^(3/2)/x,x)
```

```
[Out] -1/48*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(-16*x^2*b^2*d^2*(a*c)^(1/2)*(b
*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+3*d^3*ln(1/2*(2*b*d*x+2
*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2)
)*a^3*(a*c)^(1/2)-27*d^2*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a
*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^2*c*(a*c)^(1/2)*b-2
7*c^2*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/
2)+a*d+b*c)/(b*d)^(1/2))*a*d*(a*c)^(1/2)*b^2+3*c^3*ln(1/2*(2*b*d*
x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1
/2))*b^3*(a*c)^(1/2)+48*a^2*c^2*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*
d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*b*(b*d)^(1/2)*d-28*d^2*(b*
d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*a*(b*d)^(1/2)*(a*c)^(1/2)*b-28*d*(
b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*c*(b*d)^(1/2)*(a*c)^(1/2)*b^2-6*
d^2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a^2*(b*d)^(1/2)*(a*c)^(1/2)-7
6*d*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a*c*(b*d)^(1/2)*(a*c)^(1/2)*b
-6*c^2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)*(a*c)^(1/2)*b^
2)/(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)/b/(b*d)^(1/2)/d/(a*c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*(d*x + c)^(3/2)/x,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 6.46196, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*(d*x + c)^(3/2)/x,x, algorithm="fricas")
```

```
[Out] [1/96*(48*sqrt(a*c)*sqrt(b*d)*a*b*c*d*log((8*a^2*c^2 + (b^2*c^2 +
 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a*c + (b*c + a*d)*x)*sqrt(a*c)*s
qrt(b*x + a)*sqrt(d*x + c) + 8*(a*b*c^2 + a^2*c*d)*x)/x^2) + 4*(8
*b^2*d^2*x^2 + 3*b^2*c^2 + 38*a*b*c*d + 3*a^2*d^2 + 14*(b^2*c*d +
 a*b*d^2)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 3*(b^3*c^3 -
 9*a*b^2*c^2*d - 9*a^2*b*c*d^2 + a^3*d^3)*log(-4*(2*b^2*d^2*x + b
^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 +
b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d
)))/(sqrt(b*d)*b*d), 1/48*(24*sqrt(a*c)*sqrt(-b*d)*a*b*c*d*log((8
*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a*c + (b*c
+ a*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c) + 8*(a*b*c^2 + a^
2*c*d)*x)/x^2) + 2*(8*b^2*d^2*x^2 + 3*b^2*c^2 + 38*a*b*c*d + 3*a^
2*d^2 + 14*(b^2*c*d + a*b*d^2)*x)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d
*x + c) - 3*(b^3*c^3 - 9*a*b^2*c^2*d - 9*a^2*b*c*d^2 + a^3*d^3)*a
rctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*
x + c)*b*d)))/(sqrt(-b*d)*b*d), -1/96*(96*sqrt(-a*c)*sqrt(b*d)*a*
b*c*d*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(-a*c)*sqrt(b*x + a
)*sqrt(d*x + c))) - 4*(8*b^2*d^2*x^2 + 3*b^2*c^2 + 38*a*b*c*d + 3
*a^2*d^2 + 14*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt
(d*x + c) - 3*(b^3*c^3 - 9*a*b^2*c^2*d - 9*a^2*b*c*d^2 + a^3*d^3)
*log(-4*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x
+ c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*
d + a*b*d^2)*x)*sqrt(b*d)))/(sqrt(b*d)*b*d), -1/48*(48*sqrt(-a*c)
*sqrt(-b*d)*a*b*c*d*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(-a*c
)*sqrt(b*x + a)*sqrt(d*x + c))) - 2*(8*b^2*d^2*x^2 + 3*b^2*c^2 +
38*a*b*c*d + 3*a^2*d^2 + 14*(b^2*c*d + a*b*d^2)*x)*sqrt(-b*d)*sqr
t(b*x + a)*sqrt(d*x + c) + 3*(b^3*c^3 - 9*a*b^2*c^2*d - 9*a^2*b*c
*d^2 + a^3*d^3)*arctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt
(b*x + a)*sqrt(d*x + c)*b*d)))/(sqrt(-b*d)*b*d)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a + bx)^{\frac{3}{2}} (c + dx)^{\frac{3}{2}}}{x}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)*(d*x+c)**(3/2)/x,x)
```

```
[Out] Integral((a + b*x)**(3/2)*(c + d*x)**(3/2)/x, x)
```

GIAC/XCAS [A] time = 0.305846, size = 447, normalized size = 2.1

$$-\frac{2\sqrt{bd}a^2c^2|b| \arctan\left(-\frac{b^2c+abd-\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2}{2\sqrt{-abcd}b}\right)}{\sqrt{-abcd}b} + \frac{1}{24}\sqrt{b^2c + (bx + a)bd - abd}\sqrt{bx + a}\left(2(bx + a)\left(\frac{4(bx + a)d|b|}{b^3} + \frac{7b^5cd^4|b| - ab^4d^5|b|}{b^7d^4}\right) + \frac{3\left(b^6c^2d^3|b| + 8ab^5cd^4|b| - a^2\right.}{b^7d^4}\right. + \frac{\left(\sqrt{bd}b^3c^3|b| - 9\sqrt{bd}ab^2c^2d|b| - 9\sqrt{bd}a^2bcd^2|b| + \sqrt{bd}a^3d^3|b|\right)\ln\left(\left(\sqrt{bd}\sqrt{bx + a} - \sqrt{b^2c + (bx + a)bd - abd}\right)^2\right)}{16b^3d^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*(d*x + c)^(3/2)/x,x, algorithm="giac")
```

```
[Out] -2*sqrt(b*d)*a^2*c^2*abs(b)*arctan(-1/2*(b^2*c + a*b*d - (sqrt(b*
d)*sqrt(b*x + a) - sqrt(b^2*c + (b*x + a)*b*d - a*b*d))^2)/(sqrt(
-a*b*c*d)*b))/(sqrt(-a*b*c*d)*b) + 1/24*sqrt(b^2*c + (b*x + a)*b*
d - a*b*d)*sqrt(b*x + a)*(2*(b*x + a)*(4*(b*x + a)*d*abs(b)/b^3 +
```

```
 (7*b^5*c*d^4*abs(b) - a*b^4*d^5*abs(b))/(b^7*d^4)) + 3*(b^6*c^2*
d^3*abs(b) + 8*a*b^5*c*d^4*abs(b) - a^2*b^4*d^5*abs(b))/(b^7*d^4)
) + 1/16*(sqrt(b*d)*b^3*c^3*abs(b) - 9*sqrt(b*d)*a*b^2*c^2*d*abs(
b) - 9*sqrt(b*d)*a^2*b*c*d^2*abs(b) + sqrt(b*d)*a^3*d^3*abs(b))*l
n((sqrt(b*d)*sqrt(b*x + a) - sqrt(b^2*c + (b*x + a)*b*d - a*b*d))
^2)/(b^3*d^2)
```

3.599 $\int \frac{(a+bx)^{3/2}(c+dx)^{3/2}}{x^2}\,dx$

Optimal. Leaf size=191

$$\frac{3\left(a^2d^2+6abcd+b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4\sqrt{b}\sqrt{d}}-\frac{(a+bx)^{3/2}(c+dx)^{3/2}}{x}+\frac{3}{2}b\sqrt{a+bx}(c+dx)^{3/2}+\frac{3}{4}\sqrt{a+bx}\sqrt{c+dx}(3ad+bc)-3\sqrt{a}\sqrt{c}(ad+bc)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)$$

```
[Out] (3*(b*c + 3*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/4 + (3*b*Sqrt[a + b
*x]*(c + d*x)^(3/2))/2 - ((a + b*x)^(3/2)*(c + d*x)^(3/2))/x - 3*
Sqrt[a]*Sqrt[c]*(b*c + a*d)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt
[a]*Sqrt[c + d*x])] + (3*(b^2*c^2 + 6*a*b*c*d + a^2*d^2)*ArcTanh[
(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(4*Sqrt[b]*Sqrt
[d])
```

Rubi [A] time = 0.622082, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.273

$$\frac{3\left(a^2d^2+6abcd+b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4\sqrt{b}\sqrt{d}}-\frac{(a+bx)^{3/2}(c+dx)^{3/2}}{x}+\frac{3}{2}b\sqrt{a+bx}(c+dx)^{3/2}+\frac{3}{4}\sqrt{a+bx}\sqrt{c+dx}(3ad+bc)-3\sqrt{a}\sqrt{c}(ad+bc)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(3/2)*(c + d*x)^(3/2))/x^2,x]
```

```
[Out] (3*(b*c + 3*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/4 + (3*b*Sqrt[a + b
*x]*(c + d*x)^(3/2))/2 - ((a + b*x)^(3/2)*(c + d*x)^(3/2))/x - 3*
Sqrt[a]*Sqrt[c]*(b*c + a*d)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt
[a]*Sqrt[c + d*x])] + (3*(b^2*c^2 + 6*a*b*c*d + a^2*d^2)*ArcTanh[
(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(4*Sqrt[b]*Sqrt
[d])
```

Rubi in Sympy [A] time = 83.3026, size = 182, normalized size = 0.95

$$-3\sqrt{a}\sqrt{c}\,(ad+bc)\,\mathrm{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)+\frac{3b\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}}{2}+\sqrt{a+bx}\sqrt{c+dx}\left(\frac{9ad}{4}+\frac{3bc}{4}\right)-\frac{(a+bx)^{\frac{3}{2}}\,(c+dx)^{\frac{3}{2}}}{x}+\frac{3\left(a^2d^2+6abcd+b^2c^2\right)\mathrm{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{4\sqrt{b}\sqrt{d}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(d*x+c)**(3/2)/x**2,x)
```

```
[Out] -3*sqrt(a)*sqrt(c)*(a*d + b*c)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(
a)*sqrt(c + d*x))) + 3*b*sqrt(a + b*x)*(c + d*x)**(3/2)/2 + sqrt(
a + b*x)*sqrt(c + d*x)*(9*a*d/4 + 3*b*c/4) - (a + b*x)**(3/2)*(c
+ d*x)**(3/2)/x + 3*(a**2*d**2 + 6*a*b*c*d + b**2*c**2)*atanh(sqr
t(b)*sqrt(c + d*x)/(sqrt(d)*sqrt(a + b*x)))/(4*sqrt(b)*sqrt(d))
```

Mathematica [A] time = 0.128776, size = 212, normalized size = 1.11

$$\frac{3\left(a^2d^2+6abcd+b^2c^2\right)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{8\sqrt{b}\sqrt{d}}+\sqrt{a+bx}\sqrt{c+dx}\left(\frac{5}{4}(ad+bc)-\frac{ac}{x}+\frac{bdx}{2}\right)+\frac{3}{2}\sqrt{a}\sqrt{c}\log(x)(ad+bc)-\frac{3}{2}\sqrt{a}\sqrt{c}(ad+bc)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(3/2)*(c + d*x)^(3/2))/x^2,x]
```

```
[Out] Sqrt[a + b*x]*Sqrt[c + d*x]*((5*(b*c + a*d))/4 - (a*c)/x + (b*d*x
)/2) + (3*Sqrt[a]*Sqrt[c]*(b*c + a*d)*Log[x])/2 - (3*Sqrt[a]*Sqrt
[c]*(b*c + a*d)*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqr
t[a + b*x]*Sqrt[c + d*x]])/2 + (3*(b^2*c^2 + 6*a*b*c*d + a^2*d^2)
*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c
 + d*x]])/(8*Sqrt[b]*Sqrt[d])
```

Maple [B] time = 0.023, size = 489, normalized size = 2.6

$$\frac{1}{8x}\sqrt{bx+a}\sqrt{dx+c}\left(3d^2\ln\left(1/2\frac{2bdx+2\sqrt{dx^2b+adx+bcx+ac}\sqrt{bd}+ad+bc}{\sqrt{bd}}\right)a^2\sqrt{ac}x+18bd\ln\left(1/2\frac{2bdx+2\sqrt{dx^2}}{}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(d*x+c)^(3/2)/x^2,x)
```

```
[Out] 1/8*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(3*d^2*ln(1/2*(2*b*d*x+2*(b*d*x^2
+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^2*(a*
c)^(1/2)*x+18*b*d*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/
2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a*c*(a*c)^(1/2)*x+3*b^2*ln(1
/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c
)/(b*d)^(1/2))*c^2*(a*c)^(1/2)*x-12*a^2*c*ln((a*d*x+b*c*x+2*(a*c)
^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*d*(b*d)^(1/2)*x-
12*a*c^2*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^
(1/2)+2*a*c)/x)*b*(b*d)^(1/2)*x+4*b*d*x^2*(b*d*x^2+a*d*x+b*c*x+a*
c)^(1/2)*(b*d)^(1/2)*(a*c)^(1/2)+10*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/
2)*d*a*x*(a*c)^(1/2)*(b*d)^(1/2)+10*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/
2)*b*x*c*(a*c)^(1/2)*(b*d)^(1/2)-8*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2
)*a*c*(a*c)^(1/2)*(b*d)^(1/2))/(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)/(b
*d)^(1/2)/(a*c)^(1/2)/x
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*(d*x + c)^(3/2)/x^2,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 1.65911, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*(d*x + c)^(3/2)/x^2,x, algorithm="fricas")
```

```
[Out] [1/16*(12*sqrt(a*c)*(b*c + a*d)*sqrt(b*d)*x*log((8*a^2*c^2 + (b^2
*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a*c + (b*c + a*d)*x)*sqrt(
a*c)*sqrt(b*x + a)*sqrt(d*x + c) + 8*(a*b*c^2 + a^2*c*d)*x)/x^2)
+ 3*(b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x*log(4*(2*b^2*d^2*x + b^2*c*
d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c
^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)) +
4*(2*b*d*x^2 - 4*a*c + 5*(b*c + a*d)*x)*sqrt(b*d)*sqrt(b*x + a)*s
qrt(d*x + c))/(sqrt(b*d)*x), 1/8*(6*sqrt(a*c)*(b*c + a*d)*sqrt(-b
*d)*x*log((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2
*a*c + (b*c + a*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c) + 8*(
a*b*c^2 + a^2*c*d)*x)/x^2) + 3*(b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x*
arctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d
*x + c)*b*d)) + 2*(2*b*d*x^2 - 4*a*c + 5*(b*c + a*d)*x)*sqrt(-b*d
)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(-b*d)*x), -1/16*(24*sqrt(-a*
c)*(b*c + a*d)*sqrt(b*d)*x*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(sq
rt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c))) - 3*(b^2*c^2 + 6*a*b*c*d +
 a^2*d^2)*x*log(4*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*x + a)
*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 +
 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)) - 4*(2*b*d*x^2 - 4*a*c + 5*(
b*c + a*d)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(b*d)*x
), -1/8*(12*sqrt(-a*c)*(b*c + a*d)*sqrt(-b*d)*x*arctan(1/2*(2*a*c
 + (b*c + a*d)*x)/(sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c))) - 3*(
b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x*arctan(1/2*(2*b*d*x + b*c + a*d)
*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)) - 2*(2*b*d*x^2 - 4
*a*c + 5*(b*c + a*d)*x)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c))/(
sqrt(-b*d)*x)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a + bx)^{\frac{3}{2}} (c + dx)^{\frac{3}{2}}}{x^2} dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)*(d*x+c)**(3/2)/x**2,x)
```

```
[Out] Integral((a + b*x)**(3/2)*(c + d*x)**(3/2)/x**2, x)
```

GIAC/XCAS [A] time = 0.601075, size = 4, normalized size = 0.02

$$sage_0 x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*(d*x + c)^(3/2)/x^2,x, algorithm="giac")
```

```
[Out] sage0*x
```

3.600 $\int \frac{(a+bx)^{3/2}(c+dx)^{3/2}}{x^3}\,dx$

Optimal. Leaf size=209

$$-\frac{3\left(a^2d^2+6abcd+b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4\sqrt{a}\sqrt{c}}-\frac{(a+bx)^{3/2}(c+dx)^{3/2}}{2x^2}-\frac{3\sqrt{a+bx}(c+dx)^{3/2}(ad+bc)}{4cx}+\frac{3d\sqrt{a+bx}\sqrt{c+dx}(ad+3bc)}{4c}+3\sqrt{b}\sqrt{d}(ad+bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)$$

```
[Out] (3*d*(3*b*c + a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*c) - (3*(b*c +
 a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(4*c*x) - ((a + b*x)^(3/2)*(
c + d*x)^(3/2))/(2*x^2) - (3*(b^2*c^2 + 6*a*b*c*d + a^2*d^2)*ArcT
anh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(4*Sqrt[a]*
Sqrt[c]) + 3*Sqrt[b]*Sqrt[d]*(b*c + a*d)*ArcTanh[(Sqrt[d]*Sqrt[a
+ b*x])/(Sqrt[b]*Sqrt[c + d*x])]
```

Rubi [A] time = 0.628484, antiderivative size = 209, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 7, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.318

$$-\frac{3\left(a^2d^2+6abcd+b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4\sqrt{a}\sqrt{c}}-\frac{(a+bx)^{3/2}(c+dx)^{3/2}}{2x^2}-\frac{3\sqrt{a+bx}(c+dx)^{3/2}(ad+bc)}{4cx}+\frac{3d\sqrt{a+bx}\sqrt{c+dx}(ad+3bc)}{4c}+3\sqrt{b}\sqrt{d}(ad+bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(3/2)*(c + d*x)^(3/2))/x^3,x]
```

```
[Out] (3*d*(3*b*c + a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*c) - (3*(b*c +
 a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(4*c*x) - ((a + b*x)^(3/2)*(
c + d*x)^(3/2))/(2*x^2) - (3*(b^2*c^2 + 6*a*b*c*d + a^2*d^2)*ArcT
anh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(4*Sqrt[a]*
Sqrt[c]) + 3*Sqrt[b]*Sqrt[d]*(b*c + a*d)*ArcTanh[(Sqrt[d]*Sqrt[a
+ b*x])/(Sqrt[b]*Sqrt[c + d*x])]
```

Rubi in Sympy [A] time = 93.8123, size = 196, normalized size = 0.94

$$3\sqrt{b}\sqrt{d}\,(ad+bc)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)-\frac{(a+bx)^{\frac{3}{2}}\,(c+dx)^{\frac{3}{2}}}{2x^2}+\frac{3d\sqrt{a+bx}\sqrt{c+dx}\,(ad+3bc)}{4c}-\frac{3\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}\,(ad+bc)}{4cx}-\frac{3\left(a^2d^2+6abcd+b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4\sqrt{a}\sqrt{c}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(d*x+c)**(3/2)/x**3,x)
```

```
[Out] 3*sqrt(b)*sqrt(d)*(a*d + b*c)*atanh(sqrt(b)*sqrt(c + d*x)/(sqrt(d
)*sqrt(a + b*x))) - (a + b*x)**(3/2)*(c + d*x)**(3/2)/(2*x**2) +
3*d*sqrt(a + b*x)*sqrt(c + d*x)*(a*d + 3*b*c)/(4*c) - 3*sqrt(a +
b*x)*(c + d*x)**(3/2)*(a*d + b*c)/(4*c*x) - 3*(a**2*d**2 + 6*a*b*
c*d + b**2*c**2)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*
x)))/(4*sqrt(a)*sqrt(c))
```

Mathematica [A] time = 0.595011, size = 224, normalized size = 1.07

$$\frac{1}{8}\left(\frac{3\log(x)\left(a^2d^2+6abcd+b^2c^2\right)}{\sqrt{a}\sqrt{c}}-\frac{3\left(a^2d^2+6abcd+b^2c^2\right)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{\sqrt{a}\sqrt{c}}-\frac{2\sqrt{a+bx}\sqrt{c+dx}(a(2c+5dx)+bx(5c-4dx))}{x^2}+12\sqrt{b}\sqrt{d}(ad+bc)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(3/2)*(c + d*x)^(3/2))/x^3,x]
```

```
[Out] ((-2*Sqrt[a + b*x]*Sqrt[c + d*x]*(b*x*(5*c - 4*d*x) + a*(2*c + 5*
d*x)))/x^2 + (3*(b^2*c^2 + 6*a*b*c*d + a^2*d^2)*Log[x])/(Sqrt[a]*
Sqrt[c]) - (3*(b^2*c^2 + 6*a*b*c*d + a^2*d^2)*Log[2*a*c + b*c*x +
 a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(Sqrt[a]
*Sqrt[c]) + 12*Sqrt[b]*Sqrt[d]*(b*c + a*d)*Log[b*c + a*d + 2*b*d*
x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/8
```

Maple [B] time = 0.023, size = 497, normalized size = 2.4

$$\frac{1}{8x^2}\sqrt{bx+a}\sqrt{dx+c}\left(12\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{dx^2b+adx+bcx+ac}\sqrt{bd}+ad+bc}{\sqrt{bd}}\right)x^2abd^2\sqrt{ac}+12\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{dx}}{}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(d*x+c)^(3/2)/x^3,x)
```

```
[Out] 1/8*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(12*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*
d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a*b*d^
2*(a*c)^(1/2)+12*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2
)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*b^2*c*d*(a*c)^(1/2)-3*ln(
(a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)
/x)*x^2*a^2*d^2*(b*d)^(1/2)-18*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d
*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^2*a*b*c*d*(b*d)^(1/2)-3*l
n((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*
c)/x)*x^2*b^2*c^2*(b*d)^(1/2)+8*b*d*x^2*(b*d*x^2+a*d*x+b*c*x+a*c)
^(1/2)*(b*d)^(1/2)*(a*c)^(1/2)-10*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)
*d*a*x*(a*c)^(1/2)*(b*d)^(1/2)-10*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)
*b*x*c*(a*c)^(1/2)*(b*d)^(1/2)-4*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*
a*c*(a*c)^(1/2)*(b*d)^(1/2))/(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)/x^2/
(b*d)^(1/2)/(a*c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*(d*x + c)^(3/2)/x^3,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 1.28303, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(3/2)*(d*x + c)^(3/2)/x^3,x, algorithm="fricas")
```

```
[Out] [1/16*(12*sqrt(a*c)*(b*c + a*d)*sqrt(b*d)*x^2*log(8*b^2*d^2*x^2 +
 b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b*d*x + b*c + a*d)*sqrt(b*d
)*sqrt(b*x + a)*sqrt(d*x + c) + 8*(b^2*c*d + a*b*d^2)*x) + 3*(b^2
*c^2 + 6*a*b*c*d + a^2*d^2)*x^2*log(-(4*(2*a^2*c^2 + (a*b*c^2 + a
^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c) - (8*a^2*c^2 + (b^2*c^2 +
6*a*b*c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^
2) + 4*(4*b*d*x^2 - 2*a*c - 5*(b*c + a*d)*x)*sqrt(a*c)*sqrt(b*x +
 a)*sqrt(d*x + c))/(sqrt(a*c)*x^2), 1/16*(24*sqrt(a*c)*(b*c + a*d
)*sqrt(-b*d)*x^2*arctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(-b*d)*sqr
t(b*x + a)*sqrt(d*x + c))) + 3*(b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^
2*log(-(4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(
d*x + c) - (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(
a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2) + 4*(4*b*d*x^2 - 2*a*c - 5*
(b*c + a*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(a*c)*
x^2), 1/8*(6*sqrt(-a*c)*(b*c + a*d)*sqrt(b*d)*x^2*log(8*b^2*d^2*x
^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b*d*x + b*c + a*d)*sqrt
(b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 8*(b^2*c*d + a*b*d^2)*x) - 3*
(b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2*arctan(1/2*(2*a*c + (b*c + a*
d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d*x + c)*a*c)) + 2*(4*b*d*x^
2 - 2*a*c - 5*(b*c + a*d)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x +
c))/(sqrt(-a*c)*x^2), 1/8*(12*sqrt(-a*c)*(b*c + a*d)*sqrt(-b*d)*x
^2*arctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(-b*d)*sqrt(b*x + a)*sqr
t(d*x + c))) - 3*(b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2*arctan(1/2*(
2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d*x + c)*a*
c)) + 2*(4*b*d*x^2 - 2*a*c - 5*(b*c + a*d)*x)*sqrt(-a*c)*sqrt(b*x
 + a)*sqrt(d*x + c))/(sqrt(-a*c)*x^2)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a+bx)^{\frac{3}{2}}\,(c+dx)^{\frac{3}{2}}}{x^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**(3/2)*(d*x+c)**(3/2)/x**3,x)
```

```
[Out] Integral((a + b*x)**(3/2)*(c + d*x)**(3/2)/x**3, x)
```

GIAC/XCAS [A] time = 0.62525, size = 4, normalized size = 0.02

$$sage_0x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(3/2)*(d*x + c)^(3/2)/x^3,x, algorithm="giac")
```

```
[Out] sage0*x
```

3.601 $\int \frac{(a+bx)^{3/2}(c+dx)^{3/2}}{x^4} dx$

Optimal. Leaf size=222

$$\frac{(ad+bc)\left(a^2d^2-10abcd+b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{3/2}c^{3/2}} + 2b^{3/2}d^{3/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right) - \frac{\sqrt{a+bx}\sqrt{c+dx}\left(\frac{b^2c}{a}-\frac{ad^2}{c}+8bd\right)}{8x} - \frac{(a+bx)^{3/2}(c+dx)^{3/2}}{3x^3} - \frac{\sqrt{a+bx}(c+dx)^{3/2}(ad+bc}{4cx^2}$$

```
[Out] -(((b^2*c)/a + 8*b*d - (a*d^2)/c)*Sqrt[a + b*x]*Sqrt[c + d*x])/(8
*x) - ((b*c + a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(4*c*x^2) - ((a
 + b*x)^(3/2)*(c + d*x)^(3/2))/(3*x^3) + ((b*c + a*d)*(b^2*c^2 -
10*a*b*c*d + a^2*d^2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sq
rt[c + d*x])])/(8*a^(3/2)*c^(3/2)) + 2*b^(3/2)*d^(3/2)*ArcTanh[(S
qrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])]
```

Rubi [A] time = 0.654958, antiderivative size = 222, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.273$

$$\frac{(ad+bc)\left(a^2d^2-10abcd+b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{3/2}c^{3/2}} + 2b^{3/2}d^{3/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right) - \frac{\sqrt{a+bx}\sqrt{c+dx}\left(\frac{b^2c}{a}-\frac{ad^2}{c}+8bd\right)}{8x} - \frac{(a+bx)^{3/2}(c+dx)^{3/2}}{3x^3} - \frac{\sqrt{a+bx}(c+dx)^{3/2}(ad+bc}{4cx^2}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(3/2)*(c + d*x)^(3/2))/x^4,x]
```

```
[Out] -(((b^2*c)/a + 8*b*d - (a*d^2)/c)*Sqrt[a + b*x]*Sqrt[c + d*x])/(8
*x) - ((b*c + a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(4*c*x^2) - ((a
 + b*x)^(3/2)*(c + d*x)^(3/2))/(3*x^3) + ((b*c + a*d)*(b^2*c^2 -
10*a*b*c*d + a^2*d^2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sq
rt[c + d*x])])/(8*a^(3/2)*c^(3/2)) + 2*b^(3/2)*d^(3/2)*ArcTanh[(S
qrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])]
```

Rubi in Sympy [A] time = 94.41, size = 207, normalized size = 0.93

$$2b^{\frac{3}{2}}d^{\frac{3}{2}}\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right) - \frac{(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{3}{2}}}{3x^3} - \frac{\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}(ad+bc)}{4cx^2} + \frac{\sqrt{a+bx}\sqrt{c+dx}\left(a^2d^2-8abcd-b^2c^2\right)}{8acx} + \frac{(ad+bc)\left(a^2d^2-10abcd+b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{\frac{3}{2}}c^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(d*x+c)**(3/2)/x**4,x)
```

```
[Out] 2*b**(3/2)*d**(3/2)*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c +
 d*x))) - (a + b*x)**(3/2)*(c + d*x)**(3/2)/(3*x**3) - sqrt(a + b
*x)*(c + d*x)**(3/2)*(a*d + b*c)/(4*c*x**2) + sqrt(a + b*x)*sqrt(
c + d*x)*(a**2*d**2 - 8*a*b*c*d - b**2*c**2)/(8*a*c*x) + (a*d + b
*c)*(a**2*d**2 - 10*a*b*c*d + b**2*c**2)*atanh(sqrt(c)*sqrt(a + b
*x)/(sqrt(a)*sqrt(c + d*x)))/(8*a**(3/2)*c**(3/2))
```

Mathematica [A] time = 0.550424, size = 278, normalized size = 1.25

$$\sqrt{a+bx}\sqrt{c+dx}\left(\frac{-3a^2d^2-38abcd-3b^2c^2}{24acx}-\frac{7(ad+bc)}{12x^2}-\frac{ac}{3x^3}\right) -\frac{\log(x)\left(a^3d^3-9a^2bcd^2-9ab^2c^2d+b^3c^3\right)}{16a^{3/2}c^{3/2}} +\frac{\left(a^3d^3-9a^2bcd^2-9ab^2c^2d+b^3c^3\right)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{16a^{3/2}c^{3/2}} +b^{3/2}d^{3/2}\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(3/2)*(c + d*x)^(3/2))/x^4,x]
```

```
[Out] (-(a*c)/(3*x^3) - (7*(b*c + a*d))/(12*x^2) + (-3*b^2*c^2 - 38*a*b
*c*d - 3*a^2*d^2)/(24*a*c*x))*Sqrt[a + b*x]*Sqrt[c + d*x] - ((b^3
*c^3 - 9*a*b^2*c^2*d - 9*a^2*b*c*d^2 + a^3*d^3)*Log[x])/(16*a^(3/
2)*c^(3/2)) + ((b^3*c^3 - 9*a*b^2*c^2*d - 9*a^2*b*c*d^2 + a^3*d^3
)*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqr
t[c + d*x]])/(16*a^(3/2)*c^(3/2)) + b^(3/2)*d^(3/2)*Log[b*c + a*d
 + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]]
```

Maple [B] time = 0.023, size = 605, normalized size = 2.7

$$\frac{1}{48\,ac{x}^{3}}\sqrt{bx+a}\sqrt{dx+c}\left(3\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{d{x}^{2}b+adx+bcx+ac}+2\,ac}{x}\right){x}^{3}{a}^{3}{d}^{3}\sqrt{bd}-27\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(d*x+c)^(3/2)/x^4,x)
```

```
[Out] 1/48*(b*x+a)^(1/2)*(d*x+c)^(1/2)/a/c*(3*ln((a*d*x+b*c*x+2*(a*c)^(
1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^3*a^3*d^3*(b*d)^
(1/2)-27*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^
(1/2)+2*a*c)/x)*x^3*a^2*b*c*d^2*(b*d)^(1/2)-27*ln((a*d*x+b*c*x+2*
(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^3*a*b^2*c
^2*d*(b*d)^(1/2)+3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b
*c*x+a*c)^(1/2)+2*a*c)/x)*x^3*b^3*c^3*(b*d)^(1/2)+48*ln(1/2*(2*b*
d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^
(1/2))*x^3*a*b^2*c*d^2*(a*c)^(1/2)-6*(b*d*x^2+a*d*x+b*c*x+a*c)^(1
/2)*d^2*(b*d)^(1/2)*a^2*(a*c)^(1/2)*x^2-76*(b*d*x^2+a*d*x+b*c*x+a
*c)^(1/2)*d*b*(b*d)^(1/2)*a*(a*c)^(1/2)*x^2*c-6*c^2*(b*d*x^2+a*d*
x+b*c*x+a*c)^(1/2)*b^2*(b*d)^(1/2)*(a*c)^(1/2)*x^2-28*(b*d*x^2+a*
d*x+b*c*x+a*c)^(1/2)*d*(b*d)^(1/2)*a^2*(a*c)^(1/2)*x*c-28*c^2*(b*
d*x^2+a*d*x+b*c*x+a*c)^(1/2)*b*(b*d)^(1/2)*a*(a*c)^(1/2)*x-16*c^2
*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)*a^2*(a*c)^(1/2))/(b*
d*x^2+a*d*x+b*c*x+a*c)^(1/2)/x^3/(a*c)^(1/2)/(b*d)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*(d*x + c)^(3/2)/x^4,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 2.44244, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(3/2)*(d*x + c)^(3/2)/x^4,x, algorithm="fricas")
```

```
[Out] [1/96*(48*sqrt(a*c)*sqrt(b*d)*a*b*c*d*x^3*log(8*b^2*d^2*x^2 + b^2
*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b*d*x + b*c + a*d)*sqrt(b*d)*sq
rt(b*x + a)*sqrt(d*x + c) + 8*(b^2*c*d + a*b*d^2)*x) + 3*(b^3*c^3
 - 9*a*b^2*c^2*d - 9*a^2*b*c*d^2 + a^3*d^3)*x^3*log((4*(2*a^2*c^2
 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c) + (8*a^2*c^
2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x
)*sqrt(a*c))/x^2) - 4*(8*a^2*c^2 + (3*b^2*c^2 + 38*a*b*c*d + 3*a^
2*d^2)*x^2 + 14*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sq
rt(d*x + c))/(sqrt(a*c)*a*c*x^3), 1/96*(96*sqrt(a*c)*sqrt(-b*d)*a
*b*c*d*x^3*arctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(-b*d)*sqrt(b*x
+ a)*sqrt(d*x + c))) + 3*(b^3*c^3 - 9*a*b^2*c^2*d - 9*a^2*b*c*d^2
 + a^3*d^3)*x^3*log((4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b
*x + a)*sqrt(d*x + c) + (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d
^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2) - 4*(8*a^2*c^2
 + (3*b^2*c^2 + 38*a*b*c*d + 3*a^2*d^2)*x^2 + 14*(a*b*c^2 + a^2*c
*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(a*c)*a*c*x^3)
, 1/48*(24*sqrt(-a*c)*sqrt(b*d)*a*b*c*d*x^3*log(8*b^2*d^2*x^2 + b
^2*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b*d*x + b*c + a*d)*sqrt(b*d)*
sqrt(b*x + a)*sqrt(d*x + c) + 8*(b^2*c*d + a*b*d^2)*x) + 3*(b^3*c
^3 - 9*a*b^2*c^2*d - 9*a^2*b*c*d^2 + a^3*d^3)*x^3*arctan(1/2*(2*a
*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d*x + c)*a*c))
 - 2*(8*a^2*c^2 + (3*b^2*c^2 + 38*a*b*c*d + 3*a^2*d^2)*x^2 + 14*(
a*b*c^2 + a^2*c*d)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c))/(sq
rt(-a*c)*a*c*x^3), 1/48*(48*sqrt(-a*c)*sqrt(-b*d)*a*b*c*d*x^3*arc
tan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x
+ c))) + 3*(b^3*c^3 - 9*a*b^2*c^2*d - 9*a^2*b*c*d^2 + a^3*d^3)*x^
3*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sq
rt(d*x + c)*a*c)) - 2*(8*a^2*c^2 + (3*b^2*c^2 + 38*a*b*c*d + 3*a^
2*d^2)*x^2 + 14*(a*b*c^2 + a^2*c*d)*x)*sqrt(-a*c)*sqrt(b*x + a)*s
qrt(d*x + c))/(sqrt(-a*c)*a*c*x^3)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a+bx)^{\frac{3}{2}}\,(c+dx)^{\frac{3}{2}}}{x^4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**(3/2)*(d*x+c)**(3/2)/x**4,x)
```

```
[Out] Integral((a + b*x)**(3/2)*(c + d*x)**(3/2)/x**4, x)
```

GIAC/XCAS [A] time = 0.655668, size = 4, normalized size = 0.02

$$sage_0 x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(3/2)*(d*x + c)^(3/2)/x^4,x, algorithm="giac")
```

```
[Out] sage0*x
```

3.602 $\int \frac{(a+bx)^{3/2}(c+dx)^{3/2}}{x^5}\,dx$

Optimal. Leaf size=201

$$-\frac{3(bc-ad)^4\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{5/2}c^{5/2}}+\frac{3\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^3}{64a^2c^2x}-\frac{\sqrt{a+bx}(c+dx)^{5/2}(bc-ad)}{8c^2x^3}-\frac{\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)^2}{32ac^2x^2}-\frac{(a+bx)^{3/2}(c+dx)^{5/2}}{4cx^4}$$

```
[Out] (3*(b*c - a*d)^3*Sqrt[a + b*x]*Sqrt[c + d*x])/(64*a^2*c^2*x) - ((
b*c - a*d)^2*Sqrt[a + b*x]*(c + d*x)^(3/2))/(32*a*c^2*x^2) - ((b*
c - a*d)*Sqrt[a + b*x]*(c + d*x)^(5/2))/(8*c^2*x^3) - ((a + b*x)^
(3/2)*(c + d*x)^(5/2))/(4*c*x^4) - (3*(b*c - a*d)^4*ArcTanh[(Sqrt
[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(64*a^(5/2)*c^(5/2))
```

Rubi [A] time = 0.378667, antiderivative size = 201, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.136$

$$-\frac{3(bc-ad)^4\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{5/2}c^{5/2}}+\frac{3\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^3}{64a^2c^2x}-\frac{\sqrt{a+bx}(c+dx)^{5/2}(bc-ad)}{8c^2x^3}-\frac{\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)^2}{32ac^2x^2}-\frac{(a+bx)^{3/2}(c+dx)^{5/2}}{4cx^4}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(3/2)*(c + d*x)^(3/2))/x^5,x]
```

```
[Out] (3*(b*c - a*d)^3*Sqrt[a + b*x]*Sqrt[c + d*x])/(64*a^2*c^2*x) - ((
b*c - a*d)^2*Sqrt[a + b*x]*(c + d*x)^(3/2))/(32*a*c^2*x^2) - ((b*
c - a*d)*Sqrt[a + b*x]*(c + d*x)^(5/2))/(8*c^2*x^3) - ((a + b*x)^
(3/2)*(c + d*x)^(5/2))/(4*c*x^4) - (3*(b*c - a*d)^4*ArcTanh[(Sqrt
[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(64*a^(5/2)*c^(5/2))
```

Rubi in Sympy [A] time = 36.0642, size = 180, normalized size = 0.9

$$-\frac{(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{5}{2}}}{4cx^4}+\frac{(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{3}{2}}(ad-bc)}{8acx^3}+\frac{3(a+bx)^{\frac{3}{2}}\sqrt{c+dx}(ad-bc)^2}{32a^2cx^2}+\frac{3\sqrt{a+bx}\sqrt{c+dx}(ad-bc)^3}{64a^2c^2x}-\frac{3(ad-bc)^4\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{\frac{5}{2}}c^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(d*x+c)**(3/2)/x**5,x)
```

```
[Out] -(a + b*x)**(3/2)*(c + d*x)**(5/2)/(4*c*x**4) + (a + b*x)**(3/2)*
(c + d*x)**(3/2)*(a*d - b*c)/(8*a*c*x**3) + 3*(a + b*x)**(3/2)*sq
rt(c + d*x)*(a*d - b*c)**2/(32*a**2*c*x**2) + 3*sqrt(a + b*x)*sqr
t(c + d*x)*(a*d - b*c)**3/(64*a**2*c**2*x) - 3*(a*d - b*c)**4*ata
nh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(64*a**(5/2)*c*
*(5/2))
```

Mathematica [A] time = 0.259575, size = 215, normalized size = 1.07

$$\frac{-2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}\left(a^3\left(16c^3+24c^2dx+2cd^2x^2-3d^3x^3\right)+a^2bcx\left(24c^2+44cdx+11d^2x^2\right)+ab^2c^2x^2(2c+11dx)-3}{128a^{5/2}c^{5/2}x^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(3/2)*(c + d*x)^(3/2))/x^5,x]
```

```
[Out] (-2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]*(-3*b^3*c^3*x^3 +
 a*b^2*c^2*x^2*(2*c + 11*d*x) + a^2*b*c*x*(24*c^2 + 44*c*d*x + 11
*d^2*x^2) + a^3*(16*c^3 + 24*c^2*d*x + 2*c*d^2*x^2 - 3*d^3*x^3))
+ 3*(b*c - a*d)^4*x^4*Log[x] - 3*(b*c - a*d)^4*x^4*Log[2*a*c + b*
c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(12
8*a^(5/2)*c^(5/2)*x^4)
```

Maple [B] time = 0.025, size = 705, normalized size = 3.5

$$-\frac{1}{128\,a^2c^2x^4}\sqrt{bx+a}\sqrt{dx+c}\left(3\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{dx^2b+adx+bcx+ac}+2\,ac}{x}\right)x^4a^4d^4-12\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(d*x+c)^(3/2)/x^5,x)
```

```
[Out] -1/128*(b*x+a)^(1/2)*(d*x+c)^(1/2)/a^2/c^2*(3*ln((a*d*x+b*c*x+2*(
a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^4*a^4*d^4-
12*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+
2*a*c)/x)*x^4*a^3*b*c*d^3+18*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x
^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^4*a^2*b^2*c^2*d^2-12*ln((a*
d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)
*x^4*a*b^3*c^3*d+3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b
*c*x+a*c)^(1/2)+2*a*c)/x)*x^4*b^4*c^4-6*(a*c)^(1/2)*(b*d*x^2+a*d*
x+b*c*x+a*c)^(1/2)*x^3*a^3*d^3+22*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*
x+a*c)^(1/2)*x^3*a^2*b*c*d^2+22*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+
a*c)^(1/2)*x^3*a*b^2*c^2*d-6*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c
)^(1/2)*x^3*b^3*c^3+4*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)
*x^2*a^3*c*d^2+88*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^2
*a^2*b*c^2*d+4*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^2*a*
b^2*c^3+48*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*a^3*c^2*
d+48*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*a^2*b*c^3+32*(
b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a^3*c^3*(a*c)^(1/2))/(b*d*x^2+a*d*
x+b*c*x+a*c)^(1/2)/x^4/(a*c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*(d*x + c)^(3/2)/x^5,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 1.27572, size = 1, normalized size = 0.

$$\left[\frac{3\left(b^4c^4-4\,ab^3c^3d+6\,a^2b^2c^2d^2-4\,a^3bcd^3+a^4d^4\right)x^4\log\left(-\frac{4\left(2\,a^2c^2+\left(abc^2+a^2cd\right)x\right)\sqrt{bx+a}\sqrt{dx+c}-\left(8\,a^2c^2+\left(b^2c^2+6\,abcd+a^2d^2\right)x^2+8\,(\right.}{x^2}\right.}{}\right.$$

$$-\frac{3\left(b^4c^4-4\,ab^3c^3d+6\,a^2b^2c^2d^2-4\,a^3bcd^3+a^4d^4\right)x^4\arctan\left(\frac{(2\,ac+(bc+ad)x)\sqrt{-ac}}{2\,\sqrt{bx+a}\sqrt{dx+c}cac}\right)+2\left(16\,a^3c^3-\left(3\,b^3c^3-11\,ab^2c^2d-11\right.\right.}{128\,\sqrt{-ac}a^2c^2x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*(d*x + c)^(3/2)/x^5,x, algorithm="fricas")
```

```
[Out] [1/256*(3*(b^4*c^4 - 4*a*b^3*c^3*d + 6*a^2*b^2*c^2*d^2 - 4*a^3*b*
c*d^3 + a^4*d^4)*x^4*log(-(4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*
sqrt(b*x + a)*sqrt(d*x + c) - (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d +
 a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2) - 4*(16*
a^3*c^3 - (3*b^3*c^3 - 11*a*b^2*c^2*d - 11*a^2*b*c*d^2 + 3*a^3*d^
3)*x^3 + 2*(a*b^2*c^3 + 22*a^2*b*c^2*d + a^3*c*d^2)*x^2 + 24*(a^2
*b*c^3 + a^3*c^2*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c))/(sq
rt(a*c)*a^2*c^2*x^4), -1/128*(3*(b^4*c^4 - 4*a*b^3*c^3*d + 6*a^2*
b^2*c^2*d^2 - 4*a^3*b*c*d^3 + a^4*d^4)*x^4*arctan(1/2*(2*a*c + (b
*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d*x + c)*a*c)) + 2*(1
6*a^3*c^3 - (3*b^3*c^3 - 11*a*b^2*c^2*d - 11*a^2*b*c*d^2 + 3*a^3*
d^3)*x^3 + 2*(a*b^2*c^3 + 22*a^2*b*c^2*d + a^3*c*d^2)*x^2 + 24*(a
^2*b*c^3 + a^3*c^2*d)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c))/
(sqrt(-a*c)*a^2*c^2*x^4)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{3}{2}}}{x^5}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)*(d*x+c)**(3/2)/x**5,x)
```

```
[Out] Integral((a + b*x)**(3/2)*(c + d*x)**(3/2)/x**5, x)
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*(d*x + c)^(3/2)/x^5,x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.603 $\int \frac{(a+bx)^{3/2}(c+dx)^{3/2}}{x^6}\,dx$

Optimal. Leaf size=273

$$\frac{3(ad+bc)(bc-ad)^4\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{128a^{7/2}c^{7/2}}-\frac{3\sqrt{a+bx}\sqrt{c+dx}(ad+bc)(bc-ad)^3}{128a^3c^3x}+\frac{\sqrt{a+bx}(c+dx)^{3/2}(ad+bc)(bc-ad)^2}{64a^2c^3x^2}+\frac{\sqrt{a+bx}(c+dx)^{5/2}(ad+bc)(bc-ad)}{16ac^3x^3}+\frac{(a+bx)^{3/2}(c+dx)^{5/2}(ad+bc)}{8ac^2x^4}-\frac{(a+bx)^{5/2}(c+dx)^{5/2}}{5acx^5}$$

```
[Out] (-3*(b*c - a*d)^3*(b*c + a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(128*a
^3*c^3*x) + ((b*c - a*d)^2*(b*c + a*d)*Sqrt[a + b*x]*(c + d*x)^(3
/2))/(64*a^2*c^3*x^2) + ((b*c - a*d)*(b*c + a*d)*Sqrt[a + b*x]*(c
 + d*x)^(5/2))/(16*a*c^3*x^3) + ((b*c + a*d)*(a + b*x)^(3/2)*(c +
 d*x)^(5/2))/(8*a*c^2*x^4) - ((a + b*x)^(5/2)*(c + d*x)^(5/2))/(5
*a*c*x^5) + (3*(b*c - a*d)^4*(b*c + a*d)*ArcTanh[(Sqrt[c]*Sqrt[a
+ b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(128*a^(7/2)*c^(7/2))
```

Rubi [A] time = 0.522907, antiderivative size = 273, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.182$

$$\frac{3(ad+bc)(bc-ad)^4\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{128a^{7/2}c^{7/2}}-\frac{3\sqrt{a+bx}\sqrt{c+dx}(ad+bc)(bc-ad)^3}{128a^3c^3x}+\frac{\sqrt{a+bx}(c+dx)^{3/2}(ad+bc)(bc-ad)^2}{64a^2c^3x^2}+\frac{\sqrt{a+bx}(c+dx)^{5/2}(ad+bc)(bc-ad)}{16ac^3x^3}+\frac{(a+bx)^{3/2}(c+dx)^{5/2}(ad+bc)}{8ac^2x^4}-\frac{(a+bx)^{5/2}(c+dx)^{5/2}}{5acx^5}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(3/2)*(c + d*x)^(3/2))/x^6,x]
```


```
[Out] (-3*(b*c - a*d)^3*(b*c + a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(128*a
^3*c^3*x) + ((b*c - a*d)^2*(b*c + a*d)*Sqrt[a + b*x]*(c + d*x)^(3
/2))/(64*a^2*c^3*x^2) + ((b*c - a*d)*(b*c + a*d)*Sqrt[a + b*x]*(c
 + d*x)^(5/2))/(16*a*c^3*x^3) + ((b*c + a*d)*(a + b*x)^(3/2)*(c +
 d*x)^(5/2))/(8*a*c^2*x^4) - ((a + b*x)^(5/2)*(c + d*x)^(5/2))/(5
*a*c*x^5) + (3*(b*c - a*d)^4*(b*c + a*d)*ArcTanh[(Sqrt[c]*Sqrt[a
+ b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(128*a^(7/2)*c^(7/2))
```

Rubi in Sympy [A] time = 50.3987, size = 245, normalized size = 0.9

$$-\frac{(a+bx)^{\frac{5}{2}}(c+dx)^{\frac{5}{2}}}{5acx^5}+\frac{(a+bx)^{\frac{5}{2}}(c+dx)^{\frac{3}{2}}(ad+bc)}{8a^2cx^4}+\frac{(a+bx)^{\frac{5}{2}}\sqrt{c+dx}\,(ad-bc)\,(ad+bc)}{16a^3cx^3}+\frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}\,(ad-bc)^2\,(ad+bc)}{64a^3c^2x^2}-\frac{3\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)^3\,(ad+bc)}{128a^3c^3x}+\frac{3\,(ad-bc)^4\,(ad+bc)\,\mathrm{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{128a^{\frac{7}{2}}c^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(d*x+c)**(3/2)/x**6,x)
```

```
[Out] -(a + b*x)**(5/2)*(c + d*x)**(5/2)/(5*a*c*x**5) + (a + b*x)**(5/2
)*(c + d*x)**(3/2)*(a*d + b*c)/(8*a**2*c*x**4) + (a + b*x)**(5/2)
*sqrt(c + d*x)*(a*d - b*c)*(a*d + b*c)/(16*a**3*c*x**3) + (a + b*
```

```
x)**(3/2)*sqrt(c + d*x)*(a*d - b*c)**2*(a*d + b*c)/(64*a**3*c**2*
x**2) - 3*sqrt(a + b*x)*sqrt(c + d*x)*(a*d - b*c)**3*(a*d + b*c)/
(128*a**3*c**3*x) + 3*(a*d - b*c)**4*(a*d + b*c)*atanh(sqrt(c)*sq
rt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(128*a**(7/2)*c**(7/2))
```

Mathematica [A] time = 0.336899, size = 284, normalized size = 1.04

$$\frac{-2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}\left(a^4\left(128c^4+176c^3dx+8c^2d^2x^2-10cd^3x^3+15d^4x^4\right)+2a^3bcx\left(88c^3+136c^2dx+13cd^2x^2-20d^3\right.\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(3/2)*(c + d*x)^(3/2))/x^6,x]
```

```
[Out] (-2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]*(15*b^4*c^4*x^4 -
 10*a*b^3*c^3*x^3*(c + 4*d*x) + 2*a^2*b^2*c^2*x^2*(4*c^2 + 13*c*d
*x + 9*d^2*x^2) + 2*a^3*b*c*x*(88*c^3 + 136*c^2*d*x + 13*c*d^2*x^
2 - 20*d^3*x^3) + a^4*(128*c^4 + 176*c^3*d*x + 8*c^2*d^2*x^2 - 10
*c*d^3*x^3 + 15*d^4*x^4)) - 15*(b*c - a*d)^4*(b*c + a*d)*x^5*Log[
x] + 15*(b*c - a*d)^4*(b*c + a*d)*x^5*Log[2*a*c + b*c*x + a*d*x +
 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(1280*a^(7/2)*c^
(7/2)*x^5)
```

Maple [B] time = 0.028, size = 967, normalized size = 3.5

$$\frac{1}{1280\,a^3c^3x^5}\sqrt{bx+a}\sqrt{dx+c}\left(15\ln\left(\frac{adx+bcx+2\sqrt{ac}\sqrt{dx^2b+adx+bcx+ac}+2\,ac}{x}\right)x^5a^5d^5-45\ln\left(\frac{adx+bcx+2\sqrt{a}\cdots}{}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(d*x+c)^(3/2)/x^6,x)
```

```
[Out] 1/1280*(b*x+a)^(1/2)*(d*x+c)^(1/2)/a^3/c^3*(15*ln((a*d*x+b*c*x+2*
(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^5*a^5*d^5
-45*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)
+2*a*c)/x)*x^5*a^4*b*c*d^4+30*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*
x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^5*a^3*b^2*c^2*d^3+30*ln((a
*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x
)*x^5*a^2*b^3*c^3*d^2-45*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a
*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^5*a*b^4*c^4*d+15*ln((a*d*x+b*c*
x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^5*b^5
*c^5-30*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^4*a^4*d^4+8
0*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^4*a^3*b*c*d^3-36*
(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^4*a^2*b^2*c^2*d^2+8
0*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^4*a*b^3*c^3*d-30*
(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^4*b^4*c^4+20*(a*c)^
(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^3*a^4*c*d^3-52*(a*c)^(1/2
)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^3*a^3*b*c^2*d^2-52*(a*c)^(1/2
)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^3*a^2*b^2*c^3*d+20*(a*c)^(1/2
)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^3*a*b^3*c^4-16*(a*c)^(1/2)*(b
*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^2*a^4*c^2*d^2-544*(a*c)^(1/2)*(b*
d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^2*a^3*b*c^3*d-16*(a*c)^(1/2)*(b*d*
x^2+a*d*x+b*c*x+a*c)^(1/2)*x^2*a^2*b^2*c^4-352*(a*c)^(1/2)*(b*d*x
^2+a*d*x+b*c*x+a*c)^(1/2)*x*a^4*c^3*d-352*(a*c)^(1/2)*(b*d*x^2+a*
d*x+b*c*x+a*c)^(1/2)*x*a^3*b*c^4-256*(b*d*x^2+a*d*x+b*c*x+a*c)^(1
/2)*a^4*c^4*(a*c)^(1/2))/(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)/x^5/(a*c
)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(3/2)*(d*x + c)^(3/2)/x^6,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 2.73585, size = 1, normalized size = 0.

$$\left[\frac{15\left(b^5c^5 - 3\,ab^4c^4d + 2\,a^2b^3c^3d^2 + 2\,a^3b^2c^2d^3 - 3\,a^4bcd^4 + a^5d^5\right)x^5\log\left(\frac{4\left(2\,a^2c^2+\left(abc^2+a^2cd\right)x\right)\sqrt{bx+a}\sqrt{dx+c}+\left(8\,a^2c^2+\left(b^2c^2+6\,abc\right.\right.}{x^2}\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(3/2)*(d*x + c)^(3/2)/x^6,x, algorithm="fricas")
```

```
[Out] [1/2560*(15*(b^5*c^5 - 3*a*b^4*c^4*d + 2*a^2*b^3*c^3*d^2 + 2*a^3*
b^2*c^2*d^3 - 3*a^4*b*c*d^4 + a^5*d^5)*x^5*log((4*(2*a^2*c^2 + (a
*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c) + (8*a^2*c^2 + (
b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqr
t(a*c))/x^2) - 4*(128*a^4*c^4 + (15*b^4*c^4 - 40*a*b^3*c^3*d + 18
*a^2*b^2*c^2*d^2 - 40*a^3*b*c*d^3 + 15*a^4*d^4)*x^4 - 2*(5*a*b^3*
c^4 - 13*a^2*b^2*c^3*d - 13*a^3*b*c^2*d^2 + 5*a^4*c*d^3)*x^3 + 8*
(a^2*b^2*c^4 + 34*a^3*b*c^3*d + a^4*c^2*d^2)*x^2 + 176*(a^3*b*c^4
 + a^4*c^3*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(a*c
)*a^3*c^3*x^5), 1/1280*(15*(b^5*c^5 - 3*a*b^4*c^4*d + 2*a^2*b^3*c
^3*d^2 + 2*a^3*b^2*c^2*d^3 - 3*a^4*b*c*d^4 + a^5*d^5)*x^5*arctan(
1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d*x +
c)*a*c)) - 2*(128*a^4*c^4 + (15*b^4*c^4 - 40*a*b^3*c^3*d + 18*a^2
*b^2*c^2*d^2 - 40*a^3*b*c*d^3 + 15*a^4*d^4)*x^4 - 2*(5*a*b^3*c^4
- 13*a^2*b^2*c^3*d - 13*a^3*b*c^2*d^2 + 5*a^4*c*d^3)*x^3 + 8*(a^2
*b^2*c^4 + 34*a^3*b*c^3*d + a^4*c^2*d^2)*x^2 + 176*(a^3*b*c^4 + a
^4*c^3*d)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(-a*c)*
a^3*c^3*x^5)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a+bx)^{\frac{3}{2}}\,(c+dx)^{\frac{3}{2}}}{x^6}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**(3/2)*(d*x+c)**(3/2)/x**6,x)
```

```
[Out] Integral((a + b*x)**(3/2)*(c + d*x)**(3/2)/x**6, x)
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(3/2)*(d*x + c)^(3/2)/x^6,x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.604 $\int x^2(a+bx)^{3/2}(c+dx)^{5/2}\,dx$

Optimal. Leaf size=437

$$\frac{\left(9a^2d^2+10abcd+5b^2c^2\right)(bc-ad)^5\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{1024b^{11/2}d^{9/2}}+\frac{(a+bx)^{5/2}\sqrt{c+dx}\left(9a^2d^2+10abcd+5b^2c^2\right)(bc-ad)^2}{384b^5d^2}-\frac{\sqrt{a+bx}\sqrt{c+dx}\left(9a^2d^2+10abcd+5b^2c^2\right)(bc-ad)^4}{1024b^5d^4}+\frac{(a+bx)^{3/2}\sqrt{c+dx}\left(9a^2d^2+10abcd+5b^2c^2\right)(bc-ad)^3}{1536b^5d^3}+\frac{(a+bx)^{5/2}(c+dx)^{3/2}\left(9a^2d^2+10abcd+5b^2c^2\right)(bc-ad)}{192b^4d^2}+\frac{(a+bx)^{5/2}(c+dx)^{5/2}\left(9a^2d^2+10abcd+5b^2c^2\right)}{120b^3d^2}-\frac{(a+bx)^{5/2}(c+dx)^{7/2}(9ad+7bc)}{84b^2d^2}+\frac{x(a+bx)^{5/2}(c+dx)^{7/2}}{7bd}$$

```
[Out] -((b*c - a*d)^4*(5*b^2*c^2 + 10*a*b*c*d + 9*a^2*d^2)*Sqrt[a + b*x
]*Sqrt[c + d*x])/(1024*b^5*d^4) + ((b*c - a*d)^3*(5*b^2*c^2 + 10*
a*b*c*d + 9*a^2*d^2)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(1536*b^5*d^3
) + ((b*c - a*d)^2*(5*b^2*c^2 + 10*a*b*c*d + 9*a^2*d^2)*(a + b*x)
^(5/2)*Sqrt[c + d*x])/(384*b^5*d^2) + ((b*c - a*d)*(5*b^2*c^2 + 1
0*a*b*c*d + 9*a^2*d^2)*(a + b*x)^(5/2)*(c + d*x)^(3/2))/(192*b^4*
d^2) + ((5*b^2*c^2 + 10*a*b*c*d + 9*a^2*d^2)*(a + b*x)^(5/2)*(c +
 d*x)^(5/2))/(120*b^3*d^2) - ((7*b*c + 9*a*d)*(a + b*x)^(5/2)*(c
+ d*x)^(7/2))/(84*b^2*d^2) + (x*(a + b*x)^(5/2)*(c + d*x)^(7/2))/
(7*b*d) + ((b*c - a*d)^5*(5*b^2*c^2 + 10*a*b*c*d + 9*a^2*d^2)*Arc
Tanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(1024*b^(1
1/2)*d^(9/2))
```

Rubi [A] time = 0.965973, antiderivative size = 437, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.227$

$$\frac{\left(9a^2d^2+10abcd+5b^2c^2\right)(bc-ad)^5\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{1024b^{11/2}d^{9/2}}+\frac{(a+bx)^{5/2}\sqrt{c+dx}\left(9a^2d^2+10abcd+5b^2c^2\right)(bc-ad)^2}{384b^5d^2}-\frac{\sqrt{a+bx}\sqrt{c+dx}\left(9a^2d^2+10abcd+5b^2c^2\right)(bc-ad)^4}{1024b^5d^4}+\frac{(a+bx)^{3/2}\sqrt{c+dx}\left(9a^2d^2+10abcd+5b^2c^2\right)(bc-ad)^3}{1536b^5d^3}+\frac{(a+bx)^{5/2}(c+dx)^{3/2}\left(9a^2d^2+10abcd+5b^2c^2\right)(bc-ad)}{192b^4d^2}+\frac{(a+bx)^{5/2}(c+dx)^{5/2}\left(9a^2d^2+10abcd+5b^2c^2\right)}{120b^3d^2}-\frac{(a+bx)^{5/2}(c+dx)^{7/2}(9ad+7bc)}{84b^2d^2}+\frac{x(a+bx)^{5/2}(c+dx)^{7/2}}{7bd}$$

Antiderivative was successfully verified.

```
[In]  Int[x^2*(a + b*x)^(3/2)*(c + d*x)^(5/2),x]
```


```
[Out] -((b*c - a*d)^4*(5*b^2*c^2 + 10*a*b*c*d + 9*a^2*d^2)*Sqrt[a + b*x
]*Sqrt[c + d*x])/(1024*b^5*d^4) + ((b*c - a*d)^3*(5*b^2*c^2 + 10*
a*b*c*d + 9*a^2*d^2)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(1536*b^5*d^3
) + ((b*c - a*d)^2*(5*b^2*c^2 + 10*a*b*c*d + 9*a^2*d^2)*(a + b*x)
^(5/2)*Sqrt[c + d*x])/(384*b^5*d^2) + ((b*c - a*d)*(5*b^2*c^2 + 1
0*a*b*c*d + 9*a^2*d^2)*(a + b*x)^(5/2)*(c + d*x)^(3/2))/(192*b^4*
d^2) + ((5*b^2*c^2 + 10*a*b*c*d + 9*a^2*d^2)*(a + b*x)^(5/2)*(c +
```

```
d*x)^(5/2))/(120*b^3*d^2) - ((7*b*c + 9*a*d)*(a + b*x)^(5/2)*(c
+ d*x)^(7/2))/(84*b^2*d^2) + (x*(a + b*x)^(5/2)*(c + d*x)^(7/2))/
(7*b*d) + ((b*c - a*d)^5*(5*b^2*c^2 + 10*a*b*c*d + 9*a^2*d^2)*Arc
Tanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(1024*b^(1
1/2)*d^(9/2))
```

Rubi in Sympy [A] time = 96.4778, size = 420, normalized size = 0.96

$$\frac{x(a+bx)^{\frac{5}{2}}(c+dx)^{\frac{7}{2}}}{7bd}-\frac{(a+bx)^{\frac{5}{2}}(c+dx)^{\frac{7}{2}}(9ad+7bc)}{84b^2d^2}+\frac{(a+bx)^{\frac{5}{2}}(c+dx)^{\frac{5}{2}}\left(9a^2d^2+10abcd+5b^2c^2\right)}{120b^3d^2}-\frac{(a+bx)^{\frac{5}{2}}(c+dx)^{\frac{3}{2}}(ad-bc)\left(9a^2d^2+10abcd+5b^2c^2\right)}{192b^4d^2}+\frac{(a+bx)^{\frac{5}{2}}\sqrt{c+dx}(ad-bc)^2\left(9a^2d^2+10abcd+5b^2c^2\right)}{384b^5d^2}-\frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}(ad-bc)^3\left(9a^2d^2+10abcd+5b^2c^2\right)}{1536b^5d^3}-\frac{\sqrt{a+bx}\sqrt{c+dx}(ad-bc)^4\left(9a^2d^2+10abcd+5b^2c^2\right)}{1024b^5d^4}-\frac{(ad-bc)^5\left(9a^2d^2+10abcd+5b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{1024b^{\frac{11}{2}}d^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(b*x+a)**(3/2)*(d*x+c)**(5/2),x)
```

```
[Out] x*(a + b*x)**(5/2)*(c + d*x)**(7/2)/(7*b*d) - (a + b*x)**(5/2)*(c
 + d*x)**(7/2)*(9*a*d + 7*b*c)/(84*b**2*d**2) + (a + b*x)**(5/2)*
(c + d*x)**(5/2)*(9*a**2*d**2 + 10*a*b*c*d + 5*b**2*c**2)/(120*b*
*3*d**2) - (a + b*x)**(5/2)*(c + d*x)**(3/2)*(a*d - b*c)*(9*a**2*
d**2 + 10*a*b*c*d + 5*b**2*c**2)/(192*b**4*d**2) + (a + b*x)**(5/
2)*sqrt(c + d*x)*(a*d - b*c)**2*(9*a**2*d**2 + 10*a*b*c*d + 5*b**
2*c**2)/(384*b**5*d**2) - (a + b*x)**(3/2)*sqrt(c + d*x)*(a*d - b
*c)**3*(9*a**2*d**2 + 10*a*b*c*d + 5*b**2*c**2)/(1536*b**5*d**3)
- sqrt(a + b*x)*sqrt(c + d*x)*(a*d - b*c)**4*(9*a**2*d**2 + 10*a*
b*c*d + 5*b**2*c**2)/(1024*b**5*d**4) - (a*d - b*c)**5*(9*a**2*d*
*2 + 10*a*b*c*d + 5*b**2*c**2)*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(
b)*sqrt(c + d*x)))/(1024*b**(11/2)*d**(9/2))
```

Mathematica [A] time = 0.375011, size = 395, normalized size = 0.9

$$\frac{\left(9a^2d^2+10abcd+5b^2c^2\right)(bc-ad)^5\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{2048b^{11/2}d^{9/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(945a^6d^6-210a^5bd^5(16c+3dx)+7a^4b^2d^4\left(527c^2+314cdx+72d^2x^2\right)-4a^3b^3d^3\left(150c^3+583c^2dx+436\right.\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^2*(a + b*x)^(3/2)*(c + d*x)^(5/2),x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(945*a^6*d^6 - 210*a^5*b*d^5*(16*c +
 3*d*x) + 7*a^4*b^2*d^4*(527*c^2 + 314*c*d*x + 72*d^2*x^2) - 4*a^
3*b^3*d^3*(150*c^3 + 583*c^2*d*x + 436*c*d^2*x^2 + 108*d^3*x^3) +
 3*a^2*b^4*d^2*(-175*c^4 + 100*c^3*d*x + 608*c^2*d^2*x^2 + 496*c*
d^3*x^3 + 128*d^4*x^4) + 10*a*b^5*d*(140*c^5 - 91*c^4*d*x + 72*c^
3*d^2*x^2 + 3352*c^2*d^3*x^3 + 4864*c*d^4*x^4 + 1920*d^5*x^5) - 5
*b^6*(105*c^6 - 70*c^5*d*x + 56*c^4*d^2*x^2 - 48*c^3*d^3*x^3 - 47
36*c^2*d^4*x^4 - 7424*c*d^5*x^5 - 3072*d^6*x^6)))/(107520*b^5*d^4
) + ((b*c - a*d)^5*(5*b^2*c^2 + 10*a*b*c*d + 9*a^2*d^2)*Log[b*c +
```

```
a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/
(2048*b^(11/2)*d^(9/2))
```

Maple [B] time = 0.037, size = 1580, normalized size = 3.6

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(b*x+a)^(3/2)*(d*x+c)^(5/2),x)
```

```
[Out] -1/215040*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(864*x^3*a^3*b^3*d^6*(b*d*x
^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)-2800*a*b^5*c^5*d*(b*d*x^2+a
*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)-38400*x^5*a*b^5*d^6*(b*d*x^2+a*
d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)-74240*x^5*b^6*c*d^5*(b*d*x^2+a*d
*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)-768*x^4*a^2*b^4*d^6*(b*d*x^2+a*d*
x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)-47360*x^4*b^6*c^2*d^4*(b*d*x^2+a*d
*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+1260*(b*d*x^2+a*d*x+b*c*x+a*c)^(1
/2)*x*a^5*d^6*b*(b*d)^(1/2)-700*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x
*c^5*b^6*d*(b*d)^(1/2)+6720*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a^5*c
*d^5*b*(b*d)^(1/2)-7378*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a^4*c^2*b
^2*d^4*(b*d)^(1/2)+1200*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a^3*c^3*b
^3*d^3*(b*d)^(1/2)+1050*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*c^4*a^2*b
^4*d^2*(b*d)^(1/2)-480*x^3*b^6*c^3*d^3*(b*d*x^2+a*d*x+b*c*x+a*c)^
(1/2)*(b*d)^(1/2)-1008*x^2*a^4*b^2*d^6*(b*d*x^2+a*d*x+b*c*x+a*c)^
(1/2)*(b*d)^(1/2)+560*x^2*b^6*c^4*d^2*(b*d*x^2+a*d*x+b*c*x+a*c)^(
1/2)*(b*d)^(1/2)-3675*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)
^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^6*c*d^6*b+4725*ln(1/2*
(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(
b*d)^(1/2))*a^5*c^2*d^5*b^2-1575*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x
+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^4*c^3*b^3*d
^4-525*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1
/2)+a*d+b*c)/(b*d)^(1/2))*a^3*c^4*b^4*d^3-945*ln(1/2*(2*b*d*x+2*(
b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*
c^5*a^2*b^5*d^2+1575*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^
(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*c^6*a*b^6*d-30720*x^6*b^6
*d^6*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)-1890*(b*d*x^2+a*
d*x+b*c*x+a*c)^(1/2)*a^6*d^6*(b*d)^(1/2)+1050*(b*d*x^2+a*d*x+b*c*
x+a*c)^(1/2)*c^6*b^6*(b*d)^(1/2)-4396*d^5*(b*d*x^2+a*d*x+b*c*x+a*
c)^(1/2)*x*a^4*c*b^2*(b*d)^(1/2)+4664*(b*d*x^2+a*d*x+b*c*x+a*c)^(
1/2)*x*a^3*c^2*b^3*d^4*(b*d)^(1/2)-600*(b*d*x^2+a*d*x+b*c*x+a*c)^
(1/2)*x*a^2*c^3*b^4*d^3*(b*d)^(1/2)+1820*(b*d*x^2+a*d*x+b*c*x+a*c
)^(1/2)*x*c^4*a*b^5*d^2*(b*d)^(1/2)-97280*x^4*a*b^5*c*d^5*(b*d*x^
2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)-2976*x^3*a^2*b^4*c*d^5*(b*d*
x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)-67040*x^3*a*b^5*c^2*d^4*(b
*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+3488*x^2*a^3*b^3*c*d^5*
(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)-3648*x^2*a^2*b^4*c^2*
d^4*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)-1440*x^2*a*b^5*c^
3*d^3*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+945*d^7*ln(1/2*
(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(
b*d)^(1/2))*a^7-525*b^7*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*
c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*c^7)/(b*d*x^2+a*d*x+b*
c*x+a*c)^(1/2)/b^5/d^4/(b*d)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*(d*x + c)^(5/2)*x^2,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.321456, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*(d*x + c)^(5/2)*x^2,x, algorithm="fricas")
```

```
[Out] [1/430080*(4*(15360*b^6*d^6*x^6 - 525*b^6*c^6 + 1400*a*b^5*c^5*d
- 525*a^2*b^4*c^4*d^2 - 600*a^3*b^3*c^3*d^3 + 3689*a^4*b^2*c^2*d^
4 - 3360*a^5*b*c*d^5 + 945*a^6*d^6 + 1280*(29*b^6*c*d^5 + 15*a*b^
5*d^6)*x^5 + 128*(185*b^6*c^2*d^4 + 380*a*b^5*c*d^5 + 3*a^2*b^4*d
^6)*x^4 + 16*(15*b^6*c^3*d^3 + 2095*a*b^5*c^2*d^4 + 93*a^2*b^4*c*
d^5 - 27*a^3*b^3*d^6)*x^3 - 8*(35*b^6*c^4*d^2 - 90*a*b^5*c^3*d^3
- 228*a^2*b^4*c^2*d^4 + 218*a^3*b^3*c*d^5 - 63*a^4*b^2*d^6)*x^2 +
 2*(175*b^6*c^5*d - 455*a*b^5*c^4*d^2 + 150*a^2*b^4*c^3*d^3 - 116
6*a^3*b^3*c^2*d^4 + 1099*a^4*b^2*c*d^5 - 315*a^5*b*d^6)*x)*sqrt(b
*d)*sqrt(b*x + a)*sqrt(d*x + c) - 105*(5*b^7*c^7 - 15*a*b^6*c^6*d
 + 9*a^2*b^5*c^5*d^2 + 5*a^3*b^4*c^4*d^3 + 15*a^4*b^3*c^3*d^4 - 4
5*a^5*b^2*c^2*d^5 + 35*a^6*b*c*d^6 - 9*a^7*d^7)*log(-4*(2*b^2*d^2
*x + b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*
x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sq
rt(b*d)))/(sqrt(b*d)*b^5*d^4), 1/215040*(2*(15360*b^6*d^6*x^6 - 5
25*b^6*c^6 + 1400*a*b^5*c^5*d - 525*a^2*b^4*c^4*d^2 - 600*a^3*b^3
*c^3*d^3 + 3689*a^4*b^2*c^2*d^4 - 3360*a^5*b*c*d^5 + 945*a^6*d^6
+ 1280*(29*b^6*c*d^5 + 15*a*b^5*d^6)*x^5 + 128*(185*b^6*c^2*d^4 +
 380*a*b^5*c*d^5 + 3*a^2*b^4*d^6)*x^4 + 16*(15*b^6*c^3*d^3 + 2095
*a*b^5*c^2*d^4 + 93*a^2*b^4*c*d^5 - 27*a^3*b^3*d^6)*x^3 - 8*(35*b
^6*c^4*d^2 - 90*a*b^5*c^3*d^3 - 228*a^2*b^4*c^2*d^4 + 218*a^3*b^3
*c*d^5 - 63*a^4*b^2*d^6)*x^2 + 2*(175*b^6*c^5*d - 455*a*b^5*c^4*d
^2 + 150*a^2*b^4*c^3*d^3 - 1166*a^3*b^3*c^2*d^4 + 1099*a^4*b^2*c*
d^5 - 315*a^5*b*d^6)*x)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c) +
105*(5*b^7*c^7 - 15*a*b^6*c^6*d + 9*a^2*b^5*c^5*d^2 + 5*a^3*b^4*c
^4*d^3 + 15*a^4*b^3*c^3*d^4 - 45*a^5*b^2*c^2*d^5 + 35*a^6*b*c*d^6
 - 9*a^7*d^7)*arctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b
*x + a)*sqrt(d*x + c)*b*d)))/(sqrt(-b*d)*b^5*d^4)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(b*x+a)**(3/2)*(d*x+c)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.426627, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*(d*x + c)^(5/2)*x^2,x, algorithm="giac")
```

```
[Out] Done
```

3.605 $\int x(a+bx)^{3/2}(c+dx)^{5/2}\,dx$

Optimal. Leaf size=315

$$-\frac{(7ad+5bc)(bc-ad)^5\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{512b^{9/2}d^{7/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}(7ad+5bc)(bc-ad)^4}{512b^4d^3}-\frac{(a+bx)^{3/2}\sqrt{c+dx}(7ad+5bc)(bc-ad)^3}{768b^4d^2}-\frac{(a+bx)^{5/2}\sqrt{c+dx}(7ad+5bc)(bc-ad)^2}{192b^4d}-\frac{(a+bx)^{5/2}(c+dx)^{3/2}(7ad+5bc)(bc-ad)}{96b^3d}-\frac{(a+bx)^{5/2}(c+dx)^{5/2}(7ad+5bc)}{60b^2d}+\frac{(a+bx)^{5/2}(c+dx)^{7/2}}{6bd}$$

```
[Out] ((b*c - a*d)^4*(5*b*c + 7*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(512*
b^4*d^3) - ((b*c - a*d)^3*(5*b*c + 7*a*d)*(a + b*x)^(3/2)*Sqrt[c
+ d*x])/(768*b^4*d^2) - ((b*c - a*d)^2*(5*b*c + 7*a*d)*(a + b*x)^
(5/2)*Sqrt[c + d*x])/(192*b^4*d) - ((b*c - a*d)*(5*b*c + 7*a*d)*(
a + b*x)^(5/2)*(c + d*x)^(3/2))/(96*b^3*d) - ((5*b*c + 7*a*d)*(a
+ b*x)^(5/2)*(c + d*x)^(5/2))/(60*b^2*d) + ((a + b*x)^(5/2)*(c +
d*x)^(7/2))/(6*b*d) - ((b*c - a*d)^5*(5*b*c + 7*a*d)*ArcTanh[(Sqr
t[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(512*b^(9/2)*d^(7/2
))
```

Rubi [A] time = 0.511241, antiderivative size = 315, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.2$

$$-\frac{(7ad+5bc)(bc-ad)^5\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{512b^{9/2}d^{7/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}(7ad+5bc)(bc-ad)^4}{512b^4d^3}-\frac{(a+bx)^{3/2}\sqrt{c+dx}(7ad+5bc)(bc-ad)^3}{768b^4d^2}-\frac{(a+bx)^{5/2}\sqrt{c+dx}(7ad+5bc)(bc-ad)^2}{192b^4d}-\frac{(a+bx)^{5/2}(c+dx)^{3/2}(7ad+5bc)(bc-ad)}{96b^3d}-\frac{(a+bx)^{5/2}(c+dx)^{5/2}(7ad+5bc)}{60b^2d}+\frac{(a+bx)^{5/2}(c+dx)^{7/2}}{6bd}$$

Antiderivative was successfully verified.

```
[In]  Int[x*(a + b*x)^(3/2)*(c + d*x)^(5/2),x]
```

```
[Out] ((b*c - a*d)^4*(5*b*c + 7*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(512*
b^4*d^3) - ((b*c - a*d)^3*(5*b*c + 7*a*d)*(a + b*x)^(3/2)*Sqrt[c
+ d*x])/(768*b^4*d^2) - ((b*c - a*d)^2*(5*b*c + 7*a*d)*(a + b*x)^
(5/2)*Sqrt[c + d*x])/(192*b^4*d) - ((b*c - a*d)*(5*b*c + 7*a*d)*(
a + b*x)^(5/2)*(c + d*x)^(3/2))/(96*b^3*d) - ((5*b*c + 7*a*d)*(a
+ b*x)^(5/2)*(c + d*x)^(5/2))/(60*b^2*d) + ((a + b*x)^(5/2)*(c +
d*x)^(7/2))/(6*b*d) - ((b*c - a*d)^5*(5*b*c + 7*a*d)*ArcTanh[(Sqr
t[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(512*b^(9/2)*d^(7/2
))
```

Rubi in Sympy [A] time = 63.0108, size = 286, normalized size = 0.91

$$\frac{(a+bx)^{\frac{5}{2}}(c+dx)^{\frac{7}{2}}}{6bd}-\frac{(a+bx)^{\frac{5}{2}}(c+dx)^{\frac{5}{2}}(7ad+5bc)}{60b^2d}+\frac{(a+bx)^{\frac{5}{2}}(c+dx)^{\frac{3}{2}}(ad-bc)(7ad+5bc)}{96b^3d}-\frac{(a+bx)^{\frac{5}{2}}\sqrt{c+dx}(ad-bc)^2(7ad+5bc)}{192b^4d}+\frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}(ad-bc)^3(7ad+5bc)}{768b^4d^2}+\frac{\sqrt{a+bx}\sqrt{c+dx}(ad-bc)^4(7ad+5bc)}{512b^4d^3}+\frac{(ad-bc)^5(7ad+5bc)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{512b^{\frac{9}{2}}d^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(b*x+a)**(3/2)*(d*x+c)**(5/2),x)
```

```
[Out] (a + b*x)**(5/2)*(c + d*x)**(7/2)/(6*b*d) - (a + b*x)**(5/2)*(c +
 d*x)**(5/2)*(7*a*d + 5*b*c)/(60*b**2*d) + (a + b*x)**(5/2)*(c +
d*x)**(3/2)*(a*d - b*c)*(7*a*d + 5*b*c)/(96*b**3*d) - (a + b*x)**
(5/2)*sqrt(c + d*x)*(a*d - b*c)**2*(7*a*d + 5*b*c)/(192*b**4*d) +
 (a + b*x)**(3/2)*sqrt(c + d*x)*(a*d - b*c)**3*(7*a*d + 5*b*c)/(7
68*b**4*d**2) + sqrt(a + b*x)*sqrt(c + d*x)*(a*d - b*c)**4*(7*a*d
 + 5*b*c)/(512*b**4*d**3) + (a*d - b*c)**5*(7*a*d + 5*b*c)*atanh(
sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c + d*x)))/(512*b**(9/2)*d**(
7/2))
```

Mathematica [A] time = 0.297824, size = 306, normalized size = 0.97

$$\frac{\sqrt{a+bx}\sqrt{c+dx}\left(-105a^5d^5+5a^4bd^4(83c+14dx)-2a^3b^2d^3\left(273c^2+136cdx+28d^2x^2\right)+6a^2b^3d^2\left(25c^3+58c^2dx+36cd^2x\right.\right.}{}$$

$$-\frac{(bc-ad)^5(7ad+5bc)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{1024b^{9/2}d^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x*(a + b*x)^(3/2)*(c + d*x)^(5/2),x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(-105*a^5*d^5 + 5*a^4*b*d^4*(83*c +
14*d*x) - 2*a^3*b^2*d^3*(273*c^2 + 136*c*d*x + 28*d^2*x^2) + 6*a^
2*b^3*d^2*(25*c^3 + 58*c^2*d*x + 36*c*d^2*x^2 + 8*d^3*x^3) + a*b^
4*d*(-245*c^4 + 160*c^3*d*x + 3384*c^2*d^2*x^2 + 4448*c*d^3*x^3 +
 1664*d^4*x^4) + 5*b^5*(15*c^5 - 10*c^4*d*x + 8*c^3*d^2*x^2 + 432
*c^2*d^3*x^3 + 640*c*d^4*x^4 + 256*d^5*x^5)))/(7680*b^4*d^3) - ((
b*c - a*d)^5*(5*b*c + 7*a*d)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*
Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(1024*b^(9/2)*d^(7/2))
```

Maple [B] time = 0.026, size = 1240, normalized size = 3.9

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(b*x+a)^(3/2)*(d*x+c)^(5/2),x)
```

```
[Out] 1/15360*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(-112*x^2*a^3*b^2*d^5*(b*d*x^
2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+80*x^2*b^5*c^3*d^2*(b*d*x^2+
a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+3328*x^4*a*b^4*d^5*(b*d*x^2+a*
d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+6400*x^4*b^5*c*d^4*(b*d*x^2+a*d*
x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+96*x^3*a^2*b^3*d^5*(b*d*x^2+a*d*x+
b*c*x+a*c)^(1/2)*(b*d)^(1/2)+4320*x^3*b^5*c^2*d^3*(b*d*x^2+a*d*x+
b*c*x+a*c)^(1/2)*(b*d)^(1/2)+300*c^3*(b*d*x^2+a*d*x+b*c*x+a*c)^(1
/2)*a^2*b^3*d^2*(b*d)^(1/2)-490*c^4*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/
2)*a*b^4*d*(b*d)^(1/2)+140*d^5*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*
a^4*b*(b*d)^(1/2)-100*c^4*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*b^5*d
*(b*d)^(1/2)+830*d^4*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a^4*c*b*(b*d
)^(1/2)-1092*c^2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a^3*b^2*d^3*(b*d
)^(1/2)+105*d^6*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)
*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^6-75*c^6*b^6*ln(1/2*(2*b*d*x
+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/
2))+2560*x^5*b^5*d^5*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)-
210*d^5*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a^5*(b*d)^(1/2)+150*c^5*(
b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*b^5*(b*d)^(1/2)-450*d^5*ln(1/2*(2*
b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d
)^(1/2))*a^5*c*b+675*c^2*d^4*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c
*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^4*b^2-300*c^3*a
^3*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+
a*d+b*c)/(b*d)^(1/2))*b^3*d^3-225*c^4*ln(1/2*(2*b*d*x+2*(b*d*x^2+
```

```
a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^2*b^4*
d^2+270*c^5*a*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(
b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*b^5*d-544*d^4*(b*d*x^2+a*d*x+b*c
*x+a*c)^(1/2)*x*a^3*c*b^2*(b*d)^(1/2)+696*c^2*(b*d*x^2+a*d*x+b*c*
x+a*c)^(1/2)*x*a^2*b^3*d^3*(b*d)^(1/2)+320*c^3*(b*d*x^2+a*d*x+b*c
*x+a*c)^(1/2)*x*a*b^4*d^2*(b*d)^(1/2)+432*x^2*a^2*b^3*c*d^4*(b*d*
x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+6768*x^2*a*b^4*c^2*d^3*(b*
d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+8896*x^3*a*b^4*c*d^4*(b*
d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2))/(b*d*x^2+a*d*x+b*c*x+a*
c)^(1/2)/b^4/d^3/(b*d)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*(d*x + c)^(5/2)*x,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.285773, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*(d*x + c)^(5/2)*x,x, algorithm="fricas")
```

```
[Out] [1/30720*(4*(1280*b^5*d^5*x^5 + 75*b^5*c^5 - 245*a*b^4*c^4*d + 15
0*a^2*b^3*c^3*d^2 - 546*a^3*b^2*c^2*d^3 + 415*a^4*b*c*d^4 - 105*a
^5*d^5 + 128*(25*b^5*c*d^4 + 13*a*b^4*d^5)*x^4 + 16*(135*b^5*c^2*
d^3 + 278*a*b^4*c*d^4 + 3*a^2*b^3*d^5)*x^3 + 8*(5*b^5*c^3*d^2 + 4
23*a*b^4*c^2*d^3 + 27*a^2*b^3*c*d^4 - 7*a^3*b^2*d^5)*x^2 - 2*(25*
b^5*c^4*d - 80*a*b^4*c^3*d^2 - 174*a^2*b^3*c^2*d^3 + 136*a^3*b^2*
c*d^4 - 35*a^4*b*d^5)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) -
15*(5*b^6*c^6 - 18*a*b^5*c^5*d + 15*a^2*b^4*c^4*d^2 + 20*a^3*b^3*
c^3*d^3 - 45*a^4*b^2*c^2*d^4 + 30*a^5*b*c*d^5 - 7*a^6*d^6)*log(4*
(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (
8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*
d^2)*x)*sqrt(b*d)))/(sqrt(b*d)*b^4*d^3), 1/15360*(2*(1280*b^5*d^5
*x^5 + 75*b^5*c^5 - 245*a*b^4*c^4*d + 150*a^2*b^3*c^3*d^2 - 546*a
^3*b^2*c^2*d^3 + 415*a^4*b*c*d^4 - 105*a^5*d^5 + 128*(25*b^5*c*d^
4 + 13*a*b^4*d^5)*x^4 + 16*(135*b^5*c^2*d^3 + 278*a*b^4*c*d^4 + 3
*a^2*b^3*d^5)*x^3 + 8*(5*b^5*c^3*d^2 + 423*a*b^4*c^2*d^3 + 27*a^2
*b^3*c*d^4 - 7*a^3*b^2*d^5)*x^2 - 2*(25*b^5*c^4*d - 80*a*b^4*c^3*
d^2 - 174*a^2*b^3*c^2*d^3 + 136*a^3*b^2*c*d^4 - 35*a^4*b*d^5)*x)*
sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c) - 15*(5*b^6*c^6 - 18*a*b^5
*c^5*d + 15*a^2*b^4*c^4*d^2 + 20*a^3*b^3*c^3*d^3 - 45*a^4*b^2*c^2
*d^4 + 30*a^5*b*c*d^5 - 7*a^6*d^6)*arctan(1/2*(2*b*d*x + b*c + a*
d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/(sqrt(-b*d)*b^4
*d^3)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(b*x+a)**(3/2)*(d*x+c)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.373833, size = 1, normalized size = 0.

$$Done$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*(d*x + c)^(5/2)*x,x, algorithm="giac")
```

```
[Out] Done
```

3.606 $\int (a+bx)^{3/2}(c+dx)^{5/2}\,dx$

Optimal. Leaf size=224

$$\frac{3(bc-ad)^5\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{128b^{7/2}d^{5/2}}-\frac{3\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^4}{128b^3d^2}+\frac{(a+bx)^{3/2}\sqrt{c+dx}(bc-ad)^3}{64b^3d}+\frac{(a+bx)^{5/2}\sqrt{c+dx}(bc-ad)^2}{16b^3}+\frac{(a+bx)^{5/2}(c+dx)^{3/2}(bc-ad)}{8b^2}+\frac{(a+bx)^{5/2}(c+dx)^{5/2}}{5b}$$

```
[Out] (-3*(b*c - a*d)^4*Sqrt[a + b*x]*Sqrt[c + d*x])/(128*b^3*d^2) + ((
b*c - a*d)^3*(a + b*x)^(3/2)*Sqrt[c + d*x])/(64*b^3*d) + ((b*c -
a*d)^2*(a + b*x)^(5/2)*Sqrt[c + d*x])/(16*b^3) + ((b*c - a*d)*(a
+ b*x)^(5/2)*(c + d*x)^(3/2))/(8*b^2) + ((a + b*x)^(5/2)*(c + d*x
)^(5/2))/(5*b) + (3*(b*c - a*d)^5*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])
/(Sqrt[b]*Sqrt[c + d*x])])/(128*b^(7/2)*d^(5/2))
```

Rubi [A] time = 0.299528, antiderivative size = 224, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 3, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.158

$$\frac{3(bc-ad)^5\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{128b^{7/2}d^{5/2}}-\frac{3\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^4}{128b^3d^2}+\frac{(a+bx)^{3/2}\sqrt{c+dx}(bc-ad)^3}{64b^3d}+\frac{(a+bx)^{5/2}\sqrt{c+dx}(bc-ad)^2}{16b^3}+\frac{(a+bx)^{5/2}(c+dx)^{3/2}(bc-ad)}{8b^2}+\frac{(a+bx)^{5/2}(c+dx)^{5/2}}{5b}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(3/2)*(c + d*x)^(5/2),x]
```

```
[Out] (-3*(b*c - a*d)^4*Sqrt[a + b*x]*Sqrt[c + d*x])/(128*b^3*d^2) + ((
b*c - a*d)^3*(a + b*x)^(3/2)*Sqrt[c + d*x])/(64*b^3*d) + ((b*c -
a*d)^2*(a + b*x)^(5/2)*Sqrt[c + d*x])/(16*b^3) + ((b*c - a*d)*(a
+ b*x)^(5/2)*(c + d*x)^(3/2))/(8*b^2) + ((a + b*x)^(5/2)*(c + d*x
)^(5/2))/(5*b) + (3*(b*c - a*d)^5*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])
/(Sqrt[b]*Sqrt[c + d*x])])/(128*b^(7/2)*d^(5/2))
```

Rubi in Sympy [A] time = 45.068, size = 202, normalized size = 0.9

$$\frac{(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{7}{2}}}{5d}+\frac{3\sqrt{a+bx}\,(c+dx)^{\frac{7}{2}}(ad-bc)}{40d^2}+\frac{\sqrt{a+bx}\,(c+dx)^{\frac{5}{2}}(ad-bc)^2}{80bd^2}-\frac{\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}(ad-bc)^3}{64b^2d^2}+\frac{3\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)^4}{128b^3d^2}-\frac{3\,(ad-bc)^5\,\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{128b^{\frac{7}{2}}d^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(d*x+c)**(5/2),x)
```

```
[Out] (a + b*x)**(3/2)*(c + d*x)**(7/2)/(5*d) + 3*sqrt(a + b*x)*(c + d*
x)**(7/2)*(a*d - b*c)/(40*d**2) + sqrt(a + b*x)*(c + d*x)**(5/2)*
(a*d - b*c)**2/(80*b*d**2) - sqrt(a + b*x)*(c + d*x)**(3/2)*(a*d
- b*c)**3/(64*b**2*d**2) + 3*sqrt(a + b*x)*sqrt(c + d*x)*(a*d - b
*c)**4/(128*b**3*d**2) - 3*(a*d - b*c)**5*atanh(sqrt(d)*sqrt(a +
b*x)/(sqrt(b)*sqrt(c + d*x)))/(128*b**(7/2)*d**(5/2))
```

Mathematica [A] time = 0.234898, size = 233, normalized size = 1.04

$$\frac{\sqrt{a+bx}\sqrt{c+dx}\left(15a^4d^4-10a^3bd^3(7c+dx)+2a^2b^2d^2\left(64c^2+23cdx+4d^2x^2\right)+2ab^3d\left(35c^3+233c^2dx+256cd^2x^2+88d^3\cdots\right.\right.}{640b^3d^2}$$
$$+\frac{3(bc-ad)^5\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{256b^{7/2}d^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(3/2)*(c + d*x)^(5/2),x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(15*a^4*d^4 - 10*a^3*b*d^3*(7*c + d*
x) + 2*a^2*b^2*d^2*(64*c^2 + 23*c*d*x + 4*d^2*x^2) + 2*a*b^3*d*(3
5*c^3 + 233*c^2*d*x + 256*c*d^2*x^2 + 88*d^3*x^3) + b^4*(-15*c^4
+ 10*c^3*d*x + 248*c^2*d^2*x^2 + 336*c*d^3*x^3 + 128*d^4*x^4)))/(
640*b^3*d^2) + (3*(b*c - a*d)^5*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[
b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(256*b^(7/2)*d^(5/2))
```

Maple [B] time = 0.009, size = 848, normalized size = 3.8

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(d*x+c)^(5/2),x)
```

```
[Out] 1/5/d*(b*x+a)^(3/2)*(d*x+c)^(7/2)+3/40/d*(b*x+a)^(1/2)*(d*x+c)^(7
/2)*a+3/64/b*(d*x+c)^(3/2)*(b*x+a)^(1/2)*a^2*c-3/32*d/b^2*(d*x+c)
^(1/2)*(b*x+a)^(1/2)*a^3*c+9/64/b*(d*x+c)^(1/2)*(b*x+a)^(1/2)*a^2
*c^2-15/256/d*((b*x+a)*(d*x+c))^(1/2)/(d*x+c)^(1/2)/(b*x+a)^(1/2)
*ln((1/2*a*d+1/2*b*c+b*d*x)/(b*d)^(1/2)+(d*x^2*b+(a*d+b*c)*x+a*c)
^(1/2))/(b*d)^(1/2)*a*c^4*b+3/256/d^2*((b*x+a)*(d*x+c))^(1/2)/(d*
x+c)^(1/2)/(b*x+a)^(1/2)*ln((1/2*a*d+1/2*b*c+b*d*x)/(b*d)^(1/2)+(
d*x^2*b+(a*d+b*c)*x+a*c)^(1/2))/(b*d)^(1/2)*c^5*b^2-3/256*d^3/b^3
*((b*x+a)*(d*x+c))^(1/2)/(d*x+c)^(1/2)/(b*x+a)^(1/2)*ln((1/2*a*d+
1/2*b*c+b*d*x)/(b*d)^(1/2)+(d*x^2*b+(a*d+b*c)*x+a*c)^(1/2))/(b*d)
^(1/2)*a^5-3/32/d*(d*x+c)^(1/2)*(b*x+a)^(1/2)*a*c^3+3/128/d^2*(d*
x+c)^(1/2)*(b*x+a)^(1/2)*c^4*b+1/64/d^2*(d*x+c)^(3/2)*(b*x+a)^(1/
2)*c^3*b+3/128*d^2/b^3*(d*x+c)^(1/2)*(b*x+a)^(1/2)*a^4-3/64/d*(d*
x+c)^(3/2)*(b*x+a)^(1/2)*a*c^2-1/64*d/b^2*(d*x+c)^(3/2)*(b*x+a)^(
1/2)*a^3+1/80/d^2*(d*x+c)^(5/2)*(b*x+a)^(1/2)*c^2*b-1/40/d*(d*x+c
)^(5/2)*(b*x+a)^(1/2)*a*c+1/80/b*(d*x+c)^(5/2)*(b*x+a)^(1/2)*a^2-
3/40/d^2*(b*x+a)^(1/2)*(d*x+c)^(7/2)*b*c+15/256*d^2/b^2*((b*x+a)*
(d*x+c))^(1/2)/(d*x+c)^(1/2)/(b*x+a)^(1/2)*ln((1/2*a*d+1/2*b*c+b*
d*x)/(b*d)^(1/2)+(d*x^2*b+(a*d+b*c)*x+a*c)^(1/2))/(b*d)^(1/2)*a^4
*c-15/128*d/b*((b*x+a)*(d*x+c))^(1/2)/(d*x+c)^(1/2)/(b*x+a)^(1/2)
*ln((1/2*a*d+1/2*b*c+b*d*x)/(b*d)^(1/2)+(d*x^2*b+(a*d+b*c)*x+a*c)
^(1/2))/(b*d)^(1/2)*a^3*c^2+15/128*((b*x+a)*(d*x+c))^(1/2)/(d*x+c
)^(1/2)/(b*x+a)^(1/2)*ln((1/2*a*d+1/2*b*c+b*d*x)/(b*d)^(1/2)+(d*x
^2*b+(a*d+b*c)*x+a*c)^(1/2))/(b*d)^(1/2)*a^2*c^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*(d*x + c)^(5/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.256149, size = 1, normalized size = 0.

$$\left[\frac{4\left(128\,b^4d^4x^4 - 15\,b^4c^4 + 70\,ab^3c^3d + 128\,a^2b^2c^2d^2 - 70\,a^3bcd^3 + 15\,a^4d^4 + 16\left(21\,b^4cd^3 + 11\,ab^3d^4\right)x^3 + 8\left(31\,b^4c^2d^2 + 64\right.\right.}{} \right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*(d*x + c)^(5/2),x, algorithm="fricas")
```

```
[Out] [1/2560*(4*(128*b^4*d^4*x^4 - 15*b^4*c^4 + 70*a*b^3*c^3*d + 128*a
^2*b^2*c^2*d^2 - 70*a^3*b*c*d^3 + 15*a^4*d^4 + 16*(21*b^4*c*d^3 +
 11*a*b^3*d^4)*x^3 + 8*(31*b^4*c^2*d^2 + 64*a*b^3*c*d^3 + a^2*b^2
*d^4)*x^2 + 2*(5*b^4*c^3*d + 233*a*b^3*c^2*d^2 + 23*a^2*b^2*c*d^3
 - 5*a^3*b*d^4)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) - 15*(b^
5*c^5 - 5*a*b^4*c^4*d + 10*a^2*b^3*c^3*d^2 - 10*a^3*b^2*c^2*d^3 +
 5*a^4*b*c*d^4 - a^5*d^5)*log(-4*(2*b^2*d^2*x + b^2*c*d + a*b*d^2
)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*
c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/(sqrt(b*d)*b
^3*d^2), 1/1280*(2*(128*b^4*d^4*x^4 - 15*b^4*c^4 + 70*a*b^3*c^3*d
 + 128*a^2*b^2*c^2*d^2 - 70*a^3*b*c*d^3 + 15*a^4*d^4 + 16*(21*b^4
*c*d^3 + 11*a*b^3*d^4)*x^3 + 8*(31*b^4*c^2*d^2 + 64*a*b^3*c*d^3 +
 a^2*b^2*d^4)*x^2 + 2*(5*b^4*c^3*d + 233*a*b^3*c^2*d^2 + 23*a^2*b
^2*c*d^3 - 5*a^3*b*d^4)*x)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c)
 + 15*(b^5*c^5 - 5*a*b^4*c^4*d + 10*a^2*b^3*c^3*d^2 - 10*a^3*b^2*
c^2*d^3 + 5*a^4*b*c*d^4 - a^5*d^5)*arctan(1/2*(2*b*d*x + b*c + a*
d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/(sqrt(-b*d)*b^3
*d^2)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)*(d*x+c)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.352491, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*(d*x + c)^(5/2),x, algorithm="giac")
```

```
[Out] Done
```

3.607 $\int \frac{(a+bx)^{3/2}(c+dx)^{5/2}}{x} dx$

Optimal. Leaf size=304

$$-2a^{3/2}c^{5/2}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)+\frac{1}{96}\sqrt{a+bx}(c+dx)^{3/2}\left(\frac{3a^2d}{b}+50ac-\frac{5bc^2}{d}\right)-\frac{\sqrt{a+bx}\sqrt{c+dx}\,(3a^3d^3-17a^2bcd^2-55ab^2c^2d+5b^3c^3)}{64b^2d}-\frac{(-3a^4d^4+20a^3bc$$

```
[Out] -((5*b^3*c^3 - 55*a*b^2*c^2*d - 17*a^2*b*c*d^2 + 3*a^3*d^3)*Sqrt[
a + b*x]*Sqrt[c + d*x])/(64*b^2*d) + ((50*a*c - (5*b*c^2)/d + (3*
a^2*d)/b)*Sqrt[a + b*x]*(c + d*x)^(3/2))/96 + ((5*b*c + 3*a*d)*Sq
rt[a + b*x]*(c + d*x)^(5/2))/(24*d) + ((a + b*x)^(3/2)*(c + d*x)^
(5/2))/4 - 2*a^(3/2)*c^(5/2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqr
t[a]*Sqrt[c + d*x])] - ((5*b^4*c^4 - 60*a*b^3*c^3*d - 90*a^2*b^2*
c^2*d^2 + 20*a^3*b*c*d^3 - 3*a^4*d^4)*ArcTanh[(Sqrt[d]*Sqrt[a + b
*x])/(Sqrt[b]*Sqrt[c + d*x])])/(64*b^(5/2)*d^(3/2))
```

Rubi [A] time = 0.968225, antiderivative size = 304, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.273

$$-2a^{3/2}c^{5/2}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)+\frac{1}{96}\sqrt{a+bx}(c+dx)^{3/2}\left(\frac{3a^2d}{b}+50ac-\frac{5bc^2}{d}\right)-\frac{\sqrt{a+bx}\sqrt{c+dx}\,(3a^3d^3-17a^2bcd^2-55ab^2c^2d+5b^3c^3)}{64b^2d}-\frac{(-3a^4d^4+20a^3bc$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(3/2)*(c + d*x)^(5/2))/x,x]
```


```
[Out] -((5*b^3*c^3 - 55*a*b^2*c^2*d - 17*a^2*b*c*d^2 + 3*a^3*d^3)*Sqrt[
a + b*x]*Sqrt[c + d*x])/(64*b^2*d) + ((50*a*c - (5*b*c^2)/d + (3*
a^2*d)/b)*Sqrt[a + b*x]*(c + d*x)^(3/2))/96 + ((5*b*c + 3*a*d)*Sq
rt[a + b*x]*(c + d*x)^(5/2))/(24*d) + ((a + b*x)^(3/2)*(c + d*x)^
(5/2))/4 - 2*a^(3/2)*c^(5/2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqr
t[a]*Sqrt[c + d*x])] - ((5*b^4*c^4 - 60*a*b^3*c^3*d - 90*a^2*b^2*
c^2*d^2 + 20*a^3*b*c*d^3 - 3*a^4*d^4)*ArcTanh[(Sqrt[d]*Sqrt[a + b
*x])/(Sqrt[b]*Sqrt[c + d*x])])/(64*b^(5/2)*d^(3/2))
```

Rubi in Sympy [A] time = 101., size = 284, normalized size = 0.93

$$-2a^{\frac{3}{2}}c^{\frac{5}{2}}\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)+\frac{(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{5}{2}}}{4}+\frac{(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{3}{2}}(3ad+5bc)}{24b}-\frac{\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}(ad-5bc)(3ad+bc)}{32bd}-\frac{\sqrt{a+bx}\sqrt{c+dx}\left(-64ab^2c^2d+(ad-5bc)(ad-bc)(3ad+bc)\right)}{64b^2d}+\frac{\left(3a^4d^4-20a^3bcd^3+90a^2b^2c^2d^2+60ab^3c^3d-5b^4c^4\right)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{64b^{\frac{5}{2}}d^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(d*x+c)**(5/2)/x,x)
```

```
[Out] -2*a**(3/2)*c**(5/2)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c
+ d*x))) + (a + b*x)**(3/2)*(c + d*x)**(5/2)/4 + (a + b*x)**(3/2)
```

```
*(c + d*x)**(3/2)*(3*a*d + 5*b*c)/(24*b) - sqrt(a + b*x)*(c + d*x
)**(3/2)*(a*d - 5*b*c)*(3*a*d + b*c)/(32*b*d) - sqrt(a + b*x)*sqr
t(c + d*x)*(-64*a*b**2*c**2*d + (a*d - 5*b*c)*(a*d - b*c)*(3*a*d
+ b*c))/(64*b**2*d) + (3*a**4*d**4 - 20*a**3*b*c*d**3 + 90*a**2*b
**2*c**2*d**2 + 60*a*b**3*c**3*d - 5*b**4*c**4)*atanh(sqrt(b)*sqr
t(c + d*x)/(sqrt(d)*sqrt(a + b*x)))/(64*b**(5/2)*d**(3/2))
```

Mathematica [A] time = 0.238266, size = 291, normalized size = 0.96

$$-a^{3/2}c^{5/2}\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)$$
$$+a^{3/2}c^{5/2}\log(x)+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(-9a^3d^3+3a^2bd^2(19c+2dx)+ab^2d\left(337c^2+244cdx+72d^2x^2\right)+b^3\left(15c^3+118c^2dx+\right.\right.}{192b^2d}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(3/2)*(c + d*x)^(5/2))/x,x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(-9*a^3*d^3 + 3*a^2*b*d^2*(19*c + 2*
d*x) + a*b^2*d*(337*c^2 + 244*c*d*x + 72*d^2*x^2) + b^3*(15*c^3 +
 118*c^2*d*x + 136*c*d^2*x^2 + 48*d^3*x^3)))/(192*b^2*d) + a^(3/2
)*c^(5/2)*Log[x] - a^(3/2)*c^(5/2)*Log[2*a*c + b*c*x + a*d*x + 2*
Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]] + ((-5*b^4*c^4 + 60*
a*b^3*c^3*d + 90*a^2*b^2*c^2*d^2 - 20*a^3*b*c*d^3 + 3*a^4*d^4)*Lo
g[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c +
d*x]])/(128*b^(5/2)*d^(3/2))
```

Maple [B] time = 0.025, size = 828, normalized size = 2.7

$$-\frac{1}{384\,b^2d}\sqrt{bx+a}\sqrt{dx+c}\left(-96\,x^3b^3d^3\sqrt{bd}\sqrt{ac}\sqrt{dx^2b+adx+bcx+ac}-144\,x^2ab^2d^3\sqrt{bd}\sqrt{ac}\sqrt{dx^2b+adx+bcx+ac}-2\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(d*x+c)^(5/2)/x,x)
```

```
[Out] -1/384*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(-96*x^3*b^3*d^3*(b*d)^(1/2)*(
a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)-144*x^2*a*b^2*d^3*(b*d
)^(1/2)*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)-272*x^2*b^3*c
*d^2*(b*d)^(1/2)*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+384*
a^2*c^3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(
1/2)+2*a*c)/x)*b^2*d*(b*d)^(1/2)-9*d^4*a^4*ln(1/2*(2*b*d*x+2*(b*d
*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*(a*
c)^(1/2)+60*d^3*a^3*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(
1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*c*(a*c)^(1/2)*b-270*c^2*d^
2*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a
*d+b*c)/(b*d)^(1/2))*a^2*(a*c)^(1/2)*b^2-180*b^3*c^3*ln(1/2*(2*b*
d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^
(1/2))*a*(a*c)^(1/2)*d+15*b^4*c^4*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*
x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*(a*c)^(1/2)-
12*d^3*a^2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*(a*c)^(1/2)*b*(b*d)^
(1/2)-488*d^2*a*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*c*(a*c)^(1/2)*b
^2*(b*d)^(1/2)-236*b^3*c^2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*(a*c
)^(1/2)*d*(b*d)^(1/2)+18*d^3*a^3*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*
(a*c)^(1/2)*(b*d)^(1/2)-114*d^2*a^2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/
2)*c*(a*c)^(1/2)*b*(b*d)^(1/2)-674*c^2*(b*d*x^2+a*d*x+b*c*x+a*c)^
(1/2)*a*(a*c)^(1/2)*b^2*d*(b*d)^(1/2)-30*b^3*c^3*(b*d*x^2+a*d*x+b
*c*x+a*c)^(1/2)*(a*c)^(1/2)*(b*d)^(1/2))/(b*d*x^2+a*d*x+b*c*x+a*c
)^(1/2)/(a*c)^(1/2)/b^2/d/(b*d)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*(d*x + c)^(5/2)/x,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 17.5053, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*(d*x + c)^(5/2)/x,x, algorithm="fricas")
```

```
[Out] [1/768*(384*sqrt(a*c)*sqrt(b*d)*a*b^2*c^2*d*log((8*a^2*c^2 + (b^2
*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a*c + (b*c + a*d)*x)*sqrt(
a*c)*sqrt(b*x + a)*sqrt(d*x + c) + 8*(a*b*c^2 + a^2*c*d)*x)/x^2)
+ 4*(48*b^3*d^3*x^3 + 15*b^3*c^3 + 337*a*b^2*c^2*d + 57*a^2*b*c*d
^2 - 9*a^3*d^3 + 8*(17*b^3*c*d^2 + 9*a*b^2*d^3)*x^2 + 2*(59*b^3*c
^2*d + 122*a*b^2*c*d^2 + 3*a^2*b*d^3)*x)*sqrt(b*d)*sqrt(b*x + a)*
sqrt(d*x + c) - 3*(5*b^4*c^4 - 60*a*b^3*c^3*d - 90*a^2*b^2*c^2*d^
2 + 20*a^3*b*c*d^3 - 3*a^4*d^4)*log(4*(2*b^2*d^2*x + b^2*c*d + a*
b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6
*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/(sqrt(b
*d)*b^2*d), 1/384*(192*sqrt(a*c)*sqrt(-b*d)*a*b^2*c^2*d*log((8*a^
2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a*c + (b*c + a
*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c) + 8*(a*b*c^2 + a^2*c
*d)*x)/x^2) + 2*(48*b^3*d^3*x^3 + 15*b^3*c^3 + 337*a*b^2*c^2*d +
57*a^2*b*c*d^2 - 9*a^3*d^3 + 8*(17*b^3*c*d^2 + 9*a*b^2*d^3)*x^2 +
 2*(59*b^3*c^2*d + 122*a*b^2*c*d^2 + 3*a^2*b*d^3)*x)*sqrt(-b*d)*s
qrt(b*x + a)*sqrt(d*x + c) - 3*(5*b^4*c^4 - 60*a*b^3*c^3*d - 90*a
^2*b^2*c^2*d^2 + 20*a^3*b*c*d^3 - 3*a^4*d^4)*arctan(1/2*(2*b*d*x
+ b*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/(sqrt
(-b*d)*b^2*d), -1/768*(768*sqrt(-a*c)*sqrt(b*d)*a*b^2*c^2*d*arcta
n(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x
+ c))) - 4*(48*b^3*d^3*x^3 + 15*b^3*c^3 + 337*a*b^2*c^2*d + 57*a^
2*b*c*d^2 - 9*a^3*d^3 + 8*(17*b^3*c*d^2 + 9*a*b^2*d^3)*x^2 + 2*(5
9*b^3*c^2*d + 122*a*b^2*c*d^2 + 3*a^2*b*d^3)*x)*sqrt(b*d)*sqrt(b*
x + a)*sqrt(d*x + c) + 3*(5*b^4*c^4 - 60*a*b^3*c^3*d - 90*a^2*b^2
*c^2*d^2 + 20*a^3*b*c*d^3 - 3*a^4*d^4)*log(4*(2*b^2*d^2*x + b^2*c
*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*
c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/
(sqrt(b*d)*b^2*d), -1/384*(384*sqrt(-a*c)*sqrt(-b*d)*a*b^2*c^2*d*
arctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(-a*c)*sqrt(b*x + a)*sqrt
(d*x + c))) - 2*(48*b^3*d^3*x^3 + 15*b^3*c^3 + 337*a*b^2*c^2*d +
57*a^2*b*c*d^2 - 9*a^3*d^3 + 8*(17*b^3*c*d^2 + 9*a*b^2*d^3)*x^2 +
 2*(59*b^3*c^2*d + 122*a*b^2*c*d^2 + 3*a^2*b*d^3)*x)*sqrt(-b*d)*s
qrt(b*x + a)*sqrt(d*x + c) + 3*(5*b^4*c^4 - 60*a*b^3*c^3*d - 90*a
^2*b^2*c^2*d^2 + 20*a^3*b*c*d^3 - 3*a^4*d^4)*arctan(1/2*(2*b*d*x
+ b*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/(sqrt
(-b*d)*b^2*d)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)*(d*x+c)**(5/2)/x,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.370506, size = 576, normalized size = 1.89

$$-\frac{2\sqrt{bd}a^2c^3|b|\arctan\left(-\frac{b^2c+abd-\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2}{2\sqrt{-abcd}b}\right)}{\sqrt{-abcd}b}$$
$$+\frac{1}{192}\sqrt{b^2c+(bx+a)bd-abd}\left(2(bx+a)\left(4(bx+a)\left(\frac{6(bx+a)d^2|b|}{b^4}+\frac{17b^{10}cd^7|b|-9ab^9d^8|b|}{b^{13}d^6}\right)+\frac{59b^{11}c^2d^6|b|-14ab^1\cdots}{b^{13}\cdots}\right.\right.$$
$$+\frac{\left(5\sqrt{bd}b^4c^4|b|-60\sqrt{bd}ab^3c^3d|b|-90\sqrt{bd}a^2b^2c^2d^2|b|+20\sqrt{bd}a^3bcd^3|b|-3\sqrt{bd}a^4d^4|b|\right)\ln\left(\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(\cdots}\right.\right.}{128b^4d^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*(d*x + c)^(5/2)/x,x, algorithm="giac")
```

```
[Out] -2*sqrt(b*d)*a^2*c^3*abs(b)*arctan(-1/2*(b^2*c + a*b*d - (sqrt(b*
d)*sqrt(b*x + a) - sqrt(b^2*c + (b*x + a)*b*d - a*b*d))^2)/(sqrt(
-a*b*c*d)*b))/(sqrt(-a*b*c*d)*b) + 1/192*sqrt(b^2*c + (b*x + a)*b
*d - a*b*d)*(2*(b*x + a)*(4*(b*x + a)*(6*(b*x + a)*d^2*abs(b)/b^4
 + (17*b^10*c*d^7*abs(b) - 9*a*b^9*d^8*abs(b))/(b^13*d^6)) + (59*
b^11*c^2*d^6*abs(b) - 14*a*b^10*c*d^7*abs(b) + 3*a^2*b^9*d^8*abs(
b))/(b^13*d^6)) + 3*(5*b^12*c^3*d^5*abs(b) + 73*a*b^11*c^2*d^6*ab
s(b) - 17*a^2*b^10*c*d^7*abs(b) + 3*a^3*b^9*d^8*abs(b))/(b^13*d^6
))*sqrt(b*x + a) + 1/128*(5*sqrt(b*d)*b^4*c^4*abs(b) - 60*sqrt(b*
d)*a*b^3*c^3*d*abs(b) - 90*sqrt(b*d)*a^2*b^2*c^2*d^2*abs(b) + 20*
sqrt(b*d)*a^3*b*c*d^3*abs(b) - 3*sqrt(b*d)*a^4*d^4*abs(b))*ln((sq
rt(b*d)*sqrt(b*x + a) - sqrt(b^2*c + (b*x + a)*b*d - a*b*d))^2)/(
b^4*d^2)
```

3.608 $\int \frac{(a+bx)^{3/2}(c+dx)^{5/2}}{x^2}\,dx$

Optimal. Leaf size=257

$$\frac{\sqrt{a+bx}\sqrt{c+dx}\left(a^2d^2+26abcd+5b^2c^2\right)}{8b}+\frac{\left(-a^3d^3+15a^2bcd^2+45ab^2c^2d+5b^3c^3\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8b^{3/2}\sqrt{d}}-\sqrt{a}c^{3/2}(5ad+3bc)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)-\frac{(a+bx)^{3/2}(c+dx)^{5/2}}{x}+\frac{4}{3}b\sqrt{a+bx}(c+dx)^{5/2}+\frac{1}{12}\sqrt{a+bx}(c+dx)^{3/2}(19ad+5bc)$$

```
[Out] ((5*b^2*c^2 + 26*a*b*c*d + a^2*d^2)*Sqrt[a + b*x]*Sqrt[c + d*x])/
(8*b) + ((5*b*c + 19*a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2))/12 + (4*
b*Sqrt[a + b*x]*(c + d*x)^(5/2))/3 - ((a + b*x)^(3/2)*(c + d*x)^(
5/2))/x - Sqrt[a]*c^(3/2)*(3*b*c + 5*a*d)*ArcTanh[(Sqrt[c]*Sqrt[a
 + b*x])/(Sqrt[a]*Sqrt[c + d*x])] + ((5*b^3*c^3 + 45*a*b^2*c^2*d
+ 15*a^2*b*c*d^2 - a^3*d^3)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt
[b]*Sqrt[c + d*x])])/(8*b^(3/2)*Sqrt[d])
```

Rubi [A] time = 0.910458, antiderivative size = 257, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.273$

$$\frac{\sqrt{a+bx}\sqrt{c+dx}\left(a^2d^2+26abcd+5b^2c^2\right)}{8b}+\frac{\left(-a^3d^3+15a^2bcd^2+45ab^2c^2d+5b^3c^3\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8b^{3/2}\sqrt{d}}-\sqrt{a}c^{3/2}(5ad+3bc)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)-\frac{(a+bx)^{3/2}(c+dx)^{5/2}}{x}+\frac{4}{3}b\sqrt{a+bx}(c+dx)^{5/2}+\frac{1}{12}\sqrt{a+bx}(c+dx)^{3/2}(19ad+5bc)$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(3/2)*(c + d*x)^(5/2))/x^2,x]
```



```
[Out] ((5*b^2*c^2 + 26*a*b*c*d + a^2*d^2)*Sqrt[a + b*x]*Sqrt[c + d*x])/
(8*b) + ((5*b*c + 19*a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2))/12 + (4*
b*Sqrt[a + b*x]*(c + d*x)^(5/2))/3 - ((a + b*x)^(3/2)*(c + d*x)^(
5/2))/x - Sqrt[a]*c^(3/2)*(3*b*c + 5*a*d)*ArcTanh[(Sqrt[c]*Sqrt[a
 + b*x])/(Sqrt[a]*Sqrt[c + d*x])] + ((5*b^3*c^3 + 45*a*b^2*c^2*d
+ 15*a^2*b*c*d^2 - a^3*d^3)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt
[b]*Sqrt[c + d*x])])/(8*b^(3/2)*Sqrt[d])
```

Rubi in Sympy [A] time = 124.949, size = 243, normalized size = 0.95

$$-\sqrt{a}c^{\frac{3}{2}}(5ad+3bc)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)+\frac{4b\sqrt{a+bx}\,(c+dx)^{\frac{5}{2}}}{3}+\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}\left(\frac{19ad}{12}+\frac{5bc}{12}\right)-\frac{(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{5}{2}}}{x}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(a^2d^2+26abcd+5b^2c^2\right)}{8b}-\frac{\left(a^3d^3-15a^2bcd^2-45ab^2c^2d-5b^3c^3\right)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8b^{\frac{3}{2}}\sqrt{d}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(d*x+c)**(5/2)/x**2,x)
```

```
[Out] -sqrt(a)*c**(3/2)*(5*a*d + 3*b*c)*atanh(sqrt(c)*sqrt(a + b*x)/(sq
rt(a)*sqrt(c + d*x))) + 4*b*sqrt(a + b*x)*(c + d*x)**(5/2)/3 + sq
rt(a + b*x)*(c + d*x)**(3/2)*(19*a*d/12 + 5*b*c/12) - (a + b*x)**
(3/2)*(c + d*x)**(5/2)/x + sqrt(a + b*x)*sqrt(c + d*x)*(a**2*d**2
 + 26*a*b*c*d + 5*b**2*c**2)/(8*b) - (a**3*d**3 - 15*a**2*b*c*d**
2 - 45*a*b**2*c**2*d - 5*b**3*c**3)*atanh(sqrt(d)*sqrt(a + b*x)/(
sqrt(b)*sqrt(c + d*x)))/(8*b**(3/2)*sqrt(d))
```

Mathematica [A] time = 0.245942, size = 269, normalized size = 1.05

$$\frac{1}{16}\left(\frac{2\sqrt{a+bx}\sqrt{c+dx}\left(3a^2d^2x+2ab\left(-12c^2+34cdx+7d^2x^2\right)+b^2x\left(33c^2+26cdx+8d^2x^2\right)\right)}{3bx}+\frac{\left(-a^3d^3+15a^2bcd^2+45ab^2c^2d+5b^3c^3\right)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{b^{3/2}\sqrt{d}}+8\sqrt{a}c^{3/2}\log(x)(5ad+3bc)-8\sqrt{a}c^{3/2}(5ad+3bc)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(3/2)*(c + d*x)^(5/2))/x^2,x]
```

```
[Out] ((2*Sqrt[a + b*x]*Sqrt[c + d*x]*(3*a^2*d^2*x + 2*a*b*(-12*c^2 + 3
4*c*d*x + 7*d^2*x^2) + b^2*x*(33*c^2 + 26*c*d*x + 8*d^2*x^2)))/(3
*b*x) + 8*Sqrt[a]*c^(3/2)*(3*b*c + 5*a*d)*Log[x] - 8*Sqrt[a]*c^(3
/2)*(3*b*c + 5*a*d)*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]
*Sqrt[a + b*x]*Sqrt[c + d*x]] + ((5*b^3*c^3 + 45*a*b^2*c^2*d + 15
*a^2*b*c*d^2 - a^3*d^3)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[
d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(b^(3/2)*Sqrt[d]))/16
```

Maple [B] time = 0.025, size = 696, normalized size = 2.7

$$-\frac{1}{48\,bx}\sqrt{bx+a}\sqrt{dx+c}\left(-16\,x^3b^2d^2\sqrt{bd}\sqrt{ac}\sqrt{dx^2b+adx+bcx+ac}+3\,d^3a^3\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{dx^2b+adx+bcx+ac}\sqrt{b}}{\sqrt{bd}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(d*x+c)^(5/2)/x^2,x)
```

```
[Out] -1/48*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(-16*x^3*b^2*d^2*(b*d)^(1/2)*(a
*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+3*d^3*a^3*ln(1/2*(2*b*d
*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(
1/2))*x*(a*c)^(1/2)-45*d^2*a^2*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b
*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*c*b*x*(a*c)^(1/
2)-135*d*a*b^2*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*
(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*c^2*x*(a*c)^(1/2)-15*b^3*ln(1/2
*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/
(b*d)^(1/2))*c^3*x*(a*c)^(1/2)+120*a^2*c^2*ln((a*d*x+b*c*x+2*(a*c
)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*d*b*(b*d)^(1/2)
*x+72*a*c^3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*
c)^(1/2)+2*a*c)/x)*b^2*(b*d)^(1/2)*x-28*x^2*a*d^2*(b*d*x^2+a*d*x+
b*c*x+a*c)^(1/2)*b*(b*d)^(1/2)*(a*c)^(1/2)-52*x^2*b^2*c*d*(b*d*x^
2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)*(a*c)^(1/2)-6*d^2*a^2*(b*d*x
^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)*x*(a*c)^(1/2)-136*a*c*d*(b*
d*x^2+a*d*x+b*c*x+a*c)^(1/2)*b*(b*d)^(1/2)*x*(a*c)^(1/2)-66*b^2*c
^2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)*x*(a*c)^(1/2)+48*a
*b*c^2*(b*d)^(1/2)*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2))/(
```

```
b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)/b/(b*d)^(1/2)/x/(a*c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(3/2)*(d*x + c)^(5/2)/x^2,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 6.75, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(3/2)*(d*x + c)^(5/2)/x^2,x, algorithm="fricas")
```

```
[Out] [1/96*(24*(3*b^2*c^2 + 5*a*b*c*d)*sqrt(a*c)*sqrt(b*d)*x*log((8*a^
2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a*c + (b*c + a
*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c) + 8*(a*b*c^2 + a^2*c
*d)*x)/x^2) - 3*(5*b^3*c^3 + 45*a*b^2*c^2*d + 15*a^2*b*c*d^2 - a^
3*d^3)*x*log(-4*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*x + a)*s
qrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8
*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)) + 4*(8*b^2*d^2*x^3 - 24*a*b*c^
2 + 2*(13*b^2*c*d + 7*a*b*d^2)*x^2 + (33*b^2*c^2 + 68*a*b*c*d + 3
*a^2*d^2)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(b*d)*b*
x), 1/48*(12*(3*b^2*c^2 + 5*a*b*c*d)*sqrt(a*c)*sqrt(-b*d)*x*log((
8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a*c + (b*c
 + a*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c) + 8*(a*b*c^2 + a
^2*c*d)*x)/x^2) + 3*(5*b^3*c^3 + 45*a*b^2*c^2*d + 15*a^2*b*c*d^2
- a^3*d^3)*x*arctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*
x + a)*sqrt(d*x + c)*b*d)) + 2*(8*b^2*d^2*x^3 - 24*a*b*c^2 + 2*(1
3*b^2*c*d + 7*a*b*d^2)*x^2 + (33*b^2*c^2 + 68*a*b*c*d + 3*a^2*d^2
)*x)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(-b*d)*b*x), -1
/96*(48*(3*b^2*c^2 + 5*a*b*c*d)*sqrt(-a*c)*sqrt(b*d)*x*arctan(1/2
*(2*a*c + (b*c + a*d)*x)/(sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c))
) + 3*(5*b^3*c^3 + 45*a*b^2*c^2*d + 15*a^2*b*c*d^2 - a^3*d^3)*x*l
og(-4*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x +
c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d
+ a*b*d^2)*x)*sqrt(b*d)) - 4*(8*b^2*d^2*x^3 - 24*a*b*c^2 + 2*(13*
b^2*c*d + 7*a*b*d^2)*x^2 + (33*b^2*c^2 + 68*a*b*c*d + 3*a^2*d^2)*
x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(b*d)*b*x), -1/48*
(24*(3*b^2*c^2 + 5*a*b*c*d)*sqrt(-a*c)*sqrt(-b*d)*x*arctan(1/2*(2
*a*c + (b*c + a*d)*x)/(sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c))) -
 3*(5*b^3*c^3 + 45*a*b^2*c^2*d + 15*a^2*b*c*d^2 - a^3*d^3)*x*arct
an(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x +
 c)*b*d)) - 2*(8*b^2*d^2*x^3 - 24*a*b*c^2 + 2*(13*b^2*c*d + 7*a*b
*d^2)*x^2 + (33*b^2*c^2 + 68*a*b*c*d + 3*a^2*d^2)*x)*sqrt(-b*d)*s
qrt(b*x + a)*sqrt(d*x + c))/(sqrt(-b*d)*b*x)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**(3/2)*(d*x+c)**(5/2)/x**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.65058, size = 4, normalized size = 0.02

$$sage_0x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*(d*x + c)^(5/2)/x^2,x, algorithm="giac")
```

```
[Out] sage0*x
```

3.609 $\int \frac{(a+bx)^{3/2}(c+dx)^{5/2}}{x^3} dx$

Optimal. Leaf size=258

$$-\frac{3\sqrt{c}\left(5a^2d^2+10abcd+b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4\sqrt{a}}+\frac{3\sqrt{d}\left(a^2d^2+10abcd+5b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4\sqrt{b}}-\frac{(a+bx)^{3/2}(c+dx)^{5/2}}{2x^2}-\frac{\sqrt{a+bx}(c+dx)^{5/2}(5ad+3bc)}{4cx}+\frac{d\sqrt{a+bx}(c+dx)^{3/2}(5ad+7bc)}{4c}+3d\sqrt{a+bx}\sqrt{c+dx}(ad+bc)$$

```
[Out] 3*d*(b*c + a*d)*Sqrt[a + b*x]*Sqrt[c + d*x] + (d*(7*b*c + 5*a*d)*
Sqrt[a + b*x]*(c + d*x)^(3/2))/(4*c) - ((3*b*c + 5*a*d)*Sqrt[a +
b*x]*(c + d*x)^(5/2))/(4*c*x) - ((a + b*x)^(3/2)*(c + d*x)^(5/2))
/(2*x^2) - (3*Sqrt[c]*(b^2*c^2 + 10*a*b*c*d + 5*a^2*d^2)*ArcTanh[
(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(4*Sqrt[a]) + (
3*Sqrt[d]*(5*b^2*c^2 + 10*a*b*c*d + a^2*d^2)*ArcTanh[(Sqrt[d]*Sqr
t[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(4*Sqrt[b])
```

Rubi [A] time = 0.878047, antiderivative size = 258, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 7, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.318

$$-\frac{3\sqrt{c}\left(5a^2d^2+10abcd+b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4\sqrt{a}}+\frac{3\sqrt{d}\left(a^2d^2+10abcd+5b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4\sqrt{b}}-\frac{(a+bx)^{3/2}(c+dx)^{5/2}}{2x^2}-\frac{\sqrt{a+bx}(c+dx)^{5/2}(5ad+3bc)}{4cx}+\frac{d\sqrt{a+bx}(c+dx)^{3/2}(5ad+7bc)}{4c}+3d\sqrt{a+bx}\sqrt{c+dx}(ad+bc)$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(3/2)*(c + d*x)^(5/2))/x^3,x]
```

```
[Out] 3*d*(b*c + a*d)*Sqrt[a + b*x]*Sqrt[c + d*x] + (d*(7*b*c + 5*a*d)*
Sqrt[a + b*x]*(c + d*x)^(3/2))/(4*c) - ((3*b*c + 5*a*d)*Sqrt[a +
b*x]*(c + d*x)^(5/2))/(4*c*x) - ((a + b*x)^(3/2)*(c + d*x)^(5/2))
/(2*x^2) - (3*Sqrt[c]*(b^2*c^2 + 10*a*b*c*d + 5*a^2*d^2)*ArcTanh[
(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(4*Sqrt[a]) + (
3*Sqrt[d]*(5*b^2*c^2 + 10*a*b*c*d + a^2*d^2)*ArcTanh[(Sqrt[d]*Sqr
t[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(4*Sqrt[b])
```

Rubi in Sympy [A] time = 123.838, size = 245, normalized size = 0.95

$$3d\sqrt{a+bx}\sqrt{c+dx}\,(ad+bc)-\frac{(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{5}{2}}}{2x^2}+\frac{d\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}(5ad+7bc)}{4c}-\frac{\sqrt{a+bx}\,(c+dx)^{\frac{5}{2}}(5ad+3bc)}{4cx}+\frac{3\sqrt{d}\left(a^2d^2+10abcd+5b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{4\sqrt{b}}-\frac{3\sqrt{c}\left(5a^2d^2+10abcd+b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4\sqrt{a}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(d*x+c)**(5/2)/x**3,x)
```

```
[Out] 3*d*sqrt(a + b*x)*sqrt(c + d*x)*(a*d + b*c) - (a + b*x)**(3/2)*(c
 + d*x)**(5/2)/(2*x**2) + d*sqrt(a + b*x)*(c + d*x)**(3/2)*(5*a*d
 + 7*b*c)/(4*c) - sqrt(a + b*x)*(c + d*x)**(5/2)*(5*a*d + 3*b*c)/
(4*c*x) + 3*sqrt(d)*(a**2*d**2 + 10*a*b*c*d + 5*b**2*c**2)*atanh(
sqrt(b)*sqrt(c + d*x)/(sqrt(d)*sqrt(a + b*x)))/(4*sqrt(b)) - 3*sq
rt(c)*(5*a**2*d**2 + 10*a*b*c*d + b**2*c**2)*atanh(sqrt(c)*sqrt(a
 + b*x)/(sqrt(a)*sqrt(c + d*x)))/(4*sqrt(a))
```

Mathematica [A] time = 0.220932, size = 263, normalized size = 1.02

$$\frac{1}{8}\left(\frac{3\sqrt{c}\log(x)\left(5a^2d^2+10abcd+b^2c^2\right)}{\sqrt{a}}-\frac{3\sqrt{c}\left(5a^2d^2+10abcd+b^2c^2\right)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{\sqrt{a}}+\frac{3\sqrt{d}\left(a^2d^2+10abcd+5b^2c^2\right)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{\sqrt{b}}+\frac{2\sqrt{a+bx}\sqrt{c+dx}\left(a\left(-2c^2-9cdx+5d^2x^2\right)+bx\left(-5c^2+9cdx+2d^2x^2\right)\right)}{x^2}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(3/2)*(c + d*x)^(5/2))/x^3,x]
```

```
[Out] ((2*Sqrt[a + b*x]*Sqrt[c + d*x]*(b*x*(-5*c^2 + 9*c*d*x + 2*d^2*x^
2) + a*(-2*c^2 - 9*c*d*x + 5*d^2*x^2)))/x^2 + (3*Sqrt[c]*(b^2*c^2
 + 10*a*b*c*d + 5*a^2*d^2)*Log[x])/Sqrt[a] - (3*Sqrt[c]*(b^2*c^2
+ 10*a*b*c*d + 5*a^2*d^2)*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*S
qrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/Sqrt[a] + (3*Sqrt[d]*(5*b^2*
c^2 + 10*a*b*c*d + a^2*d^2)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*S
qrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/Sqrt[b])/8
```

Maple [B] time = 0.024, size = 650, normalized size = 2.5

$$-\frac{1}{8x^2}\sqrt{bx+a}\sqrt{dx+c}\left(15\ln\left(\frac{adx+bcx+2\sqrt{ac}\sqrt{dx^2b+adx+bcx+ac}+2ac}{x}\right)x^2a^2cd^2\sqrt{bd}+30\ln\left(\frac{adx+bcx+2\sqrt{ac}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(d*x+c)^(5/2)/x^3,x)
```

```
[Out] -1/8*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(15*ln((a*d*x+b*c*x+2*(a*c)^(1/2
)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^2*a^2*c*d^2*(b*d)^(
1/2)+30*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(
1/2)+2*a*c)/x)*x^2*a*b*c^2*d*(b*d)^(1/2)+3*ln((a*d*x+b*c*x+2*(a*c
)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^2*b^2*c^3*(b*
d)^(1/2)-3*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d
)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a^2*d^3*(a*c)^(1/2)-30*ln(1/2*(
2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b
*d)^(1/2))*x^2*a*b*c*d^2*(a*c)^(1/2)-15*ln(1/2*(2*b*d*x+2*(b*d*x^
2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*b^
2*c^2*d*(a*c)^(1/2)-4*x^3*b*d^2*(b*d)^(1/2)*(a*c)^(1/2)*(b*d*x^2+
a*d*x+b*c*x+a*c)^(1/2)-10*x^2*a*d^2*(b*d)^(1/2)*(a*c)^(1/2)*(b*d*
x^2+a*d*x+b*c*x+a*c)^(1/2)-18*x^2*b*c*d*(b*d)^(1/2)*(a*c)^(1/2)*(
b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+18*x*a*c*d*(b*d)^(1/2)*(a*c)^(1/2)
*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+10*x*b*c^2*(b*d)^(1/2)*(a*c)^(1/
2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+4*a*c^2*(b*d)^(1/2)*(a*c)^(1/2
)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2))/(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2
)/(a*c)^(1/2)/(b*d)^(1/2)/x^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(3/2)*(d*x + c)^(5/2)/x^3,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 3.14768, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(3/2)*(d*x + c)^(5/2)/x^3,x, algorithm="fricas")
```

```
[Out] [1/16*(3*(5*b^2*c^2 + 10*a*b*c*d + a^2*d^2)*x^2*sqrt(d/b)*log(8*b
^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b^2*d*x + b^2*c
 + a*b*d)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(d/b) + 8*(b^2*c*d + a*
b*d^2)*x) + 3*(b^2*c^2 + 10*a*b*c*d + 5*a^2*d^2)*x^2*sqrt(c/a)*lo
g((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a^2*c +
 (a*b*c + a^2*d)*x)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(c/a) + 8*(a*
b*c^2 + a^2*c*d)*x)/x^2) + 4*(2*b*d^2*x^3 - 2*a*c^2 + (9*b*c*d +
5*a*d^2)*x^2 - (5*b*c^2 + 9*a*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c)
)/x^2, 1/16*(6*(5*b^2*c^2 + 10*a*b*c*d + a^2*d^2)*x^2*sqrt(-d/b)*
arctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*s
qrt(-d/b))) + 3*(b^2*c^2 + 10*a*b*c*d + 5*a^2*d^2)*x^2*sqrt(c/a)*
log((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a^2*c
 + (a*b*c + a^2*d)*x)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(c/a) + 8*(
a*b*c^2 + a^2*c*d)*x)/x^2) + 4*(2*b*d^2*x^3 - 2*a*c^2 + (9*b*c*d
+ 5*a*d^2)*x^2 - (5*b*c^2 + 9*a*c*d)*x)*sqrt(b*x + a)*sqrt(d*x +
c))/x^2, -1/16*(6*(b^2*c^2 + 10*a*b*c*d + 5*a^2*d^2)*x^2*sqrt(-c/
a)*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(b*x + a)*sqrt(d*x + c
)*a*sqrt(-c/a))) - 3*(5*b^2*c^2 + 10*a*b*c*d + a^2*d^2)*x^2*sqrt(
d/b)*log(8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b^2
*d*x + b^2*c + a*b*d)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(d/b) + 8*(
b^2*c*d + a*b*d^2)*x) - 4*(2*b*d^2*x^3 - 2*a*c^2 + (9*b*c*d + 5*a
*d^2)*x^2 - (5*b*c^2 + 9*a*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c))/x
^2, -1/8*(3*(b^2*c^2 + 10*a*b*c*d + 5*a^2*d^2)*x^2*sqrt(-c/a)*arc
tan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(b*x + a)*sqrt(d*x + c)*a*sq
rt(-c/a))) - 3*(5*b^2*c^2 + 10*a*b*c*d + a^2*d^2)*x^2*sqrt(-d/b)*
arctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*s
qrt(-d/b))) - 2*(2*b*d^2*x^3 - 2*a*c^2 + (9*b*c*d + 5*a*d^2)*x^2
- (5*b*c^2 + 9*a*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c))/x^2]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**(3/2)*(d*x+c)**(5/2)/x**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.687555, size = 4, normalized size = 0.02

$$sage_0 x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*(d*x + c)^(5/2)/x^3,x, algorithm="giac")
```

```
[Out] sage0*x
```

3.610 $\int \frac{(a+bx)^{3/2}(c+dx)^{5/2}}{x^4} dx$

Optimal. Leaf size=292

$$\frac{d\sqrt{a+bx}\sqrt{c+dx}\left(5a^2d^2+26abcd+b^2c^2\right)}{8ac}+\frac{\left(-5a^3d^3-45a^2bcd^2-15ab^2c^2d+b^3c^3\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{3/2}\sqrt{c}}-\frac{\sqrt{a+bx}(c+dx)^{3/2}\left(\frac{3b^2c}{a}+\frac{5ad^2}{c}+40bd\right)}{24x}+\sqrt{b}d^{3/2}(3ad+5bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)-\frac{(a+bx)^{3/2}(c+dx)^{5/2}}{3x^3}-\frac{\sqrt{a+bx}(c+dx)^{5/2}(5ad+3bc)}{12cx^2}$$

```
[Out] (d*(b^2*c^2 + 26*a*b*c*d + 5*a^2*d^2)*Sqrt[a + b*x]*Sqrt[c + d*x]
)/(8*a*c) - (((3*b^2*c)/a + 40*b*d + (5*a*d^2)/c)*Sqrt[a + b*x]*(
c + d*x)^(3/2))/(24*x) - ((3*b*c + 5*a*d)*Sqrt[a + b*x]*(c + d*x)
^(5/2))/(12*c*x^2) - ((a + b*x)^(3/2)*(c + d*x)^(5/2))/(3*x^3) +
((b^3*c^3 - 15*a*b^2*c^2*d - 45*a^2*b*c*d^2 - 5*a^3*d^3)*ArcTanh[
(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(8*a^(3/2)*Sqrt
[c]) + Sqrt[b]*d^(3/2)*(5*b*c + 3*a*d)*ArcTanh[(Sqrt[d]*Sqrt[a +
b*x])/(Sqrt[b]*Sqrt[c + d*x])]
```

Rubi [A] time = 1.00782, antiderivative size = 292, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 7, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.318$

$$\frac{d\sqrt{a+bx}\sqrt{c+dx}\left(5a^2d^2+26abcd+b^2c^2\right)}{8ac}+\frac{\left(-5a^3d^3-45a^2bcd^2-15ab^2c^2d+b^3c^3\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{3/2}\sqrt{c}}-\frac{\sqrt{a+bx}(c+dx)^{3/2}\left(\frac{3b^2c}{a}+\frac{5ad^2}{c}+40bd\right)}{24x}+\sqrt{b}d^{3/2}(3ad+5bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)-\frac{(a+bx)^{3/2}(c+dx)^{5/2}}{3x^3}-\frac{\sqrt{a+bx}(c+dx)^{5/2}(5ad+3bc)}{12cx^2}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(3/2)*(c + d*x)^(5/2))/x^4,x]
```


```
[Out] (d*(b^2*c^2 + 26*a*b*c*d + 5*a^2*d^2)*Sqrt[a + b*x]*Sqrt[c + d*x]
)/(8*a*c) - (((3*b^2*c)/a + 40*b*d + (5*a*d^2)/c)*Sqrt[a + b*x]*(
c + d*x)^(3/2))/(24*x) - ((3*b*c + 5*a*d)*Sqrt[a + b*x]*(c + d*x)
^(5/2))/(12*c*x^2) - ((a + b*x)^(3/2)*(c + d*x)^(5/2))/(3*x^3) +
((b^3*c^3 - 15*a*b^2*c^2*d - 45*a^2*b*c*d^2 - 5*a^3*d^3)*ArcTanh[
(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(8*a^(3/2)*Sqrt
[c]) + Sqrt[b]*d^(3/2)*(5*b*c + 3*a*d)*ArcTanh[(Sqrt[d]*Sqrt[a +
b*x])/(Sqrt[b]*Sqrt[c + d*x])]
```

Rubi in Sympy [A] time = 165.765, size = 280, normalized size = 0.96

$$\sqrt{b}d^{\frac{3}{2}}(3ad+5bc)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)-\frac{(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{5}{2}}}{3x^3}-\frac{\sqrt{a+bx}(c+dx)^{\frac{5}{2}}(5ad+3bc)}{12cx^2}+\frac{d\sqrt{a+bx}\sqrt{c+dx}\left(5a^2d^2+26abcd+b^2c^2\right)}{8ac}-\frac{\sqrt{a+bx}(c+dx)^{\frac{3}{2}}\left(5a^2d^2+40abcd+3b^2c^2\right)}{24acx}-\frac{\left(5a^3d^3+45a^2bcd^2+15ab^2c^2d-b^3c^3\right)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{\frac{3}{2}}\sqrt{c}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(d*x+c)**(5/2)/x**4,x)
```

```
[Out] sqrt(b)*d**(3/2)*(3*a*d + 5*b*c)*atanh(sqrt(d)*sqrt(a + b*x)/(sqr
t(b)*sqrt(c + d*x))) - (a + b*x)**(3/2)*(c + d*x)**(5/2)/(3*x**3)
 - sqrt(a + b*x)*(c + d*x)**(5/2)*(5*a*d + 3*b*c)/(12*c*x**2) + d
*sqrt(a + b*x)*sqrt(c + d*x)*(5*a**2*d**2 + 26*a*b*c*d + b**2*c**
2)/(8*a*c) - sqrt(a + b*x)*(c + d*x)**(3/2)*(5*a**2*d**2 + 40*a*b
*c*d + 3*b**2*c**2)/(24*a*c*x) - (5*a**3*d**3 + 45*a**2*b*c*d**2
+ 15*a*b**2*c**2*d - b**3*c**3)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt
(a)*sqrt(c + d*x)))/(8*a**(3/2)*sqrt(c))
```

Mathematica [A] time = 0.26036, size = 297, normalized size = 1.02

$$\frac{1}{16}\left(-\frac{2\sqrt{a+bx}\sqrt{c+dx}\left(a^2\left(8c^2+26cdx+33d^2x^2\right)+2abx\left(7c^2+34cdx-12d^2x^2\right)+3b^2c^2x^2\right)}{3ax^3}+\frac{\log(x)\left(5a^3d^3+45a^2bcd^2+15ab^2c^2d-b^3c^3\right)}{a^{3/2}\sqrt{c}}+\frac{\left(-5a^3d^3-45a^2bcd^2-15ab^2c^2d+b^3c^3\right)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{a^{3/2}\sqrt{c}}+8\sqrt{b}d^{3/2}(3ad+5bc)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(3/2)*(c + d*x)^(5/2))/x^4,x]
```

```
[Out] ((-2*Sqrt[a + b*x]*Sqrt[c + d*x]*(3*b^2*c^2*x^2 + 2*a*b*x*(7*c^2
+ 34*c*d*x - 12*d^2*x^2) + a^2*(8*c^2 + 26*c*d*x + 33*d^2*x^2)))/
(3*a*x^3) + ((-(b^3*c^3) + 15*a*b^2*c^2*d + 45*a^2*b*c*d^2 + 5*a^
3*d^3)*Log[x])/(a^(3/2)*Sqrt[c]) + ((b^3*c^3 - 15*a*b^2*c^2*d - 4
5*a^2*b*c*d^2 - 5*a^3*d^3)*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*
Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(a^(3/2)*Sqrt[c]) + 8*Sqrt[
b]*d^(3/2)*(5*b*c + 3*a*d)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sq
rt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/16
```

Maple [B] time = 0.024, size = 706, normalized size = 2.4

$$-\frac{1}{48\,ax^3}\sqrt{bx+a}\sqrt{dx+c}\left(15\ln\left(\frac{adx+bcx+2\sqrt{ac}\sqrt{dx^2b+adx+bcx+ac}+2ac}{x}\right)x^3a^3d^3\sqrt{bd}+135\ln\left(\frac{adx+bcx+2\sqrt{}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(d*x+c)^(5/2)/x^4,x)
```

```
[Out] -1/48*(b*x+a)^(1/2)*(d*x+c)^(1/2)/a*(15*ln((a*d*x+b*c*x+2*(a*c)^(
1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^3*a^3*d^3*(b*d)^
(1/2)+135*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)
^(1/2)+2*a*c)/x)*x^3*a^2*b*c*d^2*(b*d)^(1/2)+45*ln((a*d*x+b*c*x+2
*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^3*a*b^2*
c^2*d*(b*d)^(1/2)-3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+
b*c*x+a*c)^(1/2)+2*a*c)/x)*x^3*b^3*c^3*(b*d)^(1/2)-72*ln(1/2*(2*b
*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)
^(1/2))*x^3*a^2*b*d^3*(a*c)^(1/2)-120*ln(1/2*(2*b*d*x+2*(b*d*x^2+
a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^3*a*b^
2*c*d^2*(a*c)^(1/2)-48*x^3*a*b*d^2*(b*d)^(1/2)*(a*c)^(1/2)*(b*d*x
^2+a*d*x+b*c*x+a*c)^(1/2)+66*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*d^2*
```

```
(b*d)^(1/2)*a^2*(a*c)^(1/2)*x^2+136*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/
2)*d*b*(b*d)^(1/2)*a*(a*c)^(1/2)*x^2*c+6*c^2*(b*d*x^2+a*d*x+b*c*x
+a*c)^(1/2)*b^2*(b*d)^(1/2)*(a*c)^(1/2)*x^2+52*(b*d*x^2+a*d*x+b*c
*x+a*c)^(1/2)*d*(b*d)^(1/2)*a^2*(a*c)^(1/2)*x*c+28*c^2*(b*d*x^2+a
*d*x+b*c*x+a*c)^(1/2)*b*(b*d)^(1/2)*a*(a*c)^(1/2)*x+16*c^2*(b*d*x
^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)*a^2*(a*c)^(1/2))/(b*d*x^2+a
*d*x+b*c*x+a*c)^(1/2)/x^3/(a*c)^(1/2)/(b*d)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(3/2)*(d*x + c)^(5/2)/x^4,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 3.57168, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(3/2)*(d*x + c)^(5/2)/x^4,x, algorithm="fricas")
```

```
[Out] [1/96*(24*(5*a*b*c*d + 3*a^2*d^2)*sqrt(a*c)*sqrt(b*d)*x^3*log(8*b
^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b*d*x + b*c + a
*d)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 8*(b^2*c*d + a*b*d^2)
*x) - 3*(b^3*c^3 - 15*a*b^2*c^2*d - 45*a^2*b*c*d^2 - 5*a^3*d^3)*x
^3*log(-(4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt
(d*x + c) - (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*
(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2) + 4*(24*a*b*d^2*x^3 - 8*a^
2*c^2 - (3*b^2*c^2 + 68*a*b*c*d + 33*a^2*d^2)*x^2 - 2*(7*a*b*c^2
+ 13*a^2*c*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(a*c
)*a*x^3), 1/96*(48*(5*a*b*c*d + 3*a^2*d^2)*sqrt(a*c)*sqrt(-b*d)*x
^3*arctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(-b*d)*sqrt(b*x + a)*sqr
t(d*x + c))) - 3*(b^3*c^3 - 15*a*b^2*c^2*d - 45*a^2*b*c*d^2 - 5*a
^3*d^3)*x^3*log(-(4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x
+ a)*sqrt(d*x + c) - (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)
*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2) + 4*(24*a*b*d^2*x
^3 - 8*a^2*c^2 - (3*b^2*c^2 + 68*a*b*c*d + 33*a^2*d^2)*x^2 - 2*(7
*a*b*c^2 + 13*a^2*c*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c))/
(sqrt(a*c)*a*x^3), 1/48*(12*(5*a*b*c*d + 3*a^2*d^2)*sqrt(-a*c)*sq
rt(b*d)*x^3*log(8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 4
*(2*b*d*x + b*c + a*d)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 8*
(b^2*c*d + a*b*d^2)*x) + 3*(b^3*c^3 - 15*a*b^2*c^2*d - 45*a^2*b*c
*d^2 - 5*a^3*d^3)*x^3*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*
c)/(sqrt(b*x + a)*sqrt(d*x + c)*a*c)) + 2*(24*a*b*d^2*x^3 - 8*a^2
*c^2 - (3*b^2*c^2 + 68*a*b*c*d + 33*a^2*d^2)*x^2 - 2*(7*a*b*c^2 +
 13*a^2*c*d)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(-a*
c)*a*x^3), 1/48*(24*(5*a*b*c*d + 3*a^2*d^2)*sqrt(-a*c)*sqrt(-b*d)
*x^3*arctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(-b*d)*sqrt(b*x + a)*s
qrt(d*x + c))) + 3*(b^3*c^3 - 15*a*b^2*c^2*d - 45*a^2*b*c*d^2 - 5
*a^3*d^3)*x^3*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt
(b*x + a)*sqrt(d*x + c)*a*c)) + 2*(24*a*b*d^2*x^3 - 8*a^2*c^2 - (
3*b^2*c^2 + 68*a*b*c*d + 33*a^2*d^2)*x^2 - 2*(7*a*b*c^2 + 13*a^2*
c*d)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(-a*c)*a*x^3
)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)*(d*x+c)**(5/2)/x**4,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.75236, size = 4, normalized size = 0.01

$$sage_0x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*(d*x + c)^(5/2)/x^4,x, algorithm="giac")
```

```
[Out] sage0*x
```

3.611 $\int \frac{(a+bx)^{3/2}(c+dx)^{5/2}}{x^5} dx$

Optimal. Leaf size=316

$$\frac{\sqrt{a+bx}\sqrt{c+dx}\left(5a^3d^3-55a^2bcd^2-17ab^2c^2d+3b^3c^3\right)}{64a^2cx} - \frac{\left(-5a^4d^4+60a^3bcd^3+90a^2b^2c^2d^2-20ab^3c^3d+3b^4c^4\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{5/2}c^{3/2}} + 2b^{3/2}d^{5/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right) - \frac{\sqrt{a+bx}(c+dx)^{3/2}\left(\frac{3b^2c}{a}-\frac{5ad^2}{c}+50bd\right)}{96x^2} - \frac{(a+bx)^{3/2}(c+dx)^{5/2}}{4x^4} - \frac{\sqrt{a+bx}(c+dx)^{5/2}(5a}{24cx^3}$$

```
[Out] ((3*b^3*c^3 - 17*a*b^2*c^2*d - 55*a^2*b*c*d^2 + 5*a^3*d^3)*Sqrt[a
 + b*x]*Sqrt[c + d*x])/(64*a^2*c*x) - (((3*b^2*c)/a + 50*b*d - (5
*a*d^2)/c)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(96*x^2) - ((3*b*c + 5*
a*d)*Sqrt[a + b*x]*(c + d*x)^(5/2))/(24*c*x^3) - ((a + b*x)^(3/2)
*(c + d*x)^(5/2))/(4*x^4) - ((3*b^4*c^4 - 20*a*b^3*c^3*d + 90*a^2
*b^2*c^2*d^2 + 60*a^3*b*c*d^3 - 5*a^4*d^4)*ArcTanh[(Sqrt[c]*Sqrt[
a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(64*a^(5/2)*c^(3/2)) + 2*b^(3
/2)*d^(5/2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x
])]
```

Rubi [A] time = 0.979677, antiderivative size = 316, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.273

$$\frac{\sqrt{a+bx}\sqrt{c+dx}\left(5a^3d^3-55a^2bcd^2-17ab^2c^2d+3b^3c^3\right)}{64a^2cx} - \frac{\left(-5a^4d^4+60a^3bcd^3+90a^2b^2c^2d^2-20ab^3c^3d+3b^4c^4\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{5/2}c^{3/2}} + 2b^{3/2}d^{5/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right) - \frac{\sqrt{a+bx}(c+dx)^{3/2}\left(\frac{3b^2c}{a}-\frac{5ad^2}{c}+50bd\right)}{96x^2} - \frac{(a+bx)^{3/2}(c+dx)^{5/2}}{4x^4} - \frac{\sqrt{a+bx}(c+dx)^{5/2}(5a}{24cx^3}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(3/2)*(c + d*x)^(5/2))/x^5,x]
```

```
[Out] ((3*b^3*c^3 - 17*a*b^2*c^2*d - 55*a^2*b*c*d^2 + 5*a^3*d^3)*Sqrt[a
 + b*x]*Sqrt[c + d*x])/(64*a^2*c*x) - (((3*b^2*c)/a + 50*b*d - (5
*a*d^2)/c)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(96*x^2) - ((3*b*c + 5*
a*d)*Sqrt[a + b*x]*(c + d*x)^(5/2))/(24*c*x^3) - ((a + b*x)^(3/2)
*(c + d*x)^(5/2))/(4*x^4) - ((3*b^4*c^4 - 20*a*b^3*c^3*d + 90*a^2
*b^2*c^2*d^2 + 60*a^3*b*c*d^3 - 5*a^4*d^4)*ArcTanh[(Sqrt[c]*Sqrt[
a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(64*a^(5/2)*c^(3/2)) + 2*b^(3
/2)*d^(5/2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x
])]
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(d*x+c)**(5/2)/x**5,x)
```

```
[Out] Timed out
```

Mathematica [A] time = 0.319529, size = 353, normalized size = 1.12

$$\frac{1}{384}\left(-\frac{2\sqrt{a+bx}\sqrt{c+dx}\left(a^3\left(48c^3+136c^2dx+118cd^2x^2+15d^3x^3\right)+a^2bcx\left(72c^2+244cdx+337d^2x^2\right)+3ab^2c^2x^2(2c+19\right.}{a^2cx^4}\right.$$
$$+\frac{3\log(x)\left(-5a^4d^4+60a^3bcd^3+90a^2b^2c^2d^2-20ab^3c^3d+3b^4c^4\right)}{a^{5/2}c^{3/2}}$$
$$+\frac{3\left(5a^4d^4-60a^3bcd^3-90a^2b^2c^2d^2+20ab^3c^3d-3b^4c^4\right)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{a^{5/2}c^{3/2}}$$
$$\left.+384b^{3/2}d^{5/2}\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(3/2)*(c + d*x)^(5/2))/x^5,x]
```

```
[Out] ((-2*Sqrt[a + b*x]*Sqrt[c + d*x]*(-9*b^3*c^3*x^3 + 3*a*b^2*c^2*x^
2*(2*c + 19*d*x) + a^2*b*c*x*(72*c^2 + 244*c*d*x + 337*d^2*x^2) +
 a^3*(48*c^3 + 136*c^2*d*x + 118*c*d^2*x^2 + 15*d^3*x^3)))/(a^2*c
*x^4) + (3*(3*b^4*c^4 - 20*a*b^3*c^3*d + 90*a^2*b^2*c^2*d^2 + 60*
a^3*b*c*d^3 - 5*a^4*d^4)*Log[x])/(a^(5/2)*c^(3/2)) + (3*(-3*b^4*c
^4 + 20*a*b^3*c^3*d - 90*a^2*b^2*c^2*d^2 - 60*a^3*b*c*d^3 + 5*a^4
*d^4)*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]
*Sqrt[c + d*x]])/(a^(5/2)*c^(3/2)) + 384*b^(3/2)*d^(5/2)*Log[b*c
+ a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])
/384
```

Maple [B] time = 0.029, size = 852, normalized size = 2.7

$$\frac{1}{384\,a^2cx^4}\sqrt{bx+a}\sqrt{dx+c}\left(15\ln\left(\frac{adx+bcx+2\sqrt{ac}\sqrt{dx^2b+adx+bcx+ac}+2\,ac}{x}\right)x^4a^4d^4\sqrt{bd}-180\ln\left(\frac{adx+bcx+2}{}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(d*x+c)^(5/2)/x^5,x)
```

```
[Out] 1/384*(b*x+a)^(1/2)*(d*x+c)^(1/2)/a^2/c*(15*ln((a*d*x+b*c*x+2*(a*
c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^4*a^4*d^4*(b
*d)^(1/2)-180*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+
a*c)^(1/2)+2*a*c)/x)*x^4*a^3*b*c*d^3*(b*d)^(1/2)-270*ln((a*d*x+b*
c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^4*a
^2*b^2*c^2*d^2*(b*d)^(1/2)+60*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*
x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^4*a*b^3*c^3*d*(b*d)^(1/2)-
9*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2
*a*c)/x)*x^4*b^4*c^4*(b*d)^(1/2)+384*ln(1/2*(2*b*d*x+2*(b*d*x^2+a
*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^4*a^2*b
^2*c*d^3*(a*c)^(1/2)-30*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*d^3*(b*d)
^(1/2)*a^3*x^3*(a*c)^(1/2)-674*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*d^
2*b*(b*d)^(1/2)*c*a^2*x^3*(a*c)^(1/2)-114*(b*d*x^2+a*d*x+b*c*x+a*
c)^(1/2)*d*b^2*(b*d)^(1/2)*c^2*a*x^3*(a*c)^(1/2)+18*c^3*(b*d*x^2+
a*d*x+b*c*x+a*c)^(1/2)*b^3*(b*d)^(1/2)*x^3*(a*c)^(1/2)-236*(b*d*x
^2+a*d*x+b*c*x+a*c)^(1/2)*d^2*(b*d)^(1/2)*c*a^3*x^2*(a*c)^(1/2)-4
88*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*d*b*(b*d)^(1/2)*c^2*a^2*x^2*(a
*c)^(1/2)-12*c^3*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*b^2*(b*d)^(1/2)*
a*x^2*(a*c)^(1/2)-272*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*d*(b*d)^(1/
2)*c^2*a^3*x*(a*c)^(1/2)-144*c^3*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*
b*(b*d)^(1/2)*a^2*x*(a*c)^(1/2)-96*c^3*(b*d*x^2+a*d*x+b*c*x+a*c)^
(1/2)*(b*d)^(1/2)*a^3*(a*c)^(1/2))/(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2
)/(b*d)^(1/2)/x^4/(a*c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(3/2)*(d*x + c)^(5/2)/x^5,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 6.3078, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(3/2)*(d*x + c)^(5/2)/x^5,x, algorithm="fricas")
```

```
[Out] [1/768*(384*sqrt(a*c)*sqrt(b*d)*a^2*b*c*d^2*x^4*log(8*b^2*d^2*x^2
 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b*d*x + b*c + a*d)*sqrt(b
*d)*sqrt(b*x + a)*sqrt(d*x + c) + 8*(b^2*c*d + a*b*d^2)*x) - 3*(3
*b^4*c^4 - 20*a*b^3*c^3*d + 90*a^2*b^2*c^2*d^2 + 60*a^3*b*c*d^3 -
 5*a^4*d^4)*x^4*log((4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b
*x + a)*sqrt(d*x + c) + (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d
^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2) - 4*(48*a^3*c^
3 - (9*b^3*c^3 - 57*a*b^2*c^2*d - 337*a^2*b*c*d^2 - 15*a^3*d^3)*x
^3 + 2*(3*a*b^2*c^3 + 122*a^2*b*c^2*d + 59*a^3*c*d^2)*x^2 + 8*(9*
a^2*b*c^3 + 17*a^3*c^2*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c
))/(sqrt(a*c)*a^2*c*x^4), 1/768*(768*sqrt(a*c)*sqrt(-b*d)*a^2*b*c
*d^2*x^4*arctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(-b*d)*sqrt(b*x +
a)*sqrt(d*x + c))) - 3*(3*b^4*c^4 - 20*a*b^3*c^3*d + 90*a^2*b^2*c
^2*d^2 + 60*a^3*b*c*d^3 - 5*a^4*d^4)*x^4*log((4*(2*a^2*c^2 + (a*b
*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c) + (8*a^2*c^2 + (b^
2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(
a*c))/x^2) - 4*(48*a^3*c^3 - (9*b^3*c^3 - 57*a*b^2*c^2*d - 337*a^
2*b*c*d^2 - 15*a^3*d^3)*x^3 + 2*(3*a*b^2*c^3 + 122*a^2*b*c^2*d +
59*a^3*c*d^2)*x^2 + 8*(9*a^2*b*c^3 + 17*a^3*c^2*d)*x)*sqrt(a*c)*s
qrt(b*x + a)*sqrt(d*x + c))/(sqrt(a*c)*a^2*c*x^4), 1/384*(192*sqr
t(-a*c)*sqrt(b*d)*a^2*b*c*d^2*x^4*log(8*b^2*d^2*x^2 + b^2*c^2 + 6
*a*b*c*d + a^2*d^2 + 4*(2*b*d*x + b*c + a*d)*sqrt(b*d)*sqrt(b*x +
 a)*sqrt(d*x + c) + 8*(b^2*c*d + a*b*d^2)*x) - 3*(3*b^4*c^4 - 20*
a*b^3*c^3*d + 90*a^2*b^2*c^2*d^2 + 60*a^3*b*c*d^3 - 5*a^4*d^4)*x^
4*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sq
rt(d*x + c)*a*c)) - 2*(48*a^3*c^3 - (9*b^3*c^3 - 57*a*b^2*c^2*d -
 337*a^2*b*c*d^2 - 15*a^3*d^3)*x^3 + 2*(3*a*b^2*c^3 + 122*a^2*b*c
^2*d + 59*a^3*c*d^2)*x^2 + 8*(9*a^2*b*c^3 + 17*a^3*c^2*d)*x)*sqrt
(-a*c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(-a*c)*a^2*c*x^4), 1/384
*(384*sqrt(-a*c)*sqrt(-b*d)*a^2*b*c*d^2*x^4*arctan(1/2*(2*b*d*x +
 b*c + a*d)/(sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c))) - 3*(3*b^4*
c^4 - 20*a*b^3*c^3*d + 90*a^2*b^2*c^2*d^2 + 60*a^3*b*c*d^3 - 5*a^
4*d^4)*x^4*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*
x + a)*sqrt(d*x + c)*a*c)) - 2*(48*a^3*c^3 - (9*b^3*c^3 - 57*a*b^
2*c^2*d - 337*a^2*b*c*d^2 - 15*a^3*d^3)*x^3 + 2*(3*a*b^2*c^3 + 12
2*a^2*b*c^2*d + 59*a^3*c*d^2)*x^2 + 8*(9*a^2*b*c^3 + 17*a^3*c^2*d
)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(-a*c)*a^2*c*x^
4)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**(3/2)*(d*x+c)**(5/2)/x**5,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.702767, size = 4, normalized size = 0.01

$$sage_0x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*(d*x + c)^(5/2)/x^5,x, algorithm="giac")
```

```
[Out] sage0*x
```

3.612 $\int \frac{(a+bx)^{3/2}(c+dx)^{5/2}}{x^6} dx$

Optimal. Leaf size=242

$$\frac{3(bc-ad)^5 \tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{128a^{7/2}c^{5/2}}-\frac{3\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^4}{128a^3c^2x}+\frac{\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)^3}{64a^2c^2x^2}-\frac{3\sqrt{a+bx}(c+dx)^{7/2}(bc-ad)}{40c^2x^4}-\frac{\sqrt{a+bx}(c+dx)^{5/2}(bc-ad)^2}{80ac^2x^3}-\frac{(a+bx)^{3/2}(c+dx)^{7/2}}{5cx^5}$$

```
[Out] (-3*(b*c - a*d)^4*Sqrt[a + b*x]*Sqrt[c + d*x])/(128*a^3*c^2*x) +
((b*c - a*d)^3*Sqrt[a + b*x]*(c + d*x)^(3/2))/(64*a^2*c^2*x^2) -
((b*c - a*d)^2*Sqrt[a + b*x]*(c + d*x)^(5/2))/(80*a*c^2*x^3) - (3
*(b*c - a*d)*Sqrt[a + b*x]*(c + d*x)^(7/2))/(40*c^2*x^4) - ((a +
b*x)^(3/2)*(c + d*x)^(7/2))/(5*c*x^5) + (3*(b*c - a*d)^5*ArcTanh[
(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(128*a^(7/2)*c^
(5/2))
```

Rubi [A] time = 0.501622, antiderivative size = 242, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.136$

$$\frac{3(bc-ad)^5 \tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{128a^{7/2}c^{5/2}}-\frac{3\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^4}{128a^3c^2x}+\frac{\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)^3}{64a^2c^2x^2}-\frac{3\sqrt{a+bx}(c+dx)^{7/2}(bc-ad)}{40c^2x^4}-\frac{\sqrt{a+bx}(c+dx)^{5/2}(bc-ad)^2}{80ac^2x^3}-\frac{(a+bx)^{3/2}(c+dx)^{7/2}}{5cx^5}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(3/2)*(c + d*x)^(5/2))/x^6,x]
```

```
[Out] (-3*(b*c - a*d)^4*Sqrt[a + b*x]*Sqrt[c + d*x])/(128*a^3*c^2*x) +
((b*c - a*d)^3*Sqrt[a + b*x]*(c + d*x)^(3/2))/(64*a^2*c^2*x^2) -
((b*c - a*d)^2*Sqrt[a + b*x]*(c + d*x)^(5/2))/(80*a*c^2*x^3) - (3
*(b*c - a*d)*Sqrt[a + b*x]*(c + d*x)^(7/2))/(40*c^2*x^4) - ((a +
b*x)^(3/2)*(c + d*x)^(7/2))/(5*c*x^5) + (3*(b*c - a*d)^5*ArcTanh[
(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(128*a^(7/2)*c^
(5/2))
```

Rubi in Sympy [A] time = 49.3442, size = 219, normalized size = 0.9

$$-\frac{(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{7}{2}}}{5cx^5}+\frac{3(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{5}{2}}(ad-bc)}{40acx^4}+\frac{(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{3}{2}}(ad-bc)^2}{16a^2cx^3}+\frac{3\sqrt{a+bx}(c+dx)^{\frac{3}{2}}(ad-bc)^3}{64a^2c^2x^2}-\frac{3\sqrt{a+bx}\sqrt{c+dx}(ad-bc)^4}{128a^3c^2x}-\frac{3(ad-bc)^5 \operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{128a^{\frac{7}{2}}c^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(d*x+c)**(5/2)/x**6,x)
```

```
[Out] -(a + b*x)**(3/2)*(c + d*x)**(7/2)/(5*c*x**5) + 3*(a + b*x)**(3/2
)*(c + d*x)**(5/2)*(a*d - b*c)/(40*a*c*x**4) + (a + b*x)**(3/2)*(
c + d*x)**(3/2)*(a*d - b*c)**2/(16*a**2*c*x**3) + 3*sqrt(a + b*x)
*(c + d*x)**(3/2)*(a*d - b*c)**3/(64*a**2*c**2*x**2) - 3*sqrt(a +
 b*x)*sqrt(c + d*x)*(a*d - b*c)**4/(128*a**3*c**2*x) - 3*(a*d - b
*c)**5*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(128*
a**(7/2)*c**(5/2))
```

Mathematica [A] time = 0.345567, size = 270, normalized size = 1.12

$$-2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}\left(a^4\left(128c^4+336c^3dx+248c^2d^2x^2+10cd^3x^3-15d^4x^4\right)+2a^3bcx\left(88c^3+256c^2dx+233cd^2x^2+3\right.\right.$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(3/2)*(c + d*x)^(5/2))/x^6,x]
```

```
[Out] (-2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]*(15*b^4*c^4*x^4 -
 10*a*b^3*c^3*x^3*(c + 7*d*x) + 2*a^2*b^2*c^2*x^2*(4*c^2 + 23*c*d
*x + 64*d^2*x^2) + 2*a^3*b*c*x*(88*c^3 + 256*c^2*d*x + 233*c*d^2*
x^2 + 35*d^3*x^3) + a^4*(128*c^4 + 336*c^3*d*x + 248*c^2*d^2*x^2
+ 10*c*d^3*x^3 - 15*d^4*x^4)) - 15*(b*c - a*d)^5*x^5*Log[x] + 15*
(b*c - a*d)^5*x^5*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*S
qrt[a + b*x]*Sqrt[c + d*x]])/(1280*a^(7/2)*c^(5/2)*x^5)
```

Maple [B] time = 0.029, size = 967, normalized size = 4.

$$-\frac{1}{1280\,a^3c^2x^5}\sqrt{bx+a}\sqrt{dx+c}\left(15\ln\left(\frac{adx+bcx+2\sqrt{ac}\sqrt{dx^2b+adx+bcx+ac}+2\,ac}{x}\right)x^5a^5d^5-75\ln\left(\frac{adx+bcx+2\sqrt{\vphantom{a}}\right.\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(d*x+c)^(5/2)/x^6,x)
```

```
[Out] -1/1280*(b*x+a)^(1/2)*(d*x+c)^(1/2)/a^3/c^2*(15*ln((a*d*x+b*c*x+2
*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^5*a^5*d^
5-75*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2
)+2*a*c)/x)*x^5*a^4*b*c*d^4+150*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*
d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^5*a^3*b^2*c^2*d^3-150*ln
((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c
)/x)*x^5*a^2*b^3*c^3*d^2+75*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^
2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^5*a*b^4*c^4*d-15*ln((a*d*x+b
*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^5*
b^5*c^5-30*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^4*a^4*d^
4+140*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^4*a^3*b*c*d^3
+256*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^4*a^2*b^2*c^2*
d^2-140*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^4*a*b^3*c^3
*d+30*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^4*b^4*c^4+20*
(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^3*a^4*c*d^3+932*(a*
c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^3*a^3*b*c^2*d^2+92*(a*
c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^3*a^2*b^2*c^3*d-20*(a*
c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^3*a*b^3*c^4+496*(a*c)^
(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^2*a^4*c^2*d^2+1024*(a*c)^
(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^2*a^3*b*c^3*d+16*(a*c)^(1
/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^2*a^2*b^2*c^4+672*(a*c)^(1/
2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*a^4*c^3*d+352*(a*c)^(1/2)*(b
*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*a^3*b*c^4+256*(b*d*x^2+a*d*x+b*c*
x+a*c)^(1/2)*a^4*c^4*(a*c)^(1/2))/(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)
/x^5/(a*c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*(d*x + c)^(5/2)/x^6,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 2.8267, size = 1, normalized size = 0.

$$\left[-\frac{15\left(b^5c^5-5\,ab^4c^4d+10\,a^2b^3c^3d^2-10\,a^3b^2c^2d^3+5\,a^4bcd^4-a^5d^5\right)x^5\log\left(-\frac{4\left(2\,a^2c^2+\left(abc^2+a^2cd\right)x\right)\sqrt{bx+a}\sqrt{dx+c}-\left(8\,a^2c^2+\left(b^2c\right.\right.}{x^2}\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(3/2)*(d*x + c)^(5/2)/x^6,x, algorithm="fricas")
```

```
[Out] [-1/2560*(15*(b^5*c^5 - 5*a*b^4*c^4*d + 10*a^2*b^3*c^3*d^2 - 10*a
^3*b^2*c^2*d^3 + 5*a^4*b*c*d^4 - a^5*d^5)*x^5*log(-(4*(2*a^2*c^2
+ (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c) - (8*a^2*c^2
 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)
*sqrt(a*c))/x^2) + 4*(128*a^4*c^4 + (15*b^4*c^4 - 70*a*b^3*c^3*d
+ 128*a^2*b^2*c^2*d^2 + 70*a^3*b*c*d^3 - 15*a^4*d^4)*x^4 - 2*(5*a
*b^3*c^4 - 23*a^2*b^2*c^3*d - 233*a^3*b*c^2*d^2 - 5*a^4*c*d^3)*x^
3 + 8*(a^2*b^2*c^4 + 64*a^3*b*c^3*d + 31*a^4*c^2*d^2)*x^2 + 16*(1
1*a^3*b*c^4 + 21*a^4*c^3*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x +
 c))/(sqrt(a*c)*a^3*c^2*x^5), 1/1280*(15*(b^5*c^5 - 5*a*b^4*c^4*d
 + 10*a^2*b^3*c^3*d^2 - 10*a^3*b^2*c^2*d^3 + 5*a^4*b*c*d^4 - a^5*
d^5)*x^5*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x
+ a)*sqrt(d*x + c)*a*c)) - 2*(128*a^4*c^4 + (15*b^4*c^4 - 70*a*b^
3*c^3*d + 128*a^2*b^2*c^2*d^2 + 70*a^3*b*c*d^3 - 15*a^4*d^4)*x^4
- 2*(5*a*b^3*c^4 - 23*a^2*b^2*c^3*d - 233*a^3*b*c^2*d^2 - 5*a^4*c
*d^3)*x^3 + 8*(a^2*b^2*c^4 + 64*a^3*b*c^3*d + 31*a^4*c^2*d^2)*x^2
 + 16*(11*a^3*b*c^4 + 21*a^4*c^3*d)*x)*sqrt(-a*c)*sqrt(b*x + a)*s
qrt(d*x + c))/(sqrt(-a*c)*a^3*c^2*x^5)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**(3/2)*(d*x+c)**(5/2)/x**6,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(3/2)*(d*x + c)^(5/2)/x^6,x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.613 $\int \frac{(a+bx)^{3/2}(c+dx)^{5/2}}{x^7} dx$

Optimal. Leaf size=333

$$-\frac{(5ad+7bc)(bc-ad)^5\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{512a^{9/2}c^{7/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}(5ad+7bc)(bc-ad)^4}{512a^4c^3x}-\frac{\sqrt{a+bx}(c+dx)^{3/2}(5ad+7bc)(bc-ad)^3}{768a^3c^3x^2}+\frac{\sqrt{a+bx}(c+dx)^{5/2}(5ad+7bc)(bc-ad)^2}{960a^2c^3x^3}+\frac{\sqrt{a+bx}(c+dx)^{7/2}(5ad+7bc)(bc-ad)}{160ac^3x^4}+\frac{(a+bx)^{3/2}(c+dx)^{7/2}(5ad+7bc)}{60ac^2x^5}-\frac{(a+bx)^{5/2}(c+dx)^{7/2}}{6acx^6}$$

```
[Out] ((b*c - a*d)^4*(7*b*c + 5*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(512*
a^4*c^3*x) - ((b*c - a*d)^3*(7*b*c + 5*a*d)*Sqrt[a + b*x]*(c + d*
x)^(3/2))/(768*a^3*c^3*x^2) + ((b*c - a*d)^2*(7*b*c + 5*a*d)*Sqrt
[a + b*x]*(c + d*x)^(5/2))/(960*a^2*c^3*x^3) + ((b*c - a*d)*(7*b*
c + 5*a*d)*Sqrt[a + b*x]*(c + d*x)^(7/2))/(160*a*c^3*x^4) + ((7*b
*c + 5*a*d)*(a + b*x)^(3/2)*(c + d*x)^(7/2))/(60*a*c^2*x^5) - ((a
 + b*x)^(5/2)*(c + d*x)^(7/2))/(6*a*c*x^6) - ((b*c - a*d)^5*(7*b*
c + 5*a*d)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x]
)])/(512*a^(9/2)*c^(7/2))
```

Rubi [A] time = 0.659225, antiderivative size = 333, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.182$

$$-\frac{(5ad+7bc)(bc-ad)^5\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{512a^{9/2}c^{7/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}(5ad+7bc)(bc-ad)^4}{512a^4c^3x}-\frac{\sqrt{a+bx}(c+dx)^{3/2}(5ad+7bc)(bc-ad)^3}{768a^3c^3x^2}+\frac{\sqrt{a+bx}(c+dx)^{5/2}(5ad+7bc)(bc-ad)^2}{960a^2c^3x^3}+\frac{\sqrt{a+bx}(c+dx)^{7/2}(5ad+7bc)(bc-ad)}{160ac^3x^4}+\frac{(a+bx)^{3/2}(c+dx)^{7/2}(5ad+7bc)}{60ac^2x^5}-\frac{(a+bx)^{5/2}(c+dx)^{7/2}}{6acx^6}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(3/2)*(c + d*x)^(5/2))/x^7,x]
```



```
[Out] ((b*c - a*d)^4*(7*b*c + 5*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(512*
a^4*c^3*x) - ((b*c - a*d)^3*(7*b*c + 5*a*d)*Sqrt[a + b*x]*(c + d*
x)^(3/2))/(768*a^3*c^3*x^2) + ((b*c - a*d)^2*(7*b*c + 5*a*d)*Sqrt
[a + b*x]*(c + d*x)^(5/2))/(960*a^2*c^3*x^3) + ((b*c - a*d)*(7*b*
c + 5*a*d)*Sqrt[a + b*x]*(c + d*x)^(7/2))/(160*a*c^3*x^4) + ((7*b
*c + 5*a*d)*(a + b*x)^(3/2)*(c + d*x)^(7/2))/(60*a*c^2*x^5) - ((a
 + b*x)^(5/2)*(c + d*x)^(7/2))/(6*a*c*x^6) - ((b*c - a*d)^5*(7*b*
c + 5*a*d)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x]
)])/(512*a^(9/2)*c^(7/2))
```

Rubi in Sympy [A] time = 66.5431, size = 304, normalized size = 0.91

$$-\frac{(a+bx)^{\frac{5}{2}}(c+dx)^{\frac{7}{2}}}{6acx^6}+\frac{(a+bx)^{\frac{5}{2}}(c+dx)^{\frac{5}{2}}(5ad+7bc)}{60a^2cx^5}+\frac{(a+bx)^{\frac{5}{2}}(c+dx)^{\frac{3}{2}}(ad-bc)(5ad+7bc)}{96a^3cx^4}+\frac{(a+bx)^{\frac{5}{2}}\sqrt{c+dx}(ad-bc)^2(5ad+7bc)}{192a^4cx^3}+\frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}(ad-bc)^3(5ad+7bc)}{768a^4c^2x^2}-\frac{\sqrt{a+bx}\sqrt{c+dx}(ad-bc)^4(5ad+7bc)}{512a^4c^3x}+\frac{(ad-bc)^5(5ad+7bc)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{512a^{\frac{9}{2}}c^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(d*x+c)**(5/2)/x**7,x)
```

```
[Out] -(a + b*x)**(5/2)*(c + d*x)**(7/2)/(6*a*c*x**6) + (a + b*x)**(5/2
)*(c + d*x)**(5/2)*(5*a*d + 7*b*c)/(60*a**2*c*x**5) + (a + b*x)**
(5/2)*(c + d*x)**(3/2)*(a*d - b*c)*(5*a*d + 7*b*c)/(96*a**3*c*x**
4) + (a + b*x)**(5/2)*sqrt(c + d*x)*(a*d - b*c)**2*(5*a*d + 7*b*c
)/(192*a**4*c*x**3) + (a + b*x)**(3/2)*sqrt(c + d*x)*(a*d - b*c)*
*3*(5*a*d + 7*b*c)/(768*a**4*c**2*x**2) - sqrt(a + b*x)*sqrt(c +
d*x)*(a*d - b*c)**4*(5*a*d + 7*b*c)/(512*a**4*c**3*x) + (a*d - b*
c)**5*(5*a*d + 7*b*c)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c
 + d*x)))/(512*a**(9/2)*c**(7/2))
```

Mathematica [A] time = 0.456243, size = 356, normalized size = 1.07

$$-2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}\left(5a^5\left(256c^5+640c^4dx+432c^3d^2x^2+8c^2d^3x^3-10cd^4x^4+15d^5x^5\right)+a^4bcx\left(1664c^4+4448c^3dx+\right.\right.$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(3/2)*(c + d*x)^(5/2))/x^7,x]
```

```
[Out] (-2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]*(-105*b^5*c^5*x^5
 + 5*a*b^4*c^4*x^4*(14*c + 83*d*x) - 2*a^2*b^3*c^3*x^3*(28*c^2 +
136*c*d*x + 273*d^2*x^2) + 6*a^3*b^2*c^2*x^2*(8*c^3 + 36*c^2*d*x
+ 58*c*d^2*x^2 + 25*d^3*x^3) + a^4*b*c*x*(1664*c^4 + 4448*c^3*d*x
 + 3384*c^2*d^2*x^2 + 160*c*d^3*x^3 - 245*d^4*x^4) + 5*a^5*(256*c
^5 + 640*c^4*d*x + 432*c^3*d^2*x^2 + 8*c^2*d^3*x^3 - 10*c*d^4*x^4
 + 15*d^5*x^5)) + 15*(b*c - a*d)^5*(7*b*c + 5*a*d)*x^6*Log[x] - 1
5*(b*c - a*d)^5*(7*b*c + 5*a*d)*x^6*Log[2*a*c + b*c*x + a*d*x + 2
*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(15360*a^(9/2)*c^(
7/2)*x^6)
```

Maple [B] time = 0.036, size = 1271, normalized size = 3.8

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(d*x+c)^(5/2)/x^7,x)
```

```
[Out] 1/15360*(b*x+a)^(1/2)*(d*x+c)^(1/2)/a^4/c^3*(112*c^5*(b*d*x^2+a*d
*x+b*c*x+a*c)^(1/2)*b^3*a^2*(a*c)^(1/2)*x^3-6400*(b*d*x^2+a*d*x+b
*c*x+a*c)^(1/2)*d*a^5*(a*c)^(1/2)*c^4*x-3328*c^5*(b*d*x^2+a*d*x+b
*c*x+a*c)^(1/2)*b*a^4*(a*c)^(1/2)*x+100*(b*d*x^2+a*d*x+b*c*x+a*c)
^(1/2)*d^4*a^5*(a*c)^(1/2)*c*x^4-270*ln((a*d*x+b*c*x+2*(a*c)^(1/2
)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^6*a^5*b*c*d^5+225*l
n((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*
c)/x)*x^6*a^4*b^2*c^2*d^4+300*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*
x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^6*a^3*b^3*c^3*d^3-675*ln((
a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/
x)*x^6*a^2*b^4*c^4*d^2+450*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2
+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^6*a*b^5*c^5*d-140*c^5*(b*d*x^
2+a*d*x+b*c*x+a*c)^(1/2)*b^4*a*(a*c)^(1/2)*x^4-80*(b*d*x^2+a*d*x+
b*c*x+a*c)^(1/2)*d^3*a^5*(a*c)^(1/2)*c^2*x^3-4320*(b*d*x^2+a*d*x+
b*c*x+a*c)^(1/2)*d^2*a^5*(a*c)^(1/2)*c^3*x^2-96*c^5*(b*d*x^2+a*d*
x+b*c*x+a*c)^(1/2)*b^2*a^3*(a*c)^(1/2)*x^2-320*(b*d*x^2+a*d*x+b*c
*x+a*c)^(1/2)*d^3*b*a^4*(a*c)^(1/2)*c^2*x^4-432*(b*d*x^2+a*d*x+b*
c*x+a*c)^(1/2)*b^2*d*a^3*(a*c)^(1/2)*c^4*x^3-696*(b*d*x^2+a*d*x+b
*c*x+a*c)^(1/2)*d^2*b^2*a^3*(a*c)^(1/2)*c^3*x^4+544*(b*d*x^2+a*d*
x+b*c*x+a*c)^(1/2)*d*b^3*a^2*(a*c)^(1/2)*c^4*x^4-6768*(b*d*x^2+a*
d*x+b*c*x+a*c)^(1/2)*b*d^2*a^4*(a*c)^(1/2)*c^3*x^3+490*(b*d*x^2+a
*d*x+b*c*x+a*c)^(1/2)*d^4*b*a^4*(a*c)^(1/2)*c*x^5-300*(b*d*x^2+a*
d*x+b*c*x+a*c)^(1/2)*d^3*b^2*a^3*(a*c)^(1/2)*c^2*x^5+1092*(b*d*x^
2+a*d*x+b*c*x+a*c)^(1/2)*d^2*b^3*a^2*(a*c)^(1/2)*c^3*x^5-8896*(b*
```

```
d*x^2+a*d*x+b*c*x+a*c)^(1/2)*d*b*a^4*(a*c)^(1/2)*c^4*x^2+75*ln((a
*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x
)*x^6*a^6*d^6-105*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*
c*x+a*c)^(1/2)+2*a*c)/x)*x^6*b^6*c^6-2560*c^5*(b*d*x^2+a*d*x+b*c*
x+a*c)^(1/2)*a^5*(a*c)^(1/2)-150*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*
d^5*a^5*(a*c)^(1/2)*x^5+210*c^5*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*b
^5*(a*c)^(1/2)*x^5-830*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*d*b^4*a*(a
*c)^(1/2)*c^4*x^5)/(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)/(a*c)^(1/2)/x^
6
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(3/2)*(d*x + c)^(5/2)/x^7,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 5.8155, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(3/2)*(d*x + c)^(5/2)/x^7,x, algorithm="fricas")
```

```
[Out] [-1/30720*(15*(7*b^6*c^6 - 30*a*b^5*c^5*d + 45*a^2*b^4*c^4*d^2 -
20*a^3*b^3*c^3*d^3 - 15*a^4*b^2*c^2*d^4 + 18*a^5*b*c*d^5 - 5*a^6*
d^6)*x^6*log((4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)
*sqrt(d*x + c) + (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2
 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2) + 4*(1280*a^5*c^5 - (
105*b^5*c^5 - 415*a*b^4*c^4*d + 546*a^2*b^3*c^3*d^2 - 150*a^3*b^2
*c^2*d^3 + 245*a^4*b*c*d^4 - 75*a^5*d^5)*x^5 + 2*(35*a*b^4*c^5 -
136*a^2*b^3*c^4*d + 174*a^3*b^2*c^3*d^2 + 80*a^4*b*c^2*d^3 - 25*a
^5*c*d^4)*x^4 - 8*(7*a^2*b^3*c^5 - 27*a^3*b^2*c^4*d - 423*a^4*b*c
^3*d^2 - 5*a^5*c^2*d^3)*x^3 + 16*(3*a^3*b^2*c^5 + 278*a^4*b*c^4*d
 + 135*a^5*c^3*d^2)*x^2 + 128*(13*a^4*b*c^5 + 25*a^5*c^4*d)*x)*sq
rt(a*c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(a*c)*a^4*c^3*x^6), -1/
15360*(15*(7*b^6*c^6 - 30*a*b^5*c^5*d + 45*a^2*b^4*c^4*d^2 - 20*a
^3*b^3*c^3*d^3 - 15*a^4*b^2*c^2*d^4 + 18*a^5*b*c*d^5 - 5*a^6*d^6)
*x^6*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)
*sqrt(d*x + c)*a*c)) + 2*(1280*a^5*c^5 - (105*b^5*c^5 - 415*a*b^4
*c^4*d + 546*a^2*b^3*c^3*d^2 - 150*a^3*b^2*c^2*d^3 + 245*a^4*b*c*
d^4 - 75*a^5*d^5)*x^5 + 2*(35*a*b^4*c^5 - 136*a^2*b^3*c^4*d + 174
*a^3*b^2*c^3*d^2 + 80*a^4*b*c^2*d^3 - 25*a^5*c*d^4)*x^4 - 8*(7*a^
2*b^3*c^5 - 27*a^3*b^2*c^4*d - 423*a^4*b*c^3*d^2 - 5*a^5*c^2*d^3)
*x^3 + 16*(3*a^3*b^2*c^5 + 278*a^4*b*c^4*d + 135*a^5*c^3*d^2)*x^2
 + 128*(13*a^4*b*c^5 + 25*a^5*c^4*d)*x)*sqrt(-a*c)*sqrt(b*x + a)*
sqrt(d*x + c))/(sqrt(-a*c)*a^4*c^3*x^6)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**(3/2)*(d*x+c)**(5/2)/x**7,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*(d*x + c)^(5/2)/x^7,x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.614 $\int \frac{x^2(a+bx)^{3/2}}{\sqrt{c+dx}}\,dx$

Optimal. Leaf size=254

$$-\frac{\sqrt{a+bx}\sqrt{c+dx}(bc-ad)\left(3a^2d^2+10abcd+35b^2c^2\right)}{64b^2d^4}+\frac{(a+bx)^{3/2}\sqrt{c+dx}\left(3a^2d^2+10abcd+35b^2c^2\right)}{96b^2d^3}+\frac{(bc-ad)^2\left(3a^2d^2+10abcd+35b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{64b^{5/2}d^{9/2}}-\frac{(a+bx)^{5/2}\sqrt{c+dx}(3ad+7bc)}{24b^2d^2}+\frac{x(a+bx)^{5/2}\sqrt{c+dx}}{4bd}$$

```
[Out] -((b*c - a*d)*(35*b^2*c^2 + 10*a*b*c*d + 3*a^2*d^2)*Sqrt[a + b*x]
*Sqrt[c + d*x])/(64*b^2*d^4) + ((35*b^2*c^2 + 10*a*b*c*d + 3*a^2*
d^2)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(96*b^2*d^3) - ((7*b*c + 3*a*
d)*(a + b*x)^(5/2)*Sqrt[c + d*x])/(24*b^2*d^2) + (x*(a + b*x)^(5/
2)*Sqrt[c + d*x])/(4*b*d) + ((b*c - a*d)^2*(35*b^2*c^2 + 10*a*b*c
*d + 3*a^2*d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c +
 d*x])])/(64*b^(5/2)*d^(9/2))
```

Rubi [A] time = 0.537182, antiderivative size = 254, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$-\frac{\sqrt{a+bx}\sqrt{c+dx}(bc-ad)\left(3a^2d^2+10abcd+35b^2c^2\right)}{64b^2d^4}+\frac{(a+bx)^{3/2}\sqrt{c+dx}\left(3a^2d^2+10abcd+35b^2c^2\right)}{96b^2d^3}+\frac{(bc-ad)^2\left(3a^2d^2+10abcd+35b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{64b^{5/2}d^{9/2}}-\frac{(a+bx)^{5/2}\sqrt{c+dx}(3ad+7bc)}{24b^2d^2}+\frac{x(a+bx)^{5/2}\sqrt{c+dx}}{4bd}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^2*(a + b*x)^(3/2))/Sqrt[c + d*x],x]
```

```
[Out] -((b*c - a*d)*(35*b^2*c^2 + 10*a*b*c*d + 3*a^2*d^2)*Sqrt[a + b*x]
*Sqrt[c + d*x])/(64*b^2*d^4) + ((35*b^2*c^2 + 10*a*b*c*d + 3*a^2*
d^2)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(96*b^2*d^3) - ((7*b*c + 3*a*
d)*(a + b*x)^(5/2)*Sqrt[c + d*x])/(24*b^2*d^2) + (x*(a + b*x)^(5/
2)*Sqrt[c + d*x])/(4*b*d) + ((b*c - a*d)^2*(35*b^2*c^2 + 10*a*b*c
*d + 3*a^2*d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c +
 d*x])])/(64*b^(5/2)*d^(9/2))
```

Rubi in Sympy [A] time = 40.3499, size = 241, normalized size = 0.95

$$\frac{x\,(a+bx)^{\frac{5}{2}}\sqrt{c+dx}}{4bd}-\frac{(a+bx)^{\frac{5}{2}}\sqrt{c+dx}\,(3ad+7bc)}{24b^2d^2}+\frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}\left(3a^2d^2+10abcd+35b^2c^2\right)}{96b^2d^3}+\frac{\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)\left(3a^2d^2+10abcd+35b^2c^2\right)}{64b^2d^4}+\frac{(ad-bc)^2\left(3a^2d^2+10abcd+35b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{64b^{\frac{5}{2}}d^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(b*x+a)**(3/2)/(d*x+c)**(1/2),x)
```

```
[Out] x*(a + b*x)**(5/2)*sqrt(c + d*x)/(4*b*d) - (a + b*x)**(5/2)*sqrt(
c + d*x)*(3*a*d + 7*b*c)/(24*b**2*d**2) + (a + b*x)**(3/2)*sqrt(c
 + d*x)*(3*a**2*d**2 + 10*a*b*c*d + 35*b**2*c**2)/(96*b**2*d**3)
+ sqrt(a + b*x)*sqrt(c + d*x)*(a*d - b*c)*(3*a**2*d**2 + 10*a*b*c
*d + 35*b**2*c**2)/(64*b**2*d**4) + (a*d - b*c)**2*(3*a**2*d**2 +
 10*a*b*c*d + 35*b**2*c**2)*atanh(sqrt(b)*sqrt(c + d*x)/(sqrt(d)*
sqrt(a + b*x)))/(64*b**(5/2)*d**(9/2))
```

Mathematica [A] time = 0.216728, size = 208, normalized size = 0.82

$$\frac{3(bc-ad)^2\left(3a^2d^2+10abcd+35b^2c^2\right)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)-2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}\left(9a^3d^3+\right.}{384b^{5/2}d^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^2*(a + b*x)^(3/2))/Sqrt[c + d*x],x]
```

```
[Out] (-2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]*(9*a^3*d^3 + 3*a^
2*b*d^2*(5*c - 2*d*x) + a*b^2*d*(-145*c^2 + 92*c*d*x - 72*d^2*x^2
) + b^3*(105*c^3 - 70*c^2*d*x + 56*c*d^2*x^2 - 48*d^3*x^3)) + 3*(
b*c - a*d)^2*(35*b^2*c^2 + 10*a*b*c*d + 3*a^2*d^2)*Log[b*c + a*d
+ 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(384*
b^(5/2)*d^(9/2))
```

Maple [B] time = 0.032, size = 574, normalized size = 2.3

$$\frac{1}{384\,b^2d^4}\sqrt{bx+a}\sqrt{dx+c}\left(96\,x^3b^3d^3\sqrt{(bx+a)(dx+c)}\sqrt{bd}+144\,x^2ab^2d^3\sqrt{(bx+a)(dx+c)}\sqrt{bd}-112\,x^2b^3cd^2\sqrt{(bx+a)(d\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(b*x+a)^(3/2)/(d*x+c)^(1/2),x)
```

```
[Out] 1/384*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(96*x^3*b^3*d^3*((b*x+a)*(d*x+c
))^(1/2)*(b*d)^(1/2)+144*x^2*a*b^2*d^3*((b*x+a)*(d*x+c))^(1/2)*(b
*d)^(1/2)-112*x^2*b^3*c*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+9
*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(
b*d)^(1/2))*a^4*d^4+12*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*
(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^3*b*c*d^3+54*ln(1/2*(2*b*d*x+
2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^2*b
^2*c^2*d^2-180*c^3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d
)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a*b^3*d+105*c^4*ln(1/2*(2*b*d*x+2*(
(b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*b^4+12*(
b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*x*a^2*b*d^3-184*(b*d)^(1/2)*((
b*x+a)*(d*x+c))^(1/2)*x*a*b^2*c*d^2+140*(b*d)^(1/2)*((b*x+a)*(d*x
+c))^(1/2)*x*b^3*c^2*d-18*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*a^3
*d^3-30*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*a^2*b*c*d^2+290*(b*d)
^(1/2)*((b*x+a)*(d*x+c))^(1/2)*a*b^2*c^2*d-210*c^3*((b*x+a)*(d*x+
c))^(1/2)*b^3*(b*d)^(1/2))/((b*x+a)*(d*x+c))^(1/2)/b^2/d^4/(b*d)^
(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*x^2/sqrt(d*x + c),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.282904, size = 1, normalized size = 0.

$$\left[\frac{4\left(48\,b^3d^3x^3 - 105\,b^3c^3 + 145\,ab^2c^2d - 15\,a^2bcd^2 - 9\,a^3d^3 - 8\left(7\,b^3cd^2 - 9\,ab^2d^3\right)x^2 + 2\left(35\,b^3c^2d - 46\,ab^2cd^2 + 3\,a^2bd^3\right)\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*x^2/sqrt(d*x + c),x, algorithm="fricas")
```

```
[Out] [1/768*(4*(48*b^3*d^3*x^3 - 105*b^3*c^3 + 145*a*b^2*c^2*d - 15*a^
2*b*c*d^2 - 9*a^3*d^3 - 8*(7*b^3*c*d^2 - 9*a*b^2*d^3)*x^2 + 2*(35
*b^3*c^2*d - 46*a*b^2*c*d^2 + 3*a^2*b*d^3)*x)*sqrt(b*d)*sqrt(b*x
+ a)*sqrt(d*x + c) + 3*(35*b^4*c^4 - 60*a*b^3*c^3*d + 18*a^2*b^2*
c^2*d^2 + 4*a^3*b*c*d^3 + 3*a^4*d^4)*log(4*(2*b^2*d^2*x + b^2*c*d
 + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^
2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/(s
qrt(b*d)*b^2*d^4), 1/384*(2*(48*b^3*d^3*x^3 - 105*b^3*c^3 + 145*a
*b^2*c^2*d - 15*a^2*b*c*d^2 - 9*a^3*d^3 - 8*(7*b^3*c*d^2 - 9*a*b^
2*d^3)*x^2 + 2*(35*b^3*c^2*d - 46*a*b^2*c*d^2 + 3*a^2*b*d^3)*x)*s
qrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 3*(35*b^4*c^4 - 60*a*b^3*
c^3*d + 18*a^2*b^2*c^2*d^2 + 4*a^3*b*c*d^3 + 3*a^4*d^4)*arctan(1/
2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b
*d)))/(sqrt(-b*d)*b^2*d^4)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(b*x+a)**(3/2)/(d*x+c)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.252783, size = 393, normalized size = 1.55

$$\frac{\left(\sqrt{b^2c + (bx + a)bd - abd}\left(2\,(bx + a)\left(4\,(bx + a)\left(\frac{6\,(bx+a)}{b^3d} - \frac{7\,b^7cd^5+9\,ab^6d^6}{b^9d^7}\right) + \frac{35\,b^8c^2d^4+10\,ab^7cd^5+3\,a^2b^6d^6}{b^9d^7}\right) - \frac{3\left(35\,b^9c^3d^3-25\,ab^8c^2\right.}{}\right.\right.}{192\,|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*x^2/sqrt(d*x + c),x, algorithm="giac")
```

```
[Out] 1/192*(sqrt(b^2*c + (b*x + a)*b*d - a*b*d)*(2*(b*x + a)*(4*(b*x +
 a)*(6*(b*x + a)/(b^3*d) - (7*b^7*c*d^5 + 9*a*b^6*d^6)/(b^9*d^7))
 + (35*b^8*c^2*d^4 + 10*a*b^7*c*d^5 + 3*a^2*b^6*d^6)/(b^9*d^7)) -
 3*(35*b^9*c^3*d^3 - 25*a*b^8*c^2*d^4 - 7*a^2*b^7*c*d^5 - 3*a^3*b
^6*d^6)/(b^9*d^7))*sqrt(b*x + a) - 3*(35*b^4*c^4 - 60*a*b^3*c^3*d
 + 18*a^2*b^2*c^2*d^2 + 4*a^3*b*c*d^3 + 3*a^4*d^4)*ln(abs(-sqrt(b
*d)*sqrt(b*x + a) + sqrt(b^2*c + (b*x + a)*b*d - a*b*d)))/(sqrt(b
*d)*b^2*d^4))*b/abs(b)
```

3.615 $\int \frac{x(a+bx)^{3/2}}{\sqrt{c+dx}}\,dx$

Optimal. Leaf size=171

$$-\frac{(bc-ad)^2(ad+5bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8b^{3/2}d^{7/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}(bc-ad)(ad+5bc)}{8bd^3}-\frac{(a+bx)^{3/2}\sqrt{c+dx}(ad+5bc)}{12bd^2}+\frac{(a+bx)^{5/2}\sqrt{c+dx}}{3bd}$$

```
[Out] ((b*c - a*d)*(5*b*c + a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(8*b*d^3)
 - ((5*b*c + a*d)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(12*b*d^2) + ((a
 + b*x)^(5/2)*Sqrt[c + d*x])/(3*b*d) - ((b*c - a*d)^2*(5*b*c + a*
d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(8*b
^(3/2)*d^(7/2))
```

Rubi [A] time = 0.247722, antiderivative size = 171, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.2$

$$-\frac{(bc-ad)^2(ad+5bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8b^{3/2}d^{7/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}(bc-ad)(ad+5bc)}{8bd^3}-\frac{(a+bx)^{3/2}\sqrt{c+dx}(ad+5bc)}{12bd^2}+\frac{(a+bx)^{5/2}\sqrt{c+dx}}{3bd}$$

Antiderivative was successfully verified.

```
[In]  Int[(x*(a + b*x)^(3/2))/Sqrt[c + d*x],x]
```

```
[Out] ((b*c - a*d)*(5*b*c + a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(8*b*d^3)
 - ((5*b*c + a*d)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(12*b*d^2) + ((a
 + b*x)^(5/2)*Sqrt[c + d*x])/(3*b*d) - ((b*c - a*d)^2*(5*b*c + a*
d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(8*b
^(3/2)*d^(7/2))
```

Rubi in Sympy [A] time = 23.55, size = 150, normalized size = 0.88

$$\frac{(a+bx)^{\frac{5}{2}}\sqrt{c+dx}}{3bd}-\frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}\,(ad+5bc)}{12bd^2}-\frac{\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)\,(ad+5bc)}{8bd^3}-\frac{(ad-bc)^2\,(ad+5bc)\,\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8b^{\frac{3}{2}}d^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(b*x+a)**(3/2)/(d*x+c)**(1/2),x)
```

```
[Out] (a + b*x)**(5/2)*sqrt(c + d*x)/(3*b*d) - (a + b*x)**(3/2)*sqrt(c
+ d*x)*(a*d + 5*b*c)/(12*b*d**2) - sqrt(a + b*x)*sqrt(c + d*x)*(a
*d - b*c)*(a*d + 5*b*c)/(8*b*d**3) - (a*d - b*c)**2*(a*d + 5*b*c)
*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c + d*x)))/(8*b**(3/2)
*d**(7/2))
```

Mathematica [A] time = 0.134515, size = 149, normalized size = 0.87

$$\frac{\sqrt{a+bx}\sqrt{c+dx}\left(3a^2d^2+2abd(7dx-11c)+b^2\left(15c^2-10cdx+8d^2x^2\right)\right)}{24bd^3}-\frac{(bc-ad)^2(ad+5bc)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{16b^{3/2}d^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x*(a + b*x)^(3/2))/Sqrt[c + d*x],x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(3*a^2*d^2 + 2*a*b*d*(-11*c + 7*d*x)
 + b^2*(15*c^2 - 10*c*d*x + 8*d^2*x^2)))/(24*b*d^3) - ((b*c - a*d
)^2*(5*b*c + a*d)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqr
t[a + b*x]*Sqrt[c + d*x]])/(16*b^(3/2)*d^(7/2))
```

Maple [B] time = 0.027, size = 395, normalized size = 2.3

$$-\frac{1}{48\,d^3b}\sqrt{bx+a}\sqrt{dx+c}\left(-16\,x^2b^2d^2\sqrt{(bx+a)(dx+c)}\sqrt{bd}+3\,\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{(bx+a)(dx+c)}\sqrt{bd}+ad+bc}{\sqrt{bd}}\right)a^3d^3+\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(b*x+a)^(3/2)/(d*x+c)^(1/2),x)
```

```
[Out] -1/48*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(-16*x^2*b^2*d^2*((b*x+a)*(d*x+
c))^(1/2)*(b*d)^(1/2)+3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)
*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^3*d^3+9*ln(1/2*(2*b*d*x+2*((
b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^2*b*c*d
^2-27*c^2*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a
*d+b*c)/(b*d)^(1/2))*a*b^2*d+15*c^3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d
*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*b^3-28*(b*d)^(1/2)
*((b*x+a)*(d*x+c))^(1/2)*x*a*b*d^2+20*(b*d)^(1/2)*((b*x+a)*(d*x+c
))^(1/2)*x*b^2*c*d-6*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*a^2*d^2+
44*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*a*b*c*d-30*c^2*((b*x+a)*(d
*x+c))^(1/2)*b^2*(b*d)^(1/2))/((b*x+a)*(d*x+c))^(1/2)/d^3/b/(b*d)
^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*x/sqrt(d*x + c),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.267141, size = 1, normalized size = 0.01

$$\left[\frac{4\left(8\,b^2d^2x^2+15\,b^2c^2-22\,abcd+3\,a^2d^2-2\left(5\,b^2cd-7\,abd^2\right)x\right)\sqrt{bd}\sqrt{bx+a}\sqrt{dx+c}+3\left(5\,b^3c^3-9\,ab^2c^2d+3\,a^2bcd^2+\right.}{96\,\sqrt{bd}b}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*x/sqrt(d*x + c),x, algorithm="fricas")
```

```
[Out] [1/96*(4*(8*b^2*d^2*x^2 + 15*b^2*c^2 - 22*a*b*c*d + 3*a^2*d^2 - 2
*(5*b^2*c*d - 7*a*b*d^2)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c)
 + 3*(5*b^3*c^3 - 9*a*b^2*c^2*d + 3*a^2*b*c*d^2 + a^3*d^3)*log(-4
*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) +
(8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b
*d^2)*x)*sqrt(b*d)))/(sqrt(b*d)*b*d^3), 1/48*(2*(8*b^2*d^2*x^2 +
15*b^2*c^2 - 22*a*b*c*d + 3*a^2*d^2 - 2*(5*b^2*c*d - 7*a*b*d^2)*x
```

```
)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c) - 3*(5*b^3*c^3 - 9*a*b^2
*c^2*d + 3*a^2*b*c*d^2 + a^3*d^3)*arctan(1/2*(2*b*d*x + b*c + a*d
)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/(sqrt(-b*d)*b*d^
3)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(b*x+a)**(3/2)/(d*x+c)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.2316, size = 288, normalized size = 1.68

$$\frac{\left(\sqrt{b^2c + (bx+a)bd - abd}\sqrt{bx+a}\left(2\,(bx+a)\left(\frac{4\,(bx+a)}{b^2d} - \frac{5\,b^3cd^3+ab^2d^4}{b^4d^5}\right) + \frac{3\,(5\,b^4c^2d^2-4\,ab^3cd^3-a^2b^2d^4)}{b^4d^5}\right) + \frac{3\,(5\,b^3c^3-9\,ab^2c^2d+3\,a^2bc}{}\right.}{24\,|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*x/sqrt(d*x + c),x, algorithm="giac")
```

```
[Out] 1/24*(sqrt(b^2*c + (b*x + a)*b*d - a*b*d)*sqrt(b*x + a)*(2*(b*x +
 a)*(4*(b*x + a)/(b^2*d) - (5*b^3*c*d^3 + a*b^2*d^4)/(b^4*d^5)) +
 3*(5*b^4*c^2*d^2 - 4*a*b^3*c*d^3 - a^2*b^2*d^4)/(b^4*d^5)) + 3*(
5*b^3*c^3 - 9*a*b^2*c^2*d + 3*a^2*b*c*d^2 + a^3*d^3)*ln(abs(-sqrt
(b*d)*sqrt(b*x + a) + sqrt(b^2*c + (b*x + a)*b*d - a*b*d)))/(sqrt
(b*d)*b*d^3))*b/abs(b)
```

3.616 $\int \frac{(a+bx)^{3/2}}{\sqrt{c+dx}}\,dx$

Optimal. Leaf size=113

$$\frac{3(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4\sqrt{b}d^{5/2}}-\frac{3\sqrt{a+bx}\sqrt{c+dx}(bc-ad)}{4d^2}+\frac{(a+bx)^{3/2}\sqrt{c+dx}}{2d}$$

```
[Out] (-3*(b*c - a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*d^2) + ((a + b*x)
^(3/2)*Sqrt[c + d*x])/(2*d) + (3*(b*c - a*d)^2*ArcTanh[(Sqrt[d]*S
qrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(4*Sqrt[b]*d^(5/2))
```

Rubi [A] time = 0.131343, antiderivative size = 113, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.158

$$\frac{3(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4\sqrt{b}d^{5/2}}-\frac{3\sqrt{a+bx}\sqrt{c+dx}(bc-ad)}{4d^2}+\frac{(a+bx)^{3/2}\sqrt{c+dx}}{2d}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(3/2)/Sqrt[c + d*x],x]
```

```
[Out] (-3*(b*c - a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*d^2) + ((a + b*x)
^(3/2)*Sqrt[c + d*x])/(2*d) + (3*(b*c - a*d)^2*ArcTanh[(Sqrt[d]*S
qrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(4*Sqrt[b]*d^(5/2))
```

Rubi in Sympy [A] time = 14.8179, size = 100, normalized size = 0.88

$$\frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}}{2d}+\frac{3\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)}{4d^2}+\frac{3\,(ad-bc)^2\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{4\sqrt{b}d^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)/(d*x+c)**(1/2),x)
```

```
[Out] (a + b*x)**(3/2)*sqrt(c + d*x)/(2*d) + 3*sqrt(a + b*x)*sqrt(c + d
*x)*(a*d - b*c)/(4*d**2) + 3*(a*d - b*c)**2*atanh(sqrt(b)*sqrt(c
+ d*x)/(sqrt(d)*sqrt(a + b*x)))/(4*sqrt(b)*d**(5/2))
```

Mathematica [A] time = 0.0748191, size = 107, normalized size = 0.95

$$\frac{3(bc-ad)^2\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{8\sqrt{b}d^{5/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}(5ad-3bc+2bdx)}{4d^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(3/2)/Sqrt[c + d*x],x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(-3*b*c + 5*a*d + 2*b*d*x))/(4*d^2)
+ (3*(b*c - a*d)^2*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sq
rt[a + b*x]*Sqrt[c + d*x]])/(8*Sqrt[b]*d^(5/2))
```

Maple [B] time = 0.007, size = 308, normalized size = 2.7

$$\frac{1}{2d}(bx+a)^{\frac{3}{2}}\sqrt{dx+c}+\frac{3a}{4d}\sqrt{bx+a}\sqrt{dx+c}-\frac{3bc}{4d^2}\sqrt{bx+a}\sqrt{dx+c}$$
$$+\frac{3a^2}{8}\sqrt{(bx+a)(dx+c)}\ln\left(1\left(\frac{ad}{2}+\frac{bc}{2}+bdx\right)\frac{1}{\sqrt{bd}}+\sqrt{dx^2b+(ad+bc)x+ac}\right)\frac{1}{\sqrt{bx+a}}\frac{1}{\sqrt{dx+c}}\frac{1}{\sqrt{bd}}$$
$$-\frac{3abc}{4d}\sqrt{(bx+a)(dx+c)}\ln\left(1\left(\frac{ad}{2}+\frac{bc}{2}+bdx\right)\frac{1}{\sqrt{bd}}+\sqrt{dx^2b+(ad+bc)x+ac}\right)\frac{1}{\sqrt{bx+a}}\frac{1}{\sqrt{dx+c}}\frac{1}{\sqrt{bd}}$$
$$+\frac{3b^2c^2}{8d^2}\sqrt{(bx+a)(dx+c)}\ln\left(1\left(\frac{ad}{2}+\frac{bc}{2}+bdx\right)\frac{1}{\sqrt{bd}}+\sqrt{dx^2b+(ad+bc)x+ac}\right)\frac{1}{\sqrt{bx+a}}\frac{1}{\sqrt{dx+c}}\frac{1}{\sqrt{bd}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)/(d*x+c)^(1/2),x)
```

```
[Out] 1/2*(b*x+a)^(3/2)*(d*x+c)^(1/2)/d+3/4/d*(b*x+a)^(1/2)*(d*x+c)^(1/
2)*a-3/4/d^2*(b*x+a)^(1/2)*(d*x+c)^(1/2)*b*c+3/8*((b*x+a)*(d*x+c)
)^(1/2)/(b*x+a)^(1/2)/(d*x+c)^(1/2)*ln((1/2*a*d+1/2*b*c+b*d*x)/(b
*d)^(1/2)+(d*x^2*b+(a*d+b*c)*x+a*c)^(1/2))/(b*d)^(1/2)*a^2-3/4/d*
((b*x+a)*(d*x+c))^(1/2)/(b*x+a)^(1/2)/(d*x+c)^(1/2)*ln((1/2*a*d+1
/2*b*c+b*d*x)/(b*d)^(1/2)+(d*x^2*b+(a*d+b*c)*x+a*c)^(1/2))/(b*d)^
(1/2)*a*b*c+3/8/d^2*((b*x+a)*(d*x+c))^(1/2)/(b*x+a)^(1/2)/(d*x+c)
^(1/2)*ln((1/2*a*d+1/2*b*c+b*d*x)/(b*d)^(1/2)+(d*x^2*b+(a*d+b*c)*
x+a*c)^(1/2))/(b*d)^(1/2)*b^2*c^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)/sqrt(d*x + c),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.252402, size = 1, normalized size = 0.01

$$\left[\frac{4\,(2\,bdx-3\,bc+5\,ad)\sqrt{bd}\sqrt{bx+a}\sqrt{dx+c}+3\left(b^2c^2-2\,abcd+a^2d^2\right)\log\left(4\left(2\,b^2d^2x+b^2cd+abd^2\right)\sqrt{bx+a}\sqrt{dx+c}+(8\right.}{16\sqrt{bd}d^2}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)/sqrt(d*x + c),x, algorithm="fricas")
```

```
[Out] [1/16*(4*(2*b*d*x - 3*b*c + 5*a*d)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d
*x + c) + 3*(b^2*c^2 - 2*a*b*c*d + a^2*d^2)*log(4*(2*b^2*d^2*x +
b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 +
 b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*
d)))/(sqrt(b*d)*d^2), 1/8*(2*(2*b*d*x - 3*b*c + 5*a*d)*sqrt(-b*d)
*sqrt(b*x + a)*sqrt(d*x + c) + 3*(b^2*c^2 - 2*a*b*c*d + a^2*d^2)*
arctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d
*x + c)*b*d)))/(sqrt(-b*d)*d^2)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(a+bx)^{\frac{3}{2}}}{\sqrt{c+dx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)/(d*x+c)**(1/2),x)
```

```
[Out] Integral((a + b*x)**(3/2)/sqrt(c + d*x), x)
```

GIAC/XCAS [A] time = 0.228277, size = 188, normalized size = 1.66

$$\frac{\left(\sqrt{b^2c+(bx+a)bd-abd}\sqrt{bx+a}\left(\frac{2(bx+a)}{bd}-\frac{3(bcd-ad^2)}{bd^3}\right)-\frac{3(b^2c^2-2abcd+a^2d^2)\ln\left(\left|-\sqrt{bd}\sqrt{bx+a}+\sqrt{b^2c+(bx+a)bd-abd}\right|\right)}{\sqrt{bd}d^2}\right)b}{4|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)/sqrt(d*x + c),x, algorithm="giac")
```

```
[Out] 1/4*(sqrt(b^2*c + (b*x + a)*b*d - a*b*d)*sqrt(b*x + a)*(2*(b*x +
a)/(b*d) - 3*(b*c*d - a*d^2)/(b*d^3)) - 3*(b^2*c^2 - 2*a*b*c*d +
a^2*d^2)*ln(abs(-sqrt(b*d)*sqrt(b*x + a) + sqrt(b^2*c + (b*x + a)
*b*d - a*b*d)))/(sqrt(b*d)*d^2))*b/abs(b)
```

3.617 $\int \frac{(a+bx)^{3/2}}{x\sqrt{c+dx}}\,dx$

Optimal. Leaf size=116

$$-\frac{2a^{3/2}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{c}}-\frac{\sqrt{b}(bc-3ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{d^{3/2}}+\frac{b\sqrt{a+bx}\sqrt{c+dx}}{d}$$

```
[Out] (b*Sqrt[a + b*x]*Sqrt[c + d*x])/d - (2*a^(3/2)*ArcTanh[(Sqrt[c]*S
qrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/Sqrt[c] - (Sqrt[b]*(b*c -
 3*a*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])
/d^(3/2)
```

Rubi [A] time = 0.295036, antiderivative size = 116, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$-\frac{2a^{3/2}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{c}}-\frac{\sqrt{b}(bc-3ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{d^{3/2}}+\frac{b\sqrt{a+bx}\sqrt{c+dx}}{d}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(3/2)/(x*Sqrt[c + d*x]),x]
```

```
[Out] (b*Sqrt[a + b*x]*Sqrt[c + d*x])/d - (2*a^(3/2)*ArcTanh[(Sqrt[c]*S
qrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/Sqrt[c] - (Sqrt[b]*(b*c -
 3*a*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])
/d^(3/2)
```

Rubi in Sympy [A] time = 26.9738, size = 107, normalized size = 0.92

$$-\frac{2a^{\frac{3}{2}}\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{c}}+\frac{\sqrt{b}\left(3ad-bc\right)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{d^{\frac{3}{2}}}+\frac{b\sqrt{a+bx}\sqrt{c+dx}}{d}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)/x/(d*x+c)**(1/2),x)
```

```
[Out] -2*a**(3/2)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/
sqrt(c) + sqrt(b)*(3*a*d - b*c)*atanh(sqrt(b)*sqrt(c + d*x)/(sqrt
(d)*sqrt(a + b*x)))/d**(3/2) + b*sqrt(a + b*x)*sqrt(c + d*x)/d
```

Mathematica [A] time = 0.30225, size = 159, normalized size = 1.37

$$-\frac{a^{3/2}\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{\sqrt{c}}+\frac{a^{3/2}\log(x)}{\sqrt{c}}+\frac{\sqrt{b}(3ad-bc)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{2d^{3/2}}+\frac{b\sqrt{a+bx}\sqrt{c+dx}}{d}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(3/2)/(x*Sqrt[c + d*x]),x]
```

```
[Out] (b*Sqrt[a + b*x]*Sqrt[c + d*x])/d + (a^(3/2)*Log[x])/Sqrt[c] - (a
^(3/2)*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x
```

```
]*Sqrt[c + d*x]])/Sqrt[c] + (Sqrt[b]*(-(b*c) + 3*a*d)*Log[b*c + a
*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(2
*d^(3/2))
```

Maple [B] time = 0.027, size = 220, normalized size = 1.9

$$\frac{1}{2d}\sqrt{bx+a}\sqrt{dx+c}\left(3\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{(bx+a)(dx+c)}\sqrt{bd}+ad+bc}{\sqrt{bd}}\right)abd\sqrt{ac}-\ln\left(\frac{1}{2}\left(2\,bdx+2\,\sqrt{(bx+a)(dx+c)}\sqrt{\right.\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)/x/(d*x+c)^(1/2),x)
```

```
[Out] 1/2*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*
x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a*b*d*(a*c)^(1/2)-l
n(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*
d)^(1/2))*b^2*c*(a*c)^(1/2)-2*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x
+a)*(d*x+c))^(1/2)+2*a*c)/x)*a^2*d*(b*d)^(1/2)+2*b*(a*c)^(1/2)*((
b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2))/((b*x+a)*(d*x+c))^(1/2)/(b*d)^
(1/2)/(a*c)^(1/2)/d
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)/(sqrt(d*x + c)*x),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.865033, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)/(sqrt(d*x + c)*x),x, algorithm="fricas")
```

```
[Out] [1/4*(2*a*d*sqrt(a/c)*log((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2
*d^2)*x^2 - 4*(2*a*c^2 + (b*c^2 + a*c*d)*x)*sqrt(b*x + a)*sqrt(d*
x + c)*sqrt(a/c) + 8*(a*b*c^2 + a^2*c*d)*x)/x^2) - (b*c - 3*a*d)*
sqrt(b/d)*log(8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(
2*b*d^2*x + b*c*d + a*d^2)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(b/d)
+ 8*(b^2*c*d + a*b*d^2)*x) + 4*sqrt(b*x + a)*sqrt(d*x + c)*b)/d,
1/2*(a*d*sqrt(a/c)*log((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^
2)*x^2 - 4*(2*a*c^2 + (b*c^2 + a*c*d)*x)*sqrt(b*x + a)*sqrt(d*x +
 c)*sqrt(a/c) + 8*(a*b*c^2 + a^2*c*d)*x)/x^2) - (b*c - 3*a*d)*sqr
t(-b/d)*arctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(b*x + a)*sqrt(d*x
+ c)*d*sqrt(-b/d))) + 2*sqrt(b*x + a)*sqrt(d*x + c)*b)/d, -1/4*(4
*a*d*sqrt(-a/c)*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(b*x + a)
*sqrt(d*x + c)*c*sqrt(-a/c))) + (b*c - 3*a*d)*sqrt(b/d)*log(8*b^2
*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b*d^2*x + b*c*d +
 a*d^2)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(b/d) + 8*(b^2*c*d + a*b*
d^2)*x) - 4*sqrt(b*x + a)*sqrt(d*x + c)*b)/d, -1/2*(2*a*d*sqrt(-a
/c)*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(b*x + a)*sqrt(d*x +
c)*c*sqrt(-a/c))) + (b*c - 3*a*d)*sqrt(-b/d)*arctan(1/2*(2*b*d*x
+ b*c + a*d)/(sqrt(b*x + a)*sqrt(d*x + c)*d*sqrt(-b/d))) - 2*sqrt
(b*x + a)*sqrt(d*x + c)*b)/d]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a+bx)^{\frac{3}{2}}}{x\sqrt{c+dx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)/x/(d*x+c)**(1/2),x)
```

```
[Out] Integral((a + b*x)**(3/2)/(x*sqrt(c + d*x)), x)
```

GIAC/XCAS [A] time = 0.234515, size = 267, normalized size = 2.3

$$-\frac{\left(\frac{4\sqrt{bd}a^2\arctan\left(-\frac{b^2c+abd-\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2}{2\sqrt{-abcd}b}\right)}{\sqrt{-abcd}b}-\frac{2\sqrt{b^2c+(bx+a)bd-abd}\sqrt{bx+a}}{bd}-\frac{\left(\sqrt{bd}bc-3\sqrt{bd}ad\right)\ln\left(\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)b\right.\right.}{bd^2}\right.}{2|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)/(sqrt(d*x + c)*x),x, algorithm="giac")
```

```
[Out] -1/2*(4*sqrt(b*d)*a^2*arctan(-1/2*(b^2*c + a*b*d - (sqrt(b*d)*sqr
t(b*x + a) - sqrt(b^2*c + (b*x + a)*b*d - a*b*d))^2)/(sqrt(-a*b*c
*d)*b))/(sqrt(-a*b*c*d)*b) - 2*sqrt(b^2*c + (b*x + a)*b*d - a*b*d
)*sqrt(b*x + a)/(b*d) - (sqrt(b*d)*b*c - 3*sqrt(b*d)*a*d)*ln((sqr
t(b*d)*sqrt(b*x + a) - sqrt(b^2*c + (b*x + a)*b*d - a*b*d))^2)/(b
*d^2))*b^2/abs(b)
```

3.618 $\int \frac{(a+bx)^{3/2}}{x^2\sqrt{c+dx}}\,dx$

Optimal. Leaf size=121

$$\frac{2b^{3/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{d}}-\frac{\sqrt{a}(3bc-ad)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{c^{3/2}}-\frac{a\sqrt{a+bx}\sqrt{c+dx}}{cx}$$

```
[Out] -((a*Sqrt[a + b*x]*Sqrt[c + d*x])/(c*x)) - (Sqrt[a]*(3*b*c - a*d)
*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/c^(3/2
) + (2*b^(3/2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c +
d*x])])/Sqrt[d]
```

Rubi [A] time = 0.285871, antiderivative size = 121, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$\frac{2b^{3/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{d}}-\frac{\sqrt{a}(3bc-ad)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{c^{3/2}}-\frac{a\sqrt{a+bx}\sqrt{c+dx}}{cx}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(3/2)/(x^2*Sqrt[c + d*x]),x]
```

```
[Out] -((a*Sqrt[a + b*x]*Sqrt[c + d*x])/(c*x)) - (Sqrt[a]*(3*b*c - a*d)
*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/c^(3/2
) + (2*b^(3/2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c +
d*x])])/Sqrt[d]
```

Rubi in Sympy [A] time = 27.7394, size = 109, normalized size = 0.9

$$\frac{\sqrt{a}\,(ad-3bc)\,\text{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{c^{\frac{3}{2}}}-\frac{a\sqrt{a+bx}\sqrt{c+dx}}{cx}+\frac{2b^{\frac{3}{2}}\,\text{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{d}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)/x**2/(d*x+c)**(1/2),x)
```

```
[Out] sqrt(a)*(a*d - 3*b*c)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c
 + d*x)))/c**(3/2) - a*sqrt(a + b*x)*sqrt(c + d*x)/(c*x) + 2*b**(
3/2)*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c + d*x)))/sqrt(d)
```

Mathematica [A] time = 0.228782, size = 172, normalized size = 1.42

$$\frac{b^{3/2}\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{\sqrt{d}}-\frac{\sqrt{a}\log(x)(ad-3bc)}{2c^{3/2}}+\frac{\sqrt{a}(ad-3bc)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{2c^{3/2}}-\frac{a\sqrt{a+bx}\sqrt{c+dx}}{cx}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(3/2)/(x^2*Sqrt[c + d*x]),x]
```

```
[Out] -((a*Sqrt[a + b*x]*Sqrt[c + d*x])/(c*x)) - (Sqrt[a]*(-3*b*c + a*d
)*Log[x])/(2*c^(3/2)) + (Sqrt[a]*(-3*b*c + a*d)*Log[2*a*c + b*c*x
```

```
 + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(2*c^(
3/2)) + (b^(3/2)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt
[a + b*x]*Sqrt[c + d*x]])/Sqrt[d]
```

Maple [B] time = 0.03, size = 223, normalized size = 1.8

$$\frac{1}{2\,cx}\sqrt{bx+a}\sqrt{dx+c}\left(2\,\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{(bx+a)\,(dx+c)}\sqrt{bd}+ad+bc}{\sqrt{bd}}\right)xb^{2}c\sqrt{ac}+\ln\left(\frac{1}{x}\left(adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)}\right.\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)/x^2/(d*x+c)^(1/2),x)
```

```
[Out] 1/2*(b*x+a)^(1/2)*(d*x+c)^(1/2)/c*(2*ln(1/2*(2*b*d*x+2*((b*x+a)*(
d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*b^2*c*(a*c)^(1/
2)+ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x
)*x*a^2*d*(b*d)^(1/2)-3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d
*x+c))^(1/2)+2*a*c)/x)*x*a*b*c*(b*d)^(1/2)-2*a*(a*c)^(1/2)*((b*x+
a)*(d*x+c))^(1/2)*(b*d)^(1/2))/((b*x+a)*(d*x+c))^(1/2)/x/(b*d)^(1
/2)/(a*c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)/(sqrt(d*x + c)*x^2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.724796, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)/(sqrt(d*x + c)*x^2),x, algorithm="fricas")
```

```
[Out] [1/4*(2*b*c*x*sqrt(b/d)*log(8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d +
 a^2*d^2 + 4*(2*b*d^2*x + b*c*d + a*d^2)*sqrt(b*x + a)*sqrt(d*x +
 c)*sqrt(b/d) + 8*(b^2*c*d + a*b*d^2)*x) - (3*b*c - a*d)*x*sqrt(a
/c)*log((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 4*(2*a
*c^2 + (b*c^2 + a*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(a/c) +
 8*(a*b*c^2 + a^2*c*d)*x)/x^2) - 4*sqrt(b*x + a)*sqrt(d*x + c)*a)
/(c*x), 1/4*(4*b*c*x*sqrt(-b/d)*arctan(1/2*(2*b*d*x + b*c + a*d)/
(sqrt(b*x + a)*sqrt(d*x + c)*d*sqrt(-b/d))) - (3*b*c - a*d)*x*sqr
t(a/c)*log((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 4*(
2*a*c^2 + (b*c^2 + a*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(a/c
) + 8*(a*b*c^2 + a^2*c*d)*x)/x^2) - 4*sqrt(b*x + a)*sqrt(d*x + c)
*a)/(c*x), 1/2*(b*c*x*sqrt(b/d)*log(8*b^2*d^2*x^2 + b^2*c^2 + 6*a
*b*c*d + a^2*d^2 + 4*(2*b*d^2*x + b*c*d + a*d^2)*sqrt(b*x + a)*sq
rt(d*x + c)*sqrt(b/d) + 8*(b^2*c*d + a*b*d^2)*x) - (3*b*c - a*d)*
x*sqrt(-a/c)*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(b*x + a)*sq
rt(d*x + c)*c*sqrt(-a/c))) - 2*sqrt(b*x + a)*sqrt(d*x + c)*a)/(c*
x), 1/2*(2*b*c*x*sqrt(-b/d)*arctan(1/2*(2*b*d*x + b*c + a*d)/(sqr
t(b*x + a)*sqrt(d*x + c)*d*sqrt(-b/d))) - (3*b*c - a*d)*x*sqrt(-a
/c)*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(b*x + a)*sqrt(d*x +
c)*c*sqrt(-a/c))) - 2*sqrt(b*x + a)*sqrt(d*x + c)*a)/(c*x)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)/x**2/(d*x+c)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.548584, size = 4, normalized size = 0.03

$$sage_0x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)/(sqrt(d*x + c)*x^2),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.619 $\int \frac{(a+bx)^{3/2}}{x^3\sqrt{c+dx}}\,dx$

Optimal. Leaf size=119

$$-\frac{3(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4\sqrt{a}c^{5/2}}-\frac{3\sqrt{a+bx}\sqrt{c+dx}(bc-ad)}{4c^2x}-\frac{(a+bx)^{3/2}\sqrt{c+dx}}{2cx^2}$$

```
[Out] (-3*(b*c - a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*c^2*x) - ((a + b*
x)^(3/2)*Sqrt[c + d*x])/(2*c*x^2) - (3*(b*c - a*d)^2*ArcTanh[(Sqr
t[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(4*Sqrt[a]*c^(5/2))
```

Rubi [A] time = 0.199418, antiderivative size = 119, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.136

$$-\frac{3(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4\sqrt{a}c^{5/2}}-\frac{3\sqrt{a+bx}\sqrt{c+dx}(bc-ad)}{4c^2x}-\frac{(a+bx)^{3/2}\sqrt{c+dx}}{2cx^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(3/2)/(x^3*Sqrt[c + d*x]),x]
```

```
[Out] (-3*(b*c - a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*c^2*x) - ((a + b*
x)^(3/2)*Sqrt[c + d*x])/(2*c*x^2) - (3*(b*c - a*d)^2*ArcTanh[(Sqr
t[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(4*Sqrt[a]*c^(5/2))
```

Rubi in Sympy [A] time = 16.363, size = 105, normalized size = 0.88

$$-\frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}}{2cx^2}+\frac{3\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)}{4c^2x}-\frac{3\,(ad-bc)^2\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4\sqrt{a}c^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)/x**3/(d*x+c)**(1/2),x)
```

```
[Out] -(a + b*x)**(3/2)*sqrt(c + d*x)/(2*c*x**2) + 3*sqrt(a + b*x)*sqrt
(c + d*x)*(a*d - b*c)/(4*c**2*x) - 3*(a*d - b*c)**2*atanh(sqrt(c)
*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(4*sqrt(a)*c**(5/2))
```

Mathematica [A] time = 0.122525, size = 139, normalized size = 1.17

$$\frac{3x^2\log(x)(bc-ad)^2-3x^2(bc-ad)^2\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)+2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}(-2ac+3a}{8\sqrt{a}c^{5/2}x^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(3/2)/(x^3*Sqrt[c + d*x]),x]
```

```
[Out] (2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]*(-2*a*c - 5*b*c*x
+ 3*a*d*x) + 3*(b*c - a*d)^2*x^2*Log[x] - 3*(b*c - a*d)^2*x^2*Log
[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c +
 d*x]])/(8*Sqrt[a]*c^(5/2)*x^2)
```

Maple [B] time = 0.032, size = 255, normalized size = 2.1

$$-\frac{1}{8c^2x^2}\sqrt{bx+a}\sqrt{dx+c}\left(3\ln\left(\frac{adx+bcx+2\sqrt{ac}\sqrt{(bx+a)(dx+c)}+2ac}{x}\right)x^2a^2d^2-6\ln\left(\frac{adx+bcx+2\sqrt{ac}\sqrt{(bx+a)(c}}{x}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)/x^3/(d*x+c)^(1/2),x)
```

```
[Out] -1/8*(b*x+a)^(1/2)*(d*x+c)^(1/2)/c^2*(3*ln((a*d*x+b*c*x+2*(a*c)^(
1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a^2*d^2-6*ln((a*d*x+b*
c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a*b*c*d+3
*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*
x^2*b^2*c^2-6*((b*x+a)*(d*x+c))^(1/2)*d*a*x*(a*c)^(1/2)+10*((b*x+
a)*(d*x+c))^(1/2)*b*c*x*(a*c)^(1/2)+4*((b*x+a)*(d*x+c))^(1/2)*c*a
*(a*c)^(1/2))/((b*x+a)*(d*x+c))^(1/2)/x^2/(a*c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)/(sqrt(d*x + c)*x^3),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.300625, size = 1, normalized size = 0.01

$$\left[\frac{3\left(b^2c^2-2\,abcd+a^2d^2\right)x^2\log\left(-\frac{4\left(2\,a^2c^2+\left(abc^2+a^2cd\right)x\right)\sqrt{bx+a}\sqrt{dx+c}-\left(8\,a^2c^2+\left(b^2c^2+6\,abcd+a^2d^2\right)x^2+8\left(abc^2+a^2cd\right)x\right)\sqrt{ac}}{x^2}\right)-4\,(2\,ac}{16\sqrt{ac}c^2x^2}\right.$$

$$\left.-\frac{3\left(b^2c^2-2\,abcd+a^2d^2\right)x^2\arctan\left(\frac{(2\,ac+(bc+ad)x)\sqrt{-ac}}{2\sqrt{bx+a}\sqrt{dx+c}ac}\right)+2\left(2\,ac+(5\,bc-3\,ad)x\right)\sqrt{-ac}\sqrt{bx+a}\sqrt{dx+c}}{8\sqrt{-ac}c^2x^2}\right]$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)/(sqrt(d*x + c)*x^3),x, algorithm="fricas")
```

```
[Out] [1/16*(3*(b^2*c^2 - 2*a*b*c*d + a^2*d^2)*x^2*log(-(4*(2*a^2*c^2 +
 (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c) - (8*a^2*c^2
+ (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*
sqrt(a*c))/x^2) - 4*(2*a*c + (5*b*c - 3*a*d)*x)*sqrt(a*c)*sqrt(b*
x + a)*sqrt(d*x + c))/(sqrt(a*c)*c^2*x^2), -1/8*(3*(b^2*c^2 - 2*a
*b*c*d + a^2*d^2)*x^2*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*
c)/(sqrt(b*x + a)*sqrt(d*x + c)*a*c)) + 2*(2*a*c + (5*b*c - 3*a*d
)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(-a*c)*c^2*x^2)
]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)/x**3/(d*x+c)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)]   time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)/(sqrt(d*x + c)*x^3),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.620 $\int \frac{(a+bx)^{3/2}}{x^4\sqrt{c+dx}}\,dx$

Optimal. Leaf size=180

$$\frac{(bc-ad)^2(5ad+bc)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{3/2}c^{7/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}(bc-ad)(5ad+bc)}{8ac^3x}+\frac{(a+bx)^{3/2}\sqrt{c+dx}(5ad+bc)}{12ac^2x^2}-\frac{(a+bx)^{5/2}\sqrt{c+dx}}{3acx^3}$$

```
[Out] ((b*c - a*d)*(b*c + 5*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(8*a*c^3*
x) + ((b*c + 5*a*d)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(12*a*c^2*x^2)
 - ((a + b*x)^(5/2)*Sqrt[c + d*x])/(3*a*c*x^3) + ((b*c - a*d)^2*(
b*c + 5*a*d)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*
x])])/(8*a^(3/2)*c^(7/2))
```

Rubi [A] time = 0.312252, antiderivative size = 180, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.182$

$$\frac{(bc-ad)^2(5ad+bc)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{3/2}c^{7/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}(bc-ad)(5ad+bc)}{8ac^3x}+\frac{(a+bx)^{3/2}\sqrt{c+dx}(5ad+bc)}{12ac^2x^2}-\frac{(a+bx)^{5/2}\sqrt{c+dx}}{3acx^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(3/2)/(x^4*Sqrt[c + d*x]),x]
```

```
[Out] ((b*c - a*d)*(b*c + 5*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(8*a*c^3*
x) + ((b*c + 5*a*d)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(12*a*c^2*x^2)
 - ((a + b*x)^(5/2)*Sqrt[c + d*x])/(3*a*c*x^3) + ((b*c - a*d)^2*(
b*c + 5*a*d)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*
x])])/(8*a^(3/2)*c^(7/2))
```

Rubi in Sympy [A] time = 25.5569, size = 158, normalized size = 0.88

$$-\frac{(a+bx)^{\frac{5}{2}}\sqrt{c+dx}}{3acx^3}+\frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}\,(5ad+bc)}{12ac^2x^2}-\frac{\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)\,(5ad+bc)}{8ac^3x}+\frac{(ad-bc)^2\,(5ad+bc)\,\mathrm{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{\frac{3}{2}}c^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)/x**4/(d*x+c)**(1/2),x)
```

```
[Out] -(a + b*x)**(5/2)*sqrt(c + d*x)/(3*a*c*x**3) + (a + b*x)**(3/2)*s
qrt(c + d*x)*(5*a*d + b*c)/(12*a*c**2*x**2) - sqrt(a + b*x)*sqrt(
c + d*x)*(a*d - b*c)*(5*a*d + b*c)/(8*a*c**3*x) + (a*d - b*c)**2*
(5*a*d + b*c)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x))
)/(8*a**(3/2)*c**(7/2))
```

Mathematica [A] time = 0.193683, size = 189, normalized size = 1.05

$$\frac{-2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}\left(a^2\left(8c^2-10cdx+15d^2x^2\right)+2abcx(7c-11dx)+3b^2c^2x^2\right)-3x^3\log(x)(bc-ad)^2(5ad+bc)+3x}{48a^{3/2}c^{7/2}x^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(3/2)/(x^4*Sqrt[c + d*x]),x]
```

```
[Out] (-2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]*(3*b^2*c^2*x^2 +
2*a*b*c*x*(7*c - 11*d*x) + a^2*(8*c^2 - 10*c*d*x + 15*d^2*x^2)) -
 3*(b*c - a*d)^2*(b*c + 5*a*d)*x^3*Log[x] + 3*(b*c - a*d)^2*(b*c
+ 5*a*d)*x^3*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a
 + b*x]*Sqrt[c + d*x]])/(48*a^(3/2)*c^(7/2)*x^3)
```

Maple [B] time = 0.035, size = 408, normalized size = 2.3

$$\frac{1}{48\,ac^3x^3}\sqrt{bx+a}\sqrt{dx+c}\left(15\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)\,(dx+c)}+2\,ac}{x}\right)x^3a^3d^3-27\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+c}}{x}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)/x^4/(d*x+c)^(1/2),x)
```

```
[Out] 1/48*(b*x+a)^(1/2)*(d*x+c)^(1/2)/a/c^3*(15*ln((a*d*x+b*c*x+2*(a*c
)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^3*d^3-27*ln((a*d*
x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^2*b
*c*d^2+9*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*
a*c)/x)*x^3*a*b^2*c^2*d+3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*
(d*x+c))^(1/2)+2*a*c)/x)*x^3*b^3*c^3-30*((b*x+a)*(d*x+c))^(1/2)*d
^2*a^2*x^2*(a*c)^(1/2)+44*((b*x+a)*(d*x+c))^(1/2)*d*b*c*a*x^2*(a*
c)^(1/2)-6*((b*x+a)*(d*x+c))^(1/2)*b^2*c^2*x^2*(a*c)^(1/2)+20*((b
*x+a)*(d*x+c))^(1/2)*d*c*a^2*x*(a*c)^(1/2)-28*((b*x+a)*(d*x+c))^(
1/2)*b*c^2*a*x*(a*c)^(1/2)-16*((b*x+a)*(d*x+c))^(1/2)*c^2*a^2*(a*
c)^(1/2))/((b*x+a)*(d*x+c))^(1/2)/(a*c)^(1/2)/x^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(3/2)/(sqrt(d*x + c)*x^4),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.423885, size = 1, normalized size = 0.01

$$\left[\frac{3\left(b^3c^3+3\,ab^2c^2d-9\,a^2bcd^2+5\,a^3d^3\right)x^3\log\left(\frac{4\left(2\,a^2c^2+\left(abc^2+a^2cd\right)x\right)\sqrt{bx+a}\sqrt{dx+c}+\left(8\,a^2c^2+\left(b^2c^2+6\,abcd+a^2d^2\right)x^2+8\left(abc^2+a^2cd\right)x\right)\sqrt{a}}{x^2}\right.}{96\,\sqrt{ac}ac^3x^3}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(3/2)/(sqrt(d*x + c)*x^4),x, algorithm="fricas")
```

```
[Out] [1/96*(3*(b^3*c^3 + 3*a*b^2*c^2*d - 9*a^2*b*c*d^2 + 5*a^3*d^3)*x^
3*log((4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d
*x + c) + (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(a
*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2) - 4*(8*a^2*c^2 + (3*b^2*c^2
- 22*a*b*c*d + 15*a^2*d^2)*x^2 + 2*(7*a*b*c^2 - 5*a^2*c*d)*x)*sqr
t(a*c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(a*c)*a*c^3*x^3), 1/48*(
```

```
3*(b^3*c^3 + 3*a*b^2*c^2*d - 9*a^2*b*c*d^2 + 5*a^3*d^3)*x^3*arcta
n(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d*x
+ c)*a*c)) - 2*(8*a^2*c^2 + (3*b^2*c^2 - 22*a*b*c*d + 15*a^2*d^2)
*x^2 + 2*(7*a*b*c^2 - 5*a^2*c*d)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt
(d*x + c))/(sqrt(-a*c)*a*c^3*x^3)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)/x**4/(d*x+c)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)/(sqrt(d*x + c)*x^4),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.621 $\int \frac{(a+bx)^{3/2}}{x^5\sqrt{c+dx}}\,dx$

Optimal. Leaf size=266

$$-\frac{\sqrt{a+bx}\sqrt{c+dx}\left(35a^2d^2-46abcd+3b^2c^2\right)}{96ac^3x^2}-\frac{\left(35a^2d^2+10abcd+3b^2c^2\right)(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{5/2}c^{9/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(105a^3d^3-145a^2bcd^2+15ab^2c^2d+9b^3c^3\right)}{192a^2c^4x}-\frac{\sqrt{a+bx}\sqrt{c+dx}(9bc-7ad)}{24c^2x^3}-\frac{a\sqrt{a+bx}\sqrt{c+dx}}{4cx^4}$$

```
[Out] -(a*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*c*x^4) - ((9*b*c - 7*a*d)*Sqr
t[a + b*x]*Sqrt[c + d*x])/(24*c^2*x^3) - ((3*b^2*c^2 - 46*a*b*c*d
 + 35*a^2*d^2)*Sqrt[a + b*x]*Sqrt[c + d*x])/(96*a*c^3*x^2) + ((9*
b^3*c^3 + 15*a*b^2*c^2*d - 145*a^2*b*c*d^2 + 105*a^3*d^3)*Sqrt[a
+ b*x]*Sqrt[c + d*x])/(192*a^2*c^4*x) - ((b*c - a*d)^2*(3*b^2*c^2
 + 10*a*b*c*d + 35*a^2*d^2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt
[a]*Sqrt[c + d*x])])/(64*a^(5/2)*c^(9/2))
```

Rubi [A] time = 0.746639, antiderivative size = 266, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$-\frac{\sqrt{a+bx}\sqrt{c+dx}\left(35a^2d^2-46abcd+3b^2c^2\right)}{96ac^3x^2}-\frac{\left(35a^2d^2+10abcd+3b^2c^2\right)(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{5/2}c^{9/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(105a^3d^3-145a^2bcd^2+15ab^2c^2d+9b^3c^3\right)}{192a^2c^4x}-\frac{\sqrt{a+bx}\sqrt{c+dx}(9bc-7ad)}{24c^2x^3}-\frac{a\sqrt{a+bx}\sqrt{c+dx}}{4cx^4}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(3/2)/(x^5*Sqrt[c + d*x]),x]
```

```
[Out] -(a*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*c*x^4) - ((9*b*c - 7*a*d)*Sqr
t[a + b*x]*Sqrt[c + d*x])/(24*c^2*x^3) - ((3*b^2*c^2 - 46*a*b*c*d
 + 35*a^2*d^2)*Sqrt[a + b*x]*Sqrt[c + d*x])/(96*a*c^3*x^2) + ((9*
b^3*c^3 + 15*a*b^2*c^2*d - 145*a^2*b*c*d^2 + 105*a^3*d^3)*Sqrt[a
+ b*x]*Sqrt[c + d*x])/(192*a^2*c^4*x) - ((b*c - a*d)^2*(3*b^2*c^2
 + 10*a*b*c*d + 35*a^2*d^2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt
[a]*Sqrt[c + d*x])])/(64*a^(5/2)*c^(9/2))
```

Rubi in Sympy [A] time = 101.455, size = 255, normalized size = 0.96

$$-\frac{a\sqrt{a+bx}\sqrt{c+dx}}{4cx^4}+\frac{\sqrt{a+bx}\sqrt{c+dx}\,(7ad-9bc)}{24c^2x^3}-\frac{\sqrt{a+bx}\sqrt{c+dx}\left(35a^2d^2-46abcd+3b^2c^2\right)}{96ac^3x^2}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(105a^3d^3-145a^2bcd^2+15ab^2c^2d+9b^3c^3\right)}{192a^2c^4x}-\frac{(ad-bc)^2\left(35a^2d^2+10abcd+3b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{\frac{5}{2}}c^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)/x**5/(d*x+c)**(1/2),x)
```

```
[Out] -a*sqrt(a + b*x)*sqrt(c + d*x)/(4*c*x**4) + sqrt(a + b*x)*sqrt(c
+ d*x)*(7*a*d - 9*b*c)/(24*c**2*x**3) - sqrt(a + b*x)*sqrt(c + d*
x)*(35*a**2*d**2 - 46*a*b*c*d + 3*b**2*c**2)/(96*a*c**3*x**2) + s
qrt(a + b*x)*sqrt(c + d*x)*(105*a**3*d**3 - 145*a**2*b*c*d**2 + 1
5*a*b**2*c**2*d + 9*b**3*c**3)/(192*a**2*c**4*x) - (a*d - b*c)**2
*(35*a**2*d**2 + 10*a*b*c*d + 3*b**2*c**2)*atanh(sqrt(c)*sqrt(a +
 b*x)/(sqrt(a)*sqrt(c + d*x)))/(64*a**(5/2)*c**(9/2))
```

Mathematica [A] time = 0.263053, size = 262, normalized size = 0.98

$$\frac{3x^4\log(x)(bc-ad)^2\left(35a^2d^2+10abcd+3b^2c^2\right)-3x^4(bc-ad)^2\left(35a^2d^2+10abcd+3b^2c^2\right)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(3/2)/(x^5*Sqrt[c + d*x]),x]
```

```
[Out] (-2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]*(-9*b^3*c^3*x^3 +
 3*a*b^2*c^2*x^2*(2*c - 5*d*x) + a^2*b*c*x*(72*c^2 - 92*c*d*x + 1
45*d^2*x^2) + a^3*(48*c^3 - 56*c^2*d*x + 70*c*d^2*x^2 - 105*d^3*x
^3)) + 3*(b*c - a*d)^2*(3*b^2*c^2 + 10*a*b*c*d + 35*a^2*d^2)*x^4*
Log[x] - 3*(b*c - a*d)^2*(3*b^2*c^2 + 10*a*b*c*d + 35*a^2*d^2)*x^
4*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqr
t[c + d*x]])/(384*a^(5/2)*c^(9/2)*x^4)
```

Maple [B] time = 0.039, size = 593, normalized size = 2.2

$$-\frac{1}{384\,a^2c^4x^4}\sqrt{bx+a}\sqrt{dx+c}\left(105\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)\,(dx+c)}+2\,ac}{x}\right)x^4a^4d^4-180\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(}}{}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)/x^5/(d*x+c)^(1/2),x)
```

```
[Out] -1/384*(b*x+a)^(1/2)*(d*x+c)^(1/2)/a^2/c^4*(105*ln((a*d*x+b*c*x+2
*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a^4*d^4-180*ln
((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4
*a^3*b*c*d^3+54*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(
1/2)+2*a*c)/x)*x^4*a^2*b^2*c^2*d^2+12*ln((a*d*x+b*c*x+2*(a*c)^(1/
2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a*b^3*c^3*d+9*ln((a*d*x+
b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*b^4*c^4
-210*((b*x+a)*(d*x+c))^(1/2)*d^3*a^3*x^3*(a*c)^(1/2)+290*((b*x+a)
*(d*x+c))^(1/2)*d^2*b*c*a^2*x^3*(a*c)^(1/2)-30*((b*x+a)*(d*x+c))^
(1/2)*d*b^2*c^2*a*x^3*(a*c)^(1/2)-18*((b*x+a)*(d*x+c))^(1/2)*b^3*
c^3*x^3*(a*c)^(1/2)+140*((b*x+a)*(d*x+c))^(1/2)*d^2*c*a^3*x^2*(a*
c)^(1/2)-184*((b*x+a)*(d*x+c))^(1/2)*d*b*c^2*a^2*x^2*(a*c)^(1/2)+
12*((b*x+a)*(d*x+c))^(1/2)*b^2*c^3*a*x^2*(a*c)^(1/2)-112*((b*x+a)
*(d*x+c))^(1/2)*d*c^2*a^3*x*(a*c)^(1/2)+144*((b*x+a)*(d*x+c))^(1/
2)*b*c^3*a^2*x*(a*c)^(1/2)+96*((b*x+a)*(d*x+c))^(1/2)*c^3*a^3*(a*
c)^(1/2))/((b*x+a)*(d*x+c))^(1/2)/(a*c)^(1/2)/x^4
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(3/2)/(sqrt(d*x + c)*x^5),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.778436, size = 1, normalized size = 0.

$$\left[\frac{3\left(3\,b^4c^4+4\,ab^3c^3d+18\,a^2b^2c^2d^2-60\,a^3bcd^3+35\,a^4d^4\right)x^4\log\left(-\frac{4\left(2\,a^2c^2+\left(abc^2+a^2cd\right)x\right)\sqrt{bx+a}\sqrt{dx+c}-\left(8\,a^2c^2+\left(b^2c^2+6\,abcd+a^2d^2\right.\right.}{x^2}\right.}{}\right.$$

$$-\frac{3\left(3\,b^4c^4+4\,ab^3c^3d+18\,a^2b^2c^2d^2-60\,a^3bcd^3+35\,a^4d^4\right)x^4\arctan\left(\frac{\left(2\,ac+\left(bc+ad\right)x\right)\sqrt{-ac}}{2\,\sqrt{bx+a}\sqrt{dx+c}ac}\right)+2\left(48\,a^3c^3-\left(9\,b^3c^3+15\,ab^2c^2d\right.\right.}{384\,\sqrt{-ac}a}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)/(sqrt(d*x + c)*x^5),x, algorithm="fricas")
```

```
[Out] [1/768*(3*(3*b^4*c^4 + 4*a*b^3*c^3*d + 18*a^2*b^2*c^2*d^2 - 60*a^
3*b*c*d^3 + 35*a^4*d^4)*x^4*log(-(4*(2*a^2*c^2 + (a*b*c^2 + a^2*c
*d)*x)*sqrt(b*x + a)*sqrt(d*x + c) - (8*a^2*c^2 + (b^2*c^2 + 6*a*
b*c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2) -
 4*(48*a^3*c^3 - (9*b^3*c^3 + 15*a*b^2*c^2*d - 145*a^2*b*c*d^2 +
105*a^3*d^3)*x^3 + 2*(3*a*b^2*c^3 - 46*a^2*b*c^2*d + 35*a^3*c*d^2
)*x^2 + 8*(9*a^2*b*c^3 - 7*a^3*c^2*d)*x)*sqrt(a*c)*sqrt(b*x + a)*
sqrt(d*x + c))/(sqrt(a*c)*a^2*c^4*x^4), -1/384*(3*(3*b^4*c^4 + 4*
a*b^3*c^3*d + 18*a^2*b^2*c^2*d^2 - 60*a^3*b*c*d^3 + 35*a^4*d^4)*x
^4*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*s
qrt(d*x + c)*a*c)) + 2*(48*a^3*c^3 - (9*b^3*c^3 + 15*a*b^2*c^2*d
- 145*a^2*b*c*d^2 + 105*a^3*d^3)*x^3 + 2*(3*a*b^2*c^3 - 46*a^2*b*
c^2*d + 35*a^3*c*d^2)*x^2 + 8*(9*a^2*b*c^3 - 7*a^3*c^2*d)*x)*sqrt
(-a*c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(-a*c)*a^2*c^4*x^4)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)/x**5/(d*x+c)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)/(sqrt(d*x + c)*x^5),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.622 $\int \frac{x^2(a+bx)^{3/2}}{(c+dx)^{3/2}} dx$

Optimal. Leaf size=248

$$\frac{\sqrt{a+bx}\sqrt{c+dx}\left(-a^2d^2-10abcd+35b^2c^2\right)}{8bd^4}-\frac{(bc-ad)\left(-a^2d^2-10abcd+35b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8b^{3/2}d^{9/2}}+\frac{(a+bx)^{3/2}\sqrt{c+dx}\left(\frac{a^2d}{b}+10ac-\frac{35bc^2}{d}\right)}{12d^2(bc-ad)}+\frac{2c^2(a+bx)^{5/2}}{d^2\sqrt{c+dx}(bc-ad)}+\frac{(a+bx)^{5/2}\sqrt{c+dx}}{3bd^2}$$

```
[Out] (2*c^2*(a + b*x)^(5/2))/(d^2*(b*c - a*d)*Sqrt[c + d*x]) + ((35*b^
2*c^2 - 10*a*b*c*d - a^2*d^2)*Sqrt[a + b*x]*Sqrt[c + d*x])/(8*b*d
^4) + ((10*a*c - (35*b*c^2)/d + (a^2*d)/b)*(a + b*x)^(3/2)*Sqrt[c
 + d*x])/(12*d^2*(b*c - a*d)) + ((a + b*x)^(5/2)*Sqrt[c + d*x])/(
3*b*d^2) - ((b*c - a*d)*(35*b^2*c^2 - 10*a*b*c*d - a^2*d^2)*ArcTa
nh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(8*b^(3/2)*d
^(9/2))
```

Rubi [A] time = 0.596707, antiderivative size = 248, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$\frac{\sqrt{a+bx}\sqrt{c+dx}\left(-a^2d^2-10abcd+35b^2c^2\right)}{8bd^4}-\frac{(bc-ad)\left(-a^2d^2-10abcd+35b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8b^{3/2}d^{9/2}}+\frac{(a+bx)^{3/2}\sqrt{c+dx}\left(\frac{a^2d}{b}+10ac-\frac{35bc^2}{d}\right)}{12d^2(bc-ad)}+\frac{2c^2(a+bx)^{5/2}}{d^2\sqrt{c+dx}(bc-ad)}+\frac{(a+bx)^{5/2}\sqrt{c+dx}}{3bd^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^2*(a + b*x)^(3/2))/(c + d*x)^(3/2),x]
```

```
[Out] (2*c^2*(a + b*x)^(5/2))/(d^2*(b*c - a*d)*Sqrt[c + d*x]) + ((35*b^
2*c^2 - 10*a*b*c*d - a^2*d^2)*Sqrt[a + b*x]*Sqrt[c + d*x])/(8*b*d
^4) + ((10*a*c - (35*b*c^2)/d + (a^2*d)/b)*(a + b*x)^(3/2)*Sqrt[c
 + d*x])/(12*d^2*(b*c - a*d)) + ((a + b*x)^(5/2)*Sqrt[c + d*x])/(
3*b*d^2) - ((b*c - a*d)*(35*b^2*c^2 - 10*a*b*c*d - a^2*d^2)*ArcTa
nh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(8*b^(3/2)*d
^(9/2))
```

Rubi in Sympy [A] time = 44.1898, size = 228, normalized size = 0.92

$$-\frac{2c^2(a+bx)^{\frac{5}{2}}}{d^2\sqrt{c+dx}\,(ad-bc)}+\frac{(a+bx)^{\frac{5}{2}}\sqrt{c+dx}}{3bd^2}-\frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}\left(a^2d^2+10abcd-35b^2c^2\right)}{12bd^3\,(ad-bc)}-\frac{\sqrt{a+bx}\sqrt{c+dx}\left(a^2d^2+10abcd-35b^2c^2\right)}{8bd^4}-\frac{(ad-bc)\left(a^2d^2+10abcd-35b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8b^{\frac{3}{2}}d^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(b*x+a)**(3/2)/(d*x+c)**(3/2),x)
```

```
[Out] -2*c**2*(a + b*x)**(5/2)/(d**2*sqrt(c + d*x)*(a*d - b*c)) + (a +
b*x)**(5/2)*sqrt(c + d*x)/(3*b*d**2) - (a + b*x)**(3/2)*sqrt(c +
```

```
d*x)*(a**2*d**2 + 10*a*b*c*d - 35*b**2*c**2)/(12*b*d**3*(a*d - b*
c)) - sqrt(a + b*x)*sqrt(c + d*x)*(a**2*d**2 + 10*a*b*c*d - 35*b*
*2*c**2)/(8*b*d**4) - (a*d - b*c)*(a**2*d**2 + 10*a*b*c*d - 35*b*
*2*c**2)*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c + d*x)))/(8*
b**(3/2)*d**(9/2))
```

Mathematica [A] time = 0.19361, size = 189, normalized size = 0.76

$$\frac{\sqrt{a+bx}\left(3a^2d^2(c+dx)+2abd\left(-50c^2-19cdx+7d^2x^2\right)+b^2\left(105c^3+35c^2dx-14cd^2x^2+8d^3x^3\right)\right)}{24bd^4\sqrt{c+dx}}-\frac{(bc-ad)\left(-a^2d^2-10abcd+35b^2c^2\right)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{16b^{3/2}d^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^2*(a + b*x)^(3/2))/(c + d*x)^(3/2),x]
```

```
[Out] (Sqrt[a + b*x]*(3*a^2*d^2*(c + d*x) + 2*a*b*d*(-50*c^2 - 19*c*d*x
 + 7*d^2*x^2) + b^2*(105*c^3 + 35*c^2*d*x - 14*c*d^2*x^2 + 8*d^3*
x^3)))/(24*b*d^4*Sqrt[c + d*x]) - ((b*c - a*d)*(35*b^2*c^2 - 10*a
*b*c*d - a^2*d^2)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqr
t[a + b*x]*Sqrt[c + d*x]])/(16*b^(3/2)*d^(9/2))
```

Maple [B] time = 0.038, size = 692, normalized size = 2.8

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(b*x+a)^(3/2)/(d*x+c)^(3/2),x)
```

```
[Out] -1/48*(b*x+a)^(1/2)*(-16*x^3*b^2*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d
)^(1/2)+3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a
*d+b*c)/(b*d)^(1/2))*x*a^3*d^4+27*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x
+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^2*b*c*d^3-135*ln
(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d
)^(1/2))*x*a*b^2*c^2*d^2+105*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^
(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*b^3*c^3*d-28*x^2*a*b*d^
3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+28*x^2*b^2*c*d^2*((b*x+a)*(
d*x+c))^(1/2)*(b*d)^(1/2)+3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(
1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^3*c*d^3+27*ln(1/2*(2*b*d
*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^
2*b*c^2*d^2-135*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(
1/2)+a*d+b*c)/(b*d)^(1/2))*a*b^2*c^3*d+105*ln(1/2*(2*b*d*x+2*((b*
x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*b^3*c^4-6*x
*a^2*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+76*x*a*b*c*d^2*((b*x
+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-70*x*b^2*c^2*d*((b*x+a)*(d*x+c))^(
1/2)*(b*d)^(1/2)-6*a^2*c*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+
200*a*b*c^2*d*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-210*b^2*c^3*((b
*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2))/((b*x+a)*(d*x+c))^(1/2)/b/(b*d)
^(1/2)/(d*x+c)^(1/2)/d^4
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*x^2/(d*x + c)^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.597564, size = 1, normalized size = 0.

$$\left[\frac{4\left(8\,b^2d^3x^3+105\,b^2c^3-100\,abc^2d+3\,a^2cd^2-14\left(b^2cd^2-abd^3\right)x^2+\left(35\,b^2c^2d-38\,abcd^2+3\,a^2d^3\right)x\right)\sqrt{bd}\sqrt{bx+a}\sqrt{dx+\cdots}}{\cdots}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(3/2)*x^2/(d*x + c)^(3/2),x, algorithm="fricas")
```

```
[Out] [1/96*(4*(8*b^2*d^3*x^3 + 105*b^2*c^3 - 100*a*b*c^2*d + 3*a^2*c*d
^2 - 14*(b^2*c*d^2 - a*b*d^3)*x^2 + (35*b^2*c^2*d - 38*a*b*c*d^2
+ 3*a^2*d^3)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 3*(35*b^3
*c^4 - 45*a*b^2*c^3*d + 9*a^2*b*c^2*d^2 + a^3*c*d^3 + (35*b^3*c^3
*d - 45*a*b^2*c^2*d^2 + 9*a^2*b*c*d^3 + a^3*d^4)*x)*log(-4*(2*b^2
*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*
d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x
)*sqrt(b*d)))/((b*d^5*x + b*c*d^4)*sqrt(b*d)), 1/48*(2*(8*b^2*d^3
*x^3 + 105*b^2*c^3 - 100*a*b*c^2*d + 3*a^2*c*d^2 - 14*(b^2*c*d^2
- a*b*d^3)*x^2 + (35*b^2*c^2*d - 38*a*b*c*d^2 + 3*a^2*d^3)*x)*sqr
t(-b*d)*sqrt(b*x + a)*sqrt(d*x + c) - 3*(35*b^3*c^4 - 45*a*b^2*c^
3*d + 9*a^2*b*c^2*d^2 + a^3*c*d^3 + (35*b^3*c^3*d - 45*a*b^2*c^2*
d^2 + 9*a^2*b*c*d^3 + a^3*d^4)*x)*arctan(1/2*(2*b*d*x + b*c + a*d
)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/((b*d^5*x + b*c*
d^4)*sqrt(-b*d))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**2*(b*x+a)**(3/2)/(d*x+c)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.258565, size = 428, normalized size = 1.73

$$\frac{\left(\left(2\left(\frac{4\,(bx+a)b^2d^6}{b^{10}cd^8-ab^9d^9}-\frac{7\,b^3cd^5+5\,ab^2d^6}{b^{10}cd^8-ab^9d^9}\right)(bx+a)+\frac{35\,b^4c^2d^4-10\,ab^3cd^5-a^2b^2d^6}{b^{10}cd^8-ab^9d^9}\right)(bx+a)+\frac{3\left(35\,b^5c^3d^3-45\,ab^4c^2d^4+9\,a^2b^3cd^5+a^3b^2d^6\right)}{b^{10}cd^8-ab^9d^9}\right)\sqrt{bx\cdots}}{184320\sqrt{b^2c+(bx+a)bd-abd}}$$
$$+\frac{\left(35\,b^2c^2-10\,abcd-a^2d^2\right)\ln\left(\left|-\sqrt{bd}\sqrt{bx+a}+\sqrt{b^2c+(bx+a)bd-abd}\right|\right)}{61440\sqrt{bd}b^7d^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(3/2)*x^2/(d*x + c)^(3/2),x, algorithm="giac")
```

```
[Out] 1/184320*((2*(4*(b*x + a)*b^2*d^6/(b^10*c*d^8 - a*b^9*d^9) - (7*b
^3*c*d^5 + 5*a*b^2*d^6)/(b^10*c*d^8 - a*b^9*d^9))*(b*x + a) + (35
*b^4*c^2*d^4 - 10*a*b^3*c*d^5 - a^2*b^2*d^6)/(b^10*c*d^8 - a*b^9*
d^9))*(b*x + a) + 3*(35*b^5*c^3*d^3 - 45*a*b^4*c^2*d^4 + 9*a^2*b^
3*c*d^5 + a^3*b^2*d^6)/(b^10*c*d^8 - a*b^9*d^9))*sqrt(b*x + a)/sq
rt(b^2*c + (b*x + a)*b*d - a*b*d) + 1/61440*(35*b^2*c^2 - 10*a*b*
c*d - a^2*d^2)*ln(abs(-sqrt(b*d)*sqrt(b*x + a) + sqrt(b^2*c + (b*
x + a)*b*d - a*b*d)))/(sqrt(b*d)*b^7*d^5)
```

3.623 $\int \frac{x(a+bx)^{3/2}}{(c+dx)^{3/2}}\,dx$

Optimal. Leaf size=174

$$\frac{3(bc-ad)(5bc-ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4\sqrt{b}d^{7/2}}-\frac{3\sqrt{a+bx}\sqrt{c+dx}(5bc-ad)}{4d^3}+\frac{(a+bx)^{3/2}\sqrt{c+dx}(5bc-ad)}{2d^2(bc-ad)}-\frac{2c(a+bx)^{5/2}}{d\sqrt{c+dx}(bc-ad)}$$

```
[Out] (-2*c*(a + b*x)^(5/2))/(d*(b*c - a*d)*Sqrt[c + d*x]) - (3*(5*b*c
- a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*d^3) + ((5*b*c - a*d)*(a +
 b*x)^(3/2)*Sqrt[c + d*x])/(2*d^2*(b*c - a*d)) + (3*(b*c - a*d)*(
5*b*c - a*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*
x])])/(4*Sqrt[b]*d^(7/2))
```

Rubi [A] time = 0.247069, antiderivative size = 174, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.2$

$$\frac{3(bc-ad)(5bc-ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4\sqrt{b}d^{7/2}}-\frac{3\sqrt{a+bx}\sqrt{c+dx}(5bc-ad)}{4d^3}+\frac{(a+bx)^{3/2}\sqrt{c+dx}(5bc-ad)}{2d^2(bc-ad)}-\frac{2c(a+bx)^{5/2}}{d\sqrt{c+dx}(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[(x*(a + b*x)^(3/2))/(c + d*x)^(3/2),x]
```


```
[Out] (-2*c*(a + b*x)^(5/2))/(d*(b*c - a*d)*Sqrt[c + d*x]) - (3*(5*b*c
- a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*d^3) + ((5*b*c - a*d)*(a +
 b*x)^(3/2)*Sqrt[c + d*x])/(2*d^2*(b*c - a*d)) + (3*(b*c - a*d)*(
5*b*c - a*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*
x])])/(4*Sqrt[b]*d^(7/2))
```

Rubi in Sympy [A] time = 26.012, size = 155, normalized size = 0.89

$$\frac{2c\left(a+bx\right)^{\frac{5}{2}}}{d\sqrt{c+dx}\left(ad-bc\right)}+\frac{\left(a+bx\right)^{\frac{3}{2}}\sqrt{c+dx}\left(ad-5bc\right)}{2d^2\left(ad-bc\right)}+\frac{3\sqrt{a+bx}\sqrt{c+dx}\left(ad-5bc\right)}{4d^3}+\frac{3\left(ad-5bc\right)\left(ad-bc\right)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4\sqrt{b}d^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(b*x+a)**(3/2)/(d*x+c)**(3/2),x)
```

```
[Out] 2*c*(a + b*x)**(5/2)/(d*sqrt(c + d*x)*(a*d - b*c)) + (a + b*x)**(
3/2)*sqrt(c + d*x)*(a*d - 5*b*c)/(2*d**2*(a*d - b*c)) + 3*sqrt(a
+ b*x)*sqrt(c + d*x)*(a*d - 5*b*c)/(4*d**3) + 3*(a*d - 5*b*c)*(a*
d - b*c)*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c + d*x)))/(4*
sqrt(b)*d**(7/2))
```

Mathematica [A] time = 0.140792, size = 132, normalized size = 0.76

$$\frac{\sqrt{a+bx}\left(ad(13c+5dx)+b\left(-15c^2-5cdx+2d^2x^2\right)\right)}{4d^3\sqrt{c+dx}}+\frac{3(ad-5bc)(ad-bc)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{8\sqrt{b}d^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x*(a + b*x)^(3/2))/(c + d*x)^(3/2),x]
```

```
[Out] (Sqrt[a + b*x]*(a*d*(13*c + 5*d*x) + b*(-15*c^2 - 5*c*d*x + 2*d^2
*x^2)))/(4*d^3*Sqrt[c + d*x]) + (3*(-5*b*c + a*d)*(-(b*c) + a*d)*
Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c
+ d*x]])/(8*Sqrt[b]*d^(7/2))
```

Maple [B] time = 0.03, size = 455, normalized size = 2.6

$$\frac{1}{8\,d^3}\sqrt{bx+a}\left(3\,\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{(bx+a)\,(dx+c)}\sqrt{bd}+ad+bc}{\sqrt{bd}}\right)xa^2d^3-18\,\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{(bx+a)\,(dx+c)}\sqrt{bd}+}{\sqrt{bd}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(b*x+a)^(3/2)/(d*x+c)^(3/2),x)
```

```
[Out] 1/8*(b*x+a)^(1/2)*(3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b
*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^2*d^3-18*ln(1/2*(2*b*d*x+2*((
b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a*b*c*d
^2+15*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b
*c)/(b*d)^(1/2))*x*b^2*c^2*d+4*x^2*b*d^2*((b*x+a)*(d*x+c))^(1/2)*
(b*d)^(1/2)+3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/
2)+a*d+b*c)/(b*d)^(1/2))*a^2*c*d^2-18*ln(1/2*(2*b*d*x+2*((b*x+a)*
(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a*b*c^2*d+15*ln(
1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)
^(1/2))*b^2*c^3+10*x*a*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-10
*x*b*c*d*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+26*a*c*d*((b*x+a)*(d
*x+c))^(1/2)*(b*d)^(1/2)-30*b*c^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(
1/2))/((b*x+a)*(d*x+c))^(1/2)/(b*d)^(1/2)/(d*x+c)^(1/2)/d^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*x/(d*x + c)^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.389422, size = 1, normalized size = 0.01

$$\left[\frac{4\left(2\,bd^2x^2-15\,bc^2+13\,acd-5\left(bcd-ad^2\right)x\right)\sqrt{bd}\sqrt{bx+a}\sqrt{dx+c}+3\left(5\,b^2c^3-6\,abc^2d+a^2cd^2+\left(5\,b^2c^2d-6\,abcd^2+a\right.\right.}{16\left(d^4x+ca\right.}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*x/(d*x + c)^(3/2),x, algorithm="fricas")
```

```
[Out] [1/16*(4*(2*b*d^2*x^2 - 15*b*c^2 + 13*a*c*d - 5*(b*c*d - a*d^2)*x
)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 3*(5*b^2*c^3 - 6*a*b*c^
2*d + a^2*c*d^2 + (5*b^2*c^2*d - 6*a*b*c*d^2 + a^2*d^3)*x)*log(4*
(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (
8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*
d^2)*x)*sqrt(b*d)))/((d^4*x + c*d^3)*sqrt(b*d)), 1/8*(2*(2*b*d^2*
x^2 - 15*b*c^2 + 13*a*c*d - 5*(b*c*d - a*d^2)*x)*sqrt(-b*d)*sqrt(
b*x + a)*sqrt(d*x + c) + 3*(5*b^2*c^3 - 6*a*b*c^2*d + a^2*c*d^2 +
 (5*b^2*c^2*d - 6*a*b*c*d^2 + a^2*d^3)*x)*arctan(1/2*(2*b*d*x + b
*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/((d^4*x
+ c*d^3)*sqrt(-b*d))]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x(a+bx)^{\frac{3}{2}}}{(c+dx)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(b*x+a)**(3/2)/(d*x+c)**(3/2),x)
```

```
[Out] Integral(x*(a + b*x)**(3/2)/(c + d*x)**(3/2), x)
```

GIAC/XCAS [A] time = 0.243377, size = 320, normalized size = 1.84

$$\frac{\left(\left(\frac{2(bx+a)bd^4|b|}{b^8cd^6-ab^7d^7} - \frac{5b^2cd^3|b|-abd^4|b|}{b^8cd^6-ab^7d^7}\right)(bx+a) - \frac{3\left(5b^3c^2d^2|b|-6ab^2cd^3|b|+a^2bd^4|b|\right)}{b^8cd^6-ab^7d^7}\right)\sqrt{bx+a}}{1536\sqrt{b^2c+(bx+a)bd-abd}} - \frac{(5bc|b|-ad|b|)\ln\left(\left|-\sqrt{bd}\sqrt{bx+a}+\sqrt{b^2c+(bx+a)bd-abd}\right|\right)}{512\sqrt{bd}b^6d^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*x/(d*x + c)^(3/2),x, algorithm="giac")
```

```
[Out] 1/1536*((2*(b*x + a)*b*d^4*abs(b)/(b^8*c*d^6 - a*b^7*d^7) - (5*b^
2*c*d^3*abs(b) - a*b*d^4*abs(b))/(b^8*c*d^6 - a*b^7*d^7))*(b*x +
a) - 3*(5*b^3*c^2*d^2*abs(b) - 6*a*b^2*c*d^3*abs(b) + a^2*b*d^4*a
bs(b))/(b^8*c*d^6 - a*b^7*d^7))*sqrt(b*x + a)/sqrt(b^2*c + (b*x +
 a)*b*d - a*b*d) - 1/512*(5*b*c*abs(b) - a*d*abs(b))*ln(abs(-sqrt
(b*d)*sqrt(b*x + a) + sqrt(b^2*c + (b*x + a)*b*d - a*b*d)))/(sqrt
(b*d)*b^6*d^4)
```

3.624 $\int \frac{(a+bx)^{3/2}}{(c+dx)^{3/2}}\,dx$

Optimal. Leaf size=98

$$-\frac{3\sqrt{b}(bc-ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{d^{5/2}}+\frac{3b\sqrt{a+bx}\sqrt{c+dx}}{d^2}-\frac{2(a+bx)^{3/2}}{d\sqrt{c+dx}}$$

```
[Out] (-2*(a + b*x)^(3/2))/(d*Sqrt[c + d*x]) + (3*b*Sqrt[a + b*x]*Sqrt[
c + d*x])/d^2 - (3*Sqrt[b]*(b*c - a*d)*ArcTanh[(Sqrt[d]*Sqrt[a +
b*x])/(Sqrt[b]*Sqrt[c + d*x])])/d^(5/2)
```

Rubi [A] time = 0.11673, antiderivative size = 98, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.21

$$-\frac{3\sqrt{b}(bc-ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{d^{5/2}}+\frac{3b\sqrt{a+bx}\sqrt{c+dx}}{d^2}-\frac{2(a+bx)^{3/2}}{d\sqrt{c+dx}}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(3/2)/(c + d*x)^(3/2),x]
```

```
[Out] (-2*(a + b*x)^(3/2))/(d*Sqrt[c + d*x]) + (3*b*Sqrt[a + b*x]*Sqrt[
c + d*x])/d^2 - (3*Sqrt[b]*(b*c - a*d)*ArcTanh[(Sqrt[d]*Sqrt[a +
b*x])/(Sqrt[b]*Sqrt[c + d*x])])/d^(5/2)
```

Rubi in Sympy [A] time = 13.7674, size = 90, normalized size = 0.92

$$\frac{3\sqrt{b}\,(ad-bc)\,\mathrm{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{d^{\frac{5}{2}}}+\frac{3b\sqrt{a+bx}\sqrt{c+dx}}{d^2}-\frac{2\,(a+bx)^{\frac{3}{2}}}{d\sqrt{c+dx}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)/(d*x+c)**(3/2),x)
```

```
[Out] 3*sqrt(b)*(a*d - b*c)*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c
 + d*x)))/d**(5/2) + 3*b*sqrt(a + b*x)*sqrt(c + d*x)/d**2 - 2*(a
+ b*x)**(3/2)/(d*sqrt(c + d*x))
```

Mathematica [A] time = 0.227971, size = 101, normalized size = 1.03

$$\frac{3\sqrt{b}(ad-bc)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{2d^{5/2}}+\frac{\sqrt{a+bx}(-2ad+3bc+bdx)}{d^2\sqrt{c+dx}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(3/2)/(c + d*x)^(3/2),x]
```

```
[Out] (Sqrt[a + b*x]*(3*b*c - 2*a*d + b*d*x))/(d^2*Sqrt[c + d*x]) + (3*
Sqrt[b]*(-(b*c) + a*d)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d
]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(2*d^(5/2))
```

Maple [F] time = 0., size = 0, normalized size = 0.

$$\int 1\left(bx+a\right)^{\frac{3}{2}}\left(dx+c\right)^{-\frac{3}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)/(d*x+c)^(3/2),x)
```

```
[Out] int((b*x+a)^(3/2)/(d*x+c)^(3/2),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)/(d*x + c)^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.306923, size = 1, normalized size = 0.01

$$\left[-\frac{3\left(bc^2-acd+\left(bcd-ad^2\right)x\right)\sqrt{\frac{b}{d}}\log\left(8\,b^2d^2x^2+b^2c^2+6\,abcd+a^2d^2+4\left(2\,bd^2x+bcd+ad^2\right)\sqrt{bx+a}\sqrt{dx+c}\sqrt{\frac{b}{d}}+8\,(\right.}{4\left(d^3x+cd^2\right)}\right.$$

$$\left.-\frac{3\left(bc^2-acd+\left(bcd-ad^2\right)x\right)\sqrt{-\frac{b}{d}}\arctan\left(\frac{2\,bdx+bc+ad}{2\sqrt{bx+a}\sqrt{dx+c}d\sqrt{-\frac{b}{d}}}\right)-2\left(bdx+3\,bc-2\,ad\right)\sqrt{bx+a}\sqrt{dx+c}}{2\left(d^3x+cd^2\right)}\right]$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)/(d*x + c)^(3/2),x, algorithm="fricas")
```

```
[Out] [-1/4*(3*(b*c^2 - a*c*d + (b*c*d - a*d^2)*x)*sqrt(b/d)*log(8*b^2*
d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b*d^2*x + b*c*d +
a*d^2)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(b/d) + 8*(b^2*c*d + a*b*d
^2)*x) - 4*(b*d*x + 3*b*c - 2*a*d)*sqrt(b*x + a)*sqrt(d*x + c))/(
d^3*x + c*d^2), -1/2*(3*(b*c^2 - a*c*d + (b*c*d - a*d^2)*x)*sqrt(
-b/d)*arctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(b*x + a)*sqrt(d*x +
c)*d*sqrt(-b/d))) - 2*(b*d*x + 3*b*c - 2*a*d)*sqrt(b*x + a)*sqrt(
d*x + c))/(d^3*x + c*d^2)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{\left(a+bx\right)^{\frac{3}{2}}}{\left(c+dx\right)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)/(d*x+c)**(3/2),x)
```

```
[Out] Integral((a + b*x)**(3/2)/(c + d*x)**(3/2), x)
```

GIAC/XCAS [A] time = 0.239362, size = 207, normalized size = 2.11

$$\frac{\left(\frac{(bx+a)b^2d^2}{b^6cd^4-ab^5d^5}+\frac{3\left(b^3cd-ab^2d^2\right)}{b^6cd^4-ab^5d^5}\right)\sqrt{bx+a}}{32\sqrt{b^2c+(bx+a)bd-abd}}+\frac{3\ln\left(\left|-\sqrt{bd}\sqrt{bx+a}+\sqrt{b^2c+(bx+a)bd-abd}\right|\right)}{32\sqrt{bd}b^3d^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)/(d*x + c)^(3/2),x, algorithm="giac")
```

```
[Out] 1/32*((b*x + a)*b^2*d^2/(b^6*c*d^4 - a*b^5*d^5) + 3*(b^3*c*d - a*
b^2*d^2)/(b^6*c*d^4 - a*b^5*d^5))*sqrt(b*x + a)/sqrt(b^2*c + (b*x
 + a)*b*d - a*b*d) + 3/32*ln(abs(-sqrt(b*d)*sqrt(b*x + a) + sqrt(
b^2*c + (b*x + a)*b*d - a*b*d)))/(sqrt(b*d)*b^3*d^3)
```

3.625 $\int \frac{(a+bx)^{3/2}}{x(c+dx)^{3/2}}\,dx$

Optimal. Leaf size=119

$$-\frac{2a^{3/2}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{c^{3/2}}+\frac{2b^{3/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{d^{3/2}}-\frac{2\sqrt{a+bx}(bc-ad)}{cd\sqrt{c+dx}}$$

```
[Out] (-2*(b*c - a*d)*Sqrt[a + b*x])/(c*d*Sqrt[c + d*x]) - (2*a^(3/2)*A
rcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/c^(3/2)
+ (2*b^(3/2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*
x])])/d^(3/2)
```

Rubi [A] time = 0.269298, antiderivative size = 119, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$-\frac{2a^{3/2}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{c^{3/2}}+\frac{2b^{3/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{d^{3/2}}-\frac{2\sqrt{a+bx}(bc-ad)}{cd\sqrt{c+dx}}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(3/2)/(x*(c + d*x)^(3/2)),x]
```

```
[Out] (-2*(b*c - a*d)*Sqrt[a + b*x])/(c*d*Sqrt[c + d*x]) - (2*a^(3/2)*A
rcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/c^(3/2)
+ (2*b^(3/2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*
x])])/d^(3/2)
```

Rubi in Sympy [A] time = 28.843, size = 109, normalized size = 0.92

$$-\frac{2a^{\frac{3}{2}}\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{c^{\frac{3}{2}}}+\frac{2b^{\frac{3}{2}}\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{d^{\frac{3}{2}}}+\frac{2\sqrt{a+bx}\,(ad-bc)}{cd\sqrt{c+dx}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)/x/(d*x+c)**(3/2),x)
```

```
[Out] -2*a**(3/2)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/
c**(3/2) + 2*b**(3/2)*atanh(sqrt(b)*sqrt(c + d*x)/(sqrt(d)*sqrt(a
 + b*x)))/d**(3/2) + 2*sqrt(a + b*x)*(a*d - b*c)/(c*d*sqrt(c + d*
x))
```

Mathematica [A] time = 0.305515, size = 158, normalized size = 1.33

$$-\frac{a^{3/2}\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{c^{3/2}}+\frac{a^{3/2}\log(x)}{c^{3/2}}+\frac{b^{3/2}\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{d^{3/2}}+\frac{2\sqrt{a+bx}(ad-bc)}{cd\sqrt{c+dx}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(3/2)/(x*(c + d*x)^(3/2)),x]
```

```
[Out] (2*(-(b*c) + a*d)*Sqrt[a + b*x])/(c*d*Sqrt[c + d*x]) + (a^(3/2)*L
og[x])/c^(3/2) - (a^(3/2)*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*S
qrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/c^(3/2) + (b^(3/2)*Log[b*c +
 a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/
d^(3/2)
```

Maple [B] time = 0.033, size = 306, normalized size = 2.6

$$\frac{1}{dc}\sqrt{bx+a}\Bigg(\ln\bigg(\frac{1}{2}\Big(2\,bdx+2\,\sqrt{(bx+a)\,(dx+c)}\sqrt{bd}+ad+bc\Big)\frac{1}{\sqrt{bd}}\bigg)xb^{2}cd\sqrt{ac}-\ln\bigg(\frac{1}{x}\Big(adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)\,(dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)/x/(d*x+c)^(3/2),x)
```

```
[Out] (b*x+a)^(1/2)*(ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1
/2)+a*d+b*c)/(b*d)^(1/2))*x*b^2*c*d*(a*c)^(1/2)-ln((a*d*x+b*c*x+2
*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x*a^2*d^2*(b*d)^(1
/2)+ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c
)/(b*d)^(1/2))*b^2*c^2*(a*c)^(1/2)-ln((a*d*x+b*c*x+2*(a*c)^(1/2)*
((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*a^2*c*d*(b*d)^(1/2)+2*a*d*((b*x
+a)*(d*x+c))^(1/2)*(b*d)^(1/2)*(a*c)^(1/2)-2*b*c*((b*x+a)*(d*x+c)
)^(1/2)*(b*d)^(1/2)*(a*c)^(1/2))/c/((b*x+a)*(d*x+c))^(1/2)/(b*d)^
(1/2)/(a*c)^(1/2)/(d*x+c)^(1/2)/d
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)/((d*x + c)^(3/2)*x),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.725198, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)/((d*x + c)^(3/2)*x),x, algorithm="fricas")
```

```
[Out] [1/2*((b*c*d*x + b*c^2)*sqrt(b/d)*log(8*b^2*d^2*x^2 + b^2*c^2 + 6
*a*b*c*d + a^2*d^2 + 4*(2*b*d^2*x + b*c*d + a*d^2)*sqrt(b*x + a)*
sqrt(d*x + c)*sqrt(b/d) + 8*(b^2*c*d + a*b*d^2)*x) + (a*d^2*x + a
*c*d)*sqrt(a/c)*log((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*
x^2 - 4*(2*a*c^2 + (b*c^2 + a*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c)
*sqrt(a/c) + 8*(a*b*c^2 + a^2*c*d)*x)/x^2) - 4*(b*c - a*d)*sqrt(b
*x + a)*sqrt(d*x + c))/(c*d^2*x + c^2*d), 1/2*(2*(b*c*d*x + b*c^2
)*sqrt(-b/d)*arctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(b*x + a)*sqrt
(d*x + c)*d*sqrt(-b/d))) + (a*d^2*x + a*c*d)*sqrt(a/c)*log((8*a^2
*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a*c^2 + (b*c^2
+ a*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(a/c) + 8*(a*b*c^2 +
a^2*c*d)*x)/x^2) - 4*(b*c - a*d)*sqrt(b*x + a)*sqrt(d*x + c))/(c*
d^2*x + c^2*d), -1/2*(2*(a*d^2*x + a*c*d)*sqrt(-a/c)*arctan(1/2*(
2*a*c + (b*c + a*d)*x)/(sqrt(b*x + a)*sqrt(d*x + c)*c*sqrt(-a/c))
) - (b*c*d*x + b*c^2)*sqrt(b/d)*log(8*b^2*d^2*x^2 + b^2*c^2 + 6*a
*b*c*d + a^2*d^2 + 4*(2*b*d^2*x + b*c*d + a*d^2)*sqrt(b*x + a)*sq
rt(d*x + c)*sqrt(b/d) + 8*(b^2*c*d + a*b*d^2)*x) + 4*(b*c - a*d)*
```

```
sqrt(b*x + a)*sqrt(d*x + c))/(c*d^2*x + c^2*d), -((a*d^2*x + a*c*
d)*sqrt(-a/c)*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(b*x + a)*s
qrt(d*x + c)*c*sqrt(-a/c))) - (b*c*d*x + b*c^2)*sqrt(-b/d)*arctan
(1/2*(2*b*d*x + b*c + a*d)/(sqrt(b*x + a)*sqrt(d*x + c)*d*sqrt(-b
/d))) + 2*(b*c - a*d)*sqrt(b*x + a)*sqrt(d*x + c))/(c*d^2*x + c^2
*d)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a+bx)^{\frac{3}{2}}}{x\,(c+dx)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)/x/(d*x+c)**(3/2),x)
```

```
[Out] Integral((a + b*x)**(3/2)/(x*(c + d*x)**(3/2)), x)
```

GIAC/XCAS [A] time = 0.261141, size = 277, normalized size = 2.33

$$-\frac{2\,\sqrt{bd}a^2b\arctan\left(-\frac{b^2c+abd-\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2}{2\,\sqrt{-abcd}b}\right)}{\sqrt{-abcd}c|b|}-\frac{\sqrt{bd}b^2\ln\left(\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2\right)}{d^2|b|}-\frac{2\left(b^3c|b|-ab^2d|b|\right)\sqrt{bx+a}}{\sqrt{b^2c+(bx+a)bd-abd}b^2cd}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)/((d*x + c)^(3/2)*x),x, algorithm="giac")
```

```
[Out] -2*sqrt(b*d)*a^2*b*arctan(-1/2*(b^2*c + a*b*d - (sqrt(b*d)*sqrt(b
*x + a) - sqrt(b^2*c + (b*x + a)*b*d - a*b*d))^2)/(sqrt(-a*b*c*d)
*b))/(sqrt(-a*b*c*d)*c*abs(b)) - sqrt(b*d)*b^2*ln((sqrt(b*d)*sqrt
(b*x + a) - sqrt(b^2*c + (b*x + a)*b*d - a*b*d))^2)/(d^2*abs(b))
- 2*(b^3*c*abs(b) - a*b^2*d*abs(b))*sqrt(b*x + a)/(sqrt(b^2*c + (
b*x + a)*b*d - a*b*d)*b^2*c*d)
```

3.626 $\int \frac{(a+bx)^{3/2}}{x^2(c+dx)^{3/2}}\,dx$

Optimal. Leaf size=108

$$-\frac{3\sqrt{a}(bc-ad)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{c^{5/2}}+\frac{3\sqrt{a+bx}(bc-ad)}{c^2\sqrt{c+dx}}-\frac{(a+bx)^{3/2}}{cx\sqrt{c+dx}}$$

```
[Out] (3*(b*c - a*d)*Sqrt[a + b*x])/(c^2*Sqrt[c + d*x]) - (a + b*x)^(3/
2)/(c*x*Sqrt[c + d*x]) - (3*Sqrt[a]*(b*c - a*d)*ArcTanh[(Sqrt[c]*
Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/c^(5/2)
```

Rubi [A] time = 0.193072, antiderivative size = 108, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.136

$$-\frac{3\sqrt{a}(bc-ad)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{c^{5/2}}+\frac{3\sqrt{a+bx}(bc-ad)}{c^2\sqrt{c+dx}}-\frac{(a+bx)^{3/2}}{cx\sqrt{c+dx}}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(3/2)/(x^2*(c + d*x)^(3/2)),x]
```

```
[Out] (3*(b*c - a*d)*Sqrt[a + b*x])/(c^2*Sqrt[c + d*x]) - (a + b*x)^(3/
2)/(c*x*Sqrt[c + d*x]) - (3*Sqrt[a]*(b*c - a*d)*ArcTanh[(Sqrt[c]*
Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/c^(5/2)
```

Rubi in Sympy [A] time = 14.9053, size = 94, normalized size = 0.87

$$\frac{3\sqrt{a}\,(ad-bc)\,\text{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{c^{\frac{5}{2}}}-\frac{3a\sqrt{a+bx}\sqrt{c+dx}}{c^2x}+\frac{2\,(a+bx)^{\frac{3}{2}}}{cx\sqrt{c+dx}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)/x**2/(d*x+c)**(3/2),x)
```

```
[Out] 3*sqrt(a)*(a*d - b*c)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c
 + d*x)))/c**(5/2) - 3*a*sqrt(a + b*x)*sqrt(c + d*x)/(c**2*x) + 2
*(a + b*x)**(3/2)/(c*x*sqrt(c + d*x))
```

Mathematica [A] time = 0.399399, size = 128, normalized size = 1.19

$$\frac{-\frac{2\sqrt{c}\sqrt{a+bx}(ac+3adx-2bcx)}{x\sqrt{c+dx}}+3\sqrt{a}\log(x)(bc-ad)+3\sqrt{a}(ad-bc)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{2c^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(3/2)/(x^2*(c + d*x)^(3/2)),x]
```

```
[Out] ((-2*Sqrt[c]*Sqrt[a + b*x]*(a*c - 2*b*c*x + 3*a*d*x))/(x*Sqrt[c +
 d*x]) + 3*Sqrt[a]*(b*c - a*d)*Log[x] + 3*Sqrt[a]*(-(b*c) + a*d)*
Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[
c + d*x]])/(2*c^(5/2))
```

Maple [B] time = 0.036, size = 298, normalized size = 2.8

$$\frac{1}{2c^2x}\sqrt{bx+a}\left(3\ln\left(\frac{adx+bcx+2\sqrt{ac}\sqrt{(bx+a)(dx+c)}+2ac}{x}\right)x^2a^2d^2-3\ln\left(\frac{adx+bcx+2\sqrt{ac}\sqrt{(bx+a)(dx+c)}+2\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)/x^2/(d*x+c)^(3/2),x)
```

```
[Out] 1/2*(b*x+a)^(1/2)*(3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+
c))^(1/2)+2*a*c)/x)*x^2*a^2*d^2-3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(
(b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a*b*c*d+3*ln((a*d*x+b*c*x+2*
(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x*a^2*c*d-3*ln((a*d
*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x*a*b*c^
2-6*((b*x+a)*(d*x+c))^(1/2)*d*a*x*(a*c)^(1/2)+4*((b*x+a)*(d*x+c))
^(1/2)*b*c*x*(a*c)^(1/2)-2*((b*x+a)*(d*x+c))^(1/2)*c*a*(a*c)^(1/2
))/c^2/((b*x+a)*(d*x+c))^(1/2)/x/(a*c)^(1/2)/(d*x+c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)/((d*x + c)^(3/2)*x^2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.320848, size = 1, normalized size = 0.01

$$\left[-\frac{3\left(\left(bcd-ad^2\right)x^2+\left(bc^2-acd\right)x\right)\sqrt{\frac{a}{c}}\log\left(\frac{8a^2c^2+\left(b^2c^2+6abcd+a^2d^2\right)x^2+4\left(2ac^2+\left(bc^2+acd\right)x\right)\sqrt{bx+a}\sqrt{dx+c}\sqrt{\frac{a}{c}}+8\left(abc^2+a^2cd\right)x}{x^2}\right)+4}{4\left(c^2dx^2+c^3x\right)}\right.$$

$$\left.-\frac{3\left(\left(bcd-ad^2\right)x^2+\left(bc^2-acd\right)x\right)\sqrt{-\frac{a}{c}}\arctan\left(\frac{2ac+(bc+ad)x}{2\sqrt{bx+a}\sqrt{dx+c}c\sqrt{-\frac{a}{c}}}\right)+2(ac-(2bc-3ad)x)\sqrt{bx+a}\sqrt{dx+c}}{2\left(c^2dx^2+c^3x\right)}\right]$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)/((d*x + c)^(3/2)*x^2),x, algorithm="fricas")
```

```
[Out] [-1/4*(3*((b*c*d - a*d^2)*x^2 + (b*c^2 - a*c*d)*x)*sqrt(a/c)*log(
(8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 4*(2*a*c^2 + (
b*c^2 + a*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(a/c) + 8*(a*b*
c^2 + a^2*c*d)*x)/x^2) + 4*(a*c - (2*b*c - 3*a*d)*x)*sqrt(b*x + a
)*sqrt(d*x + c))/(c^2*d*x^2 + c^3*x), -1/2*(3*((b*c*d - a*d^2)*x^
2 + (b*c^2 - a*c*d)*x)*sqrt(-a/c)*arctan(1/2*(2*a*c + (b*c + a*d)
*x)/(sqrt(b*x + a)*sqrt(d*x + c)*c*sqrt(-a/c))) + 2*(a*c - (2*b*c
 - 3*a*d)*x)*sqrt(b*x + a)*sqrt(d*x + c))/(c^2*d*x^2 + c^3*x)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)/x**2/(d*x+c)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)]   time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)/((d*x + c)^(3/2)*x^2),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.627 $\int \frac{(a+bx)^{3/2}}{x^3(c+dx)^{3/2}}\,dx$

Optimal. Leaf size=175

$$-\frac{3(bc-5ad)(bc-ad)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4\sqrt{a}c^{7/2}}+\frac{3\sqrt{a+bx}(bc-5ad)(bc-ad)}{4ac^3\sqrt{c+dx}}-\frac{(a+bx)^{3/2}(bc-5ad)}{4ac^2x\sqrt{c+dx}}-\frac{(a+bx)^{5/2}}{2acx^2\sqrt{c+dx}}$$

```
[Out] (3*(b*c - 5*a*d)*(b*c - a*d)*Sqrt[a + b*x])/(4*a*c^3*Sqrt[c + d*x
]) - ((b*c - 5*a*d)*(a + b*x)^(3/2))/(4*a*c^2*x*Sqrt[c + d*x]) -
(a + b*x)^(5/2)/(2*a*c*x^2*Sqrt[c + d*x]) - (3*(b*c - 5*a*d)*(b*c
 - a*d)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])
/(4*Sqrt[a]*c^(7/2))
```

Rubi [A] time = 0.309918, antiderivative size = 175, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.182$

$$-\frac{3(bc-5ad)(bc-ad)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4\sqrt{a}c^{7/2}}+\frac{3\sqrt{a+bx}(bc-5ad)(bc-ad)}{4ac^3\sqrt{c+dx}}-\frac{(a+bx)^{3/2}(bc-5ad)}{4ac^2x\sqrt{c+dx}}-\frac{(a+bx)^{5/2}}{2acx^2\sqrt{c+dx}}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(3/2)/(x^3*(c + d*x)^(3/2)),x]
```

```
[Out] (3*(b*c - 5*a*d)*(b*c - a*d)*Sqrt[a + b*x])/(4*a*c^3*Sqrt[c + d*x
]) - ((b*c - 5*a*d)*(a + b*x)^(3/2))/(4*a*c^2*x*Sqrt[c + d*x]) -
(a + b*x)^(5/2)/(2*a*c*x^2*Sqrt[c + d*x]) - (3*(b*c - 5*a*d)*(b*c
 - a*d)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])
/(4*Sqrt[a]*c^(7/2))
```

Rubi in Sympy [A] time = 27.1813, size = 163, normalized size = 0.93

$$\frac{2d\,(a+bx)^{\frac{5}{2}}}{cx^2\sqrt{c+dx}\,(ad-bc)}-\frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}\,(5ad-bc)}{2c^2x^2\,(ad-bc)}+\frac{3\sqrt{a+bx}\sqrt{c+dx}\,(5ad-bc)}{4c^3x}-\frac{3\,(ad-bc)\,(5ad-bc)\,\mathrm{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4\sqrt{a}c^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)/x**3/(d*x+c)**(3/2),x)
```

```
[Out] 2*d*(a + b*x)**(5/2)/(c*x**2*sqrt(c + d*x)*(a*d - b*c)) - (a + b*
x)**(3/2)*sqrt(c + d*x)*(5*a*d - b*c)/(2*c**2*x**2*(a*d - b*c)) +
 3*sqrt(a + b*x)*sqrt(c + d*x)*(5*a*d - b*c)/(4*c**3*x) - 3*(a*d
- b*c)*(5*a*d - b*c)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c
+ d*x)))/(4*sqrt(a)*c**(7/2))
```

Mathematica [A] time = 0.212686, size = 165, normalized size = 0.94

$$\frac{\frac{2\sqrt{c}\sqrt{a+bx}\left(a\left(-2c^2+5cdx+15d^2x^2\right)-bcx(5c+13dx)\right)}{x^2\sqrt{c+dx}}+\frac{3\log(x)(bc-5ad)(bc-ad)}{\sqrt{a}}-\frac{3(bc-5ad)(bc-ad)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{\sqrt{a}}}{8c^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(3/2)/(x^3*(c + d*x)^(3/2)),x]
```

```
[Out] ((2*Sqrt[c]*Sqrt[a + b*x]*(-(b*c*x*(5*c + 13*d*x)) + a*(-2*c^2 +
5*c*d*x + 15*d^2*x^2)))/(x^2*Sqrt[c + d*x]) + (3*(b*c - 5*a*d)*(b
*c - a*d)*Log[x])/Sqrt[a] - (3*(b*c - 5*a*d)*(b*c - a*d)*Log[2*a*
c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]
])/Sqrt[a])/(8*c^(7/2))
```

Maple [B] time = 0.038, size = 464, normalized size = 2.7

$$-\frac{1}{8\,c^3x^2}\sqrt{bx+a}\left(15\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)\,(dx+c)}+2\,ac}{x}\right)x^3a^2d^3-18\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)\,(dx+c}}{x}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)/x^3/(d*x+c)^(3/2),x)
```

```
[Out] -1/8*(b*x+a)^(1/2)*(15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*
x+c))^(1/2)+2*a*c)/x)*x^3*a^2*d^3-18*ln((a*d*x+b*c*x+2*(a*c)^(1/2
)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a*b*c*d^2+3*ln((a*d*x+b*c
*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*b^2*c^2*d+
15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x
)*x^2*a^2*c*d^2-18*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c)
)^(1/2)+2*a*c)/x)*x^2*a*b*c^2*d+3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(
(b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*b^2*c^3-30*x^2*a*d^2*(a*c)^(
1/2)*((b*x+a)*(d*x+c))^(1/2)+26*x^2*b*c*d*(a*c)^(1/2)*((b*x+a)*(d
*x+c))^(1/2)-10*x*a*c*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+10*x*
b*c^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+4*a*c^2*(a*c)^(1/2)*((b
*x+a)*(d*x+c))^(1/2))/c^3/((b*x+a)*(d*x+c))^(1/2)/x^2/(a*c)^(1/2)
/(d*x+c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)/((d*x + c)^(3/2)*x^3),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.419668, size = 1, normalized size = 0.01

$$\left[-\frac{4\left(2\,ac^2+\left(13\,bcd-15\,ad^2\right)x^2+5\left(bc^2-acd\right)x\right)\sqrt{ac}\sqrt{bx+a}\sqrt{dx+c}-3\left(\left(b^2c^2d-6\,abcd^2+5\,a^2d^3\right)x^3+\left(b^2c^3-6\,abc\right.\right.}{16\left(c^3dx^3+c^4x^2\right)\sqrt{a}}\right.$$

$$-\frac{2\left(2\,ac^2+\left(13\,bcd-15\,ad^2\right)x^2+5\left(bc^2-acd\right)x\right)\sqrt{-ac}\sqrt{bx+a}\sqrt{dx+c}+3\left(\left(b^2c^2d-6\,abcd^2+5\,a^2d^3\right)x^3+\left(b^2c^3-6\,abc\right.\right.}{8\left(c^3dx^3+c^4x^2\right)\sqrt{-ac}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)/((d*x + c)^(3/2)*x^3),x, algorithm="fricas")
```

```
[Out] [-1/16*(4*(2*a*c^2 + (13*b*c*d - 15*a*d^2)*x^2 + 5*(b*c^2 - a*c*d
)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c) - 3*((b^2*c^2*d - 6*a*
b*c*d^2 + 5*a^2*d^3)*x^3 + (b^2*c^3 - 6*a*b*c^2*d + 5*a^2*c*d^2)*
x^2)*log(-(4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sq
rt(d*x + c) - (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 +
8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2))/((c^3*d*x^3 + c^4*x^2)*
sqrt(a*c)), -1/8*(2*(2*a*c^2 + (13*b*c*d - 15*a*d^2)*x^2 + 5*(b*c
^2 - a*c*d)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c) + 3*((b^2*c
^2*d - 6*a*b*c*d^2 + 5*a^2*d^3)*x^3 + (b^2*c^3 - 6*a*b*c^2*d + 5*
a^2*c*d^2)*x^2)*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sq
rt(b*x + a)*sqrt(d*x + c)*a*c)))/((c^3*d*x^3 + c^4*x^2)*sqrt(-a*c
))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)/x**3/(d*x+c)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)/((d*x + c)^(3/2)*x^3),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.628 $\int \frac{(a+bx)^{3/2}}{x^4(c+dx)^{3/2}}\,dx$

Optimal. Leaf size=240

$$-\frac{d\sqrt{a+bx}\left(105a^2d^2-100abcd+3b^2c^2\right)}{24ac^4\sqrt{c+dx}}+\frac{(bc-ad)\left(-35a^2d^2+10abcd+b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{3/2}c^{9/2}}-\frac{\sqrt{a+bx}(3bc-35ad)(bc-ad)}{24ac^3x\sqrt{c+dx}}-\frac{7\sqrt{a+bx}(bc-ad)}{12c^2x^2\sqrt{c+dx}}-\frac{a\sqrt{a+bx}}{3cx^3\sqrt{c+dx}}$$

```
[Out] -(d*(3*b^2*c^2 - 100*a*b*c*d + 105*a^2*d^2)*Sqrt[a + b*x])/(24*a*
c^4*Sqrt[c + d*x]) - (a*Sqrt[a + b*x])/(3*c*x^3*Sqrt[c + d*x]) -
(7*(b*c - a*d)*Sqrt[a + b*x])/(12*c^2*x^2*Sqrt[c + d*x]) - ((3*b*
c - 35*a*d)*(b*c - a*d)*Sqrt[a + b*x])/(24*a*c^3*x*Sqrt[c + d*x])
 + ((b*c - a*d)*(b^2*c^2 + 10*a*b*c*d - 35*a^2*d^2)*ArcTanh[(Sqrt
[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(8*a^(3/2)*c^(9/2))
```

Rubi [A] time = 0.785005, antiderivative size = 240, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.273

$$-\frac{d\sqrt{a+bx}\left(105a^2d^2-100abcd+3b^2c^2\right)}{24ac^4\sqrt{c+dx}}+\frac{(bc-ad)\left(-35a^2d^2+10abcd+b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{3/2}c^{9/2}}-\frac{\sqrt{a+bx}(3bc-35ad)(bc-ad)}{24ac^3x\sqrt{c+dx}}-\frac{7\sqrt{a+bx}(bc-ad)}{12c^2x^2\sqrt{c+dx}}-\frac{a\sqrt{a+bx}}{3cx^3\sqrt{c+dx}}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(3/2)/(x^4*(c + d*x)^(3/2)),x]
```


```
[Out] -(d*(3*b^2*c^2 - 100*a*b*c*d + 105*a^2*d^2)*Sqrt[a + b*x])/(24*a*
c^4*Sqrt[c + d*x]) - (a*Sqrt[a + b*x])/(3*c*x^3*Sqrt[c + d*x]) -
(7*(b*c - a*d)*Sqrt[a + b*x])/(12*c^2*x^2*Sqrt[c + d*x]) - ((3*b*
c - 35*a*d)*(b*c - a*d)*Sqrt[a + b*x])/(24*a*c^3*x*Sqrt[c + d*x])
 + ((b*c - a*d)*(b^2*c^2 + 10*a*b*c*d - 35*a^2*d^2)*ArcTanh[(Sqrt
[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(8*a^(3/2)*c^(9/2))
```

Rubi in Sympy [A] time = 118.695, size = 223, normalized size = 0.93

$$-\frac{a\sqrt{a+bx}}{3cx^3\sqrt{c+dx}}+\frac{7\sqrt{a+bx}\,(ad-bc)}{12c^2x^2\sqrt{c+dx}}-\frac{\sqrt{a+bx}\,(ad-bc)\,(35ad-3bc)}{24ac^3x\sqrt{c+dx}}-\frac{d\sqrt{a+bx}\left(105a^2d^2-100abcd+3b^2c^2\right)}{24ac^4\sqrt{c+dx}}+\frac{(ad-bc)\left(35a^2d^2-10abcd-b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{\frac{3}{2}}c^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)/x**4/(d*x+c)**(3/2),x)
```

```
[Out] -a*sqrt(a + b*x)/(3*c*x**3*sqrt(c + d*x)) + 7*sqrt(a + b*x)*(a*d
- b*c)/(12*c**2*x**2*sqrt(c + d*x)) - sqrt(a + b*x)*(a*d - b*c)*(
35*a*d - 3*b*c)/(24*a*c**3*x*sqrt(c + d*x)) - d*sqrt(a + b*x)*(10
5*a**2*d**2 - 100*a*b*c*d + 3*b**2*c**2)/(24*a*c**4*sqrt(c + d*x)
) + (a*d - b*c)*(35*a**2*d**2 - 10*a*b*c*d - b**2*c**2)*atanh(sqr
t(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(8*a**(3/2)*c**(9/2))
```

Mathematica [A] time = 0.315555, size = 234, normalized size = 0.98

$$\frac{-3\log(x)(bc-ad)\left(-35a^2d^2+10abcd+b^2c^2\right)+3(bc-ad)\left(-35a^2d^2+10abcd+b^2c^2\right)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac\right.}{48a^{3/2}c^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(3/2)/(x^4*(c + d*x)^(3/2)),x]
```

```
[Out] ((-2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*(3*b^2*c^2*x^2*(c + d*x) + 2*a
*b*c*x*(7*c^2 - 19*c*d*x - 50*d^2*x^2) + a^2*(8*c^3 - 14*c^2*d*x
+ 35*c*d^2*x^2 + 105*d^3*x^3)))/(x^3*Sqrt[c + d*x]) - 3*(b*c - a*
d)*(b^2*c^2 + 10*a*b*c*d - 35*a^2*d^2)*Log[x] + 3*(b*c - a*d)*(b^
2*c^2 + 10*a*b*c*d - 35*a^2*d^2)*Log[2*a*c + b*c*x + a*d*x + 2*Sq
rt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(48*a^(3/2)*c^(9/2))
```

Maple [B] time = 0.046, size = 707, normalized size = 3.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)/x^4/(d*x+c)^(3/2),x)
```

```
[Out] 1/48*(b*x+a)^(1/2)*(105*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d
*x+c))^(1/2)+2*a*c)/x)*x^4*a^3*d^4-135*ln((a*d*x+b*c*x+2*(a*c)^(1
/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a^2*b*c*d^3+27*ln((a*d*
x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a*b^2
*c^2*d^2+3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+
2*a*c)/x)*x^4*b^3*c^3*d+105*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a
)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^3*c*d^3-135*ln((a*d*x+b*c*x+2*(a
*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^2*b*c^2*d^2+27*
ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x
^3*a*b^2*c^3*d+3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^
(1/2)+2*a*c)/x)*x^3*b^3*c^4-210*x^3*a^2*d^3*(a*c)^(1/2)*((b*x+a)*
(d*x+c))^(1/2)+200*x^3*a*b*c*d^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1
/2)-6*x^3*b^2*c^2*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-70*x^2*a^
2*c*d^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+76*x^2*a*b*c^2*d*(a*c
)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-6*x^2*b^2*c^3*(a*c)^(1/2)*((b*x+a
)*(d*x+c))^(1/2)+28*x*a^2*c^2*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/
2)-28*x*a*b*c^3*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-16*a^2*c^3*(a
*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2))/c^4/a/((b*x+a)*(d*x+c))^(1/2)/
x^3/(a*c)^(1/2)/(d*x+c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)/((d*x + c)^(3/2)*x^4),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.710802, size = 1, normalized size = 0.

$$\left[-\frac{4\left(8\,a^2c^3+\left(3\,b^2c^2d-100\,abcd^2+105\,a^2d^3\right)x^3+\left(3\,b^2c^3-38\,abc^2d+35\,a^2cd^2\right)x^2+14\left(abc^3-a^2c^2d\right)x\right)\sqrt{ac}\sqrt{bx+a}\sqrt{d}\cdots}{\cdots}\right.$$

$$-\frac{2\left(8\,a^2c^3+\left(3\,b^2c^2d-100\,abcd^2+105\,a^2d^3\right)x^3+\left(3\,b^2c^3-38\,abc^2d+35\,a^2cd^2\right)x^2+14\left(abc^3-a^2c^2d\right)x\right)\sqrt{-ac}\sqrt{bx+a}\sqrt{d}\cdots}{48\left(ac^4d\cdots\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(3/2)/((d*x + c)^(3/2)*x^4),x, algorithm="fricas")
```

```
[Out] [-1/96*(4*(8*a^2*c^3 + (3*b^2*c^2*d - 100*a*b*c*d^2 + 105*a^2*d^3
)*x^3 + (3*b^2*c^3 - 38*a*b*c^2*d + 35*a^2*c*d^2)*x^2 + 14*(a*b*c
^3 - a^2*c^2*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c) - 3*((b^
3*c^3*d + 9*a*b^2*c^2*d^2 - 45*a^2*b*c*d^3 + 35*a^3*d^4)*x^4 + (b
^3*c^4 + 9*a*b^2*c^3*d - 45*a^2*b*c^2*d^2 + 35*a^3*c*d^3)*x^3)*lo
g((4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x +
 c) + (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(a*b*c
^2 + a^2*c*d)*x)*sqrt(a*c))/x^2))/((a*c^4*d*x^4 + a*c^5*x^3)*sqrt
(a*c)), -1/48*(2*(8*a^2*c^3 + (3*b^2*c^2*d - 100*a*b*c*d^2 + 105*
a^2*d^3)*x^3 + (3*b^2*c^3 - 38*a*b*c^2*d + 35*a^2*c*d^2)*x^2 + 14
*(a*b*c^3 - a^2*c^2*d)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c)
- 3*((b^3*c^3*d + 9*a*b^2*c^2*d^2 - 45*a^2*b*c*d^3 + 35*a^3*d^4)*
x^4 + (b^3*c^4 + 9*a*b^2*c^3*d - 45*a^2*b*c^2*d^2 + 35*a^3*c*d^3)
*x^3)*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a
)*sqrt(d*x + c)*a*c)))/((a*c^4*d*x^4 + a*c^5*x^3)*sqrt(-a*c))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)/x**4/(d*x+c)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(3/2)/((d*x + c)^(3/2)*x^4),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.629 $\int \frac{x^2(a+bx)^{3/2}}{(c+dx)^{5/2}} \, dx$

Optimal. Leaf size=267

$$\frac{\left(3a^2d^2-30abcd+35b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4\sqrt{b}d^{9/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}\left(3a^2d^2-30abcd+35b^2c^2\right)}{4d^4(bc-ad)}+\frac{(a+bx)^{3/2}\sqrt{c+dx}\left(3a^2d^2-30abcd+35b^2c^2\right)}{6d^3(bc-ad)^2}+\frac{2c^2(a+bx)^{5/2}}{3d^2(c+dx)^{3/2}(bc-ad)}-\frac{4c(a+bx)^{5/2}(4bc-3ad)}{3d^2\sqrt{c+dx}(bc-ad)^2}$$

```
[Out] (2*c^2*(a + b*x)^(5/2))/(3*d^2*(b*c - a*d)*(c + d*x)^(3/2)) - (4*
c*(4*b*c - 3*a*d)*(a + b*x)^(5/2))/(3*d^2*(b*c - a*d)^2*Sqrt[c +
d*x]) - ((35*b^2*c^2 - 30*a*b*c*d + 3*a^2*d^2)*Sqrt[a + b*x]*Sqrt
[c + d*x])/(4*d^4*(b*c - a*d)) + ((35*b^2*c^2 - 30*a*b*c*d + 3*a^
2*d^2)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(6*d^3*(b*c - a*d)^2) + ((3
5*b^2*c^2 - 30*a*b*c*d + 3*a^2*d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x
])/(Sqrt[b]*Sqrt[c + d*x])])/(4*Sqrt[b]*d^(9/2))
```

Rubi [A] time = 0.656536, antiderivative size = 267, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$\frac{\left(3a^2d^2-30abcd+35b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4\sqrt{b}d^{9/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}\left(3a^2d^2-30abcd+35b^2c^2\right)}{4d^4(bc-ad)}+\frac{(a+bx)^{3/2}\sqrt{c+dx}\left(3a^2d^2-30abcd+35b^2c^2\right)}{6d^3(bc-ad)^2}+\frac{2c^2(a+bx)^{5/2}}{3d^2(c+dx)^{3/2}(bc-ad)}-\frac{4c(a+bx)^{5/2}(4bc-3ad)}{3d^2\sqrt{c+dx}(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^2*(a + b*x)^(3/2))/(c + d*x)^(5/2),x]
```

```
[Out] (2*c^2*(a + b*x)^(5/2))/(3*d^2*(b*c - a*d)*(c + d*x)^(3/2)) - (4*
c*(4*b*c - 3*a*d)*(a + b*x)^(5/2))/(3*d^2*(b*c - a*d)^2*Sqrt[c +
d*x]) - ((35*b^2*c^2 - 30*a*b*c*d + 3*a^2*d^2)*Sqrt[a + b*x]*Sqrt
[c + d*x])/(4*d^4*(b*c - a*d)) + ((35*b^2*c^2 - 30*a*b*c*d + 3*a^
2*d^2)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(6*d^3*(b*c - a*d)^2) + ((3
5*b^2*c^2 - 30*a*b*c*d + 3*a^2*d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x
])/(Sqrt[b]*Sqrt[c + d*x])])/(4*Sqrt[b]*d^(9/2))
```

Rubi in Sympy [A] time = 50.8423, size = 253, normalized size = 0.95

$$-\frac{2c^2\left(a+bx\right)^{\frac{5}{2}}}{3d^2\left(c+dx\right)^{\frac{3}{2}}\left(ad-bc\right)}+\frac{4c\left(a+bx\right)^{\frac{5}{2}}\left(3ad-4bc\right)}{3d^2\sqrt{c+dx}\left(ad-bc\right)^2}+\frac{\left(a+bx\right)^{\frac{3}{2}}\sqrt{c+dx}\left(3a^2d^2-30abcd+35b^2c^2\right)}{6d^3\left(ad-bc\right)^2}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(3a^2d^2-30abcd+35b^2c^2\right)}{4d^4\left(ad-bc\right)}+\frac{\left(3a^2d^2-30abcd+35b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4\sqrt{b}d^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(b*x+a)**(3/2)/(d*x+c)**(5/2),x)
```

```
[Out] -2*c**2*(a + b*x)**(5/2)/(3*d**2*(c + d*x)**(3/2)*(a*d - b*c)) +
4*c*(a + b*x)**(5/2)*(3*a*d - 4*b*c)/(3*d**2*sqrt(c + d*x)*(a*d -
 b*c)**2) + (a + b*x)**(3/2)*sqrt(c + d*x)*(3*a**2*d**2 - 30*a*b*
c*d + 35*b**2*c**2)/(6*d**3*(a*d - b*c)**2) + sqrt(a + b*x)*sqrt(
c + d*x)*(3*a**2*d**2 - 30*a*b*c*d + 35*b**2*c**2)/(4*d**4*(a*d -
 b*c)) + (3*a**2*d**2 - 30*a*b*c*d + 35*b**2*c**2)*atanh(sqrt(d)*
sqrt(a + b*x)/(sqrt(b)*sqrt(c + d*x)))/(4*sqrt(b)*d**(9/2))
```

Mathematica [A] time = 0.212597, size = 162, normalized size = 0.61

$$\frac{\left(3a^2d^2-30abcd+35b^2c^2\right)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{8\sqrt{b}d^{9/2}}+\frac{\sqrt{a+bx}\left(ad\left(55c^2+78cdx+15d^2x^2\right)-b\left(105c^3+140c^2dx+21cd^2x^2-6d^3x^3\right)\right)}{12d^4(c+dx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^2*(a + b*x)^(3/2))/(c + d*x)^(5/2),x]
```

```
[Out] (Sqrt[a + b*x]*(a*d*(55*c^2 + 78*c*d*x + 15*d^2*x^2) - b*(105*c^3
 + 140*c^2*d*x + 21*c*d^2*x^2 - 6*d^3*x^3)))/(12*d^4*(c + d*x)^(3
/2)) + ((35*b^2*c^2 - 30*a*b*c*d + 3*a^2*d^2)*Log[b*c + a*d + 2*b
*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(8*Sqrt[b]
*d^(9/2))
```

Maple [B] time = 0.037, size = 676, normalized size = 2.5

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(b*x+a)^(3/2)/(d*x+c)^(5/2),x)
```

```
[Out] 1/24*(b*x+a)^(1/2)*(9*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(
b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a^2*d^4-90*ln(1/2*(2*b*d*x+2
*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a*
b*c*d^3+105*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)
+a*d+b*c)/(b*d)^(1/2))*x^2*b^2*c^2*d^2+12*x^3*b*d^3*((b*x+a)*(d*x
+c))^(1/2)*(b*d)^(1/2)+18*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/
2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^2*c*d^3-180*ln(1/2*(2*b*
d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x
*a*b*c^2*d^2+210*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^
(1/2)+a*d+b*c)/(b*d)^(1/2))*x*b^2*c^3*d+30*x^2*a*d^3*((b*x+a)*(d*
x+c))^(1/2)*(b*d)^(1/2)-42*x^2*b*c*d^2*((b*x+a)*(d*x+c))^(1/2)*(b
*d)^(1/2)+9*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)
+a*d+b*c)/(b*d)^(1/2))*a^2*c^2*d^2-90*ln(1/2*(2*b*d*x+2*((b*x+a)*
(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a*b*c^3*d+105*ln
(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d
)^(1/2))*b^2*c^4+156*x*a*c*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2
)-280*x*b*c^2*d*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+110*a*c^2*d*(
(b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-210*b*c^3*((b*x+a)*(d*x+c))^(1
/2)*(b*d)^(1/2))/(b*d)^(1/2)/((b*x+a)*(d*x+c))^(1/2)/d^4/(d*x+c)^
(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*x^2/(d*x + c)^(5/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.710259, size = 1, normalized size = 0.

$$\left[\frac{4\left(6\,bd^3x^3-105\,bc^3+55\,ac^2d-3\left(7\,bcd^2-5\,ad^3\right)x^2-2\left(70\,bc^2d-39\,acd^2\right)x\right)\sqrt{bd}\sqrt{bx+a}\sqrt{dx+c}+3\left(35\,b^2c^4-30\,abc\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(3/2)*x^2/(d*x + c)^(5/2),x, algorithm="fricas")
```

```
[Out] [1/48*(4*(6*b*d^3*x^3 - 105*b*c^3 + 55*a*c^2*d - 3*(7*b*c*d^2 - 5
*a*d^3)*x^2 - 2*(70*b*c^2*d - 39*a*c*d^2)*x)*sqrt(b*d)*sqrt(b*x +
 a)*sqrt(d*x + c) + 3*(35*b^2*c^4 - 30*a*b*c^3*d + 3*a^2*c^2*d^2
+ (35*b^2*c^2*d^2 - 30*a*b*c*d^3 + 3*a^2*d^4)*x^2 + 2*(35*b^2*c^3
*d - 30*a*b*c^2*d^2 + 3*a^2*c*d^3)*x)*log(4*(2*b^2*d^2*x + b^2*c*
d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c
^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/(
(d^6*x^2 + 2*c*d^5*x + c^2*d^4)*sqrt(b*d)), 1/24*(2*(6*b*d^3*x^3
- 105*b*c^3 + 55*a*c^2*d - 3*(7*b*c*d^2 - 5*a*d^3)*x^2 - 2*(70*b*
c^2*d - 39*a*c*d^2)*x)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 3
*(35*b^2*c^4 - 30*a*b*c^3*d + 3*a^2*c^2*d^2 + (35*b^2*c^2*d^2 - 3
0*a*b*c*d^3 + 3*a^2*d^4)*x^2 + 2*(35*b^2*c^3*d - 30*a*b*c^2*d^2 +
 3*a^2*c*d^3)*x)*arctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqr
t(b*x + a)*sqrt(d*x + c)*b*d)))/((d^6*x^2 + 2*c*d^5*x + c^2*d^4)*
sqrt(-b*d))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**2*(b*x+a)**(3/2)/(d*x+c)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.274877, size = 531, normalized size = 1.99

$$\frac{\left(\left(3\,(bx+a)\left(\frac{2\left(b^6cd^6-ab^5d^7\right)(bx+a)}{b^4cd^7|b|-ab^3d^8|b|}-\frac{7\,b^7c^2d^5-6\,ab^6cd^6-a^2b^5d^7}{b^4cd^7|b|-ab^3d^8|b|}\right)-\frac{4\left(35\,b^8c^3d^4-65\,ab^7c^2d^5+33\,a^2b^6cd^6-3\,a^3b^5d^7\right)}{b^4cd^7|b|-ab^3d^8|b|}\right)(bx+a)-\frac{3\left(35\,b^9c^4d^3-\right.}{}}{12\left(b^2c+(bx+a)bd-abd\right)^{\frac{3}{2}}}$$
$$-\frac{\left(35\,b^3c^2-30\,ab^2cd+3\,a^2bd^2\right)\ln\left(\left|-\sqrt{bd}\sqrt{bx+a}+\sqrt{b^2c+(bx+a)bd-abd}\right|\right)}{4\sqrt{bd}d^4|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(3/2)*x^2/(d*x + c)^(5/2),x, algorithm="giac")
```

```
[Out] 1/12*((3*(b*x + a)*(2*(b^6*c*d^6 - a*b^5*d^7)*(b*x + a)/(b^4*c*d^
7*abs(b) - a*b^3*d^8*abs(b)) - (7*b^7*c^2*d^5 - 6*a*b^6*c*d^6 - a
^2*b^5*d^7)/(b^4*c*d^7*abs(b) - a*b^3*d^8*abs(b))) - 4*(35*b^8*c^
3*d^4 - 65*a*b^7*c^2*d^5 + 33*a^2*b^6*c*d^6 - 3*a^3*b^5*d^7)/(b^4
*c*d^7*abs(b) - a*b^3*d^8*abs(b)))*(b*x + a) - 3*(35*b^9*c^4*d^3
- 100*a*b^8*c^3*d^4 + 98*a^2*b^7*c^2*d^5 - 36*a^3*b^6*c*d^6 + 3*a
^4*b^5*d^7)/(b^4*c*d^7*abs(b) - a*b^3*d^8*abs(b)))*sqrt(b*x + a)/
(b^2*c + (b*x + a)*b*d - a*b*d)^(3/2) - 1/4*(35*b^3*c^2 - 30*a*b^
2*c*d + 3*a^2*b*d^2)*ln(abs(-sqrt(b*d)*sqrt(b*x + a) + sqrt(b^2*c
 + (b*x + a)*b*d - a*b*d)))/(sqrt(b*d)*d^4*abs(b))
```

3.630 $\int \frac{x(a+bx)^{3/2}}{(c+dx)^{5/2}}\,dx$

Optimal. Leaf size=174

$$-\frac{\sqrt{b}(5bc-3ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{d^{7/2}}+\frac{b\sqrt{a+bx}\sqrt{c+dx}(5bc-3ad)}{d^3(bc-ad)}-\frac{2(a+bx)^{3/2}(5bc-3ad)}{3d^2\sqrt{c+dx}(bc-ad)}-\frac{2c(a+bx)^{5/2}}{3d(c+dx)^{3/2}(bc-ad)}$$

```
[Out] (-2*c*(a + b*x)^(5/2))/(3*d*(b*c - a*d)*(c + d*x)^(3/2)) - (2*(5*
b*c - 3*a*d)*(a + b*x)^(3/2))/(3*d^2*(b*c - a*d)*Sqrt[c + d*x]) +
 (b*(5*b*c - 3*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(d^3*(b*c - a*d)
) - (Sqrt[b]*(5*b*c - 3*a*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqr
t[b]*Sqrt[c + d*x])])/d^(7/2)
```

Rubi [A] time = 0.234527, antiderivative size = 174, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$-\frac{\sqrt{b}(5bc-3ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{d^{7/2}}+\frac{b\sqrt{a+bx}\sqrt{c+dx}(5bc-3ad)}{d^3(bc-ad)}-\frac{2(a+bx)^{3/2}(5bc-3ad)}{3d^2\sqrt{c+dx}(bc-ad)}-\frac{2c(a+bx)^{5/2}}{3d(c+dx)^{3/2}(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[(x*(a + b*x)^(3/2))/(c + d*x)^(5/2),x]
```

```
[Out] (-2*c*(a + b*x)^(5/2))/(3*d*(b*c - a*d)*(c + d*x)^(3/2)) - (2*(5*
b*c - 3*a*d)*(a + b*x)^(3/2))/(3*d^2*(b*c - a*d)*Sqrt[c + d*x]) +
 (b*(5*b*c - 3*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(d^3*(b*c - a*d)
) - (Sqrt[b]*(5*b*c - 3*a*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqr
t[b]*Sqrt[c + d*x])])/d^(7/2)
```

Rubi in Sympy [A] time = 25.685, size = 158, normalized size = 0.91

$$\frac{\sqrt{b}\,(3ad-5bc)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{d^{\frac{7}{2}}}+\frac{b\sqrt{a+bx}\sqrt{c+dx}\,(3ad-5bc)}{d^3\,(ad-bc)}+\frac{2c\,(a+bx)^{\frac{5}{2}}}{3d\,(c+dx)^{\frac{3}{2}}\,(ad-bc)}-\frac{2\,(a+bx)^{\frac{3}{2}}\,(3ad-5bc)}{3d^2\sqrt{c+dx}\,(ad-bc)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(b*x+a)**(3/2)/(d*x+c)**(5/2),x)
```

```
[Out] sqrt(b)*(3*a*d - 5*b*c)*atanh(sqrt(b)*sqrt(c + d*x)/(sqrt(d)*sqrt
(a + b*x)))/d**(7/2) + b*sqrt(a + b*x)*sqrt(c + d*x)*(3*a*d - 5*b
*c)/(d**3*(a*d - b*c)) + 2*c*(a + b*x)**(5/2)/(3*d*(c + d*x)**(3/
2)*(a*d - b*c)) - 2*(a + b*x)**(3/2)*(3*a*d - 5*b*c)/(3*d**2*sqrt
(c + d*x)*(a*d - b*c))
```

Mathematica [A] time = 0.291638, size = 126, normalized size = 0.72

$$\frac{\sqrt{a+bx}\left(b\left(15c^2+20cdx+3d^2x^2\right)-2ad(2c+3dx)\right)}{3d^3(c+dx)^{3/2}}+\frac{\sqrt{b}(3ad-5bc)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{2d^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x*(a + b*x)^(3/2))/(c + d*x)^(5/2),x]
```

```
[Out] (Sqrt[a + b*x]*(-2*a*d*(2*c + 3*d*x) + b*(15*c^2 + 20*c*d*x + 3*d
^2*x^2)))/(3*d^3*(c + d*x)^(3/2)) + (Sqrt[b]*(-5*b*c + 3*a*d)*Log
[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d
*x]])/(2*d^(7/2))
```

Maple [B] time = 0.03, size = 459, normalized size = 2.6

$$\frac{1}{6\,d^3}\sqrt{bx+a}\left(9\,\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{(bx+a)\,(dx+c)}\sqrt{bd}+ad+bc}{\sqrt{bd}}\right)x^2abd^3-15\,\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{(bx+a)\,(dx+c)}\sqrt{bd}+}{\sqrt{bd}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(b*x+a)^(3/2)/(d*x+c)^(5/2),x)
```

```
[Out] 1/6*(b*x+a)^(1/2)*(9*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b
*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a*b*d^3-15*ln(1/2*(2*b*d*x+2*
((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*b^2
*c*d^2+18*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a
*d+b*c)/(b*d)^(1/2))*x*a*b*c*d^2-30*ln(1/2*(2*b*d*x+2*((b*x+a)*(d
*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*b^2*c^2*d+6*x^2*
b*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+9*ln(1/2*(2*b*d*x+2*((b
*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a*b*c^2*d-
15*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)
/(b*d)^(1/2))*b^2*c^3-12*x*a*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1
/2)+40*x*b*c*d*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-8*a*c*d*((b*x+
a)*(d*x+c))^(1/2)*(b*d)^(1/2)+30*b*c^2*((b*x+a)*(d*x+c))^(1/2)*(b
*d)^(1/2))/(b*d)^(1/2)/((b*x+a)*(d*x+c))^(1/2)/d^3/(d*x+c)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*x/(d*x + c)^(5/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.49561, size = 1, normalized size = 0.01

$$\left[-\frac{3\left(5\,bc^3-3\,ac^2d+\left(5\,bcd^2-3\,ad^3\right)x^2+2\left(5\,bc^2d-3\,acd^2\right)x\right)\sqrt{\frac{b}{d}}\log\left(8\,b^2d^2x^2+b^2c^2+6\,abcd+a^2d^2+4\left(2\,bd^2x+bcd\right.\right.}{12\left(d^5x^2+2\,c\right.}\right.$$

$$-\frac{3\left(5\,bc^3-3\,ac^2d+\left(5\,bcd^2-3\,ad^3\right)x^2+2\left(5\,bc^2d-3\,acd^2\right)x\right)\sqrt{-\frac{b}{d}}\arctan\left(\frac{2\,bdx+bc+ad}{2\,\sqrt{bx+a}\sqrt{dx+c}d\sqrt{-\frac{b}{d}}}\right)-2\left(3\,bd^2x^2+15\,bc^2-4\right.}{6\left(d^5x^2+2\,cd^4x+c^2d^3\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*x/(d*x + c)^(5/2),x, algorithm="fricas")
```

```
[Out] [-1/12*(3*(5*b*c^3 - 3*a*c^2*d + (5*b*c*d^2 - 3*a*d^3)*x^2 + 2*(5
*b*c^2*d - 3*a*c*d^2)*x)*sqrt(b/d)*log(8*b^2*d^2*x^2 + b^2*c^2 +
6*a*b*c*d + a^2*d^2 + 4*(2*b*d^2*x + b*c*d + a*d^2)*sqrt(b*x + a)
*sqrt(d*x + c)*sqrt(b/d) + 8*(b^2*c*d + a*b*d^2)*x) - 4*(3*b*d^2*
x^2 + 15*b*c^2 - 4*a*c*d + 2*(10*b*c*d - 3*a*d^2)*x)*sqrt(b*x + a
)*sqrt(d*x + c))/(d^5*x^2 + 2*c*d^4*x + c^2*d^3), -1/6*(3*(5*b*c^
3 - 3*a*c^2*d + (5*b*c*d^2 - 3*a*d^3)*x^2 + 2*(5*b*c^2*d - 3*a*c*
d^2)*x)*sqrt(-b/d)*arctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(b*x + a
)*sqrt(d*x + c)*d*sqrt(-b/d))) - 2*(3*b*d^2*x^2 + 15*b*c^2 - 4*a*
c*d + 2*(10*b*c*d - 3*a*d^2)*x)*sqrt(b*x + a)*sqrt(d*x + c))/(d^5
*x^2 + 2*c*d^4*x + c^2*d^3)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(b*x+a)**(3/2)/(d*x+c)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.252209, size = 386, normalized size = 2.22

$$\frac{\left((bx+a)\left(\frac{3\left(b^{5}cd^{4}|b|-ab^{4}d^{5}|b|\right)(bx+a)}{b^{4}cd^{5}-ab^{3}d^{6}}+\frac{4\left(5\,b^{6}c^{2}d^{3}|b|-8\,ab^{5}cd^{4}|b|+3\,a^{2}b^{4}d^{5}|b|\right)}{b^{4}cd^{5}-ab^{3}d^{6}}\right)+\frac{3\left(5\,b^{7}c^{3}d^{2}|b|-13\,ab^{6}c^{2}d^{3}|b|+11\,a^{2}b^{5}cd^{4}|b|-3\,a^{3}b^{4}d^{5}|b|\right)}{b^{4}cd^{5}-ab^{3}d^{6}}\right.}{3\left(b^{2}c+(bx+a)bd-abd\right)^{\frac{3}{2}}}+\frac{(5\,bc|b|-3\,ad|b|)\ln\left(\left|-\sqrt{bd}\sqrt{bx+a}+\sqrt{b^{2}c+(bx+a)bd-abd}\right|\right)}{\sqrt{bd}d^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)*x/(d*x + c)^(5/2),x, algorithm="giac")
```

```
[Out] 1/3*((b*x + a)*(3*(b^5*c*d^4*abs(b) - a*b^4*d^5*abs(b))*(b*x + a)
/(b^4*c*d^5 - a*b^3*d^6) + 4*(5*b^6*c^2*d^3*abs(b) - 8*a*b^5*c*d^
4*abs(b) + 3*a^2*b^4*d^5*abs(b))/(b^4*c*d^5 - a*b^3*d^6)) + 3*(5*
b^7*c^3*d^2*abs(b) - 13*a*b^6*c^2*d^3*abs(b) + 11*a^2*b^5*c*d^4*a
bs(b) - 3*a^3*b^4*d^5*abs(b))/(b^4*c*d^5 - a*b^3*d^6))*sqrt(b*x +
 a)/(b^2*c + (b*x + a)*b*d - a*b*d)^(3/2) + (5*b*c*abs(b) - 3*a*d
*abs(b))*ln(abs(-sqrt(b*d)*sqrt(b*x + a) + sqrt(b^2*c + (b*x + a)
*b*d - a*b*d)))/(sqrt(b*d)*d^3)
```

3.631 $\int \frac{(a+bx)^{3/2}}{(c+dx)^{5/2}}\,dx$

Optimal. Leaf size=92

$$\frac{2b^{3/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{d^{5/2}}-\frac{2b\sqrt{a+bx}}{d^2\sqrt{c+dx}}-\frac{2(a+bx)^{3/2}}{3d(c+dx)^{3/2}}$$

```
[Out] (-2*(a + b*x)^(3/2))/(3*d*(c + d*x)^(3/2)) - (2*b*Sqrt[a + b*x])/
(d^2*Sqrt[c + d*x]) + (2*b^(3/2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/
(Sqrt[b]*Sqrt[c + d*x])])/d^(5/2)
```

Rubi [A] time = 0.101533, antiderivative size = 92, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.158

$$\frac{2b^{3/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{d^{5/2}}-\frac{2b\sqrt{a+bx}}{d^2\sqrt{c+dx}}-\frac{2(a+bx)^{3/2}}{3d(c+dx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(3/2)/(c + d*x)^(5/2),x]
```

```
[Out] (-2*(a + b*x)^(3/2))/(3*d*(c + d*x)^(3/2)) - (2*b*Sqrt[a + b*x])/
(d^2*Sqrt[c + d*x]) + (2*b^(3/2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/
(Sqrt[b]*Sqrt[c + d*x])])/d^(5/2)
```

Rubi in Sympy [A] time = 13.7467, size = 85, normalized size = 0.92

$$\frac{2b^{\frac{3}{2}}\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{d^{\frac{5}{2}}}-\frac{2b\sqrt{a+bx}}{d^2\sqrt{c+dx}}-\frac{2\,(a+bx)^{\frac{3}{2}}}{3d\,(c+dx)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)/(d*x+c)**(5/2),x)
```

```
[Out] 2*b**(3/2)*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c + d*x)))/d
**(5/2) - 2*b*sqrt(a + b*x)/(d**2*sqrt(c + d*x)) - 2*(a + b*x)**(
3/2)/(3*d*(c + d*x)**(3/2))
```

Mathematica [A] time = 0.160149, size = 93, normalized size = 1.01

$$\frac{b^{3/2}\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{d^{5/2}}-\frac{2\sqrt{a+bx}(ad+3bc+4bdx)}{3d^2(c+dx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(3/2)/(c + d*x)^(5/2),x]
```

```
[Out] (-2*Sqrt[a + b*x]*(3*b*c + a*d + 4*b*d*x))/(3*d^2*(c + d*x)^(3/2)
) + (b^(3/2)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a +
 b*x]*Sqrt[c + d*x]])/d^(5/2)
```

Maple [F] time = 0., size = 0, normalized size = 0.

$$\int 1\,(bx+a)^{\frac{3}{2}}\,(dx+c)^{-\frac{5}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)/(d*x+c)^(5/2),x)
```

```
[Out] int((b*x+a)^(3/2)/(d*x+c)^(5/2),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)/(d*x + c)^(5/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.365547, size = 1, normalized size = 0.01

$$\left[\frac{3\left(bd^{2}x^{2}+2\,bcdx+bc^{2}\right)\sqrt{\frac{b}{d}}\log\left(8\,b^{2}d^{2}x^{2}+b^{2}c^{2}+6\,abcd+a^{2}d^{2}+4\left(2\,bd^{2}x+bcd+ad^{2}\right)\sqrt{bx+a}\sqrt{dx+c}\sqrt{\frac{b}{d}}+8\left(b^{2}cd+\right.\right.}{6\left(d^{4}x^{2}+2\,cd^{3}x+c^{2}d^{2}\right)}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)/(d*x + c)^(5/2),x, algorithm="fricas")
```

```
[Out] [1/6*(3*(b*d^2*x^2 + 2*b*c*d*x + b*c^2)*sqrt(b/d)*log(8*b^2*d^2*x
^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b*d^2*x + b*c*d + a*d^2
)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(b/d) + 8*(b^2*c*d + a*b*d^2)*x
) - 4*(4*b*d*x + 3*b*c + a*d)*sqrt(b*x + a)*sqrt(d*x + c))/(d^4*x
^2 + 2*c*d^3*x + c^2*d^2), 1/3*(3*(b*d^2*x^2 + 2*b*c*d*x + b*c^2)
*sqrt(-b/d)*arctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(b*x + a)*sqrt(
d*x + c)*d*sqrt(-b/d))) - 2*(4*b*d*x + 3*b*c + a*d)*sqrt(b*x + a)
*sqrt(d*x + c))/(d^4*x^2 + 2*c*d^3*x + c^2*d^2)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)/(d*x+c)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.265642, size = 296, normalized size = 3.22

$$\frac{\sqrt{bd}\ln\left(\left|-\sqrt{bd}\sqrt{bx+a}+\sqrt{b^2c+(bx+a)bd-abd}\right|\right)}{16\,(b^5cd^4-ab^4d^5)}+\frac{\sqrt{bx+a}\left(\frac{4\,(b^5cd^2-ab^4d^3)(bx+a)}{b^8c^2d^4-2\,ab^7cd^5+a^2b^6d^6}+\frac{3\,(b^6c^2d-2\,ab^5cd^2+a^2b^4d^3)}{b^8c^2d^4-2\,ab^7cd^5+a^2b^6d^6}\right)}{48\,(b^2c+(bx+a)bd-abd)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)/(d*x + c)^(5/2),x, algorithm="giac")
```

```
[Out] 1/16*sqrt(b*d)*ln(abs(-sqrt(b*d)*sqrt(b*x + a) + sqrt(b^2*c + (b*
x + a)*b*d - a*b*d)))/(b^5*c*d^4 - a*b^4*d^5) + 1/48*sqrt(b*x + a
)*(4*(b^5*c*d^2 - a*b^4*d^3)*(b*x + a)/(b^8*c^2*d^4 - 2*a*b^7*c*d
^5 + a^2*b^6*d^6) + 3*(b^6*c^2*d - 2*a*b^5*c*d^2 + a^2*b^4*d^3)/(
b^8*c^2*d^4 - 2*a*b^7*c*d^5 + a^2*b^6*d^6))/(b^2*c + (b*x + a)*b*
d - a*b*d)^(3/2)
```

3.632 $\int \frac{(a+bx)^{3/2}}{x(c+dx)^{5/2}}\,dx$

Optimal. Leaf size=92

$$-\frac{2a^{3/2}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{c^{5/2}}+\frac{2a\sqrt{a+bx}}{c^2\sqrt{c+dx}}+\frac{2(a+bx)^{3/2}}{3c(c+dx)^{3/2}}$$

```
[Out] (2*(a + b*x)^(3/2))/(3*c*(c + d*x)^(3/2)) + (2*a*Sqrt[a + b*x])/(
c^2*Sqrt[c + d*x]) - (2*a^(3/2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(
Sqrt[a]*Sqrt[c + d*x])])/c^(5/2)
```

Rubi [A] time = 0.169572, antiderivative size = 92, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.136

$$-\frac{2a^{3/2}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{c^{5/2}}+\frac{2a\sqrt{a+bx}}{c^2\sqrt{c+dx}}+\frac{2(a+bx)^{3/2}}{3c(c+dx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(3/2)/(x*(c + d*x)^(5/2)),x]
```

```
[Out] (2*(a + b*x)^(3/2))/(3*c*(c + d*x)^(3/2)) + (2*a*Sqrt[a + b*x])/(
c^2*Sqrt[c + d*x]) - (2*a^(3/2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(
Sqrt[a]*Sqrt[c + d*x])])/c^(5/2)
```

Rubi in Sympy [A] time = 14.6183, size = 85, normalized size = 0.92

$$-\frac{2a^{\frac{3}{2}}\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{c^{\frac{5}{2}}}+\frac{2a\sqrt{a+bx}}{c^2\sqrt{c+dx}}+\frac{2\left(a+bx\right)^{\frac{3}{2}}}{3c\left(c+dx\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)/x/(d*x+c)**(5/2),x)
```

```
[Out] -2*a**(3/2)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/
c**(5/2) + 2*a*sqrt(a + b*x)/(c**2*sqrt(c + d*x)) + 2*(a + b*x)**
(3/2)/(3*c*(c + d*x)**(3/2))
```

Mathematica [A] time = 0.242299, size = 109, normalized size = 1.18

$$\frac{-3a^{3/2}\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)+3a^{3/2}\log(x)+\frac{2\sqrt{c}\sqrt{a+bx}(4ac+3adx+bcx)}{(c+dx)^{3/2}}}{3c^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(3/2)/(x*(c + d*x)^(5/2)),x]
```

```
[Out] ((2*Sqrt[c]*Sqrt[a + b*x]*(4*a*c + b*c*x + 3*a*d*x))/(c + d*x)^(3
/2) + 3*a^(3/2)*Log[x] - 3*a^(3/2)*Log[2*a*c + b*c*x + a*d*x + 2*
Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(3*c^(5/2))
```

Maple [B] time = 0.036, size = 248, normalized size = 2.7

$$-\frac{1}{3c^2}\sqrt{bx+a}\left(3\ln\left(\frac{adx+bcx+2\sqrt{ac}\sqrt{(bx+a)(dx+c)}+2ac}{x}\right)x^2a^2d^2+6\ln\left(\frac{adx+bcx+2\sqrt{ac}\sqrt{(bx+a)(dx+c)}+2\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)/x/(d*x+c)^(5/2),x)
```

```
[Out] -1/3*(b*x+a)^(1/2)/c^2*(3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*
(d*x+c))^(1/2)+2*a*c)/x)*x^2*a^2*d^2+6*ln((a*d*x+b*c*x+2*(a*c)^(1
/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x*a^2*c*d+3*ln((a*d*x+b*c*x
+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*a^2*c^2-6*((b*x+
a)*(d*x+c))^(1/2)*d*a*x*(a*c)^(1/2)-2*((b*x+a)*(d*x+c))^(1/2)*b*c
*x*(a*c)^(1/2)-8*((b*x+a)*(d*x+c))^(1/2)*c*a*(a*c)^(1/2))/(a*c)^(
1/2)/((b*x+a)*(d*x+c))^(1/2)/(d*x+c)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)/((d*x + c)^(5/2)*x),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.369159, size = 1, normalized size = 0.01

$$\left[\frac{3\left(ad^2x^2+2\,acdx+ac^2\right)\sqrt{\frac{a}{c}}\log\left(\frac{8\,a^2c^2+\left(b^2c^2+6\,abcd+a^2d^2\right)x^2-4\left(2\,ac^2+\left(bc^2+acd\right)x\right)\sqrt{bx+a}\sqrt{dx+c}\sqrt{\frac{a}{c}}+8\left(abc^2+a^2cd\right)x}{x^2}\right)+4\left(4\,ac+(bc\right.}{6\left(c^2d^2x^2+2\,c^3dx+c^4\right)}\right.$$

$$\left.-\frac{3\left(ad^2x^2+2\,acdx+ac^2\right)\sqrt{-\frac{a}{c}}\arctan\left(\frac{2\,ac+(bc+ad)x}{2\sqrt{bx+a}\sqrt{dx+c}c\sqrt{-\frac{a}{c}}}\right)-2\left(4\,ac+(bc+3\,ad)x\right)\sqrt{bx+a}\sqrt{dx+c}}{3\left(c^2d^2x^2+2\,c^3dx+c^4\right)}\right]$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)/((d*x + c)^(5/2)*x),x, algorithm="fricas")
```

```
[Out] [1/6*(3*(a*d^2*x^2 + 2*a*c*d*x + a*c^2)*sqrt(a/c)*log((8*a^2*c^2
+ (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a*c^2 + (b*c^2 + a*c
*d)*x)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(a/c) + 8*(a*b*c^2 + a^2*c
*d)*x)/x^2) + 4*(4*a*c + (b*c + 3*a*d)*x)*sqrt(b*x + a)*sqrt(d*x
+ c))/(c^2*d^2*x^2 + 2*c^3*d*x + c^4), -1/3*(3*(a*d^2*x^2 + 2*a*c
*d*x + a*c^2)*sqrt(-a/c)*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt
(b*x + a)*sqrt(d*x + c)*c*sqrt(-a/c))) - 2*(4*a*c + (b*c + 3*a*d)
*x)*sqrt(b*x + a)*sqrt(d*x + c))/(c^2*d^2*x^2 + 2*c^3*d*x + c^4)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)/x/(d*x+c)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.267872, size = 379, normalized size = 4.12

$$-\frac{2\sqrt{bd}a^2b\arctan\left(-\frac{b^2c+abd-\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2}{2\sqrt{-abcd}b}\right)}{\sqrt{-abcd}c^2|b|}-\frac{\sqrt{bx+a}\left(\frac{\left(b^5c^4d|b|+2\,ab^4c^3d^2|b|-3\,a^2b^3c^2d^3|b|\right)(bx+a)}{b^8c^2d^4-2\,ab^7cd^5+a^2b^6d^6}+\frac{3\left(ab^5c^4d|b|-2\,a^2b^4c^3d^2|b|+a^3b^3c^2d^3|b|\right)}{b^8c^2d^4-2\,ab^7cd^5+a^2b^6d^6}\right)}{48\left(b^2c+(bx+a)bd-abd\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)/((d*x + c)^(5/2)*x),x, algorithm="giac")
```

```
[Out] -2*sqrt(b*d)*a^2*b*arctan(-1/2*(b^2*c + a*b*d - (sqrt(b*d)*sqrt(b
*x + a) - sqrt(b^2*c + (b*x + a)*b*d - a*b*d))^2)/(sqrt(-a*b*c*d)
*b))/(sqrt(-a*b*c*d)*c^2*abs(b)) - 1/48*sqrt(b*x + a)*((b^5*c^4*d
*abs(b) + 2*a*b^4*c^3*d^2*abs(b) - 3*a^2*b^3*c^2*d^3*abs(b))*(b*x
 + a)/(b^8*c^2*d^4 - 2*a*b^7*c*d^5 + a^2*b^6*d^6) + 3*(a*b^5*c^4*
d*abs(b) - 2*a^2*b^4*c^3*d^2*abs(b) + a^3*b^3*c^2*d^3*abs(b))/(b^
8*c^2*d^4 - 2*a*b^7*c*d^5 + a^2*b^6*d^6))/(b^2*c + (b*x + a)*b*d
- a*b*d)^(3/2)
```

3.633 $\int \frac{(a+bx)^{3/2}}{x^2(c+dx)^{5/2}}\,dx$

Optimal. Leaf size=149

$$-\frac{\sqrt{a}(3bc-5ad)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{c^{7/2}}+\frac{\sqrt{a+bx}(3bc-5ad)}{c^3\sqrt{c+dx}}+\frac{(a+bx)^{3/2}(3bc-5ad)}{3ac^2(c+dx)^{3/2}}-\frac{(a+bx)^{5/2}}{acx(c+dx)^{3/2}}$$

```
[Out] ((3*b*c - 5*a*d)*(a + b*x)^(3/2))/(3*a*c^2*(c + d*x)^(3/2)) - (a
+ b*x)^(5/2)/(a*c*x*(c + d*x)^(3/2)) + ((3*b*c - 5*a*d)*Sqrt[a +
b*x])/(c^3*Sqrt[c + d*x]) - (Sqrt[a]*(3*b*c - 5*a*d)*ArcTanh[(Sqr
t[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/c^(7/2)
```

Rubi [A] time = 0.28288, antiderivative size = 149, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{\sqrt{a}(3bc-5ad)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{c^{7/2}}+\frac{\sqrt{a+bx}(3bc-5ad)}{c^3\sqrt{c+dx}}+\frac{(a+bx)^{3/2}(3bc-5ad)}{3ac^2(c+dx)^{3/2}}-\frac{(a+bx)^{5/2}}{acx(c+dx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(3/2)/(x^2*(c + d*x)^(5/2)),x]
```

```
[Out] ((3*b*c - 5*a*d)*(a + b*x)^(3/2))/(3*a*c^2*(c + d*x)^(3/2)) - (a
+ b*x)^(5/2)/(a*c*x*(c + d*x)^(3/2)) + ((3*b*c - 5*a*d)*Sqrt[a +
b*x])/(c^3*Sqrt[c + d*x]) - (Sqrt[a]*(3*b*c - 5*a*d)*ArcTanh[(Sqr
t[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/c^(7/2)
```

Rubi in Sympy [A] time = 25.6615, size = 151, normalized size = 1.01

$$\frac{\sqrt{a}\,(5ad-3bc)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{c^{\frac{7}{2}}}+\frac{2d\,(a+bx)^{\frac{5}{2}}}{3cx\,(c+dx)^{\frac{3}{2}}\,(ad-bc)}-\frac{(a+bx)^{\frac{3}{2}}\,(5ad-3bc)}{3c^2x\sqrt{c+dx}\,(ad-bc)}-\frac{\sqrt{a+bx}\,(5ad-3bc)}{c^3\sqrt{c+dx}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)/x**2/(d*x+c)**(5/2),x)
```

```
[Out] sqrt(a)*(5*a*d - 3*b*c)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt
(c + d*x)))/c**(7/2) + 2*d*(a + b*x)**(5/2)/(3*c*x*(c + d*x)**(3/
2)*(a*d - b*c)) - (a + b*x)**(3/2)*(5*a*d - 3*b*c)/(3*c**2*x*sqrt
(c + d*x)*(a*d - b*c)) - sqrt(a + b*x)*(5*a*d - 3*b*c)/(c**3*sqrt
(c + d*x))
```

Mathematica [A] time = 0.472769, size = 151, normalized size = 1.01

$$\frac{-\frac{2\sqrt{c}\sqrt{a+bx}\left(a\left(3c^2+20cdx+15d^2x^2\right)-2bcx(3c+2dx)\right)}{x(c+dx)^{3/2}}+3\sqrt{a}\log(x)(3bc-5ad)+3\sqrt{a}(5ad-3bc)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+\right.}{6c^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(3/2)/(x^2*(c + d*x)^(5/2)),x]
```

```
[Out] ((-2*Sqrt[c]*Sqrt[a + b*x]*(-2*b*c*x*(3*c + 2*d*x) + a*(3*c^2 + 2
0*c*d*x + 15*d^2*x^2)))/(x*(c + d*x)^(3/2)) + 3*Sqrt[a]*(3*b*c -
```

```
5*a*d)*Log[x] + 3*Sqrt[a]*(-3*b*c + 5*a*d)*Log[2*a*c + b*c*x + a*
d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(6*c^(7/2))
```

Maple [B] time = 0.042, size = 459, normalized size = 3.1

$$\frac{1}{6\,c^3x}\sqrt{bx+a}\left(15\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)\,(dx+c)}+2\,ac}{x}\right)x^3a^2d^3-9\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)\,(dx+c)}+2}{x}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)/x^2/(d*x+c)^(5/2),x)
```

```
[Out] 1/6*(b*x+a)^(1/2)/c^3*(15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*
(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^2*d^3-9*ln((a*d*x+b*c*x+2*(a*c)^(1
/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a*b*c*d^2+30*ln((a*d*x+
b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a^2*c*d
^2-18*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c
)/x)*x^2*a*b*c^2*d+15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x
+c))^(1/2)+2*a*c)/x)*x*a^2*c^2*d-9*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*
((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x*a*b*c^3-30*x^2*a*d^2*(a*c)^(1
/2)*((b*x+a)*(d*x+c))^(1/2)+8*x^2*b*c*d*(a*c)^(1/2)*((b*x+a)*(d*x
+c))^(1/2)-40*x*a*c*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+12*x*b*
c^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-6*a*c^2*(a*c)^(1/2)*((b*x
+a)*(d*x+c))^(1/2))/(a*c)^(1/2)/x/((b*x+a)*(d*x+c))^(1/2)/(d*x+c)
^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)/((d*x + c)^(5/2)*x^2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.463321, size = 1, normalized size = 0.01

$$\left[-\frac{3\left(\left(3\,bcd^2-5\,ad^3\right)x^3+2\left(3\,bc^2d-5\,acd^2\right)x^2+\left(3\,bc^3-5\,ac^2d\right)x\right)\sqrt{\frac{a}{c}}\log\left(\frac{8\,a^2c^2+\left(b^2c^2+6\,abcd+a^2d^2\right)x^2+4\left(2\,ac^2+\left(bc^2+acd\right)x\right)\sqrt{}}{x^2}\right.}{12\left(c^3d^2x^3+2\,c^4dx^2+c\right.}\right.$$

$$-\frac{3\left(\left(3\,bcd^2-5\,ad^3\right)x^3+2\left(3\,bc^2d-5\,acd^2\right)x^2+\left(3\,bc^3-5\,ac^2d\right)x\right)\sqrt{-\frac{a}{c}}\arctan\left(\frac{2\,ac+(bc+ad)x}{2\,\sqrt{bx+a}\sqrt{dx+c}c\sqrt{-\frac{a}{c}}}\right)+2\left(3\,ac^2-\left(4\,bcd-\right.\right.}{6\left(c^3d^2x^3+2\,c^4dx^2+c^5x\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)/((d*x + c)^(5/2)*x^2),x, algorithm="fricas")
```

```
[Out] [-1/12*(3*((3*b*c*d^2 - 5*a*d^3)*x^3 + 2*(3*b*c^2*d - 5*a*c*d^2)*
x^2 + (3*b*c^3 - 5*a*c^2*d)*x)*sqrt(a/c)*log((8*a^2*c^2 + (b^2*c^
2 + 6*a*b*c*d + a^2*d^2)*x^2 + 4*(2*a*c^2 + (b*c^2 + a*c*d)*x)*sq
rt(b*x + a)*sqrt(d*x + c)*sqrt(a/c) + 8*(a*b*c^2 + a^2*c*d)*x)/x^
2) + 4*(3*a*c^2 - (4*b*c*d - 15*a*d^2)*x^2 - 2*(3*b*c^2 - 10*a*c*
d)*x)*sqrt(b*x + a)*sqrt(d*x + c))/(c^3*d^2*x^3 + 2*c^4*d*x^2 + c
^5*x), -1/6*(3*((3*b*c*d^2 - 5*a*d^3)*x^3 + 2*(3*b*c^2*d - 5*a*c*
```

```
d^2)*x^2 + (3*b*c^3 - 5*a*c^2*d)*x)*sqrt(-a/c)*arctan(1/2*(2*a*c
+ (b*c + a*d)*x)/(sqrt(b*x + a)*sqrt(d*x + c)*c*sqrt(-a/c))) + 2*
(3*a*c^2 - (4*b*c*d - 15*a*d^2)*x^2 - 2*(3*b*c^2 - 10*a*c*d)*x)*s
qrt(b*x + a)*sqrt(d*x + c))/(c^3*d^2*x^3 + 2*c^4*d*x^2 + c^5*x)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)/x**2/(d*x+c)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(3/2)/((d*x + c)^(5/2)*x^2),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.634 $\int \frac{(a+bx)^{3/2}}{x^3(c+dx)^{5/2}}\,dx$

Optimal. Leaf size=204

$$-\frac{\left(35a^2d^2-30abcd+3b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4\sqrt{a}c^{9/2}}-\frac{5d\sqrt{a+bx}(11bc-21ad)}{12c^4\sqrt{c+dx}}-\frac{d\sqrt{a+bx}(23bc-35ad)}{12c^3(c+dx)^{3/2}}-\frac{\sqrt{a+bx}(5bc-7ad)}{4c^2x(c+dx)^{3/2}}-\frac{a\sqrt{a+bx}}{2cx^2(c+dx)^{3/2}}$$

```
[Out] -(d*(23*b*c - 35*a*d)*Sqrt[a + b*x])/(12*c^3*(c + d*x)^(3/2)) - (
a*Sqrt[a + b*x])/(2*c*x^2*(c + d*x)^(3/2)) - ((5*b*c - 7*a*d)*Sqr
t[a + b*x])/(4*c^2*x*(c + d*x)^(3/2)) - (5*d*(11*b*c - 21*a*d)*Sq
rt[a + b*x])/(12*c^4*Sqrt[c + d*x]) - ((3*b^2*c^2 - 30*a*b*c*d +
35*a^2*d^2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x
])])/(4*Sqrt[a]*c^(9/2))
```

Rubi [A] time = 0.797931, antiderivative size = 204, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.273

$$-\frac{\left(35a^2d^2-30abcd+3b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4\sqrt{a}c^{9/2}}-\frac{5d\sqrt{a+bx}(11bc-21ad)}{12c^4\sqrt{c+dx}}-\frac{d\sqrt{a+bx}(23bc-35ad)}{12c^3(c+dx)^{3/2}}-\frac{\sqrt{a+bx}(5bc-7ad)}{4c^2x(c+dx)^{3/2}}-\frac{a\sqrt{a+bx}}{2cx^2(c+dx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(3/2)/(x^3*(c + d*x)^(5/2)),x]
```

```
[Out] -(d*(23*b*c - 35*a*d)*Sqrt[a + b*x])/(12*c^3*(c + d*x)^(3/2)) - (
a*Sqrt[a + b*x])/(2*c*x^2*(c + d*x)^(3/2)) - ((5*b*c - 7*a*d)*Sqr
t[a + b*x])/(4*c^2*x*(c + d*x)^(3/2)) - (5*d*(11*b*c - 21*a*d)*Sq
rt[a + b*x])/(12*c^4*Sqrt[c + d*x]) - ((3*b^2*c^2 - 30*a*b*c*d +
35*a^2*d^2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x
])])/(4*Sqrt[a]*c^(9/2))
```

Rubi in Sympy [A] time = 106.523, size = 194, normalized size = 0.95

$$-\frac{a\sqrt{a+bx}}{2cx^2\left(c+dx\right)^{\frac{3}{2}}}+\frac{\sqrt{a+bx}\left(7ad-5bc\right)}{4c^2x\left(c+dx\right)^{\frac{3}{2}}}+\frac{d\sqrt{a+bx}\left(35ad-23bc\right)}{12c^3\left(c+dx\right)^{\frac{3}{2}}}+\frac{5d\sqrt{a+bx}\left(21ad-11bc\right)}{12c^4\sqrt{c+dx}}-\frac{\left(35a^2d^2-30abcd+3b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4\sqrt{a}c^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)/x**3/(d*x+c)**(5/2),x)
```

```
[Out] -a*sqrt(a + b*x)/(2*c*x**2*(c + d*x)**(3/2)) + sqrt(a + b*x)*(7*a
*d - 5*b*c)/(4*c**2*x*(c + d*x)**(3/2)) + d*sqrt(a + b*x)*(35*a*d
 - 23*b*c)/(12*c**3*(c + d*x)**(3/2)) + 5*d*sqrt(a + b*x)*(21*a*d
 - 11*b*c)/(12*c**4*sqrt(c + d*x)) - (35*a**2*d**2 - 30*a*b*c*d +
 3*b**2*c**2)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x))
)/(4*sqrt(a)*c**(9/2))
```

Mathematica [A] time = 0.32687, size = 201, normalized size = 0.99

$$\frac{\frac{3\log(x)(35a^2d^2-30abcd+3b^2c^2)}{\sqrt{a}}-\frac{3(35a^2d^2-30abcd+3b^2c^2)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{\sqrt{a}}+\frac{2\sqrt{c}\sqrt{a+bx}(a(-6c^3+21c^2dx+140cd^2x^2+105d^3}{x^2(c+dx)^{3/2}}}{24c^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(3/2)/(x^3*(c + d*x)^(5/2)),x]
```

```
[Out] ((2*Sqrt[c]*Sqrt[a + b*x]*(-(b*c*x*(15*c^2 + 78*c*d*x + 55*d^2*x^
2)) + a*(-6*c^3 + 21*c^2*d*x + 140*c*d^2*x^2 + 105*d^3*x^3)))/(x^
2*(c + d*x)^(3/2)) + (3*(3*b^2*c^2 - 30*a*b*c*d + 35*a^2*d^2)*Log
[x])/Sqrt[a] - (3*(3*b^2*c^2 - 30*a*b*c*d + 35*a^2*d^2)*Log[2*a*c
 + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]]
)/Sqrt[a])/(24*c^(9/2))
```

Maple [B] time = 0.047, size = 679, normalized size = 3.3

$$-\frac{1}{24\,c^4x^2}\sqrt{bx+a}\left(105\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)\,(dx+c)}+2\,ac}{x}\right)x^4a^2d^4-90\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)\,(dx+}}{x}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)/x^3/(d*x+c)^(5/2),x)
```

```
[Out] -1/24*(b*x+a)^(1/2)/c^4*(105*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+
a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a^2*d^4-90*ln((a*d*x+b*c*x+2*(a*c
)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a*b*c*d^3+9*ln((a*d
*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*b^2*
c^2*d^2+210*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)
+2*a*c)/x)*x^3*a^2*c*d^3-180*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+
a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a*b*c^2*d^2+18*ln((a*d*x+b*c*x+2*
(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*b^2*c^3*d+105*l
n((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^
2*a^2*c^2*d^2-90*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^
(1/2)+2*a*c)/x)*x^2*a*b*c^3*d+9*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b
*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*b^2*c^4-210*x^3*a*d^3*(a*c)^(1
/2)*((b*x+a)*(d*x+c))^(1/2)+110*x^3*b*c*d^2*(a*c)^(1/2)*((b*x+a)*
(d*x+c))^(1/2)-280*x^2*a*c*d^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2
)+156*x^2*b*c^2*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-42*x*a*c^2*
d*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+30*x*b*c^3*(a*c)^(1/2)*((b*
x+a)*(d*x+c))^(1/2)+12*a*c^3*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2))
/(a*c)^(1/2)/x^2/((b*x+a)*(d*x+c))^(1/2)/(d*x+c)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(3/2)/((d*x + c)^(5/2)*x^3),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.802259, size = 1, normalized size = 0.

$$\left[-\frac{4\left(6\,ac^{3}+5\left(11\,bcd^{2}-21\,ad^{3}\right)x^{3}+2\left(39\,bc^{2}d-70\,acd^{2}\right)x^{2}+3\left(5\,bc^{3}-7\,ac^{2}d\right)x\right)\sqrt{ac}\sqrt{bx+a}\sqrt{dx+c}-3\left(\left(3\,b^{2}c^{2}d^{2}-\right.\right.}{}\right.$$

$$-\frac{2\left(6\,ac^{3}+5\left(11\,bcd^{2}-21\,ad^{3}\right)x^{3}+2\left(39\,bc^{2}d-70\,acd^{2}\right)x^{2}+3\left(5\,bc^{3}-7\,ac^{2}d\right)x\right)\sqrt{-ac}\sqrt{bx+a}\sqrt{dx+c}+3\left(\left(3\,b^{2}c^{2}d^{2}-\right.\right.}{24\left(c^{4}d^{2}x^{4}+2\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(3/2)/((d*x + c)^(5/2)*x^3),x, algorithm="fricas")
```

```
[Out] [-1/48*(4*(6*a*c^3 + 5*(11*b*c*d^2 - 21*a*d^3)*x^3 + 2*(39*b*c^2*
d - 70*a*c*d^2)*x^2 + 3*(5*b*c^3 - 7*a*c^2*d)*x)*sqrt(a*c)*sqrt(b
*x + a)*sqrt(d*x + c) - 3*((3*b^2*c^2*d^2 - 30*a*b*c*d^3 + 35*a^2
*d^4)*x^4 + 2*(3*b^2*c^3*d - 30*a*b*c^2*d^2 + 35*a^2*c*d^3)*x^3 +
 (3*b^2*c^4 - 30*a*b*c^3*d + 35*a^2*c^2*d^2)*x^2)*log(-(4*(2*a^2*
c^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c) - (8*a^2
*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d
)*x)*sqrt(a*c))/x^2))/((c^4*d^2*x^4 + 2*c^5*d*x^3 + c^6*x^2)*sqrt
(a*c)), -1/24*(2*(6*a*c^3 + 5*(11*b*c*d^2 - 21*a*d^3)*x^3 + 2*(39
*b*c^2*d - 70*a*c*d^2)*x^2 + 3*(5*b*c^3 - 7*a*c^2*d)*x)*sqrt(-a*c
)*sqrt(b*x + a)*sqrt(d*x + c) + 3*((3*b^2*c^2*d^2 - 30*a*b*c*d^3
+ 35*a^2*d^4)*x^4 + 2*(3*b^2*c^3*d - 30*a*b*c^2*d^2 + 35*a^2*c*d^
3)*x^3 + (3*b^2*c^4 - 30*a*b*c^3*d + 35*a^2*c^2*d^2)*x^2)*arctan(
1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d*x +
c)*a*c)))/((c^4*d^2*x^4 + 2*c^5*d*x^3 + c^6*x^2)*sqrt(-a*c))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**(3/2)/x**3/(d*x+c)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(3/2)/((d*x + c)^(5/2)*x^3),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.635 $\int x^2(a+bx)^{5/2}\sqrt{c+dx}\,dx$

Optimal. Leaf size=376

$$-\frac{\left(5a^2d^2+14abcd+21b^2c^2\right)(bc-ad)^4\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{512b^{7/2}d^{11/2}}+\frac{(a+bx)^{7/2}\sqrt{c+dx}\left(5a^2d^2+14abcd+21b^2c^2\right)}{160b^3d^2}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(5a^2d^2+14abcd+21b^2c^2\right)(bc-ad)^3}{512b^3d^5}-\frac{(a+bx)^{3/2}\sqrt{c+dx}\left(5a^2d^2+14abcd+21b^2c^2\right)(bc-ad)^2}{768b^3d^4}+\frac{(a+bx)^{5/2}\sqrt{c+dx}\left(5a^2d^2+14abcd+21b^2c^2\right)(bc-ad)}{960b^3d^3}-\frac{(a+bx)^{7/2}(c+dx)^{3/2}(5ad+9bc)}{60b^2d^2}+\frac{x(a+bx)^{7/2}(c+dx)^{3/2}}{6bd}$$

```
[Out] ((b*c - a*d)^3*(21*b^2*c^2 + 14*a*b*c*d + 5*a^2*d^2)*Sqrt[a + b*x
]*Sqrt[c + d*x])/(512*b^3*d^5) - ((b*c - a*d)^2*(21*b^2*c^2 + 14*
a*b*c*d + 5*a^2*d^2)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(768*b^3*d^4)
 + ((b*c - a*d)*(21*b^2*c^2 + 14*a*b*c*d + 5*a^2*d^2)*(a + b*x)^(
5/2)*Sqrt[c + d*x])/(960*b^3*d^3) + ((21*b^2*c^2 + 14*a*b*c*d + 5
*a^2*d^2)*(a + b*x)^(7/2)*Sqrt[c + d*x])/(160*b^3*d^2) - ((9*b*c
+ 5*a*d)*(a + b*x)^(7/2)*(c + d*x)^(3/2))/(60*b^2*d^2) + (x*(a +
b*x)^(7/2)*(c + d*x)^(3/2))/(6*b*d) - ((b*c - a*d)^4*(21*b^2*c^2
+ 14*a*b*c*d + 5*a^2*d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b
]*Sqrt[c + d*x])])/(512*b^(7/2)*d^(11/2))
```

Rubi [A] time = 0.834345, antiderivative size = 376, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.227$

$$-\frac{\left(5a^2d^2+14abcd+21b^2c^2\right)(bc-ad)^4\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{512b^{7/2}d^{11/2}}+\frac{(a+bx)^{7/2}\sqrt{c+dx}\left(5a^2d^2+14abcd+21b^2c^2\right)}{160b^3d^2}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(5a^2d^2+14abcd+21b^2c^2\right)(bc-ad)^3}{512b^3d^5}-\frac{(a+bx)^{3/2}\sqrt{c+dx}\left(5a^2d^2+14abcd+21b^2c^2\right)(bc-ad)^2}{768b^3d^4}+\frac{(a+bx)^{5/2}\sqrt{c+dx}\left(5a^2d^2+14abcd+21b^2c^2\right)(bc-ad)}{960b^3d^3}-\frac{(a+bx)^{7/2}(c+dx)^{3/2}(5ad+9bc)}{60b^2d^2}+\frac{x(a+bx)^{7/2}(c+dx)^{3/2}}{6bd}$$

Antiderivative was successfully verified.

```
[In]  Int[x^2*(a + b*x)^(5/2)*Sqrt[c + d*x],x]
```


```
[Out] ((b*c - a*d)^3*(21*b^2*c^2 + 14*a*b*c*d + 5*a^2*d^2)*Sqrt[a + b*x
]*Sqrt[c + d*x])/(512*b^3*d^5) - ((b*c - a*d)^2*(21*b^2*c^2 + 14*
a*b*c*d + 5*a^2*d^2)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(768*b^3*d^4)
 + ((b*c - a*d)*(21*b^2*c^2 + 14*a*b*c*d + 5*a^2*d^2)*(a + b*x)^(
5/2)*Sqrt[c + d*x])/(960*b^3*d^3) + ((21*b^2*c^2 + 14*a*b*c*d + 5
*a^2*d^2)*(a + b*x)^(7/2)*Sqrt[c + d*x])/(160*b^3*d^2) - ((9*b*c
+ 5*a*d)*(a + b*x)^(7/2)*(c + d*x)^(3/2))/(60*b^2*d^2) + (x*(a +
b*x)^(7/2)*(c + d*x)^(3/2))/(6*b*d) - ((b*c - a*d)^4*(21*b^2*c^2
+ 14*a*b*c*d + 5*a^2*d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b
]*Sqrt[c + d*x])])/(512*b^(7/2)*d^(11/2))
```

Rubi in Sympy [A] time = 74.9762, size = 360, normalized size = 0.96

$$\frac{x(a+bx)^{\frac{7}{2}}(c+dx)^{\frac{3}{2}}}{6bd}-\frac{(a+bx)^{\frac{7}{2}}(c+dx)^{\frac{3}{2}}(5ad+9bc)}{60b^2d^2}+\frac{(a+bx)^{\frac{7}{2}}\sqrt{c+dx}\left(5a^2d^2+14abcd+21b^2c^2\right)}{160b^3d^2}-\frac{(a+bx)^{\frac{5}{2}}\sqrt{c+dx}(ad-bc)\left(5a^2d^2+14abcd+21b^2c^2\right)}{960b^3d^3}-\frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}(ad-bc)^2\left(5a^2d^2+14abcd+21b^2c^2\right)}{768b^3d^4}-\frac{\sqrt{a+bx}\sqrt{c+dx}(ad-bc)^3\left(5a^2d^2+14abcd+21b^2c^2\right)}{512b^3d^5}-\frac{(ad-bc)^4\left(5a^2d^2+14abcd+21b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{512b^{\frac{7}{2}}d^{\frac{11}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(b*x+a)**(5/2)*(d*x+c)**(1/2),x)
```

```
[Out] x*(a + b*x)**(7/2)*(c + d*x)**(3/2)/(6*b*d) - (a + b*x)**(7/2)*(c
 + d*x)**(3/2)*(5*a*d + 9*b*c)/(60*b**2*d**2) + (a + b*x)**(7/2)*
sqrt(c + d*x)*(5*a**2*d**2 + 14*a*b*c*d + 21*b**2*c**2)/(160*b**3
*d**2) - (a + b*x)**(5/2)*sqrt(c + d*x)*(a*d - b*c)*(5*a**2*d**2
+ 14*a*b*c*d + 21*b**2*c**2)/(960*b**3*d**3) - (a + b*x)**(3/2)*s
qrt(c + d*x)*(a*d - b*c)**2*(5*a**2*d**2 + 14*a*b*c*d + 21*b**2*c
**2)/(768*b**3*d**4) - sqrt(a + b*x)*sqrt(c + d*x)*(a*d - b*c)**3
*(5*a**2*d**2 + 14*a*b*c*d + 21*b**2*c**2)/(512*b**3*d**5) - (a*d
 - b*c)**4*(5*a**2*d**2 + 14*a*b*c*d + 21*b**2*c**2)*atanh(sqrt(b
)*sqrt(c + d*x)/(sqrt(d)*sqrt(a + b*x)))/(512*b**(7/2)*d**(11/2))
```

Mathematica [A] time = 0.291157, size = 319, normalized size = 0.85

$$\frac{\sqrt{a+bx}\sqrt{c+dx}\left(75a^5d^5-5a^4bd^4(13c+10dx)+10a^3b^2d^3\left(-9c^2+4cdx+4d^2x^2\right)+2a^2b^3d^2\left(419c^3-262c^2dx+204cd^2x^2\right.\right.}{}$$

$$-\frac{(bc-ad)^4\left(5a^2d^2+14abcd+21b^2c^2\right)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{1024b^{7/2}d^{11/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^2*(a + b*x)^(5/2)*Sqrt[c + d*x],x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(75*a^5*d^5 - 5*a^4*b*d^4*(13*c + 10
*d*x) + 10*a^3*b^2*d^3*(-9*c^2 + 4*c*d*x + 4*d^2*x^2) + 2*a^2*b^3
*d^2*(419*c^3 - 262*c^2*d*x + 204*c*d^2*x^2 + 1080*d^3*x^3) + a*b
^4*d*(-945*c^4 + 616*c^3*d*x - 488*c^2*d^2*x^2 + 416*c*d^3*x^3 +
3200*d^4*x^4) + b^5*(315*c^5 - 210*c^4*d*x + 168*c^3*d^2*x^2 - 14
4*c^2*d^3*x^3 + 128*c*d^4*x^4 + 1280*d^5*x^5)))/(7680*b^3*d^5) -
((b*c - a*d)^4*(21*b^2*c^2 + 14*a*b*c*d + 5*a^2*d^2)*Log[b*c + a*
d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(10
24*b^(7/2)*d^(11/2))
```

Maple [B] time = 0.027, size = 1240, normalized size = 3.3

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(b*x+a)^(5/2)*(d*x+c)^(1/2),x)
```

```
[Out] -1/15360*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(-80*x^2*a^3*b^2*d^5*(b*d*x^
2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)-336*x^2*b^5*c^3*d^2*(b*d*x^2
+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)-6400*x^4*a*b^4*d^5*(b*d*x^2+a
*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)-256*x^4*b^5*c*d^4*(b*d*x^2+a*d*
x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)-4320*x^3*a^2*b^3*d^5*(b*d*x^2+a*d*
x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+288*x^3*b^5*c^2*d^3*(b*d*x^2+a*d*x
+b*c*x+a*c)^(1/2)*(b*d)^(1/2)-1676*c^3*(b*d*x^2+a*d*x+b*c*x+a*c)^
(1/2)*a^2*b^3*d^2*(b*d)^(1/2)+1890*c^4*(b*d*x^2+a*d*x+b*c*x+a*c)^
(1/2)*a*b^4*d*(b*d)^(1/2)+100*d^5*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)
*x*a^4*b*(b*d)^(1/2)+420*c^4*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*b^
5*d*(b*d)^(1/2)+130*d^4*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a^4*c*b*(
b*d)^(1/2)+180*c^2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a^3*b^2*d^3*(b
*d)^(1/2)+75*d^6*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2
)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^6+315*c^6*b^6*ln(1/2*(2*b*d
*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(
1/2))-2560*x^5*b^5*d^5*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2
)-150*d^5*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a^5*(b*d)^(1/2)-630*c^5
*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*b^5*(b*d)^(1/2)-90*d^5*ln(1/2*(2
*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*
d)^(1/2))*a^5*c*b-75*c^2*d^4*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c
*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^4*b^2-300*c^3*a
^3*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+
a*d+b*c)/(b*d)^(1/2))*b^3*d^3+1125*c^4*ln(1/2*(2*b*d*x+2*(b*d*x^2
+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^2*b^4
*d^2-1050*c^5*a*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)
*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*b^5*d-80*d^4*(b*d*x^2+a*d*x+b*
c*x+a*c)^(1/2)*x*a^3*c*b^2*(b*d)^(1/2)+1048*c^2*(b*d*x^2+a*d*x+b*
c*x+a*c)^(1/2)*x*a^2*b^3*d^3*(b*d)^(1/2)-1232*c^3*(b*d*x^2+a*d*x+
b*c*x+a*c)^(1/2)*x*a*b^4*d^2*(b*d)^(1/2)-816*x^2*a^2*b^3*c*d^4*(b
*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+976*x^2*a*b^4*c^2*d^3*(
b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)-832*x^3*a*b^4*c*d^4*(b
*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2))/(b*d*x^2+a*d*x+b*c*x+a
*c)^(1/2)/d^5/b^3/(b*d)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*sqrt(d*x + c)*x^2,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.289599, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*sqrt(d*x + c)*x^2,x, algorithm="fricas")
```

```
[Out] [1/30720*(4*(1280*b^5*d^5*x^5 + 315*b^5*c^5 - 945*a*b^4*c^4*d + 8
38*a^2*b^3*c^3*d^2 - 90*a^3*b^2*c^2*d^3 - 65*a^4*b*c*d^4 + 75*a^5
*d^5 + 128*(b^5*c*d^4 + 25*a*b^4*d^5)*x^4 - 16*(9*b^5*c^2*d^3 - 2
6*a*b^4*c*d^4 - 135*a^2*b^3*d^5)*x^3 + 8*(21*b^5*c^3*d^2 - 61*a*b
^4*c^2*d^3 + 51*a^2*b^3*c*d^4 + 5*a^3*b^2*d^5)*x^2 - 2*(105*b^5*c
^4*d - 308*a*b^4*c^3*d^2 + 262*a^2*b^3*c^2*d^3 - 20*a^3*b^2*c*d^4
 + 25*a^4*b*d^5)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 15*(2
1*b^6*c^6 - 70*a*b^5*c^5*d + 75*a^2*b^4*c^4*d^2 - 20*a^3*b^3*c^3*
d^3 - 5*a^4*b^2*c^2*d^4 - 6*a^5*b*c*d^5 + 5*a^6*d^6)*log(-4*(2*b^
2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2
*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*
x)*sqrt(b*d)))/(sqrt(b*d)*b^3*d^5), 1/15360*(2*(1280*b^5*d^5*x^5
+ 315*b^5*c^5 - 945*a*b^4*c^4*d + 838*a^2*b^3*c^3*d^2 - 90*a^3*b^
```

```
2*c^2*d^3 - 65*a^4*b*c*d^4 + 75*a^5*d^5 + 128*(b^5*c*d^4 + 25*a*b
^4*d^5)*x^4 - 16*(9*b^5*c^2*d^3 - 26*a*b^4*c*d^4 - 135*a^2*b^3*d^
5)*x^3 + 8*(21*b^5*c^3*d^2 - 61*a*b^4*c^2*d^3 + 51*a^2*b^3*c*d^4
+ 5*a^3*b^2*d^5)*x^2 - 2*(105*b^5*c^4*d - 308*a*b^4*c^3*d^2 + 262
*a^2*b^3*c^2*d^3 - 20*a^3*b^2*c*d^4 + 25*a^4*b*d^5)*x)*sqrt(-b*d)
*sqrt(b*x + a)*sqrt(d*x + c) - 15*(21*b^6*c^6 - 70*a*b^5*c^5*d +
75*a^2*b^4*c^4*d^2 - 20*a^3*b^3*c^3*d^3 - 5*a^4*b^2*c^2*d^4 - 6*a
^5*b*c*d^5 + 5*a^6*d^6)*arctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*
d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/(sqrt(-b*d)*b^3*d^5)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(b*x+a)**(5/2)*(d*x+c)**(1/2),x)

[Out] Timed out
```

GIAC/XCAS [A] time = 0.313864, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*sqrt(d*x + c)*x^2,x, algorithm="giac")

[Out] Done
```

3.636 $\int x(a+bx)^{5/2}\sqrt{c+dx}\,dx$

Optimal. Leaf size=268

$$\frac{(3ad+7bc)(bc-ad)^4\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{128b^{5/2}d^{9/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}(3ad+7bc)(bc-ad)^3}{128b^2d^4}+\frac{(a+bx)^{3/2}\sqrt{c+dx}(3ad+7bc)(bc-ad)^2}{192b^2d^3}-\frac{(a+bx)^{5/2}\sqrt{c+dx}(3ad+7bc)(bc-ad)}{240b^2d^2}-\frac{(a+bx)^{7/2}\sqrt{c+dx}(3ad+7bc)}{40b^2d}+\frac{(a+bx)^{7/2}(c+dx)^{3/2}}{5bd}$$

```
[Out] -((b*c - a*d)^3*(7*b*c + 3*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(128
*b^2*d^4) + ((b*c - a*d)^2*(7*b*c + 3*a*d)*(a + b*x)^(3/2)*Sqrt[c
 + d*x])/(192*b^2*d^3) - ((b*c - a*d)*(7*b*c + 3*a*d)*(a + b*x)^(
5/2)*Sqrt[c + d*x])/(240*b^2*d^2) - ((7*b*c + 3*a*d)*(a + b*x)^(7
/2)*Sqrt[c + d*x])/(40*b^2*d) + ((a + b*x)^(7/2)*(c + d*x)^(3/2))
/(5*b*d) + ((b*c - a*d)^4*(7*b*c + 3*a*d)*ArcTanh[(Sqrt[d]*Sqrt[a
 + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(128*b^(5/2)*d^(9/2))
```

Rubi [A] time = 0.424705, antiderivative size = 268, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.2$

$$\frac{(3ad+7bc)(bc-ad)^4\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{128b^{5/2}d^{9/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}(3ad+7bc)(bc-ad)^3}{128b^2d^4}+\frac{(a+bx)^{3/2}\sqrt{c+dx}(3ad+7bc)(bc-ad)^2}{192b^2d^3}-\frac{(a+bx)^{5/2}\sqrt{c+dx}(3ad+7bc)(bc-ad)}{240b^2d^2}-\frac{(a+bx)^{7/2}\sqrt{c+dx}(3ad+7bc)}{40b^2d}+\frac{(a+bx)^{7/2}(c+dx)^{3/2}}{5bd}$$

Antiderivative was successfully verified.

```
[In]  Int[x*(a + b*x)^(5/2)*Sqrt[c + d*x],x]
```

```
[Out] -((b*c - a*d)^3*(7*b*c + 3*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(128
*b^2*d^4) + ((b*c - a*d)^2*(7*b*c + 3*a*d)*(a + b*x)^(3/2)*Sqrt[c
 + d*x])/(192*b^2*d^3) - ((b*c - a*d)*(7*b*c + 3*a*d)*(a + b*x)^(
5/2)*Sqrt[c + d*x])/(240*b^2*d^2) - ((7*b*c + 3*a*d)*(a + b*x)^(7
/2)*Sqrt[c + d*x])/(40*b^2*d) + ((a + b*x)^(7/2)*(c + d*x)^(3/2))
/(5*b*d) + ((b*c - a*d)^4*(7*b*c + 3*a*d)*ArcTanh[(Sqrt[d]*Sqrt[a
 + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(128*b^(5/2)*d^(9/2))
```

Rubi in Sympy [A] time = 47.3731, size = 245, normalized size = 0.91

$$\frac{(a+bx)^{\frac{7}{2}}(c+dx)^{\frac{3}{2}}}{5bd}-\frac{(a+bx)^{\frac{7}{2}}\sqrt{c+dx}\,(3ad+7bc)}{40b^2d}+\frac{(a+bx)^{\frac{5}{2}}\sqrt{c+dx}\,(ad-bc)\,(3ad+7bc)}{240b^2d^2}+\frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}\,(ad-bc)^2\,(3ad+7bc)}{192b^2d^3}+\frac{\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)^3\,(3ad+7bc)}{128b^2d^4}+\frac{(ad-bc)^4\,(3ad+7bc)\,\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{128b^{\frac{5}{2}}d^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(b*x+a)**(5/2)*(d*x+c)**(1/2),x)
```

```
[Out] (a + b*x)**(7/2)*(c + d*x)**(3/2)/(5*b*d) - (a + b*x)**(7/2)*sqrt
(c + d*x)*(3*a*d + 7*b*c)/(40*b**2*d) + (a + b*x)**(5/2)*sqrt(c +
 d*x)*(a*d - b*c)*(3*a*d + 7*b*c)/(240*b**2*d**2) + (a + b*x)**(3
/2)*sqrt(c + d*x)*(a*d - b*c)**2*(3*a*d + 7*b*c)/(192*b**2*d**3)
```

```
+ sqrt(a + b*x)*sqrt(c + d*x)*(a*d - b*c)**3*(3*a*d + 7*b*c)/(128
*b**2*d**4) + (a*d - b*c)**4*(3*a*d + 7*b*c)*atanh(sqrt(d)*sqrt(a
 + b*x)/(sqrt(b)*sqrt(c + d*x)))/(128*b**(5/2)*d**(9/2))
```

Mathematica [A] time = 0.242287, size = 242, normalized size = 0.9

$$\frac{\sqrt{a+bx}\sqrt{c+dx}\left(-45a^4d^4+30a^3bd^3(2c+dx)+2a^2b^2d^2\left(-173c^2+109cdx+372d^2x^2\right)+2ab^3d\left(170c^3-111c^2dx+88cd^2x\right.\right.}{1920b^2d^4}$$

$$+\frac{(3ad+7bc)(bc-ad)^4\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{256b^{5/2}d^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x*(a + b*x)^(5/2)*Sqrt[c + d*x],x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(-45*a^4*d^4 + 30*a^3*b*d^3*(2*c + d
*x) + 2*a^2*b^2*d^2*(-173*c^2 + 109*c*d*x + 372*d^2*x^2) + 2*a*b^
3*d*(170*c^3 - 111*c^2*d*x + 88*c*d^2*x^2 + 504*d^3*x^3) + b^4*(-
105*c^4 + 70*c^3*d*x - 56*c^2*d^2*x^2 + 48*c*d^3*x^3 + 384*d^4*x^
4)))/(1920*b^2*d^4) + ((b*c - a*d)^4*(7*b*c + 3*a*d)*Log[b*c + a*
d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(25
6*b^(5/2)*d^(9/2))
```

Maple [B] time = 0.021, size = 942, normalized size = 3.5

$$\frac{1}{3840\,d^4b^2}\sqrt{bx+a}\sqrt{dx+c}\left(768\,x^4b^4d^4\sqrt{dx^2b+adx+bcx+ac}\sqrt{bd}+2016\,x^3ab^3d^4\sqrt{dx^2b+adx+bcx+ac}\sqrt{bd}+96\,x^3b^4c\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(b*x+a)^(5/2)*(d*x+c)^(1/2),x)
```

```
[Out] 1/3840*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(768*x^4*b^4*d^4*(b*d*x^2+a*d*
x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+2016*x^3*a*b^3*d^4*(b*d*x^2+a*d*x+
b*c*x+a*c)^(1/2)*(b*d)^(1/2)+96*x^3*b^4*c*d^3*(b*d*x^2+a*d*x+b*c*
x+a*c)^(1/2)*(b*d)^(1/2)+1488*x^2*a^2*b^2*d^4*(b*d*x^2+a*d*x+b*c*
x+a*c)^(1/2)*(b*d)^(1/2)+352*x^2*a*b^3*c*d^3*(b*d*x^2+a*d*x+b*c*x
+a*c)^(1/2)*(b*d)^(1/2)-112*x^2*b^4*c^2*d^2*(b*d*x^2+a*d*x+b*c*x+
a*c)^(1/2)*(b*d)^(1/2)+45*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+
a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^5*d^5-75*ln(1/2*(2
*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*
d)^(1/2))*a^4*b*c*d^4-150*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+
a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^3*b^2*c^2*d^3+450*
ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d
+b*c)/(b*d)^(1/2))*a^2*b^3*c^3*d^2-375*ln(1/2*(2*b*d*x+2*(b*d*x^2
+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a*b^4*c
^4*d+105*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^
(1/2)+a*d+b*c)/(b*d)^(1/2))*b^5*c^5+60*(b*d)^(1/2)*(b*d*x^2+a*d*x
+b*c*x+a*c)^(1/2)*x*a^3*b*d^4+436*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*
x+a*c)^(1/2)*x*a^2*b^2*c*d^3-444*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x
+a*c)^(1/2)*x*a*b^3*c^2*d^2+140*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+
a*c)^(1/2)*x*b^4*c^3*d-90*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(
1/2)*a^4*d^4+120*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a^3*
b*c*d^3-692*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a^2*b^2*c
^2*d^2+680*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a*b^3*c^3*
d-210*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*b^4*c^4)/(b*d*x
^2+a*d*x+b*c*x+a*c)^(1/2)/d^4/b^2/(b*d)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*sqrt(d*x + c)*x,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.25899, size = 1, normalized size = 0.

$$\left[\frac{4\left(384\,b^4d^4x^4 - 105\,b^4c^4 + 340\,ab^3c^3d - 346\,a^2b^2c^2d^2 + 60\,a^3bcd^3 - 45\,a^4d^4 + 48\left(b^4cd^3 + 21\,ab^3d^4\right)x^3 - 8\left(7\,b^4c^2d^2 - 22\right.\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*sqrt(d*x + c)*x,x, algorithm="fricas")
```

```
[Out] [1/7680*(4*(384*b^4*d^4*x^4 - 105*b^4*c^4 + 340*a*b^3*c^3*d - 346
*a^2*b^2*c^2*d^2 + 60*a^3*b*c*d^3 - 45*a^4*d^4 + 48*(b^4*c*d^3 +
21*a*b^3*d^4)*x^3 - 8*(7*b^4*c^2*d^2 - 22*a*b^3*c*d^3 - 93*a^2*b^
2*d^4)*x^2 + 2*(35*b^4*c^3*d - 111*a*b^3*c^2*d^2 + 109*a^2*b^2*c*
d^3 + 15*a^3*b*d^4)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 15
*(7*b^5*c^5 - 25*a*b^4*c^4*d + 30*a^2*b^3*c^3*d^2 - 10*a^3*b^2*c^
2*d^3 - 5*a^4*b*c*d^4 + 3*a^5*d^5)*log(4*(2*b^2*d^2*x + b^2*c*d +
 a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2
+ 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/(sqr
t(b*d)*b^2*d^4), 1/3840*(2*(384*b^4*d^4*x^4 - 105*b^4*c^4 + 340*a
*b^3*c^3*d - 346*a^2*b^2*c^2*d^2 + 60*a^3*b*c*d^3 - 45*a^4*d^4 +
48*(b^4*c*d^3 + 21*a*b^3*d^4)*x^3 - 8*(7*b^4*c^2*d^2 - 22*a*b^3*c
*d^3 - 93*a^2*b^2*d^4)*x^2 + 2*(35*b^4*c^3*d - 111*a*b^3*c^2*d^2
+ 109*a^2*b^2*c*d^3 + 15*a^3*b*d^4)*x)*sqrt(-b*d)*sqrt(b*x + a)*s
qrt(d*x + c) + 15*(7*b^5*c^5 - 25*a*b^4*c^4*d + 30*a^2*b^3*c^3*d^
2 - 10*a^3*b^2*c^2*d^3 - 5*a^4*b*c*d^4 + 3*a^5*d^5)*arctan(1/2*(2
*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d))
)/(sqrt(-b*d)*b^2*d^4)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(b*x+a)**(5/2)*(d*x+c)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.30077, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*sqrt(d*x + c)*x,x, algorithm="giac")
```

```
[Out] Done
```

3.637 $\int (a+bx)^{5/2}\sqrt{c+dx}\,dx$

Optimal. Leaf size=192

$$-\frac{5(bc-ad)^4\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{64b^{3/2}d^{7/2}}+\frac{5\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^3}{64bd^3}-\frac{5(a+bx)^{3/2}\sqrt{c+dx}(bc-ad)^2}{96bd^2}+\frac{(a+bx)^{5/2}\sqrt{c+dx}(bc-ad)}{24bd}+\frac{(a+bx)^{7/2}\sqrt{c+dx}}{4b}$$

```
[Out] (5*(b*c - a*d)^3*Sqrt[a + b*x]*Sqrt[c + d*x])/(64*b*d^3) - (5*(b*
c - a*d)^2*(a + b*x)^(3/2)*Sqrt[c + d*x])/(96*b*d^2) + ((b*c - a*
d)*(a + b*x)^(5/2)*Sqrt[c + d*x])/(24*b*d) + ((a + b*x)^(7/2)*Sqr
t[c + d*x])/(4*b) - (5*(b*c - a*d)^4*ArcTanh[(Sqrt[d]*Sqrt[a + b*
x])/(Sqrt[b]*Sqrt[c + d*x])])/(64*b^(3/2)*d^(7/2))
```

Rubi [A] time = 0.249277, antiderivative size = 192, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 3, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}} = 0.158$

$$-\frac{5(bc-ad)^4\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{64b^{3/2}d^{7/2}}+\frac{5\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^3}{64bd^3}-\frac{5(a+bx)^{3/2}\sqrt{c+dx}(bc-ad)^2}{96bd^2}+\frac{(a+bx)^{5/2}\sqrt{c+dx}(bc-ad)}{24bd}+\frac{(a+bx)^{7/2}\sqrt{c+dx}}{4b}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(5/2)*Sqrt[c + d*x],x]
```

```
[Out] (5*(b*c - a*d)^3*Sqrt[a + b*x]*Sqrt[c + d*x])/(64*b*d^3) - (5*(b*
c - a*d)^2*(a + b*x)^(3/2)*Sqrt[c + d*x])/(96*b*d^2) + ((b*c - a*
d)*(a + b*x)^(5/2)*Sqrt[c + d*x])/(24*b*d) + ((a + b*x)^(7/2)*Sqr
t[c + d*x])/(4*b) - (5*(b*c - a*d)^4*ArcTanh[(Sqrt[d]*Sqrt[a + b*
x])/(Sqrt[b]*Sqrt[c + d*x])])/(64*b^(3/2)*d^(7/2))
```

Rubi in Sympy [A] time = 32.8321, size = 167, normalized size = 0.87

$$\frac{(a+bx)^{\frac{5}{2}}(c+dx)^{\frac{3}{2}}}{4d}+\frac{5(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{3}{2}}(ad-bc)}{24d^2}+\frac{5\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}(ad-bc)^2}{32d^3}+\frac{5\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)^3}{64bd^3}-\frac{5(ad-bc)^4\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{64b^{\frac{3}{2}}d^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(d*x+c)**(1/2),x)
```

```
[Out] (a + b*x)**(5/2)*(c + d*x)**(3/2)/(4*d) + 5*(a + b*x)**(3/2)*(c +
 d*x)**(3/2)*(a*d - b*c)/(24*d**2) + 5*sqrt(a + b*x)*(c + d*x)**(
3/2)*(a*d - b*c)**2/(32*d**3) + 5*sqrt(a + b*x)*sqrt(c + d*x)*(a*
d - b*c)**3/(64*b*d**3) - 5*(a*d - b*c)**4*atanh(sqrt(d)*sqrt(a +
 b*x)/(sqrt(b)*sqrt(c + d*x)))/(64*b**(3/2)*d**(7/2))
```

Mathematica [A] time = 0.161509, size = 180, normalized size = 0.94

$$\frac{\sqrt{a+bx}\sqrt{c+dx}\left(15a^3d^3+a^2bd^2(73c+118dx)+ab^2d\left(-55c^2+36cdx+136d^2x^2\right)+b^3\left(15c^3-10c^2dx+8cd^2x^2+48d^3x^3\right)\right)}{192bd^3}-\frac{5(bc-ad)^4\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{128b^{3/2}d^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(5/2)*Sqrt[c + d*x],x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(15*a^3*d^3 + a^2*b*d^2*(73*c + 118*
d*x) + a*b^2*d*(-55*c^2 + 36*c*d*x + 136*d^2*x^2) + b^3*(15*c^3 -
 10*c^2*d*x + 8*c*d^2*x^2 + 48*d^3*x^3)))/(192*b*d^3) - (5*(b*c -
 a*d)^4*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]
*Sqrt[c + d*x]])/(128*b^(3/2)*d^(7/2))
```

Maple [B] time = 0., size = 645, normalized size = 3.4

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(d*x+c)^(1/2),x)
```

```
[Out] 1/4/d*(b*x+a)^(5/2)*(d*x+c)^(3/2)+5/24/d*(b*x+a)^(3/2)*(d*x+c)^(3
/2)*a-5/24/d^2*(b*x+a)^(3/2)*(d*x+c)^(3/2)*b*c+5/32/d*(b*x+a)^(1/
2)*(d*x+c)^(3/2)*a^2-5/16/d^2*(b*x+a)^(1/2)*(d*x+c)^(3/2)*a*b*c+5
/32/d^3*(b*x+a)^(1/2)*(d*x+c)^(3/2)*b^2*c^2+5/64/b*(d*x+c)^(1/2)*
(b*x+a)^(1/2)*a^3-15/64/d*(d*x+c)^(1/2)*(b*x+a)^(1/2)*a^2*c+15/64
/d^2*(d*x+c)^(1/2)*(b*x+a)^(1/2)*a*c^2*b-5/64/d^3*(d*x+c)^(1/2)*(
b*x+a)^(1/2)*c^3*b^2-5/128*d/b*((b*x+a)*(d*x+c))^(1/2)/(d*x+c)^(1
/2)/(b*x+a)^(1/2)*ln((1/2*a*d+1/2*b*c+b*d*x)/(b*d)^(1/2)+(d*x^2*b
+(a*d+b*c)*x+a*c)^(1/2))/(b*d)^(1/2)*a^4+5/32*((b*x+a)*(d*x+c))^(
1/2)/(d*x+c)^(1/2)/(b*x+a)^(1/2)*ln((1/2*a*d+1/2*b*c+b*d*x)/(b*d)
^(1/2)+(d*x^2*b+(a*d+b*c)*x+a*c)^(1/2))/(b*d)^(1/2)*a^3*c-15/64/d
*((b*x+a)*(d*x+c))^(1/2)/(d*x+c)^(1/2)/(b*x+a)^(1/2)*ln((1/2*a*d+
1/2*b*c+b*d*x)/(b*d)^(1/2)+(d*x^2*b+(a*d+b*c)*x+a*c)^(1/2))/(b*d)
^(1/2)*a^2*c^2*b+5/32/d^2*((b*x+a)*(d*x+c))^(1/2)/(d*x+c)^(1/2)/(
b*x+a)^(1/2)*ln((1/2*a*d+1/2*b*c+b*d*x)/(b*d)^(1/2)+(d*x^2*b+(a*d
+b*c)*x+a*c)^(1/2))/(b*d)^(1/2)*a*c^3*b^2-5/128/d^3*((b*x+a)*(d*x
+c))^(1/2)/(d*x+c)^(1/2)/(b*x+a)^(1/2)*ln((1/2*a*d+1/2*b*c+b*d*x)
/(b*d)^(1/2)+(d*x^2*b+(a*d+b*c)*x+a*c)^(1/2))/(b*d)^(1/2)*c^4*b^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*sqrt(d*x + c),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.250172, size = 1, normalized size = 0.01

$$\left[\frac{4\left(48\,b^3d^3x^3+15\,b^3c^3-55\,ab^2c^2d+73\,a^2bcd^2+15\,a^3d^3+8\left(b^3cd^2+17\,ab^2d^3\right)x^2-2\left(5\,b^3c^2d-18\,ab^2cd^2-59\,a^2bd^3\right)x\right)}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*sqrt(d*x + c),x, algorithm="fricas")
```

```
[Out] [1/768*(4*(48*b^3*d^3*x^3 + 15*b^3*c^3 - 55*a*b^2*c^2*d + 73*a^2*
b*c*d^2 + 15*a^3*d^3 + 8*(b^3*c*d^2 + 17*a*b^2*d^3)*x^2 - 2*(5*b^
```

```
3*c^2*d - 18*a*b^2*c*d^2 - 59*a^2*b*d^3)*x)*sqrt(b*d)*sqrt(b*x +
a)*sqrt(d*x + c) + 15*(b^4*c^4 - 4*a*b^3*c^3*d + 6*a^2*b^2*c^2*d^
2 - 4*a^3*b*c*d^3 + a^4*d^4)*log(-4*(2*b^2*d^2*x + b^2*c*d + a*b*
d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a
*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/(sqrt(b*d
)*b*d^3), 1/384*(2*(48*b^3*d^3*x^3 + 15*b^3*c^3 - 55*a*b^2*c^2*d
+ 73*a^2*b*c*d^2 + 15*a^3*d^3 + 8*(b^3*c*d^2 + 17*a*b^2*d^3)*x^2
- 2*(5*b^3*c^2*d - 18*a*b^2*c*d^2 - 59*a^2*b*d^3)*x)*sqrt(-b*d)*s
qrt(b*x + a)*sqrt(d*x + c) - 15*(b^4*c^4 - 4*a*b^3*c^3*d + 6*a^2*
b^2*c^2*d^2 - 4*a^3*b*c*d^3 + a^4*d^4)*arctan(1/2*(2*b*d*x + b*c
+ a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/(sqrt(-b*d)
*b*d^3)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(d*x+c)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.294978, size = 842, normalized size = 4.39

$$5\left(\sqrt{b^2c+(bx+a)bd-abd}\left(2\,(bx+a)\left(4\,(bx+a)\left(\frac{6\,(bx+a)}{b^2}+\frac{b^7cd^5-17\,ab^6d^6}{b^8d^6}\right)-\frac{5\,b^8c^2d^4+6\,ab^7cd^5-59\,a^2b^6d^6}{b^8d^6}\right)+\frac{3\,(5\,b^9c^3d^3+ab^8c^2d^4-}{b^8}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*sqrt(d*x + c),x, algorithm="giac")
```

```
[Out] 1/960*(5*(sqrt(b^2*c + (b*x + a)*b*d - a*b*d)*(2*(b*x + a)*(4*(b*
x + a)*(6*(b*x + a)/b^2 + (b^7*c*d^5 - 17*a*b^6*d^6)/(b^8*d^6)) -
 (5*b^8*c^2*d^4 + 6*a*b^7*c*d^5 - 59*a^2*b^6*d^6)/(b^8*d^6)) + 3*
(5*b^9*c^3*d^3 + a*b^8*c^2*d^4 - a^2*b^7*c*d^5 - 5*a^3*b^6*d^6)/(
b^8*d^6))*sqrt(b*x + a) + 3*(5*b^4*c^4 - 4*a*b^3*c^3*d - 2*a^2*b^
2*c^2*d^2 - 4*a^3*b*c*d^3 + 5*a^4*d^4)*ln(abs(-sqrt(b*d)*sqrt(b*x
 + a) + sqrt(b^2*c + (b*x + a)*b*d - a*b*d)))/(sqrt(b*d)*b*d^3))*
abs(b) + 10*(sqrt(b^2*c + (b*x + a)*b*d - a*b*d)*sqrt(b*x + a)*(2
*(b*x + a)/(b^4*d^2) + (b*c*d - a*d^2)/(b^4*d^4)) + (b^2*c^2 - 2*
a*b*c*d + a^2*d^2)*ln(abs(-sqrt(b*d)*sqrt(b*x + a) + sqrt(b^2*c +
 (b*x + a)*b*d - a*b*d)))/(sqrt(b*d)*b^3*d^3))*a^2*abs(b)/b^2 + (
sqrt(b^2*c + (b*x + a)*b*d - a*b*d)*sqrt(b*x + a)*(2*(b*x + a)*(4
*(b*x + a)/(b^6*d^2) + (b*c*d^3 - 7*a*d^4)/(b^6*d^6)) - 3*(b^2*c^
2*d^2 - a^2*d^4)/(b^6*d^6)) - 3*(b^3*c^3 - a*b^2*c^2*d - a^2*b*c*
d^2 + a^3*d^3)*ln(abs(-sqrt(b*d)*sqrt(b*x + a) + sqrt(b^2*c + (b*
x + a)*b*d - a*b*d)))/(sqrt(b*d)*b^5*d^4))*a*abs(b)/b^2)/b
```

3.638 $\int \frac{(a+bx)^{5/2}\sqrt{c+dx}}{x}\,dx$

Optimal. Leaf size=218

$$-2a^{5/2}\sqrt{c}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)+\frac{\left(5a^3d^3+15a^2bcd^2-5ab^2c^2d+b^3c^3\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8\sqrt{b}d^{5/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}(bc-5ad)(ad+bc)}{8d^2}+\frac{1}{3}(a+bx)^{5/2}\sqrt{c+dx}+\frac{(a+bx)^{3/2}\sqrt{c+dx}(5ad+bc)}{12d}$$

```
[Out] -((b*c - 5*a*d)*(b*c + a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(8*d^2)
+ ((b*c + 5*a*d)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(12*d) + ((a + b*
x)^(5/2)*Sqrt[c + d*x])/3 - 2*a^(5/2)*Sqrt[c]*ArcTanh[(Sqrt[c]*Sq
rt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])] + ((b^3*c^3 - 5*a*b^2*c^2*d
 + 15*a^2*b*c*d^2 + 5*a^3*d^3)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(S
qrt[b]*Sqrt[c + d*x])])/(8*Sqrt[b]*d^(5/2))
```

Rubi [A] time = 0.759867, antiderivative size = 218, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.273$

$$-2a^{5/2}\sqrt{c}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)+\frac{\left(5a^3d^3+15a^2bcd^2-5ab^2c^2d+b^3c^3\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8\sqrt{b}d^{5/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}(bc-5ad)(ad+bc)}{8d^2}+\frac{1}{3}(a+bx)^{5/2}\sqrt{c+dx}+\frac{(a+bx)^{3/2}\sqrt{c+dx}(5ad+bc)}{12d}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(5/2)*Sqrt[c + d*x])/x,x]
```

```
[Out] -((b*c - 5*a*d)*(b*c + a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(8*d^2)
+ ((b*c + 5*a*d)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(12*d) + ((a + b*
x)^(5/2)*Sqrt[c + d*x])/3 - 2*a^(5/2)*Sqrt[c]*ArcTanh[(Sqrt[c]*Sq
rt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])] + ((b^3*c^3 - 5*a*b^2*c^2*d
 + 15*a^2*b*c*d^2 + 5*a^3*d^3)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(S
qrt[b]*Sqrt[c + d*x])])/(8*Sqrt[b]*d^(5/2))
```

Rubi in Sympy [A] time = 63.4354, size = 199, normalized size = 0.91

$$-2a^{\frac{5}{2}}\sqrt{c}\,\mathrm{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)+\frac{(a+bx)^{\frac{5}{2}}\sqrt{c+dx}}{3}+\frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}\,(5ad+bc)}{12d}+\frac{\sqrt{a+bx}\sqrt{c+dx}\,(ad+bc)\,(5ad-bc)}{8d^2}+\frac{\left(16a^2bcd^2+(ad-bc)\,(ad+bc)\,(5ad-bc)\right)\mathrm{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{8\sqrt{b}d^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(d*x+c)**(1/2)/x,x)
```

```
[Out] -2*a**(5/2)*sqrt(c)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c +
 d*x))) + (a + b*x)**(5/2)*sqrt(c + d*x)/3 + (a + b*x)**(3/2)*sqr
t(c + d*x)*(5*a*d + b*c)/(12*d) + sqrt(a + b*x)*sqrt(c + d*x)*(a*
d + b*c)*(5*a*d - b*c)/(8*d**2) + (16*a**2*b*c*d**2 + (a*d - b*c)
*(a*d + b*c)*(5*a*d - b*c))*atanh(sqrt(b)*sqrt(c + d*x)/(sqrt(d)*
sqrt(a + b*x)))/(8*sqrt(b)*d**(5/2))
```

Mathematica [A] time = 0.146356, size = 233, normalized size = 1.07

$$-a^{5/2}\sqrt{c}\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)+a^{5/2}\sqrt{c}\log(x)+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(33a^2d^2+2abd(7c+13dx)+b^2\left(-3c^2+2cdx+8d^2x^2\right)\right)}{24d^2}+\frac{\left(5a^3d^3+15a^2bcd^2-5ab^2c^2d+b^3c^3\right)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{16\sqrt{b}d^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(5/2)*Sqrt[c + d*x])/x,x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(33*a^2*d^2 + 2*a*b*d*(7*c + 13*d*x)
 + b^2*(-3*c^2 + 2*c*d*x + 8*d^2*x^2)))/(24*d^2) + a^(5/2)*Sqrt[c
]*Log[x] - a^(5/2)*Sqrt[c]*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*
Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]] + ((b^3*c^3 - 5*a*b^2*c^2*d
+ 15*a^2*b*c*d^2 + 5*a^3*d^3)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]
*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(16*Sqrt[b]*d^(5/2))
```

Maple [B] time = 0.02, size = 583, normalized size = 2.7

$$\frac{1}{48\,d^2}\sqrt{bx+a}\sqrt{dx+c}\left(16\,x^2b^2d^2\sqrt{ac}\sqrt{dx^2b+adx+bcx+ac}\sqrt{bd}+15\,d^3\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{dx^2b+adx+bcx+ac}\sqrt{bd}+\right.}{\sqrt{bd}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(d*x+c)^(1/2)/x,x)
```

```
[Out] 1/48*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(16*x^2*b^2*d^2*(a*c)^(1/2)*(b*d
*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+15*d^3*ln(1/2*(2*b*d*x+2*
(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))
*a^3*(a*c)^(1/2)+45*d^2*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*
c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^2*c*(a*c)^(1/2)*b-15
*c^2*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2
)+a*d+b*c)/(b*d)^(1/2))*a*d*(a*c)^(1/2)*b^2+3*c^3*ln(1/2*(2*b*d*x
+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/
2))*b^3*(a*c)^(1/2)-48*a^3*c*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x
^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*(b*d)^(1/2)*d^2+52*d^2*(b*d*x
^2+a*d*x+b*c*x+a*c)^(1/2)*x*a*(b*d)^(1/2)*(a*c)^(1/2)*b+4*d*(b*d*
x^2+a*d*x+b*c*x+a*c)^(1/2)*x*c*(b*d)^(1/2)*(a*c)^(1/2)*b^2+66*d^2
*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a^2*(b*d)^(1/2)*(a*c)^(1/2)+28*d
*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a*c*(b*d)^(1/2)*(a*c)^(1/2)*b-6*
c^2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)*(a*c)^(1/2)*b^2)/
(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)/(b*d)^(1/2)/(a*c)^(1/2)/d^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*sqrt(d*x + c)/x,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 5.92914, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*sqrt(d*x + c)/x,x, algorithm="fricas")
```

```
[Out] [1/96*(48*sqrt(a*c)*sqrt(b*d)*a^2*d^2*log((8*a^2*c^2 + (b^2*c^2 +
 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a*c + (b*c + a*d)*x)*sqrt(a*c)*s
qrt(b*x + a)*sqrt(d*x + c) + 8*(a*b*c^2 + a^2*c*d)*x)/x^2) + 4*(8
*b^2*d^2*x^2 - 3*b^2*c^2 + 14*a*b*c*d + 33*a^2*d^2 + 2*(b^2*c*d +
 13*a*b*d^2)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 3*(b^3*c^
3 - 5*a*b^2*c^2*d + 15*a^2*b*c*d^2 + 5*a^3*d^3)*log(4*(2*b^2*d^2*
x + b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x
^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqr
t(b*d)))/(sqrt(b*d)*d^2), 1/48*(24*sqrt(a*c)*sqrt(-b*d)*a^2*d^2*l
og((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a*c +
(b*c + a*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c) + 8*(a*b*c^2
 + a^2*c*d)*x)/x^2) + 2*(8*b^2*d^2*x^2 - 3*b^2*c^2 + 14*a*b*c*d +
 33*a^2*d^2 + 2*(b^2*c*d + 13*a*b*d^2)*x)*sqrt(-b*d)*sqrt(b*x + a
)*sqrt(d*x + c) + 3*(b^3*c^3 - 5*a*b^2*c^2*d + 15*a^2*b*c*d^2 + 5
*a^3*d^3)*arctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x +
 a)*sqrt(d*x + c)*b*d)))/(sqrt(-b*d)*d^2), -1/96*(96*sqrt(-a*c)*s
qrt(b*d)*a^2*d^2*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(-a*c)*s
qrt(b*x + a)*sqrt(d*x + c))) - 4*(8*b^2*d^2*x^2 - 3*b^2*c^2 + 14*
a*b*c*d + 33*a^2*d^2 + 2*(b^2*c*d + 13*a*b*d^2)*x)*sqrt(b*d)*sqrt
(b*x + a)*sqrt(d*x + c) - 3*(b^3*c^3 - 5*a*b^2*c^2*d + 15*a^2*b*c
*d^2 + 5*a^3*d^3)*log(4*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*
x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2
*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/(sqrt(b*d)*d^2), -1/4
8*(48*sqrt(-a*c)*sqrt(-b*d)*a^2*d^2*arctan(1/2*(2*a*c + (b*c + a*
d)*x)/(sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c))) - 2*(8*b^2*d^2*x^
2 - 3*b^2*c^2 + 14*a*b*c*d + 33*a^2*d^2 + 2*(b^2*c*d + 13*a*b*d^2
)*x)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c) - 3*(b^3*c^3 - 5*a*b^
2*c^2*d + 15*a^2*b*c*d^2 + 5*a^3*d^3)*arctan(1/2*(2*b*d*x + b*c +
 a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/(sqrt(-b*d)*
d^2)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a+bx)^{\frac{5}{2}}\sqrt{c+dx}}{x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(d*x+c)**(1/2)/x,x)
```

```
[Out] Integral((a + b*x)**(5/2)*sqrt(c + d*x)/x, x)
```

GIAC/XCAS [A] time = 0.302352, size = 443, normalized size = 2.03

$$-\frac{2\sqrt{bd}a^3c|b|\arctan\left(-\frac{b^2c+abd-\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2}{2\sqrt{-abcd}b}\right)}{\sqrt{-abcd}b}+\frac{1}{24}\sqrt{b^2c+(bx+a)bd-abd}\sqrt{bx+a}\left(2(bx+a)\left(\frac{4(bx+a)|b|}{b^2}+\frac{b^3cd^3|b|+5ab^2d^4|b|}{b^4d^4}\right)-\frac{3\left(b^4c^2d^2|b|-4ab^3cd^3|b|-5a\right.}{b^4d^4}\right.$$
$$-\frac{\left(\sqrt{bd}b^3c^3|b|-5\sqrt{bd}ab^2c^2d|b|+15\sqrt{bd}a^2bcd^2|b|+5\sqrt{bd}a^3d^3|b|\right)\ln\left(\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2\right)}{16b^2d^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*sqrt(d*x + c)/x,x, algorithm="giac")
```

```
[Out] -2*sqrt(b*d)*a^3*c*abs(b)*arctan(-1/2*(b^2*c + a*b*d - (sqrt(b*d)
*sqrt(b*x + a) - sqrt(b^2*c + (b*x + a)*b*d - a*b*d))^2)/(sqrt(-a
*b*c*d)*b))/(sqrt(-a*b*c*d)*b) + 1/24*sqrt(b^2*c + (b*x + a)*b*d
- a*b*d)*sqrt(b*x + a)*(2*(b*x + a)*(4*(b*x + a)*abs(b)/b^2 + (b^
3*c*d^3*abs(b) + 5*a*b^2*d^4*abs(b))/(b^4*d^4)) - 3*(b^4*c^2*d^2*
abs(b) - 4*a*b^3*c*d^3*abs(b) - 5*a^2*b^2*d^4*abs(b))/(b^4*d^4))
- 1/16*(sqrt(b*d)*b^3*c^3*abs(b) - 5*sqrt(b*d)*a*b^2*c^2*d*abs(b)
 + 15*sqrt(b*d)*a^2*b*c*d^2*abs(b) + 5*sqrt(b*d)*a^3*d^3*abs(b))*
ln((sqrt(b*d)*sqrt(b*x + a) - sqrt(b^2*c + (b*x + a)*b*d - a*b*d)
)^2)/(b^2*d^3)
```

3.639 $\int \frac{(a+bx)^{5/2}\sqrt{c+dx}}{x^2}\,dx$

Optimal. Leaf size=197

$$-\frac{a^{3/2}(ad+5bc)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{c}}-\frac{\sqrt{b}\left(-15a^2d^2-10abcd+b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4d^{3/2}}-\frac{(a+bx)^{5/2}\sqrt{c+dx}}{x}+\frac{3}{2}b(a+bx)^{3/2}\sqrt{c+dx}+\frac{b\sqrt{a+bx}\sqrt{c+dx}(11ad+bc)}{4d}$$

```
[Out] (b*(b*c + 11*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*d) + (3*b*(a +
b*x)^(3/2)*Sqrt[c + d*x])/2 - ((a + b*x)^(5/2)*Sqrt[c + d*x])/x -
 (a^(3/2)*(5*b*c + a*d)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*
Sqrt[c + d*x])])/Sqrt[c] - (Sqrt[b]*(b^2*c^2 - 10*a*b*c*d - 15*a^
2*d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/
(4*d^(3/2))
```

Rubi [A] time = 0.657553, antiderivative size = 197, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.273

$$-\frac{a^{3/2}(ad+5bc)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{c}}-\frac{\sqrt{b}\left(-15a^2d^2-10abcd+b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4d^{3/2}}-\frac{(a+bx)^{5/2}\sqrt{c+dx}}{x}+\frac{3}{2}b(a+bx)^{3/2}\sqrt{c+dx}+\frac{b\sqrt{a+bx}\sqrt{c+dx}(11ad+bc)}{4d}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(5/2)*Sqrt[c + d*x])/x^2,x]
```

```
[Out] (b*(b*c + 11*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*d) + (3*b*(a +
b*x)^(3/2)*Sqrt[c + d*x])/2 - ((a + b*x)^(5/2)*Sqrt[c + d*x])/x -
 (a^(3/2)*(5*b*c + a*d)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*
Sqrt[c + d*x])])/Sqrt[c] - (Sqrt[b]*(b^2*c^2 - 10*a*b*c*d - 15*a^
2*d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/
(4*d^(3/2))
```

Rubi in Sympy [A] time = 70.6048, size = 182, normalized size = 0.92

$$-\frac{a^{\frac{3}{2}}\left(ad+5bc\right)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{c}}+\frac{\sqrt{b}\left(15a^2d^2+10abcd-b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4d^{\frac{3}{2}}}+\frac{3b\left(a+bx\right)^{\frac{3}{2}}\sqrt{c+dx}}{2}+\frac{b\sqrt{a+bx}\sqrt{c+dx}\left(11ad+bc\right)}{4d}-\frac{\left(a+bx\right)^{\frac{5}{2}}\sqrt{c+dx}}{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(d*x+c)**(1/2)/x**2,x)
```

```
[Out] -a**(3/2)*(a*d + 5*b*c)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt
(c + d*x)))/sqrt(c) + sqrt(b)*(15*a**2*d**2 + 10*a*b*c*d - b**2*c
**2)*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c + d*x)))/(4*d**(
3/2)) + 3*b*(a + b*x)**(3/2)*sqrt(c + d*x)/2 + b*sqrt(a + b*x)*sq
rt(c + d*x)*(11*a*d + b*c)/(4*d) - (a + b*x)**(5/2)*sqrt(c + d*x)
/x
```

Mathematica [A] time = 0.567418, size = 214, normalized size = 1.09

$$\frac{1}{8}\left(\frac{4a^{3/2}\log(x)(ad+5bc)}{\sqrt{c}}-\frac{4a^{3/2}(ad+5bc)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{\sqrt{c}}+\frac{\sqrt{b}\left(15a^2d^2+10abcd-b^2c^2\right)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{d^{3/2}}+2\sqrt{a+bx}\sqrt{c+dx}\left(-\frac{4a^2}{x}+9ab+\frac{b^2(c+2dx)}{d}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(5/2)*Sqrt[c + d*x])/x^2,x]
```

```
[Out] (2*Sqrt[a + b*x]*Sqrt[c + d*x]*(9*a*b - (4*a^2)/x + (b^2*(c + 2*d
*x))/d) + (4*a^(3/2)*(5*b*c + a*d)*Log[x])/Sqrt[c] - (4*a^(3/2)*(
5*b*c + a*d)*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a
 + b*x]*Sqrt[c + d*x]])/Sqrt[c] + (Sqrt[b]*(-(b^2*c^2) + 10*a*b*c
*d + 15*a^2*d^2)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt
[a + b*x]*Sqrt[c + d*x]])/d^(3/2))/8
```

Maple [B] time = 0.022, size = 504, normalized size = 2.6

$$\frac{1}{8\,dx}\sqrt{bx+a}\sqrt{dx+c}\left(15\,\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{dx^2b+adx+bcx+ac}\sqrt{bd}+ad+bc}{\sqrt{bd}}\right)xa^2bd^2\sqrt{ac}+10\,\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{dx}}{}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(d*x+c)^(1/2)/x^2,x)
```

```
[Out] 1/8*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(15*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*
d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^2*b*d^
2*(a*c)^(1/2)+10*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2
)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a*b^2*c*d*(a*c)^(1/2)-ln(1/
2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)
/(b*d)^(1/2))*x*b^3*c^2*(a*c)^(1/2)-4*ln((a*d*x+b*c*x+2*(a*c)^(1/
2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x*a^3*d^2*(b*d)^(1/2
)-20*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2
)+2*a*c)/x)*x*a^2*b*c*d*(b*d)^(1/2)+4*x^2*b^2*d*(a*c)^(1/2)*(b*d*
x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+18*x*a*b*d*(a*c)^(1/2)*(b*
d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+2*x*b^2*c*(a*c)^(1/2)*(b
*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)-8*a^2*d*(a*c)^(1/2)*(b*
d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2))/(b*d*x^2+a*d*x+b*c*x+a*
c)^(1/2)/d/(b*d)^(1/2)/x/(a*c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*sqrt(d*x + c)/x^2,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 2.81857, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*sqrt(d*x + c)/x^2,x, algorithm="fricas")
```

```
[Out] [-1/16*((b^2*c^2 - 10*a*b*c*d - 15*a^2*d^2)*x*sqrt(b/d)*log(8*b^2
*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b*d^2*x + b*c*d +
 a*d^2)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(b/d) + 8*(b^2*c*d + a*b*
d^2)*x) - 4*(5*a*b*c*d + a^2*d^2)*x*sqrt(a/c)*log((8*a^2*c^2 + (b
^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a*c^2 + (b*c^2 + a*c*d)*
x)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(a/c) + 8*(a*b*c^2 + a^2*c*d)*
x)/x^2) - 4*(2*b^2*d*x^2 - 4*a^2*d + (b^2*c + 9*a*b*d)*x)*sqrt(b*
x + a)*sqrt(d*x + c))/(d*x), -1/8*((b^2*c^2 - 10*a*b*c*d - 15*a^2
*d^2)*x*sqrt(-b/d)*arctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(b*x + a
)*sqrt(d*x + c)*d*sqrt(-b/d))) - 2*(5*a*b*c*d + a^2*d^2)*x*sqrt(a
/c)*log((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a
*c^2 + (b*c^2 + a*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(a/c) +
 8*(a*b*c^2 + a^2*c*d)*x)/x^2) - 2*(2*b^2*d*x^2 - 4*a^2*d + (b^2*
c + 9*a*b*d)*x)*sqrt(b*x + a)*sqrt(d*x + c))/(d*x), -1/16*(8*(5*a
*b*c*d + a^2*d^2)*x*sqrt(-a/c)*arctan(1/2*(2*a*c + (b*c + a*d)*x)
/(sqrt(b*x + a)*sqrt(d*x + c)*c*sqrt(-a/c))) + (b^2*c^2 - 10*a*b*
c*d - 15*a^2*d^2)*x*sqrt(b/d)*log(8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b
*c*d + a^2*d^2 + 4*(2*b*d^2*x + b*c*d + a*d^2)*sqrt(b*x + a)*sqrt
(d*x + c)*sqrt(b/d) + 8*(b^2*c*d + a*b*d^2)*x) - 4*(2*b^2*d*x^2 -
 4*a^2*d + (b^2*c + 9*a*b*d)*x)*sqrt(b*x + a)*sqrt(d*x + c))/(d*x
), -1/8*(4*(5*a*b*c*d + a^2*d^2)*x*sqrt(-a/c)*arctan(1/2*(2*a*c +
 (b*c + a*d)*x)/(sqrt(b*x + a)*sqrt(d*x + c)*c*sqrt(-a/c))) + (b^
2*c^2 - 10*a*b*c*d - 15*a^2*d^2)*x*sqrt(-b/d)*arctan(1/2*(2*b*d*x
 + b*c + a*d)/(sqrt(b*x + a)*sqrt(d*x + c)*d*sqrt(-b/d))) - 2*(2*
b^2*d*x^2 - 4*a^2*d + (b^2*c + 9*a*b*d)*x)*sqrt(b*x + a)*sqrt(d*x
 + c))/(d*x)]
```

Sympy [F(-1)]   time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(d*x+c)**(1/2)/x**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A]   time = 0.645449, size = 4, normalized size = 0.02

$$sage_0 x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*sqrt(d*x + c)/x^2,x, algorithm="giac")
```

```
[Out] sage0*x
```

3.640 $\int \frac{(a+bx)^{5/2}\sqrt{c+dx}}{x^3}\,dx$

Optimal. Leaf size=212

$$-\frac{\sqrt{a}\left(-a^2d^2+10abcd+15b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4c^{3/2}}+\frac{b^{3/2}(5ad+bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{d}}-\frac{(a+bx)^{5/2}\sqrt{c+dx}}{2x^2}-\frac{(a+bx)^{3/2}\sqrt{c+dx}(ad+5bc)}{4cx}+\frac{b\sqrt{a+bx}\sqrt{c+dx}(ad+11bc)}{4c}$$

```
[Out] (b*(11*b*c + a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*c) - ((5*b*c +
a*d)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(4*c*x) - ((a + b*x)^(5/2)*Sq
rt[c + d*x])/(2*x^2) - (Sqrt[a]*(15*b^2*c^2 + 10*a*b*c*d - a^2*d^
2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(4*c
^(3/2)) + (b^(3/2)*(b*c + 5*a*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/
(Sqrt[b]*Sqrt[c + d*x])])/Sqrt[d]
```

Rubi [A] time = 0.654901, antiderivative size = 212, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 7, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.318

$$-\frac{\sqrt{a}\left(-a^2d^2+10abcd+15b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4c^{3/2}}+\frac{b^{3/2}(5ad+bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{d}}-\frac{(a+bx)^{5/2}\sqrt{c+dx}}{2x^2}-\frac{(a+bx)^{3/2}\sqrt{c+dx}(ad+5bc)}{4cx}+\frac{b\sqrt{a+bx}\sqrt{c+dx}(ad+11bc)}{4c}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(5/2)*Sqrt[c + d*x])/x^3,x]
```

```
[Out] (b*(11*b*c + a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*c) - ((5*b*c +
a*d)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(4*c*x) - ((a + b*x)^(5/2)*Sq
rt[c + d*x])/(2*x^2) - (Sqrt[a]*(15*b^2*c^2 + 10*a*b*c*d - a^2*d^
2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(4*c
^(3/2)) + (b^(3/2)*(b*c + 5*a*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/
(Sqrt[b]*Sqrt[c + d*x])])/Sqrt[d]
```

Rubi in Sympy [A] time = 88.9124, size = 194, normalized size = 0.92

$$\frac{\sqrt{a}\left(a^2d^2-10abcd-15b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4c^{\frac{3}{2}}}+\frac{b^{\frac{3}{2}}(5ad+bc)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{d}}+\frac{b\sqrt{a+bx}\sqrt{c+dx}\,(ad+11bc)}{4c}-\frac{(a+bx)^{\frac{5}{2}}\sqrt{c+dx}}{2x^2}-\frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}\,(ad+5bc)}{4cx}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(d*x+c)**(1/2)/x**3,x)
```

```
[Out] sqrt(a)*(a**2*d**2 - 10*a*b*c*d - 15*b**2*c**2)*atanh(sqrt(c)*sqr
t(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(4*c**(3/2)) + b**(3/2)*(5*a*
d + b*c)*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c + d*x)))/sqr
t(d) + b*sqrt(a + b*x)*sqrt(c + d*x)*(a*d + 11*b*c)/(4*c) - (a +
b*x)**(5/2)*sqrt(c + d*x)/(2*x**2) - (a + b*x)**(3/2)*sqrt(c + d*
x)*(a*d + 5*b*c)/(4*c*x)
```

Mathematica [A] time = 0.636499, size = 236, normalized size = 1.11

$$-\frac{\sqrt{a}\log(x)\left(a^2d^2-10abcd-15b^2c^2\right)}{8c^{3/2}}+\frac{\sqrt{a}\left(a^2d^2-10abcd-15b^2c^2\right)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{8c^{3/2}}+\sqrt{a+bx}\sqrt{c+dx}\left(-\frac{a^2}{2x^2}-\frac{a(ad+9bc)}{4cx}+b^2\right)+\frac{b^{3/2}(5ad+bc)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{2\sqrt{d}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(5/2)*Sqrt[c + d*x])/x^3,x]
```

```
[Out] (b^2 - a^2/(2*x^2) - (a*(9*b*c + a*d))/(4*c*x))*Sqrt[a + b*x]*Sqr
t[c + d*x] - (Sqrt[a]*(-15*b^2*c^2 - 10*a*b*c*d + a^2*d^2)*Log[x]
)/(8*c^(3/2)) + (Sqrt[a]*(-15*b^2*c^2 - 10*a*b*c*d + a^2*d^2)*Log
[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c +
 d*x]])/(8*c^(3/2)) + (b^(3/2)*(b*c + 5*a*d)*Log[b*c + a*d + 2*b*
d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(2*Sqrt[d])
```

Maple [B] time = 0.022, size = 511, normalized size = 2.4

$$\frac{1}{8\,cx^2}\sqrt{bx+a}\sqrt{dx+c}\left(\ln\left(\frac{1}{x}\left(adx+bcx+2\,\sqrt{ac}\sqrt{dx^2b+adx+bcx+ac}+2\,ac\right)\right)x^2a^3d^2\sqrt{bd}-10\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}}{}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(d*x+c)^(1/2)/x^3,x)
```

```
[Out] 1/8*(b*x+a)^(1/2)*(d*x+c)^(1/2)/c*(ln((a*d*x+b*c*x+2*(a*c)^(1/2)*
(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^2*a^3*d^2*(b*d)^(1/2)
-10*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)
+2*a*c)/x)*x^2*a^2*b*c*d*(b*d)^(1/2)-15*ln((a*d*x+b*c*x+2*(a*c)^(
1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^2*a*b^2*c^2*(b*d
)^(1/2)+20*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d
)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a*b^2*c*d*(a*c)^(1/2)+4*ln(1/2*
(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(
b*d)^(1/2))*x^2*b^3*c^2*(a*c)^(1/2)+8*x^2*b^2*c*(b*d)^(1/2)*(a*c)
^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)-2*x*a^2*d*(b*d)^(1/2)*(a*c
)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)-18*x*a*b*c*(b*d)^(1/2)*(a
*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)-4*a^2*c*(b*d)^(1/2)*(a*
c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2))/(b*d*x^2+a*d*x+b*c*x+a*
c)^(1/2)/x^2/(a*c)^(1/2)/(b*d)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*sqrt(d*x + c)/x^3,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 2.27456, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*sqrt(d*x + c)/x^3,x, algorithm="fricas")
```

```
[Out] [1/16*(4*(b^2*c^2 + 5*a*b*c*d)*x^2*sqrt(b/d)*log(8*b^2*d^2*x^2 +
b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b*d^2*x + b*c*d + a*d^2)*sqr
t(b*x + a)*sqrt(d*x + c)*sqrt(b/d) + 8*(b^2*c*d + a*b*d^2)*x) - (
15*b^2*c^2 + 10*a*b*c*d - a^2*d^2)*x^2*sqrt(a/c)*log((8*a^2*c^2 +
 (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 4*(2*a*c^2 + (b*c^2 + a*c*
d)*x)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(a/c) + 8*(a*b*c^2 + a^2*c*
d)*x)/x^2) + 4*(4*b^2*c*x^2 - 2*a^2*c - (9*a*b*c + a^2*d)*x)*sqrt
(b*x + a)*sqrt(d*x + c))/(c*x^2), 1/16*(8*(b^2*c^2 + 5*a*b*c*d)*x
^2*sqrt(-b/d)*arctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(b*x + a)*sqr
t(d*x + c)*d*sqrt(-b/d))) - (15*b^2*c^2 + 10*a*b*c*d - a^2*d^2)*x
^2*sqrt(a/c)*log((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2
 + 4*(2*a*c^2 + (b*c^2 + a*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c)*sq
rt(a/c) + 8*(a*b*c^2 + a^2*c*d)*x)/x^2) + 4*(4*b^2*c*x^2 - 2*a^2*
c - (9*a*b*c + a^2*d)*x)*sqrt(b*x + a)*sqrt(d*x + c))/(c*x^2), -1
/8*((15*b^2*c^2 + 10*a*b*c*d - a^2*d^2)*x^2*sqrt(-a/c)*arctan(1/2
*(2*a*c + (b*c + a*d)*x)/(sqrt(b*x + a)*sqrt(d*x + c)*c*sqrt(-a/c
))) - 2*(b^2*c^2 + 5*a*b*c*d)*x^2*sqrt(b/d)*log(8*b^2*d^2*x^2 + b
^2*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b*d^2*x + b*c*d + a*d^2)*sqrt
(b*x + a)*sqrt(d*x + c)*sqrt(b/d) + 8*(b^2*c*d + a*b*d^2)*x) - 2*
(4*b^2*c*x^2 - 2*a^2*c - (9*a*b*c + a^2*d)*x)*sqrt(b*x + a)*sqrt(
d*x + c))/(c*x^2), -1/8*((15*b^2*c^2 + 10*a*b*c*d - a^2*d^2)*x^2*
sqrt(-a/c)*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(b*x + a)*sqrt
(d*x + c)*c*sqrt(-a/c))) - 4*(b^2*c^2 + 5*a*b*c*d)*x^2*sqrt(-b/d)
*arctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(b*x + a)*sqrt(d*x + c)*d*
sqrt(-b/d))) - 2*(4*b^2*c*x^2 - 2*a^2*c - (9*a*b*c + a^2*d)*x)*sq
rt(b*x + a)*sqrt(d*x + c))/(c*x^2)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(d*x+c)**(1/2)/x**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.733224, size = 4, normalized size = 0.02

$$sage_0x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*sqrt(d*x + c)/x^3,x, algorithm="giac")
```

```
[Out] sage0*x
```

3.641 $\int \frac{(a+bx)^{5/2}\sqrt{c+dx}}{x^4}\,dx$

Optimal. Leaf size=228

$$-\frac{(a^3d^3-5a^2bcd^2+15ab^2c^2d+5b^3c^3)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8\sqrt{a}c^{5/2}}+2b^{5/2}\sqrt{d}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)-\frac{\sqrt{a+bx}\sqrt{c+dx}(5bc-ad)(ad+bc)}{8c^2x}-\frac{(a+bx)^{5/2}\sqrt{c+dx}}{3x^3}-\frac{(a+bx)^{3/2}\sqrt{c+dx}(ad+5bc)}{12cx^2}$$

```
[Out] -((5*b*c - a*d)*(b*c + a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(8*c^2*x
) - ((5*b*c + a*d)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(12*c*x^2) - ((
a + b*x)^(5/2)*Sqrt[c + d*x])/(3*x^3) - ((5*b^3*c^3 + 15*a*b^2*c^
2*d - 5*a^2*b*c*d^2 + a^3*d^3)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(S
qrt[a]*Sqrt[c + d*x])])/(8*Sqrt[a]*c^(5/2)) + 2*b^(5/2)*Sqrt[d]*A
rcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])]
```

Rubi [A] time = 0.658065, antiderivative size = 228, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.273$

$$-\frac{(a^3d^3-5a^2bcd^2+15ab^2c^2d+5b^3c^3)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8\sqrt{a}c^{5/2}}+2b^{5/2}\sqrt{d}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)-\frac{\sqrt{a+bx}\sqrt{c+dx}(5bc-ad)(ad+bc)}{8c^2x}-\frac{(a+bx)^{5/2}\sqrt{c+dx}}{3x^3}-\frac{(a+bx)^{3/2}\sqrt{c+dx}(ad+5bc)}{12cx^2}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(5/2)*Sqrt[c + d*x])/x^4,x]
```

```
[Out] -((5*b*c - a*d)*(b*c + a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(8*c^2*x
) - ((5*b*c + a*d)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(12*c*x^2) - ((
a + b*x)^(5/2)*Sqrt[c + d*x])/(3*x^3) - ((5*b^3*c^3 + 15*a*b^2*c^
2*d - 5*a^2*b*c*d^2 + a^3*d^3)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(S
qrt[a]*Sqrt[c + d*x])])/(8*Sqrt[a]*c^(5/2)) + 2*b^(5/2)*Sqrt[d]*A
rcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])]
```

Rubi in Sympy [A] time = 101.337, size = 212, normalized size = 0.93

$$2b^{\frac{5}{2}}\sqrt{d}\,\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)-\frac{(a+bx)^{\frac{5}{2}}\sqrt{c+dx}}{3x^3}-\frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}\,(ad+5bc)}{12cx^2}+\frac{\sqrt{a+bx}\sqrt{c+dx}\,(ad-5bc)\,(ad+bc)}{8c^2x}-\frac{(a^3d^3-5a^2bcd^2+15ab^2c^2d+5b^3c^3)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8\sqrt{a}c^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(d*x+c)**(1/2)/x**4,x)
```

```
[Out] 2*b**(5/2)*sqrt(d)*atanh(sqrt(b)*sqrt(c + d*x)/(sqrt(d)*sqrt(a +
b*x))) - (a + b*x)**(5/2)*sqrt(c + d*x)/(3*x**3) - (a + b*x)**(3/
2)*sqrt(c + d*x)*(a*d + 5*b*c)/(12*c*x**2) + sqrt(a + b*x)*sqrt(c
 + d*x)*(a*d - 5*b*c)*(a*d + b*c)/(8*c**2*x) - (a**3*d**3 - 5*a**
2*b*c*d**2 + 15*a*b**2*c**2*d + 5*b**3*c**3)*atanh(sqrt(c)*sqrt(a
 + b*x)/(sqrt(a)*sqrt(c + d*x)))/(8*sqrt(a)*c**(5/2))
```

Mathematica [A] time = 0.517613, size = 283, normalized size = 1.24

$$\sqrt{a+bx}\sqrt{c+dx}\left(\frac{3a^2d^2-14abcd-33b^2c^2}{24c^2x}-\frac{a^2}{3x^3}-\frac{a(ad+13bc)}{12cx^2}\right)+\frac{\log(x)\left(a^3d^3-5a^2bcd^2+15ab^2c^2d+5b^3c^3\right)}{16\sqrt{a}c^{5/2}}-\frac{\left(a^3d^3-5a^2bcd^2+15ab^2c^2d+5b^3c^3\right)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{16\sqrt{a}c^{5/2}}+b^{5/2}\sqrt{d}\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(5/2)*Sqrt[c + d*x])/x^4,x]
```

```
[Out] (-a^2/(3*x^3) - (a*(13*b*c + a*d))/(12*c*x^2) + (-33*b^2*c^2 - 14
*a*b*c*d + 3*a^2*d^2)/(24*c^2*x))*Sqrt[a + b*x]*Sqrt[c + d*x] + (
(5*b^3*c^3 + 15*a*b^2*c^2*d - 5*a^2*b*c*d^2 + a^3*d^3)*Log[x])/(1
6*Sqrt[a]*c^(5/2)) - ((5*b^3*c^3 + 15*a*b^2*c^2*d - 5*a^2*b*c*d^2
 + a^3*d^3)*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a
+ b*x]*Sqrt[c + d*x]])/(16*Sqrt[a]*c^(5/2)) + b^(5/2)*Sqrt[d]*Log
[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d
*x]]
```

Maple [B] time = 0.025, size = 601, normalized size = 2.6

$$\frac{1}{48\,c^2x^3}\sqrt{bx+a}\sqrt{dx+c}\left(48\,\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{dx^2b+adx+bcx+ac}\sqrt{bd}+ad+bc}{\sqrt{bd}}\right)x^3b^3c^2d\sqrt{ac}-3\,\ln\left(\frac{adx+bcx+2}{}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(d*x+c)^(1/2)/x^4,x)
```

```
[Out] 1/48*(b*x+a)^(1/2)*(d*x+c)^(1/2)/c^2*(48*ln(1/2*(2*b*d*x+2*(b*d*x
^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^3*b
^3*c^2*d*(a*c)^(1/2)-3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d
*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^3*a^3*d^3*(b*d)^(1/2)+15*ln((a*d*
x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x
^3*a^2*b*c*d^2*(b*d)^(1/2)-45*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*
x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^3*a*b^2*c^2*d*(b*d)^(1/2)-
15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+
2*a*c)/x)*x^3*b^3*c^3*(b*d)^(1/2)+6*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/
2)*d^2*(b*d)^(1/2)*a^2*(a*c)^(1/2)*x^2-28*(b*d*x^2+a*d*x+b*c*x+a*
c)^(1/2)*d*b*(b*d)^(1/2)*a*(a*c)^(1/2)*x^2*c-66*c^2*(b*d*x^2+a*d*
x+b*c*x+a*c)^(1/2)*b^2*(b*d)^(1/2)*(a*c)^(1/2)*x^2-4*(b*d*x^2+a*d
*x+b*c*x+a*c)^(1/2)*d*(b*d)^(1/2)*a^2*(a*c)^(1/2)*x*c-52*c^2*(b*d
*x^2+a*d*x+b*c*x+a*c)^(1/2)*b*(b*d)^(1/2)*a*(a*c)^(1/2)*x-16*c^2*
(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)*a^2*(a*c)^(1/2))/(b*d
*x^2+a*d*x+b*c*x+a*c)^(1/2)/(b*d)^(1/2)/x^3/(a*c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*sqrt(d*x + c)/x^4,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 2.51029, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*sqrt(d*x + c)/x^4,x, algorithm="fricas")
```

```
[Out] [1/96*(48*sqrt(a*c)*sqrt(b*d)*b^2*c^2*x^3*log(8*b^2*d^2*x^2 + b^2
*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b*d*x + b*c + a*d)*sqrt(b*d)*sq
rt(b*x + a)*sqrt(d*x + c) + 8*(b^2*c*d + a*b*d^2)*x) + 3*(5*b^3*c
^3 + 15*a*b^2*c^2*d - 5*a^2*b*c*d^2 + a^3*d^3)*x^3*log(-(4*(2*a^2
*c^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c) - (8*a^
2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*
d)*x)*sqrt(a*c))/x^2) - 4*(8*a^2*c^2 + (33*b^2*c^2 + 14*a*b*c*d -
 3*a^2*d^2)*x^2 + 2*(13*a*b*c^2 + a^2*c*d)*x)*sqrt(a*c)*sqrt(b*x
+ a)*sqrt(d*x + c))/(sqrt(a*c)*c^2*x^3), 1/96*(96*sqrt(a*c)*sqrt(
-b*d)*b^2*c^2*x^3*arctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(-b*d)*sq
rt(b*x + a)*sqrt(d*x + c))) + 3*(5*b^3*c^3 + 15*a*b^2*c^2*d - 5*a
^2*b*c*d^2 + a^3*d^3)*x^3*log(-(4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d
)*x)*sqrt(b*x + a)*sqrt(d*x + c) - (8*a^2*c^2 + (b^2*c^2 + 6*a*b*
c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2) - 4
*(8*a^2*c^2 + (33*b^2*c^2 + 14*a*b*c*d - 3*a^2*d^2)*x^2 + 2*(13*a
*b*c^2 + a^2*c*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt
(a*c)*c^2*x^3), 1/48*(24*sqrt(-a*c)*sqrt(b*d)*b^2*c^2*x^3*log(8*b
^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b*d*x + b*c + a
*d)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 8*(b^2*c*d + a*b*d^2)
*x) - 3*(5*b^3*c^3 + 15*a*b^2*c^2*d - 5*a^2*b*c*d^2 + a^3*d^3)*x^
3*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sq
rt(d*x + c)*a*c)) - 2*(8*a^2*c^2 + (33*b^2*c^2 + 14*a*b*c*d - 3*a
^2*d^2)*x^2 + 2*(13*a*b*c^2 + a^2*c*d)*x)*sqrt(-a*c)*sqrt(b*x + a
)*sqrt(d*x + c))/(sqrt(-a*c)*c^2*x^3), 1/48*(48*sqrt(-a*c)*sqrt(-
b*d)*b^2*c^2*x^3*arctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(-b*d)*sqr
t(b*x + a)*sqrt(d*x + c))) - 3*(5*b^3*c^3 + 15*a*b^2*c^2*d - 5*a^
2*b*c*d^2 + a^3*d^3)*x^3*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(
-a*c)/(sqrt(b*x + a)*sqrt(d*x + c)*a*c)) - 2*(8*a^2*c^2 + (33*b^2
*c^2 + 14*a*b*c*d - 3*a^2*d^2)*x^2 + 2*(13*a*b*c^2 + a^2*c*d)*x)*
sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(-a*c)*c^2*x^3)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(d*x+c)**(1/2)/x**4,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.686709, size = 4, normalized size = 0.02

$$sage_0x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*sqrt(d*x + c)/x^4,x, algorithm="giac")
```

```
[Out] sage0*x
```

3.642 $\int \frac{(a+bx)^{5/2}\sqrt{c+dx}}{x^5}\,dx$

Optimal. Leaf size=198

$$\frac{5(bc-ad)^4\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{3/2}c^{7/2}}-\frac{5\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)^2}{32c^3x^2}-\frac{5\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^3}{64ac^3x}-\frac{5(a+bx)^{3/2}(c+dx)^{3/2}(bc-ad)}{24c^2x^3}-\frac{(a+bx)^{5/2}(c+dx)^{3/2}}{4cx^4}$$

```
[Out] (-5*(b*c - a*d)^3*Sqrt[a + b*x]*Sqrt[c + d*x])/(64*a*c^3*x) - (5*
(b*c - a*d)^2*Sqrt[a + b*x]*(c + d*x)^(3/2))/(32*c^3*x^2) - (5*(b
*c - a*d)*(a + b*x)^(3/2)*(c + d*x)^(3/2))/(24*c^2*x^3) - ((a + b
*x)^(5/2)*(c + d*x)^(3/2))/(4*c*x^4) + (5*(b*c - a*d)^4*ArcTanh[(
Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(64*a^(3/2)*c^(7
/2))
```

Rubi [A] time = 0.372416, antiderivative size = 198, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.136

$$\frac{5(bc-ad)^4\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{3/2}c^{7/2}}-\frac{5\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)^2}{32c^3x^2}-\frac{5\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^3}{64ac^3x}-\frac{5(a+bx)^{3/2}(c+dx)^{3/2}(bc-ad)}{24c^2x^3}-\frac{(a+bx)^{5/2}(c+dx)^{3/2}}{4cx^4}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(5/2)*Sqrt[c + d*x])/x^5,x]
```

```
[Out] (-5*(b*c - a*d)^3*Sqrt[a + b*x]*Sqrt[c + d*x])/(64*a*c^3*x) - (5*
(b*c - a*d)^2*Sqrt[a + b*x]*(c + d*x)^(3/2))/(32*c^3*x^2) - (5*(b
*c - a*d)*(a + b*x)^(3/2)*(c + d*x)^(3/2))/(24*c^2*x^3) - ((a + b
*x)^(5/2)*(c + d*x)^(3/2))/(4*c*x^4) + (5*(b*c - a*d)^4*ArcTanh[(
Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(64*a^(3/2)*c^(7
/2))
```

Rubi in Sympy [A] time = 35.9414, size = 180, normalized size = 0.91

$$-\frac{(a+bx)^{\frac{5}{2}}(c+dx)^{\frac{3}{2}}}{4cx^4}+\frac{5(a+bx)^{\frac{5}{2}}\sqrt{c+dx}(ad-bc)}{24acx^3}+\frac{5(a+bx)^{\frac{3}{2}}\sqrt{c+dx}(ad-bc)^2}{96ac^2x^2}-\frac{5\sqrt{a+bx}\sqrt{c+dx}(ad-bc)^3}{64ac^3x}+\frac{5(ad-bc)^4\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{\frac{3}{2}}c^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(d*x+c)**(1/2)/x**5,x)
```

```
[Out] -(a + b*x)**(5/2)*(c + d*x)**(3/2)/(4*c*x**4) + 5*(a + b*x)**(5/2
)*sqrt(c + d*x)*(a*d - b*c)/(24*a*c*x**3) + 5*(a + b*x)**(3/2)*sq
rt(c + d*x)*(a*d - b*c)**2/(96*a*c**2*x**2) - 5*sqrt(a + b*x)*sqr
t(c + d*x)*(a*d - b*c)**3/(64*a*c**3*x) + 5*(a*d - b*c)**4*atanh(
sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(64*a**(3/2)*c**(7
/2))
```

Mathematica [A] time = 0.25723, size = 215, normalized size = 1.09

$$\frac{-2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}\left(a^3\left(48c^3+8c^2dx-10cd^2x^2+15d^3x^3\right)+a^2bcx\left(136c^2+36cdx-55d^2x^2\right)+ab^2c^2x^2(118c+73dx\right.}{384a^{3/2}c^{7/2}x^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(5/2)*Sqrt[c + d*x])/x^5,x]
```

```
[Out] (-2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]*(15*b^3*c^3*x^3 +
 a*b^2*c^2*x^2*(118*c + 73*d*x) + a^2*b*c*x*(136*c^2 + 36*c*d*x -
 55*d^2*x^2) + a^3*(48*c^3 + 8*c^2*d*x - 10*c*d^2*x^2 + 15*d^3*x^
3)) - 15*(b*c - a*d)^4*x^4*Log[x] + 15*(b*c - a*d)^4*x^4*Log[2*a*
c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]
])/(384*a^(3/2)*c^(7/2)*x^4)
```

Maple [B] time = 0.024, size = 705, normalized size = 3.6

$$\frac{1}{384\,ac^3x^4}\sqrt{bx+a}\sqrt{dx+c}\left(15\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{dx^2b+adx+bcx+ac}+2\,ac}{x}\right)x^4a^4d^4-60\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{}}{}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(d*x+c)^(1/2)/x^5,x)
```

```
[Out] 1/384*(b*x+a)^(1/2)*(d*x+c)^(1/2)/a/c^3*(15*ln((a*d*x+b*c*x+2*(a*
c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^4*a^4*d^4-60
*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*
a*c)/x)*x^4*a^3*b*c*d^3+90*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2
+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^4*a^2*b^2*c^2*d^2-60*ln((a*d*
x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x
^4*a*b^3*c^3*d+15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*
c*x+a*c)^(1/2)+2*a*c)/x)*x^4*b^4*c^4-30*(a*c)^(1/2)*(b*d*x^2+a*d*
x+b*c*x+a*c)^(1/2)*x^3*a^3*d^3+110*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c
*x+a*c)^(1/2)*x^3*a^2*b*c*d^2-146*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*
x+a*c)^(1/2)*x^3*a*b^2*c^2*d-30*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+
a*c)^(1/2)*x^3*b^3*c^3+20*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(
1/2)*x^2*a^3*c*d^2-72*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)
*x^2*a^2*b*c^2*d-236*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*
x^2*a*b^2*c^3-16*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*a^
3*c^2*d-272*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*a^2*b*c
^3-96*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a^3*c^3*(a*c)^(1/2))/(b*d*x
^2+a*d*x+b*c*x+a*c)^(1/2)/(a*c)^(1/2)/x^4
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*sqrt(d*x + c)/x^5,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.710703, size = 1, normalized size = 0.01

$$\left[\frac{15\left(b^4c^4-4\,ab^3c^3d+6\,a^2b^2c^2d^2-4\,a^3bcd^3+a^4d^4\right)x^4\log\left(\frac{4\left(2\,a^2c^2+\left(abc^2+a^2cd\right)x\right)\sqrt{bx+a}\sqrt{dx+c}+\left(8\,a^2c^2+\left(b^2c^2+6\,abcd+a^2d^2\right)x^2+8\,(a\right.}{x^2}\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*sqrt(d*x + c)/x^5,x, algorithm="fricas")
```

```
[Out] [1/768*(15*(b^4*c^4 - 4*a*b^3*c^3*d + 6*a^2*b^2*c^2*d^2 - 4*a^3*b
*c*d^3 + a^4*d^4)*x^4*log((4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*
sqrt(b*x + a)*sqrt(d*x + c) + (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d +
 a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2) - 4*(48*
a^3*c^3 + (15*b^3*c^3 + 73*a*b^2*c^2*d - 55*a^2*b*c*d^2 + 15*a^3*
d^3)*x^3 + 2*(59*a*b^2*c^3 + 18*a^2*b*c^2*d - 5*a^3*c*d^2)*x^2 +
8*(17*a^2*b*c^3 + a^3*c^2*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x
+ c))/(sqrt(a*c)*a*c^3*x^4), 1/384*(15*(b^4*c^4 - 4*a*b^3*c^3*d +
 6*a^2*b^2*c^2*d^2 - 4*a^3*b*c*d^3 + a^4*d^4)*x^4*arctan(1/2*(2*a
*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d*x + c)*a*c))
 - 2*(48*a^3*c^3 + (15*b^3*c^3 + 73*a*b^2*c^2*d - 55*a^2*b*c*d^2
+ 15*a^3*d^3)*x^3 + 2*(59*a*b^2*c^3 + 18*a^2*b*c^2*d - 5*a^3*c*d^
2)*x^2 + 8*(17*a^2*b*c^3 + a^3*c^2*d)*x)*sqrt(-a*c)*sqrt(b*x + a)
*sqrt(d*x + c))/(sqrt(-a*c)*a*c^3*x^4)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(d*x+c)**(1/2)/x**5,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*sqrt(d*x + c)/x^5,x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.643 $\int \frac{(a+bx)^{5/2}\sqrt{c+dx}}{x^6}\,dx$

Optimal. Leaf size=283

$$-\frac{(7ad+3bc)(bc-ad)^4\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{128a^{5/2}c^{9/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}(7ad+3bc)(bc-ad)^3}{128a^2c^4x}+\frac{\sqrt{a+bx}(c+dx)^{3/2}(7ad+3bc)(bc-ad)^2}{64ac^4x^2}+\frac{(a+bx)^{3/2}(c+dx)^{3/2}(7ad+3bc)(bc-ad)}{48ac^3x^3}+\frac{(a+bx)^{5/2}(c+dx)^{3/2}(7ad+3bc)}{40ac^2x^4}-\frac{(a+bx)^{7/2}(c+dx)^{3/2}}{5acx^5}$$

```
[Out] ((b*c - a*d)^3*(3*b*c + 7*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(128*
a^2*c^4*x) + ((b*c - a*d)^2*(3*b*c + 7*a*d)*Sqrt[a + b*x]*(c + d*
x)^(3/2))/(64*a*c^4*x^2) + ((b*c - a*d)*(3*b*c + 7*a*d)*(a + b*x)
^(3/2)*(c + d*x)^(3/2))/(48*a*c^3*x^3) + ((3*b*c + 7*a*d)*(a + b*
x)^(5/2)*(c + d*x)^(3/2))/(40*a*c^2*x^4) - ((a + b*x)^(7/2)*(c +
d*x)^(3/2))/(5*a*c*x^5) - ((b*c - a*d)^4*(3*b*c + 7*a*d)*ArcTanh[
(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(128*a^(5/2)*c^
(9/2))
```

Rubi [A] time = 0.510758, antiderivative size = 283, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.182$

$$-\frac{(7ad+3bc)(bc-ad)^4\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{128a^{5/2}c^{9/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}(7ad+3bc)(bc-ad)^3}{128a^2c^4x}+\frac{\sqrt{a+bx}(c+dx)^{3/2}(7ad+3bc)(bc-ad)^2}{64ac^4x^2}+\frac{(a+bx)^{3/2}(c+dx)^{3/2}(7ad+3bc)(bc-ad)}{48ac^3x^3}+\frac{(a+bx)^{5/2}(c+dx)^{3/2}(7ad+3bc)}{40ac^2x^4}-\frac{(a+bx)^{7/2}(c+dx)^{3/2}}{5acx^5}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(5/2)*Sqrt[c + d*x])/x^6,x]
```

```
[Out] ((b*c - a*d)^3*(3*b*c + 7*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(128*
a^2*c^4*x) + ((b*c - a*d)^2*(3*b*c + 7*a*d)*Sqrt[a + b*x]*(c + d*
x)^(3/2))/(64*a*c^4*x^2) + ((b*c - a*d)*(3*b*c + 7*a*d)*(a + b*x)
^(3/2)*(c + d*x)^(3/2))/(48*a*c^3*x^3) + ((3*b*c + 7*a*d)*(a + b*
x)^(5/2)*(c + d*x)^(3/2))/(40*a*c^2*x^4) - ((a + b*x)^(7/2)*(c +
d*x)^(3/2))/(5*a*c*x^5) - ((b*c - a*d)^4*(3*b*c + 7*a*d)*ArcTanh[
(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(128*a^(5/2)*c^
(9/2))
```

Rubi in Sympy [A] time = 50.4023, size = 260, normalized size = 0.92

$$-\frac{(a+bx)^{\frac{7}{2}}(c+dx)^{\frac{3}{2}}}{5acx^5}+\frac{(a+bx)^{\frac{7}{2}}\sqrt{c+dx}\,(7ad+3bc)}{40a^2cx^4}+\frac{(a+bx)^{\frac{5}{2}}\sqrt{c+dx}\,(ad-bc)(7ad+3bc)}{240a^2c^2x^3}-\frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}\,(ad-bc)^2(7ad+3bc)}{192a^2c^3x^2}+\frac{\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)^3(7ad+3bc)}{128a^2c^4x}-\frac{(ad-bc)^4(7ad+3bc)\,\mathrm{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{128a^{\frac{5}{2}}c^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(d*x+c)**(1/2)/x**6,x)
```

```
[Out] -(a + b*x)**(7/2)*(c + d*x)**(3/2)/(5*a*c*x**5) + (a + b*x)**(7/2
)*sqrt(c + d*x)*(7*a*d + 3*b*c)/(40*a**2*c*x**4) + (a + b*x)**(5/
```

```
2)*sqrt(c + d*x)*(a*d - b*c)*(7*a*d + 3*b*c)/(240*a**2*c**2*x**3)
 - (a + b*x)**(3/2)*sqrt(c + d*x)*(a*d - b*c)**2*(7*a*d + 3*b*c)/
(192*a**2*c**3*x**2) + sqrt(a + b*x)*sqrt(c + d*x)*(a*d - b*c)**3
*(7*a*d + 3*b*c)/(128*a**2*c**4*x) - (a*d - b*c)**4*(7*a*d + 3*b*
c)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(128*a**(
5/2)*c**(9/2))
```

Mathematica [A] time = 0.340339, size = 288, normalized size = 1.02

$$-2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}\left(a^4\left(384c^4+48c^3dx-56c^2d^2x^2+70cd^3x^3-105d^4x^4\right)+2a^3bcx\left(504c^3+88c^2dx-111cd^2x^2+17\right.\right.$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(5/2)*Sqrt[c + d*x])/x^6,x]
```

```
[Out] (-2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]*(-45*b^4*c^4*x^4
+ 30*a*b^3*c^3*x^3*(c + 2*d*x) + 2*a^2*b^2*c^2*x^2*(372*c^2 + 109
*c*d*x - 173*d^2*x^2) + 2*a^3*b*c*x*(504*c^3 + 88*c^2*d*x - 111*c
*d^2*x^2 + 170*d^3*x^3) + a^4*(384*c^4 + 48*c^3*d*x - 56*c^2*d^2*
x^2 + 70*c*d^3*x^3 - 105*d^4*x^4)) + 15*(b*c - a*d)^4*(3*b*c + 7*
a*d)*x^5*Log[x] - 15*(b*c - a*d)^4*(3*b*c + 7*a*d)*x^5*Log[2*a*c
+ b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])
/(3840*a^(5/2)*c^(9/2)*x^5)
```

Maple [B] time = 0.029, size = 967, normalized size = 3.4

$$-\frac{1}{3840\,a^2c^4x^5}\sqrt{bx+a}\sqrt{dx+c}\left(105\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{dx^2b+adx+bcx+ac}+2\,ac}{x}\right)x^5a^5d^5-375\,\ln\left(\frac{adx+bcx+2\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(d*x+c)^(1/2)/x^6,x)
```

```
[Out] -1/3840*(b*x+a)^(1/2)*(d*x+c)^(1/2)/a^2/c^4*(105*ln((a*d*x+b*c*x+
2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^5*a^5*d
^5-375*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1
/2)+2*a*c)/x)*x^5*a^4*b*c*d^4+450*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(
b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^5*a^3*b^2*c^2*d^3-150*
ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a
*c)/x)*x^5*a^2*b^3*c^3*d^2-75*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*
x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^5*a*b^4*c^4*d+45*ln((a*d*x
+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^
5*b^5*c^5-210*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^4*a^4
*d^4+680*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^4*a^3*b*c*
d^3-692*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^4*a^2*b^2*c
^2*d^2+120*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^4*a*b^3*
c^3*d-90*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^4*b^4*c^4+
140*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^3*a^4*c*d^3-444
*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^3*a^3*b*c^2*d^2+43
6*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^3*a^2*b^2*c^3*d+6
0*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^3*a*b^3*c^4-112*(
a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^2*a^4*c^2*d^2+352*(a
*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^2*a^3*b*c^3*d+1488*(a
*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^2*a^2*b^2*c^4+96*(a*c
)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*a^4*c^3*d+2016*(a*c)^(1
/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*a^3*b*c^4+768*(b*d*x^2+a*d*
x+b*c*x+a*c)^(1/2)*a^4*c^4*(a*c)^(1/2))/(b*d*x^2+a*d*x+b*c*x+a*c)
^(1/2)/x^5/(a*c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*sqrt(d*x + c)/x^6,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 2.75735, size = 1, normalized size = 0.

$$\left[\frac{15\left(3\,b^5c^5 - 5\,ab^4c^4d - 10\,a^2b^3c^3d^2 + 30\,a^3b^2c^2d^3 - 25\,a^4bcd^4 + 7\,a^5d^5\right)x^5\log\left(-\frac{4\left(2\,a^2c^2+\left(abc^2+a^2cd\right)x\right)\sqrt{bx+a}\sqrt{dx+c}-\left(8\,a^2c^2+\left(\right.\right.}{x^2}\right.}{}\right.$$

$$-\frac{15\left(3\,b^5c^5 - 5\,ab^4c^4d - 10\,a^2b^3c^3d^2 + 30\,a^3b^2c^2d^3 - 25\,a^4bcd^4 + 7\,a^5d^5\right)x^5\arctan\left(\frac{(2\,ac+(bc+ad)x)\sqrt{-ac}}{2\,\sqrt{bx+a}\sqrt{dx+c}ac}\right) + 2\left(384\,a^4c^4 - \left(45\right.\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*sqrt(d*x + c)/x^6,x, algorithm="fricas")
```

```
[Out] [1/7680*(15*(3*b^5*c^5 - 5*a*b^4*c^4*d - 10*a^2*b^3*c^3*d^2 + 30*
a^3*b^2*c^2*d^3 - 25*a^4*b*c*d^4 + 7*a^5*d^5)*x^5*log(-(4*(2*a^2*
c^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c) - (8*a^2
*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d
)*x)*sqrt(a*c))/x^2) - 4*(384*a^4*c^4 - (45*b^4*c^4 - 60*a*b^3*c^
3*d + 346*a^2*b^2*c^2*d^2 - 340*a^3*b*c*d^3 + 105*a^4*d^4)*x^4 +
2*(15*a*b^3*c^4 + 109*a^2*b^2*c^3*d - 111*a^3*b*c^2*d^2 + 35*a^4*
c*d^3)*x^3 + 8*(93*a^2*b^2*c^4 + 22*a^3*b*c^3*d - 7*a^4*c^2*d^2)*
x^2 + 48*(21*a^3*b*c^4 + a^4*c^3*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sq
rt(d*x + c))/(sqrt(a*c)*a^2*c^4*x^5), -1/3840*(15*(3*b^5*c^5 - 5*
a*b^4*c^4*d - 10*a^2*b^3*c^3*d^2 + 30*a^3*b^2*c^2*d^3 - 25*a^4*b*
c*d^4 + 7*a^5*d^5)*x^5*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a
*c)/(sqrt(b*x + a)*sqrt(d*x + c)*a*c)) + 2*(384*a^4*c^4 - (45*b^4
*c^4 - 60*a*b^3*c^3*d + 346*a^2*b^2*c^2*d^2 - 340*a^3*b*c*d^3 + 1
05*a^4*d^4)*x^4 + 2*(15*a*b^3*c^4 + 109*a^2*b^2*c^3*d - 111*a^3*b
*c^2*d^2 + 35*a^4*c*d^3)*x^3 + 8*(93*a^2*b^2*c^4 + 22*a^3*b*c^3*d
 - 7*a^4*c^2*d^2)*x^2 + 48*(21*a^3*b*c^4 + a^4*c^3*d)*x)*sqrt(-a*
c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(-a*c)*a^2*c^4*x^5)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(d*x+c)**(1/2)/x**6,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*sqrt(d*x + c)/x^6,x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.644 $\int x^2(a+bx)^{5/2}(c+dx)^{3/2}\,dx$

Optimal. Leaf size=437

$$-\frac{\left(5a^2d^2+10abcd+9b^2c^2\right)(bc-ad)^5\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{1024b^{9/2}d^{11/2}}+\frac{(a+bx)^{7/2}\sqrt{c+dx}\left(5a^2d^2+10abcd+9b^2c^2\right)(bc-ad)}{320b^4d^2}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(5a^2d^2+10abcd+9b^2c^2\right)(bc-ad)^4}{1024b^4d^5}-\frac{(a+bx)^{3/2}\sqrt{c+dx}\left(5a^2d^2+10abcd+9b^2c^2\right)(bc-ad)^3}{1536b^4d^4}+\frac{(a+bx)^{5/2}\sqrt{c+dx}\left(5a^2d^2+10abcd+9b^2c^2\right)(bc-ad)^2}{1920b^4d^3}+\frac{(a+bx)^{7/2}(c+dx)^{3/2}\left(5a^2d^2+10abcd+9b^2c^2\right)}{120b^3d^2}-\frac{(a+bx)^{7/2}(c+dx)^{5/2}(7ad+9bc)}{84b^2d^2}+\frac{x(a+bx)^{7/2}(c+dx)^{5/2}}{7bd}$$

```
[Out] ((b*c - a*d)^4*(9*b^2*c^2 + 10*a*b*c*d + 5*a^2*d^2)*Sqrt[a + b*x]
*Sqrt[c + d*x])/(1024*b^4*d^5) - ((b*c - a*d)^3*(9*b^2*c^2 + 10*a
*b*c*d + 5*a^2*d^2)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(1536*b^4*d^4)
 + ((b*c - a*d)^2*(9*b^2*c^2 + 10*a*b*c*d + 5*a^2*d^2)*(a + b*x)^
(5/2)*Sqrt[c + d*x])/(1920*b^4*d^3) + ((b*c - a*d)*(9*b^2*c^2 + 1
0*a*b*c*d + 5*a^2*d^2)*(a + b*x)^(7/2)*Sqrt[c + d*x])/(320*b^4*d^
2) + ((9*b^2*c^2 + 10*a*b*c*d + 5*a^2*d^2)*(a + b*x)^(7/2)*(c + d
*x)^(3/2))/(120*b^3*d^2) - ((9*b*c + 7*a*d)*(a + b*x)^(7/2)*(c +
d*x)^(5/2))/(84*b^2*d^2) + (x*(a + b*x)^(7/2)*(c + d*x)^(5/2))/(7
*b*d) - ((b*c - a*d)^5*(9*b^2*c^2 + 10*a*b*c*d + 5*a^2*d^2)*ArcTa
nh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(1024*b^(9/2
)*d^(11/2))
```

Rubi [A] time = 0.982276, antiderivative size = 437, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$-\frac{\left(5a^2d^2+10abcd+9b^2c^2\right)(bc-ad)^5\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{1024b^{9/2}d^{11/2}}+\frac{(a+bx)^{7/2}\sqrt{c+dx}\left(5a^2d^2+10abcd+9b^2c^2\right)(bc-ad)}{320b^4d^2}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(5a^2d^2+10abcd+9b^2c^2\right)(bc-ad)^4}{1024b^4d^5}-\frac{(a+bx)^{3/2}\sqrt{c+dx}\left(5a^2d^2+10abcd+9b^2c^2\right)(bc-ad)^3}{1536b^4d^4}+\frac{(a+bx)^{5/2}\sqrt{c+dx}\left(5a^2d^2+10abcd+9b^2c^2\right)(bc-ad)^2}{1920b^4d^3}+\frac{(a+bx)^{7/2}(c+dx)^{3/2}\left(5a^2d^2+10abcd+9b^2c^2\right)}{120b^3d^2}-\frac{(a+bx)^{7/2}(c+dx)^{5/2}(7ad+9bc)}{84b^2d^2}+\frac{x(a+bx)^{7/2}(c+dx)^{5/2}}{7bd}$$

Antiderivative was successfully verified.

```
[In]  Int[x^2*(a + b*x)^(5/2)*(c + d*x)^(3/2),x]
```


```
[Out] ((b*c - a*d)^4*(9*b^2*c^2 + 10*a*b*c*d + 5*a^2*d^2)*Sqrt[a + b*x]
*Sqrt[c + d*x])/(1024*b^4*d^5) - ((b*c - a*d)^3*(9*b^2*c^2 + 10*a
*b*c*d + 5*a^2*d^2)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(1536*b^4*d^4)
 + ((b*c - a*d)^2*(9*b^2*c^2 + 10*a*b*c*d + 5*a^2*d^2)*(a + b*x)^
(5/2)*Sqrt[c + d*x])/(1920*b^4*d^3) + ((b*c - a*d)*(9*b^2*c^2 + 1
0*a*b*c*d + 5*a^2*d^2)*(a + b*x)^(7/2)*Sqrt[c + d*x])/(320*b^4*d^
2) + ((9*b^2*c^2 + 10*a*b*c*d + 5*a^2*d^2)*(a + b*x)^(7/2)*(c + d
```

```
*x)^(3/2))/(120*b^3*d^2) - ((9*b*c + 7*a*d)*(a + b*x)^(7/2)*(c +
d*x)^(5/2))/(84*b^2*d^2) + (x*(a + b*x)^(7/2)*(c + d*x)^(5/2))/(7
*b*d) - ((b*c - a*d)^5*(9*b^2*c^2 + 10*a*b*c*d + 5*a^2*d^2)*ArcTa
nh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(1024*b^(9/2
)*d^(11/2))
```

Rubi in Sympy [A] time = 95.472, size = 420, normalized size = 0.96

$$\frac{x(a+bx)^{\frac{7}{2}}(c+dx)^{\frac{5}{2}}}{7bd}-\frac{(a+bx)^{\frac{7}{2}}(c+dx)^{\frac{5}{2}}(7ad+9bc)}{84b^2d^2}+\frac{(a+bx)^{\frac{7}{2}}(c+dx)^{\frac{3}{2}}\left(5a^2d^2+10abcd+9b^2c^2\right)}{120b^3d^2}-\frac{(a+bx)^{\frac{7}{2}}\sqrt{c+dx}\,(ad-bc)\left(5a^2d^2+10abcd+9b^2c^2\right)}{320b^4d^2}+\frac{(a+bx)^{\frac{5}{2}}\sqrt{c+dx}\,(ad-bc)^2\left(5a^2d^2+10abcd+9b^2c^2\right)}{1920b^4d^3}+\frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}\,(ad-bc)^3\left(5a^2d^2+10abcd+9b^2c^2\right)}{1536b^4d^4}+\frac{\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)^4\left(5a^2d^2+10abcd+9b^2c^2\right)}{1024b^4d^5}+\frac{(ad-bc)^5\left(5a^2d^2+10abcd+9b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{1024b^{\frac{9}{2}}d^{\frac{11}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(b*x+a)**(5/2)*(d*x+c)**(3/2),x)
```

```
[Out] x*(a + b*x)**(7/2)*(c + d*x)**(5/2)/(7*b*d) - (a + b*x)**(7/2)*(c
 + d*x)**(5/2)*(7*a*d + 9*b*c)/(84*b**2*d**2) + (a + b*x)**(7/2)*
(c + d*x)**(3/2)*(5*a**2*d**2 + 10*a*b*c*d + 9*b**2*c**2)/(120*b*
*3*d**2) - (a + b*x)**(7/2)*sqrt(c + d*x)*(a*d - b*c)*(5*a**2*d**
2 + 10*a*b*c*d + 9*b**2*c**2)/(320*b**4*d**2) + (a + b*x)**(5/2)*
sqrt(c + d*x)*(a*d - b*c)**2*(5*a**2*d**2 + 10*a*b*c*d + 9*b**2*c
**2)/(1920*b**4*d**3) + (a + b*x)**(3/2)*sqrt(c + d*x)*(a*d - b*c
)**3*(5*a**2*d**2 + 10*a*b*c*d + 9*b**2*c**2)/(1536*b**4*d**4) +
sqrt(a + b*x)*sqrt(c + d*x)*(a*d - b*c)**4*(5*a**2*d**2 + 10*a*b*
c*d + 9*b**2*c**2)/(1024*b**4*d**5) + (a*d - b*c)**5*(5*a**2*d**2
 + 10*a*b*c*d + 9*b**2*c**2)*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)
*sqrt(c + d*x)))/(1024*b**(9/2)*d**(11/2))
```

Mathematica [A] time = 0.404465, size = 393, normalized size = 0.9

$$\frac{\sqrt{a+bx}\sqrt{c+dx}\left(-525a^6d^6+350a^5bd^5(4c+dx)-35a^4b^2d^4\left(15c^2+26cdx+8d^2x^2\right)+60a^3b^3d^3\left(-10c^3+5c^2dx+12cd^2x^2\right.\right.}{}-\frac{(bc-ad)^5\left(5a^2d^2+10abcd+9b^2c^2\right)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{2048b^{9/2}d^{11/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^2*(a + b*x)^(5/2)*(c + d*x)^(3/2),x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(-525*a^6*d^6 + 350*a^5*b*d^5*(4*c +
 d*x) - 35*a^4*b^2*d^4*(15*c^2 + 26*c*d*x + 8*d^2*x^2) + 60*a^3*b
^3*d^3*(-10*c^3 + 5*c^2*d*x + 12*c*d^2*x^2 + 4*d^3*x^3) + a^2*b^4
*d^2*(3689*c^4 - 2332*c^3*d*x + 1824*c^2*d^2*x^2 + 33520*c*d^3*x^
3 + 23680*d^4*x^4) + 2*a*b^5*d*(-1680*c^5 + 1099*c^4*d*x - 872*c^
3*d^2*x^2 + 744*c^2*d^3*x^3 + 24320*c*d^4*x^4 + 18560*d^5*x^5) +
3*b^6*(315*c^6 - 210*c^5*d*x + 168*c^4*d^2*x^2 - 144*c^3*d^3*x^3
+ 128*c^2*d^4*x^4 + 6400*c*d^5*x^5 + 5120*d^6*x^6)))/(107520*b^4*
d^5) - ((b*c - a*d)^5*(9*b^2*c^2 + 10*a*b*c*d + 5*a^2*d^2)*Log[b*
```

```
c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]
])/(2048*b^(9/2)*d^(11/2))
```

Maple [B] time = 0.03, size = 1580, normalized size = 3.6

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(b*x+a)^(5/2)*(d*x+c)^(3/2),x)
```

```
[Out] 1/215040*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(480*x^3*a^3*b^3*d^6*(b*d*x^
2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)-6720*a*b^5*c^5*d*(b*d*x^2+a*
d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+74240*x^5*a*b^5*d^6*(b*d*x^2+a*d
*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+38400*x^5*b^6*c*d^5*(b*d*x^2+a*d*
x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+47360*x^4*a^2*b^4*d^6*(b*d*x^2+a*d
*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+768*x^4*b^6*c^2*d^4*(b*d*x^2+a*d*
x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+700*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2
)*x*a^5*d^6*b*(b*d)^(1/2)-1260*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*
c^5*b^6*d*(b*d)^(1/2)+2800*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a^5*c*
d^5*b*(b*d)^(1/2)-1050*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a^4*c^2*b^
2*d^4*(b*d)^(1/2)-1200*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a^3*c^3*b^
3*d^3*(b*d)^(1/2)+7378*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*c^4*a^2*b^
4*d^2*(b*d)^(1/2)-864*x^3*b^6*c^3*d^3*(b*d*x^2+a*d*x+b*c*x+a*c)^(
1/2)*(b*d)^(1/2)-560*x^2*a^4*b^2*d^6*(b*d*x^2+a*d*x+b*c*x+a*c)^(1
/2)*(b*d)^(1/2)+1008*x^2*b^6*c^4*d^2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1
/2)*(b*d)^(1/2)-1575*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^
(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^6*c*d^6*b+945*ln(1/2*(2
*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*
d)^(1/2))*a^5*c^2*d^5*b^2+525*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*
c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^4*c^3*b^3*d^4+
1575*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2
)+a*d+b*c)/(b*d)^(1/2))*a^3*c^4*b^4*d^3-4725*ln(1/2*(2*b*d*x+2*(b
*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*c
^5*a^2*b^5*d^2+3675*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(
1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*c^6*a*b^6*d+30720*x^6*b^6*
d^6*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)-1050*(b*d*x^2+a*d
*x+b*c*x+a*c)^(1/2)*a^6*d^6*(b*d)^(1/2)+1890*(b*d*x^2+a*d*x+b*c*x
+a*c)^(1/2)*c^6*b^6*(b*d)^(1/2)-1820*d^5*(b*d*x^2+a*d*x+b*c*x+a*c
)^(1/2)*x*a^4*c*b^2*(b*d)^(1/2)+600*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/
2)*x*a^3*c^2*b^3*d^4*(b*d)^(1/2)-4664*(b*d*x^2+a*d*x+b*c*x+a*c)^(
1/2)*x*a^2*c^3*b^4*d^3*(b*d)^(1/2)+4396*(b*d*x^2+a*d*x+b*c*x+a*c)
^(1/2)*x*c^4*a*b^5*d^2*(b*d)^(1/2)+97280*x^4*a*b^5*c*d^5*(b*d*x^2
+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+67040*x^3*a^2*b^4*c*d^5*(b*d*
x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+2976*x^3*a*b^5*c^2*d^4*(b*
d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+1440*x^2*a^3*b^3*c*d^5*(
b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+3648*x^2*a^2*b^4*c^2*d
^4*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)-3488*x^2*a*b^5*c^3
*d^3*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+525*d^7*ln(1/2*(
2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b
*d)^(1/2))*a^7-945*b^7*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c
)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*c^7)/(b*d*x^2+a*d*x+b*c
*x+a*c)^(1/2)/b^4/(b*d)^(1/2)/d^5
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(5/2)*(d*x + c)^(3/2)*x^2,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.325268, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(5/2)*(d*x + c)^(3/2)*x^2,x, algorithm="fricas")
```

```
[Out] [1/430080*(4*(15360*b^6*d^6*x^6 + 945*b^6*c^6 - 3360*a*b^5*c^5*d
+ 3689*a^2*b^4*c^4*d^2 - 600*a^3*b^3*c^3*d^3 - 525*a^4*b^2*c^2*d^
4 + 1400*a^5*b*c*d^5 - 525*a^6*d^6 + 1280*(15*b^6*c*d^5 + 29*a*b^
5*d^6)*x^5 + 128*(3*b^6*c^2*d^4 + 380*a*b^5*c*d^5 + 185*a^2*b^4*d
^6)*x^4 - 16*(27*b^6*c^3*d^3 - 93*a*b^5*c^2*d^4 - 2095*a^2*b^4*c*
d^5 - 15*a^3*b^3*d^6)*x^3 + 8*(63*b^6*c^4*d^2 - 218*a*b^5*c^3*d^3
 + 228*a^2*b^4*c^2*d^4 + 90*a^3*b^3*c*d^5 - 35*a^4*b^2*d^6)*x^2 -
 2*(315*b^6*c^5*d - 1099*a*b^5*c^4*d^2 + 1166*a^2*b^4*c^3*d^3 - 1
50*a^3*b^3*c^2*d^4 + 455*a^4*b^2*c*d^5 - 175*a^5*b*d^6)*x)*sqrt(b
*d)*sqrt(b*x + a)*sqrt(d*x + c) - 105*(9*b^7*c^7 - 35*a*b^6*c^6*d
 + 45*a^2*b^5*c^5*d^2 - 15*a^3*b^4*c^4*d^3 - 5*a^4*b^3*c^3*d^4 -
9*a^5*b^2*c^2*d^5 + 15*a^6*b*c*d^6 - 5*a^7*d^7)*log(4*(2*b^2*d^2*
x + b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x
^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqr
t(b*d)))/(sqrt(b*d)*b^4*d^5), 1/215040*(2*(15360*b^6*d^6*x^6 + 94
5*b^6*c^6 - 3360*a*b^5*c^5*d + 3689*a^2*b^4*c^4*d^2 - 600*a^3*b^3
*c^3*d^3 - 525*a^4*b^2*c^2*d^4 + 1400*a^5*b*c*d^5 - 525*a^6*d^6 +
 1280*(15*b^6*c*d^5 + 29*a*b^5*d^6)*x^5 + 128*(3*b^6*c^2*d^4 + 38
0*a*b^5*c*d^5 + 185*a^2*b^4*d^6)*x^4 - 16*(27*b^6*c^3*d^3 - 93*a*
b^5*c^2*d^4 - 2095*a^2*b^4*c*d^5 - 15*a^3*b^3*d^6)*x^3 + 8*(63*b^
6*c^4*d^2 - 218*a*b^5*c^3*d^3 + 228*a^2*b^4*c^2*d^4 + 90*a^3*b^3*
c*d^5 - 35*a^4*b^2*d^6)*x^2 - 2*(315*b^6*c^5*d - 1099*a*b^5*c^4*d
^2 + 1166*a^2*b^4*c^3*d^3 - 150*a^3*b^3*c^2*d^4 + 455*a^4*b^2*c*d
^5 - 175*a^5*b*d^6)*x)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c) - 1
05*(9*b^7*c^7 - 35*a*b^6*c^6*d + 45*a^2*b^5*c^5*d^2 - 15*a^3*b^4*
c^4*d^3 - 5*a^4*b^3*c^3*d^4 - 9*a^5*b^2*c^2*d^5 + 15*a^6*b*c*d^6
- 5*a^7*d^7)*arctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*
x + a)*sqrt(d*x + c)*b*d)))/(sqrt(-b*d)*b^4*d^5)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**2*(b*x+a)**(5/2)*(d*x+c)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.41235, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(5/2)*(d*x + c)^(3/2)*x^2,x, algorithm="giac")
```

```
[Out] Done
```

3.645 $\int x(a+bx)^{5/2}(c+dx)^{3/2}\,dx$

Optimal. Leaf size=315

$$\frac{(5ad+7bc)(bc-ad)^5\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{512b^{7/2}d^{9/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}(5ad+7bc)(bc-ad)^4}{512b^3d^4}+\frac{(a+bx)^{3/2}\sqrt{c+dx}(5ad+7bc)(bc-ad)^3}{768b^3d^3}-\frac{(a+bx)^{5/2}\sqrt{c+dx}(5ad+7bc)(bc-ad)^2}{960b^3d^2}-\frac{(a+bx)^{7/2}\sqrt{c+dx}(5ad+7bc)(bc-ad)}{160b^3d}-\frac{(a+bx)^{7/2}(c+dx)^{3/2}(5ad+7bc)}{60b^2d}+\frac{(a+bx)^{7/2}(c+dx)^{5/2}}{6bd}$$

```
[Out] -((b*c - a*d)^4*(7*b*c + 5*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(512
*b^3*d^4) + ((b*c - a*d)^3*(7*b*c + 5*a*d)*(a + b*x)^(3/2)*Sqrt[c
 + d*x])/(768*b^3*d^3) - ((b*c - a*d)^2*(7*b*c + 5*a*d)*(a + b*x)
^(5/2)*Sqrt[c + d*x])/(960*b^3*d^2) - ((b*c - a*d)*(7*b*c + 5*a*d
)*(a + b*x)^(7/2)*Sqrt[c + d*x])/(160*b^3*d) - ((7*b*c + 5*a*d)*(
a + b*x)^(7/2)*(c + d*x)^(3/2))/(60*b^2*d) + ((a + b*x)^(7/2)*(c
+ d*x)^(5/2))/(6*b*d) + ((b*c - a*d)^5*(7*b*c + 5*a*d)*ArcTanh[(S
qrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(512*b^(7/2)*d^(9
/2))
```

Rubi [A] time = 0.512114, antiderivative size = 315, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.2$

$$\frac{(5ad+7bc)(bc-ad)^5\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{512b^{7/2}d^{9/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}(5ad+7bc)(bc-ad)^4}{512b^3d^4}+\frac{(a+bx)^{3/2}\sqrt{c+dx}(5ad+7bc)(bc-ad)^3}{768b^3d^3}-\frac{(a+bx)^{5/2}\sqrt{c+dx}(5ad+7bc)(bc-ad)^2}{960b^3d^2}-\frac{(a+bx)^{7/2}\sqrt{c+dx}(5ad+7bc)(bc-ad)}{160b^3d}-\frac{(a+bx)^{7/2}(c+dx)^{3/2}(5ad+7bc)}{60b^2d}+\frac{(a+bx)^{7/2}(c+dx)^{5/2}}{6bd}$$

Antiderivative was successfully verified.

```
[In]  Int[x*(a + b*x)^(5/2)*(c + d*x)^(3/2),x]
```



```
[Out] -((b*c - a*d)^4*(7*b*c + 5*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(512
*b^3*d^4) + ((b*c - a*d)^3*(7*b*c + 5*a*d)*(a + b*x)^(3/2)*Sqrt[c
 + d*x])/(768*b^3*d^3) - ((b*c - a*d)^2*(7*b*c + 5*a*d)*(a + b*x)
^(5/2)*Sqrt[c + d*x])/(960*b^3*d^2) - ((b*c - a*d)*(7*b*c + 5*a*d
)*(a + b*x)^(7/2)*Sqrt[c + d*x])/(160*b^3*d) - ((7*b*c + 5*a*d)*(
a + b*x)^(7/2)*(c + d*x)^(3/2))/(60*b^2*d) + ((a + b*x)^(7/2)*(c
+ d*x)^(5/2))/(6*b*d) + ((b*c - a*d)^5*(7*b*c + 5*a*d)*ArcTanh[(S
qrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(512*b^(7/2)*d^(9
/2))
```

Rubi in Sympy [A] time = 62.8032, size = 287, normalized size = 0.91

$$\frac{(a+bx)^{\frac{7}{2}}(c+dx)^{\frac{5}{2}}}{6bd}-\frac{(a+bx)^{\frac{7}{2}}(c+dx)^{\frac{3}{2}}(5ad+7bc)}{60b^2d}+\frac{(a+bx)^{\frac{7}{2}}\sqrt{c+dx}\,(ad-bc)\,(5ad+7bc)}{160b^3d}-\frac{(a+bx)^{\frac{5}{2}}\sqrt{c+dx}\,(ad-bc)^2\,(5ad+7bc)}{960b^3d^2}-\frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}\,(ad-bc)^3\,(5ad+7bc)}{768b^3d^3}-\frac{\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)^4\,(5ad+7bc)}{512b^3d^4}-\frac{(ad-bc)^5\,(5ad+7bc)\,\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{512b^{\frac{7}{2}}d^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(b*x+a)**(5/2)*(d*x+c)**(3/2),x)
```

```
[Out] (a + b*x)**(7/2)*(c + d*x)**(5/2)/(6*b*d) - (a + b*x)**(7/2)*(c +
 d*x)**(3/2)*(5*a*d + 7*b*c)/(60*b**2*d) + (a + b*x)**(7/2)*sqrt(
c + d*x)*(a*d - b*c)*(5*a*d + 7*b*c)/(160*b**3*d) - (a + b*x)**(5
/2)*sqrt(c + d*x)*(a*d - b*c)**2*(5*a*d + 7*b*c)/(960*b**3*d**2)
- (a + b*x)**(3/2)*sqrt(c + d*x)*(a*d - b*c)**3*(5*a*d + 7*b*c)/(
768*b**3*d**3) - sqrt(a + b*x)*sqrt(c + d*x)*(a*d - b*c)**4*(5*a*
d + 7*b*c)/(512*b**3*d**4) - (a*d - b*c)**5*(5*a*d + 7*b*c)*atanh
(sqrt(b)*sqrt(c + d*x)/(sqrt(d)*sqrt(a + b*x)))/(512*b**(7/2)*d**
(9/2))
```

Mathematica [A] time = 0.310257, size = 305, normalized size = 0.97

$$\frac{\sqrt{a+bx}\sqrt{c+dx}\left(75a^5d^5-5a^4bd^4(49c+10dx)+10a^3b^2d^3\left(15c^2+16cdx+4d^2x^2\right)+6a^2b^3d^2\left(-91c^3+58c^2dx+564cd^2x^2\right.\right.}{}$$

$$+\frac{(5ad+7bc)(bc-ad)^5\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{1024b^{7/2}d^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x*(a + b*x)^(5/2)*(c + d*x)^(3/2),x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(75*a^5*d^5 - 5*a^4*b*d^4*(49*c + 10
*d*x) + 10*a^3*b^2*d^3*(15*c^2 + 16*c*d*x + 4*d^2*x^2) + 6*a^2*b^
3*d^2*(-91*c^3 + 58*c^2*d*x + 564*c*d^2*x^2 + 360*d^3*x^3) + a*b^
4*d*(415*c^4 - 272*c^3*d*x + 216*c^2*d^2*x^2 + 4448*c*d^3*x^3 + 3
200*d^4*x^4) + b^5*(-105*c^5 + 70*c^4*d*x - 56*c^3*d^2*x^2 + 48*c
^2*d^3*x^3 + 1664*c*d^4*x^4 + 1280*d^5*x^5)))/(7680*b^3*d^4) + ((
b*c - a*d)^5*(7*b*c + 5*a*d)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*
Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(1024*b^(7/2)*d^(9/2))
```

Maple [B] time = 0.025, size = 1240, normalized size = 3.9

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(b*x+a)^(5/2)*(d*x+c)^(3/2),x)
```

```
[Out] -1/15360*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(-80*x^2*a^3*b^2*d^5*(b*d*x^
2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+112*x^2*b^5*c^3*d^2*(b*d*x^2
+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)-6400*x^4*a*b^4*d^5*(b*d*x^2+a
*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)-3328*x^4*b^5*c*d^4*(b*d*x^2+a*d
*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)-4320*x^3*a^2*b^3*d^5*(b*d*x^2+a*d
*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)-96*x^3*b^5*c^2*d^3*(b*d*x^2+a*d*x
+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+1092*c^3*(b*d*x^2+a*d*x+b*c*x+a*c)^
(1/2)*a^2*b^3*d^2*(b*d)^(1/2)-830*c^4*(b*d*x^2+a*d*x+b*c*x+a*c)^(
1/2)*a*b^4*d*(b*d)^(1/2)+100*d^5*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*
x*a^4*b*(b*d)^(1/2)-140*c^4*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*b^5
*d*(b*d)^(1/2)+490*d^4*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a^4*c*b*(b
*d)^(1/2)-300*c^2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a^3*b^2*d^3*(b*
d)^(1/2)+75*d^6*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)
*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^6-105*c^6*b^6*ln(1/2*(2*b*d*
x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1
/2))-2560*x^5*b^5*d^5*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)
-150*d^5*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a^5*(b*d)^(1/2)+210*c^5*
(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*b^5*(b*d)^(1/2)-270*d^5*ln(1/2*(2
*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*
d)^(1/2))*a^5*c*b+225*c^2*d^4*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*
c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^4*b^2+300*c^3*
a^3*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)
+a*d+b*c)/(b*d)^(1/2))*b^3*d^3-675*c^4*ln(1/2*(2*b*d*x+2*(b*d*x^2
```

```
+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^2*b^4
*d^2+450*c^5*a*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*
(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*b^5*d-320*d^4*(b*d*x^2+a*d*x+b*
c*x+a*c)^(1/2)*x*a^3*c*b^2*(b*d)^(1/2)-696*c^2*(b*d*x^2+a*d*x+b*c
*x+a*c)^(1/2)*x*a^2*b^3*d^3*(b*d)^(1/2)+544*c^3*(b*d*x^2+a*d*x+b*
c*x+a*c)^(1/2)*x*a*b^4*d^2*(b*d)^(1/2)-6768*x^2*a^2*b^3*c*d^4*(b*
d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)-432*x^2*a*b^4*c^2*d^3*(b
*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)-8896*x^3*a*b^4*c*d^4*(b
*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2))/(b*d*x^2+a*d*x+b*c*x+a
*c)^(1/2)/d^4/b^3/(b*d)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*(d*x + c)^(3/2)*x,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.286927, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*(d*x + c)^(3/2)*x,x, algorithm="fricas")
```

```
[Out] [1/30720*(4*(1280*b^5*d^5*x^5 - 105*b^5*c^5 + 415*a*b^4*c^4*d - 5
46*a^2*b^3*c^3*d^2 + 150*a^3*b^2*c^2*d^3 - 245*a^4*b*c*d^4 + 75*a
^5*d^5 + 128*(13*b^5*c*d^4 + 25*a*b^4*d^5)*x^4 + 16*(3*b^5*c^2*d^
3 + 278*a*b^4*c*d^4 + 135*a^2*b^3*d^5)*x^3 - 8*(7*b^5*c^3*d^2 - 2
7*a*b^4*c^2*d^3 - 423*a^2*b^3*c*d^4 - 5*a^3*b^2*d^5)*x^2 + 2*(35*
b^5*c^4*d - 136*a*b^4*c^3*d^2 + 174*a^2*b^3*c^2*d^3 + 80*a^3*b^2*
c*d^4 - 25*a^4*b*d^5)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) -
15*(7*b^6*c^6 - 30*a*b^5*c^5*d + 45*a^2*b^4*c^4*d^2 - 20*a^3*b^3*
c^3*d^3 - 15*a^4*b^2*c^2*d^4 + 18*a^5*b*c*d^5 - 5*a^6*d^6)*log(-4
*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) +
(8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b
*d^2)*x)*sqrt(b*d)))/(sqrt(b*d)*b^3*d^4), 1/15360*(2*(1280*b^5*d^
5*x^5 - 105*b^5*c^5 + 415*a*b^4*c^4*d - 546*a^2*b^3*c^3*d^2 + 150
*a^3*b^2*c^2*d^3 - 245*a^4*b*c*d^4 + 75*a^5*d^5 + 128*(13*b^5*c*d
^4 + 25*a*b^4*d^5)*x^4 + 16*(3*b^5*c^2*d^3 + 278*a*b^4*c*d^4 + 13
5*a^2*b^3*d^5)*x^3 - 8*(7*b^5*c^3*d^2 - 27*a*b^4*c^2*d^3 - 423*a^
2*b^3*c*d^4 - 5*a^3*b^2*d^5)*x^2 + 2*(35*b^5*c^4*d - 136*a*b^4*c^
3*d^2 + 174*a^2*b^3*c^2*d^3 + 80*a^3*b^2*c*d^4 - 25*a^4*b*d^5)*x)
*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 15*(7*b^6*c^6 - 30*a*b^
5*c^5*d + 45*a^2*b^4*c^4*d^2 - 20*a^3*b^3*c^3*d^3 - 15*a^4*b^2*c^
2*d^4 + 18*a^5*b*c*d^5 - 5*a^6*d^6)*arctan(1/2*(2*b*d*x + b*c + a
*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/(sqrt(-b*d)*b^
3*d^4)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(b*x+a)**(5/2)*(d*x+c)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.369698, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*(d*x + c)^(3/2)*x,x, algorithm="giac")
```

```
[Out] Done
```

3.646 $\int (a+bx)^{5/2}(c+dx)^{3/2}\,dx$

Optimal. Leaf size=227

$$-\frac{3(bc-ad)^5\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{128b^{5/2}d^{7/2}}+\frac{3\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^4}{128b^2d^3}-\frac{(a+bx)^{3/2}\sqrt{c+dx}(bc-ad)^3}{64b^2d^2}+\frac{(a+bx)^{5/2}\sqrt{c+dx}(bc-ad)^2}{80b^2d}+\frac{3(a+bx)^{7/2}\sqrt{c+dx}(bc-ad)}{40b^2}+\frac{(a+bx)^{7/2}(c+dx)^{3/2}}{5b}$$

```
[Out] (3*(b*c - a*d)^4*Sqrt[a + b*x]*Sqrt[c + d*x])/(128*b^2*d^3) - ((b
*c - a*d)^3*(a + b*x)^(3/2)*Sqrt[c + d*x])/(64*b^2*d^2) + ((b*c -
 a*d)^2*(a + b*x)^(5/2)*Sqrt[c + d*x])/(80*b^2*d) + (3*(b*c - a*d
)*(a + b*x)^(7/2)*Sqrt[c + d*x])/(40*b^2) + ((a + b*x)^(7/2)*(c +
 d*x)^(3/2))/(5*b) - (3*(b*c - a*d)^5*ArcTanh[(Sqrt[d]*Sqrt[a + b
*x])/(Sqrt[b]*Sqrt[c + d*x])])/(128*b^(5/2)*d^(7/2))
```

Rubi [A] time = 0.315521, antiderivative size = 227, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 3, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}} = 0.158$

$$-\frac{3(bc-ad)^5\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{128b^{5/2}d^{7/2}}+\frac{3\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^4}{128b^2d^3}-\frac{(a+bx)^{3/2}\sqrt{c+dx}(bc-ad)^3}{64b^2d^2}+\frac{(a+bx)^{5/2}\sqrt{c+dx}(bc-ad)^2}{80b^2d}+\frac{3(a+bx)^{7/2}\sqrt{c+dx}(bc-ad)}{40b^2}+\frac{(a+bx)^{7/2}(c+dx)^{3/2}}{5b}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(5/2)*(c + d*x)^(3/2),x]
```

```
[Out] (3*(b*c - a*d)^4*Sqrt[a + b*x]*Sqrt[c + d*x])/(128*b^2*d^3) - ((b
*c - a*d)^3*(a + b*x)^(3/2)*Sqrt[c + d*x])/(64*b^2*d^2) + ((b*c -
 a*d)^2*(a + b*x)^(5/2)*Sqrt[c + d*x])/(80*b^2*d) + (3*(b*c - a*d
)*(a + b*x)^(7/2)*Sqrt[c + d*x])/(40*b^2) + ((a + b*x)^(7/2)*(c +
 d*x)^(3/2))/(5*b) - (3*(b*c - a*d)^5*ArcTanh[(Sqrt[d]*Sqrt[a + b
*x])/(Sqrt[b]*Sqrt[c + d*x])])/(128*b^(5/2)*d^(7/2))
```

Rubi in Sympy [A] time = 44.9734, size = 197, normalized size = 0.87

$$\frac{(a+bx)^{\frac{5}{2}}(c+dx)^{\frac{5}{2}}}{5d}+\frac{(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{5}{2}}(ad-bc)}{8d^2}+\frac{\sqrt{a+bx}\,(c+dx)^{\frac{5}{2}}(ad-bc)^2}{16d^3}+\frac{\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}(ad-bc)^3}{64bd^3}-\frac{3\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)^4}{128b^2d^3}+\frac{3(ad-bc)^5\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{128b^{\frac{5}{2}}d^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(d*x+c)**(3/2),x)
```

```
[Out] (a + b*x)**(5/2)*(c + d*x)**(5/2)/(5*d) + (a + b*x)**(3/2)*(c + d
*x)**(5/2)*(a*d - b*c)/(8*d**2) + sqrt(a + b*x)*(c + d*x)**(5/2)*
(a*d - b*c)**2/(16*d**3) + sqrt(a + b*x)*(c + d*x)**(3/2)*(a*d -
b*c)**3/(64*b*d**3) - 3*sqrt(a + b*x)*sqrt(c + d*x)*(a*d - b*c)**
4/(128*b**2*d**3) + 3*(a*d - b*c)**5*atanh(sqrt(d)*sqrt(a + b*x)/
(sqrt(b)*sqrt(c + d*x)))/(128*b**(5/2)*d**(7/2))
```

Mathematica [A] time = 0.225465, size = 233, normalized size = 1.03

$$\frac{\sqrt{a+bx}\sqrt{c+dx}\left(-15a^4d^4+10a^3bd^3(7c+dx)+2a^2b^2d^2\left(64c^2+233cdx+124d^2x^2\right)+2ab^3d\left(-35c^3+23c^2dx+256cd^2x^2\right.\right.}{640b^2d^3}$$

$$-\frac{3(bc-ad)^5\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{256b^{5/2}d^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(5/2)*(c + d*x)^(3/2),x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(-15*a^4*d^4 + 10*a^3*b*d^3*(7*c + d
*x) + 2*a^2*b^2*d^2*(64*c^2 + 233*c*d*x + 124*d^2*x^2) + 2*a*b^3*
d*(-35*c^3 + 23*c^2*d*x + 256*c*d^2*x^2 + 168*d^3*x^3) + b^4*(15*
c^4 - 10*c^3*d*x + 8*c^2*d^2*x^2 + 176*c*d^3*x^3 + 128*d^4*x^4)))
/(640*b^2*d^3) - (3*(b*c - a*d)^5*Log[b*c + a*d + 2*b*d*x + 2*Sqr
t[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(256*b^(5/2)*d^(7/2))
```

Maple [B] time = 0.008, size = 853, normalized size = 3.8

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(d*x+c)^(3/2),x)
```

```
[Out] 1/5/d*(b*x+a)^(5/2)*(d*x+c)^(5/2)+1/8/d*(b*x+a)^(3/2)*(d*x+c)^(5/
2)*a+1/16/d*(b*x+a)^(1/2)*(d*x+c)^(5/2)*a^2+3/32/d^2*(d*x+c)^(1/2
)*(b*x+a)^(1/2)*a*c^3*b+3/32/b*(d*x+c)^(1/2)*(b*x+a)^(1/2)*a^3*c-
1/8/d^2*(b*x+a)^(1/2)*(d*x+c)^(5/2)*a*b*c+3/64/d^2*(d*x+c)^(3/2)*
(b*x+a)^(1/2)*a*c^2*b-15/256*d/b*((b*x+a)*(d*x+c))^(1/2)/(d*x+c)^
(1/2)/(b*x+a)^(1/2)*ln((1/2*a*d+1/2*b*c+b*d*x)/(b*d)^(1/2)+(d*x^2
*b+(a*d+b*c)*x+a*c)^(1/2))/(b*d)^(1/2)*a^4*c+15/128*((b*x+a)*(d*x
+c))^(1/2)/(d*x+c)^(1/2)/(b*x+a)^(1/2)*ln((1/2*a*d+1/2*b*c+b*d*x)
/(b*d)^(1/2)+(d*x^2*b+(a*d+b*c)*x+a*c)^(1/2))/(b*d)^(1/2)*a^3*c^2
+15/256/d^2*((b*x+a)*(d*x+c))^(1/2)/(d*x+c)^(1/2)/(b*x+a)^(1/2)*l
n((1/2*a*d+1/2*b*c+b*d*x)/(b*d)^(1/2)+(d*x^2*b+(a*d+b*c)*x+a*c)^(
1/2))/(b*d)^(1/2)*a*c^4*b^2-3/128/d^3*(d*x+c)^(1/2)*(b*x+a)^(1/2)
*c^4*b^2+1/64/b*(d*x+c)^(3/2)*(b*x+a)^(1/2)*a^3-3/64/d*(d*x+c)^(3
/2)*(b*x+a)^(1/2)*a^2*c-1/64/d^3*(d*x+c)^(3/2)*(b*x+a)^(1/2)*c^3*
b^2-3/128*d/b^2*(d*x+c)^(1/2)*(b*x+a)^(1/2)*a^4-9/64/d*(d*x+c)^(1
/2)*(b*x+a)^(1/2)*a^2*c^2-1/8/d^2*(b*x+a)^(3/2)*(d*x+c)^(5/2)*b*c
+1/16/d^3*(b*x+a)^(1/2)*(d*x+c)^(5/2)*b^2*c^2-15/128/d*((b*x+a)*(
d*x+c))^(1/2)/(d*x+c)^(1/2)/(b*x+a)^(1/2)*ln((1/2*a*d+1/2*b*c+b*d
*x)/(b*d)^(1/2)+(d*x^2*b+(a*d+b*c)*x+a*c)^(1/2))/(b*d)^(1/2)*a^2*
c^3*b+3/256*d^2/b^2*((b*x+a)*(d*x+c))^(1/2)/(d*x+c)^(1/2)/(b*x+a)
^(1/2)*ln((1/2*a*d+1/2*b*c+b*d*x)/(b*d)^(1/2)+(d*x^2*b+(a*d+b*c)*
x+a*c)^(1/2))/(b*d)^(1/2)*a^5-3/256/d^3*((b*x+a)*(d*x+c))^(1/2)/(
d*x+c)^(1/2)/(b*x+a)^(1/2)*ln((1/2*a*d+1/2*b*c+b*d*x)/(b*d)^(1/2)
+(d*x^2*b+(a*d+b*c)*x+a*c)^(1/2))/(b*d)^(1/2)*c^5*b^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*(d*x + c)^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.272325, size = 1, normalized size = 0.

$$\left[\frac{4\left(128\,b^4d^4x^4+15\,b^4c^4-70\,ab^3c^3d+128\,a^2b^2c^2d^2+70\,a^3bcd^3-15\,a^4d^4+16\left(11\,b^4cd^3+21\,ab^3d^4\right)x^3+8\left(b^4c^2d^2+64\,ab\right.\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*(d*x + c)^(3/2),x, algorithm="fricas")
```

```
[Out] [1/2560*(4*(128*b^4*d^4*x^4 + 15*b^4*c^4 - 70*a*b^3*c^3*d + 128*a
^2*b^2*c^2*d^2 + 70*a^3*b*c*d^3 - 15*a^4*d^4 + 16*(11*b^4*c*d^3 +
 21*a*b^3*d^4)*x^3 + 8*(b^4*c^2*d^2 + 64*a*b^3*c*d^3 + 31*a^2*b^2
*d^4)*x^2 - 2*(5*b^4*c^3*d - 23*a*b^3*c^2*d^2 - 233*a^2*b^2*c*d^3
 - 5*a^3*b*d^4)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) - 15*(b^
5*c^5 - 5*a*b^4*c^4*d + 10*a^2*b^3*c^3*d^2 - 10*a^3*b^2*c^2*d^3 +
 5*a^4*b*c*d^4 - a^5*d^5)*log(4*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)
*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c
*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/(sqrt(b*d)*b^
2*d^3), 1/1280*(2*(128*b^4*d^4*x^4 + 15*b^4*c^4 - 70*a*b^3*c^3*d
+ 128*a^2*b^2*c^2*d^2 + 70*a^3*b*c*d^3 - 15*a^4*d^4 + 16*(11*b^4*
c*d^3 + 21*a*b^3*d^4)*x^3 + 8*(b^4*c^2*d^2 + 64*a*b^3*c*d^3 + 31*
a^2*b^2*d^4)*x^2 - 2*(5*b^4*c^3*d - 23*a*b^3*c^2*d^2 - 233*a^2*b^
2*c*d^3 - 5*a^3*b*d^4)*x)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c)
- 15*(b^5*c^5 - 5*a*b^4*c^4*d + 10*a^2*b^3*c^3*d^2 - 10*a^3*b^2*c
^2*d^3 + 5*a^4*b*c*d^4 - a^5*d^5)*arctan(1/2*(2*b*d*x + b*c + a*d
)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/(sqrt(-b*d)*b^2*
d^3)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(d*x+c)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.367005, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*(d*x + c)^(3/2),x, algorithm="giac")
```

```
[Out] Done
```

3.647 $\int \frac{(a+bx)^{5/2}(c+dx)^{3/2}}{x}\,dx$

Optimal. Leaf size=299

$$-2a^{5/2}c^{3/2}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)+\frac{\sqrt{a+bx}\sqrt{c+dx}\,(64a^2bcd^2+(bc-5ad)(bc-ad)(ad+3bc))}{64bd^2}+\frac{(-5a^4d^4+60a^3bcd^3+90a^2b^2c^2d^2-20ab^3c^3d+3b^4c^4)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{64b^{3/2}d^{5/2}}-\frac{\sqrt{a+bx}(c+dx)^{3/2}(bc-5ad)(ad+3bc)}{32d^2}+\frac{1}{4}(a+bx)^{5/2}(c+dx)^{3/2}+\frac{(a+bx)^{3/2}(c+dx)^{3/2}(5ad+3bc)}{24d}$$

```
[Out] ((64*a^2*b*c*d^2 + (b*c - 5*a*d)*(b*c - a*d)*(3*b*c + a*d))*Sqrt[
a + b*x]*Sqrt[c + d*x])/(64*b*d^2) - ((b*c - 5*a*d)*(3*b*c + a*d)
*Sqrt[a + b*x]*(c + d*x)^(3/2))/(32*d^2) + ((3*b*c + 5*a*d)*(a +
b*x)^(3/2)*(c + d*x)^(3/2))/(24*d) + ((a + b*x)^(5/2)*(c + d*x)^(
3/2))/4 - 2*a^(5/2)*c^(3/2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt
[a]*Sqrt[c + d*x])] + ((3*b^4*c^4 - 20*a*b^3*c^3*d + 90*a^2*b^2*c
^2*d^2 + 60*a^3*b*c*d^3 - 5*a^4*d^4)*ArcTanh[(Sqrt[d]*Sqrt[a + b*
x])/(Sqrt[b]*Sqrt[c + d*x])])/(64*b^(3/2)*d^(5/2))
```

Rubi [A] time = 1.11111, antiderivative size = 294, normalized size of antiderivative = 0.98, number of steps used = 9, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.273$

$$-2a^{5/2}c^{3/2}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)+\frac{1}{64}\sqrt{a+bx}\sqrt{c+dx}\left(\frac{5a^3d}{b}+73a^2c-\frac{17abc^2}{d}+\frac{3b^2c^3}{d^2}\right)+\frac{(-5a^4d^4+60a^3bcd^3+90a^2b^2c^2d^2-20ab^3c^3d+3b^4c^4)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{64b^{3/2}d^{5/2}}-\frac{\sqrt{a+bx}(c+dx)^{3/2}(bc-5ad)(ad+3bc)}{32d^2}+\frac{1}{4}(a+bx)^{5/2}(c+dx)^{3/2}+\frac{(a+bx)^{3/2}(c+dx)^{3/2}(5ad+3bc)}{24d}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(5/2)*(c + d*x)^(3/2))/x,x]
```

```
[Out] ((73*a^2*c + (3*b^2*c^3)/d^2 - (17*a*b*c^2)/d + (5*a^3*d)/b)*Sqrt
[a + b*x]*Sqrt[c + d*x])/64 - ((b*c - 5*a*d)*(3*b*c + a*d)*Sqrt[a
 + b*x]*(c + d*x)^(3/2))/(32*d^2) + ((3*b*c + 5*a*d)*(a + b*x)^(3
/2)*(c + d*x)^(3/2))/(24*d) + ((a + b*x)^(5/2)*(c + d*x)^(3/2))/4
 - 2*a^(5/2)*c^(3/2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqr
t[c + d*x])] + ((3*b^4*c^4 - 20*a*b^3*c^3*d + 90*a^2*b^2*c^2*d^2
+ 60*a^3*b*c*d^3 - 5*a^4*d^4)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sq
rt[b]*Sqrt[c + d*x])])/(64*b^(3/2)*d^(5/2))
```

Rubi in Sympy [A] time = 98.3013, size = 298, normalized size = 1.

$$-2a^{\frac{5}{2}}c^{\frac{3}{2}}\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)+\frac{(a+bx)^{\frac{5}{2}}(c+dx)^{\frac{3}{2}}}{4}+\frac{(a+bx)^{\frac{5}{2}}\sqrt{c+dx}\,(5ad+3bc)}{24b}-\frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}\,(5a^2d^2-50abcd-3b^2c^2)}{96bd}-\frac{\sqrt{a+bx}\sqrt{c+dx}\,(5a^3d^3-55a^2bcd^2-17ab^2c^2d+3b^3c^3)}{64bd^2}-\frac{(5a^4d^4-60a^3bcd^3-90a^2b^2c^2d^2+20ab^3c^3d-3b^4c^4)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{64b^{\frac{3}{2}}d^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(d*x+c)**(3/2)/x,x)
```

```
[Out] -2*a**(5/2)*c**(3/2)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c
+ d*x))) + (a + b*x)**(5/2)*(c + d*x)**(3/2)/4 + (a + b*x)**(5/2)
*sqrt(c + d*x)*(5*a*d + 3*b*c)/(24*b) - (a + b*x)**(3/2)*sqrt(c +
 d*x)*(5*a**2*d**2 - 50*a*b*c*d - 3*b**2*c**2)/(96*b*d) - sqrt(a
+ b*x)*sqrt(c + d*x)*(5*a**3*d**3 - 55*a**2*b*c*d**2 - 17*a*b**2*
c**2*d + 3*b**3*c**3)/(64*b*d**2) - (5*a**4*d**4 - 60*a**3*b*c*d*
*3 - 90*a**2*b**2*c**2*d**2 + 20*a*b**3*c**3*d - 3*b**4*c**4)*ata
nh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c + d*x)))/(64*b**(3/2)*d*
*(5/2))
```

Mathematica [A] time = 0.211053, size = 290, normalized size = 0.97

$$-a^{5/2}c^{3/2}\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)$$

$$+a^{5/2}c^{3/2}\log(x)+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(15a^3d^3+a^2bd^2(337c+118dx)+ab^2d\left(57c^2+244cdx+136d^2x^2\right)+b^3\left(-9c^3+6c^2dx+7\right.\right.}{192bd^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(5/2)*(c + d*x)^(3/2))/x,x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(15*a^3*d^3 + a^2*b*d^2*(337*c + 118
*d*x) + a*b^2*d*(57*c^2 + 244*c*d*x + 136*d^2*x^2) + b^3*(-9*c^3
+ 6*c^2*d*x + 72*c*d^2*x^2 + 48*d^3*x^3)))/(192*b*d^2) + a^(5/2)*
c^(3/2)*Log[x] - a^(5/2)*c^(3/2)*Log[2*a*c + b*c*x + a*d*x + 2*Sq
rt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]] + ((3*b^4*c^4 - 20*a*b
^3*c^3*d + 90*a^2*b^2*c^2*d^2 + 60*a^3*b*c*d^3 - 5*a^4*d^4)*Log[b
*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x
]])/(128*b^(3/2)*d^(5/2))
```

Maple [B] time = 0.023, size = 828, normalized size = 2.8

$$-\frac{1}{384\,d^2b}\sqrt{bx+a}\sqrt{dx+c}\left(-96\,x^3b^3d^3\sqrt{bd}\sqrt{ac}\sqrt{dx^2b+adx+bcx+ac}-272\,x^2ab^2d^3\sqrt{bd}\sqrt{ac}\sqrt{dx^2b+adx+bcx+ac}-1\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(d*x+c)^(3/2)/x,x)
```

```
[Out] -1/384*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(-96*x^3*b^3*d^3*(b*d)^(1/2)*(
a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)-272*x^2*a*b^2*d^3*(b*d
)^(1/2)*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)-144*x^2*b^3*c
*d^2*(b*d)^(1/2)*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+384*
a^3*c^2*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(
1/2)+2*a*c)/x)*d^2*b*(b*d)^(1/2)+15*d^4*a^4*ln(1/2*(2*b*d*x+2*(b*
d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*(a
*c)^(1/2)-180*d^3*a^3*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)
^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*c*(a*c)^(1/2)*b-270*c^2*
d^2*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)
+a*d+b*c)/(b*d)^(1/2))*a^2*(a*c)^(1/2)*b^2+60*b^3*c^3*ln(1/2*(2*b
*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)
^(1/2))*a*(a*c)^(1/2)*d-9*b^4*c^4*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*
x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*(a*c)^(1/2)-
236*d^3*a^2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*(a*c)^(1/2)*b*(b*d)
^(1/2)-488*d^2*a*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*c*(a*c)^(1/2)*
b^2*(b*d)^(1/2)-12*b^3*c^2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*(a*c
)^(1/2)*d*(b*d)^(1/2)-30*d^3*a^3*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*
(a*c)^(1/2)*(b*d)^(1/2)-674*d^2*a^2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/
2)*c*(a*c)^(1/2)*b*(b*d)^(1/2)-114*c^2*(b*d*x^2+a*d*x+b*c*x+a*c)^
```

```
(1/2)*a*(a*c)^(1/2)*b^2*d*(b*d)^(1/2)+18*b^3*c^3*(b*d*x^2+a*d*x+b
*c*x+a*c)^(1/2)*(a*c)^(1/2)*(b*d)^(1/2))/(b*d*x^2+a*d*x+b*c*x+a*c
)^(1/2)/(a*c)^(1/2)/d^2/b/(b*d)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*(d*x + c)^(3/2)/x,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 17.3131, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*(d*x + c)^(3/2)/x,x, algorithm="fricas")
```

```
[Out] [1/768*(384*sqrt(a*c)*sqrt(b*d)*a^2*b*c*d^2*log((8*a^2*c^2 + (b^2
*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a*c + (b*c + a*d)*x)*sqrt(
a*c)*sqrt(b*x + a)*sqrt(d*x + c) + 8*(a*b*c^2 + a^2*c*d)*x)/x^2)
+ 4*(48*b^3*d^3*x^3 - 9*b^3*c^3 + 57*a*b^2*c^2*d + 337*a^2*b*c*d^
2 + 15*a^3*d^3 + 8*(9*b^3*c*d^2 + 17*a*b^2*d^3)*x^2 + 2*(3*b^3*c^
2*d + 122*a*b^2*c*d^2 + 59*a^2*b*d^3)*x)*sqrt(b*d)*sqrt(b*x + a)*
sqrt(d*x + c) - 3*(3*b^4*c^4 - 20*a*b^3*c^3*d + 90*a^2*b^2*c^2*d^
2 + 60*a^3*b*c*d^3 - 5*a^4*d^4)*log(-4*(2*b^2*d^2*x + b^2*c*d + a
*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2 +
6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/(sqrt(
b*d)*b*d^2), 1/384*(192*sqrt(a*c)*sqrt(-b*d)*a^2*b*c*d^2*log((8*a
^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a*c + (b*c +
a*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c) + 8*(a*b*c^2 + a^2*
c*d)*x)/x^2) + 2*(48*b^3*d^3*x^3 - 9*b^3*c^3 + 57*a*b^2*c^2*d + 3
37*a^2*b*c*d^2 + 15*a^3*d^3 + 8*(9*b^3*c*d^2 + 17*a*b^2*d^3)*x^2
+ 2*(3*b^3*c^2*d + 122*a*b^2*c*d^2 + 59*a^2*b*d^3)*x)*sqrt(-b*d)*
sqrt(b*x + a)*sqrt(d*x + c) + 3*(3*b^4*c^4 - 20*a*b^3*c^3*d + 90*
a^2*b^2*c^2*d^2 + 60*a^3*b*c*d^3 - 5*a^4*d^4)*arctan(1/2*(2*b*d*x
 + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/(sqr
t(-b*d)*b*d^2), -1/768*(768*sqrt(-a*c)*sqrt(b*d)*a^2*b*c*d^2*arct
an(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x
 + c))) - 4*(48*b^3*d^3*x^3 - 9*b^3*c^3 + 57*a*b^2*c^2*d + 337*a^
2*b*c*d^2 + 15*a^3*d^3 + 8*(9*b^3*c*d^2 + 17*a*b^2*d^3)*x^2 + 2*(
3*b^3*c^2*d + 122*a*b^2*c*d^2 + 59*a^2*b*d^3)*x)*sqrt(b*d)*sqrt(b
*x + a)*sqrt(d*x + c) + 3*(3*b^4*c^4 - 20*a*b^3*c^3*d + 90*a^2*b^
2*c^2*d^2 + 60*a^3*b*c*d^3 - 5*a^4*d^4)*log(-4*(2*b^2*d^2*x + b^2
*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^
2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d))
)/(sqrt(b*d)*b*d^2), -1/384*(384*sqrt(-a*c)*sqrt(-b*d)*a^2*b*c*d^
2*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(-a*c)*sqrt(b*x + a)*sq
rt(d*x + c))) - 2*(48*b^3*d^3*x^3 - 9*b^3*c^3 + 57*a*b^2*c^2*d +
337*a^2*b*c*d^2 + 15*a^3*d^3 + 8*(9*b^3*c*d^2 + 17*a*b^2*d^3)*x^2
 + 2*(3*b^3*c^2*d + 122*a*b^2*c*d^2 + 59*a^2*b*d^3)*x)*sqrt(-b*d)
*sqrt(b*x + a)*sqrt(d*x + c) - 3*(3*b^4*c^4 - 20*a*b^3*c^3*d + 90
*a^2*b^2*c^2*d^2 + 60*a^3*b*c*d^3 - 5*a^4*d^4)*arctan(1/2*(2*b*d*
x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/(sq
rt(-b*d)*b*d^2)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(d*x+c)**(3/2)/x,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.358183, size = 574, normalized size = 1.92

$$-\frac{2\sqrt{bd}a^3c^2|b|\arctan\left(-\frac{b^2c+abd-\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2}{2\sqrt{-abcd}b}\right)}{\sqrt{-abcd}b}+\frac{1}{192}\sqrt{b^2c+(bx+a)bd-abd}\left(2(bx+a)\left(4(bx+a)\left(\frac{6(bx+a)d|b|}{b^3}+\frac{9b^6cd^6|b|-ab^5d^7|b|}{b^8d^6}\right)+\frac{3b^7c^2d^5|b|+50ab^6cd^6|b|}{b^8d^6}\right.\right.$$

$$-\frac{\left(3\sqrt{bd}b^4c^4|b|-20\sqrt{bd}ab^3c^3d|b|+90\sqrt{bd}a^2b^2c^2d^2|b|+60\sqrt{bd}a^3bcd^3|b|-5\sqrt{bd}a^4d^4|b|\right)\ln\left(\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(\right.\right.}{128b^3d^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*(d*x + c)^(3/2)/x,x, algorithm="giac")
```

```
[Out] -2*sqrt(b*d)*a^3*c^2*abs(b)*arctan(-1/2*(b^2*c + a*b*d - (sqrt(b*
d)*sqrt(b*x + a) - sqrt(b^2*c + (b*x + a)*b*d - a*b*d))^2)/(sqrt(
-a*b*c*d)*b))/(sqrt(-a*b*c*d)*b) + 1/192*sqrt(b^2*c + (b*x + a)*b
*d - a*b*d)*(2*(b*x + a)*(4*(b*x + a)*(6*(b*x + a)*d*abs(b)/b^3 +
 (9*b^6*c*d^6*abs(b) - a*b^5*d^7*abs(b))/(b^8*d^6)) + (3*b^7*c^2*
d^5*abs(b) + 50*a*b^6*c*d^6*abs(b) - 5*a^2*b^5*d^7*abs(b))/(b^8*d
^6)) - 3*(3*b^8*c^3*d^4*abs(b) - 17*a*b^7*c^2*d^5*abs(b) - 55*a^2
*b^6*c*d^6*abs(b) + 5*a^3*b^5*d^7*abs(b))/(b^8*d^6))*sqrt(b*x + a
) - 1/128*(3*sqrt(b*d)*b^4*c^4*abs(b) - 20*sqrt(b*d)*a*b^3*c^3*d*
abs(b) + 90*sqrt(b*d)*a^2*b^2*c^2*d^2*abs(b) + 60*sqrt(b*d)*a^3*b
*c*d^3*abs(b) - 5*sqrt(b*d)*a^4*d^4*abs(b))*ln((sqrt(b*d)*sqrt(b*
x + a) - sqrt(b^2*c + (b*x + a)*b*d - a*b*d))^2)/(b^3*d^3)
```

3.648 $\int \frac{(a+bx)^{5/2}(c+dx)^{3/2}}{x^2}\,dx$

Optimal. Leaf size=259

$$-a^{3/2}\sqrt{c}(3ad+5bc)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)-\frac{\sqrt{a+bx}\sqrt{c+dx}\left(-19a^2d^2-14abcd+b^2c^2\right)}{8d}-\frac{\left(-5a^3d^3-45a^2bcd^2-15ab^2c^2d+b^3c^3\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8\sqrt{b}d^{3/2}}-\frac{(a+bx)^{5/2}(c+dx)^{3/2}}{x}+\frac{4}{3}b(a+bx)^{3/2}(c+dx)^{3/2}+\frac{b\sqrt{a+bx}(c+dx)^{3/2}(7ad+bc)}{4d}$$

```
[Out] -((b^2*c^2 - 14*a*b*c*d - 19*a^2*d^2)*Sqrt[a + b*x]*Sqrt[c + d*x]
)/(8*d) + (b*(b*c + 7*a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(4*d) +
 (4*b*(a + b*x)^(3/2)*(c + d*x)^(3/2))/3 - ((a + b*x)^(5/2)*(c +
d*x)^(3/2))/x - a^(3/2)*Sqrt[c]*(5*b*c + 3*a*d)*ArcTanh[(Sqrt[c]*
Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])] - ((b^3*c^3 - 15*a*b^2*c^
2*d - 45*a^2*b*c*d^2 - 5*a^3*d^3)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])
/(Sqrt[b]*Sqrt[c + d*x])])/(8*Sqrt[b]*d^(3/2))
```

Rubi [A] time = 0.916149, antiderivative size = 259, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.273

$$-a^{3/2}\sqrt{c}(3ad+5bc)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)-\frac{\sqrt{a+bx}\sqrt{c+dx}\left(-19a^2d^2-14abcd+b^2c^2\right)}{8d}-\frac{\left(-5a^3d^3-45a^2bcd^2-15ab^2c^2d+b^3c^3\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8\sqrt{b}d^{3/2}}-\frac{(a+bx)^{5/2}(c+dx)^{3/2}}{x}+\frac{4}{3}b(a+bx)^{3/2}(c+dx)^{3/2}+\frac{b\sqrt{a+bx}(c+dx)^{3/2}(7ad+bc)}{4d}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(5/2)*(c + d*x)^(3/2))/x^2,x]
```

```
[Out] -((b^2*c^2 - 14*a*b*c*d - 19*a^2*d^2)*Sqrt[a + b*x]*Sqrt[c + d*x]
)/(8*d) + (b*(b*c + 7*a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(4*d) +
 (4*b*(a + b*x)^(3/2)*(c + d*x)^(3/2))/3 - ((a + b*x)^(5/2)*(c +
d*x)^(3/2))/x - a^(3/2)*Sqrt[c]*(5*b*c + 3*a*d)*ArcTanh[(Sqrt[c]*
Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])] - ((b^3*c^3 - 15*a*b^2*c^
2*d - 45*a^2*b*c*d^2 - 5*a^3*d^3)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])
/(Sqrt[b]*Sqrt[c + d*x])])/(8*Sqrt[b]*d^(3/2))
```

Rubi in Sympy [A] time = 121.802, size = 241, normalized size = 0.93

$$-a^{\frac{3}{2}}\sqrt{c}\,(3ad+5bc)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)+\frac{4b\,(a+bx)^{\frac{3}{2}}\,(c+dx)^{\frac{3}{2}}}{3}+(a+bx)^{\frac{3}{2}}\,\sqrt{c+dx}\left(\frac{7ad}{4}+\frac{bc}{4}\right)-\frac{(a+bx)^{\frac{5}{2}}\,(c+dx)^{\frac{3}{2}}}{x}+\frac{\sqrt{a+bx}\sqrt{c+dx}\,\left(5a^2d^2+26abcd+b^2c^2\right)}{8d}+\frac{\left(5a^3d^3+45a^2bcd^2+15ab^2c^2d-b^3c^3\right)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{8\sqrt{b}d^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(d*x+c)**(3/2)/x**2,x)
```

```
[Out] -a**(3/2)*sqrt(c)*(3*a*d + 5*b*c)*atanh(sqrt(c)*sqrt(a + b*x)/(sq
rt(a)*sqrt(c + d*x))) + 4*b*(a + b*x)**(3/2)*(c + d*x)**(3/2)/3 +
```

```
(a + b*x)**(3/2)*sqrt(c + d*x)*(7*a*d/4 + b*c/4) - (a + b*x)**(5
/2)*(c + d*x)**(3/2)/x + sqrt(a + b*x)*sqrt(c + d*x)*(5*a**2*d**2
 + 26*a*b*c*d + b**2*c**2)/(8*d) + (5*a**3*d**3 + 45*a**2*b*c*d**
2 + 15*a*b**2*c**2*d - b**3*c**3)*atanh(sqrt(b)*sqrt(c + d*x)/(sq
rt(d)*sqrt(a + b*x)))/(8*sqrt(b)*d**(3/2))
```

Mathematica [A] time = 0.25124, size = 265, normalized size = 1.02

$$\frac{1}{16}\left(8a^{3/2}\sqrt{c}\log(x)(3ad+5bc) -8a^{3/2}\sqrt{c}(3ad+5bc)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)+\frac{2\sqrt{a+bx}\sqrt{c+dx}\left(3a^2d(11dx-8c)+2abdx(34c+13d\right.}{3dx}\right.$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(5/2)*(c + d*x)^(3/2))/x^2,x]
```

```
[Out] ((2*Sqrt[a + b*x]*Sqrt[c + d*x]*(3*a^2*d*(-8*c + 11*d*x) + 2*a*b*
d*x*(34*c + 13*d*x) + b^2*x*(3*c^2 + 14*c*d*x + 8*d^2*x^2)))/(3*d
*x) + 8*a^(3/2)*Sqrt[c]*(5*b*c + 3*a*d)*Log[x] - 8*a^(3/2)*Sqrt[c
]*(5*b*c + 3*a*d)*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*S
qrt[a + b*x]*Sqrt[c + d*x]] + ((-(b^3*c^3) + 15*a*b^2*c^2*d + 45*
a^2*b*c*d^2 + 5*a^3*d^3)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt
[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(Sqrt[b]*d^(3/2)))/16
```

Maple [B] time = 0.024, size = 696, normalized size = 2.7

$$\frac{1}{48\,dx}\sqrt{bx+a}\sqrt{dx+c}\left(16\,x^3b^2d^2\sqrt{bd}\sqrt{ac}\sqrt{dx^2b+adx+bcx+ac}+15\,d^3a^3\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{dx^2b+adx+bcx+ac}\sqrt{bd}}{\sqrt{bd}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(d*x+c)^(3/2)/x^2,x)
```

```
[Out] 1/48*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(16*x^3*b^2*d^2*(b*d)^(1/2)*(a*c
)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+15*d^3*a^3*ln(1/2*(2*b*d*
x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1
/2))*x*(a*c)^(1/2)+135*d^2*a^2*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b
*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*c*b*x*(a*c)^(1/
2)+45*d*a*b^2*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(
b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*c^2*x*(a*c)^(1/2)-3*b^3*ln(1/2*(
2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b
*d)^(1/2))*c^3*x*(a*c)^(1/2)-72*a^3*c*ln((a*d*x+b*c*x+2*(a*c)^(1/
2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*d^2*(b*d)^(1/2)*x-12
0*a^2*c^2*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)
^(1/2)+2*a*c)/x)*d*b*(b*d)^(1/2)*x+52*x^2*a*d^2*(b*d*x^2+a*d*x+b*
c*x+a*c)^(1/2)*b*(b*d)^(1/2)*(a*c)^(1/2)+28*x^2*b^2*c*d*(b*d*x^2+
a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)*(a*c)^(1/2)+66*d^2*a^2*(b*d*x^
2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)*x*(a*c)^(1/2)+136*a*c*d*(b*d
*x^2+a*d*x+b*c*x+a*c)^(1/2)*b*(b*d)^(1/2)*x*(a*c)^(1/2)+6*b^2*c^2
*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)*x*(a*c)^(1/2)-48*a^2
*c*d*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2))/(b*
d*x^2+a*d*x+b*c*x+a*c)^(1/2)/d/(b*d)^(1/2)/(a*c)^(1/2)/x
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*(d*x + c)^(3/2)/x^2,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 7.03305, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*(d*x + c)^(3/2)/x^2,x, algorithm="fricas")
```

```
[Out] [1/96*(24*(5*a*b*c*d + 3*a^2*d^2)*sqrt(a*c)*sqrt(b*d)*x*log((8*a^
2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a*c + (b*c + a
*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c) + 8*(a*b*c^2 + a^2*c
*d)*x)/x^2) - 3*(b^3*c^3 - 15*a*b^2*c^2*d - 45*a^2*b*c*d^2 - 5*a^
3*d^3)*x*log(4*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sq
rt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*
(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)) + 4*(8*b^2*d^2*x^3 - 24*a^2*c*d
 + 2*(7*b^2*c*d + 13*a*b*d^2)*x^2 + (3*b^2*c^2 + 68*a*b*c*d + 33*
a^2*d^2)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(b*d)*d*x
), 1/48*(12*(5*a*b*c*d + 3*a^2*d^2)*sqrt(a*c)*sqrt(-b*d)*x*log((8
*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a*c + (b*c
+ a*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c) + 8*(a*b*c^2 + a^
2*c*d)*x)/x^2) - 3*(b^3*c^3 - 15*a*b^2*c^2*d - 45*a^2*b*c*d^2 - 5
*a^3*d^3)*x*arctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x
 + a)*sqrt(d*x + c)*b*d)) + 2*(8*b^2*d^2*x^3 - 24*a^2*c*d + 2*(7*
b^2*c*d + 13*a*b*d^2)*x^2 + (3*b^2*c^2 + 68*a*b*c*d + 33*a^2*d^2)
*x)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(-b*d)*d*x), -1/
96*(48*(5*a*b*c*d + 3*a^2*d^2)*sqrt(-a*c)*sqrt(b*d)*x*arctan(1/2*
(2*a*c + (b*c + a*d)*x)/(sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c)))
 + 3*(b^3*c^3 - 15*a*b^2*c^2*d - 45*a^2*b*c*d^2 - 5*a^3*d^3)*x*lo
g(4*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c)
 + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d +
a*b*d^2)*x)*sqrt(b*d)) - 4*(8*b^2*d^2*x^3 - 24*a^2*c*d + 2*(7*b^2
*c*d + 13*a*b*d^2)*x^2 + (3*b^2*c^2 + 68*a*b*c*d + 33*a^2*d^2)*x)
*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(b*d)*d*x), -1/48*(2
4*(5*a*b*c*d + 3*a^2*d^2)*sqrt(-a*c)*sqrt(-b*d)*x*arctan(1/2*(2*a
*c + (b*c + a*d)*x)/(sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c))) + 3
*(b^3*c^3 - 15*a*b^2*c^2*d - 45*a^2*b*c*d^2 - 5*a^3*d^3)*x*arctan
(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c
)*b*d)) - 2*(8*b^2*d^2*x^3 - 24*a^2*c*d + 2*(7*b^2*c*d + 13*a*b*d
^2)*x^2 + (3*b^2*c^2 + 68*a*b*c*d + 33*a^2*d^2)*x)*sqrt(-b*d)*sqr
t(b*x + a)*sqrt(d*x + c))/(sqrt(-b*d)*d*x)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(d*x+c)**(3/2)/x**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.655033, size = 4, normalized size = 0.02

$$sage_0 x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*(d*x + c)^(3/2)/x^2,x, algorithm="giac")

[Out] sage0*x
```

3.649 $\int \frac{(a+bx)^{5/2}(c+dx)^{3/2}}{x^3}\,dx$

Optimal. Leaf size=275

$$\frac{3\sqrt{a+bx}\sqrt{c+dx}\left(a^2d^2+6abcd+b^2c^2\right)}{4c}-\frac{3\sqrt{a}\left(a^2d^2+10abcd+5b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4\sqrt{c}}+\frac{3\sqrt{b}\left(5a^2d^2+10abcd+b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4\sqrt{d}}-\frac{(a+bx)^{5/2}(c+dx)^{3/2}}{2x^2}-\frac{(a+bx)^{3/2}(c+dx)^{3/2}(3ad+5bc)}{4cx}+\frac{3b\sqrt{a+bx}(c+dx)^{3/2}(ad+3bc)}{4c}$$

```
[Out] (3*(b^2*c^2 + 6*a*b*c*d + a^2*d^2)*Sqrt[a + b*x]*Sqrt[c + d*x])/(
4*c) + (3*b*(3*b*c + a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(4*c) -
((5*b*c + 3*a*d)*(a + b*x)^(3/2)*(c + d*x)^(3/2))/(4*c*x) - ((a +
 b*x)^(5/2)*(c + d*x)^(3/2))/(2*x^2) - (3*Sqrt[a]*(5*b^2*c^2 + 10
*a*b*c*d + a^2*d^2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt
[c + d*x])])/(4*Sqrt[c]) + (3*Sqrt[b]*(b^2*c^2 + 10*a*b*c*d + 5*a
^2*d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])
/(4*Sqrt[d])
```

Rubi [A] time = 0.905715, antiderivative size = 275, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 7, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.318

$$\frac{3\sqrt{a+bx}\sqrt{c+dx}\left(a^2d^2+6abcd+b^2c^2\right)}{4c}-\frac{3\sqrt{a}\left(a^2d^2+10abcd+5b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4\sqrt{c}}+\frac{3\sqrt{b}\left(5a^2d^2+10abcd+b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4\sqrt{d}}-\frac{(a+bx)^{5/2}(c+dx)^{3/2}}{2x^2}-\frac{(a+bx)^{3/2}(c+dx)^{3/2}(3ad+5bc)}{4cx}+\frac{3b\sqrt{a+bx}(c+dx)^{3/2}(ad+3bc)}{4c}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(5/2)*(c + d*x)^(3/2))/x^3,x]
```

```
[Out] (3*(b^2*c^2 + 6*a*b*c*d + a^2*d^2)*Sqrt[a + b*x]*Sqrt[c + d*x])/(
4*c) + (3*b*(3*b*c + a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(4*c) -
((5*b*c + 3*a*d)*(a + b*x)^(3/2)*(c + d*x)^(3/2))/(4*c*x) - ((a +
 b*x)^(5/2)*(c + d*x)^(3/2))/(2*x^2) - (3*Sqrt[a]*(5*b^2*c^2 + 10
*a*b*c*d + a^2*d^2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt
[c + d*x])])/(4*Sqrt[c]) + (3*Sqrt[b]*(b^2*c^2 + 10*a*b*c*d + 5*a
^2*d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])
/(4*Sqrt[d])
```

Rubi in Sympy [A] time = 140.032, size = 245, normalized size = 0.89

$$-\frac{3\sqrt{a}\left(a^2d^2+10abcd+5b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4\sqrt{c}}+\frac{3\sqrt{b}\left(5a^2d^2+10abcd+b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4\sqrt{d}}+3b\sqrt{a+bx}\sqrt{c+dx}\,(ad+bc)-\frac{(a+bx)^{\frac{5}{2}}(c+dx)^{\frac{3}{2}}}{2x^2}+\frac{3d(a+bx)^{\frac{3}{2}}\sqrt{c+dx}\,(ad+3bc)}{4c}-\frac{(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{3}{2}}(3ad+5bc)}{4cx}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(d*x+c)**(3/2)/x**3,x)
```

```
[Out] -3*sqrt(a)*(a**2*d**2 + 10*a*b*c*d + 5*b**2*c**2)*atanh(sqrt(c)*s
qrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(4*sqrt(c)) + 3*sqrt(b)*(5*
a**2*d**2 + 10*a*b*c*d + b**2*c**2)*atanh(sqrt(d)*sqrt(a + b*x)/(
sqrt(b)*sqrt(c + d*x)))/(4*sqrt(d)) + 3*b*sqrt(a + b*x)*sqrt(c +
d*x)*(a*d + b*c) - (a + b*x)**(5/2)*(c + d*x)**(3/2)/(2*x**2) + 3
*d*(a + b*x)**(3/2)*sqrt(c + d*x)*(a*d + 3*b*c)/(4*c) - (a + b*x)
**(3/2)*(c + d*x)**(3/2)*(3*a*d + 5*b*c)/(4*c*x)
```

Mathematica [A] time = 0.214794, size = 259, normalized size = 0.94

$$\frac{1}{8}\left(\frac{3\sqrt{a}\log(x)\left(a^2d^2+10abcd+5b^2c^2\right)}{\sqrt{c}} - \frac{3\sqrt{a}\left(a^2d^2+10abcd+5b^2c^2\right)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{\sqrt{c}} + \frac{3\sqrt{b}\left(5a^2d^2+10abcd+b^2c^2\right)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{\sqrt{d}} - \frac{2\sqrt{a+bx}\sqrt{c+dx}\left(a^2(2c+5dx)+9abx(c-dx)-b^2x^2(5c+2dx)\right)}{x^2}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(5/2)*(c + d*x)^(3/2))/x^3,x]
```

```
[Out] ((-2*Sqrt[a + b*x]*Sqrt[c + d*x]*(9*a*b*x*(c - d*x) - b^2*x^2*(5*
c + 2*d*x) + a^2*(2*c + 5*d*x)))/x^2 + (3*Sqrt[a]*(5*b^2*c^2 + 10
*a*b*c*d + a^2*d^2)*Log[x])/Sqrt[c] - (3*Sqrt[a]*(5*b^2*c^2 + 10*
a*b*c*d + a^2*d^2)*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*
Sqrt[a + b*x]*Sqrt[c + d*x]])/Sqrt[c] + (3*Sqrt[b]*(b^2*c^2 + 10*
a*b*c*d + 5*a^2*d^2)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*
Sqrt[a + b*x]*Sqrt[c + d*x]])/Sqrt[d])/8
```

Maple [B] time = 0.026, size = 650, normalized size = 2.4

$$\frac{1}{8x^2}\sqrt{bx+a}\sqrt{dx+c}\left(15\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{dx^2b+adx+bcx+ac}\sqrt{bd}+ad+bc}{\sqrt{bd}}\right)x^2a^2bd^2\sqrt{ac}+30\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{d}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(d*x+c)^(3/2)/x^3,x)
```

```
[Out] 1/8*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(15*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*
d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a^2*b*
d^2*(a*c)^(1/2)+30*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1
/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a*b^2*c*d*(a*c)^(1/2)+3
*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*
d+b*c)/(b*d)^(1/2))*x^2*b^3*c^2*(a*c)^(1/2)-3*ln((a*d*x+b*c*x+2*(
a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^2*a^3*d^2*
(b*d)^(1/2)-30*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x
+a*c)^(1/2)+2*a*c)/x)*x^2*a^2*b*c*d*(b*d)^(1/2)-15*ln((a*d*x+b*c*
x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^2*a*b
^2*c^2*(b*d)^(1/2)+4*x^3*b^2*d*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a
*c)^(1/2)*(b*d)^(1/2)+18*x^2*a*b*d*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c
*x+a*c)^(1/2)*(b*d)^(1/2)+10*x^2*b^2*c*(b*d)^(1/2)*(a*c)^(1/2)*(b
*d*x^2+a*d*x+b*c*x+a*c)^(1/2)-10*x*a^2*d*(b*d)^(1/2)*(a*c)^(1/2)*
(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)-18*x*a*b*c*(b*d)^(1/2)*(a*c)^(1/2
)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)-4*a^2*c*(b*d)^(1/2)*(a*c)^(1/2)
*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2))/(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)
/(b*d)^(1/2)/x^2/(a*c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(5/2)*(d*x + c)^(3/2)/x^3,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 2.94736, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(5/2)*(d*x + c)^(3/2)/x^3,x, algorithm="fricas")
```

```
[Out] [1/16*(3*(b^2*c^2 + 10*a*b*c*d + 5*a^2*d^2)*x^2*sqrt(b/d)*log(8*b
^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b*d^2*x + b*c*d
 + a*d^2)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(b/d) + 8*(b^2*c*d + a*
b*d^2)*x) + 3*(5*b^2*c^2 + 10*a*b*c*d + a^2*d^2)*x^2*sqrt(a/c)*lo
g((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a*c^2 +
 (b*c^2 + a*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(a/c) + 8*(a*
b*c^2 + a^2*c*d)*x)/x^2) + 4*(2*b^2*d*x^3 - 2*a^2*c + (5*b^2*c +
9*a*b*d)*x^2 - (9*a*b*c + 5*a^2*d)*x)*sqrt(b*x + a)*sqrt(d*x + c)
)/x^2, 1/16*(6*(b^2*c^2 + 10*a*b*c*d + 5*a^2*d^2)*x^2*sqrt(-b/d)*
arctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(b*x + a)*sqrt(d*x + c)*d*s
qrt(-b/d))) + 3*(5*b^2*c^2 + 10*a*b*c*d + a^2*d^2)*x^2*sqrt(a/c)*
log((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a*c^2
 + (b*c^2 + a*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(a/c) + 8*(
a*b*c^2 + a^2*c*d)*x)/x^2) + 4*(2*b^2*d*x^3 - 2*a^2*c + (5*b^2*c
+ 9*a*b*d)*x^2 - (9*a*b*c + 5*a^2*d)*x)*sqrt(b*x + a)*sqrt(d*x +
c))/x^2, -1/16*(6*(5*b^2*c^2 + 10*a*b*c*d + a^2*d^2)*x^2*sqrt(-a/
c)*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(b*x + a)*sqrt(d*x + c
)*c*sqrt(-a/c))) - 3*(b^2*c^2 + 10*a*b*c*d + 5*a^2*d^2)*x^2*sqrt(
b/d)*log(8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b*d
^2*x + b*c*d + a*d^2)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(b/d) + 8*(
b^2*c*d + a*b*d^2)*x) - 4*(2*b^2*d*x^3 - 2*a^2*c + (5*b^2*c + 9*a
*b*d)*x^2 - (9*a*b*c + 5*a^2*d)*x)*sqrt(b*x + a)*sqrt(d*x + c))/x
^2, -1/8*(3*(5*b^2*c^2 + 10*a*b*c*d + a^2*d^2)*x^2*sqrt(-a/c)*arc
tan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(b*x + a)*sqrt(d*x + c)*c*sq
rt(-a/c))) - 3*(b^2*c^2 + 10*a*b*c*d + 5*a^2*d^2)*x^2*sqrt(-b/d)*
arctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(b*x + a)*sqrt(d*x + c)*d*s
qrt(-b/d))) - 2*(2*b^2*d*x^3 - 2*a^2*c + (5*b^2*c + 9*a*b*d)*x^2
- (9*a*b*c + 5*a^2*d)*x)*sqrt(b*x + a)*sqrt(d*x + c))/x^2]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**(5/2)*(d*x+c)**(3/2)/x**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.706793, size = 4, normalized size = 0.01

$$sage_0x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*(d*x + c)^(3/2)/x^3,x, algorithm="giac")
```

```
[Out] sage0*x
```

3.650 $\int \frac{(a+bx)^{5/2}(c+dx)^{3/2}}{x^4} dx$

Optimal. Leaf size=294

$$-\frac{\sqrt{a+bx}(c+dx)^{3/2}\left(-a^2d^2+12abcd+5b^2c^2\right)}{8c^2x}+\frac{d\sqrt{a+bx}\sqrt{c+dx}\left(-a^2d^2+14abcd+19b^2c^2\right)}{8c^2}-\frac{\left(-a^3d^3+15a^2bcd^2+45ab^2c^2d+5b^3c^3\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8\sqrt{a}c^{3/2}}+b^{3/2}\sqrt{d}(5ad+3bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)-\frac{(a+bx)^{5/2}(c+dx)^{3/2}}{3x^3}-\frac{(a+bx)^{3/2}(c+dx)^{3/2}(3ad+5bc)}{12cx^2}$$

```
[Out] (d*(19*b^2*c^2 + 14*a*b*c*d - a^2*d^2)*Sqrt[a + b*x]*Sqrt[c + d*x
])/(8*c^2) - ((5*b^2*c^2 + 12*a*b*c*d - a^2*d^2)*Sqrt[a + b*x]*(c
 + d*x)^(3/2))/(8*c^2*x) - ((5*b*c + 3*a*d)*(a + b*x)^(3/2)*(c +
d*x)^(3/2))/(12*c*x^2) - ((a + b*x)^(5/2)*(c + d*x)^(3/2))/(3*x^3
) - ((5*b^3*c^3 + 45*a*b^2*c^2*d + 15*a^2*b*c*d^2 - a^3*d^3)*ArcT
anh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(8*Sqrt[a]*
c^(3/2)) + b^(3/2)*Sqrt[d]*(3*b*c + 5*a*d)*ArcTanh[(Sqrt[d]*Sqrt[
a + b*x])/(Sqrt[b]*Sqrt[c + d*x])]
```

Rubi [A] time = 0.983825, antiderivative size = 294, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 7, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.318$

$$-\frac{\sqrt{a+bx}(c+dx)^{3/2}\left(-a^2d^2+12abcd+5b^2c^2\right)}{8c^2x}+\frac{d\sqrt{a+bx}\sqrt{c+dx}\left(-a^2d^2+14abcd+19b^2c^2\right)}{8c^2}-\frac{\left(-a^3d^3+15a^2bcd^2+45ab^2c^2d+5b^3c^3\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8\sqrt{a}c^{3/2}}+b^{3/2}\sqrt{d}(5ad+3bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)-\frac{(a+bx)^{5/2}(c+dx)^{3/2}}{3x^3}-\frac{(a+bx)^{3/2}(c+dx)^{3/2}(3ad+5bc)}{12cx^2}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(5/2)*(c + d*x)^(3/2))/x^4,x]
```

```
[Out] (d*(19*b^2*c^2 + 14*a*b*c*d - a^2*d^2)*Sqrt[a + b*x]*Sqrt[c + d*x
])/(8*c^2) - ((5*b^2*c^2 + 12*a*b*c*d - a^2*d^2)*Sqrt[a + b*x]*(c
 + d*x)^(3/2))/(8*c^2*x) - ((5*b*c + 3*a*d)*(a + b*x)^(3/2)*(c +
d*x)^(3/2))/(12*c*x^2) - ((a + b*x)^(5/2)*(c + d*x)^(3/2))/(3*x^3
) - ((5*b^3*c^3 + 45*a*b^2*c^2*d + 15*a^2*b*c*d^2 - a^3*d^3)*ArcT
anh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(8*Sqrt[a]*
c^(3/2)) + b^(3/2)*Sqrt[d]*(3*b*c + 5*a*d)*ArcTanh[(Sqrt[d]*Sqrt[
a + b*x])/(Sqrt[b]*Sqrt[c + d*x])]
```

Rubi in Sympy [A] time = 151.013, size = 279, normalized size = 0.95

$$b^{\frac{3}{2}}\sqrt{d}\,(5ad+3bc)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)-\frac{(a+bx)^{\frac{5}{2}}(c+dx)^{\frac{3}{2}}}{3x^3}-\frac{(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{3}{2}}(3ad+5bc)}{12cx^2}-\frac{d\sqrt{a+bx}\sqrt{c+dx}\left(a^2d^2-14abcd-19b^2c^2\right)}{8c^2}+\frac{\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}\left(a^2d^2-12abcd-5b^2c^2\right)}{8c^2x}+\frac{\left(a^3d^3-15a^2bcd^2-45ab^2c^2d-5b^3c^3\right)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8\sqrt{a}c^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(d*x+c)**(3/2)/x**4,x)
```

```
[Out] b**(3/2)*sqrt(d)*(5*a*d + 3*b*c)*atanh(sqrt(b)*sqrt(c + d*x)/(sqr
t(d)*sqrt(a + b*x))) - (a + b*x)**(5/2)*(c + d*x)**(3/2)/(3*x**3)
 - (a + b*x)**(3/2)*(c + d*x)**(3/2)*(3*a*d + 5*b*c)/(12*c*x**2)
- d*sqrt(a + b*x)*sqrt(c + d*x)*(a**2*d**2 - 14*a*b*c*d - 19*b**2
*c**2)/(8*c**2) + sqrt(a + b*x)*(c + d*x)**(3/2)*(a**2*d**2 - 12*
a*b*c*d - 5*b**2*c**2)/(8*c**2*x) + (a**3*d**3 - 15*a**2*b*c*d**2
 - 45*a*b**2*c**2*d - 5*b**3*c**3)*atanh(sqrt(c)*sqrt(a + b*x)/(s
qrt(a)*sqrt(c + d*x)))/(8*sqrt(a)*c**(3/2))
```

Mathematica [A] time = 0.2539, size = 293, normalized size = 1.

$$\frac{1}{16}\left(-\frac{2\sqrt{a+bx}\sqrt{c+dx}\left(a^2\left(8c^2+14cdx+3d^2x^2\right)+2abcx(13c+34dx)+3b^2cx^2(11c-8dx)\right)}{3cx^3}+\frac{\log(x)\left(-a^3d^3+15a^2bcd^2+45ab^2c^2d+5b^3c^3\right)}{\sqrt{a}c^{3/2}}+\frac{\left(a^3d^3-15a^2bcd^2-45ab^2c^2d-5b^3c^3\right)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{\sqrt{a}c^{3/2}}+8b^{3/2}\sqrt{d}(5ad+3bc)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(5/2)*(c + d*x)^(3/2))/x^4,x]
```

```
[Out] ((-2*Sqrt[a + b*x]*Sqrt[c + d*x]*(3*b^2*c*x^2*(11*c - 8*d*x) + 2*
a*b*c*x*(13*c + 34*d*x) + a^2*(8*c^2 + 14*c*d*x + 3*d^2*x^2)))/(3
*c*x^3) + ((5*b^3*c^3 + 45*a*b^2*c^2*d + 15*a^2*b*c*d^2 - a^3*d^3
)*Log[x])/(Sqrt[a]*c^(3/2)) + ((-5*b^3*c^3 - 45*a*b^2*c^2*d - 15*
a^2*b*c*d^2 + a^3*d^3)*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt
[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(Sqrt[a]*c^(3/2)) + 8*b^(3/2)*S
qrt[d]*(3*b*c + 5*a*d)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d
]*Sqrt[a + b*x]*Sqrt[c + d*x]])/16
```

Maple [B] time = 0.026, size = 706, normalized size = 2.4

$$\frac{1}{48\,cx^3}\sqrt{bx+a}\sqrt{dx+c}\left(3\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{dx^2b+adx+bcx+ac}+2\,ac}{x}\right)x^3a^3d^3\sqrt{bd}-45\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{}}{}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(d*x+c)^(3/2)/x^4,x)
```

```
[Out] 1/48*(b*x+a)^(1/2)*(d*x+c)^(1/2)/c*(3*ln((a*d*x+b*c*x+2*(a*c)^(1/
2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^3*a^3*d^3*(b*d)^(1
/2)-45*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1
/2)+2*a*c)/x)*x^3*a^2*b*c*d^2*(b*d)^(1/2)-135*ln((a*d*x+b*c*x+2*(
a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^3*a*b^2*c^
2*d*(b*d)^(1/2)-15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b
*c*x+a*c)^(1/2)+2*a*c)/x)*x^3*b^3*c^3*(b*d)^(1/2)+120*ln(1/2*(2*b
*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)
^(1/2))*x^3*a*b^2*c*d^2*(a*c)^(1/2)+72*ln(1/2*(2*b*d*x+2*(b*d*x^2
+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^3*b^3
*c^2*d*(a*c)^(1/2)+48*x^3*b^2*c*d*(b*d)^(1/2)*(a*c)^(1/2)*(b*d*x^
2+a*d*x+b*c*x+a*c)^(1/2)-6*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*d^2*(b
*d)^(1/2)*a^2*(a*c)^(1/2)*x^2-136*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)
*d*b*(b*d)^(1/2)*a*(a*c)^(1/2)*x^2*c-66*c^2*(b*d*x^2+a*d*x+b*c*x+
a*c)^(1/2)*b^2*(b*d)^(1/2)*(a*c)^(1/2)*x^2-28*(b*d*x^2+a*d*x+b*c*
x+a*c)^(1/2)*d*(b*d)^(1/2)*a^2*(a*c)^(1/2)*x*c-52*c^2*(b*d*x^2+a*
d*x+b*c*x+a*c)^(1/2)*b*(b*d)^(1/2)*a*(a*c)^(1/2)*x-16*c^2*(b*d*x^
```

```
2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)*a^2*(a*c)^(1/2))/(b*d*x^2+a*
d*x+b*c*x+a*c)^(1/2)/(a*c)^(1/2)/x^3/(b*d)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(5/2)*(d*x + c)^(3/2)/x^4,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 3.57183, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(5/2)*(d*x + c)^(3/2)/x^4,x, algorithm="fricas")
```

```
[Out] [1/96*(24*(3*b^2*c^2 + 5*a*b*c*d)*sqrt(a*c)*sqrt(b*d)*x^3*log(8*b
^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b*d*x + b*c + a
*d)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 8*(b^2*c*d + a*b*d^2)
*x) - 3*(5*b^3*c^3 + 45*a*b^2*c^2*d + 15*a^2*b*c*d^2 - a^3*d^3)*x
^3*log((4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(
d*x + c) + (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(
a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2) + 4*(24*b^2*c*d*x^3 - 8*a^2
*c^2 - (33*b^2*c^2 + 68*a*b*c*d + 3*a^2*d^2)*x^2 - 2*(13*a*b*c^2
+ 7*a^2*c*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(a*c)
*c*x^3), 1/96*(48*(3*b^2*c^2 + 5*a*b*c*d)*sqrt(a*c)*sqrt(-b*d)*x^
3*arctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(-b*d)*sqrt(b*x + a)*sqrt
(d*x + c))) - 3*(5*b^3*c^3 + 45*a*b^2*c^2*d + 15*a^2*b*c*d^2 - a^
3*d^3)*x^3*log((4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x +
a)*sqrt(d*x + c) + (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x
^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2) + 4*(24*b^2*c*d*x^3
 - 8*a^2*c^2 - (33*b^2*c^2 + 68*a*b*c*d + 3*a^2*d^2)*x^2 - 2*(13*
a*b*c^2 + 7*a^2*c*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c))/(s
qrt(a*c)*c*x^3), 1/48*(12*(3*b^2*c^2 + 5*a*b*c*d)*sqrt(-a*c)*sqrt
(b*d)*x^3*log(8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(
2*b*d*x + b*c + a*d)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 8*(b
^2*c*d + a*b*d^2)*x) - 3*(5*b^3*c^3 + 45*a*b^2*c^2*d + 15*a^2*b*c
*d^2 - a^3*d^3)*x^3*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)
/(sqrt(b*x + a)*sqrt(d*x + c)*a*c)) + 2*(24*b^2*c*d*x^3 - 8*a^2*c
^2 - (33*b^2*c^2 + 68*a*b*c*d + 3*a^2*d^2)*x^2 - 2*(13*a*b*c^2 +
7*a^2*c*d)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(-a*c)
*c*x^3), 1/48*(24*(3*b^2*c^2 + 5*a*b*c*d)*sqrt(-a*c)*sqrt(-b*d)*x
^3*arctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(-b*d)*sqrt(b*x + a)*sqr
t(d*x + c))) - 3*(5*b^3*c^3 + 45*a*b^2*c^2*d + 15*a^2*b*c*d^2 - a
^3*d^3)*x^3*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b
*x + a)*sqrt(d*x + c)*a*c)) + 2*(24*b^2*c*d*x^3 - 8*a^2*c^2 - (33
*b^2*c^2 + 68*a*b*c*d + 3*a^2*d^2)*x^2 - 2*(13*a*b*c^2 + 7*a^2*c*
d)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(-a*c)*c*x^3)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**(5/2)*(d*x+c)**(3/2)/x**4,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.746875, size = 4, normalized size = 0.01

$$sage_0x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*(d*x + c)^(3/2)/x^4,x, algorithm="giac")
```

```
[Out] sage0*x
```

3.651 $\int \frac{(a+bx)^{5/2}(c+dx)^{3/2}}{x^5} dx$

Optimal. Leaf size=313

$$-\frac{\sqrt{a+bx}\sqrt{c+dx}\left(3a^3d^3-17a^2bcd^2+73ab^2c^2d+5b^3c^3\right)}{64ac^2x}+\frac{\left(-3a^4d^4+20a^3bcd^3-90a^2b^2c^2d^2-60ab^3c^3d+5b^4c^4\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{3/2}c^{5/2}}+2b^{5/2}d^{3/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)-\frac{\sqrt{a+bx}(c+dx)^{3/2}(5bc-ad)(3ad+bc)}{32c^2x^2}-\frac{(a+bx)^{5/2}(c+dx)^{3/2}}{4x^4}-\frac{(a+bx)^{3/2}(c+dx)^{3/2}(}{24cx^3}$$

```
[Out] -((5*b^3*c^3 + 73*a*b^2*c^2*d - 17*a^2*b*c*d^2 + 3*a^3*d^3)*Sqrt[
a + b*x]*Sqrt[c + d*x])/(64*a*c^2*x) - ((5*b*c - a*d)*(b*c + 3*a*
d)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(32*c^2*x^2) - ((5*b*c + 3*a*d)
*(a + b*x)^(3/2)*(c + d*x)^(3/2))/(24*c*x^3) - ((a + b*x)^(5/2)*(
c + d*x)^(3/2))/(4*x^4) + ((5*b^4*c^4 - 60*a*b^3*c^3*d - 90*a^2*b
^2*c^2*d^2 + 20*a^3*b*c*d^3 - 3*a^4*d^4)*ArcTanh[(Sqrt[c]*Sqrt[a
+ b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(64*a^(3/2)*c^(5/2)) + 2*b^(5/2
)*d^(3/2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])
]
```

Rubi [A] time = 1.02204, antiderivative size = 313, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.273$

$$-\frac{\sqrt{a+bx}\sqrt{c+dx}\left(3a^3d^3-17a^2bcd^2+73ab^2c^2d+5b^3c^3\right)}{64ac^2x}+\frac{\left(-3a^4d^4+20a^3bcd^3-90a^2b^2c^2d^2-60ab^3c^3d+5b^4c^4\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{3/2}c^{5/2}}+2b^{5/2}d^{3/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)-\frac{\sqrt{a+bx}(c+dx)^{3/2}(5bc-ad)(3ad+bc)}{32c^2x^2}-\frac{(a+bx)^{5/2}(c+dx)^{3/2}}{4x^4}-\frac{(a+bx)^{3/2}(c+dx)^{3/2}(}{24cx^3}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(5/2)*(c + d*x)^(3/2))/x^5,x]
```

```
[Out] -((5*b^3*c^3 + 73*a*b^2*c^2*d - 17*a^2*b*c*d^2 + 3*a^3*d^3)*Sqrt[
a + b*x]*Sqrt[c + d*x])/(64*a*c^2*x) - ((5*b*c - a*d)*(b*c + 3*a*
d)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(32*c^2*x^2) - ((5*b*c + 3*a*d)
*(a + b*x)^(3/2)*(c + d*x)^(3/2))/(24*c*x^3) - ((a + b*x)^(5/2)*(
c + d*x)^(3/2))/(4*x^4) + ((5*b^4*c^4 - 60*a*b^3*c^3*d - 90*a^2*b
^2*c^2*d^2 + 20*a^3*b*c*d^3 - 3*a^4*d^4)*ArcTanh[(Sqrt[c]*Sqrt[a
+ b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(64*a^(3/2)*c^(5/2)) + 2*b^(5/2
)*d^(3/2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])
]
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(d*x+c)**(3/2)/x**5,x)
```

```
[Out] Timed out
```

Mathematica [A] time = 0.37009, size = 352, normalized size = 1.12

$$\frac{1}{384}\left(-\frac{2\sqrt{a+bx}\sqrt{c+dx}\left(a^3\left(48c^3+72c^2dx+6cd^2x^2-9d^3x^3\right)+a^2bcx\left(136c^2+244cdx+57d^2x^2\right)+ab^2c^2x^2(118c+337d\right.}{ac^2x^4}\right.$$
$$+\frac{3\log(x)\left(3a^4d^4-20a^3bcd^3+90a^2b^2c^2d^2+60ab^3c^3d-5b^4c^4\right)}{a^{3/2}c^{5/2}}$$
$$-\frac{3\left(3a^4d^4-20a^3bcd^3+90a^2b^2c^2d^2+60ab^3c^3d-5b^4c^4\right)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{a^{3/2}c^{5/2}}$$
$$\left.+384b^{5/2}d^{3/2}\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(5/2)*(c + d*x)^(3/2))/x^5,x]
```

```
[Out] ((-2*Sqrt[a + b*x]*Sqrt[c + d*x]*(15*b^3*c^3*x^3 + a*b^2*c^2*x^2*
(118*c + 337*d*x) + a^2*b*c*x*(136*c^2 + 244*c*d*x + 57*d^2*x^2)
+ a^3*(48*c^3 + 72*c^2*d*x + 6*c*d^2*x^2 - 9*d^3*x^3)))/(a*c^2*x^
4) + (3*(-5*b^4*c^4 + 60*a*b^3*c^3*d + 90*a^2*b^2*c^2*d^2 - 20*a^
3*b*c*d^3 + 3*a^4*d^4)*Log[x])/(a^(3/2)*c^(5/2)) - (3*(-5*b^4*c^4
 + 60*a*b^3*c^3*d + 90*a^2*b^2*c^2*d^2 - 20*a^3*b*c*d^3 + 3*a^4*d
^4)*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*S
qrt[c + d*x]])/(a^(3/2)*c^(5/2)) + 384*b^(5/2)*d^(3/2)*Log[b*c +
a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/3
84
```

Maple [B] time = 0.027, size = 852, normalized size = 2.7

$$-\frac{1}{384\,ac^2x^4}\sqrt{bx+a}\sqrt{dx+c}\left(9\ln\left(\frac{adx+bcx+2\sqrt{ac}\sqrt{dx^2b+adx+bcx+ac}+2ac}{x}\right)x^4a^4d^4\sqrt{bd}-60\ln\left(\frac{adx+bcx+2\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(d*x+c)^(3/2)/x^5,x)
```

```
[Out] -1/384*(b*x+a)^(1/2)*(d*x+c)^(1/2)/a/c^2*(9*ln((a*d*x+b*c*x+2*(a*
c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^4*a^4*d^4*(b
*d)^(1/2)-60*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a
*c)^(1/2)+2*a*c)/x)*x^4*a^3*b*c*d^3*(b*d)^(1/2)+270*ln((a*d*x+b*c
*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^4*a^
2*b^2*c^2*d^2*(b*d)^(1/2)+180*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*
x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^4*a*b^3*c^3*d*(b*d)^(1/2)-
15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+
2*a*c)/x)*x^4*b^4*c^4*(b*d)^(1/2)-384*ln(1/2*(2*b*d*x+2*(b*d*x^2+
a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^4*a*b^
3*c^2*d^2*(a*c)^(1/2)-18*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*d^3*(b*d
)^(1/2)*a^3*x^3*(a*c)^(1/2)+114*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*d
^2*b*(b*d)^(1/2)*c*a^2*x^3*(a*c)^(1/2)+674*(b*d*x^2+a*d*x+b*c*x+a
*c)^(1/2)*d*b^2*(b*d)^(1/2)*c^2*a*x^3*(a*c)^(1/2)+30*c^3*(b*d*x^2
+a*d*x+b*c*x+a*c)^(1/2)*b^3*(b*d)^(1/2)*x^3*(a*c)^(1/2)+12*(b*d*x
^2+a*d*x+b*c*x+a*c)^(1/2)*d^2*(b*d)^(1/2)*c*a^3*x^2*(a*c)^(1/2)+4
88*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*d*b*(b*d)^(1/2)*c^2*a^2*x^2*(a
*c)^(1/2)+236*c^3*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*b^2*(b*d)^(1/2)
*a*x^2*(a*c)^(1/2)+144*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*d*(b*d)^(1
/2)*c^2*a^3*x*(a*c)^(1/2)+272*c^3*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)
*b*(b*d)^(1/2)*a^2*x*(a*c)^(1/2)+96*c^3*(b*d*x^2+a*d*x+b*c*x+a*c)
^(1/2)*(b*d)^(1/2)*a^3*(a*c)^(1/2))/(b*d*x^2+a*d*x+b*c*x+a*c)^(1/
2)/x^4/(a*c)^(1/2)/(b*d)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(5/2)*(d*x + c)^(3/2)/x^5,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 6.59461, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(5/2)*(d*x + c)^(3/2)/x^5,x, algorithm="fricas")
```

```
[Out] [1/768*(384*sqrt(a*c)*sqrt(b*d)*a*b^2*c^2*d*x^4*log(8*b^2*d^2*x^2
 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b*d*x + b*c + a*d)*sqrt(b
*d)*sqrt(b*x + a)*sqrt(d*x + c) + 8*(b^2*c*d + a*b*d^2)*x) - 3*(5
*b^4*c^4 - 60*a*b^3*c^3*d - 90*a^2*b^2*c^2*d^2 + 20*a^3*b*c*d^3 -
 3*a^4*d^4)*x^4*log(-(4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(
b*x + a)*sqrt(d*x + c) - (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*
d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2) - 4*(48*a^3*c
^3 + (15*b^3*c^3 + 337*a*b^2*c^2*d + 57*a^2*b*c*d^2 - 9*a^3*d^3)*
x^3 + 2*(59*a*b^2*c^3 + 122*a^2*b*c^2*d + 3*a^3*c*d^2)*x^2 + 8*(1
7*a^2*b*c^3 + 9*a^3*c^2*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x +
c))/(sqrt(a*c)*a*c^2*x^4), 1/768*(768*sqrt(a*c)*sqrt(-b*d)*a*b^2*
c^2*d*x^4*arctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(-b*d)*sqrt(b*x +
 a)*sqrt(d*x + c))) - 3*(5*b^4*c^4 - 60*a*b^3*c^3*d - 90*a^2*b^2*
c^2*d^2 + 20*a^3*b*c*d^3 - 3*a^4*d^4)*x^4*log(-(4*(2*a^2*c^2 + (a
*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c) - (8*a^2*c^2 + (
b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqr
t(a*c))/x^2) - 4*(48*a^3*c^3 + (15*b^3*c^3 + 337*a*b^2*c^2*d + 57
*a^2*b*c*d^2 - 9*a^3*d^3)*x^3 + 2*(59*a*b^2*c^3 + 122*a^2*b*c^2*d
 + 3*a^3*c*d^2)*x^2 + 8*(17*a^2*b*c^3 + 9*a^3*c^2*d)*x)*sqrt(a*c)
*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(a*c)*a*c^2*x^4), 1/384*(192*s
qrt(-a*c)*sqrt(b*d)*a*b^2*c^2*d*x^4*log(8*b^2*d^2*x^2 + b^2*c^2 +
 6*a*b*c*d + a^2*d^2 + 4*(2*b*d*x + b*c + a*d)*sqrt(b*d)*sqrt(b*x
 + a)*sqrt(d*x + c) + 8*(b^2*c*d + a*b*d^2)*x) + 3*(5*b^4*c^4 - 6
0*a*b^3*c^3*d - 90*a^2*b^2*c^2*d^2 + 20*a^3*b*c*d^3 - 3*a^4*d^4)*
x^4*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*
sqrt(d*x + c)*a*c)) - 2*(48*a^3*c^3 + (15*b^3*c^3 + 337*a*b^2*c^2
*d + 57*a^2*b*c*d^2 - 9*a^3*d^3)*x^3 + 2*(59*a*b^2*c^3 + 122*a^2*
b*c^2*d + 3*a^3*c*d^2)*x^2 + 8*(17*a^2*b*c^3 + 9*a^3*c^2*d)*x)*sq
rt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(-a*c)*a*c^2*x^4), 1/3
84*(384*sqrt(-a*c)*sqrt(-b*d)*a*b^2*c^2*d*x^4*arctan(1/2*(2*b*d*x
 + b*c + a*d)/(sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c))) + 3*(5*b^
4*c^4 - 60*a*b^3*c^3*d - 90*a^2*b^2*c^2*d^2 + 20*a^3*b*c*d^3 - 3*
a^4*d^4)*x^4*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(
b*x + a)*sqrt(d*x + c)*a*c)) - 2*(48*a^3*c^3 + (15*b^3*c^3 + 337*
a*b^2*c^2*d + 57*a^2*b*c*d^2 - 9*a^3*d^3)*x^3 + 2*(59*a*b^2*c^3 +
 122*a^2*b*c^2*d + 3*a^3*c*d^2)*x^2 + 8*(17*a^2*b*c^3 + 9*a^3*c^2
*d)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(-a*c)*a*c^2*
x^4)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**(5/2)*(d*x+c)**(3/2)/x**5,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.693884, size = 4, normalized size = 0.01

$$sage_0x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*(d*x + c)^(3/2)/x^5,x, algorithm="giac")
```

```
[Out] sage0*x
```

3.652 $\int \frac{(a+bx)^{5/2}(c+dx)^{3/2}}{x^6}\,dx$

Optimal. Leaf size=239

$$-\frac{3(bc-ad)^5\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{128a^{5/2}c^{7/2}}+\frac{3\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^4}{128a^2c^3x}-\frac{\sqrt{a+bx}(c+dx)^{5/2}(bc-ad)^2}{16c^3x^3}-\frac{\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)^3}{64ac^3x^2}-\frac{(a+bx)^{3/2}(c+dx)^{5/2}(bc-ad)}{8c^2x^4}-\frac{(a+bx)^{5/2}(c+dx)^{5/2}}{5cx^5}$$

```
[Out] (3*(b*c - a*d)^4*Sqrt[a + b*x]*Sqrt[c + d*x])/(128*a^2*c^3*x) - (
(b*c - a*d)^3*Sqrt[a + b*x]*(c + d*x)^(3/2))/(64*a*c^3*x^2) - ((b
*c - a*d)^2*Sqrt[a + b*x]*(c + d*x)^(5/2))/(16*c^3*x^3) - ((b*c -
 a*d)*(a + b*x)^(3/2)*(c + d*x)^(5/2))/(8*c^2*x^4) - ((a + b*x)^(
5/2)*(c + d*x)^(5/2))/(5*c*x^5) - (3*(b*c - a*d)^5*ArcTanh[(Sqrt[
c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(128*a^(5/2)*c^(7/2))
```

Rubi [A] time = 0.47618, antiderivative size = 239, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.136$

$$-\frac{3(bc-ad)^5\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{128a^{5/2}c^{7/2}}+\frac{3\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^4}{128a^2c^3x}-\frac{\sqrt{a+bx}(c+dx)^{5/2}(bc-ad)^2}{16c^3x^3}-\frac{\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)^3}{64ac^3x^2}-\frac{(a+bx)^{3/2}(c+dx)^{5/2}(bc-ad)}{8c^2x^4}-\frac{(a+bx)^{5/2}(c+dx)^{5/2}}{5cx^5}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(5/2)*(c + d*x)^(3/2))/x^6,x]
```

```
[Out] (3*(b*c - a*d)^4*Sqrt[a + b*x]*Sqrt[c + d*x])/(128*a^2*c^3*x) - (
(b*c - a*d)^3*Sqrt[a + b*x]*(c + d*x)^(3/2))/(64*a*c^3*x^2) - ((b
*c - a*d)^2*Sqrt[a + b*x]*(c + d*x)^(5/2))/(16*c^3*x^3) - ((b*c -
 a*d)*(a + b*x)^(3/2)*(c + d*x)^(5/2))/(8*c^2*x^4) - ((a + b*x)^(
5/2)*(c + d*x)^(5/2))/(5*c*x^5) - (3*(b*c - a*d)^5*ArcTanh[(Sqrt[
c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(128*a^(5/2)*c^(7/2))
```

Rubi in Sympy [A] time = 50.0134, size = 216, normalized size = 0.9

$$-\frac{(a+bx)^{\frac{5}{2}}(c+dx)^{\frac{5}{2}}}{5cx^5}+\frac{(a+bx)^{\frac{5}{2}}(c+dx)^{\frac{3}{2}}(ad-bc)}{8acx^4}+\frac{(a+bx)^{\frac{5}{2}}\sqrt{c+dx}\,(ad-bc)^2}{16a^2cx^3}+\frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}\,(ad-bc)^3}{64a^2c^2x^2}-\frac{3\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)^4}{128a^2c^3x}+\frac{3(ad-bc)^5\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{128a^{\frac{5}{2}}c^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(d*x+c)**(3/2)/x**6,x)
```

```
[Out] -(a + b*x)**(5/2)*(c + d*x)**(5/2)/(5*c*x**5) + (a + b*x)**(5/2)*
(c + d*x)**(3/2)*(a*d - b*c)/(8*a*c*x**4) + (a + b*x)**(5/2)*sqrt
(c + d*x)*(a*d - b*c)**2/(16*a**2*c*x**3) + (a + b*x)**(3/2)*sqrt
(c + d*x)*(a*d - b*c)**3/(64*a**2*c**2*x**2) - 3*sqrt(a + b*x)*sq
rt(c + d*x)*(a*d - b*c)**4/(128*a**2*c**3*x) + 3*(a*d - b*c)**5*a
tanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(128*a**(5/2)
*c**(7/2))
```

Mathematica [A] time = 0.364419, size = 270, normalized size = 1.13

$$-2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}\left(a^4\left(128c^4+176c^3dx+8c^2d^2x^2-10cd^3x^3+15d^4x^4\right)+2a^3bcx\left(168c^3+256c^2dx+23cd^2x^2-35a\right.\right.$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(5/2)*(c + d*x)^(3/2))/x^6,x]
```

```
[Out] (-2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]*(-15*b^4*c^4*x^4
+ 10*a*b^3*c^3*x^3*(c + 7*d*x) + 2*a^2*b^2*c^2*x^2*(124*c^2 + 233
*c*d*x + 64*d^2*x^2) + 2*a^3*b*c*x*(168*c^3 + 256*c^2*d*x + 23*c*
d^2*x^2 - 35*d^3*x^3) + a^4*(128*c^4 + 176*c^3*d*x + 8*c^2*d^2*x^
2 - 10*c*d^3*x^3 + 15*d^4*x^4)) + 15*(b*c - a*d)^5*x^5*Log[x] - 1
5*(b*c - a*d)^5*x^5*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]
*Sqrt[a + b*x]*Sqrt[c + d*x]])/(1280*a^(5/2)*c^(7/2)*x^5)
```

Maple [B] time = 0.029, size = 967, normalized size = 4.1

$$\frac{1}{1280\,a^2c^3x^5}\sqrt{bx+a}\sqrt{dx+c}\left(15\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{dx^2b+adx+bcx+ac}+2\,ac}{x}\right)x^5a^5d^5-75\,\ln\left(\frac{adx+bcx+2\,\sqrt{a}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(d*x+c)^(3/2)/x^6,x)
```

```
[Out] 1/1280*(b*x+a)^(1/2)*(d*x+c)^(1/2)/a^2/c^3*(15*ln((a*d*x+b*c*x+2*
(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^5*a^5*d^5
-75*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)
+2*a*c)/x)*x^5*a^4*b*c*d^4+150*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d
*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^5*a^3*b^2*c^2*d^3-150*ln(
(a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)
/x)*x^5*a^2*b^3*c^3*d^2+75*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2
+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^5*a*b^4*c^4*d-15*ln((a*d*x+b*
c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^5*b
^5*c^5-30*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^4*a^4*d^4
+140*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^4*a^3*b*c*d^3-
256*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^4*a^2*b^2*c^2*d
^2-140*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^4*a*b^3*c^3*
d+30*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^4*b^4*c^4+20*(
a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^3*a^4*c*d^3-92*(a*c)
^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^3*a^3*b*c^2*d^2-932*(a*c
)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^3*a^2*b^2*c^3*d-20*(a*c
)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^3*a*b^3*c^4-16*(a*c)^(1
/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^2*a^4*c^2*d^2-1024*(a*c)^(1
/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^2*a^3*b*c^3*d-496*(a*c)^(1/
2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x^2*a^2*b^2*c^4-352*(a*c)^(1/2
)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*a^4*c^3*d-672*(a*c)^(1/2)*(b*
d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*a^3*b*c^4-256*(b*d*x^2+a*d*x+b*c*x
+a*c)^(1/2)*a^4*c^4*(a*c)^(1/2))/(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)/
x^5/(a*c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*(d*x + c)^(3/2)/x^6,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 2.73742, size = 1, normalized size = 0.

$$\left[-\frac{15\left(b^5c^5-5\,ab^4c^4d+10\,a^2b^3c^3d^2-10\,a^3b^2c^2d^3+5\,a^4bcd^4-a^5d^5\right)x^5\log\left(\frac{4\left(2\,a^2c^2+\left(abc^2+a^2cd\right)x\right)\sqrt{bx+a}\sqrt{dx+c}+\left(8\,a^2c^2+\left(b^2c^2+\right.\right.}{x^2}\right.}{}\right.$$

$$-\frac{15\left(b^5c^5-5\,ab^4c^4d+10\,a^2b^3c^3d^2-10\,a^3b^2c^2d^3+5\,a^4bcd^4-a^5d^5\right)x^5\arctan\left(\frac{(2\,ac+(bc+ad)x)\sqrt{-ac}}{2\,\sqrt{bx+a}\sqrt{dx+c}ac}\right)+2\left(128\,a^4c^4-\left(15\,b^4c\right.\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*(d*x + c)^(3/2)/x^6,x, algorithm="fricas")
```

```
[Out] [-1/2560*(15*(b^5*c^5 - 5*a*b^4*c^4*d + 10*a^2*b^3*c^3*d^2 - 10*a
^3*b^2*c^2*d^3 + 5*a^4*b*c*d^4 - a^5*d^5)*x^5*log((4*(2*a^2*c^2 +
 (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c) + (8*a^2*c^2
+ (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*
sqrt(a*c))/x^2) + 4*(128*a^4*c^4 - (15*b^4*c^4 - 70*a*b^3*c^3*d -
 128*a^2*b^2*c^2*d^2 + 70*a^3*b*c*d^3 - 15*a^4*d^4)*x^4 + 2*(5*a*
b^3*c^4 + 233*a^2*b^2*c^3*d + 23*a^3*b*c^2*d^2 - 5*a^4*c*d^3)*x^3
 + 8*(31*a^2*b^2*c^4 + 64*a^3*b*c^3*d + a^4*c^2*d^2)*x^2 + 16*(21
*a^3*b*c^4 + 11*a^4*c^3*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x +
c))/(sqrt(a*c)*a^2*c^3*x^5), -1/1280*(15*(b^5*c^5 - 5*a*b^4*c^4*d
 + 10*a^2*b^3*c^3*d^2 - 10*a^3*b^2*c^2*d^3 + 5*a^4*b*c*d^4 - a^5*
d^5)*x^5*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x
+ a)*sqrt(d*x + c)*a*c)) + 2*(128*a^4*c^4 - (15*b^4*c^4 - 70*a*b^
3*c^3*d - 128*a^2*b^2*c^2*d^2 + 70*a^3*b*c*d^3 - 15*a^4*d^4)*x^4
+ 2*(5*a*b^3*c^4 + 233*a^2*b^2*c^3*d + 23*a^3*b*c^2*d^2 - 5*a^4*c
*d^3)*x^3 + 8*(31*a^2*b^2*c^4 + 64*a^3*b*c^3*d + a^4*c^2*d^2)*x^2
 + 16*(21*a^3*b*c^4 + 11*a^4*c^3*d)*x)*sqrt(-a*c)*sqrt(b*x + a)*s
qrt(d*x + c))/(sqrt(-a*c)*a^2*c^3*x^5)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(d*x+c)**(3/2)/x**6,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*(d*x + c)^(3/2)/x^6,x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.653 $\int x(a+bx)^{5/2}(c+dx)^{5/2}\,dx$

Optimal. Leaf size=348

$$\frac{5(ad+bc)(bc-ad)^6\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{1024b^{9/2}d^{9/2}}-\frac{5\sqrt{a+bx}\sqrt{c+dx}(ad+bc)(bc-ad)^5}{1024b^4d^4}+\frac{5(a+bx)^{3/2}\sqrt{c+dx}(ad+bc)(bc-ad)^4}{1536b^4d^3}-\frac{(a+bx)^{5/2}\sqrt{c+dx}(ad+bc)(bc-ad)^3}{384b^4d^2}-\frac{(a+bx)^{7/2}\sqrt{c+dx}(ad+bc)(bc-ad)^2}{64b^4d}-\frac{(a+bx)^{7/2}(c+dx)^{3/2}(ad+bc)(bc-ad)}{24b^3d}-\frac{(a+bx)^{7/2}(c+dx)^{5/2}(ad+bc)}{12b^2d}+\frac{(a+bx)^{7/2}(c+dx)^{7/2}}{7bd}$$

```
[Out] (-5*(b*c - a*d)^5*(b*c + a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(1024*
b^4*d^4) + (5*(b*c - a*d)^4*(b*c + a*d)*(a + b*x)^(3/2)*Sqrt[c +
d*x])/(1536*b^4*d^3) - ((b*c - a*d)^3*(b*c + a*d)*(a + b*x)^(5/2)
*Sqrt[c + d*x])/(384*b^4*d^2) - ((b*c - a*d)^2*(b*c + a*d)*(a + b
*x)^(7/2)*Sqrt[c + d*x])/(64*b^4*d) - ((b*c - a*d)*(b*c + a*d)*(a
 + b*x)^(7/2)*(c + d*x)^(3/2))/(24*b^3*d) - ((b*c + a*d)*(a + b*x
)^(7/2)*(c + d*x)^(5/2))/(12*b^2*d) + ((a + b*x)^(7/2)*(c + d*x)^
(7/2))/(7*b*d) + (5*(b*c - a*d)^6*(b*c + a*d)*ArcTanh[(Sqrt[d]*Sq
rt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(1024*b^(9/2)*d^(9/2))
```

Rubi [A] time = 0.609481, antiderivative size = 348, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.2$

$$\frac{5(ad+bc)(bc-ad)^6\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{1024b^{9/2}d^{9/2}}-\frac{5\sqrt{a+bx}\sqrt{c+dx}(ad+bc)(bc-ad)^5}{1024b^4d^4}+\frac{5(a+bx)^{3/2}\sqrt{c+dx}(ad+bc)(bc-ad)^4}{1536b^4d^3}-\frac{(a+bx)^{5/2}\sqrt{c+dx}(ad+bc)(bc-ad)^3}{384b^4d^2}-\frac{(a+bx)^{7/2}\sqrt{c+dx}(ad+bc)(bc-ad)^2}{64b^4d}-\frac{(a+bx)^{7/2}(c+dx)^{3/2}(ad+bc)(bc-ad)}{24b^3d}-\frac{(a+bx)^{7/2}(c+dx)^{5/2}(ad+bc)}{12b^2d}+\frac{(a+bx)^{7/2}(c+dx)^{7/2}}{7bd}$$

Antiderivative was successfully verified.

```
[In]  Int[x*(a + b*x)^(5/2)*(c + d*x)^(5/2),x]
```

```
[Out] (-5*(b*c - a*d)^5*(b*c + a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(1024*
b^4*d^4) + (5*(b*c - a*d)^4*(b*c + a*d)*(a + b*x)^(3/2)*Sqrt[c +
d*x])/(1536*b^4*d^3) - ((b*c - a*d)^3*(b*c + a*d)*(a + b*x)^(5/2)
*Sqrt[c + d*x])/(384*b^4*d^2) - ((b*c - a*d)^2*(b*c + a*d)*(a + b
*x)^(7/2)*Sqrt[c + d*x])/(64*b^4*d) - ((b*c - a*d)*(b*c + a*d)*(a
 + b*x)^(7/2)*(c + d*x)^(3/2))/(24*b^3*d) - ((b*c + a*d)*(a + b*x
)^(7/2)*(c + d*x)^(5/2))/(12*b^2*d) + ((a + b*x)^(7/2)*(c + d*x)^
(7/2))/(7*b*d) + (5*(b*c - a*d)^6*(b*c + a*d)*ArcTanh[(Sqrt[d]*Sq
rt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(1024*b^(9/2)*d^(9/2))
```

Rubi in Sympy [A] time = 80.5257, size = 311, normalized size = 0.89

$$\frac{(a+bx)^{\frac{7}{2}}(c+dx)^{\frac{7}{2}}}{7bd}-\frac{(a+bx)^{\frac{7}{2}}(c+dx)^{\frac{5}{2}}(ad+bc)}{12b^2d}+\frac{(a+bx)^{\frac{7}{2}}(c+dx)^{\frac{3}{2}}(ad-bc)(ad+bc)}{24b^3d}-\frac{(a+bx)^{\frac{7}{2}}\sqrt{c+dx}\,(ad-bc)^2(ad+bc)}{64b^4d}+\frac{(a+bx)^{\frac{5}{2}}\sqrt{c+dx}\,(ad-bc)^3(ad+bc)}{384b^4d^2}+\frac{5(a+bx)^{\frac{3}{2}}\sqrt{c+dx}\,(ad-bc)^4(ad+bc)}{1536b^4d^3}+\frac{5\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)^5(ad+bc)}{1024b^4d^4}+\frac{5(ad-bc)^6(ad+bc)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{1024b^{\frac{9}{2}}d^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(b*x+a)**(5/2)*(d*x+c)**(5/2),x)
```

```
[Out] (a + b*x)**(7/2)*(c + d*x)**(7/2)/(7*b*d) - (a + b*x)**(7/2)*(c +
 d*x)**(5/2)*(a*d + b*c)/(12*b**2*d) + (a + b*x)**(7/2)*(c + d*x)
**(3/2)*(a*d - b*c)*(a*d + b*c)/(24*b**3*d) - (a + b*x)**(7/2)*sq
rt(c + d*x)*(a*d - b*c)**2*(a*d + b*c)/(64*b**4*d) + (a + b*x)**(
5/2)*sqrt(c + d*x)*(a*d - b*c)**3*(a*d + b*c)/(384*b**4*d**2) + 5
*(a + b*x)**(3/2)*sqrt(c + d*x)*(a*d - b*c)**4*(a*d + b*c)/(1536*
b**4*d**3) + 5*sqrt(a + b*x)*sqrt(c + d*x)*(a*d - b*c)**5*(a*d +
b*c)/(1024*b**4*d**4) + 5*(a*d - b*c)**6*(a*d + b*c)*atanh(sqrt(d
)*sqrt(a + b*x)/(sqrt(b)*sqrt(c + d*x)))/(1024*b**(9/2)*d**(9/2))
```

Mathematica [A] time = 0.460942, size = 376, normalized size = 1.08

$$\frac{\sqrt{a+bx}\sqrt{c+dx}\left(-105a^6d^6+70a^5bd^5(7c+dx)-7a^4b^2d^4\left(113c^2+46cdx+8d^2x^2\right)+4a^3b^3d^3\left(75c^3+127c^2dx+64cd^2x^2+\right.\right.}{}$$

$$+\frac{5(ad+bc)(bc-ad)^6\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{2048b^{9/2}d^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x*(a + b*x)^(5/2)*(c + d*x)^(5/2),x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(-105*a^6*d^6 + 70*a^5*b*d^5*(7*c +
d*x) - 7*a^4*b^2*d^4*(113*c^2 + 46*c*d*x + 8*d^2*x^2) + 4*a^3*b^3
*d^3*(75*c^3 + 127*c^2*d*x + 64*c*d^2*x^2 + 12*d^3*x^3) + a^2*b^4
*d^2*(-791*c^4 + 508*c^3*d*x + 9840*c^2*d^2*x^2 + 12752*c*d^3*x^3
 + 4736*d^4*x^4) + 2*a*b^5*d*(245*c^5 - 161*c^4*d*x + 128*c^3*d^2
*x^2 + 6376*c^2*d^3*x^3 + 9344*c*d^4*x^4 + 3712*d^5*x^5) + b^6*(-
105*c^6 + 70*c^5*d*x - 56*c^4*d^2*x^2 + 48*c^3*d^3*x^3 + 4736*c^2
*d^4*x^4 + 7424*c*d^5*x^5 + 3072*d^6*x^6)))/(21504*b^4*d^4) + (5*
(b*c - a*d)^6*(b*c + a*d)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqr
t[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(2048*b^(9/2)*d^(9/2))
```

Maple [B] time = 0.028, size = 1580, normalized size = 4.5

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(b*x+a)^(5/2)*(d*x+c)^(5/2),x)
```

```
[Out] 1/43008*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(96*x^3*a^3*b^3*d^6*(b*d*x^2+
a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+980*a*b^5*c^5*d*(b*d*x^2+a*d*x
+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+14848*x^5*a*b^5*d^6*(b*d*x^2+a*d*x+
b*c*x+a*c)^(1/2)*(b*d)^(1/2)+14848*x^5*b^6*c*d^5*(b*d*x^2+a*d*x+b
*c*x+a*c)^(1/2)*(b*d)^(1/2)+9472*x^4*a^2*b^4*d^6*(b*d*x^2+a*d*x+b
*c*x+a*c)^(1/2)*(b*d)^(1/2)+9472*x^4*b^6*c^2*d^4*(b*d*x^2+a*d*x+b
*c*x+a*c)^(1/2)*(b*d)^(1/2)+140*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x
*a^5*d^6*b*(b*d)^(1/2)+140*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*c^5*
b^6*d*(b*d)^(1/2)+980*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a^5*c*d^5*b
*(b*d)^(1/2)-1582*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a^4*c^2*b^2*d^4
*(b*d)^(1/2)+600*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*a^3*c^3*b^3*d^3*
(b*d)^(1/2)-1582*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*c^4*a^2*b^4*d^2*
(b*d)^(1/2)+96*x^3*b^6*c^3*d^3*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b
*d)^(1/2)-112*x^2*a^4*b^2*d^6*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*
d)^(1/2)-112*x^2*b^6*c^4*d^2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d
)^(1/2)-525*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*
d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^6*c*d^6*b+945*ln(1/2*(2*b*d*x+2*
(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))
*a^5*c^2*d^5*b^2-525*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^
```

```
(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^4*c^3*b^3*d^4-525*ln(1/
2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)
/(b*d)^(1/2))*a^3*c^4*b^4*d^3+945*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*
x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*c^5*a^2*b^5*
d^2-525*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(
1/2)+a*d+b*c)/(b*d)^(1/2))*c^6*a*b^6*d+6144*x^6*b^6*d^6*(b*d*x^2+
a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)-210*(b*d*x^2+a*d*x+b*c*x+a*c)^
(1/2)*a^6*d^6*(b*d)^(1/2)-210*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*c^6
*b^6*(b*d)^(1/2)-644*d^5*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*a^4*c*
b^2*(b*d)^(1/2)+1016*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*a^3*c^2*b^
3*d^4*(b*d)^(1/2)+1016*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*a^2*c^3*
b^4*d^3*(b*d)^(1/2)-644*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*c^4*a*b
^5*d^2*(b*d)^(1/2)+37376*x^4*a*b^5*c*d^5*(b*d*x^2+a*d*x+b*c*x+a*c
)^(1/2)*(b*d)^(1/2)+25504*x^3*a^2*b^4*c*d^5*(b*d*x^2+a*d*x+b*c*x+
a*c)^(1/2)*(b*d)^(1/2)+25504*x^3*a*b^5*c^2*d^4*(b*d*x^2+a*d*x+b*c
*x+a*c)^(1/2)*(b*d)^(1/2)+512*x^2*a^3*b^3*c*d^5*(b*d*x^2+a*d*x+b*
c*x+a*c)^(1/2)*(b*d)^(1/2)+19680*x^2*a^2*b^4*c^2*d^4*(b*d*x^2+a*d
*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+512*x^2*a*b^5*c^3*d^3*(b*d*x^2+a*
d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+105*d^7*ln(1/2*(2*b*d*x+2*(b*d*x
^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^7+1
05*b^7*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1
/2)+a*d+b*c)/(b*d)^(1/2))*c^7)/(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)/d^
4/b^4/(b*d)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*(d*x + c)^(5/2)*x,x, algorithm="maxima")

[Out] Exception raised: ValueError
```

Fricas [A] time = 0.341794, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*(d*x + c)^(5/2)*x,x, algorithm="fricas")

[Out] [1/86016*(4*(3072*b^6*d^6*x^6 - 105*b^6*c^6 + 490*a*b^5*c^5*d - 7
91*a^2*b^4*c^4*d^2 + 300*a^3*b^3*c^3*d^3 - 791*a^4*b^2*c^2*d^4 +
490*a^5*b*c*d^5 - 105*a^6*d^6 + 7424*(b^6*c*d^5 + a*b^5*d^6)*x^5
+ 128*(37*b^6*c^2*d^4 + 146*a*b^5*c*d^5 + 37*a^2*b^4*d^6)*x^4 + 1
6*(3*b^6*c^3*d^3 + 797*a*b^5*c^2*d^4 + 797*a^2*b^4*c*d^5 + 3*a^3*
b^3*d^6)*x^3 - 8*(7*b^6*c^4*d^2 - 32*a*b^5*c^3*d^3 - 1230*a^2*b^4
*c^2*d^4 - 32*a^3*b^3*c*d^5 + 7*a^4*b^2*d^6)*x^2 + 2*(35*b^6*c^5*
d - 161*a*b^5*c^4*d^2 + 254*a^2*b^4*c^3*d^3 + 254*a^3*b^3*c^2*d^4
 - 161*a^4*b^2*c*d^5 + 35*a^5*b*d^6)*x)*sqrt(b*d)*sqrt(b*x + a)*s
qrt(d*x + c) + 105*(b^7*c^7 - 5*a*b^6*c^6*d + 9*a^2*b^5*c^5*d^2 -
 5*a^3*b^4*c^4*d^3 - 5*a^4*b^3*c^3*d^4 + 9*a^5*b^2*c^2*d^5 - 5*a^
6*b*c*d^6 + a^7*d^7)*log(4*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt
(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d +
a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/(sqrt(b*d)*b^4*d^4
), 1/43008*(2*(3072*b^6*d^6*x^6 - 105*b^6*c^6 + 490*a*b^5*c^5*d -
 791*a^2*b^4*c^4*d^2 + 300*a^3*b^3*c^3*d^3 - 791*a^4*b^2*c^2*d^4
+ 490*a^5*b*c*d^5 - 105*a^6*d^6 + 7424*(b^6*c*d^5 + a*b^5*d^6)*x^
5 + 128*(37*b^6*c^2*d^4 + 146*a*b^5*c*d^5 + 37*a^2*b^4*d^6)*x^4 +
 16*(3*b^6*c^3*d^3 + 797*a*b^5*c^2*d^4 + 797*a^2*b^4*c*d^5 + 3*a^
3*b^3*d^6)*x^3 - 8*(7*b^6*c^4*d^2 - 32*a*b^5*c^3*d^3 - 1230*a^2*b
^4*c^2*d^4 - 32*a^3*b^3*c*d^5 + 7*a^4*b^2*d^6)*x^2 + 2*(35*b^6*c^
5*d - 161*a*b^5*c^4*d^2 + 254*a^2*b^4*c^3*d^3 + 254*a^3*b^3*c^2*d
^4 - 161*a^4*b^2*c*d^5 + 35*a^5*b*d^6)*x)*sqrt(-b*d)*sqrt(b*x + a
```

```
)*sqrt(d*x + c) + 105*(b^7*c^7 - 5*a*b^6*c^6*d + 9*a^2*b^5*c^5*d^
2 - 5*a^3*b^4*c^4*d^3 - 5*a^4*b^3*c^3*d^4 + 9*a^5*b^2*c^2*d^5 - 5
*a^6*b*c*d^6 + a^7*d^7)*arctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*
d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/(sqrt(-b*d)*b^4*d^4)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(b*x+a)**(5/2)*(d*x+c)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.482107, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*(d*x + c)^(5/2)*x,x, algorithm="giac")
```

```
[Out] Done
```

3.654 $\int (a+bx)^{5/2}(c+dx)^{5/2}\,dx$

Optimal. Leaf size=262

$$-\frac{5(bc-ad)^6\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{512b^{7/2}d^{7/2}}+\frac{5\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^5}{512b^3d^3}-\frac{5(a+bx)^{3/2}\sqrt{c+dx}(bc-ad)^4}{768b^3d^2}+\frac{(a+bx)^{5/2}\sqrt{c+dx}(bc-ad)^3}{192b^3d}+\frac{(a+bx)^{7/2}\sqrt{c+dx}(bc-ad)^2}{32b^3}+\frac{(a+bx)^{7/2}(c+dx)^{3/2}(bc-ad)}{12b^2}+\frac{(a+bx)^{7/2}(c+dx)^{5/2}}{6b}$$

```
[Out] (5*(b*c - a*d)^5*Sqrt[a + b*x]*Sqrt[c + d*x])/(512*b^3*d^3) - (5*
(b*c - a*d)^4*(a + b*x)^(3/2)*Sqrt[c + d*x])/(768*b^3*d^2) + ((b*
c - a*d)^3*(a + b*x)^(5/2)*Sqrt[c + d*x])/(192*b^3*d) + ((b*c - a
*d)^2*(a + b*x)^(7/2)*Sqrt[c + d*x])/(32*b^3) + ((b*c - a*d)*(a +
 b*x)^(7/2)*(c + d*x)^(3/2))/(12*b^2) + ((a + b*x)^(7/2)*(c + d*x
)^(5/2))/(6*b) - (5*(b*c - a*d)^6*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])
/(Sqrt[b]*Sqrt[c + d*x])])/(512*b^(7/2)*d^(7/2))
```

Rubi [A] time = 0.392524, antiderivative size = 262, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 3, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.158

$$-\frac{5(bc-ad)^6\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{512b^{7/2}d^{7/2}}+\frac{5\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^5}{512b^3d^3}-\frac{5(a+bx)^{3/2}\sqrt{c+dx}(bc-ad)^4}{768b^3d^2}+\frac{(a+bx)^{5/2}\sqrt{c+dx}(bc-ad)^3}{192b^3d}+\frac{(a+bx)^{7/2}\sqrt{c+dx}(bc-ad)^2}{32b^3}+\frac{(a+bx)^{7/2}(c+dx)^{3/2}(bc-ad)}{12b^2}+\frac{(a+bx)^{7/2}(c+dx)^{5/2}}{6b}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(5/2)*(c + d*x)^(5/2),x]
```

```
[Out] (5*(b*c - a*d)^5*Sqrt[a + b*x]*Sqrt[c + d*x])/(512*b^3*d^3) - (5*
(b*c - a*d)^4*(a + b*x)^(3/2)*Sqrt[c + d*x])/(768*b^3*d^2) + ((b*
c - a*d)^3*(a + b*x)^(5/2)*Sqrt[c + d*x])/(192*b^3*d) + ((b*c - a
*d)^2*(a + b*x)^(7/2)*Sqrt[c + d*x])/(32*b^3) + ((b*c - a*d)*(a +
 b*x)^(7/2)*(c + d*x)^(3/2))/(12*b^2) + ((a + b*x)^(7/2)*(c + d*x
)^(5/2))/(6*b) - (5*(b*c - a*d)^6*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])
/(Sqrt[b]*Sqrt[c + d*x])])/(512*b^(7/2)*d^(7/2))
```

Rubi in Sympy [A] time = 59.6199, size = 233, normalized size = 0.89

$$\frac{(a+bx)^{\frac{5}{2}}(c+dx)^{\frac{7}{2}}}{6d}+\frac{(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{7}{2}}(ad-bc)}{12d^2}+\frac{\sqrt{a+bx}(c+dx)^{\frac{7}{2}}(ad-bc)^2}{32d^3}+\frac{\sqrt{a+bx}(c+dx)^{\frac{5}{2}}(ad-bc)^3}{192bd^3}-\frac{5\sqrt{a+bx}(c+dx)^{\frac{3}{2}}(ad-bc)^4}{768b^2d^3}+\frac{5\sqrt{a+bx}\sqrt{c+dx}(ad-bc)^5}{512b^3d^3}-\frac{5(ad-bc)^6\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{512b^{\frac{7}{2}}d^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(d*x+c)**(5/2),x)
```

```
[Out] (a + b*x)**(5/2)*(c + d*x)**(7/2)/(6*d) + (a + b*x)**(3/2)*(c + d
*x)**(7/2)*(a*d - b*c)/(12*d**2) + sqrt(a + b*x)*(c + d*x)**(7/2)
*(a*d - b*c)**2/(32*d**3) + sqrt(a + b*x)*(c + d*x)**(5/2)*(a*d -
 b*c)**3/(192*b*d**3) - 5*sqrt(a + b*x)*(c + d*x)**(3/2)*(a*d - b
```

```
*c)**4/(768*b**2*d**3) + 5*sqrt(a + b*x)*sqrt(c + d*x)*(a*d - b*c
)**5/(512*b**3*d**3) - 5*(a*d - b*c)**6*atanh(sqrt(d)*sqrt(a + b*
x)/(sqrt(b)*sqrt(c + d*x)))/(512*b**(7/2)*d**(7/2))
```

Mathematica [A] time = 0.356383, size = 300, normalized size = 1.15

$$2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}\left(15a^5d^5-5a^4bd^4(17c+2dx)+2a^3b^2d^3\left(99c^2+28cdx+4d^2x^2\right)+6a^2b^3d^2\left(33c^3+198c^2dx+212cd\right.$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(5/2)*(c + d*x)^(5/2),x]
```

```
[Out] (2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]*(15*a^5*d^5 - 5*a^
4*b*d^4*(17*c + 2*d*x) + 2*a^3*b^2*d^3*(99*c^2 + 28*c*d*x + 4*d^2
*x^2) + 6*a^2*b^3*d^2*(33*c^3 + 198*c^2*d*x + 212*c*d^2*x^2 + 72*
d^3*x^3) + a*b^4*d*(-85*c^4 + 56*c^3*d*x + 1272*c^2*d^2*x^2 + 169
6*c*d^3*x^3 + 640*d^4*x^4) + b^5*(15*c^5 - 10*c^4*d*x + 8*c^3*d^2
*x^2 + 432*c^2*d^3*x^3 + 640*c*d^4*x^4 + 256*d^5*x^5)) - 15*(b*c
- a*d)^6*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x
]*Sqrt[c + d*x]])/(3072*b^(7/2)*d^(7/2))
```

Maple [B] time = 0.007, size = 1089, normalized size = 4.2

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(d*x+c)^(5/2),x)
```

```
[Out] -5/1024/d^3*((b*x+a)*(d*x+c))^(1/2)/(d*x+c)^(1/2)/(b*x+a)^(1/2)*l
n((1/2*a*d+1/2*b*c+b*d*x)/(b*d)^(1/2)+(d*x^2*b+(a*d+b*c)*x+a*c)^(
1/2))/(b*d)^(1/2)*c^6*b^3+1/6/d*(b*x+a)^(5/2)*(d*x+c)^(7/2)+1/32/
d*(b*x+a)^(1/2)*(d*x+c)^(7/2)*a^2+25/512/d^2*(d*x+c)^(1/2)*(b*x+a
)^(1/2)*a*c^4*b+5/192/d^2*(d*x+c)^(3/2)*(b*x+a)^(1/2)*c^3*b*a+1/6
4/d^2*(d*x+c)^(5/2)*(b*x+a)^(1/2)*c^2*b*a-1/16/d^2*(b*x+a)^(1/2)*
(d*x+c)^(7/2)*a*b*c-25/512*d/b^2*(d*x+c)^(1/2)*(b*x+a)^(1/2)*a^4*
c+1/12/d*(b*x+a)^(3/2)*(d*x+c)^(7/2)*a+1/192/b*(d*x+c)^(5/2)*(b*x
+a)^(1/2)*a^3-5/768*d/b^2*(d*x+c)^(3/2)*(b*x+a)^(1/2)*a^4-1/192/d
^3*(d*x+c)^(5/2)*(b*x+a)^(1/2)*c^3*b^2+25/256*((b*x+a)*(d*x+c))^(
1/2)/(d*x+c)^(1/2)/(b*x+a)^(1/2)*ln((1/2*a*d+1/2*b*c+b*d*x)/(b*d)
^(1/2)+(d*x^2*b+(a*d+b*c)*x+a*c)^(1/2))/(b*d)^(1/2)*a^3*c^3-25/25
6/d*(d*x+c)^(1/2)*(b*x+a)^(1/2)*a^2*c^3-5/512/d^3*(d*x+c)^(1/2)*(
b*x+a)^(1/2)*c^5*b^2-5/768/d^3*(d*x+c)^(3/2)*(b*x+a)^(1/2)*c^4*b^
2+25/256/b*(d*x+c)^(1/2)*(b*x+a)^(1/2)*a^3*c^2+5/192/b*(d*x+c)^(3
/2)*(b*x+a)^(1/2)*a^3*c-5/128/d*(d*x+c)^(3/2)*(b*x+a)^(1/2)*a^2*c
^2+1/32/d^3*(b*x+a)^(1/2)*(d*x+c)^(7/2)*b^2*c^2-1/12/d^2*(b*x+a)^
(3/2)*(d*x+c)^(7/2)*b*c+5/512*d^2/b^3*(d*x+c)^(1/2)*(b*x+a)^(1/2)
*a^5-1/64/d*(d*x+c)^(5/2)*(b*x+a)^(1/2)*a^2*c-75/1024/d*((b*x+a)*
(d*x+c))^(1/2)/(d*x+c)^(1/2)/(b*x+a)^(1/2)*ln((1/2*a*d+1/2*b*c+b*
d*x)/(b*d)^(1/2)+(d*x^2*b+(a*d+b*c)*x+a*c)^(1/2))/(b*d)^(1/2)*a^2
*c^4*b+15/512/d^2*((b*x+a)*(d*x+c))^(1/2)/(d*x+c)^(1/2)/(b*x+a)^(
1/2)*ln((1/2*a*d+1/2*b*c+b*d*x)/(b*d)^(1/2)+(d*x^2*b+(a*d+b*c)*x+
a*c)^(1/2))/(b*d)^(1/2)*a*c^5*b^2+15/512*d^2/b^2*((b*x+a)*(d*x+c)
)^(1/2)/(d*x+c)^(1/2)/(b*x+a)^(1/2)*ln((1/2*a*d+1/2*b*c+b*d*x)/(b
*d)^(1/2)+(d*x^2*b+(a*d+b*c)*x+a*c)^(1/2))/(b*d)^(1/2)*a^5*c-75/1
024*d/b*((b*x+a)*(d*x+c))^(1/2)/(d*x+c)^(1/2)/(b*x+a)^(1/2)*ln((1
/2*a*d+1/2*b*c+b*d*x)/(b*d)^(1/2)+(d*x^2*b+(a*d+b*c)*x+a*c)^(1/2)
)/(b*d)^(1/2)*a^4*c^2-5/1024*d^3/b^3*((b*x+a)*(d*x+c))^(1/2)/(d*x
+c)^(1/2)/(b*x+a)^(1/2)*ln((1/2*a*d+1/2*b*c+b*d*x)/(b*d)^(1/2)+(d
*x^2*b+(a*d+b*c)*x+a*c)^(1/2))/(b*d)^(1/2)*a^6
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*(d*x + c)^(5/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.283222, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*(d*x + c)^(5/2),x, algorithm="fricas")
```

```
[Out] [1/6144*(4*(256*b^5*d^5*x^5 + 15*b^5*c^5 - 85*a*b^4*c^4*d + 198*a
^2*b^3*c^3*d^2 + 198*a^3*b^2*c^2*d^3 - 85*a^4*b*c*d^4 + 15*a^5*d^
5 + 640*(b^5*c*d^4 + a*b^4*d^5)*x^4 + 16*(27*b^5*c^2*d^3 + 106*a*
b^4*c*d^4 + 27*a^2*b^3*d^5)*x^3 + 8*(b^5*c^3*d^2 + 159*a*b^4*c^2*
d^3 + 159*a^2*b^3*c*d^4 + a^3*b^2*d^5)*x^2 - 2*(5*b^5*c^4*d - 28*
a*b^4*c^3*d^2 - 594*a^2*b^3*c^2*d^3 - 28*a^3*b^2*c*d^4 + 5*a^4*b*
d^5)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 15*(b^6*c^6 - 6*a
*b^5*c^5*d + 15*a^2*b^4*c^4*d^2 - 20*a^3*b^3*c^3*d^3 + 15*a^4*b^2
*c^2*d^4 - 6*a^5*b*c*d^5 + a^6*d^6)*log(-4*(2*b^2*d^2*x + b^2*c*d
 + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^
2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/(s
qrt(b*d)*b^3*d^3), 1/3072*(2*(256*b^5*d^5*x^5 + 15*b^5*c^5 - 85*a
*b^4*c^4*d + 198*a^2*b^3*c^3*d^2 + 198*a^3*b^2*c^2*d^3 - 85*a^4*b
*c*d^4 + 15*a^5*d^5 + 640*(b^5*c*d^4 + a*b^4*d^5)*x^4 + 16*(27*b^
5*c^2*d^3 + 106*a*b^4*c*d^4 + 27*a^2*b^3*d^5)*x^3 + 8*(b^5*c^3*d^
2 + 159*a*b^4*c^2*d^3 + 159*a^2*b^3*c*d^4 + a^3*b^2*d^5)*x^2 - 2*
(5*b^5*c^4*d - 28*a*b^4*c^3*d^2 - 594*a^2*b^3*c^2*d^3 - 28*a^3*b^
2*c*d^4 + 5*a^4*b*d^5)*x)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c)
 - 15*(b^6*c^6 - 6*a*b^5*c^5*d + 15*a^2*b^4*c^4*d^2 - 20*a^3*b^3*c
^3*d^3 + 15*a^4*b^2*c^2*d^4 - 6*a^5*b*c*d^5 + a^6*d^6)*arctan(1/2
*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*
d)))/(sqrt(-b*d)*b^3*d^3)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(d*x+c)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.436619, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*(d*x + c)^(5/2),x, algorithm="giac")
```

```
[Out] Done
```

3.655 $\int \frac{(a+bx)^{5/2}(c+dx)^{5/2}}{x} dx$

Optimal. Leaf size=391

$$-2a^{5/2}c^{5/2}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)-\frac{\sqrt{a+bx}(c+dx)^{5/2}\left(-3a^2d^2-16abcd+3b^2c^2\right)}{48d^2}+\frac{\sqrt{a+bx}(c+dx)^{3/2}\left(3a^3d^3+109a^2bcd^2-19ab^2c^2d+3b^3c^3\right)}{192bd^2}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(-3a^4d^4+22a^3bcd^3+128a^2b^2c^2d^2-22ab^3c^3d+3b^4c^4\right)}{128b^2d^2}+\frac{(ad+bc)\left(3a^4d^4-28a^3bcd^3+178a^2b^2c^2d^2-28ab^3c^3d+3b^4c^4\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{128b^{5/2}d^{5/2}}+\frac{1}{5}(a+bx)^{5/2}(c+dx)^{5/2}+\frac{(a+bx)^{3/2}(c+dx)^{5/2}(ad+bc)}{8d}$$

```
[Out] ((3*b^4*c^4 - 22*a*b^3*c^3*d + 128*a^2*b^2*c^2*d^2 + 22*a^3*b*c*d
^3 - 3*a^4*d^4)*Sqrt[a + b*x]*Sqrt[c + d*x])/(128*b^2*d^2) + ((3*
b^3*c^3 - 19*a*b^2*c^2*d + 109*a^2*b*c*d^2 + 3*a^3*d^3)*Sqrt[a +
b*x]*(c + d*x)^(3/2))/(192*b*d^2) - ((3*b^2*c^2 - 16*a*b*c*d - 3*
a^2*d^2)*Sqrt[a + b*x]*(c + d*x)^(5/2))/(48*d^2) + ((b*c + a*d)*(
a + b*x)^(3/2)*(c + d*x)^(5/2))/(8*d) + ((a + b*x)^(5/2)*(c + d*x
)^(5/2))/5 - 2*a^(5/2)*c^(5/2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(S
qrt[a]*Sqrt[c + d*x])] + ((b*c + a*d)*(3*b^4*c^4 - 28*a*b^3*c^3*d
 + 178*a^2*b^2*c^2*d^2 - 28*a^3*b*c*d^3 + 3*a^4*d^4)*ArcTanh[(Sqr
t[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(128*b^(5/2)*d^(5/2
))
```

Rubi [A] time = 1.32047, antiderivative size = 391, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.273

$$-2a^{5/2}c^{5/2}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)-\frac{\sqrt{a+bx}(c+dx)^{5/2}\left(-3a^2d^2-16abcd+3b^2c^2\right)}{48d^2}+\frac{\sqrt{a+bx}(c+dx)^{3/2}\left(3a^3d^3+109a^2bcd^2-19ab^2c^2d+3b^3c^3\right)}{192bd^2}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(-3a^4d^4+22a^3bcd^3+128a^2b^2c^2d^2-22ab^3c^3d+3b^4c^4\right)}{128b^2d^2}+\frac{(ad+bc)\left(3a^4d^4-28a^3bcd^3+178a^2b^2c^2d^2-28ab^3c^3d+3b^4c^4\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{128b^{5/2}d^{5/2}}+\frac{1}{5}(a+bx)^{5/2}(c+dx)^{5/2}+\frac{(a+bx)^{3/2}(c+dx)^{5/2}(ad+bc)}{8d}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(5/2)*(c + d*x)^(5/2))/x,x]
```


```
[Out] ((3*b^4*c^4 - 22*a*b^3*c^3*d + 128*a^2*b^2*c^2*d^2 + 22*a^3*b*c*d
^3 - 3*a^4*d^4)*Sqrt[a + b*x]*Sqrt[c + d*x])/(128*b^2*d^2) + ((3*
b^3*c^3 - 19*a*b^2*c^2*d + 109*a^2*b*c*d^2 + 3*a^3*d^3)*Sqrt[a +
b*x]*(c + d*x)^(3/2))/(192*b*d^2) - ((3*b^2*c^2 - 16*a*b*c*d - 3*
a^2*d^2)*Sqrt[a + b*x]*(c + d*x)^(5/2))/(48*d^2) + ((b*c + a*d)*(
a + b*x)^(3/2)*(c + d*x)^(5/2))/(8*d) + ((a + b*x)^(5/2)*(c + d*x
)^(5/2))/5 - 2*a^(5/2)*c^(5/2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(S
qrt[a]*Sqrt[c + d*x])] + ((b*c + a*d)*(3*b^4*c^4 - 28*a*b^3*c^3*d
 + 178*a^2*b^2*c^2*d^2 - 28*a^3*b*c*d^3 + 3*a^4*d^4)*ArcTanh[(Sqr
t[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(128*b^(5/2)*d^(5/2
))
```

Rubi in Sympy [A] time = 140.587, size = 374, normalized size = 0.96

$$-2a^{\frac{5}{2}}c^{\frac{5}{2}}\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)+\frac{(a+bx)^{\frac{5}{2}}(c+dx)^{\frac{5}{2}}}{5}+\frac{(a+bx)^{\frac{5}{2}}(c+dx)^{\frac{3}{2}}(ad+bc)}{8b}-\frac{(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{3}{2}}\left(3a^2d^2-16abcd-3b^2c^2\right)}{48bd}-\frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}\,(ad+bc)\left(3a^2d^2-22abcd+3b^2c^2\right)}{64b^2d}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(3a^4d^4-22a^3bcd^3+128a^2b^2c^2d^2+22ab^3c^3d-3b^4c^4\right)}{128b^2d^2}+\frac{(ad+bc)\left(3a^4d^4-28a^3bcd^3+178a^2b^2c^2d^2-28ab^3c^3d+3b^4c^4\right)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{128b^{\frac{5}{2}}d^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(d*x+c)**(5/2)/x,x)
```

```
[Out] -2*a**(5/2)*c**(5/2)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c
+ d*x))) + (a + b*x)**(5/2)*(c + d*x)**(5/2)/5 + (a + b*x)**(5/2)
*(c + d*x)**(3/2)*(a*d + b*c)/(8*b) - (a + b*x)**(3/2)*(c + d*x)*
*(3/2)*(3*a**2*d**2 - 16*a*b*c*d - 3*b**2*c**2)/(48*b*d) - (a + b
*x)**(3/2)*sqrt(c + d*x)*(a*d + b*c)*(3*a**2*d**2 - 22*a*b*c*d +
3*b**2*c**2)/(64*b**2*d) + sqrt(a + b*x)*sqrt(c + d*x)*(3*a**4*d*
*4 - 22*a**3*b*c*d**3 + 128*a**2*b**2*c**2*d**2 + 22*a*b**3*c**3*
d - 3*b**4*c**4)/(128*b**2*d**2) + (a*d + b*c)*(3*a**4*d**4 - 28*
a**3*b*c*d**3 + 178*a**2*b**2*c**2*d**2 - 28*a*b**3*c**3*d + 3*b*
*4*c**4)*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c + d*x)))/(12
8*b**(5/2)*d**(5/2))
```

Mathematica [A] time = 0.329999, size = 357, normalized size = 0.91

$$-a^{5/2}c^{5/2}\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)+a^{5/2}c^{5/2}\log(x)+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(-45a^4d^4+30a^3bd^3(12c+dx)+2a^2b^2d^2\left(1877c^2+1289cdx+372d^2x^2\right)+2ab^3d\left(180c^3\right.\right.}{1920b^2d^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(5/2)*(c + d*x)^(5/2))/x,x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(-45*a^4*d^4 + 30*a^3*b*d^3*(12*c +
d*x) + 2*a^2*b^2*d^2*(1877*c^2 + 1289*c*d*x + 372*d^2*x^2) + 2*a*
b^3*d*(180*c^3 + 1289*c^2*d*x + 1448*c*d^2*x^2 + 504*d^3*x^3) + b
^4*(-45*c^4 + 30*c^3*d*x + 744*c^2*d^2*x^2 + 1008*c*d^3*x^3 + 384
*d^4*x^4)))/(1920*b^2*d^2) + a^(5/2)*c^(5/2)*Log[x] - a^(5/2)*c^(
5/2)*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*
Sqrt[c + d*x]] + ((3*b^5*c^5 - 25*a*b^4*c^4*d + 150*a^2*b^3*c^3*d
^2 + 150*a^3*b^2*c^2*d^3 - 25*a^4*b*c*d^4 + 3*a^5*d^5)*Log[b*c +
a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(
256*b^(5/2)*d^(5/2))
```

Maple [B] time = 0.026, size = 1116, normalized size = 2.9

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(d*x+c)^(5/2)/x,x)
```

```
[Out] -1/3840*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(-768*x^4*b^4*d^4*(b*d*x^2+a*
d*x+b*c*x+a*c)^(1/2)*(a*c)^(1/2)*(b*d)^(1/2)-2016*x^3*a*b^3*d^4*(
b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(a*c)^(1/2)*(b*d)^(1/2)-2016*x^3*b
^4*c*d^3*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(a*c)^(1/2)*(b*d)^(1/2)-
1488*x^2*a^2*b^2*d^4*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(a*c)^(1/2)*
(b*d)^(1/2)-5792*x^2*a*b^3*c*d^3*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*
(a*c)^(1/2)*(b*d)^(1/2)-1488*x^2*b^4*c^2*d^2*(b*d*x^2+a*d*x+b*c*x
+a*c)^(1/2)*(a*c)^(1/2)*(b*d)^(1/2)+3840*a^3*c^3*ln((a*d*x+b*c*x+
2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*d^2*b^2*(
b*d)^(1/2)-45*a^5*d^5*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)
^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*(a*c)^(1/2)+375*a^4*d^4*
ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d
+b*c)/(b*d)^(1/2))*c*b*(a*c)^(1/2)-2250*a^3*c^2*ln(1/2*(2*b*d*x+2
*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2)
)*d^3*b^2*(a*c)^(1/2)-2250*a^2*c^3*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d
*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*b^3*d^2*(a*
c)^(1/2)+375*b^4*c^4*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^
(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a*d*(a*c)^(1/2)-45*b^5*c^
5*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a
*d+b*c)/(b*d)^(1/2))*(a*c)^(1/2)-60*a^3*d^4*(b*d*x^2+a*d*x+b*c*x+
a*c)^(1/2)*x*b*(a*c)^(1/2)*(b*d)^(1/2)-5156*a^2*d^3*(b*d*x^2+a*d*
x+b*c*x+a*c)^(1/2)*x*c*b^2*(a*c)^(1/2)*(b*d)^(1/2)-5156*b^3*c^2*(
b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*a*d^2*(a*c)^(1/2)*(b*d)^(1/2)-60
*b^4*c^3*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*d*(a*c)^(1/2)*(b*d)^(1
/2)+90*a^4*d^4*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(a*c)^(1/2)*(b*d)^
(1/2)-720*a^3*d^3*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*c*b*(a*c)^(1/2)
*(b*d)^(1/2)-7508*a^2*c^2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*d^2*b^2
*(a*c)^(1/2)*(b*d)^(1/2)-720*b^3*c^3*(b*d*x^2+a*d*x+b*c*x+a*c)^(1
/2)*a*d*(a*c)^(1/2)*(b*d)^(1/2)+90*b^4*c^4*(b*d*x^2+a*d*x+b*c*x+a
*c)^(1/2)*(a*c)^(1/2)*(b*d)^(1/2))/(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2
)/d^2/b^2/(a*c)^(1/2)/(b*d)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*(d*x + c)^(5/2)/x,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 58.9237, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*(d*x + c)^(5/2)/x,x, algorithm="fricas")
```

```
[Out] [1/7680*(3840*sqrt(a*c)*sqrt(b*d)*a^2*b^2*c^2*d^2*log((8*a^2*c^2
+ (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a*c + (b*c + a*d)*x)
*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c) + 8*(a*b*c^2 + a^2*c*d)*x)
/x^2) + 4*(384*b^4*d^4*x^4 - 45*b^4*c^4 + 360*a*b^3*c^3*d + 3754*
a^2*b^2*c^2*d^2 + 360*a^3*b*c*d^3 - 45*a^4*d^4 + 1008*(b^4*c*d^3
+ a*b^3*d^4)*x^3 + 8*(93*b^4*c^2*d^2 + 362*a*b^3*c*d^3 + 93*a^2*b
^2*d^4)*x^2 + 2*(15*b^4*c^3*d + 1289*a*b^3*c^2*d^2 + 1289*a^2*b^2
*c*d^3 + 15*a^3*b*d^4)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) +
 15*(3*b^5*c^5 - 25*a*b^4*c^4*d + 150*a^2*b^3*c^3*d^2 + 150*a^3*b
^2*c^2*d^3 - 25*a^4*b*c*d^4 + 3*a^5*d^5)*log(4*(2*b^2*d^2*x + b^2
*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^
2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d))
)/(sqrt(b*d)*b^2*d^2), 1/3840*(1920*sqrt(a*c)*sqrt(-b*d)*a^2*b^2*
c^2*d^2*log((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*
(2*a*c + (b*c + a*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c) + 8
```

```
*(a*b*c^2 + a^2*c*d)*x)/x^2) + 2*(384*b^4*d^4*x^4 - 45*b^4*c^4 +
360*a*b^3*c^3*d + 3754*a^2*b^2*c^2*d^2 + 360*a^3*b*c*d^3 - 45*a^4
*d^4 + 1008*(b^4*c*d^3 + a*b^3*d^4)*x^3 + 8*(93*b^4*c^2*d^2 + 362
*a*b^3*c*d^3 + 93*a^2*b^2*d^4)*x^2 + 2*(15*b^4*c^3*d + 1289*a*b^3
*c^2*d^2 + 1289*a^2*b^2*c*d^3 + 15*a^3*b*d^4)*x)*sqrt(-b*d)*sqrt(
b*x + a)*sqrt(d*x + c) + 15*(3*b^5*c^5 - 25*a*b^4*c^4*d + 150*a^2
*b^3*c^3*d^2 + 150*a^3*b^2*c^2*d^3 - 25*a^4*b*c*d^4 + 3*a^5*d^5)*
arctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d
*x + c)*b*d)))/(sqrt(-b*d)*b^2*d^2), -1/7680*(7680*sqrt(-a*c)*sqr
t(b*d)*a^2*b^2*c^2*d^2*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(-
a*c)*sqrt(b*x + a)*sqrt(d*x + c))) - 4*(384*b^4*d^4*x^4 - 45*b^4*
c^4 + 360*a*b^3*c^3*d + 3754*a^2*b^2*c^2*d^2 + 360*a^3*b*c*d^3 -
45*a^4*d^4 + 1008*(b^4*c*d^3 + a*b^3*d^4)*x^3 + 8*(93*b^4*c^2*d^2
 + 362*a*b^3*c*d^3 + 93*a^2*b^2*d^4)*x^2 + 2*(15*b^4*c^3*d + 1289
*a*b^3*c^2*d^2 + 1289*a^2*b^2*c*d^3 + 15*a^3*b*d^4)*x)*sqrt(b*d)*
sqrt(b*x + a)*sqrt(d*x + c) - 15*(3*b^5*c^5 - 25*a*b^4*c^4*d + 15
0*a^2*b^3*c^3*d^2 + 150*a^3*b^2*c^2*d^3 - 25*a^4*b*c*d^4 + 3*a^5*
d^5)*log(4*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d
*x + c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2
*c*d + a*b*d^2)*x)*sqrt(b*d)))/(sqrt(b*d)*b^2*d^2), -1/3840*(3840
*sqrt(-a*c)*sqrt(-b*d)*a^2*b^2*c^2*d^2*arctan(1/2*(2*a*c + (b*c +
 a*d)*x)/(sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c))) - 2*(384*b^4*d
^4*x^4 - 45*b^4*c^4 + 360*a*b^3*c^3*d + 3754*a^2*b^2*c^2*d^2 + 36
0*a^3*b*c*d^3 - 45*a^4*d^4 + 1008*(b^4*c*d^3 + a*b^3*d^4)*x^3 + 8
*(93*b^4*c^2*d^2 + 362*a*b^3*c*d^3 + 93*a^2*b^2*d^4)*x^2 + 2*(15*
b^4*c^3*d + 1289*a*b^3*c^2*d^2 + 1289*a^2*b^2*c*d^3 + 15*a^3*b*d^
4)*x)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c) - 15*(3*b^5*c^5 - 25
*a*b^4*c^4*d + 150*a^2*b^3*c^3*d^2 + 150*a^3*b^2*c^2*d^3 - 25*a^4
*b*c*d^4 + 3*a^5*d^5)*arctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)
/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/(sqrt(-b*d)*b^2*d^2)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(d*x+c)**(5/2)/x,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.444189, size = 722, normalized size = 1.85

$$-\frac{2\sqrt{bd}a^3c^3|b|\arctan\left(-\frac{b^2c+abd-\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2}{2\sqrt{-abcd}b}\right)}{\sqrt{-abcd}b} + \frac{1}{1920}\sqrt{b^2c+(bx+a)bd-abd}\left(2\left(4(bx+a)\left(6(bx+a)\left(\frac{8(bx+a)d^2|b|}{b^4}+\frac{21b^{11}cd^9|b|-11ab^{10}d^{10}|b|}{b^{14}d^8}\right)+\frac{93b^{12}c^2d^8|b|-\cdots\right.\right.\right.$$

$$-\frac{\left(3\sqrt{bd}b^5c^5|b|-25\sqrt{bd}ab^4c^4d|b|+150\sqrt{bd}a^2b^3c^3d^2|b|+150\sqrt{bd}a^3b^2c^2d^3|b|-25\sqrt{bd}a^4bcd^4|b|+3\sqrt{bd}a^5d^5|b|\right)\ln\left(\left(\cdots\right.\right.}{256b^4d^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*(d*x + c)^(5/2)/x,x, algorithm="giac")
```

```
[Out] -2*sqrt(b*d)*a^3*c^3*abs(b)*arctan(-1/2*(b^2*c + a*b*d - (sqrt(b*
d)*sqrt(b*x + a) - sqrt(b^2*c + (b*x + a)*b*d - a*b*d))^2)/(sqrt(
-a*b*c*d)*b))/(sqrt(-a*b*c*d)*b) + 1/1920*sqrt(b^2*c + (b*x + a)*
b*d - a*b*d)*(2*(4*(b*x + a)*(6*(b*x + a)*(8*(b*x + a)*d^2*abs(b)
/b^4 + (21*b^11*c*d^9*abs(b) - 11*a*b^10*d^10*abs(b))/(b^14*d^8))
 + (93*b^12*c^2*d^8*abs(b) - 16*a*b^11*c*d^9*abs(b) + 3*a^2*b^10*
d^10*abs(b))/(b^14*d^8)) + 5*(3*b^13*c^3*d^7*abs(b) + 109*a*b^12*
```

```
c^2*d^8*abs(b) - 19*a^2*b^11*c*d^9*abs(b) + 3*a^3*b^10*d^10*abs(b
))/(b^14*d^8))*(b*x + a) - 15*(3*b^14*c^4*d^6*abs(b) - 22*a*b^13*
c^3*d^7*abs(b) - 128*a^2*b^12*c^2*d^8*abs(b) + 22*a^3*b^11*c*d^9*
abs(b) - 3*a^4*b^10*d^10*abs(b))/(b^14*d^8))*sqrt(b*x + a) - 1/25
6*(3*sqrt(b*d)*b^5*c^5*abs(b) - 25*sqrt(b*d)*a*b^4*c^4*d*abs(b) +
 150*sqrt(b*d)*a^2*b^3*c^3*d^2*abs(b) + 150*sqrt(b*d)*a^3*b^2*c^2
*d^3*abs(b) - 25*sqrt(b*d)*a^4*b*c*d^4*abs(b) + 3*sqrt(b*d)*a^5*d
^5*abs(b))*ln((sqrt(b*d)*sqrt(b*x + a) - sqrt(b^2*c + (b*x + a)*b
*d - a*b*d))^2)/(b^4*d^3)
```

3.656 $\int \frac{(a+bx)^{5/2}(c+dx)^{5/2}}{x^2}\,dx$

Optimal. Leaf size=334

$$-5a^{3/2}c^{3/2}(ad+bc)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)-\frac{5\sqrt{a+bx}(c+dx)^{3/2}\left(-31a^2d^2-18abcd+b^2c^2\right)}{96d}-\frac{5\sqrt{a+bx}\sqrt{c+dx}\left(-a^3d^3-45a^2bcd^2-19ab^2c^2d+b^3c^3\right)}{64bd}-\frac{5\left(a^4d^4-20a^3bcd^3-90a^2b^2c^2d^2-20ab^3c^3d+b^4c^4\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{64b^{3/2}d^{3/2}}-\frac{(a+bx)^{5/2}(c+dx)^{5/2}}{x}+\frac{5}{4}b(a+bx)^{3/2}(c+dx)^{5/2}+\frac{5b\sqrt{a+bx}(c+dx)^{5/2}(7ad+bc)}{24d}$$

```
[Out] (-5*(b^3*c^3 - 19*a*b^2*c^2*d - 45*a^2*b*c*d^2 - a^3*d^3)*Sqrt[a
+ b*x]*Sqrt[c + d*x])/(64*b*d) - (5*(b^2*c^2 - 18*a*b*c*d - 31*a^
2*d^2)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(96*d) + (5*b*(b*c + 7*a*d)
*Sqrt[a + b*x]*(c + d*x)^(5/2))/(24*d) + (5*b*(a + b*x)^(3/2)*(c
+ d*x)^(5/2))/4 - ((a + b*x)^(5/2)*(c + d*x)^(5/2))/x - 5*a^(3/2)
*c^(3/2)*(b*c + a*d)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqr
t[c + d*x])] - (5*(b^4*c^4 - 20*a*b^3*c^3*d - 90*a^2*b^2*c^2*d^2
- 20*a^3*b*c*d^3 + a^4*d^4)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt
[b]*Sqrt[c + d*x])])/(64*b^(3/2)*d^(3/2))
```

Rubi [A] time = 1.22014, antiderivative size = 334, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.273

$$-5a^{3/2}c^{3/2}(ad+bc)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)-\frac{5\sqrt{a+bx}(c+dx)^{3/2}\left(-31a^2d^2-18abcd+b^2c^2\right)}{96d}-\frac{5\sqrt{a+bx}\sqrt{c+dx}\left(-a^3d^3-45a^2bcd^2-19ab^2c^2d+b^3c^3\right)}{64bd}-\frac{5\left(a^4d^4-20a^3bcd^3-90a^2b^2c^2d^2-20ab^3c^3d+b^4c^4\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{64b^{3/2}d^{3/2}}-\frac{(a+bx)^{5/2}(c+dx)^{5/2}}{x}+\frac{5}{4}b(a+bx)^{3/2}(c+dx)^{5/2}+\frac{5b\sqrt{a+bx}(c+dx)^{5/2}(7ad+bc)}{24d}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(5/2)*(c + d*x)^(5/2))/x^2,x]
```


```
[Out] (-5*(b^3*c^3 - 19*a*b^2*c^2*d - 45*a^2*b*c*d^2 - a^3*d^3)*Sqrt[a
+ b*x]*Sqrt[c + d*x])/(64*b*d) - (5*(b^2*c^2 - 18*a*b*c*d - 31*a^
2*d^2)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(96*d) + (5*b*(b*c + 7*a*d)
*Sqrt[a + b*x]*(c + d*x)^(5/2))/(24*d) + (5*b*(a + b*x)^(3/2)*(c
+ d*x)^(5/2))/4 - ((a + b*x)^(5/2)*(c + d*x)^(5/2))/x - 5*a^(3/2)
*c^(3/2)*(b*c + a*d)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqr
t[c + d*x])] - (5*(b^4*c^4 - 20*a*b^3*c^3*d - 90*a^2*b^2*c^2*d^2
- 20*a^3*b*c*d^3 + a^4*d^4)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt
[b]*Sqrt[c + d*x])])/(64*b^(3/2)*d^(3/2))
```

Rubi in Sympy [A] time = 173.006, size = 318, normalized size = 0.95

$$-5a^{\frac{3}{2}}c^{\frac{3}{2}}(ad+bc)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)+\frac{5b(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{5}{2}}}{4}+(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{3}{2}}\left(\frac{35ad}{24}+\frac{5bc}{24}\right)-\frac{(a+bx)^{\frac{5}{2}}(c+dx)^{\frac{5}{2}}}{x}+\frac{5(a+bx)^{\frac{3}{2}}\sqrt{c+dx}\left(a^2d^2+14abcd+b^2c^2\right)}{32b}-\frac{5\sqrt{a+bx}\sqrt{c+dx}\left(a^3d^3-19a^2bcd^2-45ab^2c^2d-b^3c^3\right)}{64bd}-\frac{5\left(a^4d^4-20a^3bcd^3-90a^2b^2c^2d^2-20ab^3c^3d+b^4c^4\right)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{64b^{\frac{3}{2}}d^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(d*x+c)**(5/2)/x**2,x)
```

```
[Out] -5*a**(3/2)*c**(3/2)*(a*d + b*c)*atanh(sqrt(c)*sqrt(a + b*x)/(sqr
t(a)*sqrt(c + d*x))) + 5*b*(a + b*x)**(3/2)*(c + d*x)**(5/2)/4 +
(a + b*x)**(3/2)*(c + d*x)**(3/2)*(35*a*d/24 + 5*b*c/24) - (a + b
*x)**(5/2)*(c + d*x)**(5/2)/x + 5*(a + b*x)**(3/2)*sqrt(c + d*x)*
(a**2*d**2 + 14*a*b*c*d + b**2*c**2)/(32*b) - 5*sqrt(a + b*x)*sqr
t(c + d*x)*(a**3*d**3 - 19*a**2*b*c*d**2 - 45*a*b**2*c**2*d - b**
3*c**3)/(64*b*d) - 5*(a**4*d**4 - 20*a**3*b*c*d**3 - 90*a**2*b**2
*c**2*d**2 - 20*a*b**3*c**3*d + b**4*c**4)*atanh(sqrt(d)*sqrt(a +
 b*x)/(sqrt(b)*sqrt(c + d*x)))/(64*b**(3/2)*d**(3/2))
```

Mathematica [A] time = 0.325016, size = 318, normalized size = 0.95

$$\frac{1}{384}\left(960a^{3/2}c^{3/2}\log(x)(ad+bc)-960a^{3/2}c^{3/2}(ad+bc)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)+\frac{2\sqrt{a+bx}\sqrt{c+dx}\,(15a}{\right.}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(5/2)*(c + d*x)^(5/2))/x^2,x]
```

```
[Out] ((2*Sqrt[a + b*x]*Sqrt[c + d*x]*(15*a^3*d^3*x + a^2*b*d*(-192*c^2
 + 601*c*d*x + 118*d^2*x^2) + a*b^2*d*x*(601*c^2 + 452*c*d*x + 13
6*d^2*x^2) + b^3*x*(15*c^3 + 118*c^2*d*x + 136*c*d^2*x^2 + 48*d^3
*x^3)))/(b*d*x) + 960*a^(3/2)*c^(3/2)*(b*c + a*d)*Log[x] - 960*a^
(3/2)*c^(3/2)*(b*c + a*d)*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*S
qrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]] - (15*(b^4*c^4 - 20*a*b^3*c^3
*d - 90*a^2*b^2*c^2*d^2 - 20*a^3*b*c*d^3 + a^4*d^4)*Log[b*c + a*d
 + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(b^(
3/2)*d^(3/2)))/384
```

Maple [B] time = 0.028, size = 950, normalized size = 2.8

$$-\frac{1}{384\,bdx}\sqrt{bx+a}\sqrt{dx+c}\left(-96\,x^4b^3d^3\sqrt{dx^2b+adx+bcx+ac}\sqrt{bd}\sqrt{ac}-272\,x^3ab^2d^3\sqrt{dx^2b+adx+bcx+ac}\sqrt{bd}\sqrt{ac}-2\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(d*x+c)^(5/2)/x^2,x)
```

```
[Out] -1/384*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(-96*x^4*b^3*d^3*(b*d*x^2+a*d*
x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)*(a*c)^(1/2)-272*x^3*a*b^2*d^3*(b*d
*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)*(a*c)^(1/2)-272*x^3*b^3*c
*d^2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)*(a*c)^(1/2)+15*a
```

```
^4*d^4*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1
/2)+a*d+b*c)/(b*d)^(1/2))*x*(a*c)^(1/2)-300*a^3*d^3*ln(1/2*(2*b*d
*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(
1/2))*c*x*b*(a*c)^(1/2)-1350*a^2*d^2*b^2*ln(1/2*(2*b*d*x+2*(b*d*x
^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*c^2*x
*(a*c)^(1/2)-300*b^3*c^3*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a
*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a*x*d*(a*c)^(1/2)+15*
b^4*c^4*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(
1/2)+a*d+b*c)/(b*d)^(1/2))*x*(a*c)^(1/2)+960*a^3*c^2*ln((a*d*x+b*
c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*d^2*x
*b*(b*d)^(1/2)+960*a^2*c^3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2
+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*b^2*x*d*(b*d)^(1/2)-236*a^2*d^3
*x^2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*b*(b*d)^(1/2)*(a*c)^(1/2)-90
4*a*b^2*c*d^2*x^2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)*(a*
c)^(1/2)-236*b^3*c^2*x^2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*d*(b*d)^
(1/2)*(a*c)^(1/2)-30*a^3*d^3*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*x*(b
*d)^(1/2)*(a*c)^(1/2)-1202*a^2*c*d^2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1
/2)*x*b*(b*d)^(1/2)*(a*c)^(1/2)-1202*a*b^2*c^2*(b*d*x^2+a*d*x+b*c
*x+a*c)^(1/2)*x*d*(b*d)^(1/2)*(a*c)^(1/2)-30*b^3*c^3*(b*d*x^2+a*d
*x+b*c*x+a*c)^(1/2)*x*(b*d)^(1/2)*(a*c)^(1/2)+384*a^2*b*c^2*d*(b*
d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)*(a*c)^(1/2))/(b*d*x^2+a*
d*x+b*c*x+a*c)^(1/2)/x/d/b/(b*d)^(1/2)/(a*c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(5/2)*(d*x + c)^(5/2)/x^2,x, algorithm="maxima")

[Out] Exception raised: ValueError
```

Fricas [A] time = 17.6329, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(5/2)*(d*x + c)^(5/2)/x^2,x, algorithm="fricas")
```

```
[Out] [1/768*(960*(a*b^2*c^2*d + a^2*b*c*d^2)*sqrt(a*c)*sqrt(b*d)*x*log
((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a*c + (b
*c + a*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c) + 8*(a*b*c^2 +
 a^2*c*d)*x)/x^2) + 15*(b^4*c^4 - 20*a*b^3*c^3*d - 90*a^2*b^2*c^2
*d^2 - 20*a^3*b*c*d^3 + a^4*d^4)*x*log(-4*(2*b^2*d^2*x + b^2*c*d
+ a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2
 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)) + 4*
(48*b^3*d^3*x^4 - 192*a^2*b*c^2*d + 136*(b^3*c*d^2 + a*b^2*d^3)*x
^3 + 2*(59*b^3*c^2*d + 226*a*b^2*c*d^2 + 59*a^2*b*d^3)*x^2 + (15*
b^3*c^3 + 601*a*b^2*c^2*d + 601*a^2*b*c*d^2 + 15*a^3*d^3)*x)*sqrt
(b*d)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(b*d)*b*d*x), 1/384*(480*
(a*b^2*c^2*d + a^2*b*c*d^2)*sqrt(a*c)*sqrt(-b*d)*x*log((8*a^2*c^2
 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a*c + (b*c + a*d)*x
)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c) + 8*(a*b*c^2 + a^2*c*d)*x
)/x^2) - 15*(b^4*c^4 - 20*a*b^3*c^3*d - 90*a^2*b^2*c^2*d^2 - 20*a
^3*b*c*d^3 + a^4*d^4)*x*arctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*
d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)) + 2*(48*b^3*d^3*x^4 - 192*a
^2*b*c^2*d + 136*(b^3*c*d^2 + a*b^2*d^3)*x^3 + 2*(59*b^3*c^2*d +
226*a*b^2*c*d^2 + 59*a^2*b*d^3)*x^2 + (15*b^3*c^3 + 601*a*b^2*c^2
*d + 601*a^2*b*c*d^2 + 15*a^3*d^3)*x)*sqrt(-b*d)*sqrt(b*x + a)*sq
rt(d*x + c))/(sqrt(-b*d)*b*d*x), -1/768*(1920*(a*b^2*c^2*d + a^2*
b*c*d^2)*sqrt(-a*c)*sqrt(b*d)*x*arctan(1/2*(2*a*c + (b*c + a*d)*x
)/(sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c))) - 15*(b^4*c^4 - 20*a*
b^3*c^3*d - 90*a^2*b^2*c^2*d^2 - 20*a^3*b*c*d^3 + a^4*d^4)*x*log(
```

```
-4*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c)
+ (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a
*b*d^2)*x)*sqrt(b*d)) - 4*(48*b^3*d^3*x^4 - 192*a^2*b*c^2*d + 136
*(b^3*c*d^2 + a*b^2*d^3)*x^3 + 2*(59*b^3*c^2*d + 226*a*b^2*c*d^2
+ 59*a^2*b*d^3)*x^2 + (15*b^3*c^3 + 601*a*b^2*c^2*d + 601*a^2*b*c
*d^2 + 15*a^3*d^3)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c))/(sqr
t(b*d)*b*d*x), -1/384*(960*(a*b^2*c^2*d + a^2*b*c*d^2)*sqrt(-a*c)
*sqrt(-b*d)*x*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(-a*c)*sqrt
(b*x + a)*sqrt(d*x + c))) + 15*(b^4*c^4 - 20*a*b^3*c^3*d - 90*a^2
*b^2*c^2*d^2 - 20*a^3*b*c*d^3 + a^4*d^4)*x*arctan(1/2*(2*b*d*x +
b*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)) - 2*(48*
b^3*d^3*x^4 - 192*a^2*b*c^2*d + 136*(b^3*c*d^2 + a*b^2*d^3)*x^3 +
 2*(59*b^3*c^2*d + 226*a*b^2*c*d^2 + 59*a^2*b*d^3)*x^2 + (15*b^3*
c^3 + 601*a*b^2*c^2*d + 601*a^2*b*c*d^2 + 15*a^3*d^3)*x)*sqrt(-b*
d)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(-b*d)*b*d*x)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(d*x+c)**(5/2)/x**2,x)

[Out] Timed out
```

GIAC/XCAS [A] time = 0.739171, size = 4, normalized size = 0.01

$$sage_0 x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*(d*x + c)^(5/2)/x^2,x, algorithm="giac")

[Out] sage0*x
```

3.657 $\int \frac{(a+bx)^{5/2}(c+dx)^{5/2}}{x^3} dx$

Optimal. Leaf size=319

$$\frac{5\sqrt{a+bx}(c+dx)^{3/2}\left(3a^2d^2+8abcd+b^2c^2\right)}{12c}+\frac{5}{8}\sqrt{a+bx}\sqrt{c+dx}\left(5a^2d^2+10abcd+b^2c^2\right)+\frac{5(ad+bc)\left(a^2d^2+14abcd+b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8\sqrt{b}\sqrt{d}}-\frac{(a+bx)^{5/2}(c+dx)^{5/2}}{2x^2}-\frac{5(a+bx)^{3/2}(c+dx)^{5/2}(ad+bc)}{4cx}+\frac{5b\sqrt{a+bx}(c+dx)^{5/2}(3ad+5bc)}{12c}-\frac{5}{4}\sqrt{a}\sqrt{c}(ad+3bc)(3ad+bc)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)$$

```
[Out] (5*(b^2*c^2 + 10*a*b*c*d + 5*a^2*d^2)*Sqrt[a + b*x]*Sqrt[c + d*x]
)/8 + (5*(b^2*c^2 + 8*a*b*c*d + 3*a^2*d^2)*Sqrt[a + b*x]*(c + d*x
)^(3/2))/(12*c) + (5*b*(5*b*c + 3*a*d)*Sqrt[a + b*x]*(c + d*x)^(5
/2))/(12*c) - (5*(b*c + a*d)*(a + b*x)^(3/2)*(c + d*x)^(5/2))/(4*
c*x) - ((a + b*x)^(5/2)*(c + d*x)^(5/2))/(2*x^2) - (5*Sqrt[a]*Sqr
t[c]*(3*b*c + a*d)*(b*c + 3*a*d)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/
(Sqrt[a]*Sqrt[c + d*x])])/4 + (5*(b*c + a*d)*(b^2*c^2 + 14*a*b*c*
d + a^2*d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*
x])])/(8*Sqrt[b]*Sqrt[d])
```

Rubi [A] time = 1.21164, antiderivative size = 319, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 7, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.318

$$\frac{5\sqrt{a+bx}(c+dx)^{3/2}\left(3a^2d^2+8abcd+b^2c^2\right)}{12c}+\frac{5}{8}\sqrt{a+bx}\sqrt{c+dx}\left(5a^2d^2+10abcd+b^2c^2\right)+\frac{5(ad+bc)\left(a^2d^2+14abcd+b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8\sqrt{b}\sqrt{d}}-\frac{(a+bx)^{5/2}(c+dx)^{5/2}}{2x^2}-\frac{5(a+bx)^{3/2}(c+dx)^{5/2}(ad+bc)}{4cx}+\frac{5b\sqrt{a+bx}(c+dx)^{5/2}(3ad+5bc)}{12c}-\frac{5}{4}\sqrt{a}\sqrt{c}(ad+3bc)(3ad+bc)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(5/2)*(c + d*x)^(5/2))/x^3,x]
```

```
[Out] (5*(b^2*c^2 + 10*a*b*c*d + 5*a^2*d^2)*Sqrt[a + b*x]*Sqrt[c + d*x]
)/8 + (5*(b^2*c^2 + 8*a*b*c*d + 3*a^2*d^2)*Sqrt[a + b*x]*(c + d*x
)^(3/2))/(12*c) + (5*b*(5*b*c + 3*a*d)*Sqrt[a + b*x]*(c + d*x)^(5
/2))/(12*c) - (5*(b*c + a*d)*(a + b*x)^(3/2)*(c + d*x)^(5/2))/(4*
c*x) - ((a + b*x)^(5/2)*(c + d*x)^(5/2))/(2*x^2) - (5*Sqrt[a]*Sqr
t[c]*(3*b*c + a*d)*(b*c + 3*a*d)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/
(Sqrt[a]*Sqrt[c + d*x])])/4 + (5*(b*c + a*d)*(b^2*c^2 + 14*a*b*c*
d + a^2*d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*
x])])/(8*Sqrt[b]*Sqrt[d])
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(d*x+c)**(5/2)/x**3,x)
```

```
[Out] Timed out
```

Mathematica [A] time = 0.26871, size = 309, normalized size = 0.97

$$\frac{1}{48}\left(\frac{2\sqrt{a+bx}\sqrt{c+dx}\left(-3a^2\left(4c^2+18cdx-11d^2x^2\right)+2abx\left(-27c^2+61cdx+13d^2x^2\right)+b^2x^2\left(33c^2+26cdx+8d^2x^2\right)\right)}{x^2}\right.$$
$$+30\sqrt{a}\sqrt{c}\log(x)\left(3a^2d^2+10abcd+3b^2c^2\right)$$
$$-30\sqrt{a}\sqrt{c}\left(3a^2d^2+10abcd+3b^2c^2\right)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)$$
$$\left.+\frac{15\left(a^3d^3+15a^2bcd^2+15ab^2c^2d+b^3c^3\right)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{\sqrt{b}\sqrt{d}}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(5/2)*(c + d*x)^(5/2))/x^3,x]
```

```
[Out] ((2*Sqrt[a + b*x]*Sqrt[c + d*x]*(-3*a^2*(4*c^2 + 18*c*d*x - 11*d^
2*x^2) + b^2*x^2*(33*c^2 + 26*c*d*x + 8*d^2*x^2) + 2*a*b*x*(-27*c
^2 + 61*c*d*x + 13*d^2*x^2)))/x^2 + 30*Sqrt[a]*Sqrt[c]*(3*b^2*c^2
 + 10*a*b*c*d + 3*a^2*d^2)*Log[x] - 30*Sqrt[a]*Sqrt[c]*(3*b^2*c^2
 + 10*a*b*c*d + 3*a^2*d^2)*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*
Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]] + (15*(b^3*c^3 + 15*a*b^2*c^
2*d + 15*a^2*b*c*d^2 + a^3*d^3)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[
b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(Sqrt[b]*Sqrt[d]))/48
```

Maple [B] time = 0.025, size = 850, normalized size = 2.7

$$\frac{1}{48\,x^2}\sqrt{bx+a}\sqrt{dx+c}\left(16\,x^4b^2d^2\sqrt{ac}\sqrt{dx^2b+adx+bcx+ac}\sqrt{bd}+15\,\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{dx^2b+adx+bcx+ac}\sqrt{bd}+ad}{\sqrt{bd}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(d*x+c)^(5/2)/x^3,x)
```

```
[Out] 1/48*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(16*x^4*b^2*d^2*(a*c)^(1/2)*(b*d
*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+15*ln(1/2*(2*b*d*x+2*(b*d
*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^3
*d^3*x^2*(a*c)^(1/2)+225*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a
*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^2*d^2*b*c*x^2*(a*c)
^(1/2)+225*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d
)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a*d*b^2*c^2*x^2*(a*c)^(1/2)+15*ln(1
/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c
)/(b*d)^(1/2))*b^3*c^3*x^2*(a*c)^(1/2)-90*a^3*c*ln((a*d*x+b*c*x+2
*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*d^2*x^2*(b
*d)^(1/2)-300*a^2*c^2*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*
x+b*c*x+a*c)^(1/2)+2*a*c)/x)*b*d*x^2*(b*d)^(1/2)-90*a*c^3*ln((a*d
*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*
b^2*x^2*(b*d)^(1/2)+52*x^3*a*b*d^2*(b*d)^(1/2)*(a*c)^(1/2)*(b*d*x
^2+a*d*x+b*c*x+a*c)^(1/2)+52*x^3*b^2*c*d*(b*d)^(1/2)*(a*c)^(1/2)*
(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+66*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2
)*d^2*(b*d)^(1/2)*a^2*(a*c)^(1/2)*x^2+244*(b*d*x^2+a*d*x+b*c*x+a*
c)^(1/2)*d*b*(b*d)^(1/2)*a*(a*c)^(1/2)*x^2*c+66*c^2*(b*d*x^2+a*d*
x+b*c*x+a*c)^(1/2)*b^2*(b*d)^(1/2)*(a*c)^(1/2)*x^2-108*(b*d*x^2+a
*d*x+b*c*x+a*c)^(1/2)*d*(b*d)^(1/2)*a^2*(a*c)^(1/2)*x*c-108*c^2*(
b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*b*(b*d)^(1/2)*a*(a*c)^(1/2)*x-24*c
^2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)*a^2*(a*c)^(1/2))/(
b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)/x^2/(b*d)^(1/2)/(a*c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(5/2)*(d*x + c)^(5/2)/x^3,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 9.0175, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(5/2)*(d*x + c)^(5/2)/x^3,x, algorithm="fricas")
```

```
[Out] [1/96*(30*(3*b^2*c^2 + 10*a*b*c*d + 3*a^2*d^2)*sqrt(a*c)*sqrt(b*d
)*x^2*log((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2
*a*c + (b*c + a*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c) + 8*(
a*b*c^2 + a^2*c*d)*x)/x^2) + 15*(b^3*c^3 + 15*a*b^2*c^2*d + 15*a^
2*b*c*d^2 + a^3*d^3)*x^2*log(4*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*
sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*
d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)) + 4*(8*b^2*d^2*
x^4 - 12*a^2*c^2 + 26*(b^2*c*d + a*b*d^2)*x^3 + (33*b^2*c^2 + 122
*a*b*c*d + 33*a^2*d^2)*x^2 - 54*(a*b*c^2 + a^2*c*d)*x)*sqrt(b*d)*
sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(b*d)*x^2), 1/48*(15*(3*b^2*c^2
 + 10*a*b*c*d + 3*a^2*d^2)*sqrt(a*c)*sqrt(-b*d)*x^2*log((8*a^2*c^
2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a*c + (b*c + a*d)*
x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c) + 8*(a*b*c^2 + a^2*c*d)*
x)/x^2) + 15*(b^3*c^3 + 15*a*b^2*c^2*d + 15*a^2*b*c*d^2 + a^3*d^3
)*x^2*arctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a)*
sqrt(d*x + c)*b*d)) + 2*(8*b^2*d^2*x^4 - 12*a^2*c^2 + 26*(b^2*c*d
 + a*b*d^2)*x^3 + (33*b^2*c^2 + 122*a*b*c*d + 33*a^2*d^2)*x^2 - 5
4*(a*b*c^2 + a^2*c*d)*x)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c))/
(sqrt(-b*d)*x^2), -1/96*(60*(3*b^2*c^2 + 10*a*b*c*d + 3*a^2*d^2)*
sqrt(-a*c)*sqrt(b*d)*x^2*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt
(-a*c)*sqrt(b*x + a)*sqrt(d*x + c))) - 15*(b^3*c^3 + 15*a*b^2*c^2
*d + 15*a^2*b*c*d^2 + a^3*d^3)*x^2*log(4*(2*b^2*d^2*x + b^2*c*d +
 a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2
+ 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)) - 4*(
8*b^2*d^2*x^4 - 12*a^2*c^2 + 26*(b^2*c*d + a*b*d^2)*x^3 + (33*b^2
*c^2 + 122*a*b*c*d + 33*a^2*d^2)*x^2 - 54*(a*b*c^2 + a^2*c*d)*x)*
sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(b*d)*x^2), -1/48*(30
*(3*b^2*c^2 + 10*a*b*c*d + 3*a^2*d^2)*sqrt(-a*c)*sqrt(-b*d)*x^2*a
rctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(-a*c)*sqrt(b*x + a)*sqrt(
d*x + c))) - 15*(b^3*c^3 + 15*a*b^2*c^2*d + 15*a^2*b*c*d^2 + a^3*
d^3)*x^2*arctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x +
a)*sqrt(d*x + c)*b*d)) - 2*(8*b^2*d^2*x^4 - 12*a^2*c^2 + 26*(b^2*
c*d + a*b*d^2)*x^3 + (33*b^2*c^2 + 122*a*b*c*d + 33*a^2*d^2)*x^2
- 54*(a*b*c^2 + a^2*c*d)*x)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c
))/(sqrt(-b*d)*x^2)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**(5/2)*(d*x+c)**(5/2)/x**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.757718, size = 4, normalized size = 0.01

$$sage_0x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*(d*x + c)^(5/2)/x^3,x, algorithm="giac")
```

```
[Out] sage0*x
```

3.658 $\int \frac{(a+bx)^{5/2}(c+dx)^{5/2}}{x^4}\,dx$

Optimal. Leaf size=339

$$-\frac{5\sqrt{a+bx}(c+dx)^{5/2}\left(a^2d^2+12abcd+3b^2c^2\right)}{24c^2x}+\frac{5d\sqrt{a+bx}(c+dx)^{3/2}\left(a^2d^2+14abcd+9b^2c^2\right)}{24c^2}+\frac{5d\sqrt{a+bx}\sqrt{c+dx}\left(a^2d^2+10abcd+5b^2c^2\right)}{8c}-\frac{5(ad+bc)\left(a^2d^2+14abcd+b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8\sqrt{a}\sqrt{c}}-\frac{(a+bx)^{5/2}(c+dx)^{5/2}}{3x^3}-\frac{5(a+bx)^{3/2}(c+dx)^{5/2}(ad+bc)}{12cx^2}+\frac{5}{4}\sqrt{b}\sqrt{d}(ad+3bc)(3ad+bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)$$

```
[Out] (5*d*(5*b^2*c^2 + 10*a*b*c*d + a^2*d^2)*Sqrt[a + b*x]*Sqrt[c + d*
x])/(8*c) + (5*d*(9*b^2*c^2 + 14*a*b*c*d + a^2*d^2)*Sqrt[a + b*x]
*(c + d*x)^(3/2))/(24*c^2) - (5*(3*b^2*c^2 + 12*a*b*c*d + a^2*d^2
)*Sqrt[a + b*x]*(c + d*x)^(5/2))/(24*c^2*x) - (5*(b*c + a*d)*(a +
 b*x)^(3/2)*(c + d*x)^(5/2))/(12*c*x^2) - ((a + b*x)^(5/2)*(c + d
*x)^(5/2))/(3*x^3) - (5*(b*c + a*d)*(b^2*c^2 + 14*a*b*c*d + a^2*d
^2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(8*
Sqrt[a]*Sqrt[c]) + (5*Sqrt[b]*Sqrt[d]*(3*b*c + a*d)*(b*c + 3*a*d)
*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/4
```

Rubi [A] time = 1.27053, antiderivative size = 339, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 7, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.318$

$$-\frac{5\sqrt{a+bx}(c+dx)^{5/2}\left(a^2d^2+12abcd+3b^2c^2\right)}{24c^2x}+\frac{5d\sqrt{a+bx}(c+dx)^{3/2}\left(a^2d^2+14abcd+9b^2c^2\right)}{24c^2}+\frac{5d\sqrt{a+bx}\sqrt{c+dx}\left(a^2d^2+10abcd+5b^2c^2\right)}{8c}-\frac{5(ad+bc)\left(a^2d^2+14abcd+b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8\sqrt{a}\sqrt{c}}-\frac{(a+bx)^{5/2}(c+dx)^{5/2}}{3x^3}-\frac{5(a+bx)^{3/2}(c+dx)^{5/2}(ad+bc)}{12cx^2}+\frac{5}{4}\sqrt{b}\sqrt{d}(ad+3bc)(3ad+bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(5/2)*(c + d*x)^(5/2))/x^4,x]
```


```
[Out] (5*d*(5*b^2*c^2 + 10*a*b*c*d + a^2*d^2)*Sqrt[a + b*x]*Sqrt[c + d*
x])/(8*c) + (5*d*(9*b^2*c^2 + 14*a*b*c*d + a^2*d^2)*Sqrt[a + b*x]
*(c + d*x)^(3/2))/(24*c^2) - (5*(3*b^2*c^2 + 12*a*b*c*d + a^2*d^2
)*Sqrt[a + b*x]*(c + d*x)^(5/2))/(24*c^2*x) - (5*(b*c + a*d)*(a +
 b*x)^(3/2)*(c + d*x)^(5/2))/(12*c*x^2) - ((a + b*x)^(5/2)*(c + d
*x)^(5/2))/(3*x^3) - (5*(b*c + a*d)*(b^2*c^2 + 14*a*b*c*d + a^2*d
^2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(8*
Sqrt[a]*Sqrt[c]) + (5*Sqrt[b]*Sqrt[d]*(3*b*c + a*d)*(b*c + 3*a*d)
*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/4
```

Rubi in Sympy [A] time = 175.863, size = 330, normalized size = 0.97

$$\frac{5\sqrt{b}\sqrt{d}\,(ad+3bc)\,(3ad+bc)\,\mathrm{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{4}-\frac{(a+bx)^{\frac{5}{2}}\,(c+dx)^{\frac{5}{2}}}{3x^3}+\frac{5d\sqrt{a+bx}\sqrt{c+dx}\,\left(a^2d^2+10abcd+5b^2c^2\right)}{8c}-\frac{5\,(a+bx)^{\frac{3}{2}}\,(c+dx)^{\frac{5}{2}}\,(ad+bc)}{12cx^2}+\frac{5d\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}\,\left(a^2d^2+14abcd+9b^2c^2\right)}{24c^2}-\frac{5\sqrt{a+bx}\,(c+dx)^{\frac{5}{2}}\,\left(a^2d^2+12abcd+3b^2c^2\right)}{24c^2x}-\frac{5\,(ad+bc)\,\left(a^2d^2+14abcd+b^2c^2\right)\,\mathrm{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8\sqrt{a}\sqrt{c}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(d*x+c)**(5/2)/x**4,x)
```

```
[Out] 5*sqrt(b)*sqrt(d)*(a*d + 3*b*c)*(3*a*d + b*c)*atanh(sqrt(b)*sqrt(
c + d*x)/(sqrt(d)*sqrt(a + b*x)))/4 - (a + b*x)**(5/2)*(c + d*x)*
*(5/2)/(3*x**3) + 5*d*sqrt(a + b*x)*sqrt(c + d*x)*(a**2*d**2 + 10
*a*b*c*d + 5*b**2*c**2)/(8*c) - 5*(a + b*x)**(3/2)*(c + d*x)**(5/
2)*(a*d + b*c)/(12*c*x**2) + 5*d*sqrt(a + b*x)*(c + d*x)**(3/2)*(
a**2*d**2 + 14*a*b*c*d + 9*b**2*c**2)/(24*c**2) - 5*sqrt(a + b*x)
*(c + d*x)**(5/2)*(a**2*d**2 + 12*a*b*c*d + 3*b**2*c**2)/(24*c**2
*x) - 5*(a*d + b*c)*(a**2*d**2 + 14*a*b*c*d + b**2*c**2)*atanh(sq
rt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(8*sqrt(a)*sqrt(c))
```

Mathematica [A] time = 0.267033, size = 321, normalized size = 0.95

$$\frac{1}{48}\left(-\frac{2\sqrt{a+bx}\sqrt{c+dx}\,\left(a^2\left(8c^2+26cdx+33d^2x^2\right)+2abx\left(13c^2+61cdx-27d^2x^2\right)-3b^2x^2\left(-11c^2+18cdx+4d^2x^2\right)\right)}{x^3}+30\sqrt{b}\sqrt{d}\left(3a^2d^2+10abcd+3b^2c^2\right)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)+\frac{15\log(x)\left(a^3d^3+15a^2bcd^2+15ab^2c^2d+b^3c^3\right)}{\sqrt{a}\sqrt{c}}-\frac{15\left(a^3d^3+15a^2bcd^2+15ab^2c^2d+b^3c^3\right)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{\sqrt{a}\sqrt{c}}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(5/2)*(c + d*x)^(5/2))/x^4,x]
```

```
[Out] ((-2*Sqrt[a + b*x]*Sqrt[c + d*x]*(2*a*b*x*(13*c^2 + 61*c*d*x - 27
*d^2*x^2) - 3*b^2*x^2*(-11*c^2 + 18*c*d*x + 4*d^2*x^2) + a^2*(8*c
^2 + 26*c*d*x + 33*d^2*x^2)))/x^3 + (15*(b^3*c^3 + 15*a*b^2*c^2*d
 + 15*a^2*b*c*d^2 + a^3*d^3)*Log[x])/(Sqrt[a]*Sqrt[c]) - (15*(b^3
*c^3 + 15*a*b^2*c^2*d + 15*a^2*b*c*d^2 + a^3*d^3)*Log[2*a*c + b*c
*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(Sqr
t[a]*Sqrt[c]) + 30*Sqrt[b]*Sqrt[d]*(3*b^2*c^2 + 10*a*b*c*d + 3*a^
2*d^2)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*
Sqrt[c + d*x]])/48
```

Maple [B] time = 0.027, size = 848, normalized size = 2.5

$$-\frac{1}{48\,x^3}\sqrt{bx+a}\sqrt{dx+c}\left(15\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{dx^2b+adx+bcx+ac}+2\,ac}{x}\right)x^3a^3d^3\sqrt{bd}+225\,\ln\left(\frac{adx+bcx+2\,\sqrt{a}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(d*x+c)^(5/2)/x^4,x)
```

```
[Out] -1/48*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(15*ln((a*d*x+b*c*x+2*(a*c)^(1/
2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^3*a^3*d^3*(b*d)^(1
/2)+225*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(
1/2)+2*a*c)/x)*x^3*a^2*b*c*d^2*(b*d)^(1/2)+225*ln((a*d*x+b*c*x+2*
(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^3*a*b^2*c
^2*d*(b*d)^(1/2)+15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+
b*c*x+a*c)^(1/2)+2*a*c)/x)*x^3*b^3*c^3*(b*d)^(1/2)-90*ln(1/2*(2*b
*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)
^(1/2))*x^3*a^2*b*d^3*(a*c)^(1/2)-300*ln(1/2*(2*b*d*x+2*(b*d*x^2+
a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^3*a*b^
2*c*d^2*(a*c)^(1/2)-90*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*c
)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^3*b^3*c^2*d*(a*c)^(1/
2)-24*x^4*b^2*d^2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*(b*
d)^(1/2)-108*x^3*a*b*d^2*(b*d)^(1/2)*(a*c)^(1/2)*(b*d*x^2+a*d*x+b
*c*x+a*c)^(1/2)-108*x^3*b^2*c*d*(b*d)^(1/2)*(a*c)^(1/2)*(b*d*x^2+
a*d*x+b*c*x+a*c)^(1/2)+66*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*d^2*(b*
d)^(1/2)*a^2*(a*c)^(1/2)*x^2+244*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*
d*b*(b*d)^(1/2)*a*(a*c)^(1/2)*x^2*c+66*c^2*(b*d*x^2+a*d*x+b*c*x+a
*c)^(1/2)*b^2*(b*d)^(1/2)*(a*c)^(1/2)*x^2+52*(b*d*x^2+a*d*x+b*c*x
+a*c)^(1/2)*d*(b*d)^(1/2)*a^2*(a*c)^(1/2)*x*c+52*c^2*(b*d*x^2+a*d
*x+b*c*x+a*c)^(1/2)*b*(b*d)^(1/2)*a*(a*c)^(1/2)*x+16*c^2*(b*d*x^2
+a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)*a^2*(a*c)^(1/2))/(b*d*x^2+a*d
*x+b*c*x+a*c)^(1/2)/x^3/(a*c)^(1/2)/(b*d)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*(d*x + c)^(5/2)/x^4,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 4.92752, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*(d*x + c)^(5/2)/x^4,x, algorithm="fricas")
```

```
[Out] [1/96*(30*(3*b^2*c^2 + 10*a*b*c*d + 3*a^2*d^2)*sqrt(a*c)*sqrt(b*d
)*x^3*log(8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b*
d*x + b*c + a*d)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 8*(b^2*c
*d + a*b*d^2)*x) + 15*(b^3*c^3 + 15*a*b^2*c^2*d + 15*a^2*b*c*d^2
+ a^3*d^3)*x^3*log(-(4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b
*x + a)*sqrt(d*x + c) - (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d
^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2) + 4*(12*b^2*d^
2*x^4 - 8*a^2*c^2 + 54*(b^2*c*d + a*b*d^2)*x^3 - (33*b^2*c^2 + 12
2*a*b*c*d + 33*a^2*d^2)*x^2 - 26*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c)
*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(a*c)*x^3), 1/96*(60*(3*b^2*c^
2 + 10*a*b*c*d + 3*a^2*d^2)*sqrt(a*c)*sqrt(-b*d)*x^3*arctan(1/2*(
2*b*d*x + b*c + a*d)/(sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c))) +
15*(b^3*c^3 + 15*a*b^2*c^2*d + 15*a^2*b*c*d^2 + a^3*d^3)*x^3*log(
-(4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x +
c) - (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(a*b*c^
2 + a^2*c*d)*x)*sqrt(a*c))/x^2) + 4*(12*b^2*d^2*x^4 - 8*a^2*c^2 +
 54*(b^2*c*d + a*b*d^2)*x^3 - (33*b^2*c^2 + 122*a*b*c*d + 33*a^2*
d^2)*x^2 - 26*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt
(d*x + c))/(sqrt(a*c)*x^3), 1/48*(15*(3*b^2*c^2 + 10*a*b*c*d + 3*
a^2*d^2)*sqrt(-a*c)*sqrt(b*d)*x^3*log(8*b^2*d^2*x^2 + b^2*c^2 + 6
*a*b*c*d + a^2*d^2 + 4*(2*b*d*x + b*c + a*d)*sqrt(b*d)*sqrt(b*x +
```

```
 a)*sqrt(d*x + c) + 8*(b^2*c*d + a*b*d^2)*x) - 15*(b^3*c^3 + 15*a
*b^2*c^2*d + 15*a^2*b*c*d^2 + a^3*d^3)*x^3*arctan(1/2*(2*a*c + (b
*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d*x + c)*a*c)) + 2*(1
2*b^2*d^2*x^4 - 8*a^2*c^2 + 54*(b^2*c*d + a*b*d^2)*x^3 - (33*b^2*
c^2 + 122*a*b*c*d + 33*a^2*d^2)*x^2 - 26*(a*b*c^2 + a^2*c*d)*x)*s
qrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(-a*c)*x^3), 1/48*(30
*(3*b^2*c^2 + 10*a*b*c*d + 3*a^2*d^2)*sqrt(-a*c)*sqrt(-b*d)*x^3*a
rctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*
x + c))) - 15*(b^3*c^3 + 15*a*b^2*c^2*d + 15*a^2*b*c*d^2 + a^3*d^
3)*x^3*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x +
a)*sqrt(d*x + c)*a*c)) + 2*(12*b^2*d^2*x^4 - 8*a^2*c^2 + 54*(b^2*
c*d + a*b*d^2)*x^3 - (33*b^2*c^2 + 122*a*b*c*d + 33*a^2*d^2)*x^2
- 26*(a*b*c^2 + a^2*c*d)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c
))/(sqrt(-a*c)*x^3)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(d*x+c)**(5/2)/x**4,x)

[Out] Timed out
```

GIAC/XCAS [A] time = 0.830312, size = 4, normalized size = 0.01

$$sage_0 x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*(d*x + c)^(5/2)/x^4,x, algorithm="giac")

[Out] sage0*x
```

3.659 $\int \frac{(a+bx)^{5/2}(c+dx)^{5/2}}{x^5}\,dx$

Optimal. Leaf size=380

$$-\frac{5\sqrt{a+bx}(c+dx)^{5/2}\left(-a^2d^2+14abcd+3b^2c^2\right)}{96c^2x^2}-\frac{5\sqrt{a+bx}(c+dx)^{3/2}(ad+3bc)\left(-a^2d^2+24abcd+b^2c^2\right)}{192ac^2x}+\frac{5d\sqrt{a+bx}\sqrt{c+dx}\left(-a^3d^3+19a^2bcd^2+45ab^2c^2d+b^3c^3\right)}{64ac^2}+\frac{5\left(a^4d^4-20a^3bcd^3-90a^2b^2c^2d^2-20ab^3c^3d+b^4c^4\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{3/2}c^{3/2}}+5b^{3/2}d^{3/2}(ad+bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)-\frac{(a+bx)^{5/2}(c+dx)^{5/2}}{4x^4}-\frac{5(a+bx)^{3/2}(c+dx)^{5/2}(ad+bc)}{24cx^3}$$

```
[Out] (5*d*(b^3*c^3 + 45*a*b^2*c^2*d + 19*a^2*b*c*d^2 - a^3*d^3)*Sqrt[a
 + b*x]*Sqrt[c + d*x])/(64*a*c^2) - (5*(3*b*c + a*d)*(b^2*c^2 + 2
4*a*b*c*d - a^2*d^2)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(192*a*c^2*x)
 - (5*(3*b^2*c^2 + 14*a*b*c*d - a^2*d^2)*Sqrt[a + b*x]*(c + d*x)^
(5/2))/(96*c^2*x^2) - (5*(b*c + a*d)*(a + b*x)^(3/2)*(c + d*x)^(5
/2))/(24*c*x^3) - ((a + b*x)^(5/2)*(c + d*x)^(5/2))/(4*x^4) + (5*
(b^4*c^4 - 20*a*b^3*c^3*d - 90*a^2*b^2*c^2*d^2 - 20*a^3*b*c*d^3 +
 a^4*d^4)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])
])/(64*a^(3/2)*c^(3/2)) + 5*b^(3/2)*d^(3/2)*(b*c + a*d)*ArcTanh[(
Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])]
```

Rubi [A] time = 1.34945, antiderivative size = 380, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 7, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.318

$$-\frac{5\sqrt{a+bx}(c+dx)^{5/2}\left(-a^2d^2+14abcd+3b^2c^2\right)}{96c^2x^2}-\frac{5\sqrt{a+bx}(c+dx)^{3/2}(ad+3bc)\left(-a^2d^2+24abcd+b^2c^2\right)}{192ac^2x}+\frac{5d\sqrt{a+bx}\sqrt{c+dx}\left(-a^3d^3+19a^2bcd^2+45ab^2c^2d+b^3c^3\right)}{64ac^2}+\frac{5\left(a^4d^4-20a^3bcd^3-90a^2b^2c^2d^2-20ab^3c^3d+b^4c^4\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{3/2}c^{3/2}}+5b^{3/2}d^{3/2}(ad+bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)-\frac{(a+bx)^{5/2}(c+dx)^{5/2}}{4x^4}-\frac{5(a+bx)^{3/2}(c+dx)^{5/2}(ad+bc)}{24cx^3}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(5/2)*(c + d*x)^(5/2))/x^5,x]
```


```
[Out] (5*d*(b^3*c^3 + 45*a*b^2*c^2*d + 19*a^2*b*c*d^2 - a^3*d^3)*Sqrt[a
 + b*x]*Sqrt[c + d*x])/(64*a*c^2) - (5*(3*b*c + a*d)*(b^2*c^2 + 2
4*a*b*c*d - a^2*d^2)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(192*a*c^2*x)
 - (5*(3*b^2*c^2 + 14*a*b*c*d - a^2*d^2)*Sqrt[a + b*x]*(c + d*x)^
(5/2))/(96*c^2*x^2) - (5*(b*c + a*d)*(a + b*x)^(3/2)*(c + d*x)^(5
/2))/(24*c*x^3) - ((a + b*x)^(5/2)*(c + d*x)^(5/2))/(4*x^4) + (5*
(b^4*c^4 - 20*a*b^3*c^3*d - 90*a^2*b^2*c^2*d^2 - 20*a^3*b*c*d^3 +
 a^4*d^4)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])
])/(64*a^(3/2)*c^(3/2)) + 5*b^(3/2)*d^(3/2)*(b*c + a*d)*ArcTanh[(
Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])]
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(d*x+c)**(5/2)/x**5,x)
```

```
[Out] Timed out
```

Mathematica [A] time = 0.34593, size = 364, normalized size = 0.96

$$\frac{1}{384}\left(-\frac{2\sqrt{a+bx}\sqrt{c+dx}\left(a^3\left(48c^3+136c^2dx+118cd^2x^2+15d^3x^3\right)+a^2bcx\left(136c^2+452cdx+601d^2x^2\right)+ab^2cx^2\left(118c^2-\right.\right.}{acx^4}\right.$$
$$-\frac{15\log(x)\left(a^4d^4-20a^3bcd^3-90a^2b^2c^2d^2-20ab^3c^3d+b^4c^4\right)}{a^{3/2}c^{3/2}}$$
$$+\frac{15\left(a^4d^4-20a^3bcd^3-90a^2b^2c^2d^2-20ab^3c^3d+b^4c^4\right)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{a^{3/2}c^{3/2}}$$
$$\left.+960b^{3/2}d^{3/2}(ad+bc)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(5/2)*(c + d*x)^(5/2))/x^5,x]
```

```
[Out] ((-2*Sqrt[a + b*x]*Sqrt[c + d*x]*(15*b^3*c^3*x^3 + a*b^2*c*x^2*(1
18*c^2 + 601*c*d*x - 192*d^2*x^2) + a^2*b*c*x*(136*c^2 + 452*c*d*
x + 601*d^2*x^2) + a^3*(48*c^3 + 136*c^2*d*x + 118*c*d^2*x^2 + 15
*d^3*x^3)))/(a*c*x^4) - (15*(b^4*c^4 - 20*a*b^3*c^3*d - 90*a^2*b^
2*c^2*d^2 - 20*a^3*b*c*d^3 + a^4*d^4)*Log[x])/(a^(3/2)*c^(3/2)) +
 (15*(b^4*c^4 - 20*a*b^3*c^3*d - 90*a^2*b^2*c^2*d^2 - 20*a^3*b*c*
d^3 + a^4*d^4)*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt
[a + b*x]*Sqrt[c + d*x]])/(a^(3/2)*c^(3/2)) + 960*b^(3/2)*d^(3/2)
*(b*c + a*d)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a +
 b*x]*Sqrt[c + d*x]])/384
```

Maple [B] time = 0.029, size = 962, normalized size = 2.5

$$\frac{1}{384\,acx^4}\sqrt{bx+a}\sqrt{dx+c}\left(15\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{dx^2b+adx+bcx+ac}+2\,ac}{x}\right)x^4a^4d^4\sqrt{bd}-300\,\ln\left(\frac{adx+bcx+2\,\cdot}{}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(d*x+c)^(5/2)/x^5,x)
```

```
[Out] 1/384*(b*x+a)^(1/2)*(d*x+c)^(1/2)/a/c*(15*ln((a*d*x+b*c*x+2*(a*c)
^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^4*a^4*d^4*(b*d
)^(1/2)-300*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*
c)^(1/2)+2*a*c)/x)*x^4*a^3*b*c*d^3*(b*d)^(1/2)-1350*ln((a*d*x+b*c
*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^4*a^
2*b^2*c^2*d^2*(b*d)^(1/2)-300*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*
x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^4*a*b^3*c^3*d*(b*d)^(1/2)+
15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+
2*a*c)/x)*x^4*b^4*c^4*(b*d)^(1/2)+960*ln(1/2*(2*b*d*x+2*(b*d*x^2+
a*d*x+b*c*x+a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^4*a^2*
b^2*c*d^3*(a*c)^(1/2)+960*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+
a*c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^4*a*b^3*c^2*d^2*(a
*c)^(1/2)+384*x^4*a*b^2*c*d^2*(b*d)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*
c)^(1/2)*(a*c)^(1/2)-30*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*d^3*(b*d)
^(1/2)*a^3*x^3*(a*c)^(1/2)-1202*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*d
^2*b*(b*d)^(1/2)*c*a^2*x^3*(a*c)^(1/2)-1202*(b*d*x^2+a*d*x+b*c*x+
a*c)^(1/2)*d*b^2*(b*d)^(1/2)*c^2*a*x^3*(a*c)^(1/2)-30*c^3*(b*d*x^
```

```
2+a*d*x+b*c*x+a*c)^(1/2)*b^3*(b*d)^(1/2)*x^3*(a*c)^(1/2)-236*(b*d
*x^2+a*d*x+b*c*x+a*c)^(1/2)*d^2*(b*d)^(1/2)*c*a^3*x^2*(a*c)^(1/2)
-904*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*d*b*(b*d)^(1/2)*c^2*a^2*x^2*
(a*c)^(1/2)-236*c^3*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*b^2*(b*d)^(1/
2)*a*x^2*(a*c)^(1/2)-272*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*d*(b*d)^
(1/2)*c^2*a^3*x*(a*c)^(1/2)-272*c^3*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/
2)*b*(b*d)^(1/2)*a^2*x*(a*c)^(1/2)-96*c^3*(b*d*x^2+a*d*x+b*c*x+a*
c)^(1/2)*(b*d)^(1/2)*a^3*(a*c)^(1/2))/(b*d*x^2+a*d*x+b*c*x+a*c)^(
1/2)/(a*c)^(1/2)/x^4/(b*d)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(5/2)*(d*x + c)^(5/2)/x^5,x, algorithm="maxima")

[Out] Exception raised: ValueError
```

Fricas [A] time = 7.98155, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(5/2)*(d*x + c)^(5/2)/x^5,x, algorithm="fricas")

[Out] [1/768*(960*(a*b^2*c^2*d + a^2*b*c*d^2)*sqrt(a*c)*sqrt(b*d)*x^4*l
og(8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b*d*x + b
*c + a*d)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 8*(b^2*c*d + a*
b*d^2)*x) + 15*(b^4*c^4 - 20*a*b^3*c^3*d - 90*a^2*b^2*c^2*d^2 - 2
0*a^3*b*c*d^3 + a^4*d^4)*x^4*log((4*(2*a^2*c^2 + (a*b*c^2 + a^2*c
*d)*x)*sqrt(b*x + a)*sqrt(d*x + c) + (8*a^2*c^2 + (b^2*c^2 + 6*a*
b*c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2) +
 4*(192*a*b^2*c*d^2*x^4 - 48*a^3*c^3 - (15*b^3*c^3 + 601*a*b^2*c^
2*d + 601*a^2*b*c*d^2 + 15*a^3*d^3)*x^3 - 2*(59*a*b^2*c^3 + 226*a
^2*b*c^2*d + 59*a^3*c*d^2)*x^2 - 136*(a^2*b*c^3 + a^3*c^2*d)*x)*s
qrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(a*c)*a*c*x^4), 1/768*
(1920*(a*b^2*c^2*d + a^2*b*c*d^2)*sqrt(a*c)*sqrt(-b*d)*x^4*arctan
(1/2*(2*b*d*x + b*c + a*d)/(sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c
))) + 15*(b^4*c^4 - 20*a*b^3*c^3*d - 90*a^2*b^2*c^2*d^2 - 20*a^3*
b*c*d^3 + a^4*d^4)*x^4*log((4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)
*sqrt(b*x + a)*sqrt(d*x + c) + (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d
+ a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2) + 4*(19
2*a*b^2*c*d^2*x^4 - 48*a^3*c^3 - (15*b^3*c^3 + 601*a*b^2*c^2*d +
601*a^2*b*c*d^2 + 15*a^3*d^3)*x^3 - 2*(59*a*b^2*c^3 + 226*a^2*b*c
^2*d + 59*a^3*c*d^2)*x^2 - 136*(a^2*b*c^3 + a^3*c^2*d)*x)*sqrt(a*
c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(a*c)*a*c*x^4), 1/384*(480*(
a*b^2*c^2*d + a^2*b*c*d^2)*sqrt(-a*c)*sqrt(b*d)*x^4*log(8*b^2*d^2
*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b*d*x + b*c + a*d)*sq
rt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 8*(b^2*c*d + a*b*d^2)*x) +
15*(b^4*c^4 - 20*a*b^3*c^3*d - 90*a^2*b^2*c^2*d^2 - 20*a^3*b*c*d^
3 + a^4*d^4)*x^4*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(s
qrt(b*x + a)*sqrt(d*x + c)*a*c)) + 2*(192*a*b^2*c*d^2*x^4 - 48*a^
3*c^3 - (15*b^3*c^3 + 601*a*b^2*c^2*d + 601*a^2*b*c*d^2 + 15*a^3*
d^3)*x^3 - 2*(59*a*b^2*c^3 + 226*a^2*b*c^2*d + 59*a^3*c*d^2)*x^2
- 136*(a^2*b*c^3 + a^3*c^2*d)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*
x + c))/(sqrt(-a*c)*a*c*x^4), 1/384*(960*(a*b^2*c^2*d + a^2*b*c*d
^2)*sqrt(-a*c)*sqrt(-b*d)*x^4*arctan(1/2*(2*b*d*x + b*c + a*d)/(s
qrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c))) + 15*(b^4*c^4 - 20*a*b^3*
c^3*d - 90*a^2*b^2*c^2*d^2 - 20*a^3*b*c*d^3 + a^4*d^4)*x^4*arctan
(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d*x +
 c)*a*c)) + 2*(192*a*b^2*c*d^2*x^4 - 48*a^3*c^3 - (15*b^3*c^3 + 6
01*a*b^2*c^2*d + 601*a^2*b*c*d^2 + 15*a^3*d^3)*x^3 - 2*(59*a*b^2*
```

```
c^3 + 226*a^2*b*c^2*d + 59*a^3*c*d^2)*x^2 - 136*(a^2*b*c^3 + a^3*
c^2*d)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(-a*c)*a*c
*x^4)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(d*x+c)**(5/2)/x**5,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.783832, size = 4, normalized size = 0.01

$$sage_0x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*(d*x + c)^(5/2)/x^5,x, algorithm="giac")
```

```
[Out] sage0*x
```

3.660 $\int \frac{(a+bx)^{5/2}(c+dx)^{5/2}}{x^6} dx$

Optimal. Leaf size=406

$$-\frac{\sqrt{a+bx}(c+dx)^{5/2}\left(-3a^2d^2+16abcd+3b^2c^2\right)}{48c^2x^3}-\frac{\sqrt{a+bx}(c+dx)^{3/2}\left(3a^3d^3-19a^2bcd^2+109ab^2c^2d+3b^3c^3\right)}{192ac^2x^2}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(-3a^4d^4+22a^3bcd^3-128a^2b^2c^2d^2-22ab^3c^3d+3b^4c^4\right)}{128a^2c^2x}-\frac{(ad+bc)\left(3a^4d^4-28a^3bcd^3+178a^2b^2c^2d^2-28ab^3c^3d+3b^4c^4\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{128a^{5/2}c^{5/2}}+2b^{5/2}d^{5/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)-\frac{(a+bx)^{5/2}(c+dx)^{5/2}}{5x^5}-\frac{(a+bx)^{3/2}(c+dx)^{5/2}(ad+bc)}{8cx^4}$$

```
[Out] ((3*b^4*c^4 - 22*a*b^3*c^3*d - 128*a^2*b^2*c^2*d^2 + 22*a^3*b*c*d
^3 - 3*a^4*d^4)*Sqrt[a + b*x]*Sqrt[c + d*x])/(128*a^2*c^2*x) - ((
3*b^3*c^3 + 109*a*b^2*c^2*d - 19*a^2*b*c*d^2 + 3*a^3*d^3)*Sqrt[a
+ b*x]*(c + d*x)^(3/2))/(192*a*c^2*x^2) - ((3*b^2*c^2 + 16*a*b*c*
d - 3*a^2*d^2)*Sqrt[a + b*x]*(c + d*x)^(5/2))/(48*c^2*x^3) - ((b*
c + a*d)*(a + b*x)^(3/2)*(c + d*x)^(5/2))/(8*c*x^4) - ((a + b*x)^
(5/2)*(c + d*x)^(5/2))/(5*x^5) - ((b*c + a*d)*(3*b^4*c^4 - 28*a*b
^3*c^3*d + 178*a^2*b^2*c^2*d^2 - 28*a^3*b*c*d^3 + 3*a^4*d^4)*ArcT
anh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(128*a^(5/2
)*c^(5/2)) + 2*b^(5/2)*d^(5/2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(S
qrt[b]*Sqrt[c + d*x])]
```

Rubi [A] time = 1.29522, antiderivative size = 406, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.273

$$-\frac{\sqrt{a+bx}(c+dx)^{5/2}\left(-3a^2d^2+16abcd+3b^2c^2\right)}{48c^2x^3}-\frac{\sqrt{a+bx}(c+dx)^{3/2}\left(3a^3d^3-19a^2bcd^2+109ab^2c^2d+3b^3c^3\right)}{192ac^2x^2}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(-3a^4d^4+22a^3bcd^3-128a^2b^2c^2d^2-22ab^3c^3d+3b^4c^4\right)}{128a^2c^2x}-\frac{(ad+bc)\left(3a^4d^4-28a^3bcd^3+178a^2b^2c^2d^2-28ab^3c^3d+3b^4c^4\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{128a^{5/2}c^{5/2}}+2b^{5/2}d^{5/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)-\frac{(a+bx)^{5/2}(c+dx)^{5/2}}{5x^5}-\frac{(a+bx)^{3/2}(c+dx)^{5/2}(ad+bc)}{8cx^4}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(5/2)*(c + d*x)^(5/2))/x^6,x]
```


```
[Out] ((3*b^4*c^4 - 22*a*b^3*c^3*d - 128*a^2*b^2*c^2*d^2 + 22*a^3*b*c*d
^3 - 3*a^4*d^4)*Sqrt[a + b*x]*Sqrt[c + d*x])/(128*a^2*c^2*x) - ((
3*b^3*c^3 + 109*a*b^2*c^2*d - 19*a^2*b*c*d^2 + 3*a^3*d^3)*Sqrt[a
+ b*x]*(c + d*x)^(3/2))/(192*a*c^2*x^2) - ((3*b^2*c^2 + 16*a*b*c*
d - 3*a^2*d^2)*Sqrt[a + b*x]*(c + d*x)^(5/2))/(48*c^2*x^3) - ((b*
c + a*d)*(a + b*x)^(3/2)*(c + d*x)^(5/2))/(8*c*x^4) - ((a + b*x)^
(5/2)*(c + d*x)^(5/2))/(5*x^5) - ((b*c + a*d)*(3*b^4*c^4 - 28*a*b
^3*c^3*d + 178*a^2*b^2*c^2*d^2 - 28*a^3*b*c*d^3 + 3*a^4*d^4)*ArcT
anh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(128*a^(5/2
)*c^(5/2)) + 2*b^(5/2)*d^(5/2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(S
qrt[b]*Sqrt[c + d*x])]
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(d*x+c)**(5/2)/x**6,x)
```

```
[Out] Timed out
```

Mathematica [A] time = 0.339544, size = 437, normalized size = 1.08

$$\frac{\sqrt{a+bx}\sqrt{c+dx}\left(-3a^4\left(128c^4+336c^3dx+248c^2d^2x^2+10cd^3x^3-15d^4x^4\right)-2a^3bcx\left(504c^3+1448c^2dx+1289cd^2x^2+180\right.\right.}{1920a^2c^2x^5}$$
$$+\frac{\log(x)\left(3a^5d^5-25a^4bcd^4+150a^3b^2c^2d^3+150a^2b^3c^3d^2-25ab^4c^4d+3b^5c^5\right)}{256a^{5/2}c^{5/2}}$$
$$-\frac{\left(3a^5d^5-25a^4bcd^4+150a^3b^2c^2d^3+150a^2b^3c^3d^2-25ab^4c^4d+3b^5c^5\right)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{256a^{5/2}c^{5/2}}$$
$$+b^{5/2}d^{5/2}\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(5/2)*(c + d*x)^(5/2))/x^6,x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(45*b^4*c^4*x^4 - 30*a*b^3*c^3*x^3*(
c + 12*d*x) - 2*a^2*b^2*c^2*x^2*(372*c^2 + 1289*c*d*x + 1877*d^2*
x^2) - 2*a^3*b*c*x*(504*c^3 + 1448*c^2*d*x + 1289*c*d^2*x^2 + 180
*d^3*x^3) - 3*a^4*(128*c^4 + 336*c^3*d*x + 248*c^2*d^2*x^2 + 10*c
*d^3*x^3 - 15*d^4*x^4)))/(1920*a^2*c^2*x^5) + ((3*b^5*c^5 - 25*a*
b^4*c^4*d + 150*a^2*b^3*c^3*d^2 + 150*a^3*b^2*c^2*d^3 - 25*a^4*b*
c*d^4 + 3*a^5*d^5)*Log[x])/(256*a^(5/2)*c^(5/2)) - ((3*b^5*c^5 -
25*a*b^4*c^4*d + 150*a^2*b^3*c^3*d^2 + 150*a^3*b^2*c^2*d^3 - 25*a
^4*b*c*d^4 + 3*a^5*d^5)*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqr
t[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(256*a^(5/2)*c^(5/2)) + b^(5/2
)*d^(5/2)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*
x]*Sqrt[c + d*x]]
```

Maple [B] time = 0.03, size = 1146, normalized size = 2.8

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(d*x+c)^(5/2)/x^6,x)
```

```
[Out] -1/3840*(b*x+a)^(1/2)*(d*x+c)^(1/2)/a^2/c^2*(45*ln((a*d*x+b*c*x+2
*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^5*a^5*d^
5*(b*d)^(1/2)-375*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*
c*x+a*c)^(1/2)+2*a*c)/x)*x^5*a^4*b*c*d^4*(b*d)^(1/2)+2250*ln((a*d
*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*
x^5*a^3*b^2*c^2*d^3*(b*d)^(1/2)+2250*ln((a*d*x+b*c*x+2*(a*c)^(1/2
)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^5*a^2*b^3*c^3*d^2*(
b*d)^(1/2)-375*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x
+a*c)^(1/2)+2*a*c)/x)*x^5*a*b^4*c^4*d*(b*d)^(1/2)+45*ln((a*d*x+b*
c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^5*b
^5*c^5*(b*d)^(1/2)-3840*ln(1/2*(2*b*d*x+2*(b*d*x^2+a*d*x+b*c*x+a*
c)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^5*a^2*b^3*c^2*d^3*(a
*c)^(1/2)-90*a^4*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*d^4*x^4*(a*c)^(1
/2)*(b*d)^(1/2)+720*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*d^3*b*a^3*c*x
^4*(a*c)^(1/2)*(b*d)^(1/2)+7508*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*d
^2*b^2*a^2*c^2*x^4*(a*c)^(1/2)*(b*d)^(1/2)+720*(b*d*x^2+a*d*x+b*c
*x+a*c)^(1/2)*d*b^3*a*c^3*x^4*(a*c)^(1/2)*(b*d)^(1/2)-90*c^4*(b*d
*x^2+a*d*x+b*c*x+a*c)^(1/2)*b^4*x^4*(a*c)^(1/2)*(b*d)^(1/2)+60*a^
4*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*d^3*c*x^3*(a*c)^(1/2)*(b*d)^(1/
2)+5156*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*d^2*b*a^3*c^2*x^3*(a*c)^(
```

```
1/2)*(b*d)^(1/2)+5156*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*d*b^2*a^2*c
^3*x^3*(a*c)^(1/2)*(b*d)^(1/2)+60*c^4*(b*d*x^2+a*d*x+b*c*x+a*c)^(
1/2)*b^3*a*x^3*(a*c)^(1/2)*(b*d)^(1/2)+1488*a^4*(b*d*x^2+a*d*x+b*
c*x+a*c)^(1/2)*d^2*c^2*x^2*(a*c)^(1/2)*(b*d)^(1/2)+5792*(b*d*x^2+
a*d*x+b*c*x+a*c)^(1/2)*b*d*a^3*c^3*x^2*(a*c)^(1/2)*(b*d)^(1/2)+14
88*c^4*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*b^2*a^2*x^2*(a*c)^(1/2)*(b
*d)^(1/2)+2016*a^4*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*d*c^3*x*(a*c)^
(1/2)*(b*d)^(1/2)+2016*c^4*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*b*a^3*
x*(a*c)^(1/2)*(b*d)^(1/2)+768*a^4*c^4*(b*d*x^2+a*d*x+b*c*x+a*c)^(
1/2)*(a*c)^(1/2)*(b*d)^(1/2))/(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)/x^5
/(a*c)^(1/2)/(b*d)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(5/2)*(d*x + c)^(5/2)/x^6,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 18.3938, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(5/2)*(d*x + c)^(5/2)/x^6,x, algorithm="fricas")
```

```
[Out] [1/7680*(3840*sqrt(a*c)*sqrt(b*d)*a^2*b^2*c^2*d^2*x^5*log(8*b^2*d
^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b*d*x + b*c + a*d)*
sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 8*(b^2*c*d + a*b*d^2)*x)
+ 15*(3*b^5*c^5 - 25*a*b^4*c^4*d + 150*a^2*b^3*c^3*d^2 + 150*a^3*
b^2*c^2*d^3 - 25*a^4*b*c*d^4 + 3*a^5*d^5)*x^5*log(-(4*(2*a^2*c^2
+ (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c) - (8*a^2*c^2
 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)
*sqrt(a*c))/x^2) - 4*(384*a^4*c^4 - (45*b^4*c^4 - 360*a*b^3*c^3*d
 - 3754*a^2*b^2*c^2*d^2 - 360*a^3*b*c*d^3 + 45*a^4*d^4)*x^4 + 2*(
15*a*b^3*c^4 + 1289*a^2*b^2*c^3*d + 1289*a^3*b*c^2*d^2 + 15*a^4*c
*d^3)*x^3 + 8*(93*a^2*b^2*c^4 + 362*a^3*b*c^3*d + 93*a^4*c^2*d^2)
*x^2 + 1008*(a^3*b*c^4 + a^4*c^3*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sq
rt(d*x + c))/(sqrt(a*c)*a^2*c^2*x^5), 1/7680*(7680*sqrt(a*c)*sqrt
(-b*d)*a^2*b^2*c^2*d^2*x^5*arctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt
(-b*d)*sqrt(b*x + a)*sqrt(d*x + c))) + 15*(3*b^5*c^5 - 25*a*b^4*c
^4*d + 150*a^2*b^3*c^3*d^2 + 150*a^3*b^2*c^2*d^3 - 25*a^4*b*c*d^4
 + 3*a^5*d^5)*x^5*log(-(4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*sqr
t(b*x + a)*sqrt(d*x + c) - (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^
2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2) - 4*(384*a^
4*c^4 - (45*b^4*c^4 - 360*a*b^3*c^3*d - 3754*a^2*b^2*c^2*d^2 - 36
0*a^3*b*c*d^3 + 45*a^4*d^4)*x^4 + 2*(15*a*b^3*c^4 + 1289*a^2*b^2*
c^3*d + 1289*a^3*b*c^2*d^2 + 15*a^4*c*d^3)*x^3 + 8*(93*a^2*b^2*c^
4 + 362*a^3*b*c^3*d + 93*a^4*c^2*d^2)*x^2 + 1008*(a^3*b*c^4 + a^4
*c^3*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(a*c)*a^2*
c^2*x^5), 1/3840*(1920*sqrt(-a*c)*sqrt(b*d)*a^2*b^2*c^2*d^2*x^5*l
og(8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b*d*x + b
*c + a*d)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 8*(b^2*c*d + a*
b*d^2)*x) - 15*(3*b^5*c^5 - 25*a*b^4*c^4*d + 150*a^2*b^3*c^3*d^2
+ 150*a^3*b^2*c^2*d^3 - 25*a^4*b*c*d^4 + 3*a^5*d^5)*x^5*arctan(1/
2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d*x + c)
*a*c)) - 2*(384*a^4*c^4 - (45*b^4*c^4 - 360*a*b^3*c^3*d - 3754*a^
2*b^2*c^2*d^2 - 360*a^3*b*c*d^3 + 45*a^4*d^4)*x^4 + 2*(15*a*b^3*c
^4 + 1289*a^2*b^2*c^3*d + 1289*a^3*b*c^2*d^2 + 15*a^4*c*d^3)*x^3
+ 8*(93*a^2*b^2*c^4 + 362*a^3*b*c^3*d + 93*a^4*c^2*d^2)*x^2 + 100
8*(a^3*b*c^4 + a^4*c^3*d)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x +
```

```
c))/(sqrt(-a*c)*a^2*c^2*x^5), 1/3840*(3840*sqrt(-a*c)*sqrt(-b*d)*
a^2*b^2*c^2*d^2*x^5*arctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(-b*d)*
sqrt(b*x + a)*sqrt(d*x + c))) - 15*(3*b^5*c^5 - 25*a*b^4*c^4*d +
150*a^2*b^3*c^3*d^2 + 150*a^3*b^2*c^2*d^3 - 25*a^4*b*c*d^4 + 3*a^
5*d^5)*x^5*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*
x + a)*sqrt(d*x + c)*a*c)) - 2*(384*a^4*c^4 - (45*b^4*c^4 - 360*a
*b^3*c^3*d - 3754*a^2*b^2*c^2*d^2 - 360*a^3*b*c*d^3 + 45*a^4*d^4)
*x^4 + 2*(15*a*b^3*c^4 + 1289*a^2*b^2*c^3*d + 1289*a^3*b*c^2*d^2
+ 15*a^4*c*d^3)*x^3 + 8*(93*a^2*b^2*c^4 + 362*a^3*b*c^3*d + 93*a^
4*c^2*d^2)*x^2 + 1008*(a^3*b*c^4 + a^4*c^3*d)*x)*sqrt(-a*c)*sqrt(
b*x + a)*sqrt(d*x + c))/(sqrt(-a*c)*a^2*c^2*x^5)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(d*x+c)**(5/2)/x**6,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.81563, size = 4, normalized size = 0.01

$$sage_0 x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*(d*x + c)^(5/2)/x^6,x, algorithm="giac")
```

```
[Out] sage0*x
```

3.661 $\int \frac{(a+bx)^{5/2}(c+dx)^{5/2}}{x^7}\,dx$

Optimal. Leaf size=280

$$\frac{5(bc-ad)^6\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{512a^{7/2}c^{7/2}}-\frac{5\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^5}{512a^3c^3x}+\frac{5\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)^4}{768a^2c^3x^2}-\frac{\sqrt{a+bx}(c+dx)^{7/2}(bc-ad)^2}{32c^3x^4}-\frac{\sqrt{a+bx}(c+dx)^{5/2}(bc-ad)^3}{192ac^3x^3}-\frac{(a+bx)^{3/2}(c+dx)^{7/2}(bc-ad)}{12c^2x^5}-\frac{(a+bx)^{5/2}(c+dx)^{7/2}}{6cx^6}$$

```
[Out] (-5*(b*c - a*d)^5*Sqrt[a + b*x]*Sqrt[c + d*x])/(512*a^3*c^3*x) +
(5*(b*c - a*d)^4*Sqrt[a + b*x]*(c + d*x)^(3/2))/(768*a^2*c^3*x^2)
 - ((b*c - a*d)^3*Sqrt[a + b*x]*(c + d*x)^(5/2))/(192*a*c^3*x^3)
- ((b*c - a*d)^2*Sqrt[a + b*x]*(c + d*x)^(7/2))/(32*c^3*x^4) - ((
b*c - a*d)*(a + b*x)^(3/2)*(c + d*x)^(7/2))/(12*c^2*x^5) - ((a +
b*x)^(5/2)*(c + d*x)^(7/2))/(6*c*x^6) + (5*(b*c - a*d)^6*ArcTanh[
(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(512*a^(7/2)*c^
(7/2))
```

Rubi [A] time = 0.613213, antiderivative size = 280, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.136$

$$\frac{5(bc-ad)^6\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{512a^{7/2}c^{7/2}}-\frac{5\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^5}{512a^3c^3x}+\frac{5\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)^4}{768a^2c^3x^2}-\frac{\sqrt{a+bx}(c+dx)^{7/2}(bc-ad)^2}{32c^3x^4}-\frac{\sqrt{a+bx}(c+dx)^{5/2}(bc-ad)^3}{192ac^3x^3}-\frac{(a+bx)^{3/2}(c+dx)^{7/2}(bc-ad)}{12c^2x^5}-\frac{(a+bx)^{5/2}(c+dx)^{7/2}}{6cx^6}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(5/2)*(c + d*x)^(5/2))/x^7,x]
```

```
[Out] (-5*(b*c - a*d)^5*Sqrt[a + b*x]*Sqrt[c + d*x])/(512*a^3*c^3*x) +
(5*(b*c - a*d)^4*Sqrt[a + b*x]*(c + d*x)^(3/2))/(768*a^2*c^3*x^2)
 - ((b*c - a*d)^3*Sqrt[a + b*x]*(c + d*x)^(5/2))/(192*a*c^3*x^3)
- ((b*c - a*d)^2*Sqrt[a + b*x]*(c + d*x)^(7/2))/(32*c^3*x^4) - ((
b*c - a*d)*(a + b*x)^(3/2)*(c + d*x)^(7/2))/(12*c^2*x^5) - ((a +
b*x)^(5/2)*(c + d*x)^(7/2))/(6*c*x^6) + (5*(b*c - a*d)^6*ArcTanh[
(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(512*a^(7/2)*c^
(7/2))
```

Rubi in Sympy [A] time = 65.3364, size = 258, normalized size = 0.92

$$-\frac{(a+bx)^{\frac{5}{2}}(c+dx)^{\frac{7}{2}}}{6cx^6}+\frac{(a+bx)^{\frac{5}{2}}(c+dx)^{\frac{5}{2}}(ad-bc)}{12acx^5}+\frac{5(a+bx)^{\frac{5}{2}}(c+dx)^{\frac{3}{2}}(ad-bc)^2}{96a^2cx^4}+\frac{5(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{3}{2}}(ad-bc)^3}{192a^2c^2x^3}-\frac{5\sqrt{a+bx}(c+dx)^{\frac{3}{2}}(ad-bc)^4}{256a^2c^3x^2}+\frac{5\sqrt{a+bx}\sqrt{c+dx}(ad-bc)^5}{512a^3c^3x}+\frac{5(ad-bc)^6\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{512a^{\frac{7}{2}}c^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(d*x+c)**(5/2)/x**7,x)
```

```
[Out] -(a + b*x)**(5/2)*(c + d*x)**(7/2)/(6*c*x**6) + (a + b*x)**(5/2)*
(c + d*x)**(5/2)*(a*d - b*c)/(12*a*c*x**5) + 5*(a + b*x)**(5/2)*(
```

```
c + d*x)**(3/2)*(a*d - b*c)**2/(96*a**2*c*x**4) + 5*(a + b*x)**(3
/2)*(c + d*x)**(3/2)*(a*d - b*c)**3/(192*a**2*c**2*x**3) - 5*sqrt
(a + b*x)*(c + d*x)**(3/2)*(a*d - b*c)**4/(256*a**2*c**3*x**2) +
5*sqrt(a + b*x)*sqrt(c + d*x)*(a*d - b*c)**5/(512*a**3*c**3*x) +
5*(a*d - b*c)**6*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*
x)))/(512*a**(7/2)*c**(7/2))
```

Mathematica [A] time = 0.460026, size = 337, normalized size = 1.2

$$-2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}\left(a^5\left(256c^5+640c^4dx+432c^3d^2x^2+8c^2d^3x^3-10cd^4x^4+15d^5x^5\right)+a^4bcx\left(640c^4+1696c^3dx+1\right.\right.$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(5/2)*(c + d*x)^(5/2))/x^7,x]
```

```
[Out] (-2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]*(15*b^5*c^5*x^5 -
 5*a*b^4*c^4*x^4*(2*c + 17*d*x) + 2*a^2*b^3*c^3*x^3*(4*c^2 + 28*c
*d*x + 99*d^2*x^2) + 6*a^3*b^2*c^2*x^2*(72*c^3 + 212*c^2*d*x + 19
8*c*d^2*x^2 + 33*d^3*x^3) + a^4*b*c*x*(640*c^4 + 1696*c^3*d*x + 1
272*c^2*d^2*x^2 + 56*c*d^3*x^3 - 85*d^4*x^4) + a^5*(256*c^5 + 640
*c^4*d*x + 432*c^3*d^2*x^2 + 8*c^2*d^3*x^3 - 10*c*d^4*x^4 + 15*d^
5*x^5)) - 15*(b*c - a*d)^6*x^6*Log[x] + 15*(b*c - a*d)^6*x^6*Log[
2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c +
d*x]])/(3072*a^(7/2)*c^(7/2)*x^6)
```

Maple [B] time = 0.036, size = 1271, normalized size = 4.5

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(d*x+c)^(5/2)/x^7,x)
```

```
[Out] 1/3072*(b*x+a)^(1/2)*(d*x+c)^(1/2)/a^3/c^3*(-16*c^5*(b*d*x^2+a*d*
x+b*c*x+a*c)^(1/2)*b^3*a^2*(a*c)^(1/2)*x^3-1280*(b*d*x^2+a*d*x+b*
c*x+a*c)^(1/2)*d*a^5*(a*c)^(1/2)*c^4*x-1280*c^5*(b*d*x^2+a*d*x+b*
c*x+a*c)^(1/2)*b*a^4*(a*c)^(1/2)*x+20*(b*d*x^2+a*d*x+b*c*x+a*c)^(
1/2)*d^4*a^5*(a*c)^(1/2)*c*x^4-90*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(
b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^6*a^5*b*c*d^5+225*ln((
a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/
x)*x^6*a^4*b^2*c^2*d^4-300*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2
+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^6*a^3*b^3*c^3*d^3+225*ln((a*d
*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*
x^6*a^2*b^4*c^4*d^2-90*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d
*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^6*a*b^5*c^5*d+20*c^5*(b*d*x^2+a*d
*x+b*c*x+a*c)^(1/2)*b^4*a*(a*c)^(1/2)*x^4-16*(b*d*x^2+a*d*x+b*c*x
+a*c)^(1/2)*d^3*a^5*(a*c)^(1/2)*c^2*x^3-864*(b*d*x^2+a*d*x+b*c*x+
a*c)^(1/2)*d^2*a^5*(a*c)^(1/2)*c^3*x^2-864*c^5*(b*d*x^2+a*d*x+b*c
*x+a*c)^(1/2)*b^2*a^3*(a*c)^(1/2)*x^2-112*(b*d*x^2+a*d*x+b*c*x+a*
c)^(1/2)*d^3*b*a^4*(a*c)^(1/2)*c^2*x^4-2544*(b*d*x^2+a*d*x+b*c*x+
a*c)^(1/2)*b^2*d*a^3*(a*c)^(1/2)*c^4*x^3-2376*(b*d*x^2+a*d*x+b*c*
x+a*c)^(1/2)*d^2*b^2*a^3*(a*c)^(1/2)*c^3*x^4-112*(b*d*x^2+a*d*x+b
*c*x+a*c)^(1/2)*d*b^3*a^2*(a*c)^(1/2)*c^4*x^4-2544*(b*d*x^2+a*d*x
+b*c*x+a*c)^(1/2)*b*d^2*a^4*(a*c)^(1/2)*c^3*x^3+170*(b*d*x^2+a*d*
x+b*c*x+a*c)^(1/2)*d^4*b*a^4*(a*c)^(1/2)*c*x^5-396*(b*d*x^2+a*d*x
+b*c*x+a*c)^(1/2)*d^3*b^2*a^3*(a*c)^(1/2)*c^2*x^5-396*(b*d*x^2+a*
d*x+b*c*x+a*c)^(1/2)*d^2*b^3*a^2*(a*c)^(1/2)*c^3*x^5-3392*(b*d*x^
2+a*d*x+b*c*x+a*c)^(1/2)*d*b*a^4*(a*c)^(1/2)*c^4*x^2+15*ln((a*d*x
+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)+2*a*c)/x)*x^
6*a^6*d^6+15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(b*d*x^2+a*d*x+b*c*x+a
*c)^(1/2)+2*a*c)/x)*x^6*b^6*c^6-512*c^5*(b*d*x^2+a*d*x+b*c*x+a*c)
^(1/2)*a^5*(a*c)^(1/2)-30*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*d^5*a^5
*(a*c)^(1/2)*x^5-30*c^5*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*b^5*(a*c)
```

```
^(1/2)*x^5+170*(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)*d*b^4*a*(a*c)^(1/2
)*c^4*x^5)/(b*d*x^2+a*d*x+b*c*x+a*c)^(1/2)/x^6/(a*c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(5/2)*(d*x + c)^(5/2)/x^7,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 12.1599, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(5/2)*(d*x + c)^(5/2)/x^7,x, algorithm="fricas")
```

```
[Out] [1/6144*(15*(b^6*c^6 - 6*a*b^5*c^5*d + 15*a^2*b^4*c^4*d^2 - 20*a^
3*b^3*c^3*d^3 + 15*a^4*b^2*c^2*d^4 - 6*a^5*b*c*d^5 + a^6*d^6)*x^6
*log((4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*
x + c) + (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(a*
b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2) - 4*(256*a^5*c^5 + (15*b^5*c^
5 - 85*a*b^4*c^4*d + 198*a^2*b^3*c^3*d^2 + 198*a^3*b^2*c^2*d^3 -
85*a^4*b*c*d^4 + 15*a^5*d^5)*x^5 - 2*(5*a*b^4*c^5 - 28*a^2*b^3*c^
4*d - 594*a^3*b^2*c^3*d^2 - 28*a^4*b*c^2*d^3 + 5*a^5*c*d^4)*x^4 +
 8*(a^2*b^3*c^5 + 159*a^3*b^2*c^4*d + 159*a^4*b*c^3*d^2 + a^5*c^2
*d^3)*x^3 + 16*(27*a^3*b^2*c^5 + 106*a^4*b*c^4*d + 27*a^5*c^3*d^2
)*x^2 + 640*(a^4*b*c^5 + a^5*c^4*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sq
rt(d*x + c))/(sqrt(a*c)*a^3*c^3*x^6), 1/3072*(15*(b^6*c^6 - 6*a*b
^5*c^5*d + 15*a^2*b^4*c^4*d^2 - 20*a^3*b^3*c^3*d^3 + 15*a^4*b^2*c
^2*d^4 - 6*a^5*b*c*d^5 + a^6*d^6)*x^6*arctan(1/2*(2*a*c + (b*c +
a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d*x + c)*a*c)) - 2*(256*a^
5*c^5 + (15*b^5*c^5 - 85*a*b^4*c^4*d + 198*a^2*b^3*c^3*d^2 + 198*
a^3*b^2*c^2*d^3 - 85*a^4*b*c*d^4 + 15*a^5*d^5)*x^5 - 2*(5*a*b^4*c
^5 - 28*a^2*b^3*c^4*d - 594*a^3*b^2*c^3*d^2 - 28*a^4*b*c^2*d^3 +
5*a^5*c*d^4)*x^4 + 8*(a^2*b^3*c^5 + 159*a^3*b^2*c^4*d + 159*a^4*b
*c^3*d^2 + a^5*c^2*d^3)*x^3 + 16*(27*a^3*b^2*c^5 + 106*a^4*b*c^4*
d + 27*a^5*c^3*d^2)*x^2 + 640*(a^4*b*c^5 + a^5*c^4*d)*x)*sqrt(-a*
c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(-a*c)*a^3*c^3*x^6)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**(5/2)*(d*x+c)**(5/2)/x**7,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*(d*x + c)^(5/2)/x^7,x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.662 $\int \frac{x^2(a+bx)^{5/2}}{\sqrt{c+dx}}\,dx$

Optimal. Leaf size=314

$$\frac{\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^2\left(3a^2d^2+14abcd+63b^2c^2\right)}{128b^2d^5} - \frac{(a+bx)^{3/2}\sqrt{c+dx}(bc-ad)\left(3a^2d^2+14abcd+63b^2c^2\right)}{192b^2d^4} + \frac{(a+bx)^{5/2}\sqrt{c+dx}\left(3a^2d^2+14abcd+63b^2c^2\right)}{240b^2d^3} - \frac{(bc-ad)^3\left(3a^2d^2+14abcd+63b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{128b^{5/2}d^{11/2}} - \frac{3(a+bx)^{7/2}\sqrt{c+dx}(ad+3bc)}{40b^2d^2} + \frac{x(a+bx)^{7/2}\sqrt{c+dx}}{5bd}$$

```
[Out] ((b*c - a*d)^2*(63*b^2*c^2 + 14*a*b*c*d + 3*a^2*d^2)*Sqrt[a + b*x
]*Sqrt[c + d*x])/(128*b^2*d^5) - ((b*c - a*d)*(63*b^2*c^2 + 14*a*
b*c*d + 3*a^2*d^2)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(192*b^2*d^4) +
 ((63*b^2*c^2 + 14*a*b*c*d + 3*a^2*d^2)*(a + b*x)^(5/2)*Sqrt[c +
d*x])/(240*b^2*d^3) - (3*(3*b*c + a*d)*(a + b*x)^(7/2)*Sqrt[c + d
*x])/(40*b^2*d^2) + (x*(a + b*x)^(7/2)*Sqrt[c + d*x])/(5*b*d) - (
(b*c - a*d)^3*(63*b^2*c^2 + 14*a*b*c*d + 3*a^2*d^2)*ArcTanh[(Sqrt
[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(128*b^(5/2)*d^(11/2
))
```

Rubi [A] time = 0.669547, antiderivative size = 314, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.227$

$$\frac{\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^2\left(3a^2d^2+14abcd+63b^2c^2\right)}{128b^2d^5} - \frac{(a+bx)^{3/2}\sqrt{c+dx}(bc-ad)\left(3a^2d^2+14abcd+63b^2c^2\right)}{192b^2d^4} + \frac{(a+bx)^{5/2}\sqrt{c+dx}\left(3a^2d^2+14abcd+63b^2c^2\right)}{240b^2d^3} - \frac{(bc-ad)^3\left(3a^2d^2+14abcd+63b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{128b^{5/2}d^{11/2}} - \frac{3(a+bx)^{7/2}\sqrt{c+dx}(ad+3bc)}{40b^2d^2} + \frac{x(a+bx)^{7/2}\sqrt{c+dx}}{5bd}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^2*(a + b*x)^(5/2))/Sqrt[c + d*x],x]
```

```
[Out] ((b*c - a*d)^2*(63*b^2*c^2 + 14*a*b*c*d + 3*a^2*d^2)*Sqrt[a + b*x
]*Sqrt[c + d*x])/(128*b^2*d^5) - ((b*c - a*d)*(63*b^2*c^2 + 14*a*
b*c*d + 3*a^2*d^2)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(192*b^2*d^4) +
 ((63*b^2*c^2 + 14*a*b*c*d + 3*a^2*d^2)*(a + b*x)^(5/2)*Sqrt[c +
d*x])/(240*b^2*d^3) - (3*(3*b*c + a*d)*(a + b*x)^(7/2)*Sqrt[c + d
*x])/(40*b^2*d^2) + (x*(a + b*x)^(7/2)*Sqrt[c + d*x])/(5*b*d) - (
(b*c - a*d)^3*(63*b^2*c^2 + 14*a*b*c*d + 3*a^2*d^2)*ArcTanh[(Sqrt
[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(128*b^(5/2)*d^(11/2
))
```

Rubi in Sympy [A] time = 55.5684, size = 301, normalized size = 0.96

$$\frac{x(a+bx)^{\frac{7}{2}}\sqrt{c+dx}}{5bd}-\frac{3(a+bx)^{\frac{7}{2}}\sqrt{c+dx}\,(ad+3bc)}{40b^2d^2}+\frac{(a+bx)^{\frac{5}{2}}\sqrt{c+dx}\left(3a^2d^2+14abcd+63b^2c^2\right)}{240b^2d^3}+\frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}\,(ad-bc)\left(3a^2d^2+14abcd+63b^2c^2\right)}{192b^2d^4}+\frac{\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)^2\left(3a^2d^2+14abcd+63b^2c^2\right)}{128b^2d^5}+\frac{(ad-bc)^3\left(3a^2d^2+14abcd+63b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{128b^{\frac{5}{2}}d^{\frac{11}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(b*x+a)**(5/2)/(d*x+c)**(1/2),x)
```

```
[Out] x*(a + b*x)**(7/2)*sqrt(c + d*x)/(5*b*d) - 3*(a + b*x)**(7/2)*sqr
t(c + d*x)*(a*d + 3*b*c)/(40*b**2*d**2) + (a + b*x)**(5/2)*sqrt(c
 + d*x)*(3*a**2*d**2 + 14*a*b*c*d + 63*b**2*c**2)/(240*b**2*d**3)
 + (a + b*x)**(3/2)*sqrt(c + d*x)*(a*d - b*c)*(3*a**2*d**2 + 14*a
*b*c*d + 63*b**2*c**2)/(192*b**2*d**4) + sqrt(a + b*x)*sqrt(c + d
*x)*(a*d - b*c)**2*(3*a**2*d**2 + 14*a*b*c*d + 63*b**2*c**2)/(128
*b**2*d**5) + (a*d - b*c)**3*(3*a**2*d**2 + 14*a*b*c*d + 63*b**2*
c**2)*atanh(sqrt(b)*sqrt(c + d*x)/(sqrt(d)*sqrt(a + b*x)))/(128*b
**(5/2)*d**(11/2))
```

Mathematica [A] time = 0.261616, size = 256, normalized size = 0.82

$$\frac{\sqrt{a+bx}\sqrt{c+dx}\left(-45a^4d^4+30a^3bd^3(dx-3c)+2a^2b^2d^2\left(782c^2-481cdx+372d^2x^2\right)+2ab^3d\left(-1155c^3+749c^2dx-592cc\right.\right.}{1920b^2d^5}-\frac{(bc-ad)^3\left(3a^2d^2+14abcd+63b^2c^2\right)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{256b^{5/2}d^{11/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^2*(a + b*x)^(5/2))/Sqrt[c + d*x],x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(-45*a^4*d^4 + 30*a^3*b*d^3*(-3*c +
d*x) + 2*a^2*b^2*d^2*(782*c^2 - 481*c*d*x + 372*d^2*x^2) + 2*a*b^
3*d*(-1155*c^3 + 749*c^2*d*x - 592*c*d^2*x^2 + 504*d^3*x^3) + b^4
*(945*c^4 - 630*c^3*d*x + 504*c^2*d^2*x^2 - 432*c*d^3*x^3 + 384*d
^4*x^4)))/(1920*b^2*d^5) - ((b*c - a*d)^3*(63*b^2*c^2 + 14*a*b*c*
d + 3*a^2*d^2)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a
 + b*x]*Sqrt[c + d*x]])/(256*b^(5/2)*d^(11/2))
```

Maple [B] time = 0.036, size = 788, normalized size = 2.5

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(b*x+a)^(5/2)/(d*x+c)^(1/2),x)
```

```
[Out] 1/3840*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(768*x^4*b^4*d^4*((b*x+a)*(d*x
+c))^(1/2)*(b*d)^(1/2)+2016*x^3*a*b^3*d^4*((b*x+a)*(d*x+c))^(1/2)
*(b*d)^(1/2)-864*x^3*b^4*c*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2
)+1488*x^2*a^2*b^2*d^4*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-2368*x
^2*a*b^3*c*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+1008*x^2*b^4*c
```

```
^2*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+45*ln(1/2*(2*b*d*x+2*(
(b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^5*d^5+
75*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)
/(b*d)^(1/2))*a^4*b*c*d^4+450*c^2*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x
+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^3*d^3*b^2-2250*c^3
*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(
b*d)^(1/2))*a^2*b^3*d^2+2625*c^4*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+
c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a*b^4*d-945*c^5*ln(1/
2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(
1/2))*b^5+60*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*x*a^3*b*d^4-1924
*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*x*a^2*b^2*c*d^3+2996*(b*d)^(
1/2)*((b*x+a)*(d*x+c))^(1/2)*x*a*b^3*c^2*d^2-1260*(b*d)^(1/2)*((b
*x+a)*(d*x+c))^(1/2)*x*b^4*c^3*d-90*(b*d)^(1/2)*((b*x+a)*(d*x+c))
^(1/2)*a^4*d^4-180*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*a^3*b*c*d^
3+3128*c^2*((b*x+a)*(d*x+c))^(1/2)*a^2*d^2*b^2*(b*d)^(1/2)-4620*c
^3*((b*x+a)*(d*x+c))^(1/2)*a*b^3*d*(b*d)^(1/2)+1890*c^4*((b*x+a)*
(d*x+c))^(1/2)*b^4*(b*d)^(1/2))/((b*x+a)*(d*x+c))^(1/2)/d^5/b^2/(
b*d)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*x^2/sqrt(d*x + c),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.297848, size = 1, normalized size = 0.

$$\left[\frac{4\left(384\, b^4 d^4 x^4 + 945\, b^4 c^4 - 2310\, ab^3 c^3 d + 1564\, a^2 b^2 c^2 d^2 - 90\, a^3 bcd^3 - 45\, a^4 d^4 - 144\left(3\, b^4 cd^3 - 7\, ab^3 d^4\right) x^3 + 8\left(63\, b^4 c^2 d^2\right.\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*x^2/sqrt(d*x + c),x, algorithm="fricas")
```

```
[Out] [1/7680*(4*(384*b^4*d^4*x^4 + 945*b^4*c^4 - 2310*a*b^3*c^3*d + 15
64*a^2*b^2*c^2*d^2 - 90*a^3*b*c*d^3 - 45*a^4*d^4 - 144*(3*b^4*c*d
^3 - 7*a*b^3*d^4)*x^3 + 8*(63*b^4*c^2*d^2 - 148*a*b^3*c*d^3 + 93*
a^2*b^2*d^4)*x^2 - 2*(315*b^4*c^3*d - 749*a*b^3*c^2*d^2 + 481*a^2
*b^2*c*d^3 - 15*a^3*b*d^4)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x +
c) - 15*(63*b^5*c^5 - 175*a*b^4*c^4*d + 150*a^2*b^3*c^3*d^2 - 30*
a^3*b^2*c^2*d^3 - 5*a^4*b*c*d^4 - 3*a^5*d^5)*log(4*(2*b^2*d^2*x +
 b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2
+ b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b
*d)))/(sqrt(b*d)*b^2*d^5), 1/3840*(2*(384*b^4*d^4*x^4 + 945*b^4*c
^4 - 2310*a*b^3*c^3*d + 1564*a^2*b^2*c^2*d^2 - 90*a^3*b*c*d^3 - 4
5*a^4*d^4 - 144*(3*b^4*c*d^3 - 7*a*b^3*d^4)*x^3 + 8*(63*b^4*c^2*d
^2 - 148*a*b^3*c*d^3 + 93*a^2*b^2*d^4)*x^2 - 2*(315*b^4*c^3*d - 7
49*a*b^3*c^2*d^2 + 481*a^2*b^2*c*d^3 - 15*a^3*b*d^4)*x)*sqrt(-b*d
)*sqrt(b*x + a)*sqrt(d*x + c) - 15*(63*b^5*c^5 - 175*a*b^4*c^4*d
+ 150*a^2*b^3*c^3*d^2 - 30*a^3*b^2*c^2*d^3 - 5*a^4*b*c*d^4 - 3*a^
5*d^5)*arctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a)
*sqrt(d*x + c)*b*d)))/(sqrt(-b*d)*b^2*d^5)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(b*x+a)**(5/2)/(d*x+c)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.262643, size = 516, normalized size = 1.64

$$\left(\sqrt{b^2c + (bx+a)bd - abd}\left(2\left(4\,(bx+a)\left(6\,(bx+a)\left(\frac{8\,(bx+a)}{b^3d} - \frac{9\,b^7cd^7+11\,ab^6d^8}{b^9d^9}\right) + \frac{63\,b^8c^2d^6+14\,ab^7cd^7+3\,a^2b^6d^8}{b^9d^9}\right) - \frac{5\,(63\,b^9c^3d^5-49\,a\cdots}{}\right.\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*x^2/sqrt(d*x + c),x, algorithm="giac")
```

```
[Out] 1/1920*(sqrt(b^2*c + (b*x + a)*b*d - a*b*d)*(2*(4*(b*x + a)*(6*(b
*x + a)*(8*(b*x + a)/(b^3*d) - (9*b^7*c*d^7 + 11*a*b^6*d^8)/(b^9*
d^9)) + (63*b^8*c^2*d^6 + 14*a*b^7*c*d^7 + 3*a^2*b^6*d^8)/(b^9*d^
9)) - 5*(63*b^9*c^3*d^5 - 49*a*b^8*c^2*d^6 - 11*a^2*b^7*c*d^7 - 3
*a^3*b^6*d^8)/(b^9*d^9))*(b*x + a) + 15*(63*b^10*c^4*d^4 - 112*a*
b^9*c^3*d^5 + 38*a^2*b^8*c^2*d^6 + 8*a^3*b^7*c*d^7 + 3*a^4*b^6*d^
8)/(b^9*d^9))*sqrt(b*x + a) + 15*(63*b^5*c^5 - 175*a*b^4*c^4*d +
150*a^2*b^3*c^3*d^2 - 30*a^3*b^2*c^2*d^3 - 5*a^4*b*c*d^4 - 3*a^5*
d^5)*ln(abs(-sqrt(b*d)*sqrt(b*x + a) + sqrt(b^2*c + (b*x + a)*b*d
 - a*b*d)))/(sqrt(b*d)*b^2*d^5))*b/abs(b)
```

3.663 $\int \frac{x(a+bx)^{5/2}}{\sqrt{c+dx}}\,dx$

Optimal. Leaf size=217

$$\frac{5(bc-ad)^3(ad+7bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{64b^{3/2}d^{9/2}}-\frac{5\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^2(ad+7bc)}{64bd^4}+\frac{5(a+bx)^{3/2}\sqrt{c+dx}(bc-ad)(ad+7bc)}{96bd^3}-\frac{(a+bx)^{5/2}\sqrt{c+dx}(ad+7bc)}{24bd^2}+\frac{(a+bx)^{7/2}\sqrt{c+dx}}{4bd}$$

```
[Out] (-5*(b*c - a*d)^2*(7*b*c + a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(64*
b*d^4) + (5*(b*c - a*d)*(7*b*c + a*d)*(a + b*x)^(3/2)*Sqrt[c + d*
x])/(96*b*d^3) - ((7*b*c + a*d)*(a + b*x)^(5/2)*Sqrt[c + d*x])/(2
4*b*d^2) + ((a + b*x)^(7/2)*Sqrt[c + d*x])/(4*b*d) + (5*(b*c - a*
d)^3*(7*b*c + a*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[
c + d*x])])/(64*b^(3/2)*d^(9/2))
```

Rubi [A] time = 0.330674, antiderivative size = 217, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.2

$$\frac{5(bc-ad)^3(ad+7bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{64b^{3/2}d^{9/2}}-\frac{5\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^2(ad+7bc)}{64bd^4}+\frac{5(a+bx)^{3/2}\sqrt{c+dx}(bc-ad)(ad+7bc)}{96bd^3}-\frac{(a+bx)^{5/2}\sqrt{c+dx}(ad+7bc)}{24bd^2}+\frac{(a+bx)^{7/2}\sqrt{c+dx}}{4bd}$$

Antiderivative was successfully verified.

```
[In]  Int[(x*(a + b*x)^(5/2))/Sqrt[c + d*x],x]
```

```
[Out] (-5*(b*c - a*d)^2*(7*b*c + a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(64*
b*d^4) + (5*(b*c - a*d)*(7*b*c + a*d)*(a + b*x)^(3/2)*Sqrt[c + d*
x])/(96*b*d^3) - ((7*b*c + a*d)*(a + b*x)^(5/2)*Sqrt[c + d*x])/(2
4*b*d^2) + ((a + b*x)^(7/2)*Sqrt[c + d*x])/(4*b*d) + (5*(b*c - a*
d)^3*(7*b*c + a*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[
c + d*x])])/(64*b^(3/2)*d^(9/2))
```

Rubi in Sympy [A] time = 33.7397, size = 196, normalized size = 0.9

$$\frac{(a+bx)^{\frac{7}{2}}\sqrt{c+dx}}{4bd}-\frac{(a+bx)^{\frac{5}{2}}\sqrt{c+dx}\,(ad+7bc)}{24bd^2}-\frac{5\,(a+bx)^{\frac{3}{2}}\sqrt{c+dx}\,(ad-bc)\,(ad+7bc)}{96bd^3}-\frac{5\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)^2\,(ad+7bc)}{64bd^4}-\frac{5\,(ad-bc)^3\,(ad+7bc)\,\mathrm{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{64b^{\frac{3}{2}}d^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(b*x+a)**(5/2)/(d*x+c)**(1/2),x)
```

```
[Out] (a + b*x)**(7/2)*sqrt(c + d*x)/(4*b*d) - (a + b*x)**(5/2)*sqrt(c
+ d*x)*(a*d + 7*b*c)/(24*b*d**2) - 5*(a + b*x)**(3/2)*sqrt(c + d*
x)*(a*d - b*c)*(a*d + 7*b*c)/(96*b*d**3) - 5*sqrt(a + b*x)*sqrt(c
 + d*x)*(a*d - b*c)**2*(a*d + 7*b*c)/(64*b*d**4) - 5*(a*d - b*c)*
*3*(a*d + 7*b*c)*atanh(sqrt(b)*sqrt(c + d*x)/(sqrt(d)*sqrt(a + b*
x)))/(64*b**(3/2)*d**(9/2))
```

Mathematica [A] time = 0.193818, size = 188, normalized size = 0.87

$$\frac{\sqrt{a+bx}\sqrt{c+dx}\left(15a^3d^3+a^2bd^2(118dx-191c)+ab^2d\left(265c^2-172cdx+136d^2x^2\right)+b^3\left(-105c^3+70c^2dx-56cd^2x^2+48\right.\right.}{192bd^4}$$
$$+\frac{5(ad+7bc)(bc-ad)^3\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{128b^{3/2}d^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x*(a + b*x)^(5/2))/Sqrt[c + d*x],x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(15*a^3*d^3 + a^2*b*d^2*(-191*c + 11
8*d*x) + a*b^2*d*(265*c^2 - 172*c*d*x + 136*d^2*x^2) + b^3*(-105*
c^3 + 70*c^2*d*x - 56*c*d^2*x^2 + 48*d^3*x^3)))/(192*b*d^4) + (5*
(b*c - a*d)^3*(7*b*c + a*d)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*S
qrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(128*b^(3/2)*d^(9/2))
```

Maple [B] time = 0.029, size = 574, normalized size = 2.7

$$-\frac{1}{384\,d^4b}\sqrt{bx+a}\sqrt{dx+c}\left(-96\,x^3b^3d^3\sqrt{(bx+a)(dx+c)}\sqrt{bd}-272\,x^2ab^2d^3\sqrt{(bx+a)(dx+c)}\sqrt{bd}+112\,x^2b^3cd^2\sqrt{(bx+a)}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(b*x+a)^(5/2)/(d*x+c)^(1/2),x)
```

```
[Out] -1/384*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(-96*x^3*b^3*d^3*((b*x+a)*(d*x
+c))^(1/2)*(b*d)^(1/2)-272*x^2*a*b^2*d^3*((b*x+a)*(d*x+c))^(1/2)*
(b*d)^(1/2)+112*x^2*b^3*c*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)
+15*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c
)/(b*d)^(1/2))*a^4*d^4+60*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/
2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^3*b*c*d^3-270*ln(1/2*(2*b*
d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a
^2*b^2*c^2*d^2+300*c^3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*
(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a*b^3*d-105*c^4*ln(1/2*(2*b*d*x
+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*b^4-
236*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*x*a^2*b*d^3+344*(b*d)^(1/
2)*((b*x+a)*(d*x+c))^(1/2)*x*a*b^2*c*d^2-140*(b*d)^(1/2)*((b*x+a)
*(d*x+c))^(1/2)*x*b^3*c^2*d-30*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2
)*a^3*d^3+382*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*a^2*b*c*d^2-530
*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*a*b^2*c^2*d+210*c^3*((b*x+a)
*(d*x+c))^(1/2)*b^3*(b*d)^(1/2))/((b*x+a)*(d*x+c))^(1/2)/d^4/b/(b
*d)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*x/sqrt(d*x + c),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.276865, size = 1, normalized size = 0.

$$\left[\frac{4\left(48\,b^3d^3x^3-105\,b^3c^3+265\,ab^2c^2d-191\,a^2bcd^2+15\,a^3d^3-8\left(7\,b^3cd^2-17\,ab^2d^3\right)x^2+2\left(35\,b^3c^2d-86\,ab^2cd^2+59\,a^2\right.\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*x/sqrt(d*x + c),x, algorithm="fricas")
```

```
[Out] [1/768*(4*(48*b^3*d^3*x^3 - 105*b^3*c^3 + 265*a*b^2*c^2*d - 191*a
^2*b*c*d^2 + 15*a^3*d^3 - 8*(7*b^3*c*d^2 - 17*a*b^2*d^3)*x^2 + 2*
(35*b^3*c^2*d - 86*a*b^2*c*d^2 + 59*a^2*b*d^3)*x)*sqrt(b*d)*sqrt(
b*x + a)*sqrt(d*x + c) - 15*(7*b^4*c^4 - 20*a*b^3*c^3*d + 18*a^2*
b^2*c^2*d^2 - 4*a^3*b*c*d^3 - a^4*d^4)*log(-4*(2*b^2*d^2*x + b^2*
c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2
*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))
/(sqrt(b*d)*b*d^4), 1/384*(2*(48*b^3*d^3*x^3 - 105*b^3*c^3 + 265*
a*b^2*c^2*d - 191*a^2*b*c*d^2 + 15*a^3*d^3 - 8*(7*b^3*c*d^2 - 17*
a*b^2*d^3)*x^2 + 2*(35*b^3*c^2*d - 86*a*b^2*c*d^2 + 59*a^2*b*d^3)
*x)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 15*(7*b^4*c^4 - 20*a
*b^3*c^3*d + 18*a^2*b^2*c^2*d^2 - 4*a^3*b*c*d^3 - a^4*d^4)*arctan
(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c
)*b*d)))/(sqrt(-b*d)*b*d^4)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(b*x+a)**(5/2)/(d*x+c)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.250527, size = 392, normalized size = 1.81

$$\frac{\left(\sqrt{b^2c + (bx+a)bd - abd}\left(2\,(bx+a)\left(4\,(bx+a)\left(\frac{6\,(bx+a)}{b^2d} - \frac{7\,b^3cd^5+ab^2d^6}{b^4d^7}\right) + \frac{5\,(7\,b^4c^2d^4-6\,ab^3cd^5-a^2b^2d^6)}{b^4d^7}\right) - \frac{15\,(7\,b^5c^3d^3-13\,ab^4c^2d\cdots}{b^4\cdots}\right)\right)}{192\,|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*x/sqrt(d*x + c),x, algorithm="giac")
```

```
[Out] 1/192*(sqrt(b^2*c + (b*x + a)*b*d - a*b*d)*(2*(b*x + a)*(4*(b*x +
 a)*(6*(b*x + a)/(b^2*d) - (7*b^3*c*d^5 + a*b^2*d^6)/(b^4*d^7)) +
 5*(7*b^4*c^2*d^4 - 6*a*b^3*c*d^5 - a^2*b^2*d^6)/(b^4*d^7)) - 15*
(7*b^5*c^3*d^3 - 13*a*b^4*c^2*d^4 + 5*a^2*b^3*c*d^5 + a^3*b^2*d^6
)/(b^4*d^7))*sqrt(b*x + a) - 15*(7*b^4*c^4 - 20*a*b^3*c^3*d + 18*
a^2*b^2*c^2*d^2 - 4*a^3*b*c*d^3 - a^4*d^4)*ln(abs(-sqrt(b*d)*sqrt
(b*x + a) + sqrt(b^2*c + (b*x + a)*b*d - a*b*d)))/(sqrt(b*d)*b*d^
4))*b/abs(b)
```

3.664 $\int \frac{(a+bx)^{5/2}}{\sqrt{c+dx}}\,dx$

Optimal. Leaf size=148

$$-\frac{5(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8\sqrt{b}d^{7/2}}+\frac{5\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^2}{8d^3}-\frac{5(a+bx)^{3/2}\sqrt{c+dx}(bc-ad)}{12d^2}+\frac{(a+bx)^{5/2}\sqrt{c+dx}}{3d}$$

```
[Out] (5*(b*c - a*d)^2*Sqrt[a + b*x]*Sqrt[c + d*x])/(8*d^3) - (5*(b*c -
 a*d)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(12*d^2) + ((a + b*x)^(5/2)*
Sqrt[c + d*x])/(3*d) - (5*(b*c - a*d)^3*ArcTanh[(Sqrt[d]*Sqrt[a +
 b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(8*Sqrt[b]*d^(7/2))
```

Rubi [A] time = 0.183995, antiderivative size = 148, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.158

$$-\frac{5(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8\sqrt{b}d^{7/2}}+\frac{5\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^2}{8d^3}-\frac{5(a+bx)^{3/2}\sqrt{c+dx}(bc-ad)}{12d^2}+\frac{(a+bx)^{5/2}\sqrt{c+dx}}{3d}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(5/2)/Sqrt[c + d*x],x]
```

```
[Out] (5*(b*c - a*d)^2*Sqrt[a + b*x]*Sqrt[c + d*x])/(8*d^3) - (5*(b*c -
 a*d)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(12*d^2) + ((a + b*x)^(5/2)*
Sqrt[c + d*x])/(3*d) - (5*(b*c - a*d)^3*ArcTanh[(Sqrt[d]*Sqrt[a +
 b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(8*Sqrt[b]*d^(7/2))
```

Rubi in Sympy [A] time = 22.0784, size = 133, normalized size = 0.9

$$\frac{(a+bx)^{\frac{5}{2}}\sqrt{c+dx}}{3d}+\frac{5\,(a+bx)^{\frac{3}{2}}\sqrt{c+dx}\,(ad-bc)}{12d^2}+\frac{5\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)^2}{8d^3}+\frac{5\,(ad-bc)^3\,\mathrm{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8\sqrt{b}d^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)/(d*x+c)**(1/2),x)
```

```
[Out] (a + b*x)**(5/2)*sqrt(c + d*x)/(3*d) + 5*(a + b*x)**(3/2)*sqrt(c
+ d*x)*(a*d - b*c)/(12*d**2) + 5*sqrt(a + b*x)*sqrt(c + d*x)*(a*d
 - b*c)**2/(8*d**3) + 5*(a*d - b*c)**3*atanh(sqrt(d)*sqrt(a + b*x
)/(sqrt(b)*sqrt(c + d*x)))/(8*sqrt(b)*d**(7/2))
```

Mathematica [A] time = 0.125739, size = 138, normalized size = 0.93

$$\frac{\sqrt{a+bx}\sqrt{c+dx}\left(33a^2d^2+2abd(13dx-20c)+b^2\left(15c^2-10cdx+8d^2x^2\right)\right)}{24d^3}-\frac{5(bc-ad)^3\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{16\sqrt{b}d^{7/2}}$$

Antiderivative was successfully verified.

```
[In]   Integrate[(a + b*x)^(5/2)/Sqrt[c + d*x],x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(33*a^2*d^2 + 2*a*b*d*(-20*c + 13*d*
x) + b^2*(15*c^2 - 10*c*d*x + 8*d^2*x^2)))/(24*d^3) - (5*(b*c - a
*d)^3*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*S
qrt[c + d*x]])/(16*Sqrt[b]*d^(7/2))
```

Maple [B]   time = 0.007, size = 465, normalized size = 3.1

$$\begin{aligned}
&\frac{1}{3d}(bx+a)^{\frac{5}{2}}\sqrt{dx+c}+\frac{5a}{12d}(bx+a)^{\frac{3}{2}}\sqrt{dx+c}-\frac{5bc}{12d^2}(bx+a)^{\frac{3}{2}}\sqrt{dx+c}\\
&+\frac{5a^2}{8d}\sqrt{bx+a}\sqrt{dx+c}-\frac{5abc}{4d^2}\sqrt{bx+a}\sqrt{dx+c}+\frac{5b^2c^2}{8d^3}\sqrt{bx+a}\sqrt{dx+c}\\
&+\frac{5a^3}{16}\sqrt{(bx+a)(dx+c)}\ln\left(1\left(\frac{ad}{2}+\frac{bc}{2}+bdx\right)\frac{1}{\sqrt{bd}}+\sqrt{dx^2b+(ad+bc)x+ac}\right)\frac{1}{\sqrt{bx+a}}\frac{1}{\sqrt{dx+c}}\frac{1}{\sqrt{bd}}\\
&-\frac{15a^2bc}{16d}\sqrt{(bx+a)(dx+c)}\ln\left(1\left(\frac{ad}{2}+\frac{bc}{2}+bdx\right)\frac{1}{\sqrt{bd}}+\sqrt{dx^2b+(ad+bc)x+ac}\right)\frac{1}{\sqrt{bx+a}}\frac{1}{\sqrt{dx+c}}\frac{1}{\sqrt{bd}}\\
&+\frac{15ab^2c^2}{16d^2}\sqrt{(bx+a)(dx+c)}\ln\left(1\left(\frac{ad}{2}+\frac{bc}{2}+bdx\right)\frac{1}{\sqrt{bd}}+\sqrt{dx^2b+(ad+bc)x+ac}\right)\frac{1}{\sqrt{bx+a}}\frac{1}{\sqrt{dx+c}}\frac{1}{\sqrt{bd}}\\
&-\frac{5b^3c^3}{16d^3}\sqrt{(bx+a)(dx+c)}\ln\left(1\left(\frac{ad}{2}+\frac{bc}{2}+bdx\right)\frac{1}{\sqrt{bd}}+\sqrt{dx^2b+(ad+bc)x+ac}\right)\frac{1}{\sqrt{bx+a}}\frac{1}{\sqrt{dx+c}}\frac{1}{\sqrt{bd}}
\end{aligned}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((b*x+a)^(5/2)/(d*x+c)^(1/2),x)
```

```
[Out] 1/3*(b*x+a)^(5/2)*(d*x+c)^(1/2)/d+5/12/d*(b*x+a)^(3/2)*(d*x+c)^(1
/2)*a-5/12/d^2*(b*x+a)^(3/2)*(d*x+c)^(1/2)*b*c+5/8/d*(b*x+a)^(1/2
)*(d*x+c)^(1/2)*a^2-5/4/d^2*(b*x+a)^(1/2)*(d*x+c)^(1/2)*a*b*c+5/8
/d^3*(b*x+a)^(1/2)*(d*x+c)^(1/2)*b^2*c^2+5/16*((b*x+a)*(d*x+c))^(
1/2)/(b*x+a)^(1/2)/(d*x+c)^(1/2)*ln((1/2*a*d+1/2*b*c+b*d*x)/(b*d)
^(1/2)+(d*x^2*b+(a*d+b*c)*x+a*c)^(1/2))/(b*d)^(1/2)*a^3-15/16/d*(
(b*x+a)*(d*x+c))^(1/2)/(b*x+a)^(1/2)/(d*x+c)^(1/2)*ln((1/2*a*d+1/
2*b*c+b*d*x)/(b*d)^(1/2)+(d*x^2*b+(a*d+b*c)*x+a*c)^(1/2))/(b*d)^(
1/2)*a^2*b*c+15/16/d^2*((b*x+a)*(d*x+c))^(1/2)/(b*x+a)^(1/2)/(d*x
+c)^(1/2)*ln((1/2*a*d+1/2*b*c+b*d*x)/(b*d)^(1/2)+(d*x^2*b+(a*d+b*
c)*x+a*c)^(1/2))/(b*d)^(1/2)*a*b^2*c^2-5/16/d^3*((b*x+a)*(d*x+c))
^(1/2)/(b*x+a)^(1/2)/(d*x+c)^(1/2)*ln((1/2*a*d+1/2*b*c+b*d*x)/(b*
d)^(1/2)+(d*x^2*b+(a*d+b*c)*x+a*c)^(1/2))/(b*d)^(1/2)*b^3*c^3
```

Maxima [F]   time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((b*x + a)^(5/2)/sqrt(d*x + c),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A]   time = 0.253948, size = 1, normalized size = 0.01

$$\left[\frac{4\left(8b^2d^2x^2+15b^2c^2-40abcd+33a^2d^2-2\left(5b^2cd-13abd^2\right)x\right)\sqrt{bd}\sqrt{bx+a}\sqrt{dx+c}-15\left(b^3c^3-3ab^2c^2d+3a^2bcd^2\right.}{96\sqrt{bd}}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)/sqrt(d*x + c),x, algorithm="fricas")
```

```
[Out] [1/96*(4*(8*b^2*d^2*x^2 + 15*b^2*c^2 - 40*a*b*c*d + 33*a^2*d^2 -
2*(5*b^2*c*d - 13*a*b*d^2)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x +
c) - 15*(b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*log(4
*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) +
(8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b
*d^2)*x)*sqrt(b*d)))/(sqrt(b*d)*d^3), 1/48*(2*(8*b^2*d^2*x^2 + 15
*b^2*c^2 - 40*a*b*c*d + 33*a^2*d^2 - 2*(5*b^2*c*d - 13*a*b*d^2)*x
)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c) - 15*(b^3*c^3 - 3*a*b^2*
c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*arctan(1/2*(2*b*d*x + b*c + a*d)
*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/(sqrt(-b*d)*d^3)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)/(d*x+c)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.236919, size = 267, normalized size = 1.8

$$\frac{\left(\sqrt{b^2c + (bx+a)bd - abd}\sqrt{bx+a}\left(2\,(bx+a)\left(\frac{4\,(bx+a)}{bd} - \frac{5\,(bcd^3 - ad^4)}{bd^5}\right) + \frac{15\,(b^2c^2d^2 - 2\,abcd^3 + a^2d^4)}{bd^5}\right) + \frac{15\,(b^3c^3 - 3\,ab^2c^2d + 3\,a^2bcd^2 - a}{}\right.}{24\,|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)/sqrt(d*x + c),x, algorithm="giac")
```

```
[Out] 1/24*(sqrt(b^2*c + (b*x + a)*b*d - a*b*d)*sqrt(b*x + a)*(2*(b*x +
 a)*(4*(b*x + a)/(b*d) - 5*(b*c*d^3 - a*d^4)/(b*d^5)) + 15*(b^2*c
^2*d^2 - 2*a*b*c*d^3 + a^2*d^4)/(b*d^5)) + 15*(b^3*c^3 - 3*a*b^2*
c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*ln(abs(-sqrt(b*d)*sqrt(b*x + a)
+ sqrt(b^2*c + (b*x + a)*b*d - a*b*d)))/(sqrt(b*d)*d^3))*b/abs(b)
```

3.665 $\int \frac{(a+bx)^{5/2}}{x\sqrt{c+dx}}\,dx$

Optimal. Leaf size=171

$$-\frac{2a^{5/2}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{c}}+\frac{\sqrt{b}\left(15a^2d^2-10abcd+3b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4d^{5/2}}-\frac{b\sqrt{a+bx}\sqrt{c+dx}(3bc-7ad)}{4d^2}+\frac{b(a+bx)^{3/2}\sqrt{c+dx}}{2d}$$

```
[Out] -(b*(3*b*c - 7*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*d^2) + (b*(a
+ b*x)^(3/2)*Sqrt[c + d*x])/(2*d) - (2*a^(5/2)*ArcTanh[(Sqrt[c]*S
qrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/Sqrt[c] + (Sqrt[b]*(3*b^2
*c^2 - 10*a*b*c*d + 15*a^2*d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(
Sqrt[b]*Sqrt[c + d*x])])/(4*d^(5/2))
```

Rubi [A] time = 0.498144, antiderivative size = 171, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.273

$$-\frac{2a^{5/2}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{c}}+\frac{\sqrt{b}\left(15a^2d^2-10abcd+3b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4d^{5/2}}-\frac{b\sqrt{a+bx}\sqrt{c+dx}(3bc-7ad)}{4d^2}+\frac{b(a+bx)^{3/2}\sqrt{c+dx}}{2d}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(5/2)/(x*Sqrt[c + d*x]),x]
```

```
[Out] -(b*(3*b*c - 7*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*d^2) + (b*(a
+ b*x)^(3/2)*Sqrt[c + d*x])/(2*d) - (2*a^(5/2)*ArcTanh[(Sqrt[c]*S
qrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/Sqrt[c] + (Sqrt[b]*(3*b^2
*c^2 - 10*a*b*c*d + 15*a^2*d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(
Sqrt[b]*Sqrt[c + d*x])])/(4*d^(5/2))
```

Rubi in Sympy [A] time = 44.5587, size = 162, normalized size = 0.95

$$-\frac{2a^{\frac{5}{2}}\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{c}}+\frac{\sqrt{b}\left(15a^2d^2-10abcd+3b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{4d^{\frac{5}{2}}}+\frac{b\left(a+bx\right)^{\frac{3}{2}}\sqrt{c+dx}}{2d}+\frac{b\sqrt{a+bx}\sqrt{c+dx}\left(7ad-3bc\right)}{4d^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)/x/(d*x+c)**(1/2),x)
```

```
[Out] -2*a**(5/2)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/
sqrt(c) + sqrt(b)*(15*a**2*d**2 - 10*a*b*c*d + 3*b**2*c**2)*atanh
(sqrt(b)*sqrt(c + d*x)/(sqrt(d)*sqrt(a + b*x)))/(4*d**(5/2)) + b*
(a + b*x)**(3/2)*sqrt(c + d*x)/(2*d) + b*sqrt(a + b*x)*sqrt(c + d
*x)*(7*a*d - 3*b*c)/(4*d**2)
```

Mathematica [A] time = 0.661139, size = 190, normalized size = 1.11

$$\frac{a^{5/2}\log(x)}{\sqrt{c}}+\frac{1}{8}\left(-\frac{8a^{5/2}\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{\sqrt{c}}+\frac{\sqrt{b}\left(15a^2d^2-10abcd+3b^2c^2\right)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{d^{5/2}}+\frac{2b\sqrt{a+bx}\sqrt{c+dx}(9ad-3bc+2bdx)}{d^2}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(5/2)/(x*Sqrt[c + d*x]),x]
```

```
[Out] (a^(5/2)*Log[x])/Sqrt[c] + ((2*b*Sqrt[a + b*x]*Sqrt[c + d*x]*(-3*
b*c + 9*a*d + 2*b*d*x))/d^2 - (8*a^(5/2)*Log[2*a*c + b*c*x + a*d*
x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/Sqrt[c] + (Sq
rt[b]*(3*b^2*c^2 - 10*a*b*c*d + 15*a^2*d^2)*Log[b*c + a*d + 2*b*d
*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/d^(5/2))/8
```

Maple [B] time = 0.029, size = 342, normalized size = 2.

$$-\frac{1}{8d^2}\sqrt{bx+a}\sqrt{dx+c}\left(8\ln\left(\frac{adx+bcx+2\sqrt{ac}\sqrt{(bx+a)(dx+c)}+2ac}{x}\right)a^3d^2\sqrt{bd}-15\ln\left(1/2\frac{2bdx+2\sqrt{(bx+a)(dx+}}{\sqrt{bd}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)/x/(d*x+c)^(1/2),x)
```

```
[Out] -1/8*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(8*ln((a*d*x+b*c*x+2*(a*c)^(1/2)
*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*a^3*d^2*(b*d)^(1/2)-15*ln(1/2*
(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/
2))*a^2*b*d^2*(a*c)^(1/2)+10*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^
(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a*b^2*c*d*(a*c)^(1/2)-3*l
n(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*
d)^(1/2))*b^3*c^2*(a*c)^(1/2)-4*x*b^2*d*(a*c)^(1/2)*((b*x+a)*(d*x
+c))^(1/2)*(b*d)^(1/2)-18*a*b*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/
2)*(b*d)^(1/2)+6*b^2*c*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*(b*d)^
(1/2))/((b*x+a)*(d*x+c))^(1/2)/d^2/(b*d)^(1/2)/(a*c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)/(sqrt(d*x + c)*x),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 2.72232, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)/(sqrt(d*x + c)*x),x, algorithm="fricas")
```

```
[Out] [1/16*(8*a^2*d^2*sqrt(a/c)*log((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d
+ a^2*d^2)*x^2 - 4*(2*a*c^2 + (b*c^2 + a*c*d)*x)*sqrt(b*x + a)*sq
rt(d*x + c)*sqrt(a/c) + 8*(a*b*c^2 + a^2*c*d)*x)/x^2) + (3*b^2*c^
2 - 10*a*b*c*d + 15*a^2*d^2)*sqrt(b/d)*log(8*b^2*d^2*x^2 + b^2*c^
2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b*d^2*x + b*c*d + a*d^2)*sqrt(b*x
+ a)*sqrt(d*x + c)*sqrt(b/d) + 8*(b^2*c*d + a*b*d^2)*x) + 4*(2*b^
2*d*x - 3*b^2*c + 9*a*b*d)*sqrt(b*x + a)*sqrt(d*x + c))/d^2, 1/8*
(4*a^2*d^2*sqrt(a/c)*log((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*
d^2)*x^2 - 4*(2*a*c^2 + (b*c^2 + a*c*d)*x)*sqrt(b*x + a)*sqrt(d*x
 + c)*sqrt(a/c) + 8*(a*b*c^2 + a^2*c*d)*x)/x^2) + (3*b^2*c^2 - 10
*a*b*c*d + 15*a^2*d^2)*sqrt(-b/d)*arctan(1/2*(2*b*d*x + b*c + a*d
)/(sqrt(b*x + a)*sqrt(d*x + c)*d*sqrt(-b/d))) + 2*(2*b^2*d*x - 3*
b^2*c + 9*a*b*d)*sqrt(b*x + a)*sqrt(d*x + c))/d^2, -1/16*(16*a^2*
d^2*sqrt(-a/c)*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(b*x + a)*
sqrt(d*x + c)*c*sqrt(-a/c))) - (3*b^2*c^2 - 10*a*b*c*d + 15*a^2*d
^2)*sqrt(b/d)*log(8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 +
 4*(2*b*d^2*x + b*c*d + a*d^2)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(b
/d) + 8*(b^2*c*d + a*b*d^2)*x) - 4*(2*b^2*d*x - 3*b^2*c + 9*a*b*d
)*sqrt(b*x + a)*sqrt(d*x + c))/d^2, -1/8*(8*a^2*d^2*sqrt(-a/c)*ar
ctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(b*x + a)*sqrt(d*x + c)*c*s
qrt(-a/c))) - (3*b^2*c^2 - 10*a*b*c*d + 15*a^2*d^2)*sqrt(-b/d)*ar
ctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(b*x + a)*sqrt(d*x + c)*d*sqr
t(-b/d))) - 2*(2*b^2*d*x - 3*b^2*c + 9*a*b*d)*sqrt(b*x + a)*sqrt(
d*x + c))/d^2]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a+bx)^{\frac{5}{2}}}{x\sqrt{c+dx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)/x/(d*x+c)**(1/2),x)
```

```
[Out] Integral((a + b*x)**(5/2)/(x*sqrt(c + d*x)), x)
```

GIAC/XCAS [A] time = 0.24911, size = 335, normalized size = 1.96

$$-\frac{\frac{16\sqrt{bd}a^3\arctan\left(-\frac{b^2c+abd-\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2}{2\sqrt{-abcd}b}\right)}{\sqrt{-abcd}b}-2\sqrt{b^2c+(bx+a)bd-abd}\sqrt{bx+a}\left(\frac{2(bx+a)}{bd}-\frac{3b^2cd-7abd^2}{b^2d^3}\right)+\frac{(3\sqrt{bd}\cdots}{\cdots}}{8|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)/(sqrt(d*x + c)*x),x, algorithm="giac")
```

```
[Out] -1/8*(16*sqrt(b*d)*a^3*arctan(-1/2*(b^2*c + a*b*d - (sqrt(b*d)*sq
rt(b*x + a) - sqrt(b^2*c + (b*x + a)*b*d - a*b*d))^2)/(sqrt(-a*b*
c*d)*b))/(sqrt(-a*b*c*d)*b) - 2*sqrt(b^2*c + (b*x + a)*b*d - a*b*
d)*sqrt(b*x + a)*(2*(b*x + a)/(b*d) - (3*b^2*c*d - 7*a*b*d^2)/(b^
2*d^3)) + (3*sqrt(b*d)*b^2*c^2 - 10*sqrt(b*d)*a*b*c*d + 15*sqrt(b
*d)*a^2*d^2)*ln((sqrt(b*d)*sqrt(b*x + a) - sqrt(b^2*c + (b*x + a)
*b*d - a*b*d))^2)/(b*d^3))*b^2/abs(b)
```

3.666 $\int \frac{(a+bx)^{5/2}}{x^2\sqrt{c+dx}}\,dx$

Optimal. Leaf size=162

$$-\frac{a^{3/2}(5bc-ad)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{c^{3/2}}-\frac{b^{3/2}(bc-5ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{d^{3/2}}-\frac{a(a+bx)^{3/2}\sqrt{c+dx}}{cx}+\frac{b\sqrt{a+bx}\sqrt{c+dx}(ad+bc)}{cd}$$

```
[Out] (b*(b*c + a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(c*d) - (a*(a + b*x)^
(3/2)*Sqrt[c + d*x])/(c*x) - (a^(3/2)*(5*b*c - a*d)*ArcTanh[(Sqrt
[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/c^(3/2) - (b^(3/2)*(
b*c - 5*a*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*
x])])/d^(3/2)
```

Rubi [A] time = 0.504948, antiderivative size = 162, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.273

$$-\frac{a^{3/2}(5bc-ad)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{c^{3/2}}-\frac{b^{3/2}(bc-5ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{d^{3/2}}-\frac{a(a+bx)^{3/2}\sqrt{c+dx}}{cx}+\frac{b\sqrt{a+bx}\sqrt{c+dx}(ad+bc)}{cd}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(5/2)/(x^2*Sqrt[c + d*x]),x]
```

```
[Out] (b*(b*c + a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(c*d) - (a*(a + b*x)^
(3/2)*Sqrt[c + d*x])/(c*x) - (a^(3/2)*(5*b*c - a*d)*ArcTanh[(Sqrt
[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/c^(3/2) - (b^(3/2)*(
b*c - 5*a*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*
x])])/d^(3/2)
```

Rubi in Sympy [A] time = 50.0854, size = 144, normalized size = 0.89

$$\frac{a^{\frac{3}{2}}(ad-5bc)\,\mathrm{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{c^{\frac{3}{2}}}-\frac{a(a+bx)^{\frac{3}{2}}\sqrt{c+dx}}{cx}+\frac{b^{\frac{3}{2}}(5ad-bc)\,\mathrm{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{d^{\frac{3}{2}}}+\frac{b\sqrt{a+bx}\sqrt{c+dx}\,(ad+bc)}{cd}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)/x**2/(d*x+c)**(1/2),x)
```

```
[Out] a**(3/2)*(a*d - 5*b*c)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(
c + d*x)))/c**(3/2) - a*(a + b*x)**(3/2)*sqrt(c + d*x)/(c*x) + b*
*(3/2)*(5*a*d - b*c)*atanh(sqrt(b)*sqrt(c + d*x)/(sqrt(d)*sqrt(a
+ b*x)))/d**(3/2) + b*sqrt(a + b*x)*sqrt(c + d*x)*(a*d + b*c)/(c*
d)
```

Mathematica [A] time = 0.460468, size = 192, normalized size = 1.19

$$\frac{1}{2}\left(-\frac{a^{3/2}\log(x)(ad-5bc)}{c^{3/2}}+\frac{a^{3/2}(ad-5bc)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{c^{3/2}}+2\sqrt{a+bx}\sqrt{c+dx}\left(\frac{b^2}{d}-\frac{a^2}{cx}\right)+\frac{b^{3/2}(5ad-bc)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{d^{3/2}}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(5/2)/(x^2*Sqrt[c + d*x]),x]
```

```
[Out] (2*(b^2/d - a^2/(c*x))*Sqrt[a + b*x]*Sqrt[c + d*x] - (a^(3/2)*(-5
*b*c + a*d)*Log[x])/c^(3/2) + (a^(3/2)*(-5*b*c + a*d)*Log[2*a*c +
 b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/
c^(3/2) + (b^(3/2)*(-(b*c) + 5*a*d)*Log[b*c + a*d + 2*b*d*x + 2*S
qrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/d^(3/2))/2
```

Maple [B] time = 0.029, size = 320, normalized size = 2.

$$\frac{1}{2\,cxd}\sqrt{bx+a}\sqrt{dx+c}\left(5\,\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{(bx+a)\,(dx+c)}\sqrt{bd}+ad+bc}{\sqrt{bd}}\right)xab^2cd\sqrt{ac}-\ln\left(\frac{1}{2}\left(2\,bdx+2\,\sqrt{(bx+a)\,(dx\right.\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)/x^2/(d*x+c)^(1/2),x)
```

```
[Out] 1/2*(b*x+a)^(1/2)*(d*x+c)^(1/2)/c*(5*ln(1/2*(2*b*d*x+2*((b*x+a)*(
d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a*b^2*c*d*(a*c)
^(1/2)-ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+
b*c)/(b*d)^(1/2))*x*b^3*c^2*(a*c)^(1/2)+ln((a*d*x+b*c*x+2*(a*c)^(
1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x*a^3*d^2*(b*d)^(1/2)-5*ln
((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x*a
^2*b*c*d*(b*d)^(1/2)+2*x*b^2*c*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2
)*(b*d)^(1/2)-2*a^2*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(
1/2))/((b*x+a)*(d*x+c))^(1/2)/x/(b*d)^(1/2)/(a*c)^(1/2)/d
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)/(sqrt(d*x + c)*x^2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 2.01438, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)/(sqrt(d*x + c)*x^2),x, algorithm="fricas")
```

```
[Out] [-1/4*((b^2*c^2 - 5*a*b*c*d)*x*sqrt(b/d)*log(8*b^2*d^2*x^2 + b^2*
c^2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b*d^2*x + b*c*d + a*d^2)*sqrt(b*
x + a)*sqrt(d*x + c)*sqrt(b/d) + 8*(b^2*c*d + a*b*d^2)*x) + (5*a*
b*c*d - a^2*d^2)*x*sqrt(a/c)*log((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*
d + a^2*d^2)*x^2 + 4*(2*a*c^2 + (b*c^2 + a*c*d)*x)*sqrt(b*x + a)*
sqrt(d*x + c)*sqrt(a/c) + 8*(a*b*c^2 + a^2*c*d)*x)/x^2) - 4*(b^2*
c*x - a^2*d)*sqrt(b*x + a)*sqrt(d*x + c))/(c*d*x), -1/4*(2*(b^2*c
^2 - 5*a*b*c*d)*x*sqrt(-b/d)*arctan(1/2*(2*b*d*x + b*c + a*d)/(sq
rt(b*x + a)*sqrt(d*x + c)*d*sqrt(-b/d))) + (5*a*b*c*d - a^2*d^2)*
x*sqrt(a/c)*log((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2
+ 4*(2*a*c^2 + (b*c^2 + a*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c)*sqr
t(a/c) + 8*(a*b*c^2 + a^2*c*d)*x)/x^2) - 4*(b^2*c*x - a^2*d)*sqrt
(b*x + a)*sqrt(d*x + c))/(c*d*x), -1/4*(2*(5*a*b*c*d - a^2*d^2)*x
*sqrt(-a/c)*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(b*x + a)*sqr
t(d*x + c)*c*sqrt(-a/c))) + (b^2*c^2 - 5*a*b*c*d)*x*sqrt(b/d)*log
(8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b*d^2*x + b
*c*d + a*d^2)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(b/d) + 8*(b^2*c*d
+ a*b*d^2)*x) - 4*(b^2*c*x - a^2*d)*sqrt(b*x + a)*sqrt(d*x + c))/
(c*d*x), -1/2*((5*a*b*c*d - a^2*d^2)*x*sqrt(-a/c)*arctan(1/2*(2*a
*c + (b*c + a*d)*x)/(sqrt(b*x + a)*sqrt(d*x + c)*c*sqrt(-a/c))) +
 (b^2*c^2 - 5*a*b*c*d)*x*sqrt(-b/d)*arctan(1/2*(2*b*d*x + b*c + a
*d)/(sqrt(b*x + a)*sqrt(d*x + c)*d*sqrt(-b/d))) - 2*(b^2*c*x - a^
2*d)*sqrt(b*x + a)*sqrt(d*x + c))/(c*d*x)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)/x**2/(d*x+c)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.602867, size = 4, normalized size = 0.02

$$sage_0 x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)/(sqrt(d*x + c)*x^2),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.667 $\int \frac{(a+bx)^{5/2}}{x^3\sqrt{c+dx}}\,dx$

Optimal. Leaf size=177

$$-\frac{\sqrt{a}\left(3a^2d^2-10abcd+15b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4c^{5/2}}+\frac{2b^{5/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{d}}-\frac{a\sqrt{a+bx}\sqrt{c+dx}(7bc-3ad)}{4c^2x}-\frac{a(a+bx)^{3/2}\sqrt{c+dx}}{2cx^2}$$

```
[Out] -(a*(7*b*c - 3*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*c^2*x) - (a*(
a + b*x)^(3/2)*Sqrt[c + d*x])/(2*c*x^2) - (Sqrt[a]*(15*b^2*c^2 -
10*a*b*c*d + 3*a^2*d^2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*
Sqrt[c + d*x])])/(4*c^(5/2)) + (2*b^(5/2)*ArcTanh[(Sqrt[d]*Sqrt[a
 + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/Sqrt[d]
```

Rubi [A] time = 0.452399, antiderivative size = 177, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.273

$$-\frac{\sqrt{a}\left(3a^2d^2-10abcd+15b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4c^{5/2}}+\frac{2b^{5/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{d}}-\frac{a\sqrt{a+bx}\sqrt{c+dx}(7bc-3ad)}{4c^2x}-\frac{a(a+bx)^{3/2}\sqrt{c+dx}}{2cx^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(5/2)/(x^3*Sqrt[c + d*x]),x]
```

```
[Out] -(a*(7*b*c - 3*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*c^2*x) - (a*(
a + b*x)^(3/2)*Sqrt[c + d*x])/(2*c*x^2) - (Sqrt[a]*(15*b^2*c^2 -
10*a*b*c*d + 3*a^2*d^2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*
Sqrt[c + d*x])])/(4*c^(5/2)) + (2*b^(5/2)*ArcTanh[(Sqrt[d]*Sqrt[a
 + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/Sqrt[d]
```

Rubi in Sympy [A] time = 45.0614, size = 167, normalized size = 0.94

$$-\frac{\sqrt{a}\left(3a^2d^2-10abcd+15b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4c^{\frac{5}{2}}}-\frac{a\left(a+bx\right)^{\frac{3}{2}}\sqrt{c+dx}}{2cx^2}+\frac{a\sqrt{a+bx}\sqrt{c+dx}\left(3ad-7bc\right)}{4c^2x}+\frac{2b^{\frac{5}{2}}\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{d}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)/x**3/(d*x+c)**(1/2),x)
```

```
[Out] -sqrt(a)*(3*a**2*d**2 - 10*a*b*c*d + 15*b**2*c**2)*atanh(sqrt(c)*
sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(4*c**(5/2)) - a*(a + b*x)
**(3/2)*sqrt(c + d*x)/(2*c*x**2) + a*sqrt(a + b*x)*sqrt(c + d*x)*
(3*a*d - 7*b*c)/(4*c**2*x) + 2*b**(5/2)*atanh(sqrt(d)*sqrt(a + b*
x)/(sqrt(b)*sqrt(c + d*x)))/sqrt(d)
```

Mathematica [A] time = 0.998452, size = 216, normalized size = 1.22

$$\frac{1}{8}\left(\frac{\sqrt{a}\log(x)\left(3a^2d^2-10abcd+15b^2c^2\right)}{c^{5/2}}+\frac{\sqrt{a}\left(-3a^2d^2+10abcd-15b^2c^2\right)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{c^{5/2}}+\frac{8b^{5/2}\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{\sqrt{d}}+\frac{2a\sqrt{a+bx}\sqrt{c+dx}(-2ac+3adx-9bcx)}{c^2x^2}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(5/2)/(x^3*Sqrt[c + d*x]),x]
```

```
[Out] ((2*a*Sqrt[a + b*x]*Sqrt[c + d*x]*(-2*a*c - 9*b*c*x + 3*a*d*x))/(
c^2*x^2) + (Sqrt[a]*(15*b^2*c^2 - 10*a*b*c*d + 3*a^2*d^2)*Log[x])
/c^(5/2) + (Sqrt[a]*(-15*b^2*c^2 + 10*a*b*c*d - 3*a^2*d^2)*Log[2*
a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*
x]])/c^(5/2) + (8*b^(5/2)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqr
t[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/Sqrt[d])/8
```

Maple [B] time = 0.033, size = 354, normalized size = 2.

$$-\frac{1}{8\,c^2x^2}\sqrt{bx+a}\sqrt{dx+c}\left(3\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)\,(dx+c)}+2\,ac}{x}\right)x^2a^3d^2\sqrt{bd}-10\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+}{x}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)/x^3/(d*x+c)^(1/2),x)
```

```
[Out] -1/8*(b*x+a)^(1/2)*(d*x+c)^(1/2)/c^2*(3*ln((a*d*x+b*c*x+2*(a*c)^(
1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a^3*d^2*(b*d)^(1/2)-10
*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*
x^2*a^2*b*c*d*(b*d)^(1/2)+15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+
a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a*b^2*c^2*(b*d)^(1/2)-8*ln(1/2*(2
*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2)
)*x^2*b^3*c^2*(a*c)^(1/2)-6*x*a^2*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))
^(1/2)*(b*d)^(1/2)+18*x*a*b*c*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)
*(b*d)^(1/2)+4*a^2*c*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1
/2))/((b*x+a)*(d*x+c))^(1/2)/x^2/(a*c)^(1/2)/(b*d)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)/(sqrt(d*x + c)*x^3),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 1.92938, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)/(sqrt(d*x + c)*x^3),x, algorithm="fricas")
```

```
[Out] [1/16*(8*b^2*c^2*x^2*sqrt(b/d)*log(8*b^2*d^2*x^2 + b^2*c^2 + 6*a*
b*c*d + a^2*d^2 + 4*(2*b*d^2*x + b*c*d + a*d^2)*sqrt(b*x + a)*sqr
t(d*x + c)*sqrt(b/d) + 8*(b^2*c*d + a*b*d^2)*x) + (15*b^2*c^2 - 1
0*a*b*c*d + 3*a^2*d^2)*x^2*sqrt(a/c)*log((8*a^2*c^2 + (b^2*c^2 +
6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a*c^2 + (b*c^2 + a*c*d)*x)*sqrt(b
*x + a)*sqrt(d*x + c)*sqrt(a/c) + 8*(a*b*c^2 + a^2*c*d)*x)/x^2) -
 4*(2*a^2*c + 3*(3*a*b*c - a^2*d)*x)*sqrt(b*x + a)*sqrt(d*x + c))
/(c^2*x^2), 1/16*(16*b^2*c^2*x^2*sqrt(-b/d)*arctan(1/2*(2*b*d*x +
 b*c + a*d)/(sqrt(b*x + a)*sqrt(d*x + c)*d*sqrt(-b/d))) + (15*b^2
*c^2 - 10*a*b*c*d + 3*a^2*d^2)*x^2*sqrt(a/c)*log((8*a^2*c^2 + (b^
2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a*c^2 + (b*c^2 + a*c*d)*x
)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(a/c) + 8*(a*b*c^2 + a^2*c*d)*x
)/x^2) - 4*(2*a^2*c + 3*(3*a*b*c - a^2*d)*x)*sqrt(b*x + a)*sqrt(d
*x + c))/(c^2*x^2), 1/8*(4*b^2*c^2*x^2*sqrt(b/d)*log(8*b^2*d^2*x^
2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b*d^2*x + b*c*d + a*d^2)
*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(b/d) + 8*(b^2*c*d + a*b*d^2)*x)
 - (15*b^2*c^2 - 10*a*b*c*d + 3*a^2*d^2)*x^2*sqrt(-a/c)*arctan(1/
2*(2*a*c + (b*c + a*d)*x)/(sqrt(b*x + a)*sqrt(d*x + c)*c*sqrt(-a/
c))) - 2*(2*a^2*c + 3*(3*a*b*c - a^2*d)*x)*sqrt(b*x + a)*sqrt(d*x
 + c))/(c^2*x^2), 1/8*(8*b^2*c^2*x^2*sqrt(-b/d)*arctan(1/2*(2*b*d
*x + b*c + a*d)/(sqrt(b*x + a)*sqrt(d*x + c)*d*sqrt(-b/d))) - (15
*b^2*c^2 - 10*a*b*c*d + 3*a^2*d^2)*x^2*sqrt(-a/c)*arctan(1/2*(2*a
*c + (b*c + a*d)*x)/(sqrt(b*x + a)*sqrt(d*x + c)*c*sqrt(-a/c))) -
 2*(2*a^2*c + 3*(3*a*b*c - a^2*d)*x)*sqrt(b*x + a)*sqrt(d*x + c))
/(c^2*x^2)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)/x**3/(d*x+c)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.591425, size = 4, normalized size = 0.02

$$sage_0 x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)/(sqrt(d*x + c)*x^3),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.668 $\int \frac{(a+bx)^{5/2}}{x^4\sqrt{c+dx}}\,dx$

Optimal. Leaf size=157

$$-\frac{5(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8\sqrt{a}c^{7/2}}-\frac{5\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^2}{8c^3x}-\frac{5(a+bx)^{3/2}\sqrt{c+dx}(bc-ad)}{12c^2x^2}-\frac{(a+bx)^{5/2}\sqrt{c+dx}}{3cx^3}$$

```
[Out] (-5*(b*c - a*d)^2*Sqrt[a + b*x]*Sqrt[c + d*x])/(8*c^3*x) - (5*(b*
c - a*d)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(12*c^2*x^2) - ((a + b*x)
^(5/2)*Sqrt[c + d*x])/(3*c*x^3) - (5*(b*c - a*d)^3*ArcTanh[(Sqrt[
c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(8*Sqrt[a]*c^(7/2))
```

Rubi [A] time = 0.277589, antiderivative size = 157, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.136

$$-\frac{5(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8\sqrt{a}c^{7/2}}-\frac{5\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^2}{8c^3x}-\frac{5(a+bx)^{3/2}\sqrt{c+dx}(bc-ad)}{12c^2x^2}-\frac{(a+bx)^{5/2}\sqrt{c+dx}}{3cx^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(5/2)/(x^4*Sqrt[c + d*x]),x]
```

```
[Out] (-5*(b*c - a*d)^2*Sqrt[a + b*x]*Sqrt[c + d*x])/(8*c^3*x) - (5*(b*
c - a*d)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(12*c^2*x^2) - ((a + b*x)
^(5/2)*Sqrt[c + d*x])/(3*c*x^3) - (5*(b*c - a*d)^3*ArcTanh[(Sqrt[
c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(8*Sqrt[a]*c^(7/2))
```

Rubi in Sympy [A] time = 24.8534, size = 141, normalized size = 0.9

$$-\frac{(a+bx)^{\frac{5}{2}}\sqrt{c+dx}}{3cx^3}+\frac{5(a+bx)^{\frac{3}{2}}\sqrt{c+dx}\,(ad-bc)}{12c^2x^2}-\frac{5\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)^2}{8c^3x}+\frac{5(ad-bc)^3\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8\sqrt{a}c^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)/x**4/(d*x+c)**(1/2),x)
```

```
[Out] -(a + b*x)**(5/2)*sqrt(c + d*x)/(3*c*x**3) + 5*(a + b*x)**(3/2)*s
qrt(c + d*x)*(a*d - b*c)/(12*c**2*x**2) - 5*sqrt(a + b*x)*sqrt(c
+ d*x)*(a*d - b*c)**2/(8*c**3*x) + 5*(a*d - b*c)**3*atanh(sqrt(c)
*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(8*sqrt(a)*c**(7/2))
```

Mathematica [A] time = 0.194094, size = 173, normalized size = 1.1

$$\frac{-2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}\left(a^2\left(8c^2-10cdx+15d^2x^2\right)+2abcx(13c-20dx)+33b^2c^2x^2\right)+15x^3\log(x)(bc-ad)^3-15x^3(bc-}{48\sqrt{a}c^{7/2}x^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(5/2)/(x^4*Sqrt[c + d*x]),x]
```

```
[Out] (-2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]*(33*b^2*c^2*x^2 +
 2*a*b*c*x*(13*c - 20*d*x) + a^2*(8*c^2 - 10*c*d*x + 15*d^2*x^2))
 + 15*(b*c - a*d)^3*x^3*Log[x] - 15*(b*c - a*d)^3*x^3*Log[2*a*c +
 b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/
(48*Sqrt[a]*c^(7/2)*x^3)
```

Maple [B] time = 0.034, size = 405, normalized size = 2.6

$$\frac{1}{48\,c^3x^3}\sqrt{bx+a}\sqrt{dx+c}\left(15\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)\,(dx+c)}+2\,ac}{x}\right)x^3a^3d^3-45\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)}}{x}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)/x^4/(d*x+c)^(1/2),x)
```

```
[Out] 1/48*(b*x+a)^(1/2)*(d*x+c)^(1/2)/c^3*(15*ln((a*d*x+b*c*x+2*(a*c)^
(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^3*d^3-45*ln((a*d*x+
b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^2*b*c
*d^2+45*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a
*c)/x)*x^3*a*b^2*c^2*d-15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*
(d*x+c))^(1/2)+2*a*c)/x)*x^3*b^3*c^3-30*((b*x+a)*(d*x+c))^(1/2)*d
^2*a^2*x^2*(a*c)^(1/2)+80*((b*x+a)*(d*x+c))^(1/2)*d*b*c*a*x^2*(a*
c)^(1/2)-66*((b*x+a)*(d*x+c))^(1/2)*b^2*c^2*x^2*(a*c)^(1/2)+20*((
b*x+a)*(d*x+c))^(1/2)*d*c*a^2*x*(a*c)^(1/2)-52*((b*x+a)*(d*x+c))^
(1/2)*b*c^2*a*x*(a*c)^(1/2)-16*((b*x+a)*(d*x+c))^(1/2)*c^2*a^2*(a
*c)^(1/2))/((b*x+a)*(d*x+c))^(1/2)/(a*c)^(1/2)/x^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)/(sqrt(d*x + c)*x^4),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.519818, size = 1, normalized size = 0.01

$$\left[-\frac{15\left(b^3c^3-3\,ab^2c^2d+3\,a^2bcd^2-a^3d^3\right)x^3\log\left(\frac{4\left(2\,a^2c^2+\left(abc^2+a^2cd\right)x\right)\sqrt{bx+a}\sqrt{dx+c}+\left(8\,a^2c^2+\left(b^2c^2+6\,abcd+a^2d^2\right)x^2+8\left(abc^2+a^2cd\right)x\right)\sqrt{\cdots}}{x^2}\right.}{96\,\sqrt{ac}c^3x^3}\right.$$

$$-\frac{15\left(b^3c^3-3\,ab^2c^2d+3\,a^2bcd^2-a^3d^3\right)x^3\arctan\left(\frac{(2\,ac+(bc+ad)x)\sqrt{-ac}}{2\,\sqrt{bx+a}\sqrt{dx+c}ac}\right)+2\left(8\,a^2c^2+\left(33\,b^2c^2-40\,abcd+15\,a^2d^2\right)x^2+2\,(1\cdots\right.}{48\,\sqrt{-ac}c^3x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)/(sqrt(d*x + c)*x^4),x, algorithm="fricas")
```

```
[Out] [-1/96*(15*(b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*x^
3*log((4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d
*x + c) + (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(a
*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2) + 4*(8*a^2*c^2 + (33*b^2*c^2
```

```
 - 40*a*b*c*d + 15*a^2*d^2)*x^2 + 2*(13*a*b*c^2 - 5*a^2*c*d)*x)*s
qrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(a*c)*c^3*x^3), -1/48*
(15*(b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*x^3*arcta
n(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d*x
+ c)*a*c)) + 2*(8*a^2*c^2 + (33*b^2*c^2 - 40*a*b*c*d + 15*a^2*d^2
)*x^2 + 2*(13*a*b*c^2 - 5*a^2*c*d)*x)*sqrt(-a*c)*sqrt(b*x + a)*sq
rt(d*x + c))/(sqrt(-a*c)*c^3*x^3)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)/x**4/(d*x+c)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)/(sqrt(d*x + c)*x^4),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.669 $\int \frac{(a+bx)^{5/2}}{x^5\sqrt{c+dx}}\,dx$

Optimal. Leaf size=229

$$\frac{5(bc-ad)^3(7ad+bc)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{3/2}c^{9/2}}+\frac{5\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^2(7ad+bc)}{64ac^4x}+\frac{5(a+bx)^{3/2}\sqrt{c+dx}(bc-ad)(7ad+bc)}{96ac^3x^2}+\frac{(a+bx)^{5/2}\sqrt{c+dx}(7ad+bc)}{24ac^2x^3}-\frac{(a+bx)^{7/2}\sqrt{c+dx}}{4acx^4}$$

```
[Out] (5*(b*c - a*d)^2*(b*c + 7*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(64*a
*c^4*x) + (5*(b*c - a*d)*(b*c + 7*a*d)*(a + b*x)^(3/2)*Sqrt[c + d
*x])/(96*a*c^3*x^2) + ((b*c + 7*a*d)*(a + b*x)^(5/2)*Sqrt[c + d*x
])/(24*a*c^2*x^3) - ((a + b*x)^(7/2)*Sqrt[c + d*x])/(4*a*c*x^4) +
 (5*(b*c - a*d)^3*(b*c + 7*a*d)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(
Sqrt[a]*Sqrt[c + d*x])])/(64*a^(3/2)*c^(9/2))
```

Rubi [A] time = 0.405954, antiderivative size = 229, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$\frac{5(bc-ad)^3(7ad+bc)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{3/2}c^{9/2}}+\frac{5\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^2(7ad+bc)}{64ac^4x}+\frac{5(a+bx)^{3/2}\sqrt{c+dx}(bc-ad)(7ad+bc)}{96ac^3x^2}+\frac{(a+bx)^{5/2}\sqrt{c+dx}(7ad+bc)}{24ac^2x^3}-\frac{(a+bx)^{7/2}\sqrt{c+dx}}{4acx^4}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(5/2)/(x^5*Sqrt[c + d*x]),x]
```

```
[Out] (5*(b*c - a*d)^2*(b*c + 7*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(64*a
*c^4*x) + (5*(b*c - a*d)*(b*c + 7*a*d)*(a + b*x)^(3/2)*Sqrt[c + d
*x])/(96*a*c^3*x^2) + ((b*c + 7*a*d)*(a + b*x)^(5/2)*Sqrt[c + d*x
])/(24*a*c^2*x^3) - ((a + b*x)^(7/2)*Sqrt[c + d*x])/(4*a*c*x^4) +
 (5*(b*c - a*d)^3*(b*c + 7*a*d)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(
Sqrt[a]*Sqrt[c + d*x])])/(64*a^(3/2)*c^(9/2))
```

Rubi in Sympy [A] time = 36.6827, size = 207, normalized size = 0.9

$$-\frac{(a+bx)^{\frac{7}{2}}\sqrt{c+dx}}{4acx^4}+\frac{(a+bx)^{\frac{5}{2}}\sqrt{c+dx}\,(7ad+bc)}{24ac^2x^3}-\frac{5\,(a+bx)^{\frac{3}{2}}\sqrt{c+dx}\,(ad-bc)\,(7ad+bc)}{96ac^3x^2}+\frac{5\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)^2\,(7ad+bc)}{64ac^4x}-\frac{5\,(ad-bc)^3\,(7ad+bc)\,\text{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{\frac{3}{2}}c^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)/x**5/(d*x+c)**(1/2),x)
```

```
[Out] -(a + b*x)**(7/2)*sqrt(c + d*x)/(4*a*c*x**4) + (a + b*x)**(5/2)*s
qrt(c + d*x)*(7*a*d + b*c)/(24*a*c**2*x**3) - 5*(a + b*x)**(3/2)*
sqrt(c + d*x)*(a*d - b*c)*(7*a*d + b*c)/(96*a*c**3*x**2) + 5*sqrt
(a + b*x)*sqrt(c + d*x)*(a*d - b*c)**2*(7*a*d + b*c)/(64*a*c**4*x
) - 5*(a*d - b*c)**3*(7*a*d + b*c)*atanh(sqrt(c)*sqrt(a + b*x)/(s
qrt(a)*sqrt(c + d*x)))/(64*a**(3/2)*c**(9/2))
```

Mathematica [A] time = 0.284264, size = 231, normalized size = 1.01

$$-2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}\left(a^3\left(48c^3-56c^2dx+70cd^2x^2-105d^3x^3\right)+a^2bcx\left(136c^2-172cdx+265d^2x^2\right)+ab^2c^2x^2(118c-\right.$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(5/2)/(x^5*Sqrt[c + d*x]),x]
```

```
[Out] (-2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]*(15*b^3*c^3*x^3 +
 a*b^2*c^2*x^2*(118*c - 191*d*x) + a^2*b*c*x*(136*c^2 - 172*c*d*x
 + 265*d^2*x^2) + a^3*(48*c^3 - 56*c^2*d*x + 70*c*d^2*x^2 - 105*d
^3*x^3)) - 15*(b*c - a*d)^3*(b*c + 7*a*d)*x^4*Log[x] + 15*(b*c -
a*d)^3*(b*c + 7*a*d)*x^4*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sq
rt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(384*a^(3/2)*c^(9/2)*x^4)
```

Maple [B] time = 0.04, size = 593, normalized size = 2.6

$$-\frac{1}{384\,ac^4x^4}\sqrt{bx+a}\sqrt{dx+c}\left(105\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)\,(dx+c)}+2\,ac}{x}\right)x^4a^4d^4-300\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(b}{x}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)/x^5/(d*x+c)^(1/2),x)
```

```
[Out] -1/384*(b*x+a)^(1/2)*(d*x+c)^(1/2)/a/c^4*(105*ln((a*d*x+b*c*x+2*(
a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a^4*d^4-300*ln((
a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a
^3*b*c*d^3+270*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1
/2)+2*a*c)/x)*x^4*a^2*b^2*c^2*d^2-60*ln((a*d*x+b*c*x+2*(a*c)^(1/2
)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a*b^3*c^3*d-15*ln((a*d*x+
b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*b^4*c^4
-210*((b*x+a)*(d*x+c))^(1/2)*d^3*a^3*x^3*(a*c)^(1/2)+530*((b*x+a)
*(d*x+c))^(1/2)*d^2*b*c*a^2*x^3*(a*c)^(1/2)-382*((b*x+a)*(d*x+c))
^(1/2)*d*b^2*c^2*a*x^3*(a*c)^(1/2)+30*((b*x+a)*(d*x+c))^(1/2)*b^3
*c^3*x^3*(a*c)^(1/2)+140*((b*x+a)*(d*x+c))^(1/2)*d^2*c*a^3*x^2*(a
*c)^(1/2)-344*((b*x+a)*(d*x+c))^(1/2)*d*b*c^2*a^2*x^2*(a*c)^(1/2)
+236*((b*x+a)*(d*x+c))^(1/2)*b^2*c^3*a*x^2*(a*c)^(1/2)-112*((b*x+
a)*(d*x+c))^(1/2)*d*c^2*a^3*x*(a*c)^(1/2)+272*((b*x+a)*(d*x+c))^(
1/2)*b*c^3*a^2*x*(a*c)^(1/2)+96*((b*x+a)*(d*x+c))^(1/2)*c^3*a^3*(
a*c)^(1/2))/((b*x+a)*(d*x+c))^(1/2)/(a*c)^(1/2)/x^4
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)/(sqrt(d*x + c)*x^5),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.879645, size = 1, normalized size = 0.

$$\left[-\frac{15\left(b^4c^4+4\,ab^3c^3d-18\,a^2b^2c^2d^2+20\,a^3bcd^3-7\,a^4d^4\right)x^4\log\left(-\frac{4\left(2\,a^2c^2+\left(abc^2+a^2cd\right)x\right)\sqrt{bx+a}\sqrt{dx+c}-\left(8\,a^2c^2+\left(b^2c^2+6\,abcd+a^2d^2\right.\right.}{x^2}\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)/(sqrt(d*x + c)*x^5),x, algorithm="fricas")
```

```
[Out] [-1/768*(15*(b^4*c^4 + 4*a*b^3*c^3*d - 18*a^2*b^2*c^2*d^2 + 20*a^
3*b*c*d^3 - 7*a^4*d^4)*x^4*log(-(4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*
d)*x)*sqrt(b*x + a)*sqrt(d*x + c) - (8*a^2*c^2 + (b^2*c^2 + 6*a*b
*c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2) +
4*(48*a^3*c^3 + (15*b^3*c^3 - 191*a*b^2*c^2*d + 265*a^2*b*c*d^2 -
 105*a^3*d^3)*x^3 + 2*(59*a*b^2*c^3 - 86*a^2*b*c^2*d + 35*a^3*c*d
^2)*x^2 + 8*(17*a^2*b*c^3 - 7*a^3*c^2*d)*x)*sqrt(a*c)*sqrt(b*x +
a)*sqrt(d*x + c))/(sqrt(a*c)*a*c^4*x^4), 1/384*(15*(b^4*c^4 + 4*a
*b^3*c^3*d - 18*a^2*b^2*c^2*d^2 + 20*a^3*b*c*d^3 - 7*a^4*d^4)*x^4
*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqr
t(d*x + c)*a*c)) - 2*(48*a^3*c^3 + (15*b^3*c^3 - 191*a*b^2*c^2*d
+ 265*a^2*b*c*d^2 - 105*a^3*d^3)*x^3 + 2*(59*a*b^2*c^3 - 86*a^2*b
*c^2*d + 35*a^3*c*d^2)*x^2 + 8*(17*a^2*b*c^3 - 7*a^3*c^2*d)*x)*sq
rt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(-a*c)*a*c^4*x^4)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)/x**5/(d*x+c)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)/(sqrt(d*x + c)*x^5),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.670 $\int \frac{x^2(a+bx)^{5/2}}{(c+dx)^{3/2}}\,dx$

Optimal. Leaf size=309

$$-\frac{5\sqrt{a+bx}\sqrt{c+dx}(bc-ad)\left(-a^2d^2-14abcd+63b^2c^2\right)}{64bd^5}+\frac{5(a+bx)^{3/2}\sqrt{c+dx}\left(-a^2d^2-14abcd+63b^2c^2\right)}{96bd^4}+\frac{5(bc-ad)^2\left(-a^2d^2-14abcd+63b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{64b^{3/2}d^{11/2}}+\frac{(a+bx)^{5/2}\sqrt{c+dx}\left(\frac{a^2d}{b}+14ac-\frac{63bc^2}{d}\right)}{24d^2(bc-ad)}+\frac{2c^2(a+bx)^{7/2}}{d^2\sqrt{c+dx}(bc-ad)}+\frac{(a+bx)^{7/2}\sqrt{c+dx}}{4bd^2}$$

```
[Out] (2*c^2*(a + b*x)^(7/2))/(d^2*(b*c - a*d)*Sqrt[c + d*x]) - (5*(b*c
 - a*d)*(63*b^2*c^2 - 14*a*b*c*d - a^2*d^2)*Sqrt[a + b*x]*Sqrt[c
+ d*x])/(64*b*d^5) + (5*(63*b^2*c^2 - 14*a*b*c*d - a^2*d^2)*(a +
b*x)^(3/2)*Sqrt[c + d*x])/(96*b*d^4) + ((14*a*c - (63*b*c^2)/d +
(a^2*d)/b)*(a + b*x)^(5/2)*Sqrt[c + d*x])/(24*d^2*(b*c - a*d)) +
((a + b*x)^(7/2)*Sqrt[c + d*x])/(4*b*d^2) + (5*(b*c - a*d)^2*(63*
b^2*c^2 - 14*a*b*c*d - a^2*d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(
Sqrt[b]*Sqrt[c + d*x])])/(64*b^(3/2)*d^(11/2))
```

Rubi [A] time = 0.751876, antiderivative size = 309, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$-\frac{5\sqrt{a+bx}\sqrt{c+dx}(bc-ad)\left(-a^2d^2-14abcd+63b^2c^2\right)}{64bd^5}+\frac{5(a+bx)^{3/2}\sqrt{c+dx}\left(-a^2d^2-14abcd+63b^2c^2\right)}{96bd^4}+\frac{5(bc-ad)^2\left(-a^2d^2-14abcd+63b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{64b^{3/2}d^{11/2}}+\frac{(a+bx)^{5/2}\sqrt{c+dx}\left(\frac{a^2d}{b}+14ac-\frac{63bc^2}{d}\right)}{24d^2(bc-ad)}+\frac{2c^2(a+bx)^{7/2}}{d^2\sqrt{c+dx}(bc-ad)}+\frac{(a+bx)^{7/2}\sqrt{c+dx}}{4bd^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^2*(a + b*x)^(5/2))/(c + d*x)^(3/2),x]
```


```
[Out] (2*c^2*(a + b*x)^(7/2))/(d^2*(b*c - a*d)*Sqrt[c + d*x]) - (5*(b*c
 - a*d)*(63*b^2*c^2 - 14*a*b*c*d - a^2*d^2)*Sqrt[a + b*x]*Sqrt[c
+ d*x])/(64*b*d^5) + (5*(63*b^2*c^2 - 14*a*b*c*d - a^2*d^2)*(a +
b*x)^(3/2)*Sqrt[c + d*x])/(96*b*d^4) + ((14*a*c - (63*b*c^2)/d +
(a^2*d)/b)*(a + b*x)^(5/2)*Sqrt[c + d*x])/(24*d^2*(b*c - a*d)) +
((a + b*x)^(7/2)*Sqrt[c + d*x])/(4*b*d^2) + (5*(b*c - a*d)^2*(63*
b^2*c^2 - 14*a*b*c*d - a^2*d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(
Sqrt[b]*Sqrt[c + d*x])])/(64*b^(3/2)*d^(11/2))
```

Rubi in Sympy [A] time = 59.9697, size = 289, normalized size = 0.94

$$-\frac{2c^2\left(a+bx\right)^{\frac{7}{2}}}{d^2\sqrt{c+dx}\left(ad-bc\right)}+\frac{\left(a+bx\right)^{\frac{7}{2}}\sqrt{c+dx}}{4bd^2}-\frac{\left(a+bx\right)^{\frac{5}{2}}\sqrt{c+dx}\left(a^2d^2+14abcd-63b^2c^2\right)}{24bd^3\left(ad-bc\right)}-\frac{5\left(a+bx\right)^{\frac{3}{2}}\sqrt{c+dx}\left(a^2d^2+14abcd-63b^2c^2\right)}{96bd^4}-\frac{5\sqrt{a+bx}\sqrt{c+dx}\left(ad-bc\right)\left(a^2d^2+14abcd-63b^2c^2\right)}{64bd^5}-\frac{5\left(ad-bc\right)^2\left(a^2d^2+14abcd-63b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{64b^{\frac{3}{2}}d^{\frac{11}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(b*x+a)**(5/2)/(d*x+c)**(3/2),x)
```

```
[Out] -2*c**2*(a + b*x)**(7/2)/(d**2*sqrt(c + d*x)*(a*d - b*c)) + (a +
b*x)**(7/2)*sqrt(c + d*x)/(4*b*d**2) - (a + b*x)**(5/2)*sqrt(c +
d*x)*(a**2*d**2 + 14*a*b*c*d - 63*b**2*c**2)/(24*b*d**3*(a*d - b*
c)) - 5*(a + b*x)**(3/2)*sqrt(c + d*x)*(a**2*d**2 + 14*a*b*c*d -
63*b**2*c**2)/(96*b*d**4) - 5*sqrt(a + b*x)*sqrt(c + d*x)*(a*d -
b*c)*(a**2*d**2 + 14*a*b*c*d - 63*b**2*c**2)/(64*b*d**5) - 5*(a*d
 - b*c)**2*(a**2*d**2 + 14*a*b*c*d - 63*b**2*c**2)*atanh(sqrt(d)*
sqrt(a + b*x)/(sqrt(b)*sqrt(c + d*x)))/(64*b**(3/2)*d**(11/2))
```

Mathematica [A] time = 0.269729, size = 242, normalized size = 0.78

$$\frac{5\left(-a^2d^2-14abcd+63b^2c^2\right)(bc-ad)^2\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{128b^{3/2}d^{11/2}}+\frac{\sqrt{a+bx}\left(15a^3d^3(c+dx)+a^2bd^2\left(-839c^2-337cdx+118d^2x^2\right)+ab^2d\left(1785c^3+637c^2dx-244cd^2x^2+136d^3x^3\right)-3b^3\left(\right.\right.}{192bd^5\sqrt{c+dx}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^2*(a + b*x)^(5/2))/(c + d*x)^(3/2),x]
```

```
[Out] (Sqrt[a + b*x]*(15*a^3*d^3*(c + d*x) + a^2*b*d^2*(-839*c^2 - 337*
c*d*x + 118*d^2*x^2) + a*b^2*d*(1785*c^3 + 637*c^2*d*x - 244*c*d^
2*x^2 + 136*d^3*x^3) - 3*b^3*(315*c^4 + 105*c^3*d*x - 42*c^2*d^2*
x^2 + 24*c*d^3*x^3 - 16*d^4*x^4)))/(192*b*d^5*Sqrt[c + d*x]) + (5
*(b*c - a*d)^2*(63*b^2*c^2 - 14*a*b*c*d - a^2*d^2)*Log[b*c + a*d
+ 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(128*
b^(3/2)*d^(11/2))
```

Maple [B] time = 0.04, size = 961, normalized size = 3.1

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(b*x+a)^(5/2)/(d*x+c)^(3/2),x)
```

```
[Out] -1/384*(b*x+a)^(1/2)*(-96*x^4*b^3*d^4*((b*x+a)*(d*x+c))^(1/2)*(b*
d)^(1/2)-272*x^3*a*b^2*d^4*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+14
4*x^3*b^3*c*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+15*ln(1/2*(2*
b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))
*x*a^4*d^5+180*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1
/2)+a*d+b*c)/(b*d)^(1/2))*x*a^3*b*c*d^4-1350*ln(1/2*(2*b*d*x+2*((
b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^2*b^2
*c^2*d^3+2100*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/
2)+a*d+b*c)/(b*d)^(1/2))*x*a*b^3*c^3*d^2-945*ln(1/2*(2*b*d*x+2*((
b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*b^4*c^4
*d-236*x^2*a^2*b*d^4*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+488*x^2*
a*b^2*c*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-252*x^2*b^3*c^2*d
^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+15*ln(1/2*(2*b*d*x+2*((b*x
+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^4*c*d^4+18
0*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/
(b*d)^(1/2))*a^3*b*c^2*d^3-1350*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c
))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^2*b^2*c^3*d^2+2100*l
n(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*
d)^(1/2))*a*b^3*c^4*d-945*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/
2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*b^4*c^5-30*x*a^3*d^4*((b*x+a
)*(d*x+c))^(1/2)*(b*d)^(1/2)+674*x*a^2*b*c*d^3*((b*x+a)*(d*x+c))^
(1/2)*(b*d)^(1/2)-1274*x*a*b^2*c^2*d^2*((b*x+a)*(d*x+c))^(1/2)*(b
*d)^(1/2)+630*x*b^3*c^3*d*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-30*
```

```
a^3*c*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+1678*a^2*b*c^2*d^2*
((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-3570*a*b^2*c^3*d*((b*x+a)*(d*
x+c))^(1/2)*(b*d)^(1/2)+1890*b^3*c^4*((b*x+a)*(d*x+c))^(1/2)*(b*d
)^(1/2))/((b*x+a)*(d*x+c))^(1/2)/(b*d)^(1/2)/b/(d*x+c)^(1/2)/d^5
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(5/2)*x^2/(d*x + c)^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 1.08218, size = 1, normalized size = 0.

$$\left[\frac{4\left(48\,b^3d^4x^4-945\,b^3c^4+1785\,ab^2c^3d-839\,a^2bc^2d^2+15\,a^3cd^3-8\left(9\,b^3cd^3-17\,ab^2d^4\right)x^3+2\left(63\,b^3c^2d^2-122\,ab^2cd^3+\right.\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(5/2)*x^2/(d*x + c)^(3/2),x, algorithm="fricas")
```

```
[Out] [1/768*(4*(48*b^3*d^4*x^4 - 945*b^3*c^4 + 1785*a*b^2*c^3*d - 839*
a^2*b*c^2*d^2 + 15*a^3*c*d^3 - 8*(9*b^3*c*d^3 - 17*a*b^2*d^4)*x^3
 + 2*(63*b^3*c^2*d^2 - 122*a*b^2*c*d^3 + 59*a^2*b*d^4)*x^2 - (315
*b^3*c^3*d - 637*a*b^2*c^2*d^2 + 337*a^2*b*c*d^3 - 15*a^3*d^4)*x)
*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) - 15*(63*b^4*c^5 - 140*a*b
^3*c^4*d + 90*a^2*b^2*c^3*d^2 - 12*a^3*b*c^2*d^3 - a^4*c*d^4 + (6
3*b^4*c^4*d - 140*a*b^3*c^3*d^2 + 90*a^2*b^2*c^2*d^3 - 12*a^3*b*c
*d^4 - a^4*d^5)*x)*log(-4*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(
b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a
^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/((b*d^6*x + b*c*d^5
)*sqrt(b*d)), 1/384*(2*(48*b^3*d^4*x^4 - 945*b^3*c^4 + 1785*a*b^2
*c^3*d - 839*a^2*b*c^2*d^2 + 15*a^3*c*d^3 - 8*(9*b^3*c*d^3 - 17*a
*b^2*d^4)*x^3 + 2*(63*b^3*c^2*d^2 - 122*a*b^2*c*d^3 + 59*a^2*b*d^
4)*x^2 - (315*b^3*c^3*d - 637*a*b^2*c^2*d^2 + 337*a^2*b*c*d^3 - 1
5*a^3*d^4)*x)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 15*(63*b^4
*c^5 - 140*a*b^3*c^4*d + 90*a^2*b^2*c^3*d^2 - 12*a^3*b*c^2*d^3 -
a^4*c*d^4 + (63*b^4*c^4*d - 140*a*b^3*c^3*d^2 + 90*a^2*b^2*c^2*d^
3 - 12*a^3*b*c*d^4 - a^4*d^5)*x)*arctan(1/2*(2*b*d*x + b*c + a*d)
*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/((b*d^6*x + b*c*d
^5)*sqrt(-b*d))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(b*x+a)**(5/2)/(d*x+c)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.273842, size = 568, normalized size = 1.84

$$\frac{\left(\left(2\left(4\left(\frac{6(bx+a)b^2d^8}{b^{12}cd^{10}-ab^{11}d^{11}}-\frac{9b^3cd^7+7ab^2d^8}{b^{12}cd^{10}-ab^{11}d^{11}}\right)(bx+a)+\frac{63b^4c^2d^6-14ab^3cd^7-a^2b^2d^8}{b^{12}cd^{10}-ab^{11}d^{11}}\right)(bx+a)-\frac{5(63b^5c^3d^5-77ab^4c^2d^6+13a^2b^3cd^7+a^3b^2d^8}{b^{12}cd^{10}-ab^{11}d^{11}}\right.\right.}{8257536\sqrt{b^2c+(bx+a)bd-abd}}$$

$$-\frac{5\left(63b^3c^3-77ab^2c^2d+13a^2bcd^2+a^3d^3\right)\ln\left(\left|-\sqrt{bd}\sqrt{bx+a}+\sqrt{b^2c+(bx+a)bd-abd}\right|\right)}{2752512\sqrt{bd}b^9d^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*x^2/(d*x + c)^(3/2),x, algorithm="giac")
```

```
[Out] 1/8257536*((2*(4*(6*(b*x + a)*b^2*d^8/(b^12*c*d^10 - a*b^11*d^11)
 - (9*b^3*c*d^7 + 7*a*b^2*d^8)/(b^12*c*d^10 - a*b^11*d^11))*(b*x
+ a) + (63*b^4*c^2*d^6 - 14*a*b^3*c*d^7 - a^2*b^2*d^8)/(b^12*c*d^
10 - a*b^11*d^11))*(b*x + a) - 5*(63*b^5*c^3*d^5 - 77*a*b^4*c^2*d
^6 + 13*a^2*b^3*c*d^7 + a^3*b^2*d^8)/(b^12*c*d^10 - a*b^11*d^11))
*(b*x + a) - 15*(63*b^6*c^4*d^4 - 140*a*b^5*c^3*d^5 + 90*a^2*b^4*
c^2*d^6 - 12*a^3*b^3*c*d^7 - a^4*b^2*d^8)/(b^12*c*d^10 - a*b^11*d
^11))*sqrt(b*x + a)/sqrt(b^2*c + (b*x + a)*b*d - a*b*d) - 5/27525
12*(63*b^3*c^3 - 77*a*b^2*c^2*d + 13*a^2*b*c*d^2 + a^3*d^3)*ln(ab
s(-sqrt(b*d)*sqrt(b*x + a) + sqrt(b^2*c + (b*x + a)*b*d - a*b*d))
)/(sqrt(b*d)*b^9*d^6)
```

3.671 $\int \frac{x(a+bx)^{5/2}}{(c+dx)^{3/2}}\,dx$

Optimal. Leaf size=218

$$-\frac{5(bc-ad)^2(7bc-ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8\sqrt{b}d^{9/2}}+\frac{5\sqrt{a+bx}\sqrt{c+dx}(bc-ad)(7bc-ad)}{8d^4}-\frac{5(a+bx)^{3/2}\sqrt{c+dx}(7bc-ad)}{12d^3}+\frac{(a+bx)^{5/2}\sqrt{c+dx}(7bc-ad)}{3d^2(bc-ad)}-\frac{2c(a+bx)^{7/2}}{d\sqrt{c+dx}(bc-ad)}$$

```
[Out] (-2*c*(a + b*x)^(7/2))/(d*(b*c - a*d)*Sqrt[c + d*x]) + (5*(b*c -
a*d)*(7*b*c - a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(8*d^4) - (5*(7*b
*c - a*d)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(12*d^3) + ((7*b*c - a*d
)*(a + b*x)^(5/2)*Sqrt[c + d*x])/(3*d^2*(b*c - a*d)) - (5*(b*c -
a*d)^2*(7*b*c - a*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqr
t[c + d*x])])/(8*Sqrt[b]*d^(9/2))
```

Rubi [A] time = 0.338011, antiderivative size = 218, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.2

$$-\frac{5(bc-ad)^2(7bc-ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8\sqrt{b}d^{9/2}}+\frac{5\sqrt{a+bx}\sqrt{c+dx}(bc-ad)(7bc-ad)}{8d^4}-\frac{5(a+bx)^{3/2}\sqrt{c+dx}(7bc-ad)}{12d^3}+\frac{(a+bx)^{5/2}\sqrt{c+dx}(7bc-ad)}{3d^2(bc-ad)}-\frac{2c(a+bx)^{7/2}}{d\sqrt{c+dx}(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[(x*(a + b*x)^(5/2))/(c + d*x)^(3/2),x]
```



```
[Out] (-2*c*(a + b*x)^(7/2))/(d*(b*c - a*d)*Sqrt[c + d*x]) + (5*(b*c -
a*d)*(7*b*c - a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(8*d^4) - (5*(7*b
*c - a*d)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(12*d^3) + ((7*b*c - a*d
)*(a + b*x)^(5/2)*Sqrt[c + d*x])/(3*d^2*(b*c - a*d)) - (5*(b*c -
a*d)^2*(7*b*c - a*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqr
t[c + d*x])])/(8*Sqrt[b]*d^(9/2))
```

Rubi in Sympy [A] time = 36.2334, size = 196, normalized size = 0.9

$$\frac{2c\left(a+bx\right)^{\frac{7}{2}}}{d\sqrt{c+dx}\left(ad-bc\right)}+\frac{\left(a+bx\right)^{\frac{5}{2}}\sqrt{c+dx}\left(ad-7bc\right)}{3d^2\left(ad-bc\right)}+\frac{5\left(a+bx\right)^{\frac{3}{2}}\sqrt{c+dx}\left(ad-7bc\right)}{12d^3}+\frac{5\sqrt{a+bx}\sqrt{c+dx}\left(ad-7bc\right)\left(ad-bc\right)}{8d^4}+\frac{5\left(ad-7bc\right)\left(ad-bc\right)^2\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8\sqrt{b}d^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(b*x+a)**(5/2)/(d*x+c)**(3/2),x)
```

```
[Out] 2*c*(a + b*x)**(7/2)/(d*sqrt(c + d*x)*(a*d - b*c)) + (a + b*x)**(
5/2)*sqrt(c + d*x)*(a*d - 7*b*c)/(3*d**2*(a*d - b*c)) + 5*(a + b*
x)**(3/2)*sqrt(c + d*x)*(a*d - 7*b*c)/(12*d**3) + 5*sqrt(a + b*x)
*sqrt(c + d*x)*(a*d - 7*b*c)*(a*d - b*c)/(8*d**4) + 5*(a*d - 7*b*
c)*(a*d - b*c)**2*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c + d
*x)))/(8*sqrt(b)*d**(9/2))
```

Mathematica [A] time = 0.220244, size = 176, normalized size = 0.81

$$\frac{\sqrt{a+bx}\left(3a^2d^2(27c+11dx)+2abd\left(-95c^2-34cdx+13d^2x^2\right)+b^2\left(105c^3+35c^2dx-14cd^2x^2+8d^3x^3\right)\right)}{24d^4\sqrt{c+dx}}+\frac{5(ad-7bc)(bc-ad)^2\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{16\sqrt{b}d^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x*(a + b*x)^(5/2))/(c + d*x)^(3/2),x]
```

```
[Out] (Sqrt[a + b*x]*(3*a^2*d^2*(27*c + 11*d*x) + 2*a*b*d*(-95*c^2 - 34
*c*d*x + 13*d^2*x^2) + b^2*(105*c^3 + 35*c^2*d*x - 14*c*d^2*x^2 +
 8*d^3*x^3)))/(24*d^4*Sqrt[c + d*x]) + (5*(b*c - a*d)^2*(-7*b*c +
 a*d)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*S
qrt[c + d*x]])/(16*Sqrt[b]*d^(9/2))
```

Maple [B] time = 0.037, size = 689, normalized size = 3.2

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(b*x+a)^(5/2)/(d*x+c)^(3/2),x)
```

```
[Out] 1/48*(b*x+a)^(1/2)*(16*x^3*b^2*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^
(1/2)+15*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*
d+b*c)/(b*d)^(1/2))*x*a^3*d^4-135*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x
+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^2*b*c*d^3+225*ln
(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d
)^(1/2))*x*a*b^2*c^2*d^2-105*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^
(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*b^3*c^3*d+52*x^2*a*b*d^
3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-28*x^2*b^2*c*d^2*((b*x+a)*(
d*x+c))^(1/2)*(b*d)^(1/2)+15*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^
(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^3*c*d^3-135*ln(1/2*(2*b
*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*
a^2*b*c^2*d^2+225*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)
^(1/2)+a*d+b*c)/(b*d)^(1/2))*a*b^2*c^3*d-105*ln(1/2*(2*b*d*x+2*((
b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*b^3*c^4+6
6*x*a^2*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-136*x*a*b*c*d^2*(
(b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+70*x*b^2*c^2*d*((b*x+a)*(d*x+c
))^(1/2)*(b*d)^(1/2)+162*a^2*c*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^
(1/2)-380*a*b*c^2*d*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+210*b^2*c
^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2))/((b*x+a)*(d*x+c))^(1/2)/(
b*d)^(1/2)/(d*x+c)^(1/2)/d^4
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*x/(d*x + c)^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.664684, size = 1, normalized size = 0.

$$\left[\frac{4\left(8\,b^2d^3x^3+105\,b^2c^3-190\,abc^2d+81\,a^2cd^2-2\left(7\,b^2cd^2-13\,abd^3\right)x^2+\left(35\,b^2c^2d-68\,abcd^2+33\,a^2d^3\right)x\right)\sqrt{bd}\sqrt{bx+a}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*x/(d*x + c)^(3/2),x, algorithm="fricas")
```

```
[Out] [1/96*(4*(8*b^2*d^3*x^3 + 105*b^2*c^3 - 190*a*b*c^2*d + 81*a^2*c*
d^2 - 2*(7*b^2*c*d^2 - 13*a*b*d^3)*x^2 + (35*b^2*c^2*d - 68*a*b*c
*d^2 + 33*a^2*d^3)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) - 15*
(7*b^3*c^4 - 15*a*b^2*c^3*d + 9*a^2*b*c^2*d^2 - a^3*c*d^3 + (7*b^
3*c^3*d - 15*a*b^2*c^2*d^2 + 9*a^2*b*c*d^3 - a^3*d^4)*x)*log(4*(2
*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*
b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^
2)*x)*sqrt(b*d)))/((d^5*x + c*d^4)*sqrt(b*d)), 1/48*(2*(8*b^2*d^3
*x^3 + 105*b^2*c^3 - 190*a*b*c^2*d + 81*a^2*c*d^2 - 2*(7*b^2*c*d^
2 - 13*a*b*d^3)*x^2 + (35*b^2*c^2*d - 68*a*b*c*d^2 + 33*a^2*d^3)*
x)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c) - 15*(7*b^3*c^4 - 15*a*
b^2*c^3*d + 9*a^2*b*c^2*d^2 - a^3*c*d^3 + (7*b^3*c^3*d - 15*a*b^2
*c^2*d^2 + 9*a^2*b*c*d^3 - a^3*d^4)*x)*arctan(1/2*(2*b*d*x + b*c
+ a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/((d^5*x + c
*d^4)*sqrt(-b*d))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(b*x+a)**(5/2)/(d*x+c)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.250129, size = 452, normalized size = 2.07

$$\frac{\left(\left(2\left(\frac{4(bx+a)bd^6|b|}{b^{10}cd^8-ab^9d^9}-\frac{7\,b^2cd^5|b|-abd^6|b|}{b^{10}cd^8-ab^9d^9}\right)(bx+a)+\frac{5\left(7\,b^3c^2d^4|b|-8\,ab^2cd^5|b|+a^2bd^6|b|\right)}{b^{10}cd^8-ab^9d^9}\right)(bx+a)+\frac{15\left(7\,b^4c^3d^3|b|-15\,ab^3c^2d^4|b|+9\,a^2b\right.}{b^{10}cd^8-ab^9d^9}}{184320\sqrt{b^2c+(bx+a)bd-abd}}$$
$$+\frac{\left(7\,b^2c^2|b|-8\,abcd|b|+a^2d^2|b|\right)\ln\left(\left|-\sqrt{bd}\sqrt{bx+a}+\sqrt{b^2c+(bx+a)bd-abd}\right|\right)}{12288\sqrt{bd}b^8d^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*x/(d*x + c)^(3/2),x, algorithm="giac")
```

```
[Out] 1/184320*((2*(4*(b*x + a)*b*d^6*abs(b)/(b^10*c*d^8 - a*b^9*d^9) -
 (7*b^2*c*d^5*abs(b) - a*b*d^6*abs(b))/(b^10*c*d^8 - a*b^9*d^9))*
(b*x + a) + 5*(7*b^3*c^2*d^4*abs(b) - 8*a*b^2*c*d^5*abs(b) + a^2*
b*d^6*abs(b))/(b^10*c*d^8 - a*b^9*d^9))*(b*x + a) + 15*(7*b^4*c^3
*d^3*abs(b) - 15*a*b^3*c^2*d^4*abs(b) + 9*a^2*b^2*c*d^5*abs(b) -
a^3*b*d^6*abs(b))/(b^10*c*d^8 - a*b^9*d^9))*sqrt(b*x + a)/sqrt(b^
2*c + (b*x + a)*b*d - a*b*d) + 1/12288*(7*b^2*c^2*abs(b) - 8*a*b*
c*d*abs(b) + a^2*d^2*abs(b))*ln(abs(-sqrt(b*d)*sqrt(b*x + a) + sq
rt(b^2*c + (b*x + a)*b*d - a*b*d)))/(sqrt(b*d)*b^8*d^5)
```

3.672 $\int \frac{(a+bx)^{5/2}}{(c+dx)^{3/2}}\,dx$

Optimal. Leaf size=138

$$\frac{15\sqrt{b}(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4d^{7/2}}-\frac{15b\sqrt{a+bx}\sqrt{c+dx}(bc-ad)}{4d^3}+\frac{5b(a+bx)^{3/2}\sqrt{c+dx}}{2d^2}-\frac{2(a+bx)^{5/2}}{d\sqrt{c+dx}}$$

```
[Out] (-2*(a + b*x)^(5/2))/(d*Sqrt[c + d*x]) - (15*b*(b*c - a*d)*Sqrt[a
 + b*x]*Sqrt[c + d*x])/(4*d^3) + (5*b*(a + b*x)^(3/2)*Sqrt[c + d*
x])/(2*d^2) + (15*Sqrt[b]*(b*c - a*d)^2*ArcTanh[(Sqrt[d]*Sqrt[a +
 b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(4*d^(7/2))
```

Rubi [A] time = 0.170735, antiderivative size = 138, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.21

$$\frac{15\sqrt{b}(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4d^{7/2}}-\frac{15b\sqrt{a+bx}\sqrt{c+dx}(bc-ad)}{4d^3}+\frac{5b(a+bx)^{3/2}\sqrt{c+dx}}{2d^2}-\frac{2(a+bx)^{5/2}}{d\sqrt{c+dx}}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(5/2)/(c + d*x)^(3/2),x]
```

```
[Out] (-2*(a + b*x)^(5/2))/(d*Sqrt[c + d*x]) - (15*b*(b*c - a*d)*Sqrt[a
 + b*x]*Sqrt[c + d*x])/(4*d^3) + (5*b*(a + b*x)^(3/2)*Sqrt[c + d*
x])/(2*d^2) + (15*Sqrt[b]*(b*c - a*d)^2*ArcTanh[(Sqrt[d]*Sqrt[a +
 b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(4*d^(7/2))
```

Rubi in Sympy [A] time = 20.957, size = 128, normalized size = 0.93

$$\frac{15\sqrt{b}\,(ad-bc)^2\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4d^{\frac{7}{2}}}+\frac{5b\,(a+bx)^{\frac{3}{2}}\,\sqrt{c+dx}}{2d^2}+\frac{15b\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)}{4d^3}-\frac{2\,(a+bx)^{\frac{5}{2}}}{d\sqrt{c+dx}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)/(d*x+c)**(3/2),x)
```

```
[Out] 15*sqrt(b)*(a*d - b*c)**2*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sq
rt(c + d*x)))/(4*d**(7/2)) + 5*b*(a + b*x)**(3/2)*sqrt(c + d*x)/(
2*d**2) + 15*b*sqrt(a + b*x)*sqrt(c + d*x)*(a*d - b*c)/(4*d**3) -
 2*(a + b*x)**(5/2)/(d*sqrt(c + d*x))
```

Mathematica [A] time = 0.164366, size = 138, normalized size = 1.

$$\sqrt{a+bx}\sqrt{c+dx}\left(-\frac{2(ad-bc)^2}{d^3(c+dx)}-\frac{b(7bc-9ad)}{4d^3}+\frac{b^2x}{2d^2}\right)+\frac{15\sqrt{b}(bc-ad)^2\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{8d^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(5/2)/(c + d*x)^(3/2),x]
```

```
[Out] Sqrt[a + b*x]*Sqrt[c + d*x]*(-(b*(7*b*c - 9*a*d))/(4*d^3) + (b^2*
x)/(2*d^2) - (2*(-(b*c) + a*d)^2)/(d^3*(c + d*x))) + (15*Sqrt[b]*
```

```
(b*c - a*d)^2*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a
+ b*x]*Sqrt[c + d*x]])/(8*d^(7/2))
```

Maple [F] time = 0., size = 0, normalized size = 0.

$$\int 1\,(bx+a)^{\frac{5}{2}}\,(dx+c)^{-\frac{3}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)/(d*x+c)^(3/2),x)
```

```
[Out] int((b*x+a)^(5/2)/(d*x+c)^(3/2),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)/(d*x + c)^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.487824, size = 1, normalized size = 0.01

$$\left[\frac{15\left(b^2c^3-2\,abc^2d+a^2cd^2+\left(b^2c^2d-2\,abcd^2+a^2d^3\right)x\right)\sqrt{\frac{b}{d}}\log\left(8\,b^2d^2x^2+b^2c^2+6\,abcd+a^2d^2+4\left(2\,bd^2x+bcd+ad^2\right)\right.}{16\left(d^4\right.}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)/(d*x + c)^(3/2),x, algorithm="fricas")
```

```
[Out] [1/16*(15*(b^2*c^3 - 2*a*b*c^2*d + a^2*c*d^2 + (b^2*c^2*d - 2*a*b
*c*d^2 + a^2*d^3)*x)*sqrt(b/d)*log(8*b^2*d^2*x^2 + b^2*c^2 + 6*a*
b*c*d + a^2*d^2 + 4*(2*b*d^2*x + b*c*d + a*d^2)*sqrt(b*x + a)*sqr
t(d*x + c)*sqrt(b/d) + 8*(b^2*c*d + a*b*d^2)*x) + 4*(2*b^2*d^2*x^
2 - 15*b^2*c^2 + 25*a*b*c*d - 8*a^2*d^2 - (5*b^2*c*d - 9*a*b*d^2)
*x)*sqrt(b*x + a)*sqrt(d*x + c))/(d^4*x + c*d^3), 1/8*(15*(b^2*c^
3 - 2*a*b*c^2*d + a^2*c*d^2 + (b^2*c^2*d - 2*a*b*c*d^2 + a^2*d^3)
*x)*sqrt(-b/d)*arctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(b*x + a)*sq
rt(d*x + c)*d*sqrt(-b/d))) + 2*(2*b^2*d^2*x^2 - 15*b^2*c^2 + 25*a
*b*c*d - 8*a^2*d^2 - (5*b^2*c*d - 9*a*b*d^2)*x)*sqrt(b*x + a)*sqr
t(d*x + c))/(d^4*x + c*d^3)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a+bx)^{\frac{5}{2}}}{(c+dx)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)/(d*x+c)**(3/2),x)
```

```
[Out] Integral((a + b*x)**(5/2)/(c + d*x)**(3/2), x)
```

GIAC/XCAS [A] time = 0.241255, size = 302, normalized size = 2.19

$$\frac{\left(\left(\frac{2\,(bx+a)b^2d^4}{b^8cd^6-ab^7d^7}-\frac{5\,(b^3cd^3-ab^2d^4)}{b^8cd^6-ab^7d^7}\right)(bx+a)-\frac{15\,(b^4c^2d^2-2\,ab^3cd^3+a^2b^2d^4)}{b^8cd^6-ab^7d^7}\right)\sqrt{bx+a}}{1536\,\sqrt{b^2c+(bx+a)bd-abd}}-\frac{5\,(bc-ad)\ln\left(\left|-\sqrt{bd}\sqrt{bx+a}+\sqrt{b^2c+(bx+a)bd-abd}\right|\right)}{512\,\sqrt{bd}b^5d^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)/(d*x + c)^(3/2),x, algorithm="giac")
```

```
[Out] 1/1536*((2*(b*x + a)*b^2*d^4/(b^8*c*d^6 - a*b^7*d^7) - 5*(b^3*c*d
^3 - a*b^2*d^4)/(b^8*c*d^6 - a*b^7*d^7))*(b*x + a) - 15*(b^4*c^2*
d^2 - 2*a*b^3*c*d^3 + a^2*b^2*d^4)/(b^8*c*d^6 - a*b^7*d^7))*sqrt(
b*x + a)/sqrt(b^2*c + (b*x + a)*b*d - a*b*d) - 5/512*(b*c - a*d)*
ln(abs(-sqrt(b*d)*sqrt(b*x + a) + sqrt(b^2*c + (b*x + a)*b*d - a*
b*d)))/(sqrt(b*d)*b^5*d^4)
```

3.673 $\int \frac{(a+bx)^{5/2}}{x(c+dx)^{3/2}}\,dx$

Optimal. Leaf size=163

$$-\frac{2a^{5/2}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{c^{3/2}}-\frac{b^{3/2}(3bc-5ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{d^{5/2}}+\frac{b\sqrt{a+bx}\sqrt{c+dx}(3bc-2ad)}{cd^2}-\frac{2(a+bx)^{3/2}(bc-ad)}{cd\sqrt{c+dx}}$$

```
[Out] (-2*(b*c - a*d)*(a + b*x)^(3/2))/(c*d*Sqrt[c + d*x]) + (b*(3*b*c
- 2*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(c*d^2) - (2*a^(5/2)*ArcTan
h[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/c^(3/2) - (b^
(3/2)*(3*b*c - 5*a*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sq
rt[c + d*x])])/d^(5/2)
```

Rubi [A] time = 0.494514, antiderivative size = 163, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.273

$$-\frac{2a^{5/2}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{c^{3/2}}-\frac{b^{3/2}(3bc-5ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{d^{5/2}}+\frac{b\sqrt{a+bx}\sqrt{c+dx}(3bc-2ad)}{cd^2}-\frac{2(a+bx)^{3/2}(bc-ad)}{cd\sqrt{c+dx}}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(5/2)/(x*(c + d*x)^(3/2)),x]
```

```
[Out] (-2*(b*c - a*d)*(a + b*x)^(3/2))/(c*d*Sqrt[c + d*x]) + (b*(3*b*c
- 2*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(c*d^2) - (2*a^(5/2)*ArcTan
h[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/c^(3/2) - (b^
(3/2)*(3*b*c - 5*a*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sq
rt[c + d*x])])/d^(5/2)
```

Rubi in Sympy [A] time = 49.0528, size = 151, normalized size = 0.93

$$-\frac{2a^{\frac{5}{2}}\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{c^{\frac{3}{2}}}+\frac{b^{\frac{3}{2}}(5ad-3bc)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{d^{\frac{5}{2}}}-\frac{b\sqrt{a+bx}\sqrt{c+dx}\,(2ad-3bc)}{cd^2}+\frac{2\,(a+bx)^{\frac{3}{2}}\,(ad-bc)}{cd\sqrt{c+dx}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)/x/(d*x+c)**(3/2),x)
```

```
[Out] -2*a**(5/2)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/
c**(3/2) + b**(3/2)*(5*a*d - 3*b*c)*atanh(sqrt(b)*sqrt(c + d*x)/(
sqrt(d)*sqrt(a + b*x)))/d**(5/2) - b*sqrt(a + b*x)*sqrt(c + d*x)*
(2*a*d - 3*b*c)/(c*d**2) + 2*(a + b*x)**(3/2)*(a*d - b*c)/(c*d*sq
rt(c + d*x))
```

Mathematica [A] time = 0.598872, size = 188, normalized size = 1.15

$$-\frac{a^{5/2}\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{c^{3/2}}+\frac{a^{5/2}\log(x)}{c^{3/2}}-\frac{b^{3/2}(3bc-5ad)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{2d^{5/2}}+\sqrt{a+bx}\sqrt{c+dx}\left(\frac{2(bc-ad)^2}{cd^2(c+dx)}+\frac{b^2}{d^2}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(5/2)/(x*(c + d*x)^(3/2)),x]
```

```
[Out] Sqrt[a + b*x]*Sqrt[c + d*x]*(b^2/d^2 + (2*(b*c - a*d)^2)/(c*d^2*(
c + d*x))) + (a^(5/2)*Log[x])/c^(3/2) - (a^(5/2)*Log[2*a*c + b*c*
x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/c^(3/
2) - (b^(3/2)*(3*b*c - 5*a*d)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]
*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(2*d^(5/2))
```

Maple [B] time = 0.036, size = 492, normalized size = 3.

$$-\frac{1}{2\,d^2c}\sqrt{bx+a}\left(2\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)\,(dx+c)}+2\,ac}{x}\right)xa^3d^3\sqrt{bd}-5\,\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{(bx+a)\,(dx+c)}\sqrt{bd}}{\sqrt{bd}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)/x/(d*x+c)^(3/2),x)
```

```
[Out] -1/2*(b*x+a)^(1/2)*(2*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x
+c))^(1/2)+2*a*c)/x)*x*a^3*d^3*(b*d)^(1/2)-5*ln(1/2*(2*b*d*x+2*((
b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a*b^2*c
*d^2*(a*c)^(1/2)+3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d
)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*b^3*c^2*d*(a*c)^(1/2)+2*ln((a*d*x
+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*a^3*c*d^2*
(b*d)^(1/2)-5*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/
2)+a*d+b*c)/(b*d)^(1/2))*a*b^2*c^2*d*(a*c)^(1/2)+3*ln(1/2*(2*b*d*
x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*b^3
*c^3*(a*c)^(1/2)-2*x*b^2*c*d*(b*d)^(1/2)*(a*c)^(1/2)*((b*x+a)*(d*
x+c))^(1/2)-4*a^2*d^2*(b*d)^(1/2)*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(
1/2)+8*a*b*c*d*(b*d)^(1/2)*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-6*
b^2*c^2*(b*d)^(1/2)*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2))/c/((b*x+
a)*(d*x+c))^(1/2)/(b*d)^(1/2)/(a*c)^(1/2)/(d*x+c)^(1/2)/d^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)/((d*x + c)^(3/2)*x),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 2.42861, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(5/2)/((d*x + c)^(3/2)*x),x, algorithm="fricas")
```

```
[Out] [-1/4*((3*b^2*c^3 - 5*a*b*c^2*d + (3*b^2*c^2*d - 5*a*b*c*d^2)*x)*
sqrt(b/d)*log(8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(
2*b*d^2*x + b*c*d + a*d^2)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(b/d)
+ 8*(b^2*c*d + a*b*d^2)*x) - 2*(a^2*d^3*x + a^2*c*d^2)*sqrt(a/c)*
log((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a*c^2
 + (b*c^2 + a*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(a/c) + 8*(
a*b*c^2 + a^2*c*d)*x)/x^2) - 4*(b^2*c*d*x + 3*b^2*c^2 - 4*a*b*c*d
 + 2*a^2*d^2)*sqrt(b*x + a)*sqrt(d*x + c))/(c*d^3*x + c^2*d^2), -
1/2*((3*b^2*c^3 - 5*a*b*c^2*d + (3*b^2*c^2*d - 5*a*b*c*d^2)*x)*sq
rt(-b/d)*arctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(b*x + a)*sqrt(d*x
 + c)*d*sqrt(-b/d))) - (a^2*d^3*x + a^2*c*d^2)*sqrt(a/c)*log((8*a
^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a*c^2 + (b*c^
2 + a*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(a/c) + 8*(a*b*c^2
+ a^2*c*d)*x)/x^2) - 2*(b^2*c*d*x + 3*b^2*c^2 - 4*a*b*c*d + 2*a^2
*d^2)*sqrt(b*x + a)*sqrt(d*x + c))/(c*d^3*x + c^2*d^2), -1/4*(4*(
a^2*d^3*x + a^2*c*d^2)*sqrt(-a/c)*arctan(1/2*(2*a*c + (b*c + a*d)
*x)/(sqrt(b*x + a)*sqrt(d*x + c)*c*sqrt(-a/c))) + (3*b^2*c^3 - 5*
a*b*c^2*d + (3*b^2*c^2*d - 5*a*b*c*d^2)*x)*sqrt(b/d)*log(8*b^2*d^
2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b*d^2*x + b*c*d + a*
d^2)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(b/d) + 8*(b^2*c*d + a*b*d^2
)*x) - 4*(b^2*c*d*x + 3*b^2*c^2 - 4*a*b*c*d + 2*a^2*d^2)*sqrt(b*x
 + a)*sqrt(d*x + c))/(c*d^3*x + c^2*d^2), -1/2*(2*(a^2*d^3*x + a^
2*c*d^2)*sqrt(-a/c)*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(b*x
+ a)*sqrt(d*x + c)*c*sqrt(-a/c))) + (3*b^2*c^3 - 5*a*b*c^2*d + (3
*b^2*c^2*d - 5*a*b*c*d^2)*x)*sqrt(-b/d)*arctan(1/2*(2*b*d*x + b*c
 + a*d)/(sqrt(b*x + a)*sqrt(d*x + c)*d*sqrt(-b/d))) - 2*(b^2*c*d*
x + 3*b^2*c^2 - 4*a*b*c*d + 2*a^2*d^2)*sqrt(b*x + a)*sqrt(d*x + c
))/(c*d^3*x + c^2*d^2)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a+bx)^{\frac{5}{2}}}{x\,(c+dx)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**(5/2)/x/(d*x+c)**(3/2),x)
```

```
[Out] Integral((a + b*x)**(5/2)/(x*(c + d*x)**(3/2)), x)
```

GIAC/XCAS [A] time = 0.283905, size = 392, normalized size = 2.4

$$-\frac{2\sqrt{bd}a^3b\arctan\left(-\frac{b^2c+abd-\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2}{2\sqrt{-abcd}b}\right)}{\sqrt{-abcd}c|b|}-\frac{\left(\frac{(bx+a)b^5cd^2}{b^6cd^4-ab^5d^5}+\frac{3b^6c^2d-5ab^5cd^2+2a^2b^4d^3}{b^6cd^4-ab^5d^5}\right)\sqrt{bx+a}}{32\sqrt{b^2c+(bx+a)bd-abd}}-\frac{\left(3\sqrt{bd}bc^2-5\sqrt{bd}acd\right)\ln\left(\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2\right)}{64\left(b^2cd^4-abd^5\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(5/2)/((d*x + c)^(3/2)*x),x, algorithm="giac")
```

```
[Out] -2*sqrt(b*d)*a^3*b*arctan(-1/2*(b^2*c + a*b*d - (sqrt(b*d)*sqrt(b
*x + a) - sqrt(b^2*c + (b*x + a)*b*d - a*b*d))^2)/(sqrt(-a*b*c*d)
```

```
*b))/(sqrt(-a*b*c*d)*c*abs(b)) - 1/32*((b*x + a)*b^5*c*d^2/(b^6*c
*d^4 - a*b^5*d^5) + (3*b^6*c^2*d - 5*a*b^5*c*d^2 + 2*a^2*b^4*d^3)
/(b^6*c*d^4 - a*b^5*d^5))*sqrt(b*x + a)/sqrt(b^2*c + (b*x + a)*b*
d - a*b*d) - 1/64*(3*sqrt(b*d)*b*c^2 - 5*sqrt(b*d)*a*c*d)*ln((sqr
t(b*d)*sqrt(b*x + a) - sqrt(b^2*c + (b*x + a)*b*d - a*b*d))^2)/(b
^2*c*d^4 - a*b*d^5)
```

3.674 $\int \frac{(a+bx)^{5/2}}{x^2(c+dx)^{3/2}}\,dx$

Optimal. Leaf size=164

$$-\frac{a^{3/2}(5bc-3ad)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{c^{5/2}}+\frac{2b^{5/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{d^{3/2}}-\frac{\sqrt{a+bx}(2bc-3ad)(bc-ad)}{c^2d\sqrt{c+dx}}-\frac{a(a+bx)^{3/2}}{cx\sqrt{c+dx}}$$

```
[Out] -(((2*b*c - 3*a*d)*(b*c - a*d)*Sqrt[a + b*x])/(c^2*d*Sqrt[c + d*x
])) - (a*(a + b*x)^(3/2))/(c*x*Sqrt[c + d*x]) - (a^(3/2)*(5*b*c -
 3*a*d)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])
/c^(5/2) + (2*b^(5/2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sq
rt[c + d*x])])/d^(3/2)
```

Rubi [A] time = 0.513821, antiderivative size = 164, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.273

$$-\frac{a^{3/2}(5bc-3ad)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{c^{5/2}}+\frac{2b^{5/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{d^{3/2}}-\frac{\sqrt{a+bx}(2bc-3ad)(bc-ad)}{c^2d\sqrt{c+dx}}-\frac{a(a+bx)^{3/2}}{cx\sqrt{c+dx}}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(5/2)/(x^2*(c + d*x)^(3/2)),x]
```

```
[Out] -(((2*b*c - 3*a*d)*(b*c - a*d)*Sqrt[a + b*x])/(c^2*d*Sqrt[c + d*x
])) - (a*(a + b*x)^(3/2))/(c*x*Sqrt[c + d*x]) - (a^(3/2)*(5*b*c -
 3*a*d)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])
/c^(5/2) + (2*b^(5/2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sq
rt[c + d*x])])/d^(3/2)
```

Rubi in Sympy [A] time = 48.1153, size = 150, normalized size = 0.91

$$\frac{a^{\frac{3}{2}}(3ad-5bc)\,\mathrm{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{c^{\frac{5}{2}}}-\frac{a\,(a+bx)^{\frac{3}{2}}}{cx\sqrt{c+dx}}+\frac{2b^{\frac{5}{2}}\,\mathrm{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{d^{\frac{3}{2}}}-\frac{\sqrt{a+bx}\,(ad-bc)\,(3ad-2bc)}{c^2d\sqrt{c+dx}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)/x**2/(d*x+c)**(3/2),x)
```

```
[Out] a**(3/2)*(3*a*d - 5*b*c)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqr
t(c + d*x)))/c**(5/2) - a*(a + b*x)**(3/2)/(c*x*sqrt(c + d*x)) +
2*b**(5/2)*atanh(sqrt(b)*sqrt(c + d*x)/(sqrt(d)*sqrt(a + b*x)))/d
**(3/2) - sqrt(a + b*x)*(a*d - b*c)*(3*a*d - 2*b*c)/(c**2*d*sqrt(
c + d*x))
```

Mathematica [A] time = 0.759201, size = 203, normalized size = 1.24

$$-\frac{a^{3/2}\log(x)(3ad-5bc)}{2c^{5/2}}+\frac{a^{3/2}(3ad-5bc)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{2c^{5/2}}+\sqrt{a+bx}\sqrt{c+dx}\left(-\frac{a^2}{c^2x}-\frac{2(bc-ad)^2}{c^2d(c+dx)}\right)+\frac{b^{5/2}\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{d^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(5/2)/(x^2*(c + d*x)^(3/2)),x]
```

```
[Out] Sqrt[a + b*x]*Sqrt[c + d*x]*(-(a^2/(c^2*x)) - (2*(b*c - a*d)^2)/(
c^2*d*(c + d*x))) - (a^(3/2)*(-5*b*c + 3*a*d)*Log[x])/(2*c^(5/2))
 + (a^(3/2)*(-5*b*c + 3*a*d)*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a
]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(2*c^(5/2)) + (b^(5/2)*Lo
g[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c +
d*x]])/d^(3/2)
```

Maple [B] time = 0.037, size = 502, normalized size = 3.1

$$\frac{1}{2\,c^2xd}\sqrt{bx+a}\left(3\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)\,(dx+c)}+2\,ac}{x}\right)x^2a^3d^3\sqrt{bd}-5\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)\,(dx+c}}{x}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)/x^2/(d*x+c)^(3/2),x)
```

```
[Out] 1/2*(b*x+a)^(1/2)*(3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+
c))^(1/2)+2*a*c)/x)*x^2*a^3*d^3*(b*d)^(1/2)-5*ln((a*d*x+b*c*x+2*(
a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a^2*b*c*d^2*(b*d
)^(1/2)+2*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a
*d+b*c)/(b*d)^(1/2))*x^2*b^3*c^2*d*(a*c)^(1/2)+3*ln((a*d*x+b*c*x+
2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x*a^3*c*d^2*(b*d)
^(1/2)-5*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*
a*c)/x)*x*a^2*b*c^2*d*(b*d)^(1/2)+2*ln(1/2*(2*b*d*x+2*((b*x+a)*(d
*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*b^3*c^3*(a*c)^(1
/2)-6*x*a^2*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)*(a*c)^(1/2)+8
*x*a*b*c*d*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)*(a*c)^(1/2)-4*x*b^
2*c^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)*(a*c)^(1/2)-2*a^2*c*d*(
(b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)*(a*c)^(1/2))/c^2/((b*x+a)*(d*x
+c))^(1/2)/x/(b*d)^(1/2)/(a*c)^(1/2)/(d*x+c)^(1/2)/d
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)/((d*x + c)^(3/2)*x^2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 1.81857, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)/((d*x + c)^(3/2)*x^2),x, algorithm="fricas")
```

```
[Out] [1/4*(2*(b^2*c^2*d*x^2 + b^2*c^3*x)*sqrt(b/d)*log(8*b^2*d^2*x^2 +
 b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b*d^2*x + b*c*d + a*d^2)*sq
rt(b*x + a)*sqrt(d*x + c)*sqrt(b/d) + 8*(b^2*c*d + a*b*d^2)*x) -
((5*a*b*c*d^2 - 3*a^2*d^3)*x^2 + (5*a*b*c^2*d - 3*a^2*c*d^2)*x)*s
qrt(a/c)*log((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 4
*(2*a*c^2 + (b*c^2 + a*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(a
```

```
/c) + 8*(a*b*c^2 + a^2*c*d)*x)/x^2) - 4*(a^2*c*d + (2*b^2*c^2 - 4
*a*b*c*d + 3*a^2*d^2)*x)*sqrt(b*x + a)*sqrt(d*x + c))/(c^2*d^2*x^
2 + c^3*d*x), 1/4*(4*(b^2*c^2*d*x^2 + b^2*c^3*x)*sqrt(-b/d)*arcta
n(1/2*(2*b*d*x + b*c + a*d)/(sqrt(b*x + a)*sqrt(d*x + c)*d*sqrt(-
b/d))) - ((5*a*b*c*d^2 - 3*a^2*d^3)*x^2 + (5*a*b*c^2*d - 3*a^2*c*
d^2)*x)*sqrt(a/c)*log((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2
)*x^2 + 4*(2*a*c^2 + (b*c^2 + a*c*d)*x)*sqrt(b*x + a)*sqrt(d*x +
c)*sqrt(a/c) + 8*(a*b*c^2 + a^2*c*d)*x)/x^2) - 4*(a^2*c*d + (2*b^
2*c^2 - 4*a*b*c*d + 3*a^2*d^2)*x)*sqrt(b*x + a)*sqrt(d*x + c))/(c
^2*d^2*x^2 + c^3*d*x), -1/2*(((5*a*b*c*d^2 - 3*a^2*d^3)*x^2 + (5*
a*b*c^2*d - 3*a^2*c*d^2)*x)*sqrt(-a/c)*arctan(1/2*(2*a*c + (b*c +
 a*d)*x)/(sqrt(b*x + a)*sqrt(d*x + c)*c*sqrt(-a/c))) - (b^2*c^2*d
*x^2 + b^2*c^3*x)*sqrt(b/d)*log(8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c
*d + a^2*d^2 + 4*(2*b*d^2*x + b*c*d + a*d^2)*sqrt(b*x + a)*sqrt(d
*x + c)*sqrt(b/d) + 8*(b^2*c*d + a*b*d^2)*x) + 2*(a^2*c*d + (2*b^
2*c^2 - 4*a*b*c*d + 3*a^2*d^2)*x)*sqrt(b*x + a)*sqrt(d*x + c))/(c
^2*d^2*x^2 + c^3*d*x), -1/2*(((5*a*b*c*d^2 - 3*a^2*d^3)*x^2 + (5*
a*b*c^2*d - 3*a^2*c*d^2)*x)*sqrt(-a/c)*arctan(1/2*(2*a*c + (b*c +
 a*d)*x)/(sqrt(b*x + a)*sqrt(d*x + c)*c*sqrt(-a/c))) - 2*(b^2*c^2
*d*x^2 + b^2*c^3*x)*sqrt(-b/d)*arctan(1/2*(2*b*d*x + b*c + a*d)/(
sqrt(b*x + a)*sqrt(d*x + c)*d*sqrt(-b/d))) + 2*(a^2*c*d + (2*b^2*
c^2 - 4*a*b*c*d + 3*a^2*d^2)*x)*sqrt(b*x + a)*sqrt(d*x + c))/(c^2
*d^2*x^2 + c^3*d*x)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)/x**2/(d*x+c)**(3/2),x)

[Out] Timed out
```

GIAC/XCAS [A] time = 1.33111, size = 4, normalized size = 0.02

$$sage_0 x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(5/2)/((d*x + c)^(3/2)*x^2),x, algorithm="giac")

[Out] sage0*x
```

3.675 $\int \frac{(a+bx)^{5/2}}{x^3(c+dx)^{3/2}}\,dx$

Optimal. Leaf size=154

$$-\frac{15\sqrt{a}(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4c^{7/2}}+\frac{15\sqrt{a+bx}(bc-ad)^2}{4c^3\sqrt{c+dx}}-\frac{5(a+bx)^{3/2}(bc-ad)}{4c^2x\sqrt{c+dx}}-\frac{(a+bx)^{5/2}}{2cx^2\sqrt{c+dx}}$$

```
[Out] (15*(b*c - a*d)^2*Sqrt[a + b*x])/(4*c^3*Sqrt[c + d*x]) - (5*(b*c
- a*d)*(a + b*x)^(3/2))/(4*c^2*x*Sqrt[c + d*x]) - (a + b*x)^(5/2)
/(2*c*x^2*Sqrt[c + d*x]) - (15*Sqrt[a]*(b*c - a*d)^2*ArcTanh[(Sqr
t[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(4*c^(7/2))
```

Rubi [A] time = 0.267505, antiderivative size = 154, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.136

$$-\frac{15\sqrt{a}(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4c^{7/2}}+\frac{15\sqrt{a+bx}(bc-ad)^2}{4c^3\sqrt{c+dx}}-\frac{5(a+bx)^{3/2}(bc-ad)}{4c^2x\sqrt{c+dx}}-\frac{(a+bx)^{5/2}}{2cx^2\sqrt{c+dx}}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(5/2)/(x^3*(c + d*x)^(3/2)),x]
```


```
[Out] (15*(b*c - a*d)^2*Sqrt[a + b*x])/(4*c^3*Sqrt[c + d*x]) - (5*(b*c
- a*d)*(a + b*x)^(3/2))/(4*c^2*x*Sqrt[c + d*x]) - (a + b*x)^(5/2)
/(2*c*x^2*Sqrt[c + d*x]) - (15*Sqrt[a]*(b*c - a*d)^2*ArcTanh[(Sqr
t[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(4*c^(7/2))
```

Rubi in Sympy [A] time = 23.0412, size = 136, normalized size = 0.88

$$-\frac{15\sqrt{a}\,(ad-bc)^2\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4c^{\frac{7}{2}}}-\frac{5a\,(a+bx)^{\frac{3}{2}}\sqrt{c+dx}}{2c^2x^2}+\frac{15a\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)}{4c^3x}+\frac{2\,(a+bx)^{\frac{5}{2}}}{cx^2\sqrt{c+dx}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)/x**3/(d*x+c)**(3/2),x)
```

```
[Out] -15*sqrt(a)*(a*d - b*c)**2*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*s
qrt(c + d*x)))/(4*c**(7/2)) - 5*a*(a + b*x)**(3/2)*sqrt(c + d*x)/
(2*c**2*x**2) + 15*a*sqrt(a + b*x)*sqrt(c + d*x)*(a*d - b*c)/(4*c
**3*x) + 2*(a + b*x)**(5/2)/(c*x**2*sqrt(c + d*x))
```

Mathematica [A] time = 0.306612, size = 158, normalized size = 1.03

$$\frac{2\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}\left(-\frac{2a^2c}{x^2}+\frac{a(7ad-9bc)}{x}+\frac{8(bc-ad)^2}{c+dx}\right)+15\sqrt{a}\log(x)(bc-ad)^2-15\sqrt{a}(bc-ad)^2\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+a\right.}{8c^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(5/2)/(x^3*(c + d*x)^(3/2)),x]
```

```
[Out] (2*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]*((-2*a^2*c)/x^2 + (a*(-9*b
*c + 7*a*d))/x + (8*(b*c - a*d)^2)/(c + d*x)) + 15*Sqrt[a]*(b*c -
 a*d)^2*Log[x] - 15*Sqrt[a]*(b*c - a*d)^2*Log[2*a*c + b*c*x + a*d
```

```
*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(8*c^(7/2))
```

Maple [B] time = 0.042, size = 507, normalized size = 3.3

$$-\frac{1}{8\,c^3x^2}\sqrt{bx+a}\left(15\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)\,(dx+c)}+2\,ac}{x}\right)x^3a^3d^3-30\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)\,(dx+c}}{x}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)/x^3/(d*x+c)^(3/2),x)
```

```
[Out] -1/8*(b*x+a)^(1/2)*(15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*
x+c))^(1/2)+2*a*c)/x)*x^3*a^3*d^3-30*ln((a*d*x+b*c*x+2*(a*c)^(1/2
)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^2*b*c*d^2+15*ln((a*d*x+
b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a*b^2*c
^2*d+15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a
*c)/x)*x^2*a^3*c*d^2-30*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d
*x+c))^(1/2)+2*a*c)/x)*x^2*a^2*b*c^2*d+15*ln((a*d*x+b*c*x+2*(a*c)
^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a*b^2*c^3-30*((b*x+a
)*(d*x+c))^(1/2)*d^2*a^2*x^2*(a*c)^(1/2)+50*((b*x+a)*(d*x+c))^(1/
2)*d*b*c*a*x^2*(a*c)^(1/2)-16*((b*x+a)*(d*x+c))^(1/2)*b^2*c^2*x^2
*(a*c)^(1/2)-10*((b*x+a)*(d*x+c))^(1/2)*d*c*a^2*x*(a*c)^(1/2)+18*
((b*x+a)*(d*x+c))^(1/2)*b*c^2*a*x*(a*c)^(1/2)+4*((b*x+a)*(d*x+c))
^(1/2)*c^2*a^2*(a*c)^(1/2))/c^3/((b*x+a)*(d*x+c))^(1/2)/(a*c)^(1/
2)/x^2/(d*x+c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)/((d*x + c)^(3/2)*x^3),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.43755, size = 1, normalized size = 0.01

$$\left[\frac{15\left(\left(b^2c^2d-2\,abcd^2+a^2d^3\right)x^3+\left(b^2c^3-2\,abc^2d+a^2cd^2\right)x^2\right)\sqrt{\frac{a}{c}}\log\left(\frac{8\,a^2c^2+\left(b^2c^2+6\,abcd+a^2d^2\right)x^2-4\left(2\,ac^2+\left(bc^2+acd\right)x\right)\sqrt{bx+a}\sqrt{}}{x^2}\right.}{16\left(c^3dx^3+c^4x^2\right.}\right.$$

$$-\frac{15\left(\left(b^2c^2d-2\,abcd^2+a^2d^3\right)x^3+\left(b^2c^3-2\,abc^2d+a^2cd^2\right)x^2\right)\sqrt{-\frac{a}{c}}\arctan\left(\frac{2\,ac+(bc+ad)x}{2\,\sqrt{bx+a}\sqrt{dx+c}c\sqrt{-\frac{a}{c}}}\right)+2\left(2\,a^2c^2-\left(8\,b^2c^2-25\right.\right.}{8\left(c^3dx^3+c^4x^2\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)/((d*x + c)^(3/2)*x^3),x, algorithm="fricas")
```

```
[Out] [1/16*(15*((b^2*c^2*d - 2*a*b*c*d^2 + a^2*d^3)*x^3 + (b^2*c^3 - 2
*a*b*c^2*d + a^2*c*d^2)*x^2)*sqrt(a/c)*log((8*a^2*c^2 + (b^2*c^2
+ 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a*c^2 + (b*c^2 + a*c*d)*x)*sqrt
(b*x + a)*sqrt(d*x + c)*sqrt(a/c) + 8*(a*b*c^2 + a^2*c*d)*x)/x^2)
 - 4*(2*a^2*c^2 - (8*b^2*c^2 - 25*a*b*c*d + 15*a^2*d^2)*x^2 + (9*
a*b*c^2 - 5*a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c))/(c^3*d*x^3 +
 c^4*x^2), -1/8*(15*((b^2*c^2*d - 2*a*b*c*d^2 + a^2*d^3)*x^3 + (b
```

```
^2*c^3 - 2*a*b*c^2*d + a^2*c*d^2)*x^2)*sqrt(-a/c)*arctan(1/2*(2*a
*c + (b*c + a*d)*x)/(sqrt(b*x + a)*sqrt(d*x + c)*c*sqrt(-a/c))) +
 2*(2*a^2*c^2 - (8*b^2*c^2 - 25*a*b*c*d + 15*a^2*d^2)*x^2 + (9*a*
b*c^2 - 5*a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c))/(c^3*d*x^3 + c
^4*x^2)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)/x**3/(d*x+c)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)/((d*x + c)^(3/2)*x^3),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.676 $\int \frac{(a+bx)^{5/2}}{x^4(c+dx)^{3/2}}\,dx$

Optimal. Leaf size=226

$$-\frac{5(bc-7ad)(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8\sqrt{a}c^{9/2}}+\frac{5\sqrt{a+bx}(bc-7ad)(bc-ad)^2}{8ac^4\sqrt{c+dx}}-\frac{5(a+bx)^{3/2}(bc-7ad)(bc-ad)}{24ac^3x\sqrt{c+dx}}-\frac{(a+bx)^{5/2}(bc-7ad)}{12ac^2x^2\sqrt{c+dx}}-\frac{(a+bx)^{7/2}}{3acx^3\sqrt{c+dx}}$$

```
[Out] (5*(b*c - 7*a*d)*(b*c - a*d)^2*Sqrt[a + b*x])/(8*a*c^4*Sqrt[c + d
*x]) - (5*(b*c - 7*a*d)*(b*c - a*d)*(a + b*x)^(3/2))/(24*a*c^3*x*
Sqrt[c + d*x]) - ((b*c - 7*a*d)*(a + b*x)^(5/2))/(12*a*c^2*x^2*Sq
rt[c + d*x]) - (a + b*x)^(7/2)/(3*a*c*x^3*Sqrt[c + d*x]) - (5*(b*
c - 7*a*d)*(b*c - a*d)^2*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]
*Sqrt[c + d*x])])/(8*Sqrt[a]*c^(9/2))
```

Rubi [A] time = 0.408488, antiderivative size = 226, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{5(bc-7ad)(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8\sqrt{a}c^{9/2}}+\frac{5\sqrt{a+bx}(bc-7ad)(bc-ad)^2}{8ac^4\sqrt{c+dx}}-\frac{5(a+bx)^{3/2}(bc-7ad)(bc-ad)}{24ac^3x\sqrt{c+dx}}-\frac{(a+bx)^{5/2}(bc-7ad)}{12ac^2x^2\sqrt{c+dx}}-\frac{(a+bx)^{7/2}}{3acx^3\sqrt{c+dx}}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(5/2)/(x^4*(c + d*x)^(3/2)),x]
```


```
[Out] (5*(b*c - 7*a*d)*(b*c - a*d)^2*Sqrt[a + b*x])/(8*a*c^4*Sqrt[c + d
*x]) - (5*(b*c - 7*a*d)*(b*c - a*d)*(a + b*x)^(3/2))/(24*a*c^3*x*
Sqrt[c + d*x]) - ((b*c - 7*a*d)*(a + b*x)^(5/2))/(12*a*c^2*x^2*Sq
rt[c + d*x]) - (a + b*x)^(7/2)/(3*a*c*x^3*Sqrt[c + d*x]) - (5*(b*
c - 7*a*d)*(b*c - a*d)^2*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]
*Sqrt[c + d*x])])/(8*Sqrt[a]*c^(9/2))
```

Rubi in Sympy [A] time = 38.1522, size = 207, normalized size = 0.92

$$\frac{2d\,(a+bx)^{\frac{7}{2}}}{cx^3\sqrt{c+dx}\,(ad-bc)}-\frac{(a+bx)^{\frac{5}{2}}\sqrt{c+dx}\,(7ad-bc)}{3c^2x^3\,(ad-bc)}+\frac{5\,(a+bx)^{\frac{3}{2}}\sqrt{c+dx}\,(7ad-bc)}{12c^3x^2}-\frac{5\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)\,(7ad-bc)}{8c^4x}+\frac{5\,(ad-bc)^2\,(7ad-bc)\,\mathrm{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8\sqrt{a}c^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)/x**4/(d*x+c)**(3/2),x)
```

```
[Out] 2*d*(a + b*x)**(7/2)/(c*x**3*sqrt(c + d*x)*(a*d - b*c)) - (a + b*
x)**(5/2)*sqrt(c + d*x)*(7*a*d - b*c)/(3*c**2*x**3*(a*d - b*c)) +
 5*(a + b*x)**(3/2)*sqrt(c + d*x)*(7*a*d - b*c)/(12*c**3*x**2) -
5*sqrt(a + b*x)*sqrt(c + d*x)*(a*d - b*c)*(7*a*d - b*c)/(8*c**4*x
) + 5*(a*d - b*c)**2*(7*a*d - b*c)*atanh(sqrt(c)*sqrt(a + b*x)/(s
qrt(a)*sqrt(c + d*x)))/(8*sqrt(a)*c**(9/2))
```

Mathematica [A] time = 0.341041, size = 214, normalized size = 0.95

$$\frac{-\frac{2\sqrt{c}\sqrt{a+bx}\left(a^2\left(8c^3-14c^2dx+35cd^2x^2+105d^3x^3\right)+2abcx\left(13c^2-34cdx-95d^2x^2\right)+3b^2c^2x^2(11c+27dx)\right)}{x^3\sqrt{c+dx}}+\frac{15\log(x)(bc-7ad)(bc-ad)^2}{\sqrt{a}}+\frac{15(7ad-bc)(bc-a}{}}{48c^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(5/2)/(x^4*(c + d*x)^(3/2)),x]
```

```
[Out] ((-2*Sqrt[c]*Sqrt[a + b*x]*(3*b^2*c^2*x^2*(11*c + 27*d*x) + 2*a*b
*c*x*(13*c^2 - 34*c*d*x - 95*d^2*x^2) + a^2*(8*c^3 - 14*c^2*d*x +
 35*c*d^2*x^2 + 105*d^3*x^3)))/(x^3*Sqrt[c + d*x]) + (15*(b*c - 7
*a*d)*(b*c - a*d)^2*Log[x])/Sqrt[a] + (15*(b*c - a*d)^2*(-(b*c) +
 7*a*d)*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*
x]*Sqrt[c + d*x]])/Sqrt[a])/(48*c^(9/2))
```

Maple [B] time = 0.045, size = 704, normalized size = 3.1

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)/x^4/(d*x+c)^(3/2),x)
```

```
[Out] 1/48*(b*x+a)^(1/2)*(105*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d
*x+c))^(1/2)+2*a*c)/x)*x^4*a^3*d^4-225*ln((a*d*x+b*c*x+2*(a*c)^(1
/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a^2*b*c*d^3+135*ln((a*d
*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a*b^
2*c^2*d^2-15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2
)+2*a*c)/x)*x^4*b^3*c^3*d+105*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x
+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^3*c*d^3-225*ln((a*d*x+b*c*x+2*
(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^2*b*c^2*d^2+1
35*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x
)*x^3*a*b^2*c^3*d-15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+
c))^(1/2)+2*a*c)/x)*x^3*b^3*c^4-210*x^3*a^2*d^3*(a*c)^(1/2)*((b*x
+a)*(d*x+c))^(1/2)+380*x^3*a*b*c*d^2*(a*c)^(1/2)*((b*x+a)*(d*x+c)
)^(1/2)-162*x^3*b^2*c^2*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-70*
x^2*a^2*c*d^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+136*x^2*a*b*c^2
*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-66*x^2*b^2*c^3*(a*c)^(1/2)
*((b*x+a)*(d*x+c))^(1/2)+28*x*a^2*c^2*d*(a*c)^(1/2)*((b*x+a)*(d*x
+c))^(1/2)-52*x*a*b*c^3*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-16*a^
2*c^3*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2))/c^4/((b*x+a)*(d*x+c))^
(1/2)/(a*c)^(1/2)/x^3/(d*x+c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)/((d*x + c)^(3/2)*x^4),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.799218, size = 1, normalized size = 0.

$$\left[-\frac{4\left(8a^{2}c^{3}+\left(81b^{2}c^{2}d-190abcd^{2}+105a^{2}d^{3}\right)x^{3}+\left(33b^{2}c^{3}-68abc^{2}d+35a^{2}cd^{2}\right)x^{2}+2\left(13abc^{3}-7a^{2}c^{2}d\right)x\right)\sqrt{ac}\sqrt{bx}}{}\right.$$

$$-\frac{2\left(8a^{2}c^{3}+\left(81b^{2}c^{2}d-190abcd^{2}+105a^{2}d^{3}\right)x^{3}+\left(33b^{2}c^{3}-68abc^{2}d+35a^{2}cd^{2}\right)x^{2}+2\left(13abc^{3}-7a^{2}c^{2}d\right)x\right)\sqrt{-ac}\sqrt{bx}}{48(}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(5/2)/((d*x + c)^(3/2)*x^4),x, algorithm="fricas")
```

```
[Out] [-1/96*(4*(8*a^2*c^3 + (81*b^2*c^2*d - 190*a*b*c*d^2 + 105*a^2*d^
3)*x^3 + (33*b^2*c^3 - 68*a*b*c^2*d + 35*a^2*c*d^2)*x^2 + 2*(13*a
*b*c^3 - 7*a^2*c^2*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c) +
15*((b^3*c^3*d - 9*a*b^2*c^2*d^2 + 15*a^2*b*c*d^3 - 7*a^3*d^4)*x^
4 + (b^3*c^4 - 9*a*b^2*c^3*d + 15*a^2*b*c^2*d^2 - 7*a^3*c*d^3)*x^
3)*log((4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(
d*x + c) + (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(
a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2))/((c^4*d*x^4 + c^5*x^3)*sqr
t(a*c)), -1/48*(2*(8*a^2*c^3 + (81*b^2*c^2*d - 190*a*b*c*d^2 + 10
5*a^2*d^3)*x^3 + (33*b^2*c^3 - 68*a*b*c^2*d + 35*a^2*c*d^2)*x^2 +
 2*(13*a*b*c^3 - 7*a^2*c^2*d)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*
x + c) + 15*((b^3*c^3*d - 9*a*b^2*c^2*d^2 + 15*a^2*b*c*d^3 - 7*a^
3*d^4)*x^4 + (b^3*c^4 - 9*a*b^2*c^3*d + 15*a^2*b*c^2*d^2 - 7*a^3*
c*d^3)*x^3)*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b
*x + a)*sqrt(d*x + c)*a*c)))/((c^4*d*x^4 + c^5*x^3)*sqrt(-a*c))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)/x**4/(d*x+c)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(5/2)/((d*x + c)^(3/2)*x^4),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.677 $\int \frac{(a+bx)^{5/2}}{x^5(c+dx)^{3/2}}\,dx$

Optimal. Leaf size=317

$$-\frac{\sqrt{a+bx}\left(315a^2d^2-322abcd+15b^2c^2\right)(bc-ad)}{192ac^4x\sqrt{c+dx}}+\frac{5\left(-63a^2d^2+14abcd+b^2c^2\right)(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{3/2}c^{11/2}}-\frac{d\sqrt{a+bx}\left(-945a^3d^3+1785a^2bcd^2-839ab^2c^2d+15b^3c^3\right)}{192ac^5\sqrt{c+dx}}-\frac{\sqrt{a+bx}(59bc-63ad)(bc-ad)}{96c^3x^2\sqrt{c+dx}}-\frac{a\sqrt{a+bx}(11bc-9ad)}{24c^2x^3\sqrt{c+dx}}-\frac{a(a+bx)^{3/2}}{4cx^4\sqrt{c+dx}}$$

```
[Out] -(d*(15*b^3*c^3 - 839*a*b^2*c^2*d + 1785*a^2*b*c*d^2 - 945*a^3*d^
3)*Sqrt[a + b*x])/(192*a*c^5*Sqrt[c + d*x]) - (a*(11*b*c - 9*a*d)
*Sqrt[a + b*x])/(24*c^2*x^3*Sqrt[c + d*x]) - ((59*b*c - 63*a*d)*(
b*c - a*d)*Sqrt[a + b*x])/(96*c^3*x^2*Sqrt[c + d*x]) - ((b*c - a*
d)*(15*b^2*c^2 - 322*a*b*c*d + 315*a^2*d^2)*Sqrt[a + b*x])/(192*a
*c^4*x*Sqrt[c + d*x]) - (a*(a + b*x)^(3/2))/(4*c*x^4*Sqrt[c + d*x
]) + (5*(b*c - a*d)^2*(b^2*c^2 + 14*a*b*c*d - 63*a^2*d^2)*ArcTanh
[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(64*a^(3/2)*c^
(11/2))
```

Rubi [A] time = 1.14008, antiderivative size = 317, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 7, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.318$

$$-\frac{\sqrt{a+bx}\left(315a^2d^2-322abcd+15b^2c^2\right)(bc-ad)}{192ac^4x\sqrt{c+dx}}+\frac{5\left(-63a^2d^2+14abcd+b^2c^2\right)(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{3/2}c^{11/2}}-\frac{d\sqrt{a+bx}\left(-945a^3d^3+1785a^2bcd^2-839ab^2c^2d+15b^3c^3\right)}{192ac^5\sqrt{c+dx}}-\frac{\sqrt{a+bx}(59bc-63ad)(bc-ad)}{96c^3x^2\sqrt{c+dx}}-\frac{a\sqrt{a+bx}(11bc-9ad)}{24c^2x^3\sqrt{c+dx}}-\frac{a(a+bx)^{3/2}}{4cx^4\sqrt{c+dx}}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(5/2)/(x^5*(c + d*x)^(3/2)),x]
```


```
[Out] -(d*(15*b^3*c^3 - 839*a*b^2*c^2*d + 1785*a^2*b*c*d^2 - 945*a^3*d^
3)*Sqrt[a + b*x])/(192*a*c^5*Sqrt[c + d*x]) - (a*(11*b*c - 9*a*d)
*Sqrt[a + b*x])/(24*c^2*x^3*Sqrt[c + d*x]) - ((59*b*c - 63*a*d)*(
b*c - a*d)*Sqrt[a + b*x])/(96*c^3*x^2*Sqrt[c + d*x]) - ((b*c - a*
d)*(15*b^2*c^2 - 322*a*b*c*d + 315*a^2*d^2)*Sqrt[a + b*x])/(192*a
*c^4*x*Sqrt[c + d*x]) - (a*(a + b*x)^(3/2))/(4*c*x^4*Sqrt[c + d*x
]) + (5*(b*c - a*d)^2*(b^2*c^2 + 14*a*b*c*d - 63*a^2*d^2)*ArcTanh
[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(64*a^(3/2)*c^
(11/2))
```

Rubi in Sympy [A] time = 158.916, size = 303, normalized size = 0.96

$$-\frac{a(a+bx)^{\frac{3}{2}}}{4cx^4\sqrt{c+dx}}+\frac{a\sqrt{a+bx}\,(9ad-11bc)}{24c^2x^3\sqrt{c+dx}}-\frac{\sqrt{a+bx}\,(ad-bc)\,(63ad-59bc)}{96c^3x^2\sqrt{c+dx}}+\frac{\sqrt{a+bx}\,(ad-bc)\left(315a^2d^2-322abcd+15b^2c^2\right)}{192ac^4x\sqrt{c+dx}}+\frac{d\sqrt{a+bx}\left(945a^3d^3-1785a^2bcd^2+839ab^2c^2d-15b^3c^3\right)}{192ac^5\sqrt{c+dx}}-\frac{5\,(ad-bc)^2\left(63a^2d^2-14abcd-b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{\frac{3}{2}}c^{\frac{11}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   rubi_integrate((b*x+a)**(5/2)/x**5/(d*x+c)**(3/2),x)
```

```
[Out] -a*(a + b*x)**(3/2)/(4*c*x**4*sqrt(c + d*x)) + a*sqrt(a + b*x)*(9
*a*d - 11*b*c)/(24*c**2*x**3*sqrt(c + d*x)) - sqrt(a + b*x)*(a*d
- b*c)*(63*a*d - 59*b*c)/(96*c**3*x**2*sqrt(c + d*x)) + sqrt(a +
b*x)*(a*d - b*c)*(315*a**2*d**2 - 322*a*b*c*d + 15*b**2*c**2)/(19
2*a*c**4*x*sqrt(c + d*x)) + d*sqrt(a + b*x)*(945*a**3*d**3 - 1785
*a**2*b*c*d**2 + 839*a*b**2*c**2*d - 15*b**3*c**3)/(192*a*c**5*sq
rt(c + d*x)) - 5*(a*d - b*c)**2*(63*a**2*d**2 - 14*a*b*c*d - b**2
*c**2)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(64*a
**(3/2)*c**(11/2))
```

Mathematica [A] time = 0.419426, size = 292, normalized size = 0.92

$$-15\log(x)\left(-63a^2d^2+14abcd+b^2c^2\right)(bc-ad)^2+15\left(-63a^2d^2+14abcd+b^2c^2\right)(bc-ad)^2\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+\right.$$

Antiderivative was successfully verified.

```
[In]   Integrate[(a + b*x)^(5/2)/(x^5*(c + d*x)^(3/2)),x]
```

```
[Out] ((2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*(-15*b^3*c^3*x^3*(c + d*x) + a*
b^2*c^2*x^2*(-118*c^2 + 337*c*d*x + 839*d^2*x^2) - a^2*b*c*x*(136
*c^3 - 244*c^2*d*x + 637*c*d^2*x^2 + 1785*d^3*x^3) + a^3*(-48*c^4
 + 72*c^3*d*x - 126*c^2*d^2*x^2 + 315*c*d^3*x^3 + 945*d^4*x^4)))/
(x^4*Sqrt[c + d*x]) - 15*(b*c - a*d)^2*(b^2*c^2 + 14*a*b*c*d - 63
*a^2*d^2)*Log[x] + 15*(b*c - a*d)^2*(b^2*c^2 + 14*a*b*c*d - 63*a^
2*d^2)*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x
]*Sqrt[c + d*x]])/(384*a^(3/2)*c^(11/2))
```

Maple [B] time = 0.052, size = 982, normalized size = 3.1

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((b*x+a)^(5/2)/x^5/(d*x+c)^(3/2),x)
```

```
[Out] -1/384*(b*x+a)^(1/2)*(945*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*
(d*x+c))^(1/2)+2*a*c)/x)*x^5*a^4*d^5-2100*ln((a*d*x+b*c*x+2*(a*c)
^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^5*a^3*b*c*d^4+1350*ln(
(a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^5*
a^2*b^2*c^2*d^3-180*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c
))^(1/2)+2*a*c)/x)*x^5*a*b^3*c^3*d^2-15*ln((a*d*x+b*c*x+2*(a*c)^(
1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^5*b^4*c^4*d+945*ln((a*d*
x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a^4*c
```

```
*d^4-2100*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2
*a*c)/x)*x^4*a^3*b*c^2*d^3+1350*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b
*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a^2*b^2*c^3*d^2-180*ln((a*d*x+
b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a*b^3*c
^4*d-15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a
*c)/x)*x^4*b^4*c^5-1890*x^4*a^3*d^4*(a*c)^(1/2)*((b*x+a)*(d*x+c))
^(1/2)+3570*x^4*a^2*b*c*d^3*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-1
678*x^4*a*b^2*c^2*d^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+30*x^4*
b^3*c^3*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-630*x^3*a^3*c*d^3*(
a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+1274*x^3*a^2*b*c^2*d^2*(a*c)^(
1/2)*((b*x+a)*(d*x+c))^(1/2)-674*x^3*a*b^2*c^3*d*(a*c)^(1/2)*((b*
x+a)*(d*x+c))^(1/2)+30*x^3*b^3*c^4*(a*c)^(1/2)*((b*x+a)*(d*x+c))^
(1/2)+252*x^2*a^3*c^2*d^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-488
*x^2*a^2*b*c^3*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+236*x^2*a*b^
2*c^4*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-144*x*a^3*c^3*d*(a*c)^(
1/2)*((b*x+a)*(d*x+c))^(1/2)+272*x*a^2*b*c^4*(a*c)^(1/2)*((b*x+a)
*(d*x+c))^(1/2)+96*a^3*c^4*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2))/c
^5/a/((b*x+a)*(d*x+c))^(1/2)/x^4/(a*c)^(1/2)/(d*x+c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(5/2)/((d*x + c)^(3/2)*x^5),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 2.12195, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(5/2)/((d*x + c)^(3/2)*x^5),x, algorithm="fricas")
```

```
[Out] [-1/768*(4*(48*a^3*c^4 + (15*b^3*c^3*d - 839*a*b^2*c^2*d^2 + 1785
*a^2*b*c*d^3 - 945*a^3*d^4)*x^4 + (15*b^3*c^4 - 337*a*b^2*c^3*d +
 637*a^2*b*c^2*d^2 - 315*a^3*c*d^3)*x^3 + 2*(59*a*b^2*c^4 - 122*a
^2*b*c^3*d + 63*a^3*c^2*d^2)*x^2 + 8*(17*a^2*b*c^4 - 9*a^3*c^3*d)
*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c) + 15*((b^4*c^4*d + 12*a
*b^3*c^3*d^2 - 90*a^2*b^2*c^2*d^3 + 140*a^3*b*c*d^4 - 63*a^4*d^5)
*x^5 + (b^4*c^5 + 12*a*b^3*c^4*d - 90*a^2*b^2*c^3*d^2 + 140*a^3*b
*c^2*d^3 - 63*a^4*c*d^4)*x^4)*log(-(4*(2*a^2*c^2 + (a*b*c^2 + a^2
*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c) - (8*a^2*c^2 + (b^2*c^2 + 6*
a*b*c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2)
)/((a*c^5*d*x^5 + a*c^6*x^4)*sqrt(a*c)), -1/384*(2*(48*a^3*c^4 +
(15*b^3*c^3*d - 839*a*b^2*c^2*d^2 + 1785*a^2*b*c*d^3 - 945*a^3*d^
4)*x^4 + (15*b^3*c^4 - 337*a*b^2*c^3*d + 637*a^2*b*c^2*d^2 - 315*
a^3*c*d^3)*x^3 + 2*(59*a*b^2*c^4 - 122*a^2*b*c^3*d + 63*a^3*c^2*d
^2)*x^2 + 8*(17*a^2*b*c^4 - 9*a^3*c^3*d)*x)*sqrt(-a*c)*sqrt(b*x +
 a)*sqrt(d*x + c) - 15*((b^4*c^4*d + 12*a*b^3*c^3*d^2 - 90*a^2*b^
2*c^2*d^3 + 140*a^3*b*c*d^4 - 63*a^4*d^5)*x^5 + (b^4*c^5 + 12*a*b
^3*c^4*d - 90*a^2*b^2*c^3*d^2 + 140*a^3*b*c^2*d^3 - 63*a^4*c*d^4)
*x^4)*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a
)*sqrt(d*x + c)*a*c)))/((a*c^5*d*x^5 + a*c^6*x^4)*sqrt(-a*c))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)/x**5/(d*x+c)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(5/2)/((d*x + c)^(3/2)*x^5),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.678 $\int \frac{x^3(a+bx)^{5/2}}{(c+dx)^{5/2}}\,dx$

Optimal. Leaf size=377

$$-\frac{(a+bx)^{5/2}\sqrt{c+dx}\left(5a^2d^2-2bdx(99bc-59ad)-156abcd+231b^2c^2\right)}{24bd^4(bc-ad)}-\frac{5\sqrt{a+bx}\sqrt{c+dx}\left(a^3d^3+21a^2bcd^2-189ab^2c^2d+231b^3c^3\right)}{64bd^6}+\frac{5(a+bx)^{3/2}\sqrt{c+dx}\left(a^3d^3+21a^2bcd^2-189ab^2c^2d+231b^3c^3\right)}{96bd^5(bc-ad)}+\frac{5(bc-ad)\left(a^3d^3+21a^2bcd^2-189ab^2c^2d+231b^3c^3\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{64b^{3/2}d^{13/2}}-\frac{2x^2(a+bx)^{5/2}(11bc-6ad)}{3d^2\sqrt{c+dx}(bc-ad)}-\frac{2x^3(a+bx)^{5/2}}{3d(c+dx)^{3/2}}$$

```
[Out] (-2*x^3*(a + b*x)^(5/2))/(3*d*(c + d*x)^(3/2)) - (2*(11*b*c - 6*a
*d)*x^2*(a + b*x)^(5/2))/(3*d^2*(b*c - a*d)*Sqrt[c + d*x]) - (5*(
231*b^3*c^3 - 189*a*b^2*c^2*d + 21*a^2*b*c*d^2 + a^3*d^3)*Sqrt[a
+ b*x]*Sqrt[c + d*x])/(64*b*d^6) + (5*(231*b^3*c^3 - 189*a*b^2*c^
2*d + 21*a^2*b*c*d^2 + a^3*d^3)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(9
6*b*d^5*(b*c - a*d)) - ((a + b*x)^(5/2)*Sqrt[c + d*x]*(231*b^2*c^
2 - 156*a*b*c*d + 5*a^2*d^2 - 2*b*d*(99*b*c - 59*a*d)*x))/(24*b*d
^4*(b*c - a*d)) + (5*(b*c - a*d)*(231*b^3*c^3 - 189*a*b^2*c^2*d +
 21*a^2*b*c*d^2 + a^3*d^3)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[
b]*Sqrt[c + d*x])])/(64*b^(3/2)*d^(13/2))
```

Rubi [A] time = 0.971722, antiderivative size = 377, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.273

$$-\frac{(a+bx)^{5/2}\sqrt{c+dx}\left(5a^2d^2-2bdx(99bc-59ad)-156abcd+231b^2c^2\right)}{24bd^4(bc-ad)}-\frac{5\sqrt{a+bx}\sqrt{c+dx}\left(a^3d^3+21a^2bcd^2-189ab^2c^2d+231b^3c^3\right)}{64bd^6}+\frac{5(a+bx)^{3/2}\sqrt{c+dx}\left(a^3d^3+21a^2bcd^2-189ab^2c^2d+231b^3c^3\right)}{96bd^5(bc-ad)}+\frac{5(bc-ad)\left(a^3d^3+21a^2bcd^2-189ab^2c^2d+231b^3c^3\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{64b^{3/2}d^{13/2}}-\frac{2x^2(a+bx)^{5/2}(11bc-6ad)}{3d^2\sqrt{c+dx}(bc-ad)}-\frac{2x^3(a+bx)^{5/2}}{3d(c+dx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^3*(a + b*x)^(5/2))/(c + d*x)^(5/2),x]
```


```
[Out] (-2*x^3*(a + b*x)^(5/2))/(3*d*(c + d*x)^(3/2)) - (2*(11*b*c - 6*a
*d)*x^2*(a + b*x)^(5/2))/(3*d^2*(b*c - a*d)*Sqrt[c + d*x]) - (5*(
231*b^3*c^3 - 189*a*b^2*c^2*d + 21*a^2*b*c*d^2 + a^3*d^3)*Sqrt[a
+ b*x]*Sqrt[c + d*x])/(64*b*d^6) + (5*(231*b^3*c^3 - 189*a*b^2*c^
2*d + 21*a^2*b*c*d^2 + a^3*d^3)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(9
6*b*d^5*(b*c - a*d)) - ((a + b*x)^(5/2)*Sqrt[c + d*x]*(231*b^2*c^
2 - 156*a*b*c*d + 5*a^2*d^2 - 2*b*d*(99*b*c - 59*a*d)*x))/(24*b*d
^4*(b*c - a*d)) + (5*(b*c - a*d)*(231*b^3*c^3 - 189*a*b^2*c^2*d +
 21*a^2*b*c*d^2 + a^3*d^3)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[
b]*Sqrt[c + d*x])])/(64*b^(3/2)*d^(13/2))
```

Rubi in Sympy [A] time = 80.6117, size = 326, normalized size = 0.86

$$-\frac{2x^3(a+bx)^{\frac{5}{2}}}{3d(c+dx)^{\frac{3}{2}}}+\frac{2x^3(a+bx)^{\frac{3}{2}}(6ad-11bc)}{3cd^2\sqrt{c+dx}}-\frac{x^2(a+bx)^{\frac{3}{2}}\sqrt{c+dx}(16ad-33bc)}{4cd^3}+\frac{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}\left(\frac{45a^2d^2}{16}-\frac{1071abcd}{8}+\frac{3465b^2c^2}{16}+\frac{9bdx(41ad-77bc)}{4}\right)}{18bd^5}-\frac{5\sqrt{a+bx}\sqrt{c+dx}\left(a^3d^3+21a^2bcd^2-189ab^2c^2d+231b^3c^3\right)}{64bd^6}-\frac{5(ad-bc)\left(a^3d^3+21a^2bcd^2-189ab^2c^2d+231b^3c^3\right)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{64b^{\frac{3}{2}}d^{\frac{13}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   rubi_integrate(x**3*(b*x+a)**(5/2)/(d*x+c)**(5/2),x)
```

```
[Out] -2*x**3*(a + b*x)**(5/2)/(3*d*(c + d*x)**(3/2)) + 2*x**3*(a + b*x
)**(3/2)*(6*a*d - 11*b*c)/(3*c*d**2*sqrt(c + d*x)) - x**2*(a + b*
x)**(3/2)*sqrt(c + d*x)*(16*a*d - 33*b*c)/(4*c*d**3) + (a + b*x)*
*(3/2)*sqrt(c + d*x)*(45*a**2*d**2/16 - 1071*a*b*c*d/8 + 3465*b**
2*c**2/16 + 9*b*d*x*(41*a*d - 77*b*c)/4)/(18*b*d**5) - 5*sqrt(a +
 b*x)*sqrt(c + d*x)*(a**3*d**3 + 21*a**2*b*c*d**2 - 189*a*b**2*c*
*2*d + 231*b**3*c**3)/(64*b*d**6) - 5*(a*d - b*c)*(a**3*d**3 + 21
*a**2*b*c*d**2 - 189*a*b**2*c**2*d + 231*b**3*c**3)*atanh(sqrt(d)
*sqrt(a + b*x)/(sqrt(b)*sqrt(c + d*x)))/(64*b**(3/2)*d**(13/2))
```

Mathematica [A] time = 0.470218, size = 288, normalized size = 0.76

$$\frac{\sqrt{a+bx}\left(15a^3d^3(c+dx)^2+a^2bd^2\left(-1743c^3-2472c^2dx-483cd^2x^2+118d^3x^3\right)+ab^2d\left(5145c^4+7014c^3dx+1161c^2d^2x^2-\right.\right.}{192bd^6(c+dx)^{3/2}}+\frac{5(bc-ad)\left(a^3d^3+21a^2bcd^2-189ab^2c^2d+231b^3c^3\right)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{128b^{3/2}d^{13/2}}$$

Antiderivative was successfully verified.

```
[In]   Integrate[(x^3*(a + b*x)^(5/2))/(c + d*x)^(5/2),x]
```

```
[Out] (Sqrt[a + b*x]*(15*a^3*d^3*(c + d*x)^2 + a^2*b*d^2*(-1743*c^3 - 2
472*c^2*d*x - 483*c*d^2*x^2 + 118*d^3*x^3) + a*b^2*d*(5145*c^4 +
7014*c^3*d*x + 1161*c^2*d^2*x^2 - 316*c*d^3*x^3 + 136*d^4*x^4) -
b^3*(3465*c^5 + 4620*c^4*d*x + 693*c^3*d^2*x^2 - 198*c^2*d^3*x^3
+ 88*c*d^4*x^4 - 48*d^5*x^5)))/(192*b*d^6*(c + d*x)^(3/2)) + (5*(
b*c - a*d)*(231*b^3*c^3 - 189*a*b^2*c^2*d + 21*a^2*b*c*d^2 + a^3*
d^3)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sq
rt[c + d*x]])/(128*b^(3/2)*d^(13/2))
```

Maple [B] time = 0.048, size = 1366, normalized size = 3.6

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int(x^3*(b*x+a)^(5/2)/(d*x+c)^(5/2),x)
```

```
[Out] -1/384*(b*x+a)^(1/2)*(-272*x^4*a*b^2*d^5*((b*x+a)*(d*x+c))^(1/2)*
(b*d)^(1/2)-96*x^5*b^3*d^5*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-30
*x^2*a^3*d^5*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-30*a^3*c^2*d^3*(
(b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-3465*ln(1/2*(2*b*d*x+2*((b*x+a
)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*b^4*c^4*d^
```

```
2+30*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*
c)/(b*d)^(1/2))*x*a^4*c*d^5-6930*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+
c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*b^4*c^5*d+300*ln(1/
2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(
1/2))*a^3*b*c^3*d^3-3150*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2
)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^2*b^2*c^4*d^2+6930*b^3*c^5*
((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+15*ln(1/2*(2*b*d*x+2*((b*x+a)
*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a^4*d^6+15*
ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b
*d)^(1/2))*a^4*c^2*d^4+6300*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(
1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a*b^3*c^5*d-3465*ln(1/2*(2
*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2)
)*b^4*c^6-6300*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1
/2)+a*d+b*c)/(b*d)^(1/2))*x*a^2*b^2*c^3*d^3+12600*ln(1/2*(2*b*d*x
+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a*
b^3*c^4*d^2+176*x^4*b^3*c*d^4*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)
-236*x^3*a^2*b*d^5*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-396*x^3*b^
3*c^2*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+1386*x^2*b^3*c^3*d^
2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-60*x*a^3*c*d^4*((b*x+a)*(d*
x+c))^(1/2)*(b*d)^(1/2)+9240*x*b^3*c^4*d*((b*x+a)*(d*x+c))^(1/2)*
(b*d)^(1/2)+3486*a^2*b*c^3*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2
)-10290*a*b^2*c^4*d*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+300*ln(1/
2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(
1/2))*x^2*a^3*b*c*d^5-3150*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1
/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a^2*b^2*c^2*d^4+6300*ln
(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d
)^(1/2))*x^2*a*b^3*c^3*d^3+600*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c)
)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^3*b*c^2*d^4-2322*x^
2*a*b^2*c^2*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+4944*x*a^2*b*
c^2*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-14028*x*a*b^2*c^3*d^2
*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+632*x^3*a*b^2*c*d^4*((b*x+a)
*(d*x+c))^(1/2)*(b*d)^(1/2)+966*x^2*a^2*b*c*d^4*((b*x+a)*(d*x+c))
^(1/2)*(b*d)^(1/2))/((b*x+a)*(d*x+c))^(1/2)/(b*d)^(1/2)/b/(d*x+c)
^(3/2)/d^6
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(5/2)*x^3/(d*x + c)^(5/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 2.62514, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(5/2)*x^3/(d*x + c)^(5/2),x, algorithm="fricas")
```

```
[Out] [1/768*(4*(48*b^3*d^5*x^5 - 3465*b^3*c^5 + 5145*a*b^2*c^4*d - 174
3*a^2*b*c^3*d^2 + 15*a^3*c^2*d^3 - 8*(11*b^3*c*d^4 - 17*a*b^2*d^5
)*x^4 + 2*(99*b^3*c^2*d^3 - 158*a*b^2*c*d^4 + 59*a^2*b*d^5)*x^3 -
 3*(231*b^3*c^3*d^2 - 387*a*b^2*c^2*d^3 + 161*a^2*b*c*d^4 - 5*a^3
*d^5)*x^2 - 6*(770*b^3*c^4*d - 1169*a*b^2*c^3*d^2 + 412*a^2*b*c^2
*d^3 - 5*a^3*c*d^4)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) - 15
*(231*b^4*c^6 - 420*a*b^3*c^5*d + 210*a^2*b^2*c^4*d^2 - 20*a^3*b*
c^3*d^3 - a^4*c^2*d^4 + (231*b^4*c^4*d^2 - 420*a*b^3*c^3*d^3 + 21
0*a^2*b^2*c^2*d^4 - 20*a^3*b*c*d^5 - a^4*d^6)*x^2 + 2*(231*b^4*c^
5*d - 420*a*b^3*c^4*d^2 + 210*a^2*b^2*c^3*d^3 - 20*a^3*b*c^2*d^4
- a^4*c*d^5)*x)*log(-4*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*x
 + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*
```

```
d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/((b*d^8*x^2 + 2*b*c*d^
7*x + b*c^2*d^6)*sqrt(b*d)), 1/384*(2*(48*b^3*d^5*x^5 - 3465*b^3*
c^5 + 5145*a*b^2*c^4*d - 1743*a^2*b*c^3*d^2 + 15*a^3*c^2*d^3 - 8*
(11*b^3*c*d^4 - 17*a*b^2*d^5)*x^4 + 2*(99*b^3*c^2*d^3 - 158*a*b^2
*c*d^4 + 59*a^2*b*d^5)*x^3 - 3*(231*b^3*c^3*d^2 - 387*a*b^2*c^2*d
^3 + 161*a^2*b*c*d^4 - 5*a^3*d^5)*x^2 - 6*(770*b^3*c^4*d - 1169*a
*b^2*c^3*d^2 + 412*a^2*b*c^2*d^3 - 5*a^3*c*d^4)*x)*sqrt(-b*d)*sqr
t(b*x + a)*sqrt(d*x + c) + 15*(231*b^4*c^6 - 420*a*b^3*c^5*d + 21
0*a^2*b^2*c^4*d^2 - 20*a^3*b*c^3*d^3 - a^4*c^2*d^4 + (231*b^4*c^4
*d^2 - 420*a*b^3*c^3*d^3 + 210*a^2*b^2*c^2*d^4 - 20*a^3*b*c*d^5 -
 a^4*d^6)*x^2 + 2*(231*b^4*c^5*d - 420*a*b^3*c^4*d^2 + 210*a^2*b^
2*c^3*d^3 - 20*a^3*b*c^2*d^4 - a^4*c*d^5)*x)*arctan(1/2*(2*b*d*x
+ b*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/((b*d
^8*x^2 + 2*b*c*d^7*x + b*c^2*d^6)*sqrt(-b*d))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**3*(b*x+a)**(5/2)/(d*x+c)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.299332, size = 926, normalized size = 2.46

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*x^3/(d*x + c)^(5/2),x, algorithm="giac")
```

```
[Out] 1/192*(((2*(4*(b*x + a)*(6*(b^5*c*d^10*abs(b) - a*b^4*d^11*abs(b)
)*(b*x + a)/(b^6*c*d^11 - a*b^5*d^12) - (11*b^6*c^2*d^9*abs(b) +
2*a*b^5*c*d^10*abs(b) - 13*a^2*b^4*d^11*abs(b))/(b^6*c*d^11 - a*b
^5*d^12)) + 9*(11*b^7*c^3*d^8*abs(b) - 9*a*b^6*c^2*d^9*abs(b) + a
^2*b^5*c*d^10*abs(b) - 3*a^3*b^4*d^11*abs(b))/(b^6*c*d^11 - a*b^5
*d^12))*(b*x + a) - 3*(231*b^8*c^4*d^7*abs(b) - 420*a*b^7*c^3*d^8
*abs(b) + 210*a^2*b^6*c^2*d^9*abs(b) - 20*a^3*b^5*c*d^10*abs(b) -
 a^4*b^4*d^11*abs(b))/(b^6*c*d^11 - a*b^5*d^12))*(b*x + a) - 20*(
231*b^9*c^5*d^6*abs(b) - 651*a*b^8*c^4*d^7*abs(b) + 630*a^2*b^7*c
^3*d^8*abs(b) - 230*a^3*b^6*c^2*d^9*abs(b) + 19*a^4*b^5*c*d^10*ab
s(b) + a^5*b^4*d^11*abs(b))/(b^6*c*d^11 - a*b^5*d^12))*(b*x + a)
- 15*(231*b^10*c^6*d^5*abs(b) - 882*a*b^9*c^5*d^6*abs(b) + 1281*a
^2*b^8*c^4*d^7*abs(b) - 860*a^3*b^7*c^3*d^8*abs(b) + 249*a^4*b^6*
c^2*d^9*abs(b) - 18*a^5*b^5*c*d^10*abs(b) - a^6*b^4*d^11*abs(b))/
(b^6*c*d^11 - a*b^5*d^12))*sqrt(b*x + a)/(b^2*c + (b*x + a)*b*d -
 a*b*d)^(3/2) - 5/64*(231*b^4*c^4*abs(b) - 420*a*b^3*c^3*d*abs(b)
 + 210*a^2*b^2*c^2*d^2*abs(b) - 20*a^3*b*c*d^3*abs(b) - a^4*d^4*a
bs(b))*ln(abs(-sqrt(b*d)*sqrt(b*x + a) + sqrt(b^2*c + (b*x + a)*b
*d - a*b*d)))/(sqrt(b*d)*b^2*d^6)
```

3.679 $\int \frac{x^2(a+bx)^{5/2}}{(c+dx)^{5/2}}\,dx$

Optimal. Leaf size=319

$$-\frac{5(bc-ad)\left(a^2d^2-14abcd+21b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8\sqrt{b}d^{11/2}}+\frac{5\sqrt{a+bx}\sqrt{c+dx}\left(a^2d^2-14abcd+21b^2c^2\right)}{8d^5}-\frac{5(a+bx)^{3/2}\sqrt{c+dx}\left(a^2d^2-14abcd+21b^2c^2\right)}{12d^4(bc-ad)}+\frac{(a+bx)^{5/2}\sqrt{c+dx}\left(a^2d^2-14abcd+21b^2c^2\right)}{3d^3(bc-ad)^2}+\frac{2c^2(a+bx)^{7/2}}{3d^2(c+dx)^{3/2}(bc-ad)}-\frac{4c(a+bx)^{7/2}(5bc-3ad)}{3d^2\sqrt{c+dx}(bc-ad)^2}$$

```
[Out] (2*c^2*(a + b*x)^(7/2))/(3*d^2*(b*c - a*d)*(c + d*x)^(3/2)) - (4*
c*(5*b*c - 3*a*d)*(a + b*x)^(7/2))/(3*d^2*(b*c - a*d)^2*Sqrt[c +
d*x]) + (5*(21*b^2*c^2 - 14*a*b*c*d + a^2*d^2)*Sqrt[a + b*x]*Sqrt
[c + d*x])/(8*d^5) - (5*(21*b^2*c^2 - 14*a*b*c*d + a^2*d^2)*(a +
b*x)^(3/2)*Sqrt[c + d*x])/(12*d^4*(b*c - a*d)) + ((21*b^2*c^2 - 1
4*a*b*c*d + a^2*d^2)*(a + b*x)^(5/2)*Sqrt[c + d*x])/(3*d^3*(b*c -
 a*d)^2) - (5*(b*c - a*d)*(21*b^2*c^2 - 14*a*b*c*d + a^2*d^2)*Arc
Tanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(8*Sqrt[b]
*d^(11/2))
```

Rubi [A] time = 0.81547, antiderivative size = 319, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$-\frac{5(bc-ad)\left(a^2d^2-14abcd+21b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8\sqrt{b}d^{11/2}}+\frac{5\sqrt{a+bx}\sqrt{c+dx}\left(a^2d^2-14abcd+21b^2c^2\right)}{8d^5}-\frac{5(a+bx)^{3/2}\sqrt{c+dx}\left(a^2d^2-14abcd+21b^2c^2\right)}{12d^4(bc-ad)}+\frac{(a+bx)^{5/2}\sqrt{c+dx}\left(a^2d^2-14abcd+21b^2c^2\right)}{3d^3(bc-ad)^2}+\frac{2c^2(a+bx)^{7/2}}{3d^2(c+dx)^{3/2}(bc-ad)}-\frac{4c(a+bx)^{7/2}(5bc-3ad)}{3d^2\sqrt{c+dx}(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^2*(a + b*x)^(5/2))/(c + d*x)^(5/2),x]
```


```
[Out] (2*c^2*(a + b*x)^(7/2))/(3*d^2*(b*c - a*d)*(c + d*x)^(3/2)) - (4*
c*(5*b*c - 3*a*d)*(a + b*x)^(7/2))/(3*d^2*(b*c - a*d)^2*Sqrt[c +
d*x]) + (5*(21*b^2*c^2 - 14*a*b*c*d + a^2*d^2)*Sqrt[a + b*x]*Sqrt
[c + d*x])/(8*d^5) - (5*(21*b^2*c^2 - 14*a*b*c*d + a^2*d^2)*(a +
b*x)^(3/2)*Sqrt[c + d*x])/(12*d^4*(b*c - a*d)) + ((21*b^2*c^2 - 1
4*a*b*c*d + a^2*d^2)*(a + b*x)^(5/2)*Sqrt[c + d*x])/(3*d^3*(b*c -
 a*d)^2) - (5*(b*c - a*d)*(21*b^2*c^2 - 14*a*b*c*d + a^2*d^2)*Arc
Tanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(8*Sqrt[b]
*d^(11/2))
```

Rubi in Sympy [A] time = 64.4578, size = 306, normalized size = 0.96

$$-\frac{2c^2\left(a+bx\right)^{\frac{7}{2}}}{3d^2\left(c+dx\right)^{\frac{3}{2}}\left(ad-bc\right)}+\frac{4c\left(a+bx\right)^{\frac{7}{2}}\left(3ad-5bc\right)}{3d^2\sqrt{c+dx}\left(ad-bc\right)^2}+\frac{\left(a+bx\right)^{\frac{5}{2}}\sqrt{c+dx}\left(a^2d^2-14abcd+21b^2c^2\right)}{3d^3\left(ad-bc\right)^2}+\frac{5\left(a+bx\right)^{\frac{3}{2}}\sqrt{c+dx}\left(a^2d^2-14abcd+21b^2c^2\right)}{12d^4\left(ad-bc\right)}+\frac{5\sqrt{a+bx}\sqrt{c+dx}\left(a^2d^2-14abcd+21b^2c^2\right)}{8d^5}+\frac{5\left(ad-bc\right)\left(a^2d^2-14abcd+21b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8\sqrt{b}d^{\frac{11}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(b*x+a)**(5/2)/(d*x+c)**(5/2),x)
```

```
[Out] -2*c**2*(a + b*x)**(7/2)/(3*d**2*(c + d*x)**(3/2)*(a*d - b*c)) +
4*c*(a + b*x)**(7/2)*(3*a*d - 5*b*c)/(3*d**2*sqrt(c + d*x)*(a*d -
 b*c)**2) + (a + b*x)**(5/2)*sqrt(c + d*x)*(a**2*d**2 - 14*a*b*c*
d + 21*b**2*c**2)/(3*d**3*(a*d - b*c)**2) + 5*(a + b*x)**(3/2)*sq
rt(c + d*x)*(a**2*d**2 - 14*a*b*c*d + 21*b**2*c**2)/(12*d**4*(a*d
 - b*c)) + 5*sqrt(a + b*x)*sqrt(c + d*x)*(a**2*d**2 - 14*a*b*c*d
+ 21*b**2*c**2)/(8*d**5) + 5*(a*d - b*c)*(a**2*d**2 - 14*a*b*c*d
+ 21*b**2*c**2)*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c + d*x
)))/(8*sqrt(b)*d**(11/2))
```

Mathematica [A] time = 0.325133, size = 220, normalized size = 0.69

$$\frac{5(ad-bc)\left(a^2d^2-14abcd+21b^2c^2\right)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{16\sqrt{b}d^{11/2}}+\frac{\sqrt{a+bx}\left(a^2d^2\left(113c^2+162cdx+33d^2x^2\right)-2abd\left(210c^3+287c^2dx+48cd^2x^2-13d^3x^3\right)+b^2\left(315c^4+420c^3dx+63c^2d^2x\right.\right.}{24d^5(c+dx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^2*(a + b*x)^(5/2))/(c + d*x)^(5/2),x]
```

```
[Out] (Sqrt[a + b*x]*(a^2*d^2*(113*c^2 + 162*c*d*x + 33*d^2*x^2) - 2*a*
b*d*(210*c^3 + 287*c^2*d*x + 48*c*d^2*x^2 - 13*d^3*x^3) + b^2*(31
5*c^4 + 420*c^3*d*x + 63*c^2*d^2*x^2 - 18*c*d^3*x^3 + 8*d^4*x^4))
)/(24*d^5*(c + d*x)^(3/2)) + (5*(-(b*c) + a*d)*(21*b^2*c^2 - 14*a
*b*c*d + a^2*d^2)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqr
t[a + b*x]*Sqrt[c + d*x]])/(16*Sqrt[b]*d^(11/2))
```

Maple [B] time = 0.043, size = 1002, normalized size = 3.1

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(b*x+a)^(5/2)/(d*x+c)^(5/2),x)
```

```
[Out] 1/48*(b*x+a)^(1/2)*(16*x^4*b^2*d^4*((b*x+a)*(d*x+c))^(1/2)*(b*d)^
(1/2)+15*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*
d+b*c)/(b*d)^(1/2))*x^2*a^3*d^5-225*ln(1/2*(2*b*d*x+2*((b*x+a)*(d
*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a^2*b*c*d^4+52
5*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/
(b*d)^(1/2))*x^2*a*b^2*c^2*d^3-315*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*
x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*b^3*c^3*d^2+52*
x^3*a*b*d^4*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-36*x^3*b^2*c*d^3*
((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+30*ln(1/2*(2*b*d*x+2*((b*x+a)
*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^3*c*d^4-450
*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(
b*d)^(1/2))*x*a^2*b*c^2*d^3+1050*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+
c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a*b^2*c^3*d^2-630*l
n(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*
d)^(1/2))*x*b^3*c^4*d+66*x^2*a^2*d^4*((b*x+a)*(d*x+c))^(1/2)*(b*d
)^(1/2)-192*x^2*a*b*c*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+126
*x^2*b^2*c^2*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+15*ln(1/2*(2
*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2)
)*a^3*c^2*d^3-225*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)
^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^2*b*c^3*d^2+525*ln(1/2*(2*b*d*x+2*
((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a*b^2*c
^4*d-315*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*
```

```
d+b*c)/(b*d)^(1/2))*b^3*c^5+324*x*a^2*c*d^3*((b*x+a)*(d*x+c))^(1/
2)*(b*d)^(1/2)-1148*x*a*b*c^2*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(
1/2)+840*x*b^2*c^3*d*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+226*a^2*
c^2*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-840*a*b*c^3*d*((b*x+a
)*(d*x+c))^(1/2)*(b*d)^(1/2)+630*b^2*c^4*((b*x+a)*(d*x+c))^(1/2)*
(b*d)^(1/2))/((b*x+a)*(d*x+c))^(1/2)/(b*d)^(1/2)/(d*x+c)^(3/2)/d^
5
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(5/2)*x^2/(d*x + c)^(5/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 1.34826, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(5/2)*x^2/(d*x + c)^(5/2),x, algorithm="fricas")
```

```
[Out] [1/96*(4*(8*b^2*d^4*x^4 + 315*b^2*c^4 - 420*a*b*c^3*d + 113*a^2*c
^2*d^2 - 2*(9*b^2*c*d^3 - 13*a*b*d^4)*x^3 + 3*(21*b^2*c^2*d^2 - 3
2*a*b*c*d^3 + 11*a^2*d^4)*x^2 + 2*(210*b^2*c^3*d - 287*a*b*c^2*d^
2 + 81*a^2*c*d^3)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) - 15*(
21*b^3*c^5 - 35*a*b^2*c^4*d + 15*a^2*b*c^3*d^2 - a^3*c^2*d^3 + (2
1*b^3*c^3*d^2 - 35*a*b^2*c^2*d^3 + 15*a^2*b*c*d^4 - a^3*d^5)*x^2
+ 2*(21*b^3*c^4*d - 35*a*b^2*c^3*d^2 + 15*a^2*b*c^2*d^3 - a^3*c*d
^4)*x)*log(4*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt
(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b
^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/((d^7*x^2 + 2*c*d^6*x + c^2*d^5)
*sqrt(b*d)), 1/48*(2*(8*b^2*d^4*x^4 + 315*b^2*c^4 - 420*a*b*c^3*d
 + 113*a^2*c^2*d^2 - 2*(9*b^2*c*d^3 - 13*a*b*d^4)*x^3 + 3*(21*b^2
*c^2*d^2 - 32*a*b*c*d^3 + 11*a^2*d^4)*x^2 + 2*(210*b^2*c^3*d - 28
7*a*b*c^2*d^2 + 81*a^2*c*d^3)*x)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*
x + c) - 15*(21*b^3*c^5 - 35*a*b^2*c^4*d + 15*a^2*b*c^3*d^2 - a^3
*c^2*d^3 + (21*b^3*c^3*d^2 - 35*a*b^2*c^2*d^3 + 15*a^2*b*c*d^4 -
a^3*d^5)*x^2 + 2*(21*b^3*c^4*d - 35*a*b^2*c^3*d^2 + 15*a^2*b*c^2*
d^3 - a^3*c*d^4)*x)*arctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(
sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/((d^7*x^2 + 2*c*d^6*x + c^2*d^
5)*sqrt(-b*d))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(b*x+a)**(5/2)/(d*x+c)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.274546, size = 694, normalized size = 2.18

$$\frac{\left(\left(\left(2\,(bx+a)\left(\frac{4\,(b^6cd^8-ab^5d^9)(bx+a)}{b^4cd^9|b|-ab^3d^{10}|b|}-\frac{3\,(3\,b^7c^2d^7-2\,ab^6cd^8-a^2b^5d^9)}{b^4cd^9|b|-ab^3d^{10}|b|}\right)+\frac{3\,(21\,b^8c^3d^6-35\,ab^7c^2d^7+15\,a^2b^6cd^8-a^3b^5d^9)}{b^4cd^9|b|-ab^3d^{10}|b|}\right)(bx+a)+\frac{20\,(21\,b^9c}{}\right.\right.}{24\,(b^2c+(bx+}$$

$$+\frac{5\,(21\,b^4c^3-35\,ab^3c^2d+15\,a^2b^2cd^2-a^3bd^3)\ln\left(\left|-\sqrt{bd}\sqrt{bx+a}+\sqrt{b^2c+(bx+a)bd-abd}\right|\right)}{8\,\sqrt{bd}d^5|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*x^2/(d*x + c)^(5/2),x, algorithm="giac")
```

```
[Out] 1/24*(((2*(b*x + a)*(4*(b^6*c*d^8 - a*b^5*d^9)*(b*x + a)/(b^4*c*d
^9*abs(b) - a*b^3*d^10*abs(b)) - 3*(3*b^7*c^2*d^7 - 2*a*b^6*c*d^8
 - a^2*b^5*d^9)/(b^4*c*d^9*abs(b) - a*b^3*d^10*abs(b))) + 3*(21*b
^8*c^3*d^6 - 35*a*b^7*c^2*d^7 + 15*a^2*b^6*c*d^8 - a^3*b^5*d^9)/(
b^4*c*d^9*abs(b) - a*b^3*d^10*abs(b)))*(b*x + a) + 20*(21*b^9*c^4
*d^5 - 56*a*b^8*c^3*d^6 + 50*a^2*b^7*c^2*d^7 - 16*a^3*b^6*c*d^8 +
 a^4*b^5*d^9)/(b^4*c*d^9*abs(b) - a*b^3*d^10*abs(b)))*(b*x + a) +
 15*(21*b^10*c^5*d^4 - 77*a*b^9*c^4*d^5 + 106*a^2*b^8*c^3*d^6 - 6
6*a^3*b^7*c^2*d^7 + 17*a^4*b^6*c*d^8 - a^5*b^5*d^9)/(b^4*c*d^9*ab
s(b) - a*b^3*d^10*abs(b)))*sqrt(b*x + a)/(b^2*c + (b*x + a)*b*d -
 a*b*d)^(3/2) + 5/8*(21*b^4*c^3 - 35*a*b^3*c^2*d + 15*a^2*b^2*c*d
^2 - a^3*b*d^3)*ln(abs(-sqrt(b*d)*sqrt(b*x + a) + sqrt(b^2*c + (b
*x + a)*b*d - a*b*d)))/(sqrt(b*d)*d^5*abs(b))
```

3.680 $\int \frac{x(a+bx)^{5/2}}{(c+dx)^{5/2}} \, dx$

Optimal. Leaf size=222

$$\frac{5\sqrt{b}(7bc-3ad)(bc-ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4d^{9/2}}-\frac{5b\sqrt{a+bx}\sqrt{c+dx}(7bc-3ad)}{4d^4}+\frac{5b(a+bx)^{3/2}\sqrt{c+dx}(7bc-3ad)}{6d^3(bc-ad)}-\frac{2(a+bx)^{5/2}(7bc-3ad)}{3d^2\sqrt{c+dx}(bc-ad)}-\frac{2c(a+bx)^{7/2}}{3d(c+dx)^{3/2}(bc-ad)}$$

```
[Out] (-2*c*(a + b*x)^(7/2))/(3*d*(b*c - a*d)*(c + d*x)^(3/2)) - (2*(7*
b*c - 3*a*d)*(a + b*x)^(5/2))/(3*d^2*(b*c - a*d)*Sqrt[c + d*x]) -
 (5*b*(7*b*c - 3*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*d^4) + (5*b
*(7*b*c - 3*a*d)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(6*d^3*(b*c - a*d
)) + (5*Sqrt[b]*(7*b*c - 3*a*d)*(b*c - a*d)*ArcTanh[(Sqrt[d]*Sqrt
[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(4*d^(9/2))
```

Rubi [A] time = 0.321757, antiderivative size = 222, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$\frac{5\sqrt{b}(7bc-3ad)(bc-ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4d^{9/2}}-\frac{5b\sqrt{a+bx}\sqrt{c+dx}(7bc-3ad)}{4d^4}+\frac{5b(a+bx)^{3/2}\sqrt{c+dx}(7bc-3ad)}{6d^3(bc-ad)}-\frac{2(a+bx)^{5/2}(7bc-3ad)}{3d^2\sqrt{c+dx}(bc-ad)}-\frac{2c(a+bx)^{7/2}}{3d(c+dx)^{3/2}(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[(x*(a + b*x)^(5/2))/(c + d*x)^(5/2),x]
```

```
[Out] (-2*c*(a + b*x)^(7/2))/(3*d*(b*c - a*d)*(c + d*x)^(3/2)) - (2*(7*
b*c - 3*a*d)*(a + b*x)^(5/2))/(3*d^2*(b*c - a*d)*Sqrt[c + d*x]) -
 (5*b*(7*b*c - 3*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*d^4) + (5*b
*(7*b*c - 3*a*d)*(a + b*x)^(3/2)*Sqrt[c + d*x])/(6*d^3*(b*c - a*d
)) + (5*Sqrt[b]*(7*b*c - 3*a*d)*(b*c - a*d)*ArcTanh[(Sqrt[d]*Sqrt
[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(4*d^(9/2))
```

Rubi in Sympy [A] time = 35.0257, size = 207, normalized size = 0.93

$$\frac{5\sqrt{b}\left(ad-bc\right)\left(3ad-7bc\right)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4d^{\frac{9}{2}}}+\frac{5b\left(a+bx\right)^{\frac{3}{2}}\sqrt{c+dx}\left(3ad-7bc\right)}{6d^{3}\left(ad-bc\right)}+\frac{5b\sqrt{a+bx}\sqrt{c+dx}\left(3ad-7bc\right)}{4d^{4}}+\frac{2c\left(a+bx\right)^{\frac{7}{2}}}{3d\left(c+dx\right)^{\frac{3}{2}}\left(ad-bc\right)}-\frac{2\left(a+bx\right)^{\frac{5}{2}}\left(3ad-7bc\right)}{3d^{2}\sqrt{c+dx}\left(ad-bc\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(b*x+a)**(5/2)/(d*x+c)**(5/2),x)
```

```
[Out] 5*sqrt(b)*(a*d - b*c)*(3*a*d - 7*b*c)*atanh(sqrt(d)*sqrt(a + b*x)
/(sqrt(b)*sqrt(c + d*x)))/(4*d**(9/2)) + 5*b*(a + b*x)**(3/2)*sqr
t(c + d*x)*(3*a*d - 7*b*c)/(6*d**3*(a*d - b*c)) + 5*b*sqrt(a + b*
x)*sqrt(c + d*x)*(3*a*d - 7*b*c)/(4*d**4) + 2*c*(a + b*x)**(7/2)/
(3*d*(c + d*x)**(3/2)*(a*d - b*c)) - 2*(a + b*x)**(5/2)*(3*a*d -
7*b*c)/(3*d**2*sqrt(c + d*x)*(a*d - b*c))
```

Mathematica [A] time = 0.263988, size = 175, normalized size = 0.79

$$\frac{\sqrt{a+bx}\left(-8a^2d^2(2c+3dx)+abd\left(115c^2+158cdx+27d^2x^2\right)+b^2\left(-\left(105c^3+140c^2dx+21cd^2x^2-6d^3x^3\right)\right)\right)}{12d^4(c+dx)^{3/2}}+\frac{5\sqrt{b}(7bc-3ad)(bc-ad)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{8d^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x*(a + b*x)^(5/2))/(c + d*x)^(5/2),x]
```

```
[Out] (Sqrt[a + b*x]*(-8*a^2*d^2*(2*c + 3*d*x) + a*b*d*(115*c^2 + 158*c
*d*x + 27*d^2*x^2) - b^2*(105*c^3 + 140*c^2*d*x + 21*c*d^2*x^2 -
6*d^3*x^3)))/(12*d^4*(c + d*x)^(3/2)) + (5*Sqrt[b]*(7*b*c - 3*a*d
)*(b*c - a*d)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a
+ b*x]*Sqrt[c + d*x]])/(8*d^(9/2))
```

Maple [B] time = 0.034, size = 750, normalized size = 3.4

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(b*x+a)^(5/2)/(d*x+c)^(5/2),x)
```

```
[Out] 1/24*(b*x+a)^(1/2)*(45*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*
(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a^2*b*d^4-150*ln(1/2*(2*b*d
*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^
2*a*b^2*c*d^3+105*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)
^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*b^3*c^2*d^2+12*x^3*b^2*d^3*((b*x
+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+90*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x
+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^2*b*c*d^3-300*ln
(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d
)^(1/2))*x*a*b^2*c^2*d^2+210*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^
(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*b^3*c^3*d+54*x^2*a*b*d^
3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-42*x^2*b^2*c*d^2*((b*x+a)*(
d*x+c))^(1/2)*(b*d)^(1/2)+45*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^
(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^2*b*c^2*d^2-150*ln(1/2*
(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/
2))*a*b^2*c^3*d+105*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*
d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*b^3*c^4-48*x*a^2*d^3*((b*x+a)*(d*x
+c))^(1/2)*(b*d)^(1/2)+316*x*a*b*c*d^2*((b*x+a)*(d*x+c))^(1/2)*(b
*d)^(1/2)-280*x*b^2*c^2*d*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-32*
a^2*c*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+230*a*b*c^2*d*((b*x
+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-210*b^2*c^3*((b*x+a)*(d*x+c))^(1/2
)*(b*d)^(1/2))/((b*x+a)*(d*x+c))^(1/2)/(b*d)^(1/2)/(d*x+c)^(3/2)/
d^4
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*x/(d*x + c)^(5/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.701383, size = 1, normalized size = 0.

$$\left[\frac{15\left(7\,b^2c^4-10\,abc^3d+3\,a^2c^2d^2+\left(7\,b^2c^2d^2-10\,abcd^3+3\,a^2d^4\right)x^2+2\left(7\,b^2c^3d-10\,abc^2d^2+3\,a^2cd^3\right)x\right)\sqrt{\frac{b}{d}}\log\left(8\,b^2d^2x\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*x/(d*x + c)^(5/2),x, algorithm="fricas")
```

```
[Out] [1/48*(15*(7*b^2*c^4 - 10*a*b*c^3*d + 3*a^2*c^2*d^2 + (7*b^2*c^2*
d^2 - 10*a*b*c*d^3 + 3*a^2*d^4)*x^2 + 2*(7*b^2*c^3*d - 10*a*b*c^2
*d^2 + 3*a^2*c*d^3)*x)*sqrt(b/d)*log(8*b^2*d^2*x^2 + b^2*c^2 + 6*
a*b*c*d + a^2*d^2 + 4*(2*b*d^2*x + b*c*d + a*d^2)*sqrt(b*x + a)*s
qrt(d*x + c)*sqrt(b/d) + 8*(b^2*c*d + a*b*d^2)*x) + 4*(6*b^2*d^3*
x^3 - 105*b^2*c^3 + 115*a*b*c^2*d - 16*a^2*c*d^2 - 3*(7*b^2*c*d^2
 - 9*a*b*d^3)*x^2 - 2*(70*b^2*c^2*d - 79*a*b*c*d^2 + 12*a^2*d^3)*
x)*sqrt(b*x + a)*sqrt(d*x + c))/(d^6*x^2 + 2*c*d^5*x + c^2*d^4),
1/24*(15*(7*b^2*c^4 - 10*a*b*c^3*d + 3*a^2*c^2*d^2 + (7*b^2*c^2*d
^2 - 10*a*b*c*d^3 + 3*a^2*d^4)*x^2 + 2*(7*b^2*c^3*d - 10*a*b*c^2*
d^2 + 3*a^2*c*d^3)*x)*sqrt(-b/d)*arctan(1/2*(2*b*d*x + b*c + a*d)
/(sqrt(b*x + a)*sqrt(d*x + c)*d*sqrt(-b/d))) + 2*(6*b^2*d^3*x^3 -
 105*b^2*c^3 + 115*a*b*c^2*d - 16*a^2*c*d^2 - 3*(7*b^2*c*d^2 - 9*
a*b*d^3)*x^2 - 2*(70*b^2*c^2*d - 79*a*b*c*d^2 + 12*a^2*d^3)*x)*sq
rt(b*x + a)*sqrt(d*x + c))/(d^6*x^2 + 2*c*d^5*x + c^2*d^4)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(b*x+a)**(5/2)/(d*x+c)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.261446, size = 545, normalized size = 2.45

$$\frac{\left(\left(3\,(bx+a)\left(\frac{2\left(b^5cd^6|b|-ab^4d^7|b|\right)(bx+a)}{b^4cd^7-ab^3d^8}-\frac{7\,b^6c^2d^5|b|-10\,ab^5cd^6|b|+3\,a^2b^4d^7|b|}{b^4cd^7-ab^3d^8}\right)-\frac{20\left(7\,b^7c^3d^4|b|-17\,ab^6c^2d^5|b|+13\,a^2b^5cd^6|b|-3\,a^3b^4d^7|b\right.}{b^4cd^7-ab^3d^8}\right.\right.}{12\left(b^2c+(bx+a)bd-abd\right)^{\frac{3}{2}}}$$
$$-\frac{5\left(7\,b^2c^2|b|-10\,abcd|b|+3\,a^2d^2|b|\right)\ln\left(\left|-\sqrt{bd}\sqrt{bx+a}+\sqrt{b^2c+(bx+a)bd-abd}\right|\right)}{4\sqrt{bd}d^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)*x/(d*x + c)^(5/2),x, algorithm="giac")
```

```
[Out] 1/12*((3*(b*x + a)*(2*(b^5*c*d^6*abs(b) - a*b^4*d^7*abs(b))*(b*x
+ a)/(b^4*c*d^7 - a*b^3*d^8) - (7*b^6*c^2*d^5*abs(b) - 10*a*b^5*c
*d^6*abs(b) + 3*a^2*b^4*d^7*abs(b))/(b^4*c*d^7 - a*b^3*d^8)) - 20
*(7*b^7*c^3*d^4*abs(b) - 17*a*b^6*c^2*d^5*abs(b) + 13*a^2*b^5*c*d
^6*abs(b) - 3*a^3*b^4*d^7*abs(b))/(b^4*c*d^7 - a*b^3*d^8))*(b*x +
 a) - 15*(7*b^8*c^4*d^3*abs(b) - 24*a*b^7*c^3*d^4*abs(b) + 30*a^2
*b^6*c^2*d^5*abs(b) - 16*a^3*b^5*c*d^6*abs(b) + 3*a^4*b^4*d^7*abs
(b))/(b^4*c*d^7 - a*b^3*d^8))*sqrt(b*x + a)/(b^2*c + (b*x + a)*b*
d - a*b*d)^(3/2) - 5/4*(7*b^2*c^2*abs(b) - 10*a*b*c*d*abs(b) + 3*
a^2*d^2*abs(b))*ln(abs(-sqrt(b*d)*sqrt(b*x + a) + sqrt(b^2*c + (b
*x + a)*b*d - a*b*d)))/(sqrt(b*d)*d^4)
```

3.681 $\int \frac{(a+bx)^{5/2}}{(c+dx)^{5/2}}\,dx$

Optimal. Leaf size=128

$$-\frac{5b^{3/2}(bc-ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{d^{7/2}}+\frac{5b^2\sqrt{a+bx}\sqrt{c+dx}}{d^3}-\frac{10b(a+bx)^{3/2}}{3d^2\sqrt{c+dx}}-\frac{2(a+bx)^{5/2}}{3d(c+dx)^{3/2}}$$

```
[Out] (-2*(a + b*x)^(5/2))/(3*d*(c + d*x)^(3/2)) - (10*b*(a + b*x)^(3/2
))/(3*d^2*Sqrt[c + d*x]) + (5*b^2*Sqrt[a + b*x]*Sqrt[c + d*x])/d^
3 - (5*b^(3/2)*(b*c - a*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[
b]*Sqrt[c + d*x])])/d^(7/2)
```

Rubi [A] time = 0.159719, antiderivative size = 128, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.21

$$-\frac{5b^{3/2}(bc-ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{d^{7/2}}+\frac{5b^2\sqrt{a+bx}\sqrt{c+dx}}{d^3}-\frac{10b(a+bx)^{3/2}}{3d^2\sqrt{c+dx}}-\frac{2(a+bx)^{5/2}}{3d(c+dx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(5/2)/(c + d*x)^(5/2),x]
```

```
[Out] (-2*(a + b*x)^(5/2))/(3*d*(c + d*x)^(3/2)) - (10*b*(a + b*x)^(3/2
))/(3*d^2*Sqrt[c + d*x]) + (5*b^2*Sqrt[a + b*x]*Sqrt[c + d*x])/d^
3 - (5*b^(3/2)*(b*c - a*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[
b]*Sqrt[c + d*x])])/d^(7/2)
```

Rubi in Sympy [A] time = 19.2381, size = 119, normalized size = 0.93

$$\frac{5b^{\frac{3}{2}}(ad-bc)\,\mathrm{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{d^{\frac{7}{2}}}+\frac{5b^2\sqrt{a+bx}\sqrt{c+dx}}{d^3}-\frac{10b\,(a+bx)^{\frac{3}{2}}}{3d^2\sqrt{c+dx}}-\frac{2\,(a+bx)^{\frac{5}{2}}}{3d\,(c+dx)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)/(d*x+c)**(5/2),x)
```

```
[Out] 5*b**(3/2)*(a*d - b*c)*atanh(sqrt(b)*sqrt(c + d*x)/(sqrt(d)*sqrt(
a + b*x)))/d**(7/2) + 5*b**2*sqrt(a + b*x)*sqrt(c + d*x)/d**3 - 1
0*b*(a + b*x)**(3/2)/(3*d**2*sqrt(c + d*x)) - 2*(a + b*x)**(5/2)/
(3*d*(c + d*x)**(3/2))
```

Mathematica [A] time = 0.177387, size = 136, normalized size = 1.06

$$\frac{\sqrt{a+bx}\left(-2a^2d^2-2abd(5c+7dx)+b^2\left(15c^2+20cdx+3d^2x^2\right)\right)}{3d^3(c+dx)^{3/2}}-\frac{5b^{3/2}(bc-ad)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{2d^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(5/2)/(c + d*x)^(5/2),x]
```

```
[Out] (Sqrt[a + b*x]*(-2*a^2*d^2 - 2*a*b*d*(5*c + 7*d*x) + b^2*(15*c^2
+ 20*c*d*x + 3*d^2*x^2)))/(3*d^3*(c + d*x)^(3/2)) - (5*b^(3/2)*(b
```

```
*c - a*d)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*
x]*Sqrt[c + d*x]])/(2*d^(7/2))
```

Maple [F] time = 0., size = 0, normalized size = 0.

$$\int 1\,(bx+a)^{\frac{5}{2}}\,(dx+c)^{-\frac{5}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)/(d*x+c)^(5/2),x)

[Out] int((b*x+a)^(5/2)/(d*x+c)^(5/2),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)/(d*x + c)^(5/2),x, algorithm="maxima")

[Out] Exception raised: ValueError
```

Fricas [A] time = 0.50274, size = 1, normalized size = 0.01

$$\left[-\frac{15\left(b^2c^3-abc^2d+\left(b^2cd^2-abd^3\right)x^2+2\left(b^2c^2d-abcd^2\right)x\right)\sqrt{\frac{b}{d}}\log\left(8\,b^2d^2x^2+b^2c^2+6\,abcd+a^2d^2+4\left(2\,bd^2x+bcd+\cdots\right.\right.}{12\left(d^5\cdots\right.}\right.$$

$$-\frac{15\left(b^2c^3-abc^2d+\left(b^2cd^2-abd^3\right)x^2+2\left(b^2c^2d-abcd^2\right)x\right)\sqrt{-\frac{b}{d}}\arctan\left(\frac{2\,bdx+bc+ad}{2\sqrt{bx+a}\sqrt{dx+c}d\sqrt{-\frac{b}{d}}}\right)-2\left(3\,b^2d^2x^2+15\,b^2c^2-1\cdots\right.}{6\left(d^5x^2+2\,cd^4x+c^2d^3\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)/(d*x + c)^(5/2),x, algorithm="fricas")

[Out] [-1/12*(15*(b^2*c^3 - a*b*c^2*d + (b^2*c*d^2 - a*b*d^3)*x^2 + 2*(
b^2*c^2*d - a*b*c*d^2)*x)*sqrt(b/d)*log(8*b^2*d^2*x^2 + b^2*c^2 +
 6*a*b*c*d + a^2*d^2 + 4*(2*b*d^2*x + b*c*d + a*d^2)*sqrt(b*x + a
)*sqrt(d*x + c)*sqrt(b/d) + 8*(b^2*c*d + a*b*d^2)*x) - 4*(3*b^2*d
^2*x^2 + 15*b^2*c^2 - 10*a*b*c*d - 2*a^2*d^2 + 2*(10*b^2*c*d - 7*
a*b*d^2)*x)*sqrt(b*x + a)*sqrt(d*x + c))/(d^5*x^2 + 2*c*d^4*x + c
^2*d^3), -1/6*(15*(b^2*c^3 - a*b*c^2*d + (b^2*c*d^2 - a*b*d^3)*x^
2 + 2*(b^2*c^2*d - a*b*c*d^2)*x)*sqrt(-b/d)*arctan(1/2*(2*b*d*x +
 b*c + a*d)/(sqrt(b*x + a)*sqrt(d*x + c)*d*sqrt(-b/d))) - 2*(3*b^
2*d^2*x^2 + 15*b^2*c^2 - 10*a*b*c*d - 2*a^2*d^2 + 2*(10*b^2*c*d -
 7*a*b*d^2)*x)*sqrt(b*x + a)*sqrt(d*x + c))/(d^5*x^2 + 2*c*d^4*x
+ c^2*d^3)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)/(d*x+c)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.253152, size = 373, normalized size = 2.91

$$\frac{\left((bx+a)\left(\frac{3\left(b^6cd^4-ab^5d^5\right)(bx+a)}{b^2cd^5|b|-abd^6|b|}+\frac{20\left(b^7c^2d^3-2\,ab^6cd^4+a^2b^5d^5\right)}{b^2cd^5|b|-abd^6|b|}\right)+\frac{15\left(b^8c^3d^2-3\,ab^7c^2d^3+3\,a^2b^6cd^4-a^3b^5d^5\right)}{b^2cd^5|b|-abd^6|b|}\right)\sqrt{bx+a}}{3\left(b^2c+(bx+a)bd-abd\right)^{\frac{3}{2}}}+\frac{5\left(b^4c-ab^3d\right)\ln\left(\left|-\sqrt{bd}\sqrt{bx+a}+\sqrt{b^2c+(bx+a)bd-abd}\right|\right)}{\sqrt{bd}d^3|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)/(d*x + c)^(5/2),x, algorithm="giac")
```

```
[Out] 1/3*((b*x + a)*(3*(b^6*c*d^4 - a*b^5*d^5)*(b*x + a)/(b^2*c*d^5*ab
s(b) - a*b*d^6*abs(b)) + 20*(b^7*c^2*d^3 - 2*a*b^6*c*d^4 + a^2*b^
5*d^5)/(b^2*c*d^5*abs(b) - a*b*d^6*abs(b))) + 15*(b^8*c^3*d^2 - 3
*a*b^7*c^2*d^3 + 3*a^2*b^6*c*d^4 - a^3*b^5*d^5)/(b^2*c*d^5*abs(b)
 - a*b*d^6*abs(b)))*sqrt(b*x + a)/(b^2*c + (b*x + a)*b*d - a*b*d)
^(3/2) + 5*(b^4*c - a*b^3*d)*ln(abs(-sqrt(b*d)*sqrt(b*x + a) + sq
rt(b^2*c + (b*x + a)*b*d - a*b*d)))/(sqrt(b*d)*d^3*abs(b))
```

3.682 $\int \frac{(a+bx)^{5/2}}{x(c+dx)^{5/2}}\,dx$

Optimal. Leaf size=157

$$-\frac{2a^{5/2}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{c^{5/2}}+\frac{2\sqrt{a+bx}\left(\frac{a^2}{c^2}-\frac{b^2}{d^2}\right)}{\sqrt{c+dx}}+\frac{2b^{5/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{d^{5/2}}-\frac{2(a+bx)^{3/2}(bc-ad)}{3cd(c+dx)^{3/2}}$$

```
[Out] (-2*(b*c - a*d)*(a + b*x)^(3/2))/(3*c*d*(c + d*x)^(3/2)) + (2*(a^
2/c^2 - b^2/d^2)*Sqrt[a + b*x])/Sqrt[c + d*x] - (2*a^(5/2)*ArcTan
h[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/c^(5/2) + (2*
b^(5/2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])
/d^(5/2)
```

Rubi [A] time = 0.442132, antiderivative size = 157, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.273$

$$-\frac{2a^{5/2}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{c^{5/2}}+\frac{2\sqrt{a+bx}\left(\frac{a^2}{c^2}-\frac{b^2}{d^2}\right)}{\sqrt{c+dx}}+\frac{2b^{5/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{d^{5/2}}-\frac{2(a+bx)^{3/2}(bc-ad)}{3cd(c+dx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(5/2)/(x*(c + d*x)^(5/2)),x]
```


```
[Out] (-2*(b*c - a*d)*(a + b*x)^(3/2))/(3*c*d*(c + d*x)^(3/2)) + (2*(a^
2/c^2 - b^2/d^2)*Sqrt[a + b*x])/Sqrt[c + d*x] - (2*a^(5/2)*ArcTan
h[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/c^(5/2) + (2*
b^(5/2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])
/d^(5/2)
```

Rubi in Sympy [A] time = 46.6948, size = 144, normalized size = 0.92

$$-\frac{2a^{\frac{5}{2}}\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{c^{\frac{5}{2}}}+\frac{2b^{\frac{5}{2}}\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{d^{\frac{5}{2}}}+\frac{\sqrt{a+bx}\left(\frac{2a^2}{c^2}-\frac{2b^2}{d^2}\right)}{\sqrt{c+dx}}+\frac{2\left(a+bx\right)^{\frac{3}{2}}\left(ad-bc\right)}{3cd\left(c+dx\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)/x/(d*x+c)**(5/2),x)
```

```
[Out] -2*a**(5/2)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/
c**(5/2) + 2*b**(5/2)*atanh(sqrt(b)*sqrt(c + d*x)/(sqrt(d)*sqrt(a
 + b*x)))/d**(5/2) + sqrt(a + b*x)*(2*a**2/c**2 - 2*b**2/d**2)/sq
rt(c + d*x) + 2*(a + b*x)**(3/2)*(a*d - b*c)/(3*c*d*(c + d*x)**(3
/2))
```

Mathematica [A] time = 0.670164, size = 183, normalized size = 1.17

$$-\frac{a^{5/2}\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{c^{5/2}}+\frac{a^{5/2}\log(x)}{c^{5/2}}+\frac{b^{5/2}\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{d^{5/2}}-\frac{2\sqrt{a+bx}(bc-ad)(ad(4c+3dx)+bc(3c+4dx))}{3c^2d^2(c+dx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(5/2)/(x*(c + d*x)^(5/2)),x]
```

```
[Out] (-2*(b*c - a*d)*Sqrt[a + b*x]*(a*d*(4*c + 3*d*x) + b*c*(3*c + 4*d
*x)))/(3*c^2*d^2*(c + d*x)^(3/2)) + (a^(5/2)*Log[x])/c^(5/2) - (a
^(5/2)*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x
]*Sqrt[c + d*x]])/c^(5/2) + (b^(5/2)*Log[b*c + a*d + 2*b*d*x + 2*
Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/d^(5/2)
```

Maple [B] time = 0.036, size = 566, normalized size = 3.6

$$\frac{1}{3\,c^2d^2}\sqrt{bx+a}\left(3\,\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{(bx+a)\,(dx+c)}\sqrt{bd}+ad+bc}{\sqrt{bd}}\right)x^2b^3c^2d^2\sqrt{ac}-3\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)\,(d}{x}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)/x/(d*x+c)^(5/2),x)
```

```
[Out] 1/3*(b*x+a)^(1/2)*(3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b
*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*b^3*c^2*d^2*(a*c)^(1/2)-3*ln(
(a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*
a^3*d^4*(b*d)^(1/2)+6*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(
b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*b^3*c^3*d*(a*c)^(1/2)-6*ln((a*
d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x*a^3*c
*d^3*(b*d)^(1/2)+3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d
)^(1/2)+a*d+b*c)/(b*d)^(1/2))*b^3*c^4*(a*c)^(1/2)-3*ln((a*d*x+b*c
*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*a^3*c^2*d^2*(b
*d)^(1/2)+6*x*a^2*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)*(a*c)^(
1/2)+2*x*a*b*c*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)*(a*c)^(1/2
)-8*x*b^2*c^2*d*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)*(a*c)^(1/2)+8
*a^2*c*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)*(a*c)^(1/2)-2*a*b*
c^2*d*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)*(a*c)^(1/2)-6*b^2*c^3*(
(b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)*(a*c)^(1/2))/c^2/((b*x+a)*(d*x
+c))^(1/2)/(b*d)^(1/2)/(a*c)^(1/2)/(d*x+c)^(3/2)/d^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)/((d*x + c)^(5/2)*x),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 1.75527, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)/((d*x + c)^(5/2)*x),x, algorithm="fricas")
```

```
[Out] [1/6*(3*(b^2*c^2*d^2*x^2 + 2*b^2*c^3*d*x + b^2*c^4)*sqrt(b/d)*log
(8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b*d^2*x + b
*c*d + a*d^2)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(b/d) + 8*(b^2*c*d
+ a*b*d^2)*x) + 3*(a^2*d^4*x^2 + 2*a^2*c*d^3*x + a^2*c^2*d^2)*sqr
t(a/c)*log((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(
2*a*c^2 + (b*c^2 + a*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(a/c
) + 8*(a*b*c^2 + a^2*c*d)*x)/x^2) - 4*(3*b^2*c^3 + a*b*c^2*d - 4*
```

```
a^2*c*d^2 + (4*b^2*c^2*d - a*b*c*d^2 - 3*a^2*d^3)*x)*sqrt(b*x + a
)*sqrt(d*x + c))/(c^2*d^4*x^2 + 2*c^3*d^3*x + c^4*d^2), 1/6*(6*(b
^2*c^2*d^2*x^2 + 2*b^2*c^3*d*x + b^2*c^4)*sqrt(-b/d)*arctan(1/2*(
2*b*d*x + b*c + a*d)/(sqrt(b*x + a)*sqrt(d*x + c)*d*sqrt(-b/d)))
+ 3*(a^2*d^4*x^2 + 2*a^2*c*d^3*x + a^2*c^2*d^2)*sqrt(a/c)*log((8*
a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a*c^2 + (b*c
^2 + a*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(a/c) + 8*(a*b*c^2
 + a^2*c*d)*x)/x^2) - 4*(3*b^2*c^3 + a*b*c^2*d - 4*a^2*c*d^2 + (4
*b^2*c^2*d - a*b*c*d^2 - 3*a^2*d^3)*x)*sqrt(b*x + a)*sqrt(d*x + c
))/(c^2*d^4*x^2 + 2*c^3*d^3*x + c^4*d^2), -1/6*(6*(a^2*d^4*x^2 +
2*a^2*c*d^3*x + a^2*c^2*d^2)*sqrt(-a/c)*arctan(1/2*(2*a*c + (b*c
+ a*d)*x)/(sqrt(b*x + a)*sqrt(d*x + c)*c*sqrt(-a/c))) - 3*(b^2*c^
2*d^2*x^2 + 2*b^2*c^3*d*x + b^2*c^4)*sqrt(b/d)*log(8*b^2*d^2*x^2
+ b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b*d^2*x + b*c*d + a*d^2)*s
qrt(b*x + a)*sqrt(d*x + c)*sqrt(b/d) + 8*(b^2*c*d + a*b*d^2)*x) +
 4*(3*b^2*c^3 + a*b*c^2*d - 4*a^2*c*d^2 + (4*b^2*c^2*d - a*b*c*d^
2 - 3*a^2*d^3)*x)*sqrt(b*x + a)*sqrt(d*x + c))/(c^2*d^4*x^2 + 2*c
^3*d^3*x + c^4*d^2), -1/3*(3*(a^2*d^4*x^2 + 2*a^2*c*d^3*x + a^2*c
^2*d^2)*sqrt(-a/c)*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(b*x +
 a)*sqrt(d*x + c)*c*sqrt(-a/c))) - 3*(b^2*c^2*d^2*x^2 + 2*b^2*c^3
*d*x + b^2*c^4)*sqrt(-b/d)*arctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt
(b*x + a)*sqrt(d*x + c)*d*sqrt(-b/d))) + 2*(3*b^2*c^3 + a*b*c^2*d
 - 4*a^2*c*d^2 + (4*b^2*c^2*d - a*b*c*d^2 - 3*a^2*d^3)*x)*sqrt(b*
x + a)*sqrt(d*x + c))/(c^2*d^4*x^2 + 2*c^3*d^3*x + c^4*d^2)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)/x/(d*x+c)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.304313, size = 494, normalized size = 3.15

$$\frac{\sqrt{bd}c^4\ln\left(\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2\right)}{32\,(b^2cd^4-abd^5)} - \frac{2\,\sqrt{bd}a^3b\arctan\left(-\frac{b^2c+abd-\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2}{2\,\sqrt{-abcd}b}\right)}{\sqrt{-abcd}c^2|b|} + \frac{\sqrt{bx+a}\left(\frac{(4\,b^8c^5d^2-5\,ab^7c^4d^3-2\,a^2b^6c^3d^4+3\,a^3b^5c^2d^5)(bx+a)}{b^8c^2d^4-2\,ab^7cd^5+a^2b^6d^6}+\frac{3\,(b^9c^6d-2\,ab^8c^5d^2+2\,a^3b^6c^3d^4-a^4b^5c^2d^5)}{b^8c^2d^4-2\,ab^7cd^5+a^2b^6d^6}\right)}{48\,(b^2c+(bx+a)bd-abd)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)/((d*x + c)^(5/2)*x),x, algorithm="giac")
```

```
[Out] 1/32*sqrt(b*d)*c^4*ln((sqrt(b*d)*sqrt(b*x + a) - sqrt(b^2*c + (b*
x + a)*b*d - a*b*d))^2)/(b^2*c*d^4 - a*b*d^5) - 2*sqrt(b*d)*a^3*b
*arctan(-1/2*(b^2*c + a*b*d - (sqrt(b*d)*sqrt(b*x + a) - sqrt(b^2
*c + (b*x + a)*b*d - a*b*d))^2)/(sqrt(-a*b*c*d)*b))/(sqrt(-a*b*c*
d)*c^2*abs(b)) + 1/48*sqrt(b*x + a)*((4*b^8*c^5*d^2 - 5*a*b^7*c^4
*d^3 - 2*a^2*b^6*c^3*d^4 + 3*a^3*b^5*c^2*d^5)*(b*x + a)/(b^8*c^2*
d^4 - 2*a*b^7*c*d^5 + a^2*b^6*d^6) + 3*(b^9*c^6*d - 2*a*b^8*c^5*d
^2 + 2*a^3*b^6*c^3*d^4 - a^4*b^5*c^2*d^5)/(b^8*c^2*d^4 - 2*a*b^7*
c*d^5 + a^2*b^6*d^6))/(b^2*c + (b*x + a)*b*d - a*b*d)^(3/2)
```

3.683 $\int \frac{(a+bx)^{5/2}}{x^2(c+dx)^{5/2}}\,dx$

Optimal. Leaf size=142

$$-\frac{5a^{3/2}(bc-ad)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{c^{7/2}}+\frac{5a\sqrt{a+bx}(bc-ad)}{c^3\sqrt{c+dx}}+\frac{5(a+bx)^{3/2}(bc-ad)}{3c^2(c+dx)^{3/2}}-\frac{(a+bx)^{5/2}}{cx(c+dx)^{3/2}}$$

```
[Out] (5*(b*c - a*d)*(a + b*x)^(3/2))/(3*c^2*(c + d*x)^(3/2)) - (a + b*
x)^(5/2)/(c*x*(c + d*x)^(3/2)) + (5*a*(b*c - a*d)*Sqrt[a + b*x])/
(c^3*Sqrt[c + d*x]) - (5*a^(3/2)*(b*c - a*d)*ArcTanh[(Sqrt[c]*Sqr
t[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/c^(7/2)
```

Rubi [A] time = 0.264281, antiderivative size = 142, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.136

$$-\frac{5a^{3/2}(bc-ad)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{c^{7/2}}+\frac{5a\sqrt{a+bx}(bc-ad)}{c^3\sqrt{c+dx}}+\frac{5(a+bx)^{3/2}(bc-ad)}{3c^2(c+dx)^{3/2}}-\frac{(a+bx)^{5/2}}{cx(c+dx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(5/2)/(x^2*(c + d*x)^(5/2)),x]
```

```
[Out] (5*(b*c - a*d)*(a + b*x)^(3/2))/(3*c^2*(c + d*x)^(3/2)) - (a + b*
x)^(5/2)/(c*x*(c + d*x)^(3/2)) + (5*a*(b*c - a*d)*Sqrt[a + b*x])/
(c^3*Sqrt[c + d*x]) - (5*a^(3/2)*(b*c - a*d)*ArcTanh[(Sqrt[c]*Sqr
t[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/c^(7/2)
```

Rubi in Sympy [A] time = 20.8416, size = 124, normalized size = 0.87

$$\frac{5a^{\frac{3}{2}}\left(ad-bc\right)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{c^{\frac{7}{2}}}-\frac{5a^2\sqrt{a+bx}\sqrt{c+dx}}{c^3x}+\frac{10a\left(a+bx\right)^{\frac{3}{2}}}{3c^2x\sqrt{c+dx}}+\frac{2\left(a+bx\right)^{\frac{5}{2}}}{3cx\left(c+dx\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)/x**2/(d*x+c)**(5/2),x)
```

```
[Out] 5*a**(3/2)*(a*d - b*c)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(
c + d*x)))/c**(7/2) - 5*a**2*sqrt(a + b*x)*sqrt(c + d*x)/(c**3*x)
 + 10*a*(a + b*x)**(3/2)/(3*c**2*x*sqrt(c + d*x)) + 2*(a + b*x)**
(5/2)/(3*c*x*(c + d*x)**(3/2))
```

Mathematica [A] time = 0.466509, size = 164, normalized size = 1.15

$$\frac{-15a^{3/2}\log(x)(ad-bc)+15a^{3/2}(ad-bc)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)+\frac{2\sqrt{c}\sqrt{a+bx}\left(a^2\left(-\left(3c^2+20cdx+15d^2x^2\right.\right.\right.}{x(c+dx)^3}}{6c^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(5/2)/(x^2*(c + d*x)^(5/2)),x]
```

```
[Out] ((2*Sqrt[c]*Sqrt[a + b*x]*(2*b^2*c^2*x^2 + 2*a*b*c*x*(7*c + 5*d*x
) - a^2*(3*c^2 + 20*c*d*x + 15*d^2*x^2)))/(x*(c + d*x)^(3/2)) - 1
5*a^(3/2)*(-(b*c) + a*d)*Log[x] + 15*a^(3/2)*(-(b*c) + a*d)*Log[2
```

```
*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d
*x]])/(6*c^(7/2))
```

Maple [B] time = 0.039, size = 502, normalized size = 3.5

$$\frac{1}{6\,c^3x}\sqrt{bx+a}\left(15\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)\,(dx+c)}+2\,ac}{x}\right)x^3a^3d^3-15\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)\,(dx+c)}+\right.}{x}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)/x^2/(d*x+c)^(5/2),x)
```

```
[Out] 1/6*(b*x+a)^(1/2)*(15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x
+c))^(1/2)+2*a*c)/x)*x^3*a^3*d^3-15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)
*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^2*b*c*d^2+30*ln((a*d*x+b
*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a^3*c*d^
2-30*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)
/x)*x^2*a^2*b*c^2*d+15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*
x+c))^(1/2)+2*a*c)/x)*x*a^3*c^2*d-15*ln((a*d*x+b*c*x+2*(a*c)^(1/2
)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x*a^2*b*c^3-30*((b*x+a)*(d*x+
c))^(1/2)*d^2*a^2*x^2*(a*c)^(1/2)+20*((b*x+a)*(d*x+c))^(1/2)*d*b*
c*a*x^2*(a*c)^(1/2)+4*((b*x+a)*(d*x+c))^(1/2)*b^2*c^2*x^2*(a*c)^(
1/2)-40*((b*x+a)*(d*x+c))^(1/2)*d*c*a^2*x*(a*c)^(1/2)+28*((b*x+a)
*(d*x+c))^(1/2)*b*c^2*a*x*(a*c)^(1/2)-6*((b*x+a)*(d*x+c))^(1/2)*c
^2*a^2*(a*c)^(1/2))/c^3/((b*x+a)*(d*x+c))^(1/2)/x/(a*c)^(1/2)/(d*
x+c)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)/((d*x + c)^(5/2)*x^2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.489635, size = 1, normalized size = 0.01

$$\left[-\frac{15\left(\left(abcd^2-a^2d^3\right)x^3+2\left(abc^2d-a^2cd^2\right)x^2+\left(abc^3-a^2c^2d\right)x\right)\sqrt{\frac{a}{c}}\log\left(\frac{8\,a^2c^2+\left(b^2c^2+6\,abcd+a^2d^2\right)x^2+4\left(2\,ac^2+\left(bc^2+acd\right)x\right)\sqrt{bx}}{x^2}\right.}{12\left(c^3d^2x^3+2\,c^4\right.}\right.$$

$$-\frac{15\left(\left(abcd^2-a^2d^3\right)x^3+2\left(abc^2d-a^2cd^2\right)x^2+\left(abc^3-a^2c^2d\right)x\right)\sqrt{-\frac{a}{c}}\arctan\left(\frac{2\,ac+(bc+ad)x}{2\sqrt{bx+a}\sqrt{dx+c}c\sqrt{-\frac{a}{c}}}\right)+2\left(3\,a^2c^2-\left(2\,b^2c^2+\right.\right.}{6\left(c^3d^2x^3+2\,c^4dx^2+c^5x\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)/((d*x + c)^(5/2)*x^2),x, algorithm="fricas")
```

```
[Out] [-1/12*(15*((a*b*c*d^2 - a^2*d^3)*x^3 + 2*(a*b*c^2*d - a^2*c*d^2)
*x^2 + (a*b*c^3 - a^2*c^2*d)*x)*sqrt(a/c)*log((8*a^2*c^2 + (b^2*c
^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 4*(2*a*c^2 + (b*c^2 + a*c*d)*x)*s
qrt(b*x + a)*sqrt(d*x + c)*sqrt(a/c) + 8*(a*b*c^2 + a^2*c*d)*x)/x
^2) + 4*(3*a^2*c^2 - (2*b^2*c^2 + 10*a*b*c*d - 15*a^2*d^2)*x^2 -
2*(7*a*b*c^2 - 10*a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c))/(c^3*d
```

```
^2*x^3 + 2*c^4*d*x^2 + c^5*x), -1/6*(15*((a*b*c*d^2 - a^2*d^3)*x^
3 + 2*(a*b*c^2*d - a^2*c*d^2)*x^2 + (a*b*c^3 - a^2*c^2*d)*x)*sqrt
(-a/c)*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(b*x + a)*sqrt(d*x
 + c)*c*sqrt(-a/c))) + 2*(3*a^2*c^2 - (2*b^2*c^2 + 10*a*b*c*d - 1
5*a^2*d^2)*x^2 - 2*(7*a*b*c^2 - 10*a^2*c*d)*x)*sqrt(b*x + a)*sqrt
(d*x + c))/(c^3*d^2*x^3 + 2*c^4*d*x^2 + c^5*x)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)/x**2/(d*x+c)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)/((d*x + c)^(5/2)*x^2),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.684 $\int \frac{(a+bx)^{5/2}}{x^3(c+dx)^{5/2}} \, dx$

Optimal. Leaf size=220

$$-\frac{5\sqrt{a}(3bc-7ad)(bc-ad)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4c^{9/2}}+\frac{5\sqrt{a+bx}(3bc-7ad)(bc-ad)}{4c^4\sqrt{c+dx}}+\frac{5(a+bx)^{3/2}(3bc-7ad)(bc-ad)}{12ac^3(c+dx)^{3/2}}-\frac{(a+bx)^{5/2}(3bc-7ad)}{4ac^2x(c+dx)^{3/2}}-\frac{(a+bx)^{7/2}}{2acx^2(c+dx)^{3/2}}$$

```
[Out] (5*(3*b*c - 7*a*d)*(b*c - a*d)*(a + b*x)^(3/2))/(12*a*c^3*(c + d*
x)^(3/2)) - ((3*b*c - 7*a*d)*(a + b*x)^(5/2))/(4*a*c^2*x*(c + d*x
)^(3/2)) - (a + b*x)^(7/2)/(2*a*c*x^2*(c + d*x)^(3/2)) + (5*(3*b*
c - 7*a*d)*(b*c - a*d)*Sqrt[a + b*x])/(4*c^4*Sqrt[c + d*x]) - (5*
Sqrt[a]*(3*b*c - 7*a*d)*(b*c - a*d)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x
])/(Sqrt[a]*Sqrt[c + d*x])])/(4*c^(9/2))
```

Rubi [A] time = 0.412535, antiderivative size = 220, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{5\sqrt{a}(3bc-7ad)(bc-ad)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4c^{9/2}}+\frac{5\sqrt{a+bx}(3bc-7ad)(bc-ad)}{4c^4\sqrt{c+dx}}+\frac{5(a+bx)^{3/2}(3bc-7ad)(bc-ad)}{12ac^3(c+dx)^{3/2}}-\frac{(a+bx)^{5/2}(3bc-7ad)}{4ac^2x(c+dx)^{3/2}}-\frac{(a+bx)^{7/2}}{2acx^2(c+dx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(5/2)/(x^3*(c + d*x)^(5/2)),x]
```

```
[Out] (5*(3*b*c - 7*a*d)*(b*c - a*d)*(a + b*x)^(3/2))/(12*a*c^3*(c + d*
x)^(3/2)) - ((3*b*c - 7*a*d)*(a + b*x)^(5/2))/(4*a*c^2*x*(c + d*x
)^(3/2)) - (a + b*x)^(7/2)/(2*a*c*x^2*(c + d*x)^(3/2)) + (5*(3*b*
c - 7*a*d)*(b*c - a*d)*Sqrt[a + b*x])/(4*c^4*Sqrt[c + d*x]) - (5*
Sqrt[a]*(3*b*c - 7*a*d)*(b*c - a*d)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x
])/(Sqrt[a]*Sqrt[c + d*x])])/(4*c^(9/2))
```

Rubi in Sympy [A] time = 34.6606, size = 207, normalized size = 0.94

$$-\frac{5\sqrt{a}\,(ad-bc)\,(7ad-3bc)\,\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4c^{\frac{9}{2}}}+\frac{5a\sqrt{a+bx}\sqrt{c+dx}\,(7ad-3bc)}{4c^4x}+\frac{2d\,(a+bx)^{\frac{7}{2}}}{3cx^2\,(c+dx)^{\frac{3}{2}}\,(ad-bc)}-\frac{(a+bx)^{\frac{5}{2}}\,(7ad-3bc)}{6c^2x^2\sqrt{c+dx}\,(ad-bc)}-\frac{5\,(a+bx)^{\frac{3}{2}}\,(7ad-3bc)}{6c^3x\sqrt{c+dx}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)/x**3/(d*x+c)**(5/2),x)
```

```
[Out] -5*sqrt(a)*(a*d - b*c)*(7*a*d - 3*b*c)*atanh(sqrt(c)*sqrt(a + b*x
)/(sqrt(a)*sqrt(c + d*x)))/(4*c**(9/2)) + 5*a*sqrt(a + b*x)*sqrt(
c + d*x)*(7*a*d - 3*b*c)/(4*c**4*x) + 2*d*(a + b*x)**(7/2)/(3*c*x
**2*(c + d*x)**(3/2)*(a*d - b*c)) - (a + b*x)**(5/2)*(7*a*d - 3*b
*c)/(6*c**2*x**2*sqrt(c + d*x)*(a*d - b*c)) - 5*(a + b*x)**(3/2)*
(7*a*d - 3*b*c)/(6*c**3*x*sqrt(c + d*x))
```

Mathematica [A] time = 0.3584, size = 211, normalized size = 0.96

$$\frac{\frac{2\sqrt{c}\sqrt{a+bx}\left(a^2\left(-6c^3+21c^2dx+140cd^2x^2+105d^3x^3\right)-abcx\left(27c^2+158cdx+115d^2x^2\right)+8b^2c^2x^2(3c+2dx)\right)}{x^2(c+dx)^{3/2}}+15\sqrt{a}\log(x)(ad-bc)(7ad-3bc)-15\sqrt{}}{24c^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(5/2)/(x^3*(c + d*x)^(5/2)),x]
```

```
[Out] ((2*Sqrt[c]*Sqrt[a + b*x]*(8*b^2*c^2*x^2*(3*c + 2*d*x) - a*b*c*x*
(27*c^2 + 158*c*d*x + 115*d^2*x^2) + a^2*(-6*c^3 + 21*c^2*d*x + 1
40*c*d^2*x^2 + 105*d^3*x^3)))/(x^2*(c + d*x)^(3/2)) + 15*Sqrt[a]*
(-(b*c) + a*d)*(-3*b*c + 7*a*d)*Log[x] - 15*Sqrt[a]*(-(b*c) + a*d
)*(-3*b*c + 7*a*d)*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*
Sqrt[a + b*x]*Sqrt[c + d*x]])/(24*c^(9/2))
```

Maple [B] time = 0.046, size = 758, normalized size = 3.5

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)/x^3/(d*x+c)^(5/2),x)
```

```
[Out] -1/24*(b*x+a)^(1/2)*(105*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(
d*x+c))^(1/2)+2*a*c)/x)*x^4*a^3*d^4-150*ln((a*d*x+b*c*x+2*(a*c)^(
1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a^2*b*c*d^3+45*ln((a*d
*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a*b^
2*c^2*d^2+210*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/
2)+2*a*c)/x)*x^3*a^3*c*d^3-300*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*
x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^2*b*c^2*d^2+90*ln((a*d*x+b*c*
x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a*b^2*c^3*d
+105*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)
/x)*x^2*a^3*c^2*d^2-150*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d
*x+c))^(1/2)+2*a*c)/x)*x^2*a^2*b*c^3*d+45*ln((a*d*x+b*c*x+2*(a*c)
^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a*b^2*c^4-210*x^3*a^
2*d^3*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+230*x^3*a*b*c*d^2*(a*c)
^(1/2)*((b*x+a)*(d*x+c))^(1/2)-32*x^3*b^2*c^2*d*(a*c)^(1/2)*((b*x
+a)*(d*x+c))^(1/2)-280*x^2*a^2*c*d^2*(a*c)^(1/2)*((b*x+a)*(d*x+c)
)^(1/2)+316*x^2*a*b*c^2*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-48*
x^2*b^2*c^3*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-42*x*a^2*c^2*d*(a
*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+54*x*a*b*c^3*(a*c)^(1/2)*((b*x+
a)*(d*x+c))^(1/2)+12*a^2*c^3*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2))
/c^4/((b*x+a)*(d*x+c))^(1/2)/(a*c)^(1/2)/x^2/(d*x+c)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(5/2)/((d*x + c)^(5/2)*x^3),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.892808, size = 1, normalized size = 0.

$$\left[\frac{15\left(\left(3\,b^{2}c^{2}d^{2}-10\,abcd^{3}+7\,a^{2}d^{4}\right)x^{4}+2\left(3\,b^{2}c^{3}d-10\,abc^{2}d^{2}+7\,a^{2}cd^{3}\right)x^{3}+\left(3\,b^{2}c^{4}-10\,abc^{3}d+7\,a^{2}c^{2}d^{2}\right)x^{2}\right)\sqrt{\frac{a}{c}}\log\left(\frac{8}{}\right.}{}\right.$$

$$-\frac{15\left(\left(3\,b^{2}c^{2}d^{2}-10\,abcd^{3}+7\,a^{2}d^{4}\right)x^{4}+2\left(3\,b^{2}c^{3}d-10\,abc^{2}d^{2}+7\,a^{2}cd^{3}\right)x^{3}+\left(3\,b^{2}c^{4}-10\,abc^{3}d+7\,a^{2}c^{2}d^{2}\right)x^{2}\right)\sqrt{-\frac{a}{c}}\,\text{arcta}}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(5/2)/((d*x + c)^(5/2)*x^3),x, algorithm="fricas")
```

```
[Out] [1/48*(15*((3*b^2*c^2*d^2 - 10*a*b*c*d^3 + 7*a^2*d^4)*x^4 + 2*(3*
b^2*c^3*d - 10*a*b*c^2*d^2 + 7*a^2*c*d^3)*x^3 + (3*b^2*c^4 - 10*a
*b*c^3*d + 7*a^2*c^2*d^2)*x^2)*sqrt(a/c)*log((8*a^2*c^2 + (b^2*c^
2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a*c^2 + (b*c^2 + a*c*d)*x)*sq
rt(b*x + a)*sqrt(d*x + c)*sqrt(a/c) + 8*(a*b*c^2 + a^2*c*d)*x)/x^
2) - 4*(6*a^2*c^3 - (16*b^2*c^2*d - 115*a*b*c*d^2 + 105*a^2*d^3)*
x^3 - 2*(12*b^2*c^3 - 79*a*b*c^2*d + 70*a^2*c*d^2)*x^2 + 3*(9*a*b
*c^3 - 7*a^2*c^2*d)*x)*sqrt(b*x + a)*sqrt(d*x + c))/(c^4*d^2*x^4
+ 2*c^5*d*x^3 + c^6*x^2), -1/24*(15*((3*b^2*c^2*d^2 - 10*a*b*c*d^
3 + 7*a^2*d^4)*x^4 + 2*(3*b^2*c^3*d - 10*a*b*c^2*d^2 + 7*a^2*c*d^
3)*x^3 + (3*b^2*c^4 - 10*a*b*c^3*d + 7*a^2*c^2*d^2)*x^2)*sqrt(-a/
c)*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(b*x + a)*sqrt(d*x + c
)*c*sqrt(-a/c))) + 2*(6*a^2*c^3 - (16*b^2*c^2*d - 115*a*b*c*d^2 +
 105*a^2*d^3)*x^3 - 2*(12*b^2*c^3 - 79*a*b*c^2*d + 70*a^2*c*d^2)*
x^2 + 3*(9*a*b*c^3 - 7*a^2*c^2*d)*x)*sqrt(b*x + a)*sqrt(d*x + c))
/(c^4*d^2*x^4 + 2*c^5*d*x^3 + c^6*x^2)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**(5/2)/x**3/(d*x+c)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(5/2)/((d*x + c)^(5/2)*x^3),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.685 $\int \frac{(a+bx)^{5/2}}{x^4(c+dx)^{5/2}}\,dx$

Optimal. Leaf size=278

$$-\frac{5(bc-ad)\left(21a^2d^2-14abcd+b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8\sqrt{a}c^{11/2}}-\frac{d\sqrt{a+bx}\left(315a^2d^2-420abcd+113b^2c^2\right)}{24c^5\sqrt{c+dx}}-\frac{7d\sqrt{a+bx}(7bc-15ad)(bc-ad)}{24c^4(c+dx)^{3/2}}-\frac{\sqrt{a+bx}(11bc-21ad)(bc-ad)}{8c^3x(c+dx)^{3/2}}-\frac{3a\sqrt{a+bx}(bc-ad)}{4c^2x^2(c+dx)^{3/2}}-\frac{a(a+bx)^{3/2}}{3cx^3(c+dx)^{3/2}}$$

```
[Out] (-7*d*(7*b*c - 15*a*d)*(b*c - a*d)*Sqrt[a + b*x])/(24*c^4*(c + d*
x)^(3/2)) - (3*a*(b*c - a*d)*Sqrt[a + b*x])/(4*c^2*x^2*(c + d*x)^
(3/2)) - ((11*b*c - 21*a*d)*(b*c - a*d)*Sqrt[a + b*x])/(8*c^3*x*(
c + d*x)^(3/2)) - (a*(a + b*x)^(3/2))/(3*c*x^3*(c + d*x)^(3/2)) -
 (d*(113*b^2*c^2 - 420*a*b*c*d + 315*a^2*d^2)*Sqrt[a + b*x])/(24*
c^5*Sqrt[c + d*x]) - (5*(b*c - a*d)*(b^2*c^2 - 14*a*b*c*d + 21*a^
2*d^2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/
(8*Sqrt[a]*c^(11/2))
```

Rubi [A] time = 1.14582, antiderivative size = 278, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 7, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.318$

$$-\frac{5(bc-ad)\left(21a^2d^2-14abcd+b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8\sqrt{a}c^{11/2}}-\frac{d\sqrt{a+bx}\left(315a^2d^2-420abcd+113b^2c^2\right)}{24c^5\sqrt{c+dx}}-\frac{7d\sqrt{a+bx}(7bc-15ad)(bc-ad)}{24c^4(c+dx)^{3/2}}-\frac{\sqrt{a+bx}(11bc-21ad)(bc-ad)}{8c^3x(c+dx)^{3/2}}-\frac{3a\sqrt{a+bx}(bc-ad)}{4c^2x^2(c+dx)^{3/2}}-\frac{a(a+bx)^{3/2}}{3cx^3(c+dx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(5/2)/(x^4*(c + d*x)^(5/2)),x]
```

```
[Out] (-7*d*(7*b*c - 15*a*d)*(b*c - a*d)*Sqrt[a + b*x])/(24*c^4*(c + d*
x)^(3/2)) - (3*a*(b*c - a*d)*Sqrt[a + b*x])/(4*c^2*x^2*(c + d*x)^
(3/2)) - ((11*b*c - 21*a*d)*(b*c - a*d)*Sqrt[a + b*x])/(8*c^3*x*(
c + d*x)^(3/2)) - (a*(a + b*x)^(3/2))/(3*c*x^3*(c + d*x)^(3/2)) -
 (d*(113*b^2*c^2 - 420*a*b*c*d + 315*a^2*d^2)*Sqrt[a + b*x])/(24*
c^5*Sqrt[c + d*x]) - (5*(b*c - a*d)*(b^2*c^2 - 14*a*b*c*d + 21*a^
2*d^2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/
(8*Sqrt[a]*c^(11/2))
```

Rubi in Sympy [A] time = 160.731, size = 265, normalized size = 0.95

$$-\frac{a\left(a+bx\right)^{\frac{3}{2}}}{3cx^3\left(c+dx\right)^{\frac{3}{2}}}+\frac{3a\sqrt{a+bx}\left(ad-bc\right)}{4c^2x^2\left(c+dx\right)^{\frac{3}{2}}}-\frac{\sqrt{a+bx}\left(ad-bc\right)\left(21ad-11bc\right)}{8c^3x\left(c+dx\right)^{\frac{3}{2}}}-\frac{7d\sqrt{a+bx}\left(ad-bc\right)\left(15ad-7bc\right)}{24c^4\left(c+dx\right)^{\frac{3}{2}}}-\frac{d\sqrt{a+bx}\left(315a^2d^2-420abcd+113b^2c^2\right)}{24c^5\sqrt{c+dx}}+\frac{5\left(ad-bc\right)\left(21a^2d^2-14abcd+b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8\sqrt{a}c^{\frac{11}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)/x**4/(d*x+c)**(5/2),x)
```

```
[Out] -a*(a + b*x)**(3/2)/(3*c*x**3*(c + d*x)**(3/2)) + 3*a*sqrt(a + b*
x)*(a*d - b*c)/(4*c**2*x**2*(c + d*x)**(3/2)) - sqrt(a + b*x)*(a*
d - b*c)*(21*a*d - 11*b*c)/(8*c**3*x*(c + d*x)**(3/2)) - 7*d*sqrt
(a + b*x)*(a*d - b*c)*(15*a*d - 7*b*c)/(24*c**4*(c + d*x)**(3/2))
 - d*sqrt(a + b*x)*(315*a**2*d**2 - 420*a*b*c*d + 113*b**2*c**2)/
(24*c**5*sqrt(c + d*x)) + 5*(a*d - b*c)*(21*a**2*d**2 - 14*a*b*c*
d + b**2*c**2)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)
))/(8*sqrt(a)*c**(11/2))
```

Mathematica [A] time = 0.457434, size = 269, normalized size = 0.97

$$\frac{\frac{15\log(x)(bc-ad)\left(21a^2d^2-14abcd+b^2c^2\right)}{\sqrt{a}}+\frac{15(ad-bc)\left(21a^2d^2-14abcd+b^2c^2\right)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{\sqrt{a}}-\frac{2\sqrt{c}\sqrt{a+bx}\left(a^2\left(8c^4-18c^3dx+\right.\right.}{}}{48c^{11/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(5/2)/(x^4*(c + d*x)^(5/2)),x]
```

```
[Out] ((-2*Sqrt[c]*Sqrt[a + b*x]*(b^2*c^2*x^2*(33*c^2 + 162*c*d*x + 113
*d^2*x^2) - 2*a*b*c*x*(-13*c^3 + 48*c^2*d*x + 287*c*d^2*x^2 + 210
*d^3*x^3) + a^2*(8*c^4 - 18*c^3*d*x + 63*c^2*d^2*x^2 + 420*c*d^3*
x^3 + 315*d^4*x^4)))/(x^3*(c + d*x)^(3/2)) + (15*(b*c - a*d)*(b^2
*c^2 - 14*a*b*c*d + 21*a^2*d^2)*Log[x])/Sqrt[a] + (15*(-(b*c) + a
*d)*(b^2*c^2 - 14*a*b*c*d + 21*a^2*d^2)*Log[2*a*c + b*c*x + a*d*x
 + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/Sqrt[a])/(48*c
^(11/2))
```

Maple [B] time = 0.05, size = 1009, normalized size = 3.6

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)/x^4/(d*x+c)^(5/2),x)
```

```
[Out] 1/48*(b*x+a)^(1/2)*(315*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d
*x+c))^(1/2)+2*a*c)/x)*x^5*a^3*d^5-525*ln((a*d*x+b*c*x+2*(a*c)^(1
/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^5*a^2*b*c*d^4+225*ln((a*d
*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^5*a*b^
2*c^2*d^3-15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2
)+2*a*c)/x)*x^5*b^3*c^3*d^2+630*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b
*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a^3*c*d^4-1050*ln((a*d*x+b*c*x
+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a^2*b*c^2*d^
3+450*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c
)/x)*x^4*a*b^2*c^3*d^2-30*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*
(d*x+c))^(1/2)+2*a*c)/x)*x^4*b^3*c^4*d+315*ln((a*d*x+b*c*x+2*(a*c
)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^3*c^2*d^3-525*ln(
(a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*
a^2*b*c^3*d^2+225*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))
^(1/2)+2*a*c)/x)*x^3*a*b^2*c^4*d-15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)
*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*b^3*c^5-630*x^4*a^2*d^4*((
b*x+a)*(d*x+c))^(1/2)*(a*c)^(1/2)+840*x^4*a*b*c*d^3*((b*x+a)*(d*x
+c))^(1/2)*(a*c)^(1/2)-226*x^4*b^2*c^2*d^2*((b*x+a)*(d*x+c))^(1/2
)*(a*c)^(1/2)-840*x^3*a^2*c*d^3*((b*x+a)*(d*x+c))^(1/2)*(a*c)^(1/
2)+1148*x^3*a*b*c^2*d^2*((b*x+a)*(d*x+c))^(1/2)*(a*c)^(1/2)-324*x
^3*b^2*c^3*d*((b*x+a)*(d*x+c))^(1/2)*(a*c)^(1/2)-126*x^2*a^2*c^2*
d^2*((b*x+a)*(d*x+c))^(1/2)*(a*c)^(1/2)+192*x^2*a*b*c^3*d*((b*x+a
)*(d*x+c))^(1/2)*(a*c)^(1/2)-66*x^2*b^2*c^4*((b*x+a)*(d*x+c))^(1/
2)*(a*c)^(1/2)+36*x*a^2*c^3*d*((b*x+a)*(d*x+c))^(1/2)*(a*c)^(1/2)
-52*x*a*b*c^4*((b*x+a)*(d*x+c))^(1/2)*(a*c)^(1/2)-16*a^2*c^4*((b*
x+a)*(d*x+c))^(1/2)*(a*c)^(1/2))/c^5/((b*x+a)*(d*x+c))^(1/2)/(a*c
)^(1/2)/x^3/(d*x+c)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(5/2)/((d*x + c)^(5/2)*x^4),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 1.90873, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(5/2)/((d*x + c)^(5/2)*x^4),x, algorithm="fricas")
```

```
[Out] [-1/96*(4*(8*a^2*c^4 + (113*b^2*c^2*d^2 - 420*a*b*c*d^3 + 315*a^2
*d^4)*x^4 + 2*(81*b^2*c^3*d - 287*a*b*c^2*d^2 + 210*a^2*c*d^3)*x^
3 + 3*(11*b^2*c^4 - 32*a*b*c^3*d + 21*a^2*c^2*d^2)*x^2 + 2*(13*a*
b*c^4 - 9*a^2*c^3*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c) + 1
5*((b^3*c^3*d^2 - 15*a*b^2*c^2*d^3 + 35*a^2*b*c*d^4 - 21*a^3*d^5)
*x^5 + 2*(b^3*c^4*d - 15*a*b^2*c^3*d^2 + 35*a^2*b*c^2*d^3 - 21*a^
3*c*d^4)*x^4 + (b^3*c^5 - 15*a*b^2*c^4*d + 35*a^2*b*c^3*d^2 - 21*
a^3*c^2*d^3)*x^3)*log((4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt
(b*x + a)*sqrt(d*x + c) + (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2
*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2))/((c^5*d^2*x
^5 + 2*c^6*d*x^4 + c^7*x^3)*sqrt(a*c)), -1/48*(2*(8*a^2*c^4 + (11
3*b^2*c^2*d^2 - 420*a*b*c*d^3 + 315*a^2*d^4)*x^4 + 2*(81*b^2*c^3*
d - 287*a*b*c^2*d^2 + 210*a^2*c*d^3)*x^3 + 3*(11*b^2*c^4 - 32*a*b
*c^3*d + 21*a^2*c^2*d^2)*x^2 + 2*(13*a*b*c^4 - 9*a^2*c^3*d)*x)*sq
rt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c) + 15*((b^3*c^3*d^2 - 15*a*b^
2*c^2*d^3 + 35*a^2*b*c*d^4 - 21*a^3*d^5)*x^5 + 2*(b^3*c^4*d - 15*
a*b^2*c^3*d^2 + 35*a^2*b*c^2*d^3 - 21*a^3*c*d^4)*x^4 + (b^3*c^5 -
 15*a*b^2*c^4*d + 35*a^2*b*c^3*d^2 - 21*a^3*c^2*d^3)*x^3)*arctan(
1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d*x +
c)*a*c)))/((c^5*d^2*x^5 + 2*c^6*d*x^4 + c^7*x^3)*sqrt(-a*c))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**(5/2)/x**4/(d*x+c)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(5/2)/((d*x + c)^(5/2)*x^4),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.686 $\int \frac{(a+bx)^{5/2}}{x^5(c+dx)^{5/2}}\,dx$

Optimal. Leaf size=388

$$-\frac{d\sqrt{a+bx}(bc-ad)\left(385a^2d^2-238abcd+5b^2c^2\right)}{64ac^5(c+dx)^{3/2}}-\frac{\sqrt{a+bx}(bc-ad)\left(231a^2d^2-156abcd+5b^2c^2\right)}{64ac^4x(c+dx)^{3/2}}-\frac{d\sqrt{a+bx}\left(-1155a^3d^3+1715a^2bcd^2-581ab^2c^2d+5b^3c^3\right)}{64ac^6\sqrt{c+dx}}+\frac{5(bc-ad)\left(231a^3d^3-189a^2bcd^2+21ab^2c^2d+b^3c^3\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{3/2}c^{13/2}}-\frac{\sqrt{a+bx}(59bc-99ad)(bc-ad)}{96c^3x^2(c+dx)^{3/2}}-\frac{11a\sqrt{a+bx}(bc-ad)}{24c^2x^3(c+dx)^{3/2}}-\frac{a(a+bx)^{3/2}}{4cx^4(c+dx)^{3/2}}$$

```
[Out] -(d*(b*c - a*d)*(5*b^2*c^2 - 238*a*b*c*d + 385*a^2*d^2)*Sqrt[a +
b*x])/(64*a*c^5*(c + d*x)^(3/2)) - (11*a*(b*c - a*d)*Sqrt[a + b*x
])/(24*c^2*x^3*(c + d*x)^(3/2)) - ((59*b*c - 99*a*d)*(b*c - a*d)*
Sqrt[a + b*x])/(96*c^3*x^2*(c + d*x)^(3/2)) - ((b*c - a*d)*(5*b^2
*c^2 - 156*a*b*c*d + 231*a^2*d^2)*Sqrt[a + b*x])/(64*a*c^4*x*(c +
 d*x)^(3/2)) - (a*(a + b*x)^(3/2))/(4*c*x^4*(c + d*x)^(3/2)) - (d
*(5*b^3*c^3 - 581*a*b^2*c^2*d + 1715*a^2*b*c*d^2 - 1155*a^3*d^3)*
Sqrt[a + b*x])/(64*a*c^6*Sqrt[c + d*x]) + (5*(b*c - a*d)*(b^3*c^3
 + 21*a*b^2*c^2*d - 189*a^2*b*c*d^2 + 231*a^3*d^3)*ArcTanh[(Sqrt[
c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(64*a^(3/2)*c^(13/2))
```

Rubi [A] time = 1.58613, antiderivative size = 388, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 7, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.318$

$$-\frac{d\sqrt{a+bx}(bc-ad)\left(385a^2d^2-238abcd+5b^2c^2\right)}{64ac^5(c+dx)^{3/2}}-\frac{\sqrt{a+bx}(bc-ad)\left(231a^2d^2-156abcd+5b^2c^2\right)}{64ac^4x(c+dx)^{3/2}}-\frac{d\sqrt{a+bx}\left(-1155a^3d^3+1715a^2bcd^2-581ab^2c^2d+5b^3c^3\right)}{64ac^6\sqrt{c+dx}}+\frac{5(bc-ad)\left(231a^3d^3-189a^2bcd^2+21ab^2c^2d+b^3c^3\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{3/2}c^{13/2}}-\frac{\sqrt{a+bx}(59bc-99ad)(bc-ad)}{96c^3x^2(c+dx)^{3/2}}-\frac{11a\sqrt{a+bx}(bc-ad)}{24c^2x^3(c+dx)^{3/2}}-\frac{a(a+bx)^{3/2}}{4cx^4(c+dx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(5/2)/(x^5*(c + d*x)^(5/2)),x]
```

```
[Out] -(d*(b*c - a*d)*(5*b^2*c^2 - 238*a*b*c*d + 385*a^2*d^2)*Sqrt[a +
b*x])/(64*a*c^5*(c + d*x)^(3/2)) - (11*a*(b*c - a*d)*Sqrt[a + b*x
])/(24*c^2*x^3*(c + d*x)^(3/2)) - ((59*b*c - 99*a*d)*(b*c - a*d)*
Sqrt[a + b*x])/(96*c^3*x^2*(c + d*x)^(3/2)) - ((b*c - a*d)*(5*b^2
*c^2 - 156*a*b*c*d + 231*a^2*d^2)*Sqrt[a + b*x])/(64*a*c^4*x*(c +
 d*x)^(3/2)) - (a*(a + b*x)^(3/2))/(4*c*x^4*(c + d*x)^(3/2)) - (d
*(5*b^3*c^3 - 581*a*b^2*c^2*d + 1715*a^2*b*c*d^2 - 1155*a^3*d^3)*
Sqrt[a + b*x])/(64*a*c^6*Sqrt[c + d*x]) + (5*(b*c - a*d)*(b^3*c^3
 + 21*a*b^2*c^2*d - 189*a^2*b*c*d^2 + 231*a^3*d^3)*ArcTanh[(Sqrt[
c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(64*a^(3/2)*c^(13/2))
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)/x**5/(d*x+c)**(5/2),x)
```

```
[Out] Timed out
```

Mathematica [A] time = 0.604326, size = 351, normalized size = 0.9

$$15\log(x)(ad-bc)\left(231a^3d^3-189a^2bcd^2+21ab^2c^2d+b^3c^3\right)+15(bc-ad)\left(231a^3d^3-189a^2bcd^2+21ab^2c^2d+b^3c^3\right)\log\left(\right.$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(5/2)/(x^5*(c + d*x)^(5/2)),x]
```

```
[Out] ((2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*(-15*b^3*c^3*x^3*(c + d*x)^2 +
a*b^2*c^2*x^2*(-118*c^3 + 483*c^2*d*x + 2472*c*d^2*x^2 + 1743*d^3
*x^3) - a^2*b*c*x*(136*c^4 - 316*c^3*d*x + 1161*c^2*d^2*x^2 + 701
4*c*d^3*x^3 + 5145*d^4*x^4) + a^3*(-48*c^5 + 88*c^4*d*x - 198*c^3
*d^2*x^2 + 693*c^2*d^3*x^3 + 4620*c*d^4*x^4 + 3465*d^5*x^5)))/(x^
4*(c + d*x)^(3/2)) + 15*(-(b*c) + a*d)*(b^3*c^3 + 21*a*b^2*c^2*d
- 189*a^2*b*c*d^2 + 231*a^3*d^3)*Log[x] + 15*(b*c - a*d)*(b^3*c^3
 + 21*a*b^2*c^2*d - 189*a^2*b*c*d^2 + 231*a^3*d^3)*Log[2*a*c + b*
c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(38
4*a^(3/2)*c^(13/2))
```

Maple [B] time = 0.053, size = 1377, normalized size = 3.6

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)/x^5/(d*x+c)^(5/2),x)
```

```
[Out] -1/384*(b*x+a)^(1/2)*(30*x^5*b^3*c^3*d^2*(a*c)^(1/2)*((b*x+a)*(d*
x+c))^(1/2)+10290*x^5*a^2*b*c*d^4*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(
1/2)-3486*x^5*a*b^2*c^2*d^3*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+1
4028*x^4*a^2*b*c^2*d^3*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-4944*x
^4*a*b^2*c^3*d^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2322*x^3*a^2
*b*c^3*d^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-966*x^3*a*b^2*c^4*
d*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-632*x^2*a^2*b*c^4*d*(a*c)^(
1/2)*((b*x+a)*(d*x+c))^(1/2)+30*x^3*b^3*c^5*(a*c)^(1/2)*((b*x+a)*
(d*x+c))^(1/2)-15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))
^(1/2)+2*a*c)/x)*x^6*b^4*c^4*d^2+6930*ln((a*d*x+b*c*x+2*(a*c)^(1/
2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^5*a^4*c*d^5-30*ln((a*d*x+b
*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^5*b^4*c^5*
d+3465*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*
c)/x)*x^4*a^4*c^2*d^4+96*a^3*c^5*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1
/2)+3465*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*
a*c)/x)*x^6*a^4*d^6-15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*
x+c))^(1/2)+2*a*c)/x)*x^4*b^4*c^6-6930*x^5*a^3*d^5*(a*c)^(1/2)*((
b*x+a)*(d*x+c))^(1/2)-9240*x^4*a^3*c*d^4*(a*c)^(1/2)*((b*x+a)*(d*
x+c))^(1/2)+60*x^4*b^3*c^4*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-
1386*x^3*a^3*c^2*d^3*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+396*x^2*
a^3*c^3*d^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+236*x^2*a*b^2*c^5
*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-176*x*a^3*c^4*d*(a*c)^(1/2)*
((b*x+a)*(d*x+c))^(1/2)+272*x*a^2*b*c^5*(a*c)^(1/2)*((b*x+a)*(d*x
+c))^(1/2)-6300*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(
1/2)+2*a*c)/x)*x^6*a^3*b*c*d^5+3150*ln((a*d*x+b*c*x+2*(a*c)^(1/2)
*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^6*a^2*b^2*c^2*d^4-300*ln((a*
d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^6*a*b
^3*c^3*d^3-12600*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^
(1/2)+2*a*c)/x)*x^5*a^3*b*c^2*d^4+6300*ln((a*d*x+b*c*x+2*(a*c)^(1
```

```
/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^5*a^2*b^2*c^3*d^3-600*ln(
(a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^5*
a*b^3*c^4*d^2-6300*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c)
)^(1/2)+2*a*c)/x)*x^4*a^3*b*c^3*d^3+3150*ln((a*d*x+b*c*x+2*(a*c)^
(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a^2*b^2*c^4*d^2-300*l
n((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^
4*a*b^3*c^5*d)/c^6/a/((b*x+a)*(d*x+c))^(1/2)/(a*c)^(1/2)/x^4/(d*x
+c)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(5/2)/((d*x + c)^(5/2)*x^5),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 6.12641, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(5/2)/((d*x + c)^(5/2)*x^5),x, algorithm="fricas")
```

```
[Out] [-1/768*(4*(48*a^3*c^5 + 3*(5*b^3*c^3*d^2 - 581*a*b^2*c^2*d^3 + 1
715*a^2*b*c*d^4 - 1155*a^3*d^5)*x^5 + 6*(5*b^3*c^4*d - 412*a*b^2*
c^3*d^2 + 1169*a^2*b*c^2*d^3 - 770*a^3*c*d^4)*x^4 + 3*(5*b^3*c^5
- 161*a*b^2*c^4*d + 387*a^2*b*c^3*d^2 - 231*a^3*c^2*d^3)*x^3 + 2*
(59*a*b^2*c^5 - 158*a^2*b*c^4*d + 99*a^3*c^3*d^2)*x^2 + 8*(17*a^2
*b*c^5 - 11*a^3*c^4*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c) +
 15*((b^4*c^4*d^2 + 20*a*b^3*c^3*d^3 - 210*a^2*b^2*c^2*d^4 + 420*
a^3*b*c*d^5 - 231*a^4*d^6)*x^6 + 2*(b^4*c^5*d + 20*a*b^3*c^4*d^2
- 210*a^2*b^2*c^3*d^3 + 420*a^3*b*c^2*d^4 - 231*a^4*c*d^5)*x^5 +
(b^4*c^6 + 20*a*b^3*c^5*d - 210*a^2*b^2*c^4*d^2 + 420*a^3*b*c^3*d
^3 - 231*a^4*c^2*d^4)*x^4)*log(-(4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*
d)*x)*sqrt(b*x + a)*sqrt(d*x + c) - (8*a^2*c^2 + (b^2*c^2 + 6*a*b
*c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2))/(
(a*c^6*d^2*x^6 + 2*a*c^7*d*x^5 + a*c^8*x^4)*sqrt(a*c)), -1/384*(2
*(48*a^3*c^5 + 3*(5*b^3*c^3*d^2 - 581*a*b^2*c^2*d^3 + 1715*a^2*b*
c*d^4 - 1155*a^3*d^5)*x^5 + 6*(5*b^3*c^4*d - 412*a*b^2*c^3*d^2 +
1169*a^2*b*c^2*d^3 - 770*a^3*c*d^4)*x^4 + 3*(5*b^3*c^5 - 161*a*b^
2*c^4*d + 387*a^2*b*c^3*d^2 - 231*a^3*c^2*d^3)*x^3 + 2*(59*a*b^2*
c^5 - 158*a^2*b*c^4*d + 99*a^3*c^3*d^2)*x^2 + 8*(17*a^2*b*c^5 - 1
1*a^3*c^4*d)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c) - 15*((b^4
*c^4*d^2 + 20*a*b^3*c^3*d^3 - 210*a^2*b^2*c^2*d^4 + 420*a^3*b*c*d
^5 - 231*a^4*d^6)*x^6 + 2*(b^4*c^5*d + 20*a*b^3*c^4*d^2 - 210*a^2
*b^2*c^3*d^3 + 420*a^3*b*c^2*d^4 - 231*a^4*c*d^5)*x^5 + (b^4*c^6
+ 20*a*b^3*c^5*d - 210*a^2*b^2*c^4*d^2 + 420*a^3*b*c^3*d^3 - 231*
a^4*c^2*d^4)*x^4)*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(
sqrt(b*x + a)*sqrt(d*x + c)*a*c)))/((a*c^6*d^2*x^6 + 2*a*c^7*d*x^
5 + a*c^8*x^4)*sqrt(-a*c))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**(5/2)/x**5/(d*x+c)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(5/2)/((d*x + c)^(5/2)*x^5),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.687 $\int \frac{x^2\sqrt{c+dx}}{\sqrt{a+bx}}\,dx$

Optimal. Leaf size=191

$$\frac{(bc-ad)\left(5a^2d^2+2abcd+b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8b^{7/2}d^{5/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(5a^2d^2+2abcd+b^2c^2\right)}{8b^3d^2}-\frac{\sqrt{a+bx}(c+dx)^{3/2}(5ad+3bc)}{12b^2d^2}+\frac{x\sqrt{a+bx}(c+dx)^{3/2}}{3bd}$$

```
[Out] ((b^2*c^2 + 2*a*b*c*d + 5*a^2*d^2)*Sqrt[a + b*x]*Sqrt[c + d*x])/(
8*b^3*d^2) - ((3*b*c + 5*a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(12*
b^2*d^2) + (x*Sqrt[a + b*x]*(c + d*x)^(3/2))/(3*b*d) + ((b*c - a*
d)*(b^2*c^2 + 2*a*b*c*d + 5*a^2*d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*
x])/(Sqrt[b]*Sqrt[c + d*x])])/(8*b^(7/2)*d^(5/2))
```

Rubi [A] time = 0.410091, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$\frac{(bc-ad)\left(5a^2d^2+2abcd+b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8b^{7/2}d^{5/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(5a^2d^2+2abcd+b^2c^2\right)}{8b^3d^2}-\frac{\sqrt{a+bx}(c+dx)^{3/2}(5ad+3bc)}{12b^2d^2}+\frac{x\sqrt{a+bx}(c+dx)^{3/2}}{3bd}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^2*Sqrt[c + d*x])/Sqrt[a + b*x],x]
```

```
[Out] ((b^2*c^2 + 2*a*b*c*d + 5*a^2*d^2)*Sqrt[a + b*x]*Sqrt[c + d*x])/(
8*b^3*d^2) - ((3*b*c + 5*a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(12*
b^2*d^2) + (x*Sqrt[a + b*x]*(c + d*x)^(3/2))/(3*b*d) + ((b*c - a*
d)*(b^2*c^2 + 2*a*b*c*d + 5*a^2*d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*
x])/(Sqrt[b]*Sqrt[c + d*x])])/(8*b^(7/2)*d^(5/2))
```

Rubi in Sympy [A] time = 27.0081, size = 178, normalized size = 0.93

$$\frac{x\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}}{3bd}-\frac{\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}\,(5ad+3bc)}{12b^2d^2}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(5a^2d^2+2abcd+b^2c^2\right)}{8b^3d^2}-\frac{(ad-bc)\left(5a^2d^2+2abcd+b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8b^{\frac{7}{2}}d^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(d*x+c)**(1/2)/(b*x+a)**(1/2),x)
```

```
[Out] x*sqrt(a + b*x)*(c + d*x)**(3/2)/(3*b*d) - sqrt(a + b*x)*(c + d*x
)**(3/2)*(5*a*d + 3*b*c)/(12*b**2*d**2) + sqrt(a + b*x)*sqrt(c +
d*x)*(5*a**2*d**2 + 2*a*b*c*d + b**2*c**2)/(8*b**3*d**2) - (a*d -
 b*c)*(5*a**2*d**2 + 2*a*b*c*d + b**2*c**2)*atanh(sqrt(d)*sqrt(a
+ b*x)/(sqrt(b)*sqrt(c + d*x)))/(8*b**(7/2)*d**(5/2))
```

Mathematica [A] time = 0.132147, size = 161, normalized size = 0.84

$$\frac{(bc-ad)\left(5a^2d^2+2abcd+b^2c^2\right)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{16b^{7/2}d^{5/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(15a^2d^2-2abd(2c+5dx)+b^2\left(-3c^2+2cdx+8d^2x^2\right)\right)}{24b^3d^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^2*Sqrt[c + d*x])/Sqrt[a + b*x],x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(15*a^2*d^2 - 2*a*b*d*(2*c + 5*d*x)
+ b^2*(-3*c^2 + 2*c*d*x + 8*d^2*x^2)))/(24*b^3*d^2) + ((b*c - a*d
)*(b^2*c^2 + 2*a*b*c*d + 5*a^2*d^2)*Log[b*c + a*d + 2*b*d*x + 2*S
qrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(16*b^(7/2)*d^(5/2))
```

Maple [B] time = 0.032, size = 395, normalized size = 2.1

$$-\frac{1}{48\,b^3d^2}\sqrt{bx+a}\sqrt{dx+c}\left(-16\,x^2b^2d^2\sqrt{(bx+a)(dx+c)}\sqrt{bd}+15\,\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{(bx+a)(dx+c)}\sqrt{bd}+ad+bc}{\sqrt{bd}}\right)a^3d^3$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(d*x+c)^(1/2)/(b*x+a)^(1/2),x)
```

```
[Out] -1/48*(d*x+c)^(1/2)*(b*x+a)^(1/2)*(-16*x^2*b^2*d^2*((b*x+a)*(d*x+
c))^(1/2)*(b*d)^(1/2)+15*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2
)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^3*d^3-9*ln(1/2*(2*b*d*x+2*(
(b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^2*b*c*
d^2-3*c^2*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a
*d+b*c)/(b*d)^(1/2))*a*b^2*d-3*c^3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*
x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*b^3+20*(b*d)^(1/2)*
((b*x+a)*(d*x+c))^(1/2)*x*a*b*d^2-4*(b*d)^(1/2)*((b*x+a)*(d*x+c))
^(1/2)*x*b^2*c*d-30*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*a^2*d^2+8
*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*a*b*c*d+6*c^2*((b*x+a)*(d*x+
c))^(1/2)*b^2*(b*d)^(1/2))/((b*x+a)*(d*x+c))^(1/2)/b^3/d^2/(b*d)^
(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(d*x + c)*x^2/sqrt(b*x + a),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.259889, size = 1, normalized size = 0.01

$$\left[\frac{4\left(8\,b^2d^2x^2-3\,b^2c^2-4\,abcd+15\,a^2d^2+2\left(b^2cd-5\,abd^2\right)x\right)\sqrt{bd}\sqrt{bx+a}\sqrt{dx+c}-3\left(b^3c^3+ab^2c^2d+3\,a^2bcd^2-5\,a^3d^3\right)}{96\,\sqrt{bd}b^3d}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(d*x + c)*x^2/sqrt(b*x + a),x, algorithm="fricas")
```

```
[Out] [1/96*(4*(8*b^2*d^2*x^2 - 3*b^2*c^2 - 4*a*b*c*d + 15*a^2*d^2 + 2*
(b^2*c*d - 5*a*b*d^2)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) -
3*(b^3*c^3 + a*b^2*c^2*d + 3*a^2*b*c*d^2 - 5*a^3*d^3)*log(-4*(2*b
^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^
2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)
*x)*sqrt(b*d)))/(sqrt(b*d)*b^3*d^2), 1/48*(2*(8*b^2*d^2*x^2 - 3*b
^2*c^2 - 4*a*b*c*d + 15*a^2*d^2 + 2*(b^2*c*d - 5*a*b*d^2)*x)*sqrt
```

```
(-b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 3*(b^3*c^3 + a*b^2*c^2*d + 3
*a^2*b*c*d^2 - 5*a^3*d^3)*arctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-
b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/(sqrt(-b*d)*b^3*d^2)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(d*x+c)**(1/2)/(b*x+a)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.248564, size = 279, normalized size = 1.46

$$\frac{\left(\sqrt{b^2c+(bx+a)bd-abd}\sqrt{bx+a}\left(2\,(bx+a)\left(\frac{4\,(bx+a)}{b^2}+\frac{b^6cd^3-13\,ab^5d^4}{b^7d^4}\right)-\frac{3\,(b^7c^2d^2+2\,ab^6cd^3-11\,a^2b^5d^4)}{b^7d^4}\right)-\frac{3\,(b^3c^3+ab^2c^2d+3\,a^2bcc\cdots}{}\right.}{24\,b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(d*x + c)*x^2/sqrt(b*x + a),x, algorithm="giac")
```

```
[Out] 1/24*(sqrt(b^2*c + (b*x + a)*b*d - a*b*d)*sqrt(b*x + a)*(2*(b*x +
 a)*(4*(b*x + a)/b^2 + (b^6*c*d^3 - 13*a*b^5*d^4)/(b^7*d^4)) - 3*
(b^7*c^2*d^2 + 2*a*b^6*c*d^3 - 11*a^2*b^5*d^4)/(b^7*d^4)) - 3*(b^
3*c^3 + a*b^2*c^2*d + 3*a^2*b*c*d^2 - 5*a^3*d^3)*ln(abs(-sqrt(b*d
)*sqrt(b*x + a) + sqrt(b^2*c + (b*x + a)*b*d - a*b*d)))/(sqrt(b*d
)*b*d^2))*abs(b)/b^3
```

3.688 $\int \frac{x\sqrt{c+dx}}{\sqrt{a+bx}}\,dx$

Optimal. Leaf size=125

$$-\frac{(bc-ad)(3ad+bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{5/2}d^{3/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}(3ad+bc)}{4b^2d}+\frac{\sqrt{a+bx}(c+dx)^{3/2}}{2bd}$$

```
[Out] -((b*c + 3*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*b^2*d) + (Sqrt[a
+ b*x]*(c + d*x)^(3/2))/(2*b*d) - ((b*c - a*d)*(b*c + 3*a*d)*ArcT
anh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(4*b^(5/2)*
d^(3/2))
```

Rubi [A] time = 0.17056, antiderivative size = 125, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.2

$$-\frac{(bc-ad)(3ad+bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{5/2}d^{3/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}(3ad+bc)}{4b^2d}+\frac{\sqrt{a+bx}(c+dx)^{3/2}}{2bd}$$

Antiderivative was successfully verified.

```
[In]  Int[(x*Sqrt[c + d*x])/Sqrt[a + b*x],x]
```

```
[Out] -((b*c + 3*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*b^2*d) + (Sqrt[a
+ b*x]*(c + d*x)^(3/2))/(2*b*d) - ((b*c - a*d)*(b*c + 3*a*d)*ArcT
anh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(4*b^(5/2)*
d^(3/2))
```

Rubi in Sympy [A] time = 15.7173, size = 109, normalized size = 0.87

$$\frac{\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}}{2bd}-\frac{\sqrt{a+bx}\sqrt{c+dx}\,(3ad+bc)}{4b^2d}+\frac{(ad-bc)\,(3ad+bc)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{\frac{5}{2}}d^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(d*x+c)**(1/2)/(b*x+a)**(1/2),x)
```

```
[Out] sqrt(a + b*x)*(c + d*x)**(3/2)/(2*b*d) - sqrt(a + b*x)*sqrt(c + d
*x)*(3*a*d + b*c)/(4*b**2*d) + (a*d - b*c)*(3*a*d + b*c)*atanh(sq
rt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c + d*x)))/(4*b**(5/2)*d**(3/2)
)
```

Mathematica [A] time = 0.0915731, size = 115, normalized size = 0.92

$$\frac{\sqrt{a+bx}\sqrt{c+dx}(b(c+2dx)-3ad)}{4b^2d}-\frac{(bc-ad)(3ad+bc)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{8b^{5/2}d^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x*Sqrt[c + d*x])/Sqrt[a + b*x],x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(-3*a*d + b*(c + 2*d*x)))/(4*b^2*d)
- ((b*c - a*d)*(b*c + 3*a*d)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*
Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(8*b^(5/2)*d^(3/2))
```

Maple [B] time = 0.023, size = 251, normalized size = 2.

$$\frac{1}{8\,b^2d}\sqrt{bx+a}\sqrt{dx+c}\left(3\,\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{(bx+a)\,(dx+c)}\sqrt{bd}+ad+bc}{\sqrt{bd}}\right)a^2d^2-2\,c\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{(bx+a)\,(dx+c}}{\sqrt{bd}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(d*x+c)^(1/2)/(b*x+a)^(1/2),x)
```

```
[Out] 1/8*(d*x+c)^(1/2)*(b*x+a)^(1/2)*(3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*
x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^2*d^2-2*c*ln(1/2*
(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/
2))*a*d*b-c^2*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/
2)+a*d+b*c)/(b*d)^(1/2))*b^2+4*x*((b*x+a)*(d*x+c))^(1/2)*d*b*(b*d
)^(1/2)-6*((b*x+a)*(d*x+c))^(1/2)*a*d*(b*d)^(1/2)+2*c*((b*x+a)*(d
*x+c))^(1/2)*b*(b*d)^(1/2))/((b*x+a)*(d*x+c))^(1/2)/b^2/d/(b*d)^(
1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(d*x + c)*x/sqrt(b*x + a),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.248564, size = 1, normalized size = 0.01

$$\left[\frac{4\,(2\,bdx+bc-3\,ad)\sqrt{bd}\sqrt{bx+a}\sqrt{dx+c}-\left(b^2c^2+2\,abcd-3\,a^2d^2\right)\log\left(4\,\left(2\,b^2d^2x+b^2cd+abd^2\right)\sqrt{bx+a}\sqrt{dx+c}+(8\,b\right.}{16\,\sqrt{bd}b^2d}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(d*x + c)*x/sqrt(b*x + a),x, algorithm="fricas")
```

```
[Out] [1/16*(4*(2*b*d*x + b*c - 3*a*d)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x
 + c) - (b^2*c^2 + 2*a*b*c*d - 3*a^2*d^2)*log(4*(2*b^2*d^2*x + b^
2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b
^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)
))/(sqrt(b*d)*b^2*d), 1/8*(2*(2*b*d*x + b*c - 3*a*d)*sqrt(-b*d)*s
qrt(b*x + a)*sqrt(d*x + c) - (b^2*c^2 + 2*a*b*c*d - 3*a^2*d^2)*ar
ctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x
 + c)*b*d)))/(sqrt(-b*d)*b^2*d)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(d*x+c)**(1/2)/(b*x+a)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.23052, size = 190, normalized size = 1.52

$$\frac{\left(\sqrt{b^2c + (bx+a)bd - abd}\sqrt{bx+a}\left(\frac{2(bx+a)}{b^4d^2} + \frac{bcd - 5ad^2}{b^4d^4}\right) + \frac{(b^2c^2 + 2abcd - 3a^2d^2)\ln\left(\left|-\sqrt{bd}\sqrt{bx+a} + \sqrt{b^2c + (bx+a)bd - abd}\right|\right)}{\sqrt{bd}b^3d^3}\right)|b|}{48b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(d*x + c)*x/sqrt(b*x + a),x, algorithm="giac")
```

```
[Out] 1/48*(sqrt(b^2*c + (b*x + a)*b*d - a*b*d)*sqrt(b*x + a)*(2*(b*x +
 a)/(b^4*d^2) + (b*c*d - 5*a*d^2)/(b^4*d^4)) + (b^2*c^2 + 2*a*b*c
*d - 3*a^2*d^2)*ln(abs(-sqrt(b*d)*sqrt(b*x + a) + sqrt(b^2*c + (b
*x + a)*b*d - a*b*d)))/(sqrt(b*d)*b^3*d^3))*abs(b)/b^4
```

3.689 $\int \frac{\sqrt{c+dx}}{\sqrt{a+bx}}\,dx$

Optimal. Leaf size=72

$$\frac{(bc-ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{3/2}\sqrt{d}}+\frac{\sqrt{a+bx}\sqrt{c+dx}}{b}$$

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x])/b + ((b*c - a*d)*ArcTanh[(Sqrt[d]*S
qrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(b^(3/2)*Sqrt[d])
```

Rubi [A] time = 0.0797769, antiderivative size = 72, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.158

$$\frac{(bc-ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{3/2}\sqrt{d}}+\frac{\sqrt{a+bx}\sqrt{c+dx}}{b}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[c + d*x]/Sqrt[a + b*x],x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x])/b + ((b*c - a*d)*ArcTanh[(Sqrt[d]*S
qrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(b^(3/2)*Sqrt[d])
```

Rubi in Sympy [A] time = 9.44763, size = 63, normalized size = 0.88

$$\frac{\sqrt{a+bx}\sqrt{c+dx}}{b}-\frac{(ad-bc)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{b^{\frac{3}{2}}\sqrt{d}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(1/2)/(b*x+a)**(1/2),x)
```

```
[Out] sqrt(a + b*x)*sqrt(c + d*x)/b - (a*d - b*c)*atanh(sqrt(b)*sqrt(c
+ d*x)/(sqrt(d)*sqrt(a + b*x)))/(b**(3/2)*sqrt(d))
```

Mathematica [A] time = 0.0750408, size = 88, normalized size = 1.22

$$\frac{(bc-ad)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{2b^{3/2}\sqrt{d}}+\frac{\sqrt{a+bx}\sqrt{c+dx}}{b}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[c + d*x]/Sqrt[a + b*x],x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x])/b + ((b*c - a*d)*Log[b*c + a*d + 2*
b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(2*b^(3/2
)*Sqrt[d])
```

Maple [A] time = 0.005, size = 107, normalized size = 1.5

$$\frac{1}{b}\sqrt{bx+a}\sqrt{dx+c}$$
$$-\frac{ad-bc}{2\,b}\sqrt{(bx+a)\,(dx+c)}\ln\left(1\left(\frac{ad}{2}+\frac{bc}{2}+bdx\right)\frac{1}{\sqrt{bd}}+\sqrt{dx^2b+(ad+bc)\,x+ac}\right)\frac{1}{\sqrt{bx+a}}\frac{1}{\sqrt{dx+c}}\frac{1}{\sqrt{bd}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(1/2)/(b*x+a)^(1/2),x)
```

```
[Out] (b*x+a)^(1/2)*(d*x+c)^(1/2)/b-1/2*(a*d-b*c)/b*((b*x+a)*(d*x+c))^(
1/2)/(d*x+c)^(1/2)/(b*x+a)^(1/2)*ln((1/2*a*d+1/2*b*c+b*d*x)/(b*d)
^(1/2)+(d*x^2*b+(a*d+b*c)*x+a*c)^(1/2))/(b*d)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(d*x + c)/sqrt(b*x + a),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.235577, size = 1, normalized size = 0.01

$$\left[-\frac{(bc-ad)\log\left(-4\left(2\,b^2d^2x+b^2cd+abd^2\right)\sqrt{bx+a}\sqrt{dx+c}+\left(8\,b^2d^2x^2+b^2c^2+6\,abcd+a^2d^2+8\left(b^2cd+abd^2\right)x\right)\sqrt{bd}\right)}{4\sqrt{bd}b}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(d*x + c)/sqrt(b*x + a),x, algorithm="fricas")
```

```
[Out] [-1/4*((b*c - a*d)*log(-4*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(
b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a
^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)) - 4*sqrt(b*d)*sqrt(b
*x + a)*sqrt(d*x + c))/(sqrt(b*d)*b), 1/2*((b*c - a*d)*arctan(1/2
*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*
d)) + 2*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(-b*d)*b)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{c+dx}}{\sqrt{a+bx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(1/2)/(b*x+a)**(1/2),x)
```

```
[Out] Integral(sqrt(c + d*x)/sqrt(a + b*x), x)
```

GIAC/XCAS [A] time = 0.227675, size = 126, normalized size = 1.75

$$-\frac{\left(\frac{(b^2c-abd)\ln\left(\left|-\sqrt{bd}\sqrt{bx+a}+\sqrt{b^2c+(bx+a)bd-abd}\right|\right)}{\sqrt{bd}}-\sqrt{b^2c+(bx+a)bd-abd}\sqrt{bx+a}\right)|b|}{b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(d*x + c)/sqrt(b*x + a),x, algorithm="giac")
```

```
[Out] -((b^2*c - a*b*d)*ln(abs(-sqrt(b*d)*sqrt(b*x + a) + sqrt(b^2*c +
(b*x + a)*b*d - a*b*d)))/sqrt(b*d) - sqrt(b^2*c + (b*x + a)*b*d -
 a*b*d)*sqrt(b*x + a))*abs(b)/b^3
```

3.690 $\int \frac{\sqrt{c+dx}}{x\sqrt{a+bx}}\,dx$

Optimal. Leaf size=85

$$\frac{2\sqrt{d}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{b}}-\frac{2\sqrt{c}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{a}}$$

```
[Out] (-2*Sqrt[c]*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x
])])/Sqrt[a] + (2*Sqrt[d]*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b
]*Sqrt[c + d*x])])/Sqrt[b]
```

Rubi [A] time = 0.156154, antiderivative size = 85, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$\frac{2\sqrt{d}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{b}}-\frac{2\sqrt{c}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{a}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[c + d*x]/(x*Sqrt[a + b*x]),x]
```

```
[Out] (-2*Sqrt[c]*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x
])])/Sqrt[a] + (2*Sqrt[d]*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b
]*Sqrt[c + d*x])])/Sqrt[b]
```

Rubi in Sympy [A] time = 14.3273, size = 80, normalized size = 0.94

$$\frac{2\sqrt{d}\,\text{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{b}}-\frac{2\sqrt{c}\,\text{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{a}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(1/2)/x/(b*x+a)**(1/2),x)
```

```
[Out] 2*sqrt(d)*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c + d*x)))/sq
rt(b) - 2*sqrt(c)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d
*x)))/sqrt(a)
```

Mathematica [A] time = 0.0836855, size = 124, normalized size = 1.46

$$-\frac{\sqrt{c}\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{\sqrt{a}}+\frac{\sqrt{d}\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{\sqrt{b}}+\frac{\sqrt{c}\log(x)}{\sqrt{a}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[c + d*x]/(x*Sqrt[a + b*x]),x]
```

```
[Out] (Sqrt[c]*Log[x])/Sqrt[a] - (Sqrt[c]*Log[2*a*c + b*c*x + a*d*x + 2
*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/Sqrt[a] + (Sqrt[d]
*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c
```

```
+ d*x]])/Sqrt[b]
```

Maple [B] time = 0.027, size = 133, normalized size = 1.6

$$1\sqrt{bx+a}\sqrt{dx+c}\left(\ln\left(\frac{1}{2}\left(2\,bdx+2\,\sqrt{(bx+a)\,(dx+c)}\sqrt{bd}+ad+bc\right)\frac{1}{\sqrt{bd}}\right)d\sqrt{ac}-\ln\left(\frac{1}{x}\left(adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)\,(d$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(1/2)/x/(b*x+a)^(1/2),x)
```

```
[Out] (d*x+c)^(1/2)*(b*x+a)^(1/2)*(ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^
(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*d*(a*c)^(1/2)-ln((a*d*x+b
*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*c*(b*d)^(1/2
))/((b*x+a)*(d*x+c))^(1/2)/(b*d)^(1/2)/(a*c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(d*x + c)/(sqrt(b*x + a)*x),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.346295, size = 1, normalized size = 0.01

$$\left[\frac{1}{2}\sqrt{\frac{d}{b}}\log\left(8\,b^2d^2x^2+b^2c^2+6\,abcd+a^2d^2\right.\right.$$
$$\left.+4\left(2\,b^2dx+b^2c+abd\right)\sqrt{bx+a}\sqrt{dx+c}\sqrt{\frac{d}{b}}+8\left(b^2cd+abd^2\right)x\right)$$
$$+\frac{1}{2}\sqrt{\frac{c}{a}}\log\left(\frac{8\,a^2c^2+\left(b^2c^2+6\,abcd+a^2d^2\right)x^2-4\left(2\,a^2c+\left(abc+a^2d\right)x\right)\sqrt{bx+a}\sqrt{dx+c}\sqrt{\frac{c}{a}}+8\left(abc^2+a^2cd\right)x}{x^2}\right),\sqrt{-\frac{d}{b}}\,a$$
$$+\frac{1}{2}\sqrt{\frac{c}{a}}\log\left(\frac{8\,a^2c^2+\left(b^2c^2+6\,abcd+a^2d^2\right)x^2-4\left(2\,a^2c+\left(abc+a^2d\right)x\right)\sqrt{bx+a}\sqrt{dx+c}\sqrt{\frac{c}{a}}+8\left(abc^2+a^2cd\right)x}{x^2}\right),$$
$$-\sqrt{-\frac{c}{a}}\arctan\left(\frac{2\,ac+(bc+ad)x}{2\,\sqrt{bx+a}\sqrt{dx+c}a\sqrt{-\frac{c}{a}}}\right)+\frac{1}{2}\sqrt{\frac{d}{b}}\log\left(8\,b^2d^2x^2+b^2c^2+6\,abcd\right.$$
$$\left.+a^2d^2+4\left(2\,b^2dx+b^2c+abd\right)\sqrt{bx+a}\sqrt{dx+c}\sqrt{\frac{d}{b}}+8\left(b^2cd+abd^2\right)x\right),$$
$$\left.-\sqrt{-\frac{c}{a}}\arctan\left(\frac{2\,ac+(bc+ad)x}{2\,\sqrt{bx+a}\sqrt{dx+c}a\sqrt{-\frac{c}{a}}}\right)+\sqrt{-\frac{d}{b}}\arctan\left(\frac{2\,bdx+bc+ad}{2\,\sqrt{bx+a}\sqrt{dx+c}b\sqrt{-\frac{d}{b}}}\right)\right]$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(d*x + c)/(sqrt(b*x + a)*x),x, algorithm="fricas")
```

```
[Out] [1/2*sqrt(d/b)*log(8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2
+ 4*(2*b^2*d*x + b^2*c + a*b*d)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(
d/b) + 8*(b^2*c*d + a*b*d^2)*x) + 1/2*sqrt(c/a)*log((8*a^2*c^2 +
```

```
(b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a^2*c + (a*b*c + a^2*d
)*x)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(c/a) + 8*(a*b*c^2 + a^2*c*d
)*x)/x^2), sqrt(-d/b)*arctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(b*x
+ a)*sqrt(d*x + c)*b*sqrt(-d/b))) + 1/2*sqrt(c/a)*log((8*a^2*c^2
+ (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a^2*c + (a*b*c + a^2
*d)*x)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(c/a) + 8*(a*b*c^2 + a^2*c
*d)*x)/x^2), -sqrt(-c/a)*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt
(b*x + a)*sqrt(d*x + c)*a*sqrt(-c/a))) + 1/2*sqrt(d/b)*log(8*b^2*
d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b^2*d*x + b^2*c +
a*b*d)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(d/b) + 8*(b^2*c*d + a*b*d
^2)*x), -sqrt(-c/a)*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(b*x
+ a)*sqrt(d*x + c)*a*sqrt(-c/a))) + sqrt(-d/b)*arctan(1/2*(2*b*d*
x + b*c + a*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*sqrt(-d/b)))]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{c + dx}}{x\sqrt{a + bx}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(1/2)/x/(b*x+a)**(1/2),x)
```

```
[Out] Integral(sqrt(c + d*x)/(x*sqrt(a + b*x)), x)
```

GIAC/XCAS [A] time = 0.237753, size = 184, normalized size = 2.16

$$-\frac{\left(\frac{2\,\sqrt{bd}bc\arctan\left(-\frac{b^2c+abd-\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2}{2\,\sqrt{-abcd}b}\right)}{\sqrt{-abcd}}+\sqrt{bd}\ln\left(\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2\right)\right)|b|}{b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(d*x + c)/(sqrt(b*x + a)*x),x, algorithm="giac")
```

```
[Out] -(2*sqrt(b*d)*b*c*arctan(-1/2*(b^2*c + a*b*d - (sqrt(b*d)*sqrt(b*
x + a) - sqrt(b^2*c + (b*x + a)*b*d - a*b*d))^2)/(sqrt(-a*b*c*d)*
b))/sqrt(-a*b*c*d) + sqrt(b*d)*ln((sqrt(b*d)*sqrt(b*x + a) - sqrt
(b^2*c + (b*x + a)*b*d - a*b*d))^2))*abs(b)/b^2
```

3.691 $\int \frac{\sqrt{c+dx}}{x^2\sqrt{a+bx}}\,dx$

Optimal. Leaf size=76

$$\frac{(bc-ad)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{3/2}\sqrt{c}}-\frac{\sqrt{a+bx}\sqrt{c+dx}}{ax}$$

```
[Out] -((Sqrt[a + b*x]*Sqrt[c + d*x])/(a*x)) + ((b*c - a*d)*ArcTanh[(Sq
rt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(a^(3/2)*Sqrt[c])
```

Rubi [A] time = 0.133349, antiderivative size = 76, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.136

$$\frac{(bc-ad)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{3/2}\sqrt{c}}-\frac{\sqrt{a+bx}\sqrt{c+dx}}{ax}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[c + d*x]/(x^2*Sqrt[a + b*x]),x]
```

```
[Out] -((Sqrt[a + b*x]*Sqrt[c + d*x])/(a*x)) + ((b*c - a*d)*ArcTanh[(Sq
rt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(a^(3/2)*Sqrt[c])
```

Rubi in Sympy [A] time = 10.2325, size = 66, normalized size = 0.87

$$-\frac{\sqrt{a+bx}\sqrt{c+dx}}{ax}-\frac{(ad-bc)\,\mathrm{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{\frac{3}{2}}\sqrt{c}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(1/2)/x**2/(b*x+a)**(1/2),x)
```

```
[Out] -sqrt(a + b*x)*sqrt(c + d*x)/(a*x) - (a*d - b*c)*atanh(sqrt(c)*sq
rt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(a**(3/2)*sqrt(c))
```

Mathematica [A] time = 0.0925493, size = 117, normalized size = 1.54

$$\frac{\log(x)(ad-bc)}{2a^{3/2}\sqrt{c}}-\frac{(ad-bc)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{2a^{3/2}\sqrt{c}}-\frac{\sqrt{a+bx}\sqrt{c+dx}}{ax}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[c + d*x]/(x^2*Sqrt[a + b*x]),x]
```

```
[Out] -((Sqrt[a + b*x]*Sqrt[c + d*x])/(a*x)) + ((-(b*c) + a*d)*Log[x])/
(2*a^(3/2)*Sqrt[c]) - ((-(b*c) + a*d)*Log[2*a*c + b*c*x + a*d*x +
 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(2*a^(3/2)*Sqrt[
c])
```

Maple [B] time = 0.028, size = 147, normalized size = 1.9

$$-\frac{1}{2\,ax}\sqrt{bx+a}\sqrt{dx+c}\left(\ln\left(\frac{1}{x}\left(adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)(dx+c)}+2\,ac\right)\right)xad-\ln\left(\frac{1}{x}\left(adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)(dx\right.\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(1/2)/x^2/(b*x+a)^(1/2),x)
```

```
[Out] -1/2*(d*x+c)^(1/2)*(b*x+a)^(1/2)/a*(ln((a*d*x+b*c*x+2*(a*c)^(1/2)
*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x*a*d-ln((a*d*x+b*c*x+2*(a*c)^
(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x*b*c+2*(a*c)^(1/2)*((b*x
+a)*(d*x+c))^(1/2))/((b*x+a)*(d*x+c))^(1/2)/x/(a*c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(d*x + c)/(sqrt(b*x + a)*x^2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.277834, size = 1, normalized size = 0.01

$$\left[-\frac{(bc-ad)x\log\left(-\frac{4\left(2a^2c^2+\left(abc^2+a^2cd\right)x\right)\sqrt{bx+a}\sqrt{dx+c}-\left(8a^2c^2+\left(b^2c^2+6abcd+a^2d^2\right)x^2+8\left(abc^2+a^2cd\right)x\right)\sqrt{ac}}{x^2}\right)+4\sqrt{ac}\sqrt{bx+a}\sqrt{dx+c}}{4\sqrt{ac}ax}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(d*x + c)/(sqrt(b*x + a)*x^2),x, algorithm="fricas")
```

```
[Out] [-1/4*((b*c - a*d)*x*log(-(4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*
sqrt(b*x + a)*sqrt(d*x + c) - (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d +
 a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2) + 4*sqrt
(a*c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(a*c)*a*x), 1/2*((b*c - a
*d)*x*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a
)*sqrt(d*x + c)*a*c)) - 2*sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c))
/(sqrt(-a*c)*a*x)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(1/2)/x**2/(b*x+a)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(d*x + c)/(sqrt(b*x + a)*x^2),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.692 $\int \frac{\sqrt{c+dx}}{x^3\sqrt{a+bx}}\,dx$

Optimal. Leaf size=131

$$-\frac{(bc-ad)(ad+3bc)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{5/2}c^{3/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}(ad+3bc)}{4a^2cx}-\frac{\sqrt{a+bx}(c+dx)^{3/2}}{2acx^2}$$

```
[Out] ((3*b*c + a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*a^2*c*x) - (Sqrt[a
 + b*x]*(c + d*x)^(3/2))/(2*a*c*x^2) - ((b*c - a*d)*(3*b*c + a*d)
*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(4*a^(
5/2)*c^(3/2))
```

Rubi [A] time = 0.227353, antiderivative size = 131, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{(bc-ad)(ad+3bc)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{5/2}c^{3/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}(ad+3bc)}{4a^2cx}-\frac{\sqrt{a+bx}(c+dx)^{3/2}}{2acx^2}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[c + d*x]/(x^3*Sqrt[a + b*x]),x]
```

```
[Out] ((3*b*c + a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*a^2*c*x) - (Sqrt[a
 + b*x]*(c + d*x)^(3/2))/(2*a*c*x^2) - ((b*c - a*d)*(3*b*c + a*d)
*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(4*a^(
5/2)*c^(3/2))
```

Rubi in Sympy [A] time = 16.8126, size = 114, normalized size = 0.87

$$-\frac{\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}}{2acx^2}+\frac{\sqrt{a+bx}\sqrt{c+dx}\,(ad+3bc)}{4a^2cx}+\frac{(ad-bc)\,(ad+3bc)\,\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{\frac{5}{2}}c^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(1/2)/x**3/(b*x+a)**(1/2),x)
```

```
[Out] -sqrt(a + b*x)*(c + d*x)**(3/2)/(2*a*c*x**2) + sqrt(a + b*x)*sqrt
(c + d*x)*(a*d + 3*b*c)/(4*a**2*c*x) + (a*d - b*c)*(a*d + 3*b*c)*
atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(4*a**(5/2)*
c**(3/2))
```

Mathematica [A] time = 0.194389, size = 159, normalized size = 1.21

$$\frac{\log(x)(bc-ad)(ad+3bc)}{8a^{5/2}c^{3/2}}-\frac{(bc-ad)(ad+3bc)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{8a^{5/2}c^{3/2}}+\sqrt{a+bx}\sqrt{c+dx}\left(\frac{3bc-ad}{4a^2cx}-\frac{1}{2ax^2}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[c + d*x]/(x^3*Sqrt[a + b*x]),x]
```

```
[Out] (-1/(2*a*x^2) + (3*b*c - a*d)/(4*a^2*c*x))*Sqrt[a + b*x]*Sqrt[c +
 d*x] + ((b*c - a*d)*(3*b*c + a*d)*Log[x])/(8*a^(5/2)*c^(3/2)) -
```

```
((b*c - a*d)*(3*b*c + a*d)*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*
Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(8*a^(5/2)*c^(3/2))
```

Maple [B] time = 0.033, size = 257, normalized size = 2.

$$\frac{1}{8\,a^2cx^2}\sqrt{bx+a}\sqrt{dx+c}\left(\ln\left(\frac{1}{x}\left(adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)\,(dx+c)}+2\,ac\right)\right)x^2a^2d^2+2\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)}}{x}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(1/2)/x^3/(b*x+a)^(1/2),x)
```

```
[Out] 1/8*(d*x+c)^(1/2)*(b*x+a)^(1/2)/a^2/c*(ln((a*d*x+b*c*x+2*(a*c)^(1
/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a^2*d^2+2*ln((a*d*x+b*c
*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a*b*c*d-3*
ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x
^2*b^2*c^2-2*((b*x+a)*(d*x+c))^(1/2)*d*a*x*(a*c)^(1/2)+6*((b*x+a)
*(d*x+c))^(1/2)*b*c*x*(a*c)^(1/2)-4*((b*x+a)*(d*x+c))^(1/2)*c*a*(
a*c)^(1/2))/((b*x+a)*(d*x+c))^(1/2)/x^2/(a*c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(d*x + c)/(sqrt(b*x + a)*x^3),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.331572, size = 1, normalized size = 0.01

$$\left[-\frac{\left(3\,b^2c^2-2\,abcd-a^2d^2\right)x^2\log\left(\frac{4\,(2\,a^2c^2+(abc^2+a^2cd)\,x)\,\sqrt{bx+a}\sqrt{dx+c}+(8\,a^2c^2+(b^2c^2+6\,abcd+a^2d^2)\,x^2+8\,(abc^2+a^2cd)\,x)\,\sqrt{ac}}{x^2}\right)+4\,(2\,ac}{16\,\sqrt{ac}a^2cx^2}\right.$$

$$\left.-\frac{\left(3\,b^2c^2-2\,abcd-a^2d^2\right)x^2\arctan\left(\frac{(2\,ac+(bc+ad)x)\sqrt{-ac}}{2\,\sqrt{bx+a}\sqrt{dx+c}ac}\right)+2\,(2\,ac-(3\,bc-ad)x)\sqrt{-ac}\sqrt{bx+a}\sqrt{dx+c}}{8\,\sqrt{-ac}a^2cx^2}\right]$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(d*x + c)/(sqrt(b*x + a)*x^3),x, algorithm="fricas")
```

```
[Out] [-1/16*((3*b^2*c^2 - 2*a*b*c*d - a^2*d^2)*x^2*log((4*(2*a^2*c^2 +
 (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c) + (8*a^2*c^2
+ (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*
sqrt(a*c))/x^2) + 4*(2*a*c - (3*b*c - a*d)*x)*sqrt(a*c)*sqrt(b*x
+ a)*sqrt(d*x + c))/(sqrt(a*c)*a^2*c*x^2), -1/8*((3*b^2*c^2 - 2*a
*b*c*d - a^2*d^2)*x^2*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*
c)/(sqrt(b*x + a)*sqrt(d*x + c)*a*c)) + 2*(2*a*c - (3*b*c - a*d)*
x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(-a*c)*a^2*c*x^2)
]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{c+dx}}{x^3\sqrt{a+bx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(1/2)/x**3/(b*x+a)**(1/2),x)
```

```
[Out] Integral(sqrt(c + d*x)/(x**3*sqrt(a + b*x)), x)
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(d*x + c)/(sqrt(b*x + a)*x^3),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.693 $\int \frac{\sqrt{c+dx}}{x^4\sqrt{a+bx}}\,dx$

Optimal. Leaf size=191

$$-\frac{\sqrt{a+bx}\sqrt{c+dx}(5bc-3ad)(ad+3bc)}{24a^3c^2x}+\frac{\sqrt{a+bx}\sqrt{c+dx}(5bc-ad)}{12a^2cx^2}+\frac{(bc-ad)\left(a^2d^2+2abcd+5b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{7/2}c^{5/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}}{3ax^3}$$

```
[Out] -(Sqrt[a + b*x]*Sqrt[c + d*x])/(3*a*x^3) + ((5*b*c - a*d)*Sqrt[a
+ b*x]*Sqrt[c + d*x])/(12*a^2*c*x^2) - ((5*b*c - 3*a*d)*(3*b*c +
a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(24*a^3*c^2*x) + ((b*c - a*d)*(
5*b^2*c^2 + 2*a*b*c*d + a^2*d^2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/
(Sqrt[a]*Sqrt[c + d*x])])/(8*a^(7/2)*c^(5/2))
```

Rubi [A] time = 0.507498, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$-\frac{\sqrt{a+bx}\sqrt{c+dx}(5bc-3ad)(ad+3bc)}{24a^3c^2x}+\frac{\sqrt{a+bx}\sqrt{c+dx}(5bc-ad)}{12a^2cx^2}+\frac{(bc-ad)\left(a^2d^2+2abcd+5b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{7/2}c^{5/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}}{3ax^3}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[c + d*x]/(x^4*Sqrt[a + b*x]),x]
```

```
[Out] -(Sqrt[a + b*x]*Sqrt[c + d*x])/(3*a*x^3) + ((5*b*c - a*d)*Sqrt[a
+ b*x]*Sqrt[c + d*x])/(12*a^2*c*x^2) - ((5*b*c - 3*a*d)*(3*b*c +
a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(24*a^3*c^2*x) + ((b*c - a*d)*(
5*b^2*c^2 + 2*a*b*c*d + a^2*d^2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/
(Sqrt[a]*Sqrt[c + d*x])])/(8*a^(7/2)*c^(5/2))
```

Rubi in Sympy [A] time = 56.4023, size = 175, normalized size = 0.92

$$-\frac{\sqrt{a+bx}\sqrt{c+dx}}{3ax^3}-\frac{\sqrt{a+bx}\sqrt{c+dx}\,(ad-5bc)}{12a^2cx^2}+\frac{\sqrt{a+bx}\sqrt{c+dx}\,(ad+3bc)\,(3ad-5bc)}{24a^3c^2x}-\frac{(ad-bc)\left(a^2d^2+2abcd+5b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{\frac{7}{2}}c^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(1/2)/x**4/(b*x+a)**(1/2),x)
```

```
[Out] -sqrt(a + b*x)*sqrt(c + d*x)/(3*a*x**3) - sqrt(a + b*x)*sqrt(c +
d*x)*(a*d - 5*b*c)/(12*a**2*c*x**2) + sqrt(a + b*x)*sqrt(c + d*x)
*(a*d + 3*b*c)*(3*a*d - 5*b*c)/(24*a**3*c**2*x) - (a*d - b*c)*(a*
*2*d**2 + 2*a*b*c*d + 5*b**2*c**2)*atanh(sqrt(c)*sqrt(a + b*x)/(s
qrt(a)*sqrt(c + d*x)))/(8*a**(7/2)*c**(5/2))
```

Mathematica [A] time = 0.188111, size = 213, normalized size = 1.12

$$\frac{-3x^3\log(x)(bc-ad)\left(a^2d^2+2abcd+5b^2c^2\right)+3x^3(bc-ad)\left(a^2d^2+2abcd+5b^2c^2\right)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+ac\right.}{48a^{7/2}c^{5/2}x^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[c + d*x]/(x^4*Sqrt[a + b*x]),x]
```

```
[Out] (-2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]*(15*b^2*c^2*x^2 -
 2*a*b*c*x*(5*c + 2*d*x) + a^2*(8*c^2 + 2*c*d*x - 3*d^2*x^2)) - 3
*(b*c - a*d)*(5*b^2*c^2 + 2*a*b*c*d + a^2*d^2)*x^3*Log[x] + 3*(b*
c - a*d)*(5*b^2*c^2 + 2*a*b*c*d + a^2*d^2)*x^3*Log[2*a*c + b*c*x
+ a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(48*a^(
7/2)*c^(5/2)*x^3)
```

Maple [B] time = 0.036, size = 408, normalized size = 2.1

$$-\frac{1}{48\,a^3c^2x^3}\sqrt{bx+a}\sqrt{dx+c}\left(3\ln\left(\frac{adx+bcx+2\sqrt{ac}\sqrt{(bx+a)(dx+c)}+2\,ac}{x}\right)x^3a^3d^3+3\ln\left(\frac{adx+bcx+2\sqrt{ac}\sqrt{(bx+c}}{x}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(1/2)/x^4/(b*x+a)^(1/2),x)
```

```
[Out] -1/48*(d*x+c)^(1/2)*(b*x+a)^(1/2)/a^3/c^2*(3*ln((a*d*x+b*c*x+2*(a
*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^3*d^3+3*ln((a*d
*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^2*
b*c*d^2+9*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2
*a*c)/x)*x^3*a*b^2*c^2*d-15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a
)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*b^3*c^3-6*((b*x+a)*(d*x+c))^(1/2)*
d^2*a^2*x^2*(a*c)^(1/2)-8*((b*x+a)*(d*x+c))^(1/2)*d*b*c*a*x^2*(a*
c)^(1/2)+30*((b*x+a)*(d*x+c))^(1/2)*b^2*c^2*x^2*(a*c)^(1/2)+4*((b
*x+a)*(d*x+c))^(1/2)*d*c*a^2*x*(a*c)^(1/2)-20*((b*x+a)*(d*x+c))^(
1/2)*b*c^2*a*x*(a*c)^(1/2)+16*((b*x+a)*(d*x+c))^(1/2)*c^2*a^2*(a*
c)^(1/2))/((b*x+a)*(d*x+c))^(1/2)/x^3/(a*c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(d*x + c)/(sqrt(b*x + a)*x^4),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.435119, size = 1, normalized size = 0.01

$$\left[-\frac{3\left(5\,b^3c^3-3\,ab^2c^2d-a^2bcd^2-a^3d^3\right)x^3\log\left(-\frac{4\left(2\,a^2c^2+\left(abc^2+a^2cd\right)x\right)\sqrt{bx+a}\sqrt{dx+c}-\left(8\,a^2c^2+\left(b^2c^2+6\,abcd+a^2d^2\right)x^2+8\left(abc^2+a^2cd\right)x\right)}{x^2}\right.}{96\sqrt{ac}a^3c^2x^3}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(d*x + c)/(sqrt(b*x + a)*x^4),x, algorithm="fricas")
```

```
[Out] [-1/96*(3*(5*b^3*c^3 - 3*a*b^2*c^2*d - a^2*b*c*d^2 - a^3*d^3)*x^3
*log(-(4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d
*x + c) - (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(a
*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2) + 4*(8*a^2*c^2 + (15*b^2*c^2
 - 4*a*b*c*d - 3*a^2*d^2)*x^2 - 2*(5*a*b*c^2 - a^2*c*d)*x)*sqrt(a
```

```
*c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(a*c)*a^3*c^2*x^3), 1/48*(3
*(5*b^3*c^3 - 3*a*b^2*c^2*d - a^2*b*c*d^2 - a^3*d^3)*x^3*arctan(1
/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d*x + c
)*a*c)) - 2*(8*a^2*c^2 + (15*b^2*c^2 - 4*a*b*c*d - 3*a^2*d^2)*x^2
 - 2*(5*a*b*c^2 - a^2*c*d)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x +
 c))/(sqrt(-a*c)*a^3*c^2*x^3)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(1/2)/x**4/(b*x+a)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(d*x + c)/(sqrt(b*x + a)*x^4),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.694 $\int \frac{x^2(c+dx)^{3/2}}{\sqrt{a+bx}}\,dx$

Optimal. Leaf size=254

$$\frac{(bc-ad)^2\left(35a^2d^2+10abcd+3b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{64b^{9/2}d^{5/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}(bc-ad)\left(35a^2d^2+10abcd+3b^2c^2\right)}{64b^4d^2}+\frac{\sqrt{a+bx}(c+dx)^{3/2}\left(35a^2d^2+10abcd+3b^2c^2\right)}{96b^3d^2}-\frac{\sqrt{a+bx}(c+dx)^{5/2}(7ad+3bc)}{24b^2d^2}+\frac{x\sqrt{a+bx}(c+dx)^{5/2}}{4bd}$$

```
[Out] ((b*c - a*d)*(3*b^2*c^2 + 10*a*b*c*d + 35*a^2*d^2)*Sqrt[a + b*x]*
Sqrt[c + d*x])/(64*b^4*d^2) + ((3*b^2*c^2 + 10*a*b*c*d + 35*a^2*d
^2)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(96*b^3*d^2) - ((3*b*c + 7*a*d
)*Sqrt[a + b*x]*(c + d*x)^(5/2))/(24*b^2*d^2) + (x*Sqrt[a + b*x]*
(c + d*x)^(5/2))/(4*b*d) + ((b*c - a*d)^2*(3*b^2*c^2 + 10*a*b*c*d
 + 35*a^2*d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c +
d*x])])/(64*b^(9/2)*d^(5/2))
```

Rubi [A] time = 0.536165, antiderivative size = 254, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$\frac{(bc-ad)^2\left(35a^2d^2+10abcd+3b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{64b^{9/2}d^{5/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}(bc-ad)\left(35a^2d^2+10abcd+3b^2c^2\right)}{64b^4d^2}+\frac{\sqrt{a+bx}(c+dx)^{3/2}\left(35a^2d^2+10abcd+3b^2c^2\right)}{96b^3d^2}-\frac{\sqrt{a+bx}(c+dx)^{5/2}(7ad+3bc)}{24b^2d^2}+\frac{x\sqrt{a+bx}(c+dx)^{5/2}}{4bd}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^2*(c + d*x)^(3/2))/Sqrt[a + b*x],x]
```

```
[Out] ((b*c - a*d)*(3*b^2*c^2 + 10*a*b*c*d + 35*a^2*d^2)*Sqrt[a + b*x]*
Sqrt[c + d*x])/(64*b^4*d^2) + ((3*b^2*c^2 + 10*a*b*c*d + 35*a^2*d
^2)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(96*b^3*d^2) - ((3*b*c + 7*a*d
)*Sqrt[a + b*x]*(c + d*x)^(5/2))/(24*b^2*d^2) + (x*Sqrt[a + b*x]*
(c + d*x)^(5/2))/(4*b*d) + ((b*c - a*d)^2*(3*b^2*c^2 + 10*a*b*c*d
 + 35*a^2*d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c +
d*x])])/(64*b^(9/2)*d^(5/2))
```

Rubi in Sympy [A] time = 40.3931, size = 241, normalized size = 0.95

$$\frac{x\sqrt{a+bx}\,(c+dx)^{\frac{5}{2}}}{4bd}-\frac{\sqrt{a+bx}\,(c+dx)^{\frac{5}{2}}\,(7ad+3bc)}{24b^2d^2}+\frac{\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}\left(35a^2d^2+10abcd+3b^2c^2\right)}{96b^3d^2}-\frac{\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)\left(35a^2d^2+10abcd+3b^2c^2\right)}{64b^4d^2}+\frac{(ad-bc)^2\left(35a^2d^2+10abcd+3b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{64b^{\frac{9}{2}}d^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(d*x+c)**(3/2)/(b*x+a)**(1/2),x)
```

```
[Out] x*sqrt(a + b*x)*(c + d*x)**(5/2)/(4*b*d) - sqrt(a + b*x)*(c + d*x
)**(5/2)*(7*a*d + 3*b*c)/(24*b**2*d**2) + sqrt(a + b*x)*(c + d*x)
**(3/2)*(35*a**2*d**2 + 10*a*b*c*d + 3*b**2*c**2)/(96*b**3*d**2)
- sqrt(a + b*x)*sqrt(c + d*x)*(a*d - b*c)*(35*a**2*d**2 + 10*a*b*
c*d + 3*b**2*c**2)/(64*b**4*d**2) + (a*d - b*c)**2*(35*a**2*d**2
+ 10*a*b*c*d + 3*b**2*c**2)*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*
sqrt(c + d*x)))/(64*b**(9/2)*d**(5/2))
```

Mathematica [A] time = 0.215226, size = 208, normalized size = 0.82

$$\frac{3(bc-ad)^2\left(35a^2d^2+10abcd+3b^2c^2\right)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)-2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}\left(105a^3d^3\right.}{384b^{9/2}d^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^2*(c + d*x)^(3/2))/Sqrt[a + b*x],x]
```

```
[Out] (-2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]*(105*a^3*d^3 - 5*
a^2*b*d^2*(29*c + 14*d*x) + a*b^2*d*(15*c^2 + 92*c*d*x + 56*d^2*x
^2) + b^3*(9*c^3 - 6*c^2*d*x - 72*c*d^2*x^2 - 48*d^3*x^3)) + 3*(b
*c - a*d)^2*(3*b^2*c^2 + 10*a*b*c*d + 35*a^2*d^2)*Log[b*c + a*d +
 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(384*b
^(9/2)*d^(5/2))
```

Maple [B] time = 0.03, size = 574, normalized size = 2.3

$$\frac{1}{384\,b^4d^2}\sqrt{bx+a}\sqrt{dx+c}\left(96\,x^3b^3d^3\sqrt{(bx+a)(dx+c)}\sqrt{bd}-112\,x^2ab^2d^3\sqrt{(bx+a)(dx+c)}\sqrt{bd}+144\,x^2b^3cd^2\sqrt{(bx+a)(d\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(d*x+c)^(3/2)/(b*x+a)^(1/2),x)
```

```
[Out] 1/384*(d*x+c)^(1/2)*(b*x+a)^(1/2)*(96*x^3*b^3*d^3*((b*x+a)*(d*x+c
))^(1/2)*(b*d)^(1/2)-112*x^2*a*b^2*d^3*((b*x+a)*(d*x+c))^(1/2)*(b
*d)^(1/2)+144*x^2*b^3*c*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+1
05*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)
/(b*d)^(1/2))*a^4*d^4-180*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/
2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^3*b*c*d^3+54*ln(1/2*(2*b*d
*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^
2*b^2*c^2*d^2+12*c^3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b
*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a*b^3*d+9*c^4*ln(1/2*(2*b*d*x+2*(
(b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*b^4+140*
(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*x*a^2*b*d^3-184*(b*d)^(1/2)*(
(b*x+a)*(d*x+c))^(1/2)*x*a*b^2*c*d^2+12*(b*d)^(1/2)*((b*x+a)*(d*x
+c))^(1/2)*x*b^3*c^2*d-210*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*a^
3*d^3+290*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*a^2*b*c*d^2-30*(b*d
)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*a*b^2*c^2*d-18*c^3*((b*x+a)*(d*x+
c))^(1/2)*b^3*(b*d)^(1/2))/((b*x+a)*(d*x+c))^(1/2)/b^4/d^2/(b*d)^
(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(3/2)*x^2/sqrt(b*x + a),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.300996, size = 1, normalized size = 0.

$$\left[\frac{4\left(48\,b^3d^3x^3 - 9\,b^3c^3 - 15\,ab^2c^2d + 145\,a^2bcd^2 - 105\,a^3d^3 + 8\left(9\,b^3cd^2 - 7\,ab^2d^3\right)x^2 + 2\left(3\,b^3c^2d - 46\,ab^2cd^2 + 35\,a^2bd^3\right)\right.}{} \right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(3/2)*x^2/sqrt(b*x + a),x, algorithm="fricas")
```

```
[Out] [1/768*(4*(48*b^3*d^3*x^3 - 9*b^3*c^3 - 15*a*b^2*c^2*d + 145*a^2*
b*c*d^2 - 105*a^3*d^3 + 8*(9*b^3*c*d^2 - 7*a*b^2*d^3)*x^2 + 2*(3*
b^3*c^2*d - 46*a*b^2*c*d^2 + 35*a^2*b*d^3)*x)*sqrt(b*d)*sqrt(b*x
+ a)*sqrt(d*x + c) + 3*(3*b^4*c^4 + 4*a*b^3*c^3*d + 18*a^2*b^2*c^
2*d^2 - 60*a^3*b*c*d^3 + 35*a^4*d^4)*log(4*(2*b^2*d^2*x + b^2*c*d
 + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^
2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/(s
qrt(b*d)*b^4*d^2), 1/384*(2*(48*b^3*d^3*x^3 - 9*b^3*c^3 - 15*a*b^
2*c^2*d + 145*a^2*b*c*d^2 - 105*a^3*d^3 + 8*(9*b^3*c*d^2 - 7*a*b^
2*d^3)*x^2 + 2*(3*b^3*c^2*d - 46*a*b^2*c*d^2 + 35*a^2*b*d^3)*x)*s
qrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 3*(3*b^4*c^4 + 4*a*b^3*c^
3*d + 18*a^2*b^2*c^2*d^2 - 60*a^3*b*c*d^3 + 35*a^4*d^4)*arctan(1/
2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b
*d)))/(sqrt(-b*d)*b^4*d^2)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(d*x+c)**(3/2)/(b*x+a)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.276038, size = 676, normalized size = 2.66

$$\frac{8\left(\sqrt{b^2c+(bx+a)bd-abd}\sqrt{bx+a}\left(2\,(bx+a)\left(\frac{4\,(bx+a)}{b^2}+\frac{b^6cd^3-13\,ab^5d^4}{b^7d^4}\right)-\frac{3\left(b^7c^2d^2+2\,ab^6cd^3-11\,a^2b^5d^4\right)}{b^7d^4}\right)-\frac{3\left(b^3c^3+ab^2c^2d+3\,a^2bcd^2-5\,a^3d^3\right)\ln\left(\left|-\sqrt{bd}\sqrt{bx+a}+\sqrt{b^2c+(bx\right.\right.}{\sqrt{bd}bd^2}\right.}{b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(3/2)*x^2/sqrt(b*x + a),x, algorithm="giac")
```

```
[Out] 1/192*(8*(sqrt(b^2*c + (b*x + a)*b*d - a*b*d)*sqrt(b*x + a)*(2*(b
*x + a)*(4*(b*x + a)/b^2 + (b^6*c*d^3 - 13*a*b^5*d^4)/(b^7*d^4))
- 3*(b^7*c^2*d^2 + 2*a*b^6*c*d^3 - 11*a^2*b^5*d^4)/(b^7*d^4)) - 3
*(b^3*c^3 + a*b^2*c^2*d + 3*a^2*b*c*d^2 - 5*a^3*d^3)*ln(abs(-sqrt
(b*d)*sqrt(b*x + a) + sqrt(b^2*c + (b*x + a)*b*d - a*b*d)))/(sqrt
(b*d)*b*d^2))*c*abs(b)/b^2 + (sqrt(b^2*c + (b*x + a)*b*d - a*b*d)
*(2*(b*x + a)*(4*(b*x + a)*(6*(b*x + a)/b^3 + (b^12*c*d^5 - 25*a*
b^11*d^6)/(b^14*d^6)) - (5*b^13*c^2*d^4 + 14*a*b^12*c*d^5 - 163*a
^2*b^11*d^6)/(b^14*d^6)) + 3*(5*b^14*c^3*d^3 + 9*a*b^13*c^2*d^4 +
```

```
 15*a^2*b^12*c*d^5 - 93*a^3*b^11*d^6)/(b^14*d^6))*sqrt(b*x + a) +
 3*(5*b^4*c^4 + 4*a*b^3*c^3*d + 6*a^2*b^2*c^2*d^2 + 20*a^3*b*c*d^
3 - 35*a^4*d^4)*ln(abs(-sqrt(b*d)*sqrt(b*x + a) + sqrt(b^2*c + (b
*x + a)*b*d - a*b*d)))/(sqrt(b*d)*b^2*d^3))*d*abs(b)/b^2)/b
```

3.695 $\int \frac{x(c+dx)^{3/2}}{\sqrt{a+bx}}\,dx$

Optimal. Leaf size=171

$$-\frac{(bc-ad)^2(5ad+bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8b^{7/2}d^{3/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}(bc-ad)(5ad+bc)}{8b^3d}-\frac{\sqrt{a+bx}(c+dx)^{3/2}(5ad+bc)}{12b^2d}+\frac{\sqrt{a+bx}(c+dx)^{5/2}}{3bd}$$

```
[Out] -((b*c - a*d)*(b*c + 5*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(8*b^3*d
) - ((b*c + 5*a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(12*b^2*d) + (S
qrt[a + b*x]*(c + d*x)^(5/2))/(3*b*d) - ((b*c - a*d)^2*(b*c + 5*a
*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(8*
b^(7/2)*d^(3/2))
```

Rubi [A] time = 0.240188, antiderivative size = 171, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.2

$$-\frac{(bc-ad)^2(5ad+bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8b^{7/2}d^{3/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}(bc-ad)(5ad+bc)}{8b^3d}-\frac{\sqrt{a+bx}(c+dx)^{3/2}(5ad+bc)}{12b^2d}+\frac{\sqrt{a+bx}(c+dx)^{5/2}}{3bd}$$

Antiderivative was successfully verified.

```
[In]  Int[(x*(c + d*x)^(3/2))/Sqrt[a + b*x],x]
```

```
[Out] -((b*c - a*d)*(b*c + 5*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(8*b^3*d
) - ((b*c + 5*a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(12*b^2*d) + (S
qrt[a + b*x]*(c + d*x)^(5/2))/(3*b*d) - ((b*c - a*d)^2*(b*c + 5*a
*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(8*
b^(7/2)*d^(3/2))
```

Rubi in Sympy [A] time = 23.8336, size = 150, normalized size = 0.88

$$\frac{\sqrt{a+bx}\,(c+dx)^{\frac{5}{2}}}{3bd}-\frac{\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}\,(5ad+bc)}{12b^2d}+\frac{\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)\,(5ad+bc)}{8b^3d}-\frac{(ad-bc)^2\,(5ad+bc)\,\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8b^{\frac{7}{2}}d^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(d*x+c)**(3/2)/(b*x+a)**(1/2),x)
```

```
[Out] sqrt(a + b*x)*(c + d*x)**(5/2)/(3*b*d) - sqrt(a + b*x)*(c + d*x)*
*(3/2)*(5*a*d + b*c)/(12*b**2*d) + sqrt(a + b*x)*sqrt(c + d*x)*(a
*d - b*c)*(5*a*d + b*c)/(8*b**3*d) - (a*d - b*c)**2*(5*a*d + b*c)
*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c + d*x)))/(8*b**(7/2)
*d**(3/2))
```

Mathematica [A] time = 0.130253, size = 149, normalized size = 0.87

$$\frac{\sqrt{a+bx}\sqrt{c+dx}\left(15a^2d^2-2abd(11c+5dx)+b^2\left(3c^2+14cdx+8d^2x^2\right)\right)}{24b^3d}-\frac{(bc-ad)^2(5ad+bc)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{16b^{7/2}d^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x*(c + d*x)^(3/2))/Sqrt[a + b*x],x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(15*a^2*d^2 - 2*a*b*d*(11*c + 5*d*x)
 + b^2*(3*c^2 + 14*c*d*x + 8*d^2*x^2)))/(24*b^3*d) - ((b*c - a*d)
^2*(b*c + 5*a*d)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt
[a + b*x]*Sqrt[c + d*x]])/(16*b^(7/2)*d^(3/2))
```

Maple [B] time = 0.029, size = 395, normalized size = 2.3

$$-\frac{1}{48\,b^3d}\sqrt{bx+a}\sqrt{dx+c}\left(-16\,x^2b^2d^2\sqrt{(bx+a)\,(dx+c)}\sqrt{bd}+15\,\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{(bx+a)\,(dx+c)}\sqrt{bd}+ad+bc}{\sqrt{bd}}\right)a^3d^3$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(d*x+c)^(3/2)/(b*x+a)^(1/2),x)
```

```
[Out] -1/48*(d*x+c)^(1/2)*(b*x+a)^(1/2)*(-16*x^2*b^2*d^2*((b*x+a)*(d*x+
c))^(1/2)*(b*d)^(1/2)+15*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2
)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^3*d^3-27*ln(1/2*(2*b*d*x+2*
((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^2*b*c
*d^2+9*c^2*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+
a*d+b*c)/(b*d)^(1/2))*a*b^2*d+3*c^3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d
*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*b^3+20*(b*d)^(1/2)
*((b*x+a)*(d*x+c))^(1/2)*x*a*b*d^2-28*(b*d)^(1/2)*((b*x+a)*(d*x+c
))^(1/2)*x*b^2*c*d-30*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*a^2*d^2
+44*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*a*b*c*d-6*c^2*((b*x+a)*(d
*x+c))^(1/2)*b^2*(b*d)^(1/2))/((b*x+a)*(d*x+c))^(1/2)/b^3/d/(b*d)
^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(3/2)*x/sqrt(b*x + a),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.258849, size = 1, normalized size = 0.01

$$\left[\frac{4\left(8\,b^2d^2x^2+3\,b^2c^2-22\,abcd+15\,a^2d^2+2\left(7\,b^2cd-5\,abd^2\right)x\right)\sqrt{bd}\sqrt{bx+a}\sqrt{dx+c}+3\left(b^3c^3+3\,ab^2c^2d-9\,a^2bcd^2+5\,a\right.}{96\,\sqrt{bd}b}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(3/2)*x/sqrt(b*x + a),x, algorithm="fricas")
```

```
[Out] [1/96*(4*(8*b^2*d^2*x^2 + 3*b^2*c^2 - 22*a*b*c*d + 15*a^2*d^2 + 2
*(7*b^2*c*d - 5*a*b*d^2)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c)
 + 3*(b^3*c^3 + 3*a*b^2*c^2*d - 9*a^2*b*c*d^2 + 5*a^3*d^3)*log(-4
*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) +
(8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b
*d^2)*x)*sqrt(b*d)))/(sqrt(b*d)*b^3*d), 1/48*(2*(8*b^2*d^2*x^2 +
3*b^2*c^2 - 22*a*b*c*d + 15*a^2*d^2 + 2*(7*b^2*c*d - 5*a*b*d^2)*x
```

```
)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c) - 3*(b^3*c^3 + 3*a*b^2*c
^2*d - 9*a^2*b*c*d^2 + 5*a^3*d^3)*arctan(1/2*(2*b*d*x + b*c + a*d
)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/(sqrt(-b*d)*b^3*
d)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(d*x+c)**(3/2)/(b*x+a)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.254252, size = 479, normalized size = 2.8

$$\frac{\frac{2\left(\sqrt{b^2c+(bx+a)bd-abd}\sqrt{bx+a}\left(2(bx+a)\left(\frac{4(bx+a)}{b^2}+\frac{b^6cd^3-13ab^5d^4}{b^7d^4}\right)-\frac{3\left(b^7c^2d^2+2ab^6cd^3-11a^2b^5d^4\right)}{b^7d^4}\right)-\frac{3\left(b^3c^3+ab^2c^2d+3a^2bcd^2-5a^3d^3\right)\ln\left(\left|-\sqrt{bd}\sqrt{bx+a}+\sqrt{b^2c+(bx}{\sqrt{bd}bd^2}}{b^2}}{48b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(3/2)*x/sqrt(b*x + a),x, algorithm="giac")
```

```
[Out] 1/48*(2*(sqrt(b^2*c + (b*x + a)*b*d - a*b*d)*sqrt(b*x + a)*(2*(b*
x + a)*(4*(b*x + a)/b^2 + (b^6*c*d^3 - 13*a*b^5*d^4)/(b^7*d^4)) -
 3*(b^7*c^2*d^2 + 2*a*b^6*c*d^3 - 11*a^2*b^5*d^4)/(b^7*d^4)) - 3*
(b^3*c^3 + a*b^2*c^2*d + 3*a^2*b*c*d^2 - 5*a^3*d^3)*ln(abs(-sqrt(
b*d)*sqrt(b*x + a) + sqrt(b^2*c + (b*x + a)*b*d - a*b*d)))/(sqrt(
b*d)*b*d^2))*d*abs(b)/b^2 + (sqrt(b^2*c + (b*x + a)*b*d - a*b*d)*
sqrt(b*x + a)*(2*(b*x + a)/(b^4*d^2) + (b*c*d - 5*a*d^2)/(b^4*d^4
)) + (b^2*c^2 + 2*a*b*c*d - 3*a^2*d^2)*ln(abs(-sqrt(b*d)*sqrt(b*x
 + a) + sqrt(b^2*c + (b*x + a)*b*d - a*b*d)))/(sqrt(b*d)*b^3*d^3)
)*c*abs(b)/b^3)/b
```

3.696 $\int \frac{(c+dx)^{3/2}}{\sqrt{a+bx}}\,dx$

Optimal. Leaf size=113

$$\frac{3(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{5/2}\sqrt{d}}+\frac{3\sqrt{a+bx}\sqrt{c+dx}(bc-ad)}{4b^2}+\frac{\sqrt{a+bx}(c+dx)^{3/2}}{2b}$$

```
[Out] (3*(b*c - a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*b^2) + (Sqrt[a + b
*x]*(c + d*x)^(3/2))/(2*b) + (3*(b*c - a*d)^2*ArcTanh[(Sqrt[d]*Sq
rt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(4*b^(5/2)*Sqrt[d])
```

Rubi [A] time = 0.119537, antiderivative size = 113, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.158

$$\frac{3(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{5/2}\sqrt{d}}+\frac{3\sqrt{a+bx}\sqrt{c+dx}(bc-ad)}{4b^2}+\frac{\sqrt{a+bx}(c+dx)^{3/2}}{2b}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^(3/2)/Sqrt[a + b*x],x]
```

```
[Out] (3*(b*c - a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*b^2) + (Sqrt[a + b
*x]*(c + d*x)^(3/2))/(2*b) + (3*(b*c - a*d)^2*ArcTanh[(Sqrt[d]*Sq
rt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(4*b^(5/2)*Sqrt[d])
```

Rubi in Sympy [A] time = 14.8786, size = 100, normalized size = 0.88

$$\frac{\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}}{2b}-\frac{3\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)}{4b^2}+\frac{3\,(ad-bc)^2\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{\frac{5}{2}}\sqrt{d}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(3/2)/(b*x+a)**(1/2),x)
```

```
[Out] sqrt(a + b*x)*(c + d*x)**(3/2)/(2*b) - 3*sqrt(a + b*x)*sqrt(c + d
*x)*(a*d - b*c)/(4*b**2) + 3*(a*d - b*c)**2*atanh(sqrt(d)*sqrt(a
+ b*x)/(sqrt(b)*sqrt(c + d*x)))/(4*b**(5/2)*sqrt(d))
```

Mathematica [A] time = 0.0699041, size = 107, normalized size = 0.95

$$\frac{3(bc-ad)^2\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{8b^{5/2}\sqrt{d}}+\frac{\sqrt{a+bx}\sqrt{c+dx}(-3ad+5bc+2bdx)}{4b^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^(3/2)/Sqrt[a + b*x],x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(5*b*c - 3*a*d + 2*b*d*x))/(4*b^2) +
 (3*(b*c - a*d)^2*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqr
t[a + b*x]*Sqrt[c + d*x]])/(8*b^(5/2)*Sqrt[d])
```

Maple [B] time = 0.007, size = 308, normalized size = 2.7

$$\frac{1}{2b}\sqrt{bx+a}\,(dx+c)^{\frac{3}{2}}-\frac{3\,ad}{4\,b^2}\sqrt{bx+a}\sqrt{dx+c}+\frac{3\,c}{4\,b}\sqrt{bx+a}\sqrt{dx+c}$$
$$+\frac{3\,a^2d^2}{8\,b^2}\sqrt{(bx+a)\,(dx+c)}\ln\left(1\left(\frac{ad}{2}+\frac{bc}{2}+bdx\right)\frac{1}{\sqrt{bd}}+\sqrt{dx^2b+(ad+bc)\,x+ac}\right)\frac{1}{\sqrt{bx+a}}\frac{1}{\sqrt{dx+c}}\frac{1}{\sqrt{bd}}$$
$$-\frac{3\,adc}{4\,b}\sqrt{(bx+a)\,(dx+c)}\ln\left(1\left(\frac{ad}{2}+\frac{bc}{2}+bdx\right)\frac{1}{\sqrt{bd}}+\sqrt{dx^2b+(ad+bc)\,x+ac}\right)\frac{1}{\sqrt{bx+a}}\frac{1}{\sqrt{dx+c}}\frac{1}{\sqrt{bd}}$$
$$+\frac{3\,c^2}{8}\sqrt{(bx+a)\,(dx+c)}\ln\left(1\left(\frac{ad}{2}+\frac{bc}{2}+bdx\right)\frac{1}{\sqrt{bd}}+\sqrt{dx^2b+(ad+bc)\,x+ac}\right)\frac{1}{\sqrt{bx+a}}\frac{1}{\sqrt{dx+c}}\frac{1}{\sqrt{bd}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(3/2)/(b*x+a)^(1/2),x)
```

```
[Out] 1/2*(d*x+c)^(3/2)*(b*x+a)^(1/2)/b-3/4/b^2*(d*x+c)^(1/2)*(b*x+a)^(
1/2)*a*d+3/4/b*(d*x+c)^(1/2)*(b*x+a)^(1/2)*c+3/8/b^2*((b*x+a)*(d*
x+c))^(1/2)/(d*x+c)^(1/2)/(b*x+a)^(1/2)*ln((1/2*a*d+1/2*b*c+b*d*x
)/(b*d)^(1/2)+(d*x^2*b+(a*d+b*c)*x+a*c)^(1/2))/(b*d)^(1/2)*a^2*d^
2-3/4/b*((b*x+a)*(d*x+c))^(1/2)/(d*x+c)^(1/2)/(b*x+a)^(1/2)*ln((1
/2*a*d+1/2*b*c+b*d*x)/(b*d)^(1/2)+(d*x^2*b+(a*d+b*c)*x+a*c)^(1/2)
)/(b*d)^(1/2)*a*d*c+3/8*((b*x+a)*(d*x+c))^(1/2)/(d*x+c)^(1/2)/(b*
x+a)^(1/2)*ln((1/2*a*d+1/2*b*c+b*d*x)/(b*d)^(1/2)+(d*x^2*b+(a*d+b
*c)*x+a*c)^(1/2))/(b*d)^(1/2)*c^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(3/2)/sqrt(b*x + a),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.260602, size = 1, normalized size = 0.01

$$\left[\frac{4\,(2\,bdx+5\,bc-3\,ad)\sqrt{bd}\sqrt{bx+a}\sqrt{dx+c}+3\left(b^2c^2-2\,abcd+a^2d^2\right)\log\left(4\left(2\,b^2d^2x+b^2cd+abd^2\right)\sqrt{bx+a}\sqrt{dx+c}+(8\right.}{16\,\sqrt{bd}b^2}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(3/2)/sqrt(b*x + a),x, algorithm="fricas")
```

```
[Out] [1/16*(4*(2*b*d*x + 5*b*c - 3*a*d)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d
*x + c) + 3*(b^2*c^2 - 2*a*b*c*d + a^2*d^2)*log(4*(2*b^2*d^2*x +
b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 +
 b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*
d)))/(sqrt(b*d)*b^2), 1/8*(2*(2*b*d*x + 5*b*c - 3*a*d)*sqrt(-b*d)
*sqrt(b*x + a)*sqrt(d*x + c) + 3*(b^2*c^2 - 2*a*b*c*d + a^2*d^2)*
arctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d
*x + c)*b*d)))/(sqrt(-b*d)*b^2)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(c+dx)^{\frac{3}{2}}}{\sqrt{a+bx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(3/2)/(b*x+a)**(1/2),x)
```

```
[Out] Integral((c + d*x)**(3/2)/sqrt(a + b*x), x)
```

GIAC/XCAS [A] time = 0.249198, size = 327, normalized size = 2.89

$$-\frac{\frac{48\left(\frac{\left(b^2c-abd\right)\ln\left(\left|-\sqrt{bd}\sqrt{bx+a}+\sqrt{b^2c+(bx+a)bd-abd}\right|\right)}{\sqrt{bd}}-\sqrt{b^2c+(bx+a)bd-abd}\sqrt{bx+a}\right)c|b|}{b^2}-\frac{\left(\sqrt{b^2c+(bx+a)bd-abd}\sqrt{bx+a}\left(\frac{2(bx+a)}{b^4d^2}+\frac{bcd-5ad^2}{b^4d^4}\right)+\frac{\left(b^2c^2+2ab\cdots\right.}{\cdots}\right.}{b^3}}{48\,b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(3/2)/sqrt(b*x + a),x, algorithm="giac")
```

```
[Out] -1/48*(48*((b^2*c - a*b*d)*ln(abs(-sqrt(b*d)*sqrt(b*x + a) + sqrt
(b^2*c + (b*x + a)*b*d - a*b*d)))/sqrt(b*d) - sqrt(b^2*c + (b*x +
 a)*b*d - a*b*d)*sqrt(b*x + a))*c*abs(b)/b^2 - (sqrt(b^2*c + (b*x
 + a)*b*d - a*b*d)*sqrt(b*x + a)*(2*(b*x + a)/(b^4*d^2) + (b*c*d
- 5*a*d^2)/(b^4*d^4)) + (b^2*c^2 + 2*a*b*c*d - 3*a^2*d^2)*ln(abs(
-sqrt(b*d)*sqrt(b*x + a) + sqrt(b^2*c + (b*x + a)*b*d - a*b*d)))/
(sqrt(b*d)*b^3*d^3))*d*abs(b)/b^3)/b
```

3.697 $\int \frac{(c+dx)^{3/2}}{x\sqrt{a+bx}}\,dx$

Optimal. Leaf size=116

$$\frac{\sqrt{d}(3bc-ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{3/2}}-\frac{2c^{3/2}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{a}}+\frac{d\sqrt{a+bx}\sqrt{c+dx}}{b}$$

```
[Out] (d*Sqrt[a + b*x]*Sqrt[c + d*x])/b - (2*c^(3/2)*ArcTanh[(Sqrt[c]*S
qrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/Sqrt[a] + (Sqrt[d]*(3*b*c
 - a*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])
/b^(3/2)
```

Rubi [A] time = 0.294748, antiderivative size = 116, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$\frac{\sqrt{d}(3bc-ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{3/2}}-\frac{2c^{3/2}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{a}}+\frac{d\sqrt{a+bx}\sqrt{c+dx}}{b}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^(3/2)/(x*Sqrt[a + b*x]),x]
```

```
[Out] (d*Sqrt[a + b*x]*Sqrt[c + d*x])/b - (2*c^(3/2)*ArcTanh[(Sqrt[c]*S
qrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/Sqrt[a] + (Sqrt[d]*(3*b*c
 - a*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])
/b^(3/2)
```

Rubi in Sympy [A] time = 27.2542, size = 107, normalized size = 0.92

$$\frac{d\sqrt{a+bx}\sqrt{c+dx}}{b}-\frac{\sqrt{d}\,(ad-3bc)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{\frac{3}{2}}}-\frac{2c^{\frac{3}{2}}\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{a}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(3/2)/x/(b*x+a)**(1/2),x)
```

```
[Out] d*sqrt(a + b*x)*sqrt(c + d*x)/b - sqrt(d)*(a*d - 3*b*c)*atanh(sqr
t(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c + d*x)))/b**(3/2) - 2*c**(3/2)
*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/sqrt(a)
```

Mathematica [A] time = 0.213642, size = 159, normalized size = 1.37

$$\frac{\sqrt{d}(3bc-ad)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{2b^{3/2}}-\frac{c^{3/2}\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{\sqrt{a}}+\frac{d\sqrt{a+bx}\sqrt{c+dx}}{b}+\frac{c^{3/2}\log(x)}{\sqrt{a}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^(3/2)/(x*Sqrt[a + b*x]),x]
```

```
[Out] (d*Sqrt[a + b*x]*Sqrt[c + d*x])/b + (c^(3/2)*Log[x])/Sqrt[a] - (c
^(3/2)*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x
```

```
]*Sqrt[c + d*x]])/Sqrt[a] + (Sqrt[d]*(3*b*c - a*d)*Log[b*c + a*d
+ 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(2*b^
(3/2))
```

Maple [B] time = 0.029, size = 219, normalized size = 1.9

$$-\frac{1}{2b}\sqrt{bx+a}\sqrt{dx+c}\left(\ln\left(\frac{1}{2}\left(2\,bdx+2\,\sqrt{(bx+a)(dx+c)}\sqrt{bd}+ad+bc\right)\frac{1}{\sqrt{bd}}\right)ad^2\sqrt{ac}-3\,\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{(bx+a)(d}}{\sqrt{b}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(3/2)/x/(b*x+a)^(1/2),x)
```

```
[Out] -1/2*(d*x+c)^(1/2)*(b*x+a)^(1/2)*(ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x
+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a*d^2*(a*c)^(1/2)-3*
ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b
*d)^(1/2))*b*c*d*(a*c)^(1/2)+2*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*
x+a)*(d*x+c))^(1/2)+2*a*c)/x)*b*c^2*(b*d)^(1/2)-2*d*(a*c)^(1/2)*(
(b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2))/((b*x+a)*(d*x+c))^(1/2)/(b*d)
^(1/2)/(a*c)^(1/2)/b
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(3/2)/(sqrt(b*x + a)*x),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.874266, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(3/2)/(sqrt(b*x + a)*x),x, algorithm="fricas")
```

```
[Out] [1/4*(2*b*c*sqrt(c/a)*log((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2
*d^2)*x^2 - 4*(2*a^2*c + (a*b*c + a^2*d)*x)*sqrt(b*x + a)*sqrt(d*
x + c)*sqrt(c/a) + 8*(a*b*c^2 + a^2*c*d)*x)/x^2) - (3*b*c - a*d)*
sqrt(d/b)*log(8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 - 4*(
2*b^2*d*x + b^2*c + a*b*d)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(d/b)
+ 8*(b^2*c*d + a*b*d^2)*x) + 4*sqrt(b*x + a)*sqrt(d*x + c)*d)/b,
1/2*(b*c*sqrt(c/a)*log((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^
2)*x^2 - 4*(2*a^2*c + (a*b*c + a^2*d)*x)*sqrt(b*x + a)*sqrt(d*x +
 c)*sqrt(c/a) + 8*(a*b*c^2 + a^2*c*d)*x)/x^2) + (3*b*c - a*d)*sqr
t(-d/b)*arctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(b*x + a)*sqrt(d*x
+ c)*b*sqrt(-d/b))) + 2*sqrt(b*x + a)*sqrt(d*x + c)*d)/b, -1/4*(4
*b*c*sqrt(-c/a)*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(b*x + a)
*sqrt(d*x + c)*a*sqrt(-c/a))) + (3*b*c - a*d)*sqrt(d/b)*log(8*b^2
*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 - 4*(2*b^2*d*x + b^2*c +
 a*b*d)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(d/b) + 8*(b^2*c*d + a*b*
d^2)*x) - 4*sqrt(b*x + a)*sqrt(d*x + c)*d)/b, -1/2*(2*b*c*sqrt(-c
/a)*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(b*x + a)*sqrt(d*x +
c)*a*sqrt(-c/a))) - (3*b*c - a*d)*sqrt(-d/b)*arctan(1/2*(2*b*d*x
+ b*c + a*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*sqrt(-d/b))) - 2*sqrt
(b*x + a)*sqrt(d*x + c)*d)/b]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(c+dx)^{\frac{3}{2}}}{x\sqrt{a+bx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(3/2)/x/(b*x+a)**(1/2),x)
```

```
[Out] Integral((c + d*x)**(3/2)/(x*sqrt(a + b*x)), x)
```

GIAC/XCAS [A] time = 0.268284, size = 259, normalized size = 2.23

$$-\frac{2\sqrt{bd}c^2|b|\arctan\left(-\frac{b^2c+abd-\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2}{2\sqrt{-abcd}b}\right)}{\sqrt{-abcd}b}+\frac{\sqrt{b^2c+(bx+a)bd-abd}\sqrt{bx+a}d|b|}{b^3}-\frac{\left(3\sqrt{bd}bc|b|-\sqrt{bd}ad|b|\right)\ln\left(\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2\right)}{2b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(3/2)/(sqrt(b*x + a)*x),x, algorithm="giac")
```

```
[Out] -2*sqrt(b*d)*c^2*abs(b)*arctan(-1/2*(b^2*c + a*b*d - (sqrt(b*d)*s
qrt(b*x + a) - sqrt(b^2*c + (b*x + a)*b*d - a*b*d))^2)/(sqrt(-a*b
*c*d)*b))/(sqrt(-a*b*c*d)*b) + sqrt(b^2*c + (b*x + a)*b*d - a*b*d
)*sqrt(b*x + a)*d*abs(b)/b^3 - 1/2*(3*sqrt(b*d)*b*c*abs(b) - sqrt
(b*d)*a*d*abs(b))*ln((sqrt(b*d)*sqrt(b*x + a) - sqrt(b^2*c + (b*x
 + a)*b*d - a*b*d))^2)/b^3
```

3.698 $\int \frac{(c+dx)^{3/2}}{x^2\sqrt{a+bx}}\,dx$

Optimal. Leaf size=119

$$\frac{\sqrt{c}(bc-3ad)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{3/2}}+\frac{2d^{3/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{b}}-\frac{c\sqrt{a+bx}\sqrt{c+dx}}{ax}$$

```
[Out] -((c*Sqrt[a + b*x]*Sqrt[c + d*x])/(a*x)) + (Sqrt[c]*(b*c - 3*a*d)
*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/a^(3/2
) + (2*d^(3/2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c +
d*x])])/Sqrt[b]
```

Rubi [A] time = 0.286578, antiderivative size = 119, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$\frac{\sqrt{c}(bc-3ad)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{3/2}}+\frac{2d^{3/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{b}}-\frac{c\sqrt{a+bx}\sqrt{c+dx}}{ax}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^(3/2)/(x^2*Sqrt[a + b*x]),x]
```

```
[Out] -((c*Sqrt[a + b*x]*Sqrt[c + d*x])/(a*x)) + (Sqrt[c]*(b*c - 3*a*d)
*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/a^(3/2
) + (2*d^(3/2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c +
d*x])])/Sqrt[b]
```

Rubi in Sympy [A] time = 28.0771, size = 109, normalized size = 0.92

$$\frac{2d^{\frac{3}{2}}\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{b}}-\frac{c\sqrt{a+bx}\sqrt{c+dx}}{ax}-\frac{\sqrt{c}\,(3ad-bc)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(3/2)/x**2/(b*x+a)**(1/2),x)
```

```
[Out] 2*d**(3/2)*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c + d*x)))/s
qrt(b) - c*sqrt(a + b*x)*sqrt(c + d*x)/(a*x) - sqrt(c)*(3*a*d - b
*c)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/a**(3/2)
```

Mathematica [A] time = 0.450498, size = 172, normalized size = 1.45

$$-\frac{\sqrt{c}\log(x)(bc-3ad)}{2a^{3/2}}+\frac{\sqrt{c}(bc-3ad)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{2a^{3/2}}+\frac{d^{3/2}\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{\sqrt{b}}-\frac{c\sqrt{a+bx}\sqrt{c+dx}}{ax}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^(3/2)/(x^2*Sqrt[a + b*x]),x]
```

```
[Out] -((c*Sqrt[a + b*x]*Sqrt[c + d*x])/(a*x)) - (Sqrt[c]*(b*c - 3*a*d)
*Log[x])/(2*a^(3/2)) + (Sqrt[c]*(b*c - 3*a*d)*Log[2*a*c + b*c*x +
```

```
 a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(2*a^(3/
2)) + (d^(3/2)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a
 + b*x]*Sqrt[c + d*x]])/Sqrt[b]
```

Maple [B] time = 0.03, size = 223, normalized size = 1.9

$$\frac{1}{2\,ax}\sqrt{bx+a}\sqrt{dx+c}\left(2\,\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{(bx+a)\,(dx+c)}\sqrt{bd}+ad+bc}{\sqrt{bd}}\right)xad^{2}\sqrt{ac}-3\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)}}{x}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(3/2)/x^2/(b*x+a)^(1/2),x)
```

```
[Out] 1/2*(d*x+c)^(1/2)*(b*x+a)^(1/2)/a*(2*ln(1/2*(2*b*d*x+2*((b*x+a)*(
d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a*d^2*(a*c)^(1/
2)-3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)
/x)*x*a*c*d*(b*d)^(1/2)+ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d
*x+c))^(1/2)+2*a*c)/x)*x*b*c^2*(b*d)^(1/2)-2*c*((b*x+a)*(d*x+c))^
(1/2)*(b*d)^(1/2)*(a*c)^(1/2))/((b*x+a)*(d*x+c))^(1/2)/x/(b*d)^(1
/2)/(a*c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(3/2)/(sqrt(b*x + a)*x^2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.693204, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(3/2)/(sqrt(b*x + a)*x^2),x, algorithm="fricas")
```

```
[Out] [1/4*(2*a*d*x*sqrt(d/b)*log(8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d +
 a^2*d^2 + 4*(2*b^2*d*x + b^2*c + a*b*d)*sqrt(b*x + a)*sqrt(d*x +
 c)*sqrt(d/b) + 8*(b^2*c*d + a*b*d^2)*x) - (b*c - 3*a*d)*x*sqrt(c
/a)*log((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a
^2*c + (a*b*c + a^2*d)*x)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(c/a) +
 8*(a*b*c^2 + a^2*c*d)*x)/x^2) - 4*sqrt(b*x + a)*sqrt(d*x + c)*c)
/(a*x), 1/4*(4*a*d*x*sqrt(-d/b)*arctan(1/2*(2*b*d*x + b*c + a*d)/
(sqrt(b*x + a)*sqrt(d*x + c)*b*sqrt(-d/b))) - (b*c - 3*a*d)*x*sqr
t(c/a)*log((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(
2*a^2*c + (a*b*c + a^2*d)*x)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(c/a
) + 8*(a*b*c^2 + a^2*c*d)*x)/x^2) - 4*sqrt(b*x + a)*sqrt(d*x + c)
*c)/(a*x), 1/2*(a*d*x*sqrt(d/b)*log(8*b^2*d^2*x^2 + b^2*c^2 + 6*a
*b*c*d + a^2*d^2 + 4*(2*b^2*d*x + b^2*c + a*b*d)*sqrt(b*x + a)*sq
rt(d*x + c)*sqrt(d/b) + 8*(b^2*c*d + a*b*d^2)*x) + (b*c - 3*a*d)*
x*sqrt(-c/a)*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(b*x + a)*sq
rt(d*x + c)*a*sqrt(-c/a))) - 2*sqrt(b*x + a)*sqrt(d*x + c)*c)/(a*
x), 1/2*(2*a*d*x*sqrt(-d/b)*arctan(1/2*(2*b*d*x + b*c + a*d)/(sqr
t(b*x + a)*sqrt(d*x + c)*b*sqrt(-d/b))) + (b*c - 3*a*d)*x*sqrt(-c
/a)*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(b*x + a)*sqrt(d*x +
c)*a*sqrt(-c/a))) - 2*sqrt(b*x + a)*sqrt(d*x + c)*c)/(a*x)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(3/2)/x**2/(b*x+a)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.604665, size = 4, normalized size = 0.03

$$sage_0x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(3/2)/(sqrt(b*x + a)*x^2),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.699 $\int \frac{(c+dx)^{3/2}}{x^3\sqrt{a+bx}}\,dx$

Optimal. Leaf size=119

$$-\frac{3(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{5/2}\sqrt{c}}+\frac{3\sqrt{a+bx}\sqrt{c+dx}(bc-ad)}{4a^2x}-\frac{\sqrt{a+bx}(c+dx)^{3/2}}{2ax^2}$$

```
[Out] (3*(b*c - a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*a^2*x) - (Sqrt[a +
 b*x]*(c + d*x)^(3/2))/(2*a*x^2) - (3*(b*c - a*d)^2*ArcTanh[(Sqrt
[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(4*a^(5/2)*Sqrt[c])
```

Rubi [A] time = 0.212592, antiderivative size = 119, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.136

$$-\frac{3(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{5/2}\sqrt{c}}+\frac{3\sqrt{a+bx}\sqrt{c+dx}(bc-ad)}{4a^2x}-\frac{\sqrt{a+bx}(c+dx)^{3/2}}{2ax^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^(3/2)/(x^3*Sqrt[a + b*x]),x]
```

```
[Out] (3*(b*c - a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*a^2*x) - (Sqrt[a +
 b*x]*(c + d*x)^(3/2))/(2*a*x^2) - (3*(b*c - a*d)^2*ArcTanh[(Sqrt
[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(4*a^(5/2)*Sqrt[c])
```

Rubi in Sympy [A] time = 16.3142, size = 107, normalized size = 0.9

$$-\frac{\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}}{2ax^2}-\frac{3\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)}{4a^2x}-\frac{3\,(ad-bc)^2\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{\frac{5}{2}}\sqrt{c}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(3/2)/x**3/(b*x+a)**(1/2),x)
```

```
[Out] -sqrt(a + b*x)*(c + d*x)**(3/2)/(2*a*x**2) - 3*sqrt(a + b*x)*sqrt
(c + d*x)*(a*d - b*c)/(4*a**2*x) - 3*(a*d - b*c)**2*atanh(sqrt(c)
*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(4*a**(5/2)*sqrt(c))
```

Mathematica [A] time = 0.131573, size = 139, normalized size = 1.17

$$\frac{3x^2\log(x)(bc-ad)^2-3x^2(bc-ad)^2\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)-2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}(2ac+5adx}{8a^{5/2}\sqrt{c}x^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^(3/2)/(x^3*Sqrt[a + b*x]),x]
```

```
[Out] (-2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]*(2*a*c - 3*b*c*x
+ 5*a*d*x) + 3*(b*c - a*d)^2*x^2*Log[x] - 3*(b*c - a*d)^2*x^2*Log
[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c +
 d*x]])/(8*a^(5/2)*Sqrt[c]*x^2)
```

Maple [B] time = 0.033, size = 255, normalized size = 2.1

$$-\frac{1}{8\,a^2x^2}\sqrt{bx+a}\sqrt{dx+c}\left(3\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)\,(dx+c)}+2\,ac}{x}\right)x^2a^2d^2-6\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)\,(c}}{x}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(3/2)/x^3/(b*x+a)^(1/2),x)
```

```
[Out] -1/8*(d*x+c)^(1/2)*(b*x+a)^(1/2)/a^2*(3*ln((a*d*x+b*c*x+2*(a*c)^(
1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a^2*d^2-6*ln((a*d*x+b*
c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a*b*c*d+3
*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*
x^2*b^2*c^2+10*((b*x+a)*(d*x+c))^(1/2)*d*a*x*(a*c)^(1/2)-6*((b*x+
a)*(d*x+c))^(1/2)*b*c*x*(a*c)^(1/2)+4*((b*x+a)*(d*x+c))^(1/2)*c*a
*(a*c)^(1/2))/((b*x+a)*(d*x+c))^(1/2)/x^2/(a*c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(3/2)/(sqrt(b*x + a)*x^3),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.2964, size = 1, normalized size = 0.01

$$\left[\frac{3\left(b^2c^2-2\,abcd+a^2d^2\right)x^2\log\left(-\frac{4\left(2\,a^2c^2+\left(abc^2+a^2cd\right)x\right)\sqrt{bx+a}\sqrt{dx+c}-\left(8\,a^2c^2+\left(b^2c^2+6\,abcd+a^2d^2\right)x^2+8\left(abc^2+a^2cd\right)x\right)\sqrt{ac}}{x^2}\right)-4\,(2\,ac}{16\,\sqrt{ac}a^2x^2}\right.$$

$$\left.-\frac{3\left(b^2c^2-2\,abcd+a^2d^2\right)x^2\arctan\left(\frac{(2\,ac+(bc+ad)x)\sqrt{-ac}}{2\,\sqrt{bx+a}\sqrt{dx+c}ac}\right)+2\,(2\,ac-(3\,bc-5\,ad)x)\sqrt{-ac}\sqrt{bx+a}\sqrt{dx+c}}{8\,\sqrt{-ac}a^2x^2}\right]$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(3/2)/(sqrt(b*x + a)*x^3),x, algorithm="fricas")
```

```
[Out] [1/16*(3*(b^2*c^2 - 2*a*b*c*d + a^2*d^2)*x^2*log(-(4*(2*a^2*c^2 +
 (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c) - (8*a^2*c^2
+ (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*
sqrt(a*c))/x^2) - 4*(2*a*c - (3*b*c - 5*a*d)*x)*sqrt(a*c)*sqrt(b*
x + a)*sqrt(d*x + c))/(sqrt(a*c)*a^2*x^2), -1/8*(3*(b^2*c^2 - 2*a
*b*c*d + a^2*d^2)*x^2*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*
c)/(sqrt(b*x + a)*sqrt(d*x + c)*a*c)) + 2*(2*a*c - (3*b*c - 5*a*d
)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(-a*c)*a^2*x^2)
]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(3/2)/x**3/(b*x+a)**(1/2),x)

[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(3/2)/(sqrt(b*x + a)*x^3),x, algorithm="giac")

[Out] Exception raised: TypeError
```

3.700 $\int \frac{(c+dx)^{3/2}}{x^4\sqrt{a+bx}}\,dx$

Optimal. Leaf size=180

$$\frac{(bc-ad)^2(ad+5bc)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{7/2}c^{3/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}(bc-ad)(ad+5bc)}{8a^3cx}+\frac{\sqrt{a+bx}(c+dx)^{3/2}(ad+5bc)}{12a^2cx^2}-\frac{\sqrt{a+bx}(c+dx)^{5/2}}{3acx^3}$$

```
[Out] -((b*c - a*d)*(5*b*c + a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(8*a^3*c
*x) + ((5*b*c + a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(12*a^2*c*x^2
) - (Sqrt[a + b*x]*(c + d*x)^(5/2))/(3*a*c*x^3) + ((b*c - a*d)^2*
(5*b*c + a*d)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d
*x])])/(8*a^(7/2)*c^(3/2))
```

Rubi [A] time = 0.323467, antiderivative size = 180, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$\frac{(bc-ad)^2(ad+5bc)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{7/2}c^{3/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}(bc-ad)(ad+5bc)}{8a^3cx}+\frac{\sqrt{a+bx}(c+dx)^{3/2}(ad+5bc)}{12a^2cx^2}-\frac{\sqrt{a+bx}(c+dx)^{5/2}}{3acx^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^(3/2)/(x^4*Sqrt[a + b*x]),x]
```

```
[Out] -((b*c - a*d)*(5*b*c + a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(8*a^3*c
*x) + ((5*b*c + a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(12*a^2*c*x^2
) - (Sqrt[a + b*x]*(c + d*x)^(5/2))/(3*a*c*x^3) + ((b*c - a*d)^2*
(5*b*c + a*d)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d
*x])])/(8*a^(7/2)*c^(3/2))
```

Rubi in Sympy [A] time = 25.4729, size = 158, normalized size = 0.88

$$-\frac{\sqrt{a+bx}\,(c+dx)^{\frac{5}{2}}}{3acx^3}+\frac{\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}\,(ad+5bc)}{12a^2cx^2}+\frac{\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)\,(ad+5bc)}{8a^3cx}+\frac{(ad-bc)^2\,(ad+5bc)\,\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{\frac{7}{2}}c^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(3/2)/x**4/(b*x+a)**(1/2),x)
```

```
[Out] -sqrt(a + b*x)*(c + d*x)**(5/2)/(3*a*c*x**3) + sqrt(a + b*x)*(c +
 d*x)**(3/2)*(a*d + 5*b*c)/(12*a**2*c*x**2) + sqrt(a + b*x)*sqrt(
c + d*x)*(a*d - b*c)*(a*d + 5*b*c)/(8*a**3*c*x) + (a*d - b*c)**2*
(a*d + 5*b*c)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x))
)/(8*a**(7/2)*c**(3/2))
```

Mathematica [A] time = 0.187439, size = 189, normalized size = 1.05

$$\frac{-2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}\left(a^2\left(8c^2+14cdx+3d^2x^2\right)-2abcx(5c+11dx)+15b^2c^2x^2\right)-3x^3\log(x)(bc-ad)^2(ad+5bc)+3x}{48a^{7/2}c^{3/2}x^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^(3/2)/(x^4*Sqrt[a + b*x]),x]
```

```
[Out] (-2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]*(15*b^2*c^2*x^2 -
 2*a*b*c*x*(5*c + 11*d*x) + a^2*(8*c^2 + 14*c*d*x + 3*d^2*x^2)) -
 3*(b*c - a*d)^2*(5*b*c + a*d)*x^3*Log[x] + 3*(b*c - a*d)^2*(5*b*
c + a*d)*x^3*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a
 + b*x]*Sqrt[c + d*x]])/(48*a^(7/2)*c^(3/2)*x^3)
```

Maple [B] time = 0.036, size = 408, normalized size = 2.3

$$\frac{1}{48\,ca^3x^3}\sqrt{bx+a}\sqrt{dx+c}\left(3\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)\,(dx+c)}+2\,ac}{x}\right)x^3a^3d^3+9\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)\,(}}{x}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(3/2)/x^4/(b*x+a)^(1/2),x)
```

```
[Out] 1/48*(d*x+c)^(1/2)*(b*x+a)^(1/2)/a^3/c*(3*ln((a*d*x+b*c*x+2*(a*c)
^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^3*d^3+9*ln((a*d*x+
b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^2*b*c
*d^2-27*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a
*c)/x)*x^3*a*b^2*c^2*d+15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*
(d*x+c))^(1/2)+2*a*c)/x)*x^3*b^3*c^3-6*((b*x+a)*(d*x+c))^(1/2)*d^
2*a^2*x^2*(a*c)^(1/2)+44*((b*x+a)*(d*x+c))^(1/2)*d*b*c*a*x^2*(a*c
)^(1/2)-30*((b*x+a)*(d*x+c))^(1/2)*b^2*c^2*x^2*(a*c)^(1/2)-28*((b
*x+a)*(d*x+c))^(1/2)*d*c*a^2*x*(a*c)^(1/2)+20*((b*x+a)*(d*x+c))^(
1/2)*b*c^2*a*x*(a*c)^(1/2)-16*((b*x+a)*(d*x+c))^(1/2)*c^2*a^2*(a*
c)^(1/2))/((b*x+a)*(d*x+c))^(1/2)/x^3/(a*c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(3/2)/(sqrt(b*x + a)*x^4),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.439055, size = 1, normalized size = 0.01

$$\left[\frac{3\left(5\,b^3c^3-9\,ab^2c^2d+3\,a^2bcd^2+a^3d^3\right)x^3\log\left(\frac{4\left(2\,a^2c^2+\left(abc^2+a^2cd\right)x\right)\sqrt{bx+a}\sqrt{dx+c}+\left(8\,a^2c^2+\left(b^2c^2+6\,abcd+a^2d^2\right)x^2+8\left(abc^2+a^2cd\right)x\right)\sqrt{a}}{x^2}\right.}{96\,\sqrt{ac}a^3cx^3}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(3/2)/(sqrt(b*x + a)*x^4),x, algorithm="fricas")
```

```
[Out] [1/96*(3*(5*b^3*c^3 - 9*a*b^2*c^2*d + 3*a^2*b*c*d^2 + a^3*d^3)*x^
3*log((4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d
*x + c) + (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(a
*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2) - 4*(8*a^2*c^2 + (15*b^2*c^2
 - 22*a*b*c*d + 3*a^2*d^2)*x^2 - 2*(5*a*b*c^2 - 7*a^2*c*d)*x)*sqr
t(a*c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(a*c)*a^3*c*x^3), 1/48*(
```

```
3*(5*b^3*c^3 - 9*a*b^2*c^2*d + 3*a^2*b*c*d^2 + a^3*d^3)*x^3*arcta
n(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d*x
+ c)*a*c)) - 2*(8*a^2*c^2 + (15*b^2*c^2 - 22*a*b*c*d + 3*a^2*d^2)
*x^2 - 2*(5*a*b*c^2 - 7*a^2*c*d)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt
(d*x + c))/(sqrt(-a*c)*a^3*c*x^3)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(3/2)/x**4/(b*x+a)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(3/2)/(sqrt(b*x + a)*x^4),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.701 $\int \frac{(c+dx)^{3/2}}{x^5\sqrt{a+bx}}\,dx$

Optimal. Leaf size=266

$$\frac{\sqrt{a+bx}\sqrt{c+dx}(7bc-9ad)}{24a^2x^3}-\frac{\left(3a^2d^2+10abcd+35b^2c^2\right)(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{9/2}c^{5/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}\left(3a^2d^2-46abcd+35b^2c^2\right)}{96a^3cx^2}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(9a^3d^3+15a^2bcd^2-145ab^2c^2d+105b^3c^3\right)}{192a^4c^2x}-\frac{c\sqrt{a+bx}\sqrt{c+dx}}{4ax^4}$$

```
[Out] -(c*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*a*x^4) + ((7*b*c - 9*a*d)*Sqr
t[a + b*x]*Sqrt[c + d*x])/(24*a^2*x^3) - ((35*b^2*c^2 - 46*a*b*c*
d + 3*a^2*d^2)*Sqrt[a + b*x]*Sqrt[c + d*x])/(96*a^3*c*x^2) + ((10
5*b^3*c^3 - 145*a*b^2*c^2*d + 15*a^2*b*c*d^2 + 9*a^3*d^3)*Sqrt[a
+ b*x]*Sqrt[c + d*x])/(192*a^4*c^2*x) - ((b*c - a*d)^2*(35*b^2*c^
2 + 10*a*b*c*d + 3*a^2*d^2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt
[a]*Sqrt[c + d*x])])/(64*a^(9/2)*c^(5/2))
```

Rubi [A] time = 0.746812, antiderivative size = 266, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$\frac{\sqrt{a+bx}\sqrt{c+dx}(7bc-9ad)}{24a^2x^3}-\frac{\left(3a^2d^2+10abcd+35b^2c^2\right)(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{9/2}c^{5/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}\left(3a^2d^2-46abcd+35b^2c^2\right)}{96a^3cx^2}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(9a^3d^3+15a^2bcd^2-145ab^2c^2d+105b^3c^3\right)}{192a^4c^2x}-\frac{c\sqrt{a+bx}\sqrt{c+dx}}{4ax^4}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^(3/2)/(x^5*Sqrt[a + b*x]),x]
```

```
[Out] -(c*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*a*x^4) + ((7*b*c - 9*a*d)*Sqr
t[a + b*x]*Sqrt[c + d*x])/(24*a^2*x^3) - ((35*b^2*c^2 - 46*a*b*c*
d + 3*a^2*d^2)*Sqrt[a + b*x]*Sqrt[c + d*x])/(96*a^3*c*x^2) + ((10
5*b^3*c^3 - 145*a*b^2*c^2*d + 15*a^2*b*c*d^2 + 9*a^3*d^3)*Sqrt[a
+ b*x]*Sqrt[c + d*x])/(192*a^4*c^2*x) - ((b*c - a*d)^2*(35*b^2*c^
2 + 10*a*b*c*d + 3*a^2*d^2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt
[a]*Sqrt[c + d*x])])/(64*a^(9/2)*c^(5/2))
```

Rubi in Sympy [A] time = 109.864, size = 255, normalized size = 0.96

$$-\frac{c\sqrt{a+bx}\sqrt{c+dx}}{4ax^4}-\frac{\sqrt{a+bx}\sqrt{c+dx}\,(9ad-7bc)}{24a^2x^3}-\frac{\sqrt{a+bx}\sqrt{c+dx}\left(3a^2d^2-46abcd+35b^2c^2\right)}{96a^3cx^2}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(9a^3d^3+15a^2bcd^2-145ab^2c^2d+105b^3c^3\right)}{192a^4c^2x}-\frac{(ad-bc)^2\left(3a^2d^2+10abcd+35b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{\frac{9}{2}}c^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(3/2)/x**5/(b*x+a)**(1/2),x)
```

```
[Out] -c*sqrt(a + b*x)*sqrt(c + d*x)/(4*a*x**4) - sqrt(a + b*x)*sqrt(c
+ d*x)*(9*a*d - 7*b*c)/(24*a**2*x**3) - sqrt(a + b*x)*sqrt(c + d*
x)*(3*a**2*d**2 - 46*a*b*c*d + 35*b**2*c**2)/(96*a**3*c*x**2) + s
```

```
qrt(a + b*x)*sqrt(c + d*x)*(9*a**3*d**3 + 15*a**2*b*c*d**2 - 145*
a*b**2*c**2*d + 105*b**3*c**3)/(192*a**4*c**2*x) - (a*d - b*c)**2
*(3*a**2*d**2 + 10*a*b*c*d + 35*b**2*c**2)*atanh(sqrt(c)*sqrt(a +
 b*x)/(sqrt(a)*sqrt(c + d*x)))/(64*a**(9/2)*c**(5/2))
```

Mathematica [A] time = 0.27528, size = 263, normalized size = 0.99

$$\frac{3x^4\log(x)(bc-ad)^2\left(3a^2d^2+10abcd+35b^2c^2\right)-3x^4(bc-ad)^2\left(3a^2d^2+10abcd+35b^2c^2\right)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+\cdots\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^(3/2)/(x^5*Sqrt[a + b*x]),x]
```

```
[Out] (-2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]*(-105*b^3*c^3*x^3
 + 5*a*b^2*c^2*x^2*(14*c + 29*d*x) - a^2*b*c*x*(56*c^2 + 92*c*d*x
 + 15*d^2*x^2) + a^3*(48*c^3 + 72*c^2*d*x + 6*c*d^2*x^2 - 9*d^3*x
^3)) + 3*(b*c - a*d)^2*(35*b^2*c^2 + 10*a*b*c*d + 3*a^2*d^2)*x^4*
Log[x] - 3*(b*c - a*d)^2*(35*b^2*c^2 + 10*a*b*c*d + 3*a^2*d^2)*x^
4*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqr
t[c + d*x]])/(384*a^(9/2)*c^(5/2)*x^4)
```

Maple [B] time = 0.04, size = 593, normalized size = 2.2

$$-\frac{1}{384\,a^4c^2x^4}\sqrt{bx+a}\sqrt{dx+c}\left(9\ln\left(\frac{adx+bcx+2\sqrt{ac}\sqrt{(bx+a)(dx+c)}+2ac}{x}\right)x^4a^4d^4+12\ln\left(\frac{adx+bcx+2\sqrt{ac}\sqrt{(bx+\cdots}}{x}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(3/2)/x^5/(b*x+a)^(1/2),x)
```

```
[Out] -1/384*(d*x+c)^(1/2)*(b*x+a)^(1/2)/a^4/c^2*(9*ln((a*d*x+b*c*x+2*(
a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a^4*d^4+12*ln((a
*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a^
3*b*c*d^3+54*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2
)+2*a*c)/x)*x^4*a^2*b^2*c^2*d^2-180*ln((a*d*x+b*c*x+2*(a*c)^(1/2)
*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a*b^3*c^3*d+105*ln((a*d*x+
b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*b^4*c^4
-18*((b*x+a)*(d*x+c))^(1/2)*d^3*a^3*x^3*(a*c)^(1/2)-30*((b*x+a)*(
d*x+c))^(1/2)*d^2*b*c*a^2*x^3*(a*c)^(1/2)+290*((b*x+a)*(d*x+c))^(
1/2)*d*b^2*c^2*a*x^3*(a*c)^(1/2)-210*((b*x+a)*(d*x+c))^(1/2)*b^3*
c^3*x^3*(a*c)^(1/2)+12*((b*x+a)*(d*x+c))^(1/2)*d^2*c*a^3*x^2*(a*c
)^(1/2)-184*((b*x+a)*(d*x+c))^(1/2)*d*b*c^2*a^2*x^2*(a*c)^(1/2)+1
40*((b*x+a)*(d*x+c))^(1/2)*b^2*c^3*a*x^2*(a*c)^(1/2)+144*((b*x+a)
*(d*x+c))^(1/2)*d*c^2*a^3*x*(a*c)^(1/2)-112*((b*x+a)*(d*x+c))^(1/
2)*b*c^3*a^2*x*(a*c)^(1/2)+96*((b*x+a)*(d*x+c))^(1/2)*c^3*a^3*(a*
c)^(1/2))/((b*x+a)*(d*x+c))^(1/2)/x^4/(a*c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(3/2)/(sqrt(b*x + a)*x^5),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.755996, size = 1, normalized size = 0.

$$\left[\frac{3\left(35\,b^4c^4 - 60\,ab^3c^3d + 18\,a^2b^2c^2d^2 + 4\,a^3bcd^3 + 3\,a^4d^4\right)x^4\log\left(-\frac{4\left(2\,a^2c^2+\left(abc^2+a^2cd\right)x\right)\sqrt{bx+a}\sqrt{dx+c}-\left(8\,a^2c^2+\left(b^2c^2+6\,abcd+a^2d^2\cdots\right.\right.}{x^2}\right.}{\cdots}\right.$$

$$-\frac{3\left(35\,b^4c^4 - 60\,ab^3c^3d + 18\,a^2b^2c^2d^2 + 4\,a^3bcd^3 + 3\,a^4d^4\right)x^4\arctan\left(\frac{\left(2\,ac+\left(bc+ad\right)x\right)\sqrt{-ac}}{2\,\sqrt{bx+a}\sqrt{dx+c}ac}\right) + 2\left(48\,a^3c^3 - \left(105\,b^3c^3 - 145\,ab\cdots\right.\right.}{384\,\sqrt{-ac}a\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(3/2)/(sqrt(b*x + a)*x^5),x, algorithm="fricas")
```

```
[Out] [1/768*(3*(35*b^4*c^4 - 60*a*b^3*c^3*d + 18*a^2*b^2*c^2*d^2 + 4*a
^3*b*c*d^3 + 3*a^4*d^4)*x^4*log(-(4*(2*a^2*c^2 + (a*b*c^2 + a^2*c
*d)*x)*sqrt(b*x + a)*sqrt(d*x + c) - (8*a^2*c^2 + (b^2*c^2 + 6*a*
b*c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2) -
 4*(48*a^3*c^3 - (105*b^3*c^3 - 145*a*b^2*c^2*d + 15*a^2*b*c*d^2
+ 9*a^3*d^3)*x^3 + 2*(35*a*b^2*c^3 - 46*a^2*b*c^2*d + 3*a^3*c*d^2
)*x^2 - 8*(7*a^2*b*c^3 - 9*a^3*c^2*d)*x)*sqrt(a*c)*sqrt(b*x + a)*
sqrt(d*x + c))/(sqrt(a*c)*a^4*c^2*x^4), -1/384*(3*(35*b^4*c^4 - 6
0*a*b^3*c^3*d + 18*a^2*b^2*c^2*d^2 + 4*a^3*b*c*d^3 + 3*a^4*d^4)*x
^4*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*s
qrt(d*x + c)*a*c)) + 2*(48*a^3*c^3 - (105*b^3*c^3 - 145*a*b^2*c^2
*d + 15*a^2*b*c*d^2 + 9*a^3*d^3)*x^3 + 2*(35*a*b^2*c^3 - 46*a^2*b
*c^2*d + 3*a^3*c*d^2)*x^2 - 8*(7*a^2*b*c^3 - 9*a^3*c^2*d)*x)*sqrt
(-a*c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(-a*c)*a^4*c^2*x^4)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(3/2)/x**5/(b*x+a)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(3/2)/(sqrt(b*x + a)*x^5),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.702 $\int \frac{x^2(c+dx)^{5/2}}{\sqrt{a+bx}}\,dx$

Optimal. Leaf size=314

$$\frac{(bc-ad)^3\left(63a^2d^2+14abcd+3b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{128b^{11/2}d^{5/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^2\left(63a^2d^2+14abcd+3b^2c^2\right)}{128b^5d^2}+\frac{\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)\left(63a^2d^2+14abcd+3b^2c^2\right)}{192b^4d^2}+\frac{\sqrt{a+bx}(c+dx)^{5/2}\left(63a^2d^2+14abcd+3b^2c^2\right)}{240b^3d^2}-\frac{3\sqrt{a+bx}(c+dx)^{7/2}(3ad+bc)}{40b^2d^2}+\frac{x\sqrt{a+bx}(c+dx)^{7/2}}{5bd}$$

```
[Out] ((b*c - a*d)^2*(3*b^2*c^2 + 14*a*b*c*d + 63*a^2*d^2)*Sqrt[a + b*x
]*Sqrt[c + d*x])/(128*b^5*d^2) + ((b*c - a*d)*(3*b^2*c^2 + 14*a*b
*c*d + 63*a^2*d^2)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(192*b^4*d^2) +
 ((3*b^2*c^2 + 14*a*b*c*d + 63*a^2*d^2)*Sqrt[a + b*x]*(c + d*x)^(
5/2))/(240*b^3*d^2) - (3*(b*c + 3*a*d)*Sqrt[a + b*x]*(c + d*x)^(7
/2))/(40*b^2*d^2) + (x*Sqrt[a + b*x]*(c + d*x)^(7/2))/(5*b*d) + (
(b*c - a*d)^3*(3*b^2*c^2 + 14*a*b*c*d + 63*a^2*d^2)*ArcTanh[(Sqrt
[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(128*b^(11/2)*d^(5/2
))
```

Rubi [A] time = 0.66095, antiderivative size = 314, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$\frac{(bc-ad)^3\left(63a^2d^2+14abcd+3b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{128b^{11/2}d^{5/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^2\left(63a^2d^2+14abcd+3b^2c^2\right)}{128b^5d^2}+\frac{\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)\left(63a^2d^2+14abcd+3b^2c^2\right)}{192b^4d^2}+\frac{\sqrt{a+bx}(c+dx)^{5/2}\left(63a^2d^2+14abcd+3b^2c^2\right)}{240b^3d^2}-\frac{3\sqrt{a+bx}(c+dx)^{7/2}(3ad+bc)}{40b^2d^2}+\frac{x\sqrt{a+bx}(c+dx)^{7/2}}{5bd}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^2*(c + d*x)^(5/2))/Sqrt[a + b*x],x]
```


```
[Out] ((b*c - a*d)^2*(3*b^2*c^2 + 14*a*b*c*d + 63*a^2*d^2)*Sqrt[a + b*x
]*Sqrt[c + d*x])/(128*b^5*d^2) + ((b*c - a*d)*(3*b^2*c^2 + 14*a*b
*c*d + 63*a^2*d^2)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(192*b^4*d^2) +
 ((3*b^2*c^2 + 14*a*b*c*d + 63*a^2*d^2)*Sqrt[a + b*x]*(c + d*x)^(
5/2))/(240*b^3*d^2) - (3*(b*c + 3*a*d)*Sqrt[a + b*x]*(c + d*x)^(7
/2))/(40*b^2*d^2) + (x*Sqrt[a + b*x]*(c + d*x)^(7/2))/(5*b*d) + (
(b*c - a*d)^3*(3*b^2*c^2 + 14*a*b*c*d + 63*a^2*d^2)*ArcTanh[(Sqrt
[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(128*b^(11/2)*d^(5/2
))
```

Rubi in Sympy [A] time = 55.8058, size = 301, normalized size = 0.96

$$\frac{x\sqrt{a+bx}\,(c+dx)^{\frac{7}{2}}}{5bd}-\frac{3\sqrt{a+bx}\,(c+dx)^{\frac{7}{2}}\,(3ad+bc)}{40b^2d^2}+\frac{\sqrt{a+bx}\,(c+dx)^{\frac{5}{2}}\left(63a^2d^2+14abcd+3b^2c^2\right)}{240b^3d^2}-\frac{\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}\,(ad-bc)\left(63a^2d^2+14abcd+3b^2c^2\right)}{192b^4d^2}+\frac{\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)^2\left(63a^2d^2+14abcd+3b^2c^2\right)}{128b^5d^2}-\frac{(ad-bc)^3\left(63a^2d^2+14abcd+3b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{128b^{\frac{11}{2}}d^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(d*x+c)**(5/2)/(b*x+a)**(1/2),x)
```

```
[Out] x*sqrt(a + b*x)*(c + d*x)**(7/2)/(5*b*d) - 3*sqrt(a + b*x)*(c + d
*x)**(7/2)*(3*a*d + b*c)/(40*b**2*d**2) + sqrt(a + b*x)*(c + d*x)
**(5/2)*(63*a**2*d**2 + 14*a*b*c*d + 3*b**2*c**2)/(240*b**3*d**2)
 - sqrt(a + b*x)*(c + d*x)**(3/2)*(a*d - b*c)*(63*a**2*d**2 + 14*
a*b*c*d + 3*b**2*c**2)/(192*b**4*d**2) + sqrt(a + b*x)*sqrt(c + d
*x)*(a*d - b*c)**2*(63*a**2*d**2 + 14*a*b*c*d + 3*b**2*c**2)/(128
*b**5*d**2) - (a*d - b*c)**3*(63*a**2*d**2 + 14*a*b*c*d + 3*b**2*
c**2)*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c + d*x)))/(128*b
**(11/2)*d**(5/2))
```

Mathematica [A] time = 0.26337, size = 257, normalized size = 0.82

$$\frac{\left(63a^2d^2+14abcd+3b^2c^2\right)(bc-ad)^3\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{256b^{11/2}d^{5/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(945a^4d^4-210a^3bd^3(11c+3dx)+2a^2b^2d^2\left(782c^2+749cdx+252d^2x^2\right)-2ab^3d\left(45c^3+481c^2dx+592c\right.\right.}{1920b^5d^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^2*(c + d*x)^(5/2))/Sqrt[a + b*x],x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(945*a^4*d^4 - 210*a^3*b*d^3*(11*c +
 3*d*x) + 2*a^2*b^2*d^2*(782*c^2 + 749*c*d*x + 252*d^2*x^2) - 2*a
*b^3*d*(45*c^3 + 481*c^2*d*x + 592*c*d^2*x^2 + 216*d^3*x^3) + b^4
*(-45*c^4 + 30*c^3*d*x + 744*c^2*d^2*x^2 + 1008*c*d^3*x^3 + 384*d
^4*x^4)))/(1920*b^5*d^2) + ((b*c - a*d)^3*(3*b^2*c^2 + 14*a*b*c*d
 + 63*a^2*d^2)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a
 + b*x]*Sqrt[c + d*x]])/(256*b^(11/2)*d^(5/2))
```

Maple [B] time = 0.036, size = 788, normalized size = 2.5

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(d*x+c)^(5/2)/(b*x+a)^(1/2),x)
```

```
[Out] -1/3840*(d*x+c)^(1/2)*(b*x+a)^(1/2)*(-768*x^4*b^4*d^4*((b*x+a)*(d
*x+c))^(1/2)*(b*d)^(1/2)+864*x^3*a*b^3*d^4*((b*x+a)*(d*x+c))^(1/2
)*(b*d)^(1/2)-2016*x^3*b^4*c*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1
/2)-1008*x^2*a^2*b^2*d^4*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+2368
*x^2*a*b^3*c*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-1488*x^2*b^4
```

```
*c^2*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+945*ln(1/2*(2*b*d*x+
2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^5*d
^5-2625*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d
+b*c)/(b*d)^(1/2))*a^4*b*c*d^4+2250*c^2*ln(1/2*(2*b*d*x+2*((b*x+a
)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^3*d^3*b^2-45
0*c^3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b
*c)/(b*d)^(1/2))*a^2*b^3*d^2-75*c^4*ln(1/2*(2*b*d*x+2*((b*x+a)*(d
*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a*b^4*d-45*c^5*ln(
1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)
^(1/2))*b^5+1260*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*x*a^3*b*d^4-
2996*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*x*a^2*b^2*c*d^3+1924*(b*
d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*x*a*b^3*c^2*d^2-60*(b*d)^(1/2)*(
(b*x+a)*(d*x+c))^(1/2)*x*b^4*c^3*d-1890*(b*d)^(1/2)*((b*x+a)*(d*x
+c))^(1/2)*a^4*d^4+4620*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*a^3*b
*c*d^3-3128*c^2*((b*x+a)*(d*x+c))^(1/2)*a^2*d^2*b^2*(b*d)^(1/2)+1
80*c^3*((b*x+a)*(d*x+c))^(1/2)*a*b^3*d*(b*d)^(1/2)+90*c^4*((b*x+a
)*(d*x+c))^(1/2)*b^4*(b*d)^(1/2))/((b*x+a)*(d*x+c))^(1/2)/b^5/(b*
d)^(1/2)/d^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)*x^2/sqrt(b*x + a),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.306508, size = 1, normalized size = 0.

$$\left[\frac{4\left(384\,b^4d^4x^4 - 45\,b^4c^4 - 90\,ab^3c^3d + 1564\,a^2b^2c^2d^2 - 2310\,a^3bcd^3 + 945\,a^4d^4 + 144\left(7\,b^4cd^3 - 3\,ab^3d^4\right)x^3 + 8\left(93\,b^4c^2d^2\right.\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)*x^2/sqrt(b*x + a),x, algorithm="fricas")
```

```
[Out] [1/7680*(4*(384*b^4*d^4*x^4 - 45*b^4*c^4 - 90*a*b^3*c^3*d + 1564*
a^2*b^2*c^2*d^2 - 2310*a^3*b*c*d^3 + 945*a^4*d^4 + 144*(7*b^4*c*d
^3 - 3*a*b^3*d^4)*x^3 + 8*(93*b^4*c^2*d^2 - 148*a*b^3*c*d^3 + 63*
a^2*b^2*d^4)*x^2 + 2*(15*b^4*c^3*d - 481*a*b^3*c^2*d^2 + 749*a^2*
b^2*c*d^3 - 315*a^3*b*d^4)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x +
c) - 15*(3*b^5*c^5 + 5*a*b^4*c^4*d + 30*a^2*b^3*c^3*d^2 - 150*a^3
*b^2*c^2*d^3 + 175*a^4*b*c*d^4 - 63*a^5*d^5)*log(-4*(2*b^2*d^2*x
+ b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2
 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(
b*d)))/(sqrt(b*d)*b^5*d^2), 1/3840*(2*(384*b^4*d^4*x^4 - 45*b^4*c
^4 - 90*a*b^3*c^3*d + 1564*a^2*b^2*c^2*d^2 - 2310*a^3*b*c*d^3 + 9
45*a^4*d^4 + 144*(7*b^4*c*d^3 - 3*a*b^3*d^4)*x^3 + 8*(93*b^4*c^2*
d^2 - 148*a*b^3*c*d^3 + 63*a^2*b^2*d^4)*x^2 + 2*(15*b^4*c^3*d - 4
81*a*b^3*c^2*d^2 + 749*a^2*b^2*c*d^3 - 315*a^3*b*d^4)*x)*sqrt(-b*
d)*sqrt(b*x + a)*sqrt(d*x + c) + 15*(3*b^5*c^5 + 5*a*b^4*c^4*d +
30*a^2*b^3*c^3*d^2 - 150*a^3*b^2*c^2*d^3 + 175*a^4*b*c*d^4 - 63*a
^5*d^5)*arctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a
)*sqrt(d*x + c)*b*d)))/(sqrt(-b*d)*b^5*d^2)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(d*x+c)**(5/2)/(b*x+a)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.312158, size = 1, normalized size = 0.

$$Done$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)*x^2/sqrt(b*x + a),x, algorithm="giac")
```

```
[Out] Done
```

3.703 $\int \frac{x(c+dx)^{5/2}}{\sqrt{a+bx}}\,dx$

Optimal. Leaf size=217

$$-\frac{5(bc-ad)^3(7ad+bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{64b^{9/2}d^{3/2}}-\frac{5\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^2(7ad+bc)}{64b^4d}-\frac{5\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)(7ad+bc)}{96b^3d}-\frac{\sqrt{a+bx}(c+dx)^{5/2}(7ad+bc)}{24b^2d}+\frac{\sqrt{a+bx}(c+dx)^{7/2}}{4bd}$$

```
[Out] (-5*(b*c - a*d)^2*(b*c + 7*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(64*
b^4*d) - (5*(b*c - a*d)*(b*c + 7*a*d)*Sqrt[a + b*x]*(c + d*x)^(3/
2))/(96*b^3*d) - ((b*c + 7*a*d)*Sqrt[a + b*x]*(c + d*x)^(5/2))/(2
4*b^2*d) + (Sqrt[a + b*x]*(c + d*x)^(7/2))/(4*b*d) - (5*(b*c - a*
d)^3*(b*c + 7*a*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[
c + d*x])])/(64*b^(9/2)*d^(3/2))
```

Rubi [A] time = 0.309901, antiderivative size = 217, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.2

$$-\frac{5(bc-ad)^3(7ad+bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{64b^{9/2}d^{3/2}}-\frac{5\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^2(7ad+bc)}{64b^4d}-\frac{5\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)(7ad+bc)}{96b^3d}-\frac{\sqrt{a+bx}(c+dx)^{5/2}(7ad+bc)}{24b^2d}+\frac{\sqrt{a+bx}(c+dx)^{7/2}}{4bd}$$

Antiderivative was successfully verified.

```
[In]  Int[(x*(c + d*x)^(5/2))/Sqrt[a + b*x],x]
```


```
[Out] (-5*(b*c - a*d)^2*(b*c + 7*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(64*
b^4*d) - (5*(b*c - a*d)*(b*c + 7*a*d)*Sqrt[a + b*x]*(c + d*x)^(3/
2))/(96*b^3*d) - ((b*c + 7*a*d)*Sqrt[a + b*x]*(c + d*x)^(5/2))/(2
4*b^2*d) + (Sqrt[a + b*x]*(c + d*x)^(7/2))/(4*b*d) - (5*(b*c - a*
d)^3*(b*c + 7*a*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[
c + d*x])])/(64*b^(9/2)*d^(3/2))
```

Rubi in Sympy [A] time = 33.8133, size = 196, normalized size = 0.9

$$\frac{\sqrt{a+bx}\,(c+dx)^{\frac{7}{2}}}{4bd}-\frac{\sqrt{a+bx}\,(c+dx)^{\frac{5}{2}}\,(7ad+bc)}{24b^2d}+\frac{5\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}\,(ad-bc)\,(7ad+bc)}{96b^3d}-\frac{5\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)^2\,(7ad+bc)}{64b^4d}+\frac{5\,(ad-bc)^3\,(7ad+bc)\,\mathrm{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{64b^{\frac{9}{2}}d^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(d*x+c)**(5/2)/(b*x+a)**(1/2),x)
```

```
[Out] sqrt(a + b*x)*(c + d*x)**(7/2)/(4*b*d) - sqrt(a + b*x)*(c + d*x)*
*(5/2)*(7*a*d + b*c)/(24*b**2*d) + 5*sqrt(a + b*x)*(c + d*x)**(3/
2)*(a*d - b*c)*(7*a*d + b*c)/(96*b**3*d) - 5*sqrt(a + b*x)*sqrt(c
 + d*x)*(a*d - b*c)**2*(7*a*d + b*c)/(64*b**4*d) + 5*(a*d - b*c)*
*3*(7*a*d + b*c)*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c + d*
x)))/(64*b**(9/2)*d**(3/2))
```

Mathematica [A] time = 0.189616, size = 190, normalized size = 0.88

$$\frac{\sqrt{a+bx}\sqrt{c+dx}\left(-105a^3d^3+5a^2bd^2(53c+14dx)-ab^2d\left(191c^2+172cdx+56d^2x^2\right)+b^3\left(15c^3+118c^2dx+136cd^2x^2+48\right.\right.}{192b^4d}$$
$$-\frac{5(bc-ad)^3(7ad+bc)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{128b^{9/2}d^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x*(c + d*x)^(5/2))/Sqrt[a + b*x],x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(-105*a^3*d^3 + 5*a^2*b*d^2*(53*c +
14*d*x) - a*b^2*d*(191*c^2 + 172*c*d*x + 56*d^2*x^2) + b^3*(15*c^
3 + 118*c^2*d*x + 136*c*d^2*x^2 + 48*d^3*x^3)))/(192*b^4*d) - (5*
(b*c - a*d)^3*(b*c + 7*a*d)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*S
qrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(128*b^(9/2)*d^(3/2))
```

Maple [B] time = 0.029, size = 574, normalized size = 2.7

$$\frac{1}{384\,b^4d}\sqrt{bx+a}\sqrt{dx+c}\left(96\,x^3b^3d^3\sqrt{(bx+a)(dx+c)}\sqrt{bd}-112\,x^2ab^2d^3\sqrt{(bx+a)(dx+c)}\sqrt{bd}+272\,x^2b^3cd^2\sqrt{(bx+a)(dx\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(d*x+c)^(5/2)/(b*x+a)^(1/2),x)
```

```
[Out] 1/384*(d*x+c)^(1/2)*(b*x+a)^(1/2)*(96*x^3*b^3*d^3*((b*x+a)*(d*x+c
))^(1/2)*(b*d)^(1/2)-112*x^2*a*b^2*d^3*((b*x+a)*(d*x+c))^(1/2)*(b
*d)^(1/2)+272*x^2*b^3*c*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+1
05*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)
/(b*d)^(1/2))*a^4*d^4-300*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/
2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^3*b*c*d^3+270*ln(1/2*(2*b*
d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a
^2*b^2*c^2*d^2-60*c^3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(
b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a*b^3*d-15*c^4*ln(1/2*(2*b*d*x+2
*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*b^4+14
0*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*x*a^2*b*d^3-344*(b*d)^(1/2)
*((b*x+a)*(d*x+c))^(1/2)*x*a*b^2*c*d^2+236*(b*d)^(1/2)*((b*x+a)*(
d*x+c))^(1/2)*x*b^3*c^2*d-210*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)
*a^3*d^3+530*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*a^2*b*c*d^2-382*
(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*a*b^2*c^2*d+30*c^3*((b*x+a)*(
d*x+c))^(1/2)*b^3*(b*d)^(1/2))/((b*x+a)*(d*x+c))^(1/2)/b^4/d/(b*d
)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)*x/sqrt(b*x + a),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.278947, size = 1, normalized size = 0.

$$\left[\frac{4\left(48\,b^3d^3x^3+15\,b^3c^3-191\,ab^2c^2d+265\,a^2bcd^2-105\,a^3d^3+8\left(17\,b^3cd^2-7\,ab^2d^3\right)x^2+2\left(59\,b^3c^2d-86\,ab^2cd^2+35\,a^2b\right.\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)*x/sqrt(b*x + a),x, algorithm="fricas")
```

```
[Out] [1/768*(4*(48*b^3*d^3*x^3 + 15*b^3*c^3 - 191*a*b^2*c^2*d + 265*a^
2*b*c*d^2 - 105*a^3*d^3 + 8*(17*b^3*c*d^2 - 7*a*b^2*d^3)*x^2 + 2*
(59*b^3*c^2*d - 86*a*b^2*c*d^2 + 35*a^2*b*d^3)*x)*sqrt(b*d)*sqrt(
b*x + a)*sqrt(d*x + c) - 15*(b^4*c^4 + 4*a*b^3*c^3*d - 18*a^2*b^2
*c^2*d^2 + 20*a^3*b*c*d^3 - 7*a^4*d^4)*log(4*(2*b^2*d^2*x + b^2*c
*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*
c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/
(sqrt(b*d)*b^4*d), 1/384*(2*(48*b^3*d^3*x^3 + 15*b^3*c^3 - 191*a*
b^2*c^2*d + 265*a^2*b*c*d^2 - 105*a^3*d^3 + 8*(17*b^3*c*d^2 - 7*a
*b^2*d^3)*x^2 + 2*(59*b^3*c^2*d - 86*a*b^2*c*d^2 + 35*a^2*b*d^3)*
x)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c) - 15*(b^4*c^4 + 4*a*b^3
*c^3*d - 18*a^2*b^2*c^2*d^2 + 20*a^3*b*c*d^3 - 7*a^4*d^4)*arctan(
1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)
*b*d)))/(sqrt(-b*d)*b^4*d)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(d*x+c)**(5/2)/(b*x+a)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.293011, size = 875, normalized size = 4.03

$$\frac{16\left(\sqrt{b^2c+(bx+a)bd-abd}\sqrt{bx+a}\left(2\,(bx+a)\left(\frac{4\,(bx+a)}{b^2}+\frac{b^6cd^3-13\,ab^5d^4}{b^7d^4}\right)-\frac{3\left(b^7c^2d^2+2\,ab^6cd^3-11\,a^2b^5d^4\right)}{b^7d^4}\right)-\frac{3\left(b^3c^3+ab^2c^2d+3\,a^2bcd^2-5\,a^3d^3\right)\ln\left(\left|-\sqrt{bd}\sqrt{bx+a}+\sqrt{b^2c+(b\right.\right.}{\sqrt{bd}bd^2}}{b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)*x/sqrt(b*x + a),x, algorithm="giac")
```

```
[Out] 1/192*(16*(sqrt(b^2*c + (b*x + a)*b*d - a*b*d)*sqrt(b*x + a)*(2*(
b*x + a)*(4*(b*x + a)/b^2 + (b^6*c*d^3 - 13*a*b^5*d^4)/(b^7*d^4))
 - 3*(b^7*c^2*d^2 + 2*a*b^6*c*d^3 - 11*a^2*b^5*d^4)/(b^7*d^4)) -
3*(b^3*c^3 + a*b^2*c^2*d + 3*a^2*b*c*d^2 - 5*a^3*d^3)*ln(abs(-sqr
t(b*d)*sqrt(b*x + a) + sqrt(b^2*c + (b*x + a)*b*d - a*b*d)))/(sqr
t(b*d)*b*d^2))*c*d*abs(b)/b^2 + (sqrt(b^2*c + (b*x + a)*b*d - a*b
*d)*(2*(b*x + a)*(4*(b*x + a)*(6*(b*x + a)/b^3 + (b^12*c*d^5 - 25
*a*b^11*d^6)/(b^14*d^6)) - (5*b^13*c^2*d^4 + 14*a*b^12*c*d^5 - 16
3*a^2*b^11*d^6)/(b^14*d^6)) + 3*(5*b^14*c^3*d^3 + 9*a*b^13*c^2*d^
4 + 15*a^2*b^12*c*d^5 - 93*a^3*b^11*d^6)/(b^14*d^6))*sqrt(b*x + a
) + 3*(5*b^4*c^4 + 4*a*b^3*c^3*d + 6*a^2*b^2*c^2*d^2 + 20*a^3*b*c
*d^3 - 35*a^4*d^4)*ln(abs(-sqrt(b*d)*sqrt(b*x + a) + sqrt(b^2*c +
 (b*x + a)*b*d - a*b*d)))/(sqrt(b*d)*b^2*d^3))*d^2*abs(b)/b^2 + 4
*(sqrt(b^2*c + (b*x + a)*b*d - a*b*d)*sqrt(b*x + a)*(2*(b*x + a)/
(b^4*d^2) + (b*c*d - 5*a*d^2)/(b^4*d^4)) + (b^2*c^2 + 2*a*b*c*d -
 3*a^2*d^2)*ln(abs(-sqrt(b*d)*sqrt(b*x + a) + sqrt(b^2*c + (b*x +
 a)*b*d - a*b*d)))/(sqrt(b*d)*b^3*d^3))*c^2*abs(b)/b^3)/b
```

3.704 $\int \frac{(c+dx)^{5/2}}{\sqrt{a+bx}}\,dx$

Optimal. Leaf size=148

$$\frac{5(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8b^{7/2}\sqrt{d}}+\frac{5\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^2}{8b^3}+\frac{5\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)}{12b^2}+\frac{\sqrt{a+bx}(c+dx)^{5/2}}{3b}$$

```
[Out] (5*(b*c - a*d)^2*Sqrt[a + b*x]*Sqrt[c + d*x])/(8*b^3) + (5*(b*c -
 a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(12*b^2) + (Sqrt[a + b*x]*(c
 + d*x)^(5/2))/(3*b) + (5*(b*c - a*d)^3*ArcTanh[(Sqrt[d]*Sqrt[a +
 b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(8*b^(7/2)*Sqrt[d])
```

Rubi [A] time = 0.166353, antiderivative size = 148, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.158

$$\frac{5(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8b^{7/2}\sqrt{d}}+\frac{5\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^2}{8b^3}+\frac{5\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)}{12b^2}+\frac{\sqrt{a+bx}(c+dx)^{5/2}}{3b}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^(5/2)/Sqrt[a + b*x],x]
```

```
[Out] (5*(b*c - a*d)^2*Sqrt[a + b*x]*Sqrt[c + d*x])/(8*b^3) + (5*(b*c -
 a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(12*b^2) + (Sqrt[a + b*x]*(c
 + d*x)^(5/2))/(3*b) + (5*(b*c - a*d)^3*ArcTanh[(Sqrt[d]*Sqrt[a +
 b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(8*b^(7/2)*Sqrt[d])
```

Rubi in Sympy [A] time = 22.1187, size = 133, normalized size = 0.9

$$\frac{\sqrt{a+bx}\,(c+dx)^{\frac{5}{2}}}{3b}-\frac{5\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}\,(ad-bc)}{12b^2}+\frac{5\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)^2}{8b^3}-\frac{5\,(ad-bc)^3\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{8b^{\frac{7}{2}}\sqrt{d}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(5/2)/(b*x+a)**(1/2),x)
```

```
[Out] sqrt(a + b*x)*(c + d*x)**(5/2)/(3*b) - 5*sqrt(a + b*x)*(c + d*x)*
*(3/2)*(a*d - b*c)/(12*b**2) + 5*sqrt(a + b*x)*sqrt(c + d*x)*(a*d
 - b*c)**2/(8*b**3) - 5*(a*d - b*c)**3*atanh(sqrt(b)*sqrt(c + d*x
)/(sqrt(d)*sqrt(a + b*x)))/(8*b**(7/2)*sqrt(d))
```

Mathematica [A] time = 0.13318, size = 137, normalized size = 0.93

$$\frac{\sqrt{a+bx}\sqrt{c+dx}\left(15a^2d^2-10abd(4c+dx)+b^2\left(33c^2+26cdx+8d^2x^2\right)\right)}{24b^3}+\frac{5(bc-ad)^3\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{16b^{7/2}\sqrt{d}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^(5/2)/Sqrt[a + b*x],x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(15*a^2*d^2 - 10*a*b*d*(4*c + d*x) +
 b^2*(33*c^2 + 26*c*d*x + 8*d^2*x^2)))/(24*b^3) + (5*(b*c - a*d)^
3*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[
c + d*x]])/(16*b^(7/2)*Sqrt[d])
```

Maple [B] time = 0.007, size = 465, normalized size = 3.1

$$\frac{1}{3b}\sqrt{bx+a}\,(dx+c)^{\frac{5}{2}} - \frac{5ad}{12b^2}\sqrt{bx+a}\,(dx+c)^{\frac{3}{2}} + \frac{5c}{12b}\sqrt{bx+a}\,(dx+c)^{\frac{3}{2}} + \frac{5a^2d^2}{8b^3}\sqrt{bx+a}\sqrt{dx+c} - \frac{5adc}{4b^2}\sqrt{bx+a}\sqrt{dx+c} + \frac{5c^2}{8b}\sqrt{bx+a}\sqrt{dx+c} - \frac{5a^3d^3}{16b^3}\sqrt{(bx+a)(dx+c)}\ln\left(1\left(\frac{ad}{2}+\frac{bc}{2}+bdx\right)\frac{1}{\sqrt{bd}}+\sqrt{dx^2b+(ad+bc)x+ac}\right)\frac{1}{\sqrt{bx+a}}\frac{1}{\sqrt{dx+c}}\frac{1}{\sqrt{bd}} + \frac{15ca^2d^2}{16b^2}\sqrt{(bx+a)(dx+c)}\ln\left(1\left(\frac{ad}{2}+\frac{bc}{2}+bdx\right)\frac{1}{\sqrt{bd}}+\sqrt{dx^2b+(ad+bc)x+ac}\right)\frac{1}{\sqrt{bx+a}}\frac{1}{\sqrt{dx+c}}\frac{1}{\sqrt{bd}} - \frac{15ac^2d}{16b}\sqrt{(bx+a)(dx+c)}\ln\left(1\left(\frac{ad}{2}+\frac{bc}{2}+bdx\right)\frac{1}{\sqrt{bd}}+\sqrt{dx^2b+(ad+bc)x+ac}\right)\frac{1}{\sqrt{bx+a}}\frac{1}{\sqrt{dx+c}}\frac{1}{\sqrt{bd}} + \frac{5c^3}{16}\sqrt{(bx+a)(dx+c)}\ln\left(1\left(\frac{ad}{2}+\frac{bc}{2}+bdx\right)\frac{1}{\sqrt{bd}}+\sqrt{dx^2b+(ad+bc)x+ac}\right)\frac{1}{\sqrt{bx+a}}\frac{1}{\sqrt{dx+c}}\frac{1}{\sqrt{bd}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(5/2)/(b*x+a)^(1/2),x)
```

```
[Out] 1/3*(d*x+c)^(5/2)*(b*x+a)^(1/2)/b-5/12/b^2*(d*x+c)^(3/2)*(b*x+a)^
(1/2)*a*d+5/12/b*(d*x+c)^(3/2)*(b*x+a)^(1/2)*c+5/8/b^3*(d*x+c)^(1
/2)*(b*x+a)^(1/2)*a^2*d^2-5/4/b^2*(d*x+c)^(1/2)*(b*x+a)^(1/2)*a*d
*c+5/8/b*(d*x+c)^(1/2)*(b*x+a)^(1/2)*c^2-5/16/b^3*((b*x+a)*(d*x+c
))^(1/2)/(d*x+c)^(1/2)/(b*x+a)^(1/2)*ln((1/2*a*d+1/2*b*c+b*d*x)/(
b*d)^(1/2)+(d*x^2*b+(a*d+b*c)*x+a*c)^(1/2))/(b*d)^(1/2)*a^3*d^3+1
5/16/b^2*((b*x+a)*(d*x+c))^(1/2)/(d*x+c)^(1/2)/(b*x+a)^(1/2)*ln((
1/2*a*d+1/2*b*c+b*d*x)/(b*d)^(1/2)+(d*x^2*b+(a*d+b*c)*x+a*c)^(1/2
))/(b*d)^(1/2)*a^2*d^2*c-15/16/b*((b*x+a)*(d*x+c))^(1/2)/(d*x+c)^
(1/2)/(b*x+a)^(1/2)*ln((1/2*a*d+1/2*b*c+b*d*x)/(b*d)^(1/2)+(d*x^2
*b+(a*d+b*c)*x+a*c)^(1/2))/(b*d)^(1/2)*a*d*c^2+5/16*((b*x+a)*(d*x
+c))^(1/2)/(d*x+c)^(1/2)/(b*x+a)^(1/2)*ln((1/2*a*d+1/2*b*c+b*d*x)
/(b*d)^(1/2)+(d*x^2*b+(a*d+b*c)*x+a*c)^(1/2))/(b*d)^(1/2)*c^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/sqrt(b*x + a),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.257658, size = 1, normalized size = 0.01

$$\left[\frac{4\left(8b^2d^2x^2+33b^2c^2-40abcd+15a^2d^2+2\left(13b^2cd-5abd^2\right)x\right)\sqrt{bd}\sqrt{bx+a}\sqrt{dx+c}-15\left(b^3c^3-3ab^2c^2d+3a^2bcd^2-\cdots\right.}{96\sqrt{bd}\cdots}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/sqrt(b*x + a),x, algorithm="fricas")
```

```
[Out] [1/96*(4*(8*b^2*d^2*x^2 + 33*b^2*c^2 - 40*a*b*c*d + 15*a^2*d^2 +
2*(13*b^2*c*d - 5*a*b*d^2)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x +
c) - 15*(b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*log(-
4*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) +
 (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*
b*d^2)*x)*sqrt(b*d)))/(sqrt(b*d)*b^3), 1/48*(2*(8*b^2*d^2*x^2 + 3
3*b^2*c^2 - 40*a*b*c*d + 15*a^2*d^2 + 2*(13*b^2*c*d - 5*a*b*d^2)*
x)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 15*(b^3*c^3 - 3*a*b^2
*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*arctan(1/2*(2*b*d*x + b*c + a*d
)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/(sqrt(-b*d)*b^3)
]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(5/2)/(b*x+a)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.274982, size = 614, normalized size = 4.15

$$-\frac{\frac{24\left(\frac{\left(b^2c-abd\right)\ln\left(\left|-\sqrt{bd}\sqrt{bx+a}+\sqrt{b^2c+(bx+a)bd-abd}\right|\right)}{\sqrt{bd}}-\sqrt{b^2c+(bx+a)bd-abd}\sqrt{bx+a}\right)c^2|b|}{b^2}-\frac{\left(\sqrt{b^2c+(bx+a)bd-abd}\sqrt{bx+a}\left(2\,(bx+a)\left(\frac{4\,(bx+a)}{b^2}+\frac{b^6cd^3-13\,ab^5}{b^7d^4}\right.\right.\right.}{}}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/sqrt(b*x + a),x, algorithm="giac")
```

```
[Out] -1/24*(24*((b^2*c - a*b*d)*ln(abs(-sqrt(b*d)*sqrt(b*x + a) + sqrt
(b^2*c + (b*x + a)*b*d - a*b*d)))/sqrt(b*d) - sqrt(b^2*c + (b*x +
 a)*b*d - a*b*d)*sqrt(b*x + a))*c^2*abs(b)/b^2 - (sqrt(b^2*c + (b
*x + a)*b*d - a*b*d)*sqrt(b*x + a)*(2*(b*x + a)*(4*(b*x + a)/b^2
+ (b^6*c*d^3 - 13*a*b^5*d^4)/(b^7*d^4)) - 3*(b^7*c^2*d^2 + 2*a*b^
6*c*d^3 - 11*a^2*b^5*d^4)/(b^7*d^4)) - 3*(b^3*c^3 + a*b^2*c^2*d +
 3*a^2*b*c*d^2 - 5*a^3*d^3)*ln(abs(-sqrt(b*d)*sqrt(b*x + a) + sqr
t(b^2*c + (b*x + a)*b*d - a*b*d)))/(sqrt(b*d)*b*d^2))*d^2*abs(b)/
b^2 - (sqrt(b^2*c + (b*x + a)*b*d - a*b*d)*sqrt(b*x + a)*(2*(b*x
+ a)/(b^4*d^2) + (b*c*d - 5*a*d^2)/(b^4*d^4)) + (b^2*c^2 + 2*a*b*
c*d - 3*a^2*d^2)*ln(abs(-sqrt(b*d)*sqrt(b*x + a) + sqrt(b^2*c + (
b*x + a)*b*d - a*b*d)))/(sqrt(b*d)*b^3*d^3))*c*d*abs(b)/b^3)/b
```

3.705 $\int \frac{(c+dx)^{5/2}}{x\sqrt{a+bx}}\,dx$

Optimal. Leaf size=171

$$\frac{\sqrt{d}\left(3a^2d^2-10abcd+15b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{5/2}}+\frac{d\sqrt{a+bx}\sqrt{c+dx}(7bc-3ad)}{4b^2}-\frac{2c^{5/2}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{a}}+\frac{d\sqrt{a+bx}(c+dx)^{3/2}}{2b}$$

```
[Out] (d*(7*b*c - 3*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*b^2) + (d*Sqrt
[a + b*x]*(c + d*x)^(3/2))/(2*b) - (2*c^(5/2)*ArcTanh[(Sqrt[c]*Sq
rt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/Sqrt[a] + (Sqrt[d]*(15*b^2
*c^2 - 10*a*b*c*d + 3*a^2*d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(S
qrt[b]*Sqrt[c + d*x])])/(4*b^(5/2))
```

Rubi [A] time = 0.482943, antiderivative size = 171, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.273

$$\frac{\sqrt{d}\left(3a^2d^2-10abcd+15b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{5/2}}+\frac{d\sqrt{a+bx}\sqrt{c+dx}(7bc-3ad)}{4b^2}-\frac{2c^{5/2}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{a}}+\frac{d\sqrt{a+bx}(c+dx)^{3/2}}{2b}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^(5/2)/(x*Sqrt[a + b*x]),x]
```

```
[Out] (d*(7*b*c - 3*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*b^2) + (d*Sqrt
[a + b*x]*(c + d*x)^(3/2))/(2*b) - (2*c^(5/2)*ArcTanh[(Sqrt[c]*Sq
rt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/Sqrt[a] + (Sqrt[d]*(15*b^2
*c^2 - 10*a*b*c*d + 3*a^2*d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(S
qrt[b]*Sqrt[c + d*x])])/(4*b^(5/2))
```

Rubi in Sympy [A] time = 45.2087, size = 162, normalized size = 0.95

$$\frac{d\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}}{2b}-\frac{d\sqrt{a+bx}\sqrt{c+dx}\,(3ad-7bc)}{4b^2}+\frac{\sqrt{d}\left(3a^2d^2-10abcd+15b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{\frac{5}{2}}}-\frac{2c^{\frac{5}{2}}\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{a}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(5/2)/x/(b*x+a)**(1/2),x)
```

```
[Out] d*sqrt(a + b*x)*(c + d*x)**(3/2)/(2*b) - d*sqrt(a + b*x)*sqrt(c +
 d*x)*(3*a*d - 7*b*c)/(4*b**2) + sqrt(d)*(3*a**2*d**2 - 10*a*b*c*
d + 15*b**2*c**2)*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c + d
*x)))/(4*b**(5/2)) - 2*c**(5/2)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt
(a)*sqrt(c + d*x)))/sqrt(a)
```

Mathematica [A] time = 0.743371, size = 190, normalized size = 1.11

$$\frac{1}{8}\left(\frac{\sqrt{d}\left(3a^2d^2-10abcd+15b^2c^2\right)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{b^{5/2}}+\frac{2d\sqrt{a+bx}\sqrt{c+dx}(-3ad+9bc+2bdx)}{b^2}-\frac{8c^{5/2}\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{\sqrt{a}}\right)+\frac{c^{5/2}\log(x)}{\sqrt{a}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^(5/2)/(x*Sqrt[a + b*x]),x]
```

```
[Out] (c^(5/2)*Log[x])/Sqrt[a] + ((2*d*Sqrt[a + b*x]*Sqrt[c + d*x]*(9*b
*c - 3*a*d + 2*b*d*x))/b^2 - (8*c^(5/2)*Log[2*a*c + b*c*x + a*d*x
 + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/Sqrt[a] + (Sqr
t[d]*(15*b^2*c^2 - 10*a*b*c*d + 3*a^2*d^2)*Log[b*c + a*d + 2*b*d*
x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/b^(5/2))/8
```

Maple [B] time = 0.03, size = 342, normalized size = 2.

$$\frac{1}{8b^2}\sqrt{bx+a}\sqrt{dx+c}\left(3\ln\left(1/2\frac{2bdx+2\sqrt{(bx+a)(dx+c)}\sqrt{bd}+ad+bc}{\sqrt{bd}}\right)a^2d^3\sqrt{ac}-10\ln\left(1/2\frac{2bdx+2\sqrt{(bx+a)(dx}}{\sqrt{bd}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(5/2)/x/(b*x+a)^(1/2),x)
```

```
[Out] 1/8*(d*x+c)^(1/2)*(b*x+a)^(1/2)*(3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*
x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^2*d^3*(a*c)^(1/2)
-10*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c
)/(b*d)^(1/2))*a*b*c*d^2*(a*c)^(1/2)+15*ln(1/2*(2*b*d*x+2*((b*x+a
)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*b^2*c^2*d*(a*c
)^(1/2)-8*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2
*a*c)/x)*b^2*c^3*(b*d)^(1/2)+4*x*b*d^2*(a*c)^(1/2)*((b*x+a)*(d*x+
c))^(1/2)*(b*d)^(1/2)-6*a*d^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)
*(b*d)^(1/2)+18*b*c*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(
1/2))/((b*x+a)*(d*x+c))^(1/2)/b^2/(b*d)^(1/2)/(a*c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/(sqrt(b*x + a)*x),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 2.75559, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/(sqrt(b*x + a)*x),x, algorithm="fricas")
```

```
[Out] [1/16*(8*b^2*c^2*sqrt(c/a)*log((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d
+ a^2*d^2)*x^2 - 4*(2*a^2*c + (a*b*c + a^2*d)*x)*sqrt(b*x + a)*sq
rt(d*x + c)*sqrt(c/a) + 8*(a*b*c^2 + a^2*c*d)*x)/x^2) + (15*b^2*c
^2 - 10*a*b*c*d + 3*a^2*d^2)*sqrt(d/b)*log(8*b^2*d^2*x^2 + b^2*c^
2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b^2*d*x + b^2*c + a*b*d)*sqrt(b*x
+ a)*sqrt(d*x + c)*sqrt(d/b) + 8*(b^2*c*d + a*b*d^2)*x) + 4*(2*b*
d^2*x + 9*b*c*d - 3*a*d^2)*sqrt(b*x + a)*sqrt(d*x + c))/b^2, 1/8*
(4*b^2*c^2*sqrt(c/a)*log((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*
d^2)*x^2 - 4*(2*a^2*c + (a*b*c + a^2*d)*x)*sqrt(b*x + a)*sqrt(d*x
 + c)*sqrt(c/a) + 8*(a*b*c^2 + a^2*c*d)*x)/x^2) + (15*b^2*c^2 - 1
0*a*b*c*d + 3*a^2*d^2)*sqrt(-d/b)*arctan(1/2*(2*b*d*x + b*c + a*d
)/(sqrt(b*x + a)*sqrt(d*x + c)*b*sqrt(-d/b))) + 2*(2*b*d^2*x + 9*
b*c*d - 3*a*d^2)*sqrt(b*x + a)*sqrt(d*x + c))/b^2, -1/16*(16*b^2*
c^2*sqrt(-c/a)*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(b*x + a)*
sqrt(d*x + c)*a*sqrt(-c/a))) - (15*b^2*c^2 - 10*a*b*c*d + 3*a^2*d
^2)*sqrt(d/b)*log(8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 +
 4*(2*b^2*d*x + b^2*c + a*b*d)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(d
/b) + 8*(b^2*c*d + a*b*d^2)*x) - 4*(2*b*d^2*x + 9*b*c*d - 3*a*d^2
)*sqrt(b*x + a)*sqrt(d*x + c))/b^2, -1/8*(8*b^2*c^2*sqrt(-c/a)*ar
ctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(b*x + a)*sqrt(d*x + c)*a*s
qrt(-c/a))) - (15*b^2*c^2 - 10*a*b*c*d + 3*a^2*d^2)*sqrt(-d/b)*ar
ctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*sqr
t(-d/b))) - 2*(2*b*d^2*x + 9*b*c*d - 3*a*d^2)*sqrt(b*x + a)*sqrt(
d*x + c))/b^2]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(c+dx)^{\frac{5}{2}}}{x\sqrt{a+bx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(5/2)/x/(b*x+a)**(1/2),x)
```

```
[Out] Integral((c + d*x)**(5/2)/(x*sqrt(a + b*x)), x)
```

GIAC/XCAS [A] time = 0.282896, size = 343, normalized size = 2.01

$$-\frac{2\sqrt{bd}c^3|b|\arctan\left(-\frac{b^2c+abd-\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2}{2\sqrt{-abcd}b}\right)}{\sqrt{-abcd}b}+\frac{1}{4}\sqrt{b^2c+(bx+a)bd-abd}\sqrt{bx+a}\left(\frac{2(bx+a)d^2|b|}{b^4}+\frac{9b^8cd^3|b|-5ab^7d^4|b|}{b^{11}d^2}\right)-\frac{\left(15\sqrt{bd}b^2c^2|b|-10\sqrt{bd}abcd|b|+3\sqrt{bd}a^2d^2|b|\right)\ln\left(\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2\right)}{8b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/(sqrt(b*x + a)*x),x, algorithm="giac")
```

```
[Out] -2*sqrt(b*d)*c^3*abs(b)*arctan(-1/2*(b^2*c + a*b*d - (sqrt(b*d)*s
qrt(b*x + a) - sqrt(b^2*c + (b*x + a)*b*d - a*b*d))^2)/(sqrt(-a*b
*c*d)*b))/(sqrt(-a*b*c*d)*b) + 1/4*sqrt(b^2*c + (b*x + a)*b*d - a
*b*d)*sqrt(b*x + a)*(2*(b*x + a)*d^2*abs(b)/b^4 + (9*b^8*c*d^3*ab
s(b) - 5*a*b^7*d^4*abs(b))/(b^11*d^2)) - 1/8*(15*sqrt(b*d)*b^2*c^
2*abs(b) - 10*sqrt(b*d)*a*b*c*d*abs(b) + 3*sqrt(b*d)*a^2*d^2*abs(
b))*ln((sqrt(b*d)*sqrt(b*x + a) - sqrt(b^2*c + (b*x + a)*b*d - a*
b*d))^2)/b^4
```

3.706 $\int \frac{(c+dx)^{5/2}}{x^2\sqrt{a+bx}}\,dx$

Optimal. Leaf size=160

$$\frac{c^{3/2}(bc-5ad)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{3/2}}+\frac{d^{3/2}(5bc-ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{3/2}}-\frac{c\sqrt{a+bx}(c+dx)^{3/2}}{ax}+\frac{d\sqrt{a+bx}\sqrt{c+dx}(ad+bc)}{ab}$$

```
[Out] (d*(b*c + a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(a*b) - (c*Sqrt[a + b
*x]*(c + d*x)^(3/2))/(a*x) + (c^(3/2)*(b*c - 5*a*d)*ArcTanh[(Sqrt
[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/a^(3/2) + (d^(3/2)*(
5*b*c - a*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*
x])])/b^(3/2)
```

Rubi [A] time = 0.511261, antiderivative size = 160, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.273

$$\frac{c^{3/2}(bc-5ad)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{3/2}}+\frac{d^{3/2}(5bc-ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{3/2}}-\frac{c\sqrt{a+bx}(c+dx)^{3/2}}{ax}+\frac{d\sqrt{a+bx}\sqrt{c+dx}(ad+bc)}{ab}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^(5/2)/(x^2*Sqrt[a + b*x]),x]
```

```
[Out] (d*(b*c + a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(a*b) - (c*Sqrt[a + b
*x]*(c + d*x)^(3/2))/(a*x) + (c^(3/2)*(b*c - 5*a*d)*ArcTanh[(Sqrt
[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/a^(3/2) + (d^(3/2)*(
5*b*c - a*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*
x])])/b^(3/2)
```

Rubi in Sympy [A] time = 51.506, size = 144, normalized size = 0.9

$$-\frac{d^{\frac{3}{2}}(ad-5bc)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{\frac{3}{2}}}-\frac{c\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}}{ax}+\frac{d\sqrt{a+bx}\sqrt{c+dx}\,(ad+bc)}{ab}-\frac{c^{\frac{3}{2}}(5ad-bc)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(5/2)/x**2/(b*x+a)**(1/2),x)
```

```
[Out] -d**(3/2)*(a*d - 5*b*c)*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt
(c + d*x)))/b**(3/2) - c*sqrt(a + b*x)*(c + d*x)**(3/2)/(a*x) + d
*sqrt(a + b*x)*sqrt(c + d*x)*(a*d + b*c)/(a*b) - c**(3/2)*(5*a*d
- b*c)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/a**(3
/2)
```

Mathematica [A] time = 0.44523, size = 192, normalized size = 1.2

$$\frac{1}{2}\left(\frac{c^{3/2}\log(x)(5ad-bc)}{a^{3/2}}+\frac{c^{3/2}(bc-5ad)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{a^{3/2}}+\frac{d^{3/2}(5bc-ad)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{b^{3/2}}+2\sqrt{a+bx}\sqrt{c+dx}\left(\frac{d^2}{b}-\frac{c^2}{ax}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^(5/2)/(x^2*Sqrt[a + b*x]),x]
```

```
[Out] (2*(d^2/b - c^2/(a*x))*Sqrt[a + b*x]*Sqrt[c + d*x] + (c^(3/2)*(-(
b*c) + 5*a*d)*Log[x])/a^(3/2) + (c^(3/2)*(b*c - 5*a*d)*Log[2*a*c
+ b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])
/a^(3/2) + (d^(3/2)*(5*b*c - a*d)*Log[b*c + a*d + 2*b*d*x + 2*Sqr
t[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/b^(3/2))/2
```

Maple [B] time = 0.029, size = 320, normalized size = 2.

$$-\frac{1}{2\,axb}\sqrt{bx+a}\sqrt{dx+c}\left(\ln\left(\frac{1}{2}\left(2\,bdx+2\,\sqrt{(bx+a)\,(dx+c)}\sqrt{bd}+ad+bc\right)\frac{1}{\sqrt{bd}}\right)xa^2d^3\sqrt{ac}-5\,\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{(bx+}}{}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(5/2)/x^2/(b*x+a)^(1/2),x)
```

```
[Out] -1/2*(d*x+c)^(1/2)*(b*x+a)^(1/2)/a*(ln(1/2*(2*b*d*x+2*((b*x+a)*(d
*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^2*d^3*(a*c)^(1
/2)-5*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b
*c)/(b*d)^(1/2))*x*a*b*c*d^2*(a*c)^(1/2)+5*ln((a*d*x+b*c*x+2*(a*c
)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x*a*b*c^2*d*(b*d)^(1/2)
-ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*
x*b^2*c^3*(b*d)^(1/2)-2*x*a*d^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/
2)*(b*d)^(1/2)+2*b*c^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*(b*d)^
(1/2))/((b*x+a)*(d*x+c))^(1/2)/x/(b*d)^(1/2)/(a*c)^(1/2)/b
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/(sqrt(b*x + a)*x^2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 1.99564, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/(sqrt(b*x + a)*x^2),x, algorithm="fricas")
```

```
[Out] [-1/4*((5*a*b*c*d - a^2*d^2)*x*sqrt(d/b)*log(8*b^2*d^2*x^2 + b^2*
c^2 + 6*a*b*c*d + a^2*d^2 - 4*(2*b^2*d*x + b^2*c + a*b*d)*sqrt(b*
x + a)*sqrt(d*x + c)*sqrt(d/b) + 8*(b^2*c*d + a*b*d^2)*x) + (b^2*
c^2 - 5*a*b*c*d)*x*sqrt(c/a)*log((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*
d + a^2*d^2)*x^2 - 4*(2*a^2*c + (a*b*c + a^2*d)*x)*sqrt(b*x + a)*
sqrt(d*x + c)*sqrt(c/a) + 8*(a*b*c^2 + a^2*c*d)*x)/x^2) - 4*(a*d^
2*x - b*c^2)*sqrt(b*x + a)*sqrt(d*x + c))/(a*b*x), 1/4*(2*(5*a*b*
c*d - a^2*d^2)*x*sqrt(-d/b)*arctan(1/2*(2*b*d*x + b*c + a*d)/(sqr
t(b*x + a)*sqrt(d*x + c)*b*sqrt(-d/b))) - (b^2*c^2 - 5*a*b*c*d)*x
*sqrt(c/a)*log((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 -
 4*(2*a^2*c + (a*b*c + a^2*d)*x)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt
(c/a) + 8*(a*b*c^2 + a^2*c*d)*x)/x^2) + 4*(a*d^2*x - b*c^2)*sqrt(
b*x + a)*sqrt(d*x + c))/(a*b*x), 1/4*(2*(b^2*c^2 - 5*a*b*c*d)*x*s
qrt(-c/a)*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(b*x + a)*sqrt(
d*x + c)*a*sqrt(-c/a))) - (5*a*b*c*d - a^2*d^2)*x*sqrt(d/b)*log(8
*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 - 4*(2*b^2*d*x + b^2
*c + a*b*d)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(d/b) + 8*(b^2*c*d +
a*b*d^2)*x) + 4*(a*d^2*x - b*c^2)*sqrt(b*x + a)*sqrt(d*x + c))/(a
*b*x), 1/2*((b^2*c^2 - 5*a*b*c*d)*x*sqrt(-c/a)*arctan(1/2*(2*a*c
+ (b*c + a*d)*x)/(sqrt(b*x + a)*sqrt(d*x + c)*a*sqrt(-c/a))) + (5
*a*b*c*d - a^2*d^2)*x*sqrt(-d/b)*arctan(1/2*(2*b*d*x + b*c + a*d)
/(sqrt(b*x + a)*sqrt(d*x + c)*b*sqrt(-d/b))) + 2*(a*d^2*x - b*c^2
)*sqrt(b*x + a)*sqrt(d*x + c))/(a*b*x)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(5/2)/x**2/(b*x+a)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.62561, size = 4, normalized size = 0.02

$$sage_0 x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/(sqrt(b*x + a)*x^2),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.707 $\int \frac{(c+dx)^{5/2}}{x^3\sqrt{a+bx}}\,dx$

Optimal. Leaf size=177

$$\frac{c\sqrt{a+bx}\sqrt{c+dx}(3bc-7ad)}{4a^2x}-\frac{\sqrt{c}\left(15a^2d^2-10abcd+3b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{5/2}}+\frac{2d^{5/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{b}}-\frac{c\sqrt{a+bx}(c+dx)^{3/2}}{2ax^2}$$

```
[Out] (c*(3*b*c - 7*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*a^2*x) - (c*Sq
rt[a + b*x]*(c + d*x)^(3/2))/(2*a*x^2) - (Sqrt[c]*(3*b^2*c^2 - 10
*a*b*c*d + 15*a^2*d^2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*S
qrt[c + d*x])])/(4*a^(5/2)) + (2*d^(5/2)*ArcTanh[(Sqrt[d]*Sqrt[a
+ b*x])/(Sqrt[b]*Sqrt[c + d*x])])/Sqrt[b]
```

Rubi [A] time = 0.449387, antiderivative size = 177, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.273

$$\frac{c\sqrt{a+bx}\sqrt{c+dx}(3bc-7ad)}{4a^2x}-\frac{\sqrt{c}\left(15a^2d^2-10abcd+3b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{5/2}}+\frac{2d^{5/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{b}}-\frac{c\sqrt{a+bx}(c+dx)^{3/2}}{2ax^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^(5/2)/(x^3*Sqrt[a + b*x]),x]
```

```
[Out] (c*(3*b*c - 7*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*a^2*x) - (c*Sq
rt[a + b*x]*(c + d*x)^(3/2))/(2*a*x^2) - (Sqrt[c]*(3*b^2*c^2 - 10
*a*b*c*d + 15*a^2*d^2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*S
qrt[c + d*x])])/(4*a^(5/2)) + (2*d^(5/2)*ArcTanh[(Sqrt[d]*Sqrt[a
+ b*x])/(Sqrt[b]*Sqrt[c + d*x])])/Sqrt[b]
```

Rubi in Sympy [A] time = 45.2708, size = 167, normalized size = 0.94

$$\frac{2d^{\frac{5}{2}}\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{b}}-\frac{c\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}}{2ax^2}-\frac{c\sqrt{a+bx}\sqrt{c+dx}\,(7ad-3bc)}{4a^2x}-\frac{\sqrt{c}\left(15a^2d^2-10abcd+3b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(5/2)/x**3/(b*x+a)**(1/2),x)
```

```
[Out] 2*d**(5/2)*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c + d*x)))/s
qrt(b) - c*sqrt(a + b*x)*(c + d*x)**(3/2)/(2*a*x**2) - c*sqrt(a +
 b*x)*sqrt(c + d*x)*(7*a*d - 3*b*c)/(4*a**2*x) - sqrt(c)*(15*a**2
*d**2 - 10*a*b*c*d + 3*b**2*c**2)*atanh(sqrt(c)*sqrt(a + b*x)/(sq
rt(a)*sqrt(c + d*x)))/(4*a**(5/2))
```

Mathematica [A] time = 0.850479, size = 216, normalized size = 1.22

$$\frac{1}{8}\left(-\frac{2c\sqrt{a+bx}\sqrt{c+dx}(2ac+9adx-3bcx)}{a^2x^2}+\frac{\sqrt{c}\log(x)\left(15a^2d^2-10abcd+3b^2c^2\right)}{a^{5/2}}+\frac{\sqrt{c}\left(-15a^2d^2+10abcd-3b^2c^2\right)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{a^{5/2}}+\frac{8d^{5/2}\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{\sqrt{b}}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^(5/2)/(x^3*Sqrt[a + b*x]),x]
```

```
[Out] ((-2*c*Sqrt[a + b*x]*Sqrt[c + d*x]*(2*a*c - 3*b*c*x + 9*a*d*x))/(
a^2*x^2) + (Sqrt[c]*(3*b^2*c^2 - 10*a*b*c*d + 15*a^2*d^2)*Log[x])
/a^(5/2) + (Sqrt[c]*(-3*b^2*c^2 + 10*a*b*c*d - 15*a^2*d^2)*Log[2*
a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*
x]])/a^(5/2) + (8*d^(5/2)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqr
t[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/Sqrt[b])/8
```

Maple [B] time = 0.033, size = 354, normalized size = 2.

$$\frac{1}{8\,a^2x^2}\sqrt{bx+a}\sqrt{dx+c}\left(8\,\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{(bx+a)\,(dx+c)}\sqrt{bd}+ad+bc}{\sqrt{bd}}\right)x^2a^2d^3\sqrt{ac}-15\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx}}{x}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(5/2)/x^3/(b*x+a)^(1/2),x)
```

```
[Out] 1/8*(d*x+c)^(1/2)*(b*x+a)^(1/2)/a^2*(8*ln(1/2*(2*b*d*x+2*((b*x+a)
*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a^2*d^3*(a*
c)^(1/2)-15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)
+2*a*c)/x)*x^2*a^2*c*d^2*(b*d)^(1/2)+10*ln((a*d*x+b*c*x+2*(a*c)^(
1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a*b*c^2*d*(b*d)^(1/2)-
3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)
*x^2*b^2*c^3*(b*d)^(1/2)-18*x*a*c*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))
^(1/2)*(b*d)^(1/2)+6*x*b*c^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*
(b*d)^(1/2)-4*a*c^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/
2))/((b*x+a)*(d*x+c))^(1/2)/(b*d)^(1/2)/(a*c)^(1/2)/x^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)^(5/2)/(sqrt(b*x + a)*x^3),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 1.69528, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/(sqrt(b*x + a)*x^3),x, algorithm="fricas")
```

```
[Out] [1/16*(8*a^2*d^2*x^2*sqrt(d/b)*log(8*b^2*d^2*x^2 + b^2*c^2 + 6*a*
b*c*d + a^2*d^2 + 4*(2*b^2*d*x + b^2*c + a*b*d)*sqrt(b*x + a)*sqr
t(d*x + c)*sqrt(d/b) + 8*(b^2*c*d + a*b*d^2)*x) + (3*b^2*c^2 - 10
*a*b*c*d + 15*a^2*d^2)*x^2*sqrt(c/a)*log((8*a^2*c^2 + (b^2*c^2 +
6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a^2*c + (a*b*c + a^2*d)*x)*sqrt(b
*x + a)*sqrt(d*x + c)*sqrt(c/a) + 8*(a*b*c^2 + a^2*c*d)*x)/x^2) -
 4*(2*a*c^2 - 3*(b*c^2 - 3*a*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c))
/(a^2*x^2), 1/16*(16*a^2*d^2*x^2*sqrt(-d/b)*arctan(1/2*(2*b*d*x +
 b*c + a*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*sqrt(-d/b))) + (3*b^2*
c^2 - 10*a*b*c*d + 15*a^2*d^2)*x^2*sqrt(c/a)*log((8*a^2*c^2 + (b^
2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a^2*c + (a*b*c + a^2*d)*x
)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(c/a) + 8*(a*b*c^2 + a^2*c*d)*x
)/x^2) - 4*(2*a*c^2 - 3*(b*c^2 - 3*a*c*d)*x)*sqrt(b*x + a)*sqrt(d
*x + c))/(a^2*x^2), 1/8*(4*a^2*d^2*x^2*sqrt(d/b)*log(8*b^2*d^2*x^
2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b^2*d*x + b^2*c + a*b*d)
*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(d/b) + 8*(b^2*c*d + a*b*d^2)*x)
 - (3*b^2*c^2 - 10*a*b*c*d + 15*a^2*d^2)*x^2*sqrt(-c/a)*arctan(1/
2*(2*a*c + (b*c + a*d)*x)/(sqrt(b*x + a)*sqrt(d*x + c)*a*sqrt(-c/
a))) - 2*(2*a*c^2 - 3*(b*c^2 - 3*a*c*d)*x)*sqrt(b*x + a)*sqrt(d*x
 + c))/(a^2*x^2), 1/8*(8*a^2*d^2*x^2*sqrt(-d/b)*arctan(1/2*(2*b*d
*x + b*c + a*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*sqrt(-d/b))) - (3*
b^2*c^2 - 10*a*b*c*d + 15*a^2*d^2)*x^2*sqrt(-c/a)*arctan(1/2*(2*a
*c + (b*c + a*d)*x)/(sqrt(b*x + a)*sqrt(d*x + c)*a*sqrt(-c/a))) -
 2*(2*a*c^2 - 3*(b*c^2 - 3*a*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c))
/(a^2*x^2)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(5/2)/x**3/(b*x+a)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.646393, size = 4, normalized size = 0.02

$$sage_0 x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/(sqrt(b*x + a)*x^3),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.708 $\int \frac{(c+dx)^{5/2}}{x^4\sqrt{a+bx}}\,dx$

Optimal. Leaf size=157

$$\frac{5(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{7/2}\sqrt{c}}-\frac{5\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^2}{8a^3x}+\frac{5\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)}{12a^2x^2}-\frac{\sqrt{a+bx}(c+dx)^{5/2}}{3ax^3}$$

```
[Out] (-5*(b*c - a*d)^2*Sqrt[a + b*x]*Sqrt[c + d*x])/(8*a^3*x) + (5*(b*
c - a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(12*a^2*x^2) - (Sqrt[a +
b*x]*(c + d*x)^(5/2))/(3*a*x^3) + (5*(b*c - a*d)^3*ArcTanh[(Sqrt[
c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(8*a^(7/2)*Sqrt[c])
```

Rubi [A] time = 0.307965, antiderivative size = 157, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.136

$$\frac{5(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{7/2}\sqrt{c}}-\frac{5\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^2}{8a^3x}+\frac{5\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)}{12a^2x^2}-\frac{\sqrt{a+bx}(c+dx)^{5/2}}{3ax^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^(5/2)/(x^4*Sqrt[a + b*x]),x]
```

```
[Out] (-5*(b*c - a*d)^2*Sqrt[a + b*x]*Sqrt[c + d*x])/(8*a^3*x) + (5*(b*
c - a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(12*a^2*x^2) - (Sqrt[a +
b*x]*(c + d*x)^(5/2))/(3*a*x^3) + (5*(b*c - a*d)^3*ArcTanh[(Sqrt[
c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(8*a^(7/2)*Sqrt[c])
```

Rubi in Sympy [A] time = 24.1077, size = 143, normalized size = 0.91

$$-\frac{\sqrt{a+bx}\,(c+dx)^{\frac{5}{2}}}{3ax^3}-\frac{5\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}\,(ad-bc)}{12a^2x^2}-\frac{5\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)^2}{8a^3x}-\frac{5\,(ad-bc)^3\,\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{\frac{7}{2}}\sqrt{c}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(5/2)/x**4/(b*x+a)**(1/2),x)
```

```
[Out] -sqrt(a + b*x)*(c + d*x)**(5/2)/(3*a*x**3) - 5*sqrt(a + b*x)*(c +
 d*x)**(3/2)*(a*d - b*c)/(12*a**2*x**2) - 5*sqrt(a + b*x)*sqrt(c
+ d*x)*(a*d - b*c)**2/(8*a**3*x) - 5*(a*d - b*c)**3*atanh(sqrt(c)
*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(8*a**(7/2)*sqrt(c))
```

Mathematica [A] time = 0.201565, size = 171, normalized size = 1.09

$$\frac{-2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}\left(a^2\left(8c^2+26cdx+33d^2x^2\right)-10abcx(c+4dx)+15b^2c^2x^2\right)-15x^3\log(x)(bc-ad)^3+15x^3(bc-a}{48a^{7/2}\sqrt{c}x^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^(5/2)/(x^4*Sqrt[a + b*x]),x]
```

```
[Out] (-2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]*(15*b^2*c^2*x^2 -
 10*a*b*c*x*(c + 4*d*x) + a^2*(8*c^2 + 26*c*d*x + 33*d^2*x^2)) -
15*(b*c - a*d)^3*x^3*Log[x] + 15*(b*c - a*d)^3*x^3*Log[2*a*c + b*
c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(48
*a^(7/2)*Sqrt[c]*x^3)
```

Maple [B] time = 0.036, size = 405, normalized size = 2.6

$$-\frac{1}{48\,a^3x^3}\sqrt{bx+a}\sqrt{dx+c}\left(15\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)\,(dx+c)}+2\,ac}{x}\right)x^3a^3d^3-45\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+}{x}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(5/2)/x^4/(b*x+a)^(1/2),x)
```

```
[Out] -1/48*(d*x+c)^(1/2)*(b*x+a)^(1/2)/a^3*(15*ln((a*d*x+b*c*x+2*(a*c)
^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^3*d^3-45*ln((a*d*x
+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^2*b*
c*d^2+45*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*
a*c)/x)*x^3*a*b^2*c^2*d-15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)
*(d*x+c))^(1/2)+2*a*c)/x)*x^3*b^3*c^3+66*((b*x+a)*(d*x+c))^(1/2)*
d^2*a^2*x^2*(a*c)^(1/2)-80*((b*x+a)*(d*x+c))^(1/2)*d*b*c*a*x^2*(a
*c)^(1/2)+30*((b*x+a)*(d*x+c))^(1/2)*b^2*c^2*x^2*(a*c)^(1/2)+52*(
(b*x+a)*(d*x+c))^(1/2)*d*c*a^2*x*(a*c)^(1/2)-20*((b*x+a)*(d*x+c))
^(1/2)*b*c^2*a*x*(a*c)^(1/2)+16*((b*x+a)*(d*x+c))^(1/2)*c^2*a^2*(
a*c)^(1/2))/((b*x+a)*(d*x+c))^(1/2)/(a*c)^(1/2)/x^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/(sqrt(b*x + a)*x^4),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.421454, size = 1, normalized size = 0.01

$$\left[-\frac{15\left(b^3c^3-3\,ab^2c^2d+3\,a^2bcd^2-a^3d^3\right)x^3\log\left(-\frac{4\left(2\,a^2c^2+\left(abc^2+a^2cd\right)x\right)\sqrt{bx+a}\sqrt{dx+c}-\left(8\,a^2c^2+\left(b^2c^2+6\,abcd+a^2d^2\right)x^2+8\left(abc^2+a^2cd\right)x\right.}{x^2}\right.}{96\,\sqrt{ac}a^3x^3}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/(sqrt(b*x + a)*x^4),x, algorithm="fricas")
```

```
[Out] [-1/96*(15*(b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*x^
3*log(-(4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(
d*x + c) - (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(
a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2) + 4*(8*a^2*c^2 + (15*b^2*c^
2 - 40*a*b*c*d + 33*a^2*d^2)*x^2 - 2*(5*a*b*c^2 - 13*a^2*c*d)*x)*
sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(a*c)*a^3*x^3), 1/48*
(15*(b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*x^3*arcta
n(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d*x
```

```
+ c)*a*c)) - 2*(8*a^2*c^2 + (15*b^2*c^2 - 40*a*b*c*d + 33*a^2*d^2
)*x^2 - 2*(5*a*b*c^2 - 13*a^2*c*d)*x)*sqrt(-a*c)*sqrt(b*x + a)*sq
rt(d*x + c))/(sqrt(-a*c)*a^3*x^3)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(5/2)/x**4/(b*x+a)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/(sqrt(b*x + a)*x^4),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.709 $\int \frac{(c+dx)^{5/2}}{x^5\sqrt{a+bx}}\,dx$

Optimal. Leaf size=229

$$-\frac{5(bc-ad)^3(ad+7bc)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{9/2}c^{3/2}}+\frac{5\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^2(ad+7bc)}{64a^4cx}-\frac{5\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)(ad+7bc)}{96a^3cx^2}+\frac{\sqrt{a+bx}(c+dx)^{5/2}(ad+7bc)}{24a^2cx^3}-\frac{\sqrt{a+bx}(c+dx)^{7/2}}{4acx^4}$$

```
[Out] (5*(b*c - a*d)^2*(7*b*c + a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(64*a
^4*c*x) - (5*(b*c - a*d)*(7*b*c + a*d)*Sqrt[a + b*x]*(c + d*x)^(3
/2))/(96*a^3*c*x^2) + ((7*b*c + a*d)*Sqrt[a + b*x]*(c + d*x)^(5/2
))/(24*a^2*c*x^3) - (Sqrt[a + b*x]*(c + d*x)^(7/2))/(4*a*c*x^4) -
 (5*(b*c - a*d)^3*(7*b*c + a*d)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(
Sqrt[a]*Sqrt[c + d*x])])/(64*a^(9/2)*c^(3/2))
```

Rubi [A] time = 0.427561, antiderivative size = 229, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{5(bc-ad)^3(ad+7bc)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{9/2}c^{3/2}}+\frac{5\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^2(ad+7bc)}{64a^4cx}-\frac{5\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)(ad+7bc)}{96a^3cx^2}+\frac{\sqrt{a+bx}(c+dx)^{5/2}(ad+7bc)}{24a^2cx^3}-\frac{\sqrt{a+bx}(c+dx)^{7/2}}{4acx^4}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^(5/2)/(x^5*Sqrt[a + b*x]),x]
```


```
[Out] (5*(b*c - a*d)^2*(7*b*c + a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(64*a
^4*c*x) - (5*(b*c - a*d)*(7*b*c + a*d)*Sqrt[a + b*x]*(c + d*x)^(3
/2))/(96*a^3*c*x^2) + ((7*b*c + a*d)*Sqrt[a + b*x]*(c + d*x)^(5/2
))/(24*a^2*c*x^3) - (Sqrt[a + b*x]*(c + d*x)^(7/2))/(4*a*c*x^4) -
 (5*(b*c - a*d)^3*(7*b*c + a*d)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(
Sqrt[a]*Sqrt[c + d*x])])/(64*a^(9/2)*c^(3/2))
```

Rubi in Sympy [A] time = 36.2704, size = 207, normalized size = 0.9

$$-\frac{\sqrt{a+bx}\,(c+dx)^{\frac{7}{2}}}{4acx^4}+\frac{\sqrt{a+bx}\,(c+dx)^{\frac{5}{2}}\,(ad+7bc)}{24a^2cx^3}+\frac{5\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}\,(ad-bc)\,(ad+7bc)}{96a^3cx^2}+\frac{5\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)^2\,(ad+7bc)}{64a^4cx}+\frac{5\,(ad-bc)^3\,(ad+7bc)\,\mathrm{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{\frac{9}{2}}c^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(5/2)/x**5/(b*x+a)**(1/2),x)
```

```
[Out] -sqrt(a + b*x)*(c + d*x)**(7/2)/(4*a*c*x**4) + sqrt(a + b*x)*(c +
 d*x)**(5/2)*(a*d + 7*b*c)/(24*a**2*c*x**3) + 5*sqrt(a + b*x)*(c
+ d*x)**(3/2)*(a*d - b*c)*(a*d + 7*b*c)/(96*a**3*c*x**2) + 5*sqrt
(a + b*x)*sqrt(c + d*x)*(a*d - b*c)**2*(a*d + 7*b*c)/(64*a**4*c*x
) + 5*(a*d - b*c)**3*(a*d + 7*b*c)*atanh(sqrt(c)*sqrt(a + b*x)/(s
qrt(a)*sqrt(c + d*x)))/(64*a**(9/2)*c**(3/2))
```

Mathematica [A] time = 0.274044, size = 233, normalized size = 1.02

$$-2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}\left(a^3\left(48c^3+136c^2dx+118cd^2x^2+15d^3x^3\right)-a^2bcx\left(56c^2+172cdx+191d^2x^2\right)+5ab^2c^2x^2(14c+\right.$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^(5/2)/(x^5*Sqrt[a + b*x]),x]
```

```
[Out] (-2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]*(-105*b^3*c^3*x^3
 + 5*a*b^2*c^2*x^2*(14*c + 53*d*x) - a^2*b*c*x*(56*c^2 + 172*c*d*
x + 191*d^2*x^2) + a^3*(48*c^3 + 136*c^2*d*x + 118*c*d^2*x^2 + 15
*d^3*x^3)) + 15*(b*c - a*d)^3*(7*b*c + a*d)*x^4*Log[x] - 15*(b*c
- a*d)^3*(7*b*c + a*d)*x^4*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*
Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(384*a^(9/2)*c^(3/2)*x^4)
```

Maple [B] time = 0.04, size = 593, normalized size = 2.6

$$\frac{1}{384\,a^4cx^4}\sqrt{bx+a}\sqrt{dx+c}\left(15\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)\,(dx+c)}+2\,ac}{x}\right)x^4a^4d^4+60\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+}{x}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(5/2)/x^5/(b*x+a)^(1/2),x)
```

```
[Out] 1/384*(d*x+c)^(1/2)*(b*x+a)^(1/2)/a^4/c*(15*ln((a*d*x+b*c*x+2*(a*
c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a^4*d^4+60*ln((a*d
*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a^3*
b*c*d^3-270*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)
+2*a*c)/x)*x^4*a^2*b^2*c^2*d^2+300*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*
((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a*b^3*c^3*d-105*ln((a*d*x+b
*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*b^4*c^4-
30*((b*x+a)*(d*x+c))^(1/2)*d^3*a^3*x^3*(a*c)^(1/2)+382*((b*x+a)*(
d*x+c))^(1/2)*d^2*b*c*a^2*x^3*(a*c)^(1/2)-530*((b*x+a)*(d*x+c))^(
1/2)*d*b^2*c^2*a*x^3*(a*c)^(1/2)+210*((b*x+a)*(d*x+c))^(1/2)*b^3*
c^3*x^3*(a*c)^(1/2)-236*((b*x+a)*(d*x+c))^(1/2)*d^2*c*a^3*x^2*(a*
c)^(1/2)+344*((b*x+a)*(d*x+c))^(1/2)*d*b*c^2*a^2*x^2*(a*c)^(1/2)-
140*((b*x+a)*(d*x+c))^(1/2)*b^2*c^3*a*x^2*(a*c)^(1/2)-272*((b*x+a
)*(d*x+c))^(1/2)*d*c^2*a^3*x*(a*c)^(1/2)+112*((b*x+a)*(d*x+c))^(1
/2)*b*c^3*a^2*x*(a*c)^(1/2)-96*((b*x+a)*(d*x+c))^(1/2)*c^3*a^3*(a
*c)^(1/2))/((b*x+a)*(d*x+c))^(1/2)/(a*c)^(1/2)/x^4
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/(sqrt(b*x + a)*x^5),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.786231, size = 1, normalized size = 0.

$$\left[-\frac{15\left(7\,b^4c^4-20\,ab^3c^3d+18\,a^2b^2c^2d^2-4\,a^3bcd^3-a^4d^4\right)x^4\log\left(\frac{4\left(2\,a^2c^2+\left(abc^2+a^2cd\right)x\right)\sqrt{bx+a}\sqrt{dx+c}+\left(8\,a^2c^2+\left(b^2c^2+6\,abcd+a^2d^2\right)\right.}{x^2}\right.}{}\right.$$

$$-\frac{15\left(7\,b^4c^4-20\,ab^3c^3d+18\,a^2b^2c^2d^2-4\,a^3bcd^3-a^4d^4\right)x^4\arctan\left(\frac{\left(2\,ac+(bc+ad)x\right)\sqrt{-ac}}{2\,\sqrt{bx+a}\sqrt{dx+c}ac}\right)+2\left(48\,a^3c^3-\left(105\,b^3c^3-265\,ab^2\right.\right.}{384\,\sqrt{-a}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/(sqrt(b*x + a)*x^5),x, algorithm="fricas")
```

```
[Out] [-1/768*(15*(7*b^4*c^4 - 20*a*b^3*c^3*d + 18*a^2*b^2*c^2*d^2 - 4*
a^3*b*c*d^3 - a^4*d^4)*x^4*log((4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d
)*x)*sqrt(b*x + a)*sqrt(d*x + c) + (8*a^2*c^2 + (b^2*c^2 + 6*a*b*
c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2) + 4
*(48*a^3*c^3 - (105*b^3*c^3 - 265*a*b^2*c^2*d + 191*a^2*b*c*d^2 -
 15*a^3*d^3)*x^3 + 2*(35*a*b^2*c^3 - 86*a^2*b*c^2*d + 59*a^3*c*d^
2)*x^2 - 8*(7*a^2*b*c^3 - 17*a^3*c^2*d)*x)*sqrt(a*c)*sqrt(b*x + a
)*sqrt(d*x + c))/(sqrt(a*c)*a^4*c*x^4), -1/384*(15*(7*b^4*c^4 - 2
0*a*b^3*c^3*d + 18*a^2*b^2*c^2*d^2 - 4*a^3*b*c*d^3 - a^4*d^4)*x^4
*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqr
t(d*x + c)*a*c)) + 2*(48*a^3*c^3 - (105*b^3*c^3 - 265*a*b^2*c^2*d
 + 191*a^2*b*c*d^2 - 15*a^3*d^3)*x^3 + 2*(35*a*b^2*c^3 - 86*a^2*b
*c^2*d + 59*a^3*c*d^2)*x^2 - 8*(7*a^2*b*c^3 - 17*a^3*c^2*d)*x)*sq
rt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(-a*c)*a^4*c*x^4)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(5/2)/x**5/(b*x+a)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/(sqrt(b*x + a)*x^5),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.710 $\int \frac{(c+dx)^{5/2}}{x^6\sqrt{a+bx}}\,dx$

Optimal. Leaf size=346

$$\frac{c\sqrt{a+bx}\sqrt{c+dx}(9bc-13ad)}{40a^2x^4}+\frac{(3a^2d^2+14abcd+63b^2c^2)(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{128a^{11/2}c^{5/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}\,(93a^2d^2-148abcd+63b^2c^2)}{240a^3x^3}+\frac{\sqrt{a+bx}\sqrt{c+dx}\,(-15a^3d^3+481a^2bcd^2-749ab^2c^2d+315b^3c^3)}{960a^4cx^2}-\frac{\sqrt{a+bx}\sqrt{c+dx}\,(-45a^4d^4-90a^3bcd^3+1564a^2b^2c^2d^2-2310ab^3c^3d+945b^4c^4)}{1920a^5c^2x}-\frac{c\sqrt{a+bx}(c+dx)^{3/2}}{5ax^5}$$

```
[Out] (c*(9*b*c - 13*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(40*a^2*x^4) - (
(63*b^2*c^2 - 148*a*b*c*d + 93*a^2*d^2)*Sqrt[a + b*x]*Sqrt[c + d*
x])/(240*a^3*x^3) + ((315*b^3*c^3 - 749*a*b^2*c^2*d + 481*a^2*b*c
*d^2 - 15*a^3*d^3)*Sqrt[a + b*x]*Sqrt[c + d*x])/(960*a^4*c*x^2) -
 ((945*b^4*c^4 - 2310*a*b^3*c^3*d + 1564*a^2*b^2*c^2*d^2 - 90*a^3
*b*c*d^3 - 45*a^4*d^4)*Sqrt[a + b*x]*Sqrt[c + d*x])/(1920*a^5*c^2
*x) - (c*Sqrt[a + b*x]*(c + d*x)^(3/2))/(5*a*x^5) + ((b*c - a*d)^
3*(63*b^2*c^2 + 14*a*b*c*d + 3*a^2*d^2)*ArcTanh[(Sqrt[c]*Sqrt[a +
 b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(128*a^(11/2)*c^(5/2))
```

Rubi [A] time = 1.18717, antiderivative size = 346, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.273

$$\frac{c\sqrt{a+bx}\sqrt{c+dx}(9bc-13ad)}{40a^2x^4}+\frac{(3a^2d^2+14abcd+63b^2c^2)(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{128a^{11/2}c^{5/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}\,(93a^2d^2-148abcd+63b^2c^2)}{240a^3x^3}+\frac{\sqrt{a+bx}\sqrt{c+dx}\,(-15a^3d^3+481a^2bcd^2-749ab^2c^2d+315b^3c^3)}{960a^4cx^2}-\frac{\sqrt{a+bx}\sqrt{c+dx}\,(-45a^4d^4-90a^3bcd^3+1564a^2b^2c^2d^2-2310ab^3c^3d+945b^4c^4)}{1920a^5c^2x}-\frac{c\sqrt{a+bx}(c+dx)^{3/2}}{5ax^5}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^(5/2)/(x^6*Sqrt[a + b*x]),x]
```


```
[Out] (c*(9*b*c - 13*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(40*a^2*x^4) - (
(63*b^2*c^2 - 148*a*b*c*d + 93*a^2*d^2)*Sqrt[a + b*x]*Sqrt[c + d*
x])/(240*a^3*x^3) + ((315*b^3*c^3 - 749*a*b^2*c^2*d + 481*a^2*b*c
*d^2 - 15*a^3*d^3)*Sqrt[a + b*x]*Sqrt[c + d*x])/(960*a^4*c*x^2) -
 ((945*b^4*c^4 - 2310*a*b^3*c^3*d + 1564*a^2*b^2*c^2*d^2 - 90*a^3
*b*c*d^3 - 45*a^4*d^4)*Sqrt[a + b*x]*Sqrt[c + d*x])/(1920*a^5*c^2
*x) - (c*Sqrt[a + b*x]*(c + d*x)^(3/2))/(5*a*x^5) + ((b*c - a*d)^
3*(63*b^2*c^2 + 14*a*b*c*d + 3*a^2*d^2)*ArcTanh[(Sqrt[c]*Sqrt[a +
 b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(128*a^(11/2)*c^(5/2))
```

Rubi in Sympy [A] time = 143.114, size = 338, normalized size = 0.98

$$-\frac{c\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}}{5ax^5}-\frac{c\sqrt{a+bx}\sqrt{c+dx}\,(13ad-9bc)}{40a^2x^4}-\frac{\sqrt{a+bx}\sqrt{c+dx}\,(93a^2d^2-148abcd+63b^2c^2)}{240a^3x^3}-\frac{\sqrt{a+bx}\sqrt{c+dx}\,(15a^3d^3-481a^2bcd^2+749ab^2c^2d-315b^3c^3)}{960a^4cx^2}+\frac{\sqrt{a+bx}\sqrt{c+dx}\,(45a^4d^4+90a^3bcd^3-1564a^2b^2c^2d^2+2310ab^3c^3d-945b^4c^4)}{1920a^5c^2x}-\frac{(ad-bc)^3\,(3a^2d^2+14abcd+63b^2c^2)\,\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{128a^{\frac{11}{2}}c^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(5/2)/x**6/(b*x+a)**(1/2),x)
```

```
[Out] -c*sqrt(a + b*x)*(c + d*x)**(3/2)/(5*a*x**5) - c*sqrt(a + b*x)*sq
rt(c + d*x)*(13*a*d - 9*b*c)/(40*a**2*x**4) - sqrt(a + b*x)*sqrt(
c + d*x)*(93*a**2*d**2 - 148*a*b*c*d + 63*b**2*c**2)/(240*a**3*x*
*3) - sqrt(a + b*x)*sqrt(c + d*x)*(15*a**3*d**3 - 481*a**2*b*c*d*
*2 + 749*a*b**2*c**2*d - 315*b**3*c**3)/(960*a**4*c*x**2) + sqrt(
a + b*x)*sqrt(c + d*x)*(45*a**4*d**4 + 90*a**3*b*c*d**3 - 1564*a*
*2*b**2*c**2*d**2 + 2310*a*b**3*c**3*d - 945*b**4*c**4)/(1920*a**
5*c**2*x) - (a*d - b*c)**3*(3*a**2*d**2 + 14*a*b*c*d + 63*b**2*c*
*2)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(128*a**
(11/2)*c**(5/2))
```

Mathematica [A] time = 0.37773, size = 319, normalized size = 0.92

$$-15x^5\log(x)(bc-ad)^3\left(3a^2d^2+14abcd+63b^2c^2\right)+15x^5(bc-ad)^3\left(3a^2d^2+14abcd+63b^2c^2\right)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+d\right.$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^(5/2)/(x^6*Sqrt[a + b*x]),x]
```

```
[Out] (-2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]*(945*b^4*c^4*x^4
- 210*a*b^3*c^3*x^3*(3*c + 11*d*x) + 2*a^2*b^2*c^2*x^2*(252*c^2 +
 749*c*d*x + 782*d^2*x^2) - 2*a^3*b*c*x*(216*c^3 + 592*c^2*d*x +
481*c*d^2*x^2 + 45*d^3*x^3) + 3*a^4*(128*c^4 + 336*c^3*d*x + 248*
c^2*d^2*x^2 + 10*c*d^3*x^3 - 15*d^4*x^4)) - 15*(b*c - a*d)^3*(63*
b^2*c^2 + 14*a*b*c*d + 3*a^2*d^2)*x^5*Log[x] + 15*(b*c - a*d)^3*(
63*b^2*c^2 + 14*a*b*c*d + 3*a^2*d^2)*x^5*Log[2*a*c + b*c*x + a*d*
x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(3840*a^(11/2
)*c^(5/2)*x^5)
```

Maple [B] time = 0.045, size = 813, normalized size = 2.4

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(5/2)/x^6/(b*x+a)^(1/2),x)
```

```
[Out] -1/3840*(d*x+c)^(1/2)*(b*x+a)^(1/2)/a^5/c^2*(45*ln((a*d*x+b*c*x+2
*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^5*a^5*d^5+75*ln(
(a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^5*
a^4*b*c*d^4+450*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(
```

```
1/2)+2*a*c)/x)*x^5*a^3*b^2*c^2*d^3-2250*ln((a*d*x+b*c*x+2*(a*c)^(
1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^5*a^2*b^3*c^3*d^2+2625*l
n((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^
5*a*b^4*c^4*d-945*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))
^(1/2)+2*a*c)/x)*x^5*b^5*c^5-90*((b*x+a)*(d*x+c))^(1/2)*d^4*a^4*x
^4*(a*c)^(1/2)-180*((b*x+a)*(d*x+c))^(1/2)*d^3*b*c*a^3*x^4*(a*c)^
(1/2)+3128*((b*x+a)*(d*x+c))^(1/2)*d^2*b^2*c^2*a^2*x^4*(a*c)^(1/2
)-4620*((b*x+a)*(d*x+c))^(1/2)*d*b^3*c^3*a*x^4*(a*c)^(1/2)+1890*c
^4*((b*x+a)*(d*x+c))^(1/2)*b^4*x^4*(a*c)^(1/2)+60*((b*x+a)*(d*x+c
))^(1/2)*d^3*c*a^4*x^3*(a*c)^(1/2)-1924*((b*x+a)*(d*x+c))^(1/2)*d
^2*b*c^2*a^3*x^3*(a*c)^(1/2)+2996*((b*x+a)*(d*x+c))^(1/2)*d*b^2*c
^3*a^2*x^3*(a*c)^(1/2)-1260*c^4*((b*x+a)*(d*x+c))^(1/2)*b^3*a*x^3
*(a*c)^(1/2)+1488*((b*x+a)*(d*x+c))^(1/2)*d^2*c^2*a^4*x^2*(a*c)^(
1/2)-2368*((b*x+a)*(d*x+c))^(1/2)*d*b*c^3*a^3*x^2*(a*c)^(1/2)+100
8*c^4*((b*x+a)*(d*x+c))^(1/2)*b^2*a^2*x^2*(a*c)^(1/2)+2016*((b*x+
a)*(d*x+c))^(1/2)*d*c^3*a^4*x*(a*c)^(1/2)-864*c^4*((b*x+a)*(d*x+c
))^(1/2)*b*a^3*x*(a*c)^(1/2)+768*c^4*((b*x+a)*(d*x+c))^(1/2)*a^4*
(a*c)^(1/2))/((b*x+a)*(d*x+c))^(1/2)/x^5/(a*c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)^(5/2)/(sqrt(b*x + a)*x^6),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 2.86083, size = 1, normalized size = 0.

$$\left[-\frac{15\left(63\,b^5c^5-175\,ab^4c^4d+150\,a^2b^3c^3d^2-30\,a^3b^2c^2d^3-5\,a^4bcd^4-3\,a^5d^5\right)x^5\log\left(-\frac{4\left(2\,a^2c^2+\left(abc^2+a^2cd\right)x\right)\sqrt{bx+a}\sqrt{dx+c}-(8\cdots}{\cdots}\right.}{\cdots}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)^(5/2)/(sqrt(b*x + a)*x^6),x, algorithm="fricas")
```

```
[Out] [-1/7680*(15*(63*b^5*c^5 - 175*a*b^4*c^4*d + 150*a^2*b^3*c^3*d^2
- 30*a^3*b^2*c^2*d^3 - 5*a^4*b*c*d^4 - 3*a^5*d^5)*x^5*log(-(4*(2*
a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c) - (8
*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2
*c*d)*x)*sqrt(a*c))/x^2) + 4*(384*a^4*c^4 + (945*b^4*c^4 - 2310*a
*b^3*c^3*d + 1564*a^2*b^2*c^2*d^2 - 90*a^3*b*c*d^3 - 45*a^4*d^4)*
x^4 - 2*(315*a*b^3*c^4 - 749*a^2*b^2*c^3*d + 481*a^3*b*c^2*d^2 -
15*a^4*c*d^3)*x^3 + 8*(63*a^2*b^2*c^4 - 148*a^3*b*c^3*d + 93*a^4*
c^2*d^2)*x^2 - 144*(3*a^3*b*c^4 - 7*a^4*c^3*d)*x)*sqrt(a*c)*sqrt(
b*x + a)*sqrt(d*x + c))/(sqrt(a*c)*a^5*c^2*x^5), 1/3840*(15*(63*b
^5*c^5 - 175*a*b^4*c^4*d + 150*a^2*b^3*c^3*d^2 - 30*a^3*b^2*c^2*d
^3 - 5*a^4*b*c*d^4 - 3*a^5*d^5)*x^5*arctan(1/2*(2*a*c + (b*c + a*
d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d*x + c)*a*c)) - 2*(384*a^4*
c^4 + (945*b^4*c^4 - 2310*a*b^3*c^3*d + 1564*a^2*b^2*c^2*d^2 - 90
*a^3*b*c*d^3 - 45*a^4*d^4)*x^4 - 2*(315*a*b^3*c^4 - 749*a^2*b^2*c
^3*d + 481*a^3*b*c^2*d^2 - 15*a^4*c*d^3)*x^3 + 8*(63*a^2*b^2*c^4
- 148*a^3*b*c^3*d + 93*a^4*c^2*d^2)*x^2 - 144*(3*a^3*b*c^4 - 7*a^
4*c^3*d)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(-a*c)*a
^5*c^2*x^5)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(5/2)/x**6/(b*x+a)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/(sqrt(b*x + a)*x^6),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.711 $\int \frac{x^4(1+x)^{3/2}}{\sqrt{1-x}}\,dx$

Optimal. Leaf size=118

$$-\frac{1}{6}\sqrt{1-x}(x+1)^{5/2}x^3-\frac{1}{15}\sqrt{1-x}(x+1)^{5/2}x^2-\frac{11}{48}\sqrt{1-x}(x+1)^{3/2}-\frac{1}{120}\sqrt{1-x}(x+1)^{5/2}(19x+18)-\frac{11}{16}\sqrt{1-x}\sqrt{x+1}+\frac{11}{16}\sin^{-1}(x)$$

```
[Out] (-11*Sqrt[1 - x]*Sqrt[1 + x])/16 - (11*Sqrt[1 - x]*(1 + x)^(3/2))
/48 - (Sqrt[1 - x]*x^2*(1 + x)^(5/2))/15 - (Sqrt[1 - x]*x^3*(1 +
x)^(5/2))/6 - (Sqrt[1 - x]*(1 + x)^(5/2)*(18 + 19*x))/120 + (11*A
rcSin[x])/16
```

Rubi [A] time = 0.157265, antiderivative size = 118, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.3

$$-\frac{1}{6}\sqrt{1-x}(x+1)^{5/2}x^3-\frac{1}{15}\sqrt{1-x}(x+1)^{5/2}x^2-\frac{11}{48}\sqrt{1-x}(x+1)^{3/2}-\frac{1}{120}\sqrt{1-x}(x+1)^{5/2}(19x+18)-\frac{11}{16}\sqrt{1-x}\sqrt{x+1}+\frac{11}{16}\sin^{-1}(x)$$

Antiderivative was successfully verified.

```
[In]  Int[(x^4*(1 + x)^(3/2))/Sqrt[1 - x],x]
```

```
[Out] (-11*Sqrt[1 - x]*Sqrt[1 + x])/16 - (11*Sqrt[1 - x]*(1 + x)^(3/2))
/48 - (Sqrt[1 - x]*x^2*(1 + x)^(5/2))/15 - (Sqrt[1 - x]*x^3*(1 +
x)^(5/2))/6 - (Sqrt[1 - x]*(1 + x)^(5/2)*(18 + 19*x))/120 + (11*A
rcSin[x])/16
```

Rubi in Sympy [A] time = 12.9892, size = 97, normalized size = 0.82

$$-\frac{x^3\sqrt{-x+1}\,(x+1)^{\frac{5}{2}}}{6}-\frac{x^2\sqrt{-x+1}\,(x+1)^{\frac{5}{2}}}{15}-\frac{\sqrt{-x+1}\,(x+1)^{\frac{5}{2}}\,(57x+54)}{360}-\frac{11\sqrt{-x+1}\,(x+1)^{\frac{3}{2}}}{48}-\frac{11\sqrt{-x+1}\sqrt{x+1}}{16}+\frac{11\,\mathrm{asin}\,(x)}{16}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**4*(1+x)**(3/2)/(1-x)**(1/2),x)
```

```
[Out] -x**3*sqrt(-x + 1)*(x + 1)**(5/2)/6 - x**2*sqrt(-x + 1)*(x + 1)**
(5/2)/15 - sqrt(-x + 1)*(x + 1)**(5/2)*(57*x + 54)/360 - 11*sqrt(
-x + 1)*(x + 1)**(3/2)/48 - 11*sqrt(-x + 1)*sqrt(x + 1)/16 + 11*a
sin(x)/16
```

Mathematica [A] time = 0.0598163, size = 59, normalized size = 0.5

$$\frac{11}{8}\sin^{-1}\left(\frac{\sqrt{x+1}}{\sqrt{2}}\right)-\frac{1}{240}\sqrt{1-x^2}\left(40x^5+96x^4+110x^3+128x^2+165x+256\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^4*(1 + x)^(3/2))/Sqrt[1 - x],x]
```

```
[Out] -(Sqrt[1 - x^2]*(256 + 165*x + 128*x^2 + 110*x^3 + 96*x^4 + 40*x^
5))/240 + (11*ArcSin[Sqrt[1 + x]/Sqrt[2]])/8
```

Maple [A] time = 0.021, size = 108, normalized size = 0.9

$$\frac{1}{240}\sqrt{1-x}\sqrt{1+x}\left(-40\,x^{5}\sqrt{-x^{2}+1}-96\,x^{4}\sqrt{-x^{2}+1}-110\,x^{3}\sqrt{-x^{2}+1}-128\,x^{2}\sqrt{-x^{2}+1}-165\,x\sqrt{-x^{2}+1}+165\,\arcsin(x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^4*(1+x)^(3/2)/(1-x)^(1/2),x)
```

```
[Out] 1/240*(1+x)^(1/2)*(1-x)^(1/2)*(-40*x^5*(-x^2+1)^(1/2)-96*x^4*(-x^
2+1)^(1/2)-110*x^3*(-x^2+1)^(1/2)-128*x^2*(-x^2+1)^(1/2)-165*x*(-
x^2+1)^(1/2)+165*arcsin(x)-256*(-x^2+1)^(1/2))/(-x^2+1)^(1/2)
```

Maxima [A] time = 1.49661, size = 113, normalized size = 0.96

$$-\frac{1}{6}\sqrt{-x^{2}+1}x^{5}-\frac{2}{5}\sqrt{-x^{2}+1}x^{4}-\frac{11}{24}\sqrt{-x^{2}+1}x^{3}-\frac{8}{15}\sqrt{-x^{2}+1}x^{2}-\frac{11}{16}\sqrt{-x^{2}+1}x-\frac{16}{15}\sqrt{-x^{2}+1}+\frac{11}{16}\arcsin(x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(3/2)*x^4/sqrt(-x + 1),x, algorithm="maxima")
```

```
[Out] -1/6*sqrt(-x^2 + 1)*x^5 - 2/5*sqrt(-x^2 + 1)*x^4 - 11/24*sqrt(-x^
2 + 1)*x^3 - 8/15*sqrt(-x^2 + 1)*x^2 - 11/16*sqrt(-x^2 + 1)*x - 1
6/15*sqrt(-x^2 + 1) + 11/16*arcsin(x)
```

Fricas [A] time = 0.213631, size = 284, normalized size = 2.41

$$\frac{240\,x^{11}+576\,x^{10}-860\,x^{9}-2880\,x^{8}-630\,x^{7}+2560\,x^{6}-510\,x^{5}+7040\,x^{3}-\left(40\,x^{11}+96\,x^{10}-610\,x^{9}-1600\,x^{8}+105\,x^{7}+\right.}{240\left(x^{6}-18\,x^{4}\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(3/2)*x^4/sqrt(-x + 1),x, algorithm="fricas")
```

```
[Out] 1/240*(240*x^11 + 576*x^10 - 860*x^9 - 2880*x^8 - 630*x^7 + 2560*
x^6 - 510*x^5 + 7040*x^3 - (40*x^11 + 96*x^10 - 610*x^9 - 1600*x^
8 + 105*x^7 + 2560*x^6 + 1030*x^5 + 4400*x^3 - 5280*x)*sqrt(x + 1
)*sqrt(-x + 1) - 330*(x^6 - 18*x^4 + 48*x^2 + 2*(3*x^4 - 16*x^2 +
 16)*sqrt(x + 1)*sqrt(-x + 1) - 32)*arctan((sqrt(x + 1)*sqrt(-x +
 1) - 1)/x) - 5280*x)/(x^6 - 18*x^4 + 48*x^2 + 2*(3*x^4 - 16*x^2
+ 16)*sqrt(x + 1)*sqrt(-x + 1) - 32)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**4*(1+x)**(3/2)/(1-x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.235303, size = 80, normalized size = 0.68

$$-\frac{1}{240}\left(\left(2\left(\left(4\left(5x-8\right)\left(x+1\right)+63\right)\left(x+1\right)-13\right)\left(x+1\right)+55\right)\left(x+1\right)+165\right)\sqrt{x+1}\sqrt{-x+1}+\frac{11}{8}\arcsin\left(\frac{1}{2}\sqrt{2}\sqrt{x+1}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(3/2)*x^4/sqrt(-x + 1),x, algorithm="giac")
```

```
[Out] -1/240*((2*((4*(5*x - 8)*(x + 1) + 63)*(x + 1) - 13)*(x + 1) + 55
)*(x + 1) + 165)*sqrt(x + 1)*sqrt(-x + 1) + 11/8*arcsin(1/2*sqrt(
2)*sqrt(x + 1))
```

3.712 $\int \frac{x^3(1+x)^{3/2}}{\sqrt{1-x}}\,dx$

Optimal. Leaf size=110

$$-\frac{1}{5}\sqrt{1-x}x^2(x+1)^{5/2} - \frac{1}{10}\sqrt{1-x}(x+1)^{7/2} - \frac{1}{10}\sqrt{1-x}(x+1)^{5/2} - \frac{1}{4}\sqrt{1-x}(x+1)^{3/2} - \frac{3}{4}\sqrt{1-x}\sqrt{x+1} + \frac{3}{4}\sin^{-1}(x)$$

```
[Out] (-3*Sqrt[1 - x]*Sqrt[1 + x])/4 - (Sqrt[1 - x]*(1 + x)^(3/2))/4 -
(Sqrt[1 - x]*(1 + x)^(5/2))/10 - (Sqrt[1 - x]*x^2*(1 + x)^(5/2))/
5 - (Sqrt[1 - x]*(1 + x)^(7/2))/10 + (3*ArcSin[x])/4
```

Rubi [A] time = 0.120356, antiderivative size = 110, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.3$

$$-\frac{1}{5}\sqrt{1-x}x^2(x+1)^{5/2} - \frac{1}{10}\sqrt{1-x}(x+1)^{7/2} - \frac{1}{10}\sqrt{1-x}(x+1)^{5/2} - \frac{1}{4}\sqrt{1-x}(x+1)^{3/2} - \frac{3}{4}\sqrt{1-x}\sqrt{x+1} + \frac{3}{4}\sin^{-1}(x)$$

Antiderivative was successfully verified.

```
[In]  Int[(x^3*(1 + x)^(3/2))/Sqrt[1 - x],x]
```

```
[Out] (-3*Sqrt[1 - x]*Sqrt[1 + x])/4 - (Sqrt[1 - x]*(1 + x)^(3/2))/4 -
(Sqrt[1 - x]*(1 + x)^(5/2))/10 - (Sqrt[1 - x]*x^2*(1 + x)^(5/2))/
5 - (Sqrt[1 - x]*(1 + x)^(7/2))/10 + (3*ArcSin[x])/4
```

Rubi in Sympy [A] time = 10.587, size = 87, normalized size = 0.79

$$-\frac{x^2\sqrt{-x+1}\,(x+1)^{\frac{5}{2}}}{5} - \frac{\sqrt{-x+1}\,(x+1)^{\frac{7}{2}}}{10} - \frac{\sqrt{-x+1}\,(x+1)^{\frac{5}{2}}}{10} - \frac{\sqrt{-x+1}\,(x+1)^{\frac{3}{2}}}{4} - \frac{3\sqrt{-x+1}\sqrt{x+1}}{4} + \frac{3\,\mathrm{asin}\,(x)}{4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3*(1+x)**(3/2)/(1-x)**(1/2),x)
```

```
[Out] -x**2*sqrt(-x + 1)*(x + 1)**(5/2)/5 - sqrt(-x + 1)*(x + 1)**(7/2)
/10 - sqrt(-x + 1)*(x + 1)**(5/2)/10 - sqrt(-x + 1)*(x + 1)**(3/2
)/4 - 3*sqrt(-x + 1)*sqrt(x + 1)/4 + 3*asin(x)/4
```

Mathematica [A] time = 0.0498716, size = 54, normalized size = 0.49

$$\frac{3}{2}\sin^{-1}\left(\frac{\sqrt{x+1}}{\sqrt{2}}\right) - \frac{1}{20}\sqrt{1-x^2}\left(4x^4+10x^3+12x^2+15x+24\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^3*(1 + x)^(3/2))/Sqrt[1 - x],x]
```

```
[Out] -(Sqrt[1 - x^2]*(24 + 15*x + 12*x^2 + 10*x^3 + 4*x^4))/20 + (3*Ar
cSin[Sqrt[1 + x]/Sqrt[2]])/2
```

Maple [A] time = 0.012, size = 94, normalized size = 0.9

$$\frac{1}{20}\sqrt{1-x}\sqrt{1+x}\left(-4x^4\sqrt{-x^2+1}-10x^3\sqrt{-x^2+1}-12x^2\sqrt{-x^2+1}-15x\sqrt{-x^2+1}+15\arcsin(x)-24\sqrt{-x^2+1}\right)\frac{1}{\sqrt{-x^2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^3*(1+x)^(3/2)/(1-x)^(1/2),x)
```

```
[Out] 1/20*(1+x)^(1/2)*(1-x)^(1/2)*(-4*x^4*(-x^2+1)^(1/2)-10*x^3*(-x^2+
1)^(1/2)-12*x^2*(-x^2+1)^(1/2)-15*x*(-x^2+1)^(1/2)+15*arcsin(x)-2
4*(-x^2+1)^(1/2))/(-x^2+1)^(1/2)
```

Maxima [A] time = 1.5149, size = 95, normalized size = 0.86

$$-\frac{1}{5}\sqrt{-x^2+1}x^4-\frac{1}{2}\sqrt{-x^2+1}x^3-\frac{3}{5}\sqrt{-x^2+1}x^2-\frac{3}{4}\sqrt{-x^2+1}x-\frac{6}{5}\sqrt{-x^2+1}+\frac{3}{4}\arcsin(x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(3/2)*x^3/sqrt(-x + 1),x, algorithm="maxima")
```

```
[Out] -1/5*sqrt(-x^2 + 1)*x^4 - 1/2*sqrt(-x^2 + 1)*x^3 - 3/5*sqrt(-x^2
+ 1)*x^2 - 3/4*sqrt(-x^2 + 1)*x - 6/5*sqrt(-x^2 + 1) + 3/4*arcsin
(x)
```

Fricas [A] time = 0.213275, size = 257, normalized size = 2.34

$$-\frac{4x^{10}+10x^9-40x^8-115x^7-20x^6+85x^5+80x^4+260x^3+5\left(4x^8+10x^7-4x^6-25x^5-16x^4-28x^3+48x\right)\sqrt{x}}{20\left(5x^4-20x^2-(x^4-12x^2+16)\sqrt{x}\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(3/2)*x^3/sqrt(-x + 1),x, algorithm="fricas")
```

```
[Out] -1/20*(4*x^10 + 10*x^9 - 40*x^8 - 115*x^7 - 20*x^6 + 85*x^5 + 80*
x^4 + 260*x^3 + 5*(4*x^8 + 10*x^7 - 4*x^6 - 25*x^5 - 16*x^4 - 28*
x^3 + 48*x)*sqrt(x + 1)*sqrt(-x + 1) + 30*(5*x^4 - 20*x^2 - (x^4
- 12*x^2 + 16)*sqrt(x + 1)*sqrt(-x + 1) + 16)*arctan((sqrt(x + 1)
*sqrt(-x + 1) - 1)/x) - 240*x)/(5*x^4 - 20*x^2 - (x^4 - 12*x^2 +
16)*sqrt(x + 1)*sqrt(-x + 1) + 16)
```

Sympy [A] time = 138.577, size = 366, normalized size = 3.33

$$-2\left(\begin{cases}-\frac{x\sqrt{-x+1}\sqrt{x+1}}{4}-\sqrt{-x+1}\sqrt{x+1}+\frac{3\operatorname{asin}\left(\frac{\sqrt{2}\sqrt{x+1}}{2}\right)}{2} & \text{for}\: x\geq -1\wedge x<1\end{cases}\right)$$
$$+6\left(\begin{cases}-\frac{3x\sqrt{-x+1}\sqrt{x+1}}{4}+\frac{(-x+1)^{\frac{3}{2}}(x+1)^{\frac{3}{2}}}{6}-2\sqrt{-x+1}\sqrt{x+1}+\frac{5\operatorname{asin}\left(\frac{\sqrt{2}\sqrt{x+1}}{2}\right)}{2} & \text{for}\: x\geq -1\wedge x<1\end{cases}\right)$$
$$-6\left(\begin{cases}-\frac{7x\sqrt{-x+1}\sqrt{x+1}}{4}+\frac{2(-x+1)^{\frac{3}{2}}(x+1)^{\frac{3}{2}}}{3}+\frac{\sqrt{-x+1}\sqrt{x+1}\left(-5x-2(x+1)^3+6(x+1)^2-4\right)}{16}-4\sqrt{-x+1}\sqrt{x+1}+\frac{35\operatorname{asin}\left(\frac{\sqrt{2}\sqrt{x+1}}{2}\right)}{8} & \text{for}\: x\geq -1\wedge\end{cases}\right.$$
$$+2\left(\begin{cases}-\frac{15x\sqrt{-x+1}\sqrt{x+1}}{4}-\frac{(-x+1)^{\frac{5}{2}}(x+1)^{\frac{5}{2}}}{10}+2(-x+1)^{\frac{3}{2}}(x+1)^{\frac{3}{2}}+\frac{5\sqrt{-x+1}\sqrt{x+1}\left(-5x-2(x+1)^3+6(x+1)^2-4\right)}{16}-8\sqrt{-x+1}\sqrt{x+1}+\frac{63\operatorname{asin}\left(\right.}{8}\end{cases}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**3*(1+x)**(3/2)/(1-x)**(1/2),x)
```

```
[Out] -2*Piecewise((-x*sqrt(-x + 1)*sqrt(x + 1)/4 - sqrt(-x + 1)*sqrt(x
 + 1) + 3*asin(sqrt(2)*sqrt(x + 1)/2)/2, (x >= -1) & (x < 1))) +
6*Piecewise((-3*x*sqrt(-x + 1)*sqrt(x + 1)/4 + (-x + 1)**(3/2)*(x
 + 1)**(3/2)/6 - 2*sqrt(-x + 1)*sqrt(x + 1) + 5*asin(sqrt(2)*sqrt
(x + 1)/2)/2, (x >= -1) & (x < 1))) - 6*Piecewise((-7*x*sqrt(-x +
 1)*sqrt(x + 1)/4 + 2*(-x + 1)**(3/2)*(x + 1)**(3/2)/3 + sqrt(-x
+ 1)*sqrt(x + 1)*(-5*x - 2*(x + 1)**3 + 6*(x + 1)**2 - 4)/16 - 4*
sqrt(-x + 1)*sqrt(x + 1) + 35*asin(sqrt(2)*sqrt(x + 1)/2)/8, (x >
= -1) & (x < 1))) + 2*Piecewise((-15*x*sqrt(-x + 1)*sqrt(x + 1)/4
 - (-x + 1)**(5/2)*(x + 1)**(5/2)/10 + 2*(-x + 1)**(3/2)*(x + 1)*
*(3/2) + 5*sqrt(-x + 1)*sqrt(x + 1)*(-5*x - 2*(x + 1)**3 + 6*(x +
 1)**2 - 4)/16 - 8*sqrt(-x + 1)*sqrt(x + 1) + 63*asin(sqrt(2)*sqr
t(x + 1)/2)/8, (x >= -1) & (x < 1)))
```

GIAC/XCAS [A] time = 0.239496, size = 70, normalized size = 0.64

$$-\frac{1}{20}\left(\left(2\left(\left(2x-1\right)(x+1)+3\right)(x+1)+5\right)(x+1)+15\right)\sqrt{x+1}\sqrt{-x+1}+\frac{3}{2}\arcsin\left(\frac{1}{2}\sqrt{2}\sqrt{x+1}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(3/2)*x^3/sqrt(-x + 1),x, algorithm="giac")
```

```
[Out] -1/20*((2*((2*x - 1)*(x + 1) + 3)*(x + 1) + 5)*(x + 1) + 15)*sqrt
(x + 1)*sqrt(-x + 1) + 3/2*arcsin(1/2*sqrt(2)*sqrt(x + 1))
```

3.713 $\int \frac{x^2(1+x)^{3/2}}{\sqrt{1-x}}\,dx$

Optimal. Leaf size=88

$$-\frac{1}{4}\sqrt{1-x}x(x+1)^{5/2}-\frac{1}{6}\sqrt{1-x}(x+1)^{5/2}-\frac{7}{24}\sqrt{1-x}(x+1)^{3/2}-\frac{7}{8}\sqrt{1-x}\sqrt{x+1}+\frac{7}{8}\sin^{-1}(x)$$

```
[Out] (-7*Sqrt[1 - x]*Sqrt[1 + x])/8 - (7*Sqrt[1 - x]*(1 + x)^(3/2))/24
 - (Sqrt[1 - x]*(1 + x)^(5/2))/6 - (Sqrt[1 - x]*x*(1 + x)^(5/2))/
4 + (7*ArcSin[x])/8
```

Rubi [A] time = 0.0931823, antiderivative size = 88, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$-\frac{1}{4}\sqrt{1-x}x(x+1)^{5/2}-\frac{1}{6}\sqrt{1-x}(x+1)^{5/2}-\frac{7}{24}\sqrt{1-x}(x+1)^{3/2}-\frac{7}{8}\sqrt{1-x}\sqrt{x+1}+\frac{7}{8}\sin^{-1}(x)$$

Antiderivative was successfully verified.

```
[In] Int[(x^2*(1 + x)^(3/2))/Sqrt[1 - x],x]
```

```
[Out] (-7*Sqrt[1 - x]*Sqrt[1 + x])/8 - (7*Sqrt[1 - x]*(1 + x)^(3/2))/24
 - (Sqrt[1 - x]*(1 + x)^(5/2))/6 - (Sqrt[1 - x]*x*(1 + x)^(5/2))/
4 + (7*ArcSin[x])/8
```

Rubi in Sympy [A] time = 8.29439, size = 71, normalized size = 0.81

$$-\frac{x\sqrt{-x+1}\,(x+1)^{\frac{5}{2}}}{4}-\frac{\sqrt{-x+1}\,(x+1)^{\frac{5}{2}}}{6}-\frac{7\sqrt{-x+1}\,(x+1)^{\frac{3}{2}}}{24}-\frac{7\sqrt{-x+1}\sqrt{x+1}}{8}+\frac{7\operatorname{asin}(x)}{8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(x**2*(1+x)**(3/2)/(1-x)**(1/2),x)
```

```
[Out] -x*sqrt(-x + 1)*(x + 1)**(5/2)/4 - sqrt(-x + 1)*(x + 1)**(5/2)/6
- 7*sqrt(-x + 1)*(x + 1)**(3/2)/24 - 7*sqrt(-x + 1)*sqrt(x + 1)/8
 + 7*asin(x)/8
```

Mathematica [A] time = 0.0403089, size = 49, normalized size = 0.56

$$\frac{7}{4}\sin^{-1}\left(\frac{\sqrt{x+1}}{\sqrt{2}}\right)-\frac{1}{24}\sqrt{1-x^2}\left(6x^3+16x^2+21x+32\right)$$

Antiderivative was successfully verified.

```
[In] Integrate[(x^2*(1 + x)^(3/2))/Sqrt[1 - x],x]
```

```
[Out] -(Sqrt[1 - x^2]*(32 + 21*x + 16*x^2 + 6*x^3))/24 + (7*ArcSin[Sqrt
[1 + x]/Sqrt[2]])/4
```

Maple [A] time = 0.013, size = 80, normalized size = 0.9

$$\frac{1}{24}\sqrt{1-x}\sqrt{1+x}\left(-6\,x^3\sqrt{-x^2+1}-16\,x^2\sqrt{-x^2+1}-21\,x\sqrt{-x^2+1}+21\,\arcsin(x)-32\,\sqrt{-x^2+1}\right)\frac{1}{\sqrt{-x^2+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(1+x)^(3/2)/(1-x)^(1/2),x)
```

```
[Out] 1/24*(1+x)^(1/2)*(1-x)^(1/2)*(-6*x^3*(-x^2+1)^(1/2)-16*x^2*(-x^2+
1)^(1/2)-21*x*(-x^2+1)^(1/2)+21*arcsin(x)-32*(-x^2+1)^(1/2))/(-x^
2+1)^(1/2)
```

Maxima [A] time = 1.5267, size = 76, normalized size = 0.86

$$-\frac{1}{4}\sqrt{-x^2+1}x^3-\frac{2}{3}\sqrt{-x^2+1}x^2-\frac{7}{8}\sqrt{-x^2+1}x-\frac{4}{3}\sqrt{-x^2+1}+\frac{7}{8}\arcsin(x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(3/2)*x^2/sqrt(-x + 1),x, algorithm="maxima")
```

```
[Out] -1/4*sqrt(-x^2 + 1)*x^3 - 2/3*sqrt(-x^2 + 1)*x^2 - 7/8*sqrt(-x^2
+ 1)*x - 4/3*sqrt(-x^2 + 1) + 7/8*arcsin(x)
```

Fricas [A] time = 0.213923, size = 211, normalized size = 2.4

$$\frac{24x^7+64x^6+12x^5-96x^4-204x^3-\left(6x^7+16x^6-27x^5-96x^4-120x^3+168x\right)\sqrt{x+1}\sqrt{-x+1}-42\left(x^4-8x^2+4\right.}{24\left(x^4-8x^2+4(x^2-2)\sqrt{x+1}\sqrt{-x+1}+8\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(3/2)*x^2/sqrt(-x + 1),x, algorithm="fricas")
```

```
[Out] 1/24*(24*x^7 + 64*x^6 + 12*x^5 - 96*x^4 - 204*x^3 - (6*x^7 + 16*x
^6 - 27*x^5 - 96*x^4 - 120*x^3 + 168*x)*sqrt(x + 1)*sqrt(-x + 1)
- 42*(x^4 - 8*x^2 + 4*(x^2 - 2)*sqrt(x + 1)*sqrt(-x + 1) + 8)*arc
tan((sqrt(x + 1)*sqrt(-x + 1) - 1)/x) + 168*x)/(x^4 - 8*x^2 + 4*(
x^2 - 2)*sqrt(x + 1)*sqrt(-x + 1) + 8)
```

Sympy [A] time = 84.4209, size = 240, normalized size = 2.73

$$2\left(\begin{cases}-\frac{x\sqrt{-x+1}\sqrt{x+1}}{4}-\sqrt{-x+1}\sqrt{x+1}+\frac{3\operatorname{asin}\left(\frac{\sqrt{2}\sqrt{x+1}}{2}\right)}{2} & \text{for}\: x\geq -1\wedge x<1\end{cases}\right)$$
$$-4\left(\begin{cases}-\frac{3x\sqrt{-x+1}\sqrt{x+1}}{4}+\frac{(-x+1)^{\frac{3}{2}}(x+1)^{\frac{3}{2}}}{6}-2\sqrt{-x+1}\sqrt{x+1}+\frac{5\operatorname{asin}\left(\frac{\sqrt{2}\sqrt{x+1}}{2}\right)}{2} & \text{for}\: x\geq -1\wedge x<1\end{cases}\right)$$
$$+2\left(\begin{cases}-\frac{7x\sqrt{-x+1}\sqrt{x+1}}{4}+\frac{2(-x+1)^{\frac{3}{2}}(x+1)^{\frac{3}{2}}}{3}+\frac{\sqrt{-x+1}\sqrt{x+1}\left(-5x-2(x+1)^3+6(x+1)^2-4\right)}{16}-4\sqrt{-x+1}\sqrt{x+1}+\frac{35\operatorname{asin}\left(\frac{\sqrt{2}\sqrt{x+1}}{2}\right)}{8} & \text{for}\: x\geq -1\wedge x\end{cases}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(1+x)**(3/2)/(1-x)**(1/2),x)
```

```
[Out] 2*Piecewise((-x*sqrt(-x + 1)*sqrt(x + 1)/4 - sqrt(-x + 1)*sqrt(x
+ 1) + 3*asin(sqrt(2)*sqrt(x + 1)/2)/2, (x >= -1) & (x < 1))) - 4
*Piecewise((-3*x*sqrt(-x + 1)*sqrt(x + 1)/4 + (-x + 1)**(3/2)*(x
+ 1)**(3/2)/6 - 2*sqrt(-x + 1)*sqrt(x + 1) + 5*asin(sqrt(2)*sqrt(
x + 1)/2)/2, (x >= -1) & (x < 1))) + 2*Piecewise((-7*x*sqrt(-x +
1)*sqrt(x + 1)/4 + 2*(-x + 1)**(3/2)*(x + 1)**(3/2)/3 + sqrt(-x +
 1)*sqrt(x + 1)*(-5*x - 2*(x + 1)**3 + 6*(x + 1)**2 - 4)/16 - 4*s
qrt(-x + 1)*sqrt(x + 1) + 35*asin(sqrt(2)*sqrt(x + 1)/2)/8, (x >=
```

```
-1) & (x < 1)))
```

GIAC/XCAS [A] time = 0.231855, size = 62, normalized size = 0.7

$$-\frac{1}{24}\left(\left(2\left(3x+2\right)(x+1)+7\right)(x+1)+21\right)\sqrt{x+1}\sqrt{-x+1}+\frac{7}{4}\arcsin\left(\frac{1}{2}\sqrt{2}\sqrt{x+1}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(3/2)*x^2/sqrt(-x + 1),x, algorithm="giac")
```

```
[Out] -1/24*((2*(3*x + 2)*(x + 1) + 7)*(x + 1) + 21)*sqrt(x + 1)*sqrt(-
x + 1) + 7/4*arcsin(1/2*sqrt(2)*sqrt(x + 1))
```

3.714 $\int \frac{x(1+x)^{3/2}}{\sqrt{1-x}} \, dx$

Optimal. Leaf size=61

$$-\frac{1}{3}\sqrt{1-x}(x+1)^{5/2}-\frac{1}{3}\sqrt{1-x}(x+1)^{3/2}-\sqrt{1-x}\sqrt{x+1}+\sin^{-1}(x)$$

```
[Out] -(Sqrt[1 - x]*Sqrt[1 + x]) - (Sqrt[1 - x]*(1 + x)^(3/2))/3 - (Sqr
t[1 - x]*(1 + x)^(5/2))/3 + ArcSin[x]
```

Rubi [A] time = 0.0578356, antiderivative size = 61, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.222

$$-\frac{1}{3}\sqrt{1-x}(x+1)^{5/2}-\frac{1}{3}\sqrt{1-x}(x+1)^{3/2}-\sqrt{1-x}\sqrt{x+1}+\sin^{-1}(x)$$

Antiderivative was successfully verified.

```
[In] Int[(x*(1 + x)^(3/2))/Sqrt[1 - x],x]
```

```
[Out] -(Sqrt[1 - x]*Sqrt[1 + x]) - (Sqrt[1 - x]*(1 + x)^(3/2))/3 - (Sqr
t[1 - x]*(1 + x)^(5/2))/3 + ArcSin[x]
```

Rubi in Sympy [A] time = 6.03356, size = 46, normalized size = 0.75

$$-\frac{\sqrt{-x+1}\,(x+1)^{\frac{5}{2}}}{3}-\frac{\sqrt{-x+1}\,(x+1)^{\frac{3}{2}}}{3}-\sqrt{-x+1}\sqrt{x+1}+\operatorname{asin}(x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(x*(1+x)**(3/2)/(1-x)**(1/2),x)
```

```
[Out] -sqrt(-x + 1)*(x + 1)**(5/2)/3 - sqrt(-x + 1)*(x + 1)**(3/2)/3 -
sqrt(-x + 1)*sqrt(x + 1) + asin(x)
```

Mathematica [A] time = 0.0270792, size = 40, normalized size = 0.66

$$2\sin^{-1}\left(\frac{\sqrt{x+1}}{\sqrt{2}}\right)-\frac{1}{3}\sqrt{1-x^2}\left(x^2+3x+5\right)$$

Antiderivative was successfully verified.

```
[In] Integrate[(x*(1 + x)^(3/2))/Sqrt[1 - x],x]
```

```
[Out] -(Sqrt[1 - x^2]*(5 + 3*x + x^2))/3 + 2*ArcSin[Sqrt[1 + x]/Sqrt[2]
]
```

Maple [A] time = 0.012, size = 66, normalized size = 1.1

$$\frac{1}{3}\sqrt{1-x}\sqrt{1+x}\left(-x^2\sqrt{-x^2+1}-3\,x\sqrt{-x^2+1}+3\,\arcsin(x)-5\,\sqrt{-x^2+1}\right)\frac{1}{\sqrt{-x^2+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(1+x)^(3/2)/(1-x)^(1/2),x)
```

```
[Out] 1/3*(1+x)^(1/2)*(1-x)^(1/2)*(-x^2*(-x^2+1)^(1/2)-3*x*(-x^2+1)^(1/
2)+3*arcsin(x)-5*(-x^2+1)^(1/2))/(-x^2+1)^(1/2)
```

Maxima [A] time = 1.50466, size = 54, normalized size = 0.89

$$-\frac{1}{3}\sqrt{-x^2+1}x^2-\sqrt{-x^2+1}x-\frac{5}{3}\sqrt{-x^2+1}+\arcsin(x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(3/2)*x/sqrt(-x + 1),x, algorithm="maxima")
```

```
[Out] -1/3*sqrt(-x^2 + 1)*x^2 - sqrt(-x^2 + 1)*x - 5/3*sqrt(-x^2 + 1) +
 arcsin(x)
```

Fricas [A] time = 0.217686, size = 177, normalized size = 2.9

$$-\frac{x^6+3x^5-15x^3-6x^2+3\left(x^4+3x^3+2x^2-4x\right)\sqrt{x+1}\sqrt{-x+1}+6\left(3x^2-\left(x^2-4\right)\sqrt{x+1}\sqrt{-x+1}-4\right)\arctan\left(\frac{\sqrt{x+1}}{}\right.}{3\left(3x^2-(x^2-4)\sqrt{x+1}\sqrt{-x+1}-4\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(3/2)*x/sqrt(-x + 1),x, algorithm="fricas")
```

```
[Out] -1/3*(x^6 + 3*x^5 - 15*x^3 - 6*x^2 + 3*(x^4 + 3*x^3 + 2*x^2 - 4*x
)*sqrt(x + 1)*sqrt(-x + 1) + 6*(3*x^2 - (x^2 - 4)*sqrt(x + 1)*sqr
t(-x + 1) - 4)*arctan((sqrt(x + 1)*sqrt(-x + 1) - 1)/x) + 12*x)/(
3*x^2 - (x^2 - 4)*sqrt(x + 1)*sqrt(-x + 1) - 4)
```

Sympy [A] time = 50.3717, size = 129, normalized size = 2.11

$$-2\left(\begin{cases}-\frac{x\sqrt{-x+1}\sqrt{x+1}}{4}-\sqrt{-x+1}\sqrt{x+1}+\frac{3\operatorname{asin}\left(\frac{\sqrt{2}\sqrt{x+1}}{2}\right)}{2} & \text{for}\: x\geq -1\wedge x<1\end{cases}\right)+2\left(\begin{cases}-\frac{3x\sqrt{-x+1}\sqrt{x+1}}{4}+\frac{(-x+1)^{\frac{3}{2}}(x+1)^{\frac{3}{2}}}{6}-2\sqrt{-x+1}\sqrt{x+1}+\frac{5\operatorname{asin}\left(\frac{\sqrt{2}\sqrt{x+1}}{2}\right)}{2} & \text{for}\: x\geq -1\wedge x<1\end{cases}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(1+x)**(3/2)/(1-x)**(1/2),x)
```

```
[Out] -2*Piecewise((-x*sqrt(-x + 1)*sqrt(x + 1)/4 - sqrt(-x + 1)*sqrt(x
 + 1) + 3*asin(sqrt(2)*sqrt(x + 1)/2)/2, (x >= -1) & (x < 1))) +
2*Piecewise((-3*x*sqrt(-x + 1)*sqrt(x + 1)/4 + (-x + 1)**(3/2)*(x
 + 1)**(3/2)/6 - 2*sqrt(-x + 1)*sqrt(x + 1) + 5*asin(sqrt(2)*sqrt
(x + 1)/2)/2, (x >= -1) & (x < 1)))
```

GIAC/XCAS [A] time = 0.224089, size = 50, normalized size = 0.82

$$-\frac{1}{3}\left((x+2)(x+1)+3\right)\sqrt{x+1}\sqrt{-x+1}+2\arcsin\left(\frac{1}{2}\sqrt{2}\sqrt{x+1}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(3/2)*x/sqrt(-x + 1),x, algorithm="giac")
```

```
[Out] -1/3*((x + 2)*(x + 1) + 3)*sqrt(x + 1)*sqrt(-x + 1) + 2*arcsin(1/
2*sqrt(2)*sqrt(x + 1))
```

3.715 $\int \frac{(1+x)^{3/2}}{\sqrt{1-x}}\,dx$

Optimal. Leaf size=47

$$-\frac{1}{2}\sqrt{1-x}(x+1)^{3/2}-\frac{3}{2}\sqrt{1-x}\sqrt{x+1}+\frac{3}{2}\sin^{-1}(x)$$

```
[Out] (-3*Sqrt[1 - x]*Sqrt[1 + x])/2 - (Sqrt[1 - x]*(1 + x)^(3/2))/2 +
(3*ArcSin[x])/2
```

Rubi [A] time = 0.0369648, antiderivative size = 47, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 17, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.176

$$-\frac{1}{2}\sqrt{1-x}(x+1)^{3/2}-\frac{3}{2}\sqrt{1-x}\sqrt{x+1}+\frac{3}{2}\sin^{-1}(x)$$

Antiderivative was successfully verified.

```
[In] Int[(1 + x)^(3/2)/Sqrt[1 - x],x]
```

```
[Out] (-3*Sqrt[1 - x]*Sqrt[1 + x])/2 - (Sqrt[1 - x]*(1 + x)^(3/2))/2 +
(3*ArcSin[x])/2
```

Rubi in Sympy [A] time = 4.80551, size = 37, normalized size = 0.79

$$-\frac{\sqrt{-x+1}\,(x+1)^{\frac{3}{2}}}{2}-\frac{3\sqrt{-x+1}\sqrt{x+1}}{2}+\frac{3\,\mathrm{asin}\,(x)}{2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1+x)**(3/2)/(1-x)**(1/2),x)
```

```
[Out] -sqrt(-x + 1)*(x + 1)**(3/2)/2 - 3*sqrt(-x + 1)*sqrt(x + 1)/2 + 3
*asin(x)/2
```

Mathematica [A] time = 0.019382, size = 35, normalized size = 0.74

$$3\sin^{-1}\left(\frac{\sqrt{x+1}}{\sqrt{2}}\right)-\frac{1}{2}(x+4)\sqrt{1-x^2}$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 + x)^(3/2)/Sqrt[1 - x],x]
```

```
[Out] -((4 + x)*Sqrt[1 - x^2])/2 + 3*ArcSin[Sqrt[1 + x]/Sqrt[2]]
```

Maple [A] time = 0.004, size = 57, normalized size = 1.2

$$-\frac{1}{2}\sqrt{1-x}\,(1+x)^{\frac{3}{2}}-\frac{3}{2}\sqrt{1-x}\sqrt{1+x}+\frac{3\,\arcsin\,(x)}{2}\sqrt{(1+x)\,(1-x)}\frac{1}{\sqrt{1-x}}\frac{1}{\sqrt{1+x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1+x)^(3/2)/(1-x)^(1/2),x)
```

```
[Out] -1/2*(1-x)^(1/2)*(1+x)^(3/2)-3/2*(1-x)^(1/2)*(1+x)^(1/2)+3/2*((1+
x)*(1-x))^(1/2)/(1+x)^(1/2)/(1-x)^(1/2)*arcsin(x)
```

Maxima [A] time = 1.48736, size = 38, normalized size = 0.81

$$-\frac{1}{2}\sqrt{-x^2+1}x - 2\sqrt{-x^2+1} + \frac{3}{2}\arcsin(x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(3/2)/sqrt(-x + 1),x, algorithm="maxima")
```

```
[Out] -1/2*sqrt(-x^2 + 1)*x - 2*sqrt(-x^2 + 1) + 3/2*arcsin(x)
```

Fricas [A] time = 0.216146, size = 140, normalized size = 2.98

$$\frac{2x^3 + 4x^2 - \left(x^3 + 4x^2 - 2x\right)\sqrt{x+1}\sqrt{-x+1} - 6\left(x^2 + 2\sqrt{x+1}\sqrt{-x+1} - 2\right)\arctan\left(\frac{\sqrt{x+1}\sqrt{-x+1}-1}{x}\right) - 2x}{2\left(x^2 + 2\sqrt{x+1}\sqrt{-x+1} - 2\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(3/2)/sqrt(-x + 1),x, algorithm="fricas")
```

```
[Out] 1/2*(2*x^3 + 4*x^2 - (x^3 + 4*x^2 - 2*x)*sqrt(x + 1)*sqrt(-x + 1)
 - 6*(x^2 + 2*sqrt(x + 1)*sqrt(-x + 1) - 2)*arctan((sqrt(x + 1)*s
qrt(-x + 1) - 1)/x) - 2*x)/(x^2 + 2*sqrt(x + 1)*sqrt(-x + 1) - 2)
```

Sympy [A] time = 12.1574, size = 136, normalized size = 2.89

$$\begin{cases} -3i\operatorname{acosh}\left(\frac{\sqrt{2}\sqrt{x+1}}{2}\right) - \frac{i(x+1)^{\frac{5}{2}}}{2\sqrt{x-1}} - \frac{i(x+1)^{\frac{3}{2}}}{2\sqrt{x-1}} + \frac{3i\sqrt{x+1}}{\sqrt{x-1}} & \text{for}\ \frac{|x+1|}{2} > 1 \\ 3\operatorname{asin}\left(\frac{\sqrt{2}\sqrt{x+1}}{2}\right) + \frac{(x+1)^{\frac{5}{2}}}{2\sqrt{-x+1}} + \frac{(x+1)^{\frac{3}{2}}}{2\sqrt{-x+1}} - \frac{3\sqrt{x+1}}{\sqrt{-x+1}} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1+x)**(3/2)/(1-x)**(1/2),x)
```

```
[Out] Piecewise((-3*I*acosh(sqrt(2)*sqrt(x + 1)/2) - I*(x + 1)**(5/2)/(
2*sqrt(x - 1)) - I*(x + 1)**(3/2)/(2*sqrt(x - 1)) + 3*I*sqrt(x +
1)/sqrt(x - 1), Abs(x + 1)/2 > 1), (3*asin(sqrt(2)*sqrt(x + 1)/2)
 + (x + 1)**(5/2)/(2*sqrt(-x + 1)) + (x + 1)**(3/2)/(2*sqrt(-x +
1)) - 3*sqrt(x + 1)/sqrt(-x + 1), True))
```

GIAC/XCAS [A] time = 0.219664, size = 42, normalized size = 0.89

$$-\frac{1}{2}(x+4)\sqrt{x+1}\sqrt{-x+1} + 3\arcsin\left(\frac{1}{2}\sqrt{2}\sqrt{x+1}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(3/2)/sqrt(-x + 1),x, algorithm="giac")
```

```
[Out] -1/2*(x + 4)*sqrt(x + 1)*sqrt(-x + 1) + 3*arcsin(1/2*sqrt(2)*sqrt
(x + 1))
```

3.716 $\int \frac{(1+x)^{3/2}}{\sqrt{1-x}x}\,dx$

Optimal. Leaf size=43

$$-\sqrt{1-x}\sqrt{x+1}+2\sin^{-1}(x)-\tanh^{-1}\left(\sqrt{1-x}\sqrt{x+1}\right)$$

```
[Out] -(Sqrt[1 - x]*Sqrt[1 + x]) + 2*ArcSin[x] - ArcTanh[Sqrt[1 - x]*Sq
rt[1 + x]]
```

Rubi [A] time = 0.101894, antiderivative size = 43, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.3

$$-\sqrt{1-x}\sqrt{x+1}+2\sin^{-1}(x)-\tanh^{-1}\left(\sqrt{1-x}\sqrt{x+1}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 + x)^(3/2)/(Sqrt[1 - x]*x),x]
```

```
[Out] -(Sqrt[1 - x]*Sqrt[1 + x]) + 2*ArcSin[x] - ArcTanh[Sqrt[1 - x]*Sq
rt[1 + x]]
```

Rubi in Sympy [A] time = 8.82229, size = 32, normalized size = 0.74

$$-\sqrt{-x+1}\sqrt{x+1}+2\,\mathrm{asin}\,(x)-\mathrm{atanh}\left(\sqrt{-x+1}\sqrt{x+1}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1+x)**(3/2)/x/(1-x)**(1/2),x)
```

```
[Out] -sqrt(-x + 1)*sqrt(x + 1) + 2*asin(x) - atanh(sqrt(-x + 1)*sqrt(x
 + 1))
```

Mathematica [B] time = 0.0408519, size = 96, normalized size = 2.23

$$-\sqrt{1-x^2}+\log\left(1-\sqrt{x+1}\right)-\log\left(\sqrt{1-x}-\sqrt{x+1}+2\right)$$
$$-\log\left(\sqrt{x+1}+1\right)+\log\left(\sqrt{1-x}+\sqrt{x+1}+2\right)+4\sin^{-1}\left(\frac{\sqrt{x+1}}{\sqrt{2}}\right)$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(1 + x)^(3/2)/(Sqrt[1 - x]*x),x]
```

```
[Out] -Sqrt[1 - x^2] + 4*ArcSin[Sqrt[1 + x]/Sqrt[2]] + Log[1 - Sqrt[1 +
 x]] - Log[2 + Sqrt[1 - x] - Sqrt[1 + x]] - Log[1 + Sqrt[1 + x]]
+ Log[2 + Sqrt[1 - x] + Sqrt[1 + x]]
```

Maple [A] time = 0.016, size = 51, normalized size = 1.2

$$1\sqrt{1-x}\sqrt{1+x}\left(-\sqrt{-x^2+1}-\mathit{Artanh}\left(\frac{1}{\sqrt{-x^2+1}}\right)+2\,\arcsin(x)\right)\frac{1}{\sqrt{-x^2+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1+x)^(3/2)/x/(1-x)^(1/2),x)
```

```
[Out] (1+x)^(1/2)*(1-x)^(1/2)/(-x^2+1)^(1/2)*(-(-x^2+1)^(1/2)-arctanh(1
/(-x^2+1)^(1/2))+2*arcsin(x))
```

Maxima [A] time = 1.50378, size = 55, normalized size = 1.28

$$-\sqrt{-x^2+1}+2\arcsin(x)-\log\left(\frac{2\sqrt{-x^2+1}}{|x|}+\frac{2}{|x|}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(3/2)/(x*sqrt(-x + 1)),x, algorithm="maxima")
```

```
[Out] -sqrt(-x^2 + 1) + 2*arcsin(x) - log(2*sqrt(-x^2 + 1)/abs(x) + 2/a
bs(x))
```

Fricas [A] time = 0.22242, size = 128, normalized size = 2.98

$$\frac{x^2-4\left(\sqrt{x+1}\sqrt{-x+1}-1\right)\arctan\left(\frac{\sqrt{x+1}\sqrt{-x+1}-1}{x}\right)+\left(\sqrt{x+1}\sqrt{-x+1}-1\right)\log\left(\frac{\sqrt{x+1}\sqrt{-x+1}-1}{x}\right)}{\sqrt{x+1}\sqrt{-x+1}-1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(3/2)/(x*sqrt(-x + 1)),x, algorithm="fricas")
```

```
[Out] (x^2 - 4*(sqrt(x + 1)*sqrt(-x + 1) - 1)*arctan((sqrt(x + 1)*sqrt(
-x + 1) - 1)/x) + (sqrt(x + 1)*sqrt(-x + 1) - 1)*log((sqrt(x + 1)
*sqrt(-x + 1) - 1)/x))/(sqrt(x + 1)*sqrt(-x + 1) - 1)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(x+1)^{\frac{3}{2}}}{x\sqrt{-x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1+x)**(3/2)/x/(1-x)**(1/2),x)
```

```
[Out] Integral((x + 1)**(3/2)/(x*sqrt(-x + 1)), x)
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(3/2)/(x*sqrt(-x + 1)),x, algorithm="giac")
```

```
[Out] Exception raised: NotImplementedError
```

3.717 $\int \frac{(1+x)^{3/2}}{\sqrt{1-x}x^2}\,dx$

Optimal. Leaf size=44

$$-\frac{\sqrt{1-x}\sqrt{x+1}}{x}+\sin^{-1}(x)-2\tanh^{-1}\left(\sqrt{1-x}\sqrt{x+1}\right)$$

```
[Out] -((Sqrt[1 - x]*Sqrt[1 + x])/x) + ArcSin[x] - 2*ArcTanh[Sqrt[1 - x
]*Sqrt[1 + x]]
```

Rubi [A] time = 0.0994702, antiderivative size = 44, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.3

$$-\frac{\sqrt{1-x}\sqrt{x+1}}{x}+\sin^{-1}(x)-2\tanh^{-1}\left(\sqrt{1-x}\sqrt{x+1}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 + x)^(3/2)/(Sqrt[1 - x]*x^2),x]
```

```
[Out] -((Sqrt[1 - x]*Sqrt[1 + x])/x) + ArcSin[x] - 2*ArcTanh[Sqrt[1 - x
]*Sqrt[1 + x]]
```

Rubi in Sympy [A] time = 8.60404, size = 34, normalized size = 0.77

$$\operatorname{asin}(x)-2\operatorname{atanh}\left(\sqrt{-x+1}\sqrt{x+1}\right)-\frac{\sqrt{-x+1}\sqrt{x+1}}{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1+x)**(3/2)/x**2/(1-x)**(1/2),x)
```

```
[Out] asin(x) - 2*atanh(sqrt(-x + 1)*sqrt(x + 1)) - sqrt(-x + 1)*sqrt(x
 + 1)/x
```

Mathematica [A] time = 0.0539123, size = 51, normalized size = 1.16

$$-\frac{\sqrt{1-x^2}}{x}-2\log\left(\sqrt{1-x^2}+1\right)+\tan^{-1}\left(\frac{x}{\sqrt{1-x^2}}\right)+2\log(x)$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(1 + x)^(3/2)/(Sqrt[1 - x]*x^2),x]
```

```
[Out] -(Sqrt[1 - x^2]/x) + ArcTan[x/Sqrt[1 - x^2]] + 2*Log[x] - 2*Log[1
 + Sqrt[1 - x^2]]
```

Maple [A] time = 0.017, size = 55, normalized size = 1.3

$$\frac{1}{x}\sqrt{1-x}\sqrt{1+x}\left(\arcsin(x)\,x-2\,\mathit{Artanh}\left(\frac{1}{\sqrt{-x^2+1}}\right)x-\sqrt{-x^2+1}\right)\frac{1}{\sqrt{-x^2+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1+x)^(3/2)/x^2/(1-x)^(1/2),x)
```

```
[Out] (1+x)^(1/2)*(1-x)^(1/2)*(arcsin(x)*x-2*arctanh(1/(-x^2+1)^(1/2))*
x-(-x^2+1)^(1/2))/x/(-x^2+1)^(1/2)
```

Maxima [A] time = 1.47844, size = 57, normalized size = 1.3

$$-\frac{\sqrt{-x^2+1}}{x}+\arcsin(x)-2\log\left(\frac{2\sqrt{-x^2+1}}{|x|}+\frac{2}{|x|}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(3/2)/(x^2*sqrt(-x + 1)),x, algorithm="maxima")
```

```
[Out] -sqrt(-x^2 + 1)/x + arcsin(x) - 2*log(2*sqrt(-x^2 + 1)/abs(x) + 2
/abs(x))
```

Fricas [A] time = 0.222333, size = 161, normalized size = 3.66

$$\frac{x^2-2\left(\sqrt{x+1}x\sqrt{-x+1}-x\right)\arctan\left(\frac{\sqrt{x+1}\sqrt{-x+1}-1}{x}\right)+2\left(\sqrt{x+1}x\sqrt{-x+1}-x\right)\log\left(\frac{\sqrt{x+1}\sqrt{-x+1}-1}{x}\right)+\sqrt{x+1}\sqrt{-x+1}-1}{\sqrt{x+1}x\sqrt{-x+1}-x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(3/2)/(x^2*sqrt(-x + 1)),x, algorithm="fricas")
```

```
[Out] (x^2 - 2*(sqrt(x + 1)*x*sqrt(-x + 1) - x)*arctan((sqrt(x + 1)*sqr
t(-x + 1) - 1)/x) + 2*(sqrt(x + 1)*x*sqrt(-x + 1) - x)*log((sqrt(
x + 1)*sqrt(-x + 1) - 1)/x) + sqrt(x + 1)*sqrt(-x + 1) - 1)/(sqrt
(x + 1)*x*sqrt(-x + 1) - x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(x+1)^{\frac{3}{2}}}{x^2\sqrt{-x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1+x)**(3/2)/x**2/(1-x)**(1/2),x)
```

```
[Out] Integral((x + 1)**(3/2)/(x**2*sqrt(-x + 1)), x)
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(3/2)/(x^2*sqrt(-x + 1)),x, algorithm="giac")
```

```
[Out] Exception raised: NotImplementedError
```

3.718 $\int \frac{(1+x)^{3/2}}{\sqrt{1-x}x^3} \, dx$

Optimal. Leaf size=69

$$-\frac{\sqrt{1-x}(x+1)^{3/2}}{2x^2}-\frac{3\sqrt{1-x}\sqrt{x+1}}{2x}-\frac{3}{2}\tanh^{-1}\left(\sqrt{1-x}\sqrt{x+1}\right)$$

```
[Out] (-3*Sqrt[1 - x]*Sqrt[1 + x])/(2*x) - (Sqrt[1 - x]*(1 + x)^(3/2))/
(2*x^2) - (3*ArcTanh[Sqrt[1 - x]*Sqrt[1 + x]])/2
```

Rubi [A] time = 0.0795779, antiderivative size = 69, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.15

$$-\frac{\sqrt{1-x}(x+1)^{3/2}}{2x^2}-\frac{3\sqrt{1-x}\sqrt{x+1}}{2x}-\frac{3}{2}\tanh^{-1}\left(\sqrt{1-x}\sqrt{x+1}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 + x)^(3/2)/(Sqrt[1 - x]*x^3),x]
```

```
[Out] (-3*Sqrt[1 - x]*Sqrt[1 + x])/(2*x) - (Sqrt[1 - x]*(1 + x)^(3/2))/
(2*x^2) - (3*ArcTanh[Sqrt[1 - x]*Sqrt[1 + x]])/2
```

Rubi in Sympy [A] time = 6.29285, size = 56, normalized size = 0.81

$$-\frac{3\,\mathrm{atanh}\left(\sqrt{-x+1}\sqrt{x+1}\right)}{2}-\frac{3\sqrt{-x+1}\sqrt{x+1}}{2x}-\frac{\sqrt{-x+1}\,(x+1)^{\frac{3}{2}}}{2x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1+x)**(3/2)/x**3/(1-x)**(1/2),x)
```

```
[Out] -3*atanh(sqrt(-x + 1)*sqrt(x + 1))/2 - 3*sqrt(-x + 1)*sqrt(x + 1)
/(2*x) - sqrt(-x + 1)*(x + 1)**(3/2)/(2*x**2)
```

Mathematica [A] time = 0.0513493, size = 46, normalized size = 0.67

$$\frac{1}{2}\left(-\frac{\sqrt{1-x^2}(4x+1)}{x^2}-3\log\left(\sqrt{1-x^2}+1\right)+3\log(x)\right)$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(1 + x)^(3/2)/(Sqrt[1 - x]*x^3),x]
```

```
[Out] (-(((1 + 4*x)*Sqrt[1 - x^2])/x^2) + 3*Log[x] - 3*Log[1 + Sqrt[1 -
 x^2]])/2
```

Maple [A] time = 0.017, size = 64, normalized size = 0.9

$$-\frac{1}{2\,x^2}\sqrt{1-x}\sqrt{1+x}\left(3\,Artanh\left(\frac{1}{\sqrt{-x^2+1}}\right)x^2+4\,x\sqrt{-x^2+1}+\sqrt{-x^2+1}\right)\frac{1}{\sqrt{-x^2+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1+x)^(3/2)/x^3/(1-x)^(1/2),x)
```

```
[Out] -1/2*(1+x)^(1/2)*(1-x)^(1/2)*(3*arctanh(1/(-x^2+1)^(1/2))*x^2+4*x
*(-x^2+1)^(1/2)+(-x^2+1)^(1/2))/x^2/(-x^2+1)^(1/2)
```

Maxima [A] time = 1.50172, size = 73, normalized size = 1.06

$$-\frac{2\sqrt{-x^2+1}}{x}-\frac{\sqrt{-x^2+1}}{2\,x^2}-\frac{3}{2}\log\left(\frac{2\sqrt{-x^2+1}}{|x|}+\frac{2}{|x|}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(3/2)/(x^3*sqrt(-x + 1)),x, algorithm="maxima")
```

```
[Out] -2*sqrt(-x^2 + 1)/x - 1/2*sqrt(-x^2 + 1)/x^2 - 3/2*log(2*sqrt(-x^
2 + 1)/abs(x) + 2/abs(x))
```

Fricas [A] time = 0.232311, size = 162, normalized size = 2.35

$$\frac{8\,x^3+2\,x^2-\left(4\,x^3+x^2-8\,x-2\right)\sqrt{x+1}\sqrt{-x+1}+3\left(x^4+2\sqrt{x+1}x^2\sqrt{-x+1}-2\,x^2\right)\log\left(\frac{\sqrt{x+1}\sqrt{-x+1}-1}{x}\right)-8\,x-2}{2\left(x^4+2\sqrt{x+1}x^2\sqrt{-x+1}-2\,x^2\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(3/2)/(x^3*sqrt(-x + 1)),x, algorithm="fricas")
```

```
[Out] 1/2*(8*x^3 + 2*x^2 - (4*x^3 + x^2 - 8*x - 2)*sqrt(x + 1)*sqrt(-x
+ 1) + 3*(x^4 + 2*sqrt(x + 1)*x^2*sqrt(-x + 1) - 2*x^2)*log((sqrt
(x + 1)*sqrt(-x + 1) - 1)/x) - 8*x - 2)/(x^4 + 2*sqrt(x + 1)*x^2*
sqrt(-x + 1) - 2*x^2)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1+x)**(3/2)/x**3/(1-x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(3/2)/(x^3*sqrt(-x + 1)),x, algorithm="giac")
```

```
[Out] Exception raised: NotImplementedError
```

3.719 $\int \frac{(1+x)^{3/2}}{\sqrt{1-x}x^4}\,dx$

Optimal. Leaf size=88

$$-\frac{\sqrt{1-x}(x+1)^{5/2}}{3x^3}-\frac{\sqrt{1-x}(x+1)^{3/2}}{3x^2}-\frac{\sqrt{1-x}\sqrt{x+1}}{x}-\tanh^{-1}\left(\sqrt{1-x}\sqrt{x+1}\right)$$

```
[Out] -((Sqrt[1 - x]*Sqrt[1 + x])/x) - (Sqrt[1 - x]*(1 + x)^(3/2))/(3*x
^2) - (Sqrt[1 - x]*(1 + x)^(5/2))/(3*x^3) - ArcTanh[Sqrt[1 - x]*S
qrt[1 + x]]
```

Rubi [A] time = 0.10995, antiderivative size = 88, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.2

$$-\frac{\sqrt{1-x}(x+1)^{5/2}}{3x^3}-\frac{\sqrt{1-x}(x+1)^{3/2}}{3x^2}-\frac{\sqrt{1-x}\sqrt{x+1}}{x}-\tanh^{-1}\left(\sqrt{1-x}\sqrt{x+1}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 + x)^(3/2)/(Sqrt[1 - x]*x^4),x]
```

```
[Out] -((Sqrt[1 - x]*Sqrt[1 + x])/x) - (Sqrt[1 - x]*(1 + x)^(3/2))/(3*x
^2) - (Sqrt[1 - x]*(1 + x)^(5/2))/(3*x^3) - ArcTanh[Sqrt[1 - x]*S
qrt[1 + x]]
```

Rubi in Sympy [A] time = 7.88908, size = 68, normalized size = 0.77

$$-\operatorname{atanh}\left(\sqrt{-x+1}\sqrt{x+1}\right)-\frac{\sqrt{-x+1}\sqrt{x+1}}{x}-\frac{\sqrt{-x+1}\,(x+1)^{\frac{3}{2}}}{3x^2}-\frac{\sqrt{-x+1}\,(x+1)^{\frac{5}{2}}}{3x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1+x)**(3/2)/x**4/(1-x)**(1/2),x)
```

```
[Out] -atanh(sqrt(-x + 1)*sqrt(x + 1)) - sqrt(-x + 1)*sqrt(x + 1)/x - s
qrt(-x + 1)*(x + 1)**(3/2)/(3*x**2) - sqrt(-x + 1)*(x + 1)**(5/2)
/(3*x**3)
```

Mathematica [A] time = 0.0596915, size = 47, normalized size = 0.53

$$-\log\left(\sqrt{1-x^2}+1\right)-\frac{\sqrt{1-x^2}\left(5x^2+3x+1\right)}{3x^3}+\log(x)$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(1 + x)^(3/2)/(Sqrt[1 - x]*x^4),x]
```

```
[Out] -(Sqrt[1 - x^2]*(1 + 3*x + 5*x^2))/(3*x^3) + Log[x] - Log[1 + Sqr
t[1 - x^2]]
```

Maple [A] time = 0.017, size = 78, normalized size = 0.9

$$-\frac{1}{3\,x^3}\sqrt{1-x}\sqrt{1+x}\left(3\,Artanh\left(\frac{1}{\sqrt{-x^2+1}}\right)x^3+5\,x^2\sqrt{-x^2+1}+3\,x\sqrt{-x^2+1}+\sqrt{-x^2+1}\right)\frac{1}{\sqrt{-x^2+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1+x)^(3/2)/x^4/(1-x)^(1/2),x)
```

```
[Out] -1/3*(1+x)^(1/2)*(1-x)^(1/2)*(3*arctanh(1/(-x^2+1)^(1/2))*x^3+5*x
^2*(-x^2+1)^(1/2)+3*x*(-x^2+1)^(1/2)+(-x^2+1)^(1/2))/x^3/(-x^2+1)
^(1/2)
```

Maxima [A] time = 1.48965, size = 92, normalized size = 1.05

$$-\frac{5\sqrt{-x^2+1}}{3\,x} - \frac{\sqrt{-x^2+1}}{x^2} - \frac{\sqrt{-x^2+1}}{3\,x^3} - \log\left(\frac{2\sqrt{-x^2+1}}{|x|} + \frac{2}{|x|}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(3/2)/(x^4*sqrt(-x + 1)),x, algorithm="maxima")
```

```
[Out] -5/3*sqrt(-x^2 + 1)/x - sqrt(-x^2 + 1)/x^2 - 1/3*sqrt(-x^2 + 1)/x
^3 - log(2*sqrt(-x^2 + 1)/abs(x) + 2/abs(x))
```

Fricas [A] time = 0.231596, size = 212, normalized size = 2.41

$$-\frac{5\,x^6 + 3\,x^5 - 24\,x^4 - 15\,x^3 + 15\,x^2 + \left(15\,x^4 + 9\,x^3 - 17\,x^2 - 12\,x - 4\right)\sqrt{x+1}\sqrt{-x+1} - 3\left(3\,x^5 - 4\,x^3 - \left(x^5 - 4\,x^3\right)\sqrt{x + \cdots}\right.}{3\left(3\,x^5 - 4\,x^3 - (x^5 - 4\,x^3)\sqrt{x+1}\sqrt{-x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(3/2)/(x^4*sqrt(-x + 1)),x, algorithm="fricas")
```

```
[Out] -1/3*(5*x^6 + 3*x^5 - 24*x^4 - 15*x^3 + 15*x^2 + (15*x^4 + 9*x^3
- 17*x^2 - 12*x - 4)*sqrt(x + 1)*sqrt(-x + 1) - 3*(3*x^5 - 4*x^3
- (x^5 - 4*x^3)*sqrt(x + 1)*sqrt(-x + 1))*log((sqrt(x + 1)*sqrt(-
x + 1) - 1)/x) + 12*x + 4)/(3*x^5 - 4*x^3 - (x^5 - 4*x^3)*sqrt(x
+ 1)*sqrt(-x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1+x)**(3/2)/x**4/(1-x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(3/2)/(x^4*sqrt(-x + 1)),x, algorithm="giac")
```

```
[Out] Exception raised: NotImplementedError
```

3.720 $\int \frac{(1+x)^{3/2}}{\sqrt{1-x}x^5} dx$

Optimal. Leaf size=115

$$-\frac{\sqrt{1-x}\sqrt{x+1}}{4x^4}-\frac{2\sqrt{1-x}\sqrt{x+1}}{3x^3}-\frac{7\sqrt{1-x}\sqrt{x+1}}{8x^2}-\frac{4\sqrt{1-x}\sqrt{x+1}}{3x}-\frac{7}{8}\tanh^{-1}\left(\sqrt{1-x}\sqrt{x+1}\right)$$

```
[Out] -(Sqrt[1 - x]*Sqrt[1 + x])/(4*x^4) - (2*Sqrt[1 - x]*Sqrt[1 + x])/
(3*x^3) - (7*Sqrt[1 - x]*Sqrt[1 + x])/(8*x^2) - (4*Sqrt[1 - x]*Sq
rt[1 + x])/(3*x) - (7*ArcTanh[Sqrt[1 - x]*Sqrt[1 + x]])/8
```

Rubi [A] time = 0.196955, antiderivative size = 115, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.25$

$$-\frac{\sqrt{1-x}\sqrt{x+1}}{4x^4}-\frac{2\sqrt{1-x}\sqrt{x+1}}{3x^3}-\frac{7\sqrt{1-x}\sqrt{x+1}}{8x^2}-\frac{4\sqrt{1-x}\sqrt{x+1}}{3x}-\frac{7}{8}\tanh^{-1}\left(\sqrt{1-x}\sqrt{x+1}\right)$$

Antiderivative was successfully verified.

```
[In] Int[(1 + x)^(3/2)/(Sqrt[1 - x]*x^5),x]
```

```
[Out] -(Sqrt[1 - x]*Sqrt[1 + x])/(4*x^4) - (2*Sqrt[1 - x]*Sqrt[1 + x])/
(3*x^3) - (7*Sqrt[1 - x]*Sqrt[1 + x])/(8*x^2) - (4*Sqrt[1 - x]*Sq
rt[1 + x])/(3*x) - (7*ArcTanh[Sqrt[1 - x]*Sqrt[1 + x]])/8
```

Rubi in Sympy [A] time = 15.2837, size = 97, normalized size = 0.84

$$-\frac{7\,\text{atanh}\left(\sqrt{-x+1}\sqrt{x+1}\right)}{8}-\frac{4\sqrt{-x+1}\sqrt{x+1}}{3x}-\frac{7\sqrt{-x+1}\sqrt{x+1}}{8x^2}-\frac{2\sqrt{-x+1}\sqrt{x+1}}{3x^3}-\frac{\sqrt{-x+1}\sqrt{x+1}}{4x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1+x)**(3/2)/x**5/(1-x)**(1/2),x)
```

```
[Out] -7*atanh(sqrt(-x + 1)*sqrt(x + 1))/8 - 4*sqrt(-x + 1)*sqrt(x + 1)
/(3*x) - 7*sqrt(-x + 1)*sqrt(x + 1)/(8*x**2) - 2*sqrt(-x + 1)*sqr
t(x + 1)/(3*x**3) - sqrt(-x + 1)*sqrt(x + 1)/(4*x**4)
```

Mathematica [A] time = 0.0712087, size = 58, normalized size = 0.5

$$-\frac{7}{8}\log\left(\sqrt{1-x^2}+1\right)-\frac{\sqrt{1-x^2}\left(32x^3+21x^2+16x+6\right)}{24x^4}+\frac{7\log(x)}{8}$$

Warning: Unable to verify antiderivative.

```
[In] Integrate[(1 + x)^(3/2)/(Sqrt[1 - x]*x^5),x]
```

```
[Out] -(Sqrt[1 - x^2]*(6 + 16*x + 21*x^2 + 32*x^3))/(24*x^4) + (7*Log[x
])/8 - (7*Log[1 + Sqrt[1 - x^2]])/8
```

Maple [A] time = 0.02, size = 94, normalized size = 0.8

$$-\frac{1}{24\,x^4}\sqrt{1-x}\sqrt{1+x}\left(21\,\mathit{Artanh}\left(\frac{1}{\sqrt{-x^2+1}}\right)x^4+32\,x^3\sqrt{-x^2+1}+21\,x^2\sqrt{-x^2+1}+16\,x\sqrt{-x^2+1}+6\,\sqrt{-x^2+1}\right)\frac{1}{\sqrt{-x^2+}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1+x)^(3/2)/x^5/(1-x)^(1/2),x)
```

```
[Out] -1/24*(1+x)^(1/2)*(1-x)^(1/2)*(21*arctanh(1/(-x^2+1)^(1/2))*x^4+3
2*x^3*(-x^2+1)^(1/2)+21*x^2*(-x^2+1)^(1/2)+16*x*(-x^2+1)^(1/2)+6*
(-x^2+1)^(1/2))/x^4/(-x^2+1)^(1/2)
```

Maxima [A] time = 1.52057, size = 111, normalized size = 0.97

$$-\frac{4\sqrt{-x^2+1}}{3x}-\frac{7\sqrt{-x^2+1}}{8x^2}-\frac{2\sqrt{-x^2+1}}{3x^3}-\frac{\sqrt{-x^2+1}}{4x^4}-\frac{7}{8}\log\left(\frac{2\sqrt{-x^2+1}}{|x|}+\frac{2}{|x|}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(3/2)/(x^5*sqrt(-x + 1)),x, algorithm="maxima")
```

```
[Out] -4/3*sqrt(-x^2 + 1)/x - 7/8*sqrt(-x^2 + 1)/x^2 - 2/3*sqrt(-x^2 +
1)/x^3 - 1/4*sqrt(-x^2 + 1)/x^4 - 7/8*log(2*sqrt(-x^2 + 1)/abs(x)
 + 2/abs(x))
```

Fricas [A] time = 0.228576, size = 248, normalized size = 2.16

$$\frac{128\,x^7+84\,x^6-320\,x^5-228\,x^4+64\,x^3+96\,x^2-\left(32\,x^7+21\,x^6-240\,x^5-162\,x^4+128\,x^3+120\,x^2+128\,x+48\right)\sqrt{x+1}\sqrt{\cdots}}{24\left(x^8-8\,x^6+8\,x^4+4\left(x^6-2\,x^4\right)\sqrt{x+\cdots}\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(3/2)/(x^5*sqrt(-x + 1)),x, algorithm="fricas")
```

```
[Out] 1/24*(128*x^7 + 84*x^6 - 320*x^5 - 228*x^4 + 64*x^3 + 96*x^2 - (3
2*x^7 + 21*x^6 - 240*x^5 - 162*x^4 + 128*x^3 + 120*x^2 + 128*x +
48)*sqrt(x + 1)*sqrt(-x + 1) + 21*(x^8 - 8*x^6 + 8*x^4 + 4*(x^6 -
 2*x^4)*sqrt(x + 1)*sqrt(-x + 1))*log((sqrt(x + 1)*sqrt(-x + 1) -
 1)/x) + 128*x + 48)/(x^8 - 8*x^6 + 8*x^4 + 4*(x^6 - 2*x^4)*sqrt(
x + 1)*sqrt(-x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1+x)**(3/2)/x**5/(1-x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(3/2)/(x^5*sqrt(-x + 1)),x, algorithm="giac")
```

```
[Out] Exception raised: NotImplementedError
```

3.721 $\int \frac{x^3}{\sqrt{a+bx}\sqrt{c+dx}}\,dx$

Optimal. Leaf size=169

$$-\frac{(ad+bc)\left(5a^2d^2-2abcd+5b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8b^{7/2}d^{7/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(15a^2d^2-10bdx(ad+bc)+14abcd+15b^2c^2\right)}{24b^3d^3}+\frac{x^2\sqrt{a+bx}\sqrt{c+dx}}{3bd}$$

```
[Out] (x^2*Sqrt[a + b*x]*Sqrt[c + d*x])/(3*b*d) + (Sqrt[a + b*x]*Sqrt[c
 + d*x]*(15*b^2*c^2 + 14*a*b*c*d + 15*a^2*d^2 - 10*b*d*(b*c + a*d
)*x))/(24*b^3*d^3) - ((b*c + a*d)*(5*b^2*c^2 - 2*a*b*c*d + 5*a^2*
d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(8
*b^(7/2)*d^(7/2))
```

Rubi [A] time = 0.316136, antiderivative size = 169, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{(ad+bc)\left(5a^2d^2-2abcd+5b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8b^{7/2}d^{7/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(15a^2d^2-10bdx(ad+bc)+14abcd+15b^2c^2\right)}{24b^3d^3}+\frac{x^2\sqrt{a+bx}\sqrt{c+dx}}{3bd}$$

Antiderivative was successfully verified.

```
[In]  Int[x^3/(Sqrt[a + b*x]*Sqrt[c + d*x]),x]
```

```
[Out] (x^2*Sqrt[a + b*x]*Sqrt[c + d*x])/(3*b*d) + (Sqrt[a + b*x]*Sqrt[c
 + d*x]*(15*b^2*c^2 + 14*a*b*c*d + 15*a^2*d^2 - 10*b*d*(b*c + a*d
)*x))/(24*b^3*d^3) - ((b*c + a*d)*(5*b^2*c^2 - 2*a*b*c*d + 5*a^2*
d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(8
*b^(7/2)*d^(7/2))
```

Rubi in Sympy [A] time = 23.5251, size = 168, normalized size = 0.99

$$\frac{x^2\sqrt{a+bx}\sqrt{c+dx}}{3bd}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(\frac{15a^2d^2}{4}+\frac{7abcd}{2}+\frac{15b^2c^2}{4}-\frac{5bdx(ad+bc)}{2}\right)}{6b^3d^3}-\frac{(ad+bc)\left(5a^2d^2-2abcd+5b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8b^{\frac{7}{2}}d^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3/(b*x+a)**(1/2)/(d*x+c)**(1/2),x)
```

```
[Out] x**2*sqrt(a + b*x)*sqrt(c + d*x)/(3*b*d) + sqrt(a + b*x)*sqrt(c +
 d*x)*(15*a**2*d**2/4 + 7*a*b*c*d/2 + 15*b**2*c**2/4 - 5*b*d*x*(a
*d + b*c)/2)/(6*b**3*d**3) - (a*d + b*c)*(5*a**2*d**2 - 2*a*b*c*d
 + 5*b**2*c**2)*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c + d*x
)))/(8*b**(7/2)*d**(7/2))
```

Mathematica [A] time = 0.148937, size = 161, normalized size = 0.95

$$\frac{\sqrt{a+bx}\sqrt{c+dx}\left(15a^2d^2+2abd(7c-5dx)+b^2\left(15c^2-10cdx+8d^2x^2\right)\right)}{24b^3d^3}-\frac{(ad+bc)\left(5a^2d^2-2abcd+5b^2c^2\right)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{16b^{7/2}d^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^3/(Sqrt[a + b*x]*Sqrt[c + d*x]),x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(15*a^2*d^2 + 2*a*b*d*(7*c - 5*d*x)
+ b^2*(15*c^2 - 10*c*d*x + 8*d^2*x^2)))/(24*b^3*d^3) - ((b*c + a*
d)*(5*b^2*c^2 - 2*a*b*c*d + 5*a^2*d^2)*Log[b*c + a*d + 2*b*d*x +
2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(16*b^(7/2)*d^(7/
2))
```

Maple [B] time = 0.038, size = 395, normalized size = 2.3

$$-\frac{1}{48\,b^3d^3}\left(-16\,x^2b^2d^2\sqrt{(bx+a)\,(dx+c)}\sqrt{bd}+15\,\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{(bx+a)\,(dx+c)}\sqrt{bd}+ad+bc}{\sqrt{bd}}\right)a^3d^3+9\,\ln\left(1/2\,\frac{2\,b}{}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^3/(b*x+a)^(1/2)/(d*x+c)^(1/2),x)
```

```
[Out] -1/48*(-16*x^2*b^2*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+15*ln(
1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)
^(1/2))*a^3*d^3+9*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)
^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^2*b*c*d^2+9*c^2*ln(1/2*(2*b*d*x+2*
((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a*b^2*d
+15*c^3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d
+b*c)/(b*d)^(1/2))*b^3+20*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*x*a
*b*d^2+20*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*x*b^2*c*d-30*(b*d)^
(1/2)*((b*x+a)*(d*x+c))^(1/2)*a^2*d^2-28*(b*d)^(1/2)*((b*x+a)*(d*
x+c))^(1/2)*a*b*c*d-30*c^2*((b*x+a)*(d*x+c))^(1/2)*b^2*(b*d)^(1/2
))*(b*x+a)^(1/2)*(d*x+c)^(1/2)/(b*d)^(1/2)/d^3/b^3/((b*x+a)*(d*x+
c))^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^3/(sqrt(b*x + a)*sqrt(d*x + c)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.300168, size = 1, normalized size = 0.01

$$\left[\frac{4\left(8\,b^2d^2x^2+15\,b^2c^2+14\,abcd+15\,a^2d^2-10\left(b^2cd+abd^2\right)x\right)\sqrt{bd}\sqrt{bx+a}\sqrt{dx+c}+3\left(5\,b^3c^3+3\,ab^2c^2d+3\,a^2bcd^2+5\,a\right.}{96\,\sqrt{bd}b}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^3/(sqrt(b*x + a)*sqrt(d*x + c)),x, algorithm="fricas")
```

```
[Out] [1/96*(4*(8*b^2*d^2*x^2 + 15*b^2*c^2 + 14*a*b*c*d + 15*a^2*d^2 -
10*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) +
 3*(5*b^3*c^3 + 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 + 5*a^3*d^3)*log(-4
*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) +
(8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b
*d^2)*x)*sqrt(b*d)))/(sqrt(b*d)*b^3*d^3), 1/48*(2*(8*b^2*d^2*x^2
```

```
+ 15*b^2*c^2 + 14*a*b*c*d + 15*a^2*d^2 - 10*(b^2*c*d + a*b*d^2)*x
)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c) - 3*(5*b^3*c^3 + 3*a*b^2
*c^2*d + 3*a^2*b*c*d^2 + 5*a^3*d^3)*arctan(1/2*(2*b*d*x + b*c + a
*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/(sqrt(-b*d)*b^
3*d^3)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x^3}{\sqrt{a+bx}\sqrt{c+dx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**3/(b*x+a)**(1/2)/(d*x+c)**(1/2),x)
```

```
[Out] Integral(x**3/(sqrt(a + b*x)*sqrt(c + d*x)), x)
```

GIAC/XCAS [A] time = 0.241673, size = 290, normalized size = 1.72

$$\frac{\left(\sqrt{b^2c+(bx+a)bd-abd}\sqrt{bx+a}\left(2\,(bx+a)\left(\frac{4\,(bx+a)}{b^4d}-\frac{5\,b^{12}cd^3+13\,ab^{11}d^4}{b^{15}d^5}\right)+\frac{3\,(5\,b^{13}c^2d^2+8\,ab^{12}cd^3+11\,a^2b^{11}d^4)}{b^{15}d^5}\right)+\frac{3\,(5\,b^3c^3+3\,ab^2c^2\cdots}{\cdots}\cdots}{24\,|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^3/(sqrt(b*x + a)*sqrt(d*x + c)),x, algorithm="giac")
```

```
[Out] 1/24*(sqrt(b^2*c + (b*x + a)*b*d - a*b*d)*sqrt(b*x + a)*(2*(b*x +
 a)*(4*(b*x + a)/(b^4*d) - (5*b^12*c*d^3 + 13*a*b^11*d^4)/(b^15*d
^5)) + 3*(5*b^13*c^2*d^2 + 8*a*b^12*c*d^3 + 11*a^2*b^11*d^4)/(b^1
5*d^5)) + 3*(5*b^3*c^3 + 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 + 5*a^3*d^
3)*ln(abs(-sqrt(b*d)*sqrt(b*x + a) + sqrt(b^2*c + (b*x + a)*b*d -
 a*b*d)))/(sqrt(b*d)*b^3*d^3))*b/abs(b)
```

3.722 $\int \frac{x^2}{\sqrt{a+bx}\sqrt{c+dx}}\,dx$

Optimal. Leaf size=127

$$-\frac{(4abcd-3(ad+bc)^2)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{5/2}d^{5/2}}-\frac{3\sqrt{a+bx}\sqrt{c+dx}(ad+bc)}{4b^2d^2}+\frac{x\sqrt{a+bx}\sqrt{c+dx}}{2bd}$$

```
[Out] (-3*(b*c + a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*b^2*d^2) + (x*Sqr
t[a + b*x]*Sqrt[c + d*x])/(2*b*d) - ((4*a*b*c*d - 3*(b*c + a*d)^2
)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(4*b^
(5/2)*d^(5/2))
```

Rubi [A] time = 0.255239, antiderivative size = 127, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.182$

$$-\frac{(4abcd-3(ad+bc)^2)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{5/2}d^{5/2}}-\frac{3\sqrt{a+bx}\sqrt{c+dx}(ad+bc)}{4b^2d^2}+\frac{x\sqrt{a+bx}\sqrt{c+dx}}{2bd}$$

Antiderivative was successfully verified.

```
[In]  Int[x^2/(Sqrt[a + b*x]*Sqrt[c + d*x]),x]
```

```
[Out] (-3*(b*c + a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*b^2*d^2) + (x*Sqr
t[a + b*x]*Sqrt[c + d*x])/(2*b*d) - ((4*a*b*c*d - 3*(b*c + a*d)^2
)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(4*b^
(5/2)*d^(5/2))
```

Rubi in Sympy [A] time = 18.7848, size = 114, normalized size = 0.9

$$\frac{x\sqrt{a+bx}\sqrt{c+dx}}{2bd}-\frac{3\sqrt{a+bx}\sqrt{c+dx}\,(ad+bc)}{4b^2d^2}-\frac{\left(abcd-\frac{3(ad+bc)^2}{4}\right)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{\frac{5}{2}}d^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2/(b*x+a)**(1/2)/(d*x+c)**(1/2),x)
```

```
[Out] x*sqrt(a + b*x)*sqrt(c + d*x)/(2*b*d) - 3*sqrt(a + b*x)*sqrt(c +
d*x)*(a*d + b*c)/(4*b**2*d**2) - (a*b*c*d - 3*(a*d + b*c)**2/4)*a
tanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c + d*x)))/(b**(5/2)*d**
(5/2))
```

Mathematica [A] time = 0.145982, size = 123, normalized size = 0.97

$$\frac{(3a^2d^2+2abcd+3b^2c^2)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{8b^{5/2}d^{5/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}(-3ad-3bc+2bdx)}{4b^2d^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^2/(Sqrt[a + b*x]*Sqrt[c + d*x]),x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(-3*b*c - 3*a*d + 2*b*d*x))/(4*b^2*d
^2) + ((3*b^2*c^2 + 2*a*b*c*d + 3*a^2*d^2)*Log[b*c + a*d + 2*b*d*
```

```
x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(8*b^(5/2)*d^
(5/2))
```

Maple [B] time = 0.032, size = 251, normalized size = 2.

$$\frac{1}{8\,b^2d^2}\left(3\,\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{(bx+a)\,(dx+c)}\sqrt{bd}+ad+bc}{\sqrt{bd}}\right)a^2d^2+2\,c\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{(bx+a)\,(dx+c)}\sqrt{bd}+ad+bc}{\sqrt{bd}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2/(b*x+a)^(1/2)/(d*x+c)^(1/2),x)
```

```
[Out] 1/8*(3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+
b*c)/(b*d)^(1/2))*a^2*d^2+2*c*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))
^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a*d*b+3*c^2*ln(1/2*(2*b*
d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*b
^2+4*x*((b*x+a)*(d*x+c))^(1/2)*d*b*(b*d)^(1/2)-6*((b*x+a)*(d*x+c)
)^(1/2)*a*d*(b*d)^(1/2)-6*c*((b*x+a)*(d*x+c))^(1/2)*b*(b*d)^(1/2)
)*(b*x+a)^(1/2)*(d*x+c)^(1/2)/(b*d)^(1/2)/d^2/b^2/((b*x+a)*(d*x+c
))^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2/(sqrt(b*x + a)*sqrt(d*x + c)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.254542, size = 1, normalized size = 0.01

$$\left[\frac{4\,(2\,bdx-3\,bc-3\,ad)\sqrt{bd}\sqrt{bx+a}\sqrt{dx+c}+\left(3\,b^2c^2+2\,abcd+3\,a^2d^2\right)\log\left(4\,\left(2\,b^2d^2x+b^2cd+abd^2\right)\sqrt{bx+a}\sqrt{dx+c}+\right.}{16\,\sqrt{bd}b^2d^2}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2/(sqrt(b*x + a)*sqrt(d*x + c)),x, algorithm="fricas")
```

```
[Out] [1/16*(4*(2*b*d*x - 3*b*c - 3*a*d)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d
*x + c) + (3*b^2*c^2 + 2*a*b*c*d + 3*a^2*d^2)*log(4*(2*b^2*d^2*x
+ b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2
 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(
b*d)))/(sqrt(b*d)*b^2*d^2), 1/8*(2*(2*b*d*x - 3*b*c - 3*a*d)*sqrt
(-b*d)*sqrt(b*x + a)*sqrt(d*x + c) + (3*b^2*c^2 + 2*a*b*c*d + 3*a
^2*d^2)*arctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a
)*sqrt(d*x + c)*b*d)))/(sqrt(-b*d)*b^2*d^2)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{x^2}{\sqrt{a+bx}\sqrt{c+dx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2/(b*x+a)**(1/2)/(d*x+c)**(1/2),x)
```

```
[Out] Integral(x**2/(sqrt(a + b*x)*sqrt(c + d*x)), x)
```

GIAC/XCAS [A] time = 0.240261, size = 203, normalized size = 1.6

$$\frac{\left(\sqrt{b^2c+(bx+a)bd-abd}\sqrt{bx+a}\left(\frac{2(bx+a)}{b^3d}-\frac{3b^6cd+5ab^5d^2}{b^8d^3}\right)-\frac{(3b^2c^2+2abcd+3a^2d^2)\ln\left(\left|-\sqrt{bd}\sqrt{bx+a}+\sqrt{b^2c+(bx+a)bd-abd}\right|\right)}{\sqrt{bd}b^2d^2}\right)b}{4|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2/(sqrt(b*x + a)*sqrt(d*x + c)),x, algorithm="giac")
```

```
[Out] 1/4*(sqrt(b^2*c + (b*x + a)*b*d - a*b*d)*sqrt(b*x + a)*(2*(b*x +
a)/(b^3*d) - (3*b^6*c*d + 5*a*b^5*d^2)/(b^8*d^3)) - (3*b^2*c^2 +
2*a*b*c*d + 3*a^2*d^2)*ln(abs(-sqrt(b*d)*sqrt(b*x + a) + sqrt(b^2
*c + (b*x + a)*b*d - a*b*d)))/(sqrt(b*d)*b^2*d^2))*b/abs(b)
```

3.723 $\int \frac{x}{\sqrt{a+bx}\sqrt{c+dx}}\,dx$

Optimal. Leaf size=75

$$\frac{\sqrt{a+bx}\sqrt{c+dx}}{bd}-\frac{(ad+bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{3/2}d^{3/2}}$$

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x])/(b*d) - ((b*c + a*d)*ArcTanh[(Sqrt[
d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(b^(3/2)*d^(3/2))
```

Rubi [A] time = 0.106902, antiderivative size = 75, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.15

$$\frac{\sqrt{a+bx}\sqrt{c+dx}}{bd}-\frac{(ad+bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{3/2}d^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[x/(Sqrt[a + b*x]*Sqrt[c + d*x]),x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x])/(b*d) - ((b*c + a*d)*ArcTanh[(Sqrt[
d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(b^(3/2)*d^(3/2))
```

Rubi in Sympy [A] time = 10.13, size = 65, normalized size = 0.87

$$\frac{\sqrt{a+bx}\sqrt{c+dx}}{bd}-\frac{(ad+bc)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{\frac{3}{2}}d^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x/(b*x+a)**(1/2)/(d*x+c)**(1/2),x)
```

```
[Out] sqrt(a + b*x)*sqrt(c + d*x)/(b*d) - (a*d + b*c)*atanh(sqrt(d)*sqr
t(a + b*x)/(sqrt(b)*sqrt(c + d*x)))/(b**(3/2)*d**(3/2))
```

Mathematica [A] time = 0.075899, size = 90, normalized size = 1.2

$$\frac{\sqrt{a+bx}\sqrt{c+dx}}{bd}-\frac{(ad+bc)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{2b^{3/2}d^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x/(Sqrt[a + b*x]*Sqrt[c + d*x]),x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x])/(b*d) - ((b*c + a*d)*Log[b*c + a*d
+ 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(2*b^
(3/2)*d^(3/2))
```

Maple [B] time = 0.026, size = 148, normalized size = 2.

$$-\frac{1}{2\,bd}\left(\ln\left(\frac{1}{2}\left(2\,bdx+2\,\sqrt{(bx+a)(dx+c)}\sqrt{bd}+ad+bc\right)\frac{1}{\sqrt{bd}}\right)ad+\ln\left(\frac{1}{2}\left(2\,bdx+2\,\sqrt{(bx+a)(dx+c)}\sqrt{bd}+ad+bc\right)-\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x/(b*x+a)^(1/2)/(d*x+c)^(1/2),x)
```

```
[Out] -1/2*(ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b
*c)/(b*d)^(1/2))*a*d+ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b
*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*b*c-2*((b*x+a)*(d*x+c))^(1/2)*(b*
d)^(1/2))*(b*x+a)^(1/2)*(d*x+c)^(1/2)/d/(b*d)^(1/2)/b/((b*x+a)*(d
*x+c))^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/(sqrt(b*x + a)*sqrt(d*x + c)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.261238, size = 1, normalized size = 0.01

$$\left[\frac{(bc+ad)\log\left(-4\left(2\,b^2d^2x+b^2cd+abd^2\right)\sqrt{bx+a}\sqrt{dx+c}+\left(8\,b^2d^2x^2+b^2c^2+6\,abcd+a^2d^2+8\left(b^2cd+abd^2\right)x\right)\sqrt{bd}\right)+}{4\sqrt{bd}bd}\right.$$

$$\left.-\frac{(bc+ad)\arctan\left(\frac{(2\,bdx+bc+ad)\sqrt{-bd}}{2\sqrt{bx+a}\sqrt{dx+c}bd}\right)-2\sqrt{-bd}\sqrt{bx+a}\sqrt{dx+c}}{2\sqrt{-bd}bd}\right]$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/(sqrt(b*x + a)*sqrt(d*x + c)),x, algorithm="fricas")
```

```
[Out] [1/4*((b*c + a*d)*log(-4*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b
*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^
2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)) + 4*sqrt(b*d)*sqrt(b*
x + a)*sqrt(d*x + c))/(sqrt(b*d)*b*d), -1/2*((b*c + a*d)*arctan(1
/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*
b*d)) - 2*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(-b*d)*b*d
)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x}{\sqrt{a+bx}\sqrt{c+dx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/(b*x+a)**(1/2)/(d*x+c)**(1/2),x)
```

```
[Out] Integral(x/(sqrt(a + b*x)*sqrt(c + d*x)), x)
```

GIAC/XCAS [A] time = 0.238393, size = 128, normalized size = 1.71

$$\frac{\frac{(bc+ad)\ln\left(\left|-\sqrt{bd}\sqrt{bx+a}+\sqrt{b^2c+(bx+a)bd-abd}\right|\right)}{\sqrt{bd}d}+\frac{\sqrt{b^2c+(bx+a)bd-abd}\sqrt{bx+a}}{bd}}{|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/(sqrt(b*x + a)*sqrt(d*x + c)),x, algorithm="giac")
```

```
[Out] ((b*c + a*d)*ln(abs(-sqrt(b*d)*sqrt(b*x + a) + sqrt(b^2*c + (b*x
+ a)*b*d - a*b*d)))/(sqrt(b*d)*d) + sqrt(b^2*c + (b*x + a)*b*d -
a*b*d)*sqrt(b*x + a)/(b*d))/abs(b)
```

3.724 $\int \frac{1}{\sqrt{a+bx}\sqrt{c+dx}}\,dx$

Optimal. Leaf size=42

$$\frac{2\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{b}\sqrt{d}}$$

```
[Out] (2*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(Sqr
t[b]*Sqrt[d])
```

Rubi [A] time = 0.0454216, antiderivative size = 42, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.105

$$\frac{2\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{b}\sqrt{d}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[a + b*x]*Sqrt[c + d*x]),x]
```

```
[Out] (2*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(Sqr
t[b]*Sqrt[d])
```

Rubi in Sympy [A] time = 6.02668, size = 39, normalized size = 0.93

$$\frac{2\,\mathrm{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{\sqrt{b}\sqrt{d}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(b*x+a)**(1/2)/(d*x+c)**(1/2),x)
```

```
[Out] 2*atanh(sqrt(b)*sqrt(c + d*x)/(sqrt(d)*sqrt(a + b*x)))/(sqrt(b)*s
qrt(d))
```

Mathematica [A] time = 0.0264504, size = 54, normalized size = 1.29

$$\frac{\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{\sqrt{b}\sqrt{d}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[a + b*x]*Sqrt[c + d*x]),x]
```

```
[Out] Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c
+ d*x]]/(Sqrt[b]*Sqrt[d])
```

Maple [B] time = 0.005, size = 76, normalized size = 1.8

$$1\sqrt{(bx+a)(dx+c)}\ln\left(1\left(\frac{ad}{2}+\frac{bc}{2}+bdx\right)\frac{1}{\sqrt{bd}}+\sqrt{dx^2b+(ad+bc)x+ac}\right)\frac{1}{\sqrt{bx+a}}\frac{1}{\sqrt{dx+c}}\frac{1}{\sqrt{bd}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(b*x+a)^(1/2)/(d*x+c)^(1/2),x)
```

```
[Out] ((b*x+a)*(d*x+c))^(1/2)/(b*x+a)^(1/2)/(d*x+c)^(1/2)*ln((1/2*a*d+1
/2*b*c+b*d*x)/(b*d)^(1/2)+(d*x^2*b+(a*d+b*c)*x+a*c)^(1/2))/(b*d)^
(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(b*x + a)*sqrt(d*x + c)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.23791, size = 1, normalized size = 0.02

$$\left[\frac{\log\left(4\left(2b^2d^2x + b^2cd + abd^2\right)\sqrt{bx+a}\sqrt{dx+c} + \left(8b^2d^2x^2 + b^2c^2 + 6abcd + a^2d^2 + 8\left(b^2cd + abd^2\right)x\right)\sqrt{bd}\right)}{2\sqrt{bd}}, \frac{\arctan\left(\frac{(2b\ldots}{2\sqrt{\ldots}}\right)}{\sqrt{\ldots}}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(b*x + a)*sqrt(d*x + c)),x, algorithm="fricas")
```

```
[Out] [1/2*log(4*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d
*x + c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2
*c*d + a*b*d^2)*x)*sqrt(b*d))/sqrt(b*d), arctan(1/2*(2*b*d*x + b*
c + a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d))/sqrt(-b*d)
]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{a+bx}\sqrt{c+dx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(b*x+a)**(1/2)/(d*x+c)**(1/2),x)
```

```
[Out] Integral(1/(sqrt(a + b*x)*sqrt(c + d*x)), x)
```

GIAC/XCAS [A] time = 0.233921, size = 68, normalized size = 1.62

$$-\frac{2b\ln\left(\left|-\sqrt{bd}\sqrt{bx+a} + \sqrt{b^2c + (bx+a)bd - abd}\right|\right)}{\sqrt{bd}|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(b*x + a)*sqrt(d*x + c)),x, algorithm="giac")
```

```
[Out] -2*b*ln(abs(-sqrt(b*d)*sqrt(b*x + a) + sqrt(b^2*c + (b*x + a)*b*d
 - a*b*d)))/(sqrt(b*d)*abs(b))
```

3.725 $\int \frac{1}{x\sqrt{a+bx}\sqrt{c+dx}}\,dx$

Optimal. Leaf size=42

$$-\frac{2\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{a}\sqrt{c}}$$

```
[Out] (-2*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(Sq
rt[a]*Sqrt[c])
```

Rubi [A] time = 0.0684172, antiderivative size = 42, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.091

$$-\frac{2\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{a}\sqrt{c}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x*Sqrt[a + b*x]*Sqrt[c + d*x]),x]
```

```
[Out] (-2*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(Sq
rt[a]*Sqrt[c])
```

Rubi in Sympy [A] time = 6.13986, size = 41, normalized size = 0.98

$$-\frac{2\,\text{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{a}\sqrt{c}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x/(b*x+a)**(1/2)/(d*x+c)**(1/2),x)
```

```
[Out] -2*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(sqrt(a)*
sqrt(c))
```

Mathematica [A] time = 0.0634606, size = 60, normalized size = 1.43

$$\frac{\log(x)-\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{\sqrt{a}\sqrt{c}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(x*Sqrt[a + b*x]*Sqrt[c + d*x]),x]
```

```
[Out] (Log[x] - Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a +
b*x]*Sqrt[c + d*x]])/(Sqrt[a]*Sqrt[c])
```

Maple [B] time = 0.029, size = 73, normalized size = 1.7

$$-1\ln\left(\frac{1}{x}\left(adx+bcx+2\sqrt{ac}\sqrt{(bx+a)(dx+c)}+2ac\right)\right)\sqrt{dx+c}\sqrt{bx+a}\frac{1}{\sqrt{ac}}\frac{1}{\sqrt{(bx+a)(dx+c)}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/x/(b*x+a)^(1/2)/(d*x+c)^(1/2),x)
```

```
[Out] -ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*
(d*x+c)^(1/2)*(b*x+a)^(1/2)/(a*c)^(1/2)/((b*x+a)*(d*x+c))^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(b*x + a)*sqrt(d*x + c)*x),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.254059, size = 1, normalized size = 0.02

$$\left[\frac{\log\left(-\frac{4\left(2a^2c^2+\left(abc^2+a^2cd\right)x\right)\sqrt{bx+a}\sqrt{dx+c}-\left(8a^2c^2+\left(b^2c^2+6abcd+a^2d^2\right)x^2+8\left(abc^2+a^2cd\right)x\right)\sqrt{ac}}{x^2}\right)}{2\sqrt{ac}},\right.$$
$$\left.-\frac{\arctan\left(\frac{\left(2ac+\left(bc+ad\right)x\right)\sqrt{-ac}}{2\sqrt{bx+a}\sqrt{dx+c}ac}\right)}{\sqrt{-ac}}\right]$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(b*x + a)*sqrt(d*x + c)*x),x, algorithm="fricas")
```

```
[Out] [1/2*log(-(4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sq
rt(d*x + c) - (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 +
8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2)/sqrt(a*c), -arctan(1/2*(
2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d*x + c)*a*
c))/sqrt(-a*c)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{x\sqrt{a+bx}\sqrt{c+dx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/x/(b*x+a)**(1/2)/(d*x+c)**(1/2),x)
```

```
[Out] Integral(1/(x*sqrt(a + b*x)*sqrt(c + d*x)), x)
```

GIAC/XCAS [A] time = 0.229081, size = 115, normalized size = 2.74

$$-\frac{2\sqrt{bd}b\arctan\left(-\frac{b^2c+abd-\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2}{2\sqrt{-abcd}b}\right)}{\sqrt{-abcd}|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(b*x + a)*sqrt(d*x + c)*x),x, algorithm="giac")
```

```
[Out] -2*sqrt(b*d)*b*arctan(-1/2*(b^2*c + a*b*d - (sqrt(b*d)*sqrt(b*x +
 a) - sqrt(b^2*c + (b*x + a)*b*d - a*b*d))^2)/(sqrt(-a*b*c*d)*b))
/(sqrt(-a*b*c*d)*abs(b))
```

3.726 $\int \frac{1}{x^2\sqrt{a+bx}\sqrt{c+dx}}\,dx$

Optimal. Leaf size=78

$$\frac{(ad+bc)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{3/2}c^{3/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}}{acx}$$

```
[Out] -((Sqrt[a + b*x]*Sqrt[c + d*x])/(a*c*x)) + ((b*c + a*d)*ArcTanh[(
Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(a^(3/2)*c^(3/2)
)
```

Rubi [A] time = 0.141238, antiderivative size = 78, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.136

$$\frac{(ad+bc)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{3/2}c^{3/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}}{acx}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x^2*Sqrt[a + b*x]*Sqrt[c + d*x]),x]
```

```
[Out] -((Sqrt[a + b*x]*Sqrt[c + d*x])/(a*c*x)) + ((b*c + a*d)*ArcTanh[(
Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(a^(3/2)*c^(3/2)
)
```

Rubi in Sympy [A] time = 10.612, size = 66, normalized size = 0.85

$$-\frac{\sqrt{a+bx}\sqrt{c+dx}}{acx}+\frac{(ad+bc)\,\text{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{\frac{3}{2}}c^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x**2/(b*x+a)**(1/2)/(d*x+c)**(1/2),x)
```

```
[Out] -sqrt(a + b*x)*sqrt(c + d*x)/(a*c*x) + (a*d + b*c)*atanh(sqrt(c)*
sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(a**(3/2)*c**(3/2))
```

Mathematica [A] time = 0.115833, size = 113, normalized size = 1.45

$$\frac{-2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+x\log(x)(-(ad+bc))+x(ad+bc)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{2a^{3/2}c^{3/2}x}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(x^2*Sqrt[a + b*x]*Sqrt[c + d*x]),x]
```

```
[Out] (-2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x] - (b*c + a*d)*x*L
og[x] + (b*c + a*d)*x*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[
c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(2*a^(3/2)*c^(3/2)*x)
```

Maple [B] time = 0.033, size = 149, normalized size = 1.9

$$\frac{1}{2\,acx}\left(\ln\left(\frac{1}{x}\left(adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)\,(dx+c)}+2\,ac\right)\right)xad+\ln\left(\frac{1}{x}\left(adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)\,(dx+c)}+2\,ac\right)\right)xb\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/x^2/(b*x+a)^(1/2)/(d*x+c)^(1/2),x)
```

```
[Out] 1/2/a/c*(ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*
a*c)/x)*x*a*d+ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/
2)+2*a*c)/x)*x*b*c-2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2))*(d*x+c)
^(1/2)*(b*x+a)^(1/2)/(a*c)^(1/2)/x/((b*x+a)*(d*x+c))^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(b*x + a)*sqrt(d*x + c)*x^2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.278227, size = 1, normalized size = 0.01

$$\left[\frac{(bc+ad)x\log\left(\frac{4\left(2a^2c^2+\left(abc^2+a^2cd\right)x\right)\sqrt{bx+a}\sqrt{dx+c}+\left(8a^2c^2+\left(b^2c^2+6abcd+a^2d^2\right)x^2+8\left(abc^2+a^2cd\right)x\right)\sqrt{ac}}{x^2}\right)-4\sqrt{ac}\sqrt{bx+a}\sqrt{dx+c}}{4\sqrt{ac}acx}, (b\cdots\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(b*x + a)*sqrt(d*x + c)*x^2),x, algorithm="fricas")
```

```
[Out] [1/4*((b*c + a*d)*x*log((4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*sq
rt(b*x + a)*sqrt(d*x + c) + (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a
^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2) - 4*sqrt(a
*c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(a*c)*a*c*x), 1/2*((b*c + a
*d)*x*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a
)*sqrt(d*x + c)*a*c)) - 2*sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c))
/(sqrt(-a*c)*a*c*x)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{x^2\sqrt{a+bx}\sqrt{c+dx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/x**2/(b*x+a)**(1/2)/(d*x+c)**(1/2),x)
```

```
[Out] Integral(1/(x**2*sqrt(a + b*x)*sqrt(c + d*x)), x)
```

GIAC/XCAS [A] time = 0.246683, size = 524, normalized size = 6.72

$$\frac{\sqrt{bd}b^4d\left(\frac{(bc+ad)\arctan\left(-\frac{b^2c+abd-\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2}{2\sqrt{-abcd}b}\right)}{\sqrt{-abcd}ab^3cd}-\frac{2\left(b^3c^2-2ab^2cd+a^2bd^2-\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)\cdots}\right.\right.}{\left(b^4c^2-2ab^3cd+a^2b^2d^2-2\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2b^2c-2\left(\sqrt{bd}\cdots\right.\right.}\cdots\right.}{|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(b*x + a)*sqrt(d*x + c)*x^2),x, algorithm="giac")
```

```
[Out] sqrt(b*d)*b^4*d*((b*c + a*d)*arctan(-1/2*(b^2*c + a*b*d - (sqrt(b
*d)*sqrt(b*x + a) - sqrt(b^2*c + (b*x + a)*b*d - a*b*d))^2)/(sqrt
(-a*b*c*d)*b))/(sqrt(-a*b*c*d)*a*b^3*c*d) - 2*(b^3*c^2 - 2*a*b^2*
c*d + a^2*b*d^2 - (sqrt(b*d)*sqrt(b*x + a) - sqrt(b^2*c + (b*x +
a)*b*d - a*b*d))^2*b*c - (sqrt(b*d)*sqrt(b*x + a) - sqrt(b^2*c +
(b*x + a)*b*d - a*b*d))^2*a*d)/((b^4*c^2 - 2*a*b^3*c*d + a^2*b^2*
d^2 - 2*(sqrt(b*d)*sqrt(b*x + a) - sqrt(b^2*c + (b*x + a)*b*d - a
*b*d))^2*b^2*c - 2*(sqrt(b*d)*sqrt(b*x + a) - sqrt(b^2*c + (b*x +
 a)*b*d - a*b*d))^2*a*b*d + (sqrt(b*d)*sqrt(b*x + a) - sqrt(b^2*c
 + (b*x + a)*b*d - a*b*d))^4)*a*b^2*c*d))/abs(b)
```

3.727 $\int \frac{1}{x^3\sqrt{a+bx}\sqrt{c+dx}}\,dx$

Optimal. Leaf size=137

$$\frac{3\sqrt{a+bx}\sqrt{c+dx}(ad+bc)}{4a^2c^2x}-\frac{\left(3a^2d^2+2abcd+3b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{5/2}c^{5/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}}{2acx^2}$$

```
[Out] -(Sqrt[a + b*x]*Sqrt[c + d*x])/(2*a*c*x^2) + (3*(b*c + a*d)*Sqrt[
a + b*x]*Sqrt[c + d*x])/(4*a^2*c^2*x) - ((3*b^2*c^2 + 2*a*b*c*d +
 3*a^2*d^2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x
])])/(4*a^(5/2)*c^(5/2))
```

Rubi [A] time = 0.286579, antiderivative size = 137, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$\frac{3\sqrt{a+bx}\sqrt{c+dx}(ad+bc)}{4a^2c^2x}-\frac{\left(3a^2d^2+2abcd+3b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{5/2}c^{5/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}}{2acx^2}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x^3*Sqrt[a + b*x]*Sqrt[c + d*x]),x]
```

```
[Out] -(Sqrt[a + b*x]*Sqrt[c + d*x])/(2*a*c*x^2) + (3*(b*c + a*d)*Sqrt[
a + b*x]*Sqrt[c + d*x])/(4*a^2*c^2*x) - ((3*b^2*c^2 + 2*a*b*c*d +
 3*a^2*d^2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x
])])/(4*a^(5/2)*c^(5/2))
```

Rubi in Sympy [A] time = 29.8557, size = 117, normalized size = 0.85

$$-\frac{\sqrt{a+bx}\sqrt{c+dx}}{2acx^2}+\frac{3\sqrt{a+bx}\sqrt{c+dx}\,(ad+bc)}{4a^2c^2x}+\frac{\left(abcd-\frac{3(ad+bc)^2}{4}\right)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{\frac{5}{2}}c^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x**3/(b*x+a)**(1/2)/(d*x+c)**(1/2),x)
```

```
[Out] -sqrt(a + b*x)*sqrt(c + d*x)/(2*a*c*x**2) + 3*sqrt(a + b*x)*sqrt(
c + d*x)*(a*d + b*c)/(4*a**2*c**2*x) + (a*b*c*d - 3*(a*d + b*c)**
2/4)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(a**(5/
2)*c**(5/2))
```

Mathematica [A] time = 0.186605, size = 164, normalized size = 1.2

$$\frac{x^2\log(x)\left(3a^2d^2+2abcd+3b^2c^2\right)-x^2\left(3a^2d^2+2abcd+3b^2c^2\right)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)+2\sqrt{a}\sqrt{c}}{8a^{5/2}c^{5/2}x^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(x^3*Sqrt[a + b*x]*Sqrt[c + d*x]),x]
```

```
[Out] (2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]*(-2*a*c + 3*b*c*x
+ 3*a*d*x) + (3*b^2*c^2 + 2*a*b*c*d + 3*a^2*d^2)*x^2*Log[x] - (3*
b^2*c^2 + 2*a*b*c*d + 3*a^2*d^2)*x^2*Log[2*a*c + b*c*x + a*d*x +
2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(8*a^(5/2)*c^(5/2
```

```
)*x^2)
```

Maple [B] time = 0.037, size = 258, normalized size = 1.9

$$-\frac{1}{8 a^2c^2x^2}\left(3\ln\left(\frac{adx+bcx+2\sqrt{ac}\sqrt{(bx+a)(dx+c)}+2ac}{x}\right)x^2a^2d^2+2\ln\left(\frac{adx+bcx+2\sqrt{ac}\sqrt{(bx+a)(dx+c)}+2ac}{x}\right)\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int(1/x^3/(b*x+a)^(1/2)/(d*x+c)^(1/2),x)
```

```
[Out] -1/8/a^2/c^2*(3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(
1/2)+2*a*c)/x)*x^2*a^2*d^2+2*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+
a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a*b*c*d+3*ln((a*d*x+b*c*x+2*(a*c)
^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*b^2*c^2-6*((b*x+a)*(
d*x+c))^(1/2)*d*a*x*(a*c)^(1/2)-6*((b*x+a)*(d*x+c))^(1/2)*b*c*x*(
a*c)^(1/2)+4*((b*x+a)*(d*x+c))^(1/2)*c*a*(a*c)^(1/2))*(d*x+c)^(1/
2)*(b*x+a)^(1/2)/x^2/(a*c)^(1/2)/((b*x+a)*(d*x+c))^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(b*x + a)*sqrt(d*x + c)*x^3),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.311592, size = 1, normalized size = 0.01

$$\left[\frac{\left(3b^2c^2+2abcd+3a^2d^2\right)x^2\log\left(-\frac{4\left(2a^2c^2+\left(abc^2+a^2cd\right)x\right)\sqrt{bx+a}\sqrt{dx+c}-\left(8a^2c^2+\left(b^2c^2+6abcd+a^2d^2\right)x^2+8\left(abc^2+a^2cd\right)x\right)\sqrt{ac}}{x^2}\right)-4(2ac}{16\sqrt{ac}a^2c^2x^2}\right.$$

$$\left.-\frac{\left(3b^2c^2+2abcd+3a^2d^2\right)x^2\arctan\left(\frac{(2ac+(bc+ad)x)\sqrt{-ac}}{2\sqrt{bx+a}\sqrt{dx+cac}}\right)+2(2ac-3(bc+ad)x)\sqrt{-ac}\sqrt{bx+a}\sqrt{dx+c}}{8\sqrt{-ac}a^2c^2x^2}\right]$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(b*x + a)*sqrt(d*x + c)*x^3),x, algorithm="fricas")
```

```
[Out] [1/16*((3*b^2*c^2 + 2*a*b*c*d + 3*a^2*d^2)*x^2*log(-(4*(2*a^2*c^2
 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c) - (8*a^2*c^
2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x
)*sqrt(a*c))/x^2) - 4*(2*a*c - 3*(b*c + a*d)*x)*sqrt(a*c)*sqrt(b*
x + a)*sqrt(d*x + c))/(sqrt(a*c)*a^2*c^2*x^2), -1/8*((3*b^2*c^2 +
 2*a*b*c*d + 3*a^2*d^2)*x^2*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sq
rt(-a*c)/(sqrt(b*x + a)*sqrt(d*x + c)*a*c)) + 2*(2*a*c - 3*(b*c +
 a*d)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(-a*c)*a^2*
c^2*x^2)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{x^3\sqrt{a+bx}\sqrt{c+dx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/x**3/(b*x+a)**(1/2)/(d*x+c)**(1/2),x)
```

```
[Out] Integral(1/(x**3*sqrt(a + b*x)*sqrt(c + d*x)), x)
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(b*x + a)*sqrt(d*x + c)*x^3),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.728 $\int \frac{1}{x^4\sqrt{a+bx}\sqrt{c+dx}}\,dx$

Optimal. Leaf size=198

$$\frac{5\sqrt{a+bx}\sqrt{c+dx}(ad+bc)}{12a^2c^2x^2}+\frac{\left(5a^2d^2-2abcd+5b^2c^2\right)(ad+bc)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{7/2}c^{7/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}\left(15a^2d^2+14abcd+15b^2c^2\right)}{24a^3c^3x}-\frac{\sqrt{a+bx}\sqrt{c+dx}}{3acx^3}$$

```
[Out] -(Sqrt[a + b*x]*Sqrt[c + d*x])/(3*a*c*x^3) + (5*(b*c + a*d)*Sqrt[
a + b*x]*Sqrt[c + d*x])/(12*a^2*c^2*x^2) - ((15*b^2*c^2 + 14*a*b*
c*d + 15*a^2*d^2)*Sqrt[a + b*x]*Sqrt[c + d*x])/(24*a^3*c^3*x) + (
(b*c + a*d)*(5*b^2*c^2 - 2*a*b*c*d + 5*a^2*d^2)*ArcTanh[(Sqrt[c]*
Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(8*a^(7/2)*c^(7/2))
```

Rubi [A] time = 0.493566, antiderivative size = 198, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.227$

$$\frac{5\sqrt{a+bx}\sqrt{c+dx}(ad+bc)}{12a^2c^2x^2}+\frac{\left(5a^2d^2-2abcd+5b^2c^2\right)(ad+bc)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{7/2}c^{7/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}\left(15a^2d^2+14abcd+15b^2c^2\right)}{24a^3c^3x}-\frac{\sqrt{a+bx}\sqrt{c+dx}}{3acx^3}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x^4*Sqrt[a + b*x]*Sqrt[c + d*x]),x]
```

```
[Out] -(Sqrt[a + b*x]*Sqrt[c + d*x])/(3*a*c*x^3) + (5*(b*c + a*d)*Sqrt[
a + b*x]*Sqrt[c + d*x])/(12*a^2*c^2*x^2) - ((15*b^2*c^2 + 14*a*b*
c*d + 15*a^2*d^2)*Sqrt[a + b*x]*Sqrt[c + d*x])/(24*a^3*c^3*x) + (
(b*c + a*d)*(5*b^2*c^2 - 2*a*b*c*d + 5*a^2*d^2)*ArcTanh[(Sqrt[c]*
Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(8*a^(7/2)*c^(7/2))
```

Rubi in Sympy [A] time = 65.2013, size = 173, normalized size = 0.87

$$-\frac{\sqrt{a+bx}\sqrt{c+dx}}{3acx^3}+\frac{5\sqrt{a+bx}\sqrt{c+dx}\,(ad+bc)}{12a^2c^2x^2}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(16abcd-15\,(ad+bc)^2\right)}{24a^3c^3x}-\frac{(ad+bc)\left(12abcd-5\,(ad+bc)^2\right)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{\frac{7}{2}}c^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x**4/(b*x+a)**(1/2)/(d*x+c)**(1/2),x)
```

```
[Out] -sqrt(a + b*x)*sqrt(c + d*x)/(3*a*c*x**3) + 5*sqrt(a + b*x)*sqrt(
c + d*x)*(a*d + b*c)/(12*a**2*c**2*x**2) + sqrt(a + b*x)*sqrt(c +
 d*x)*(16*a*b*c*d - 15*(a*d + b*c)**2)/(24*a**3*c**3*x) - (a*d +
b*c)*(12*a*b*c*d - 5*(a*d + b*c)**2)*atanh(sqrt(c)*sqrt(a + b*x)/
(sqrt(a)*sqrt(c + d*x)))/(8*a**(7/2)*c**(7/2))
```

Mathematica [A] time = 0.17325, size = 212, normalized size = 1.07

$$\frac{-3x^3\log(x)(ad+bc)\left(5a^2d^2-2abcd+5b^2c^2\right)+3x^3(ad+bc)\left(5a^2d^2-2abcd+5b^2c^2\right)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+\right.}{48a^{7/2}c^{7/2}x^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(x^4*Sqrt[a + b*x]*Sqrt[c + d*x]),x]
```

```
[Out] (-2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]*(8*a^2*c^2 - 10*a
*c*(b*c + a*d)*x + (15*b^2*c^2 + 14*a*b*c*d + 15*a^2*d^2)*x^2) -
3*(b*c + a*d)*(5*b^2*c^2 - 2*a*b*c*d + 5*a^2*d^2)*x^3*Log[x] + 3*
(b*c + a*d)*(5*b^2*c^2 - 2*a*b*c*d + 5*a^2*d^2)*x^3*Log[2*a*c + b
*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(4
8*a^(7/2)*c^(7/2)*x^3)
```

Maple [B] time = 0.039, size = 408, normalized size = 2.1

$$\frac{1}{48\,a^3c^3x^3}\left(15\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)\,(dx+c)}+2\,ac}{x}\right)x^3a^3d^3+9\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)\,(dx+c)}+2\,ac}{x}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/x^4/(b*x+a)^(1/2)/(d*x+c)^(1/2),x)
```

```
[Out] 1/48/a^3/c^3*(15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^
(1/2)+2*a*c)/x)*x^3*a^3*d^3+9*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x
+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^2*b*c*d^2+9*ln((a*d*x+b*c*x+2*
(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a*b^2*c^2*d+15*
ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x
^3*b^3*c^3-30*((b*x+a)*(d*x+c))^(1/2)*d^2*a^2*x^2*(a*c)^(1/2)-28*
((b*x+a)*(d*x+c))^(1/2)*d*b*c*a*x^2*(a*c)^(1/2)-30*((b*x+a)*(d*x+
c))^(1/2)*b^2*c^2*x^2*(a*c)^(1/2)+20*((b*x+a)*(d*x+c))^(1/2)*d*c*
a^2*x*(a*c)^(1/2)+20*((b*x+a)*(d*x+c))^(1/2)*b*c^2*a*x*(a*c)^(1/2
)-16*((b*x+a)*(d*x+c))^(1/2)*c^2*a^2*(a*c)^(1/2))*(d*x+c)^(1/2)*(
b*x+a)^(1/2)/(a*c)^(1/2)/x^3/((b*x+a)*(d*x+c))^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(b*x + a)*sqrt(d*x + c)*x^4),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.436547, size = 1, normalized size = 0.01

$$\left[\frac{3\left(5\,b^3c^3+3\,ab^2c^2d+3\,a^2bcd^2+5\,a^3d^3\right)x^3\log\left(\frac{4\left(2\,a^2c^2+\left(abc^2+a^2cd\right)x\right)\sqrt{bx+a}\sqrt{dx+c}+\left(8\,a^2c^2+\left(b^2c^2+6\,abcd+a^2d^2\right)x^2+8\left(abc^2+a^2cd\right)x\right)\sqrt{}}{x^2}\right.}{96\,\sqrt{ac}a^3c^3x^3}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(b*x + a)*sqrt(d*x + c)*x^4),x, algorithm="fricas")
```

```
[Out] [1/96*(3*(5*b^3*c^3 + 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 + 5*a^3*d^3)*
x^3*log((4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt
(d*x + c) + (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*
(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2) - 4*(8*a^2*c^2 + (15*b^2*c
^2 + 14*a*b*c*d + 15*a^2*d^2)*x^2 - 10*(a*b*c^2 + a^2*c*d)*x)*sqr
```

```
t(a*c)*sqrt(b*x + a)*sqrt(d*x + c))/(sqrt(a*c)*a^3*c^3*x^3), 1/48
*(3*(5*b^3*c^3 + 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 + 5*a^3*d^3)*x^3*a
rctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(
d*x + c)*a*c)) - 2*(8*a^2*c^2 + (15*b^2*c^2 + 14*a*b*c*d + 15*a^2
*d^2)*x^2 - 10*(a*b*c^2 + a^2*c*d)*x)*sqrt(-a*c)*sqrt(b*x + a)*sq
rt(d*x + c))/(sqrt(-a*c)*a^3*c^3*x^3)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{x^4\sqrt{a+bx}\sqrt{c+dx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/x**4/(b*x+a)**(1/2)/(d*x+c)**(1/2),x)
```

```
[Out] Integral(1/(x**4*sqrt(a + b*x)*sqrt(c + d*x)), x)
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(b*x + a)*sqrt(d*x + c)*x^4),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.729 $\int \frac{x^3}{\sqrt{a+bx}(c+dx)^{3/2}}\,dx$

Optimal. Leaf size=175

$$\frac{3\left(a^2d^2+2abcd+5b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{5/2}d^{7/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}((5bc-3ad)(ad+3bc)-2bdx(5bc-ad))}{4b^2d^3(bc-ad)}-\frac{2cx^2\sqrt{a+bx}}{d\sqrt{c+dx}(bc-ad)}$$

```
[Out] (-2*c*x^2*Sqrt[a + b*x])/(d*(b*c - a*d)*Sqrt[c + d*x]) - (Sqrt[a
+ b*x]*Sqrt[c + d*x]*((5*b*c - 3*a*d)*(3*b*c + a*d) - 2*b*d*(5*b*
c - a*d)*x))/(4*b^2*d^3*(b*c - a*d)) + (3*(5*b^2*c^2 + 2*a*b*c*d
+ a^2*d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x]
)])/(4*b^(5/2)*d^(7/2))
```

Rubi [A] time = 0.335447, antiderivative size = 175, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$\frac{3\left(a^2d^2+2abcd+5b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{5/2}d^{7/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}((5bc-3ad)(ad+3bc)-2bdx(5bc-ad))}{4b^2d^3(bc-ad)}-\frac{2cx^2\sqrt{a+bx}}{d\sqrt{c+dx}(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[x^3/(Sqrt[a + b*x]*(c + d*x)^(3/2)),x]
```

```
[Out] (-2*c*x^2*Sqrt[a + b*x])/(d*(b*c - a*d)*Sqrt[c + d*x]) - (Sqrt[a
+ b*x]*Sqrt[c + d*x]*((5*b*c - 3*a*d)*(3*b*c + a*d) - 2*b*d*(5*b*
c - a*d)*x))/(4*b^2*d^3*(b*c - a*d)) + (3*(5*b^2*c^2 + 2*a*b*c*d
+ a^2*d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x]
)])/(4*b^(5/2)*d^(7/2))
```

Rubi in Sympy [A] time = 26.742, size = 165, normalized size = 0.94

$$\frac{2cx^2\sqrt{a+bx}}{d\sqrt{c+dx}\,(ad-bc)}-\frac{\sqrt{a+bx}\sqrt{c+dx}\left(-\frac{bdx(ad-5bc)}{2}+\left(\frac{ad}{4}+\frac{3bc}{4}\right)(3ad-5bc)\right)}{b^2d^3\,(ad-bc)}+\frac{3\left(a^2d^2+2abcd+5b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{\frac{5}{2}}d^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3/(d*x+c)**(3/2)/(b*x+a)**(1/2),x)
```

```
[Out] 2*c*x**2*sqrt(a + b*x)/(d*sqrt(c + d*x)*(a*d - b*c)) - sqrt(a + b
*x)*sqrt(c + d*x)*(-b*d*x*(a*d - 5*b*c)/2 + (a*d/4 + 3*b*c/4)*(3*
a*d - 5*b*c))/(b**2*d**3*(a*d - b*c)) + 3*(a**2*d**2 + 2*a*b*c*d
+ 5*b**2*c**2)*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c + d*x)
))/(4*b**(5/2)*d**(7/2))
```

Mathematica [A] time = 0.254186, size = 147, normalized size = 0.84

$$\frac{3\left(a^2d^2+2abcd+5b^2c^2\right)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{8b^{5/2}d^{7/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(-\frac{3ad}{b^2}+\frac{8c^3}{(c+dx)(ad-bc)}+\frac{2dx-7c}{b}\right)}{4d^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^3/(Sqrt[a + b*x]*(c + d*x)^(3/2)),x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*((-3*a*d)/b^2 + (8*c^3)/((-(b*c) + a
*d)*(c + d*x)) + (-7*c + 2*d*x)/b))/(4*d^3) + (3*(5*b^2*c^2 + 2*a
*b*c*d + a^2*d^2)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqr
t[a + b*x]*Sqrt[c + d*x]])/(8*b^(5/2)*d^(7/2))
```

Maple [B] time = 0.042, size = 673, normalized size = 3.9

$$\frac{1}{(8ad-8bc)b^2d^3}\sqrt{bx+a}\left(3\ln\left(1/2\frac{2bdx+2\sqrt{(bx+a)(dx+c)}\sqrt{bd}+ad+bc}{\sqrt{bd}}\right)xa^3d^4+3\ln\left(1/2\frac{2bdx+2\sqrt{(bx+a)(dx}}{\sqrt{ba}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^3/(d*x+c)^(3/2)/(b*x+a)^(1/2),x)
```

```
[Out] 1/8*(b*x+a)^(1/2)*(3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b
*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^3*d^4+3*ln(1/2*(2*b*d*x+2*((b
*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^2*b*c*
d^3+9*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b
*c)/(b*d)^(1/2))*x*a*b^2*c^2*d^2-15*ln(1/2*(2*b*d*x+2*((b*x+a)*(d
*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*b^3*c^3*d+4*x^2*
a*b*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-4*x^2*b^2*c*d^2*((b*x
+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+
c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^3*c*d^3+3*ln(1/2*(2
*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2)
)*a^2*b*c^2*d^2+9*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)
^(1/2)+a*d+b*c)/(b*d)^(1/2))*a*b^2*c^3*d-15*ln(1/2*(2*b*d*x+2*((b
*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*b^3*c^4-6*
x*a^2*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-4*x*a*b*c*d^2*((b*x
+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+10*x*b^2*c^2*d*((b*x+a)*(d*x+c))^(
1/2)*(b*d)^(1/2)-6*a^2*c*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-
8*a*b*c^2*d*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+30*b^2*c^3*((b*x+
a)*(d*x+c))^(1/2)*(b*d)^(1/2))/(a*d-b*c)/(b*d)^(1/2)/b^2/((b*x+a)
*(d*x+c))^(1/2)/d^3/(d*x+c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^3/(sqrt(b*x + a)*(d*x + c)^(3/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.419415, size = 1, normalized size = 0.01

$$\left[-\frac{4\left(15\,b^2c^3-4\,abc^2d-3\,a^2cd^2-2\left(b^2cd^2-abd^3\right)x^2+\left(5\,b^2c^2d-2\,abcd^2-3\,a^2d^3\right)x\right)\sqrt{bd}\sqrt{bx+a}\sqrt{dx+c}-3\left(5\,b^3c^4-\right.}{}\right.$$

$$-\frac{2\left(15\,b^2c^3-4\,abc^2d-3\,a^2cd^2-2\left(b^2cd^2-abd^3\right)x^2+\left(5\,b^2c^2d-2\,abcd^2-3\,a^2d^3\right)x\right)\sqrt{-bd}\sqrt{bx+a}\sqrt{dx+c}-3\left(5\,b^3c^4-\right.}{8\left(b^3c^2d^3-ab^2cd^4+\left(b^3cd^4-ab^2\right.\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3/(sqrt(b*x + a)*(d*x + c)^(3/2)),x, algorithm="fricas")
```

```
[Out] [-1/16*(4*(15*b^2*c^3 - 4*a*b*c^2*d - 3*a^2*c*d^2 - 2*(b^2*c*d^2
- a*b*d^3)*x^2 + (5*b^2*c^2*d - 2*a*b*c*d^2 - 3*a^2*d^3)*x)*sqrt(
b*d)*sqrt(b*x + a)*sqrt(d*x + c) - 3*(5*b^3*c^4 - 3*a*b^2*c^3*d -
 a^2*b*c^2*d^2 - a^3*c*d^3 + (5*b^3*c^3*d - 3*a*b^2*c^2*d^2 - a^2
*b*c*d^3 - a^3*d^4)*x)*log(4*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sq
rt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d
+ a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/((b^3*c^2*d^3 -
a*b^2*c*d^4 + (b^3*c*d^4 - a*b^2*d^5)*x)*sqrt(b*d)), -1/8*(2*(15*
b^2*c^3 - 4*a*b*c^2*d - 3*a^2*c*d^2 - 2*(b^2*c*d^2 - a*b*d^3)*x^2
 + (5*b^2*c^2*d - 2*a*b*c*d^2 - 3*a^2*d^3)*x)*sqrt(-b*d)*sqrt(b*x
 + a)*sqrt(d*x + c) - 3*(5*b^3*c^4 - 3*a*b^2*c^3*d - a^2*b*c^2*d^
2 - a^3*c*d^3 + (5*b^3*c^3*d - 3*a*b^2*c^2*d^2 - a^2*b*c*d^3 - a^
3*d^4)*x)*arctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x +
 a)*sqrt(d*x + c)*b*d)))/((b^3*c^2*d^3 - a*b^2*c*d^4 + (b^3*c*d^4
 - a*b^2*d^5)*x)*sqrt(-b*d))]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x^3}{\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**3/(d*x+c)**(3/2)/(b*x+a)**(1/2),x)
```

```
[Out] Integral(x**3/(sqrt(a + b*x)*(c + d*x)**(3/2)), x)
```

GIAC/XCAS [A] time = 0.273937, size = 412, normalized size = 2.35

$$\frac{\left((bx+a)\left(\frac{2\left(b^6cd^4|b|-ab^5d^5|b|\right)(bx+a)}{b^9cd^5-ab^8d^6}-\frac{5\,b^7c^2d^3|b|+2\,ab^6cd^4|b|-7\,a^2b^5d^5|b|}{b^9cd^5-ab^8d^6}\right)-\frac{15\,b^8c^3d^2|b|-9\,ab^7c^2d^3|b|-3\,a^2b^6cd^4|b|+5\,a^3b^5d^5|b|}{b^9cd^5-ab^8d^6}\right)\sqrt{bx}}{4\sqrt{b^2c+(bx+a)bd-abd}}$$

$$-\frac{3\left(5\,b^2c^2|b|+2\,abcd|b|+a^2d^2|b|\right)\ln\left(\left|-\sqrt{bd}\sqrt{bx+a}+\sqrt{b^2c+(bx+a)bd-abd}\right|\right)}{4\sqrt{bd}b^3d^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3/(sqrt(b*x + a)*(d*x + c)^(3/2)),x, algorithm="giac")
```

```
[Out] 1/4*((b*x + a)*(2*(b^6*c*d^4*abs(b) - a*b^5*d^5*abs(b))*(b*x + a)
/(b^9*c*d^5 - a*b^8*d^6) - (5*b^7*c^2*d^3*abs(b) + 2*a*b^6*c*d^4*
abs(b) - 7*a^2*b^5*d^5*abs(b))/(b^9*c*d^5 - a*b^8*d^6)) - (15*b^8
*c^3*d^2*abs(b) - 9*a*b^7*c^2*d^3*abs(b) - 3*a^2*b^6*c*d^4*abs(b)
 + 5*a^3*b^5*d^5*abs(b))/(b^9*c*d^5 - a*b^8*d^6))*sqrt(b*x + a)/s
qrt(b^2*c + (b*x + a)*b*d - a*b*d) - 3/4*(5*b^2*c^2*abs(b) + 2*a*
b*c*d*abs(b) + a^2*d^2*abs(b))*ln(abs(-sqrt(b*d)*sqrt(b*x + a) +
sqrt(b^2*c + (b*x + a)*b*d - a*b*d)))/(sqrt(b*d)*b^3*d^3)
```

3.730 $\int \frac{x^2}{\sqrt{a+bx}(c+dx)^{3/2}}\,dx$

Optimal. Leaf size=112

$$-\frac{(ad+3bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{3/2}d^{5/2}}+\frac{2c^2\sqrt{a+bx}}{d^2\sqrt{c+dx}(bc-ad)}+\frac{\sqrt{a+bx}\sqrt{c+dx}}{bd^2}$$

```
[Out] (2*c^2*Sqrt[a + b*x])/(d^2*(b*c - a*d)*Sqrt[c + d*x]) + (Sqrt[a +
 b*x]*Sqrt[c + d*x])/(b*d^2) - ((3*b*c + a*d)*ArcTanh[(Sqrt[d]*Sq
rt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(b^(3/2)*d^(5/2))
```

Rubi [A] time = 0.262226, antiderivative size = 112, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{(ad+3bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{3/2}d^{5/2}}+\frac{2c^2\sqrt{a+bx}}{d^2\sqrt{c+dx}(bc-ad)}+\frac{\sqrt{a+bx}\sqrt{c+dx}}{bd^2}$$

Antiderivative was successfully verified.

```
[In]  Int[x^2/(Sqrt[a + b*x]*(c + d*x)^(3/2)),x]
```

```
[Out] (2*c^2*Sqrt[a + b*x])/(d^2*(b*c - a*d)*Sqrt[c + d*x]) + (Sqrt[a +
 b*x]*Sqrt[c + d*x])/(b*d^2) - ((3*b*c + a*d)*ArcTanh[(Sqrt[d]*Sq
rt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(b^(3/2)*d^(5/2))
```

Rubi in Sympy [A] time = 22.0102, size = 100, normalized size = 0.89

$$-\frac{2c^2\sqrt{a+bx}}{d^2\sqrt{c+dx}\,(ad-bc)}+\frac{\sqrt{a+bx}\sqrt{c+dx}}{bd^2}-\frac{(ad+3bc)\,\mathrm{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{\frac{3}{2}}d^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2/(d*x+c)**(3/2)/(b*x+a)**(1/2),x)
```

```
[Out] -2*c**2*sqrt(a + b*x)/(d**2*sqrt(c + d*x)*(a*d - b*c)) + sqrt(a +
 b*x)*sqrt(c + d*x)/(b*d**2) - (a*d + 3*b*c)*atanh(sqrt(d)*sqrt(a
 + b*x)/(sqrt(b)*sqrt(c + d*x)))/(b**(3/2)*d**(5/2))
```

Mathematica [A] time = 0.211043, size = 114, normalized size = 1.02

$$\frac{\sqrt{a+bx}\sqrt{c+dx}\left(\frac{2c^2}{(c+dx)(bc-ad)}+\frac{1}{b}\right)}{d^2}-\frac{(ad+3bc)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{2b^{3/2}d^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^2/(Sqrt[a + b*x]*(c + d*x)^(3/2)),x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(b^(-1) + (2*c^2)/((b*c - a*d)*(c +
d*x))))/d^2 - ((3*b*c + a*d)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*
Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(2*b^(3/2)*d^(5/2))
```

Maple [B] time = 0.035, size = 439, normalized size = 3.9

$$-\frac{1}{2\,(ad-bc)\,bd^{2}}\sqrt{bx+a}\left(\ln\left(\frac{1}{2}\left(2\,bdx+2\,\sqrt{(bx+a)\,(dx+c)}\sqrt{bd}+ad+bc\right)\frac{1}{\sqrt{bd}}\right)xa^{2}d^{3}+2\,\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{(bx+a)}}{}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2/(d*x+c)^(3/2)/(b*x+a)^(1/2),x)
```

```
[Out] -1/2*(b*x+a)^(1/2)*(ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*
d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^2*d^3+2*ln(1/2*(2*b*d*x+2*((b*
x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a*b*c*d^2
-3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)
/(b*d)^(1/2))*x*b^2*c^2*d+ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/
2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^2*c*d^2+2*ln(1/2*(2*b*d*x+
2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a*b*c
^2*d-3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+
b*c)/(b*d)^(1/2))*b^2*c^3-2*x*a*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)
^(1/2)+2*x*b*c*d*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-2*a*c*d*((b*
x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+6*b*c^2*((b*x+a)*(d*x+c))^(1/2)*(
b*d)^(1/2))/(b*d)^(1/2)/b/(a*d-b*c)/((b*x+a)*(d*x+c))^(1/2)/d^2/(
d*x+c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2/(sqrt(b*x + a)*(d*x + c)^(3/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.323048, size = 1, normalized size = 0.01

$$\left[\frac{4\left(3\,bc^{2}-acd+\left(bcd-ad^{2}\right)x\right)\sqrt{bd}\sqrt{bx+a}\sqrt{dx+c}+\left(3\,b^{2}c^{3}-2\,abc^{2}d-a^{2}cd^{2}+\left(3\,b^{2}c^{2}d-2\,abcd^{2}-a^{2}d^{3}\right)x\right)\log\left(-4\,(\right.}{4\left(b^{2}c^{2}d^{2}-abcd^{3}+(b^{2}cd^{3}-a\right.}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2/(sqrt(b*x + a)*(d*x + c)^(3/2)),x, algorithm="fricas")
```

```
[Out] [1/4*(4*(3*b*c^2 - a*c*d + (b*c*d - a*d^2)*x)*sqrt(b*d)*sqrt(b*x
+ a)*sqrt(d*x + c) + (3*b^2*c^3 - 2*a*b*c^2*d - a^2*c*d^2 + (3*b^
2*c^2*d - 2*a*b*c*d^2 - a^2*d^3)*x)*log(-4*(2*b^2*d^2*x + b^2*c*d
 + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^
2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/((
b^2*c^2*d^2 - a*b*c*d^3 + (b^2*c*d^3 - a*b*d^4)*x)*sqrt(b*d)), 1/
2*(2*(3*b*c^2 - a*c*d + (b*c*d - a*d^2)*x)*sqrt(-b*d)*sqrt(b*x +
a)*sqrt(d*x + c) - (3*b^2*c^3 - 2*a*b*c^2*d - a^2*c*d^2 + (3*b^2*
c^2*d - 2*a*b*c*d^2 - a^2*d^3)*x)*arctan(1/2*(2*b*d*x + b*c + a*d
)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/((b^2*c^2*d^2 -
a*b*c*d^3 + (b^2*c*d^3 - a*b*d^4)*x)*sqrt(-b*d))]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x^{2}}{\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2/(d*x+c)**(3/2)/(b*x+a)**(1/2),x)
```

```
[Out] Integral(x**2/(sqrt(a + b*x)*(c + d*x)**(3/2)), x)
```

GIAC/XCAS [A] time = 0.250993, size = 251, normalized size = 2.24

$$\frac{\sqrt{bx+a}\left(\frac{(b^3cd^2-ab^2d^3)(bx+a)}{b^6cd^4-ab^5d^5}+\frac{3\,b^4c^2d-2\,ab^3cd^2+a^2b^2d^3}{b^6cd^4-ab^5d^5}\right)}{8\,\sqrt{b^2c+(bx+a)bd-abd}}+\frac{(3\,bc+ad)\ln\left(\left|-\sqrt{bd}\sqrt{bx+a}+\sqrt{b^2c+(bx+a)bd-abd}\right|\right)}{8\,\sqrt{bd}b^3d^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2/(sqrt(b*x + a)*(d*x + c)^(3/2)),x, algorithm="giac")
```

```
[Out] 1/8*sqrt(b*x + a)*((b^3*c*d^2 - a*b^2*d^3)*(b*x + a)/(b^6*c*d^4 -
 a*b^5*d^5) + (3*b^4*c^2*d - 2*a*b^3*c*d^2 + a^2*b^2*d^3)/(b^6*c*
d^4 - a*b^5*d^5))/sqrt(b^2*c + (b*x + a)*b*d - a*b*d) + 1/8*(3*b*
c + a*d)*ln(abs(-sqrt(b*d)*sqrt(b*x + a) + sqrt(b^2*c + (b*x + a)
*b*d - a*b*d)))/(sqrt(b*d)*b^3*d^3)
```

3.731 $\int \frac{x}{\sqrt{a+bx}(c+dx)^{3/2}} dx$

Optimal. Leaf size=77

$$\frac{2\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{b}d^{3/2}}-\frac{2c\sqrt{a+bx}}{d\sqrt{c+dx}(bc-ad)}$$

```
[Out] (-2*c*Sqrt[a + b*x])/(d*(b*c - a*d)*Sqrt[c + d*x]) + (2*ArcTanh[(
Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(Sqrt[b]*d^(3/2)
)
```

Rubi [A] time = 0.103733, antiderivative size = 77, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.15$

$$\frac{2\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{b}d^{3/2}}-\frac{2c\sqrt{a+bx}}{d\sqrt{c+dx}(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[x/(Sqrt[a + b*x]*(c + d*x)^(3/2)),x]
```

```
[Out] (-2*c*Sqrt[a + b*x])/(d*(b*c - a*d)*Sqrt[c + d*x]) + (2*ArcTanh[(
Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(Sqrt[b]*d^(3/2)
)
```

Rubi in Sympy [A] time = 9.80418, size = 68, normalized size = 0.88

$$\frac{2c\sqrt{a+bx}}{d\sqrt{c+dx}\,(ad-bc)}+\frac{2\,\text{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{b}d^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x/(d*x+c)**(3/2)/(b*x+a)**(1/2),x)
```

```
[Out] 2*c*sqrt(a + b*x)/(d*sqrt(c + d*x)*(a*d - b*c)) + 2*atanh(sqrt(d)
*sqrt(a + b*x)/(sqrt(b)*sqrt(c + d*x)))/(sqrt(b)*d**(3/2))
```

Mathematica [A] time = 0.113126, size = 89, normalized size = 1.16

$$\frac{\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{\sqrt{b}d^{3/2}}+\frac{2c\sqrt{a+bx}}{d\sqrt{c+dx}(ad-bc)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x/(Sqrt[a + b*x]*(c + d*x)^(3/2)),x]
```

```
[Out] (2*c*Sqrt[a + b*x])/(d*(-(b*c) + a*d)*Sqrt[c + d*x]) + Log[b*c +
a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]]/(S
qrt[b]*d^(3/2))
```

Maple [B] time = 0.032, size = 251, normalized size = 3.3

$$\frac{1}{d\,(ad-bc)}\sqrt{bx+a}\left(\ln\left(\frac{1}{2}\left(2\,bdx+2\,\sqrt{(bx+a)\,(dx+c)}\sqrt{bd}+ad+bc\right)\frac{1}{\sqrt{bd}}\right)xad^2-\ln\left(\frac{1}{2}\left(2\,bdx+2\,\sqrt{(bx+a)\,(dx+c)}\sqrt{\right.\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x/(d*x+c)^(3/2)/(b*x+a)^(1/2),x)
```

```
[Out] (b*x+a)^(1/2)*(ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1
/2)+a*d+b*c)/(b*d)^(1/2))*x*a*d^2-ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x
+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*b*c*d+ln(1/2*(2*b*
d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a
*c*d-ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*
c)/(b*d)^(1/2))*b*c^2+2*c*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2))/(b
*d)^(1/2)/(a*d-b*c)/((b*x+a)*(d*x+c))^(1/2)/d/(d*x+c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/(sqrt(b*x + a)*(d*x + c)^(3/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.312545, size = 1, normalized size = 0.01

$$\left[-\frac{4\sqrt{bd}\sqrt{bx+a}\sqrt{dx+c}c - \left(bc^2 - acd + \left(bcd - ad^2\right)x\right)\log\left(4\left(2b^2d^2x + b^2cd + abd^2\right)\sqrt{bx+a}\sqrt{dx+c} + \left(8b^2d^2x^2 + b^2c^2\right.\right.}{2\left(bc^2d - acd^2 + \left(bcd^2 - ad^3\right)x\right)\sqrt{bd}}, -\frac{2\sqrt{-bd}\sqrt{bx+a}\sqrt{dx+c}c - \left(bc^2 - acd + \left(bcd - ad^2\right)x\right)\arctan\left(\frac{(2bdx+bc+ad)\sqrt{-bd}}{2\sqrt{bx+a}\sqrt{dx+c}bd}\right)}{\left(bc^2d - acd^2 + \left(bcd^2 - ad^3\right)x\right)\sqrt{-bd}}\right]$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/(sqrt(b*x + a)*(d*x + c)^(3/2)),x, algorithm="fricas")
```

```
[Out] [-1/2*(4*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c)*c - (b*c^2 - a*c*d
 + (b*c*d - a*d^2)*x)*log(4*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqr
t(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d +
 a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/((b*c^2*d - a*c*d
^2 + (b*c*d^2 - a*d^3)*x)*sqrt(b*d)), -(2*sqrt(-b*d)*sqrt(b*x + a
)*sqrt(d*x + c)*c - (b*c^2 - a*c*d + (b*c*d - a*d^2)*x)*arctan(1/
2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b
*d)))/((b*c^2*d - a*c*d^2 + (b*c*d^2 - a*d^3)*x)*sqrt(-b*d))]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x}{\sqrt{a + bx}\,(c + dx)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/(d*x+c)**(3/2)/(b*x+a)**(1/2),x)
```

```
[Out] Integral(x/(sqrt(a + b*x)*(c + d*x)**(3/2)), x)
```

GIAC/XCAS [A] time = 0.246948, size = 146, normalized size = 1.9

$$-\frac{2\left(\frac{\sqrt{bx+a}b^{3}c|b|}{(b^{3}cd-ab^{2}d^{2})\sqrt{b^{2}c+(bx+a)bd-abd}}+\frac{|b|\ln\left(\left|-\sqrt{bd}\sqrt{bx+a}+\sqrt{b^{2}c+(bx+a)bd-abd}\right|\right)}{\sqrt{bd}d}\right)}{b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/(sqrt(b*x + a)*(d*x + c)^(3/2)),x, algorithm="giac")
```

```
[Out] -2*(sqrt(b*x + a)*b^3*c*abs(b)/((b^3*c*d - a*b^2*d^2)*sqrt(b^2*c
+ (b*x + a)*b*d - a*b*d)) + abs(b)*ln(abs(-sqrt(b*d)*sqrt(b*x + a
) + sqrt(b^2*c + (b*x + a)*b*d - a*b*d)))/(sqrt(b*d)*d))/b
```

3.732 $\int \frac{1}{\sqrt{a+bx}(c+dx)^{3/2}}\,dx$

Optimal. Leaf size=30

$$\frac{2\sqrt{a+bx}}{\sqrt{c+dx}(bc-ad)}$$

```
[Out] (2*Sqrt[a + b*x])/((b*c - a*d)*Sqrt[c + d*x])
```

Rubi [A] time = 0.0228346, antiderivative size = 30, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.053

$$\frac{2\sqrt{a+bx}}{\sqrt{c+dx}(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[a + b*x]*(c + d*x)^(3/2)),x]

[Out] (2*Sqrt[a + b*x])/((b*c - a*d)*Sqrt[c + d*x])
```

Rubi in Sympy [A] time = 3.48855, size = 26, normalized size = 0.87

$$-\frac{2\sqrt{a+bx}}{\sqrt{c+dx}\,(ad-bc)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(b*x+a)**(1/2)/(d*x+c)**(3/2),x)

[Out] -2*sqrt(a + b*x)/(sqrt(c + d*x)*(a*d - b*c))
```

Mathematica [A] time = 0.0328853, size = 30, normalized size = 1.

$$-\frac{2\sqrt{a+bx}}{\sqrt{c+dx}(ad-bc)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[a + b*x]*(c + d*x)^(3/2)),x]

[Out] (-2*Sqrt[a + b*x])/((-(b*c) + a*d)*Sqrt[c + d*x])
```

Maple [A] time = 0.008, size = 27, normalized size = 0.9

$$-2\,\frac{\sqrt{bx+a}}{\sqrt{dx+c}\,(ad-bc)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(b*x+a)^(1/2)/(d*x+c)^(3/2),x)
```

```
[Out] -2*(b*x+a)^(1/2)/(d*x+c)^(1/2)/(a*d-b*c)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(b*x + a)*(d*x + c)^(3/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.230117, size = 57, normalized size = 1.9

$$\frac{2\sqrt{bx+a}\sqrt{dx+c}}{bc^2-acd+(bcd-ad^2)x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(b*x + a)*(d*x + c)^(3/2)),x, algorithm="fricas")
```

```
[Out] 2*sqrt(b*x + a)*sqrt(d*x + c)/(b*c^2 - a*c*d + (b*c*d - a*d^2)*x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(b*x+a)**(1/2)/(d*x+c)**(3/2),x)
```

```
[Out] Integral(1/(sqrt(a + b*x)*(c + d*x)**(3/2)), x)
```

GIAC/XCAS [A] time = 0.222435, size = 63, normalized size = 2.1

$$\frac{2\sqrt{bx+a}b^2}{\sqrt{b^2c+(bx+a)bd-abd}(bc|b|-ad|b|)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(b*x + a)*(d*x + c)^(3/2)),x, algorithm="giac")
```

```
[Out] 2*sqrt(b*x + a)*b^2/(sqrt(b^2*c + (b*x + a)*b*d - a*b*d)*(b*c*abs
(b) - a*d*abs(b)))
```

3.733 $\int \frac{1}{x\sqrt{a+bx}(c+dx)^{3/2}}\,dx$

Optimal. Leaf size=77

$$-\frac{2\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{a}c^{3/2}}-\frac{2d\sqrt{a+bx}}{c\sqrt{c+dx}(bc-ad)}$$

```
[Out] (-2*d*Sqrt[a + b*x])/(c*(b*c - a*d)*Sqrt[c + d*x]) - (2*ArcTanh[(
Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(Sqrt[a]*c^(3/2)
)
```

Rubi [A] time = 0.140739, antiderivative size = 77, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.136

$$-\frac{2\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{a}c^{3/2}}-\frac{2d\sqrt{a+bx}}{c\sqrt{c+dx}(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x*Sqrt[a + b*x]*(c + d*x)^(3/2)),x]
```

```
[Out] (-2*d*Sqrt[a + b*x])/(c*(b*c - a*d)*Sqrt[c + d*x]) - (2*ArcTanh[(
Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(Sqrt[a]*c^(3/2)
)
```

Rubi in Sympy [A] time = 10.4704, size = 68, normalized size = 0.88

$$\frac{2d\sqrt{a+bx}}{c\sqrt{c+dx}\,(ad-bc)}-\frac{2\,\text{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{a}c^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x/(d*x+c)**(3/2)/(b*x+a)**(1/2),x)
```

```
[Out] 2*d*sqrt(a + b*x)/(c*sqrt(c + d*x)*(a*d - b*c)) - 2*atanh(sqrt(c)
*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(sqrt(a)*c**(3/2))
```

Mathematica [A] time = 0.210665, size = 104, normalized size = 1.35

$$-\frac{\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{\sqrt{a}c^{3/2}}-\frac{2d\sqrt{a+bx}}{c\sqrt{c+dx}(bc-ad)}+\frac{\log(x)}{\sqrt{a}c^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(x*Sqrt[a + b*x]*(c + d*x)^(3/2)),x]
```

```
[Out] (-2*d*Sqrt[a + b*x])/(c*(b*c - a*d)*Sqrt[c + d*x]) + Log[x]/(Sqrt
[a]*c^(3/2)) - Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt
[a + b*x]*Sqrt[c + d*x]]/(Sqrt[a]*c^(3/2))
```

Maple [B] time = 0.039, size = 243, normalized size = 3.2

$$\frac{1}{c\,(ad-bc)}\left(-\ln\left(\frac{1}{x}\left(adx+bcx+2\sqrt{ac}\sqrt{(bx+a)(dx+c)}+2ac\right)\right)xad^2+\ln\left(\frac{1}{x}\left(adx+bcx+2\sqrt{ac}\sqrt{(bx+a)(dx+c)}+2\right.\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/x/(d*x+c)^(3/2)/(b*x+a)^(1/2),x)
```

```
[Out] (-ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)
*x*a*d^2+ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*
a*c)/x)*x*b*c*d-ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(
1/2)+2*a*c)/x)*a*c*d+ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+
c))^(1/2)+2*a*c)/x)*b*c^2+2*d*((b*x+a)*(d*x+c))^(1/2)*(a*c)^(1/2)
)*(b*x+a)^(1/2)/c/(a*d-b*c)/(a*c)^(1/2)/((b*x+a)*(d*x+c))^(1/2)/(
d*x+c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{bx+a}(dx+c)^{\frac{3}{2}}x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(b*x + a)*(d*x + c)^(3/2)*x),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(b*x + a)*(d*x + c)^(3/2)*x), x)
```

Fricas [A] time = 0.290874, size = 1, normalized size = 0.01

$$\left[-\frac{4\sqrt{ac}\sqrt{bx+a}\sqrt{dx+c}d-\left(bc^2-acd+\left(bcd-ad^2\right)x\right)\log\left(-\frac{4\left(2a^2c^2+\left(abc^2+a^2cd\right)x\right)\sqrt{bx+a}\sqrt{dx+c}-\left(8a^2c^2+\left(b^2c^2+6abcd+a^2d^2\right)x^2+\right.}{x^2}\right.}{2\left(bc^3-ac^2d+\left(bc^2d-acd^2\right)x\right)\sqrt{ac}}\right.$$

$$\left.-\frac{2\sqrt{-ac}\sqrt{bx+a}\sqrt{dx+c}d+\left(bc^2-acd+\left(bcd-ad^2\right)x\right)\arctan\left(\frac{\left(2ac+\left(bc+ad\right)x\right)\sqrt{-ac}}{2\sqrt{bx+a}\sqrt{dx+c}ac}\right)}{\left(bc^3-ac^2d+\left(bc^2d-acd^2\right)x\right)\sqrt{-ac}}\right]$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(b*x + a)*(d*x + c)^(3/2)*x),x, algorithm="fricas")
```

```
[Out] [-1/2*(4*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c)*d - (b*c^2 - a*c*d
 + (b*c*d - a*d^2)*x)*log(-(4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)
*sqrt(b*x + a)*sqrt(d*x + c) - (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d
+ a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2))/((b*c^
3 - a*c^2*d + (b*c^2*d - a*c*d^2)*x)*sqrt(a*c)), -(2*sqrt(-a*c)*s
qrt(b*x + a)*sqrt(d*x + c)*d + (b*c^2 - a*c*d + (b*c*d - a*d^2)*x
)*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sq
rt(d*x + c)*a*c)))/((b*c^3 - a*c^2*d + (b*c^2*d - a*c*d^2)*x)*sqr
t(-a*c))]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{x\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/x/(d*x+c)**(3/2)/(b*x+a)**(1/2),x)
```

```
[Out] Integral(1/(x*sqrt(a + b*x)*(c + d*x)**(3/2)), x)
```

GIAC/XCAS [A] time = 0.231039, size = 189, normalized size = 2.45

$$-\frac{2\sqrt{bx+a}b^2d}{\left(bc^2|b|-acd|b|\right)\sqrt{b^2c+(bx+a)bd-abd}}-\frac{2\sqrt{bd}b\arctan\left(-\frac{b^2c+abd-\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2}{2\sqrt{-abcd}b}\right)}{\sqrt{-abcd}c|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(b*x + a)*(d*x + c)^(3/2)*x),x, algorithm="giac")
```

```
[Out] -2*sqrt(b*x + a)*b^2*d/((b*c^2*abs(b) - a*c*d*abs(b))*sqrt(b^2*c
+ (b*x + a)*b*d - a*b*d)) - 2*sqrt(b*d)*b*arctan(-1/2*(b^2*c + a*
b*d - (sqrt(b*d)*sqrt(b*x + a) - sqrt(b^2*c + (b*x + a)*b*d - a*b
*d))^2)/(sqrt(-a*b*c*d)*b))/(sqrt(-a*b*c*d)*c*abs(b))
```

3.734 $\int \frac{1}{x^2\sqrt{a+bx}(c+dx)^{3/2}}\,dx$

Optimal. Leaf size=124

$$\frac{(3ad+bc)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{3/2}c^{5/2}}-\frac{d\sqrt{a+bx}(bc-3ad)}{ac^2\sqrt{c+dx}(bc-ad)}-\frac{\sqrt{a+bx}}{acx\sqrt{c+dx}}$$

```
[Out] -((d*(b*c - 3*a*d)*Sqrt[a + b*x])/(a*c^2*(b*c - a*d)*Sqrt[c + d*x
])) - Sqrt[a + b*x]/(a*c*x*Sqrt[c + d*x]) + ((b*c + 3*a*d)*ArcTan
h[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(a^(3/2)*c^(5
/2))
```

Rubi [A] time = 0.315748, antiderivative size = 124, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$\frac{(3ad+bc)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{3/2}c^{5/2}}-\frac{d\sqrt{a+bx}(bc-3ad)}{ac^2\sqrt{c+dx}(bc-ad)}-\frac{\sqrt{a+bx}}{acx\sqrt{c+dx}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x^2*Sqrt[a + b*x]*(c + d*x)^(3/2)),x]
```

```
[Out] -((d*(b*c - 3*a*d)*Sqrt[a + b*x])/(a*c^2*(b*c - a*d)*Sqrt[c + d*x
])) - Sqrt[a + b*x]/(a*c*x*Sqrt[c + d*x]) + ((b*c + 3*a*d)*ArcTan
h[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(a^(3/2)*c^(5
/2))
```

Rubi in Sympy [A] time = 33.5837, size = 107, normalized size = 0.86

$$-\frac{\sqrt{a+bx}}{acx\sqrt{c+dx}}-\frac{d\sqrt{a+bx}\,(3ad-bc)}{ac^2\sqrt{c+dx}\,(ad-bc)}+\frac{(3ad+bc)\,\mathrm{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{\frac{3}{2}}c^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x**2/(d*x+c)**(3/2)/(b*x+a)**(1/2),x)
```

```
[Out] -sqrt(a + b*x)/(a*c*x*sqrt(c + d*x)) - d*sqrt(a + b*x)*(3*a*d - b
*c)/(a*c**2*sqrt(c + d*x)*(a*d - b*c)) + (3*a*d + b*c)*atanh(sqrt
(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(a**(3/2)*c**(5/2))
```

Mathematica [A] time = 0.338947, size = 141, normalized size = 1.14

$$\frac{-\frac{\log(x)(3ad+bc)}{a^{3/2}}+\frac{(3ad+bc)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{a^{3/2}}+2\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}\left(\frac{2d^2}{(c+dx)(bc-ad)}-\frac{1}{ax}\right)}{2c^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(x^2*Sqrt[a + b*x]*(c + d*x)^(3/2)),x]
```

```
[Out] (2*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]*(-(1/(a*x)) + (2*d^2)/((b*
c - a*d)*(c + d*x))) - ((b*c + 3*a*d)*Log[x])/a^(3/2) + ((b*c + 3
*a*d)*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]
*Sqrt[c + d*x]])/a^(3/2))/(2*c^(5/2))
```

Maple [B] time = 0.046, size = 441, normalized size = 3.6

$$\frac{1}{2\left(ad-bc\right)ac^{2}x}\sqrt{bx+a}\left(3\ln\left(\frac{adx+bcx+2\sqrt{ac}\sqrt{(bx+a)(dx+c)}+2ac}{x}\right)x^{2}a^{2}d^{3}-2\ln\left(\frac{adx+bcx+2\sqrt{ac}\sqrt{(bx+a)(}}{x}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/x^2/(d*x+c)^(3/2)/(b*x+a)^(1/2),x)
```

```
[Out] 1/2*(b*x+a)^(1/2)/a/c^2*(3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)
*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a^2*d^3-2*ln((a*d*x+b*c*x+2*(a*c)^(
1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a*b*c*d^2-ln((a*d*x+b*
c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*b^2*c^2*d
+3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x
)*x*a^2*c*d^2-2*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(
1/2)+2*a*c)/x)*x*a*b*c^2*d-ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)
*(d*x+c))^(1/2)+2*a*c)/x)*x*b^2*c^3-6*x*a*d^2*(a*c)^(1/2)*((b*x+a
)*(d*x+c))^(1/2)+2*x*b*c*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-2*
a*c*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*b*c^2*(a*c)^(1/2)*((b
*x+a)*(d*x+c))^(1/2))/(a*d-b*c)/(a*c)^(1/2)/x/((b*x+a)*(d*x+c))^(
1/2)/(d*x+c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{bx+a}(dx+c)^{\frac{3}{2}}x^{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(b*x + a)*(d*x + c)^(3/2)*x^2),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(b*x + a)*(d*x + c)^(3/2)*x^2), x)
```

Fricas [A] time = 0.325383, size = 1, normalized size = 0.01

$$\left[-\frac{4\left(bc^{2}-acd+\left(bcd-3\,ad^{2}\right)x\right)\sqrt{ac}\sqrt{bx+a}\sqrt{dx+c}-\left(\left(b^{2}c^{2}d+2\,abcd^{2}-3\,a^{2}d^{3}\right)x^{2}+\left(b^{2}c^{3}+2\,abc^{2}d-3\,a^{2}cd^{2}\right)x\right)\log}{4\left((abc^{3}d-a^{2}c^{2}d^{2})x^{2}+(abc^{4}-a^{2}c^{3}d)x\right)\sqrt{a}}\right.$$

$$-\frac{2\left(bc^{2}-acd+\left(bcd-3\,ad^{2}\right)x\right)\sqrt{-ac}\sqrt{bx+a}\sqrt{dx+c}-\left(\left(b^{2}c^{2}d+2\,abcd^{2}-3\,a^{2}d^{3}\right)x^{2}+\left(b^{2}c^{3}+2\,abc^{2}d-3\,a^{2}cd^{2}\right)x\right)\mathrm{arc}}{2\left((abc^{3}d-a^{2}c^{2}d^{2})x^{2}+(abc^{4}-a^{2}c^{3}d)x\right)\sqrt{-ac}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(b*x + a)*(d*x + c)^(3/2)*x^2),x, algorithm="fricas")
```

```
[Out] [-1/4*(4*(b*c^2 - a*c*d + (b*c*d - 3*a*d^2)*x)*sqrt(a*c)*sqrt(b*x
 + a)*sqrt(d*x + c) - ((b^2*c^2*d + 2*a*b*c*d^2 - 3*a^2*d^3)*x^2
+ (b^2*c^3 + 2*a*b*c^2*d - 3*a^2*c*d^2)*x)*log((4*(2*a^2*c^2 + (a
*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c) + (8*a^2*c^2 + (
b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqr
t(a*c))/x^2))/(((a*b*c^3*d - a^2*c^2*d^2)*x^2 + (a*b*c^4 - a^2*c^
3*d)*x)*sqrt(a*c)), -1/2*(2*(b*c^2 - a*c*d + (b*c*d - 3*a*d^2)*x)
*sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c) - ((b^2*c^2*d + 2*a*b*c*d
^2 - 3*a^2*d^3)*x^2 + (b^2*c^3 + 2*a*b*c^2*d - 3*a^2*c*d^2)*x)*ar
ctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d
*x + c)*a*c)))/(((a*b*c^3*d - a^2*c^2*d^2)*x^2 + (a*b*c^4 - a^2*c
```

```
^3*d)*x)*sqrt(-a*c))]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{x^2\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/x**2/(d*x+c)**(3/2)/(b*x+a)**(1/2),x)

[Out] Integral(1/(x**2*sqrt(a + b*x)*(c + d*x)**(3/2)), x)
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(b*x + a)*(d*x + c)^(3/2)*x^2),x, algorithm="giac")

[Out] Exception raised: TypeError
```

3.735 $\int \frac{1}{x^3\sqrt{a+bx}(c+dx)^{3/2}}\,dx$

Optimal. Leaf size=194

$$\frac{d\sqrt{a+bx}(3bc-5ad)(3ad+bc)}{4a^2c^3\sqrt{c+dx}(bc-ad)}+\frac{\sqrt{a+bx}(5ad+3bc)}{4a^2c^2x\sqrt{c+dx}}-\frac{3\left(5a^2d^2+2abcd+b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{5/2}c^{7/2}}-\frac{\sqrt{a+bx}}{2acx^2\sqrt{c+dx}}$$

```
[Out] (d*(3*b*c - 5*a*d)*(b*c + 3*a*d)*Sqrt[a + b*x])/(4*a^2*c^3*(b*c -
 a*d)*Sqrt[c + d*x]) - Sqrt[a + b*x]/(2*a*c*x^2*Sqrt[c + d*x]) +
((3*b*c + 5*a*d)*Sqrt[a + b*x])/(4*a^2*c^2*x*Sqrt[c + d*x]) - (3*
(b^2*c^2 + 2*a*b*c*d + 5*a^2*d^2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])
/(Sqrt[a]*Sqrt[c + d*x])])/(4*a^(5/2)*c^(7/2))
```

Rubi [A] time = 0.577584, antiderivative size = 194, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.273

$$\frac{d\sqrt{a+bx}(3bc-5ad)(3ad+bc)}{4a^2c^3\sqrt{c+dx}(bc-ad)}+\frac{\sqrt{a+bx}(5ad+3bc)}{4a^2c^2x\sqrt{c+dx}}-\frac{3\left(5a^2d^2+2abcd+b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{5/2}c^{7/2}}-\frac{\sqrt{a+bx}}{2acx^2\sqrt{c+dx}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x^3*Sqrt[a + b*x]*(c + d*x)^(3/2)),x]
```

```
[Out] (d*(3*b*c - 5*a*d)*(b*c + 3*a*d)*Sqrt[a + b*x])/(4*a^2*c^3*(b*c -
 a*d)*Sqrt[c + d*x]) - Sqrt[a + b*x]/(2*a*c*x^2*Sqrt[c + d*x]) +
((3*b*c + 5*a*d)*Sqrt[a + b*x])/(4*a^2*c^2*x*Sqrt[c + d*x]) - (3*
(b^2*c^2 + 2*a*b*c*d + 5*a^2*d^2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])
/(Sqrt[a]*Sqrt[c + d*x])])/(4*a^(5/2)*c^(7/2))
```

Rubi in Sympy [A] time = 75.9479, size = 180, normalized size = 0.93

$$-\frac{\sqrt{a+bx}}{2acx^2\sqrt{c+dx}}+\frac{\sqrt{a+bx}\,(5ad+3bc)}{4a^2c^2x\sqrt{c+dx}}+\frac{d\sqrt{a+bx}\,(3ad+bc)\,(5ad-3bc)}{4a^2c^3\sqrt{c+dx}\,(ad-bc)}-\frac{3\left(5a^2d^2+2abcd+b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{\frac{5}{2}}c^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x**3/(d*x+c)**(3/2)/(b*x+a)**(1/2),x)
```

```
[Out] -sqrt(a + b*x)/(2*a*c*x**2*sqrt(c + d*x)) + sqrt(a + b*x)*(5*a*d
+ 3*b*c)/(4*a**2*c**2*x*sqrt(c + d*x)) + d*sqrt(a + b*x)*(3*a*d +
 b*c)*(5*a*d - 3*b*c)/(4*a**2*c**3*sqrt(c + d*x)*(a*d - b*c)) - 3
*(5*a**2*d**2 + 2*a*b*c*d + b**2*c**2)*atanh(sqrt(c)*sqrt(a + b*x
)/(sqrt(a)*sqrt(c + d*x)))/(4*a**(5/2)*c**(7/2))
```

Mathematica [A] time = 0.630155, size = 187, normalized size = 0.96

$$\frac{2\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}\left(\frac{3bc}{a^2x}+\frac{8d^3}{(c+dx)(ad-bc)}+\frac{7dx-2c}{ax^2}\right)+\frac{3\log(x)\left(5a^2d^2+2abcd+b^2c^2\right)}{a^{5/2}}-\frac{3\left(5a^2d^2+2abcd+b^2c^2\right)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac\right.}{a^{5/2}}}{8c^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(x^3*Sqrt[a + b*x]*(c + d*x)^(3/2)),x]
```

```
[Out] (2*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]*((3*b*c)/(a^2*x) + (8*d^3)
/((-(b*c) + a*d)*(c + d*x)) + (-2*c + 7*d*x)/(a*x^2)) + (3*(b^2*c
^2 + 2*a*b*c*d + 5*a^2*d^2)*Log[x])/a^(5/2) - (3*(b^2*c^2 + 2*a*b
*c*d + 5*a^2*d^2)*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*S
qrt[a + b*x]*Sqrt[c + d*x]])/a^(5/2))/(8*c^(7/2))
```

Maple [B] time = 0.051, size = 683, normalized size = 3.5

$$-\frac{1}{8\,a^2c^3x^2\,(ad-bc)}\sqrt{bx+a}\left(15\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)\,(dx+c)}+2\,ac}{x}\right)x^3a^3d^4-9\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+\right.}{x}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/x^3/(d*x+c)^(3/2)/(b*x+a)^(1/2),x)
```

```
[Out] -1/8*(b*x+a)^(1/2)/a^2/c^3*(15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*
x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^3*d^4-9*ln((a*d*x+b*c*x+2*(a*
c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^2*b*c*d^3-3*ln((
a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a
*b^2*c^2*d^2-3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1
/2)+2*a*c)/x)*x^3*b^3*c^3*d+15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*
x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a^3*c*d^3-9*ln((a*d*x+b*c*x+2*(
a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a^2*b*c^2*d^2-3*
ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x
^2*a*b^2*c^3*d-3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^
(1/2)+2*a*c)/x)*x^2*b^3*c^4-30*x^2*a^2*d^3*(a*c)^(1/2)*((b*x+a)*(
d*x+c))^(1/2)+8*x^2*a*b*c*d^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)
+6*x^2*b^2*c^2*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-10*x*a^2*c*d
^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+4*x*a*b*c^2*d*(a*c)^(1/2)*
((b*x+a)*(d*x+c))^(1/2)+6*x*b^2*c^3*(a*c)^(1/2)*((b*x+a)*(d*x+c))
^(1/2)+4*a^2*c^2*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-4*a*b*c^3*
(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2))/x^2/(a*c)^(1/2)/(a*d-b*c)/((
b*x+a)*(d*x+c))^(1/2)/(d*x+c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{bx+a}(dx+c)^{\frac{3}{2}}x^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(b*x + a)*(d*x + c)^(3/2)*x^3),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(b*x + a)*(d*x + c)^(3/2)*x^3), x)
```

Fricas [A] time = 0.419839, size = 1, normalized size = 0.01

$$\left[-\frac{4\left(2\,abc^3-2\,a^2c^2d-\left(3\,b^2c^2d+4\,abcd^2-15\,a^2d^3\right)x^2-\left(3\,b^2c^3+2\,abc^2d-5\,a^2cd^2\right)x\right)\sqrt{ac}\sqrt{bx+a}\sqrt{dx+c}-3\left(\left(b^3c^3d\right.\right.}{16\,(}\right.$$

$$-\frac{2\left(2\,abc^3-2\,a^2c^2d-\left(3\,b^2c^2d+4\,abcd^2-15\,a^2d^3\right)x^2-\left(3\,b^2c^3+2\,abc^2d-5\,a^2cd^2\right)x\right)\sqrt{-ac}\sqrt{bx+a}\sqrt{dx+c}+3\left(\left(b^3c^3d\right.\right.}{8\left(\left(a^2bc^4d-a^3c^3d^2\right)x^3+\left(a^2bc^5\right.\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(b*x + a)*(d*x + c)^(3/2)*x^3),x, algorithm="fricas")
```

```
[Out] [-1/16*(4*(2*a*b*c^3 - 2*a^2*c^2*d - (3*b^2*c^2*d + 4*a*b*c*d^2 -
 15*a^2*d^3)*x^2 - (3*b^2*c^3 + 2*a*b*c^2*d - 5*a^2*c*d^2)*x)*sqr
t(a*c)*sqrt(b*x + a)*sqrt(d*x + c) - 3*((b^3*c^3*d + a*b^2*c^2*d^
2 + 3*a^2*b*c*d^3 - 5*a^3*d^4)*x^3 + (b^3*c^4 + a*b^2*c^3*d + 3*a
^2*b*c^2*d^2 - 5*a^3*c*d^3)*x^2)*log(-(4*(2*a^2*c^2 + (a*b*c^2 +
a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c) - (8*a^2*c^2 + (b^2*c^2 +
 6*a*b*c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x
^2))/(((a^2*b*c^4*d - a^3*c^3*d^2)*x^3 + (a^2*b*c^5 - a^3*c^4*d)*
x^2)*sqrt(a*c)), -1/8*(2*(2*a*b*c^3 - 2*a^2*c^2*d - (3*b^2*c^2*d
+ 4*a*b*c*d^2 - 15*a^2*d^3)*x^2 - (3*b^2*c^3 + 2*a*b*c^2*d - 5*a^
2*c*d^2)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c) + 3*((b^3*c^3*
d + a*b^2*c^2*d^2 + 3*a^2*b*c*d^3 - 5*a^3*d^4)*x^3 + (b^3*c^4 + a
*b^2*c^3*d + 3*a^2*b*c^2*d^2 - 5*a^3*c*d^3)*x^2)*arctan(1/2*(2*a*
c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d*x + c)*a*c)))
/(((a^2*b*c^4*d - a^3*c^3*d^2)*x^3 + (a^2*b*c^5 - a^3*c^4*d)*x^2)
*sqrt(-a*c))]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{x^3\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/x**3/(d*x+c)**(3/2)/(b*x+a)**(1/2),x)
```

```
[Out] Integral(1/(x**3*sqrt(a + b*x)*(c + d*x)**(3/2)), x)
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(b*x + a)*(d*x + c)^(3/2)*x^3),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.736 $\int \frac{x^4}{\sqrt{a+bx}(c+dx)^{5/2}}\,dx$

Optimal. Leaf size=258

$$\frac{(3a^2d^2+10abcd+35b^2c^2)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{5/2}d^{9/2}} - \frac{\sqrt{a+bx}\sqrt{c+dx}\,(9a^3d^3-2bdx(3a^2d^2-46abcd+35b^2c^2)+15a^2bcd^2-145ab^2c^2d+105b^3c^3)}{12b^2d^4(bc-ad)^2} - \frac{2cx^2\sqrt{a+bx}(7bc-9ad)}{3d^2\sqrt{c+dx}(bc-ad)^2} - \frac{2cx^3\sqrt{a+bx}}{3d(c+dx)^{3/2}(bc-ad)}$$

```
[Out] (-2*c*x^3*Sqrt[a + b*x])/(3*d*(b*c - a*d)*(c + d*x)^(3/2)) - (2*c
*(7*b*c - 9*a*d)*x^2*Sqrt[a + b*x])/(3*d^2*(b*c - a*d)^2*Sqrt[c +
 d*x]) - (Sqrt[a + b*x]*Sqrt[c + d*x]*(105*b^3*c^3 - 145*a*b^2*c^
2*d + 15*a^2*b*c*d^2 + 9*a^3*d^3 - 2*b*d*(35*b^2*c^2 - 46*a*b*c*d
 + 3*a^2*d^2)*x))/(12*b^2*d^4*(b*c - a*d)^2) + ((35*b^2*c^2 + 10*
a*b*c*d + 3*a^2*d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqr
t[c + d*x])])/(4*b^(5/2)*d^(9/2))
```

Rubi [A] time = 0.620708, antiderivative size = 258, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$\frac{(3a^2d^2+10abcd+35b^2c^2)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{5/2}d^{9/2}} - \frac{\sqrt{a+bx}\sqrt{c+dx}\,(9a^3d^3-2bdx(3a^2d^2-46abcd+35b^2c^2)+15a^2bcd^2-145ab^2c^2d+105b^3c^3)}{12b^2d^4(bc-ad)^2} - \frac{2cx^2\sqrt{a+bx}(7bc-9ad)}{3d^2\sqrt{c+dx}(bc-ad)^2} - \frac{2cx^3\sqrt{a+bx}}{3d(c+dx)^{3/2}(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[x^4/(Sqrt[a + b*x]*(c + d*x)^(5/2)),x]
```

```
[Out] (-2*c*x^3*Sqrt[a + b*x])/(3*d*(b*c - a*d)*(c + d*x)^(3/2)) - (2*c
*(7*b*c - 9*a*d)*x^2*Sqrt[a + b*x])/(3*d^2*(b*c - a*d)^2*Sqrt[c +
 d*x]) - (Sqrt[a + b*x]*Sqrt[c + d*x]*(105*b^3*c^3 - 145*a*b^2*c^
2*d + 15*a^2*b*c*d^2 + 9*a^3*d^3 - 2*b*d*(35*b^2*c^2 - 46*a*b*c*d
 + 3*a^2*d^2)*x))/(12*b^2*d^4*(b*c - a*d)^2) + ((35*b^2*c^2 + 10*
a*b*c*d + 3*a^2*d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqr
t[c + d*x])])/(4*b^(5/2)*d^(9/2))
```

Rubi in Sympy [A] time = 53.4482, size = 262, normalized size = 1.02

$$\frac{2cx^3\sqrt{a+bx}}{3d\,(c+dx)^{\frac{3}{2}}\,(ad-bc)} + \frac{2cx^2\sqrt{a+bx}\,(9ad-7bc)}{3d^2\sqrt{c+dx}\,(ad-bc)^2} - \frac{2\sqrt{a+bx}\sqrt{c+dx}\left(\frac{9a^3d^3}{8}+\frac{15a^2bcd^2}{8}-\frac{145ab^2c^2d}{8}+\frac{105b^3c^3}{8}-\frac{bdx(3a^2d^2-46abcd+35b^2c^2)}{4}\right)}{3b^2d^4\,(ad-bc)^2} + \frac{(3a^2d^2+10abcd+35b^2c^2)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{\frac{5}{2}}d^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**4/(d*x+c)**(5/2)/(b*x+a)**(1/2),x)
```

```
[Out] 2*c*x**3*sqrt(a + b*x)/(3*d*(c + d*x)**(3/2)*(a*d - b*c)) + 2*c*x
**2*sqrt(a + b*x)*(9*a*d - 7*b*c)/(3*d**2*sqrt(c + d*x)*(a*d - b*
```

```
c)**2) - 2*sqrt(a + b*x)*sqrt(c + d*x)*(9*a**3*d**3/8 + 15*a**2*b
*c*d**2/8 - 145*a*b**2*c**2*d/8 + 105*b**3*c**3/8 - b*d*x*(3*a**2
*d**2 - 46*a*b*c*d + 35*b**2*c**2)/4)/(3*b**2*d**4*(a*d - b*c)**2
) + (3*a**2*d**2 + 10*a*b*c*d + 35*b**2*c**2)*atanh(sqrt(d)*sqrt(
a + b*x)/(sqrt(b)*sqrt(c + d*x)))/(4*b**(5/2)*d**(9/2))
```

Mathematica [A] time = 0.464395, size = 181, normalized size = 0.7

$$\frac{(3a^2d^2+10abcd+35b^2c^2)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{8b^{5/2}d^{9/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(-\frac{9ad+33bc}{b^2}+\frac{8c^4}{(c+dx)^2(bc-ad)}-\frac{16c^3(5bc-6ad)}{(c+dx)(bc-ad)^2}+\frac{6dx}{b}\right)}{12d^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^4/(Sqrt[a + b*x]*(c + d*x)^(5/2)),x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(-((33*b*c + 9*a*d)/b^2) + (6*d*x)/b
 + (8*c^4)/((b*c - a*d)*(c + d*x)^2) - (16*c^3*(5*b*c - 6*a*d))/(
(b*c - a*d)^2*(c + d*x)))))/(12*d^4) + ((35*b^2*c^2 + 10*a*b*c*d +
 3*a^2*d^2)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a +
b*x]*Sqrt[c + d*x]])/(8*b^(5/2)*d^(9/2))
```

Maple [B] time = 0.048, size = 1287, normalized size = 5.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^4/(d*x+c)^(5/2)/(b*x+a)^(1/2),x)
```

```
[Out] 1/24*(b*x+a)^(1/2)*(-18*x^2*a^3*d^5*((b*x+a)*(d*x+c))^(1/2)*(b*d)
^(1/2)-18*a^3*c^2*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+105*ln(
1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)
^(1/2))*x^2*b^4*c^4*d^2+18*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1
/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^4*c*d^5+210*ln(1/2*(2*b
*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*
x*b^4*c^5*d+12*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1
/2)+a*d+b*c)/(b*d)^(1/2))*a^3*b*c^3*d^3+54*ln(1/2*(2*b*d*x+2*((b*
x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^2*b^2*c^4
*d^2-210*b^3*c^5*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+9*ln(1/2*(2*
b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))
*x^2*a^4*d^6+9*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1
/2)+a*d+b*c)/(b*d)^(1/2))*a^4*c^2*d^4-180*ln(1/2*(2*b*d*x+2*((b*x
+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a*b^3*c^5*d+
105*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c
)/(b*d)^(1/2))*b^4*c^6+108*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1
/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^2*b^2*c^3*d^3-360*ln(1/
2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(
1/2))*x*a*b^3*c^4*d^2+12*x^3*a^2*b*d^5*((b*x+a)*(d*x+c))^(1/2)*(b
*d)^(1/2)+12*x^3*b^3*c^2*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-
42*x^2*b^3*c^3*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-36*x*a^3*c
*d^4*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-280*x*b^3*c^4*d*((b*x+a)
*(d*x+c))^(1/2)*(b*d)^(1/2)-30*a^2*b*c^3*d^2*((b*x+a)*(d*x+c))^(1
/2)*(b*d)^(1/2)+290*a*b^2*c^4*d*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/
2)+12*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b
*c)/(b*d)^(1/2))*x^2*a^3*b*c*d^5+54*ln(1/2*(2*b*d*x+2*((b*x+a)*(d
*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a^2*b^2*c^2*d^
4-180*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b
*c)/(b*d)^(1/2))*x^2*a*b^3*c^3*d^3+24*ln(1/2*(2*b*d*x+2*((b*x+a)*
(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^3*b*c^2*d^4+
66*x^2*a*b^2*c^2*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-48*x*a^2
*b*c^2*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+396*x*a*b^2*c^3*d^
```

```
2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-24*x^3*a*b^2*c*d^4*((b*x+a)
*(d*x+c))^(1/2)*(b*d)^(1/2)-6*x^2*a^2*b*c*d^4*((b*x+a)*(d*x+c))^(
1/2)*(b*d)^(1/2))/(a*d-b*c)^2/(b*d)^(1/2)/b^2/((b*x+a)*(d*x+c))^(
1/2)/d^4/(d*x+c)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^4/(sqrt(b*x + a)*(d*x + c)^(5/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.7431, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^4/(sqrt(b*x + a)*(d*x + c)^(5/2)),x, algorithm="fricas")
```

```
[Out] [-1/48*(4*(105*b^3*c^5 - 145*a*b^2*c^4*d + 15*a^2*b*c^3*d^2 + 9*a
^3*c^2*d^3 - 6*(b^3*c^2*d^3 - 2*a*b^2*c*d^4 + a^2*b*d^5)*x^3 + 3*
(7*b^3*c^3*d^2 - 11*a*b^2*c^2*d^3 + a^2*b*c*d^4 + 3*a^3*d^5)*x^2
+ 2*(70*b^3*c^4*d - 99*a*b^2*c^3*d^2 + 12*a^2*b*c^2*d^3 + 9*a^3*c
*d^4)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) - 3*(35*b^4*c^6 -
60*a*b^3*c^5*d + 18*a^2*b^2*c^4*d^2 + 4*a^3*b*c^3*d^3 + 3*a^4*c^2
*d^4 + (35*b^4*c^4*d^2 - 60*a*b^3*c^3*d^3 + 18*a^2*b^2*c^2*d^4 +
4*a^3*b*c*d^5 + 3*a^4*d^6)*x^2 + 2*(35*b^4*c^5*d - 60*a*b^3*c^4*d
^2 + 18*a^2*b^2*c^3*d^3 + 4*a^3*b*c^2*d^4 + 3*a^4*c*d^5)*x)*log(4
*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) +
(8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b
*d^2)*x)*sqrt(b*d)))/((b^4*c^4*d^4 - 2*a*b^3*c^3*d^5 + a^2*b^2*c^
2*d^6 + (b^4*c^2*d^6 - 2*a*b^3*c*d^7 + a^2*b^2*d^8)*x^2 + 2*(b^4*
c^3*d^5 - 2*a*b^3*c^2*d^6 + a^2*b^2*c*d^7)*x)*sqrt(b*d)), -1/24*(
2*(105*b^3*c^5 - 145*a*b^2*c^4*d + 15*a^2*b*c^3*d^2 + 9*a^3*c^2*d
^3 - 6*(b^3*c^2*d^3 - 2*a*b^2*c*d^4 + a^2*b*d^5)*x^3 + 3*(7*b^3*c
^3*d^2 - 11*a*b^2*c^2*d^3 + a^2*b*c*d^4 + 3*a^3*d^5)*x^2 + 2*(70*
b^3*c^4*d - 99*a*b^2*c^3*d^2 + 12*a^2*b*c^2*d^3 + 9*a^3*c*d^4)*x)
*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c) - 3*(35*b^4*c^6 - 60*a*b^
3*c^5*d + 18*a^2*b^2*c^4*d^2 + 4*a^3*b*c^3*d^3 + 3*a^4*c^2*d^4 +
(35*b^4*c^4*d^2 - 60*a*b^3*c^3*d^3 + 18*a^2*b^2*c^2*d^4 + 4*a^3*b
*c*d^5 + 3*a^4*d^6)*x^2 + 2*(35*b^4*c^5*d - 60*a*b^3*c^4*d^2 + 18
*a^2*b^2*c^3*d^3 + 4*a^3*b*c^2*d^4 + 3*a^4*c*d^5)*x)*arctan(1/2*(
2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)
))/((b^4*c^4*d^4 - 2*a*b^3*c^3*d^5 + a^2*b^2*c^2*d^6 + (b^4*c^2*d
^6 - 2*a*b^3*c*d^7 + a^2*b^2*d^8)*x^2 + 2*(b^4*c^3*d^5 - 2*a*b^3*
c^2*d^6 + a^2*b^2*c*d^7)*x)*sqrt(-b*d))]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x^4}{\sqrt{a + bx}\,(c + dx)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**4/(d*x+c)**(5/2)/(b*x+a)**(1/2),x)
```

```
[Out] Integral(x**4/(sqrt(a + b*x)*(c + d*x)**(5/2)), x)
```

GIAC/XCAS [A] time = 0.284734, size = 686, normalized size = 2.66

$$\frac{\left(\left(3\,(bx+a)\left(\frac{2\,(b^7c^2d^6-2\,ab^6cd^7+a^2b^5d^8)(bx+a)}{b^7c^2d^7|b|-2\,ab^6cd^8|b|+a^2b^5d^9|b|}-\frac{7\,b^8c^3d^5-5\,ab^7c^2d^6-11\,a^2b^6cd^7+9\,a^3b^5d^8}{b^7c^2d^7|b|-2\,ab^6cd^8|b|+a^2b^5d^9|b|}\right)-\frac{4\,(35\,b^9c^4d^4-60\,ab^8c^3d^5+18\,a^2b^7c^2d^6+12\,a^3b^6cd^7}{b^7c^2d^7|b|-2\,ab^6cd^8|b|+a^2b^5d^9|b|}\right.\right.}{12\,(b^2c+(bx+a)bd-abd)^{\frac{3}{2}}}$$

$$-\frac{\left(35\,b^2c^2+10\,abcd+3\,a^2d^2\right)\ln\left(\left|-\sqrt{bd}\sqrt{bx+a}+\sqrt{b^2c+(bx+a)bd-abd}\right|\right)}{4\,\sqrt{bd}bd^4|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^4/(sqrt(b*x + a)*(d*x + c)^(5/2)),x, algorithm="giac")
```

```
[Out] 1/12*((3*(b*x + a)*(2*(b^7*c^2*d^6 - 2*a*b^6*c*d^7 + a^2*b^5*d^8)
*(b*x + a)/(b^7*c^2*d^7*abs(b) - 2*a*b^6*c*d^8*abs(b) + a^2*b^5*d
^9*abs(b)) - (7*b^8*c^3*d^5 - 5*a*b^7*c^2*d^6 - 11*a^2*b^6*c*d^7
+ 9*a^3*b^5*d^8)/(b^7*c^2*d^7*abs(b) - 2*a*b^6*c*d^8*abs(b) + a^2
*b^5*d^9*abs(b))) - 4*(35*b^9*c^4*d^4 - 60*a*b^8*c^3*d^5 + 18*a^2
*b^7*c^2*d^6 + 12*a^3*b^6*c*d^7 - 9*a^4*b^5*d^8)/(b^7*c^2*d^7*abs
(b) - 2*a*b^6*c*d^8*abs(b) + a^2*b^5*d^9*abs(b)))*(b*x + a) - 3*(
35*b^10*c^5*d^3 - 95*a*b^9*c^4*d^4 + 78*a^2*b^8*c^3*d^5 - 14*a^3*
b^7*c^2*d^6 - 9*a^4*b^6*c*d^7 + 5*a^5*b^5*d^8)/(b^7*c^2*d^7*abs(b
) - 2*a*b^6*c*d^8*abs(b) + a^2*b^5*d^9*abs(b)))*sqrt(b*x + a)/(b^
2*c + (b*x + a)*b*d - a*b*d)^(3/2) - 1/4*(35*b^2*c^2 + 10*a*b*c*d
 + 3*a^2*d^2)*ln(abs(-sqrt(b*d)*sqrt(b*x + a) + sqrt(b^2*c + (b*x
 + a)*b*d - a*b*d)))/(sqrt(b*d)*b*d^4*abs(b))
```

3.737 $\int \frac{x^3}{\sqrt{a+bx}(c+dx)^{5/2}} dx$

Optimal. Leaf size=174

$$\frac{\sqrt{a+bx}\left(c\left(3a^2d^2-22abcd+15b^2c^2\right)+dx(5bc-3ad)(bc-ad)\right)}{3bd^3\sqrt{c+dx}(bc-ad)^2}-\frac{(ad+5bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{3/2}d^{7/2}}-\frac{2cx^2\sqrt{a+bx}}{3d(c+dx)^{3/2}(bc-ad)}$$

```
[Out] (-2*c*x^2*Sqrt[a + b*x])/(3*d*(b*c - a*d)*(c + d*x)^(3/2)) + (Sqr
t[a + b*x]*(c*(15*b^2*c^2 - 22*a*b*c*d + 3*a^2*d^2) + d*(5*b*c -
3*a*d)*(b*c - a*d)*x))/(3*b*d^3*(b*c - a*d)^2*Sqrt[c + d*x]) - ((
5*b*c + a*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*
x])])/(b^(3/2)*d^(7/2))
```

Rubi [A] time = 0.373151, antiderivative size = 174, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$\frac{\sqrt{a+bx}\left(c\left(3a^2d^2-22abcd+15b^2c^2\right)+dx(5bc-3ad)(bc-ad)\right)}{3bd^3\sqrt{c+dx}(bc-ad)^2}-\frac{(ad+5bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{3/2}d^{7/2}}-\frac{2cx^2\sqrt{a+bx}}{3d(c+dx)^{3/2}(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[x^3/(Sqrt[a + b*x]*(c + d*x)^(5/2)),x]
```

```
[Out] (-2*c*x^2*Sqrt[a + b*x])/(3*d*(b*c - a*d)*(c + d*x)^(3/2)) + (Sqr
t[a + b*x]*(c*(15*b^2*c^2 - 22*a*b*c*d + 3*a^2*d^2) + d*(5*b*c -
3*a*d)*(b*c - a*d)*x))/(3*b*d^3*(b*c - a*d)^2*Sqrt[c + d*x]) - ((
5*b*c + a*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*
x])])/(b^(3/2)*d^(7/2))
```

Rubi in Sympy [A] time = 27.2585, size = 165, normalized size = 0.95

$$\frac{2cx^2\sqrt{a+bx}}{3d\,(c+dx)^{\frac{3}{2}}\,(ad-bc)}+\frac{4\sqrt{a+bx}\left(\frac{c(3a^2d^2-22abcd+15b^2c^2)}{4}+\frac{dx(ad-bc)(3ad-5bc)}{4}\right)}{3bd^3\sqrt{c+dx}\,(ad-bc)^2}-\frac{(ad+5bc)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{\frac{3}{2}}d^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3/(d*x+c)**(5/2)/(b*x+a)**(1/2),x)
```

```
[Out] 2*c*x**2*sqrt(a + b*x)/(3*d*(c + d*x)**(3/2)*(a*d - b*c)) + 4*sqr
t(a + b*x)*(c*(3*a**2*d**2 - 22*a*b*c*d + 15*b**2*c**2)/4 + d*x*(
a*d - b*c)*(3*a*d - 5*b*c)/4)/(3*b*d**3*sqrt(c + d*x)*(a*d - b*c)
**2) - (a*d + 5*b*c)*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c
+ d*x)))/(b**(3/2)*d**(7/2))
```

Mathematica [A] time = 0.546933, size = 150, normalized size = 0.86

$$\frac{\sqrt{a+bx}\sqrt{c+dx}\left(\frac{2c^3}{(c+dx)^2(ad-bc)}+\frac{2c^2(7bc-9ad)}{(c+dx)(bc-ad)^2}+\frac{3}{b}\right)}{3d^3}-\frac{(ad+5bc)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{2b^{3/2}d^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^3/(Sqrt[a + b*x]*(c + d*x)^(5/2)),x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(3/b + (2*c^3)/((-(b*c) + a*d)*(c +
d*x)^2) + (2*c^2*(7*b*c - 9*a*d))/((b*c - a*d)^2*(c + d*x))))/(3*
d^3) - ((5*b*c + a*d)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]
*Sqrt[a + b*x]*Sqrt[c + d*x]])/(2*b^(3/2)*d^(7/2))
```

Maple [B] time = 0.037, size = 928, normalized size = 5.3

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^3/(d*x+c)^(5/2)/(b*x+a)^(1/2),x)
```

```
[Out] -1/6*(b*x+a)^(1/2)*(3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(
b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a^3*d^5+9*ln(1/2*(2*b*d*x+2*
((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a^2
*b*c*d^4-27*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)
+a*d+b*c)/(b*d)^(1/2))*x^2*a*b^2*c^2*d^3+15*ln(1/2*(2*b*d*x+2*((b
*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*b^3*c^
3*d^2+6*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d
+b*c)/(b*d)^(1/2))*x*a^3*c*d^4+18*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x
+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^2*b*c^2*d^3-54*l
n(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*
d)^(1/2))*x*a*b^2*c^3*d^2+30*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^
(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*b^3*c^4*d-6*x^2*a^2*d^4
*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+12*x^2*a*b*c*d^3*((b*x+a)*(d
*x+c))^(1/2)*(b*d)^(1/2)-6*x^2*b^2*c^2*d^2*((b*x+a)*(d*x+c))^(1/2
)*(b*d)^(1/2)+3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(
1/2)+a*d+b*c)/(b*d)^(1/2))*a^3*c^2*d^3+9*ln(1/2*(2*b*d*x+2*((b*x+
a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^2*b*c^3*d^2
-27*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c
)/(b*d)^(1/2))*a*b^2*c^4*d+15*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))
^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*b^3*c^5-12*x*a^2*c*d^3*(
(b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+60*x*a*b*c^2*d^2*((b*x+a)*(d*x
+c))^(1/2)*(b*d)^(1/2)-40*x*b^2*c^3*d*((b*x+a)*(d*x+c))^(1/2)*(b*
d)^(1/2)-6*a^2*c^2*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+44*a*b
*c^3*d*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-30*b^2*c^4*((b*x+a)*(d
*x+c))^(1/2)*(b*d)^(1/2))/(b*d)^(1/2)/b/(a*d-b*c)^2/((b*x+a)*(d*x
+c))^(1/2)/d^3/(d*x+c)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^3/(sqrt(b*x + a)*(d*x + c)^(5/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.519775, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3/(sqrt(b*x + a)*(d*x + c)^(5/2)),x, algorithm="fricas")
```

```
[Out] [1/12*(4*(15*b^2*c^4 - 22*a*b*c^3*d + 3*a^2*c^2*d^2 + 3*(b^2*c^2*
d^2 - 2*a*b*c*d^3 + a^2*d^4)*x^2 + 2*(10*b^2*c^3*d - 15*a*b*c^2*d
^2 + 3*a^2*c*d^3)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 3*(5
*b^3*c^5 - 9*a*b^2*c^4*d + 3*a^2*b*c^3*d^2 + a^3*c^2*d^3 + (5*b^3
*c^3*d^2 - 9*a*b^2*c^2*d^3 + 3*a^2*b*c*d^4 + a^3*d^5)*x^2 + 2*(5*
b^3*c^4*d - 9*a*b^2*c^3*d^2 + 3*a^2*b*c^2*d^3 + a^3*c*d^4)*x)*log
(-4*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c)
 + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d +
a*b*d^2)*x)*sqrt(b*d)))/((b^3*c^4*d^3 - 2*a*b^2*c^3*d^4 + a^2*b*c
^2*d^5 + (b^3*c^2*d^5 - 2*a*b^2*c*d^6 + a^2*b*d^7)*x^2 + 2*(b^3*c
^3*d^4 - 2*a*b^2*c^2*d^5 + a^2*b*c*d^6)*x)*sqrt(b*d)), 1/6*(2*(15
*b^2*c^4 - 22*a*b*c^3*d + 3*a^2*c^2*d^2 + 3*(b^2*c^2*d^2 - 2*a*b*
c*d^3 + a^2*d^4)*x^2 + 2*(10*b^2*c^3*d - 15*a*b*c^2*d^2 + 3*a^2*c
*d^3)*x)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c) - 3*(5*b^3*c^5 -
9*a*b^2*c^4*d + 3*a^2*b*c^3*d^2 + a^3*c^2*d^3 + (5*b^3*c^3*d^2 -
9*a*b^2*c^2*d^3 + 3*a^2*b*c*d^4 + a^3*d^5)*x^2 + 2*(5*b^3*c^4*d -
 9*a*b^2*c^3*d^2 + 3*a^2*b*c^2*d^3 + a^3*c*d^4)*x)*arctan(1/2*(2*
b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))
/((b^3*c^4*d^3 - 2*a*b^2*c^3*d^4 + a^2*b*c^2*d^5 + (b^3*c^2*d^5 -
 2*a*b^2*c*d^6 + a^2*b*d^7)*x^2 + 2*(b^3*c^3*d^4 - 2*a*b^2*c^2*d^
5 + a^2*b*c*d^6)*x)*sqrt(-b*d))]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x^3}{\sqrt{a+bx}\,(c+dx)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**3/(d*x+c)**(5/2)/(b*x+a)**(1/2),x)
```

```
[Out] Integral(x**3/(sqrt(a + b*x)*(c + d*x)**(5/2)), x)
```

GIAC/XCAS [A] time = 0.25613, size = 504, normalized size = 2.9

$$\frac{\left((bx+a)\left(\frac{3\left(b^6c^2d^4|b|-2ab^5cd^5|b|+a^2b^4d^6|b|\right)(bx+a)}{b^7c^2d^5-2ab^6cd^6+a^2b^5d^7}+\frac{2\left(10b^7c^3d^3|b|-18ab^6c^2d^4|b|+9a^2b^5cd^5|b|-3a^3b^4d^6|b|\right)}{b^7c^2d^5-2ab^6cd^6+a^2b^5d^7}\right)+\frac{3\left(5b^8c^4d^2|b|-14ab^7c^3d^3\cdots\right.}{b^7c\cdots}\cdots}{3\left(b^2c+(bx+a)bd-abd\right)^{\frac{3}{2}}}+\frac{(5bc|b|+ad|b|)\ln\left(\left|-\sqrt{bd}\sqrt{bx+a}+\sqrt{b^2c+(bx+a)bd-abd}\right|\right)}{\sqrt{bd}b^2d^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3/(sqrt(b*x + a)*(d*x + c)^(5/2)),x, algorithm="giac")
```

```
[Out] 1/3*((b*x + a)*(3*(b^6*c^2*d^4*abs(b) - 2*a*b^5*c*d^5*abs(b) + a^
2*b^4*d^6*abs(b))*(b*x + a)/(b^7*c^2*d^5 - 2*a*b^6*c*d^6 + a^2*b^
5*d^7) + 2*(10*b^7*c^3*d^3*abs(b) - 18*a*b^6*c^2*d^4*abs(b) + 9*a
^2*b^5*c*d^5*abs(b) - 3*a^3*b^4*d^6*abs(b))/(b^7*c^2*d^5 - 2*a*b^
6*c*d^6 + a^2*b^5*d^7)) + 3*(5*b^8*c^4*d^2*abs(b) - 14*a*b^7*c^3*
d^3*abs(b) + 12*a^2*b^6*c^2*d^4*abs(b) - 4*a^3*b^5*c*d^5*abs(b) +
 a^4*b^4*d^6*abs(b))/(b^7*c^2*d^5 - 2*a*b^6*c*d^6 + a^2*b^5*d^7))
*sqrt(b*x + a)/(b^2*c + (b*x + a)*b*d - a*b*d)^(3/2) + (5*b*c*abs
(b) + a*d*abs(b))*ln(abs(-sqrt(b*d)*sqrt(b*x + a) + sqrt(b^2*c +
(b*x + a)*b*d - a*b*d)))/(sqrt(b*d)*b^2*d^3)
```

3.738 $\int \frac{x^2}{\sqrt{a+bx}(c+dx)^{5/2}}\,dx$

Optimal. Leaf size=126

$$\frac{2c^2\sqrt{a+bx}}{3d^2(c+dx)^{3/2}(bc-ad)}+\frac{2\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{b}d^{5/2}}-\frac{4c\sqrt{a+bx}(2bc-3ad)}{3d^2\sqrt{c+dx}(bc-ad)^2}$$

```
[Out] (2*c^2*Sqrt[a + b*x])/(3*d^2*(b*c - a*d)*(c + d*x)^(3/2)) - (4*c*
(2*b*c - 3*a*d)*Sqrt[a + b*x])/(3*d^2*(b*c - a*d)^2*Sqrt[c + d*x]
) + (2*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/
(Sqrt[b]*d^(5/2))
```

Rubi [A] time = 0.25334, antiderivative size = 126, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$\frac{2c^2\sqrt{a+bx}}{3d^2(c+dx)^{3/2}(bc-ad)}+\frac{2\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{b}d^{5/2}}-\frac{4c\sqrt{a+bx}(2bc-3ad)}{3d^2\sqrt{c+dx}(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[x^2/(Sqrt[a + b*x]*(c + d*x)^(5/2)),x]
```

```
[Out] (2*c^2*Sqrt[a + b*x])/(3*d^2*(b*c - a*d)*(c + d*x)^(3/2)) - (4*c*
(2*b*c - 3*a*d)*Sqrt[a + b*x])/(3*d^2*(b*c - a*d)^2*Sqrt[c + d*x]
) + (2*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/
(Sqrt[b]*d^(5/2))
```

Rubi in Sympy [A] time = 22.5582, size = 117, normalized size = 0.93

$$-\frac{2c^2\sqrt{a+bx}}{3d^2\left(c+dx\right)^{\frac{3}{2}}\left(ad-bc\right)}+\frac{4c\sqrt{a+bx}\left(3ad-2bc\right)}{3d^2\sqrt{c+dx}\left(ad-bc\right)^2}+\frac{2\,\mathrm{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{b}d^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2/(d*x+c)**(5/2)/(b*x+a)**(1/2),x)
```

```
[Out] -2*c**2*sqrt(a + b*x)/(3*d**2*(c + d*x)**(3/2)*(a*d - b*c)) + 4*c
*sqrt(a + b*x)*(3*a*d - 2*b*c)/(3*d**2*sqrt(c + d*x)*(a*d - b*c)*
*2) + 2*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c + d*x)))/(sqr
t(b)*d**(5/2))
```

Mathematica [A] time = 0.229743, size = 115, normalized size = 0.91

$$\frac{\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{\sqrt{b}d^{5/2}}+\frac{2c\sqrt{a+bx}(ad(5c+6dx)-bc(3c+4dx))}{3d^2(c+dx)^{3/2}(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^2/(Sqrt[a + b*x]*(c + d*x)^(5/2)),x]
```

```
[Out] (2*c*Sqrt[a + b*x]*(-(b*c*(3*c + 4*d*x)) + a*d*(5*c + 6*d*x)))/(3
*d^2*(b*c - a*d)^2*(c + d*x)^(3/2)) + Log[b*c + a*d + 2*b*d*x + 2
*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]]/(Sqrt[b]*d^(5/2))
```

Maple [B] time = 0.035, size = 604, normalized size = 4.8

$$\frac{1}{3\,(ad-bc)^2\,d^2}\sqrt{bx+a}\left(3\,\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{(bx+a)\,(dx+c)}\sqrt{bd}+ad+bc}{\sqrt{bd}}\right)x^2a^2d^4-6\,\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{(bx+a)\,(dx}{\sqrt{bd}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2/(d*x+c)^(5/2)/(b*x+a)^(1/2),x)
```

```
[Out] 1/3*(b*x+a)^(1/2)*(3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b
*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a^2*d^4-6*ln(1/2*(2*b*d*x+2*(
(b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a*b*
c*d^3+3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d
+b*c)/(b*d)^(1/2))*x^2*b^2*c^2*d^2+6*ln(1/2*(2*b*d*x+2*((b*x+a)*(
d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^2*c*d^3-12*ln
(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d
)^(1/2))*x*a*b*c^2*d^2+6*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2
)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*b^2*c^3*d+3*ln(1/2*(2*b*d*x
+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^2*
c^2*d^2-6*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a
*d+b*c)/(b*d)^(1/2))*a*b*c^3*d+3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+
c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*b^2*c^4+12*x*a*c*d^2*
((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-8*x*b*c^2*d*((b*x+a)*(d*x+c))
^(1/2)*(b*d)^(1/2)+10*a*c^2*d*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)
-6*b*c^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2))/(b*d)^(1/2)/(a*d-b*
c)^2/((b*x+a)*(d*x+c))^(1/2)/d^2/(d*x+c)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2/(sqrt(b*x + a)*(d*x + c)^(5/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.386807, size = 1, normalized size = 0.01

$$\left[-\frac{4\left(3\,bc^3-5\,ac^2d+2\left(2\,bc^2d-3\,acd^2\right)x\right)\sqrt{bd}\sqrt{bx+a}\sqrt{dx+c}-3\left(b^2c^4-2\,abc^3d+a^2c^2d^2+\left(b^2c^2d^2-2\,abcd^3+a^2d^4\right)x\right.}{6\,(b^2c^4d^2-2\,abc^3d^3+a^2c^2d^4+(b^2c^2}\right.$$

$$-\frac{2\left(3\,bc^3-5\,ac^2d+2\left(2\,bc^2d-3\,acd^2\right)x\right)\sqrt{-bd}\sqrt{bx+a}\sqrt{dx+c}-3\left(b^2c^4-2\,abc^3d+a^2c^2d^2+\left(b^2c^2d^2-2\,abcd^3+a^2d^4\right)x\right.}{3\,(b^2c^4d^2-2\,abc^3d^3+a^2c^2d^4+(b^2c^2d^4-2\,abcd^5+a^2d^6)x^2+2\,(b^2c^3d^3-2\,abc}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2/(sqrt(b*x + a)*(d*x + c)^(5/2)),x, algorithm="fricas")
```

```
[Out] [-1/6*(4*(3*b*c^3 - 5*a*c^2*d + 2*(2*b*c^2*d - 3*a*c*d^2)*x)*sqrt
(b*d)*sqrt(b*x + a)*sqrt(d*x + c) - 3*(b^2*c^4 - 2*a*b*c^3*d + a^
2*c^2*d^2 + (b^2*c^2*d^2 - 2*a*b*c*d^3 + a^2*d^4)*x^2 + 2*(b^2*c^
3*d - 2*a*b*c^2*d^2 + a^2*c*d^3)*x)*log(4*(2*b^2*d^2*x + b^2*c*d
+ a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2
 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/((b
^2*c^4*d^2 - 2*a*b*c^3*d^3 + a^2*c^2*d^4 + (b^2*c^2*d^4 - 2*a*b*c
*d^5 + a^2*d^6)*x^2 + 2*(b^2*c^3*d^3 - 2*a*b*c^2*d^4 + a^2*c*d^5)
*x)*sqrt(b*d)), -1/3*(2*(3*b*c^3 - 5*a*c^2*d + 2*(2*b*c^2*d - 3*a
```

```
*c*d^2)*x)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c) - 3*(b^2*c^4 -
2*a*b*c^3*d + a^2*c^2*d^2 + (b^2*c^2*d^2 - 2*a*b*c*d^3 + a^2*d^4)
*x^2 + 2*(b^2*c^3*d - 2*a*b*c^2*d^2 + a^2*c*d^3)*x)*arctan(1/2*(2
*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d))
)/((b^2*c^4*d^2 - 2*a*b*c^3*d^3 + a^2*c^2*d^4 + (b^2*c^2*d^4 - 2*
a*b*c*d^5 + a^2*d^6)*x^2 + 2*(b^2*c^3*d^3 - 2*a*b*c^2*d^4 + a^2*c
*d^5)*x)*sqrt(-b*d))]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x^2}{\sqrt{a+bx}\,(c+dx)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2/(d*x+c)**(5/2)/(b*x+a)**(1/2),x)
```

```
[Out] Integral(x**2/(sqrt(a + b*x)*(c + d*x)**(5/2)), x)
```

GIAC/XCAS [A] time = 0.248457, size = 288, normalized size = 2.29

$$\frac{\sqrt{bx+a}\left(\frac{2\,(2\,b^6c^2d^2-3\,ab^5cd^3)(bx+a)}{b^8c^2d^4-2\,ab^7cd^5+a^2b^6d^6}+\frac{3\,(b^7c^3d-3\,ab^6c^2d^2+2\,a^2b^5cd^3)}{b^8c^2d^4-2\,ab^7cd^5+a^2b^6d^6}\right)}{12\,(b^2c+(bx+a)bd-abd)^{\frac{3}{2}}}+\frac{\ln\left(\left|-\sqrt{bd}\sqrt{bx+a}+\sqrt{b^2c+(bx+a)bd-abd}\right|\right)}{4\,\sqrt{bd}b^3d^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2/(sqrt(b*x + a)*(d*x + c)^(5/2)),x, algorithm="giac")
```

```
[Out] 1/12*sqrt(b*x + a)*(2*(2*b^6*c^2*d^2 - 3*a*b^5*c*d^3)*(b*x + a)/(
b^8*c^2*d^4 - 2*a*b^7*c*d^5 + a^2*b^6*d^6) + 3*(b^7*c^3*d - 3*a*b
^6*c^2*d^2 + 2*a^2*b^5*c*d^3)/(b^8*c^2*d^4 - 2*a*b^7*c*d^5 + a^2*
b^6*d^6))/(b^2*c + (b*x + a)*b*d - a*b*d)^(3/2) + 1/4*ln(abs(-sqr
t(b*d)*sqrt(b*x + a) + sqrt(b^2*c + (b*x + a)*b*d - a*b*d)))/(sqr
t(b*d)*b^3*d^3)
```

3.739 $\int \frac{x}{\sqrt{a+bx}(c+dx)^{5/2}}\,dx$

Optimal. Leaf size=80

$$\frac{2\sqrt{a+bx}(bc-3ad)}{3d\sqrt{c+dx}(bc-ad)^2}-\frac{2c\sqrt{a+bx}}{3d(c+dx)^{3/2}(bc-ad)}$$

```
[Out] (-2*c*Sqrt[a + b*x])/(3*d*(b*c - a*d)*(c + d*x)^(3/2)) + (2*(b*c
- 3*a*d)*Sqrt[a + b*x])/(3*d*(b*c - a*d)^2*Sqrt[c + d*x])
```

Rubi [A] time = 0.0942718, antiderivative size = 80, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.1

$$\frac{2\sqrt{a+bx}(bc-3ad)}{3d\sqrt{c+dx}(bc-ad)^2}-\frac{2c\sqrt{a+bx}}{3d(c+dx)^{3/2}(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[x/(Sqrt[a + b*x]*(c + d*x)^(5/2)),x]
```

```
[Out] (-2*c*Sqrt[a + b*x])/(3*d*(b*c - a*d)*(c + d*x)^(3/2)) + (2*(b*c
- 3*a*d)*Sqrt[a + b*x])/(3*d*(b*c - a*d)^2*Sqrt[c + d*x])
```

Rubi in Sympy [A] time = 9.66004, size = 68, normalized size = 0.85

$$\frac{2c\sqrt{a+bx}}{3d\,(c+dx)^{\frac{3}{2}}\,(ad-bc)}-\frac{2\sqrt{a+bx}\,(3ad-bc)}{3d\sqrt{c+dx}\,(ad-bc)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x/(d*x+c)**(5/2)/(b*x+a)**(1/2),x)
```

```
[Out] 2*c*sqrt(a + b*x)/(3*d*(c + d*x)**(3/2)*(a*d - b*c)) - 2*sqrt(a +
 b*x)*(3*a*d - b*c)/(3*d*sqrt(c + d*x)*(a*d - b*c)**2)
```

Mathematica [A] time = 0.0701764, size = 46, normalized size = 0.57

$$\frac{2\sqrt{a+bx}(-2ac-3adx+bcx)}{3(c+dx)^{3/2}(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x/(Sqrt[a + b*x]*(c + d*x)^(5/2)),x]
```

```
[Out] (2*Sqrt[a + b*x]*(-2*a*c + b*c*x - 3*a*d*x))/(3*(b*c - a*d)^2*(c
+ d*x)^(3/2))
```

Maple [A] time = 0.009, size = 55, normalized size = 0.7

$$-\frac{6\,adx-2\,bcx+4\,ac}{3\,a^2d^2-6\,abcd+3\,b^2c^2}\sqrt{bx+a}\,(dx+c)^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x/(d*x+c)^(5/2)/(b*x+a)^(1/2),x)
```

```
[Out] -2/3*(b*x+a)^(1/2)*(3*a*d*x-b*c*x+2*a*c)/(d*x+c)^(3/2)/(a^2*d^2-2
*a*b*c*d+b^2*c^2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/(sqrt(b*x + a)*(d*x + c)^(5/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.257845, size = 162, normalized size = 2.02

$$-\frac{2\,(2\,ac - (bc - 3\,ad)x)\sqrt{bx + a}\sqrt{dx + c}}{3\,(b^2c^4 - 2\,abc^3d + a^2c^2d^2 + (b^2c^2d^2 - 2\,abcd^3 + a^2d^4)x^2 + 2\,(b^2c^3d - 2\,abc^2d^2 + a^2cd^3)x)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/(sqrt(b*x + a)*(d*x + c)^(5/2)),x, algorithm="fricas")
```

```
[Out] -2/3*(2*a*c - (b*c - 3*a*d)*x)*sqrt(b*x + a)*sqrt(d*x + c)/(b^2*c
^4 - 2*a*b*c^3*d + a^2*c^2*d^2 + (b^2*c^2*d^2 - 2*a*b*c*d^3 + a^2
*d^4)*x^2 + 2*(b^2*c^3*d - 2*a*b*c^2*d^2 + a^2*c*d^3)*x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x}{\sqrt{a + bx}\,(c + dx)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/(d*x+c)**(5/2)/(b*x+a)**(1/2),x)
```

```
[Out] Integral(x/(sqrt(a + b*x)*(c + d*x)**(5/2)), x)
```

GIAC/XCAS [A] time = 0.237076, size = 204, normalized size = 2.55

$$-\frac{\sqrt{bx + a}\left(\frac{(b^5cd|b| - 3\,ab^4d^2|b|)(bx + a)}{b^8c^2d^4 - 2\,ab^7cd^5 + a^2b^6d^6} - \frac{3\,(ab^5cd|b| - a^2b^4d^2|b|)}{b^8c^2d^4 - 2\,ab^7cd^5 + a^2b^6d^6}\right)}{12\,(b^2c + (bx + a)bd - abd)^{\frac{3}{2}}b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/(sqrt(b*x + a)*(d*x + c)^(5/2)),x, algorithm="giac")
```

```
[Out] -1/12*sqrt(b*x + a)*((b^5*c*d*abs(b) - 3*a*b^4*d^2*abs(b))*(b*x +
 a)/(b^8*c^2*d^4 - 2*a*b^7*c*d^5 + a^2*b^6*d^6) - 3*(a*b^5*c*d*ab
s(b) - a^2*b^4*d^2*abs(b))/(b^8*c^2*d^4 - 2*a*b^7*c*d^5 + a^2*b^6
*d^6))/((b^2*c + (b*x + a)*b*d - a*b*d)^(3/2)*b)
```

3.740 $\int \frac{1}{\sqrt{a+bx}(c+dx)^{5/2}}\,dx$

Optimal. Leaf size=66

$$\frac{4b\sqrt{a+bx}}{3\sqrt{c+dx}(bc-ad)^2}+\frac{2\sqrt{a+bx}}{3(c+dx)^{3/2}(bc-ad)}$$

```
[Out] (2*Sqrt[a + b*x])/(3*(b*c - a*d)*(c + d*x)^(3/2)) + (4*b*Sqrt[a +
 b*x])/(3*(b*c - a*d)^2*Sqrt[c + d*x])
```

Rubi [A] time = 0.0539475, antiderivative size = 66, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.105

$$\frac{4b\sqrt{a+bx}}{3\sqrt{c+dx}(bc-ad)^2}+\frac{2\sqrt{a+bx}}{3(c+dx)^{3/2}(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[a + b*x]*(c + d*x)^(5/2)),x]
```

```
[Out] (2*Sqrt[a + b*x])/(3*(b*c - a*d)*(c + d*x)^(3/2)) + (4*b*Sqrt[a +
 b*x])/(3*(b*c - a*d)^2*Sqrt[c + d*x])
```

Rubi in Sympy [A] time = 7.1971, size = 56, normalized size = 0.85

$$\frac{4b\sqrt{a+bx}}{3\sqrt{c+dx}\,(ad-bc)^2}-\frac{2\sqrt{a+bx}}{3\,(c+dx)^{\frac{3}{2}}\,(ad-bc)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(b*x+a)**(1/2)/(d*x+c)**(5/2),x)
```

```
[Out] 4*b*sqrt(a + b*x)/(3*sqrt(c + d*x)*(a*d - b*c)**2) - 2*sqrt(a + b
*x)/(3*(c + d*x)**(3/2)*(a*d - b*c))
```

Mathematica [A] time = 0.0521153, size = 46, normalized size = 0.7

$$\frac{2\sqrt{a+bx}(-ad+3bc+2bdx)}{3(c+dx)^{3/2}(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[a + b*x]*(c + d*x)^(5/2)),x]
```

```
[Out] (2*Sqrt[a + b*x]*(3*b*c - a*d + 2*b*d*x))/(3*(b*c - a*d)^2*(c + d
*x)^(3/2))
```

Maple [A] time = 0.007, size = 53, normalized size = 0.8

$$-\frac{-4\,bdx+2\,ad-6\,bc}{3\,a^2d^2-6\,abcd+3\,b^2c^2}\sqrt{bx+a}\,(dx+c)^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(b*x+a)^(1/2)/(d*x+c)^(5/2),x)
```

```
[Out] -2/3*(b*x+a)^(1/2)*(-2*b*d*x+a*d-3*b*c)/(d*x+c)^(3/2)/(a^2*d^2-2*
a*b*c*d+b^2*c^2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(b*x + a)*(d*x + c)^(5/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.256161, size = 159, normalized size = 2.41

$$\frac{2\,(2\,bdx + 3\,bc - ad)\sqrt{bx + a}\sqrt{dx + c}}{3\,(b^2c^4 - 2\,abc^3d + a^2c^2d^2 + (b^2c^2d^2 - 2\,abcd^3 + a^2d^4)x^2 + 2\,(b^2c^3d - 2\,abc^2d^2 + a^2cd^3)x)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(b*x + a)*(d*x + c)^(5/2)),x, algorithm="fricas")
```

```
[Out] 2/3*(2*b*d*x + 3*b*c - a*d)*sqrt(b*x + a)*sqrt(d*x + c)/(b^2*c^4
 - 2*a*b*c^3*d + a^2*c^2*d^2 + (b^2*c^2*d^2 - 2*a*b*c*d^3 + a^2*d^
4)*x^2 + 2*(b^2*c^3*d - 2*a*b*c^2*d^2 + a^2*c*d^3)*x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{a + bx}\,(c + dx)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(b*x+a)**(1/2)/(d*x+c)**(5/2),x)
```

```
[Out] Integral(1/(sqrt(a + b*x)*(c + d*x)**(5/2)), x)
```

GIAC/XCAS [A] time = 0.237422, size = 173, normalized size = 2.62

$$-\frac{\left(\frac{2\,(bx+a)b^4d^2}{b^8c^2d^4-2\,ab^7cd^5+a^2b^6d^6} + \frac{3\,(b^5cd-ab^4d^2)}{b^8c^2d^4-2\,ab^7cd^5+a^2b^6d^6}\right)\sqrt{bx + a}}{24\,(b^2c + (bx + a)bd - abd)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(b*x + a)*(d*x + c)^(5/2)),x, algorithm="giac")
```

```
[Out] -1/24*(2*(b*x + a)*b^4*d^2/(b^8*c^2*d^4 - 2*a*b^7*c*d^5 + a^2*b^6
*d^6) + 3*(b^5*c*d - a*b^4*d^2)/(b^8*c^2*d^4 - 2*a*b^7*c*d^5 + a^
2*b^6*d^6))*sqrt(b*x + a)/(b^2*c + (b*x + a)*b*d - a*b*d)^(3/2)
```

3.741 $\int \frac{1}{x\sqrt{a+bx}(c+dx)^{5/2}}\,dx$

Optimal. Leaf size=124

$$-\frac{2\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{a}c^{5/2}}-\frac{2d\sqrt{a+bx}(5bc-3ad)}{3c^2\sqrt{c+dx}(bc-ad)^2}-\frac{2d\sqrt{a+bx}}{3c(c+dx)^{3/2}(bc-ad)}$$

```
[Out] (-2*d*Sqrt[a + b*x])/(3*c*(b*c - a*d)*(c + d*x)^(3/2)) - (2*d*(5*
b*c - 3*a*d)*Sqrt[a + b*x])/(3*c^2*(b*c - a*d)^2*Sqrt[c + d*x]) -
 (2*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(Sq
rt[a]*c^(5/2))
```

Rubi [A] time = 0.314089, antiderivative size = 124, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$-\frac{2\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{a}c^{5/2}}-\frac{2d\sqrt{a+bx}(5bc-3ad)}{3c^2\sqrt{c+dx}(bc-ad)^2}-\frac{2d\sqrt{a+bx}}{3c(c+dx)^{3/2}(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x*Sqrt[a + b*x]*(c + d*x)^(5/2)),x]
```

```
[Out] (-2*d*Sqrt[a + b*x])/(3*c*(b*c - a*d)*(c + d*x)^(3/2)) - (2*d*(5*
b*c - 3*a*d)*Sqrt[a + b*x])/(3*c^2*(b*c - a*d)^2*Sqrt[c + d*x]) -
 (2*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(Sq
rt[a]*c^(5/2))
```

Rubi in Sympy [A] time = 33.8376, size = 114, normalized size = 0.92

$$\frac{2d\sqrt{a+bx}}{3c\,(c+dx)^{\frac{3}{2}}\,(ad-bc)}+\frac{2d\sqrt{a+bx}\,(3ad-5bc)}{3c^2\sqrt{c+dx}\,(ad-bc)^2}-\frac{2\,\mathrm{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{\sqrt{a}c^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x/(d*x+c)**(5/2)/(b*x+a)**(1/2),x)
```

```
[Out] 2*d*sqrt(a + b*x)/(3*c*(c + d*x)**(3/2)*(a*d - b*c)) + 2*d*sqrt(a
 + b*x)*(3*a*d - 5*b*c)/(3*c**2*sqrt(c + d*x)*(a*d - b*c)**2) - 2
*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(sqrt(a)*c*
*(5/2))
```

Mathematica [A] time = 0.334796, size = 130, normalized size = 1.05

$$\frac{\frac{2\sqrt{c}d\sqrt{a+bx}(ad(4c+3dx)-bc(6c+5dx))}{(c+dx)^{3/2}(bc-ad)^2}-\frac{3\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{\sqrt{a}}+\frac{3\log(x)}{\sqrt{a}}}{3c^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(x*Sqrt[a + b*x]*(c + d*x)^(5/2)),x]
```

```
[Out] ((2*Sqrt[c]*d*Sqrt[a + b*x]*(a*d*(4*c + 3*d*x) - b*c*(6*c + 5*d*x
)))/((b*c - a*d)^2*(c + d*x)^(3/2)) + (3*Log[x])/Sqrt[a] - (3*Log
[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c +
```

```
d*x]])/Sqrt[a])/(3*c^(5/2))
```

Maple [B] time = 0.045, size = 586, normalized size = 4.7

$$-\frac{1}{3\,c^{2}\left(ad-bc\right)^{2}}\sqrt{bx+a}\left(3\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{\left(bx+a\right)\left(dx+c\right)}+2\,ac}{x}\right)x^{2}a^{2}d^{4}-6\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{\left(bx+a\right)\left(\right.}}{x}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/x/(d*x+c)^(5/2)/(b*x+a)^(1/2),x)
```

```
[Out] -1/3*(b*x+a)^(1/2)/c^2*(3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*
(d*x+c))^(1/2)+2*a*c)/x)*x^2*a^2*d^4-6*ln((a*d*x+b*c*x+2*(a*c)^(1
/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a*b*c*d^3+3*ln((a*d*x+b
*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*b^2*c^2*
d^2+6*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c
)/x)*x*a^2*c*d^3-12*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c
))^(1/2)+2*a*c)/x)*x*a*b*c^2*d^2+6*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*
((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x*b^2*c^3*d+3*ln((a*d*x+b*c*x+2
*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*a^2*c^2*d^2-6*ln((
a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*a*b*c
^3*d+3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*
c)/x)*b^2*c^4-6*x*a*d^3*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+10*x*
b*c*d^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-8*a*c*d^2*(a*c)^(1/2)
*((b*x+a)*(d*x+c))^(1/2)+12*b*c^2*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))
^(1/2))/(a*d-b*c)^2/(a*c)^(1/2)/((b*x+a)*(d*x+c))^(1/2)/(d*x+c)^(
3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{1}{\sqrt{bx+a}(dx+c)^{\frac{5}{2}}x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(b*x + a)*(d*x + c)^(5/2)*x),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(b*x + a)*(d*x + c)^(5/2)*x), x)
```

Fricas [A] time = 0.382234, size = 1, normalized size = 0.01

$$\left[-\frac{4\left(6\,bc^{2}d-4\,acd^{2}+\left(5\,bcd^{2}-3\,ad^{3}\right)x\right)\sqrt{ac}\sqrt{bx+a}\sqrt{dx+c}-3\left(b^{2}c^{4}-2\,abc^{3}d+a^{2}c^{2}d^{2}+\left(b^{2}c^{2}d^{2}-2\,abcd^{3}+a^{2}d^{4}\right)x^{2}\right.}{6\left(b^{2}c^{6}-2\,abc^{5}d+a^{2}c^{4}d^{2}+\left(b^{2}c^{4}d^{2}-2\,abc^{3}d^{3}+\right.\right.}\right.$$

$$-\frac{2\left(6\,bc^{2}d-4\,acd^{2}+\left(5\,bcd^{2}-3\,ad^{3}\right)x\right)\sqrt{-ac}\sqrt{bx+a}\sqrt{dx+c}+3\left(b^{2}c^{4}-2\,abc^{3}d+a^{2}c^{2}d^{2}+\left(b^{2}c^{2}d^{2}-2\,abcd^{3}+a^{2}d^{4}\right)x^{2}\right.}{3\left(b^{2}c^{6}-2\,abc^{5}d+a^{2}c^{4}d^{2}+\left(b^{2}c^{4}d^{2}-2\,abc^{3}d^{3}+a^{2}c^{2}d^{4}\right)x^{2}+2\left(b^{2}c^{5}d-2\,abc^{4}\right.\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(b*x + a)*(d*x + c)^(5/2)*x),x, algorithm="fricas")
```

```
[Out] [-1/6*(4*(6*b*c^2*d - 4*a*c*d^2 + (5*b*c*d^2 - 3*a*d^3)*x)*sqrt(a
*c)*sqrt(b*x + a)*sqrt(d*x + c) - 3*(b^2*c^4 - 2*a*b*c^3*d + a^2*
c^2*d^2 + (b^2*c^2*d^2 - 2*a*b*c*d^3 + a^2*d^4)*x^2 + 2*(b^2*c^3*
d - 2*a*b*c^2*d^2 + a^2*c*d^3)*x)*log(-(4*(2*a^2*c^2 + (a*b*c^2 +
```

```
 a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c) - (8*a^2*c^2 + (b^2*c^2
+ 6*a*b*c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/
x^2))/((b^2*c^6 - 2*a*b*c^5*d + a^2*c^4*d^2 + (b^2*c^4*d^2 - 2*a*
b*c^3*d^3 + a^2*c^2*d^4)*x^2 + 2*(b^2*c^5*d - 2*a*b*c^4*d^2 + a^2
*c^3*d^3)*x)*sqrt(a*c)), -1/3*(2*(6*b*c^2*d - 4*a*c*d^2 + (5*b*c*
d^2 - 3*a*d^3)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c) + 3*(b^2
*c^4 - 2*a*b*c^3*d + a^2*c^2*d^2 + (b^2*c^2*d^2 - 2*a*b*c*d^3 + a
^2*d^4)*x^2 + 2*(b^2*c^3*d - 2*a*b*c^2*d^2 + a^2*c*d^3)*x)*arctan
(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d*x +
 c)*a*c)))/((b^2*c^6 - 2*a*b*c^5*d + a^2*c^4*d^2 + (b^2*c^4*d^2 -
 2*a*b*c^3*d^3 + a^2*c^2*d^4)*x^2 + 2*(b^2*c^5*d - 2*a*b*c^4*d^2
+ a^2*c^3*d^3)*x)*sqrt(-a*c))]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{x\sqrt{a + bx}\,(c + dx)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/x/(d*x+c)**(5/2)/(b*x+a)**(1/2),x)
```

```
[Out] Integral(1/(x*sqrt(a + b*x)*(c + d*x)**(5/2)), x)
```

GIAC/XCAS [A] time = 0.261117, size = 358, normalized size = 2.89

$$\frac{\sqrt{bx+a}\left(\frac{\left(5\,b^4c^3d^3|b|-3\,ab^3c^2d^4|b|\right)(bx+a)}{b^8c^2d^4-2\,ab^7cd^5+a^2b^6d^6}+\frac{3\left(2\,b^5c^4d^2|b|-3\,ab^4c^3d^3|b|+a^2b^3c^2d^4|b|\right)}{b^8c^2d^4-2\,ab^7cd^5+a^2b^6d^6}\right)}{12\left(b^2c+(bx+a)bd-abd\right)^{\frac{3}{2}}} - \frac{2\sqrt{bd}\,b\arctan\left(-\frac{b^2c+abd-\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2}{2\sqrt{-abcd}\,b}\right)}{\sqrt{-abcd}\,c^2|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(b*x + a)*(d*x + c)^(5/2)*x),x, algorithm="giac")
```

```
[Out] 1/12*sqrt(b*x + a)*((5*b^4*c^3*d^3*abs(b) - 3*a*b^3*c^2*d^4*abs(b
))*(b*x + a)/(b^8*c^2*d^4 - 2*a*b^7*c*d^5 + a^2*b^6*d^6) + 3*(2*b
^5*c^4*d^2*abs(b) - 3*a*b^4*c^3*d^3*abs(b) + a^2*b^3*c^2*d^4*abs(
b))/(b^8*c^2*d^4 - 2*a*b^7*c*d^5 + a^2*b^6*d^6))/(b^2*c + (b*x +
a)*b*d - a*b*d)^(3/2) - 2*sqrt(b*d)*b*arctan(-1/2*(b^2*c + a*b*d
- (sqrt(b*d)*sqrt(b*x + a) - sqrt(b^2*c + (b*x + a)*b*d - a*b*d))
^2)/(sqrt(-a*b*c*d)*b))/(sqrt(-a*b*c*d)*c^2*abs(b))
```

3.742 $\int \frac{1}{x^2\sqrt{a+bx}(c+dx)^{5/2}}\,dx$

Optimal. Leaf size=189

$$\frac{(5ad+bc)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{3/2}c^{7/2}}-\frac{d\sqrt{a+bx}\left(15a^2d^2-22abcd+3b^2c^2\right)}{3ac^3\sqrt{c+dx}(bc-ad)^2}-\frac{d\sqrt{a+bx}(3bc-5ad)}{3ac^2(c+dx)^{3/2}(bc-ad)}-\frac{\sqrt{a+bx}}{acx(c+dx)^{3/2}}$$

```
[Out] -(d*(3*b*c - 5*a*d)*Sqrt[a + b*x])/(3*a*c^2*(b*c - a*d)*(c + d*x)
^(3/2)) - Sqrt[a + b*x]/(a*c*x*(c + d*x)^(3/2)) - (d*(3*b^2*c^2 -
 22*a*b*c*d + 15*a^2*d^2)*Sqrt[a + b*x])/(3*a*c^3*(b*c - a*d)^2*S
qrt[c + d*x]) + ((b*c + 5*a*d)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(S
qrt[a]*Sqrt[c + d*x])])/(a^(3/2)*c^(7/2))
```

Rubi [A] time = 0.577128, antiderivative size = 189, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$\frac{(5ad+bc)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{3/2}c^{7/2}}-\frac{d\sqrt{a+bx}\left(15a^2d^2-22abcd+3b^2c^2\right)}{3ac^3\sqrt{c+dx}(bc-ad)^2}-\frac{d\sqrt{a+bx}(3bc-5ad)}{3ac^2(c+dx)^{3/2}(bc-ad)}-\frac{\sqrt{a+bx}}{acx(c+dx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x^2*Sqrt[a + b*x]*(c + d*x)^(5/2)),x]
```

```
[Out] -(d*(3*b*c - 5*a*d)*Sqrt[a + b*x])/(3*a*c^2*(b*c - a*d)*(c + d*x)
^(3/2)) - Sqrt[a + b*x]/(a*c*x*(c + d*x)^(3/2)) - (d*(3*b^2*c^2 -
 22*a*b*c*d + 15*a^2*d^2)*Sqrt[a + b*x])/(3*a*c^3*(b*c - a*d)^2*S
qrt[c + d*x]) + ((b*c + 5*a*d)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(S
qrt[a]*Sqrt[c + d*x])])/(a^(3/2)*c^(7/2))
```

Rubi in Sympy [A] time = 66.389, size = 170, normalized size = 0.9

$$-\frac{\sqrt{a+bx}}{acx\left(c+dx\right)^{\frac{3}{2}}}-\frac{d\sqrt{a+bx}\left(5ad-3bc\right)}{3ac^2\left(c+dx\right)^{\frac{3}{2}}\left(ad-bc\right)}-\frac{d\sqrt{a+bx}\left(15a^2d^2-22abcd+3b^2c^2\right)}{3ac^3\sqrt{c+dx}\left(ad-bc\right)^2}+\frac{\left(5ad+bc\right)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{\frac{3}{2}}c^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x**2/(d*x+c)**(5/2)/(b*x+a)**(1/2),x)
```

```
[Out] -sqrt(a + b*x)/(a*c*x*(c + d*x)**(3/2)) - d*sqrt(a + b*x)*(5*a*d
- 3*b*c)/(3*a*c**2*(c + d*x)**(3/2)*(a*d - b*c)) - d*sqrt(a + b*x
)*(15*a**2*d**2 - 22*a*b*c*d + 3*b**2*c**2)/(3*a*c**3*sqrt(c + d*
x)*(a*d - b*c)**2) + (5*a*d + b*c)*atanh(sqrt(c)*sqrt(a + b*x)/(s
qrt(a)*sqrt(c + d*x)))/(a**(3/2)*c**(7/2))
```

Mathematica [A] time = 0.833418, size = 174, normalized size = 0.92

$$\frac{-\frac{3\log(x)(5ad+bc)}{a^{3/2}}+\frac{3(5ad+bc)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{a^{3/2}}+2\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}\left(\frac{4d^2(4bc-3ad)}{(c+dx)(bc-ad)^2}+\frac{2cd^2}{(c+dx)^2(bc-ad)}-\frac{3}{ax}\right)}{6c^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(x^2*Sqrt[a + b*x]*(c + d*x)^(5/2)),x]
```

```
[Out] (2*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]*(-3/(a*x) + (2*c*d^2)/((b*
c - a*d)*(c + d*x)^2) + (4*d^2*(4*b*c - 3*a*d))/((b*c - a*d)^2*(c
 + d*x))) - (3*(b*c + 5*a*d)*Log[x])/a^(3/2) + (3*(b*c + 5*a*d)*L
og[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c
 + d*x]])/a^(3/2))/(6*c^(7/2))
```

Maple [B] time = 0.052, size = 919, normalized size = 4.9

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/x^2/(d*x+c)^(5/2)/(b*x+a)^(1/2),x)
```

```
[Out] 1/6*(b*x+a)^(1/2)/a/c^3*(15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a
)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^3*d^5-27*ln((a*d*x+b*c*x+2*(a*c)
^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^2*b*c*d^4+9*ln((a*
d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a*b
^2*c^2*d^3+3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2
)+2*a*c)/x)*x^3*b^3*c^3*d^2+30*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*
x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a^3*c*d^4-54*ln((a*d*x+b*c*x+2*
(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a^2*b*c^2*d^3+1
8*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)
*x^2*a*b^2*c^3*d^2+6*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+
c))^(1/2)+2*a*c)/x)*x^2*b^3*c^4*d+15*ln((a*d*x+b*c*x+2*(a*c)^(1/2
)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x*a^3*c^2*d^3-27*ln((a*d*x+b*
c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x*a^2*b*c^3*d
^2+9*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)
/x)*x*a*b^2*c^4*d+3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c
))^(1/2)+2*a*c)/x)*x*b^3*c^5-30*x^2*a^2*d^4*((b*x+a)*(d*x+c))^(1/
2)*(a*c)^(1/2)+44*x^2*a*b*c*d^3*((b*x+a)*(d*x+c))^(1/2)*(a*c)^(1/
2)-6*x^2*b^2*c^2*d^2*((b*x+a)*(d*x+c))^(1/2)*(a*c)^(1/2)-40*x*a^2
*c*d^3*((b*x+a)*(d*x+c))^(1/2)*(a*c)^(1/2)+60*x*a*b*c^2*d^2*((b*x
+a)*(d*x+c))^(1/2)*(a*c)^(1/2)-12*x*b^2*c^3*d*((b*x+a)*(d*x+c))^(
1/2)*(a*c)^(1/2)-6*a^2*c^2*d^2*((b*x+a)*(d*x+c))^(1/2)*(a*c)^(1/2
)+12*a*b*c^3*d*((b*x+a)*(d*x+c))^(1/2)*(a*c)^(1/2)-6*b^2*c^4*((b*
x+a)*(d*x+c))^(1/2)*(a*c)^(1/2))/(a*d-b*c)^2/(a*c)^(1/2)/x/((b*x+
a)*(d*x+c))^(1/2)/(d*x+c)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{bx+a}(dx+c)^{\frac{5}{2}}x^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(b*x + a)*(d*x + c)^(5/2)*x^2),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(b*x + a)*(d*x + c)^(5/2)*x^2), x)
```

Fricas [A] time = 0.478795, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(b*x + a)*(d*x + c)^(5/2)*x^2),x, algorithm="fricas")
```

```
[Out] [-1/12*(4*(3*b^2*c^4 - 6*a*b*c^3*d + 3*a^2*c^2*d^2 + (3*b^2*c^2*d
^2 - 22*a*b*c*d^3 + 15*a^2*d^4)*x^2 + 2*(3*b^2*c^3*d - 15*a*b*c^2
*d^2 + 10*a^2*c*d^3)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c) - 3
*((b^3*c^3*d^2 + 3*a*b^2*c^2*d^3 - 9*a^2*b*c*d^4 + 5*a^3*d^5)*x^3
 + 2*(b^3*c^4*d + 3*a*b^2*c^3*d^2 - 9*a^2*b*c^2*d^3 + 5*a^3*c*d^4
)*x^2 + (b^3*c^5 + 3*a*b^2*c^4*d - 9*a^2*b*c^3*d^2 + 5*a^3*c^2*d^
3)*x)*log((4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sq
rt(d*x + c) + (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 +
8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2))/(((a*b^2*c^5*d^2 - 2*a^
2*b*c^4*d^3 + a^3*c^3*d^4)*x^3 + 2*(a*b^2*c^6*d - 2*a^2*b*c^5*d^2
 + a^3*c^4*d^3)*x^2 + (a*b^2*c^7 - 2*a^2*b*c^6*d + a^3*c^5*d^2)*x
)*sqrt(a*c)), -1/6*(2*(3*b^2*c^4 - 6*a*b*c^3*d + 3*a^2*c^2*d^2 +
(3*b^2*c^2*d^2 - 22*a*b*c*d^3 + 15*a^2*d^4)*x^2 + 2*(3*b^2*c^3*d
- 15*a*b*c^2*d^2 + 10*a^2*c*d^3)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt
(d*x + c) - 3*((b^3*c^3*d^2 + 3*a*b^2*c^2*d^3 - 9*a^2*b*c*d^4 + 5
*a^3*d^5)*x^3 + 2*(b^3*c^4*d + 3*a*b^2*c^3*d^2 - 9*a^2*b*c^2*d^3
+ 5*a^3*c*d^4)*x^2 + (b^3*c^5 + 3*a*b^2*c^4*d - 9*a^2*b*c^3*d^2 +
 5*a^3*c^2*d^3)*x)*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/
(sqrt(b*x + a)*sqrt(d*x + c)*a*c)))/(((a*b^2*c^5*d^2 - 2*a^2*b*c^
4*d^3 + a^3*c^3*d^4)*x^3 + 2*(a*b^2*c^6*d - 2*a^2*b*c^5*d^2 + a^3
*c^4*d^3)*x^2 + (a*b^2*c^7 - 2*a^2*b*c^6*d + a^3*c^5*d^2)*x)*sqrt
(-a*c))]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{x^2\sqrt{a+bx}\,(c+dx)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x**2/(d*x+c)**(5/2)/(b*x+a)**(1/2),x)
```

```
[Out] Integral(1/(x**2*sqrt(a + b*x)*(c + d*x)**(5/2)), x)
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(b*x + a)*(d*x + c)^(5/2)*x^2),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.743 $\int \frac{1}{x^3\sqrt{a+bx}(c+dx)^{5/2}}\,dx$

Optimal. Leaf size=277

$$\frac{d\sqrt{a+bx}\left(-35a^2d^2+18abcd+9b^2c^2\right)}{12a^2c^3(c+dx)^{3/2}(bc-ad)}+\frac{\sqrt{a+bx}(7ad+3bc)}{4a^2c^2x(c+dx)^{3/2}}-\frac{\left(35a^2d^2+10abcd+3b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{5/2}c^{9/2}}+\frac{d\sqrt{a+bx}\left(105a^3d^3-145a^2bcd^2+15ab^2c^2d+9b^3c^3\right)}{12a^2c^4\sqrt{c+dx}(bc-ad)^2}-\frac{\sqrt{a+bx}}{2acx^2(c+dx)^{3/2}}$$

```
[Out] (d*(9*b^2*c^2 + 18*a*b*c*d - 35*a^2*d^2)*Sqrt[a + b*x])/(12*a^2*c
^3*(b*c - a*d)*(c + d*x)^(3/2)) - Sqrt[a + b*x]/(2*a*c*x^2*(c + d
*x)^(3/2)) + ((3*b*c + 7*a*d)*Sqrt[a + b*x])/(4*a^2*c^2*x*(c + d*
x)^(3/2)) + (d*(9*b^3*c^3 + 15*a*b^2*c^2*d - 145*a^2*b*c*d^2 + 10
5*a^3*d^3)*Sqrt[a + b*x])/(12*a^2*c^4*(b*c - a*d)^2*Sqrt[c + d*x]
) - ((3*b^2*c^2 + 10*a*b*c*d + 35*a^2*d^2)*ArcTanh[(Sqrt[c]*Sqrt[
a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(4*a^(5/2)*c^(9/2))
```

Rubi [A] time = 0.860751, antiderivative size = 277, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.273

$$\frac{d\sqrt{a+bx}\left(-35a^2d^2+18abcd+9b^2c^2\right)}{12a^2c^3(c+dx)^{3/2}(bc-ad)}+\frac{\sqrt{a+bx}(7ad+3bc)}{4a^2c^2x(c+dx)^{3/2}}-\frac{\left(35a^2d^2+10abcd+3b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{5/2}c^{9/2}}+\frac{d\sqrt{a+bx}\left(105a^3d^3-145a^2bcd^2+15ab^2c^2d+9b^3c^3\right)}{12a^2c^4\sqrt{c+dx}(bc-ad)^2}-\frac{\sqrt{a+bx}}{2acx^2(c+dx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x^3*Sqrt[a + b*x]*(c + d*x)^(5/2)),x]
```

```
[Out] (d*(9*b^2*c^2 + 18*a*b*c*d - 35*a^2*d^2)*Sqrt[a + b*x])/(12*a^2*c
^3*(b*c - a*d)*(c + d*x)^(3/2)) - Sqrt[a + b*x]/(2*a*c*x^2*(c + d
*x)^(3/2)) + ((3*b*c + 7*a*d)*Sqrt[a + b*x])/(4*a^2*c^2*x*(c + d*
x)^(3/2)) + (d*(9*b^3*c^3 + 15*a*b^2*c^2*d - 145*a^2*b*c*d^2 + 10
5*a^3*d^3)*Sqrt[a + b*x])/(12*a^2*c^4*(b*c - a*d)^2*Sqrt[c + d*x]
) - ((3*b^2*c^2 + 10*a*b*c*d + 35*a^2*d^2)*ArcTanh[(Sqrt[c]*Sqrt[
a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(4*a^(5/2)*c^(9/2))
```

Rubi in Sympy [A] time = 124.195, size = 264, normalized size = 0.95

$$-\frac{\sqrt{a+bx}}{2acx^2\left(c+dx\right)^{\frac{3}{2}}}+\frac{\sqrt{a+bx}\left(7ad+3bc\right)}{4a^2c^2x\left(c+dx\right)^{\frac{3}{2}}}+\frac{d\sqrt{a+bx}\left(35a^2d^2-18abcd-9b^2c^2\right)}{12a^2c^3\left(c+dx\right)^{\frac{3}{2}}\left(ad-bc\right)}+\frac{d\sqrt{a+bx}\left(105a^3d^3-145a^2bcd^2+15ab^2c^2d+9b^3c^3\right)}{12a^2c^4\sqrt{c+dx}\left(ad-bc\right)^2}-\frac{\left(35a^2d^2+10abcd+3b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{\frac{5}{2}}c^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x**3/(d*x+c)**(5/2)/(b*x+a)**(1/2),x)
```

```
[Out] -sqrt(a + b*x)/(2*a*c*x**2*(c + d*x)**(3/2)) + sqrt(a + b*x)*(7*a
*d + 3*b*c)/(4*a**2*c**2*x*(c + d*x)**(3/2)) + d*sqrt(a + b*x)*(3
```

```
5*a**2*d**2 - 18*a*b*c*d - 9*b**2*c**2)/(12*a**2*c**3*(c + d*x)**
(3/2)*(a*d - b*c)) + d*sqrt(a + b*x)*(105*a**3*d**3 - 145*a**2*b*
c*d**2 + 15*a*b**2*c**2*d + 9*b**3*c**3)/(12*a**2*c**4*sqrt(c + d
*x)*(a*d - b*c)**2) - (35*a**2*d**2 + 10*a*b*c*d + 3*b**2*c**2)*a
tanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(4*a**(5/2)*c
**(9/2))
```

Mathematica [A] time = 1.25169, size = 221, normalized size = 0.8

$$\frac{2\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}\left(\frac{33ad+9bc}{a^2x}+\frac{8d^3(9ad-11bc)}{(c+dx)(bc-ad)^2}-\frac{8cd^3}{(c+dx)^2(bc-ad)}-\frac{6c}{ax^2}\right)+\frac{3\log(x)(35a^2d^2+10abcd+3b^2c^2)}{a^{5/2}}-\frac{3(35a^2d^2+10abcd+3b^2c^2)}{}}{24c^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(x^3*Sqrt[a + b*x]*(c + d*x)^(5/2)),x]
```

```
[Out] (2*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]*((-6*c)/(a*x^2) + (9*b*c +
 33*a*d)/(a^2*x) - (8*c*d^3)/((b*c - a*d)*(c + d*x)^2) + (8*d^3*(
-11*b*c + 9*a*d))/((b*c - a*d)^2*(c + d*x))) + (3*(3*b^2*c^2 + 10
*a*b*c*d + 35*a^2*d^2)*Log[x])/a^(5/2) - (3*(3*b^2*c^2 + 10*a*b*c
*d + 35*a^2*d^2)*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sq
rt[a + b*x]*Sqrt[c + d*x]])/a^(5/2))/(24*c^(9/2))
```

Maple [B] time = 0.059, size = 1288, normalized size = 4.7

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/x^3/(d*x+c)^(5/2)/(b*x+a)^(1/2),x)
```

```
[Out] -1/24*(b*x+a)^(1/2)/a^2/c^4*(108*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((
b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^2*b^2*c^3*d^3+290*x^3*a^2*b
*c*d^4*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-30*x^3*a*b^2*c^2*d^3*(
a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+396*x^2*a^2*b*c^2*d^3*(a*c)^(1
/2)*((b*x+a)*(d*x+c))^(1/2)-48*x^2*a*b^2*c^3*d^2*(a*c)^(1/2)*((b*
x+a)*(d*x+c))^(1/2)+66*x*a^2*b*c^3*d^2*(a*c)^(1/2)*((b*x+a)*(d*x+
c))^(1/2)-6*x*a*b^2*c^4*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+105
*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*
x^4*a^4*d^6+9*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/
2)+2*a*c)/x)*x^2*b^4*c^6-210*x^3*a^3*d^5*(a*c)^(1/2)*((b*x+a)*(d*
x+c))^(1/2)-18*x*b^3*c^5*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+12*a
^3*c^3*d^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+12*a*b^2*c^5*(a*c)
^(1/2)*((b*x+a)*(d*x+c))^(1/2)+9*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((
b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*b^4*c^4*d^2+210*ln((a*d*x+b*c
*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^4*c*d^5+
18*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x
)*x^3*b^4*c^5*d+105*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c
))^(1/2)+2*a*c)/x)*x^2*a^4*c^2*d^4+24*ln((a*d*x+b*c*x+2*(a*c)^(1/
2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a*b^3*c^4*d^2-180*ln((a*
d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a^3
*b*c^3*d^3+54*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/
2)+2*a*c)/x)*x^2*a^2*b^2*c^4*d^2+12*ln((a*d*x+b*c*x+2*(a*c)^(1/2)
*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a*b^3*c^5*d-18*x^3*b^3*c^3
*d^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-280*x^2*a^3*c*d^4*(a*c)^
(1/2)*((b*x+a)*(d*x+c))^(1/2)-36*x^2*b^3*c^4*d*(a*c)^(1/2)*((b*x+
a)*(d*x+c))^(1/2)-42*x*a^3*c^2*d^3*(a*c)^(1/2)*((b*x+a)*(d*x+c))^
(1/2)-24*a^2*b*c^4*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-180*ln((
a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a
^3*b*c*d^5+54*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/
2)+2*a*c)/x)*x^4*a^2*b^2*c^2*d^4+12*ln((a*d*x+b*c*x+2*(a*c)^(1/2)
*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a*b^3*c^3*d^3-360*ln((a*d*
x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^3*b
*c^2*d^4)/x^2/(a*c)^(1/2)/(a*d-b*c)^2/((b*x+a)*(d*x+c))^(1/2)/(d*
```

```
x+c)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{bx+a}(dx+c)^{\frac{5}{2}}x^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(b*x + a)*(d*x + c)^(5/2)*x^3),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(b*x + a)*(d*x + c)^(5/2)*x^3), x)
```

Fricas [A] time = 0.838024, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(b*x + a)*(d*x + c)^(5/2)*x^3),x, algorithm="fricas")
```

```
[Out] [-1/48*(4*(6*a*b^2*c^5 - 12*a^2*b*c^4*d + 6*a^3*c^3*d^2 - (9*b^3*
c^3*d^2 + 15*a*b^2*c^2*d^3 - 145*a^2*b*c*d^4 + 105*a^3*d^5)*x^3 -
 2*(9*b^3*c^4*d + 12*a*b^2*c^3*d^2 - 99*a^2*b*c^2*d^3 + 70*a^3*c*
d^4)*x^2 - 3*(3*b^3*c^5 + a*b^2*c^4*d - 11*a^2*b*c^3*d^2 + 7*a^3*
c^2*d^3)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c) - 3*((3*b^4*c^4
*d^2 + 4*a*b^3*c^3*d^3 + 18*a^2*b^2*c^2*d^4 - 60*a^3*b*c*d^5 + 35
*a^4*d^6)*x^4 + 2*(3*b^4*c^5*d + 4*a*b^3*c^4*d^2 + 18*a^2*b^2*c^3
*d^3 - 60*a^3*b*c^2*d^4 + 35*a^4*c*d^5)*x^3 + (3*b^4*c^6 + 4*a*b^
3*c^5*d + 18*a^2*b^2*c^4*d^2 - 60*a^3*b*c^3*d^3 + 35*a^4*c^2*d^4)
*x^2)*log(-(4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*s
qrt(d*x + c) - (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 +
 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2))/(((a^2*b^2*c^6*d^2 - 2
*a^3*b*c^5*d^3 + a^4*c^4*d^4)*x^4 + 2*(a^2*b^2*c^7*d - 2*a^3*b*c^
6*d^2 + a^4*c^5*d^3)*x^3 + (a^2*b^2*c^8 - 2*a^3*b*c^7*d + a^4*c^6
*d^2)*x^2)*sqrt(a*c)), -1/24*(2*(6*a*b^2*c^5 - 12*a^2*b*c^4*d + 6
*a^3*c^3*d^2 - (9*b^3*c^3*d^2 + 15*a*b^2*c^2*d^3 - 145*a^2*b*c*d^
4 + 105*a^3*d^5)*x^3 - 2*(9*b^3*c^4*d + 12*a*b^2*c^3*d^2 - 99*a^2
*b*c^2*d^3 + 70*a^3*c*d^4)*x^2 - 3*(3*b^3*c^5 + a*b^2*c^4*d - 11*
a^2*b*c^3*d^2 + 7*a^3*c^2*d^3)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt(d
*x + c) + 3*((3*b^4*c^4*d^2 + 4*a*b^3*c^3*d^3 + 18*a^2*b^2*c^2*d^
4 - 60*a^3*b*c*d^5 + 35*a^4*d^6)*x^4 + 2*(3*b^4*c^5*d + 4*a*b^3*c
^4*d^2 + 18*a^2*b^2*c^3*d^3 - 60*a^3*b*c^2*d^4 + 35*a^4*c*d^5)*x^
3 + (3*b^4*c^6 + 4*a*b^3*c^5*d + 18*a^2*b^2*c^4*d^2 - 60*a^3*b*c^
3*d^3 + 35*a^4*c^2*d^4)*x^2)*arctan(1/2*(2*a*c + (b*c + a*d)*x)*s
qrt(-a*c)/(sqrt(b*x + a)*sqrt(d*x + c)*a*c)))/(((a^2*b^2*c^6*d^2
- 2*a^3*b*c^5*d^3 + a^4*c^4*d^4)*x^4 + 2*(a^2*b^2*c^7*d - 2*a^3*b
*c^6*d^2 + a^4*c^5*d^3)*x^3 + (a^2*b^2*c^8 - 2*a^3*b*c^7*d + a^4*
c^6*d^2)*x^2)*sqrt(-a*c))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/x**3/(d*x+c)**(5/2)/(b*x+a)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(b*x + a)*(d*x + c)^(5/2)*x^3),x, algorithm="giac")

[Out] Exception raised: TypeError
```

3.744 $\int \frac{1}{x\sqrt{cx}\sqrt{a+bx}}\,dx$

Optimal. Leaf size=21

$$-\frac{2\sqrt{a+bx}}{a\sqrt{cx}}$$

```
[Out] (-2*Sqrt[a + b*x])/(a*Sqrt[c*x])
```

Rubi [A] time = 0.0210846, antiderivative size = 21, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.1$

$$-\frac{2\sqrt{a+bx}}{a\sqrt{cx}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x*Sqrt[c*x]*Sqrt[a + b*x]),x]

[Out] (-2*Sqrt[a + b*x])/(a*Sqrt[c*x])
```

Rubi in Sympy [A] time = 3.47961, size = 19, normalized size = 0.9

$$-\frac{2\sqrt{a+bx}}{a\sqrt{cx}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x/(c*x)**(1/2)/(b*x+a)**(1/2),x)

[Out] -2*sqrt(a + b*x)/(a*sqrt(c*x))
```

Mathematica [A] time = 0.0227006, size = 23, normalized size = 1.1

$$-\frac{2cx\sqrt{a+bx}}{a(cx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(x*Sqrt[c*x]*Sqrt[a + b*x]),x]

[Out] (-2*c*x*Sqrt[a + b*x])/(a*(c*x)^(3/2))
```

Maple [A] time = 0.007, size = 18, normalized size = 0.9

$$-2\,\frac{\sqrt{bx+a}}{a\sqrt{cx}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/x/(c*x)^(1/2)/(b*x+a)^(1/2),x)
```

```
[Out] -2*(b*x+a)^(1/2)/a/(c*x)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(b*x + a)*sqrt(c*x)*x),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.21755, size = 31, normalized size = 1.48

$$-\frac{2\sqrt{bx+a}\sqrt{cx}}{acx}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(b*x + a)*sqrt(c*x)*x),x, algorithm="fricas")
```

```
[Out] -2*sqrt(b*x + a)*sqrt(c*x)/(a*c*x)
```

Sympy [A] time = 4.9157, size = 24, normalized size = 1.14

$$-\frac{2\sqrt{b}\sqrt{\frac{a}{bx}+1}}{a\sqrt{c}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x/(c*x)**(1/2)/(b*x+a)**(1/2),x)
```

```
[Out] -2*sqrt(b)*sqrt(a/(b*x) + 1)/(a*sqrt(c))
```

GIAC/XCAS [A] time = 0.238733, size = 47, normalized size = 2.24

$$-\frac{2\sqrt{bx+a}b^2}{\sqrt{(bx+a)bc-abc}a|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(b*x + a)*sqrt(c*x)*x),x, algorithm="giac")
```

```
[Out] -2*sqrt(b*x + a)*b^2/(sqrt((b*x + a)*b*c - a*b*c)*a*abs(b))
```

3.745 $\int \frac{1}{x\sqrt{a+bx}\sqrt{ac-bcx}}\,dx$

Optimal. Leaf size=42

$$-\frac{\tanh^{-1}\left(\frac{\sqrt{a+bx}\sqrt{ac-bcx}}{a\sqrt{c}}\right)}{a\sqrt{c}}$$

```
[Out] -(ArcTanh[(Sqrt[a + b*x]*Sqrt[a*c - b*c*x])/(a*Sqrt[c])]/(a*Sqrt[
c]))
```

Rubi [A] time = 0.0937899, antiderivative size = 42, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.077

$$-\frac{\tanh^{-1}\left(\frac{\sqrt{a+bx}\sqrt{ac-bcx}}{a\sqrt{c}}\right)}{a\sqrt{c}}$$

Antiderivative was successfully verified.

```
[In] Int[1/(x*Sqrt[a + b*x]*Sqrt[a*c - b*c*x]),x]
```

```
[Out] -(ArcTanh[(Sqrt[a + b*x]*Sqrt[a*c - b*c*x])/(a*Sqrt[c])]/(a*Sqrt[
c]))
```

Rubi in Sympy [A] time = 9.53729, size = 36, normalized size = 0.86

$$-\frac{\operatorname{atanh}\left(\frac{\sqrt{a+bx}\sqrt{ac-bcx}}{a\sqrt{c}}\right)}{a\sqrt{c}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(1/x/(b*x+a)**(1/2)/(-b*c*x+a*c)**(1/2),x)
```

```
[Out] -atanh(sqrt(a + b*x)*sqrt(a*c - b*c*x)/(a*sqrt(c)))/(a*sqrt(c))
```

Mathematica [A] time = 0.0664701, size = 54, normalized size = 1.29

$$\frac{\sqrt{a-bx}\left(\log(x)-\log\left(\sqrt{a-bx}\sqrt{a+bx}+a\right)\right)}{a\sqrt{c(a-bx)}}$$

Antiderivative was successfully verified.

```
[In] Integrate[1/(x*Sqrt[a + b*x]*Sqrt[a*c - b*c*x]),x]
```

```
[Out] (Sqrt[a - b*x]*(Log[x] - Log[a + Sqrt[a - b*x]*Sqrt[a + b*x]]))/(
a*Sqrt[c*(a - b*x)])
```

Maple [B] time = 0.042, size = 85, normalized size = 2.

$$-1\sqrt{bx+a}\sqrt{-c\,(bx-a)}\ln\left(2\,\frac{a^2c+\sqrt{a^2c}\sqrt{-c\,(b^2x^2-a^2)}}{x}\right)\frac{1}{\sqrt{a^2c}}\frac{1}{\sqrt{-c\,(b^2x^2-a^2)}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int(1/x/(b*x+a)^(1/2)/(-b*c*x+a*c)^(1/2),x)
```

```
[Out] -(b*x+a)^(1/2)*(-c*(b*x-a))^(1/2)*ln(2*(a^2*c+(a^2*c)^(1/2)*(-c*(
b^2*x^2-a^2))^(1/2))/x)/(-c*(b^2*x^2-a^2))^(1/2)/(a^2*c)^(1/2)
```

Maxima [F]   time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(-b*c*x + a*c)*sqrt(b*x + a)*x),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A]   time = 0.231843, size = 1, normalized size = 0.02

$$\left[\frac{\log\left(-\frac{2\sqrt{-bcx+ac}\sqrt{bx+a}a+(b^2x^2-2a^2)\sqrt{c}}{x^2}\right)}{2a\sqrt{c}}, -\frac{\arctan\left(\frac{a\sqrt{-c}}{\sqrt{-bcx+ac}\sqrt{bx+a}}\right)}{a\sqrt{-c}}\right]$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(-b*c*x + a*c)*sqrt(b*x + a)*x),x, algorithm="fricas")
```

```
[Out] [1/2*log(-(2*sqrt(-b*c*x + a*c)*sqrt(b*x + a)*a + (b^2*x^2 - 2*a^
2)*sqrt(c))/x^2)/(a*sqrt(c)), -arctan(a*sqrt(-c)/(sqrt(-b*c*x + a
*c)*sqrt(b*x + a)))/(a*sqrt(-c))]
```

Sympy [A]   time = 12.7479, size = 83, normalized size = 1.98

$$\frac{iG_{6,6}^{5,3}\left(\begin{matrix} \frac{3}{4}, \frac{5}{4}, 1 & 1, 1, \frac{3}{2} \\ \frac{1}{2}, \frac{3}{4}, 1, \frac{5}{4}, \frac{3}{2} & 0 \end{matrix} \middle| {\frac{a^2}{b^2x^2}} \right)}{4\pi^{\frac{3}{2}}a\sqrt{c}} - \frac{G_{6,6}^{2,6}\left(\begin{matrix} 0, \frac{1}{4}, \frac{1}{2}, \frac{3}{4}, 1, 1 & \\ \frac{1}{4}, \frac{3}{4} & 0, \frac{1}{2}, \frac{1}{2}, 0 \end{matrix} \middle| {\frac{a^2e^{-2i\pi}}{b^2x^2}} \right)}{4\pi^{\frac{3}{2}}a\sqrt{c}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(1/x/(b*x+a)**(1/2)/(-b*c*x+a*c)**(1/2),x)
```

```
[Out] I*meijerg(((3/4, 5/4, 1), (1, 1, 3/2)), ((1/2, 3/4, 1, 5/4, 3/2),
 (0,)), a**2/(b**2*x**2))/(4*pi**(3/2)*a*sqrt(c)) - meijerg(((0,
1/4, 1/2, 3/4, 1, 1), ()), ((1/4, 3/4), (0, 1/2, 1/2, 0)), a**2*e
xp_polar(-2*I*pi)/(b**2*x**2))/(4*pi**(3/2)*a*sqrt(c))
```

GIAC/XCAS [A]   time = 0.226588, size = 88, normalized size = 2.1

$$-\frac{2\sqrt{-c}\arctan\left(\frac{\left(\sqrt{-bcx+ac}\sqrt{-c}-\sqrt{2ac^2+(bcx-ac)c}\right)^2}{2ac^2}\right)}{a|c|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(-b*c*x + a*c)*sqrt(b*x + a)*x),x, algorithm="giac")
```

```
[Out] -2*sqrt(-c)*arctan(1/2*(sqrt(-b*c*x + a*c)*sqrt(-c) - sqrt(2*a*c^
2 + (b*c*x - a*c)*c))^2/(a*c^2))/(a*abs(c))
```

3.746 $\int \frac{1}{x\sqrt{1-a-bx}\sqrt{1+a+bx}}\,dx$

Optimal. Leaf size=54

$$-\frac{2\tanh^{-1}\left(\frac{\sqrt{1-a}\sqrt{a+bx+1}}{\sqrt{a+1}\sqrt{-a-bx+1}}\right)}{\sqrt{1-a^2}}$$

```
[Out] (-2*ArcTanh[(Sqrt[1 - a]*Sqrt[1 + a + b*x])/(Sqrt[1 + a]*Sqrt[1 -
 a - b*x])])/Sqrt[1 - a^2]
```

Rubi [A] time = 0.111688, antiderivative size = 54, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 27, $\frac{\text{number of rules}}{\text{integrand size}} = 0.074$

$$-\frac{2\tanh^{-1}\left(\frac{\sqrt{1-a}\sqrt{a+bx+1}}{\sqrt{a+1}\sqrt{-a-bx+1}}\right)}{\sqrt{1-a^2}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x*Sqrt[1 - a - b*x]*Sqrt[1 + a + b*x]),x]
```

```
[Out] (-2*ArcTanh[(Sqrt[1 - a]*Sqrt[1 + a + b*x])/(Sqrt[1 + a]*Sqrt[1 -
 a - b*x])])/Sqrt[1 - a^2]
```

Rubi in Sympy [A] time = 9.85343, size = 51, normalized size = 0.94

$$-\frac{2\,\mathrm{atanh}\left(\frac{\sqrt{-a+1}\sqrt{a+bx+1}}{\sqrt{a+1}\sqrt{-a-bx+1}}\right)}{\sqrt{-a+1}\sqrt{a+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x/(-b*x-a+1)**(1/2)/(b*x+a+1)**(1/2),x)
```

```
[Out] -2*atanh(sqrt(-a + 1)*sqrt(a + b*x + 1)/(sqrt(a + 1)*sqrt(-a - b*
x + 1)))/(sqrt(-a + 1)*sqrt(a + 1))
```

Mathematica [C] time = 0.171886, size = 107, normalized size = 1.98

$$-\frac{i\sqrt{a+bx-1}\sqrt{a+bx+1}\log\left(\frac{2\sqrt{a+bx-1}\sqrt{a+bx+1}}{x}+\frac{2i(a^2+abx-1)}{\sqrt{1-a^2}x}\right)}{\sqrt{1-a^2}\sqrt{-(a+bx-1)(a+bx+1)}}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[1/(x*Sqrt[1 - a - b*x]*Sqrt[1 + a + b*x]),x]
```

```
[Out] ((-I)*Sqrt[-1 + a + b*x]*Sqrt[1 + a + b*x]*Log[(2*Sqrt[-1 + a + b
*x]*Sqrt[1 + a + b*x])/x + ((2*I)*(-1 + a^2 + a*b*x))/(Sqrt[1 - a
^2]*x)])/(Sqrt[1 - a^2]*Sqrt[-((-1 + a + b*x)*(1 + a + b*x))])
```

Maple [C] time = 0.059, size = 114, normalized size = 2.1

$$\frac{(csgn(b))^2}{(a-1)(1+a)}\sqrt{-bx-a+1}\sqrt{bx+a+1}\ln\left(-2\frac{abx+a^2-\sqrt{-a^2+1}\sqrt{-b^2x^2-2abx-a^2+1}-1}{x}\right)\sqrt{-a^2+1}\frac{1}{\sqrt{-b^2x^2-2a}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/x/(-b*x-a+1)^(1/2)/(b*x+a+1)^(1/2),x)
```

```
[Out] (-b*x-a+1)^(1/2)*(b*x+a+1)^(1/2)*csgn(b)^2*ln(-2*(a*b*x+a^2-(-a^2
+1)^(1/2)*(-b^2*x^2-2*a*b*x-a^2+1)^(1/2)-1)/x)*(-a^2+1)^(1/2)/(-b
^2*x^2-2*a*b*x-a^2+1)^(1/2)/(a-1)/(1+a)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(b*x + a + 1)*sqrt(-b*x - a + 1)*x),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.236267, size = 1, normalized size = 0.02

$$\left[\frac{\log\left(-\frac{2\,\left(a^4+\left(a^3-a\right)bx-2\,a^2+1\right)\sqrt{bx+a+1}\sqrt{-bx-a+1}-\left(\left(2\,a^2-1\right)b^2x^2+2\,a^4+4\,\left(a^3-a\right)bx-4\,a^2+2\right)\sqrt{-a^2+1}}{x^2}\right)}{2\,\sqrt{-a^2+1}},\ -\frac{\arctan\left(\frac{abx+a^2-1}{\sqrt{a^2-1}\sqrt{bx+a+1}\sqrt{-bx-a+1}}\right)}{\sqrt{a^2-1}}\right]$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(b*x + a + 1)*sqrt(-b*x - a + 1)*x),x, algorithm="fricas")
```

```
[Out] [1/2*log(-(2*(a^4 + (a^3 - a)*b*x - 2*a^2 + 1)*sqrt(b*x + a + 1)*
sqrt(-b*x - a + 1) - ((2*a^2 - 1)*b^2*x^2 + 2*a^4 + 4*(a^3 - a)*b
*x - 4*a^2 + 2)*sqrt(-a^2 + 1))/x^2)/sqrt(-a^2 + 1), -arctan((a*b
*x + a^2 - 1)/(sqrt(a^2 - 1)*sqrt(b*x + a + 1)*sqrt(-b*x - a + 1)
))/sqrt(a^2 - 1)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{x\sqrt{-a-bx+1}\sqrt{a+bx+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/x/(-b*x-a+1)**(1/2)/(b*x+a+1)**(1/2),x)
```

```
[Out] Integral(1/(x*sqrt(-a - b*x + 1)*sqrt(a + b*x + 1)), x)
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(b*x + a + 1)*sqrt(-b*x - a + 1)*x),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.747 $\int \frac{x^3(c+dx)^{3/2}}{(a+bx)^{3/2}}\,dx$

Optimal. Leaf size=271

$$-\frac{\sqrt{a+bx}(c+dx)^{3/2}\left(-105a^2d^2-4bdx(bc-21ad)+14abcd+3b^2c^2\right)}{32b^4d^2}+\frac{3(bc-ad)\left(-105a^3d^3+35a^2bcd^2+5ab^2c^2d+b^3c^3\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{64b^{11/2}d^{5/2}}+\frac{3\sqrt{a+bx}\sqrt{c+dx}\left(-105a^3d^3+35a^2bcd^2+5ab^2c^2d+b^3c^3\right)}{64b^5d^2}+\frac{9x^2\sqrt{a+bx}(c+dx)^{3/2}}{4b^2}-\frac{2x^3(c+dx)^{3/2}}{b\sqrt{a+bx}}$$

```
[Out] (3*(b^3*c^3 + 5*a*b^2*c^2*d + 35*a^2*b*c*d^2 - 105*a^3*d^3)*Sqrt[
a + b*x]*Sqrt[c + d*x])/(64*b^5*d^2) - (2*x^3*(c + d*x)^(3/2))/(b
*Sqrt[a + b*x]) + (9*x^2*Sqrt[a + b*x]*(c + d*x)^(3/2))/(4*b^2) -
 (Sqrt[a + b*x]*(c + d*x)^(3/2)*(3*b^2*c^2 + 14*a*b*c*d - 105*a^2
*d^2 - 4*b*d*(b*c - 21*a*d)*x))/(32*b^4*d^2) + (3*(b*c - a*d)*(b^
3*c^3 + 5*a*b^2*c^2*d + 35*a^2*b*c*d^2 - 105*a^3*d^3)*ArcTanh[(Sq
rt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(64*b^(11/2)*d^(5/
2))
```

Rubi [A] time = 0.586291, antiderivative size = 271, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.273$

$$-\frac{\sqrt{a+bx}(c+dx)^{3/2}\left(-105a^2d^2-4bdx(bc-21ad)+14abcd+3b^2c^2\right)}{32b^4d^2}+\frac{3(bc-ad)\left(-105a^3d^3+35a^2bcd^2+5ab^2c^2d+b^3c^3\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{64b^{11/2}d^{5/2}}+\frac{3\sqrt{a+bx}\sqrt{c+dx}\left(-105a^3d^3+35a^2bcd^2+5ab^2c^2d+b^3c^3\right)}{64b^5d^2}+\frac{9x^2\sqrt{a+bx}(c+dx)^{3/2}}{4b^2}-\frac{2x^3(c+dx)^{3/2}}{b\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^3*(c + d*x)^(3/2))/(a + b*x)^(3/2),x]
```


```
[Out] (3*(b^3*c^3 + 5*a*b^2*c^2*d + 35*a^2*b*c*d^2 - 105*a^3*d^3)*Sqrt[
a + b*x]*Sqrt[c + d*x])/(64*b^5*d^2) - (2*x^3*(c + d*x)^(3/2))/(b
*Sqrt[a + b*x]) + (9*x^2*Sqrt[a + b*x]*(c + d*x)^(3/2))/(4*b^2) -
 (Sqrt[a + b*x]*(c + d*x)^(3/2)*(3*b^2*c^2 + 14*a*b*c*d - 105*a^2
*d^2 - 4*b*d*(b*c - 21*a*d)*x))/(32*b^4*d^2) + (3*(b*c - a*d)*(b^
3*c^3 + 5*a*b^2*c^2*d + 35*a^2*b*c*d^2 - 105*a^3*d^3)*ArcTanh[(Sq
rt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(64*b^(11/2)*d^(5/
2))
```

Rubi in Sympy [A] time = 52.4902, size = 277, normalized size = 1.02

$$-\frac{2x^3\left(c+dx\right)^{\frac{3}{2}}}{b\sqrt{a+bx}}+\frac{9x^2\sqrt{a+bx}\left(c+dx\right)^{\frac{3}{2}}}{4b^2}+\frac{\sqrt{a+bx}\left(c+dx\right)^{\frac{3}{2}}\left(\frac{315a^2d^2}{8}-\frac{21abcd}{4}-\frac{9b^2c^2}{8}-\frac{3bdx(21ad-bc)}{2}\right)}{12b^4d^2}-\frac{3\sqrt{a+bx}\sqrt{c+dx}\left(105a^3d^3-35a^2bcd^2-5ab^2c^2d-b^3c^3\right)}{64b^5d^2}+\frac{3\left(ad-bc\right)\left(105a^3d^3-35a^2bcd^2-5ab^2c^2d-b^3c^3\right)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{64b^{\frac{11}{2}}d^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3*(d*x+c)**(3/2)/(b*x+a)**(3/2),x)
```

```
[Out] -2*x**3*(c + d*x)**(3/2)/(b*sqrt(a + b*x)) + 9*x**2*sqrt(a + b*x)
*(c + d*x)**(3/2)/(4*b**2) + sqrt(a + b*x)*(c + d*x)**(3/2)*(315*
a**2*d**2/8 - 21*a*b*c*d/4 - 9*b**2*c**2/8 - 3*b*d*x*(21*a*d - b*
c)/2)/(12*b**4*d**2) - 3*sqrt(a + b*x)*sqrt(c + d*x)*(105*a**3*d*
*3 - 35*a**2*b*c*d**2 - 5*a*b**2*c**2*d - b**3*c**3)/(64*b**5*d**
2) + 3*(a*d - b*c)*(105*a**3*d**3 - 35*a**2*b*c*d**2 - 5*a*b**2*c
**2*d - b**3*c**3)*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c +
d*x)))/(64*b**(11/2)*d**(5/2))
```

Mathematica [A] time = 0.264414, size = 253, normalized size = 0.93

$$\frac{3(bc-ad)\left(-105a^3d^3+35a^2bcd^2+5ab^2c^2d+b^3c^3\right)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{128b^{11/2}d^{5/2}}-\frac{\sqrt{c+dx}\left(315a^4d^3+105a^3bd^2(dx-3c)+a^2b^2d\left(13c^2-119cdx-42d^2x^2\right)+ab^3\left(3c^3+11c^2dx+44cd^2x^2+24d^3x^3\right)-b^4\right.}{64b^5d^2\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^3*(c + d*x)^(3/2))/(a + b*x)^(3/2),x]
```

```
[Out] -(Sqrt[c + d*x]*(315*a^4*d^3 + 105*a^3*b*d^2*(-3*c + d*x) + a^2*b
^2*d*(13*c^2 - 119*c*d*x - 42*d^2*x^2) - b^4*x*(-3*c^3 + 2*c^2*d*
x + 24*c*d^2*x^2 + 16*d^3*x^3) + a*b^3*(3*c^3 + 11*c^2*d*x + 44*c
*d^2*x^2 + 24*d^3*x^3)))/(64*b^5*d^2*Sqrt[a + b*x]) + (3*(b*c - a
*d)*(b^3*c^3 + 5*a*b^2*c^2*d + 35*a^2*b*c*d^2 - 105*a^3*d^3)*Log[
b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*
x]])/(128*b^(11/2)*d^(5/2))
```

Maple [B] time = 0.047, size = 961, normalized size = 3.6

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^3*(d*x+c)^(3/2)/(b*x+a)^(3/2),x)
```

```
[Out] 1/128*(d*x+c)^(1/2)*(32*x^4*b^4*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)
^(1/2)-48*x^3*a*b^3*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+48*x^
3*b^4*c*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+315*ln(1/2*(2*b*d
*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*
a^4*b*d^4-420*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/
2)+a*d+b*c)/(b*d)^(1/2))*x*a^3*b^2*c*d^3+90*ln(1/2*(2*b*d*x+2*((b
*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^2*b^3*
c^2*d^2+12*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+
a*d+b*c)/(b*d)^(1/2))*x*a*b^4*c^3*d+3*ln(1/2*(2*b*d*x+2*((b*x+a)*
(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*b^5*c^4+84*x^2
*a^2*b^2*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-88*x^2*a*b^3*c*d
^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+4*x^2*b^4*c^2*d*((b*x+a)*(
d*x+c))^(1/2)*(b*d)^(1/2)+315*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))
^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^5*d^4-420*ln(1/2*(2*b*
d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a
^4*b*c*d^3+90*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/
2)+a*d+b*c)/(b*d)^(1/2))*a^3*b^2*c^2*d^2+12*ln(1/2*(2*b*d*x+2*((b
*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^2*b^3*c^
3*d+3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b
*c)/(b*d)^(1/2))*a*b^4*c^4-210*x*a^3*b*d^3*((b*x+a)*(d*x+c))^(1/2
)*(b*d)^(1/2)+238*x*a^2*b^2*c*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(
1/2)-22*x*a*b^3*c^2*d*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-6*x*b^4
*c^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-630*a^4*d^3*((b*x+a)*(d*
```

```
x+c))^(1/2)*(b*d)^(1/2)+630*a^3*b*c*d^2*((b*x+a)*(d*x+c))^(1/2)*(
b*d)^(1/2)-26*a^2*b^2*c^2*d*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-6
*a*b^3*c^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2))/((b*x+a)*(d*x+c))
^(1/2)/(b*d)^(1/2)/d^2/(b*x+a)^(1/2)/b^5
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)^(3/2)*x^3/(b*x + a)^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.981152, size = 1, normalized size = 0.

$$\left[\frac{4\left(16\,b^4d^3x^4 - 3\,ab^3c^3 - 13\,a^2b^2c^2d + 315\,a^3bcd^2 - 315\,a^4d^3 + 24\left(b^4cd^2 - ab^3d^3\right)x^3 + 2\left(b^4c^2d - 22\,ab^3cd^2 + 21\,a^2b^2d^3\right)x\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)^(3/2)*x^3/(b*x + a)^(3/2),x, algorithm="fricas")
```

```
[Out] [1/256*(4*(16*b^4*d^3*x^4 - 3*a*b^3*c^3 - 13*a^2*b^2*c^2*d + 315*
a^3*b*c*d^2 - 315*a^4*d^3 + 24*(b^4*c*d^2 - a*b^3*d^3)*x^3 + 2*(b
^4*c^2*d - 22*a*b^3*c*d^2 + 21*a^2*b^2*d^3)*x^2 - (3*b^4*c^3 + 11
*a*b^3*c^2*d - 119*a^2*b^2*c*d^2 + 105*a^3*b*d^3)*x)*sqrt(b*d)*sq
rt(b*x + a)*sqrt(d*x + c) + 3*(a*b^4*c^4 + 4*a^2*b^3*c^3*d + 30*a
^3*b^2*c^2*d^2 - 140*a^4*b*c*d^3 + 105*a^5*d^4 + (b^5*c^4 + 4*a*b
^4*c^3*d + 30*a^2*b^3*c^2*d^2 - 140*a^3*b^2*c*d^3 + 105*a^4*b*d^4
)*x)*log(4*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d
*x + c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2
*c*d + a*b*d^2)*x)*sqrt(b*d)))/((b^6*d^2*x + a*b^5*d^2)*sqrt(b*d)
), 1/128*(2*(16*b^4*d^3*x^4 - 3*a*b^3*c^3 - 13*a^2*b^2*c^2*d + 31
5*a^3*b*c*d^2 - 315*a^4*d^3 + 24*(b^4*c*d^2 - a*b^3*d^3)*x^3 + 2*
(b^4*c^2*d - 22*a*b^3*c*d^2 + 21*a^2*b^2*d^3)*x^2 - (3*b^4*c^3 +
11*a*b^3*c^2*d - 119*a^2*b^2*c*d^2 + 105*a^3*b*d^3)*x)*sqrt(-b*d)
*sqrt(b*x + a)*sqrt(d*x + c) + 3*(a*b^4*c^4 + 4*a^2*b^3*c^3*d + 3
0*a^3*b^2*c^2*d^2 - 140*a^4*b*c*d^3 + 105*a^5*d^4 + (b^5*c^4 + 4*
a*b^4*c^3*d + 30*a^2*b^3*c^2*d^2 - 140*a^3*b^2*c*d^3 + 105*a^4*b*
d^4)*x)*arctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a
)*sqrt(d*x + c)*b*d)))/((b^6*d^2*x + a*b^5*d^2)*sqrt(-b*d))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**3*(d*x+c)**(3/2)/(b*x+a)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.618315, size = 4, normalized size = 0.01

$$sage_0x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(3/2)*x^3/(b*x + a)^(3/2),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.748 $\int \frac{x^2(c+dx)^{3/2}}{(a+bx)^{3/2}}\,dx$

Optimal. Leaf size=246

$$-\frac{\sqrt{a+bx}(c+dx)^{3/2}\left(-\frac{35a^2d}{b}+10ac+\frac{bc^2}{d}\right)}{12b^2(bc-ad)}-\frac{2a^2(c+dx)^{5/2}}{b^2\sqrt{a+bx}(bc-ad)}-\frac{(bc-ad)\left(-35a^2d^2+10abcd+b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8b^{9/2}d^{3/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}\left(-35a^2d^2+10abcd+b^2c^2\right)}{8b^4d}+\frac{\sqrt{a+bx}(c+dx)^{5/2}}{3b^2d}$$

```
[Out] -((b^2*c^2 + 10*a*b*c*d - 35*a^2*d^2)*Sqrt[a + b*x]*Sqrt[c + d*x]
)/(8*b^4*d) - ((10*a*c + (b*c^2)/d - (35*a^2*d)/b)*Sqrt[a + b*x]*
(c + d*x)^(3/2))/(12*b^2*(b*c - a*d)) - (2*a^2*(c + d*x)^(5/2))/(
b^2*(b*c - a*d)*Sqrt[a + b*x]) + (Sqrt[a + b*x]*(c + d*x)^(5/2))/
(3*b^2*d) - ((b*c - a*d)*(b^2*c^2 + 10*a*b*c*d - 35*a^2*d^2)*ArcT
anh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(8*b^(9/2)*
d^(3/2))
```

Rubi [A] time = 0.610439, antiderivative size = 246, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$-\frac{\sqrt{a+bx}(c+dx)^{3/2}\left(-\frac{35a^2d}{b}+10ac+\frac{bc^2}{d}\right)}{12b^2(bc-ad)}-\frac{2a^2(c+dx)^{5/2}}{b^2\sqrt{a+bx}(bc-ad)}-\frac{(bc-ad)\left(-35a^2d^2+10abcd+b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8b^{9/2}d^{3/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}\left(-35a^2d^2+10abcd+b^2c^2\right)}{8b^4d}+\frac{\sqrt{a+bx}(c+dx)^{5/2}}{3b^2d}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^2*(c + d*x)^(3/2))/(a + b*x)^(3/2),x]
```


```
[Out] -((b^2*c^2 + 10*a*b*c*d - 35*a^2*d^2)*Sqrt[a + b*x]*Sqrt[c + d*x]
)/(8*b^4*d) - ((10*a*c + (b*c^2)/d - (35*a^2*d)/b)*Sqrt[a + b*x]*
(c + d*x)^(3/2))/(12*b^2*(b*c - a*d)) - (2*a^2*(c + d*x)^(5/2))/(
b^2*(b*c - a*d)*Sqrt[a + b*x]) + (Sqrt[a + b*x]*(c + d*x)^(5/2))/
(3*b^2*d) - ((b*c - a*d)*(b^2*c^2 + 10*a*b*c*d - 35*a^2*d^2)*ArcT
anh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(8*b^(9/2)*
d^(3/2))
```

Rubi in Sympy [A] time = 44.1915, size = 228, normalized size = 0.93

$$\frac{2a^2\left(c+dx\right)^{\frac{5}{2}}}{b^2\sqrt{a+bx}\left(ad-bc\right)}+\frac{\sqrt{a+bx}\left(c+dx\right)^{\frac{5}{2}}}{3b^2d}-\frac{\sqrt{a+bx}\left(c+dx\right)^{\frac{3}{2}}\left(35a^2d^2-10abcd-b^2c^2\right)}{12b^3d\left(ad-bc\right)}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(35a^2d^2-10abcd-b^2c^2\right)}{8b^4d}-\frac{\left(ad-bc\right)\left(35a^2d^2-10abcd-b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8b^{\frac{9}{2}}d^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(d*x+c)**(3/2)/(b*x+a)**(3/2),x)
```

```
[Out] 2*a**2*(c + d*x)**(5/2)/(b**2*sqrt(a + b*x)*(a*d - b*c)) + sqrt(a
 + b*x)*(c + d*x)**(5/2)/(3*b**2*d) - sqrt(a + b*x)*(c + d*x)**(3
```

```
/2)*(35*a**2*d**2 - 10*a*b*c*d - b**2*c**2)/(12*b**3*d*(a*d - b*c
)) + sqrt(a + b*x)*sqrt(c + d*x)*(35*a**2*d**2 - 10*a*b*c*d - b**
2*c**2)/(8*b**4*d) - (a*d - b*c)*(35*a**2*d**2 - 10*a*b*c*d - b**
2*c**2)*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c + d*x)))/(8*b
**(9/2)*d**(3/2))
```

Mathematica [A] time = 0.18973, size = 188, normalized size = 0.76

$$\frac{\sqrt{c+dx}\left(105a^3d^2+5a^2bd(7dx-20c)+ab^2\left(3c^2-38cdx-14d^2x^2\right)+b^3x\left(3c^2+14cdx+8d^2x^2\right)\right)}{24b^4d\sqrt{a+bx}}-\frac{(bc-ad)\left(-35a^2d^2+10abcd+b^2c^2\right)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{16b^{9/2}d^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^2*(c + d*x)^(3/2))/(a + b*x)^(3/2),x]
```

```
[Out] (Sqrt[c + d*x]*(105*a^3*d^2 + 5*a^2*b*d*(-20*c + 7*d*x) + a*b^2*(
3*c^2 - 38*c*d*x - 14*d^2*x^2) + b^3*x*(3*c^2 + 14*c*d*x + 8*d^2*
x^2)))/(24*b^4*d*Sqrt[a + b*x]) - ((b*c - a*d)*(b^2*c^2 + 10*a*b*
c*d - 35*a^2*d^2)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqr
t[a + b*x]*Sqrt[c + d*x]])/(16*b^(9/2)*d^(3/2))
```

Maple [B] time = 0.038, size = 692, normalized size = 2.8

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(d*x+c)^(3/2)/(b*x+a)^(3/2),x)
```

```
[Out] -1/48*(d*x+c)^(1/2)*(-16*x^3*b^3*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d
)^(1/2)+105*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)
+a*d+b*c)/(b*d)^(1/2))*x*a^3*b*d^3-135*ln(1/2*(2*b*d*x+2*((b*x+a)
*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^2*b^2*c*d^2
+27*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c
)/(b*d)^(1/2))*x*a*b^3*c^2*d+3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c)
)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*b^4*c^3+28*x^2*a*b^2*
d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-28*x^2*b^3*c*d*((b*x+a)*(
d*x+c))^(1/2)*(b*d)^(1/2)+105*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))
^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^4*d^3-135*ln(1/2*(2*b*
d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a
^3*b*c*d^2+27*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/
2)+a*d+b*c)/(b*d)^(1/2))*a^2*b^2*c^2*d+3*ln(1/2*(2*b*d*x+2*((b*x+
a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a*b^3*c^3-70*
x*a^2*b*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+76*x*a*b^2*c*d*((
b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-6*x*b^3*c^2*((b*x+a)*(d*x+c))^(
1/2)*(b*d)^(1/2)-210*a^3*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+
200*a^2*b*c*d*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-6*a*b^2*c^2*((b
*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2))/((b*x+a)*(d*x+c))^(1/2)/d/(b*d)
^(1/2)/(b*x+a)^(1/2)/b^4
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(3/2)*x^2/(b*x + a)^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.59094, size = 1, normalized size = 0.

$$\left[\frac{4\left(8\,b^3d^2x^3+3\,ab^2c^2-100\,a^2bcd+105\,a^3d^2+14\left(b^3cd-ab^2d^2\right)x^2+\left(3\,b^3c^2-38\,ab^2cd+35\,a^2bd^2\right)x\right)\sqrt{bd}\sqrt{bx+a}\sqrt{dx+}}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)^(3/2)*x^2/(b*x + a)^(3/2),x, algorithm="fricas")
```

```
[Out] [1/96*(4*(8*b^3*d^2*x^3 + 3*a*b^2*c^2 - 100*a^2*b*c*d + 105*a^3*d
^2 + 14*(b^3*c*d - a*b^2*d^2)*x^2 + (3*b^3*c^2 - 38*a*b^2*c*d + 3
5*a^2*b*d^2)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 3*(a*b^3*
c^3 + 9*a^2*b^2*c^2*d - 45*a^3*b*c*d^2 + 35*a^4*d^3 + (b^4*c^3 +
9*a*b^3*c^2*d - 45*a^2*b^2*c*d^2 + 35*a^3*b*d^3)*x)*log(-4*(2*b^2
*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*
d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x
)*sqrt(b*d)))/((b^5*d*x + a*b^4*d)*sqrt(b*d)), 1/48*(2*(8*b^3*d^2
*x^3 + 3*a*b^2*c^2 - 100*a^2*b*c*d + 105*a^3*d^2 + 14*(b^3*c*d -
a*b^2*d^2)*x^2 + (3*b^3*c^2 - 38*a*b^2*c*d + 35*a^2*b*d^2)*x)*sqr
t(-b*d)*sqrt(b*x + a)*sqrt(d*x + c) - 3*(a*b^3*c^3 + 9*a^2*b^2*c^
2*d - 45*a^3*b*c*d^2 + 35*a^4*d^3 + (b^4*c^3 + 9*a*b^3*c^2*d - 45
*a^2*b^2*c*d^2 + 35*a^3*b*d^3)*x)*arctan(1/2*(2*b*d*x + b*c + a*d
)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/((b^5*d*x + a*b^
4*d)*sqrt(-b*d))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**2*(d*x+c)**(3/2)/(b*x+a)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.638716, size = 4, normalized size = 0.02

$$sage_0x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)^(3/2)*x^2/(b*x + a)^(3/2),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.749 $\int \frac{x(c+dx)^{3/2}}{(a+bx)^{3/2}}\,dx$

Optimal. Leaf size=171

$$\frac{3(bc-5ad)(bc-ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{7/2}\sqrt{d}}+\frac{3\sqrt{a+bx}\sqrt{c+dx}(bc-5ad)}{4b^3}+\frac{\sqrt{a+bx}(c+dx)^{3/2}(bc-5ad)}{2b^2(bc-ad)}+\frac{2a(c+dx)^{5/2}}{b\sqrt{a+bx}(bc-ad)}$$

```
[Out] (3*(b*c - 5*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*b^3) + ((b*c - 5
*a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(2*b^2*(b*c - a*d)) + (2*a*(
c + d*x)^(5/2))/(b*(b*c - a*d)*Sqrt[a + b*x]) + (3*(b*c - 5*a*d)*
(b*c - a*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x
])])/(4*b^(7/2)*Sqrt[d])
```

Rubi [A] time = 0.239707, antiderivative size = 171, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.2

$$\frac{3(bc-5ad)(bc-ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{7/2}\sqrt{d}}+\frac{3\sqrt{a+bx}\sqrt{c+dx}(bc-5ad)}{4b^3}+\frac{\sqrt{a+bx}(c+dx)^{3/2}(bc-5ad)}{2b^2(bc-ad)}+\frac{2a(c+dx)^{5/2}}{b\sqrt{a+bx}(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[(x*(c + d*x)^(3/2))/(a + b*x)^(3/2),x]
```

```
[Out] (3*(b*c - 5*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*b^3) + ((b*c - 5
*a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(2*b^2*(b*c - a*d)) + (2*a*(
c + d*x)^(5/2))/(b*(b*c - a*d)*Sqrt[a + b*x]) + (3*(b*c - 5*a*d)*
(b*c - a*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x
])])/(4*b^(7/2)*Sqrt[d])
```

Rubi in Sympy [A] time = 26.1372, size = 155, normalized size = 0.91

$$-\frac{2a(c+dx)^{\frac{5}{2}}}{b\sqrt{a+bx}\,(ad-bc)}+\frac{\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}\,(5ad-bc)}{2b^2\,(ad-bc)}-\frac{3\sqrt{a+bx}\sqrt{c+dx}\,(5ad-bc)}{4b^3}+\frac{3\,(ad-bc)\,(5ad-bc)\,\mathrm{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{4b^{\frac{7}{2}}\sqrt{d}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(d*x+c)**(3/2)/(b*x+a)**(3/2),x)
```

```
[Out] -2*a*(c + d*x)**(5/2)/(b*sqrt(a + b*x)*(a*d - b*c)) + sqrt(a + b*
x)*(c + d*x)**(3/2)*(5*a*d - b*c)/(2*b**2*(a*d - b*c)) - 3*sqrt(a
 + b*x)*sqrt(c + d*x)*(5*a*d - b*c)/(4*b**3) + 3*(a*d - b*c)*(5*a
*d - b*c)*atanh(sqrt(b)*sqrt(c + d*x)/(sqrt(d)*sqrt(a + b*x)))/(4
*b**(7/2)*sqrt(d))
```

Mathematica [A] time = 0.134885, size = 130, normalized size = 0.76

$$\frac{\sqrt{c+dx}\left(-15a^2d+ab(13c-5dx)+b^2x(5c+2dx)\right)}{4b^3\sqrt{a+bx}}+\frac{3(bc-5ad)(bc-ad)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{8b^{7/2}\sqrt{d}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x*(c + d*x)^(3/2))/(a + b*x)^(3/2),x]
```

```
[Out] (Sqrt[c + d*x]*(-15*a^2*d + a*b*(13*c - 5*d*x) + b^2*x*(5*c + 2*d
*x)))/(4*b^3*Sqrt[a + b*x]) + (3*(b*c - 5*a*d)*(b*c - a*d)*Log[b*
c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]
])/(8*b^(7/2)*Sqrt[d])
```

Maple [B] time = 0.03, size = 455, normalized size = 2.7

$$\frac{1}{8\,b^3}\sqrt{dx+c}\left(15\,\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{(bx+a)\,(dx+c)}\sqrt{bd}+ad+bc}{\sqrt{bd}}\right)xa^2bd^2-18\,\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{(bx+a)\,(dx+c)}\sqrt{bd}}{\sqrt{bd}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(d*x+c)^(3/2)/(b*x+a)^(3/2),x)
```

```
[Out] 1/8*(d*x+c)^(1/2)*(15*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(
b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^2*b*d^2-18*ln(1/2*(2*b*d*x+2
*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a*b^
2*c*d+3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d
+b*c)/(b*d)^(1/2))*x*b^3*c^2+4*x^2*b^2*d*((b*x+a)*(d*x+c))^(1/2)*
(b*d)^(1/2)+15*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1
/2)+a*d+b*c)/(b*d)^(1/2))*a^3*d^2-18*ln(1/2*(2*b*d*x+2*((b*x+a)*(
d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^2*b*c*d+3*ln(1/
2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(
1/2))*a*b^2*c^2-10*x*a*b*d*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+10
*x*b^2*c*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-30*a^2*d*((b*x+a)*(d
*x+c))^(1/2)*(b*d)^(1/2)+26*a*b*c*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(
1/2))/((b*x+a)*(d*x+c))^(1/2)/(b*d)^(1/2)/(b*x+a)^(1/2)/b^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(3/2)*x/(b*x + a)^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.407888, size = 1, normalized size = 0.01

$$\left[\frac{4\left(2\,b^2dx^2+13\,abc-15\,a^2d+5\left(b^2c-abd\right)x\right)\sqrt{bd}\sqrt{bx+a}\sqrt{dx+c}+3\left(ab^2c^2-6\,a^2bcd+5\,a^3d^2+\left(b^3c^2-6\,ab^2cd+5\,a^2\right.\right.}{16\left(b^4x+ab\right.}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(3/2)*x/(b*x + a)^(3/2),x, algorithm="fricas")
```

```
[Out] [1/16*(4*(2*b^2*d*x^2 + 13*a*b*c - 15*a^2*d + 5*(b^2*c - a*b*d)*x
)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 3*(a*b^2*c^2 - 6*a^2*b*
c*d + 5*a^3*d^2 + (b^3*c^2 - 6*a*b^2*c*d + 5*a^2*b*d^2)*x)*log(4*
(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (
8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*
d^2)*x)*sqrt(b*d)))/((b^4*x + a*b^3)*sqrt(b*d)), 1/8*(2*(2*b^2*d*
x^2 + 13*a*b*c - 15*a^2*d + 5*(b^2*c - a*b*d)*x)*sqrt(-b*d)*sqrt(
b*x + a)*sqrt(d*x + c) + 3*(a*b^2*c^2 - 6*a^2*b*c*d + 5*a^3*d^2 +
 (b^3*c^2 - 6*a*b^2*c*d + 5*a^2*b*d^2)*x)*arctan(1/2*(2*b*d*x + b
*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/((b^4*x
+ a*b^3)*sqrt(-b*d))]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x\left(c+dx\right)^{\frac{3}{2}}}{\left(a+bx\right)^{\frac{3}{2}}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(d*x+c)**(3/2)/(b*x+a)**(3/2),x)
```

```
[Out] Integral(x*(c + d*x)**(3/2)/(a + b*x)**(3/2), x)
```

GIAC/XCAS [A] time = 0.586243, size = 4, normalized size = 0.02

$$sage_0 x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(3/2)*x/(b*x + a)^(3/2),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.750 $\int \frac{(c+dx)^{3/2}}{(a+bx)^{3/2}}\,dx$

Optimal. Leaf size=98

$$\frac{3\sqrt{d}(bc-ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{5/2}}+\frac{3d\sqrt{a+bx}\sqrt{c+dx}}{b^2}-\frac{2(c+dx)^{3/2}}{b\sqrt{a+bx}}$$

```
[Out] (3*d*Sqrt[a + b*x]*Sqrt[c + d*x])/b^2 - (2*(c + d*x)^(3/2))/(b*Sq
rt[a + b*x]) + (3*Sqrt[d]*(b*c - a*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b
*x])/(Sqrt[b]*Sqrt[c + d*x])])/b^(5/2)
```

Rubi [A] time = 0.118568, antiderivative size = 98, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.21

$$\frac{3\sqrt{d}(bc-ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{5/2}}+\frac{3d\sqrt{a+bx}\sqrt{c+dx}}{b^2}-\frac{2(c+dx)^{3/2}}{b\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^(3/2)/(a + b*x)^(3/2),x]
```

```
[Out] (3*d*Sqrt[a + b*x]*Sqrt[c + d*x])/b^2 - (2*(c + d*x)^(3/2))/(b*Sq
rt[a + b*x]) + (3*Sqrt[d]*(b*c - a*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b
*x])/(Sqrt[b]*Sqrt[c + d*x])])/b^(5/2)
```

Rubi in Sympy [A] time = 13.8312, size = 90, normalized size = 0.92

$$-\frac{2\,(c+dx)^{\frac{3}{2}}}{b\sqrt{a+bx}}+\frac{3d\sqrt{a+bx}\sqrt{c+dx}}{b^2}-\frac{3\sqrt{d}\,(ad-bc)\,\mathrm{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{b^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(3/2)/(b*x+a)**(3/2),x)
```

```
[Out] -2*(c + d*x)**(3/2)/(b*sqrt(a + b*x)) + 3*d*sqrt(a + b*x)*sqrt(c
+ d*x)/b**2 - 3*sqrt(d)*(a*d - b*c)*atanh(sqrt(b)*sqrt(c + d*x)/(
sqrt(d)*sqrt(a + b*x)))/b**(5/2)
```

Mathematica [A] time = 0.167674, size = 101, normalized size = 1.03

$$\frac{3\sqrt{d}(bc-ad)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{2b^{5/2}}+\frac{\sqrt{c+dx}(3ad-2bc+bdx)}{b^2\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^(3/2)/(a + b*x)^(3/2),x]
```

```
[Out] (Sqrt[c + d*x]*(-2*b*c + 3*a*d + b*d*x))/(b^2*Sqrt[a + b*x]) + (3
*Sqrt[d]*(b*c - a*d)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*
Sqrt[a + b*x]*Sqrt[c + d*x]])/(2*b^(5/2))
```

Maple [F] time = 0., size = 0, normalized size = 0.

$$\int 1 \left(dx+c\right)^{\frac{3}{2}} \left(bx+a\right)^{-\frac{3}{2}}dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(3/2)/(b*x+a)^(3/2),x)

[Out] int((d*x+c)^(3/2)/(b*x+a)^(3/2),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(3/2)/(b*x + a)^(3/2),x, algorithm="maxima")

[Out] Exception raised: ValueError
```

Fricas [A] time = 0.334096, size = 1, normalized size = 0.01

$$\left[-\frac{3\left(abc-a^2d+\left(b^2c-abd\right)x\right)\sqrt{\frac{d}{b}}\log\left(8\,b^2d^2x^2+b^2c^2+6\,abcd+a^2d^2-4\left(2\,b^2dx+b^2c+abd\right)\sqrt{bx+a}\sqrt{dx+c}\sqrt{\frac{d}{b}}+8\right.}{4\left(b^3x+ab^2\right)}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(3/2)/(b*x + a)^(3/2),x, algorithm="fricas")

[Out] [-1/4*(3*(a*b*c - a^2*d + (b^2*c - a*b*d)*x)*sqrt(d/b)*log(8*b^2*
d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 - 4*(2*b^2*d*x + b^2*c +
a*b*d)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(d/b) + 8*(b^2*c*d + a*b*d
^2)*x) - 4*(b*d*x - 2*b*c + 3*a*d)*sqrt(b*x + a)*sqrt(d*x + c))/(
b^3*x + a*b^2), 1/2*(3*(a*b*c - a^2*d + (b^2*c - a*b*d)*x)*sqrt(-
d/b)*arctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(b*x + a)*sqrt(d*x + c
)*b*sqrt(-d/b))) + 2*(b*d*x - 2*b*c + 3*a*d)*sqrt(b*x + a)*sqrt(d
*x + c))/(b^3*x + a*b^2)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\left(c+dx\right)^{\frac{3}{2}}}{\left(a+bx\right)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(3/2)/(b*x+a)**(3/2),x)

[Out] Integral((c + d*x)**(3/2)/(a + b*x)**(3/2), x)
```

GIAC/XCAS [A] time = 0.582928, size = 4, normalized size = 0.04

$$sage_0x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(3/2)/(b*x + a)^(3/2),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.751 $\int \frac{(c+dx)^{3/2}}{x(a+bx)^{3/2}}\,dx$

Optimal. Leaf size=119

$$-\frac{2c^{3/2}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{3/2}}+\frac{2d^{3/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{3/2}}+\frac{2\sqrt{c+dx}(bc-ad)}{ab\sqrt{a+bx}}$$

```
[Out] (2*(b*c - a*d)*Sqrt[c + d*x])/(a*b*Sqrt[a + b*x]) - (2*c^(3/2)*Ar
cTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/a^(3/2) +
 (2*d^(3/2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x
])])/b^(3/2)
```

Rubi [A] time = 0.272074, antiderivative size = 119, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.227$

$$-\frac{2c^{3/2}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{3/2}}+\frac{2d^{3/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{3/2}}+\frac{2\sqrt{c+dx}(bc-ad)}{ab\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^(3/2)/(x*(a + b*x)^(3/2)),x]
```

```
[Out] (2*(b*c - a*d)*Sqrt[c + d*x])/(a*b*Sqrt[a + b*x]) - (2*c^(3/2)*Ar
cTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/a^(3/2) +
 (2*d^(3/2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x
])])/b^(3/2)
```

Rubi in Sympy [A] time = 28.9037, size = 109, normalized size = 0.92

$$\frac{2d^{\frac{3}{2}}\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{b^{\frac{3}{2}}}-\frac{2\sqrt{c+dx}\,(ad-bc)}{ab\sqrt{a+bx}}-\frac{2c^{\frac{3}{2}}\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(3/2)/x/(b*x+a)**(3/2),x)
```

```
[Out] 2*d**(3/2)*atanh(sqrt(b)*sqrt(c + d*x)/(sqrt(d)*sqrt(a + b*x)))/b
**(3/2) - 2*sqrt(c + d*x)*(a*d - b*c)/(a*b*sqrt(a + b*x)) - 2*c**
(3/2)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/a**(3/
2)
```

Mathematica [A] time = 0.302373, size = 158, normalized size = 1.33

$$-\frac{c^{3/2}\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{a^{3/2}}+\frac{c^{3/2}\log(x)}{a^{3/2}}+\frac{d^{3/2}\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{b^{3/2}}-\frac{2\sqrt{c+dx}(ad-bc)}{ab\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^(3/2)/(x*(a + b*x)^(3/2)),x]
```

```
[Out] (-2*(-(b*c) + a*d)*Sqrt[c + d*x])/(a*b*Sqrt[a + b*x]) + (c^(3/2)*
Log[x])/a^(3/2) - (c^(3/2)*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*
Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/a^(3/2) + (d^(3/2)*Log[b*c
+ a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])
/b^(3/2)
```

Maple [B] time = 0.033, size = 306, normalized size = 2.6

$$\frac{1}{ab}\left(-\ln\left(\frac{1}{x}\left(adx+bcx+2\sqrt{ac}\sqrt{(bx+a)(dx+c)}+2ac\right)\right)xb^2c^2\sqrt{bd}+\ln\left(\frac{1}{2}\left(2bdx+2\sqrt{(bx+a)(dx+c)}\sqrt{bd}+ad+bc\right)\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(3/2)/x/(b*x+a)^(3/2),x)
```

```
[Out] (-ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)
*x*b^2*c^2*(b*d)^(1/2)+ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*
(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a*b*d^2*(a*c)^(1/2)-ln((a*d*x
+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*a*b*c^2*(b
*d)^(1/2)+ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a
*d+b*c)/(b*d)^(1/2))*a^2*d^2*(a*c)^(1/2)-2*a*d*((b*x+a)*(d*x+c))^
(1/2)*(b*d)^(1/2)*(a*c)^(1/2)+2*b*c*((b*x+a)*(d*x+c))^(1/2)*(b*d)
^(1/2)*(a*c)^(1/2))*(d*x+c)^(1/2)/a/((b*x+a)*(d*x+c))^(1/2)/(b*d)
^(1/2)/(a*c)^(1/2)/(b*x+a)^(1/2)/b
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(3/2)/((b*x + a)^(3/2)*x),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.701016, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(3/2)/((b*x + a)^(3/2)*x),x, algorithm="fricas")
```

```
[Out] [1/2*((a*b*d*x + a^2*d)*sqrt(d/b)*log(8*b^2*d^2*x^2 + b^2*c^2 + 6
*a*b*c*d + a^2*d^2 + 4*(2*b^2*d*x + b^2*c + a*b*d)*sqrt(b*x + a)*
sqrt(d*x + c)*sqrt(d/b) + 8*(b^2*c*d + a*b*d^2)*x) + (b^2*c*x + a
*b*c)*sqrt(c/a)*log((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*
x^2 - 4*(2*a^2*c + (a*b*c + a^2*d)*x)*sqrt(b*x + a)*sqrt(d*x + c)
*sqrt(c/a) + 8*(a*b*c^2 + a^2*c*d)*x)/x^2) + 4*(b*c - a*d)*sqrt(b
*x + a)*sqrt(d*x + c))/(a*b^2*x + a^2*b), 1/2*(2*(a*b*d*x + a^2*d
)*sqrt(-d/b)*arctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(b*x + a)*sqrt
(d*x + c)*b*sqrt(-d/b))) + (b^2*c*x + a*b*c)*sqrt(c/a)*log((8*a^2
*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a^2*c + (a*b*c
+ a^2*d)*x)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(c/a) + 8*(a*b*c^2 +
a^2*c*d)*x)/x^2) + 4*(b*c - a*d)*sqrt(b*x + a)*sqrt(d*x + c))/(a*
b^2*x + a^2*b), -1/2*(2*(b^2*c*x + a*b*c)*sqrt(-c/a)*arctan(1/2*(
2*a*c + (b*c + a*d)*x)/(sqrt(b*x + a)*sqrt(d*x + c)*a*sqrt(-c/a))
) - (a*b*d*x + a^2*d)*sqrt(d/b)*log(8*b^2*d^2*x^2 + b^2*c^2 + 6*a
*b*c*d + a^2*d^2 + 4*(2*b^2*d*x + b^2*c + a*b*d)*sqrt(b*x + a)*sq
rt(d*x + c)*sqrt(d/b) + 8*(b^2*c*d + a*b*d^2)*x) - 4*(b*c - a*d)*
```

```
sqrt(b*x + a)*sqrt(d*x + c))/(a*b^2*x + a^2*b), -((b^2*c*x + a*b*
c)*sqrt(-c/a)*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(b*x + a)*s
qrt(d*x + c)*a*sqrt(-c/a))) - (a*b*d*x + a^2*d)*sqrt(-d/b)*arctan
(1/2*(2*b*d*x + b*c + a*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*sqrt(-d
/b))) - 2*(b*c - a*d)*sqrt(b*x + a)*sqrt(d*x + c))/(a*b^2*x + a^2
*b)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(c+dx)^{\frac{3}{2}}}{x(a+bx)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(3/2)/x/(b*x+a)**(3/2),x)
```

```
[Out] Integral((c + d*x)**(3/2)/(x*(a + b*x)**(3/2)), x)
```

GIAC/XCAS [A] time = 0.585923, size = 4, normalized size = 0.03

$$sage_0x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(3/2)/((b*x + a)^(3/2)*x),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.752 $\int \frac{(c+dx)^{3/2}}{x^2(a+bx)^{3/2}}\,dx$

Optimal. Leaf size=108

$$\frac{3\sqrt{c}(bc-ad)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{5/2}}-\frac{3\sqrt{c+dx}(bc-ad)}{a^2\sqrt{a+bx}}-\frac{(c+dx)^{3/2}}{ax\sqrt{a+bx}}$$

```
[Out] (-3*(b*c - a*d)*Sqrt[c + d*x])/(a^2*Sqrt[a + b*x]) - (c + d*x)^(3
/2)/(a*x*Sqrt[a + b*x]) + (3*Sqrt[c]*(b*c - a*d)*ArcTanh[(Sqrt[c]
*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/a^(5/2)
```

Rubi [A] time = 0.19986, antiderivative size = 108, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.136

$$\frac{3\sqrt{c}(bc-ad)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{5/2}}-\frac{3\sqrt{c+dx}(bc-ad)}{a^2\sqrt{a+bx}}-\frac{(c+dx)^{3/2}}{ax\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^(3/2)/(x^2*(a + b*x)^(3/2)),x]
```

```
[Out] (-3*(b*c - a*d)*Sqrt[c + d*x])/(a^2*Sqrt[a + b*x]) - (c + d*x)^(3
/2)/(a*x*Sqrt[a + b*x]) + (3*Sqrt[c]*(b*c - a*d)*ArcTanh[(Sqrt[c]
*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/a^(5/2)
```

Rubi in Sympy [A] time = 14.9517, size = 94, normalized size = 0.87

$$\frac{2\,(c+dx)^{\frac{3}{2}}}{ax\sqrt{a+bx}}-\frac{3c\sqrt{a+bx}\sqrt{c+dx}}{a^2x}-\frac{3\sqrt{c}\,(ad-bc)\,\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(3/2)/x**2/(b*x+a)**(3/2),x)
```

```
[Out] 2*(c + d*x)**(3/2)/(a*x*sqrt(a + b*x)) - 3*c*sqrt(a + b*x)*sqrt(c
 + d*x)/(a**2*x) - 3*sqrt(c)*(a*d - b*c)*atanh(sqrt(c)*sqrt(a + b
*x)/(sqrt(a)*sqrt(c + d*x)))/a**(5/2)
```

Mathematica [A] time = 0.339743, size = 128, normalized size = 1.19

$$\frac{-\frac{2\sqrt{a}\sqrt{c+dx}(ac-2adx+3bcx)}{x\sqrt{a+bx}}+3\sqrt{c}\log(x)(ad-bc)+3\sqrt{c}(bc-ad)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{2a^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^(3/2)/(x^2*(a + b*x)^(3/2)),x]
```

```
[Out] ((-2*Sqrt[a]*Sqrt[c + d*x]*(a*c + 3*b*c*x - 2*a*d*x))/(x*Sqrt[a +
 b*x]) + 3*Sqrt[c]*(-(b*c) + a*d)*Log[x] + 3*Sqrt[c]*(b*c - a*d)*
Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[
c + d*x]])/(2*a^(5/2))
```

Maple [B] time = 0.036, size = 298, normalized size = 2.8

$$-\frac{1}{2a^2x}\sqrt{dx+c}\left(3\ln\left(\frac{adx+bcx+2\sqrt{ac}\sqrt{(bx+a)(dx+c)}+2ac}{x}\right)x^2abcd-3\ln\left(\frac{adx+bcx+2\sqrt{ac}\sqrt{(bx+a)(dx+c)}+}{x}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(3/2)/x^2/(b*x+a)^(3/2),x)
```

```
[Out] -1/2*(d*x+c)^(1/2)*(3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x
+c))^(1/2)+2*a*c)/x)*x^2*a*b*c*d-3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*
((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*b^2*c^2+3*ln((a*d*x+b*c*x+2
*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x*a^2*c*d-3*ln((a*
d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x*a*b*c
^2-4*((b*x+a)*(d*x+c))^(1/2)*d*a*x*(a*c)^(1/2)+6*((b*x+a)*(d*x+c)
)^(1/2)*b*c*x*(a*c)^(1/2)+2*((b*x+a)*(d*x+c))^(1/2)*c*a*(a*c)^(1/
2))/a^2/((b*x+a)*(d*x+c))^(1/2)/x/(a*c)^(1/2)/(b*x+a)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)^(3/2)/((b*x + a)^(3/2)*x^2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.316171, size = 1, normalized size = 0.01

$$\left[-\frac{3\left(\left(b^2c-abd\right)x^2+\left(abc-a^2d\right)x\right)\sqrt{\frac{c}{a}}\log\left(\frac{8a^2c^2+\left(b^2c^2+6abcd+a^2d^2\right)x^2-4\left(2a^2c+\left(abc+a^2d\right)x\right)\sqrt{bx+a}\sqrt{dx+c}\sqrt{\frac{c}{a}}+8\left(abc^2+a^2cd\right)x}{x^2}\right)+4}{4\left(a^2bx^2+a^3x\right)}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)^(3/2)/((b*x + a)^(3/2)*x^2),x, algorithm="fricas")
```

```
[Out] [-1/4*(3*((b^2*c - a*b*d)*x^2 + (a*b*c - a^2*d)*x)*sqrt(c/a)*log(
(8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a^2*c + (
a*b*c + a^2*d)*x)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(c/a) + 8*(a*b*
c^2 + a^2*c*d)*x)/x^2) + 4*(a*c + (3*b*c - 2*a*d)*x)*sqrt(b*x + a
)*sqrt(d*x + c))/(a^2*b*x^2 + a^3*x), 1/2*(3*((b^2*c - a*b*d)*x^2
 + (a*b*c - a^2*d)*x)*sqrt(-c/a)*arctan(1/2*(2*a*c + (b*c + a*d)*
x)/(sqrt(b*x + a)*sqrt(d*x + c)*a*sqrt(-c/a))) - 2*(a*c + (3*b*c
- 2*a*d)*x)*sqrt(b*x + a)*sqrt(d*x + c))/(a^2*b*x^2 + a^3*x)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(3/2)/x**2/(b*x+a)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)^(3/2)/((b*x + a)^(3/2)*x^2),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.753 $\int \frac{(c+dx)^{3/2}}{x^3(a+bx)^{3/2}}\,dx$

Optimal. Leaf size=178

$$-\frac{3(bc-ad)(5bc-ad)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{7/2}\sqrt{c}}+\frac{3\sqrt{c+dx}(bc-ad)(5bc-ad)}{4a^3c\sqrt{a+bx}}+\frac{(c+dx)^{3/2}(5bc-ad)}{4a^2cx\sqrt{a+bx}}-\frac{(c+dx)^{5/2}}{2acx^2\sqrt{a+bx}}$$

```
[Out] (3*(b*c - a*d)*(5*b*c - a*d)*Sqrt[c + d*x])/(4*a^3*c*Sqrt[a + b*x
]) + ((5*b*c - a*d)*(c + d*x)^(3/2))/(4*a^2*c*x*Sqrt[a + b*x]) -
(c + d*x)^(5/2)/(2*a*c*x^2*Sqrt[a + b*x]) - (3*(b*c - a*d)*(5*b*c
 - a*d)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])
/(4*a^(7/2)*Sqrt[c])
```

Rubi [A] time = 0.313232, antiderivative size = 178, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.182$

$$-\frac{3(bc-ad)(5bc-ad)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{7/2}\sqrt{c}}+\frac{3\sqrt{c+dx}(bc-ad)(5bc-ad)}{4a^3c\sqrt{a+bx}}+\frac{(c+dx)^{3/2}(5bc-ad)}{4a^2cx\sqrt{a+bx}}-\frac{(c+dx)^{5/2}}{2acx^2\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^(3/2)/(x^3*(a + b*x)^(3/2)),x]
```

```
[Out] (3*(b*c - a*d)*(5*b*c - a*d)*Sqrt[c + d*x])/(4*a^3*c*Sqrt[a + b*x
]) + ((5*b*c - a*d)*(c + d*x)^(3/2))/(4*a^2*c*x*Sqrt[a + b*x]) -
(c + d*x)^(5/2)/(2*a*c*x^2*Sqrt[a + b*x]) - (3*(b*c - a*d)*(5*b*c
 - a*d)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])
/(4*a^(7/2)*Sqrt[c])
```

Rubi in Sympy [A] time = 27.1059, size = 165, normalized size = 0.93

$$-\frac{2b\left(c+dx\right)^{\frac{5}{2}}}{ax^2\sqrt{a+bx}\left(ad-bc\right)}-\frac{\sqrt{a+bx}\left(c+dx\right)^{\frac{3}{2}}\left(ad-5bc\right)}{2a^2x^2\left(ad-bc\right)}-\frac{3\sqrt{a+bx}\sqrt{c+dx}\left(ad-5bc\right)}{4a^3x}-\frac{3\left(ad-5bc\right)\left(ad-bc\right)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{\frac{7}{2}}\sqrt{c}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(3/2)/x**3/(b*x+a)**(3/2),x)
```

```
[Out] -2*b*(c + d*x)**(5/2)/(a*x**2*sqrt(a + b*x)*(a*d - b*c)) - sqrt(a
 + b*x)*(c + d*x)**(3/2)*(a*d - 5*b*c)/(2*a**2*x**2*(a*d - b*c))
- 3*sqrt(a + b*x)*sqrt(c + d*x)*(a*d - 5*b*c)/(4*a**3*x) - 3*(a*d
 - 5*b*c)*(a*d - b*c)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c
 + d*x)))/(4*a**(7/2)*sqrt(c))
```

Mathematica [A] time = 0.220275, size = 165, normalized size = 0.93

$$\frac{\frac{2\sqrt{a}\sqrt{c+dx}\left(a^2(-(2c+5dx))+abx(5c-13dx)+15b^2cx^2\right)}{x^2\sqrt{a+bx}}+\frac{3\log(x)(ad-5bc)(ad-bc)}{\sqrt{c}}-\frac{3(ad-5bc)(ad-bc)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{\sqrt{c}}}{8a^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^(3/2)/(x^3*(a + b*x)^(3/2)),x]
```

```
[Out] ((2*Sqrt[a]*Sqrt[c + d*x]*(15*b^2*c*x^2 + a*b*x*(5*c - 13*d*x) -
a^2*(2*c + 5*d*x)))/(x^2*Sqrt[a + b*x]) + (3*(-5*b*c + a*d)*(-(b*
c) + a*d)*Log[x])/Sqrt[c] - (3*(-5*b*c + a*d)*(-(b*c) + a*d)*Log[
2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c +
d*x]])/Sqrt[c])/(8*a^(7/2))
```

Maple [B] time = 0.04, size = 464, normalized size = 2.6

$$-\frac{1}{8\,a^3x^2}\sqrt{dx+c}\left(3\ln\left(\frac{adx+bcx+2\sqrt{ac}\sqrt{(bx+a)(dx+c)}+2\,ac}{x}\right)x^3a^2bd^2-18\ln\left(\frac{adx+bcx+2\sqrt{ac}\sqrt{(bx+a)(dx+c}}{x}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(3/2)/x^3/(b*x+a)^(3/2),x)
```

```
[Out] -1/8*(d*x+c)^(1/2)*(3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x
+c))^(1/2)+2*a*c)/x)*x^3*a^2*b*d^2-18*ln((a*d*x+b*c*x+2*(a*c)^(1/
2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a*b^2*c*d+15*ln((a*d*x+b
*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*b^3*c^2+
3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)
*x^2*a^3*d^2-18*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(
1/2)+2*a*c)/x)*x^2*a^2*b*c*d+15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b
*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a*b^2*c^2+26*x^2*a*b*d*(a*c)^(
1/2)*((b*x+a)*(d*x+c))^(1/2)-30*x^2*b^2*c*(a*c)^(1/2)*((b*x+a)*(d
*x+c))^(1/2)+10*x*a^2*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-10*x*
a*b*c*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+4*a^2*c*(a*c)^(1/2)*((b
*x+a)*(d*x+c))^(1/2))/a^3/((b*x+a)*(d*x+c))^(1/2)/(a*c)^(1/2)/x^2
/(b*x+a)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(3/2)/((b*x + a)^(3/2)*x^3),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.451908, size = 1, normalized size = 0.01

$$\left[-\frac{4\left(2\,a^2c-\left(15\,b^2c-13\,abd\right)x^2-5\left(abc-a^2d\right)x\right)\sqrt{ac}\sqrt{bx+a}\sqrt{dx+c}-3\left(\left(5\,b^3c^2-6\,ab^2cd+a^2bd^2\right)x^3+\left(5\,ab^2c^2-6\,a\right.\right.}{16\left(a^3bx^3+a^4x^2\right)\sqrt{a}}\right.$$

$$-\frac{2\left(2\,a^2c-\left(15\,b^2c-13\,abd\right)x^2-5\left(abc-a^2d\right)x\right)\sqrt{-ac}\sqrt{bx+a}\sqrt{dx+c}+3\left(\left(5\,b^3c^2-6\,ab^2cd+a^2bd^2\right)x^3+\left(5\,ab^2c^2-6\,a\right.\right.}{8\left(a^3bx^3+a^4x^2\right)\sqrt{-ac}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(3/2)/((b*x + a)^(3/2)*x^3),x, algorithm="fricas")
```

```
[Out] [-1/16*(4*(2*a^2*c - (15*b^2*c - 13*a*b*d)*x^2 - 5*(a*b*c - a^2*d
)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c) - 3*((5*b^3*c^2 - 6*a*
b^2*c*d + a^2*b*d^2)*x^3 + (5*a*b^2*c^2 - 6*a^2*b*c*d + a^3*d^2)*
x^2)*log(-(4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sq
rt(d*x + c) - (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 +
8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2))/((a^3*b*x^3 + a^4*x^2)*
sqrt(a*c)), -1/8*(2*(2*a^2*c - (15*b^2*c - 13*a*b*d)*x^2 - 5*(a*b
*c - a^2*d)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c) + 3*((5*b^3
*c^2 - 6*a*b^2*c*d + a^2*b*d^2)*x^3 + (5*a*b^2*c^2 - 6*a^2*b*c*d
+ a^3*d^2)*x^2)*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sq
rt(b*x + a)*sqrt(d*x + c)*a*c)))/((a^3*b*x^3 + a^4*x^2)*sqrt(-a*c
))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(3/2)/x**3/(b*x+a)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(3/2)/((b*x + a)^(3/2)*x^3),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.754 $\int \frac{(c+dx)^{3/2}}{x^4(a+bx)^{3/2}}\,dx$

Optimal. Leaf size=241

$$-\frac{\sqrt{c+dx}(35bc-3ad)(bc-ad)}{24a^3cx\sqrt{a+bx}}+\frac{7\sqrt{c+dx}(bc-ad)}{12a^2x^2\sqrt{a+bx}}+\frac{(bc-ad)\left(-a^2d^2-10abcd+35b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{9/2}c^{3/2}}-\frac{b\sqrt{c+dx}\left(3a^2d^2-100abcd+105b^2c^2\right)}{24a^4c\sqrt{a+bx}}-\frac{c\sqrt{c+dx}}{3ax^3\sqrt{a+bx}}$$

```
[Out] -(b*(105*b^2*c^2 - 100*a*b*c*d + 3*a^2*d^2)*Sqrt[c + d*x])/(24*a^
4*c*Sqrt[a + b*x]) - (c*Sqrt[c + d*x])/(3*a*x^3*Sqrt[a + b*x]) +
(7*(b*c - a*d)*Sqrt[c + d*x])/(12*a^2*x^2*Sqrt[a + b*x]) - ((35*b
*c - 3*a*d)*(b*c - a*d)*Sqrt[c + d*x])/(24*a^3*c*x*Sqrt[a + b*x])
 + ((b*c - a*d)*(35*b^2*c^2 - 10*a*b*c*d - a^2*d^2)*ArcTanh[(Sqrt
[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(8*a^(9/2)*c^(3/2))
```

Rubi [A] time = 0.802934, antiderivative size = 241, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.273

$$-\frac{\sqrt{c+dx}(35bc-3ad)(bc-ad)}{24a^3cx\sqrt{a+bx}}+\frac{7\sqrt{c+dx}(bc-ad)}{12a^2x^2\sqrt{a+bx}}+\frac{(bc-ad)\left(-a^2d^2-10abcd+35b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{9/2}c^{3/2}}-\frac{b\sqrt{c+dx}\left(3a^2d^2-100abcd+105b^2c^2\right)}{24a^4c\sqrt{a+bx}}-\frac{c\sqrt{c+dx}}{3ax^3\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^(3/2)/(x^4*(a + b*x)^(3/2)),x]
```

```
[Out] -(b*(105*b^2*c^2 - 100*a*b*c*d + 3*a^2*d^2)*Sqrt[c + d*x])/(24*a^
4*c*Sqrt[a + b*x]) - (c*Sqrt[c + d*x])/(3*a*x^3*Sqrt[a + b*x]) +
(7*(b*c - a*d)*Sqrt[c + d*x])/(12*a^2*x^2*Sqrt[a + b*x]) - ((35*b
*c - 3*a*d)*(b*c - a*d)*Sqrt[c + d*x])/(24*a^3*c*x*Sqrt[a + b*x])
 + ((b*c - a*d)*(35*b^2*c^2 - 10*a*b*c*d - a^2*d^2)*ArcTanh[(Sqrt
[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(8*a^(9/2)*c^(3/2))
```

Rubi in Sympy [A] time = 116.928, size = 223, normalized size = 0.93

$$-\frac{c\sqrt{c+dx}}{3ax^3\sqrt{a+bx}}-\frac{7\sqrt{c+dx}\,(ad-bc)}{12a^2x^2\sqrt{a+bx}}-\frac{\sqrt{c+dx}\,(ad-bc)\,(3ad-35bc)}{24a^3cx\sqrt{a+bx}}-\frac{b\sqrt{c+dx}\left(3a^2d^2-100abcd+105b^2c^2\right)}{24a^4c\sqrt{a+bx}}+\frac{(ad-bc)\left(a^2d^2+10abcd-35b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{\frac{9}{2}}c^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(3/2)/x**4/(b*x+a)**(3/2),x)
```

```
[Out] -c*sqrt(c + d*x)/(3*a*x**3*sqrt(a + b*x)) - 7*sqrt(c + d*x)*(a*d
- b*c)/(12*a**2*x**2*sqrt(a + b*x)) - sqrt(c + d*x)*(a*d - b*c)*(
3*a*d - 35*b*c)/(24*a**3*c*x*sqrt(a + b*x)) - b*sqrt(c + d*x)*(3*
a**2*d**2 - 100*a*b*c*d + 105*b**2*c**2)/(24*a**4*c*sqrt(a + b*x)
) + (a*d - b*c)*(a**2*d**2 + 10*a*b*c*d - 35*b**2*c**2)*atanh(sqr
t(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(8*a**(9/2)*c**(3/2))
```

Mathematica [A] time = 0.297871, size = 236, normalized size = 0.98

$$\frac{-3\log(x)(ad-bc)\left(a^2d^2+10abcd-35b^2c^2\right)+3(ad-bc)\left(a^2d^2+10abcd-35b^2c^2\right)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+a\right.}{48a^{9/2}c^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^(3/2)/(x^4*(a + b*x)^(3/2)),x]
```

```
[Out] ((-2*Sqrt[a]*Sqrt[c]*Sqrt[c + d*x]*(105*b^3*c^2*x^3 + 5*a*b^2*c*x
^2*(7*c - 20*d*x) + a^2*b*x*(-14*c^2 - 38*c*d*x + 3*d^2*x^2) + a^
3*(8*c^2 + 14*c*d*x + 3*d^2*x^2)))/(x^3*Sqrt[a + b*x]) - 3*(-(b*c
) + a*d)*(-35*b^2*c^2 + 10*a*b*c*d + a^2*d^2)*Log[x] + 3*(-(b*c)
+ a*d)*(-35*b^2*c^2 + 10*a*b*c*d + a^2*d^2)*Log[2*a*c + b*c*x + a
*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(48*a^(9/2
)*c^(3/2))
```

Maple [B] time = 0.045, size = 707, normalized size = 2.9

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(3/2)/x^4/(b*x+a)^(3/2),x)
```

```
[Out] 1/48*(d*x+c)^(1/2)*(3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x
+c))^(1/2)+2*a*c)/x)*x^4*a^3*b*d^3+27*ln((a*d*x+b*c*x+2*(a*c)^(1/
2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a^2*b^2*c*d^2-135*ln((a*
d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a*b
^3*c^2*d+105*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2
)+2*a*c)/x)*x^4*b^4*c^3+3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*
(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^4*d^3+27*ln((a*d*x+b*c*x+2*(a*c)^(
1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^3*b*c*d^2-135*ln((a*
d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^2
*b^2*c^2*d+105*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1
/2)+2*a*c)/x)*x^3*a*b^3*c^3-6*x^3*a^2*b*d^2*(a*c)^(1/2)*((b*x+a)*
(d*x+c))^(1/2)+200*x^3*a*b^2*c*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1
/2)-210*x^3*b^3*c^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-6*x^2*a^3
*d^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+76*x^2*a^2*b*c*d*(a*c)^(
1/2)*((b*x+a)*(d*x+c))^(1/2)-70*x^2*a*b^2*c^2*(a*c)^(1/2)*((b*x+a
)*(d*x+c))^(1/2)-28*x*a^3*c*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)
+28*x*a^2*b*c^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-16*a^3*c^2*(a
*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2))/c/a^4/((b*x+a)*(d*x+c))^(1/2)/
(a*c)^(1/2)/x^3/(b*x+a)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)^(3/2)/((b*x + a)^(3/2)*x^4),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.712647, size = 1, normalized size = 0.

$$\left[-\frac{4\left(8a^3c^2 + \left(105b^3c^2 - 100ab^2cd + 3a^2bd^2\right)x^3 + \left(35ab^2c^2 - 38a^2bcd + 3a^3d^2\right)x^2 - 14\left(a^2bc^2 - a^3cd\right)x\right)\sqrt{ac}\sqrt{bx+a}\sqrt{c}}{}\right.$$

$$-\frac{2\left(8a^3c^2 + \left(105b^3c^2 - 100ab^2cd + 3a^2bd^2\right)x^3 + \left(35ab^2c^2 - 38a^2bcd + 3a^3d^2\right)x^2 - 14\left(a^2bc^2 - a^3cd\right)x\right)\sqrt{-ac}\sqrt{bx+a}\sqrt{}}{48\left(a^4b\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)^(3/2)/((b*x + a)^(3/2)*x^4),x, algorithm="fricas")
```

```
[Out] [-1/96*(4*(8*a^3*c^2 + (105*b^3*c^2 - 100*a*b^2*c*d + 3*a^2*b*d^2
)*x^3 + (35*a*b^2*c^2 - 38*a^2*b*c*d + 3*a^3*d^2)*x^2 - 14*(a^2*b
*c^2 - a^3*c*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c) - 3*((35
*b^4*c^3 - 45*a*b^3*c^2*d + 9*a^2*b^2*c*d^2 + a^3*b*d^3)*x^4 + (3
5*a*b^3*c^3 - 45*a^2*b^2*c^2*d + 9*a^3*b*c*d^2 + a^4*d^3)*x^3)*lo
g((4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x +
 c) + (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(a*b*c
^2 + a^2*c*d)*x)*sqrt(a*c))/x^2))/((a^4*b*c*x^4 + a^5*c*x^3)*sqrt
(a*c)), -1/48*(2*(8*a^3*c^2 + (105*b^3*c^2 - 100*a*b^2*c*d + 3*a^
2*b*d^2)*x^3 + (35*a*b^2*c^2 - 38*a^2*b*c*d + 3*a^3*d^2)*x^2 - 14
*(a^2*b*c^2 - a^3*c*d)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c)
- 3*((35*b^4*c^3 - 45*a*b^3*c^2*d + 9*a^2*b^2*c*d^2 + a^3*b*d^3)*
x^4 + (35*a*b^3*c^3 - 45*a^2*b^2*c^2*d + 9*a^3*b*c*d^2 + a^4*d^3)
*x^3)*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a
)*sqrt(d*x + c)*a*c)))/((a^4*b*c*x^4 + a^5*c*x^3)*sqrt(-a*c))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(3/2)/x**4/(b*x+a)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)^(3/2)/((b*x + a)^(3/2)*x^4),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.755 $\int \frac{x^3(c+dx)^{5/2}}{(a+bx)^{3/2}}\,dx$

Optimal. Leaf size=346

$$-\frac{\sqrt{a+bx}(c+dx)^{5/2}\left(-231a^2d^2-2bdx(5bc-99ad)+30abcd+5b^2c^2\right)}{80b^4d^2}+\frac{3(bc-ad)^2\left(-231a^3d^3+63a^2bcd^2+7ab^2c^2d+b^3c^3\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{128b^{13/2}d^{5/2}}+\frac{3\sqrt{a+bx}\sqrt{c+dx}(bc-ad)\left(-231a^3d^3+63a^2bcd^2+7ab^2c^2d+b^3c^3\right)}{128b^6d^2}+\frac{\sqrt{a+bx}(c+dx)^{3/2}\left(-231a^3d^3+63a^2bcd^2+7ab^2c^2d+b^3c^3\right)}{64b^5d^2}+\frac{11x^2\sqrt{a+bx}(c+dx)^{5/2}}{5b^2}-\frac{2x^3(c+dx)^{5/2}}{b\sqrt{a+bx}}$$

```
[Out] (3*(b*c - a*d)*(b^3*c^3 + 7*a*b^2*c^2*d + 63*a^2*b*c*d^2 - 231*a^
3*d^3)*Sqrt[a + b*x]*Sqrt[c + d*x])/(128*b^6*d^2) + ((b^3*c^3 + 7
*a*b^2*c^2*d + 63*a^2*b*c*d^2 - 231*a^3*d^3)*Sqrt[a + b*x]*(c + d
*x)^(3/2))/(64*b^5*d^2) - (2*x^3*(c + d*x)^(5/2))/(b*Sqrt[a + b*x
]) + (11*x^2*Sqrt[a + b*x]*(c + d*x)^(5/2))/(5*b^2) - (Sqrt[a + b
*x]*(c + d*x)^(5/2)*(5*b^2*c^2 + 30*a*b*c*d - 231*a^2*d^2 - 2*b*d
*(5*b*c - 99*a*d)*x))/(80*b^4*d^2) + (3*(b*c - a*d)^2*(b^3*c^3 +
7*a*b^2*c^2*d + 63*a^2*b*c*d^2 - 231*a^3*d^3)*ArcTanh[(Sqrt[d]*Sq
rt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(128*b^(13/2)*d^(5/2))
```

Rubi [A] time = 0.767858, antiderivative size = 346, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.273$

$$-\frac{\sqrt{a+bx}(c+dx)^{5/2}\left(-231a^2d^2-2bdx(5bc-99ad)+30abcd+5b^2c^2\right)}{80b^4d^2}+\frac{3(bc-ad)^2\left(-231a^3d^3+63a^2bcd^2+7ab^2c^2d+b^3c^3\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{128b^{13/2}d^{5/2}}+\frac{3\sqrt{a+bx}\sqrt{c+dx}(bc-ad)\left(-231a^3d^3+63a^2bcd^2+7ab^2c^2d+b^3c^3\right)}{128b^6d^2}+\frac{\sqrt{a+bx}(c+dx)^{3/2}\left(-231a^3d^3+63a^2bcd^2+7ab^2c^2d+b^3c^3\right)}{64b^5d^2}+\frac{11x^2\sqrt{a+bx}(c+dx)^{5/2}}{5b^2}-\frac{2x^3(c+dx)^{5/2}}{b\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^3*(c + d*x)^(5/2))/(a + b*x)^(3/2),x]
```


```
[Out] (3*(b*c - a*d)*(b^3*c^3 + 7*a*b^2*c^2*d + 63*a^2*b*c*d^2 - 231*a^
3*d^3)*Sqrt[a + b*x]*Sqrt[c + d*x])/(128*b^6*d^2) + ((b^3*c^3 + 7
*a*b^2*c^2*d + 63*a^2*b*c*d^2 - 231*a^3*d^3)*Sqrt[a + b*x]*(c + d
*x)^(3/2))/(64*b^5*d^2) - (2*x^3*(c + d*x)^(5/2))/(b*Sqrt[a + b*x
]) + (11*x^2*Sqrt[a + b*x]*(c + d*x)^(5/2))/(5*b^2) - (Sqrt[a + b
*x]*(c + d*x)^(5/2)*(5*b^2*c^2 + 30*a*b*c*d - 231*a^2*d^2 - 2*b*d
*(5*b*c - 99*a*d)*x))/(80*b^4*d^2) + (3*(b*c - a*d)^2*(b^3*c^3 +
7*a*b^2*c^2*d + 63*a^2*b*c*d^2 - 231*a^3*d^3)*ArcTanh[(Sqrt[d]*Sq
rt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(128*b^(13/2)*d^(5/2))
```

Rubi in Sympy [A] time = 79.4687, size = 352, normalized size = 1.02

$$-\frac{2x^3(c+dx)^{\frac{5}{2}}}{b\sqrt{a+bx}}+\frac{11x^2\sqrt{a+bx}\,(c+dx)^{\frac{5}{2}}}{5b^2}+\frac{\sqrt{a+bx}\,(c+dx)^{\frac{5}{2}}\left(\frac{693a^2d^2}{8}-\frac{45abcd}{4}-\frac{15b^2c^2}{8}-\frac{3bdx(99ad-5bc)}{4}\right)}{30b^4d^2}-\frac{\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}\left(231a^3d^3-63a^2bcd^2-7ab^2c^2d-b^3c^3\right)}{64b^5d^2}+\frac{3\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)\left(231a^3d^3-63a^2bcd^2-7ab^2c^2d-b^3c^3\right)}{128b^6d^2}-\frac{3(ad-bc)^2\left(231a^3d^3-63a^2bcd^2-7ab^2c^2d-b^3c^3\right)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{128b^{\frac{13}{2}}d^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3*(d*x+c)**(5/2)/(b*x+a)**(3/2),x)
```

```
[Out] -2*x**3*(c + d*x)**(5/2)/(b*sqrt(a + b*x)) + 11*x**2*sqrt(a + b*x
)*(c + d*x)**(5/2)/(5*b**2) + sqrt(a + b*x)*(c + d*x)**(5/2)*(693
*a**2*d**2/8 - 45*a*b*c*d/4 - 15*b**2*c**2/8 - 3*b*d*x*(99*a*d -
5*b*c)/4)/(30*b**4*d**2) - sqrt(a + b*x)*(c + d*x)**(3/2)*(231*a*
*3*d**3 - 63*a**2*b*c*d**2 - 7*a*b**2*c**2*d - b**3*c**3)/(64*b**
5*d**2) + 3*sqrt(a + b*x)*sqrt(c + d*x)*(a*d - b*c)*(231*a**3*d**
3 - 63*a**2*b*c*d**2 - 7*a*b**2*c**2*d - b**3*c**3)/(128*b**6*d**
2) - 3*(a*d - b*c)**2*(231*a**3*d**3 - 63*a**2*b*c*d**2 - 7*a*b**
2*c**2*d - b**3*c**3)*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c
 + d*x)))/(128*b**(13/2)*d**(5/2))
```

Mathematica [A] time = 0.354276, size = 320, normalized size = 0.92

$$\frac{3\left(-231a^3d^3+63a^2bcd^2+7ab^2c^2d+b^3c^3\right)(bc-ad)^2\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{256b^{13/2}d^{5/2}}+\frac{\sqrt{c+dx}\left(3465a^5d^4+105a^4bd^3(11dx-64c)-42a^3b^2d^2\left(-79c^2+57cdx+11d^2x^2\right)+2a^2b^3d\left(-40c^3+662c^2dx+459cd^2x^2\right.\right.}{640}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^3*(c + d*x)^(5/2))/(a + b*x)^(3/2),x]
```

```
[Out] (Sqrt[c + d*x]*(3465*a^5*d^4 + 105*a^4*b*d^3*(-64*c + 11*d*x) - 4
2*a^3*b^2*d^2*(-79*c^2 + 57*c*d*x + 11*d^2*x^2) + 2*a^2*b^3*d*(-4
0*c^3 + 662*c^2*d*x + 459*c*d^2*x^2 + 132*d^3*x^3) + b^5*x*(-15*c
^4 + 10*c^3*d*x + 248*c^2*d^2*x^2 + 336*c*d^3*x^3 + 128*d^4*x^4)
- a*b^4*(15*c^4 + 70*c^3*d*x + 466*c^2*d^2*x^2 + 512*c*d^3*x^3 +
176*d^4*x^4)))/(640*b^6*d^2*Sqrt[a + b*x]) + (3*(b*c - a*d)^2*(b^
3*c^3 + 7*a*b^2*c^2*d + 63*a^2*b*c*d^2 - 231*a^3*d^3)*Log[b*c + a
*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(2
56*b^(13/2)*d^(5/2))
```

Maple [B] time = 0.047, size = 1265, normalized size = 3.7

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^3*(d*x+c)^(5/2)/(b*x+a)^(3/2),x)
```

```
[Out] -1/1280*(d*x+c)^(1/2)*(924*x^2*a^3*b^2*d^4*((b*x+a)*(d*x+c))^(1/2
)*(b*d)^(1/2)+30*x*b^5*c^4*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+30
*a*b^4*c^4*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+3465*ln(1/2*(2*b*d
*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*
a^5*b*d^5-7875*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1
/2)+a*d+b*c)/(b*d)^(1/2))*a^5*b*c*d^4+5250*ln(1/2*(2*b*d*x+2*((b*
x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^4*b^2*c^2
*d^3-750*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*
d+b*c)/(b*d)^(1/2))*a^3*b^3*c^3*d^2-75*ln(1/2*(2*b*d*x+2*((b*x+a)
*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^2*b^4*c^4*d-6
930*a^5*d^4*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-15*ln(1/2*(2*b*d*
x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*b
^6*c^5-15*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a
*d+b*c)/(b*d)^(1/2))*a*b^5*c^5-256*x^5*b^5*d^4*((b*x+a)*(d*x+c))^
(1/2)*(b*d)^(1/2)-20*x^2*b^5*c^3*d*((b*x+a)*(d*x+c))^(1/2)*(b*d)^
(1/2)-2310*x*a^4*b*d^4*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+13440*
a^4*b*c*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-6636*a^3*b^2*c^2*
d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+160*a^2*b^3*c^3*d*((b*x+a
)*(d*x+c))^(1/2)*(b*d)^(1/2)-7875*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x
+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^4*b^2*c*d^4+5250
*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(
b*d)^(1/2))*x*a^3*b^3*c^2*d^3-750*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x
+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^2*b^4*c^3*d^2-75
*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(
b*d)^(1/2))*x*a*b^5*c^4*d+352*x^4*a*b^4*d^4*((b*x+a)*(d*x+c))^(1/
2)*(b*d)^(1/2)-672*x^4*b^5*c*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1
/2)-528*x^3*a^2*b^3*d^4*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-496*x
^3*b^5*c^2*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+3465*ln(1/2*(2
*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2)
)*a^6*d^5+1024*x^3*a*b^4*c*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2
)-1836*x^2*a^2*b^3*c*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+932*
x^2*a*b^4*c^2*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+4788*x*a^3*
b^2*c*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-2648*x*a^2*b^3*c^2*
d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+140*x*a*b^4*c^3*d*((b*x+a
)*(d*x+c))^(1/2)*(b*d)^(1/2))/((b*x+a)*(d*x+c))^(1/2)/(b*d)^(1/2)
/d^2/(b*x+a)^(1/2)/b^6
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)^(5/2)*x^3/(b*x + a)^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 1.67178, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)^(5/2)*x^3/(b*x + a)^(3/2),x, algorithm="fricas")
```

```
[Out] [1/2560*(4*(128*b^5*d^4*x^5 - 15*a*b^4*c^4 - 80*a^2*b^3*c^3*d + 3
318*a^3*b^2*c^2*d^2 - 6720*a^4*b*c*d^3 + 3465*a^5*d^4 + 16*(21*b^
5*c*d^3 - 11*a*b^4*d^4)*x^4 + 8*(31*b^5*c^2*d^2 - 64*a*b^4*c*d^3
+ 33*a^2*b^3*d^4)*x^3 + 2*(5*b^5*c^3*d - 233*a*b^4*c^2*d^2 + 459*
a^2*b^3*c*d^3 - 231*a^3*b^2*d^4)*x^2 - (15*b^5*c^4 + 70*a*b^4*c^3
*d - 1324*a^2*b^3*c^2*d^2 + 2394*a^3*b^2*c*d^3 - 1155*a^4*b*d^4)*
x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) - 15*(a*b^5*c^5 + 5*a^2*
b^4*c^4*d + 50*a^3*b^3*c^3*d^2 - 350*a^4*b^2*c^2*d^3 + 525*a^5*b*
c*d^4 - 231*a^6*d^5 + (b^6*c^5 + 5*a*b^5*c^4*d + 50*a^2*b^4*c^3*d
^2 - 350*a^3*b^3*c^2*d^3 + 525*a^4*b^2*c*d^4 - 231*a^5*b*d^5)*x)*
```

```
log(-4*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x +
 c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d
 + a*b*d^2)*x)*sqrt(b*d)))/((b^7*d^2*x + a*b^6*d^2)*sqrt(b*d)), 1
/1280*(2*(128*b^5*d^4*x^5 - 15*a*b^4*c^4 - 80*a^2*b^3*c^3*d + 331
8*a^3*b^2*c^2*d^2 - 6720*a^4*b*c*d^3 + 3465*a^5*d^4 + 16*(21*b^5*
c*d^3 - 11*a*b^4*d^4)*x^4 + 8*(31*b^5*c^2*d^2 - 64*a*b^4*c*d^3 +
33*a^2*b^3*d^4)*x^3 + 2*(5*b^5*c^3*d - 233*a*b^4*c^2*d^2 + 459*a^
2*b^3*c*d^3 - 231*a^3*b^2*d^4)*x^2 - (15*b^5*c^4 + 70*a*b^4*c^3*d
 - 1324*a^2*b^3*c^2*d^2 + 2394*a^3*b^2*c*d^3 - 1155*a^4*b*d^4)*x)
*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 15*(a*b^5*c^5 + 5*a^2*b
^4*c^4*d + 50*a^3*b^3*c^3*d^2 - 350*a^4*b^2*c^2*d^3 + 525*a^5*b*c
*d^4 - 231*a^6*d^5 + (b^6*c^5 + 5*a*b^5*c^4*d + 50*a^2*b^4*c^3*d^
2 - 350*a^3*b^3*c^2*d^3 + 525*a^4*b^2*c*d^4 - 231*a^5*b*d^5)*x)*a
rctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*
x + c)*b*d)))/((b^7*d^2*x + a*b^6*d^2)*sqrt(-b*d))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**3*(d*x+c)**(5/2)/(b*x+a)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.685256, size = 4, normalized size = 0.01

$$sage_0x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)*x^3/(b*x + a)^(3/2),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.756 $\int \frac{x^2(c+dx)^{5/2}}{(a+bx)^{3/2}}\,dx$

Optimal. Leaf size=306

$$-\frac{\sqrt{a+bx}(c+dx)^{5/2}\left(-\frac{63a^2d}{b}+14ac+\frac{bc^2}{d}\right)}{24b^2(bc-ad)}-\frac{2a^2(c+dx)^{7/2}}{b^2\sqrt{a+bx}(bc-ad)}-\frac{5(bc-ad)^2\left(-63a^2d^2+14abcd+b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{64b^{11/2}d^{3/2}}-\frac{5\sqrt{a+bx}\sqrt{c+dx}(bc-ad)\left(-63a^2d^2+14abcd+b^2c^2\right)}{64b^5d}-\frac{5\sqrt{a+bx}(c+dx)^{3/2}\left(-63a^2d^2+14abcd+b^2c^2\right)}{96b^4d}+\frac{\sqrt{a+bx}(c+dx)^{7/2}}{4b^2d}$$

```
[Out] (-5*(b*c - a*d)*(b^2*c^2 + 14*a*b*c*d - 63*a^2*d^2)*Sqrt[a + b*x]
*Sqrt[c + d*x])/(64*b^5*d) - (5*(b^2*c^2 + 14*a*b*c*d - 63*a^2*d^
2)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(96*b^4*d) - ((14*a*c + (b*c^2)
/d - (63*a^2*d)/b)*Sqrt[a + b*x]*(c + d*x)^(5/2))/(24*b^2*(b*c -
a*d)) - (2*a^2*(c + d*x)^(7/2))/(b^2*(b*c - a*d)*Sqrt[a + b*x]) +
 (Sqrt[a + b*x]*(c + d*x)^(7/2))/(4*b^2*d) - (5*(b*c - a*d)^2*(b^
2*c^2 + 14*a*b*c*d - 63*a^2*d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/
(Sqrt[b]*Sqrt[c + d*x])])/(64*b^(11/2)*d^(3/2))
```

Rubi [A] time = 0.745691, antiderivative size = 306, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$-\frac{\sqrt{a+bx}(c+dx)^{5/2}\left(-\frac{63a^2d}{b}+14ac+\frac{bc^2}{d}\right)}{24b^2(bc-ad)}-\frac{2a^2(c+dx)^{7/2}}{b^2\sqrt{a+bx}(bc-ad)}-\frac{5(bc-ad)^2\left(-63a^2d^2+14abcd+b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{64b^{11/2}d^{3/2}}-\frac{5\sqrt{a+bx}\sqrt{c+dx}(bc-ad)\left(-63a^2d^2+14abcd+b^2c^2\right)}{64b^5d}-\frac{5\sqrt{a+bx}(c+dx)^{3/2}\left(-63a^2d^2+14abcd+b^2c^2\right)}{96b^4d}+\frac{\sqrt{a+bx}(c+dx)^{7/2}}{4b^2d}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^2*(c + d*x)^(5/2))/(a + b*x)^(3/2),x]
```


```
[Out] (-5*(b*c - a*d)*(b^2*c^2 + 14*a*b*c*d - 63*a^2*d^2)*Sqrt[a + b*x]
*Sqrt[c + d*x])/(64*b^5*d) - (5*(b^2*c^2 + 14*a*b*c*d - 63*a^2*d^
2)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(96*b^4*d) - ((14*a*c + (b*c^2)
/d - (63*a^2*d)/b)*Sqrt[a + b*x]*(c + d*x)^(5/2))/(24*b^2*(b*c -
a*d)) - (2*a^2*(c + d*x)^(7/2))/(b^2*(b*c - a*d)*Sqrt[a + b*x]) +
 (Sqrt[a + b*x]*(c + d*x)^(7/2))/(4*b^2*d) - (5*(b*c - a*d)^2*(b^
2*c^2 + 14*a*b*c*d - 63*a^2*d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/
(Sqrt[b]*Sqrt[c + d*x])])/(64*b^(11/2)*d^(3/2))
```

Rubi in Sympy [A] time = 60.2702, size = 289, normalized size = 0.94

$$\frac{2a^2\left(c+dx\right)^{\frac{7}{2}}}{b^2\sqrt{a+bx}\left(ad-bc\right)}+\frac{\sqrt{a+bx}\left(c+dx\right)^{\frac{7}{2}}}{4b^2d}-\frac{\sqrt{a+bx}\left(c+dx\right)^{\frac{5}{2}}\left(63a^2d^2-14abcd-b^2c^2\right)}{24b^3d\left(ad-bc\right)}+\frac{5\sqrt{a+bx}\left(c+dx\right)^{\frac{3}{2}}\left(63a^2d^2-14abcd-b^2c^2\right)}{96b^4d}-\frac{5\sqrt{a+bx}\sqrt{c+dx}\left(ad-bc\right)\left(63a^2d^2-14abcd-b^2c^2\right)}{64b^5d}+\frac{5\left(ad-bc\right)^2\left(63a^2d^2-14abcd-b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{64b^{\frac{11}{2}}d^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(d*x+c)**(5/2)/(b*x+a)**(3/2),x)
```

```
[Out] 2*a**2*(c + d*x)**(7/2)/(b**2*sqrt(a + b*x)*(a*d - b*c)) + sqrt(a
 + b*x)*(c + d*x)**(7/2)/(4*b**2*d) - sqrt(a + b*x)*(c + d*x)**(5
/2)*(63*a**2*d**2 - 14*a*b*c*d - b**2*c**2)/(24*b**3*d*(a*d - b*c
)) + 5*sqrt(a + b*x)*(c + d*x)**(3/2)*(63*a**2*d**2 - 14*a*b*c*d
- b**2*c**2)/(96*b**4*d) - 5*sqrt(a + b*x)*sqrt(c + d*x)*(a*d - b
*c)*(63*a**2*d**2 - 14*a*b*c*d - b**2*c**2)/(64*b**5*d) + 5*(a*d
- b*c)**2*(63*a**2*d**2 - 14*a*b*c*d - b**2*c**2)*atanh(sqrt(b)*s
qrt(c + d*x)/(sqrt(d)*sqrt(a + b*x)))/(64*b**(11/2)*d**(3/2))
```

Mathematica [A] time = 0.294724, size = 241, normalized size = 0.79

$$\frac{\sqrt{c+dx}\left(-945a^4d^3+105a^3bd^2(17c-3dx)+a^2b^2d\left(-839c^2+637cdx+126d^2x^2\right)+ab^3\left(15c^3-337c^2dx-244cd^2x^2-72d\right.\right.}{192b^5d\sqrt{a+bx}}$$

$$-\frac{5(bc-ad)^2\left(-63a^2d^2+14abcd+b^2c^2\right)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{128b^{11/2}d^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^2*(c + d*x)^(5/2))/(a + b*x)^(3/2),x]
```

```
[Out] (Sqrt[c + d*x]*(-945*a^4*d^3 + 105*a^3*b*d^2*(17*c - 3*d*x) + a^2
*b^2*d*(-839*c^2 + 637*c*d*x + 126*d^2*x^2) + a*b^3*(15*c^3 - 337
*c^2*d*x - 244*c*d^2*x^2 - 72*d^3*x^3) + b^4*x*(15*c^3 + 118*c^2*
d*x + 136*c*d^2*x^2 + 48*d^3*x^3)))/(192*b^5*d*Sqrt[a + b*x]) - (
5*(b*c - a*d)^2*(b^2*c^2 + 14*a*b*c*d - 63*a^2*d^2)*Log[b*c + a*d
 + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(128
*b^(11/2)*d^(3/2))
```

Maple [B] time = 0.043, size = 961, normalized size = 3.1

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(d*x+c)^(5/2)/(b*x+a)^(3/2),x)
```

```
[Out] 1/384*(d*x+c)^(1/2)*(96*x^4*b^4*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)
^(1/2)-144*x^3*a*b^3*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+272*
x^3*b^4*c*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+945*ln(1/2*(2*b
*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*
x*a^4*b*d^4-2100*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^
(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^3*b^2*c*d^3+1350*ln(1/2*(2*b*d*x+
2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^2
*b^3*c^2*d^2-180*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^
(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a*b^4*c^3*d-15*ln(1/2*(2*b*d*x+2*((
b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*b^5*c^4
+252*x^2*a^2*b^2*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-488*x^2*
a*b^3*c*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+236*x^2*b^4*c^2*d
*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+945*ln(1/2*(2*b*d*x+2*((b*x+
a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^5*d^4-2100*
ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b
*d)^(1/2))*a^4*b*c*d^3+1350*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(
1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^3*b^2*c^2*d^2-180*ln(1/2
*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1
/2))*a^2*b^3*c^3*d-15*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(
b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a*b^4*c^4-630*x*a^3*b*d^3*((b*x+
a)*(d*x+c))^(1/2)*(b*d)^(1/2)+1274*x*a^2*b^2*c*d^2*((b*x+a)*(d*x+
c))^(1/2)*(b*d)^(1/2)-674*x*a*b^3*c^2*d*((b*x+a)*(d*x+c))^(1/2)*(
b*d)^(1/2)+30*x*b^4*c^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-1890*
```

```
a^4*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+3570*a^3*b*c*d^2*((b*
x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-1678*a^2*b^2*c^2*d*((b*x+a)*(d*x+
c))^(1/2)*(b*d)^(1/2)+30*a*b^3*c^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^
(1/2))/((b*x+a)*(d*x+c))^(1/2)/d/(b*d)^(1/2)/(b*x+a)^(1/2)/b^5
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)^(5/2)*x^2/(b*x + a)^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.951169, size = 1, normalized size = 0.

$$\left[\frac{4\left(48\,b^4d^3x^4+15\,ab^3c^3-839\,a^2b^2c^2d+1785\,a^3bcd^2-945\,a^4d^3+8\left(17\,b^4cd^2-9\,ab^3d^3\right)x^3+2\left(59\,b^4c^2d-122\,ab^3cd^2+6\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)^(5/2)*x^2/(b*x + a)^(3/2),x, algorithm="fricas")
```

```
[Out] [1/768*(4*(48*b^4*d^3*x^4 + 15*a*b^3*c^3 - 839*a^2*b^2*c^2*d + 17
85*a^3*b*c*d^2 - 945*a^4*d^3 + 8*(17*b^4*c*d^2 - 9*a*b^3*d^3)*x^3
 + 2*(59*b^4*c^2*d - 122*a*b^3*c*d^2 + 63*a^2*b^2*d^3)*x^2 + (15*
b^4*c^3 - 337*a*b^3*c^2*d + 637*a^2*b^2*c*d^2 - 315*a^3*b*d^3)*x)
*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) - 15*(a*b^4*c^4 + 12*a^2*b
^3*c^3*d - 90*a^3*b^2*c^2*d^2 + 140*a^4*b*c*d^3 - 63*a^5*d^4 + (b
^5*c^4 + 12*a*b^4*c^3*d - 90*a^2*b^3*c^2*d^2 + 140*a^3*b^2*c*d^3
- 63*a^4*b*d^4)*x)*log(4*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b
*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^
2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/((b^6*d*x + a*b^5*d)
*sqrt(b*d)), 1/384*(2*(48*b^4*d^3*x^4 + 15*a*b^3*c^3 - 839*a^2*b^
2*c^2*d + 1785*a^3*b*c*d^2 - 945*a^4*d^3 + 8*(17*b^4*c*d^2 - 9*a*
b^3*d^3)*x^3 + 2*(59*b^4*c^2*d - 122*a*b^3*c*d^2 + 63*a^2*b^2*d^3
)*x^2 + (15*b^4*c^3 - 337*a*b^3*c^2*d + 637*a^2*b^2*c*d^2 - 315*a
^3*b*d^3)*x)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c) - 15*(a*b^4*c
^4 + 12*a^2*b^3*c^3*d - 90*a^3*b^2*c^2*d^2 + 140*a^4*b*c*d^3 - 63
*a^5*d^4 + (b^5*c^4 + 12*a*b^4*c^3*d - 90*a^2*b^3*c^2*d^2 + 140*a
^3*b^2*c*d^3 - 63*a^4*b*d^4)*x)*arctan(1/2*(2*b*d*x + b*c + a*d)*
sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/((b^6*d*x + a*b^5*
d)*sqrt(-b*d))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**2*(d*x+c)**(5/2)/(b*x+a)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.638236, size = 4, normalized size = 0.01

$$sage_0x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)*x^2/(b*x + a)^(3/2),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.757 $\int \frac{x(c+dx)^{5/2}}{(a+bx)^{3/2}}\,dx$

Optimal. Leaf size=214

$$\frac{5(bc-7ad)(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8b^{9/2}\sqrt{d}}+\frac{5\sqrt{a+bx}\sqrt{c+dx}(bc-7ad)(bc-ad)}{8b^4}+\frac{5\sqrt{a+bx}(c+dx)^{3/2}(bc-7ad)}{12b^3}+\frac{\sqrt{a+bx}(c+dx)^{5/2}(bc-7ad)}{3b^2(bc-ad)}+\frac{2a(c+dx)^{7/2}}{b\sqrt{a+bx}(bc-ad)}$$

```
[Out] (5*(b*c - 7*a*d)*(b*c - a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(8*b^4)
 + (5*(b*c - 7*a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(12*b^3) + ((b
*c - 7*a*d)*Sqrt[a + b*x]*(c + d*x)^(5/2))/(3*b^2*(b*c - a*d)) +
(2*a*(c + d*x)^(7/2))/(b*(b*c - a*d)*Sqrt[a + b*x]) + (5*(b*c - 7
*a*d)*(b*c - a*d)^2*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt
[c + d*x])])/(8*b^(9/2)*Sqrt[d])
```

Rubi [A] time = 0.303986, antiderivative size = 214, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.2$

$$\frac{5(bc-7ad)(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8b^{9/2}\sqrt{d}}+\frac{5\sqrt{a+bx}\sqrt{c+dx}(bc-7ad)(bc-ad)}{8b^4}+\frac{5\sqrt{a+bx}(c+dx)^{3/2}(bc-7ad)}{12b^3}+\frac{\sqrt{a+bx}(c+dx)^{5/2}(bc-7ad)}{3b^2(bc-ad)}+\frac{2a(c+dx)^{7/2}}{b\sqrt{a+bx}(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[(x*(c + d*x)^(5/2))/(a + b*x)^(3/2),x]
```

```
[Out] (5*(b*c - 7*a*d)*(b*c - a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(8*b^4)
 + (5*(b*c - 7*a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(12*b^3) + ((b
*c - 7*a*d)*Sqrt[a + b*x]*(c + d*x)^(5/2))/(3*b^2*(b*c - a*d)) +
(2*a*(c + d*x)^(7/2))/(b*(b*c - a*d)*Sqrt[a + b*x]) + (5*(b*c - 7
*a*d)*(b*c - a*d)^2*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt
[c + d*x])])/(8*b^(9/2)*Sqrt[d])
```

Rubi in Sympy [A] time = 36.2835, size = 196, normalized size = 0.92

$$-\frac{2a\left(c+dx\right)^{\frac{7}{2}}}{b\sqrt{a+bx}\left(ad-bc\right)}+\frac{\sqrt{a+bx}\left(c+dx\right)^{\frac{5}{2}}\left(7ad-bc\right)}{3b^2\left(ad-bc\right)}-\frac{5\sqrt{a+bx}\left(c+dx\right)^{\frac{3}{2}}\left(7ad-bc\right)}{12b^3}+\frac{5\sqrt{a+bx}\sqrt{c+dx}\left(ad-bc\right)\left(7ad-bc\right)}{8b^4}-\frac{5\left(ad-bc\right)^2\left(7ad-bc\right)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8b^{\frac{9}{2}}\sqrt{d}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(d*x+c)**(5/2)/(b*x+a)**(3/2),x)
```

```
[Out] -2*a*(c + d*x)**(7/2)/(b*sqrt(a + b*x)*(a*d - b*c)) + sqrt(a + b*
x)*(c + d*x)**(5/2)*(7*a*d - b*c)/(3*b**2*(a*d - b*c)) - 5*sqrt(a
 + b*x)*(c + d*x)**(3/2)*(7*a*d - b*c)/(12*b**3) + 5*sqrt(a + b*x
)*sqrt(c + d*x)*(a*d - b*c)*(7*a*d - b*c)/(8*b**4) - 5*(a*d - b*c
)**2*(7*a*d - b*c)*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c +
d*x)))/(8*b**(9/2)*sqrt(d))
```

Mathematica [A] time = 0.203599, size = 173, normalized size = 0.81

$$\frac{\sqrt{c+dx}\left(105a^3d^2+5a^2bd(7dx-38c)+ab^2\left(81c^2-68cdx-14d^2x^2\right)+b^3x\left(33c^2+26cdx+8d^2x^2\right)\right)}{24b^4\sqrt{a+bx}}+\frac{5(bc-7ad)(bc-ad)^2\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{16b^{9/2}\sqrt{d}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x*(c + d*x)^(5/2))/(a + b*x)^(3/2),x]
```

```
[Out] (Sqrt[c + d*x]*(105*a^3*d^2 + 5*a^2*b*d*(-38*c + 7*d*x) + a*b^2*(
81*c^2 - 68*c*d*x - 14*d^2*x^2) + b^3*x*(33*c^2 + 26*c*d*x + 8*d^
2*x^2)))/(24*b^4*Sqrt[a + b*x]) + (5*(b*c - 7*a*d)*(b*c - a*d)^2*
Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c
+ d*x]])/(16*b^(9/2)*Sqrt[d])
```

Maple [B] time = 0.037, size = 689, normalized size = 3.2

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(d*x+c)^(5/2)/(b*x+a)^(3/2),x)
```

```
[Out] -1/48*(d*x+c)^(1/2)*(-16*x^3*b^3*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d
)^(1/2)+105*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)
+a*d+b*c)/(b*d)^(1/2))*x*a^3*b*d^3-225*ln(1/2*(2*b*d*x+2*((b*x+a)
*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^2*b^2*c*d^2
+135*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*
c)/(b*d)^(1/2))*x*a*b^3*c^2*d-15*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+
c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*b^4*c^3+28*x^2*a*b^
2*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-52*x^2*b^3*c*d*((b*x+a)
*(d*x+c))^(1/2)*(b*d)^(1/2)+105*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c
))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^4*d^3-225*ln(1/2*(2*
b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))
*a^3*b*c*d^2+135*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^
(1/2)+a*d+b*c)/(b*d)^(1/2))*a^2*b^2*c^2*d-15*ln(1/2*(2*b*d*x+2*((
b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a*b^3*c^3
-70*x*a^2*b*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+136*x*a*b^2*c
*d*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-66*x*b^3*c^2*((b*x+a)*(d*x
+c))^(1/2)*(b*d)^(1/2)-210*a^3*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^
(1/2)+380*a^2*b*c*d*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-162*a*b^2
*c^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2))/((b*x+a)*(d*x+c))^(1/2)
/(b*d)^(1/2)/(b*x+a)^(1/2)/b^4
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)*x/(b*x + a)^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.580334, size = 1, normalized size = 0.

$$\left[\frac{4\left(8\,b^3d^2x^3+81\,ab^2c^2-190\,a^2bcd+105\,a^3d^2+2\left(13\,b^3cd-7\,ab^2d^2\right)x^2+\left(33\,b^3c^2-68\,ab^2cd+35\,a^2bd^2\right)x\right)\sqrt{bd}\sqrt{bx+a}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)*x/(b*x + a)^(3/2),x, algorithm="fricas")
```

```
[Out] [1/96*(4*(8*b^3*d^2*x^3 + 81*a*b^2*c^2 - 190*a^2*b*c*d + 105*a^3*
d^2 + 2*(13*b^3*c*d - 7*a*b^2*d^2)*x^2 + (33*b^3*c^2 - 68*a*b^2*c
*d + 35*a^2*b*d^2)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) - 15*
(a*b^3*c^3 - 9*a^2*b^2*c^2*d + 15*a^3*b*c*d^2 - 7*a^4*d^3 + (b^4*
c^3 - 9*a*b^3*c^2*d + 15*a^2*b^2*c*d^2 - 7*a^3*b*d^3)*x)*log(-4*(
2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8
*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d
^2)*x)*sqrt(b*d)))/((b^5*x + a*b^4)*sqrt(b*d)), 1/48*(2*(8*b^3*d^
2*x^3 + 81*a*b^2*c^2 - 190*a^2*b*c*d + 105*a^3*d^2 + 2*(13*b^3*c*
d - 7*a*b^2*d^2)*x^2 + (33*b^3*c^2 - 68*a*b^2*c*d + 35*a^2*b*d^2)
*x)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 15*(a*b^3*c^3 - 9*a^
2*b^2*c^2*d + 15*a^3*b*c*d^2 - 7*a^4*d^3 + (b^4*c^3 - 9*a*b^3*c^2
*d + 15*a^2*b^2*c*d^2 - 7*a^3*b*d^3)*x)*arctan(1/2*(2*b*d*x + b*c
 + a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/((b^5*x +
a*b^4)*sqrt(-b*d))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(d*x+c)**(5/2)/(b*x+a)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.62004, size = 4, normalized size = 0.02

$$sage_0x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)*x/(b*x + a)^(3/2),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.758 $\int \frac{(c+dx)^{5/2}}{(a+bx)^{3/2}}\,dx$

Optimal. Leaf size=138

$$\frac{15\sqrt{d}(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{7/2}}+\frac{15d\sqrt{a+bx}\sqrt{c+dx}(bc-ad)}{4b^3}+\frac{5d\sqrt{a+bx}(c+dx)^{3/2}}{2b^2}-\frac{2(c+dx)^{5/2}}{b\sqrt{a+bx}}$$

```
[Out] (15*d*(b*c - a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*b^3) + (5*d*Sqr
t[a + b*x]*(c + d*x)^(3/2))/(2*b^2) - (2*(c + d*x)^(5/2))/(b*Sqrt
[a + b*x]) + (15*Sqrt[d]*(b*c - a*d)^2*ArcTanh[(Sqrt[d]*Sqrt[a +
b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(4*b^(7/2))
```

Rubi [A] time = 0.168612, antiderivative size = 138, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.21

$$\frac{15\sqrt{d}(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{7/2}}+\frac{15d\sqrt{a+bx}\sqrt{c+dx}(bc-ad)}{4b^3}+\frac{5d\sqrt{a+bx}(c+dx)^{3/2}}{2b^2}-\frac{2(c+dx)^{5/2}}{b\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^(5/2)/(a + b*x)^(3/2),x]
```

```
[Out] (15*d*(b*c - a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*b^3) + (5*d*Sqr
t[a + b*x]*(c + d*x)^(3/2))/(2*b^2) - (2*(c + d*x)^(5/2))/(b*Sqrt
[a + b*x]) + (15*Sqrt[d]*(b*c - a*d)^2*ArcTanh[(Sqrt[d]*Sqrt[a +
b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(4*b^(7/2))
```

Rubi in Sympy [A] time = 21.1569, size = 128, normalized size = 0.93

$$-\frac{2\left(c+dx\right)^{\frac{5}{2}}}{b\sqrt{a+bx}}+\frac{5d\sqrt{a+bx}\left(c+dx\right)^{\frac{3}{2}}}{2b^2}-\frac{15d\sqrt{a+bx}\sqrt{c+dx}\left(ad-bc\right)}{4b^3}+\frac{15\sqrt{d}\left(ad-bc\right)^2\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(5/2)/(b*x+a)**(3/2),x)
```

```
[Out] -2*(c + d*x)**(5/2)/(b*sqrt(a + b*x)) + 5*d*sqrt(a + b*x)*(c + d*
x)**(3/2)/(2*b**2) - 15*d*sqrt(a + b*x)*sqrt(c + d*x)*(a*d - b*c)
/(4*b**3) + 15*sqrt(d)*(a*d - b*c)**2*atanh(sqrt(d)*sqrt(a + b*x)
/(sqrt(b)*sqrt(c + d*x)))/(4*b**(7/2))
```

Mathematica [A] time = 0.162094, size = 138, normalized size = 1.

$$\frac{15\sqrt{d}(bc-ad)^2\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{8b^{7/2}}+\sqrt{a+bx}\sqrt{c+dx}\left(-\frac{2(bc-ad)^2}{b^3(a+bx)}+\frac{d(9bc-7ad)}{4b^3}+\frac{d^2x}{2b^2}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^(5/2)/(a + b*x)^(3/2),x]
```

```
[Out] Sqrt[a + b*x]*Sqrt[c + d*x]*((d*(9*b*c - 7*a*d))/(4*b^3) + (d^2*x
)/(2*b^2) - (2*(b*c - a*d)^2)/(b^3*(a + b*x))) + (15*Sqrt[d]*(b*c
```

```
 - a*d)^2*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*
x]*Sqrt[c + d*x]])/(8*b^(7/2))
```

Maple [F] time = 0., size = 0, normalized size = 0.

$$\int 1\,(dx+c)^{\frac{5}{2}}\,(bx+a)^{-\frac{3}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(5/2)/(b*x+a)^(3/2),x)
```

```
[Out] int((d*x+c)^(5/2)/(b*x+a)^(3/2),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/(b*x + a)^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.399985, size = 1, normalized size = 0.01

$$\left[\frac{15\left(ab^2c^2 - 2\,a^2bcd + a^3d^2 + \left(b^3c^2 - 2\,ab^2cd + a^2bd^2\right)x\right)\sqrt{\frac{d}{b}}\log\left(8\,b^2d^2x^2 + b^2c^2 + 6\,abcd + a^2d^2 + 4\left(2\,b^2dx + b^2c + abd\right.\right.}{16\,(b^4}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/(b*x + a)^(3/2),x, algorithm="fricas")
```

```
[Out] [1/16*(15*(a*b^2*c^2 - 2*a^2*b*c*d + a^3*d^2 + (b^3*c^2 - 2*a*b^2
*c*d + a^2*b*d^2)*x)*sqrt(d/b)*log(8*b^2*d^2*x^2 + b^2*c^2 + 6*a*
b*c*d + a^2*d^2 + 4*(2*b^2*d*x + b^2*c + a*b*d)*sqrt(b*x + a)*sqr
t(d*x + c)*sqrt(d/b) + 8*(b^2*c*d + a*b*d^2)*x) + 4*(2*b^2*d^2*x^
2 - 8*b^2*c^2 + 25*a*b*c*d - 15*a^2*d^2 + (9*b^2*c*d - 5*a*b*d^2)
*x)*sqrt(b*x + a)*sqrt(d*x + c))/(b^4*x + a*b^3), 1/8*(15*(a*b^2*
c^2 - 2*a^2*b*c*d + a^3*d^2 + (b^3*c^2 - 2*a*b^2*c*d + a^2*b*d^2)
*x)*sqrt(-d/b)*arctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(b*x + a)*sq
rt(d*x + c)*b*sqrt(-d/b))) + 2*(2*b^2*d^2*x^2 - 8*b^2*c^2 + 25*a*
b*c*d - 15*a^2*d^2 + (9*b^2*c*d - 5*a*b*d^2)*x)*sqrt(b*x + a)*sqr
t(d*x + c))/(b^4*x + a*b^3)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(c+dx)^{\frac{5}{2}}}{(a+bx)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(5/2)/(b*x+a)**(3/2),x)
```

```
[Out] Integral((c + d*x)**(5/2)/(a + b*x)**(3/2), x)
```

GIAC/XCAS [A] time = 0.61658, size = 4, normalized size = 0.03

$$sage_0x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/(b*x + a)^(3/2),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.759 $\int \frac{(c+dx)^{5/2}}{x(a+bx)^{3/2}}\,dx$

Optimal. Leaf size=163

$$-\frac{2c^{5/2}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{3/2}}+\frac{d^{3/2}(5bc-3ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{5/2}}-\frac{d\sqrt{a+bx}\sqrt{c+dx}(2bc-3ad)}{ab^2}+\frac{2(c+dx)^{3/2}(bc-ad)}{ab\sqrt{a+bx}}$$

```
[Out] -((d*(2*b*c - 3*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(a*b^2)) + (2*(
b*c - a*d)*(c + d*x)^(3/2))/(a*b*Sqrt[a + b*x]) - (2*c^(5/2)*ArcT
anh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/a^(3/2) + (
d^(3/2)*(5*b*c - 3*a*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*
Sqrt[c + d*x])])/b^(5/2)
```

Rubi [A] time = 0.499517, antiderivative size = 163, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.273$

$$-\frac{2c^{5/2}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{3/2}}+\frac{d^{3/2}(5bc-3ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{5/2}}-\frac{d\sqrt{a+bx}\sqrt{c+dx}(2bc-3ad)}{ab^2}+\frac{2(c+dx)^{3/2}(bc-ad)}{ab\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^(5/2)/(x*(a + b*x)^(3/2)),x]
```

```
[Out] -((d*(2*b*c - 3*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(a*b^2)) + (2*(
b*c - a*d)*(c + d*x)^(3/2))/(a*b*Sqrt[a + b*x]) - (2*c^(5/2)*ArcT
anh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/a^(3/2) + (
d^(3/2)*(5*b*c - 3*a*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*
Sqrt[c + d*x])])/b^(5/2)
```

Rubi in Sympy [A] time = 50.1173, size = 151, normalized size = 0.93

$$-\frac{d^{\frac{3}{2}}\left(3ad-5bc\right)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{\frac{5}{2}}}-\frac{2\left(c+dx\right)^{\frac{3}{2}}\left(ad-bc\right)}{ab\sqrt{a+bx}}+\frac{d\sqrt{a+bx}\sqrt{c+dx}\left(3ad-2bc\right)}{ab^2}-\frac{2c^{\frac{5}{2}}\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(5/2)/x/(b*x+a)**(3/2),x)
```

```
[Out] -d**(3/2)*(3*a*d - 5*b*c)*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sq
rt(c + d*x)))/b**(5/2) - 2*(c + d*x)**(3/2)*(a*d - b*c)/(a*b*sqrt
(a + b*x)) + d*sqrt(a + b*x)*sqrt(c + d*x)*(3*a*d - 2*b*c)/(a*b**
2) - 2*c**(5/2)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x
)))/a**(3/2)
```

Mathematica [A] time = 0.447542, size = 184, normalized size = 1.13

$$-\frac{c^{5/2}\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{a^{3/2}}+\frac{c^{5/2}\log(x)}{a^{3/2}}+\frac{d^{3/2}(5bc-3ad)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{2b^{5/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(\frac{2(bc-ad)^2}{a(a+bx)}+d^2\right)}{b^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^(5/2)/(x*(a + b*x)^(3/2)),x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(d^2 + (2*(b*c - a*d)^2)/(a*(a + b*x
))))/b^2 + (c^(5/2)*Log[x])/a^(3/2) - (c^(5/2)*Log[2*a*c + b*c*x
+ a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/a^(3/2)
 + (d^(3/2)*(5*b*c - 3*a*d)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*S
qrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(2*b^(5/2))
```

Maple [B] time = 0.035, size = 492, normalized size = 3.

$$-\frac{1}{2\,b^2a}\sqrt{dx+c}\left(2\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)\,(dx+c)}+2\,ac}{x}\right)xb^3c^3\sqrt{bd}+3\,\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{(bx+a)\,(dx+c)}\sqrt{bd}}{\sqrt{bd}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(5/2)/x/(b*x+a)^(3/2),x)
```

```
[Out] -1/2*(d*x+c)^(1/2)*(2*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x
+c))^(1/2)+2*a*c)/x)*x*b^3*c^3*(b*d)^(1/2)+3*ln(1/2*(2*b*d*x+2*((
b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^2*b*d
^3*(a*c)^(1/2)-5*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^
(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a*b^2*c*d^2*(a*c)^(1/2)+2*ln((a*d*x
+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*a*b^2*c^3*
(b*d)^(1/2)+3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/
2)+a*d+b*c)/(b*d)^(1/2))*a^3*d^3*(a*c)^(1/2)-5*ln(1/2*(2*b*d*x+2*
((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^2*b*c
*d^2*(a*c)^(1/2)-2*x*a*b*d^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*
(b*d)^(1/2)-6*a^2*d^2*(b*d)^(1/2)*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(
1/2)+8*a*b*c*d*(b*d)^(1/2)*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-4*
b^2*c^2*(b*d)^(1/2)*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2))/a/((b*x+
a)*(d*x+c))^(1/2)/(b*d)^(1/2)/(a*c)^(1/2)/(b*x+a)^(1/2)/b^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/((b*x + a)^(3/2)*x),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 2.12519, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)^(5/2)/((b*x + a)^(3/2)*x),x, algorithm="fricas")
```

```
[Out] [-1/4*((5*a^2*b*c*d - 3*a^3*d^2 + (5*a*b^2*c*d - 3*a^2*b*d^2)*x)*
sqrt(d/b)*log(8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 - 4*(
2*b^2*d*x + b^2*c + a*b*d)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(d/b)
+ 8*(b^2*c*d + a*b*d^2)*x) - 2*(b^3*c^2*x + a*b^2*c^2)*sqrt(c/a)*
log((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a^2*c
 + (a*b*c + a^2*d)*x)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(c/a) + 8*(
a*b*c^2 + a^2*c*d)*x)/x^2) - 4*(a*b*d^2*x + 2*b^2*c^2 - 4*a*b*c*d
 + 3*a^2*d^2)*sqrt(b*x + a)*sqrt(d*x + c))/(a*b^3*x + a^2*b^2), 1
/2*((5*a^2*b*c*d - 3*a^3*d^2 + (5*a*b^2*c*d - 3*a^2*b*d^2)*x)*sqr
t(-d/b)*arctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(b*x + a)*sqrt(d*x
+ c)*b*sqrt(-d/b))) + (b^3*c^2*x + a*b^2*c^2)*sqrt(c/a)*log((8*a^
2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a^2*c + (a*b*c
 + a^2*d)*x)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(c/a) + 8*(a*b*c^2 +
 a^2*c*d)*x)/x^2) + 2*(a*b*d^2*x + 2*b^2*c^2 - 4*a*b*c*d + 3*a^2*
d^2)*sqrt(b*x + a)*sqrt(d*x + c))/(a*b^3*x + a^2*b^2), -1/4*(4*(b
^3*c^2*x + a*b^2*c^2)*sqrt(-c/a)*arctan(1/2*(2*a*c + (b*c + a*d)*
x)/(sqrt(b*x + a)*sqrt(d*x + c)*a*sqrt(-c/a))) + (5*a^2*b*c*d - 3
*a^3*d^2 + (5*a*b^2*c*d - 3*a^2*b*d^2)*x)*sqrt(d/b)*log(8*b^2*d^2
*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 - 4*(2*b^2*d*x + b^2*c + a*b
*d)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(d/b) + 8*(b^2*c*d + a*b*d^2)
*x) - 4*(a*b*d^2*x + 2*b^2*c^2 - 4*a*b*c*d + 3*a^2*d^2)*sqrt(b*x
+ a)*sqrt(d*x + c))/(a*b^3*x + a^2*b^2), -1/2*(2*(b^3*c^2*x + a*b
^2*c^2)*sqrt(-c/a)*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(b*x +
 a)*sqrt(d*x + c)*a*sqrt(-c/a))) - (5*a^2*b*c*d - 3*a^3*d^2 + (5*
a*b^2*c*d - 3*a^2*b*d^2)*x)*sqrt(-d/b)*arctan(1/2*(2*b*d*x + b*c
+ a*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*sqrt(-d/b))) - 2*(a*b*d^2*x
 + 2*b^2*c^2 - 4*a*b*c*d + 3*a^2*d^2)*sqrt(b*x + a)*sqrt(d*x + c)
)/(a*b^3*x + a^2*b^2)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(c+dx)^{\frac{5}{2}}}{x\,(a+bx)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x+c)**(5/2)/x/(b*x+a)**(3/2),x)
```

```
[Out] Integral((c + d*x)**(5/2)/(x*(a + b*x)**(3/2)), x)
```

GIAC/XCAS [A] time = 0.603002, size = 4, normalized size = 0.02

$$sage_0x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)^(5/2)/((b*x + a)^(3/2)*x),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.760 $\int \frac{(c+dx)^{5/2}}{x^2(a+bx)^{3/2}}\,dx$

Optimal. Leaf size=163

$$\frac{c^{3/2}(3bc-5ad)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{5/2}}-\frac{\sqrt{c+dx}(3bc-2ad)(bc-ad)}{a^2b\sqrt{a+bx}}+\frac{2d^{5/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{3/2}}-\frac{c(c+dx)^{3/2}}{ax\sqrt{a+bx}}$$

```
[Out] -(((3*b*c - 2*a*d)*(b*c - a*d)*Sqrt[c + d*x])/(a^2*b*Sqrt[a + b*x
])) - (c*(c + d*x)^(3/2))/(a*x*Sqrt[a + b*x]) + (c^(3/2)*(3*b*c -
 5*a*d)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])
/a^(5/2) + (2*d^(5/2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sq
rt[c + d*x])])/b^(3/2)
```

Rubi [A] time = 0.522031, antiderivative size = 163, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.273

$$\frac{c^{3/2}(3bc-5ad)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{5/2}}-\frac{\sqrt{c+dx}(3bc-2ad)(bc-ad)}{a^2b\sqrt{a+bx}}+\frac{2d^{5/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{3/2}}-\frac{c(c+dx)^{3/2}}{ax\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^(5/2)/(x^2*(a + b*x)^(3/2)),x]
```

```
[Out] -(((3*b*c - 2*a*d)*(b*c - a*d)*Sqrt[c + d*x])/(a^2*b*Sqrt[a + b*x
])) - (c*(c + d*x)^(3/2))/(a*x*Sqrt[a + b*x]) + (c^(3/2)*(3*b*c -
 5*a*d)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])
/a^(5/2) + (2*d^(5/2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sq
rt[c + d*x])])/b^(3/2)
```

Rubi in Sympy [A] time = 32.5743, size = 150, normalized size = 0.92

$$\frac{2d^{\frac{5}{2}}\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{b^{\frac{3}{2}}}-\frac{c\,(c+dx)^{\frac{3}{2}}}{ax\sqrt{a+bx}}-\frac{\sqrt{c+dx}\,(ad-bc)\,(2ad-3bc)}{a^2b\sqrt{a+bx}}-\frac{c^{\frac{3}{2}}\,(5ad-3bc)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(5/2)/x**2/(b*x+a)**(3/2),x)
```

```
[Out] 2*d**(5/2)*atanh(sqrt(b)*sqrt(c + d*x)/(sqrt(d)*sqrt(a + b*x)))/b
**(3/2) - c*(c + d*x)**(3/2)/(a*x*sqrt(a + b*x)) - sqrt(c + d*x)*
(a*d - b*c)*(2*a*d - 3*b*c)/(a**2*b*sqrt(a + b*x)) - c**(3/2)*(5*
a*d - 3*b*c)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))
/a**(5/2)
```

Mathematica [A] time = 0.543031, size = 199, normalized size = 1.22

$$\frac{1}{2}\left(\frac{c^{3/2}\log(x)(5ad-3bc)}{a^{5/2}}+\frac{c^{3/2}(3bc-5ad)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{a^{5/2}}-\frac{2\sqrt{a+bx}\sqrt{c+dx}\left(\frac{2(bc-ad)^2}{b(a+bx)}+\frac{c^2}{x}\right)}{a^2}+\frac{2d^{5/2}\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{b^{3/2}}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^(5/2)/(x^2*(a + b*x)^(3/2)),x]
```

```
[Out] ((-2*Sqrt[a + b*x]*Sqrt[c + d*x]*(c^2/x + (2*(b*c - a*d)^2)/(b*(a
 + b*x))))/a^2 + (c^(3/2)*(-3*b*c + 5*a*d)*Log[x])/a^(5/2) + (c^(
3/2)*(3*b*c - 5*a*d)*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c
]*Sqrt[a + b*x]*Sqrt[c + d*x]])/a^(5/2) + (2*d^(5/2)*Log[b*c + a*
d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/b^(
3/2))/2
```

Maple [B] time = 0.037, size = 502, normalized size = 3.1

$$-\frac{1}{2\,a^2xb}\sqrt{dx+c}\left(5\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)\,(dx+c)}+2\,ac}{x}\right)x^2ab^2c^2d\sqrt{bd}-3\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)\,(d}}{x}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(5/2)/x^2/(b*x+a)^(3/2),x)
```

```
[Out] -1/2*(d*x+c)^(1/2)*(5*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x
+c))^(1/2)+2*a*c)/x)*x^2*a*b^2*c^2*d*(b*d)^(1/2)-3*ln((a*d*x+b*c*
x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*b^3*c^3*(b*
d)^(1/2)-2*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+
a*d+b*c)/(b*d)^(1/2))*x^2*a^2*b*d^3*(a*c)^(1/2)+5*ln((a*d*x+b*c*x
+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x*a^2*b*c^2*d*(b
*d)^(1/2)-3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)
+2*a*c)/x)*x*a*b^2*c^3*(b*d)^(1/2)-2*ln(1/2*(2*b*d*x+2*((b*x+a)*(
d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^3*d^3*(a*c)^(
1/2)+4*x*a^2*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)*(a*c)^(1/2)-
8*x*a*b*c*d*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)*(a*c)^(1/2)+6*x*b
^2*c^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)*(a*c)^(1/2)+2*a*b*c^2*
(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2))/a^2/((b*x+a)*(d*
x+c))^(1/2)/x/(b*d)^(1/2)/(a*c)^(1/2)/(b*x+a)^(1/2)/b
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/((b*x + a)^(3/2)*x^2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 1.71938, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/((b*x + a)^(3/2)*x^2),x, algorithm="fricas")
```

```
[Out] [1/4*(2*(a^2*b*d^2*x^2 + a^3*d^2*x)*sqrt(d/b)*log(8*b^2*d^2*x^2 +
 b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b^2*d*x + b^2*c + a*b*d)*sq
rt(b*x + a)*sqrt(d*x + c)*sqrt(d/b) + 8*(b^2*c*d + a*b*d^2)*x) -
((3*b^3*c^2 - 5*a*b^2*c*d)*x^2 + (3*a*b^2*c^2 - 5*a^2*b*c*d)*x)*s
qrt(c/a)*log((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4
*(2*a^2*c + (a*b*c + a^2*d)*x)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(c
/a) + 8*(a*b*c^2 + a^2*c*d)*x)/x^2) - 4*(a*b*c^2 + (3*b^2*c^2 - 4
*a*b*c*d + 2*a^2*d^2)*x)*sqrt(b*x + a)*sqrt(d*x + c))/(a^2*b^2*x^
2 + a^3*b*x), 1/4*(4*(a^2*b*d^2*x^2 + a^3*d^2*x)*sqrt(-d/b)*arcta
n(1/2*(2*b*d*x + b*c + a*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*sqrt(-
d/b))) - ((3*b^3*c^2 - 5*a*b^2*c*d)*x^2 + (3*a*b^2*c^2 - 5*a^2*b*
c*d)*x)*sqrt(c/a)*log((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2
)*x^2 - 4*(2*a^2*c + (a*b*c + a^2*d)*x)*sqrt(b*x + a)*sqrt(d*x +
c)*sqrt(c/a) + 8*(a*b*c^2 + a^2*c*d)*x)/x^2) - 4*(a*b*c^2 + (3*b^
2*c^2 - 4*a*b*c*d + 2*a^2*d^2)*x)*sqrt(b*x + a)*sqrt(d*x + c))/(a
^2*b^2*x^2 + a^3*b*x), 1/2*(((3*b^3*c^2 - 5*a*b^2*c*d)*x^2 + (3*a
*b^2*c^2 - 5*a^2*b*c*d)*x)*sqrt(-c/a)*arctan(1/2*(2*a*c + (b*c +
a*d)*x)/(sqrt(b*x + a)*sqrt(d*x + c)*a*sqrt(-c/a))) + (a^2*b*d^2*
x^2 + a^3*d^2*x)*sqrt(d/b)*log(8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*
d + a^2*d^2 + 4*(2*b^2*d*x + b^2*c + a*b*d)*sqrt(b*x + a)*sqrt(d*
x + c)*sqrt(d/b) + 8*(b^2*c*d + a*b*d^2)*x) - 2*(a*b*c^2 + (3*b^2
*c^2 - 4*a*b*c*d + 2*a^2*d^2)*x)*sqrt(b*x + a)*sqrt(d*x + c))/(a^
2*b^2*x^2 + a^3*b*x), 1/2*(((3*b^3*c^2 - 5*a*b^2*c*d)*x^2 + (3*a*
b^2*c^2 - 5*a^2*b*c*d)*x)*sqrt(-c/a)*arctan(1/2*(2*a*c + (b*c + a
*d)*x)/(sqrt(b*x + a)*sqrt(d*x + c)*a*sqrt(-c/a))) + 2*(a^2*b*d^2
*x^2 + a^3*d^2*x)*sqrt(-d/b)*arctan(1/2*(2*b*d*x + b*c + a*d)/(sq
rt(b*x + a)*sqrt(d*x + c)*b*sqrt(-d/b))) - 2*(a*b*c^2 + (3*b^2*c^
2 - 4*a*b*c*d + 2*a^2*d^2)*x)*sqrt(b*x + a)*sqrt(d*x + c))/(a^2*b
^2*x^2 + a^3*b*x)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(5/2)/x**2/(b*x+a)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.630736, size = 4, normalized size = 0.02

$$sage_0x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/((b*x + a)^(3/2)*x^2),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.761 $\int \frac{(c+dx)^{5/2}}{x^3(a+bx)^{3/2}}\,dx$

Optimal. Leaf size=154

$$-\frac{15\sqrt{c}(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{7/2}}+\frac{15\sqrt{c+dx}(bc-ad)^2}{4a^3\sqrt{a+bx}}+\frac{5(c+dx)^{3/2}(bc-ad)}{4a^2x\sqrt{a+bx}}-\frac{(c+dx)^{5/2}}{2ax^2\sqrt{a+bx}}$$

```
[Out] (15*(b*c - a*d)^2*Sqrt[c + d*x])/(4*a^3*Sqrt[a + b*x]) + (5*(b*c
- a*d)*(c + d*x)^(3/2))/(4*a^2*x*Sqrt[a + b*x]) - (c + d*x)^(5/2)
/(2*a*x^2*Sqrt[a + b*x]) - (15*Sqrt[c]*(b*c - a*d)^2*ArcTanh[(Sqr
t[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(4*a^(7/2))
```

Rubi [A] time = 0.295989, antiderivative size = 154, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.136$

$$-\frac{15\sqrt{c}(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{7/2}}+\frac{15\sqrt{c+dx}(bc-ad)^2}{4a^3\sqrt{a+bx}}+\frac{5(c+dx)^{3/2}(bc-ad)}{4a^2x\sqrt{a+bx}}-\frac{(c+dx)^{5/2}}{2ax^2\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^(5/2)/(x^3*(a + b*x)^(3/2)),x]
```

```
[Out] (15*(b*c - a*d)^2*Sqrt[c + d*x])/(4*a^3*Sqrt[a + b*x]) + (5*(b*c
- a*d)*(c + d*x)^(3/2))/(4*a^2*x*Sqrt[a + b*x]) - (c + d*x)^(5/2)
/(2*a*x^2*Sqrt[a + b*x]) - (15*Sqrt[c]*(b*c - a*d)^2*ArcTanh[(Sqr
t[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(4*a^(7/2))
```

Rubi in Sympy [A] time = 11.2219, size = 136, normalized size = 0.88

$$\frac{2\left(c+dx\right)^{\frac{5}{2}}}{ax^2\sqrt{a+bx}}-\frac{5c\sqrt{a+bx}\left(c+dx\right)^{\frac{3}{2}}}{2a^2x^2}-\frac{15c\sqrt{a+bx}\sqrt{c+dx}\left(ad-bc\right)}{4a^3x}-\frac{15\sqrt{c}\left(ad-bc\right)^2\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(5/2)/x**3/(b*x+a)**(3/2),x)
```

```
[Out] 2*(c + d*x)**(5/2)/(a*x**2*sqrt(a + b*x)) - 5*c*sqrt(a + b*x)*(c
+ d*x)**(3/2)/(2*a**2*x**2) - 15*c*sqrt(a + b*x)*sqrt(c + d*x)*(a
*d - b*c)/(4*a**3*x) - 15*sqrt(c)*(a*d - b*c)**2*atanh(sqrt(c)*sq
rt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(4*a**(7/2))
```

Mathematica [A] time = 0.24275, size = 165, normalized size = 1.07

$$\frac{\frac{2\sqrt{a}\sqrt{c+dx}\left(a^2\left(-2c^2-9cdx+8d^2x^2\right)+5abcx(c-5dx)+15b^2c^2x^2\right)}{x^2\sqrt{a+bx}}+15\sqrt{c}\log(x)(bc-ad)^2-15\sqrt{c}(bc-ad)^2\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}\right.}{8a^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^(5/2)/(x^3*(a + b*x)^(3/2)),x]
```

```
[Out] ((2*Sqrt[a]*Sqrt[c + d*x]*(15*b^2*c^2*x^2 + 5*a*b*c*x*(c - 5*d*x)
 + a^2*(-2*c^2 - 9*c*d*x + 8*d^2*x^2)))/(x^2*Sqrt[a + b*x]) + 15*
Sqrt[c]*(b*c - a*d)^2*Log[x] - 15*Sqrt[c]*(b*c - a*d)^2*Log[2*a*c
 + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]]
```

```
)/(8*a^(7/2))
```

Maple [B] time = 0.04, size = 507, normalized size = 3.3

$$-\frac{1}{8\,a^{3}x^{2}}\sqrt{dx+c}\left(15\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)\,(dx+c)}+2\,ac}{x}\right)x^{3}a^{2}bcd^{2}-30\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)\,(dx+}{x}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(5/2)/x^3/(b*x+a)^(3/2),x)
```

```
[Out] -1/8*(d*x+c)^(1/2)*(15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*
x+c))^(1/2)+2*a*c)/x)*x^3*a^2*b*c*d^2-30*ln((a*d*x+b*c*x+2*(a*c)^
(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a*b^2*c^2*d+15*ln((a*
d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*b^3
*c^3+15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a
*c)/x)*x^2*a^3*c*d^2-30*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d
*x+c))^(1/2)+2*a*c)/x)*x^2*a^2*b*c^2*d+15*ln((a*d*x+b*c*x+2*(a*c)
^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a*b^2*c^3-16*((b*x+a
)*(d*x+c))^(1/2)*d^2*a^2*x^2*(a*c)^(1/2)+50*((b*x+a)*(d*x+c))^(1/
2)*d*b*c*a*x^2*(a*c)^(1/2)-30*((b*x+a)*(d*x+c))^(1/2)*b^2*c^2*x^2
*(a*c)^(1/2)+18*((b*x+a)*(d*x+c))^(1/2)*d*c*a^2*x*(a*c)^(1/2)-10*
((b*x+a)*(d*x+c))^(1/2)*b*c^2*a*x*(a*c)^(1/2)+4*((b*x+a)*(d*x+c))
^(1/2)*c^2*a^2*(a*c)^(1/2))/a^3/((b*x+a)*(d*x+c))^(1/2)/(a*c)^(1/
2)/x^2/(b*x+a)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/((b*x + a)^(3/2)*x^3),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.423604, size = 1, normalized size = 0.01

$$\left[\frac{15\left(\left(b^{3}c^{2}-2\,ab^{2}cd+a^{2}bd^{2}\right)x^{3}+\left(ab^{2}c^{2}-2\,a^{2}bcd+a^{3}d^{2}\right)x^{2}\right)\sqrt{\frac{c}{a}}\log\left(\frac{8\,a^{2}c^{2}+\left(b^{2}c^{2}+6\,abcd+a^{2}d^{2}\right)x^{2}-4\left(2\,a^{2}c+\left(abc+a^{2}d\right)x\right)\sqrt{bx+a}\sqrt{}}{x^{2}}\right.}{16\left(a^{3}bx^{3}+a^{4}x^{2}\right.}\right.$$

$$-\frac{15\left(\left(b^{3}c^{2}-2\,ab^{2}cd+a^{2}bd^{2}\right)x^{3}+\left(ab^{2}c^{2}-2\,a^{2}bcd+a^{3}d^{2}\right)x^{2}\right)\sqrt{-\frac{c}{a}}\arctan\left(\frac{2\,ac+(bc+ad)x}{2\sqrt{bx+a}\sqrt{dx+c}a\sqrt{-\frac{c}{a}}}\right)+2\left(2\,a^{2}c^{2}-\left(15\,b^{2}c^{2}-\right.\right.}{8\left(a^{3}bx^{3}+a^{4}x^{2}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/((b*x + a)^(3/2)*x^3),x, algorithm="fricas")
```

```
[Out] [1/16*(15*((b^3*c^2 - 2*a*b^2*c*d + a^2*b*d^2)*x^3 + (a*b^2*c^2 -
 2*a^2*b*c*d + a^3*d^2)*x^2)*sqrt(c/a)*log((8*a^2*c^2 + (b^2*c^2
+ 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a^2*c + (a*b*c + a^2*d)*x)*sqrt
(b*x + a)*sqrt(d*x + c)*sqrt(c/a) + 8*(a*b*c^2 + a^2*c*d)*x)/x^2)
 - 4*(2*a^2*c^2 - (15*b^2*c^2 - 25*a*b*c*d + 8*a^2*d^2)*x^2 - (5*
a*b*c^2 - 9*a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c))/(a^3*b*x^3 +
 a^4*x^2), -1/8*(15*((b^3*c^2 - 2*a*b^2*c*d + a^2*b*d^2)*x^3 + (a
```

```
*b^2*c^2 - 2*a^2*b*c*d + a^3*d^2)*x^2)*sqrt(-c/a)*arctan(1/2*(2*a
*c + (b*c + a*d)*x)/(sqrt(b*x + a)*sqrt(d*x + c)*a*sqrt(-c/a))) +
 2*(2*a^2*c^2 - (15*b^2*c^2 - 25*a*b*c*d + 8*a^2*d^2)*x^2 - (5*a*
b*c^2 - 9*a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c))/(a^3*b*x^3 + a
^4*x^2)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(5/2)/x**3/(b*x+a)**(3/2),x)

[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/((b*x + a)^(3/2)*x^3),x, algorithm="giac")

[Out] Exception raised: TypeError
```

3.762 $\int \frac{(c+dx)^{5/2}}{x^4(a+bx)^{3/2}}\,dx$

Optimal. Leaf size=230

$$\frac{5(bc-ad)^2(7bc-ad)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{9/2}\sqrt{c}}-\frac{5\sqrt{c+dx}(bc-ad)^2(7bc-ad)}{8a^4c\sqrt{a+bx}}-\frac{5(c+dx)^{3/2}(bc-ad)(7bc-ad)}{24a^3cx\sqrt{a+bx}}+\frac{(c+dx)^{5/2}(7bc-ad)}{12a^2cx^2\sqrt{a+bx}}-\frac{(c+dx)^{7/2}}{3acx^3\sqrt{a+bx}}$$

```
[Out] (-5*(b*c - a*d)^2*(7*b*c - a*d)*Sqrt[c + d*x])/(8*a^4*c*Sqrt[a +
b*x]) - (5*(b*c - a*d)*(7*b*c - a*d)*(c + d*x)^(3/2))/(24*a^3*c*x
*Sqrt[a + b*x]) + ((7*b*c - a*d)*(c + d*x)^(5/2))/(12*a^2*c*x^2*S
qrt[a + b*x]) - (c + d*x)^(7/2)/(3*a*c*x^3*Sqrt[a + b*x]) + (5*(b
*c - a*d)^2*(7*b*c - a*d)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a
]*Sqrt[c + d*x])])/(8*a^(9/2)*Sqrt[c])
```

Rubi [A] time = 0.418268, antiderivative size = 230, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$\frac{5(bc-ad)^2(7bc-ad)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{9/2}\sqrt{c}}-\frac{5\sqrt{c+dx}(bc-ad)^2(7bc-ad)}{8a^4c\sqrt{a+bx}}-\frac{5(c+dx)^{3/2}(bc-ad)(7bc-ad)}{24a^3cx\sqrt{a+bx}}+\frac{(c+dx)^{5/2}(7bc-ad)}{12a^2cx^2\sqrt{a+bx}}-\frac{(c+dx)^{7/2}}{3acx^3\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^(5/2)/(x^4*(a + b*x)^(3/2)),x]
```

```
[Out] (-5*(b*c - a*d)^2*(7*b*c - a*d)*Sqrt[c + d*x])/(8*a^4*c*Sqrt[a +
b*x]) - (5*(b*c - a*d)*(7*b*c - a*d)*(c + d*x)^(3/2))/(24*a^3*c*x
*Sqrt[a + b*x]) + ((7*b*c - a*d)*(c + d*x)^(5/2))/(12*a^2*c*x^2*S
qrt[a + b*x]) - (c + d*x)^(7/2)/(3*a*c*x^3*Sqrt[a + b*x]) + (5*(b
*c - a*d)^2*(7*b*c - a*d)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a
]*Sqrt[c + d*x])])/(8*a^(9/2)*Sqrt[c])
```

Rubi in Sympy [A] time = 18.6437, size = 209, normalized size = 0.91

$$-\frac{2b\,(c+dx)^{\frac{7}{2}}}{ax^3\sqrt{a+bx}\,(ad-bc)}-\frac{\sqrt{a+bx}\,(c+dx)^{\frac{5}{2}}\,(ad-7bc)}{3a^2x^3\,(ad-bc)}-\frac{5\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}\,(ad-7bc)}{12a^3x^2}-\frac{5\sqrt{a+bx}\sqrt{c+dx}\,(ad-7bc)\,(ad-bc)}{8a^4x}-\frac{5\,(ad-7bc)\,(ad-bc)^2\,\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{\frac{9}{2}}\sqrt{c}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(5/2)/x**4/(b*x+a)**(3/2),x)
```

```
[Out] -2*b*(c + d*x)**(7/2)/(a*x**3*sqrt(a + b*x)*(a*d - b*c)) - sqrt(a
 + b*x)*(c + d*x)**(5/2)*(a*d - 7*b*c)/(3*a**2*x**3*(a*d - b*c))
- 5*sqrt(a + b*x)*(c + d*x)**(3/2)*(a*d - 7*b*c)/(12*a**3*x**2) -
 5*sqrt(a + b*x)*sqrt(c + d*x)*(a*d - 7*b*c)*(a*d - b*c)/(8*a**4*
x) - 5*(a*d - 7*b*c)*(a*d - b*c)**2*atanh(sqrt(c)*sqrt(a + b*x)/(
sqrt(a)*sqrt(c + d*x)))/(8*a**(9/2)*sqrt(c))
```

Mathematica [A] time = 0.392987, size = 213, normalized size = 0.93

$$-\frac{\frac{2\sqrt{a}\sqrt{c+dx}\left(a^3\left(8c^2+26cdx+33d^2x^2\right)+a^2bx\left(-14c^2-68cdx+81d^2x^2\right)+5ab^2cx^2(7c-38dx)+105b^3c^2x^3\right)}{x^3\sqrt{a+bx}}+\frac{15\log(x)(ad-7bc)(bc-ad)^2}{\sqrt{c}}+\frac{15(7bc-ad)(bc-ac}{}}{48a^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^(5/2)/(x^4*(a + b*x)^(3/2)),x]
```

```
[Out] ((-2*Sqrt[a]*Sqrt[c + d*x]*(105*b^3*c^2*x^3 + 5*a*b^2*c*x^2*(7*c
- 38*d*x) + a^3*(8*c^2 + 26*c*d*x + 33*d^2*x^2) + a^2*b*x*(-14*c^
2 - 68*c*d*x + 81*d^2*x^2)))/(x^3*Sqrt[a + b*x]) + (15*(b*c - a*d
)^2*(-7*b*c + a*d)*Log[x])/Sqrt[c] + (15*(b*c - a*d)^2*(7*b*c - a
*d)*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*S
qrt[c + d*x]])/Sqrt[c])/(48*a^(9/2))
```

Maple [B] time = 0.043, size = 704, normalized size = 3.1

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(5/2)/x^4/(b*x+a)^(3/2),x)
```

```
[Out] -1/48*(d*x+c)^(1/2)*(15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d
*x+c))^(1/2)+2*a*c)/x)*x^4*a^3*b*d^3-135*ln((a*d*x+b*c*x+2*(a*c)^
(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a^2*b^2*c*d^2+225*ln(
(a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*
a*b^3*c^2*d-105*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(
1/2)+2*a*c)/x)*x^4*b^4*c^3+15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x
+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^4*d^3-135*ln((a*d*x+b*c*x+2*(a
*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^3*b*c*d^2+225*l
n((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^
3*a^2*b^2*c^2*d-105*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c
))^(1/2)+2*a*c)/x)*x^3*a*b^3*c^3+162*x^3*a^2*b*d^2*(a*c)^(1/2)*((
b*x+a)*(d*x+c))^(1/2)-380*x^3*a*b^2*c*d*(a*c)^(1/2)*((b*x+a)*(d*x
+c))^(1/2)+210*x^3*b^3*c^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+66
*x^2*a^3*d^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-136*x^2*a^2*b*c*
d*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+70*x^2*a*b^2*c^2*(a*c)^(1/2
)*((b*x+a)*(d*x+c))^(1/2)+52*x*a^3*c*d*(a*c)^(1/2)*((b*x+a)*(d*x+
c))^(1/2)-28*x*a^2*b*c^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+16*a
^3*c^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2))/a^4/((b*x+a)*(d*x+c))
^(1/2)/x^3/(a*c)^(1/2)/(b*x+a)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/((b*x + a)^(3/2)*x^4),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.659387, size = 1, normalized size = 0.

$$\left[-\frac{4\left(8a^3c^2+\left(105b^3c^2-190ab^2cd+81a^2bd^2\right)x^3+\left(35ab^2c^2-68a^2bcd+33a^3d^2\right)x^2-2\left(7a^2bc^2-13a^3cd\right)x\right)\sqrt{ac}\sqrt{bx}}{}\right.$$

$$-\frac{2\left(8a^3c^2+\left(105b^3c^2-190ab^2cd+81a^2bd^2\right)x^3+\left(35ab^2c^2-68a^2bcd+33a^3d^2\right)x^2-2\left(7a^2bc^2-13a^3cd\right)x\right)\sqrt{-ac}\sqrt{bx}}{48(}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)^(5/2)/((b*x + a)^(3/2)*x^4),x, algorithm="fricas")
```

```
[Out] [-1/96*(4*(8*a^3*c^2 + (105*b^3*c^2 - 190*a*b^2*c*d + 81*a^2*b*d^
2)*x^3 + (35*a*b^2*c^2 - 68*a^2*b*c*d + 33*a^3*d^2)*x^2 - 2*(7*a^
2*b*c^2 - 13*a^3*c*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c) +
15*((7*b^4*c^3 - 15*a*b^3*c^2*d + 9*a^2*b^2*c*d^2 - a^3*b*d^3)*x^
4 + (7*a*b^3*c^3 - 15*a^2*b^2*c^2*d + 9*a^3*b*c*d^2 - a^4*d^3)*x^
3)*log(-(4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt
(d*x + c) - (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*
(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2))/((a^4*b*x^4 + a^5*x^3)*sq
rt(a*c)), -1/48*(2*(8*a^3*c^2 + (105*b^3*c^2 - 190*a*b^2*c*d + 81
*a^2*b*d^2)*x^3 + (35*a*b^2*c^2 - 68*a^2*b*c*d + 33*a^3*d^2)*x^2
- 2*(7*a^2*b*c^2 - 13*a^3*c*d)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt(d
*x + c) - 15*((7*b^4*c^3 - 15*a*b^3*c^2*d + 9*a^2*b^2*c*d^2 - a^3
*b*d^3)*x^4 + (7*a*b^3*c^3 - 15*a^2*b^2*c^2*d + 9*a^3*b*c*d^2 - a
^4*d^3)*x^3)*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(
b*x + a)*sqrt(d*x + c)*a*c)))/((a^4*b*x^4 + a^5*x^3)*sqrt(-a*c))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x+c)**(5/2)/x**4/(b*x+a)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)^(5/2)/((b*x + a)^(3/2)*x^4),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.763 $\int \frac{(c+dx)^{5/2}}{x^5(a+bx)^{3/2}}\,dx$

Optimal. Leaf size=318

$$-\frac{\sqrt{c+dx}(63bc-59ad)(bc-ad)}{96a^3x^2\sqrt{a+bx}}+\frac{c\sqrt{c+dx}(9bc-11ad)}{24a^2x^3\sqrt{a+bx}}-\frac{5\left(-a^2d^2-14abcd+63b^2c^2\right)(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{11/2}c^{3/2}}+\frac{\sqrt{c+dx}\left(15a^2d^2-322abcd+315b^2c^2\right)(bc-ad)}{192a^4cx\sqrt{a+bx}}+\frac{b\sqrt{c+dx}\left(-15a^3d^3+839a^2bcd^2-1785ab^2c^2d+945b^3c^3\right)}{192a^5c\sqrt{a+bx}}-\frac{c(c+dx)^{3/2}}{4ax^4\sqrt{a+bx}}$$

```
[Out] (b*(945*b^3*c^3 - 1785*a*b^2*c^2*d + 839*a^2*b*c*d^2 - 15*a^3*d^3
)*Sqrt[c + d*x])/(192*a^5*c*Sqrt[a + b*x]) + (c*(9*b*c - 11*a*d)*
Sqrt[c + d*x])/(24*a^2*x^3*Sqrt[a + b*x]) - ((63*b*c - 59*a*d)*(b
*c - a*d)*Sqrt[c + d*x])/(96*a^3*x^2*Sqrt[a + b*x]) + ((b*c - a*d
)*(315*b^2*c^2 - 322*a*b*c*d + 15*a^2*d^2)*Sqrt[c + d*x])/(192*a^
4*c*x*Sqrt[a + b*x]) - (c*(c + d*x)^(3/2))/(4*a*x^4*Sqrt[a + b*x]
) - (5*(b*c - a*d)^2*(63*b^2*c^2 - 14*a*b*c*d - a^2*d^2)*ArcTanh[
(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(64*a^(11/2)*c^
(3/2))
```

Rubi [A] time = 1.16211, antiderivative size = 318, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 7, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.318

$$-\frac{\sqrt{c+dx}(63bc-59ad)(bc-ad)}{96a^3x^2\sqrt{a+bx}}+\frac{c\sqrt{c+dx}(9bc-11ad)}{24a^2x^3\sqrt{a+bx}}-\frac{5\left(-a^2d^2-14abcd+63b^2c^2\right)(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{11/2}c^{3/2}}+\frac{\sqrt{c+dx}\left(15a^2d^2-322abcd+315b^2c^2\right)(bc-ad)}{192a^4cx\sqrt{a+bx}}+\frac{b\sqrt{c+dx}\left(-15a^3d^3+839a^2bcd^2-1785ab^2c^2d+945b^3c^3\right)}{192a^5c\sqrt{a+bx}}-\frac{c(c+dx)^{3/2}}{4ax^4\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^(5/2)/(x^5*(a + b*x)^(3/2)),x]
```


```
[Out] (b*(945*b^3*c^3 - 1785*a*b^2*c^2*d + 839*a^2*b*c*d^2 - 15*a^3*d^3
)*Sqrt[c + d*x])/(192*a^5*c*Sqrt[a + b*x]) + (c*(9*b*c - 11*a*d)*
Sqrt[c + d*x])/(24*a^2*x^3*Sqrt[a + b*x]) - ((63*b*c - 59*a*d)*(b
*c - a*d)*Sqrt[c + d*x])/(96*a^3*x^2*Sqrt[a + b*x]) + ((b*c - a*d
)*(315*b^2*c^2 - 322*a*b*c*d + 15*a^2*d^2)*Sqrt[c + d*x])/(192*a^
4*c*x*Sqrt[a + b*x]) - (c*(c + d*x)^(3/2))/(4*a*x^4*Sqrt[a + b*x]
) - (5*(b*c - a*d)^2*(63*b^2*c^2 - 14*a*b*c*d - a^2*d^2)*ArcTanh[
(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(64*a^(11/2)*c^
(3/2))
```

Rubi in Sympy [A] time = 95.7557, size = 303, normalized size = 0.95

$$-\frac{c(c+dx)^{\frac{3}{2}}}{4ax^4\sqrt{a+bx}}-\frac{c\sqrt{c+dx}\,(11ad-9bc)}{24a^2x^3\sqrt{a+bx}}-\frac{\sqrt{c+dx}\,(ad-bc)\,(59ad-63bc)}{96a^3x^2\sqrt{a+bx}}-\frac{\sqrt{c+dx}\,(ad-bc)\left(15a^2d^2-322abcd+315b^2c^2\right)}{192a^4cx\sqrt{a+bx}}-\frac{b\sqrt{c+dx}\left(15a^3d^3-839a^2bcd^2+1785ab^2c^2d-945b^3c^3\right)}{192a^5c\sqrt{a+bx}}+\frac{5\,(ad-bc)^2\left(a^2d^2+14abcd-63b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{\frac{11}{2}}c^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(5/2)/x**5/(b*x+a)**(3/2),x)
```

```
[Out] -c*(c + d*x)**(3/2)/(4*a*x**4*sqrt(a + b*x)) - c*sqrt(c + d*x)*(1
1*a*d - 9*b*c)/(24*a**2*x**3*sqrt(a + b*x)) - sqrt(c + d*x)*(a*d
- b*c)*(59*a*d - 63*b*c)/(96*a**3*x**2*sqrt(a + b*x)) - sqrt(c +
d*x)*(a*d - b*c)*(15*a**2*d**2 - 322*a*b*c*d + 315*b**2*c**2)/(19
2*a**4*c*x*sqrt(a + b*x)) - b*sqrt(c + d*x)*(15*a**3*d**3 - 839*a
**2*b*c*d**2 + 1785*a*b**2*c**2*d - 945*b**3*c**3)/(192*a**5*c*sq
rt(a + b*x)) + 5*(a*d - b*c)**2*(a**2*d**2 + 14*a*b*c*d - 63*b**2
*c**2)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(64*a
**(11/2)*c**(3/2))
```

Mathematica [A] time = 0.479237, size = 295, normalized size = 0.93

$$-15\log(x)\left(a^2d^2+14abcd-63b^2c^2\right)(bc-ad)^2+15\left(a^2d^2+14abcd-63b^2c^2\right)(bc-ad)^2\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2a\right.$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^(5/2)/(x^5*(a + b*x)^(3/2)),x]
```

```
[Out] ((2*Sqrt[a]*Sqrt[c]*Sqrt[c + d*x]*(945*b^4*c^3*x^4 + 105*a*b^3*c^
2*x^3*(3*c - 17*d*x) + a^2*b^2*c*x^2*(-126*c^2 - 637*c*d*x + 839*
d^2*x^2) + a^3*b*x*(72*c^3 + 244*c^2*d*x + 337*c*d^2*x^2 - 15*d^3
*x^3) - a^4*(48*c^3 + 136*c^2*d*x + 118*c*d^2*x^2 + 15*d^3*x^3)))
/(x^4*Sqrt[a + b*x]) - 15*(b*c - a*d)^2*(-63*b^2*c^2 + 14*a*b*c*d
 + a^2*d^2)*Log[x] + 15*(b*c - a*d)^2*(-63*b^2*c^2 + 14*a*b*c*d +
 a^2*d^2)*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a +
b*x]*Sqrt[c + d*x]])/(384*a^(11/2)*c^(3/2))
```

Maple [B] time = 0.051, size = 982, normalized size = 3.1

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(5/2)/x^5/(b*x+a)^(3/2),x)
```

```
[Out] 1/384*(d*x+c)^(1/2)*(15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d
*x+c))^(1/2)+2*a*c)/x)*x^5*a^4*b*d^4+180*ln((a*d*x+b*c*x+2*(a*c)^
(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^5*a^3*b^2*c*d^3-1350*ln
((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^5
*a^2*b^3*c^2*d^2+2100*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x
+c))^(1/2)+2*a*c)/x)*x^5*a*b^4*c^3*d-945*ln((a*d*x+b*c*x+2*(a*c)^
(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^5*b^5*c^4+15*ln((a*d*x+
b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a^5*d^4
```

```
+180*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)
/x)*x^4*a^4*b*c*d^3-1350*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(
d*x+c))^(1/2)+2*a*c)/x)*x^4*a^3*b^2*c^2*d^2+2100*ln((a*d*x+b*c*x+
2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a^2*b^3*c^3*d
-945*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)
/x)*x^4*a*b^4*c^4-30*x^4*a^3*b*d^3*(a*c)^(1/2)*((b*x+a)*(d*x+c))^
(1/2)+1678*x^4*a^2*b^2*c*d^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-
3570*x^4*a*b^3*c^2*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+1890*x^4
*b^4*c^3*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-30*x^3*a^4*d^3*(a*c)
^(1/2)*((b*x+a)*(d*x+c))^(1/2)+674*x^3*a^3*b*c*d^2*(a*c)^(1/2)*((
b*x+a)*(d*x+c))^(1/2)-1274*x^3*a^2*b^2*c^2*d*(a*c)^(1/2)*((b*x+a)
*(d*x+c))^(1/2)+630*x^3*a*b^3*c^3*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(
1/2)-236*x^2*a^4*c*d^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+488*x^
2*a^3*b*c^2*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-252*x^2*a^2*b^2
*c^3*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-272*x*a^4*c^2*d*(a*c)^(1
/2)*((b*x+a)*(d*x+c))^(1/2)+144*x*a^3*b*c^3*(a*c)^(1/2)*((b*x+a)*
(d*x+c))^(1/2)-96*a^4*c^3*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2))/c/
a^5/((b*x+a)*(d*x+c))^(1/2)/x^4/(a*c)^(1/2)/(b*x+a)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)^(5/2)/((b*x + a)^(3/2)*x^5),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 1.74027, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)^(5/2)/((b*x + a)^(3/2)*x^5),x, algorithm="fricas")
```

```
[Out] [-1/768*(4*(48*a^4*c^3 - (945*b^4*c^3 - 1785*a*b^3*c^2*d + 839*a^
2*b^2*c*d^2 - 15*a^3*b*d^3)*x^4 - (315*a*b^3*c^3 - 637*a^2*b^2*c^
2*d + 337*a^3*b*c*d^2 - 15*a^4*d^3)*x^3 + 2*(63*a^2*b^2*c^3 - 122
*a^3*b*c^2*d + 59*a^4*c*d^2)*x^2 - 8*(9*a^3*b*c^3 - 17*a^4*c^2*d)
*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c) + 15*((63*b^5*c^4 - 140
*a*b^4*c^3*d + 90*a^2*b^3*c^2*d^2 - 12*a^3*b^2*c*d^3 - a^4*b*d^4)
*x^5 + (63*a*b^4*c^4 - 140*a^2*b^3*c^3*d + 90*a^3*b^2*c^2*d^2 - 1
2*a^4*b*c*d^3 - a^5*d^4)*x^4)*log((4*(2*a^2*c^2 + (a*b*c^2 + a^2*
c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c) + (8*a^2*c^2 + (b^2*c^2 + 6*a
*b*c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2))
/((a^5*b*c*x^5 + a^6*c*x^4)*sqrt(a*c)), -1/384*(2*(48*a^4*c^3 - (
945*b^4*c^3 - 1785*a*b^3*c^2*d + 839*a^2*b^2*c*d^2 - 15*a^3*b*d^3
)*x^4 - (315*a*b^3*c^3 - 637*a^2*b^2*c^2*d + 337*a^3*b*c*d^2 - 15
*a^4*d^3)*x^3 + 2*(63*a^2*b^2*c^3 - 122*a^3*b*c^2*d + 59*a^4*c*d^
2)*x^2 - 8*(9*a^3*b*c^3 - 17*a^4*c^2*d)*x)*sqrt(-a*c)*sqrt(b*x +
a)*sqrt(d*x + c) + 15*((63*b^5*c^4 - 140*a*b^4*c^3*d + 90*a^2*b^3
*c^2*d^2 - 12*a^3*b^2*c*d^3 - a^4*b*d^4)*x^5 + (63*a*b^4*c^4 - 14
0*a^2*b^3*c^3*d + 90*a^3*b^2*c^2*d^2 - 12*a^4*b*c*d^3 - a^5*d^4)*
x^4)*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)
*sqrt(d*x + c)*a*c)))/((a^5*b*c*x^5 + a^6*c*x^4)*sqrt(-a*c))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(5/2)/x**5/(b*x+a)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/((b*x + a)^(3/2)*x^5),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.764 $\int \frac{x^4}{(a+bx)^{3/2}(c+dx)^{3/2}}\,dx$

Optimal. Leaf size=250

$$\frac{3\left(5a^2d^2+6abcd+5b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{7/2}d^{7/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}\left((ad+bc)\left(15a^2d^2-22abcd+15b^2c^2\right)-2bdx\left(5a^2d^2-2abcd+5b^2c^2\right)\right)}{4b^3d^3(bc-ad)^2}+\frac{2ax^3}{b\sqrt{a+bx}\sqrt{c+dx}(bc-ad)}-\frac{2cx^2\sqrt{a+bx}(ad+bc)}{bd\sqrt{c+dx}(bc-ad)^2}$$

```
[Out] (2*a*x^3)/(b*(b*c - a*d)*Sqrt[a + b*x]*Sqrt[c + d*x]) - (2*c*(b*c
 + a*d)*x^2*Sqrt[a + b*x])/(b*d*(b*c - a*d)^2*Sqrt[c + d*x]) - (S
qrt[a + b*x]*Sqrt[c + d*x]*((b*c + a*d)*(15*b^2*c^2 - 22*a*b*c*d
+ 15*a^2*d^2) - 2*b*d*(5*b^2*c^2 - 2*a*b*c*d + 5*a^2*d^2)*x))/(4*
b^3*d^3*(b*c - a*d)^2) + (3*(5*b^2*c^2 + 6*a*b*c*d + 5*a^2*d^2)*A
rcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(4*b^(7/
2)*d^(7/2))
```

Rubi [A] time = 0.626451, antiderivative size = 250, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.227$

$$\frac{3\left(5a^2d^2+6abcd+5b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{7/2}d^{7/2}}-\frac{\sqrt{a+bx}\sqrt{c+dx}\left((ad+bc)\left(15a^2d^2-22abcd+15b^2c^2\right)-2bdx\left(5a^2d^2-2abcd+5b^2c^2\right)\right)}{4b^3d^3(bc-ad)^2}+\frac{2ax^3}{b\sqrt{a+bx}\sqrt{c+dx}(bc-ad)}-\frac{2cx^2\sqrt{a+bx}(ad+bc)}{bd\sqrt{c+dx}(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[x^4/((a + b*x)^(3/2)*(c + d*x)^(3/2)),x]
```

```
[Out] (2*a*x^3)/(b*(b*c - a*d)*Sqrt[a + b*x]*Sqrt[c + d*x]) - (2*c*(b*c
 + a*d)*x^2*Sqrt[a + b*x])/(b*d*(b*c - a*d)^2*Sqrt[c + d*x]) - (S
qrt[a + b*x]*Sqrt[c + d*x]*((b*c + a*d)*(15*b^2*c^2 - 22*a*b*c*d
+ 15*a^2*d^2) - 2*b*d*(5*b^2*c^2 - 2*a*b*c*d + 5*a^2*d^2)*x))/(4*
b^3*d^3*(b*c - a*d)^2) + (3*(5*b^2*c^2 + 6*a*b*c*d + 5*a^2*d^2)*A
rcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(4*b^(7/
2)*d^(7/2))
```

Rubi in Sympy [A] time = 51.0912, size = 243, normalized size = 0.97

$$-\frac{2ax^3}{b\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)}-\frac{2cx^2\sqrt{a+bx}\,(ad+bc)}{bd\sqrt{c+dx}\,(ad-bc)^2}-\frac{2\sqrt{a+bx}\sqrt{c+dx}\left(-\frac{bdx\left(5a^2d^2-2abcd+5b^2c^2\right)}{4}+\left(\frac{ad}{8}+\frac{bc}{8}\right)\left(15a^2d^2-22abcd+15b^2c^2\right)\right)}{b^3d^3\,(ad-bc)^2}+\frac{3\left(5a^2d^2+6abcd+5b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{\frac{7}{2}}d^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**4/(b*x+a)**(3/2)/(d*x+c)**(3/2),x)
```

```
[Out] -2*a*x**3/(b*sqrt(a + b*x)*sqrt(c + d*x)*(a*d - b*c)) - 2*c*x**2*
sqrt(a + b*x)*(a*d + b*c)/(b*d*sqrt(c + d*x)*(a*d - b*c)**2) - 2*
```

```
sqrt(a + b*x)*sqrt(c + d*x)*(-b*d*x*(5*a**2*d**2 - 2*a*b*c*d + 5*
b**2*c**2)/4 + (a*d/8 + b*c/8)*(15*a**2*d**2 - 22*a*b*c*d + 15*b*
*2*c**2))/(b**3*d**3*(a*d - b*c)**2) + 3*(5*a**2*d**2 + 6*a*b*c*d
 + 5*b**2*c**2)*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c + d*x
)))/(4*b**(7/2)*d**(7/2))
```

Mathematica [A] time = 0.859054, size = 179, normalized size = 0.72

$$\sqrt{a+bx}\sqrt{c+dx}\left(-\frac{2a^4}{b^3(a+bx)(bc-ad)^2}-\frac{7(ad+bc)}{4b^3d^3}-\frac{2c^4}{d^3(c+dx)(ad-bc)^2}+\frac{x}{2b^2d^2}\right)+\frac{3\left(5a^2d^2+6abcd+5b^2c^2\right)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{8b^{7/2}d^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^4/((a + b*x)^(3/2)*(c + d*x)^(3/2)),x]
```

```
[Out] Sqrt[a + b*x]*Sqrt[c + d*x]*((-7*(b*c + a*d))/(4*b^3*d^3) + x/(2*
b^2*d^2) - (2*a^4)/(b^3*(b*c - a*d)^2*(a + b*x)) - (2*c^4)/(d^3*(
-(b*c) + a*d)^2*(c + d*x))) + (3*(5*b^2*c^2 + 6*a*b*c*d + 5*a^2*d
^2)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqr
t[c + d*x]])/(8*b^(7/2)*d^(7/2))
```

Maple [B] time = 0.049, size = 1369, normalized size = 5.5

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^4/(b*x+a)^(3/2)/(d*x+c)^(3/2),x)
```

```
[Out] 1/8*(-12*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*
d+b*c)/(b*d)^(1/2))*x^2*a^3*b^2*c*d^4+15*ln(1/2*(2*b*d*x+2*((b*x+
a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^5*d^5+15*
ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b
*d)^(1/2))*x*b^5*c^5+15*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)
*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^5*c*d^4+15*ln(1/2*(2*b*d*x+2
*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a*b^4*
c^5-30*x*a^4*d^4*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-6*ln(1/2*(2*
b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))
*x^2*a^2*b^3*c^2*d^3-10*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)*x^2*a
^3*b*d^4-10*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)*x^2*b^4*c^3*d+14*
((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)*a^3*b*c^2*d^2+14*((b*x+a)*(d*
x+c))^(1/2)*(b*d)^(1/2)*a^2*b^2*c^3*d-12*ln(1/2*(2*b*d*x+2*((b*x+
a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a*b^4*c^3
*d^2+3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+
b*c)/(b*d)^(1/2))*x*a^4*b*c*d^4-18*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*
x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^3*b^2*c^2*d^3-1
8*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/
(b*d)^(1/2))*x*a^2*b^3*c^3*d^2+3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+
c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a*b^4*c^4*d+4*x^3*a
^2*b^2*d^4*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+4*x^3*b^4*c^2*d^2*
((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-30*x*b^4*c^4*((b*x+a)*(d*x+c)
)^(1/2)*(b*d)^(1/2)-30*a^4*c*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1
/2)-30*a*b^3*c^4*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+15*ln(1/2*(2
*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2)
)*x^2*a^4*b*d^5+15*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d
)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*b^5*c^4*d-12*ln(1/2*(2*b*d*x+2*
((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^4*b*c
^2*d^3-6*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*
d+b*c)/(b*d)^(1/2))*a^3*b^2*c^3*d^2-12*ln(1/2*(2*b*d*x+2*((b*x+a)
*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^2*b^3*c^4*d-8
*x^3*a*b^3*c*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+10*((b*x+a)*
(d*x+c))^(1/2)*(b*d)^(1/2)*x^2*a^2*b^2*c*d^3+10*((b*x+a)*(d*x+c))
```

```
^(1/2)*(b*d)^(1/2)*x^2*a*b^3*c^2*d^2+4*((b*x+a)*(d*x+c))^(1/2)*(b
*d)^(1/2)*x*a^3*b*c*d^3+20*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)*x*
a^2*b^2*c^2*d^2+4*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)*x*a*b^3*c^3
*d)/((b*x+a)*(d*x+c))^(1/2)/(b*d)^(1/2)/(a*d-b*c)^2/(b*x+a)^(1/2)
/(d*x+c)^(1/2)/b^3/d^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^4/((b*x + a)^(3/2)*(d*x + c)^(3/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.658843, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^4/((b*x + a)^(3/2)*(d*x + c)^(3/2)),x, algorithm="fricas")
```

```
[Out] [-1/16*(4*(15*a*b^3*c^4 - 7*a^2*b^2*c^3*d - 7*a^3*b*c^2*d^2 + 15*
a^4*c*d^3 - 2*(b^4*c^2*d^2 - 2*a*b^3*c*d^3 + a^2*b^2*d^4)*x^3 + 5
*(b^4*c^3*d - a*b^3*c^2*d^2 - a^2*b^2*c*d^3 + a^3*b*d^4)*x^2 + (1
5*b^4*c^4 - 2*a*b^3*c^3*d - 10*a^2*b^2*c^2*d^2 - 2*a^3*b*c*d^3 +
15*a^4*d^4)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) - 3*(5*a*b^4
*c^5 - 4*a^2*b^3*c^4*d - 2*a^3*b^2*c^3*d^2 - 4*a^4*b*c^2*d^3 + 5*
a^5*c*d^4 + (5*b^5*c^4*d - 4*a*b^4*c^3*d^2 - 2*a^2*b^3*c^2*d^3 -
4*a^3*b^2*c*d^4 + 5*a^4*b*d^5)*x^2 + (5*b^5*c^5 + a*b^4*c^4*d - 6
*a^2*b^3*c^3*d^2 - 6*a^3*b^2*c^2*d^3 + a^4*b*c*d^4 + 5*a^5*d^5)*x
)*log(4*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x
+ c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*
d + a*b*d^2)*x)*sqrt(b*d))/((a*b^5*c^3*d^3 - 2*a^2*b^4*c^2*d^4 +
 a^3*b^3*c*d^5 + (b^6*c^2*d^4 - 2*a*b^5*c*d^5 + a^2*b^4*d^6)*x^2
+ (b^6*c^3*d^3 - a*b^5*c^2*d^4 - a^2*b^4*c*d^5 + a^3*b^3*d^6)*x)*
sqrt(b*d)), -1/8*(2*(15*a*b^3*c^4 - 7*a^2*b^2*c^3*d - 7*a^3*b*c^2
*d^2 + 15*a^4*c*d^3 - 2*(b^4*c^2*d^2 - 2*a*b^3*c*d^3 + a^2*b^2*d^
4)*x^3 + 5*(b^4*c^3*d - a*b^3*c^2*d^2 - a^2*b^2*c*d^3 + a^3*b*d^4
)*x^2 + (15*b^4*c^4 - 2*a*b^3*c^3*d - 10*a^2*b^2*c^2*d^2 - 2*a^3*
b*c*d^3 + 15*a^4*d^4)*x)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c) -
 3*(5*a*b^4*c^5 - 4*a^2*b^3*c^4*d - 2*a^3*b^2*c^3*d^2 - 4*a^4*b*c
^2*d^3 + 5*a^5*c*d^4 + (5*b^5*c^4*d - 4*a*b^4*c^3*d^2 - 2*a^2*b^3
*c^2*d^3 - 4*a^3*b^2*c*d^4 + 5*a^4*b*d^5)*x^2 + (5*b^5*c^5 + a*b^
4*c^4*d - 6*a^2*b^3*c^3*d^2 - 6*a^3*b^2*c^2*d^3 + a^4*b*c*d^4 + 5
*a^5*d^5)*x)*arctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*
x + a)*sqrt(d*x + c)*b*d)))/((a*b^5*c^3*d^3 - 2*a^2*b^4*c^2*d^4 +
 a^3*b^3*c*d^5 + (b^6*c^2*d^4 - 2*a*b^5*c*d^5 + a^2*b^4*d^6)*x^2
+ (b^6*c^3*d^3 - a*b^5*c^2*d^4 - a^2*b^4*c*d^5 + a^3*b^3*d^6)*x)*
sqrt(-b*d))]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x^4}{(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**4/(b*x+a)**(3/2)/(d*x+c)**(3/2),x)
```

```
[Out] Integral(x**4/((a + b*x)**(3/2)*(c + d*x)**(3/2)), x)
```

GIAC/XCAS [A] time = 0.590158, size = 4, normalized size = 0.02

$$sage_0x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^4/((b*x + a)^(3/2)*(d*x + c)^(3/2)),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.765 $\int \frac{x^3}{(a+bx)^{3/2}(c+dx)^{3/2}}\,dx$

Optimal. Leaf size=167

$$\frac{\sqrt{a+bx}\left(c\left(3a^2d^2-2abcd+3b^2c^2\right)+dx(bc-3ad)(bc-ad)\right)}{b^2d^2\sqrt{c+dx}(bc-ad)^2}-\frac{3(ad+bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{5/2}d^{5/2}}+\frac{2ax^2}{b\sqrt{a+bx}\sqrt{c+dx}(bc-ad)}$$

```
[Out] (2*a*x^2)/(b*(b*c - a*d)*Sqrt[a + b*x]*Sqrt[c + d*x]) + (Sqrt[a +
 b*x]*(c*(3*b^2*c^2 - 2*a*b*c*d + 3*a^2*d^2) + d*(b*c - 3*a*d)*(b
*c - a*d)*x))/(b^2*d^2*(b*c - a*d)^2*Sqrt[c + d*x]) - (3*(b*c + a
*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(b^
(5/2)*d^(5/2))
```

Rubi [A] time = 0.363497, antiderivative size = 167, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$\frac{\sqrt{a+bx}\left(c\left(3a^2d^2-2abcd+3b^2c^2\right)+dx(bc-3ad)(bc-ad)\right)}{b^2d^2\sqrt{c+dx}(bc-ad)^2}-\frac{3(ad+bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{5/2}d^{5/2}}+\frac{2ax^2}{b\sqrt{a+bx}\sqrt{c+dx}(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[x^3/((a + b*x)^(3/2)*(c + d*x)^(3/2)),x]
```

```
[Out] (2*a*x^2)/(b*(b*c - a*d)*Sqrt[a + b*x]*Sqrt[c + d*x]) + (Sqrt[a +
 b*x]*(c*(3*b^2*c^2 - 2*a*b*c*d + 3*a^2*d^2) + d*(b*c - 3*a*d)*(b
*c - a*d)*x))/(b^2*d^2*(b*c - a*d)^2*Sqrt[c + d*x]) - (3*(b*c + a
*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(b^
(5/2)*d^(5/2))
```

Rubi in Sympy [A] time = 26.6098, size = 162, normalized size = 0.97

$$-\frac{2ax^2}{b\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)}+\frac{4\sqrt{a+bx}\left(\frac{c(3a^2d^2-2abcd+3b^2c^2)}{4}+\frac{dx(ad-bc)(3ad-bc)}{4}\right)}{b^2d^2\sqrt{c+dx}\,(ad-bc)^2}-\frac{3\,(ad+bc)\,\mathrm{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{\frac{5}{2}}d^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3/(b*x+a)**(3/2)/(d*x+c)**(3/2),x)
```

```
[Out] -2*a*x**2/(b*sqrt(a + b*x)*sqrt(c + d*x)*(a*d - b*c)) + 4*sqrt(a
+ b*x)*(c*(3*a**2*d**2 - 2*a*b*c*d + 3*b**2*c**2)/4 + d*x*(a*d -
b*c)*(3*a*d - b*c)/4)/(b**2*d**2*sqrt(c + d*x)*(a*d - b*c)**2) -
3*(a*d + b*c)*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c + d*x))
)/(b**(5/2)*d**(5/2))
```

Mathematica [A] time = 0.409155, size = 142, normalized size = 0.85

$$\sqrt{a+bx}\sqrt{c+dx}\left(\frac{2a^3}{b^2(a+bx)(bc-ad)^2}+\frac{2c^3}{d^2(c+dx)(ad-bc)^2}+\frac{1}{b^2d^2}\right) -\frac{3(ad+bc)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{2b^{5/2}d^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^3/((a + b*x)^(3/2)*(c + d*x)^(3/2)),x]
```

```
[Out] Sqrt[a + b*x]*Sqrt[c + d*x]*(1/(b^2*d^2) + (2*a^3)/(b^2*(b*c - a*
d)^2*(a + b*x)) + (2*c^3)/(d^2*(-(b*c) + a*d)^2*(c + d*x))) - (3*
(b*c + a*d)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a +
b*x]*Sqrt[c + d*x]])/(2*b^(5/2)*d^(5/2))
```

Maple [B] time = 0.037, size = 906, normalized size = 5.4

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^3/(b*x+a)^(3/2)/(d*x+c)^(3/2),x)
```

```
[Out] -1/2*(3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d
+b*c)/(b*d)^(1/2))*x^2*a^3*b*d^4-3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*
x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a^2*b^2*c*d^3-3
*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(
b*d)^(1/2))*x^2*a*b^3*c^2*d^2+3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c
))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*b^4*c^3*d+3*ln(1/2
*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1
/2))*x*a^4*d^4-6*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^
(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^2*b^2*c^2*d^2+3*ln(1/2*(2*b*d*x+2
*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*b^4*
c^4-2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)*x^2*a^2*b*d^3+4*((b*x+a
)*(d*x+c))^(1/2)*(b*d)^(1/2)*x^2*a*b^2*c*d^2-2*((b*x+a)*(d*x+c))^
(1/2)*(b*d)^(1/2)*x^2*b^3*c^2*d+3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x
+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^4*c*d^3-3*ln(1/2*(
2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2
))*a^3*b*c^2*d^2-3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d
)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^2*b^2*c^3*d+3*ln(1/2*(2*b*d*x+2*(
(b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a*b^3*c^
4-6*x*a^3*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+2*((b*x+a)*(d*x
+c))^(1/2)*(b*d)^(1/2)*x*a^2*b*c*d^2+2*((b*x+a)*(d*x+c))^(1/2)*(b
*d)^(1/2)*x*a*b^2*c^2*d-6*x*b^3*c^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)
^(1/2)-6*a^3*c*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+4*((b*x+a)
*(d*x+c))^(1/2)*(b*d)^(1/2)*a^2*b*c^2*d-6*a*b^2*c^3*((b*x+a)*(d*x
+c))^(1/2)*(b*d)^(1/2))/((b*x+a)*(d*x+c))^(1/2)/(a*d-b*c)^2/(b*d)
^(1/2)/(b*x+a)^(1/2)/(d*x+c)^(1/2)/b^2/d^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^3/((b*x + a)^(3/2)*(d*x + c)^(3/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.423249, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3/((b*x + a)^(3/2)*(d*x + c)^(3/2)),x, algorithm="fricas")
```

```
[Out] [1/4*(4*(3*a*b^2*c^3 - 2*a^2*b*c^2*d + 3*a^3*c*d^2 + (b^3*c^2*d -
 2*a*b^2*c*d^2 + a^2*b*d^3)*x^2 + (3*b^3*c^3 - a*b^2*c^2*d - a^2*
b*c*d^2 + 3*a^3*d^3)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 3
*(a*b^3*c^4 - a^2*b^2*c^3*d - a^3*b*c^2*d^2 + a^4*c*d^3 + (b^4*c^
3*d - a*b^3*c^2*d^2 - a^2*b^2*c*d^3 + a^3*b*d^4)*x^2 + (b^4*c^4 -
 2*a^2*b^2*c^2*d^2 + a^4*d^4)*x)*log(-4*(2*b^2*d^2*x + b^2*c*d +
a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2 +
 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/((a*b
^4*c^3*d^2 - 2*a^2*b^3*c^2*d^3 + a^3*b^2*c*d^4 + (b^5*c^2*d^3 - 2
*a*b^4*c*d^4 + a^2*b^3*d^5)*x^2 + (b^5*c^3*d^2 - a*b^4*c^2*d^3 -
a^2*b^3*c*d^4 + a^3*b^2*d^5)*x)*sqrt(b*d)), 1/2*(2*(3*a*b^2*c^3 -
 2*a^2*b*c^2*d + 3*a^3*c*d^2 + (b^3*c^2*d - 2*a*b^2*c*d^2 + a^2*b
*d^3)*x^2 + (3*b^3*c^3 - a*b^2*c^2*d - a^2*b*c*d^2 + 3*a^3*d^3)*x
)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c) - 3*(a*b^3*c^4 - a^2*b^2
*c^3*d - a^3*b*c^2*d^2 + a^4*c*d^3 + (b^4*c^3*d - a*b^3*c^2*d^2 -
 a^2*b^2*c*d^3 + a^3*b*d^4)*x^2 + (b^4*c^4 - 2*a^2*b^2*c^2*d^2 +
a^4*d^4)*x)*arctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x
 + a)*sqrt(d*x + c)*b*d)))/((a*b^4*c^3*d^2 - 2*a^2*b^3*c^2*d^3 +
a^3*b^2*c*d^4 + (b^5*c^2*d^3 - 2*a*b^4*c*d^4 + a^2*b^3*d^5)*x^2 +
 (b^5*c^3*d^2 - a*b^4*c^2*d^3 - a^2*b^3*c*d^4 + a^3*b^2*d^5)*x)*s
qrt(-b*d))]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x^3}{(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**3/(b*x+a)**(3/2)/(d*x+c)**(3/2),x)
```

```
[Out] Integral(x**3/((a + b*x)**(3/2)*(c + d*x)**(3/2)), x)
```

GIAC/XCAS [A] time = 0.555284, size = 4, normalized size = 0.02

$$sage_0x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3/((b*x + a)^(3/2)*(d*x + c)^(3/2)),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.766 $\int \frac{x^2}{(a+bx)^{3/2}(c+dx)^{3/2}}\,dx$

Optimal. Leaf size=130

$$-\frac{2\sqrt{a+bx}\left(a^2d^2+b^2c^2\right)}{b^2d\sqrt{c+dx}(bc-ad)^2}-\frac{2a^2}{b^2\sqrt{a+bx}\sqrt{c+dx}(bc-ad)}+\frac{2\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{3/2}d^{3/2}}$$

```
[Out] (-2*a^2)/(b^2*(b*c - a*d)*Sqrt[a + b*x]*Sqrt[c + d*x]) - (2*(b^2*
c^2 + a^2*d^2)*Sqrt[a + b*x])/(b^2*d*(b*c - a*d)^2*Sqrt[c + d*x])
 + (2*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(
b^(3/2)*d^(3/2))
```

Rubi [A] time = 0.24691, antiderivative size = 130, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{2\sqrt{a+bx}\left(a^2d^2+b^2c^2\right)}{b^2d\sqrt{c+dx}(bc-ad)^2}-\frac{2a^2}{b^2\sqrt{a+bx}\sqrt{c+dx}(bc-ad)}+\frac{2\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{3/2}d^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[x^2/((a + b*x)^(3/2)*(c + d*x)^(3/2)),x]
```

```
[Out] (-2*a^2)/(b^2*(b*c - a*d)*Sqrt[a + b*x]*Sqrt[c + d*x]) - (2*(b^2*
c^2 + a^2*d^2)*Sqrt[a + b*x])/(b^2*d*(b*c - a*d)^2*Sqrt[c + d*x])
 + (2*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(
b^(3/2)*d^(3/2))
```

Rubi in Sympy [A] time = 23.9533, size = 117, normalized size = 0.9

$$-\frac{2c^2}{d^2\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)}-\frac{2\sqrt{c+dx}\left(a^2d^2+b^2c^2\right)}{bd^2\sqrt{a+bx}\,(ad-bc)^2}+\frac{2\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{\frac{3}{2}}d^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2/(b*x+a)**(3/2)/(d*x+c)**(3/2),x)
```

```
[Out] -2*c**2/(d**2*sqrt(a + b*x)*sqrt(c + d*x)*(a*d - b*c)) - 2*sqrt(c
 + d*x)*(a**2*d**2 + b**2*c**2)/(b*d**2*sqrt(a + b*x)*(a*d - b*c)
**2) + 2*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c + d*x)))/(b*
*(3/2)*d**(3/2))
```

Mathematica [A] time = 0.163885, size = 116, normalized size = 0.89

$$\frac{\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{b^{3/2}d^{3/2}}-\frac{2\left(a^2d(c+dx)+abc^2+b^2c^2x\right)}{bd\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^2/((a + b*x)^(3/2)*(c + d*x)^(3/2)),x]
```

```
[Out] (-2*(a*b*c^2 + b^2*c^2*x + a^2*d*(c + d*x)))/(b*d*(b*c - a*d)^2*S
qrt[a + b*x]*Sqrt[c + d*x]) + Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]
*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]]/(b^(3/2)*d^(3/2))
```

Maple [B] time = 0.036, size = 654, normalized size = 5.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2/(b*x+a)^(3/2)/(d*x+c)^(3/2),x)
```

```
[Out] (ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(
b*d)^(1/2))*x^2*a^2*b*d^3-2*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(
1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a*b^2*c*d^2+ln(1/2*(2*
b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))
*x^2*b^3*c^2*d+ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1
/2)+a*d+b*c)/(b*d)^(1/2))*x*a^3*d^3-ln(1/2*(2*b*d*x+2*((b*x+a)*(d
*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^2*b*c*d^2-ln(1
/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^
(1/2))*x*a*b^2*c^2*d+ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b
*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*b^3*c^3+ln(1/2*(2*b*d*x+2*((b*x
+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^3*c*d^2-2*
ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b
*d)^(1/2))*a^2*b*c^2*d+ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*
(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a*b^2*c^3-2*x*a^2*d^2*((b*x+a)*
(d*x+c))^(1/2)*(b*d)^(1/2)-2*x*b^2*c^2*((b*x+a)*(d*x+c))^(1/2)*(b
*d)^(1/2)-2*a^2*c*d*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-2*a*b*c^2
*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2))/((b*x+a)*(d*x+c))^(1/2)/(a*
d-b*c)^2/(b*d)^(1/2)/(b*x+a)^(1/2)/(d*x+c)^(1/2)/b/d
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2/((b*x + a)^(3/2)*(d*x + c)^(3/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.355497, size = 1, normalized size = 0.01

$$\left[-\frac{4\left(abc^2+a^2cd+\left(b^2c^2+a^2d^2\right)x\right)\sqrt{bd}\sqrt{bx+a}\sqrt{dx+c}-\left(ab^2c^3-2\,a^2bc^2d+a^3cd^2+\left(b^3c^2d-2\,ab^2cd^2+a^2bd^3\right)x^2+\left(b^3\right.\right.}{2\left(ab^3c^3d-2\,a^2b^2c^2d^2+a^3bcd^3+\left(b^4c^2d^2-\right.\right.}\right.$$

$$-\frac{2\left(abc^2+a^2cd+\left(b^2c^2+a^2d^2\right)x\right)\sqrt{-bd}\sqrt{bx+a}\sqrt{dx+c}-\left(ab^2c^3-2\,a^2bc^2d+a^3cd^2+\left(b^3c^2d-2\,ab^2cd^2+a^2bd^3\right)x^2+\left(b\right.\right.}{\left(ab^3c^3d-2\,a^2b^2c^2d^2+a^3bcd^3+\left(b^4c^2d^2-2\,ab^3cd^3+a^2b^2d^4\right)x^2+\left(b^4c^3d-ab^3c^2d^2-\right.\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2/((b*x + a)^(3/2)*(d*x + c)^(3/2)),x, algorithm="fricas")
```

```
[Out] [-1/2*(4*(a*b*c^2 + a^2*c*d + (b^2*c^2 + a^2*d^2)*x)*sqrt(b*d)*sq
rt(b*x + a)*sqrt(d*x + c) - (a*b^2*c^3 - 2*a^2*b*c^2*d + a^3*c*d^
2 + (b^3*c^2*d - 2*a*b^2*c*d^2 + a^2*b*d^3)*x^2 + (b^3*c^3 - a*b^
2*c^2*d - a^2*b*c*d^2 + a^3*d^3)*x)*log(4*(2*b^2*d^2*x + b^2*c*d
+ a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2
 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/((a
*b^3*c^3*d - 2*a^2*b^2*c^2*d^2 + a^3*b*c*d^3 + (b^4*c^2*d^2 - 2*a
*b^3*c*d^3 + a^2*b^2*d^4)*x^2 + (b^4*c^3*d - a*b^3*c^2*d^2 - a^2*
b^2*c*d^3 + a^3*b*d^4)*x)*sqrt(b*d)), -(2*(a*b*c^2 + a^2*c*d + (b
```

```
^2*c^2 + a^2*d^2)*x)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c) - (a*
b^2*c^3 - 2*a^2*b*c^2*d + a^3*c*d^2 + (b^3*c^2*d - 2*a*b^2*c*d^2
+ a^2*b*d^3)*x^2 + (b^3*c^3 - a*b^2*c^2*d - a^2*b*c*d^2 + a^3*d^3
)*x)*arctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a)*s
qrt(d*x + c)*b*d)))/((a*b^3*c^3*d - 2*a^2*b^2*c^2*d^2 + a^3*b*c*d
^3 + (b^4*c^2*d^2 - 2*a*b^3*c*d^3 + a^2*b^2*d^4)*x^2 + (b^4*c^3*d
 - a*b^3*c^2*d^2 - a^2*b^2*c*d^3 + a^3*b*d^4)*x)*sqrt(-b*d))]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x^2}{(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2/(b*x+a)**(3/2)/(d*x+c)**(3/2),x)
```

```
[Out] Integral(x**2/((a + b*x)**(3/2)*(c + d*x)**(3/2)), x)
```

GIAC/XCAS [A] time = 0.596132, size = 4, normalized size = 0.03

$$sage_0x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2/((b*x + a)^(3/2)*(d*x + c)^(3/2)),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.767 $\int \frac{x}{(a+bx)^{3/2}(c+dx)^{3/2}} \, dx$

Optimal. Leaf size=75

$$\frac{2\sqrt{c+dx}(ad+bc)}{d\sqrt{a+bx}(bc-ad)^2}-\frac{2c}{d\sqrt{a+bx}\sqrt{c+dx}(bc-ad)}$$

```
[Out] (-2*c)/(d*(b*c - a*d)*Sqrt[a + b*x]*Sqrt[c + d*x]) + (2*(b*c + a*
d)*Sqrt[c + d*x])/(d*(b*c - a*d)^2*Sqrt[a + b*x])
```

Rubi [A] time = 0.101357, antiderivative size = 75, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.1$

$$\frac{2\sqrt{c+dx}(ad+bc)}{d\sqrt{a+bx}(bc-ad)^2}-\frac{2c}{d\sqrt{a+bx}\sqrt{c+dx}(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[x/((a + b*x)^(3/2)*(c + d*x)^(3/2)),x]
```

```
[Out] (-2*c)/(d*(b*c - a*d)*Sqrt[a + b*x]*Sqrt[c + d*x]) + (2*(b*c + a*
d)*Sqrt[c + d*x])/(d*(b*c - a*d)^2*Sqrt[a + b*x])
```

Rubi in Sympy [A] time = 9.47844, size = 63, normalized size = 0.84

$$\frac{2c}{d\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)}+\frac{2\sqrt{c+dx}\,(ad+bc)}{d\sqrt{a+bx}\,(ad-bc)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x/(b*x+a)**(3/2)/(d*x+c)**(3/2),x)
```

```
[Out] 2*c/(d*sqrt(a + b*x)*sqrt(c + d*x)*(a*d - b*c)) + 2*sqrt(c + d*x)
*(a*d + b*c)/(d*sqrt(a + b*x)*(a*d - b*c)**2)
```

Mathematica [A] time = 0.0743807, size = 43, normalized size = 0.57

$$\frac{2(2ac+adx+bcx)}{\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x/((a + b*x)^(3/2)*(c + d*x)^(3/2)),x]
```

```
[Out] (2*(2*a*c + b*c*x + a*d*x))/((b*c - a*d)^2*Sqrt[a + b*x]*Sqrt[c +
 d*x])
```

Maple [A] time = 0.008, size = 53, normalized size = 0.7

$$2\,\frac{adx+bcx+2\,ac}{\sqrt{bx+a}\sqrt{dx+c}\,(a^2d^2-2\,abcd+b^2c^2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x/(b*x+a)^(3/2)/(d*x+c)^(3/2),x)
```

```
[Out] 2*(a*d*x+b*c*x+2*a*c)/(b*x+a)^(1/2)/(d*x+c)^(1/2)/(a^2*d^2-2*a*b*
c*d+b^2*c^2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/((b*x + a)^(3/2)*(d*x + c)^(3/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.288115, size = 171, normalized size = 2.28

$$\frac{2\,(2\,ac + (bc + ad)x)\sqrt{bx + a}\sqrt{dx + c}}{ab^2c^3 - 2\,a^2bc^2d + a^3cd^2 + (b^3c^2d - 2\,ab^2cd^2 + a^2bd^3)x^2 + (b^3c^3 - ab^2c^2d - a^2bcd^2 + a^3d^3)x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/((b*x + a)^(3/2)*(d*x + c)^(3/2)),x, algorithm="fricas")
```

```
[Out] 2*(2*a*c + (b*c + a*d)*x)*sqrt(b*x + a)*sqrt(d*x + c)/(a*b^2*c^3
- 2*a^2*b*c^2*d + a^3*c*d^2 + (b^3*c^2*d - 2*a*b^2*c*d^2 + a^2*b*
d^3)*x^2 + (b^3*c^3 - a*b^2*c^2*d - a^2*b*c*d^2 + a^3*d^3)*x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x}{(a + bx)^{\frac{3}{2}}\,(c + dx)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/(b*x+a)**(3/2)/(d*x+c)**(3/2),x)
```

```
[Out] Integral(x/((a + b*x)**(3/2)*(c + d*x)**(3/2)), x)
```

GIAC/XCAS [A] time = 0.246935, size = 198, normalized size = 2.64

$$\frac{2\left(\frac{\sqrt{bx+a}b^3c}{(b^2c^2|b|-2\,abcd|b|+a^2d^2|b|)\sqrt{b^2c+(bx+a)bd-abd}} + \frac{2\,\sqrt{bd}ab^2}{\left(b^2c-abd-\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2\right)(bc|b|-ad|b|)}\right)}{b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/((b*x + a)^(3/2)*(d*x + c)^(3/2)),x, algorithm="giac")
```

```
[Out] 2*(sqrt(b*x + a)*b^3*c/((b^2*c^2*abs(b) - 2*a*b*c*d*abs(b) + a^2*
d^2*abs(b))*sqrt(b^2*c + (b*x + a)*b*d - a*b*d)) + 2*sqrt(b*d)*a*
b^2/((b^2*c - a*b*d - (sqrt(b*d)*sqrt(b*x + a) - sqrt(b^2*c + (b*
x + a)*b*d - a*b*d))^2)*(b*c*abs(b) - a*d*abs(b))))/b
```

3.768 $\int \frac{1}{(a+bx)^{3/2}(c+dx)^{3/2}}\,dx$

Optimal. Leaf size=62

$$-\frac{4d\sqrt{a+bx}}{\sqrt{c+dx}(bc-ad)^2}-\frac{2}{\sqrt{a+bx}\sqrt{c+dx}(bc-ad)}$$

```
[Out] -2/((b*c - a*d)*Sqrt[a + b*x]*Sqrt[c + d*x]) - (4*d*Sqrt[a + b*x]
)/((b*c - a*d)^2*Sqrt[c + d*x])
```

Rubi [A] time = 0.0567807, antiderivative size = 62, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.105

$$-\frac{4d\sqrt{a+bx}}{\sqrt{c+dx}(bc-ad)^2}-\frac{2}{\sqrt{a+bx}\sqrt{c+dx}(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((a + b*x)^(3/2)*(c + d*x)^(3/2)),x]
```

```
[Out] -2/((b*c - a*d)*Sqrt[a + b*x]*Sqrt[c + d*x]) - (4*d*Sqrt[a + b*x]
)/((b*c - a*d)^2*Sqrt[c + d*x])
```

Rubi in Sympy [A] time = 7.22865, size = 53, normalized size = 0.85

$$-\frac{4d\sqrt{a+bx}}{\sqrt{c+dx}\,(ad-bc)^2}+\frac{2}{\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(b*x+a)**(3/2)/(d*x+c)**(3/2),x)
```

```
[Out] -4*d*sqrt(a + b*x)/(sqrt(c + d*x)*(a*d - b*c)**2) + 2/(sqrt(a + b
*x)*sqrt(c + d*x)*(a*d - b*c))
```

Mathematica [A] time = 0.057819, size = 42, normalized size = 0.68

$$-\frac{2(ad+b(c+2dx))}{\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((a + b*x)^(3/2)*(c + d*x)^(3/2)),x]
```

```
[Out] (-2*(a*d + b*(c + 2*d*x)))/((b*c - a*d)^2*Sqrt[a + b*x]*Sqrt[c +
d*x])
```

Maple [A] time = 0.008, size = 52, normalized size = 0.8

$$-2\,\frac{2\,bdx+ad+bc}{\sqrt{bx+a}\sqrt{dx+c}\,(a^2d^2-2\,abcd+b^2c^2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(b*x+a)^(3/2)/(d*x+c)^(3/2),x)
```

```
[Out] -2*(2*b*d*x+a*d+b*c)/(b*x+a)^(1/2)/(d*x+c)^(1/2)/(a^2*d^2-2*a*b*c
*d+b^2*c^2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^(3/2)*(d*x + c)^(3/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.284217, size = 169, normalized size = 2.73

$$-\frac{2\,(2\,bdx+bc+ad)\sqrt{bx+a}\sqrt{dx+c}}{ab^2c^3-2\,a^2bc^2d+a^3cd^2+(b^3c^2d-2\,ab^2cd^2+a^2bd^3)x^2+(b^3c^3-ab^2c^2d-a^2bcd^2+a^3d^3)x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^(3/2)*(d*x + c)^(3/2)),x, algorithm="fricas")
```

```
[Out] -2*(2*b*d*x + b*c + a*d)*sqrt(b*x + a)*sqrt(d*x + c)/(a*b^2*c^3 -
 2*a^2*b*c^2*d + a^3*c*d^2 + (b^3*c^2*d - 2*a*b^2*c*d^2 + a^2*b*d
^3)*x^2 + (b^3*c^3 - a*b^2*c^2*d - a^2*b*c*d^2 + a^3*d^3)*x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(a+bx)^{\frac{3}{2}}\,(c+dx)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(b*x+a)**(3/2)/(d*x+c)**(3/2),x)
```

```
[Out] Integral(1/((a + b*x)**(3/2)*(c + d*x)**(3/2)), x)
```

GIAC/XCAS [A] time = 0.242926, size = 192, normalized size = 3.1

$$-\frac{2\,\sqrt{bx+a}b^2d}{(b^2c^2|b|-2\,abcd|b|+a^2d^2|b|)\sqrt{b^2c+(bx+a)bd-abd}}-\frac{4\,\sqrt{bd}b^2}{\left(b^2c-abd-\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2\right)(bc|b|-ad|b|)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^(3/2)*(d*x + c)^(3/2)),x, algorithm="giac")
```

```
[Out] -2*sqrt(b*x + a)*b^2*d/((b^2*c^2*abs(b) - 2*a*b*c*d*abs(b) + a^2*
d^2*abs(b))*sqrt(b^2*c + (b*x + a)*b*d - a*b*d)) - 4*sqrt(b*d)*b^
2/((b^2*c - a*b*d - (sqrt(b*d)*sqrt(b*x + a) - sqrt(b^2*c + (b*x
+ a)*b*d - a*b*d))^2)*(b*c*abs(b) - a*d*abs(b)))
```

3.769 $\int \frac{1}{x(a+bx)^{3/2}(c+dx)^{3/2}}\,dx$

Optimal. Leaf size=121

$$-\frac{2\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{3/2}c^{3/2}}+\frac{2b}{a\sqrt{a+bx}\sqrt{c+dx}(bc-ad)}+\frac{2d\sqrt{a+bx}(ad+bc)}{ac\sqrt{c+dx}(bc-ad)^2}$$

```
[Out] (2*b)/(a*(b*c - a*d)*Sqrt[a + b*x]*Sqrt[c + d*x]) + (2*d*(b*c + a
*d)*Sqrt[a + b*x])/(a*c*(b*c - a*d)^2*Sqrt[c + d*x]) - (2*ArcTanh
[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(a^(3/2)*c^(3/
2))
```

Rubi [A] time = 0.30431, antiderivative size = 121, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$-\frac{2\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{3/2}c^{3/2}}+\frac{2b}{a\sqrt{a+bx}\sqrt{c+dx}(bc-ad)}+\frac{2d\sqrt{a+bx}(ad+bc)}{ac\sqrt{c+dx}(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x*(a + b*x)^(3/2)*(c + d*x)^(3/2)),x]
```

```
[Out] (2*b)/(a*(b*c - a*d)*Sqrt[a + b*x]*Sqrt[c + d*x]) + (2*d*(b*c + a
*d)*Sqrt[a + b*x])/(a*c*(b*c - a*d)^2*Sqrt[c + d*x]) - (2*ArcTanh
[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(a^(3/2)*c^(3/
2))
```

Rubi in Sympy [A] time = 34.4658, size = 107, normalized size = 0.88

$$-\frac{2b}{a\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)}+\frac{2d\sqrt{a+bx}\,(ad+bc)}{ac\sqrt{c+dx}\,(ad-bc)^2}-\frac{2\,\mathrm{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{\frac{3}{2}}c^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x/(b*x+a)**(3/2)/(d*x+c)**(3/2),x)
```

```
[Out] -2*b/(a*sqrt(a + b*x)*sqrt(c + d*x)*(a*d - b*c)) + 2*d*sqrt(a + b
*x)*(a*d + b*c)/(a*c*sqrt(c + d*x)*(a*d - b*c)**2) - 2*atanh(sqrt
(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/(a**(3/2)*c**(3/2))
```

Mathematica [A] time = 0.209966, size = 125, normalized size = 1.03

$$\frac{\frac{2\sqrt{a}\sqrt{c}(a^2d^2+abd^2x+b^2c(c+dx))}{\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^2}-\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)+\log(x)}{a^{3/2}c^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(x*(a + b*x)^(3/2)*(c + d*x)^(3/2)),x]
```

```
[Out] ((2*Sqrt[a]*Sqrt[c]*(a^2*d^2 + a*b*d^2*x + b^2*c*(c + d*x)))/((b*
c - a*d)^2*Sqrt[a + b*x]*Sqrt[c + d*x]) + Log[x] - Log[2*a*c + b*
c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(a^
(3/2)*c^(3/2))
```

Maple [B] time = 0.05, size = 638, normalized size = 5.3

$$\frac{1}{ac\,(ad-bc)^2}\left(-\ln\left(\frac{1}{x}\left(adx+bcx+2\sqrt{ac}\sqrt{(bx+a)(dx+c)}+2\,ac\right)\right)x^2a^2bd^3+2\,\ln\left(\frac{adx+bcx+2\sqrt{ac}\sqrt{(bx+a)(dx+c}}{x}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/x/(b*x+a)^(3/2)/(d*x+c)^(3/2),x)
```

```
[Out] (-ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)
*x^2*a^2*b*d^3+2*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^
(1/2)+2*a*c)/x)*x^2*a*b^2*c*d^2-ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b
*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*b^3*c^2*d-ln((a*d*x+b*c*x+2*(a
*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x*a^3*d^3+ln((a*d*x+b
*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x*a^2*b*c*d^
2+ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)
*x*a*b^2*c^2*d-ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1
/2)+2*a*c)/x)*x*b^3*c^3-ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d
*x+c))^(1/2)+2*a*c)/x)*a^3*c*d^2+2*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*
((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*a^2*b*c^2*d-ln((a*d*x+b*c*x+2*(
a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*a*b^2*c^3+2*((b*x+a)
*(d*x+c))^(1/2)*(a*c)^(1/2)*x*a*b*d^2+2*((b*x+a)*(d*x+c))^(1/2)*(
a*c)^(1/2)*x*b^2*c*d+2*((b*x+a)*(d*x+c))^(1/2)*(a*c)^(1/2)*a^2*d^
2+2*((b*x+a)*(d*x+c))^(1/2)*(a*c)^(1/2)*b^2*c^2)/c/a/((b*x+a)*(d*
x+c))^(1/2)/(a*c)^(1/2)/(a*d-b*c)^2/(b*x+a)^(1/2)/(d*x+c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^(3/2)*(d*x + c)^(3/2)*x),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.356424, size = 1, normalized size = 0.01

$$\left[\frac{4\left(b^2c^2+a^2d^2+\left(b^2cd+abd^2\right)x\right)\sqrt{ac}\sqrt{bx+a}\sqrt{dx+c}+\left(ab^2c^3-2\,a^2bc^2d+a^3cd^2+\left(b^3c^2d-2\,ab^2cd^2+a^2bd^3\right)x^2+\left(b^3c\right.\right.}{2\left(a^2b^2c^4-2\,a^3bc^3d+a^4c^2d^2+\left(ab^3c^3d-2\,a^2b^2c^2d^2+a^3b\right.\right.}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^(3/2)*(d*x + c)^(3/2)*x),x, algorithm="fricas")
```

```
[Out] [1/2*(4*(b^2*c^2 + a^2*d^2 + (b^2*c*d + a*b*d^2)*x)*sqrt(a*c)*sqr
t(b*x + a)*sqrt(d*x + c) + (a*b^2*c^3 - 2*a^2*b*c^2*d + a^3*c*d^2
 + (b^3*c^2*d - 2*a*b^2*c*d^2 + a^2*b*d^3)*x^2 + (b^3*c^3 - a*b^2
*c^2*d - a^2*b*c*d^2 + a^3*d^3)*x)*log(-(4*(2*a^2*c^2 + (a*b*c^2
+ a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c) - (8*a^2*c^2 + (b^2*c^2
 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))
/x^2))/((a^2*b^2*c^4 - 2*a^3*b*c^3*d + a^4*c^2*d^2 + (a*b^3*c^3*d
 - 2*a^2*b^2*c^2*d^2 + a^3*b*c*d^3)*x^2 + (a*b^3*c^4 - a^2*b^2*c^
3*d - a^3*b*c^2*d^2 + a^4*c*d^3)*x)*sqrt(a*c)), (2*(b^2*c^2 + a^2
*d^2 + (b^2*c*d + a*b*d^2)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x +
 c) - (a*b^2*c^3 - 2*a^2*b*c^2*d + a^3*c*d^2 + (b^3*c^2*d - 2*a*b
^2*c*d^2 + a^2*b*d^3)*x^2 + (b^3*c^3 - a*b^2*c^2*d - a^2*b*c*d^2
+ a^3*d^3)*x)*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt
```

```
(b*x + a)*sqrt(d*x + c)*a*c)))/((a^2*b^2*c^4 - 2*a^3*b*c^3*d + a^
4*c^2*d^2 + (a*b^3*c^3*d - 2*a^2*b^2*c^2*d^2 + a^3*b*c*d^3)*x^2 +
 (a*b^3*c^4 - a^2*b^2*c^3*d - a^3*b*c^2*d^2 + a^4*c*d^3)*x)*sqrt(
-a*c))]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{x\left(a+bx\right)^{\frac{3}{2}}\left(c+dx\right)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/x/(b*x+a)**(3/2)/(d*x+c)**(3/2),x)
```

```
[Out] Integral(1/(x*(a + b*x)**(3/2)*(c + d*x)**(3/2)), x)
```

GIAC/XCAS [A] time = 0.986374, size = 4, normalized size = 0.03

$$sage_0x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^(3/2)*(d*x + c)^(3/2)*x),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.770 $\int \frac{1}{x^2(a+bx)^{3/2}(c+dx)^{3/2}}\,dx$

Optimal. Leaf size=185

$$\frac{3(ad+bc)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{5/2}c^{5/2}}-\frac{d\sqrt{a+bx}\left(3a^2d^2-2abcd+3b^2c^2\right)}{a^2c^2\sqrt{c+dx}(bc-ad)^2}-\frac{b(3bc-ad)}{a^2c\sqrt{a+bx}\sqrt{c+dx}(bc-ad)}-\frac{1}{acx\sqrt{a+bx}\sqrt{c+dx}}$$

```
[Out] -((b*(3*b*c - a*d))/(a^2*c*(b*c - a*d)*Sqrt[a + b*x]*Sqrt[c + d*x
])) - 1/(a*c*x*Sqrt[a + b*x]*Sqrt[c + d*x]) - (d*(3*b^2*c^2 - 2*a
*b*c*d + 3*a^2*d^2)*Sqrt[a + b*x])/(a^2*c^2*(b*c - a*d)^2*Sqrt[c
+ d*x]) + (3*(b*c + a*d)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]
*Sqrt[c + d*x])])/(a^(5/2)*c^(5/2))
```

Rubi [A] time = 0.570617, antiderivative size = 185, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.227$

$$\frac{3(ad+bc)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{5/2}c^{5/2}}-\frac{d\sqrt{a+bx}\left(3a^2d^2-2abcd+3b^2c^2\right)}{a^2c^2\sqrt{c+dx}(bc-ad)^2}-\frac{b(3bc-ad)}{a^2c\sqrt{a+bx}\sqrt{c+dx}(bc-ad)}-\frac{1}{acx\sqrt{a+bx}\sqrt{c+dx}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x^2*(a + b*x)^(3/2)*(c + d*x)^(3/2)),x]
```


```
[Out] -((b*(3*b*c - a*d))/(a^2*c*(b*c - a*d)*Sqrt[a + b*x]*Sqrt[c + d*x
])) - 1/(a*c*x*Sqrt[a + b*x]*Sqrt[c + d*x]) - (d*(3*b^2*c^2 - 2*a
*b*c*d + 3*a^2*d^2)*Sqrt[a + b*x])/(a^2*c^2*(b*c - a*d)^2*Sqrt[c
+ d*x]) + (3*(b*c + a*d)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]
*Sqrt[c + d*x])])/(a^(5/2)*c^(5/2))
```

Rubi in Sympy [A] time = 71.4362, size = 168, normalized size = 0.91

$$-\frac{1}{acx\sqrt{a+bx}\sqrt{c+dx}}-\frac{b\left(ad-3bc\right)}{a^2c\sqrt{a+bx}\sqrt{c+dx}\left(ad-bc\right)}-\frac{d\sqrt{a+bx}\left(3a^2d^2-2abcd+3b^2c^2\right)}{a^2c^2\sqrt{c+dx}\left(ad-bc\right)^2}+\frac{3\left(ad+bc\right)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{\frac{5}{2}}c^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x**2/(b*x+a)**(3/2)/(d*x+c)**(3/2),x)
```

```
[Out] -1/(a*c*x*sqrt(a + b*x)*sqrt(c + d*x)) - b*(a*d - 3*b*c)/(a**2*c*
sqrt(a + b*x)*sqrt(c + d*x)*(a*d - b*c)) - d*sqrt(a + b*x)*(3*a**
2*d**2 - 2*a*b*c*d + 3*b**2*c**2)/(a**2*c**2*sqrt(c + d*x)*(a*d -
 b*c)**2) + 3*(a*d + b*c)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sq
rt(c + d*x)))/(a**(5/2)*c**(5/2))
```

Mathematica [A] time = 0.672259, size = 170, normalized size = 0.92

$$-\frac{3\log(x)(ad+bc)}{2a^{5/2}c^{5/2}}+\frac{3(ad+bc)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{2a^{5/2}c^{5/2}}+\sqrt{a+bx}\sqrt{c+dx}\left(-\frac{2b^3}{a^2(a+bx)(ad-bc)^2}-\frac{1}{a^2c^2x}-\frac{2d^3}{c^2(c+dx)(bc-ad)^2}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(x^2*(a + b*x)^(3/2)*(c + d*x)^(3/2)),x]
```

```
[Out] Sqrt[a + b*x]*Sqrt[c + d*x]*(-(1/(a^2*c^2*x)) - (2*b^3)/(a^2*(-(b
*c) + a*d)^2*(a + b*x)) - (2*d^3)/(c^2*(b*c - a*d)^2*(c + d*x)))
- (3*(b*c + a*d)*Log[x])/(2*a^(5/2)*c^(5/2)) + (3*(b*c + a*d)*Log
[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c +
 d*x]])/(2*a^(5/2)*c^(5/2))
```

Maple [B] time = 0.057, size = 897, normalized size = 4.9

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/x^2/(b*x+a)^(3/2)/(d*x+c)^(3/2),x)
```

```
[Out] 1/2/a^2/c^2*(3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1
/2)+2*a*c)/x)*x^3*a^3*b*d^4-3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x
+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^2*b^2*c*d^3-3*ln((a*d*x+b*c*x+
2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a*b^3*c^2*d^2
+3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x
)*x^3*b^4*c^3*d+3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))
^(1/2)+2*a*c)/x)*x^2*a^4*d^4-6*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*
x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a^2*b^2*c^2*d^2+3*ln((a*d*x+b*c
*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*b^4*c^4+3*
ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x
*a^4*c*d^3-3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2
)+2*a*c)/x)*x*a^3*b*c^2*d^2-3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x
+a)*(d*x+c))^(1/2)+2*a*c)/x)*x*a^2*b^2*c^3*d+3*ln((a*d*x+b*c*x+2*
(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x*a*b^3*c^4-6*x^2*a
^2*b*d^3*((b*x+a)*(d*x+c))^(1/2)*(a*c)^(1/2)+4*x^2*a*b^2*c*d^2*((
b*x+a)*(d*x+c))^(1/2)*(a*c)^(1/2)-6*x^2*b^3*c^2*d*((b*x+a)*(d*x+c
))^(1/2)*(a*c)^(1/2)-6*x*a^3*d^3*((b*x+a)*(d*x+c))^(1/2)*(a*c)^(1
/2)+2*x*a^2*b*c*d^2*((b*x+a)*(d*x+c))^(1/2)*(a*c)^(1/2)+2*x*a*b^2
*c^2*d*((b*x+a)*(d*x+c))^(1/2)*(a*c)^(1/2)-6*x*b^3*c^3*((b*x+a)*(
d*x+c))^(1/2)*(a*c)^(1/2)-2*a^3*c*d^2*((b*x+a)*(d*x+c))^(1/2)*(a*
c)^(1/2)+4*a^2*b*c^2*d*((b*x+a)*(d*x+c))^(1/2)*(a*c)^(1/2)-2*a*b^
2*c^3*((b*x+a)*(d*x+c))^(1/2)*(a*c)^(1/2))/((b*x+a)*(d*x+c))^(1/2
)/(a*d-b*c)^2/(a*c)^(1/2)/x/(b*x+a)^(1/2)/(d*x+c)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^(3/2)*(d*x + c)^(3/2)*x^2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.382291, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^(3/2)*(d*x + c)^(3/2)*x^2),x, algorithm="fricas")
```

```
[Out] [-1/4*(4*(a*b^2*c^3 - 2*a^2*b*c^2*d + a^3*c*d^2 + (3*b^3*c^2*d -
2*a*b^2*c*d^2 + 3*a^2*b*d^3)*x^2 + (3*b^3*c^3 - a*b^2*c^2*d - a^2
*b*c*d^2 + 3*a^3*d^3)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c) -
3*((b^4*c^3*d - a*b^3*c^2*d^2 - a^2*b^2*c*d^3 + a^3*b*d^4)*x^3 +
(b^4*c^4 - 2*a^2*b^2*c^2*d^2 + a^4*d^4)*x^2 + (a*b^3*c^4 - a^2*b^
2*c^3*d - a^3*b*c^2*d^2 + a^4*c*d^3)*x)*log((4*(2*a^2*c^2 + (a*b*
c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c) + (8*a^2*c^2 + (b^2
*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a
*c))/x^2))/(((a^2*b^3*c^4*d - 2*a^3*b^2*c^3*d^2 + a^4*b*c^2*d^3)*
x^3 + (a^2*b^3*c^5 - a^3*b^2*c^4*d - a^4*b*c^3*d^2 + a^5*c^2*d^3)
*x^2 + (a^3*b^2*c^5 - 2*a^4*b*c^4*d + a^5*c^3*d^2)*x)*sqrt(a*c)),
 -1/2*(2*(a*b^2*c^3 - 2*a^2*b*c^2*d + a^3*c*d^2 + (3*b^3*c^2*d -
2*a*b^2*c*d^2 + 3*a^2*b*d^3)*x^2 + (3*b^3*c^3 - a*b^2*c^2*d - a^2
*b*c*d^2 + 3*a^3*d^3)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c) -
 3*((b^4*c^3*d - a*b^3*c^2*d^2 - a^2*b^2*c*d^3 + a^3*b*d^4)*x^3 +
 (b^4*c^4 - 2*a^2*b^2*c^2*d^2 + a^4*d^4)*x^2 + (a*b^3*c^4 - a^2*b
^2*c^3*d - a^3*b*c^2*d^2 + a^4*c*d^3)*x)*arctan(1/2*(2*a*c + (b*c
 + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d*x + c)*a*c)))/(((a^2*
b^3*c^4*d - 2*a^3*b^2*c^3*d^2 + a^4*b*c^2*d^3)*x^3 + (a^2*b^3*c^5
 - a^3*b^2*c^4*d - a^4*b*c^3*d^2 + a^5*c^2*d^3)*x^2 + (a^3*b^2*c^
5 - 2*a^4*b*c^4*d + a^5*c^3*d^2)*x)*sqrt(-a*c))]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{x^2 (a+bx)^{\frac{3}{2}} (c+dx)^{\frac{3}{2}}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/x**2/(b*x+a)**(3/2)/(d*x+c)**(3/2),x)
```

```
[Out] Integral(1/(x**2*(a + b*x)**(3/2)*(c + d*x)**(3/2)), x)
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((b*x + a)^(3/2)*(d*x + c)^(3/2)*x^2),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.771 $\int \frac{1}{x^3(a+bx)^{3/2}(c+dx)^{3/2}}\,dx$

Optimal. Leaf size=268

$$\frac{5(ad+bc)}{4a^2c^2x\sqrt{a+bx}\sqrt{c+dx}}-\frac{3\left(5a^2d^2+6abcd+5b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{7/2}c^{7/2}}+\frac{b\left(-5a^2d^2-2abcd+15b^2c^2\right)}{4a^3c^2\sqrt{a+bx}\sqrt{c+dx}(bc-ad)}+\frac{d\sqrt{a+bx}\left(15a^2d^2-22abcd+15b^2c^2\right)(ad+bc)}{4a^3c^3\sqrt{c+dx}(bc-ad)^2}-\frac{1}{2acx^2\sqrt{a+bx}\sqrt{c+dx}}$$

```
[Out] (b*(15*b^2*c^2 - 2*a*b*c*d - 5*a^2*d^2))/(4*a^3*c^2*(b*c - a*d)*S
qrt[a + b*x]*Sqrt[c + d*x]) - 1/(2*a*c*x^2*Sqrt[a + b*x]*Sqrt[c +
 d*x]) + (5*(b*c + a*d))/(4*a^2*c^2*x*Sqrt[a + b*x]*Sqrt[c + d*x]
) + (d*(b*c + a*d)*(15*b^2*c^2 - 22*a*b*c*d + 15*a^2*d^2)*Sqrt[a
+ b*x])/(4*a^3*c^3*(b*c - a*d)^2*Sqrt[c + d*x]) - (3*(5*b^2*c^2 +
 6*a*b*c*d + 5*a^2*d^2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*
Sqrt[c + d*x])])/(4*a^(7/2)*c^(7/2))
```

Rubi [A] time = 0.880872, antiderivative size = 268, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.273$

$$\frac{5(ad+bc)}{4a^2c^2x\sqrt{a+bx}\sqrt{c+dx}}-\frac{3\left(5a^2d^2+6abcd+5b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{7/2}c^{7/2}}+\frac{b\left(-5a^2d^2-2abcd+15b^2c^2\right)}{4a^3c^2\sqrt{a+bx}\sqrt{c+dx}(bc-ad)}+\frac{d\sqrt{a+bx}\left(15a^2d^2-22abcd+15b^2c^2\right)(ad+bc)}{4a^3c^3\sqrt{c+dx}(bc-ad)^2}-\frac{1}{2acx^2\sqrt{a+bx}\sqrt{c+dx}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x^3*(a + b*x)^(3/2)*(c + d*x)^(3/2)),x]
```

```
[Out] (b*(15*b^2*c^2 - 2*a*b*c*d - 5*a^2*d^2))/(4*a^3*c^2*(b*c - a*d)*S
qrt[a + b*x]*Sqrt[c + d*x]) - 1/(2*a*c*x^2*Sqrt[a + b*x]*Sqrt[c +
 d*x]) + (5*(b*c + a*d))/(4*a^2*c^2*x*Sqrt[a + b*x]*Sqrt[c + d*x]
) + (d*(b*c + a*d)*(15*b^2*c^2 - 22*a*b*c*d + 15*a^2*d^2)*Sqrt[a
+ b*x])/(4*a^3*c^3*(b*c - a*d)^2*Sqrt[c + d*x]) - (3*(5*b^2*c^2 +
 6*a*b*c*d + 5*a^2*d^2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*
Sqrt[c + d*x])])/(4*a^(7/2)*c^(7/2))
```

Rubi in Sympy [A] time = 108.238, size = 252, normalized size = 0.94

$$-\frac{1}{2acx^2\sqrt{a+bx}\sqrt{c+dx}}+\frac{5\,(ad+bc)}{4a^2c^2x\sqrt{a+bx}\sqrt{c+dx}}+\frac{b\left(5a^2d^2+2abcd-15b^2c^2\right)}{4a^3c^2\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)}+\frac{d\sqrt{a+bx}\,(ad+bc)\left(15a^2d^2-22abcd+15b^2c^2\right)}{4a^3c^3\sqrt{c+dx}\,(ad-bc)^2}+\frac{3\left(4abcd-5\,(ad+bc)^2\right)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{\frac{7}{2}}c^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x**3/(b*x+a)**(3/2)/(d*x+c)**(3/2),x)
```

```
[Out] -1/(2*a*c*x**2*sqrt(a + b*x)*sqrt(c + d*x)) + 5*(a*d + b*c)/(4*a*
*2*c**2*x*sqrt(a + b*x)*sqrt(c + d*x)) + b*(5*a**2*d**2 + 2*a*b*c
*d - 15*b**2*c**2)/(4*a**3*c**2*sqrt(a + b*x)*sqrt(c + d*x)*(a*d
- b*c)) + d*sqrt(a + b*x)*(a*d + b*c)*(15*a**2*d**2 - 22*a*b*c*d
```

```
+ 15*b**2*c**2)/(4*a**3*c**3*sqrt(c + d*x)*(a*d - b*c)**2) + 3*(4
*a*b*c*d - 5*(a*d + b*c)**2)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)
*sqrt(c + d*x)))/(4*a**(7/2)*c**(7/2))
```

Mathematica [A] time = 1.2353, size = 224, normalized size = 0.84

$$\frac{3\log(x)\left(5a^2d^2+6abcd+5b^2c^2\right)}{8a^{7/2}c^{7/2}} - \frac{3\left(5a^2d^2+6abcd+5b^2c^2\right)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{8a^{7/2}c^{7/2}} + \sqrt{a+bx}\sqrt{c+dx}\left(\frac{2b^4}{a^3(a+bx)(ad-bc)^2}+\frac{7(ad+bc)}{4a^3c^3x}-\frac{1}{2a^2c^2x^2}+\frac{2d^4}{c^3(c+dx)(bc-ad)^2}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(x^3*(a + b*x)^(3/2)*(c + d*x)^(3/2)),x]
```

```
[Out] Sqrt[a + b*x]*Sqrt[c + d*x]*(-1/(2*a^2*c^2*x^2) + (7*(b*c + a*d))
/(4*a^3*c^3*x) + (2*b^4)/(a^3*(-(b*c) + a*d)^2*(a + b*x)) + (2*d^
4)/(c^3*(b*c - a*d)^2*(c + d*x))) + (3*(5*b^2*c^2 + 6*a*b*c*d + 5
*a^2*d^2)*Log[x])/(8*a^(7/2)*c^(7/2)) - (3*(5*b^2*c^2 + 6*a*b*c*d
 + 5*a^2*d^2)*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[
a + b*x]*Sqrt[c + d*x]])/(8*a^(7/2)*c^(7/2))
```

Maple [B] time = 0.063, size = 1372, normalized size = 5.1

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/x^3/(b*x+a)^(3/2)/(d*x+c)^(3/2),x)
```

```
[Out] -1/8/a^3/c^3*(-30*x^2*b^4*c^4*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)
+4*a^4*c^2*d^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+4*a^2*b^2*c^4*
(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+15*ln((a*d*x+b*c*x+2*(a*c)^(1
/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a^4*b*d^5+15*ln((a*d*x+
b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*b^5*c^4
*d+15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c
)/x)*x^2*a^5*c*d^4+15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x
+c))^(1/2)+2*a*c)/x)*x^2*a*b^4*c^5-12*ln((a*d*x+b*c*x+2*(a*c)^(1/
2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a^3*b^2*c*d^4+15*ln((a*d
*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^5*
d^5+15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*
c)/x)*x^3*b^5*c^5+14*x^3*a^2*b^2*c*d^3*(a*c)^(1/2)*((b*x+a)*(d*x+
c))^(1/2)+14*x^3*a*b^3*c^2*d^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2
)+4*x^2*a^3*b*c*d^3*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+20*x^2*a^
2*b^2*c^2*d^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+4*x^2*a*b^3*c^3
*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+10*x*a^3*b*c^2*d^2*(a*c)^(
1/2)*((b*x+a)*(d*x+c))^(1/2)+10*x*a^2*b^2*c^3*d*(a*c)^(1/2)*((b*x
+a)*(d*x+c))^(1/2)-30*x^2*a^4*d^4*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(
1/2)-10*x*a^4*c*d^3*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-10*x*a*b^
3*c^4*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-8*a^3*b*c^3*d*(a*c)^(1/
2)*((b*x+a)*(d*x+c))^(1/2)-6*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+
a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a^2*b^3*c^2*d^3-12*ln((a*d*x+b*c*
x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a*b^4*c^3*d
^2+3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)
/x)*x^3*a^4*b*c*d^4-18*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*
x+c))^(1/2)+2*a*c)/x)*x^3*a^3*b^2*c^2*d^3-18*ln((a*d*x+b*c*x+2*(a
*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^2*b^3*c^3*d^2+3
*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*
x^3*a*b^4*c^4*d-12*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c)
)^(1/2)+2*a*c)/x)*x^2*a^4*b*c^2*d^3-6*ln((a*d*x+b*c*x+2*(a*c)^(1/
2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a^3*b^2*c^3*d^2-12*ln((a
*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a^
```

```
2*b^3*c^4*d-30*x^3*a^3*b*d^4*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-
30*x^3*b^4*c^3*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2))/((b*x+a)*(d
*x+c))^(1/2)/(a*c)^(1/2)/(a*d-b*c)^2/x^2/(b*x+a)^(1/2)/(d*x+c)^(1
/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((b*x + a)^(3/2)*(d*x + c)^(3/2)*x^3),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.681651, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((b*x + a)^(3/2)*(d*x + c)^(3/2)*x^3),x, algorithm="fricas")
```

```
[Out] [-1/16*(4*(2*a^2*b^2*c^4 - 4*a^3*b*c^3*d + 2*a^4*c^2*d^2 - (15*b^
4*c^3*d - 7*a*b^3*c^2*d^2 - 7*a^2*b^2*c*d^3 + 15*a^3*b*d^4)*x^3 -
 (15*b^4*c^4 - 2*a*b^3*c^3*d - 10*a^2*b^2*c^2*d^2 - 2*a^3*b*c*d^3
 + 15*a^4*d^4)*x^2 - 5*(a*b^3*c^4 - a^2*b^2*c^3*d - a^3*b*c^2*d^2
 + a^4*c*d^3)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c) - 3*((5*b^
5*c^4*d - 4*a*b^4*c^3*d^2 - 2*a^2*b^3*c^2*d^3 - 4*a^3*b^2*c*d^4 +
 5*a^4*b*d^5)*x^4 + (5*b^5*c^5 + a*b^4*c^4*d - 6*a^2*b^3*c^3*d^2
- 6*a^3*b^2*c^2*d^3 + a^4*b*c*d^4 + 5*a^5*d^5)*x^3 + (5*a*b^4*c^5
 - 4*a^2*b^3*c^4*d - 2*a^3*b^2*c^3*d^2 - 4*a^4*b*c^2*d^3 + 5*a^5*
c*d^4)*x^2)*log(-(4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x
+ a)*sqrt(d*x + c) - (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)
*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2))/(((a^3*b^3*c^5*d
 - 2*a^4*b^2*c^4*d^2 + a^5*b*c^3*d^3)*x^4 + (a^3*b^3*c^6 - a^4*b^
2*c^5*d - a^5*b*c^4*d^2 + a^6*c^3*d^3)*x^3 + (a^4*b^2*c^6 - 2*a^5
*b*c^5*d + a^6*c^4*d^2)*x^2)*sqrt(a*c)), -1/8*(2*(2*a^2*b^2*c^4 -
 4*a^3*b*c^3*d + 2*a^4*c^2*d^2 - (15*b^4*c^3*d - 7*a*b^3*c^2*d^2
- 7*a^2*b^2*c*d^3 + 15*a^3*b*d^4)*x^3 - (15*b^4*c^4 - 2*a*b^3*c^3
*d - 10*a^2*b^2*c^2*d^2 - 2*a^3*b*c*d^3 + 15*a^4*d^4)*x^2 - 5*(a*
b^3*c^4 - a^2*b^2*c^3*d - a^3*b*c^2*d^2 + a^4*c*d^3)*x)*sqrt(-a*c
)*sqrt(b*x + a)*sqrt(d*x + c) + 3*((5*b^5*c^4*d - 4*a*b^4*c^3*d^2
 - 2*a^2*b^3*c^2*d^3 - 4*a^3*b^2*c*d^4 + 5*a^4*b*d^5)*x^4 + (5*b^
5*c^5 + a*b^4*c^4*d - 6*a^2*b^3*c^3*d^2 - 6*a^3*b^2*c^2*d^3 + a^4
*b*c*d^4 + 5*a^5*d^5)*x^3 + (5*a*b^4*c^5 - 4*a^2*b^3*c^4*d - 2*a^
3*b^2*c^3*d^2 - 4*a^4*b*c^2*d^3 + 5*a^5*c*d^4)*x^2)*arctan(1/2*(2
*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d*x + c)*a*c
)))/(((a^3*b^3*c^5*d - 2*a^4*b^2*c^4*d^2 + a^5*b*c^3*d^3)*x^4 + (
a^3*b^3*c^6 - a^4*b^2*c^5*d - a^5*b*c^4*d^2 + a^6*c^3*d^3)*x^3 +
(a^4*b^2*c^6 - 2*a^5*b*c^5*d + a^6*c^4*d^2)*x^2)*sqrt(-a*c))]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{x^3 (a + bx)^{\frac{3}{2}} (c + dx)^{\frac{3}{2}}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x**3/(b*x+a)**(3/2)/(d*x+c)**(3/2),x)
```

```
[Out] Integral(1/(x**3*(a + b*x)**(3/2)*(c + d*x)**(3/2)), x)
```

GIAC/XCAS [A] time = 2.38019, size = 4, normalized size = 0.01

$$sage_0x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((b*x + a)^(3/2)*(d*x + c)^(3/2)*x^3),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.772 $\int \frac{x^5}{(a+bx)^{3/2}(c+dx)^{5/2}}\,dx$

Optimal. Leaf size=351

$$-\frac{2cx^2\sqrt{a+bx}\left(-3a^2d^2-12abcd+7b^2c^2\right)}{3bd^2\sqrt{c+dx}(bc-ad)^3}+\frac{5\left(3a^2d^2+6abcd+7b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{7/2}d^{9/2}}$$
$$-\frac{\sqrt{a+bx}\sqrt{c+dx}\left(-45a^4d^4+30a^3bcd^3+36a^2b^2c^2d^2-2bdx\left(-15a^3d^3+9a^2bcd^2-61ab^2c^2d+35b^3c^3\right)-190ab^3c^3d+10\right.}{12b^3d^4(bc-ad)^3}$$
$$+\frac{2ax^4}{b\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)}-\frac{2cx^3\sqrt{a+bx}(3ad+bc)}{3bd(c+dx)^{3/2}(bc-ad)^2}$$

```
[Out] (2*a*x^4)/(b*(b*c - a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2)) - (2*c*(b
*c + 3*a*d)*x^3*Sqrt[a + b*x])/(3*b*d*(b*c - a*d)^2*(c + d*x)^(3/
2)) - (2*c*(7*b^2*c^2 - 12*a*b*c*d - 3*a^2*d^2)*x^2*Sqrt[a + b*x]
)/(3*b*d^2*(b*c - a*d)^3*Sqrt[c + d*x]) - (Sqrt[a + b*x]*Sqrt[c +
 d*x]*(105*b^4*c^4 - 190*a*b^3*c^3*d + 36*a^2*b^2*c^2*d^2 + 30*a^
3*b*c*d^3 - 45*a^4*d^4 - 2*b*d*(35*b^3*c^3 - 61*a*b^2*c^2*d + 9*a
^2*b*c*d^2 - 15*a^3*d^3)*x))/(12*b^3*d^4*(b*c - a*d)^3) + (5*(7*b
^2*c^2 + 6*a*b*c*d + 3*a^2*d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(
Sqrt[b]*Sqrt[c + d*x])])/(4*b^(7/2)*d^(9/2))
```

Rubi [A] time = 0.924338, antiderivative size = 351, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$-\frac{2cx^2\sqrt{a+bx}\left(-3a^2d^2-12abcd+7b^2c^2\right)}{3bd^2\sqrt{c+dx}(bc-ad)^3}+\frac{5\left(3a^2d^2+6abcd+7b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{7/2}d^{9/2}}$$
$$-\frac{\sqrt{a+bx}\sqrt{c+dx}\left(-45a^4d^4+30a^3bcd^3+36a^2b^2c^2d^2-2bdx\left(-15a^3d^3+9a^2bcd^2-61ab^2c^2d+35b^3c^3\right)-190ab^3c^3d+10\right.}{12b^3d^4(bc-ad)^3}$$
$$+\frac{2ax^4}{b\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)}-\frac{2cx^3\sqrt{a+bx}(3ad+bc)}{3bd(c+dx)^{3/2}(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[x^5/((a + b*x)^(3/2)*(c + d*x)^(5/2)),x]
```

```
[Out] (2*a*x^4)/(b*(b*c - a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2)) - (2*c*(b
*c + 3*a*d)*x^3*Sqrt[a + b*x])/(3*b*d*(b*c - a*d)^2*(c + d*x)^(3/
2)) - (2*c*(7*b^2*c^2 - 12*a*b*c*d - 3*a^2*d^2)*x^2*Sqrt[a + b*x]
)/(3*b*d^2*(b*c - a*d)^3*Sqrt[c + d*x]) - (Sqrt[a + b*x]*Sqrt[c +
 d*x]*(105*b^4*c^4 - 190*a*b^3*c^3*d + 36*a^2*b^2*c^2*d^2 + 30*a^
3*b*c*d^3 - 45*a^4*d^4 - 2*b*d*(35*b^3*c^3 - 61*a*b^2*c^2*d + 9*a
^2*b*c*d^2 - 15*a^3*d^3)*x))/(12*b^3*d^4*(b*c - a*d)^3) + (5*(7*b
^2*c^2 + 6*a*b*c*d + 3*a^2*d^2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(
Sqrt[b]*Sqrt[c + d*x])])/(4*b^(7/2)*d^(9/2))
```

Rubi in Sympy [A] time = 91.8243, size = 357, normalized size = 1.02

$$-\frac{2ax^4}{b\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}\,(ad-bc)}-\frac{2cx^3\sqrt{a+bx}\,(3ad+bc)}{3bd\,(c+dx)^{\frac{3}{2}}\,(ad-bc)^2}-\frac{2cx^2\sqrt{a+bx}\,\left(3a^2d^2+12abcd-7b^2c^2\right)}{3bd^2\sqrt{c+dx}\,(ad-bc)^3}$$
$$-\frac{4\sqrt{a+bx}\sqrt{c+dx}\left(\frac{45a^4d^4}{16}-\frac{15a^3bcd^3}{8}-\frac{9a^2b^2c^2d^2}{4}+\frac{95ab^3c^3d}{8}-\frac{105b^4c^4}{16}-\frac{bdx\left(15a^3d^3-9a^2bcd^2+61ab^2c^2d-35b^3c^3\right)}{8}\right)}{3b^3d^4\,(ad-bc)^3}$$
$$+\frac{5\left(3a^2d^2+6abcd+7b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{\frac{7}{2}}d^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**5/(b*x+a)**(3/2)/(d*x+c)**(5/2),x)
```

```
[Out] -2*a*x**4/(b*sqrt(a + b*x)*(c + d*x)**(3/2)*(a*d - b*c)) - 2*c*x*
*3*sqrt(a + b*x)*(3*a*d + b*c)/(3*b*d*(c + d*x)**(3/2)*(a*d - b*c
)**2) - 2*c*x**2*sqrt(a + b*x)*(3*a**2*d**2 + 12*a*b*c*d - 7*b**2
*c**2)/(3*b*d**2*sqrt(c + d*x)*(a*d - b*c)**3) - 4*sqrt(a + b*x)*
sqrt(c + d*x)*(45*a**4*d**4/16 - 15*a**3*b*c*d**3/8 - 9*a**2*b**2
*c**2*d**2/4 + 95*a*b**3*c**3*d/8 - 105*b**4*c**4/16 - b*d*x*(15*
a**3*d**3 - 9*a**2*b*c*d**2 + 61*a*b**2*c**2*d - 35*b**3*c**3)/8)
/(3*b**3*d**4*(a*d - b*c)**3) + 5*(3*a**2*d**2 + 6*a*b*c*d + 7*b*
*2*c**2)*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c + d*x)))/(4*
b**(7/2)*d**(9/2))
```

Mathematica [A] time = 0.919369, size = 214, normalized size = 0.61

$$\frac{1}{12}\sqrt{a+bx}\sqrt{c+dx}\left(\frac{24a^5}{b^3(a+bx)(bc-ad)^3}-\frac{3(7ad+11bc)}{b^3d^4}+\frac{8c^5}{d^4(c+dx)^2(bc-ad)^2}+\frac{40c^4(2bc-3ad)}{d^4(c+dx)(ad-bc)^3}+\frac{6x}{b^2d^3}\right)+\frac{5\left(3a^2d^2+6abcd+7b^2c^2\right)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{8b^{7/2}d^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^5/((a + b*x)^(3/2)*(c + d*x)^(5/2)),x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*((-3*(11*b*c + 7*a*d))/(b^3*d^4) + (
6*x)/(b^2*d^3) + (24*a^5)/(b^3*(b*c - a*d)^3*(a + b*x)) + (8*c^5)
/(d^4*(b*c - a*d)^2*(c + d*x)^2) + (40*c^4*(2*b*c - 3*a*d))/(d^4*
(-(b*c) + a*d)^3*(c + d*x))))/12 + (5*(7*b^2*c^2 + 6*a*b*c*d + 3*
a^2*d^2)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x
]*Sqrt[c + d*x]])/(8*b^(7/2)*d^(9/2))
```

Maple [B] time = 0.062, size = 2228, normalized size = 6.4

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^5/(b*x+a)^(3/2)/(d*x+c)^(5/2),x)
```

```
[Out] 1/24*(-150*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+
a*d+b*c)/(b*d)^(1/2))*x^2*a^3*b^3*c^3*d^4+45*ln(1/2*(2*b*d*x+2*((
b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a^6*d
^7-105*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+
b*c)/(b*d)^(1/2))*x*b^6*c^7+45*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c)
)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^6*c^2*d^5-105*ln(1/2*
(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/
2))*a*b^5*c^7-90*x^2*a^5*d^6*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-
474*x^2*a*b^4*c^4*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+90*x*a^
4*b*c^2*d^4*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+168*x*a^3*b^2*c^3
*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-444*x*a^2*b^3*c^4*d^2*((
b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-100*x*a*b^4*c^5*d*((b*x+a)*(d*x
+c))^(1/2)*(b*d)^(1/2)-36*x^4*a^2*b^3*c*d^5*((b*x+a)*(d*x+c))^(1/
2)*(b*d)^(1/2)+36*x^4*a*b^4*c^2*d^4*((b*x+a)*(d*x+c))^(1/2)*(b*d)
^(1/2)+48*x^3*a^3*b^2*c*d^5*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+3
6*x^3*a^2*b^3*c^2*d^4*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-96*x^3*
a*b^4*c^3*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+132*x^2*a^3*b^2
*c^2*d^4*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+24*x^2*a^2*b^3*c^3*d
^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+225*ln(1/2*(2*b*d*x+2*((b*
x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^3*a*b^5*c
^4*d^3+45*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a
*d+b*c)/(b*d)^(1/2))*x^2*a^5*b*c*d^6-120*ln(1/2*(2*b*d*x+2*((b*x+
```

```
a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a^4*b^2*c
^2*d^5-90*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a
*d+b*c)/(b*d)^(1/2))*x^3*a^2*b^4*c^3*d^4-30*ln(1/2*(2*b*d*x+2*((b
*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^3*a^3*b^
3*c^2*d^5-45*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2
)+a*d+b*c)/(b*d)^(1/2))*x^3*a^4*b^2*c*d^6-30*x^3*a^4*b*d^6*((b*x+
a)*(d*x+c))^(1/2)*(b*d)^(1/2)+42*x^3*b^5*c^4*d^2*((b*x+a)*(d*x+c)
)^(1/2)*(b*d)^(1/2)+280*x^2*b^5*c^5*d*((b*x+a)*(d*x+c))^(1/2)*(b*
d)^(1/2)-180*x*a^5*c*d^5*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+60*a
^4*b*c^3*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+72*a^3*b^2*c^4*d
^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-380*a^2*b^3*c^5*d*((b*x+a)
*(d*x+c))^(1/2)*(b*d)^(1/2)+45*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c)
)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a^2*b^4*c^4*d^3+345
*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(
b*d)^(1/2))*x^2*a*b^5*c^5*d^2-45*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+
c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^5*b*c^2*d^5-105*l
n(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*
d)^(1/2))*x*a^4*b^2*c^3*d^4-210*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c
))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^3*b^3*c^4*d^3+360*
ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b
*d)^(1/2))*x*a^2*b^4*c^5*d^2+15*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c
))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a*b^5*c^6*d+12*x^4*a
^3*b^2*d^6*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-12*x^4*b^5*c^3*d^3
*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+210*x*b^5*c^6*((b*x+a)*(d*x+
c))^(1/2)*(b*d)^(1/2)-90*a^5*c^2*d^4*((b*x+a)*(d*x+c))^(1/2)*(b*d
)^(1/2)+210*a*b^4*c^6*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+45*ln(1
/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^
(1/2))*x^3*a^5*b*d^7-105*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2
)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^3*b^6*c^5*d^2-210*ln(1/2*(2
*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2)
)*x^2*b^6*c^6*d+90*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d
)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^6*c*d^6-45*ln(1/2*(2*b*d*x+2*((
b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^5*b*c^3
*d^4-30*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d
+b*c)/(b*d)^(1/2))*a^4*b^2*c^4*d^3-90*ln(1/2*(2*b*d*x+2*((b*x+a)*
(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^3*b^3*c^5*d^2+
225*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c
)/(b*d)^(1/2))*a^2*b^4*c^6*d)/(b*d)^(1/2)/(a*d-b*c)^3/((b*x+a)*(d
*x+c))^(1/2)/d^4/b^3/(d*x+c)^(3/2)/(b*x+a)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^5/((b*x + a)^(3/2)*(d*x + c)^(5/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 1.4386, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^5/((b*x + a)^(3/2)*(d*x + c)^(5/2)),x, algorithm="fricas")
```

```
[Out] [-1/48*(4*(105*a*b^4*c^6 - 190*a^2*b^3*c^5*d + 36*a^3*b^2*c^4*d^2
 + 30*a^4*b*c^3*d^3 - 45*a^5*c^2*d^4 - 6*(b^5*c^3*d^3 - 3*a*b^4*c
^2*d^4 + 3*a^2*b^3*c*d^5 - a^3*b^2*d^6)*x^4 + 3*(7*b^5*c^4*d^2 -
16*a*b^4*c^3*d^3 + 6*a^2*b^3*c^2*d^4 + 8*a^3*b^2*c*d^5 - 5*a^4*b*
d^6)*x^3 + (140*b^5*c^5*d - 237*a*b^4*c^4*d^2 + 12*a^2*b^3*c^3*d^
3 + 66*a^3*b^2*c^2*d^4 - 45*a^5*d^6)*x^2 + (105*b^5*c^6 - 50*a*b^
4*c^5*d - 222*a^2*b^3*c^4*d^2 + 84*a^3*b^2*c^3*d^3 + 45*a^4*b*c^2
```

```
*d^4 - 90*a^5*c*d^5)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) - 1
5*(7*a*b^5*c^7 - 15*a^2*b^4*c^6*d + 6*a^3*b^3*c^5*d^2 + 2*a^4*b^2
*c^4*d^3 + 3*a^5*b*c^3*d^4 - 3*a^6*c^2*d^5 + (7*b^6*c^5*d^2 - 15*
a*b^5*c^4*d^3 + 6*a^2*b^4*c^3*d^4 + 2*a^3*b^3*c^2*d^5 + 3*a^4*b^2
*c*d^6 - 3*a^5*b*d^7)*x^3 + (14*b^6*c^6*d - 23*a*b^5*c^5*d^2 - 3*
a^2*b^4*c^4*d^3 + 10*a^3*b^3*c^3*d^4 + 8*a^4*b^2*c^2*d^5 - 3*a^5*
b*c*d^6 - 3*a^6*d^7)*x^2 + (7*b^6*c^7 - a*b^5*c^6*d - 24*a^2*b^4*
c^5*d^2 + 14*a^3*b^3*c^4*d^3 + 7*a^4*b^2*c^3*d^4 + 3*a^5*b*c^2*d^
5 - 6*a^6*c*d^6)*x)*log(4*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(
b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a
^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/((a*b^6*c^5*d^4 - 3
*a^2*b^5*c^4*d^5 + 3*a^3*b^4*c^3*d^6 - a^4*b^3*c^2*d^7 + (b^7*c^3
*d^6 - 3*a*b^6*c^2*d^7 + 3*a^2*b^5*c*d^8 - a^3*b^4*d^9)*x^3 + (2*
b^7*c^4*d^5 - 5*a*b^6*c^3*d^6 + 3*a^2*b^5*c^2*d^7 + a^3*b^4*c*d^8
 - a^4*b^3*d^9)*x^2 + (b^7*c^5*d^4 - a*b^6*c^4*d^5 - 3*a^2*b^5*c^
3*d^6 + 5*a^3*b^4*c^2*d^7 - 2*a^4*b^3*c*d^8)*x)*sqrt(b*d)), -1/24
*(2*(105*a*b^4*c^6 - 190*a^2*b^3*c^5*d + 36*a^3*b^2*c^4*d^2 + 30*
a^4*b*c^3*d^3 - 45*a^5*c^2*d^4 - 6*(b^5*c^3*d^3 - 3*a*b^4*c^2*d^4
 + 3*a^2*b^3*c*d^5 - a^3*b^2*d^6)*x^4 + 3*(7*b^5*c^4*d^2 - 16*a*b
^4*c^3*d^3 + 6*a^2*b^3*c^2*d^4 + 8*a^3*b^2*c*d^5 - 5*a^4*b*d^6)*x
^3 + (140*b^5*c^5*d - 237*a*b^4*c^4*d^2 + 12*a^2*b^3*c^3*d^3 + 66
*a^3*b^2*c^2*d^4 - 45*a^5*d^6)*x^2 + (105*b^5*c^6 - 50*a*b^4*c^5*
d - 222*a^2*b^3*c^4*d^2 + 84*a^3*b^2*c^3*d^3 + 45*a^4*b*c^2*d^4 -
 90*a^5*c*d^5)*x)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c) - 15*(7*
a*b^5*c^7 - 15*a^2*b^4*c^6*d + 6*a^3*b^3*c^5*d^2 + 2*a^4*b^2*c^4*
d^3 + 3*a^5*b*c^3*d^4 - 3*a^6*c^2*d^5 + (7*b^6*c^5*d^2 - 15*a*b^5
*c^4*d^3 + 6*a^2*b^4*c^3*d^4 + 2*a^3*b^3*c^2*d^5 + 3*a^4*b^2*c*d^
6 - 3*a^5*b*d^7)*x^3 + (14*b^6*c^6*d - 23*a*b^5*c^5*d^2 - 3*a^2*b
^4*c^4*d^3 + 10*a^3*b^3*c^3*d^4 + 8*a^4*b^2*c^2*d^5 - 3*a^5*b*c*d
^6 - 3*a^6*d^7)*x^2 + (7*b^6*c^7 - a*b^5*c^6*d - 24*a^2*b^4*c^5*d
^2 + 14*a^3*b^3*c^4*d^3 + 7*a^4*b^2*c^3*d^4 + 3*a^5*b*c^2*d^5 - 6
*a^6*c*d^6)*x)*arctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(
b*x + a)*sqrt(d*x + c)*b*d)))/((a*b^6*c^5*d^4 - 3*a^2*b^5*c^4*d^5
 + 3*a^3*b^4*c^3*d^6 - a^4*b^3*c^2*d^7 + (b^7*c^3*d^6 - 3*a*b^6*c
^2*d^7 + 3*a^2*b^5*c*d^8 - a^3*b^4*d^9)*x^3 + (2*b^7*c^4*d^5 - 5*
a*b^6*c^3*d^6 + 3*a^2*b^5*c^2*d^7 + a^3*b^4*c*d^8 - a^4*b^3*d^9)*
x^2 + (b^7*c^5*d^4 - a*b^6*c^4*d^5 - 3*a^2*b^5*c^3*d^6 + 5*a^3*b^
4*c^2*d^7 - 2*a^4*b^3*c*d^8)*x)*sqrt(-b*d))]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x^5}{(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**5/(b*x+a)**(3/2)/(d*x+c)**(5/2),x)
```

```
[Out] Integral(x**5/((a + b*x)**(3/2)*(c + d*x)**(5/2)), x)
```

GIAC/XCAS [A] time = 0.585965, size = 4, normalized size = 0.01

$$sage_0 x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^5/((b*x + a)^(3/2)*(d*x + c)^(5/2)),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.773 $\int \frac{x^4}{(a+bx)^{3/2}(c+dx)^{5/2}}\,dx$

Optimal. Leaf size=251

$$\frac{\sqrt{a+bx}\left(dx(bc-ad)\left(9a^2d^2-6abcd+5b^2c^2\right)+c\left(-9a^3d^3+9a^2bcd^2-31ab^2c^2d+15b^3c^3\right)\right)}{3b^2d^3\sqrt{c+dx}(bc-ad)^3}-\frac{(3ad+5bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{5/2}d^{7/2}}+\frac{2ax^3}{b\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)}-\frac{2cx^2\sqrt{a+bx}(3ad+bc)}{3bd(c+dx)^{3/2}(bc-ad)^2}$$

```
[Out] (2*a*x^3)/(b*(b*c - a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2)) - (2*c*(b
*c + 3*a*d)*x^2*Sqrt[a + b*x])/(3*b*d*(b*c - a*d)^2*(c + d*x)^(3/
2)) + (Sqrt[a + b*x]*(c*(15*b^3*c^3 - 31*a*b^2*c^2*d + 9*a^2*b*c*
d^2 - 9*a^3*d^3) + d*(b*c - a*d)*(5*b^2*c^2 - 6*a*b*c*d + 9*a^2*d
^2)*x))/(3*b^2*d^3*(b*c - a*d)^3*Sqrt[c + d*x]) - ((5*b*c + 3*a*d
)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(b^(5
/2)*d^(7/2))
```

Rubi [A] time = 0.590625, antiderivative size = 251, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$\frac{\sqrt{a+bx}\left(dx(bc-ad)\left(9a^2d^2-6abcd+5b^2c^2\right)+c\left(-9a^3d^3+9a^2bcd^2-31ab^2c^2d+15b^3c^3\right)\right)}{3b^2d^3\sqrt{c+dx}(bc-ad)^3}-\frac{(3ad+5bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{5/2}d^{7/2}}+\frac{2ax^3}{b\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)}-\frac{2cx^2\sqrt{a+bx}(3ad+bc)}{3bd(c+dx)^{3/2}(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[x^4/((a + b*x)^(3/2)*(c + d*x)^(5/2)),x]
```


```
[Out] (2*a*x^3)/(b*(b*c - a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2)) - (2*c*(b
*c + 3*a*d)*x^2*Sqrt[a + b*x])/(3*b*d*(b*c - a*d)^2*(c + d*x)^(3/
2)) + (Sqrt[a + b*x]*(c*(15*b^3*c^3 - 31*a*b^2*c^2*d + 9*a^2*b*c*
d^2 - 9*a^3*d^3) + d*(b*c - a*d)*(5*b^2*c^2 - 6*a*b*c*d + 9*a^2*d
^2)*x))/(3*b^2*d^3*(b*c - a*d)^3*Sqrt[c + d*x]) - ((5*b*c + 3*a*d
)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(b^(5
/2)*d^(7/2))
```

Rubi in Sympy [A] time = 50.4776, size = 243, normalized size = 0.97

$$-\frac{2ax^3}{b\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}\,(ad-bc)}-\frac{2cx^2\sqrt{a+bx}\,(3ad+bc)}{3bd\,(c+dx)^{\frac{3}{2}}\,(ad-bc)^2}+\frac{8\sqrt{a+bx}\left(\frac{c\left(9a^3d^3-9a^2bcd^2+31ab^2c^2d-15b^3c^3\right)}{8}+\frac{dx(ad-bc)\left(9a^2d^2-6abcd+5b^2c^2\right)}{8}\right)}{3b^2d^3\sqrt{c+dx}\,(ad-bc)^3}-\frac{(3ad+5bc)\,\mathrm{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{\frac{5}{2}}d^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**4/(b*x+a)**(3/2)/(d*x+c)**(5/2),x)
```

```
[Out] -2*a*x**3/(b*sqrt(a + b*x)*(c + d*x)**(3/2)*(a*d - b*c)) - 2*c*x*
*2*sqrt(a + b*x)*(3*a*d + b*c)/(3*b*d*(c + d*x)**(3/2)*(a*d - b*c
)**2) + 8*sqrt(a + b*x)*(c*(9*a**3*d**3 - 9*a**2*b*c*d**2 + 31*a*
b**2*c**2*d - 15*b**3*c**3)/8 + d*x*(a*d - b*c)*(9*a**2*d**2 - 6*
a*b*c*d + 5*b**2*c**2)/8)/(3*b**2*d**3*sqrt(c + d*x)*(a*d - b*c)*
*3) - (3*a*d + 5*b*c)*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c
```

```
 + d*x)))/(b**(5/2)*d**(7/2))
```

Mathematica [A] time = 0.987292, size = 182, normalized size = 0.73

$$\sqrt{a+bx}\sqrt{c+dx}\left(-\frac{2a^4}{b^2(a+bx)(bc-ad)^3}-\frac{2c^4}{3d^3(c+dx)^2(ad-bc)^2}-\frac{2c^3(7bc-12ad)}{3d^3(c+dx)(ad-bc)^3}+\frac{1}{b^2d^3}\right)-\frac{(3ad+5bc)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{2b^{5/2}d^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^4/((a + b*x)^(3/2)*(c + d*x)^(5/2)),x]
```

```
[Out] Sqrt[a + b*x]*Sqrt[c + d*x]*(1/(b^2*d^3) - (2*a^4)/(b^2*(b*c - a*
d)^3*(a + b*x)) - (2*c^4)/(3*d^3*(-(b*c) + a*d)^2*(c + d*x)^2) -
(2*c^3*(7*b*c - 12*a*d))/(3*d^3*(-(b*c) + a*d)^3*(c + d*x))) - ((
5*b*c + 3*a*d)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a
 + b*x]*Sqrt[c + d*x]])/(2*b^(5/2)*d^(7/2))
```

Maple [B] time = 0.046, size = 1714, normalized size = 6.8

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^4/(b*x+a)^(3/2)/(d*x+c)^(5/2),x)
```

```
[Out] -1/6*(-6*x^3*a^3*b*d^5*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+18*x^3
*a^2*b^2*c*d^4*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-18*x^3*a*b^3*c
^2*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+6*x^2*a^3*b*c*d^4*((b*
x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+18*x^2*a^2*b^2*c^2*d^3*((b*x+a)*(
d*x+c))^(1/2)*(b*d)^(1/2)-78*x^2*a*b^3*c^3*d^2*((b*x+a)*(d*x+c))^
(1/2)*(b*d)^(1/2)+30*x*a^3*b*c^2*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d
)^(1/2)-66*x*a^2*b^2*c^3*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-
22*x*a*b^3*c^4*d*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+9*ln(1/2*(2*
b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))
*x^2*a^5*d^6-15*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(
1/2)+a*d+b*c)/(b*d)^(1/2))*x*b^5*c^6+9*ln(1/2*(2*b*d*x+2*((b*x+a)
*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^5*c^2*d^4-15*
ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b
*d)^(1/2))*a*b^4*c^6-18*x^2*a^4*d^5*((b*x+a)*(d*x+c))^(1/2)*(b*d)
^(1/2)+30*x*b^4*c^5*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-18*a^4*c^
2*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+30*a*b^3*c^5*((b*x+a)*(
d*x+c))^(1/2)*(b*d)^(1/2)+9*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(
1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^3*a^4*b*d^6-15*ln(1/2*(2
*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2)
)*x^3*b^5*c^4*d^2-30*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b
*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*b^5*c^5*d+18*ln(1/2*(2*b*d*x+
2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^5
*c*d^5-12*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a
*d+b*c)/(b*d)^(1/2))*a^4*b*c^3*d^3-18*ln(1/2*(2*b*d*x+2*((b*x+a)*
(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^3*b^2*c^4*d^2+
36*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)
/(b*d)^(1/2))*a^2*b^3*c^5*d-62*a^2*b^2*c^4*d*((b*x+a)*(d*x+c))^(1
/2)*(b*d)^(1/2)-12*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d
)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^3*a^3*b^2*c*d^5-18*ln(1/2*(2*b*d*
x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^3
*a^2*b^3*c^2*d^4+36*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*
d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^3*a*b^4*c^3*d^3+6*ln(1/2*(2*b*d*
x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2
*a^4*b*c*d^5-42*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(
1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a^3*b^2*c^2*d^4+57*ln(1/2*(2*b*d*x
+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*
a*b^4*c^4*d^2-15*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^
```

```
(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^4*b*c^2*d^4-48*ln(1/2*(2*b*d*x+2*
((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^3*b
^2*c^3*d^3+54*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/
2)+a*d+b*c)/(b*d)^(1/2))*x*a^2*b^3*c^4*d^2+6*ln(1/2*(2*b*d*x+2*((
b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a*b^4*c
^5*d+6*x^3*b^4*c^3*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+40*x^2
*b^4*c^4*d*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-36*x*a^4*c*d^4*((b
*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+18*a^3*b*c^3*d^2*((b*x+a)*(d*x+c
))^(1/2)*(b*d)^(1/2))/(b*d)^(1/2)/(a*d-b*c)^3/((b*x+a)*(d*x+c))^(
1/2)/b^2/d^3/(d*x+c)^(3/2)/(b*x+a)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^4/((b*x + a)^(3/2)*(d*x + c)^(5/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.749091, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^4/((b*x + a)^(3/2)*(d*x + c)^(5/2)),x, algorithm="fricas")
```

```
[Out] [1/12*(4*(15*a*b^3*c^5 - 31*a^2*b^2*c^4*d + 9*a^3*b*c^3*d^2 - 9*a
^4*c^2*d^3 + 3*(b^4*c^3*d^2 - 3*a*b^3*c^2*d^3 + 3*a^2*b^2*c*d^4 -
 a^3*b*d^5)*x^3 + (20*b^4*c^4*d - 39*a*b^3*c^3*d^2 + 9*a^2*b^2*c^
2*d^3 + 3*a^3*b*c*d^4 - 9*a^4*d^5)*x^2 + (15*b^4*c^5 - 11*a*b^3*c
^4*d - 33*a^2*b^2*c^3*d^2 + 15*a^3*b*c^2*d^3 - 18*a^4*c*d^4)*x)*s
qrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 3*(5*a*b^4*c^6 - 12*a^2*b^
3*c^5*d + 6*a^3*b^2*c^4*d^2 + 4*a^4*b*c^3*d^3 - 3*a^5*c^2*d^4 + (
5*b^5*c^4*d^2 - 12*a*b^4*c^3*d^3 + 6*a^2*b^3*c^2*d^4 + 4*a^3*b^2*
c*d^5 - 3*a^4*b*d^6)*x^3 + (10*b^5*c^5*d - 19*a*b^4*c^4*d^2 + 14*
a^3*b^2*c^2*d^4 - 2*a^4*b*c*d^5 - 3*a^5*d^6)*x^2 + (5*b^5*c^6 - 2
*a*b^4*c^5*d - 18*a^2*b^3*c^4*d^2 + 16*a^3*b^2*c^3*d^3 + 5*a^4*b*
c^2*d^4 - 6*a^5*c*d^5)*x)*log(-4*(2*b^2*d^2*x + b^2*c*d + a*b*d^2
)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*
c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/((a*b^5*c^5*
d^3 - 3*a^2*b^4*c^4*d^4 + 3*a^3*b^3*c^3*d^5 - a^4*b^2*c^2*d^6 + (
b^6*c^3*d^5 - 3*a*b^5*c^2*d^6 + 3*a^2*b^4*c*d^7 - a^3*b^3*d^8)*x^
3 + (2*b^6*c^4*d^4 - 5*a*b^5*c^3*d^5 + 3*a^2*b^4*c^2*d^6 + a^3*b^
3*c*d^7 - a^4*b^2*d^8)*x^2 + (b^6*c^5*d^3 - a*b^5*c^4*d^4 - 3*a^2
*b^4*c^3*d^5 + 5*a^3*b^3*c^2*d^6 - 2*a^4*b^2*c*d^7)*x)*sqrt(b*d))
, 1/6*(2*(15*a*b^3*c^5 - 31*a^2*b^2*c^4*d + 9*a^3*b*c^3*d^2 - 9*a
^4*c^2*d^3 + 3*(b^4*c^3*d^2 - 3*a*b^3*c^2*d^3 + 3*a^2*b^2*c*d^4 -
 a^3*b*d^5)*x^3 + (20*b^4*c^4*d - 39*a*b^3*c^3*d^2 + 9*a^2*b^2*c^
2*d^3 + 3*a^3*b*c*d^4 - 9*a^4*d^5)*x^2 + (15*b^4*c^5 - 11*a*b^3*c
^4*d - 33*a^2*b^2*c^3*d^2 + 15*a^3*b*c^2*d^3 - 18*a^4*c*d^4)*x)*s
qrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c) - 3*(5*a*b^4*c^6 - 12*a^2*b
^3*c^5*d + 6*a^3*b^2*c^4*d^2 + 4*a^4*b*c^3*d^3 - 3*a^5*c^2*d^4 +
(5*b^5*c^4*d^2 - 12*a*b^4*c^3*d^3 + 6*a^2*b^3*c^2*d^4 + 4*a^3*b^2
*c*d^5 - 3*a^4*b*d^6)*x^3 + (10*b^5*c^5*d - 19*a*b^4*c^4*d^2 + 14
*a^3*b^2*c^2*d^4 - 2*a^4*b*c*d^5 - 3*a^5*d^6)*x^2 + (5*b^5*c^6 -
2*a*b^4*c^5*d - 18*a^2*b^3*c^4*d^2 + 16*a^3*b^2*c^3*d^3 + 5*a^4*b
*c^2*d^4 - 6*a^5*c*d^5)*x)*arctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(
-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/((a*b^5*c^5*d^3 - 3*a^2
*b^4*c^4*d^4 + 3*a^3*b^3*c^3*d^5 - a^4*b^2*c^2*d^6 + (b^6*c^3*d^5
 - 3*a*b^5*c^2*d^6 + 3*a^2*b^4*c*d^7 - a^3*b^3*d^8)*x^3 + (2*b^6*
c^4*d^4 - 5*a*b^5*c^3*d^5 + 3*a^2*b^4*c^2*d^6 + a^3*b^3*c*d^7 - a
^4*b^2*d^8)*x^2 + (b^6*c^5*d^3 - a*b^5*c^4*d^4 - 3*a^2*b^4*c^3*d^
```

```
5 + 5*a^3*b^3*c^2*d^6 - 2*a^4*b^2*c*d^7)*x)*sqrt(-b*d))]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x^4}{(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**4/(b*x+a)**(3/2)/(d*x+c)**(5/2),x)
```

```
[Out] Integral(x**4/((a + b*x)**(3/2)*(c + d*x)**(5/2)), x)
```

GIAC/XCAS [A] time = 0.581727, size = 4, normalized size = 0.02

$$sage_0x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^4/((b*x + a)^(3/2)*(d*x + c)^(5/2)),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.774 $\int \frac{x^3}{(a+bx)^{3/2}(c+dx)^{5/2}}\,dx$

Optimal. Leaf size=165

$$-\frac{2c\sqrt{a+bx}\left(2dx\left(-3a^2d^2-3abcd+2b^2c^2\right)+c(bc-3ad)(ad+3bc)\right)}{3bd^2(c+dx)^{3/2}(bc-ad)^3}+\frac{2\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{3/2}d^{5/2}}+\frac{2ax^2}{b\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)}$$

```
[Out] (2*a*x^2)/(b*(b*c - a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2)) - (2*c*Sq
rt[a + b*x]*(c*(b*c - 3*a*d)*(3*b*c + a*d) + 2*d*(2*b^2*c^2 - 3*a
*b*c*d - 3*a^2*d^2)*x))/(3*b*d^2*(b*c - a*d)^3*(c + d*x)^(3/2)) +
 (2*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(b^
(3/2)*d^(5/2))
```

Rubi [A] time = 0.336417, antiderivative size = 165, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{2c\sqrt{a+bx}\left(2dx\left(-3a^2d^2-3abcd+2b^2c^2\right)+c(bc-3ad)(ad+3bc)\right)}{3bd^2(c+dx)^{3/2}(bc-ad)^3}+\frac{2\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{3/2}d^{5/2}}+\frac{2ax^2}{b\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[x^3/((a + b*x)^(3/2)*(c + d*x)^(5/2)),x]
```

```
[Out] (2*a*x^2)/(b*(b*c - a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2)) - (2*c*Sq
rt[a + b*x]*(c*(b*c - 3*a*d)*(3*b*c + a*d) + 2*d*(2*b^2*c^2 - 3*a
*b*c*d - 3*a^2*d^2)*x))/(3*b*d^2*(b*c - a*d)^3*(c + d*x)^(3/2)) +
 (2*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(b^
(3/2)*d^(5/2))
```

Rubi in Sympy [A] time = 25.9417, size = 158, normalized size = 0.96

$$-\frac{2ax^2}{b\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}\,(ad-bc)}-\frac{8c\sqrt{a+bx}\left(\frac{c(ad+3bc)(3ad-bc)}{4}+\frac{dx\left(3a^2d^2+3abcd-2b^2c^2\right)}{2}\right)}{3bd^2\,(c+dx)^{\frac{3}{2}}\,(ad-bc)^3}+\frac{2\,\mathrm{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{\frac{3}{2}}d^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3/(b*x+a)**(3/2)/(d*x+c)**(5/2),x)
```

```
[Out] -2*a*x**2/(b*sqrt(a + b*x)*(c + d*x)**(3/2)*(a*d - b*c)) - 8*c*sq
rt(a + b*x)*(c*(a*d + 3*b*c)*(3*a*d - b*c)/4 + d*x*(3*a**2*d**2 +
 3*a*b*c*d - 2*b**2*c**2)/2)/(3*b*d**2*(c + d*x)**(3/2)*(a*d - b*
c)**3) + 2*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c + d*x)))/(
b**(3/2)*d**(5/2))
```

Mathematica [A] time = 0.674011, size = 160, normalized size = 0.97

$$\frac{2}{3}\sqrt{a+bx}\sqrt{c+dx}\left(\frac{3a^3}{b(a+bx)(bc-ad)^3}+\frac{c^3}{d^2(c+dx)^2(bc-ad)^2}+\frac{c^2(4bc-9ad)}{d^2(c+dx)(ad-bc)^3}\right)+\frac{\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{b^{3/2}d^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^3/((a + b*x)^(3/2)*(c + d*x)^(5/2)),x]
```

```
[Out] (2*Sqrt[a + b*x]*Sqrt[c + d*x]*((3*a^3)/(b*(b*c - a*d)^3*(a + b*x
)) + c^3/(d^2*(b*c - a*d)^2*(c + d*x)^2) + (c^2*(4*b*c - 9*a*d))/
(d^2*(-(b*c) + a*d)^3*(c + d*x))))/3 + Log[b*c + a*d + 2*b*d*x +
2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]]/(b^(3/2)*d^(5/2))
```

Maple [B] time = 0.043, size = 1289, normalized size = 7.8

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^3/(b*x+a)^(3/2)/(d*x+c)^(5/2),x)
```

```
[Out] 1/3*(6*x*b^3*c^4*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-6*a^3*c^2*d^
2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+6*a*b^2*c^4*((b*x+a)*(d*x+c
))^(1/2)*(b*d)^(1/2)+3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*
(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^3*a^3*b*d^5-3*ln(1/2*(2*b*d*x
+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^3*
b^4*c^3*d^2-6*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/
2)+a*d+b*c)/(b*d)^(1/2))*x^2*b^4*c^4*d+6*ln(1/2*(2*b*d*x+2*((b*x+
a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^4*c*d^4-9
*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(
b*d)^(1/2))*a^3*b*c^3*d^2+9*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(
1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^2*b^2*c^4*d-15*ln(1/2*(2
*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2)
)*x*a^3*b*c^2*d^3+9*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*
d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^3*a*b^3*c^2*d^3-3*ln(1/2*(2*b*d*
x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2
*a^3*b*c*d^4-9*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1
/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a^2*b^2*c^2*d^3+15*ln(1/2*(2*b*d*x+
2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a
*b^3*c^3*d^2+3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1
/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a^4*d^5-3*ln(1/2*(2*b*d*x+2*((b*x+a
)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*b^4*c^5+3*ln
(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d
)^(1/2))*a^4*c^2*d^3-3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*
(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a*b^3*c^5-6*x^2*a^3*d^4*((b*x+a
)*(d*x+c))^(1/2)*(b*d)^(1/2)+9*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c)
)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^2*b^2*c^3*d^2+3*ln(
1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)
^(1/2))*x*a*b^3*c^4*d+8*x^2*b^3*c^3*d*((b*x+a)*(d*x+c))^(1/2)*(b*
d)^(1/2)-12*x*a^3*c*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-16*a^
2*b*c^3*d*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-9*ln(1/2*(2*b*d*x+2
*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^3*a^
2*b^2*c*d^4-18*x^2*a*b^2*c^2*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1
/2)-18*x*a^2*b*c^2*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-8*x*a*
b^2*c^3*d*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2))/(b*d)^(1/2)/(a*d-b
*c)^3/((b*x+a)*(d*x+c))^(1/2)/b/d^2/(d*x+c)^(3/2)/(b*x+a)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^3/((b*x + a)^(3/2)*(d*x + c)^(5/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.530217, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3/((b*x + a)^(3/2)*(d*x + c)^(5/2)),x, algorithm="fricas")
```

```
[Out] [-1/6*(4*(3*a*b^2*c^4 - 8*a^2*b*c^3*d - 3*a^3*c^2*d^2 + (4*b^3*c^
3*d - 9*a*b^2*c^2*d^2 - 3*a^3*d^4)*x^2 + (3*b^3*c^4 - 4*a*b^2*c^3
*d - 9*a^2*b*c^2*d^2 - 6*a^3*c*d^3)*x)*sqrt(b*d)*sqrt(b*x + a)*sq
rt(d*x + c) - 3*(a*b^3*c^5 - 3*a^2*b^2*c^4*d + 3*a^3*b*c^3*d^2 -
a^4*c^2*d^3 + (b^4*c^3*d^2 - 3*a*b^3*c^2*d^3 + 3*a^2*b^2*c*d^4 -
a^3*b*d^5)*x^3 + (2*b^4*c^4*d - 5*a*b^3*c^3*d^2 + 3*a^2*b^2*c^2*d
^3 + a^3*b*c*d^4 - a^4*d^5)*x^2 + (b^4*c^5 - a*b^3*c^4*d - 3*a^2*
b^2*c^3*d^2 + 5*a^3*b*c^2*d^3 - 2*a^4*c*d^4)*x)*log(4*(2*b^2*d^2*
x + b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x
^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqr
t(b*d)))/((a*b^4*c^5*d^2 - 3*a^2*b^3*c^4*d^3 + 3*a^3*b^2*c^3*d^4
- a^4*b*c^2*d^5 + (b^5*c^3*d^4 - 3*a*b^4*c^2*d^5 + 3*a^2*b^3*c*d^
6 - a^3*b^2*d^7)*x^3 + (2*b^5*c^4*d^3 - 5*a*b^4*c^3*d^4 + 3*a^2*b
^3*c^2*d^5 + a^3*b^2*c*d^6 - a^4*b*d^7)*x^2 + (b^5*c^5*d^2 - a*b^
4*c^4*d^3 - 3*a^2*b^3*c^3*d^4 + 5*a^3*b^2*c^2*d^5 - 2*a^4*b*c*d^6
)*x)*sqrt(b*d)), -1/3*(2*(3*a*b^2*c^4 - 8*a^2*b*c^3*d - 3*a^3*c^2
*d^2 + (4*b^3*c^3*d - 9*a*b^2*c^2*d^2 - 3*a^3*d^4)*x^2 + (3*b^3*c
^4 - 4*a*b^2*c^3*d - 9*a^2*b*c^2*d^2 - 6*a^3*c*d^3)*x)*sqrt(-b*d)
*sqrt(b*x + a)*sqrt(d*x + c) - 3*(a*b^3*c^5 - 3*a^2*b^2*c^4*d + 3
*a^3*b*c^3*d^2 - a^4*c^2*d^3 + (b^4*c^3*d^2 - 3*a*b^3*c^2*d^3 + 3
*a^2*b^2*c*d^4 - a^3*b*d^5)*x^3 + (2*b^4*c^4*d - 5*a*b^3*c^3*d^2
+ 3*a^2*b^2*c^2*d^3 + a^3*b*c*d^4 - a^4*d^5)*x^2 + (b^4*c^5 - a*b
^3*c^4*d - 3*a^2*b^2*c^3*d^2 + 5*a^3*b*c^2*d^3 - 2*a^4*c*d^4)*x)*
arctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d
*x + c)*b*d)))/((a*b^4*c^5*d^2 - 3*a^2*b^3*c^4*d^3 + 3*a^3*b^2*c^
3*d^4 - a^4*b*c^2*d^5 + (b^5*c^3*d^4 - 3*a*b^4*c^2*d^5 + 3*a^2*b^
3*c*d^6 - a^3*b^2*d^7)*x^3 + (2*b^5*c^4*d^3 - 5*a*b^4*c^3*d^4 + 3
*a^2*b^3*c^2*d^5 + a^3*b^2*c*d^6 - a^4*b*d^7)*x^2 + (b^5*c^5*d^2
- a*b^4*c^4*d^3 - 3*a^2*b^3*c^3*d^4 + 5*a^3*b^2*c^2*d^5 - 2*a^4*b
*c*d^6)*x)*sqrt(-b*d))]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x^3}{(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**3/(b*x+a)**(3/2)/(d*x+c)**(5/2),x)
```

```
[Out] Integral(x**3/((a + b*x)**(3/2)*(c + d*x)**(5/2)), x)
```

GIAC/XCAS [A] time = 0.595411, size = 4, normalized size = 0.02

$$sage_0x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3/((b*x + a)^(3/2)*(d*x + c)^(5/2)),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.775 $\int \frac{x^2}{(a+bx)^{3/2}(c+dx)^{5/2}}\,dx$

Optimal. Leaf size=151

$$\frac{2\sqrt{a+bx}\left(-3a^2d^2-6abcd+b^2c^2\right)}{3bd\sqrt{c+dx}(bc-ad)^3}-\frac{2\sqrt{a+bx}\left(3a^2d^2+b^2c^2\right)}{3b^2d(c+dx)^{3/2}(bc-ad)^2}-\frac{2a^2}{b^2\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)}$$

```
[Out] (-2*a^2)/(b^2*(b*c - a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2)) - (2*(b^
2*c^2 + 3*a^2*d^2)*Sqrt[a + b*x])/(3*b^2*d*(b*c - a*d)^2*(c + d*x
)^(3/2)) + (2*(b^2*c^2 - 6*a*b*c*d - 3*a^2*d^2)*Sqrt[a + b*x])/(3
*b*d*(b*c - a*d)^3*Sqrt[c + d*x])
```

Rubi [A] time = 0.345701, antiderivative size = 151, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.136

$$\frac{2\sqrt{a+bx}\left(-3a^2d^2-6abcd+b^2c^2\right)}{3bd\sqrt{c+dx}(bc-ad)^3}-\frac{2\sqrt{a+bx}\left(3a^2d^2+b^2c^2\right)}{3b^2d(c+dx)^{3/2}(bc-ad)^2}-\frac{2a^2}{b^2\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[x^2/((a + b*x)^(3/2)*(c + d*x)^(5/2)),x]
```

```
[Out] (-2*a^2)/(b^2*(b*c - a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2)) - (2*(b^
2*c^2 + 3*a^2*d^2)*Sqrt[a + b*x])/(3*b^2*d*(b*c - a*d)^2*(c + d*x
)^(3/2)) + (2*(b^2*c^2 - 6*a*b*c*d - 3*a^2*d^2)*Sqrt[a + b*x])/(3
*b*d*(b*c - a*d)^3*Sqrt[c + d*x])
```

Rubi in Sympy [A] time = 26.1966, size = 131, normalized size = 0.87

$$-\frac{2c^2}{3d^2\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}\,(ad-bc)}+\frac{4c\,(3ad-bc)}{3d^2\sqrt{a+bx}\sqrt{c+dx}\,(ad-bc)^2}+\frac{2\sqrt{c+dx}\left(3a^2d^2+6abcd-b^2c^2\right)}{3d^2\sqrt{a+bx}\,(ad-bc)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2/(b*x+a)**(3/2)/(d*x+c)**(5/2),x)
```

```
[Out] -2*c**2/(3*d**2*sqrt(a + b*x)*(c + d*x)**(3/2)*(a*d - b*c)) + 4*c
*(3*a*d - b*c)/(3*d**2*sqrt(a + b*x)*sqrt(c + d*x)*(a*d - b*c)**2
) + 2*sqrt(c + d*x)*(3*a**2*d**2 + 6*a*b*c*d - b**2*c**2)/(3*d**2
*sqrt(a + b*x)*(a*d - b*c)**3)
```

Mathematica [A] time = 0.160664, size = 82, normalized size = 0.54

$$\frac{-2a^2\left(8c^2+12cdx+3d^2x^2\right)-4abcx(2c+3dx)+2b^2c^2x^2}{3\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^2/((a + b*x)^(3/2)*(c + d*x)^(5/2)),x]
```

```
[Out] (2*b^2*c^2*x^2 - 4*a*b*c*x*(2*c + 3*d*x) - 2*a^2*(8*c^2 + 12*c*d*
x + 3*d^2*x^2))/(3*(b*c - a*d)^3*Sqrt[a + b*x]*(c + d*x)^(3/2))
```

Maple [A] time = 0.012, size = 111, normalized size = 0.7

$$\frac{6\,a^{2}d^{2}x^{2}+12\,abcdx^{2}-2\,b^{2}c^{2}x^{2}+24\,a^{2}cdx+8\,abc^{2}x+16\,a^{2}c^{2}}{3\,a^{3}d^{3}-9\,a^{2}cbd^{2}+9\,ab^{2}c^{2}d-3\,b^{3}c^{3}}\frac{1}{\sqrt{bx+a}}\left(dx+c\right)^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2/(b*x+a)^(3/2)/(d*x+c)^(5/2),x)
```

```
[Out] 2/3*(3*a^2*d^2*x^2+6*a*b*c*d*x^2-b^2*c^2*x^2+12*a^2*c*d*x+4*a*b*c
^2*x+8*a^2*c^2)/(b*x+a)^(1/2)/(d*x+c)^(3/2)/(a^3*d^3-3*a^2*b*c*d^
2+3*a*b^2*c^2*d-b^3*c^3)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^2/((b*x + a)^(3/2)*(d*x + c)^(5/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.366875, size = 371, normalized size = 2.46

$$-\frac{2\left(8\,a^{2}c^{2}-\left(b^{2}c^{2}-6\,abcd-3\,a^{2}d^{2}\right)x^{2}+4\left(abc^{2}+3\,a^{2}cd\right)x\right)}{3\left(ab^{3}c^{5}-3\,a^{2}b^{2}c^{4}d+3\,a^{3}bc^{3}d^{2}-a^{4}c^{2}d^{3}+\left(b^{4}c^{3}d^{2}-3\,ab^{3}c^{2}d^{3}+3\,a^{2}b^{2}cd^{4}-a^{3}bd^{5}\right)x^{3}+\left(2\,b^{4}c^{4}d-5\,ab^{3}c^{3}d^{2}+3\,a^{2}b^{2}c^{2}\right.\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^2/((b*x + a)^(3/2)*(d*x + c)^(5/2)),x, algorithm="fricas")
```

```
[Out] -2/3*(8*a^2*c^2 - (b^2*c^2 - 6*a*b*c*d - 3*a^2*d^2)*x^2 + 4*(a*b*
c^2 + 3*a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c)/(a*b^3*c^5 - 3*a^
2*b^2*c^4*d + 3*a^3*b*c^3*d^2 - a^4*c^2*d^3 + (b^4*c^3*d^2 - 3*a*
b^3*c^2*d^3 + 3*a^2*b^2*c*d^4 - a^3*b*d^5)*x^3 + (2*b^4*c^4*d - 5
*a*b^3*c^3*d^2 + 3*a^2*b^2*c^2*d^3 + a^3*b*c*d^4 - a^4*d^5)*x^2 +
 (b^4*c^5 - a*b^3*c^4*d - 3*a^2*b^2*c^3*d^2 + 5*a^3*b*c^2*d^3 - 2
*a^4*c*d^4)*x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x^{2}}{\left(a+bx\right)^{\frac{3}{2}}\left(c+dx\right)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2/(b*x+a)**(3/2)/(d*x+c)**(5/2),x)
```

```
[Out] Integral(x**2/((a + b*x)**(3/2)*(c + d*x)**(5/2)), x)
```

GIAC/XCAS [A] time = 0.289086, size = 423, normalized size = 2.8

$$-\frac{4\sqrt{bd}a^2b}{\left(b^2c^2|b| - 2\,abcd|b| + a^2d^2|b|\right)\left(b^2c - abd - \left(\sqrt{bd}\sqrt{bx+a} - \sqrt{b^2c + (bx+a)bd - abd}\right)^2\right)} - \frac{\sqrt{bx+a}\left(\frac{\left(b^6c^4d|b| - 8\,ab^5c^3d^2|b| + 13\,a^2b^4c^2d^3|b| - 6\,a^3b^3cd^4|b|\right)(bx+a)}{b^8c^2d^4 - 2\,ab^7cd^5 + a^2b^6d^6} - \frac{6\left(ab^6c^4d|b| - 3\,a^2b^5c^3d^2|b| + 3\,a^3b^4c^2d^3|b| - a^4b^3cd^4|b|\right)}{b^8c^2d^4 - 2\,ab^7cd^5 + a^2b^6d^6}\right)}{24\left(b^2c + (bx+a)bd - abd\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^2/((b*x + a)^(3/2)*(d*x + c)^(5/2)),x, algorithm="giac")
```

```
[Out] -4*sqrt(b*d)*a^2*b/((b^2*c^2*abs(b) - 2*a*b*c*d*abs(b) + a^2*d^2*
abs(b))*(b^2*c - a*b*d - (sqrt(b*d)*sqrt(b*x + a) - sqrt(b^2*c +
(b*x + a)*b*d - a*b*d))^2)) - 1/24*sqrt(b*x + a)*((b^6*c^4*d*abs(
b) - 8*a*b^5*c^3*d^2*abs(b) + 13*a^2*b^4*c^2*d^3*abs(b) - 6*a^3*b
^3*c*d^4*abs(b))*(b*x + a)/(b^8*c^2*d^4 - 2*a*b^7*c*d^5 + a^2*b^6
*d^6) - 6*(a*b^6*c^4*d*abs(b) - 3*a^2*b^5*c^3*d^2*abs(b) + 3*a^3*
b^4*c^2*d^3*abs(b) - a^4*b^3*c*d^4*abs(b))/(b^8*c^2*d^4 - 2*a*b^7
*c*d^5 + a^2*b^6*d^6))/(b^2*c + (b*x + a)*b*d - a*b*d)^(3/2)
```

3.776 $\int \frac{x}{(a+bx)^{3/2}(c+dx)^{5/2}}\,dx$

Optimal. Leaf size=118

$$\frac{2a}{b\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)}+\frac{4\sqrt{a+bx}(3ad+bc)}{3\sqrt{c+dx}(bc-ad)^3}+\frac{2\sqrt{a+bx}(3ad+bc)}{3b(c+dx)^{3/2}(bc-ad)^2}$$

```
[Out] (2*a)/(b*(b*c - a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2)) + (2*(b*c + 3
*a*d)*Sqrt[a + b*x])/(3*b*(b*c - a*d)^2*(c + d*x)^(3/2)) + (4*(b*
c + 3*a*d)*Sqrt[a + b*x])/(3*(b*c - a*d)^3*Sqrt[c + d*x])
```

Rubi [A] time = 0.139595, antiderivative size = 118, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.15

$$\frac{2a}{b\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)}+\frac{4\sqrt{a+bx}(3ad+bc)}{3\sqrt{c+dx}(bc-ad)^3}+\frac{2\sqrt{a+bx}(3ad+bc)}{3b(c+dx)^{3/2}(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[x/((a + b*x)^(3/2)*(c + d*x)^(5/2)),x]
```

```
[Out] (2*a)/(b*(b*c - a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2)) + (2*(b*c + 3
*a*d)*Sqrt[a + b*x])/(3*b*(b*c - a*d)^2*(c + d*x)^(3/2)) + (4*(b*
c + 3*a*d)*Sqrt[a + b*x])/(3*(b*c - a*d)^3*Sqrt[c + d*x])
```

Rubi in Sympy [A] time = 16.439, size = 104, normalized size = 0.88

$$-\frac{2a}{b\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}\,(ad-bc)}-\frac{4\sqrt{a+bx}\,(3ad+bc)}{3\sqrt{c+dx}\,(ad-bc)^3}+\frac{2\sqrt{a+bx}\,(3ad+bc)}{3b\,(c+dx)^{\frac{3}{2}}\,(ad-bc)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x/(b*x+a)**(3/2)/(d*x+c)**(5/2),x)
```

```
[Out] -2*a/(b*sqrt(a + b*x)*(c + d*x)**(3/2)*(a*d - b*c)) - 4*sqrt(a +
b*x)*(3*a*d + b*c)/(3*sqrt(c + d*x)*(a*d - b*c)**3) + 2*sqrt(a +
b*x)*(3*a*d + b*c)/(3*b*(c + d*x)**(3/2)*(a*d - b*c)**2)
```

Mathematica [A] time = 0.125348, size = 83, normalized size = 0.7

$$\frac{2\left(a^2d(2c+3dx)+2ab\left(3c^2+5cdx+3d^2x^2\right)+b^2cx(3c+2dx)\right)}{3\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x/((a + b*x)^(3/2)*(c + d*x)^(5/2)),x]
```

```
[Out] (2*(b^2*c*x*(3*c + 2*d*x) + a^2*d*(2*c + 3*d*x) + 2*a*b*(3*c^2 +
5*c*d*x + 3*d^2*x^2)))/(3*(b*c - a*d)^3*Sqrt[a + b*x]*(c + d*x)^(
3/2))
```

Maple [A] time = 0.012, size = 115, normalized size = 1.

$$-\frac{12\,abd^2x^2+4\,b^2cdx^2+6\,a^2d^2x+20\,abcdx+6\,b^2c^2x+4\,a^2cd+12\,abc^2}{3\,a^3d^3-9\,a^2cbd^2+9\,ab^2c^2d-3\,b^3c^3}\frac{1}{\sqrt{bx+a}}(dx+c)^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x/(b*x+a)^(3/2)/(d*x+c)^(5/2),x)
```

```
[Out] -2/3*(6*a*b*d^2*x^2+2*b^2*c*d*x^2+3*a^2*d^2*x+10*a*b*c*d*x+3*b^2*
c^2*x+2*a^2*c*d+6*a*b*c^2)/(b*x+a)^(1/2)/(d*x+c)^(3/2)/(a^3*d^3-3
*a^2*b*c*d^2+3*a*b^2*c^2*d-b^3*c^3)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x/((b*x + a)^(3/2)*(d*x + c)^(5/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.373524, size = 379, normalized size = 3.21

$$\frac{2\left(6\,abc^2+2\,a^2cd+2\left(b^2cd+3\,abd^2\right)x^2+\left(3\,b^2c^2+10\,abcd+3\,a^2d^2\right.}{3\left(ab^3c^5-3\,a^2b^2c^4d+3\,a^3bc^3d^2-a^4c^2d^3+\left(b^4c^3d^2-3\,ab^3c^2d^3+3\,a^2b^2cd^4-a^3bd^5\right)x^3+\left(2\,b^4c^4d-5\,ab^3c^3d^2+3\,a^2b^2c^2d^3\right.\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x/((b*x + a)^(3/2)*(d*x + c)^(5/2)),x, algorithm="fricas")
```

```
[Out] 2/3*(6*a*b*c^2 + 2*a^2*c*d + 2*(b^2*c*d + 3*a*b*d^2)*x^2 + (3*b^2
*c^2 + 10*a*b*c*d + 3*a^2*d^2)*x)*sqrt(b*x + a)*sqrt(d*x + c)/(a*
b^3*c^5 - 3*a^2*b^2*c^4*d + 3*a^3*b*c^3*d^2 - a^4*c^2*d^3 + (b^4*
c^3*d^2 - 3*a*b^3*c^2*d^3 + 3*a^2*b^2*c*d^4 - a^3*b*d^5)*x^3 + (2
*b^4*c^4*d - 5*a*b^3*c^3*d^2 + 3*a^2*b^2*c^2*d^3 + a^3*b*c*d^4 -
a^4*d^5)*x^2 + (b^4*c^5 - a*b^3*c^4*d - 3*a^2*b^2*c^3*d^2 + 5*a^3
*b*c^2*d^3 - 2*a^4*c*d^4)*x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x}{\left(a+bx\right)^{\frac{3}{2}}\left(c+dx\right)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/(b*x+a)**(3/2)/(d*x+c)**(5/2),x)
```

```
[Out] Integral(x/((a + b*x)**(3/2)*(c + d*x)**(5/2)), x)
```

GIAC/XCAS [A] time = 0.291963, size = 421, normalized size = 3.57

$$\frac{\frac{48\sqrt{bd}ab^3}{\left(b^2c^2|b|-2\,abcd|b|+a^2d^2|b|\right)\left(b^2c-abd-\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2\right)}-\frac{\sqrt{bx+a}\left(\frac{\left(2\,b^7c^3d^2|b|-ab^6c^2d^3|b|-4\,a^2b^5cd^4|b|+3\,a^3b^4d^5|b|\right)(bx+a)}{b^8c^2d^4-2\,ab^7cd^5+a^2b^6d^6}+\frac{3\left(b^8c^4\right.}{}\right.}{\left(b^2c+(bx+a)bd-abd\right)^{\frac{3}{2}}}}{12\,b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/((b*x + a)^(3/2)*(d*x + c)^(5/2)),x, algorithm="giac")
```

```
[Out] 1/12*(48*sqrt(b*d)*a*b^3/((b^2*c^2*abs(b) - 2*a*b*c*d*abs(b) + a^
2*d^2*abs(b))*(b^2*c - a*b*d - (sqrt(b*d)*sqrt(b*x + a) - sqrt(b^
2*c + (b*x + a)*b*d - a*b*d))^2)) - sqrt(b*x + a)*((2*b^7*c^3*d^2
*abs(b) - a*b^6*c^2*d^3*abs(b) - 4*a^2*b^5*c*d^4*abs(b) + 3*a^3*b
^4*d^5*abs(b))*(b*x + a)/(b^8*c^2*d^4 - 2*a*b^7*c*d^5 + a^2*b^6*d
^6) + 3*(b^8*c^4*d*abs(b) - 2*a*b^7*c^3*d^2*abs(b) + 2*a^3*b^5*c*
d^4*abs(b) - a^4*b^4*d^5*abs(b))/(b^8*c^2*d^4 - 2*a*b^7*c*d^5 + a
^2*b^6*d^6))/(b^2*c + (b*x + a)*b*d - a*b*d)^(3/2))/b
```

3.777 $\int \frac{1}{(a+bx)^{3/2}(c+dx)^{5/2}}\,dx$

Optimal. Leaf size=98

$$-\frac{16bd\sqrt{a+bx}}{3\sqrt{c+dx}(bc-ad)^3}-\frac{8d\sqrt{a+bx}}{3(c+dx)^{3/2}(bc-ad)^2}-\frac{2}{\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)}$$

```
[Out] -2/((b*c - a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2)) - (8*d*Sqrt[a + b*
x])/(3*(b*c - a*d)^2*(c + d*x)^(3/2)) - (16*b*d*Sqrt[a + b*x])/(3
*(b*c - a*d)^3*Sqrt[c + d*x])
```

Rubi [A] time = 0.0910611, antiderivative size = 98, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 2, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}} = 0.105$

$$-\frac{16bd\sqrt{a+bx}}{3\sqrt{c+dx}(bc-ad)^3}-\frac{8d\sqrt{a+bx}}{3(c+dx)^{3/2}(bc-ad)^2}-\frac{2}{\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)}$$

Antiderivative was successfully verified.

```
[In] Int[1/((a + b*x)^(3/2)*(c + d*x)^(5/2)),x]
```

```
[Out] -2/((b*c - a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2)) - (8*d*Sqrt[a + b*
x])/(3*(b*c - a*d)^2*(c + d*x)^(3/2)) - (16*b*d*Sqrt[a + b*x])/(3
*(b*c - a*d)^3*Sqrt[c + d*x])
```

Rubi in Sympy [A] time = 12.4206, size = 87, normalized size = 0.89

$$\frac{16bd\sqrt{a+bx}}{3\sqrt{c+dx}\,(ad-bc)^3}-\frac{8d\sqrt{a+bx}}{3\,(c+dx)^{\frac{3}{2}}\,(ad-bc)^2}+\frac{2}{\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}\,(ad-bc)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(1/(b*x+a)**(3/2)/(d*x+c)**(5/2),x)
```

```
[Out] 16*b*d*sqrt(a + b*x)/(3*sqrt(c + d*x)*(a*d - b*c)**3) - 8*d*sqrt(
a + b*x)/(3*(c + d*x)**(3/2)*(a*d - b*c)**2) + 2/(sqrt(a + b*x)*(
c + d*x)**(3/2)*(a*d - b*c))
```

Mathematica [A] time = 0.106518, size = 78, normalized size = 0.8

$$\frac{2a^2d^2-4abd(3c+2dx)-2b^2\left(3c^2+12cdx+8d^2x^2\right)}{3\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)^3}$$

Antiderivative was successfully verified.

```
[In] Integrate[1/((a + b*x)^(3/2)*(c + d*x)^(5/2)),x]
```

```
[Out] (2*a^2*d^2 - 4*a*b*d*(3*c + 2*d*x) - 2*b^2*(3*c^2 + 12*c*d*x + 8*
d^2*x^2))/(3*(b*c - a*d)^3*Sqrt[a + b*x]*(c + d*x)^(3/2))
```

Maple [A] time = 0.01, size = 104, normalized size = 1.1

$$-\frac{-16\,b^2d^2x^2-8\,abd^2x-24\,b^2cdx+2\,a^2d^2-12\,abcd-6\,b^2c^2}{3\,a^3d^3-9\,a^2cbd^2+9\,ab^2c^2d-3\,b^3c^3}\frac{1}{\sqrt{bx+a}}(dx+c)^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(b*x+a)^(3/2)/(d*x+c)^(5/2),x)
```

```
[Out] -2/3*(-8*b^2*d^2*x^2-4*a*b*d^2*x-12*b^2*c*d*x+a^2*d^2-6*a*b*c*d-3
*b^2*c^2)/(b*x+a)^(1/2)/(d*x+c)^(3/2)/(a^3*d^3-3*a^2*b*c*d^2+3*a*
b^2*c^2*d-b^3*c^3)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((b*x + a)^(3/2)*(d*x + c)^(5/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.366296, size = 369, normalized size = 3.77

$$-\frac{2\left(8\,b^2d^2x^2+3\,b^2c^2+6\,abcd-a^2d^2+4\left(3\,b^2cd+abd^2\right)x\right)\sqrt{\cdots}}{3\,(ab^3c^5-3\,a^2b^2c^4d+3\,a^3bc^3d^2-a^4c^2d^3+(b^4c^3d^2-3\,ab^3c^2d^3+3\,a^2b^2cd^4-a^3bd^5)x^3+(2\,b^4c^4d-5\,ab^3c^3d^2+3\,a^2b^2c^2\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((b*x + a)^(3/2)*(d*x + c)^(5/2)),x, algorithm="fricas")
```

```
[Out] -2/3*(8*b^2*d^2*x^2 + 3*b^2*c^2 + 6*a*b*c*d - a^2*d^2 + 4*(3*b^2*
c*d + a*b*d^2)*x)*sqrt(b*x + a)*sqrt(d*x + c)/(a*b^3*c^5 - 3*a^2*
b^2*c^4*d + 3*a^3*b*c^3*d^2 - a^4*c^2*d^3 + (b^4*c^3*d^2 - 3*a*b^
3*c^2*d^3 + 3*a^2*b^2*c*d^4 - a^3*b*d^5)*x^3 + (2*b^4*c^4*d - 5*a
*b^3*c^3*d^2 + 3*a^2*b^2*c^2*d^3 + a^3*b*c*d^4 - a^4*d^5)*x^2 + (
b^4*c^5 - a*b^3*c^4*d - 3*a^2*b^2*c^3*d^2 + 5*a^3*b*c^2*d^3 - 2*a
^4*c*d^4)*x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(a+bx)^{\frac{3}{2}}\,(c+dx)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(b*x+a)**(3/2)/(d*x+c)**(5/2),x)
```

```
[Out] Integral(1/((a + b*x)**(3/2)*(c + d*x)**(5/2)), x)
```

GIAC/XCAS [A] time = 0.262354, size = 393, normalized size = 4.01

$$-\frac{4\sqrt{bd}b^3}{\left(b^2c^2|b|-2\,abcd|b|+a^2d^2|b|\right)\left(b^2c-abd-\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2\right)}+\frac{\sqrt{bx+a}\left(\frac{5\left(b^6c^2d^3|b|-2\,ab^5cd^4|b|+a^2b^4d^5|b|\right)(bx+a)}{b^8c^2d^4-2\,ab^7cd^5+a^2b^6d^6}+\frac{6\left(b^7c^3d^2|b|-3\,ab^6c^2d^3|b|+3\,a^2b^5cd^4|b|-a^3b^4d^5|b|\right)}{b^8c^2d^4-2\,ab^7cd^5+a^2b^6d^6}\right)}{24\left(b^2c+(bx+a)bd-abd\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^(3/2)*(d*x + c)^(5/2)),x, algorithm="giac")
```

```
[Out] -4*sqrt(b*d)*b^3/((b^2*c^2*abs(b) - 2*a*b*c*d*abs(b) + a^2*d^2*ab
s(b))*(b^2*c - a*b*d - (sqrt(b*d)*sqrt(b*x + a) - sqrt(b^2*c + (b
*x + a)*b*d - a*b*d))^2)) + 1/24*sqrt(b*x + a)*(5*(b^6*c^2*d^3*ab
s(b) - 2*a*b^5*c*d^4*abs(b) + a^2*b^4*d^5*abs(b))*(b*x + a)/(b^8*
c^2*d^4 - 2*a*b^7*c*d^5 + a^2*b^6*d^6) + 6*(b^7*c^3*d^2*abs(b) -
3*a*b^6*c^2*d^3*abs(b) + 3*a^2*b^5*c*d^4*abs(b) - a^3*b^4*d^5*abs
(b))/(b^8*c^2*d^4 - 2*a*b^7*c*d^5 + a^2*b^6*d^6))/(b^2*c + (b*x +
 a)*b*d - a*b*d)^(3/2)
```

3.778 $\int \frac{1}{x(a+bx)^{3/2}(c+dx)^{5/2}}\,dx$

Optimal. Leaf size=180

$$-\frac{2\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{3/2}c^{5/2}}+\frac{2d\sqrt{a+bx}(3bc-ad)(3ad+bc)}{3ac^2\sqrt{c+dx}(bc-ad)^3}+\frac{2b}{a\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)}+\frac{2d\sqrt{a+bx}(ad+3bc)}{3ac(c+dx)^{3/2}(bc-ad)^2}$$

```
[Out] (2*b)/(a*(b*c - a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2)) + (2*d*(3*b*c
 + a*d)*Sqrt[a + b*x])/(3*a*c*(b*c - a*d)^2*(c + d*x)^(3/2)) + (2
*d*(3*b*c - a*d)*(b*c + 3*a*d)*Sqrt[a + b*x])/(3*a*c^2*(b*c - a*d
)^3*Sqrt[c + d*x]) - (2*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*
Sqrt[c + d*x])])/(a^(3/2)*c^(5/2))
```

Rubi [A] time = 0.553901, antiderivative size = 180, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$-\frac{2\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{3/2}c^{5/2}}+\frac{2d\sqrt{a+bx}(3bc-ad)(3ad+bc)}{3ac^2\sqrt{c+dx}(bc-ad)^3}+\frac{2b}{a\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)}+\frac{2d\sqrt{a+bx}(ad+3bc)}{3ac(c+dx)^{3/2}(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x*(a + b*x)^(3/2)*(c + d*x)^(5/2)),x]
```

```
[Out] (2*b)/(a*(b*c - a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2)) + (2*d*(3*b*c
 + a*d)*Sqrt[a + b*x])/(3*a*c*(b*c - a*d)^2*(c + d*x)^(3/2)) + (2
*d*(3*b*c - a*d)*(b*c + 3*a*d)*Sqrt[a + b*x])/(3*a*c^2*(b*c - a*d
)^3*Sqrt[c + d*x]) - (2*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*
Sqrt[c + d*x])])/(a^(3/2)*c^(5/2))
```

Rubi in Sympy [A] time = 60.9026, size = 163, normalized size = 0.91

$$-\frac{2b}{a\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}\,(ad-bc)}+\frac{2d\sqrt{a+bx}\,(ad+3bc)}{3ac\,(c+dx)^{\frac{3}{2}}\,(ad-bc)^2}+\frac{2d\sqrt{a+bx}\,(ad-3bc)\,(3ad+bc)}{3ac^2\sqrt{c+dx}\,(ad-bc)^3}-\frac{2\,\mathrm{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{\frac{3}{2}}c^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x/(b*x+a)**(3/2)/(d*x+c)**(5/2),x)
```

```
[Out] -2*b/(a*sqrt(a + b*x)*(c + d*x)**(3/2)*(a*d - b*c)) + 2*d*sqrt(a
+ b*x)*(a*d + 3*b*c)/(3*a*c*(c + d*x)**(3/2)*(a*d - b*c)**2) + 2*
d*sqrt(a + b*x)*(a*d - 3*b*c)*(3*a*d + b*c)/(3*a*c**2*sqrt(c + d*
x)*(a*d - b*c)**3) - 2*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(
c + d*x)))/(a**(3/2)*c**(5/2))
```

Mathematica [A] time = 0.826125, size = 175, normalized size = 0.97

$$-\frac{\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{a^{3/2}c^{5/2}}+\frac{\log(x)}{a^{3/2}c^{5/2}}+\frac{2}{3}\sqrt{a+bx}\sqrt{c+dx}\left(-\frac{3b^3}{a(a+bx)(ad-bc)^3}+\frac{d^2(8bc-3ad)}{c^2(c+dx)(bc-ad)^3}+\frac{d^2}{c(c+dx)^2(bc-ad)^2}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(x*(a + b*x)^(3/2)*(c + d*x)^(5/2)),x]
```

```
[Out] (2*Sqrt[a + b*x]*Sqrt[c + d*x]*((-3*b^3)/(a*(-(b*c) + a*d)^3*(a +
 b*x)) + d^2/(c*(b*c - a*d)^2*(c + d*x)^2) + (d^2*(8*b*c - 3*a*d)
)/(c^2*(b*c - a*d)^3*(c + d*x))))/3 + Log[x]/(a^(3/2)*c^(5/2)) -
Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[
c + d*x]]/(a^(3/2)*c^(5/2))
```

Maple [B] time = 0.06, size = 1253, normalized size = 7.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/x/(b*x+a)^(3/2)/(d*x+c)^(5/2),x)
```

```
[Out] -1/3*(-6*x^2*a^2*b*d^4*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-8*a^3*
c*d^3*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+3*ln((a*d*x+b*c*x+2*(a*
c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^3*b*d^5-3*ln((a*
d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*b^4
*c^3*d^2-6*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+
2*a*c)/x)*x^2*b^4*c^4*d+6*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*
(d*x+c))^(1/2)+2*a*c)/x)*x*a^4*c*d^4-9*ln((a*d*x+b*c*x+2*(a*c)^(1
/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*a^3*b*c^3*d^2+9*ln((a*d*x+b
*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*a^2*b^2*c^4*
d+3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/
x)*x^2*a^4*d^5-3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^
(1/2)+2*a*c)/x)*x*b^4*c^5+3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a
)*(d*x+c))^(1/2)+2*a*c)/x)*a^4*c^2*d^3-3*ln((a*d*x+b*c*x+2*(a*c)^
(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*a*b^3*c^5+6*b^3*c^4*(a*c)
^(1/2)*((b*x+a)*(d*x+c))^(1/2)-6*x*a^3*d^4*(a*c)^(1/2)*((b*x+a)*(
d*x+c))^(1/2)-9*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(
1/2)+2*a*c)/x)*x^3*a^2*b^2*c*d^4+9*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*
((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a*b^3*c^2*d^3-3*ln((a*d*x+b
*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a^3*b*c*
d^4-9*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c
)/x)*x^2*a^2*b^2*c^2*d^3+15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a
)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a*b^3*c^3*d^2-15*ln((a*d*x+b*c*x+2
*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x*a^3*b*c^2*d^3+9*
ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x
*a^2*b^2*c^3*d^2+3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c)
)^(1/2)+2*a*c)/x)*x*a*b^3*c^4*d+6*x^2*b^3*c^2*d^2*(a*c)^(1/2)*((b
*x+a)*(d*x+c))^(1/2)+12*x*b^3*c^3*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))
^(1/2)+18*a^2*b*c^2*d^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+16*x^
2*a*b^2*c*d^3*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+8*x*a^2*b*c*d^3
*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+18*x*a*b^2*c^2*d^2*(a*c)^(1/
2)*((b*x+a)*(d*x+c))^(1/2))/a/c^2/(a*c)^(1/2)/(a*d-b*c)^3/((b*x+a
)*(d*x+c))^(1/2)/(d*x+c)^(3/2)/(b*x+a)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(bx+a)^{\frac{3}{2}}(dx+c)^{\frac{5}{2}}x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^(3/2)*(d*x + c)^(5/2)*x),x, algorithm="maxima")
```

```
[Out] integrate(1/((b*x + a)^(3/2)*(d*x + c)^(5/2)*x), x)
```

Fricas [A] time = 0.454633, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((b*x + a)^(3/2)*(d*x + c)^(5/2)*x),x, algorithm="fricas")
```

```
[Out] [1/6*(4*(3*b^3*c^4 + 9*a^2*b*c^2*d^2 - 4*a^3*c*d^3 + (3*b^3*c^2*d
^2 + 8*a*b^2*c*d^3 - 3*a^2*b*d^4)*x^2 + (6*b^3*c^3*d + 9*a*b^2*c^
2*d^2 + 4*a^2*b*c*d^3 - 3*a^3*d^4)*x)*sqrt(a*c)*sqrt(b*x + a)*sqr
t(d*x + c) + 3*(a*b^3*c^5 - 3*a^2*b^2*c^4*d + 3*a^3*b*c^3*d^2 - a
^4*c^2*d^3 + (b^4*c^3*d^2 - 3*a*b^3*c^2*d^3 + 3*a^2*b^2*c*d^4 - a
^3*b*d^5)*x^3 + (2*b^4*c^4*d - 5*a*b^3*c^3*d^2 + 3*a^2*b^2*c^2*d^
3 + a^3*b*c*d^4 - a^4*d^5)*x^2 + (b^4*c^5 - a*b^3*c^4*d - 3*a^2*b
^2*c^3*d^2 + 5*a^3*b*c^2*d^3 - 2*a^4*c*d^4)*x)*log(-(4*(2*a^2*c^2
 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c) - (8*a^2*c^
2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x
)*sqrt(a*c))/x^2))/((a^2*b^3*c^7 - 3*a^3*b^2*c^6*d + 3*a^4*b*c^5*
d^2 - a^5*c^4*d^3 + (a*b^4*c^5*d^2 - 3*a^2*b^3*c^4*d^3 + 3*a^3*b^
2*c^3*d^4 - a^4*b*c^2*d^5)*x^3 + (2*a*b^4*c^6*d - 5*a^2*b^3*c^5*d
^2 + 3*a^3*b^2*c^4*d^3 + a^4*b*c^3*d^4 - a^5*c^2*d^5)*x^2 + (a*b^
4*c^7 - a^2*b^3*c^6*d - 3*a^3*b^2*c^5*d^2 + 5*a^4*b*c^4*d^3 - 2*a
^5*c^3*d^4)*x)*sqrt(a*c)), 1/3*(2*(3*b^3*c^4 + 9*a^2*b*c^2*d^2 -
4*a^3*c*d^3 + (3*b^3*c^2*d^2 + 8*a*b^2*c*d^3 - 3*a^2*b*d^4)*x^2 +
 (6*b^3*c^3*d + 9*a*b^2*c^2*d^2 + 4*a^2*b*c*d^3 - 3*a^3*d^4)*x)*s
qrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c) - 3*(a*b^3*c^5 - 3*a^2*b^2*
c^4*d + 3*a^3*b*c^3*d^2 - a^4*c^2*d^3 + (b^4*c^3*d^2 - 3*a*b^3*c^
2*d^3 + 3*a^2*b^2*c*d^4 - a^3*b*d^5)*x^3 + (2*b^4*c^4*d - 5*a*b^3
*c^3*d^2 + 3*a^2*b^2*c^2*d^3 + a^3*b*c*d^4 - a^4*d^5)*x^2 + (b^4*
c^5 - a*b^3*c^4*d - 3*a^2*b^2*c^3*d^2 + 5*a^3*b*c^2*d^3 - 2*a^4*c
*d^4)*x)*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x
+ a)*sqrt(d*x + c)*a*c)))/((a^2*b^3*c^7 - 3*a^3*b^2*c^6*d + 3*a^4
*b*c^5*d^2 - a^5*c^4*d^3 + (a*b^4*c^5*d^2 - 3*a^2*b^3*c^4*d^3 + 3
*a^3*b^2*c^3*d^4 - a^4*b*c^2*d^5)*x^3 + (2*a*b^4*c^6*d - 5*a^2*b^
3*c^5*d^2 + 3*a^3*b^2*c^4*d^3 + a^4*b*c^3*d^4 - a^5*c^2*d^5)*x^2
+ (a*b^4*c^7 - a^2*b^3*c^6*d - 3*a^3*b^2*c^5*d^2 + 5*a^4*b*c^4*d^
3 - 2*a^5*c^3*d^4)*x)*sqrt(-a*c))]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{x\,(a+bx)^{\frac{3}{2}}\,(c+dx)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/x/(b*x+a)**(3/2)/(d*x+c)**(5/2),x)
```

```
[Out] Integral(1/(x*(a + b*x)**(3/2)*(c + d*x)**(5/2)), x)
```

GIAC/XCAS [A] time = 1.08185, size = 4, normalized size = 0.02

$$sage_0 x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((b*x + a)^(3/2)*(d*x + c)^(5/2)*x),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.779 $\int \frac{1}{x^2(a+bx)^{3/2}(c+dx)^{5/2}}\,dx$

Optimal. Leaf size=264

$$\frac{(5ad+3bc)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{5/2}c^{7/2}}-\frac{d\sqrt{a+bx}\left(5a^2d^2-6abcd+9b^2c^2\right)}{3a^2c^2(c+dx)^{3/2}(bc-ad)^2}-\frac{b(3bc-ad)}{a^2c\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)}-\frac{d\sqrt{a+bx}\left(-15a^3d^3+31a^2bcd^2-9ab^2c^2d+9b^3c^3\right)}{3a^2c^3\sqrt{c+dx}(bc-ad)^3}-\frac{1}{acx\sqrt{a+bx}(c+dx)^{3/2}}$$

```
[Out] -((b*(3*b*c - a*d))/(a^2*c*(b*c - a*d)*Sqrt[a + b*x]*(c + d*x)^(3
/2))) - 1/(a*c*x*Sqrt[a + b*x]*(c + d*x)^(3/2)) - (d*(9*b^2*c^2 -
 6*a*b*c*d + 5*a^2*d^2)*Sqrt[a + b*x])/(3*a^2*c^2*(b*c - a*d)^2*(
c + d*x)^(3/2)) - (d*(9*b^3*c^3 - 9*a*b^2*c^2*d + 31*a^2*b*c*d^2
- 15*a^3*d^3)*Sqrt[a + b*x])/(3*a^2*c^3*(b*c - a*d)^3*Sqrt[c + d*
x]) + ((3*b*c + 5*a*d)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*S
qrt[c + d*x])])/(a^(5/2)*c^(7/2))
```

Rubi [A] time = 0.885541, antiderivative size = 264, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.227$

$$\frac{(5ad+3bc)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{5/2}c^{7/2}}-\frac{d\sqrt{a+bx}\left(5a^2d^2-6abcd+9b^2c^2\right)}{3a^2c^2(c+dx)^{3/2}(bc-ad)^2}-\frac{b(3bc-ad)}{a^2c\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)}-\frac{d\sqrt{a+bx}\left(-15a^3d^3+31a^2bcd^2-9ab^2c^2d+9b^3c^3\right)}{3a^2c^3\sqrt{c+dx}(bc-ad)^3}-\frac{1}{acx\sqrt{a+bx}(c+dx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x^2*(a + b*x)^(3/2)*(c + d*x)^(5/2)),x]
```

```
[Out] -((b*(3*b*c - a*d))/(a^2*c*(b*c - a*d)*Sqrt[a + b*x]*(c + d*x)^(3
/2))) - 1/(a*c*x*Sqrt[a + b*x]*(c + d*x)^(3/2)) - (d*(9*b^2*c^2 -
 6*a*b*c*d + 5*a^2*d^2)*Sqrt[a + b*x])/(3*a^2*c^2*(b*c - a*d)^2*(
c + d*x)^(3/2)) - (d*(9*b^3*c^3 - 9*a*b^2*c^2*d + 31*a^2*b*c*d^2
- 15*a^3*d^3)*Sqrt[a + b*x])/(3*a^2*c^3*(b*c - a*d)^3*Sqrt[c + d*
x]) + ((3*b*c + 5*a*d)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*S
qrt[c + d*x])])/(a^(5/2)*c^(7/2))
```

Rubi in Sympy [A] time = 114.612, size = 248, normalized size = 0.94

$$-\frac{1}{acx\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}}-\frac{b\,(ad-3bc)}{a^2c\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}\,(ad-bc)}-\frac{d\sqrt{a+bx}\,\left(5a^2d^2-6abcd+9b^2c^2\right)}{3a^2c^2\,(c+dx)^{\frac{3}{2}}\,(ad-bc)^2}-\frac{d\sqrt{a+bx}\,\left(15a^3d^3-31a^2bcd^2+9ab^2c^2d-9b^3c^3\right)}{3a^2c^3\sqrt{c+dx}\,(ad-bc)^3}+\frac{(5ad+3bc)\,\mathrm{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{\frac{5}{2}}c^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x**2/(b*x+a)**(3/2)/(d*x+c)**(5/2),x)
```

```
[Out] -1/(a*c*x*sqrt(a + b*x)*(c + d*x)**(3/2)) - b*(a*d - 3*b*c)/(a**2
*c*sqrt(a + b*x)*(c + d*x)**(3/2)*(a*d - b*c)) - d*sqrt(a + b*x)*
(5*a**2*d**2 - 6*a*b*c*d + 9*b**2*c**2)/(3*a**2*c**2*(c + d*x)**(
3/2)*(a*d - b*c)**2) - d*sqrt(a + b*x)*(15*a**3*d**3 - 31*a**2*b*
```

```
c*d**2 + 9*a*b**2*c**2*d - 9*b**3*c**3)/(3*a**2*c**3*sqrt(c + d*x
)*(a*d - b*c)**3) + (5*a*d + 3*b*c)*atanh(sqrt(c)*sqrt(a + b*x)/(
sqrt(a)*sqrt(c + d*x)))/(a**(5/2)*c**(7/2))
```

Mathematica [A] time = 1.19871, size = 212, normalized size = 0.8

$$-\frac{\log(x)(5ad+3bc)}{2a^{5/2}c^{7/2}}+\frac{(5ad+3bc)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{2a^{5/2}c^{7/2}}+\sqrt{a+bx}\sqrt{c+dx}\left(\frac{2b^4}{a^2(a+bx)(ad-bc)^3}-\frac{1}{a^2c^3x}-\frac{2d^3(11bc-6ad)}{3c^3(c+dx)(bc-ad)^3}-\frac{2d^3}{3c^2(c+dx)^2(bc-ad)^2}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(x^2*(a + b*x)^(3/2)*(c + d*x)^(5/2)),x]
```

```
[Out] Sqrt[a + b*x]*Sqrt[c + d*x]*(-(1/(a^2*c^3*x)) + (2*b^4)/(a^2*(-(b
*c) + a*d)^3*(a + b*x)) - (2*d^3)/(3*c^2*(b*c - a*d)^2*(c + d*x)^
2) - (2*d^3*(11*b*c - 6*a*d))/(3*c^3*(b*c - a*d)^3*(c + d*x))) -
((3*b*c + 5*a*d)*Log[x])/(2*a^(5/2)*c^(7/2)) + ((3*b*c + 5*a*d)*L
og[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c
 + d*x]])/(2*a^(5/2)*c^(7/2))
```

Maple [B] time = 0.072, size = 1692, normalized size = 6.4

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/x^2/(b*x+a)^(3/2)/(d*x+c)^(5/2),x)
```

```
[Out] 1/6*(-18*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*
a*c)/x)*x^3*b^5*c^5*d+30*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(
d*x+c))^(1/2)+2*a*c)/x)*x^2*a^5*c*d^5+15*ln((a*d*x+b*c*x+2*(a*c)^
(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x*a^5*c^2*d^4-9*ln((a*d*x
+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x*a*b^4*c^
6-30*x^2*a^4*d^5*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+18*x*b^4*c^5
*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-6*a^4*c^2*d^3*(a*c)^(1/2)*((
b*x+a)*(d*x+c))^(1/2)+6*a*b^3*c^5*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(
1/2)+15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a
*c)/x)*x^4*a^4*b*d^6+12*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d
*x+c))^(1/2)+2*a*c)/x)*x*a^2*b^3*c^5*d+15*ln((a*d*x+b*c*x+2*(a*c)
^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^5*d^6-9*ln((a*d*x+
b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*b^5*c^6
-9*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x
)*x^4*b^5*c^4*d^2-6*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c
))^(1/2)+2*a*c)/x)*x^2*a*b^4*c^5*d-36*ln((a*d*x+b*c*x+2*(a*c)^(1/
2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x*a^4*b*c^3*d^3+18*ln((a*d*x
+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x*a^3*b^2*
c^4*d^2+36*x^2*b^4*c^4*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-40*x
*a^4*c*d^4*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+18*a^3*b*c^3*d^2*(
a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-18*a^2*b^2*c^4*d*(a*c)^(1/2)*(
(b*x+a)*(d*x+c))^(1/2)-36*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*
(d*x+c))^(1/2)+2*a*c)/x)*x^4*a^3*b^2*c*d^5-30*x^3*a^3*b*d^5*(a*c)
^(1/2)*((b*x+a)*(d*x+c))^(1/2)+18*x^3*b^4*c^3*d^2*(a*c)^(1/2)*((b
*x+a)*(d*x+c))^(1/2)+18*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d
*x+c))^(1/2)+2*a*c)/x)*x^4*a^2*b^3*c^2*d^4+12*ln((a*d*x+b*c*x+2*(
a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a*b^4*c^3*d^3-6*
ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x
^3*a^4*b*c*d^5-54*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))
^(1/2)+2*a*c)/x)*x^3*a^3*b^2*c^2*d^4+48*ln((a*d*x+b*c*x+2*(a*c)^(
1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^2*b^3*c^3*d^3+15*ln(
(a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*
a*b^4*c^4*d^2-57*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^
(1/2)+2*a*c)/x)*x^2*a^4*b*c^2*d^4+42*ln((a*d*x+b*c*x+2*(a*c)^(1/2
```

```
)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a^2*b^3*c^4*d^2+62*x^3*a^
2*b^2*c*d^4*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-18*x^3*a*b^3*c^2*
d^3*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+22*x^2*a^3*b*c*d^4*(a*c)^
(1/2)*((b*x+a)*(d*x+c))^(1/2)+66*x^2*a^2*b^2*c^2*d^3*(a*c)^(1/2)*
((b*x+a)*(d*x+c))^(1/2)-30*x^2*a*b^3*c^3*d^2*(a*c)^(1/2)*((b*x+a)
*(d*x+c))^(1/2)+78*x*a^3*b*c^2*d^3*(a*c)^(1/2)*((b*x+a)*(d*x+c))^
(1/2)-18*x*a^2*b^2*c^3*d^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-6*
x*a*b^3*c^4*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2))/c^3/a^2/x/(a*c
)^(1/2)/(a*d-b*c)^3/((b*x+a)*(d*x+c))^(1/2)/(d*x+c)^(3/2)/(b*x+a)
^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(bx+a)^{\frac{3}{2}}(dx+c)^{\frac{5}{2}}x^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((b*x + a)^(3/2)*(d*x + c)^(5/2)*x^2),x, algorithm="maxima")
```

```
[Out] integrate(1/((b*x + a)^(3/2)*(d*x + c)^(5/2)*x^2), x)
```

Fricas [A] time = 0.70761, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((b*x + a)^(3/2)*(d*x + c)^(5/2)*x^2),x, algorithm="fricas")
```

```
[Out] [-1/12*(4*(3*a*b^3*c^5 - 9*a^2*b^2*c^4*d + 9*a^3*b*c^3*d^2 - 3*a^
4*c^2*d^3 + (9*b^4*c^3*d^2 - 9*a*b^3*c^2*d^3 + 31*a^2*b^2*c*d^4 -
 15*a^3*b*d^5)*x^3 + (18*b^4*c^4*d - 15*a*b^3*c^3*d^2 + 33*a^2*b^
2*c^2*d^3 + 11*a^3*b*c*d^4 - 15*a^4*d^5)*x^2 + (9*b^4*c^5 - 3*a*b
^3*c^4*d - 9*a^2*b^2*c^3*d^2 + 39*a^3*b*c^2*d^3 - 20*a^4*c*d^4)*x
)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c) - 3*((3*b^5*c^4*d^2 - 4*a
*b^4*c^3*d^3 - 6*a^2*b^3*c^2*d^4 + 12*a^3*b^2*c*d^5 - 5*a^4*b*d^6
)*x^4 + (6*b^5*c^5*d - 5*a*b^4*c^4*d^2 - 16*a^2*b^3*c^3*d^3 + 18*
a^3*b^2*c^2*d^4 + 2*a^4*b*c*d^5 - 5*a^5*d^6)*x^3 + (3*b^5*c^6 + 2
*a*b^4*c^5*d - 14*a^2*b^3*c^4*d^2 + 19*a^4*b*c^2*d^4 - 10*a^5*c*d
^5)*x^2 + (3*a*b^4*c^6 - 4*a^2*b^3*c^5*d - 6*a^3*b^2*c^4*d^2 + 12
*a^4*b*c^3*d^3 - 5*a^5*c^2*d^4)*x)*log((4*(2*a^2*c^2 + (a*b*c^2 +
 a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c) + (8*a^2*c^2 + (b^2*c^2
+ 6*a*b*c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/
x^2))/(((a^2*b^4*c^6*d^2 - 3*a^3*b^3*c^5*d^3 + 3*a^4*b^2*c^4*d^4
- a^5*b*c^3*d^5)*x^4 + (2*a^2*b^4*c^7*d - 5*a^3*b^3*c^6*d^2 + 3*a
^4*b^2*c^5*d^3 + a^5*b*c^4*d^4 - a^6*c^3*d^5)*x^3 + (a^2*b^4*c^8
- a^3*b^3*c^7*d - 3*a^4*b^2*c^6*d^2 + 5*a^5*b*c^5*d^3 - 2*a^6*c^4
*d^4)*x^2 + (a^3*b^3*c^8 - 3*a^4*b^2*c^7*d + 3*a^5*b*c^6*d^2 - a^
6*c^5*d^3)*x)*sqrt(a*c)), -1/6*(2*(3*a*b^3*c^5 - 9*a^2*b^2*c^4*d
+ 9*a^3*b*c^3*d^2 - 3*a^4*c^2*d^3 + (9*b^4*c^3*d^2 - 9*a*b^3*c^2*
d^3 + 31*a^2*b^2*c*d^4 - 15*a^3*b*d^5)*x^3 + (18*b^4*c^4*d - 15*a
*b^3*c^3*d^2 + 33*a^2*b^2*c^2*d^3 + 11*a^3*b*c*d^4 - 15*a^4*d^5)*
x^2 + (9*b^4*c^5 - 3*a*b^3*c^4*d - 9*a^2*b^2*c^3*d^2 + 39*a^3*b*c
^2*d^3 - 20*a^4*c*d^4)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c)
- 3*((3*b^5*c^4*d^2 - 4*a*b^4*c^3*d^3 - 6*a^2*b^3*c^2*d^4 + 12*a^
3*b^2*c*d^5 - 5*a^4*b*d^6)*x^4 + (6*b^5*c^5*d - 5*a*b^4*c^4*d^2 -
 16*a^2*b^3*c^3*d^3 + 18*a^3*b^2*c^2*d^4 + 2*a^4*b*c*d^5 - 5*a^5*
d^6)*x^3 + (3*b^5*c^6 + 2*a*b^4*c^5*d - 14*a^2*b^3*c^4*d^2 + 19*a
^4*b*c^2*d^4 - 10*a^5*c*d^5)*x^2 + (3*a*b^4*c^6 - 4*a^2*b^3*c^5*d
 - 6*a^3*b^2*c^4*d^2 + 12*a^4*b*c^3*d^3 - 5*a^5*c^2*d^4)*x)*arcta
n(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d*x
+ c)*a*c)))/(((a^2*b^4*c^6*d^2 - 3*a^3*b^3*c^5*d^3 + 3*a^4*b^2*c^
4*d^4 - a^5*b*c^3*d^5)*x^4 + (2*a^2*b^4*c^7*d - 5*a^3*b^3*c^6*d^2
 + 3*a^4*b^2*c^5*d^3 + a^5*b*c^4*d^4 - a^6*c^3*d^5)*x^3 + (a^2*b^
```

```
4*c^8 - a^3*b^3*c^7*d - 3*a^4*b^2*c^6*d^2 + 5*a^5*b*c^5*d^3 - 2*a
^6*c^4*d^4)*x^2 + (a^3*b^3*c^8 - 3*a^4*b^2*c^7*d + 3*a^5*b*c^6*d^
2 - a^6*c^5*d^3)*x)*sqrt(-a*c))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/x**2/(b*x+a)**(3/2)/(d*x+c)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((b*x + a)^(3/2)*(d*x + c)^(5/2)*x^2),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.780 $\int \frac{1}{x^3(a+bx)^{3/2}(c+dx)^{5/2}}\,dx$

Optimal. Leaf size=361

$$\frac{7ad+5bc}{4a^2c^2x\sqrt{a+bx}(c+dx)^{3/2}}-\frac{5\left(7a^2d^2+6abcd+3b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{7/2}c^{9/2}}+\frac{b\left(15b^2c^2-7a^2d^2\right)}{4a^3c^2\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)}+\frac{d\sqrt{a+bx}\left(35a^3d^3-33a^2bcd^2-15ab^2c^2d+45b^3c^3\right)}{12a^3c^3(c+dx)^{3/2}(bc-ad)^2}+\frac{d\sqrt{a+bx}\left(-105a^4d^4+190a^3bcd^3-36a^2b^2c^2d^2-30ab^3c^3d+45b^4c^4\right)}{12a^3c^4\sqrt{c+dx}(bc-ad)^3}-\frac{1}{2acx^2\sqrt{a+bx}(c+dx)^{3/2}}$$

```
[Out] (b*(15*b^2*c^2 - 7*a^2*d^2))/(4*a^3*c^2*(b*c - a*d)*Sqrt[a + b*x]
*(c + d*x)^(3/2)) - 1/(2*a*c*x^2*Sqrt[a + b*x]*(c + d*x)^(3/2)) +
 (5*b*c + 7*a*d)/(4*a^2*c^2*x*Sqrt[a + b*x]*(c + d*x)^(3/2)) + (d
*(45*b^3*c^3 - 15*a*b^2*c^2*d - 33*a^2*b*c*d^2 + 35*a^3*d^3)*Sqrt
[a + b*x])/(12*a^3*c^3*(b*c - a*d)^2*(c + d*x)^(3/2)) + (d*(45*b^
4*c^4 - 30*a*b^3*c^3*d - 36*a^2*b^2*c^2*d^2 + 190*a^3*b*c*d^3 - 1
05*a^4*d^4)*Sqrt[a + b*x])/(12*a^3*c^4*(b*c - a*d)^3*Sqrt[c + d*x
]) - (5*(3*b^2*c^2 + 6*a*b*c*d + 7*a^2*d^2)*ArcTanh[(Sqrt[c]*Sqrt
[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(4*a^(7/2)*c^(9/2))
```

Rubi [A] time = 1.24787, antiderivative size = 361, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.273$

$$\frac{7ad+5bc}{4a^2c^2x\sqrt{a+bx}(c+dx)^{3/2}}-\frac{5\left(7a^2d^2+6abcd+3b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{7/2}c^{9/2}}+\frac{b\left(15b^2c^2-7a^2d^2\right)}{4a^3c^2\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)}+\frac{d\sqrt{a+bx}\left(35a^3d^3-33a^2bcd^2-15ab^2c^2d+45b^3c^3\right)}{12a^3c^3(c+dx)^{3/2}(bc-ad)^2}+\frac{d\sqrt{a+bx}\left(-105a^4d^4+190a^3bcd^3-36a^2b^2c^2d^2-30ab^3c^3d+45b^4c^4\right)}{12a^3c^4\sqrt{c+dx}(bc-ad)^3}-\frac{1}{2acx^2\sqrt{a+bx}(c+dx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x^3*(a + b*x)^(3/2)*(c + d*x)^(5/2)),x]
```


```
[Out] (b*(15*b^2*c^2 - 7*a^2*d^2))/(4*a^3*c^2*(b*c - a*d)*Sqrt[a + b*x]
*(c + d*x)^(3/2)) - 1/(2*a*c*x^2*Sqrt[a + b*x]*(c + d*x)^(3/2)) +
 (5*b*c + 7*a*d)/(4*a^2*c^2*x*Sqrt[a + b*x]*(c + d*x)^(3/2)) + (d
*(45*b^3*c^3 - 15*a*b^2*c^2*d - 33*a^2*b*c*d^2 + 35*a^3*d^3)*Sqrt
[a + b*x])/(12*a^3*c^3*(b*c - a*d)^2*(c + d*x)^(3/2)) + (d*(45*b^
4*c^4 - 30*a*b^3*c^3*d - 36*a^2*b^2*c^2*d^2 + 190*a^3*b*c*d^3 - 1
05*a^4*d^4)*Sqrt[a + b*x])/(12*a^3*c^4*(b*c - a*d)^3*Sqrt[c + d*x
]) - (5*(3*b^2*c^2 + 6*a*b*c*d + 7*a^2*d^2)*ArcTanh[(Sqrt[c]*Sqrt
[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(4*a^(7/2)*c^(9/2))
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x**3/(b*x+a)**(3/2)/(d*x+c)**(5/2),x)
```

```
[Out] Timed out
```

Mathematica [A] time = 1.6709, size = 258, normalized size = 0.71

$$\frac{5\log(x)\left(7a^2d^2+6abcd+3b^2c^2\right)}{8a^{7/2}c^{9/2}}-\frac{5\left(7a^2d^2+6abcd+3b^2c^2\right)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{8a^{7/2}c^{9/2}}+\frac{1}{12}\sqrt{a+bx}\sqrt{c+dx}\left(-\frac{24b^5}{a^3(a+bx)(ad-bc)^3}+\frac{33ad+21bc}{a^3c^4x}-\frac{6}{a^2c^3x^2}+\frac{8d^4(14bc-9ad)}{c^4(c+dx)(bc-ad)^3}+\frac{8d^4}{c^3(c+dx)^2(bc-ad)^2}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(x^3*(a + b*x)^(3/2)*(c + d*x)^(5/2)),x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(-6/(a^2*c^3*x^2) + (21*b*c + 33*a*d
)/(a^3*c^4*x) - (24*b^5)/(a^3*(-(b*c) + a*d)^3*(a + b*x)) + (8*d^
4)/(c^3*(b*c - a*d)^2*(c + d*x)^2) + (8*d^4*(14*b*c - 9*a*d))/(c^
4*(b*c - a*d)^3*(c + d*x))))/12 + (5*(3*b^2*c^2 + 6*a*b*c*d + 7*a
^2*d^2)*Log[x])/(8*a^(7/2)*c^(9/2)) - (5*(3*b^2*c^2 + 6*a*b*c*d +
 7*a^2*d^2)*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a
+ b*x]*Sqrt[c + d*x]])/(8*a^(7/2)*c^(9/2))
```

Maple [B] time = 0.08, size = 2216, normalized size = 6.1

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/x^3/(b*x+a)^(3/2)/(d*x+c)^(5/2),x)
```

```
[Out] -1/24*(30*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2
*a*c)/x)*x^5*a^2*b^4*c^3*d^4+105*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((
b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a^6*d^7-45*ln((a*d*x+b*c*x+2*
(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*b^6*c^7-210*x^3
*a^5*d^6*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-225*ln((a*d*x+b*c*x+
2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^5*a^4*b^2*c*d^6
+90*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/
x)*x^5*a^3*b^3*c^2*d^5+45*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*
(d*x+c))^(1/2)+2*a*c)/x)*x^5*a*b^5*c^4*d^3-15*ln((a*d*x+b*c*x+2*(
a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a^5*b*c*d^6-360*
ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x
^4*a^4*b^2*c^2*d^5+210*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*
x+c))^(1/2)+2*a*c)/x)*x^4*a^3*b^3*c^3*d^4+105*ln((a*d*x+b*c*x+2*(
a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a^2*b^4*c^4*d^3+
45*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x
)*x^4*a*b^5*c^5*d^2-345*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d
*x+c))^(1/2)+2*a*c)/x)*x^3*a^5*b*c^2*d^5-45*ln((a*d*x+b*c*x+2*(a*
c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^4*b^2*c^3*d^4+15
0*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)
*x^3*a^3*b^3*c^4*d^3+120*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(
d*x+c))^(1/2)+2*a*c)/x)*x^3*a^2*b^4*c^5*d^2-45*ln((a*d*x+b*c*x+2*
(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a*b^5*c^6*d-225
*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*
x^2*a^5*b*c^3*d^4+90*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+
c))^(1/2)+2*a*c)/x)*x^2*a^4*b^2*c^4*d^3+30*ln((a*d*x+b*c*x+2*(a*c
)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a^3*b^3*c^5*d^2+45*
ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x
^2*a^2*b^4*c^6*d-210*x^4*a^4*b*d^6*(a*c)^(1/2)*((b*x+a)*(d*x+c))^
(1/2)+90*x^4*b^5*c^4*d^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+180*
x^3*b^5*c^5*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-280*x^2*a^5*c*d
^5*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-42*x*a^5*c^2*d^4*(a*c)^(1/
2)*((b*x+a)*(d*x+c))^(1/2)+30*x*a*b^4*c^6*(a*c)^(1/2)*((b*x+a)*(d
*x+c))^(1/2)-36*a^4*b*c^4*d^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)
+36*a^3*b^2*c^5*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+380*x^4*a^3
*b^2*c*d^5*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-72*x^4*a^2*b^3*c^2
*d^4*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-60*x^4*a*b^4*c^3*d^3*(a*
c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+100*x^3*a^4*b*c*d^5*(a*c)^(1/2)*
```

```
((b*x+a)*(d*x+c))^(1/2)+444*x^3*a^3*b^2*c^2*d^4*(a*c)^(1/2)*((b*x
+a)*(d*x+c))^(1/2)-168*x^3*a^2*b^3*c^3*d^3*(a*c)^(1/2)*((b*x+a)*(
d*x+c))^(1/2)-90*x^3*a*b^4*c^4*d^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^
(1/2)+474*x^2*a^4*b*c^2*d^4*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-2
4*x^2*a^3*b^2*c^3*d^3*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-132*x^2
*a^2*b^3*c^4*d^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+96*x*a^4*b*c
^3*d^3*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-36*x*a^3*b^2*c^4*d^2*(
a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-48*x*a^2*b^3*c^5*d*(a*c)^(1/2)
*((b*x+a)*(d*x+c))^(1/2)+90*x^2*b^5*c^6*(a*c)^(1/2)*((b*x+a)*(d*x
+c))^(1/2)+12*a^5*c^3*d^3*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-12*
a^2*b^3*c^6*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+105*ln((a*d*x+b*c
*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^5*a^5*b*d^7-
45*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x
)*x^5*b^6*c^5*d^2-90*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+
c))^(1/2)+2*a*c)/x)*x^4*b^6*c^6*d+210*ln((a*d*x+b*c*x+2*(a*c)^(1/
2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^6*c*d^6+105*ln((a*d*x+
b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a^6*c^2
*d^5-45*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a
*c)/x)*x^2*a*b^5*c^7)/c^4/a^3/x^2/(a*c)^(1/2)/(a*d-b*c)^3/((b*x+a
)*(d*x+c))^(1/2)/(d*x+c)^(3/2)/(b*x+a)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(bx+a)^{\frac{3}{2}}(dx+c)^{\frac{5}{2}}x^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((b*x + a)^(3/2)*(d*x + c)^(5/2)*x^3),x, algorithm="maxima")
```

```
[Out] integrate(1/((b*x + a)^(3/2)*(d*x + c)^(5/2)*x^3), x)
```

Fricas [A] time = 1.66737, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((b*x + a)^(3/2)*(d*x + c)^(5/2)*x^3),x, algorithm="fricas")
```

```
[Out] [-1/48*(4*(6*a^2*b^3*c^6 - 18*a^3*b^2*c^5*d + 18*a^4*b*c^4*d^2 -
6*a^5*c^3*d^3 - (45*b^5*c^4*d^2 - 30*a*b^4*c^3*d^3 - 36*a^2*b^3*c
^2*d^4 + 190*a^3*b^2*c*d^5 - 105*a^4*b*d^6)*x^4 - (90*b^5*c^5*d -
 45*a*b^4*c^4*d^2 - 84*a^2*b^3*c^3*d^3 + 222*a^3*b^2*c^2*d^4 + 50
*a^4*b*c*d^5 - 105*a^5*d^6)*x^3 - (45*b^5*c^6 - 66*a^2*b^3*c^4*d^
2 - 12*a^3*b^2*c^3*d^3 + 237*a^4*b*c^2*d^4 - 140*a^5*c*d^5)*x^2 -
 3*(5*a*b^4*c^6 - 8*a^2*b^3*c^5*d - 6*a^3*b^2*c^4*d^2 + 16*a^4*b*
c^3*d^3 - 7*a^5*c^2*d^4)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c)
 - 15*((3*b^6*c^5*d^2 - 3*a*b^5*c^4*d^3 - 2*a^2*b^4*c^3*d^4 - 6*a
^3*b^3*c^2*d^5 + 15*a^4*b^2*c*d^6 - 7*a^5*b*d^7)*x^5 + (6*b^6*c^6
*d - 3*a*b^5*c^5*d^2 - 7*a^2*b^4*c^4*d^3 - 14*a^3*b^3*c^3*d^4 + 2
4*a^4*b^2*c^2*d^5 + a^5*b*c*d^6 - 7*a^6*d^7)*x^4 + (3*b^6*c^7 + 3
*a*b^5*c^6*d - 8*a^2*b^4*c^5*d^2 - 10*a^3*b^3*c^4*d^3 + 3*a^4*b^2
*c^3*d^4 + 23*a^5*b*c^2*d^5 - 14*a^6*c*d^6)*x^3 + (3*a*b^5*c^7 -
3*a^2*b^4*c^6*d - 2*a^3*b^3*c^5*d^2 - 6*a^4*b^2*c^4*d^3 + 15*a^5*
b*c^3*d^4 - 7*a^6*c^2*d^5)*x^2)*log(-(4*(2*a^2*c^2 + (a*b*c^2 + a
^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c) - (8*a^2*c^2 + (b^2*c^2 +
6*a*b*c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^
2))/(((a^3*b^4*c^7*d^2 - 3*a^4*b^3*c^6*d^3 + 3*a^5*b^2*c^5*d^4 -
a^6*b*c^4*d^5)*x^5 + (2*a^3*b^4*c^8*d - 5*a^4*b^3*c^7*d^2 + 3*a^5
*b^2*c^6*d^3 + a^6*b*c^5*d^4 - a^7*c^4*d^5)*x^4 + (a^3*b^4*c^9 -
a^4*b^3*c^8*d - 3*a^5*b^2*c^7*d^2 + 5*a^6*b*c^6*d^3 - 2*a^7*c^5*d
^4)*x^3 + (a^4*b^3*c^9 - 3*a^5*b^2*c^8*d + 3*a^6*b*c^7*d^2 - a^7*
c^6*d^3)*x^2)*sqrt(a*c)), -1/24*(2*(6*a^2*b^3*c^6 - 18*a^3*b^2*c^
5*d + 18*a^4*b*c^4*d^2 - 6*a^5*c^3*d^3 - (45*b^5*c^4*d^2 - 30*a*b
```

```
^4*c^3*d^3 - 36*a^2*b^3*c^2*d^4 + 190*a^3*b^2*c*d^5 - 105*a^4*b*d
^6)*x^4 - (90*b^5*c^5*d - 45*a*b^4*c^4*d^2 - 84*a^2*b^3*c^3*d^3 +
 222*a^3*b^2*c^2*d^4 + 50*a^4*b*c*d^5 - 105*a^5*d^6)*x^3 - (45*b^
5*c^6 - 66*a^2*b^3*c^4*d^2 - 12*a^3*b^2*c^3*d^3 + 237*a^4*b*c^2*d
^4 - 140*a^5*c*d^5)*x^2 - 3*(5*a*b^4*c^6 - 8*a^2*b^3*c^5*d - 6*a^
3*b^2*c^4*d^2 + 16*a^4*b*c^3*d^3 - 7*a^5*c^2*d^4)*x)*sqrt(-a*c)*s
qrt(b*x + a)*sqrt(d*x + c) + 15*((3*b^6*c^5*d^2 - 3*a*b^5*c^4*d^3
 - 2*a^2*b^4*c^3*d^4 - 6*a^3*b^3*c^2*d^5 + 15*a^4*b^2*c*d^6 - 7*a
^5*b*d^7)*x^5 + (6*b^6*c^6*d - 3*a*b^5*c^5*d^2 - 7*a^2*b^4*c^4*d^
3 - 14*a^3*b^3*c^3*d^4 + 24*a^4*b^2*c^2*d^5 + a^5*b*c*d^6 - 7*a^6
*d^7)*x^4 + (3*b^6*c^7 + 3*a*b^5*c^6*d - 8*a^2*b^4*c^5*d^2 - 10*a
^3*b^3*c^4*d^3 + 3*a^4*b^2*c^3*d^4 + 23*a^5*b*c^2*d^5 - 14*a^6*c*
d^6)*x^3 + (3*a*b^5*c^7 - 3*a^2*b^4*c^6*d - 2*a^3*b^3*c^5*d^2 - 6
*a^4*b^2*c^4*d^3 + 15*a^5*b*c^3*d^4 - 7*a^6*c^2*d^5)*x^2)*arctan(
1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d*x +
c)*a*c)))/(((a^3*b^4*c^7*d^2 - 3*a^4*b^3*c^6*d^3 + 3*a^5*b^2*c^5*
d^4 - a^6*b*c^4*d^5)*x^5 + (2*a^3*b^4*c^8*d - 5*a^4*b^3*c^7*d^2 +
 3*a^5*b^2*c^6*d^3 + a^6*b*c^5*d^4 - a^7*c^4*d^5)*x^4 + (a^3*b^4*
c^9 - a^4*b^3*c^8*d - 3*a^5*b^2*c^7*d^2 + 5*a^6*b*c^6*d^3 - 2*a^7
*c^5*d^4)*x^3 + (a^4*b^3*c^9 - 3*a^5*b^2*c^8*d + 3*a^6*b*c^7*d^2
- a^7*c^6*d^3)*x^2)*sqrt(-a*c))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/x**3/(b*x+a)**(3/2)/(d*x+c)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 2.41185, size = 4, normalized size = 0.01

$$sage_0 x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^(3/2)*(d*x + c)^(5/2)*x^3),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.781 $\int \frac{x^4(c+dx)^{5/2}}{(a+bx)^{5/2}}\,dx$

Optimal. Leaf size=497

$$-\frac{\sqrt{a+bx}(c+dx)^{5/2}\left(3003a^3d^3-2bdx\left(1287a^2d^2-902abcd+15b^2c^2\right)-2343a^2bcd^2+125ab^2c^2d+15b^3c^3\right)}{240b^5d^2(bc-ad)}+\frac{(bc-ad)\left(3003a^4d^4-2772a^3bcd^3+378a^2b^2c^2d^2+28ab^3c^3d+3b^4c^4\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{128b^{15/2}d^{5/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(3003a^4d^4-2772a^3bcd^3+378a^2b^2c^2d^2+28ab^3c^3d+3b^4c^4\right)}{128b^7d^2}+\frac{\sqrt{a+bx}(c+dx)^{3/2}\left(3003a^4d^4-2772a^3bcd^3+378a^2b^2c^2d^2+28ab^3c^3d+3b^4c^4\right)}{192b^6d^2(bc-ad)}+\frac{x^2\sqrt{a+bx}(c+dx)^{5/2}(93bc-143ad)}{15b^3(bc-ad)}-\frac{2x^3(c+dx)^{5/2}(8bc-13ad)}{3b^2\sqrt{a+bx}(bc-ad)}-\frac{2x^4(c+dx)^{5/2}}{3b(a+bx)^{3/2}}$$

```
[Out] ((3*b^4*c^4 + 28*a*b^3*c^3*d + 378*a^2*b^2*c^2*d^2 - 2772*a^3*b*c
*d^3 + 3003*a^4*d^4)*Sqrt[a + b*x]*Sqrt[c + d*x])/(128*b^7*d^2) +
 ((3*b^4*c^4 + 28*a*b^3*c^3*d + 378*a^2*b^2*c^2*d^2 - 2772*a^3*b*
c*d^3 + 3003*a^4*d^4)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(192*b^6*d^2
*(b*c - a*d)) - (2*x^4*(c + d*x)^(5/2))/(3*b*(a + b*x)^(3/2)) - (
2*(8*b*c - 13*a*d)*x^3*(c + d*x)^(5/2))/(3*b^2*(b*c - a*d)*Sqrt[a
 + b*x]) + ((93*b*c - 143*a*d)*x^2*Sqrt[a + b*x]*(c + d*x)^(5/2))
/(15*b^3*(b*c - a*d)) - (Sqrt[a + b*x]*(c + d*x)^(5/2)*(15*b^3*c^
3 + 125*a*b^2*c^2*d - 2343*a^2*b*c*d^2 + 3003*a^3*d^3 - 2*b*d*(15
*b^2*c^2 - 902*a*b*c*d + 1287*a^2*d^2)*x))/(240*b^5*d^2*(b*c - a*
d)) + ((b*c - a*d)*(3*b^4*c^4 + 28*a*b^3*c^3*d + 378*a^2*b^2*c^2*
d^2 - 2772*a^3*b*c*d^3 + 3003*a^4*d^4)*ArcTanh[(Sqrt[d]*Sqrt[a +
b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(128*b^(15/2)*d^(5/2))
```

Rubi [A] time = 1.346, antiderivative size = 497, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 7, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.318$

$$-\frac{\sqrt{a+bx}(c+dx)^{5/2}\left(3003a^3d^3-2bdx\left(1287a^2d^2-902abcd+15b^2c^2\right)-2343a^2bcd^2+125ab^2c^2d+15b^3c^3\right)}{240b^5d^2(bc-ad)}+\frac{(bc-ad)\left(3003a^4d^4-2772a^3bcd^3+378a^2b^2c^2d^2+28ab^3c^3d+3b^4c^4\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{128b^{15/2}d^{5/2}}+\frac{\sqrt{a+bx}\sqrt{c+dx}\left(3003a^4d^4-2772a^3bcd^3+378a^2b^2c^2d^2+28ab^3c^3d+3b^4c^4\right)}{128b^7d^2}+\frac{\sqrt{a+bx}(c+dx)^{3/2}\left(3003a^4d^4-2772a^3bcd^3+378a^2b^2c^2d^2+28ab^3c^3d+3b^4c^4\right)}{192b^6d^2(bc-ad)}+\frac{x^2\sqrt{a+bx}(c+dx)^{5/2}(93bc-143ad)}{15b^3(bc-ad)}-\frac{2x^3(c+dx)^{5/2}(8bc-13ad)}{3b^2\sqrt{a+bx}(bc-ad)}-\frac{2x^4(c+dx)^{5/2}}{3b(a+bx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^4*(c + d*x)^(5/2))/(a + b*x)^(5/2),x]
```


```
[Out] ((3*b^4*c^4 + 28*a*b^3*c^3*d + 378*a^2*b^2*c^2*d^2 - 2772*a^3*b*c
*d^3 + 3003*a^4*d^4)*Sqrt[a + b*x]*Sqrt[c + d*x])/(128*b^7*d^2) +
 ((3*b^4*c^4 + 28*a*b^3*c^3*d + 378*a^2*b^2*c^2*d^2 - 2772*a^3*b*
c*d^3 + 3003*a^4*d^4)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(192*b^6*d^2
*(b*c - a*d)) - (2*x^4*(c + d*x)^(5/2))/(3*b*(a + b*x)^(3/2)) - (
2*(8*b*c - 13*a*d)*x^3*(c + d*x)^(5/2))/(3*b^2*(b*c - a*d)*Sqrt[a
 + b*x]) + ((93*b*c - 143*a*d)*x^2*Sqrt[a + b*x]*(c + d*x)^(5/2))
/(15*b^3*(b*c - a*d)) - (Sqrt[a + b*x]*(c + d*x)^(5/2)*(15*b^3*c^
3 + 125*a*b^2*c^2*d - 2343*a^2*b*c*d^2 + 3003*a^3*d^3 - 2*b*d*(15
*b^2*c^2 - 902*a*b*c*d + 1287*a^2*d^2)*x))/(240*b^5*d^2*(b*c - a*
d)) + ((b*c - a*d)*(3*b^4*c^4 + 28*a*b^3*c^3*d + 378*a^2*b^2*c^2*
d^2 - 2772*a^3*b*c*d^3 + 3003*a^4*d^4)*ArcTanh[(Sqrt[d]*Sqrt[a +
b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(128*b^(15/2)*d^(5/2))
```

Rubi in Sympy [A] time = 127.19, size = 430, normalized size = 0.87

$$-\frac{2x^4(c+dx)^{\frac{5}{2}}}{3b(a+bx)^{\frac{3}{2}}}-\frac{11x^2\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}(39ad-23bc)}{40b^4}-\frac{\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}\left(\frac{45045a^3d^3}{32}-\frac{32571a^2bcd^2}{32}+\frac{1215ab^2c^2d}{32}+\frac{135b^3c^3}{32}-\frac{9bdx(1001a^2d^2-638abcd+5b^2c^2)}{8}\right)}{90b^6d^2}+\frac{\sqrt{a+bx}\sqrt{c+dx}\,(3003a^4d^4-2772a^3bcd^3+378a^2b^2c^2d^2+28ab^3c^3d+3b^4c^4)}{128b^7d^2}-\frac{(ad-bc)(3003a^4d^4-2772a^3bcd^3+378a^2b^2c^2d^2+28ab^3c^3d+3b^4c^4)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{128b^{\frac{15}{2}}d^{\frac{5}{2}}}-\frac{2x^4(c+dx)^{\frac{3}{2}}(13ad-8bc)}{3ab^2\sqrt{a+bx}}+\frac{x^3\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}(143ad-80bc)}{15ab^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**4*(d*x+c)**(5/2)/(b*x+a)**(5/2),x)
```

```
[Out] -2*x**4*(c + d*x)**(5/2)/(3*b*(a + b*x)**(3/2)) - 11*x**2*sqrt(a
+ b*x)*(c + d*x)**(3/2)*(39*a*d - 23*b*c)/(40*b**4) - sqrt(a + b*
x)*(c + d*x)**(3/2)*(45045*a**3*d**3/32 - 32571*a**2*b*c*d**2/32
+ 1215*a*b**2*c**2*d/32 + 135*b**3*c**3/32 - 9*b*d*x*(1001*a**2*d
**2 - 638*a*b*c*d + 5*b**2*c**2)/8)/(90*b**6*d**2) + sqrt(a + b*x
)*sqrt(c + d*x)*(3003*a**4*d**4 - 2772*a**3*b*c*d**3 + 378*a**2*b
**2*c**2*d**2 + 28*a*b**3*c**3*d + 3*b**4*c**4)/(128*b**7*d**2) -
 (a*d - b*c)*(3003*a**4*d**4 - 2772*a**3*b*c*d**3 + 378*a**2*b**2
*c**2*d**2 + 28*a*b**3*c**3*d + 3*b**4*c**4)*atanh(sqrt(d)*sqrt(a
 + b*x)/(sqrt(b)*sqrt(c + d*x)))/(128*b**(15/2)*d**(5/2)) - 2*x**
4*(c + d*x)**(3/2)*(13*a*d - 8*b*c)/(3*a*b**2*sqrt(a + b*x)) + x*
*3*sqrt(a + b*x)*(c + d*x)**(3/2)*(143*a*d - 80*b*c)/(15*a*b**3)
```

Mathematica [A] time = 0.582638, size = 385, normalized size = 0.77

$$\frac{(bc-ad)(3003a^4d^4-2772a^3bcd^3+378a^2b^2c^2d^2+28ab^3c^3d+3b^4c^4)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{256b^{15/2}d^{5/2}}+\frac{\sqrt{c+dx}\left(45045a^6d^4+2310a^5bd^3(26dx-31c)+21a^4b^2d^2\left(1304c^2-4642cdx+429d^2x^2\right)-6a^3b^3d\left(65c^3-6441c^2dx+26\right.\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^4*(c + d*x)^(5/2))/(a + b*x)^(5/2),x]
```

```
[Out] (Sqrt[c + d*x]*(45045*a^6*d^4 + 2310*a^5*b*d^3*(-31*c + 26*d*x) +
 21*a^4*b^2*d^2*(1304*c^2 - 4642*c*d*x + 429*d^2*x^2) - 6*a^3*b^3
*d*(65*c^3 - 6441*c^2*d*x + 2673*c*d^2*x^2 + 429*d^3*x^3) + 3*b^6
*x^2*(-15*c^4 + 10*c^3*d*x + 248*c^2*d^2*x^2 + 336*c*d^3*x^3 + 12
8*d^4*x^4) - 2*a*b^5*x*(45*c^4 + 165*c^3*d*x + 917*c^2*d^2*x^2 +
944*c*d^3*x^3 + 312*d^4*x^4) + a^2*b^4*(-45*c^4 - 750*c^3*d*x + 7
404*c^2*d^2*x^2 + 4378*c*d^3*x^3 + 1144*d^4*x^4)))/(1920*b^7*d^2*
(a + b*x)^(3/2)) + ((b*c - a*d)*(3*b^4*c^4 + 28*a*b^3*c^3*d + 378
*a^2*b^2*c^2*d^2 - 2772*a^3*b*c*d^3 + 3003*a^4*d^4)*Log[b*c + a*d
 + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(256
*b^(15/2)*d^(5/2))
```

Maple [B] time = 0.059, size = 1762, normalized size = 3.6

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^4*(d*x+c)^(5/2)/(b*x+a)^(5/2),x)
```

```
[Out] -1/3840*(d*x+c)^(1/2)*(90*a^2*b^4*c^4*((b*x+a)*(d*x+c))^(1/2)*(b*
d)^(1/2)+45045*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1
/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a^5*b^2*d^5+90090*ln(1/2*(2*b*d*x+2
*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^6*
b*d^5-90*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*
d+b*c)/(b*d)^(1/2))*x*a*b^6*c^5-86625*ln(1/2*(2*b*d*x+2*((b*x+a)*
(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^6*b*c*d^4+4725
0*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/
(b*d)^(1/2))*a^5*b^2*c^2*d^3-5250*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x
+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^4*b^3*c^3*d^2-375*
ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b
*d)^(1/2))*a^3*b^4*c^4*d-768*x^6*b^6*d^4*((b*x+a)*(d*x+c))^(1/2)*
(b*d)^(1/2)-10500*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)
^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^3*b^4*c^3*d^2-90090*a^6*d^4*((b*
x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-45*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*
x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*b^7*c^5-45*ln(1
/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^
(1/2))*a^2*b^5*c^5-8756*x^3*a^2*b^4*c*d^3*((b*x+a)*(d*x+c))^(1/2)
*(b*d)^(1/2)+3668*x^3*a*b^5*c^2*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)
^(1/2)+32076*x^2*a^3*b^3*c*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2
)-14808*x^2*a^2*b^4*c^2*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+6
60*x^2*a*b^5*c^3*d*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+194964*x*a
^4*b^2*c*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-77292*x*a^3*b^3*
c^2*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+1500*x*a^2*b^4*c^3*d*
((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+3776*x^4*a*b^5*c*d^3*((b*x+a)
*(d*x+c))^(1/2)*(b*d)^(1/2)+90*x^2*b^6*c^4*((b*x+a)*(d*x+c))^(1/2
)*(b*d)^(1/2)-120120*x*a^5*b*d^4*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1
/2)+180*x*a*b^5*c^4*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+143220*a^
5*b*c*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-2288*x^4*a^2*b^4*d^
4*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-1488*x^4*b^6*c^2*d^2*((b*x+
a)*(d*x+c))^(1/2)*(b*d)^(1/2)+5148*x^3*a^3*b^3*d^4*((b*x+a)*(d*x+
c))^(1/2)*(b*d)^(1/2)-60*x^3*b^6*c^3*d*((b*x+a)*(d*x+c))^(1/2)*(b
*d)^(1/2)-18018*x^2*a^4*b^2*d^4*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/
2)-750*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+
b*c)/(b*d)^(1/2))*x*a^2*b^5*c^4*d-54768*a^4*b^2*c^2*d^2*((b*x+a)*
(d*x+c))^(1/2)*(b*d)^(1/2)+780*a^3*b^3*c^3*d*((b*x+a)*(d*x+c))^(1
/2)*(b*d)^(1/2)-86625*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(
b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a^4*b^3*c*d^4+47250*ln(1/2*(
2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2
))*x^2*a^3*b^4*c^2*d^3-5250*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(
1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a^2*b^5*c^3*d^2-375*ln
(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d
)^(1/2))*x^2*a*b^6*c^4*d-173250*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c
))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^5*b^2*c*d^4+94500*
ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b
*d)^(1/2))*x*a^4*b^3*c^2*d^3+1248*x^5*a*b^5*d^4*((b*x+a)*(d*x+c))
^(1/2)*(b*d)^(1/2)-2016*x^5*b^6*c*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*
d)^(1/2)+45045*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1
/2)+a*d+b*c)/(b*d)^(1/2))*a^7*d^5)/((b*x+a)*(d*x+c))^(1/2)/d^2/(b
*d)^(1/2)/(b*x+a)^(3/2)/b^7
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)*x^4/(b*x + a)^(5/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 4.4814, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)*x^4/(b*x + a)^(5/2),x, algorithm="fricas")
```

```
[Out] [1/7680*(4*(384*b^6*d^4*x^6 - 45*a^2*b^4*c^4 - 390*a^3*b^3*c^3*d
+ 27384*a^4*b^2*c^2*d^2 - 71610*a^5*b*c*d^3 + 45045*a^6*d^4 + 48*
(21*b^6*c*d^3 - 13*a*b^5*d^4)*x^5 + 8*(93*b^6*c^2*d^2 - 236*a*b^5
*c*d^3 + 143*a^2*b^4*d^4)*x^4 + 2*(15*b^6*c^3*d - 917*a*b^5*c^2*d
^2 + 2189*a^2*b^4*c*d^3 - 1287*a^3*b^3*d^4)*x^3 - 3*(15*b^6*c^4 +
 110*a*b^5*c^3*d - 2468*a^2*b^4*c^2*d^2 + 5346*a^3*b^3*c*d^3 - 30
03*a^4*b^2*d^4)*x^2 - 6*(15*a*b^5*c^4 + 125*a^2*b^4*c^3*d - 6441*
a^3*b^3*c^2*d^2 + 16247*a^4*b^2*c*d^3 - 10010*a^5*b*d^4)*x)*sqrt(
b*d)*sqrt(b*x + a)*sqrt(d*x + c) - 15*(3*a^2*b^5*c^5 + 25*a^3*b^4
*c^4*d + 350*a^4*b^3*c^3*d^2 - 3150*a^5*b^2*c^2*d^3 + 5775*a^6*b*
c*d^4 - 3003*a^7*d^5 + (3*b^7*c^5 + 25*a*b^6*c^4*d + 350*a^2*b^5*
c^3*d^2 - 3150*a^3*b^4*c^2*d^3 + 5775*a^4*b^3*c*d^4 - 3003*a^5*b^
2*d^5)*x^2 + 2*(3*a*b^6*c^5 + 25*a^2*b^5*c^4*d + 350*a^3*b^4*c^3*
d^2 - 3150*a^4*b^3*c^2*d^3 + 5775*a^5*b^2*c*d^4 - 3003*a^6*b*d^5)
*x)*log(-4*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d
*x + c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2
*c*d + a*b*d^2)*x)*sqrt(b*d)))/((b^9*d^2*x^2 + 2*a*b^8*d^2*x + a^
2*b^7*d^2)*sqrt(b*d)), 1/3840*(2*(384*b^6*d^4*x^6 - 45*a^2*b^4*c^
4 - 390*a^3*b^3*c^3*d + 27384*a^4*b^2*c^2*d^2 - 71610*a^5*b*c*d^3
 + 45045*a^6*d^4 + 48*(21*b^6*c*d^3 - 13*a*b^5*d^4)*x^5 + 8*(93*b
^6*c^2*d^2 - 236*a*b^5*c*d^3 + 143*a^2*b^4*d^4)*x^4 + 2*(15*b^6*c
^3*d - 917*a*b^5*c^2*d^2 + 2189*a^2*b^4*c*d^3 - 1287*a^3*b^3*d^4)
*x^3 - 3*(15*b^6*c^4 + 110*a*b^5*c^3*d - 2468*a^2*b^4*c^2*d^2 + 5
346*a^3*b^3*c*d^3 - 3003*a^4*b^2*d^4)*x^2 - 6*(15*a*b^5*c^4 + 125
*a^2*b^4*c^3*d - 6441*a^3*b^3*c^2*d^2 + 16247*a^4*b^2*c*d^3 - 100
10*a^5*b*d^4)*x)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 15*(3*a
^2*b^5*c^5 + 25*a^3*b^4*c^4*d + 350*a^4*b^3*c^3*d^2 - 3150*a^5*b^
2*c^2*d^3 + 5775*a^6*b*c*d^4 - 3003*a^7*d^5 + (3*b^7*c^5 + 25*a*b
^6*c^4*d + 350*a^2*b^5*c^3*d^2 - 3150*a^3*b^4*c^2*d^3 + 5775*a^4*
b^3*c*d^4 - 3003*a^5*b^2*d^5)*x^2 + 2*(3*a*b^6*c^5 + 25*a^2*b^5*c
^4*d + 350*a^3*b^4*c^3*d^2 - 3150*a^4*b^3*c^2*d^3 + 5775*a^5*b^2*
c*d^4 - 3003*a^6*b*d^5)*x)*arctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(
-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/((b^9*d^2*x^2 + 2*a*b^8
*d^2*x + a^2*b^7*d^2)*sqrt(-b*d))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**4*(d*x+c)**(5/2)/(b*x+a)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.748464, size = 4, normalized size = 0.01

$$sage_0x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)*x^4/(b*x + a)^(5/2),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.782 $\int \frac{x^3(c+dx)^{5/2}}{(a+bx)^{5/2}}\,dx$

Optimal. Leaf size=377

$$\frac{\sqrt{a+bx}(c+dx)^{5/2}\left(231a^2d^2+2bdx(59bc-99ad)-156abcd+5b^2c^2\right)}{24b^4d(bc-ad)}-\frac{5(bc-ad)\left(231a^3d^3-189a^2bcd^2+21ab^2c^2d+b^3c^3\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{64b^{13/2}d^{3/2}}-\frac{5\sqrt{a+bx}\sqrt{c+dx}\left(231a^3d^3-189a^2bcd^2+21ab^2c^2d+b^3c^3\right)}{64b^6d}-\frac{5\sqrt{a+bx}(c+dx)^{3/2}\left(231a^3d^3-189a^2bcd^2+21ab^2c^2d+b^3c^3\right)}{96b^5d(bc-ad)}-\frac{2x^2(c+dx)^{5/2}(6bc-11ad)}{3b^2\sqrt{a+bx}(bc-ad)}-\frac{2x^3(c+dx)^{5/2}}{3b(a+bx)^{3/2}}$$

```
[Out] (-5*(b^3*c^3 + 21*a*b^2*c^2*d - 189*a^2*b*c*d^2 + 231*a^3*d^3)*Sq
rt[a + b*x]*Sqrt[c + d*x])/(64*b^6*d) - (5*(b^3*c^3 + 21*a*b^2*c^
2*d - 189*a^2*b*c*d^2 + 231*a^3*d^3)*Sqrt[a + b*x]*(c + d*x)^(3/2
))/(96*b^5*d*(b*c - a*d)) - (2*x^3*(c + d*x)^(5/2))/(3*b*(a + b*x
)^(3/2)) - (2*(6*b*c - 11*a*d)*x^2*(c + d*x)^(5/2))/(3*b^2*(b*c -
 a*d)*Sqrt[a + b*x]) + (Sqrt[a + b*x]*(c + d*x)^(5/2)*(5*b^2*c^2
- 156*a*b*c*d + 231*a^2*d^2 + 2*b*d*(59*b*c - 99*a*d)*x))/(24*b^4
*d*(b*c - a*d)) - (5*(b*c - a*d)*(b^3*c^3 + 21*a*b^2*c^2*d - 189*
a^2*b*c*d^2 + 231*a^3*d^3)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[
b]*Sqrt[c + d*x])])/(64*b^(13/2)*d^(3/2))
```

Rubi [A] time = 0.882316, antiderivative size = 377, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.273

$$\frac{\sqrt{a+bx}(c+dx)^{5/2}\left(231a^2d^2+2bdx(59bc-99ad)-156abcd+5b^2c^2\right)}{24b^4d(bc-ad)}-\frac{5(bc-ad)\left(231a^3d^3-189a^2bcd^2+21ab^2c^2d+b^3c^3\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{64b^{13/2}d^{3/2}}-\frac{5\sqrt{a+bx}\sqrt{c+dx}\left(231a^3d^3-189a^2bcd^2+21ab^2c^2d+b^3c^3\right)}{64b^6d}-\frac{5\sqrt{a+bx}(c+dx)^{3/2}\left(231a^3d^3-189a^2bcd^2+21ab^2c^2d+b^3c^3\right)}{96b^5d(bc-ad)}-\frac{2x^2(c+dx)^{5/2}(6bc-11ad)}{3b^2\sqrt{a+bx}(bc-ad)}-\frac{2x^3(c+dx)^{5/2}}{3b(a+bx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^3*(c + d*x)^(5/2))/(a + b*x)^(5/2),x]
```


```
[Out] (-5*(b^3*c^3 + 21*a*b^2*c^2*d - 189*a^2*b*c*d^2 + 231*a^3*d^3)*Sq
rt[a + b*x]*Sqrt[c + d*x])/(64*b^6*d) - (5*(b^3*c^3 + 21*a*b^2*c^
2*d - 189*a^2*b*c*d^2 + 231*a^3*d^3)*Sqrt[a + b*x]*(c + d*x)^(3/2
))/(96*b^5*d*(b*c - a*d)) - (2*x^3*(c + d*x)^(5/2))/(3*b*(a + b*x
)^(3/2)) - (2*(6*b*c - 11*a*d)*x^2*(c + d*x)^(5/2))/(3*b^2*(b*c -
 a*d)*Sqrt[a + b*x]) + (Sqrt[a + b*x]*(c + d*x)^(5/2)*(5*b^2*c^2
- 156*a*b*c*d + 231*a^2*d^2 + 2*b*d*(59*b*c - 99*a*d)*x))/(24*b^4
*d*(b*c - a*d)) - (5*(b*c - a*d)*(b^3*c^3 + 21*a*b^2*c^2*d - 189*
a^2*b*c*d^2 + 231*a^3*d^3)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[
b]*Sqrt[c + d*x])])/(64*b^(13/2)*d^(3/2))
```

Rubi in Sympy [A] time = 81.0518, size = 326, normalized size = 0.86

$$-\frac{2x^3(c+dx)^{\frac{5}{2}}}{3b(a+bx)^{\frac{3}{2}}}+\frac{\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}\left(\frac{3465a^2d^2}{16}-\frac{1071abcd}{8}+\frac{45b^2c^2}{16}-\frac{9bdx(77ad-41bc)}{4}\right)}{18b^5d}-\frac{5\sqrt{a+bx}\sqrt{c+dx}\,(231a^3d^3-189a^2bcd^2+21ab^2c^2d+b^3c^3)}{64b^6d}+\frac{5(ad-bc)(231a^3d^3-189a^2bcd^2+21ab^2c^2d+b^3c^3)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{64b^{\frac{13}{2}}d^{\frac{3}{2}}}-\frac{2x^3(c+dx)^{\frac{3}{2}}(11ad-6bc)}{3ab^2\sqrt{a+bx}}+\frac{x^2\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}(33ad-16bc)}{4ab^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   rubi_integrate(x**3*(d*x+c)**(5/2)/(b*x+a)**(5/2),x)
```

```
[Out] -2*x**3*(c + d*x)**(5/2)/(3*b*(a + b*x)**(3/2)) + sqrt(a + b*x)*(
c + d*x)**(3/2)*(3465*a**2*d**2/16 - 1071*a*b*c*d/8 + 45*b**2*c**
2/16 - 9*b*d*x*(77*a*d - 41*b*c)/4)/(18*b**5*d) - 5*sqrt(a + b*x)
*sqrt(c + d*x)*(231*a**3*d**3 - 189*a**2*b*c*d**2 + 21*a*b**2*c**
2*d + b**3*c**3)/(64*b**6*d) + 5*(a*d - b*c)*(231*a**3*d**3 - 189
*a**2*b*c*d**2 + 21*a*b**2*c**2*d + b**3*c**3)*atanh(sqrt(b)*sqrt
(c + d*x)/(sqrt(d)*sqrt(a + b*x)))/(64*b**(13/2)*d**(3/2)) - 2*x*
*3*(c + d*x)**(3/2)*(11*a*d - 6*b*c)/(3*a*b**2*sqrt(a + b*x)) + x
**2*sqrt(a + b*x)*(c + d*x)**(3/2)*(33*a*d - 16*b*c)/(4*a*b**3)
```

Mathematica [A] time = 0.449525, size = 296, normalized size = 0.79

$$\frac{\sqrt{c+dx}\left(-3465a^5d^3+105a^4bd^2(49c-44dx)-21a^3b^2d\left(83c^2-334cdx+33d^2x^2\right)+3a^2b^3\left(5c^3-824c^2dx+387cd^2x^2+6\right.\right.}{192b^6d(a+bx)^{3/2}}-\frac{5(bc-ad)\left(231a^3d^3-189a^2bcd^2+21ab^2c^2d+b^3c^3\right)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{128b^{13/2}d^{3/2}}$$

Antiderivative was successfully verified.

```
[In]   Integrate[(x^3*(c + d*x)^(5/2))/(a + b*x)^(5/2),x]
```

```
[Out] (Sqrt[c + d*x]*(-3465*a^5*d^3 + 105*a^4*b*d^2*(49*c - 44*d*x) - 2
1*a^3*b^2*d*(83*c^2 - 334*c*d*x + 33*d^2*x^2) + b^5*x^2*(15*c^3 +
 118*c^2*d*x + 136*c*d^2*x^2 + 48*d^3*x^3) + 3*a^2*b^3*(5*c^3 - 8
24*c^2*d*x + 387*c*d^2*x^2 + 66*d^3*x^3) - a*b^4*x*(-30*c^3 + 483
*c^2*d*x + 316*c*d^2*x^2 + 88*d^3*x^3)))/(192*b^6*d*(a + b*x)^(3/
2)) - (5*(b*c - a*d)*(b^3*c^3 + 21*a*b^2*c^2*d - 189*a^2*b*c*d^2
+ 231*a^3*d^3)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a
 + b*x]*Sqrt[c + d*x]])/(128*b^(13/2)*d^(3/2))
```

Maple [B] time = 0.048, size = 1366, normalized size = 3.6

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int(x^3*(d*x+c)^(5/2)/(b*x+a)^(5/2),x)
```

```
[Out] 1/384*(d*x+c)^(1/2)*(-632*x^3*a*b^4*c*d^2*((b*x+a)*(d*x+c))^(1/2)
*(b*d)^(1/2)+2322*x^2*a^2*b^3*c*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)
^(1/2)-966*x^2*a*b^4*c^2*d*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+14
028*x*a^3*b^2*c*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-4944*x*a^
2*b^3*c^2*d*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+30*x^2*b^5*c^3*((
```

```
b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+30*a^2*b^3*c^3*((b*x+a)*(d*x+c)
)^(1/2)*(b*d)^(1/2)-176*x^4*a*b^4*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*
d)^(1/2)-15*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)
+a*d+b*c)/(b*d)^(1/2))*x^2*b^6*c^4-15*ln(1/2*(2*b*d*x+2*((b*x+a)*
(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^2*b^4*c^4-6930
*a^5*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+3465*ln(1/2*(2*b*d*x
+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*
a^4*b^2*d^4+6930*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^
(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^5*b*d^4-30*ln(1/2*(2*b*d*x+2*((b*
x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a*b^5*c^4
-6300*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b
*c)/(b*d)^(1/2))*a^5*b*c*d^3+3150*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x
+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^4*b^2*c^2*d^2-300*
ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b
*d)^(1/2))*a^3*b^3*c^3*d+96*x^5*b^5*d^3*((b*x+a)*(d*x+c))^(1/2)*(
b*d)^(1/2)-12600*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^
(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^4*b^2*c*d^3+6300*ln(1/2*(2*b*d*x+
2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^3
*b^3*c^2*d^2-600*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^
(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^2*b^4*c^3*d+272*x^4*b^5*c*d^2*((b
*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+396*x^3*a^2*b^3*d^3*((b*x+a)*(d*
x+c))^(1/2)*(b*d)^(1/2)+236*x^3*b^5*c^2*d*((b*x+a)*(d*x+c))^(1/2)
*(b*d)^(1/2)-1386*x^2*a^3*b^2*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(
1/2)-9240*x*a^4*b*d^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+60*x*a*
b^4*c^3*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+10290*a^4*b*c*d^2*((b
*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-3486*a^3*b^2*c^2*d*((b*x+a)*(d*x
+c))^(1/2)*(b*d)^(1/2)-6300*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(
1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a^3*b^3*c*d^3+3150*ln(
1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)
^(1/2))*x^2*a^2*b^4*c^2*d^2-300*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c
))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a*b^5*c^3*d+3465*l
n(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*
d)^(1/2))*a^6*d^4)/((b*x+a)*(d*x+c))^(1/2)/(b*d)^(1/2)/d/(b*x+a)^
(3/2)/b^6
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)^(5/2)*x^3/(b*x + a)^(5/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 2.34333, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)^(5/2)*x^3/(b*x + a)^(5/2),x, algorithm="fricas")
```

```
[Out] [1/768*(4*(48*b^5*d^3*x^5 + 15*a^2*b^3*c^3 - 1743*a^3*b^2*c^2*d +
 5145*a^4*b*c*d^2 - 3465*a^5*d^3 + 8*(17*b^5*c*d^2 - 11*a*b^4*d^3
)*x^4 + 2*(59*b^5*c^2*d - 158*a*b^4*c*d^2 + 99*a^2*b^3*d^3)*x^3 +
 3*(5*b^5*c^3 - 161*a*b^4*c^2*d + 387*a^2*b^3*c*d^2 - 231*a^3*b^2
*d^3)*x^2 + 6*(5*a*b^4*c^3 - 412*a^2*b^3*c^2*d + 1169*a^3*b^2*c*d
^2 - 770*a^4*b*d^3)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) - 15
*(a^2*b^4*c^4 + 20*a^3*b^3*c^3*d - 210*a^4*b^2*c^2*d^2 + 420*a^5*
b*c*d^3 - 231*a^6*d^4 + (b^6*c^4 + 20*a*b^5*c^3*d - 210*a^2*b^4*c
^2*d^2 + 420*a^3*b^3*c*d^3 - 231*a^4*b^2*d^4)*x^2 + 2*(a*b^5*c^4
+ 20*a^2*b^4*c^3*d - 210*a^3*b^3*c^2*d^2 + 420*a^4*b^2*c*d^3 - 23
1*a^5*b*d^4)*x)*log(4*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*x
+ a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d
```

```
^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/((b^8*d*x^2 + 2*a*b^7*d
*x + a^2*b^6*d)*sqrt(b*d)), 1/384*(2*(48*b^5*d^3*x^5 + 15*a^2*b^3
*c^3 - 1743*a^3*b^2*c^2*d + 5145*a^4*b*c*d^2 - 3465*a^5*d^3 + 8*(
17*b^5*c*d^2 - 11*a*b^4*d^3)*x^4 + 2*(59*b^5*c^2*d - 158*a*b^4*c*
d^2 + 99*a^2*b^3*d^3)*x^3 + 3*(5*b^5*c^3 - 161*a*b^4*c^2*d + 387*
a^2*b^3*c*d^2 - 231*a^3*b^2*d^3)*x^2 + 6*(5*a*b^4*c^3 - 412*a^2*b
^3*c^2*d + 1169*a^3*b^2*c*d^2 - 770*a^4*b*d^3)*x)*sqrt(-b*d)*sqrt
(b*x + a)*sqrt(d*x + c) - 15*(a^2*b^4*c^4 + 20*a^3*b^3*c^3*d - 21
0*a^4*b^2*c^2*d^2 + 420*a^5*b*c*d^3 - 231*a^6*d^4 + (b^6*c^4 + 20
*a*b^5*c^3*d - 210*a^2*b^4*c^2*d^2 + 420*a^3*b^3*c*d^3 - 231*a^4*
b^2*d^4)*x^2 + 2*(a*b^5*c^4 + 20*a^2*b^4*c^3*d - 210*a^3*b^3*c^2*
d^2 + 420*a^4*b^2*c*d^3 - 231*a^5*b*d^4)*x)*arctan(1/2*(2*b*d*x +
 b*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/((b^8*
d*x^2 + 2*a*b^7*d*x + a^2*b^6*d)*sqrt(-b*d))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**3*(d*x+c)**(5/2)/(b*x+a)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.691274, size = 4, normalized size = 0.01

$$sage_0 x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)*x^3/(b*x + a)^(5/2),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.783 $\int \frac{x^2(c+dx)^{5/2}}{(a+bx)^{5/2}}\,dx$

Optimal. Leaf size=319

$$-\frac{2a^2(c+dx)^{7/2}}{3b^2(a+bx)^{3/2}(bc-ad)}+\frac{5(bc-ad)\left(21a^2d^2-14abcd+b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8b^{11/2}\sqrt{d}}+\frac{5\sqrt{a+bx}\sqrt{c+dx}\left(21a^2d^2-14abcd+b^2c^2\right)}{8b^5}+\frac{5\sqrt{a+bx}(c+dx)^{3/2}\left(21a^2d^2-14abcd+b^2c^2\right)}{12b^4(bc-ad)}+\frac{\sqrt{a+bx}(c+dx)^{5/2}\left(21a^2d^2-14abcd+b^2c^2\right)}{3b^3(bc-ad)^2}+\frac{4a(c+dx)^{7/2}(3bc-5ad)}{3b^2\sqrt{a+bx}(bc-ad)^2}$$

```
[Out] (5*(b^2*c^2 - 14*a*b*c*d + 21*a^2*d^2)*Sqrt[a + b*x]*Sqrt[c + d*x
])/(8*b^5) + (5*(b^2*c^2 - 14*a*b*c*d + 21*a^2*d^2)*Sqrt[a + b*x]
*(c + d*x)^(3/2))/(12*b^4*(b*c - a*d)) + ((b^2*c^2 - 14*a*b*c*d +
 21*a^2*d^2)*Sqrt[a + b*x]*(c + d*x)^(5/2))/(3*b^3*(b*c - a*d)^2)
 - (2*a^2*(c + d*x)^(7/2))/(3*b^2*(b*c - a*d)*(a + b*x)^(3/2)) +
(4*a*(3*b*c - 5*a*d)*(c + d*x)^(7/2))/(3*b^2*(b*c - a*d)^2*Sqrt[a
 + b*x]) + (5*(b*c - a*d)*(b^2*c^2 - 14*a*b*c*d + 21*a^2*d^2)*Arc
Tanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(8*b^(11/2
)*Sqrt[d])
```

Rubi [A] time = 0.730366, antiderivative size = 319, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$-\frac{2a^2(c+dx)^{7/2}}{3b^2(a+bx)^{3/2}(bc-ad)}+\frac{5(bc-ad)\left(21a^2d^2-14abcd+b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8b^{11/2}\sqrt{d}}+\frac{5\sqrt{a+bx}\sqrt{c+dx}\left(21a^2d^2-14abcd+b^2c^2\right)}{8b^5}+\frac{5\sqrt{a+bx}(c+dx)^{3/2}\left(21a^2d^2-14abcd+b^2c^2\right)}{12b^4(bc-ad)}+\frac{\sqrt{a+bx}(c+dx)^{5/2}\left(21a^2d^2-14abcd+b^2c^2\right)}{3b^3(bc-ad)^2}+\frac{4a(c+dx)^{7/2}(3bc-5ad)}{3b^2\sqrt{a+bx}(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^2*(c + d*x)^(5/2))/(a + b*x)^(5/2),x]
```


```
[Out] (5*(b^2*c^2 - 14*a*b*c*d + 21*a^2*d^2)*Sqrt[a + b*x]*Sqrt[c + d*x
])/(8*b^5) + (5*(b^2*c^2 - 14*a*b*c*d + 21*a^2*d^2)*Sqrt[a + b*x]
*(c + d*x)^(3/2))/(12*b^4*(b*c - a*d)) + ((b^2*c^2 - 14*a*b*c*d +
 21*a^2*d^2)*Sqrt[a + b*x]*(c + d*x)^(5/2))/(3*b^3*(b*c - a*d)^2)
 - (2*a^2*(c + d*x)^(7/2))/(3*b^2*(b*c - a*d)*(a + b*x)^(3/2)) +
(4*a*(3*b*c - 5*a*d)*(c + d*x)^(7/2))/(3*b^2*(b*c - a*d)^2*Sqrt[a
 + b*x]) + (5*(b*c - a*d)*(b^2*c^2 - 14*a*b*c*d + 21*a^2*d^2)*Arc
Tanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(8*b^(11/2
)*Sqrt[d])
```

Rubi in Sympy [A] time = 66.9065, size = 306, normalized size = 0.96

$$\frac{2a^2\left(c+dx\right)^{\frac{7}{2}}}{3b^2\left(a+bx\right)^{\frac{3}{2}}\left(ad-bc\right)}-\frac{4a\left(c+dx\right)^{\frac{7}{2}}\left(5ad-3bc\right)}{3b^2\sqrt{a+bx}\left(ad-bc\right)^2}+\frac{\sqrt{a+bx}\left(c+dx\right)^{\frac{5}{2}}\left(21a^2d^2-14abcd+b^2c^2\right)}{3b^3\left(ad-bc\right)^2}-\frac{5\sqrt{a+bx}\left(c+dx\right)^{\frac{3}{2}}\left(21a^2d^2-14abcd+b^2c^2\right)}{12b^4\left(ad-bc\right)}+\frac{5\sqrt{a+bx}\sqrt{c+dx}\left(21a^2d^2-14abcd+b^2c^2\right)}{8b^5}-\frac{5\left(ad-bc\right)\left(21a^2d^2-14abcd+b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{8b^{\frac{11}{2}}\sqrt{d}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(d*x+c)**(5/2)/(b*x+a)**(5/2),x)
```

```
[Out] 2*a**2*(c + d*x)**(7/2)/(3*b**2*(a + b*x)**(3/2)*(a*d - b*c)) - 4
*a*(c + d*x)**(7/2)*(5*a*d - 3*b*c)/(3*b**2*sqrt(a + b*x)*(a*d -
b*c)**2) + sqrt(a + b*x)*(c + d*x)**(5/2)*(21*a**2*d**2 - 14*a*b*
c*d + b**2*c**2)/(3*b**3*(a*d - b*c)**2) - 5*sqrt(a + b*x)*(c + d
*x)**(3/2)*(21*a**2*d**2 - 14*a*b*c*d + b**2*c**2)/(12*b**4*(a*d
- b*c)) + 5*sqrt(a + b*x)*sqrt(c + d*x)*(21*a**2*d**2 - 14*a*b*c*
d + b**2*c**2)/(8*b**5) - 5*(a*d - b*c)*(21*a**2*d**2 - 14*a*b*c*
d + b**2*c**2)*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c + d*x)
))/(8*b**(11/2)*sqrt(d))
```

Mathematica [A] time = 0.333353, size = 214, normalized size = 0.67

$$\frac{5(bc-ad)\left(21a^2d^2-14abcd+b^2c^2\right)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{16b^{11/2}\sqrt{d}} + \frac{\sqrt{c+dx}\left(315a^4d^2+420a^3bd(dx-c)+a^2b^2\left(113c^2-574cdx+63d^2x^2\right)-6ab^3x\left(-27c^2+16cdx+3d^2x^2\right)+b^4x^2\left(33c^2+\right.\right.}{24b^5(a+bx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^2*(c + d*x)^(5/2))/(a + b*x)^(5/2),x]
```

```
[Out] (Sqrt[c + d*x]*(315*a^4*d^2 + 420*a^3*b*d*(-c + d*x) - 6*a*b^3*x*
(-27*c^2 + 16*c*d*x + 3*d^2*x^2) + b^4*x^2*(33*c^2 + 26*c*d*x + 8
*d^2*x^2) + a^2*b^2*(113*c^2 - 574*c*d*x + 63*d^2*x^2)))/(24*b^5*
(a + b*x)^(3/2)) + (5*(b*c - a*d)*(b^2*c^2 - 14*a*b*c*d + 21*a^2*
d^2)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sq
rt[c + d*x]])/(16*b^(11/2)*Sqrt[d])
```

Maple [B] time = 0.04, size = 1002, normalized size = 3.1

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(d*x+c)^(5/2)/(b*x+a)^(5/2),x)
```

```
[Out] -1/48*(d*x+c)^(1/2)*(-16*x^4*b^4*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d
)^(1/2)+315*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)
+a*d+b*c)/(b*d)^(1/2))*x^2*a^3*b^2*d^3-525*ln(1/2*(2*b*d*x+2*((b*
x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a^2*b^3
*c*d^2+225*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+
a*d+b*c)/(b*d)^(1/2))*x^2*a*b^4*c^2*d-15*ln(1/2*(2*b*d*x+2*((b*x+
a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*b^5*c^3+3
6*x^3*a*b^3*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-52*x^3*b^4*c*
d*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+630*ln(1/2*(2*b*d*x+2*((b*x
+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^4*b*d^3-
1050*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*
c)/(b*d)^(1/2))*x*a^3*b^2*c*d^2+450*ln(1/2*(2*b*d*x+2*((b*x+a)*(d
*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^2*b^3*c^2*d-30
*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(
b*d)^(1/2))*x*a*b^4*c^3-126*x^2*a^2*b^2*d^2*((b*x+a)*(d*x+c))^(1/
2)*(b*d)^(1/2)+192*x^2*a*b^3*c*d*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1
/2)-66*x^2*b^4*c^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+315*ln(1/2
*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1
/2))*a^5*d^3-525*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^
(1/2)+a*d+b*c)/(b*d)^(1/2))*a^4*b*c*d^2+225*ln(1/2*(2*b*d*x+2*((b
*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^3*b^2*c^
2*d-15*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+
b*c)/(b*d)^(1/2))*a^2*b^3*c^3-840*x*a^3*b*d^2*((b*x+a)*(d*x+c))^(
1/2)*(b*d)^(1/2)+1148*x*a^2*b^2*c*d*((b*x+a)*(d*x+c))^(1/2)*(b*d)
^(1/2)-324*x*a*b^3*c^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-630*a^
```

```
4*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+840*a^3*b*c*d*((b*x+a)*
(d*x+c))^(1/2)*(b*d)^(1/2)-226*a^2*b^2*c^2*((b*x+a)*(d*x+c))^(1/2
)*(b*d)^(1/2))/((b*x+a)*(d*x+c))^(1/2)/(b*d)^(1/2)/(b*x+a)^(3/2)/
b^5
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)^(5/2)*x^2/(b*x + a)^(5/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 1.27218, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)^(5/2)*x^2/(b*x + a)^(5/2),x, algorithm="fricas")
```

```
[Out] [1/96*(4*(8*b^4*d^2*x^4 + 113*a^2*b^2*c^2 - 420*a^3*b*c*d + 315*a
^4*d^2 + 2*(13*b^4*c*d - 9*a*b^3*d^2)*x^3 + 3*(11*b^4*c^2 - 32*a*
b^3*c*d + 21*a^2*b^2*d^2)*x^2 + 2*(81*a*b^3*c^2 - 287*a^2*b^2*c*d
 + 210*a^3*b*d^2)*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) - 15*(
a^2*b^3*c^3 - 15*a^3*b^2*c^2*d + 35*a^4*b*c*d^2 - 21*a^5*d^3 + (b
^5*c^3 - 15*a*b^4*c^2*d + 35*a^2*b^3*c*d^2 - 21*a^3*b^2*d^3)*x^2
+ 2*(a*b^4*c^3 - 15*a^2*b^3*c^2*d + 35*a^3*b^2*c*d^2 - 21*a^4*b*d
^3)*x)*log(-4*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqr
t(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(
b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/((b^7*x^2 + 2*a*b^6*x + a^2*b^5
)*sqrt(b*d)), 1/48*(2*(8*b^4*d^2*x^4 + 113*a^2*b^2*c^2 - 420*a^3*
b*c*d + 315*a^4*d^2 + 2*(13*b^4*c*d - 9*a*b^3*d^2)*x^3 + 3*(11*b^
4*c^2 - 32*a*b^3*c*d + 21*a^2*b^2*d^2)*x^2 + 2*(81*a*b^3*c^2 - 28
7*a^2*b^2*c*d + 210*a^3*b*d^2)*x)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d
*x + c) + 15*(a^2*b^3*c^3 - 15*a^3*b^2*c^2*d + 35*a^4*b*c*d^2 - 2
1*a^5*d^3 + (b^5*c^3 - 15*a*b^4*c^2*d + 35*a^2*b^3*c*d^2 - 21*a^3
*b^2*d^3)*x^2 + 2*(a*b^4*c^3 - 15*a^2*b^3*c^2*d + 35*a^3*b^2*c*d^
2 - 21*a^4*b*d^3)*x)*arctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/
(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/((b^7*x^2 + 2*a*b^6*x + a^2*b
^5)*sqrt(-b*d))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**2*(d*x+c)**(5/2)/(b*x+a)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.668607, size = 4, normalized size = 0.01

$$sage_0 x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)*x^2/(b*x + a)^(5/2),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.784 $\int \frac{x(c+dx)^{5/2}}{(a+bx)^{5/2}} dx$

Optimal. Leaf size=222

$$\frac{5\sqrt{d}(3bc-7ad)(bc-ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{9/2}}+\frac{5d\sqrt{a+bx}\sqrt{c+dx}(3bc-7ad)}{4b^4}+\frac{5d\sqrt{a+bx}(c+dx)^{3/2}(3bc-7ad)}{6b^3(bc-ad)}-\frac{2(c+dx)^{5/2}(3bc-7ad)}{3b^2\sqrt{a+bx}(bc-ad)}+\frac{2a(c+dx)^{7/2}}{3b(a+bx)^{3/2}(bc-ad)}$$

```
[Out] (5*d*(3*b*c - 7*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*b^4) + (5*d*
(3*b*c - 7*a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(6*b^3*(b*c - a*d)
) - (2*(3*b*c - 7*a*d)*(c + d*x)^(5/2))/(3*b^2*(b*c - a*d)*Sqrt[a
 + b*x]) + (2*a*(c + d*x)^(7/2))/(3*b*(b*c - a*d)*(a + b*x)^(3/2)
) + (5*Sqrt[d]*(3*b*c - 7*a*d)*(b*c - a*d)*ArcTanh[(Sqrt[d]*Sqrt[
a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(4*b^(9/2))
```

Rubi [A] time = 0.306934, antiderivative size = 222, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$\frac{5\sqrt{d}(3bc-7ad)(bc-ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{9/2}}+\frac{5d\sqrt{a+bx}\sqrt{c+dx}(3bc-7ad)}{4b^4}+\frac{5d\sqrt{a+bx}(c+dx)^{3/2}(3bc-7ad)}{6b^3(bc-ad)}-\frac{2(c+dx)^{5/2}(3bc-7ad)}{3b^2\sqrt{a+bx}(bc-ad)}+\frac{2a(c+dx)^{7/2}}{3b(a+bx)^{3/2}(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[(x*(c + d*x)^(5/2))/(a + b*x)^(5/2),x]
```

```
[Out] (5*d*(3*b*c - 7*a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])/(4*b^4) + (5*d*
(3*b*c - 7*a*d)*Sqrt[a + b*x]*(c + d*x)^(3/2))/(6*b^3*(b*c - a*d)
) - (2*(3*b*c - 7*a*d)*(c + d*x)^(5/2))/(3*b^2*(b*c - a*d)*Sqrt[a
 + b*x]) + (2*a*(c + d*x)^(7/2))/(3*b*(b*c - a*d)*(a + b*x)^(3/2)
) + (5*Sqrt[d]*(3*b*c - 7*a*d)*(b*c - a*d)*ArcTanh[(Sqrt[d]*Sqrt[
a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(4*b^(9/2))
```

Rubi in Sympy [A] time = 35.3946, size = 207, normalized size = 0.93

$$-\frac{2a\left(c+dx\right)^{\frac{7}{2}}}{3b\left(a+bx\right)^{\frac{3}{2}}\left(ad-bc\right)}-\frac{2\left(c+dx\right)^{\frac{5}{2}}\left(7ad-3bc\right)}{3b^{2}\sqrt{a+bx}\left(ad-bc\right)}+\frac{5d\sqrt{a+bx}\left(c+dx\right)^{\frac{3}{2}}\left(7ad-3bc\right)}{6b^{3}\left(ad-bc\right)}-\frac{5d\sqrt{a+bx}\sqrt{c+dx}\left(7ad-3bc\right)}{4b^{4}}+\frac{5\sqrt{d}\left(ad-bc\right)\left(7ad-3bc\right)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(d*x+c)**(5/2)/(b*x+a)**(5/2),x)
```

```
[Out] -2*a*(c + d*x)**(7/2)/(3*b*(a + b*x)**(3/2)*(a*d - b*c)) - 2*(c +
 d*x)**(5/2)*(7*a*d - 3*b*c)/(3*b**2*sqrt(a + b*x)*(a*d - b*c)) +
 5*d*sqrt(a + b*x)*(c + d*x)**(3/2)*(7*a*d - 3*b*c)/(6*b**3*(a*d
- b*c)) - 5*d*sqrt(a + b*x)*sqrt(c + d*x)*(7*a*d - 3*b*c)/(4*b**4
) + 5*sqrt(d)*(a*d - b*c)*(7*a*d - 3*b*c)*atanh(sqrt(d)*sqrt(a +
b*x)/(sqrt(b)*sqrt(c + d*x)))/(4*b**(9/2))
```

Mathematica [A] time = 0.276167, size = 173, normalized size = 0.78

$$\frac{5\sqrt{d}(3bc-7ad)(bc-ad)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{8b^{9/2}} - \frac{\sqrt{c+dx}\left(105a^3d^2+5a^2bd(28dx-23c)+ab^2\left(16c^2-158cdx+21d^2x^2\right)-3b^3x\left(-8c^2+9cdx+2d^2x^2\right)\right)}{12b^4(a+bx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x*(c + d*x)^(5/2))/(a + b*x)^(5/2),x]
```

```
[Out] -(Sqrt[c + d*x]*(105*a^3*d^2 + 5*a^2*b*d*(-23*c + 28*d*x) - 3*b^3
*x*(-8*c^2 + 9*c*d*x + 2*d^2*x^2) + a*b^2*(16*c^2 - 158*c*d*x + 2
1*d^2*x^2)))/(12*b^4*(a + b*x)^(3/2)) + (5*Sqrt[d]*(3*b*c - 7*a*d
)*(b*c - a*d)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a
+ b*x]*Sqrt[c + d*x]])/(8*b^(9/2))
```

Maple [B] time = 0.034, size = 750, normalized size = 3.4

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(d*x+c)^(5/2)/(b*x+a)^(5/2),x)
```

```
[Out] 1/24*(d*x+c)^(1/2)*(105*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)
*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a^2*b^2*d^3-150*ln(1/2*(2*
b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))
*x^2*a*b^3*c*d^2+45*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*
d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*b^4*c^2*d+12*x^3*b^3*d^2*((b*x
+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+210*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*
x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^3*b*d^3-300*ln(
1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)
^(1/2))*x*a^2*b^2*c*d^2+90*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1
/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a*b^3*c^2*d-42*x^2*a*b^2*
d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+54*x^2*b^3*c*d*((b*x+a)*(
d*x+c))^(1/2)*(b*d)^(1/2)+105*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))
^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^4*d^3-150*ln(1/2*(2*b*
d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a
^3*b*c*d^2+45*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/
2)+a*d+b*c)/(b*d)^(1/2))*a^2*b^2*c^2*d-280*x*a^2*b*d^2*((b*x+a)*(
d*x+c))^(1/2)*(b*d)^(1/2)+316*x*a*b^2*c*d*((b*x+a)*(d*x+c))^(1/2)
*(b*d)^(1/2)-48*x*b^3*c^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-210
*a^3*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+230*a^2*b*c*d*((b*x+
a)*(d*x+c))^(1/2)*(b*d)^(1/2)-32*a*b^2*c^2*((b*x+a)*(d*x+c))^(1/2
)*(b*d)^(1/2))/((b*x+a)*(d*x+c))^(1/2)/(b*d)^(1/2)/(b*x+a)^(3/2)/
b^4
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)*x/(b*x + a)^(5/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.708909, size = 1, normalized size = 0.

$$\left[\frac{15\left(3a^2b^2c^2 - 10a^3bcd + 7a^4d^2 + \left(3b^4c^2 - 10ab^3cd + 7a^2b^2d^2\right)x^2 + 2\left(3ab^3c^2 - 10a^2b^2cd + 7a^3bd^2\right)x\right)\sqrt{\frac{d}{b}}\log\left(8b^2d^2x\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)*x/(b*x + a)^(5/2),x, algorithm="fricas")
```

```
[Out] [1/48*(15*(3*a^2*b^2*c^2 - 10*a^3*b*c*d + 7*a^4*d^2 + (3*b^4*c^2
- 10*a*b^3*c*d + 7*a^2*b^2*d^2)*x^2 + 2*(3*a*b^3*c^2 - 10*a^2*b^2
*c*d + 7*a^3*b*d^2)*x)*sqrt(d/b)*log(8*b^2*d^2*x^2 + b^2*c^2 + 6*
a*b*c*d + a^2*d^2 + 4*(2*b^2*d*x + b^2*c + a*b*d)*sqrt(b*x + a)*s
qrt(d*x + c)*sqrt(d/b) + 8*(b^2*c*d + a*b*d^2)*x) + 4*(6*b^3*d^2*
x^3 - 16*a*b^2*c^2 + 115*a^2*b*c*d - 105*a^3*d^2 + 3*(9*b^3*c*d -
 7*a*b^2*d^2)*x^2 - 2*(12*b^3*c^2 - 79*a*b^2*c*d + 70*a^2*b*d^2)*
x)*sqrt(b*x + a)*sqrt(d*x + c))/(b^6*x^2 + 2*a*b^5*x + a^2*b^4),
1/24*(15*(3*a^2*b^2*c^2 - 10*a^3*b*c*d + 7*a^4*d^2 + (3*b^4*c^2 -
 10*a*b^3*c*d + 7*a^2*b^2*d^2)*x^2 + 2*(3*a*b^3*c^2 - 10*a^2*b^2*
c*d + 7*a^3*b*d^2)*x)*sqrt(-d/b)*arctan(1/2*(2*b*d*x + b*c + a*d)
/(sqrt(b*x + a)*sqrt(d*x + c)*b*sqrt(-d/b))) + 2*(6*b^3*d^2*x^3 -
 16*a*b^2*c^2 + 115*a^2*b*c*d - 105*a^3*d^2 + 3*(9*b^3*c*d - 7*a*
b^2*d^2)*x^2 - 2*(12*b^3*c^2 - 79*a*b^2*c*d + 70*a^2*b*d^2)*x)*sq
rt(b*x + a)*sqrt(d*x + c))/(b^6*x^2 + 2*a*b^5*x + a^2*b^4)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(d*x+c)**(5/2)/(b*x+a)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.660931, size = 4, normalized size = 0.02

$$sage_0x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)*x/(b*x + a)^(5/2),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.785 $\int \frac{(c+dx)^{5/2}}{(a+bx)^{5/2}}\,dx$

Optimal. Leaf size=128

$$\frac{5d^{3/2}(bc-ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{7/2}}+\frac{5d^2\sqrt{a+bx}\sqrt{c+dx}}{b^3}-\frac{10d(c+dx)^{3/2}}{3b^2\sqrt{a+bx}}-\frac{2(c+dx)^{5/2}}{3b(a+bx)^{3/2}}$$

```
[Out] (5*d^2*Sqrt[a + b*x]*Sqrt[c + d*x])/b^3 - (10*d*(c + d*x)^(3/2))/
(3*b^2*Sqrt[a + b*x]) - (2*(c + d*x)^(5/2))/(3*b*(a + b*x)^(3/2))
 + (5*d^(3/2)*(b*c - a*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b
]*Sqrt[c + d*x])])/b^(7/2)
```

Rubi [A] time = 0.16046, antiderivative size = 128, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}} = 0.21$

$$\frac{5d^{3/2}(bc-ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{7/2}}+\frac{5d^2\sqrt{a+bx}\sqrt{c+dx}}{b^3}-\frac{10d(c+dx)^{3/2}}{3b^2\sqrt{a+bx}}-\frac{2(c+dx)^{5/2}}{3b(a+bx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^(5/2)/(a + b*x)^(5/2),x]
```

```
[Out] (5*d^2*Sqrt[a + b*x]*Sqrt[c + d*x])/b^3 - (10*d*(c + d*x)^(3/2))/
(3*b^2*Sqrt[a + b*x]) - (2*(c + d*x)^(5/2))/(3*b*(a + b*x)^(3/2))
 + (5*d^(3/2)*(b*c - a*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b
]*Sqrt[c + d*x])])/b^(7/2)
```

Rubi in Sympy [A] time = 19.3511, size = 119, normalized size = 0.93

$$-\frac{2\left(c+dx\right)^{\frac{5}{2}}}{3b\left(a+bx\right)^{\frac{3}{2}}}-\frac{10d\left(c+dx\right)^{\frac{3}{2}}}{3b^2\sqrt{a+bx}}+\frac{5d^2\sqrt{a+bx}\sqrt{c+dx}}{b^3}-\frac{5d^{\frac{3}{2}}\left(ad-bc\right)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(5/2)/(b*x+a)**(5/2),x)
```

```
[Out] -2*(c + d*x)**(5/2)/(3*b*(a + b*x)**(3/2)) - 10*d*(c + d*x)**(3/2
)/(3*b**2*sqrt(a + b*x)) + 5*d**2*sqrt(a + b*x)*sqrt(c + d*x)/b**
3 - 5*d**(3/2)*(a*d - b*c)*atanh(sqrt(d)*sqrt(a + b*x)/(sqrt(b)*s
qrt(c + d*x)))/b**(7/2)
```

Mathematica [A] time = 0.173409, size = 134, normalized size = 1.05

$$\frac{\sqrt{c+dx}\left(15a^2d^2-10abd(c-2dx)+b^2\left(-2c^2-14cdx+3d^2x^2\right)\right)}{3b^3(a+bx)^{3/2}}+\frac{5d^{3/2}(bc-ad)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{2b^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^(5/2)/(a + b*x)^(5/2),x]
```

```
[Out] (Sqrt[c + d*x]*(15*a^2*d^2 - 10*a*b*d*(c - 2*d*x) + b^2*(-2*c^2 -
 14*c*d*x + 3*d^2*x^2)))/(3*b^3*(a + b*x)^(3/2)) + (5*d^(3/2)*(b*
```

```
c - a*d)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x
]*Sqrt[c + d*x]])/(2*b^(7/2))
```

Maple [F] time = 0., size = 0, normalized size = 0.

$$\int 1\,(dx+c)^{\frac{5}{2}}\,(bx+a)^{-\frac{5}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(5/2)/(b*x+a)^(5/2),x)
```

```
[Out] int((d*x+c)^(5/2)/(b*x+a)^(5/2),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/(b*x + a)^(5/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.491748, size = 1, normalized size = 0.01

$$\left[-\frac{15\left(a^2bcd - a^3d^2 + \left(b^3cd - ab^2d^2\right)x^2 + 2\left(ab^2cd - a^2bd^2\right)x\right)\sqrt{\frac{d}{b}}\log\left(8\,b^2d^2x^2 + b^2c^2 + 6\,abcd + a^2d^2 - 4\left(2\,b^2dx + b^2c\right.\right.}{12\,(b^5}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/(b*x + a)^(5/2),x, algorithm="fricas")
```

```
[Out] [-1/12*(15*(a^2*b*c*d - a^3*d^2 + (b^3*c*d - a*b^2*d^2)*x^2 + 2*(
a*b^2*c*d - a^2*b*d^2)*x)*sqrt(d/b)*log(8*b^2*d^2*x^2 + b^2*c^2 +
 6*a*b*c*d + a^2*d^2 - 4*(2*b^2*d*x + b^2*c + a*b*d)*sqrt(b*x + a
)*sqrt(d*x + c)*sqrt(d/b) + 8*(b^2*c*d + a*b*d^2)*x) - 4*(3*b^2*d
^2*x^2 - 2*b^2*c^2 - 10*a*b*c*d + 15*a^2*d^2 - 2*(7*b^2*c*d - 10*
a*b*d^2)*x)*sqrt(b*x + a)*sqrt(d*x + c))/(b^5*x^2 + 2*a*b^4*x + a
^2*b^3), 1/6*(15*(a^2*b*c*d - a^3*d^2 + (b^3*c*d - a*b^2*d^2)*x^2
 + 2*(a*b^2*c*d - a^2*b*d^2)*x)*sqrt(-d/b)*arctan(1/2*(2*b*d*x +
b*c + a*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*sqrt(-d/b))) + 2*(3*b^2
*d^2*x^2 - 2*b^2*c^2 - 10*a*b*c*d + 15*a^2*d^2 - 2*(7*b^2*c*d - 1
0*a*b*d^2)*x)*sqrt(b*x + a)*sqrt(d*x + c))/(b^5*x^2 + 2*a*b^4*x +
 a^2*b^3)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(5/2)/(b*x+a)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.654344, size = 4, normalized size = 0.03

$$sage_0x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/(b*x + a)^(5/2),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.786 $\int \frac{(c+dx)^{5/2}}{x(a+bx)^{5/2}}\,dx$

Optimal. Leaf size=157

$$-\frac{2c^{5/2}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{5/2}}+\frac{2\sqrt{c+dx}\left(\frac{c^2}{a^2}-\frac{d^2}{b^2}\right)}{\sqrt{a+bx}}+\frac{2d^{5/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{5/2}}+\frac{2(c+dx)^{3/2}(bc-ad)}{3ab(a+bx)^{3/2}}$$

```
[Out] (2*(c^2/a^2 - d^2/b^2)*Sqrt[c + d*x])/Sqrt[a + b*x] + (2*(b*c - a
*d)*(c + d*x)^(3/2))/(3*a*b*(a + b*x)^(3/2)) - (2*c^(5/2)*ArcTanh
[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/a^(5/2) + (2*d
^(5/2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/
b^(5/2)
```

Rubi [A] time = 0.419154, antiderivative size = 157, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.273

$$-\frac{2c^{5/2}\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{5/2}}+\frac{2\sqrt{c+dx}\left(\frac{c^2}{a^2}-\frac{d^2}{b^2}\right)}{\sqrt{a+bx}}+\frac{2d^{5/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{5/2}}+\frac{2(c+dx)^{3/2}(bc-ad)}{3ab(a+bx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^(5/2)/(x*(a + b*x)^(5/2)),x]
```

```
[Out] (2*(c^2/a^2 - d^2/b^2)*Sqrt[c + d*x])/Sqrt[a + b*x] + (2*(b*c - a
*d)*(c + d*x)^(3/2))/(3*a*b*(a + b*x)^(3/2)) - (2*c^(5/2)*ArcTanh
[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/a^(5/2) + (2*d
^(5/2)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/
b^(5/2)
```

Rubi in Sympy [A] time = 46.8722, size = 144, normalized size = 0.92

$$\frac{\sqrt{c+dx}\left(-\frac{2d^2}{b^2}+\frac{2c^2}{a^2}\right)}{\sqrt{a+bx}}+\frac{2d^{\frac{5}{2}}\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{b^{\frac{5}{2}}}-\frac{2\left(c+dx\right)^{\frac{3}{2}}\left(ad-bc\right)}{3ab\left(a+bx\right)^{\frac{3}{2}}}-\frac{2c^{\frac{5}{2}}\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(5/2)/x/(b*x+a)**(5/2),x)
```

```
[Out] sqrt(c + d*x)*(-2*d**2/b**2 + 2*c**2/a**2)/sqrt(a + b*x) + 2*d**(
5/2)*atanh(sqrt(b)*sqrt(c + d*x)/(sqrt(d)*sqrt(a + b*x)))/b**(5/2
) - 2*(c + d*x)**(3/2)*(a*d - b*c)/(3*a*b*(a + b*x)**(3/2)) - 2*c
**(5/2)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)))/a**(
5/2)
```

Mathematica [A] time = 0.6016, size = 183, normalized size = 1.17

$$-\frac{c^{5/2}\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{a^{5/2}}+\frac{c^{5/2}\log(x)}{a^{5/2}}+\frac{2\sqrt{c+dx}(bc-ad)\left(3a^2d+4ab(c+dx)+3b^2cx\right)}{3a^2b^2(a+bx)^{3/2}}+\frac{d^{5/2}\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{b^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^(5/2)/(x*(a + b*x)^(5/2)),x]
```

```
[Out] (2*(b*c - a*d)*Sqrt[c + d*x]*(3*a^2*d + 3*b^2*c*x + 4*a*b*(c + d*
x)))/(3*a^2*b^2*(a + b*x)^(3/2)) + (c^(5/2)*Log[x])/a^(5/2) - (c^
(5/2)*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]
*Sqrt[c + d*x]])/a^(5/2) + (d^(5/2)*Log[b*c + a*d + 2*b*d*x + 2*S
qrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]])/b^(5/2)
```

Maple [B] time = 0.037, size = 566, normalized size = 3.6

$$-\frac{1}{3\,a^2b^2}\sqrt{dx+c}\left(3\,\ln\left(\frac{adx+bcx+2\,\sqrt{ac}\sqrt{(bx+a)\,(dx+c)}+2\,ac}{x}\right)x^2b^4c^3\sqrt{bd}-3\,\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{(bx+a)\,(dx+c)}\sqrt{b}}{\sqrt{bd}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(5/2)/x/(b*x+a)^(5/2),x)
```

```
[Out] -1/3*(d*x+c)^(1/2)*(3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x
+c))^(1/2)+2*a*c)/x)*x^2*b^4*c^3*(b*d)^(1/2)-3*ln(1/2*(2*b*d*x+2*
((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a^2
*b^2*d^3*(a*c)^(1/2)+6*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*
x+c))^(1/2)+2*a*c)/x)*x*a*b^3*c^3*(b*d)^(1/2)-6*ln(1/2*(2*b*d*x+2
*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^3*
b*d^3*(a*c)^(1/2)+3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c
))^(1/2)+2*a*c)/x)*a^2*b^2*c^3*(b*d)^(1/2)-3*ln(1/2*(2*b*d*x+2*((
b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^4*d^3*(
a*c)^(1/2)+8*x*a^2*b*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)*(a*c
)^(1/2)-2*x*a*b^2*c*d*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)*(a*c)^(
1/2)-6*x*b^3*c^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)*(a*c)^(1/2)+
6*a^3*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)*(a*c)^(1/2)+2*a^2*b
*c*d*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)*(a*c)^(1/2)-8*a*b^2*c^2*
((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)*(a*c)^(1/2))/a^2/((b*x+a)*(d*
x+c))^(1/2)/(b*d)^(1/2)/(a*c)^(1/2)/(b*x+a)^(3/2)/b^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/((b*x + a)^(5/2)*x),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 1.72789, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/((b*x + a)^(5/2)*x),x, algorithm="fricas")
```

```
[Out] [1/6*(3*(a^2*b^2*d^2*x^2 + 2*a^3*b*d^2*x + a^4*d^2)*sqrt(d/b)*log
(8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b^2*d*x + b
^2*c + a*b*d)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(d/b) + 8*(b^2*c*d
+ a*b*d^2)*x) + 3*(b^4*c^2*x^2 + 2*a*b^3*c^2*x + a^2*b^2*c^2)*sqr
t(c/a)*log((8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(
2*a^2*c + (a*b*c + a^2*d)*x)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(c/a
) + 8*(a*b*c^2 + a^2*c*d)*x)/x^2) + 4*(4*a*b^2*c^2 - a^2*b*c*d -
```

```
3*a^3*d^2 + (3*b^3*c^2 + a*b^2*c*d - 4*a^2*b*d^2)*x)*sqrt(b*x + a
)*sqrt(d*x + c))/(a^2*b^4*x^2 + 2*a^3*b^3*x + a^4*b^2), 1/6*(6*(a
^2*b^2*d^2*x^2 + 2*a^3*b*d^2*x + a^4*d^2)*sqrt(-d/b)*arctan(1/2*(
2*b*d*x + b*c + a*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*sqrt(-d/b)))
+ 3*(b^4*c^2*x^2 + 2*a*b^3*c^2*x + a^2*b^2*c^2)*sqrt(c/a)*log((8*
a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a^2*c + (a*b
*c + a^2*d)*x)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(c/a) + 8*(a*b*c^2
 + a^2*c*d)*x)/x^2) + 4*(4*a*b^2*c^2 - a^2*b*c*d - 3*a^3*d^2 + (3
*b^3*c^2 + a*b^2*c*d - 4*a^2*b*d^2)*x)*sqrt(b*x + a)*sqrt(d*x + c
))/(a^2*b^4*x^2 + 2*a^3*b^3*x + a^4*b^2), -1/6*(6*(b^4*c^2*x^2 +
2*a*b^3*c^2*x + a^2*b^2*c^2)*sqrt(-c/a)*arctan(1/2*(2*a*c + (b*c
+ a*d)*x)/(sqrt(b*x + a)*sqrt(d*x + c)*a*sqrt(-c/a))) - 3*(a^2*b^
2*d^2*x^2 + 2*a^3*b*d^2*x + a^4*d^2)*sqrt(d/b)*log(8*b^2*d^2*x^2
+ b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b^2*d*x + b^2*c + a*b*d)*s
qrt(b*x + a)*sqrt(d*x + c)*sqrt(d/b) + 8*(b^2*c*d + a*b*d^2)*x) -
 4*(4*a*b^2*c^2 - a^2*b*c*d - 3*a^3*d^2 + (3*b^3*c^2 + a*b^2*c*d
- 4*a^2*b*d^2)*x)*sqrt(b*x + a)*sqrt(d*x + c))/(a^2*b^4*x^2 + 2*a
^3*b^3*x + a^4*b^2), -1/3*(3*(b^4*c^2*x^2 + 2*a*b^3*c^2*x + a^2*b
^2*c^2)*sqrt(-c/a)*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(b*x +
 a)*sqrt(d*x + c)*a*sqrt(-c/a))) - 3*(a^2*b^2*d^2*x^2 + 2*a^3*b*d
^2*x + a^4*d^2)*sqrt(-d/b)*arctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt
(b*x + a)*sqrt(d*x + c)*b*sqrt(-d/b))) - 2*(4*a*b^2*c^2 - a^2*b*c
*d - 3*a^3*d^2 + (3*b^3*c^2 + a*b^2*c*d - 4*a^2*b*d^2)*x)*sqrt(b*
x + a)*sqrt(d*x + c))/(a^2*b^4*x^2 + 2*a^3*b^3*x + a^4*b^2)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(5/2)/x/(b*x+a)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.649923, size = 4, normalized size = 0.03

$$sage_0 x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/((b*x + a)^(5/2)*x),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.787 $\int \frac{(c+dx)^{5/2}}{x^2(a+bx)^{5/2}}\,dx$

Optimal. Leaf size=142

$$\frac{5c^{3/2}(bc-ad)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{7/2}}-\frac{5c\sqrt{c+dx}(bc-ad)}{a^3\sqrt{a+bx}}-\frac{5(c+dx)^{3/2}(bc-ad)}{3a^2(a+bx)^{3/2}}-\frac{(c+dx)^{5/2}}{ax(a+bx)^{3/2}}$$

```
[Out] (-5*c*(b*c - a*d)*Sqrt[c + d*x])/(a^3*Sqrt[a + b*x]) - (5*(b*c -
a*d)*(c + d*x)^(3/2))/(3*a^2*(a + b*x)^(3/2)) - (c + d*x)^(5/2)/(
a*x*(a + b*x)^(3/2)) + (5*c^(3/2)*(b*c - a*d)*ArcTanh[(Sqrt[c]*Sq
rt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/a^(7/2)
```

Rubi [A] time = 0.264275, antiderivative size = 142, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.136

$$\frac{5c^{3/2}(bc-ad)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{7/2}}-\frac{5c\sqrt{c+dx}(bc-ad)}{a^3\sqrt{a+bx}}-\frac{5(c+dx)^{3/2}(bc-ad)}{3a^2(a+bx)^{3/2}}-\frac{(c+dx)^{5/2}}{ax(a+bx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^(5/2)/(x^2*(a + b*x)^(5/2)),x]
```

```
[Out] (-5*c*(b*c - a*d)*Sqrt[c + d*x])/(a^3*Sqrt[a + b*x]) - (5*(b*c -
a*d)*(c + d*x)^(3/2))/(3*a^2*(a + b*x)^(3/2)) - (c + d*x)^(5/2)/(
a*x*(a + b*x)^(3/2)) + (5*c^(3/2)*(b*c - a*d)*ArcTanh[(Sqrt[c]*Sq
rt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/a^(7/2)
```

Rubi in Sympy [A] time = 20.6427, size = 128, normalized size = 0.9

$$\frac{2\left(c+dx\right)^{\frac{5}{2}}}{3ax\left(a+bx\right)^{\frac{3}{2}}}-\frac{5c\left(c+dx\right)^{\frac{3}{2}}}{3a^2x\sqrt{a+bx}}+\frac{5c\sqrt{c+dx}\left(ad-bc\right)}{a^3\sqrt{a+bx}}-\frac{5c^{\frac{3}{2}}\left(ad-bc\right)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(5/2)/x**2/(b*x+a)**(5/2),x)
```

```
[Out] 2*(c + d*x)**(5/2)/(3*a*x*(a + b*x)**(3/2)) - 5*c*(c + d*x)**(3/2
)/(3*a**2*x*sqrt(a + b*x)) + 5*c*sqrt(c + d*x)*(a*d - b*c)/(a**3*
sqrt(a + b*x)) - 5*c**(3/2)*(a*d - b*c)*atanh(sqrt(c)*sqrt(a + b*
x)/(sqrt(a)*sqrt(c + d*x)))/a**(7/2)
```

Mathematica [A] time = 0.459511, size = 162, normalized size = 1.14

$$\frac{\frac{2\sqrt{a}\sqrt{c+dx}\left(a^2\left(-3c^2+14cdx+2d^2x^2\right)+10abcx(dx-2c)-15b^2c^2x^2\right)}{x(a+bx)^{3/2}}+15c^{3/2}\log(x)(ad-bc)+15c^{3/2}(bc-ad)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}\right.}{6a^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^(5/2)/(x^2*(a + b*x)^(5/2)),x]
```

```
[Out] ((2*Sqrt[a]*Sqrt[c + d*x]*(-15*b^2*c^2*x^2 + 10*a*b*c*x*(-2*c + d
*x) + a^2*(-3*c^2 + 14*c*d*x + 2*d^2*x^2)))/(x*(a + b*x)^(3/2)) +
 15*c^(3/2)*(-(b*c) + a*d)*Log[x] + 15*c^(3/2)*(b*c - a*d)*Log[2*
```

```
a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*
x]])/(6*a^(7/2))
```

Maple [B] time = 0.038, size = 502, normalized size = 3.5

$$-\frac{1}{6\,a^3x}\sqrt{dx+c}\left(15\ln\left(\frac{adx+bcx+2\sqrt{ac}\sqrt{(bx+a)(dx+c)}+2\,ac}{x}\right)x^3ab^2c^2d-15\ln\left(\frac{adx+bcx+2\sqrt{ac}\sqrt{(bx+a)(dx+}{x}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(5/2)/x^2/(b*x+a)^(5/2),x)
```

```
[Out] -1/6*(d*x+c)^(1/2)*(15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*
x+c))^(1/2)+2*a*c)/x)*x^3*a*b^2*c^2*d-15*ln((a*d*x+b*c*x+2*(a*c)^
(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*b^3*c^3+30*ln((a*d*x+
b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a^2*b*c
^2*d-30*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a
*c)/x)*x^2*a*b^2*c^3+15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d
*x+c))^(1/2)+2*a*c)/x)*x*a^3*c^2*d-15*ln((a*d*x+b*c*x+2*(a*c)^(1/
2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x*a^2*b*c^3-4*((b*x+a)*(d*x+
c))^(1/2)*d^2*a^2*x^2*(a*c)^(1/2)-20*((b*x+a)*(d*x+c))^(1/2)*d*b*
c*a*x^2*(a*c)^(1/2)+30*((b*x+a)*(d*x+c))^(1/2)*b^2*c^2*x^2*(a*c)^
(1/2)-28*((b*x+a)*(d*x+c))^(1/2)*d*c*a^2*x*(a*c)^(1/2)+40*((b*x+a
)*(d*x+c))^(1/2)*b*c^2*a*x*(a*c)^(1/2)+6*((b*x+a)*(d*x+c))^(1/2)*
c^2*a^2*(a*c)^(1/2))/a^3/((b*x+a)*(d*x+c))^(1/2)/x/(a*c)^(1/2)/(b
*x+a)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/((b*x + a)^(5/2)*x^2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.5378, size = 1, normalized size = 0.01

$$\left[-\frac{15\left(\left(b^3c^2-ab^2cd\right)x^3+2\left(ab^2c^2-a^2bcd\right)x^2+\left(a^2bc^2-a^3cd\right)x\right)\sqrt{\frac{c}{a}}\log\left(\frac{8\,a^2c^2+\left(b^2c^2+6\,abcd+a^2d^2\right)x^2-4\left(2\,a^2c+\left(abc+a^2d\right)x\right)\sqrt{bx}}{x^2}\right.}{12\left(a^3b^2x^3+2\,a^4\right.}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/((b*x + a)^(5/2)*x^2),x, algorithm="fricas")
```

```
[Out] [-1/12*(15*((b^3*c^2 - a*b^2*c*d)*x^3 + 2*(a*b^2*c^2 - a^2*b*c*d)
*x^2 + (a^2*b*c^2 - a^3*c*d)*x)*sqrt(c/a)*log((8*a^2*c^2 + (b^2*c
^2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a^2*c + (a*b*c + a^2*d)*x)*s
qrt(b*x + a)*sqrt(d*x + c)*sqrt(c/a) + 8*(a*b*c^2 + a^2*c*d)*x)/x
^2) + 4*(3*a^2*c^2 + (15*b^2*c^2 - 10*a*b*c*d - 2*a^2*d^2)*x^2 +
2*(10*a*b*c^2 - 7*a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c))/(a^3*b
^2*x^3 + 2*a^4*b*x^2 + a^5*x), 1/6*(15*((b^3*c^2 - a*b^2*c*d)*x^3
 + 2*(a*b^2*c^2 - a^2*b*c*d)*x^2 + (a^2*b*c^2 - a^3*c*d)*x)*sqrt(
-c/a)*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(b*x + a)*sqrt(d*x
+ c)*a*sqrt(-c/a))) - 2*(3*a^2*c^2 + (15*b^2*c^2 - 10*a*b*c*d - 2
*a^2*d^2)*x^2 + 2*(10*a*b*c^2 - 7*a^2*c*d)*x)*sqrt(b*x + a)*sqrt(
```

```
d*x + c))/(a^3*b^2*x^3 + 2*a^4*b*x^2 + a^5*x)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(5/2)/x**2/(b*x+a)**(5/2),x)

[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(5/2)/((b*x + a)^(5/2)*x^2),x, algorithm="giac")

[Out] Exception raised: TypeError
```

3.788 $\int \frac{(c+dx)^{5/2}}{x^3(a+bx)^{5/2}}\,dx$

Optimal. Leaf size=220

$$-\frac{5\sqrt{c}(7bc-3ad)(bc-ad)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{9/2}}+\frac{5\sqrt{c+dx}(7bc-3ad)(bc-ad)}{4a^4\sqrt{a+bx}}+\frac{5(c+dx)^{3/2}(7bc-3ad)(bc-ad)}{12a^3c(a+bx)^{3/2}}+\frac{(c+dx)^{5/2}(7bc-3ad)}{4a^2cx(a+bx)^{3/2}}-\frac{(c+dx)^{7/2}}{2acx^2(a+bx)^{3/2}}$$

```
[Out] (5*(7*b*c - 3*a*d)*(b*c - a*d)*Sqrt[c + d*x])/(4*a^4*Sqrt[a + b*x
]) + (5*(7*b*c - 3*a*d)*(b*c - a*d)*(c + d*x)^(3/2))/(12*a^3*c*(a
 + b*x)^(3/2)) + ((7*b*c - 3*a*d)*(c + d*x)^(5/2))/(4*a^2*c*x*(a
+ b*x)^(3/2)) - (c + d*x)^(7/2)/(2*a*c*x^2*(a + b*x)^(3/2)) - (5*
Sqrt[c]*(7*b*c - 3*a*d)*(b*c - a*d)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x
])/(Sqrt[a]*Sqrt[c + d*x])])/(4*a^(9/2))
```

Rubi [A] time = 0.40489, antiderivative size = 220, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{5\sqrt{c}(7bc-3ad)(bc-ad)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{9/2}}+\frac{5\sqrt{c+dx}(7bc-3ad)(bc-ad)}{4a^4\sqrt{a+bx}}+\frac{5(c+dx)^{3/2}(7bc-3ad)(bc-ad)}{12a^3c(a+bx)^{3/2}}+\frac{(c+dx)^{5/2}(7bc-3ad)}{4a^2cx(a+bx)^{3/2}}-\frac{(c+dx)^{7/2}}{2acx^2(a+bx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^(5/2)/(x^3*(a + b*x)^(5/2)),x]
```

```
[Out] (5*(7*b*c - 3*a*d)*(b*c - a*d)*Sqrt[c + d*x])/(4*a^4*Sqrt[a + b*x
]) + (5*(7*b*c - 3*a*d)*(b*c - a*d)*(c + d*x)^(3/2))/(12*a^3*c*(a
 + b*x)^(3/2)) + ((7*b*c - 3*a*d)*(c + d*x)^(5/2))/(4*a^2*c*x*(a
+ b*x)^(3/2)) - (c + d*x)^(7/2)/(2*a*c*x^2*(a + b*x)^(3/2)) - (5*
Sqrt[c]*(7*b*c - 3*a*d)*(b*c - a*d)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x
])/(Sqrt[a]*Sqrt[c + d*x])])/(4*a^(9/2))
```

Rubi in Sympy [A] time = 34.4425, size = 207, normalized size = 0.94

$$-\frac{2b\,(c+dx)^{\frac{7}{2}}}{3ax^2\,(a+bx)^{\frac{3}{2}}\,(ad-bc)}-\frac{(c+dx)^{\frac{5}{2}}\,(3ad-7bc)}{6a^2x^2\sqrt{a+bx}\,(ad-bc)}+\frac{5\,(c+dx)^{\frac{3}{2}}\,(3ad-7bc)}{6a^3x\sqrt{a+bx}}-\frac{5c\sqrt{a+bx}\sqrt{c+dx}\,(3ad-7bc)}{4a^4x}-\frac{5\sqrt{c}\,(ad-bc)\,(3ad-7bc)\,\mathrm{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(5/2)/x**3/(b*x+a)**(5/2),x)
```

```
[Out] -2*b*(c + d*x)**(7/2)/(3*a*x**2*(a + b*x)**(3/2)*(a*d - b*c)) - (
c + d*x)**(5/2)*(3*a*d - 7*b*c)/(6*a**2*x**2*sqrt(a + b*x)*(a*d -
 b*c)) + 5*(c + d*x)**(3/2)*(3*a*d - 7*b*c)/(6*a**3*x*sqrt(a + b*
x)) - 5*c*sqrt(a + b*x)*sqrt(c + d*x)*(3*a*d - 7*b*c)/(4*a**4*x)
- 5*sqrt(c)*(a*d - b*c)*(3*a*d - 7*b*c)*atanh(sqrt(c)*sqrt(a + b*
x)/(sqrt(a)*sqrt(c + d*x)))/(4*a**(9/2))
```

Mathematica [A] time = 0.423981, size = 211, normalized size = 0.96

$$\frac{\frac{2\sqrt{a}\sqrt{c+dx}\left(-3a^3\left(2c^2+9cdx-8d^2x^2\right)+a^2bx\left(21c^2-158cdx+16d^2x^2\right)+5ab^2cx^2(28c-23dx)+105b^3c^2x^3\right)}{x^2(a+bx)^{3/2}}+15\sqrt{c}\log(x)(7bc-3ad)(bc-ad)-15\sqrt{c}}{24a^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^(5/2)/(x^3*(a + b*x)^(5/2)),x]
```

```
[Out] ((2*Sqrt[a]*Sqrt[c + d*x]*(105*b^3*c^2*x^3 + 5*a*b^2*c*x^2*(28*c
- 23*d*x) - 3*a^3*(2*c^2 + 9*c*d*x - 8*d^2*x^2) + a^2*b*x*(21*c^2
 - 158*c*d*x + 16*d^2*x^2)))/(x^2*(a + b*x)^(3/2)) + 15*Sqrt[c]*(
7*b*c - 3*a*d)*(b*c - a*d)*Log[x] - 15*Sqrt[c]*(7*b*c - 3*a*d)*(b
*c - a*d)*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a +
b*x]*Sqrt[c + d*x]])/(24*a^(9/2))
```

Maple [B] time = 0.045, size = 758, normalized size = 3.5

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(5/2)/x^3/(b*x+a)^(5/2),x)
```

```
[Out] -1/24*(d*x+c)^(1/2)*(45*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d
*x+c))^(1/2)+2*a*c)/x)*x^4*a^2*b^2*c*d^2-150*ln((a*d*x+b*c*x+2*(a
*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a*b^3*c^2*d+105*l
n((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^
4*b^4*c^3+90*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2
)+2*a*c)/x)*x^3*a^3*b*c*d^2-300*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b
*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^2*b^2*c^2*d+210*ln((a*d*x+b*
c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a*b^3*c^3
+45*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/
x)*x^2*a^4*c*d^2-150*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+
c))^(1/2)+2*a*c)/x)*x^2*a^3*b*c^2*d+105*ln((a*d*x+b*c*x+2*(a*c)^(
1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a^2*b^2*c^3-32*x^3*a^2
*b*d^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+230*x^3*a*b^2*c*d*(a*c
)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-210*x^3*b^3*c^2*(a*c)^(1/2)*((b*x
+a)*(d*x+c))^(1/2)-48*x^2*a^3*d^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(
1/2)+316*x^2*a^2*b*c*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-280*x^
2*a*b^2*c^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+54*x*a^3*c*d*(a*c
)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-42*x*a^2*b*c^2*(a*c)^(1/2)*((b*x+
a)*(d*x+c))^(1/2)+12*a^3*c^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2))
/a^4/((b*x+a)*(d*x+c))^(1/2)/x^2/(a*c)^(1/2)/(b*x+a)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)^(5/2)/((b*x + a)^(5/2)*x^3),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.886089, size = 1, normalized size = 0.

$$\left[\frac{15\left(\left(7\,b^4c^2 - 10\,ab^3cd + 3\,a^2b^2d^2\right)x^4 + 2\left(7\,ab^3c^2 - 10\,a^2b^2cd + 3\,a^3bd^2\right)x^3 + \left(7\,a^2b^2c^2 - 10\,a^3bcd + 3\,a^4d^2\right)x^2\right)\sqrt{\frac{c}{a}}\log\left(\frac{8}{\cdots}\right.}{\cdots}\right.$$

$$-\frac{15\left(\left(7\,b^4c^2 - 10\,ab^3cd + 3\,a^2b^2d^2\right)x^4 + 2\left(7\,ab^3c^2 - 10\,a^2b^2cd + 3\,a^3bd^2\right)x^3 + \left(7\,a^2b^2c^2 - 10\,a^3bcd + 3\,a^4d^2\right)x^2\right)\sqrt{-\frac{c}{a}}\,\mathrm{arct}\cdots}{\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)^(5/2)/((b*x + a)^(5/2)*x^3),x, algorithm="fricas")
```

```
[Out] [1/48*(15*((7*b^4*c^2 - 10*a*b^3*c*d + 3*a^2*b^2*d^2)*x^4 + 2*(7*
a*b^3*c^2 - 10*a^2*b^2*c*d + 3*a^3*b*d^2)*x^3 + (7*a^2*b^2*c^2 -
10*a^3*b*c*d + 3*a^4*d^2)*x^2)*sqrt(c/a)*log((8*a^2*c^2 + (b^2*c^
2 + 6*a*b*c*d + a^2*d^2)*x^2 - 4*(2*a^2*c + (a*b*c + a^2*d)*x)*sq
rt(b*x + a)*sqrt(d*x + c)*sqrt(c/a) + 8*(a*b*c^2 + a^2*c*d)*x)/x^
2) - 4*(6*a^3*c^2 - (105*b^3*c^2 - 115*a*b^2*c*d + 16*a^2*b*d^2)*
x^3 - 2*(70*a*b^2*c^2 - 79*a^2*b*c*d + 12*a^3*d^2)*x^2 - 3*(7*a^2
*b*c^2 - 9*a^3*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c))/(a^4*b^2*x^4
+ 2*a^5*b*x^3 + a^6*x^2), -1/24*(15*((7*b^4*c^2 - 10*a*b^3*c*d +
3*a^2*b^2*d^2)*x^4 + 2*(7*a*b^3*c^2 - 10*a^2*b^2*c*d + 3*a^3*b*d^
2)*x^3 + (7*a^2*b^2*c^2 - 10*a^3*b*c*d + 3*a^4*d^2)*x^2)*sqrt(-c/
a)*arctan(1/2*(2*a*c + (b*c + a*d)*x)/(sqrt(b*x + a)*sqrt(d*x + c
)*a*sqrt(-c/a))) + 2*(6*a^3*c^2 - (105*b^3*c^2 - 115*a*b^2*c*d +
16*a^2*b*d^2)*x^3 - 2*(70*a*b^2*c^2 - 79*a^2*b*c*d + 12*a^3*d^2)*
x^2 - 3*(7*a^2*b*c^2 - 9*a^3*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c))
/(a^4*b^2*x^4 + 2*a^5*b*x^3 + a^6*x^2)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x+c)**(5/2)/x**3/(b*x+a)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)^(5/2)/((b*x + a)^(5/2)*x^3),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.789 $\int \frac{(c+dx)^{5/2}}{x^4(a+bx)^{5/2}}\,dx$

Optimal. Leaf size=278

$$-\frac{7b\sqrt{c+dx}(15bc-7ad)(bc-ad)}{24a^4(a+bx)^{3/2}}-\frac{\sqrt{c+dx}(21bc-11ad)(bc-ad)}{8a^3x(a+bx)^{3/2}}+\frac{3c\sqrt{c+dx}(bc-ad)}{4a^2x^2(a+bx)^{3/2}}+\frac{5(bc-ad)\left(a^2d^2-14abcd+21b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{11/2}\sqrt{c}}-\frac{b\sqrt{c+dx}\left(113a^2d^2-420abcd+315b^2c^2\right)}{24a^5\sqrt{a+bx}}-\frac{c(c+dx)^{3/2}}{3ax^3(a+bx)^{3/2}}$$

```
[Out] (-7*b*(15*b*c - 7*a*d)*(b*c - a*d)*Sqrt[c + d*x])/(24*a^4*(a + b*
x)^(3/2)) + (3*c*(b*c - a*d)*Sqrt[c + d*x])/(4*a^2*x^2*(a + b*x)^
(3/2)) - ((21*b*c - 11*a*d)*(b*c - a*d)*Sqrt[c + d*x])/(8*a^3*x*(
a + b*x)^(3/2)) - (b*(315*b^2*c^2 - 420*a*b*c*d + 113*a^2*d^2)*Sq
rt[c + d*x])/(24*a^5*Sqrt[a + b*x]) - (c*(c + d*x)^(3/2))/(3*a*x^
3*(a + b*x)^(3/2)) + (5*(b*c - a*d)*(21*b^2*c^2 - 14*a*b*c*d + a^
2*d^2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/
(8*a^(11/2)*Sqrt[c])
```

Rubi [A] time = 1.14685, antiderivative size = 278, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 7, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.318

$$-\frac{7b\sqrt{c+dx}(15bc-7ad)(bc-ad)}{24a^4(a+bx)^{3/2}}-\frac{\sqrt{c+dx}(21bc-11ad)(bc-ad)}{8a^3x(a+bx)^{3/2}}+\frac{3c\sqrt{c+dx}(bc-ad)}{4a^2x^2(a+bx)^{3/2}}+\frac{5(bc-ad)\left(a^2d^2-14abcd+21b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{11/2}\sqrt{c}}-\frac{b\sqrt{c+dx}\left(113a^2d^2-420abcd+315b^2c^2\right)}{24a^5\sqrt{a+bx}}-\frac{c(c+dx)^{3/2}}{3ax^3(a+bx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^(5/2)/(x^4*(a + b*x)^(5/2)),x]
```

```
[Out] (-7*b*(15*b*c - 7*a*d)*(b*c - a*d)*Sqrt[c + d*x])/(24*a^4*(a + b*
x)^(3/2)) + (3*c*(b*c - a*d)*Sqrt[c + d*x])/(4*a^2*x^2*(a + b*x)^
(3/2)) - ((21*b*c - 11*a*d)*(b*c - a*d)*Sqrt[c + d*x])/(8*a^3*x*(
a + b*x)^(3/2)) - (b*(315*b^2*c^2 - 420*a*b*c*d + 113*a^2*d^2)*Sq
rt[c + d*x])/(24*a^5*Sqrt[a + b*x]) - (c*(c + d*x)^(3/2))/(3*a*x^
3*(a + b*x)^(3/2)) + (5*(b*c - a*d)*(21*b^2*c^2 - 14*a*b*c*d + a^
2*d^2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/
(8*a^(11/2)*Sqrt[c])
```

Rubi in Sympy [A] time = 160.972, size = 267, normalized size = 0.96

$$-\frac{c\left(c+dx\right)^{\frac{3}{2}}}{3ax^3\left(a+bx\right)^{\frac{3}{2}}}-\frac{3c\sqrt{c+dx}\left(ad-bc\right)}{4a^2x^2\left(a+bx\right)^{\frac{3}{2}}}-\frac{\sqrt{c+dx}\left(ad-bc\right)\left(11ad-21bc\right)}{8a^3x\left(a+bx\right)^{\frac{3}{2}}}-\frac{7b\sqrt{c+dx}\left(ad-bc\right)\left(7ad-15bc\right)}{24a^4\left(a+bx\right)^{\frac{3}{2}}}-\frac{b\sqrt{c+dx}\left(113a^2d^2-420abcd+315b^2c^2\right)}{24a^5\sqrt{a+bx}}-\frac{5\left(ad-bc\right)\left(a^2d^2-14abcd+21b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{8a^{\frac{11}{2}}\sqrt{c}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(5/2)/x**4/(b*x+a)**(5/2),x)
```

```
[Out] -c*(c + d*x)**(3/2)/(3*a*x**3*(a + b*x)**(3/2)) - 3*c*sqrt(c + d*
x)*(a*d - b*c)/(4*a**2*x**2*(a + b*x)**(3/2)) - sqrt(c + d*x)*(a*
d - b*c)*(11*a*d - 21*b*c)/(8*a**3*x*(a + b*x)**(3/2)) - 7*b*sqrt
(c + d*x)*(a*d - b*c)*(7*a*d - 15*b*c)/(24*a**4*(a + b*x)**(3/2))
 - b*sqrt(c + d*x)*(113*a**2*d**2 - 420*a*b*c*d + 315*b**2*c**2)/
(24*a**5*sqrt(a + b*x)) - 5*(a*d - b*c)*(a**2*d**2 - 14*a*b*c*d +
 21*b**2*c**2)*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*sqrt(c + d*x)
))/(8*a**(11/2)*sqrt(c))
```

Mathematica [A] time = 0.463397, size = 264, normalized size = 0.95

$$\frac{\frac{15\log(x)(ad-bc)\left(a^2d^2-14abcd+21b^2c^2\right)}{\sqrt{c}}+\frac{15(bc-ad)\left(a^2d^2-14abcd+21b^2c^2\right)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{\sqrt{c}}-2\sqrt{a}\sqrt{c+dx}\left(a^4\left(8c^2+26cdx+3\right.\right.}{48a^{11/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^(5/2)/(x^4*(a + b*x)^(5/2)),x]
```

```
[Out] ((-2*Sqrt[a]*Sqrt[c + d*x]*(315*b^4*c^2*x^4 + 420*a*b^3*c*x^3*(c
- d*x) + 6*a^3*b*x*(-3*c^2 - 16*c*d*x + 27*d^2*x^2) + a^4*(8*c^2
+ 26*c*d*x + 33*d^2*x^2) + a^2*b^2*x^2*(63*c^2 - 574*c*d*x + 113*
d^2*x^2)))/(x^3*(a + b*x)^(3/2)) + (15*(-(b*c) + a*d)*(21*b^2*c^2
 - 14*a*b*c*d + a^2*d^2)*Log[x])/Sqrt[c] + (15*(b*c - a*d)*(21*b^
2*c^2 - 14*a*b*c*d + a^2*d^2)*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[
a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/Sqrt[c])/(48*a^(11/2))
```

Maple [B] time = 0.048, size = 1009, normalized size = 3.6

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(5/2)/x^4/(b*x+a)^(5/2),x)
```

```
[Out] -1/48*(d*x+c)^(1/2)*(15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d
*x+c))^(1/2)+2*a*c)/x)*x^5*a^3*b^2*d^3-225*ln((a*d*x+b*c*x+2*(a*c
)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^5*a^2*b^3*c*d^2+525*l
n((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^
5*a*b^4*c^2*d-315*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))
^(1/2)+2*a*c)/x)*x^5*b^5*c^3+30*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b
*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a^4*b*d^3-450*ln((a*d*x+b*c*x+
2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a^3*b^2*c*d^2
+1050*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c
)/x)*x^4*a^2*b^3*c^2*d-630*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)
*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a*b^4*c^3+15*ln((a*d*x+b*c*x+2*(a*c
)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^5*d^3-225*ln((a*d
*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^4*
b*c*d^2+525*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)
+2*a*c)/x)*x^3*a^3*b^2*c^2*d-315*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((
b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^2*b^3*c^3+226*x^4*a^2*b^2*d
^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-840*x^4*a*b^3*c*d*(a*c)^(1
/2)*((b*x+a)*(d*x+c))^(1/2)+630*x^4*b^4*c^2*(a*c)^(1/2)*((b*x+a)*
(d*x+c))^(1/2)+324*x^3*a^3*b*d^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1
/2)-1148*x^3*a^2*b^2*c*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+840*
x^3*a*b^3*c^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+66*x^2*a^4*d^2*
(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-192*x^2*a^3*b*c*d*(a*c)^(1/2)
*((b*x+a)*(d*x+c))^(1/2)+126*x^2*a^2*b^2*c^2*(a*c)^(1/2)*((b*x+a)
*(d*x+c))^(1/2)+52*x*a^4*c*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-
36*x*a^3*b*c^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+16*a^4*c^2*(a*
c)^(1/2)*((b*x+a)*(d*x+c))^(1/2))/a^5/((b*x+a)*(d*x+c))^(1/2)/x^3
/(a*c)^(1/2)/(b*x+a)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)^(5/2)/((b*x + a)^(5/2)*x^4),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 1.56182, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)^(5/2)/((b*x + a)^(5/2)*x^4),x, algorithm="fricas")
```

```
[Out] [-1/96*(4*(8*a^4*c^2 + (315*b^4*c^2 - 420*a*b^3*c*d + 113*a^2*b^2
*d^2)*x^4 + 2*(210*a*b^3*c^2 - 287*a^2*b^2*c*d + 81*a^3*b*d^2)*x^
3 + 3*(21*a^2*b^2*c^2 - 32*a^3*b*c*d + 11*a^4*d^2)*x^2 - 2*(9*a^3
*b*c^2 - 13*a^4*c*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c) + 1
5*((21*b^5*c^3 - 35*a*b^4*c^2*d + 15*a^2*b^3*c*d^2 - a^3*b^2*d^3)
*x^5 + 2*(21*a*b^4*c^3 - 35*a^2*b^3*c^2*d + 15*a^3*b^2*c*d^2 - a^
4*b*d^3)*x^4 + (21*a^2*b^3*c^3 - 35*a^3*b^2*c^2*d + 15*a^4*b*c*d^
2 - a^5*d^3)*x^3)*log(-(4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*sqr
t(b*x + a)*sqrt(d*x + c) - (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^
2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2))/((a^5*b^2*
x^5 + 2*a^6*b*x^4 + a^7*x^3)*sqrt(a*c)), -1/48*(2*(8*a^4*c^2 + (3
15*b^4*c^2 - 420*a*b^3*c*d + 113*a^2*b^2*d^2)*x^4 + 2*(210*a*b^3*
c^2 - 287*a^2*b^2*c*d + 81*a^3*b*d^2)*x^3 + 3*(21*a^2*b^2*c^2 - 3
2*a^3*b*c*d + 11*a^4*d^2)*x^2 - 2*(9*a^3*b*c^2 - 13*a^4*c*d)*x)*s
qrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c) - 15*((21*b^5*c^3 - 35*a*b^
4*c^2*d + 15*a^2*b^3*c*d^2 - a^3*b^2*d^3)*x^5 + 2*(21*a*b^4*c^3 -
 35*a^2*b^3*c^2*d + 15*a^3*b^2*c*d^2 - a^4*b*d^3)*x^4 + (21*a^2*b
^3*c^3 - 35*a^3*b^2*c^2*d + 15*a^4*b*c*d^2 - a^5*d^3)*x^3)*arctan
(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d*x +
 c)*a*c)))/((a^5*b^2*x^5 + 2*a^6*b*x^4 + a^7*x^3)*sqrt(-a*c))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x+c)**(5/2)/x**4/(b*x+a)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)^(5/2)/((b*x + a)^(5/2)*x^4),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.790 $\int \frac{(c+dx)^{5/2}}{x^5(a+bx)^{5/2}}\,dx$

Optimal. Leaf size=388

$$-\frac{\sqrt{c+dx}(99bc-59ad)(bc-ad)}{96a^3x^2(a+bx)^{3/2}}+\frac{11c\sqrt{c+dx}(bc-ad)}{24a^2x^3(a+bx)^{3/2}}+\frac{b\sqrt{c+dx}(bc-ad)\left(5a^2d^2-238abcd+385b^2c^2\right)}{64a^5c(a+bx)^{3/2}}+\frac{\sqrt{c+dx}(bc-ad)\left(5a^2d^2-156abcd+231b^2c^2\right)}{64a^4cx(a+bx)^{3/2}}-\frac{5(bc-ad)\left(a^3d^3+21a^2bcd^2-189ab^2c^2d+231b^3c^3\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{13/2}c^{3/2}}+\frac{b\sqrt{c+dx}\left(-5a^3d^3+581a^2bcd^2-1715ab^2c^2d+1155b^3c^3\right)}{64a^6c\sqrt{a+bx}}-\frac{c(c+dx)^{3/2}}{4ax^4(a+bx)^{3/2}}$$

```
[Out] (b*(b*c - a*d)*(385*b^2*c^2 - 238*a*b*c*d + 5*a^2*d^2)*Sqrt[c + d
*x])/(64*a^5*c*(a + b*x)^(3/2)) + (11*c*(b*c - a*d)*Sqrt[c + d*x]
)/(24*a^2*x^3*(a + b*x)^(3/2)) - ((99*b*c - 59*a*d)*(b*c - a*d)*S
qrt[c + d*x])/(96*a^3*x^2*(a + b*x)^(3/2)) + ((b*c - a*d)*(231*b^
2*c^2 - 156*a*b*c*d + 5*a^2*d^2)*Sqrt[c + d*x])/(64*a^4*c*x*(a +
b*x)^(3/2)) + (b*(1155*b^3*c^3 - 1715*a*b^2*c^2*d + 581*a^2*b*c*d
^2 - 5*a^3*d^3)*Sqrt[c + d*x])/(64*a^6*c*Sqrt[a + b*x]) - (c*(c +
 d*x)^(3/2))/(4*a*x^4*(a + b*x)^(3/2)) - (5*(b*c - a*d)*(231*b^3*
c^3 - 189*a*b^2*c^2*d + 21*a^2*b*c*d^2 + a^3*d^3)*ArcTanh[(Sqrt[c
]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(64*a^(13/2)*c^(3/2))
```

Rubi [A] time = 1.61654, antiderivative size = 388, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 7, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.318

$$-\frac{\sqrt{c+dx}(99bc-59ad)(bc-ad)}{96a^3x^2(a+bx)^{3/2}}+\frac{11c\sqrt{c+dx}(bc-ad)}{24a^2x^3(a+bx)^{3/2}}+\frac{b\sqrt{c+dx}(bc-ad)\left(5a^2d^2-238abcd+385b^2c^2\right)}{64a^5c(a+bx)^{3/2}}+\frac{\sqrt{c+dx}(bc-ad)\left(5a^2d^2-156abcd+231b^2c^2\right)}{64a^4cx(a+bx)^{3/2}}-\frac{5(bc-ad)\left(a^3d^3+21a^2bcd^2-189ab^2c^2d+231b^3c^3\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{64a^{13/2}c^{3/2}}+\frac{b\sqrt{c+dx}\left(-5a^3d^3+581a^2bcd^2-1715ab^2c^2d+1155b^3c^3\right)}{64a^6c\sqrt{a+bx}}-\frac{c(c+dx)^{3/2}}{4ax^4(a+bx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^(5/2)/(x^5*(a + b*x)^(5/2)),x]
```

```
[Out] (b*(b*c - a*d)*(385*b^2*c^2 - 238*a*b*c*d + 5*a^2*d^2)*Sqrt[c + d
*x])/(64*a^5*c*(a + b*x)^(3/2)) + (11*c*(b*c - a*d)*Sqrt[c + d*x]
)/(24*a^2*x^3*(a + b*x)^(3/2)) - ((99*b*c - 59*a*d)*(b*c - a*d)*S
qrt[c + d*x])/(96*a^3*x^2*(a + b*x)^(3/2)) + ((b*c - a*d)*(231*b^
2*c^2 - 156*a*b*c*d + 5*a^2*d^2)*Sqrt[c + d*x])/(64*a^4*c*x*(a +
b*x)^(3/2)) + (b*(1155*b^3*c^3 - 1715*a*b^2*c^2*d + 581*a^2*b*c*d
^2 - 5*a^3*d^3)*Sqrt[c + d*x])/(64*a^6*c*Sqrt[a + b*x]) - (c*(c +
 d*x)^(3/2))/(4*a*x^4*(a + b*x)^(3/2)) - (5*(b*c - a*d)*(231*b^3*
c^3 - 189*a*b^2*c^2*d + 21*a^2*b*c*d^2 + a^3*d^3)*ArcTanh[(Sqrt[c
]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c + d*x])])/(64*a^(13/2)*c^(3/2))
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(5/2)/x**5/(b*x+a)**(5/2),x)
```

```
[Out] Timed out
```

Mathematica [A] time = 1.88524, size = 344, normalized size = 0.89

$$\frac{2\sqrt{a}\sqrt{a+bx}\sqrt{c+dx}\left(-\frac{48a^3c^2}{x^4}-\frac{2a\left(59a^2d^2-294abcd+259b^2c^2\right)}{x^2}+\frac{128b^2\left(8a^2d^2-23abcd+15b^2c^2\right)}{a+bx}-\frac{8a^2c(17ad-23bc)}{x^3}+\frac{-15a^3d^3+719a^2bcd^2-2}{cx}\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^(5/2)/(x^5*(a + b*x)^(5/2)),x]
```

```
[Out] (2*Sqrt[a]*Sqrt[a + b*x]*Sqrt[c + d*x]*((-48*a^3*c^2)/x^4 - (8*a^
2*c*(-23*b*c + 17*a*d))/x^3 - (2*a*(259*b^2*c^2 - 294*a*b*c*d + 5
9*a^2*d^2))/x^2 + (1545*b^3*c^3 - 2201*a*b^2*c^2*d + 719*a^2*b*c*
d^2 - 15*a^3*d^3)/(c*x) + (128*a*b^2*(b*c - a*d)^2)/(a + b*x)^2 +
 (128*b^2*(15*b^2*c^2 - 23*a*b*c*d + 8*a^2*d^2))/(a + b*x)) + (15
*(b*c - a*d)*(231*b^3*c^3 - 189*a*b^2*c^2*d + 21*a^2*b*c*d^2 + a^
3*d^3)*Log[x])/c^(3/2) + (15*(-(b*c) + a*d)*(231*b^3*c^3 - 189*a*
b^2*c^2*d + 21*a^2*b*c*d^2 + a^3*d^3)*Log[2*a*c + b*c*x + a*d*x +
 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/c^(3/2))/(384*a^
(13/2))
```

Maple [B] time = 0.056, size = 1377, normalized size = 3.6

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(5/2)/x^5/(b*x+a)^(5/2),x)
```

```
[Out] 1/384*(d*x+c)^(1/2)*(-30*x^5*a^3*b^2*d^3*((b*x+a)*(d*x+c))^(1/2)*
(a*c)^(1/2)-3465*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^
(1/2)+2*a*c)/x)*x^6*b^6*c^4+15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*
x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a^6*d^4-96*a^5*c^3*((b*x+a)*(d*
x+c))^(1/2)*(a*c)^(1/2)+6930*x^5*b^5*c^3*((b*x+a)*(d*x+c))^(1/2)*
(a*c)^(1/2)+6300*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^
(1/2)+2*a*c)/x)*x^4*a^3*b^3*c^3*d-60*x^4*a^4*b*d^3*((b*x+a)*(d*x+
c))^(1/2)*(a*c)^(1/2)+9240*x^4*a*b^4*c^3*((b*x+a)*(d*x+c))^(1/2)*
(a*c)^(1/2)+1386*x^3*a^2*b^3*c^3*((b*x+a)*(d*x+c))^(1/2)*(a*c)^(1
/2)-236*x^2*a^5*c*d^2*((b*x+a)*(d*x+c))^(1/2)*(a*c)^(1/2)-396*x^2
*a^3*b^2*c^3*((b*x+a)*(d*x+c))^(1/2)*(a*c)^(1/2)-272*x*a^5*c^2*d*
((b*x+a)*(d*x+c))^(1/2)*(a*c)^(1/2)+176*x*a^4*b*c^3*((b*x+a)*(d*x
+c))^(1/2)*(a*c)^(1/2)+300*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)
*(d*x+c))^(1/2)+2*a*c)/x)*x^6*a^3*b^3*c*d^3-3150*ln((a*d*x+b*c*x+
2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^6*a^2*b^4*c^2*d
^2+6300*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a
*c)/x)*x^6*a*b^5*c^3*d+600*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)
*(d*x+c))^(1/2)+2*a*c)/x)*x^5*a^4*b^2*c*d^3-6300*ln((a*d*x+b*c*x+
2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^5*a^3*b^3*c^2*d
^2+12600*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*
a*c)/x)*x^5*a^2*b^4*c^3*d+300*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x
+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a^5*b*c*d^3-3150*ln((a*d*x+b*c*x
+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a^4*b^2*c^2*
d^2+3486*x^5*a^2*b^3*c*d^2*((b*x+a)*(d*x+c))^(1/2)*(a*c)^(1/2)-10
290*x^5*a*b^4*c^2*d*((b*x+a)*(d*x+c))^(1/2)*(a*c)^(1/2)+4944*x^4*
a^3*b^2*c*d^2*((b*x+a)*(d*x+c))^(1/2)*(a*c)^(1/2)-14028*x^4*a^2*b
^3*c^2*d*((b*x+a)*(d*x+c))^(1/2)*(a*c)^(1/2)+966*x^3*a^4*b*c*d^2*
((b*x+a)*(d*x+c))^(1/2)*(a*c)^(1/2)-2322*x^3*a^3*b^2*c^2*d*((b*x+
a)*(d*x+c))^(1/2)*(a*c)^(1/2)+632*x^2*a^4*b*c^2*d*((b*x+a)*(d*x+c
```

```
))^(1/2)*(a*c)^(1/2)-30*x^3*a^5*d^3*((b*x+a)*(d*x+c))^(1/2)*(a*c)
^(1/2)+15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2
*a*c)/x)*x^6*a^4*b^2*d^4+30*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a
)*(d*x+c))^(1/2)+2*a*c)/x)*x^5*a^5*b*d^4-6930*ln((a*d*x+b*c*x+2*(
a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^5*a*b^5*c^4-3465*l
n((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^
4*a^2*b^4*c^4)/c/a^6/((b*x+a)*(d*x+c))^(1/2)/(a*c)^(1/2)/x^4/(b*x
+a)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)^(5/2)/((b*x + a)^(5/2)*x^5),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 7.05391, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)^(5/2)/((b*x + a)^(5/2)*x^5),x, algorithm="fricas")
```

```
[Out] [-1/768*(4*(48*a^5*c^3 - 3*(1155*b^5*c^3 - 1715*a*b^4*c^2*d + 581
*a^2*b^3*c*d^2 - 5*a^3*b^2*d^3)*x^5 - 6*(770*a*b^4*c^3 - 1169*a^2
*b^3*c^2*d + 412*a^3*b^2*c*d^2 - 5*a^4*b*d^3)*x^4 - 3*(231*a^2*b^
3*c^3 - 387*a^3*b^2*c^2*d + 161*a^4*b*c*d^2 - 5*a^5*d^3)*x^3 + 2*
(99*a^3*b^2*c^3 - 158*a^4*b*c^2*d + 59*a^5*c*d^2)*x^2 - 8*(11*a^4
*b*c^3 - 17*a^5*c^2*d)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c) +
 15*((231*b^6*c^4 - 420*a*b^5*c^3*d + 210*a^2*b^4*c^2*d^2 - 20*a^
3*b^3*c*d^3 - a^4*b^2*d^4)*x^6 + 2*(231*a*b^5*c^4 - 420*a^2*b^4*c
^3*d + 210*a^3*b^3*c^2*d^2 - 20*a^4*b^2*c*d^3 - a^5*b*d^4)*x^5 +
(231*a^2*b^4*c^4 - 420*a^3*b^3*c^3*d + 210*a^4*b^2*c^2*d^2 - 20*a
^5*b*c*d^3 - a^6*d^4)*x^4)*log((4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d
)*x)*sqrt(b*x + a)*sqrt(d*x + c) + (8*a^2*c^2 + (b^2*c^2 + 6*a*b*
c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2))/((
a^6*b^2*c*x^6 + 2*a^7*b*c*x^5 + a^8*c*x^4)*sqrt(a*c)), -1/384*(2*
(48*a^5*c^3 - 3*(1155*b^5*c^3 - 1715*a*b^4*c^2*d + 581*a^2*b^3*c*
d^2 - 5*a^3*b^2*d^3)*x^5 - 6*(770*a*b^4*c^3 - 1169*a^2*b^3*c^2*d
+ 412*a^3*b^2*c*d^2 - 5*a^4*b*d^3)*x^4 - 3*(231*a^2*b^3*c^3 - 387
*a^3*b^2*c^2*d + 161*a^4*b*c*d^2 - 5*a^5*d^3)*x^3 + 2*(99*a^3*b^2
*c^3 - 158*a^4*b*c^2*d + 59*a^5*c*d^2)*x^2 - 8*(11*a^4*b*c^3 - 17
*a^5*c^2*d)*x)*sqrt(-a*c)*sqrt(b*x + a)*sqrt(d*x + c) + 15*((231*
b^6*c^4 - 420*a*b^5*c^3*d + 210*a^2*b^4*c^2*d^2 - 20*a^3*b^3*c*d^
3 - a^4*b^2*d^4)*x^6 + 2*(231*a*b^5*c^4 - 420*a^2*b^4*c^3*d + 210
*a^3*b^3*c^2*d^2 - 20*a^4*b^2*c*d^3 - a^5*b*d^4)*x^5 + (231*a^2*b
^4*c^4 - 420*a^3*b^3*c^3*d + 210*a^4*b^2*c^2*d^2 - 20*a^5*b*c*d^3
 - a^6*d^4)*x^4)*arctan(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(s
qrt(b*x + a)*sqrt(d*x + c)*a*c)))/((a^6*b^2*c*x^6 + 2*a^7*b*c*x^5
 + a^8*c*x^4)*sqrt(-a*c))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x+c)**(5/2)/x**5/(b*x+a)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)^(5/2)/((b*x + a)^(5/2)*x^5),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.791 $\int \frac{x^2}{(a+bx)^{5/2}\sqrt{c+dx}}\,dx$

Optimal. Leaf size=126

$$-\frac{2a^2\sqrt{c+dx}}{3b^2(a+bx)^{3/2}(bc-ad)}+\frac{2\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{5/2}\sqrt{d}}+\frac{4a\sqrt{c+dx}(3bc-2ad)}{3b^2\sqrt{a+bx}(bc-ad)^2}$$

```
[Out] (-2*a^2*Sqrt[c + d*x])/(3*b^2*(b*c - a*d)*(a + b*x)^(3/2)) + (4*a
*(3*b*c - 2*a*d)*Sqrt[c + d*x])/(3*b^2*(b*c - a*d)^2*Sqrt[a + b*x
]) + (2*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])
/(b^(5/2)*Sqrt[d])
```

Rubi [A] time = 0.235581, antiderivative size = 126, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.182$

$$-\frac{2a^2\sqrt{c+dx}}{3b^2(a+bx)^{3/2}(bc-ad)}+\frac{2\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{5/2}\sqrt{d}}+\frac{4a\sqrt{c+dx}(3bc-2ad)}{3b^2\sqrt{a+bx}(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[x^2/((a + b*x)^(5/2)*Sqrt[c + d*x]),x]
```

```
[Out] (-2*a^2*Sqrt[c + d*x])/(3*b^2*(b*c - a*d)*(a + b*x)^(3/2)) + (4*a
*(3*b*c - 2*a*d)*Sqrt[c + d*x])/(3*b^2*(b*c - a*d)^2*Sqrt[a + b*x
]) + (2*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])
/(b^(5/2)*Sqrt[d])
```

Rubi in Sympy [A] time = 22.7368, size = 117, normalized size = 0.93

$$\frac{2a^2\sqrt{c+dx}}{3b^2\left(a+bx\right)^{\frac{3}{2}}\left(ad-bc\right)}-\frac{4a\sqrt{c+dx}\left(2ad-3bc\right)}{3b^2\sqrt{a+bx}\left(ad-bc\right)^2}+\frac{2\,\mathrm{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{b^{\frac{5}{2}}\sqrt{d}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2/(b*x+a)**(5/2)/(d*x+c)**(1/2),x)
```

```
[Out] 2*a**2*sqrt(c + d*x)/(3*b**2*(a + b*x)**(3/2)*(a*d - b*c)) - 4*a*
sqrt(c + d*x)*(2*a*d - 3*b*c)/(3*b**2*sqrt(a + b*x)*(a*d - b*c)**
2) + 2*atanh(sqrt(b)*sqrt(c + d*x)/(sqrt(d)*sqrt(a + b*x)))/(b**(
5/2)*sqrt(d))
```

Mathematica [A] time = 0.240396, size = 116, normalized size = 0.92

$$\frac{2a\sqrt{c+dx}\left(-3a^2d+ab(5c-4dx)+6b^2cx\right)}{3b^2(a+bx)^{3/2}(bc-ad)^2}+\frac{\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{b^{5/2}\sqrt{d}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^2/((a + b*x)^(5/2)*Sqrt[c + d*x]),x]
```

```
[Out] (2*a*Sqrt[c + d*x]*(-3*a^2*d + 6*b^2*c*x + a*b*(5*c - 4*d*x)))/(3
*b^2*(b*c - a*d)^2*(a + b*x)^(3/2)) + Log[b*c + a*d + 2*b*d*x + 2
*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]]/(b^(5/2)*Sqrt[d])
```

Maple [B] time = 0.036, size = 604, normalized size = 4.8

$$\frac{1}{3\,(ad-bc)^2\,b^2}\sqrt{dx+c}\left(3\,\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{(bx+a)\,(dx+c)}\sqrt{bd}+ad+bc}{\sqrt{bd}}\right)x^2a^2b^2d^2-6\,\ln\left(1/2\,\frac{2\,bdx+2\,\sqrt{(bx+a)\,(d}{\sqrt{b}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2/(b*x+a)^(5/2)/(d*x+c)^(1/2),x)
```

```
[Out] 1/3*(d*x+c)^(1/2)*(3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b
*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a^2*b^2*d^2-6*ln(1/2*(2*b*d*x
+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*
a*b^3*c*d+3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)
+a*d+b*c)/(b*d)^(1/2))*x^2*b^4*c^2+6*ln(1/2*(2*b*d*x+2*((b*x+a)*(
d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^3*b*d^2-12*ln
(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d
)^(1/2))*x*a^2*b^2*c*d+6*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2
)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a*b^3*c^2+3*ln(1/2*(2*b*d*x
+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^4*
d^2-6*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b
*c)/(b*d)^(1/2))*a^3*b*c*d+3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^
(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^2*b^2*c^2-8*x*a^2*b*d*(
(b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+12*x*a*b^2*c*((b*x+a)*(d*x+c))
^(1/2)*(b*d)^(1/2)-6*a^3*d*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+10
*a^2*b*c*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2))/(b*d)^(1/2)/(a*d-b*
c)^2/((b*x+a)*(d*x+c))^(1/2)/b^2/(b*x+a)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2/((b*x + a)^(5/2)*sqrt(d*x + c)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.411298, size = 1, normalized size = 0.01

$$\left[\frac{4\left(5\,a^2bc-3\,a^3d+2\left(3\,ab^2c-2\,a^2bd\right)x\right)\sqrt{bd}\sqrt{bx+a}\sqrt{dx+c}+3\left(a^2b^2c^2-2\,a^3bcd+a^4d^2+\left(b^4c^2-2\,ab^3cd+a^2b^2d^2\right)x^2\right.}{6\left(a^2b^4c^2-2\,a^3b^3cd+a^4b^2d^2+\left(b^6c^2\right.\right.}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2/((b*x + a)^(5/2)*sqrt(d*x + c)),x, algorithm="fricas")
```

```
[Out] [1/6*(4*(5*a^2*b*c - 3*a^3*d + 2*(3*a*b^2*c - 2*a^2*b*d)*x)*sqrt(
b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 3*(a^2*b^2*c^2 - 2*a^3*b*c*d +
 a^4*d^2 + (b^4*c^2 - 2*a*b^3*c*d + a^2*b^2*d^2)*x^2 + 2*(a*b^3*c
^2 - 2*a^2*b^2*c*d + a^3*b*d^2)*x)*log(4*(2*b^2*d^2*x + b^2*c*d +
 a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x^2 + b^2*c^2
+ 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqrt(b*d)))/((a^
2*b^4*c^2 - 2*a^3*b^3*c*d + a^4*b^2*d^2 + (b^6*c^2 - 2*a*b^5*c*d
+ a^2*b^4*d^2)*x^2 + 2*(a*b^5*c^2 - 2*a^2*b^4*c*d + a^3*b^3*d^2)*
x)*sqrt(b*d)), 1/3*(2*(5*a^2*b*c - 3*a^3*d + 2*(3*a*b^2*c - 2*a^2
*b*d)*x)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 3*(a^2*b^2*c^2
- 2*a^3*b*c*d + a^4*d^2 + (b^4*c^2 - 2*a*b^3*c*d + a^2*b^2*d^2)*x
^2 + 2*(a*b^3*c^2 - 2*a^2*b^2*c*d + a^3*b*d^2)*x)*arctan(1/2*(2*b
*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/
```

```
((a^2*b^4*c^2 - 2*a^3*b^3*c*d + a^4*b^2*d^2 + (b^6*c^2 - 2*a*b^5*
c*d + a^2*b^4*d^2)*x^2 + 2*(a*b^5*c^2 - 2*a^2*b^4*c*d + a^3*b^3*d
^2)*x)*sqrt(-b*d))]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x^2}{(a+bx)^{\frac{5}{2}}\sqrt{c+dx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2/(b*x+a)**(5/2)/(d*x+c)**(1/2),x)
```

```
[Out] Integral(x**2/((a + b*x)**(5/2)*sqrt(c + d*x)), x)
```

GIAC/XCAS [A] time = 0.571745, size = 4, normalized size = 0.03

$$sage_0x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2/((b*x + a)^(5/2)*sqrt(d*x + c)),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.792 $\int \frac{x^6}{(a+bx)^{5/2}(c+dx)^{5/2}}\,dx$

Optimal. Leaf size=445

$$-\frac{2cx^3\sqrt{a+bx}\left(-7a^2d^2+14abcd+b^2c^2\right)}{3b^2d(c+dx)^{3/2}(bc-ad)^3}-\frac{2cx^2\sqrt{a+bx}(ad+bc)\left(7a^2d^2-22abcd+7b^2c^2\right)}{3b^2d^2\sqrt{c+dx}(bc-ad)^4}$$
$$+\frac{5\left(7a^2d^2+10abcd+7b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{9/2}d^{9/2}}$$
$$-\frac{\sqrt{a+bx}\sqrt{c+dx}\left((ad+bc)\left(105a^4d^4-340a^3bcd^3+406a^2b^2c^2d^2-340ab^3c^3d+105b^4c^4\right)-2bdx\left(35a^4d^4-76a^3bcd^3+1\right.\right.}{12b^4d^4(bc-ad)^4}$$
$$+\frac{2ax^4(13bc-7ad)}{3b^2\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)^2}+\frac{2ax^5}{3b(a+bx)^{3/2}(c+dx)^{3/2}(bc-ad)}$$

```
[Out] (2*a*x^5)/(3*b*(b*c - a*d)*(a + b*x)^(3/2)*(c + d*x)^(3/2)) + (2*
a*(13*b*c - 7*a*d)*x^4)/(3*b^2*(b*c - a*d)^2*Sqrt[a + b*x]*(c + d
*x)^(3/2)) - (2*c*(b^2*c^2 + 14*a*b*c*d - 7*a^2*d^2)*x^3*Sqrt[a +
 b*x])/(3*b^2*d*(b*c - a*d)^3*(c + d*x)^(3/2)) - (2*c*(b*c + a*d)
*(7*b^2*c^2 - 22*a*b*c*d + 7*a^2*d^2)*x^2*Sqrt[a + b*x])/(3*b^2*d
^2*(b*c - a*d)^4*Sqrt[c + d*x]) - (Sqrt[a + b*x]*Sqrt[c + d*x]*((
b*c + a*d)*(105*b^4*c^4 - 340*a*b^3*c^3*d + 406*a^2*b^2*c^2*d^2 -
 340*a^3*b*c*d^3 + 105*a^4*d^4) - 2*b*d*(35*b^4*c^4 - 76*a*b^3*c^
3*d + 18*a^2*b^2*c^2*d^2 - 76*a^3*b*c*d^3 + 35*a^4*d^4)*x))/(12*b
^4*d^4*(b*c - a*d)^4) + (5*(7*b^2*c^2 + 10*a*b*c*d + 7*a^2*d^2)*A
rcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(4*b^(9/
2)*d^(9/2))
```

Rubi [A] time = 1.4491, antiderivative size = 445, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.227$

$$-\frac{2cx^3\sqrt{a+bx}\left(-7a^2d^2+14abcd+b^2c^2\right)}{3b^2d(c+dx)^{3/2}(bc-ad)^3}-\frac{2cx^2\sqrt{a+bx}(ad+bc)\left(7a^2d^2-22abcd+7b^2c^2\right)}{3b^2d^2\sqrt{c+dx}(bc-ad)^4}$$
$$+\frac{5\left(7a^2d^2+10abcd+7b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{9/2}d^{9/2}}$$
$$-\frac{\sqrt{a+bx}\sqrt{c+dx}\left((ad+bc)\left(105a^4d^4-340a^3bcd^3+406a^2b^2c^2d^2-340ab^3c^3d+105b^4c^4\right)-2bdx\left(35a^4d^4-76a^3bcd^3+1\right.\right.}{12b^4d^4(bc-ad)^4}$$
$$+\frac{2ax^4(13bc-7ad)}{3b^2\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)^2}+\frac{2ax^5}{3b(a+bx)^{3/2}(c+dx)^{3/2}(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[x^6/((a + b*x)^(5/2)*(c + d*x)^(5/2)),x]
```

```
[Out] (2*a*x^5)/(3*b*(b*c - a*d)*(a + b*x)^(3/2)*(c + d*x)^(3/2)) + (2*
a*(13*b*c - 7*a*d)*x^4)/(3*b^2*(b*c - a*d)^2*Sqrt[a + b*x]*(c + d
*x)^(3/2)) - (2*c*(b^2*c^2 + 14*a*b*c*d - 7*a^2*d^2)*x^3*Sqrt[a +
 b*x])/(3*b^2*d*(b*c - a*d)^3*(c + d*x)^(3/2)) - (2*c*(b*c + a*d)
*(7*b^2*c^2 - 22*a*b*c*d + 7*a^2*d^2)*x^2*Sqrt[a + b*x])/(3*b^2*d
^2*(b*c - a*d)^4*Sqrt[c + d*x]) - (Sqrt[a + b*x]*Sqrt[c + d*x]*((
b*c + a*d)*(105*b^4*c^4 - 340*a*b^3*c^3*d + 406*a^2*b^2*c^2*d^2 -
 340*a^3*b*c*d^3 + 105*a^4*d^4) - 2*b*d*(35*b^4*c^4 - 76*a*b^3*c^
3*d + 18*a^2*b^2*c^2*d^2 - 76*a^3*b*c*d^3 + 35*a^4*d^4)*x))/(12*b
^4*d^4*(b*c - a*d)^4) + (5*(7*b^2*c^2 + 10*a*b*c*d + 7*a^2*d^2)*A
rcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(4*b^(9/
2)*d^(9/2))
```

Rubi in Sympy [A] time = 141.776, size = 454, normalized size = 1.02

$$-\frac{2ax^5}{3b(a+bx)^{\frac{3}{2}}(c+dx)^{\frac{3}{2}}(ad-bc)}-\frac{2ax^4(7ad-13bc)}{3b^2\sqrt{a+bx}(c+dx)^{\frac{3}{2}}(ad-bc)^2}-\frac{2cx^3\sqrt{a+bx}\left(7a^2d^2-14abcd-b^2c^2\right)}{3b^2d(c+dx)^{\frac{3}{2}}(ad-bc)^3}-\frac{2cx^2\sqrt{a+bx}(ad+bc)\left(7a^2d^2-22abcd+7b^2c^2\right)}{3b^2d^2\sqrt{c+dx}(ad-bc)^4}-\frac{8\sqrt{a+bx}\sqrt{c+dx}\left(-\frac{3bdx(35a^4d^4-76a^3bcd^3+18a^2b^2c^2d^2-76ab^3c^3d+35b^4c^4)}{16}+\left(\frac{3ad}{32}+\frac{3bc}{32}\right)\left(105a^4d^4-340a^3bcd^3+406a^2b^2c^2d^2-\right.\right.}{9b^4d^4(ad-bc)^4}+\frac{5\left(7a^2d^2+10abcd+7b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{4b^{\frac{9}{2}}d^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**6/(b*x+a)**(5/2)/(d*x+c)**(5/2),x)
```

```
[Out] -2*a*x**5/(3*b*(a + b*x)**(3/2)*(c + d*x)**(3/2)*(a*d - b*c)) - 2
*a*x**4*(7*a*d - 13*b*c)/(3*b**2*sqrt(a + b*x)*(c + d*x)**(3/2)*(
a*d - b*c)**2) - 2*c*x**3*sqrt(a + b*x)*(7*a**2*d**2 - 14*a*b*c*d
 - b**2*c**2)/(3*b**2*d*(c + d*x)**(3/2)*(a*d - b*c)**3) - 2*c*x*
*2*sqrt(a + b*x)*(a*d + b*c)*(7*a**2*d**2 - 22*a*b*c*d + 7*b**2*c
**2)/(3*b**2*d**2*sqrt(c + d*x)*(a*d - b*c)**4) - 8*sqrt(a + b*x)
*sqrt(c + d*x)*(-3*b*d*x*(35*a**4*d**4 - 76*a**3*b*c*d**3 + 18*a*
*2*b**2*c**2*d**2 - 76*a*b**3*c**3*d + 35*b**4*c**4)/16 + (3*a*d/
32 + 3*b*c/32)*(105*a**4*d**4 - 340*a**3*b*c*d**3 + 406*a**2*b**2
*c**2*d**2 - 340*a*b**3*c**3*d + 105*b**4*c**4))/(9*b**4*d**4*(a*
d - b*c)**4) + 5*(7*a**2*d**2 + 10*a*b*c*d + 7*b**2*c**2)*atanh(s
qrt(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c + d*x)))/(4*b**(9/2)*d**(9/2
))
```

Mathematica [A] time = 1.46259, size = 246, normalized size = 0.55

$$\frac{5\left(7a^2d^2+10abcd+7b^2c^2\right)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{8b^{9/2}d^{9/2}}+\frac{1}{12}\sqrt{a+bx}\sqrt{c+dx}\left(-\frac{8a^6}{b^4(a+bx)^2(bc-ad)^3}-\frac{16a^5(5ad-9bc)}{b^4(a+bx)(bc-ad)^4}-\frac{33(ad+bc)}{b^4d^4}-\frac{8c^6}{d^4(c+dx)^2(ad-bc)^3}-\frac{16c^5(5bc-9\right.$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^6/((a + b*x)^(5/2)*(c + d*x)^(5/2)),x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*((-33*(b*c + a*d))/(b^4*d^4) + (6*x)
/(b^3*d^3) - (8*a^6)/(b^4*(b*c - a*d)^3*(a + b*x)^2) - (16*a^5*(-
9*b*c + 5*a*d))/(b^4*(b*c - a*d)^4*(a + b*x)) - (8*c^6)/(d^4*(-(b
*c) + a*d)^3*(c + d*x)^2) - (16*c^5*(5*b*c - 9*a*d))/(d^4*(b*c -
a*d)^4*(c + d*x))))/12 + (5*(7*b^2*c^2 + 10*a*b*c*d + 7*a^2*d^2)*
Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c
+ d*x]])/(8*b^(9/2)*d^(9/2))
```

Maple [B] time = 0.071, size = 3425, normalized size = 7.7

output too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^6/(b*x+a)^(5/2)/(d*x+c)^(5/2),x)
```

```
[Out] 1/24*(-420*x*a*b^6*c^7*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-270*ln
(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d
```

)^(1/2))*x^4*a^5*b^3*c*d^7+135*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c)
)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^4*a^4*b^4*c^2*d^6+60*
ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b
*d)^(1/2))*x^4*a^3*b^5*c^3*d^5+135*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*
x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^4*a^2*b^6*c^4*d^4
-270*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*
c)/(b*d)^(1/2))*x^4*a*b^7*c^5*d^3-330*ln(1/2*(2*b*d*x+2*((b*x+a)*
(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^3*a^6*b^2*c*d^
7-270*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b
*c)/(b*d)^(1/2))*x^3*a^5*b^3*c^2*d^6+390*ln(1/2*(2*b*d*x+2*((b*x+
a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^3*a^4*b^4*c
^3*d^5+390*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+
a*d+b*c)/(b*d)^(1/2))*x^3*a^3*b^5*c^4*d^4-270*ln(1/2*(2*b*d*x+2*(
(b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^3*a^2*
b^6*c^5*d^3-330*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(
1/2)+a*d+b*c)/(b*d)^(1/2))*x^3*a*b^7*c^6*d^2+150*ln(1/2*(2*b*d*x+
2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a
^7*b*c*d^7-840*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1
/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a^6*b^2*c^2*d^6+330*ln(1/2*(2*b*d*x
+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*
a^5*b^3*c^3*d^5+510*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*
d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a^4*b^4*c^4*d^4+330*ln(1/2*(2*
b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))
*x^2*a^3*b^5*c^5*d^3-840*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2
)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a^2*b^6*c^6*d^2+150*ln(1/
2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(
1/2))*x^2*a*b^7*c^7*d-330*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/
2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^7*b*c^2*d^6-270*ln(1/2*(
2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2
))*x*a^6*b^2*c^3*d^5+390*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2
)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^5*b^3*c^4*d^4+390*ln(1/2*
(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/
2))*x*a^4*b^4*c^5*d^3-270*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/
2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^3*b^5*c^6*d^2-330*ln(1/2
*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1
/2))*x*a^2*b^6*c^7*d+470*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*a^6*
b*c^3*d^4-132*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*a^5*b^2*c^4*d^3
-132*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*a^4*b^3*c^5*d^2+470*(b*d
)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*a^3*b^4*c^6*d+12*x^5*a^4*b^3*d^7*
(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+12*x^5*b^7*c^4*d^3*(b*d)^(1/2
)*((b*x+a)*(d*x+c))^(1/2)-280*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)
*x^3*a^6*b*d^7-280*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*x^3*b^7*c^
6*d-42*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*x^4*a^5*b^2*d^7-42*(b*
d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*x^4*b^7*c^5*d^2-420*x*a^7*c*d^6*
(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-210*x^2*a^7*d^7*(b*d)^(1/2)*(
(b*x+a)*(d*x+c))^(1/2)-414*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*x^
2*a^3*b^4*c^4*d^3-90*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*x^2*a*b^
6*c^6*d+660*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*x*a^2*b^5*c^6*d+6
60*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*x*a^6*b*c^2*d^5+372*(b*d)^
(1/2)*((b*x+a)*(d*x+c))^(1/2)*x*a^5*b^2*c^3*d^4-456*(b*d)^(1/2)*(
(b*x+a)*(d*x+c))^(1/2)*x*a^4*b^3*c^4*d^3+372*(b*d)^(1/2)*((b*x+a)
*(d*x+c))^(1/2)*x*a^3*b^4*c^5*d^2+126*(b*d)^(1/2)*((b*x+a)*(d*x+c
))^(1/2)*x^4*a^4*b^3*c*d^6-84*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)
*x^4*a^3*b^4*c^2*d^5-84*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*x^4*a
^2*b^5*c^3*d^4+126*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*x^4*a*b^6*
c^4*d^3+552*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*x^3*a^5*b^2*c*d^6
+24*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*x^3*a^4*b^3*c^2*d^5-336*(
b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*x^3*a^3*b^4*c^3*d^4+24*(b*d)^(
1/2)*((b*x+a)*(d*x+c))^(1/2)*x^3*a^2*b^5*c^4*d^3-48*x^5*a^3*b^4*c
d^6(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+72*x^5*a^2*b^5*c^2*d^5*(
b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-48*x^5*a*b^6*c^3*d^4*(b*d)^(1/
2)*((b*x+a)*(d*x+c))^(1/2)+1098*x^2*a^5*b^2*c^2*d^5*(b*d)^(1/2)*(
(b*x+a)*(d*x+c))^(1/2)+1098*x^2*a^2*b^5*c^5*d^2*(b*d)^(1/2)*((b*x
+a)*(d*x+c))^(1/2)+552*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*x^3*a*
b^6*c^5*d^2-90*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*x^2*a^6*b*c*d^
6-414*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)*x^2*a^4*b^3*c^3*d^4+105
ln(1/2(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(
b*d)^(1/2))*x^2*a^8*d^8+105*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(
1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*b^8*c^8+105*ln(1/2*(2*
b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))
*a^8*c^2*d^6+105*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^
(1/2)+a*d+b*c)/(b*d)^(1/2))*a^2*b^6*c^8-210*x^2*b^7*c^7*(b*d)^(1/
2)*((b*x+a)*(d*x+c))^(1/2)-210*a^7*c^2*d^5*(b*d)^(1/2)*((b*x+a)*(
d*x+c))^(1/2)-210*a^2*b^5*c^7*(b*d)^(1/2)*((b*x+a)*(d*x+c))^(1/2)

```
+105*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*
c)/(b*d)^(1/2))*x^4*a^6*b^2*d^8+105*ln(1/2*(2*b*d*x+2*((b*x+a)*(d
*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^4*b^8*c^6*d^2+21
0*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/
(b*d)^(1/2))*x^3*a^7*b*d^8+210*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c)
)^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^3*b^8*c^7*d+210*ln(1/
2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(
1/2))*x*a^8*c*d^7+210*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(
b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a*b^7*c^8-270*ln(1/2*(2*b*d*x+
2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^7*b
*c^3*d^5+135*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2
)+a*d+b*c)/(b*d)^(1/2))*a^6*b^2*c^4*d^4+60*ln(1/2*(2*b*d*x+2*((b*
x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^5*b^3*c^5
*d^3+135*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*
d+b*c)/(b*d)^(1/2))*a^4*b^4*c^6*d^2-270*ln(1/2*(2*b*d*x+2*((b*x+a
)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^3*b^5*c^7*d)
/((b*x+a)*(d*x+c))^(1/2)/(a*d-b*c)^4/(b*d)^(1/2)/(b*x+a)^(3/2)/(d
*x+c)^(3/2)/b^4/d^4
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^6/((b*x + a)^(5/2)*(d*x + c)^(5/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 3.62463, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^6/((b*x + a)^(5/2)*(d*x + c)^(5/2)),x, algorithm="fricas")
```

```
[Out] [-1/48*(4*(105*a^2*b^5*c^7 - 235*a^3*b^4*c^6*d + 66*a^4*b^3*c^5*d
^2 + 66*a^5*b^2*c^4*d^3 - 235*a^6*b*c^3*d^4 + 105*a^7*c^2*d^5 - 6
*(b^7*c^4*d^3 - 4*a*b^6*c^3*d^4 + 6*a^2*b^5*c^2*d^5 - 4*a^3*b^4*c
*d^6 + a^4*b^3*d^7)*x^5 + 21*(b^7*c^5*d^2 - 3*a*b^6*c^4*d^3 + 2*a
^2*b^5*c^3*d^4 + 2*a^3*b^4*c^2*d^5 - 3*a^4*b^3*c*d^6 + a^5*b^2*d^
7)*x^4 + 4*(35*b^7*c^6*d - 69*a*b^6*c^5*d^2 - 3*a^2*b^5*c^4*d^3 +
 42*a^3*b^4*c^3*d^4 - 3*a^4*b^3*c^2*d^5 - 69*a^5*b^2*c*d^6 + 35*a
^6*b*d^7)*x^3 + 3*(35*b^7*c^7 + 15*a*b^6*c^6*d - 183*a^2*b^5*c^5*
d^2 + 69*a^3*b^4*c^4*d^3 + 69*a^4*b^3*c^3*d^4 - 183*a^5*b^2*c^2*d
^5 + 15*a^6*b*c*d^6 + 35*a^7*d^7)*x^2 + 6*(35*a*b^6*c^7 - 55*a^2*
b^5*c^6*d - 31*a^3*b^4*c^5*d^2 + 38*a^4*b^3*c^4*d^3 - 31*a^5*b^2*
c^3*d^4 - 55*a^6*b*c^2*d^5 + 35*a^7*c*d^6)*x)*sqrt(b*d)*sqrt(b*x
+ a)*sqrt(d*x + c) - 15*(7*a^2*b^6*c^8 - 18*a^3*b^5*c^7*d + 9*a^4
*b^4*c^6*d^2 + 4*a^5*b^3*c^5*d^3 + 9*a^6*b^2*c^4*d^4 - 18*a^7*b*c
^3*d^5 + 7*a^8*c^2*d^6 + (7*b^8*c^6*d^2 - 18*a*b^7*c^5*d^3 + 9*a^
2*b^6*c^4*d^4 + 4*a^3*b^5*c^3*d^5 + 9*a^4*b^4*c^2*d^6 - 18*a^5*b^
3*c*d^7 + 7*a^6*b^2*d^8)*x^4 + 2*(7*b^8*c^7*d - 11*a*b^7*c^6*d^2
- 9*a^2*b^6*c^5*d^3 + 13*a^3*b^5*c^4*d^4 + 13*a^4*b^4*c^3*d^5 - 9
*a^5*b^3*c^2*d^6 - 11*a^6*b^2*c*d^7 + 7*a^7*b*d^8)*x^3 + (7*b^8*c
^8 + 10*a*b^7*c^7*d - 56*a^2*b^6*c^6*d^2 + 22*a^3*b^5*c^5*d^3 + 3
4*a^4*b^4*c^4*d^4 + 22*a^5*b^3*c^3*d^5 - 56*a^6*b^2*c^2*d^6 + 10*
a^7*b*c*d^7 + 7*a^8*d^8)*x^2 + 2*(7*a*b^7*c^8 - 11*a^2*b^6*c^7*d
- 9*a^3*b^5*c^6*d^2 + 13*a^4*b^4*c^5*d^3 + 13*a^5*b^3*c^4*d^4 - 9
*a^6*b^2*c^3*d^5 - 11*a^7*b*c^2*d^6 + 7*a^8*c*d^7)*x)*log(4*(2*b^
2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2
*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*
x)*sqrt(b*d)))/((a^2*b^8*c^6*d^4 - 4*a^3*b^7*c^5*d^5 + 6*a^4*b^6*
c^4*d^6 - 4*a^5*b^5*c^3*d^7 + a^6*b^4*c^2*d^8 + (b^10*c^4*d^6 - 4
```

```
*a*b^9*c^3*d^7 + 6*a^2*b^8*c^2*d^8 - 4*a^3*b^7*c*d^9 + a^4*b^6*d^
10)*x^4 + 2*(b^10*c^5*d^5 - 3*a*b^9*c^4*d^6 + 2*a^2*b^8*c^3*d^7 +
 2*a^3*b^7*c^2*d^8 - 3*a^4*b^6*c*d^9 + a^5*b^5*d^10)*x^3 + (b^10*
c^6*d^4 - 9*a^2*b^8*c^4*d^6 + 16*a^3*b^7*c^3*d^7 - 9*a^4*b^6*c^2*
d^8 + a^6*b^4*d^10)*x^2 + 2*(a*b^9*c^6*d^4 - 3*a^2*b^8*c^5*d^5 +
2*a^3*b^7*c^4*d^6 + 2*a^4*b^6*c^3*d^7 - 3*a^5*b^5*c^2*d^8 + a^6*b
^4*c*d^9)*x)*sqrt(b*d)), -1/24*(2*(105*a^2*b^5*c^7 - 235*a^3*b^4*
c^6*d + 66*a^4*b^3*c^5*d^2 + 66*a^5*b^2*c^4*d^3 - 235*a^6*b*c^3*d
^4 + 105*a^7*c^2*d^5 - 6*(b^7*c^4*d^3 - 4*a*b^6*c^3*d^4 + 6*a^2*b
^5*c^2*d^5 - 4*a^3*b^4*c*d^6 + a^4*b^3*d^7)*x^5 + 21*(b^7*c^5*d^2
 - 3*a*b^6*c^4*d^3 + 2*a^2*b^5*c^3*d^4 + 2*a^3*b^4*c^2*d^5 - 3*a^
4*b^3*c*d^6 + a^5*b^2*d^7)*x^4 + 4*(35*b^7*c^6*d - 69*a*b^6*c^5*d
^2 - 3*a^2*b^5*c^4*d^3 + 42*a^3*b^4*c^3*d^4 - 3*a^4*b^3*c^2*d^5 -
 69*a^5*b^2*c*d^6 + 35*a^6*b*d^7)*x^3 + 3*(35*b^7*c^7 + 15*a*b^6*
c^6*d - 183*a^2*b^5*c^5*d^2 + 69*a^3*b^4*c^4*d^3 + 69*a^4*b^3*c^3
*d^4 - 183*a^5*b^2*c^2*d^5 + 15*a^6*b*c*d^6 + 35*a^7*d^7)*x^2 + 6
*(35*a*b^6*c^7 - 55*a^2*b^5*c^6*d - 31*a^3*b^4*c^5*d^2 + 38*a^4*b
^3*c^4*d^3 - 31*a^5*b^2*c^3*d^4 - 55*a^6*b*c^2*d^5 + 35*a^7*c*d^6
)*x)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c) - 15*(7*a^2*b^6*c^8 -
 18*a^3*b^5*c^7*d + 9*a^4*b^4*c^6*d^2 + 4*a^5*b^3*c^5*d^3 + 9*a^6
*b^2*c^4*d^4 - 18*a^7*b*c^3*d^5 + 7*a^8*c^2*d^6 + (7*b^8*c^6*d^2
- 18*a*b^7*c^5*d^3 + 9*a^2*b^6*c^4*d^4 + 4*a^3*b^5*c^3*d^5 + 9*a^
4*b^4*c^2*d^6 - 18*a^5*b^3*c*d^7 + 7*a^6*b^2*d^8)*x^4 + 2*(7*b^8*
c^7*d - 11*a*b^7*c^6*d^2 - 9*a^2*b^6*c^5*d^3 + 13*a^3*b^5*c^4*d^4
 + 13*a^4*b^4*c^3*d^5 - 9*a^5*b^3*c^2*d^6 - 11*a^6*b^2*c*d^7 + 7*
a^7*b*d^8)*x^3 + (7*b^8*c^8 + 10*a*b^7*c^7*d - 56*a^2*b^6*c^6*d^2
 + 22*a^3*b^5*c^5*d^3 + 34*a^4*b^4*c^4*d^4 + 22*a^5*b^3*c^3*d^5 -
 56*a^6*b^2*c^2*d^6 + 10*a^7*b*c*d^7 + 7*a^8*d^8)*x^2 + 2*(7*a*b^
7*c^8 - 11*a^2*b^6*c^7*d - 9*a^3*b^5*c^6*d^2 + 13*a^4*b^4*c^5*d^3
 + 13*a^5*b^3*c^4*d^4 - 9*a^6*b^2*c^3*d^5 - 11*a^7*b*c^2*d^6 + 7*
a^8*c*d^7)*x)*arctan(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b
*x + a)*sqrt(d*x + c)*b*d)))/((a^2*b^8*c^6*d^4 - 4*a^3*b^7*c^5*d^
5 + 6*a^4*b^6*c^4*d^6 - 4*a^5*b^5*c^3*d^7 + a^6*b^4*c^2*d^8 + (b^
10*c^4*d^6 - 4*a*b^9*c^3*d^7 + 6*a^2*b^8*c^2*d^8 - 4*a^3*b^7*c*d^
9 + a^4*b^6*d^10)*x^4 + 2*(b^10*c^5*d^5 - 3*a*b^9*c^4*d^6 + 2*a^2
*b^8*c^3*d^7 + 2*a^3*b^7*c^2*d^8 - 3*a^4*b^6*c*d^9 + a^5*b^5*d^10
)*x^3 + (b^10*c^6*d^4 - 9*a^2*b^8*c^4*d^6 + 16*a^3*b^7*c^3*d^7 -
9*a^4*b^6*c^2*d^8 + a^6*b^4*d^10)*x^2 + 2*(a*b^9*c^6*d^4 - 3*a^2*
b^8*c^5*d^5 + 2*a^3*b^7*c^4*d^6 + 2*a^4*b^6*c^3*d^7 - 3*a^5*b^5*c
^2*d^8 + a^6*b^4*c*d^9)*x)*sqrt(-b*d))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**6/(b*x+a)**(5/2)/(d*x+c)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.811644, size = 4, normalized size = 0.01

$$sage_0 x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^6/((b*x + a)^(5/2)*(d*x + c)^(5/2)),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.793 $\int \frac{x^5}{(a+bx)^{5/2}(c+dx)^{5/2}}\,dx$

Optimal. Leaf size=341

$$-\frac{2cx^2\sqrt{a+bx}\left(-5a^2d^2+12abcd+b^2c^2\right)}{3b^2d(c+dx)^{3/2}(bc-ad)^3}+\frac{\sqrt{a+bx}\left(dx(bc-ad)\left(-15a^3d^3+35a^2bcd^2-9ab^2c^2d+5b^3c^3\right)+c\left(15a^4d^4-40a^3bcd^3+18a^2b^2c^2d^2-40ab^3c^3d+15b^4c^4\right.\right.}{3b^3d^3\sqrt{c+dx}(bc-ad)^4}$$
$$-\frac{5(ad+bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{7/2}d^{7/2}}+\frac{2ax^3(11bc-5ad)}{3b^2\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)^2}+\frac{2ax^4}{3b(a+bx)^{3/2}(c+dx)^{3/2}(bc-ad)}$$

```
[Out] (2*a*x^4)/(3*b*(b*c - a*d)*(a + b*x)^(3/2)*(c + d*x)^(3/2)) + (2*
a*(11*b*c - 5*a*d)*x^3)/(3*b^2*(b*c - a*d)^2*Sqrt[a + b*x]*(c + d
*x)^(3/2)) - (2*c*(b^2*c^2 + 12*a*b*c*d - 5*a^2*d^2)*x^2*Sqrt[a +
 b*x])/(3*b^2*d*(b*c - a*d)^3*(c + d*x)^(3/2)) + (Sqrt[a + b*x]*(
c*(15*b^4*c^4 - 40*a*b^3*c^3*d + 18*a^2*b^2*c^2*d^2 - 40*a^3*b*c*
d^3 + 15*a^4*d^4) + d*(b*c - a*d)*(5*b^3*c^3 - 9*a*b^2*c^2*d + 35
*a^2*b*c*d^2 - 15*a^3*d^3)*x))/(3*b^3*d^3*(b*c - a*d)^4*Sqrt[c +
d*x]) - (5*(b*c + a*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*S
qrt[c + d*x])])/(b^(7/2)*d^(7/2))
```

Rubi [A] time = 0.976025, antiderivative size = 341, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$-\frac{2cx^2\sqrt{a+bx}\left(-5a^2d^2+12abcd+b^2c^2\right)}{3b^2d(c+dx)^{3/2}(bc-ad)^3}+\frac{\sqrt{a+bx}\left(dx(bc-ad)\left(-15a^3d^3+35a^2bcd^2-9ab^2c^2d+5b^3c^3\right)+c\left(15a^4d^4-40a^3bcd^3+18a^2b^2c^2d^2-40ab^3c^3d+15b^4c^4\right.\right.}{3b^3d^3\sqrt{c+dx}(bc-ad)^4}$$
$$-\frac{5(ad+bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{7/2}d^{7/2}}+\frac{2ax^3(11bc-5ad)}{3b^2\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)^2}+\frac{2ax^4}{3b(a+bx)^{3/2}(c+dx)^{3/2}(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[x^5/((a + b*x)^(5/2)*(c + d*x)^(5/2)),x]
```

```
[Out] (2*a*x^4)/(3*b*(b*c - a*d)*(a + b*x)^(3/2)*(c + d*x)^(3/2)) + (2*
a*(11*b*c - 5*a*d)*x^3)/(3*b^2*(b*c - a*d)^2*Sqrt[a + b*x]*(c + d
*x)^(3/2)) - (2*c*(b^2*c^2 + 12*a*b*c*d - 5*a^2*d^2)*x^2*Sqrt[a +
 b*x])/(3*b^2*d*(b*c - a*d)^3*(c + d*x)^(3/2)) + (Sqrt[a + b*x]*(
c*(15*b^4*c^4 - 40*a*b^3*c^3*d + 18*a^2*b^2*c^2*d^2 - 40*a^3*b*c*
d^3 + 15*a^4*d^4) + d*(b*c - a*d)*(5*b^3*c^3 - 9*a*b^2*c^2*d + 35
*a^2*b*c*d^2 - 15*a^3*d^3)*x))/(3*b^3*d^3*(b*c - a*d)^4*Sqrt[c +
d*x]) - (5*(b*c + a*d)*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*S
qrt[c + d*x])])/(b^(7/2)*d^(7/2))
```

Rubi in Sympy [A] time = 92.2933, size = 342, normalized size = 1.

$$-\frac{2ax^4}{3b\,(a+bx)^{\frac{3}{2}}\,(c+dx)^{\frac{3}{2}}\,(ad-bc)}-\frac{2ax^3\,(5ad-11bc)}{3b^2\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}\,(ad-bc)^2}-\frac{2cx^2\sqrt{a+bx}\left(5a^2d^2-12abcd-b^2c^2\right)}{3b^2d\,(c+dx)^{\frac{3}{2}}\,(ad-bc)^3}+\frac{16\sqrt{a+bx}\left(\frac{3c\left(15a^4d^4-40a^3bcd^3+18a^2b^2c^2d^2-40ab^3c^3d+15b^4c^4\right)}{16}+\frac{3dx(ad-bc)\left(15a^3d^3-35a^2bcd^2+9ab^2c^2d-5b^3c^3\right)}{16}\right)}{9b^3d^3\sqrt{c+dx}\,(ad-bc)^4}-\frac{5\,(ad+bc)\,\mathrm{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{b^{\frac{7}{2}}d^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**5/(b*x+a)**(5/2)/(d*x+c)**(5/2),x)
```

```
[Out] -2*a*x**4/(3*b*(a + b*x)**(3/2)*(c + d*x)**(3/2)*(a*d - b*c)) - 2
*a*x**3*(5*a*d - 11*b*c)/(3*b**2*sqrt(a + b*x)*(c + d*x)**(3/2)*(
a*d - b*c)**2) - 2*c*x**2*sqrt(a + b*x)*(5*a**2*d**2 - 12*a*b*c*d
 - b**2*c**2)/(3*b**2*d*(c + d*x)**(3/2)*(a*d - b*c)**3) + 16*sqr
t(a + b*x)*(3*c*(15*a**4*d**4 - 40*a**3*b*c*d**3 + 18*a**2*b**2*c
**2*d**2 - 40*a*b**3*c**3*d + 15*b**4*c**4)/16 + 3*d*x*(a*d - b*c
)*(15*a**3*d**3 - 35*a**2*b*c*d**2 + 9*a*b**2*c**2*d - 5*b**3*c**
3)/16)/(9*b**3*d**3*sqrt(c + d*x)*(a*d - b*c)**4) - 5*(a*d + b*c)
*atanh(sqrt(b)*sqrt(c + d*x)/(sqrt(d)*sqrt(a + b*x)))/(b**(7/2)*d
**(7/2))
```

Mathematica [A] time = 1.00763, size = 214, normalized size = 0.63

$$\frac{1}{3}\sqrt{a+bx}\sqrt{c+dx}\left(\frac{2a^5}{b^3(a+bx)^2(bc-ad)^3}+\frac{2a^4(7ad-15bc)}{b^3(a+bx)(bc-ad)^4}+\frac{2c^5}{d^3(c+dx)^2(ad-bc)^3}+\frac{2c^4(7bc-15ad)}{d^3(c+dx)(bc-ad)^4}+\frac{3}{b^3d^3}\right)-\frac{5(ad+bc)\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{2b^{7/2}d^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^5/((a + b*x)^(5/2)*(c + d*x)^(5/2)),x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(3/(b^3*d^3) + (2*a^5)/(b^3*(b*c - a
*d)^3*(a + b*x)^2) + (2*a^4*(-15*b*c + 7*a*d))/(b^3*(b*c - a*d)^4
*(a + b*x)) + (2*c^5)/(d^3*(-(b*c) + a*d)^3*(c + d*x)^2) + (2*c^4
*(7*b*c - 15*a*d))/(d^3*(b*c - a*d)^4*(c + d*x))))/3 - (5*(b*c +
a*d)*Log[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sq
rt[c + d*x]])/(2*b^(7/2)*d^(7/2))
```

Maple [B] time = 0.052, size = 2748, normalized size = 8.1

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^5/(b*x+a)^(5/2)/(d*x+c)^(5/2),x)
```

```
[Out] -1/6*(80*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)*a^5*b*c^3*d^3+15*ln(
1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)
^(1/2))*a^2*b^5*c^7+15*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*
(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a^7*d^7+15*ln(1/2*(2*b*d*x+
2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*b
^7*c^7+15*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a
*d+b*c)/(b*d)^(1/2))*a^7*c^2*d^5-30*a^6*c^2*d^4*((b*x+a)*(d*x+c))
^(1/2)*(b*d)^(1/2)-36*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)*a^4*b^2
*c^4*d^2+80*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)*a^3*b^3*c^5*d-6*(
(b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)*x^4*a^4*b^2*d^6-6*((b*x+a)*(d*
x+c))^(1/2)*(b*d)^(1/2)*x^4*b^6*c^4*d^2-40*((b*x+a)*(d*x+c))^(1/2
)*(b*d)^(1/2)*x^3*a^5*b*d^6-40*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2
)*x^3*b^6*c^5*d+15*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d
)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a^6*b*c*d^6-135*ln(1/2*(2*b*d*x
+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*
a^5*b^2*c^2*d^5+105*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*
d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a^4*b^3*c^3*d^4+105*ln(1/2*(2*
b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))
*x^2*a^3*b^4*c^4*d^3-135*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2
)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a^2*b^5*c^5*d^2+15*ln(1/2
*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1
/2))*x^2*a*b^6*c^6*d-60*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)
```

```
*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^6*b*c^2*d^5-30*ln(1/2*(2*b
*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*
x*a^5*b^2*c^3*d^4+120*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(
b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^4*b^3*c^4*d^3-30*ln(1/2*(2*b
*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*
x*a^3*b^4*c^5*d^2-60*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b
*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^2*b^5*c^6*d-30*ln(1/2*(2*b*d*
x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^3
*a^2*b^5*c^4*d^3-60*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*
d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^3*a*b^6*c^5*d^2-60*x*a^6*c*d^5*(
(b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-60*x*a*b^5*c^6*((b*x+a)*(d*x+c
))^(1/2)*(b*d)^(1/2)-45*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)
*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^4*a^4*b^3*c*d^6+30*ln(1/2*(2
*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2)
)*x^4*a^3*b^4*c^2*d^5+30*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2
)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^4*a^2*b^5*c^3*d^4-45*ln(1/2
*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1
/2))*x^4*a*b^6*c^4*d^3-60*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/
2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^3*a^5*b^2*c*d^6-30*ln(1/2*
(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/
2))*x^3*a^4*b^3*c^2*d^5+120*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(
1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^3*a^3*b^4*c^3*d^4+120*((
b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)*x*a^2*b^4*c^5*d+24*((b*x+a)*(d*
x+c))^(1/2)*(b*d)^(1/2)*x^4*a^3*b^3*c*d^5-36*((b*x+a)*(d*x+c))^(1
/2)*(b*d)^(1/2)*x^4*a^2*b^4*c^2*d^4+24*((b*x+a)*(d*x+c))^(1/2)*(b
*d)^(1/2)*x^4*a*b^5*c^3*d^3+96*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2
)*x^3*a^4*b^2*c*d^5-24*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)*x^3*a^
3*b^3*c^2*d^4-24*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)*x^3*a^2*b^4*
c^3*d^3+96*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)*x^3*a*b^5*c^4*d^2+
174*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)*x^2*a^4*b^2*c^2*d^4-96*((
b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)*x^2*a^3*b^3*c^3*d^3+174*((b*x+a
)*(d*x+c))^(1/2)*(b*d)^(1/2)*x^2*a^2*b^4*c^4*d^2+120*((b*x+a)*(d*
x+c))^(1/2)*(b*d)^(1/2)*x*a^5*b*c^2*d^4+36*((b*x+a)*(d*x+c))^(1/2
)*(b*d)^(1/2)*x*a^4*b^2*c^3*d^3+36*((b*x+a)*(d*x+c))^(1/2)*(b*d)^
(1/2)*x*a^3*b^3*c^4*d^2-30*a^2*b^4*c^6*((b*x+a)*(d*x+c))^(1/2)*(b
*d)^(1/2)+15*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2
)+a*d+b*c)/(b*d)^(1/2))*x^4*a^5*b^2*d^7+15*ln(1/2*(2*b*d*x+2*((b*
x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^4*b^7*c^5
*d^2+30*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d
+b*c)/(b*d)^(1/2))*x^3*a^6*b*d^7+30*ln(1/2*(2*b*d*x+2*((b*x+a)*(d
*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^3*b^7*c^6*d+30*l
n(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*
d)^(1/2))*x*a^7*c*d^6+30*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2
)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a*b^6*c^7-45*ln(1/2*(2*b*d*
x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^6
*b*c^3*d^4+30*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/
2)+a*d+b*c)/(b*d)^(1/2))*a^5*b^2*c^4*d^3+30*ln(1/2*(2*b*d*x+2*((b
*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^4*b^3*c^
5*d^2-45*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*
d+b*c)/(b*d)^(1/2))*a^3*b^4*c^6*d-30*x^2*a^6*d^6*((b*x+a)*(d*x+c)
)^(1/2)*(b*d)^(1/2)-30*x^2*b^6*c^6*((b*x+a)*(d*x+c))^(1/2)*(b*d)^
(1/2))/((b*x+a)*(d*x+c))^(1/2)/(a*d-b*c)^4/(b*d)^(1/2)/(b*x+a)^(3
/2)/(d*x+c)^(3/2)/b^3/d^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^5/((b*x + a)^(5/2)*(d*x + c)^(5/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 1.98589, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^5/((b*x + a)^(5/2)*(d*x + c)^(5/2)),x, algorithm="fricas")
```

```
[Out] [1/12*(4*(15*a^2*b^4*c^6 - 40*a^3*b^3*c^5*d + 18*a^4*b^2*c^4*d^2
- 40*a^5*b*c^3*d^3 + 15*a^6*c^2*d^4 + 3*(b^6*c^4*d^2 - 4*a*b^5*c^
3*d^3 + 6*a^2*b^4*c^2*d^4 - 4*a^3*b^3*c*d^5 + a^4*b^2*d^6)*x^4 +
4*(5*b^6*c^5*d - 12*a*b^5*c^4*d^2 + 3*a^2*b^4*c^3*d^3 + 3*a^3*b^3
*c^2*d^4 - 12*a^4*b^2*c*d^5 + 5*a^5*b*d^6)*x^3 + 3*(5*b^6*c^6 - 2
9*a^2*b^4*c^4*d^2 + 16*a^3*b^3*c^3*d^3 - 29*a^4*b^2*c^2*d^4 + 5*a
^6*d^6)*x^2 + 6*(5*a*b^5*c^6 - 10*a^2*b^4*c^5*d - 3*a^3*b^3*c^4*d
^2 - 3*a^4*b^2*c^3*d^3 - 10*a^5*b*c^2*d^4 + 5*a^6*c*d^5)*x)*sqrt(
b*d)*sqrt(b*x + a)*sqrt(d*x + c) + 15*(a^2*b^5*c^7 - 3*a^3*b^4*c^
6*d + 2*a^4*b^3*c^5*d^2 + 2*a^5*b^2*c^4*d^3 - 3*a^6*b*c^3*d^4 + a
^7*c^2*d^5 + (b^7*c^5*d^2 - 3*a*b^6*c^4*d^3 + 2*a^2*b^5*c^3*d^4 +
 2*a^3*b^4*c^2*d^5 - 3*a^4*b^3*c*d^6 + a^5*b^2*d^7)*x^4 + 2*(b^7*
c^6*d - 2*a*b^6*c^5*d^2 - a^2*b^5*c^4*d^3 + 4*a^3*b^4*c^3*d^4 - a
^4*b^3*c^2*d^5 - 2*a^5*b^2*c*d^6 + a^6*b*d^7)*x^3 + (b^7*c^7 + a*
b^6*c^6*d - 9*a^2*b^5*c^5*d^2 + 7*a^3*b^4*c^4*d^3 + 7*a^4*b^3*c^3
*d^4 - 9*a^5*b^2*c^2*d^5 + a^6*b*c*d^6 + a^7*d^7)*x^2 + 2*(a*b^6*
c^7 - 2*a^2*b^5*c^6*d - a^3*b^4*c^5*d^2 + 4*a^4*b^3*c^4*d^3 - a^5
*b^2*c^3*d^4 - 2*a^6*b*c^2*d^5 + a^7*c*d^6)*x)*log(-4*(2*b^2*d^2*
x + b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (8*b^2*d^2*x
^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d + a*b*d^2)*x)*sqr
t(b*d)))/((a^2*b^7*c^6*d^3 - 4*a^3*b^6*c^5*d^4 + 6*a^4*b^5*c^4*d^
5 - 4*a^5*b^4*c^3*d^6 + a^6*b^3*c^2*d^7 + (b^9*c^4*d^5 - 4*a*b^8*
c^3*d^6 + 6*a^2*b^7*c^2*d^7 - 4*a^3*b^6*c*d^8 + a^4*b^5*d^9)*x^4
+ 2*(b^9*c^5*d^4 - 3*a*b^8*c^4*d^5 + 2*a^2*b^7*c^3*d^6 + 2*a^3*b^
6*c^2*d^7 - 3*a^4*b^5*c*d^8 + a^5*b^4*d^9)*x^3 + (b^9*c^6*d^3 - 9
*a^2*b^7*c^4*d^5 + 16*a^3*b^6*c^3*d^6 - 9*a^4*b^5*c^2*d^7 + a^6*b
^3*d^9)*x^2 + 2*(a*b^8*c^6*d^3 - 3*a^2*b^7*c^5*d^4 + 2*a^3*b^6*c^
4*d^5 + 2*a^4*b^5*c^3*d^6 - 3*a^5*b^4*c^2*d^7 + a^6*b^3*c*d^8)*x)
*sqrt(b*d)), 1/6*(2*(15*a^2*b^4*c^6 - 40*a^3*b^3*c^5*d + 18*a^4*b
^2*c^4*d^2 - 40*a^5*b*c^3*d^3 + 15*a^6*c^2*d^4 + 3*(b^6*c^4*d^2 -
 4*a*b^5*c^3*d^3 + 6*a^2*b^4*c^2*d^4 - 4*a^3*b^3*c*d^5 + a^4*b^2*
d^6)*x^4 + 4*(5*b^6*c^5*d - 12*a*b^5*c^4*d^2 + 3*a^2*b^4*c^3*d^3
+ 3*a^3*b^3*c^2*d^4 - 12*a^4*b^2*c*d^5 + 5*a^5*b*d^6)*x^3 + 3*(5*
b^6*c^6 - 29*a^2*b^4*c^4*d^2 + 16*a^3*b^3*c^3*d^3 - 29*a^4*b^2*c^
2*d^4 + 5*a^6*d^6)*x^2 + 6*(5*a*b^5*c^6 - 10*a^2*b^4*c^5*d - 3*a^
3*b^3*c^4*d^2 - 3*a^4*b^2*c^3*d^3 - 10*a^5*b*c^2*d^4 + 5*a^6*c*d^
5)*x)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d*x + c) - 15*(a^2*b^5*c^7 -
3*a^3*b^4*c^6*d + 2*a^4*b^3*c^5*d^2 + 2*a^5*b^2*c^4*d^3 - 3*a^6*b
*c^3*d^4 + a^7*c^2*d^5 + (b^7*c^5*d^2 - 3*a*b^6*c^4*d^3 + 2*a^2*b
^5*c^3*d^4 + 2*a^3*b^4*c^2*d^5 - 3*a^4*b^3*c*d^6 + a^5*b^2*d^7)*x
^4 + 2*(b^7*c^6*d - 2*a*b^6*c^5*d^2 - a^2*b^5*c^4*d^3 + 4*a^3*b^4
*c^3*d^4 - a^4*b^3*c^2*d^5 - 2*a^5*b^2*c*d^6 + a^6*b*d^7)*x^3 + (
b^7*c^7 + a*b^6*c^6*d - 9*a^2*b^5*c^5*d^2 + 7*a^3*b^4*c^4*d^3 + 7
*a^4*b^3*c^3*d^4 - 9*a^5*b^2*c^2*d^5 + a^6*b*c*d^6 + a^7*d^7)*x^2
 + 2*(a*b^6*c^7 - 2*a^2*b^5*c^6*d - a^3*b^4*c^5*d^2 + 4*a^4*b^3*c
^4*d^3 - a^5*b^2*c^3*d^4 - 2*a^6*b*c^2*d^5 + a^7*c*d^6)*x)*arctan
(1/2*(2*b*d*x + b*c + a*d)*sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c
)*b*d)))/((a^2*b^7*c^6*d^3 - 4*a^3*b^6*c^5*d^4 + 6*a^4*b^5*c^4*d^
5 - 4*a^5*b^4*c^3*d^6 + a^6*b^3*c^2*d^7 + (b^9*c^4*d^5 - 4*a*b^8*
c^3*d^6 + 6*a^2*b^7*c^2*d^7 - 4*a^3*b^6*c*d^8 + a^4*b^5*d^9)*x^4
+ 2*(b^9*c^5*d^4 - 3*a*b^8*c^4*d^5 + 2*a^2*b^7*c^3*d^6 + 2*a^3*b^
6*c^2*d^7 - 3*a^4*b^5*c*d^8 + a^5*b^4*d^9)*x^3 + (b^9*c^6*d^3 - 9
*a^2*b^7*c^4*d^5 + 16*a^3*b^6*c^3*d^6 - 9*a^4*b^5*c^2*d^7 + a^6*b
^3*d^9)*x^2 + 2*(a*b^8*c^6*d^3 - 3*a^2*b^7*c^5*d^4 + 2*a^3*b^6*c^
4*d^5 + 2*a^4*b^5*c^3*d^6 - 3*a^5*b^4*c^2*d^7 + a^6*b^3*c*d^8)*x)
*sqrt(-b*d))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**5/(b*x+a)**(5/2)/(d*x+c)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.684266, size = 4, normalized size = 0.01

$$sage_0x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^5/((b*x + a)^(5/2)*(d*x + c)^(5/2)),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.794 $\int \frac{x^4}{(a+bx)^{5/2}(c+dx)^{5/2}}\,dx$

Optimal. Leaf size=241

$$-\frac{2c\sqrt{a+bx}\left(c(ad+bc)\left(3a^2d^2-14abcd+3b^2c^2\right)+2dx\left(3a^3d^3-12a^2bcd^2-ab^2c^2d+2b^3c^3\right)\right)}{3b^2d^2(c+dx)^{3/2}(bc-ad)^4}+\frac{2\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{5/2}d^{5/2}}+\frac{2ax^2(3bc-ad)}{b^2\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)^2}+\frac{2ax^3}{3b(a+bx)^{3/2}(c+dx)^{3/2}(bc-ad)}$$

```
[Out] (2*a*x^3)/(3*b*(b*c - a*d)*(a + b*x)^(3/2)*(c + d*x)^(3/2)) + (2*
a*(3*b*c - a*d)*x^2)/(b^2*(b*c - a*d)^2*Sqrt[a + b*x]*(c + d*x)^(
3/2)) - (2*c*Sqrt[a + b*x]*(c*(b*c + a*d)*(3*b^2*c^2 - 14*a*b*c*d
 + 3*a^2*d^2) + 2*d*(2*b^3*c^3 - a*b^2*c^2*d - 12*a^2*b*c*d^2 + 3
*a^3*d^3)*x))/(3*b^2*d^2*(b*c - a*d)^4*(c + d*x)^(3/2)) + (2*ArcT
anh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(b^(5/2)*d^
(5/2))
```

Rubi [A] time = 0.572732, antiderivative size = 241, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$-\frac{2c\sqrt{a+bx}\left(c(ad+bc)\left(3a^2d^2-14abcd+3b^2c^2\right)+2dx\left(3a^3d^3-12a^2bcd^2-ab^2c^2d+2b^3c^3\right)\right)}{3b^2d^2(c+dx)^{3/2}(bc-ad)^4}+\frac{2\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{b^{5/2}d^{5/2}}+\frac{2ax^2(3bc-ad)}{b^2\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)^2}+\frac{2ax^3}{3b(a+bx)^{3/2}(c+dx)^{3/2}(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[x^4/((a + b*x)^(5/2)*(c + d*x)^(5/2)),x]
```

```
[Out] (2*a*x^3)/(3*b*(b*c - a*d)*(a + b*x)^(3/2)*(c + d*x)^(3/2)) + (2*
a*(3*b*c - a*d)*x^2)/(b^2*(b*c - a*d)^2*Sqrt[a + b*x]*(c + d*x)^(
3/2)) - (2*c*Sqrt[a + b*x]*(c*(b*c + a*d)*(3*b^2*c^2 - 14*a*b*c*d
 + 3*a^2*d^2) + 2*d*(2*b^3*c^3 - a*b^2*c^2*d - 12*a^2*b*c*d^2 + 3
*a^3*d^3)*x))/(3*b^2*d^2*(b*c - a*d)^4*(c + d*x)^(3/2)) + (2*ArcT
anh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x])])/(b^(5/2)*d^
(5/2))
```

Rubi in Sympy [A] time = 51.4445, size = 238, normalized size = 0.99

$$-\frac{2ax^3}{3b\,(a+bx)^{\frac{3}{2}}\,(c+dx)^{\frac{3}{2}}\,(ad-bc)}-\frac{2ax^2\,(ad-3bc)}{b^2\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}\,(ad-bc)^2}-\frac{16c\sqrt{a+bx}\left(\frac{3c(ad+bc)(3a^2d^2-14abcd+3b^2c^2)}{8}+\frac{3dx(3a^3d^3-12a^2bcd^2-ab^2c^2d+2b^3c^3)}{4}\right)}{9b^2d^2\,(c+dx)^{\frac{3}{2}}\,(ad-bc)^4}+\frac{2\,\mathrm{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{b^{\frac{5}{2}}d^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**4/(b*x+a)**(5/2)/(d*x+c)**(5/2),x)
```

```
[Out] -2*a*x**3/(3*b*(a + b*x)**(3/2)*(c + d*x)**(3/2)*(a*d - b*c)) - 2
*a*x**2*(a*d - 3*b*c)/(b**2*sqrt(a + b*x)*(c + d*x)**(3/2)*(a*d -
 b*c)**2) - 16*c*sqrt(a + b*x)*(3*c*(a*d + b*c)*(3*a**2*d**2 - 14
*a*b*c*d + 3*b**2*c**2)/8 + 3*d*x*(3*a**3*d**3 - 12*a**2*b*c*d**2
 - a*b**2*c**2*d + 2*b**3*c**3)/4)/(9*b**2*d**2*(c + d*x)**(3/2)*
(a*d - b*c)**4) + 2*atanh(sqrt(b)*sqrt(c + d*x)/(sqrt(d)*sqrt(a +
 b*x)))/(b**(5/2)*d**(5/2))
```

Mathematica [A] time = 0.928883, size = 194, normalized size = 0.8

$$\frac{2}{3}\sqrt{a+bx}\sqrt{c+dx}\left(-\frac{a^4}{b^2(a+bx)^2(bc-ad)^3}-\frac{4a^3(ad-3bc)}{b^2(a+bx)(bc-ad)^4}-\frac{c^4}{d^2(c+dx)^2(ad-bc)^3}-\frac{4c^3(bc-3ad)}{d^2(c+dx)(bc-ad)^4}\right)+\frac{\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2bdx\right)}{b^{5/2}d^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^4/((a + b*x)^(5/2)*(c + d*x)^(5/2)),x]
```

```
[Out] (2*Sqrt[a + b*x]*Sqrt[c + d*x]*(-(a^4/(b^2*(b*c - a*d)^3*(a + b*x
)^2)) - (4*a^3*(-3*b*c + a*d))/(b^2*(b*c - a*d)^4*(a + b*x)) - c^
4/(d^2*(-(b*c) + a*d)^3*(c + d*x)^2) - (4*c^3*(b*c - 3*a*d))/(d^2
*(b*c - a*d)^4*(c + d*x))))/3 + Log[b*c + a*d + 2*b*d*x + 2*Sqrt[
b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d*x]]/(b^(5/2)*d^(5/2))
```

Maple [B] time = 0.049, size = 2089, normalized size = 8.7

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^4/(b*x+a)^(5/2)/(d*x+c)^(5/2),x)
```

```
[Out] 1/3*(-12*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*
d+b*c)/(b*d)^(1/2))*x^4*a^3*b^3*c*d^5+3*ln(1/2*(2*b*d*x+2*((b*x+a
)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a^6*d^6+3*
ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b
*d)^(1/2))*x^2*b^6*c^6+3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2
)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^6*c^2*d^4+3*ln(1/2*(2*b*d*x
+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^2*
b^4*c^6+24*x^3*a^3*b^2*c*d^4*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+
24*x^3*a*b^4*c^3*d^2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+36*((b*x
+a)*(d*x+c))^(1/2)*(b*d)^(1/2)*x*a^2*b^3*c^4*d+6*((b*x+a)*(d*x+c)
)^(1/2)*(b*d)^(1/2)*x^2*a^4*b*c*d^4+48*((b*x+a)*(d*x+c))^(1/2)*(b
*d)^(1/2)*x^2*a^3*b^2*c^2*d^3+48*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1
/2)*x^2*a^2*b^3*c^3*d^2+6*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)*x^2
*a*b^4*c^4*d+36*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)*x*a^4*b*c^2*d
^3+48*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)*x*a^3*b^2*c^3*d^2+18*ln
(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d
)^(1/2))*a^4*b^2*c^4*d^2-18*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(
1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^2*b^4*c^5*d-12*x*a^5*c
*d^4*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+48*ln(1/2*(2*b*d*x+2*((b
*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a^3*b^
3*c^3*d^3-27*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2
)+a*d+b*c)/(b*d)^(1/2))*x^2*a^2*b^4*c^4*d^2-18*ln(1/2*(2*b*d*x+2*
((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^5*b
*c^2*d^4+12*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)
+a*d+b*c)/(b*d)^(1/2))*x*a^4*b^2*c^3*d^3-8*((b*x+a)*(d*x+c))^(1/2
)*(b*d)^(1/2)*x^3*a^4*b*d^5-8*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)
*x^3*b^5*c^4*d+22*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)*a^4*b*c^3*d
^2+22*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)*a^3*b^2*c^4*d-12*x*a*b^
4*c^5*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+12*ln(1/2*(2*b*d*x+2*((
b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a^3*b^3
*c^4*d^2+18*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)
+a*d+b*c)/(b*d)^(1/2))*x^4*a^2*b^4*c^2*d^4-12*ln(1/2*(2*b*d*x+2*(
(b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^4*a*b^
5*c^3*d^3-18*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2
)+a*d+b*c)/(b*d)^(1/2))*x^3*a^4*b^2*c*d^5+12*ln(1/2*(2*b*d*x+2*((
b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^3*a^3*b
^3*c^2*d^4+12*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/
2)+a*d+b*c)/(b*d)^(1/2))*x^3*a^2*b^4*c^3*d^3-18*ln(1/2*(2*b*d*x+2
*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^3*a*
b^5*c^4*d^2-27*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1
/2)+a*d+b*c)/(b*d)^(1/2))*x^2*a^4*b^2*c^2*d^4-12*ln(1/2*(2*b*d*x+
```

```
2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^3*b
^3*c^5*d-6*x^2*a^5*d^5*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-6*x^2*
b^5*c^5*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)-6*a^5*c^2*d^3*((b*x+a
)*(d*x+c))^(1/2)*(b*d)^(1/2)-6*a^2*b^3*c^5*((b*x+a)*(d*x+c))^(1/2
)*(b*d)^(1/2)+3*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(
1/2)+a*d+b*c)/(b*d)^(1/2))*x^4*a^4*b^2*d^6+3*ln(1/2*(2*b*d*x+2*((
b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^4*b^6*c
^4*d^2+6*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*
d+b*c)/(b*d)^(1/2))*x^3*a^5*b*d^6+6*ln(1/2*(2*b*d*x+2*((b*x+a)*(d
*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x^3*b^6*c^5*d+6*ln
(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d
)^(1/2))*x*a^6*c*d^5+6*ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*
(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*x*a*b^5*c^6-12*ln(1/2*(2*b*d*x+
2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(b*d)^(1/2))*a^5*b
*c^3*d^3)/((b*x+a)*(d*x+c))^(1/2)/(a*d-b*c)^4/(b*d)^(1/2)/(b*x+a)
^(3/2)/(d*x+c)^(3/2)/d^2/b^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^4/((b*x + a)^(5/2)*(d*x + c)^(5/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.99927, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^4/((b*x + a)^(5/2)*(d*x + c)^(5/2)),x, algorithm="fricas")
```

```
[Out] [-1/6*(4*(3*a^2*b^3*c^5 - 11*a^3*b^2*c^4*d - 11*a^4*b*c^3*d^2 + 3
*a^5*c^2*d^3 + 4*(b^5*c^4*d - 3*a*b^4*c^3*d^2 - 3*a^3*b^2*c*d^4 +
 a^4*b*d^5)*x^3 + 3*(b^5*c^5 - a*b^4*c^4*d - 8*a^2*b^3*c^3*d^2 -
8*a^3*b^2*c^2*d^3 - a^4*b*c*d^4 + a^5*d^5)*x^2 + 6*(a*b^4*c^5 - 3
*a^2*b^3*c^4*d - 4*a^3*b^2*c^3*d^2 - 3*a^4*b*c^2*d^3 + a^5*c*d^4)
*x)*sqrt(b*d)*sqrt(b*x + a)*sqrt(d*x + c) - 3*(a^2*b^4*c^6 - 4*a^
3*b^3*c^5*d + 6*a^4*b^2*c^4*d^2 - 4*a^5*b*c^3*d^3 + a^6*c^2*d^4 +
 (b^6*c^4*d^2 - 4*a*b^5*c^3*d^3 + 6*a^2*b^4*c^2*d^4 - 4*a^3*b^3*c
*d^5 + a^4*b^2*d^6)*x^4 + 2*(b^6*c^5*d - 3*a*b^5*c^4*d^2 + 2*a^2*
b^4*c^3*d^3 + 2*a^3*b^3*c^2*d^4 - 3*a^4*b^2*c*d^5 + a^5*b*d^6)*x^
3 + (b^6*c^6 - 9*a^2*b^4*c^4*d^2 + 16*a^3*b^3*c^3*d^3 - 9*a^4*b^2
*c^2*d^4 + a^6*d^6)*x^2 + 2*(a*b^5*c^6 - 3*a^2*b^4*c^5*d + 2*a^3*
b^3*c^4*d^2 + 2*a^4*b^2*c^3*d^3 - 3*a^5*b*c^2*d^4 + a^6*c*d^5)*x)
*log(4*(2*b^2*d^2*x + b^2*c*d + a*b*d^2)*sqrt(b*x + a)*sqrt(d*x +
 c) + (8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 8*(b^2*c*d
 + a*b*d^2)*x)*sqrt(b*d)))/((a^2*b^6*c^6*d^2 - 4*a^3*b^5*c^5*d^3
+ 6*a^4*b^4*c^4*d^4 - 4*a^5*b^3*c^3*d^5 + a^6*b^2*c^2*d^6 + (b^8*
c^4*d^4 - 4*a*b^7*c^3*d^5 + 6*a^2*b^6*c^2*d^6 - 4*a^3*b^5*c*d^7 +
 a^4*b^4*d^8)*x^4 + 2*(b^8*c^5*d^3 - 3*a*b^7*c^4*d^4 + 2*a^2*b^6*
c^3*d^5 + 2*a^3*b^5*c^2*d^6 - 3*a^4*b^4*c*d^7 + a^5*b^3*d^8)*x^3
+ (b^8*c^6*d^2 - 9*a^2*b^6*c^4*d^4 + 16*a^3*b^5*c^3*d^5 - 9*a^4*b
^4*c^2*d^6 + a^6*b^2*d^8)*x^2 + 2*(a*b^7*c^6*d^2 - 3*a^2*b^6*c^5*
d^3 + 2*a^3*b^5*c^4*d^4 + 2*a^4*b^4*c^3*d^5 - 3*a^5*b^3*c^2*d^6 +
 a^6*b^2*c*d^7)*x)*sqrt(b*d)), -1/3*(2*(3*a^2*b^3*c^5 - 11*a^3*b^
2*c^4*d - 11*a^4*b*c^3*d^2 + 3*a^5*c^2*d^3 + 4*(b^5*c^4*d - 3*a*b
^4*c^3*d^2 - 3*a^3*b^2*c*d^4 + a^4*b*d^5)*x^3 + 3*(b^5*c^5 - a*b^
4*c^4*d - 8*a^2*b^3*c^3*d^2 - 8*a^3*b^2*c^2*d^3 - a^4*b*c*d^4 + a
^5*d^5)*x^2 + 6*(a*b^4*c^5 - 3*a^2*b^3*c^4*d - 4*a^3*b^2*c^3*d^2
- 3*a^4*b*c^2*d^3 + a^5*c*d^4)*x)*sqrt(-b*d)*sqrt(b*x + a)*sqrt(d
*x + c) - 3*(a^2*b^4*c^6 - 4*a^3*b^3*c^5*d + 6*a^4*b^2*c^4*d^2 -
```

```
4*a^5*b*c^3*d^3 + a^6*c^2*d^4 + (b^6*c^4*d^2 - 4*a*b^5*c^3*d^3 +
6*a^2*b^4*c^2*d^4 - 4*a^3*b^3*c*d^5 + a^4*b^2*d^6)*x^4 + 2*(b^6*c
^5*d - 3*a*b^5*c^4*d^2 + 2*a^2*b^4*c^3*d^3 + 2*a^3*b^3*c^2*d^4 -
3*a^4*b^2*c*d^5 + a^5*b*d^6)*x^3 + (b^6*c^6 - 9*a^2*b^4*c^4*d^2 +
 16*a^3*b^3*c^3*d^3 - 9*a^4*b^2*c^2*d^4 + a^6*d^6)*x^2 + 2*(a*b^5
*c^6 - 3*a^2*b^4*c^5*d + 2*a^3*b^3*c^4*d^2 + 2*a^4*b^2*c^3*d^3 -
3*a^5*b*c^2*d^4 + a^6*c*d^5)*x)*arctan(1/2*(2*b*d*x + b*c + a*d)*
sqrt(-b*d)/(sqrt(b*x + a)*sqrt(d*x + c)*b*d)))/((a^2*b^6*c^6*d^2
- 4*a^3*b^5*c^5*d^3 + 6*a^4*b^4*c^4*d^4 - 4*a^5*b^3*c^3*d^5 + a^6
*b^2*c^2*d^6 + (b^8*c^4*d^4 - 4*a*b^7*c^3*d^5 + 6*a^2*b^6*c^2*d^6
 - 4*a^3*b^5*c*d^7 + a^4*b^4*d^8)*x^4 + 2*(b^8*c^5*d^3 - 3*a*b^7*
c^4*d^4 + 2*a^2*b^6*c^3*d^5 + 2*a^3*b^5*c^2*d^6 - 3*a^4*b^4*c*d^7
 + a^5*b^3*d^8)*x^3 + (b^8*c^6*d^2 - 9*a^2*b^6*c^4*d^4 + 16*a^3*b
^5*c^3*d^5 - 9*a^4*b^4*c^2*d^6 + a^6*b^2*d^8)*x^2 + 2*(a*b^7*c^6*
d^2 - 3*a^2*b^6*c^5*d^3 + 2*a^3*b^5*c^4*d^4 + 2*a^4*b^4*c^3*d^5 -
 3*a^5*b^3*c^2*d^6 + a^6*b^2*c*d^7)*x)*sqrt(-b*d))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**4/(b*x+a)**(5/2)/(d*x+c)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.672138, size = 4, normalized size = 0.02

$$sage_0 x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^4/((b*x + a)^(5/2)*(d*x + c)^(5/2)),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.795 $\int \frac{x^3}{(a+bx)^{5/2}(c+dx)^{5/2}}\,dx$

Optimal. Leaf size=189

$$\frac{4c\sqrt{a+bx}\left(-3a^2d^2-6abcd+b^2c^2\right)}{3bd\sqrt{c+dx}(bc-ad)^4}-\frac{4c\sqrt{a+bx}\left(3a^2d^2+b^2c^2\right)}{3b^2d(c+dx)^{3/2}(bc-ad)^3}-\frac{4a^2c}{b^2\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)^2}-\frac{2x^3}{3(a+bx)^{3/2}(c+dx)^{3/2}(bc-ad)}$$

```
[Out] (-2*x^3)/(3*(b*c - a*d)*(a + b*x)^(3/2)*(c + d*x)^(3/2)) - (4*a^2
*c)/(b^2*(b*c - a*d)^2*Sqrt[a + b*x]*(c + d*x)^(3/2)) - (4*c*(b^2
*c^2 + 3*a^2*d^2)*Sqrt[a + b*x])/(3*b^2*d*(b*c - a*d)^3*(c + d*x)
^(3/2)) + (4*c*(b^2*c^2 - 6*a*b*c*d - 3*a^2*d^2)*Sqrt[a + b*x])/(
3*b*d*(b*c - a*d)^4*Sqrt[c + d*x])
```

Rubi [A] time = 0.43815, antiderivative size = 189, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$\frac{4c\sqrt{a+bx}\left(-3a^2d^2-6abcd+b^2c^2\right)}{3bd\sqrt{c+dx}(bc-ad)^4}-\frac{4c\sqrt{a+bx}\left(3a^2d^2+b^2c^2\right)}{3b^2d(c+dx)^{3/2}(bc-ad)^3}-\frac{4a^2c}{b^2\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)^2}-\frac{2x^3}{3(a+bx)^{3/2}(c+dx)^{3/2}(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[x^3/((a + b*x)^(5/2)*(c + d*x)^(5/2)),x]
```

```
[Out] (-2*x^3)/(3*(b*c - a*d)*(a + b*x)^(3/2)*(c + d*x)^(3/2)) - (4*a^2
*c)/(b^2*(b*c - a*d)^2*Sqrt[a + b*x]*(c + d*x)^(3/2)) - (4*c*(b^2
*c^2 + 3*a^2*d^2)*Sqrt[a + b*x])/(3*b^2*d*(b*c - a*d)^3*(c + d*x)
^(3/2)) + (4*c*(b^2*c^2 - 6*a*b*c*d - 3*a^2*d^2)*Sqrt[a + b*x])/(
3*b*d*(b*c - a*d)^4*Sqrt[c + d*x])
```

Rubi in Sympy [A] time = 41.8424, size = 173, normalized size = 0.92

$$-\frac{4ac^2}{d^2\,(a+bx)^{\frac{3}{2}}\sqrt{c+dx}\,(ad-bc)^2}+\frac{4a\sqrt{c+dx}\left(a^2d^2-6abcd-3b^2c^2\right)}{3bd\sqrt{a+bx}\,(ad-bc)^4}-\frac{4a\sqrt{c+dx}\left(a^2d^2+3b^2c^2\right)}{3bd^2\,(a+bx)^{\frac{3}{2}}\,(ad-bc)^3}-\frac{2x^3}{3\,(a+bx)^{\frac{3}{2}}\,(c+dx)^{\frac{3}{2}}\,(ad-bc)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3/(b*x+a)**(5/2)/(d*x+c)**(5/2),x)
```

```
[Out] -4*a*c**2/(d**2*(a + b*x)**(3/2)*sqrt(c + d*x)*(a*d - b*c)**2) +
4*a*sqrt(c + d*x)*(a**2*d**2 - 6*a*b*c*d - 3*b**2*c**2)/(3*b*d*sq
rt(a + b*x)*(a*d - b*c)**4) - 4*a*sqrt(c + d*x)*(a**2*d**2 + 3*b*
*2*c**2)/(3*b*d**2*(a + b*x)**(3/2)*(a*d - b*c)**3) - 2*x**3/(3*(
a + b*x)**(3/2)*(c + d*x)**(3/2)*(a*d - b*c))
```

Mathematica [A] time = 0.259943, size = 125, normalized size = 0.66

$$-\frac{2\left(a^3\left(16c^3+24c^2dx+6cd^2x^2-d^3x^3\right)+3a^2bcx\left(8c^2+12cdx+3d^2x^2\right)+3ab^2c^2x^2(2c+3dx)-b^3c^3x^3\right)}{3(a+bx)^{3/2}(c+dx)^{3/2}(bc-ad)^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^3/((a + b*x)^(5/2)*(c + d*x)^(5/2)),x]
```

```
[Out] (-2*(-(b^3*c^3*x^3) + 3*a*b^2*c^2*x^2*(2*c + 3*d*x) + 3*a^2*b*c*x
*(8*c^2 + 12*c*d*x + 3*d^2*x^2) + a^3*(16*c^3 + 24*c^2*d*x + 6*c*
d^2*x^2 - d^3*x^3)))/(3*(b*c - a*d)^4*(a + b*x)^(3/2)*(c + d*x)^(
3/2))
```

Maple [A] time = 0.013, size = 182, normalized size = 1.

$$-\frac{-2\,a^3d^3x^3+18\,a^2bcd^2x^3+18\,ab^2c^2dx^3-2\,b^3c^3x^3+12\,a^3cd^2x^2+72\,a^2bc^2dx^2+12\,ab^2c^3x^2+48\,a^3c^2dx+48\,a^2bc^3x+32}{3\,a^4d^4-12\,a^3bcd^3+18\,a^2c^2b^2d^2-12\,ab^3c^3d+3\,b^4c^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^3/(b*x+a)^(5/2)/(d*x+c)^(5/2),x)
```

```
[Out] -2/3*(-a^3*d^3*x^3+9*a^2*b*c*d^2*x^3+9*a*b^2*c^2*d*x^3-b^3*c^3*x^
3+6*a^3*c*d^2*x^2+36*a^2*b*c^2*d*x^2+6*a*b^2*c^3*x^2+24*a^3*c^2*d
*x+24*a^2*b*c^3*x+16*a^3*c^3)/(b*x+a)^(3/2)/(d*x+c)^(3/2)/(a^4*d^
4-4*a^3*b*c*d^3+6*a^2*b^2*c^2*d^2-4*a*b^3*c^3*d+b^4*c^4)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^3/((b*x + a)^(5/2)*(d*x + c)^(5/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.727447, size = 605, normalized size = 3.2

$$-\frac{2\left(16\,a^3c^3-\left(b^3c^3-9\,ab\right.\right.}{3\left(a^2b^4c^6-4\,a^3b^3c^5d+6\,a^4b^2c^4d^2-4\,a^5bc^3d^3+a^6c^2d^4+(b^6c^4d^2-4\,ab^5c^3d^3+6\,a^2b^4c^2d^4-4\,a^3b^3cd^5+a^4b^2d^6)x^4+2\,(b\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^3/((b*x + a)^(5/2)*(d*x + c)^(5/2)),x, algorithm="fricas")
```

```
[Out] -2/3*(16*a^3*c^3 - (b^3*c^3 - 9*a*b^2*c^2*d - 9*a^2*b*c*d^2 + a^3
*d^3)*x^3 + 6*(a*b^2*c^3 + 6*a^2*b*c^2*d + a^3*c*d^2)*x^2 + 24*(a
^2*b*c^3 + a^3*c^2*d)*x)*sqrt(b*x + a)*sqrt(d*x + c)/(a^2*b^4*c^6
 - 4*a^3*b^3*c^5*d + 6*a^4*b^2*c^4*d^2 - 4*a^5*b*c^3*d^3 + a^6*c^
2*d^4 + (b^6*c^4*d^2 - 4*a*b^5*c^3*d^3 + 6*a^2*b^4*c^2*d^4 - 4*a^
3*b^3*c*d^5 + a^4*b^2*d^6)*x^4 + 2*(b^6*c^5*d - 3*a*b^5*c^4*d^2 +
 2*a^2*b^4*c^3*d^3 + 2*a^3*b^3*c^2*d^4 - 3*a^4*b^2*c*d^5 + a^5*b*
d^6)*x^3 + (b^6*c^6 - 9*a^2*b^4*c^4*d^2 + 16*a^3*b^3*c^3*d^3 - 9*
a^4*b^2*c^2*d^4 + a^6*d^6)*x^2 + 2*(a*b^5*c^6 - 3*a^2*b^4*c^5*d +
 2*a^3*b^3*c^4*d^2 + 2*a^4*b^2*c^3*d^3 - 3*a^5*b*c^2*d^4 + a^6*c*
d^5)*x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**3/(b*x+a)**(5/2)/(d*x+c)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.500984, size = 855, normalized size = 4.52

$$-\frac{\sqrt{bx+a}\left(\frac{\left(b^7c^6d|b|-12\,ab^6c^5d^2|b|+30\,a^2b^5c^4d^3|b|-28\,a^3b^4c^3d^4|b|+9\,a^4b^3c^2d^5|b|\right)(bx+a)}{b^8c^2d^4-2\,ab^7cd^5+a^2b^6d^6}-\frac{9\left(ab^7c^6d|b|-4\,a^2b^6c^5d^2|b|+6\,a^3b^5c^4d^3|b|-4\,a^4b^4c^3a\right.}{b^8c^2d^4-2\,ab^7cd^5+a^2b^6d^6}}{12\left(b^2c+(bx+a)bd-abd\right)^{\frac{3}{2}}} - \frac{4\left(9\sqrt{bd}a^2b^5c^3-19\sqrt{bd}a^3b^4c^2d+11\sqrt{bd}a^4b^3cd^2-\sqrt{bd}a^5b^2d^3-18\sqrt{bd}\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2a^2b\right.}{3\left(b^3c^3|b|-3\,ab^2c^2d|b|+\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^3/((b*x + a)^(5/2)*(d*x + c)^(5/2)),x, algorithm="giac")
```

```
[Out] -1/12*sqrt(b*x + a)*((b^7*c^6*d*abs(b) - 12*a*b^6*c^5*d^2*abs(b)
+ 30*a^2*b^5*c^4*d^3*abs(b) - 28*a^3*b^4*c^3*d^4*abs(b) + 9*a^4*b
^3*c^2*d^5*abs(b))*(b*x + a)/(b^8*c^2*d^4 - 2*a*b^7*c*d^5 + a^2*b
^6*d^6) - 9*(a*b^7*c^6*d*abs(b) - 4*a^2*b^6*c^5*d^2*abs(b) + 6*a^
3*b^5*c^4*d^3*abs(b) - 4*a^4*b^4*c^3*d^4*abs(b) + a^5*b^3*c^2*d^5
*abs(b))/(b^8*c^2*d^4 - 2*a*b^7*c*d^5 + a^2*b^6*d^6))/(b^2*c + (b
*x + a)*b*d - a*b*d)^(3/2) - 4/3*(9*sqrt(b*d)*a^2*b^5*c^3 - 19*sq
rt(b*d)*a^3*b^4*c^2*d + 11*sqrt(b*d)*a^4*b^3*c*d^2 - sqrt(b*d)*a^
5*b^2*d^3 - 18*sqrt(b*d)*(sqrt(b*d)*sqrt(b*x + a) - sqrt(b^2*c +
(b*x + a)*b*d - a*b*d))^2*a^2*b^3*c^2 + 18*sqrt(b*d)*(sqrt(b*d)*s
qrt(b*x + a) - sqrt(b^2*c + (b*x + a)*b*d - a*b*d))^2*a^3*b^2*c*d
 + 9*sqrt(b*d)*(sqrt(b*d)*sqrt(b*x + a) - sqrt(b^2*c + (b*x + a)*
b*d - a*b*d))^4*a^2*b*c - 3*sqrt(b*d)*(sqrt(b*d)*sqrt(b*x + a) -
sqrt(b^2*c + (b*x + a)*b*d - a*b*d))^4*a^3*d)/((b^3*c^3*abs(b) -
3*a*b^2*c^2*d*abs(b) + 3*a^2*b*c*d^2*abs(b) - a^3*d^3*abs(b))*(b^
2*c - a*b*d - (sqrt(b*d)*sqrt(b*x + a) - sqrt(b^2*c + (b*x + a)*b
*d - a*b*d))^2)^3)
```

3.796 $\int \frac{x^2}{(a+bx)^{5/2}(c+dx)^{5/2}}\,dx$

Optimal. Leaf size=186

$$\frac{4\sqrt{a+bx}\left(a^2d^2+6abcd+b^2c^2\right)}{3b\sqrt{c+dx}(bc-ad)^4}+\frac{2\sqrt{a+bx}\left(a^2d^2+6abcd+b^2c^2\right)}{3b^2(c+dx)^{3/2}(bc-ad)^3}-\frac{2a^2}{3b^2(a+bx)^{3/2}(c+dx)^{3/2}(bc-ad)}+\frac{4ac}{b\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)^2}$$

```
[Out] (-2*a^2)/(3*b^2*(b*c - a*d)*(a + b*x)^(3/2)*(c + d*x)^(3/2)) + (4
*a*c)/(b*(b*c - a*d)^2*Sqrt[a + b*x]*(c + d*x)^(3/2)) + (2*(b^2*c
^2 + 6*a*b*c*d + a^2*d^2)*Sqrt[a + b*x])/(3*b^2*(b*c - a*d)^3*(c
+ d*x)^(3/2)) + (4*(b^2*c^2 + 6*a*b*c*d + a^2*d^2)*Sqrt[a + b*x])
/(3*b*(b*c - a*d)^4*Sqrt[c + d*x])
```

Rubi [A] time = 0.439923, antiderivative size = 186, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.182$

$$\frac{4\sqrt{a+bx}\left(a^2d^2+6abcd+b^2c^2\right)}{3b\sqrt{c+dx}(bc-ad)^4}+\frac{2\sqrt{a+bx}\left(a^2d^2+6abcd+b^2c^2\right)}{3b^2(c+dx)^{3/2}(bc-ad)^3}-\frac{2a^2}{3b^2(a+bx)^{3/2}(c+dx)^{3/2}(bc-ad)}+\frac{4ac}{b\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[x^2/((a + b*x)^(5/2)*(c + d*x)^(5/2)),x]
```

```
[Out] (-2*a^2)/(3*b^2*(b*c - a*d)*(a + b*x)^(3/2)*(c + d*x)^(3/2)) + (4
*a*c)/(b*(b*c - a*d)^2*Sqrt[a + b*x]*(c + d*x)^(3/2)) + (2*(b^2*c
^2 + 6*a*b*c*d + a^2*d^2)*Sqrt[a + b*x])/(3*b^2*(b*c - a*d)^3*(c
+ d*x)^(3/2)) + (4*(b^2*c^2 + 6*a*b*c*d + a^2*d^2)*Sqrt[a + b*x])
/(3*b*(b*c - a*d)^4*Sqrt[c + d*x])
```

Rubi in Sympy [A] time = 37.7661, size = 172, normalized size = 0.92

$$\frac{4ac}{d\left(a+bx\right)^{\frac{3}{2}}\sqrt{c+dx}\left(ad-bc\right)^2}-\frac{2c^2}{3d^2\left(a+bx\right)^{\frac{3}{2}}\left(c+dx\right)^{\frac{3}{2}}\left(ad-bc\right)}+\frac{4\sqrt{c+dx}\left(a^2d^2+6abcd+b^2c^2\right)}{3d\sqrt{a+bx}\left(ad-bc\right)^4}+\frac{2\sqrt{c+dx}\left(a^2d^2+6abcd+b^2c^2\right)}{3d^2\left(a+bx\right)^{\frac{3}{2}}\left(ad-bc\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2/(b*x+a)**(5/2)/(d*x+c)**(5/2),x)
```

```
[Out] 4*a*c/(d*(a + b*x)**(3/2)*sqrt(c + d*x)*(a*d - b*c)**2) - 2*c**2/
(3*d**2*(a + b*x)**(3/2)*(c + d*x)**(3/2)*(a*d - b*c)) + 4*sqrt(c
 + d*x)*(a**2*d**2 + 6*a*b*c*d + b**2*c**2)/(3*d*sqrt(a + b*x)*(a
*d - b*c)**4) + 2*sqrt(c + d*x)*(a**2*d**2 + 6*a*b*c*d + b**2*c**
2)/(3*d**2*(a + b*x)**(3/2)*(a*d - b*c)**3)
```

Mathematica [A] time = 0.329903, size = 107, normalized size = 0.58

$$\frac{2\sqrt{a+bx}\sqrt{c+dx}\left(\frac{a^2(ad-bc)}{(a+bx)^2}+\frac{c^2(bc-ad)}{(c+dx)^2}+\frac{2a(ad+3bc)}{a+bx}+\frac{2c(3ad+bc)}{c+dx}\right)}{3(bc-ad)^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^2/((a + b*x)^(5/2)*(c + d*x)^(5/2)),x]
```

```
[Out] (2*Sqrt[a + b*x]*Sqrt[c + d*x]*((a^2*(-(b*c) + a*d))/(a + b*x)^2
+ (2*a*(3*b*c + a*d))/(a + b*x) + (c^2*(b*c - a*d))/(c + d*x)^2 +
 (2*c*(b*c + 3*a*d))/(c + d*x)))/(3*(b*c - a*d)^4)
```

Maple [A] time = 0.013, size = 203, normalized size = 1.1

$$\frac{4\,a^2bd^3x^3 + 24\,ab^2cd^2x^3 + 4\,b^3c^2dx^3 + 6\,a^3d^3x^2 + 42\,a^2bcd^2x^2 + 42\,ab^2c^2dx^2 + 6\,b^3c^3x^2 + 24\,a^3cd^2x + 48\,a^2bc^2dx + 24\,ab^2c}{3\,a^4d^4 - 12\,a^3bcd^3 + 18\,a^2c^2b^2d^2 - 12\,ab^3c^3d + 3\,b^4c^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2/(b*x+a)^(5/2)/(d*x+c)^(5/2),x)
```

```
[Out] 2/3*(2*a^2*b*d^3*x^3+12*a*b^2*c*d^2*x^3+2*b^3*c^2*d*x^3+3*a^3*d^3
*x^2+21*a^2*b*c*d^2*x^2+21*a*b^2*c^2*d*x^2+3*b^3*c^3*x^2+12*a^3*c
*d^2*x+24*a^2*b*c^2*d*x+12*a*b^2*c^3*x+8*a^3*c^2*d+8*a^2*b*c^3)/(
b*x+a)^(3/2)/(d*x+c)^(3/2)/(a^4*d^4-4*a^3*b*c*d^3+6*a^2*b^2*c^2*d
^2-4*a*b^3*c^3*d+b^4*c^4)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^2/((b*x + a)^(5/2)*(d*x + c)^(5/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.754237, size = 632, normalized size = 3.4

$$\frac{2\left(8\,a^2bc^3 + 8\,a^3c^2d + 2\left(b^3c^2d + 6\,ab^2\right.\right.}{3\left(a^2b^4c^6 - 4\,a^3b^3c^5d + 6\,a^4b^2c^4d^2 - 4\,a^5bc^3d^3 + a^6c^2d^4 + \left(b^6c^4d^2 - 4\,ab^5c^3d^3 + 6\,a^2b^4c^2d^4 - 4\,a^3b^3cd^5 + a^4b^2d^6\right)x^4 + 2\left(b^6c\right.\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^2/((b*x + a)^(5/2)*(d*x + c)^(5/2)),x, algorithm="fricas")
```

```
[Out] 2/3*(8*a^2*b*c^3 + 8*a^3*c^2*d + 2*(b^3*c^2*d + 6*a*b^2*c*d^2 + a
^2*b*d^3)*x^3 + 3*(b^3*c^3 + 7*a*b^2*c^2*d + 7*a^2*b*c*d^2 + a^3*
d^3)*x^2 + 12*(a*b^2*c^3 + 2*a^2*b*c^2*d + a^3*c*d^2)*x)*sqrt(b*x
 + a)*sqrt(d*x + c)/(a^2*b^4*c^6 - 4*a^3*b^3*c^5*d + 6*a^4*b^2*c^
4*d^2 - 4*a^5*b*c^3*d^3 + a^6*c^2*d^4 + (b^6*c^4*d^2 - 4*a*b^5*c^
3*d^3 + 6*a^2*b^4*c^2*d^4 - 4*a^3*b^3*c*d^5 + a^4*b^2*d^6)*x^4 +
2*(b^6*c^5*d - 3*a*b^5*c^4*d^2 + 2*a^2*b^4*c^3*d^3 + 2*a^3*b^3*c^
2*d^4 - 3*a^4*b^2*c*d^5 + a^5*b*d^6)*x^3 + (b^6*c^6 - 9*a^2*b^4*c
^4*d^2 + 16*a^3*b^3*c^3*d^3 - 9*a^4*b^2*c^2*d^4 + a^6*d^6)*x^2 +
2*(a*b^5*c^6 - 3*a^2*b^4*c^5*d + 2*a^3*b^3*c^4*d^2 + 2*a^4*b^2*c^
3*d^3 - 3*a^5*b*c^2*d^4 + a^6*c*d^5)*x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2/(b*x+a)**(5/2)/(d*x+c)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.505282, size = 852, normalized size = 4.58

$$-\frac{\sqrt{bx+a}\left(\frac{2\,(b^7c^5d^2|b|-6\,a^2b^5c^3d^4|b|+8\,a^3b^4c^2d^5|b|-3\,a^4b^3cd^6|b|)(bx+a)}{b^8c^2d^4-2\,ab^7cd^5+a^2b^6d^6}+\frac{3\,(b^8c^6d|b|-2\,ab^7c^5d^2|b|-2\,a^2b^6c^4d^3|b|+8\,a^3b^5c^3d^4|b|-7\,a^4b^4c^2d^5|b}{b^8c^2d^4-2\,ab^7cd^5+a^2b^6d^6}\right.}{24\,(b^2c+(bx+a)bd-abd)^{\frac{3}{2}}}$$

$$+\frac{8\left(3\sqrt{bd}ab^6c^3-5\sqrt{bd}a^2b^5c^2d+\sqrt{bd}a^3b^4cd^2+\sqrt{bd}a^4b^3d^3-6\sqrt{bd}\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2ab^4c^2+3\right.}{3\,(b^3c^3|b|-3\,ab^2c^2d|b|+3\,a}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^2/((b*x + a)^(5/2)*(d*x + c)^(5/2)),x, algorithm="giac")
```

```
[Out] -1/24*sqrt(b*x + a)*(2*(b^7*c^5*d^2*abs(b) - 6*a^2*b^5*c^3*d^4*ab
s(b) + 8*a^3*b^4*c^2*d^5*abs(b) - 3*a^4*b^3*c*d^6*abs(b))*(b*x +
a)/(b^8*c^2*d^4 - 2*a*b^7*c*d^5 + a^2*b^6*d^6) + 3*(b^8*c^6*d*abs
(b) - 2*a*b^7*c^5*d^2*abs(b) - 2*a^2*b^6*c^4*d^3*abs(b) + 8*a^3*b
^5*c^3*d^4*abs(b) - 7*a^4*b^4*c^2*d^5*abs(b) + 2*a^5*b^3*c*d^6*ab
s(b))/(b^8*c^2*d^4 - 2*a*b^7*c*d^5 + a^2*b^6*d^6))/(b^2*c + (b*x
+ a)*b*d - a*b*d)^(3/2) + 8/3*(3*sqrt(b*d)*a*b^6*c^3 - 5*sqrt(b*d
)*a^2*b^5*c^2*d + sqrt(b*d)*a^3*b^4*c*d^2 + sqrt(b*d)*a^4*b^3*d^3
 - 6*sqrt(b*d)*(sqrt(b*d)*sqrt(b*x + a) - sqrt(b^2*c + (b*x + a)*
b*d - a*b*d))^2*a*b^4*c^2 + 3*sqrt(b*d)*(sqrt(b*d)*sqrt(b*x + a)
- sqrt(b^2*c + (b*x + a)*b*d - a*b*d))^2*a^2*b^3*c*d + 3*sqrt(b*d
)*(sqrt(b*d)*sqrt(b*x + a) - sqrt(b^2*c + (b*x + a)*b*d - a*b*d))
^2*a^3*b^2*d^2 + 3*sqrt(b*d)*(sqrt(b*d)*sqrt(b*x + a) - sqrt(b^2*
c + (b*x + a)*b*d - a*b*d))^4*a*b^2*c)/((b^3*c^3*abs(b) - 3*a*b^2
*c^2*d*abs(b) + 3*a^2*b*c*d^2*abs(b) - a^3*d^3*abs(b))*(b^2*c - a
*b*d - (sqrt(b*d)*sqrt(b*x + a) - sqrt(b^2*c + (b*x + a)*b*d - a*
b*d))^2)^3)
```

3.797 $\int \frac{x}{(a+bx)^{5/2}(c+dx)^{5/2}}\,dx$

Optimal. Leaf size=158

$$-\frac{2c}{3d(a+bx)^{3/2}(c+dx)^{3/2}(bc-ad)}-\frac{16d\sqrt{a+bx}(ad+bc)}{3\sqrt{c+dx}(bc-ad)^4}-\frac{8(ad+bc)}{3\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^3}+\frac{2(ad+bc)}{3d(a+bx)^{3/2}\sqrt{c+dx}(bc-ad)^2}$$

```
[Out] (-2*c)/(3*d*(b*c - a*d)*(a + b*x)^(3/2)*(c + d*x)^(3/2)) + (2*(b*
c + a*d))/(3*d*(b*c - a*d)^2*(a + b*x)^(3/2)*Sqrt[c + d*x]) - (8*
(b*c + a*d))/(3*(b*c - a*d)^3*Sqrt[a + b*x]*Sqrt[c + d*x]) - (16*
d*(b*c + a*d)*Sqrt[a + b*x])/(3*(b*c - a*d)^4*Sqrt[c + d*x])
```

Rubi [A] time = 0.202901, antiderivative size = 158, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.15$

$$-\frac{2c}{3d(a+bx)^{3/2}(c+dx)^{3/2}(bc-ad)}-\frac{16d\sqrt{a+bx}(ad+bc)}{3\sqrt{c+dx}(bc-ad)^4}-\frac{8(ad+bc)}{3\sqrt{a+bx}\sqrt{c+dx}(bc-ad)^3}+\frac{2(ad+bc)}{3d(a+bx)^{3/2}\sqrt{c+dx}(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[x/((a + b*x)^(5/2)*(c + d*x)^(5/2)),x]
```

```
[Out] (-2*c)/(3*d*(b*c - a*d)*(a + b*x)^(3/2)*(c + d*x)^(3/2)) + (2*(b*
c + a*d))/(3*d*(b*c - a*d)^2*(a + b*x)^(3/2)*Sqrt[c + d*x]) - (8*
(b*c + a*d))/(3*(b*c - a*d)^3*Sqrt[a + b*x]*Sqrt[c + d*x]) - (16*
d*(b*c + a*d)*Sqrt[a + b*x])/(3*(b*c - a*d)^4*Sqrt[c + d*x])
```

Rubi in Sympy [A] time = 24.1799, size = 143, normalized size = 0.91

$$-\frac{16b\sqrt{c+dx}\,(ad+bc)}{3\sqrt{a+bx}\,(ad-bc)^4}-\frac{8b\sqrt{c+dx}\,(ad+bc)}{3d\,(a+bx)^{\frac{3}{2}}\,(ad-bc)^3}+\frac{2c}{3d\,(a+bx)^{\frac{3}{2}}\,(c+dx)^{\frac{3}{2}}\,(ad-bc)}-\frac{2\,(ad+bc)}{d\,(a+bx)^{\frac{3}{2}}\,\sqrt{c+dx}\,(ad-bc)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x/(b*x+a)**(5/2)/(d*x+c)**(5/2),x)
```

```
[Out] -16*b*sqrt(c + d*x)*(a*d + b*c)/(3*sqrt(a + b*x)*(a*d - b*c)**4)
- 8*b*sqrt(c + d*x)*(a*d + b*c)/(3*d*(a + b*x)**(3/2)*(a*d - b*c)
**3) + 2*c/(3*d*(a + b*x)**(3/2)*(c + d*x)**(3/2)*(a*d - b*c)) -
2*(a*d + b*c)/(d*(a + b*x)**(3/2)*sqrt(c + d*x)*(a*d - b*c)**2)
```

Mathematica [A] time = 0.198246, size = 128, normalized size = 0.81

$$\sqrt{a+bx}\sqrt{c+dx}\left(-\frac{2b(5ad+3bc)}{3(a+bx)(bc-ad)^4}+\frac{2ab}{3(a+bx)^2(bc-ad)^3}-\frac{2d(3ad+5bc)}{3(c+dx)(bc-ad)^4}-\frac{2cd}{3(c+dx)^2(bc-ad)^3}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[x/((a + b*x)^(5/2)*(c + d*x)^(5/2)),x]
```

```
[Out] Sqrt[a + b*x]*Sqrt[c + d*x]*((2*a*b)/(3*(b*c - a*d)^3*(a + b*x)^2
) - (2*b*(3*b*c + 5*a*d))/(3*(b*c - a*d)^4*(a + b*x)) - (2*c*d)/(
3*(b*c - a*d)^3*(c + d*x)^2) - (2*d*(5*b*c + 3*a*d))/(3*(b*c - a*
d)^4*(c + d*x)))
```

Maple [A] time = 0.012, size = 198, normalized size = 1.3

$$-\frac{16\,ab^2d^3x^3+16\,b^3cd^2x^3+24\,a^2bd^3x^2+48\,ab^2cd^2x^2+24\,b^3c^2dx^2+6\,a^3d^3x+42\,a^2bcd^2x+42\,ab^2c^2dx+6\,b^3c^3x+4\,a^3cd}{3\,a^4d^4-12\,a^3bcd^3+18\,a^2c^2b^2d^2-12\,ab^3c^3d+3\,b^4c^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x/(b*x+a)^(5/2)/(d*x+c)^(5/2),x)
```

```
[Out] -2/3*(8*a*b^2*d^3*x^3+8*b^3*c*d^2*x^3+12*a^2*b*d^3*x^2+24*a*b^2*c
*d^2*x^2+12*b^3*c^2*d*x^2+3*a^3*d^3*x+21*a^2*b*c*d^2*x+21*a*b^2*c
^2*d*x+3*b^3*c^3*x+2*a^3*c*d^2+12*a^2*b*c^2*d+2*a*b^2*c^3)/(b*x+a
)^(3/2)/(d*x+c)^(3/2)/(a^4*d^4-4*a^3*b*c*d^3+6*a^2*b^2*c^2*d^2-4*
a*b^3*c^3*d+b^4*c^4)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/((b*x + a)^(5/2)*(d*x + c)^(5/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.769265, size = 632, normalized size = 4.

$$-\frac{2\left(2\,ab^2c^3+12\,a^2bc^2d+2\,a^3cd^2+8\,(\right.}{3\,(a^2b^4c^6-4\,a^3b^3c^5d+6\,a^4b^2c^4d^2-4\,a^5bc^3d^3+a^6c^2d^4+(b^6c^4d^2-4\,ab^5c^3d^3+6\,a^2b^4c^2d^4-4\,a^3b^3cd^5+a^4b^2d^6)x^4+2\,(b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/((b*x + a)^(5/2)*(d*x + c)^(5/2)),x, algorithm="fricas")
```

```
[Out] -2/3*(2*a*b^2*c^3 + 12*a^2*b*c^2*d + 2*a^3*c*d^2 + 8*(b^3*c*d^2 +
 a*b^2*d^3)*x^3 + 12*(b^3*c^2*d + 2*a*b^2*c*d^2 + a^2*b*d^3)*x^2
+ 3*(b^3*c^3 + 7*a*b^2*c^2*d + 7*a^2*b*c*d^2 + a^3*d^3)*x)*sqrt(b
*x + a)*sqrt(d*x + c)/(a^2*b^4*c^6 - 4*a^3*b^3*c^5*d + 6*a^4*b^2*
c^4*d^2 - 4*a^5*b*c^3*d^3 + a^6*c^2*d^4 + (b^6*c^4*d^2 - 4*a*b^5*
c^3*d^3 + 6*a^2*b^4*c^2*d^4 - 4*a^3*b^3*c*d^5 + a^4*b^2*d^6)*x^4
+ 2*(b^6*c^5*d - 3*a*b^5*c^4*d^2 + 2*a^2*b^4*c^3*d^3 + 2*a^3*b^3*
c^2*d^4 - 3*a^4*b^2*c*d^5 + a^5*b*d^6)*x^3 + (b^6*c^6 - 9*a^2*b^4
*c^4*d^2 + 16*a^3*b^3*c^3*d^3 - 9*a^4*b^2*c^2*d^4 + a^6*d^6)*x^2
+ 2*(a*b^5*c^6 - 3*a^2*b^4*c^5*d + 2*a^3*b^3*c^4*d^2 + 2*a^4*b^2*
c^3*d^3 - 3*a^5*b*c^2*d^4 + a^6*c*d^5)*x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/(b*x+a)**(5/2)/(d*x+c)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.49531, size = 933, normalized size = 5.91

$$\frac{\sqrt{bx+a}\left(\frac{\left(5\,b^{8}c^{4}d^{3}|b|-12\,ab^{7}c^{3}d^{4}|b|+6\,a^{2}b^{6}c^{2}d^{5}|b|+4\,a^{3}b^{5}cd^{6}|b|-3\,a^{4}b^{4}d^{7}|b|\right)(bx+a)}{b^{8}c^{2}d^{4}-2\,ab^{7}cd^{5}+a^{2}b^{6}d^{6}}+\frac{3\left(2\,b^{9}c^{5}d^{2}|b|-7\,ab^{8}c^{4}d^{3}|b|+8\,a^{2}b^{7}c^{3}d^{4}|b|-2\,a^{3}b^{6}c^{2}d^{5}|b|-2\,a^{4}b^{5}cd^{6}|b|+a^{5}b^{4}d^{7}|b|\right)}{b^{8}c^{2}d^{4}-2\,ab^{7}cd^{5}+a^{2}b^{6}d^{6}}\right)}{\left(b^{2}c+(bx+a)bd-abd\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/((b*x + a)^(5/2)*(d*x + c)^(5/2)),x, algorithm="giac")
```

```
[Out] 1/12*(sqrt(b*x + a)*((5*b^8*c^4*d^3*abs(b) - 12*a*b^7*c^3*d^4*abs
(b) + 6*a^2*b^6*c^2*d^5*abs(b) + 4*a^3*b^5*c*d^6*abs(b) - 3*a^4*b
^4*d^7*abs(b))*(b*x + a)/(b^8*c^2*d^4 - 2*a*b^7*c*d^5 + a^2*b^6*d
^6) + 3*(2*b^9*c^5*d^2*abs(b) - 7*a*b^8*c^4*d^3*abs(b) + 8*a^2*b^
7*c^3*d^4*abs(b) - 2*a^3*b^6*c^2*d^5*abs(b) - 2*a^4*b^5*c*d^6*abs
(b) + a^5*b^4*d^7*abs(b))/(b^8*c^2*d^4 - 2*a*b^7*c*d^5 + a^2*b^6*
d^6))/(b^2*c + (b*x + a)*b*d - a*b*d)^(3/2) - 16*(3*sqrt(b*d)*b^8
*c^3 - sqrt(b*d)*a*b^7*c^2*d - 7*sqrt(b*d)*a^2*b^6*c*d^2 + 5*sqrt
(b*d)*a^3*b^5*d^3 - 6*sqrt(b*d)*(sqrt(b*d)*sqrt(b*x + a) - sqrt(b
^2*c + (b*x + a)*b*d - a*b*d))^2*b^6*c^2 - 6*sqrt(b*d)*(sqrt(b*d)
*sqrt(b*x + a) - sqrt(b^2*c + (b*x + a)*b*d - a*b*d))^2*a*b^5*c*d
 + 12*sqrt(b*d)*(sqrt(b*d)*sqrt(b*x + a) - sqrt(b^2*c + (b*x + a)
*b*d - a*b*d))^2*a^2*b^4*d^2 + 3*sqrt(b*d)*(sqrt(b*d)*sqrt(b*x +
a) - sqrt(b^2*c + (b*x + a)*b*d - a*b*d))^4*b^4*c + 3*sqrt(b*d)*(
sqrt(b*d)*sqrt(b*x + a) - sqrt(b^2*c + (b*x + a)*b*d - a*b*d))^4*
a*b^3*d)/((b^3*c^3*abs(b) - 3*a*b^2*c^2*d*abs(b) + 3*a^2*b*c*d^2*
abs(b) - a^3*d^3*abs(b))*(b^2*c - a*b*d - (sqrt(b*d)*sqrt(b*x + a
) - sqrt(b^2*c + (b*x + a)*b*d - a*b*d))^2)^3))/b
```

3.798 $\int \frac{1}{(a+bx)^{5/2}(c+dx)^{5/2}}\,dx$

Optimal. Leaf size=135

$$\frac{32bd^2\sqrt{a+bx}}{3\sqrt{c+dx}(bc-ad)^4}+\frac{16d^2\sqrt{a+bx}}{3(c+dx)^{3/2}(bc-ad)^3}+\frac{4d}{\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)^2}-\frac{2}{3(a+bx)^{3/2}(c+dx)^{3/2}(bc-ad)}$$

```
[Out] -2/(3*(b*c - a*d)*(a + b*x)^(3/2)*(c + d*x)^(3/2)) + (4*d)/((b*c
- a*d)^2*Sqrt[a + b*x]*(c + d*x)^(3/2)) + (16*d^2*Sqrt[a + b*x])/
(3*(b*c - a*d)^3*(c + d*x)^(3/2)) + (32*b*d^2*Sqrt[a + b*x])/(3*(
b*c - a*d)^4*Sqrt[c + d*x])
```

Rubi [A] time = 0.125108, antiderivative size = 135, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 2, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.105

$$\frac{32bd^2\sqrt{a+bx}}{3\sqrt{c+dx}(bc-ad)^4}+\frac{16d^2\sqrt{a+bx}}{3(c+dx)^{3/2}(bc-ad)^3}+\frac{4d}{\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)^2}-\frac{2}{3(a+bx)^{3/2}(c+dx)^{3/2}(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((a + b*x)^(5/2)*(c + d*x)^(5/2)),x]
```

```
[Out] -2/(3*(b*c - a*d)*(a + b*x)^(3/2)*(c + d*x)^(3/2)) + (4*d)/((b*c
- a*d)^2*Sqrt[a + b*x]*(c + d*x)^(3/2)) + (16*d^2*Sqrt[a + b*x])/
(3*(b*c - a*d)^3*(c + d*x)^(3/2)) + (32*b*d^2*Sqrt[a + b*x])/(3*(
b*c - a*d)^4*Sqrt[c + d*x])
```

Rubi in Sympy [A] time = 20.4683, size = 121, normalized size = 0.9

$$\frac{32bd^2\sqrt{a+bx}}{3\sqrt{c+dx}\,(ad-bc)^4}-\frac{16d^2\sqrt{a+bx}}{3\,(c+dx)^{\frac{3}{2}}\,(ad-bc)^3}+\frac{4d}{\sqrt{a+bx}\,(c+dx)^{\frac{3}{2}}\,(ad-bc)^2}+\frac{2}{3\,(a+bx)^{\frac{3}{2}}\,(c+dx)^{\frac{3}{2}}\,(ad-bc)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(b*x+a)**(5/2)/(d*x+c)**(5/2),x)
```

```
[Out] 32*b*d**2*sqrt(a + b*x)/(3*sqrt(c + d*x)*(a*d - b*c)**4) - 16*d**
2*sqrt(a + b*x)/(3*(c + d*x)**(3/2)*(a*d - b*c)**3) + 4*d/(sqrt(a
 + b*x)*(c + d*x)**(3/2)*(a*d - b*c)**2) + 2/(3*(a + b*x)**(3/2)*
(c + d*x)**(3/2)*(a*d - b*c))
```

Mathematica [A] time = 0.152192, size = 118, normalized size = 0.87

$$\sqrt{a+bx}\sqrt{c+dx}\left(\frac{16b^2d}{3(a+bx)(bc-ad)^4}-\frac{2b^2}{3(a+bx)^2(bc-ad)^3}+\frac{16bd^2}{3(c+dx)(bc-ad)^4}+\frac{2d^2}{3(c+dx)^2(bc-ad)^3}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((a + b*x)^(5/2)*(c + d*x)^(5/2)),x]
```

```
[Out] Sqrt[a + b*x]*Sqrt[c + d*x]*((-2*b^2)/(3*(b*c - a*d)^3*(a + b*x)^
2) + (16*b^2*d)/(3*(b*c - a*d)^4*(a + b*x)) + (2*d^2)/(3*(b*c - a
```

```
*d)^3*(c + d*x)^2) + (16*b*d^2)/(3*(b*c - a*d)^4*(c + d*x)))
```

Maple [A] time = 0.013, size = 169, normalized size = 1.3

$$-\frac{-32\,x^3b^3d^3 - 48\,ab^2d^3x^2 - 48\,b^3cd^2x^2 - 12\,a^2bd^3x - 72\,ab^2cd^2x - 12\,b^3c^2dx + 2\,a^3d^3 - 18\,a^2cbd^2 - 18\,ab^2c^2d + 2\,b^3c^3}{3\,a^4d^4 - 12\,a^3bcd^3 + 18\,a^2c^2b^2d^2 - 12\,ab^3c^3d + 3\,b^4c^4}\,(\ldots$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(b*x+a)^(5/2)/(d*x+c)^(5/2),x)
```

```
[Out] -2/3*(-16*b^3*d^3*x^3-24*a*b^2*d^3*x^2-24*b^3*c*d^2*x^2-6*a^2*b*d
^3*x-36*a*b^2*c*d^2*x-6*b^3*c^2*d*x+a^3*d^3-9*a^2*b*c*d^2-9*a*b^2
*c^2*d+b^3*c^3)/(b*x+a)^(3/2)/(d*x+c)^(3/2)/(a^4*d^4-4*a^3*b*c*d^
3+6*a^2*b^2*c^2*d^2-4*a*b^3*c^3*d+b^4*c^4)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^(5/2)*(d*x + c)^(5/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.765157, size = 603, normalized size = 4.47

$$\frac{2\left(16\,b^3d^3x^3 - b^3c^3 + 9\,ab\ldots\right.}{3\left(a^2b^4c^6 - 4\,a^3b^3c^5d + 6\,a^4b^2c^4d^2 - 4\,a^5bc^3d^3 + a^6c^2d^4 + (b^6c^4d^2 - 4\,ab^5c^3d^3 + 6\,a^2b^4c^2d^4 - 4\,a^3b^3cd^5 + a^4b^2d^6)x^4 + 2\,(b^6c\ldots\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^(5/2)*(d*x + c)^(5/2)),x, algorithm="fricas")
```

```
[Out] 2/3*(16*b^3*d^3*x^3 - b^3*c^3 + 9*a*b^2*c^2*d + 9*a^2*b*c*d^2 - a
^3*d^3 + 24*(b^3*c*d^2 + a*b^2*d^3)*x^2 + 6*(b^3*c^2*d + 6*a*b^2*
c*d^2 + a^2*b*d^3)*x)*sqrt(b*x + a)*sqrt(d*x + c)/(a^2*b^4*c^6 -
4*a^3*b^3*c^5*d + 6*a^4*b^2*c^4*d^2 - 4*a^5*b*c^3*d^3 + a^6*c^2*d
^4 + (b^6*c^4*d^2 - 4*a*b^5*c^3*d^3 + 6*a^2*b^4*c^2*d^4 - 4*a^3*b
^3*c*d^5 + a^4*b^2*d^6)*x^4 + 2*(b^6*c^5*d - 3*a*b^5*c^4*d^2 + 2*
a^2*b^4*c^3*d^3 + 2*a^3*b^3*c^2*d^4 - 3*a^4*b^2*c*d^5 + a^5*b*d^6
)*x^3 + (b^6*c^6 - 9*a^2*b^4*c^4*d^2 + 16*a^3*b^3*c^3*d^3 - 9*a^4
*b^2*c^2*d^4 + a^6*d^6)*x^2 + 2*(a*b^5*c^6 - 3*a^2*b^4*c^5*d + 2*
a^3*b^3*c^4*d^2 + 2*a^4*b^2*c^3*d^3 - 3*a^5*b*c^2*d^4 + a^6*c*d^5
)*x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(b*x+a)**(5/2)/(d*x+c)**(5/2),x)
```

[Out] Timed out

GIAC/XCAS [A] time = 0.406856, size = 718, normalized size = 5.32

$$-\frac{\sqrt{bx+a}\left(\frac{8\,(b^7c^3d^4|b|-3\,ab^6c^2d^5|b|+3\,a^2b^5cd^6|b|-a^3b^4d^7|b|)(bx+a)}{b^8c^2d^4-2\,ab^7cd^5+a^2b^6d^6}+\frac{9\,(b^8c^4d^3|b|-4\,ab^7c^3d^4|b|+6\,a^2b^6c^2d^5|b|-4\,a^3b^5cd^6|b|+a^4b^4d^7|b|)}{b^8c^2d^4-2\,ab^7cd^5+a^2b^6d^6}\right)}{24\,(b^2c+(bx+a)bd-abd)^{\frac{3}{2}}}$$
$$+\frac{8\left(4\,\sqrt{bd}b^7c^2d-8\,\sqrt{bd}ab^6cd^2+4\,\sqrt{bd}a^2b^5d^3-9\,\sqrt{bd}\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2b^5cd+9\,\sqrt{bd}\left(\sqrt{bd}\sqrt{bx+\cdots}\right.\right.}{3\,(b^3c^3|b|-3\,ab^2c^2d|b|+3\,a^2bcd^2|b|-a^3d^3|b|)\left(b^2c-abd-\left(\sqrt{bd}\cdots\right.\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^(5/2)*(d*x + c)^(5/2)),x, algorithm="giac")
```

```
[Out] -1/24*sqrt(b*x + a)*(8*(b^7*c^3*d^4*abs(b) - 3*a*b^6*c^2*d^5*abs(
b) + 3*a^2*b^5*c*d^6*abs(b) - a^3*b^4*d^7*abs(b))*(b*x + a)/(b^8*
c^2*d^4 - 2*a*b^7*c*d^5 + a^2*b^6*d^6) + 9*(b^8*c^4*d^3*abs(b) -
4*a*b^7*c^3*d^4*abs(b) + 6*a^2*b^6*c^2*d^5*abs(b) - 4*a^3*b^5*c*d
^6*abs(b) + a^4*b^4*d^7*abs(b))/(b^8*c^2*d^4 - 2*a*b^7*c*d^5 + a^
2*b^6*d^6))/(b^2*c + (b*x + a)*b*d - a*b*d)^(3/2) + 8/3*(4*sqrt(b
*d)*b^7*c^2*d - 8*sqrt(b*d)*a*b^6*c*d^2 + 4*sqrt(b*d)*a^2*b^5*d^3
 - 9*sqrt(b*d)*(sqrt(b*d)*sqrt(b*x + a) - sqrt(b^2*c + (b*x + a)*
b*d - a*b*d))^2*b^5*c*d + 9*sqrt(b*d)*(sqrt(b*d)*sqrt(b*x + a) -
sqrt(b^2*c + (b*x + a)*b*d - a*b*d))^2*a*b^4*d^2 + 3*sqrt(b*d)*(s
qrt(b*d)*sqrt(b*x + a) - sqrt(b^2*c + (b*x + a)*b*d - a*b*d))^4*b
^3*d)/((b^3*c^3*abs(b) - 3*a*b^2*c^2*d*abs(b) + 3*a^2*b*c*d^2*abs
(b) - a^3*d^3*abs(b))*(b^2*c - a*b*d - (sqrt(b*d)*sqrt(b*x + a) -
 sqrt(b^2*c + (b*x + a)*b*d - a*b*d))^2)^3)
```

3.799 $\int \frac{1}{x(a+bx)^{5/2}(c+dx)^{5/2}}\,dx$

Optimal. Leaf size=252

$$-\frac{2\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{5/2}c^{5/2}}+\frac{2d\sqrt{a+bx}(ad+bc)\left(3a^2d^2-14abcd+3b^2c^2\right)}{3a^2c^2\sqrt{c+dx}(bc-ad)^4}+\frac{2d\sqrt{a+bx}\left(-a^2d^2-10abcd+3b^2c^2\right)}{3a^2c(c+dx)^{3/2}(bc-ad)^3}+\frac{2b(bc-3ad)}{a^2\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)^2}+\frac{2b}{3a(a+bx)^{3/2}(c+dx)^{3/2}(bc-ad)}$$

```
[Out] (2*b)/(3*a*(b*c - a*d)*(a + b*x)^(3/2)*(c + d*x)^(3/2)) + (2*b*(b
*c - 3*a*d))/(a^2*(b*c - a*d)^2*Sqrt[a + b*x]*(c + d*x)^(3/2)) +
(2*d*(3*b^2*c^2 - 10*a*b*c*d - a^2*d^2)*Sqrt[a + b*x])/(3*a^2*c*(
b*c - a*d)^3*(c + d*x)^(3/2)) + (2*d*(b*c + a*d)*(3*b^2*c^2 - 14*
a*b*c*d + 3*a^2*d^2)*Sqrt[a + b*x])/(3*a^2*c^2*(b*c - a*d)^4*Sqrt
[c + d*x]) - (2*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c +
 d*x])])/(a^(5/2)*c^(5/2))
```

Rubi [A] time = 0.871757, antiderivative size = 252, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$-\frac{2\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{5/2}c^{5/2}}+\frac{2d\sqrt{a+bx}(ad+bc)\left(3a^2d^2-14abcd+3b^2c^2\right)}{3a^2c^2\sqrt{c+dx}(bc-ad)^4}+\frac{2d\sqrt{a+bx}\left(-a^2d^2-10abcd+3b^2c^2\right)}{3a^2c(c+dx)^{3/2}(bc-ad)^3}+\frac{2b(bc-3ad)}{a^2\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)^2}+\frac{2b}{3a(a+bx)^{3/2}(c+dx)^{3/2}(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x*(a + b*x)^(5/2)*(c + d*x)^(5/2)),x]
```

```
[Out] (2*b)/(3*a*(b*c - a*d)*(a + b*x)^(3/2)*(c + d*x)^(3/2)) + (2*b*(b
*c - 3*a*d))/(a^2*(b*c - a*d)^2*Sqrt[a + b*x]*(c + d*x)^(3/2)) +
(2*d*(3*b^2*c^2 - 10*a*b*c*d - a^2*d^2)*Sqrt[a + b*x])/(3*a^2*c*(
b*c - a*d)^3*(c + d*x)^(3/2)) + (2*d*(b*c + a*d)*(3*b^2*c^2 - 14*
a*b*c*d + 3*a^2*d^2)*Sqrt[a + b*x])/(3*a^2*c^2*(b*c - a*d)^4*Sqrt
[c + d*x]) - (2*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt[a]*Sqrt[c +
 d*x])])/(a^(5/2)*c^(5/2))
```

Rubi in Sympy [A] time = 100.825, size = 240, normalized size = 0.95

$$-\frac{2b}{3a\left(a+bx\right)^{\frac{3}{2}}\left(c+dx\right)^{\frac{3}{2}}\left(ad-bc\right)}-\frac{2b\left(3ad-bc\right)}{a^2\sqrt{a+bx}\left(c+dx\right)^{\frac{3}{2}}\left(ad-bc\right)^2}+\frac{2d\sqrt{a+bx}\left(a^2d^2+10abcd-3b^2c^2\right)}{3a^2c\left(c+dx\right)^{\frac{3}{2}}\left(ad-bc\right)^3}+\frac{2d\sqrt{a+bx}\left(ad+bc\right)\left(3a^2d^2-14abcd+3b^2c^2\right)}{3a^2c^2\sqrt{c+dx}\left(ad-bc\right)^4}-\frac{2\,\text{atanh}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{\frac{5}{2}}c^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x/(b*x+a)**(5/2)/(d*x+c)**(5/2),x)
```

```
[Out] -2*b/(3*a*(a + b*x)**(3/2)*(c + d*x)**(3/2)*(a*d - b*c)) - 2*b*(3
*a*d - b*c)/(a**2*sqrt(a + b*x)*(c + d*x)**(3/2)*(a*d - b*c)**2)
```

```
+ 2*d*sqrt(a + b*x)*(a**2*d**2 + 10*a*b*c*d - 3*b**2*c**2)/(3*a**
2*c*(c + d*x)**(3/2)*(a*d - b*c)**3) + 2*d*sqrt(a + b*x)*(a*d + b
*c)*(3*a**2*d**2 - 14*a*b*c*d + 3*b**2*c**2)/(3*a**2*c**2*sqrt(c
+ d*x)*(a*d - b*c)**4) - 2*atanh(sqrt(c)*sqrt(a + b*x)/(sqrt(a)*s
qrt(c + d*x)))/(a**(5/2)*c**(5/2))
```

Mathematica [A] time = 1.392, size = 209, normalized size = 0.83

$$-\frac{\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{a^{5/2}c^{5/2}}+\frac{\log(x)}{a^{5/2}c^{5/2}}+\frac{2}{3}\sqrt{a+bx}\sqrt{c+dx}\left(\frac{b^3(3bc-11ad)}{a^2(a+bx)(bc-ad)^4}-\frac{b^3}{a(a+bx)^2(ad-bc)^3}+\frac{d^3(3ad-11bc)}{c^2(c+dx)(bc-ad)^4}-\frac{d^3}{c(c+dx)^2(bc-ad)^3}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(x*(a + b*x)^(5/2)*(c + d*x)^(5/2)),x]
```

```
[Out] (2*Sqrt[a + b*x]*Sqrt[c + d*x]*(-(b^3/(a*(-(b*c) + a*d)^3*(a + b*
x)^2)) + (b^3*(3*b*c - 11*a*d))/(a^2*(b*c - a*d)^4*(a + b*x)) - d
^3/(c*(b*c - a*d)^3*(c + d*x)^2) + (d^3*(-11*b*c + 3*a*d))/(c^2*(
b*c - a*d)^4*(c + d*x))))/3 + Log[x]/(a^(5/2)*c^(5/2)) - Log[2*a*
c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]
]/(a^(5/2)*c^(5/2))
```

Maple [B] time = 0.069, size = 2033, normalized size = 8.1

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/x/(b*x+a)^(5/2)/(d*x+c)^(5/2),x)
```

```
[Out] -1/3/c^2/a^2*(-12*((b*x+a)*(d*x+c))^(1/2)*(a*c)^(1/2)*x^2*b^5*c^4
*d+3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)
/x)*x^2*a^6*d^6+3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))
^(1/2)+2*a*c)/x)*x^2*b^6*c^6+3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*
x+a)*(d*x+c))^(1/2)+2*a*c)/x)*a^6*c^2*d^4+3*ln((a*d*x+b*c*x+2*(a*
c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*a^2*b^4*c^6-6*((b*x+a)
*(d*x+c))^(1/2)*(a*c)^(1/2)*x*a^5*d^5+24*((b*x+a)*(d*x+c))^(1/2)*
(a*c)^(1/2)*a^4*b*c^2*d^3+24*((b*x+a)*(d*x+c))^(1/2)*(a*c)^(1/2)*
a^2*b^3*c^4*d-6*((b*x+a)*(d*x+c))^(1/2)*(a*c)^(1/2)*x^3*a^3*b^2*d
^5-6*((b*x+a)*(d*x+c))^(1/2)*(a*c)^(1/2)*x^3*b^5*c^3*d^2-12*((b*x
+a)*(d*x+c))^(1/2)*(a*c)^(1/2)*x^2*a^4*b*d^5-12*ln((a*d*x+b*c*x+2
*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a^3*b^3*c*d^5+
18*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x
)*x^4*a^2*b^4*c^2*d^4-12*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(
d*x+c))^(1/2)+2*a*c)/x)*x^4*a*b^5*c^3*d^3-18*ln((a*d*x+b*c*x+2*(a
*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^4*b^2*c*d^5+12*
ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x
^3*a^3*b^3*c^2*d^4+12*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x
+c))^(1/2)+2*a*c)/x)*x^3*a^2*b^4*c^3*d^3-18*ln((a*d*x+b*c*x+2*(a*
c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a*b^5*c^4*d^2-27*l
n((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^
2*a^4*b^2*c^2*d^4+48*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+
c))^(1/2)+2*a*c)/x)*x^2*a^3*b^3*c^3*d^3-27*ln((a*d*x+b*c*x+2*(a*c
)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a^2*b^4*c^4*d^2-18*
ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x
*a^5*b*c^2*d^4+12*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))
^(1/2)+2*a*c)/x)*x*a^4*b^2*c^3*d^3+12*ln((a*d*x+b*c*x+2*(a*c)^(1/
2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x*a^3*b^3*c^4*d^2-18*ln((a*d
*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x*a^2*b^
4*c^5*d+22*((b*x+a)*(d*x+c))^(1/2)*(a*c)^(1/2)*x^3*a*b^4*c^2*d^3+
36*((b*x+a)*(d*x+c))^(1/2)*(a*c)^(1/2)*x^2*a^3*b^2*c*d^4+48*((b*x
+a)*(d*x+c))^(1/2)*(a*c)^(1/2)*x^2*a^2*b^3*c^2*d^3+6*((b*x+a)*(d*
```

```
x+c))^(1/2)*(a*c)^(1/2)*x*a*b^4*c^4*d+22*((b*x+a)*(d*x+c))^(1/2)*
(a*c)^(1/2)*x^3*a^2*b^3*c*d^4+48*((b*x+a)*(d*x+c))^(1/2)*(a*c)^(1
/2)*x*a^3*b^2*c^2*d^3+48*((b*x+a)*(d*x+c))^(1/2)*(a*c)^(1/2)*x*a^
2*b^3*c^3*d^2+36*((b*x+a)*(d*x+c))^(1/2)*(a*c)^(1/2)*x^2*a*b^4*c^
3*d^2+6*((b*x+a)*(d*x+c))^(1/2)*(a*c)^(1/2)*x*a^4*b*c*d^4-6*((b*x
+a)*(d*x+c))^(1/2)*(a*c)^(1/2)*x*b^5*c^5-8*((b*x+a)*(d*x+c))^(1/2
)*(a*c)^(1/2)*a^5*c*d^4-8*((b*x+a)*(d*x+c))^(1/2)*(a*c)^(1/2)*a*b
^4*c^5+3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*
a*c)/x)*x^4*a^4*b^2*d^6+3*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*
(d*x+c))^(1/2)+2*a*c)/x)*x^4*b^6*c^4*d^2+6*ln((a*d*x+b*c*x+2*(a*c
)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^5*b*d^6+6*ln((a*d
*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*b^6*
c^5*d+6*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a
*c)/x)*x*a^6*c*d^5+6*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+
c))^(1/2)+2*a*c)/x)*x*a*b^5*c^6-12*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*
((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*a^5*b*c^3*d^3+18*ln((a*d*x+b*c*
x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*a^4*b^2*c^4*d^2
-12*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/
x)*a^3*b^3*c^5*d)/((b*x+a)*(d*x+c))^(1/2)/(a*d-b*c)^4/(a*c)^(1/2)
/(b*x+a)^(3/2)/(d*x+c)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((b*x + a)^(5/2)*(d*x + c)^(5/2)*x),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.912071, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((b*x + a)^(5/2)*(d*x + c)^(5/2)*x),x, algorithm="fricas")
```

```
[Out] [1/6*(4*(4*a*b^4*c^5 - 12*a^2*b^3*c^4*d - 12*a^4*b*c^2*d^3 + 4*a^
5*c*d^4 + (3*b^5*c^3*d^2 - 11*a*b^4*c^2*d^3 - 11*a^2*b^3*c*d^4 +
3*a^3*b^2*d^5)*x^3 + 6*(b^5*c^4*d - 3*a*b^4*c^3*d^2 - 4*a^2*b^3*c
^2*d^3 - 3*a^3*b^2*c*d^4 + a^4*b*d^5)*x^2 + 3*(b^5*c^5 - a*b^4*c^
4*d - 8*a^2*b^3*c^3*d^2 - 8*a^3*b^2*c^2*d^3 - a^4*b*c*d^4 + a^5*d
^5)*x)*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c) + 3*(a^2*b^4*c^6 - 4
*a^3*b^3*c^5*d + 6*a^4*b^2*c^4*d^2 - 4*a^5*b*c^3*d^3 + a^6*c^2*d^
4 + (b^6*c^4*d^2 - 4*a*b^5*c^3*d^3 + 6*a^2*b^4*c^2*d^4 - 4*a^3*b^
3*c*d^5 + a^4*b^2*d^6)*x^4 + 2*(b^6*c^5*d - 3*a*b^5*c^4*d^2 + 2*a
^2*b^4*c^3*d^3 + 2*a^3*b^3*c^2*d^4 - 3*a^4*b^2*c*d^5 + a^5*b*d^6)
*x^3 + (b^6*c^6 - 9*a^2*b^4*c^4*d^2 + 16*a^3*b^3*c^3*d^3 - 9*a^4*
b^2*c^2*d^4 + a^6*d^6)*x^2 + 2*(a*b^5*c^6 - 3*a^2*b^4*c^5*d + 2*a
^3*b^3*c^4*d^2 + 2*a^4*b^2*c^3*d^3 - 3*a^5*b*c^2*d^4 + a^6*c*d^5)
*x)*log(-(4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqr
t(d*x + c) - (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8
*(a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2))/((a^4*b^4*c^8 - 4*a^5*b^
3*c^7*d + 6*a^6*b^2*c^6*d^2 - 4*a^7*b*c^5*d^3 + a^8*c^4*d^4 + (a^
2*b^6*c^6*d^2 - 4*a^3*b^5*c^5*d^3 + 6*a^4*b^4*c^4*d^4 - 4*a^5*b^3
*c^3*d^5 + a^6*b^2*c^2*d^6)*x^4 + 2*(a^2*b^6*c^7*d - 3*a^3*b^5*c^
6*d^2 + 2*a^4*b^4*c^5*d^3 + 2*a^5*b^3*c^4*d^4 - 3*a^6*b^2*c^3*d^5
 + a^7*b*c^2*d^6)*x^3 + (a^2*b^6*c^8 - 9*a^4*b^4*c^6*d^2 + 16*a^5
*b^3*c^5*d^3 - 9*a^6*b^2*c^4*d^4 + a^8*c^2*d^6)*x^2 + 2*(a^3*b^5*
c^8 - 3*a^4*b^4*c^7*d + 2*a^5*b^3*c^6*d^2 + 2*a^6*b^2*c^5*d^3 - 3
*a^7*b*c^4*d^4 + a^8*c^3*d^5)*x)*sqrt(a*c)), 1/3*(2*(4*a*b^4*c^5
- 12*a^2*b^3*c^4*d - 12*a^4*b*c^2*d^3 + 4*a^5*c*d^4 + (3*b^5*c^3*
d^2 - 11*a*b^4*c^2*d^3 - 11*a^2*b^3*c*d^4 + 3*a^3*b^2*d^5)*x^3 +
```

```
6*(b^5*c^4*d - 3*a*b^4*c^3*d^2 - 4*a^2*b^3*c^2*d^3 - 3*a^3*b^2*c*
d^4 + a^4*b*d^5)*x^2 + 3*(b^5*c^5 - a*b^4*c^4*d - 8*a^2*b^3*c^3*d
^2 - 8*a^3*b^2*c^2*d^3 - a^4*b*c*d^4 + a^5*d^5)*x)*sqrt(-a*c)*sqr
t(b*x + a)*sqrt(d*x + c) - 3*(a^2*b^4*c^6 - 4*a^3*b^3*c^5*d + 6*a
^4*b^2*c^4*d^2 - 4*a^5*b*c^3*d^3 + a^6*c^2*d^4 + (b^6*c^4*d^2 - 4
*a*b^5*c^3*d^3 + 6*a^2*b^4*c^2*d^4 - 4*a^3*b^3*c*d^5 + a^4*b^2*d^
6)*x^4 + 2*(b^6*c^5*d - 3*a*b^5*c^4*d^2 + 2*a^2*b^4*c^3*d^3 + 2*a
^3*b^3*c^2*d^4 - 3*a^4*b^2*c*d^5 + a^5*b*d^6)*x^3 + (b^6*c^6 - 9*
a^2*b^4*c^4*d^2 + 16*a^3*b^3*c^3*d^3 - 9*a^4*b^2*c^2*d^4 + a^6*d^
6)*x^2 + 2*(a*b^5*c^6 - 3*a^2*b^4*c^5*d + 2*a^3*b^3*c^4*d^2 + 2*a
^4*b^2*c^3*d^3 - 3*a^5*b*c^2*d^4 + a^6*c*d^5)*x)*arctan(1/2*(2*a*
c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d*x + c)*a*c)))
/((a^4*b^4*c^8 - 4*a^5*b^3*c^7*d + 6*a^6*b^2*c^6*d^2 - 4*a^7*b*c^
5*d^3 + a^8*c^4*d^4 + (a^2*b^6*c^6*d^2 - 4*a^3*b^5*c^5*d^3 + 6*a^
4*b^4*c^4*d^4 - 4*a^5*b^3*c^3*d^5 + a^6*b^2*c^2*d^6)*x^4 + 2*(a^2
*b^6*c^7*d - 3*a^3*b^5*c^6*d^2 + 2*a^4*b^4*c^5*d^3 + 2*a^5*b^3*c^
4*d^4 - 3*a^6*b^2*c^3*d^5 + a^7*b*c^2*d^6)*x^3 + (a^2*b^6*c^8 - 9
*a^4*b^4*c^6*d^2 + 16*a^5*b^3*c^5*d^3 - 9*a^6*b^2*c^4*d^4 + a^8*c
^2*d^6)*x^2 + 2*(a^3*b^5*c^8 - 3*a^4*b^4*c^7*d + 2*a^5*b^3*c^6*d^
2 + 2*a^6*b^2*c^5*d^3 - 3*a^7*b*c^4*d^4 + a^8*c^3*d^5)*x)*sqrt(-a
*c))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/x/(b*x+a)**(5/2)/(d*x+c)**(5/2),x)

[Out] Timed out
```

GIAC/XCAS [A] time = 1.43369, size = 4, normalized size = 0.02

$$sage_0 x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^(5/2)*(d*x + c)^(5/2)*x),x, algorithm="giac")

[Out] sage0*x
```

3.800 $\int \frac{1}{x^2(a+bx)^{5/2}(c+dx)^{5/2}}\,dx$

Optimal. Leaf size=352

$$\frac{5(ad+bc)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{7/2}c^{7/2}}-\frac{b(5bc-3ad)}{3a^2c(a+bx)^{3/2}(c+dx)^{3/2}(bc-ad)}-\frac{b\left(a^2d^2-10abcd+5b^2c^2\right)}{a^3c\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)^2}-\frac{d\sqrt{a+bx}\left(-5a^3d^3+9a^2bcd^2-35ab^2c^2d+15b^3c^3\right)}{3a^3c^2(c+dx)^{3/2}(bc-ad)^3}-\frac{d\sqrt{a+bx}\left(15a^4d^4-40a^3bcd^3+18a^2b^2c^2d^2-40ab^3c^3d+15b^4c^4\right)}{3a^3c^3\sqrt{c+dx}(bc-ad)^4}-\frac{1}{acx(a+bx)^{3/2}(c+dx)^{3/2}}$$

```
[Out] -(b*(5*b*c - 3*a*d))/(3*a^2*c*(b*c - a*d)*(a + b*x)^(3/2)*(c + d*
x)^(3/2)) - 1/(a*c*x*(a + b*x)^(3/2)*(c + d*x)^(3/2)) - (b*(5*b^2
*c^2 - 10*a*b*c*d + a^2*d^2))/(a^3*c*(b*c - a*d)^2*Sqrt[a + b*x]*
(c + d*x)^(3/2)) - (d*(15*b^3*c^3 - 35*a*b^2*c^2*d + 9*a^2*b*c*d^
2 - 5*a^3*d^3)*Sqrt[a + b*x])/(3*a^3*c^2*(b*c - a*d)^3*(c + d*x)^
(3/2)) - (d*(15*b^4*c^4 - 40*a*b^3*c^3*d + 18*a^2*b^2*c^2*d^2 - 4
0*a^3*b*c*d^3 + 15*a^4*d^4)*Sqrt[a + b*x])/(3*a^3*c^3*(b*c - a*d)
^4*Sqrt[c + d*x]) + (5*(b*c + a*d)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x]
)/(Sqrt[a]*Sqrt[c + d*x])])/(a^(7/2)*c^(7/2))
```

Rubi [A] time = 1.27408, antiderivative size = 352, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$\frac{5(ad+bc)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{a^{7/2}c^{7/2}}-\frac{b(5bc-3ad)}{3a^2c(a+bx)^{3/2}(c+dx)^{3/2}(bc-ad)}-\frac{b\left(a^2d^2-10abcd+5b^2c^2\right)}{a^3c\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)^2}-\frac{d\sqrt{a+bx}\left(-5a^3d^3+9a^2bcd^2-35ab^2c^2d+15b^3c^3\right)}{3a^3c^2(c+dx)^{3/2}(bc-ad)^3}-\frac{d\sqrt{a+bx}\left(15a^4d^4-40a^3bcd^3+18a^2b^2c^2d^2-40ab^3c^3d+15b^4c^4\right)}{3a^3c^3\sqrt{c+dx}(bc-ad)^4}-\frac{1}{acx(a+bx)^{3/2}(c+dx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x^2*(a + b*x)^(5/2)*(c + d*x)^(5/2)),x]
```

```
[Out] -(b*(5*b*c - 3*a*d))/(3*a^2*c*(b*c - a*d)*(a + b*x)^(3/2)*(c + d*
x)^(3/2)) - 1/(a*c*x*(a + b*x)^(3/2)*(c + d*x)^(3/2)) - (b*(5*b^2
*c^2 - 10*a*b*c*d + a^2*d^2))/(a^3*c*(b*c - a*d)^2*Sqrt[a + b*x]*
(c + d*x)^(3/2)) - (d*(15*b^3*c^3 - 35*a*b^2*c^2*d + 9*a^2*b*c*d^
2 - 5*a^3*d^3)*Sqrt[a + b*x])/(3*a^3*c^2*(b*c - a*d)^3*(c + d*x)^
(3/2)) - (d*(15*b^4*c^4 - 40*a*b^3*c^3*d + 18*a^2*b^2*c^2*d^2 - 4
0*a^3*b*c*d^3 + 15*a^4*d^4)*Sqrt[a + b*x])/(3*a^3*c^3*(b*c - a*d)
^4*Sqrt[c + d*x]) + (5*(b*c + a*d)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x]
)/(Sqrt[a]*Sqrt[c + d*x])])/(a^(7/2)*c^(7/2))
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x**2/(b*x+a)**(5/2)/(d*x+c)**(5/2),x)
```

```
[Out] Timed out
```

Mathematica [A] time = 1.63752, size = 241, normalized size = 0.68

$$-\frac{5\log(x)(ad+bc)}{2a^{7/2}c^{7/2}}+\frac{5(ad+bc)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{2a^{7/2}c^{7/2}}$$
$$+\frac{1}{3}\sqrt{a+bx}\sqrt{c+dx}\left(\frac{4b^4(7ad-3bc)}{a^3(a+bx)(bc-ad)^4}-\frac{3}{a^3c^3x}+\frac{2b^4}{a^2(a+bx)^2(ad-bc)^3}+\frac{4d^4(7bc-3ad)}{c^3(c+dx)(bc-ad)^4}+\frac{2d^4}{c^2(c+dx)^2(bc-ad)^3}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(x^2*(a + b*x)^(5/2)*(c + d*x)^(5/2)),x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(-3/(a^3*c^3*x) + (2*b^4)/(a^2*(-(b*
c) + a*d)^3*(a + b*x)^2) + (4*b^4*(-3*b*c + 7*a*d))/(a^3*(b*c - a
*d)^4*(a + b*x)) + (2*d^4)/(c^2*(b*c - a*d)^3*(c + d*x)^2) + (4*d
^4*(7*b*c - 3*a*d))/(c^3*(b*c - a*d)^4*(c + d*x))))/3 - (5*(b*c +
 a*d)*Log[x])/(2*a^(7/2)*c^(7/2)) + (5*(b*c + a*d)*Log[2*a*c + b*
c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x]*Sqrt[c + d*x]])/(2*
a^(7/2)*c^(7/2))
```

Maple [B] time = 0.083, size = 2703, normalized size = 7.7

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/x^2/(b*x+a)^(5/2)/(d*x+c)^(5/2),x)
```

```
[Out] 1/6/a^3/c^3*(80*x^4*a^3*b^3*c*d^5*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(
1/2)-36*x^4*a^2*b^4*c^2*d^4*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-6
0*x^3*b^6*c^5*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+15*ln((a*d*x+
b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^7*d^7
+15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/
x)*x^3*b^7*c^7-30*x^2*a^6*d^6*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)
+80*x^4*a*b^5*c^3*d^3*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+120*x^3
*a^4*b^2*c*d^5*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+36*x^3*a^3*b^3
*c^2*d^4*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+36*x^3*a^2*b^4*c^3*d
^3*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+120*x^3*a*b^5*c^4*d^2*(a*c
)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+174*x^2*a^4*b^2*c^2*d^4*(a*c)^(1/
2)*((b*x+a)*(d*x+c))^(1/2)-96*x^2*a^3*b^3*c^3*d^3*(a*c)^(1/2)*((b
*x+a)*(d*x+c))^(1/2)+174*x^2*a^2*b^4*c^4*d^2*(a*c)^(1/2)*((b*x+a)
*(d*x+c))^(1/2)+96*x*a^5*b*c^2*d^4*(a*c)^(1/2)*((b*x+a)*(d*x+c))^
(1/2)-24*x*a^4*b^2*c^3*d^3*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-24
*x*a^3*b^3*c^4*d^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+96*x*a^2*b
^4*c^5*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+120*ln((a*d*x+b*c*x+
2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a^3*b^4*c^3*d
^4-30*x^4*a^4*b^2*d^6*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-30*x^4*
b^6*c^4*d^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-60*x^3*a^5*b*d^6*
(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-60*ln((a*d*x+b*c*x+2*(a*c)^(1
/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a*b^6*c^5*d^2+15*ln((a*
d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^6
*b*c*d^6-135*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2
)+2*a*c)/x)*x^3*a^5*b^2*c^2*d^5+105*ln((a*d*x+b*c*x+2*(a*c)^(1/2)
*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^4*b^3*c^3*d^4+105*ln((a*
d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^3
*b^4*c^4*d^3-135*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^
(1/2)+2*a*c)/x)*x^3*a^2*b^5*c^5*d^2+15*ln((a*d*x+b*c*x+2*(a*c)^(1
/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a*b^6*c^6*d-60*ln((a*d*
x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a^6*b
*c^2*d^5-30*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)
+2*a*c)/x)*x^2*a^5*b^2*c^3*d^4+120*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*
((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a^4*b^3*c^4*d^3-30*ln((a*d*
x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a^3*b
^4*c^5*d^2-60*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/
2)+2*a*c)/x)*x^2*a^2*b^5*c^6*d-45*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*(
(b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x*a^6*b*c^3*d^4+30*ln((a*d*x+b*c
*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x*a^5*b^2*c^4*
```

```
d^3+30*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*
c)/x)*x*a^4*b^3*c^5*d^2-45*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)
*(d*x+c))^(1/2)+2*a*c)/x)*x*a^3*b^4*c^6*d+30*ln((a*d*x+b*c*x+2*(a
*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^5*a^2*b^5*c^3*d^4-4
5*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)
*x^5*a*b^6*c^4*d^3-60*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x
+c))^(1/2)+2*a*c)/x)*x^4*a^5*b^2*c*d^6-30*ln((a*d*x+b*c*x+2*(a*c)
^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a^4*b^3*c^2*d^5-40*x
*a^6*c*d^5*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-40*x*a*b^5*c^6*(a*
c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+24*a^5*b*c^3*d^3*(a*c)^(1/2)*((b
*x+a)*(d*x+c))^(1/2)-36*a^4*b^2*c^4*d^2*(a*c)^(1/2)*((b*x+a)*(d*x
+c))^(1/2)+24*a^3*b^3*c^5*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-4
5*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)
*x^5*a^4*b^3*c*d^6+30*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x
+c))^(1/2)+2*a*c)/x)*x^5*a^3*b^4*c^2*d^5-30*ln((a*d*x+b*c*x+2*(a*
c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a^2*b^5*c^4*d^3-30
*x^2*b^6*c^6*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-6*a^6*c^2*d^4*(a
*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-6*a^2*b^4*c^6*(a*c)^(1/2)*((b*x
+a)*(d*x+c))^(1/2)+15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x
+c))^(1/2)+2*a*c)/x)*x^5*a^5*b^2*d^7+15*ln((a*d*x+b*c*x+2*(a*c)^(
1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^5*b^7*c^5*d^2+30*ln((a*d
*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a^6*
b*d^7+30*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*
a*c)/x)*x^4*b^7*c^6*d+30*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(
d*x+c))^(1/2)+2*a*c)/x)*x^2*a^7*c*d^6+30*ln((a*d*x+b*c*x+2*(a*c)^
(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a*b^6*c^7+15*ln((a*d*
x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x*a^7*c^2
*d^5+15*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a
*c)/x)*x*a^2*b^5*c^7)/((b*x+a)*(d*x+c))^(1/2)/(a*d-b*c)^4/x/(a*c)
^(1/2)/(b*x+a)^(3/2)/(d*x+c)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((b*x + a)^(5/2)*(d*x + c)^(5/2)*x^2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 1.79282, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((b*x + a)^(5/2)*(d*x + c)^(5/2)*x^2),x, algorithm="fricas")
```

```
[Out] [-1/12*(4*(3*a^2*b^4*c^6 - 12*a^3*b^3*c^5*d + 18*a^4*b^2*c^4*d^2
- 12*a^5*b*c^3*d^3 + 3*a^6*c^2*d^4 + (15*b^6*c^4*d^2 - 40*a*b^5*c
^3*d^3 + 18*a^2*b^4*c^2*d^4 - 40*a^3*b^3*c*d^5 + 15*a^4*b^2*d^6)*
x^4 + 6*(5*b^6*c^5*d - 10*a*b^5*c^4*d^2 - 3*a^2*b^4*c^3*d^3 - 3*a
^3*b^3*c^2*d^4 - 10*a^4*b^2*c*d^5 + 5*a^5*b*d^6)*x^3 + 3*(5*b^6*c
^6 - 29*a^2*b^4*c^4*d^2 + 16*a^3*b^3*c^3*d^3 - 29*a^4*b^2*c^2*d^4
 + 5*a^6*d^6)*x^2 + 4*(5*a*b^5*c^6 - 12*a^2*b^4*c^5*d + 3*a^3*b^3
*c^4*d^2 + 3*a^4*b^2*c^3*d^3 - 12*a^5*b*c^2*d^4 + 5*a^6*c*d^5)*x)
*sqrt(a*c)*sqrt(b*x + a)*sqrt(d*x + c) - 15*((b^7*c^5*d^2 - 3*a*b
^6*c^4*d^3 + 2*a^2*b^5*c^3*d^4 + 2*a^3*b^4*c^2*d^5 - 3*a^4*b^3*c*
d^6 + a^5*b^2*d^7)*x^5 + 2*(b^7*c^6*d - 2*a*b^6*c^5*d^2 - a^2*b^5
*c^4*d^3 + 4*a^3*b^4*c^3*d^4 - a^4*b^3*c^2*d^5 - 2*a^5*b^2*c*d^6
+ a^6*b*d^7)*x^4 + (b^7*c^7 + a*b^6*c^6*d - 9*a^2*b^5*c^5*d^2 + 7
*a^3*b^4*c^4*d^3 + 7*a^4*b^3*c^3*d^4 - 9*a^5*b^2*c^2*d^5 + a^6*b*
c*d^6 + a^7*d^7)*x^3 + 2*(a*b^6*c^7 - 2*a^2*b^5*c^6*d - a^3*b^4*c
^5*d^2 + 4*a^4*b^3*c^4*d^3 - a^5*b^2*c^3*d^4 - 2*a^6*b*c^2*d^5 +
```

```
a^7*c*d^6)*x^2 + (a^2*b^5*c^7 - 3*a^3*b^4*c^6*d + 2*a^4*b^3*c^5*d
^2 + 2*a^5*b^2*c^4*d^3 - 3*a^6*b*c^3*d^4 + a^7*c^2*d^5)*x)*log((4
*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(d*x + c)
+ (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(a*b*c^2 +
 a^2*c*d)*x)*sqrt(a*c))/x^2))/(((a^3*b^6*c^7*d^2 - 4*a^4*b^5*c^6*
d^3 + 6*a^5*b^4*c^5*d^4 - 4*a^6*b^3*c^4*d^5 + a^7*b^2*c^3*d^6)*x^
5 + 2*(a^3*b^6*c^8*d - 3*a^4*b^5*c^7*d^2 + 2*a^5*b^4*c^6*d^3 + 2*
a^6*b^3*c^5*d^4 - 3*a^7*b^2*c^4*d^5 + a^8*b*c^3*d^6)*x^4 + (a^3*b
^6*c^9 - 9*a^5*b^4*c^7*d^2 + 16*a^6*b^3*c^6*d^3 - 9*a^7*b^2*c^5*d
^4 + a^9*c^3*d^6)*x^3 + 2*(a^4*b^5*c^9 - 3*a^5*b^4*c^8*d + 2*a^6*
b^3*c^7*d^2 + 2*a^7*b^2*c^6*d^3 - 3*a^8*b*c^5*d^4 + a^9*c^4*d^5)*
x^2 + (a^5*b^4*c^9 - 4*a^6*b^3*c^8*d + 6*a^7*b^2*c^7*d^2 - 4*a^8*
b*c^6*d^3 + a^9*c^5*d^4)*x)*sqrt(a*c)), -1/6*(2*(3*a^2*b^4*c^6 -
12*a^3*b^3*c^5*d + 18*a^4*b^2*c^4*d^2 - 12*a^5*b*c^3*d^3 + 3*a^6*
c^2*d^4 + (15*b^6*c^4*d^2 - 40*a*b^5*c^3*d^3 + 18*a^2*b^4*c^2*d^4
 - 40*a^3*b^3*c*d^5 + 15*a^4*b^2*d^6)*x^4 + 6*(5*b^6*c^5*d - 10*a
*b^5*c^4*d^2 - 3*a^2*b^4*c^3*d^3 - 3*a^3*b^3*c^2*d^4 - 10*a^4*b^2
*c*d^5 + 5*a^5*b*d^6)*x^3 + 3*(5*b^6*c^6 - 29*a^2*b^4*c^4*d^2 + 1
6*a^3*b^3*c^3*d^3 - 29*a^4*b^2*c^2*d^4 + 5*a^6*d^6)*x^2 + 4*(5*a*
b^5*c^6 - 12*a^2*b^4*c^5*d + 3*a^3*b^3*c^4*d^2 + 3*a^4*b^2*c^3*d^
3 - 12*a^5*b*c^2*d^4 + 5*a^6*c*d^5)*x)*sqrt(-a*c)*sqrt(b*x + a)*s
qrt(d*x + c) - 15*((b^7*c^5*d^2 - 3*a*b^6*c^4*d^3 + 2*a^2*b^5*c^3
*d^4 + 2*a^3*b^4*c^2*d^5 - 3*a^4*b^3*c*d^6 + a^5*b^2*d^7)*x^5 + 2
*(b^7*c^6*d - 2*a*b^6*c^5*d^2 - a^2*b^5*c^4*d^3 + 4*a^3*b^4*c^3*d
^4 - a^4*b^3*c^2*d^5 - 2*a^5*b^2*c*d^6 + a^6*b*d^7)*x^4 + (b^7*c^
7 + a*b^6*c^6*d - 9*a^2*b^5*c^5*d^2 + 7*a^3*b^4*c^4*d^3 + 7*a^4*b
^3*c^3*d^4 - 9*a^5*b^2*c^2*d^5 + a^6*b*c*d^6 + a^7*d^7)*x^3 + 2*(
a*b^6*c^7 - 2*a^2*b^5*c^6*d - a^3*b^4*c^5*d^2 + 4*a^4*b^3*c^4*d^3
 - a^5*b^2*c^3*d^4 - 2*a^6*b*c^2*d^5 + a^7*c*d^6)*x^2 + (a^2*b^5*
c^7 - 3*a^3*b^4*c^6*d + 2*a^4*b^3*c^5*d^2 + 2*a^5*b^2*c^4*d^3 - 3
*a^6*b*c^3*d^4 + a^7*c^2*d^5)*x)*arctan(1/2*(2*a*c + (b*c + a*d)*
x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d*x + c)*a*c)))/(((a^3*b^6*c^7*
d^2 - 4*a^4*b^5*c^6*d^3 + 6*a^5*b^4*c^5*d^4 - 4*a^6*b^3*c^4*d^5 +
 a^7*b^2*c^3*d^6)*x^5 + 2*(a^3*b^6*c^8*d - 3*a^4*b^5*c^7*d^2 + 2*
a^5*b^4*c^6*d^3 + 2*a^6*b^3*c^5*d^4 - 3*a^7*b^2*c^4*d^5 + a^8*b*c
^3*d^6)*x^4 + (a^3*b^6*c^9 - 9*a^5*b^4*c^7*d^2 + 16*a^6*b^3*c^6*d
^3 - 9*a^7*b^2*c^5*d^4 + a^9*c^3*d^6)*x^3 + 2*(a^4*b^5*c^9 - 3*a^
5*b^4*c^8*d + 2*a^6*b^3*c^7*d^2 + 2*a^7*b^2*c^6*d^3 - 3*a^8*b*c^5
*d^4 + a^9*c^4*d^5)*x^2 + (a^5*b^4*c^9 - 4*a^6*b^3*c^8*d + 6*a^7*
b^2*c^7*d^2 - 4*a^8*b*c^6*d^3 + a^9*c^5*d^4)*x)*sqrt(-a*c))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/x**2/(b*x+a)**(5/2)/(d*x+c)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 2.00397, size = 4, normalized size = 0.01

$$sage_0x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((b*x + a)^(5/2)*(d*x + c)^(5/2)*x^2),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.801 $\int \frac{1}{x^3(a+bx)^{5/2}(c+dx)^{5/2}}\,dx$

Optimal. Leaf size=462

$$\frac{7(ad+bc)}{4a^2c^2x(a+bx)^{3/2}(c+dx)^{3/2}}-\frac{5\left(7a^2d^2+10abcd+7b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{9/2}c^{9/2}}+\frac{b\left(-21a^2d^2-6abcd+35b^2c^2\right)}{12a^3c^2(a+bx)^{3/2}(c+dx)^{3/2}(bc-ad)}+\frac{b\left(7a^3d^3-3a^2bcd^2-55ab^2c^2d+35b^3c^3\right)}{4a^4c^2\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)^2}+\frac{d\sqrt{a+bx}\left(105a^4d^4-340a^3bcd^3+406a^2b^2c^2d^2-340ab^3c^3d+105b^4c^4\right)(ad+bc)}{12a^4c^4\sqrt{c+dx}(bc-ad)^4}+\frac{d\sqrt{a+bx}\left(-35a^4d^4+48a^3bcd^3+18a^2b^2c^2d^2-200ab^3c^3d+105b^4c^4\right)}{12a^4c^3(c+dx)^{3/2}(bc-ad)^3}-\frac{1}{2acx^2(a+bx)^{3/2}(c+dx)^{3/2}}$$

```
[Out] (b*(35*b^2*c^2 - 6*a*b*c*d - 21*a^2*d^2))/(12*a^3*c^2*(b*c - a*d)
*(a + b*x)^(3/2)*(c + d*x)^(3/2)) - 1/(2*a*c*x^2*(a + b*x)^(3/2)*
(c + d*x)^(3/2)) + (7*(b*c + a*d))/(4*a^2*c^2*x*(a + b*x)^(3/2)*(
c + d*x)^(3/2)) + (b*(35*b^3*c^3 - 55*a*b^2*c^2*d - 3*a^2*b*c*d^2
 + 7*a^3*d^3))/(4*a^4*c^2*(b*c - a*d)^2*Sqrt[a + b*x]*(c + d*x)^(
3/2)) + (d*(105*b^4*c^4 - 200*a*b^3*c^3*d + 18*a^2*b^2*c^2*d^2 +
48*a^3*b*c*d^3 - 35*a^4*d^4)*Sqrt[a + b*x])/(12*a^4*c^3*(b*c - a*
d)^3*(c + d*x)^(3/2)) + (d*(b*c + a*d)*(105*b^4*c^4 - 340*a*b^3*c
^3*d + 406*a^2*b^2*c^2*d^2 - 340*a^3*b*c*d^3 + 105*a^4*d^4)*Sqrt[
a + b*x])/(12*a^4*c^4*(b*c - a*d)^4*Sqrt[c + d*x]) - (5*(7*b^2*c^
2 + 10*a*b*c*d + 7*a^2*d^2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt
[a]*Sqrt[c + d*x])])/(4*a^(9/2)*c^(9/2))
```

Rubi [A] time = 1.73877, antiderivative size = 462, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.273

$$\frac{7(ad+bc)}{4a^2c^2x(a+bx)^{3/2}(c+dx)^{3/2}}-\frac{5\left(7a^2d^2+10abcd+7b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt{c}\sqrt{a+bx}}{\sqrt{a}\sqrt{c+dx}}\right)}{4a^{9/2}c^{9/2}}+\frac{b\left(-21a^2d^2-6abcd+35b^2c^2\right)}{12a^3c^2(a+bx)^{3/2}(c+dx)^{3/2}(bc-ad)}+\frac{b\left(7a^3d^3-3a^2bcd^2-55ab^2c^2d+35b^3c^3\right)}{4a^4c^2\sqrt{a+bx}(c+dx)^{3/2}(bc-ad)^2}+\frac{d\sqrt{a+bx}\left(105a^4d^4-340a^3bcd^3+406a^2b^2c^2d^2-340ab^3c^3d+105b^4c^4\right)(ad+bc)}{12a^4c^4\sqrt{c+dx}(bc-ad)^4}+\frac{d\sqrt{a+bx}\left(-35a^4d^4+48a^3bcd^3+18a^2b^2c^2d^2-200ab^3c^3d+105b^4c^4\right)}{12a^4c^3(c+dx)^{3/2}(bc-ad)^3}-\frac{1}{2acx^2(a+bx)^{3/2}(c+dx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x^3*(a + b*x)^(5/2)*(c + d*x)^(5/2)),x]
```


```
[Out] (b*(35*b^2*c^2 - 6*a*b*c*d - 21*a^2*d^2))/(12*a^3*c^2*(b*c - a*d)
*(a + b*x)^(3/2)*(c + d*x)^(3/2)) - 1/(2*a*c*x^2*(a + b*x)^(3/2)*
(c + d*x)^(3/2)) + (7*(b*c + a*d))/(4*a^2*c^2*x*(a + b*x)^(3/2)*(
c + d*x)^(3/2)) + (b*(35*b^3*c^3 - 55*a*b^2*c^2*d - 3*a^2*b*c*d^2
 + 7*a^3*d^3))/(4*a^4*c^2*(b*c - a*d)^2*Sqrt[a + b*x]*(c + d*x)^(
3/2)) + (d*(105*b^4*c^4 - 200*a*b^3*c^3*d + 18*a^2*b^2*c^2*d^2 +
48*a^3*b*c*d^3 - 35*a^4*d^4)*Sqrt[a + b*x])/(12*a^4*c^3*(b*c - a*
d)^3*(c + d*x)^(3/2)) + (d*(b*c + a*d)*(105*b^4*c^4 - 340*a*b^3*c
^3*d + 406*a^2*b^2*c^2*d^2 - 340*a^3*b*c*d^3 + 105*a^4*d^4)*Sqrt[
a + b*x])/(12*a^4*c^4*(b*c - a*d)^4*Sqrt[c + d*x]) - (5*(7*b^2*c^
2 + 10*a*b*c*d + 7*a^2*d^2)*ArcTanh[(Sqrt[c]*Sqrt[a + b*x])/(Sqrt
[a]*Sqrt[c + d*x])])/(4*a^(9/2)*c^(9/2))
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x**3/(b*x+a)**(5/2)/(d*x+c)**(5/2),x)
```

```
[Out] Timed out
```

Mathematica [A] time = 2.52629, size = 291, normalized size = 0.63

$$\frac{5\log(x)\left(7a^2d^2+10abcd+7b^2c^2\right)}{8a^{9/2}c^{9/2}}-\frac{5\left(7a^2d^2+10abcd+7b^2c^2\right)\log\left(2\sqrt{a}\sqrt{c}\sqrt{a+bx}\sqrt{c+dx}+2ac+adx+bcx\right)}{8a^{9/2}c^{9/2}}+\frac{1}{12}\sqrt{a+bx}\sqrt{c+dx}\left(\frac{8b^5(9bc-17ad)}{a^4(a+bx)(bc-ad)^4}+\frac{33(ad+bc)}{a^4c^4x}-\frac{8b^5}{a^3(a+bx)^2(ad-bc)^3}-\frac{6}{a^3c^3x^2}+\frac{8d^5(9ad-17bc)}{c^4(c+dx)(bc-ad)^4}-\frac{8}{c^3(c+dx)\ldots}\right.$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(x^3*(a + b*x)^(5/2)*(c + d*x)^(5/2)),x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[c + d*x]*(-6/(a^3*c^3*x^2) + (33*(b*c + a*d))
/(a^4*c^4*x) - (8*b^5)/(a^3*(-(b*c) + a*d)^3*(a + b*x)^2) + (8*b^
5*(9*b*c - 17*a*d))/(a^4*(b*c - a*d)^4*(a + b*x)) - (8*d^5)/(c^3*
(b*c - a*d)^3*(c + d*x)^2) + (8*d^5*(-17*b*c + 9*a*d))/(c^4*(b*c
- a*d)^4*(c + d*x))))/12 + (5*(7*b^2*c^2 + 10*a*b*c*d + 7*a^2*d^2
)*Log[x])/(8*a^(9/2)*c^(9/2)) - (5*(7*b^2*c^2 + 10*a*b*c*d + 7*a^
2*d^2)*Log[2*a*c + b*c*x + a*d*x + 2*Sqrt[a]*Sqrt[c]*Sqrt[a + b*x
]*Sqrt[c + d*x]])/(8*a^(9/2)*c^(9/2))
```

Maple [B] time = 0.092, size = 3392, normalized size = 7.3

output too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/x^3/(b*x+a)^(5/2)/(d*x+c)^(5/2),x)
```

```
[Out] -1/24/a^4/c^4*(-48*a^4*b^3*c^6*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1
/2)+105*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a
*c)/x)*x^4*a^8*d^8+105*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*
x+c))^(1/2)+2*a*c)/x)*x^4*b^8*c^8+210*ln((a*d*x+b*c*x+2*(a*c)^(1/
2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^5*a^7*b*d^8+210*ln((a*d*x+
b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^5*b^8*c^7
*d+210*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*
c)/x)*x^3*a^8*c*d^7+210*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d
*x+c))^(1/2)+2*a*c)/x)*x^3*a*b^7*c^8+105*ln((a*d*x+b*c*x+2*(a*c)^
(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a^8*c^2*d^6+105*ln((a
*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a^
2*b^6*c^8-210*x^3*a^7*d^7*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-210
*x^3*b^7*c^7*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+12*a^7*c^3*d^4*(
a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+12*a^3*b^4*c^7*(a*c)^(1/2)*((b
*x+a)*(d*x+c))^(1/2)+105*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(
d*x+c))^(1/2)+2*a*c)/x)*x^6*a^6*b^2*d^8+105*ln((a*d*x+b*c*x+2*(a*
c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^6*b^8*c^6*d^2+390*ln
((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^5
*a^3*b^5*c^4*d^4-270*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+
c))^(1/2)+2*a*c)/x)*x^5*a^2*b^6*c^5*d^3-330*ln((a*d*x+b*c*x+2*(a*
c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^5*a*b^7*c^6*d^2+150*
```

```
ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x
^4*a^7*b*c*d^7-840*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c)
)^(1/2)+2*a*c)/x)*x^4*a^6*b^2*c^2*d^6+330*ln((a*d*x+b*c*x+2*(a*c)
^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a^5*b^3*c^3*d^5+510*
ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x
^4*a^4*b^4*c^4*d^4+330*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*
x+c))^(1/2)+2*a*c)/x)*x^4*a^3*b^5*c^5*d^3-840*ln((a*d*x+b*c*x+2*(
a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^4*a^2*b^6*c^6*d^2+
150*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/
x)*x^4*a*b^7*c^7*d-330*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*
x+c))^(1/2)+2*a*c)/x)*x^3*a^7*b*c^2*d^6-270*ln((a*d*x+b*c*x+2*(a*
c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^6*b^2*c^3*d^5+39
0*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)
*x^3*a^5*b^3*c^4*d^4+390*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(
d*x+c))^(1/2)+2*a*c)/x)*x^3*a^4*b^4*c^5*d^3-270*ln((a*d*x+b*c*x+2
*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^3*a^3*b^5*c^6*d^
2-330*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c
)/x)*x^3*a^2*b^6*c^7*d-270*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)
*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a^7*b*c^3*d^5+135*ln((a*d*x+b*c*x+2
*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a^6*b^2*c^4*d^
4+60*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)
/x)*x^2*a^5*b^3*c^5*d^3+135*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a
)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a^4*b^4*c^6*d^2-270*ln((a*d*x+b*c*
x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^2*a^3*b^5*c^7
*d-48*a^6*b*c^4*d^3*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+72*a^5*b^
2*c^5*d^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-270*ln((a*d*x+b*c*x
+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^6*a^5*b^3*c*d^
7+135*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c
)/x)*x^6*a^4*b^4*c^2*d^6+60*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a
)*(d*x+c))^(1/2)+2*a*c)/x)*x^6*a^3*b^5*c^3*d^5+135*ln((a*d*x+b*c*
x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^6*a^2*b^6*c^4
*d^4+372*x^4*a^4*b^3*c^2*d^5*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-
456*x^4*a^3*b^4*c^3*d^4*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+372*x
^4*a^2*b^5*c^4*d^3*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+660*x^4*a*
b^6*c^5*d^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-90*x^3*a^6*b*c*d^
6*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+1098*x^3*a^5*b^2*c^2*d^5*(a
*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-414*x^3*a^4*b^3*c^3*d^4*(a*c)^(
1/2)*((b*x+a)*(d*x+c))^(1/2)-414*x^3*a^3*b^4*c^4*d^3*(a*c)^(1/2)*
((b*x+a)*(d*x+c))^(1/2)+1098*x^3*a^2*b^5*c^5*d^2*(a*c)^(1/2)*((b*
x+a)*(d*x+c))^(1/2)-90*x^3*a*b^6*c^6*d*(a*c)^(1/2)*((b*x+a)*(d*x+
c))^(1/2)+552*x^2*a^6*b*c^2*d^5*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/
2)+24*x^2*a^5*b^2*c^3*d^4*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-336
*x^2*a^4*b^3*c^4*d^3*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+24*x^2*a
^3*b^4*c^5*d^2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+552*x^2*a^2*b^
5*c^6*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+126*x*a^6*b*c^3*d^4*(
a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-84*x*a^5*b^2*c^4*d^3*(a*c)^(1/
2)*((b*x+a)*(d*x+c))^(1/2)-84*x*a^4*b^3*c^5*d^2*(a*c)^(1/2)*((b*x
+a)*(d*x+c))^(1/2)+126*x*a^3*b^4*c^6*d*(a*c)^(1/2)*((b*x+a)*(d*x+
c))^(1/2)+470*x^5*a^4*b^3*c*d^6*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/
2)-132*x^5*a^3*b^4*c^2*d^5*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-13
2*x^5*a^2*b^5*c^3*d^4*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+470*x^5
*a*b^6*c^4*d^3*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+660*x^4*a^5*b^
2*c*d^6*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-210*x^5*a^5*b^2*d^7*(
a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-210*x^5*b^7*c^5*d^2*(a*c)^(1/2
)*((b*x+a)*(d*x+c))^(1/2)-420*x^4*a^6*b*d^7*(a*c)^(1/2)*((b*x+a)*
(d*x+c))^(1/2)-420*x^4*b^7*c^6*d*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1
/2)-280*x^2*a^7*c*d^6*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-280*x^2
*a*b^6*c^7*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-42*x*a^7*c^2*d^5*(
a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)-42*x*a^2*b^5*c^7*(a*c)^(1/2)*(
(b*x+a)*(d*x+c))^(1/2)-270*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)
*(d*x+c))^(1/2)+2*a*c)/x)*x^6*a*b^7*c^5*d^3-330*ln((a*d*x+b*c*x+2
*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/x)*x^5*a^6*b^2*c*d^7-
270*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)*(d*x+c))^(1/2)+2*a*c)/
x)*x^5*a^5*b^3*c^2*d^6+390*ln((a*d*x+b*c*x+2*(a*c)^(1/2)*((b*x+a)
*(d*x+c))^(1/2)+2*a*c)/x)*x^5*a^4*b^4*c^3*d^5)/((b*x+a)*(d*x+c))^
(1/2)/(a*d-b*c)^4/x^2/(a*c)^(1/2)/(b*x+a)^(3/2)/(d*x+c)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((b*x + a)^(5/2)*(d*x + c)^(5/2)*x^3),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 6.66629, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((b*x + a)^(5/2)*(d*x + c)^(5/2)*x^3),x, algorithm="fricas")
```

```
[Out] [-1/48*(4*(6*a^3*b^4*c^7 - 24*a^4*b^3*c^6*d + 36*a^5*b^2*c^5*d^2
- 24*a^6*b*c^4*d^3 + 6*a^7*c^3*d^4 - (105*b^7*c^5*d^2 - 235*a*b^6
*c^4*d^3 + 66*a^2*b^5*c^3*d^4 + 66*a^3*b^4*c^2*d^5 - 235*a^4*b^3*
c*d^6 + 105*a^5*b^2*d^7)*x^5 - 6*(35*b^7*c^6*d - 55*a*b^6*c^5*d^2
 - 31*a^2*b^5*c^4*d^3 + 38*a^3*b^4*c^3*d^4 - 31*a^4*b^3*c^2*d^5 -
 55*a^5*b^2*c*d^6 + 35*a^6*b*d^7)*x^4 - 3*(35*b^7*c^7 + 15*a*b^6*
c^6*d - 183*a^2*b^5*c^5*d^2 + 69*a^3*b^4*c^4*d^3 + 69*a^4*b^3*c^3
*d^4 - 183*a^5*b^2*c^2*d^5 + 15*a^6*b*c*d^6 + 35*a^7*d^7)*x^3 - 4
*(35*a*b^6*c^7 - 69*a^2*b^5*c^6*d - 3*a^3*b^4*c^5*d^2 + 42*a^4*b^
3*c^4*d^3 - 3*a^5*b^2*c^3*d^4 - 69*a^6*b*c^2*d^5 + 35*a^7*c*d^6)*
x^2 - 21*(a^2*b^5*c^7 - 3*a^3*b^4*c^6*d + 2*a^4*b^3*c^5*d^2 + 2*a
^5*b^2*c^4*d^3 - 3*a^6*b*c^3*d^4 + a^7*c^2*d^5)*x)*sqrt(a*c)*sqrt
(b*x + a)*sqrt(d*x + c) - 15*((7*b^8*c^6*d^2 - 18*a*b^7*c^5*d^3 +
 9*a^2*b^6*c^4*d^4 + 4*a^3*b^5*c^3*d^5 + 9*a^4*b^4*c^2*d^6 - 18*a
^5*b^3*c*d^7 + 7*a^6*b^2*d^8)*x^6 + 2*(7*b^8*c^7*d - 11*a*b^7*c^6
*d^2 - 9*a^2*b^6*c^5*d^3 + 13*a^3*b^5*c^4*d^4 + 13*a^4*b^4*c^3*d^
5 - 9*a^5*b^3*c^2*d^6 - 11*a^6*b^2*c*d^7 + 7*a^7*b*d^8)*x^5 + (7*
b^8*c^8 + 10*a*b^7*c^7*d - 56*a^2*b^6*c^6*d^2 + 22*a^3*b^5*c^5*d^
3 + 34*a^4*b^4*c^4*d^4 + 22*a^5*b^3*c^3*d^5 - 56*a^6*b^2*c^2*d^6
+ 10*a^7*b*c*d^7 + 7*a^8*d^8)*x^4 + 2*(7*a*b^7*c^8 - 11*a^2*b^6*c
^7*d - 9*a^3*b^5*c^6*d^2 + 13*a^4*b^4*c^5*d^3 + 13*a^5*b^3*c^4*d^
4 - 9*a^6*b^2*c^3*d^5 - 11*a^7*b*c^2*d^6 + 7*a^8*c*d^7)*x^3 + (7*
a^2*b^6*c^8 - 18*a^3*b^5*c^7*d + 9*a^4*b^4*c^6*d^2 + 4*a^5*b^3*c^
5*d^3 + 9*a^6*b^2*c^4*d^4 - 18*a^7*b*c^3*d^5 + 7*a^8*c^2*d^6)*x^2
)*log(-(4*(2*a^2*c^2 + (a*b*c^2 + a^2*c*d)*x)*sqrt(b*x + a)*sqrt(
d*x + c) - (8*a^2*c^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*x^2 + 8*(
a*b*c^2 + a^2*c*d)*x)*sqrt(a*c))/x^2))/(((a^4*b^6*c^8*d^2 - 4*a^5
*b^5*c^7*d^3 + 6*a^6*b^4*c^6*d^4 - 4*a^7*b^3*c^5*d^5 + a^8*b^2*c^
4*d^6)*x^6 + 2*(a^4*b^6*c^9*d - 3*a^5*b^5*c^8*d^2 + 2*a^6*b^4*c^7
*d^3 + 2*a^7*b^3*c^6*d^4 - 3*a^8*b^2*c^5*d^5 + a^9*b*c^4*d^6)*x^5
 + (a^4*b^6*c^10 - 9*a^6*b^4*c^8*d^2 + 16*a^7*b^3*c^7*d^3 - 9*a^8
*b^2*c^6*d^4 + a^10*c^4*d^6)*x^4 + 2*(a^5*b^5*c^10 - 3*a^6*b^4*c^
9*d + 2*a^7*b^3*c^8*d^2 + 2*a^8*b^2*c^7*d^3 - 3*a^9*b*c^6*d^4 + a
^10*c^5*d^5)*x^3 + (a^6*b^4*c^10 - 4*a^7*b^3*c^9*d + 6*a^8*b^2*c^
8*d^2 - 4*a^9*b*c^7*d^3 + a^10*c^6*d^4)*x^2)*sqrt(a*c)), -1/24*(2
*(6*a^3*b^4*c^7 - 24*a^4*b^3*c^6*d + 36*a^5*b^2*c^5*d^2 - 24*a^6*
b*c^4*d^3 + 6*a^7*c^3*d^4 - (105*b^7*c^5*d^2 - 235*a*b^6*c^4*d^3
+ 66*a^2*b^5*c^3*d^4 + 66*a^3*b^4*c^2*d^5 - 235*a^4*b^3*c*d^6 + 1
05*a^5*b^2*d^7)*x^5 - 6*(35*b^7*c^6*d - 55*a*b^6*c^5*d^2 - 31*a^2
*b^5*c^4*d^3 + 38*a^3*b^4*c^3*d^4 - 31*a^4*b^3*c^2*d^5 - 55*a^5*b
^2*c*d^6 + 35*a^6*b*d^7)*x^4 - 3*(35*b^7*c^7 + 15*a*b^6*c^6*d - 1
83*a^2*b^5*c^5*d^2 + 69*a^3*b^4*c^4*d^3 + 69*a^4*b^3*c^3*d^4 - 18
3*a^5*b^2*c^2*d^5 + 15*a^6*b*c*d^6 + 35*a^7*d^7)*x^3 - 4*(35*a*b^
6*c^7 - 69*a^2*b^5*c^6*d - 3*a^3*b^4*c^5*d^2 + 42*a^4*b^3*c^4*d^3
 - 3*a^5*b^2*c^3*d^4 - 69*a^6*b*c^2*d^5 + 35*a^7*c*d^6)*x^2 - 21*
(a^2*b^5*c^7 - 3*a^3*b^4*c^6*d + 2*a^4*b^3*c^5*d^2 + 2*a^5*b^2*c^
4*d^3 - 3*a^6*b*c^3*d^4 + a^7*c^2*d^5)*x)*sqrt(-a*c)*sqrt(b*x + a
)*sqrt(d*x + c) + 15*((7*b^8*c^6*d^2 - 18*a*b^7*c^5*d^3 + 9*a^2*b
^6*c^4*d^4 + 4*a^3*b^5*c^3*d^5 + 9*a^4*b^4*c^2*d^6 - 18*a^5*b^3*c
*d^7 + 7*a^6*b^2*d^8)*x^6 + 2*(7*b^8*c^7*d - 11*a*b^7*c^6*d^2 - 9
*a^2*b^6*c^5*d^3 + 13*a^3*b^5*c^4*d^4 + 13*a^4*b^4*c^3*d^5 - 9*a^
5*b^3*c^2*d^6 - 11*a^6*b^2*c*d^7 + 7*a^7*b*d^8)*x^5 + (7*b^8*c^8
+ 10*a*b^7*c^7*d - 56*a^2*b^6*c^6*d^2 + 22*a^3*b^5*c^5*d^3 + 34*a
^4*b^4*c^4*d^4 + 22*a^5*b^3*c^3*d^5 - 56*a^6*b^2*c^2*d^6 + 10*a^7
*b*c*d^7 + 7*a^8*d^8)*x^4 + 2*(7*a*b^7*c^8 - 11*a^2*b^6*c^7*d - 9
*a^3*b^5*c^6*d^2 + 13*a^4*b^4*c^5*d^3 + 13*a^5*b^3*c^4*d^4 - 9*a^
6*b^2*c^3*d^5 - 11*a^7*b*c^2*d^6 + 7*a^8*c*d^7)*x^3 + (7*a^2*b^6*
```

```
c^8 - 18*a^3*b^5*c^7*d + 9*a^4*b^4*c^6*d^2 + 4*a^5*b^3*c^5*d^3 +
9*a^6*b^2*c^4*d^4 - 18*a^7*b*c^3*d^5 + 7*a^8*c^2*d^6)*x^2)*arctan
(1/2*(2*a*c + (b*c + a*d)*x)*sqrt(-a*c)/(sqrt(b*x + a)*sqrt(d*x +
 c)*a*c)))/(((a^4*b^6*c^8*d^2 - 4*a^5*b^5*c^7*d^3 + 6*a^6*b^4*c^6
*d^4 - 4*a^7*b^3*c^5*d^5 + a^8*b^2*c^4*d^6)*x^6 + 2*(a^4*b^6*c^9*
d - 3*a^5*b^5*c^8*d^2 + 2*a^6*b^4*c^7*d^3 + 2*a^7*b^3*c^6*d^4 - 3
*a^8*b^2*c^5*d^5 + a^9*b*c^4*d^6)*x^5 + (a^4*b^6*c^10 - 9*a^6*b^4
*c^8*d^2 + 16*a^7*b^3*c^7*d^3 - 9*a^8*b^2*c^6*d^4 + a^10*c^4*d^6)
*x^4 + 2*(a^5*b^5*c^10 - 3*a^6*b^4*c^9*d + 2*a^7*b^3*c^8*d^2 + 2*
a^8*b^2*c^7*d^3 - 3*a^9*b*c^6*d^4 + a^10*c^5*d^5)*x^3 + (a^6*b^4*
c^10 - 4*a^7*b^3*c^9*d + 6*a^8*b^2*c^8*d^2 - 4*a^9*b*c^7*d^3 + a^
10*c^6*d^4)*x^2)*sqrt(-a*c))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/x**3/(b*x+a)**(5/2)/(d*x+c)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 2.64649, size = 4, normalized size = 0.01

$$sage_0 x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^(5/2)*(d*x + c)^(5/2)*x^3),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.802 $\int \frac{x^2\sqrt{a+bx}}{\sqrt{-a-bx}}\,dx$

Optimal. Leaf size=28

$$\frac{x^3\sqrt{a+bx}}{3\sqrt{-a-bx}}$$

```
[Out] (x^3*Sqrt[a + b*x])/(3*Sqrt[-a - b*x])
```

Rubi [A] time = 0.0114941, antiderivative size = 28, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 25, $\frac{\text{number of rules}}{\text{integrand size}} = 0.08$

$$\frac{x^3\sqrt{a+bx}}{3\sqrt{-a-bx}}$$

Antiderivative was successfully verified.

```
[In] Int[(x^2*Sqrt[a + b*x])/Sqrt[-a - b*x],x]
```

```
[Out] (x^3*Sqrt[a + b*x])/(3*Sqrt[-a - b*x])
```

Rubi in Sympy [A] time = 3.54842, size = 22, normalized size = 0.79

$$\frac{x^3\sqrt{a+bx}}{3\sqrt{-a-bx}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(x**2*(b*x+a)**(1/2)/(-b*x-a)**(1/2),x)
```

```
[Out] x**3*sqrt(a + b*x)/(3*sqrt(-a - b*x))
```

Mathematica [A] time = 0.013278, size = 28, normalized size = 1.

$$\frac{x^3\sqrt{a+bx}}{3\sqrt{-a-bx}}$$

Antiderivative was successfully verified.

```
[In] Integrate[(x^2*Sqrt[a + b*x])/Sqrt[-a - b*x],x]
```

```
[Out] (x^3*Sqrt[a + b*x])/(3*Sqrt[-a - b*x])
```

Maple [A] time = 0.003, size = 23, normalized size = 0.8

$$\frac{x^3}{3}\sqrt{bx+a}\frac{1}{\sqrt{-bx-a}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^2*(b*x+a)^(1/2)/(-b*x-a)^(1/2),x)
```

```
[Out] 1/3*x^3*(b*x+a)^(1/2)/(-b*x-a)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: RuntimeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(b*x + a)*x^2/sqrt(-b*x - a),x, algorithm="maxima")
```

```
[Out] Exception raised: RuntimeError
```

Fricas [A] time = 0.232351, size = 1, normalized size = 0.04

$$0$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(b*x + a)*x^2/sqrt(-b*x - a),x, algorithm="fricas")
```

```
[Out] 0
```

Sympy [A] time = 9.65608, size = 44, normalized size = 1.57

$$-\frac{ia^3}{b^3} - \frac{ia^2x}{b^2} + \frac{ia\,(a+bx)^2}{b^3} - \frac{i\,(a+bx)^3}{3b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**2*(b*x+a)**(1/2)/(-b*x-a)**(1/2),x)
```

```
[Out] -I*a**3/b**3 - I*a**2*x/b**2 + I*a*(a + b*x)**2/b**3 - I*(a + b*x
)**3/(3*b**3)
```

GIAC/XCAS [A] time = 0.228834, size = 58, normalized size = 2.07

$$-\frac{i\left((bx+a)^3b^4 - 3\,(bx+a)^2ab^4 + 3\,(bx+a)a^2b^4\right)}{3\,b^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(b*x + a)*x^2/sqrt(-b*x - a),x, algorithm="giac")
```

```
[Out] -1/3*I*((b*x + a)^3*b^4 - 3*(b*x + a)^2*a*b^4 + 3*(b*x + a)*a^2*b
^4)/b^7
```

3.803 $\int \frac{x\sqrt{a+bx}}{\sqrt{-a-bx}}\,dx$

Optimal. Leaf size=28

$$\frac{x^2\sqrt{a+bx}}{2\sqrt{-a-bx}}$$

```
[Out] (x^2*Sqrt[a + b*x])/(2*Sqrt[-a - b*x])
```

Rubi [A] time = 0.0114064, antiderivative size = 28, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 23, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.087

$$\frac{x^2\sqrt{a+bx}}{2\sqrt{-a-bx}}$$

Antiderivative was successfully verified.

```
[In]  Int[(x*Sqrt[a + b*x])/Sqrt[-a - b*x],x]

[Out] (x^2*Sqrt[a + b*x])/(2*Sqrt[-a - b*x])
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{\sqrt{a+bx}\int x\,dx}{\sqrt{-a-bx}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(b*x+a)**(1/2)/(-b*x-a)**(1/2),x)

[Out] sqrt(a + b*x)*Integral(x, x)/sqrt(-a - b*x)
```

Mathematica [A] time = 0.00760888, size = 28, normalized size = 1.

$$\frac{x^2\sqrt{a+bx}}{2\sqrt{-a-bx}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x*Sqrt[a + b*x])/Sqrt[-a - b*x],x]

[Out] (x^2*Sqrt[a + b*x])/(2*Sqrt[-a - b*x])
```

Maple [A] time = 0.003, size = 23, normalized size = 0.8

$$\frac{x^2}{2}\sqrt{bx+a}\frac{1}{\sqrt{-bx-a}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(b*x+a)^(1/2)/(-b*x-a)^(1/2),x)
```

```
[Out] 1/2*x^2*(b*x+a)^(1/2)/(-b*x-a)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: RuntimeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*x/sqrt(-b*x - a),x, algorithm="maxima")
```

```
[Out] Exception raised: RuntimeError
```

Fricas [A] time = 0.231748, size = 1, normalized size = 0.04

$$0$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*x/sqrt(-b*x - a),x, algorithm="fricas")
```

```
[Out] 0
```

Sympy [A] time = 7.19166, size = 27, normalized size = 0.96

$$\frac{ia^2}{b^2} + \frac{iax}{b} - \frac{i(a+bx)^2}{2b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(b*x+a)**(1/2)/(-b*x-a)**(1/2),x)
```

```
[Out] I*a**2/b**2 + I*a*x/b - I*(a + b*x)**2/(2*b**2)
```

GIAC/XCAS [A] time = 0.224817, size = 28, normalized size = 1.

$$-\frac{i\left((bx+a)^2 - 2\,(bx+a)a\right)}{2\,b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*x/sqrt(-b*x - a),x, algorithm="giac")
```

```
[Out] -1/2*I*((b*x + a)^2 - 2*(b*x + a)*a)/b^2
```

3.804 $\int \frac{\sqrt{a+bx}}{\sqrt{-a-bx}}\,dx$

Optimal. Leaf size=23

$$\frac{x\sqrt{a+bx}}{\sqrt{-a-bx}}$$

```
[Out] (x*Sqrt[a + b*x])/Sqrt[-a - b*x]
```

Rubi [A] time = 0.0102039, antiderivative size = 23, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.091

$$\frac{x\sqrt{a+bx}}{\sqrt{-a-bx}}$$

Antiderivative was successfully verified.

```
[In] Int[Sqrt[a + b*x]/Sqrt[-a - b*x],x]

[Out] (x*Sqrt[a + b*x])/Sqrt[-a - b*x]
```

Rubi in Sympy [A] time = 3.35592, size = 19, normalized size = 0.83

$$\frac{x\sqrt{a+bx}}{\sqrt{-a-bx}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)**(1/2)/(-b*x-a)**(1/2),x)

[Out] x*sqrt(a + b*x)/sqrt(-a - b*x)
```

Mathematica [A] time = 0.00579617, size = 23, normalized size = 1.

$$\frac{x\sqrt{a+bx}}{\sqrt{-a-bx}}$$

Antiderivative was successfully verified.

```
[In] Integrate[Sqrt[a + b*x]/Sqrt[-a - b*x],x]

[Out] (x*Sqrt[a + b*x])/Sqrt[-a - b*x]
```

Maple [A] time = 0.003, size = 23, normalized size = 1.

$$-\frac{1}{b}\sqrt{bx+a}\sqrt{-bx-a}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((b*x+a)^(1/2)/(-b*x-a)^(1/2),x)
```

```
[Out] -(b*x+a)^(1/2)*(-b*x-a)^(1/2)/b
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: RuntimeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(b*x + a)/sqrt(-b*x - a),x, algorithm="maxima")
```

```
[Out] Exception raised: RuntimeError
```

Fricas [A] time = 0.233949, size = 1, normalized size = 0.04

$$0$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(b*x + a)/sqrt(-b*x - a),x, algorithm="fricas")
```

```
[Out] 0
```

Sympy [A] time = 6.01976, size = 48, normalized size = 2.09

$$\begin{cases} -i\left(\frac{a}{b}+x\right) & \text{for}\ \left(\frac{a}{b}+x>-1\wedge\frac{a}{b}+x<1\right)\vee\frac{a}{b}+x>1\vee\frac{a}{b}+x<-1 \\ -iG_{2,2}^{1,1}\left(\begin{matrix}1 & 2\\ 1 & 0\end{matrix}\middle|\frac{a}{b}+x\right)-iG_{2,2}^{0,2}\left(\begin{matrix}2,1 & \\ & 1,0\end{matrix}\middle|\frac{a}{b}+x\right) & \text{otherwise}\end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**(1/2)/(-b*x-a)**(1/2),x)
```

```
[Out] Piecewise((-I*(a/b + x), (a/b + x > 1) | (a/b + x < -1) | ((a/b +
 x > -1) & (a/b + x < 1))), (-I*meijerg(((1,), (2,)), ((1,), (0,)
), a/b + x) - I*meijerg(((2, 1), ()), ((), (1, 0)), a/b + x), Tru
e))
```

GIAC/XCAS [A] time = 0.220148, size = 14, normalized size = 0.61

$$-\frac{i\,(bx+a)}{b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(b*x + a)/sqrt(-b*x - a),x, algorithm="giac")
```

```
[Out] -I*(b*x + a)/b
```

3.805 $\int \frac{\sqrt{a+bx}}{x\sqrt{-a-bx}}\,dx$

Optimal. Leaf size=24

$$\frac{\log(x)\sqrt{a+bx}}{\sqrt{-a-bx}}$$

```
[Out] (Sqrt[a + b*x]*Log[x])/Sqrt[-a - b*x]
```

Rubi [A] time = 0.0164548, antiderivative size = 24, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 25, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.08

$$\frac{\log(x)\sqrt{a+bx}}{\sqrt{-a-bx}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[a + b*x]/(x*Sqrt[-a - b*x]),x]
```

```
[Out] (Sqrt[a + b*x]*Log[x])/Sqrt[-a - b*x]
```

Rubi in Sympy [A] time = 3.5038, size = 20, normalized size = 0.83

$$\frac{\sqrt{a+bx}\log(x)}{\sqrt{-a-bx}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/2)/x/(-b*x-a)**(1/2),x)
```

```
[Out] sqrt(a + b*x)*log(x)/sqrt(-a - b*x)
```

Mathematica [A] time = 0.00705403, size = 24, normalized size = 1.

$$\frac{\log(x)\sqrt{a+bx}}{\sqrt{-a-bx}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[a + b*x]/(x*Sqrt[-a - b*x]),x]
```

```
[Out] (Sqrt[a + b*x]*Log[x])/Sqrt[-a - b*x]
```

Maple [A] time = 0.014, size = 22, normalized size = 0.9

$$-\ln(x)\sqrt{-bx-a}\frac{1}{\sqrt{bx+a}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/2)/x/(-b*x-a)^(1/2),x)
```

```
[Out] -1/(b*x+a)^(1/2)*(-b*x-a)^(1/2)*ln(x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/(sqrt(-b*x - a)*x),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.234828, size = 1, normalized size = 0.04

$$0$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/(sqrt(-b*x - a)*x),x, algorithm="fricas")
```

```
[Out] 0
```

Sympy [A] time = 5.55302, size = 37, normalized size = 1.54

$$\begin{cases} -i \log{\left (-1 + \frac{b \left(\frac{a}{b} + x\right)}{a} \right)} & \text{for}\: \left|{\frac{b \left(\frac{a}{b} + x\right)}{a}}\right| > 1 \\ -i \log{\left (1 - \frac{b \left(\frac{a}{b} + x\right)}{a} \right)} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(1/2)/x/(-b*x-a)**(1/2),x)
```

```
[Out] Piecewise((-I*log(-1 + b*(a/b + x)/a), Abs(b*(a/b + x)/a) > 1), (
-I*log(1 - b*(a/b + x)/a), True))
```

GIAC/XCAS [A] time = 0.219548, size = 18, normalized size = 0.75

$$-i \ln\left(|bx|\right) + i \ln\left(|a|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/(sqrt(-b*x - a)*x),x, algorithm="giac")
```

```
[Out] -I*ln(abs(b*x)) + I*ln(abs(a))
```

3.806 $\int \frac{\sqrt{a+bx}}{x^2\sqrt{-a-bx}}\,dx$

Optimal. Leaf size=26

$$-\frac{\sqrt{a+bx}}{x\sqrt{-a-bx}}$$

```
[Out] -(Sqrt[a + b*x]/(x*Sqrt[-a - b*x]))
```

Rubi [A] time = 0.0112768, antiderivative size = 26, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 25, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.08

$$-\frac{\sqrt{a+bx}}{x\sqrt{-a-bx}}$$

Antiderivative was successfully verified.

```
[In] Int[Sqrt[a + b*x]/(x^2*Sqrt[-a - b*x]),x]

[Out] -(Sqrt[a + b*x]/(x*Sqrt[-a - b*x]))
```

Rubi in Sympy [A] time = 3.52962, size = 20, normalized size = 0.77

$$-\frac{\sqrt{a+bx}}{x\sqrt{-a-bx}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)**(1/2)/x**2/(-b*x-a)**(1/2),x)

[Out] -sqrt(a + b*x)/(x*sqrt(-a - b*x))
```

Mathematica [A] time = 0.00767703, size = 26, normalized size = 1.

$$-\frac{\sqrt{a+bx}}{x\sqrt{-a-bx}}$$

Antiderivative was successfully verified.

```
[In] Integrate[Sqrt[a + b*x]/(x^2*Sqrt[-a - b*x]),x]

[Out] -(Sqrt[a + b*x]/(x*Sqrt[-a - b*x]))
```

Maple [A] time = 0.004, size = 23, normalized size = 0.9

$$-\frac{1}{x}\sqrt{bx+a}\frac{1}{\sqrt{-bx-a}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((b*x+a)^(1/2)/x^2/(-b*x-a)^(1/2),x)
```

```
[Out] -(b*x+a)^(1/2)/x/(-b*x-a)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(b*x + a)/(sqrt(-b*x - a)*x^2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.238346, size = 1, normalized size = 0.04

$$0$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(b*x + a)/(sqrt(-b*x - a)*x^2),x, algorithm="fricas")
```

```
[Out] 0
```

Sympy [A] time = 5.07113, size = 20, normalized size = 0.77

$$\frac{ib^2\left(\frac{a}{b}+x\right)}{-a^2+ab\left(\frac{a}{b}+x\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**(1/2)/x**2/(-b*x-a)**(1/2),x)
```

```
[Out] I*b**2*(a/b + x)/(-a**2 + a*b*(a/b + x))
```

GIAC/XCAS [A] time = 0.219432, size = 24, normalized size = 0.92

$$\frac{i\left(\frac{b^2}{a}+\frac{b}{x}\right)}{b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(b*x + a)/(sqrt(-b*x - a)*x^2),x, algorithm="giac")
```

```
[Out] I*(b^2/a + b/x)/b
```

3.807 $\int \frac{\sqrt{a+bx}}{x^3\sqrt{-a-bx}} \, dx$

Optimal. Leaf size=28

$$-\frac{\sqrt{a+bx}}{2x^2\sqrt{-a-bx}}$$

```
[Out] -Sqrt[a + b*x]/(2*x^2*Sqrt[-a - b*x])
```

Rubi [A] time = 0.011282, antiderivative size = 28, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 25, $\frac{\text{number of rules}}{\text{integrand size}} = 0.08$

$$-\frac{\sqrt{a+bx}}{2x^2\sqrt{-a-bx}}$$

Antiderivative was successfully verified.

```
[In] Int[Sqrt[a + b*x]/(x^3*Sqrt[-a - b*x]),x]

[Out] -Sqrt[a + b*x]/(2*x^2*Sqrt[-a - b*x])
```

Rubi in Sympy [A] time = 3.55278, size = 24, normalized size = 0.86

$$-\frac{\sqrt{a+bx}}{2x^2\sqrt{-a-bx}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)**(1/2)/x**3/(-b*x-a)**(1/2),x)

[Out] -sqrt(a + b*x)/(2*x**2*sqrt(-a - b*x))
```

Mathematica [A] time = 0.00751544, size = 28, normalized size = 1.

$$-\frac{\sqrt{a+bx}}{2x^2\sqrt{-a-bx}}$$

Antiderivative was successfully verified.

```
[In] Integrate[Sqrt[a + b*x]/(x^3*Sqrt[-a - b*x]),x]

[Out] -Sqrt[a + b*x]/(2*x^2*Sqrt[-a - b*x])
```

Maple [A] time = 0.004, size = 23, normalized size = 0.8

$$-\frac{1}{2\,x^2}\sqrt{bx+a}\frac{1}{\sqrt{-bx-a}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((b*x+a)^(1/2)/x^3/(-b*x-a)^(1/2),x)
```

```
[Out] -1/2*(b*x+a)^(1/2)/x^2/(-b*x-a)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(b*x + a)/(sqrt(-b*x - a)*x^3),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.236231, size = 1, normalized size = 0.04

$$0$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(b*x + a)/(sqrt(-b*x - a)*x^3),x, algorithm="fricas")
```

```
[Out] 0
```

Sympy [A] time = 6.91313, size = 88, normalized size = 3.14

$$\frac{2iab^3\left(\frac{a}{b}+x\right)}{2a^4-4a^3b\left(\frac{a}{b}+x\right)+2a^2b^2\left(\frac{a}{b}+x\right)^2}-\frac{ib^4\left(\frac{a}{b}+x\right)^2}{2a^4-4a^3b\left(\frac{a}{b}+x\right)+2a^2b^2\left(\frac{a}{b}+x\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**(1/2)/x**3/(-b*x-a)**(1/2),x)
```

```
[Out] 2*I*a*b**3*(a/b + x)/(2*a**4 - 4*a**3*b*(a/b + x) + 2*a**2*b**2*(
a/b + x)**2) - I*b**4*(a/b + x)**2/(2*a**4 - 4*a**3*b*(a/b + x) +
 2*a**2*b**2*(a/b + x)**2)
```

GIAC/XCAS [A] time = 0.221677, size = 26, normalized size = 0.93

$$-\frac{i\left(\frac{b^3}{a^2}-\frac{b}{x^2}\right)}{2\,b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(b*x + a)/(sqrt(-b*x - a)*x^3),x, algorithm="giac")
```

```
[Out] -1/2*I*(b^3/a^2 - b/x^2)/b
```

3.808 $\int \frac{x^{-m}\sqrt{a+bx}}{\sqrt{-a-bx}}\,dx$

Optimal. Leaf size=36

$$\frac{x^{1-m}\sqrt{a+bx}}{(1-m)\sqrt{-a-bx}}$$

```
[Out] (x^(1 - m)*Sqrt[a + b*x])/((1 - m)*Sqrt[-a - b*x])
```

Rubi [A] time = 0.0183763, antiderivative size = 36, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 27, $\frac{\text{number of rules}}{\text{integrand size}} = 0.074$

$$\frac{x^{1-m}\sqrt{a+bx}}{(1-m)\sqrt{-a-bx}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[a + b*x]/(x^m*Sqrt[-a - b*x]),x]

[Out] (x^(1 - m)*Sqrt[a + b*x])/((1 - m)*Sqrt[-a - b*x])
```

Rubi in Sympy [A] time = 4.26393, size = 26, normalized size = 0.72

$$\frac{x^{-m+1}\sqrt{a+bx}}{\sqrt{-a-bx}\,(-m+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/2)/(x**m)/(-b*x-a)**(1/2),x)

[Out] x**(-m + 1)*sqrt(a + b*x)/(sqrt(-a - b*x)*(-m + 1))
```

Mathematica [A] time = 0.0207019, size = 36, normalized size = 1.

$$\frac{x^{1-m}\sqrt{a+bx}}{(1-m)\sqrt{-a-bx}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[a + b*x]/(x^m*Sqrt[-a - b*x]),x]

[Out] (x^(1 - m)*Sqrt[a + b*x])/((1 - m)*Sqrt[-a - b*x])
```

Maple [A] time = 0.003, size = 31, normalized size = 0.9

$$-\frac{x}{(-1+m)\,x^{m}}\sqrt{bx+a}\frac{1}{\sqrt{-bx-a}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/2)/(x^m)/(-b*x-a)^(1/2),x)
```

```
[Out] -x/(-1+m)*(b*x+a)^(1/2)/(x^m)/(-b*x-a)^(1/2)
```

Maxima [A] time = 1.3627, size = 20, normalized size = 0.56

$$-\frac{xx^{-m}}{i\,m-i}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(b*x + a)/(sqrt(-b*x - a)*x^m),x, algorithm="maxima")
```

```
[Out] -x*x^(-m)/(I*m - I)
```

Fricas [A] time = 0.250254, size = 57, normalized size = 1.58

$$\frac{\sqrt{bx+a}\sqrt{-bx-a}x}{(am+(bm-b)x-a)x^m}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(b*x + a)/(sqrt(-b*x - a)*x^m),x, algorithm="fricas")
```

```
[Out] sqrt(b*x + a)*sqrt(-b*x - a)*x/((a*m + (b*m - b)*x - a)*x^m)
```

Sympy [A] time = 14.2645, size = 143, normalized size = 3.97

$$\begin{cases} -\frac{iaa^{-m}b^m\left(-1+\frac{b\left(\frac{a}{b}+x\right)}{a}\right)^{-m}}{b(m-1)} + \frac{ia^{-m}b^m\left(-1+\frac{b\left(\frac{a}{b}+x\right)}{a}\right)^{-m}\left(\frac{a}{b}+x\right)}{m-1} & \text{for}\ \left|\frac{b\left(\frac{a}{b}+x\right)}{a}\right|>1 \\ -\frac{iaa^{-m}b^m\left(1-\frac{b\left(\frac{a}{b}+x\right)}{a}\right)^{-m}}{b\left(me^{i\pi m}-e^{i\pi m}\right)} + \frac{ia^{-m}b^m\left(1-\frac{b\left(\frac{a}{b}+x\right)}{a}\right)^{-m}\left(\frac{a}{b}+x\right)}{me^{i\pi m}-e^{i\pi m}} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**(1/2)/(x**m)/(-b*x-a)**(1/2),x)
```

```
[Out] Piecewise((-I*a*a**(-m)*b**m*(-1 + b*(a/b + x)/a)**(-m)/(b*(m - 1
)) + I*a**(-m)*b**m*(-1 + b*(a/b + x)/a)**(-m)*(a/b + x)/(m - 1),
 Abs(b*(a/b + x)/a) > 1), (-I*a*a**(-m)*b**m*(1 - b*(a/b + x)/a)*
*(-m)/(b*(m*exp(I*pi*m) - exp(I*pi*m))) + I*a**(-m)*b**m*(1 - b*(
a/b + x)/a)**(-m)*(a/b + x)/(m*exp(I*pi*m) - exp(I*pi*m)), True))
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{bx+a}}{\sqrt{-bx-a}x^m}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(b*x + a)/(sqrt(-b*x - a)*x^m),x, algorithm="giac")
```

```
[Out] integrate(sqrt(b*x + a)/(sqrt(-b*x - a)*x^m), x)
```

3.809 $\int x^2(-a-bx)^{-n}(a+bx)^n\,dx$

Optimal. Leaf size=26

$$\frac{1}{3}x^3(-a-bx)^{-n}(a+bx)^n$$

```
[Out] (x^3*(a + b*x)^n)/(3*(-a - b*x)^n)
```

Rubi [A] time = 0.0116704, antiderivative size = 26, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 23, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.087

$$\frac{1}{3}x^3(-a-bx)^{-n}(a+bx)^n$$

Antiderivative was successfully verified.

```
[In]  Int[(x^2*(a + b*x)^n)/(-a - b*x)^n,x]

[Out] (x^3*(a + b*x)^n)/(3*(-a - b*x)^n)
```

Rubi in Sympy [A] time = 3.7078, size = 19, normalized size = 0.73

$$\frac{x^3\left(-a-bx\right)^{-n}\left(a+bx\right)^n}{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(b*x+a)**n/((-b*x-a)**n),x)

[Out] x**3*(-a - b*x)**(-n)*(a + b*x)**n/3
```

Mathematica [A] time = 0.00799606, size = 26, normalized size = 1.

$$\frac{1}{3}x^3(-a-bx)^{-n}(a+bx)^n$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^2*(a + b*x)^n)/(-a - b*x)^n,x]

[Out] (x^3*(a + b*x)^n)/(3*(-a - b*x)^n)
```

Maple [A] time = 0.003, size = 25, normalized size = 1.

$$\frac{x^3\left(bx+a\right)^n}{3\left(-bx-a\right)^n}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(b*x+a)^n/((-b*x-a)^n),x)

[Out] 1/3*x^3*(b*x+a)^n/((-b*x-a)^n)
```

Maxima [A] time = 1.35173, size = 14, normalized size = 0.54

$$\frac{1}{3}\,(-1)^{-n}\,x^3$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n*x^2/(-b*x - a)^n,x, algorithm="maxima")
```

```
[Out] 1/3*(-1)^(-n)*x^3
```

Fricas [A] time = 0.242252, size = 12, normalized size = 0.46

$$\frac{1}{3}\,x^3\cos\left(\pi n\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n*x^2/(-b*x - a)^n,x, algorithm="fricas")
```

```
[Out] 1/3*x^3*cos(pi*n)
```

Sympy [A] time = 100.468, size = 19, normalized size = 0.73

$$\frac{x^3\,(-a-bx)^{-n}\,(a+bx)^n}{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(b*x+a)**n/((-b*x-a)**n),x)
```

```
[Out] x**3*(-a - b*x)**(-n)*(a + b*x)**n/3
```

GIAC/XCAS [A] time = 0.224543, size = 7, normalized size = 0.27

$$\frac{1}{3}\,x^3$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n*x^2/(-b*x - a)^n,x, algorithm="giac")
```

```
[Out] 1/3*x^3
```

3.810 $\int x(-a-bx)^{-n}(a+bx)^n\,dx$

Optimal. Leaf size=26

$$\frac{1}{2}x^2(-a-bx)^{-n}(a+bx)^n$$

```
[Out] (x^2*(a + b*x)^n)/(2*(-a - b*x)^n)
```

Rubi [A] time = 0.0114058, antiderivative size = 26, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 21, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.095

$$\frac{1}{2}x^2(-a-bx)^{-n}(a+bx)^n$$

Antiderivative was successfully verified.

```
[In]  Int[(x*(a + b*x)^n)/(-a - b*x)^n,x]

[Out] (x^2*(a + b*x)^n)/(2*(-a - b*x)^n)
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$(-a-bx)^{-n}(a+bx)^n\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(b*x+a)**n/((-b*x-a)**n),x)

[Out] (-a - b*x)**(-n)*(a + b*x)**n*Integral(x, x)
```

Mathematica [A] time = 0.00467303, size = 26, normalized size = 1.

$$\frac{1}{2}x^2(-a-bx)^{-n}(a+bx)^n$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x*(a + b*x)^n)/(-a - b*x)^n,x]

[Out] (x^2*(a + b*x)^n)/(2*(-a - b*x)^n)
```

Maple [A] time = 0.003, size = 25, normalized size = 1.

$$\frac{x^2(bx+a)^n}{2(-bx-a)^n}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(b*x+a)^n/((-b*x-a)^n),x)

[Out] 1/2*x^2*(b*x+a)^n/((-b*x-a)^n)
```

Maxima [A] time = 1.35256, size = 14, normalized size = 0.54

$$\frac{1}{2}(-1)^{-n}x^2$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n*x/(-b*x - a)^n,x, algorithm="maxima")
```

```
[Out] 1/2*(-1)^(-n)*x^2
```

Fricas [A] time = 0.23917, size = 12, normalized size = 0.46

$$\frac{1}{2}x^2\cos(\pi n)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n*x/(-b*x - a)^n,x, algorithm="fricas")
```

```
[Out] 1/2*x^2*cos(pi*n)
```

Sympy [A] time = 41.3416, size = 19, normalized size = 0.73

$$\frac{x^2(-a-bx)^{-n}(a+bx)^n}{2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(b*x+a)**n/((-b*x-a)**n),x)
```

```
[Out] x**2*(-a - b*x)**(-n)*(a + b*x)**n/2
```

GIAC/XCAS [A] time = 0.224153, size = 7, normalized size = 0.27

$$\frac{1}{2}x^2$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n*x/(-b*x - a)^n,x, algorithm="giac")
```

```
[Out] 1/2*x^2
```

3.811 $\int (-a-bx)^{-n}(a+bx)^n\,dx$

Optimal. Leaf size=21

$$x(-a-bx)^{-n}(a+bx)^n$$

```
[Out] (x*(a + b*x)^n)/(-a - b*x)^n
```

Rubi [A] time = 0.0100334, antiderivative size = 21, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.1$

$$x(-a-bx)^{-n}(a+bx)^n$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^n/(-a - b*x)^n,x]

[Out] (x*(a + b*x)^n)/(-a - b*x)^n
```

Rubi in Sympy [A] time = 3.55898, size = 15, normalized size = 0.71

$$x\left(-a-bx\right)^{-n}\left(a+bx\right)^n$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**n/((-b*x-a)**n),x)

[Out] x*(-a - b*x)**(-n)*(a + b*x)**n
```

Mathematica [A] time = 0.00311663, size = 21, normalized size = 1.

$$x(-a-bx)^{-n}(a+bx)^n$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^n/(-a - b*x)^n,x]

[Out] (x*(a + b*x)^n)/(-a - b*x)^n
```

Maple [A] time = 0.033, size = 26, normalized size = 1.2

$$\frac{x e^{n\ln(bx+a)}}{e^{n\ln(-bx-a)}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^n/((-b*x-a)^n),x)

[Out] x*exp(n*ln(b*x+a))/exp(n*ln(-b*x-a))
```

Maxima [A] time = 1.35964, size = 9, normalized size = 0.43

$$(-1)^{-n}\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/(-b*x - a)^n,x, algorithm="maxima")
```

```
[Out] (-1)^(-n)*x
```

Fricas [A] time = 0.237317, size = 8, normalized size = 0.38

$$x\cos(\pi n)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/(-b*x - a)^n,x, algorithm="fricas")
```

```
[Out] x*cos(pi*n)
```

Sympy [A] time = 30.5269, size = 44, normalized size = 2.1

$$\begin{cases} -\frac{a(-a-bx)^{-n}(a+bx)^{n}}{b} + x(-a-bx)^{-n}(a+bx)^{n} & \text{for}\ b \neq 0 \\ a^{n}x(-a)^{-n} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**n/((-b*x-a)**n),x)
```

```
[Out] Piecewise((-a*(-a - b*x)**(-n)*(a + b*x)**n/b + x*(-a - b*x)**(-n
)*(a + b*x)**n, Ne(b, 0)), (a**n*x*(-a)**(-n), True))
```

GIAC/XCAS [A] time = 0.215549, size = 1, normalized size = 0.05

$$x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/(-b*x - a)^n,x, algorithm="giac")
```

```
[Out] x
```

3.812 $\int \frac{(-a-bx)^{-n}(a+bx)^n}{x} dx$

Optimal. Leaf size=22

$$\log(x)(-a-bx)^{-n}(a+bx)^n$$

```
[Out] ((a + b*x)^n*Log[x])/(-a - b*x)^n
```

Rubi [A] time = 0.0129456, antiderivative size = 22, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 23, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.087

$$\log(x)(-a-bx)^{-n}(a+bx)^n$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^n/(x*(-a - b*x)^n),x]

[Out] ((a + b*x)^n*Log[x])/(-a - b*x)^n
```

Rubi in Sympy [A] time = 3.7012, size = 17, normalized size = 0.77

$$(-a-bx)^{-n}(a+bx)^n \log(x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**n/x/((-b*x-a)**n),x)

[Out] (-a - b*x)**(-n)*(a + b*x)**n*log(x)
```

Mathematica [A] time = 0.00451976, size = 22, normalized size = 1.

$$\log(x)(-a-bx)^{-n}(a+bx)^n$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^n/(x*(-a - b*x)^n),x]

[Out] ((a + b*x)^n*Log[x])/(-a - b*x)^n
```

Maple [C] time = 0.057, size = 56, normalized size = 2.6

$$\ln(x)(bx+a)^n e^{-n\left(i\pi(\text{csgn}(i(bx+a)))^3-i\pi(\text{csgn}(i(bx+a)))^2+i\pi+\ln(bx+a)\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^n/x/((-b*x-a)^n),x)

[Out] ln(x)*(b*x+a)^n*exp(-n*(I*Pi*csgn(I*(b*x+a))^3-I*Pi*csgn(I*(b*x+a
))^2+I*Pi+ln(b*x+a)))
```

Maxima [A] time = 1.35871, size = 11, normalized size = 0.5

$$(-1)^{-n}\log(x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/((-b*x - a)^n*x),x, algorithm="maxima")
```

```
[Out] (-1)^(-n)*log(x)
```

Fricas [A] time = 0.246739, size = 9, normalized size = 0.41

$$\cos(\pi n)\log(x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/((-b*x - a)^n*x),x, algorithm="fricas")
```

```
[Out] cos(pi*n)*log(x)
```

Sympy [A] time = 98.7377, size = 44, normalized size = 2.

$$\begin{cases} e^{-i\pi n}\log\left(-1+\frac{b\left(\frac{a}{b}+x\right)}{a}\right) & \text{for}\ \left|\frac{b\left(\frac{a}{b}+x\right)}{a}\right|>1 \\ e^{-i\pi n}\log\left(1-\frac{b\left(\frac{a}{b}+x\right)}{a}\right) & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**n/x/((-b*x-a)**n),x)
```

```
[Out] Piecewise((exp(-I*pi*n)*log(-1 + b*(a/b + x)/a), Abs(b*(a/b + x)/
a) > 1), (exp(-I*pi*n)*log(1 - b*(a/b + x)/a), True))
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n}{(-bx-a)^n x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/((-b*x - a)^n*x),x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^n/((-b*x - a)^n*x), x)
```

3.813 $\int \frac{(-a-bx)^{-n}(a+bx)^n}{x^2}\,dx$

Optimal. Leaf size=24

$$-\frac{(-a-bx)^{-n}(a+bx)^n}{x}$$

```
[Out] -((a + b*x)^n/(x*(-a - b*x)^n))
```

Rubi [A] time = 0.0114823, antiderivative size = 24, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 23, $\frac{\text{number of rules}}{\text{integrand size}} = 0.087$

$$-\frac{(-a-bx)^{-n}(a+bx)^n}{x}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^n/(x^2*(-a - b*x)^n),x]

[Out] -((a + b*x)^n/(x*(-a - b*x)^n))
```

Rubi in Sympy [A] time = 3.72632, size = 17, normalized size = 0.71

$$-\frac{(-a-bx)^{-n}\,(a+bx)^n}{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**n/x**2/((-b*x-a)**n),x)

[Out] -(-a - b*x)**(-n)*(a + b*x)**n/x
```

Mathematica [A] time = 0.00450984, size = 24, normalized size = 1.

$$-\frac{(-a-bx)^{-n}(a+bx)^n}{x}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^n/(x^2*(-a - b*x)^n),x]

[Out] -((a + b*x)^n/(x*(-a - b*x)^n))
```

Maple [A] time = 0.003, size = 25, normalized size = 1.

$$-\frac{(bx+a)^n}{x\,(-bx-a)^n}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^n/x^2/((-b*x-a)^n),x)

[Out] -(b*x+a)^n/x/((-b*x-a)^n)
```

Maxima [A] time = 1.36114, size = 14, normalized size = 0.58

$$-\frac{(-1)^{-n}}{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/((-b*x - a)^n*x^2),x, algorithm="maxima")
```

```
[Out] -(-1)^(-n)/x
```

Fricas [A] time = 0.239006, size = 12, normalized size = 0.5

$$-\frac{\cos(\pi n)}{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/((-b*x - a)^n*x^2),x, algorithm="fricas")
```

```
[Out] -cos(pi*n)/x
```

Sympy [A] time = 20.2649, size = 17, normalized size = 0.71

$$-\frac{(-a-bx)^{-n}(a+bx)^{n}}{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**n/x**2/((-b*x-a)**n),x)
```

```
[Out] -(-a - b*x)**(-n)*(a + b*x)**n/x
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^{n}}{(-bx-a)^{n}x^{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/((-b*x - a)^n*x^2),x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^n/((-b*x - a)^n*x^2), x)
```

3.814 $\int \frac{(-a-bx)^{-n}(a+bx)^n}{x^3}\,dx$

Optimal. Leaf size=26

$$-\frac{(-a-bx)^{-n}(a+bx)^n}{2x^2}$$

```
[Out] -(a + b*x)^n/(2*x^2*(-a - b*x)^n)
```

Rubi [A] time = 0.0110525, antiderivative size = 26, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 23, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.087

$$-\frac{(-a-bx)^{-n}(a+bx)^n}{2x^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^n/(x^3*(-a - b*x)^n),x]

[Out] -(a + b*x)^n/(2*x^2*(-a - b*x)^n)
```

Rubi in Sympy [A] time = 3.7417, size = 20, normalized size = 0.77

$$-\frac{(-a-bx)^{-n}\,(a+bx)^n}{2x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**n/x**3/((-b*x-a)**n),x)

[Out] -(-a - b*x)**(-n)*(a + b*x)**n/(2*x**2)
```

Mathematica [A] time = 0.00409258, size = 26, normalized size = 1.

$$-\frac{(-a-bx)^{-n}(a+bx)^n}{2x^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^n/(x^3*(-a - b*x)^n),x]

[Out] -(a + b*x)^n/(2*x^2*(-a - b*x)^n)
```

Maple [A] time = 0.003, size = 25, normalized size = 1.

$$-\frac{(bx+a)^n}{2\,x^2\,(-bx-a)^n}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^n/x^3/((-b*x-a)^n),x)

[Out] -1/2*(b*x+a)^n/x^2/((-b*x-a)^n)
```

Maxima [A] time = 1.35798, size = 14, normalized size = 0.54

$$-\frac{(-1)^{-n}}{2\,x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/((-b*x - a)^n*x^3),x, algorithm="maxima")
```

```
[Out] -1/2*(-1)^(-n)/x^2
```

Fricas [A] time = 0.246726, size = 12, normalized size = 0.46

$$-\frac{\cos(\pi n)}{2\,x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/((-b*x - a)^n*x^3),x, algorithm="fricas")
```

```
[Out] -1/2*cos(pi*n)/x^2
```

Sympy [A] time = 47.7544, size = 20, normalized size = 0.77

$$-\frac{(-a-bx)^{-n}\,(a+bx)^n}{2x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**n/x**3/((-b*x-a)**n),x)
```

```
[Out] -(-a - b*x)**(-n)*(a + b*x)**n/(2*x**2)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n}{(-bx-a)^n x^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/((-b*x - a)^n*x^3),x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^n/((-b*x - a)^n*x^3), x)
```

3.815 $\int x^{-m}(-a-bx)^{-n}(a+bx)^n\,dx$

Optimal. Leaf size=34

$$\frac{x^{1-m}(-a-bx)^{-n}(a+bx)^n}{1-m}$$

```
[Out] (x^(1 - m)*(a + b*x)^n)/((1 - m)*(-a - b*x)^n)
```

Rubi [A] time = 0.0148539, antiderivative size = 34, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 25, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.08

$$\frac{x^{1-m}(-a-bx)^{-n}(a+bx)^n}{1-m}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^n/(x^m*(-a - b*x)^n),x]
```

```
[Out] (x^(1 - m)*(a + b*x)^n)/((1 - m)*(-a - b*x)^n)
```

Rubi in Sympy [A] time = 4.50403, size = 22, normalized size = 0.65

$$\frac{x^{-m+1}\left(-a-bx\right)^{-n}\left(a+bx\right)^{n}}{-m+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**n/(x**m)/((-b*x-a)**n),x)
```

```
[Out] x**(-m + 1)*(-a - b*x)**(-n)*(a + b*x)**n/(-m + 1)
```

Mathematica [A] time = 0.010617, size = 34, normalized size = 1.

$$\frac{x^{1-m}(-a-bx)^{-n}(a+bx)^n}{1-m}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^n/(x^m*(-a - b*x)^n),x]
```

```
[Out] (x^(1 - m)*(a + b*x)^n)/((1 - m)*(-a - b*x)^n)
```

Maple [A] time = 0.003, size = 33, normalized size = 1.

$$-\frac{x\left(bx+a\right)^{n}}{\left(-1+m\right)x^{m}\left(-bx-a\right)^{n}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^n/(x^m)/((-b*x-a)^n),x)
```

```
[Out] -x/(-1+m)*(b*x+a)^n/(x^m)/((-b*x-a)^n)
```

Maxima [A] time = 1.37182, size = 28, normalized size = 0.82

$$-\frac{xx^{-m}}{(-1)^n m - (-1)^n}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/((-b*x - a)^n*x^m),x, algorithm="maxima")
```

```
[Out] -x*x^(-m)/((-1)^n*m - (-1)^n)
```

Fricas [A] time = 0.256507, size = 23, normalized size = 0.68

$$-\frac{x\cos(\pi n)}{(m-1)x^m}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/((-b*x - a)^n*x^m),x, algorithm="fricas")
```

```
[Out] -x*cos(pi*n)/((m - 1)*x^m)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**n/(x**m)/((-b*x-a)**n),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.287506, size = 1, normalized size = 0.03

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/((-b*x - a)^n*x^m),x, algorithm="giac")
```

```
[Out] Done
```

3.816 $\int \frac{x^3\sqrt{1+x}}{(1-x)^{5/2}}\,dx$

Optimal. Leaf size=78

$$\frac{2\sqrt{x+1}x^3}{3(1-x)^{3/2}}-\frac{13\sqrt{x+1}x^2}{3\sqrt{1-x}}-\frac{1}{6}\sqrt{1-x}\sqrt{x+1}(33x+52)+\frac{11}{2}\sin^{-1}(x)$$

```
[Out] (-13*x^2*Sqrt[1 + x])/(3*Sqrt[1 - x]) + (2*x^3*Sqrt[1 + x])/(3*(1
 - x)^(3/2)) - (Sqrt[1 - x]*Sqrt[1 + x]*(52 + 33*x))/6 + (11*ArcS
in[x])/2
```

Rubi [A] time = 0.121988, antiderivative size = 78, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$\frac{2\sqrt{x+1}x^3}{3(1-x)^{3/2}}-\frac{13\sqrt{x+1}x^2}{3\sqrt{1-x}}-\frac{1}{6}\sqrt{1-x}\sqrt{x+1}(33x+52)+\frac{11}{2}\sin^{-1}(x)$$

Antiderivative was successfully verified.

```
[In]  Int[(x^3*Sqrt[1 + x])/(1 - x)^(5/2),x]
```

```
[Out] (-13*x^2*Sqrt[1 + x])/(3*Sqrt[1 - x]) + (2*x^3*Sqrt[1 + x])/(3*(1
 - x)^(3/2)) - (Sqrt[1 - x]*Sqrt[1 + x]*(52 + 33*x))/6 + (11*ArcS
in[x])/2
```

Rubi in Sympy [A] time = 10.824, size = 68, normalized size = 0.87

$$\frac{2x^3\sqrt{x+1}}{3\left(-x+1\right)^{\frac{3}{2}}}-\frac{13x^2\sqrt{x+1}}{3\sqrt{-x+1}}-\frac{\sqrt{-x+1}\sqrt{x+1}\left(\frac{33x}{2}+26\right)}{3}+\frac{11\operatorname{asin}\left(x\right)}{2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3*(1+x)**(1/2)/(1-x)**(5/2),x)
```

```
[Out] 2*x**3*sqrt(x + 1)/(3*(-x + 1)**(3/2)) - 13*x**2*sqrt(x + 1)/(3*s
qrt(-x + 1)) - sqrt(-x + 1)*sqrt(x + 1)*(33*x/2 + 26)/3 + 11*asin
(x)/2
```

Mathematica [A] time = 0.0693957, size = 52, normalized size = 0.67

$$11\sin^{-1}\left(\frac{\sqrt{x+1}}{\sqrt{2}}\right)-\frac{\sqrt{1-x^2}\left(3x^3+12x^2-71x+52\right)}{6(x-1)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^3*Sqrt[1 + x])/(1 - x)^(5/2),x]
```

```
[Out] -(Sqrt[1 - x^2]*(52 - 71*x + 12*x^2 + 3*x^3))/(6*(-1 + x)^2) + 11
*ArcSin[Sqrt[1 + x]/Sqrt[2]]
```

Maple [A] time = 0.024, size = 97, normalized size = 1.2

$$\frac{1}{6\left(-1+x\right)^2}\left(-3x^3\sqrt{-x^2+1}+33\arcsin\left(x\right)x^2-12x^2\sqrt{-x^2+1}-66\arcsin\left(x\right)x+71x\sqrt{-x^2+1}+33\arcsin\left(x\right)-52\sqrt{-x\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^3*(1+x)^(1/2)/(1-x)^(5/2),x)
```

```
[Out] 1/6*(-3*x^3*(-x^2+1)^(1/2)+33*arcsin(x)*x^2-12*x^2*(-x^2+1)^(1/2)
-66*arcsin(x)*x+71*x*(-x^2+1)^(1/2)+33*arcsin(x)-52*(-x^2+1)^(1/2
))*(1-x)^(1/2)*(1+x)^(1/2)/(-1+x)^2/(-x^2+1)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(x + 1)*x^3/(-x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] Timed out
```

Fricas [A] time = 0.241432, size = 273, normalized size = 3.5

$$-\frac{3\,x^{7}+3\,x^{6}-79\,x^{5}+285\,x^{4}-88\,x^{3}-396\,x^{2}+\left(3\,x^{6}+24\,x^{5}-87\,x^{4}-44\,x^{3}+396\,x^{2}-264\,x\right)\sqrt{x+1}\sqrt{-x+1}+66\,\left(x^{5}+2\right.}{6\,\left(x^{5}+2\,x^{4}-11\,x^{3}+4\,x^{2}-(x^{4}-5\,x^{3}+12\,x-8\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(x + 1)*x^3/(-x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] -1/6*(3*x^7 + 3*x^6 - 79*x^5 + 285*x^4 - 88*x^3 - 396*x^2 + (3*x^
6 + 24*x^5 - 87*x^4 - 44*x^3 + 396*x^2 - 264*x)*sqrt(x + 1)*sqrt(
-x + 1) + 66*(x^5 + 2*x^4 - 11*x^3 + 4*x^2 - (x^4 - 5*x^3 + 12*x
- 8)*sqrt(x + 1)*sqrt(-x + 1) + 12*x - 8)*arctan((sqrt(x + 1)*sqr
t(-x + 1) - 1)/x) + 264*x)/(x^5 + 2*x^4 - 11*x^3 + 4*x^2 - (x^4 -
 5*x^3 + 12*x - 8)*sqrt(x + 1)*sqrt(-x + 1) + 12*x - 8)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**3*(1+x)**(1/2)/(1-x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.22474, size = 66, normalized size = 0.85

$$-\frac{\left(\left(3\,(x+2)(x+1)-86\right)(x+1)+132\right)\sqrt{x+1}\sqrt{-x+1}}{6\,(x-1)^{2}}+11\,\arcsin\left(\frac{1}{2}\,\sqrt{2}\sqrt{x+1}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(x + 1)*x^3/(-x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] -1/6*((3*(x + 2)*(x + 1) - 86)*(x + 1) + 132)*sqrt(x + 1)*sqrt(-x
 + 1)/(x - 1)^2 + 11*arcsin(1/2*sqrt(2)*sqrt(x + 1))
```

3.817 $\int \frac{x^2\sqrt{1+x}}{(1-x)^{5/2}}\,dx$

Optimal. Leaf size=61

$$\frac{(x+1)^{3/2}}{3(1-x)^{3/2}}-\sqrt{1-x}\sqrt{x+1}-\frac{4\sqrt{x+1}}{\sqrt{1-x}}+3\sin^{-1}(x)$$

```
[Out] (-4*Sqrt[1 + x])/Sqrt[1 - x] - Sqrt[1 - x]*Sqrt[1 + x] + (1 + x)^
(3/2)/(3*(1 - x)^(3/2)) + 3*ArcSin[x]
```

Rubi [A] time = 0.0698379, antiderivative size = 61, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.3

$$-\frac{2(x+1)^{3/2}}{\sqrt{1-x}}+\frac{(x+1)^{3/2}}{3(1-x)^{3/2}}-3\sqrt{1-x}\sqrt{x+1}+3\sin^{-1}(x)$$

Antiderivative was successfully verified.

```
[In]  Int[(x^2*Sqrt[1 + x])/(1 - x)^(5/2),x]
```

```
[Out] -3*Sqrt[1 - x]*Sqrt[1 + x] + (1 + x)^(3/2)/(3*(1 - x)^(3/2)) - (2
*(1 + x)^(3/2))/Sqrt[1 - x] + 3*ArcSin[x]
```

Rubi in Sympy [A] time = 8.02049, size = 49, normalized size = 0.8

$$-3\sqrt{-x+1}\sqrt{x+1}+3\,\mathrm{asin}\,(x)-\frac{2\,(x+1)^{\frac{3}{2}}}{\sqrt{-x+1}}+\frac{(x+1)^{\frac{3}{2}}}{3\,(-x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(1+x)**(1/2)/(1-x)**(5/2),x)
```

```
[Out] -3*sqrt(-x + 1)*sqrt(x + 1) + 3*asin(x) - 2*(x + 1)**(3/2)/sqrt(-
x + 1) + (x + 1)**(3/2)/(3*(-x + 1)**(3/2))
```

Mathematica [A] time = 0.0708282, size = 47, normalized size = 0.77

$$6\sin^{-1}\left(\frac{\sqrt{x+1}}{\sqrt{2}}\right)-\frac{\sqrt{1-x^2}\left(3x^2-19x+14\right)}{3(x-1)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^2*Sqrt[1 + x])/(1 - x)^(5/2),x]
```

```
[Out] -(Sqrt[1 - x^2]*(14 - 19*x + 3*x^2))/(3*(-1 + x)^2) + 6*ArcSin[Sq
rt[1 + x]/Sqrt[2]]
```

Maple [A] time = 0.014, size = 83, normalized size = 1.4

$$\frac{1}{3\,(-1+x)^2}\left(9\,\arcsin(x)\,x^2-3\,x^2\sqrt{-x^2+1}-18\,\arcsin(x)\,x+19\,x\sqrt{-x^2+1}+9\,\arcsin(x)-14\,\sqrt{-x^2+1}\right)\sqrt{1-x}\sqrt{1+x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(1+x)^(1/2)/(1-x)^(5/2),x)
```

```
[Out] 1/3*(9*arcsin(x)*x^2-3*x^2*(-x^2+1)^(1/2)-18*arcsin(x)*x+19*x*(-x
^2+1)^(1/2)+9*arcsin(x)-14*(-x^2+1)^(1/2))*(1-x)^(1/2)*(1+x)^(1/2
)/(-1+x)^2/(-x^2+1)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(x + 1)*x^2/(-x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] Timed out
```

Fricas [A] time = 0.255379, size = 220, normalized size = 3.61

$$\frac{3\,x^{5} - 24\,x^{4} + 7\,x^{3} + 54\,x^{2} - \left(3\,x^{4} - 11\,x^{3} + 54\,x^{2} - 36\,x\right)\sqrt{x + 1}\sqrt{-x + 1} - 18\,\left(x^{4} - 4\,x^{3} + x^{2} + \left(x^{3} + x^{2} - 6\,x + 4\right)\sqrt{x + 1}\cdots\right.}{3\,\left(x^{4} - 4\,x^{3} + x^{2} + (x^{3} + x^{2} - 6\,x + 4)\sqrt{x + 1}\sqrt{-x + 1} + 6\,x - 4\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(x + 1)*x^2/(-x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/3*(3*x^5 - 24*x^4 + 7*x^3 + 54*x^2 - (3*x^4 - 11*x^3 + 54*x^2 -
 36*x)*sqrt(x + 1)*sqrt(-x + 1) - 18*(x^4 - 4*x^3 + x^2 + (x^3 +
x^2 - 6*x + 4)*sqrt(x + 1)*sqrt(-x + 1) + 6*x - 4)*arctan((sqrt(x
 + 1)*sqrt(-x + 1) - 1)/x) - 36*x)/(x^4 - 4*x^3 + x^2 + (x^3 + x^
2 - 6*x + 4)*sqrt(x + 1)*sqrt(-x + 1) + 6*x - 4)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(1+x)**(1/2)/(1-x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.219764, size = 59, normalized size = 0.97

$$-\frac{((3\,x - 22)(x + 1) + 36)\sqrt{x + 1}\sqrt{-x + 1}}{3\,(x - 1)^{2}} + 6\,\arcsin\left(\frac{1}{2}\,\sqrt{2}\sqrt{x + 1}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(x + 1)*x^2/(-x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] -1/3*((3*x - 22)*(x + 1) + 36)*sqrt(x + 1)*sqrt(-x + 1)/(x - 1)^2
 + 6*arcsin(1/2*sqrt(2)*sqrt(x + 1))
```

3.818 $\int \frac{x\sqrt{1+x}}{(1-x)^{5/2}}\,dx$

Optimal. Leaf size=41

$$\frac{(x+1)^{3/2}}{3(1-x)^{3/2}}-\frac{2\sqrt{x+1}}{\sqrt{1-x}}+\sin^{-1}(x)$$

```
[Out] (-2*Sqrt[1 + x])/Sqrt[1 - x] + (1 + x)^(3/2)/(3*(1 - x)^(3/2)) +
ArcSin[x]
```

Rubi [A] time = 0.0394299, antiderivative size = 41, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.222

$$\frac{(x+1)^{3/2}}{3(1-x)^{3/2}}-\frac{2\sqrt{x+1}}{\sqrt{1-x}}+\sin^{-1}(x)$$

Antiderivative was successfully verified.

```
[In]  Int[(x*Sqrt[1 + x])/(1 - x)^(5/2),x]
```

```
[Out] (-2*Sqrt[1 + x])/Sqrt[1 - x] + (1 + x)^(3/2)/(3*(1 - x)^(3/2)) +
ArcSin[x]
```

Rubi in Sympy [A] time = 5.30974, size = 32, normalized size = 0.78

$$\operatorname{asin}(x)-\frac{2\sqrt{x+1}}{\sqrt{-x+1}}+\frac{(x+1)^{\frac{3}{2}}}{3(-x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(1+x)**(1/2)/(1-x)**(5/2),x)
```

```
[Out] asin(x) - 2*sqrt(x + 1)/sqrt(-x + 1) + (x + 1)**(3/2)/(3*(-x + 1)
**(3/2))
```

Mathematica [A] time = 0.0423721, size = 42, normalized size = 1.02

$$\frac{\sqrt{1-x^2}(7x-5)}{3(x-1)^2}+2\sin^{-1}\left(\frac{\sqrt{x+1}}{\sqrt{2}}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x*Sqrt[1 + x])/(1 - x)^(5/2),x]
```

```
[Out] ((-5 + 7*x)*Sqrt[1 - x^2])/(3*(-1 + x)^2) + 2*ArcSin[Sqrt[1 + x]/
Sqrt[2]]
```

Maple [B] time = 0.016, size = 69, normalized size = 1.7

$$\frac{1}{3(-1+x)^2}\left(3\arcsin(x)x^2-6\arcsin(x)x+7x\sqrt{-x^2+1}+3\arcsin(x)-5\sqrt{-x^2+1}\right)\sqrt{1-x}\sqrt{1+x}\frac{1}{\sqrt{-x^2+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(1+x)^(1/2)/(1-x)^(5/2),x)
```

```
[Out] 1/3*(3*arcsin(x)*x^2-6*arcsin(x)*x+7*x*(-x^2+1)^(1/2)+3*arcsin(x)
-5*(-x^2+1)^(1/2))*(1-x)^(1/2)*(1+x)^(1/2)/(-1+x)^2/(-x^2+1)^(1/2
)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{x+1}x}{(-x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(x + 1)*x/(-x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(x + 1)*x/(-x + 1)^(5/2), x)
```

Fricas [A] time = 0.245658, size = 163, normalized size = 3.98

$$\frac{2\left(x^{3}-6\,x^{2}+3\left(2\,x^{2}-x\right)\sqrt{x+1}\sqrt{-x+1}-3\left(x^{3}-\left(x^{2}-3\,x+2\right)\sqrt{x+1}\sqrt{-x+1}-3\,x+2\right)\arctan\left(\frac{\sqrt{x+1}\sqrt{-x+1}-1}{x}\right)+3\,x\right)}{3\left(x^{3}-(x^{2}-3\,x+2)\sqrt{x+1}\sqrt{-x+1}-3\,x+2\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(x + 1)*x/(-x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 2/3*(x^3 - 6*x^2 + 3*(2*x^2 - x)*sqrt(x + 1)*sqrt(-x + 1) - 3*(x^
3 - (x^2 - 3*x + 2)*sqrt(x + 1)*sqrt(-x + 1) - 3*x + 2)*arctan((s
qrt(x + 1)*sqrt(-x + 1) - 1)/x) + 3*x)/(x^3 - (x^2 - 3*x + 2)*sqr
t(x + 1)*sqrt(-x + 1) - 3*x + 2)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x\sqrt{x+1}}{(-x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(1+x)**(1/2)/(1-x)**(5/2),x)
```

```
[Out] Integral(x*sqrt(x + 1)/(-x + 1)**(5/2), x)
```

GIAC/XCAS [A] time = 0.223238, size = 51, normalized size = 1.24

$$\frac{(7\,x-5)\sqrt{x+1}\sqrt{-x+1}}{3\,(x-1)^{2}}+2\,\arcsin\left(\frac{1}{2}\,\sqrt{2}\sqrt{x+1}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(x + 1)*x/(-x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] 1/3*(7*x - 5)*sqrt(x + 1)*sqrt(-x + 1)/(x - 1)^2 + 2*arcsin(1/2*s
qrt(2)*sqrt(x + 1))
```

3.819 $\int \frac{\sqrt{1+x}}{(1-x)^{5/2}}\,dx$

Optimal. Leaf size=20

$$\frac{(x+1)^{3/2}}{3(1-x)^{3/2}}$$

```
[Out] (1 + x)^(3/2)/(3*(1 - x)^(3/2))
```

Rubi [A] time = 0.012527, antiderivative size = 20, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 17, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.059

$$\frac{(x+1)^{3/2}}{3(1-x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In] Int[Sqrt[1 + x]/(1 - x)^(5/2),x]
```

```
[Out] (1 + x)^(3/2)/(3*(1 - x)^(3/2))
```

Rubi in Sympy [A] time = 2.39969, size = 14, normalized size = 0.7

$$\frac{(x+1)^{\frac{3}{2}}}{3\left(-x+1\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1+x)**(1/2)/(1-x)**(5/2),x)
```

```
[Out] (x + 1)**(3/2)/(3*(-x + 1)**(3/2))
```

Mathematica [A] time = 0.018766, size = 20, normalized size = 1.

$$\frac{(x+1)^{3/2}}{3(1-x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In] Integrate[Sqrt[1 + x]/(1 - x)^(5/2),x]
```

```
[Out] (1 + x)^(3/2)/(3*(1 - x)^(3/2))
```

Maple [A] time = 0.005, size = 15, normalized size = 0.8

$$\frac{1}{3}\left(1+x\right)^{\frac{3}{2}}\left(1-x\right)^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((1+x)^(1/2)/(1-x)^(5/2),x)
```

```
[Out] 1/3*(1+x)^(3/2)/(1-x)^(3/2)
```

Maxima [A] time = 1.33794, size = 51, normalized size = 2.55

$$\frac{2\sqrt{-x^2+1}}{3\left(x^2-2x+1\right)}+\frac{\sqrt{-x^2+1}}{3\left(x-1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(x + 1)/(-x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] 2/3*sqrt(-x^2 + 1)/(x^2 - 2*x + 1) + 1/3*sqrt(-x^2 + 1)/(x - 1)
```

Fricas [A] time = 0.230024, size = 76, normalized size = 3.8

$$\frac{2\left(x^3+3\sqrt{x+1}x\sqrt{-x+1}-3x\right)}{3\left(x^3-\left(x^2-3x+2\right)\sqrt{x+1}\sqrt{-x+1}-3x+2\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(x + 1)/(-x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 2/3*(x^3 + 3*sqrt(x + 1)*x*sqrt(-x + 1) - 3*x)/(x^3 - (x^2 - 3*x
+ 2)*sqrt(x + 1)*sqrt(-x + 1) - 3*x + 2)
```

Sympy [A] time = 9.95806, size = 61, normalized size = 3.05

$$\begin{cases} \frac{i(x+1)^{\frac{3}{2}}}{3\sqrt{x-1}(x+1)-6\sqrt{x-1}} & \text{for}\ \frac{|x+1|}{2}>1 \\ -\frac{(x+1)^{\frac{3}{2}}}{3\sqrt{-x+1}(x+1)-6\sqrt{-x+1}} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1+x)**(1/2)/(1-x)**(5/2),x)
```

```
[Out] Piecewise((I*(x + 1)**(3/2)/(3*sqrt(x - 1)*(x + 1) - 6*sqrt(x - 1
)), Abs(x + 1)/2 > 1), (-(x + 1)**(3/2)/(3*sqrt(-x + 1)*(x + 1) -
 6*sqrt(-x + 1)), True))
```

GIAC/XCAS [A] time = 0.228635, size = 26, normalized size = 1.3

$$\frac{(x+1)^{\frac{3}{2}}\sqrt{-x+1}}{3\left(x-1\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(x + 1)/(-x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] 1/3*(x + 1)^(3/2)*sqrt(-x + 1)/(x - 1)^2
```

3.820 $\int \frac{\sqrt{1+x}}{(-1+x)^{5/2}}\,dx$

Optimal. Leaf size=18

$$-\frac{(x+1)^{3/2}}{3(x-1)^{3/2}}$$

```
[Out] -(1 + x)^(3/2)/(3*(-1 + x)^(3/2))
```

Rubi [A] time = 0.011009, antiderivative size = 18, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.067

$$-\frac{(x+1)^{3/2}}{3(x-1)^{3/2}}$$

Antiderivative was successfully verified.

```
[In] Int[Sqrt[1 + x]/(-1 + x)^(5/2),x]

[Out] -(1 + x)^(3/2)/(3*(-1 + x)^(3/2))
```

Rubi in Sympy [A] time = 2.05364, size = 15, normalized size = 0.83

$$-\frac{(x+1)^{\frac{3}{2}}}{3\,(x-1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1+x)**(1/2)/(-1+x)**(5/2),x)

[Out] -(x + 1)**(3/2)/(3*(x - 1)**(3/2))
```

Mathematica [A] time = 0.0161908, size = 17, normalized size = 0.94

$$-\frac{1}{3\left(\frac{x-1}{x+1}\right)^{3/2}}$$

Antiderivative was successfully verified.

```
[In] Integrate[Sqrt[1 + x]/(-1 + x)^(5/2),x]

[Out] -1/(3*((-1 + x)/(1 + x))^(3/2))
```

Maple [A] time = 0.003, size = 13, normalized size = 0.7

$$-\frac{1}{3}\,(1+x)^{\frac{3}{2}}\,(-1+x)^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((1+x)^(1/2)/(-1+x)^(5/2),x)
```

```
[Out] -1/3*(1+x)^(3/2)/(-1+x)^(3/2)
```

Maxima [A] time = 1.34322, size = 46, normalized size = 2.56

$$-\frac{2\sqrt{x^2-1}}{3\,(x^2-2\,x+1)}-\frac{\sqrt{x^2-1}}{3\,(x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(x + 1)/(x - 1)^(5/2),x, algorithm="maxima")
```

```
[Out] -2/3*sqrt(x^2 - 1)/(x^2 - 2*x + 1) - 1/3*sqrt(x^2 - 1)/(x - 1)
```

Fricas [A] time = 0.232634, size = 78, normalized size = 4.33

$$-\frac{2\left(3\sqrt{x+1}\sqrt{x-1}x-3\,x^2+1\right)}{3\left(2\,x^3-(2\,x^2-3\,x+1)\sqrt{x+1}\sqrt{x-1}-3\,x^2+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(x + 1)/(x - 1)^(5/2),x, algorithm="fricas")
```

```
[Out] -2/3*(3*sqrt(x + 1)*sqrt(x - 1)*x - 3*x^2 + 1)/(2*x^3 - (2*x^2 -
3*x + 1)*sqrt(x + 1)*sqrt(x - 1) - 3*x^2 + 1)
```

Sympy [A] time = 10.0555, size = 61, normalized size = 3.39

$$\begin{cases} -\frac{(x+1)^{\frac{3}{2}}}{3\sqrt{x-1}(x+1)-6\sqrt{x-1}} & \text{for}\ \frac{|x+1|}{2}>1 \\ \frac{i(x+1)^{\frac{3}{2}}}{3\sqrt{-x+1}(x+1)-6\sqrt{-x+1}} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1+x)**(1/2)/(-1+x)**(5/2),x)
```

```
[Out] Piecewise((-(x + 1)**(3/2)/(3*sqrt(x - 1)*(x + 1) - 6*sqrt(x - 1)
), Abs(x + 1)/2 > 1), (I*(x + 1)**(3/2)/(3*sqrt(-x + 1)*(x + 1) -
 6*sqrt(-x + 1)), True))
```

GIAC/XCAS [A] time = 0.217879, size = 16, normalized size = 0.89

$$-\frac{(x+1)^{\frac{3}{2}}}{3\,(x-1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(x + 1)/(x - 1)^(5/2),x, algorithm="giac")
```

```
[Out] -1/3*(x + 1)^(3/2)/(x - 1)^(3/2)
```

3.821 $\int \frac{\sqrt{1+x}}{(1-x)^{5/2}x}\,dx$

Optimal. Leaf size=59

$$\frac{(x+1)^{3/2}}{3(1-x)^{3/2}}+\frac{2\sqrt{x+1}}{\sqrt{1-x}}-\tanh^{-1}\left(\sqrt{1-x}\sqrt{x+1}\right)$$

```
[Out] (2*Sqrt[1 + x])/Sqrt[1 - x] + (1 + x)^(3/2)/(3*(1 - x)^(3/2)) - A
rcTanh[Sqrt[1 - x]*Sqrt[1 + x]]
```

Rubi [A] time = 0.0743007, antiderivative size = 59, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.2

$$\frac{(x+1)^{3/2}}{3(1-x)^{3/2}}+\frac{2\sqrt{x+1}}{\sqrt{1-x}}-\tanh^{-1}\left(\sqrt{1-x}\sqrt{x+1}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 + x]/((1 - x)^(5/2)*x),x]
```

```
[Out] (2*Sqrt[1 + x])/Sqrt[1 - x] + (1 + x)^(3/2)/(3*(1 - x)^(3/2)) - A
rcTanh[Sqrt[1 - x]*Sqrt[1 + x]]
```

Rubi in Sympy [A] time = 6.56273, size = 44, normalized size = 0.75

$$-\operatorname{atanh}\left(\sqrt{-x+1}\sqrt{x+1}\right)+\frac{2\sqrt{x+1}}{\sqrt{-x+1}}+\frac{(x+1)^{\frac{3}{2}}}{3(-x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1+x)**(1/2)/(1-x)**(5/2)/x,x)
```

```
[Out] -atanh(sqrt(-x + 1)*sqrt(x + 1)) + 2*sqrt(x + 1)/sqrt(-x + 1) + (
x + 1)**(3/2)/(3*(-x + 1)**(3/2))
```

Mathematica [A] time = 0.0676802, size = 92, normalized size = 1.56

$$\frac{\sqrt{1-x^2}(7-5x)}{3(x-1)^2}+\log\left(1-\sqrt{x+1}\right)-\log\left(\sqrt{1-x}-\sqrt{x+1}+2\right)-\log\left(\sqrt{x+1}+1\right)+\log\left(\sqrt{1-x}+\sqrt{x+1}+2\right)$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[Sqrt[1 + x]/((1 - x)^(5/2)*x),x]
```

```
[Out] ((7 - 5*x)*Sqrt[1 - x^2])/(3*(-1 + x)^2) + Log[1 - Sqrt[1 + x]] -
 Log[2 + Sqrt[1 - x] - Sqrt[1 + x]] - Log[1 + Sqrt[1 + x]] + Log[
2 + Sqrt[1 - x] + Sqrt[1 + x]]
```

Maple [B] time = 0.017, size = 93, normalized size = 1.6

$$-\frac{1}{3(-1+x)^2}\left(3\,Artanh\left(\frac{1}{\sqrt{-x^2+1}}\right)x^2-6\,Artanh\left(\frac{1}{\sqrt{-x^2+1}}\right)x+5\,x\sqrt{-x^2+1}+3\,Artanh\left(\frac{1}{\sqrt{-x^2+1}}\right)-7\sqrt{-x^2+1}\right)\sqrt{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1+x)^(1/2)/(1-x)^(5/2)/x,x)
```

```
[Out] -1/3*(3*arctanh(1/(-x^2+1)^(1/2))*x^2-6*arctanh(1/(-x^2+1)^(1/2))
*x+5*x*(-x^2+1)^(1/2)+3*arctanh(1/(-x^2+1)^(1/2))-7*(-x^2+1)^(1/2
))*(1-x)^(1/2)*(1+x)^(1/2)/(-1+x)^2/(-x^2+1)^(1/2)
```

Maxima [A] time = 1.34463, size = 95, normalized size = 1.61

$$\frac{5\,x}{3\,\sqrt{-x^2+1}}+\frac{1}{\sqrt{-x^2+1}}+\frac{4\,x}{3\,(-x^2+1)^{\frac{3}{2}}}+\frac{4}{3\,(-x^2+1)^{\frac{3}{2}}}-\log\left(\frac{2\,\sqrt{-x^2+1}}{|x|}+\frac{2}{|x|}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(x + 1)/(x*(-x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 5/3*x/sqrt(-x^2 + 1) + 1/sqrt(-x^2 + 1) + 4/3*x/(-x^2 + 1)^(3/2)
+ 4/3/(-x^2 + 1)^(3/2) - log(2*sqrt(-x^2 + 1)/abs(x) + 2/abs(x))
```

Fricas [A] time = 0.233293, size = 166, normalized size = 2.81

$$\frac{2\,x^3+12\,x^2-6\,\left(2\,x^2-3\,x\right)\sqrt{x+1}\sqrt{-x+1}+3\,\left(x^3-\left(x^2-3\,x+2\right)\sqrt{x+1}\sqrt{-x+1}-3\,x+2\right)\log\left(\frac{\sqrt{x+1}\sqrt{-x+1}-1}{x}\right)-18\,x}{3\,\left(x^3-(x^2-3\,x+2)\sqrt{x+1}\sqrt{-x+1}-3\,x+2\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(x + 1)/(x*(-x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/3*(2*x^3 + 12*x^2 - 6*(2*x^2 - 3*x)*sqrt(x + 1)*sqrt(-x + 1) +
3*(x^3 - (x^2 - 3*x + 2)*sqrt(x + 1)*sqrt(-x + 1) - 3*x + 2)*log(
(sqrt(x + 1)*sqrt(-x + 1) - 1)/x) - 18*x)/(x^3 - (x^2 - 3*x + 2)*
sqrt(x + 1)*sqrt(-x + 1) - 3*x + 2)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{\sqrt{x+1}}{x\,(-x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1+x)**(1/2)/(1-x)**(5/2)/x,x)
```

```
[Out] Integral(sqrt(x + 1)/(x*(-x + 1)**(5/2)), x)
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(x + 1)/(x*(-x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] Exception raised: NotImplementedError
```

3.822 $\int \frac{\sqrt{1+x}}{(1-x)^{5/2}x^2}\,dx$

Optimal. Leaf size=87

$$\frac{14\sqrt{x+1}}{3\sqrt{1-x}}-\frac{5\sqrt{x+1}}{3\sqrt{1-x}x}+\frac{2\sqrt{x+1}}{3(1-x)^{3/2}x}-3\tanh^{-1}\left(\sqrt{1-x}\sqrt{x+1}\right)$$

```
[Out] (14*Sqrt[1 + x])/(3*Sqrt[1 - x]) + (2*Sqrt[1 + x])/(3*(1 - x)^(3/
2)*x) - (5*Sqrt[1 + x])/(3*Sqrt[1 - x]*x) - 3*ArcTanh[Sqrt[1 - x]
*Sqrt[1 + x]]
```

Rubi [A] time = 0.151866, antiderivative size = 87, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.3

$$\frac{14\sqrt{x+1}}{3\sqrt{1-x}}-\frac{5\sqrt{x+1}}{3\sqrt{1-x}x}+\frac{2\sqrt{x+1}}{3(1-x)^{3/2}x}-3\tanh^{-1}\left(\sqrt{1-x}\sqrt{x+1}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 + x]/((1 - x)^(5/2)*x^2),x]
```

```
[Out] (14*Sqrt[1 + x])/(3*Sqrt[1 - x]) + (2*Sqrt[1 + x])/(3*(1 - x)^(3/
2)*x) - (5*Sqrt[1 + x])/(3*Sqrt[1 - x]*x) - 3*ArcTanh[Sqrt[1 - x]
*Sqrt[1 + x]]
```

Rubi in Sympy [A] time = 12.5186, size = 65, normalized size = 0.75

$$-3\,\mathrm{atanh}\left(\sqrt{-x+1}\sqrt{x+1}\right)+\frac{14\sqrt{x+1}}{3\sqrt{-x+1}}+\frac{5\sqrt{x+1}}{3\left(-x+1\right)^{\frac{3}{2}}}-\frac{\sqrt{x+1}}{x\left(-x+1\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1+x)**(1/2)/(1-x)**(5/2)/x**2,x)
```

```
[Out] -3*atanh(sqrt(-x + 1)*sqrt(x + 1)) + 14*sqrt(x + 1)/(3*sqrt(-x +
1)) + 5*sqrt(x + 1)/(3*(-x + 1)**(3/2)) - sqrt(x + 1)/(x*(-x + 1)
**(3/2))
```

Mathematica [A] time = 0.0731584, size = 54, normalized size = 0.62

$$-\frac{\sqrt{1-x^2}\left(14x^2-19x+3\right)}{3(x-1)^2x}-3\log\left(\sqrt{1-x^2}+1\right)+3\log(x)$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[Sqrt[1 + x]/((1 - x)^(5/2)*x^2),x]
```

```
[Out] -(Sqrt[1 - x^2]*(3 - 19*x + 14*x^2))/(3*(-1 + x)^2*x) + 3*Log[x]
- 3*Log[1 + Sqrt[1 - x^2]]
```

Maple [A] time = 0.019, size = 113, normalized size = 1.3

$$-\frac{1}{3\,x\left(-1+x\right)^{2}}\left(9\,Artanh\left(\frac{1}{\sqrt{-x^{2}+1}}\right)x^{3}-18\,Artanh\left(\frac{1}{\sqrt{-x^{2}+1}}\right)x^{2}+14\,x^{2}\sqrt{-x^{2}+1}+9\,Artanh\left(\frac{1}{\sqrt{-x^{2}+1}}\right)x-19\,x\sqrt{-}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1+x)^(1/2)/(1-x)^(5/2)/x^2,x)
```

```
[Out] -1/3*(9*arctanh(1/(-x^2+1)^(1/2))*x^3-18*arctanh(1/(-x^2+1)^(1/2)
)*x^2+14*x^2*(-x^2+1)^(1/2)+9*arctanh(1/(-x^2+1)^(1/2))*x-19*x*(-
x^2+1)^(1/2)+3*(-x^2+1)^(1/2))*(1-x)^(1/2)*(1+x)^(1/2)/x/(-1+x)^2
/(-x^2+1)^(1/2)
```

Maxima [A] time = 1.35192, size = 116, normalized size = 1.33

$$\frac{14\,x}{3\,\sqrt{-x^2+1}}+\frac{3}{\sqrt{-x^2+1}}+\frac{7\,x}{3\,(-x^2+1)^{\frac{3}{2}}}+\frac{4}{3\,(-x^2+1)^{\frac{3}{2}}}-\frac{1}{(-x^2+1)^{\frac{3}{2}}x}-3\,\log\left(\frac{2\,\sqrt{-x^2+1}}{|x|}+\frac{2}{|x|}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(x + 1)/(x^2*(-x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 14/3*x/sqrt(-x^2 + 1) + 3/sqrt(-x^2 + 1) + 7/3*x/(-x^2 + 1)^(3/2)
 + 4/3/(-x^2 + 1)^(3/2) - 1/((-x^2 + 1)^(3/2)*x) - 3*log(2*sqrt(-
x^2 + 1)/abs(x) + 2/abs(x))
```

Fricas [A] time = 0.227914, size = 242, normalized size = 2.78

$$\frac{27\,x^5-29\,x^4-69\,x^3+69\,x^2-\left(x^4-60\,x^3+63\,x^2+18\,x-12\right)\sqrt{x+1}\sqrt{-x+1}+9\,\left(x^5-4\,x^4+x^3+6\,x^2+\left(x^4+x^3-6\,x^2\right.\right.}{3\,\left(x^5-4\,x^4+x^3+6\,x^2+(x^4+x^3-6\,x^2+4\,x)\sqrt{x+1}\sqrt{-x+1}-4\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(x + 1)/(x^2*(-x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/3*(27*x^5 - 29*x^4 - 69*x^3 + 69*x^2 - (x^4 - 60*x^3 + 63*x^2 +
 18*x - 12)*sqrt(x + 1)*sqrt(-x + 1) + 9*(x^5 - 4*x^4 + x^3 + 6*x
^2 + (x^4 + x^3 - 6*x^2 + 4*x)*sqrt(x + 1)*sqrt(-x + 1) - 4*x)*lo
g((sqrt(x + 1)*sqrt(-x + 1) - 1)/x) + 18*x - 12)/(x^5 - 4*x^4 + x
^3 + 6*x^2 + (x^4 + x^3 - 6*x^2 + 4*x)*sqrt(x + 1)*sqrt(-x + 1) -
 4*x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1+x)**(1/2)/(1-x)**(5/2)/x**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(x + 1)/(x^2*(-x + 1)^(5/2)),x, algorithm="giac")

[Out] Exception raised: NotImplementedError
```

3.823 $\int \frac{\sqrt{1+x}}{(1-x)^{5/2}x^3}\,dx$

Optimal. Leaf size=112

$$-\frac{7\sqrt{x+1}}{6\sqrt{1-x}x^2}+\frac{2\sqrt{x+1}}{3(1-x)^{3/2}x^2}+\frac{26\sqrt{x+1}}{3\sqrt{1-x}}-\frac{19\sqrt{x+1}}{6\sqrt{1-x}x}-\frac{11}{2}\tanh^{-1}\left(\sqrt{1-x}\sqrt{x+1}\right)$$

```
[Out] (26*Sqrt[1 + x])/(3*Sqrt[1 - x]) + (2*Sqrt[1 + x])/(3*(1 - x)^(3/
2)*x^2) - (7*Sqrt[1 + x])/(6*Sqrt[1 - x]*x^2) - (19*Sqrt[1 + x])/
(6*Sqrt[1 - x]*x) - (11*ArcTanh[Sqrt[1 - x]*Sqrt[1 + x]])/2
```

Rubi [A] time = 0.209634, antiderivative size = 112, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.3

$$-\frac{7\sqrt{x+1}}{6\sqrt{1-x}x^2}+\frac{2\sqrt{x+1}}{3(1-x)^{3/2}x^2}+\frac{26\sqrt{x+1}}{3\sqrt{1-x}}-\frac{19\sqrt{x+1}}{6\sqrt{1-x}x}-\frac{11}{2}\tanh^{-1}\left(\sqrt{1-x}\sqrt{x+1}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 + x]/((1 - x)^(5/2)*x^3),x]
```

```
[Out] (26*Sqrt[1 + x])/(3*Sqrt[1 - x]) + (2*Sqrt[1 + x])/(3*(1 - x)^(3/
2)*x^2) - (7*Sqrt[1 + x])/(6*Sqrt[1 - x]*x^2) - (19*Sqrt[1 + x])/
(6*Sqrt[1 - x]*x) - (11*ArcTanh[Sqrt[1 - x]*Sqrt[1 + x]])/2
```

Rubi in Sympy [A] time = 15.9353, size = 87, normalized size = 0.78

$$-\frac{11\operatorname{atanh}\left(\sqrt{-x+1}\sqrt{x+1}\right)}{2}+\frac{26\sqrt{x+1}}{3\sqrt{-x+1}}+\frac{19\sqrt{x+1}}{6\left(-x+1\right)^{\frac{3}{2}}}-\frac{2\sqrt{x+1}}{x\left(-x+1\right)^{\frac{3}{2}}}-\frac{\sqrt{x+1}}{2x^2\left(-x+1\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1+x)**(1/2)/(1-x)**(5/2)/x**3,x)
```

```
[Out] -11*atanh(sqrt(-x + 1)*sqrt(x + 1))/2 + 26*sqrt(x + 1)/(3*sqrt(-x
 + 1)) + 19*sqrt(x + 1)/(6*(-x + 1)**(3/2)) - 2*sqrt(x + 1)/(x*(-
x + 1)**(3/2)) - sqrt(x + 1)/(2*x**2*(-x + 1)**(3/2))
```

Mathematica [A] time = 0.0743509, size = 61, normalized size = 0.54

$$\frac{1}{6}\left(-33\log\left(\sqrt{1-x^2}+1\right)-\frac{\sqrt{1-x^2}\left(52x^3-71x^2+12x+3\right)}{(x-1)^2x^2}+33\log(x)\right)$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[Sqrt[1 + x]/((1 - x)^(5/2)*x^3),x]
```

```
[Out] (-((Sqrt[1 - x^2]*(3 + 12*x - 71*x^2 + 52*x^3))/((-1 + x)^2*x^2))
 + 33*Log[x] - 33*Log[1 + Sqrt[1 - x^2]])/6
```

Maple [A] time = 0.019, size = 129, normalized size = 1.2

$$-\frac{1}{6x^2(-1+x)^2}\left(33\,Artanh\left(\frac{1}{\sqrt{-x^2+1}}\right)x^4-66\,Artanh\left(\frac{1}{\sqrt{-x^2+1}}\right)x^3+52\,x^3\sqrt{-x^2+1}+33\,Artanh\left(\frac{1}{\sqrt{-x^2+1}}\right)x^2-71\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1+x)^(1/2)/(1-x)^(5/2)/x^3,x)
```

```
[Out] -1/6*(33*arctanh(1/(-x^2+1)^(1/2))*x^4-66*arctanh(1/(-x^2+1)^(1/2
))*x^3+52*x^3*(-x^2+1)^(1/2)+33*arctanh(1/(-x^2+1)^(1/2))*x^2-71*
x^2*(-x^2+1)^(1/2)+12*x*(-x^2+1)^(1/2)+3*(-x^2+1)^(1/2))*(1-x)^(1
/2)*(1+x)^(1/2)/x^2/(-1+x)^2/(-x^2+1)^(1/2)
```

Maxima [A] time = 1.34868, size = 135, normalized size = 1.21

$$\frac{26\,x}{3\,\sqrt{-x^2+1}}+\frac{11}{2\,\sqrt{-x^2+1}}+\frac{13\,x}{3\,(-x^2+1)^{\frac{3}{2}}}+\frac{11}{6\,(-x^2+1)^{\frac{3}{2}}}-\frac{3}{(-x^2+1)^{\frac{3}{2}}\,x}-\frac{1}{2\,(-x^2+1)^{\frac{3}{2}}\,x^2}-\frac{11}{2}\,\log\left(\frac{2\,\sqrt{-x^2+1}}{|x|}+\frac{2}{|x|}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(x + 1)/(x^3*(-x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 26/3*x/sqrt(-x^2 + 1) + 11/2/sqrt(-x^2 + 1) + 13/3*x/(-x^2 + 1)^(
3/2) + 11/6/(-x^2 + 1)^(3/2) - 3/((-x^2 + 1)^(3/2)*x) - 1/2/((-x^
2 + 1)^(3/2)*x^2) - 11/2*log(2*sqrt(-x^2 + 1)/abs(x) + 2/abs(x))
```

Fricas [A] time = 0.230051, size = 308, normalized size = 2.75

$$-\frac{14\,x^7-303\,x^6+227\,x^5+591\,x^4-429\,x^3-240\,x^2+\left(90\,x^6-53\,x^5-480\,x^4+375\,x^3+228\,x^2-108\,x-24\right)\sqrt{x+1}\sqrt{-x+\cdots}}{6\left(x^7+2\,x^6-11\,x^5+4\,x^4+12\,x^3-8\,x^2\cdots\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(x + 1)/(x^3*(-x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] -1/6*(14*x^7 - 303*x^6 + 227*x^5 + 591*x^4 - 429*x^3 - 240*x^2 +
(90*x^6 - 53*x^5 - 480*x^4 + 375*x^3 + 228*x^2 - 108*x - 24)*sqrt
(x + 1)*sqrt(-x + 1) - 33*(x^7 + 2*x^6 - 11*x^5 + 4*x^4 + 12*x^3
- 8*x^2 - (x^6 - 5*x^5 + 12*x^3 - 8*x^2)*sqrt(x + 1)*sqrt(-x + 1)
)*log((sqrt(x + 1)*sqrt(-x + 1) - 1)/x) + 108*x + 24)/(x^7 + 2*x^
6 - 11*x^5 + 4*x^4 + 12*x^3 - 8*x^2 - (x^6 - 5*x^5 + 12*x^3 - 8*x
^2)*sqrt(x + 1)*sqrt(-x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1+x)**(1/2)/(1-x)**(5/2)/x**3,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(x + 1)/(x^3*(-x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] Exception raised: NotImplementedError
```

3.824 $\int \frac{x^2}{\sqrt{-1+x}\sqrt{1+x}}\,dx$

Optimal. Leaf size=26

$$\frac{1}{2}\sqrt{x-1}\sqrt{x+1}x+\frac{1}{2}\cosh^{-1}(x)$$

```
[Out] (Sqrt[-1 + x]*x*Sqrt[1 + x])/2 + ArcCosh[x]/2
```

Rubi [A] time = 0.0337403, antiderivative size = 26, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.111

$$\frac{1}{2}\sqrt{x-1}\sqrt{x+1}x+\frac{1}{2}\cosh^{-1}(x)$$

Antiderivative was successfully verified.

```
[In] Int[x^2/(Sqrt[-1 + x]*Sqrt[1 + x]),x]
```

```
[Out] (Sqrt[-1 + x]*x*Sqrt[1 + x])/2 + ArcCosh[x]/2
```

Rubi in Sympy [A] time = 3.00214, size = 20, normalized size = 0.77

$$\frac{x\sqrt{x-1}\sqrt{x+1}}{2}+\frac{\operatorname{acosh}(x)}{2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(x**2/(-1+x)**(1/2)/(1+x)**(1/2),x)
```

```
[Out] x*sqrt(x - 1)*sqrt(x + 1)/2 + acosh(x)/2
```

Mathematica [A] time = 0.0300442, size = 34, normalized size = 1.31

$$\frac{1}{2}\sqrt{x-1}\sqrt{x+1}x+\sinh^{-1}\left(\frac{\sqrt{x-1}}{\sqrt{2}}\right)$$

Antiderivative was successfully verified.

```
[In] Integrate[x^2/(Sqrt[-1 + x]*Sqrt[1 + x]),x]
```

```
[Out] (Sqrt[-1 + x]*x*Sqrt[1 + x])/2 + ArcSinh[Sqrt[-1 + x]/Sqrt[2]]
```

Maple [B] time = 0.02, size = 40, normalized size = 1.5

$$\frac{1}{2}\sqrt{-1+x}\sqrt{1+x}\left(x\sqrt{x^2-1}+\ln\left(x+\sqrt{x^2-1}\right)\right)\frac{1}{\sqrt{x^2-1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^2/(-1+x)^(1/2)/(1+x)^(1/2),x)
```

```
[Out] 1/2*(-1+x)^(1/2)*(1+x)^(1/2)*(x*(x^2-1)^(1/2)+ln(x+(x^2-1)^(1/2))
)/(x^2-1)^(1/2)
```

Maxima [A] time = 1.35154, size = 36, normalized size = 1.38

$$\frac{1}{2}\sqrt{x^2-1}x+\frac{1}{2}\log\left(2x+2\sqrt{x^2-1}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2/(sqrt(x + 1)*sqrt(x - 1)),x, algorithm="maxima")
```

```
[Out] 1/2*sqrt(x^2 - 1)*x + 1/2*log(2*x + 2*sqrt(x^2 - 1))
```

Fricas [A] time = 0.229364, size = 127, normalized size = 4.88

$$\frac{2x^4-(2x^3-x)\sqrt{x+1}\sqrt{x-1}-2x^2-\left(2\sqrt{x+1}\sqrt{x-1}x-2x^2+1\right)\log\left(\sqrt{x+1}\sqrt{x-1}-x\right)}{2\left(2\sqrt{x+1}\sqrt{x-1}x-2x^2+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2/(sqrt(x + 1)*sqrt(x - 1)),x, algorithm="fricas")
```

```
[Out] 1/2*(2*x^4 - (2*x^3 - x)*sqrt(x + 1)*sqrt(x - 1) - 2*x^2 - (2*sqr
t(x + 1)*sqrt(x - 1)*x - 2*x^2 + 1)*log(sqrt(x + 1)*sqrt(x - 1) -
 x))/(2*sqrt(x + 1)*sqrt(x - 1)*x - 2*x^2 + 1)
```

Sympy [A] time = 12.7845, size = 87, normalized size = 3.35

$$\frac{G_{6,6}^{6,2}\left(\begin{matrix}-\frac{3}{4},-\frac{1}{4} & -\frac{1}{2},-\frac{1}{2},0,1\\ -1,-\frac{3}{4},-\frac{1}{2},-\frac{1}{4},0,0 & \end{matrix}\middle|\frac{1}{x^2}\right)}{4\pi^{\frac{3}{2}}}-\frac{iG_{6,6}^{2,6}\left(\begin{matrix}-\frac{3}{2},-\frac{5}{4},-1,-\frac{3}{4},-\frac{1}{2},1 & \\ -\frac{5}{4},-\frac{3}{4} & -\frac{3}{2},-1,-1,0\end{matrix}\middle|\frac{e^{2i\pi}}{x^2}\right)}{4\pi^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2/(-1+x)**(1/2)/(1+x)**(1/2),x)
```

```
[Out] meijerg(((-3/4, -1/4), (-1/2, -1/2, 0, 1)), ((-1, -3/4, -1/2, -1/
4, 0, 0), ()), x**(-2))/(4*pi**(3/2)) - I*meijerg(((-3/2, -5/4, -
1, -3/4, -1/2, 1), ()), ((-5/4, -3/4), (-3/2, -1, -1, 0)), exp_po
lar(2*I*pi)/x**2)/(4*pi**(3/2))
```

GIAC/XCAS [A] time = 0.239845, size = 42, normalized size = 1.62

$$\frac{1}{2}\sqrt{x+1}\sqrt{x-1}x-\ln\left(\left|-\sqrt{x+1}+\sqrt{x-1}\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2/(sqrt(x + 1)*sqrt(x - 1)),x, algorithm="giac")
```

```
[Out] 1/2*sqrt(x + 1)*sqrt(x - 1)*x - ln(abs(-sqrt(x + 1) + sqrt(x - 1)
))
```

3.825 $\int \frac{x}{\sqrt{-1+x}\sqrt{1+x}}\,dx$

Optimal. Leaf size=15

$$\sqrt{x-1}\sqrt{x+1}$$

```
[Out] Sqrt[-1 + x]*Sqrt[1 + x]
```

Rubi [A] time = 0.0107018, antiderivative size = 15, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$\sqrt{x-1}\sqrt{x+1}$$

Antiderivative was successfully verified.

```
[In]  Int[x/(Sqrt[-1 + x]*Sqrt[1 + x]),x]

[Out] Sqrt[-1 + x]*Sqrt[1 + x]
```

Rubi in Sympy [A] time = 1.90879, size = 12, normalized size = 0.8

$$\sqrt{x-1}\sqrt{x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x/(-1+x)**(1/2)/(1+x)**(1/2),x)

[Out] sqrt(x - 1)*sqrt(x + 1)
```

Mathematica [A] time = 0.0107335, size = 15, normalized size = 1.

$$\sqrt{x-1}\sqrt{x+1}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x/(Sqrt[-1 + x]*Sqrt[1 + x]),x]

[Out] Sqrt[-1 + x]*Sqrt[1 + x]
```

Maple [A] time = 0.004, size = 12, normalized size = 0.8

$$\sqrt{-1+x}\sqrt{1+x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x/(-1+x)^(1/2)/(1+x)^(1/2),x)

[Out] (-1+x)^(1/2)*(1+x)^(1/2)
```

Maxima [A] time = 1.33749, size = 9, normalized size = 0.6

$$\sqrt{x^2 - 1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/(sqrt(x + 1)*sqrt(x - 1)),x, algorithm="maxima")
```

```
[Out] sqrt(x^2 - 1)
```

Fricas [A] time = 0.237103, size = 51, normalized size = 3.4

$$-\frac{\sqrt{x+1}\sqrt{x-1}x - x^2 + 1}{\sqrt{x+1}\sqrt{x-1} - x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/(sqrt(x + 1)*sqrt(x - 1)),x, algorithm="fricas")
```

```
[Out] -(sqrt(x + 1)*sqrt(x - 1)*x - x^2 + 1)/(sqrt(x + 1)*sqrt(x - 1) -
 x)
```

Sympy [A] time = 7.50807, size = 76, normalized size = 5.07

$$\frac{G_{6,6}^{6,2}\left(\begin{matrix} -\frac{1}{4}, \frac{1}{4} & 0, 0, \frac{1}{2}, 1 \\ -\frac{1}{2}, -\frac{1}{4}, 0, \frac{1}{4}, \frac{1}{2}, 0 & \end{matrix} \middle| \frac{1}{x^2}\right)}{4\pi^{\frac{3}{2}}} + \frac{iG_{6,6}^{2,6}\left(\begin{matrix} -1, -\frac{3}{4}, -\frac{1}{2}, -\frac{1}{4}, 0, 1 & \\ -\frac{3}{4}, -\frac{1}{4} & -1, -\frac{1}{2}, -\frac{1}{2}, 0 \end{matrix} \middle| \frac{e^{2i\pi}}{x^2}\right)}{4\pi^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/(-1+x)**(1/2)/(1+x)**(1/2),x)
```

```
[Out] meijerg(((-1/4, 1/4), (0, 0, 1/2, 1)), ((-1/2, -1/4, 0, 1/4, 1/2,
 0), ()), x**(-2))/(4*pi**(3/2)) + I*meijerg(((-1, -3/4, -1/2, -1
/4, 0, 1), ()), ((-3/4, -1/4), (-1, -1/2, -1/2, 0)), exp_polar(2*
I*pi)/x**2)/(4*pi**(3/2))
```

GIAC/XCAS [A] time = 0.238545, size = 15, normalized size = 1.

$$\sqrt{x+1}\sqrt{x-1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/(sqrt(x + 1)*sqrt(x - 1)),x, algorithm="giac")
```

```
[Out] sqrt(x + 1)*sqrt(x - 1)
```

3.826 $\int \frac{1}{\sqrt{-1+x}\sqrt{1+x}}\,dx$

Optimal. Leaf size=2

$$\cosh^{-1}(x)$$

```
[Out] ArcCosh[x]
```

Rubi [A] time = 0.00834964, antiderivative size = 2, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.067

$$\cosh^{-1}(x)$$

Antiderivative was successfully verified.

```
[In] Int[1/(Sqrt[-1 + x]*Sqrt[1 + x]),x]
```

```
[Out] ArcCosh[x]
```

Rubi in Sympy [A] time = 1.12774, size = 2, normalized size = 1.

$$\operatorname{acosh}(x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(1/(-1+x)**(1/2)/(1+x)**(1/2),x)
```

```
[Out] acosh(x)
```

Mathematica [B] time = 0.00704955, size = 16, normalized size = 8.

$$2\sinh^{-1}\left(\frac{\sqrt{x-1}}{\sqrt{2}}\right)$$

Antiderivative was successfully verified.

```
[In] Integrate[1/(Sqrt[-1 + x]*Sqrt[1 + x]),x]
```

```
[Out] 2*ArcSinh[Sqrt[-1 + x]/Sqrt[2]]
```

Maple [B] time = 0.004, size = 31, normalized size = 15.5

$$1\sqrt{(1+x)(-1+x)}\ln\left(x+\sqrt{x^2-1}\right)\frac{1}{\sqrt{-1+x}}\frac{1}{\sqrt{1+x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(1/(-1+x)^(1/2)/(1+x)^(1/2),x)
```

```
[Out] ((1+x)*(-1+x))^(1/2)/(-1+x)^(1/2)/(1+x)^(1/2)*ln(x+(x^2-1)^(1/2))
```

Maxima [A] time = 1.34714, size = 19, normalized size = 9.5

$$\log\left(2x + 2\sqrt{x^2 - 1}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(x + 1)*sqrt(x - 1)),x, algorithm="maxima")
```

```
[Out] log(2*x + 2*sqrt(x^2 - 1))
```

Fricas [A] time = 0.225712, size = 24, normalized size = 12.

$$-\log\left(\sqrt{x+1}\sqrt{x-1} - x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(x + 1)*sqrt(x - 1)),x, algorithm="fricas")
```

```
[Out] -log(sqrt(x + 1)*sqrt(x - 1) - x)
```

Sympy [A] time = 3.81922, size = 41, normalized size = 20.5

$$\begin{cases} 2\operatorname{acosh}\left(\frac{\sqrt{2}\sqrt{x+1}}{2}\right) & \text{for}\ \frac{|x+1|}{2} > 1 \\ -2i\operatorname{asin}\left(\frac{\sqrt{2}\sqrt{x+1}}{2}\right) & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(-1+x)**(1/2)/(1+x)**(1/2),x)
```

```
[Out] Piecewise((2*acosh(sqrt(2)*sqrt(x + 1)/2), Abs(x + 1)/2 > 1), (-2
*I*asin(sqrt(2)*sqrt(x + 1)/2), True))
```

GIAC/XCAS [A] time = 0.247296, size = 23, normalized size = 11.5

$$-2\ln\left(\left|-\sqrt{x+1} + \sqrt{x-1}\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(x + 1)*sqrt(x - 1)),x, algorithm="giac")
```

```
[Out] -2*ln(abs(-sqrt(x + 1) + sqrt(x - 1)))
```

3.827 $\int \frac{1}{\sqrt{-1+x}x\sqrt{1+x}}\,dx$

Optimal. Leaf size=16

$$\tan^{-1}\left(\sqrt{x-1}\sqrt{x+1}\right)$$

```
[Out] ArcTan[Sqrt[-1 + x]*Sqrt[1 + x]]
```

Rubi [A] time = 0.0238541, antiderivative size = 16, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.111$

$$\tan^{-1}\left(\sqrt{x-1}\sqrt{x+1}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[-1 + x]*x*Sqrt[1 + x]),x]

[Out] ArcTan[Sqrt[-1 + x]*Sqrt[1 + x]]
```

Rubi in Sympy [A] time = 1.77364, size = 14, normalized size = 0.88

$$\operatorname{atan}\left(\sqrt{x-1}\sqrt{x+1}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x/(-1+x)**(1/2)/(1+x)**(1/2),x)

[Out] atan(sqrt(x - 1)*sqrt(x + 1))
```

Mathematica [A] time = 0.0244243, size = 18, normalized size = 1.12

$$2\tan^{-1}\left(\frac{\sqrt{x-1}}{\sqrt{x+1}}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[-1 + x]*x*Sqrt[1 + x]),x]

[Out] 2*ArcTan[Sqrt[-1 + x]/Sqrt[1 + x]]
```

Maple [B] time = 0.018, size = 28, normalized size = 1.8

$$-1\sqrt{-1+x}\sqrt{1+x}\arctan\left(\frac{1}{\sqrt{x^2-1}}\right)\frac{1}{\sqrt{x^2-1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/x/(-1+x)^(1/2)/(1+x)^(1/2),x)

[Out] -(-1+x)^(1/2)*(1+x)^(1/2)/(x^2-1)^(1/2)*arctan(1/(x^2-1)^(1/2))
```

Maxima [A] time = 1.50362, size = 9, normalized size = 0.56

$$-\arcsin\left(\frac{1}{|x|}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(x + 1)*sqrt(x - 1)*x),x, algorithm="maxima")
```

```
[Out] -arcsin(1/abs(x))
```

Fricas [A] time = 0.220935, size = 24, normalized size = 1.5

$$2 \arctan\left(\sqrt{x+1}\sqrt{x-1} - x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(x + 1)*sqrt(x - 1)*x),x, algorithm="fricas")
```

```
[Out] 2*arctan(sqrt(x + 1)*sqrt(x - 1) - x)
```

Sympy [A] time = 13.1189, size = 56, normalized size = 3.5

$$-\frac{G_{6,6}^{5,3}\left(\begin{matrix} \frac{3}{4}, \frac{5}{4}, 1 & 1, 1, \frac{3}{2} \\ \frac{1}{2}, \frac{3}{4}, 1, \frac{5}{4}, \frac{3}{2} & 0 \end{matrix} \middle| {\frac{1}{x^{2}}} \right)}{4\pi^{\frac{3}{2}}} + \frac{iG_{6,6}^{2,6}\left(\begin{matrix} 0, \frac{1}{4}, \frac{1}{2}, \frac{3}{4}, 1, 1 & \\ \frac{1}{4}, \frac{3}{4} & 0, \frac{1}{2}, \frac{1}{2}, 0 \end{matrix} \middle| {\frac{e^{2i\pi}}{x^{2}}} \right)}{4\pi^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/x/(-1+x)**(1/2)/(1+x)**(1/2),x)
```

```
[Out] -meijerg(((3/4, 5/4, 1), (1, 1, 3/2)), ((1/2, 3/4, 1, 5/4, 3/2),
(0,)), x**(-2))/(4*pi**(3/2)) + I*meijerg(((0, 1/4, 1/2, 3/4, 1,
1), ()), ((1/4, 3/4), (0, 1/2, 1/2, 0)), exp_polar(2*I*pi)/x**2)/
(4*pi**(3/2))
```

GIAC/XCAS [A] time = 0.221403, size = 27, normalized size = 1.69

$$-2 \arctan\left(\frac{1}{2}\left(\sqrt{x+1} - \sqrt{x-1}\right)^{2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(x + 1)*sqrt(x - 1)*x),x, algorithm="giac")
```

```
[Out] -2*arctan(1/2*(sqrt(x + 1) - sqrt(x - 1))^2)
```

3.828 $\int \frac{1}{\sqrt{-1+x}x^2\sqrt{1+x}}\,dx$

Optimal. Leaf size=18

$$\frac{\sqrt{x-1}\sqrt{x+1}}{x}$$

```
[Out] (Sqrt[-1 + x]*Sqrt[1 + x])/x
```

Rubi [A] time = 0.0247513, antiderivative size = 18, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.056$

$$\frac{\sqrt{x-1}\sqrt{x+1}}{x}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[-1 + x]*x^2*Sqrt[1 + x]),x]

[Out] (Sqrt[-1 + x]*Sqrt[1 + x])/x
```

Rubi in Sympy [A] time = 2.60379, size = 14, normalized size = 0.78

$$\frac{\sqrt{x-1}\sqrt{x+1}}{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x**2/(-1+x)**(1/2)/(1+x)**(1/2),x)

[Out] sqrt(x - 1)*sqrt(x + 1)/x
```

Mathematica [A] time = 0.0137036, size = 18, normalized size = 1.

$$\frac{\sqrt{x-1}\sqrt{x+1}}{x}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[-1 + x]*x^2*Sqrt[1 + x]),x]

[Out] (Sqrt[-1 + x]*Sqrt[1 + x])/x
```

Maple [A] time = 0.004, size = 15, normalized size = 0.8

$$\frac{1}{x}\sqrt{-1+x}\sqrt{1+x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/x^2/(-1+x)^(1/2)/(1+x)^(1/2),x)

[Out] (-1+x)^(1/2)*(1+x)^(1/2)/x
```

Maxima [A] time = 1.48839, size = 15, normalized size = 0.83

$$\frac{\sqrt{x^2-1}}{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(x + 1)*sqrt(x - 1)*x^2),x, algorithm="maxima")
```

```
[Out] sqrt(x^2 - 1)/x
```

Fricas [A] time = 0.226151, size = 30, normalized size = 1.67

$$-\frac{1}{\sqrt{x+1}\sqrt{x-1}x-x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(x + 1)*sqrt(x - 1)*x^2),x, algorithm="fricas")
```

```
[Out] -1/(sqrt(x + 1)*sqrt(x - 1)*x - x^2)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/x**2/(-1+x)**(1/2)/(1+x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.21815, size = 28, normalized size = 1.56

$$\frac{8}{\left(\sqrt{x+1}-\sqrt{x-1}\right)^4+4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(x + 1)*sqrt(x - 1)*x^2),x, algorithm="giac")
```

```
[Out] 8/((sqrt(x + 1) - sqrt(x - 1))^4 + 4)
```

3.829 $\int \sqrt{-1+x}x^2\sqrt{1+x}\,dx$

Optimal. Leaf size=45

$$\frac{1}{4}(x-1)^{3/2}x(x+1)^{3/2}+\frac{1}{8}\sqrt{x-1}x\sqrt{x+1}-\frac{1}{8}\cosh^{-1}(x)$$

```
[Out] (Sqrt[-1 + x]*x*Sqrt[1 + x])/8 + ((-1 + x)^(3/2)*x*(1 + x)^(3/2))
/4 - ArcCosh[x]/8
```

Rubi [A] time = 0.0394341, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$\frac{1}{4}(x-1)^{3/2}x(x+1)^{3/2}+\frac{1}{8}\sqrt{x-1}x\sqrt{x+1}-\frac{1}{8}\cosh^{-1}(x)$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[-1 + x]*x^2*Sqrt[1 + x],x]
```

```
[Out] (Sqrt[-1 + x]*x*Sqrt[1 + x])/8 + ((-1 + x)^(3/2)*x*(1 + x)^(3/2))
/4 - ArcCosh[x]/8
```

Rubi in Sympy [A] time = 4.25105, size = 37, normalized size = 0.82

$$\frac{x(x-1)^{\frac{3}{2}}(x+1)^{\frac{3}{2}}}{4}+\frac{x\sqrt{x-1}\sqrt{x+1}}{8}-\frac{\operatorname{acosh}(x)}{8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(-1+x)**(1/2)*(1+x)**(1/2),x)
```

```
[Out] x*(x - 1)**(3/2)*(x + 1)**(3/2)/4 + x*sqrt(x - 1)*sqrt(x + 1)/8 -
 acosh(x)/8
```

Mathematica [A] time = 0.035504, size = 44, normalized size = 0.98

$$\frac{1}{8}\left(\sqrt{x-1}x\sqrt{x+1}\left(2x^2-1\right)-2\sinh^{-1}\left(\frac{\sqrt{x-1}}{\sqrt{2}}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[-1 + x]*x^2*Sqrt[1 + x],x]
```

```
[Out] (Sqrt[-1 + x]*x*Sqrt[1 + x]*(-1 + 2*x^2) - 2*ArcSinh[Sqrt[-1 + x]
/Sqrt[2]])/8
```

Maple [A] time = 0.01, size = 52, normalized size = 1.2

$$-\frac{1}{8}\sqrt{-1+x}\sqrt{1+x}\left(-2x^3\sqrt{x^2-1}+x\sqrt{x^2-1}+\ln\left(x+\sqrt{x^2-1}\right)\right)\frac{1}{\sqrt{x^2-1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(-1+x)^(1/2)*(1+x)^(1/2),x)
```

```
[Out] -1/8*(-1+x)^(1/2)*(1+x)^(1/2)*(-2*x^3*(x^2-1)^(1/2)+x*(x^2-1)^(1/
2)+ln(x+(x^2-1)^(1/2)))/(x^2-1)^(1/2)
```

Maxima [A] time = 1.3487, size = 50, normalized size = 1.11

$$\frac{1}{4}\left(x^{2}-1\right)^{\frac{3}{2}}x+\frac{1}{8}\sqrt{x^{2}-1}x-\frac{1}{8}\log\left(2\,x+2\,\sqrt{x^{2}-1}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(x + 1)*sqrt(x - 1)*x^2,x, algorithm="maxima")
```

```
[Out] 1/4*(x^2 - 1)^(3/2)*x + 1/8*sqrt(x^2 - 1)*x - 1/8*log(2*x + 2*sqr
t(x^2 - 1))
```

Fricas [A] time = 0.225318, size = 189, normalized size = 4.2

$$-\frac{16\,x^{8}-32\,x^{6}+20\,x^{4}-\left(16\,x^{7}-24\,x^{5}+10\,x^{3}-x\right)\sqrt{x+1}\sqrt{x-1}-4\,x^{2}-\left(8\,x^{4}-4\,\left(2\,x^{3}-x\right)\sqrt{x+1}\sqrt{x-1}-8\,x^{2}+1\right)\,\mathrm{l}}{8\,\left(8\,x^{4}-4\,(2\,x^{3}-x)\sqrt{x+1}\sqrt{x-1}-8\,x^{2}+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(x + 1)*sqrt(x - 1)*x^2,x, algorithm="fricas")
```

```
[Out] -1/8*(16*x^8 - 32*x^6 + 20*x^4 - (16*x^7 - 24*x^5 + 10*x^3 - x)*s
qrt(x + 1)*sqrt(x - 1) - 4*x^2 - (8*x^4 - 4*(2*x^3 - x)*sqrt(x +
1)*sqrt(x - 1) - 8*x^2 + 1)*log(sqrt(x + 1)*sqrt(x - 1) - x))/(8*
x^4 - 4*(2*x^3 - x)*sqrt(x + 1)*sqrt(x - 1) - 8*x^2 + 1)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int x^{2}\sqrt{x-1}\sqrt{x+1}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(-1+x)**(1/2)*(1+x)**(1/2),x)
```

```
[Out] Integral(x**2*sqrt(x - 1)*sqrt(x + 1), x)
```

GIAC/XCAS [A] time = 0.241598, size = 62, normalized size = 1.38

$$\frac{1}{8}\left(\left(2\,(x+1)(x-2)+5\right)(x+1)-1\right)\sqrt{x+1}\sqrt{x-1}+\frac{1}{4}\ln\left(\left|-\sqrt{x+1}+\sqrt{x-1}\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(x + 1)*sqrt(x - 1)*x^2,x, algorithm="giac")
```

```
[Out] 1/8*((2*(x + 1)*(x - 2) + 5)*(x + 1) - 1)*sqrt(x + 1)*sqrt(x - 1)
 + 1/4*ln(abs(-sqrt(x + 1) + sqrt(x - 1)))
```

3.830 $\int \sqrt{-1+x}x\sqrt{1+x}\,dx$

Optimal. Leaf size=18

$$\frac{1}{3}(x-1)^{3/2}(x+1)^{3/2}$$

```
[Out] ((-1 + x)^(3/2)*(1 + x)^(3/2))/3
```

Rubi [A] time = 0.00877585, antiderivative size = 18, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$\frac{1}{3}(x-1)^{3/2}(x+1)^{3/2}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[-1 + x]*x*Sqrt[1 + x],x]
```

```
[Out] ((-1 + x)^(3/2)*(1 + x)^(3/2))/3
```

Rubi in Sympy [A] time = 1.91793, size = 14, normalized size = 0.78

$$\frac{(x-1)^{\frac{3}{2}}(x+1)^{\frac{3}{2}}}{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(-1+x)**(1/2)*(1+x)**(1/2),x)
```

```
[Out] (x - 1)**(3/2)*(x + 1)**(3/2)/3
```

Mathematica [A] time = 0.0113245, size = 18, normalized size = 1.

$$\frac{1}{3}(x-1)^{3/2}(x+1)^{3/2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[-1 + x]*x*Sqrt[1 + x],x]
```

```
[Out] ((-1 + x)^(3/2)*(1 + x)^(3/2))/3
```

Maple [A] time = 0.004, size = 13, normalized size = 0.7

$$\frac{1}{3}(-1+x)^{\frac{3}{2}}(1+x)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(-1+x)^(1/2)*(1+x)^(1/2),x)
```

```
[Out] 1/3*(-1+x)^(3/2)*(1+x)^(3/2)
```

Maxima [A] time = 1.35172, size = 12, normalized size = 0.67

$$\frac{1}{3}\left(x^2-1\right)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(x + 1)*sqrt(x - 1)*x,x, algorithm="maxima")
```

```
[Out] 1/3*(x^2 - 1)^(3/2)
```

Fricas [A] time = 0.229816, size = 101, normalized size = 5.61

$$-\frac{4\,x^6-9\,x^4-\left(4\,x^5-7\,x^3+3\,x\right)\sqrt{x+1}\sqrt{x-1}+6\,x^2-1}{3\,\left(4\,x^3-\left(4\,x^2-1\right)\sqrt{x+1}\sqrt{x-1}-3\,x\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(x + 1)*sqrt(x - 1)*x,x, algorithm="fricas")
```

```
[Out] -1/3*(4*x^6 - 9*x^4 - (4*x^5 - 7*x^3 + 3*x)*sqrt(x + 1)*sqrt(x -
1) + 6*x^2 - 1)/(4*x^3 - (4*x^2 - 1)*sqrt(x + 1)*sqrt(x - 1) - 3*
x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int x\sqrt{x-1}\sqrt{x+1}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(-1+x)**(1/2)*(1+x)**(1/2),x)
```

```
[Out] Integral(x*sqrt(x - 1)*sqrt(x + 1), x)
```

GIAC/XCAS [A] time = 0.232017, size = 16, normalized size = 0.89

$$\frac{1}{3}\,(x+1)^{\frac{3}{2}}(x-1)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(x + 1)*sqrt(x - 1)*x,x, algorithm="giac")
```

```
[Out] 1/3*(x + 1)^(3/2)*(x - 1)^(3/2)
```

3.831 $\int \sqrt{-1+x}\sqrt{1+x}\,dx$

Optimal. Leaf size=26

$$\frac{1}{2}\sqrt{x-1}x\sqrt{x+1}-\frac{1}{2}\cosh^{-1}(x)$$

```
[Out] (Sqrt[-1 + x]*x*Sqrt[1 + x])/2 - ArcCosh[x]/2
```

Rubi [A] time = 0.0178845, antiderivative size = 26, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.133

$$\frac{1}{2}\sqrt{x-1}x\sqrt{x+1}-\frac{1}{2}\cosh^{-1}(x)$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[-1 + x]*Sqrt[1 + x],x]
```

```
[Out] (Sqrt[-1 + x]*x*Sqrt[1 + x])/2 - ArcCosh[x]/2
```

Rubi in Sympy [A] time = 3.12646, size = 20, normalized size = 0.77

$$\frac{x\sqrt{x-1}\sqrt{x+1}}{2}-\frac{\operatorname{acosh}(x)}{2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((-1+x)**(1/2)*(1+x)**(1/2),x)
```

```
[Out] x*sqrt(x - 1)*sqrt(x + 1)/2 - acosh(x)/2
```

Mathematica [A] time = 0.00887505, size = 36, normalized size = 1.38

$$\frac{1}{2}\sqrt{x-1}x\sqrt{x+1}-\sinh^{-1}\left(\frac{\sqrt{x-1}}{\sqrt{2}}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[-1 + x]*Sqrt[1 + x],x]
```

```
[Out] (Sqrt[-1 + x]*x*Sqrt[1 + x])/2 - ArcSinh[Sqrt[-1 + x]/Sqrt[2]]
```

Maple [B] time = 0.004, size = 57, normalized size = 2.2

$$\frac{1}{2}\sqrt{-1+x}\,(1+x)^{\frac{3}{2}}-\frac{1}{2}\sqrt{-1+x}\sqrt{1+x}-\frac{1}{2}\sqrt{(1+x)(-1+x)}\ln\left(x+\sqrt{x^2-1}\right)\frac{1}{\sqrt{-1+x}}\frac{1}{\sqrt{1+x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((-1+x)^(1/2)*(1+x)^(1/2),x)
```

```
[Out] 1/2*(-1+x)^(1/2)*(1+x)^(3/2)-1/2*(-1+x)^(1/2)*(1+x)^(1/2)-1/2*((1
+x)*(-1+x))^(1/2)/(-1+x)^(1/2)/(1+x)^(1/2)*ln(x+(x^2-1)^(1/2))
```

Maxima [A] time = 1.34002, size = 36, normalized size = 1.38

$$\frac{1}{2}\sqrt{x^2-1}x-\frac{1}{2}\log\left(2x+2\sqrt{x^2-1}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(x + 1)*sqrt(x - 1),x, algorithm="maxima")
```

```
[Out] 1/2*sqrt(x^2 - 1)*x - 1/2*log(2*x + 2*sqrt(x^2 - 1))
```

Fricas [A] time = 0.224017, size = 126, normalized size = 4.85

$$\frac{2x^4-(2x^3-x)\sqrt{x+1}\sqrt{x-1}-2x^2+\left(2\sqrt{x+1}\sqrt{x-1}x-2x^2+1\right)\log\left(\sqrt{x+1}\sqrt{x-1}-x\right)}{2\left(2\sqrt{x+1}\sqrt{x-1}x-2x^2+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(x + 1)*sqrt(x - 1),x, algorithm="fricas")
```

```
[Out] 1/2*(2*x^4 - (2*x^3 - x)*sqrt(x + 1)*sqrt(x - 1) - 2*x^2 + (2*sqr
t(x + 1)*sqrt(x - 1)*x - 2*x^2 + 1)*log(sqrt(x + 1)*sqrt(x - 1) -
 x))/(2*sqrt(x + 1)*sqrt(x - 1)*x - 2*x^2 + 1)
```

Sympy [A] time = 9.1713, size = 133, normalized size = 5.12

$$\begin{cases} -\operatorname{acosh}\left(\frac{\sqrt{2}\sqrt{x+1}}{2}\right)+\frac{(x+1)^{\frac{5}{2}}}{2\sqrt{x-1}}-\frac{3(x+1)^{\frac{3}{2}}}{2\sqrt{x-1}}+\frac{\sqrt{x+1}}{\sqrt{x-1}} & \text{for } \frac{|x+1|}{2}>1 \\ i\operatorname{asin}\left(\frac{\sqrt{2}\sqrt{x+1}}{2}\right)-\frac{i(x+1)^{\frac{5}{2}}}{2\sqrt{-x+1}}+\frac{3i(x+1)^{\frac{3}{2}}}{2\sqrt{-x+1}}-\frac{i\sqrt{x+1}}{\sqrt{-x+1}} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-1+x)**(1/2)*(1+x)**(1/2),x)
```

```
[Out] Piecewise((-acosh(sqrt(2)*sqrt(x + 1)/2) + (x + 1)**(5/2)/(2*sqrt
(x - 1)) - 3*(x + 1)**(3/2)/(2*sqrt(x - 1)) + sqrt(x + 1)/sqrt(x
- 1), Abs(x + 1)/2 > 1), (I*asin(sqrt(2)*sqrt(x + 1)/2) - I*(x +
1)**(5/2)/(2*sqrt(-x + 1)) + 3*I*(x + 1)**(3/2)/(2*sqrt(-x + 1))
- I*sqrt(x + 1)/sqrt(-x + 1), True))
```

GIAC/XCAS [A] time = 0.2429, size = 39, normalized size = 1.5

$$\frac{1}{2}\sqrt{x+1}\sqrt{x-1}x+\ln\left(\left|-\sqrt{x+1}+\sqrt{x-1}\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(x + 1)*sqrt(x - 1),x, algorithm="giac")
```

```
[Out] 1/2*sqrt(x + 1)*sqrt(x - 1)*x + ln(abs(-sqrt(x + 1) + sqrt(x - 1)
))
```

3.832 $\int \frac{\sqrt{-1+x}\sqrt{1+x}}{x}\,dx$

Optimal. Leaf size=34

$$\sqrt{x-1}\sqrt{x+1}-\tan^{-1}\left(\sqrt{x-1}\sqrt{x+1}\right)$$

```
[Out] Sqrt[-1 + x]*Sqrt[1 + x] - ArcTan[Sqrt[-1 + x]*Sqrt[1 + x]]
```

Rubi [A] time = 0.0445167, antiderivative size = 34, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$\sqrt{x-1}\sqrt{x+1}-\tan^{-1}\left(\sqrt{x-1}\sqrt{x+1}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[-1 + x]*Sqrt[1 + x])/x,x]

[Out] Sqrt[-1 + x]*Sqrt[1 + x] - ArcTan[Sqrt[-1 + x]*Sqrt[1 + x]]
```

Rubi in Sympy [A] time = 4.27578, size = 27, normalized size = 0.79

$$\sqrt{x-1}\sqrt{x+1}-\operatorname{atan}\left(\sqrt{x-1}\sqrt{x+1}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((-1+x)**(1/2)*(1+x)**(1/2)/x,x)

[Out] sqrt(x - 1)*sqrt(x + 1) - atan(sqrt(x - 1)*sqrt(x + 1))
```

Mathematica [A] time = 0.0303289, size = 34, normalized size = 1.

$$\sqrt{x-1}\sqrt{x+1}-2\tan^{-1}\left(\frac{\sqrt{x-1}}{\sqrt{x+1}}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[-1 + x]*Sqrt[1 + x])/x,x]

[Out] Sqrt[-1 + x]*Sqrt[1 + x] - 2*ArcTan[Sqrt[-1 + x]/Sqrt[1 + x]]
```

Maple [A] time = 0.009, size = 35, normalized size = 1.

$$1\sqrt{-1+x}\sqrt{1+x}\left(\sqrt{x^2-1}+\arctan\left(\frac{1}{\sqrt{x^2-1}}\right)\right)\frac{1}{\sqrt{x^2-1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((-1+x)^(1/2)*(1+x)^(1/2)/x,x)

[Out] (-1+x)^(1/2)*(1+x)^(1/2)/(x^2-1)^(1/2)*((x^2-1)^(1/2)+arctan(1/(x
^2-1)^(1/2)))
```

Maxima [A] time = 1.498, size = 18, normalized size = 0.53

$$\sqrt{x^2-1}+\arcsin\left(\frac{1}{|x|}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(x + 1)*sqrt(x - 1)/x,x, algorithm="maxima")
```

```
[Out] sqrt(x^2 - 1) + arcsin(1/abs(x))
```

Fricas [A] time = 0.245283, size = 96, normalized size = 2.82

$$-\frac{\sqrt{x+1}\sqrt{x-1}x-x^2+2\left(\sqrt{x+1}\sqrt{x-1}-x\right)\arctan\left(\sqrt{x+1}\sqrt{x-1}-x\right)+1}{\sqrt{x+1}\sqrt{x-1}-x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(x + 1)*sqrt(x - 1)/x,x, algorithm="fricas")
```

```
[Out] -(sqrt(x + 1)*sqrt(x - 1)*x - x^2 + 2*(sqrt(x + 1)*sqrt(x - 1) -
x)*arctan(sqrt(x + 1)*sqrt(x - 1) - x) + 1)/(sqrt(x + 1)*sqrt(x -
 1) - x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{\sqrt{x-1}\sqrt{x+1}}{x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-1+x)**(1/2)*(1+x)**(1/2)/x,x)
```

```
[Out] Integral(sqrt(x - 1)*sqrt(x + 1)/x, x)
```

GIAC/XCAS [A] time = 0.225229, size = 43, normalized size = 1.26

$$\sqrt{x+1}\sqrt{x-1}+2\arctan\left(\frac{1}{2}\left(\sqrt{x+1}-\sqrt{x-1}\right)^2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(x + 1)*sqrt(x - 1)/x,x, algorithm="giac")
```

```
[Out] sqrt(x + 1)*sqrt(x - 1) + 2*arctan(1/2*(sqrt(x + 1) - sqrt(x - 1)
)^2)
```

3.833 $\int \frac{\sqrt{-1+x}\sqrt{1+x}}{x^2} dx$

Optimal. Leaf size=22

$$\cosh^{-1}(x) - \frac{\sqrt{x-1}\sqrt{x+1}}{x}$$

```
[Out] -((Sqrt[-1 + x]*Sqrt[1 + x])/x) + ArcCosh[x]
```

Rubi [A] time = 0.0290471, antiderivative size = 22, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.111

$$\cosh^{-1}(x) - \frac{\sqrt{x-1}\sqrt{x+1}}{x}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[-1 + x]*Sqrt[1 + x])/x^2,x]
```

```
[Out] -((Sqrt[-1 + x]*Sqrt[1 + x])/x) + ArcCosh[x]
```

Rubi in Sympy [A] time = 3.60591, size = 17, normalized size = 0.77

$$\operatorname{acosh}(x) - \frac{\sqrt{x-1}\sqrt{x+1}}{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((-1+x)**(1/2)*(1+x)**(1/2)/x**2,x)
```

```
[Out] acosh(x) - sqrt(x - 1)*sqrt(x + 1)/x
```

Mathematica [A] time = 0.0210917, size = 38, normalized size = 1.73

$$\log\left(x+\sqrt{x-1}\sqrt{x+1}\right) - \frac{\sqrt{x-1}\sqrt{x+1}}{x}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[-1 + x]*Sqrt[1 + x])/x^2,x]
```

```
[Out] -((Sqrt[-1 + x]*Sqrt[1 + x])/x) + Log[x + Sqrt[-1 + x]*Sqrt[1 + x
]]
```

Maple [B] time = 0.01, size = 44, normalized size = 2.

$$\frac{1}{x}\sqrt{-1+x}\sqrt{1+x}\left(\ln\left(x+\sqrt{x^2-1}\right)x - \sqrt{x^2-1}\right)\frac{1}{\sqrt{x^2-1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((-1+x)^(1/2)*(1+x)^(1/2)/x^2,x)
```

```
[Out] (-1+x)^(1/2)*(1+x)^(1/2)*(ln(x+(x^2-1)^(1/2))*x-(x^2-1)^(1/2))/x/
(x^2-1)^(1/2)
```

Maxima [A] time = 1.52359, size = 36, normalized size = 1.64

$$-\frac{\sqrt{x^2-1}}{x}+\log\left(2\,x+2\,\sqrt{x^2-1}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(x + 1)*sqrt(x - 1)/x^2,x, algorithm="maxima")
```

```
[Out] -sqrt(x^2 - 1)/x + log(2*x + 2*sqrt(x^2 - 1))
```

Fricas [A] time = 0.22512, size = 80, normalized size = 3.64

$$-\frac{\left(\sqrt{x+1}\sqrt{x-1}x-x^2\right)\log\left(\sqrt{x+1}\sqrt{x-1}-x\right)-1}{\sqrt{x+1}\sqrt{x-1}x-x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(x + 1)*sqrt(x - 1)/x^2,x, algorithm="fricas")
```

```
[Out] -((sqrt(x + 1)*sqrt(x - 1)*x - x^2)*log(sqrt(x + 1)*sqrt(x - 1) -
 x) - 1)/(sqrt(x + 1)*sqrt(x - 1)*x - x^2)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{\sqrt{x-1}\sqrt{x+1}}{x^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-1+x)**(1/2)*(1+x)**(1/2)/x**2,x)
```

```
[Out] Integral(sqrt(x - 1)*sqrt(x + 1)/x**2, x)
```

GIAC/XCAS [A] time = 0.228453, size = 54, normalized size = 2.45

$$-\frac{8}{\left(\sqrt{x+1}-\sqrt{x-1}\right)^4+4}-\frac{1}{2}\ln\left(\left(\sqrt{x+1}-\sqrt{x-1}\right)^4\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(x + 1)*sqrt(x - 1)/x^2,x, algorithm="giac")
```

```
[Out] -8/((sqrt(x + 1) - sqrt(x - 1))^4 + 4) - 1/2*ln((sqrt(x + 1) - sq
rt(x - 1))^4)
```

3.834 $\int \frac{1}{\sqrt{1+2x}\sqrt{3+2x}}\,dx$

Optimal. Leaf size=16

$$\sinh^{-1}\left(\frac{\sqrt{2x+1}}{\sqrt{2}}\right)$$

```
[Out] ArcSinh[Sqrt[1 + 2*x]/Sqrt[2]]
```

Rubi [A] time = 0.0214437, antiderivative size = 16, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.105

$$\sinh^{-1}\left(\frac{\sqrt{2x+1}}{\sqrt{2}}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 + 2*x]*Sqrt[3 + 2*x]),x]

[Out] ArcSinh[Sqrt[1 + 2*x]/Sqrt[2]]
```

Rubi in Sympy [A] time = 3.49911, size = 15, normalized size = 0.94

$$\operatorname{asinh}\left(\frac{\sqrt{2}\sqrt{2x+1}}{2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1+2*x)**(1/2)/(3+2*x)**(1/2),x)

[Out] asinh(sqrt(2)*sqrt(2*x + 1)/2)
```

Mathematica [A] time = 0.0107111, size = 16, normalized size = 1.

$$\sinh^{-1}\left(\frac{\sqrt{2x+1}}{\sqrt{2}}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 + 2*x]*Sqrt[3 + 2*x]),x]

[Out] ArcSinh[Sqrt[1 + 2*x]/Sqrt[2]]
```

Maple [B] time = 0.01, size = 57, normalized size = 3.6

$$\frac{\sqrt{4}}{4}\sqrt{(1+2x)(3+2x)}\ln\left(\frac{(4+4x)\sqrt{4}}{4}+\sqrt{4x^2+8x+3}\right)\frac{1}{\sqrt{1+2x}}\frac{1}{\sqrt{3+2x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1+2*x)^(1/2)/(3+2*x)^(1/2),x)
```

```
[Out] 1/4*((1+2*x)*(3+2*x))^(1/2)/(1+2*x)^(1/2)/(3+2*x)^(1/2)*ln(1/4*(4
+4*x)*4^(1/2)+(4*x^2+8*x+3)^(1/2))*4^(1/2)
```

Maxima [A] time = 1.49294, size = 30, normalized size = 1.88

$$\frac{1}{2}\log\left(8x+4\sqrt{4x^2+8x+3}+8\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(2*x + 3)*sqrt(2*x + 1)),x, algorithm="maxima")
```

```
[Out] 1/2*log(8*x + 4*sqrt(4*x^2 + 8*x + 3) + 8)
```

Fricas [A] time = 0.229493, size = 31, normalized size = 1.94

$$-\frac{1}{2}\log\left(\sqrt{2x+3}\sqrt{2x+1}-2x-2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(2*x + 3)*sqrt(2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/2*log(sqrt(2*x + 3)*sqrt(2*x + 1) - 2*x - 2)
```

Sympy [A] time = 3.76516, size = 27, normalized size = 1.69

$$\begin{cases} \operatorname{acosh}\left(\sqrt{x+\frac{3}{2}}\right) & \text{for } \left|x+\frac{3}{2}\right|>1 \\ -i\operatorname{asin}\left(\sqrt{x+\frac{3}{2}}\right) & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1+2*x)**(1/2)/(3+2*x)**(1/2),x)
```

```
[Out] Piecewise((acosh(sqrt(x + 3/2)), Abs(x + 3/2) > 1), (-I*asin(sqrt
(x + 3/2)), True))
```

GIAC/XCAS [A] time = 0.247608, size = 28, normalized size = 1.75

$$-\ln\left(\left|-\sqrt{2x+3}+\sqrt{2x+1}\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(2*x + 3)*sqrt(2*x + 1)),x, algorithm="giac")
```

```
[Out] -ln(abs(-sqrt(2*x + 3) + sqrt(2*x + 1)))
```

3.835 $\int \frac{1}{x\sqrt{-2+3x}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=35

$$\sqrt{\frac{2}{3}}\tan^{-1}\left(\frac{\sqrt{\frac{3}{2}}\sqrt{3x-2}}{\sqrt{5x+3}}\right)$$

```
[Out] Sqrt[2/3]*ArcTan[(Sqrt[3/2]*Sqrt[-2 + 3*x])/Sqrt[3 + 5*x]]
```

Rubi [A] time = 0.0420973, antiderivative size = 35, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.091

$$\sqrt{\frac{2}{3}}\tan^{-1}\left(\frac{\sqrt{\frac{3}{2}}\sqrt{3x-2}}{\sqrt{5x+3}}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x*Sqrt[-2 + 3*x]*Sqrt[3 + 5*x]),x]
```

```
[Out] Sqrt[2/3]*ArcTan[(Sqrt[3/2]*Sqrt[-2 + 3*x])/Sqrt[3 + 5*x]]
```

Rubi in Sympy [A] time = 3.74069, size = 31, normalized size = 0.89

$$\frac{\sqrt{6}\,\text{atan}\left(\frac{\sqrt{6}\sqrt{3x-2}}{2\sqrt{5x+3}}\right)}{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x/(-2+3*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] sqrt(6)*atan(sqrt(6)*sqrt(3*x - 2)/(2*sqrt(5*x + 3)))/3
```

Mathematica [A] time = 0.0370073, size = 38, normalized size = 1.09

$$-\frac{\tan^{-1}\left(\frac{x+12}{2\sqrt{6}\sqrt{3x-2}\sqrt{5x+3}}\right)}{\sqrt{6}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(x*Sqrt[-2 + 3*x]*Sqrt[3 + 5*x]),x]
```

```
[Out] -(ArcTan[(12 + x)/(2*Sqrt[6]*Sqrt[-2 + 3*x]*Sqrt[3 + 5*x])]/Sqrt[
6])
```

Maple [B] time = 0.028, size = 53, normalized size = 1.5

$$-\frac{\sqrt{6}}{6}\sqrt{-2+3\,x}\sqrt{3+5\,x}\,\text{arctan}\left(\frac{\sqrt{6}\,(12+x)}{12}\frac{1}{\sqrt{15\,x^2-x-6}}\right)\frac{1}{\sqrt{15\,x^2-x-6}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/x/(-2+3*x)^(1/2)/(3+5*x)^(1/2),x)
```

```
[Out] -1/6*(-2+3*x)^(1/2)*(3+5*x)^(1/2)/(15*x^2-x-6)^(1/2)*6^(1/2)*arct
an(1/12*6^(1/2)*(12+x)/(15*x^2-x-6)^(1/2))
```

Maxima [A] time = 1.50568, size = 27, normalized size = 0.77

$$-\frac{1}{6}\sqrt{6}\arcsin\left(\frac{x}{19\,|x|}+\frac{12}{19\,|x|}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(5*x + 3)*sqrt(3*x - 2)*x),x, algorithm="maxima")
```

```
[Out] -1/6*sqrt(6)*arcsin(1/19*x/abs(x) + 12/19/abs(x))
```

Fricas [A] time = 0.238241, size = 46, normalized size = 1.31

$$-\frac{1}{6}\sqrt{3}\sqrt{2}\arctan\left(\frac{\sqrt{3}\sqrt{2}(x+12)}{12\sqrt{5\,x+3}\sqrt{3\,x-2}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(5*x + 3)*sqrt(3*x - 2)*x),x, algorithm="fricas")
```

```
[Out] -1/6*sqrt(3)*sqrt(2)*arctan(1/12*sqrt(3)*sqrt(2)*(x + 12)/(sqrt(5
*x + 3)*sqrt(3*x - 2)))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{x\sqrt{3x-2}\sqrt{5x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/x/(-2+3*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] Integral(1/(x*sqrt(3*x - 2)*sqrt(5*x + 3)), x)
```

GIAC/XCAS [A] time = 0.22194, size = 57, normalized size = 1.63

$$-\frac{1}{15}\sqrt{10}\sqrt{5}\sqrt{3}\arctan\left(\frac{1}{60}\sqrt{10}\left(\left(\sqrt{3}\sqrt{5\,x+3}-\sqrt{15\,x-10}\right)^{2}+1\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(5*x + 3)*sqrt(3*x - 2)*x),x, algorithm="giac")
```

```
[Out] -1/15*sqrt(10)*sqrt(5)*sqrt(3)*arctan(1/60*sqrt(10)*((sqrt(3)*sqr
t(5*x + 3) - sqrt(15*x - 10))^2 + 1))
```

3.836 $\int \frac{1}{(-1+x)^{3/2}x(1+x)^{3/2}}\,dx$

Optimal. Leaf size=35

$$-\frac{1}{\sqrt{x-1}\sqrt{x+1}}-\tan^{-1}\left(\sqrt{x-1}\sqrt{x+1}\right)$$

```
[Out] -(1/(Sqrt[-1 + x]*Sqrt[1 + x])) - ArcTan[Sqrt[-1 + x]*Sqrt[1 + x]
]
```

Rubi [A] time = 0.0481706, antiderivative size = 35, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$-\frac{1}{\sqrt{x-1}\sqrt{x+1}}-\tan^{-1}\left(\sqrt{x-1}\sqrt{x+1}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/((-1 + x)^(3/2)*x*(1 + x)^(3/2)),x]
```

```
[Out] -(1/(Sqrt[-1 + x]*Sqrt[1 + x])) - ArcTan[Sqrt[-1 + x]*Sqrt[1 + x]
]
```

Rubi in Sympy [A] time = 4.43918, size = 31, normalized size = 0.89

$$-\operatorname{atan}\left(\sqrt{x-1}\sqrt{x+1}\right)-\frac{1}{\sqrt{x-1}\sqrt{x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(-1+x)**(3/2)/x/(1+x)**(3/2),x)
```

```
[Out] -atan(sqrt(x - 1)*sqrt(x + 1)) - 1/(sqrt(x - 1)*sqrt(x + 1))
```

Mathematica [A] time = 0.0587028, size = 33, normalized size = 0.94

$$-\frac{1}{\sqrt{x-1}\sqrt{x+1}}-2\tan^{-1}\left(\sqrt{\frac{x-1}{x+1}}\right)$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[1/((-1 + x)^(3/2)*x*(1 + x)^(3/2)),x]
```

```
[Out] -(1/(Sqrt[-1 + x]*Sqrt[1 + x])) - 2*ArcTan[Sqrt[(-1 + x)/(1 + x)]
]
```

Maple [A] time = 0.024, size = 51, normalized size = 1.5

$$1\left(\arctan\left(\frac{1}{\sqrt{x^2-1}}\right)x^2-\arctan\left(\frac{1}{\sqrt{x^2-1}}\right)-\sqrt{x^2-1}\right)\frac{1}{\sqrt{x^2-1}}\frac{1}{\sqrt{1+x}}\frac{1}{\sqrt{-1+x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(-1+x)^(3/2)/x/(1+x)^(3/2),x)
```

```
[Out] (arctan(1/(x^2-1)^(1/2))*x^2-arctan(1/(x^2-1)^(1/2))-(x^2-1)^(1/2
))/(x^2-1)^(1/2)/(1+x)^(1/2)/(-1+x)^(1/2)
```

Maxima [A] time = 1.52762, size = 20, normalized size = 0.57

$$-\frac{1}{\sqrt{x^2-1}}+\arcsin\left(\frac{1}{|x|}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((x + 1)^(3/2)*(x - 1)^(3/2)*x),x, algorithm="maxima")
```

```
[Out] -1/sqrt(x^2 - 1) + arcsin(1/abs(x))
```

Fricas [A] time = 0.237944, size = 100, normalized size = 2.86

$$-\frac{2\left(\sqrt{x+1}\sqrt{x-1}x-x^2+1\right)\arctan\left(\sqrt{x+1}\sqrt{x-1}-x\right)-\sqrt{x+1}\sqrt{x-1}+x}{\sqrt{x+1}\sqrt{x-1}x-x^2+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((x + 1)^(3/2)*(x - 1)^(3/2)*x),x, algorithm="fricas")
```

```
[Out] -(2*(sqrt(x + 1)*sqrt(x - 1)*x - x^2 + 1)*arctan(sqrt(x + 1)*sqrt
(x - 1) - x) - sqrt(x + 1)*sqrt(x - 1) + x)/(sqrt(x + 1)*sqrt(x -
 1)*x - x^2 + 1)
```

Sympy [A] time = 31.7236, size = 58, normalized size = 1.66

$$-\frac{G_{6,6}^{5,3}\left(\begin{matrix}\frac{5}{4},\frac{7}{4},1 & 1,2,\frac{5}{2}\\ \frac{5}{4},\frac{3}{2},\frac{7}{4},2,\frac{5}{2} & 0\end{matrix}\middle|\frac{1}{x^2}\right)}{2\pi^{\frac{3}{2}}}-\frac{iG_{6,6}^{2,6}\left(\begin{matrix}0,\frac{1}{2},\frac{3}{4},1,\frac{5}{4},1 & \\ \frac{3}{4},\frac{5}{4} & 0,\frac{1}{2},\frac{3}{2},0\end{matrix}\middle|\frac{e^{2i\pi}}{x^2}\right)}{2\pi^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(-1+x)**(3/2)/x/(1+x)**(3/2),x)
```

```
[Out] -meijerg(((5/4, 7/4, 1), (1, 2, 5/2)), ((5/4, 3/2, 7/4, 2, 5/2),
(0,)), x**(-2))/(2*pi**(3/2)) - I*meijerg(((0, 1/2, 3/4, 1, 5/4,
1), ()), ((3/4, 5/4), (0, 1/2, 3/2, 0)), exp_polar(2*I*pi)/x**2)/
(2*pi**(3/2))
```

GIAC/XCAS [A] time = 0.219911, size = 73, normalized size = 2.09

$$-\frac{\sqrt{x+1}}{2\sqrt{x-1}}+\frac{2}{\left(\sqrt{x+1}-\sqrt{x-1}\right)^2+2}+2\arctan\left(\frac{1}{2}\left(\sqrt{x+1}-\sqrt{x-1}\right)^2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((x + 1)^(3/2)*(x - 1)^(3/2)*x),x, algorithm="giac")
```

```
[Out] -1/2*sqrt(x + 1)/sqrt(x - 1) + 2/((sqrt(x + 1) - sqrt(x - 1))^2 +
 2) + 2*arctan(1/2*(sqrt(x + 1) - sqrt(x - 1))^2)
```

3.837 $\int \sqrt{1-x}x\sqrt{1+x}\,dx$

Optimal. Leaf size=20

$$-\frac{1}{3}(1-x)^{3/2}(x+1)^{3/2}$$

```
[Out] -((1 - x)^(3/2)*(1 + x)^(3/2))/3
```

Rubi [A] time = 0.00981708, antiderivative size = 20, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.056$

$$-\frac{1}{3}(1-x)^{3/2}(x+1)^{3/2}$$

Antiderivative was successfully verified.

```
[In] Int[Sqrt[1 - x]*x*Sqrt[1 + x],x]
```

```
[Out] -((1 - x)^(3/2)*(1 + x)^(3/2))/3
```

Rubi in Sympy [A] time = 2.25037, size = 15, normalized size = 0.75

$$-\frac{(-x+1)^{\frac{3}{2}}(x+1)^{\frac{3}{2}}}{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(x*(1-x)**(1/2)*(1+x)**(1/2),x)
```

```
[Out] -(-x + 1)**(3/2)*(x + 1)**(3/2)/3
```

Mathematica [A] time = 0.00502341, size = 15, normalized size = 0.75

$$-\frac{1}{3}\left(1-x^2\right)^{3/2}$$

Antiderivative was successfully verified.

```
[In] Integrate[Sqrt[1 - x]*x*Sqrt[1 + x],x]
```

```
[Out] -(1 - x^2)^(3/2)/3
```

Maple [A] time = 0.003, size = 15, normalized size = 0.8

$$-\frac{1}{3}(1-x)^{\frac{3}{2}}(1+x)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x*(1-x)^(1/2)*(1+x)^(1/2),x)
```

```
[Out] -1/3*(1-x)^(3/2)*(1+x)^(3/2)
```

Maxima [A] time = 1.48879, size = 15, normalized size = 0.75

$$-\frac{1}{3}\left(-x^2+1\right)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(x + 1)*x*sqrt(-x + 1),x, algorithm="maxima")
```

```
[Out] -1/3*(-x^2 + 1)^(3/2)
```

Fricas [A] time = 0.222294, size = 90, normalized size = 4.5

$$\frac{x^6-6\,x^4+6\,x^2+3\left(x^4-2\,x^2\right)\sqrt{x+1}\sqrt{-x+1}}{3\left(3\,x^2-(x^2-4)\sqrt{x+1}\sqrt{-x+1}-4\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(x + 1)*x*sqrt(-x + 1),x, algorithm="fricas")
```

```
[Out] 1/3*(x^6 - 6*x^4 + 6*x^2 + 3*(x^4 - 2*x^2)*sqrt(x + 1)*sqrt(-x +
1))/(3*x^2 - (x^2 - 4)*sqrt(x + 1)*sqrt(-x + 1) - 4)
```

Sympy [A] time = 32.9118, size = 95, normalized size = 4.75

$$-2\left(\begin{cases}\frac{x\sqrt{-x+1}\sqrt{x+1}}{4}+\frac{\operatorname{asin}\left(\frac{\sqrt{2}\sqrt{x+1}}{2}\right)}{2} & \text{for}\: x\geq -1\wedge x<1\end{cases}\right)+2\left(\begin{cases}\frac{x\sqrt{-x+1}\sqrt{x+1}}{4}-\frac{(-x+1)^{\frac{3}{2}}(x+1)^{\frac{3}{2}}}{6}+\frac{\operatorname{asin}\left(\frac{\sqrt{2}\sqrt{x+1}}{2}\right)}{2} & \text{for}\: x\geq -1\wedge x<1\end{cases}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(1-x)**(1/2)*(1+x)**(1/2),x)
```

```
[Out] -2*Piecewise((x*sqrt(-x + 1)*sqrt(x + 1)/4 + asin(sqrt(2)*sqrt(x
+ 1)/2)/2, (x >= -1) & (x < 1))) + 2*Piecewise((x*sqrt(-x + 1)*sq
rt(x + 1)/4 - (-x + 1)**(3/2)*(x + 1)**(3/2)/6 + asin(sqrt(2)*sqr
t(x + 1)/2)/2, (x >= -1) & (x < 1)))
```

GIAC/XCAS [A] time = 0.224866, size = 23, normalized size = 1.15

$$\frac{1}{3}\,(x+1)^{\frac{3}{2}}(x-1)\sqrt{-x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(x + 1)*x*sqrt(-x + 1),x, algorithm="giac")
```

```
[Out] 1/3*(x + 1)^(3/2)*(x - 1)*sqrt(-x + 1)
```

3.838 $\int x^3(2+3x)^{3/2}\sqrt{1+4x}\,dx$

Optimal. Leaf size=146

$$\frac{1}{72}x^2(4x+1)^{3/2}(3x+2)^{5/2}+\frac{(4103-7968x)(4x+1)^{3/2}(3x+2)^{5/2}}{829440}-\frac{8543\sqrt{4x+1}(3x+2)^{5/2}}{995328}+\frac{42715\sqrt{4x+1}(3x+2)^{3/2}}{15925248}+\frac{213575\sqrt{4x+1}\sqrt{3x+2}}{42467328}+\frac{1067875\sinh^{-1}\left(\sqrt{\frac{3}{5}}\sqrt{4x+1}\right)}{84934656\sqrt{3}}$$

```
[Out] (213575*Sqrt[2 + 3*x]*Sqrt[1 + 4*x])/42467328 + (42715*(2 + 3*x)^
(3/2)*Sqrt[1 + 4*x])/15925248 - (8543*(2 + 3*x)^(5/2)*Sqrt[1 + 4*
x])/995328 + ((4103 - 7968*x)*(2 + 3*x)^(5/2)*(1 + 4*x)^(3/2))/82
9440 + (x^2*(2 + 3*x)^(5/2)*(1 + 4*x)^(3/2))/72 + (1067875*ArcSin
h[Sqrt[3/5]*Sqrt[1 + 4*x]])/(84934656*Sqrt[3])
```

Rubi [A] time = 0.15733, antiderivative size = 146, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$\frac{1}{72}x^2(4x+1)^{3/2}(3x+2)^{5/2}+\frac{(4103-7968x)(4x+1)^{3/2}(3x+2)^{5/2}}{829440}-\frac{8543\sqrt{4x+1}(3x+2)^{5/2}}{995328}+\frac{42715\sqrt{4x+1}(3x+2)^{3/2}}{15925248}+\frac{213575\sqrt{4x+1}\sqrt{3x+2}}{42467328}+\frac{1067875\sinh^{-1}\left(\sqrt{\frac{3}{5}}\sqrt{4x+1}\right)}{84934656\sqrt{3}}$$

Antiderivative was successfully verified.

```
[In] Int[x^3*(2 + 3*x)^(3/2)*Sqrt[1 + 4*x],x]
```

```
[Out] (213575*Sqrt[2 + 3*x]*Sqrt[1 + 4*x])/42467328 + (42715*(2 + 3*x)^
(3/2)*Sqrt[1 + 4*x])/15925248 - (8543*(2 + 3*x)^(5/2)*Sqrt[1 + 4*
x])/995328 + ((4103 - 7968*x)*(2 + 3*x)^(5/2)*(1 + 4*x)^(3/2))/82
9440 + (x^2*(2 + 3*x)^(5/2)*(1 + 4*x)^(3/2))/72 + (1067875*ArcSin
h[Sqrt[3/5]*Sqrt[1 + 4*x]])/(84934656*Sqrt[3])
```

Rubi in Sympy [A] time = 12.739, size = 133, normalized size = 0.91

$$\frac{x^2(3x+2)^{\frac{5}{2}}(4x+1)^{\frac{3}{2}}}{72}+\frac{\left(-1992x+\frac{4103}{4}\right)(3x+2)^{\frac{5}{2}}(4x+1)^{\frac{3}{2}}}{207360}-\frac{8543(3x+2)^{\frac{3}{2}}(4x+1)^{\frac{3}{2}}}{1327104}-\frac{42715\sqrt{3x+2}(4x+1)^{\frac{3}{2}}}{7077888}-\frac{213575\sqrt{3x+2}\sqrt{4x+1}}{42467328}+\frac{1067875\sqrt{3}\,\operatorname{asinh}\left(\frac{\sqrt{15}\sqrt{4x+1}}{5}\right)}{254803968}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(x**3*(2+3*x)**(3/2)*(1+4*x)**(1/2),x)
```

```
[Out] x**2*(3*x + 2)**(5/2)*(4*x + 1)**(3/2)/72 + (-1992*x + 4103/4)*(3
*x + 2)**(5/2)*(4*x + 1)**(3/2)/207360 - 8543*(3*x + 2)**(3/2)*(4
*x + 1)**(3/2)/1327104 - 42715*sqrt(3*x + 2)*(4*x + 1)**(3/2)/707
7888 - 213575*sqrt(3*x + 2)*sqrt(4*x + 1)/42467328 + 1067875*sqrt
(3)*asinh(sqrt(15)*sqrt(4*x + 1)/5)/254803968
```

Mathematica [A] time = 0.111896, size = 79, normalized size = 0.54

$$\frac{6\sqrt{3x+2}\sqrt{4x+1}\left(106168320x^5+94666752x^4+4119552x^3-1849728x^2+1089592x-881613\right)+5339375\sqrt{3}\log\left(2\sqrt{3x+\right.}{1274019840}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^3*(2 + 3*x)^(3/2)*Sqrt[1 + 4*x],x]
```

```
[Out] (6*Sqrt[2 + 3*x]*Sqrt[1 + 4*x]*(-881613 + 1089592*x - 1849728*x^2
 + 4119552*x^3 + 94666752*x^4 + 106168320*x^5) + 5339375*Sqrt[3]*
Log[2*Sqrt[2 + 3*x] + Sqrt[3 + 12*x]])/1274019840
```

Maple [A] time = 0.019, size = 157, normalized size = 1.1

$$\frac{1}{2548039680}\sqrt{2+3x}\sqrt{4x+1}\left(1274019840x^5\sqrt{12x^2+11x+2}+1136001024x^4\sqrt{12x^2+11x+2}+49434624x^3\sqrt{12x^2+1\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^3*(2+3*x)^(3/2)*(4*x+1)^(1/2),x)
```

```
[Out] 1/2548039680*(2+3*x)^(1/2)*(4*x+1)^(1/2)*(1274019840*x^5*(12*x^2+
11*x+2)^(1/2)+1136001024*x^4*(12*x^2+11*x+2)^(1/2)+49434624*x^3*(
12*x^2+11*x+2)^(1/2)-22196736*x^2*(12*x^2+11*x+2)^(1/2)+5339375*l
n(11/12*3^(1/2)+2*3^(1/2)*x+(12*x^2+11*x+2)^(1/2))*3^(1/2)+130751
04*(12*x^2+11*x+2)^(1/2)*x-10579356*(12*x^2+11*x+2)^(1/2))/(12*x^
2+11*x+2)^(1/2)
```

Maxima [A] time = 1.49966, size = 163, normalized size = 1.12

$$\frac{1}{24}\left(12x^2+11x+2\right)^{\frac{3}{2}}x^3-\frac{1}{960}\left(12x^2+11x+2\right)^{\frac{3}{2}}x^2-\frac{403}{92160}\left(12x^2+11x+2\right)^{\frac{3}{2}}x+\frac{22933}{6635520}\left(12x^2+11x+2\right)^{\frac{3}{2}}-\frac{42715}{1769472}\sqrt{12x^2+11x+2}x+\frac{1067875}{509607936}\sqrt{3}\log\left(4\sqrt{3}\sqrt{12x^2+11x+2}+24x+11\right)-\frac{469865}{42467328}\sqrt{12x^2+11x+2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(4*x + 1)*(3*x + 2)^(3/2)*x^3,x, algorithm="maxima")
```

```
[Out] 1/24*(12*x^2 + 11*x + 2)^(3/2)*x^3 - 1/960*(12*x^2 + 11*x + 2)^(3
/2)*x^2 - 403/92160*(12*x^2 + 11*x + 2)^(3/2)*x + 22933/6635520*(
12*x^2 + 11*x + 2)^(3/2) - 42715/1769472*sqrt(12*x^2 + 11*x + 2)*
x + 1067875/509607936*sqrt(3)*log(4*sqrt(3)*sqrt(12*x^2 + 11*x +
2) + 24*x + 11) - 469865/42467328*sqrt(12*x^2 + 11*x + 2)
```

Fricas [A] time = 0.25113, size = 120, normalized size = 0.82

$$\frac{1}{5096079360}\sqrt{3}\left(8\sqrt{3}\left(106168320x^5+94666752x^4+4119552x^3-1849728x^2+1089592x-881613\right)\sqrt{4x+1}\sqrt{3x+2}+5\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(4*x + 1)*(3*x + 2)^(3/2)*x^3,x, algorithm="fricas")
```

```
[Out] 1/5096079360*sqrt(3)*(8*sqrt(3)*(106168320*x^5 + 94666752*x^4 + 4
119552*x^3 - 1849728*x^2 + 1089592*x - 881613)*sqrt(4*x + 1)*sqrt
(3*x + 2) + 5339375*log(24*(24*x + 11)*sqrt(4*x + 1)*sqrt(3*x + 2
) + sqrt(3)*(1152*x^2 + 1056*x + 217)))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**3*(2+3*x)**(3/2)*(1+4*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.2248, size = 181, normalized size = 1.24

$$\frac{1}{23592960}\left(2\left(12\left(2\left(8\left(120x-109\right)(4x+1)+1845\right)(4x+1)-1415\right)(4x+1)-62545\right)(4x+1)+427925\right)\sqrt{4x+1}\sqrt{3x+2}+\frac{1}{6635520}\left(2\left(12\left(18\left(96x-61\right)(4x+1)+1535\right)(4x+1)+13465\right)(4x+1)-153725\right)\sqrt{4x+1}\sqrt{3x+2}-\frac{1067875}{254803968}\sqrt{3}\ln\left(-\sqrt{3}\sqrt{4x+1}+2\sqrt{3x+2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(4*x + 1)*(3*x + 2)^(3/2)*x^3,x, algorithm="giac")
```

```
[Out] 1/23592960*(2*(12*(2*(8*(120*x - 109)*(4*x + 1) + 1845)*(4*x + 1)
 - 1415)*(4*x + 1) - 62545)*(4*x + 1) + 427925)*sqrt(4*x + 1)*sqr
t(3*x + 2) + 1/6635520*(2*(12*(18*(96*x - 61)*(4*x + 1) + 1535)*(
4*x + 1) + 13465)*(4*x + 1) - 153725)*sqrt(4*x + 1)*sqrt(3*x + 2)
 - 1067875/254803968*sqrt(3)*ln(-sqrt(3)*sqrt(4*x + 1) + 2*sqrt(3
*x + 2))
```

3.839 $\int \frac{1}{\sqrt{-1+a+bx}\sqrt{1+a+bx}}\,dx$

Optimal. Leaf size=22

$$\frac{2\sinh^{-1}\left(\frac{\sqrt{a+bx-1}}{\sqrt{2}}\right)}{b}$$

```
[Out] (2*ArcSinh[Sqrt[-1 + a + b*x]/Sqrt[2]])/b
```

Rubi [A] time = 0.0318357, antiderivative size = 22, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 21, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.095

$$\frac{2\sinh^{-1}\left(\frac{\sqrt{a+bx-1}}{\sqrt{2}}\right)}{b}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[-1 + a + b*x]*Sqrt[1 + a + b*x]),x]

[Out] (2*ArcSinh[Sqrt[-1 + a + b*x]/Sqrt[2]])/b
```

Rubi in Sympy [A] time = 6.30871, size = 24, normalized size = 1.09

$$\frac{2\,\text{atanh}\left(\frac{\sqrt{a+bx+1}}{\sqrt{a+bx-1}}\right)}{b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(b*x+a-1)**(1/2)/(b*x+a+1)**(1/2),x)

[Out] 2*atanh(sqrt(a + b*x + 1)/sqrt(a + b*x - 1))/b
```

Mathematica [A] time = 0.0143631, size = 22, normalized size = 1.

$$\frac{2\sinh^{-1}\left(\frac{\sqrt{a+bx-1}}{\sqrt{2}}\right)}{b}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[-1 + a + b*x]*Sqrt[1 + a + b*x]),x]

[Out] (2*ArcSinh[Sqrt[-1 + a + b*x]/Sqrt[2]])/b
```

Maple [B] time = 0.008, size = 94, normalized size = 4.3

$$1\sqrt{(bx+a-1)(bx+a+1)}\ln\left(1\left(\frac{b(a-1)}{2}+\frac{b(1+a)}{2}+b^2x\right)\frac{1}{\sqrt{b^2}}+\sqrt{b^2x^2+(b(a-1)+b(1+a))x+(a-1)(1+a)}\right)\frac{}{\sqrt{bx}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(b*x+a-1)^(1/2)/(b*x+a+1)^(1/2),x)
```

```
[Out] ((b*x+a-1)*(b*x+a+1))^(1/2)/(b*x+a-1)^(1/2)/(b*x+a+1)^(1/2)*ln((1
/2*b*(a-1)+1/2*b*(1+a)+b^2*x)/(b^2)^(1/2)+(b^2*x^2+(b*(a-1)+b*(1+
a))*x+(a-1)*(1+a))^(1/2))/(b^2)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(b*x + a + 1)*sqrt(b*x + a - 1)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.227463, size = 42, normalized size = 1.91

$$-\frac{\log\left(-bx+\sqrt{bx+a+1}\sqrt{bx+a-1}-a\right)}{b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(b*x + a + 1)*sqrt(b*x + a - 1)),x, algorithm="fricas")
```

```
[Out] -log(-b*x + sqrt(b*x + a + 1)*sqrt(b*x + a - 1) - a)/b
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{a+bx-1}\sqrt{a+bx+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(b*x+a-1)**(1/2)/(b*x+a+1)**(1/2),x)
```

```
[Out] Integral(1/(sqrt(a + b*x - 1)*sqrt(a + b*x + 1)), x)
```

GIAC/XCAS [A] time = 0.268985, size = 35, normalized size = 1.59

$$-\frac{2\ln\left(\left|-\sqrt{bx+a+1}+\sqrt{bx+a-1}\right|\right)}{b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(b*x + a + 1)*sqrt(b*x + a - 1)),x, algorithm="giac")
```

```
[Out] -2*ln(abs(-sqrt(b*x + a + 1) + sqrt(b*x + a - 1)))/b
```

3.840 $\int \frac{1}{\sqrt{x}\sqrt{a-bx}\sqrt{a+bx}}\,dx$

Optimal. Leaf size=75

$$\frac{2\sqrt{a}\sqrt{1-\frac{bx}{a}}\sqrt{\frac{bx}{a}+1}F\left(\sin^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)\middle|-1\right)}{\sqrt{b}\sqrt{a-bx}\sqrt{a+bx}}$$

```
[Out] (2*Sqrt[a]*Sqrt[1 - (b*x)/a]*Sqrt[1 + (b*x)/a]*EllipticF[ArcSin[(
Sqrt[b]*Sqrt[x])/Sqrt[a]], -1])/(Sqrt[b]*Sqrt[a - b*x]*Sqrt[a + b
*x])
```

Rubi [A] time = 0.14423, antiderivative size = 75, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 25, $\frac{\text{number of rules}}{\text{integrand size}} = 0.08$

$$\frac{2\sqrt{a}\sqrt{1-\frac{bx}{a}}\sqrt{\frac{bx}{a}+1}F\left(\sin^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)\middle|-1\right)}{\sqrt{b}\sqrt{a-bx}\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[x]*Sqrt[a - b*x]*Sqrt[a + b*x]),x]
```

```
[Out] (2*Sqrt[a]*Sqrt[1 - (b*x)/a]*Sqrt[1 + (b*x)/a]*EllipticF[ArcSin[(
Sqrt[b]*Sqrt[x])/Sqrt[a]], -1])/(Sqrt[b]*Sqrt[a - b*x]*Sqrt[a + b
*x])
```

Rubi in Sympy [A] time = 12.4533, size = 68, normalized size = 0.91

$$\frac{2\sqrt{a}\sqrt{1-\frac{bx}{a}}\sqrt{1+\frac{bx}{a}}F\left(\operatorname{asin}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{a}}\right)\middle|-1\right)}{\sqrt{b}\sqrt{a-bx}\sqrt{a+bx}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x**(1/2)/(-b*x+a)**(1/2)/(b*x+a)**(1/2),x)
```

```
[Out] 2*sqrt(a)*sqrt(1 - b*x/a)*sqrt(1 + b*x/a)*elliptic_f(asin(sqrt(b)
*sqrt(x)/sqrt(a)), -1)/(sqrt(b)*sqrt(a - b*x)*sqrt(a + b*x))
```

Mathematica [A] time = 0.173253, size = 66, normalized size = 0.88

$$-\frac{2x\sqrt{1-\frac{a^2}{b^2x^2}}F\left(\sin^{-1}\left(\frac{\sqrt{\frac{a}{b}}}{\sqrt{x}}\right)\middle|-1\right)}{\sqrt{\frac{a}{b}}\sqrt{a-bx}\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[x]*Sqrt[a - b*x]*Sqrt[a + b*x]),x]
```

```
[Out] (-2*Sqrt[1 - a^2/(b^2*x^2)]*x*EllipticF[ArcSin[Sqrt[a/b]/Sqrt[x]]
, -1])/(Sqrt[a/b]*Sqrt[a - b*x]*Sqrt[a + b*x])
```

Maple [A] time = 0.278, size = 91, normalized size = 1.2

$$-\frac{a}{b\left(b^{2}x^{2}-a^{2}\right)}\sqrt{-bx+a}\sqrt{bx+a}\sqrt{\frac{bx+a}{a}}\sqrt{-2\,\frac{bx-a}{a}}\sqrt{-\frac{bx}{a}}\,\mathit{EllipticF}\left(\sqrt{\frac{bx+a}{a}},\frac{\sqrt{2}}{2}\right)\frac{1}{\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/x^(1/2)/(-b*x+a)^(1/2)/(b*x+a)^(1/2),x)
```

```
[Out] -1/x^(1/2)*(-b*x+a)^(1/2)*(b*x+a)^(1/2)*a*((b*x+a)/a)^(1/2)*(-2*(
b*x-a)/a)^(1/2)*(-b*x/a)^(1/2)*EllipticF(((b*x+a)/a)^(1/2),1/2*2^
(1/2))/b/(b^2*x^2-a^2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{bx+a}\sqrt{-bx+a}\sqrt{x}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(b*x + a)*sqrt(-b*x + a)*sqrt(x)),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(b*x + a)*sqrt(-b*x + a)*sqrt(x)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{\sqrt{bx+a}\sqrt{-bx+a}\sqrt{x}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(b*x + a)*sqrt(-b*x + a)*sqrt(x)),x, algorithm="fricas")
```

```
[Out] integral(1/(sqrt(b*x + a)*sqrt(-b*x + a)*sqrt(x)), x)
```

Sympy [A] time = 20.1512, size = 99, normalized size = 1.32

$$\frac{iG_{6,6}^{5,3}\left(\begin{matrix}\frac{1}{2},1,1 & \frac{3}{4},\frac{3}{4},\frac{5}{4}\\ \frac{1}{4},\frac{1}{2},\frac{3}{4},1,\frac{5}{4} & 0\end{matrix}\middle|\frac{a^{2}}{b^{2}x^{2}}\right)}{4\pi^{\frac{3}{2}}\sqrt{a}\sqrt{b}}-\frac{iG_{6,6}^{3,5}\left(\begin{matrix}-\frac{1}{4},0,\frac{1}{4},\frac{1}{2},\frac{3}{4} & 1\\ 0,\frac{1}{2},0 & -\frac{1}{4},\frac{1}{4},\frac{1}{4}\end{matrix}\middle|\frac{a^{2}e^{-2i\pi}}{b^{2}x^{2}}\right)}{4\pi^{\frac{3}{2}}\sqrt{a}\sqrt{b}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/x**(1/2)/(-b*x+a)**(1/2)/(b*x+a)**(1/2),x)
```

```
[Out] I*meijerg(((1/2, 1, 1), (3/4, 3/4, 5/4)), ((1/4, 1/2, 3/4, 1, 5/4
), (0,)), a**2/(b**2*x**2))/(4*pi**(3/2)*sqrt(a)*sqrt(b)) - I*mei
jerg(((-1/4, 0, 1/4, 1/2, 3/4), (1,)), ((0, 1/2, 0), (-1/4, 1/4,
1/4)), a**2*exp_polar(-2*I*pi)/(b**2*x**2))/(4*pi**(3/2)*sqrt(a)*
sqrt(b))
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{bx+a}\sqrt{-bx+a}\sqrt{x}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(b*x + a)*sqrt(-b*x + a)*sqrt(x)),x, algorithm="giac")

[Out] integrate(1/(sqrt(b*x + a)*sqrt(-b*x + a)*sqrt(x)), x)
```

3.841 $\int \frac{1}{\sqrt{-x}\sqrt{a-bx}\sqrt{a+bx}}\,dx$

Optimal. Leaf size=77

$$-\frac{2\sqrt{a}\sqrt{1-\frac{bx}{a}}\sqrt{\frac{bx}{a}+1}F\left(\sin^{-1}\left(\frac{\sqrt{b}\sqrt{-x}}{\sqrt{a}}\right)\middle|-1\right)}{\sqrt{b}\sqrt{a-bx}\sqrt{a+bx}}$$

```
[Out] (-2*Sqrt[a]*Sqrt[1 - (b*x)/a]*Sqrt[1 + (b*x)/a]*EllipticF[ArcSin[
(Sqrt[b]*Sqrt[-x])/Sqrt[a]], -1])/(Sqrt[b]*Sqrt[a - b*x]*Sqrt[a +
 b*x])
```

Rubi [A] time = 0.152421, antiderivative size = 77, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 27, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.074

$$-\frac{2\sqrt{a}\sqrt{1-\frac{bx}{a}}\sqrt{\frac{bx}{a}+1}F\left(\sin^{-1}\left(\frac{\sqrt{b}\sqrt{-x}}{\sqrt{a}}\right)\middle|-1\right)}{\sqrt{b}\sqrt{a-bx}\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[-x]*Sqrt[a - b*x]*Sqrt[a + b*x]),x]
```

```
[Out] (-2*Sqrt[a]*Sqrt[1 - (b*x)/a]*Sqrt[1 + (b*x)/a]*EllipticF[ArcSin[
(Sqrt[b]*Sqrt[-x])/Sqrt[a]], -1])/(Sqrt[b]*Sqrt[a - b*x]*Sqrt[a +
 b*x])
```

Rubi in Sympy [A] time = 13.9511, size = 71, normalized size = 0.92

$$-\frac{2\sqrt{a}\sqrt{1-\frac{bx}{a}}\sqrt{1+\frac{bx}{a}}F\left(\operatorname{asin}\left(\frac{\sqrt{b}\sqrt{-x}}{\sqrt{a}}\right)\middle|-1\right)}{\sqrt{b}\sqrt{a-bx}\sqrt{a+bx}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(-x)**(1/2)/(-b*x+a)**(1/2)/(b*x+a)**(1/2),x)
```

```
[Out] -2*sqrt(a)*sqrt(1 - b*x/a)*sqrt(1 + b*x/a)*elliptic_f(asin(sqrt(b
)*sqrt(-x)/sqrt(a)), -1)/(sqrt(b)*sqrt(a - b*x)*sqrt(a + b*x))
```

Mathematica [A] time = 0.0784048, size = 77, normalized size = 1.

$$-\frac{2x^{3/2}\sqrt{1-\frac{a^2}{b^2x^2}}F\left(\sin^{-1}\left(\frac{\sqrt{\frac{a}{b}}}{\sqrt{x}}\right)\middle|-1\right)}{\sqrt{-x}\sqrt{\frac{a}{b}}\sqrt{a-bx}\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[-x]*Sqrt[a - b*x]*Sqrt[a + b*x]),x]
```

```
[Out] (-2*Sqrt[1 - a^2/(b^2*x^2)]*x^(3/2)*EllipticF[ArcSin[Sqrt[a/b]/Sq
rt[x]], -1])/(Sqrt[a/b]*Sqrt[-x]*Sqrt[a - b*x]*Sqrt[a + b*x])
```

Maple [A] time = 0.069, size = 93, normalized size = 1.2

$$-\frac{a}{b\left(b^{2}x^{2}-a^{2}\right)}\sqrt{-bx+a}\sqrt{bx+a}\sqrt{\frac{bx+a}{a}}\sqrt{-2\,\frac{bx-a}{a}}\sqrt{-\frac{bx}{a}}EllipticF\left(\sqrt{\frac{bx+a}{a}},\frac{\sqrt{2}}{2}\right)\frac{1}{\sqrt{-x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(-x)^(1/2)/(-b*x+a)^(1/2)/(b*x+a)^(1/2),x)
```

```
[Out] -(-b*x+a)^(1/2)*(b*x+a)^(1/2)*a*((b*x+a)/a)^(1/2)*(-2*(b*x-a)/a)^
(1/2)*(-b*x/a)^(1/2)*EllipticF(((b*x+a)/a)^(1/2),1/2*2^(1/2))/b/(
-x)^(1/2)/(b^2*x^2-a^2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{bx+a}\sqrt{-bx+a}\sqrt{-x}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(b*x + a)*sqrt(-b*x + a)*sqrt(-x)),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(b*x + a)*sqrt(-b*x + a)*sqrt(-x)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{\sqrt{bx+a}\sqrt{-bx+a}\sqrt{-x}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(b*x + a)*sqrt(-b*x + a)*sqrt(-x)),x, algorithm="fricas")
```

```
[Out] integral(1/(sqrt(b*x + a)*sqrt(-b*x + a)*sqrt(-x)), x)
```

Sympy [A] time = 41.0158, size = 95, normalized size = 1.23

$$\frac{G_{6,6}^{5,3}\left(\begin{matrix}\frac{1}{2},1,1 & \frac{3}{4},\frac{3}{4},\frac{5}{4}\\ \frac{1}{4},\frac{1}{2},\frac{3}{4},1,\frac{5}{4} & 0\end{matrix}\middle|\frac{a^{2}}{b^{2}x^{2}}\right)}{4\pi^{\frac{3}{2}}\sqrt{a}\sqrt{b}}-\frac{G_{6,6}^{3,5}\left(\begin{matrix}-\frac{1}{4},0,\frac{1}{4},\frac{1}{2},\frac{3}{4} & 1\\ 0,\frac{1}{2},0 & -\frac{1}{4},\frac{1}{4},\frac{1}{4}\end{matrix}\middle|\frac{a^{2}e^{-2i\pi}}{b^{2}x^{2}}\right)}{4\pi^{\frac{3}{2}}\sqrt{a}\sqrt{b}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(-x)**(1/2)/(-b*x+a)**(1/2)/(b*x+a)**(1/2),x)
```

```
[Out] meijerg(((1/2, 1, 1), (3/4, 3/4, 5/4)), ((1/4, 1/2, 3/4, 1, 5/4),
 (0,)), a**2/(b**2*x**2))/(4*pi**(3/2)*sqrt(a)*sqrt(b)) - meijerg
(((-1/4, 0, 1/4, 1/2, 3/4), (1,)), ((0, 1/2, 0), (-1/4, 1/4, 1/4)
), a**2*exp_polar(-2*I*pi)/(b**2*x**2))/(4*pi**(3/2)*sqrt(a)*sqrt
(b))
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: RuntimeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(b*x + a)*sqrt(-b*x + a)*sqrt(-x)),x, algorithm="giac")
```

```
[Out] Exception raised: RuntimeError
```

3.842 $\int \frac{1}{\sqrt{ex}\sqrt{a-bx}\sqrt{a+bx}}\,dx$

Optimal. Leaf size=87

$$\frac{2\sqrt{a}\sqrt{1-\frac{bx}{a}}\sqrt{\frac{bx}{a}+1}F\left(\sin^{-1}\left(\frac{\sqrt{b}\sqrt{ex}}{\sqrt{a}\sqrt{e}}\right)\middle|-1\right)}{\sqrt{b}\sqrt{e}\sqrt{a-bx}\sqrt{a+bx}}$$

```
[Out] (2*Sqrt[a]*Sqrt[1 - (b*x)/a]*Sqrt[1 + (b*x)/a]*EllipticF[ArcSin[(
Sqrt[b]*Sqrt[e*x])/(Sqrt[a]*Sqrt[e])], -1])/(Sqrt[b]*Sqrt[e]*Sqrt
[a - b*x]*Sqrt[a + b*x])
```

Rubi [A] time = 0.17154, antiderivative size = 87, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 27, $\frac{\text{number of rules}}{\text{integrand size}} = 0.074$

$$\frac{2\sqrt{a}\sqrt{1-\frac{bx}{a}}\sqrt{\frac{bx}{a}+1}F\left(\sin^{-1}\left(\frac{\sqrt{b}\sqrt{ex}}{\sqrt{a}\sqrt{e}}\right)\middle|-1\right)}{\sqrt{b}\sqrt{e}\sqrt{a-bx}\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[e*x]*Sqrt[a - b*x]*Sqrt[a + b*x]),x]
```

```
[Out] (2*Sqrt[a]*Sqrt[1 - (b*x)/a]*Sqrt[1 + (b*x)/a]*EllipticF[ArcSin[(
Sqrt[b]*Sqrt[e*x])/(Sqrt[a]*Sqrt[e])], -1])/(Sqrt[b]*Sqrt[e]*Sqrt
[a - b*x]*Sqrt[a + b*x])
```

Rubi in Sympy [A] time = 15.844, size = 80, normalized size = 0.92

$$\frac{2\sqrt{a}\sqrt{1-\frac{bx}{a}}\sqrt{1+\frac{bx}{a}}F\left(\operatorname{asin}\left(\frac{\sqrt{b}\sqrt{ex}}{\sqrt{a}\sqrt{e}}\right)\middle|-1\right)}{\sqrt{b}\sqrt{e}\sqrt{a-bx}\sqrt{a+bx}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(e*x)**(1/2)/(-b*x+a)**(1/2)/(b*x+a)**(1/2),x)
```

```
[Out] 2*sqrt(a)*sqrt(1 - b*x/a)*sqrt(1 + b*x/a)*elliptic_f(asin(sqrt(b)
*sqrt(e*x)/(sqrt(a)*sqrt(e))), -1)/(sqrt(b)*sqrt(e)*sqrt(a - b*x)
*sqrt(a + b*x))
```

Mathematica [A] time = 0.0594365, size = 77, normalized size = 0.89

$$-\frac{2x^{3/2}\sqrt{1-\frac{a^2}{b^2x^2}}F\left(\sin^{-1}\left(\frac{\sqrt{\frac{a}{b}}}{\sqrt{x}}\right)\middle|-1\right)}{\sqrt{\frac{a}{b}}\sqrt{ex}\sqrt{a-bx}\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[e*x]*Sqrt[a - b*x]*Sqrt[a + b*x]),x]
```

```
[Out] (-2*Sqrt[1 - a^2/(b^2*x^2)]*x^(3/2)*EllipticF[ArcSin[Sqrt[a/b]/Sq
rt[x]], -1])/(Sqrt[a/b]*Sqrt[e*x]*Sqrt[a - b*x]*Sqrt[a + b*x])
```

Maple [A] time = 0.075, size = 93, normalized size = 1.1

$$-\frac{a}{b\left(b^{2}x^{2}-a^{2}\right)}\sqrt{-bx+a}\sqrt{bx+a}\sqrt{\frac{bx+a}{a}}\sqrt{-2\,\frac{bx-a}{a}}\sqrt{-\frac{bx}{a}}EllipticF\left(\sqrt{\frac{bx+a}{a}},\frac{\sqrt{2}}{2}\right)\frac{1}{\sqrt{ex}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(e*x)^(1/2)/(-b*x+a)^(1/2)/(b*x+a)^(1/2),x)
```

```
[Out] -(-b*x+a)^(1/2)*(b*x+a)^(1/2)*a*((b*x+a)/a)^(1/2)*(-2*(b*x-a)/a)^
(1/2)*(-b*x/a)^(1/2)*EllipticF(((b*x+a)/a)^(1/2),1/2*2^(1/2))/b/(
e*x)^(1/2)/(b^2*x^2-a^2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{1}{\sqrt{bx+a}\sqrt{-bx+a}\sqrt{ex}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(b*x + a)*sqrt(-b*x + a)*sqrt(e*x)),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(b*x + a)*sqrt(-b*x + a)*sqrt(e*x)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{1}{\sqrt{bx+a}\sqrt{-bx+a}\sqrt{ex}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(b*x + a)*sqrt(-b*x + a)*sqrt(e*x)),x, algorithm="fricas")
```

```
[Out] integral(1/(sqrt(b*x + a)*sqrt(-b*x + a)*sqrt(e*x)), x)
```

Sympy [A] time = 40.3682, size = 109, normalized size = 1.25

$$\frac{iG_{6,6}^{5,3}\left(\begin{matrix}\frac{1}{2},1,1 & \frac{3}{4},\frac{3}{4},\frac{5}{4}\\ \frac{1}{4},\frac{1}{2},\frac{3}{4},1,\frac{5}{4} & 0\end{matrix}\middle|\frac{a^{2}}{b^{2}x^{2}}\right)}{4\pi^{\frac{3}{2}}\sqrt{a}\sqrt{b}\sqrt{e}}-\frac{iG_{6,6}^{3,5}\left(\begin{matrix}-\frac{1}{4},0,\frac{1}{4},\frac{1}{2},\frac{3}{4} & 1\\ 0,\frac{1}{2},0 & -\frac{1}{4},\frac{1}{4},\frac{1}{4}\end{matrix}\middle|\frac{a^{2}e^{-2i\pi}}{b^{2}x^{2}}\right)}{4\pi^{\frac{3}{2}}\sqrt{a}\sqrt{b}\sqrt{e}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(e*x)**(1/2)/(-b*x+a)**(1/2)/(b*x+a)**(1/2),x)
```

```
[Out] I*meijerg(((1/2, 1, 1), (3/4, 3/4, 5/4)), ((1/4, 1/2, 3/4, 1, 5/4
), (0,)), a**2/(b**2*x**2))/(4*pi**(3/2)*sqrt(a)*sqrt(b)*sqrt(e))
 - I*meijerg(((-1/4, 0, 1/4, 1/2, 3/4), (1,)), ((0, 1/2, 0), (-1/
4, 1/4, 1/4)), a**2*exp_polar(-2*I*pi)/(b**2*x**2))/(4*pi**(3/2)*
sqrt(a)*sqrt(b)*sqrt(e))
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{1}{\sqrt{bx+a}\sqrt{-bx+a}\sqrt{ex}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(b*x + a)*sqrt(-b*x + a)*sqrt(e*x)),x, algorithm="giac")
```

```
[Out] integrate(1/(sqrt(b*x + a)*sqrt(-b*x + a)*sqrt(e*x)), x)
```

3.843 $\int \frac{1}{\sqrt{x}\sqrt{2-bx}\sqrt{2+bx}} \, dx$

Optimal. Leaf size=30

$$\frac{\sqrt{2}F\left(\sin^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{2}}\right)\middle|-1\right)}{\sqrt{b}}$$

```
[Out] (Sqrt[2]*EllipticF[ArcSin[(Sqrt[b]*Sqrt[x])/Sqrt[2]], -1])/Sqrt[b
]
```

Rubi [A] time = 0.0541034, antiderivative size = 30, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 25, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.04

$$\frac{\sqrt{2}F\left(\sin^{-1}\left(\frac{\sqrt{b}\sqrt{x}}{\sqrt{2}}\right)\middle|-1\right)}{\sqrt{b}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[x]*Sqrt[2 - b*x]*Sqrt[2 + b*x]),x]
```

```
[Out] (Sqrt[2]*EllipticF[ArcSin[(Sqrt[b]*Sqrt[x])/Sqrt[2]], -1])/Sqrt[b
]
```

Rubi in Sympy [A] time = 4.49302, size = 31, normalized size = 1.03

$$\frac{\sqrt{2}F\left(\operatorname{asin}\left(\frac{\sqrt{2}\sqrt{b}\sqrt{x}}{2}\right)\middle|-1\right)}{\sqrt{b}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x**(1/2)/(-b*x+2)**(1/2)/(b*x+2)**(1/2),x)
```

```
[Out] sqrt(2)*elliptic_f(asin(sqrt(2)*sqrt(b)*sqrt(x)/2), -1)/sqrt(b)
```

Mathematica [C] time = 0.151477, size = 70, normalized size = 2.33

$$-\frac{2i\sqrt{-\frac{1}{b}}bx\sqrt{1-\frac{4}{b^2x^2}}F\left(i\sinh^{-1}\left(\frac{\sqrt{2}\sqrt{-\frac{1}{b}}}{\sqrt{x}}\right)\middle|-1\right)}{\sqrt{8-2b^2x^2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[x]*Sqrt[2 - b*x]*Sqrt[2 + b*x]),x]
```

```
[Out] ((-2*I)*Sqrt[-b^(-1)]*b*Sqrt[1 - 4/(b^2*x^2)]*x*EllipticF[I*ArcSi
nh[(Sqrt[2]*Sqrt[-b^(-1)])/Sqrt[x]], -1])/Sqrt[8 - 2*b^2*x^2]
```

Maple [A] time = 0.075, size = 32, normalized size = 1.1

$$\frac{1}{b}\mathit{EllipticF}\left(\frac{\sqrt{2}}{2}\sqrt{bx+2},\frac{\sqrt{2}}{2}\right)\sqrt{-bx}\frac{1}{\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/x^(1/2)/(-b*x+2)^(1/2)/(b*x+2)^(1/2),x)
```

```
[Out] EllipticF(1/2*2^(1/2)*(b*x+2)^(1/2),1/2*2^(1/2))*(-b*x)^(1/2)/x^(
1/2)/b
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{bx+2}\sqrt{-bx+2}\sqrt{x}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(b*x + 2)*sqrt(-b*x + 2)*sqrt(x)),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(b*x + 2)*sqrt(-b*x + 2)*sqrt(x)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{\sqrt{bx+2}\sqrt{-bx+2}\sqrt{x}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(b*x + 2)*sqrt(-b*x + 2)*sqrt(x)),x, algorithm="fricas")
```

```
[Out] integral(1/(sqrt(b*x + 2)*sqrt(-b*x + 2)*sqrt(x)), x)
```

Sympy [A] time = 19.7093, size = 95, normalized size = 3.17

$$\frac{\sqrt{2}iG_{6,6}^{5,3}\left(\begin{matrix}\frac{1}{2},1,1 & \frac{3}{4},\frac{3}{4},\frac{5}{4}\\ \frac{1}{4},\frac{1}{2},\frac{3}{4},1,\frac{5}{4} & 0\end{matrix}\middle|\frac{4}{b^2x^2}\right)}{8\pi^{\frac{3}{2}}\sqrt{b}}-\frac{\sqrt{2}iG_{6,6}^{3,5}\left(\begin{matrix}-\frac{1}{4},0,\frac{1}{4},\frac{1}{2},\frac{3}{4} & 1\\ 0,\frac{1}{2},0 & -\frac{1}{4},\frac{1}{4},\frac{1}{4}\end{matrix}\middle|\frac{4e^{-2i\pi}}{b^2x^2}\right)}{8\pi^{\frac{3}{2}}\sqrt{b}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/x**(1/2)/(-b*x+2)**(1/2)/(b*x+2)**(1/2),x)
```

```
[Out] sqrt(2)*I*meijerg(((1/2, 1, 1), (3/4, 3/4, 5/4)), ((1/4, 1/2, 3/4
, 1, 5/4), (0,)), 4/(b**2*x**2))/(8*pi**(3/2)*sqrt(b)) - sqrt(2)*
I*meijerg(((-1/4, 0, 1/4, 1/2, 3/4), (1,)), ((0, 1/2, 0), (-1/4,
1/4, 1/4)), 4*exp_polar(-2*I*pi)/(b**2*x**2))/(8*pi**(3/2)*sqrt(b
))
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{bx+2}\sqrt{-bx+2}\sqrt{x}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(b*x + 2)*sqrt(-b*x + 2)*sqrt(x)),x, algorithm="giac")
```

```
[Out] integrate(1/(sqrt(b*x + 2)*sqrt(-b*x + 2)*sqrt(x)), x)
```

3.844 $\int \frac{1}{\sqrt{-x}\sqrt{2-bx}\sqrt{2+bx}}\,dx$

Optimal. Leaf size=33

$$-\frac{\sqrt{2}F\left(\sin^{-1}\left(\frac{\sqrt{b}\sqrt{-x}}{\sqrt{2}}\right)\middle|-1\right)}{\sqrt{b}}$$

```
[Out] -((Sqrt[2]*EllipticF[ArcSin[(Sqrt[b]*Sqrt[-x])/Sqrt[2]], -1])/Sqr
t[b])
```

Rubi [A] time = 0.0557954, antiderivative size = 33, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 27, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.037

$$-\frac{\sqrt{2}F\left(\sin^{-1}\left(\frac{\sqrt{b}\sqrt{-x}}{\sqrt{2}}\right)\middle|-1\right)}{\sqrt{b}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[-x]*Sqrt[2 - b*x]*Sqrt[2 + b*x]),x]
```

```
[Out] -((Sqrt[2]*EllipticF[ArcSin[(Sqrt[b]*Sqrt[-x])/Sqrt[2]], -1])/Sqr
t[b])
```

Rubi in Sympy [A] time = 4.95835, size = 34, normalized size = 1.03

$$-\frac{\sqrt{2}F\left(\operatorname{asin}\left(\frac{\sqrt{2}\sqrt{b}\sqrt{-x}}{2}\right)\middle|-1\right)}{\sqrt{b}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(-x)**(1/2)/(-b*x+2)**(1/2)/(b*x+2)**(1/2),x)
```

```
[Out] -sqrt(2)*elliptic_f(asin(sqrt(2)*sqrt(b)*sqrt(-x)/2), -1)/sqrt(b)
```

Mathematica [C] time = 0.07164, size = 78, normalized size = 2.36

$$\frac{2i\sqrt{-\frac{1}{b}}b\sqrt{-x^2}\sqrt{1-\frac{4}{b^2x^2}}F\left(i\sinh^{-1}\left(\frac{\sqrt{2}\sqrt{-\frac{1}{b}}}{\sqrt{x}}\right)\middle|-1\right)}{\sqrt{8-2b^2x^2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[-x]*Sqrt[2 - b*x]*Sqrt[2 + b*x]),x]
```

```
[Out] ((2*I)*Sqrt[-b^(-1)]*b*Sqrt[1 - 4/(b^2*x^2)]*Sqrt[-x^2]*EllipticF
[I*ArcSinh[(Sqrt[2]*Sqrt[-b^(-1)])/Sqrt[x]], -1])/Sqrt[8 - 2*b^2*
x^2]
```

Maple [A] time = 0.064, size = 34, normalized size = 1.

$$\frac{1}{b}\mathit{EllipticF}\left(\frac{\sqrt{2}}{2}\sqrt{bx+2},\frac{\sqrt{2}}{2}\right)\sqrt{-bx}\frac{1}{\sqrt{-x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(-x)^(1/2)/(-b*x+2)^(1/2)/(b*x+2)^(1/2),x)
```

```
[Out] EllipticF(1/2*2^(1/2)*(b*x+2)^(1/2),1/2*2^(1/2))*(-b*x)^(1/2)/(-x
)^(1/2)/b
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{bx+2}\sqrt{-bx+2}\sqrt{-x}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(b*x + 2)*sqrt(-b*x + 2)*sqrt(-x)),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(b*x + 2)*sqrt(-b*x + 2)*sqrt(-x)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{\sqrt{bx+2}\sqrt{-bx+2}\sqrt{-x}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(b*x + 2)*sqrt(-b*x + 2)*sqrt(-x)),x, algorithm="fricas")
```

```
[Out] integral(1/(sqrt(b*x + 2)*sqrt(-b*x + 2)*sqrt(-x)), x)
```

Sympy [A] time = 40.2234, size = 92, normalized size = 2.79

$$\frac{\sqrt{2}G_{6,6}^{5,3}\left(\begin{matrix} \frac{1}{2}, 1, 1 & \frac{3}{4}, \frac{3}{4}, \frac{5}{4} \\ \frac{1}{4}, \frac{1}{2}, \frac{3}{4}, 1, \frac{5}{4} & 0 \end{matrix} \middle| \frac{4}{b^2x^2}\right)}{8\pi^{\frac{3}{2}}\sqrt{b}} - \frac{\sqrt{2}G_{6,6}^{3,5}\left(\begin{matrix} -\frac{1}{4}, 0, \frac{1}{4}, \frac{1}{2}, \frac{3}{4} & 1 \\ 0, \frac{1}{2}, 0 & -\frac{1}{4}, \frac{1}{4}, \frac{1}{4} \end{matrix} \middle| \frac{4e^{-2i\pi}}{b^2x^2}\right)}{8\pi^{\frac{3}{2}}\sqrt{b}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(-x)**(1/2)/(-b*x+2)**(1/2)/(b*x+2)**(1/2),x)
```

```
[Out] sqrt(2)*meijerg(((1/2, 1, 1), (3/4, 3/4, 5/4)), ((1/4, 1/2, 3/4,
1, 5/4), (0,)), 4/(b**2*x**2))/(8*pi**(3/2)*sqrt(b)) - sqrt(2)*me
ijerg(((-1/4, 0, 1/4, 1/2, 3/4), (1,)), ((0, 1/2, 0), (-1/4, 1/4,
 1/4)), 4*exp_polar(-2*I*pi)/(b**2*x**2))/(8*pi**(3/2)*sqrt(b))
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{bx+2}\sqrt{-bx+2}\sqrt{-x}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(b*x + 2)*sqrt(-b*x + 2)*sqrt(-x)),x, algorithm="giac")
```

```
[Out] integrate(1/(sqrt(b*x + 2)*sqrt(-b*x + 2)*sqrt(-x)), x)
```

3.845 $\int \frac{1}{\sqrt{ex}\sqrt{2-bx}\sqrt{2+bx}}\,dx$

Optimal. Leaf size=42

$$\frac{\sqrt{2}F\left(\sin^{-1}\left(\frac{\sqrt{b}\sqrt{ex}}{\sqrt{2}\sqrt{e}}\right)\middle|-1\right)}{\sqrt{b}\sqrt{e}}$$

```
[Out] (Sqrt[2]*EllipticF[ArcSin[(Sqrt[b]*Sqrt[e*x])/(Sqrt[2]*Sqrt[e])],
 -1])/(Sqrt[b]*Sqrt[e])
```

Rubi [A] time = 0.0654999, antiderivative size = 42, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 27, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.037

$$\frac{\sqrt{2}F\left(\sin^{-1}\left(\frac{\sqrt{b}\sqrt{ex}}{\sqrt{2}\sqrt{e}}\right)\middle|-1\right)}{\sqrt{b}\sqrt{e}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[e*x]*Sqrt[2 - b*x]*Sqrt[2 + b*x]),x]
```

```
[Out] (Sqrt[2]*EllipticF[ArcSin[(Sqrt[b]*Sqrt[e*x])/(Sqrt[2]*Sqrt[e])],
 -1])/(Sqrt[b]*Sqrt[e])
```

Rubi in Sympy [A] time = 6.01219, size = 42, normalized size = 1.

$$\frac{\sqrt{2}F\left(\operatorname{asin}\left(\frac{\sqrt{2}\sqrt{b}\sqrt{ex}}{2\sqrt{e}}\right)\middle|-1\right)}{\sqrt{b}\sqrt{e}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(e*x)**(1/2)/(-b*x+2)**(1/2)/(b*x+2)**(1/2),x)
```

```
[Out] sqrt(2)*elliptic_f(asin(sqrt(2)*sqrt(b)*sqrt(e*x)/(2*sqrt(e))), -
1)/(sqrt(b)*sqrt(e))
```

Mathematica [C] time = 0.0623973, size = 81, normalized size = 1.93

$$-\frac{2i\sqrt{-\frac{1}{b}}bx^{3/2}\sqrt{1-\frac{4}{b^2x^2}}F\left(i\sinh^{-1}\left(\frac{\sqrt{2}\sqrt{-\frac{1}{b}}}{\sqrt{x}}\right)\middle|-1\right)}{\sqrt{8-2b^2x^2}\sqrt{ex}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[e*x]*Sqrt[2 - b*x]*Sqrt[2 + b*x]),x]
```

```
[Out] ((-2*I)*Sqrt[-b^(-1)]*b*Sqrt[1 - 4/(b^2*x^2)]*x^(3/2)*EllipticF[I
*ArcSinh[(Sqrt[2]*Sqrt[-b^(-1)])/Sqrt[x]], -1])/(Sqrt[e*x]*Sqrt[8
 - 2*b^2*x^2])
```

Maple [A] time = 0.072, size = 34, normalized size = 0.8

$$\frac{1}{b}EllipticF\left(\frac{\sqrt{2}}{2}\sqrt{bx+2},\frac{\sqrt{2}}{2}\right)\sqrt{-bx}\frac{1}{\sqrt{ex}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(e*x)^(1/2)/(-b*x+2)^(1/2)/(b*x+2)^(1/2),x)
```

```
[Out] EllipticF(1/2*2^(1/2)*(b*x+2)^(1/2),1/2*2^(1/2))*(-b*x)^(1/2)/(e*
x)^(1/2)/b
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{bx+2}\sqrt{-bx+2}\sqrt{ex}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(b*x + 2)*sqrt(-b*x + 2)*sqrt(e*x)),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(b*x + 2)*sqrt(-b*x + 2)*sqrt(e*x)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{\sqrt{bx+2}\sqrt{-bx+2}\sqrt{ex}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(b*x + 2)*sqrt(-b*x + 2)*sqrt(e*x)),x, algorithm="fricas")
```

```
[Out] integral(1/(sqrt(b*x + 2)*sqrt(-b*x + 2)*sqrt(e*x)), x)
```

Sympy [A] time = 39.6536, size = 105, normalized size = 2.5

$$\frac{\sqrt{2}iG_{6,6}^{5,3}\left(\begin{matrix}\frac{1}{2},1,1 & \frac{3}{4},\frac{3}{4},\frac{5}{4}\\ \frac{1}{4},\frac{1}{2},\frac{3}{4},1,\frac{5}{4} & 0\end{matrix}\middle|\frac{4}{b^2x^2}\right)}{8\pi^{\frac{3}{2}}\sqrt{b}\sqrt{e}}-\frac{\sqrt{2}iG_{6,6}^{3,5}\left(\begin{matrix}-\frac{1}{4},0,\frac{1}{4},\frac{1}{2},\frac{3}{4} & 1\\ 0,\frac{1}{2},0 & -\frac{1}{4},\frac{1}{4},\frac{1}{4}\end{matrix}\middle|\frac{4e^{-2i\pi}}{b^2x^2}\right)}{8\pi^{\frac{3}{2}}\sqrt{b}\sqrt{e}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(e*x)**(1/2)/(-b*x+2)**(1/2)/(b*x+2)**(1/2),x)
```

```
[Out] sqrt(2)*I*meijerg(((1/2, 1, 1), (3/4, 3/4, 5/4)), ((1/4, 1/2, 3/4
, 1, 5/4), (0,)), 4/(b**2*x**2))/(8*pi**(3/2)*sqrt(b)*sqrt(e)) -
sqrt(2)*I*meijerg(((-1/4, 0, 1/4, 1/2, 3/4), (1,)), ((0, 1/2, 0),
 (-1/4, 1/4, 1/4)), 4*exp_polar(-2*I*pi)/(b**2*x**2))/(8*pi**(3/2
)*sqrt(b)*sqrt(e))
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{bx+2}\sqrt{-bx+2}\sqrt{ex}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(b*x + 2)*sqrt(-b*x + 2)*sqrt(e*x)),x, algorithm="giac")
```

```
[Out] integrate(1/(sqrt(b*x + 2)*sqrt(-b*x + 2)*sqrt(e*x)), x)
```

3.846 $\int \frac{1}{\sqrt{2-3x}\sqrt{x}\sqrt{2+3x}}\,dx$

Optimal. Leaf size=24

$$\sqrt{\frac{2}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{2}}\sqrt{x}\right)\middle|-1\right)$$

```
[Out] Sqrt[2/3]*EllipticF[ArcSin[Sqrt[3/2]*Sqrt[x]], -1]
```

Rubi [A] time = 0.0334757, antiderivative size = 24, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.042

$$\sqrt{\frac{2}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{2}}\sqrt{x}\right)\middle|-1\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[2 - 3*x]*Sqrt[x]*Sqrt[2 + 3*x]),x]

[Out] Sqrt[2/3]*EllipticF[ArcSin[Sqrt[3/2]*Sqrt[x]], -1]
```

Rubi in Sympy [A] time = 3.41194, size = 22, normalized size = 0.92

$$\frac{\sqrt{6}F\left(\operatorname{asin}\left(\frac{\sqrt{6}\sqrt{x}}{2}\right)\middle|-1\right)}{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(2-3*x)**(1/2)/x**(1/2)/(2+3*x)**(1/2),x)

[Out] sqrt(6)*elliptic_f(asin(sqrt(6)*sqrt(x)/2), -1)/3
```

Mathematica [A] time = 0.0761963, size = 43, normalized size = 1.79

$$-\frac{\sqrt{6-\frac{8}{3x^2}}\,xF\left(\sin^{-1}\left(\frac{\sqrt{\frac{2}{3}}}{\sqrt{x}}\right)\middle|-1\right)}{\sqrt{4-9x^2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[2 - 3*x]*Sqrt[x]*Sqrt[2 + 3*x]),x]

[Out] -((Sqrt[6 - 8/(3*x^2)]*x*EllipticF[ArcSin[Sqrt[2/3]/Sqrt[x]], -1]
)/Sqrt[4 - 9*x^2])
```

Maple [A] time = 0.049, size = 32, normalized size = 1.3

$$\frac{\sqrt{3}}{3}\mathit{EllipticF}\left(\frac{\sqrt{2}}{2}\sqrt{2+3\,x},\frac{\sqrt{2}}{2}\right)\sqrt{-x}\frac{1}{\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(2-3*x)^(1/2)/x^(1/2)/(2+3*x)^(1/2),x)
```

```
[Out] 1/3*EllipticF(1/2*2^(1/2)*(2+3*x)^(1/2),1/2*2^(1/2))*3^(1/2)*(-x)
^(1/2)/x^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{3\,x+2}\sqrt{x}\sqrt{-3\,x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(3*x + 2)*sqrt(x)*sqrt(-3*x + 2)),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(3*x + 2)*sqrt(x)*sqrt(-3*x + 2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{\sqrt{3\,x+2}\sqrt{x}\sqrt{-3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(3*x + 2)*sqrt(x)*sqrt(-3*x + 2)),x, algorithm="fricas")
```

```
[Out] integral(1/(sqrt(3*x + 2)*sqrt(x)*sqrt(-3*x + 2)), x)
```

Sympy [A] time = 19.7615, size = 78, normalized size = 3.25

$$-\frac{\sqrt{6}G_{6,6}^{5,3}\left(\begin{matrix}\frac{1}{2},1,1 & \frac{3}{4},\frac{3}{4},\frac{5}{4}\\ \frac{1}{4},\frac{1}{2},\frac{3}{4},1,\frac{5}{4} & 0\end{matrix}\middle|\frac{4e^{-2i\pi}}{9x^{2}}\right)}{24\pi^{\frac{3}{2}}}+\frac{\sqrt{6}G_{6,6}^{3,5}\left(\begin{matrix}-\frac{1}{4},0,\frac{1}{4},\frac{1}{2},\frac{3}{4} & 1\\ 0,\frac{1}{2},0 & -\frac{1}{4},\frac{1}{4},\frac{1}{4}\end{matrix}\middle|\frac{4}{9x^{2}}\right)}{24\pi^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(2-3*x)**(1/2)/x**(1/2)/(2+3*x)**(1/2),x)
```

```
[Out] -sqrt(6)*meijerg(((1/2, 1, 1), (3/4, 3/4, 5/4)), ((1/4, 1/2, 3/4,
 1, 5/4), (0,)), 4*exp_polar(-2*I*pi)/(9*x**2))/(24*pi**(3/2)) +
sqrt(6)*meijerg(((-1/4, 0, 1/4, 1/2, 3/4), (1,)), ((0, 1/2, 0), (
-1/4, 1/4, 1/4)), 4/(9*x**2))/(24*pi**(3/2))
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{3\,x+2}\sqrt{x}\sqrt{-3\,x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(3*x + 2)*sqrt(x)*sqrt(-3*x + 2)),x, algorithm="giac")
```

```
[Out] integrate(1/(sqrt(3*x + 2)*sqrt(x)*sqrt(-3*x + 2)), x)
```

3.847 $\int \frac{1}{\sqrt{2-3x}\sqrt{-x}\sqrt{2+3x}}\,dx$

Optimal. Leaf size=27

$$-\sqrt{\frac{2}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{2}}\sqrt{-x}\right)\middle|-1\right)$$

```
[Out] -(Sqrt[2/3]*EllipticF[ArcSin[Sqrt[3/2]*Sqrt[-x]], -1])
```

Rubi [A] time = 0.0371795, antiderivative size = 27, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.038

$$-\sqrt{\frac{2}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{2}}\sqrt{-x}\right)\middle|-1\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[2 - 3*x]*Sqrt[-x]*Sqrt[2 + 3*x]),x]
```

```
[Out] -(Sqrt[2/3]*EllipticF[ArcSin[Sqrt[3/2]*Sqrt[-x]], -1])
```

Rubi in Sympy [A] time = 3.764, size = 26, normalized size = 0.96

$$-\frac{\sqrt{6}F\left(\operatorname{asin}\left(\frac{\sqrt{6}\sqrt{-x}}{2}\right)\middle|-1\right)}{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(2-3*x)**(1/2)/(-x)**(1/2)/(2+3*x)**(1/2),x)
```

```
[Out] -sqrt(6)*elliptic_f(asin(sqrt(6)*sqrt(-x)/2), -1)/3
```

Mathematica [A] time = 0.0509301, size = 50, normalized size = 1.85

$$\frac{\sqrt{6-\frac{8}{3x^2}}\sqrt{-x^2}F\left(\sin^{-1}\left(\frac{\sqrt{\frac{2}{3}}}{\sqrt{x}}\right)\middle|-1\right)}{\sqrt{4-9x^2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[2 - 3*x]*Sqrt[-x]*Sqrt[2 + 3*x]),x]
```

```
[Out] (Sqrt[6 - 8/(3*x^2)]*Sqrt[-x^2]*EllipticF[ArcSin[Sqrt[2/3]/Sqrt[x
]], -1])/Sqrt[4 - 9*x^2]
```

Maple [A] time = 0.046, size = 24, normalized size = 0.9

$$\frac{\sqrt{3}}{3}\mathit{EllipticF}\left(\frac{\sqrt{2}}{2}\sqrt{2+3\,x},\frac{\sqrt{2}}{2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(2-3*x)^(1/2)/(-x)^(1/2)/(2+3*x)^(1/2),x)
```

```
[Out] 1/3*EllipticF(1/2*2^(1/2)*(2+3*x)^(1/2),1/2*2^(1/2))*3^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{-x}\sqrt{3\,x+2}\sqrt{-3\,x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(-x)*sqrt(3*x + 2)*sqrt(-3*x + 2)),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(-x)*sqrt(3*x + 2)*sqrt(-3*x + 2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{\sqrt{-x}\sqrt{3\,x+2}\sqrt{-3\,x+2}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(-x)*sqrt(3*x + 2)*sqrt(-3*x + 2)),x, algorithm="fricas")
```

```
[Out] integral(1/(sqrt(-x)*sqrt(3*x + 2)*sqrt(-3*x + 2)), x)
```

Sympy [A] time = 34.4515, size = 82, normalized size = 3.04

$$\frac{\sqrt{6}iG_{6,6}^{5,3}\left(\begin{matrix} \frac{1}{2}, 1, 1 & \frac{3}{4}, \frac{3}{4}, \frac{5}{4} \\ \frac{1}{4}, \frac{1}{2}, \frac{3}{4}, 1, \frac{5}{4} & 0 \end{matrix} \middle| {\frac{4e^{-2i\pi}}{9x^{2}}} \right)}{24\pi^{\frac{3}{2}}} - \frac{\sqrt{6}iG_{6,6}^{3,5}\left(\begin{matrix} -\frac{1}{4}, 0, \frac{1}{4}, \frac{1}{2}, \frac{3}{4} & 1 \\ 0, \frac{1}{2}, 0 & -\frac{1}{4}, \frac{1}{4}, \frac{1}{4} \end{matrix} \middle| {\frac{4}{9x^{2}}} \right)}{24\pi^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(2-3*x)**(1/2)/(-x)**(1/2)/(2+3*x)**(1/2),x)
```

```
[Out] sqrt(6)*I*meijerg(((1/2, 1, 1), (3/4, 3/4, 5/4)), ((1/4, 1/2, 3/4
, 1, 5/4), (0,)), 4*exp_polar(-2*I*pi)/(9*x**2))/(24*pi**(3/2)) -
 sqrt(6)*I*meijerg(((-1/4, 0, 1/4, 1/2, 3/4), (1,)), ((0, 1/2, 0)
, (-1/4, 1/4, 1/4)), 4/(9*x**2))/(24*pi**(3/2))
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{-x}\sqrt{3\,x+2}\sqrt{-3\,x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(-x)*sqrt(3*x + 2)*sqrt(-3*x + 2)),x, algorithm="giac")
```

```
[Out] integrate(1/(sqrt(-x)*sqrt(3*x + 2)*sqrt(-3*x + 2)), x)
```

3.848 $\int \frac{1}{\sqrt{2-3x}\sqrt{ex}\sqrt{2+3x}}\,dx$

Optimal. Leaf size=36

$$\frac{\sqrt{\frac{2}{3}}F\left(\sin^{-1}\left(\frac{\sqrt{\frac{3}{2}}\sqrt{ex}}{\sqrt{e}}\right)\middle|-1\right)}{\sqrt{e}}$$

```
[Out] (Sqrt[2/3]*EllipticF[ArcSin[(Sqrt[3/2]*Sqrt[e*x])/Sqrt[e]], -1])/
Sqrt[e]
```

Rubi [A] time = 0.0458641, antiderivative size = 36, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.038

$$\frac{\sqrt{\frac{2}{3}}F\left(\sin^{-1}\left(\frac{\sqrt{\frac{3}{2}}\sqrt{ex}}{\sqrt{e}}\right)\middle|-1\right)}{\sqrt{e}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[2 - 3*x]*Sqrt[e*x]*Sqrt[2 + 3*x]),x]
```

```
[Out] (Sqrt[2/3]*EllipticF[ArcSin[(Sqrt[3/2]*Sqrt[e*x])/Sqrt[e]], -1])/
Sqrt[e]
```

Rubi in Sympy [A] time = 4.28554, size = 34, normalized size = 0.94

$$\frac{\sqrt{6}F\left(\operatorname{asin}\left(\frac{\sqrt{6}\sqrt{ex}}{2\sqrt{e}}\right)\middle|-1\right)}{3\sqrt{e}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(2-3*x)**(1/2)/(e*x)**(1/2)/(2+3*x)**(1/2),x)
```

```
[Out] sqrt(6)*elliptic_f(asin(sqrt(6)*sqrt(e*x)/(2*sqrt(e))), -1)/(3*sq
rt(e))
```

Mathematica [A] time = 0.0254716, size = 54, normalized size = 1.5

$$-\frac{\sqrt{6-\frac{8}{3x^2}}x^{3/2}F\left(\sin^{-1}\left(\frac{\sqrt{\frac{2}{3}}}{\sqrt{x}}\right)\middle|-1\right)}{\sqrt{4-9x^2}\sqrt{ex}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[2 - 3*x]*Sqrt[e*x]*Sqrt[2 + 3*x]),x]
```

```
[Out] -((Sqrt[6 - 8/(3*x^2)]*x^(3/2)*EllipticF[ArcSin[Sqrt[2/3]/Sqrt[x]
], -1])/(Sqrt[e*x]*Sqrt[4 - 9*x^2]))
```

Maple [A] time = 0.068, size = 32, normalized size = 0.9

$$-\frac{\sqrt{3}}{3}\sqrt{x}EllipticF\left(\frac{\sqrt{2}}{2}\sqrt{2-3\,x},\frac{\sqrt{2}}{2}\right)\frac{1}{\sqrt{ex}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(2-3*x)^(1/2)/(e*x)^(1/2)/(2+3*x)^(1/2),x)
```

```
[Out] -1/3*x^(1/2)*3^(1/2)*EllipticF(1/2*2^(1/2)*(2-3*x)^(1/2),1/2*2^(1
/2))/(e*x)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{ex}\sqrt{3\,x+2}\sqrt{-3\,x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(e*x)*sqrt(3*x + 2)*sqrt(-3*x + 2)),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(e*x)*sqrt(3*x + 2)*sqrt(-3*x + 2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{\sqrt{ex}\sqrt{3\,x+2}\sqrt{-3\,x+2}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(e*x)*sqrt(3*x + 2)*sqrt(-3*x + 2)),x, algorithm="fricas")
```

```
[Out] integral(1/(sqrt(e*x)*sqrt(3*x + 2)*sqrt(-3*x + 2)), x)
```

Sympy [A] time = 31.2377, size = 88, normalized size = 2.44

$$-\frac{\sqrt{6}G_{6,6}^{5,3}\left(\begin{matrix} \frac{1}{2}, 1, 1 & \frac{3}{4}, \frac{3}{4}, \frac{5}{4} \\ \frac{1}{4}, \frac{1}{2}, \frac{3}{4}, 1, \frac{5}{4} & 0 \end{matrix} \middle| {\frac{4e^{-2i\pi}}{9x^{2}}} \right)}{24\pi^{\frac{3}{2}}\sqrt{e}} + \frac{\sqrt{6}G_{6,6}^{3,5}\left(\begin{matrix} -\frac{1}{4}, 0, \frac{1}{4}, \frac{1}{2}, \frac{3}{4} & 1 \\ 0, \frac{1}{2}, 0 & -\frac{1}{4}, \frac{1}{4}, \frac{1}{4} \end{matrix} \middle| {\frac{4}{9x^{2}}} \right)}{24\pi^{\frac{3}{2}}\sqrt{e}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(2-3*x)**(1/2)/(e*x)**(1/2)/(2+3*x)**(1/2),x)
```

```
[Out] -sqrt(6)*meijerg(((1/2, 1, 1), (3/4, 3/4, 5/4)), ((1/4, 1/2, 3/4,
 1, 5/4), (0,)), 4*exp_polar(-2*I*pi)/(9*x**2))/(24*pi**(3/2)*sqr
t(e)) + sqrt(6)*meijerg(((-1/4, 0, 1/4, 1/2, 3/4), (1,)), ((0, 1/
2, 0), (-1/4, 1/4, 1/4)), 4/(9*x**2))/(24*pi**(3/2)*sqrt(e))
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(e*x)*sqrt(3*x + 2)*sqrt(-3*x + 2)),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.849 $\int \frac{1}{\sqrt{1-x}\sqrt{x}\sqrt{1+x}}\,dx$

Optimal. Leaf size=10

$$2F\left(\sin^{-1}\left(\sqrt{x}\right)\middle|-1\right)$$

```
[Out] 2*EllipticF[ArcSin[Sqrt[x]], -1]
```

Rubi [A] time = 0.0271326, antiderivative size = 10, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$2F\left(\sin^{-1}\left(\sqrt{x}\right)\middle|-1\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 - x]*Sqrt[x]*Sqrt[1 + x]),x]
```

```
[Out] 2*EllipticF[ArcSin[Sqrt[x]], -1]
```

Rubi in Sympy [A] time = 2.99924, size = 10, normalized size = 1.

$$2F\left(\operatorname{asin}\left(\sqrt{x}\right)\middle|-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-x)**(1/2)/x**(1/2)/(1+x)**(1/2),x)
```

```
[Out] 2*elliptic_f(asin(sqrt(x)), -1)
```

Mathematica [C] time = 0.115731, size = 66, normalized size = 6.6

$$\frac{2i\sqrt{\frac{1}{x-1}+1}\sqrt{\frac{2}{x-1}+1}(x-1)^{3/2}F\left(i\sinh^{-1}\left(\frac{1}{\sqrt{x-1}}\right)\middle|2\right)}{\sqrt{-(x-1)x}\sqrt{x+1}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 - x]*Sqrt[x]*Sqrt[1 + x]),x]
```

```
[Out] ((2*I)*Sqrt[1 + (-1 + x)^(-1)]*Sqrt[1 + 2/(-1 + x)]*(-1 + x)^(3/2
)*EllipticF[I*ArcSinh[1/Sqrt[-1 + x]], 2])/(Sqrt[-((-1 + x)*x)]*S
qrt[1 + x])
```

Maple [B] time = 0.045, size = 24, normalized size = 2.4

$$\sqrt{2}\sqrt{-x}\mathit{EllipticF}\left(\sqrt{1+x},\frac{\sqrt{2}}{2}\right)\frac{1}{\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-x)^(1/2)/x^(1/2)/(1+x)^(1/2),x)
```

```
[Out] 2^(1/2)*(-x)^(1/2)*EllipticF((1+x)^(1/2),1/2*2^(1/2))/x^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{x+1}\sqrt{x}\sqrt{-x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(x + 1)*sqrt(x)*sqrt(-x + 1)),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(x + 1)*sqrt(x)*sqrt(-x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{\sqrt{x+1}\sqrt{x}\sqrt{-x+1}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(x + 1)*sqrt(x)*sqrt(-x + 1)),x, algorithm="fricas")
```

```
[Out] integral(1/(sqrt(x + 1)*sqrt(x)*sqrt(-x + 1)), x)
```

Sympy [A] time = 18.8399, size = 66, normalized size = 6.6

$$\frac{iG_{6,6}^{5,3}\left(\begin{matrix}\frac{1}{2},1,1 & \frac{3}{4},\frac{3}{4},\frac{5}{4} \\ \frac{1}{4},\frac{1}{2},\frac{3}{4},1,\frac{5}{4} & 0\end{matrix}\middle|\frac{1}{x^2}\right)}{4\pi^{\frac{3}{2}}} - \frac{iG_{6,6}^{3,5}\left(\begin{matrix}-\frac{1}{4},0,\frac{1}{4},\frac{1}{2},\frac{3}{4} & 1 \\ 0,\frac{1}{2},0 & -\frac{1}{4},\frac{1}{4},\frac{1}{4}\end{matrix}\middle|\frac{e^{-2i\pi}}{x^2}\right)}{4\pi^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-x)**(1/2)/x**(1/2)/(1+x)**(1/2),x)
```

```
[Out] I*meijerg(((1/2, 1, 1), (3/4, 3/4, 5/4)), ((1/4, 1/2, 3/4, 1, 5/4
), (0,)), x**(-2))/(4*pi**(3/2)) - I*meijerg(((-1/4, 0, 1/4, 1/2,
 3/4), (1,)), ((0, 1/2, 0), (-1/4, 1/4, 1/4)), exp_polar(-2*I*pi)
/x**2)/(4*pi**(3/2))
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{x+1}\sqrt{x}\sqrt{-x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(x + 1)*sqrt(x)*sqrt(-x + 1)),x, algorithm="giac")
```

```
[Out] integrate(1/(sqrt(x + 1)*sqrt(x)*sqrt(-x + 1)), x)
```

3.850 $\int \frac{1}{\sqrt{1+x}\sqrt{x-x^2}} dx$

Optimal. Leaf size=10

$$2F\left(\sin^{-1}\left(\sqrt{x}\right)\middle|-1\right)$$

```
[Out] 2*EllipticF[ArcSin[Sqrt[x]], -1]
```

Rubi [A] time = 0.0434691, antiderivative size = 10, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.105

$$2F\left(\sin^{-1}\left(\sqrt{x}\right)\middle|-1\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 + x]*Sqrt[x - x^2]),x]
```

```
[Out] 2*EllipticF[ArcSin[Sqrt[x]], -1]
```

Rubi in Sympy [A] time = 5.93002, size = 10, normalized size = 1.

$$2F\left(\operatorname{asin}\left(\sqrt{x}\right)\middle|-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1+x)**(1/2)/(-x**2+x)**(1/2),x)
```

```
[Out] 2*elliptic_f(asin(sqrt(x)), -1)
```

Mathematica [C] time = 0.0197596, size = 66, normalized size = 6.6

$$\frac{2i\sqrt{\frac{1}{x-1}+1}\sqrt{\frac{2}{x-1}+1}(x-1)^{3/2}F\left(i\sinh^{-1}\left(\frac{1}{\sqrt{x-1}}\right)\middle|2\right)}{\sqrt{-(x-1)x}\sqrt{x+1}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 + x]*Sqrt[x - x^2]),x]
```

```
[Out] ((2*I)*Sqrt[1 + (-1 + x)^(-1)]*Sqrt[1 + 2/(-1 + x)]*(-1 + x)^(3/2
)*EllipticF[I*ArcSinh[1/Sqrt[-1 + x]], 2])/(Sqrt[-((-1 + x)*x)]*S
qrt[1 + x])
```

Maple [B] time = 0.02, size = 43, normalized size = 4.3

$$\frac{1}{(1-x)\,x} EllipticF\left(\sqrt{1+x}, \frac{\sqrt{2}}{2}\right)\sqrt{-x}\sqrt{2-2\,x}\sqrt{-x\,(-1+x)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1+x)^(1/2)/(-x^2+x)^(1/2),x)
```

```
[Out] 1/(1-x)/x*EllipticF((1+x)^(1/2),1/2*2^(1/2))*(-x)^(1/2)*(2-2*x)^(
1/2)*(-x*(-1+x))^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{-x^2+x}\sqrt{x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(-x^2 + x)*sqrt(x + 1)),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(-x^2 + x)*sqrt(x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{\sqrt{-x^2+x}\sqrt{x+1}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(-x^2 + x)*sqrt(x + 1)),x, algorithm="fricas")
```

```
[Out] integral(1/(sqrt(-x^2 + x)*sqrt(x + 1)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{-x\,(x-1)}\sqrt{x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1+x)**(1/2)/(-x**2+x)**(1/2),x)
```

```
[Out] Integral(1/(sqrt(-x*(x - 1))*sqrt(x + 1)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{-x^2+x}\sqrt{x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(-x^2 + x)*sqrt(x + 1)),x, algorithm="giac")
```

```
[Out] integrate(1/(sqrt(-x^2 + x)*sqrt(x + 1)), x)
```

3.851 $\int \frac{1}{\sqrt{bx}\sqrt{1-cx}\sqrt{1+cx}}\,dx$

Optimal. Leaf size=33

$$\frac{2F\left(\sin^{-1}\left(\frac{\sqrt{c}\sqrt{bx}}{\sqrt{b}}\right)\middle|-1\right)}{\sqrt{b}\sqrt{c}}$$

```
[Out] (2*EllipticF[ArcSin[(Sqrt[c]*Sqrt[b*x])/Sqrt[b]], -1])/(Sqrt[b]*S
qrt[c])
```

Rubi [A] time = 0.0640603, antiderivative size = 33, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 27, $\frac{\text{number of rules}}{\text{integrand size}} = 0.037$

$$\frac{2F\left(\sin^{-1}\left(\frac{\sqrt{c}\sqrt{bx}}{\sqrt{b}}\right)\middle|-1\right)}{\sqrt{b}\sqrt{c}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[b*x]*Sqrt[1 - c*x]*Sqrt[1 + c*x]),x]
```

```
[Out] (2*EllipticF[ArcSin[(Sqrt[c]*Sqrt[b*x])/Sqrt[b]], -1])/(Sqrt[b]*S
qrt[c])
```

Rubi in Sympy [A] time = 5.95117, size = 32, normalized size = 0.97

$$\frac{2F\left(\operatorname{asin}\left(\frac{\sqrt{c}\sqrt{bx}}{\sqrt{b}}\right)\middle|-1\right)}{\sqrt{b}\sqrt{c}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(b*x)**(1/2)/(-c*x+1)**(1/2)/(c*x+1)**(1/2),x)
```

```
[Out] 2*elliptic_f(asin(sqrt(c)*sqrt(b*x)/sqrt(b)), -1)/(sqrt(b)*sqrt(c
))
```

Mathematica [C] time = 0.131154, size = 76, normalized size = 2.3

$$-\frac{2i\sqrt{-\frac{1}{c}}cx^{3/2}\sqrt{1-\frac{1}{c^2x^2}}F\left(i\sinh^{-1}\left(\frac{\sqrt{-\frac{1}{c}}}{\sqrt{x}}\right)\middle|-1\right)}{\sqrt{bx}\sqrt{1-c^2x^2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[b*x]*Sqrt[1 - c*x]*Sqrt[1 + c*x]),x]
```

```
[Out] ((-2*I)*Sqrt[-c^(-1)]*c*Sqrt[1 - 1/(c^2*x^2)]*x^(3/2)*EllipticF[I
*ArcSinh[Sqrt[-c^(-1)]/Sqrt[x]], -1])/(Sqrt[b*x]*Sqrt[1 - c^2*x^2
])
```

Maple [A] time = 0.085, size = 32, normalized size = 1.

$$\frac{\sqrt{2}}{c}\sqrt{-cx}\,EllipticF\left(\sqrt{cx+1},\frac{\sqrt{2}}{2}\right)\frac{1}{\sqrt{bx}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(b*x)^(1/2)/(-c*x+1)^(1/2)/(c*x+1)^(1/2),x)
```

```
[Out] 2^(1/2)*(-c*x)^(1/2)*EllipticF((c*x+1)^(1/2),1/2*2^(1/2))/c/(b*x)
^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{bx}\sqrt{cx+1}\sqrt{-cx+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(b*x)*sqrt(c*x + 1)*sqrt(-c*x + 1)),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(b*x)*sqrt(c*x + 1)*sqrt(-c*x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{\sqrt{bx}\sqrt{cx+1}\sqrt{-cx+1}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(b*x)*sqrt(c*x + 1)*sqrt(-c*x + 1)),x, algorithm="fricas")
```

```
[Out] integral(1/(sqrt(b*x)*sqrt(c*x + 1)*sqrt(-c*x + 1)), x)
```

Sympy [A] time = 39.3265, size = 94, normalized size = 2.85

$$\frac{iG_{6,6}^{5,3}\left(\begin{matrix} \frac{1}{2}, 1, 1 & \frac{3}{4}, \frac{3}{4}, \frac{5}{4} \\ \frac{1}{4}, \frac{1}{2}, \frac{3}{4}, 1, \frac{5}{4} & 0 \end{matrix} \middle| {\frac{1}{c^{2}x^{2}}} \right)}{4\pi^{\frac{3}{2}}\sqrt{b}\sqrt{c}} - \frac{iG_{6,6}^{3,5}\left(\begin{matrix} -\frac{1}{4}, 0, \frac{1}{4}, \frac{1}{2}, \frac{3}{4} & 1 \\ 0, \frac{1}{2}, 0 & -\frac{1}{4}, \frac{1}{4}, \frac{1}{4} \end{matrix} \middle| {\frac{e^{-2i\pi}}{c^{2}x^{2}}} \right)}{4\pi^{\frac{3}{2}}\sqrt{b}\sqrt{c}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(b*x)**(1/2)/(-c*x+1)**(1/2)/(c*x+1)**(1/2),x)
```

```
[Out] I*meijerg(((1/2, 1, 1), (3/4, 3/4, 5/4)), ((1/4, 1/2, 3/4, 1, 5/4
), (0,)), 1/(c**2*x**2))/(4*pi**(3/2)*sqrt(b)*sqrt(c)) - I*meijer
g(((-1/4, 0, 1/4, 1/2, 3/4), (1,)), ((0, 1/2, 0), (-1/4, 1/4, 1/4
)), exp_polar(-2*I*pi)/(c**2*x**2))/(4*pi**(3/2)*sqrt(b)*sqrt(c))
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{bx}\sqrt{cx+1}\sqrt{-cx+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(b*x)*sqrt(c*x + 1)*sqrt(-c*x + 1)),x, algorithm="giac")
```

```
[Out] integrate(1/(sqrt(b*x)*sqrt(c*x + 1)*sqrt(-c*x + 1)), x)
```

3.852 $\int \frac{1}{\sqrt{bx}\sqrt{1-cx}\sqrt{1+dx}}\,dx$

Optimal. Leaf size=38

$$\frac{2F\left(\sin^{-1}\left(\frac{\sqrt{c}\sqrt{bx}}{\sqrt{b}}\right)|-\frac{d}{c}\right)}{\sqrt{b}\sqrt{c}}$$

```
[Out] (2*EllipticF[ArcSin[(Sqrt[c]*Sqrt[b*x])/Sqrt[b]], -(d/c)])/(Sqrt[
b]*Sqrt[c])
```

Rubi [A] time = 0.0620521, antiderivative size = 38, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 27, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.037

$$\frac{2F\left(\sin^{-1}\left(\frac{\sqrt{c}\sqrt{bx}}{\sqrt{b}}\right)|-\frac{d}{c}\right)}{\sqrt{b}\sqrt{c}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[b*x]*Sqrt[1 - c*x]*Sqrt[1 + d*x]),x]
```

```
[Out] (2*EllipticF[ArcSin[(Sqrt[c]*Sqrt[b*x])/Sqrt[b]], -(d/c)])/(Sqrt[
b]*Sqrt[c])
```

Rubi in Sympy [A] time = 5.97137, size = 34, normalized size = 0.89

$$\frac{2F\left(\operatorname{asin}\left(\frac{\sqrt{c}\sqrt{bx}}{\sqrt{b}}\right)\middle|-\frac{d}{c}\right)}{\sqrt{b}\sqrt{c}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(b*x)**(1/2)/(-c*x+1)**(1/2)/(d*x+1)**(1/2),x)
```

```
[Out] 2*elliptic_f(asin(sqrt(c)*sqrt(b*x)/sqrt(b)), -d/c)/(sqrt(b)*sqrt
(c))
```

Mathematica [B] time = 0.197368, size = 89, normalized size = 2.34

$$-\frac{2x^{3/2}\sqrt{\frac{c-\frac{1}{x}}{c}}\sqrt{\frac{d+\frac{1}{x}}{d}}F\left(\sin^{-1}\left(\frac{\sqrt{\frac{1}{c}}}{\sqrt{x}}\right)|-\frac{c}{d}\right)}{\sqrt{\frac{1}{c}}\sqrt{bx}\sqrt{1-cx}\sqrt{dx+1}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[b*x]*Sqrt[1 - c*x]*Sqrt[1 + d*x]),x]
```

```
[Out] (-2*Sqrt[(c - x^(-1))/c]*Sqrt[(d + x^(-1))/d]*x^(3/2)*EllipticF[A
rcSin[Sqrt[c^(-1)]/Sqrt[x]], -(c/d)])/(Sqrt[c^(-1)]*Sqrt[b*x]*Sqr
t[1 - c*x]*Sqrt[1 + d*x])
```

Maple [B] time = 0.088, size = 64, normalized size = 1.7

$$-2\,\frac{\sqrt{-cx+1}\sqrt{-dx}}{\sqrt{bx}\,(cx-1)\,d}\sqrt{-\frac{(cx-1)\,d}{c+d}}\,\mathit{EllipticF}\left(\sqrt{dx+1},\sqrt{\frac{c}{c+d}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(b*x)^(1/2)/(-c*x+1)^(1/2)/(d*x+1)^(1/2),x)
```

```
[Out] -2*(-c*x+1)^(1/2)*(-(c*x-1)*d/(c+d))^(1/2)*(-d*x)^(1/2)*EllipticF
((d*x+1)^(1/2),(c/(c+d))^(1/2))/(b*x)^(1/2)/(c*x-1)/d
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{bx}\sqrt{-cx+1}\sqrt{dx+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(b*x)*sqrt(-c*x + 1)*sqrt(d*x + 1)),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(b*x)*sqrt(-c*x + 1)*sqrt(d*x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{\sqrt{bx}\sqrt{-cx+1}\sqrt{dx+1}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(b*x)*sqrt(-c*x + 1)*sqrt(d*x + 1)),x, algorithm="fricas")
```

```
[Out] integral(1/(sqrt(b*x)*sqrt(-c*x + 1)*sqrt(d*x + 1)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{bx}\sqrt{-cx+1}\sqrt{dx+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(b*x)**(1/2)/(-c*x+1)**(1/2)/(d*x+1)**(1/2),x)
```

```
[Out] Integral(1/(sqrt(b*x)*sqrt(-c*x + 1)*sqrt(d*x + 1)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{bx}\sqrt{-cx+1}\sqrt{dx+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(b*x)*sqrt(-c*x + 1)*sqrt(d*x + 1)),x, algorithm="giac")
```

```
[Out] integrate(1/(sqrt(b*x)*sqrt(-c*x + 1)*sqrt(d*x + 1)), x)
```

3.853 $\int \frac{\sqrt{1+x}}{\sqrt{1-x}\sqrt{x}}\,dx$

Optimal. Leaf size=10

$$2E\left(\sin^{-1}\left(\sqrt{x}\right)\middle|-1\right)$$

```
[Out] 2*EllipticE[ArcSin[Sqrt[x]], -1]
```

Rubi [A] time = 0.0259154, antiderivative size = 10, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$2E\left(\sin^{-1}\left(\sqrt{x}\right)\middle|-1\right)$$

Antiderivative was successfully verified.

```
[In] Int[Sqrt[1 + x]/(Sqrt[1 - x]*Sqrt[x]),x]
```

```
[Out] 2*EllipticE[ArcSin[Sqrt[x]], -1]
```

Rubi in Sympy [A] time = 2.99296, size = 10, normalized size = 1.

$$2E\left(\operatorname{asin}\left(\sqrt{x}\right)\middle|-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1+x)**(1/2)/(1-x)**(1/2)/x**(1/2),x)
```

```
[Out] 2*elliptic_e(asin(sqrt(x)), -1)
```

Mathematica [C] time = 0.26948, size = 104, normalized size = 10.4

$$\frac{2\sqrt{\frac{x-1}{x+1}}\sqrt{\frac{x+1}{x-1}}\left(\sqrt{x-1}\sqrt{\frac{x+1}{x-1}}x+\frac{i\sqrt{2}xE\left(i\sinh^{-1}\left(\frac{\sqrt{2}}{\sqrt{x-1}}\right)|\frac{1}{2}\right)}{\sqrt{\frac{x}{x-1}}}\right)}{\sqrt{-(x-1)x}}$$

Warning: Unable to verify antiderivative.

```
[In] Integrate[Sqrt[1 + x]/(Sqrt[1 - x]*Sqrt[x]),x]
```

```
[Out] (2*Sqrt[(-1 + x)/(1 + x)]*Sqrt[(1 + x)/(-1 + x)]*(Sqrt[-1 + x]*x*
Sqrt[(1 + x)/(-1 + x)] + (I*Sqrt[2]*x*EllipticE[I*ArcSinh[Sqrt[2]
/Sqrt[-1 + x]], 1/2])/Sqrt[x/(-1 + x)]))/Sqrt[-((-1 + x)*x)]
```

Maple [B] time = 0.016, size = 39, normalized size = 3.9

$$2\,\frac{\sqrt{2}\sqrt{-x}\left(\mathit{EllipticF}\left(\sqrt{1+x},1/2\,\sqrt{2}\right)-\mathit{EllipticE}\left(\sqrt{1+x},1/2\,\sqrt{2}\right)\right)}{\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((1+x)^(1/2)/(1-x)^(1/2)/x^(1/2),x)
```

```
[Out] 2*2^(1/2)*(-x)^(1/2)*(EllipticF((1+x)^(1/2),1/2*2^(1/2))-Elliptic
E((1+x)^(1/2),1/2*2^(1/2)))/x^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{x+1}}{\sqrt{x}\sqrt{-x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(x + 1)/(sqrt(x)*sqrt(-x + 1)),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(x + 1)/(sqrt(x)*sqrt(-x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{x+1}}{\sqrt{x}\sqrt{-x+1}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(x + 1)/(sqrt(x)*sqrt(-x + 1)),x, algorithm="fricas")
```

```
[Out] integral(sqrt(x + 1)/(sqrt(x)*sqrt(-x + 1)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{x+1}}{\sqrt{x}\sqrt{-x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1+x)**(1/2)/(1-x)**(1/2)/x**(1/2),x)
```

```
[Out] Integral(sqrt(x + 1)/(sqrt(x)*sqrt(-x + 1)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{x+1}}{\sqrt{x}\sqrt{-x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(x + 1)/(sqrt(x)*sqrt(-x + 1)),x, algorithm="giac")
```

```
[Out] integrate(sqrt(x + 1)/(sqrt(x)*sqrt(-x + 1)), x)
```

3.854 $\int \frac{\sqrt{1+x}}{\sqrt{x-x^2}} \, dx$

Optimal. Leaf size=10

$$2E\left(\sin^{-1}\left(\sqrt{x}\right)\middle|-1\right)$$

```
[Out] 2*EllipticE[ArcSin[Sqrt[x]], -1]
```

Rubi [A] time = 0.0453259, antiderivative size = 10, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}} = 0.105$

$$2E\left(\sin^{-1}\left(\sqrt{x}\right)\middle|-1\right)$$

Antiderivative was successfully verified.

```
[In] Int[Sqrt[1 + x]/Sqrt[x - x^2],x]

[Out] 2*EllipticE[ArcSin[Sqrt[x]], -1]
```

Rubi in Sympy [A] time = 5.54435, size = 10, normalized size = 1.

$$2E\left(\operatorname{asin}\left(\sqrt{x}\right)\middle|-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1+x)**(1/2)/(-x**2+x)**(1/2),x)

[Out] 2*elliptic_e(asin(sqrt(x)), -1)
```

Mathematica [C] time = 0.125739, size = 104, normalized size = 10.4

$$\frac{2\sqrt{\frac{x-1}{x+1}}\sqrt{\frac{x+1}{x-1}}\left(\sqrt{x-1}\sqrt{\frac{x+1}{x-1}}x+\frac{i\sqrt{2}xE\left(i\sinh^{-1}\left(\frac{\sqrt{2}}{\sqrt{x-1}}\right)\middle|\frac{1}{2}\right)}{\sqrt{\frac{x}{x-1}}}\right)}{\sqrt{-(x-1)x}}$$

Warning: Unable to verify antiderivative.

```
[In] Integrate[Sqrt[1 + x]/Sqrt[x - x^2],x]

[Out] (2*Sqrt[(-1 + x)/(1 + x)]*Sqrt[(1 + x)/(-1 + x)]*(Sqrt[-1 + x]*x*
Sqrt[(1 + x)/(-1 + x)] + (I*Sqrt[2]*x*EllipticE[I*ArcSinh[Sqrt[2]
/Sqrt[-1 + x]], 1/2])/Sqrt[x/(-1 + x)]))/Sqrt[-((-1 + x)*x)]
```

Maple [B] time = 0.015, size = 56, normalized size = 5.6

$$-2\,{\frac{\left({\it EllipticF}\left(\sqrt{1+x},1/2\,\sqrt{2}\right)-{\it EllipticE}\left(\sqrt{1+x},1/2\,\sqrt{2}\right)\right)\sqrt{-x}\sqrt{2-2\,x}\sqrt{-x\left(-1+x\right)}}{x\left(-1+x\right)}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((1+x)^(1/2)/(-x^2+x)^(1/2),x)
```

```
[Out] -2*(EllipticF((1+x)^(1/2),1/2*2^(1/2))-EllipticE((1+x)^(1/2),1/2*
2^(1/2)))*(-x)^(1/2)*(2-2*x)^(1/2)*(-x*(-1+x))^(1/2)/(-1+x)/x
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{x+1}}{\sqrt{-x^2+x}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(x + 1)/sqrt(-x^2 + x),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(x + 1)/sqrt(-x^2 + x), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{x+1}}{\sqrt{-x^2+x}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(x + 1)/sqrt(-x^2 + x),x, algorithm="fricas")
```

```
[Out] integral(sqrt(x + 1)/sqrt(-x^2 + x), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{x+1}}{\sqrt{-x(x-1)}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1+x)**(1/2)/(-x**2+x)**(1/2),x)
```

```
[Out] Integral(sqrt(x + 1)/sqrt(-x*(x - 1)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{x+1}}{\sqrt{-x^2+x}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(x + 1)/sqrt(-x^2 + x),x, algorithm="giac")
```

```
[Out] integrate(sqrt(x + 1)/sqrt(-x^2 + x), x)
```

3.855 $\int \frac{\sqrt{1+cx}}{\sqrt{bx}\sqrt{1-cx}}\,dx$

Optimal. Leaf size=33

$$\frac{2E\left(\sin^{-1}\left(\frac{\sqrt{c}\sqrt{bx}}{\sqrt{b}}\right)\middle|-1\right)}{\sqrt{b}\sqrt{c}}$$

```
[Out] (2*EllipticE[ArcSin[(Sqrt[c]*Sqrt[b*x])/Sqrt[b]], -1])/(Sqrt[b]*S
qrt[c])
```

Rubi [A] time = 0.0578785, antiderivative size = 33, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 27, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.037

$$\frac{2E\left(\sin^{-1}\left(\frac{\sqrt{c}\sqrt{bx}}{\sqrt{b}}\right)\middle|-1\right)}{\sqrt{b}\sqrt{c}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 + c*x]/(Sqrt[b*x]*Sqrt[1 - c*x]),x]
```

```
[Out] (2*EllipticE[ArcSin[(Sqrt[c]*Sqrt[b*x])/Sqrt[b]], -1])/(Sqrt[b]*S
qrt[c])
```

Rubi in Sympy [A] time = 5.63096, size = 32, normalized size = 0.97

$$\frac{2E\left(\operatorname{asin}\left(\frac{\sqrt{c}\sqrt{bx}}{\sqrt{b}}\right)\middle|-1\right)}{\sqrt{b}\sqrt{c}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((c*x+1)**(1/2)/(b*x)**(1/2)/(-c*x+1)**(1/2),x)
```

```
[Out] 2*elliptic_e(asin(sqrt(c)*sqrt(b*x)/sqrt(b)), -1)/(sqrt(b)*sqrt(c
))
```

Mathematica [B] time = 0.40957, size = 119, normalized size = 3.61

$$-\frac{2\sqrt{-\frac{1}{c}}(cx-1)\left(\sqrt{-\frac{1}{c}}\sqrt{1-\frac{1}{cx}}(cx+1)-\sqrt{x}\sqrt{\frac{1}{cx}+1}E\left(\sin^{-1}\left(\frac{\sqrt{-\frac{1}{c}}}{\sqrt{x}}\right)\middle|-1\right)\right)}{\sqrt{bx}\sqrt{1-\frac{1}{cx}}\sqrt{1-c^2x^2}}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[Sqrt[1 + c*x]/(Sqrt[b*x]*Sqrt[1 - c*x]),x]
```

```
[Out] (-2*Sqrt[-c^(-1)]*(-1 + c*x)*(Sqrt[-c^(-1)]*Sqrt[1 - 1/(c*x)]*(1
+ c*x) - Sqrt[1 + 1/(c*x)]*Sqrt[x]*EllipticE[ArcSin[Sqrt[-c^(-1)]
/Sqrt[x]], -1]))/(Sqrt[1 - 1/(c*x)]*Sqrt[b*x]*Sqrt[1 - c^2*x^2])
```

Maple [B] time = 0.023, size = 49, normalized size = 1.5

$$2\,\frac{\sqrt{2}\sqrt{-cx}\left(EllipticF\left(\sqrt{cx+1},1/2\sqrt{2}\right)-EllipticE\left(\sqrt{cx+1},1/2\sqrt{2}\right)\right)}{c\sqrt{bx}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((c*x+1)^(1/2)/(b*x)^(1/2)/(-c*x+1)^(1/2),x)
```

```
[Out] 2*2^(1/2)*(-c*x)^(1/2)*(EllipticF((c*x+1)^(1/2),1/2*2^(1/2))-Elli
pticE((c*x+1)^(1/2),1/2*2^(1/2)))/c/(b*x)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{\sqrt{cx+1}}{\sqrt{bx}\sqrt{-cx+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(c*x + 1)/(sqrt(b*x)*sqrt(-c*x + 1)),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(c*x + 1)/(sqrt(b*x)*sqrt(-c*x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\sqrt{cx+1}}{\sqrt{bx}\sqrt{-cx+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(c*x + 1)/(sqrt(b*x)*sqrt(-c*x + 1)),x, algorithm="fricas")
```

```
[Out] integral(sqrt(c*x + 1)/(sqrt(b*x)*sqrt(-c*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((c*x+1)**(1/2)/(b*x)**(1/2)/(-c*x+1)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{\sqrt{cx+1}}{\sqrt{bx}\sqrt{-cx+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(c*x + 1)/(sqrt(b*x)*sqrt(-c*x + 1)),x, algorithm="giac")
```

```
[Out] integrate(sqrt(c*x + 1)/(sqrt(b*x)*sqrt(-c*x + 1)), x)
```

3.856 $\int \frac{\sqrt{1+cx}}{\sqrt{bx}\sqrt{1-dx}}\,dx$

Optimal. Leaf size=38

$$\frac{2E\left(\sin^{-1}\left(\frac{\sqrt{d}\sqrt{bx}}{\sqrt{b}}\right)|-\frac{c}{d}\right)}{\sqrt{b}\sqrt{d}}$$

```
[Out] (2*EllipticE[ArcSin[(Sqrt[d]*Sqrt[b*x])/Sqrt[b]], -(c/d)])/(Sqrt[
b]*Sqrt[d])
```

Rubi [A] time = 0.0609315, antiderivative size = 38, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 27, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.037

$$\frac{2E\left(\sin^{-1}\left(\frac{\sqrt{d}\sqrt{bx}}{\sqrt{b}}\right)|-\frac{c}{d}\right)}{\sqrt{b}\sqrt{d}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 + c*x]/(Sqrt[b*x]*Sqrt[1 - d*x]),x]
```

```
[Out] (2*EllipticE[ArcSin[(Sqrt[d]*Sqrt[b*x])/Sqrt[b]], -(c/d)])/(Sqrt[
b]*Sqrt[d])
```

Rubi in Sympy [A] time = 5.70482, size = 34, normalized size = 0.89

$$\frac{2E\left(\operatorname{asin}\left(\frac{\sqrt{d}\sqrt{bx}}{\sqrt{b}}\right)\middle|-\frac{c}{d}\right)}{\sqrt{b}\sqrt{d}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((c*x+1)**(1/2)/(b*x)**(1/2)/(-d*x+1)**(1/2),x)
```

```
[Out] 2*elliptic_e(asin(sqrt(d)*sqrt(b*x)/sqrt(b)), -c/d)/(sqrt(b)*sqrt
(d))
```

Mathematica [B] time = 0.572853, size = 102, normalized size = 2.68

$$\frac{2\sqrt{1-dx}\left(\frac{\sqrt{x}\sqrt{\frac{1}{cx}+1}E\left(\sin^{-1}\left(\frac{\sqrt{-\frac{1}{c}}}{\sqrt{x}}\right)|-\frac{c}{d}\right)}{\sqrt{-\frac{1}{c}}\sqrt{1-\frac{1}{dx}}}-cx-1\right)}{d\sqrt{bx}\sqrt{cx+1}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 + c*x]/(Sqrt[b*x]*Sqrt[1 - d*x]),x]
```

```
[Out] (2*Sqrt[1 - d*x]*(-1 - c*x + (Sqrt[1 + 1/(c*x)]*Sqrt[x]*EllipticE
[ArcSin[Sqrt[-c^(-1)]/Sqrt[x]], -(c/d)])/(Sqrt[-c^(-1)]*Sqrt[1 -
1/(d*x)])))/(d*Sqrt[b*x]*Sqrt[1 + c*x])
```

Maple [B] time = 0.066, size = 129, normalized size = 3.4

$$-2\frac{\sqrt{-cx}\sqrt{-dx+1}}{(dx-1)\sqrt{bxcd}}\left(EllipticF\left(\sqrt{cx+1},\sqrt{\frac{d}{c+d}}\right)c+EllipticF\left(\sqrt{cx+1},\sqrt{\frac{d}{c+d}}\right)d-EllipticE\left(\sqrt{cx+1},\sqrt{\frac{d}{c+d}}\right)c-Elli$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((c*x+1)^(1/2)/(b*x)^(1/2)/(-d*x+1)^(1/2),x)
```

```
[Out] -2*(EllipticF((c*x+1)^(1/2),(d/(c+d))^(1/2))*c+EllipticF((c*x+1)^
(1/2),(d/(c+d))^(1/2))*d-EllipticE((c*x+1)^(1/2),(d/(c+d))^(1/2))
*c-EllipticE((c*x+1)^(1/2),(d/(c+d))^(1/2))*d)*(-c*x)^(1/2)*(-(d*
x-1)*c/(c+d))^(1/2)*(-d*x+1)^(1/2)/(d*x-1)/(b*x)^(1/2)/c/d
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{cx+1}}{\sqrt{bx}\sqrt{-dx+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(c*x + 1)/(sqrt(b*x)*sqrt(-d*x + 1)),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(c*x + 1)/(sqrt(b*x)*sqrt(-d*x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{cx+1}}{\sqrt{bx}\sqrt{-dx+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(c*x + 1)/(sqrt(b*x)*sqrt(-d*x + 1)),x, algorithm="fricas")
```

```
[Out] integral(sqrt(c*x + 1)/(sqrt(b*x)*sqrt(-d*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((c*x+1)**(1/2)/(b*x)**(1/2)/(-d*x+1)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{cx+1}}{\sqrt{bx}\sqrt{-dx+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(c*x + 1)/(sqrt(b*x)*sqrt(-d*x + 1)),x, algorithm="giac")

[Out] integrate(sqrt(c*x + 1)/(sqrt(b*x)*sqrt(-d*x + 1)), x)
```

3.857 $\int \frac{\sqrt{1-x}}{\sqrt{x}\sqrt{1+x}}\,dx$

Optimal. Leaf size=24

$$-\frac{2\sqrt{-x}E\left(\sin^{-1}\left(\sqrt{-x}\right)\middle|-1\right)}{\sqrt{x}}$$

```
[Out] (-2*Sqrt[-x]*EllipticE[ArcSin[Sqrt[-x]], -1])/Sqrt[x]
```

Rubi [A] time = 0.0531847, antiderivative size = 24, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.091

$$-\frac{2\sqrt{-x}E\left(\sin^{-1}\left(\sqrt{-x}\right)\middle|-1\right)}{\sqrt{x}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - x]/(Sqrt[x]*Sqrt[1 + x]),x]
```

```
[Out] (-2*Sqrt[-x]*EllipticE[ArcSin[Sqrt[-x]], -1])/Sqrt[x]
```

Rubi in Sympy [A] time = 4.53792, size = 26, normalized size = 1.08

$$-\frac{2\sqrt{-x}E\left(\operatorname{asin}\left(\sqrt{-x}\right)\middle|-1\right)}{\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-x)**(1/2)/x**(1/2)/(1+x)**(1/2),x)
```

```
[Out] -2*sqrt(-x)*elliptic_e(asin(sqrt(-x)), -1)/sqrt(x)
```

Mathematica [A] time = 0.0671116, size = 38, normalized size = 1.58

$$-2\sqrt{2}\left(F\left(\sin^{-1}\left(\sqrt{1-x}\right)|\frac{1}{2}\right)-E\left(\sin^{-1}\left(\sqrt{1-x}\right)|\frac{1}{2}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - x]/(Sqrt[x]*Sqrt[1 + x]),x]
```

```
[Out] -2*Sqrt[2]*(-EllipticE[ArcSin[Sqrt[1 - x]], 1/2] + EllipticF[ArcS
in[Sqrt[1 - x]], 1/2])
```

Maple [A] time = 0.015, size = 25, normalized size = 1.

$$2\,\frac{\sqrt{2}\sqrt{-x}EllipticE\left(\sqrt{1+x},1/2\sqrt{2}\right)}{\sqrt{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-x)^(1/2)/x^(1/2)/(1+x)^(1/2),x)
```

```
[Out] 2*2^(1/2)*(-x)^(1/2)*EllipticE((1+x)^(1/2),1/2*2^(1/2))/x^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{-x+1}}{\sqrt{x+1}\sqrt{x}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-x + 1)/(sqrt(x + 1)*sqrt(x)),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(-x + 1)/(sqrt(x + 1)*sqrt(x)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{-x+1}}{\sqrt{x+1}\sqrt{x}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-x + 1)/(sqrt(x + 1)*sqrt(x)),x, algorithm="fricas")
```

```
[Out] integral(sqrt(-x + 1)/(sqrt(x + 1)*sqrt(x)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{-x+1}}{\sqrt{x}\sqrt{x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-x)**(1/2)/x**(1/2)/(1+x)**(1/2),x)
```

```
[Out] Integral(sqrt(-x + 1)/(sqrt(x)*sqrt(x + 1)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{-x+1}}{\sqrt{x+1}\sqrt{x}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-x + 1)/(sqrt(x + 1)*sqrt(x)),x, algorithm="giac")
```

```
[Out] integrate(sqrt(-x + 1)/(sqrt(x + 1)*sqrt(x)), x)
```

3.858 $\int \frac{\sqrt{-1+\frac{1}{x}}\sqrt{\frac{1}{x}}\sqrt{x}}{\sqrt{1+x}}\,dx$

Optimal. Leaf size=24

$$-\frac{2\sqrt{-x}E\left(\sin^{-1}\left(\sqrt{-x}\right)\middle|-1\right)}{\sqrt{x}}$$

```
[Out] (-2*Sqrt[-x]*EllipticE[ArcSin[Sqrt[-x]], -1])/Sqrt[x]
```

Rubi [B] time = 0.0747845, antiderivative size = 49, normalized size of antiderivative = 2.04, number of steps used = 4, number of rules used = 4, integrand size = 29, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.138

$$-\frac{2\sqrt{\frac{1}{x}-1}\sqrt{\frac{1}{x}}\sqrt{-x}\sqrt{x}E\left(\sin^{-1}\left(\sqrt{-x}\right)\middle|-1\right)}{\sqrt{1-x}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[-1 + x^(-1)]*Sqrt[x^(-1)]*Sqrt[x])/Sqrt[1 + x],x]
```

```
[Out] (-2*Sqrt[-1 + x^(-1)]*Sqrt[x^(-1)]*Sqrt[-x]*Sqrt[x]*EllipticE[Arc
Sin[Sqrt[-x]], -1])/Sqrt[1 - x]
```

Rubi in Sympy [A] time = 34.4422, size = 80, normalized size = 3.33

$$2\sqrt{x}\sqrt{-1+\frac{1}{x}}\sqrt{x+1}\sqrt{\frac{1}{x}}-\frac{2\sqrt{1-\frac{1}{x}}\sqrt{x+1}\sqrt{\frac{1}{x}}E\left(\operatorname{asin}\left(\frac{1}{\sqrt{x}}\right)\middle|-1\right)}{\sqrt{-1+\frac{1}{x}}\sqrt{1+\frac{1}{x}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((-1+1/x)**(1/2)*(1/x)**(1/2)*x**(1/2)/(1+x)**(1/2),x)
```

```
[Out] 2*sqrt(x)*sqrt(-1 + 1/x)*sqrt(x + 1)*sqrt(1/x) - 2*sqrt(1 - 1/x)*
sqrt(x + 1)*sqrt(1/x)*elliptic_e(asin(1/sqrt(x)), -1)/(sqrt(-1 +
1/x)*sqrt(1 + 1/x))
```

Mathematica [A] time = 0.056796, size = 46, normalized size = 1.92

$$\frac{2\sqrt{\frac{1}{x}-1}\left(\frac{1}{x}\right)^{5/2}\left(-x^2\right)^{3/2}E\left(\sin^{-1}\left(\sqrt{-x}\right)\middle|-1\right)}{\sqrt{1-x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[-1 + x^(-1)]*Sqrt[x^(-1)]*Sqrt[x])/Sqrt[1 + x],x]
```

```
[Out] (2*Sqrt[-1 + x^(-1)]*(x^(-1))^(5/2)*(-x^2)^(3/2)*EllipticE[ArcSin
[Sqrt[-x]], -1])/Sqrt[1 - x]
```

Maple [B] time = 0.036, size = 49, normalized size = 2.

$$-2\,\frac{\sqrt{x^{-1}}\sqrt{x}{\it EllipticE}\left(\sqrt{1+x},1/2\sqrt{2}\right)\sqrt{-x}\sqrt{2-2\,x}}{-1+x}\sqrt{-\frac{-1+x}{x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((-1+1/x)^(1/2)*(1/x)^(1/2)*x^(1/2)/(1+x)^(1/2),x)
```

```
[Out] -2*(1/x)^(1/2)*x^(1/2)*(-(-1+x)/x)^(1/2)*EllipticE((1+x)^(1/2),1/
2*2^(1/2))*(-x)^(1/2)*(2-2*x)^(1/2)/(-1+x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{\frac{1}{x}-1}}{\sqrt{x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(1/x - 1)/sqrt(x + 1),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(1/x - 1)/sqrt(x + 1), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\sqrt{-\frac{x-1}{x}}}{\sqrt{x+1}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(1/x - 1)/sqrt(x + 1),x, algorithm="fricas")
```

```
[Out] integral(sqrt(-(x - 1)/x)/sqrt(x + 1), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-1+1/x)**(1/2)*(1/x)**(1/2)*x**(1/2)/(1+x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{\frac{1}{x}-1}}{\sqrt{x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(1/x - 1)/sqrt(x + 1),x, algorithm="giac")
```

```
[Out] integrate(sqrt(1/x - 1)/sqrt(x + 1), x)
```

3.859 $\int \frac{\sqrt{1-cx}}{\sqrt{bx}\sqrt{1+cx}}\,dx$

Optimal. Leaf size=37

$$-\frac{2E\left(\sin^{-1}\left(\frac{\sqrt{c}\sqrt{bx}}{\sqrt{-b}}\right)\middle|-1\right)}{\sqrt{-b}\sqrt{c}}$$

```
[Out] (-2*EllipticE[ArcSin[(Sqrt[c]*Sqrt[b*x])/Sqrt[-b]], -1])/(Sqrt[-b
]*Sqrt[c])
```

Rubi [A] time = 0.0812523, antiderivative size = 37, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 27, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.037

$$-\frac{2E\left(\sin^{-1}\left(\frac{\sqrt{c}\sqrt{bx}}{\sqrt{-b}}\right)\middle|-1\right)}{\sqrt{-b}\sqrt{c}}$$

Antiderivative was successfully verified.

```
[In] Int[Sqrt[1 - c*x]/(Sqrt[b*x]*Sqrt[1 + c*x]),x]
```

```
[Out] (-2*EllipticE[ArcSin[(Sqrt[c]*Sqrt[b*x])/Sqrt[-b]], -1])/(Sqrt[-b
]*Sqrt[c])
```

Rubi in Sympy [A] time = 6.79607, size = 37, normalized size = 1.

$$-\frac{2E\left(\operatorname{asin}\left(\frac{\sqrt{c}\sqrt{bx}}{\sqrt{-b}}\right)\middle|-1\right)}{\sqrt{c}\sqrt{-b}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((-c*x+1)**(1/2)/(b*x)**(1/2)/(c*x+1)**(1/2),x)
```

```
[Out] -2*elliptic_e(asin(sqrt(c)*sqrt(b*x)/sqrt(-b)), -1)/(sqrt(c)*sqrt
(-b))
```

Mathematica [B] time = 0.846207, size = 77, normalized size = 2.08

$$\frac{2c\left(-\sqrt{\frac{1}{c}}x^{3/2}\sqrt{1-\frac{1}{c^2x^2}}E\left(\sin^{-1}\left(\frac{\sqrt{\frac{1}{c}}}{\sqrt{x}}\right)\middle|-1\right)+\frac{1}{c^2}-x^2\right)}{\sqrt{bx}\sqrt{1-c^2x^2}}$$

Warning: Unable to verify antiderivative.

```
[In] Integrate[Sqrt[1 - c*x]/(Sqrt[b*x]*Sqrt[1 + c*x]),x]
```

```
[Out] (2*c*(c^(-2) - x^2 - Sqrt[c^(-1)]*Sqrt[1 - 1/(c^2*x^2)]*x^(3/2)*E
llipticE[ArcSin[Sqrt[c^(-1)]/Sqrt[x]], -1]))/(Sqrt[b*x]*Sqrt[1 -
c^2*x^2])
```

Maple [A] time = 0.02, size = 33, normalized size = 0.9

$$2\,\frac{\sqrt{2}\sqrt{-cx}EllipticE\left(\sqrt{cx+1},1/2\,\sqrt{2}\right)}{c\sqrt{bx}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((-c*x+1)^(1/2)/(b*x)^(1/2)/(c*x+1)^(1/2),x)
```

```
[Out] 2*2^(1/2)*(-c*x)^(1/2)*EllipticE((c*x+1)^(1/2),1/2*2^(1/2))/c/(b*
x)^(1/2)
```

Maxima [F]   time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{-cx+1}}{\sqrt{bx}\sqrt{cx+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-c*x + 1)/(sqrt(b*x)*sqrt(c*x + 1)),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(-c*x + 1)/(sqrt(b*x)*sqrt(c*x + 1)), x)
```

Fricas [F]   time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{-cx+1}}{\sqrt{bx}\sqrt{cx+1}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-c*x + 1)/(sqrt(b*x)*sqrt(c*x + 1)),x, algorithm="fricas")
```

```
[Out] integral(sqrt(-c*x + 1)/(sqrt(b*x)*sqrt(c*x + 1)), x)
```

Sympy [F(-1)]   time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-c*x+1)**(1/2)/(b*x)**(1/2)/(c*x+1)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F]   time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{-cx+1}}{\sqrt{bx}\sqrt{cx+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-c*x + 1)/(sqrt(b*x)*sqrt(c*x + 1)),x, algorithm="giac")
```

```
[Out] integrate(sqrt(-c*x + 1)/(sqrt(b*x)*sqrt(c*x + 1)), x)
```

3.860 $\int \frac{\sqrt{1-cx}}{\sqrt{bx}\sqrt{1+dx}}\,dx$

Optimal. Leaf size=42

$$-\frac{2E\left(\sin^{-1}\left(\frac{\sqrt{d}\sqrt{bx}}{\sqrt{-b}}\right)|-\frac{c}{d}\right)}{\sqrt{-b}\sqrt{d}}$$

```
[Out] (-2*EllipticE[ArcSin[(Sqrt[d]*Sqrt[b*x])/Sqrt[-b]], -(c/d)])/(Sqr
t[-b]*Sqrt[d])
```

Rubi [A] time = 0.0713888, antiderivative size = 42, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 27, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.037

$$-\frac{2E\left(\sin^{-1}\left(\frac{\sqrt{d}\sqrt{bx}}{\sqrt{-b}}\right)|-\frac{c}{d}\right)}{\sqrt{-b}\sqrt{d}}$$

Antiderivative was successfully verified.

```
[In] Int[Sqrt[1 - c*x]/(Sqrt[b*x]*Sqrt[1 + d*x]),x]
```

```
[Out] (-2*EllipticE[ArcSin[(Sqrt[d]*Sqrt[b*x])/Sqrt[-b]], -(c/d)])/(Sqr
t[-b]*Sqrt[d])
```

Rubi in Sympy [A] time = 6.75966, size = 39, normalized size = 0.93

$$-\frac{2E\left(\operatorname{asin}\left(\frac{\sqrt{d}\sqrt{bx}}{\sqrt{-b}}\right)\middle|-\frac{c}{d}\right)}{\sqrt{d}\sqrt{-b}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((-c*x+1)**(1/2)/(b*x)**(1/2)/(d*x+1)**(1/2),x)
```

```
[Out] -2*elliptic_e(asin(sqrt(d)*sqrt(b*x)/sqrt(-b)), -c/d)/(sqrt(d)*sq
rt(-b))
```

Mathematica [B] time = 0.766444, size = 112, normalized size = 2.67

$$\frac{-2x^{3/2}\sqrt{1-\frac{1}{cx}}\sqrt{\frac{1}{dx}+1}E\left(\sin^{-1}\left(\frac{\sqrt{\frac{1}{c}}}{\sqrt{x}}\right)|-\frac{c}{d}\right)-\frac{2\sqrt{\frac{1}{c}}(cx-1)(dx+1)}{d}}{\sqrt{\frac{1}{c}}\sqrt{bx}\sqrt{1-cx}\sqrt{dx+1}}$$

Antiderivative was successfully verified.

```
[In] Integrate[Sqrt[1 - c*x]/(Sqrt[b*x]*Sqrt[1 + d*x]),x]
```

```
[Out] ((-2*Sqrt[c^(-1)]*(-1 + c*x)*(1 + d*x))/d - 2*Sqrt[1 - 1/(c*x)]*S
qrt[1 + 1/(d*x)]*x^(3/2)*EllipticE[ArcSin[Sqrt[c^(-1)]/Sqrt[x]],
-(c/d)])/(Sqrt[c^(-1)]*Sqrt[b*x]*Sqrt[1 - c*x]*Sqrt[1 + d*x])
```

Maple [A] time = 0.022, size = 67, normalized size = 1.6

$$-2\,\frac{(c+d)\sqrt{-dx}\sqrt{-cx+1}}{(cx-1)\sqrt{bx}d^2}EllipticE\left(\sqrt{dx+1},\sqrt{\frac{c}{c+d}}\right)\sqrt{-\frac{(cx-1)\,d}{c+d}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((-c*x+1)^(1/2)/(b*x)^(1/2)/(d*x+1)^(1/2),x)
```

```
[Out] -2*(c+d)*EllipticE((d*x+1)^(1/2),(c/(c+d))^(1/2))*(-d*x)^(1/2)*(-
(c*x-1)*d/(c+d))^(1/2)*(-c*x+1)^(1/2)/(c*x-1)/(b*x)^(1/2)/d^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{-cx+1}}{\sqrt{bx}\sqrt{dx+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-c*x + 1)/(sqrt(b*x)*sqrt(d*x + 1)),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(-c*x + 1)/(sqrt(b*x)*sqrt(d*x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{-cx+1}}{\sqrt{bx}\sqrt{dx+1}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-c*x + 1)/(sqrt(b*x)*sqrt(d*x + 1)),x, algorithm="fricas")
```

```
[Out] integral(sqrt(-c*x + 1)/(sqrt(b*x)*sqrt(d*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-c*x+1)**(1/2)/(b*x)**(1/2)/(d*x+1)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{-cx+1}}{\sqrt{bx}\sqrt{dx+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-c*x + 1)/(sqrt(b*x)*sqrt(d*x + 1)),x, algorithm="giac")
```

```
[Out] integrate(sqrt(-c*x + 1)/(sqrt(b*x)*sqrt(d*x + 1)), x)
```

3.861 $\int \frac{1}{\sqrt{2-3x}\sqrt{x}\sqrt{d+ex}}\,dx$

Optimal. Leaf size=51

$$\frac{2\sqrt{\frac{ex}{d}+1}\,F\left(\sin^{-1}\left(\sqrt{\frac{3}{2}}\sqrt{x}\right)|-\frac{2e}{3d}\right)}{\sqrt{3}\sqrt{d+ex}}$$

```
[Out] (2*Sqrt[1 + (e*x)/d]*EllipticF[ArcSin[Sqrt[3/2]*Sqrt[x]], (-2*e)/
(3*d)])/(Sqrt[3]*Sqrt[d + e*x])
```

Rubi [A] time = 0.100718, antiderivative size = 51, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.083

$$\frac{2\sqrt{\frac{ex}{d}+1}\,F\left(\sin^{-1}\left(\sqrt{\frac{3}{2}}\sqrt{x}\right)|-\frac{2e}{3d}\right)}{\sqrt{3}\sqrt{d+ex}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[2 - 3*x]*Sqrt[x]*Sqrt[d + e*x]),x]
```

```
[Out] (2*Sqrt[1 + (e*x)/d]*EllipticF[ArcSin[Sqrt[3/2]*Sqrt[x]], (-2*e)/
(3*d)])/(Sqrt[3]*Sqrt[d + e*x])
```

Rubi in Sympy [A] time = 8.03634, size = 66, normalized size = 1.29

$$\frac{2\sqrt{6}\sqrt{1+\frac{ex}{d}}\sqrt{-\frac{3x}{2}+1}\,F\left(\operatorname{asin}\left(\frac{\sqrt{6}\sqrt{x}}{2}\right)\middle|-\frac{2e}{3d}\right)}{3\sqrt{d+ex}\sqrt{-3x+2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(2-3*x)**(1/2)/x**(1/2)/(e*x+d)**(1/2),x)
```

```
[Out] 2*sqrt(6)*sqrt(1 + e*x/d)*sqrt(-3*x/2 + 1)*elliptic_f(asin(sqrt(6
)*sqrt(x)/2), -2*e/(3*d))/(3*sqrt(d + e*x)*sqrt(-3*x + 2))
```

Mathematica [A] time = 0.297958, size = 72, normalized size = 1.41

$$-\frac{\sqrt{x}\sqrt{\frac{d+ex}{e(3x-2)}}\,F\left(\sin^{-1}\left(\frac{1}{\sqrt{1-\frac{3x}{2}}}\right)|\frac{3d}{2e}+1\right)}{\sqrt{\frac{x}{6x-4}}\sqrt{d+ex}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[2 - 3*x]*Sqrt[x]*Sqrt[d + e*x]),x]
```

```
[Out] -((Sqrt[x]*Sqrt[(d + e*x)/(e*(-2 + 3*x))]*EllipticF[ArcSin[1/Sqrt
[1 - (3*x)/2]], 1 + (3*d)/(2*e)])/(Sqrt[x/(-4 + 6*x)]*Sqrt[d + e*
x]))
```

Maple [B] time = 0.089, size = 112, normalized size = 2.2

$$-2\,\frac{d\sqrt{2-3\,x}\sqrt{ex+d}}{\sqrt{x}e\left(3\,ex^2+3\,dx-2\,ex-2\,d\right)}\mathrm{EllipticF}\left(\sqrt{\frac{ex+d}{d}},\sqrt{3}\sqrt{\frac{d}{3\,d+2\,e}}\right)\sqrt{-\frac{ex}{d}}\sqrt{-\frac{(-2+3\,x)\,e}{3\,d+2\,e}}\sqrt{\frac{ex+d}{d}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(2-3*x)^(1/2)/x^(1/2)/(e*x+d)^(1/2),x)
```

```
[Out] -2*EllipticF(((e*x+d)/d)^(1/2),3^(1/2)*(d/(3*d+2*e))^(1/2))*(-e*x
/d)^(1/2)*(-(-2+3*x)*e/(3*d+2*e))^(1/2)*((e*x+d)/d)^(1/2)*d*(2-3*
x)^(1/2)/x^(1/2)*(e*x+d)^(1/2)/e/(3*e*x^2+3*d*x-2*e*x-2*d)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{ex+d}\sqrt{x}\sqrt{-3\,x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(e*x + d)*sqrt(x)*sqrt(-3*x + 2)),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(e*x + d)*sqrt(x)*sqrt(-3*x + 2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{\sqrt{ex+d}\sqrt{x}\sqrt{-3\,x+2}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(e*x + d)*sqrt(x)*sqrt(-3*x + 2)),x, algorithm="fricas")
```

```
[Out] integral(1/(sqrt(e*x + d)*sqrt(x)*sqrt(-3*x + 2)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{x}\sqrt{d+ex}\sqrt{-3x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(2-3*x)**(1/2)/x**(1/2)/(e*x+d)**(1/2),x)
```

```
[Out] Integral(1/(sqrt(x)*sqrt(d + e*x)*sqrt(-3*x + 2)), x)
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(e*x + d)*sqrt(x)*sqrt(-3*x + 2)),x, algorithm="giac")
```

```
[Out] Exception raised: TypeError
```

3.862 $\int \frac{\sqrt{d+ex}}{\sqrt{2-3x}\sqrt{x}}\,dx$

Optimal. Leaf size=51

$$\frac{2\sqrt{d+ex}E\left(\sin^{-1}\left(\sqrt{\frac{3}{2}}\sqrt{x}\right)|-\frac{2e}{3d}\right)}{\sqrt{3}\sqrt{\frac{ex}{d}+1}}$$

```
[Out] (2*Sqrt[d + e*x]*EllipticE[ArcSin[Sqrt[3/2]*Sqrt[x]], (-2*e)/(3*d
)])/(Sqrt[3]*Sqrt[1 + (e*x)/d])
```

Rubi [A] time = 0.0982697, antiderivative size = 51, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.083$

$$\frac{2\sqrt{d+ex}E\left(\sin^{-1}\left(\sqrt{\frac{3}{2}}\sqrt{x}\right)|-\frac{2e}{3d}\right)}{\sqrt{3}\sqrt{\frac{ex}{d}+1}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[d + e*x]/(Sqrt[2 - 3*x]*Sqrt[x]),x]
```

```
[Out] (2*Sqrt[d + e*x]*EllipticE[ArcSin[Sqrt[3/2]*Sqrt[x]], (-2*e)/(3*d
)])/(Sqrt[3]*Sqrt[1 + (e*x)/d])
```

Rubi in Sympy [A] time = 8.09903, size = 66, normalized size = 1.29

$$\frac{2\sqrt{6}\sqrt{d+ex}\sqrt{-\frac{3x}{2}+1}E\left(\operatorname{asin}\left(\frac{\sqrt{6}\sqrt{x}}{2}\right)\middle|-\frac{2e}{3d}\right)}{3\sqrt{1+\frac{ex}{d}}\sqrt{-3x+2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((e*x+d)**(1/2)/(2-3*x)**(1/2)/x**(1/2),x)
```

```
[Out] 2*sqrt(6)*sqrt(d + e*x)*sqrt(-3*x/2 + 1)*elliptic_e(asin(sqrt(6)*
sqrt(x)/2), -2*e/(3*d))/(3*sqrt(1 + e*x/d)*sqrt(-3*x + 2))
```

Mathematica [B] time = 1.54256, size = 125, normalized size = 2.45

$$\frac{2\sqrt{x}\left(\frac{3(d+ex)}{\sqrt{2-3x}}-\frac{(3d+2e)\sqrt{\frac{d+ex}{e(3x-2)}}E\left(\sin^{-1}\left(\frac{\sqrt{\frac{3d}{e}+2}}{\sqrt{2-3x}}\right)|\frac{2e}{3d+2e}\right)}{\sqrt{\frac{x}{3x-2}}\sqrt{\frac{3d}{e}+2}}\right)}{3\sqrt{d+ex}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[d + e*x]/(Sqrt[2 - 3*x]*Sqrt[x]),x]
```

```
[Out] (2*Sqrt[x]*((3*(d + e*x))/Sqrt[2 - 3*x] - ((3*d + 2*e)*Sqrt[(d +
e*x)/(e*(-2 + 3*x))]*EllipticE[ArcSin[Sqrt[2 + (3*d)/e]/Sqrt[2 -
3*x]], (2*e)/(3*d + 2*e)])/(Sqrt[2 + (3*d)/e]*Sqrt[x/(-2 + 3*x)])
))/(3*Sqrt[d + e*x])
```

Maple [B] time = 0.024, size = 212, normalized size = 4.2

$$-\frac{2d}{3e(3ex^2+3dx-2ex-2d)}\sqrt{ex+d}\sqrt{2-3x}\sqrt{\frac{ex+d}{d}}\sqrt{-\frac{(-2+3x)e}{3d+2e}}\sqrt{-\frac{ex}{d}}\left(3\,d\mathit{EllipticF}\left(\sqrt{\frac{ex+d}{d}},\sqrt{3}\sqrt{\frac{d}{3d+2e}}\right)+\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((e*x+d)^(1/2)/(2-3*x)^(1/2)/x^(1/2),x)
```

```
[Out] -2/3*(e*x+d)^(1/2)*(2-3*x)^(1/2)/x^(1/2)*d*((e*x+d)/d)^(1/2)*(-(-
2+3*x)*e/(3*d+2*e))^(1/2)*(-e*x/d)^(1/2)*(3*d*EllipticF(((e*x+d)/
d)^(1/2),3^(1/2)*(d/(3*d+2*e))^(1/2))+2*EllipticF(((e*x+d)/d)^(1/
2),3^(1/2)*(d/(3*d+2*e))^(1/2))*e-3*EllipticE(((e*x+d)/d)^(1/2),3
^(1/2)*(d/(3*d+2*e))^(1/2))*d-2*EllipticE(((e*x+d)/d)^(1/2),3^(1/
2)*(d/(3*d+2*e))^(1/2))*e)/e/(3*e*x^2+3*d*x-2*e*x-2*d)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{ex+d}}{\sqrt{x}\sqrt{-3x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(e*x + d)/(sqrt(x)*sqrt(-3*x + 2)),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(e*x + d)/(sqrt(x)*sqrt(-3*x + 2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\sqrt{ex+d}}{\sqrt{x}\sqrt{-3x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(e*x + d)/(sqrt(x)*sqrt(-3*x + 2)),x, algorithm="fricas")
```

```
[Out] integral(sqrt(e*x + d)/(sqrt(x)*sqrt(-3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((e*x+d)**(1/2)/(2-3*x)**(1/2)/x**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: TypeError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(e*x + d)/(sqrt(x)*sqrt(-3*x + 2)),x, algorithm="giac")

[Out] Exception raised: TypeError
```

3.863 $\int \frac{x^4}{\sqrt[3]{1-x}\sqrt[3]{2-x}}\,dx$

Optimal. Leaf size=752

$$\frac{3}{13}(1-x)^{2/3}(2-x)^{2/3}x^3$$

$$+\frac{99}{130}(1-x)^{2/3}(2-x)^{2/3}x^2-\frac{891\,2^{2/3}\sqrt{(3-2x)^2}\sqrt{(2x-3)^2}\sqrt[3]{x^2-3x+2}}{91(3-2x)\sqrt[3]{1-x}\sqrt[3]{2-x}\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)}-\frac{594\sqrt[6]{2}3^{3/4}\sqrt{(2x-3)^2}\sqrt[3]{x^2-3x+2}\left(2^{2/\cdots\right.}{\cdots}$$

```
[Out] (99*(1 - x)^(2/3)*(2 - x)^(2/3)*x^2)/130 + (3*(1 - x)^(2/3)*(2 -
x)^(2/3)*x^3)/13 + (27*(1 - x)^(2/3)*(2 - x)^(2/3)*(89 + 34*x))/4
55 - (891*2^(2/3)*Sqrt[(3 - 2*x)^2]*Sqrt[(-3 + 2*x)^2]*(2 - 3*x +
 x^2)^(1/3))/(91*(3 - 2*x)*(1 - x)^(1/3)*(2 - x)^(1/3)*(1 + Sqrt[
3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))) + (891*3^(1/4)*Sqrt[2 - Sqrt
[3]]*Sqrt[(-3 + 2*x)^2]*(2 - 3*x + x^2)^(1/3)*(1 + 2^(2/3)*(2 - 3
*x + x^2)^(1/3))*Sqrt[(1 - 2^(2/3)*(2 - 3*x + x^2)^(1/3) + 2*2^(1
/3)*(2 - 3*x + x^2)^(2/3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)
^(1/3))^2]*EllipticE[ArcSin[(1 - Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2
)^(1/3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))], -7 - 4*S
qrt[3]])/(91*2^(1/3)*(3 - 2*x)*Sqrt[(3 - 2*x)^2]*(1 - x)^(1/3)*(2
 - x)^(1/3)*Sqrt[(1 + 2^(2/3)*(2 - 3*x + x^2)^(1/3))/(1 + Sqrt[3]
 + 2^(2/3)*(2 - 3*x + x^2)^(1/3))^2]) - (594*2^(1/6)*3^(3/4)*Sqrt
[(-3 + 2*x)^2]*(2 - 3*x + x^2)^(1/3)*(1 + 2^(2/3)*(2 - 3*x + x^2)
^(1/3))*Sqrt[(1 - 2^(2/3)*(2 - 3*x + x^2)^(1/3) + 2*2^(1/3)*(2 -
3*x + x^2)^(2/3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))^2
]*EllipticF[ArcSin[(1 - Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))/
(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))], -7 - 4*Sqrt[3]])/
(91*(3 - 2*x)*Sqrt[(3 - 2*x)^2]*(1 - x)^(1/3)*(2 - x)^(1/3)*Sqrt[
(1 + 2^(2/3)*(2 - 3*x + x^2)^(1/3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3
*x + x^2)^(1/3))^2])
```

Rubi [A] time = 1.26169, antiderivative size = 752, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 8, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.364

$$\frac{3}{13}(1-x)^{2/3}(2-x)^{2/3}x^3$$

$$+\frac{99}{130}(1-x)^{2/3}(2-x)^{2/3}x^2-\frac{891\,2^{2/3}\sqrt{(3-2x)^2}\sqrt{(2x-3)^2}\sqrt[3]{x^2-3x+2}}{91(3-2x)\sqrt[3]{1-x}\sqrt[3]{2-x}\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)}-\frac{594\sqrt[6]{2}3^{3/4}\sqrt{(2x-3)^2}\sqrt[3]{x^2-3x+2}\left(2^{2/\cdots\right.}{\cdots}$$

Warning: Unable to verify antiderivative.

```
[In]  Int[x^4/((1 - x)^(1/3)*(2 - x)^(1/3)),x]
```

```
[Out] (99*(1 - x)^(2/3)*(2 - x)^(2/3)*x^2)/130 + (3*(1 - x)^(2/3)*(2 -
x)^(2/3)*x^3)/13 + (27*(1 - x)^(2/3)*(2 - x)^(2/3)*(89 + 34*x))/4
55 - (891*2^(2/3)*Sqrt[(3 - 2*x)^2]*Sqrt[(-3 + 2*x)^2]*(2 - 3*x +
 x^2)^(1/3))/(91*(3 - 2*x)*(1 - x)^(1/3)*(2 - x)^(1/3)*(1 + Sqrt[
3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))) + (891*3^(1/4)*Sqrt[2 - Sqrt
[3]]*Sqrt[(-3 + 2*x)^2]*(2 - 3*x + x^2)^(1/3)*(1 + 2^(2/3)*(2 - 3
*x + x^2)^(1/3))*Sqrt[(1 - 2^(2/3)*(2 - 3*x + x^2)^(1/3) + 2*2^(1
/3)*(2 - 3*x + x^2)^(2/3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)
^(1/3))^2]*EllipticE[ArcSin[(1 - Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2
)^(1/3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))], -7 - 4*S
qrt[3]])/(91*2^(1/3)*(3 - 2*x)*Sqrt[(3 - 2*x)^2]*(1 - x)^(1/3)*(2
 - x)^(1/3)*Sqrt[(1 + 2^(2/3)*(2 - 3*x + x^2)^(1/3))/(1 + Sqrt[3]
 + 2^(2/3)*(2 - 3*x + x^2)^(1/3))^2]) - (594*2^(1/6)*3^(3/4)*Sqrt
[(-3 + 2*x)^2]*(2 - 3*x + x^2)^(1/3)*(1 + 2^(2/3)*(2 - 3*x + x^2)
```

```
^(1/3))*Sqrt[(1 - 2^(2/3)*(2 - 3*x + x^2)^(1/3) + 2*2^(1/3)*(2 -
3*x + x^2)^(2/3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))^2
]*EllipticF[ArcSin[(1 - Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))/
(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))], -7 - 4*Sqrt[3]])/
(91*(3 - 2*x)*Sqrt[(3 - 2*x)^2]*(1 - x)^(1/3)*(2 - x)^(1/3)*Sqrt[
(1 + 2^(2/3)*(2 - 3*x + x^2)^(1/3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3
*x + x^2)^(1/3))^2])
```

Rubi in Sympy [A] time = 39.7833, size = 682, normalized size = 0.91

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**4/(1-x)**(1/3)/(2-x)**(1/3),x)
```

```
[Out] 3*x**3*(-x + 1)**(2/3)*(-x + 2)**(2/3)/13 + 99*x**2*(-x + 1)**(2/
3)*(-x + 2)**(2/3)/130 + 81*(-x + 1)**(2/3)*(-x + 2)**(2/3)*(272*
x/3 + 712/3)/3640 - 891*2**(2/3)*(x**2 - 3*x + 2)**(1/3)*sqrt(4*x
**2 - 12*x + 9)*sqrt((2*x - 3)**2)/(91*(-2*x + 3)*(-x + 1)**(1/3)
*(-x + 2)**(1/3)*(2**(2/3)*(x**2 - 3*x + 2)**(1/3) + 1 + sqrt(3))
) + 891*2**(2/3)*3**(1/4)*sqrt((2*2**(1/3)*(x**2 - 3*x + 2)**(2/3
) - 2**(2/3)*(x**2 - 3*x + 2)**(1/3) + 1)/(2**(2/3)*(x**2 - 3*x +
 2)**(1/3) + 1 + sqrt(3))**2)*sqrt(-sqrt(3) + 2)*(2**(2/3)*(x**2
- 3*x + 2)**(1/3) + 1)*(x**2 - 3*x + 2)**(1/3)*sqrt((2*x - 3)**2)
*elliptic_e(asin((2**(2/3)*(x**2 - 3*x + 2)**(1/3) - sqrt(3) + 1)
/(2**(2/3)*(x**2 - 3*x + 2)**(1/3) + 1 + sqrt(3))), -7 - 4*sqrt(3
))/(182*sqrt((2**(2/3)*(x**2 - 3*x + 2)**(1/3) + 1)/(2**(2/3)*(x*
*2 - 3*x + 2)**(1/3) + 1 + sqrt(3))**2)*(-2*x + 3)*(-x + 1)**(1/3
)*(-x + 2)**(1/3)*sqrt(4*x**2 - 12*x + 9)) - 594*2**(1/6)*3**(3/4
)*sqrt((2*2**(1/3)*(x**2 - 3*x + 2)**(2/3) - 2**(2/3)*(x**2 - 3*x
 + 2)**(1/3) + 1)/(2**(2/3)*(x**2 - 3*x + 2)**(1/3) + 1 + sqrt(3)
)**2)*(2**(2/3)*(x**2 - 3*x + 2)**(1/3) + 1)*(x**2 - 3*x + 2)**(1
/3)*sqrt((2*x - 3)**2)*elliptic_f(asin((2**(2/3)*(x**2 - 3*x + 2)
**(1/3) - sqrt(3) + 1)/(2**(2/3)*(x**2 - 3*x + 2)**(1/3) + 1 + sq
rt(3))), -7 - 4*sqrt(3))/(91*sqrt((2**(2/3)*(x**2 - 3*x + 2)**(1/
3) + 1)/(2**(2/3)*(x**2 - 3*x + 2)**(1/3) + 1 + sqrt(3))**2)*(-2*
x + 3)*(-x + 1)**(1/3)*(-x + 2)**(1/3)*sqrt(4*x**2 - 12*x + 9))
```

Mathematica [C] time = 0.0669353, size = 54, normalized size = 0.07

$$\frac{3}{910}(1-x)^{2/3}\left((2-x)^{2/3}\left(70x^3+231x^2+612x+1602\right)-2970\,{}_2F_1\left(\frac{1}{3},\frac{2}{3};\frac{5}{3};x-1\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^4/((1 - x)^(1/3)*(2 - x)^(1/3)),x]
```

```
[Out] (3*(1 - x)^(2/3)*((2 - x)^(2/3)*(1602 + 612*x + 231*x^2 + 70*x^3)
 - 2970*Hypergeometric2F1[1/3, 2/3, 5/3, -1 + x]))/910
```

Maple [F] time = 0.125, size = 0, normalized size = 0.

$$\int x^4\frac{1}{\sqrt[3]{1-x}}\frac{1}{\sqrt[3]{2-x}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^4/(1-x)^(1/3)/(2-x)^(1/3),x)
```

```
[Out] int(x^4/(1-x)^(1/3)/(2-x)^(1/3),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x^4}{(-x+2)^{\frac{1}{3}}(-x+1)^{\frac{1}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^4/((-x + 2)^(1/3)*(-x + 1)^(1/3)),x, algorithm="maxima")
```

```
[Out] integrate(x^4/((-x + 2)^(1/3)*(-x + 1)^(1/3)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{x^4}{(-x+2)^{\frac{1}{3}}(-x+1)^{\frac{1}{3}}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^4/((-x + 2)^(1/3)*(-x + 1)^(1/3)),x, algorithm="fricas")
```

```
[Out] integral(x^4/((-x + 2)^(1/3)*(-x + 1)^(1/3)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x^4}{\sqrt[3]{-x+1}\sqrt[3]{-x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**4/(1-x)**(1/3)/(2-x)**(1/3),x)
```

```
[Out] Integral(x**4/((-x + 1)**(1/3)*(-x + 2)**(1/3)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x^4}{(-x+2)^{\frac{1}{3}}(-x+1)^{\frac{1}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^4/((-x + 2)^(1/3)*(-x + 1)^(1/3)),x, algorithm="giac")
```

```
[Out] integrate(x^4/((-x + 2)^(1/3)*(-x + 1)^(1/3)), x)
```

3.864 $\int \frac{x^3}{\sqrt[3]{1-x}\sqrt[3]{2-x}}\,dx$

Optimal. Leaf size=727

$$\frac{3}{10}(1-x)^{2/3}(2-x)^{2/3}x^2-\frac{81\sqrt{(3-2x)^2}\sqrt{(2x-3)^2}\sqrt[3]{x^2-3x+2}}{7\sqrt[3]{2}(3-2x)\sqrt[3]{1-x}\sqrt[3]{2-x}\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)}$$

$$-\frac{27\sqrt[6]{2}3^{3/4}\sqrt{(2x-3)^2}\sqrt[3]{x^2-3x+2}\left(2^{2/3}\sqrt[3]{x^2-3x+2}+1\right)\sqrt{\frac{2\sqrt[3]{2}(x^2-3x+2)^{2/3}-2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}F\left(\sin^{-1}\left(\frac{2^{2/3}\sqrt[3]{x^2-3x+2}\cdots}{2^{2/3}\sqrt[3]{x^2-3x+2}\cdots}\right.\right.}{7(3-2x)\sqrt{(3-2x)^2}\sqrt[3]{1-x}\sqrt[3]{2-x}\sqrt{\frac{2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}}$$

$$+\frac{81\sqrt[4]{3}\sqrt{2-\sqrt{3}}\sqrt{(2x-3)^2}\sqrt[3]{x^2-3x+2}\left(2^{2/3}\sqrt[3]{x^2-3x+2}+1\right)\sqrt{\frac{2\sqrt[3]{2}(x^2-3x+2)^{2/3}-2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}E\left(\sin^{-1}\left(\frac{2^{2/3}\sqrt[3]{x^2-3\cdots}}{2^{2/3}\sqrt[3]{x^2-3\cdots}}\right.\right.}{14\sqrt[3]{2}(3-2x)\sqrt{(3-2x)^2}\sqrt[3]{1-x}\sqrt[3]{2-x}\sqrt{\frac{2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}}$$

$$+\frac{9}{70}(1-x)^{2/3}(2-x)^{2/3}(8x+23)$$

```
[Out] (3*(1 - x)^(2/3)*(2 - x)^(2/3)*x^2)/10 + (9*(1 - x)^(2/3)*(2 - x)
^(2/3)*(23 + 8*x))/70 - (81*Sqrt[(3 - 2*x)^2]*Sqrt[(-3 + 2*x)^2]*
(2 - 3*x + x^2)^(1/3))/(7*2^(1/3)*(3 - 2*x)*(1 - x)^(1/3)*(2 - x)
^(1/3)*(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))) + (81*3^(1/
4)*Sqrt[2 - Sqrt[3]]*Sqrt[(-3 + 2*x)^2]*(2 - 3*x + x^2)^(1/3)*(1
+ 2^(2/3)*(2 - 3*x + x^2)^(1/3))*Sqrt[(1 - 2^(2/3)*(2 - 3*x + x^2
)^(1/3) + 2*2^(1/3)*(2 - 3*x + x^2)^(2/3))/(1 + Sqrt[3] + 2^(2/3)
*(2 - 3*x + x^2)^(1/3))^2]*EllipticE[ArcSin[(1 - Sqrt[3] + 2^(2/3
)*(2 - 3*x + x^2)^(1/3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(
1/3))], -7 - 4*Sqrt[3]])/(14*2^(1/3)*(3 - 2*x)*Sqrt[(3 - 2*x)^2]*
(1 - x)^(1/3)*(2 - x)^(1/3)*Sqrt[(1 + 2^(2/3)*(2 - 3*x + x^2)^(1/
3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))^2]) - (27*2^(1/
6)*3^(3/4)*Sqrt[(-3 + 2*x)^2]*(2 - 3*x + x^2)^(1/3)*(1 + 2^(2/3)*
(2 - 3*x + x^2)^(1/3))*Sqrt[(1 - 2^(2/3)*(2 - 3*x + x^2)^(1/3) +
2*2^(1/3)*(2 - 3*x + x^2)^(2/3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x
+ x^2)^(1/3))^2]*EllipticF[ArcSin[(1 - Sqrt[3] + 2^(2/3)*(2 - 3*x
 + x^2)^(1/3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))], -7
 - 4*Sqrt[3]])/(7*(3 - 2*x)*Sqrt[(3 - 2*x)^2]*(1 - x)^(1/3)*(2 -
x)^(1/3)*Sqrt[(1 + 2^(2/3)*(2 - 3*x + x^2)^(1/3))/(1 + Sqrt[3] +
2^(2/3)*(2 - 3*x + x^2)^(1/3))^2])
```

Rubi [A] time = 0.954787, antiderivative size = 727, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 7, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.318$

$$\frac{3}{10}(1-x)^{2/3}(2-x)^{2/3}x^2-\frac{81\sqrt{(3-2x)^2}\sqrt{(2x-3)^2}\sqrt[3]{x^2-3x+2}}{7\sqrt[3]{2}(3-2x)\sqrt[3]{1-x}\sqrt[3]{2-x}\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)}$$

$$-\frac{27\sqrt[6]{2}3^{3/4}\sqrt{(2x-3)^2}\sqrt[3]{x^2-3x+2}\left(2^{2/3}\sqrt[3]{x^2-3x+2}+1\right)\sqrt{\frac{2\sqrt[3]{2}(x^2-3x+2)^{2/3}-2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}F\left(\sin^{-1}\left(\frac{2^{2/3}\sqrt[3]{x^2-3x+2}\cdots}{2^{2/3}\sqrt[3]{x^2-3x+2}\cdots}\right.\right.}{7(3-2x)\sqrt{(3-2x)^2}\sqrt[3]{1-x}\sqrt[3]{2-x}\sqrt{\frac{2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}}$$

$$+\frac{81\sqrt[4]{3}\sqrt{2-\sqrt{3}}\sqrt{(2x-3)^2}\sqrt[3]{x^2-3x+2}\left(2^{2/3}\sqrt[3]{x^2-3x+2}+1\right)\sqrt{\frac{2\sqrt[3]{2}(x^2-3x+2)^{2/3}-2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}E\left(\sin^{-1}\left(\frac{2^{2/3}\sqrt[3]{x^2-3\cdots}}{2^{2/3}\sqrt[3]{x^2-3\cdots}}\right.\right.}{14\sqrt[3]{2}(3-2x)\sqrt{(3-2x)^2}\sqrt[3]{1-x}\sqrt[3]{2-x}\sqrt{\frac{2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}}$$

$$+\frac{9}{70}(1-x)^{2/3}(2-x)^{2/3}(8x+23)$$

Warning: Unable to verify antiderivative.

```
[In]  Int[x^3/((1 - x)^(1/3)*(2 - x)^(1/3)),x]
```

```
[Out] (3*(1 - x)^(2/3)*(2 - x)^(2/3)*x^2)/10 + (9*(1 - x)^(2/3)*(2 - x)
^(2/3)*(23 + 8*x))/70 - (81*Sqrt[(3 - 2*x)^2]*Sqrt[(-3 + 2*x)^2]*
(2 - 3*x + x^2)^(1/3))/(7*2^(1/3)*(3 - 2*x)*(1 - x)^(1/3)*(2 - x)
^(1/3)*(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))) + (81*3^(1/
4)*Sqrt[2 - Sqrt[3]]*Sqrt[(-3 + 2*x)^2]*(2 - 3*x + x^2)^(1/3)*(1
+ 2^(2/3)*(2 - 3*x + x^2)^(1/3))*Sqrt[(1 - 2^(2/3)*(2 - 3*x + x^2
)^(1/3) + 2*2^(1/3)*(2 - 3*x + x^2)^(2/3))/(1 + Sqrt[3] + 2^(2/3)
*(2 - 3*x + x^2)^(1/3))^2]*EllipticE[ArcSin[(1 - Sqrt[3] + 2^(2/3
)*(2 - 3*x + x^2)^(1/3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(
1/3))], -7 - 4*Sqrt[3]])/(14*2^(1/3)*(3 - 2*x)*Sqrt[(3 - 2*x)^2]*
(1 - x)^(1/3)*(2 - x)^(1/3)*Sqrt[(1 + 2^(2/3)*(2 - 3*x + x^2)^(1/
3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))^2]) - (27*2^(1/
6)*3^(3/4)*Sqrt[(-3 + 2*x)^2]*(2 - 3*x + x^2)^(1/3)*(1 + 2^(2/3)*
(2 - 3*x + x^2)^(1/3))*Sqrt[(1 - 2^(2/3)*(2 - 3*x + x^2)^(1/3) +
2*2^(1/3)*(2 - 3*x + x^2)^(2/3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x
+ x^2)^(1/3))^2]*EllipticF[ArcSin[(1 - Sqrt[3] + 2^(2/3)*(2 - 3*x
 + x^2)^(1/3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))], -7
 - 4*Sqrt[3]])/(7*(3 - 2*x)*Sqrt[(3 - 2*x)^2]*(1 - x)^(1/3)*(2 -
x)^(1/3)*Sqrt[(1 + 2^(2/3)*(2 - 3*x + x^2)^(1/3))/(1 + Sqrt[3] +
2^(2/3)*(2 - 3*x + x^2)^(1/3))^2])
```

Rubi in Sympy [A] time = 32.3269, size = 661, normalized size = 0.91

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3/(1-x)**(1/3)/(2-x)**(1/3),x)
```

```
[Out] 3*x**2*(-x + 1)**(2/3)*(-x + 2)**(2/3)/10 + 27*(-x + 1)**(2/3)*(-
x + 2)**(2/3)*(32*x/3 + 92/3)/280 - 81*2**(2/3)*(x**2 - 3*x + 2)*
*(1/3)*sqrt(4*x**2 - 12*x + 9)*sqrt((2*x - 3)**2)/(14*(-2*x + 3)*
(-x + 1)**(1/3)*(-x + 2)**(1/3)*(2**(2/3)*(x**2 - 3*x + 2)**(1/3)
 + 1 + sqrt(3))) + 81*2**(2/3)*3**(1/4)*sqrt((2*2**(1/3)*(x**2 -
3*x + 2)**(2/3) - 2**(2/3)*(x**2 - 3*x + 2)**(1/3) + 1)/(2**(2/3)
*(x**2 - 3*x + 2)**(1/3) + 1 + sqrt(3))**2)*sqrt(-sqrt(3) + 2)*(2
**(2/3)*(x**2 - 3*x + 2)**(1/3) + 1)*(x**2 - 3*x + 2)**(1/3)*sqrt
((2*x - 3)**2)*elliptic_e(asin((2**(2/3)*(x**2 - 3*x + 2)**(1/3)
- sqrt(3) + 1)/(2**(2/3)*(x**2 - 3*x + 2)**(1/3) + 1 + sqrt(3))),
 -7 - 4*sqrt(3))/(28*sqrt((2**(2/3)*(x**2 - 3*x + 2)**(1/3) + 1)/
(2**(2/3)*(x**2 - 3*x + 2)**(1/3) + 1 + sqrt(3))**2)*(-2*x + 3)*(
-x + 1)**(1/3)*(-x + 2)**(1/3)*sqrt(4*x**2 - 12*x + 9)) - 27*2**(
1/6)*3**(3/4)*sqrt((2*2**(1/3)*(x**2 - 3*x + 2)**(2/3) - 2**(2/3)
*(x**2 - 3*x + 2)**(1/3) + 1)/(2**(2/3)*(x**2 - 3*x + 2)**(1/3) +
 1 + sqrt(3))**2)*(2**(2/3)*(x**2 - 3*x + 2)**(1/3) + 1)*(x**2 -
3*x + 2)**(1/3)*sqrt((2*x - 3)**2)*elliptic_f(asin((2**(2/3)*(x**
2 - 3*x + 2)**(1/3) - sqrt(3) + 1)/(2**(2/3)*(x**2 - 3*x + 2)**(1
/3) + 1 + sqrt(3))), -7 - 4*sqrt(3))/(7*sqrt((2**(2/3)*(x**2 - 3*
x + 2)**(1/3) + 1)/(2**(2/3)*(x**2 - 3*x + 2)**(1/3) + 1 + sqrt(3
))**2)*(-2*x + 3)*(-x + 1)**(1/3)*(-x + 2)**(1/3)*sqrt(4*x**2 - 1
2*x + 9))
```

Mathematica [C] time = 0.0477162, size = 49, normalized size = 0.07

$$\frac{3}{70}(1-x)^{2/3}\left((2-x)^{2/3}\left(7x^2+24x+69\right)-135\,{}_2F_1\left(\frac{1}{3},\frac{2}{3};\frac{5}{3};x-1\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^3/((1 - x)^(1/3)*(2 - x)^(1/3)),x]
```

```
[Out] (3*(1 - x)^(2/3)*((2 - x)^(2/3)*(69 + 24*x + 7*x^2) - 135*Hyperge
ometric2F1[1/3, 2/3, 5/3, -1 + x]))/70
```

Maple [F] time = 0.11, size = 0, normalized size = 0.

$$\int x^3 \frac{1}{\sqrt[3]{1-x}} \frac{1}{\sqrt[3]{2-x}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^3/(1-x)^(1/3)/(2-x)^(1/3),x)
```

```
[Out] int(x^3/(1-x)^(1/3)/(2-x)^(1/3),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x^3}{(-x+2)^{\frac{1}{3}}(-x+1)^{\frac{1}{3}}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^3/((-x + 2)^(1/3)*(-x + 1)^(1/3)),x, algorithm="maxima")
```

```
[Out] integrate(x^3/((-x + 2)^(1/3)*(-x + 1)^(1/3)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{x^3}{(-x+2)^{\frac{1}{3}}(-x+1)^{\frac{1}{3}}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^3/((-x + 2)^(1/3)*(-x + 1)^(1/3)),x, algorithm="fricas")
```

```
[Out] integral(x^3/((-x + 2)^(1/3)*(-x + 1)^(1/3)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x^3}{\sqrt[3]{-x+1}\sqrt[3]{-x+2}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**3/(1-x)**(1/3)/(2-x)**(1/3),x)
```

```
[Out] Integral(x**3/((-x + 1)**(1/3)*(-x + 2)**(1/3)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x^3}{(-x+2)^{\frac{1}{3}}(-x+1)^{\frac{1}{3}}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^3/((-x + 2)^(1/3)*(-x + 1)^(1/3)),x, algorithm="giac")

[Out] integrate(x^3/((-x + 2)^(1/3)*(-x + 1)^(1/3)), x)
```

3.865 $\int \frac{x^2}{\sqrt[3]{1-x}\sqrt[3]{2-x}}\,dx$

Optimal. Leaf size=720

$$-\frac{99\sqrt{(3-2x)^2}\sqrt{(2x-3)^2}\sqrt[3]{x^2-3x+2}}{14\sqrt[3]{2}(3-2x)\sqrt[3]{1-x}\sqrt[3]{2-x}\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)}-\frac{33\,3^{3/4}\sqrt{(2x-3)^2}\sqrt[3]{x^2-3x+2}\left(2^{2/3}\sqrt[3]{x^2-3x+2}+1\right)\sqrt{\frac{2\sqrt[3]{2}(x^2-3x+2)^{2/3}-2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}F\left(\sin^{-1}\left(\frac{2^{2/3}\sqrt[3]{x^2-3x+2}-\sqrt{\ }}{2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{\ }}\right.\right.}{7\,2^{5/6}(3-2x)\sqrt{(3-2x)^2}\sqrt[3]{1-x}\sqrt[3]{2-x}\sqrt{\frac{2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}}+\frac{99\sqrt[4]{3}\sqrt{2-\sqrt{3}}\sqrt{(2x-3)^2}\sqrt[3]{x^2-3x+2}\left(2^{2/3}\sqrt[3]{x^2-3x+2}+1\right)\sqrt{\frac{2\sqrt[3]{2}(x^2-3x+2)^{2/3}-2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}E\left(\sin^{-1}\left(\frac{2^{2/3}\sqrt[3]{x^2-3x}}{2^{2/3}\sqrt[3]{x^2-3x}}\right.\right.}{28\sqrt[3]{2}(3-2x)\sqrt{(3-2x)^2}\sqrt[3]{1-x}\sqrt[3]{2-x}\sqrt{\frac{2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}}+\frac{3}{7}(1-x)^{2/3}(2-x)^{2/3}x+\frac{45}{28}(1-x)^{2/3}(2-x)^{2/3}$$

```
[Out] (45*(1 - x)^(2/3)*(2 - x)^(2/3))/28 + (3*(1 - x)^(2/3)*(2 - x)^(2
/3)*x)/7 - (99*Sqrt[(3 - 2*x)^2]*Sqrt[(-3 + 2*x)^2]*(2 - 3*x + x^
2)^(1/3))/(14*2^(1/3)*(3 - 2*x)*(1 - x)^(1/3)*(2 - x)^(1/3)*(1 +
Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))) + (99*3^(1/4)*Sqrt[2 -
Sqrt[3]]*Sqrt[(-3 + 2*x)^2]*(2 - 3*x + x^2)^(1/3)*(1 + 2^(2/3)*(2
 - 3*x + x^2)^(1/3))*Sqrt[(1 - 2^(2/3)*(2 - 3*x + x^2)^(1/3) + 2*
2^(1/3)*(2 - 3*x + x^2)^(2/3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x +
x^2)^(1/3))^2]*EllipticE[ArcSin[(1 - Sqrt[3] + 2^(2/3)*(2 - 3*x +
 x^2)^(1/3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))], -7 -
 4*Sqrt[3]])/(28*2^(1/3)*(3 - 2*x)*Sqrt[(3 - 2*x)^2]*(1 - x)^(1/3
)*(2 - x)^(1/3)*Sqrt[(1 + 2^(2/3)*(2 - 3*x + x^2)^(1/3))/(1 + Sqr
t[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))^2]) - (33*3^(3/4)*Sqrt[(-3
+ 2*x)^2]*(2 - 3*x + x^2)^(1/3)*(1 + 2^(2/3)*(2 - 3*x + x^2)^(1/3
))*Sqrt[(1 - 2^(2/3)*(2 - 3*x + x^2)^(1/3) + 2*2^(1/3)*(2 - 3*x +
 x^2)^(2/3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))^2]*Ell
ipticF[ArcSin[(1 - Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))/(1 +
Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))], -7 - 4*Sqrt[3]])/(7*2^
(5/6)*(3 - 2*x)*Sqrt[(3 - 2*x)^2]*(1 - x)^(1/3)*(2 - x)^(1/3)*Sqr
t[(1 + 2^(2/3)*(2 - 3*x + x^2)^(1/3))/(1 + Sqrt[3] + 2^(2/3)*(2 -
 3*x + x^2)^(1/3))^2])
```

Rubi [A] time = 0.936076, antiderivative size = 720, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 7, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.318

$$-\frac{99\sqrt{(3-2x)^2}\sqrt{(2x-3)^2}\sqrt[3]{x^2-3x+2}}{14\sqrt[3]{2}(3-2x)\sqrt[3]{1-x}\sqrt[3]{2-x}\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)}-\frac{33\,3^{3/4}\sqrt{(2x-3)^2}\sqrt[3]{x^2-3x+2}\left(2^{2/3}\sqrt[3]{x^2-3x+2}+1\right)\sqrt{\frac{2\sqrt[3]{2}(x^2-3x+2)^{2/3}-2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}F\left(\sin^{-1}\left(\frac{2^{2/3}\sqrt[3]{x^2-3x+2}-\sqrt{\ }}{2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{\ }}\right.\right.}{7\,2^{5/6}(3-2x)\sqrt{(3-2x)^2}\sqrt[3]{1-x}\sqrt[3]{2-x}\sqrt{\frac{2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}}+\frac{99\sqrt[4]{3}\sqrt{2-\sqrt{3}}\sqrt{(2x-3)^2}\sqrt[3]{x^2-3x+2}\left(2^{2/3}\sqrt[3]{x^2-3x+2}+1\right)\sqrt{\frac{2\sqrt[3]{2}(x^2-3x+2)^{2/3}-2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}E\left(\sin^{-1}\left(\frac{2^{2/3}\sqrt[3]{x^2-3x}}{2^{2/3}\sqrt[3]{x^2-3x}}\right.\right.}{28\sqrt[3]{2}(3-2x)\sqrt{(3-2x)^2}\sqrt[3]{1-x}\sqrt[3]{2-x}\sqrt{\frac{2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}}+\frac{3}{7}(1-x)^{2/3}(2-x)^{2/3}x+\frac{45}{28}(1-x)^{2/3}(2-x)^{2/3}$$

Warning: Unable to verify antiderivative.

```
[In]  Int[x^2/((1 - x)^(1/3)*(2 - x)^(1/3)),x]
```

```
[Out] (45*(1 - x)^(2/3)*(2 - x)^(2/3))/28 + (3*(1 - x)^(2/3)*(2 - x)^(2
/3)*x)/7 - (99*Sqrt[(3 - 2*x)^2]*Sqrt[(-3 + 2*x)^2]*(2 - 3*x + x^
2)^(1/3))/(14*2^(1/3)*(3 - 2*x)*(1 - x)^(1/3)*(2 - x)^(1/3)*(1 +
Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))) + (99*3^(1/4)*Sqrt[2 -
Sqrt[3]]*Sqrt[(-3 + 2*x)^2]*(2 - 3*x + x^2)^(1/3)*(1 + 2^(2/3)*(2
 - 3*x + x^2)^(1/3))*Sqrt[(1 - 2^(2/3)*(2 - 3*x + x^2)^(1/3) + 2*
2^(1/3)*(2 - 3*x + x^2)^(2/3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x +
x^2)^(1/3))^2]*EllipticE[ArcSin[(1 - Sqrt[3] + 2^(2/3)*(2 - 3*x +
 x^2)^(1/3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))], -7 -
 4*Sqrt[3]])/(28*2^(1/3)*(3 - 2*x)*Sqrt[(3 - 2*x)^2]*(1 - x)^(1/3
)*(2 - x)^(1/3)*Sqrt[(1 + 2^(2/3)*(2 - 3*x + x^2)^(1/3))/(1 + Sqr
t[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))^2]) - (33*3^(3/4)*Sqrt[(-3
+ 2*x)^2]*(2 - 3*x + x^2)^(1/3)*(1 + 2^(2/3)*(2 - 3*x + x^2)^(1/3
))*Sqrt[(1 - 2^(2/3)*(2 - 3*x + x^2)^(1/3) + 2*2^(1/3)*(2 - 3*x +
 x^2)^(2/3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))^2]*Ell
ipticF[ArcSin[(1 - Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))/(1 +
Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))], -7 - 4*Sqrt[3]])/(7*2^
(5/6)*(3 - 2*x)*Sqrt[(3 - 2*x)^2]*(1 - x)^(1/3)*(2 - x)^(1/3)*Sqr
t[(1 + 2^(2/3)*(2 - 3*x + x^2)^(1/3))/(1 + Sqrt[3] + 2^(2/3)*(2 -
 3*x + x^2)^(1/3))^2])
```

Rubi in Sympy [A] time = 31.003, size = 651, normalized size = 0.9

$$\frac{3x(-x+1)^{\frac{2}{3}}(-x+2)^{\frac{2}{3}}}{7}+\frac{45(-x+1)^{\frac{2}{3}}(-x+2)^{\frac{2}{3}}}{28}-\frac{99\cdot 2^{\frac{2}{3}}\sqrt[3]{x^2-3x+2}\sqrt{4x^2-12x+9}\sqrt{(2x-3)^2}}{28(-2x+3)\sqrt[3]{-x+1}\sqrt[3]{-x+2}\left(2^{\frac{2}{3}}\sqrt[3]{x^2-3x+2}+1+\sqrt{3}\right)}$$

$$+\frac{99\cdot 2^{\frac{2}{3}}\sqrt[4]{3}\sqrt{\frac{2\sqrt[3]{2}(x^2-3x+2)^{\frac{2}{3}}-2^{\frac{2}{3}}\sqrt[3]{x^2-3x+2}+1}{\left(2^{\frac{2}{3}}\sqrt[3]{x^2-3x+2}+1+\sqrt{3}\right)^2}}\sqrt{-\sqrt{3}+2}\left(2^{\frac{2}{3}}\sqrt[3]{x^2-3x+2}+1\right)\sqrt[3]{x^2-3x+2}\sqrt{(2x-3)^2}E\left(\operatorname{asin}\left(\frac{2^{\frac{2}{3}}\sqrt[3]{x^2-3\cdots}}{2^{\frac{2}{3}}\sqrt[3]{x^2-3\cdots}}\right.\right.\cdots}{56\sqrt{\frac{2^{\frac{2}{3}}\sqrt[3]{x^2-3x+2}+1}{\left(2^{\frac{2}{3}}\sqrt[3]{x^2-3x+2}+1+\sqrt{3}\right)^2}}(-2x+3)\sqrt[3]{-x+1}\sqrt[3]{-x+2}\sqrt{4x^2-12x+9}}$$

$$-\frac{33\sqrt[6]{2}\cdot 3^{\frac{3}{4}}\sqrt{\frac{2\sqrt[3]{2}(x^2-3x+2)^{\frac{2}{3}}-2^{\frac{2}{3}}\sqrt[3]{x^2-3x+2}+1}{\left(2^{\frac{2}{3}}\sqrt[3]{x^2-3x+2}+1+\sqrt{3}\right)^2}}\left(2^{\frac{2}{3}}\sqrt[3]{x^2-3x+2}+1\right)\sqrt[3]{x^2-3x+2}\sqrt{(2x-3)^2}F\left(\operatorname{asin}\left(\frac{2^{\frac{2}{3}}\sqrt[3]{x^2-3x+2}-\sqrt{3}+\cdots}{2^{\frac{2}{3}}\sqrt[3]{x^2-3x+2}+1+\sqrt{\cdots}}\right.\right.\cdots}{14\sqrt{\frac{2^{\frac{2}{3}}\sqrt[3]{x^2-3x+2}+1}{\left(2^{\frac{2}{3}}\sqrt[3]{x^2-3x+2}+1+\sqrt{3}\right)^2}}(-2x+3)\sqrt[3]{-x+1}\sqrt[3]{-x+2}\sqrt{4x^2-12x+9}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2/(1-x)**(1/3)/(2-x)**(1/3),x)
```

```
[Out] 3*x*(-x + 1)**(2/3)*(-x + 2)**(2/3)/7 + 45*(-x + 1)**(2/3)*(-x +
2)**(2/3)/28 - 99*2**(2/3)*(x**2 - 3*x + 2)**(1/3)*sqrt(4*x**2 -
12*x + 9)*sqrt((2*x - 3)**2)/(28*(-2*x + 3)*(-x + 1)**(1/3)*(-x +
 2)**(1/3)*(2**(2/3)*(x**2 - 3*x + 2)**(1/3) + 1 + sqrt(3))) + 99
*2**(2/3)*3**(1/4)*sqrt((2*2**(1/3)*(x**2 - 3*x + 2)**(2/3) - 2**
(2/3)*(x**2 - 3*x + 2)**(1/3) + 1)/(2**(2/3)*(x**2 - 3*x + 2)**(1
/3) + 1 + sqrt(3))**2)*sqrt(-sqrt(3) + 2)*(2**(2/3)*(x**2 - 3*x +
 2)**(1/3) + 1)*(x**2 - 3*x + 2)**(1/3)*sqrt((2*x - 3)**2)*ellipt
ic_e(asin((2**(2/3)*(x**2 - 3*x + 2)**(1/3) - sqrt(3) + 1)/(2**(2
/3)*(x**2 - 3*x + 2)**(1/3) + 1 + sqrt(3))), -7 - 4*sqrt(3))/(56*
sqrt((2**(2/3)*(x**2 - 3*x + 2)**(1/3) + 1)/(2**(2/3)*(x**2 - 3*x
 + 2)**(1/3) + 1 + sqrt(3))**2)*(-2*x + 3)*(-x + 1)**(1/3)*(-x +
2)**(1/3)*sqrt(4*x**2 - 12*x + 9)) - 33*2**(1/6)*3**(3/4)*sqrt((2
*2**(1/3)*(x**2 - 3*x + 2)**(2/3) - 2**(2/3)*(x**2 - 3*x + 2)**(1
/3) + 1)/(2**(2/3)*(x**2 - 3*x + 2)**(1/3) + 1 + sqrt(3))**2)*(2*
*(2/3)*(x**2 - 3*x + 2)**(1/3) + 1)*(x**2 - 3*x + 2)**(1/3)*sqrt(
(2*x - 3)**2)*elliptic_f(asin((2**(2/3)*(x**2 - 3*x + 2)**(1/3) -
```

```
 sqrt(3) + 1)/(2**(2/3)*(x**2 - 3*x + 2)**(1/3) + 1 + sqrt(3))),
-7 - 4*sqrt(3))/(14*sqrt((2**(2/3)*(x**2 - 3*x + 2)**(1/3) + 1)/(
2**(2/3)*(x**2 - 3*x + 2)**(1/3) + 1 + sqrt(3))**2)*(-2*x + 3)*(-
x + 1)**(1/3)*(-x + 2)**(1/3)*sqrt(4*x**2 - 12*x + 9))
```

Mathematica [C] time = 0.0407959, size = 44, normalized size = 0.06

$$\frac{3}{28}(1-x)^{2/3}\left((2-x)^{2/3}(4x+15)-33\,{}_2F_1\left(\frac{1}{3},\frac{2}{3};\frac{5}{3};x-1\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^2/((1 - x)^(1/3)*(2 - x)^(1/3)),x]

[Out] (3*(1 - x)^(2/3)*((2 - x)^(2/3)*(15 + 4*x) - 33*Hypergeometric2F1
[1/3, 2/3, 5/3, -1 + x]))/28
```

Maple [F] time = 0.099, size = 0, normalized size = 0.

$$\int x^2\frac{1}{\sqrt[3]{1-x}}\frac{1}{\sqrt[3]{2-x}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2/(1-x)^(1/3)/(2-x)^(1/3),x)

[Out] int(x^2/(1-x)^(1/3)/(2-x)^(1/3),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x^2}{(-x+2)^{\frac{1}{3}}(-x+1)^{\frac{1}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2/((-x + 2)^(1/3)*(-x + 1)^(1/3)),x, algorithm="maxima")

[Out] integrate(x^2/((-x + 2)^(1/3)*(-x + 1)^(1/3)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{x^2}{(-x+2)^{\frac{1}{3}}(-x+1)^{\frac{1}{3}}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2/((-x + 2)^(1/3)*(-x + 1)^(1/3)),x, algorithm="fricas")

[Out] integral(x^2/((-x + 2)^(1/3)*(-x + 1)^(1/3)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x^2}{\sqrt[3]{-x+1}\sqrt[3]{-x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2/(1-x)**(1/3)/(2-x)**(1/3),x)
```

```
[Out] Integral(x**2/((-x + 1)**(1/3)*(-x + 2)**(1/3)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x^2}{(-x+2)^{\frac{1}{3}}(-x+1)^{\frac{1}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2/((-x + 2)^(1/3)*(-x + 1)^(1/3)),x, algorithm="giac")
```

```
[Out] integrate(x^2/((-x + 2)^(1/3)*(-x + 1)^(1/3)), x)
```

3.866 $\int \frac{x}{\sqrt[3]{1-x}\sqrt[3]{2-x}}\,dx$

Optimal. Leaf size=695

$$-\frac{9\sqrt{(3-2x)^2}\sqrt{(2x-3)^2}\sqrt[3]{x^2-3x+2}}{2\sqrt[3]{2}(3-2x)\sqrt[3]{1-x}\sqrt[3]{2-x}\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)}$$

$$-\frac{3\,3^{3/4}\sqrt{(2x-3)^2}\sqrt[3]{x^2-3x+2}\left(2^{2/3}\sqrt[3]{x^2-3x+2}+1\right)\sqrt{\frac{2\sqrt[3]{2}(x^2-3x+2)^{2/3}-2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}F\left(\sin^{-1}\left(\frac{2^{2/3}\sqrt[3]{x^2-3x+2}-\sqrt{3}}{2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}}\right.\right.}{2^{5/6}(3-2x)\sqrt{(3-2x)^2}\sqrt[3]{1-x}\sqrt[3]{2-x}\sqrt{\frac{2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}}$$

$$+\frac{9\sqrt[4]{3}\sqrt{2-\sqrt{3}}\sqrt{(2x-3)^2}\sqrt[3]{x^2-3x+2}\left(2^{2/3}\sqrt[3]{x^2-3x+2}+1\right)\sqrt{\frac{2\sqrt[3]{2}(x^2-3x+2)^{2/3}-2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}E\left(\sin^{-1}\left(\frac{2^{2/3}\sqrt[3]{x^2-3x}}{2^{2/3}\sqrt[3]{x^2-3x}}\right.\right.}{4\sqrt[3]{2}(3-2x)\sqrt{(3-2x)^2}\sqrt[3]{1-x}\sqrt[3]{2-x}\sqrt{\frac{2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}}$$

$$+\frac{3}{4}(1-x)^{2/3}(2-x)^{2/3}$$

```
[Out] (3*(1 - x)^(2/3)*(2 - x)^(2/3))/4 - (9*Sqrt[(3 - 2*x)^2]*Sqrt[(-3
 + 2*x)^2]*(2 - 3*x + x^2)^(1/3))/(2*2^(1/3)*(3 - 2*x)*(1 - x)^(1
/3)*(2 - x)^(1/3)*(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3)))
+ (9*3^(1/4)*Sqrt[2 - Sqrt[3]]*Sqrt[(-3 + 2*x)^2]*(2 - 3*x + x^2)
^(1/3)*(1 + 2^(2/3)*(2 - 3*x + x^2)^(1/3))*Sqrt[(1 - 2^(2/3)*(2 -
 3*x + x^2)^(1/3) + 2*2^(1/3)*(2 - 3*x + x^2)^(2/3))/(1 + Sqrt[3]
 + 2^(2/3)*(2 - 3*x + x^2)^(1/3))^2]*EllipticE[ArcSin[(1 - Sqrt[3
] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*
x + x^2)^(1/3))], -7 - 4*Sqrt[3]])/(4*2^(1/3)*(3 - 2*x)*Sqrt[(3 -
 2*x)^2]*(1 - x)^(1/3)*(2 - x)^(1/3)*Sqrt[(1 + 2^(2/3)*(2 - 3*x +
 x^2)^(1/3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))^2]) -
(3*3^(3/4)*Sqrt[(-3 + 2*x)^2]*(2 - 3*x + x^2)^(1/3)*(1 + 2^(2/3)*
(2 - 3*x + x^2)^(1/3))*Sqrt[(1 - 2^(2/3)*(2 - 3*x + x^2)^(1/3) +
2*2^(1/3)*(2 - 3*x + x^2)^(2/3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x
+ x^2)^(1/3))^2]*EllipticF[ArcSin[(1 - Sqrt[3] + 2^(2/3)*(2 - 3*x
 + x^2)^(1/3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))], -7
 - 4*Sqrt[3]])/(2^(5/6)*(3 - 2*x)*Sqrt[(3 - 2*x)^2]*(1 - x)^(1/3)
*(2 - x)^(1/3)*Sqrt[(1 + 2^(2/3)*(2 - 3*x + x^2)^(1/3))/(1 + Sqrt
[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))^2])
```

Rubi [A] time = 0.759017, antiderivative size = 695, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.3$

$$-\frac{9\sqrt{(3-2x)^2}\sqrt{(2x-3)^2}\sqrt[3]{x^2-3x+2}}{2\sqrt[3]{2}(3-2x)\sqrt[3]{1-x}\sqrt[3]{2-x}\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)}$$

$$-\frac{3\,3^{3/4}\sqrt{(2x-3)^2}\sqrt[3]{x^2-3x+2}\left(2^{2/3}\sqrt[3]{x^2-3x+2}+1\right)\sqrt{\frac{2\sqrt[3]{2}(x^2-3x+2)^{2/3}-2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}F\left(\sin^{-1}\left(\frac{2^{2/3}\sqrt[3]{x^2-3x+2}-\sqrt{3}}{2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}}\right.\right.}{2^{5/6}(3-2x)\sqrt{(3-2x)^2}\sqrt[3]{1-x}\sqrt[3]{2-x}\sqrt{\frac{2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}}$$

$$+\frac{9\sqrt[4]{3}\sqrt{2-\sqrt{3}}\sqrt{(2x-3)^2}\sqrt[3]{x^2-3x+2}\left(2^{2/3}\sqrt[3]{x^2-3x+2}+1\right)\sqrt{\frac{2\sqrt[3]{2}(x^2-3x+2)^{2/3}-2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}E\left(\sin^{-1}\left(\frac{2^{2/3}\sqrt[3]{x^2-3x}}{2^{2/3}\sqrt[3]{x^2-3x}}\right.\right.}{4\sqrt[3]{2}(3-2x)\sqrt{(3-2x)^2}\sqrt[3]{1-x}\sqrt[3]{2-x}\sqrt{\frac{2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}}$$

$$+\frac{3}{4}(1-x)^{2/3}(2-x)^{2/3}$$

Warning: Unable to verify antiderivative.

```
[In]  Int[x/((1 - x)^(1/3)*(2 - x)^(1/3)),x]
```

```
[Out] (3*(1 - x)^(2/3)*(2 - x)^(2/3))/4 - (9*Sqrt[(3 - 2*x)^2]*Sqrt[(-3
 + 2*x)^2]*(2 - 3*x + x^2)^(1/3))/(2*2^(1/3)*(3 - 2*x)*(1 - x)^(1
/3)*(2 - x)^(1/3)*(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3)))
+ (9*3^(1/4)*Sqrt[2 - Sqrt[3]]*Sqrt[(-3 + 2*x)^2]*(2 - 3*x + x^2)
^(1/3)*(1 + 2^(2/3)*(2 - 3*x + x^2)^(1/3))*Sqrt[(1 - 2^(2/3)*(2 -
 3*x + x^2)^(1/3) + 2*2^(1/3)*(2 - 3*x + x^2)^(2/3))/(1 + Sqrt[3]
 + 2^(2/3)*(2 - 3*x + x^2)^(1/3))^2]*EllipticE[ArcSin[(1 - Sqrt[3
] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*
x + x^2)^(1/3))], -7 - 4*Sqrt[3]])/(4*2^(1/3)*(3 - 2*x)*Sqrt[(3 -
 2*x)^2]*(1 - x)^(1/3)*(2 - x)^(1/3)*Sqrt[(1 + 2^(2/3)*(2 - 3*x +
 x^2)^(1/3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))^2]) -
(3*3^(3/4)*Sqrt[(-3 + 2*x)^2]*(2 - 3*x + x^2)^(1/3)*(1 + 2^(2/3)*
(2 - 3*x + x^2)^(1/3))*Sqrt[(1 - 2^(2/3)*(2 - 3*x + x^2)^(1/3) +
2*2^(1/3)*(2 - 3*x + x^2)^(2/3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x
+ x^2)^(1/3))^2]*EllipticF[ArcSin[(1 - Sqrt[3] + 2^(2/3)*(2 - 3*x
 + x^2)^(1/3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))], -7
 - 4*Sqrt[3]])/(2^(5/6)*(3 - 2*x)*Sqrt[(3 - 2*x)^2]*(1 - x)^(1/3)
*(2 - x)^(1/3)*Sqrt[(1 + 2^(2/3)*(2 - 3*x + x^2)^(1/3))/(1 + Sqrt
[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))^2])
```

Rubi in Sympy [A] time = 25.5274, size = 632, normalized size = 0.91

$$\frac{3(-x+1)^{\frac{2}{3}}(-x+2)^{\frac{2}{3}}}{4} - \frac{9\cdot 2^{\frac{2}{3}}\sqrt[3]{x^2-3x+2}\sqrt{4x^2-12x+9}\sqrt{(2x-3)^2}}{4(-2x+3)\sqrt[3]{-x+1}\sqrt[3]{-x+2}\left(2^{\frac{2}{3}}\sqrt[3]{x^2-3x+2}+1+\sqrt{3}\right)}$$

$$+\frac{9\cdot 2^{\frac{2}{3}}\sqrt[4]{3}\sqrt{\frac{2\sqrt[3]{2}(x^2-3x+2)^{\frac{2}{3}}-2^{\frac{2}{3}}\sqrt[3]{x^2-3x+2}+1}{\left(2^{\frac{2}{3}}\sqrt[3]{x^2-3x+2}+1+\sqrt{3}\right)^2}}\sqrt{-\sqrt{3}+2}\left(2^{\frac{2}{3}}\sqrt[3]{x^2-3x+2}+1\right)\sqrt[3]{x^2-3x+2}\sqrt{(2x-3)^2}E\left(\operatorname{asin}\left(\frac{2^{\frac{2}{3}}\sqrt[3]{x^2-3x\cdots}}{2^{\frac{2}{3}}\sqrt[3]{x^2-3x\cdots}}\cdots\right.\right.}{8\sqrt{\frac{2^{\frac{2}{3}}\sqrt[3]{x^2-3x+2}+1}{\left(2^{\frac{2}{3}}\sqrt[3]{x^2-3x+2}+1+\sqrt{3}\right)^2}}(-2x+3)\sqrt[3]{-x+1}\sqrt[3]{-x+2}\sqrt{4x^2-12x+9}}$$

$$-\frac{3\sqrt[6]{2}\cdot 3^{\frac{3}{4}}\sqrt{\frac{2\sqrt[3]{2}(x^2-3x+2)^{\frac{2}{3}}-2^{\frac{2}{3}}\sqrt[3]{x^2-3x+2}+1}{\left(2^{\frac{2}{3}}\sqrt[3]{x^2-3x+2}+1+\sqrt{3}\right)^2}}\left(2^{\frac{2}{3}}\sqrt[3]{x^2-3x+2}+1\right)\sqrt[3]{x^2-3x+2}\sqrt{(2x-3)^2}F\left(\operatorname{asin}\left(\frac{2^{\frac{2}{3}}\sqrt[3]{x^2-3x+2}-\sqrt{3}+1}{2^{\frac{2}{3}}\sqrt[3]{x^2-3x+2}+1+\sqrt{3}}\cdots\right.\right.}{2\sqrt{\frac{2^{\frac{2}{3}}\sqrt[3]{x^2-3x+2}+1}{\left(2^{\frac{2}{3}}\sqrt[3]{x^2-3x+2}+1+\sqrt{3}\right)^2}}(-2x+3)\sqrt[3]{-x+1}\sqrt[3]{-x+2}\sqrt{4x^2-12x+9}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x/(1-x)**(1/3)/(2-x)**(1/3),x)
```

```
[Out] 3*(-x + 1)**(2/3)*(-x + 2)**(2/3)/4 - 9*2**(2/3)*(x**2 - 3*x + 2)
**(1/3)*sqrt(4*x**2 - 12*x + 9)*sqrt((2*x - 3)**2)/(4*(-2*x + 3)*
(-x + 1)**(1/3)*(-x + 2)**(1/3)*(2**(2/3)*(x**2 - 3*x + 2)**(1/3)
 + 1 + sqrt(3))) + 9*2**(2/3)*3**(1/4)*sqrt((2*2**(1/3)*(x**2 - 3
*x + 2)**(2/3) - 2**(2/3)*(x**2 - 3*x + 2)**(1/3) + 1)/(2**(2/3)*
(x**2 - 3*x + 2)**(1/3) + 1 + sqrt(3))**2)*sqrt(-sqrt(3) + 2)*(2*
*(2/3)*(x**2 - 3*x + 2)**(1/3) + 1)*(x**2 - 3*x + 2)**(1/3)*sqrt(
(2*x - 3)**2)*elliptic_e(asin((2**(2/3)*(x**2 - 3*x + 2)**(1/3) -
 sqrt(3) + 1)/(2**(2/3)*(x**2 - 3*x + 2)**(1/3) + 1 + sqrt(3))),
-7 - 4*sqrt(3))/(8*sqrt((2**(2/3)*(x**2 - 3*x + 2)**(1/3) + 1)/(2
**(2/3)*(x**2 - 3*x + 2)**(1/3) + 1 + sqrt(3))**2)*(-2*x + 3)*(-x
 + 1)**(1/3)*(-x + 2)**(1/3)*sqrt(4*x**2 - 12*x + 9)) - 3*2**(1/6
)*3**(3/4)*sqrt((2*2**(1/3)*(x**2 - 3*x + 2)**(2/3) - 2**(2/3)*(x
**2 - 3*x + 2)**(1/3) + 1)/(2**(2/3)*(x**2 - 3*x + 2)**(1/3) + 1
+ sqrt(3))**2)*(2**(2/3)*(x**2 - 3*x + 2)**(1/3) + 1)*(x**2 - 3*x
 + 2)**(1/3)*sqrt((2*x - 3)**2)*elliptic_f(asin((2**(2/3)*(x**2 -
 3*x + 2)**(1/3) - sqrt(3) + 1)/(2**(2/3)*(x**2 - 3*x + 2)**(1/3)
 + 1 + sqrt(3))), -7 - 4*sqrt(3))/(2*sqrt((2**(2/3)*(x**2 - 3*x +
 2)**(1/3) + 1)/(2**(2/3)*(x**2 - 3*x + 2)**(1/3) + 1 + sqrt(3))*
*2)*(-2*x + 3)*(-x + 1)**(1/3)*(-x + 2)**(1/3)*sqrt(4*x**2 - 12*x
 + 9))
```

Mathematica [C] time = 0.0271099, size = 38, normalized size = 0.05

$$\frac{3}{4}(1-x)^{2/3}\left((2-x)^{2/3}-3\,{}_2F_1\left(\frac{1}{3},\frac{2}{3};\frac{5}{3};x-1\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[x/((1 - x)^(1/3)*(2 - x)^(1/3)),x]
```

```
[Out] (3*(1 - x)^(2/3)*((2 - x)^(2/3) - 3*Hypergeometric2F1[1/3, 2/3, 5
/3, -1 + x]))/4
```

Maple [F] time = 0.097, size = 0, normalized size = 0.

$$\int x\frac{1}{\sqrt[3]{1-x}}\frac{1}{\sqrt[3]{2-x}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x/(1-x)^(1/3)/(2-x)^(1/3),x)
```

```
[Out] int(x/(1-x)^(1/3)/(2-x)^(1/3),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x}{(-x+2)^{\frac{1}{3}}(-x+1)^{\frac{1}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/((-x + 2)^(1/3)*(-x + 1)^(1/3)),x, algorithm="maxima")
```

```
[Out] integrate(x/((-x + 2)^(1/3)*(-x + 1)^(1/3)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{x}{(-x+2)^{\frac{1}{3}}(-x+1)^{\frac{1}{3}}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/((-x + 2)^(1/3)*(-x + 1)^(1/3)),x, algorithm="fricas")
```

```
[Out] integral(x/((-x + 2)^(1/3)*(-x + 1)^(1/3)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x}{\sqrt[3]{-x+1}\sqrt[3]{-x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/(1-x)**(1/3)/(2-x)**(1/3),x)

[Out] Integral(x/((-x + 1)**(1/3)*(-x + 2)**(1/3)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x}{(-x+2)^{\frac{1}{3}}(-x+1)^{\frac{1}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/((-x + 2)^(1/3)*(-x + 1)^(1/3)),x, algorithm="giac")

[Out] integrate(x/((-x + 2)^(1/3)*(-x + 1)^(1/3)), x)
```

3.867 $\int \frac{1}{\sqrt[3]{1-x}\sqrt[3]{2-x}}\,dx$

Optimal. Leaf size=671

$$-\frac{3\sqrt{(3-2x)^2}\sqrt{(2x-3)^2}\sqrt[3]{x^2-3x+2}}{\sqrt[3]{2}(3-2x)\sqrt[3]{1-x}\sqrt[3]{2-x}\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)}-\frac{\sqrt[6]{2}\,3^{3/4}\sqrt{(2x-3)^2}\sqrt[3]{x^2-3x+2}\left(2^{2/3}\sqrt[3]{x^2-3x+2}+1\right)\sqrt{\frac{2\sqrt[3]{2}(x^2-3x+2)^{2/3}-2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}F\left(\sin^{-1}\left(\frac{2^{2/3}\sqrt[3]{x^2-3x+2}-\sqrt{3}+1}{2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1}\right)\middle|-7-4\sqrt{3}\right)}{(3-2x)\sqrt{(3-2x)^2}\sqrt[3]{1-x}\sqrt[3]{2-x}\sqrt{\frac{2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}}+\frac{3\sqrt[4]{3}\sqrt{2-\sqrt{3}}\sqrt{(2x-3)^2}\sqrt[3]{x^2-3x+2}\left(2^{2/3}\sqrt[3]{x^2-3x+2}+1\right)\sqrt{\frac{2\sqrt[3]{2}(x^2-3x+2)^{2/3}-2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}E\left(\sin^{-1}\left(\frac{2^{2/3}\sqrt[3]{x^2-3x+2}-\sqrt{3}+1}{2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1}\right)\middle|-7-4\sqrt{3}\right)}{2\sqrt[3]{2}(3-2x)\sqrt{(3-2x)^2}\sqrt[3]{1-x}\sqrt[3]{2-x}\sqrt{\frac{2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}}$$

```
[Out] (-3*Sqrt[(3 - 2*x)^2]*Sqrt[(-3 + 2*x)^2]*(2 - 3*x + x^2)^(1/3))/(
2^(1/3)*(3 - 2*x)*(1 - x)^(1/3)*(2 - x)^(1/3)*(1 + Sqrt[3] + 2^(2
/3)*(2 - 3*x + x^2)^(1/3))) + (3*3^(1/4)*Sqrt[2 - Sqrt[3]]*Sqrt[(
-3 + 2*x)^2]*(2 - 3*x + x^2)^(1/3)*(1 + 2^(2/3)*(2 - 3*x + x^2)^(
1/3))*Sqrt[(1 - 2^(2/3)*(2 - 3*x + x^2)^(1/3) + 2*2^(1/3)*(2 - 3*
x + x^2)^(2/3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))^2]*
EllipticE[ArcSin[(1 - Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))/(1
 + Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))], -7 - 4*Sqrt[3]])/(2
*2^(1/3)*(3 - 2*x)*Sqrt[(3 - 2*x)^2]*(1 - x)^(1/3)*(2 - x)^(1/3)*
Sqrt[(1 + 2^(2/3)*(2 - 3*x + x^2)^(1/3))/(1 + Sqrt[3] + 2^(2/3)*(
2 - 3*x + x^2)^(1/3))^2]) - (2^(1/6)*3^(3/4)*Sqrt[(-3 + 2*x)^2]*(
2 - 3*x + x^2)^(1/3)*(1 + 2^(2/3)*(2 - 3*x + x^2)^(1/3))*Sqrt[(1
- 2^(2/3)*(2 - 3*x + x^2)^(1/3) + 2*2^(1/3)*(2 - 3*x + x^2)^(2/3)
)/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))^2]*EllipticF[ArcS
in[(1 - Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))/(1 + Sqrt[3] + 2
^(2/3)*(2 - 3*x + x^2)^(1/3))], -7 - 4*Sqrt[3]])/((3 - 2*x)*Sqrt[
(3 - 2*x)^2]*(1 - x)^(1/3)*(2 - x)^(1/3)*Sqrt[(1 + 2^(2/3)*(2 - 3
*x + x^2)^(1/3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))^2]
)
```

Rubi [A] time = 0.599281, antiderivative size = 671, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}} = 0.263$

$$-\frac{3\sqrt{(3-2x)^2}\sqrt{(2x-3)^2}\sqrt[3]{x^2-3x+2}}{\sqrt[3]{2}(3-2x)\sqrt[3]{1-x}\sqrt[3]{2-x}\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)}-\frac{\sqrt[6]{2}\,3^{3/4}\sqrt{(2x-3)^2}\sqrt[3]{x^2-3x+2}\left(2^{2/3}\sqrt[3]{x^2-3x+2}+1\right)\sqrt{\frac{2\sqrt[3]{2}(x^2-3x+2)^{2/3}-2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}F\left(\sin^{-1}\left(\frac{2^{2/3}\sqrt[3]{x^2-3x+2}-\sqrt{3}+1}{2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1}\right)\middle|-7-4\sqrt{3}\right)}{(3-2x)\sqrt{(3-2x)^2}\sqrt[3]{1-x}\sqrt[3]{2-x}\sqrt{\frac{2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}}+\frac{3\sqrt[4]{3}\sqrt{2-\sqrt{3}}\sqrt{(2x-3)^2}\sqrt[3]{x^2-3x+2}\left(2^{2/3}\sqrt[3]{x^2-3x+2}+1\right)\sqrt{\frac{2\sqrt[3]{2}(x^2-3x+2)^{2/3}-2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}E\left(\sin^{-1}\left(\frac{2^{2/3}\sqrt[3]{x^2-3x+2}-\sqrt{3}+1}{2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1}\right)\middle|-7-4\sqrt{3}\right)}{2\sqrt[3]{2}(3-2x)\sqrt{(3-2x)^2}\sqrt[3]{1-x}\sqrt[3]{2-x}\sqrt{\frac{2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}}$$

Warning: Unable to verify antiderivative.

```
[In]  Int[1/((1 - x)^(1/3)*(2 - x)^(1/3)),x]
```

```
[Out] (-3*Sqrt[(3 - 2*x)^2]*Sqrt[(-3 + 2*x)^2]*(2 - 3*x + x^2)^(1/3))/(
2^(1/3)*(3 - 2*x)*(1 - x)^(1/3)*(2 - x)^(1/3)*(1 + Sqrt[3] + 2^(2
/3)*(2 - 3*x + x^2)^(1/3))) + (3*3^(1/4)*Sqrt[2 - Sqrt[3]]*Sqrt[(
-3 + 2*x)^2]*(2 - 3*x + x^2)^(1/3)*(1 + 2^(2/3)*(2 - 3*x + x^2)^(
1/3))*Sqrt[(1 - 2^(2/3)*(2 - 3*x + x^2)^(1/3) + 2*2^(1/3)*(2 - 3*
x + x^2)^(2/3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))^2]*
EllipticE[ArcSin[(1 - Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))/(1
 + Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))], -7 - 4*Sqrt[3]])/(2
*2^(1/3)*(3 - 2*x)*Sqrt[(3 - 2*x)^2]*(1 - x)^(1/3)*(2 - x)^(1/3)*
Sqrt[(1 + 2^(2/3)*(2 - 3*x + x^2)^(1/3))/(1 + Sqrt[3] + 2^(2/3)*(
2 - 3*x + x^2)^(1/3))^2]) - (2^(1/6)*3^(3/4)*Sqrt[(-3 + 2*x)^2]*(
2 - 3*x + x^2)^(1/3)*(1 + 2^(2/3)*(2 - 3*x + x^2)^(1/3))*Sqrt[(1
- 2^(2/3)*(2 - 3*x + x^2)^(1/3) + 2*2^(1/3)*(2 - 3*x + x^2)^(2/3)
)/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))^2]*EllipticF[ArcS
in[(1 - Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))/(1 + Sqrt[3] + 2
^(2/3)*(2 - 3*x + x^2)^(1/3))], -7 - 4*Sqrt[3]])/((3 - 2*x)*Sqrt[
(3 - 2*x)^2]*(1 - x)^(1/3)*(2 - x)^(1/3)*Sqrt[(1 + 2^(2/3)*(2 - 3
*x + x^2)^(1/3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))^2]
)
```

Rubi in Sympy [A] time = 21.2315, size = 612, normalized size = 0.91

$$-\frac{3\cdot 2^{\frac{2}{3}}\sqrt[3]{x^2-3x+2}\sqrt{4x^2-12x+9}\sqrt{(2x-3)^2}}{2(-2x+3)\sqrt[3]{-x+1}\sqrt[3]{-x+2}\left(2^{\frac{2}{3}}\sqrt[3]{x^2-3x+2}+1+\sqrt{3}\right)}$$

$$+\frac{3\cdot 2^{\frac{2}{3}}\sqrt[4]{3}\sqrt{\frac{2\sqrt[3]{2}(x^2-3x+2)^{\frac{2}{3}}-2^{\frac{2}{3}}\sqrt[3]{x^2-3x+2}+1}{\left(2^{\frac{2}{3}}\sqrt[3]{x^2-3x+2}+1+\sqrt{3}\right)^2}}\sqrt{-\sqrt{3}+2}\left(2^{\frac{2}{3}}\sqrt[3]{x^2-3x+2}+1\right)\sqrt[3]{x^2-3x+2}\sqrt{(2x-3)^2}E\left(\operatorname{asin}\left(\frac{2^{\frac{2}{3}}\sqrt[3]{x^2-3x}}{2^{\frac{2}{3}}\sqrt[3]{x^2-3x}}\right.\right.}{4\sqrt{\frac{2^{\frac{2}{3}}\sqrt[3]{x^2-3x+2}+1}{\left(2^{\frac{2}{3}}\sqrt[3]{x^2-3x+2}+1+\sqrt{3}\right)^2}}(-2x+3)\sqrt[3]{-x+1}\sqrt[3]{-x+2}\sqrt{4x^2-12x+9}}$$

$$-\frac{\sqrt[6]{2}\cdot 3^{\frac{3}{4}}\sqrt{\frac{2\sqrt[3]{2}(x^2-3x+2)^{\frac{2}{3}}-2^{\frac{2}{3}}\sqrt[3]{x^2-3x+2}+1}{\left(2^{\frac{2}{3}}\sqrt[3]{x^2-3x+2}+1+\sqrt{3}\right)^2}}\left(2^{\frac{2}{3}}\sqrt[3]{x^2-3x+2}+1\right)\sqrt[3]{x^2-3x+2}\sqrt{(2x-3)^2}F\left(\operatorname{asin}\left(\frac{2^{\frac{2}{3}}\sqrt[3]{x^2-3x+2}-\sqrt{3}+1}{2^{\frac{2}{3}}\sqrt[3]{x^2-3x+2}+1+\sqrt{3}}\right)\right.}{\sqrt{\frac{2^{\frac{2}{3}}\sqrt[3]{x^2-3x+2}+1}{\left(2^{\frac{2}{3}}\sqrt[3]{x^2-3x+2}+1+\sqrt{3}\right)^2}}(-2x+3)\sqrt[3]{-x+1}\sqrt[3]{-x+2}\sqrt{4x^2-12x+9}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-x)**(1/3)/(2-x)**(1/3),x)
```

```
[Out] -3*2**(2/3)*(x**2 - 3*x + 2)**(1/3)*sqrt(4*x**2 - 12*x + 9)*sqrt(
(2*x - 3)**2)/(2*(-2*x + 3)*(-x + 1)**(1/3)*(-x + 2)**(1/3)*(2**(
2/3)*(x**2 - 3*x + 2)**(1/3) + 1 + sqrt(3))) + 3*2**(2/3)*3**(1/4
)*sqrt((2*2**(1/3)*(x**2 - 3*x + 2)**(2/3) - 2**(2/3)*(x**2 - 3*x
 + 2)**(1/3) + 1)/(2**(2/3)*(x**2 - 3*x + 2)**(1/3) + 1 + sqrt(3)
)**2)*sqrt(-sqrt(3) + 2)*(2**(2/3)*(x**2 - 3*x + 2)**(1/3) + 1)*(
x**2 - 3*x + 2)**(1/3)*sqrt((2*x - 3)**2)*elliptic_e(asin((2**(2/
3)*(x**2 - 3*x + 2)**(1/3) - sqrt(3) + 1)/(2**(2/3)*(x**2 - 3*x +
 2)**(1/3) + 1 + sqrt(3))), -7 - 4*sqrt(3))/(4*sqrt((2**(2/3)*(x*
*2 - 3*x + 2)**(1/3) + 1)/(2**(2/3)*(x**2 - 3*x + 2)**(1/3) + 1 +
 sqrt(3))**2)*(-2*x + 3)*(-x + 1)**(1/3)*(-x + 2)**(1/3)*sqrt(4*x
**2 - 12*x + 9)) - 2**(1/6)*3**(3/4)*sqrt((2*2**(1/3)*(x**2 - 3*x
 + 2)**(2/3) - 2**(2/3)*(x**2 - 3*x + 2)**(1/3) + 1)/(2**(2/3)*(x
**2 - 3*x + 2)**(1/3) + 1 + sqrt(3))**2)*(2**(2/3)*(x**2 - 3*x +
2)**(1/3) + 1)*(x**2 - 3*x + 2)**(1/3)*sqrt((2*x - 3)**2)*ellipti
c_f(asin((2**(2/3)*(x**2 - 3*x + 2)**(1/3) - sqrt(3) + 1)/(2**(2/
3)*(x**2 - 3*x + 2)**(1/3) + 1 + sqrt(3))), -7 - 4*sqrt(3))/(sqrt
((2**(2/3)*(x**2 - 3*x + 2)**(1/3) + 1)/(2**(2/3)*(x**2 - 3*x + 2
)**(1/3) + 1 + sqrt(3))**2)*(-2*x + 3)*(-x + 1)**(1/3)*(-x + 2)**
(1/3)*sqrt(4*x**2 - 12*x + 9))
```

Mathematica [C] time = 0.014997, size = 26, normalized size = 0.04

$$-\frac{3}{2}(1-x)^{2/3}\,{}_2F_1\left(\frac{1}{3},\frac{2}{3};\frac{5}{3};x-1\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - x)^(1/3)*(2 - x)^(1/3)),x]
```

```
[Out] (-3*(1 - x)^(2/3)*Hypergeometric2F1[1/3, 2/3, 5/3, -1 + x])/2
```

Maple [F] time = 0.053, size = 0, normalized size = 0.

$$\int 1\frac{1}{\sqrt[3]{1-x}}\frac{1}{\sqrt[3]{2-x}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-x)^(1/3)/(2-x)^(1/3),x)
```

```
[Out] int(1/(1-x)^(1/3)/(2-x)^(1/3),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(-x+2)^{\frac{1}{3}}(-x+1)^{\frac{1}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((-x + 2)^(1/3)*(-x + 1)^(1/3)),x, algorithm="maxima")
```

```
[Out] integrate(1/((-x + 2)^(1/3)*(-x + 1)^(1/3)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{1}{(-x+2)^{\frac{1}{3}}(-x+1)^{\frac{1}{3}}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((-x + 2)^(1/3)*(-x + 1)^(1/3)),x, algorithm="fricas")
```

```
[Out] integral(1/((-x + 2)^(1/3)*(-x + 1)^(1/3)), x)
```

Sympy [A] time = 4.03536, size = 41, normalized size = 0.06

$$-\frac{(-1)^{\frac{2}{3}}(x-1)^{\frac{2}{3}}\,\Gamma\left(\frac{2}{3}\right)\,{}_2F_1\left(\begin{matrix}\frac{1}{3},\frac{2}{3}\\ \frac{5}{3}\end{matrix}\middle|(x-1)\,e^{2i\pi}\right)}{\Gamma\left(\frac{5}{3}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-x)**(1/3)/(2-x)**(1/3),x)
```

```
[Out] -(-1)**(2/3)*(x - 1)**(2/3)*gamma(2/3)*hyper((1/3, 2/3), (5/3,),
(x - 1)*exp_polar(2*I*pi))/gamma(5/3)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(-x+2)^{\frac{1}{3}}(-x+1)^{\frac{1}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((-x + 2)^(1/3)*(-x + 1)^(1/3)),x, algorithm="giac")
```

```
[Out] integrate(1/((-x + 2)^(1/3)*(-x + 1)^(1/3)), x)
```

3.868 $\int \frac{1}{\sqrt[3]{1-x}\sqrt[3]{2-x}x}\,dx$

Optimal. Leaf size=99

$$\frac{3\log\left(\frac{(2-x)^{2/3}}{2^{2/3}}-\sqrt[3]{1-x}\right)}{4\sqrt[3]{2}}-\frac{\log(x)}{2\sqrt[3]{2}}-\frac{\sqrt{3}\tan^{-1}\left(\frac{\sqrt[3]{2}(2-x)^{2/3}}{\sqrt{3}\sqrt[3]{1-x}}+\frac{1}{\sqrt{3}}\right)}{2\sqrt[3]{2}}$$

```
[Out] -(Sqrt[3]*ArcTan[1/Sqrt[3] + (2^(1/3)*(2 - x)^(2/3))/(Sqrt[3]*(1
- x)^(1/3))])/(2*2^(1/3)) + (3*Log[-(1 - x)^(1/3) + (2 - x)^(2/3)
/2^(2/3)])/(4*2^(1/3)) - Log[x]/(2*2^(1/3))
```

Rubi [A] time = 0.0631019, antiderivative size = 99, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{3\log\left(\frac{(2-x)^{2/3}}{2^{2/3}}-\sqrt[3]{1-x}\right)}{4\sqrt[3]{2}}-\frac{\log(x)}{2\sqrt[3]{2}}-\frac{\sqrt{3}\tan^{-1}\left(\frac{\sqrt[3]{2}(2-x)^{2/3}}{\sqrt{3}\sqrt[3]{1-x}}+\frac{1}{\sqrt{3}}\right)}{2\sqrt[3]{2}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - x)^(1/3)*(2 - x)^(1/3)*x),x]
```

```
[Out] -(Sqrt[3]*ArcTan[1/Sqrt[3] + (2^(1/3)*(2 - x)^(2/3))/(Sqrt[3]*(1
- x)^(1/3))])/(2*2^(1/3)) + (3*Log[-(1 - x)^(1/3) + (2 - x)^(2/3)
/2^(2/3)])/(4*2^(1/3)) - Log[x]/(2*2^(1/3))
```

Rubi in Sympy [A] time = 4.1441, size = 85, normalized size = 0.86

$$-\frac{2^{\frac{2}{3}}\log(x)}{4}+\frac{3\cdot 2^{\frac{2}{3}}\log\left(-\sqrt[3]{-x+1}+\frac{\sqrt[3]{2}(-x+2)^{\frac{2}{3}}}{2}\right)}{8}-\frac{2^{\frac{2}{3}}\sqrt{3}\,\mathrm{atan}\left(\frac{\sqrt{3}}{3}+\frac{\sqrt[3]{2}\sqrt{3}(-x+2)^{\frac{2}{3}}}{3\sqrt[3]{-x+1}}\right)}{4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-x)**(1/3)/(2-x)**(1/3)/x,x)
```

```
[Out] -2**(2/3)*log(x)/4 + 3*2**(2/3)*log(-(-x + 1)**(1/3) + 2**(1/3)*(
-x + 2)**(2/3)/2)/8 - 2**(2/3)*sqrt(3)*atan(sqrt(3)/3 + 2**(1/3)*
sqrt(3)*(-x + 2)**(2/3)/(3*(-x + 1)**(1/3)))/4
```

Mathematica [C] time = 0.170194, size = 115, normalized size = 1.16

$$\frac{15(1-x)^{2/3}F_1\left(\frac{2}{3};\frac{1}{3},1;\frac{5}{3};x-1,1-x\right)}{2\sqrt[3]{2-x}x\left((x-1)\left(3F_1\left(\frac{5}{3};\frac{1}{3},2;\frac{8}{3};x-1,1-x\right)-F_1\left(\frac{5}{3};\frac{4}{3},1;\frac{8}{3};x-1,1-x\right)\right)-5F_1\left(\frac{2}{3};\frac{1}{3},1;\frac{5}{3};x-1,1-x\right)\right)}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[1/((1 - x)^(1/3)*(2 - x)^(1/3)*x),x]
```

```
[Out] (15*(1 - x)^(2/3)*AppellF1[2/3, 1/3, 1, 5/3, -1 + x, 1 - x])/(2*(
2 - x)^(1/3)*x*(-5*AppellF1[2/3, 1/3, 1, 5/3, -1 + x, 1 - x] + (-
1 + x)*(3*AppellF1[5/3, 1/3, 2, 8/3, -1 + x, 1 - x] - AppellF1[5/
3, 4/3, 1, 8/3, -1 + x, 1 - x])))
```

Maple [F] time = 0.063, size = 0, normalized size = 0.

$$\int \frac{1}{x}\frac{1}{\sqrt[3]{1-x}}\frac{1}{\sqrt[3]{2-x}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-x)^(1/3)/(2-x)^(1/3)/x,x)
```

```
[Out] int(1/(1-x)^(1/3)/(2-x)^(1/3)/x,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{x(-x+2)^{\frac{1}{3}}(-x+1)^{\frac{1}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(x*(-x + 2)^(1/3)*(-x + 1)^(1/3)),x, algorithm="maxima")
```

```
[Out] integrate(1/(x*(-x + 2)^(1/3)*(-x + 1)^(1/3)), x)
```

Fricas [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(x*(-x + 2)^(1/3)*(-x + 1)^(1/3)),x, algorithm="fricas")
```

```
[Out] Timed out
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{x\sqrt[3]{-x+1}\sqrt[3]{-x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-x)**(1/3)/(2-x)**(1/3)/x,x)
```

```
[Out] Integral(1/(x*(-x + 1)**(1/3)*(-x + 2)**(1/3)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{x(-x+2)^{\frac{1}{3}}(-x+1)^{\frac{1}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(x*(-x + 2)^(1/3)*(-x + 1)^(1/3)),x, algorithm="giac")
```

```
[Out] integrate(1/(x*(-x + 2)^(1/3)*(-x + 1)^(1/3)), x)
```

3.869 $\int \frac{1}{\sqrt[3]{1-x}\sqrt[3]{2-x}x^2}\,dx$

Optimal. Leaf size=796

$$-\frac{\sqrt{3}\tan^{-1}\left(\frac{\sqrt[3]{2}(2-x)^{2/3}}{\sqrt{3}\sqrt[3]{1-x}}+\frac{1}{\sqrt{3}}\right)}{4\sqrt[3]{2}}$$

$$+\frac{\sqrt[4]{3}\sqrt{2-\sqrt{3}}\sqrt{(2x-3)^2}\sqrt[3]{x^2-3x+2}\left(2^{2/3}\sqrt[3]{x^2-3x+2}+1\right)\sqrt{\frac{2\sqrt[3]{2}(x^2-3x+2)^{2/3}-2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}E\left(\sin^{-1}\left(\frac{2^{2/3}\sqrt[3]{x^2-3x+}}{2^{2/3}\sqrt[3]{x^2-3x+}}\right)\right)}{4\sqrt[3]{2}(3-2x)\sqrt{(3-2x)^2}\sqrt[3]{1-x}\sqrt[3]{2-x}\sqrt{\frac{2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}}$$

$$-\frac{\sqrt{(2x-3)^2}\sqrt[3]{x^2-3x+2}\left(2^{2/3}\sqrt[3]{x^2-3x+2}+1\right)\sqrt{\frac{2\sqrt[3]{2}(x^2-3x+2)^{2/3}-2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}F\left(\sin^{-1}\left(\frac{2^{2/3}\sqrt[3]{x^2-3x+2}-\sqrt{3}+1}{2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1}\right)\middle|-\right)}{2^{5/6}\sqrt[4]{3}(3-2x)\sqrt{(3-2x)^2}\sqrt[3]{1-x}\sqrt[3]{2-x}\sqrt{\frac{2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}}$$

$$+\frac{3\log\left(\frac{(2-x)^{2/3}}{2^{2/3}}-\sqrt[3]{1-x}\right)}{8\sqrt[3]{2}}-\frac{\log(x)}{4\sqrt[3]{2}}-\frac{(1-x)^{2/3}(2-x)^{2/3}}{2x}$$

$$-\frac{\sqrt{(3-2x)^2}\sqrt{(2x-3)^2}\sqrt[3]{x^2-3x+2}}{2\sqrt[3]{2}(3-2x)\sqrt[3]{1-x}\sqrt[3]{2-x}\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)}$$

```
[Out] -((1 - x)^(2/3)*(2 - x)^(2/3))/(2*x) - (Sqrt[(3 - 2*x)^2]*Sqrt[(-
3 + 2*x)^2]*(2 - 3*x + x^2)^(1/3))/(2*2^(1/3)*(3 - 2*x)*(1 - x)^(
1/3)*(2 - x)^(1/3)*(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3)))
 - (Sqrt[3]*ArcTan[1/Sqrt[3] + (2^(1/3)*(2 - x)^(2/3))/(Sqrt[3]*(
1 - x)^(1/3))])/(4*2^(1/3)) + (3^(1/4)*Sqrt[2 - Sqrt[3]]*Sqrt[(-3
 + 2*x)^2]*(2 - 3*x + x^2)^(1/3)*(1 + 2^(2/3)*(2 - 3*x + x^2)^(1/
3))*Sqrt[(1 - 2^(2/3)*(2 - 3*x + x^2)^(1/3) + 2*2^(1/3)*(2 - 3*x
+ x^2)^(2/3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))^2]*El
lipticE[ArcSin[(1 - Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))/(1 +
 Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))], -7 - 4*Sqrt[3]])/(4*2
^(1/3)*(3 - 2*x)*Sqrt[(3 - 2*x)^2]*(1 - x)^(1/3)*(2 - x)^(1/3)*Sq
rt[(1 + 2^(2/3)*(2 - 3*x + x^2)^(1/3))/(1 + Sqrt[3] + 2^(2/3)*(2
- 3*x + x^2)^(1/3))^2]) - (Sqrt[(-3 + 2*x)^2]*(2 - 3*x + x^2)^(1/
3)*(1 + 2^(2/3)*(2 - 3*x + x^2)^(1/3))*Sqrt[(1 - 2^(2/3)*(2 - 3*x
 + x^2)^(1/3) + 2*2^(1/3)*(2 - 3*x + x^2)^(2/3))/(1 + Sqrt[3] + 2
^(2/3)*(2 - 3*x + x^2)^(1/3))^2]*EllipticF[ArcSin[(1 - Sqrt[3] +
2^(2/3)*(2 - 3*x + x^2)^(1/3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x +
x^2)^(1/3))], -7 - 4*Sqrt[3]])/(2^(5/6)*3^(1/4)*(3 - 2*x)*Sqrt[(3
 - 2*x)^2]*(1 - x)^(1/3)*(2 - x)^(1/3)*Sqrt[(1 + 2^(2/3)*(2 - 3*x
 + x^2)^(1/3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))^2])
+ (3*Log[-(1 - x)^(1/3) + (2 - x)^(2/3)/2^(2/3)])/(8*2^(1/3)) - L
og[x]/(4*2^(1/3))
```

Rubi [A] time = 1.03201, antiderivative size = 796, normalized size of antiderivative = 1., number of

steps used = 8, number of rules used = 8, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.364$

$$-\frac{\sqrt{3}\tan^{-1}\left(\frac{\sqrt[3]{2}(2-x)^{2/3}}{\sqrt{3}\sqrt[3]{1-x}}+\frac{1}{\sqrt{3}}\right)}{4\sqrt[3]{2}}+\frac{\sqrt[4]{3}\sqrt{2-\sqrt{3}}\sqrt{(2x-3)^2}\sqrt[3]{x^2-3x+2}\left(2^{2/3}\sqrt[3]{x^2-3x+2}+1\right)\sqrt{\frac{2\sqrt[3]{2}(x^2-3x+2)^{2/3}-2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}E\left(\sin^{-1}\left(\frac{2^{2/3}\sqrt[3]{x^2-3x+\ldots}}{2^{2/3}\sqrt[3]{x^2-3x+\ldots}}\right.\right.}{4\sqrt[3]{2}(3-2x)\sqrt{(3-2x)^2}\sqrt[3]{1-x}\sqrt[3]{2-x}\sqrt{\frac{2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}}-\frac{\sqrt{(2x-3)^2}\sqrt[3]{x^2-3x+2}\left(2^{2/3}\sqrt[3]{x^2-3x+2}+1\right)\sqrt{\frac{2\sqrt[3]{2}(x^2-3x+2)^{2/3}-2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}F\left(\sin^{-1}\left(\frac{2^{2/3}\sqrt[3]{x^2-3x+2}-\sqrt{3}+1}{2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1}\right)|-\ldots\right.}{2^{5/6}\sqrt[4]{3}(3-2x)\sqrt{(3-2x)^2}\sqrt[3]{1-x}\sqrt[3]{2-x}\sqrt{\frac{2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}}+\frac{3\log\left(\frac{(2-x)^{2/3}}{2^{2/3}}-\sqrt[3]{1-x}\right)}{8\sqrt[3]{2}}-\frac{\log(x)}{4\sqrt[3]{2}}-\frac{(1-x)^{2/3}(2-x)^{2/3}}{2x}-\frac{\sqrt{(3-2x)^2}\sqrt{(2x-3)^2}\sqrt[3]{x^2-3x+2}}{2\sqrt[3]{2}(3-2x)\sqrt[3]{1-x}\sqrt[3]{2-x}\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)}$$

Warning: Unable to verify antiderivative.

```
[In]  Int[1/((1 - x)^(1/3)*(2 - x)^(1/3)*x^2),x]
```

```
[Out] -((1 - x)^(2/3)*(2 - x)^(2/3))/(2*x) - (Sqrt[(3 - 2*x)^2]*Sqrt[(-
3 + 2*x)^2]*(2 - 3*x + x^2)^(1/3))/(2*2^(1/3)*(3 - 2*x)*(1 - x)^(
1/3)*(2 - x)^(1/3)*(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3)))
 - (Sqrt[3]*ArcTan[1/Sqrt[3] + (2^(1/3)*(2 - x)^(2/3))/(Sqrt[3]*(
1 - x)^(1/3))])/(4*2^(1/3)) + (3^(1/4)*Sqrt[2 - Sqrt[3]]*Sqrt[(-3
 + 2*x)^2]*(2 - 3*x + x^2)^(1/3)*(1 + 2^(2/3)*(2 - 3*x + x^2)^(1/
3))*Sqrt[(1 - 2^(2/3)*(2 - 3*x + x^2)^(1/3) + 2*2^(1/3)*(2 - 3*x
+ x^2)^(2/3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))^2]*El
lipticE[ArcSin[(1 - Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))/(1 +
 Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))], -7 - 4*Sqrt[3]])/(4*2
^(1/3)*(3 - 2*x)*Sqrt[(3 - 2*x)^2]*(1 - x)^(1/3)*(2 - x)^(1/3)*Sq
rt[(1 + 2^(2/3)*(2 - 3*x + x^2)^(1/3))/(1 + Sqrt[3] + 2^(2/3)*(2
- 3*x + x^2)^(1/3))^2]) - (Sqrt[(-3 + 2*x)^2]*(2 - 3*x + x^2)^(1/
3)*(1 + 2^(2/3)*(2 - 3*x + x^2)^(1/3))*Sqrt[(1 - 2^(2/3)*(2 - 3*x
 + x^2)^(1/3) + 2*2^(1/3)*(2 - 3*x + x^2)^(2/3))/(1 + Sqrt[3] + 2
^(2/3)*(2 - 3*x + x^2)^(1/3))^2]*EllipticF[ArcSin[(1 - Sqrt[3] +
2^(2/3)*(2 - 3*x + x^2)^(1/3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x +
x^2)^(1/3))], -7 - 4*Sqrt[3]])/(2^(5/6)*3^(1/4)*(3 - 2*x)*Sqrt[(3
 - 2*x)^2]*(1 - x)^(1/3)*(2 - x)^(1/3)*Sqrt[(1 + 2^(2/3)*(2 - 3*x
 + x^2)^(1/3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))^2])
+ (3*Log[-(1 - x)^(1/3) + (2 - x)^(2/3)/2^(2/3)])/(8*2^(1/3)) - L
og[x]/(4*2^(1/3))
```

Rubi in Sympy [A] time = 36.1556, size = 714, normalized size = 0.9

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-x)**(1/3)/(2-x)**(1/3)/x**2,x)
```

```
[Out] -2**(2/3)*log(x)/8 + 3*2**(2/3)*log(-(-x + 1)**(1/3) + 2**(1/3)*(
-x + 2)**(2/3)/2)/16 - 2**(2/3)*sqrt(3)*atan(sqrt(3)/3 + 2**(1/3)
*sqrt(3)*(-x + 2)**(2/3)/(3*(-x + 1)**(1/3)))/8 - 2**(2/3)*(x**2
- 3*x + 2)**(1/3)*sqrt(4*x**2 - 12*x + 9)*sqrt((2*x - 3)**2)/(4*(
-2*x + 3)*(-x + 1)**(1/3)*(-x + 2)**(1/3)*(2**(2/3)*(x**2 - 3*x +
```

```
 2)**(1/3) + 1 + sqrt(3))) + 2**(2/3)*3**(1/4)*sqrt((2*2**(1/3)*(
x**2 - 3*x + 2)**(2/3) - 2**(2/3)*(x**2 - 3*x + 2)**(1/3) + 1)/(2
**(2/3)*(x**2 - 3*x + 2)**(1/3) + 1 + sqrt(3))**2)*sqrt(-sqrt(3)
+ 2)*(2**(2/3)*(x**2 - 3*x + 2)**(1/3) + 1)*(x**2 - 3*x + 2)**(1/
3)*sqrt((2*x - 3)**2)*elliptic_e(asin((2**(2/3)*(x**2 - 3*x + 2)*
*(1/3) - sqrt(3) + 1)/(2**(2/3)*(x**2 - 3*x + 2)**(1/3) + 1 + sqr
t(3))), -7 - 4*sqrt(3))/(8*sqrt((2**(2/3)*(x**2 - 3*x + 2)**(1/3)
 + 1)/(2**(2/3)*(x**2 - 3*x + 2)**(1/3) + 1 + sqrt(3))**2)*(-2*x
+ 3)*(-x + 1)**(1/3)*(-x + 2)**(1/3)*sqrt(4*x**2 - 12*x + 9)) - 2
**(1/6)*3**(3/4)*sqrt((2*2**(1/3)*(x**2 - 3*x + 2)**(2/3) - 2**(2
/3)*(x**2 - 3*x + 2)**(1/3) + 1)/(2**(2/3)*(x**2 - 3*x + 2)**(1/3
) + 1 + sqrt(3))**2)*(2**(2/3)*(x**2 - 3*x + 2)**(1/3) + 1)*(x**2
 - 3*x + 2)**(1/3)*sqrt((2*x - 3)**2)*elliptic_f(asin((2**(2/3)*(
x**2 - 3*x + 2)**(1/3) - sqrt(3) + 1)/(2**(2/3)*(x**2 - 3*x + 2)*
*(1/3) + 1 + sqrt(3))), -7 - 4*sqrt(3))/(6*sqrt((2**(2/3)*(x**2 -
 3*x + 2)**(1/3) + 1)/(2**(2/3)*(x**2 - 3*x + 2)**(1/3) + 1 + sqr
t(3))**2)*(-2*x + 3)*(-x + 1)**(1/3)*(-x + 2)**(1/3)*sqrt(4*x**2
- 12*x + 9)) - (-x + 1)**(2/3)*(-x + 2)**(2/3)/(2*x)
```

Mathematica [C] time = 0.451533, size = 219, normalized size = 0.28

$$\frac{(1-x)^{2/3}\left(-\frac{50F_1\left(\frac{2}{3};\frac{1}{3},1;\frac{5}{3};x-1,1-x\right)}{5F_1\left(\frac{2}{3};\frac{1}{3},1;\frac{5}{3};x-1,1-x\right)-(x-1)\left(3F_1\left(\frac{5}{3};\frac{1}{3},2;\frac{8}{3};x-1,1-x\right)-F_1\left(\frac{5}{3};\frac{4}{3},1;\frac{8}{3};x-1,1-x\right)\right)}+\frac{8(x-1)F_1\left(\frac{5}{3};\frac{1}{3},1;\frac{8}{3};x-1,1-x\right)}{(x-1)\left(3F_1\left(\frac{8}{3};\frac{1}{3},2;\frac{11}{3};x-1,1-x\right)-F_1\left(\frac{8}{3};\frac{4}{3},1;\frac{11}{3};x-1,1-x\right)\right)-8}\right.}{10\sqrt[3]{2-x}x}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[1/((1 - x)^(1/3)*(2 - x)^(1/3)*x^2),x]
```

```
[Out] ((1 - x)^(2/3)*(5*(-2 + x) - (50*AppellF1[2/3, 1/3, 1, 5/3, -1 +
x, 1 - x])/(5*AppellF1[2/3, 1/3, 1, 5/3, -1 + x, 1 - x] - (-1 + x
)*(3*AppellF1[5/3, 1/3, 2, 8/3, -1 + x, 1 - x] - AppellF1[5/3, 4/
3, 1, 8/3, -1 + x, 1 - x])) + (8*(-1 + x)*AppellF1[5/3, 1/3, 1, 8
/3, -1 + x, 1 - x])/(-8*AppellF1[5/3, 1/3, 1, 8/3, -1 + x, 1 - x]
 + (-1 + x)*(3*AppellF1[8/3, 1/3, 2, 11/3, -1 + x, 1 - x] - Appel
lF1[8/3, 4/3, 1, 11/3, -1 + x, 1 - x]))))/(10*(2 - x)^(1/3)*x)
```

Maple [F] time = 0.128, size = 0, normalized size = 0.

$$\int \frac{1}{x^2}\frac{1}{\sqrt[3]{1-x}}\frac{1}{\sqrt[3]{2-x}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-x)^(1/3)/(2-x)^(1/3)/x^2,x)
```

```
[Out] int(1/(1-x)^(1/3)/(2-x)^(1/3)/x^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{x^2(-x+2)^{\frac{1}{3}}(-x+1)^{\frac{1}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(x^2*(-x + 2)^(1/3)*(-x + 1)^(1/3)),x, algorithm="maxima")
```

```
[Out] integrate(1/(x^2*(-x + 2)^(1/3)*(-x + 1)^(1/3)), x)
```

Fricas [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(x^2*(-x + 2)^(1/3)*(-x + 1)^(1/3)),x, algorithm="fricas")
```

```
[Out] Timed out
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(1-x)**(1/3)/(2-x)**(1/3)/x**2,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{x^2(-x+2)^{\frac{1}{3}}(-x+1)^{\frac{1}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(x^2*(-x + 2)^(1/3)*(-x + 1)^(1/3)),x, algorithm="giac")
```

```
[Out] integrate(1/(x^2*(-x + 2)^(1/3)*(-x + 1)^(1/3)), x)
```

3.870 $\int \frac{1}{\sqrt[3]{1-x}\sqrt[3]{2-x}x^3}\,dx$

Optimal. Leaf size=821

$$-\frac{\tan^{-1}\left(\frac{\sqrt[3]{2}(2-x)^{2/3}}{\sqrt{3}\sqrt[3]{1-x}}+\frac{1}{\sqrt{3}}\right)}{2\sqrt[3]{2}\sqrt{3}}+\frac{\sqrt[4]{3}\sqrt{2-\sqrt{3}}\sqrt{(2x-3)^2}\sqrt[3]{x^2-3x+2}\left(2^{2/3}\sqrt[3]{x^2-3x+2}+1\right)\sqrt{\frac{2\sqrt[3]{2}(x^2-3x+2)^{2/3}-2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}E\left(\sin^{-1}\left(\frac{2^{2/3}\sqrt[3]{x^2-3x+}}{2^{2/3}\sqrt[3]{x^2-3x+}}\right.\right.}{4\sqrt[3]{2}(3-2x)\sqrt{(3-2x)^2}\sqrt[3]{1-x}\sqrt[3]{2-x}\sqrt{\frac{2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}}$$

$$-\frac{\sqrt{(2x-3)^2}\sqrt[3]{x^2-3x+2}\left(2^{2/3}\sqrt[3]{x^2-3x+2}+1\right)\sqrt{\frac{2\sqrt[3]{2}(x^2-3x+2)^{2/3}-2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}F\left(\sin^{-1}\left(\frac{2^{2/3}\sqrt[3]{x^2-3x+2}-\sqrt{3}+1}{2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1}\right)\right|-}{2^{5/6}\sqrt[4]{3}(3-2x)\sqrt{(3-2x)^2}\sqrt[3]{1-x}\sqrt[3]{2-x}\sqrt{\frac{2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}}$$

$$+\frac{\log\left(\frac{(2-x)^{2/3}}{2^{2/3}}-\sqrt[3]{1-x}\right)}{4\sqrt[3]{2}}-\frac{\log(x)}{6\sqrt[3]{2}}-\frac{(1-x)^{2/3}(2-x)^{2/3}}{2x}-\frac{\sqrt{(3-2x)^2}\sqrt{(2x-3)^2}\sqrt[3]{x^2-3x+2}}{2\sqrt[3]{2}(3-2x)\sqrt[3]{1-x}\sqrt[3]{2-x}\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)}-\frac{(1-x)^{2/3}(2-x)^{2/3}}{4x^2}$$

```
[Out] -((1 - x)^(2/3)*(2 - x)^(2/3))/(4*x^2) - ((1 - x)^(2/3)*(2 - x)^(
2/3))/(2*x) - (Sqrt[(3 - 2*x)^2]*Sqrt[(-3 + 2*x)^2]*(2 - 3*x + x^
2)^(1/3))/(2*2^(1/3)*(3 - 2*x)*(1 - x)^(1/3)*(2 - x)^(1/3)*(1 + S
qrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))) - ArcTan[1/Sqrt[3] + (2^
(1/3)*(2 - x)^(2/3))/(Sqrt[3]*(1 - x)^(1/3))]/(2*2^(1/3)*Sqrt[3])
 + (3^(1/4)*Sqrt[2 - Sqrt[3]]*Sqrt[(-3 + 2*x)^2]*(2 - 3*x + x^2)^
(1/3)*(1 + 2^(2/3)*(2 - 3*x + x^2)^(1/3))*Sqrt[(1 - 2^(2/3)*(2 -
3*x + x^2)^(1/3) + 2*2^(1/3)*(2 - 3*x + x^2)^(2/3))/(1 + Sqrt[3]
+ 2^(2/3)*(2 - 3*x + x^2)^(1/3))^2]*EllipticE[ArcSin[(1 - Sqrt[3]
 + 2^(2/3)*(2 - 3*x + x^2)^(1/3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x
 + x^2)^(1/3))], -7 - 4*Sqrt[3]])/(4*2^(1/3)*(3 - 2*x)*Sqrt[(3 -
2*x)^2]*(1 - x)^(1/3)*(2 - x)^(1/3)*Sqrt[(1 + 2^(2/3)*(2 - 3*x +
x^2)^(1/3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))^2]) - (
Sqrt[(-3 + 2*x)^2]*(2 - 3*x + x^2)^(1/3)*(1 + 2^(2/3)*(2 - 3*x +
x^2)^(1/3))*Sqrt[(1 - 2^(2/3)*(2 - 3*x + x^2)^(1/3) + 2*2^(1/3)*(
2 - 3*x + x^2)^(2/3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3
))^2]*EllipticF[ArcSin[(1 - Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/
3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))], -7 - 4*Sqrt[3
]])/(2^(5/6)*3^(1/4)*(3 - 2*x)*Sqrt[(3 - 2*x)^2]*(1 - x)^(1/3)*(2
 - x)^(1/3)*Sqrt[(1 + 2^(2/3)*(2 - 3*x + x^2)^(1/3))/(1 + Sqrt[3]
 + 2^(2/3)*(2 - 3*x + x^2)^(1/3))^2]) + Log[-(1 - x)^(1/3) + (2 -
 x)^(2/3)/2^(2/3)]/(4*2^(1/3)) - Log[x]/(6*2^(1/3))
```

Rubi [A] time = 1.2221, antiderivative size = 821, normalized size of antiderivative = 1., number of

steps used = 9, number of rules used = 9, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.409$

$$-\frac{\tan^{-1}\left(\frac{\sqrt[3]{2}(2-x)^{2/3}}{\sqrt{3}\sqrt[3]{1-x}}+\frac{1}{\sqrt{3}}\right)}{2\sqrt[3]{2}\sqrt{3}}+\frac{\sqrt[4]{3}\sqrt{2-\sqrt{3}}\sqrt{(2x-3)^2}\sqrt[3]{x^2-3x+2}\left(2^{2/3}\sqrt[3]{x^2-3x+2}+1\right)\sqrt{\frac{2\sqrt[3]{2}(x^2-3x+2)^{2/3}-2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}E\left(\sin^{-1}\left(\frac{2^{2/3}\sqrt[3]{x^2-3x+\ldots}}{2^{2/3}\sqrt[3]{x^2-3x+\ldots}}\right.\right.}{4\sqrt[3]{2}(3-2x)\sqrt{(3-2x)^2}\sqrt[3]{1-x}\sqrt[3]{2-x}\sqrt{\frac{2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}}-\frac{\sqrt{(2x-3)^2}\sqrt[3]{x^2-3x+2}\left(2^{2/3}\sqrt[3]{x^2-3x+2}+1\right)\sqrt{\frac{2\sqrt[3]{2}(x^2-3x+2)^{2/3}-2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}F\left(\sin^{-1}\left(\frac{2^{2/3}\sqrt[3]{x^2-3x+2}-\sqrt{3}+1}{2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1}\right)\right|-\ldots}{2^{5/6}\sqrt[4]{3}(3-2x)\sqrt{(3-2x)^2}\sqrt[3]{1-x}\sqrt[3]{2-x}\sqrt{\frac{2^{2/3}\sqrt[3]{x^2-3x+2}+1}{\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)^2}}}+\frac{\log\left(\frac{(2-x)^{2/3}}{2^{2/3}}-\sqrt[3]{1-x}\right)}{4\sqrt[3]{2}}-\frac{\log(x)}{6\sqrt[3]{2}}-\frac{(1-x)^{2/3}(2-x)^{2/3}}{2x}-\frac{\sqrt{(3-2x)^2}\sqrt{(2x-3)^2}\sqrt[3]{x^2-3x+2}}{2\sqrt[3]{2}(3-2x)\sqrt[3]{1-x}\sqrt[3]{2-x}\left(2^{2/3}\sqrt[3]{x^2-3x+2}+\sqrt{3}+1\right)}-\frac{(1-x)^{2/3}(2-x)^{2/3}}{4x^2}$$

Warning: Unable to verify antiderivative.

```
[In]  Int[1/((1 - x)^(1/3)*(2 - x)^(1/3)*x^3),x]
```

```
[Out] -((1 - x)^(2/3)*(2 - x)^(2/3))/(4*x^2) - ((1 - x)^(2/3)*(2 - x)^(
2/3))/(2*x) - (Sqrt[(3 - 2*x)^2]*Sqrt[(-3 + 2*x)^2]*(2 - 3*x + x^
2)^(1/3))/(2*2^(1/3)*(3 - 2*x)*(1 - x)^(1/3)*(2 - x)^(1/3)*(1 + S
qrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))) - ArcTan[1/Sqrt[3] + (2^
(1/3)*(2 - x)^(2/3))/(Sqrt[3]*(1 - x)^(1/3))]/(2*2^(1/3)*Sqrt[3])
 + (3^(1/4)*Sqrt[2 - Sqrt[3]]*Sqrt[(-3 + 2*x)^2]*(2 - 3*x + x^2)^
(1/3)*(1 + 2^(2/3)*(2 - 3*x + x^2)^(1/3))*Sqrt[(1 - 2^(2/3)*(2 -
3*x + x^2)^(1/3) + 2*2^(1/3)*(2 - 3*x + x^2)^(2/3))/(1 + Sqrt[3]
+ 2^(2/3)*(2 - 3*x + x^2)^(1/3))^2]*EllipticE[ArcSin[(1 - Sqrt[3]
 + 2^(2/3)*(2 - 3*x + x^2)^(1/3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x
 + x^2)^(1/3))], -7 - 4*Sqrt[3]])/(4*2^(1/3)*(3 - 2*x)*Sqrt[(3 -
2*x)^2]*(1 - x)^(1/3)*(2 - x)^(1/3)*Sqrt[(1 + 2^(2/3)*(2 - 3*x +
x^2)^(1/3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))^2]) - (
Sqrt[(-3 + 2*x)^2]*(2 - 3*x + x^2)^(1/3)*(1 + 2^(2/3)*(2 - 3*x +
x^2)^(1/3))*Sqrt[(1 - 2^(2/3)*(2 - 3*x + x^2)^(1/3) + 2*2^(1/3)*(
2 - 3*x + x^2)^(2/3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3
))^2]*EllipticF[ArcSin[(1 - Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/
3))/(1 + Sqrt[3] + 2^(2/3)*(2 - 3*x + x^2)^(1/3))], -7 - 4*Sqrt[3
]])/(2^(5/6)*3^(1/4)*(3 - 2*x)*Sqrt[(3 - 2*x)^2]*(1 - x)^(1/3)*(2
 - x)^(1/3)*Sqrt[(1 + 2^(2/3)*(2 - 3*x + x^2)^(1/3))/(1 + Sqrt[3]
 + 2^(2/3)*(2 - 3*x + x^2)^(1/3))^2]) + Log[-(1 - x)^(1/3) + (2 -
 x)^(2/3)/2^(2/3)]/(4*2^(1/3)) - Log[x]/(6*2^(1/3))
```

Rubi in Sympy [A] time = 43.5908, size = 731, normalized size = 0.89

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-x)**(1/3)/(2-x)**(1/3)/x**3,x)
```

```
[Out] -2**(2/3)*log(x)/12 + 2**(2/3)*log(-(-x + 1)**(1/3) + 2**(1/3)*(-
x + 2)**(2/3)/2)/8 - 2**(2/3)*sqrt(3)*atan(sqrt(3)/3 + 2**(1/3)*s
qrt(3)*(-x + 2)**(2/3)/(3*(-x + 1)**(1/3)))/12 - 2**(2/3)*(x**2 -
 3*x + 2)**(1/3)*sqrt(4*x**2 - 12*x + 9)*sqrt((2*x - 3)**2)/(4*(-
2*x + 3)*(-x + 1)**(1/3)*(-x + 2)**(1/3)*(2**(2/3)*(x**2 - 3*x +
```

```
2)**(1/3) + 1 + sqrt(3))) + 2**(2/3)*3**(1/4)*sqrt((2*2**(1/3)*(x
**2 - 3*x + 2)**(2/3) - 2**(2/3)*(x**2 - 3*x + 2)**(1/3) + 1)/(2*
*(2/3)*(x**2 - 3*x + 2)**(1/3) + 1 + sqrt(3))**2)*sqrt(-sqrt(3) +
 2)*(2**(2/3)*(x**2 - 3*x + 2)**(1/3) + 1)*(x**2 - 3*x + 2)**(1/3
)*sqrt((2*x - 3)**2)*elliptic_e(asin((2**(2/3)*(x**2 - 3*x + 2)**
(1/3) - sqrt(3) + 1)/(2**(2/3)*(x**2 - 3*x + 2)**(1/3) + 1 + sqrt
(3))), -7 - 4*sqrt(3))/(8*sqrt((2**(2/3)*(x**2 - 3*x + 2)**(1/3)
+ 1)/(2**(2/3)*(x**2 - 3*x + 2)**(1/3) + 1 + sqrt(3))**2)*(-2*x +
 3)*(-x + 1)**(1/3)*(-x + 2)**(1/3)*sqrt(4*x**2 - 12*x + 9)) - 2*
*(1/6)*3**(3/4)*sqrt((2*2**(1/3)*(x**2 - 3*x + 2)**(2/3) - 2**(2/
3)*(x**2 - 3*x + 2)**(1/3) + 1)/(2**(2/3)*(x**2 - 3*x + 2)**(1/3)
 + 1 + sqrt(3))**2)*(2**(2/3)*(x**2 - 3*x + 2)**(1/3) + 1)*(x**2
- 3*x + 2)**(1/3)*sqrt((2*x - 3)**2)*elliptic_f(asin((2**(2/3)*(x
**2 - 3*x + 2)**(1/3) - sqrt(3) + 1)/(2**(2/3)*(x**2 - 3*x + 2)**
(1/3) + 1 + sqrt(3))), -7 - 4*sqrt(3))/(6*sqrt((2**(2/3)*(x**2 -
3*x + 2)**(1/3) + 1)/(2**(2/3)*(x**2 - 3*x + 2)**(1/3) + 1 + sqrt
(3))**2)*(-2*x + 3)*(-x + 1)**(1/3)*(-x + 2)**(1/3)*sqrt(4*x**2 -
 12*x + 9)) - (-x + 1)**(2/3)*(-x + 2)**(2/3)/(2*x) - (-x + 1)**(
2/3)*(-x + 2)**(2/3)/(4*x**2)
```

Mathematica [C] time = 0.350429, size = 225, normalized size = 0.27

$$\frac{(1-x)^{2/3}\left(\frac{75xF_1\left(\frac{2}{3};\frac{1}{3},1;\frac{5}{3};x-1,1-x\right)}{(x-1)\left(3F_1\left(\frac{5}{3};\frac{1}{3},2;\frac{8}{3};x-1,1-x\right)-F_1\left(\frac{5}{3};\frac{4}{3},1;\frac{8}{3};x-1,1-x\right)\right)-5F_1\left(\frac{2}{3};\frac{1}{3},1;\frac{5}{3};x-1,1-x\right)}+\frac{16(x-1)xF_1\left(\frac{5}{3};\frac{1}{3},1;\frac{8}{3};x-1,1-x\right)}{(x-1)\left(3F_1\left(\frac{8}{3};\frac{1}{3},2;\frac{11}{3};x-1,1-x\right)-F_1\left(\frac{8}{3};\frac{4}{3},1;\frac{11}{3};x-1,1-x\right)\right)-8F_1}\right.}{20\sqrt[3]{2-x}x^2}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[1/((1 - x)^(1/3)*(2 - x)^(1/3)*x^3),x]
```

```
[Out] ((1 - x)^(2/3)*(5*(-2 + x)*(1 + 2*x) + (75*x*AppellF1[2/3, 1/3, 1
, 5/3, -1 + x, 1 - x])/(-5*AppellF1[2/3, 1/3, 1, 5/3, -1 + x, 1 -
 x] + (-1 + x)*(3*AppellF1[5/3, 1/3, 2, 8/3, -1 + x, 1 - x] - App
ellF1[5/3, 4/3, 1, 8/3, -1 + x, 1 - x])) + (16*(-1 + x)*x*AppellF
1[5/3, 1/3, 1, 8/3, -1 + x, 1 - x])/(-8*AppellF1[5/3, 1/3, 1, 8/3
, -1 + x, 1 - x] + (-1 + x)*(3*AppellF1[8/3, 1/3, 2, 11/3, -1 + x
, 1 - x] - AppellF1[8/3, 4/3, 1, 11/3, -1 + x, 1 - x]))))/(20*(2
- x)^(1/3)*x^2)
```

Maple [F] time = 0.115, size = 0, normalized size = 0.

$$\int \frac{1}{x^3}\frac{1}{\sqrt[3]{1-x}}\frac{1}{\sqrt[3]{2-x}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-x)^(1/3)/(2-x)^(1/3)/x^3,x)
```

```
[Out] int(1/(1-x)^(1/3)/(2-x)^(1/3)/x^3,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{x^3(-x+2)^{\frac{1}{3}}(-x+1)^{\frac{1}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(x^3*(-x + 2)^(1/3)*(-x + 1)^(1/3)),x, algorithm="maxima")
```

```
[Out] integrate(1/(x^3*(-x + 2)^(1/3)*(-x + 1)^(1/3)), x)
```

Fricas [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(x^3*(-x + 2)^(1/3)*(-x + 1)^(1/3)),x, algorithm="fricas")
```

```
[Out] Timed out
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(1-x)**(1/3)/(2-x)**(1/3)/x**3,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{x^3(-x+2)^{\frac{1}{3}}(-x+1)^{\frac{1}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(x^3*(-x + 2)^(1/3)*(-x + 1)^(1/3)),x, algorithm="giac")
```

```
[Out] integrate(1/(x^3*(-x + 2)^(1/3)*(-x + 1)^(1/3)), x)
```

3.871 $\int \frac{x^3 \sqrt[4]{a+bx}}{\sqrt[4]{c+dx}} \, dx$

Optimal. Leaf size=340

$$\frac{(a+bx)^{5/4}(c+dx)^{3/4}\left(77a^2d^2-8bdx(11ad+13bc)+94abcd+117b^2c^2\right)}{384b^3d^3} - \frac{\sqrt[4]{a+bx}(c+dx)^{3/4}\left(77a^3d^3+105a^2bcd^2+135ab^2c^2d+195b^3c^3\right)}{512b^3d^4} + \frac{(bc-ad)\left(77a^3d^3+105a^2bcd^2+135ab^2c^2d+195b^3c^3\right)\tan^{-1}\left(\frac{\sqrt[4]{d}\sqrt[4]{a+bx}}{\sqrt[4]{b}\sqrt[4]{c+dx}}\right)}{1024b^{15/4}d^{17/4}} + \frac{(bc-ad)\left(77a^3d^3+105a^2bcd^2+135ab^2c^2d+195b^3c^3\right)\tanh^{-1}\left(\frac{\sqrt[4]{d}\sqrt[4]{a+bx}}{\sqrt[4]{b}\sqrt[4]{c+dx}}\right)}{1024b^{15/4}d^{17/4}} + \frac{x^2(a+bx)^{5/4}(c+dx)^{3/4}}{4bd}$$

```
[Out] -((195*b^3*c^3 + 135*a*b^2*c^2*d + 105*a^2*b*c*d^2 + 77*a^3*d^3)*
(a + b*x)^(1/4)*(c + d*x)^(3/4))/(512*b^3*d^4) + (x^2*(a + b*x)^(
5/4)*(c + d*x)^(3/4))/(4*b*d) + ((a + b*x)^(5/4)*(c + d*x)^(3/4)*
(117*b^2*c^2 + 94*a*b*c*d + 77*a^2*d^2 - 8*b*d*(13*b*c + 11*a*d)*
x))/(384*b^3*d^3) + ((b*c - a*d)*(195*b^3*c^3 + 135*a*b^2*c^2*d +
 105*a^2*b*c*d^2 + 77*a^3*d^3)*ArcTan[(d^(1/4)*(a + b*x)^(1/4))/(
b^(1/4)*(c + d*x)^(1/4))])/(1024*b^(15/4)*d^(17/4)) + ((b*c - a*d
)*(195*b^3*c^3 + 135*a*b^2*c^2*d + 105*a^2*b*c*d^2 + 77*a^3*d^3)*
ArcTanh[(d^(1/4)*(a + b*x)^(1/4))/(b^(1/4)*(c + d*x)^(1/4))])/(10
24*b^(15/4)*d^(17/4))
```

Rubi [A] time = 0.609344, antiderivative size = 340, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 7, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.318$

$$\frac{(a+bx)^{5/4}(c+dx)^{3/4}\left(77a^2d^2-8bdx(11ad+13bc)+94abcd+117b^2c^2\right)}{384b^3d^3} - \frac{\sqrt[4]{a+bx}(c+dx)^{3/4}\left(77a^3d^3+105a^2bcd^2+135ab^2c^2d+195b^3c^3\right)}{512b^3d^4} + \frac{(bc-ad)\left(77a^3d^3+105a^2bcd^2+135ab^2c^2d+195b^3c^3\right)\tan^{-1}\left(\frac{\sqrt[4]{d}\sqrt[4]{a+bx}}{\sqrt[4]{b}\sqrt[4]{c+dx}}\right)}{1024b^{15/4}d^{17/4}} + \frac{(bc-ad)\left(77a^3d^3+105a^2bcd^2+135ab^2c^2d+195b^3c^3\right)\tanh^{-1}\left(\frac{\sqrt[4]{d}\sqrt[4]{a+bx}}{\sqrt[4]{b}\sqrt[4]{c+dx}}\right)}{1024b^{15/4}d^{17/4}} + \frac{x^2(a+bx)^{5/4}(c+dx)^{3/4}}{4bd}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^3*(a + b*x)^(1/4))/(c + d*x)^(1/4),x]
```


```
[Out] -((195*b^3*c^3 + 135*a*b^2*c^2*d + 105*a^2*b*c*d^2 + 77*a^3*d^3)*
(a + b*x)^(1/4)*(c + d*x)^(3/4))/(512*b^3*d^4) + (x^2*(a + b*x)^(
5/4)*(c + d*x)^(3/4))/(4*b*d) + ((a + b*x)^(5/4)*(c + d*x)^(3/4)*
(117*b^2*c^2 + 94*a*b*c*d + 77*a^2*d^2 - 8*b*d*(13*b*c + 11*a*d)*
x))/(384*b^3*d^3) + ((b*c - a*d)*(195*b^3*c^3 + 135*a*b^2*c^2*d +
 105*a^2*b*c*d^2 + 77*a^3*d^3)*ArcTan[(d^(1/4)*(a + b*x)^(1/4))/(
b^(1/4)*(c + d*x)^(1/4))])/(1024*b^(15/4)*d^(17/4)) + ((b*c - a*d
)*(195*b^3*c^3 + 135*a*b^2*c^2*d + 105*a^2*b*c*d^2 + 77*a^3*d^3)*
ArcTanh[(d^(1/4)*(a + b*x)^(1/4))/(b^(1/4)*(c + d*x)^(1/4))])/(10
24*b^(15/4)*d^(17/4))
```

Rubi in Sympy [A] time = 53.9675, size = 340, normalized size = 1.

$$\frac{x^{2}\left(a+bx\right)^{\frac{5}{4}}\left(c+dx\right)^{\frac{3}{4}}}{4bd}+\frac{\left(a+bx\right)^{\frac{5}{4}}\left(c+dx\right)^{\frac{3}{4}}\left(\frac{77a^{2}d^{2}}{16}+\frac{47abcd}{8}+\frac{117b^{2}c^{2}}{16}-\frac{bdx(11ad+13bc)}{2}\right)}{24b^{3}d^{3}}-\frac{\sqrt[4]{a+bx}\left(c+dx\right)^{\frac{3}{4}}\left(77a^{3}d^{3}+105a^{2}bcd^{2}+135ab^{2}c^{2}d+195b^{3}c^{3}\right)}{512b^{3}d^{4}}+\frac{(ad-bc)\left(77a^{3}d^{3}+105a^{2}bcd^{2}+135ab^{2}c^{2}d+195b^{3}c^{3}\right)\operatorname{atan}\left(\frac{\sqrt[4]{b}\sqrt[4]{c+dx}}{\sqrt[4]{d}\sqrt[4]{a+bx}}\right)}{1024b^{\frac{15}{4}}d^{\frac{17}{4}}}-\frac{(ad-bc)\left(77a^{3}d^{3}+105a^{2}bcd^{2}+135ab^{2}c^{2}d+195b^{3}c^{3}\right)\operatorname{atanh}\left(\frac{\sqrt[4]{b}\sqrt[4]{c+dx}}{\sqrt[4]{d}\sqrt[4]{a+bx}}\right)}{1024b^{\frac{15}{4}}d^{\frac{17}{4}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3*(b*x+a)**(1/4)/(d*x+c)**(1/4),x)
```

```
[Out] x**2*(a + b*x)**(5/4)*(c + d*x)**(3/4)/(4*b*d) + (a + b*x)**(5/4)
*(c + d*x)**(3/4)*(77*a**2*d**2/16 + 47*a*b*c*d/8 + 117*b**2*c**2
/16 - b*d*x*(11*a*d + 13*b*c)/2)/(24*b**3*d**3) - (a + b*x)**(1/4
)*(c + d*x)**(3/4)*(77*a**3*d**3 + 105*a**2*b*c*d**2 + 135*a*b**2
*c**2*d + 195*b**3*c**3)/(512*b**3*d**4) + (a*d - b*c)*(77*a**3*d
**3 + 105*a**2*b*c*d**2 + 135*a*b**2*c**2*d + 195*b**3*c**3)*atan
(b**(1/4)*(c + d*x)**(1/4)/(d**(1/4)*(a + b*x)**(1/4)))/(1024*b**
(15/4)*d**(17/4)) - (a*d - b*c)*(77*a**3*d**3 + 105*a**2*b*c*d**2
 + 135*a*b**2*c**2*d + 195*b**3*c**3)*atanh(b**(1/4)*(c + d*x)**(
1/4)/(d**(1/4)*(a + b*x)**(1/4)))/(1024*b**(15/4)*d**(17/4))
```

Mathematica [C] time = 0.417013, size = 221, normalized size = 0.65

$$\frac{(c+dx)^{3/4}\left(d(a+bx)\left(77a^{3}d^{3}+a^{2}bd^{2}(61c-44dx)+ab^{2}d\left(63c^{2}-40cdx+32d^{2}x^{2}\right)+b^{3}\left(-585c^{3}+468c^{2}dx-416cd^{2}x^{2}+\right.\right.\right.}{1536b^{3}d^{5}(a+bx)^{3}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^3*(a + b*x)^(1/4))/(c + d*x)^(1/4),x]
```

```
[Out] ((c + d*x)^(3/4)*(d*(a + b*x)*(77*a^3*d^3 + a^2*b*d^2*(61*c - 44*
d*x) + a*b^2*d*(63*c^2 - 40*c*d*x + 32*d^2*x^2) + b^3*(-585*c^3 +
 468*c^2*d*x - 416*c*d^2*x^2 + 384*d^3*x^3)) - (-195*b^4*c^4 + 60
*a*b^3*c^3*d + 30*a^2*b^2*c^2*d^2 + 28*a^3*b*c*d^3 + 77*a^4*d^4)*
((d*(a + b*x))/(-(b*c) + a*d))^(3/4)*Hypergeometric2F1[3/4, 3/4,
7/4, (b*(c + d*x))/(b*c - a*d)]))/(1536*b^3*d^5*(a + b*x)^(3/4))
```

Maple [F] time = 0.048, size = 0, normalized size = 0.

$$\int x^{3}\sqrt[4]{bx+a}\frac{1}{\sqrt[4]{dx+c}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^3*(b*x+a)^(1/4)/(d*x+c)^(1/4),x)
```

```
[Out] int(x^3*(b*x+a)^(1/4)/(d*x+c)^(1/4),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^{\frac{1}{4}}x^3}{(dx+c)^{\frac{1}{4}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(1/4)*x^3/(d*x + c)^(1/4),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^(1/4)*x^3/(d*x + c)^(1/4), x)
```

Fricas [A] time = 0.634914, size = 2952, normalized size = 8.68

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(1/4)*x^3/(d*x + c)^(1/4),x, algorithm="fricas")
```

```
[Out] 1/6144*(12*b^3*d^4*((1445900625*b^16*c^16 - 1779570000*a*b^15*c^1
5*d - 68445000*a^2*b^14*c^14*d^2 - 177606000*a^3*b^13*c^13*d^3 -
1551622500*a^4*b^12*c^12*d^4 + 2155086000*a^5*b^11*c^11*d^5 + 370
974600*a^6*b^10*c^10*d^6 + 275389200*a^7*b^9*c^9*d^7 + 665778150*
a^8*b^8*c^8*d^8 - 989262960*a^9*b^7*c^7*d^9 - 318453240*a^10*b^6*
c^6*d^10 - 191017680*a^11*b^5*c^5*d^11 - 182203364*a^12*b^4*c^4*d
^12 + 176093456*a^13*b^3*c^3*d^13 + 82673976*a^14*b^2*c^2*d^14 +
51131696*a^15*b*c*d^15 + 35153041*a^16*d^16)/(b^15*d^17))^(1/4)*a
rctan(-(b^4*d^5*x + b^4*c*d^4)*((1445900625*b^16*c^16 - 177957000
0*a*b^15*c^15*d - 68445000*a^2*b^14*c^14*d^2 - 177606000*a^3*b^13
*c^13*d^3 - 1551622500*a^4*b^12*c^12*d^4 + 2155086000*a^5*b^11*c^
11*d^5 + 370974600*a^6*b^10*c^10*d^6 + 275389200*a^7*b^9*c^9*d^7
+ 665778150*a^8*b^8*c^8*d^8 - 989262960*a^9*b^7*c^7*d^9 - 3184532
40*a^10*b^6*c^6*d^10 - 191017680*a^11*b^5*c^5*d^11 - 182203364*a^
12*b^4*c^4*d^12 + 176093456*a^13*b^3*c^3*d^13 + 82673976*a^14*b^2
*c^2*d^14 + 51131696*a^15*b*c*d^15 + 35153041*a^16*d^16)/(b^15*d^
17))^(1/4)/((195*b^4*c^4 - 60*a*b^3*c^3*d - 30*a^2*b^2*c^2*d^2 -
28*a^3*b*c*d^3 - 77*a^4*d^4)*(b*x + a)^(1/4)*(d*x + c)^(3/4) - (d
*x + c)*sqrt(((38025*b^8*c^8 - 23400*a*b^7*c^7*d - 8100*a^2*b^6*c
^6*d^2 - 7320*a^3*b^5*c^5*d^3 - 25770*a^4*b^4*c^4*d^4 + 10920*a^5
*b^3*c^3*d^5 + 5404*a^6*b^2*c^2*d^6 + 4312*a^7*b*c*d^7 + 5929*a^8
*d^8)*sqrt(b*x + a)*sqrt(d*x + c) + (b^8*d^9*x + b^8*c*d^8)*sqrt(
(1445900625*b^16*c^16 - 1779570000*a*b^15*c^15*d - 68445000*a^2*b
^14*c^14*d^2 - 177606000*a^3*b^13*c^13*d^3 - 1551622500*a^4*b^12*
c^12*d^4 + 2155086000*a^5*b^11*c^11*d^5 + 370974600*a^6*b^10*c^10
*d^6 + 275389200*a^7*b^9*c^9*d^7 + 665778150*a^8*b^8*c^8*d^8 - 98
9262960*a^9*b^7*c^7*d^9 - 318453240*a^10*b^6*c^6*d^10 - 191017680
*a^11*b^5*c^5*d^11 - 182203364*a^12*b^4*c^4*d^12 + 176093456*a^13
*b^3*c^3*d^13 + 82673976*a^14*b^2*c^2*d^14 + 51131696*a^15*b*c*d^
15 + 35153041*a^16*d^16)/(b^15*d^17)))/(d*x + c)))) + 3*b^3*d^4*(
(1445900625*b^16*c^16 - 1779570000*a*b^15*c^15*d - 68445000*a^2*b
^14*c^14*d^2 - 177606000*a^3*b^13*c^13*d^3 - 1551622500*a^4*b^12*
c^12*d^4 + 2155086000*a^5*b^11*c^11*d^5 + 370974600*a^6*b^10*c^10
*d^6 + 275389200*a^7*b^9*c^9*d^7 + 665778150*a^8*b^8*c^8*d^8 - 98
9262960*a^9*b^7*c^7*d^9 - 318453240*a^10*b^6*c^6*d^10 - 191017680
*a^11*b^5*c^5*d^11 - 182203364*a^12*b^4*c^4*d^12 + 176093456*a^13
*b^3*c^3*d^13 + 82673976*a^14*b^2*c^2*d^14 + 51131696*a^15*b*c*d^
15 + 35153041*a^16*d^16)/(b^15*d^17))^(1/4)*log(-((195*b^4*c^4 -
60*a*b^3*c^3*d - 30*a^2*b^2*c^2*d^2 - 28*a^3*b*c*d^3 - 77*a^4*d^4
)*(b*x + a)^(1/4)*(d*x + c)^(3/4) + (b^4*d^5*x + b^4*c*d^4)*((144
5900625*b^16*c^16 - 1779570000*a*b^15*c^15*d - 68445000*a^2*b^14*
c^14*d^2 - 177606000*a^3*b^13*c^13*d^3 - 1551622500*a^4*b^12*c^12
*d^4 + 2155086000*a^5*b^11*c^11*d^5 + 370974600*a^6*b^10*c^10*d^6
 + 275389200*a^7*b^9*c^9*d^7 + 665778150*a^8*b^8*c^8*d^8 - 989262
960*a^9*b^7*c^7*d^9 - 318453240*a^10*b^6*c^6*d^10 - 191017680*a^1
1*b^5*c^5*d^11 - 182203364*a^12*b^4*c^4*d^12 + 176093456*a^13*b^3
*c^3*d^13 + 82673976*a^14*b^2*c^2*d^14 + 51131696*a^15*b*c*d^15 +
 35153041*a^16*d^16)/(b^15*d^17))^(1/4))/(d*x + c)) - 3*b^3*d^4*(
```

```
(1445900625*b^16*c^16 - 1779570000*a*b^15*c^15*d - 68445000*a^2*b
^14*c^14*d^2 - 177606000*a^3*b^13*c^13*d^3 - 1551622500*a^4*b^12*
c^12*d^4 + 2155086000*a^5*b^11*c^11*d^5 + 370974600*a^6*b^10*c^10
*d^6 + 275389200*a^7*b^9*c^9*d^7 + 665778150*a^8*b^8*c^8*d^8 - 98
9262960*a^9*b^7*c^7*d^9 - 318453240*a^10*b^6*c^6*d^10 - 191017680
*a^11*b^5*c^5*d^11 - 182203364*a^12*b^4*c^4*d^12 + 176093456*a^13
*b^3*c^3*d^13 + 82673976*a^14*b^2*c^2*d^14 + 51131696*a^15*b*c*d^
15 + 35153041*a^16*d^16)/(b^15*d^17))^(1/4)*log(-((195*b^4*c^4 -
60*a*b^3*c^3*d - 30*a^2*b^2*c^2*d^2 - 28*a^3*b*c*d^3 - 77*a^4*d^4
)*(b*x + a)^(1/4)*(d*x + c)^(3/4) - (b^4*d^5*x + b^4*c*d^4)*((144
5900625*b^16*c^16 - 1779570000*a*b^15*c^15*d - 68445000*a^2*b^14*
c^14*d^2 - 177606000*a^3*b^13*c^13*d^3 - 1551622500*a^4*b^12*c^12
*d^4 + 2155086000*a^5*b^11*c^11*d^5 + 370974600*a^6*b^10*c^10*d^6
 + 275389200*a^7*b^9*c^9*d^7 + 665778150*a^8*b^8*c^8*d^8 - 989262
960*a^9*b^7*c^7*d^9 - 318453240*a^10*b^6*c^6*d^10 - 191017680*a^1
1*b^5*c^5*d^11 - 182203364*a^12*b^4*c^4*d^12 + 176093456*a^13*b^3
*c^3*d^13 + 82673976*a^14*b^2*c^2*d^14 + 51131696*a^15*b*c*d^15 +
 35153041*a^16*d^16)/(b^15*d^17))^(1/4))/(d*x + c)) + 4*(384*b^3*
d^3*x^3 - 585*b^3*c^3 + 63*a*b^2*c^2*d + 61*a^2*b*c*d^2 + 77*a^3*
d^3 - 32*(13*b^3*c*d^2 - a*b^2*d^3)*x^2 + 4*(117*b^3*c^2*d - 10*a
*b^2*c*d^2 - 11*a^2*b*d^3)*x)*(b*x + a)^(1/4)*(d*x + c)^(3/4))/(b
^3*d^4)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x^3 \sqrt[4]{a+bx}}{\sqrt[4]{c+dx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**3*(b*x+a)**(1/4)/(d*x+c)**(1/4),x)

[Out] Integral(x**3*(a + b*x)**(1/4)/(c + d*x)**(1/4), x)
```

GIAC/XCAS [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(1/4)*x^3/(d*x + c)^(1/4),x, algorithm="giac")

[Out] Timed out
```

3.872 $\int \frac{x^2 \sqrt[4]{a+bx}}{\sqrt[4]{c+dx}}\,dx$

Optimal. Leaf size=268

$$\frac{\sqrt[4]{a+bx}(c+dx)^{3/4}\left(7a^2d^2+10abcd+15b^2c^2\right)}{32b^2d^3}-\frac{(bc-ad)\left(7a^2d^2+10abcd+15b^2c^2\right)\tan^{-1}\left(\frac{\sqrt[4]{d}\sqrt[4]{a+bx}}{\sqrt[4]{b}\sqrt[4]{c+dx}}\right)}{64b^{11/4}d^{13/4}}-\frac{(bc-ad)\left(7a^2d^2+10abcd+15b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt[4]{d}\sqrt[4]{a+bx}}{\sqrt[4]{b}\sqrt[4]{c+dx}}\right)}{64b^{11/4}d^{13/4}}-\frac{(a+bx)^{5/4}(c+dx)^{3/4}(7ad+9bc)}{24b^2d^2}+\frac{x(a+bx)^{5/4}(c+dx)^{3/4}}{3bd}$$

```
[Out] ((15*b^2*c^2 + 10*a*b*c*d + 7*a^2*d^2)*(a + b*x)^(1/4)*(c + d*x)^
(3/4))/(32*b^2*d^3) - ((9*b*c + 7*a*d)*(a + b*x)^(5/4)*(c + d*x)^
(3/4))/(24*b^2*d^2) + (x*(a + b*x)^(5/4)*(c + d*x)^(3/4))/(3*b*d)
 - ((b*c - a*d)*(15*b^2*c^2 + 10*a*b*c*d + 7*a^2*d^2)*ArcTan[(d^(
1/4)*(a + b*x)^(1/4))/(b^(1/4)*(c + d*x)^(1/4))])/(64*b^(11/4)*d^
(13/4)) - ((b*c - a*d)*(15*b^2*c^2 + 10*a*b*c*d + 7*a^2*d^2)*ArcT
anh[(d^(1/4)*(a + b*x)^(1/4))/(b^(1/4)*(c + d*x)^(1/4))])/(64*b^(
11/4)*d^(13/4))
```

Rubi [A] time = 0.533199, antiderivative size = 268, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 7, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.318

$$\frac{\sqrt[4]{a+bx}(c+dx)^{3/4}\left(7a^2d^2+10abcd+15b^2c^2\right)}{32b^2d^3}-\frac{(bc-ad)\left(7a^2d^2+10abcd+15b^2c^2\right)\tan^{-1}\left(\frac{\sqrt[4]{d}\sqrt[4]{a+bx}}{\sqrt[4]{b}\sqrt[4]{c+dx}}\right)}{64b^{11/4}d^{13/4}}-\frac{(bc-ad)\left(7a^2d^2+10abcd+15b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt[4]{d}\sqrt[4]{a+bx}}{\sqrt[4]{b}\sqrt[4]{c+dx}}\right)}{64b^{11/4}d^{13/4}}-\frac{(a+bx)^{5/4}(c+dx)^{3/4}(7ad+9bc)}{24b^2d^2}+\frac{x(a+bx)^{5/4}(c+dx)^{3/4}}{3bd}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^2*(a + b*x)^(1/4))/(c + d*x)^(1/4),x]
```

```
[Out] ((15*b^2*c^2 + 10*a*b*c*d + 7*a^2*d^2)*(a + b*x)^(1/4)*(c + d*x)^
(3/4))/(32*b^2*d^3) - ((9*b*c + 7*a*d)*(a + b*x)^(5/4)*(c + d*x)^
(3/4))/(24*b^2*d^2) + (x*(a + b*x)^(5/4)*(c + d*x)^(3/4))/(3*b*d)
 - ((b*c - a*d)*(15*b^2*c^2 + 10*a*b*c*d + 7*a^2*d^2)*ArcTan[(d^(
1/4)*(a + b*x)^(1/4))/(b^(1/4)*(c + d*x)^(1/4))])/(64*b^(11/4)*d^
(13/4)) - ((b*c - a*d)*(15*b^2*c^2 + 10*a*b*c*d + 7*a^2*d^2)*ArcT
anh[(d^(1/4)*(a + b*x)^(1/4))/(b^(1/4)*(c + d*x)^(1/4))])/(64*b^(
11/4)*d^(13/4))
```

Rubi in Sympy [A] time = 40.2613, size = 255, normalized size = 0.95

$$\frac{x(a+bx)^{\frac{5}{4}}(c+dx)^{\frac{3}{4}}}{3bd}-\frac{(a+bx)^{\frac{5}{4}}(c+dx)^{\frac{3}{4}}(7ad+9bc)}{24b^2d^2}+\frac{\sqrt[4]{a+bx}(c+dx)^{\frac{3}{4}}\left(7a^2d^2+10abcd+15b^2c^2\right)}{32b^2d^3}+\frac{(ad-bc)\left(7a^2d^2+10abcd+15b^2c^2\right)\operatorname{atan}\left(\frac{\sqrt[4]{d}\sqrt[4]{a+bx}}{\sqrt[4]{b}\sqrt[4]{c+dx}}\right)}{64b^{\frac{11}{4}}d^{\frac{13}{4}}}+\frac{(ad-bc)\left(7a^2d^2+10abcd+15b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt[4]{d}\sqrt[4]{a+bx}}{\sqrt[4]{b}\sqrt[4]{c+dx}}\right)}{64b^{\frac{11}{4}}d^{\frac{13}{4}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   rubi_integrate(x**2*(b*x+a)**(1/4)/(d*x+c)**(1/4),x)
```

```
[Out] x*(a + b*x)**(5/4)*(c + d*x)**(3/4)/(3*b*d) - (a + b*x)**(5/4)*(c
 + d*x)**(3/4)*(7*a*d + 9*b*c)/(24*b**2*d**2) + (a + b*x)**(1/4)*
(c + d*x)**(3/4)*(7*a**2*d**2 + 10*a*b*c*d + 15*b**2*c**2)/(32*b*
*2*d**3) + (a*d - b*c)*(7*a**2*d**2 + 10*a*b*c*d + 15*b**2*c**2)*
atan(d**(1/4)*(a + b*x)**(1/4)/(b**(1/4)*(c + d*x)**(1/4)))/(64*b
**(11/4)*d**(13/4)) + (a*d - b*c)*(7*a**2*d**2 + 10*a*b*c*d + 15*
b**2*c**2)*atanh(d**(1/4)*(a + b*x)**(1/4)/(b**(1/4)*(c + d*x)**(
1/4)))/(64*b**(11/4)*d**(13/4))
```

Mathematica [C] time = 0.283548, size = 168, normalized size = 0.63

$$\frac{(c+dx)^{3/4}\left(\left(7a^3d^3+3a^2bcd^2+5ab^2c^2d-15b^3c^3\right)\left(\frac{d(a+bx)}{ad-bc}\right)^{3/4}{}_2F_1\left(\frac{3}{4},\frac{3}{4};\frac{7}{4};\frac{b(c+dx)}{bc-ad}\right)-d(a+bx)\left(7a^2d^2+2abd(3c-2dx)\right.\right.}{96b^2d^4(a+bx)^{3/4}}$$

Antiderivative was successfully verified.

```
[In]   Integrate[(x^2*(a + b*x)^(1/4))/(c + d*x)^(1/4),x]
```

```
[Out] ((c + d*x)^(3/4)*(-(d*(a + b*x)*(7*a^2*d^2 + 2*a*b*d*(3*c - 2*d*x
) + b^2*(-45*c^2 + 36*c*d*x - 32*d^2*x^2))) + (-15*b^3*c^3 + 5*a*
b^2*c^2*d + 3*a^2*b*c*d^2 + 7*a^3*d^3)*((d*(a + b*x))/(-(b*c) + a
*d))^(3/4)*Hypergeometric2F1[3/4, 3/4, 7/4, (b*(c + d*x))/(b*c -
a*d)]))/(96*b^2*d^4*(a + b*x)^(3/4))
```

Maple [F] time = 0.047, size = 0, normalized size = 0.

$$\int x^2\sqrt[4]{bx+a}\frac{1}{\sqrt[4]{dx+c}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int(x^2*(b*x+a)^(1/4)/(d*x+c)^(1/4),x)
```

```
[Out] int(x^2*(b*x+a)^(1/4)/(d*x+c)^(1/4),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^{\frac{1}{4}}x^2}{(dx+c)^{\frac{1}{4}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(1/4)*x^2/(d*x + c)^(1/4),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^(1/4)*x^2/(d*x + c)^(1/4), x)
```

Fricas [A] time = 0.357895, size = 2259, normalized size = 8.43

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(1/4)*x^2/(d*x + c)^(1/4),x, algorithm="fricas")
```

```
[Out] -1/384*(12*b^2*d^3*((50625*b^12*c^12 - 67500*a*b^11*c^11*d - 6750
*a^2*b^10*c^10*d^2 - 61500*a^3*b^9*c^9*d^3 + 93775*a^4*b^8*c^8*d^
4 + 18600*a^5*b^7*c^7*d^5 + 31580*a^6*b^6*c^6*d^6 - 48600*a^7*b^5
*c^5*d^7 - 15249*a^8*b^4*c^4*d^8 - 11004*a^9*b^3*c^3*d^9 + 9506*a
^10*b^2*c^2*d^10 + 4116*a^11*b*c*d^11 + 2401*a^12*d^12)/(b^11*d^1
3))^(1/4)*arctan(-(b^3*d^4*x + b^3*c*d^3)*((50625*b^12*c^12 - 675
00*a*b^11*c^11*d - 6750*a^2*b^10*c^10*d^2 - 61500*a^3*b^9*c^9*d^3
 + 93775*a^4*b^8*c^8*d^4 + 18600*a^5*b^7*c^7*d^5 + 31580*a^6*b^6*
c^6*d^6 - 48600*a^7*b^5*c^5*d^7 - 15249*a^8*b^4*c^4*d^8 - 11004*a
^9*b^3*c^3*d^9 + 9506*a^10*b^2*c^2*d^10 + 4116*a^11*b*c*d^11 + 24
01*a^12*d^12)/(b^11*d^13))^(1/4)/((15*b^3*c^3 - 5*a*b^2*c^2*d - 3
*a^2*b*c*d^2 - 7*a^3*d^3)*(b*x + a)^(1/4)*(d*x + c)^(3/4) - (d*x
+ c)*sqrt(((225*b^6*c^6 - 150*a*b^5*c^5*d - 65*a^2*b^4*c^4*d^2 -
180*a^3*b^3*c^3*d^3 + 79*a^4*b^2*c^2*d^4 + 42*a^5*b*c*d^5 + 49*a^
6*d^6)*sqrt(b*x + a)*sqrt(d*x + c) + (b^6*d^7*x + b^6*c*d^6)*sqrt
((50625*b^12*c^12 - 67500*a*b^11*c^11*d - 6750*a^2*b^10*c^10*d^2
- 61500*a^3*b^9*c^9*d^3 + 93775*a^4*b^8*c^8*d^4 + 18600*a^5*b^7*c
^7*d^5 + 31580*a^6*b^6*c^6*d^6 - 48600*a^7*b^5*c^5*d^7 - 15249*a^
8*b^4*c^4*d^8 - 11004*a^9*b^3*c^3*d^9 + 9506*a^10*b^2*c^2*d^10 +
4116*a^11*b*c*d^11 + 2401*a^12*d^12)/(b^11*d^13)))/(d*x + c)))) +
 3*b^2*d^3*((50625*b^12*c^12 - 67500*a*b^11*c^11*d - 6750*a^2*b^1
0*c^10*d^2 - 61500*a^3*b^9*c^9*d^3 + 93775*a^4*b^8*c^8*d^4 + 1860
0*a^5*b^7*c^7*d^5 + 31580*a^6*b^6*c^6*d^6 - 48600*a^7*b^5*c^5*d^7
 - 15249*a^8*b^4*c^4*d^8 - 11004*a^9*b^3*c^3*d^9 + 9506*a^10*b^2*
c^2*d^10 + 4116*a^11*b*c*d^11 + 2401*a^12*d^12)/(b^11*d^13))^(1/4
)*log(-((15*b^3*c^3 - 5*a*b^2*c^2*d - 3*a^2*b*c*d^2 - 7*a^3*d^3)*
(b*x + a)^(1/4)*(d*x + c)^(3/4) + (b^3*d^4*x + b^3*c*d^3)*((50625
*b^12*c^12 - 67500*a*b^11*c^11*d - 6750*a^2*b^10*c^10*d^2 - 61500
*a^3*b^9*c^9*d^3 + 93775*a^4*b^8*c^8*d^4 + 18600*a^5*b^7*c^7*d^5
+ 31580*a^6*b^6*c^6*d^6 - 48600*a^7*b^5*c^5*d^7 - 15249*a^8*b^4*c
^4*d^8 - 11004*a^9*b^3*c^3*d^9 + 9506*a^10*b^2*c^2*d^10 + 4116*a^
11*b*c*d^11 + 2401*a^12*d^12)/(b^11*d^13))^(1/4))/(d*x + c)) - 3*
b^2*d^3*((50625*b^12*c^12 - 67500*a*b^11*c^11*d - 6750*a^2*b^10*c
^10*d^2 - 61500*a^3*b^9*c^9*d^3 + 93775*a^4*b^8*c^8*d^4 + 18600*a
^5*b^7*c^7*d^5 + 31580*a^6*b^6*c^6*d^6 - 48600*a^7*b^5*c^5*d^7 -
15249*a^8*b^4*c^4*d^8 - 11004*a^9*b^3*c^3*d^9 + 9506*a^10*b^2*c^2
*d^10 + 4116*a^11*b*c*d^11 + 2401*a^12*d^12)/(b^11*d^13))^(1/4)*l
og(-((15*b^3*c^3 - 5*a*b^2*c^2*d - 3*a^2*b*c*d^2 - 7*a^3*d^3)*(b*
x + a)^(1/4)*(d*x + c)^(3/4) - (b^3*d^4*x + b^3*c*d^3)*((50625*b^
12*c^12 - 67500*a*b^11*c^11*d - 6750*a^2*b^10*c^10*d^2 - 61500*a^
3*b^9*c^9*d^3 + 93775*a^4*b^8*c^8*d^4 + 18600*a^5*b^7*c^7*d^5 + 3
1580*a^6*b^6*c^6*d^6 - 48600*a^7*b^5*c^5*d^7 - 15249*a^8*b^4*c^4*
d^8 - 11004*a^9*b^3*c^3*d^9 + 9506*a^10*b^2*c^2*d^10 + 4116*a^11*
b*c*d^11 + 2401*a^12*d^12)/(b^11*d^13))^(1/4))/(d*x + c)) - 4*(32
*b^2*d^2*x^2 + 45*b^2*c^2 - 6*a*b*c*d - 7*a^2*d^2 - 4*(9*b^2*c*d
- a*b*d^2)*x)*(b*x + a)^(1/4)*(d*x + c)^(3/4))/(b^2*d^3)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x^2 \sqrt[4]{a + bx}}{\sqrt[4]{c + dx}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(b*x+a)**(1/4)/(d*x+c)**(1/4),x)
```

```
[Out] Integral(x**2*(a + b*x)**(1/4)/(c + d*x)**(1/4), x)
```

GIAC/XCAS [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(1/4)*x^2/(d*x + c)^(1/4),x, algorithm="giac")
```

```
[Out] Timed out
```

3.873 $\int \frac{x\sqrt[4]{a+bx}}{\sqrt[4]{c+dx}}\,dx$

Optimal. Leaf size=188

$$\frac{(bc-ad)(3ad+5bc)\tan^{-1}\left(\frac{\sqrt[4]{d}\sqrt[4]{a+bx}}{\sqrt[4]{b}\sqrt[4]{c+dx}}\right)}{16b^{7/4}d^{9/4}}+\frac{(bc-ad)(3ad+5bc)\tanh^{-1}\left(\frac{\sqrt[4]{d}\sqrt[4]{a+bx}}{\sqrt[4]{b}\sqrt[4]{c+dx}}\right)}{16b^{7/4}d^{9/4}}-\frac{\sqrt[4]{a+bx}(c+dx)^{3/4}(3ad+5bc)}{8bd^2}+\frac{(a+bx)^{5/4}(c+dx)^{3/4}}{2bd}$$

```
[Out] -((5*b*c + 3*a*d)*(a + b*x)^(1/4)*(c + d*x)^(3/4))/(8*b*d^2) + ((
a + b*x)^(5/4)*(c + d*x)^(3/4))/(2*b*d) + ((b*c - a*d)*(5*b*c + 3
*a*d)*ArcTan[(d^(1/4)*(a + b*x)^(1/4))/(b^(1/4)*(c + d*x)^(1/4))]
)/(16*b^(7/4)*d^(9/4)) + ((b*c - a*d)*(5*b*c + 3*a*d)*ArcTanh[(d^
(1/4)*(a + b*x)^(1/4))/(b^(1/4)*(c + d*x)^(1/4))])/(16*b^(7/4)*d^
(9/4))
```

Rubi [A] time = 0.246696, antiderivative size = 188, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.3

$$\frac{(bc-ad)(3ad+5bc)\tan^{-1}\left(\frac{\sqrt[4]{d}\sqrt[4]{a+bx}}{\sqrt[4]{b}\sqrt[4]{c+dx}}\right)}{16b^{7/4}d^{9/4}}+\frac{(bc-ad)(3ad+5bc)\tanh^{-1}\left(\frac{\sqrt[4]{d}\sqrt[4]{a+bx}}{\sqrt[4]{b}\sqrt[4]{c+dx}}\right)}{16b^{7/4}d^{9/4}}-\frac{\sqrt[4]{a+bx}(c+dx)^{3/4}(3ad+5bc)}{8bd^2}+\frac{(a+bx)^{5/4}(c+dx)^{3/4}}{2bd}$$

Antiderivative was successfully verified.

```
[In]  Int[(x*(a + b*x)^(1/4))/(c + d*x)^(1/4),x]
```

```
[Out] -((5*b*c + 3*a*d)*(a + b*x)^(1/4)*(c + d*x)^(3/4))/(8*b*d^2) + ((
a + b*x)^(5/4)*(c + d*x)^(3/4))/(2*b*d) + ((b*c - a*d)*(5*b*c + 3
*a*d)*ArcTan[(d^(1/4)*(a + b*x)^(1/4))/(b^(1/4)*(c + d*x)^(1/4))]
)/(16*b^(7/4)*d^(9/4)) + ((b*c - a*d)*(5*b*c + 3*a*d)*ArcTanh[(d^
(1/4)*(a + b*x)^(1/4))/(b^(1/4)*(c + d*x)^(1/4))])/(16*b^(7/4)*d^
(9/4))
```

Rubi in Sympy [A] time = 28.3726, size = 170, normalized size = 0.9

$$\frac{(a+bx)^{\frac{5}{4}}(c+dx)^{\frac{3}{4}}}{2bd}-\frac{\sqrt[4]{a+bx}\,(c+dx)^{\frac{3}{4}}\,(3ad+5bc)}{8bd^2}+\frac{(ad-bc)\,(3ad+5bc)\operatorname{atan}\left(\frac{\sqrt[4]{b}\sqrt[4]{c+dx}}{\sqrt[4]{d}\sqrt[4]{a+bx}}\right)}{16b^{\frac{7}{4}}d^{\frac{9}{4}}}-\frac{(ad-bc)\,(3ad+5bc)\operatorname{atanh}\left(\frac{\sqrt[4]{b}\sqrt[4]{c+dx}}{\sqrt[4]{d}\sqrt[4]{a+bx}}\right)}{16b^{\frac{7}{4}}d^{\frac{9}{4}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(b*x+a)**(1/4)/(d*x+c)**(1/4),x)
```

```
[Out] (a + b*x)**(5/4)*(c + d*x)**(3/4)/(2*b*d) - (a + b*x)**(1/4)*(c +
 d*x)**(3/4)*(3*a*d + 5*b*c)/(8*b*d**2) + (a*d - b*c)*(3*a*d + 5*
b*c)*atan(b**(1/4)*(c + d*x)**(1/4)/(d**(1/4)*(a + b*x)**(1/4)))/
(16*b**(7/4)*d**(9/4)) - (a*d - b*c)*(3*a*d + 5*b*c)*atanh(b**(1/
4)*(c + d*x)**(1/4)/(d**(1/4)*(a + b*x)**(1/4)))/(16*b**(7/4)*d**
(9/4))
```

Mathematica [C] time = 0.328832, size = 122, normalized size = 0.65

$$\frac{(c+dx)^{3/4}\left(\left(-3a^2d^2-2abcd+5b^2c^2\right)\left(\frac{d(a+bx)}{ad-bc}\right)^{3/4}{}_2F_1\left(\frac{3}{4},\frac{3}{4};\frac{7}{4};\frac{b(c+dx)}{bc-ad}\right)+3d(a+bx)(ad-5bc+4bdx)\right)}{24bd^3(a+bx)^{3/4}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x*(a + b*x)^(1/4))/(c + d*x)^(1/4),x]
```

```
[Out] ((c + d*x)^(3/4)*(3*d*(a + b*x)*(-5*b*c + a*d + 4*b*d*x) + (5*b^2
*c^2 - 2*a*b*c*d - 3*a^2*d^2)*((d*(a + b*x))/(-(b*c) + a*d))^(3/4
)*Hypergeometric2F1[3/4, 3/4, 7/4, (b*(c + d*x))/(b*c - a*d)]))/(
24*b*d^3*(a + b*x)^(3/4))
```

Maple [F] time = 0.038, size = 0, normalized size = 0.

$$\int x\sqrt[4]{bx+a}\frac{1}{\sqrt[4]{dx+c}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(b*x+a)^(1/4)/(d*x+c)^(1/4),x)
```

```
[Out] int(x*(b*x+a)^(1/4)/(d*x+c)^(1/4),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^{\frac{1}{4}}x}{(dx+c)^{\frac{1}{4}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(1/4)*x/(d*x + c)^(1/4),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^(1/4)*x/(d*x + c)^(1/4), x)
```

Fricas [A] time = 0.27836, size = 1573, normalized size = 8.37

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(1/4)*x/(d*x + c)^(1/4),x, algorithm="fricas")
```

```
[Out] 1/32*(4*b*d^2*((625*b^8*c^8 - 1000*a*b^7*c^7*d - 900*a^2*b^6*c^6*
d^2 + 1640*a^3*b^5*c^5*d^3 + 646*a^4*b^4*c^4*d^4 - 984*a^5*b^3*c^
3*d^5 - 324*a^6*b^2*c^2*d^6 + 216*a^7*b*c*d^7 + 81*a^8*d^8)/(b^7*
d^9))^(1/4)*arctan(-(b^2*d^3*x + b^2*c*d^2)*((625*b^8*c^8 - 1000*
a*b^7*c^7*d - 900*a^2*b^6*c^6*d^2 + 1640*a^3*b^5*c^5*d^3 + 646*a^
4*b^4*c^4*d^4 - 984*a^5*b^3*c^3*d^5 - 324*a^6*b^2*c^2*d^6 + 216*a
^7*b*c*d^7 + 81*a^8*d^8)/(b^7*d^9))^(1/4)/((5*b^2*c^2 - 2*a*b*c*d
 - 3*a^2*d^2)*(b*x + a)^(1/4)*(d*x + c)^(3/4) - (d*x + c)*sqrt(((
25*b^4*c^4 - 20*a*b^3*c^3*d - 26*a^2*b^2*c^2*d^2 + 12*a^3*b*c*d^3
 + 9*a^4*d^4)*sqrt(b*x + a)*sqrt(d*x + c) + (b^4*d^5*x + b^4*c*d^
4)*sqrt((625*b^8*c^8 - 1000*a*b^7*c^7*d - 900*a^2*b^6*c^6*d^2 + 1
640*a^3*b^5*c^5*d^3 + 646*a^4*b^4*c^4*d^4 - 984*a^5*b^3*c^3*d^5 -
```

```
 324*a^6*b^2*c^2*d^6 + 216*a^7*b*c*d^7 + 81*a^8*d^8)/(b^7*d^9)))/
(d*x + c)))) + b*d^2*((625*b^8*c^8 - 1000*a*b^7*c^7*d - 900*a^2*b
^6*c^6*d^2 + 1640*a^3*b^5*c^5*d^3 + 646*a^4*b^4*c^4*d^4 - 984*a^5
*b^3*c^3*d^5 - 324*a^6*b^2*c^2*d^6 + 216*a^7*b*c*d^7 + 81*a^8*d^8
)/(b^7*d^9))^(1/4)*log(-((5*b^2*c^2 - 2*a*b*c*d - 3*a^2*d^2)*(b*x
 + a)^(1/4)*(d*x + c)^(3/4) + (b^2*d^3*x + b^2*c*d^2)*((625*b^8*c
^8 - 1000*a*b^7*c^7*d - 900*a^2*b^6*c^6*d^2 + 1640*a^3*b^5*c^5*d^
3 + 646*a^4*b^4*c^4*d^4 - 984*a^5*b^3*c^3*d^5 - 324*a^6*b^2*c^2*d
^6 + 216*a^7*b*c*d^7 + 81*a^8*d^8)/(b^7*d^9))^(1/4))/(d*x + c)) -
 b*d^2*((625*b^8*c^8 - 1000*a*b^7*c^7*d - 900*a^2*b^6*c^6*d^2 + 1
640*a^3*b^5*c^5*d^3 + 646*a^4*b^4*c^4*d^4 - 984*a^5*b^3*c^3*d^5 -
 324*a^6*b^2*c^2*d^6 + 216*a^7*b*c*d^7 + 81*a^8*d^8)/(b^7*d^9))^(
1/4)*log(-((5*b^2*c^2 - 2*a*b*c*d - 3*a^2*d^2)*(b*x + a)^(1/4)*(d
*x + c)^(3/4) - (b^2*d^3*x + b^2*c*d^2)*((625*b^8*c^8 - 1000*a*b^
7*c^7*d - 900*a^2*b^6*c^6*d^2 + 1640*a^3*b^5*c^5*d^3 + 646*a^4*b^
4*c^4*d^4 - 984*a^5*b^3*c^3*d^5 - 324*a^6*b^2*c^2*d^6 + 216*a^7*b
*c*d^7 + 81*a^8*d^8)/(b^7*d^9))^(1/4))/(d*x + c)) + 4*(4*b*d*x -
5*b*c + a*d)*(b*x + a)^(1/4)*(d*x + c)^(3/4))/(b*d^2)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x\sqrt[4]{a+bx}}{\sqrt[4]{c+dx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(b*x+a)**(1/4)/(d*x+c)**(1/4),x)
```

```
[Out] Integral(x*(a + b*x)**(1/4)/(c + d*x)**(1/4), x)
```

GIAC/XCAS [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(1/4)*x/(d*x + c)^(1/4),x, algorithm="giac")
```

```
[Out] Timed out
```

3.874 $\int \frac{\sqrt[4]{a+bx}}{\sqrt[4]{c+dx}}\,dx$

Optimal. Leaf size=127

$$-\frac{(bc-ad)\tan^{-1}\left(\frac{\sqrt[4]{d}\sqrt[4]{a+bx}}{\sqrt[4]{b}\sqrt[4]{c+dx}}\right)}{2b^{3/4}d^{5/4}}-\frac{(bc-ad)\tanh^{-1}\left(\frac{\sqrt[4]{d}\sqrt[4]{a+bx}}{\sqrt[4]{b}\sqrt[4]{c+dx}}\right)}{2b^{3/4}d^{5/4}}+\frac{\sqrt[4]{a+bx}(c+dx)^{3/4}}{d}$$

```
[Out] ((a + b*x)^(1/4)*(c + d*x)^(3/4))/d - ((b*c - a*d)*ArcTan[(d^(1/4
)*(a + b*x)^(1/4))/(b^(1/4)*(c + d*x)^(1/4))])/(2*b^(3/4)*d^(5/4)
) - ((b*c - a*d)*ArcTanh[(d^(1/4)*(a + b*x)^(1/4))/(b^(1/4)*(c +
d*x)^(1/4))])/(2*b^(3/4)*d^(5/4))
```

Rubi [A] time = 0.134333, antiderivative size = 127, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.263

$$-\frac{(bc-ad)\tan^{-1}\left(\frac{\sqrt[4]{d}\sqrt[4]{a+bx}}{\sqrt[4]{b}\sqrt[4]{c+dx}}\right)}{2b^{3/4}d^{5/4}}-\frac{(bc-ad)\tanh^{-1}\left(\frac{\sqrt[4]{d}\sqrt[4]{a+bx}}{\sqrt[4]{b}\sqrt[4]{c+dx}}\right)}{2b^{3/4}d^{5/4}}+\frac{\sqrt[4]{a+bx}(c+dx)^{3/4}}{d}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(1/4)/(c + d*x)^(1/4),x]
```

```
[Out] ((a + b*x)^(1/4)*(c + d*x)^(3/4))/d - ((b*c - a*d)*ArcTan[(d^(1/4
)*(a + b*x)^(1/4))/(b^(1/4)*(c + d*x)^(1/4))])/(2*b^(3/4)*d^(5/4)
) - ((b*c - a*d)*ArcTanh[(d^(1/4)*(a + b*x)^(1/4))/(b^(1/4)*(c +
d*x)^(1/4))])/(2*b^(3/4)*d^(5/4))
```

Rubi in Sympy [A] time = 19.8803, size = 112, normalized size = 0.88

$$\frac{\sqrt[4]{a+bx}\,(c+dx)^{\frac{3}{4}}}{d}-\frac{(ad-bc)\operatorname{atan}\left(\frac{\sqrt[4]{b}\sqrt[4]{c+dx}}{\sqrt[4]{d}\sqrt[4]{a+bx}}\right)}{2b^{\frac{3}{4}}d^{\frac{5}{4}}}+\frac{(ad-bc)\operatorname{atanh}\left(\frac{\sqrt[4]{b}\sqrt[4]{c+dx}}{\sqrt[4]{d}\sqrt[4]{a+bx}}\right)}{2b^{\frac{3}{4}}d^{\frac{5}{4}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/4)/(d*x+c)**(1/4),x)
```

```
[Out] (a + b*x)**(1/4)*(c + d*x)**(3/4)/d - (a*d - b*c)*atan(b**(1/4)*(
c + d*x)**(1/4)/(d**(1/4)*(a + b*x)**(1/4)))/(2*b**(3/4)*d**(5/4)
) + (a*d - b*c)*atanh(b**(1/4)*(c + d*x)**(1/4)/(d**(1/4)*(a + b*
x)**(1/4)))/(2*b**(3/4)*d**(5/4))
```

Mathematica [C] time = 0.17498, size = 76, normalized size = 0.6

$$\frac{\sqrt[4]{a+bx}(c+dx)^{3/4}\left(\frac{{}_2F_1\left(\frac{3}{4},\frac{3}{4};\frac{7}{4};\frac{b(c+dx)}{bc-ad}\right)}{\sqrt[4]{\frac{d(a+bx)}{ad-bc}}}+3\right)}{3d}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(1/4)/(c + d*x)^(1/4),x]
```

```
[Out] ((a + b*x)^(1/4)*(c + d*x)^(3/4)*(3 + Hypergeometric2F1[3/4, 3/4,
 7/4, (b*(c + d*x))/(b*c - a*d)]/((d*(a + b*x))/(-(b*c) + a*d))^(
1/4)))/(3*d)
```

Maple [F] time = 0., size = 0, normalized size = 0.

$$\int 1\sqrt[4]{bx+a}\frac{1}{\sqrt[4]{dx+c}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/4)/(d*x+c)^(1/4),x)
```

```
[Out] int((b*x+a)^(1/4)/(d*x+c)^(1/4),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^{\frac{1}{4}}}{(dx+c)^{\frac{1}{4}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(1/4)/(d*x + c)^(1/4),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^(1/4)/(d*x + c)^(1/4), x)
```

Fricas [A] time = 0.252218, size = 865, normalized size = 6.81

$$-\frac{4\,d\left(\frac{b^4c^4-4\,ab^3c^3d+6\,a^2b^2c^2d^2-4\,a^3bcd^3+a^4d^4}{b^3d^5}\right)^{\frac{1}{4}}\arctan\left(-\frac{(bd^2x+bcd)\left(\frac{b^4c^4-4\,ab^3c^3d+6\,a^2b^2c^2d^2-4\,a^3bcd^3+a^4d^4}{b^3d^5}\right.\cdots}{(bc-ad)(bx+a)^{\frac{1}{4}}(dx+c)^{\frac{3}{4}}-(dx+c)\sqrt{\frac{\left(b^2c^2-2\,abcd+a^2d^2\right)\sqrt{bx+a}\sqrt{dx+c}+\left(b^2d^3x+b^2cd^2\right)\sqrt{\frac{b^4c\cdots}{}}}{dx+c}}}\right.\cdots}{\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(1/4)/(d*x + c)^(1/4),x, algorithm="fricas")
```

```
[Out] -1/4*(4*d*((b^4*c^4 - 4*a*b^3*c^3*d + 6*a^2*b^2*c^2*d^2 - 4*a^3*b
*c*d^3 + a^4*d^4)/(b^3*d^5))^(1/4)*arctan(-(b*d^2*x + b*c*d)*((b^
4*c^4 - 4*a*b^3*c^3*d + 6*a^2*b^2*c^2*d^2 - 4*a^3*b*c*d^3 + a^4*d
^4)/(b^3*d^5))^(1/4)/((b*c - a*d)*(b*x + a)^(1/4)*(d*x + c)^(3/4)
 - (d*x + c)*sqrt(((b^2*c^2 - 2*a*b*c*d + a^2*d^2)*sqrt(b*x + a)*
sqrt(d*x + c) + (b^2*d^3*x + b^2*c*d^2)*sqrt((b^4*c^4 - 4*a*b^3*c
^3*d + 6*a^2*b^2*c^2*d^2 - 4*a^3*b*c*d^3 + a^4*d^4)/(b^3*d^5)))/(
d*x + c)))) + d*((b^4*c^4 - 4*a*b^3*c^3*d + 6*a^2*b^2*c^2*d^2 - 4
*a^3*b*c*d^3 + a^4*d^4)/(b^3*d^5))^(1/4)*log(-((b*c - a*d)*(b*x +
 a)^(1/4)*(d*x + c)^(3/4) + (b*d^2*x + b*c*d)*((b^4*c^4 - 4*a*b^3
*c^3*d + 6*a^2*b^2*c^2*d^2 - 4*a^3*b*c*d^3 + a^4*d^4)/(b^3*d^5))^
(1/4))/(d*x + c)) - d*((b^4*c^4 - 4*a*b^3*c^3*d + 6*a^2*b^2*c^2*d
^2 - 4*a^3*b*c*d^3 + a^4*d^4)/(b^3*d^5))^(1/4)*log(-((b*c - a*d)*
(b*x + a)^(1/4)*(d*x + c)^(3/4) - (b*d^2*x + b*c*d)*((b^4*c^4 - 4
*a*b^3*c^3*d + 6*a^2*b^2*c^2*d^2 - 4*a^3*b*c*d^3 + a^4*d^4)/(b^3*
d^5))^(1/4))/(d*x + c)) - 4*(b*x + a)^(1/4)*(d*x + c)^(3/4))/d
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt[4]{a+bx}}{\sqrt[4]{c+dx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(1/4)/(d*x+c)**(1/4),x)
```

```
[Out] Integral((a + b*x)**(1/4)/(c + d*x)**(1/4), x)
```

GIAC/XCAS [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(1/4)/(d*x + c)^(1/4),x, algorithm="giac")
```

```
[Out] Timed out
```

3.875 $\int \frac{\sqrt[4]{a+bx}}{x\sqrt[4]{c+dx}}\,dx$

Optimal. Leaf size=169

$$-\frac{2\sqrt[4]{a}\tan^{-1}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{\sqrt[4]{c}}+\frac{2\sqrt[4]{b}\tan^{-1}\left(\frac{\sqrt[4]{d}\sqrt[4]{a+bx}}{\sqrt[4]{b}\sqrt[4]{c+dx}}\right)}{\sqrt[4]{d}}-\frac{2\sqrt[4]{a}\tanh^{-1}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{\sqrt[4]{c}}+\frac{2\sqrt[4]{b}\tanh^{-1}\left(\frac{\sqrt[4]{d}\sqrt[4]{a+bx}}{\sqrt[4]{b}\sqrt[4]{c+dx}}\right)}{\sqrt[4]{d}}$$

```
[Out] (-2*a^(1/4)*ArcTan[(c^(1/4)*(a + b*x)^(1/4))/(a^(1/4)*(c + d*x)^(
1/4))])/c^(1/4) + (2*b^(1/4)*ArcTan[(d^(1/4)*(a + b*x)^(1/4))/(b^
(1/4)*(c + d*x)^(1/4))])/d^(1/4) - (2*a^(1/4)*ArcTanh[(c^(1/4)*(a
 + b*x)^(1/4))/(a^(1/4)*(c + d*x)^(1/4))])/c^(1/4) + (2*b^(1/4)*A
rcTanh[(d^(1/4)*(a + b*x)^(1/4))/(b^(1/4)*(c + d*x)^(1/4))])/d^(1
/4)
```

Rubi [A] time = 0.25389, antiderivative size = 169, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.273

$$-\frac{2\sqrt[4]{a}\tan^{-1}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{\sqrt[4]{c}}+\frac{2\sqrt[4]{b}\tan^{-1}\left(\frac{\sqrt[4]{d}\sqrt[4]{a+bx}}{\sqrt[4]{b}\sqrt[4]{c+dx}}\right)}{\sqrt[4]{d}}-\frac{2\sqrt[4]{a}\tanh^{-1}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{\sqrt[4]{c}}+\frac{2\sqrt[4]{b}\tanh^{-1}\left(\frac{\sqrt[4]{d}\sqrt[4]{a+bx}}{\sqrt[4]{b}\sqrt[4]{c+dx}}\right)}{\sqrt[4]{d}}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(1/4)/(x*(c + d*x)^(1/4)),x]
```

```
[Out] (-2*a^(1/4)*ArcTan[(c^(1/4)*(a + b*x)^(1/4))/(a^(1/4)*(c + d*x)^(
1/4))])/c^(1/4) + (2*b^(1/4)*ArcTan[(d^(1/4)*(a + b*x)^(1/4))/(b^
(1/4)*(c + d*x)^(1/4))])/d^(1/4) - (2*a^(1/4)*ArcTanh[(c^(1/4)*(a
 + b*x)^(1/4))/(a^(1/4)*(c + d*x)^(1/4))])/c^(1/4) + (2*b^(1/4)*A
rcTanh[(d^(1/4)*(a + b*x)^(1/4))/(b^(1/4)*(c + d*x)^(1/4))])/d^(1
/4)
```

Rubi in Sympy [A] time = 31.8903, size = 162, normalized size = 0.96

$$-\frac{2\sqrt[4]{a}\operatorname{atan}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{\sqrt[4]{c}}-\frac{2\sqrt[4]{a}\operatorname{atanh}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{\sqrt[4]{c}}-\frac{2\sqrt[4]{b}\operatorname{atan}\left(\frac{\sqrt[4]{b}\sqrt[4]{c+dx}}{\sqrt[4]{d}\sqrt[4]{a+bx}}\right)}{\sqrt[4]{d}}+\frac{2\sqrt[4]{b}\operatorname{atanh}\left(\frac{\sqrt[4]{b}\sqrt[4]{c+dx}}{\sqrt[4]{d}\sqrt[4]{a+bx}}\right)}{\sqrt[4]{d}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/4)/x/(d*x+c)**(1/4),x)
```

```
[Out] -2*a**(1/4)*atan(c**(1/4)*(a + b*x)**(1/4)/(a**(1/4)*(c + d*x)**(
1/4)))/c**(1/4) - 2*a**(1/4)*atanh(c**(1/4)*(a + b*x)**(1/4)/(a**
(1/4)*(c + d*x)**(1/4)))/c**(1/4) - 2*b**(1/4)*atan(b**(1/4)*(c +
 d*x)**(1/4)/(d**(1/4)*(a + b*x)**(1/4)))/d**(1/4) + 2*b**(1/4)*a
tanh(b**(1/4)*(c + d*x)**(1/4)/(d**(1/4)*(a + b*x)**(1/4)))/d**(1
```

```
/4)
```

Mathematica [C] time = 0.521569, size = 216, normalized size = 1.28

$$\frac{36a(a+bx)^{5/4}(bc-ad)F_1\left(\frac{5}{4};\frac{1}{4},1;\frac{9}{4};\frac{d(a+bx)}{ad-bc},\frac{bx}{a}+1\right)}{5bx\sqrt[4]{c+dx}\left(9a(bc-ad)F_1\left(\frac{5}{4};\frac{1}{4},1;\frac{9}{4};\frac{d(a+bx)}{ad-bc},\frac{bx}{a}+1\right)-(a+bx)\left((4ad-4bc)F_1\left(\frac{9}{4};\frac{1}{4},2;\frac{13}{4};\frac{d(a+bx)}{ad-bc},\frac{bx}{a}+1\right)+adF_1\left(\frac{9}{4};\frac{5}{4},\right.\right.\right.}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^(1/4)/(x*(c + d*x)^(1/4)),x]
```

```
[Out] (36*a*(b*c - a*d)*(a + b*x)^(5/4)*AppellF1[5/4, 1/4, 1, 9/4, (d*(
a + b*x))/(-(b*c) + a*d), 1 + (b*x)/a])/(5*b*x*(c + d*x)^(1/4)*(9
*a*(b*c - a*d)*AppellF1[5/4, 1/4, 1, 9/4, (d*(a + b*x))/(-(b*c) +
 a*d), 1 + (b*x)/a] - (a + b*x)*((-4*b*c + 4*a*d)*AppellF1[9/4, 1
/4, 2, 13/4, (d*(a + b*x))/(-(b*c) + a*d), 1 + (b*x)/a] + a*d*App
ellF1[9/4, 5/4, 1, 13/4, (d*(a + b*x))/(-(b*c) + a*d), 1 + (b*x)/
a])))
```

Maple [F] time = 0.062, size = 0, normalized size = 0.

$$\int \frac{1}{x}\sqrt[4]{bx+a}\frac{1}{\sqrt[4]{dx+c}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/4)/x/(d*x+c)^(1/4),x)
```

```
[Out] int((b*x+a)^(1/4)/x/(d*x+c)^(1/4),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^{\frac{1}{4}}}{(dx+c)^{\frac{1}{4}}x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(1/4)/((d*x + c)^(1/4)*x),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^(1/4)/((d*x + c)^(1/4)*x), x)
```

Fricas [A] time = 0.315641, size = 490, normalized size = 2.9

$$4\left(\frac{a}{c}\right)^{\frac{1}{4}}\arctan\left(\frac{(dx+c)\left(\frac{a}{c}\right)^{\frac{1}{4}}}{(dx+c)\sqrt{\frac{(dx+c)\sqrt{\frac{a}{c}}+\sqrt{bx+a}\sqrt{dx+c}}{dx+c}}+(bx+a)^{\frac{1}{4}}(dx+c)^{\frac{3}{4}}}\right) - 4\left(\frac{b}{d}\right)^{\frac{1}{4}}\arctan\left(\frac{(dx+c)\left(\frac{b}{d}\right)^{\frac{1}{4}}}{(dx+c)\sqrt{\frac{(dx+c)\sqrt{\frac{b}{d}}+\sqrt{bx+a}\sqrt{dx+c}}{dx+c}}+(bx+a)^{\frac{1}{4}}(dx+c)^{\frac{3}{4}}}\right) - \left(\frac{a}{c}\right)^{\frac{1}{4}}\log\left(\frac{(dx+c)\left(\frac{a}{c}\right)^{\frac{1}{4}}+(bx+a)^{\frac{1}{4}}(dx+c)^{\frac{3}{4}}}{dx+c}\right) + \left(\frac{a}{c}\right)^{\frac{1}{4}}\log\left(-\frac{(dx+c)\left(\frac{a}{c}\right)^{\frac{1}{4}}-(bx+a)^{\frac{1}{4}}(dx+c)^{\frac{3}{4}}}{dx+c}\right) + \left(\frac{b}{d}\right)^{\frac{1}{4}}\log\left(\frac{(dx+c)\left(\frac{b}{d}\right)^{\frac{1}{4}}+(bx+a)^{\frac{1}{4}}(dx+c)^{\frac{3}{4}}}{dx+c}\right) - \left(\frac{b}{d}\right)^{\frac{1}{4}}\log\left(-\frac{(dx+c)\left(\frac{b}{d}\right)^{\frac{1}{4}}-(bx+a)^{\frac{1}{4}}(dx+c)^{\frac{3}{4}}}{dx+c}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(1/4)/((d*x + c)^(1/4)*x),x, algorithm="fricas")
```

```
[Out] 4*(a/c)^(1/4)*arctan((d*x + c)*(a/c)^(1/4)/((d*x + c)*sqrt(((d*x
+ c)*sqrt(a/c) + sqrt(b*x + a)*sqrt(d*x + c))/(d*x + c)) + (b*x +
 a)^(1/4)*(d*x + c)^(3/4))) - 4*(b/d)^(1/4)*arctan((d*x + c)*(b/d
)^(1/4)/((d*x + c)*sqrt(((d*x + c)*sqrt(b/d) + sqrt(b*x + a)*sqrt
(d*x + c))/(d*x + c)) + (b*x + a)^(1/4)*(d*x + c)^(3/4))) - (a/c)
^(1/4)*log(((d*x + c)*(a/c)^(1/4) + (b*x + a)^(1/4)*(d*x + c)^(3/
4))/(d*x + c)) + (a/c)^(1/4)*log(-((d*x + c)*(a/c)^(1/4) - (b*x +
 a)^(1/4)*(d*x + c)^(3/4))/(d*x + c)) + (b/d)^(1/4)*log(((d*x + c
)*(b/d)^(1/4) + (b*x + a)^(1/4)*(d*x + c)^(3/4))/(d*x + c)) - (b/
d)^(1/4)*log(-((d*x + c)*(b/d)^(1/4) - (b*x + a)^(1/4)*(d*x + c)^
(3/4))/(d*x + c))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt[4]{a+bx}}{x\sqrt[4]{c+dx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**(1/4)/x/(d*x+c)**(1/4),x)
```

```
[Out] Integral((a + b*x)**(1/4)/(x*(c + d*x)**(1/4)), x)
```

GIAC/XCAS [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(1/4)/((d*x + c)^(1/4)*x),x, algorithm="giac")
```

```
[Out] Timed out
```

3.876 $\int \frac{\sqrt[4]{a+bx}}{x^2\sqrt[4]{c+dx}}\,dx$

Optimal. Leaf size=131

$$-\frac{(bc-ad)\tan^{-1}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{2a^{3/4}c^{5/4}}-\frac{(bc-ad)\tanh^{-1}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{2a^{3/4}c^{5/4}}-\frac{\sqrt[4]{a+bx}(c+dx)^{3/4}}{cx}$$

```
[Out] -(((a + b*x)^(1/4)*(c + d*x)^(3/4))/(c*x)) - ((b*c - a*d)*ArcTan[
(c^(1/4)*(a + b*x)^(1/4))/(a^(1/4)*(c + d*x)^(1/4))])/(2*a^(3/4)*
c^(5/4)) - ((b*c - a*d)*ArcTanh[(c^(1/4)*(a + b*x)^(1/4))/(a^(1/4
)*(c + d*x)^(1/4))])/(2*a^(3/4)*c^(5/4))
```

Rubi [A] time = 0.184273, antiderivative size = 131, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.227$

$$-\frac{(bc-ad)\tan^{-1}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{2a^{3/4}c^{5/4}}-\frac{(bc-ad)\tanh^{-1}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{2a^{3/4}c^{5/4}}-\frac{\sqrt[4]{a+bx}(c+dx)^{3/4}}{cx}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(1/4)/(x^2*(c + d*x)^(1/4)),x]
```

```
[Out] -(((a + b*x)^(1/4)*(c + d*x)^(3/4))/(c*x)) - ((b*c - a*d)*ArcTan[
(c^(1/4)*(a + b*x)^(1/4))/(a^(1/4)*(c + d*x)^(1/4))])/(2*a^(3/4)*
c^(5/4)) - ((b*c - a*d)*ArcTanh[(c^(1/4)*(a + b*x)^(1/4))/(a^(1/4
)*(c + d*x)^(1/4))])/(2*a^(3/4)*c^(5/4))
```

Rubi in Sympy [A] time = 18.7706, size = 114, normalized size = 0.87

$$-\frac{\sqrt[4]{a+bx}\,(c+dx)^{\frac{3}{4}}}{cx}+\frac{(ad-bc)\,\mathrm{atan}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{2a^{\frac{3}{4}}c^{\frac{5}{4}}}+\frac{(ad-bc)\,\mathrm{atanh}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{2a^{\frac{3}{4}}c^{\frac{5}{4}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/4)/x**2/(d*x+c)**(1/4),x)
```

```
[Out] -(a + b*x)**(1/4)*(c + d*x)**(3/4)/(c*x) + (a*d - b*c)*atan(c**(1
/4)*(a + b*x)**(1/4)/(a**(1/4)*(c + d*x)**(1/4)))/(2*a**(3/4)*c**
(5/4)) + (a*d - b*c)*atanh(c**(1/4)*(a + b*x)**(1/4)/(a**(1/4)*(c
 + d*x)**(1/4)))/(2*a**(3/4)*c**(5/4))
```

Mathematica [C] time = 0.411209, size = 176, normalized size = 1.34

$$\frac{\frac{2bdx^2(bc-ad)F_1\left(1;\frac{3}{4},\frac{1}{4};2;-\frac{a}{bx},-\frac{c}{dx}\right)}{-8bdxF_1\left(1;\frac{3}{4},\frac{1}{4};2;-\frac{a}{bx},-\frac{c}{dx}\right)+bcF_1\left(2;\frac{3}{4},\frac{5}{4};3;-\frac{a}{bx},-\frac{c}{dx}\right)+3adF_1\left(2;\frac{7}{4},\frac{1}{4};3;-\frac{a}{bx},-\frac{c}{dx}\right)}-(a+bx)(c+dx)}{cx(a+bx)^{3/4}\sqrt[4]{c+dx}}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^(1/4)/(x^2*(c + d*x)^(1/4)),x]
```

```
[Out] (-((a + b*x)*(c + d*x)) + (2*b*d*(b*c - a*d)*x^2*AppellF1[1, 3/4,
 1/4, 2, -(a/(b*x)), -(c/(d*x))])/(-8*b*d*x*AppellF1[1, 3/4, 1/4,
 2, -(a/(b*x)), -(c/(d*x))] + b*c*AppellF1[2, 3/4, 5/4, 3, -(a/(b
*x)), -(c/(d*x))] + 3*a*d*AppellF1[2, 7/4, 1/4, 3, -(a/(b*x)), -(
c/(d*x))]))/(c*x*(a + b*x)^(3/4)*(c + d*x)^(1/4))
```

Maple [F] time = 0.054, size = 0, normalized size = 0.

$$\int \frac{1}{x^2}\sqrt[4]{bx+a}\frac{1}{\sqrt[4]{dx+c}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/4)/x^2/(d*x+c)^(1/4),x)
```

```
[Out] int((b*x+a)^(1/4)/x^2/(d*x+c)^(1/4),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^{\frac{1}{4}}}{(dx+c)^{\frac{1}{4}}x^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(1/4)/((d*x + c)^(1/4)*x^2),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^(1/4)/((d*x + c)^(1/4)*x^2), x)
```

Fricas [A] time = 0.2557, size = 873, normalized size = 6.66

$$-\frac{4\,cx\left(\frac{b^4c^4-4\,ab^3c^3d+6\,a^2b^2c^2d^2-4\,a^3bcd^3+a^4d^4}{a^3c^5}\right)^{\frac{1}{4}}\arctan\left(-\frac{(acdx+ac^2)\left(\frac{b^4c^4-4\,ab^3c^3d+6\,a^2b^2c^2d^2-4\,a^3bcd^3+a^4d}{a^3c^5}\right.}{(bc-ad)(bx+a)^{\frac{1}{4}}(dx+c)^{\frac{3}{4}}-(dx+c)\sqrt{\frac{\left(b^2c^2-2\,abcd+a^2d^2\right)\sqrt{bx+a}\sqrt{dx+c}+\left(a^2c^2dx+a^2c^3\right)\sqrt{b^4}}{dx+c}}}\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(1/4)/((d*x + c)^(1/4)*x^2),x, algorithm="fricas")
```

```
[Out] -1/4*(4*c*x*((b^4*c^4 - 4*a*b^3*c^3*d + 6*a^2*b^2*c^2*d^2 - 4*a^3
*b*c*d^3 + a^4*d^4)/(a^3*c^5))^(1/4)*arctan(-(a*c*d*x + a*c^2)*((
b^4*c^4 - 4*a*b^3*c^3*d + 6*a^2*b^2*c^2*d^2 - 4*a^3*b*c*d^3 + a^4
*d^4)/(a^3*c^5))^(1/4)/((b*c - a*d)*(b*x + a)^(1/4)*(d*x + c)^(3/
4) - (d*x + c)*sqrt(((b^2*c^2 - 2*a*b*c*d + a^2*d^2)*sqrt(b*x + a
)*sqrt(d*x + c) + (a^2*c^2*d*x + a^2*c^3)*sqrt((b^4*c^4 - 4*a*b^3
*c^3*d + 6*a^2*b^2*c^2*d^2 - 4*a^3*b*c*d^3 + a^4*d^4)/(a^3*c^5)))
/(d*x + c)))) + c*x*((b^4*c^4 - 4*a*b^3*c^3*d + 6*a^2*b^2*c^2*d^2
 - 4*a^3*b*c*d^3 + a^4*d^4)/(a^3*c^5))^(1/4)*log(-((b*c - a*d)*(b
*x + a)^(1/4)*(d*x + c)^(3/4) + (a*c*d*x + a*c^2)*((b^4*c^4 - 4*a
*b^3*c^3*d + 6*a^2*b^2*c^2*d^2 - 4*a^3*b*c*d^3 + a^4*d^4)/(a^3*c^
5))^(1/4))/(d*x + c)) - c*x*((b^4*c^4 - 4*a*b^3*c^3*d + 6*a^2*b^2
*c^2*d^2 - 4*a^3*b*c*d^3 + a^4*d^4)/(a^3*c^5))^(1/4)*log(-((b*c -
 a*d)*(b*x + a)^(1/4)*(d*x + c)^(3/4) - (a*c*d*x + a*c^2)*((b^4*c
^4 - 4*a*b^3*c^3*d + 6*a^2*b^2*c^2*d^2 - 4*a^3*b*c*d^3 + a^4*d^4)
/(a^3*c^5))^(1/4))/(d*x + c)) + 4*(b*x + a)^(1/4)*(d*x + c)^(3/4)
)/(c*x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt[4]{a+bx}}{x^2\sqrt[4]{c+dx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(1/4)/x**2/(d*x+c)**(1/4),x)
```

```
[Out] Integral((a + b*x)**(1/4)/(x**2*(c + d*x)**(1/4)), x)
```

GIAC/XCAS [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(1/4)/((d*x + c)^(1/4)*x^2),x, algorithm="giac")
```

```
[Out] Timed out
```

3.877 $\int \frac{\sqrt[4]{a+bx}}{x^3\sqrt[4]{c+dx}}\,dx$

Optimal. Leaf size=194

$$\frac{(bc-ad)(5ad+3bc)\tan^{-1}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{16a^{7/4}c^{9/4}}+\frac{(bc-ad)(5ad+3bc)\tanh^{-1}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{16a^{7/4}c^{9/4}}+\frac{\sqrt[4]{a+bx}(c+dx)^{3/4}(5ad+3bc)}{8ac^2x}-\frac{(a+bx)^{5/4}(c+dx)^{3/4}}{2acx^2}$$

```
[Out] ((3*b*c + 5*a*d)*(a + b*x)^(1/4)*(c + d*x)^(3/4))/(8*a*c^2*x) - (
(a + b*x)^(5/4)*(c + d*x)^(3/4))/(2*a*c*x^2) + ((b*c - a*d)*(3*b*
c + 5*a*d)*ArcTan[(c^(1/4)*(a + b*x)^(1/4))/(a^(1/4)*(c + d*x)^(1
/4))])/(16*a^(7/4)*c^(9/4)) + ((b*c - a*d)*(3*b*c + 5*a*d)*ArcTan
h[(c^(1/4)*(a + b*x)^(1/4))/(a^(1/4)*(c + d*x)^(1/4))])/(16*a^(7/
4)*c^(9/4))
```

Rubi [A] time = 0.309189, antiderivative size = 194, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.273$

$$\frac{(bc-ad)(5ad+3bc)\tan^{-1}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{16a^{7/4}c^{9/4}}+\frac{(bc-ad)(5ad+3bc)\tanh^{-1}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{16a^{7/4}c^{9/4}}+\frac{\sqrt[4]{a+bx}(c+dx)^{3/4}(5ad+3bc)}{8ac^2x}-\frac{(a+bx)^{5/4}(c+dx)^{3/4}}{2acx^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(1/4)/(x^3*(c + d*x)^(1/4)),x]
```

```
[Out] ((3*b*c + 5*a*d)*(a + b*x)^(1/4)*(c + d*x)^(3/4))/(8*a*c^2*x) - (
(a + b*x)^(5/4)*(c + d*x)^(3/4))/(2*a*c*x^2) + ((b*c - a*d)*(3*b*
c + 5*a*d)*ArcTan[(c^(1/4)*(a + b*x)^(1/4))/(a^(1/4)*(c + d*x)^(1
/4))])/(16*a^(7/4)*c^(9/4)) + ((b*c - a*d)*(3*b*c + 5*a*d)*ArcTan
h[(c^(1/4)*(a + b*x)^(1/4))/(a^(1/4)*(c + d*x)^(1/4))])/(16*a^(7/
4)*c^(9/4))
```

Rubi in Sympy [A] time = 27.8204, size = 175, normalized size = 0.9

$$-\frac{(a+bx)^{\frac{5}{4}}(c+dx)^{\frac{3}{4}}}{2acx^2}+\frac{\sqrt[4]{a+bx}\,(c+dx)^{\frac{3}{4}}(5ad+3bc)}{8ac^2x}-\frac{(ad-bc)(5ad+3bc)\operatorname{atan}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{16a^{\frac{7}{4}}c^{\frac{9}{4}}}-\frac{(ad-bc)(5ad+3bc)\operatorname{atanh}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{16a^{\frac{7}{4}}c^{\frac{9}{4}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/4)/x**3/(d*x+c)**(1/4),x)
```

```
[Out] -(a + b*x)**(5/4)*(c + d*x)**(3/4)/(2*a*c*x**2) + (a + b*x)**(1/4
)*(c + d*x)**(3/4)*(5*a*d + 3*b*c)/(8*a*c**2*x) - (a*d - b*c)*(5*
a*d + 3*b*c)*atan(c**(1/4)*(a + b*x)**(1/4)/(a**(1/4)*(c + d*x)**
(1/4)))/(16*a**(7/4)*c**(9/4)) - (a*d - b*c)*(5*a*d + 3*b*c)*atan
h(c**(1/4)*(a + b*x)**(1/4)/(a**(1/4)*(c + d*x)**(1/4)))/(16*a**(
7/4)*c**(9/4))
```

Mathematica [C] time = 0.39033, size = 211, normalized size = 1.09

$$\frac{\frac{2bdx^3(5a^2d^2-2abcd-3b^2c^2)F_1\left(1;\frac{3}{4},\frac{1}{4};2;-\frac{a}{bx},-\frac{c}{dx}\right)}{-8bdxF_1\left(1;\frac{3}{4},\frac{1}{4};2;-\frac{a}{bx},-\frac{c}{dx}\right)+bcF_1\left(2;\frac{3}{4},\frac{5}{4};3;-\frac{a}{bx},-\frac{c}{dx}\right)+3adF_1\left(2;\frac{7}{4},\frac{1}{4};3;-\frac{a}{bx},-\frac{c}{dx}\right)}+(a+bx)(c+dx)(-4ac+5adx-bcx)}{8ac^2x^2(a+bx)^{3/4}\sqrt[4]{c+dx}}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^(1/4)/(x^3*(c + d*x)^(1/4)),x]
```

```
[Out] ((a + b*x)*(c + d*x)*(-4*a*c - b*c*x + 5*a*d*x) + (2*b*d*(-3*b^2*
c^2 - 2*a*b*c*d + 5*a^2*d^2)*x^3*AppellF1[1, 3/4, 1/4, 2, -(a/(b*
x)), -(c/(d*x))])/(-8*b*d*x*AppellF1[1, 3/4, 1/4, 2, -(a/(b*x)),
-(c/(d*x))] + b*c*AppellF1[2, 3/4, 5/4, 3, -(a/(b*x)), -(c/(d*x))
] + 3*a*d*AppellF1[2, 7/4, 1/4, 3, -(a/(b*x)), -(c/(d*x))]))/(8*a
*c^2*x^2*(a + b*x)^(3/4)*(c + d*x)^(1/4))
```

Maple [F] time = 0.052, size = 0, normalized size = 0.

$$\int \frac{1}{x^3}\sqrt[4]{bx+a}\,\frac{1}{\sqrt[4]{dx+c}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/4)/x^3/(d*x+c)^(1/4),x)
```

```
[Out] int((b*x+a)^(1/4)/x^3/(d*x+c)^(1/4),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^{\frac{1}{4}}}{(dx+c)^{\frac{1}{4}}x^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(1/4)/((d*x + c)^(1/4)*x^3),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^(1/4)/((d*x + c)^(1/4)*x^3), x)
```

Fricas [A] time = 0.278792, size = 1592, normalized size = 8.21

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(1/4)/((d*x + c)^(1/4)*x^3),x, algorithm="fricas")
```

```
[Out] 1/32*(4*a*c^2*x^2*((81*b^8*c^8 + 216*a*b^7*c^7*d - 324*a^2*b^6*c^
6*d^2 - 984*a^3*b^5*c^5*d^3 + 646*a^4*b^4*c^4*d^4 + 1640*a^5*b^3*
c^3*d^5 - 900*a^6*b^2*c^2*d^6 - 1000*a^7*b*c*d^7 + 625*a^8*d^8)/(
a^7*c^9))^(1/4)*arctan(-(a^2*c^2*d*x + a^2*c^3)*((81*b^8*c^8 + 21
6*a*b^7*c^7*d - 324*a^2*b^6*c^6*d^2 - 984*a^3*b^5*c^5*d^3 + 646*a
^4*b^4*c^4*d^4 + 1640*a^5*b^3*c^3*d^5 - 900*a^6*b^2*c^2*d^6 - 100
0*a^7*b*c*d^7 + 625*a^8*d^8)/(a^7*c^9))^(1/4)/((3*b^2*c^2 + 2*a*b
*c*d - 5*a^2*d^2)*(b*x + a)^(1/4)*(d*x + c)^(3/4) - (d*x + c)*sqr
t(((9*b^4*c^4 + 12*a*b^3*c^3*d - 26*a^2*b^2*c^2*d^2 - 20*a^3*b*c*
```

```
d^3 + 25*a^4*d^4)*sqrt(b*x + a)*sqrt(d*x + c) + (a^4*c^4*d*x + a^
4*c^5)*sqrt((81*b^8*c^8 + 216*a*b^7*c^7*d - 324*a^2*b^6*c^6*d^2 -
 984*a^3*b^5*c^5*d^3 + 646*a^4*b^4*c^4*d^4 + 1640*a^5*b^3*c^3*d^5
 - 900*a^6*b^2*c^2*d^6 - 1000*a^7*b*c*d^7 + 625*a^8*d^8)/(a^7*c^9
)))/(d*x + c)))) + a*c^2*x^2*((81*b^8*c^8 + 216*a*b^7*c^7*d - 324
*a^2*b^6*c^6*d^2 - 984*a^3*b^5*c^5*d^3 + 646*a^4*b^4*c^4*d^4 + 16
40*a^5*b^3*c^3*d^5 - 900*a^6*b^2*c^2*d^6 - 1000*a^7*b*c*d^7 + 625
*a^8*d^8)/(a^7*c^9))^(1/4)*log(-((3*b^2*c^2 + 2*a*b*c*d - 5*a^2*d
^2)*(b*x + a)^(1/4)*(d*x + c)^(3/4) + (a^2*c^2*d*x + a^2*c^3)*((8
1*b^8*c^8 + 216*a*b^7*c^7*d - 324*a^2*b^6*c^6*d^2 - 984*a^3*b^5*c
^5*d^3 + 646*a^4*b^4*c^4*d^4 + 1640*a^5*b^3*c^3*d^5 - 900*a^6*b^2
*c^2*d^6 - 1000*a^7*b*c*d^7 + 625*a^8*d^8)/(a^7*c^9))^(1/4))/(d*x
 + c)) - a*c^2*x^2*((81*b^8*c^8 + 216*a*b^7*c^7*d - 324*a^2*b^6*c
^6*d^2 - 984*a^3*b^5*c^5*d^3 + 646*a^4*b^4*c^4*d^4 + 1640*a^5*b^3
*c^3*d^5 - 900*a^6*b^2*c^2*d^6 - 1000*a^7*b*c*d^7 + 625*a^8*d^8)/
(a^7*c^9))^(1/4)*log(-((3*b^2*c^2 + 2*a*b*c*d - 5*a^2*d^2)*(b*x +
 a)^(1/4)*(d*x + c)^(3/4) - (a^2*c^2*d*x + a^2*c^3)*((81*b^8*c^8
+ 216*a*b^7*c^7*d - 324*a^2*b^6*c^6*d^2 - 984*a^3*b^5*c^5*d^3 + 6
46*a^4*b^4*c^4*d^4 + 1640*a^5*b^3*c^3*d^5 - 900*a^6*b^2*c^2*d^6 -
 1000*a^7*b*c*d^7 + 625*a^8*d^8)/(a^7*c^9))^(1/4))/(d*x + c)) - 4
*(4*a*c + (b*c - 5*a*d)*x)*(b*x + a)^(1/4)*(d*x + c)^(3/4))/(a*c^
2*x^2)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt[4]{a + bx}}{x^3 \sqrt[4]{c + dx}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(1/4)/x**3/(d*x+c)**(1/4),x)
```

```
[Out] Integral((a + b*x)**(1/4)/(x**3*(c + d*x)**(1/4)), x)
```

GIAC/XCAS [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(1/4)/((d*x + c)^(1/4)*x^3),x, algorithm="giac")
```

```
[Out] Timed out
```

3.878 $\int \frac{\sqrt[4]{a+bx}}{x^4\sqrt[4]{c+dx}}\,dx$

Optimal. Leaf size=266

$$\frac{\sqrt[4]{a+bx}(c+dx)^{3/4}(7bc-15ad)(3ad+bc)}{96a^2c^3x} - \frac{(bc-ad)\left(15a^2d^2+10abcd+7b^2c^2\right)\tan^{-1}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{64a^{11/4}c^{13/4}} - \frac{(bc-ad)\left(15a^2d^2+10abcd+7b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{64a^{11/4}c^{13/4}} - \frac{\sqrt[4]{a+bx}(c+dx)^{3/4}(bc-9ad)}{24ac^2x^2} - \frac{\sqrt[4]{a+bx}(c+dx)^{3/4}}{3cx^3}$$

```
[Out] -((a + b*x)^(1/4)*(c + d*x)^(3/4))/(3*c*x^3) - ((b*c - 9*a*d)*(a
+ b*x)^(1/4)*(c + d*x)^(3/4))/(24*a*c^2*x^2) + ((7*b*c - 15*a*d)*
(b*c + 3*a*d)*(a + b*x)^(1/4)*(c + d*x)^(3/4))/(96*a^2*c^3*x) - (
(b*c - a*d)*(7*b^2*c^2 + 10*a*b*c*d + 15*a^2*d^2)*ArcTan[(c^(1/4)
*(a + b*x)^(1/4))/(a^(1/4)*(c + d*x)^(1/4))])/(64*a^(11/4)*c^(13/
4)) - ((b*c - a*d)*(7*b^2*c^2 + 10*a*b*c*d + 15*a^2*d^2)*ArcTanh[
(c^(1/4)*(a + b*x)^(1/4))/(a^(1/4)*(c + d*x)^(1/4))])/(64*a^(11/4
)*c^(13/4))
```

Rubi [A] time = 0.621686, antiderivative size = 266, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 7, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.318

$$\frac{\sqrt[4]{a+bx}(c+dx)^{3/4}(7bc-15ad)(3ad+bc)}{96a^2c^3x} - \frac{(bc-ad)\left(15a^2d^2+10abcd+7b^2c^2\right)\tan^{-1}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{64a^{11/4}c^{13/4}} - \frac{(bc-ad)\left(15a^2d^2+10abcd+7b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{64a^{11/4}c^{13/4}} - \frac{\sqrt[4]{a+bx}(c+dx)^{3/4}(bc-9ad)}{24ac^2x^2} - \frac{\sqrt[4]{a+bx}(c+dx)^{3/4}}{3cx^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(1/4)/(x^4*(c + d*x)^(1/4)),x]
```


```
[Out] -((a + b*x)^(1/4)*(c + d*x)^(3/4))/(3*c*x^3) - ((b*c - 9*a*d)*(a
+ b*x)^(1/4)*(c + d*x)^(3/4))/(24*a*c^2*x^2) + ((7*b*c - 15*a*d)*
(b*c + 3*a*d)*(a + b*x)^(1/4)*(c + d*x)^(3/4))/(96*a^2*c^3*x) - (
(b*c - a*d)*(7*b^2*c^2 + 10*a*b*c*d + 15*a^2*d^2)*ArcTan[(c^(1/4)
*(a + b*x)^(1/4))/(a^(1/4)*(c + d*x)^(1/4))])/(64*a^(11/4)*c^(13/
4)) - ((b*c - a*d)*(7*b^2*c^2 + 10*a*b*c*d + 15*a^2*d^2)*ArcTanh[
(c^(1/4)*(a + b*x)^(1/4))/(a^(1/4)*(c + d*x)^(1/4))])/(64*a^(11/4
)*c^(13/4))
```

Rubi in Sympy [A] time = 77.8157, size = 250, normalized size = 0.94

$$-\frac{\sqrt[4]{a+bx}\,(c+dx)^{\frac{3}{4}}}{3cx^3}+\frac{\sqrt[4]{a+bx}\,(c+dx)^{\frac{3}{4}}\,(9ad-bc)}{24ac^2x^2}-\frac{\sqrt[4]{a+bx}\,(c+dx)^{\frac{3}{4}}\,(3ad+bc)\,(15ad-7bc)}{96a^2c^3x}+\frac{(ad-bc)\left(15a^2d^2+10abcd+7b^2c^2\right)\operatorname{atan}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{64a^{\frac{11}{4}}c^{\frac{13}{4}}}+\frac{(ad-bc)\left(15a^2d^2+10abcd+7b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{64a^{\frac{11}{4}}c^{\frac{13}{4}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/4)/x**4/(d*x+c)**(1/4),x)
```

```
[Out] -(a + b*x)**(1/4)*(c + d*x)**(3/4)/(3*c*x**3) + (a + b*x)**(1/4)*
(c + d*x)**(3/4)*(9*a*d - b*c)/(24*a*c**2*x**2) - (a + b*x)**(1/4
)*(c + d*x)**(3/4)*(3*a*d + b*c)*(15*a*d - 7*b*c)/(96*a**2*c**3*x
) + (a*d - b*c)*(15*a**2*d**2 + 10*a*b*c*d + 7*b**2*c**2)*atan(c*
*(1/4)*(a + b*x)**(1/4)/(a**(1/4)*(c + d*x)**(1/4)))/(64*a**(11/4
)*c**(13/4)) + (a*d - b*c)*(15*a**2*d**2 + 10*a*b*c*d + 7*b**2*c*
*2)*atanh(c**(1/4)*(a + b*x)**(1/4)/(a**(1/4)*(c + d*x)**(1/4)))/
(64*a**(11/4)*c**(13/4))
```

Mathematica [C] time = 0.425905, size = 260, normalized size = 0.98

$$\frac{\frac{6bdx^4\left(-15a^3d^3+5a^2bcd^2+3ab^2c^2d+7b^3c^3\right)F_1\left(1;\frac{3}{4},\frac{1}{4};2;-\frac{a}{bx},-\frac{c}{dx}\right)}{-8bdxF_1\left(1;\frac{3}{4},\frac{1}{4};2;-\frac{a}{bx},-\frac{c}{dx}\right)+bcF_1\left(2;\frac{3}{4},\frac{5}{4};3;-\frac{a}{bx},-\frac{c}{dx}\right)+3adF_1\left(2;\frac{7}{4},\frac{1}{4};3;-\frac{a}{bx},-\frac{c}{dx}\right)}-(a+bx)(c+dx)\left(a^2\left(32c^2-36cdx+45d^2x^2\right)+2abcx\right.}{96a^2c^3x^3(a+bx)^{3/4}\sqrt[4]{c+dx}}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^(1/4)/(x^4*(c + d*x)^(1/4)),x]
```

```
[Out] (-((a + b*x)*(c + d*x)*(-7*b^2*c^2*x^2 + 2*a*b*c*x*(2*c - 3*d*x)
+ a^2*(32*c^2 - 36*c*d*x + 45*d^2*x^2))) + (6*b*d*(7*b^3*c^3 + 3*
a*b^2*c^2*d + 5*a^2*b*c*d^2 - 15*a^3*d^3)*x^4*AppellF1[1, 3/4, 1/
4, 2, -(a/(b*x)), -(c/(d*x))])/(-8*b*d*x*AppellF1[1, 3/4, 1/4, 2,
 -(a/(b*x)), -(c/(d*x))] + b*c*AppellF1[2, 3/4, 5/4, 3, -(a/(b*x)
), -(c/(d*x))] + 3*a*d*AppellF1[2, 7/4, 1/4, 3, -(a/(b*x)), -(c/(
d*x))]))/(96*a^2*c^3*x^3*(a + b*x)^(3/4)*(c + d*x)^(1/4))
```

Maple [F] time = 0.056, size = 0, normalized size = 0.

$$\int \frac{1}{x^4}\sqrt[4]{bx+a}\frac{1}{\sqrt[4]{dx+c}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/4)/x^4/(d*x+c)^(1/4),x)
```

```
[Out] int((b*x+a)^(1/4)/x^4/(d*x+c)^(1/4),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^{\frac{1}{4}}}{(dx+c)^{\frac{1}{4}}x^4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(1/4)/((d*x + c)^(1/4)*x^4),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^(1/4)/((d*x + c)^(1/4)*x^4), x)
```

Fricas [A] time = 0.354935, size = 2277, normalized size = 8.56

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(1/4)/((d*x + c)^(1/4)*x^4),x, algorithm="fricas")
```

```
[Out] -1/384*(12*a^2*c^3*x^3*((2401*b^12*c^12 + 4116*a*b^11*c^11*d + 95
06*a^2*b^10*c^10*d^2 - 11004*a^3*b^9*c^9*d^3 - 15249*a^4*b^8*c^8*
d^4 - 48600*a^5*b^7*c^7*d^5 + 31580*a^6*b^6*c^6*d^6 + 18600*a^7*b
^5*c^5*d^7 + 93775*a^8*b^4*c^4*d^8 - 61500*a^9*b^3*c^3*d^9 - 6750
*a^10*b^2*c^2*d^10 - 67500*a^11*b*c*d^11 + 50625*a^12*d^12)/(a^11
*c^13))^(1/4)*arctan(-(a^3*c^3*d*x + a^3*c^4)*((2401*b^12*c^12 +
4116*a*b^11*c^11*d + 9506*a^2*b^10*c^10*d^2 - 11004*a^3*b^9*c^9*d
^3 - 15249*a^4*b^8*c^8*d^4 - 48600*a^5*b^7*c^7*d^5 + 31580*a^6*b^
6*c^6*d^6 + 18600*a^7*b^5*c^5*d^7 + 93775*a^8*b^4*c^4*d^8 - 61500
*a^9*b^3*c^3*d^9 - 6750*a^10*b^2*c^2*d^10 - 67500*a^11*b*c*d^11 +
 50625*a^12*d^12)/(a^11*c^13))^(1/4)/((7*b^3*c^3 + 3*a*b^2*c^2*d
+ 5*a^2*b*c*d^2 - 15*a^3*d^3)*(b*x + a)^(1/4)*(d*x + c)^(3/4) - (
d*x + c)*sqrt(((49*b^6*c^6 + 42*a*b^5*c^5*d + 79*a^2*b^4*c^4*d^2
- 180*a^3*b^3*c^3*d^3 - 65*a^4*b^2*c^2*d^4 - 150*a^5*b*c*d^5 + 22
5*a^6*d^6)*sqrt(b*x + a)*sqrt(d*x + c) + (a^6*c^6*d*x + a^6*c^7)*
sqrt((2401*b^12*c^12 + 4116*a*b^11*c^11*d + 9506*a^2*b^10*c^10*d^
2 - 11004*a^3*b^9*c^9*d^3 - 15249*a^4*b^8*c^8*d^4 - 48600*a^5*b^7
*c^7*d^5 + 31580*a^6*b^6*c^6*d^6 + 18600*a^7*b^5*c^5*d^7 + 93775*
a^8*b^4*c^4*d^8 - 61500*a^9*b^3*c^3*d^9 - 6750*a^10*b^2*c^2*d^10
- 67500*a^11*b*c*d^11 + 50625*a^12*d^12)/(a^11*c^13)))/(d*x + c))
)) + 3*a^2*c^3*x^3*((2401*b^12*c^12 + 4116*a*b^11*c^11*d + 9506*a
^2*b^10*c^10*d^2 - 11004*a^3*b^9*c^9*d^3 - 15249*a^4*b^8*c^8*d^4
- 48600*a^5*b^7*c^7*d^5 + 31580*a^6*b^6*c^6*d^6 + 18600*a^7*b^5*c
^5*d^7 + 93775*a^8*b^4*c^4*d^8 - 61500*a^9*b^3*c^3*d^9 - 6750*a^1
0*b^2*c^2*d^10 - 67500*a^11*b*c*d^11 + 50625*a^12*d^12)/(a^11*c^1
3))^(1/4)*log(-((7*b^3*c^3 + 3*a*b^2*c^2*d + 5*a^2*b*c*d^2 - 15*a
^3*d^3)*(b*x + a)^(1/4)*(d*x + c)^(3/4) + (a^3*c^3*d*x + a^3*c^4)
*((2401*b^12*c^12 + 4116*a*b^11*c^11*d + 9506*a^2*b^10*c^10*d^2 -
 11004*a^3*b^9*c^9*d^3 - 15249*a^4*b^8*c^8*d^4 - 48600*a^5*b^7*c^
7*d^5 + 31580*a^6*b^6*c^6*d^6 + 18600*a^7*b^5*c^5*d^7 + 93775*a^8
*b^4*c^4*d^8 - 61500*a^9*b^3*c^3*d^9 - 6750*a^10*b^2*c^2*d^10 - 6
7500*a^11*b*c*d^11 + 50625*a^12*d^12)/(a^11*c^13))^(1/4))/(d*x +
c)) - 3*a^2*c^3*x^3*((2401*b^12*c^12 + 4116*a*b^11*c^11*d + 9506*
a^2*b^10*c^10*d^2 - 11004*a^3*b^9*c^9*d^3 - 15249*a^4*b^8*c^8*d^4
 - 48600*a^5*b^7*c^7*d^5 + 31580*a^6*b^6*c^6*d^6 + 18600*a^7*b^5*
c^5*d^7 + 93775*a^8*b^4*c^4*d^8 - 61500*a^9*b^3*c^3*d^9 - 6750*a^
10*b^2*c^2*d^10 - 67500*a^11*b*c*d^11 + 50625*a^12*d^12)/(a^11*c^
13))^(1/4)*log(-((7*b^3*c^3 + 3*a*b^2*c^2*d + 5*a^2*b*c*d^2 - 15*
a^3*d^3)*(b*x + a)^(1/4)*(d*x + c)^(3/4) - (a^3*c^3*d*x + a^3*c^4
)*((2401*b^12*c^12 + 4116*a*b^11*c^11*d + 9506*a^2*b^10*c^10*d^2
- 11004*a^3*b^9*c^9*d^3 - 15249*a^4*b^8*c^8*d^4 - 48600*a^5*b^7*c
^7*d^5 + 31580*a^6*b^6*c^6*d^6 + 18600*a^7*b^5*c^5*d^7 + 93775*a^
8*b^4*c^4*d^8 - 61500*a^9*b^3*c^3*d^9 - 6750*a^10*b^2*c^2*d^10 -
67500*a^11*b*c*d^11 + 50625*a^12*d^12)/(a^11*c^13))^(1/4))/(d*x +
 c)) + 4*(32*a^2*c^2 - (7*b^2*c^2 + 6*a*b*c*d - 45*a^2*d^2)*x^2 +
 4*(a*b*c^2 - 9*a^2*c*d)*x)*(b*x + a)^(1/4)*(d*x + c)^(3/4))/(a^2
*c^3*x^3)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt[4]{a+bx}}{x^4\sqrt[4]{c+dx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(1/4)/x**4/(d*x+c)**(1/4),x)
```

```
[Out] Integral((a + b*x)**(1/4)/(x**4*(c + d*x)**(1/4)), x)
```

GIAC/XCAS [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(1/4)/((d*x + c)^(1/4)*x^4),x, algorithm="giac")
```

```
[Out] Timed out
```

3.879 $\int \frac{\sqrt[4]{a+bx}}{x^5\sqrt[4]{c+dx}}\,dx$

Optimal. Leaf size=368

$$\frac{\sqrt[4]{a+bx}(c+dx)^{3/4}\left(-117a^2d^2+10abcd+11b^2c^2\right)}{384a^2c^3x^2}-\frac{\sqrt[4]{a+bx}(c+dx)^{3/4}\left(-585a^3d^3+63a^2bcd^2+61ab^2c^2d+77b^3c^3\right)}{1536a^3c^4x}+\frac{(bc-ad)\left(195a^3d^3+135a^2bcd^2+105ab^2c^2d+77b^3c^3\right)\tan^{-1}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{1024a^{15/4}c^{17/4}}+\frac{(bc-ad)\left(195a^3d^3+135a^2bcd^2+105ab^2c^2d+77b^3c^3\right)\tanh^{-1}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{1024a^{15/4}c^{17/4}}-\frac{\sqrt[4]{a+bx}(c+dx)^{3/4}(bc-13ad)}{48ac^2x^3}-\frac{\sqrt[4]{a+bx}(c+dx)^{3/4}}{4cx^4}$$

```
[Out] -((a + b*x)^(1/4)*(c + d*x)^(3/4))/(4*c*x^4) - ((b*c - 13*a*d)*(a
 + b*x)^(1/4)*(c + d*x)^(3/4))/(48*a*c^2*x^3) + ((11*b^2*c^2 + 10
*a*b*c*d - 117*a^2*d^2)*(a + b*x)^(1/4)*(c + d*x)^(3/4))/(384*a^2
*c^3*x^2) - ((77*b^3*c^3 + 61*a*b^2*c^2*d + 63*a^2*b*c*d^2 - 585*
a^3*d^3)*(a + b*x)^(1/4)*(c + d*x)^(3/4))/(1536*a^3*c^4*x) + ((b*
c - a*d)*(77*b^3*c^3 + 105*a*b^2*c^2*d + 135*a^2*b*c*d^2 + 195*a^
3*d^3)*ArcTan[(c^(1/4)*(a + b*x)^(1/4))/(a^(1/4)*(c + d*x)^(1/4))
])/(1024*a^(15/4)*c^(17/4)) + ((b*c - a*d)*(77*b^3*c^3 + 105*a*b^
2*c^2*d + 135*a^2*b*c*d^2 + 195*a^3*d^3)*ArcTanh[(c^(1/4)*(a + b*
x)^(1/4))/(a^(1/4)*(c + d*x)^(1/4))])/(1024*a^(15/4)*c^(17/4))
```

Rubi [A] time = 0.934639, antiderivative size = 368, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 7, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.318$

$$\frac{\sqrt[4]{a+bx}(c+dx)^{3/4}\left(-117a^2d^2+10abcd+11b^2c^2\right)}{384a^2c^3x^2}-\frac{\sqrt[4]{a+bx}(c+dx)^{3/4}\left(-585a^3d^3+63a^2bcd^2+61ab^2c^2d+77b^3c^3\right)}{1536a^3c^4x}+\frac{(bc-ad)\left(195a^3d^3+135a^2bcd^2+105ab^2c^2d+77b^3c^3\right)\tan^{-1}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{1024a^{15/4}c^{17/4}}+\frac{(bc-ad)\left(195a^3d^3+135a^2bcd^2+105ab^2c^2d+77b^3c^3\right)\tanh^{-1}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{1024a^{15/4}c^{17/4}}-\frac{\sqrt[4]{a+bx}(c+dx)^{3/4}(bc-13ad)}{48ac^2x^3}-\frac{\sqrt[4]{a+bx}(c+dx)^{3/4}}{4cx^4}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(1/4)/(x^5*(c + d*x)^(1/4)),x]
```


```
[Out] -((a + b*x)^(1/4)*(c + d*x)^(3/4))/(4*c*x^4) - ((b*c - 13*a*d)*(a
 + b*x)^(1/4)*(c + d*x)^(3/4))/(48*a*c^2*x^3) + ((11*b^2*c^2 + 10
*a*b*c*d - 117*a^2*d^2)*(a + b*x)^(1/4)*(c + d*x)^(3/4))/(384*a^2
*c^3*x^2) - ((77*b^3*c^3 + 61*a*b^2*c^2*d + 63*a^2*b*c*d^2 - 585*
a^3*d^3)*(a + b*x)^(1/4)*(c + d*x)^(3/4))/(1536*a^3*c^4*x) + ((b*
c - a*d)*(77*b^3*c^3 + 105*a*b^2*c^2*d + 135*a^2*b*c*d^2 + 195*a^
3*d^3)*ArcTan[(c^(1/4)*(a + b*x)^(1/4))/(a^(1/4)*(c + d*x)^(1/4))
])/(1024*a^(15/4)*c^(17/4)) + ((b*c - a*d)*(77*b^3*c^3 + 105*a*b^
2*c^2*d + 135*a^2*b*c*d^2 + 195*a^3*d^3)*ArcTanh[(c^(1/4)*(a + b*
x)^(1/4))/(a^(1/4)*(c + d*x)^(1/4))])/(1024*a^(15/4)*c^(17/4))
```

Rubi in Sympy [A] time = 158.041, size = 357, normalized size = 0.97

$$-\frac{\sqrt[4]{a+bx}\,(c+dx)^{\frac{3}{4}}}{4cx^4}+\frac{\sqrt[4]{a+bx}\,(c+dx)^{\frac{3}{4}}\,(13ad-bc)}{48ac^2x^3} - \frac{\sqrt[4]{a+bx}\,(c+dx)^{\frac{3}{4}}\left(117a^2d^2-10abcd-11b^2c^2\right)}{384a^2c^3x^2} + \frac{\sqrt[4]{a+bx}\,(c+dx)^{\frac{3}{4}}\left(585a^3d^3-63a^2bcd^2-61ab^2c^2d-77b^3c^3\right)}{1536a^3c^4x} - \frac{(ad-bc)\left(195a^3d^3+135a^2bcd^2+105ab^2c^2d+77b^3c^3\right)\operatorname{atan}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{1024a^{\frac{15}{4}}c^{\frac{17}{4}}} - \frac{(ad-bc)\left(195a^3d^3+135a^2bcd^2+105ab^2c^2d+77b^3c^3\right)\operatorname{atanh}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{1024a^{\frac{15}{4}}c^{\frac{17}{4}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/4)/x**5/(d*x+c)**(1/4),x)
```

```
[Out] -(a + b*x)**(1/4)*(c + d*x)**(3/4)/(4*c*x**4) + (a + b*x)**(1/4)*
(c + d*x)**(3/4)*(13*a*d - b*c)/(48*a*c**2*x**3) - (a + b*x)**(1/
4)*(c + d*x)**(3/4)*(117*a**2*d**2 - 10*a*b*c*d - 11*b**2*c**2)/(
384*a**2*c**3*x**2) + (a + b*x)**(1/4)*(c + d*x)**(3/4)*(585*a**3
*d**3 - 63*a**2*b*c*d**2 - 61*a*b**2*c**2*d - 77*b**3*c**3)/(1536
*a**3*c**4*x) - (a*d - b*c)*(195*a**3*d**3 + 135*a**2*b*c*d**2 +
105*a*b**2*c**2*d + 77*b**3*c**3)*atan(c**(1/4)*(a + b*x)**(1/4)/
(a**(1/4)*(c + d*x)**(1/4)))/(1024*a**(15/4)*c**(17/4)) - (a*d -
b*c)*(195*a**3*d**3 + 135*a**2*b*c*d**2 + 105*a*b**2*c**2*d + 77*
b**3*c**3)*atanh(c**(1/4)*(a + b*x)**(1/4)/(a**(1/4)*(c + d*x)**(
1/4)))/(1024*a**(15/4)*c**(17/4))
```

Mathematica [C] time = 0.510293, size = 315, normalized size = 0.86

$$\frac{(a+bx)(c+dx)\left(a^3\left(-384c^3+416c^2dx-468cd^2x^2+585d^3x^3\right)+a^2bcx\left(-32c^2+40cdx-63d^2x^2\right)+ab^2c^2x^2(44c-61dx)\cdots\right.}{1536a^3c^4x^4(a+bx)^{3/4}\sqrt[4]{c+dx}}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^(1/4)/(x^5*(c + d*x)^(1/4)),x]
```

```
[Out] ((a + b*x)*(c + d*x)*(-77*b^3*c^3*x^3 + a*b^2*c^2*x^2*(44*c - 61*
d*x) + a^2*b*c*x*(-32*c^2 + 40*c*d*x - 63*d^2*x^2) + a^3*(-384*c^
3 + 416*c^2*d*x - 468*c*d^2*x^2 + 585*d^3*x^3)) - (6*b*d*(77*b^4*
c^4 + 28*a*b^3*c^3*d + 30*a^2*b^2*c^2*d^2 + 60*a^3*b*c*d^3 - 195*
a^4*d^4)*x^5*AppellF1[1, 3/4, 1/4, 2, -(a/(b*x)), -(c/(d*x))])/(-
8*b*d*x*AppellF1[1, 3/4, 1/4, 2, -(a/(b*x)), -(c/(d*x))] + b*c*Ap
pellF1[2, 3/4, 5/4, 3, -(a/(b*x)), -(c/(d*x))] + 3*a*d*AppellF1[2
, 7/4, 1/4, 3, -(a/(b*x)), -(c/(d*x))]))/(1536*a^3*c^4*x^4*(a + b
*x)^(3/4)*(c + d*x)^(1/4))
```

Maple [F] time = 0.06, size = 0, normalized size = 0.

$$\int \frac{1}{x^5}\sqrt[4]{bx+a}\frac{1}{\sqrt[4]{dx+c}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/4)/x^5/(d*x+c)^(1/4),x)
```

```
[Out] int((b*x+a)^(1/4)/x^5/(d*x+c)^(1/4),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^{\frac{1}{4}}}{(dx+c)^{\frac{1}{4}}x^5}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(1/4)/((d*x + c)^(1/4)*x^5),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^(1/4)/((d*x + c)^(1/4)*x^5), x)
```

Fricas [A] time = 0.666209, size = 2970, normalized size = 8.07

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(1/4)/((d*x + c)^(1/4)*x^5),x, algorithm="fricas")
```

```
[Out] 1/6144*(12*a^3*c^4*x^4*((35153041*b^16*c^16 + 51131696*a*b^15*c^1
5*d + 82673976*a^2*b^14*c^14*d^2 + 176093456*a^3*b^13*c^13*d^3 -
182203364*a^4*b^12*c^12*d^4 - 191017680*a^5*b^11*c^11*d^5 - 31845
3240*a^6*b^10*c^10*d^6 - 989262960*a^7*b^9*c^9*d^7 + 665778150*a^
8*b^8*c^8*d^8 + 275389200*a^9*b^7*c^7*d^9 + 370974600*a^10*b^6*c^
6*d^10 + 2155086000*a^11*b^5*c^5*d^11 - 1551622500*a^12*b^4*c^4*d
^12 - 177606000*a^13*b^3*c^3*d^13 - 68445000*a^14*b^2*c^2*d^14 -
1779570000*a^15*b*c*d^15 + 1445900625*a^16*d^16)/(a^15*c^17))^(1/
4)*arctan(-(a^4*c^4*d*x + a^4*c^5)*((35153041*b^16*c^16 + 5113169
6*a*b^15*c^15*d + 82673976*a^2*b^14*c^14*d^2 + 176093456*a^3*b^13
*c^13*d^3 - 182203364*a^4*b^12*c^12*d^4 - 191017680*a^5*b^11*c^11
*d^5 - 318453240*a^6*b^10*c^10*d^6 - 989262960*a^7*b^9*c^9*d^7 +
665778150*a^8*b^8*c^8*d^8 + 275389200*a^9*b^7*c^7*d^9 + 370974600
*a^10*b^6*c^6*d^10 + 2155086000*a^11*b^5*c^5*d^11 - 1551622500*a^
12*b^4*c^4*d^12 - 177606000*a^13*b^3*c^3*d^13 - 68445000*a^14*b^2
*c^2*d^14 - 1779570000*a^15*b*c*d^15 + 1445900625*a^16*d^16)/(a^1
5*c^17))^(1/4)/((77*b^4*c^4 + 28*a*b^3*c^3*d + 30*a^2*b^2*c^2*d^2
 + 60*a^3*b*c*d^3 - 195*a^4*d^4)*(b*x + a)^(1/4)*(d*x + c)^(3/4)
- (d*x + c)*sqrt(((5929*b^8*c^8 + 4312*a*b^7*c^7*d + 5404*a^2*b^6
*c^6*d^2 + 10920*a^3*b^5*c^5*d^3 - 25770*a^4*b^4*c^4*d^4 - 7320*a
^5*b^3*c^3*d^5 - 8100*a^6*b^2*c^2*d^6 - 23400*a^7*b*c*d^7 + 38025
*a^8*d^8)*sqrt(b*x + a)*sqrt(d*x + c) + (a^8*c^8*d*x + a^8*c^9)*s
qrt((35153041*b^16*c^16 + 51131696*a*b^15*c^15*d + 82673976*a^2*b
^14*c^14*d^2 + 176093456*a^3*b^13*c^13*d^3 - 182203364*a^4*b^12*c
^12*d^4 - 191017680*a^5*b^11*c^11*d^5 - 318453240*a^6*b^10*c^10*d
^6 - 989262960*a^7*b^9*c^9*d^7 + 665778150*a^8*b^8*c^8*d^8 + 2753
89200*a^9*b^7*c^7*d^9 + 370974600*a^10*b^6*c^6*d^10 + 2155086000*
a^11*b^5*c^5*d^11 - 1551622500*a^12*b^4*c^4*d^12 - 177606000*a^13
*b^3*c^3*d^13 - 68445000*a^14*b^2*c^2*d^14 - 1779570000*a^15*b*c*
d^15 + 1445900625*a^16*d^16)/(a^15*c^17)))/(d*x + c)))) + 3*a^3*c
^4*x^4*((35153041*b^16*c^16 + 51131696*a*b^15*c^15*d + 82673976*a
^2*b^14*c^14*d^2 + 176093456*a^3*b^13*c^13*d^3 - 182203364*a^4*b^
12*c^12*d^4 - 191017680*a^5*b^11*c^11*d^5 - 318453240*a^6*b^10*c^
10*d^6 - 989262960*a^7*b^9*c^9*d^7 + 665778150*a^8*b^8*c^8*d^8 +
275389200*a^9*b^7*c^7*d^9 + 370974600*a^10*b^6*c^6*d^10 + 2155086
000*a^11*b^5*c^5*d^11 - 1551622500*a^12*b^4*c^4*d^12 - 177606000*
a^13*b^3*c^3*d^13 - 68445000*a^14*b^2*c^2*d^14 - 1779570000*a^15*
b*c*d^15 + 1445900625*a^16*d^16)/(a^15*c^17))^(1/4)*log(-((77*b^4
*c^4 + 28*a*b^3*c^3*d + 30*a^2*b^2*c^2*d^2 + 60*a^3*b*c*d^3 - 195
*a^4*d^4)*(b*x + a)^(1/4)*(d*x + c)^(3/4) + (a^4*c^4*d*x + a^4*c^
5)*((35153041*b^16*c^16 + 51131696*a*b^15*c^15*d + 82673976*a^2*b
^14*c^14*d^2 + 176093456*a^3*b^13*c^13*d^3 - 182203364*a^4*b^12*c
^12*d^4 - 191017680*a^5*b^11*c^11*d^5 - 318453240*a^6*b^10*c^10*d
^6 - 989262960*a^7*b^9*c^9*d^7 + 665778150*a^8*b^8*c^8*d^8 + 2753
```

```
89200*a^9*b^7*c^7*d^9 + 370974600*a^10*b^6*c^6*d^10 + 2155086000*
a^11*b^5*c^5*d^11 - 1551622500*a^12*b^4*c^4*d^12 - 177606000*a^13
*b^3*c^3*d^13 - 68445000*a^14*b^2*c^2*d^14 - 1779570000*a^15*b*c*
d^15 + 1445900625*a^16*d^16)/(a^15*c^17))^(1/4))/(d*x + c)) - 3*a
^3*c^4*x^4*((35153041*b^16*c^16 + 51131696*a*b^15*c^15*d + 826739
76*a^2*b^14*c^14*d^2 + 176093456*a^3*b^13*c^13*d^3 - 182203364*a^
4*b^12*c^12*d^4 - 191017680*a^5*b^11*c^11*d^5 - 318453240*a^6*b^1
0*c^10*d^6 - 989262960*a^7*b^9*c^9*d^7 + 665778150*a^8*b^8*c^8*d^
8 + 275389200*a^9*b^7*c^7*d^9 + 370974600*a^10*b^6*c^6*d^10 + 215
5086000*a^11*b^5*c^5*d^11 - 1551622500*a^12*b^4*c^4*d^12 - 177606
000*a^13*b^3*c^3*d^13 - 68445000*a^14*b^2*c^2*d^14 - 1779570000*a
^15*b*c*d^15 + 1445900625*a^16*d^16)/(a^15*c^17))^(1/4)*log(-((77
*b^4*c^4 + 28*a*b^3*c^3*d + 30*a^2*b^2*c^2*d^2 + 60*a^3*b*c*d^3 -
 195*a^4*d^4)*(b*x + a)^(1/4)*(d*x + c)^(3/4) - (a^4*c^4*d*x + a^
4*c^5)*((35153041*b^16*c^16 + 51131696*a*b^15*c^15*d + 82673976*a
^2*b^14*c^14*d^2 + 176093456*a^3*b^13*c^13*d^3 - 182203364*a^4*b^
12*c^12*d^4 - 191017680*a^5*b^11*c^11*d^5 - 318453240*a^6*b^10*c^
10*d^6 - 989262960*a^7*b^9*c^9*d^7 + 665778150*a^8*b^8*c^8*d^8 +
275389200*a^9*b^7*c^7*d^9 + 370974600*a^10*b^6*c^6*d^10 + 2155086
000*a^11*b^5*c^5*d^11 - 1551622500*a^12*b^4*c^4*d^12 - 177606000*
a^13*b^3*c^3*d^13 - 68445000*a^14*b^2*c^2*d^14 - 1779570000*a^15*
b*c*d^15 + 1445900625*a^16*d^16)/(a^15*c^17))^(1/4))/(d*x + c)) -
 4*(384*a^3*c^3 + (77*b^3*c^3 + 61*a*b^2*c^2*d + 63*a^2*b*c*d^2 -
 585*a^3*d^3)*x^3 - 4*(11*a*b^2*c^3 + 10*a^2*b*c^2*d - 117*a^3*c*
d^2)*x^2 + 32*(a^2*b*c^3 - 13*a^3*c^2*d)*x)*(b*x + a)^(1/4)*(d*x
+ c)^(3/4))/(a^3*c^4*x^4)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt[4]{a+bx}}{x^5\sqrt[4]{c+dx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(1/4)/x**5/(d*x+c)**(1/4),x)
```

```
[Out] Integral((a + b*x)**(1/4)/(x**5*(c + d*x)**(1/4)), x)
```

GIAC/XCAS [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(1/4)/((d*x + c)^(1/4)*x^5),x, algorithm="giac")
```

```
[Out] Timed out
```

3.880 $\int \frac{x^2\sqrt[4]{1+x}}{\sqrt[4]{1-x}}\,dx$

Optimal. Leaf size=234

$$-\frac{1}{3}(1-x)^{3/4}x(x+1)^{5/4}$$
$$-\frac{1}{12}(1-x)^{3/4}(x+1)^{5/4}-\frac{3}{8}(1-x)^{3/4}\sqrt[4]{x+1}-\frac{3\log\left(\frac{\sqrt{1-x}}{\sqrt{x+1}}-\frac{\sqrt{2}\sqrt[4]{1-x}}{\sqrt[4]{x+1}}+1\right)}{16\sqrt{2}}+\frac{3\log\left(\frac{\sqrt{1-x}}{\sqrt{x+1}}+\frac{\sqrt{2}\sqrt[4]{1-x}}{\sqrt[4]{x+1}}+1\right)}{16\sqrt{2}}+\frac{3\tan^{-1}\left(1-\sqrt{2}\sqrt[4]{\ }\right.}{8\sqrt{2}}$$

```
[Out] (-3*(1 - x)^(3/4)*(1 + x)^(1/4))/8 - ((1 - x)^(3/4)*(1 + x)^(5/4)
)/12 - ((1 - x)^(3/4)*x*(1 + x)^(5/4))/3 + (3*ArcTan[1 - (Sqrt[2]
*(1 - x)^(1/4))/(1 + x)^(1/4)])/(8*Sqrt[2]) - (3*ArcTan[1 + (Sqrt
[2]*(1 - x)^(1/4))/(1 + x)^(1/4)])/(8*Sqrt[2]) - (3*Log[1 + Sqrt[
1 - x]/Sqrt[1 + x] - (Sqrt[2]*(1 - x)^(1/4))/(1 + x)^(1/4)])/(16*
Sqrt[2]) + (3*Log[1 + Sqrt[1 - x]/Sqrt[1 + x] + (Sqrt[2]*(1 - x)^
(1/4))/(1 + x)^(1/4)])/(16*Sqrt[2])
```

Rubi [A] time = 0.286204, antiderivative size = 234, normalized size of antiderivative = 1., number of steps used = 13, number of rules used = 10, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.5$

$$-\frac{1}{3}(1-x)^{3/4}x(x+1)^{5/4}$$
$$-\frac{1}{12}(1-x)^{3/4}(x+1)^{5/4}-\frac{3}{8}(1-x)^{3/4}\sqrt[4]{x+1}-\frac{3\log\left(\frac{\sqrt{1-x}}{\sqrt{x+1}}-\frac{\sqrt{2}\sqrt[4]{1-x}}{\sqrt[4]{x+1}}+1\right)}{16\sqrt{2}}+\frac{3\log\left(\frac{\sqrt{1-x}}{\sqrt{x+1}}+\frac{\sqrt{2}\sqrt[4]{1-x}}{\sqrt[4]{x+1}}+1\right)}{16\sqrt{2}}+\frac{3\tan^{-1}\left(1-\sqrt{2}\sqrt[4]{\ }\right.}{8\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^2*(1 + x)^(1/4))/(1 - x)^(1/4),x]
```

```
[Out] (-3*(1 - x)^(3/4)*(1 + x)^(1/4))/8 - ((1 - x)^(3/4)*(1 + x)^(5/4)
)/12 - ((1 - x)^(3/4)*x*(1 + x)^(5/4))/3 + (3*ArcTan[1 - (Sqrt[2]
*(1 - x)^(1/4))/(1 + x)^(1/4)])/(8*Sqrt[2]) - (3*ArcTan[1 + (Sqrt
[2]*(1 - x)^(1/4))/(1 + x)^(1/4)])/(8*Sqrt[2]) - (3*Log[1 + Sqrt[
1 - x]/Sqrt[1 + x] - (Sqrt[2]*(1 - x)^(1/4))/(1 + x)^(1/4)])/(16*
Sqrt[2]) + (3*Log[1 + Sqrt[1 - x]/Sqrt[1 + x] + (Sqrt[2]*(1 - x)^
(1/4))/(1 + x)^(1/4)])/(16*Sqrt[2])
```

Rubi in Sympy [A] time = 22.7873, size = 197, normalized size = 0.84

$$-\frac{x(-x+1)^{\frac{3}{4}}(x+1)^{\frac{5}{4}}}{3}-\frac{(-x+1)^{\frac{3}{4}}(x+1)^{\frac{5}{4}}}{12}-\frac{3(-x+1)^{\frac{3}{4}}\sqrt[4]{x+1}}{8}-\frac{3\sqrt{2}\log\left(1+\frac{\sqrt{x+1}}{\sqrt{-x+1}}-\frac{\sqrt{2}\sqrt[4]{x+1}}{\sqrt[4]{-x+1}}\right)}{32}$$
$$+\frac{3\sqrt{2}\log\left(1+\frac{\sqrt{x+1}}{\sqrt{-x+1}}+\frac{\sqrt{2}\sqrt[4]{x+1}}{\sqrt[4]{-x+1}}\right)}{32}-\frac{3\sqrt{2}\,\mathrm{atan}\left(1-\frac{\sqrt{2}\sqrt[4]{x+1}}{\sqrt[4]{-x+1}}\right)}{16}+\frac{3\sqrt{2}\,\mathrm{atan}\left(1+\frac{\sqrt{2}\sqrt[4]{x+1}}{\sqrt[4]{-x+1}}\right)}{16}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(1+x)**(1/4)/(1-x)**(1/4),x)
```

```
[Out] -x*(-x + 1)**(3/4)*(x + 1)**(5/4)/3 - (-x + 1)**(3/4)*(x + 1)**(5
/4)/12 - 3*(-x + 1)**(3/4)*(x + 1)**(1/4)/8 - 3*sqrt(2)*log(1 + s
qrt(x + 1)/sqrt(-x + 1) - sqrt(2)*(x + 1)**(1/4)/(-x + 1)**(1/4))
/32 + 3*sqrt(2)*log(1 + sqrt(x + 1)/sqrt(-x + 1) + sqrt(2)*(x + 1
)**(1/4)/(-x + 1)**(1/4))/32 - 3*sqrt(2)*atan(1 - sqrt(2)*(x + 1)
**(1/4)/(-x + 1)**(1/4))/16 + 3*sqrt(2)*atan(1 + sqrt(2)*(x + 1)*
*(1/4)/(-x + 1)**(1/4))/16
```

Mathematica [C] time = 0.0748283, size = 57, normalized size = 0.24

$$\frac{1}{24}\sqrt[4]{x+1}\left(9\ 2^{3/4}\ {}_2F_1\left(\frac{1}{4},\frac{1}{4};\frac{5}{4};\frac{x+1}{2}\right)-(1-x)^{3/4}\left(8x^2+10x+11\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^2*(1 + x)^(1/4))/(1 - x)^(1/4),x]
```

```
[Out] ((1 + x)^(1/4)*(-((1 - x)^(3/4)*(11 + 10*x + 8*x^2)) + 9*2^(3/4)*
Hypergeometric2F1[1/4, 1/4, 5/4, (1 + x)/2]))/24
```

Maple [F] time = 0.049, size = 0, normalized size = 0.

$$\int x^2\sqrt[4]{1+x}\frac{1}{\sqrt[4]{1-x}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(1+x)^(1/4)/(1-x)^(1/4),x)
```

```
[Out] int(x^2*(1+x)^(1/4)/(1-x)^(1/4),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(x+1)^{\frac{1}{4}}x^2}{(-x+1)^{\frac{1}{4}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(1/4)*x^2/(-x + 1)^(1/4),x, algorithm="maxima")
```

```
[Out] integrate((x + 1)^(1/4)*x^2/(-x + 1)^(1/4), x)
```

Fricas [A] time = 0.247824, size = 378, normalized size = 1.62

$$\begin{aligned}
&-\frac{1}{24}\left(8\,x^2+10\,x+11\right)(x+1)^{\frac{1}{4}}(-x+1)^{\frac{3}{4}}\\
&+\frac{3}{8}\sqrt{2}\arctan\left(\frac{x-1}{\sqrt{2}(x-1)\sqrt{\frac{\sqrt{2}(x+1)^{\frac{1}{4}}(-x+1)^{\frac{3}{4}}+x-\sqrt{x+1}\sqrt{-x+1}-1}{x-1}}+\sqrt{2}(x+1)^{\frac{1}{4}}(-x+1)^{\frac{3}{4}}+x-1}\right)\\
&+\frac{3}{8}\sqrt{2}\arctan\left(\frac{x-1}{\sqrt{2}(x-1)\sqrt{-\frac{\sqrt{2}(x+1)^{\frac{1}{4}}(-x+1)^{\frac{3}{4}}-x+\sqrt{x+1}\sqrt{-x+1}+1}{x-1}}+\sqrt{2}(x+1)^{\frac{1}{4}}(-x+1)^{\frac{3}{4}}-x+1}\right)\\
&-\frac{3}{32}\sqrt{2}\log\left(\frac{2\left(\sqrt{2}(x+1)^{\frac{1}{4}}(-x+1)^{\frac{3}{4}}+x-\sqrt{x+1}\sqrt{-x+1}-1\right)}{x-1}\right)\\
&+\frac{3}{32}\sqrt{2}\log\left(-\frac{2\left(\sqrt{2}(x+1)^{\frac{1}{4}}(-x+1)^{\frac{3}{4}}-x+\sqrt{x+1}\sqrt{-x+1}+1\right)}{x-1}\right)
\end{aligned}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(1/4)*x^2/(-x + 1)^(1/4),x, algorithm="fricas")
```

```
[Out] -1/24*(8*x^2 + 10*x + 11)*(x + 1)^(1/4)*(-x + 1)^(3/4) + 3/8*sqrt
(2)*arctan((x - 1)/(sqrt(2)*(x - 1)*sqrt((sqrt(2)*(x + 1)^(1/4)*(
-x + 1)^(3/4) + x - sqrt(x + 1)*sqrt(-x + 1) - 1)/(x - 1)) + sqrt
(2)*(x + 1)^(1/4)*(-x + 1)^(3/4) + x - 1)) + 3/8*sqrt(2)*arctan((
x - 1)/(sqrt(2)*(x - 1)*sqrt(-(sqrt(2)*(x + 1)^(1/4)*(-x + 1)^(3/
4) - x + sqrt(x + 1)*sqrt(-x + 1) + 1)/(x - 1)) + sqrt(2)*(x + 1)
^(1/4)*(-x + 1)^(3/4) - x + 1)) - 3/32*sqrt(2)*log(2*(sqrt(2)*(x
+ 1)^(1/4)*(-x + 1)^(3/4) + x - sqrt(x + 1)*sqrt(-x + 1) - 1)/(x
- 1)) + 3/32*sqrt(2)*log(-2*(sqrt(2)*(x + 1)^(1/4)*(-x + 1)^(3/4)
 - x + sqrt(x + 1)*sqrt(-x + 1) + 1)/(x - 1))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x^2\sqrt[4]{x+1}}{\sqrt[4]{-x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(1+x)**(1/4)/(1-x)**(1/4),x)
```

```
[Out] Integral(x**2*(x + 1)**(1/4)/(-x + 1)**(1/4), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(x+1)^{\frac{1}{4}}x^2}{(-x+1)^{\frac{1}{4}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(1/4)*x^2/(-x + 1)^(1/4),x, algorithm="giac")
```

```
[Out] integrate((x + 1)^(1/4)*x^2/(-x + 1)^(1/4), x)
```

3.881 $\int \frac{x\sqrt[4]{1+x}}{\sqrt[4]{1-x}}\,dx$

Optimal. Leaf size=213

$$-\frac{1}{2}(1-x)^{3/4}(x+1)^{5/4}-\frac{1}{4}(1-x)^{3/4}\sqrt[4]{x+1}-\frac{\log\left(\frac{\sqrt{1-x}}{\sqrt{x+1}}-\frac{\sqrt{2}\sqrt[4]{1-x}}{\sqrt[4]{x+1}}+1\right)}{8\sqrt{2}}+\frac{\log\left(\frac{\sqrt{1-x}}{\sqrt{x+1}}+\frac{\sqrt{2}\sqrt[4]{1-x}}{\sqrt[4]{x+1}}+1\right)}{8\sqrt{2}}+\frac{\tan^{-1}\left(1-\frac{\sqrt{2}\sqrt[4]{1-x}}{\sqrt[4]{x+1}}\right)}{4\sqrt{2}}-\frac{\tan^{-1}\left(\frac{\sqrt{2}\sqrt[4]{1-x}}{\sqrt[4]{x+1}}+1\right)}{4\sqrt{2}}$$

```
[Out] -((1 - x)^(3/4)*(1 + x)^(1/4))/4 - ((1 - x)^(3/4)*(1 + x)^(5/4))/
2 + ArcTan[1 - (Sqrt[2]*(1 - x)^(1/4))/(1 + x)^(1/4)]/(4*Sqrt[2])
 - ArcTan[1 + (Sqrt[2]*(1 - x)^(1/4))/(1 + x)^(1/4)]/(4*Sqrt[2])
- Log[1 + Sqrt[1 - x]/Sqrt[1 + x] - (Sqrt[2]*(1 - x)^(1/4))/(1 +
x)^(1/4)]/(8*Sqrt[2]) + Log[1 + Sqrt[1 - x]/Sqrt[1 + x] + (Sqrt[2
]*(1 - x)^(1/4))/(1 + x)^(1/4)]/(8*Sqrt[2])
```

Rubi [A] time = 0.219272, antiderivative size = 213, normalized size of antiderivative = 1., number of steps used = 12, number of rules used = 9, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.5$

$$-\frac{1}{2}(1-x)^{3/4}(x+1)^{5/4}-\frac{1}{4}(1-x)^{3/4}\sqrt[4]{x+1}-\frac{\log\left(\frac{\sqrt{1-x}}{\sqrt{x+1}}-\frac{\sqrt{2}\sqrt[4]{1-x}}{\sqrt[4]{x+1}}+1\right)}{8\sqrt{2}}+\frac{\log\left(\frac{\sqrt{1-x}}{\sqrt{x+1}}+\frac{\sqrt{2}\sqrt[4]{1-x}}{\sqrt[4]{x+1}}+1\right)}{8\sqrt{2}}+\frac{\tan^{-1}\left(1-\frac{\sqrt{2}\sqrt[4]{1-x}}{\sqrt[4]{x+1}}\right)}{4\sqrt{2}}-\frac{\tan^{-1}\left(\frac{\sqrt{2}\sqrt[4]{1-x}}{\sqrt[4]{x+1}}+1\right)}{4\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(x*(1 + x)^(1/4))/(1 - x)^(1/4),x]
```

```
[Out] -((1 - x)^(3/4)*(1 + x)^(1/4))/4 - ((1 - x)^(3/4)*(1 + x)^(5/4))/
2 + ArcTan[1 - (Sqrt[2]*(1 - x)^(1/4))/(1 + x)^(1/4)]/(4*Sqrt[2])
 - ArcTan[1 + (Sqrt[2]*(1 - x)^(1/4))/(1 + x)^(1/4)]/(4*Sqrt[2])
- Log[1 + Sqrt[1 - x]/Sqrt[1 + x] - (Sqrt[2]*(1 - x)^(1/4))/(1 +
x)^(1/4)]/(8*Sqrt[2]) + Log[1 + Sqrt[1 - x]/Sqrt[1 + x] + (Sqrt[2
]*(1 - x)^(1/4))/(1 + x)^(1/4)]/(8*Sqrt[2])
```

Rubi in Sympy [A] time = 21.633, size = 172, normalized size = 0.81

$$-\frac{(-x+1)^{\frac{3}{4}}(x+1)^{\frac{5}{4}}}{2}-\frac{(-x+1)^{\frac{3}{4}}\sqrt[4]{x+1}}{4}-\frac{\sqrt{2}\log\left(-\frac{\sqrt{2}\sqrt[4]{-x+1}}{\sqrt[4]{x+1}}+\frac{\sqrt{-x+1}}{\sqrt{x+1}}+1\right)}{16}+\frac{\sqrt{2}\log\left(\frac{\sqrt{2}\sqrt[4]{-x+1}}{\sqrt[4]{x+1}}+\frac{\sqrt{-x+1}}{\sqrt{x+1}}+1\right)}{16}-\frac{\sqrt{2}\,\mathrm{atan}\left(\frac{\sqrt{2}\sqrt[4]{-x+1}}{\sqrt[4]{x+1}}-1\right)}{8}-\frac{\sqrt{2}\,\mathrm{atan}\left(\frac{\sqrt{2}\sqrt[4]{-x+1}}{\sqrt[4]{x+1}}+1\right)}{8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(1+x)**(1/4)/(1-x)**(1/4),x)
```

```
[Out] -(-x + 1)**(3/4)*(x + 1)**(5/4)/2 - (-x + 1)**(3/4)*(x + 1)**(1/4
)/4 - sqrt(2)*log(-sqrt(2)*(-x + 1)**(1/4)/(x + 1)**(1/4) + sqrt(
-x + 1)/sqrt(x + 1) + 1)/16 + sqrt(2)*log(sqrt(2)*(-x + 1)**(1/4)
/(x + 1)**(1/4) + sqrt(-x + 1)/sqrt(x + 1) + 1)/16 - sqrt(2)*atan
(sqrt(2)*(-x + 1)**(1/4)/(x + 1)**(1/4) - 1)/8 - sqrt(2)*atan(sqr
t(2)*(-x + 1)**(1/4)/(x + 1)**(1/4) + 1)/8
```

Mathematica [C] time = 0.0450334, size = 51, normalized size = 0.24

$$\frac{1}{4}\sqrt[4]{x+1}\left(2^{3/4}\,{}_2F_1\left(\frac{1}{4},\frac{1}{4};\frac{5}{4};\frac{x+1}{2}\right)-(1-x)^{3/4}(2x+3)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x*(1 + x)^(1/4))/(1 - x)^(1/4),x]
```

```
[Out] ((1 + x)^(1/4)*(-((1 - x)^(3/4)*(3 + 2*x)) + 2^(3/4)*Hypergeometr
ic2F1[1/4, 1/4, 5/4, (1 + x)/2]))/4
```

Maple [F] time = 0.031, size = 0, normalized size = 0.

$$\int x\sqrt[4]{1+x}\,\frac{1}{\sqrt[4]{1-x}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(1+x)^(1/4)/(1-x)^(1/4),x)
```

```
[Out] int(x*(1+x)^(1/4)/(1-x)^(1/4),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(x+1)^{\frac{1}{4}}x}{(-x+1)^{\frac{1}{4}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(1/4)*x/(-x + 1)^(1/4),x, algorithm="maxima")
```

```
[Out] integrate((x + 1)^(1/4)*x/(-x + 1)^(1/4), x)
```

Fricas [A] time = 0.239405, size = 371, normalized size = 1.74

$$-\frac{1}{4}(2x+3)(x+1)^{\frac{1}{4}}(-x+1)^{\frac{3}{4}} + \frac{1}{4}\sqrt{2}\arctan\left(\frac{x-1}{\sqrt{2}(x-1)\sqrt{\frac{\sqrt{2}(x+1)^{\frac{1}{4}}(-x+1)^{\frac{3}{4}}+x-\sqrt{x+1}\sqrt{-x+1}-1}{x-1}}+\sqrt{2}(x+1)^{\frac{1}{4}}(-x+1)^{\frac{3}{4}}+x-1}\right) + \frac{1}{4}\sqrt{2}\arctan\left(\frac{x-1}{\sqrt{2}(x-1)\sqrt{-\frac{\sqrt{2}(x+1)^{\frac{1}{4}}(-x+1)^{\frac{3}{4}}-x+\sqrt{x+1}\sqrt{-x+1}+1}{x-1}}+\sqrt{2}(x+1)^{\frac{1}{4}}(-x+1)^{\frac{3}{4}}-x+1}\right) - \frac{1}{16}\sqrt{2}\log\left(\frac{2\left(\sqrt{2}(x+1)^{\frac{1}{4}}(-x+1)^{\frac{3}{4}}+x-\sqrt{x+1}\sqrt{-x+1}-1\right)}{x-1}\right) + \frac{1}{16}\sqrt{2}\log\left(-\frac{2\left(\sqrt{2}(x+1)^{\frac{1}{4}}(-x+1)^{\frac{3}{4}}-x+\sqrt{x+1}\sqrt{-x+1}+1\right)}{x-1}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(1/4)*x/(-x + 1)^(1/4),x, algorithm="fricas")
```

```
[Out] -1/4*(2*x + 3)*(x + 1)^(1/4)*(-x + 1)^(3/4) + 1/4*sqrt(2)*arctan(
(x - 1)/(sqrt(2)*(x - 1)*sqrt((sqrt(2)*(x + 1)^(1/4)*(-x + 1)^(3/
4) + x - sqrt(x + 1)*sqrt(-x + 1) - 1)/(x - 1)) + sqrt(2)*(x + 1)
^(1/4)*(-x + 1)^(3/4) + x - 1)) + 1/4*sqrt(2)*arctan((x - 1)/(sqr
t(2)*(x - 1)*sqrt(-(sqrt(2)*(x + 1)^(1/4)*(-x + 1)^(3/4) - x + sq
rt(x + 1)*sqrt(-x + 1) + 1)/(x - 1)) + sqrt(2)*(x + 1)^(1/4)*(-x
+ 1)^(3/4) - x + 1)) - 1/16*sqrt(2)*log(2*(sqrt(2)*(x + 1)^(1/4)*
(-x + 1)^(3/4) + x - sqrt(x + 1)*sqrt(-x + 1) - 1)/(x - 1)) + 1/1
6*sqrt(2)*log(-2*(sqrt(2)*(x + 1)^(1/4)*(-x + 1)^(3/4) - x + sqrt
(x + 1)*sqrt(-x + 1) + 1)/(x - 1))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x\sqrt[4]{x+1}}{\sqrt[4]{-x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(1+x)**(1/4)/(1-x)**(1/4),x)
```

```
[Out] Integral(x*(x + 1)**(1/4)/(-x + 1)**(1/4), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(x+1)^{\frac{1}{4}}x}{(-x+1)^{\frac{1}{4}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(1/4)*x/(-x + 1)^(1/4),x, algorithm="giac")
```

```
[Out] integrate((x + 1)^(1/4)*x/(-x + 1)^(1/4), x)
```

3.882 $\int \frac{\sqrt[4]{1+x}}{\sqrt[4]{1-x}}\,dx$

Optimal. Leaf size=186

$$-(1-x)^{3/4}\sqrt[4]{x+1}-\frac{\log\left(\frac{\sqrt{1-x}}{\sqrt{x+1}}-\frac{\sqrt{2}\sqrt[4]{1-x}}{\sqrt[4]{x+1}}+1\right)}{2\sqrt{2}}+\frac{\log\left(\frac{\sqrt{1-x}}{\sqrt{x+1}}+\frac{\sqrt{2}\sqrt[4]{1-x}}{\sqrt[4]{x+1}}+1\right)}{2\sqrt{2}}+\frac{\tan^{-1}\left(1-\frac{\sqrt{2}\sqrt[4]{1-x}}{\sqrt[4]{x+1}}\right)}{\sqrt{2}}-\frac{\tan^{-1}\left(\frac{\sqrt{2}\sqrt[4]{1-x}}{\sqrt[4]{x+1}}+1\right)}{\sqrt{2}}$$

```
[Out] -((1 - x)^(3/4)*(1 + x)^(1/4)) + ArcTan[1 - (Sqrt[2]*(1 - x)^(1/4
))/(1 + x)^(1/4)]/Sqrt[2] - ArcTan[1 + (Sqrt[2]*(1 - x)^(1/4))/(1
 + x)^(1/4)]/Sqrt[2] - Log[1 + Sqrt[1 - x]/Sqrt[1 + x] - (Sqrt[2]
*(1 - x)^(1/4))/(1 + x)^(1/4)]/(2*Sqrt[2]) + Log[1 + Sqrt[1 - x]/
Sqrt[1 + x] + (Sqrt[2]*(1 - x)^(1/4))/(1 + x)^(1/4)]/(2*Sqrt[2])
```

Rubi [A] time = 0.175589, antiderivative size = 186, normalized size of antiderivative = 1., number of steps used = 11, number of rules used = 8, integrand size = 17, $\frac{\text{number of rules}}{\text{integrand size}} = 0.471$

$$-(1-x)^{3/4}\sqrt[4]{x+1}-\frac{\log\left(\frac{\sqrt{1-x}}{\sqrt{x+1}}-\frac{\sqrt{2}\sqrt[4]{1-x}}{\sqrt[4]{x+1}}+1\right)}{2\sqrt{2}}+\frac{\log\left(\frac{\sqrt{1-x}}{\sqrt{x+1}}+\frac{\sqrt{2}\sqrt[4]{1-x}}{\sqrt[4]{x+1}}+1\right)}{2\sqrt{2}}+\frac{\tan^{-1}\left(1-\frac{\sqrt{2}\sqrt[4]{1-x}}{\sqrt[4]{x+1}}\right)}{\sqrt{2}}-\frac{\tan^{-1}\left(\frac{\sqrt{2}\sqrt[4]{1-x}}{\sqrt[4]{x+1}}+1\right)}{\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 + x)^(1/4)/(1 - x)^(1/4),x]
```

```
[Out] -((1 - x)^(3/4)*(1 + x)^(1/4)) + ArcTan[1 - (Sqrt[2]*(1 - x)^(1/4
))/(1 + x)^(1/4)]/Sqrt[2] - ArcTan[1 + (Sqrt[2]*(1 - x)^(1/4))/(1
 + x)^(1/4)]/Sqrt[2] - Log[1 + Sqrt[1 - x]/Sqrt[1 + x] - (Sqrt[2]
*(1 - x)^(1/4))/(1 + x)^(1/4)]/(2*Sqrt[2]) + Log[1 + Sqrt[1 - x]/
Sqrt[1 + x] + (Sqrt[2]*(1 - x)^(1/4))/(1 + x)^(1/4)]/(2*Sqrt[2])
```

Rubi in Sympy [A] time = 19.3736, size = 155, normalized size = 0.83

$$-(-x+1)^{\frac{3}{4}}\sqrt[4]{x+1}-\frac{\sqrt{2}\log\left(-\frac{\sqrt{2}\sqrt[4]{-x+1}}{\sqrt[4]{x+1}}+\frac{\sqrt{-x+1}}{\sqrt{x+1}}+1\right)}{4}+\frac{\sqrt{2}\log\left(\frac{\sqrt{2}\sqrt[4]{-x+1}}{\sqrt[4]{x+1}}+\frac{\sqrt{-x+1}}{\sqrt{x+1}}+1\right)}{4}-\frac{\sqrt{2}\operatorname{atan}\left(\frac{\sqrt{2}\sqrt[4]{-x+1}}{\sqrt[4]{x+1}}-1\right)}{2}-\frac{\sqrt{2}\operatorname{atan}\left(\frac{\sqrt{2}\sqrt[4]{-x+1}}{\sqrt[4]{x+1}}+1\right)}{2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1+x)**(1/4)/(1-x)**(1/4),x)
```

```
[Out] -(-x + 1)**(3/4)*(x + 1)**(1/4) - sqrt(2)*log(-sqrt(2)*(-x + 1)**
(1/4)/(x + 1)**(1/4) + sqrt(-x + 1)/sqrt(x + 1) + 1)/4 + sqrt(2)*
log(sqrt(2)*(-x + 1)**(1/4)/(x + 1)**(1/4) + sqrt(-x + 1)/sqrt(x
+ 1) + 1)/4 - sqrt(2)*atan(sqrt(2)*(-x + 1)**(1/4)/(x + 1)**(1/4)
 - 1)/2 - sqrt(2)*atan(sqrt(2)*(-x + 1)**(1/4)/(x + 1)**(1/4) + 1
)/2
```

Mathematica [C] time = 0.0191814, size = 43, normalized size = 0.23

$$\sqrt[4]{x+1}\left(2^{3/4}\,{}_2F_1\left(\frac{1}{4},\frac{1}{4};\frac{5}{4};\frac{x+1}{2}\right)-(1-x)^{3/4}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 + x)^(1/4)/(1 - x)^(1/4),x]
```

```
[Out] (1 + x)^(1/4)*(-(1 - x)^(3/4) + 2^(3/4)*Hypergeometric2F1[1/4, 1/
4, 5/4, (1 + x)/2])
```

Maple [F] time = 0.027, size = 0, normalized size = 0.

$$\int 1\sqrt[4]{1+x}\frac{1}{\sqrt[4]{1-x}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1+x)^(1/4)/(1-x)^(1/4),x)
```

```
[Out] int((1+x)^(1/4)/(1-x)^(1/4),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(x+1)^{\frac{1}{4}}}{(-x+1)^{\frac{1}{4}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(1/4)/(-x + 1)^(1/4),x, algorithm="maxima")
```

```
[Out] integrate((x + 1)^(1/4)/(-x + 1)^(1/4), x)
```

Fricas [A] time = 0.244087, size = 362, normalized size = 1.95

$$\sqrt{2}\arctan\left(\frac{x-1}{\sqrt{2}(x-1)\sqrt{\frac{\sqrt{2}(x+1)^{\frac{1}{4}}(-x+1)^{\frac{3}{4}}+x-\sqrt{x+1}\sqrt{-x+1}-1}{x-1}}+\sqrt{2}(x+1)^{\frac{1}{4}}(-x+1)^{\frac{3}{4}}+x-1}\right)$$
$$+\sqrt{2}\arctan\left(\frac{x-1}{\sqrt{2}(x-1)\sqrt{-\frac{\sqrt{2}(x+1)^{\frac{1}{4}}(-x+1)^{\frac{3}{4}}-x+\sqrt{x+1}\sqrt{-x+1}+1}{x-1}}+\sqrt{2}(x+1)^{\frac{1}{4}}(-x+1)^{\frac{3}{4}}-x+1}\right)$$
$$-\frac{1}{4}\sqrt{2}\log\left(\frac{2\left(\sqrt{2}(x+1)^{\frac{1}{4}}(-x+1)^{\frac{3}{4}}+x-\sqrt{x+1}\sqrt{-x+1}-1\right)}{x-1}\right)$$
$$+\frac{1}{4}\sqrt{2}\log\left(-\frac{2\left(\sqrt{2}(x+1)^{\frac{1}{4}}(-x+1)^{\frac{3}{4}}-x+\sqrt{x+1}\sqrt{-x+1}+1\right)}{x-1}\right)-(x+1)^{\frac{1}{4}}(-x+1)^{\frac{3}{4}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(1/4)/(-x + 1)^(1/4),x, algorithm="fricas")
```

```
[Out] sqrt(2)*arctan((x - 1)/(sqrt(2)*(x - 1)*sqrt((sqrt(2)*(x + 1)^(1/
4)*(-x + 1)^(3/4) + x - sqrt(x + 1)*sqrt(-x + 1) - 1)/(x - 1)) +
sqrt(2)*(x + 1)^(1/4)*(-x + 1)^(3/4) + x - 1)) + sqrt(2)*arctan((
x - 1)/(sqrt(2)*(x - 1)*sqrt(-(sqrt(2)*(x + 1)^(1/4)*(-x + 1)^(3/
4) - x + sqrt(x + 1)*sqrt(-x + 1) + 1)/(x - 1)) + sqrt(2)*(x + 1)
^(1/4)*(-x + 1)^(3/4) - x + 1)) - 1/4*sqrt(2)*log(2*(sqrt(2)*(x +
 1)^(1/4)*(-x + 1)^(3/4) + x - sqrt(x + 1)*sqrt(-x + 1) - 1)/(x -
 1)) + 1/4*sqrt(2)*log(-2*(sqrt(2)*(x + 1)^(1/4)*(-x + 1)^(3/4) -
 x + sqrt(x + 1)*sqrt(-x + 1) + 1)/(x - 1)) - (x + 1)^(1/4)*(-x +
 1)^(3/4)
```

Sympy [A] time = 8.92637, size = 41, normalized size = 0.22

$$\frac{2^{\frac{3}{4}} (x+1)^{\frac{5}{4}} \Gamma\left(\frac{5}{4}\right) {}_{2}F_{1}\left(\begin{matrix} \frac{1}{4}, \frac{5}{4} \\ \frac{9}{4} \end{matrix}\middle| \frac{(x+1)e^{2i\pi}}{2}\right)}{2\Gamma\left(\frac{9}{4}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1+x)**(1/4)/(1-x)**(1/4),x)
```

```
[Out] 2**(3/4)*(x + 1)**(5/4)*gamma(5/4)*hyper((1/4, 5/4), (9/4,), (x +
 1)*exp_polar(2*I*pi)/2)/(2*gamma(9/4))
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(x+1)^{\frac{1}{4}}}{(-x+1)^{\frac{1}{4}}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(1/4)/(-x + 1)^(1/4),x, algorithm="giac")
```

```
[Out] integrate((x + 1)^(1/4)/(-x + 1)^(1/4), x)
```

3.883 $\int \frac{\sqrt[4]{1+x}}{\sqrt[4]{1-x}x} \, dx$

Optimal. Leaf size=203

$$-\frac{\log\left(\frac{\sqrt{1-x}}{\sqrt{x+1}}-\frac{\sqrt{2}\sqrt[4]{1-x}}{\sqrt[4]{x+1}}+1\right)}{\sqrt{2}}+\frac{\log\left(\frac{\sqrt{1-x}}{\sqrt{x+1}}+\frac{\sqrt{2}\sqrt[4]{1-x}}{\sqrt[4]{x+1}}+1\right)}{\sqrt{2}}-2\tan^{-1}\left(\frac{\sqrt[4]{x+1}}{\sqrt[4]{1-x}}\right)+\sqrt{2}\tan^{-1}\left(1-\frac{\sqrt{2}\sqrt[4]{1-x}}{\sqrt[4]{x+1}}\right)-\sqrt{2}\tan^{-1}\left(\frac{\sqrt{2}\sqrt[4]{1-x}}{\sqrt[4]{x+1}}+1\right)-2\tanh^{-1}\left(\frac{\sqrt[4]{x+1}}{\sqrt[4]{1-x}}\right)$$

```
[Out] -2*ArcTan[(1 + x)^(1/4)/(1 - x)^(1/4)] + Sqrt[2]*ArcTan[1 - (Sqrt
[2]*(1 - x)^(1/4))/(1 + x)^(1/4)] - Sqrt[2]*ArcTan[1 + (Sqrt[2]*(
1 - x)^(1/4))/(1 + x)^(1/4)] - 2*ArcTanh[(1 + x)^(1/4)/(1 - x)^(1
/4)] - Log[1 + Sqrt[1 - x]/Sqrt[1 + x] - (Sqrt[2]*(1 - x)^(1/4))/
(1 + x)^(1/4)]/Sqrt[2] + Log[1 + Sqrt[1 - x]/Sqrt[1 + x] + (Sqrt[
2]*(1 - x)^(1/4))/(1 + x)^(1/4)]/Sqrt[2]
```

Rubi [A] time = 0.202828, antiderivative size = 203, normalized size of antiderivative = 1., number of steps used = 15, number of rules used = 12, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.6$

$$-\frac{\log\left(\frac{\sqrt{1-x}}{\sqrt{x+1}}-\frac{\sqrt{2}\sqrt[4]{1-x}}{\sqrt[4]{x+1}}+1\right)}{\sqrt{2}}+\frac{\log\left(\frac{\sqrt{1-x}}{\sqrt{x+1}}+\frac{\sqrt{2}\sqrt[4]{1-x}}{\sqrt[4]{x+1}}+1\right)}{\sqrt{2}}-2\tan^{-1}\left(\frac{\sqrt[4]{x+1}}{\sqrt[4]{1-x}}\right)+\sqrt{2}\tan^{-1}\left(1-\frac{\sqrt{2}\sqrt[4]{1-x}}{\sqrt[4]{x+1}}\right)-\sqrt{2}\tan^{-1}\left(\frac{\sqrt{2}\sqrt[4]{1-x}}{\sqrt[4]{x+1}}+1\right)-2\tanh^{-1}\left(\frac{\sqrt[4]{x+1}}{\sqrt[4]{1-x}}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 + x)^(1/4)/((1 - x)^(1/4)*x),x]
```

```
[Out] -2*ArcTan[(1 + x)^(1/4)/(1 - x)^(1/4)] + Sqrt[2]*ArcTan[1 - (Sqrt
[2]*(1 - x)^(1/4))/(1 + x)^(1/4)] - Sqrt[2]*ArcTan[1 + (Sqrt[2]*(
1 - x)^(1/4))/(1 + x)^(1/4)] - 2*ArcTanh[(1 + x)^(1/4)/(1 - x)^(1
/4)] - Log[1 + Sqrt[1 - x]/Sqrt[1 + x] - (Sqrt[2]*(1 - x)^(1/4))/
(1 + x)^(1/4)]/Sqrt[2] + Log[1 + Sqrt[1 - x]/Sqrt[1 + x] + (Sqrt[
2]*(1 - x)^(1/4))/(1 + x)^(1/4)]/Sqrt[2]
```

Rubi in Sympy [A] time = 20.788, size = 172, normalized size = 0.85

$$-\frac{\sqrt{2}\log\left(-\frac{\sqrt{2}\sqrt[4]{-x+1}}{\sqrt[4]{x+1}}+\frac{\sqrt{-x+1}}{\sqrt{x+1}}+1\right)}{2}+\frac{\sqrt{2}\log\left(\frac{\sqrt{2}\sqrt[4]{-x+1}}{\sqrt[4]{x+1}}+\frac{\sqrt{-x+1}}{\sqrt{x+1}}+1\right)}{2}-2\,\mathrm{atan}\left(\frac{\sqrt[4]{x+1}}{\sqrt[4]{-x+1}}\right)-\sqrt{2}\,\mathrm{atan}\left(\frac{\sqrt{2}\sqrt[4]{-x+1}}{\sqrt[4]{x+1}}-1\right)-\sqrt{2}\,\mathrm{atan}\left(\frac{\sqrt{2}\sqrt[4]{-x+1}}{\sqrt[4]{x+1}}+1\right)-2\,\mathrm{atanh}\left(\frac{\sqrt[4]{x+1}}{\sqrt[4]{-x+1}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1+x)**(1/4)/(1-x)**(1/4)/x,x)
```

```
[Out] -sqrt(2)*log(-sqrt(2)*(-x + 1)**(1/4)/(x + 1)**(1/4) + sqrt(-x +
1)/sqrt(x + 1) + 1)/2 + sqrt(2)*log(sqrt(2)*(-x + 1)**(1/4)/(x +
1)**(1/4) + sqrt(-x + 1)/sqrt(x + 1) + 1)/2 - 2*atan((x + 1)**(1/
4)/(-x + 1)**(1/4)) - sqrt(2)*atan(sqrt(2)*(-x + 1)**(1/4)/(x + 1
)**(1/4) - 1) - sqrt(2)*atan(sqrt(2)*(-x + 1)**(1/4)/(x + 1)**(1/
4) + 1) - 2*atanh((x + 1)**(1/4)/(-x + 1)**(1/4))
```

Mathematica [C] time = 0.207344, size = 119, normalized size = 0.59

$$\frac{72(x+1)^{5/4}F_1\left(\frac{5}{4};\frac{1}{4},1;\frac{9}{4};\frac{x+1}{2},x+1\right)}{5\sqrt[4]{1-x}x\left(18F_1\left(\frac{5}{4};\frac{1}{4},1;\frac{9}{4};\frac{x+1}{2},x+1\right)+(x+1)\left(8F_1\left(\frac{9}{4};\frac{1}{4},2;\frac{13}{4};\frac{x+1}{2},x+1\right)+F_1\left(\frac{9}{4};\frac{5}{4},1;\frac{13}{4};\frac{x+1}{2},x+1\right)\right)\right)}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(1 + x)^(1/4)/((1 - x)^(1/4)*x),x]
```

```
[Out] (72*(1 + x)^(5/4)*AppellF1[5/4, 1/4, 1, 9/4, (1 + x)/2, 1 + x])/(
5*(1 - x)^(1/4)*x*(18*AppellF1[5/4, 1/4, 1, 9/4, (1 + x)/2, 1 + x
] + (1 + x)*(8*AppellF1[9/4, 1/4, 2, 13/4, (1 + x)/2, 1 + x] + Ap
pellF1[9/4, 5/4, 1, 13/4, (1 + x)/2, 1 + x])))
```

Maple [F] time = 0.057, size = 0, normalized size = 0.

$$\int \frac{1}{x}\sqrt[4]{1+x}\frac{1}{\sqrt[4]{1-x}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1+x)^(1/4)/(1-x)^(1/4)/x,x)
```

```
[Out] int((1+x)^(1/4)/(1-x)^(1/4)/x,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(x+1)^{\frac{1}{4}}}{x(-x+1)^{\frac{1}{4}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(1/4)/(x*(-x + 1)^(1/4)),x, algorithm="maxima")
```

```
[Out] integrate((x + 1)^(1/4)/(x*(-x + 1)^(1/4)), x)
```

Fricas [A] time = 0.245397, size = 443, normalized size = 2.18

$$\frac{1}{2}\sqrt{2}\left(2\sqrt{2}\arctan\left(\frac{(x+1)^{\frac{1}{4}}(-x+1)^{\frac{3}{4}}}{x-1}\right)+\sqrt{2}\log\left(\frac{x+(x+1)^{\frac{1}{4}}(-x+1)^{\frac{3}{4}}-1}{x-1}\right)-\sqrt{2}\log\left(-\frac{x-(x+1)^{\frac{1}{4}}(-x+1)^{\frac{3}{4}}-1}{x-1}\right)+4\,a\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(1/4)/(x*(-x + 1)^(1/4)),x, algorithm="fricas")
```

```
[Out] 1/2*sqrt(2)*(2*sqrt(2)*arctan((x + 1)^(1/4)*(-x + 1)^(3/4)/(x - 1
)) + sqrt(2)*log((x + (x + 1)^(1/4)*(-x + 1)^(3/4) - 1)/(x - 1))
- sqrt(2)*log(-(x - (x + 1)^(1/4)*(-x + 1)^(3/4) - 1)/(x - 1)) +
4*arctan((x - 1)/(sqrt(2)*(x - 1)*sqrt((sqrt(2)*(x + 1)^(1/4)*(-x
 + 1)^(3/4) + x - sqrt(x + 1)*sqrt(-x + 1) - 1)/(x - 1)) + sqrt(2
)*(x + 1)^(1/4)*(-x + 1)^(3/4) + x - 1)) + 4*arctan((x - 1)/(sqrt
(2)*(x - 1)*sqrt(-(sqrt(2)*(x + 1)^(1/4)*(-x + 1)^(3/4) - x + sqr
```

```
t(x + 1)*sqrt(-x + 1) + 1)/(x - 1)) + sqrt(2)*(x + 1)^(1/4)*(-x +
 1)^(3/4) - x + 1)) - log(2*(sqrt(2)*(x + 1)^(1/4)*(-x + 1)^(3/4)
 + x - sqrt(x + 1)*sqrt(-x + 1) - 1)/(x - 1)) + log(-2*(sqrt(2)*(
x + 1)^(1/4)*(-x + 1)^(3/4) - x + sqrt(x + 1)*sqrt(-x + 1) + 1)/(
x - 1)))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt[4]{x+1}}{x\sqrt[4]{-x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1+x)**(1/4)/(1-x)**(1/4)/x,x)
```

```
[Out] Integral((x + 1)**(1/4)/(x*(-x + 1)**(1/4)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(x+1)^{\frac{1}{4}}}{x(-x+1)^{\frac{1}{4}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(1/4)/(x*(-x + 1)^(1/4)),x, algorithm="giac")
```

```
[Out] integrate((x + 1)^(1/4)/(x*(-x + 1)^(1/4)), x)
```

3.884 $\int \frac{\sqrt[4]{1+x}}{\sqrt[4]{1-x}x^2}\,dx$

Optimal. Leaf size=62

$$-\frac{(1-x)^{3/4}\sqrt[4]{x+1}}{x}-\tan^{-1}\left(\frac{\sqrt[4]{x+1}}{\sqrt[4]{1-x}}\right)-\tanh^{-1}\left(\frac{\sqrt[4]{x+1}}{\sqrt[4]{1-x}}\right)$$

```
[Out] -(((1 - x)^(3/4)*(1 + x)^(1/4))/x) - ArcTan[(1 + x)^(1/4)/(1 - x)
^(1/4)] - ArcTanh[(1 + x)^(1/4)/(1 - x)^(1/4)]
```

Rubi [A] time = 0.0647105, antiderivative size = 62, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$-\frac{(1-x)^{3/4}\sqrt[4]{x+1}}{x}-\tan^{-1}\left(\frac{\sqrt[4]{x+1}}{\sqrt[4]{1-x}}\right)-\tanh^{-1}\left(\frac{\sqrt[4]{x+1}}{\sqrt[4]{1-x}}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 + x)^(1/4)/((1 - x)^(1/4)*x^2),x]
```

```
[Out] -(((1 - x)^(3/4)*(1 + x)^(1/4))/x) - ArcTan[(1 + x)^(1/4)/(1 - x)
^(1/4)] - ArcTanh[(1 + x)^(1/4)/(1 - x)^(1/4)]
```

Rubi in Sympy [A] time = 5.27498, size = 46, normalized size = 0.74

$$-\operatorname{atan}\left(\frac{\sqrt[4]{x+1}}{\sqrt[4]{-x+1}}\right)-\operatorname{atanh}\left(\frac{\sqrt[4]{x+1}}{\sqrt[4]{-x+1}}\right)-\frac{(-x+1)^{\frac{3}{4}}\sqrt[4]{x+1}}{x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1+x)**(1/4)/(1-x)**(1/4)/x**2,x)
```

```
[Out] -atan((x + 1)**(1/4)/(-x + 1)**(1/4)) - atanh((x + 1)**(1/4)/(-x
+ 1)**(1/4)) - (-x + 1)**(3/4)*(x + 1)**(1/4)/x
```

Mathematica [C] time = 0.24263, size = 106, normalized size = 1.71

$$\frac{-\frac{4x^2F_1\left(1;\frac{1}{4},\frac{3}{4};2;\frac{1}{x},-\frac{1}{x}\right)}{8xF_1\left(1;\frac{1}{4},\frac{3}{4};2;\frac{1}{x},-\frac{1}{x}\right)-3F_1\left(2;\frac{1}{4},\frac{7}{4};3;\frac{1}{x},-\frac{1}{x}\right)+F_1\left(2;\frac{5}{4},\frac{3}{4};3;\frac{1}{x},-\frac{1}{x}\right)}+x^2-1}{\sqrt[4]{1-x}x(x+1)^{3/4}}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(1 + x)^(1/4)/((1 - x)^(1/4)*x^2),x]
```

```
[Out] (-1 + x^2 - (4*x^2*AppellF1[1, 1/4, 3/4, 2, x^(-1), -x^(-1)])/(8*
x*AppellF1[1, 1/4, 3/4, 2, x^(-1), -x^(-1)] - 3*AppellF1[2, 1/4,
7/4, 3, x^(-1), -x^(-1)] + AppellF1[2, 5/4, 3/4, 3, x^(-1), -x^(-
1)]))/((1 - x)^(1/4)*x*(1 + x)^(3/4))
```

Maple [F] time = 0.046, size = 0, normalized size = 0.

$$\int \frac{1}{x^2}\sqrt[4]{1+x}\frac{1}{\sqrt[4]{1-x}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1+x)^(1/4)/(1-x)^(1/4)/x^2,x)
```

```
[Out] int((1+x)^(1/4)/(1-x)^(1/4)/x^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(x+1)^{\frac{1}{4}}}{x^2(-x+1)^{\frac{1}{4}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(1/4)/(x^2*(-x + 1)^(1/4)),x, algorithm="maxima")
```

```
[Out] integrate((x + 1)^(1/4)/(x^2*(-x + 1)^(1/4)), x)
```

Fricas [A] time = 0.245045, size = 128, normalized size = 2.06

$$\frac{2\,x\arctan\left(\frac{(x+1)^{\frac{1}{4}}(-x+1)^{\frac{3}{4}}}{x-1}\right)+x\log\left(\frac{x+(x+1)^{\frac{1}{4}}(-x+1)^{\frac{3}{4}}-1}{x-1}\right)-x\log\left(-\frac{x-(x+1)^{\frac{1}{4}}(-x+1)^{\frac{3}{4}}-1}{x-1}\right)-2\,(x+1)^{\frac{1}{4}}(-x+1)^{\frac{3}{4}}}{2\,x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(1/4)/(x^2*(-x + 1)^(1/4)),x, algorithm="fricas")
```

```
[Out] 1/2*(2*x*arctan((x + 1)^(1/4)*(-x + 1)^(3/4)/(x - 1)) + x*log((x
+ (x + 1)^(1/4)*(-x + 1)^(3/4) - 1)/(x - 1)) - x*log(-(x - (x + 1
)^(1/4)*(-x + 1)^(3/4) - 1)/(x - 1)) - 2*(x + 1)^(1/4)*(-x + 1)^(
3/4))/x
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1+x)**(1/4)/(1-x)**(1/4)/x**2,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(x+1)^{\frac{1}{4}}}{x^2(-x+1)^{\frac{1}{4}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(1/4)/(x^2*(-x + 1)^(1/4)),x, algorithm="giac")
```

```
[Out] integrate((x + 1)^(1/4)/(x^2*(-x + 1)^(1/4)), x)
```

3.885 $\int \frac{\sqrt[4]{1+x}}{\sqrt[4]{1-x}x^3}\,dx$

Optimal. Leaf size=91

$$-\frac{(1-x)^{3/4}(x+1)^{5/4}}{2x^2}-\frac{(1-x)^{3/4}\sqrt[4]{x+1}}{4x}-\frac{1}{4}\tan^{-1}\left(\frac{\sqrt[4]{x+1}}{\sqrt[4]{1-x}}\right)-\frac{1}{4}\tanh^{-1}\left(\frac{\sqrt[4]{x+1}}{\sqrt[4]{1-x}}\right)$$

```
[Out] -((1 - x)^(3/4)*(1 + x)^(1/4))/(4*x) - ((1 - x)^(3/4)*(1 + x)^(5/
4))/(2*x^2) - ArcTan[(1 + x)^(1/4)/(1 - x)^(1/4)]/4 - ArcTanh[(1
+ x)^(1/4)/(1 - x)^(1/4)]/4
```

Rubi [A] time = 0.09199, antiderivative size = 91, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.3$

$$-\frac{(1-x)^{3/4}(x+1)^{5/4}}{2x^2}-\frac{(1-x)^{3/4}\sqrt[4]{x+1}}{4x}-\frac{1}{4}\tan^{-1}\left(\frac{\sqrt[4]{x+1}}{\sqrt[4]{1-x}}\right)-\frac{1}{4}\tanh^{-1}\left(\frac{\sqrt[4]{x+1}}{\sqrt[4]{1-x}}\right)$$

Antiderivative was successfully verified.

```
[In] Int[(1 + x)^(1/4)/((1 - x)^(1/4)*x^3),x]
```

```
[Out] -((1 - x)^(3/4)*(1 + x)^(1/4))/(4*x) - ((1 - x)^(3/4)*(1 + x)^(5/
4))/(2*x^2) - ArcTan[(1 + x)^(1/4)/(1 - x)^(1/4)]/4 - ArcTanh[(1
+ x)^(1/4)/(1 - x)^(1/4)]/4
```

Rubi in Sympy [A] time = 6.85724, size = 70, normalized size = 0.77

$$-\frac{\operatorname{atan}\left(\frac{\sqrt[4]{x+1}}{\sqrt[4]{-x+1}}\right)}{4}-\frac{\operatorname{atanh}\left(\frac{\sqrt[4]{x+1}}{\sqrt[4]{-x+1}}\right)}{4}-\frac{(-x+1)^{\frac{3}{4}}\sqrt[4]{x+1}}{4x}-\frac{(-x+1)^{\frac{3}{4}}(x+1)^{\frac{5}{4}}}{2x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1+x)**(1/4)/(1-x)**(1/4)/x**3,x)
```

```
[Out] -atan((x + 1)**(1/4)/(-x + 1)**(1/4))/4 - atanh((x + 1)**(1/4)/(-
x + 1)**(1/4))/4 - (-x + 1)**(3/4)*(x + 1)**(1/4)/(4*x) - (-x + 1
)**(3/4)*(x + 1)**(5/4)/(2*x**2)
```

Mathematica [C] time = 0.149638, size = 114, normalized size = 1.25

$$\frac{-\frac{4xF_1\left(1;\frac{1}{4},\frac{3}{4};2;\frac{1}{x},-\frac{1}{x}\right)}{8xF_1\left(1;\frac{1}{4},\frac{3}{4};2;\frac{1}{x},-\frac{1}{x}\right)-3F_1\left(2;\frac{1}{4},\frac{7}{4};3;\frac{1}{x},-\frac{1}{x}\right)+F_1\left(2;\frac{5}{4},\frac{3}{4};3;\frac{1}{x},-\frac{1}{x}\right)}-\frac{2}{x^2}+3x-\frac{3}{x}+2}{4\sqrt[4]{1-x}(x+1)^{3/4}}$$

Warning: Unable to verify antiderivative.

```
[In] Integrate[(1 + x)^(1/4)/((1 - x)^(1/4)*x^3),x]
```

```
[Out] (2 - 2/x^2 - 3/x + 3*x - (4*x*AppellF1[1, 1/4, 3/4, 2, x^(-1), -x
^(-1)])/(8*x*AppellF1[1, 1/4, 3/4, 2, x^(-1), -x^(-1)] - 3*Appell
F1[2, 1/4, 7/4, 3, x^(-1), -x^(-1)] + AppellF1[2, 5/4, 3/4, 3, x^
(-1), -x^(-1)]))/(4*(1 - x)^(1/4)*(1 + x)^(3/4))
```

Maple [F] time = 0.043, size = 0, normalized size = 0.

$$\int \frac{1}{x^3}\sqrt[4]{1+x}\frac{1}{\sqrt[4]{1-x}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1+x)^(1/4)/(1-x)^(1/4)/x^3,x)

[Out] int((1+x)^(1/4)/(1-x)^(1/4)/x^3,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(x+1)^{\frac{1}{4}}}{x^3(-x+1)^{\frac{1}{4}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(1/4)/(x^3*(-x + 1)^(1/4)),x, algorithm="maxima")

[Out] integrate((x + 1)^(1/4)/(x^3*(-x + 1)^(1/4)), x)
```

Fricas [A] time = 0.238865, size = 143, normalized size = 1.57

$$\frac{2\,x^2\arctan\left(\frac{(x+1)^{\frac{1}{4}}(-x+1)^{\frac{3}{4}}}{x-1}\right)+x^2\log\left(\frac{x+(x+1)^{\frac{1}{4}}(-x+1)^{\frac{3}{4}}-1}{x-1}\right)-x^2\log\left(-\frac{x-(x+1)^{\frac{1}{4}}(-x+1)^{\frac{3}{4}}-1}{x-1}\right)-2\,(3\,x+2)(x+1)^{\frac{1}{4}}(-x+1)^{\frac{3}{4}}}{8\,x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(1/4)/(x^3*(-x + 1)^(1/4)),x, algorithm="fricas")

[Out] 1/8*(2*x^2*arctan((x + 1)^(1/4)*(-x + 1)^(3/4)/(x - 1)) + x^2*log
((x + (x + 1)^(1/4)*(-x + 1)^(3/4) - 1)/(x - 1)) - x^2*log(-(x -
(x + 1)^(1/4)*(-x + 1)^(3/4) - 1)/(x - 1)) - 2*(3*x + 2)*(x + 1)^
(1/4)*(-x + 1)^(3/4))/x^2
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1+x)**(1/4)/(1-x)**(1/4)/x**3,x)

[Out] Exception raised: ValueError
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(x+1)^{\frac{1}{4}}}{x^3(-x+1)^{\frac{1}{4}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(1/4)/(x^3*(-x + 1)^(1/4)),x, algorithm="giac")
```

```
[Out] integrate((x + 1)^(1/4)/(x^3*(-x + 1)^(1/4)), x)
```

3.886 $\int \frac{\sqrt[4]{1+x}}{\sqrt[4]{1-x}x^4}\,dx$

Optimal. Leaf size=114

$$-\frac{(1-x)^{3/4}\sqrt[4]{x+1}}{3x^3}-\frac{5(1-x)^{3/4}\sqrt[4]{x+1}}{12x^2}-\frac{11(1-x)^{3/4}\sqrt[4]{x+1}}{24x}-\frac{3}{8}\tan^{-1}\left(\frac{\sqrt[4]{x+1}}{\sqrt[4]{1-x}}\right)-\frac{3}{8}\tanh^{-1}\left(\frac{\sqrt[4]{x+1}}{\sqrt[4]{1-x}}\right)$$

```
[Out] -((1 - x)^(3/4)*(1 + x)^(1/4))/(3*x^3) - (5*(1 - x)^(3/4)*(1 + x)
^(1/4))/(12*x^2) - (11*(1 - x)^(3/4)*(1 + x)^(1/4))/(24*x) - (3*A
rcTan[(1 + x)^(1/4)/(1 - x)^(1/4)])/8 - (3*ArcTanh[(1 + x)^(1/4)/
(1 - x)^(1/4)])/8
```

Rubi [A] time = 0.162565, antiderivative size = 114, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 7, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.35

$$-\frac{(1-x)^{3/4}\sqrt[4]{x+1}}{3x^3}-\frac{5(1-x)^{3/4}\sqrt[4]{x+1}}{12x^2}-\frac{11(1-x)^{3/4}\sqrt[4]{x+1}}{24x}-\frac{3}{8}\tan^{-1}\left(\frac{\sqrt[4]{x+1}}{\sqrt[4]{1-x}}\right)-\frac{3}{8}\tanh^{-1}\left(\frac{\sqrt[4]{x+1}}{\sqrt[4]{1-x}}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 + x)^(1/4)/((1 - x)^(1/4)*x^4),x]
```

```
[Out] -((1 - x)^(3/4)*(1 + x)^(1/4))/(3*x^3) - (5*(1 - x)^(3/4)*(1 + x)
^(1/4))/(12*x^2) - (11*(1 - x)^(3/4)*(1 + x)^(1/4))/(24*x) - (3*A
rcTan[(1 + x)^(1/4)/(1 - x)^(1/4)])/8 - (3*ArcTanh[(1 + x)^(1/4)/
(1 - x)^(1/4)])/8
```

Rubi in Sympy [A] time = 12.4378, size = 95, normalized size = 0.83

$$-\frac{3\operatorname{atan}\left(\frac{\sqrt[4]{x+1}}{\sqrt[4]{-x+1}}\right)}{8}-\frac{3\operatorname{atanh}\left(\frac{\sqrt[4]{x+1}}{\sqrt[4]{-x+1}}\right)}{8}-\frac{11\left(-x+1\right)^{\frac{3}{4}}\sqrt[4]{x+1}}{24x}-\frac{5\left(-x+1\right)^{\frac{3}{4}}\sqrt[4]{x+1}}{12x^2}-\frac{\left(-x+1\right)^{\frac{3}{4}}\sqrt[4]{x+1}}{3x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1+x)**(1/4)/(1-x)**(1/4)/x**4,x)
```

```
[Out] -3*atan((x + 1)**(1/4)/(-x + 1)**(1/4))/8 - 3*atanh((x + 1)**(1/4
)/(-x + 1)**(1/4))/8 - 11*(-x + 1)**(3/4)*(x + 1)**(1/4)/(24*x) -
 5*(-x + 1)**(3/4)*(x + 1)**(1/4)/(12*x**2) - (-x + 1)**(3/4)*(x
+ 1)**(1/4)/(3*x**3)
```

Mathematica [C] time = 0.153817, size = 119, normalized size = 1.04

$$\frac{-\frac{36xF_1\left(1;\frac{1}{4},\frac{3}{4};2;\frac{1}{x},-\frac{1}{x}\right)}{8xF_1\left(1;\frac{1}{4},\frac{3}{4};2;\frac{1}{x},-\frac{1}{x}\right)-3F_1\left(2;\frac{1}{4},\frac{7}{4};3;\frac{1}{x},-\frac{1}{x}\right)+F_1\left(2;\frac{5}{4},\frac{3}{4};3;\frac{1}{x},-\frac{1}{x}\right)}-\frac{8}{x^3}-\frac{10}{x^2}+11x-\frac{3}{x}+10}{24\sqrt[4]{1-x}(x+1)^{3/4}}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(1 + x)^(1/4)/((1 - x)^(1/4)*x^4),x]
```

```
[Out] (10 - 8/x^3 - 10/x^2 - 3/x + 11*x - (36*x*AppellF1[1, 1/4, 3/4, 2
, x^(-1), -x^(-1)])/(8*x*AppellF1[1, 1/4, 3/4, 2, x^(-1), -x^(-1)
] - 3*AppellF1[2, 1/4, 7/4, 3, x^(-1), -x^(-1)] + AppellF1[2, 5/4
```

```
, 3/4, 3, x^(-1), -x^(-1)]))/(24*(1 - x)^(1/4)*(1 + x)^(3/4))
```

Maple [F] time = 0.044, size = 0, normalized size = 0.

$$\int \frac{1}{x^4}\sqrt[4]{1+x}\frac{1}{\sqrt[4]{1-x}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1+x)^(1/4)/(1-x)^(1/4)/x^4,x)

[Out] int((1+x)^(1/4)/(1-x)^(1/4)/x^4,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(x+1)^{\frac{1}{4}}}{x^4(-x+1)^{\frac{1}{4}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(1/4)/(x^4*(-x + 1)^(1/4)),x, algorithm="maxima")

[Out] integrate((x + 1)^(1/4)/(x^4*(-x + 1)^(1/4)), x)
```

Fricas [A] time = 0.235137, size = 151, normalized size = 1.32

$$\frac{18\,x^3\arctan\left(\frac{(x+1)^{\frac{1}{4}}(-x+1)^{\frac{3}{4}}}{x-1}\right)+9\,x^3\log\left(\frac{x+(x+1)^{\frac{1}{4}}(-x+1)^{\frac{3}{4}}-1}{x-1}\right)-9\,x^3\log\left(-\frac{x-(x+1)^{\frac{1}{4}}(-x+1)^{\frac{3}{4}}-1}{x-1}\right)-2\left(11\,x^2+10\,x+8\right)(x+1)^{\frac{1}{4}}(-}{48\,x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(1/4)/(x^4*(-x + 1)^(1/4)),x, algorithm="fricas")

[Out] 1/48*(18*x^3*arctan((x + 1)^(1/4)*(-x + 1)^(3/4)/(x - 1)) + 9*x^3
*log((x + (x + 1)^(1/4)*(-x + 1)^(3/4) - 1)/(x - 1)) - 9*x^3*log(
-(x - (x + 1)^(1/4)*(-x + 1)^(3/4) - 1)/(x - 1)) - 2*(11*x^2 + 10
*x + 8)*(x + 1)^(1/4)*(-x + 1)^(3/4))/x^3
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1+x)**(1/4)/(1-x)**(1/4)/x**4,x)

[Out] Exception raised: ValueError
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(x+1)^{\frac{1}{4}}}{x^4(-x+1)^{\frac{1}{4}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(1/4)/(x^4*(-x + 1)^(1/4)),x, algorithm="giac")
```

```
[Out] integrate((x + 1)^(1/4)/(x^4*(-x + 1)^(1/4)), x)
```

3.887 $\int \frac{\sqrt[4]{1+x}}{\sqrt[4]{1-x}x^5}\,dx$

Optimal. Leaf size=137

$$-\frac{(1-x)^{3/4}\sqrt[4]{x+1}}{4x^4}-\frac{7(1-x)^{3/4}\sqrt[4]{x+1}}{24x^3}-\frac{29(1-x)^{3/4}\sqrt[4]{x+1}}{96x^2}-\frac{83(1-x)^{3/4}\sqrt[4]{x+1}}{192x}-\frac{11}{64}\tan^{-1}\left(\frac{\sqrt[4]{x+1}}{\sqrt[4]{1-x}}\right)-\frac{11}{64}\tanh^{-1}\left(\frac{\sqrt[4]{x+1}}{\sqrt[4]{1-x}}\right)$$

```
[Out] -((1 - x)^(3/4)*(1 + x)^(1/4))/(4*x^4) - (7*(1 - x)^(3/4)*(1 + x)
^(1/4))/(24*x^3) - (29*(1 - x)^(3/4)*(1 + x)^(1/4))/(96*x^2) - (8
3*(1 - x)^(3/4)*(1 + x)^(1/4))/(192*x) - (11*ArcTan[(1 + x)^(1/4)
/(1 - x)^(1/4)])/64 - (11*ArcTanh[(1 + x)^(1/4)/(1 - x)^(1/4)])/6
4
```

Rubi [A] time = 0.212428, antiderivative size = 137, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 7, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.35$

$$-\frac{(1-x)^{3/4}\sqrt[4]{x+1}}{4x^4}-\frac{7(1-x)^{3/4}\sqrt[4]{x+1}}{24x^3}-\frac{29(1-x)^{3/4}\sqrt[4]{x+1}}{96x^2}-\frac{83(1-x)^{3/4}\sqrt[4]{x+1}}{192x}-\frac{11}{64}\tan^{-1}\left(\frac{\sqrt[4]{x+1}}{\sqrt[4]{1-x}}\right)-\frac{11}{64}\tanh^{-1}\left(\frac{\sqrt[4]{x+1}}{\sqrt[4]{1-x}}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 + x)^(1/4)/((1 - x)^(1/4)*x^5),x]
```

```
[Out] -((1 - x)^(3/4)*(1 + x)^(1/4))/(4*x^4) - (7*(1 - x)^(3/4)*(1 + x)
^(1/4))/(24*x^3) - (29*(1 - x)^(3/4)*(1 + x)^(1/4))/(96*x^2) - (8
3*(1 - x)^(3/4)*(1 + x)^(1/4))/(192*x) - (11*ArcTan[(1 + x)^(1/4)
/(1 - x)^(1/4)])/64 - (11*ArcTanh[(1 + x)^(1/4)/(1 - x)^(1/4)])/6
4
```

Rubi in Sympy [A] time = 16.232, size = 116, normalized size = 0.85

$$-\frac{11\,\mathrm{atan}\left(\frac{\sqrt[4]{x+1}}{\sqrt[4]{-x+1}}\right)}{64}-\frac{11\,\mathrm{atanh}\left(\frac{\sqrt[4]{x+1}}{\sqrt[4]{-x+1}}\right)}{64}-\frac{83\left(-x+1\right)^{\frac{3}{4}}\sqrt[4]{x+1}}{192x}-\frac{29\left(-x+1\right)^{\frac{3}{4}}\sqrt[4]{x+1}}{96x^2}-\frac{7\left(-x+1\right)^{\frac{3}{4}}\sqrt[4]{x+1}}{24x^3}-\frac{\left(-x+1\right)^{\frac{3}{4}}\sqrt[4]{x+1}}{4x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1+x)**(1/4)/(1-x)**(1/4)/x**5,x)
```

```
[Out] -11*atan((x + 1)**(1/4)/(-x + 1)**(1/4))/64 - 11*atanh((x + 1)**(
1/4)/(-x + 1)**(1/4))/64 - 83*(-x + 1)**(3/4)*(x + 1)**(1/4)/(192
*x) - 29*(-x + 1)**(3/4)*(x + 1)**(1/4)/(96*x**2) - 7*(-x + 1)**(
3/4)*(x + 1)**(1/4)/(24*x**3) - (-x + 1)**(3/4)*(x + 1)**(1/4)/(4
*x**4)
```

Mathematica [C] time = 0.160648, size = 124, normalized size = 0.91

$$\frac{-\frac{132xF_1\left(1;\frac{1}{4},\frac{3}{4};2;\frac{1}{x},-\frac{1}{x}\right)}{8xF_1\left(1;\frac{1}{4},\frac{3}{4};2;\frac{1}{x},-\frac{1}{x}\right)-3F_1\left(2;\frac{1}{4},\frac{7}{4};3;\frac{1}{x},-\frac{1}{x}\right)+F_1\left(2;\frac{5}{4},\frac{3}{4};3;\frac{1}{x},-\frac{1}{x}\right)}-\frac{48}{x^4}-\frac{56}{x^3}-\frac{10}{x^2}+83x-\frac{27}{x}+58}{192\sqrt[4]{1-x}(x+1)^{3/4}}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(1 + x)^(1/4)/((1 - x)^(1/4)*x^5),x]
```

```
[Out] (58 - 48/x^4 - 56/x^3 - 10/x^2 - 27/x + 83*x - (132*x*AppellF1[1,
 1/4, 3/4, 2, x^(-1), -x^(-1)])/(8*x*AppellF1[1, 1/4, 3/4, 2, x^(
-1), -x^(-1)] - 3*AppellF1[2, 1/4, 7/4, 3, x^(-1), -x^(-1)] + App
ellF1[2, 5/4, 3/4, 3, x^(-1), -x^(-1)]))/(192*(1 - x)^(1/4)*(1 +
x)^(3/4))
```

Maple [F] time = 0.044, size = 0, normalized size = 0.

$$\int \frac{1}{x^5}\sqrt[4]{1+x}\frac{1}{\sqrt[4]{1-x}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1+x)^(1/4)/(1-x)^(1/4)/x^5,x)
```

```
[Out] int((1+x)^(1/4)/(1-x)^(1/4)/x^5,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(x+1)^{\frac{1}{4}}}{x^5(-x+1)^{\frac{1}{4}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(1/4)/(x^5*(-x + 1)^(1/4)),x, algorithm="maxima")
```

```
[Out] integrate((x + 1)^(1/4)/(x^5*(-x + 1)^(1/4)), x)
```

Fricas [A] time = 0.22764, size = 158, normalized size = 1.15

$$\frac{66\,x^4\arctan\left(\frac{(x+1)^{\frac{1}{4}}(-x+1)^{\frac{3}{4}}}{x-1}\right)+33\,x^4\log\left(\frac{x+(x+1)^{\frac{1}{4}}(-x+1)^{\frac{3}{4}}-1}{x-1}\right)-33\,x^4\log\left(-\frac{x-(x+1)^{\frac{1}{4}}(-x+1)^{\frac{3}{4}}-1}{x-1}\right)-2\left(83\,x^3+58\,x^2+56\,x+48\right.}{384\,x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(1/4)/(x^5*(-x + 1)^(1/4)),x, algorithm="fricas")
```

```
[Out] 1/384*(66*x^4*arctan((x + 1)^(1/4)*(-x + 1)^(3/4)/(x - 1)) + 33*x
^4*log((x + (x + 1)^(1/4)*(-x + 1)^(3/4) - 1)/(x - 1)) - 33*x^4*l
og(-(x - (x + 1)^(1/4)*(-x + 1)^(3/4) - 1)/(x - 1)) - 2*(83*x^3 +
 58*x^2 + 56*x + 48)*(x + 1)^(1/4)*(-x + 1)^(3/4))/x^4
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1+x)**(1/4)/(1-x)**(1/4)/x**5,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(x+1)^{\frac{1}{4}}}{x^5(-x+1)^{\frac{1}{4}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((x + 1)^(1/4)/(x^5*(-x + 1)^(1/4)),x, algorithm="giac")
```

```
[Out] integrate((x + 1)^(1/4)/(x^5*(-x + 1)^(1/4)), x)
```

3.888 $\int \frac{x^3}{(a+bx)^{3/4}\sqrt[4]{c+dx}}\,dx$

Optimal. Leaf size=259

$$\frac{\sqrt[4]{a+bx}(c+dx)^{3/4}\left(77a^2d^2-4bdx(11ad+9bc)+54abcd+45b^2c^2\right)}{96b^3d^3}-\frac{\left(77a^3d^3+21a^2bcd^2+15ab^2c^2d+15b^3c^3\right)\tan^{-1}\left(\frac{\sqrt[4]{d}\sqrt[4]{a+bx}}{\sqrt[4]{b}\sqrt[4]{c+dx}}\right)}{64b^{15/4}d^{13/4}}-\frac{\left(77a^3d^3+21a^2bcd^2+15ab^2c^2d+15b^3c^3\right)\tanh^{-1}\left(\frac{\sqrt[4]{d}\sqrt[4]{a+bx}}{\sqrt[4]{b}\sqrt[4]{c+dx}}\right)}{64b^{15/4}d^{13/4}}+\frac{x^2\sqrt[4]{a+bx}(c+dx)^{3/4}}{3bd}$$

```
[Out] (x^2*(a + b*x)^(1/4)*(c + d*x)^(3/4))/(3*b*d) + ((a + b*x)^(1/4)*
(c + d*x)^(3/4)*(45*b^2*c^2 + 54*a*b*c*d + 77*a^2*d^2 - 4*b*d*(9*
b*c + 11*a*d)*x))/(96*b^3*d^3) - ((15*b^3*c^3 + 15*a*b^2*c^2*d +
21*a^2*b*c*d^2 + 77*a^3*d^3)*ArcTan[(d^(1/4)*(a + b*x)^(1/4))/(b^
(1/4)*(c + d*x)^(1/4))])/(64*b^(15/4)*d^(13/4)) - ((15*b^3*c^3 +
15*a*b^2*c^2*d + 21*a^2*b*c*d^2 + 77*a^3*d^3)*ArcTanh[(d^(1/4)*(a
 + b*x)^(1/4))/(b^(1/4)*(c + d*x)^(1/4))])/(64*b^(15/4)*d^(13/4))
```

Rubi [A] time = 0.44758, antiderivative size = 259, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.273

$$\frac{\sqrt[4]{a+bx}(c+dx)^{3/4}\left(77a^2d^2-4bdx(11ad+9bc)+54abcd+45b^2c^2\right)}{96b^3d^3}-\frac{\left(77a^3d^3+21a^2bcd^2+15ab^2c^2d+15b^3c^3\right)\tan^{-1}\left(\frac{\sqrt[4]{d}\sqrt[4]{a+bx}}{\sqrt[4]{b}\sqrt[4]{c+dx}}\right)}{64b^{15/4}d^{13/4}}-\frac{\left(77a^3d^3+21a^2bcd^2+15ab^2c^2d+15b^3c^3\right)\tanh^{-1}\left(\frac{\sqrt[4]{d}\sqrt[4]{a+bx}}{\sqrt[4]{b}\sqrt[4]{c+dx}}\right)}{64b^{15/4}d^{13/4}}+\frac{x^2\sqrt[4]{a+bx}(c+dx)^{3/4}}{3bd}$$

Antiderivative was successfully verified.

```
[In]  Int[x^3/((a + b*x)^(3/4)*(c + d*x)^(1/4)),x]
```


```
[Out] (x^2*(a + b*x)^(1/4)*(c + d*x)^(3/4))/(3*b*d) + ((a + b*x)^(1/4)*
(c + d*x)^(3/4)*(45*b^2*c^2 + 54*a*b*c*d + 77*a^2*d^2 - 4*b*d*(9*
b*c + 11*a*d)*x))/(96*b^3*d^3) - ((15*b^3*c^3 + 15*a*b^2*c^2*d +
21*a^2*b*c*d^2 + 77*a^3*d^3)*ArcTan[(d^(1/4)*(a + b*x)^(1/4))/(b^
(1/4)*(c + d*x)^(1/4))])/(64*b^(15/4)*d^(13/4)) - ((15*b^3*c^3 +
15*a*b^2*c^2*d + 21*a^2*b*c*d^2 + 77*a^3*d^3)*ArcTanh[(d^(1/4)*(a
 + b*x)^(1/4))/(b^(1/4)*(c + d*x)^(1/4))])/(64*b^(15/4)*d^(13/4))
```

Rubi in Sympy [A] time = 38.7167, size = 260, normalized size = 1.

$$\frac{x^2\sqrt[4]{a+bx}\,(c+dx)^{\frac{3}{4}}}{3bd}+\frac{\sqrt[4]{a+bx}\,(c+dx)^{\frac{3}{4}}\left(\frac{77a^2d^2}{16}+\frac{27abcd}{8}+\frac{45b^2c^2}{16}-\frac{bdx(11ad+9bc)}{4}\right)}{6b^3d^3}-\frac{\left(77a^3d^3+21a^2bcd^2+15ab^2c^2d+15b^3c^3\right)\operatorname{atan}\left(\frac{\sqrt[4]{d}\sqrt[4]{a+bx}}{\sqrt[4]{b}\sqrt[4]{c+dx}}\right)}{64b^{\frac{15}{4}}d^{\frac{13}{4}}}-\frac{\left(77a^3d^3+21a^2bcd^2+15ab^2c^2d+15b^3c^3\right)\operatorname{atanh}\left(\frac{\sqrt[4]{d}\sqrt[4]{a+bx}}{\sqrt[4]{b}\sqrt[4]{c+dx}}\right)}{64b^{\frac{15}{4}}d^{\frac{13}{4}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3/(b*x+a)**(3/4)/(d*x+c)**(1/4),x)
```

```
[Out] x**2*(a + b*x)**(1/4)*(c + d*x)**(3/4)/(3*b*d) + (a + b*x)**(1/4)
*(c + d*x)**(3/4)*(77*a**2*d**2/16 + 27*a*b*c*d/8 + 45*b**2*c**2/
16 - b*d*x*(11*a*d + 9*b*c)/4)/(6*b**3*d**3) - (77*a**3*d**3 + 21
*a**2*b*c*d**2 + 15*a*b**2*c**2*d + 15*b**3*c**3)*atan(d**(1/4)*(
a + b*x)**(1/4)/(b**(1/4)*(c + d*x)**(1/4)))/(64*b**(15/4)*d**(13
/4)) - (77*a**3*d**3 + 21*a**2*b*c*d**2 + 15*a*b**2*c**2*d + 15*b
**3*c**3)*atanh(d**(1/4)*(a + b*x)**(1/4)/(b**(1/4)*(c + d*x)**(1
/4)))/(64*b**(15/4)*d**(13/4))
```

Mathematica [C] time = 0.340203, size = 168, normalized size = 0.65

$$\frac{(c+dx)^{3/4}\left(d(a+bx)\left(77a^2d^2+2abd(27c-22dx)+b^2\left(45c^2-36cdx+32d^2x^2\right)\right)-\left(77a^3d^3+21a^2bcd^2+15ab^2c^2d+15b^3\right.\right.}{96b^3d^4(a+bx)^{3/4}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^3/((a + b*x)^(3/4)*(c + d*x)^(1/4)),x]
```

```
[Out] ((c + d*x)^(3/4)*(d*(a + b*x)*(77*a^2*d^2 + 2*a*b*d*(27*c - 22*d*
x) + b^2*(45*c^2 - 36*c*d*x + 32*d^2*x^2)) - (15*b^3*c^3 + 15*a*b
^2*c^2*d + 21*a^2*b*c*d^2 + 77*a^3*d^3)*((d*(a + b*x))/(-(b*c) +
a*d))^(3/4)*Hypergeometric2F1[3/4, 3/4, 7/4, (b*(c + d*x))/(b*c -
 a*d)]))/(96*b^3*d^4*(a + b*x)^(3/4))
```

Maple [F] time = 0.052, size = 0, normalized size = 0.

$$\int x^3 (bx+a)^{-\frac{3}{4}} \frac{1}{\sqrt[4]{dx+c}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^3/(b*x+a)^(3/4)/(d*x+c)^(1/4),x)
```

```
[Out] int(x^3/(b*x+a)^(3/4)/(d*x+c)^(1/4),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x^3}{(bx+a)^{\frac{3}{4}}(dx+c)^{\frac{1}{4}}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^3/((b*x + a)^(3/4)*(d*x + c)^(1/4)),x, algorithm="maxima")
```

```
[Out] integrate(x^3/((b*x + a)^(3/4)*(d*x + c)^(1/4)), x)
```

Fricas [A] time = 0.378718, size = 2253, normalized size = 8.7

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^3/((b*x + a)^(3/4)*(d*x + c)^(1/4)),x, algorithm="fricas")
```

```
[Out] 1/384*(12*b^3*d^3*((50625*b^12*c^12 + 202500*a*b^11*c^11*d + 5872
50*a^2*b^10*c^10*d^2 + 2092500*a^3*b^9*c^9*d^3 + 4614975*a^4*b^8*
c^8*d^4 + 8958600*a^5*b^7*c^7*d^5 + 18926460*a^6*b^6*c^6*d^6 + 27
042120*a^7*b^5*c^5*d^7 + 36722511*a^8*b^4*c^4*d^8 + 52655988*a^9*
b^3*c^3*d^9 + 43080114*a^10*b^2*c^2*d^10 + 38348772*a^11*b*c*d^11
 + 35153041*a^12*d^12)/(b^15*d^13))^(1/4)*arctan((b^4*d^4*x + b^4
*c*d^3)*((50625*b^12*c^12 + 202500*a*b^11*c^11*d + 587250*a^2*b^1
0*c^10*d^2 + 2092500*a^3*b^9*c^9*d^3 + 4614975*a^4*b^8*c^8*d^4 +
8958600*a^5*b^7*c^7*d^5 + 18926460*a^6*b^6*c^6*d^6 + 27042120*a^7
*b^5*c^5*d^7 + 36722511*a^8*b^4*c^4*d^8 + 52655988*a^9*b^3*c^3*d^
9 + 43080114*a^10*b^2*c^2*d^10 + 38348772*a^11*b*c*d^11 + 3515304
1*a^12*d^12)/(b^15*d^13))^(1/4)/((15*b^3*c^3 + 15*a*b^2*c^2*d + 2
1*a^2*b*c*d^2 + 77*a^3*d^3)*(b*x + a)^(1/4)*(d*x + c)^(3/4) + (d*
x + c)*sqrt(((225*b^6*c^6 + 450*a*b^5*c^5*d + 855*a^2*b^4*c^4*d^2
 + 2940*a^3*b^3*c^3*d^3 + 2751*a^4*b^2*c^2*d^4 + 3234*a^5*b*c*d^5
 + 5929*a^6*d^6)*sqrt(b*x + a)*sqrt(d*x + c) + (b^8*d^7*x + b^8*c
*d^6)*sqrt((50625*b^12*c^12 + 202500*a*b^11*c^11*d + 587250*a^2*b
^10*c^10*d^2 + 2092500*a^3*b^9*c^9*d^3 + 4614975*a^4*b^8*c^8*d^4
+ 8958600*a^5*b^7*c^7*d^5 + 18926460*a^6*b^6*c^6*d^6 + 27042120*a
^7*b^5*c^5*d^7 + 36722511*a^8*b^4*c^4*d^8 + 52655988*a^9*b^3*c^3*
d^9 + 43080114*a^10*b^2*c^2*d^10 + 38348772*a^11*b*c*d^11 + 35153
041*a^12*d^12)/(b^15*d^13)))/(d*x + c)))) - 3*b^3*d^3*((50625*b^1
2*c^12 + 202500*a*b^11*c^11*d + 587250*a^2*b^10*c^10*d^2 + 209250
0*a^3*b^9*c^9*d^3 + 4614975*a^4*b^8*c^8*d^4 + 8958600*a^5*b^7*c^7
*d^5 + 18926460*a^6*b^6*c^6*d^6 + 27042120*a^7*b^5*c^5*d^7 + 3672
2511*a^8*b^4*c^4*d^8 + 52655988*a^9*b^3*c^3*d^9 + 43080114*a^10*b
^2*c^2*d^10 + 38348772*a^11*b*c*d^11 + 35153041*a^12*d^12)/(b^15*
d^13))^(1/4)*log(((15*b^3*c^3 + 15*a*b^2*c^2*d + 21*a^2*b*c*d^2 +
 77*a^3*d^3)*(b*x + a)^(1/4)*(d*x + c)^(3/4) + (b^4*d^4*x + b^4*c
*d^3)*((50625*b^12*c^12 + 202500*a*b^11*c^11*d + 587250*a^2*b^10*
c^10*d^2 + 2092500*a^3*b^9*c^9*d^3 + 4614975*a^4*b^8*c^8*d^4 + 89
58600*a^5*b^7*c^7*d^5 + 18926460*a^6*b^6*c^6*d^6 + 27042120*a^7*b
^5*c^5*d^7 + 36722511*a^8*b^4*c^4*d^8 + 52655988*a^9*b^3*c^3*d^9
+ 43080114*a^10*b^2*c^2*d^10 + 38348772*a^11*b*c*d^11 + 35153041*
a^12*d^12)/(b^15*d^13))^(1/4))/(d*x + c)) + 3*b^3*d^3*((50625*b^1
2*c^12 + 202500*a*b^11*c^11*d + 587250*a^2*b^10*c^10*d^2 + 209250
0*a^3*b^9*c^9*d^3 + 4614975*a^4*b^8*c^8*d^4 + 8958600*a^5*b^7*c^7
*d^5 + 18926460*a^6*b^6*c^6*d^6 + 27042120*a^7*b^5*c^5*d^7 + 3672
2511*a^8*b^4*c^4*d^8 + 52655988*a^9*b^3*c^3*d^9 + 43080114*a^10*b
^2*c^2*d^10 + 38348772*a^11*b*c*d^11 + 35153041*a^12*d^12)/(b^15*
d^13))^(1/4)*log(((15*b^3*c^3 + 15*a*b^2*c^2*d + 21*a^2*b*c*d^2 +
 77*a^3*d^3)*(b*x + a)^(1/4)*(d*x + c)^(3/4) - (b^4*d^4*x + b^4*c
*d^3)*((50625*b^12*c^12 + 202500*a*b^11*c^11*d + 587250*a^2*b^10*
c^10*d^2 + 2092500*a^3*b^9*c^9*d^3 + 4614975*a^4*b^8*c^8*d^4 + 89
58600*a^5*b^7*c^7*d^5 + 18926460*a^6*b^6*c^6*d^6 + 27042120*a^7*b
^5*c^5*d^7 + 36722511*a^8*b^4*c^4*d^8 + 52655988*a^9*b^3*c^3*d^9
+ 43080114*a^10*b^2*c^2*d^10 + 38348772*a^11*b*c*d^11 + 35153041*
a^12*d^12)/(b^15*d^13))^(1/4))/(d*x + c)) + 4*(32*b^2*d^2*x^2 + 4
5*b^2*c^2 + 54*a*b*c*d + 77*a^2*d^2 - 4*(9*b^2*c*d + 11*a*b*d^2)*
x)*(b*x + a)^(1/4)*(d*x + c)^(3/4))/(b^3*d^3)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x^3}{(a+bx)^{\frac{3}{4}}\sqrt[4]{c+dx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**3/(b*x+a)**(3/4)/(d*x+c)**(1/4),x)
```

```
[Out] Integral(x**3/((a + b*x)**(3/4)*(c + d*x)**(1/4)), x)
```

GIAC/XCAS [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^3/((b*x + a)^(3/4)*(d*x + c)^(1/4)),x, algorithm="giac")
```

```
[Out] Timed out
```

3.889 $\int \frac{x^2}{(a+bx)^{3/4}\sqrt[4]{c+dx}}\,dx$

Optimal. Leaf size=201

$$\frac{(21a^2d^2+6abcd+5b^2c^2)\tan^{-1}\left(\frac{\sqrt[4]{d}\sqrt[4]{a+bx}}{\sqrt[4]{b}\sqrt[4]{c+dx}}\right)}{16b^{11/4}d^{9/4}}+\frac{(21a^2d^2+6abcd+5b^2c^2)\tanh^{-1}\left(\frac{\sqrt[4]{d}\sqrt[4]{a+bx}}{\sqrt[4]{b}\sqrt[4]{c+dx}}\right)}{16b^{11/4}d^{9/4}}-\frac{\sqrt[4]{a+bx}(c+dx)^{3/4}(7ad+5bc)}{8b^2d^2}+\frac{x\sqrt[4]{a+bx}(c+dx)^{3/4}}{2bd}$$

```
[Out] -((5*b*c + 7*a*d)*(a + b*x)^(1/4)*(c + d*x)^(3/4))/(8*b^2*d^2) +
(x*(a + b*x)^(1/4)*(c + d*x)^(3/4))/(2*b*d) + ((5*b^2*c^2 + 6*a*b
*c*d + 21*a^2*d^2)*ArcTan[(d^(1/4)*(a + b*x)^(1/4))/(b^(1/4)*(c +
 d*x)^(1/4))])/(16*b^(11/4)*d^(9/4)) + ((5*b^2*c^2 + 6*a*b*c*d +
21*a^2*d^2)*ArcTanh[(d^(1/4)*(a + b*x)^(1/4))/(b^(1/4)*(c + d*x)^
(1/4))])/(16*b^(11/4)*d^(9/4))
```

Rubi [A] time = 0.388967, antiderivative size = 201, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.273$

$$\frac{(21a^2d^2+6abcd+5b^2c^2)\tan^{-1}\left(\frac{\sqrt[4]{d}\sqrt[4]{a+bx}}{\sqrt[4]{b}\sqrt[4]{c+dx}}\right)}{16b^{11/4}d^{9/4}}+\frac{(21a^2d^2+6abcd+5b^2c^2)\tanh^{-1}\left(\frac{\sqrt[4]{d}\sqrt[4]{a+bx}}{\sqrt[4]{b}\sqrt[4]{c+dx}}\right)}{16b^{11/4}d^{9/4}}-\frac{\sqrt[4]{a+bx}(c+dx)^{3/4}(7ad+5bc)}{8b^2d^2}+\frac{x\sqrt[4]{a+bx}(c+dx)^{3/4}}{2bd}$$

Antiderivative was successfully verified.

```
[In]  Int[x^2/((a + b*x)^(3/4)*(c + d*x)^(1/4)),x]
```

```
[Out] -((5*b*c + 7*a*d)*(a + b*x)^(1/4)*(c + d*x)^(3/4))/(8*b^2*d^2) +
(x*(a + b*x)^(1/4)*(c + d*x)^(3/4))/(2*b*d) + ((5*b^2*c^2 + 6*a*b
*c*d + 21*a^2*d^2)*ArcTan[(d^(1/4)*(a + b*x)^(1/4))/(b^(1/4)*(c +
 d*x)^(1/4))])/(16*b^(11/4)*d^(9/4)) + ((5*b^2*c^2 + 6*a*b*c*d +
21*a^2*d^2)*ArcTanh[(d^(1/4)*(a + b*x)^(1/4))/(b^(1/4)*(c + d*x)^
(1/4))])/(16*b^(11/4)*d^(9/4))
```

Rubi in Sympy [A] time = 30.3991, size = 190, normalized size = 0.95

$$\frac{x\sqrt[4]{a+bx}\,(c+dx)^{\frac{3}{4}}}{2bd}-\frac{\sqrt[4]{a+bx}\,(c+dx)^{\frac{3}{4}}\,(7ad+5bc)}{8b^2d^2}+\frac{(21a^2d^2+6abcd+5b^2c^2)\,\mathrm{atan}\left(\frac{\sqrt[4]{d}\sqrt[4]{a+bx}}{\sqrt[4]{b}\sqrt[4]{c+dx}}\right)}{16b^{\frac{11}{4}}d^{\frac{9}{4}}}+\frac{(21a^2d^2+6abcd+5b^2c^2)\,\mathrm{atanh}\left(\frac{\sqrt[4]{d}\sqrt[4]{a+bx}}{\sqrt[4]{b}\sqrt[4]{c+dx}}\right)}{16b^{\frac{11}{4}}d^{\frac{9}{4}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2/(b*x+a)**(3/4)/(d*x+c)**(1/4),x)
```

```
[Out] x*(a + b*x)**(1/4)*(c + d*x)**(3/4)/(2*b*d) - (a + b*x)**(1/4)*(c
 + d*x)**(3/4)*(7*a*d + 5*b*c)/(8*b**2*d**2) + (21*a**2*d**2 + 6*
a*b*c*d + 5*b**2*c**2)*atan(d**(1/4)*(a + b*x)**(1/4)/(b**(1/4)*(
c + d*x)**(1/4)))/(16*b**(11/4)*d**(9/4)) + (21*a**2*d**2 + 6*a*b
*c*d + 5*b**2*c**2)*atanh(d**(1/4)*(a + b*x)**(1/4)/(b**(1/4)*(c
+ d*x)**(1/4)))/(16*b**(11/4)*d**(9/4))
```

Mathematica [C] time = 0.257422, size = 123, normalized size = 0.61

$$\frac{(c+dx)^{3/4}\left(\left(21a^2d^2+6abcd+5b^2c^2\right)\left(\frac{d(a+bx)}{ad-bc}\right)^{3/4}{}_2F_1\left(\frac{3}{4},\frac{3}{4};\frac{7}{4};\frac{b(c+dx)}{bc-ad}\right)-3d(a+bx)(7ad+5bc-4bdx)\right)}{24b^2d^3(a+bx)^{3/4}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^2/((a + b*x)^(3/4)*(c + d*x)^(1/4)),x]
```

```
[Out] ((c + d*x)^(3/4)*(-3*d*(a + b*x)*(5*b*c + 7*a*d - 4*b*d*x) + (5*b
^2*c^2 + 6*a*b*c*d + 21*a^2*d^2)*((d*(a + b*x))/(-(b*c) + a*d))^(
3/4)*Hypergeometric2F1[3/4, 3/4, 7/4, (b*(c + d*x))/(b*c - a*d)])
)/(24*b^2*d^3*(a + b*x)^(3/4))
```

Maple [F] time = 0.048, size = 0, normalized size = 0.

$$\int x^2(bx+a)^{-\frac{3}{4}}\frac{1}{\sqrt[4]{dx+c}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2/(b*x+a)^(3/4)/(d*x+c)^(1/4),x)
```

```
[Out] int(x^2/(b*x+a)^(3/4)/(d*x+c)^(1/4),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x^2}{(bx+a)^{\frac{3}{4}}(dx+c)^{\frac{1}{4}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2/((b*x + a)^(3/4)*(d*x + c)^(1/4)),x, algorithm="maxima")
```

```
[Out] integrate(x^2/((b*x + a)^(3/4)*(d*x + c)^(1/4)), x)
```

Fricas [A] time = 0.282624, size = 1577, normalized size = 7.85

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2/((b*x + a)^(3/4)*(d*x + c)^(1/4)),x, algorithm="fricas")
```

```
[Out] -1/32*(4*b^2*d^2*((625*b^8*c^8 + 3000*a*b^7*c^7*d + 15900*a^2*b^6
*c^6*d^2 + 42120*a^3*b^5*c^5*d^3 + 112806*a^4*b^4*c^4*d^4 + 17690
4*a^5*b^3*c^3*d^5 + 280476*a^6*b^2*c^2*d^6 + 222264*a^7*b*c*d^7 +
 194481*a^8*d^8)/(b^11*d^9))^(1/4)*arctan((b^3*d^3*x + b^3*c*d^2)
*((625*b^8*c^8 + 3000*a*b^7*c^7*d + 15900*a^2*b^6*c^6*d^2 + 42120
*a^3*b^5*c^5*d^3 + 112806*a^4*b^4*c^4*d^4 + 176904*a^5*b^3*c^3*d^
5 + 280476*a^6*b^2*c^2*d^6 + 222264*a^7*b*c*d^7 + 194481*a^8*d^8)
/(b^11*d^9))^(1/4)/((5*b^2*c^2 + 6*a*b*c*d + 21*a^2*d^2)*(b*x + a
)^(1/4)*(d*x + c)^(3/4) + (d*x + c)*sqrt(((25*b^4*c^4 + 60*a*b^3*
c^3*d + 246*a^2*b^2*c^2*d^2 + 252*a^3*b*c*d^3 + 441*a^4*d^4)*sqrt
(b*x + a)*sqrt(d*x + c) + (b^6*d^5*x + b^6*c*d^4)*sqrt((625*b^8*c
^8 + 3000*a*b^7*c^7*d + 15900*a^2*b^6*c^6*d^2 + 42120*a^3*b^5*c^5
```

```
*d^3 + 112806*a^4*b^4*c^4*d^4 + 176904*a^5*b^3*c^3*d^5 + 280476*a
^6*b^2*c^2*d^6 + 222264*a^7*b*c*d^7 + 194481*a^8*d^8)/(b^11*d^9))
)/(d*x + c)))) - b^2*d^2*((625*b^8*c^8 + 3000*a*b^7*c^7*d + 15900
*a^2*b^6*c^6*d^2 + 42120*a^3*b^5*c^5*d^3 + 112806*a^4*b^4*c^4*d^4
 + 176904*a^5*b^3*c^3*d^5 + 280476*a^6*b^2*c^2*d^6 + 222264*a^7*b
*c*d^7 + 194481*a^8*d^8)/(b^11*d^9))^(1/4)*log(((5*b^2*c^2 + 6*a*
b*c*d + 21*a^2*d^2)*(b*x + a)^(1/4)*(d*x + c)^(3/4) + (b^3*d^3*x
+ b^3*c*d^2)*((625*b^8*c^8 + 3000*a*b^7*c^7*d + 15900*a^2*b^6*c^6
*d^2 + 42120*a^3*b^5*c^5*d^3 + 112806*a^4*b^4*c^4*d^4 + 176904*a^
5*b^3*c^3*d^5 + 280476*a^6*b^2*c^2*d^6 + 222264*a^7*b*c*d^7 + 194
481*a^8*d^8)/(b^11*d^9))^(1/4))/(d*x + c)) + b^2*d^2*((625*b^8*c^
8 + 3000*a*b^7*c^7*d + 15900*a^2*b^6*c^6*d^2 + 42120*a^3*b^5*c^5*
d^3 + 112806*a^4*b^4*c^4*d^4 + 176904*a^5*b^3*c^3*d^5 + 280476*a^
6*b^2*c^2*d^6 + 222264*a^7*b*c*d^7 + 194481*a^8*d^8)/(b^11*d^9))^
(1/4)*log(((5*b^2*c^2 + 6*a*b*c*d + 21*a^2*d^2)*(b*x + a)^(1/4)*(
d*x + c)^(3/4) - (b^3*d^3*x + b^3*c*d^2)*((625*b^8*c^8 + 3000*a*b
^7*c^7*d + 15900*a^2*b^6*c^6*d^2 + 42120*a^3*b^5*c^5*d^3 + 112806
*a^4*b^4*c^4*d^4 + 176904*a^5*b^3*c^3*d^5 + 280476*a^6*b^2*c^2*d^
6 + 222264*a^7*b*c*d^7 + 194481*a^8*d^8)/(b^11*d^9))^(1/4))/(d*x
+ c)) - 4*(4*b*d*x - 5*b*c - 7*a*d)*(b*x + a)^(1/4)*(d*x + c)^(3/
4))/(b^2*d^2)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x^2}{(a+bx)^{\frac{3}{4}}\sqrt[4]{c+dx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2/(b*x+a)**(3/4)/(d*x+c)**(1/4),x)
```

```
[Out] Integral(x**2/((a + b*x)**(3/4)*(c + d*x)**(1/4)), x)
```

GIAC/XCAS [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x^2/((b*x + a)^(3/4)*(d*x + c)^(1/4)),x, algorithm="giac")
```

```
[Out] Timed out
```

3.890 $\int \frac{x}{(a+bx)^{3/4}\sqrt[4]{c+dx}}\,dx$

Optimal. Leaf size=130

$$-\frac{(3ad+bc)\tan^{-1}\left(\frac{\sqrt[4]{d}\sqrt[4]{a+bx}}{\sqrt[4]{b}\sqrt[4]{c+dx}}\right)}{2b^{7/4}d^{5/4}}-\frac{(3ad+bc)\tanh^{-1}\left(\frac{\sqrt[4]{d}\sqrt[4]{a+bx}}{\sqrt[4]{b}\sqrt[4]{c+dx}}\right)}{2b^{7/4}d^{5/4}}+\frac{\sqrt[4]{a+bx}(c+dx)^{3/4}}{bd}$$

```
[Out] ((a + b*x)^(1/4)*(c + d*x)^(3/4))/(b*d) - ((b*c + 3*a*d)*ArcTan[(
d^(1/4)*(a + b*x)^(1/4))/(b^(1/4)*(c + d*x)^(1/4))])/(2*b^(7/4)*d
^(5/4)) - ((b*c + 3*a*d)*ArcTanh[(d^(1/4)*(a + b*x)^(1/4))/(b^(1/
4)*(c + d*x)^(1/4))])/(2*b^(7/4)*d^(5/4))
```

Rubi [A] time = 0.166023, antiderivative size = 130, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.25$

$$-\frac{(3ad+bc)\tan^{-1}\left(\frac{\sqrt[4]{d}\sqrt[4]{a+bx}}{\sqrt[4]{b}\sqrt[4]{c+dx}}\right)}{2b^{7/4}d^{5/4}}-\frac{(3ad+bc)\tanh^{-1}\left(\frac{\sqrt[4]{d}\sqrt[4]{a+bx}}{\sqrt[4]{b}\sqrt[4]{c+dx}}\right)}{2b^{7/4}d^{5/4}}+\frac{\sqrt[4]{a+bx}(c+dx)^{3/4}}{bd}$$

Antiderivative was successfully verified.

```
[In]  Int[x/((a + b*x)^(3/4)*(c + d*x)^(1/4)),x]
```

```
[Out] ((a + b*x)^(1/4)*(c + d*x)^(3/4))/(b*d) - ((b*c + 3*a*d)*ArcTan[(
d^(1/4)*(a + b*x)^(1/4))/(b^(1/4)*(c + d*x)^(1/4))])/(2*b^(7/4)*d
^(5/4)) - ((b*c + 3*a*d)*ArcTanh[(d^(1/4)*(a + b*x)^(1/4))/(b^(1/
4)*(c + d*x)^(1/4))])/(2*b^(7/4)*d^(5/4))
```

Rubi in Sympy [A] time = 18.4627, size = 117, normalized size = 0.9

$$\frac{\sqrt[4]{a+bx}\,(c+dx)^{\frac{3}{4}}}{bd}-\frac{(3ad+bc)\,\text{atan}\left(\frac{\sqrt[4]{d}\sqrt[4]{a+bx}}{\sqrt[4]{b}\sqrt[4]{c+dx}}\right)}{2b^{\frac{7}{4}}d^{\frac{5}{4}}}-\frac{(3ad+bc)\,\text{atanh}\left(\frac{\sqrt[4]{d}\sqrt[4]{a+bx}}{\sqrt[4]{b}\sqrt[4]{c+dx}}\right)}{2b^{\frac{7}{4}}d^{\frac{5}{4}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x/(b*x+a)**(3/4)/(d*x+c)**(1/4),x)
```

```
[Out] (a + b*x)**(1/4)*(c + d*x)**(3/4)/(b*d) - (3*a*d + b*c)*atan(d**(
1/4)*(a + b*x)**(1/4)/(b**(1/4)*(c + d*x)**(1/4)))/(2*b**(7/4)*d*
*(5/4)) - (3*a*d + b*c)*atanh(d**(1/4)*(a + b*x)**(1/4)/(b**(1/4)
*(c + d*x)**(1/4)))/(2*b**(7/4)*d**(5/4))
```

Mathematica [C] time = 0.18563, size = 95, normalized size = 0.73

$$\frac{(c+dx)^{3/4}\left(3d(a+bx)-(3ad+bc)\left(\frac{d(a+bx)}{ad-bc}\right)^{3/4}{}_2F_1\left(\frac{3}{4},\frac{3}{4};\frac{7}{4};\frac{b(c+dx)}{bc-ad}\right)\right)}{3bd^2(a+bx)^{3/4}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x/((a + b*x)^(3/4)*(c + d*x)^(1/4)),x]
```

```
[Out] ((c + d*x)^(3/4)*(3*d*(a + b*x) - (b*c + 3*a*d)*((d*(a + b*x))/(-
(b*c) + a*d))^(3/4)*Hypergeometric2F1[3/4, 3/4, 7/4, (b*(c + d*x)
```

```
)/(b*c - a*d)]))/(3*b*d^2*(a + b*x)^(3/4))
```

Maple [F] time = 0.043, size = 0, normalized size = 0.

$$\int x\,(bx+a)^{-\frac{3}{4}}\,\frac{1}{\sqrt[4]{dx+c}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x/(b*x+a)^(3/4)/(d*x+c)^(1/4),x)
```

```
[Out] int(x/(b*x+a)^(3/4)/(d*x+c)^(1/4),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x}{(bx+a)^{\frac{3}{4}}(dx+c)^{\frac{1}{4}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x/((b*x + a)^(3/4)*(d*x + c)^(1/4)),x, algorithm="maxima")
```

```
[Out] integrate(x/((b*x + a)^(3/4)*(d*x + c)^(1/4)), x)
```

Fricas [A] time = 0.258274, size = 895, normalized size = 6.88

$$\frac{4\,bd\left(\frac{b^4c^4+12\,ab^3c^3d+54\,a^2b^2c^2d^2+108\,a^3bcd^3+81\,a^4d^4}{b^7d^5}\right)^{\frac{1}{4}}\arctan\left(\frac{(b^2d^2x+b^2cd)\left(\frac{b^4c^4+12\,ab^3c^3d+54\,a^2b^2c^2d^2+108\,a^3b\cdots}{b^7d^5}\cdots\right.}{(bc+3\,ad)(bx+a)^{\frac{1}{4}}(dx+c)^{\frac{3}{4}}+(dx+c)\sqrt{\frac{\left(b^2c^2+6\,abcd+9\,a^2d^2\right)\sqrt{bx+a}\sqrt{dx+c}+\left(b^4d^3x+b^4cd^2\cdots\right.}{d}}}\cdots\right.}{\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x/((b*x + a)^(3/4)*(d*x + c)^(1/4)),x, algorithm="fricas")
```

```
[Out] 1/4*(4*b*d*((b^4*c^4 + 12*a*b^3*c^3*d + 54*a^2*b^2*c^2*d^2 + 108*
a^3*b*c*d^3 + 81*a^4*d^4)/(b^7*d^5))^(1/4)*arctan((b^2*d^2*x + b^
2*c*d)*((b^4*c^4 + 12*a*b^3*c^3*d + 54*a^2*b^2*c^2*d^2 + 108*a^3*
b*c*d^3 + 81*a^4*d^4)/(b^7*d^5))^(1/4)/((b*c + 3*a*d)*(b*x + a)^(
1/4)*(d*x + c)^(3/4) + (d*x + c)*sqrt(((b^2*c^2 + 6*a*b*c*d + 9*a
^2*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (b^4*d^3*x + b^4*c*d^2)*sqr
t((b^4*c^4 + 12*a*b^3*c^3*d + 54*a^2*b^2*c^2*d^2 + 108*a^3*b*c*d^
3 + 81*a^4*d^4)/(b^7*d^5)))/(d*x + c)))) - b*d*((b^4*c^4 + 12*a*b
^3*c^3*d + 54*a^2*b^2*c^2*d^2 + 108*a^3*b*c*d^3 + 81*a^4*d^4)/(b^
7*d^5))^(1/4)*log(((b*c + 3*a*d)*(b*x + a)^(1/4)*(d*x + c)^(3/4)
+ (b^2*d^2*x + b^2*c*d)*((b^4*c^4 + 12*a*b^3*c^3*d + 54*a^2*b^2*c
^2*d^2 + 108*a^3*b*c*d^3 + 81*a^4*d^4)/(b^7*d^5))^(1/4))/(d*x + c
)) + b*d*((b^4*c^4 + 12*a*b^3*c^3*d + 54*a^2*b^2*c^2*d^2 + 108*a^
3*b*c*d^3 + 81*a^4*d^4)/(b^7*d^5))^(1/4)*log(((b*c + 3*a*d)*(b*x
+ a)^(1/4)*(d*x + c)^(3/4) - (b^2*d^2*x + b^2*c*d)*((b^4*c^4 + 12
*a*b^3*c^3*d + 54*a^2*b^2*c^2*d^2 + 108*a^3*b*c*d^3 + 81*a^4*d^4)
/(b^7*d^5))^(1/4))/(d*x + c)) + 4*(b*x + a)^(1/4)*(d*x + c)^(3/4)
)/(b*d)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x}{(a+bx)^{\frac{3}{4}}\sqrt[4]{c+dx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/(b*x+a)**(3/4)/(d*x+c)**(1/4),x)
```

```
[Out] Integral(x/((a + b*x)**(3/4)*(c + d*x)**(1/4)), x)
```

GIAC/XCAS [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x/((b*x + a)^(3/4)*(d*x + c)^(1/4)),x, algorithm="giac")
```

```
[Out] Timed out
```

3.891 $\int \frac{1}{(a+bx)^{3/4}\sqrt[4]{c+dx}}\,dx$

Optimal. Leaf size=85

$$\frac{2\tan^{-1}\left(\frac{\sqrt[4]{d}\sqrt[4]{a+bx}}{\sqrt[4]{b}\sqrt[4]{c+dx}}\right)}{b^{3/4}\sqrt[4]{d}}+\frac{2\tanh^{-1}\left(\frac{\sqrt[4]{d}\sqrt[4]{a+bx}}{\sqrt[4]{b}\sqrt[4]{c+dx}}\right)}{b^{3/4}\sqrt[4]{d}}$$

```
[Out] (2*ArcTan[(d^(1/4)*(a + b*x)^(1/4))/(b^(1/4)*(c + d*x)^(1/4))])/(
b^(3/4)*d^(1/4)) + (2*ArcTanh[(d^(1/4)*(a + b*x)^(1/4))/(b^(1/4)*
(c + d*x)^(1/4))])/(b^(3/4)*d^(1/4))
```

Rubi [A] time = 0.0808533, antiderivative size = 85, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.21

$$\frac{2\tan^{-1}\left(\frac{\sqrt[4]{d}\sqrt[4]{a+bx}}{\sqrt[4]{b}\sqrt[4]{c+dx}}\right)}{b^{3/4}\sqrt[4]{d}}+\frac{2\tanh^{-1}\left(\frac{\sqrt[4]{d}\sqrt[4]{a+bx}}{\sqrt[4]{b}\sqrt[4]{c+dx}}\right)}{b^{3/4}\sqrt[4]{d}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((a + b*x)^(3/4)*(c + d*x)^(1/4)),x]
```

```
[Out] (2*ArcTan[(d^(1/4)*(a + b*x)^(1/4))/(b^(1/4)*(c + d*x)^(1/4))])/(
b^(3/4)*d^(1/4)) + (2*ArcTanh[(d^(1/4)*(a + b*x)^(1/4))/(b^(1/4)*
(c + d*x)^(1/4))])/(b^(3/4)*d^(1/4))
```

Rubi in Sympy [A] time = 14.7416, size = 80, normalized size = 0.94

$$-\frac{2\,\mathrm{atan}\left(\frac{\sqrt[4]{b}\sqrt[4]{c+dx}}{\sqrt[4]{d}\sqrt[4]{a+bx}}\right)}{b^{\frac{3}{4}}\sqrt[4]{d}}+\frac{2\,\mathrm{atanh}\left(\frac{\sqrt[4]{b}\sqrt[4]{c+dx}}{\sqrt[4]{d}\sqrt[4]{a+bx}}\right)}{b^{\frac{3}{4}}\sqrt[4]{d}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(b*x+a)**(3/4)/(d*x+c)**(1/4),x)
```

```
[Out] -2*atan(b**(1/4)*(c + d*x)**(1/4)/(d**(1/4)*(a + b*x)**(1/4)))/(b
**(3/4)*d**(1/4)) + 2*atanh(b**(1/4)*(c + d*x)**(1/4)/(d**(1/4)*(
a + b*x)**(1/4)))/(b**(3/4)*d**(1/4))
```

Mathematica [C] time = 0.0574104, size = 73, normalized size = 0.86

$$\frac{4(c+dx)^{3/4}\left(\frac{d(a+bx)}{ad-bc}\right)^{3/4}{}_2F_1\left(\frac{3}{4},\frac{3}{4};\frac{7}{4};\frac{b(c+dx)}{bc-ad}\right)}{3d(a+bx)^{3/4}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((a + b*x)^(3/4)*(c + d*x)^(1/4)),x]
```

```
[Out] (4*((d*(a + b*x))/(-(b*c) + a*d))^(3/4)*(c + d*x)^(3/4)*Hypergeom
etric2F1[3/4, 3/4, 7/4, (b*(c + d*x))/(b*c - a*d)])/(3*d*(a + b*x
)^(3/4))
```

Maple [F] time = 0., size = 0, normalized size = 0.

$$\int 1\,(bx+a)^{-\frac{3}{4}}\frac{1}{\sqrt[4]{dx+c}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(b*x+a)^(3/4)/(d*x+c)^(1/4),x)
```

```
[Out] int(1/(b*x+a)^(3/4)/(d*x+c)^(1/4),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(bx+a)^{\frac{3}{4}}(dx+c)^{\frac{1}{4}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^(3/4)*(d*x + c)^(1/4)),x, algorithm="maxima")
```

```
[Out] integrate(1/((b*x + a)^(3/4)*(d*x + c)^(1/4)), x)
```

Fricas [A] time = 0.243785, size = 286, normalized size = 3.36

$$-4\left(\frac{1}{b^3d}\right)^{\frac{1}{4}}\arctan\left(\frac{(bdx+bc)\left(\frac{1}{b^3d}\right)^{\frac{1}{4}}}{(dx+c)\sqrt{\frac{(b^2dx+b^2c)\sqrt{\frac{1}{b^3d}}+\sqrt{bx+a}\sqrt{dx+c}}{dx+c}}+(bx+a)^{\frac{1}{4}}(dx+c)^{\frac{3}{4}}}\right)+\left(\frac{1}{b^3d}\right)^{\frac{1}{4}}\log\left(\frac{(bdx+bc)\left(\frac{1}{b^3d}\right)^{\frac{1}{4}}+(bx+a)^{\frac{1}{4}}(dx+c)^{\frac{3}{4}}}{dx+c}\right)-\left(\frac{1}{b^3d}\right)^{\frac{1}{4}}\log\left(-\frac{(bdx+bc)\left(\frac{1}{b^3d}\right)^{\frac{1}{4}}-(bx+a)^{\frac{1}{4}}(dx+c)^{\frac{3}{4}}}{dx+c}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^(3/4)*(d*x + c)^(1/4)),x, algorithm="fricas")
```

```
[Out] -4*(1/(b^3*d))^(1/4)*arctan((b*d*x + b*c)*(1/(b^3*d))^(1/4)/((d*x
 + c)*sqrt(((b^2*d*x + b^2*c)*sqrt(1/(b^3*d)) + sqrt(b*x + a)*sqr
t(d*x + c))/(d*x + c)) + (b*x + a)^(1/4)*(d*x + c)^(3/4))) + (1/(
b^3*d))^(1/4)*log(((b*d*x + b*c)*(1/(b^3*d))^(1/4) + (b*x + a)^(1
/4)*(d*x + c)^(3/4))/(d*x + c)) - (1/(b^3*d))^(1/4)*log(-((b*d*x
+ b*c)*(1/(b^3*d))^(1/4) - (b*x + a)^(1/4)*(d*x + c)^(3/4))/(d*x
+ c))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(a+bx)^{\frac{3}{4}}\sqrt[4]{c+dx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(b*x+a)**(3/4)/(d*x+c)**(1/4),x)

[Out] Integral(1/((a + b*x)**(3/4)*(c + d*x)**(1/4)), x)
```

GIAC/XCAS [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^(3/4)*(d*x + c)^(1/4)),x, algorithm="giac")

[Out] Timed out
```

3.892 $\int \frac{1}{x(a+bx)^{3/4}\sqrt[4]{c+dx}}\,dx$

Optimal. Leaf size=85

$$-\frac{2\tan^{-1}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{a^{3/4}\sqrt[4]{c}}-\frac{2\tanh^{-1}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{a^{3/4}\sqrt[4]{c}}$$

```
[Out] (-2*ArcTan[(c^(1/4)*(a + b*x)^(1/4))/(a^(1/4)*(c + d*x)^(1/4))])/
(a^(3/4)*c^(1/4)) - (2*ArcTanh[(c^(1/4)*(a + b*x)^(1/4))/(a^(1/4)
*(c + d*x)^(1/4))])/(a^(3/4)*c^(1/4))
```

Rubi [A] time = 0.109416, antiderivative size = 85, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{2\tan^{-1}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{a^{3/4}\sqrt[4]{c}}-\frac{2\tanh^{-1}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{a^{3/4}\sqrt[4]{c}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x*(a + b*x)^(3/4)*(c + d*x)^(1/4)),x]
```

```
[Out] (-2*ArcTan[(c^(1/4)*(a + b*x)^(1/4))/(a^(1/4)*(c + d*x)^(1/4))])/
(a^(3/4)*c^(1/4)) - (2*ArcTanh[(c^(1/4)*(a + b*x)^(1/4))/(a^(1/4)
*(c + d*x)^(1/4))])/(a^(3/4)*c^(1/4))
```

Rubi in Sympy [A] time = 12.9046, size = 82, normalized size = 0.96

$$-\frac{2\,\text{atan}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{a^{\frac{3}{4}}\sqrt[4]{c}}-\frac{2\,\text{atanh}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{a^{\frac{3}{4}}\sqrt[4]{c}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x/(b*x+a)**(3/4)/(d*x+c)**(1/4),x)
```

```
[Out] -2*atan(c**(1/4)*(a + b*x)**(1/4)/(a**(1/4)*(c + d*x)**(1/4)))/(a
**(3/4)*c**(1/4)) - 2*atanh(c**(1/4)*(a + b*x)**(1/4)/(a**(1/4)*(
c + d*x)**(1/4)))/(a**(3/4)*c**(1/4))
```

Mathematica [C] time = 0.26263, size = 146, normalized size = 1.72

$$\frac{8bdxF_1\left(1;\frac{3}{4},\frac{1}{4};2;-\frac{a}{bx},-\frac{c}{dx}\right)}{(a+bx)^{3/4}\sqrt[4]{c+dx}\left(-8bdxF_1\left(1;\frac{3}{4},\frac{1}{4};2;-\frac{a}{bx},-\frac{c}{dx}\right)+bcF_1\left(2;\frac{3}{4},\frac{5}{4};3;-\frac{a}{bx},-\frac{c}{dx}\right)+3adF_1\left(2;\frac{7}{4},\frac{1}{4};3;-\frac{a}{bx},-\frac{c}{dx}\right)\right)}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[1/(x*(a + b*x)^(3/4)*(c + d*x)^(1/4)),x]
```

```
[Out] (8*b*d*x*AppellF1[1, 3/4, 1/4, 2, -(a/(b*x)), -(c/(d*x))])/((a +
b*x)^(3/4)*(c + d*x)^(1/4)*(-8*b*d*x*AppellF1[1, 3/4, 1/4, 2, -(a
/(b*x)), -(c/(d*x))] + b*c*AppellF1[2, 3/4, 5/4, 3, -(a/(b*x)), -
(c/(d*x))] + 3*a*d*AppellF1[2, 7/4, 1/4, 3, -(a/(b*x)), -(c/(d*x)
```

```
)]))
```

Maple [F] time = 0.059, size = 0, normalized size = 0.

$$\int \frac{1}{x}\left(bx+a\right)^{-\frac{3}{4}}\frac{1}{\sqrt[4]{dx+c}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(1/x/(b*x+a)^(3/4)/(d*x+c)^(1/4),x)

[Out] int(1/x/(b*x+a)^(3/4)/(d*x+c)^(1/4),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\left(bx+a\right)^{\frac{3}{4}}\left(dx+c\right)^{\frac{1}{4}}x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((b*x + a)^(3/4)*(d*x + c)^(1/4)*x),x, algorithm="maxima")

[Out] integrate(1/((b*x + a)^(3/4)*(d*x + c)^(1/4)*x), x)
```

Fricas [A] time = 0.244653, size = 286, normalized size = 3.36

$$4\left(\frac{1}{a^3c}\right)^{\frac{1}{4}}\arctan\left(\frac{\left(adx+ac\right)\left(\frac{1}{a^3c}\right)^{\frac{1}{4}}}{\left(dx+c\right)\sqrt{\frac{\left(a^2dx+a^2c\right)\sqrt{\frac{1}{a^3c}}+\sqrt{bx+a}\sqrt{dx+c}}{dx+c}}+\left(bx+a\right)^{\frac{1}{4}}\left(dx+c\right)^{\frac{3}{4}}}\right) - \left(\frac{1}{a^3c}\right)^{\frac{1}{4}}\log\left(\frac{\left(adx+ac\right)\left(\frac{1}{a^3c}\right)^{\frac{1}{4}}+\left(bx+a\right)^{\frac{1}{4}}\left(dx+c\right)^{\frac{3}{4}}}{dx+c}\right) + \left(\frac{1}{a^3c}\right)^{\frac{1}{4}}\log\left(-\frac{\left(adx+ac\right)\left(\frac{1}{a^3c}\right)^{\frac{1}{4}}-\left(bx+a\right)^{\frac{1}{4}}\left(dx+c\right)^{\frac{3}{4}}}{dx+c}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((b*x + a)^(3/4)*(d*x + c)^(1/4)*x),x, algorithm="fricas")

[Out] 4*(1/(a^3*c))^(1/4)*arctan((a*d*x + a*c)*(1/(a^3*c))^(1/4)/((d*x
+ c)*sqrt(((a^2*d*x + a^2*c)*sqrt(1/(a^3*c)) + sqrt(b*x + a)*sqrt
(d*x + c))/(d*x + c)) + (b*x + a)^(1/4)*(d*x + c)^(3/4))) - (1/(a
^3*c))^(1/4)*log(((a*d*x + a*c)*(1/(a^3*c))^(1/4) + (b*x + a)^(1/
4)*(d*x + c)^(3/4))/(d*x + c)) + (1/(a^3*c))^(1/4)*log(-((a*d*x +
 a*c)*(1/(a^3*c))^(1/4) - (b*x + a)^(1/4)*(d*x + c)^(3/4))/(d*x +
 c))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{x\left(a+bx\right)^{\frac{3}{4}}\sqrt[4]{c+dx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/x/(b*x+a)**(3/4)/(d*x+c)**(1/4),x)
```

```
[Out] Integral(1/(x*(a + b*x)**(3/4)*(c + d*x)**(1/4)), x)
```

GIAC/XCAS [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((b*x + a)^(3/4)*(d*x + c)^(1/4)*x),x, algorithm="giac")
```

```
[Out] Timed out
```

3.893 $\int \frac{1}{x^2(a+bx)^{3/4}\sqrt[4]{c+dx}}\,dx$

Optimal. Leaf size=134

$$\frac{(ad+3bc)\tan^{-1}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{2a^{7/4}c^{5/4}}+\frac{(ad+3bc)\tanh^{-1}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{2a^{7/4}c^{5/4}}-\frac{\sqrt[4]{a+bx}(c+dx)^{3/4}}{acx}$$

```
[Out] -(((a + b*x)^(1/4)*(c + d*x)^(3/4))/(a*c*x)) + ((3*b*c + a*d)*Arc
Tan[(c^(1/4)*(a + b*x)^(1/4))/(a^(1/4)*(c + d*x)^(1/4))])/(2*a^(7
/4)*c^(5/4)) + ((3*b*c + a*d)*ArcTanh[(c^(1/4)*(a + b*x)^(1/4))/(
a^(1/4)*(c + d*x)^(1/4))])/(2*a^(7/4)*c^(5/4))
```

Rubi [A] time = 0.196362, antiderivative size = 134, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$\frac{(ad+3bc)\tan^{-1}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{2a^{7/4}c^{5/4}}+\frac{(ad+3bc)\tanh^{-1}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{2a^{7/4}c^{5/4}}-\frac{\sqrt[4]{a+bx}(c+dx)^{3/4}}{acx}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x^2*(a + b*x)^(3/4)*(c + d*x)^(1/4)),x]
```

```
[Out] -(((a + b*x)^(1/4)*(c + d*x)^(3/4))/(a*c*x)) + ((3*b*c + a*d)*Arc
Tan[(c^(1/4)*(a + b*x)^(1/4))/(a^(1/4)*(c + d*x)^(1/4))])/(2*a^(7
/4)*c^(5/4)) + ((3*b*c + a*d)*ArcTanh[(c^(1/4)*(a + b*x)^(1/4))/(
a^(1/4)*(c + d*x)^(1/4))])/(2*a^(7/4)*c^(5/4))
```

Rubi in Sympy [A] time = 19.8673, size = 119, normalized size = 0.89

$$-\frac{\sqrt[4]{a+bx}\,(c+dx)^{\frac{3}{4}}}{acx}+\frac{(ad+3bc)\,\mathrm{atan}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{2a^{\frac{7}{4}}c^{\frac{5}{4}}}+\frac{(ad+3bc)\,\mathrm{atanh}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{2a^{\frac{7}{4}}c^{\frac{5}{4}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x**2/(b*x+a)**(3/4)/(d*x+c)**(1/4),x)
```

```
[Out] -(a + b*x)**(1/4)*(c + d*x)**(3/4)/(a*c*x) + (a*d + 3*b*c)*atan(c
**(1/4)*(a + b*x)**(1/4)/(a**(1/4)*(c + d*x)**(1/4)))/(2*a**(7/4)
*c**(5/4)) + (a*d + 3*b*c)*atanh(c**(1/4)*(a + b*x)**(1/4)/(a**(1
/4)*(c + d*x)**(1/4)))/(2*a**(7/4)*c**(5/4))
```

Mathematica [C] time = 0.3048, size = 180, normalized size = 1.34

$$\frac{\frac{2bdx^2(ad+3bc)F_1\left(1;\frac{3}{4},\frac{1}{4};2;-\frac{a}{bx},-\frac{c}{dx}\right)}{8bdxF_1\left(1;\frac{3}{4},\frac{1}{4};2;-\frac{a}{bx},-\frac{c}{dx}\right)-bcF_1\left(2;\frac{3}{4},\frac{5}{4};3;-\frac{a}{bx},-\frac{c}{dx}\right)-3adF_1\left(2;\frac{7}{4},\frac{1}{4};3;-\frac{a}{bx},-\frac{c}{dx}\right)}-(a+bx)(c+dx)}{acx(a+bx)^{3/4}\sqrt[4]{c+dx}}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[1/(x^2*(a + b*x)^(3/4)*(c + d*x)^(1/4)),x]
```

```
[Out] (-((a + b*x)*(c + d*x)) + (2*b*d*(3*b*c + a*d)*x^2*AppellF1[1, 3/
4, 1/4, 2, -(a/(b*x)), -(c/(d*x))])/(8*b*d*x*AppellF1[1, 3/4, 1/4
```

```
, 2, -(a/(b*x)), -(c/(d*x))] - b*c*AppellF1[2, 3/4, 5/4, 3, -(a/(
b*x)), -(c/(d*x))] - 3*a*d*AppellF1[2, 7/4, 1/4, 3, -(a/(b*x)), -
(c/(d*x))]))/(a*c*x*(a + b*x)^(3/4)*(c + d*x)^(1/4))
```

Maple [F] time = 0.05, size = 0, normalized size = 0.

$$\int \frac{1}{x^2}(bx+a)^{-\frac{3}{4}}\frac{1}{\sqrt[4]{dx+c}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/x^2/(b*x+a)^(3/4)/(d*x+c)^(1/4),x)
```

```
[Out] int(1/x^2/(b*x+a)^(3/4)/(d*x+c)^(1/4),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(bx+a)^{\frac{3}{4}}(dx+c)^{\frac{1}{4}}x^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((b*x + a)^(3/4)*(d*x + c)^(1/4)*x^2),x, algorithm="maxima")
```

```
[Out] integrate(1/((b*x + a)^(3/4)*(d*x + c)^(1/4)*x^2), x)
```

Fricas [A] time = 0.258127, size = 903, normalized size = 6.74

$$-\frac{4\,acx\left(\frac{81\,b^4c^4+108\,ab^3c^3d+54\,a^2b^2c^2d^2+12\,a^3bcd^3+a^4d^4}{a^7c^5}\right)^{\frac{1}{4}}\arctan\left(\frac{\left(a^2cdx+a^2c^2\right)\left(\frac{81\,b^4c^4+108\,ab^3c^3d+54\,a^2b^2c^2d^2+}{a^7c^5}\right.}{(3\,bc+ad)(bx+a)^{\frac{1}{4}}(dx+c)^{\frac{3}{4}}+(dx+c)\sqrt{\left(9\,b^2c^2+6\,abcd+a^2d^2\right)\sqrt{bx+a}\sqrt{dx+c}+\left(a^4c^2dx+\right.}}\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((b*x + a)^(3/4)*(d*x + c)^(1/4)*x^2),x, algorithm="fricas")
```

```
[Out] -1/4*(4*a*c*x*((81*b^4*c^4 + 108*a*b^3*c^3*d + 54*a^2*b^2*c^2*d^2
 + 12*a^3*b*c*d^3 + a^4*d^4)/(a^7*c^5))^(1/4)*arctan((a^2*c*d*x +
 a^2*c^2)*((81*b^4*c^4 + 108*a*b^3*c^3*d + 54*a^2*b^2*c^2*d^2 + 1
2*a^3*b*c*d^3 + a^4*d^4)/(a^7*c^5))^(1/4)/((3*b*c + a*d)*(b*x + a
)^(1/4)*(d*x + c)^(3/4) + (d*x + c)*sqrt(((9*b^2*c^2 + 6*a*b*c*d
+ a^2*d^2)*sqrt(b*x + a)*sqrt(d*x + c) + (a^4*c^2*d*x + a^4*c^3)*
sqrt((81*b^4*c^4 + 108*a*b^3*c^3*d + 54*a^2*b^2*c^2*d^2 + 12*a^3*
b*c*d^3 + a^4*d^4)/(a^7*c^5)))/(d*x + c)))) - a*c*x*((81*b^4*c^4
+ 108*a*b^3*c^3*d + 54*a^2*b^2*c^2*d^2 + 12*a^3*b*c*d^3 + a^4*d^4
)/(a^7*c^5))^(1/4)*log(((3*b*c + a*d)*(b*x + a)^(1/4)*(d*x + c)^(
3/4) + (a^2*c*d*x + a^2*c^2)*((81*b^4*c^4 + 108*a*b^3*c^3*d + 54*
a^2*b^2*c^2*d^2 + 12*a^3*b*c*d^3 + a^4*d^4)/(a^7*c^5))^(1/4))/(d*
x + c)) + a*c*x*((81*b^4*c^4 + 108*a*b^3*c^3*d + 54*a^2*b^2*c^2*d
^2 + 12*a^3*b*c*d^3 + a^4*d^4)/(a^7*c^5))^(1/4)*log(((3*b*c + a*d
)*(b*x + a)^(1/4)*(d*x + c)^(3/4) - (a^2*c*d*x + a^2*c^2)*((81*b^
4*c^4 + 108*a*b^3*c^3*d + 54*a^2*b^2*c^2*d^2 + 12*a^3*b*c*d^3 + a
^4*d^4)/(a^7*c^5))^(1/4))/(d*x + c)) + 4*(b*x + a)^(1/4)*(d*x + c
)^(3/4))/(a*c*x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{x^2 (a+bx)^{\frac{3}{4}} \sqrt[4]{c+dx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/x**2/(b*x+a)**(3/4)/(d*x+c)**(1/4),x)
```

```
[Out] Integral(1/(x**2*(a + b*x)**(3/4)*(c + d*x)**(1/4)), x)
```

GIAC/XCAS [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^(3/4)*(d*x + c)^(1/4)*x^2),x, algorithm="giac")
```

```
[Out] Timed out
```

3.894 $\int \frac{1}{x^3(a+bx)^{3/4}\sqrt[4]{c+dx}}\,dx$

Optimal. Leaf size=206

$$\frac{\sqrt[4]{a+bx}(c+dx)^{3/4}(5ad+7bc)}{8a^2c^2x}-\frac{\left(5a^2d^2+6abcd+21b^2c^2\right)\tan^{-1}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{16a^{11/4}c^{9/4}}-\frac{\left(5a^2d^2+6abcd+21b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{16a^{11/4}c^{9/4}}-\frac{\sqrt[4]{a+bx}(c+dx)^{3/4}}{2acx^2}$$

```
[Out] -((a + b*x)^(1/4)*(c + d*x)^(3/4))/(2*a*c*x^2) + ((7*b*c + 5*a*d)
*(a + b*x)^(1/4)*(c + d*x)^(3/4))/(8*a^2*c^2*x) - ((21*b^2*c^2 +
6*a*b*c*d + 5*a^2*d^2)*ArcTan[(c^(1/4)*(a + b*x)^(1/4))/(a^(1/4)*
(c + d*x)^(1/4))])/(16*a^(11/4)*c^(9/4)) - ((21*b^2*c^2 + 6*a*b*c
*d + 5*a^2*d^2)*ArcTanh[(c^(1/4)*(a + b*x)^(1/4))/(a^(1/4)*(c + d
*x)^(1/4))])/(16*a^(11/4)*c^(9/4))
```

Rubi [A] time = 0.37155, antiderivative size = 206, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 7, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.318

$$\frac{\sqrt[4]{a+bx}(c+dx)^{3/4}(5ad+7bc)}{8a^2c^2x}-\frac{\left(5a^2d^2+6abcd+21b^2c^2\right)\tan^{-1}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{16a^{11/4}c^{9/4}}-\frac{\left(5a^2d^2+6abcd+21b^2c^2\right)\tanh^{-1}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{16a^{11/4}c^{9/4}}-\frac{\sqrt[4]{a+bx}(c+dx)^{3/4}}{2acx^2}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x^3*(a + b*x)^(3/4)*(c + d*x)^(1/4)),x]
```

```
[Out] -((a + b*x)^(1/4)*(c + d*x)^(3/4))/(2*a*c*x^2) + ((7*b*c + 5*a*d)
*(a + b*x)^(1/4)*(c + d*x)^(3/4))/(8*a^2*c^2*x) - ((21*b^2*c^2 +
6*a*b*c*d + 5*a^2*d^2)*ArcTan[(c^(1/4)*(a + b*x)^(1/4))/(a^(1/4)*
(c + d*x)^(1/4))])/(16*a^(11/4)*c^(9/4)) - ((21*b^2*c^2 + 6*a*b*c
*d + 5*a^2*d^2)*ArcTanh[(c^(1/4)*(a + b*x)^(1/4))/(a^(1/4)*(c + d
*x)^(1/4))])/(16*a^(11/4)*c^(9/4))
```

Rubi in Sympy [A] time = 45.6989, size = 194, normalized size = 0.94

$$-\frac{\sqrt[4]{a+bx}\,(c+dx)^{\frac{3}{4}}}{2acx^2}+\frac{\sqrt[4]{a+bx}\,(c+dx)^{\frac{3}{4}}\,(5ad+7bc)}{8a^2c^2x}-\frac{\left(5a^2d^2+6abcd+21b^2c^2\right)\operatorname{atan}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{16a^{\frac{11}{4}}c^{\frac{9}{4}}}-\frac{\left(5a^2d^2+6abcd+21b^2c^2\right)\operatorname{atanh}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{16a^{\frac{11}{4}}c^{\frac{9}{4}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x**3/(b*x+a)**(3/4)/(d*x+c)**(1/4),x)
```

```
[Out] -(a + b*x)**(1/4)*(c + d*x)**(3/4)/(2*a*c*x**2) + (a + b*x)**(1/4
)*(c + d*x)**(3/4)*(5*a*d + 7*b*c)/(8*a**2*c**2*x) - (5*a**2*d**2
 + 6*a*b*c*d + 21*b**2*c**2)*atan(c**(1/4)*(a + b*x)**(1/4)/(a**(
1/4)*(c + d*x)**(1/4)))/(16*a**(11/4)*c**(9/4)) - (5*a**2*d**2 +
6*a*b*c*d + 21*b**2*c**2)*atanh(c**(1/4)*(a + b*x)**(1/4)/(a**(1/
4)*(c + d*x)**(1/4)))/(16*a**(11/4)*c**(9/4))
```

Mathematica [C] time = 0.366507, size = 211, normalized size = 1.02

$$\frac{\frac{2bdx^3(5a^2d^2+6abcd+21b^2c^2)F_1\left(1;\frac{3}{4},\frac{1}{4};2;-\frac{a}{bx},-\frac{c}{dx}\right)}{-8bdxF_1\left(1;\frac{3}{4},\frac{1}{4};2;-\frac{a}{bx},-\frac{c}{dx}\right)+bcF_1\left(2;\frac{3}{4},\frac{5}{4};3;-\frac{a}{bx},-\frac{c}{dx}\right)+3adF_1\left(2;\frac{7}{4},\frac{1}{4};3;-\frac{a}{bx},-\frac{c}{dx}\right)}+(a+bx)(c+dx)(-4ac+5adx+7bcx)}{8a^2c^2x^2(a+bx)^{3/4}\sqrt[4]{c+dx}}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[1/(x^3*(a + b*x)^(3/4)*(c + d*x)^(1/4)),x]
```

```
[Out] ((a + b*x)*(c + d*x)*(-4*a*c + 7*b*c*x + 5*a*d*x) + (2*b*d*(21*b^
2*c^2 + 6*a*b*c*d + 5*a^2*d^2)*x^3*AppellF1[1, 3/4, 1/4, 2, -(a/(
b*x)), -(c/(d*x))])/(-8*b*d*x*AppellF1[1, 3/4, 1/4, 2, -(a/(b*x))
, -(c/(d*x))] + b*c*AppellF1[2, 3/4, 5/4, 3, -(a/(b*x)), -(c/(d*x
))] + 3*a*d*AppellF1[2, 7/4, 1/4, 3, -(a/(b*x)), -(c/(d*x))]))/(8
*a^2*c^2*x^2*(a + b*x)^(3/4)*(c + d*x)^(1/4))
```

Maple [F] time = 0.052, size = 0, normalized size = 0.

$$\int \frac{1}{x^3}(bx+a)^{-\frac{3}{4}}\frac{1}{\sqrt[4]{dx+c}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/x^3/(b*x+a)^(3/4)/(d*x+c)^(1/4),x)
```

```
[Out] int(1/x^3/(b*x+a)^(3/4)/(d*x+c)^(1/4),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(bx+a)^{\frac{3}{4}}(dx+c)^{\frac{1}{4}}x^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^(3/4)*(d*x + c)^(1/4)*x^3),x, algorithm="maxima")
```

```
[Out] integrate(1/((b*x + a)^(3/4)*(d*x + c)^(1/4)*x^3), x)
```

Fricas [A] time = 0.28084, size = 1597, normalized size = 7.75

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^(3/4)*(d*x + c)^(1/4)*x^3),x, algorithm="fricas")
```

```
[Out] 1/32*(4*a^2*c^2*x^2*((194481*b^8*c^8 + 222264*a*b^7*c^7*d + 28047
6*a^2*b^6*c^6*d^2 + 176904*a^3*b^5*c^5*d^3 + 112806*a^4*b^4*c^4*d
^4 + 42120*a^5*b^3*c^3*d^5 + 15900*a^6*b^2*c^2*d^6 + 3000*a^7*b*c
*d^7 + 625*a^8*d^8)/(a^11*c^9))^(1/4)*arctan((a^3*c^2*d*x + a^3*c
^3)*((194481*b^8*c^8 + 222264*a*b^7*c^7*d + 280476*a^2*b^6*c^6*d^
2 + 176904*a^3*b^5*c^5*d^3 + 112806*a^4*b^4*c^4*d^4 + 42120*a^5*b
^3*c^3*d^5 + 15900*a^6*b^2*c^2*d^6 + 3000*a^7*b*c*d^7 + 625*a^8*d
^8)/(a^11*c^9))^(1/4)/((21*b^2*c^2 + 6*a*b*c*d + 5*a^2*d^2)*(b*x
+ a)^(1/4)*(d*x + c)^(3/4) + (d*x + c)*sqrt(((441*b^4*c^4 + 252*a
*b^3*c^3*d + 246*a^2*b^2*c^2*d^2 + 60*a^3*b*c*d^3 + 25*a^4*d^4)*s
```

```
qrt(b*x + a)*sqrt(d*x + c) + (a^6*c^4*d*x + a^6*c^5)*sqrt((194481
*b^8*c^8 + 222264*a*b^7*c^7*d + 280476*a^2*b^6*c^6*d^2 + 176904*a
^3*b^5*c^5*d^3 + 112806*a^4*b^4*c^4*d^4 + 42120*a^5*b^3*c^3*d^5 +
 15900*a^6*b^2*c^2*d^6 + 3000*a^7*b*c*d^7 + 625*a^8*d^8)/(a^11*c^
9)))/(d*x + c)))) - a^2*c^2*x^2*((194481*b^8*c^8 + 222264*a*b^7*c
^7*d + 280476*a^2*b^6*c^6*d^2 + 176904*a^3*b^5*c^5*d^3 + 112806*a
^4*b^4*c^4*d^4 + 42120*a^5*b^3*c^3*d^5 + 15900*a^6*b^2*c^2*d^6 +
3000*a^7*b*c*d^7 + 625*a^8*d^8)/(a^11*c^9))^(1/4)*log(((21*b^2*c^
2 + 6*a*b*c*d + 5*a^2*d^2)*(b*x + a)^(1/4)*(d*x + c)^(3/4) + (a^3
*c^2*d*x + a^3*c^3)*((194481*b^8*c^8 + 222264*a*b^7*c^7*d + 28047
6*a^2*b^6*c^6*d^2 + 176904*a^3*b^5*c^5*d^3 + 112806*a^4*b^4*c^4*d
^4 + 42120*a^5*b^3*c^3*d^5 + 15900*a^6*b^2*c^2*d^6 + 3000*a^7*b*c
*d^7 + 625*a^8*d^8)/(a^11*c^9))^(1/4))/(d*x + c)) + a^2*c^2*x^2*(
(194481*b^8*c^8 + 222264*a*b^7*c^7*d + 280476*a^2*b^6*c^6*d^2 + 1
76904*a^3*b^5*c^5*d^3 + 112806*a^4*b^4*c^4*d^4 + 42120*a^5*b^3*c^
3*d^5 + 15900*a^6*b^2*c^2*d^6 + 3000*a^7*b*c*d^7 + 625*a^8*d^8)/(
a^11*c^9))^(1/4)*log(((21*b^2*c^2 + 6*a*b*c*d + 5*a^2*d^2)*(b*x +
 a)^(1/4)*(d*x + c)^(3/4) - (a^3*c^2*d*x + a^3*c^3)*((194481*b^8*
c^8 + 222264*a*b^7*c^7*d + 280476*a^2*b^6*c^6*d^2 + 176904*a^3*b^
5*c^5*d^3 + 112806*a^4*b^4*c^4*d^4 + 42120*a^5*b^3*c^3*d^5 + 1590
0*a^6*b^2*c^2*d^6 + 3000*a^7*b*c*d^7 + 625*a^8*d^8)/(a^11*c^9))^(
1/4))/(d*x + c)) - 4*(4*a*c - (7*b*c + 5*a*d)*x)*(b*x + a)^(1/4)*
(d*x + c)^(3/4))/(a^2*c^2*x^2)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{x^3 (a + bx)^{\frac{3}{4}} \sqrt[4]{c + dx}} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/x**3/(b*x+a)**(3/4)/(d*x+c)**(1/4),x)

[Out] Integral(1/(x**3*(a + b*x)**(3/4)*(c + d*x)**(1/4)), x)
```

GIAC/XCAS [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^(3/4)*(d*x + c)^(1/4)*x^3),x, algorithm="giac")

[Out] Timed out
```

3.895 $\int \frac{1}{x^4(a+bx)^{3/4}\sqrt[4]{c+dx}}\,dx$

Optimal. Leaf size=288

$$\frac{\sqrt[4]{a+bx}(c+dx)^{3/4}(9ad+11bc)}{24a^2c^2x^2}-\frac{\sqrt[4]{a+bx}(c+dx)^{3/4}\left(45a^2d^2+54abcd+77b^2c^2\right)}{96a^3c^3x}+\frac{\left(15a^3d^3+15a^2bcd^2+21ab^2c^2d+77b^3c^3\right)\tan^{-1}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{64a^{15/4}c^{13/4}}+\frac{\left(15a^3d^3+15a^2bcd^2+21ab^2c^2d+77b^3c^3\right)\tanh^{-1}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{64a^{15/4}c^{13/4}}-\frac{\sqrt[4]{a+bx}(c+dx)^{3/4}}{3acx^3}$$

```
[Out] -((a + b*x)^(1/4)*(c + d*x)^(3/4))/(3*a*c*x^3) + ((11*b*c + 9*a*d
)*(a + b*x)^(1/4)*(c + d*x)^(3/4))/(24*a^2*c^2*x^2) - ((77*b^2*c^
2 + 54*a*b*c*d + 45*a^2*d^2)*(a + b*x)^(1/4)*(c + d*x)^(3/4))/(96
*a^3*c^3*x) + ((77*b^3*c^3 + 21*a*b^2*c^2*d + 15*a^2*b*c*d^2 + 15
*a^3*d^3)*ArcTan[(c^(1/4)*(a + b*x)^(1/4))/(a^(1/4)*(c + d*x)^(1/
4))])/(64*a^(15/4)*c^(13/4)) + ((77*b^3*c^3 + 21*a*b^2*c^2*d + 15
*a^2*b*c*d^2 + 15*a^3*d^3)*ArcTanh[(c^(1/4)*(a + b*x)^(1/4))/(a^(
1/4)*(c + d*x)^(1/4))])/(64*a^(15/4)*c^(13/4))
```

Rubi [A] time = 0.621975, antiderivative size = 288, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 7, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.318$

$$\frac{\sqrt[4]{a+bx}(c+dx)^{3/4}(9ad+11bc)}{24a^2c^2x^2}-\frac{\sqrt[4]{a+bx}(c+dx)^{3/4}\left(45a^2d^2+54abcd+77b^2c^2\right)}{96a^3c^3x}+\frac{\left(15a^3d^3+15a^2bcd^2+21ab^2c^2d+77b^3c^3\right)\tan^{-1}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{64a^{15/4}c^{13/4}}+\frac{\left(15a^3d^3+15a^2bcd^2+21ab^2c^2d+77b^3c^3\right)\tanh^{-1}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{64a^{15/4}c^{13/4}}-\frac{\sqrt[4]{a+bx}(c+dx)^{3/4}}{3acx^3}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(x^4*(a + b*x)^(3/4)*(c + d*x)^(1/4)),x]
```

```
[Out] -((a + b*x)^(1/4)*(c + d*x)^(3/4))/(3*a*c*x^3) + ((11*b*c + 9*a*d
)*(a + b*x)^(1/4)*(c + d*x)^(3/4))/(24*a^2*c^2*x^2) - ((77*b^2*c^
2 + 54*a*b*c*d + 45*a^2*d^2)*(a + b*x)^(1/4)*(c + d*x)^(3/4))/(96
*a^3*c^3*x) + ((77*b^3*c^3 + 21*a*b^2*c^2*d + 15*a^2*b*c*d^2 + 15
*a^3*d^3)*ArcTan[(c^(1/4)*(a + b*x)^(1/4))/(a^(1/4)*(c + d*x)^(1/
4))])/(64*a^(15/4)*c^(13/4)) + ((77*b^3*c^3 + 21*a*b^2*c^2*d + 15
*a^2*b*c*d^2 + 15*a^3*d^3)*ArcTanh[(c^(1/4)*(a + b*x)^(1/4))/(a^(
1/4)*(c + d*x)^(1/4))])/(64*a^(15/4)*c^(13/4))
```

Rubi in Sympy [A] time = 94.2009, size = 279, normalized size = 0.97

$$-\frac{\sqrt[4]{a+bx}\,(c+dx)^{\frac{3}{4}}}{3acx^3}+\frac{\sqrt[4]{a+bx}\,(c+dx)^{\frac{3}{4}}\,(9ad+11bc)}{24a^2c^2x^2}-\frac{\sqrt[4]{a+bx}\,(c+dx)^{\frac{3}{4}}\,\left(45a^2d^2+54abcd+77b^2c^2\right)}{96a^3c^3x}+\frac{\left(15a^3d^3+15a^2bcd^2+21ab^2c^2d+77b^3c^3\right)\operatorname{atan}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{64a^{\frac{15}{4}}c^{\frac{13}{4}}}+\frac{\left(15a^3d^3+15a^2bcd^2+21ab^2c^2d+77b^3c^3\right)\operatorname{atanh}\left(\frac{\sqrt[4]{c}\sqrt[4]{a+bx}}{\sqrt[4]{a}\sqrt[4]{c+dx}}\right)}{64a^{\frac{15}{4}}c^{\frac{13}{4}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/x**4/(b*x+a)**(3/4)/(d*x+c)**(1/4),x)
```

```
[Out] -(a + b*x)**(1/4)*(c + d*x)**(3/4)/(3*a*c*x**3) + (a + b*x)**(1/4
)*(c + d*x)**(3/4)*(9*a*d + 11*b*c)/(24*a**2*c**2*x**2) - (a + b*
x)**(1/4)*(c + d*x)**(3/4)*(45*a**2*d**2 + 54*a*b*c*d + 77*b**2*c
**2)/(96*a**3*c**3*x) + (15*a**3*d**3 + 15*a**2*b*c*d**2 + 21*a*b
**2*c**2*d + 77*b**3*c**3)*atan(c**(1/4)*(a + b*x)**(1/4)/(a**(1/
4)*(c + d*x)**(1/4)))/(64*a**(15/4)*c**(13/4)) + (15*a**3*d**3 +
15*a**2*b*c*d**2 + 21*a*b**2*c**2*d + 77*b**3*c**3)*atanh(c**(1/4
)*(a + b*x)**(1/4)/(a**(1/4)*(c + d*x)**(1/4)))/(64*a**(15/4)*c**
(13/4))
```

Mathematica [C] time = 0.493199, size = 259, normalized size = 0.9

$$-\frac{(a+bx)(c+dx)\left(a^2\left(32c^2-36cdx+45d^2x^2\right)+2abcx(27dx-22c)+77b^2c^2x^2\right)+\frac{6bdx^4\left(15a^3d^3+15a^2bcd^2+21ab^2c^2d+77b^3\right.}{-8bdxF_1\left(1;\frac{3}{4},\frac{1}{4};2;-\frac{a}{bx},-\frac{c}{dx}\right)+bcF_1\left(2;\frac{3}{4},\frac{5}{4};3;-\frac{a}{bx}\right.}}{96a^3c^3x^3(a+bx)^{3/4}\sqrt[4]{c+dx}}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[1/(x^4*(a + b*x)^(3/4)*(c + d*x)^(1/4)),x]
```

```
[Out] -((a + b*x)*(c + d*x)*(77*b^2*c^2*x^2 + 2*a*b*c*x*(-22*c + 27*d*x
) + a^2*(32*c^2 - 36*c*d*x + 45*d^2*x^2)) + (6*b*d*(77*b^3*c^3 +
21*a*b^2*c^2*d + 15*a^2*b*c*d^2 + 15*a^3*d^3)*x^4*AppellF1[1, 3/4
, 1/4, 2, -(a/(b*x)), -(c/(d*x))])/(-8*b*d*x*AppellF1[1, 3/4, 1/4
, 2, -(a/(b*x)), -(c/(d*x))] + b*c*AppellF1[2, 3/4, 5/4, 3, -(a/(
b*x)), -(c/(d*x))] + 3*a*d*AppellF1[2, 7/4, 1/4, 3, -(a/(b*x)), -
(c/(d*x))]))/(96*a^3*c^3*x^3*(a + b*x)^(3/4)*(c + d*x)^(1/4))
```

Maple [F] time = 0.058, size = 0, normalized size = 0.

$$\int \frac{1}{x^4}\,(bx+a)^{-\frac{3}{4}}\,\frac{1}{\sqrt[4]{dx+c}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/x^4/(b*x+a)^(3/4)/(d*x+c)^(1/4),x)
```

```
[Out] int(1/x^4/(b*x+a)^(3/4)/(d*x+c)^(1/4),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(bx+a)^{\frac{3}{4}}(dx+c)^{\frac{1}{4}}x^4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^(3/4)*(d*x + c)^(1/4)*x^4),x, algorithm="maxima")
```

```
[Out] integrate(1/((b*x + a)^(3/4)*(d*x + c)^(1/4)*x^4), x)
```

Fricas [A] time = 0.36611, size = 2272, normalized size = 7.89

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((b*x + a)^(3/4)*(d*x + c)^(1/4)*x^4),x, algorithm="fricas")
```

```
[Out] -1/384*(12*a^3*c^3*x^3*((35153041*b^12*c^12 + 38348772*a*b^11*c^1
1*d + 43080114*a^2*b^10*c^10*d^2 + 52655988*a^3*b^9*c^9*d^3 + 367
22511*a^4*b^8*c^8*d^4 + 27042120*a^5*b^7*c^7*d^5 + 18926460*a^6*b
^6*c^6*d^6 + 8958600*a^7*b^5*c^5*d^7 + 4614975*a^8*b^4*c^4*d^8 +
2092500*a^9*b^3*c^3*d^9 + 587250*a^10*b^2*c^2*d^10 + 202500*a^11*
b*c*d^11 + 50625*a^12*d^12)/(a^15*c^13))^(1/4)*arctan((a^4*c^3*d*
x + a^4*c^4)*((35153041*b^12*c^12 + 38348772*a*b^11*c^11*d + 4308
0114*a^2*b^10*c^10*d^2 + 52655988*a^3*b^9*c^9*d^3 + 36722511*a^4*
b^8*c^8*d^4 + 27042120*a^5*b^7*c^7*d^5 + 18926460*a^6*b^6*c^6*d^6
 + 8958600*a^7*b^5*c^5*d^7 + 4614975*a^8*b^4*c^4*d^8 + 2092500*a^
9*b^3*c^3*d^9 + 587250*a^10*b^2*c^2*d^10 + 202500*a^11*b*c*d^11 +
 50625*a^12*d^12)/(a^15*c^13))^(1/4)/((77*b^3*c^3 + 21*a*b^2*c^2*
d + 15*a^2*b*c*d^2 + 15*a^3*d^3)*(b*x + a)^(1/4)*(d*x + c)^(3/4)
+ (d*x + c)*sqrt(((5929*b^6*c^6 + 3234*a*b^5*c^5*d + 2751*a^2*b^4
*c^4*d^2 + 2940*a^3*b^3*c^3*d^3 + 855*a^4*b^2*c^2*d^4 + 450*a^5*b
*c*d^5 + 225*a^6*d^6)*sqrt(b*x + a)*sqrt(d*x + c) + (a^8*c^6*d*x
+ a^8*c^7)*sqrt((35153041*b^12*c^12 + 38348772*a*b^11*c^11*d + 43
080114*a^2*b^10*c^10*d^2 + 52655988*a^3*b^9*c^9*d^3 + 36722511*a^
4*b^8*c^8*d^4 + 27042120*a^5*b^7*c^7*d^5 + 18926460*a^6*b^6*c^6*d
^6 + 8958600*a^7*b^5*c^5*d^7 + 4614975*a^8*b^4*c^4*d^8 + 2092500*
a^9*b^3*c^3*d^9 + 587250*a^10*b^2*c^2*d^10 + 202500*a^11*b*c*d^11
 + 50625*a^12*d^12)/(a^15*c^13)))/(d*x + c)))) - 3*a^3*c^3*x^3*((
35153041*b^12*c^12 + 38348772*a*b^11*c^11*d + 43080114*a^2*b^10*c
^10*d^2 + 52655988*a^3*b^9*c^9*d^3 + 36722511*a^4*b^8*c^8*d^4 + 2
7042120*a^5*b^7*c^7*d^5 + 18926460*a^6*b^6*c^6*d^6 + 8958600*a^7*
b^5*c^5*d^7 + 4614975*a^8*b^4*c^4*d^8 + 2092500*a^9*b^3*c^3*d^9 +
 587250*a^10*b^2*c^2*d^10 + 202500*a^11*b*c*d^11 + 50625*a^12*d^1
2)/(a^15*c^13))^(1/4)*log(((77*b^3*c^3 + 21*a*b^2*c^2*d + 15*a^2*
b*c*d^2 + 15*a^3*d^3)*(b*x + a)^(1/4)*(d*x + c)^(3/4) + (a^4*c^3*
d*x + a^4*c^4)*((35153041*b^12*c^12 + 38348772*a*b^11*c^11*d + 43
080114*a^2*b^10*c^10*d^2 + 52655988*a^3*b^9*c^9*d^3 + 36722511*a^
4*b^8*c^8*d^4 + 27042120*a^5*b^7*c^7*d^5 + 18926460*a^6*b^6*c^6*d
^6 + 8958600*a^7*b^5*c^5*d^7 + 4614975*a^8*b^4*c^4*d^8 + 2092500*
a^9*b^3*c^3*d^9 + 587250*a^10*b^2*c^2*d^10 + 202500*a^11*b*c*d^11
 + 50625*a^12*d^12)/(a^15*c^13))^(1/4))/(d*x + c)) + 3*a^3*c^3*x^
3*((35153041*b^12*c^12 + 38348772*a*b^11*c^11*d + 43080114*a^2*b^
10*c^10*d^2 + 52655988*a^3*b^9*c^9*d^3 + 36722511*a^4*b^8*c^8*d^4
 + 27042120*a^5*b^7*c^7*d^5 + 18926460*a^6*b^6*c^6*d^6 + 8958600*
a^7*b^5*c^5*d^7 + 4614975*a^8*b^4*c^4*d^8 + 2092500*a^9*b^3*c^3*d
^9 + 587250*a^10*b^2*c^2*d^10 + 202500*a^11*b*c*d^11 + 50625*a^12
*d^12)/(a^15*c^13))^(1/4)*log(((77*b^3*c^3 + 21*a*b^2*c^2*d + 15*
a^2*b*c*d^2 + 15*a^3*d^3)*(b*x + a)^(1/4)*(d*x + c)^(3/4) - (a^4*
c^3*d*x + a^4*c^4)*((35153041*b^12*c^12 + 38348772*a*b^11*c^11*d
+ 43080114*a^2*b^10*c^10*d^2 + 52655988*a^3*b^9*c^9*d^3 + 3672251
1*a^4*b^8*c^8*d^4 + 27042120*a^5*b^7*c^7*d^5 + 18926460*a^6*b^6*c
^6*d^6 + 8958600*a^7*b^5*c^5*d^7 + 4614975*a^8*b^4*c^4*d^8 + 2092
500*a^9*b^3*c^3*d^9 + 587250*a^10*b^2*c^2*d^10 + 202500*a^11*b*c*
d^11 + 50625*a^12*d^12)/(a^15*c^13))^(1/4))/(d*x + c)) + 4*(32*a^
2*c^2 + (77*b^2*c^2 + 54*a*b*c*d + 45*a^2*d^2)*x^2 - 4*(11*a*b*c^
2 + 9*a^2*c*d)*x)*(b*x + a)^(1/4)*(d*x + c)^(3/4))/(a^3*c^3*x^3)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{x^4 (a+bx)^{\frac{3}{4}} \sqrt[4]{c+dx}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/x**4/(b*x+a)**(3/4)/(d*x+c)**(1/4),x)
```

```
[Out] Integral(1/(x**4*(a + b*x)**(3/4)*(c + d*x)**(1/4)), x)
```

GIAC/XCAS [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((b*x + a)^(3/4)*(d*x + c)^(1/4)*x^4),x, algorithm="giac")
```

```
[Out] Timed out
```

3.896 $\int \frac{(ex)^{3/2}}{\sqrt[4]{1-x}\sqrt[4]{1+x}}\,dx$

Optimal. Leaf size=244

$$-\frac{e^{3/2}\log\left(\frac{\sqrt{ex}}{\sqrt{1-x^2}}-\frac{\sqrt{2}\sqrt{ex}}{\sqrt[4]{1-x^2}}+\sqrt{e}\right)}{8\sqrt{2}}+\frac{e^{3/2}\log\left(\frac{\sqrt{ex}}{\sqrt{1-x^2}}+\frac{\sqrt{2}\sqrt{ex}}{\sqrt[4]{1-x^2}}+\sqrt{e}\right)}{8\sqrt{2}}-\frac{e^{3/2}\tan^{-1}\left(1-\frac{\sqrt{2}\sqrt{ex}}{\sqrt{e}\sqrt[4]{1-x^2}}\right)}{4\sqrt{2}}+\frac{e^{3/2}\tan^{-1}\left(\frac{\sqrt{2}\sqrt{ex}}{\sqrt{e}\sqrt[4]{1-x^2}}+1\right)}{4\sqrt{2}}-\frac{1}{2}e\left(1-x^2\right)^{3/4}\sqrt{ex}$$

```
[Out] -(e*Sqrt[e*x]*(1 - x^2)^(3/4))/2 - (e^(3/2)*ArcTan[1 - (Sqrt[2]*S
qrt[e*x])/(Sqrt[e]*(1 - x^2)^(1/4))])/(4*Sqrt[2]) + (e^(3/2)*ArcT
an[1 + (Sqrt[2]*Sqrt[e*x])/(Sqrt[e]*(1 - x^2)^(1/4))])/(4*Sqrt[2]
) - (e^(3/2)*Log[Sqrt[e] + (Sqrt[e]*x)/Sqrt[1 - x^2] - (Sqrt[2]*S
qrt[e*x])/(1 - x^2)^(1/4)])/(8*Sqrt[2]) + (e^(3/2)*Log[Sqrt[e] +
(Sqrt[e]*x)/Sqrt[1 - x^2] + (Sqrt[2]*Sqrt[e*x])/(1 - x^2)^(1/4)])
/(8*Sqrt[2])
```

Rubi [A] time = 0.414125, antiderivative size = 244, normalized size of antiderivative = 1., number of steps used = 13, number of rules used = 10, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.417

$$-\frac{e^{3/2}\log\left(\frac{\sqrt{ex}}{\sqrt{1-x^2}}-\frac{\sqrt{2}\sqrt{ex}}{\sqrt[4]{1-x^2}}+\sqrt{e}\right)}{8\sqrt{2}}+\frac{e^{3/2}\log\left(\frac{\sqrt{ex}}{\sqrt{1-x^2}}+\frac{\sqrt{2}\sqrt{ex}}{\sqrt[4]{1-x^2}}+\sqrt{e}\right)}{8\sqrt{2}}-\frac{e^{3/2}\tan^{-1}\left(1-\frac{\sqrt{2}\sqrt{ex}}{\sqrt{e}\sqrt[4]{1-x^2}}\right)}{4\sqrt{2}}+\frac{e^{3/2}\tan^{-1}\left(\frac{\sqrt{2}\sqrt{ex}}{\sqrt{e}\sqrt[4]{1-x^2}}+1\right)}{4\sqrt{2}}-\frac{1}{2}e\left(1-x^2\right)^{3/4}\sqrt{ex}$$

Antiderivative was successfully verified.

```
[In]  Int[(e*x)^(3/2)/((1 - x)^(1/4)*(1 + x)^(1/4)),x]
```

```
[Out] -(e*Sqrt[e*x]*(1 - x^2)^(3/4))/2 - (e^(3/2)*ArcTan[1 - (Sqrt[2]*S
qrt[e*x])/(Sqrt[e]*(1 - x^2)^(1/4))])/(4*Sqrt[2]) + (e^(3/2)*ArcT
an[1 + (Sqrt[2]*Sqrt[e*x])/(Sqrt[e]*(1 - x^2)^(1/4))])/(4*Sqrt[2]
) - (e^(3/2)*Log[Sqrt[e] + (Sqrt[e]*x)/Sqrt[1 - x^2] - (Sqrt[2]*S
qrt[e*x])/(1 - x^2)^(1/4)])/(8*Sqrt[2]) + (e^(3/2)*Log[Sqrt[e] +
(Sqrt[e]*x)/Sqrt[1 - x^2] + (Sqrt[2]*Sqrt[e*x])/(1 - x^2)^(1/4)])
/(8*Sqrt[2])
```

Rubi in Sympy [A] time = 36.4365, size = 204, normalized size = 0.84

$$-\frac{\sqrt{2}e^{\frac{3}{2}}\log\left(-\frac{\sqrt{2}\sqrt{e}\sqrt{ex}}{\sqrt[4]{-x^2+1}}+\frac{ex}{\sqrt{-x^2+1}}+e\right)}{16}+\frac{\sqrt{2}e^{\frac{3}{2}}\log\left(\frac{\sqrt{2}\sqrt{e}\sqrt{ex}}{\sqrt[4]{-x^2+1}}+\frac{ex}{\sqrt{-x^2+1}}+e\right)}{16}-\frac{\sqrt{2}e^{\frac{3}{2}}\operatorname{atan}\left(1-\frac{\sqrt{2}\sqrt{ex}}{\sqrt{e}\sqrt[4]{-x^2+1}}\right)}{8}+\frac{\sqrt{2}e^{\frac{3}{2}}\operatorname{atan}\left(1+\frac{\sqrt{2}\sqrt{ex}}{\sqrt{e}\sqrt[4]{-x^2+1}}\right)}{8}-\frac{e\sqrt{ex}\left(-x^2+1\right)^{\frac{3}{4}}}{2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((e*x)**(3/2)/(1-x)**(1/4)/(1+x)**(1/4),x)
```

```
[Out] -sqrt(2)*e**(3/2)*log(-sqrt(2)*sqrt(e)*sqrt(e*x)/(-x**2 + 1)**(1/
4) + e*x/sqrt(-x**2 + 1) + e)/16 + sqrt(2)*e**(3/2)*log(sqrt(2)*s
qrt(e)*sqrt(e*x)/(-x**2 + 1)**(1/4) + e*x/sqrt(-x**2 + 1) + e)/16
 - sqrt(2)*e**(3/2)*atan(1 - sqrt(2)*sqrt(e*x)/(sqrt(e)*(-x**2 +
```

```
1)**(1/4)))/8 + sqrt(2)*e**(3/2)*atan(1 + sqrt(2)*sqrt(e*x)/(sqrt
(e)*(-x**2 + 1)**(1/4)))/8 - e*sqrt(e*x)*(-x**2 + 1)**(3/4)/2
```

Mathematica [C] time = 0.0326395, size = 39, normalized size = 0.16

$$\frac{1}{2}e\sqrt{ex}\left({}_2F_1\left(\frac{1}{4},\frac{1}{4};\frac{5}{4};x^2\right)-\left(1-x^2\right)^{3/4}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(e*x)^(3/2)/((1 - x)^(1/4)*(1 + x)^(1/4)),x]
```

```
[Out] (e*Sqrt[e*x]*(-(1 - x^2)^(3/4) + Hypergeometric2F1[1/4, 1/4, 5/4,
 x^2]))/2
```

Maple [F] time = 0.079, size = 0, normalized size = 0.

$$\int 1\,(ex)^{\frac{3}{2}}\frac{1}{\sqrt[4]{1-x}}\frac{1}{\sqrt[4]{1+x}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((e*x)^(3/2)/(1-x)^(1/4)/(1+x)^(1/4),x)
```

```
[Out] int((e*x)^(3/2)/(1-x)^(1/4)/(1+x)^(1/4),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(ex)^{\frac{3}{2}}}{(x+1)^{\frac{1}{4}}(-x+1)^{\frac{1}{4}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((e*x)^(3/2)/((x + 1)^(1/4)*(-x + 1)^(1/4)),x, algorithm="maxima")
```

```
[Out] integrate((e*x)^(3/2)/((x + 1)^(1/4)*(-x + 1)^(1/4)), x)
```

Fricas [A] time = 0.248055, size = 610, normalized size = 2.5

$$-\frac{1}{2}\sqrt{ex}e(x+1)^{\frac{3}{4}}(-x+1)^{\frac{3}{4}}$$
$$+\frac{1}{4}\sqrt{2}\left(e^6\right)^{\frac{1}{4}}\arctan\left(\frac{\sqrt{2}\left(e^6\right)^{\frac{1}{4}}\left(x^2-1\right)}{2\sqrt{ex}e(x+1)^{\frac{3}{4}}(-x+1)^{\frac{3}{4}}+\sqrt{2}(e^6)^{\frac{1}{4}}(x^2-1)+2\left(x^2-1\right)\sqrt{-\frac{e^3\sqrt{x+1}x\sqrt{-x+1}-\sqrt{2}(e^6)^{\frac{1}{4}}\sqrt{ex}e(x+1)^{\frac{3}{4}}(-x+1)^{\frac{3}{4}}-\sqrt{e^6}(x}{x^2-1}}}\right.$$
$$+\frac{1}{4}\sqrt{2}\left(e^6\right)^{\frac{1}{4}}\arctan\left(\frac{\sqrt{2}\left(e^6\right)^{\frac{1}{4}}\left(x^2-1\right)}{2\sqrt{ex}e(x+1)^{\frac{3}{4}}(-x+1)^{\frac{3}{4}}-\sqrt{2}(e^6)^{\frac{1}{4}}(x^2-1)+2\left(x^2-1\right)\sqrt{-\frac{e^3\sqrt{x+1}x\sqrt{-x+1}+\sqrt{2}(e^6)^{\frac{1}{4}}\sqrt{ex}e(x+1)^{\frac{3}{4}}(-x+1)^{\frac{3}{4}}-\sqrt{e^6}(x}{x^2-1}}}\right.$$
$$+\frac{1}{16}\sqrt{2}\left(e^6\right)^{\frac{1}{4}}\log\left(-\frac{e^3\sqrt{x+1}x\sqrt{-x+1}+\sqrt{2}\left(e^6\right)^{\frac{1}{4}}\sqrt{ex}e(x+1)^{\frac{3}{4}}(-x+1)^{\frac{3}{4}}-\sqrt{e^6}\left(x^2-1\right)}{x^2-1}\right)$$
$$-\frac{1}{16}\sqrt{2}\left(e^6\right)^{\frac{1}{4}}\log\left(-\frac{e^3\sqrt{x+1}x\sqrt{-x+1}-\sqrt{2}\left(e^6\right)^{\frac{1}{4}}\sqrt{ex}e(x+1)^{\frac{3}{4}}(-x+1)^{\frac{3}{4}}-\sqrt{e^6}\left(x^2-1\right)}{x^2-1}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((e*x)^(3/2)/((x + 1)^(1/4)*(-x + 1)^(1/4)),x, algorithm="fricas")
```

```
[Out] -1/2*sqrt(e*x)*e*(x + 1)^(3/4)*(-x + 1)^(3/4) + 1/4*sqrt(2)*(e^6)
^(1/4)*arctan(sqrt(2)*(e^6)^(1/4)*(x^2 - 1)/(2*sqrt(e*x)*e*(x + 1
)^(3/4)*(-x + 1)^(3/4) + sqrt(2)*(e^6)^(1/4)*(x^2 - 1) + 2*(x^2 -
 1)*sqrt(-(e^3*sqrt(x + 1)*x*sqrt(-x + 1) - sqrt(2)*(e^6)^(1/4)*s
qrt(e*x)*e*(x + 1)^(3/4)*(-x + 1)^(3/4) - sqrt(e^6)*(x^2 - 1))/(x
^2 - 1)))) + 1/4*sqrt(2)*(e^6)^(1/4)*arctan(sqrt(2)*(e^6)^(1/4)*(
x^2 - 1)/(2*sqrt(e*x)*e*(x + 1)^(3/4)*(-x + 1)^(3/4) - sqrt(2)*(e
^6)^(1/4)*(x^2 - 1) + 2*(x^2 - 1)*sqrt(-(e^3*sqrt(x + 1)*x*sqrt(-
x + 1) + sqrt(2)*(e^6)^(1/4)*sqrt(e*x)*e*(x + 1)^(3/4)*(-x + 1)^(
3/4) - sqrt(e^6)*(x^2 - 1))/(x^2 - 1)))) + 1/16*sqrt(2)*(e^6)^(1/
4)*log(-(e^3*sqrt(x + 1)*x*sqrt(-x + 1) + sqrt(2)*(e^6)^(1/4)*sqr
t(e*x)*e*(x + 1)^(3/4)*(-x + 1)^(3/4) - sqrt(e^6)*(x^2 - 1))/(x^2
 - 1)) - 1/16*sqrt(2)*(e^6)^(1/4)*log(-(e^3*sqrt(x + 1)*x*sqrt(-x
 + 1) - sqrt(2)*(e^6)^(1/4)*sqrt(e*x)*e*(x + 1)^(3/4)*(-x + 1)^(3
/4) - sqrt(e^6)*(x^2 - 1))/(x^2 - 1))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((e*x)**(3/2)/(1-x)**(1/4)/(1+x)**(1/4),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((e*x)^(3/2)/((x + 1)^(1/4)*(-x + 1)^(1/4)),x, algorithm="giac")
```

```
[Out] Timed out
```

3.897 $\int \frac{1}{\sqrt[4]{1-x}\sqrt{ex}\sqrt[4]{1+x}}\,dx$

Optimal. Leaf size=216

$$-\frac{\log\left(\frac{\sqrt{ex}}{\sqrt{1-x^2}}-\frac{\sqrt{2}\sqrt{ex}}{\sqrt[4]{1-x^2}}+\sqrt{e}\right)}{2\sqrt{2}\sqrt{e}}+\frac{\log\left(\frac{\sqrt{ex}}{\sqrt{1-x^2}}+\frac{\sqrt{2}\sqrt{ex}}{\sqrt[4]{1-x^2}}+\sqrt{e}\right)}{2\sqrt{2}\sqrt{e}}-\frac{\tan^{-1}\left(1-\frac{\sqrt{2}\sqrt{ex}}{\sqrt{e}\sqrt[4]{1-x^2}}\right)}{\sqrt{2}\sqrt{e}}+\frac{\tan^{-1}\left(\frac{\sqrt{2}\sqrt{ex}}{\sqrt{e}\sqrt[4]{1-x^2}}+1\right)}{\sqrt{2}\sqrt{e}}$$

```
[Out] -(ArcTan[1 - (Sqrt[2]*Sqrt[e*x])/(Sqrt[e]*(1 - x^2)^(1/4))]/(Sqrt
[2]*Sqrt[e])) + ArcTan[1 + (Sqrt[2]*Sqrt[e*x])/(Sqrt[e]*(1 - x^2)
^(1/4))]/(Sqrt[2]*Sqrt[e]) - Log[Sqrt[e] + (Sqrt[e]*x)/Sqrt[1 - x
^2] - (Sqrt[2]*Sqrt[e*x])/(1 - x^2)^(1/4)]/(2*Sqrt[2]*Sqrt[e]) +
Log[Sqrt[e] + (Sqrt[e]*x)/Sqrt[1 - x^2] + (Sqrt[2]*Sqrt[e*x])/(1
- x^2)^(1/4)]/(2*Sqrt[2]*Sqrt[e])
```

Rubi [A] time = 0.298455, antiderivative size = 216, normalized size of antiderivative = 1., number of steps used = 12, number of rules used = 9, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.375

$$-\frac{\log\left(\frac{\sqrt{ex}}{\sqrt{1-x^2}}-\frac{\sqrt{2}\sqrt{ex}}{\sqrt[4]{1-x^2}}+\sqrt{e}\right)}{2\sqrt{2}\sqrt{e}}+\frac{\log\left(\frac{\sqrt{ex}}{\sqrt{1-x^2}}+\frac{\sqrt{2}\sqrt{ex}}{\sqrt[4]{1-x^2}}+\sqrt{e}\right)}{2\sqrt{2}\sqrt{e}}-\frac{\tan^{-1}\left(1-\frac{\sqrt{2}\sqrt{ex}}{\sqrt{e}\sqrt[4]{1-x^2}}\right)}{\sqrt{2}\sqrt{e}}+\frac{\tan^{-1}\left(\frac{\sqrt{2}\sqrt{ex}}{\sqrt{e}\sqrt[4]{1-x^2}}+1\right)}{\sqrt{2}\sqrt{e}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - x)^(1/4)*Sqrt[e*x]*(1 + x)^(1/4)),x]
```

```
[Out] -(ArcTan[1 - (Sqrt[2]*Sqrt[e*x])/(Sqrt[e]*(1 - x^2)^(1/4))]/(Sqrt
[2]*Sqrt[e])) + ArcTan[1 + (Sqrt[2]*Sqrt[e*x])/(Sqrt[e]*(1 - x^2)
^(1/4))]/(Sqrt[2]*Sqrt[e]) - Log[Sqrt[e] + (Sqrt[e]*x)/Sqrt[1 - x
^2] - (Sqrt[2]*Sqrt[e*x])/(1 - x^2)^(1/4)]/(2*Sqrt[2]*Sqrt[e]) +
Log[Sqrt[e] + (Sqrt[e]*x)/Sqrt[1 - x^2] + (Sqrt[2]*Sqrt[e*x])/(1
- x^2)^(1/4)]/(2*Sqrt[2]*Sqrt[e])
```

Rubi in Sympy [A] time = 31.748, size = 185, normalized size = 0.86

$$-\frac{\sqrt{2}\log\left(-\frac{\sqrt{2}\sqrt{e}\sqrt{ex}}{\sqrt[4]{-x^2+1}}+\frac{ex}{\sqrt{-x^2+1}}+e\right)}{4\sqrt{e}}+\frac{\sqrt{2}\log\left(\frac{\sqrt{2}\sqrt{e}\sqrt{ex}}{\sqrt[4]{-x^2+1}}+\frac{ex}{\sqrt{-x^2+1}}+e\right)}{4\sqrt{e}}-\frac{\sqrt{2}\,\mathrm{atan}\left(1-\frac{\sqrt{2}\sqrt{ex}}{\sqrt{e}\sqrt[4]{-x^2+1}}\right)}{2\sqrt{e}}+\frac{\sqrt{2}\,\mathrm{atan}\left(1+\frac{\sqrt{2}\sqrt{ex}}{\sqrt{e}\sqrt[4]{-x^2+1}}\right)}{2\sqrt{e}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-x)**(1/4)/(e*x)**(1/2)/(1+x)**(1/4),x)
```

```
[Out] -sqrt(2)*log(-sqrt(2)*sqrt(e)*sqrt(e*x)/(-x**2 + 1)**(1/4) + e*x/
sqrt(-x**2 + 1) + e)/(4*sqrt(e)) + sqrt(2)*log(sqrt(2)*sqrt(e)*sq
rt(e*x)/(-x**2 + 1)**(1/4) + e*x/sqrt(-x**2 + 1) + e)/(4*sqrt(e))
 - sqrt(2)*atan(1 - sqrt(2)*sqrt(e*x)/(sqrt(e)*(-x**2 + 1)**(1/4)
))/(2*sqrt(e)) + sqrt(2)*atan(1 + sqrt(2)*sqrt(e*x)/(sqrt(e)*(-x*
```

```
*2 + 1)**(1/4)))/(2*sqrt(e))
```

Mathematica [C] time = 0.0169169, size = 23, normalized size = 0.11

$$\frac{2x\,{}_2F_1\left(\frac{1}{4},\frac{1}{4};\frac{5}{4};x^2\right)}{\sqrt{ex}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - x)^(1/4)*Sqrt[e*x]*(1 + x)^(1/4)),x]

[Out] (2*x*Hypergeometric2F1[1/4, 1/4, 5/4, x^2])/Sqrt[e*x]
```

Maple [F] time = 0.079, size = 0, normalized size = 0.

$$\int 1\frac{1}{\sqrt[4]{1-x}}\frac{1}{\sqrt{ex}}\frac{1}{\sqrt[4]{1+x}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-x)^(1/4)/(e*x)^(1/2)/(1+x)^(1/4),x)

[Out] int(1/(1-x)^(1/4)/(e*x)^(1/2)/(1+x)^(1/4),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{ex}(x+1)^{\frac{1}{4}}(-x+1)^{\frac{1}{4}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(e*x)*(x + 1)^(1/4)*(-x + 1)^(1/4)),x, algorithm="maxima")

[Out] integrate(1/(sqrt(e*x)*(x + 1)^(1/4)*(-x + 1)^(1/4)), x)
```

Fricas [A] time = 0.246893, size = 626, normalized size = 2.9

$$\sqrt{2}\frac{1}{e^2}^{\frac{1}{4}}\arctan\left(\frac{\sqrt{2}\left(ex^2-e\right)\frac{1}{e^2}^{\frac{1}{4}}}{2\sqrt{ex}(x+1)^{\frac{3}{4}}(-x+1)^{\frac{3}{4}}+\sqrt{2}(ex^2-e)\frac{1}{e^2}^{\frac{1}{4}}+2\left(x^2-1\right)\sqrt{\frac{\sqrt{2}\sqrt{ex}e(x+1)^{\frac{3}{4}}(-x+1)^{\frac{3}{4}}\frac{1}{e^2}^{\frac{1}{4}}-e\sqrt{x+1}x\sqrt{-x+1}+(e^2x^2-e^2)\sqrt{\frac{1}{e^2}}}{x^2-1}}}\right)$$
$$+\sqrt{2}\frac{1}{e^2}^{\frac{1}{4}}\arctan\left(\frac{\sqrt{2}\left(ex^2-e\right)\frac{1}{e^2}^{\frac{1}{4}}}{2\sqrt{ex}(x+1)^{\frac{3}{4}}(-x+1)^{\frac{3}{4}}-\sqrt{2}(ex^2-e)\frac{1}{e^2}^{\frac{1}{4}}+2\left(x^2-1\right)\sqrt{-\frac{\sqrt{2}\sqrt{ex}e(x+1)^{\frac{3}{4}}(-x+1)^{\frac{3}{4}}\frac{1}{e^2}^{\frac{1}{4}}+e\sqrt{x+1}x\sqrt{-x+1}-(e^2x^2-e^2)\sqrt{\frac{1}{e^2}}}{x^2-1}}}\right.$$
$$+\frac{1}{4}\sqrt{2}\frac{1}{e^2}^{\frac{1}{4}}\log\left(-\frac{\sqrt{2}\sqrt{ex}e(x+1)^{\frac{3}{4}}(-x+1)^{\frac{3}{4}}\frac{1}{e^2}^{\frac{1}{4}}+e\sqrt{x+1}x\sqrt{-x+1}-\left(e^2x^2-e^2\right)\sqrt{\frac{1}{e^2}}}{x^2-1}\right)$$
$$-\frac{1}{4}\sqrt{2}\frac{1}{e^2}^{\frac{1}{4}}\log\left(\frac{\sqrt{2}\sqrt{ex}e(x+1)^{\frac{3}{4}}(-x+1)^{\frac{3}{4}}\frac{1}{e^2}^{\frac{1}{4}}-e\sqrt{x+1}x\sqrt{-x+1}+\left(e^2x^2-e^2\right)\sqrt{\frac{1}{e^2}}}{x^2-1}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(e*x)*(x + 1)^(1/4)*(-x + 1)^(1/4)),x, algorithm="fricas")
```

```
[Out] sqrt(2)*(e^(-2))^(1/4)*arctan(sqrt(2)*(e*x^2 - e)*(e^(-2))^(1/4)/
(2*sqrt(e*x)*(x + 1)^(3/4)*(-x + 1)^(3/4) + sqrt(2)*(e*x^2 - e)*(
e^(-2))^(1/4) + 2*(x^2 - 1)*sqrt((sqrt(2)*sqrt(e*x)*e*(x + 1)^(3/
4)*(-x + 1)^(3/4)*(e^(-2))^(1/4) - e*sqrt(x + 1)*x*sqrt(-x + 1) +
 (e^2*x^2 - e^2)*sqrt(e^(-2)))/(x^2 - 1)))) + sqrt(2)*(e^(-2))^(1
/4)*arctan(sqrt(2)*(e*x^2 - e)*(e^(-2))^(1/4)/(2*sqrt(e*x)*(x + 1
)^(3/4)*(-x + 1)^(3/4) - sqrt(2)*(e*x^2 - e)*(e^(-2))^(1/4) + 2*(
x^2 - 1)*sqrt(-(sqrt(2)*sqrt(e*x)*e*(x + 1)^(3/4)*(-x + 1)^(3/4)*
(e^(-2))^(1/4) + e*sqrt(x + 1)*x*sqrt(-x + 1) - (e^2*x^2 - e^2)*s
qrt(e^(-2)))/(x^2 - 1)))) + 1/4*sqrt(2)*(e^(-2))^(1/4)*log(-(sqrt
(2)*sqrt(e*x)*e*(x + 1)^(3/4)*(-x + 1)^(3/4)*(e^(-2))^(1/4) + e*s
qrt(x + 1)*x*sqrt(-x + 1) - (e^2*x^2 - e^2)*sqrt(e^(-2)))/(x^2 -
1)) - 1/4*sqrt(2)*(e^(-2))^(1/4)*log((sqrt(2)*sqrt(e*x)*e*(x + 1)
^(3/4)*(-x + 1)^(3/4)*(e^(-2))^(1/4) - e*sqrt(x + 1)*x*sqrt(-x +
1) + (e^2*x^2 - e^2)*sqrt(e^(-2)))/(x^2 - 1))
```

Sympy [A] time = 77.7521, size = 90, normalized size = 0.42

$$-\frac{iG_{6,6}^{6,2}\left(\begin{matrix}\frac{3}{8},\frac{7}{8} & \frac{1}{2},\frac{3}{4},1,1\\ 0,\frac{3}{8},\frac{1}{2},\frac{7}{8},1,0 & \end{matrix}\middle|\frac{e^{-2i\pi}}{x^2}\right)e^{\frac{i\pi}{4}}}{4\pi\sqrt{e}\,\Gamma\left(\frac{1}{4}\right)}-\frac{G_{6,6}^{2,6}\left(\begin{matrix}-\frac{1}{4},-\frac{1}{8},\frac{1}{4},\frac{3}{8},\frac{3}{4},1 & \\ -\frac{1}{8},\frac{3}{8} & -\frac{1}{4},0,\frac{1}{4},0\end{matrix}\middle|\frac{1}{x^2}\right)}{4\pi\sqrt{e}\,\Gamma\left(\frac{1}{4}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-x)**(1/4)/(e*x)**(1/2)/(1+x)**(1/4),x)
```

```
[Out] -I*meijerg(((3/8, 7/8), (1/2, 3/4, 1, 1)), ((0, 3/8, 1/2, 7/8, 1,
 0), ()), exp_polar(-2*I*pi)/x**2)*exp(I*pi/4)/(4*pi*sqrt(e)*gamm
a(1/4)) - meijerg(((-1/4, -1/8, 1/4, 3/8, 3/4, 1), ()), ((-1/8, 3
/8), (-1/4, 0, 1/4, 0)), x**(-2))/(4*pi*sqrt(e)*gamma(1/4))
```

GIAC/XCAS [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(e*x)*(x + 1)^(1/4)*(-x + 1)^(1/4)),x, algorithm="giac")
```

```
[Out] Timed out
```

3.898 $\int \frac{1}{\sqrt[4]{1-x}(ex)^{5/2}\sqrt[4]{1+x}}\,dx$

Optimal. Leaf size=30

$$-\frac{2(1-x)^{3/4}(x+1)^{3/4}}{3e(ex)^{3/2}}$$

```
[Out] (-2*(1 - x)^(3/4)*(1 + x)^(3/4))/(3*e*(e*x)^(3/2))
```

Rubi [A] time = 0.0322629, antiderivative size = 30, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.042$

$$-\frac{2(1-x)^{3/4}(x+1)^{3/4}}{3e(ex)^{3/2}}$$

Antiderivative was successfully verified.

```
[In] Int[1/((1 - x)^(1/4)*(e*x)^(5/2)*(1 + x)^(1/4)),x]

[Out] (-2*(1 - x)^(3/4)*(1 + x)^(3/4))/(3*e*(e*x)^(3/2))
```

Rubi in Sympy [A] time = 3.28365, size = 26, normalized size = 0.87

$$-\frac{2\left(-x+1\right)^{\frac{3}{4}}\left(x+1\right)^{\frac{3}{4}}}{3e\left(ex\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(1/(1-x)**(1/4)/(e*x)**(5/2)/(1+x)**(1/4),x)

[Out] -2*(-x + 1)**(3/4)*(x + 1)**(3/4)/(3*e*(e*x)**(3/2))
```

Mathematica [A] time = 0.016833, size = 23, normalized size = 0.77

$$-\frac{2x\left(1-x^2\right)^{3/4}}{3(ex)^{5/2}}$$

Antiderivative was successfully verified.

```
[In] Integrate[1/((1 - x)^(1/4)*(e*x)^(5/2)*(1 + x)^(1/4)),x]

[Out] (-2*x*(1 - x^2)^(3/4))/(3*(e*x)^(5/2))
```

Maple [A] time = 0.006, size = 21, normalized size = 0.7

$$-\frac{2x}{3}\left(1+x\right)^{\frac{3}{4}}\left(1-x\right)^{\frac{3}{4}}\left(ex\right)^{-\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(1/(1-x)^(1/4)/(e*x)^(5/2)/(1+x)^(1/4),x)
```

```
[Out] -2/3*x*(1+x)^(3/4)*(1-x)^(3/4)/(e*x)^(5/2)
```

Maxima [A] time = 1.42236, size = 36, normalized size = 1.2

$$\frac{2\left(x^{3}-x\right)}{3\,e^{\frac{5}{2}}(x+1)^{\frac{1}{4}}x^{\frac{5}{2}}(-x+1)^{\frac{1}{4}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((e*x)^(5/2)*(x + 1)^(1/4)*(-x + 1)^(1/4)),x, algorithm="maxima")
```

```
[Out] 2/3*(x^3 - x)/(e^(5/2)*(x + 1)^(1/4)*x^(5/2)*(-x + 1)^(1/4))
```

Fricas [A] time = 0.217819, size = 41, normalized size = 1.37

$$\frac{2\left(x^{2}-1\right)}{3\,\sqrt{ex}e^{2}(x+1)^{\frac{1}{4}}x(-x+1)^{\frac{1}{4}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((e*x)^(5/2)*(x + 1)^(1/4)*(-x + 1)^(1/4)),x, algorithm="fricas")
```

```
[Out] 2/3*(x^2 - 1)/(sqrt(e*x)*e^2*(x + 1)^(1/4)*x*(-x + 1)^(1/4))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(1-x)**(1/4)/(e*x)**(5/2)/(1+x)**(1/4),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((e*x)^(5/2)*(x + 1)^(1/4)*(-x + 1)^(1/4)),x, algorithm="giac")
```

```
[Out] Timed out
```

3.899 $\int \frac{1}{\sqrt[4]{1-x}(ex)^{9/2}\sqrt[4]{1+x}}\,dx$

Optimal. Leaf size=51

$$\frac{8\left(1-x^2\right)^{7/4}}{21e(ex)^{7/2}}-\frac{2\left(1-x^2\right)^{3/4}}{3e(ex)^{7/2}}$$

```
[Out] (-2*(1 - x^2)^(3/4))/(3*e*(e*x)^(7/2)) + (8*(1 - x^2)^(7/4))/(21*
e*(e*x)^(7/2))
```

Rubi [A] time = 0.0644011, antiderivative size = 51, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.125$

$$\frac{8\left(1-x^2\right)^{7/4}}{21e(ex)^{7/2}}-\frac{2\left(1-x^2\right)^{3/4}}{3e(ex)^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - x)^(1/4)*(e*x)^(9/2)*(1 + x)^(1/4)),x]
```

```
[Out] (-2*(1 - x^2)^(3/4))/(3*e*(e*x)^(7/2)) + (8*(1 - x^2)^(7/4))/(21*
e*(e*x)^(7/2))
```

Rubi in Sympy [A] time = 7.4369, size = 39, normalized size = 0.76

$$\frac{8\left(-x^2+1\right)^{\frac{7}{4}}}{21e\,(ex)^{\frac{7}{2}}}-\frac{2\left(-x^2+1\right)^{\frac{3}{4}}}{3e\,(ex)^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-x)**(1/4)/(e*x)**(9/2)/(1+x)**(1/4),x)
```

```
[Out] 8*(-x**2 + 1)**(7/4)/(21*e*(e*x)**(7/2)) - 2*(-x**2 + 1)**(3/4)/(
3*e*(e*x)**(7/2))
```

Mathematica [A] time = 0.0233888, size = 35, normalized size = 0.69

$$-\frac{2\left(1-x^2\right)^{3/4}\left(4x^2+3\right)\sqrt{ex}}{21e^5x^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - x)^(1/4)*(e*x)^(9/2)*(1 + x)^(1/4)),x]
```

```
[Out] (-2*Sqrt[e*x]*(1 - x^2)^(3/4)*(3 + 4*x^2))/(21*e^5*x^4)
```

Maple [A] time = 0.007, size = 28, normalized size = 0.6

$$-\frac{2\,x\left(4\,x^2+3\right)}{21}(1+x)^{\frac{3}{4}}(1-x)^{\frac{3}{4}}(ex)^{-\frac{9}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-x)^(1/4)/(e*x)^(9/2)/(1+x)^(1/4),x)
```

```
[Out] -2/21*x*(1+x)^(3/4)*(4*x^2+3)*(1-x)^(3/4)/(e*x)^(9/2)
```

Maxima [A] time = 1.42587, size = 46, normalized size = 0.9

$$\frac{2\left(4x^5 - x^3 - 3x\right)}{21\, e^{\frac{9}{2}}(x+1)^{\frac{1}{4}} x^{\frac{9}{2}}(-x+1)^{\frac{1}{4}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((e*x)^(9/2)*(x + 1)^(1/4)*(-x + 1)^(1/4)),x, algorithm="maxima")
```

```
[Out] 2/21*(4*x^5 - x^3 - 3*x)/(e^(9/2)*(x + 1)^(1/4)*x^(9/2)*(-x + 1)^
(1/4))
```

Fricas [A] time = 0.212544, size = 50, normalized size = 0.98

$$\frac{2\left(4x^4 - x^2 - 3\right)}{21\sqrt{ex}e^4(x+1)^{\frac{1}{4}} x^3(-x+1)^{\frac{1}{4}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((e*x)^(9/2)*(x + 1)^(1/4)*(-x + 1)^(1/4)),x, algorithm="fricas")
```

```
[Out] 2/21*(4*x^4 - x^2 - 3)/(sqrt(e*x)*e^4*(x + 1)^(1/4)*x^3*(-x + 1)^
(1/4))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-x)**(1/4)/(e*x)**(9/2)/(1+x)**(1/4),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((e*x)^(9/2)*(x + 1)^(1/4)*(-x + 1)^(1/4)),x, algorithm="giac")
```

```
[Out] Timed out
```

3.900 $\int \frac{1}{\sqrt[4]{1-x}(ex)^{13/2}\sqrt[4]{1+x}}\,dx$

Optimal. Leaf size=76

$$-\frac{64\left(1-x^2\right)^{11/4}}{231e(ex)^{11/2}}+\frac{16\left(1-x^2\right)^{7/4}}{21e(ex)^{11/2}}-\frac{2\left(1-x^2\right)^{3/4}}{3e(ex)^{11/2}}$$

```
[Out] (-2*(1 - x^2)^(3/4))/(3*e*(e*x)^(11/2)) + (16*(1 - x^2)^(7/4))/(2
1*e*(e*x)^(11/2)) - (64*(1 - x^2)^(11/4))/(231*e*(e*x)^(11/2))
```

Rubi [A] time = 0.0845373, antiderivative size = 76, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.125$

$$-\frac{64\left(1-x^2\right)^{11/4}}{231e(ex)^{11/2}}+\frac{16\left(1-x^2\right)^{7/4}}{21e(ex)^{11/2}}-\frac{2\left(1-x^2\right)^{3/4}}{3e(ex)^{11/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - x)^(1/4)*(e*x)^(13/2)*(1 + x)^(1/4)),x]
```

```
[Out] (-2*(1 - x^2)^(3/4))/(3*e*(e*x)^(11/2)) + (16*(1 - x^2)^(7/4))/(2
1*e*(e*x)^(11/2)) - (64*(1 - x^2)^(11/4))/(231*e*(e*x)^(11/2))
```

Rubi in Sympy [A] time = 9.96972, size = 60, normalized size = 0.79

$$-\frac{64\left(-x^2+1\right)^{\frac{11}{4}}}{231e\,(ex)^{\frac{11}{2}}}+\frac{16\left(-x^2+1\right)^{\frac{7}{4}}}{21e\,(ex)^{\frac{11}{2}}}-\frac{2\left(-x^2+1\right)^{\frac{3}{4}}}{3e\,(ex)^{\frac{11}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-x)**(1/4)/(e*x)**(13/2)/(1+x)**(1/4),x)
```

```
[Out] -64*(-x**2 + 1)**(11/4)/(231*e*(e*x)**(11/2)) + 16*(-x**2 + 1)**(
7/4)/(21*e*(e*x)**(11/2)) - 2*(-x**2 + 1)**(3/4)/(3*e*(e*x)**(11/
2))
```

Mathematica [A] time = 0.0258965, size = 40, normalized size = 0.53

$$-\frac{2\left(1-x^2\right)^{3/4}\left(32x^4+24x^2+21\right)\sqrt{ex}}{231e^7x^6}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - x)^(1/4)*(e*x)^(13/2)*(1 + x)^(1/4)),x]
```

```
[Out] (-2*Sqrt[e*x]*(1 - x^2)^(3/4)*(21 + 24*x^2 + 32*x^4))/(231*e^7*x^
6)
```

Maple [A] time = 0.006, size = 33, normalized size = 0.4

$$-\frac{2\,x\left(32\,x^4+24\,x^2+21\right)}{231}(1+x)^{\frac{3}{4}}(1-x)^{\frac{3}{4}}(ex)^{-\frac{13}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-x)^(1/4)/(e*x)^(13/2)/(1+x)^(1/4),x)
```

```
[Out] -2/231*x*(1+x)^(3/4)*(32*x^4+24*x^2+21)*(1-x)^(3/4)/(e*x)^(13/2)
```

Maxima [A] time = 1.42837, size = 53, normalized size = 0.7

$$\frac{2\,\left(32\,x^{7}-8\,x^{5}-3\,x^{3}-21\,x\right)}{231\,e^{\frac{13}{2}}\left(x+1\right)^{\frac{1}{4}}x^{\frac{13}{2}}\left(-x+1\right)^{\frac{1}{4}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((e*x)^(13/2)*(x + 1)^(1/4)*(-x + 1)^(1/4)),x, algorithm="maxima")
```

```
[Out] 2/231*(32*x^7 - 8*x^5 - 3*x^3 - 21*x)/(e^(13/2)*(x + 1)^(1/4)*x^(
13/2)*(-x + 1)^(1/4))
```

Fricas [A] time = 0.221371, size = 57, normalized size = 0.75

$$\frac{2\,\left(32\,x^{6}-8\,x^{4}-3\,x^{2}-21\right)}{231\,\sqrt{ex}e^{6}(x+1)^{\frac{1}{4}}x^{5}(-x+1)^{\frac{1}{4}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((e*x)^(13/2)*(x + 1)^(1/4)*(-x + 1)^(1/4)),x, algorithm="fricas")
```

```
[Out] 2/231*(32*x^6 - 8*x^4 - 3*x^2 - 21)/(sqrt(e*x)*e^6*(x + 1)^(1/4)*
x^5*(-x + 1)^(1/4))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-x)**(1/4)/(e*x)**(13/2)/(1+x)**(1/4),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((e*x)^(13/2)*(x + 1)^(1/4)*(-x + 1)^(1/4)),x, algorithm="giac")
```

```
[Out] Timed out
```

3.901 $\int \frac{(ex)^{5/2}}{\sqrt[4]{1-x}\sqrt[4]{1+x}}\,dx$

Optimal. Leaf size=93

$$-\frac{e^3\left(1-x^2\right)^{3/4}}{2\sqrt{ex}}+\frac{e^2\sqrt[4]{1-\frac{1}{x^2}}\sqrt{ex}E\left(\frac{1}{2}\csc^{-1}(x)\middle|2\right)}{2\sqrt[4]{1-x^2}}-\frac{1}{3}e\left(1-x^2\right)^{3/4}(ex)^{3/2}$$

```
[Out] -(e^3*(1 - x^2)^(3/4))/(2*Sqrt[e*x]) - (e*(e*x)^(3/2)*(1 - x^2)^(
3/4))/3 + (e^2*(1 - x^(-2))^(1/4)*Sqrt[e*x]*EllipticE[ArcCsc[x]/2
, 2])/(2*(1 - x^2)^(1/4))
```

Rubi [A] time = 0.108526, antiderivative size = 93, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.25$

$$-\frac{e^3\left(1-x^2\right)^{3/4}}{2\sqrt{ex}}+\frac{e^2\sqrt[4]{1-\frac{1}{x^2}}\sqrt{ex}E\left(\frac{1}{2}\csc^{-1}(x)\middle|2\right)}{2\sqrt[4]{1-x^2}}-\frac{1}{3}e\left(1-x^2\right)^{3/4}(ex)^{3/2}$$

Antiderivative was successfully verified.

```
[In]  Int[(e*x)^(5/2)/((1 - x)^(1/4)*(1 + x)^(1/4)),x]
```

```
[Out] -(e^3*(1 - x^2)^(3/4))/(2*Sqrt[e*x]) - (e*(e*x)^(3/2)*(1 - x^2)^(
3/4))/3 + (e^2*(1 - x^(-2))^(1/4)*Sqrt[e*x]*EllipticE[ArcCsc[x]/2
, 2])/(2*(1 - x^2)^(1/4))
```

Rubi in Sympy [A] time = 12.297, size = 76, normalized size = 0.82

$$-\frac{e^3\left(-x^2+1\right)^{\frac{3}{4}}}{2\sqrt{ex}}+\frac{e^2\sqrt{ex}\sqrt[4]{1-\frac{1}{x^2}}E\left(\frac{\operatorname{asin}\left(\frac{1}{x}\right)}{2}\middle|2\right)}{2\sqrt[4]{-x^2+1}}-\frac{e(ex)^{\frac{3}{2}}\left(-x^2+1\right)^{\frac{3}{4}}}{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((e*x)**(5/2)/(1-x)**(1/4)/(1+x)**(1/4),x)
```

```
[Out] -e**3*(-x**2 + 1)**(3/4)/(2*sqrt(e*x)) + e**2*sqrt(e*x)*(1 - 1/x*
*2)**(1/4)*elliptic_e(asin(1/x)/2, 2)/(2*(-x**2 + 1)**(1/4)) - e*
(e*x)**(3/2)*(-x**2 + 1)**(3/4)/3
```

Mathematica [C] time = 0.0307382, size = 39, normalized size = 0.42

$$-\frac{1}{3}e(ex)^{3/2}\left(\left(1-x^2\right)^{3/4}-{}_2F_1\left(\frac{1}{4},\frac{3}{4};\frac{7}{4};x^2\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(e*x)^(5/2)/((1 - x)^(1/4)*(1 + x)^(1/4)),x]
```

```
[Out] -(e*(e*x)^(3/2)*((1 - x^2)^(3/4) - Hypergeometric2F1[1/4, 3/4, 7/
4, x^2]))/3
```

Maple [F] time = 0.069, size = 0, normalized size = 0.

$$\int 1\,(ex)^{\frac{5}{2}}\frac{1}{\sqrt[4]{1-x}}\frac{1}{\sqrt[4]{1+x}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((e*x)^(5/2)/(1-x)^(1/4)/(1+x)^(1/4),x)
```

```
[Out] int((e*x)^(5/2)/(1-x)^(1/4)/(1+x)^(1/4),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(ex)^{\frac{5}{2}}}{(x+1)^{\frac{1}{4}}(-x+1)^{\frac{1}{4}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x)^(5/2)/((x + 1)^(1/4)*(-x + 1)^(1/4)),x, algorithm="maxima")
```

```
[Out] integrate((e*x)^(5/2)/((x + 1)^(1/4)*(-x + 1)^(1/4)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{ex}e^{2}x^{2}}{(x+1)^{\frac{1}{4}}(-x+1)^{\frac{1}{4}}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x)^(5/2)/((x + 1)^(1/4)*(-x + 1)^(1/4)),x, algorithm="fricas")
```

```
[Out] integral(sqrt(e*x)*e^2*x^2/((x + 1)^(1/4)*(-x + 1)^(1/4)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((e*x)**(5/2)/(1-x)**(1/4)/(1+x)**(1/4),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e*x)^(5/2)/((x + 1)^(1/4)*(-x + 1)^(1/4)),x, algorithm="giac")
```

```
[Out] Timed out
```

3.902 $\int \frac{\sqrt{ex}}{\sqrt[4]{1-x}\sqrt[4]{1+x}}\,dx$

Optimal. Leaf size=60

$$\frac{\sqrt[4]{1-\frac{1}{x^2}}\sqrt{ex}E\left(\frac{1}{2}\csc^{-1}(x)\middle|2\right)}{\sqrt[4]{1-x^2}}-\frac{e\left(1-x^2\right)^{3/4}}{\sqrt{ex}}$$

```
[Out] -((e*(1 - x^2)^(3/4))/Sqrt[e*x]) + ((1 - x^(-2))^(1/4)*Sqrt[e*x]*
EllipticE[ArcCsc[x]/2, 2])/(1 - x^2)^(1/4)
```

Rubi [A] time = 0.0859836, antiderivative size = 60, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{\sqrt[4]{1-\frac{1}{x^2}}\sqrt{ex}E\left(\frac{1}{2}\csc^{-1}(x)\middle|2\right)}{\sqrt[4]{1-x^2}}-\frac{e\left(1-x^2\right)^{3/4}}{\sqrt{ex}}$$

Antiderivative was successfully verified.

```
[In] Int[Sqrt[e*x]/((1 - x)^(1/4)*(1 + x)^(1/4)),x]
```

```
[Out] -((e*(1 - x^2)^(3/4))/Sqrt[e*x]) + ((1 - x^(-2))^(1/4)*Sqrt[e*x]*
EllipticE[ArcCsc[x]/2, 2])/(1 - x^2)^(1/4)
```

Rubi in Sympy [A] time = 9.53554, size = 49, normalized size = 0.82

$$-\frac{e\left(-x^2+1\right)^{\frac{3}{4}}}{\sqrt{ex}}+\frac{\sqrt{ex}\sqrt[4]{1-\frac{1}{x^2}}E\left(\frac{\operatorname{asin}\left(\frac{1}{x}\right)}{2}\middle|2\right)}{\sqrt[4]{-x^2+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((e*x)**(1/2)/(1-x)**(1/4)/(1+x)**(1/4),x)
```

```
[Out] -e*(-x**2 + 1)**(3/4)/sqrt(e*x) + sqrt(e*x)*(1 - 1/x**2)**(1/4)*e
lliptic_e(asin(1/x)/2, 2)/(-x**2 + 1)**(1/4)
```

Mathematica [C] time = 0.0135497, size = 25, normalized size = 0.42

$$\frac{2}{3}x\sqrt{ex}\,{}_2F_1\left(\frac{1}{4},\frac{3}{4};\frac{7}{4};x^2\right)$$

Antiderivative was successfully verified.

```
[In] Integrate[Sqrt[e*x]/((1 - x)^(1/4)*(1 + x)^(1/4)),x]
```

```
[Out] (2*x*Sqrt[e*x]*Hypergeometric2F1[1/4, 3/4, 7/4, x^2])/3
```

Maple [F] time = 0.059, size = 0, normalized size = 0.

$$\int 1\sqrt{ex}\frac{1}{\sqrt[4]{1-x}}\frac{1}{\sqrt[4]{1+x}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((e*x)^(1/2)/(1-x)^(1/4)/(1+x)^(1/4),x)
```

```
[Out] int((e*x)^(1/2)/(1-x)^(1/4)/(1+x)^(1/4),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{ex}}{(x+1)^{\frac{1}{4}}(-x+1)^{\frac{1}{4}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(e*x)/((x + 1)^(1/4)*(-x + 1)^(1/4)),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(e*x)/((x + 1)^(1/4)*(-x + 1)^(1/4)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\sqrt{ex}}{(x+1)^{\frac{1}{4}}(-x+1)^{\frac{1}{4}}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(e*x)/((x + 1)^(1/4)*(-x + 1)^(1/4)),x, algorithm="fricas")
```

```
[Out] integral(sqrt(e*x)/((x + 1)^(1/4)*(-x + 1)^(1/4)), x)
```

Sympy [A] time = 28.8983, size = 105, normalized size = 1.75

$$\frac{i\sqrt{e}G_{6,6}^{6,2}\left(\begin{matrix} -\frac{1}{8}, \frac{3}{8} & 0, \frac{1}{4}, \frac{1}{2}, 1 \\ -\frac{1}{2}, -\frac{1}{8}, 0, \frac{3}{8}, \frac{1}{2}, 0 & \end{matrix} \middle| {\frac{e^{-2i\pi}}{x^{2}}} \right)e^{\frac{i\pi}{4}}}{4\pi\,\Gamma\left(\frac{1}{4}\right)} - \frac{\sqrt{e}G_{6,6}^{2,6}\left(\begin{matrix} -\frac{3}{4}, -\frac{5}{8}, -\frac{1}{4}, -\frac{1}{8}, \frac{1}{4}, 1 & \\ -\frac{5}{8}, -\frac{1}{8} & -\frac{3}{4}, -\frac{1}{2}, -\frac{1}{4}, 0 \end{matrix} \middle| {\frac{1}{x^{2}}} \right)}{4\pi\,\Gamma\left(\frac{1}{4}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((e*x)**(1/2)/(1-x)**(1/4)/(1+x)**(1/4),x)
```

```
[Out] I*sqrt(e)*meijerg(((-1/8, 3/8), (0, 1/4, 1/2, 1)), ((-1/2, -1/8,
0, 3/8, 1/2, 0), ()), exp_polar(-2*I*pi)/x**2)*exp(I*pi/4)/(4*pi*
gamma(1/4)) - sqrt(e)*meijerg(((-3/4, -5/8, -1/4, -1/8, 1/4, 1),
()), ((-5/8, -1/8), (-3/4, -1/2, -1/4, 0)), x**(-2))/(4*pi*gamma(
1/4))
```

GIAC/XCAS [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(e*x)/((x + 1)^(1/4)*(-x + 1)^(1/4)),x, algorithm="giac")
```

```
[Out] Timed out
```

3.903 $\int \frac{1}{\sqrt[4]{1-x}(ex)^{3/2}\sqrt[4]{1+x}}\,dx$

Optimal. Leaf size=42

$$-\frac{2\sqrt[4]{1-\frac{1}{x^2}}\sqrt{ex}E\left(\frac{1}{2}\csc^{-1}(x)\middle|2\right)}{e^2\sqrt[4]{1-x^2}}$$

```
[Out] (-2*(1 - x^(-2))^(1/4)*Sqrt[e*x]*EllipticE[ArcCsc[x]/2, 2])/(e^2*
(1 - x^2)^(1/4))
```

Rubi [A] time = 0.0630773, antiderivative size = 42, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$-\frac{2\sqrt[4]{1-\frac{1}{x^2}}\sqrt{ex}E\left(\frac{1}{2}\csc^{-1}(x)\middle|2\right)}{e^2\sqrt[4]{1-x^2}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - x)^(1/4)*(e*x)^(3/2)*(1 + x)^(1/4)),x]
```

```
[Out] (-2*(1 - x^(-2))^(1/4)*Sqrt[e*x]*EllipticE[ArcCsc[x]/2, 2])/(e^2*
(1 - x^2)^(1/4))
```

Rubi in Sympy [A] time = 7.56291, size = 39, normalized size = 0.93

$$-\frac{2\sqrt{ex}\sqrt[4]{1-\frac{1}{x^2}}E\left(\frac{\operatorname{asin}\left(\frac{1}{x}\right)}{2}\middle|2\right)}{e^2\sqrt[4]{-x^2+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-x)**(1/4)/(e*x)**(3/2)/(1+x)**(1/4),x)
```

```
[Out] -2*sqrt(e*x)*(1 - 1/x**2)**(1/4)*elliptic_e(asin(1/x)/2, 2)/(e**2
*(-x**2 + 1)**(1/4))
```

Mathematica [C] time = 0.0279611, size = 44, normalized size = 1.05

$$-\frac{2x\left(2x^2\,{}_2F_1\left(\frac{1}{4},\frac{3}{4};\frac{7}{4};x^2\right)+3\left(1-x^2\right)^{3/4}\right)}{3(ex)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - x)^(1/4)*(e*x)^(3/2)*(1 + x)^(1/4)),x]
```

```
[Out] (-2*x*(3*(1 - x^2)^(3/4) + 2*x^2*Hypergeometric2F1[1/4, 3/4, 7/4,
 x^2]))/(3*(e*x)^(3/2))
```

Maple [F] time = 0.066, size = 0, normalized size = 0.

$$\int 1\frac{1}{\sqrt[4]{1-x}}(ex)^{-\frac{3}{2}}\frac{1}{\sqrt[4]{1+x}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-x)^(1/4)/(e*x)^(3/2)/(1+x)^(1/4),x)
```

```
[Out] int(1/(1-x)^(1/4)/(e*x)^(3/2)/(1+x)^(1/4),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(ex)^{\frac{3}{2}}(x+1)^{\frac{1}{4}}(-x+1)^{\frac{1}{4}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((e*x)^(3/2)*(x + 1)^(1/4)*(-x + 1)^(1/4)),x, algorithm="maxima")
```

```
[Out] integrate(1/((e*x)^(3/2)*(x + 1)^(1/4)*(-x + 1)^(1/4)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{\sqrt{ex}e(x+1)^{\frac{1}{4}}x(-x+1)^{\frac{1}{4}}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((e*x)^(3/2)*(x + 1)^(1/4)*(-x + 1)^(1/4)),x, algorithm="fricas")
```

```
[Out] integral(1/(sqrt(e*x)*e*(x + 1)^(1/4)*x*(-x + 1)^(1/4)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-x)**(1/4)/(e*x)**(3/2)/(1+x)**(1/4),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((e*x)^(3/2)*(x + 1)^(1/4)*(-x + 1)^(1/4)),x, algorithm="giac")
```

```
[Out] Timed out
```

3.904 $\int \frac{1}{\sqrt[4]{1-x}(ex)^{7/2}\sqrt[4]{1+x}}\,dx$

Optimal. Leaf size=70

$$-\frac{4\sqrt[4]{1-\frac{1}{x^2}}\sqrt{ex}E\left(\frac{1}{2}\csc^{-1}(x)\middle|2\right)}{5e^4\sqrt[4]{1-x^2}}-\frac{2\left(1-x^2\right)^{3/4}}{5e(ex)^{5/2}}$$

```
[Out] (-2*(1 - x^2)^(3/4))/(5*e*(e*x)^(5/2)) - (4*(1 - x^(-2))^(1/4)*Sq
rt[e*x]*EllipticE[ArcCsc[x]/2, 2])/(5*e^4*(1 - x^2)^(1/4))
```

Rubi [A] time = 0.0872142, antiderivative size = 70, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.208$

$$-\frac{4\sqrt[4]{1-\frac{1}{x^2}}\sqrt{ex}E\left(\frac{1}{2}\csc^{-1}(x)\middle|2\right)}{5e^4\sqrt[4]{1-x^2}}-\frac{2\left(1-x^2\right)^{3/4}}{5e(ex)^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - x)^(1/4)*(e*x)^(7/2)*(1 + x)^(1/4)),x]
```

```
[Out] (-2*(1 - x^2)^(3/4))/(5*e*(e*x)^(5/2)) - (4*(1 - x^(-2))^(1/4)*Sq
rt[e*x]*EllipticE[ArcCsc[x]/2, 2])/(5*e^4*(1 - x^2)^(1/4))
```

Rubi in Sympy [A] time = 9.83284, size = 61, normalized size = 0.87

$$-\frac{2\left(-x^2+1\right)^{\frac{3}{4}}}{5e\left(ex\right)^{\frac{5}{2}}}-\frac{4\sqrt{ex}\sqrt[4]{1-\frac{1}{x^2}}E\left(\frac{\operatorname{asin}\left(\frac{1}{x}\right)}{2}\middle|2\right)}{5e^4\sqrt[4]{-x^2+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-x)**(1/4)/(e*x)**(7/2)/(1+x)**(1/4),x)
```

```
[Out] -2*(-x**2 + 1)**(3/4)/(5*e*(e*x)**(5/2)) - 4*sqrt(e*x)*(1 - 1/x**
2)**(1/4)*elliptic_e(asin(1/x)/2, 2)/(5*e**4*(-x**2 + 1)**(1/4))
```

Mathematica [C] time = 0.0507474, size = 51, normalized size = 0.73

$$\frac{x\left(-8x^4\,{}_2F_1\left(\frac{1}{4},\frac{3}{4};\frac{7}{4};x^2\right)-6\left(1-x^2\right)^{3/4}\left(2x^2+1\right)\right)}{15(ex)^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - x)^(1/4)*(e*x)^(7/2)*(1 + x)^(1/4)),x]
```

```
[Out] (x*(-6*(1 - x^2)^(3/4)*(1 + 2*x^2) - 8*x^4*Hypergeometric2F1[1/4,
 3/4, 7/4, x^2]))/(15*(e*x)^(7/2))
```

Maple [F] time = 0.069, size = 0, normalized size = 0.

$$\int 1\frac{1}{\sqrt[4]{1-x}}\left(ex\right)^{-\frac{7}{2}}\frac{1}{\sqrt[4]{1+x}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-x)^(1/4)/(e*x)^(7/2)/(1+x)^(1/4),x)
```

```
[Out] int(1/(1-x)^(1/4)/(e*x)^(7/2)/(1+x)^(1/4),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(ex)^{\frac{7}{2}}(x+1)^{\frac{1}{4}}(-x+1)^{\frac{1}{4}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((e*x)^(7/2)*(x + 1)^(1/4)*(-x + 1)^(1/4)),x, algorithm="maxima")
```

```
[Out] integrate(1/((e*x)^(7/2)*(x + 1)^(1/4)*(-x + 1)^(1/4)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{1}{\sqrt{ex}e^{3}(x+1)^{\frac{1}{4}}x^{3}(-x+1)^{\frac{1}{4}}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((e*x)^(7/2)*(x + 1)^(1/4)*(-x + 1)^(1/4)),x, algorithm="fricas")
```

```
[Out] integral(1/(sqrt(e*x)*e^3*(x + 1)^(1/4)*x^3*(-x + 1)^(1/4)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-x)**(1/4)/(e*x)**(7/2)/(1+x)**(1/4),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((e*x)^(7/2)*(x + 1)^(1/4)*(-x + 1)^(1/4)),x, algorithm="giac")
```

```
[Out] Timed out
```

3.905 $\int \frac{1}{\sqrt[4]{1-x}(ex)^{11/2}\sqrt[4]{1+x}}\,dx$

Optimal. Leaf size=95

$$-\frac{8\sqrt[4]{1-\frac{1}{x^2}}\sqrt{ex}E\left(\frac{1}{2}\csc^{-1}(x)\middle|2\right)}{15e^6\sqrt[4]{1-x^2}}-\frac{4\left(1-x^2\right)^{3/4}}{15e^3(ex)^{5/2}}-\frac{2\left(1-x^2\right)^{3/4}}{9e(ex)^{9/2}}$$

```
[Out] (-2*(1 - x^2)^(3/4))/(9*e*(e*x)^(9/2)) - (4*(1 - x^2)^(3/4))/(15*
e^3*(e*x)^(5/2)) - (8*(1 - x^(-2))^(1/4)*Sqrt[e*x]*EllipticE[ArcC
sc[x]/2, 2])/(15*e^6*(1 - x^2)^(1/4))
```

Rubi [A] time = 0.111424, antiderivative size = 95, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.208$

$$-\frac{8\sqrt[4]{1-\frac{1}{x^2}}\sqrt{ex}E\left(\frac{1}{2}\csc^{-1}(x)\middle|2\right)}{15e^6\sqrt[4]{1-x^2}}-\frac{4\left(1-x^2\right)^{3/4}}{15e^3(ex)^{5/2}}-\frac{2\left(1-x^2\right)^{3/4}}{9e(ex)^{9/2}}$$

Antiderivative was successfully verified.

```
[In] Int[1/((1 - x)^(1/4)*(e*x)^(11/2)*(1 + x)^(1/4)),x]
```

```
[Out] (-2*(1 - x^2)^(3/4))/(9*e*(e*x)^(9/2)) - (4*(1 - x^2)^(3/4))/(15*
e^3*(e*x)^(5/2)) - (8*(1 - x^(-2))^(1/4)*Sqrt[e*x]*EllipticE[ArcC
sc[x]/2, 2])/(15*e^6*(1 - x^2)^(1/4))
```

Rubi in Sympy [A] time = 12.7473, size = 83, normalized size = 0.87

$$-\frac{2\left(-x^2+1\right)^{\frac{3}{4}}}{9e\left(ex\right)^{\frac{9}{2}}}-\frac{4\left(-x^2+1\right)^{\frac{3}{4}}}{15e^3\left(ex\right)^{\frac{5}{2}}}-\frac{8\sqrt{ex}\sqrt[4]{1-\frac{1}{x^2}}E\left(\frac{\operatorname{asin}\left(\frac{1}{x}\right)}{2}\middle|2\right)}{15e^6\sqrt[4]{-x^2+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(1/(1-x)**(1/4)/(e*x)**(11/2)/(1+x)**(1/4),x)
```

```
[Out] -2*(-x**2 + 1)**(3/4)/(9*e*(e*x)**(9/2)) - 4*(-x**2 + 1)**(3/4)/(
15*e**3*(e*x)**(5/2)) - 8*sqrt(e*x)*(1 - 1/x**2)**(1/4)*elliptic_
e(asin(1/x)/2, 2)/(15*e**6*(-x**2 + 1)**(1/4))
```

Mathematica [C] time = 0.0476439, size = 60, normalized size = 0.63

$$-\frac{2\sqrt{ex}\left(8x^6\,{}_2F_1\left(\frac{1}{4},\frac{3}{4};\frac{7}{4};x^2\right)+\left(1-x^2\right)^{3/4}\left(12x^4+6x^2+5\right)\right)}{45e^6x^5}$$

Antiderivative was successfully verified.

```
[In] Integrate[1/((1 - x)^(1/4)*(e*x)^(11/2)*(1 + x)^(1/4)),x]
```

```
[Out] (-2*Sqrt[e*x]*((1 - x^2)^(3/4)*(5 + 6*x^2 + 12*x^4) + 8*x^6*Hyper
geometric2F1[1/4, 3/4, 7/4, x^2]))/(45*e^6*x^5)
```

Maple [F] time = 0.072, size = 0, normalized size = 0.

$$\int 1\frac{1}{\sqrt[4]{1-x}}\left(ex\right)^{-\frac{11}{2}}\frac{1}{\sqrt[4]{1+x}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-x)^(1/4)/(e*x)^(11/2)/(1+x)^(1/4),x)
```

```
[Out] int(1/(1-x)^(1/4)/(e*x)^(11/2)/(1+x)^(1/4),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\left(ex\right)^{\frac{11}{2}}\left(x+1\right)^{\frac{1}{4}}\left(-x+1\right)^{\frac{1}{4}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((e*x)^(11/2)*(x + 1)^(1/4)*(-x + 1)^(1/4)),x, algorithm="maxima")
```

```
[Out] integrate(1/((e*x)^(11/2)*(x + 1)^(1/4)*(-x + 1)^(1/4)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{1}{\sqrt{ex}e^{5}\left(x+1\right)^{\frac{1}{4}}x^{5}\left(-x+1\right)^{\frac{1}{4}}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((e*x)^(11/2)*(x + 1)^(1/4)*(-x + 1)^(1/4)),x, algorithm="fricas")
```

```
[Out] integral(1/(sqrt(e*x)*e^5*(x + 1)^(1/4)*x^5*(-x + 1)^(1/4)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-x)**(1/4)/(e*x)**(11/2)/(1+x)**(1/4),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((e*x)^(11/2)*(x + 1)^(1/4)*(-x + 1)^(1/4)),x, algorithm="giac")
```

```
[Out] Timed out
```

3.906 $\int x^2(a+bx)^n(c+dx)\,dx$

Optimal. Leaf size=104

$$\frac{a^2(bc-ad)(a+bx)^{n+1}}{b^4(n+1)}-\frac{a(2bc-3ad)(a+bx)^{n+2}}{b^4(n+2)}+\frac{(bc-3ad)(a+bx)^{n+3}}{b^4(n+3)}+\frac{d(a+bx)^{n+4}}{b^4(n+4)}$$

```
[Out] (a^2*(b*c - a*d)*(a + b*x)^(1 + n))/(b^4*(1 + n)) - (a*(2*b*c - 3
*a*d)*(a + b*x)^(2 + n))/(b^4*(2 + n)) + ((b*c - 3*a*d)*(a + b*x)
^(3 + n))/(b^4*(3 + n)) + (d*(a + b*x)^(4 + n))/(b^4*(4 + n))
```

Rubi [A] time = 0.140222, antiderivative size = 104, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$\frac{a^2(bc-ad)(a+bx)^{n+1}}{b^4(n+1)}-\frac{a(2bc-3ad)(a+bx)^{n+2}}{b^4(n+2)}+\frac{(bc-3ad)(a+bx)^{n+3}}{b^4(n+3)}+\frac{d(a+bx)^{n+4}}{b^4(n+4)}$$

Antiderivative was successfully verified.

```
[In]  Int[x^2*(a + b*x)^n*(c + d*x),x]
```

```
[Out] (a^2*(b*c - a*d)*(a + b*x)^(1 + n))/(b^4*(1 + n)) - (a*(2*b*c - 3
*a*d)*(a + b*x)^(2 + n))/(b^4*(2 + n)) + ((b*c - 3*a*d)*(a + b*x)
^(3 + n))/(b^4*(3 + n)) + (d*(a + b*x)^(4 + n))/(b^4*(4 + n))
```

Rubi in Sympy [A] time = 23.2625, size = 92, normalized size = 0.88

$$-\frac{a^2\left(a+bx\right)^{n+1}\left(ad-bc\right)}{b^4\left(n+1\right)}+\frac{a\left(a+bx\right)^{n+2}\left(3ad-2bc\right)}{b^4\left(n+2\right)}+\frac{d\left(a+bx\right)^{n+4}}{b^4\left(n+4\right)}-\frac{\left(a+bx\right)^{n+3}\left(3ad-bc\right)}{b^4\left(n+3\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(b*x+a)**n*(d*x+c),x)
```

```
[Out] -a**2*(a + b*x)**(n + 1)*(a*d - b*c)/(b**4*(n + 1)) + a*(a + b*x)
**(n + 2)*(3*a*d - 2*b*c)/(b**4*(n + 2)) + d*(a + b*x)**(n + 4)/(
b**4*(n + 4)) - (a + b*x)**(n + 3)*(3*a*d - b*c)/(b**4*(n + 3))
```

Mathematica [A] time = 0.139777, size = 110, normalized size = 1.06

$$\frac{(a+bx)^{n+1}\left(-6a^3d+2a^2b(c(n+4)+3d(n+1)x)-ab^2(n+1)x(2c(n+4)+3d(n+2)x)+b^3\left(n^2+3n+2\right)x^2(c(n+4)+d(n+\right.}{b^4(n+1)(n+2)(n+3)(n+4)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^2*(a + b*x)^n*(c + d*x),x]
```

```
[Out] ((a + b*x)^(1 + n)*(-6*a^3*d + 2*a^2*b*(c*(4 + n) + 3*d*(1 + n)*x
) - a*b^2*(1 + n)*x*(2*c*(4 + n) + 3*d*(2 + n)*x) + b^3*(2 + 3*n
+ n^2)*x^2*(c*(4 + n) + d*(3 + n)*x)))/(b^4*(1 + n)*(2 + n)*(3 +
n)*(4 + n))
```

Maple [B] time = 0.01, size = 222, normalized size = 2.1

$$-\frac{(bx+a)^{1+n}\left(-b^3dn^3x^3-b^3cn^3x^2-6\,b^3dn^2x^3+3\,ab^2dn^2x^2-7\,b^3cn^2x^2-11\,b^3dnx^3+2\,ab^2cn^2x+9\,ab^2dnx^2-14\,b^3cnx^2\right.}{b^4\left(n^4+10\,n^3+35\,n^2+5\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(b*x+a)^n*(d*x+c),x)
```

```
[Out] -(b*x+a)^(1+n)*(-b^3*d*n^3*x^3-b^3*c*n^3*x^2-6*b^3*d*n^2*x^3+3*a*
b^2*d*n^2*x^2-7*b^3*c*n^2*x^2-11*b^3*d*n*x^3+2*a*b^2*c*n^2*x+9*a*
b^2*d*n*x^2-14*b^3*c*n*x^2-6*b^3*d*x^3-6*a^2*b*d*n*x+10*a*b^2*c*n
*x+6*a*b^2*d*x^2-8*b^3*c*x^2-2*a^2*b*c*n-6*a^2*b*d*x+8*a*b^2*c*x+
6*a^3*d-8*a^2*b*c)/b^4/(n^4+10*n^3+35*n^2+50*n+24)
```

Maxima [A] time = 1.36515, size = 232, normalized size = 2.23

$$\frac{\left((n^2+3\,n+2)\,b^3x^3+(n^2+n)\,ab^2x^2-2\,a^2bnx+2\,a^3\right)(bx+a)^n c}{(n^3+6\,n^2+11\,n+6)b^3}+\frac{\left((n^3+6\,n^2+11\,n+6)\,b^4x^4+(n^3+3\,n^2+2\,n)\,ab^3x^3-3\,(n^2+n)\,a^2b^2x^2+6\,a^3bnx-6\,a^4\right)(bx+a)^n d}{(n^4+10\,n^3+35\,n^2+50\,n+24)b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)*(b*x + a)^n*x^2,x, algorithm="maxima")
```

```
[Out] ((n^2 + 3*n + 2)*b^3*x^3 + (n^2 + n)*a*b^2*x^2 - 2*a^2*b*n*x + 2*
a^3)*(b*x + a)^n*c/((n^3 + 6*n^2 + 11*n + 6)*b^3) + ((n^3 + 6*n^2
 + 11*n + 6)*b^4*x^4 + (n^3 + 3*n^2 + 2*n)*a*b^3*x^3 - 3*(n^2 + n
)*a^2*b^2*x^2 + 6*a^3*b*n*x - 6*a^4)*(b*x + a)^n*d/((n^4 + 10*n^3
 + 35*n^2 + 50*n + 24)*b^4)
```

Fricas [A] time = 0.237457, size = 339, normalized size = 3.26

$$\frac{\left(2\,a^3bcn+8\,a^3bc-6\,a^4d+\left(b^4dn^3+6\,b^4dn^2+11\,b^4dn+6\,b^4d\right)x^4+\left(8\,b^4c+\left(b^4c+ab^3d\right)n^3+\left(7\,b^4c+3\,ab^3d\right)n^2+2\,(7\,b^4c\right.}{b^4n^4+10\,b^4n^3+35\,b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)*(b*x + a)^n*x^2,x, algorithm="fricas")
```

```
[Out] (2*a^3*b*c*n + 8*a^3*b*c - 6*a^4*d + (b^4*d*n^3 + 6*b^4*d*n^2 + 1
1*b^4*d*n + 6*b^4*d)*x^4 + (8*b^4*c + (b^4*c + a*b^3*d)*n^3 + (7*
b^4*c + 3*a*b^3*d)*n^2 + 2*(7*b^4*c + a*b^3*d)*n)*x^3 + (a*b^3*c*
n^3 + (5*a*b^3*c - 3*a^2*b^2*d)*n^2 + (4*a*b^3*c - 3*a^2*b^2*d)*n
)*x^2 - 2*(a^2*b^2*c*n^2 + (4*a^2*b^2*c - 3*a^3*b*d)*n)*x)*(b*x +
 a)^n/(b^4*n^4 + 10*b^4*n^3 + 35*b^4*n^2 + 50*b^4*n + 24*b^4)
```

Sympy [A] time = 7.80271, size = 2402, normalized size = 23.1

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(b*x+a)**n*(d*x+c),x)
```

```
[Out] Piecewise((a**n*(c*x**3/3 + d*x**4/4), Eq(b, 0)), (6*a**4*d*log(a
/b + x)/(6*a**4*b**4 + 18*a**3*b**5*x + 18*a**2*b**6*x**2 + 6*a*b
**7*x**3) + 2*a**4*d/(6*a**4*b**4 + 18*a**3*b**5*x + 18*a**2*b**6
*x**2 + 6*a*b**7*x**3) + 18*a**3*b*d*x*log(a/b + x)/(6*a**4*b**4
+ 18*a**3*b**5*x + 18*a**2*b**6*x**2 + 6*a*b**7*x**3) + 18*a**2*b
**2*d*x**2*log(a/b + x)/(6*a**4*b**4 + 18*a**3*b**5*x + 18*a**2*b
**6*x**2 + 6*a*b**7*x**3) - 9*a**2*b**2*d*x**2/(6*a**4*b**4 + 18*
```

```
a**3*b**5*x + 18*a**2*b**6*x**2 + 6*a*b**7*x**3) + 6*a*b**3*d*x**
3*log(a/b + x)/(6*a**4*b**4 + 18*a**3*b**5*x + 18*a**2*b**6*x**2
+ 6*a*b**7*x**3) - 9*a*b**3*d*x**3/(6*a**4*b**4 + 18*a**3*b**5*x
+ 18*a**2*b**6*x**2 + 6*a*b**7*x**3) + 2*b**4*c*x**3/(6*a**4*b**4
 + 18*a**3*b**5*x + 18*a**2*b**6*x**2 + 6*a*b**7*x**3), Eq(n, -4)
), (-6*a**3*d*log(a/b + x)/(2*a**2*b**4 + 4*a*b**5*x + 2*b**6*x**
2) - 3*a**3*d/(2*a**2*b**4 + 4*a*b**5*x + 2*b**6*x**2) + 2*a**2*b
*c*log(a/b + x)/(2*a**2*b**4 + 4*a*b**5*x + 2*b**6*x**2) + a**2*b
*c/(2*a**2*b**4 + 4*a*b**5*x + 2*b**6*x**2) - 12*a**2*b*d*x*log(a
/b + x)/(2*a**2*b**4 + 4*a*b**5*x + 2*b**6*x**2) + 4*a*b**2*c*x*l
og(a/b + x)/(2*a**2*b**4 + 4*a*b**5*x + 2*b**6*x**2) - 6*a*b**2*d
*x**2*log(a/b + x)/(2*a**2*b**4 + 4*a*b**5*x + 2*b**6*x**2) + 6*a
*b**2*d*x**2/(2*a**2*b**4 + 4*a*b**5*x + 2*b**6*x**2) + 2*b**3*c*
x**2*log(a/b + x)/(2*a**2*b**4 + 4*a*b**5*x + 2*b**6*x**2) - 2*b*
*3*c*x**2/(2*a**2*b**4 + 4*a*b**5*x + 2*b**6*x**2) + 2*b**3*d*x**
3/(2*a**2*b**4 + 4*a*b**5*x + 2*b**6*x**2), Eq(n, -3)), (6*a**3*d
*log(a/b + x)/(2*a*b**4 + 2*b**5*x) + 6*a**3*d/(2*a*b**4 + 2*b**5
*x) - 4*a**2*b*c*log(a/b + x)/(2*a*b**4 + 2*b**5*x) - 4*a**2*b*c/
(2*a*b**4 + 2*b**5*x) + 6*a**2*b*d*x*log(a/b + x)/(2*a*b**4 + 2*b
**5*x) - 4*a*b**2*c*x*log(a/b + x)/(2*a*b**4 + 2*b**5*x) - 3*a*b*
*2*d*x**2/(2*a*b**4 + 2*b**5*x) + 2*b**3*c*x**2/(2*a*b**4 + 2*b**
5*x) + b**3*d*x**3/(2*a*b**4 + 2*b**5*x), Eq(n, -2)), (-a**3*d*lo
g(a/b + x)/b**4 + a**2*c*log(a/b + x)/b**3 + a**2*d*x/b**3 - a*c*
x/b**2 - a*d*x**2/(2*b**2) + c*x**2/(2*b) + d*x**3/(3*b), Eq(n, -
1)), (-6*a**4*d*(a + b*x)**n/(b**4*n**4 + 10*b**4*n**3 + 35*b**4*
n**2 + 50*b**4*n + 24*b**4) + 2*a**3*b*c*n*(a + b*x)**n/(b**4*n**
4 + 10*b**4*n**3 + 35*b**4*n**2 + 50*b**4*n + 24*b**4) + 8*a**3*b
*c*(a + b*x)**n/(b**4*n**4 + 10*b**4*n**3 + 35*b**4*n**2 + 50*b**
4*n + 24*b**4) + 6*a**3*b*d*n*x*(a + b*x)**n/(b**4*n**4 + 10*b**4
*n**3 + 35*b**4*n**2 + 50*b**4*n + 24*b**4) - 2*a**2*b**2*c*n**2*
x*(a + b*x)**n/(b**4*n**4 + 10*b**4*n**3 + 35*b**4*n**2 + 50*b**4
*n + 24*b**4) - 8*a**2*b**2*c*n*x*(a + b*x)**n/(b**4*n**4 + 10*b*
*4*n**3 + 35*b**4*n**2 + 50*b**4*n + 24*b**4) - 3*a**2*b**2*d*n**
2*x**2*(a + b*x)**n/(b**4*n**4 + 10*b**4*n**3 + 35*b**4*n**2 + 50
*b**4*n + 24*b**4) - 3*a**2*b**2*d*n*x**2*(a + b*x)**n/(b**4*n**4
 + 10*b**4*n**3 + 35*b**4*n**2 + 50*b**4*n + 24*b**4) + a*b**3*c*
n**3*x**2*(a + b*x)**n/(b**4*n**4 + 10*b**4*n**3 + 35*b**4*n**2 +
 50*b**4*n + 24*b**4) + 5*a*b**3*c*n**2*x**2*(a + b*x)**n/(b**4*n
**4 + 10*b**4*n**3 + 35*b**4*n**2 + 50*b**4*n + 24*b**4) + 4*a*b*
*3*c*n*x**2*(a + b*x)**n/(b**4*n**4 + 10*b**4*n**3 + 35*b**4*n**2
 + 50*b**4*n + 24*b**4) + a*b**3*d*n**3*x**3*(a + b*x)**n/(b**4*n
**4 + 10*b**4*n**3 + 35*b**4*n**2 + 50*b**4*n + 24*b**4) + 3*a*b*
*3*d*n**2*x**3*(a + b*x)**n/(b**4*n**4 + 10*b**4*n**3 + 35*b**4*n
**2 + 50*b**4*n + 24*b**4) + 2*a*b**3*d*n*x**3*(a + b*x)**n/(b**4
*n**4 + 10*b**4*n**3 + 35*b**4*n**2 + 50*b**4*n + 24*b**4) + b**4
*c*n**3*x**3*(a + b*x)**n/(b**4*n**4 + 10*b**4*n**3 + 35*b**4*n**
2 + 50*b**4*n + 24*b**4) + 7*b**4*c*n**2*x**3*(a + b*x)**n/(b**4*
n**4 + 10*b**4*n**3 + 35*b**4*n**2 + 50*b**4*n + 24*b**4) + 14*b*
*4*c*n*x**3*(a + b*x)**n/(b**4*n**4 + 10*b**4*n**3 + 35*b**4*n**2
 + 50*b**4*n + 24*b**4) + 8*b**4*c*x**3*(a + b*x)**n/(b**4*n**4 +
 10*b**4*n**3 + 35*b**4*n**2 + 50*b**4*n + 24*b**4) + b**4*d*n**3
*x**4*(a + b*x)**n/(b**4*n**4 + 10*b**4*n**3 + 35*b**4*n**2 + 50*
b**4*n + 24*b**4) + 6*b**4*d*n**2*x**4*(a + b*x)**n/(b**4*n**4 +
10*b**4*n**3 + 35*b**4*n**2 + 50*b**4*n + 24*b**4) + 11*b**4*d*n*
x**4*(a + b*x)**n/(b**4*n**4 + 10*b**4*n**3 + 35*b**4*n**2 + 50*b
**4*n + 24*b**4) + 6*b**4*d*x**4*(a + b*x)**n/(b**4*n**4 + 10*b**
4*n**3 + 35*b**4*n**2 + 50*b**4*n + 24*b**4), True))
```

GIAC/XCAS [A] time = 0.300777, size = 641, normalized size = 6.16

$$\frac{b^4 d n^3 x^4 e^{(n \ln(bx+a))} + b^4 c n^3 x^3 e^{(n \ln(bx+a))} + a b^3 d n^3 x^3 e^{(n \ln(bx+a))} + 6\, b^4 d n^2 x^4 e^{(n \ln(bx+a))} + a b^3 c n^3 x^2 e^{(n \ln(bx+a))} + 7\, b^4 c n^2 x^3 e^{(n \ln}}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)*(b*x + a)^n*x^2,x, algorithm="giac")
```

```
[Out] (b^4*d*n^3*x^4*e^(n*ln(b*x + a)) + b^4*c*n^3*x^3*e^(n*ln(b*x + a)
) + a*b^3*d*n^3*x^3*e^(n*ln(b*x + a)) + 6*b^4*d*n^2*x^4*e^(n*ln(b
*x + a)) + a*b^3*c*n^3*x^2*e^(n*ln(b*x + a)) + 7*b^4*c*n^2*x^3*e^
```

```
(n*ln(b*x + a)) + 3*a*b^3*d*n^2*x^3*e^(n*ln(b*x + a)) + 11*b^4*d*
n*x^4*e^(n*ln(b*x + a)) + 5*a*b^3*c*n^2*x^2*e^(n*ln(b*x + a)) - 3
*a^2*b^2*d*n^2*x^2*e^(n*ln(b*x + a)) + 14*b^4*c*n*x^3*e^(n*ln(b*x
 + a)) + 2*a*b^3*d*n*x^3*e^(n*ln(b*x + a)) + 6*b^4*d*x^4*e^(n*ln(
b*x + a)) - 2*a^2*b^2*c*n^2*x*e^(n*ln(b*x + a)) + 4*a*b^3*c*n*x^2
*e^(n*ln(b*x + a)) - 3*a^2*b^2*d*n*x^2*e^(n*ln(b*x + a)) + 8*b^4*
c*x^3*e^(n*ln(b*x + a)) - 8*a^2*b^2*c*n*x*e^(n*ln(b*x + a)) + 6*a
^3*b*d*n*x*e^(n*ln(b*x + a)) + 2*a^3*b*c*n*e^(n*ln(b*x + a)) + 8*
a^3*b*c*e^(n*ln(b*x + a)) - 6*a^4*d*e^(n*ln(b*x + a)))/(b^4*n^4 +
 10*b^4*n^3 + 35*b^4*n^2 + 50*b^4*n + 24*b^4)
```

3.907 $\int x(a+bx)^n(c+dx)\,dx$

Optimal. Leaf size=74

$$-\frac{a(bc-ad)(a+bx)^{n+1}}{b^3(n+1)}+\frac{(bc-2ad)(a+bx)^{n+2}}{b^3(n+2)}+\frac{d(a+bx)^{n+3}}{b^3(n+3)}$$

```
[Out] -((a*(b*c - a*d)*(a + b*x)^(1 + n))/(b^3*(1 + n))) + ((b*c - 2*a*
d)*(a + b*x)^(2 + n))/(b^3*(2 + n)) + (d*(a + b*x)^(3 + n))/(b^3*
(3 + n))
```

Rubi [A] time = 0.0877288, antiderivative size = 74, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 14, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.071

$$-\frac{a(bc-ad)(a+bx)^{n+1}}{b^3(n+1)}+\frac{(bc-2ad)(a+bx)^{n+2}}{b^3(n+2)}+\frac{d(a+bx)^{n+3}}{b^3(n+3)}$$

Antiderivative was successfully verified.

```
[In]  Int[x*(a + b*x)^n*(c + d*x),x]
```

```
[Out] -((a*(b*c - a*d)*(a + b*x)^(1 + n))/(b^3*(1 + n))) + ((b*c - 2*a*
d)*(a + b*x)^(2 + n))/(b^3*(2 + n)) + (d*(a + b*x)^(3 + n))/(b^3*
(3 + n))
```

Rubi in Sympy [A] time = 15.9591, size = 63, normalized size = 0.85

$$\frac{a\left(a+bx\right)^{n+1}\left(ad-bc\right)}{b^3\left(n+1\right)}+\frac{d\left(a+bx\right)^{n+3}}{b^3\left(n+3\right)}-\frac{\left(a+bx\right)^{n+2}\left(2ad-bc\right)}{b^3\left(n+2\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(b*x+a)**n*(d*x+c),x)
```

```
[Out] a*(a + b*x)**(n + 1)*(a*d - b*c)/(b**3*(n + 1)) + d*(a + b*x)**(n
 + 3)/(b**3*(n + 3)) - (a + b*x)**(n + 2)*(2*a*d - b*c)/(b**3*(n
+ 2))
```

Mathematica [A] time = 0.0713217, size = 72, normalized size = 0.97

$$\frac{(a+bx)^{n+1}\left(2a^2d-ab(c(n+3)+2d(n+1)x)+b^2(n+1)x(c(n+3)+d(n+2)x)\right)}{b^3(n+1)(n+2)(n+3)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x*(a + b*x)^n*(c + d*x),x]
```

```
[Out] ((a + b*x)^(1 + n)*(2*a^2*d - a*b*(c*(3 + n) + 2*d*(1 + n)*x) + b
^2*(1 + n)*x*(c*(3 + n) + d*(2 + n)*x)))/(b^3*(1 + n)*(2 + n)*(3
+ n))
```

Maple [A] time = 0.007, size = 114, normalized size = 1.5

$$\frac{(bx+a)^{1+n}\left(b^2dn^2x^2+b^2cn^2x+3\,b^2dnx^2-2\,abdnx+4\,b^2cnx+2\,dx^2b^2-abcn-2\,abdx+3\,b^2cx+2\,a^2d-3\,abc\right)}{b^3\left(n^3+6\,n^2+11\,n+6\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(b*x+a)^n*(d*x+c),x)
```

```
[Out] (b*x+a)^(1+n)*(b^2*d*n^2*x^2+b^2*c*n^2*x+3*b^2*d*n*x^2-2*a*b*d*n*
x+4*b^2*c*n*x+2*b^2*d*x^2-a*b*c*n-2*a*b*d*x+3*b^2*c*x+2*a^2*d-3*a
*b*c)/b^3/(n^3+6*n^2+11*n+6)
```

Maxima [A] time = 1.36563, size = 153, normalized size = 2.07

$$\frac{\left(b^2(n+1)x^2 + abnx - a^2\right)(bx+a)^n c}{(n^2+3n+2)b^2} + \frac{\left((n^2+3n+2)b^3x^3 + (n^2+n)ab^2x^2 - 2a^2bnx + 2a^3\right)(bx+a)^n d}{(n^3+6n^2+11n+6)b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)*(b*x + a)^n*x,x, algorithm="maxima")
```

```
[Out] (b^2*(n + 1)*x^2 + a*b*n*x - a^2)*(b*x + a)^n*c/((n^2 + 3*n + 2)*
b^2) + ((n^2 + 3*n + 2)*b^3*x^3 + (n^2 + n)*a*b^2*x^2 - 2*a^2*b*n
*x + 2*a^3)*(b*x + a)^n*d/((n^3 + 6*n^2 + 11*n + 6)*b^3)
```

Fricas [A] time = 0.228417, size = 215, normalized size = 2.91

$$-\frac{\left(a^2bcn + 3a^2bc - 2a^3d - \left(b^3dn^2 + 3b^3dn + 2b^3d\right)x^3 - \left(3b^3c + \left(b^3c + ab^2d\right)n^2 + \left(4b^3c + ab^2d\right)n\right)x^2 - \left(ab^2cn^2 + \left(3ab^2\right.\right.\right.}{b^3n^3 + 6b^3n^2 + 11b^3n + 6b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)*(b*x + a)^n*x,x, algorithm="fricas")
```

```
[Out] -(a^2*b*c*n + 3*a^2*b*c - 2*a^3*d - (b^3*d*n^2 + 3*b^3*d*n + 2*b^
3*d)*x^3 - (3*b^3*c + (b^3*c + a*b^2*d)*n^2 + (4*b^3*c + a*b^2*d)
*n)*x^2 - (a*b^2*c*n^2 + (3*a*b^2*c - 2*a^2*b*d)*n)*x)*(b*x + a)^
n/(b^3*n^3 + 6*b^3*n^2 + 11*b^3*n + 6*b^3)
```

Sympy [A] time = 4.62855, size = 1090, normalized size = 14.73

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(b*x+a)**n*(d*x+c),x)
```

```
[Out] Piecewise((a**n*(c*x**2/2 + d*x**3/3), Eq(b, 0)), (2*a**3*d*log(a
/b + x)/(2*a**3*b**3 + 4*a**2*b**4*x + 2*a*b**5*x**2) + a**3*d/(2
*a**3*b**3 + 4*a**2*b**4*x + 2*a*b**5*x**2) + 4*a**2*b*d*x*log(a/
b + x)/(2*a**3*b**3 + 4*a**2*b**4*x + 2*a*b**5*x**2) + 2*a*b**2*d
*x**2*log(a/b + x)/(2*a**3*b**3 + 4*a**2*b**4*x + 2*a*b**5*x**2)
- 2*a*b**2*d*x**2/(2*a**3*b**3 + 4*a**2*b**4*x + 2*a*b**5*x**2) +
 b**3*c*x**2/(2*a**3*b**3 + 4*a**2*b**4*x + 2*a*b**5*x**2), Eq(n,
 -3)), (-2*a**2*d*log(a/b + x)/(a*b**3 + b**4*x) - 2*a**2*d/(a*b*
*3 + b**4*x) + a*b*c*log(a/b + x)/(a*b**3 + b**4*x) + a*b*c/(a*b*
*3 + b**4*x) - 2*a*b*d*x*log(a/b + x)/(a*b**3 + b**4*x) + b**2*c*
x*log(a/b + x)/(a*b**3 + b**4*x) + b**2*d*x**2/(a*b**3 + b**4*x),
 Eq(n, -2)), (a**2*d*log(a/b + x)/b**3 - a*c*log(a/b + x)/b**2 -
a*d*x/b**2 + c*x/b + d*x**2/(2*b), Eq(n, -1)), (2*a**3*d*(a + b*x
)**n/(b**3*n**3 + 6*b**3*n**2 + 11*b**3*n + 6*b**3) - a**2*b*c*n*
(a + b*x)**n/(b**3*n**3 + 6*b**3*n**2 + 11*b**3*n + 6*b**3) - 3*a
**2*b*c*(a + b*x)**n/(b**3*n**3 + 6*b**3*n**2 + 11*b**3*n + 6*b**
```

```
3) - 2*a**2*b*d*n*x*(a + b*x)**n/(b**3*n**3 + 6*b**3*n**2 + 11*b*
*3*n + 6*b**3) + a*b**2*c*n**2*x*(a + b*x)**n/(b**3*n**3 + 6*b**3
*n**2 + 11*b**3*n + 6*b**3) + 3*a*b**2*c*n*x*(a + b*x)**n/(b**3*n
**3 + 6*b**3*n**2 + 11*b**3*n + 6*b**3) + a*b**2*d*n**2*x**2*(a +
 b*x)**n/(b**3*n**3 + 6*b**3*n**2 + 11*b**3*n + 6*b**3) + a*b**2*
d*n*x**2*(a + b*x)**n/(b**3*n**3 + 6*b**3*n**2 + 11*b**3*n + 6*b*
*3) + b**3*c*n**2*x**2*(a + b*x)**n/(b**3*n**3 + 6*b**3*n**2 + 11
*b**3*n + 6*b**3) + 4*b**3*c*n*x**2*(a + b*x)**n/(b**3*n**3 + 6*b
**3*n**2 + 11*b**3*n + 6*b**3) + 3*b**3*c*x**2*(a + b*x)**n/(b**3
*n**3 + 6*b**3*n**2 + 11*b**3*n + 6*b**3) + b**3*d*n**2*x**3*(a +
 b*x)**n/(b**3*n**3 + 6*b**3*n**2 + 11*b**3*n + 6*b**3) + 3*b**3*
d*n*x**3*(a + b*x)**n/(b**3*n**3 + 6*b**3*n**2 + 11*b**3*n + 6*b*
*3) + 2*b**3*d*x**3*(a + b*x)**n/(b**3*n**3 + 6*b**3*n**2 + 11*b*
*3*n + 6*b**3), True))
```

GIAC/XCAS [A] time = 0.237385, size = 389, normalized size = 5.26

$$\frac{b^3dn^2x^3e^{(n\ln(bx+a))} + b^3cn^2x^2e^{(n\ln(bx+a))} + ab^2dn^2x^2e^{(n\ln(bx+a))} + 3\,b^3dnx^3e^{(n\ln(bx+a))} + ab^2cn^2xe^{(n\ln(bx+a))} + 4\,b^3cnx^2e^{(n\ln(bx}}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)*(b*x + a)^n*x,x, algorithm="giac")
```

```
[Out] (b^3*d*n^2*x^3*e^(n*ln(b*x + a)) + b^3*c*n^2*x^2*e^(n*ln(b*x + a)
) + a*b^2*d*n^2*x^2*e^(n*ln(b*x + a)) + 3*b^3*d*n*x^3*e^(n*ln(b*x
 + a)) + a*b^2*c*n^2*x*e^(n*ln(b*x + a)) + 4*b^3*c*n*x^2*e^(n*ln(
b*x + a)) + a*b^2*d*n*x^2*e^(n*ln(b*x + a)) + 2*b^3*d*x^3*e^(n*ln
(b*x + a)) + 3*a*b^2*c*n*x*e^(n*ln(b*x + a)) - 2*a^2*b*d*n*x*e^(n
*ln(b*x + a)) + 3*b^3*c*x^2*e^(n*ln(b*x + a)) - a^2*b*c*n*e^(n*ln
(b*x + a)) - 3*a^2*b*c*e^(n*ln(b*x + a)) + 2*a^3*d*e^(n*ln(b*x +
a)))/(b^3*n^3 + 6*b^3*n^2 + 11*b^3*n + 6*b^3)
```

3.908 $\int (a+bx)^n(c+dx)\,dx$

Optimal. Leaf size=46

$$\frac{(bc-ad)(a+bx)^{n+1}}{b^2(n+1)}+\frac{d(a+bx)^{n+2}}{b^2(n+2)}$$

```
[Out] ((b*c - a*d)*(a + b*x)^(1 + n))/(b^2*(1 + n)) + (d*(a + b*x)^(2 +
 n))/(b^2*(2 + n))
```

Rubi [A] time = 0.0464321, antiderivative size = 46, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 13, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.077

$$\frac{(bc-ad)(a+bx)^{n+1}}{b^2(n+1)}+\frac{d(a+bx)^{n+2}}{b^2(n+2)}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^n*(c + d*x),x]
```

```
[Out] ((b*c - a*d)*(a + b*x)^(1 + n))/(b^2*(1 + n)) + (d*(a + b*x)^(2 +
 n))/(b^2*(2 + n))
```

Rubi in Sympy [A] time = 10.054, size = 37, normalized size = 0.8

$$\frac{d\left(a+bx\right)^{n+2}}{b^2\left(n+2\right)}-\frac{\left(a+bx\right)^{n+1}\left(ad-bc\right)}{b^2\left(n+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**n*(d*x+c),x)
```

```
[Out] d*(a + b*x)**(n + 2)/(b**2*(n + 2)) - (a + b*x)**(n + 1)*(a*d - b
*c)/(b**2*(n + 1))
```

Mathematica [A] time = 0.038749, size = 41, normalized size = 0.89

$$\frac{(a+bx)^{n+1}(-ad+bc(n+2)+bd(n+1)x)}{b^2(n+1)(n+2)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^n*(c + d*x),x]
```

```
[Out] ((a + b*x)^(1 + n)*(-(a*d) + b*c*(2 + n) + b*d*(1 + n)*x))/(b^2*(
1 + n)*(2 + n))
```

Maple [A] time = 0.004, size = 49, normalized size = 1.1

$$-\frac{\left(bx+a\right)^{1+n}\left(-bdnx-bcn-bdx+ad-2\,bc\right)}{b^2\left(n^2+3\,n+2\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^n*(d*x+c),x)
```

```
[Out] -(b*x+a)^(1+n)*(-b*d*n*x-b*c*n-b*d*x+a*d-2*b*c)/b^2/(n^2+3*n+2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)*(b*x + a)^n,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.223474, size = 112, normalized size = 2.43

$$\frac{\left(abcn + 2\,abc - a^2d + \left(b^2dn + b^2d\right)x^2 + \left(2\,b^2c + \left(b^2c + abd\right)n\right)x\right)(bx + a)^n}{b^2n^2 + 3\,b^2n + 2\,b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)*(b*x + a)^n,x, algorithm="fricas")
```

```
[Out] (a*b*c*n + 2*a*b*c - a^2*d + (b^2*d*n + b^2*d)*x^2 + (2*b^2*c + (
b^2*c + a*b*d)*n)*x)*(b*x + a)^n/(b^2*n^2 + 3*b^2*n + 2*b^2)
```

Sympy [A] time = 2.33721, size = 377, normalized size = 8.2

$$\begin{cases} a^n\left(cx + \frac{dx^2}{2}\right) \\ \frac{ad\log\left(\frac{a}{b}+x\right)}{ab^2+b^3x} + \frac{ad}{ab^2+b^3x} - \frac{bc}{ab^2+b^3x} + \frac{bdx\log\left(\frac{a}{b}+x\right)}{ab^2+b^3x} \\ -\frac{ad\log\left(\frac{a}{b}+x\right)}{b^2} + \frac{c\log\left(\frac{a}{b}+x\right)}{b} + \frac{dx}{b} \\ -\frac{a^2d(a+bx)^n}{b^2n^2+3b^2n+2b^2} + \frac{abcn(a+bx)^n}{b^2n^2+3b^2n+2b^2} + \frac{2abc(a+bx)^n}{b^2n^2+3b^2n+2b^2} + \frac{abdnx(a+bx)^n}{b^2n^2+3b^2n+2b^2} + \frac{b^2cnx(a+bx)^n}{b^2n^2+3b^2n+2b^2} + \frac{2b^2cx(a+bx)^n}{b^2n^2+3b^2n+2b^2} + \frac{b^2dnx^2(a+bx)^n}{b^2n^2+3b^2n+2b^2} + \frac{b^2dx^2(a+bx}{b^2n^2+3b^2n+2} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**n*(d*x+c),x)
```

```
[Out] Piecewise((a**n*(c*x + d*x**2/2), Eq(b, 0)), (a*d*log(a/b + x)/(a
*b**2 + b**3*x) + a*d/(a*b**2 + b**3*x) - b*c/(a*b**2 + b**3*x) +
 b*d*x*log(a/b + x)/(a*b**2 + b**3*x), Eq(n, -2)), (-a*d*log(a/b
+ x)/b**2 + c*log(a/b + x)/b + d*x/b, Eq(n, -1)), (-a**2*d*(a + b
*x)**n/(b**2*n**2 + 3*b**2*n + 2*b**2) + a*b*c*n*(a + b*x)**n/(b*
*2*n**2 + 3*b**2*n + 2*b**2) + 2*a*b*c*(a + b*x)**n/(b**2*n**2 +
3*b**2*n + 2*b**2) + a*b*d*n*x*(a + b*x)**n/(b**2*n**2 + 3*b**2*n
 + 2*b**2) + b**2*c*n*x*(a + b*x)**n/(b**2*n**2 + 3*b**2*n + 2*b*
*2) + 2*b**2*c*x*(a + b*x)**n/(b**2*n**2 + 3*b**2*n + 2*b**2) + b
**2*d*n*x**2*(a + b*x)**n/(b**2*n**2 + 3*b**2*n + 2*b**2) + b**2*
d*x**2*(a + b*x)**n/(b**2*n**2 + 3*b**2*n + 2*b**2), True))
```

GIAC/XCAS [A] time = 0.234427, size = 200, normalized size = 4.35

$$\frac{b^2dnx^2e^{(n\ln(bx+a))} + b^2cnxe^{(n\ln(bx+a))} + abdnxe^{(n\ln(bx+a))} + b^2dx^2e^{(n\ln(bx+a))} + abcne^{(n\ln(bx+a))} + 2\,b^2cxe^{(n\ln(bx+a))} + 2\,abce^{(n}}{b^2n^2 + 3\,b^2n + 2\,b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)*(b*x + a)^n,x, algorithm="giac")
```

```
[Out] (b^2*d*n*x^2*e^(n*ln(b*x + a)) + b^2*c*n*x*e^(n*ln(b*x + a)) + a*
b*d*n*x*e^(n*ln(b*x + a)) + b^2*d*x^2*e^(n*ln(b*x + a)) + a*b*c*n
*e^(n*ln(b*x + a)) + 2*b^2*c*x*e^(n*ln(b*x + a)) + 2*a*b*c*e^(n*l
n(b*x + a)) - a^2*d*e^(n*ln(b*x + a)))/(b^2*n^2 + 3*b^2*n + 2*b^2
)
```

3.909 $\int \frac{(a+bx)^n(c+dx)}{x} dx$

Optimal. Leaf size=56

$$\frac{d(a+bx)^{n+1}}{b(n+1)} - \frac{c(a+bx)^{n+1} {}_2F_1\left(1, n+1; n+2; \frac{bx}{a}+1\right)}{a(n+1)}$$

```
[Out] (d*(a + b*x)^(1 + n))/(b*(1 + n)) - (c*(a + b*x)^(1 + n)*Hypergeo
metric2F1[1, 1 + n, 2 + n, 1 + (b*x)/a])/(a*(1 + n))
```

Rubi [A] time = 0.0496364, antiderivative size = 56, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$\frac{d(a+bx)^{n+1}}{b(n+1)} - \frac{c(a+bx)^{n+1} {}_2F_1\left(1, n+1; n+2; \frac{bx}{a}+1\right)}{a(n+1)}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^n*(c + d*x))/x,x]
```

```
[Out] (d*(a + b*x)^(1 + n))/(b*(1 + n)) - (c*(a + b*x)^(1 + n)*Hypergeo
metric2F1[1, 1 + n, 2 + n, 1 + (b*x)/a])/(a*(1 + n))
```

Rubi in Sympy [A] time = 6.34175, size = 41, normalized size = 0.73

$$\frac{d(a+bx)^{n+1}}{b(n+1)} - \frac{c(a+bx)^{n+1} {}_2F_1\left(\begin{matrix} 1, n+1 \\ n+2 \end{matrix}\middle| 1 + \frac{bx}{a}\right)}{a(n+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**n*(d*x+c)/x,x)
```

```
[Out] d*(a + b*x)**(n + 1)/(b*(n + 1)) - c*(a + b*x)**(n + 1)*hyper((1,
 n + 1), (n + 2,), 1 + b*x/a)/(a*(n + 1))
```

Mathematica [A] time = 0.0931202, size = 67, normalized size = 1.2

$$\frac{c(a+bx)^n \left(\frac{a}{bx}+1\right)^{-n} {}_2F_1\left(-n, -n; 1-n; -\frac{a}{bx}\right)}{n} + \frac{d(a+bx)^{n+1}}{b(n+1)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^n*(c + d*x))/x,x]
```

```
[Out] (d*(a + b*x)^(1 + n))/(b*(1 + n)) + (c*(a + b*x)^n*Hypergeometric
2F1[-n, -n, 1 - n, -(a/(b*x))])/(n*(1 + a/(b*x))^n)
```

Maple [F] time = 0.035, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n (dx+c)}{x} dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^n*(d*x+c)/x,x)
```

```
[Out] int((b*x+a)^n*(d*x+c)/x,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)*(b*x + a)^n/x,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(dx+c)(bx+a)^n}{x},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)*(b*x + a)^n/x,x, algorithm="fricas")
```

```
[Out] integral((d*x + c)*(b*x + a)^n/x, x)
```

Sympy [A] time = 7.67598, size = 170, normalized size = 3.04

$$-\frac{b^n cn\left(\frac{a}{b}+x\right)^n\left(1+\frac{bx}{a},1,n+1\right)(n+1)}{(n+2)}-\frac{b^n c\left(\frac{a}{b}+x\right)^n\left(1+\frac{bx}{a},1,n+1\right)(n+1)}{(n+2)}+d\left(\begin{cases}a^n x & \text{for } b=0\\ \frac{\begin{cases}\frac{(a+bx)^{n+1}}{n+1} & \text{for } n\neq -1\\ \log(a+bx) & \text{otherwise}\end{cases}}{b} & \text{otherwise}\end{cases}\right)-\frac{bb^n cnx\left(\frac{a}{b}+x\right)^n\left(1+\frac{bx}{a},1,n+1\right)(n+1)}{a(n+2)}-\frac{bb^n cx\left(\frac{a}{b}+x\right)^n\left(1+\frac{bx}{a},1,n+1\right)(n+1)}{a(n+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**n*(d*x+c)/x,x)
```

```
[Out] -b**n*c*n*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n + 1)
/gamma(n + 2) - b**n*c*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)
*gamma(n + 1)/gamma(n + 2) + d*Piecewise((a**n*x, Eq(b, 0)), (Pie
cewise(((a + b*x)**(n + 1)/(n + 1), Ne(n, -1)), (log(a + b*x), Tr
ue))/b, True)) - b*b**n*c*n*x*(a/b + x)**n*lerchphi(1 + b*x/a, 1,
 n + 1)*gamma(n + 1)/(a*gamma(n + 2)) - b*b**n*c*x*(a/b + x)**n*l
erchphi(1 + b*x/a, 1, n + 1)*gamma(n + 1)/(a*gamma(n + 2))
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(dx+c)(bx+a)^n}{x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)*(b*x + a)^n/x,x, algorithm="giac")
```

```
[Out] integrate((d*x + c)*(b*x + a)^n/x, x)
```

3.910 $\int \frac{(a+bx)^n(c+dx)}{x^2}\,dx$

Optimal. Leaf size=62

$$-\frac{(a+bx)^{n+1}(ad+bcn)\,{}_2F_1\left(1,n+1;n+2;\frac{bx}{a}+1\right)}{a^2(n+1)}-\frac{c(a+bx)^{n+1}}{ax}$$

```
[Out] -((c*(a + b*x)^(1 + n))/(a*x)) - ((a*d + b*c*n)*(a + b*x)^(1 + n)
*Hypergeometric2F1[1, 1 + n, 2 + n, 1 + (b*x)/a])/(a^2*(1 + n))
```

Rubi [A] time = 0.0603238, antiderivative size = 62, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$-\frac{(a+bx)^{n+1}(ad+bcn)\,{}_2F_1\left(1,n+1;n+2;\frac{bx}{a}+1\right)}{a^2(n+1)}-\frac{c(a+bx)^{n+1}}{ax}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^n*(c + d*x))/x^2,x]
```

```
[Out] -((c*(a + b*x)^(1 + n))/(a*x)) - ((a*d + b*c*n)*(a + b*x)^(1 + n)
*Hypergeometric2F1[1, 1 + n, 2 + n, 1 + (b*x)/a])/(a^2*(1 + n))
```

Rubi in Sympy [A] time = 6.89646, size = 49, normalized size = 0.79

$$-\frac{c\,(a+bx)^{n+1}}{ax}-\frac{(a+bx)^{n+1}\,(ad+bcn)\,{}_2F_1\left(\begin{matrix}1,n+1\\n+2\end{matrix}\middle|\,1+\frac{bx}{a}\right)}{a^2\,(n+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**n*(d*x+c)/x**2,x)
```

```
[Out] -c*(a + b*x)**(n + 1)/(a*x) - (a + b*x)**(n + 1)*(a*d + b*c*n)*hy
per((1, n + 1), (n + 2,), 1 + b*x/a)/(a**2*(n + 1))
```

Mathematica [A] time = 0.0500565, size = 87, normalized size = 1.4

$$\frac{\left(\frac{a}{bx}+1\right)^{-n}(a+bx)^n\left(cn\,{}_2F_1\left(1-n,-n;2-n;-\frac{a}{bx}\right)+d(n-1)x\,{}_2F_1\left(-n,-n;1-n;-\frac{a}{bx}\right)\right)}{(n-1)nx}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^n*(c + d*x))/x^2,x]
```

```
[Out] ((a + b*x)^n*(c*n*Hypergeometric2F1[1 - n, -n, 2 - n, -(a/(b*x))]
 + d*(-1 + n)*x*Hypergeometric2F1[-n, -n, 1 - n, -(a/(b*x))]))/((
-1 + n)*n*(1 + a/(b*x))^n*x)
```

Maple [F] time = 0.049, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n\,(dx+c)}{x^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^n*(d*x+c)/x^2,x)
```

```
[Out] int((b*x+a)^n*(d*x+c)/x^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(dx+c)(bx+a)^n}{x^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)*(b*x + a)^n/x^2,x, algorithm="maxima")
```

```
[Out] integrate((d*x + c)*(b*x + a)^n/x^2, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(dx+c)(bx+a)^n}{x^2}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)*(b*x + a)^n/x^2,x, algorithm="fricas")
```

```
[Out] integral((d*x + c)*(b*x + a)^n/x^2, x)
```

Sympy [A] time = 15.6143, size = 493, normalized size = 7.95

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**n*(d*x+c)/x**2,x)
```

```
[Out] b**n*c*n**2*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n +
1)/(x*gamma(n + 2)) + b**n*c*n*(a/b + x)**n*lerchphi(1 + b*x/a, 1
, n + 1)*gamma(n + 1)/(x*gamma(n + 2)) - b**n*c*n*(a/b + x)**n*ga
mma(n + 1)/(x*gamma(n + 2)) - b**n*c*(a/b + x)**n*gamma(n + 1)/(x
*gamma(n + 2)) - b**n*d*n*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n +
 1)*gamma(n + 1)/gamma(n + 2) - b**n*d*(a/b + x)**n*lerchphi(1 +
b*x/a, 1, n + 1)*gamma(n + 1)/gamma(n + 2) + b*b**n*c*n**2*(a/b +
 x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n + 1)/(a*gamma(n + 2)
) + b*b**n*c*n*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n
 + 1)/(a*gamma(n + 2)) - b*b**n*c*n*(a/b + x)**n*gamma(n + 1)/(a*
gamma(n + 2)) - b*b**n*c*(a/b + x)**n*gamma(n + 1)/(a*gamma(n + 2
)) - b*b**n*d*n*x*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamm
a(n + 1)/(a*gamma(n + 2)) - b*b**n*d*x*(a/b + x)**n*lerchphi(1 +
b*x/a, 1, n + 1)*gamma(n + 1)/(a*gamma(n + 2)) - b**2*b**n*c*n**2
*(a/b + x)**2*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n
+ 1)/(a**2*x*gamma(n + 2)) - b**2*b**n*c*n*(a/b + x)**2*(a/b + x)
**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n + 1)/(a**2*x*gamma(n +
2))
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(dx+c)(bx+a)^n}{x^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)*(b*x + a)^n/x^2,x, algorithm="giac")
```

```
[Out] integrate((d*x + c)*(b*x + a)^n/x^2, x)
```

3.911 $\int x^2(a+bx)^n(c+dx)^2\,dx$

Optimal. Leaf size=157

$$\frac{a^2(bc-ad)^2(a+bx)^{n+1}}{b^5(n+1)}+\frac{(6a^2d^2-6abcd+b^2c^2)\,(a+bx)^{n+3}}{b^5(n+3)}-\frac{2a(bc-2ad)(bc-ad)(a+bx)^{n+2}}{b^5(n+2)}+\frac{2d(bc-2ad)(a+bx)^{n+4}}{b^5(n+4)}+\frac{d^2(a+bx)^{n+5}}{b^5(n+5)}$$

```
[Out] (a^2*(b*c - a*d)^2*(a + b*x)^(1 + n))/(b^5*(1 + n)) - (2*a*(b*c -
 2*a*d)*(b*c - a*d)*(a + b*x)^(2 + n))/(b^5*(2 + n)) + ((b^2*c^2
- 6*a*b*c*d + 6*a^2*d^2)*(a + b*x)^(3 + n))/(b^5*(3 + n)) + (2*d*
(b*c - 2*a*d)*(a + b*x)^(4 + n))/(b^5*(4 + n)) + (d^2*(a + b*x)^(
5 + n))/(b^5*(5 + n))
```

Rubi [A] time = 0.205637, antiderivative size = 157, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{a^2(bc-ad)^2(a+bx)^{n+1}}{b^5(n+1)}+\frac{(6a^2d^2-6abcd+b^2c^2)\,(a+bx)^{n+3}}{b^5(n+3)}-\frac{2a(bc-2ad)(bc-ad)(a+bx)^{n+2}}{b^5(n+2)}+\frac{2d(bc-2ad)(a+bx)^{n+4}}{b^5(n+4)}+\frac{d^2(a+bx)^{n+5}}{b^5(n+5)}$$

Antiderivative was successfully verified.

```
[In]  Int[x^2*(a + b*x)^n*(c + d*x)^2,x]
```

```
[Out] (a^2*(b*c - a*d)^2*(a + b*x)^(1 + n))/(b^5*(1 + n)) - (2*a*(b*c -
 2*a*d)*(b*c - a*d)*(a + b*x)^(2 + n))/(b^5*(2 + n)) + ((b^2*c^2
- 6*a*b*c*d + 6*a^2*d^2)*(a + b*x)^(3 + n))/(b^5*(3 + n)) + (2*d*
(b*c - 2*a*d)*(a + b*x)^(4 + n))/(b^5*(4 + n)) + (d^2*(a + b*x)^(
5 + n))/(b^5*(5 + n))
```

Rubi in Sympy [A] time = 42.7943, size = 144, normalized size = 0.92

$$\frac{a^2\,(a+bx)^{n+1}\,(ad-bc)^2}{b^5\,(n+1)}-\frac{2a\,(a+bx)^{n+2}\,(ad-bc)\,(2ad-bc)}{b^5\,(n+2)}+\frac{d^2\,(a+bx)^{n+5}}{b^5\,(n+5)}-\frac{2d\,(a+bx)^{n+4}\,(2ad-bc)}{b^5\,(n+4)}+\frac{(a+bx)^{n+3}\,(6a^2d^2-6abcd+b^2c^2)}{b^5\,(n+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(b*x+a)**n*(d*x+c)**2,x)
```

```
[Out] a**2*(a + b*x)**(n + 1)*(a*d - b*c)**2/(b**5*(n + 1)) - 2*a*(a +
b*x)**(n + 2)*(a*d - b*c)*(2*a*d - b*c)/(b**5*(n + 2)) + d**2*(a
+ b*x)**(n + 5)/(b**5*(n + 5)) - 2*d*(a + b*x)**(n + 4)*(2*a*d -
b*c)/(b**5*(n + 4)) + (a + b*x)**(n + 3)*(6*a**2*d**2 - 6*a*b*c*d
 + b**2*c**2)/(b**5*(n + 3))
```

Mathematica [A] time = 0.218701, size = 225, normalized size = 1.43

$$(a+bx)^{n+1}\left(24a^4d^2-12a^3bd(c(n+5)+2d(n+1)x)+2a^2b^2\left(c^2\left(n^2+9n+20\right)+6cd\left(n^2+6n+5\right)x+6d^2\left(n^2+3n+2\right)x^2\right)\right.$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^2*(a + b*x)^n*(c + d*x)^2,x]
```

```
[Out] ((a + b*x)^(1 + n)*(24*a^4*d^2 - 12*a^3*b*d*(c*(5 + n) + 2*d*(1 +
 n)*x) + 2*a^2*b^2*(c^2*(20 + 9*n + n^2) + 6*c*d*(5 + 6*n + n^2)*
x + 6*d^2*(2 + 3*n + n^2)*x^2) - 2*a*b^3*(1 + n)*x*(c^2*(20 + 9*n
 + n^2) + 3*c*d*(10 + 7*n + n^2)*x + 2*d^2*(6 + 5*n + n^2)*x^2) +
 b^4*(2 + 3*n + n^2)*x^2*(c^2*(20 + 9*n + n^2) + 2*c*d*(15 + 8*n
+ n^2)*x + d^2*(12 + 7*n + n^2)*x^2)))/(b^5*(1 + n)*(2 + n)*(3 +
n)*(4 + n)*(5 + n))
```

Maple [B] time = 0.013, size = 547, normalized size = 3.5

$$\frac{(bx+a)^{1+n}\left(b^4d^2n^4x^4+2\,b^4cdn^4x^3+10\,b^4d^2n^3x^4-4\,ab^3d^2n^3x^3+b^4c^2n^4x^2+22\,b^4cdn^3x^3+35\,b^4d^2n^2x^4-6\,ab^3cdn^3x^2-\cdots\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(b*x+a)^n*(d*x+c)^2,x)
```

```
[Out] (b*x+a)^(1+n)*(b^4*d^2*n^4*x^4+2*b^4*c*d*n^4*x^3+10*b^4*d^2*n^3*x
^4-4*a*b^3*d^2*n^3*x^3+b^4*c^2*n^4*x^2+22*b^4*c*d*n^3*x^3+35*b^4*
d^2*n^2*x^4-6*a*b^3*c*d*n^3*x^2-24*a*b^3*d^2*n^2*x^3+12*b^4*c^2*n
^3*x^2+82*b^4*c*d*n^2*x^3+50*b^4*d^2*n*x^4+12*a^2*b^2*d^2*n^2*x^2
-2*a*b^3*c^2*n^3*x-48*a*b^3*c*d*n^2*x^2-44*a*b^3*d^2*n*x^3+49*b^4
*c^2*n^2*x^2+122*b^4*c*d*n*x^3+24*b^4*d^2*x^4+12*a^2*b^2*c*d*n^2*
x+36*a^2*b^2*d^2*n*x^2-20*a*b^3*c^2*n^2*x-102*a*b^3*c*d*n*x^2-24*
a*b^3*d^2*x^3+78*b^4*c^2*n*x^2+60*b^4*c*d*x^3-24*a^3*b*d^2*n*x+2*
a^2*b^2*c^2*n^2+72*a^2*b^2*c*d*n*x+24*a^2*b^2*d^2*x^2-58*a*b^3*c^
2*n*x-60*a*b^3*c*d*x^2+40*b^4*c^2*x^2-12*a^3*b*c*d*n-24*a^3*b*d^2
*x+18*a^2*b^2*c^2*n+60*a^2*b^2*c*d*x-40*a*b^3*c^2*x+24*a^4*d^2-60
*a^3*b*c*d+40*a^2*b^2*c^2)/b^5/(n^5+15*n^4+85*n^3+225*n^2+274*n+1
20)
```

Maxima [A] time = 1.38344, size = 429, normalized size = 2.73

$$\frac{\left({\left(n^2+3\,n+2\right)}b^3x^3+{\left(n^2+n\right)}ab^2x^2-2\,a^2bnx+2\,a^3\right)(bx+a)^nc^2}{(n^3+6\,n^2+11\,n+6)b^3}+\frac{2\left({\left(n^3+6\,n^2+11\,n+6\right)}b^4x^4+{\left(n^3+3\,n^2+2\,n\right)}ab^3x^3-3\,{\left(n^2+n\right)}a^2b^2x^2+6\,a^3bnx-6\,a^4\right)(bx+a)^ncd}{(n^4+10\,n^3+35\,n^2+50\,n+24)b^4}+\frac{\left({\left(n^4+10\,n^3+35\,n^2+50\,n+24\right)}b^5x^5+{\left(n^4+6\,n^3+11\,n^2+6\,n\right)}ab^4x^4-4\,{\left(n^3+3\,n^2+2\,n\right)}a^2b^3x^3+12\,{\left(n^2+n\right)}a^3b^2x^2-\cdots\right.}{(n^5+15\,n^4+85\,n^3+225\,n^2+274\,n+120)b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2*(b*x + a)^n*x^2,x, algorithm="maxima")
```

```
[Out] ((n^2 + 3*n + 2)*b^3*x^3 + (n^2 + n)*a*b^2*x^2 - 2*a^2*b*n*x + 2*
a^3)*(b*x + a)^n*c^2/((n^3 + 6*n^2 + 11*n + 6)*b^3) + 2*((n^3 + 6
*n^2 + 11*n + 6)*b^4*x^4 + (n^3 + 3*n^2 + 2*n)*a*b^3*x^3 - 3*(n^2
 + n)*a^2*b^2*x^2 + 6*a^3*b*n*x - 6*a^4)*(b*x + a)^n*c*d/((n^4 +
10*n^3 + 35*n^2 + 50*n + 24)*b^4) + ((n^4 + 10*n^3 + 35*n^2 + 50*
n + 24)*b^5*x^5 + (n^4 + 6*n^3 + 11*n^2 + 6*n)*a*b^4*x^4 - 4*(n^3
 + 3*n^2 + 2*n)*a^2*b^3*x^3 + 12*(n^2 + n)*a^3*b^2*x^2 - 24*a^4*b
*n*x + 24*a^5)*(b*x + a)^n*d^2/((n^5 + 15*n^4 + 85*n^3 + 225*n^2
+ 274*n + 120)*b^5)
```

Fricas [A] time = 0.232709, size = 788, normalized size = 5.02

$$\frac{\left(2\,a^3b^2c^2n^2+40\,a^3b^2c^2-60\,a^4bcd+24\,a^5d^2+\left(b^5d^2n^4+10\,b^5d^2n^3+35\,b^5d^2n^2+50\,b^5d^2n+24\,b^5d^2\right)x^5+\left(60\,b^5cd+\left(2\,b^5c\cdots\right.\right.\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2*(b*x + a)^n*x^2,x, algorithm="fricas")
```

```
[Out] (2*a^3*b^2*c^2*n^2 + 40*a^3*b^2*c^2 - 60*a^4*b*c*d + 24*a^5*d^2 +
 (b^5*d^2*n^4 + 10*b^5*d^2*n^3 + 35*b^5*d^2*n^2 + 50*b^5*d^2*n +
24*b^5*d^2)*x^5 + (60*b^5*c*d + (2*b^5*c*d + a*b^4*d^2)*n^4 + 2*(
11*b^5*c*d + 3*a*b^4*d^2)*n^3 + (82*b^5*c*d + 11*a*b^4*d^2)*n^2 +
 2*(61*b^5*c*d + 3*a*b^4*d^2)*n)*x^4 + (40*b^5*c^2 + (b^5*c^2 + 2
*a*b^4*c*d)*n^4 + 4*(3*b^5*c^2 + 4*a*b^4*c*d - a^2*b^3*d^2)*n^3 +
 (49*b^5*c^2 + 34*a*b^4*c*d - 12*a^2*b^3*d^2)*n^2 + 2*(39*b^5*c^2
 + 10*a*b^4*c*d - 4*a^2*b^3*d^2)*n)*x^3 + (a*b^4*c^2*n^4 + 2*(5*a
*b^4*c^2 - 3*a^2*b^3*c*d)*n^3 + (29*a*b^4*c^2 - 36*a^2*b^3*c*d +
12*a^3*b^2*d^2)*n^2 + 2*(10*a*b^4*c^2 - 15*a^2*b^3*c*d + 6*a^3*b^
2*d^2)*n)*x^2 + 6*(3*a^3*b^2*c^2 - 2*a^4*b*c*d)*n - 2*(a^2*b^3*c^
2*n^3 + 3*(3*a^2*b^3*c^2 - 2*a^3*b^2*c*d)*n^2 + 2*(10*a^2*b^3*c^2
 - 15*a^3*b^2*c*d + 6*a^4*b*d^2)*n)*x)*(b*x + a)^n/(b^5*n^5 + 15*
b^5*n^4 + 85*b^5*n^3 + 225*b^5*n^2 + 274*b^5*n + 120*b^5)
```

Sympy [A] time = 16.7152, size = 6215, normalized size = 39.59

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(b*x+a)**n*(d*x+c)**2,x)
```

```
[Out] Piecewise((a**n*(c**2*x**3/3 + c*d*x**4/2 + d**2*x**5/5), Eq(b, 0
)), (12*a**6*d**2*log(a/b + x)/(12*a**6*b**5 + 48*a**5*b**6*x + 7
2*a**4*b**7*x**2 + 48*a**3*b**8*x**3 + 12*a**2*b**9*x**4) + 3*a**
6*d**2/(12*a**6*b**5 + 48*a**5*b**6*x + 72*a**4*b**7*x**2 + 48*a*
*3*b**8*x**3 + 12*a**2*b**9*x**4) + 48*a**5*b*d**2*x*log(a/b + x)
/(12*a**6*b**5 + 48*a**5*b**6*x + 72*a**4*b**7*x**2 + 48*a**3*b**
8*x**3 + 12*a**2*b**9*x**4) + 72*a**4*b**2*d**2*x**2*log(a/b + x)
/(12*a**6*b**5 + 48*a**5*b**6*x + 72*a**4*b**7*x**2 + 48*a**3*b**
8*x**3 + 12*a**2*b**9*x**4) - 24*a**4*b**2*d**2*x**2/(12*a**6*b**
5 + 48*a**5*b**6*x + 72*a**4*b**7*x**2 + 48*a**3*b**8*x**3 + 12*a
**2*b**9*x**4) + 48*a**3*b**3*d**2*x**3*log(a/b + x)/(12*a**6*b**
5 + 48*a**5*b**6*x + 72*a**4*b**7*x**2 + 48*a**3*b**8*x**3 + 12*a
**2*b**9*x**4) - 40*a**3*b**3*d**2*x**3/(12*a**6*b**5 + 48*a**5*b
**6*x + 72*a**4*b**7*x**2 + 48*a**3*b**8*x**3 + 12*a**2*b**9*x**4
) + 12*a**2*b**4*d**2*x**4*log(a/b + x)/(12*a**6*b**5 + 48*a**5*b
**6*x + 72*a**4*b**7*x**2 + 48*a**3*b**8*x**3 + 12*a**2*b**9*x**4
) - 22*a**2*b**4*d**2*x**4/(12*a**6*b**5 + 48*a**5*b**6*x + 72*a*
*4*b**7*x**2 + 48*a**3*b**8*x**3 + 12*a**2*b**9*x**4) + 4*a*b**5*
c**2*x**3/(12*a**6*b**5 + 48*a**5*b**6*x + 72*a**4*b**7*x**2 + 48
*a**3*b**8*x**3 + 12*a**2*b**9*x**4) + 6*a*b**5*c*d*x**4/(12*a**6
*b**5 + 48*a**5*b**6*x + 72*a**4*b**7*x**2 + 48*a**3*b**8*x**3 +
12*a**2*b**9*x**4) + b**6*c**2*x**4/(12*a**6*b**5 + 48*a**5*b**6*
x + 72*a**4*b**7*x**2 + 48*a**3*b**8*x**3 + 12*a**2*b**9*x**4), E
q(n, -5)), (-12*a**5*d**2*log(a/b + x)/(3*a**4*b**5 + 9*a**3*b**6
*x + 9*a**2*b**7*x**2 + 3*a*b**8*x**3) - 4*a**5*d**2/(3*a**4*b**5
 + 9*a**3*b**6*x + 9*a**2*b**7*x**2 + 3*a*b**8*x**3) + 6*a**4*b*c
*d*log(a/b + x)/(3*a**4*b**5 + 9*a**3*b**6*x + 9*a**2*b**7*x**2 +
 3*a*b**8*x**3) + 2*a**4*b*c*d/(3*a**4*b**5 + 9*a**3*b**6*x + 9*a
**2*b**7*x**2 + 3*a*b**8*x**3) - 36*a**4*b*d**2*x*log(a/b + x)/(3
*a**4*b**5 + 9*a**3*b**6*x + 9*a**2*b**7*x**2 + 3*a*b**8*x**3) +
18*a**3*b**2*c*d*x*log(a/b + x)/(3*a**4*b**5 + 9*a**3*b**6*x + 9*
a**2*b**7*x**2 + 3*a*b**8*x**3) - 36*a**3*b**2*d**2*x**2*log(a/b
+ x)/(3*a**4*b**5 + 9*a**3*b**6*x + 9*a**2*b**7*x**2 + 3*a*b**8*x
**3) + 18*a**3*b**2*d**2*x**2/(3*a**4*b**5 + 9*a**3*b**6*x + 9*a*
*2*b**7*x**2 + 3*a*b**8*x**3) + 18*a**2*b**3*c*d*x**2*log(a/b + x
)/(3*a**4*b**5 + 9*a**3*b**6*x + 9*a**2*b**7*x**2 + 3*a*b**8*x**3
) - 9*a**2*b**3*c*d*x**2/(3*a**4*b**5 + 9*a**3*b**6*x + 9*a**2*b*
*7*x**2 + 3*a*b**8*x**3) - 12*a**2*b**3*d**2*x**3*log(a/b + x)/(3
*a**4*b**5 + 9*a**3*b**6*x + 9*a**2*b**7*x**2 + 3*a*b**8*x**3) +
18*a**2*b**3*d**2*x**3/(3*a**4*b**5 + 9*a**3*b**6*x + 9*a**2*b**7
*x**2 + 3*a*b**8*x**3) + 6*a*b**4*c*d*x**3*log(a/b + x)/(3*a**4*b
**5 + 9*a**3*b**6*x + 9*a**2*b**7*x**2 + 3*a*b**8*x**3) - 9*a*b**
```

4*c*d*x**3/(3*a**4*b**5 + 9*a**3*b**6*x + 9*a**2*b**7*x**2 + 3*a*
b**8*x**3) + 3*a*b**4*d**2*x**4/(3*a**4*b**5 + 9*a**3*b**6*x + 9*
a**2*b**7*x**2 + 3*a*b**8*x**3) + b**5*c**2*x**3/(3*a**4*b**5 + 9
*a**3*b**6*x + 9*a**2*b**7*x**2 + 3*a*b**8*x**3), Eq(n, -4)), (12
*a**4*d**2*log(a/b + x)/(2*a**2*b**5 + 4*a*b**6*x + 2*b**7*x**2)
+ 6*a**4*d**2/(2*a**2*b**5 + 4*a*b**6*x + 2*b**7*x**2) - 12*a**3*
b*c*d*log(a/b + x)/(2*a**2*b**5 + 4*a*b**6*x + 2*b**7*x**2) - 6*a
3*b*c*d/(2*a2*b**5 + 4*a*b**6*x + 2*b**7*x**2) + 24*a**3*b*d*
*2*x*log(a/b + x)/(2*a**2*b**5 + 4*a*b**6*x + 2*b**7*x**2) + 2*a*
*2*b**2*c**2*log(a/b + x)/(2*a**2*b**5 + 4*a*b**6*x + 2*b**7*x**2
) + a**2*b**2*c**2/(2*a**2*b**5 + 4*a*b**6*x + 2*b**7*x**2) - 24*
a**2*b**2*c*d*x*log(a/b + x)/(2*a**2*b**5 + 4*a*b**6*x + 2*b**7*x
2) + 12*a2*b**2*d**2*x**2*log(a/b + x)/(2*a**2*b**5 + 4*a*b**
6*x + 2*b**7*x**2) - 12*a**2*b**2*d**2*x**2/(2*a**2*b**5 + 4*a*b*
*6*x + 2*b**7*x**2) + 4*a*b**3*c**2*x*log(a/b + x)/(2*a**2*b**5 +
4*a*b**6*x + 2*b**7*x**2) - 12*a*b**3*c*d*x**2*log(a/b + x)/(2*a
2*b5 + 4*a*b**6*x + 2*b**7*x**2) + 12*a*b**3*c*d*x**2/(2*a**2
*b**5 + 4*a*b**6*x + 2*b**7*x**2) - 4*a*b**3*d**2*x**3/(2*a**2*b*
*5 + 4*a*b**6*x + 2*b**7*x**2) + 2*b**4*c**2*x**2*log(a/b + x)/(2
*a**2*b**5 + 4*a*b**6*x + 2*b**7*x**2) - 2*b**4*c**2*x**2/(2*a**2
*b**5 + 4*a*b**6*x + 2*b**7*x**2) + 4*b**4*c*d*x**3/(2*a**2*b**5
+ 4*a*b**6*x + 2*b**7*x**2) + b**4*d**2*x**4/(2*a**2*b**5 + 4*a*b
6*x + 2*b7*x**2), Eq(n, -3)), (-12*a**4*d**2*log(a/b + x)/(3*
a*b**5 + 3*b**6*x) - 12*a**4*d**2/(3*a*b**5 + 3*b**6*x) + 18*a**3
*b*c*d*log(a/b + x)/(3*a*b**5 + 3*b**6*x) + 18*a**3*b*c*d/(3*a*b*
*5 + 3*b**6*x) - 12*a**3*b*d**2*x*log(a/b + x)/(3*a*b**5 + 3*b**6
*x) - 6*a**2*b**2*c**2*log(a/b + x)/(3*a*b**5 + 3*b**6*x) - 6*a**
2*b**2*c**2/(3*a*b**5 + 3*b**6*x) + 18*a**2*b**2*c*d*x*log(a/b +
x)/(3*a*b**5 + 3*b**6*x) + 6*a**2*b**2*d**2*x**2/(3*a*b**5 + 3*b*
*6*x) - 6*a*b**3*c**2*x*log(a/b + x)/(3*a*b**5 + 3*b**6*x) - 9*a*
b**3*c*d*x**2/(3*a*b**5 + 3*b**6*x) - 2*a*b**3*d**2*x**3/(3*a*b**
5 + 3*b**6*x) + 3*b**4*c**2*x**2/(3*a*b**5 + 3*b**6*x) + 3*b**4*c
*d*x**3/(3*a*b**5 + 3*b**6*x) + b**4*d**2*x**4/(3*a*b**5 + 3*b**6
*x), Eq(n, -2)), (a**4*d**2*log(a/b + x)/b**5 - 2*a**3*c*d*log(a/
b + x)/b**4 - a**3*d**2*x/b**4 + a**2*c**2*log(a/b + x)/b**3 + 2*
a**2*c*d*x/b**3 + a**2*d**2*x**2/(2*b**3) - a*c**2*x/b**2 - a*c*d
*x**2/b**2 - a*d**2*x**3/(3*b**2) + c**2*x**2/(2*b) + 2*c*d*x**3/
(3*b) + d**2*x**4/(4*b), Eq(n, -1)), (24*a**5*d**2*(a + b*x)**n/(
b**5*n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 225*b**5*n**2 + 274*b**
5*n + 120*b**5) - 12*a**4*b*c*d*n*(a + b*x)**n/(b**5*n**5 + 15*b*
*5*n**4 + 85*b**5*n**3 + 225*b**5*n**2 + 274*b**5*n + 120*b**5) -
60*a**4*b*c*d*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5*n
3 + 225*b5*n**2 + 274*b**5*n + 120*b**5) - 24*a**4*b*d**2*n*x
*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 225*b**5
*n**2 + 274*b**5*n + 120*b**5) + 2*a**3*b**2*c**2*n**2*(a + b*x)*
*n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 225*b**5*n**2 + 274
*b**5*n + 120*b**5) + 18*a**3*b**2*c**2*n*(a + b*x)**n/(b**5*n**5
+ 15*b**5*n**4 + 85*b**5*n**3 + 225*b**5*n**2 + 274*b**5*n + 120
*b**5) + 40*a**3*b**2*c**2*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4
+ 85*b**5*n**3 + 225*b**5*n**2 + 274*b**5*n + 120*b**5) + 12*a**
3*b**2*c*d*n**2*x*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b**
5*n**3 + 225*b**5*n**2 + 274*b**5*n + 120*b**5) + 60*a**3*b**2*c*
d*n*x*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 225
*b**5*n**2 + 274*b**5*n + 120*b**5) + 12*a**3*b**2*d**2*n**2*x**2
*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 225*b**5
*n**2 + 274*b**5*n + 120*b**5) + 12*a**3*b**2*d**2*n*x**2*(a + b*
x)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 225*b**5*n**2 +
274*b**5*n + 120*b**5) - 2*a**2*b**3*c**2*n**3*x*(a + b*x)**n/(b*
*5*n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 225*b**5*n**2 + 274*b**5*
n + 120*b**5) - 18*a**2*b**3*c**2*n**2*x*(a + b*x)**n/(b**5*n**5
+ 15*b**5*n**4 + 85*b**5*n**3 + 225*b**5*n**2 + 274*b**5*n + 120*
b**5) - 40*a**2*b**3*c**2*n*x*(a + b*x)**n/(b**5*n**5 + 15*b**5*n
4 + 85*b5*n**3 + 225*b**5*n**2 + 274*b**5*n + 120*b**5) - 6*a
2*b3*c*d*n**3*x**2*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4 + 8
5*b**5*n**3 + 225*b**5*n**2 + 274*b**5*n + 120*b**5) - 36*a**2*b*
*3*c*d*n**2*x**2*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5
*n**3 + 225*b**5*n**2 + 274*b**5*n + 120*b**5) - 30*a**2*b**3*c*d
*n*x**2*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 2
25*b**5*n**2 + 274*b**5*n + 120*b**5) - 4*a**2*b**3*d**2*n**3*x**
3*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 225*b**
5*n**2 + 274*b**5*n + 120*b**5) - 12*a**2*b**3*d**2*n**2*x**3*(a
+ b*x)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 225*b**5*n**
2 + 274*b**5*n + 120*b**5) - 8*a**2*b**3*d**2*n*x**3*(a + b*x)**n
/(b**5*n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 225*b**5*n**2 + 274*b

```
**5*n + 120*b**5) + a*b**4*c**2*n**4*x**2*(a + b*x)**n/(b**5*n**5
 + 15*b**5*n**4 + 85*b**5*n**3 + 225*b**5*n**2 + 274*b**5*n + 120
*b**5) + 10*a*b**4*c**2*n**3*x**2*(a + b*x)**n/(b**5*n**5 + 15*b*
*5*n**4 + 85*b**5*n**3 + 225*b**5*n**2 + 274*b**5*n + 120*b**5) +
 29*a*b**4*c**2*n**2*x**2*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4
+ 85*b**5*n**3 + 225*b**5*n**2 + 274*b**5*n + 120*b**5) + 20*a*b*
*4*c**2*n*x**2*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5*n
**3 + 225*b**5*n**2 + 274*b**5*n + 120*b**5) + 2*a*b**4*c*d*n**4*
x**3*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 225*
b**5*n**2 + 274*b**5*n + 120*b**5) + 16*a*b**4*c*d*n**3*x**3*(a +
 b*x)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 225*b**5*n**2
 + 274*b**5*n + 120*b**5) + 34*a*b**4*c*d*n**2*x**3*(a + b*x)**n/
(b**5*n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 225*b**5*n**2 + 274*b*
*5*n + 120*b**5) + 20*a*b**4*c*d*n*x**3*(a + b*x)**n/(b**5*n**5 +
 15*b**5*n**4 + 85*b**5*n**3 + 225*b**5*n**2 + 274*b**5*n + 120*b
**5) + a*b**4*d**2*n**4*x**4*(a + b*x)**n/(b**5*n**5 + 15*b**5*n*
*4 + 85*b**5*n**3 + 225*b**5*n**2 + 274*b**5*n + 120*b**5) + 6*a*
b**4*d**2*n**3*x**4*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b
**5*n**3 + 225*b**5*n**2 + 274*b**5*n + 120*b**5) + 11*a*b**4*d**
2*n**2*x**4*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5*n**3
 + 225*b**5*n**2 + 274*b**5*n + 120*b**5) + 6*a*b**4*d**2*n*x**4*
(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 225*b**5*
n**2 + 274*b**5*n + 120*b**5) + b**5*c**2*n**4*x**3*(a + b*x)**n/
(b**5*n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 225*b**5*n**2 + 274*b*
*5*n + 120*b**5) + 12*b**5*c**2*n**3*x**3*(a + b*x)**n/(b**5*n**5
 + 15*b**5*n**4 + 85*b**5*n**3 + 225*b**5*n**2 + 274*b**5*n + 120
*b**5) + 49*b**5*c**2*n**2*x**3*(a + b*x)**n/(b**5*n**5 + 15*b**5
*n**4 + 85*b**5*n**3 + 225*b**5*n**2 + 274*b**5*n + 120*b**5) + 7
8*b**5*c**2*n*x**3*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b*
*5*n**3 + 225*b**5*n**2 + 274*b**5*n + 120*b**5) + 40*b**5*c**2*x
**3*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 225*b
**5*n**2 + 274*b**5*n + 120*b**5) + 2*b**5*c*d*n**4*x**4*(a + b*x
)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 225*b**5*n**2 + 2
74*b**5*n + 120*b**5) + 22*b**5*c*d*n**3*x**4*(a + b*x)**n/(b**5*
n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 225*b**5*n**2 + 274*b**5*n +
 120*b**5) + 82*b**5*c*d*n**2*x**4*(a + b*x)**n/(b**5*n**5 + 15*b
**5*n**4 + 85*b**5*n**3 + 225*b**5*n**2 + 274*b**5*n + 120*b**5)
+ 122*b**5*c*d*n*x**4*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4 + 85
*b**5*n**3 + 225*b**5*n**2 + 274*b**5*n + 120*b**5) + 60*b**5*c*d
*x**4*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 225
*b**5*n**2 + 274*b**5*n + 120*b**5) + b**5*d**2*n**4*x**5*(a + b*
x)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 225*b**5*n**2 +
274*b**5*n + 120*b**5) + 10*b**5*d**2*n**3*x**5*(a + b*x)**n/(b**
5*n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 225*b**5*n**2 + 274*b**5*n
 + 120*b**5) + 35*b**5*d**2*n**2*x**5*(a + b*x)**n/(b**5*n**5 + 1
5*b**5*n**4 + 85*b**5*n**3 + 225*b**5*n**2 + 274*b**5*n + 120*b**
5) + 50*b**5*d**2*n*x**5*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4 +
 85*b**5*n**3 + 225*b**5*n**2 + 274*b**5*n + 120*b**5) + 24*b**5*
d**2*x**5*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5*n**3 +
 225*b**5*n**2 + 274*b**5*n + 120*b**5), True))
```

GIAC/XCAS [A] time = 0.223485, size = 1, normalized size = 0.01

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2*(b*x + a)^n*x^2,x, algorithm="giac")
```

```
[Out] Done
```

3.912 $\int x(a+bx)^n(c+dx)^2\,dx$

Optimal. Leaf size=114

$$-\frac{a(bc-ad)^2(a+bx)^{n+1}}{b^4(n+1)}+\frac{(bc-3ad)(bc-ad)(a+bx)^{n+2}}{b^4(n+2)}+\frac{d(2bc-3ad)(a+bx)^{n+3}}{b^4(n+3)}+\frac{d^2(a+bx)^{n+4}}{b^4(n+4)}$$

```
[Out] -((a*(b*c - a*d)^2*(a + b*x)^(1 + n))/(b^4*(1 + n))) + ((b*c - 3*
a*d)*(b*c - a*d)*(a + b*x)^(2 + n))/(b^4*(2 + n)) + (d*(2*b*c - 3
*a*d)*(a + b*x)^(3 + n))/(b^4*(3 + n)) + (d^2*(a + b*x)^(4 + n))/
(b^4*(4 + n))
```

Rubi [A] time = 0.141097, antiderivative size = 114, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{a(bc-ad)^2(a+bx)^{n+1}}{b^4(n+1)}+\frac{(bc-3ad)(bc-ad)(a+bx)^{n+2}}{b^4(n+2)}+\frac{d(2bc-3ad)(a+bx)^{n+3}}{b^4(n+3)}+\frac{d^2(a+bx)^{n+4}}{b^4(n+4)}$$

Antiderivative was successfully verified.

```
[In]  Int[x*(a + b*x)^n*(c + d*x)^2,x]
```

```
[Out] -((a*(b*c - a*d)^2*(a + b*x)^(1 + n))/(b^4*(1 + n))) + ((b*c - 3*
a*d)*(b*c - a*d)*(a + b*x)^(2 + n))/(b^4*(2 + n)) + (d*(2*b*c - 3
*a*d)*(a + b*x)^(3 + n))/(b^4*(3 + n)) + (d^2*(a + b*x)^(4 + n))/
(b^4*(4 + n))
```

Rubi in Sympy [A] time = 27.9194, size = 100, normalized size = 0.88

$$-\frac{a\left(a+bx\right)^{n+1}\left(ad-bc\right)^2}{b^4\left(n+1\right)}+\frac{d^2\left(a+bx\right)^{n+4}}{b^4\left(n+4\right)}-\frac{d\left(a+bx\right)^{n+3}\left(3ad-2bc\right)}{b^4\left(n+3\right)}+\frac{\left(a+bx\right)^{n+2}\left(ad-bc\right)\left(3ad-bc\right)}{b^4\left(n+2\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(b*x+a)**n*(d*x+c)**2,x)
```

```
[Out] -a*(a + b*x)**(n + 1)*(a*d - b*c)**2/(b**4*(n + 1)) + d**2*(a + b
*x)**(n + 4)/(b**4*(n + 4)) - d*(a + b*x)**(n + 3)*(3*a*d - 2*b*c
)/(b**4*(n + 3)) + (a + b*x)**(n + 2)*(a*d - b*c)*(3*a*d - b*c)/(
b**4*(n + 2))
```

Mathematica [A] time = 0.159342, size = 160, normalized size = 1.4

$$\frac{(a+bx)^{n+1}\left(-6a^3d^2+2a^2bd(2c(n+4)+3d(n+1)x)-ab^2\left(c^2\left(n^2+7n+12\right)+4cd\left(n^2+5n+4\right)x+3d^2\left(n^2+3n+2\right)x^2\right)\right.}{b^4(n+1)(n+2)(n+3)(n+4)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x*(a + b*x)^n*(c + d*x)^2,x]
```

```
[Out] ((a + b*x)^(1 + n)*(-6*a^3*d^2 + 2*a^2*b*d*(2*c*(4 + n) + 3*d*(1
+ n)*x) - a*b^2*(c^2*(12 + 7*n + n^2) + 4*c*d*(4 + 5*n + n^2)*x +
 3*d^2*(2 + 3*n + n^2)*x^2) + b^3*(1 + n)*x*(c^2*(12 + 7*n + n^2)
 + 2*c*d*(8 + 6*n + n^2)*x + d^2*(6 + 5*n + n^2)*x^2)))/(b^4*(1 +
 n)*(2 + n)*(3 + n)*(4 + n))
```

Maple [B] time = 0.013, size = 324, normalized size = 2.8

$$-\frac{(bx+a)^{1+n}\left(-b^3d^2n^3x^3-2\,b^3cdn^3x^2-6\,b^3d^2n^2x^3+3\,ab^2d^2n^2x^2-b^3c^2n^3x-14\,b^3cdn^2x^2-11\,b^3d^2nx^3+4\,ab^2cdn^2x+9\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(b*x+a)^n*(d*x+c)^2,x)
```

```
[Out] -(b*x+a)^(1+n)*(-b^3*d^2*n^3*x^3-2*b^3*c*d*n^3*x^2-6*b^3*d^2*n^2*
x^3+3*a*b^2*d^2*n^2*x^2-b^3*c^2*n^3*x-14*b^3*c*d*n^2*x^2-11*b^3*d
^2*n*x^3+4*a*b^2*c*d*n^2*x+9*a*b^2*d^2*n*x^2-8*b^3*c^2*n^2*x-28*b
^3*c*d*n*x^2-6*b^3*d^2*x^3-6*a^2*b*d^2*n*x+a*b^2*c^2*n^2+20*a*b^2
*c*d*n*x+6*a*b^2*d^2*x^2-19*b^3*c^2*n*x-16*b^3*c*d*x^2-4*a^2*b*c*
d*n-6*a^2*b*d^2*x+7*a*b^2*c^2*n+16*a*b^2*c*d*x-12*b^3*c^2*x+6*a^3
*d^2-16*a^2*b*c*d+12*a*b^2*c^2)/b^4/(n^4+10*n^3+35*n^2+50*n+24)
```

Maxima [A] time = 1.38233, size = 298, normalized size = 2.61

$$\frac{\left(b^2(n+1)x^2+abnx-a^2\right)(bx+a)^nc^2}{(n^2+3\,n+2)b^2}+\frac{2\left(\left(n^2+3\,n+2\right)b^3x^3+\left(n^2+n\right)ab^2x^2-2\,a^2bnx+2\,a^3\right)(bx+a)^ncd}{(n^3+6\,n^2+11\,n+6)b^3}+\frac{\left(\left(n^3+6\,n^2+11\,n+6\right)b^4x^4+\left(n^3+3\,n^2+2\,n\right)ab^3x^3-3\left(n^2+n\right)a^2b^2x^2+6\,a^3bnx-6\,a^4\right)(bx+a)^nd^2}{(n^4+10\,n^3+35\,n^2+50\,n+24)b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2*(b*x + a)^n*x,x, algorithm="maxima")
```

```
[Out] (b^2*(n + 1)*x^2 + a*b*n*x - a^2)*(b*x + a)^n*c^2/((n^2 + 3*n + 2
)*b^2) + 2*((n^2 + 3*n + 2)*b^3*x^3 + (n^2 + n)*a*b^2*x^2 - 2*a^2
*b*n*x + 2*a^3)*(b*x + a)^n*c*d/((n^3 + 6*n^2 + 11*n + 6)*b^3) +
((n^3 + 6*n^2 + 11*n + 6)*b^4*x^4 + (n^3 + 3*n^2 + 2*n)*a*b^3*x^3
 - 3*(n^2 + n)*a^2*b^2*x^2 + 6*a^3*b*n*x - 6*a^4)*(b*x + a)^n*d^2
/((n^4 + 10*n^3 + 35*n^2 + 50*n + 24)*b^4)
```

Fricas [A] time = 0.22553, size = 531, normalized size = 4.66

$$-\frac{\left(a^2b^2c^2n^2+12\,a^2b^2c^2-16\,a^3bcd+6\,a^4d^2-\left(b^4d^2n^3+6\,b^4d^2n^2+11\,b^4d^2n+6\,b^4d^2\right)x^4-\left(16\,b^4cd+\left(2\,b^4cd+ab^3d^2\right)n^3+\right.\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2*(b*x + a)^n*x,x, algorithm="fricas")
```

```
[Out] -(a^2*b^2*c^2*n^2 + 12*a^2*b^2*c^2 - 16*a^3*b*c*d + 6*a^4*d^2 - (
b^4*d^2*n^3 + 6*b^4*d^2*n^2 + 11*b^4*d^2*n + 6*b^4*d^2)*x^4 - (16
*b^4*c*d + (2*b^4*c*d + a*b^3*d^2)*n^3 + (14*b^4*c*d + 3*a*b^3*d^
2)*n^2 + 2*(14*b^4*c*d + a*b^3*d^2)*n)*x^3 - (12*b^4*c^2 + (b^4*c
^2 + 2*a*b^3*c*d)*n^3 + (8*b^4*c^2 + 10*a*b^3*c*d - 3*a^2*b^2*d^2
)*n^2 + (19*b^4*c^2 + 8*a*b^3*c*d - 3*a^2*b^2*d^2)*n)*x^2 + (7*a^
2*b^2*c^2 - 4*a^3*b*c*d)*n - (a*b^3*c^2*n^3 + (7*a*b^3*c^2 - 4*a^
2*b^2*c*d)*n^2 + 2*(6*a*b^3*c^2 - 8*a^2*b^2*c*d + 3*a^3*b*d^2)*n)
*x)*(b*x + a)^n/(b^4*n^4 + 10*b^4*n^3 + 35*b^4*n^2 + 50*b^4*n + 2
4*b^4)
```

Sympy [A] time = 9.81202, size = 3402, normalized size = 29.84

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(b*x+a)**n*(d*x+c)**2,x)
```

```
[Out] Piecewise((a**n*(c**2*x**2/2 + 2*c*d*x**3/3 + d**2*x**4/4), Eq(b,
 0)), (6*a**5*d**2*log(a/b + x)/(6*a**5*b**4 + 18*a**4*b**5*x + 1
8*a**3*b**6*x**2 + 6*a**2*b**7*x**3) + 2*a**5*d**2/(6*a**5*b**4 +
 18*a**4*b**5*x + 18*a**3*b**6*x**2 + 6*a**2*b**7*x**3) + 18*a**4
*b*d**2*x*log(a/b + x)/(6*a**5*b**4 + 18*a**4*b**5*x + 18*a**3*b*
*6*x**2 + 6*a**2*b**7*x**3) + 18*a**3*b**2*d**2*x**2*log(a/b + x)
/(6*a**5*b**4 + 18*a**4*b**5*x + 18*a**3*b**6*x**2 + 6*a**2*b**7*
x**3) - 9*a**3*b**2*d**2*x**2/(6*a**5*b**4 + 18*a**4*b**5*x + 18*
a**3*b**6*x**2 + 6*a**2*b**7*x**3) + 6*a**2*b**3*d**2*x**3*log(a/
b + x)/(6*a**5*b**4 + 18*a**4*b**5*x + 18*a**3*b**6*x**2 + 6*a**2
*b**7*x**3) - 9*a**2*b**3*d**2*x**3/(6*a**5*b**4 + 18*a**4*b**5*x
 + 18*a**3*b**6*x**2 + 6*a**2*b**7*x**3) + 3*a*b**4*c**2*x**2/(6*
a**5*b**4 + 18*a**4*b**5*x + 18*a**3*b**6*x**2 + 6*a**2*b**7*x**3
) + 4*a*b**4*c*d*x**3/(6*a**5*b**4 + 18*a**4*b**5*x + 18*a**3*b**
6*x**2 + 6*a**2*b**7*x**3) + b**5*c**2*x**3/(6*a**5*b**4 + 18*a**
4*b**5*x + 18*a**3*b**6*x**2 + 6*a**2*b**7*x**3), Eq(n, -4)), (-6
*a**4*d**2*log(a/b + x)/(2*a**3*b**4 + 4*a**2*b**5*x + 2*a*b**6*x
**2) - 3*a**4*d**2/(2*a**3*b**4 + 4*a**2*b**5*x + 2*a*b**6*x**2)
+ 4*a**3*b*c*d*log(a/b + x)/(2*a**3*b**4 + 4*a**2*b**5*x + 2*a*b*
*6*x**2) + 2*a**3*b*c*d/(2*a**3*b**4 + 4*a**2*b**5*x + 2*a*b**6*x
**2) - 12*a**3*b*d**2*x*log(a/b + x)/(2*a**3*b**4 + 4*a**2*b**5*x
 + 2*a*b**6*x**2) + 8*a**2*b**2*c*d*x*log(a/b + x)/(2*a**3*b**4 +
 4*a**2*b**5*x + 2*a*b**6*x**2) - 6*a**2*b**2*d**2*x**2*log(a/b +
 x)/(2*a**3*b**4 + 4*a**2*b**5*x + 2*a*b**6*x**2) + 6*a**2*b**2*d
**2*x**2/(2*a**3*b**4 + 4*a**2*b**5*x + 2*a*b**6*x**2) + 4*a*b**3
*c*d*x**2*log(a/b + x)/(2*a**3*b**4 + 4*a**2*b**5*x + 2*a*b**6*x*
*2) - 4*a*b**3*c*d*x**2/(2*a**3*b**4 + 4*a**2*b**5*x + 2*a*b**6*x
**2) + 2*a*b**3*d**2*x**3/(2*a**3*b**4 + 4*a**2*b**5*x + 2*a*b**6
*x**2) + b**4*c**2*x**2/(2*a**3*b**4 + 4*a**2*b**5*x + 2*a*b**6*x
**2), Eq(n, -3)), (6*a**3*d**2*log(a/b + x)/(2*a*b**4 + 2*b**5*x)
 + 6*a**3*d**2/(2*a*b**4 + 2*b**5*x) - 8*a**2*b*c*d*log(a/b + x)/
(2*a*b**4 + 2*b**5*x) - 8*a**2*b*c*d/(2*a*b**4 + 2*b**5*x) + 6*a*
*2*b*d**2*x*log(a/b + x)/(2*a*b**4 + 2*b**5*x) + 2*a*b**2*c**2*lo
g(a/b + x)/(2*a*b**4 + 2*b**5*x) + 2*a*b**2*c**2/(2*a*b**4 + 2*b*
*5*x) - 8*a*b**2*c*d*x*log(a/b + x)/(2*a*b**4 + 2*b**5*x) - 3*a*b
**2*d**2*x**2/(2*a*b**4 + 2*b**5*x) + 2*b**3*c**2*x*log(a/b + x)/
(2*a*b**4 + 2*b**5*x) + 4*b**3*c*d*x**2/(2*a*b**4 + 2*b**5*x) + b
**3*d**2*x**3/(2*a*b**4 + 2*b**5*x), Eq(n, -2)), (-a**3*d**2*log(
a/b + x)/b**4 + 2*a**2*c*d*log(a/b + x)/b**3 + a**2*d**2*x/b**3 -
 a*c**2*log(a/b + x)/b**2 - 2*a*c*d*x/b**2 - a*d**2*x**2/(2*b**2)
 + c**2*x/b + c*d*x**2/b + d**2*x**3/(3*b), Eq(n, -1)), (-6*a**4*
d**2*(a + b*x)**n/(b**4*n**4 + 10*b**4*n**3 + 35*b**4*n**2 + 50*b
**4*n + 24*b**4) + 4*a**3*b*c*d*n*(a + b*x)**n/(b**4*n**4 + 10*b*
*4*n**3 + 35*b**4*n**2 + 50*b**4*n + 24*b**4) + 16*a**3*b*c*d*(a
+ b*x)**n/(b**4*n**4 + 10*b**4*n**3 + 35*b**4*n**2 + 50*b**4*n +
24*b**4) + 6*a**3*b*d**2*n*x*(a + b*x)**n/(b**4*n**4 + 10*b**4*n*
*3 + 35*b**4*n**2 + 50*b**4*n + 24*b**4) - a**2*b**2*c**2*n**2*(a
 + b*x)**n/(b**4*n**4 + 10*b**4*n**3 + 35*b**4*n**2 + 50*b**4*n +
 24*b**4) - 7*a**2*b**2*c**2*n*(a + b*x)**n/(b**4*n**4 + 10*b**4*
n**3 + 35*b**4*n**2 + 50*b**4*n + 24*b**4) - 12*a**2*b**2*c**2*(a
 + b*x)**n/(b**4*n**4 + 10*b**4*n**3 + 35*b**4*n**2 + 50*b**4*n +
 24*b**4) - 4*a**2*b**2*c*d*n**2*x*(a + b*x)**n/(b**4*n**4 + 10*b
**4*n**3 + 35*b**4*n**2 + 50*b**4*n + 24*b**4) - 16*a**2*b**2*c*d
*n*x*(a + b*x)**n/(b**4*n**4 + 10*b**4*n**3 + 35*b**4*n**2 + 50*b
**4*n + 24*b**4) - 3*a**2*b**2*d**2*n**2*x**2*(a + b*x)**n/(b**4*
n**4 + 10*b**4*n**3 + 35*b**4*n**2 + 50*b**4*n + 24*b**4) - 3*a**
2*b**2*d**2*n*x**2*(a + b*x)**n/(b**4*n**4 + 10*b**4*n**3 + 35*b*
*4*n**2 + 50*b**4*n + 24*b**4) + a*b**3*c**2*n**3*x*(a + b*x)**n/
(b**4*n**4 + 10*b**4*n**3 + 35*b**4*n**2 + 50*b**4*n + 24*b**4) +
 7*a*b**3*c**2*n**2*x*(a + b*x)**n/(b**4*n**4 + 10*b**4*n**3 + 35
*b**4*n**2 + 50*b**4*n + 24*b**4) + 12*a*b**3*c**2*n*x*(a + b*x)*
*n/(b**4*n**4 + 10*b**4*n**3 + 35*b**4*n**2 + 50*b**4*n + 24*b**4
) + 2*a*b**3*c*d*n**3*x**2*(a + b*x)**n/(b**4*n**4 + 10*b**4*n**3
 + 35*b**4*n**2 + 50*b**4*n + 24*b**4) + 10*a*b**3*c*d*n**2*x**2*
(a + b*x)**n/(b**4*n**4 + 10*b**4*n**3 + 35*b**4*n**2 + 50*b**4*n
 + 24*b**4) + 8*a*b**3*c*d*n*x**2*(a + b*x)**n/(b**4*n**4 + 10*b*
*4*n**3 + 35*b**4*n**2 + 50*b**4*n + 24*b**4) + a*b**3*d**2*n**3*
x**3*(a + b*x)**n/(b**4*n**4 + 10*b**4*n**3 + 35*b**4*n**2 + 50*b
**4*n + 24*b**4) + 3*a*b**3*d**2*n**2*x**3*(a + b*x)**n/(b**4*n**
```

```
4 + 10*b**4*n**3 + 35*b**4*n**2 + 50*b**4*n + 24*b**4) + 2*a*b**3
*d**2*n*x**3*(a + b*x)**n/(b**4*n**4 + 10*b**4*n**3 + 35*b**4*n**
2 + 50*b**4*n + 24*b**4) + b**4*c**2*n**3*x**2*(a + b*x)**n/(b**4
*n**4 + 10*b**4*n**3 + 35*b**4*n**2 + 50*b**4*n + 24*b**4) + 8*b*
*4*c**2*n**2*x**2*(a + b*x)**n/(b**4*n**4 + 10*b**4*n**3 + 35*b**
4*n**2 + 50*b**4*n + 24*b**4) + 19*b**4*c**2*n*x**2*(a + b*x)**n/
(b**4*n**4 + 10*b**4*n**3 + 35*b**4*n**2 + 50*b**4*n + 24*b**4) +
 12*b**4*c**2*x**2*(a + b*x)**n/(b**4*n**4 + 10*b**4*n**3 + 35*b*
*4*n**2 + 50*b**4*n + 24*b**4) + 2*b**4*c*d*n**3*x**3*(a + b*x)**
n/(b**4*n**4 + 10*b**4*n**3 + 35*b**4*n**2 + 50*b**4*n + 24*b**4)
 + 14*b**4*c*d*n**2*x**3*(a + b*x)**n/(b**4*n**4 + 10*b**4*n**3 +
 35*b**4*n**2 + 50*b**4*n + 24*b**4) + 28*b**4*c*d*n*x**3*(a + b*
x)**n/(b**4*n**4 + 10*b**4*n**3 + 35*b**4*n**2 + 50*b**4*n + 24*b
**4) + 16*b**4*c*d*x**3*(a + b*x)**n/(b**4*n**4 + 10*b**4*n**3 +
35*b**4*n**2 + 50*b**4*n + 24*b**4) + b**4*d**2*n**3*x**4*(a + b*
x)**n/(b**4*n**4 + 10*b**4*n**3 + 35*b**4*n**2 + 50*b**4*n + 24*b
**4) + 6*b**4*d**2*n**2*x**4*(a + b*x)**n/(b**4*n**4 + 10*b**4*n*
*3 + 35*b**4*n**2 + 50*b**4*n + 24*b**4) + 11*b**4*d**2*n*x**4*(a
 + b*x)**n/(b**4*n**4 + 10*b**4*n**3 + 35*b**4*n**2 + 50*b**4*n +
 24*b**4) + 6*b**4*d**2*x**4*(a + b*x)**n/(b**4*n**4 + 10*b**4*n*
*3 + 35*b**4*n**2 + 50*b**4*n + 24*b**4), True))
```

GIAC/XCAS [A] time = 0.237082, size = 976, normalized size = 8.56

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2*(b*x + a)^n*x,x, algorithm="giac")
```

```
[Out] (b^4*d^2*n^3*x^4*e^(n*ln(b*x + a)) + 2*b^4*c*d*n^3*x^3*e^(n*ln(b*
x + a)) + a*b^3*d^2*n^3*x^3*e^(n*ln(b*x + a)) + 6*b^4*d^2*n^2*x^4
*e^(n*ln(b*x + a)) + b^4*c^2*n^3*x^2*e^(n*ln(b*x + a)) + 2*a*b^3*
c*d*n^3*x^2*e^(n*ln(b*x + a)) + 14*b^4*c*d*n^2*x^3*e^(n*ln(b*x +
a)) + 3*a*b^3*d^2*n^2*x^3*e^(n*ln(b*x + a)) + 11*b^4*d^2*n*x^4*e^
(n*ln(b*x + a)) + a*b^3*c^2*n^3*x*e^(n*ln(b*x + a)) + 8*b^4*c^2*n
^2*x^2*e^(n*ln(b*x + a)) + 10*a*b^3*c*d*n^2*x^2*e^(n*ln(b*x + a))
 - 3*a^2*b^2*d^2*n^2*x^2*e^(n*ln(b*x + a)) + 28*b^4*c*d*n*x^3*e^(
n*ln(b*x + a)) + 2*a*b^3*d^2*n*x^3*e^(n*ln(b*x + a)) + 6*b^4*d^2*
x^4*e^(n*ln(b*x + a)) + 7*a*b^3*c^2*n^2*x*e^(n*ln(b*x + a)) - 4*a
^2*b^2*c*d*n^2*x*e^(n*ln(b*x + a)) + 19*b^4*c^2*n*x^2*e^(n*ln(b*x
 + a)) + 8*a*b^3*c*d*n*x^2*e^(n*ln(b*x + a)) - 3*a^2*b^2*d^2*n*x^
2*e^(n*ln(b*x + a)) + 16*b^4*c*d*x^3*e^(n*ln(b*x + a)) - a^2*b^2*
c^2*n^2*e^(n*ln(b*x + a)) + 12*a*b^3*c^2*n*x*e^(n*ln(b*x + a)) -
16*a^2*b^2*c*d*n*x*e^(n*ln(b*x + a)) + 6*a^3*b*d^2*n*x*e^(n*ln(b*
x + a)) + 12*b^4*c^2*x^2*e^(n*ln(b*x + a)) - 7*a^2*b^2*c^2*n*e^(n
*ln(b*x + a)) + 4*a^3*b*c*d*n*e^(n*ln(b*x + a)) - 12*a^2*b^2*c^2*
e^(n*ln(b*x + a)) + 16*a^3*b*c*d*e^(n*ln(b*x + a)) - 6*a^4*d^2*e^
(n*ln(b*x + a)))/(b^4*n^4 + 10*b^4*n^3 + 35*b^4*n^2 + 50*b^4*n +
24*b^4)
```

3.913 $\int (a+bx)^n (c+dx)^2\,dx$

Optimal. Leaf size=78

$$\frac{(bc-ad)^2(a+bx)^{n+1}}{b^3(n+1)}+\frac{2d(bc-ad)(a+bx)^{n+2}}{b^3(n+2)}+\frac{d^2(a+bx)^{n+3}}{b^3(n+3)}$$

```
[Out] ((b*c - a*d)^2*(a + b*x)^(1 + n))/(b^3*(1 + n)) + (2*d*(b*c - a*d
)*(a + b*x)^(2 + n))/(b^3*(2 + n)) + (d^2*(a + b*x)^(3 + n))/(b^3
*(3 + n))
```

Rubi [A] time = 0.0797068, antiderivative size = 78, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.067

$$\frac{(bc-ad)^2(a+bx)^{n+1}}{b^3(n+1)}+\frac{2d(bc-ad)(a+bx)^{n+2}}{b^3(n+2)}+\frac{d^2(a+bx)^{n+3}}{b^3(n+3)}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^n*(c + d*x)^2,x]
```

```
[Out] ((b*c - a*d)^2*(a + b*x)^(1 + n))/(b^3*(1 + n)) + (2*d*(b*c - a*d
)*(a + b*x)^(2 + n))/(b^3*(2 + n)) + (d^2*(a + b*x)^(3 + n))/(b^3
*(3 + n))
```

Rubi in Sympy [A] time = 19.4181, size = 66, normalized size = 0.85

$$\frac{d^2\,(a+bx)^{n+3}}{b^3\,(n+3)}-\frac{2d\,(a+bx)^{n+2}\,(ad-bc)}{b^3\,(n+2)}+\frac{(a+bx)^{n+1}\,(ad-bc)^2}{b^3\,(n+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**n*(d*x+c)**2,x)
```

```
[Out] d**2*(a + b*x)**(n + 3)/(b**3*(n + 3)) - 2*d*(a + b*x)**(n + 2)*(
a*d - b*c)/(b**3*(n + 2)) + (a + b*x)**(n + 1)*(a*d - b*c)**2/(b*
*3*(n + 1))
```

Mathematica [A] time = 0.124005, size = 99, normalized size = 1.27

$$\frac{(a+bx)^{n+1}\left(2a^2d^2-2abd(c(n+3)+d(n+1)x)+b^2\left(c^2\left(n^2+5n+6\right)+2cd\left(n^2+4n+3\right)x+d^2\left(n^2+3n+2\right)x^2\right)\right)}{b^3(n+1)(n+2)(n+3)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^n*(c + d*x)^2,x]
```

```
[Out] ((a + b*x)^(1 + n)*(2*a^2*d^2 - 2*a*b*d*(c*(3 + n) + d*(1 + n)*x)
 + b^2*(c^2*(6 + 5*n + n^2) + 2*c*d*(3 + 4*n + n^2)*x + d^2*(2 +
3*n + n^2)*x^2)))/(b^3*(1 + n)*(2 + n)*(3 + n))
```

Maple [B] time = 0.01, size = 159, normalized size = 2.

$$\frac{(bx+a)^{1+n}\left(b^2d^2n^2x^2+2\,b^2cdn^2x+3\,b^2d^2nx^2-2\,abd^2nx+b^2c^2n^2+8\,b^2cdnx+2\,b^2d^2x^2-2\,abcdn-2\,abd^2x+5\,b^2c^2n+\right.}{b^3\,(n^3+6\,n^2+11\,n+6)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^n*(d*x+c)^2,x)
```

```
[Out] (b*x+a)^(1+n)*(b^2*d^2*n^2*x^2+2*b^2*c*d*n^2*x+3*b^2*d^2*n*x^2-2*
a*b*d^2*n*x+b^2*c^2*n^2+8*b^2*c*d*n*x+2*b^2*d^2*x^2-2*a*b*c*d*n-2
*a*b*d^2*x+5*b^2*c^2*n+6*b^2*c*d*x+2*a^2*d^2-6*a*b*c*d+6*b^2*c^2)
/b^3/(n^3+6*n^2+11*n+6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2*(b*x + a)^n,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.221806, size = 317, normalized size = 4.06

$$\frac{\left(ab^2c^2n^2 + 6\,ab^2c^2 - 6\,a^2bcd + 2\,a^3d^2 + \left(b^3d^2n^2 + 3\,b^3d^2n + 2\,b^3d^2\right)x^3 + \left(6\,b^3cd + \left(2\,b^3cd + ab^2d^2\right)n^2 + \left(8\,b^3cd + ab^2d^2\right)n\right)}{b^3n^3 + 6\,b^3n^2 + 11\,b^3n +}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2*(b*x + a)^n,x, algorithm="fricas")
```

```
[Out] (a*b^2*c^2*n^2 + 6*a*b^2*c^2 - 6*a^2*b*c*d + 2*a^3*d^2 + (b^3*d^2
*n^2 + 3*b^3*d^2*n + 2*b^3*d^2)*x^3 + (6*b^3*c*d + (2*b^3*c*d + a
*b^2*d^2)*n^2 + (8*b^3*c*d + a*b^2*d^2)*n)*x^2 + (5*a*b^2*c^2 - 2
*a^2*b*c*d)*n + (6*b^3*c^2 + (b^3*c^2 + 2*a*b^2*c*d)*n^2 + (5*b^3
*c^2 + 6*a*b^2*c*d - 2*a^2*b*d^2)*n)*x)*(b*x + a)^n/(b^3*n^3 + 6*
b^3*n^2 + 11*b^3*n + 6*b^3)
```

Sympy [A] time = 5.74074, size = 1504, normalized size = 19.28

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**n*(d*x+c)**2,x)
```

```
[Out] Piecewise((a**n*(c**2*x + c*d*x**2 + d**2*x**3/3), Eq(b, 0)), (2*
a**3*d**2*log(a/b + x)/(2*a**3*b**3 + 4*a**2*b**4*x + 2*a*b**5*x*
*2) + a**3*d**2/(2*a**3*b**3 + 4*a**2*b**4*x + 2*a*b**5*x**2) + 4
*a**2*b*d**2*x*log(a/b + x)/(2*a**3*b**3 + 4*a**2*b**4*x + 2*a*b*
*5*x**2) - a*b**2*c**2/(2*a**3*b**3 + 4*a**2*b**4*x + 2*a*b**5*x*
*2) + 2*a*b**2*d**2*x**2*log(a/b + x)/(2*a**3*b**3 + 4*a**2*b**4*
x + 2*a*b**5*x**2) - 2*a*b**2*d**2*x**2/(2*a**3*b**3 + 4*a**2*b**
4*x + 2*a*b**5*x**2) + 2*b**3*c*d*x**2/(2*a**3*b**3 + 4*a**2*b**4
*x + 2*a*b**5*x**2), Eq(n, -3)), (-2*a**2*d**2*log(a/b + x)/(a*b*
*3 + b**4*x) - 2*a**2*d**2/(a*b**3 + b**4*x) + 2*a*b*c*d*log(a/b
+ x)/(a*b**3 + b**4*x) + 2*a*b*c*d/(a*b**3 + b**4*x) - 2*a*b*d**2
*x*log(a/b + x)/(a*b**3 + b**4*x) - b**2*c**2/(a*b**3 + b**4*x) +
 2*b**2*c*d*x*log(a/b + x)/(a*b**3 + b**4*x) + b**2*d**2*x**2/(a*
b**3 + b**4*x), Eq(n, -2)), (a**2*d**2*log(a/b + x)/b**3 - 2*a*c*
d*log(a/b + x)/b**2 - a*d**2*x/b**2 + c**2*log(a/b + x)/b + 2*c*d
*x/b + d**2*x**2/(2*b), Eq(n, -1)), (2*a**3*d**2*(a + b*x)**n/(b*
```

```
*3*n**3 + 6*b**3*n**2 + 11*b**3*n + 6*b**3) - 2*a**2*b*c*d*n*(a +
 b*x)**n/(b**3*n**3 + 6*b**3*n**2 + 11*b**3*n + 6*b**3) - 6*a**2*
b*c*d*(a + b*x)**n/(b**3*n**3 + 6*b**3*n**2 + 11*b**3*n + 6*b**3)
 - 2*a**2*b*d**2*n*x*(a + b*x)**n/(b**3*n**3 + 6*b**3*n**2 + 11*b
**3*n + 6*b**3) + a*b**2*c**2*n**2*(a + b*x)**n/(b**3*n**3 + 6*b*
*3*n**2 + 11*b**3*n + 6*b**3) + 5*a*b**2*c**2*n*(a + b*x)**n/(b**
3*n**3 + 6*b**3*n**2 + 11*b**3*n + 6*b**3) + 6*a*b**2*c**2*(a + b
*x)**n/(b**3*n**3 + 6*b**3*n**2 + 11*b**3*n + 6*b**3) + 2*a*b**2*
c*d*n**2*x*(a + b*x)**n/(b**3*n**3 + 6*b**3*n**2 + 11*b**3*n + 6*
b**3) + 6*a*b**2*c*d*n*x*(a + b*x)**n/(b**3*n**3 + 6*b**3*n**2 +
11*b**3*n + 6*b**3) + a*b**2*d**2*n**2*x**2*(a + b*x)**n/(b**3*n*
*3 + 6*b**3*n**2 + 11*b**3*n + 6*b**3) + a*b**2*d**2*n*x**2*(a +
b*x)**n/(b**3*n**3 + 6*b**3*n**2 + 11*b**3*n + 6*b**3) + b**3*c**
2*n**2*x*(a + b*x)**n/(b**3*n**3 + 6*b**3*n**2 + 11*b**3*n + 6*b*
*3) + 5*b**3*c**2*n*x*(a + b*x)**n/(b**3*n**3 + 6*b**3*n**2 + 11*
b**3*n + 6*b**3) + 6*b**3*c**2*x*(a + b*x)**n/(b**3*n**3 + 6*b**3
*n**2 + 11*b**3*n + 6*b**3) + 2*b**3*c*d*n**2*x**2*(a + b*x)**n/(
b**3*n**3 + 6*b**3*n**2 + 11*b**3*n + 6*b**3) + 8*b**3*c*d*n*x**2
*(a + b*x)**n/(b**3*n**3 + 6*b**3*n**2 + 11*b**3*n + 6*b**3) + 6*
b**3*c*d*x**2*(a + b*x)**n/(b**3*n**3 + 6*b**3*n**2 + 11*b**3*n +
 6*b**3) + b**3*d**2*n**2*x**3*(a + b*x)**n/(b**3*n**3 + 6*b**3*n
**2 + 11*b**3*n + 6*b**3) + 3*b**3*d**2*n*x**3*(a + b*x)**n/(b**3
*n**3 + 6*b**3*n**2 + 11*b**3*n + 6*b**3) + 2*b**3*d**2*x**3*(a +
 b*x)**n/(b**3*n**3 + 6*b**3*n**2 + 11*b**3*n + 6*b**3), True))
```

GIAC/XCAS [A] time = 0.233621, size = 574, normalized size = 7.36

$$\frac{b^3 d^2 n^2 x^3 e^{(n\ln(bx+a))} + 2\, b^3 c d n^2 x^2 e^{(n\ln(bx+a))} + a b^2 d^2 n^2 x^2 e^{(n\ln(bx+a))} + 3\, b^3 d^2 n x^3 e^{(n\ln(bx+a))} + b^3 c^2 n^2 x e^{(n\ln(bx+a))} + 2\, a b^2 c d n^2}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2*(b*x + a)^n,x, algorithm="giac")
```

```
[Out] (b^3*d^2*n^2*x^3*e^(n*ln(b*x + a)) + 2*b^3*c*d*n^2*x^2*e^(n*ln(b*
x + a)) + a*b^2*d^2*n^2*x^2*e^(n*ln(b*x + a)) + 3*b^3*d^2*n*x^3*e
^(n*ln(b*x + a)) + b^3*c^2*n^2*x*e^(n*ln(b*x + a)) + 2*a*b^2*c*d*
n^2*x*e^(n*ln(b*x + a)) + 8*b^3*c*d*n*x^2*e^(n*ln(b*x + a)) + a*b
^2*d^2*n*x^2*e^(n*ln(b*x + a)) + 2*b^3*d^2*x^3*e^(n*ln(b*x + a))
+ a*b^2*c^2*n^2*e^(n*ln(b*x + a)) + 5*b^3*c^2*n*x*e^(n*ln(b*x + a
)) + 6*a*b^2*c*d*n*x*e^(n*ln(b*x + a)) - 2*a^2*b*d^2*n*x*e^(n*ln(
b*x + a)) + 6*b^3*c*d*x^2*e^(n*ln(b*x + a)) + 5*a*b^2*c^2*n*e^(n*
ln(b*x + a)) - 2*a^2*b*c*d*n*e^(n*ln(b*x + a)) + 6*b^3*c^2*x*e^(n
*ln(b*x + a)) + 6*a*b^2*c^2*e^(n*ln(b*x + a)) - 6*a^2*b*c*d*e^(n*
ln(b*x + a)) + 2*a^3*d^2*e^(n*ln(b*x + a)))/(b^3*n^3 + 6*b^3*n^2
+ 11*b^3*n + 6*b^3)
```

3.914 $\int \frac{(a+bx)^n(c+dx)^2}{x}\,dx$

Optimal. Leaf size=88

$$\frac{d(2bc-ad)(a+bx)^{n+1}}{b^2(n+1)}+\frac{d^2(a+bx)^{n+2}}{b^2(n+2)}-\frac{c^2(a+bx)^{n+1}\,{}_2F_1\left(1,n+1;n+2;\frac{bx}{a}+1\right)}{a(n+1)}$$

```
[Out] (d*(2*b*c - a*d)*(a + b*x)^(1 + n))/(b^2*(1 + n)) + (d^2*(a + b*x
)^(2 + n))/(b^2*(2 + n)) - (c^2*(a + b*x)^(1 + n)*Hypergeometric2
F1[1, 1 + n, 2 + n, 1 + (b*x)/a])/(a*(1 + n))
```

Rubi [A] time = 0.108033, antiderivative size = 88, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 2, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.111$

$$\frac{d(2bc-ad)(a+bx)^{n+1}}{b^2(n+1)}+\frac{d^2(a+bx)^{n+2}}{b^2(n+2)}-\frac{c^2(a+bx)^{n+1}\,{}_2F_1\left(1,n+1;n+2;\frac{bx}{a}+1\right)}{a(n+1)}$$

Antiderivative was successfully verified.

```
[In] Int[((a + b*x)^n*(c + d*x)^2)/x,x]
```

```
[Out] (d*(2*b*c - a*d)*(a + b*x)^(1 + n))/(b^2*(1 + n)) + (d^2*(a + b*x
)^(2 + n))/(b^2*(2 + n)) - (c^2*(a + b*x)^(1 + n)*Hypergeometric2
F1[1, 1 + n, 2 + n, 1 + (b*x)/a])/(a*(1 + n))
```

Rubi in Sympy [A] time = 16.3332, size = 71, normalized size = 0.81

$$\frac{d^2\left(a+bx\right)^{n+2}}{b^2\left(n+2\right)}-\frac{d\left(a+bx\right)^{n+1}\left(ad-2bc\right)}{b^2\left(n+1\right)}-\frac{c^2\left(a+bx\right)^{n+1}{}_2F_1\left(\begin{matrix}1,n+1\\n+2\end{matrix}\middle|1+\frac{bx}{a}\right)}{a\left(n+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)**n*(d*x+c)**2/x,x)
```

```
[Out] d**2*(a + b*x)**(n + 2)/(b**2*(n + 2)) - d*(a + b*x)**(n + 1)*(a*
d - 2*b*c)/(b**2*(n + 1)) - c**2*(a + b*x)**(n + 1)*hyper((1, n +
 1), (n + 2,), 1 + b*x/a)/(a*(n + 1))
```

Mathematica [A] time = 0.31871, size = 119, normalized size = 1.35

$$(a+bx)^n\left(\frac{d^2\left(a^2\left(\left(\frac{bx}{a}+1\right)^{-n}-1\right)+abnx+b^2(n+1)x^2\right)}{b^2(n+1)(n+2)}+\frac{c^2\left(\frac{a}{bx}+1\right)^{-n}\,{}_2F_1\left(-n,-n;1-n;-\frac{a}{bx}\right)}{n}+\frac{2cd(a+bx)}{b(n+1)}\right)$$

Antiderivative was successfully verified.

```
[In] Integrate[((a + b*x)^n*(c + d*x)^2)/x,x]
```

```
[Out] (a + b*x)^n*((2*c*d*(a + b*x))/(b*(1 + n)) + (d^2*(a*b*n*x + b^2*
(1 + n)*x^2 + a^2*(-1 + (1 + (b*x)/a)^(-n))))/(b^2*(1 + n)*(2 + n
```

```
)) + (c^2*Hypergeometric2F1[-n, -n, 1 - n, -(a/(b*x))])/(n*(1 + a
/(b*x))^n))
```

Maple [F] time = 0.043, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n (dx+c)^2}{x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((b*x+a)^n*(d*x+c)^2/x,x)
```

```
[Out] int((b*x+a)^n*(d*x+c)^2/x,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)^2*(b*x + a)^n/x,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(d^2x^2 + 2\,cdx + c^2)(bx+a)^n}{x}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)^2*(b*x + a)^n/x,x, algorithm="fricas")
```

```
[Out] integral((d^2*x^2 + 2*c*d*x + c^2)*(b*x + a)^n/x, x)
```

Sympy [A] time = 10.1315, size = 386, normalized size = 4.39

$$-\frac{b^n c^2 n \left(\frac{a}{b}+x\right)^n \left(1+\frac{bx}{a},1,n+1\right)(n+1)}{(n+2)} - \frac{b^n c^2 \left(\frac{a}{b}+x\right)^n \left(1+\frac{bx}{a},1,n+1\right)(n+1)}{(n+2)} + 2cd\left(\begin{cases} a^n x & \text{for } b=0 \\ \frac{\begin{cases} \frac{(a+bx)^{n+1}}{n+1} & \text{for } n \neq -1 \\ \log(a+bx) & \text{otherwise} \end{cases}}{b} & \text{otherwise} \end{cases}\right) + d^2\left(\begin{cases} \frac{a^n x^2}{2} & \text{for } b=0 \\ \frac{a\log\left(\frac{a}{b}+x\right)}{ab^2+b^3x} + \frac{a}{ab^2+b^3x} + \frac{bx\log\left(\frac{a}{b}+x\right)}{ab^2+b^3x} & \text{for } n=-2 \\ -\frac{a\log\left(\frac{a}{b}+x\right)}{b^2} + \frac{x}{b} & \text{for } n=-1 \\ -\frac{a^2(a+bx)^n}{b^2n^2+3b^2n+2b^2} + \frac{abnx(a+bx)^n}{b^2n^2+3b^2n+2b^2} + \frac{b^2nx^2(a+bx)^n}{b^2n^2+3b^2n+2b^2} + \frac{b^2x^2(a+bx)^n}{b^2n^2+3b^2n+2b^2} & \text{otherwise} \end{cases}\right) - \frac{bb^n c^2 nx \left(\frac{a}{b}+x\right)^n \left(1+\frac{bx}{a},1,n+1\right)(n+1)}{a(n+2)} - \frac{bb^n c^2 x \left(\frac{a}{b}+x\right)^n \left(1+\frac{bx}{a},1,n+1\right)(n+1)}{a(n+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**n*(d*x+c)**2/x,x)
```

```
[Out] -b**n*c**2*n*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n +
 1)/gamma(n + 2) - b**n*c**2*(a/b + x)**n*lerchphi(1 + b*x/a, 1,
n + 1)*gamma(n + 1)/gamma(n + 2) + 2*c*d*Piecewise((a**n*x, Eq(b,
 0)), (Piecewise(((a + b*x)**(n + 1)/(n + 1), Ne(n, -1)), (log(a
+ b*x), True))/b, True)) + d**2*Piecewise((a**n*x**2/2, Eq(b, 0))
, (a*log(a/b + x)/(a*b**2 + b**3*x) + a/(a*b**2 + b**3*x) + b*x*l
og(a/b + x)/(a*b**2 + b**3*x), Eq(n, -2)), (-a*log(a/b + x)/b**2
+ x/b, Eq(n, -1)), (-a**2*(a + b*x)**n/(b**2*n**2 + 3*b**2*n + 2*
b**2) + a*b*n*x*(a + b*x)**n/(b**2*n**2 + 3*b**2*n + 2*b**2) + b*
*2*n*x**2*(a + b*x)**n/(b**2*n**2 + 3*b**2*n + 2*b**2) + b**2*x**
2*(a + b*x)**n/(b**2*n**2 + 3*b**2*n + 2*b**2), True)) - b*b**n*c
**2*n*x*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n + 1)/(
a*gamma(n + 2)) - b*b**n*c**2*x*(a/b + x)**n*lerchphi(1 + b*x/a,
1, n + 1)*gamma(n + 1)/(a*gamma(n + 2))
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(dx+c)^2(bx+a)^n}{x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2*(b*x + a)^n/x,x, algorithm="giac")
```

```
[Out] integrate((d*x + c)^2*(b*x + a)^n/x, x)
```

3.915 $\int \frac{(a+bx)^n(c+dx)^2}{x^2}\,dx$

Optimal. Leaf size=87

$$-\frac{c(a+bx)^{n+1}(2ad+bcn)\,{}_2F_1\left(1,n+1;n+2;\frac{bx}{a}+1\right)}{a^2(n+1)}-\frac{c^2(a+bx)^{n+1}}{ax}+\frac{d^2(a+bx)^{n+1}}{b(n+1)}$$

```
[Out] (d^2*(a + b*x)^(1 + n))/(b*(1 + n)) - (c^2*(a + b*x)^(1 + n))/(a*
x) - (c*(2*a*d + b*c*n)*(a + b*x)^(1 + n)*Hypergeometric2F1[1, 1
+ n, 2 + n, 1 + (b*x)/a])/(a^2*(1 + n))
```

Rubi [A] time = 0.115406, antiderivative size = 87, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$-\frac{c(a+bx)^{n+1}(2ad+bcn)\,{}_2F_1\left(1,n+1;n+2;\frac{bx}{a}+1\right)}{a^2(n+1)}-\frac{c^2(a+bx)^{n+1}}{ax}+\frac{d^2(a+bx)^{n+1}}{b(n+1)}$$

Antiderivative was successfully verified.

```
[In] Int[((a + b*x)^n*(c + d*x)^2)/x^2,x]
```

```
[Out] (d^2*(a + b*x)^(1 + n))/(b*(1 + n)) - (c^2*(a + b*x)^(1 + n))/(a*
x) - (c*(2*a*d + b*c*n)*(a + b*x)^(1 + n)*Hypergeometric2F1[1, 1
+ n, 2 + n, 1 + (b*x)/a])/(a^2*(1 + n))
```

Rubi in Sympy [A] time = 14.4069, size = 70, normalized size = 0.8

$$\frac{d^2\left(a+bx\right)^{n+1}}{b\left(n+1\right)}-\frac{c^2\left(a+bx\right)^{n+1}}{ax}-\frac{c\left(a+bx\right)^{n+1}\left(2ad+bcn\right){}_2F_1\left(\left.\begin{matrix}1,n+1\\n+2\end{matrix}\right|1+\frac{bx}{a}\right)}{a^2\left(n+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)**n*(d*x+c)**2/x**2,x)
```

```
[Out] d**2*(a + b*x)**(n + 1)/(b*(n + 1)) - c**2*(a + b*x)**(n + 1)/(a*
x) - c*(a + b*x)**(n + 1)*(2*a*d + b*c*n)*hyper((1, n + 1), (n +
2,), 1 + b*x/a)/(a**2*(n + 1))
```

Mathematica [A] time = 0.308175, size = 117, normalized size = 1.34

$$(a+bx)^n\left(\frac{c^2\left(\frac{a}{bx}+1\right)^{-n}{}_2F_1\left(1-n,-n;2-n;-\frac{a}{bx}\right)}{(n-1)x}+\frac{2cd\left(\frac{a}{bx}+1\right)^{-n}{}_2F_1\left(-n,-n;1-n;-\frac{a}{bx}\right)}{n}+\frac{d(ad+bdx)}{bn+b}\right)$$

Antiderivative was successfully verified.

```
[In] Integrate[((a + b*x)^n*(c + d*x)^2)/x^2,x]
```

```
[Out] (a + b*x)^n*((d*(a*d + b*d*x))/(b + b*n) + (c^2*Hypergeometric2F1
[1 - n, -n, 2 - n, -(a/(b*x))])/((-1 + n)*(1 + a/(b*x))^n*x) + (2
*c*d*Hypergeometric2F1[-n, -n, 1 - n, -(a/(b*x))])/(n*(1 + a/(b*x
```

```
))^n))
```

Maple [F] time = 0.069, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n (dx+c)^2}{x^2} dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^n*(d*x+c)^2/x^2,x)
```

```
[Out] int((b*x+a)^n*(d*x+c)^2/x^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2*(b*x + a)^n/x^2,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(d^2x^2 + 2\,cdx + c^2)(bx+a)^n}{x^2}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2*(b*x + a)^n/x^2,x, algorithm="fricas")
```

```
[Out] integral((d^2*x^2 + 2*c*d*x + c^2)*(b*x + a)^n/x^2, x)
```

Sympy [A] time = 13.4361, size = 554, normalized size = 6.37

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**n*(d*x+c)**2/x**2,x)
```

```
[Out] b**n*c**2*n**2*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n
 + 1)/(x*gamma(n + 2)) + b**n*c**2*n*(a/b + x)**n*lerchphi(1 + b*
x/a, 1, n + 1)*gamma(n + 1)/(x*gamma(n + 2)) - b**n*c**2*n*(a/b +
 x)**n*gamma(n + 1)/(x*gamma(n + 2)) - b**n*c**2*(a/b + x)**n*gam
ma(n + 1)/(x*gamma(n + 2)) - 2*b**n*c*d*n*(a/b + x)**n*lerchphi(1
 + b*x/a, 1, n + 1)*gamma(n + 1)/gamma(n + 2) - 2*b**n*c*d*(a/b +
 x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n + 1)/gamma(n + 2) +
d**2*Piecewise((a**n*x, Eq(b, 0)), (Piecewise(((a + b*x)**(n + 1)
/(n + 1), Ne(n, -1)), (log(a + b*x), True))/b, True)) + b*b**n*c*
*2*n**2*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n + 1)/(
a*gamma(n + 2)) + b*b**n*c**2*n*(a/b + x)**n*lerchphi(1 + b*x/a,
1, n + 1)*gamma(n + 1)/(a*gamma(n + 2)) - b*b**n*c**2*n*(a/b + x)
**n*gamma(n + 1)/(a*gamma(n + 2)) - b*b**n*c**2*(a/b + x)**n*gamm
```

```
a(n + 1)/(a*gamma(n + 2)) - 2*b*b**n*c*d*n*x*(a/b + x)**n*lerchph
i(1 + b*x/a, 1, n + 1)*gamma(n + 1)/(a*gamma(n + 2)) - 2*b*b**n*c
*d*x*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n + 1)/(a*g
amma(n + 2)) - b**2*b**n*c**2*n**2*(a/b + x)**2*(a/b + x)**n*lerc
hphi(1 + b*x/a, 1, n + 1)*gamma(n + 1)/(a**2*x*gamma(n + 2)) - b*
*2*b**n*c**2*n*(a/b + x)**2*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n
 + 1)*gamma(n + 1)/(a**2*x*gamma(n + 2))
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(dx+c)^2(bx+a)^n}{x^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2*(b*x + a)^n/x^2,x, algorithm="giac")
```

```
[Out] integrate((d*x + c)^2*(b*x + a)^n/x^2, x)
```

3.916 $\int \frac{(a+bx)^n(c+dx)^2}{x^3} dx$

Optimal. Leaf size=124

$$-\frac{c(a+bx)^{n+1}(4ad-bc(1-n))}{2a^2x}-\frac{(a+bx)^{n+1}\left(2a^2d^2+4abcdn-b^2c^2(1-n)n\right)\,{}_2F_1\left(1,n+1;n+2;\frac{bx}{a}+1\right)}{2a^3(n+1)}-\frac{c^2(a+bx)^{n+1}}{2ax^2}$$

```
[Out] -(c^2*(a + b*x)^(1 + n))/(2*a*x^2) - (c*(4*a*d - b*c*(1 - n))*(a
+ b*x)^(1 + n))/(2*a^2*x) - ((2*a^2*d^2 + 4*a*b*c*d*n - b^2*c^2*(
1 - n)*n)*(a + b*x)^(1 + n)*Hypergeometric2F1[1, 1 + n, 2 + n, 1
+ (b*x)/a])/(2*a^3*(1 + n))
```

Rubi [A] time = 0.191815, antiderivative size = 124, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$-\frac{c(a+bx)^{n+1}(4ad-bc(1-n))}{2a^2x}-\frac{(a+bx)^{n+1}\left(2a^2d^2+4abcdn-b^2c^2(1-n)n\right)\,{}_2F_1\left(1,n+1;n+2;\frac{bx}{a}+1\right)}{2a^3(n+1)}-\frac{c^2(a+bx)^{n+1}}{2ax^2}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^n*(c + d*x)^2)/x^3,x]
```

```
[Out] -(c^2*(a + b*x)^(1 + n))/(2*a*x^2) - (c*(4*a*d - b*c*(1 - n))*(a
+ b*x)^(1 + n))/(2*a^2*x) - ((2*a^2*d^2 + 4*a*b*c*d*n - b^2*c^2*(
1 - n)*n)*(a + b*x)^(1 + n)*Hypergeometric2F1[1, 1 + n, 2 + n, 1
+ (b*x)/a])/(2*a^3*(1 + n))
```

Rubi in Sympy [A] time = 16.5642, size = 102, normalized size = 0.82

$$-\frac{c^2\left(a+bx\right)^{n+1}}{2ax^2}-\frac{c\left(a+bx\right)^{n+1}\left(4ad-bc\left(-n+1\right)\right)}{2a^2x}-\frac{\left(a+bx\right)^{n+1}\left(2a^2d^2+bcn\left(4ad-bc\left(-n+1\right)\right)\right){}_2F_1\left(\begin{matrix}1,n+1\\n+2\end{matrix}\middle|1+\frac{bx}{a}\right)}{2a^3\left(n+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**n*(d*x+c)**2/x**3,x)
```

```
[Out] -c**2*(a + b*x)**(n + 1)/(2*a*x**2) - c*(a + b*x)**(n + 1)*(4*a*d
 - b*c*(-n + 1))/(2*a**2*x) - (a + b*x)**(n + 1)*(2*a**2*d**2 + b
*c*n*(4*a*d - b*c*(-n + 1)))*hyper((1, n + 1), (n + 2,), 1 + b*x/
a)/(2*a**3*(n + 1))
```

Mathematica [A] time = 0.113297, size = 135, normalized size = 1.09

$$\frac{\left(\frac{a}{bx}+1\right)^{-n}(a+bx)^n\left((n-1)\left(c^2n\,{}_2F_1\left(2-n,-n;3-n;-\frac{a}{bx}\right)+d^2(n-2)x^2\,{}_2F_1\left(-n,-n;1-n;-\frac{a}{bx}\right)\right)+2cd(n-2)nx\,{}_2F_1\left(1\right.\right.}{(n-2)(n-1)nx^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^n*(c + d*x)^2)/x^3,x]
```

```
[Out] ((a + b*x)^n*(2*c*d*(-2 + n)*n*x*Hypergeometric2F1[1 - n, -n, 2 -
 n, -(a/(b*x))] + (-1 + n)*(c^2*n*Hypergeometric2F1[2 - n, -n, 3
- n, -(a/(b*x))] + d^2*(-2 + n)*x^2*Hypergeometric2F1[-n, -n, 1 -
 n, -(a/(b*x))])))/((-2 + n)*(-1 + n)*n*(1 + a/(b*x))^n*x^2)
```

Maple [F] time = 0.063, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^{n}(dx+c)^{2}}{x^{3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^n*(d*x+c)^2/x^3,x)
```

```
[Out] int((b*x+a)^n*(d*x+c)^2/x^3,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(dx+c)^{2}(bx+a)^{n}}{x^{3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2*(b*x + a)^n/x^3,x, algorithm="maxima")
```

```
[Out] integrate((d*x + c)^2*(b*x + a)^n/x^3, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(d^{2}x^{2}+2\,cdx+c^{2})(bx+a)^{n}}{x^{3}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2*(b*x + a)^n/x^3,x, algorithm="fricas")
```

```
[Out] integral((d^2*x^2 + 2*c*d*x + c^2)*(b*x + a)^n/x^3, x)
```

Sympy [A] time = 19.9613, size = 1807, normalized size = 14.57

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**n*(d*x+c)**2/x**3,x)
```

```
[Out] -a**3*b**2*b**n*c**2*n**3*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n +
 1)*gamma(n + 1)/(-2*a**5*gamma(n + 2) - 4*a**4*b*x*gamma(n + 2)
+ 2*a**3*b**2*(a/b + x)**2*gamma(n + 2)) + a**3*b**2*b**n*c**2*n*
*2*(a/b + x)**n*gamma(n + 1)/(-2*a**5*gamma(n + 2) - 4*a**4*b*x*g
amma(n + 2) + 2*a**3*b**2*(a/b + x)**2*gamma(n + 2)) + a**3*b**2*
b**n*c**2*n*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n +
```

```
1)/(-2*a**5*gamma(n + 2) - 4*a**4*b*x*gamma(n + 2) + 2*a**3*b**2*
(a/b + x)**2*gamma(n + 2)) - a**3*b**2*b**n*c**2*n*(a/b + x)**n*g
amma(n + 1)/(-2*a**5*gamma(n + 2) - 4*a**4*b*x*gamma(n + 2) + 2*a
**3*b**2*(a/b + x)**2*gamma(n + 2)) - 2*a**3*b**2*b**n*c**2*(a/b
+ x)**n*gamma(n + 1)/(-2*a**5*gamma(n + 2) - 4*a**4*b*x*gamma(n +
 2) + 2*a**3*b**2*(a/b + x)**2*gamma(n + 2)) - a**2*b**3*b**n*c**
2*n**3*x*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n + 1)/
(-2*a**5*gamma(n + 2) - 4*a**4*b*x*gamma(n + 2) + 2*a**3*b**2*(a/
b + x)**2*gamma(n + 2)) + a**2*b**3*b**n*c**2*n**2*x*(a/b + x)**n
*gamma(n + 1)/(-2*a**5*gamma(n + 2) - 4*a**4*b*x*gamma(n + 2) + 2
*a**3*b**2*(a/b + x)**2*gamma(n + 2)) + a**2*b**3*b**n*c**2*n*x*(
a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n + 1)/(-2*a**5*g
amma(n + 2) - 4*a**4*b*x*gamma(n + 2) + 2*a**3*b**2*(a/b + x)**2*
gamma(n + 2)) - a**2*b**3*b**n*c**2*n*x*(a/b + x)**n*gamma(n + 1)
/(-2*a**5*gamma(n + 2) - 4*a**4*b*x*gamma(n + 2) + 2*a**3*b**2*(a
/b + x)**2*gamma(n + 2)) - 2*a**2*b**3*b**n*c**2*x*(a/b + x)**n*g
amma(n + 1)/(-2*a**5*gamma(n + 2) - 4*a**4*b*x*gamma(n + 2) + 2*a
**3*b**2*(a/b + x)**2*gamma(n + 2)) + 2*a*b**4*b**n*c**2*n**3*(a/
b + x)**2*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n + 1)
/(-2*a**5*gamma(n + 2) - 4*a**4*b*x*gamma(n + 2) + 2*a**3*b**2*(a
/b + x)**2*gamma(n + 2)) - a*b**4*b**n*c**2*n**2*(a/b + x)**2*(a/
b + x)**n*gamma(n + 1)/(-2*a**5*gamma(n + 2) - 4*a**4*b*x*gamma(n
 + 2) + 2*a**3*b**2*(a/b + x)**2*gamma(n + 2)) - 2*a*b**4*b**n*c*
*2*n*(a/b + x)**2*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamm
a(n + 1)/(-2*a**5*gamma(n + 2) - 4*a**4*b*x*gamma(n + 2) + 2*a**3
*b**2*(a/b + x)**2*gamma(n + 2)) + a*b**4*b**n*c**2*(a/b + x)**2*
(a/b + x)**n*gamma(n + 1)/(-2*a**5*gamma(n + 2) - 4*a**4*b*x*gamm
a(n + 2) + 2*a**3*b**2*(a/b + x)**2*gamma(n + 2)) - b**5*b**n*c**
2*n**3*(a/b + x)**3*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*ga
mma(n + 1)/(-2*a**5*gamma(n + 2) - 4*a**4*b*x*gamma(n + 2) + 2*a*
*3*b**2*(a/b + x)**2*gamma(n + 2)) + b**5*b**n*c**2*n*(a/b + x)**
3*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n + 1)/(-2*a**
5*gamma(n + 2) - 4*a**4*b*x*gamma(n + 2) + 2*a**3*b**2*(a/b + x)*
*2*gamma(n + 2)) + 2*b**n*c*d*n**2*(a/b + x)**n*lerchphi(1 + b*x/
a, 1, n + 1)*gamma(n + 1)/(x*gamma(n + 2)) + 2*b**n*c*d*n*(a/b +
x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n + 1)/(x*gamma(n + 2))
 - 2*b**n*c*d*n*(a/b + x)**n*gamma(n + 1)/(x*gamma(n + 2)) - 2*b*
*n*c*d*(a/b + x)**n*gamma(n + 1)/(x*gamma(n + 2)) - b**n*d**2*n*(
a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n + 1)/gamma(n +
2) - b**n*d**2*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n
 + 1)/gamma(n + 2) + 2*b*b**n*c*d*n**2*(a/b + x)**n*lerchphi(1 +
b*x/a, 1, n + 1)*gamma(n + 1)/(a*gamma(n + 2)) + 2*b*b**n*c*d*n*(
a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n + 1)/(a*gamma(n
 + 2)) - 2*b*b**n*c*d*n*(a/b + x)**n*gamma(n + 1)/(a*gamma(n + 2)
) - 2*b*b**n*c*d*(a/b + x)**n*gamma(n + 1)/(a*gamma(n + 2)) - b*b
**n*d**2*n*x*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n +
 1)/(a*gamma(n + 2)) - b*b**n*d**2*x*(a/b + x)**n*lerchphi(1 + b*
x/a, 1, n + 1)*gamma(n + 1)/(a*gamma(n + 2)) - 2*b**2*b**n*c*d*n*
*2*(a/b + x)**2*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(
n + 1)/(a**2*x*gamma(n + 2)) - 2*b**2*b**n*c*d*n*(a/b + x)**2*(a/
b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n + 1)/(a**2*x*gamm
a(n + 2))
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(dx+c)^2(bx+a)^n}{x^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2*(b*x + a)^n/x^3,x, algorithm="giac")
```

```
[Out] integrate((d*x + c)^2*(b*x + a)^n/x^3, x)
```

3.917 $\int \frac{(a+bx)^n(c+dx)^2}{x^4} dx$

Optimal. Leaf size=130

$$-\frac{c(a+bx)^{n+1}(6ad-bc(2-n))}{6a^2x^2}+\frac{b(a+bx)^{n+1}\left(6a^2d^2-6abcd(1-n)+b^2c^2\left(n^2-3n+2\right)\right){}_2F_1\left(2,n+1;n+2;\frac{bx}{a}+1\right)}{6a^4(n+1)}-\frac{c^2(a+bx)^{n+1}}{3ax^3}$$

```
[Out] -(c^2*(a + b*x)^(1 + n))/(3*a*x^3) - (c*(6*a*d - b*c*(2 - n))*(a
+ b*x)^(1 + n))/(6*a^2*x^2) + (b*(6*a^2*d^2 - 6*a*b*c*d*(1 - n) +
 b^2*c^2*(2 - 3*n + n^2))*(a + b*x)^(1 + n)*Hypergeometric2F1[2,
1 + n, 2 + n, 1 + (b*x)/a])/(6*a^4*(1 + n))
```

Rubi [A] time = 0.230144, antiderivative size = 130, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$-\frac{c(a+bx)^{n+1}(6ad-bc(2-n))}{6a^2x^2}+\frac{b(a+bx)^{n+1}\left(6a^2d^2-6abcd(1-n)+b^2c^2\left(n^2-3n+2\right)\right){}_2F_1\left(2,n+1;n+2;\frac{bx}{a}+1\right)}{6a^4(n+1)}-\frac{c^2(a+bx)^{n+1}}{3ax^3}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^n*(c + d*x)^2)/x^4,x]
```

```
[Out] -(c^2*(a + b*x)^(1 + n))/(3*a*x^3) - (c*(6*a*d - b*c*(2 - n))*(a
+ b*x)^(1 + n))/(6*a^2*x^2) + (b*(6*a^2*d^2 - 6*a*b*c*d*(1 - n) +
 b^2*c^2*(2 - 3*n + n^2))*(a + b*x)^(1 + n)*Hypergeometric2F1[2,
1 + n, 2 + n, 1 + (b*x)/a])/(6*a^4*(1 + n))
```

Rubi in Sympy [A] time = 17.4725, size = 105, normalized size = 0.81

$$-\frac{c^2\left(a+bx\right)^{n+1}}{3ax^3}-\frac{c\left(a+bx\right)^{n+1}\left(6ad-bc\left(-n+2\right)\right)}{6a^2x^2}+\frac{b\left(a+bx\right)^{n+1}\left(6a^2d^2-bc\left(-n+1\right)\left(6ad-bc\left(-n+2\right)\right)\right){}_2F_1\left(\begin{matrix}2,n+1\\n+2\end{matrix}\middle|1+\frac{bx}{a}\right)}{6a^4\left(n+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**n*(d*x+c)**2/x**4,x)
```

```
[Out] -c**2*(a + b*x)**(n + 1)/(3*a*x**3) - c*(a + b*x)**(n + 1)*(6*a*d
 - b*c*(-n + 2))/(6*a**2*x**2) + b*(a + b*x)**(n + 1)*(6*a**2*d**
2 - b*c*(-n + 1)*(6*a*d - b*c*(-n + 2)))*hyper((2, n + 1), (n + 2
,), 1 + b*x/a)/(6*a**4*(n + 1))
```

Mathematica [A] time = 0.135124, size = 143, normalized size = 1.1

$$\frac{\left(\frac{a}{bx}+1\right)^{-n}(a+bx)^n\left(c(n-1)\left(c(n-2)\,{}_2F_1\left(3-n,-n;4-n;-\frac{a}{bx}\right)+2d(n-3)x\,{}_2F_1\left(2-n,-n;3-n;-\frac{a}{bx}\right)\right)+d^2\left(n^2-5n\right.\right.}{(n-3)(n-2)(n-1)x^3}$$

Antiderivative was successfully verified.

```
[In]   Integrate[((a + b*x)^n*(c + d*x)^2)/x^4,x]
```

```
[Out] ((a + b*x)^n*(d^2*(6 - 5*n + n^2)*x^2*Hypergeometric2F1[1 - n, -n
, 2 - n, -(a/(b*x))] + c*(-1 + n)*(2*d*(-3 + n)*x*Hypergeometric2
F1[2 - n, -n, 3 - n, -(a/(b*x))] + c*(-2 + n)*Hypergeometric2F1[3
 - n, -n, 4 - n, -(a/(b*x))])))/((-3 + n)*(-2 + n)*(-1 + n)*(1 +
a/(b*x))^n*x^3)
```

Maple [F] time = 0.073, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n (dx+c)^2}{x^4}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((b*x+a)^n*(d*x+c)^2/x^4,x)
```

```
[Out] int((b*x+a)^n*(d*x+c)^2/x^4,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(dx+c)^2(bx+a)^n}{x^4}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((d*x + c)^2*(b*x + a)^n/x^4,x, algorithm="maxima")
```

```
[Out] integrate((d*x + c)^2*(b*x + a)^n/x^4, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(d^2x^2+2\,cdx+c^2\right)(bx+a)^n}{x^4}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((d*x + c)^2*(b*x + a)^n/x^4,x, algorithm="fricas")
```

```
[Out] integral((d^2*x^2 + 2*c*d*x + c^2)*(b*x + a)^n/x^4, x)
```

Sympy [A] time = 27.4288, size = 5367, normalized size = 41.28

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((b*x+a)**n*(d*x+c)**2/x**4,x)
```

```
[Out] a**4*b**3*b**n*c**2*n**4*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n +
1)*gamma(n + 1)/(12*a**7*gamma(n + 2) + 18*a**6*b*x*gamma(n + 2)
- 18*a**5*b**2*(a/b + x)**2*gamma(n + 2) + 6*a**4*b**3*(a/b + x)*
```

```
*3*gamma(n + 2)) - 2*a**4*b**3*b**n*c**2*n**3*(a/b + x)**n*lerchp
hi(1 + b*x/a, 1, n + 1)*gamma(n + 1)/(12*a**7*gamma(n + 2) + 18*a
**6*b*x*gamma(n + 2) - 18*a**5*b**2*(a/b + x)**2*gamma(n + 2) + 6
*a**4*b**3*(a/b + x)**3*gamma(n + 2)) - a**4*b**3*b**n*c**2*n**3*
(a/b + x)**n*gamma(n + 1)/(12*a**7*gamma(n + 2) + 18*a**6*b*x*gam
ma(n + 2) - 18*a**5*b**2*(a/b + x)**2*gamma(n + 2) + 6*a**4*b**3*
(a/b + x)**3*gamma(n + 2)) - a**4*b**3*b**n*c**2*n**2*(a/b + x)**
n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n + 1)/(12*a**7*gamma(n + 2
) + 18*a**6*b*x*gamma(n + 2) - 18*a**5*b**2*(a/b + x)**2*gamma(n
 + 2) + 6*a**4*b**3*(a/b + x)**3*gamma(n + 2)) + 3*a**4*b**3*b**n*
c**2*n**2*(a/b + x)**n*gamma(n + 1)/(12*a**7*gamma(n + 2) + 18*a*
*6*b*x*gamma(n + 2) - 18*a**5*b**2*(a/b + x)**2*gamma(n + 2) + 6*
a**4*b**3*(a/b + x)**3*gamma(n + 2)) + 2*a**4*b**3*b**n*c**2*n*(a
/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n + 1)/(12*a**7*ga
mma(n + 2) + 18*a**6*b*x*gamma(n + 2) - 18*a**5*b**2*(a/b + x)**2
*gamma(n + 2) + 6*a**4*b**3*(a/b + x)**3*gamma(n + 2)) - 2*a**4*b
**3*b**n*c**2*n*(a/b + x)**n*gamma(n + 1)/(12*a**7*gamma(n + 2) +
 18*a**6*b*x*gamma(n + 2) - 18*a**5*b**2*(a/b + x)**2*gamma(n + 2
) + 6*a**4*b**3*(a/b + x)**3*gamma(n + 2)) - 6*a**4*b**3*b**n*c**
2*(a/b + x)**n*gamma(n + 1)/(12*a**7*gamma(n + 2) + 18*a**6*b*x*g
amma(n + 2) - 18*a**5*b**2*(a/b + x)**2*gamma(n + 2) + 6*a**4*b**
3*(a/b + x)**3*gamma(n + 2)) + a**3*b**4*b**n*c**2*n**4*x*(a/b +
x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n + 1)/(12*a**7*gamma(n
 + 2) + 18*a**6*b*x*gamma(n + 2) - 18*a**5*b**2*(a/b + x)**2*gamm
a(n + 2) + 6*a**4*b**3*(a/b + x)**3*gamma(n + 2)) - 2*a**3*b**4*b
**n*c**2*n**3*x*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(
n + 1)/(12*a**7*gamma(n + 2) + 18*a**6*b*x*gamma(n + 2) - 18*a**5
*b**2*(a/b + x)**2*gamma(n + 2) + 6*a**4*b**3*(a/b + x)**3*gamma(
n + 2)) - a**3*b**4*b**n*c**2*n**3*x*(a/b + x)**n*gamma(n + 1)/(1
2*a**7*gamma(n + 2) + 18*a**6*b*x*gamma(n + 2) - 18*a**5*b**2*(a/
b + x)**2*gamma(n + 2) + 6*a**4*b**3*(a/b + x)**3*gamma(n + 2)) -
 a**3*b**4*b**n*c**2*n**2*x*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n
 + 1)*gamma(n + 1)/(12*a**7*gamma(n + 2) + 18*a**6*b*x*gamma(n +
2) - 18*a**5*b**2*(a/b + x)**2*gamma(n + 2) + 6*a**4*b**3*(a/b +
x)**3*gamma(n + 2)) + 3*a**3*b**4*b**n*c**2*n**2*x*(a/b + x)**n*g
amma(n + 1)/(12*a**7*gamma(n + 2) + 18*a**6*b*x*gamma(n + 2) - 18
*a**5*b**2*(a/b + x)**2*gamma(n + 2) + 6*a**4*b**3*(a/b + x)**3*g
amma(n + 2)) + 2*a**3*b**4*b**n*c**2*n*x*(a/b + x)**n*lerchphi(1
+ b*x/a, 1, n + 1)*gamma(n + 1)/(12*a**7*gamma(n + 2) + 18*a**6*b
*x*gamma(n + 2) - 18*a**5*b**2*(a/b + x)**2*gamma(n + 2) + 6*a**4
*b**3*(a/b + x)**3*gamma(n + 2)) - 2*a**3*b**4*b**n*c**2*n*x*(a/b
 + x)**n*gamma(n + 1)/(12*a**7*gamma(n + 2) + 18*a**6*b*x*gamma(n
 + 2) - 18*a**5*b**2*(a/b + x)**2*gamma(n + 2) + 6*a**4*b**3*(a/b
 + x)**3*gamma(n + 2)) - 6*a**3*b**4*b**n*c**2*x*(a/b + x)**n*gam
ma(n + 1)/(12*a**7*gamma(n + 2) + 18*a**6*b*x*gamma(n + 2) - 18*a
**5*b**2*(a/b + x)**2*gamma(n + 2) + 6*a**4*b**3*(a/b + x)**3*gam
ma(n + 2)) - 2*a**3*b**2*b**n*c*d*n**3*(a/b + x)**n*lerchphi(1 +
b*x/a, 1, n + 1)*gamma(n + 1)/(-2*a**5*gamma(n + 2) - 4*a**4*b*x*
gamma(n + 2) + 2*a**3*b**2*(a/b + x)**2*gamma(n + 2)) + 2*a**3*b*
*2*b**n*c*d*n**2*(a/b + x)**n*gamma(n + 1)/(-2*a**5*gamma(n + 2)
- 4*a**4*b*x*gamma(n + 2) + 2*a**3*b**2*(a/b + x)**2*gamma(n + 2)
) + 2*a**3*b**2*b**n*c*d*n*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n
+ 1)*gamma(n + 1)/(-2*a**5*gamma(n + 2) - 4*a**4*b*x*gamma(n + 2)
 + 2*a**3*b**2*(a/b + x)**2*gamma(n + 2)) - 2*a**3*b**2*b**n*c*d*
n*(a/b + x)**n*gamma(n + 1)/(-2*a**5*gamma(n + 2) - 4*a**4*b*x*ga
mma(n + 2) + 2*a**3*b**2*(a/b + x)**2*gamma(n + 2)) - 4*a**3*b**2
*b**n*c*d*(a/b + x)**n*gamma(n + 1)/(-2*a**5*gamma(n + 2) - 4*a**
4*b*x*gamma(n + 2) + 2*a**3*b**2*(a/b + x)**2*gamma(n + 2)) - 3*a
**2*b**5*b**n*c**2*n**4*(a/b + x)**2*(a/b + x)**n*lerchphi(1 + b*
x/a, 1, n + 1)*gamma(n + 1)/(12*a**7*gamma(n + 2) + 18*a**6*b*x*g
amma(n + 2) - 18*a**5*b**2*(a/b + x)**2*gamma(n + 2) + 6*a**4*b**
3*(a/b + x)**3*gamma(n + 2)) + 6*a**2*b**5*b**n*c**2*n**3*(a/b +
x)**2*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n + 1)/(12
*a**7*gamma(n + 2) + 18*a**6*b*x*gamma(n + 2) - 18*a**5*b**2*(a/b
 + x)**2*gamma(n + 2) + 6*a**4*b**3*(a/b + x)**3*gamma(n + 2)) +
2*a**2*b**5*b**n*c**2*n**3*(a/b + x)**2*(a/b + x)**n*gamma(n + 1)
/(12*a**7*gamma(n + 2) + 18*a**6*b*x*gamma(n + 2) - 18*a**5*b**2*
(a/b + x)**2*gamma(n + 2) + 6*a**4*b**3*(a/b + x)**3*gamma(n + 2)
) + 3*a**2*b**5*b**n*c**2*n**2*(a/b + x)**2*(a/b + x)**n*lerchphi
(1 + b*x/a, 1, n + 1)*gamma(n + 1)/(12*a**7*gamma(n + 2) + 18*a**
6*b*x*gamma(n + 2) - 18*a**5*b**2*(a/b + x)**2*gamma(n + 2) + 6*a
**4*b**3*(a/b + x)**3*gamma(n + 2)) - 5*a**2*b**5*b**n*c**2*n**2*
(a/b + x)**2*(a/b + x)**n*gamma(n + 1)/(12*a**7*gamma(n + 2) + 18
*a**6*b*x*gamma(n + 2) - 18*a**5*b**2*(a/b + x)**2*gamma(n + 2) +
```

```
6*a**4*b**3*(a/b + x)**3*gamma(n + 2)) - 6*a**2*b**5*b**n*c**2*n
*(a/b + x)**2*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n
+ 1)/(12*a**7*gamma(n + 2) + 18*a**6*b*x*gamma(n + 2) - 18*a**5*b
**2*(a/b + x)**2*gamma(n + 2) + 6*a**4*b**3*(a/b + x)**3*gamma(n
+ 2)) - a**2*b**5*b**n*c**2*n*(a/b + x)**2*(a/b + x)**n*gamma(n +
 1)/(12*a**7*gamma(n + 2) + 18*a**6*b*x*gamma(n + 2) - 18*a**5*b*
*2*(a/b + x)**2*gamma(n + 2) + 6*a**4*b**3*(a/b + x)**3*gamma(n +
 2)) + 6*a**2*b**5*b**n*c**2*(a/b + x)**2*(a/b + x)**n*gamma(n +
1)/(12*a**7*gamma(n + 2) + 18*a**6*b*x*gamma(n + 2) - 18*a**5*b**
2*(a/b + x)**2*gamma(n + 2) + 6*a**4*b**3*(a/b + x)**3*gamma(n +
2)) - 2*a**2*b**3*b**n*c*d*n**3*x*(a/b + x)**n*lerchphi(1 + b*x/a
, 1, n + 1)*gamma(n + 1)/(-2*a**5*gamma(n + 2) - 4*a**4*b*x*gamma
(n + 2) + 2*a**3*b**2*(a/b + x)**2*gamma(n + 2)) + 2*a**2*b**3*b*
*n*c*d*n**2*x*(a/b + x)**n*gamma(n + 1)/(-2*a**5*gamma(n + 2) - 4
*a**4*b*x*gamma(n + 2) + 2*a**3*b**2*(a/b + x)**2*gamma(n + 2)) +
 2*a**2*b**3*b**n*c*d*n*x*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n +
 1)*gamma(n + 1)/(-2*a**5*gamma(n + 2) - 4*a**4*b*x*gamma(n + 2)
+ 2*a**3*b**2*(a/b + x)**2*gamma(n + 2)) - 2*a**2*b**3*b**n*c*d*n
*x*(a/b + x)**n*gamma(n + 1)/(-2*a**5*gamma(n + 2) - 4*a**4*b*x*g
amma(n + 2) + 2*a**3*b**2*(a/b + x)**2*gamma(n + 2)) - 4*a**2*b**
3*b**n*c*d*x*(a/b + x)**n*gamma(n + 1)/(-2*a**5*gamma(n + 2) - 4*
a**4*b*x*gamma(n + 2) + 2*a**3*b**2*(a/b + x)**2*gamma(n + 2)) +
3*a*b**6*b**n*c**2*n**4*(a/b + x)**3*(a/b + x)**n*lerchphi(1 + b*
x/a, 1, n + 1)*gamma(n + 1)/(12*a**7*gamma(n + 2) + 18*a**6*b*x*g
amma(n + 2) - 18*a**5*b**2*(a/b + x)**2*gamma(n + 2) + 6*a**4*b**
3*(a/b + x)**3*gamma(n + 2)) - 6*a*b**6*b**n*c**2*n**3*(a/b + x)*
*3*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n + 1)/(12*a*
*7*gamma(n + 2) + 18*a**6*b*x*gamma(n + 2) - 18*a**5*b**2*(a/b +
x)**2*gamma(n + 2) + 6*a**4*b**3*(a/b + x)**3*gamma(n + 2)) - a*b
**6*b**n*c**2*n**3*(a/b + x)**3*(a/b + x)**n*gamma(n + 1)/(12*a**
7*gamma(n + 2) + 18*a**6*b*x*gamma(n + 2) - 18*a**5*b**2*(a/b + x
)**2*gamma(n + 2) + 6*a**4*b**3*(a/b + x)**3*gamma(n + 2)) - 3*a*
b**6*b**n*c**2*n**2*(a/b + x)**3*(a/b + x)**n*lerchphi(1 + b*x/a,
 1, n + 1)*gamma(n + 1)/(12*a**7*gamma(n + 2) + 18*a**6*b*x*gamma
(n + 2) - 18*a**5*b**2*(a/b + x)**2*gamma(n + 2) + 6*a**4*b**3*(a
/b + x)**3*gamma(n + 2)) + 2*a*b**6*b**n*c**2*n**2*(a/b + x)**3*(
a/b + x)**n*gamma(n + 1)/(12*a**7*gamma(n + 2) + 18*a**6*b*x*gamm
a(n + 2) - 18*a**5*b**2*(a/b + x)**2*gamma(n + 2) + 6*a**4*b**3*(
a/b + x)**3*gamma(n + 2)) + 6*a*b**6*b**n*c**2*n*(a/b + x)**3*(a/
b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n + 1)/(12*a**7*gam
ma(n + 2) + 18*a**6*b*x*gamma(n + 2) - 18*a**5*b**2*(a/b + x)**2*
gamma(n + 2) + 6*a**4*b**3*(a/b + x)**3*gamma(n + 2)) + a*b**6*b*
*n*c**2*n*(a/b + x)**3*(a/b + x)**n*gamma(n + 1)/(12*a**7*gamma(n
 + 2) + 18*a**6*b*x*gamma(n + 2) - 18*a**5*b**2*(a/b + x)**2*gamm
a(n + 2) + 6*a**4*b**3*(a/b + x)**3*gamma(n + 2)) - 2*a*b**6*b**n
*c**2*(a/b + x)**3*(a/b + x)**n*gamma(n + 1)/(12*a**7*gamma(n + 2
) + 18*a**6*b*x*gamma(n + 2) - 18*a**5*b**2*(a/b + x)**2*gamma(n
+ 2) + 6*a**4*b**3*(a/b + x)**3*gamma(n + 2)) + 4*a*b**4*b**n*c*d
*n**3*(a/b + x)**2*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gam
ma(n + 1)/(-2*a**5*gamma(n + 2) - 4*a**4*b*x*gamma(n + 2) + 2*a**
3*b**2*(a/b + x)**2*gamma(n + 2)) - 2*a*b**4*b**n*c*d*n**2*(a/b +
 x)**2*(a/b + x)**n*gamma(n + 1)/(-2*a**5*gamma(n + 2) - 4*a**4*b
*x*gamma(n + 2) + 2*a**3*b**2*(a/b + x)**2*gamma(n + 2)) - 4*a*b*
*4*b**n*c*d*n*(a/b + x)**2*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n
+ 1)*gamma(n + 1)/(-2*a**5*gamma(n + 2) - 4*a**4*b*x*gamma(n + 2)
 + 2*a**3*b**2*(a/b + x)**2*gamma(n + 2)) + 2*a*b**4*b**n*c*d*(a/
b + x)**2*(a/b + x)**n*gamma(n + 1)/(-2*a**5*gamma(n + 2) - 4*a**
4*b*x*gamma(n + 2) + 2*a**3*b**2*(a/b + x)**2*gamma(n + 2)) - b**
7*b**n*c**2*n**4*(a/b + x)**4*(a/b + x)**n*lerchphi(1 + b*x/a, 1,
 n + 1)*gamma(n + 1)/(12*a**7*gamma(n + 2) + 18*a**6*b*x*gamma(n
+ 2) - 18*a**5*b**2*(a/b + x)**2*gamma(n + 2) + 6*a**4*b**3*(a/b
+ x)**3*gamma(n + 2)) + 2*b**7*b**n*c**2*n**3*(a/b + x)**4*(a/b +
 x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n + 1)/(12*a**7*gamma(
n + 2) + 18*a**6*b*x*gamma(n + 2) - 18*a**5*b**2*(a/b + x)**2*gam
ma(n + 2) + 6*a**4*b**3*(a/b + x)**3*gamma(n + 2)) + b**7*b**n*c*
*2*n**2*(a/b + x)**4*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*g
amma(n + 1)/(12*a**7*gamma(n + 2) + 18*a**6*b*x*gamma(n + 2) - 18
*a**5*b**2*(a/b + x)**2*gamma(n + 2) + 6*a**4*b**3*(a/b + x)**3*g
amma(n + 2)) - 2*b**7*b**n*c**2*n*(a/b + x)**4*(a/b + x)**n*lerch
phi(1 + b*x/a, 1, n + 1)*gamma(n + 1)/(12*a**7*gamma(n + 2) + 18*
a**6*b*x*gamma(n + 2) - 18*a**5*b**2*(a/b + x)**2*gamma(n + 2) +
6*a**4*b**3*(a/b + x)**3*gamma(n + 2)) - 2*b**5*b**n*c*d*n**3*(a/
b + x)**3*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n + 1)
/(-2*a**5*gamma(n + 2) - 4*a**4*b*x*gamma(n + 2) + 2*a**3*b**2*(a
```

```
/b + x)**2*gamma(n + 2)) + 2*b**5*b**n*c*d*n*(a/b + x)**3*(a/b +
x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n + 1)/(-2*a**5*gamma(n
 + 2) - 4*a**4*b*x*gamma(n + 2) + 2*a**3*b**2*(a/b + x)**2*gamma(
n + 2)) + b**n*d**2*n**2*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n +
1)*gamma(n + 1)/(x*gamma(n + 2)) + b**n*d**2*n*(a/b + x)**n*lerch
phi(1 + b*x/a, 1, n + 1)*gamma(n + 1)/(x*gamma(n + 2)) - b**n*d**
2*n*(a/b + x)**n*gamma(n + 1)/(x*gamma(n + 2)) - b**n*d**2*(a/b +
 x)**n*gamma(n + 1)/(x*gamma(n + 2)) + b*b**n*d**2*n**2*(a/b + x)
**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n + 1)/(a*gamma(n + 2)) +
 b*b**n*d**2*n*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n
 + 1)/(a*gamma(n + 2)) - b*b**n*d**2*n*(a/b + x)**n*gamma(n + 1)/
(a*gamma(n + 2)) - b*b**n*d**2*(a/b + x)**n*gamma(n + 1)/(a*gamma
(n + 2)) - b**2*b**n*d**2*n**2*(a/b + x)**2*(a/b + x)**n*lerchphi
(1 + b*x/a, 1, n + 1)*gamma(n + 1)/(a**2*x*gamma(n + 2)) - b**2*b
**n*d**2*n*(a/b + x)**2*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1
)*gamma(n + 1)/(a**2*x*gamma(n + 2))
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(dx+c)^2(bx+a)^n}{x^4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^2*(b*x + a)^n/x^4,x, algorithm="giac")
```

```
[Out] integrate((d*x + c)^2*(b*x + a)^n/x^4, x)
```

3.918 $\int x^2(a+bx)^n(c+dx)^3\,dx$

Optimal. Leaf size=212

$$\frac{a^2(bc-ad)^3(a+bx)^{n+1}}{b^6(n+1)}+\frac{(bc-ad)\left(10a^2d^2-8abcd+b^2c^2\right)(a+bx)^{n+3}}{b^6(n+3)}+\frac{d\left(10a^2d^2-12abcd+3b^2c^2\right)(a+bx)^{n+4}}{b^6(n+4)}+\frac{d^2(3bc-5ad)(a+bx)^{n+5}}{b^6(n+5)}-\frac{a(2bc-5ad)(bc-ad)^2(a+bx)^{n+2}}{b^6(n+2)}+\frac{d^3(a+bx)^{n+6}}{b^6(n+6)}$$

```
[Out] (a^2*(b*c - a*d)^3*(a + b*x)^(1 + n))/(b^6*(1 + n)) - (a*(2*b*c -
 5*a*d)*(b*c - a*d)^2*(a + b*x)^(2 + n))/(b^6*(2 + n)) + ((b*c -
a*d)*(b^2*c^2 - 8*a*b*c*d + 10*a^2*d^2)*(a + b*x)^(3 + n))/(b^6*(
3 + n)) + (d*(3*b^2*c^2 - 12*a*b*c*d + 10*a^2*d^2)*(a + b*x)^(4 +
 n))/(b^6*(4 + n)) + (d^2*(3*b*c - 5*a*d)*(a + b*x)^(5 + n))/(b^6
*(5 + n)) + (d^3*(a + b*x)^(6 + n))/(b^6*(6 + n))
```

Rubi [A] time = 0.289929, antiderivative size = 212, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{a^2(bc-ad)^3(a+bx)^{n+1}}{b^6(n+1)}+\frac{(bc-ad)\left(10a^2d^2-8abcd+b^2c^2\right)(a+bx)^{n+3}}{b^6(n+3)}+\frac{d\left(10a^2d^2-12abcd+3b^2c^2\right)(a+bx)^{n+4}}{b^6(n+4)}+\frac{d^2(3bc-5ad)(a+bx)^{n+5}}{b^6(n+5)}-\frac{a(2bc-5ad)(bc-ad)^2(a+bx)^{n+2}}{b^6(n+2)}+\frac{d^3(a+bx)^{n+6}}{b^6(n+6)}$$

Antiderivative was successfully verified.

```
[In]  Int[x^2*(a + b*x)^n*(c + d*x)^3,x]
```

```
[Out] (a^2*(b*c - a*d)^3*(a + b*x)^(1 + n))/(b^6*(1 + n)) - (a*(2*b*c -
 5*a*d)*(b*c - a*d)^2*(a + b*x)^(2 + n))/(b^6*(2 + n)) + ((b*c -
a*d)*(b^2*c^2 - 8*a*b*c*d + 10*a^2*d^2)*(a + b*x)^(3 + n))/(b^6*(
3 + n)) + (d*(3*b^2*c^2 - 12*a*b*c*d + 10*a^2*d^2)*(a + b*x)^(4 +
 n))/(b^6*(4 + n)) + (d^2*(3*b*c - 5*a*d)*(a + b*x)^(5 + n))/(b^6
*(5 + n)) + (d^3*(a + b*x)^(6 + n))/(b^6*(6 + n))
```

Rubi in Sympy [A] time = 61.0488, size = 197, normalized size = 0.93

$$-\frac{a^2(a+bx)^{n+1}(ad-bc)^3}{b^6(n+1)}+\frac{a(a+bx)^{n+2}(ad-bc)^2(5ad-2bc)}{b^6(n+2)}+\frac{d^3(a+bx)^{n+6}}{b^6(n+6)}-\frac{d^2(a+bx)^{n+5}(5ad-3bc)}{b^6(n+5)}+\frac{d(a+bx)^{n+4}\left(10a^2d^2-12abcd+3b^2c^2\right)}{b^6(n+4)}-\frac{(a+bx)^{n+3}(ad-bc)\left(10a^2d^2-8abcd+b^2c^2\right)}{b^6(n+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(b*x+a)**n*(d*x+c)**3,x)
```

```
[Out] -a**2*(a + b*x)**(n + 1)*(a*d - b*c)**3/(b**6*(n + 1)) + a*(a + b
*x)**(n + 2)*(a*d - b*c)**2*(5*a*d - 2*b*c)/(b**6*(n + 2)) + d**3
*(a + b*x)**(n + 6)/(b**6*(n + 6)) - d**2*(a + b*x)**(n + 5)*(5*a
*d - 3*b*c)/(b**6*(n + 5)) + d*(a + b*x)**(n + 4)*(10*a**2*d**2 -
 12*a*b*c*d + 3*b**2*c**2)/(b**6*(n + 4)) - (a + b*x)**(n + 3)*(a
*d - b*c)*(10*a**2*d**2 - 8*a*b*c*d + b**2*c**2)/(b**6*(n + 3))
```

Mathematica [A] time = 0.480263, size = 403, normalized size = 1.9

$$(a+bx)^{n+1}\left(-120a^5d^3+24a^4bd^2(3c(n+6)+5d(n+1)x)-6a^3b^2d\left(3c^2\left(n^2+11n+30\right)+12cd\left(n^2+7n+6\right)x+10d^2\left(n^2+\right.\right.\right.$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^2*(a + b*x)^n*(c + d*x)^3,x]
```

```
[Out] ((a + b*x)^(1 + n)*(-120*a^5*d^3 + 24*a^4*b*d^2*(3*c*(6 + n) + 5*
d*(1 + n)*x) - 6*a^3*b^2*d*(3*c^2*(30 + 11*n + n^2) + 12*c*d*(6 +
 7*n + n^2)*x + 10*d^2*(2 + 3*n + n^2)*x^2) + 2*a^2*b^3*(c^3*(120
 + 74*n + 15*n^2 + n^3) + 9*c^2*d*(30 + 41*n + 12*n^2 + n^3)*x +
18*c*d^2*(12 + 20*n + 9*n^2 + n^3)*x^2 + 10*d^3*(6 + 11*n + 6*n^2
 + n^3)*x^3) - a*b^4*(1 + n)*x*(2*c^3*(120 + 74*n + 15*n^2 + n^3)
 + 9*c^2*d*(60 + 52*n + 13*n^2 + n^3)*x + 12*c*d^2*(36 + 36*n + 1
1*n^2 + n^3)*x^2 + 5*d^3*(24 + 26*n + 9*n^2 + n^3)*x^3) + b^5*(2
+ 3*n + n^2)*x^2*(c^3*(120 + 74*n + 15*n^2 + n^3) + 3*c^2*d*(90 +
 63*n + 14*n^2 + n^3)*x + 3*c*d^2*(72 + 54*n + 13*n^2 + n^3)*x^2
+ d^3*(60 + 47*n + 12*n^2 + n^3)*x^3)))/(b^6*(1 + n)*(2 + n)*(3 +
 n)*(4 + n)*(5 + n)*(6 + n))
```

Maple [B] time = 0.015, size = 1073, normalized size = 5.1

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(b*x+a)^n*(d*x+c)^3,x)
```

```
[Out] -(b*x+a)^(1+n)*(-b^5*d^3*n^5*x^5-3*b^5*c*d^2*n^5*x^4-15*b^5*d^3*n
^4*x^5+5*a*b^4*d^3*n^4*x^4-3*b^5*c^2*d*n^5*x^3-48*b^5*c*d^2*n^4*x
^4-85*b^5*d^3*n^3*x^5+12*a*b^4*c*d^2*n^4*x^3+50*a*b^4*d^3*n^3*x^4
-b^5*c^3*n^5*x^2-51*b^5*c^2*d*n^4*x^3-285*b^5*c*d^2*n^3*x^4-225*b
^5*d^3*n^2*x^5-20*a^2*b^3*d^3*n^3*x^3+9*a*b^4*c^2*d*n^4*x^2+144*a
*b^4*c*d^2*n^3*x^3+175*a*b^4*d^3*n^2*x^4-18*b^5*c^3*n^4*x^2-321*b
^5*c^2*d*n^3*x^3-780*b^5*c*d^2*n^2*x^4-274*b^5*d^3*n*x^5-36*a^2*b
^3*c*d^2*n^3*x^2-120*a^2*b^3*d^3*n^2*x^3+2*a*b^4*c^3*n^4*x+126*a*
b^4*c^2*d*n^3*x^2+564*a*b^4*c*d^2*n^2*x^3+250*a*b^4*d^3*n*x^4-121
*b^5*c^3*n^3*x^2-921*b^5*c^2*d*n^2*x^3-972*b^5*c*d^2*n*x^4-120*b^
5*d^3*x^5+60*a^3*b^2*d^3*n^2*x^2-18*a^2*b^3*c^2*d*n^3*x-324*a^2*b
^3*c*d^2*n^2*x^2-220*a^2*b^3*d^3*n*x^3+32*a*b^4*c^3*n^3*x+585*a*b
^4*c^2*d*n^2*x^2+864*a*b^4*c*d^2*n*x^3+120*a*b^4*d^3*x^4-372*b^5*
c^3*n^2*x^2-1188*b^5*c^2*d*n*x^3-432*b^5*c*d^2*x^4+72*a^3*b^2*c*d
^2*n^2*x+180*a^3*b^2*d^3*n*x^2-2*a^2*b^3*c^3*n^3-216*a^2*b^3*c^2*
d*n^2*x-720*a^2*b^3*c*d^2*n*x^2-120*a^2*b^3*d^3*x^3+178*a*b^4*c^3
*n^2*x+1008*a*b^4*c^2*d*n*x^2+432*a*b^4*c*d^2*x^3-508*b^5*c^3*n*x
^2-540*b^5*c^2*d*x^3-120*a^4*b*d^3*n*x+18*a^3*b^2*c^2*d*n^2+504*a
^3*b^2*c*d^2*n*x+120*a^3*b^2*d^3*x^2-30*a^2*b^3*c^3*n^2-738*a^2*b
^3*c^2*d*n*x-432*a^2*b^3*c*d^2*x^2+388*a*b^4*c^3*n*x+540*a*b^4*c^
2*d*x^2-240*b^5*c^3*x^2-72*a^4*b*c*d^2*n-120*a^4*b*d^3*x+198*a^3*
b^2*c^2*d*n+432*a^3*b^2*c*d^2*x-148*a^2*b^3*c^3*n-540*a^2*b^3*c^2
*d*x+240*a*b^4*c^3*x+120*a^5*d^3-432*a^4*b*c*d^2+540*a^3*b^2*c^2*
d-240*a^2*b^3*c^3)/b^6/(n^6+21*n^5+175*n^4+735*n^3+1624*n^2+1764*
n+720)
```

Maxima [A] time = 1.36568, size = 684, normalized size = 3.23

$$\frac{\left(\left(n^2+3\,n+2\right)b^3x^3+\left(n^2+n\right)ab^2x^2-2\,a^2bnx+2\,a^3\right)(bx+a)^nc^3}{(n^3+6\,n^2+11\,n+6)b^3}$$
$$+\frac{3\left(\left(n^3+6\,n^2+11\,n+6\right)b^4x^4+\left(n^3+3\,n^2+2\,n\right)ab^3x^3-3\left(n^2+n\right)a^2b^2x^2+6\,a^3bnx-6\,a^4\right)(bx+a)^nc^2d}{(n^4+10\,n^3+35\,n^2+50\,n+24)b^4}$$
$$+\frac{3\left(\left(n^4+10\,n^3+35\,n^2+50\,n+24\right)b^5x^5+\left(n^4+6\,n^3+11\,n^2+6\,n\right)ab^4x^4-4\left(n^3+3\,n^2+2\,n\right)a^2b^3x^3+12\left(n^2+n\right)a^3b^2x^2-\right.}{(n^5+15\,n^4+85\,n^3+225\,n^2+274\,n+120)b^5}$$
$$+\frac{\left(\left(n^5+15\,n^4+85\,n^3+225\,n^2+274\,n+120\right)b^6x^6+\left(n^5+10\,n^4+35\,n^3+50\,n^2+24\,n\right)ab^5x^5-5\left(n^4+6\,n^3+11\,n^2+6\,n\right)a^2\right.}{(n^6+21\,n^5+175\,n^4+735\,n^3+1624\,n^2+1764}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3*(b*x + a)^n*x^2,x, algorithm="maxima")
```

```
[Out] ((n^2 + 3*n + 2)*b^3*x^3 + (n^2 + n)*a*b^2*x^2 - 2*a^2*b*n*x + 2*
a^3)*(b*x + a)^n*c^3/((n^3 + 6*n^2 + 11*n + 6)*b^3) + 3*((n^3 + 6
*n^2 + 11*n + 6)*b^4*x^4 + (n^3 + 3*n^2 + 2*n)*a*b^3*x^3 - 3*(n^2
 + n)*a^2*b^2*x^2 + 6*a^3*b*n*x - 6*a^4)*(b*x + a)^n*c^2*d/((n^4
+ 10*n^3 + 35*n^2 + 50*n + 24)*b^4) + 3*((n^4 + 10*n^3 + 35*n^2 +
 50*n + 24)*b^5*x^5 + (n^4 + 6*n^3 + 11*n^2 + 6*n)*a*b^4*x^4 - 4*
(n^3 + 3*n^2 + 2*n)*a^2*b^3*x^3 + 12*(n^2 + n)*a^3*b^2*x^2 - 24*a
^4*b*n*x + 24*a^5)*(b*x + a)^n*c*d^2/((n^5 + 15*n^4 + 85*n^3 + 22
5*n^2 + 274*n + 120)*b^5) + ((n^5 + 15*n^4 + 85*n^3 + 225*n^2 + 2
74*n + 120)*b^6*x^6 + (n^5 + 10*n^4 + 35*n^3 + 50*n^2 + 24*n)*a*b
^5*x^5 - 5*(n^4 + 6*n^3 + 11*n^2 + 6*n)*a^2*b^4*x^4 + 20*(n^3 + 3
*n^2 + 2*n)*a^3*b^3*x^3 - 60*(n^2 + n)*a^4*b^2*x^2 + 120*a^5*b*n*
x - 120*a^6)*(b*x + a)^n*d^3/((n^6 + 21*n^5 + 175*n^4 + 735*n^3 +
 1624*n^2 + 1764*n + 720)*b^6)
```

Fricas [A] time = 0.231308, size = 1451, normalized size = 6.84

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3*(b*x + a)^n*x^2,x, algorithm="fricas")
```

```
[Out] (2*a^3*b^3*c^3*n^3 + 240*a^3*b^3*c^3 - 540*a^4*b^2*c^2*d + 432*a^
5*b*c*d^2 - 120*a^6*d^3 + (b^6*d^3*n^5 + 15*b^6*d^3*n^4 + 85*b^6*
d^3*n^3 + 225*b^6*d^3*n^2 + 274*b^6*d^3*n + 120*b^6*d^3)*x^6 + (4
32*b^6*c*d^2 + (3*b^6*c*d^2 + a*b^5*d^3)*n^5 + 2*(24*b^6*c*d^2 +
5*a*b^5*d^3)*n^4 + 5*(57*b^6*c*d^2 + 7*a*b^5*d^3)*n^3 + 10*(78*b^
6*c*d^2 + 5*a*b^5*d^3)*n^2 + 12*(81*b^6*c*d^2 + 2*a*b^5*d^3)*n)*x
^5 + (540*b^6*c^2*d + 3*(b^6*c^2*d + a*b^5*c*d^2)*n^5 + (51*b^6*c
^2*d + 36*a*b^5*c*d^2 - 5*a^2*b^4*d^3)*n^4 + 3*(107*b^6*c^2*d + 4
7*a*b^5*c*d^2 - 10*a^2*b^4*d^3)*n^3 + (921*b^6*c^2*d + 216*a*b^5*
c*d^2 - 55*a^2*b^4*d^3)*n^2 + 6*(198*b^6*c^2*d + 18*a*b^5*c*d^2 -
 5*a^2*b^4*d^3)*n)*x^4 + (240*b^6*c^3 + (b^6*c^3 + 3*a*b^5*c^2*d)
*n^5 + 6*(3*b^6*c^3 + 7*a*b^5*c^2*d - 2*a^2*b^4*c*d^2)*n^4 + (121
*b^6*c^3 + 195*a*b^5*c^2*d - 108*a^2*b^4*c*d^2 + 20*a^3*b^3*d^3)*
n^3 + 12*(31*b^6*c^3 + 28*a*b^5*c^2*d - 20*a^2*b^4*c*d^2 + 5*a^3*
b^3*d^3)*n^2 + 4*(127*b^6*c^3 + 45*a*b^5*c^2*d - 36*a^2*b^4*c*d^2
 + 10*a^3*b^3*d^3)*n)*x^3 + 6*(5*a^3*b^3*c^3 - 3*a^4*b^2*c^2*d)*n
^2 + (a*b^5*c^3*n^5 + (16*a*b^5*c^3 - 9*a^2*b^4*c^2*d)*n^4 + (89*
a*b^5*c^3 - 108*a^2*b^4*c^2*d + 36*a^3*b^3*c*d^2)*n^3 + (194*a*b^
5*c^3 - 369*a^2*b^4*c^2*d + 252*a^3*b^3*c*d^2 - 60*a^4*b^2*d^3)*n
^2 + 6*(20*a*b^5*c^3 - 45*a^2*b^4*c^2*d + 36*a^3*b^3*c*d^2 - 10*a
^4*b^2*d^3)*n)*x^2 + 2*(74*a^3*b^3*c^3 - 99*a^4*b^2*c^2*d + 36*a^
5*b*c*d^2)*n - 2*(a^2*b^4*c^3*n^4 + 3*(5*a^2*b^4*c^3 - 3*a^3*b^3*
c^2*d)*n^3 + (74*a^2*b^4*c^3 - 99*a^3*b^3*c^2*d + 36*a^4*b^2*c*d^
2)*n^2 + 6*(20*a^2*b^4*c^3 - 45*a^3*b^3*c^2*d + 36*a^4*b^2*c*d^2
- 10*a^5*b*d^3)*n)*x)*(b*x + a)^n/(b^6*n^6 + 21*b^6*n^5 + 175*b^6
*n^4 + 735*b^6*n^3 + 1624*b^6*n^2 + 1764*b^6*n + 720*b^6)
```

Sympy [A] time = 33.9687, size = 12893, normalized size = 60.82

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(b*x+a)**n*(d*x+c)**3,x)
```

```
[Out] Piecewise((a**n*(c**3*x**3/3 + 3*c**2*d*x**4/4 + 3*c*d**2*x**5/5
+ d**3*x**6/6), Eq(b, 0)), (60*a**8*d**3*log(a/b + x)/(60*a**8*b*
*6 + 300*a**7*b**7*x + 600*a**6*b**8*x**2 + 600*a**5*b**9*x**3 +
300*a**4*b**10*x**4 + 60*a**3*b**11*x**5) + 12*a**8*d**3/(60*a**8
*b**6 + 300*a**7*b**7*x + 600*a**6*b**8*x**2 + 600*a**5*b**9*x**3
 + 300*a**4*b**10*x**4 + 60*a**3*b**11*x**5) + 300*a**7*b*d**3*x*
log(a/b + x)/(60*a**8*b**6 + 300*a**7*b**7*x + 600*a**6*b**8*x**2
 + 600*a**5*b**9*x**3 + 300*a**4*b**10*x**4 + 60*a**3*b**11*x**5)
 + 600*a**6*b**2*d**3*x**2*log(a/b + x)/(60*a**8*b**6 + 300*a**7*
b**7*x + 600*a**6*b**8*x**2 + 600*a**5*b**9*x**3 + 300*a**4*b**10
*x**4 + 60*a**3*b**11*x**5) - 150*a**6*b**2*d**3*x**2/(60*a**8*b*
*6 + 300*a**7*b**7*x + 600*a**6*b**8*x**2 + 600*a**5*b**9*x**3 +
300*a**4*b**10*x**4 + 60*a**3*b**11*x**5) + 600*a**5*b**3*d**3*x*
*3*log(a/b + x)/(60*a**8*b**6 + 300*a**7*b**7*x + 600*a**6*b**8*x
**2 + 600*a**5*b**9*x**3 + 300*a**4*b**10*x**4 + 60*a**3*b**11*x*
*5) - 350*a**5*b**3*d**3*x**3/(60*a**8*b**6 + 300*a**7*b**7*x + 6
00*a**6*b**8*x**2 + 600*a**5*b**9*x**3 + 300*a**4*b**10*x**4 + 60
*a**3*b**11*x**5) + 300*a**4*b**4*d**3*x**4*log(a/b + x)/(60*a**8
*b**6 + 300*a**7*b**7*x + 600*a**6*b**8*x**2 + 600*a**5*b**9*x**3
 + 300*a**4*b**10*x**4 + 60*a**3*b**11*x**5) - 325*a**4*b**4*d**3
*x**4/(60*a**8*b**6 + 300*a**7*b**7*x + 600*a**6*b**8*x**2 + 600*
a**5*b**9*x**3 + 300*a**4*b**10*x**4 + 60*a**3*b**11*x**5) + 60*a
**3*b**5*d**3*x**5*log(a/b + x)/(60*a**8*b**6 + 300*a**7*b**7*x +
 600*a**6*b**8*x**2 + 600*a**5*b**9*x**3 + 300*a**4*b**10*x**4 +
60*a**3*b**11*x**5) - 125*a**3*b**5*d**3*x**5/(60*a**8*b**6 + 300
*a**7*b**7*x + 600*a**6*b**8*x**2 + 600*a**5*b**9*x**3 + 300*a**4
*b**10*x**4 + 60*a**3*b**11*x**5) + 20*a**2*b**6*c**3*x**3/(60*a*
*8*b**6 + 300*a**7*b**7*x + 600*a**6*b**8*x**2 + 600*a**5*b**9*x*
*3 + 300*a**4*b**10*x**4 + 60*a**3*b**11*x**5) + 45*a**2*b**6*c**
2*d*x**4/(60*a**8*b**6 + 300*a**7*b**7*x + 600*a**6*b**8*x**2 + 6
00*a**5*b**9*x**3 + 300*a**4*b**10*x**4 + 60*a**3*b**11*x**5) + 3
6*a**2*b**6*c*d**2*x**5/(60*a**8*b**6 + 300*a**7*b**7*x + 600*a**
6*b**8*x**2 + 600*a**5*b**9*x**3 + 300*a**4*b**10*x**4 + 60*a**3*
b**11*x**5) + 10*a*b**7*c**3*x**4/(60*a**8*b**6 + 300*a**7*b**7*x
 + 600*a**6*b**8*x**2 + 600*a**5*b**9*x**3 + 300*a**4*b**10*x**4
 + 60*a**3*b**11*x**5) + 9*a*b**7*c**2*d*x**5/(60*a**8*b**6 + 300*
a**7*b**7*x + 600*a**6*b**8*x**2 + 600*a**5*b**9*x**3 + 300*a**4*
b**10*x**4 + 60*a**3*b**11*x**5) + 2*b**8*c**3*x**5/(60*a**8*b**6
 + 300*a**7*b**7*x + 600*a**6*b**8*x**2 + 600*a**5*b**9*x**3 + 30
0*a**4*b**10*x**4 + 60*a**3*b**11*x**5), Eq(n, -6)), (-60*a**7*d*
*3*log(a/b + x)/(12*a**6*b**6 + 48*a**5*b**7*x + 72*a**4*b**8*x**
2 + 48*a**3*b**9*x**3 + 12*a**2*b**10*x**4) - 15*a**7*d**3/(12*a*
*6*b**6 + 48*a**5*b**7*x + 72*a**4*b**8*x**2 + 48*a**3*b**9*x**3
+ 12*a**2*b**10*x**4) + 36*a**6*b*c*d**2*log(a/b + x)/(12*a**6*b*
*6 + 48*a**5*b**7*x + 72*a**4*b**8*x**2 + 48*a**3*b**9*x**3 + 12*
a**2*b**10*x**4) + 9*a**6*b*c*d**2/(12*a**6*b**6 + 48*a**5*b**7*x
 + 72*a**4*b**8*x**2 + 48*a**3*b**9*x**3 + 12*a**2*b**10*x**4) -
240*a**6*b*d**3*x*log(a/b + x)/(12*a**6*b**6 + 48*a**5*b**7*x + 7
2*a**4*b**8*x**2 + 48*a**3*b**9*x**3 + 12*a**2*b**10*x**4) + 144*
a**5*b**2*c*d**2*x*log(a/b + x)/(12*a**6*b**6 + 48*a**5*b**7*x +
72*a**4*b**8*x**2 + 48*a**3*b**9*x**3 + 12*a**2*b**10*x**4) - 360
*a**5*b**2*d**3*x**2*log(a/b + x)/(12*a**6*b**6 + 48*a**5*b**7*x
+ 72*a**4*b**8*x**2 + 48*a**3*b**9*x**3 + 12*a**2*b**10*x**4) + 1
20*a**5*b**2*d**3*x**2/(12*a**6*b**6 + 48*a**5*b**7*x + 72*a**4*b
**8*x**2 + 48*a**3*b**9*x**3 + 12*a**2*b**10*x**4) + 216*a**4*b**
3*c*d**2*x**2*log(a/b + x)/(12*a**6*b**6 + 48*a**5*b**7*x + 72*a*
*4*b**8*x**2 + 48*a**3*b**9*x**3 + 12*a**2*b**10*x**4) - 72*a**4*
b**3*c*d**2*x**2/(12*a**6*b**6 + 48*a**5*b**7*x + 72*a**4*b**8*x*
*2 + 48*a**3*b**9*x**3 + 12*a**2*b**10*x**4) - 240*a**4*b**3*d**3
*x**3*log(a/b + x)/(12*a**6*b**6 + 48*a**5*b**7*x + 72*a**4*b**8*
x**2 + 48*a**3*b**9*x**3 + 12*a**2*b**10*x**4) + 200*a**4*b**3*d*
*3*x**3/(12*a**6*b**6 + 48*a**5*b**7*x + 72*a**4*b**8*x**2 + 48*a
**3*b**9*x**3 + 12*a**2*b**10*x**4) + 144*a**3*b**4*c*d**2*x**3*l
og(a/b + x)/(12*a**6*b**6 + 48*a**5*b**7*x + 72*a**4*b**8*x**2 +
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48*a**3*b**9*x**3 + 12*a**2*b**10*x**4) - 120*a**3*b**4*c*d**2*x*
*3/(12*a**6*b**6 + 48*a**5*b**7*x + 72*a**4*b**8*x**2 + 48*a**3*b
**9*x**3 + 12*a**2*b**10*x**4) - 60*a**3*b**4*d**3*x**4*log(a/b +
 x)/(12*a**6*b**6 + 48*a**5*b**7*x + 72*a**4*b**8*x**2 + 48*a**3*
b**9*x**3 + 12*a**2*b**10*x**4) + 110*a**3*b**4*d**3*x**4/(12*a**
6*b**6 + 48*a**5*b**7*x + 72*a**4*b**8*x**2 + 48*a**3*b**9*x**3 +
 12*a**2*b**10*x**4) + 36*a**2*b**5*c*d**2*x**4*log(a/b + x)/(12*
a**6*b**6 + 48*a**5*b**7*x + 72*a**4*b**8*x**2 + 48*a**3*b**9*x**
3 + 12*a**2*b**10*x**4) - 66*a**2*b**5*c*d**2*x**4/(12*a**6*b**6
+ 48*a**5*b**7*x + 72*a**4*b**8*x**2 + 48*a**3*b**9*x**3 + 12*a**
2*b**10*x**4) + 12*a**2*b**5*d**3*x**5/(12*a**6*b**6 + 48*a**5*b*
*7*x + 72*a**4*b**8*x**2 + 48*a**3*b**9*x**3 + 12*a**2*b**10*x**4
) + 4*a*b**6*c**3*x**3/(12*a**6*b**6 + 48*a**5*b**7*x + 72*a**4*b
**8*x**2 + 48*a**3*b**9*x**3 + 12*a**2*b**10*x**4) + 9*a*b**6*c**
2*d*x**4/(12*a**6*b**6 + 48*a**5*b**7*x + 72*a**4*b**8*x**2 + 48*
a**3*b**9*x**3 + 12*a**2*b**10*x**4) + b**7*c**3*x**4/(12*a**6*b*
*6 + 48*a**5*b**7*x + 72*a**4*b**8*x**2 + 48*a**3*b**9*x**3 + 12*
a**2*b**10*x**4), Eq(n, -5)), (60*a**6*d**3*log(a/b + x)/(6*a**4*
b**6 + 18*a**3*b**7*x + 18*a**2*b**8*x**2 + 6*a*b**9*x**3) + 20*a
**6*d**3/(6*a**4*b**6 + 18*a**3*b**7*x + 18*a**2*b**8*x**2 + 6*a*
b**9*x**3) - 72*a**5*b*c*d**2*log(a/b + x)/(6*a**4*b**6 + 18*a**3
*b**7*x + 18*a**2*b**8*x**2 + 6*a*b**9*x**3) - 24*a**5*b*c*d**2/(
6*a**4*b**6 + 18*a**3*b**7*x + 18*a**2*b**8*x**2 + 6*a*b**9*x**3)
 + 180*a**5*b*d**3*x*log(a/b + x)/(6*a**4*b**6 + 18*a**3*b**7*x +
 18*a**2*b**8*x**2 + 6*a*b**9*x**3) + 18*a**4*b**2*c**2*d*log(a/b
 + x)/(6*a**4*b**6 + 18*a**3*b**7*x + 18*a**2*b**8*x**2 + 6*a*b**
9*x**3) + 6*a**4*b**2*c**2*d/(6*a**4*b**6 + 18*a**3*b**7*x + 18*a
**2*b**8*x**2 + 6*a*b**9*x**3) - 216*a**4*b**2*c*d**2*x*log(a/b +
 x)/(6*a**4*b**6 + 18*a**3*b**7*x + 18*a**2*b**8*x**2 + 6*a*b**9*
x**3) + 180*a**4*b**2*d**3*x**2*log(a/b + x)/(6*a**4*b**6 + 18*a*
*3*b**7*x + 18*a**2*b**8*x**2 + 6*a*b**9*x**3) - 90*a**4*b**2*d**
3*x**2/(6*a**4*b**6 + 18*a**3*b**7*x + 18*a**2*b**8*x**2 + 6*a*b*
*9*x**3) + 54*a**3*b**3*c**2*d*x*log(a/b + x)/(6*a**4*b**6 + 18*a
**3*b**7*x + 18*a**2*b**8*x**2 + 6*a*b**9*x**3) - 216*a**3*b**3*c
*d**2*x**2*log(a/b + x)/(6*a**4*b**6 + 18*a**3*b**7*x + 18*a**2*b
**8*x**2 + 6*a*b**9*x**3) + 108*a**3*b**3*c*d**2*x**2/(6*a**4*b**
6 + 18*a**3*b**7*x + 18*a**2*b**8*x**2 + 6*a*b**9*x**3) + 60*a**3
*b**3*d**3*x**3*log(a/b + x)/(6*a**4*b**6 + 18*a**3*b**7*x + 18*a
**2*b**8*x**2 + 6*a*b**9*x**3) - 90*a**3*b**3*d**3*x**3/(6*a**4*b
**6 + 18*a**3*b**7*x + 18*a**2*b**8*x**2 + 6*a*b**9*x**3) + 54*a*
*2*b**4*c**2*d*x**2*log(a/b + x)/(6*a**4*b**6 + 18*a**3*b**7*x +
18*a**2*b**8*x**2 + 6*a*b**9*x**3) - 27*a**2*b**4*c**2*d*x**2/(6*
a**4*b**6 + 18*a**3*b**7*x + 18*a**2*b**8*x**2 + 6*a*b**9*x**3) -
 72*a**2*b**4*c*d**2*x**3*log(a/b + x)/(6*a**4*b**6 + 18*a**3*b**
7*x + 18*a**2*b**8*x**2 + 6*a*b**9*x**3) + 108*a**2*b**4*c*d**2*x
**3/(6*a**4*b**6 + 18*a**3*b**7*x + 18*a**2*b**8*x**2 + 6*a*b**9*
x**3) - 15*a**2*b**4*d**3*x**4/(6*a**4*b**6 + 18*a**3*b**7*x + 18
*a**2*b**8*x**2 + 6*a*b**9*x**3) + 18*a*b**5*c**2*d*x**3*log(a/b
+ x)/(6*a**4*b**6 + 18*a**3*b**7*x + 18*a**2*b**8*x**2 + 6*a*b**9
*x**3) - 27*a*b**5*c**2*d*x**3/(6*a**4*b**6 + 18*a**3*b**7*x + 18
*a**2*b**8*x**2 + 6*a*b**9*x**3) + 18*a*b**5*c*d**2*x**4/(6*a**4*
b**6 + 18*a**3*b**7*x + 18*a**2*b**8*x**2 + 6*a*b**9*x**3) + 3*a*
b**5*d**3*x**5/(6*a**4*b**6 + 18*a**3*b**7*x + 18*a**2*b**8*x**2
+ 6*a*b**9*x**3) + 2*b**6*c**3*x**3/(6*a**4*b**6 + 18*a**3*b**7*x
 + 18*a**2*b**8*x**2 + 6*a*b**9*x**3), Eq(n, -4)), (-60*a**5*d**3
*log(a/b + x)/(6*a**2*b**6 + 12*a*b**7*x + 6*b**8*x**2) - 30*a**5
*d**3/(6*a**2*b**6 + 12*a*b**7*x + 6*b**8*x**2) + 108*a**4*b*c*d*
*2*log(a/b + x)/(6*a**2*b**6 + 12*a*b**7*x + 6*b**8*x**2) + 54*a*
*4*b*c*d**2/(6*a**2*b**6 + 12*a*b**7*x + 6*b**8*x**2) - 120*a**4*
b*d**3*x*log(a/b + x)/(6*a**2*b**6 + 12*a*b**7*x + 6*b**8*x**2) -
 54*a**3*b**2*c**2*d*log(a/b + x)/(6*a**2*b**6 + 12*a*b**7*x + 6*
b**8*x**2) - 27*a**3*b**2*c**2*d/(6*a**2*b**6 + 12*a*b**7*x + 6*b
**8*x**2) + 216*a**3*b**2*c*d**2*x*log(a/b + x)/(6*a**2*b**6 + 12
*a*b**7*x + 6*b**8*x**2) - 60*a**3*b**2*d**3*x**2*log(a/b + x)/(6
*a**2*b**6 + 12*a*b**7*x + 6*b**8*x**2) + 60*a**3*b**2*d**3*x**2/
(6*a**2*b**6 + 12*a*b**7*x + 6*b**8*x**2) + 6*a**2*b**3*c**3*log(
a/b + x)/(6*a**2*b**6 + 12*a*b**7*x + 6*b**8*x**2) + 3*a**2*b**3*
c**3/(6*a**2*b**6 + 12*a*b**7*x + 6*b**8*x**2) - 108*a**2*b**3*c*
*2*d*x*log(a/b + x)/(6*a**2*b**6 + 12*a*b**7*x + 6*b**8*x**2) + 1
08*a**2*b**3*c*d**2*x**2*log(a/b + x)/(6*a**2*b**6 + 12*a*b**7*x
+ 6*b**8*x**2) - 108*a**2*b**3*c*d**2*x**2/(6*a**2*b**6 + 12*a*b*
*7*x + 6*b**8*x**2) + 20*a**2*b**3*d**3*x**3/(6*a**2*b**6 + 12*a*
b**7*x + 6*b**8*x**2) + 12*a*b**4*c**3*x*log(a/b + x)/(6*a**2*b**
6 + 12*a*b**7*x + 6*b**8*x**2) - 54*a*b**4*c**2*d*x**2*log(a/b +
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x)/(6*a**2*b**6 + 12*a*b**7*x + 6*b**8*x**2) + 54*a*b**4*c**2*d*x
**2/(6*a**2*b**6 + 12*a*b**7*x + 6*b**8*x**2) - 36*a*b**4*c*d**2*
x**3/(6*a**2*b**6 + 12*a*b**7*x + 6*b**8*x**2) - 5*a*b**4*d**3*x*
*4/(6*a**2*b**6 + 12*a*b**7*x + 6*b**8*x**2) + 6*b**5*c**3*x**2*l
og(a/b + x)/(6*a**2*b**6 + 12*a*b**7*x + 6*b**8*x**2) - 6*b**5*c*
*3*x**2/(6*a**2*b**6 + 12*a*b**7*x + 6*b**8*x**2) + 18*b**5*c**2*
d*x**3/(6*a**2*b**6 + 12*a*b**7*x + 6*b**8*x**2) + 9*b**5*c*d**2*
x**4/(6*a**2*b**6 + 12*a*b**7*x + 6*b**8*x**2) + 2*b**5*d**3*x**5
/(6*a**2*b**6 + 12*a*b**7*x + 6*b**8*x**2), Eq(n, -3)), (60*a**5*
d**3*log(a/b + x)/(12*a*b**6 + 12*b**7*x) + 60*a**5*d**3/(12*a*b*
*6 + 12*b**7*x) - 144*a**4*b*c*d**2*log(a/b + x)/(12*a*b**6 + 12*
b**7*x) - 144*a**4*b*c*d**2/(12*a*b**6 + 12*b**7*x) + 60*a**4*b*d
**3*x*log(a/b + x)/(12*a*b**6 + 12*b**7*x) + 108*a**3*b**2*c**2*d
*log(a/b + x)/(12*a*b**6 + 12*b**7*x) + 108*a**3*b**2*c**2*d/(12*
a*b**6 + 12*b**7*x) - 144*a**3*b**2*c*d**2*x*log(a/b + x)/(12*a*b
**6 + 12*b**7*x) - 30*a**3*b**2*d**3*x**2/(12*a*b**6 + 12*b**7*x)
 - 24*a**2*b**3*c**3*log(a/b + x)/(12*a*b**6 + 12*b**7*x) - 24*a*
*2*b**3*c**3/(12*a*b**6 + 12*b**7*x) + 108*a**2*b**3*c**2*d*x*log
(a/b + x)/(12*a*b**6 + 12*b**7*x) + 72*a**2*b**3*c*d**2*x**2/(12*
a*b**6 + 12*b**7*x) + 10*a**2*b**3*d**3*x**3/(12*a*b**6 + 12*b**7
*x) - 24*a*b**4*c**3*x*log(a/b + x)/(12*a*b**6 + 12*b**7*x) - 54*
a*b**4*c**2*d*x**2/(12*a*b**6 + 12*b**7*x) - 24*a*b**4*c*d**2*x**
3/(12*a*b**6 + 12*b**7*x) - 5*a*b**4*d**3*x**4/(12*a*b**6 + 12*b*
*7*x) + 12*b**5*c**3*x**2/(12*a*b**6 + 12*b**7*x) + 18*b**5*c**2*
d*x**3/(12*a*b**6 + 12*b**7*x) + 12*b**5*c*d**2*x**4/(12*a*b**6 +
 12*b**7*x) + 3*b**5*d**3*x**5/(12*a*b**6 + 12*b**7*x), Eq(n, -2)
), (-a**5*d**3*log(a/b + x)/b**6 + 3*a**4*c*d**2*log(a/b + x)/b**
5 + a**4*d**3*x/b**5 - 3*a**3*c**2*d*log(a/b + x)/b**4 - 3*a**3*c
*d**2*x/b**4 - a**3*d**3*x**2/(2*b**4) + a**2*c**3*log(a/b + x)/b
**3 + 3*a**2*c**2*d*x/b**3 + 3*a**2*c*d**2*x**2/(2*b**3) + a**2*d
**3*x**3/(3*b**3) - a*c**3*x/b**2 - 3*a*c**2*d*x**2/(2*b**2) - a*
c*d**2*x**3/b**2 - a*d**3*x**4/(4*b**2) + c**3*x**2/(2*b) + c**2*
d*x**3/b + 3*c*d**2*x**4/(4*b) + d**3*x**5/(5*b), Eq(n, -1)), (-1
20*a**6*d**3*(a + b*x)**n/(b**6*n**6 + 21*b**6*n**5 + 175*b**6*n*
*4 + 735*b**6*n**3 + 1624*b**6*n**2 + 1764*b**6*n + 720*b**6) + 7
2*a**5*b*c*d**2*n*(a + b*x)**n/(b**6*n**6 + 21*b**6*n**5 + 175*b*
*6*n**4 + 735*b**6*n**3 + 1624*b**6*n**2 + 1764*b**6*n + 720*b**6
) + 432*a**5*b*c*d**2*(a + b*x)**n/(b**6*n**6 + 21*b**6*n**5 + 17
5*b**6*n**4 + 735*b**6*n**3 + 1624*b**6*n**2 + 1764*b**6*n + 720*
b**6) + 120*a**5*b*d**3*n*x*(a + b*x)**n/(b**6*n**6 + 21*b**6*n**
5 + 175*b**6*n**4 + 735*b**6*n**3 + 1624*b**6*n**2 + 1764*b**6*n
+ 720*b**6) - 18*a**4*b**2*c**2*d*n**2*(a + b*x)**n/(b**6*n**6 +
21*b**6*n**5 + 175*b**6*n**4 + 735*b**6*n**3 + 1624*b**6*n**2 + 1
764*b**6*n + 720*b**6) - 198*a**4*b**2*c**2*d*n*(a + b*x)**n/(b**
6*n**6 + 21*b**6*n**5 + 175*b**6*n**4 + 735*b**6*n**3 + 1624*b**6
*n**2 + 1764*b**6*n + 720*b**6) - 540*a**4*b**2*c**2*d*(a + b*x)*
*n/(b**6*n**6 + 21*b**6*n**5 + 175*b**6*n**4 + 735*b**6*n**3 + 16
24*b**6*n**2 + 1764*b**6*n + 720*b**6) - 72*a**4*b**2*c*d**2*n**2
*x*(a + b*x)**n/(b**6*n**6 + 21*b**6*n**5 + 175*b**6*n**4 + 735*b
**6*n**3 + 1624*b**6*n**2 + 1764*b**6*n + 720*b**6) - 432*a**4*b*
*2*c*d**2*n*x*(a + b*x)**n/(b**6*n**6 + 21*b**6*n**5 + 175*b**6*n
**4 + 735*b**6*n**3 + 1624*b**6*n**2 + 1764*b**6*n + 720*b**6) -
60*a**4*b**2*d**3*n**2*x**2*(a + b*x)**n/(b**6*n**6 + 21*b**6*n**
5 + 175*b**6*n**4 + 735*b**6*n**3 + 1624*b**6*n**2 + 1764*b**6*n
+ 720*b**6) - 60*a**4*b**2*d**3*n*x**2*(a + b*x)**n/(b**6*n**6 +
21*b**6*n**5 + 175*b**6*n**4 + 735*b**6*n**3 + 1624*b**6*n**2 + 1
764*b**6*n + 720*b**6) + 2*a**3*b**3*c**3*n**3*(a + b*x)**n/(b**6
*n**6 + 21*b**6*n**5 + 175*b**6*n**4 + 735*b**6*n**3 + 1624*b**6*
n**2 + 1764*b**6*n + 720*b**6) + 30*a**3*b**3*c**3*n**2*(a + b*x)
**n/(b**6*n**6 + 21*b**6*n**5 + 175*b**6*n**4 + 735*b**6*n**3 + 1
624*b**6*n**2 + 1764*b**6*n + 720*b**6) + 148*a**3*b**3*c**3*n*(a
 + b*x)**n/(b**6*n**6 + 21*b**6*n**5 + 175*b**6*n**4 + 735*b**6*n
**3 + 1624*b**6*n**2 + 1764*b**6*n + 720*b**6) + 240*a**3*b**3*c*
*3*(a + b*x)**n/(b**6*n**6 + 21*b**6*n**5 + 175*b**6*n**4 + 735*b
**6*n**3 + 1624*b**6*n**2 + 1764*b**6*n + 720*b**6) + 18*a**3*b**
3*c**2*d*n**3*x*(a + b*x)**n/(b**6*n**6 + 21*b**6*n**5 + 175*b**6
*n**4 + 735*b**6*n**3 + 1624*b**6*n**2 + 1764*b**6*n + 720*b**6)
+ 198*a**3*b**3*c**2*d*n**2*x*(a + b*x)**n/(b**6*n**6 + 21*b**6*n
**5 + 175*b**6*n**4 + 735*b**6*n**3 + 1624*b**6*n**2 + 1764*b**6*
n + 720*b**6) + 540*a**3*b**3*c**2*d*n*x*(a + b*x)**n/(b**6*n**6
+ 21*b**6*n**5 + 175*b**6*n**4 + 735*b**6*n**3 + 1624*b**6*n**2 +
 1764*b**6*n + 720*b**6) + 36*a**3*b**3*c*d**2*n**3*x**2*(a + b*x
)**n/(b**6*n**6 + 21*b**6*n**5 + 175*b**6*n**4 + 735*b**6*n**3 +
1624*b**6*n**2 + 1764*b**6*n + 720*b**6) + 252*a**3*b**3*c*d**2*n
```

```
**2*x**2*(a + b*x)**n/(b**6*n**6 + 21*b**6*n**5 + 175*b**6*n**4 +
 735*b**6*n**3 + 1624*b**6*n**2 + 1764*b**6*n + 720*b**6) + 216*a
**3*b**3*c*d**2*n*x**2*(a + b*x)**n/(b**6*n**6 + 21*b**6*n**5 + 1
75*b**6*n**4 + 735*b**6*n**3 + 1624*b**6*n**2 + 1764*b**6*n + 720
*b**6) + 20*a**3*b**3*d**3*n**3*x**3*(a + b*x)**n/(b**6*n**6 + 21
*b**6*n**5 + 175*b**6*n**4 + 735*b**6*n**3 + 1624*b**6*n**2 + 176
4*b**6*n + 720*b**6) + 60*a**3*b**3*d**3*n**2*x**3*(a + b*x)**n/(
b**6*n**6 + 21*b**6*n**5 + 175*b**6*n**4 + 735*b**6*n**3 + 1624*b
**6*n**2 + 1764*b**6*n + 720*b**6) + 40*a**3*b**3*d**3*n*x**3*(a
+ b*x)**n/(b**6*n**6 + 21*b**6*n**5 + 175*b**6*n**4 + 735*b**6*n*
*3 + 1624*b**6*n**2 + 1764*b**6*n + 720*b**6) - 2*a**2*b**4*c**3*
n**4*x*(a + b*x)**n/(b**6*n**6 + 21*b**6*n**5 + 175*b**6*n**4 + 7
35*b**6*n**3 + 1624*b**6*n**2 + 1764*b**6*n + 720*b**6) - 30*a**2
*b**4*c**3*n**3*x*(a + b*x)**n/(b**6*n**6 + 21*b**6*n**5 + 175*b*
*6*n**4 + 735*b**6*n**3 + 1624*b**6*n**2 + 1764*b**6*n + 720*b**6
) - 148*a**2*b**4*c**3*n**2*x*(a + b*x)**n/(b**6*n**6 + 21*b**6*n
**5 + 175*b**6*n**4 + 735*b**6*n**3 + 1624*b**6*n**2 + 1764*b**6*
n + 720*b**6) - 240*a**2*b**4*c**3*n*x*(a + b*x)**n/(b**6*n**6 +
21*b**6*n**5 + 175*b**6*n**4 + 735*b**6*n**3 + 1624*b**6*n**2 + 1
764*b**6*n + 720*b**6) - 9*a**2*b**4*c**2*d*n**4*x**2*(a + b*x)**
n/(b**6*n**6 + 21*b**6*n**5 + 175*b**6*n**4 + 735*b**6*n**3 + 162
4*b**6*n**2 + 1764*b**6*n + 720*b**6) - 108*a**2*b**4*c**2*d*n**3
*x**2*(a + b*x)**n/(b**6*n**6 + 21*b**6*n**5 + 175*b**6*n**4 + 73
5*b**6*n**3 + 1624*b**6*n**2 + 1764*b**6*n + 720*b**6) - 369*a**2
*b**4*c**2*d*n**2*x**2*(a + b*x)**n/(b**6*n**6 + 21*b**6*n**5 + 1
75*b**6*n**4 + 735*b**6*n**3 + 1624*b**6*n**2 + 1764*b**6*n + 720
*b**6) - 270*a**2*b**4*c**2*d*n*x**2*(a + b*x)**n/(b**6*n**6 + 21
*b**6*n**5 + 175*b**6*n**4 + 735*b**6*n**3 + 1624*b**6*n**2 + 176
4*b**6*n + 720*b**6) - 12*a**2*b**4*c*d**2*n**4*x**3*(a + b*x)**n
/(b**6*n**6 + 21*b**6*n**5 + 175*b**6*n**4 + 735*b**6*n**3 + 1624
*b**6*n**2 + 1764*b**6*n + 720*b**6) - 108*a**2*b**4*c*d**2*n**3*
x**3*(a + b*x)**n/(b**6*n**6 + 21*b**6*n**5 + 175*b**6*n**4 + 735
*b**6*n**3 + 1624*b**6*n**2 + 1764*b**6*n + 720*b**6) - 240*a**2*
b**4*c*d**2*n**2*x**3*(a + b*x)**n/(b**6*n**6 + 21*b**6*n**5 + 17
5*b**6*n**4 + 735*b**6*n**3 + 1624*b**6*n**2 + 1764*b**6*n + 720*
b**6) - 144*a**2*b**4*c*d**2*n*x**3*(a + b*x)**n/(b**6*n**6 + 21*
b**6*n**5 + 175*b**6*n**4 + 735*b**6*n**3 + 1624*b**6*n**2 + 1764
*b**6*n + 720*b**6) - 5*a**2*b**4*d**3*n**4*x**4*(a + b*x)**n/(b*
*6*n**6 + 21*b**6*n**5 + 175*b**6*n**4 + 735*b**6*n**3 + 1624*b**
6*n**2 + 1764*b**6*n + 720*b**6) - 30*a**2*b**4*d**3*n**3*x**4*(a
 + b*x)**n/(b**6*n**6 + 21*b**6*n**5 + 175*b**6*n**4 + 735*b**6*n
**3 + 1624*b**6*n**2 + 1764*b**6*n + 720*b**6) - 55*a**2*b**4*d**
3*n**2*x**4*(a + b*x)**n/(b**6*n**6 + 21*b**6*n**5 + 175*b**6*n**
4 + 735*b**6*n**3 + 1624*b**6*n**2 + 1764*b**6*n + 720*b**6) - 30
*a**2*b**4*d**3*n*x**4*(a + b*x)**n/(b**6*n**6 + 21*b**6*n**5 + 1
75*b**6*n**4 + 735*b**6*n**3 + 1624*b**6*n**2 + 1764*b**6*n + 720
*b**6) + a*b**5*c**3*n**5*x**2*(a + b*x)**n/(b**6*n**6 + 21*b**6*
n**5 + 175*b**6*n**4 + 735*b**6*n**3 + 1624*b**6*n**2 + 1764*b**6
*n + 720*b**6) + 16*a*b**5*c**3*n**4*x**2*(a + b*x)**n/(b**6*n**6
 + 21*b**6*n**5 + 175*b**6*n**4 + 735*b**6*n**3 + 1624*b**6*n**2
+ 1764*b**6*n + 720*b**6) + 89*a*b**5*c**3*n**3*x**2*(a + b*x)**n
/(b**6*n**6 + 21*b**6*n**5 + 175*b**6*n**4 + 735*b**6*n**3 + 1624
*b**6*n**2 + 1764*b**6*n + 720*b**6) + 194*a*b**5*c**3*n**2*x**2*
(a + b*x)**n/(b**6*n**6 + 21*b**6*n**5 + 175*b**6*n**4 + 735*b**6
*n**3 + 1624*b**6*n**2 + 1764*b**6*n + 720*b**6) + 120*a*b**5*c**
3*n*x**2*(a + b*x)**n/(b**6*n**6 + 21*b**6*n**5 + 175*b**6*n**4 +
 735*b**6*n**3 + 1624*b**6*n**2 + 1764*b**6*n + 720*b**6) + 3*a*b
**5*c**2*d*n**5*x**3*(a + b*x)**n/(b**6*n**6 + 21*b**6*n**5 + 175
*b**6*n**4 + 735*b**6*n**3 + 1624*b**6*n**2 + 1764*b**6*n + 720*b
**6) + 42*a*b**5*c**2*d*n**4*x**3*(a + b*x)**n/(b**6*n**6 + 21*b*
*6*n**5 + 175*b**6*n**4 + 735*b**6*n**3 + 1624*b**6*n**2 + 1764*b
**6*n + 720*b**6) + 195*a*b**5*c**2*d*n**3*x**3*(a + b*x)**n/(b**
6*n**6 + 21*b**6*n**5 + 175*b**6*n**4 + 735*b**6*n**3 + 1624*b**6
*n**2 + 1764*b**6*n + 720*b**6) + 336*a*b**5*c**2*d*n**2*x**3*(a
+ b*x)**n/(b**6*n**6 + 21*b**6*n**5 + 175*b**6*n**4 + 735*b**6*n*
*3 + 1624*b**6*n**2 + 1764*b**6*n + 720*b**6) + 180*a*b**5*c**2*d
*n*x**3*(a + b*x)**n/(b**6*n**6 + 21*b**6*n**5 + 175*b**6*n**4 +
735*b**6*n**3 + 1624*b**6*n**2 + 1764*b**6*n + 720*b**6) + 3*a*b*
*5*c*d**2*n**5*x**4*(a + b*x)**n/(b**6*n**6 + 21*b**6*n**5 + 175*
b**6*n**4 + 735*b**6*n**3 + 1624*b**6*n**2 + 1764*b**6*n + 720*b*
*6) + 36*a*b**5*c*d**2*n**4*x**4*(a + b*x)**n/(b**6*n**6 + 21*b**
6*n**5 + 175*b**6*n**4 + 735*b**6*n**3 + 1624*b**6*n**2 + 1764*b*
*6*n + 720*b**6) + 141*a*b**5*c*d**2*n**3*x**4*(a + b*x)**n/(b**6
*n**6 + 21*b**6*n**5 + 175*b**6*n**4 + 735*b**6*n**3 + 1624*b**6*
```

```
n**2 + 1764*b**6*n + 720*b**6) + 216*a*b**5*c*d**2*n**2*x**4*(a +
 b*x)**n/(b**6*n**6 + 21*b**6*n**5 + 175*b**6*n**4 + 735*b**6*n**
3 + 1624*b**6*n**2 + 1764*b**6*n + 720*b**6) + 108*a*b**5*c*d**2*
n*x**4*(a + b*x)**n/(b**6*n**6 + 21*b**6*n**5 + 175*b**6*n**4 + 7
35*b**6*n**3 + 1624*b**6*n**2 + 1764*b**6*n + 720*b**6) + a*b**5*
d**3*n**5*x**5*(a + b*x)**n/(b**6*n**6 + 21*b**6*n**5 + 175*b**6*
n**4 + 735*b**6*n**3 + 1624*b**6*n**2 + 1764*b**6*n + 720*b**6) +
 10*a*b**5*d**3*n**4*x**5*(a + b*x)**n/(b**6*n**6 + 21*b**6*n**5
+ 175*b**6*n**4 + 735*b**6*n**3 + 1624*b**6*n**2 + 1764*b**6*n +
720*b**6) + 35*a*b**5*d**3*n**3*x**5*(a + b*x)**n/(b**6*n**6 + 21
*b**6*n**5 + 175*b**6*n**4 + 735*b**6*n**3 + 1624*b**6*n**2 + 176
4*b**6*n + 720*b**6) + 50*a*b**5*d**3*n**2*x**5*(a + b*x)**n/(b**
6*n**6 + 21*b**6*n**5 + 175*b**6*n**4 + 735*b**6*n**3 + 1624*b**6
*n**2 + 1764*b**6*n + 720*b**6) + 24*a*b**5*d**3*n*x**5*(a + b*x)
**n/(b**6*n**6 + 21*b**6*n**5 + 175*b**6*n**4 + 735*b**6*n**3 + 1
624*b**6*n**2 + 1764*b**6*n + 720*b**6) + b**6*c**3*n**5*x**3*(a
+ b*x)**n/(b**6*n**6 + 21*b**6*n**5 + 175*b**6*n**4 + 735*b**6*n*
*3 + 1624*b**6*n**2 + 1764*b**6*n + 720*b**6) + 18*b**6*c**3*n**4
*x**3*(a + b*x)**n/(b**6*n**6 + 21*b**6*n**5 + 175*b**6*n**4 + 73
5*b**6*n**3 + 1624*b**6*n**2 + 1764*b**6*n + 720*b**6) + 121*b**6
*c**3*n**3*x**3*(a + b*x)**n/(b**6*n**6 + 21*b**6*n**5 + 175*b**6
*n**4 + 735*b**6*n**3 + 1624*b**6*n**2 + 1764*b**6*n + 720*b**6)
+ 372*b**6*c**3*n**2*x**3*(a + b*x)**n/(b**6*n**6 + 21*b**6*n**5
+ 175*b**6*n**4 + 735*b**6*n**3 + 1624*b**6*n**2 + 1764*b**6*n +
720*b**6) + 508*b**6*c**3*n*x**3*(a + b*x)**n/(b**6*n**6 + 21*b**
6*n**5 + 175*b**6*n**4 + 735*b**6*n**3 + 1624*b**6*n**2 + 1764*b*
*6*n + 720*b**6) + 240*b**6*c**3*x**3*(a + b*x)**n/(b**6*n**6 + 2
1*b**6*n**5 + 175*b**6*n**4 + 735*b**6*n**3 + 1624*b**6*n**2 + 17
64*b**6*n + 720*b**6) + 3*b**6*c**2*d*n**5*x**4*(a + b*x)**n/(b**
6*n**6 + 21*b**6*n**5 + 175*b**6*n**4 + 735*b**6*n**3 + 1624*b**6
*n**2 + 1764*b**6*n + 720*b**6) + 51*b**6*c**2*d*n**4*x**4*(a + b
*x)**n/(b**6*n**6 + 21*b**6*n**5 + 175*b**6*n**4 + 735*b**6*n**3
+ 1624*b**6*n**2 + 1764*b**6*n + 720*b**6) + 321*b**6*c**2*d*n**3
*x**4*(a + b*x)**n/(b**6*n**6 + 21*b**6*n**5 + 175*b**6*n**4 + 73
5*b**6*n**3 + 1624*b**6*n**2 + 1764*b**6*n + 720*b**6) + 921*b**6
*c**2*d*n**2*x**4*(a + b*x)**n/(b**6*n**6 + 21*b**6*n**5 + 175*b*
*6*n**4 + 735*b**6*n**3 + 1624*b**6*n**2 + 1764*b**6*n + 720*b**6
) + 1188*b**6*c**2*d*n*x**4*(a + b*x)**n/(b**6*n**6 + 21*b**6*n**
5 + 175*b**6*n**4 + 735*b**6*n**3 + 1624*b**6*n**2 + 1764*b**6*n
+ 720*b**6) + 540*b**6*c**2*d*x**4*(a + b*x)**n/(b**6*n**6 + 21*b
**6*n**5 + 175*b**6*n**4 + 735*b**6*n**3 + 1624*b**6*n**2 + 1764*
b**6*n + 720*b**6) + 3*b**6*c*d**2*n**5*x**5*(a + b*x)**n/(b**6*n
**6 + 21*b**6*n**5 + 175*b**6*n**4 + 735*b**6*n**3 + 1624*b**6*n*
*2 + 1764*b**6*n + 720*b**6) + 48*b**6*c*d**2*n**4*x**5*(a + b*x)
**n/(b**6*n**6 + 21*b**6*n**5 + 175*b**6*n**4 + 735*b**6*n**3 + 1
624*b**6*n**2 + 1764*b**6*n + 720*b**6) + 285*b**6*c*d**2*n**3*x*
*5*(a + b*x)**n/(b**6*n**6 + 21*b**6*n**5 + 175*b**6*n**4 + 735*b
**6*n**3 + 1624*b**6*n**2 + 1764*b**6*n + 720*b**6) + 780*b**6*c*
d**2*n**2*x**5*(a + b*x)**n/(b**6*n**6 + 21*b**6*n**5 + 175*b**6*
n**4 + 735*b**6*n**3 + 1624*b**6*n**2 + 1764*b**6*n + 720*b**6) +
 972*b**6*c*d**2*n*x**5*(a + b*x)**n/(b**6*n**6 + 21*b**6*n**5 +
175*b**6*n**4 + 735*b**6*n**3 + 1624*b**6*n**2 + 1764*b**6*n + 72
0*b**6) + 432*b**6*c*d**2*x**5*(a + b*x)**n/(b**6*n**6 + 21*b**6*
n**5 + 175*b**6*n**4 + 735*b**6*n**3 + 1624*b**6*n**2 + 1764*b**6
*n + 720*b**6) + b**6*d**3*n**5*x**6*(a + b*x)**n/(b**6*n**6 + 21
*b**6*n**5 + 175*b**6*n**4 + 735*b**6*n**3 + 1624*b**6*n**2 + 176
4*b**6*n + 720*b**6) + 15*b**6*d**3*n**4*x**6*(a + b*x)**n/(b**6*
n**6 + 21*b**6*n**5 + 175*b**6*n**4 + 735*b**6*n**3 + 1624*b**6*n
**2 + 1764*b**6*n + 720*b**6) + 85*b**6*d**3*n**3*x**6*(a + b*x)*
*n/(b**6*n**6 + 21*b**6*n**5 + 175*b**6*n**4 + 735*b**6*n**3 + 16
24*b**6*n**2 + 1764*b**6*n + 720*b**6) + 225*b**6*d**3*n**2*x**6*
(a + b*x)**n/(b**6*n**6 + 21*b**6*n**5 + 175*b**6*n**4 + 735*b**6
*n**3 + 1624*b**6*n**2 + 1764*b**6*n + 720*b**6) + 274*b**6*d**3*
n*x**6*(a + b*x)**n/(b**6*n**6 + 21*b**6*n**5 + 175*b**6*n**4 + 7
35*b**6*n**3 + 1624*b**6*n**2 + 1764*b**6*n + 720*b**6) + 120*b**
6*d**3*x**6*(a + b*x)**n/(b**6*n**6 + 21*b**6*n**5 + 175*b**6*n**
4 + 735*b**6*n**3 + 1624*b**6*n**2 + 1764*b**6*n + 720*b**6), Tru
e))
```

GIAC/XCAS [A] time = 0.234033, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3*(b*x + a)^n*x^2,x, algorithm="giac")

[Out] Done
```

3.919 $\int x(a+bx)^n(c+dx)^3\,dx$

Optimal. Leaf size=154

$$\frac{d^2(3bc-4ad)(a+bx)^{n+4}}{b^5(n+4)}-\frac{a(bc-ad)^3(a+bx)^{n+1}}{b^5(n+1)}+\frac{(bc-4ad)(bc-ad)^2(a+bx)^{n+2}}{b^5(n+2)}+\frac{3d(bc-2ad)(bc-ad)(a+bx)^{n+3}}{b^5(n+3)}+\frac{d^3(a+bx)^{n+5}}{b^5(n+5)}$$

```
[Out] -((a*(b*c - a*d)^3*(a + b*x)^(1 + n))/(b^5*(1 + n))) + ((b*c - 4*
a*d)*(b*c - a*d)^2*(a + b*x)^(2 + n))/(b^5*(2 + n)) + (3*d*(b*c -
 2*a*d)*(b*c - a*d)*(a + b*x)^(3 + n))/(b^5*(3 + n)) + (d^2*(3*b*
c - 4*a*d)*(a + b*x)^(4 + n))/(b^5*(4 + n)) + (d^3*(a + b*x)^(5 +
 n))/(b^5*(5 + n))
```

Rubi [A] time = 0.197074, antiderivative size = 154, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}} = 0.062$

$$\frac{d^2(3bc-4ad)(a+bx)^{n+4}}{b^5(n+4)}-\frac{a(bc-ad)^3(a+bx)^{n+1}}{b^5(n+1)}+\frac{(bc-4ad)(bc-ad)^2(a+bx)^{n+2}}{b^5(n+2)}+\frac{3d(bc-2ad)(bc-ad)(a+bx)^{n+3}}{b^5(n+3)}+\frac{d^3(a+bx)^{n+5}}{b^5(n+5)}$$

Antiderivative was successfully verified.

```
[In]  Int[x*(a + b*x)^n*(c + d*x)^3,x]
```

```
[Out] -((a*(b*c - a*d)^3*(a + b*x)^(1 + n))/(b^5*(1 + n))) + ((b*c - 4*
a*d)*(b*c - a*d)^2*(a + b*x)^(2 + n))/(b^5*(2 + n)) + (3*d*(b*c -
 2*a*d)*(b*c - a*d)*(a + b*x)^(3 + n))/(b^5*(3 + n)) + (d^2*(3*b*
c - 4*a*d)*(a + b*x)^(4 + n))/(b^5*(4 + n)) + (d^3*(a + b*x)^(5 +
 n))/(b^5*(5 + n))
```

Rubi in Sympy [A] time = 43.0438, size = 138, normalized size = 0.9

$$\frac{a\,(a+bx)^{n+1}\,(ad-bc)^3}{b^5\,(n+1)}+\frac{d^3\,(a+bx)^{n+5}}{b^5\,(n+5)}-\frac{d^2\,(a+bx)^{n+4}\,(4ad-3bc)}{b^5\,(n+4)}+\frac{3d\,(a+bx)^{n+3}\,(ad-bc)\,(2ad-bc)}{b^5\,(n+3)}-\frac{(a+bx)^{n+2}\,(ad-bc)^2\,(4ad-bc)}{b^5\,(n+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(b*x+a)**n*(d*x+c)**3,x)
```

```
[Out] a*(a + b*x)**(n + 1)*(a*d - b*c)**3/(b**5*(n + 1)) + d**3*(a + b*
x)**(n + 5)/(b**5*(n + 5)) - d**2*(a + b*x)**(n + 4)*(4*a*d - 3*b
*c)/(b**5*(n + 4)) + 3*d*(a + b*x)**(n + 3)*(a*d - b*c)*(2*a*d -
b*c)/(b**5*(n + 3)) - (a + b*x)**(n + 2)*(a*d - b*c)**2*(4*a*d -
b*c)/(b**5*(n + 2))
```

Mathematica [A] time = 0.28124, size = 296, normalized size = 1.92

$$(a+bx)^{n+1}\left(24a^4d^3-6a^3bd^2(3c(n+5)+4d(n+1)x)+6a^2b^2d\left(c^2\left(n^2+9n+20\right)+3cd\left(n^2+6n+5\right)x+2d^2\left(n^2+3n+2\right)x\right.\right.$$

Antiderivative was successfully verified.

```
[In]  Integrate[x*(a + b*x)^n*(c + d*x)^3,x]
```

```
[Out] ((a + b*x)^(1 + n)*(24*a^4*d^3 - 6*a^3*b*d^2*(3*c*(5 + n) + 4*d*(
1 + n)*x) + 6*a^2*b^2*d*(c^2*(20 + 9*n + n^2) + 3*c*d*(5 + 6*n +
n^2)*x + 2*d^2*(2 + 3*n + n^2)*x^2) - a*b^3*(c^3*(60 + 47*n + 12*
n^2 + n^3) + 6*c^2*d*(20 + 29*n + 10*n^2 + n^3)*x + 9*c*d^2*(10 +
 17*n + 8*n^2 + n^3)*x^2 + 4*d^3*(6 + 11*n + 6*n^2 + n^3)*x^3) +
b^4*(1 + n)*x*(c^3*(60 + 47*n + 12*n^2 + n^3) + 3*c^2*d*(40 + 38*
n + 11*n^2 + n^3)*x + 3*c*d^2*(30 + 31*n + 10*n^2 + n^3)*x^2 + d^
3*(24 + 26*n + 9*n^2 + n^3)*x^3)))/(b^5*(1 + n)*(2 + n)*(3 + n)*(
4 + n)*(5 + n))
```

Maple [B] time = 0.015, size = 685, normalized size = 4.5

$$\frac{(bx+a)^{1+n}\left(b^4d^3n^4x^4+3\,b^4cd^2n^4x^3+10\,b^4d^3n^3x^4-4\,ab^3d^3n^3x^3+3\,b^4c^2dn^4x^2+33\,b^4cd^2n^3x^3+35\,b^4d^3n^2x^4-9\,ab^3cd^2n^3\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(b*x+a)^n*(d*x+c)^3,x)
```

```
[Out] (b*x+a)^(1+n)*(b^4*d^3*n^4*x^4+3*b^4*c*d^2*n^4*x^3+10*b^4*d^3*n^3
*x^4-4*a*b^3*d^3*n^3*x^3+3*b^4*c^2*d*n^4*x^2+33*b^4*c*d^2*n^3*x^3
+35*b^4*d^3*n^2*x^4-9*a*b^3*c*d^2*n^3*x^2-24*a*b^3*d^3*n^2*x^3+b^
4*c^3*n^4*x+36*b^4*c^2*d*n^3*x^2+123*b^4*c*d^2*n^2*x^3+50*b^4*d^3
*n*x^4+12*a^2*b^2*d^3*n^2*x^2-6*a*b^3*c^2*d*n^3*x-72*a*b^3*c*d^2*
n^2*x^2-44*a*b^3*d^3*n*x^3+13*b^4*c^3*n^3*x+147*b^4*c^2*d*n^2*x^2
+183*b^4*c*d^2*n*x^3+24*b^4*d^3*x^4+18*a^2*b^2*c*d^2*n^2*x+36*a^2
*b^2*d^3*n*x^2-a*b^3*c^3*n^3-60*a*b^3*c^2*d*n^2*x-153*a*b^3*c*d^2
*n*x^2-24*a*b^3*d^3*x^3+59*b^4*c^3*n^2*x+234*b^4*c^2*d*n*x^2+90*b
^4*c*d^2*x^3-24*a^3*b*d^3*n*x+6*a^2*b^2*c^2*d*n^2+108*a^2*b^2*c*d
^2*n*x+24*a^2*b^2*d^3*x^2-12*a*b^3*c^3*n^2-174*a*b^3*c^2*d*n*x-90
*a*b^3*c*d^2*x^2+107*b^4*c^3*n*x+120*b^4*c^2*d*x^2-18*a^3*b*c*d^2
*n-24*a^3*b*d^3*x+54*a^2*b^2*c^2*d*n+90*a^2*b^2*c*d^2*x-47*a*b^3*
c^3*n-120*a*b^3*c^2*d*x+60*b^4*c^3*x+24*a^4*d^3-90*a^3*b*c*d^2+12
0*a^2*b^2*c^2*d-60*a*b^3*c^3)/b^5/(n^5+15*n^4+85*n^3+225*n^2+274*
n+120)
```

Maxima [A] time = 1.37347, size = 495, normalized size = 3.21

$$\frac{\left(b^2(n+1)x^2+abnx-a^2\right)(bx+a)^nc^3}{(n^2+3\,n+2)b^2}+\frac{3\left(\left(n^2+3\,n+2\right)b^3x^3+\left(n^2+n\right)ab^2x^2-2\,a^2bnx+2\,a^3\right)(bx+a)^nc^2d}{(n^3+6\,n^2+11\,n+6)b^3}+\frac{3\left(\left(n^3+6\,n^2+11\,n+6\right)b^4x^4+\left(n^3+3\,n^2+2\,n\right)ab^3x^3-3\left(n^2+n\right)a^2b^2x^2+6\,a^3bnx-6\,a^4\right)(bx+a)^ncd^2}{(n^4+10\,n^3+35\,n^2+50\,n+24)b^4}+\frac{\left(\left(n^4+10\,n^3+35\,n^2+50\,n+24\right)b^5x^5+\left(n^4+6\,n^3+11\,n^2+6\,n\right)ab^4x^4-4\left(n^3+3\,n^2+2\,n\right)a^2b^3x^3+12\left(n^2+n\right)a^3b^2x^2-2\right.}{(n^5+15\,n^4+85\,n^3+225\,n^2+274\,n+120)b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3*(b*x + a)^n*x,x, algorithm="maxima")
```

```
[Out] (b^2*(n + 1)*x^2 + a*b*n*x - a^2)*(b*x + a)^n*c^3/((n^2 + 3*n + 2
)*b^2) + 3*((n^2 + 3*n + 2)*b^3*x^3 + (n^2 + n)*a*b^2*x^2 - 2*a^2
*b*n*x + 2*a^3)*(b*x + a)^n*c^2*d/((n^3 + 6*n^2 + 11*n + 6)*b^3)
+ 3*((n^3 + 6*n^2 + 11*n + 6)*b^4*x^4 + (n^3 + 3*n^2 + 2*n)*a*b^3
*x^3 - 3*(n^2 + n)*a^2*b^2*x^2 + 6*a^3*b*n*x - 6*a^4)*(b*x + a)^n
*c*d^2/((n^4 + 10*n^3 + 35*n^2 + 50*n + 24)*b^4) + ((n^4 + 10*n^3
 + 35*n^2 + 50*n + 24)*b^5*x^5 + (n^4 + 6*n^3 + 11*n^2 + 6*n)*a*b
^4*x^4 - 4*(n^3 + 3*n^2 + 2*n)*a^2*b^3*x^3 + 12*(n^2 + n)*a^3*b^2
*x^2 - 24*a^4*b*n*x + 24*a^5)*(b*x + a)^n*d^3/((n^5 + 15*n^4 + 85
```

```
*n^3 + 225*n^2 + 274*n + 120)*b^5)
```

Fricas [A] time = 0.253288, size = 1034, normalized size = 6.71

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3*(b*x + a)^n*x,x, algorithm="fricas")
```

```
[Out] -(a^2*b^3*c^3*n^3 + 60*a^2*b^3*c^3 - 120*a^3*b^2*c^2*d + 90*a^4*b
*c*d^2 - 24*a^5*d^3 - (b^5*d^3*n^4 + 10*b^5*d^3*n^3 + 35*b^5*d^3*
n^2 + 50*b^5*d^3*n + 24*b^5*d^3)*x^5 - (90*b^5*c*d^2 + (3*b^5*c*d
^2 + a*b^4*d^3)*n^4 + 3*(11*b^5*c*d^2 + 2*a*b^4*d^3)*n^3 + (123*b
^5*c*d^2 + 11*a*b^4*d^3)*n^2 + 3*(61*b^5*c*d^2 + 2*a*b^4*d^3)*n)*
x^4 - (120*b^5*c^2*d + 3*(b^5*c^2*d + a*b^4*c*d^2)*n^4 + 4*(9*b^5
*c^2*d + 6*a*b^4*c*d^2 - a^2*b^3*d^3)*n^3 + 3*(49*b^5*c^2*d + 17*
a*b^4*c*d^2 - 4*a^2*b^3*d^3)*n^2 + 2*(117*b^5*c^2*d + 15*a*b^4*c*
d^2 - 4*a^2*b^3*d^3)*n)*x^3 + 6*(2*a^2*b^3*c^3 - a^3*b^2*c^2*d)*n
^2 - (60*b^5*c^3 + (b^5*c^3 + 3*a*b^4*c^2*d)*n^4 + (13*b^5*c^3 +
30*a*b^4*c^2*d - 9*a^2*b^3*c*d^2)*n^3 + (59*b^5*c^3 + 87*a*b^4*c^
2*d - 54*a^2*b^3*c*d^2 + 12*a^3*b^2*d^3)*n^2 + (107*b^5*c^3 + 60*
a*b^4*c^2*d - 45*a^2*b^3*c*d^2 + 12*a^3*b^2*d^3)*n)*x^2 + (47*a^2
*b^3*c^3 - 54*a^3*b^2*c^2*d + 18*a^4*b*c*d^2)*n - (a*b^4*c^3*n^4
+ 6*(2*a*b^4*c^3 - a^2*b^3*c^2*d)*n^3 + (47*a*b^4*c^3 - 54*a^2*b^
3*c^2*d + 18*a^3*b^2*c*d^2)*n^2 + 6*(10*a*b^4*c^3 - 20*a^2*b^3*c^
2*d + 15*a^3*b^2*c*d^2 - 4*a^4*b*d^3)*n)*x)*(b*x + a)^n/(b^5*n^5
+ 15*b^5*n^4 + 85*b^5*n^3 + 225*b^5*n^2 + 274*b^5*n + 120*b^5)
```

Sympy [A] time = 28.5403, size = 7776, normalized size = 50.49

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(b*x+a)**n*(d*x+c)**3,x)
```

```
[Out] Piecewise((a**n*(c**3*x**2/2 + c**2*d*x**3 + 3*c*d**2*x**4/4 + d*
*3*x**5/5), Eq(b, 0)), (12*a**7*d**3*log(a/b + x)/(12*a**7*b**5 +
 48*a**6*b**6*x + 72*a**5*b**7*x**2 + 48*a**4*b**8*x**3 + 12*a**3
*b**9*x**4) + 3*a**7*d**3/(12*a**7*b**5 + 48*a**6*b**6*x + 72*a**
5*b**7*x**2 + 48*a**4*b**8*x**3 + 12*a**3*b**9*x**4) + 48*a**6*b*
d**3*x*log(a/b + x)/(12*a**7*b**5 + 48*a**6*b**6*x + 72*a**5*b**7
*x**2 + 48*a**4*b**8*x**3 + 12*a**3*b**9*x**4) + 72*a**5*b**2*d**
3*x**2*log(a/b + x)/(12*a**7*b**5 + 48*a**6*b**6*x + 72*a**5*b**7
*x**2 + 48*a**4*b**8*x**3 + 12*a**3*b**9*x**4) - 24*a**5*b**2*d**
3*x**2/(12*a**7*b**5 + 48*a**6*b**6*x + 72*a**5*b**7*x**2 + 48*a*
*4*b**8*x**3 + 12*a**3*b**9*x**4) + 48*a**4*b**3*d**3*x**3*log(a/
b + x)/(12*a**7*b**5 + 48*a**6*b**6*x + 72*a**5*b**7*x**2 + 48*a*
*4*b**8*x**3 + 12*a**3*b**9*x**4) - 40*a**4*b**3*d**3*x**3/(12*a*
*7*b**5 + 48*a**6*b**6*x + 72*a**5*b**7*x**2 + 48*a**4*b**8*x**3
+ 12*a**3*b**9*x**4) + 12*a**3*b**4*d**3*x**4*log(a/b + x)/(12*a*
*7*b**5 + 48*a**6*b**6*x + 72*a**5*b**7*x**2 + 48*a**4*b**8*x**3
+ 12*a**3*b**9*x**4) - 22*a**3*b**4*d**3*x**4/(12*a**7*b**5 + 48*
a**6*b**6*x + 72*a**5*b**7*x**2 + 48*a**4*b**8*x**3 + 12*a**3*b**
9*x**4) + 6*a**2*b**5*c**3*x**2/(12*a**7*b**5 + 48*a**6*b**6*x +
72*a**5*b**7*x**2 + 48*a**4*b**8*x**3 + 12*a**3*b**9*x**4) + 12*a
**2*b**5*c**2*d*x**3/(12*a**7*b**5 + 48*a**6*b**6*x + 72*a**5*b**
7*x**2 + 48*a**4*b**8*x**3 + 12*a**3*b**9*x**4) + 9*a**2*b**5*c*d
**2*x**4/(12*a**7*b**5 + 48*a**6*b**6*x + 72*a**5*b**7*x**2 + 48*
a**4*b**8*x**3 + 12*a**3*b**9*x**4) + 4*a*b**6*c**3*x**3/(12*a**7
*b**5 + 48*a**6*b**6*x + 72*a**5*b**7*x**2 + 48*a**4*b**8*x**3 +
12*a**3*b**9*x**4) + 3*a*b**6*c**2*d*x**4/(12*a**7*b**5 + 48*a**6
*b**6*x + 72*a**5*b**7*x**2 + 48*a**4*b**8*x**3 + 12*a**3*b**9*x*
*4) + b**7*c**3*x**4/(12*a**7*b**5 + 48*a**6*b**6*x + 72*a**5*b**
```

7*x**2 + 48*a**4*b**8*x**3 + 12*a**3*b**9*x**4), Eq(n, -5)), (-24
*a**6*d**3*log(a/b + x)/(6*a**5*b**5 + 18*a**4*b**6*x + 18*a**3*b
7*x2 + 6*a**2*b**8*x**3) - 8*a**6*d**3/(6*a**5*b**5 + 18*a**4
*b**6*x + 18*a**3*b**7*x**2 + 6*a**2*b**8*x**3) + 18*a**5*b*c*d**
2*log(a/b + x)/(6*a**5*b**5 + 18*a**4*b**6*x + 18*a**3*b**7*x**2
+ 6*a**2*b**8*x**3) + 6*a**5*b*c*d**2/(6*a**5*b**5 + 18*a**4*b**6
*x + 18*a**3*b**7*x**2 + 6*a**2*b**8*x**3) - 72*a**5*b*d**3*x*log
(a/b + x)/(6*a**5*b**5 + 18*a**4*b**6*x + 18*a**3*b**7*x**2 + 6*a
2*b8*x**3) + 54*a**4*b**2*c*d**2*x*log(a/b + x)/(6*a**5*b**5
+ 18*a**4*b**6*x + 18*a**3*b**7*x**2 + 6*a**2*b**8*x**3) - 72*a**
4*b**2*d**3*x**2*log(a/b + x)/(6*a**5*b**5 + 18*a**4*b**6*x + 18*
a**3*b**7*x**2 + 6*a**2*b**8*x**3) + 36*a**4*b**2*d**3*x**2/(6*a*
*5*b**5 + 18*a**4*b**6*x + 18*a**3*b**7*x**2 + 6*a**2*b**8*x**3)
+ 54*a**3*b**3*c*d**2*x**2*log(a/b + x)/(6*a**5*b**5 + 18*a**4*b*
*6*x + 18*a**3*b**7*x**2 + 6*a**2*b**8*x**3) - 27*a**3*b**3*c*d**
2*x**2/(6*a**5*b**5 + 18*a**4*b**6*x + 18*a**3*b**7*x**2 + 6*a**2
*b**8*x**3) - 24*a**3*b**3*d**3*x**3*log(a/b + x)/(6*a**5*b**5 +
18*a**4*b**6*x + 18*a**3*b**7*x**2 + 6*a**2*b**8*x**3) + 36*a**3*
b**3*d**3*x**3/(6*a**5*b**5 + 18*a**4*b**6*x + 18*a**3*b**7*x**2
+ 6*a**2*b**8*x**3) + 18*a**2*b**4*c*d**2*x**3*log(a/b + x)/(6*a*
*5*b**5 + 18*a**4*b**6*x + 18*a**3*b**7*x**2 + 6*a**2*b**8*x**3)
- 27*a**2*b**4*c*d**2*x**3/(6*a**5*b**5 + 18*a**4*b**6*x + 18*a**
3*b**7*x**2 + 6*a**2*b**8*x**3) + 6*a**2*b**4*d**3*x**4/(6*a**5*b
5 + 18*a4*b**6*x + 18*a**3*b**7*x**2 + 6*a**2*b**8*x**3) + 3*
a*b**5*c**3*x**2/(6*a**5*b**5 + 18*a**4*b**6*x + 18*a**3*b**7*x**
2 + 6*a**2*b**8*x**3) + 6*a*b**5*c**2*d*x**3/(6*a**5*b**5 + 18*a*
*4*b**6*x + 18*a**3*b**7*x**2 + 6*a**2*b**8*x**3) + b**6*c**3*x**
3/(6*a**5*b**5 + 18*a**4*b**6*x + 18*a**3*b**7*x**2 + 6*a**2*b**8
*x**3), Eq(n, -4)), (12*a**5*d**3*log(a/b + x)/(2*a**3*b**5 + 4*a
2*b6*x + 2*a*b**7*x**2) + 6*a**5*d**3/(2*a**3*b**5 + 4*a**2*b
6*x + 2*a*b7*x**2) - 18*a**4*b*c*d**2*log(a/b + x)/(2*a**3*b*
*5 + 4*a**2*b**6*x + 2*a*b**7*x**2) - 9*a**4*b*c*d**2/(2*a**3*b**
5 + 4*a**2*b**6*x + 2*a*b**7*x**2) + 24*a**4*b*d**3*x*log(a/b + x
)/(2*a**3*b**5 + 4*a**2*b**6*x + 2*a*b**7*x**2) + 6*a**3*b**2*c**
2*d*log(a/b + x)/(2*a**3*b**5 + 4*a**2*b**6*x + 2*a*b**7*x**2) +
3*a**3*b**2*c**2*d/(2*a**3*b**5 + 4*a**2*b**6*x + 2*a*b**7*x**2)
- 36*a**3*b**2*c*d**2*x*log(a/b + x)/(2*a**3*b**5 + 4*a**2*b**6*x
 + 2*a*b**7*x**2) + 12*a**3*b**2*d**3*x**2*log(a/b + x)/(2*a**3*b
5 + 4*a2*b**6*x + 2*a*b**7*x**2) - 12*a**3*b**2*d**3*x**2/(2*
a**3*b**5 + 4*a**2*b**6*x + 2*a*b**7*x**2) + 12*a**2*b**3*c**2*d*
x*log(a/b + x)/(2*a**3*b**5 + 4*a**2*b**6*x + 2*a*b**7*x**2) - 18
*a**2*b**3*c*d**2*x**2*log(a/b + x)/(2*a**3*b**5 + 4*a**2*b**6*x
+ 2*a*b**7*x**2) + 18*a**2*b**3*c*d**2*x**2/(2*a**3*b**5 + 4*a**2
*b**6*x + 2*a*b**7*x**2) - 4*a**2*b**3*d**3*x**3/(2*a**3*b**5 + 4
*a**2*b**6*x + 2*a*b**7*x**2) + 6*a*b**4*c**2*d*x**2*log(a/b + x)
/(2*a**3*b**5 + 4*a**2*b**6*x + 2*a*b**7*x**2) - 6*a*b**4*c**2*d*
x**2/(2*a**3*b**5 + 4*a**2*b**6*x + 2*a*b**7*x**2) + 6*a*b**4*c*d
2*x3/(2*a**3*b**5 + 4*a**2*b**6*x + 2*a*b**7*x**2) + a*b**4*d
3*x4/(2*a**3*b**5 + 4*a**2*b**6*x + 2*a*b**7*x**2) + b**5*c**
3*x**2/(2*a**3*b**5 + 4*a**2*b**6*x + 2*a*b**7*x**2), Eq(n, -3)),
 (-24*a**4*d**3*log(a/b + x)/(6*a*b**5 + 6*b**6*x) - 24*a**4*d**3
/(6*a*b**5 + 6*b**6*x) + 54*a**3*b*c*d**2*log(a/b + x)/(6*a*b**5
+ 6*b**6*x) + 54*a**3*b*c*d**2/(6*a*b**5 + 6*b**6*x) - 24*a**3*b*
d**3*x*log(a/b + x)/(6*a*b**5 + 6*b**6*x) - 36*a**2*b**2*c**2*d*l
og(a/b + x)/(6*a*b**5 + 6*b**6*x) - 36*a**2*b**2*c**2*d/(6*a*b**5
 + 6*b**6*x) + 54*a**2*b**2*c*d**2*x*log(a/b + x)/(6*a*b**5 + 6*b
6*x) + 12*a2*b**2*d**3*x**2/(6*a*b**5 + 6*b**6*x) + 6*a*b**3*
c**3*log(a/b + x)/(6*a*b**5 + 6*b**6*x) + 6*a*b**3*c**3/(6*a*b**5
 + 6*b**6*x) - 36*a*b**3*c**2*d*x*log(a/b + x)/(6*a*b**5 + 6*b**6
*x) - 27*a*b**3*c*d**2*x**2/(6*a*b**5 + 6*b**6*x) - 4*a*b**3*d**3
*x**3/(6*a*b**5 + 6*b**6*x) + 6*b**4*c**3*x*log(a/b + x)/(6*a*b**
5 + 6*b**6*x) + 18*b**4*c**2*d*x**2/(6*a*b**5 + 6*b**6*x) + 9*b**
4*c*d**2*x**3/(6*a*b**5 + 6*b**6*x) + 2*b**4*d**3*x**4/(6*a*b**5
+ 6*b**6*x), Eq(n, -2)), (a**4*d**3*log(a/b + x)/b**5 - 3*a**3*c*
d**2*log(a/b + x)/b**4 - a**3*d**3*x/b**4 + 3*a**2*c**2*d*log(a/b
 + x)/b**3 + 3*a**2*c*d**2*x/b**3 + a**2*d**3*x**2/(2*b**3) - a*c
3*log(a/b + x)/b2 - 3*a*c**2*d*x/b**2 - 3*a*c*d**2*x**2/(2*b*
*2) - a*d**3*x**3/(3*b**2) + c**3*x/b + 3*c**2*d*x**2/(2*b) + c*d
2*x3/b + d**3*x**4/(4*b), Eq(n, -1)), (24*a**5*d**3*(a + b*x)
n/(b5*n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 225*b**5*n**2 + 27
4*b**5*n + 120*b**5) - 18*a**4*b*c*d**2*n*(a + b*x)**n/(b**5*n**5
 + 15*b**5*n**4 + 85*b**5*n**3 + 225*b**5*n**2 + 274*b**5*n + 120
*b**5) - 90*a**4*b*c*d**2*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4
+ 85*b**5*n**3 + 225*b**5*n**2 + 274*b**5*n + 120*b**5) - 24*a**4

```
*b*d**3*n*x*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5*n**3
 + 225*b**5*n**2 + 274*b**5*n + 120*b**5) + 6*a**3*b**2*c**2*d*n*
*2*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 225*b*
*5*n**2 + 274*b**5*n + 120*b**5) + 54*a**3*b**2*c**2*d*n*(a + b*x
)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 225*b**5*n**2 + 2
74*b**5*n + 120*b**5) + 120*a**3*b**2*c**2*d*(a + b*x)**n/(b**5*n
**5 + 15*b**5*n**4 + 85*b**5*n**3 + 225*b**5*n**2 + 274*b**5*n +
120*b**5) + 18*a**3*b**2*c*d**2*n**2*x*(a + b*x)**n/(b**5*n**5 +
15*b**5*n**4 + 85*b**5*n**3 + 225*b**5*n**2 + 274*b**5*n + 120*b*
*5) + 90*a**3*b**2*c*d**2*n*x*(a + b*x)**n/(b**5*n**5 + 15*b**5*n
**4 + 85*b**5*n**3 + 225*b**5*n**2 + 274*b**5*n + 120*b**5) + 12*
a**3*b**2*d**3*n**2*x**2*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4 +
 85*b**5*n**3 + 225*b**5*n**2 + 274*b**5*n + 120*b**5) + 12*a**3*
b**2*d**3*n*x**2*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5
*n**3 + 225*b**5*n**2 + 274*b**5*n + 120*b**5) - a**2*b**3*c**3*n
**3*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 225*b
**5*n**2 + 274*b**5*n + 120*b**5) - 12*a**2*b**3*c**3*n**2*(a + b
*x)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 225*b**5*n**2 +
 274*b**5*n + 120*b**5) - 47*a**2*b**3*c**3*n*(a + b*x)**n/(b**5*
n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 225*b**5*n**2 + 274*b**5*n +
 120*b**5) - 60*a**2*b**3*c**3*(a + b*x)**n/(b**5*n**5 + 15*b**5*
n**4 + 85*b**5*n**3 + 225*b**5*n**2 + 274*b**5*n + 120*b**5) - 6*
a**2*b**3*c**2*d*n**3*x*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4 +
85*b**5*n**3 + 225*b**5*n**2 + 274*b**5*n + 120*b**5) - 54*a**2*b
**3*c**2*d*n**2*x*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b**
5*n**3 + 225*b**5*n**2 + 274*b**5*n + 120*b**5) - 120*a**2*b**3*c
**2*d*n*x*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5*n**3 +
 225*b**5*n**2 + 274*b**5*n + 120*b**5) - 9*a**2*b**3*c*d**2*n**3
*x**2*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 225
*b**5*n**2 + 274*b**5*n + 120*b**5) - 54*a**2*b**3*c*d**2*n**2*x*
*2*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 225*b*
*5*n**2 + 274*b**5*n + 120*b**5) - 45*a**2*b**3*c*d**2*n*x**2*(a
+ b*x)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 225*b**5*n**
2 + 274*b**5*n + 120*b**5) - 4*a**2*b**3*d**3*n**3*x**3*(a + b*x)
**n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 225*b**5*n**2 + 27
4*b**5*n + 120*b**5) - 12*a**2*b**3*d**3*n**2*x**3*(a + b*x)**n/(
b**5*n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 225*b**5*n**2 + 274*b**
5*n + 120*b**5) - 8*a**2*b**3*d**3*n*x**3*(a + b*x)**n/(b**5*n**5
 + 15*b**5*n**4 + 85*b**5*n**3 + 225*b**5*n**2 + 274*b**5*n + 120
*b**5) + a*b**4*c**3*n**4*x*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**
4 + 85*b**5*n**3 + 225*b**5*n**2 + 274*b**5*n + 120*b**5) + 12*a*
b**4*c**3*n**3*x*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5
*n**3 + 225*b**5*n**2 + 274*b**5*n + 120*b**5) + 47*a*b**4*c**3*n
**2*x*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 225
*b**5*n**2 + 274*b**5*n + 120*b**5) + 60*a*b**4*c**3*n*x*(a + b*x
)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 225*b**5*n**2 + 2
74*b**5*n + 120*b**5) + 3*a*b**4*c**2*d*n**4*x**2*(a + b*x)**n/(b
**5*n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 225*b**5*n**2 + 274*b**5
*n + 120*b**5) + 30*a*b**4*c**2*d*n**3*x**2*(a + b*x)**n/(b**5*n*
*5 + 15*b**5*n**4 + 85*b**5*n**3 + 225*b**5*n**2 + 274*b**5*n + 1
20*b**5) + 87*a*b**4*c**2*d*n**2*x**2*(a + b*x)**n/(b**5*n**5 + 1
5*b**5*n**4 + 85*b**5*n**3 + 225*b**5*n**2 + 274*b**5*n + 120*b**
5) + 60*a*b**4*c**2*d*n*x**2*(a + b*x)**n/(b**5*n**5 + 15*b**5*n*
*4 + 85*b**5*n**3 + 225*b**5*n**2 + 274*b**5*n + 120*b**5) + 3*a*
b**4*c*d**2*n**4*x**3*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4 + 85
*b**5*n**3 + 225*b**5*n**2 + 274*b**5*n + 120*b**5) + 24*a*b**4*c
*d**2*n**3*x**3*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5*
n**3 + 225*b**5*n**2 + 274*b**5*n + 120*b**5) + 51*a*b**4*c*d**2*
n**2*x**3*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5*n**3 +
 225*b**5*n**2 + 274*b**5*n + 120*b**5) + 30*a*b**4*c*d**2*n*x**3
*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 225*b**5
*n**2 + 274*b**5*n + 120*b**5) + a*b**4*d**3*n**4*x**4*(a + b*x)*
*n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 225*b**5*n**2 + 274
*b**5*n + 120*b**5) + 6*a*b**4*d**3*n**3*x**4*(a + b*x)**n/(b**5*
n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 225*b**5*n**2 + 274*b**5*n +
 120*b**5) + 11*a*b**4*d**3*n**2*x**4*(a + b*x)**n/(b**5*n**5 + 1
5*b**5*n**4 + 85*b**5*n**3 + 225*b**5*n**2 + 274*b**5*n + 120*b**
5) + 6*a*b**4*d**3*n*x**4*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4
+ 85*b**5*n**3 + 225*b**5*n**2 + 274*b**5*n + 120*b**5) + b**5*c*
*3*n**4*x**2*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5*n**
3 + 225*b**5*n**2 + 274*b**5*n + 120*b**5) + 13*b**5*c**3*n**3*x*
*2*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 225*b*
*5*n**2 + 274*b**5*n + 120*b**5) + 59*b**5*c**3*n**2*x**2*(a + b*
x)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 225*b**5*n**2 +
```

```
274*b**5*n + 120*b**5) + 107*b**5*c**3*n*x**2*(a + b*x)**n/(b**5*
n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 225*b**5*n**2 + 274*b**5*n +
 120*b**5) + 60*b**5*c**3*x**2*(a + b*x)**n/(b**5*n**5 + 15*b**5*
n**4 + 85*b**5*n**3 + 225*b**5*n**2 + 274*b**5*n + 120*b**5) + 3*
b**5*c**2*d*n**4*x**3*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4 + 85
*b**5*n**3 + 225*b**5*n**2 + 274*b**5*n + 120*b**5) + 36*b**5*c**
2*d*n**3*x**3*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5*n*
*3 + 225*b**5*n**2 + 274*b**5*n + 120*b**5) + 147*b**5*c**2*d*n**
2*x**3*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 22
5*b**5*n**2 + 274*b**5*n + 120*b**5) + 234*b**5*c**2*d*n*x**3*(a
+ b*x)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 225*b**5*n**
2 + 274*b**5*n + 120*b**5) + 120*b**5*c**2*d*x**3*(a + b*x)**n/(b
**5*n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 225*b**5*n**2 + 274*b**5
*n + 120*b**5) + 3*b**5*c*d**2*n**4*x**4*(a + b*x)**n/(b**5*n**5
+ 15*b**5*n**4 + 85*b**5*n**3 + 225*b**5*n**2 + 274*b**5*n + 120*
b**5) + 33*b**5*c*d**2*n**3*x**4*(a + b*x)**n/(b**5*n**5 + 15*b**
5*n**4 + 85*b**5*n**3 + 225*b**5*n**2 + 274*b**5*n + 120*b**5) +
123*b**5*c*d**2*n**2*x**4*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4
+ 85*b**5*n**3 + 225*b**5*n**2 + 274*b**5*n + 120*b**5) + 183*b**
5*c*d**2*n*x**4*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5*
n**3 + 225*b**5*n**2 + 274*b**5*n + 120*b**5) + 90*b**5*c*d**2*x*
*4*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 225*b*
*5*n**2 + 274*b**5*n + 120*b**5) + b**5*d**3*n**4*x**5*(a + b*x)*
*n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 225*b**5*n**2 + 274
*b**5*n + 120*b**5) + 10*b**5*d**3*n**3*x**5*(a + b*x)**n/(b**5*n
**5 + 15*b**5*n**4 + 85*b**5*n**3 + 225*b**5*n**2 + 274*b**5*n +
120*b**5) + 35*b**5*d**3*n**2*x**5*(a + b*x)**n/(b**5*n**5 + 15*b
**5*n**4 + 85*b**5*n**3 + 225*b**5*n**2 + 274*b**5*n + 120*b**5)
+ 50*b**5*d**3*n*x**5*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4 + 85
*b**5*n**3 + 225*b**5*n**2 + 274*b**5*n + 120*b**5) + 24*b**5*d**
3*x**5*(a + b*x)**n/(b**5*n**5 + 15*b**5*n**4 + 85*b**5*n**3 + 22
5*b**5*n**2 + 274*b**5*n + 120*b**5), True))
```

GIAC/XCAS [A] time = 0.22521, size = 1, normalized size = 0.01

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3*(b*x + a)^n*x,x, algorithm="giac")
```

```
[Out] Done
```

3.920 $\int (a+bx)^n (c+dx)^3\,dx$

Optimal. Leaf size=110

$$\frac{3d^2(bc-ad)(a+bx)^{n+3}}{b^4(n+3)}+\frac{(bc-ad)^3(a+bx)^{n+1}}{b^4(n+1)}+\frac{3d(bc-ad)^2(a+bx)^{n+2}}{b^4(n+2)}+\frac{d^3(a+bx)^{n+4}}{b^4(n+4)}$$

```
[Out] ((b*c - a*d)^3*(a + b*x)^(1 + n))/(b^4*(1 + n)) + (3*d*(b*c - a*d
)^2*(a + b*x)^(2 + n))/(b^4*(2 + n)) + (3*d^2*(b*c - a*d)*(a + b*
x)^(3 + n))/(b^4*(3 + n)) + (d^3*(a + b*x)^(4 + n))/(b^4*(4 + n))
```

Rubi [A] time = 0.111553, antiderivative size = 110, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.067

$$\frac{3d^2(bc-ad)(a+bx)^{n+3}}{b^4(n+3)}+\frac{(bc-ad)^3(a+bx)^{n+1}}{b^4(n+1)}+\frac{3d(bc-ad)^2(a+bx)^{n+2}}{b^4(n+2)}+\frac{d^3(a+bx)^{n+4}}{b^4(n+4)}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^n*(c + d*x)^3,x]
```

```
[Out] ((b*c - a*d)^3*(a + b*x)^(1 + n))/(b^4*(1 + n)) + (3*d*(b*c - a*d
)^2*(a + b*x)^(2 + n))/(b^4*(2 + n)) + (3*d^2*(b*c - a*d)*(a + b*
x)^(3 + n))/(b^4*(3 + n)) + (d^3*(a + b*x)^(4 + n))/(b^4*(4 + n))
```

Rubi in Sympy [A] time = 29.6995, size = 95, normalized size = 0.86

$$\frac{d^3\left(a+bx\right)^{n+4}}{b^4\left(n+4\right)}-\frac{3d^2\left(a+bx\right)^{n+3}\left(ad-bc\right)}{b^4\left(n+3\right)}+\frac{3d\left(a+bx\right)^{n+2}\left(ad-bc\right)^2}{b^4\left(n+2\right)}-\frac{\left(a+bx\right)^{n+1}\left(ad-bc\right)^3}{b^4\left(n+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**n*(d*x+c)**3,x)
```

```
[Out] d**3*(a + b*x)**(n + 4)/(b**4*(n + 4)) - 3*d**2*(a + b*x)**(n + 3
)*(a*d - b*c)/(b**4*(n + 3)) + 3*d*(a + b*x)**(n + 2)*(a*d - b*c)
**2/(b**4*(n + 2)) - (a + b*x)**(n + 1)*(a*d - b*c)**3/(b**4*(n +
 1))
```

Mathematica [A] time = 0.264451, size = 195, normalized size = 1.77

$$\frac{(a+bx)^{n+1}\left(-6a^3d^3+6a^2bd^2(c(n+4)+d(n+1)x)-3ab^2d\left(c^2\left(n^2+7n+12\right)+2cd\left(n^2+5n+4\right)x+d^2\left(n^2+3n+2\right)x^2\right)-\right.}{b^4(n+1)(n+2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^n*(c + d*x)^3,x]
```

```
[Out] ((a + b*x)^(1 + n)*(-6*a^3*d^3 + 6*a^2*b*d^2*(c*(4 + n) + d*(1 +
n)*x) - 3*a*b^2*d*(c^2*(12 + 7*n + n^2) + 2*c*d*(4 + 5*n + n^2)*x
 + d^2*(2 + 3*n + n^2)*x^2) + b^3*(c^3*(24 + 26*n + 9*n^2 + n^3)
+ 3*c^2*d*(12 + 19*n + 8*n^2 + n^3)*x + 3*c*d^2*(8 + 14*n + 7*n^2
 + n^3)*x^2 + d^3*(6 + 11*n + 6*n^2 + n^3)*x^3)))/(b^4*(1 + n)*(2
 + n)*(3 + n)*(4 + n))
```

Maple [B] time = 0.013, size = 389, normalized size = 3.5

$$-\frac{(bx+a)^{1+n}\left(-b^3d^3n^3x^3-3\,b^3cd^2n^3x^2-6\,b^3d^3n^2x^3+3\,ab^2d^3n^2x^2-3\,b^3c^2dn^3x-21\,b^3cd^2n^2x^2-11\,b^3d^3nx^3+6\,ab^2cd^2n\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^n*(d*x+c)^3,x)
```

```
[Out] -(b*x+a)^(1+n)*(-b^3*d^3*n^3*x^3-3*b^3*c*d^2*n^3*x^2-6*b^3*d^3*n^
2*x^3+3*a*b^2*d^3*n^2*x^2-3*b^3*c^2*d*n^3*x-21*b^3*c*d^2*n^2*x^2-
11*b^3*d^3*n*x^3+6*a*b^2*c*d^2*n^2*x+9*a*b^2*d^3*n*x^2-b^3*c^3*n^
3-24*b^3*c^2*d*n^2*x-42*b^3*c*d^2*n*x^2-6*b^3*d^3*x^3-6*a^2*b*d^3
*n*x+3*a*b^2*c^2*d*n^2+30*a*b^2*c*d^2*n*x+6*a*b^2*d^3*x^2-9*b^3*c
^3*n^2-57*b^3*c^2*d*n*x-24*b^3*c*d^2*x^2-6*a^2*b*c*d^2*n-6*a^2*b*
d^3*x+21*a*b^2*c^2*d*n+24*a*b^2*c*d^2*x-26*b^3*c^3*n-36*b^3*c^2*d
*x+6*a^3*d^3-24*a^2*b*c*d^2+36*a*b^2*c^2*d-24*b^3*c^3)/b^4/(n^4+1
0*n^3+35*n^2+50*n+24)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3*(b*x + a)^n,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.226152, size = 671, normalized size = 6.1

$$\frac{\left(ab^3c^3n^3+24\,ab^3c^3-36\,a^2b^2c^2d+24\,a^3bcd^2-6\,a^4d^3+\left(b^4d^3n^3+6\,b^4d^3n^2+11\,b^4d^3n+6\,b^4d^3\right)x^4+\left(24\,b^4cd^2+\left(3\,b^4cd^2\right.\right.\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3*(b*x + a)^n,x, algorithm="fricas")
```

```
[Out] (a*b^3*c^3*n^3 + 24*a*b^3*c^3 - 36*a^2*b^2*c^2*d + 24*a^3*b*c*d^2
 - 6*a^4*d^3 + (b^4*d^3*n^3 + 6*b^4*d^3*n^2 + 11*b^4*d^3*n + 6*b^
4*d^3)*x^4 + (24*b^4*c*d^2 + (3*b^4*c*d^2 + a*b^3*d^3)*n^3 + 3*(7
*b^4*c*d^2 + a*b^3*d^3)*n^2 + 2*(21*b^4*c*d^2 + a*b^3*d^3)*n)*x^3
 + 3*(3*a*b^3*c^3 - a^2*b^2*c^2*d)*n^2 + 3*(12*b^4*c^2*d + (b^4*c
^2*d + a*b^3*c*d^2)*n^3 + (8*b^4*c^2*d + 5*a*b^3*c*d^2 - a^2*b^2*
d^3)*n^2 + (19*b^4*c^2*d + 4*a*b^3*c*d^2 - a^2*b^2*d^3)*n)*x^2 +
(26*a*b^3*c^3 - 21*a^2*b^2*c^2*d + 6*a^3*b*c*d^2)*n + (24*b^4*c^3
 + (b^4*c^3 + 3*a*b^3*c^2*d)*n^3 + 3*(3*b^4*c^3 + 7*a*b^3*c^2*d -
 2*a^2*b^2*c*d^2)*n^2 + 2*(13*b^4*c^3 + 18*a*b^3*c^2*d - 12*a^2*b
^2*c*d^2 + 3*a^3*b*d^3)*n)*x)*(b*x + a)^n/(b^4*n^4 + 10*b^4*n^3 +
 35*b^4*n^2 + 50*b^4*n + 24*b^4)
```

Sympy [A] time = 11.7419, size = 4056, normalized size = 36.87

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**n*(d*x+c)**3,x)
```

```
[Out] Piecewise((a**n*(c**3*x + 3*c**2*d*x**2/2 + c*d**2*x**3 + d**3*x*
*4/4), Eq(b, 0)), (6*a**5*d**3*log(a/b + x)/(6*a**5*b**4 + 18*a**
4*b**5*x + 18*a**3*b**6*x**2 + 6*a**2*b**7*x**3) + 2*a**5*d**3/(6
*a**5*b**4 + 18*a**4*b**5*x + 18*a**3*b**6*x**2 + 6*a**2*b**7*x**
3) + 18*a**4*b*d**3*x*log(a/b + x)/(6*a**5*b**4 + 18*a**4*b**5*x
+ 18*a**3*b**6*x**2 + 6*a**2*b**7*x**3) + 18*a**3*b**2*d**3*x**2*
log(a/b + x)/(6*a**5*b**4 + 18*a**4*b**5*x + 18*a**3*b**6*x**2 +
6*a**2*b**7*x**3) - 9*a**3*b**2*d**3*x**2/(6*a**5*b**4 + 18*a**4*
b**5*x + 18*a**3*b**6*x**2 + 6*a**2*b**7*x**3) - 2*a**2*b**3*c**3
/(6*a**5*b**4 + 18*a**4*b**5*x + 18*a**3*b**6*x**2 + 6*a**2*b**7*
x**3) + 6*a**2*b**3*d**3*x**3*log(a/b + x)/(6*a**5*b**4 + 18*a**4
*b**5*x + 18*a**3*b**6*x**2 + 6*a**2*b**7*x**3) - 9*a**2*b**3*d**
3*x**3/(6*a**5*b**4 + 18*a**4*b**5*x + 18*a**3*b**6*x**2 + 6*a**2
*b**7*x**3) + 9*a*b**4*c**2*d*x**2/(6*a**5*b**4 + 18*a**4*b**5*x
+ 18*a**3*b**6*x**2 + 6*a**2*b**7*x**3) + 6*a*b**4*c*d**2*x**3/(6
*a**5*b**4 + 18*a**4*b**5*x + 18*a**3*b**6*x**2 + 6*a**2*b**7*x**
3) + 3*b**5*c**2*d*x**3/(6*a**5*b**4 + 18*a**4*b**5*x + 18*a**3*b
**6*x**2 + 6*a**2*b**7*x**3), Eq(n, -4)), (-6*a**4*d**3*log(a/b +
 x)/(2*a**3*b**4 + 4*a**2*b**5*x + 2*a*b**6*x**2) - 3*a**4*d**3/(
2*a**3*b**4 + 4*a**2*b**5*x + 2*a*b**6*x**2) + 6*a**3*b*c*d**2*lo
g(a/b + x)/(2*a**3*b**4 + 4*a**2*b**5*x + 2*a*b**6*x**2) + 3*a**3
*b*c*d**2/(2*a**3*b**4 + 4*a**2*b**5*x + 2*a*b**6*x**2) - 12*a**3
*b*d**3*x*log(a/b + x)/(2*a**3*b**4 + 4*a**2*b**5*x + 2*a*b**6*x*
*2) + 12*a**2*b**2*c*d**2*x*log(a/b + x)/(2*a**3*b**4 + 4*a**2*b*
*5*x + 2*a*b**6*x**2) - 6*a**2*b**2*d**3*x**2*log(a/b + x)/(2*a**
3*b**4 + 4*a**2*b**5*x + 2*a*b**6*x**2) + 6*a**2*b**2*d**3*x**2/(
2*a**3*b**4 + 4*a**2*b**5*x + 2*a*b**6*x**2) - a*b**3*c**3/(2*a**
3*b**4 + 4*a**2*b**5*x + 2*a*b**6*x**2) + 6*a*b**3*c*d**2*x**2*lo
g(a/b + x)/(2*a**3*b**4 + 4*a**2*b**5*x + 2*a*b**6*x**2) - 6*a*b*
*3*c*d**2*x**2/(2*a**3*b**4 + 4*a**2*b**5*x + 2*a*b**6*x**2) + 2*
a*b**3*d**3*x**3/(2*a**3*b**4 + 4*a**2*b**5*x + 2*a*b**6*x**2) +
3*b**4*c**2*d*x**2/(2*a**3*b**4 + 4*a**2*b**5*x + 2*a*b**6*x**2),
 Eq(n, -3)), (6*a**3*d**3*log(a/b + x)/(2*a*b**4 + 2*b**5*x) + 6*
a**3*d**3/(2*a*b**4 + 2*b**5*x) - 12*a**2*b*c*d**2*log(a/b + x)/(
2*a*b**4 + 2*b**5*x) - 12*a**2*b*c*d**2/(2*a*b**4 + 2*b**5*x) + 6
*a**2*b*d**3*x*log(a/b + x)/(2*a*b**4 + 2*b**5*x) + 6*a*b**2*c**2
*d*log(a/b + x)/(2*a*b**4 + 2*b**5*x) + 6*a*b**2*c**2*d/(2*a*b**4
 + 2*b**5*x) - 12*a*b**2*c*d**2*x*log(a/b + x)/(2*a*b**4 + 2*b**5
*x) - 3*a*b**2*d**3*x**2/(2*a*b**4 + 2*b**5*x) - 2*b**3*c**3/(2*a
*b**4 + 2*b**5*x) + 6*b**3*c**2*d*x*log(a/b + x)/(2*a*b**4 + 2*b*
*5*x) + 6*b**3*c*d**2*x**2/(2*a*b**4 + 2*b**5*x) + b**3*d**3*x**3
/(2*a*b**4 + 2*b**5*x), Eq(n, -2)), (-a**3*d**3*log(a/b + x)/b**4
 + 3*a**2*c*d**2*log(a/b + x)/b**3 + a**2*d**3*x/b**3 - 3*a*c**2*
d*log(a/b + x)/b**2 - 3*a*c*d**2*x/b**2 - a*d**3*x**2/(2*b**2) +
c**3*log(a/b + x)/b + 3*c**2*d*x/b + 3*c*d**2*x**2/(2*b) + d**3*x
**3/(3*b), Eq(n, -1)), (-6*a**4*d**3*(a + b*x)**n/(b**4*n**4 + 10
*b**4*n**3 + 35*b**4*n**2 + 50*b**4*n + 24*b**4) + 6*a**3*b*c*d**
2*n*(a + b*x)**n/(b**4*n**4 + 10*b**4*n**3 + 35*b**4*n**2 + 50*b*
*4*n + 24*b**4) + 24*a**3*b*c*d**2*(a + b*x)**n/(b**4*n**4 + 10*b
**4*n**3 + 35*b**4*n**2 + 50*b**4*n + 24*b**4) + 6*a**3*b*d**3*n*
x*(a + b*x)**n/(b**4*n**4 + 10*b**4*n**3 + 35*b**4*n**2 + 50*b**4
*n + 24*b**4) - 3*a**2*b**2*c**2*d*n**2*(a + b*x)**n/(b**4*n**4 +
 10*b**4*n**3 + 35*b**4*n**2 + 50*b**4*n + 24*b**4) - 21*a**2*b**
2*c**2*d*n*(a + b*x)**n/(b**4*n**4 + 10*b**4*n**3 + 35*b**4*n**2
+ 50*b**4*n + 24*b**4) - 36*a**2*b**2*c**2*d*(a + b*x)**n/(b**4*n
**4 + 10*b**4*n**3 + 35*b**4*n**2 + 50*b**4*n + 24*b**4) - 6*a**2
*b**2*c*d**2*n**2*x*(a + b*x)**n/(b**4*n**4 + 10*b**4*n**3 + 35*b
**4*n**2 + 50*b**4*n + 24*b**4) - 24*a**2*b**2*c*d**2*n*x*(a + b*
x)**n/(b**4*n**4 + 10*b**4*n**3 + 35*b**4*n**2 + 50*b**4*n + 24*b
**4) - 3*a**2*b**2*d**3*n**2*x**2*(a + b*x)**n/(b**4*n**4 + 10*b*
*4*n**3 + 35*b**4*n**2 + 50*b**4*n + 24*b**4) - 3*a**2*b**2*d**3*
n*x**2*(a + b*x)**n/(b**4*n**4 + 10*b**4*n**3 + 35*b**4*n**2 + 50
*b**4*n + 24*b**4) + a*b**3*c**3*n**3*(a + b*x)**n/(b**4*n**4 + 1
0*b**4*n**3 + 35*b**4*n**2 + 50*b**4*n + 24*b**4) + 9*a*b**3*c**3
*n**2*(a + b*x)**n/(b**4*n**4 + 10*b**4*n**3 + 35*b**4*n**2 + 50*
b**4*n + 24*b**4) + 26*a*b**3*c**3*n*(a + b*x)**n/(b**4*n**4 + 10
*b**4*n**3 + 35*b**4*n**2 + 50*b**4*n + 24*b**4) + 24*a*b**3*c**3
*(a + b*x)**n/(b**4*n**4 + 10*b**4*n**3 + 35*b**4*n**2 + 50*b**4*
n + 24*b**4) + 3*a*b**3*c**2*d*n**3*x*(a + b*x)**n/(b**4*n**4 + 1
0*b**4*n**3 + 35*b**4*n**2 + 50*b**4*n + 24*b**4) + 21*a*b**3*c**
2*d*n**2*x*(a + b*x)**n/(b**4*n**4 + 10*b**4*n**3 + 35*b**4*n**2
+ 50*b**4*n + 24*b**4) + 36*a*b**3*c**2*d*n*x*(a + b*x)**n/(b**4*
n**4 + 10*b**4*n**3 + 35*b**4*n**2 + 50*b**4*n + 24*b**4) + 3*a*b
**3*c*d**2*n**3*x**2*(a + b*x)**n/(b**4*n**4 + 10*b**4*n**3 + 35*
```

```
b**4*n**2 + 50*b**4*n + 24*b**4) + 15*a*b**3*c*d**2*n**2*x**2*(a
+ b*x)**n/(b**4*n**4 + 10*b**4*n**3 + 35*b**4*n**2 + 50*b**4*n +
24*b**4) + 12*a*b**3*c*d**2*n*x**2*(a + b*x)**n/(b**4*n**4 + 10*b
**4*n**3 + 35*b**4*n**2 + 50*b**4*n + 24*b**4) + a*b**3*d**3*n**3
*x**3*(a + b*x)**n/(b**4*n**4 + 10*b**4*n**3 + 35*b**4*n**2 + 50*
b**4*n + 24*b**4) + 3*a*b**3*d**3*n**2*x**3*(a + b*x)**n/(b**4*n*
*4 + 10*b**4*n**3 + 35*b**4*n**2 + 50*b**4*n + 24*b**4) + 2*a*b**
3*d**3*n*x**3*(a + b*x)**n/(b**4*n**4 + 10*b**4*n**3 + 35*b**4*n*
*2 + 50*b**4*n + 24*b**4) + b**4*c**3*n**3*x*(a + b*x)**n/(b**4*n
**4 + 10*b**4*n**3 + 35*b**4*n**2 + 50*b**4*n + 24*b**4) + 9*b**4
*c**3*n**2*x*(a + b*x)**n/(b**4*n**4 + 10*b**4*n**3 + 35*b**4*n**
2 + 50*b**4*n + 24*b**4) + 26*b**4*c**3*n*x*(a + b*x)**n/(b**4*n*
*4 + 10*b**4*n**3 + 35*b**4*n**2 + 50*b**4*n + 24*b**4) + 24*b**4
*c**3*x*(a + b*x)**n/(b**4*n**4 + 10*b**4*n**3 + 35*b**4*n**2 + 5
0*b**4*n + 24*b**4) + 3*b**4*c**2*d*n**3*x**2*(a + b*x)**n/(b**4*
n**4 + 10*b**4*n**3 + 35*b**4*n**2 + 50*b**4*n + 24*b**4) + 24*b*
*4*c**2*d*n**2*x**2*(a + b*x)**n/(b**4*n**4 + 10*b**4*n**3 + 35*b
**4*n**2 + 50*b**4*n + 24*b**4) + 57*b**4*c**2*d*n*x**2*(a + b*x)
**n/(b**4*n**4 + 10*b**4*n**3 + 35*b**4*n**2 + 50*b**4*n + 24*b**
4) + 36*b**4*c**2*d*x**2*(a + b*x)**n/(b**4*n**4 + 10*b**4*n**3 +
 35*b**4*n**2 + 50*b**4*n + 24*b**4) + 3*b**4*c*d**2*n**3*x**3*(a
 + b*x)**n/(b**4*n**4 + 10*b**4*n**3 + 35*b**4*n**2 + 50*b**4*n +
 24*b**4) + 21*b**4*c*d**2*n**2*x**3*(a + b*x)**n/(b**4*n**4 + 10
*b**4*n**3 + 35*b**4*n**2 + 50*b**4*n + 24*b**4) + 42*b**4*c*d**2
*n*x**3*(a + b*x)**n/(b**4*n**4 + 10*b**4*n**3 + 35*b**4*n**2 + 5
0*b**4*n + 24*b**4) + 24*b**4*c*d**2*x**3*(a + b*x)**n/(b**4*n**4
 + 10*b**4*n**3 + 35*b**4*n**2 + 50*b**4*n + 24*b**4) + b**4*d**3
*n**3*x**4*(a + b*x)**n/(b**4*n**4 + 10*b**4*n**3 + 35*b**4*n**2
+ 50*b**4*n + 24*b**4) + 6*b**4*d**3*n**2*x**4*(a + b*x)**n/(b**4
*n**4 + 10*b**4*n**3 + 35*b**4*n**2 + 50*b**4*n + 24*b**4) + 11*b
**4*d**3*n*x**4*(a + b*x)**n/(b**4*n**4 + 10*b**4*n**3 + 35*b**4*
n**2 + 50*b**4*n + 24*b**4) + 6*b**4*d**3*x**4*(a + b*x)**n/(b**4
*n**4 + 10*b**4*n**3 + 35*b**4*n**2 + 50*b**4*n + 24*b**4), True)
)
```

GIAC/XCAS [A] time = 0.231498, size = 1233, normalized size = 11.21

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3*(b*x + a)^n,x, algorithm="giac")
```

```
[Out] (b^4*d^3*n^3*x^4*e^(n*ln(b*x + a)) + 3*b^4*c*d^2*n^3*x^3*e^(n*ln(
b*x + a)) + a*b^3*d^3*n^3*x^3*e^(n*ln(b*x + a)) + 6*b^4*d^3*n^2*x
^4*e^(n*ln(b*x + a)) + 3*b^4*c^2*d*n^3*x^2*e^(n*ln(b*x + a)) + 3*
a*b^3*c*d^2*n^3*x^2*e^(n*ln(b*x + a)) + 21*b^4*c*d^2*n^2*x^3*e^(n
*ln(b*x + a)) + 3*a*b^3*d^3*n^2*x^3*e^(n*ln(b*x + a)) + 11*b^4*d^
3*n*x^4*e^(n*ln(b*x + a)) + b^4*c^3*n^3*x*e^(n*ln(b*x + a)) + 3*a
*b^3*c^2*d*n^3*x*e^(n*ln(b*x + a)) + 24*b^4*c^2*d*n^2*x^2*e^(n*ln
(b*x + a)) + 15*a*b^3*c*d^2*n^2*x^2*e^(n*ln(b*x + a)) - 3*a^2*b^2
*d^3*n^2*x^2*e^(n*ln(b*x + a)) + 42*b^4*c*d^2*n*x^3*e^(n*ln(b*x +
 a)) + 2*a*b^3*d^3*n*x^3*e^(n*ln(b*x + a)) + 6*b^4*d^3*x^4*e^(n*l
n(b*x + a)) + a*b^3*c^3*n^3*e^(n*ln(b*x + a)) + 9*b^4*c^3*n^2*x*e
^(n*ln(b*x + a)) + 21*a*b^3*c^2*d*n^2*x*e^(n*ln(b*x + a)) - 6*a^2
*b^2*c*d^2*n^2*x*e^(n*ln(b*x + a)) + 57*b^4*c^2*d*n*x^2*e^(n*ln(b
*x + a)) + 12*a*b^3*c*d^2*n*x^2*e^(n*ln(b*x + a)) - 3*a^2*b^2*d^3
*n*x^2*e^(n*ln(b*x + a)) + 24*b^4*c*d^2*x^3*e^(n*ln(b*x + a)) + 9
*a*b^3*c^3*n^2*e^(n*ln(b*x + a)) - 3*a^2*b^2*c^2*d*n^2*e^(n*ln(b*
x + a)) + 26*b^4*c^3*n*x*e^(n*ln(b*x + a)) + 36*a*b^3*c^2*d*n*x*e
^(n*ln(b*x + a)) - 24*a^2*b^2*c*d^2*n*x*e^(n*ln(b*x + a)) + 6*a^3
*b*d^3*n*x*e^(n*ln(b*x + a)) + 36*b^4*c^2*d*x^2*e^(n*ln(b*x + a))
 + 26*a*b^3*c^3*n*e^(n*ln(b*x + a)) - 21*a^2*b^2*c^2*d*n*e^(n*ln(
b*x + a)) + 6*a^3*b*c*d^2*n*e^(n*ln(b*x + a)) + 24*b^4*c^3*x*e^(n
*ln(b*x + a)) + 24*a*b^3*c^3*e^(n*ln(b*x + a)) - 36*a^2*b^2*c^2*d
*e^(n*ln(b*x + a)) + 24*a^3*b*c*d^2*e^(n*ln(b*x + a)) - 6*a^4*d^3
*e^(n*ln(b*x + a)))/(b^4*n^4 + 10*b^4*n^3 + 35*b^4*n^2 + 50*b^4*n
 + 24*b^4)
```

3.921 $\int \frac{(a+bx)^n(c+dx)^3}{x}\,dx$

Optimal. Leaf size=131

$$\frac{d\left(a^2d^2-3abcd+3b^2c^2\right)(a+bx)^{n+1}}{b^3(n+1)}+\frac{d^2(3bc-2ad)(a+bx)^{n+2}}{b^3(n+2)}+\frac{d^3(a+bx)^{n+3}}{b^3(n+3)}-\frac{c^3(a+bx)^{n+1}{}_2F_1\left(1,n+1;n+2;\frac{bx}{a}+1\right)}{a(n+1)}$$

```
[Out] (d*(3*b^2*c^2 - 3*a*b*c*d + a^2*d^2)*(a + b*x)^(1 + n))/(b^3*(1 +
 n)) + (d^2*(3*b*c - 2*a*d)*(a + b*x)^(2 + n))/(b^3*(2 + n)) + (d
^3*(a + b*x)^(3 + n))/(b^3*(3 + n)) - (c^3*(a + b*x)^(1 + n)*Hype
rgeometric2F1[1, 1 + n, 2 + n, 1 + (b*x)/a])/(a*(1 + n))
```

Rubi [A] time = 0.14899, antiderivative size = 131, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 2, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.111

$$\frac{d\left(a^2d^2-3abcd+3b^2c^2\right)(a+bx)^{n+1}}{b^3(n+1)}+\frac{d^2(3bc-2ad)(a+bx)^{n+2}}{b^3(n+2)}+\frac{d^3(a+bx)^{n+3}}{b^3(n+3)}-\frac{c^3(a+bx)^{n+1}{}_2F_1\left(1,n+1;n+2;\frac{bx}{a}+1\right)}{a(n+1)}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^n*(c + d*x)^3)/x,x]
```

```
[Out] (d*(3*b^2*c^2 - 3*a*b*c*d + a^2*d^2)*(a + b*x)^(1 + n))/(b^3*(1 +
 n)) + (d^2*(3*b*c - 2*a*d)*(a + b*x)^(2 + n))/(b^3*(2 + n)) + (d
^3*(a + b*x)^(3 + n))/(b^3*(3 + n)) - (c^3*(a + b*x)^(1 + n)*Hype
rgeometric2F1[1, 1 + n, 2 + n, 1 + (b*x)/a])/(a*(1 + n))
```

Rubi in Sympy [A] time = 27.0793, size = 116, normalized size = 0.89

$$\frac{d^3\left(a+bx\right)^{n+3}}{b^3\left(n+3\right)}-\frac{d^2\left(a+bx\right)^{n+2}\left(2ad-3bc\right)}{b^3\left(n+2\right)}+\frac{d\left(a+bx\right)^{n+1}\left(a^2d^2-3abcd+3b^2c^2\right)}{b^3\left(n+1\right)}-\frac{c^3\left(a+bx\right)^{n+1}{}_2F_1\left(\begin{matrix}1,n+1\\n+2\end{matrix}\middle|1+\frac{bx}{a}\right)}{a\left(n+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**n*(d*x+c)**3/x,x)
```

```
[Out] d**3*(a + b*x)**(n + 3)/(b**3*(n + 3)) - d**2*(a + b*x)**(n + 2)*
(2*a*d - 3*b*c)/(b**3*(n + 2)) + d*(a + b*x)**(n + 1)*(a**2*d**2
- 3*a*b*c*d + 3*b**2*c**2)/(b**3*(n + 1)) - c**3*(a + b*x)**(n +
1)*hyper((1, n + 1), (n + 2,), 1 + b*x/a)/(a*(n + 1))
```

Mathematica [A] time = 0.614527, size = 251, normalized size = 1.92

$$(a+bx)^n\left(\frac{d\left(\frac{bx}{a}+1\right)^{-n}\left(2a^3d^2\left(\left(\frac{bx}{a}+1\right)^n-1\right)-a^2bd\left(3c(n+3)\left(\left(\frac{bx}{a}+1\right)^n-1\right)+2dnx\left(\frac{bx}{a}+1\right)^n\right)+b^3x\left(\frac{bx}{a}+1\right)^n(3c^2}{b^3(n+}+\frac{c^3\left(\frac{a}{bx}+1\right)^{-n}{}_2F_1\left(-n,-n;1-n;-\frac{a}{bx}\right)}{n}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^n*(c + d*x)^3)/x,x]
```

```
[Out] (a + b*x)^n*((d*(a*b^2*(1 + (b*x)/a)^n*(3*c^2*(6 + 5*n + n^2) + 3
*c*d*n*(3 + n)*x + d^2*n*(1 + n)*x^2) + b^3*x*(1 + (b*x)/a)^n*(3*
c^2*(6 + 5*n + n^2) + 3*c*d*(3 + 4*n + n^2)*x + d^2*(2 + 3*n + n^
2)*x^2) + 2*a^3*d^2*(-1 + (1 + (b*x)/a)^n) - a^2*b*d*(2*d*n*x*(1
+ (b*x)/a)^n + 3*c*(3 + n)*(-1 + (1 + (b*x)/a)^n))))/(b^3*(1 + n)
*(2 + n)*(3 + n)*(1 + (b*x)/a)^n) + (c^3*Hypergeometric2F1[-n, -n
, 1 - n, -(a/(b*x))])/(n*(1 + a/(b*x))^n))
```

Maple [F] time = 0.059, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n (dx+c)^3}{x}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^n*(d*x+c)^3/x,x)
```

```
[Out] int((b*x+a)^n*(d*x+c)^3/x,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3*(b*x + a)^n/x,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(d^3x^3 + 3\,cd^2x^2 + 3\,c^2dx + c^3)(bx+a)^n}{x}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3*(b*x + a)^n/x,x, algorithm="fricas")
```

```
[Out] integral((d^3*x^3 + 3*c*d^2*x^2 + 3*c^2*d*x + c^3)*(b*x + a)^n/x,
 x)
```

Sympy [A] time = 14.423, size = 993, normalized size = 7.58

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**n*(d*x+c)**3/x,x)
```

```
[Out] -b**n*c**3*n*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n +
 1)/gamma(n + 2) - b**n*c**3*(a/b + x)**n*lerchphi(1 + b*x/a, 1,
```

```
n + 1)*gamma(n + 1)/gamma(n + 2) + 3*c**2*d*Piecewise((a**n*x, Eq
(b, 0)), (Piecewise(((a + b*x)**(n + 1)/(n + 1), Ne(n, -1)), (log
(a + b*x), True))/b, True)) + 3*c*d**2*Piecewise((a**n*x**2/2, Eq
(b, 0)), (a*log(a/b + x)/(a*b**2 + b**3*x) + a/(a*b**2 + b**3*x)
+ b*x*log(a/b + x)/(a*b**2 + b**3*x), Eq(n, -2)), (-a*log(a/b + x
)/b**2 + x/b, Eq(n, -1)), (-a**2*(a + b*x)**n/(b**2*n**2 + 3*b**2
*n + 2*b**2) + a*b*n*x*(a + b*x)**n/(b**2*n**2 + 3*b**2*n + 2*b**
2) + b**2*n*x**2*(a + b*x)**n/(b**2*n**2 + 3*b**2*n + 2*b**2) + b
**2*x**2*(a + b*x)**n/(b**2*n**2 + 3*b**2*n + 2*b**2), True)) + d
**3*Piecewise((a**n*x**3/3, Eq(b, 0)), (2*a**2*log(a/b + x)/(2*a*
*2*b**3 + 4*a*b**4*x + 2*b**5*x**2) + a**2/(2*a**2*b**3 + 4*a*b**
4*x + 2*b**5*x**2) + 4*a*b*x*log(a/b + x)/(2*a**2*b**3 + 4*a*b**4
*x + 2*b**5*x**2) + 2*b**2*x**2*log(a/b + x)/(2*a**2*b**3 + 4*a*b
**4*x + 2*b**5*x**2) - 2*b**2*x**2/(2*a**2*b**3 + 4*a*b**4*x + 2*
b**5*x**2), Eq(n, -3)), (-2*a**2*log(a/b + x)/(a*b**3 + b**4*x) -
 2*a**2/(a*b**3 + b**4*x) - 2*a*b*x*log(a/b + x)/(a*b**3 + b**4*x
) + b**2*x**2/(a*b**3 + b**4*x), Eq(n, -2)), (a**2*log(a/b + x)/b
**3 - a*x/b**2 + x**2/(2*b), Eq(n, -1)), (2*a**3*(a + b*x)**n/(b*
*3*n**3 + 6*b**3*n**2 + 11*b**3*n + 6*b**3) - 2*a**2*b*n*x*(a + b
*x)**n/(b**3*n**3 + 6*b**3*n**2 + 11*b**3*n + 6*b**3) + a*b**2*n*
*2*x**2*(a + b*x)**n/(b**3*n**3 + 6*b**3*n**2 + 11*b**3*n + 6*b**
3) + a*b**2*n*x**2*(a + b*x)**n/(b**3*n**3 + 6*b**3*n**2 + 11*b**
3*n + 6*b**3) + b**3*n**2*x**3*(a + b*x)**n/(b**3*n**3 + 6*b**3*n
**2 + 11*b**3*n + 6*b**3) + 3*b**3*n*x**3*(a + b*x)**n/(b**3*n**3
 + 6*b**3*n**2 + 11*b**3*n + 6*b**3) + 2*b**3*x**3*(a + b*x)**n/(
b**3*n**3 + 6*b**3*n**2 + 11*b**3*n + 6*b**3), True)) - b*b**n*c*
*3*n*x*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n + 1)/(a
*gamma(n + 2)) - b*b**n*c**3*x*(a/b + x)**n*lerchphi(1 + b*x/a, 1
, n + 1)*gamma(n + 1)/(a*gamma(n + 2))
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(dx+c)^3(bx+a)^n}{x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3*(b*x + a)^n/x,x, algorithm="giac")
```

```
[Out] integrate((d*x + c)^3*(b*x + a)^n/x, x)
```

3.922 $\int \frac{(a+bx)^n(c+dx)^3}{x^2} \, dx$

Optimal. Leaf size=143

$$-\frac{c^2(a+bx)^{n+1}(3ad+bcn)\,_2F_1\left(1,n+1;n+2;\frac{bx}{a}+1\right)}{a^2(n+1)}-\frac{(a+bx)^{n+1}\left(bc^2(n+1)(ad+bc(n+2))+ad^2x(ad-bc(n+4))\right)}{ab^2(n+1)(n+2)x}+\frac{d(c+dx)^2(a+bx)^{n+1}}{b(n+2)x}$$

```
[Out] (d*(a + b*x)^(1 + n)*(c + d*x)^2)/(b*(2 + n)*x) - ((a + b*x)^(1 +
 n)*(b*c^2*(1 + n)*(a*d + b*c*(2 + n)) + a*d^2*(a*d - b*c*(4 + n)
)*x))/(a*b^2*(1 + n)*(2 + n)*x) - (c^2*(3*a*d + b*c*n)*(a + b*x)^
(1 + n)*Hypergeometric2F1[1, 1 + n, 2 + n, 1 + (b*x)/a])/(a^2*(1
+ n))
```

Rubi [A] time = 0.330754, antiderivative size = 143, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$-\frac{c^2(a+bx)^{n+1}(3ad+bcn)\,_2F_1\left(1,n+1;n+2;\frac{bx}{a}+1\right)}{a^2(n+1)}-\frac{(a+bx)^{n+1}\left(bc^2(n+1)(ad+bc(n+2))+ad^2x(ad-bc(n+4))\right)}{ab^2(n+1)(n+2)x}+\frac{d(c+dx)^2(a+bx)^{n+1}}{b(n+2)x}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^n*(c + d*x)^3)/x^2,x]
```


```
[Out] (d*(a + b*x)^(1 + n)*(c + d*x)^2)/(b*(2 + n)*x) - ((a + b*x)^(1 +
 n)*(b*c^2*(1 + n)*(a*d + b*c*(2 + n)) + a*d^2*(a*d - b*c*(4 + n)
)*x))/(a*b^2*(1 + n)*(2 + n)*x) - (c^2*(3*a*d + b*c*n)*(a + b*x)^
(1 + n)*Hypergeometric2F1[1, 1 + n, 2 + n, 1 + (b*x)/a])/(a^2*(1
+ n))
```

Rubi in Sympy [A] time = 26.4465, size = 121, normalized size = 0.85

$$\frac{d\,(a+bx)^{n+1}\,(c+dx)^2}{bx\,(n+2)}-\frac{(a+bx)^{n+1}\left(ad^2x\,(ad-bc\,(n+4))+bc^2\,(n+1)\,(ad+bc\,(n+2))\right)}{ab^2x\,(n+1)\,(n+2)}-\frac{c^2\,(a+bx)^{n+1}\,(3ad+bcn)\,_2F_1\left(\begin{matrix}1,n+1\\n+2\end{matrix}\middle|1+\frac{bx}{a}\right)}{a^2\,(n+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**n*(d*x+c)**3/x**2,x)
```

```
[Out] d*(a + b*x)**(n + 1)*(c + d*x)**2/(b*x*(n + 2)) - (a + b*x)**(n +
 1)*(a*d**2*x*(a*d - b*c*(n + 4)) + b*c**2*(n + 1)*(a*d + b*c*(n
+ 2)))/(a*b**2*x*(n + 1)*(n + 2)) - c**2*(a + b*x)**(n + 1)*(3*a*
d + b*c*n)*hyper((1, n + 1), (n + 2,), 1 + b*x/a)/(a**2*(n + 1))
```

Mathematica [A] time = 0.500982, size = 172, normalized size = 1.2

$$(a+bx)^n\left(\frac{d^3\left(a^2\left(\left(\frac{bx}{a}+1\right)^{-n}-1\right)+abnx+b^2(n+1)x^2\right)}{b^2(n+1)(n+2)}+\frac{c^3\left(\frac{a}{bx}+1\right)^{-n}{}_2F_1\left(1-n,-n;2-n;-\frac{a}{bx}\right)}{(n-1)x}+\frac{3c^2d\left(\frac{a}{bx}+1\right)^{-n}{}_2F_1\left(-n,-n;1-n;-\frac{a}{bx}\right)}{n}+\frac{3cd^2(a+bx)}{b(n+1)}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^n*(c + d*x)^3)/x^2,x]
```

```
[Out] (a + b*x)^n*((3*c*d^2*(a + b*x))/(b*(1 + n)) + (d^3*(a*b*n*x + b^
2*(1 + n)*x^2 + a^2*(-1 + (1 + (b*x)/a)^(-n))))/(b^2*(1 + n)*(2 +
 n)) + (c^3*Hypergeometric2F1[1 - n, -n, 2 - n, -(a/(b*x))])/((-1
 + n)*(1 + a/(b*x))^n*x) + (3*c^2*d*Hypergeometric2F1[-n, -n, 1 -
 n, -(a/(b*x))])/(n*(1 + a/(b*x))^n))
```

Maple [F] time = 0.058, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n (dx+c)^3}{x^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^n*(d*x+c)^3/x^2,x)
```

```
[Out] int((b*x+a)^n*(d*x+c)^3/x^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3*(b*x + a)^n/x^2,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(d^3x^3+3\,cd^2x^2+3\,c^2dx+c^3\right)(bx+a)^n}{x^2},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3*(b*x + a)^n/x^2,x, algorithm="fricas")
```

```
[Out] integral((d^3*x^3 + 3*c*d^2*x^2 + 3*c^2*d*x + c^3)*(b*x + a)^n/x^
2, x)
```

Sympy [A] time = 16.3214, size = 770, normalized size = 5.38

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**n*(d*x+c)**3/x**2,x)
```

```
[Out] b**n*c**3*n**2*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n
 + 1)/(x*gamma(n + 2)) + b**n*c**3*n*(a/b + x)**n*lerchphi(1 + b*
x/a, 1, n + 1)*gamma(n + 1)/(x*gamma(n + 2)) - b**n*c**3*n*(a/b +
 x)**n*gamma(n + 1)/(x*gamma(n + 2)) - b**n*c**3*(a/b + x)**n*gam
ma(n + 1)/(x*gamma(n + 2)) - 3*b**n*c**2*d*n*(a/b + x)**n*lerchph
i(1 + b*x/a, 1, n + 1)*gamma(n + 1)/gamma(n + 2) - 3*b**n*c**2*d*
(a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n + 1)/gamma(n +
 2) + 3*c*d**2*Piecewise((a**n*x, Eq(b, 0)), (Piecewise(((a + b*x
)**(n + 1)/(n + 1), Ne(n, -1)), (log(a + b*x), True))/b, True)) +
 d**3*Piecewise((a**n*x**2/2, Eq(b, 0)), (a*log(a/b + x)/(a*b**2
+ b**3*x) + a/(a*b**2 + b**3*x) + b*x*log(a/b + x)/(a*b**2 + b**3
*x), Eq(n, -2)), (-a*log(a/b + x)/b**2 + x/b, Eq(n, -1)), (-a**2*
(a + b*x)**n/(b**2*n**2 + 3*b**2*n + 2*b**2) + a*b*n*x*(a + b*x)*
*n/(b**2*n**2 + 3*b**2*n + 2*b**2) + b**2*n*x**2*(a + b*x)**n/(b*
*2*n**2 + 3*b**2*n + 2*b**2) + b**2*x**2*(a + b*x)**n/(b**2*n**2
+ 3*b**2*n + 2*b**2), True)) + b*b**n*c**3*n**2*(a/b + x)**n*lerc
hphi(1 + b*x/a, 1, n + 1)*gamma(n + 1)/(a*gamma(n + 2)) + b*b**n*
c**3*n*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n + 1)/(a
*gamma(n + 2)) - b*b**n*c**3*n*(a/b + x)**n*gamma(n + 1)/(a*gamma
(n + 2)) - b*b**n*c**3*(a/b + x)**n*gamma(n + 1)/(a*gamma(n + 2))
 - 3*b*b**n*c**2*d*n*x*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)
*gamma(n + 1)/(a*gamma(n + 2)) - 3*b*b**n*c**2*d*x*(a/b + x)**n*l
erchphi(1 + b*x/a, 1, n + 1)*gamma(n + 1)/(a*gamma(n + 2)) - b**2
*b**n*c**3*n**2*(a/b + x)**2*(a/b + x)**n*lerchphi(1 + b*x/a, 1,
n + 1)*gamma(n + 1)/(a**2*x*gamma(n + 2)) - b**2*b**n*c**3*n*(a/b
 + x)**2*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n + 1)/
(a**2*x*gamma(n + 2))
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(dx+c)^3(bx+a)^n}{x^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3*(b*x + a)^n/x^2,x, algorithm="giac")
```

```
[Out] integrate((d*x + c)^3*(b*x + a)^n/x^2, x)
```

3.923 $\int \frac{(a+bx)^n(c+dx)^3}{x^3}\,dx$

Optimal. Leaf size=176

$$-\frac{c(a+bx)^{n+1}\left(x\left(4a^2d^2+6abcd(n+1)-b^2c^2\left(1-n^2\right)\right)+ac(2ad+bc(n+1))\right)}{2a^2b(n+1)x^2}-\frac{c(a+bx)^{n+1}\left(6a^2d^2+6abcdn-b^2c^2(1-n)n\right)\,{}_2F_1\left(1,n+1;n+2;\frac{bx}{a}+1\right)}{2a^3(n+1)}+\frac{d(c+dx)^2(a+bx)^{n+1}}{b(n+1)x^2}$$

```
[Out] (d*(a + b*x)^(1 + n)*(c + d*x)^2)/(b*(1 + n)*x^2) - (c*(a + b*x)^
(1 + n)*(a*c*(2*a*d + b*c*(1 + n)) + (4*a^2*d^2 + 6*a*b*c*d*(1 +
n) - b^2*c^2*(1 - n^2))*x))/(2*a^2*b*(1 + n)*x^2) - (c*(6*a^2*d^2
 + 6*a*b*c*d*n - b^2*c^2*(1 - n)*n)*(a + b*x)^(1 + n)*Hypergeomet
ric2F1[1, 1 + n, 2 + n, 1 + (b*x)/a])/(2*a^3*(1 + n))
```

Rubi [A] time = 0.476844, antiderivative size = 176, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$-\frac{c(a+bx)^{n+1}\left(x\left(4a^2d^2+6abcd(n+1)-b^2c^2\left(1-n^2\right)\right)+ac(2ad+bc(n+1))\right)}{2a^2b(n+1)x^2}-\frac{c(a+bx)^{n+1}\left(6a^2d^2+6abcdn-b^2c^2(1-n)n\right)\,{}_2F_1\left(1,n+1;n+2;\frac{bx}{a}+1\right)}{2a^3(n+1)}+\frac{d(c+dx)^2(a+bx)^{n+1}}{b(n+1)x^2}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^n*(c + d*x)^3)/x^3,x]
```

```
[Out] (d*(a + b*x)^(1 + n)*(c + d*x)^2)/(b*(1 + n)*x^2) - (c*(a + b*x)^
(1 + n)*(a*c*(2*a*d + b*c*(1 + n)) + (4*a^2*d^2 + 6*a*b*c*d*(1 +
n) - b^2*c^2*(1 - n^2))*x))/(2*a^2*b*(1 + n)*x^2) - (c*(6*a^2*d^2
 + 6*a*b*c*d*n - b^2*c^2*(1 - n)*n)*(a + b*x)^(1 + n)*Hypergeomet
ric2F1[1, 1 + n, 2 + n, 1 + (b*x)/a])/(2*a^3*(1 + n))
```

Rubi in Sympy [A] time = 31.5126, size = 175, normalized size = 0.99

$$\frac{d\,(a+bx)^{n+1}\,(c+dx)^2}{bx^2\,(n+1)}-\frac{c\,(a+bx)^{n+1}\,(ac\,(2ad+bc\,(n+1))+x\,(2ad\,(2ad+bc\,(n+1)+bc\,(n+3))-bc\,(-n+1)\,(2ad+bc\,(n+1))))}{2a^2bx^2\,(n+1)}-\frac{c\,(a+bx)^{n+1}\left(6a^2d^2+6abcdn+b^2c^2n^2-b^2c^2n\right)\,{}_2F_1\left(\begin{matrix}1,n+1\\n+2\end{matrix}\middle|1+\frac{bx}{a}\right)}{2a^3\,(n+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**n*(d*x+c)**3/x**3,x)
```

```
[Out] d*(a + b*x)**(n + 1)*(c + d*x)**2/(b*x**2*(n + 1)) - c*(a + b*x)*
*(n + 1)*(a*c*(2*a*d + b*c*(n + 1)) + x*(2*a*d*(2*a*d + b*c*(n +
1) + b*c*(n + 3)) - b*c*(-n + 1)*(2*a*d + b*c*(n + 1))))/(2*a**2*
b*x**2*(n + 1)) - c*(a + b*x)**(n + 1)*(6*a**2*d**2 + 6*a*b*c*d*n
 + b**2*c**2*n**2 - b**2*c**2*n)*hyper((1, n + 1), (n + 2,), 1 +
b*x/a)/(2*a**3*(n + 1))
```

Mathematica [A] time = 0.489021, size = 171, normalized size = 0.97

$$(a+bx)^n\left(\frac{c^3\left(\frac{a}{bx}+1\right)^{-n}\,{}_2F_1\left(2-n,-n;3-n;-\frac{a}{bx}\right)}{(n-2)x^2}+\frac{3c^2d\left(\frac{a}{bx}+1\right)^{-n}\,{}_2F_1\left(1-n,-n;2-n;-\frac{a}{bx}\right)}{(n-1)x}+d^2\left(\frac{3c\left(\frac{a}{bx}+1\right)^{-n}\,{}_2F_1\left(-n,-n;1-n;-\frac{a}{bx}\right)}{n}+\frac{ad+bdx}{bn+b}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^n*(c + d*x)^3)/x^3,x]
```

```
[Out] (a + b*x)^n*((3*c^2*d*Hypergeometric2F1[1 - n, -n, 2 - n, -(a/(b*
x))])/((-1 + n)*(1 + a/(b*x))^n*x) + (c^3*Hypergeometric2F1[2 - n
, -n, 3 - n, -(a/(b*x))])/((-2 + n)*(1 + a/(b*x))^n*x^2) + d^2*((
a*d + b*d*x)/(b + b*n) + (3*c*Hypergeometric2F1[-n, -n, 1 - n, -(
a/(b*x))])/(n*(1 + a/(b*x))^n)))
```

Maple [F] time = 0.066, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n(dx+c)^3}{x^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^n*(d*x+c)^3/x^3,x)
```

```
[Out] int((b*x+a)^n*(d*x+c)^3/x^3,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3*(b*x + a)^n/x^3,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\left(d^3x^3+3\,cd^2x^2+3\,c^2dx+c^3\right)(bx+a)^n}{x^3},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3*(b*x + a)^n/x^3,x, algorithm="fricas")
```

```
[Out] integral((d^3*x^3 + 3*c*d^2*x^2 + 3*c^2*d*x + c^3)*(b*x + a)^n/x^
3, x)
```

Sympy [A] time = 21.4056, size = 1868, normalized size = 10.61

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**n*(d*x+c)**3/x**3,x)
```

```
[Out] -a**3*b**2*b**n*c**3*n**3*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n +
 1)*gamma(n + 1)/(-2*a**5*gamma(n + 2) - 4*a**4*b*x*gamma(n + 2)
+ 2*a**3*b**2*(a/b + x)**2*gamma(n + 2)) + a**3*b**2*b**n*c**3*n*
*2*(a/b + x)**n*gamma(n + 1)/(-2*a**5*gamma(n + 2) - 4*a**4*b*x*g
amma(n + 2) + 2*a**3*b**2*(a/b + x)**2*gamma(n + 2)) + a**3*b**2*
b**n*c**3*n*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n +
1)/(-2*a**5*gamma(n + 2) - 4*a**4*b*x*gamma(n + 2) + 2*a**3*b**2*
(a/b + x)**2*gamma(n + 2)) - a**3*b**2*b**n*c**3*n*(a/b + x)**n*g
amma(n + 1)/(-2*a**5*gamma(n + 2) - 4*a**4*b*x*gamma(n + 2) + 2*a
**3*b**2*(a/b + x)**2*gamma(n + 2)) - 2*a**3*b**2*b**n*c**3*(a/b
+ x)**n*gamma(n + 1)/(-2*a**5*gamma(n + 2) - 4*a**4*b*x*gamma(n +
 2) + 2*a**3*b**2*(a/b + x)**2*gamma(n + 2)) - a**2*b**3*b**n*c**
3*n**3*x*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n + 1)/
(-2*a**5*gamma(n + 2) - 4*a**4*b*x*gamma(n + 2) + 2*a**3*b**2*(a/
b + x)**2*gamma(n + 2)) + a**2*b**3*b**n*c**3*n**2*x*(a/b + x)**n
*gamma(n + 1)/(-2*a**5*gamma(n + 2) - 4*a**4*b*x*gamma(n + 2) + 2
*a**3*b**2*(a/b + x)**2*gamma(n + 2)) + a**2*b**3*b**n*c**3*n*x*(
a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n + 1)/(-2*a**5*g
amma(n + 2) - 4*a**4*b*x*gamma(n + 2) + 2*a**3*b**2*(a/b + x)**2*
gamma(n + 2)) - a**2*b**3*b**n*c**3*n*x*(a/b + x)**n*gamma(n + 1)
/(-2*a**5*gamma(n + 2) - 4*a**4*b*x*gamma(n + 2) + 2*a**3*b**2*(a
/b + x)**2*gamma(n + 2)) - 2*a**2*b**3*b**n*c**3*x*(a/b + x)**n*g
amma(n + 1)/(-2*a**5*gamma(n + 2) - 4*a**4*b*x*gamma(n + 2) + 2*a
**3*b**2*(a/b + x)**2*gamma(n + 2)) + 2*a*b**4*b**n*c**3*n**3*(a/
b + x)**2*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n + 1)
/(-2*a**5*gamma(n + 2) - 4*a**4*b*x*gamma(n + 2) + 2*a**3*b**2*(a
/b + x)**2*gamma(n + 2)) - a*b**4*b**n*c**3*n**2*(a/b + x)**2*(a/
b + x)**n*gamma(n + 1)/(-2*a**5*gamma(n + 2) - 4*a**4*b*x*gamma(n
 + 2) + 2*a**3*b**2*(a/b + x)**2*gamma(n + 2)) - 2*a*b**4*b**n*c*
*3*n*(a/b + x)**2*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamm
a(n + 1)/(-2*a**5*gamma(n + 2) - 4*a**4*b*x*gamma(n + 2) + 2*a**3
*b**2*(a/b + x)**2*gamma(n + 2)) + a*b**4*b**n*c**3*(a/b + x)**2*
(a/b + x)**n*gamma(n + 1)/(-2*a**5*gamma(n + 2) - 4*a**4*b*x*gamm
a(n + 2) + 2*a**3*b**2*(a/b + x)**2*gamma(n + 2)) - b**5*b**n*c**
3*n**3*(a/b + x)**3*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*ga
mma(n + 1)/(-2*a**5*gamma(n + 2) - 4*a**4*b*x*gamma(n + 2) + 2*a*
*3*b**2*(a/b + x)**2*gamma(n + 2)) + b**5*b**n*c**3*n*(a/b + x)**
3*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n + 1)/(-2*a**
5*gamma(n + 2) - 4*a**4*b*x*gamma(n + 2) + 2*a**3*b**2*(a/b + x)*
*2*gamma(n + 2)) + 3*b**n*c**2*d*n**2*(a/b + x)**n*lerchphi(1 + b
*x/a, 1, n + 1)*gamma(n + 1)/(x*gamma(n + 2)) + 3*b**n*c**2*d*n*(
a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n + 1)/(x*gamma(n
 + 2)) - 3*b**n*c**2*d*n*(a/b + x)**n*gamma(n + 1)/(x*gamma(n + 2
)) - 3*b**n*c**2*d*(a/b + x)**n*gamma(n + 1)/(x*gamma(n + 2)) - 3
*b**n*c*d**2*n*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n
 + 1)/gamma(n + 2) - 3*b**n*c*d**2*(a/b + x)**n*lerchphi(1 + b*x/
a, 1, n + 1)*gamma(n + 1)/gamma(n + 2) + d**3*Piecewise((a**n*x,
Eq(b, 0)), (Piecewise(((a + b*x)**(n + 1)/(n + 1), Ne(n, -1)), (l
og(a + b*x), True))/b, True)) + 3*b*b**n*c**2*d*n**2*(a/b + x)**n
*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n + 1)/(a*gamma(n + 2)) + 3*
b*b**n*c**2*d*n*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(
n + 1)/(a*gamma(n + 2)) - 3*b*b**n*c**2*d*n*(a/b + x)**n*gamma(n
+ 1)/(a*gamma(n + 2)) - 3*b*b**n*c**2*d*(a/b + x)**n*gamma(n + 1)
/(a*gamma(n + 2)) - 3*b*b**n*c*d**2*n*x*(a/b + x)**n*lerchphi(1 +
 b*x/a, 1, n + 1)*gamma(n + 1)/(a*gamma(n + 2)) - 3*b*b**n*c*d**2
*x*(a/b + x)**n*lerchphi(1 + b*x/a, 1, n + 1)*gamma(n + 1)/(a*gam
ma(n + 2)) - 3*b**2*b**n*c**2*d*n**2*(a/b + x)**2*(a/b + x)**n*le
rchphi(1 + b*x/a, 1, n + 1)*gamma(n + 1)/(a**2*x*gamma(n + 2)) -
3*b**2*b**n*c**2*d*n*(a/b + x)**2*(a/b + x)**n*lerchphi(1 + b*x/a
, 1, n + 1)*gamma(n + 1)/(a**2*x*gamma(n + 2))
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(dx+c)^3(bx+a)^n}{x^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^3*(b*x + a)^n/x^3,x, algorithm="giac")

[Out] integrate((d*x + c)^3*(b*x + a)^n/x^3, x)
```

3.924 $\int x^{1+2n}(a+bx)^n(2a+3bx)\,dx$

Optimal. Leaf size=22

$$\frac{x^{2(n+1)}(a+bx)^{n+1}}{n+1}$$

```
[Out] (x^(2*(1 + n))*(a + b*x)^(1 + n))/(1 + n)
```

Rubi [A] time = 0.0172871, antiderivative size = 22, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 23, $\frac{\text{number of rules}}{\text{integrand size}} = 0.043$

$$\frac{x^{2(n+1)}(a+bx)^{n+1}}{n+1}$$

Antiderivative was successfully verified.

```
[In]  Int[x^(1 + 2*n)*(a + b*x)^n*(2*a + 3*b*x),x]

[Out] (x^(2*(1 + n))*(a + b*x)^(1 + n))/(1 + n)
```

Rubi in Sympy [A] time = 3.97618, size = 17, normalized size = 0.77

$$\frac{x^{2n+2}\,(a+bx)^{n+1}}{n+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**(1+2*n)*(b*x+a)**n*(3*b*x+2*a),x)

[Out] x**(2*n + 2)*(a + b*x)**(n + 1)/(n + 1)
```

Mathematica [A] time = 0.0389279, size = 22, normalized size = 1.

$$\frac{x^{2n+2}(a+bx)^{n+1}}{n+1}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^(1 + 2*n)*(a + b*x)^n*(2*a + 3*b*x),x]

[Out] (x^(2 + 2*n)*(a + b*x)^(1 + n))/(1 + n)
```

Maple [A] time = 0.006, size = 23, normalized size = 1.1

$$\frac{x^{2+2\,n}\,(bx+a)^{1+n}}{1+n}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^(1+2*n)*(b*x+a)^n*(3*b*x+2*a),x)

[Out] x^(2+2*n)*(b*x+a)^(1+n)/(1+n)
```

Maxima [A] time = 1.53661, size = 43, normalized size = 1.95

$$\frac{\left(bx^3+ax^2\right)e^{(n\log(bx+a)+2\,n\log(x))}}{n+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*b*x + 2*a)*(b*x + a)^n*x^(2*n + 1),x, algorithm="maxima")
```

```
[Out] (b*x^3 + a*x^2)*e^(n*log(b*x + a) + 2*n*log(x))/(n + 1)
```

Fricas [A] time = 0.246743, size = 39, normalized size = 1.77

$$\frac{\left(bx^2+ax\right)(bx+a)^n x^{2\,n+1}}{n+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*b*x + 2*a)*(b*x + a)^n*x^(2*n + 1),x, algorithm="fricas")
```

```
[Out] (b*x^2 + a*x)*(b*x + a)^n*x^(2*n + 1)/(n + 1)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**(1+2*n)*(b*x+a)**n*(3*b*x+2*a),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.238431, size = 66, normalized size = 3.

$$\frac{bx^2e^{(n\ln(bx+a)+2\,n\ln(x)+\ln(x))}+axe^{(n\ln(bx+a)+2\,n\ln(x)+\ln(x))}}{n+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*b*x + 2*a)*(b*x + a)^n*x^(2*n + 1),x, algorithm="giac")
```

```
[Out] (b*x^2*e^(n*ln(b*x + a) + 2*n*ln(x) + ln(x)) + a*x*e^(n*ln(b*x +
a) + 2*n*ln(x) + ln(x)))/(n + 1)
```

3.925 $\int \frac{x^2(a+bx)^n}{c+dx}\,dx$

Optimal. Leaf size=108

$$-\frac{(ad+bc)(a+bx)^{n+1}}{b^2d^2(n+1)}+\frac{(a+bx)^{n+2}}{b^2d(n+2)}+\frac{c^2(a+bx)^{n+1}\,{}_2F_1\left(1,n+1;n+2;-\frac{d(a+bx)}{bc-ad}\right)}{d^2(n+1)(bc-ad)}$$

```
[Out] -(((b*c + a*d)*(a + b*x)^(1 + n))/(b^2*d^2*(1 + n))) + (a + b*x)^
(2 + n)/(b^2*d*(2 + n)) + (c^2*(a + b*x)^(1 + n)*Hypergeometric2F
1[1, 1 + n, 2 + n, -((d*(a + b*x))/(b*c - a*d))])/(d^2*(b*c - a*d
)*(1 + n))
```

Rubi [A] time = 0.155036, antiderivative size = 108, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 2, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.111$

$$-\frac{(ad+bc)(a+bx)^{n+1}}{b^2d^2(n+1)}+\frac{(a+bx)^{n+2}}{b^2d(n+2)}+\frac{c^2(a+bx)^{n+1}\,{}_2F_1\left(1,n+1;n+2;-\frac{d(a+bx)}{bc-ad}\right)}{d^2(n+1)(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^2*(a + b*x)^n)/(c + d*x),x]
```

```
[Out] -(((b*c + a*d)*(a + b*x)^(1 + n))/(b^2*d^2*(1 + n))) + (a + b*x)^
(2 + n)/(b^2*d*(2 + n)) + (c^2*(a + b*x)^(1 + n)*Hypergeometric2F
1[1, 1 + n, 2 + n, -((d*(a + b*x))/(b*c - a*d))])/(d^2*(b*c - a*d
)*(1 + n))
```

Rubi in Sympy [A] time = 23.9726, size = 85, normalized size = 0.79

$$-\frac{c^2\left(a+bx\right)^{n+1}{}_2F_1\left(\begin{matrix}1,n+1\\n+2\end{matrix}\middle|\frac{d(a+bx)}{ad-bc}\right)}{d^2\left(n+1\right)\left(ad-bc\right)}+\frac{\left(a+bx\right)^{n+2}}{b^2d\left(n+2\right)}-\frac{\left(a+bx\right)^{n+1}\left(ad+bc\right)}{b^2d^2\left(n+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(b*x+a)**n/(d*x+c),x)
```

```
[Out] -c**2*(a + b*x)**(n + 1)*hyper((1, n + 1), (n + 2,), d*(a + b*x)/
(a*d - b*c))/(d**2*(n + 1)*(a*d - b*c)) + (a + b*x)**(n + 2)/(b**
2*d*(n + 2)) - (a + b*x)**(n + 1)*(a*d + b*c)/(b**2*d**2*(n + 1))
```

Mathematica [A] time = 0.394099, size = 164, normalized size = 1.52

$$\frac{(a+bx)^n\left(-\frac{a^2d^2\left(\left(\frac{bx}{a}+1\right)^n-1\right)\left(\frac{bx}{a}+1\right)^{-n}}{b^2(n+1)(n+2)}+\frac{c^2\left(\frac{d(a+bx)}{b(c+dx)}\right)^{-n}{}_2F_1\left(-n,-n;1-n;\frac{bc-ad}{bc+bdx}\right)}{n}-\frac{cd(a+bx)}{bn+b}+\frac{ad^2nx}{b(n^2+3n+2)}+\frac{d^2x^2}{n+2}\right)}{d^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x^2*(a + b*x)^n)/(c + d*x),x]
```

```
[Out] ((a + b*x)^n*((a*d^2*n*x)/(b*(2 + 3*n + n^2)) + (d^2*x^2)/(2 + n)
 - (c*d*(a + b*x))/(b + b*n) - (a^2*d^2*(-1 + (1 + (b*x)/a)^n))/(
b^2*(1 + n)*(2 + n)*(1 + (b*x)/a)^n) + (c^2*Hypergeometric2F1[-n,
```

```
-n, 1 - n, (b*c - a*d)/(b*c + b*d*x)])/(n*((d*(a + b*x))/(b*(c +
d*x)))^n)))/d^3
```

Maple [F] time = 0.064, size = 0, normalized size = 0.

$$\int \frac{x^2 (bx+a)^n}{dx+c}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(b*x+a)^n/(d*x+c),x)

[Out] int(x^2*(b*x+a)^n/(d*x+c),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n x^2}{dx+c}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n*x^2/(d*x + c),x, algorithm="maxima")

[Out] integrate((b*x + a)^n*x^2/(d*x + c), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)^n x^2}{dx+c}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n*x^2/(d*x + c),x, algorithm="fricas")

[Out] integral((b*x + a)^n*x^2/(d*x + c), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x^2 (a+bx)^n}{c+dx}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(b*x+a)**n/(d*x+c),x)

[Out] Integral(x**2*(a + b*x)**n/(c + d*x), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n x^2}{dx+c}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n*x^2/(d*x + c),x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^n*x^2/(d*x + c), x)
```

3.926 $\int \frac{x(a+bx)^n}{c+dx}\,dx$

Optimal. Leaf size=78

$$\frac{(a+bx)^{n+1}}{bd(n+1)}-\frac{c(a+bx)^{n+1}\,{}_2F_1\left(1,n+1;n+2;-\frac{d(a+bx)}{bc-ad}\right)}{d(n+1)(bc-ad)}$$

```
[Out] (a + b*x)^(1 + n)/(b*d*(1 + n)) - (c*(a + b*x)^(1 + n)*Hypergeome
tric2F1[1, 1 + n, 2 + n, -((d*(a + b*x))/(b*c - a*d))])/(d*(b*c -
 a*d)*(1 + n))
```

Rubi [A] time = 0.06958, antiderivative size = 78, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$\frac{(a+bx)^{n+1}}{bd(n+1)}-\frac{c(a+bx)^{n+1}\,{}_2F_1\left(1,n+1;n+2;-\frac{d(a+bx)}{bc-ad}\right)}{d(n+1)(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[(x*(a + b*x)^n)/(c + d*x),x]
```

```
[Out] (a + b*x)^(1 + n)/(b*d*(1 + n)) - (c*(a + b*x)^(1 + n)*Hypergeome
tric2F1[1, 1 + n, 2 + n, -((d*(a + b*x))/(b*c - a*d))])/(d*(b*c -
 a*d)*(1 + n))
```

Rubi in Sympy [A] time = 10.4009, size = 54, normalized size = 0.69

$$\frac{c\left(a+bx\right)^{n+1}{}_2F_1\left(\begin{matrix}1,n+1\\n+2\end{matrix}\middle|\frac{d(a+bx)}{ad-bc}\right)}{d\left(n+1\right)\left(ad-bc\right)}+\frac{\left(a+bx\right)^{n+1}}{bd\left(n+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(b*x+a)**n/(d*x+c),x)
```

```
[Out] c*(a + b*x)**(n + 1)*hyper((1, n + 1), (n + 2,), d*(a + b*x)/(a*d
 - b*c))/(d*(n + 1)*(a*d - b*c)) + (a + b*x)**(n + 1)/(b*d*(n + 1
))
```

Mathematica [A] time = 0.16385, size = 86, normalized size = 1.1

$$\frac{(a+bx)^n\left(\frac{ad+bdx}{bn+b}-\frac{c\left(\frac{d(a+bx)}{b(c+dx)}\right)^{-n}{}_2F_1\left(-n,-n;1-n;\frac{bc-ad}{bc+bdx}\right)}{n}\right)}{d^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(x*(a + b*x)^n)/(c + d*x),x]
```

```
[Out] ((a + b*x)^n*((a*d + b*d*x)/(b + b*n) - (c*Hypergeometric2F1[-n,
-n, 1 - n, (b*c - a*d)/(b*c + b*d*x)])/(n*((d*(a + b*x))/(b*(c +
d*x)))^n)))/d^2
```

Maple [F] time = 0.059, size = 0, normalized size = 0.

$$\int \frac{x\,(bx+a)^{n}}{dx+c}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(b*x+a)^n/(d*x+c),x)

[Out] int(x*(b*x+a)^n/(d*x+c),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^{n}x}{dx+c}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n*x/(d*x + c),x, algorithm="maxima")

[Out] integrate((b*x + a)^n*x/(d*x + c), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{(bx+a)^{n}x}{dx+c},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n*x/(d*x + c),x, algorithm="fricas")

[Out] integral((b*x + a)^n*x/(d*x + c), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x\,(a+bx)^{n}}{c+dx}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(b*x+a)**n/(d*x+c),x)

[Out] Integral(x*(a + b*x)**n/(c + d*x), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^{n}x}{dx+c}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n*x/(d*x + c),x, algorithm="giac")

[Out] integrate((b*x + a)^n*x/(d*x + c), x)
```

3.927 $\int \frac{(a+bx)^n}{c+dx}\,dx$

Optimal. Leaf size=51

$$\frac{(a+bx)^{n+1}\,{}_2F_1\left(1,n+1;n+2;-\frac{d(a+bx)}{bc-ad}\right)}{(n+1)(bc-ad)}$$

```
[Out] ((a + b*x)^(1 + n)*Hypergeometric2F1[1, 1 + n, 2 + n, -((d*(a + b
*x))/(b*c - a*d))])/((b*c - a*d)*(1 + n))
```

Rubi [A] time = 0.0305174, antiderivative size = 51, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.067

$$\frac{(a+bx)^{n+1}\,{}_2F_1\left(1,n+1;n+2;-\frac{d(a+bx)}{bc-ad}\right)}{(n+1)(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^n/(c + d*x),x]
```

```
[Out] ((a + b*x)^(1 + n)*Hypergeometric2F1[1, 1 + n, 2 + n, -((d*(a + b
*x))/(b*c - a*d))])/((b*c - a*d)*(1 + n))
```

Rubi in Sympy [A] time = 5.40442, size = 37, normalized size = 0.73

$$-\frac{(a+bx)^{n+1}\,{}_2F_1\left(\begin{matrix}1,n+1\\ n+2\end{matrix}\middle|\frac{d(a+bx)}{ad-bc}\right)}{(n+1)\,(ad-bc)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**n/(d*x+c),x)
```

```
[Out] -(a + b*x)**(n + 1)*hyper((1, n + 1), (n + 2,), d*(a + b*x)/(a*d
- b*c))/((n + 1)*(a*d - b*c))
```

Mathematica [A] time = 0.0241373, size = 66, normalized size = 1.29

$$\frac{(a+bx)^n\left(\frac{d(a+bx)}{b(c+dx)}\right)^{-n}\,{}_2F_1\left(-n,-n;1-n;\frac{bc-ad}{bc+bdx}\right)}{dn}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^n/(c + d*x),x]
```

```
[Out] ((a + b*x)^n*Hypergeometric2F1[-n, -n, 1 - n, (b*c - a*d)/(b*c +
b*d*x)])/(d*n*((d*(a + b*x))/(b*(c + d*x)))^n)
```

Maple [F] time = 0.056, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n}{dx+c}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^n/(d*x+c),x)
```

```
[Out] int((b*x+a)^n/(d*x+c),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n}{dx+c}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/(d*x + c),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^n/(d*x + c), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)^n}{dx+c},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/(d*x + c),x, algorithm="fricas")
```

```
[Out] integral((b*x + a)^n/(d*x + c), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a+bx)^n}{c+dx}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**n/(d*x+c),x)
```

```
[Out] Integral((a + b*x)**n/(c + d*x), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n}{dx+c}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/(d*x + c),x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^n/(d*x + c), x)
```

3.928 $\int \frac{(a+bx)^n}{x(c+dx)} dx$

Optimal. Leaf size=95

$$-\frac{d(a+bx)^{n+1}\,{}_2F_1\left(1,n+1;n+2;-\frac{d(a+bx)}{bc-ad}\right)}{c(n+1)(bc-ad)}-\frac{(a+bx)^{n+1}\,{}_2F_1\left(1,n+1;n+2;\frac{bx}{a}+1\right)}{ac(n+1)}$$

```
[Out] -((d*(a + b*x)^(1 + n)*Hypergeometric2F1[1, 1 + n, 2 + n, -((d*(a
 + b*x))/(b*c - a*d))])/(c*(b*c - a*d)*(1 + n))) - ((a + b*x)^(1
+ n)*Hypergeometric2F1[1, 1 + n, 2 + n, 1 + (b*x)/a])/(a*c*(1 + n
))
```

Rubi [A] time = 0.0874322, antiderivative size = 95, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$-\frac{d(a+bx)^{n+1}\,{}_2F_1\left(1,n+1;n+2;-\frac{d(a+bx)}{bc-ad}\right)}{c(n+1)(bc-ad)}-\frac{(a+bx)^{n+1}\,{}_2F_1\left(1,n+1;n+2;\frac{bx}{a}+1\right)}{ac(n+1)}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^n/(x*(c + d*x)),x]
```

```
[Out] -((d*(a + b*x)^(1 + n)*Hypergeometric2F1[1, 1 + n, 2 + n, -((d*(a
 + b*x))/(b*c - a*d))])/(c*(b*c - a*d)*(1 + n))) - ((a + b*x)^(1
+ n)*Hypergeometric2F1[1, 1 + n, 2 + n, 1 + (b*x)/a])/(a*c*(1 + n
))
```

Rubi in Sympy [A] time = 12.1695, size = 66, normalized size = 0.69

$$\frac{d\left(a+bx\right)^{n+1}\,{}_2F_1\left(\begin{matrix}1,n+1\\n+2\end{matrix}\middle|\frac{d(a+bx)}{ad-bc}\right)}{c\left(n+1\right)\left(ad-bc\right)}-\frac{\left(a+bx\right)^{n+1}\,{}_2F_1\left(\begin{matrix}1,n+1\\n+2\end{matrix}\middle|1+\frac{bx}{a}\right)}{ac\left(n+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**n/x/(d*x+c),x)
```

```
[Out] d*(a + b*x)**(n + 1)*hyper((1, n + 1), (n + 2,), d*(a + b*x)/(a*d
 - b*c))/(c*(n + 1)*(a*d - b*c)) - (a + b*x)**(n + 1)*hyper((1, n
 + 1), (n + 2,), 1 + b*x/a)/(a*c*(n + 1))
```

Mathematica [A] time = 0.107481, size = 105, normalized size = 1.11

$$\frac{(a+bx)^n\left(\left(\frac{a}{bx}+1\right)^{-n}\,{}_2F_1\left(-n,-n;1-n;-\frac{a}{bx}\right)-\left(\frac{d(a+bx)}{b(c+dx)}\right)^{-n}\,{}_2F_1\left(-n,-n;1-n;\frac{bc-ad}{bc+bdx}\right)\right)}{cn}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^n/(x*(c + d*x)),x]
```

```
[Out] ((a + b*x)^n*(Hypergeometric2F1[-n, -n, 1 - n, -(a/(b*x))]/(1 + a
/(b*x))^n - Hypergeometric2F1[-n, -n, 1 - n, (b*c - a*d)/(b*c + b
*d*x)]/((d*(a + b*x))/(b*(c + d*x)))^n))/(c*n)
```

Maple [F] time = 0.054, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n}{x\,(dx+c)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^n/x/(d*x+c),x)
```

```
[Out] int((b*x+a)^n/x/(d*x+c),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n}{(dx+c)x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/((d*x + c)*x),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^n/((d*x + c)*x), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)^n}{dx^2+cx}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/((d*x + c)*x),x, algorithm="fricas")
```

```
[Out] integral((b*x + a)^n/(d*x^2 + c*x), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a+bx)^n}{x\,(c+dx)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**n/x/(d*x+c),x)
```

```
[Out] Integral((a + b*x)**n/(x*(c + d*x)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n}{(dx+c)x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/((d*x + c)*x),x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^n/((d*x + c)*x), x)
```

3.929 $\int \frac{(a+bx)^n}{x^2(c+dx)}\,dx$

Optimal. Leaf size=124

$$\frac{(a+bx)^{n+1}(ad-bcn)\,{}_2F_1\left(1,n+1;n+2;\frac{bx}{a}+1\right)}{a^2c^2(n+1)}+\frac{d^2(a+bx)^{n+1}\,{}_2F_1\left(1,n+1;n+2;-\frac{d(a+bx)}{bc-ad}\right)}{c^2(n+1)(bc-ad)}-\frac{(a+bx)^{n+1}}{acx}$$

```
[Out] -((a + b*x)^(1 + n)/(a*c*x)) + (d^2*(a + b*x)^(1 + n)*Hypergeomet
ric2F1[1, 1 + n, 2 + n, -((d*(a + b*x))/(b*c - a*d))])/(c^2*(b*c
- a*d)*(1 + n)) + ((a*d - b*c*n)*(a + b*x)^(1 + n)*Hypergeometric
2F1[1, 1 + n, 2 + n, 1 + (b*x)/a])/(a^2*c^2*(1 + n))
```

Rubi [A] time = 0.217021, antiderivative size = 124, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.222$

$$\frac{(a+bx)^{n+1}(ad-bcn)\,{}_2F_1\left(1,n+1;n+2;\frac{bx}{a}+1\right)}{a^2c^2(n+1)}+\frac{d^2(a+bx)^{n+1}\,{}_2F_1\left(1,n+1;n+2;-\frac{d(a+bx)}{bc-ad}\right)}{c^2(n+1)(bc-ad)}-\frac{(a+bx)^{n+1}}{acx}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^n/(x^2*(c + d*x)),x]
```

```
[Out] -((a + b*x)^(1 + n)/(a*c*x)) + (d^2*(a + b*x)^(1 + n)*Hypergeomet
ric2F1[1, 1 + n, 2 + n, -((d*(a + b*x))/(b*c - a*d))])/(c^2*(b*c
- a*d)*(1 + n)) + ((a*d - b*c*n)*(a + b*x)^(1 + n)*Hypergeometric
2F1[1, 1 + n, 2 + n, 1 + (b*x)/a])/(a^2*c^2*(1 + n))
```

Rubi in Sympy [A] time = 39.5131, size = 95, normalized size = 0.77

$$-\frac{d^2\left(a+bx\right)^{n+1}{}_2F_1\left(\begin{matrix}1,n+1\\n+2\end{matrix}\middle|\frac{d(a+bx)}{ad-bc}\right)}{c^2\left(n+1\right)\left(ad-bc\right)}-\frac{\left(a+bx\right)^{n+1}}{acx}+\frac{\left(a+bx\right)^{n+1}\left(ad-bcn\right){}_2F_1\left(\begin{matrix}1,n+1\\n+2\end{matrix}\middle|1+\frac{bx}{a}\right)}{a^2c^2\left(n+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**n/x**2/(d*x+c),x)
```

```
[Out] -d**2*(a + b*x)**(n + 1)*hyper((1, n + 1), (n + 2,), d*(a + b*x)/
(a*d - b*c))/(c**2*(n + 1)*(a*d - b*c)) - (a + b*x)**(n + 1)/(a*c
*x) + (a + b*x)**(n + 1)*(a*d - b*c*n)*hyper((1, n + 1), (n + 2,)
, 1 + b*x/a)/(a**2*c**2*(n + 1))
```

Mathematica [A] time = 0.303852, size = 155, normalized size = 1.25

$$\frac{(a+bx)^n\left(\frac{d\left(\left(\frac{d(a+bx)}{b(c+dx)}\right)^{-n}{}_2F_1\left(-n,-n;1-n;\frac{bc-ad}{bc+bdx}\right)-\left(\frac{a}{bx}+1\right)^{-n}{}_2F_1\left(-n,-n;1-n;-\frac{a}{bx}\right)\right)}{n}+\frac{c\left(\frac{a}{bx}+1\right)^{-n}{}_2F_1\left(1-n,-n;2-n;-\frac{a}{bx}\right)}{(n-1)x}\right)}{c^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^n/(x^2*(c + d*x)),x]
```

```
[Out] ((a + b*x)^n*((c*Hypergeometric2F1[1 - n, -n, 2 - n, -(a/(b*x))])
/((-1 + n)*(1 + a/(b*x))^n*x) + (d*(-(Hypergeometric2F1[-n, -n, 1
```

```
 - n, -(a/(b*x))]/(1 + a/(b*x))^n) + Hypergeometric2F1[-n, -n, 1
- n, (b*c - a*d)/(b*c + b*d*x)]/((d*(a + b*x))/(b*(c + d*x)))^n))
/n))/c^2
```

Maple [F] time = 0.079, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n}{x^2(dx+c)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^n/x^2/(d*x+c),x)
```

```
[Out] int((b*x+a)^n/x^2/(d*x+c),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n}{(dx+c)x^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/((d*x + c)*x^2),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^n/((d*x + c)*x^2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\operatorname{integral}\left(\frac{(bx+a)^n}{dx^3+cx^2}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/((d*x + c)*x^2),x, algorithm="fricas")
```

```
[Out] integral((b*x + a)^n/(d*x^3 + c*x^2), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a+bx)^n}{x^2(c+dx)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**n/x**2/(d*x+c),x)
```

```
[Out] Integral((a + b*x)**n/(x**2*(c + d*x)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n}{(dx+c)x^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/((d*x + c)*x^2),x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^n/((d*x + c)*x^2), x)
```

3.930 $\int \frac{x^3(a+bx)^n}{(c+dx)^2}\,dx$

Optimal. Leaf size=203

$$-\frac{(a+bx)^{n+1}(dx(bc-ad)(ad+bc(n+3))+c(bc(n+2)(ad+bc(n+3))-ad(ad+bc(3n+5))))}{b^2d^3(n+1)(n+2)(c+dx)(bc-ad)}-\frac{c^2(a+bx)^{n+1}(3ad-bc(n+3))\,{}_2F_1\left(1,n+1;n+2;-\frac{d(a+bx)}{bc-ad}\right)}{d^3(n+1)(bc-ad)^2}+\frac{x^2(a+bx)^{n+1}}{bd(n+2)(c+dx)}$$

```
[Out] (x^2*(a + b*x)^(1 + n))/(b*d*(2 + n)*(c + d*x)) - ((a + b*x)^(1 +
 n)*(c*(b*c*(2 + n)*(a*d + b*c*(3 + n)) - a*d*(a*d + b*c*(5 + 3*n
))) + d*(b*c - a*d)*(a*d + b*c*(3 + n))*x))/(b^2*d^3*(b*c - a*d)*
(1 + n)*(2 + n)*(c + d*x)) - (c^2*(3*a*d - b*c*(3 + n))*(a + b*x)
^(1 + n)*Hypergeometric2F1[1, 1 + n, 2 + n, -((d*(a + b*x))/(b*c
- a*d))])/(d^3*(b*c - a*d)^2*(1 + n))
```

Rubi [A] time = 0.480511, antiderivative size = 203, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$-\frac{(a+bx)^{n+1}(dx(bc-ad)(ad+bc(n+3))+c(bc(n+2)(ad+bc(n+3))-ad(ad+bc(3n+5))))}{b^2d^3(n+1)(n+2)(c+dx)(bc-ad)}-\frac{c^2(a+bx)^{n+1}(3ad-bc(n+3))\,{}_2F_1\left(1,n+1;n+2;-\frac{d(a+bx)}{bc-ad}\right)}{d^3(n+1)(bc-ad)^2}+\frac{x^2(a+bx)^{n+1}}{bd(n+2)(c+dx)}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^3*(a + b*x)^n)/(c + d*x)^2,x]
```

```
[Out] (x^2*(a + b*x)^(1 + n))/(b*d*(2 + n)*(c + d*x)) - ((a + b*x)^(1 +
 n)*(c*(b*c*(2 + n)*(a*d + b*c*(3 + n)) - a*d*(a*d + b*c*(5 + 3*n
))) + d*(b*c - a*d)*(a*d + b*c*(3 + n))*x))/(b^2*d^3*(b*c - a*d)*
(1 + n)*(2 + n)*(c + d*x)) - (c^2*(3*a*d - b*c*(3 + n))*(a + b*x)
^(1 + n)*Hypergeometric2F1[1, 1 + n, 2 + n, -((d*(a + b*x))/(b*c
- a*d))])/(d^3*(b*c - a*d)^2*(1 + n))
```

Rubi in Sympy [A] time = 43.5055, size = 178, normalized size = 0.88

$$-\frac{c^2\left(a+bx\right)^{n+1}\left(3ad-bcn-3bc\right){}_2F_1\left(\begin{matrix}1,n+1\\n+2\end{matrix}\middle|\frac{d(a+bx)}{ad-bc}\right)}{d^3\left(n+1\right)\left(ad-bc\right)^2}+\frac{x^2\left(a+bx\right)^{n+1}}{bd\left(c+dx\right)\left(n+2\right)}-\frac{\left(a+bx\right)^{n+1}\left(c\left(ad\left(ad+2bc\left(n+1\right)+bc\left(n+3\right)\right)-bc\left(n+2\right)\left(ad+bc\left(n+3\right)\right)\right)+dx\left(ad-bc\right)\left(ad+bc\left(n+3\right)\right)\right)}{b^2d^3\left(c+dx\right)\left(n+1\right)\left(n+2\right)\left(ad-bc\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3*(b*x+a)**n/(d*x+c)**2,x)
```

```
[Out] -c**2*(a + b*x)**(n + 1)*(3*a*d - b*c*n - 3*b*c)*hyper((1, n + 1)
, (n + 2,), d*(a + b*x)/(a*d - b*c))/(d**3*(n + 1)*(a*d - b*c)**2
) + x**2*(a + b*x)**(n + 1)/(b*d*(c + d*x)*(n + 2)) - (a + b*x)**
(n + 1)*(c*(a*d*(a*d + 2*b*c*(n + 1) + b*c*(n + 3)) - b*c*(n + 2)
*(a*d + b*c*(n + 3))) + d*x*(a*d - b*c)*(a*d + b*c*(n + 3)))/(b**
2*d**3*(c + d*x)*(n + 1)*(n + 2)*(a*d - b*c))
```

Mathematica [C] time = 0.376143, size = 126, normalized size = 0.62

$$\frac{5acx^4(a+bx)^nF_1\left(4;-n,2;5;-\frac{bx}{a},-\frac{dx}{c}\right)}{4(c+dx)^2\left(5acF_1\left(4;-n,2;5;-\frac{bx}{a},-\frac{dx}{c}\right)+bcnxF_1\left(5;1-n,2;6;-\frac{bx}{a},-\frac{dx}{c}\right)-2adxF_1\left(5;-n,3;6;-\frac{bx}{a},-\frac{dx}{c}\right)\right)}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(x^3*(a + b*x)^n)/(c + d*x)^2,x]
```

```
[Out] (5*a*c*x^4*(a + b*x)^n*AppellF1[4, -n, 2, 5, -((b*x)/a), -((d*x)/
c)])/(4*(c + d*x)^2*(5*a*c*AppellF1[4, -n, 2, 5, -((b*x)/a), -((d
*x)/c)] + b*c*n*x*AppellF1[5, 1 - n, 2, 6, -((b*x)/a), -((d*x)/c)
] - 2*a*d*x*AppellF1[5, -n, 3, 6, -((b*x)/a), -((d*x)/c)]))
```

Maple [F] time = 0.083, size = 0, normalized size = 0.

$$\int \frac{x^3(bx+a)^n}{(dx+c)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^3*(b*x+a)^n/(d*x+c)^2,x)
```

```
[Out] int(x^3*(b*x+a)^n/(d*x+c)^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n x^3}{(dx+c)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n*x^3/(d*x + c)^2,x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^n*x^3/(d*x + c)^2, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)^n x^3}{d^2x^2+2\,cdx+c^2},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n*x^3/(d*x + c)^2,x, algorithm="fricas")
```

```
[Out] integral((b*x + a)^n*x^3/(d^2*x^2 + 2*c*d*x + c^2), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x^3(a+bx)^n}{(c+dx)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**3*(b*x+a)**n/(d*x+c)**2,x)

[Out] Integral(x**3*(a + b*x)**n/(c + d*x)**2, x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n x^3}{(dx+c)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n*x^3/(d*x + c)^2,x, algorithm="giac")

[Out] integrate((b*x + a)^n*x^3/(d*x + c)^2, x)
```

3.931 $\int \frac{x^2(a+bx)^n}{(c+dx)^2} dx$

Optimal. Leaf size=122

$$\frac{c^2(a+bx)^{n+1}}{d^2(c+dx)(bc-ad)}+\frac{c(a+bx)^{n+1}(2ad-bc(n+2))\,{}_2F_1\left(1,n+1;n+2;-\frac{d(a+bx)}{bc-ad}\right)}{d^2(n+1)(bc-ad)^2}+\frac{(a+bx)^{n+1}}{bd^2(n+1)}$$

```
[Out] (a + b*x)^(1 + n)/(b*d^2*(1 + n)) + (c^2*(a + b*x)^(1 + n))/(d^2*
(b*c - a*d)*(c + d*x)) + (c*(2*a*d - b*c*(2 + n))*(a + b*x)^(1 +
n)*Hypergeometric2F1[1, 1 + n, 2 + n, -((d*(a + b*x))/(b*c - a*d)
)])/(d^2*(b*c - a*d)^2*(1 + n))
```

Rubi [A] time = 0.22471, antiderivative size = 122, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$\frac{c^2(a+bx)^{n+1}}{d^2(c+dx)(bc-ad)}+\frac{c(a+bx)^{n+1}(2ad-bc(n+2))\,{}_2F_1\left(1,n+1;n+2;-\frac{d(a+bx)}{bc-ad}\right)}{d^2(n+1)(bc-ad)^2}+\frac{(a+bx)^{n+1}}{bd^2(n+1)}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^2*(a + b*x)^n)/(c + d*x)^2,x]
```

```
[Out] (a + b*x)^(1 + n)/(b*d^2*(1 + n)) + (c^2*(a + b*x)^(1 + n))/(d^2*
(b*c - a*d)*(c + d*x)) + (c*(2*a*d - b*c*(2 + n))*(a + b*x)^(1 +
n)*Hypergeometric2F1[1, 1 + n, 2 + n, -((d*(a + b*x))/(b*c - a*d)
)])/(d^2*(b*c - a*d)^2*(1 + n))
```

Rubi in Sympy [A] time = 27.6717, size = 102, normalized size = 0.84

$$-\frac{c^2\,(a+bx)^{n+1}}{d^2\,(c+dx)\,(ad-bc)}+\frac{c\,(a+bx)^{n+1}\,(2ad-bcn-2bc)\,{}_2F_1\left(\begin{matrix}1,n+1\\n+2\end{matrix}\middle|\frac{d(a+bx)}{ad-bc}\right)}{d^2\,(n+1)\,(ad-bc)^2}+\frac{(a+bx)^{n+1}}{bd^2\,(n+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(b*x+a)**n/(d*x+c)**2,x)
```

```
[Out] -c**2*(a + b*x)**(n + 1)/(d**2*(c + d*x)*(a*d - b*c)) + c*(a + b*
x)**(n + 1)*(2*a*d - b*c*n - 2*b*c)*hyper((1, n + 1), (n + 2,), d
*(a + b*x)/(a*d - b*c))/(d**2*(n + 1)*(a*d - b*c)**2) + (a + b*x)
**(n + 1)/(b*d**2*(n + 1))
```

Mathematica [C] time = 0.335153, size = 126, normalized size = 1.03

$$\frac{4acx^3(a+bx)^nF_1\left(3;-n,2;4;-\frac{bx}{a},-\frac{dx}{c}\right)}{3(c+dx)^2\left(4acF_1\left(3;-n,2;4;-\frac{bx}{a},-\frac{dx}{c}\right)+bcnxF_1\left(4;1-n,2;5;-\frac{bx}{a},-\frac{dx}{c}\right)-2adxF_1\left(4;-n,3;5;-\frac{bx}{a},-\frac{dx}{c}\right)\right)}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(x^2*(a + b*x)^n)/(c + d*x)^2,x]
```

```
[Out] (4*a*c*x^3*(a + b*x)^n*AppellF1[3, -n, 2, 4, -((b*x)/a), -((d*x)/
c)])/(3*(c + d*x)^2*(4*a*c*AppellF1[3, -n, 2, 4, -((b*x)/a), -((d
```

```
*x)/c)] + b*c*n*x*AppellF1[4, 1 - n, 2, 5, -((b*x)/a), -((d*x)/c)
] - 2*a*d*x*AppellF1[4, -n, 3, 5, -((b*x)/a), -((d*x)/c)]))
```

Maple [F] time = 0.077, size = 0, normalized size = 0.

$$\int \frac{x^2 (bx+a)^n}{(dx+c)^2}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(b*x+a)^n/(d*x+c)^2,x)

[Out] int(x^2*(b*x+a)^n/(d*x+c)^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n x^2}{(dx+c)^2}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n*x^2/(d*x + c)^2,x, algorithm="maxima")

[Out] integrate((b*x + a)^n*x^2/(d*x + c)^2, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{(bx+a)^n x^2}{d^2x^2+2\,cdx+c^2}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n*x^2/(d*x + c)^2,x, algorithm="fricas")

[Out] integral((b*x + a)^n*x^2/(d^2*x^2 + 2*c*d*x + c^2), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x^2 (a+bx)^n}{(c+dx)^2}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(b*x+a)**n/(d*x+c)**2,x)

[Out] Integral(x**2*(a + b*x)**n/(c + d*x)**2, x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n x^2}{(dx+c)^2}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n*x^2/(d*x + c)^2,x, algorithm="giac")

[Out] integrate((b*x + a)^n*x^2/(d*x + c)^2, x)
```

3.932 $\int \frac{x(a+bx)^n}{(c+dx)^2} dx$

Optimal. Leaf size=99

$$-\frac{(a+bx)^{n+1}(ad-bc(n+1))\,{}_2F_1\left(1,n+1;n+2;-\frac{d(a+bx)}{bc-ad}\right)}{d(n+1)(bc-ad)^2}-\frac{c(a+bx)^{n+1}}{d(c+dx)(bc-ad)}$$

```
[Out] -((c*(a + b*x)^(1 + n))/(d*(b*c - a*d)*(c + d*x))) - ((a*d - b*c*
(1 + n))*(a + b*x)^(1 + n)*Hypergeometric2F1[1, 1 + n, 2 + n, -((
d*(a + b*x))/(b*c - a*d))])/(d*(b*c - a*d)^2*(1 + n))
```

Rubi [A] time = 0.104318, antiderivative size = 99, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$-\frac{(a+bx)^{n+1}(ad-bc(n+1))\,{}_2F_1\left(1,n+1;n+2;-\frac{d(a+bx)}{bc-ad}\right)}{d(n+1)(bc-ad)^2}-\frac{c(a+bx)^{n+1}}{d(c+dx)(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[(x*(a + b*x)^n)/(c + d*x)^2,x]
```

```
[Out] -((c*(a + b*x)^(1 + n))/(d*(b*c - a*d)*(c + d*x))) - ((a*d - b*c*
(1 + n))*(a + b*x)^(1 + n)*Hypergeometric2F1[1, 1 + n, 2 + n, -((
d*(a + b*x))/(b*c - a*d))])/(d*(b*c - a*d)^2*(1 + n))
```

Rubi in Sympy [A] time = 13.8464, size = 73, normalized size = 0.74

$$\frac{c\,(a+bx)^{n+1}}{d\,(c+dx)\,(ad-bc)}-\frac{(a+bx)^{n+1}\,(ad-bc\,(n+1))\,{}_2F_1\left(\begin{matrix}1,n+1\\n+2\end{matrix}\middle|\frac{d(a+bx)}{ad-bc}\right)}{d\,(n+1)\,(ad-bc)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(b*x+a)**n/(d*x+c)**2,x)
```

```
[Out] c*(a + b*x)**(n + 1)/(d*(c + d*x)*(a*d - b*c)) - (a + b*x)**(n +
1)*(a*d - b*c*(n + 1))*hyper((1, n + 1), (n + 2,), d*(a + b*x)/(a
*d - b*c))/(d*(n + 1)*(a*d - b*c)**2)
```

Mathematica [C] time = 0.328823, size = 126, normalized size = 1.27

$$\frac{3acx^2(a+bx)^nF_1\left(2;-n,2;3;-\frac{bx}{a},-\frac{dx}{c}\right)}{2(c+dx)^2\left(3acF_1\left(2;-n,2;3;-\frac{bx}{a},-\frac{dx}{c}\right)+bcnxF_1\left(3;1-n,2;4;-\frac{bx}{a},-\frac{dx}{c}\right)-2adxF_1\left(3;-n,3;4;-\frac{bx}{a},-\frac{dx}{c}\right)\right)}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(x*(a + b*x)^n)/(c + d*x)^2,x]
```

```
[Out] (3*a*c*x^2*(a + b*x)^n*AppellF1[2, -n, 2, 3, -((b*x)/a), -((d*x)/
c)])/(2*(c + d*x)^2*(3*a*c*AppellF1[2, -n, 2, 3, -((b*x)/a), -((d
*x)/c)] + b*c*n*x*AppellF1[3, 1 - n, 2, 4, -((b*x)/a), -((d*x)/c)
] - 2*a*d*x*AppellF1[3, -n, 3, 4, -((b*x)/a), -((d*x)/c)]))
```

Maple [F] time = 0.072, size = 0, normalized size = 0.

$$\int \frac{x\,(bx+a)^{n}}{(dx+c)^{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(b*x+a)^n/(d*x+c)^2,x)
```

```
[Out] int(x*(b*x+a)^n/(d*x+c)^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^{n}x}{(dx+c)^{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n*x/(d*x + c)^2,x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^n*x/(d*x + c)^2, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)^{n}x}{d^{2}x^{2}+2\,cdx+c^{2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n*x/(d*x + c)^2,x, algorithm="fricas")
```

```
[Out] integral((b*x + a)^n*x/(d^2*x^2 + 2*c*d*x + c^2), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x\,(a+bx)^{n}}{(c+dx)^{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(b*x+a)**n/(d*x+c)**2,x)
```

```
[Out] Integral(x*(a + b*x)**n/(c + d*x)**2, x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^{n}x}{(dx+c)^{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n*x/(d*x + c)^2,x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^n*x/(d*x + c)^2, x)
```

3.933 $\int \frac{(a+bx)^n}{(c+dx)^2}\,dx$

Optimal. Leaf size=52

$$\frac{b(a+bx)^{n+1}\,{}_2F_1\left(2,n+1;n+2;-\frac{d(a+bx)}{bc-ad}\right)}{(n+1)(bc-ad)^2}$$

```
[Out] (b*(a + b*x)^(1 + n)*Hypergeometric2F1[2, 1 + n, 2 + n, -((d*(a +
 b*x))/(b*c - a*d))])/((b*c - a*d)^2*(1 + n))
```

Rubi [A] time = 0.0320645, antiderivative size = 52, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.067

$$\frac{b(a+bx)^{n+1}\,{}_2F_1\left(2,n+1;n+2;-\frac{d(a+bx)}{bc-ad}\right)}{(n+1)(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^n/(c + d*x)^2,x]
```

```
[Out] (b*(a + b*x)^(1 + n)*Hypergeometric2F1[2, 1 + n, 2 + n, -((d*(a +
 b*x))/(b*c - a*d))])/((b*c - a*d)^2*(1 + n))
```

Rubi in Sympy [A] time = 5.20478, size = 39, normalized size = 0.75

$$\frac{b\left(a+bx\right)^{n+1}\,{}_2F_1\left(\begin{matrix} 2, n+1 \\ n+2 \end{matrix}\middle| \frac{d(a+bx)}{ad-bc}\right)}{\left(n+1\right)\left(ad-bc\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**n/(d*x+c)**2,x)
```

```
[Out] b*(a + b*x)**(n + 1)*hyper((2, n + 1), (n + 2,), d*(a + b*x)/(a*d
 - b*c))/((n + 1)*(a*d - b*c)**2)
```

Mathematica [A] time = 0.0404836, size = 0, normalized size = 0.

$$\int \frac{(a+bx)^n}{(c+dx)^2}\,dx$$

Verification is Not applicable to the result.

```
[In]  Integrate[(a + b*x)^n/(c + d*x)^2,x]
```

```
[Out] Integrate[(a + b*x)^n/(c + d*x)^2, x]
```

Maple [F] time = 0.069, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n}{(dx+c)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^n/(d*x+c)^2,x)

[Out] int((b*x+a)^n/(d*x+c)^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n}{(dx+c)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/(d*x + c)^2,x, algorithm="maxima")

[Out] integrate((b*x + a)^n/(d*x + c)^2, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)^n}{d^2x^2+2\,cdx+c^2},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/(d*x + c)^2,x, algorithm="fricas")

[Out] integral((b*x + a)^n/(d^2*x^2 + 2*c*d*x + c^2), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a+bx)^n}{(c+dx)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**n/(d*x+c)**2,x)

[Out] Integral((a + b*x)**n/(c + d*x)**2, x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n}{(dx+c)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/(d*x + c)^2,x, algorithm="giac")

[Out] integrate((b*x + a)^n/(d*x + c)^2, x)
```

3.934 $\int \frac{(a+bx)^n}{x(c+dx)^2} dx$

Optimal. Leaf size=139

$$\frac{d(a+bx)^{n+1}(ad-bc(1-n))\,{}_2F_1\left(1,n+1;n+2;-\frac{d(a+bx)}{bc-ad}\right)}{c^2(n+1)(bc-ad)^2} - \frac{(a+bx)^{n+1}\,{}_2F_1\left(1,n+1;n+2;\frac{bx}{a}+1\right)}{ac^2(n+1)} - \frac{d(a+bx)^{n+1}}{c(c+dx)(bc-ad)}$$

```
[Out] -((d*(a + b*x)^(1 + n))/(c*(b*c - a*d)*(c + d*x))) + (d*(a*d - b*
c*(1 - n))*(a + b*x)^(1 + n)*Hypergeometric2F1[1, 1 + n, 2 + n, -
((d*(a + b*x))/(b*c - a*d))])/(c^2*(b*c - a*d)^2*(1 + n)) - ((a +
 b*x)^(1 + n)*Hypergeometric2F1[1, 1 + n, 2 + n, 1 + (b*x)/a])/(a
*c^2*(1 + n))
```

Rubi [A] time = 0.243495, antiderivative size = 139, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.222$

$$\frac{d(a+bx)^{n+1}(ad-bc(1-n))\,{}_2F_1\left(1,n+1;n+2;-\frac{d(a+bx)}{bc-ad}\right)}{c^2(n+1)(bc-ad)^2} - \frac{(a+bx)^{n+1}\,{}_2F_1\left(1,n+1;n+2;\frac{bx}{a}+1\right)}{ac^2(n+1)} - \frac{d(a+bx)^{n+1}}{c(c+dx)(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^n/(x*(c + d*x)^2),x]
```

```
[Out] -((d*(a + b*x)^(1 + n))/(c*(b*c - a*d)*(c + d*x))) + (d*(a*d - b*
c*(1 - n))*(a + b*x)^(1 + n)*Hypergeometric2F1[1, 1 + n, 2 + n, -
((d*(a + b*x))/(b*c - a*d))])/(c^2*(b*c - a*d)^2*(1 + n)) - ((a +
 b*x)^(1 + n)*Hypergeometric2F1[1, 1 + n, 2 + n, 1 + (b*x)/a])/(a
*c^2*(1 + n))
```

Rubi in Sympy [A] time = 41.4574, size = 107, normalized size = 0.77

$$\frac{d\left(a+bx\right)^{n+1}}{c\left(c+dx\right)\left(ad-bc\right)} + \frac{d\left(a+bx\right)^{n+1}\left(ad+bcn-bc\right){}_2F_1\left(\begin{matrix}1,n+1\\n+2\end{matrix}\middle|\frac{d(a+bx)}{ad-bc}\right)}{c^2\left(n+1\right)\left(ad-bc\right)^2} - \frac{\left(a+bx\right)^{n+1}{}_2F_1\left(\begin{matrix}1,n+1\\n+2\end{matrix}\middle|1+\frac{bx}{a}\right)}{ac^2\left(n+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**n/x/(d*x+c)**2,x)
```

```
[Out] d*(a + b*x)**(n + 1)/(c*(c + d*x)*(a*d - b*c)) + d*(a + b*x)**(n
+ 1)*(a*d + b*c*n - b*c)*hyper((1, n + 1), (n + 2,), d*(a + b*x)/
(a*d - b*c))/(c**2*(n + 1)*(a*d - b*c)**2) - (a + b*x)**(n + 1)*h
yper((1, n + 1), (n + 2,), 1 + b*x/a)/(a*c**2*(n + 1))
```

Mathematica [A] time = 0.0774103, size = 0, normalized size = 0.

$$\int \frac{(a+bx)^n}{x(c+dx)^2}\,dx$$

Verification is Not applicable to the result.

```
[In]  Integrate[(a + b*x)^n/(x*(c + d*x)^2),x]
```

```
[Out] Integrate[(a + b*x)^n/(x*(c + d*x)^2), x]
```

Maple [F] time = 0.066, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n}{x\,(dx+c)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^n/x/(d*x+c)^2,x)
```

```
[Out] int((b*x+a)^n/x/(d*x+c)^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n}{(dx+c)^2x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/((d*x + c)^2*x),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^n/((d*x + c)^2*x), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)^n}{d^2x^3+2\,cdx^2+c^2x},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/((d*x + c)^2*x),x, algorithm="fricas")
```

```
[Out] integral((b*x + a)^n/(d^2*x^3 + 2*c*d*x^2 + c^2*x), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a+bx)^n}{x\,(c+dx)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**n/x/(d*x+c)**2,x)
```

```
[Out] Integral((a + b*x)**n/(x*(c + d*x)**2), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n}{(dx+c)^2x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/((d*x + c)^2*x),x, algorithm="giac")

[Out] integrate((b*x + a)^n/((d*x + c)^2*x), x)
```

3.935 $\int \frac{(a+bx)^n}{x^2(c+dx)^2}\,dx$

Optimal. Leaf size=190

$$\frac{(a+bx)^{n+1}(2ad-bcn)\,{}_2F_1\left(1,n+1;n+2;\frac{bx}{a}+1\right)}{a^2c^3(n+1)} - \frac{d^2(a+bx)^{n+1}(2ad-bc(2-n))\,{}_2F_1\left(1,n+1;n+2;-\frac{d(a+bx)}{bc-ad}\right)}{c^3(n+1)(bc-ad)^2} - \frac{d(bc-2ad)(a+bx)^{n+1}}{ac^2(c+dx)(bc-ad)} - \frac{(a+bx)^{n+1}}{acx(c+dx)}$$

```
[Out] -((d*(b*c - 2*a*d)*(a + b*x)^(1 + n))/(a*c^2*(b*c - a*d)*(c + d*x
))) - (a + b*x)^(1 + n)/(a*c*x*(c + d*x)) - (d^2*(2*a*d - b*c*(2
- n))*(a + b*x)^(1 + n)*Hypergeometric2F1[1, 1 + n, 2 + n, -((d*(
a + b*x))/(b*c - a*d))])/(c^3*(b*c - a*d)^2*(1 + n)) + ((2*a*d -
b*c*n)*(a + b*x)^(1 + n)*Hypergeometric2F1[1, 1 + n, 2 + n, 1 + (
b*x)/a])/(a^2*c^3*(1 + n))
```

Rubi [A] time = 0.567042, antiderivative size = 190, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.278$

$$\frac{(a+bx)^{n+1}(2ad-bcn)\,{}_2F_1\left(1,n+1;n+2;\frac{bx}{a}+1\right)}{a^2c^3(n+1)} - \frac{d^2(a+bx)^{n+1}(2ad-bc(2-n))\,{}_2F_1\left(1,n+1;n+2;-\frac{d(a+bx)}{bc-ad}\right)}{c^3(n+1)(bc-ad)^2} - \frac{d(bc-2ad)(a+bx)^{n+1}}{ac^2(c+dx)(bc-ad)} - \frac{(a+bx)^{n+1}}{acx(c+dx)}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^n/(x^2*(c + d*x)^2),x]
```

```
[Out] -((d*(b*c - 2*a*d)*(a + b*x)^(1 + n))/(a*c^2*(b*c - a*d)*(c + d*x
))) - (a + b*x)^(1 + n)/(a*c*x*(c + d*x)) - (d^2*(2*a*d - b*c*(2
- n))*(a + b*x)^(1 + n)*Hypergeometric2F1[1, 1 + n, 2 + n, -((d*(
a + b*x))/(b*c - a*d))])/(c^3*(b*c - a*d)^2*(1 + n)) + ((2*a*d -
b*c*n)*(a + b*x)^(1 + n)*Hypergeometric2F1[1, 1 + n, 2 + n, 1 + (
b*x)/a])/(a^2*c^3*(1 + n))
```

Rubi in Sympy [A] time = 75.7803, size = 156, normalized size = 0.82

$$\frac{d\,(a+bx)^{n+1}}{cx\,(c+dx)\,(ad-bc)} - \frac{d^2\,(a+bx)^{n+1}\,(2ad+bcn-2bc)\,{}_2F_1\left(\begin{matrix}1,n+1\\n+2\end{matrix}\middle|\frac{d(a+bx)}{ad-bc}\right)}{c^3\,(n+1)\,(ad-bc)^2} - \frac{(a+bx)^{n+1}\,(2ad-bc)}{ac^2x\,(ad-bc)} + \frac{(a+bx)^{n+1}\,(2ad-bcn)\,{}_2F_1\left(\begin{matrix}1,n+1\\n+2\end{matrix}\middle|1+\frac{bx}{a}\right)}{a^2c^3\,(n+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**n/x**2/(d*x+c)**2,x)
```

```
[Out] d*(a + b*x)**(n + 1)/(c*x*(c + d*x)*(a*d - b*c)) - d**2*(a + b*x)
**(n + 1)*(2*a*d + b*c*n - 2*b*c)*hyper((1, n + 1), (n + 2,), d*(
a + b*x)/(a*d - b*c))/(c**3*(n + 1)*(a*d - b*c)**2) - (a + b*x)**
```

```
(n + 1)*(2*a*d - b*c)/(a*c**2*x*(a*d - b*c)) + (a + b*x)**(n + 1)
*(2*a*d - b*c*n)*hyper((1, n + 1), (n + 2,), 1 + b*x/a)/(a**2*c**
3*(n + 1))
```

Mathematica [A] time = 0.0891338, size = 0, normalized size = 0.

$$\int \frac{(a+bx)^n}{x^2(c+dx)^2} dx$$

Verification is Not applicable to the result.

```
[In]  Integrate[(a + b*x)^n/(x^2*(c + d*x)^2),x]

[Out] Integrate[(a + b*x)^n/(x^2*(c + d*x)^2), x]
```

Maple [F] time = 0.093, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n}{x^2(dx+c)^2} dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^n/x^2/(d*x+c)^2,x)

[Out] int((b*x+a)^n/x^2/(d*x+c)^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n}{(dx+c)^2x^2} dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/((d*x + c)^2*x^2),x, algorithm="maxima")

[Out] integrate((b*x + a)^n/((d*x + c)^2*x^2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)^n}{d^2x^4+2\,cdx^3+c^2x^2}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/((d*x + c)^2*x^2),x, algorithm="fricas")

[Out] integral((b*x + a)^n/(d^2*x^4 + 2*c*d*x^3 + c^2*x^2), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a+bx)^n}{x^2(c+dx)^2} dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**n/x**2/(d*x+c)**2,x)
```

```
[Out] Integral((a + b*x)**n/(x**2*(c + d*x)**2), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n}{(dx+c)^2x^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/((d*x + c)^2*x^2),x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^n/((d*x + c)^2*x^2), x)
```

3.936 $\int (bx)^{5/2}(c+dx)^n(e+fx)^2\,dx$

Optimal. Leaf size=195

$$\frac{2(bx)^{7/2}(c+dx)^n\left(\frac{dx}{c}+1\right)^{-n}\left(63c^2f^2-14cdef(2n+11)+d^2e^2\left(4n^2+40n+99\right)\right)\,_2F_1\left(\frac{7}{2},-n;\frac{9}{2};-\frac{dx}{c}\right)}{7bd^2(2n+9)(2n+11)}-\frac{2f(bx)^{7/2}(c+dx)^{n+1}(9cf-de(2n+13))}{bd^2(2n+9)(2n+11)}+\frac{2f(bx)^{7/2}(e+fx)(c+dx)^{n+1}}{bd(2n+11)}$$

```
[Out] (-2*f*(9*c*f - d*e*(13 + 2*n))*(b*x)^(7/2)*(c + d*x)^(1 + n))/(b*
d^2*(9 + 2*n)*(11 + 2*n)) + (2*f*(b*x)^(7/2)*(c + d*x)^(1 + n)*(e
 + f*x))/(b*d*(11 + 2*n)) + (2*(63*c^2*f^2 - 14*c*d*e*f*(11 + 2*n
) + d^2*e^2*(99 + 40*n + 4*n^2))*(b*x)^(7/2)*(c + d*x)^n*Hypergeo
metric2F1[7/2, -n, 9/2, -((d*x)/c)])/(7*b*d^2*(9 + 2*n)*(11 + 2*n
)*(1 + (d*x)/c)^n)
```

Rubi [A] time = 0.327715, antiderivative size = 195, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$\frac{2(bx)^{7/2}(c+dx)^n\left(\frac{dx}{c}+1\right)^{-n}\left(63c^2f^2-14cdef(2n+11)+d^2e^2\left(4n^2+40n+99\right)\right)\,_2F_1\left(\frac{7}{2},-n;\frac{9}{2};-\frac{dx}{c}\right)}{7bd^2(2n+9)(2n+11)}-\frac{2f(bx)^{7/2}(c+dx)^{n+1}(9cf-de(2n+13))}{bd^2(2n+9)(2n+11)}+\frac{2f(bx)^{7/2}(e+fx)(c+dx)^{n+1}}{bd(2n+11)}$$

Antiderivative was successfully verified.

```
[In]  Int[(b*x)^(5/2)*(c + d*x)^n*(e + f*x)^2,x]
```


```
[Out] (-2*f*(9*c*f - d*e*(13 + 2*n))*(b*x)^(7/2)*(c + d*x)^(1 + n))/(b*
d^2*(9 + 2*n)*(11 + 2*n)) + (2*f*(b*x)^(7/2)*(c + d*x)^(1 + n)*(e
 + f*x))/(b*d*(11 + 2*n)) + (2*(63*c^2*f^2 - 14*c*d*e*f*(11 + 2*n
) + d^2*e^2*(99 + 40*n + 4*n^2))*(b*x)^(7/2)*(c + d*x)^n*Hypergeo
metric2F1[7/2, -n, 9/2, -((d*x)/c)])/(7*b*d^2*(9 + 2*n)*(11 + 2*n
)*(1 + (d*x)/c)^n)
```

Rubi in Sympy [A] time = 33.2964, size = 173, normalized size = 0.89

$$\frac{2f\,(bx)^{\frac{7}{2}}\,(c+dx)^{n+1}\,(e+fx)}{bd\,(2n+11)}-\frac{2f\,(bx)^{\frac{7}{2}}\,(c+dx)^{n+1}\,(9cf-de\,(2n+13))}{bd^2\,(2n+9)\,(2n+11)}+\frac{2\,(bx)^{\frac{7}{2}}\left(1+\frac{dx}{c}\right)^{-n}(c+dx)^n\,(7cf\,(9cf-de\,(2n+13))-de\,(2n+9)\,(7cf-de\,(2n+11)))\,{}_2F_1\left(\left.\begin{matrix}-n,\frac{7}{2}\\\frac{9}{2}\end{matrix}\right|-\frac{dx}{c}\right)}{7bd^2\,(2n+9)\,(2n+11)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x)**(5/2)*(d*x+c)**n*(f*x+e)**2,x)
```

```
[Out] 2*f*(b*x)**(7/2)*(c + d*x)**(n + 1)*(e + f*x)/(b*d*(2*n + 11)) -
2*f*(b*x)**(7/2)*(c + d*x)**(n + 1)*(9*c*f - d*e*(2*n + 13))/(b*d
**2*(2*n + 9)*(2*n + 11)) + 2*(b*x)**(7/2)*(1 + d*x/c)**(-n)*(c +
 d*x)**n*(7*c*f*(9*c*f - d*e*(2*n + 13)) - d*e*(2*n + 9)*(7*c*f -
 d*e*(2*n + 11)))*hyper((-n, 7/2), (9/2,), -d*x/c)/(7*b*d**2*(2*n
 + 9)*(2*n + 11))
```

Mathematica [A] time = 0.133555, size = 100, normalized size = 0.51

$$\frac{2}{693}x(bx)^{5/2}(c+dx)^n\left(\frac{dx}{c}+1\right)^{-n}\left(99e^2\,{}_2F_1\left(\frac{7}{2},-n;\frac{9}{2};-\frac{dx}{c}\right)+7fx\left(22e\,{}_2F_1\left(\frac{9}{2},-n;\frac{11}{2};-\frac{dx}{c}\right)+9fx\,{}_2F_1\left(\frac{11}{2},-n;\frac{13}{2};-\frac{dx}{c}\right)\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(b*x)^(5/2)*(c + d*x)^n*(e + f*x)^2,x]
```

```
[Out] (2*x*(b*x)^(5/2)*(c + d*x)^n*(99*e^2*Hypergeometric2F1[7/2, -n, 9
/2, -((d*x)/c)] + 7*f*x*(22*e*Hypergeometric2F1[9/2, -n, 11/2, -(
(d*x)/c)] + 9*f*x*Hypergeometric2F1[11/2, -n, 13/2, -((d*x)/c)]))
)/(693*(1 + (d*x)/c)^n)
```

Maple [F] time = 0.04, size = 0, normalized size = 0.

$$\int (bx)^{\frac{5}{2}}(dx+c)^n(fx+e)^2\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x)^(5/2)*(d*x+c)^n*(f*x+e)^2,x)
```

```
[Out] int((b*x)^(5/2)*(d*x+c)^n*(f*x+e)^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx)^{\frac{5}{2}}(fx+e)^2(dx+c)^n\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x)^(5/2)*(f*x + e)^2*(d*x + c)^n,x, algorithm="maxima")
```

```
[Out] integrate((b*x)^(5/2)*(f*x + e)^2*(d*x + c)^n, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\left(b^2f^2x^4+2\,b^2efx^3+b^2e^2x^2\right)\sqrt{bx}(dx+c)^n,x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x)^(5/2)*(f*x + e)^2*(d*x + c)^n,x, algorithm="fricas")
```

```
[Out] integral((b^2*f^2*x^4 + 2*b^2*e*f*x^3 + b^2*e^2*x^2)*sqrt(b*x)*(d
*x + c)^n, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x)**(5/2)*(d*x+c)**n*(f*x+e)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (bx)^{\frac{5}{2}} (fx+e)^2 (dx+c)^n \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x)^(5/2)*(f*x + e)^2*(d*x + c)^n,x, algorithm="giac")
```

```
[Out] integrate((b*x)^(5/2)*(f*x + e)^2*(d*x + c)^n, x)
```

3.937 $\int (bx)^{5/2}(c+dx)^n(e+fx)\,dx$

Optimal. Leaf size=107

$$\frac{2f(bx)^{7/2}(c+dx)^{n+1}}{bd(2n+9)}-\frac{2(bx)^{7/2}(c+dx)^n\left(\frac{dx}{c}+1\right)^{-n}(7cf-de(2n+9))\,{}_2F_1\left(\frac{7}{2},-n;\frac{9}{2};-\frac{dx}{c}\right)}{7bd(2n+9)}$$

```
[Out] (2*f*(b*x)^(7/2)*(c + d*x)^(1 + n))/(b*d*(9 + 2*n)) - (2*(7*c*f -
 d*e*(9 + 2*n))*(b*x)^(7/2)*(c + d*x)^n*Hypergeometric2F1[7/2, -n
, 9/2, -((d*x)/c)])/(7*b*d*(9 + 2*n)*(1 + (d*x)/c)^n)
```

Rubi [A] time = 0.125811, antiderivative size = 107, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.15$

$$\frac{2f(bx)^{7/2}(c+dx)^{n+1}}{bd(2n+9)}-\frac{2(bx)^{7/2}(c+dx)^n\left(\frac{dx}{c}+1\right)^{-n}(7cf-de(2n+9))\,{}_2F_1\left(\frac{7}{2},-n;\frac{9}{2};-\frac{dx}{c}\right)}{7bd(2n+9)}$$

Antiderivative was successfully verified.

```
[In]  Int[(b*x)^(5/2)*(c + d*x)^n*(e + f*x),x]
```

```
[Out] (2*f*(b*x)^(7/2)*(c + d*x)^(1 + n))/(b*d*(9 + 2*n)) - (2*(7*c*f -
 d*e*(9 + 2*n))*(b*x)^(7/2)*(c + d*x)^n*Hypergeometric2F1[7/2, -n
, 9/2, -((d*x)/c)])/(7*b*d*(9 + 2*n)*(1 + (d*x)/c)^n)
```

Rubi in Sympy [A] time = 11.8917, size = 87, normalized size = 0.81

$$\frac{2f\,(bx)^{\frac{7}{2}}\,(c+dx)^{n+1}}{bd\,(2n+9)}-\frac{2\,(bx)^{\frac{7}{2}}\left(1+\frac{dx}{c}\right)^{-n}(c+dx)^n\,(7cf-de\,(2n+9))\,{}_2F_1\left(\begin{matrix}-n,\frac{7}{2}\\\frac{9}{2}\end{matrix}\middle|-\frac{dx}{c}\right)}{7bd\,(2n+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x)**(5/2)*(d*x+c)**n*(f*x+e),x)
```

```
[Out] 2*f*(b*x)**(7/2)*(c + d*x)**(n + 1)/(b*d*(2*n + 9)) - 2*(b*x)**(7
/2)*(1 + d*x/c)**(-n)*(c + d*x)**n*(7*c*f - d*e*(2*n + 9))*hyper(
(-n, 7/2), (9/2,), -d*x/c)/(7*b*d*(2*n + 9))
```

Mathematica [A] time = 0.069707, size = 73, normalized size = 0.68

$$\frac{2}{63}x(bx)^{5/2}(c+dx)^n\left(\frac{dx}{c}+1\right)^{-n}\left(9e\,{}_2F_1\left(\frac{7}{2},-n;\frac{9}{2};-\frac{dx}{c}\right)+7fx\,{}_2F_1\left(\frac{9}{2},-n;\frac{11}{2};-\frac{dx}{c}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(b*x)^(5/2)*(c + d*x)^n*(e + f*x),x]
```

```
[Out] (2*x*(b*x)^(5/2)*(c + d*x)^n*(9*e*Hypergeometric2F1[7/2, -n, 9/2,
 -((d*x)/c)] + 7*f*x*Hypergeometric2F1[9/2, -n, 11/2, -((d*x)/c)]
))/(63*(1 + (d*x)/c)^n)
```

Maple [F] time = 0.032, size = 0, normalized size = 0.

$$\int (bx)^{\frac{5}{2}} (dx + c)^n (fx + e) \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x)^(5/2)*(d*x+c)^n*(f*x+e),x)
```

```
[Out] int((b*x)^(5/2)*(d*x+c)^n*(f*x+e),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx)^{\frac{5}{2}} (fx + e)(dx + c)^n \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x)^(5/2)*(f*x + e)*(d*x + c)^n,x, algorithm="maxima")
```

```
[Out] integrate((b*x)^(5/2)*(f*x + e)*(d*x + c)^n, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\left(b^2fx^3 + b^2ex^2\right)\sqrt{bx}(dx + c)^n, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x)^(5/2)*(f*x + e)*(d*x + c)^n,x, algorithm="fricas")
```

```
[Out] integral((b^2*f*x^3 + b^2*e*x^2)*sqrt(b*x)*(d*x + c)^n, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x)**(5/2)*(d*x+c)**n*(f*x+e),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (bx)^{\frac{5}{2}} (fx + e)(dx + c)^n \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x)^(5/2)*(f*x + e)*(d*x + c)^n,x, algorithm="giac")
```

```
[Out] integrate((b*x)^(5/2)*(f*x + e)*(d*x + c)^n, x)
```

3.938 $\int \frac{(bx)^{5/2}(c+dx)^n}{e+fx}\,dx$

Optimal. Leaf size=61

$$\frac{2(bx)^{7/2}(c+dx)^n\left(\frac{dx}{c}+1\right)^{-n}F_1\left(\frac{7}{2};-n,1;\frac{9}{2};-\frac{dx}{c},-\frac{fx}{e}\right)}{7be}$$

```
[Out] (2*(b*x)^(7/2)*(c + d*x)^n*AppellF1[7/2, -n, 1, 9/2, -((d*x)/c),
-((f*x)/e)])/(7*b*e*(1 + (d*x)/c)^n)
```

Rubi [A] time = 0.219879, antiderivative size = 61, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.136

$$\frac{2(bx)^{7/2}(c+dx)^n\left(\frac{dx}{c}+1\right)^{-n}F_1\left(\frac{7}{2};-n,1;\frac{9}{2};-\frac{dx}{c},-\frac{fx}{e}\right)}{7be}$$

Antiderivative was successfully verified.

```
[In] Int[((b*x)^(5/2)*(c + d*x)^n)/(e + f*x),x]
```

```
[Out] (2*(b*x)^(7/2)*(c + d*x)^n*AppellF1[7/2, -n, 1, 9/2, -((d*x)/c),
-((f*x)/e)])/(7*b*e*(1 + (d*x)/c)^n)
```

Rubi in Sympy [A] time = 11.3662, size = 46, normalized size = 0.75

$$\frac{2\,(bx)^{\frac{7}{2}}\left(1+\frac{dx}{c}\right)^{-n}(c+dx)^n\,\mathrm{appellf}_1\left(\frac{7}{2},1,-n,\frac{9}{2},-\frac{fx}{e},-\frac{dx}{c}\right)}{7be}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x)**(5/2)*(d*x+c)**n/(f*x+e),x)
```

```
[Out] 2*(b*x)**(7/2)*(1 + d*x/c)**(-n)*(c + d*x)**n*appellf1(7/2, 1, -n
, 9/2, -f*x/e, -d*x/c)/(7*b*e)
```

Mathematica [B] time = 0.72477, size = 239, normalized size = 3.92

$$\frac{2(bx)^{5/2}(c+dx)^n\left(\left(\frac{dx}{c}+1\right)^{-n}\left(15e^2\,{}_2F_1\left(\frac{1}{2},-n;\frac{3}{2};-\frac{dx}{c}\right)+fx\left(3fx\,{}_2F_1\left(\frac{5}{2},-n;\frac{7}{2};-\frac{dx}{c}\right)-5e\,{}_2F_1\left(\frac{3}{2},-n;\frac{5}{2};-\frac{dx}{c}\right)\right)\right)-\frac{\cdots}{(e+f\cdots}\right.}{15f^3x^2}$$

Warning: Unable to verify antiderivative.

```
[In] Integrate[((b*x)^(5/2)*(c + d*x)^n)/(e + f*x),x]
```

```
[Out] (2*(b*x)^(5/2)*(c + d*x)^n*((-45*c*e^4*AppellF1[1/2, -n, 1, 3/2,
-((d*x)/c), -((f*x)/e)])/((e + f*x)*(3*c*e*AppellF1[1/2, -n, 1, 3
/2, -((d*x)/c), -((f*x)/e)] + 2*d*e*n*x*AppellF1[3/2, 1 - n, 1, 5
/2, -((d*x)/c), -((f*x)/e)] - 2*c*f*x*AppellF1[3/2, -n, 2, 5/2, -
((d*x)/c), -((f*x)/e)])) + (15*e^2*Hypergeometric2F1[1/2, -n, 3/2
, -((d*x)/c)] + f*x*(-5*e*Hypergeometric2F1[3/2, -n, 5/2, -((d*x)
/c)] + 3*f*x*Hypergeometric2F1[5/2, -n, 7/2, -((d*x)/c)]))/(1 + (
d*x)/c)^n))/(15*f^3*x^2)
```

Maple [F] time = 0.052, size = 0, normalized size = 0.

$$\int \frac{(dx+c)^{n}}{fx+e}\,(bx)^{\frac{5}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x)^(5/2)*(d*x+c)^n/(f*x+e),x)
```

```
[Out] int((b*x)^(5/2)*(d*x+c)^n/(f*x+e),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx)^{\frac{5}{2}}\,(dx+c)^{n}}{fx+e}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x)^(5/2)*(d*x + c)^n/(f*x + e),x, algorithm="maxima")
```

```
[Out] integrate((b*x)^(5/2)*(d*x + c)^n/(f*x + e), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\operatorname{integral}\left(\frac{\sqrt{bx}(dx+c)^{n}b^{2}x^{2}}{fx+e},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x)^(5/2)*(d*x + c)^n/(f*x + e),x, algorithm="fricas")
```

```
[Out] integral(sqrt(b*x)*(d*x + c)^n*b^2*x^2/(f*x + e), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x)**(5/2)*(d*x+c)**n/(f*x+e),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx)^{\frac{5}{2}}\,(dx+c)^{n}}{fx+e}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x)^(5/2)*(d*x + c)^n/(f*x + e),x, algorithm="giac")
```

```
[Out] integrate((b*x)^(5/2)*(d*x + c)^n/(f*x + e), x)
```

3.939 $\int \frac{(bx)^{5/2}(c+dx)^n}{(e+fx)^2}\, dx$

Optimal. Leaf size=61

$$\frac{2(bx)^{7/2}(c+dx)^n\left(\frac{dx}{c}+1\right)^{-n}F_1\left(\frac{7}{2};-n,2;\frac{9}{2};-\frac{dx}{c},-\frac{fx}{e}\right)}{7be^2}$$

```
[Out] (2*(b*x)^(7/2)*(c + d*x)^n*AppellF1[7/2, -n, 2, 9/2, -((d*x)/c), 
-((f*x)/e)])/(7*b*e^2*(1 + (d*x)/c)^n)
```

Rubi [A] time = 0.23358, antiderivative size = 61, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.136

$$\frac{2(bx)^{7/2}(c+dx)^n\left(\frac{dx}{c}+1\right)^{-n}F_1\left(\frac{7}{2};-n,2;\frac{9}{2};-\frac{dx}{c},-\frac{fx}{e}\right)}{7be^2}$$

Antiderivative was successfully verified.

```
[In]  Int[((b*x)^(5/2)*(c + d*x)^n)/(e + f*x)^2,x]
```

```
[Out] (2*(b*x)^(7/2)*(c + d*x)^n*AppellF1[7/2, -n, 2, 9/2, -((d*x)/c), 
-((f*x)/e)])/(7*b*e^2*(1 + (d*x)/c)^n)
```

Rubi in Sympy [A] time = 11.444, size = 48, normalized size = 0.79

$$\frac{2\left(bx\right)^{\frac{7}{2}}\left(1+\frac{dx}{c}\right)^{-n}\left(c+dx\right)^{n}\operatorname{appellf_1}\left(\frac{7}{2},2,-n,\frac{9}{2},-\frac{fx}{e},-\frac{dx}{c}\right)}{7be^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x)**(5/2)*(d*x+c)**n/(f*x+e)**2,x)
```

```
[Out] 2*(b*x)**(7/2)*(1 + d*x/c)**(-n)*(c + d*x)**n*appellf1(7/2, 2, -n
, 9/2, -f*x/e, -d*x/c)/(7*b*e**2)
```

Mathematica [B] time = 1.16096, size = 345, normalized size = 5.66

$$2b^2\sqrt{bx}(c+dx)^n\left(-\frac{9ce^4F_1\left(\frac{1}{2};-n,2;\frac{3}{2};-\frac{dx}{c},-\frac{fx}{e}\right)}{(e+fx)^2\left(3ceF_1\left(\frac{1}{2};-n,2;\frac{3}{2};-\frac{dx}{c},-\frac{fx}{e}\right)+2denxF_1\left(\frac{3}{2};1-n,2;\frac{5}{2};-\frac{dx}{c},-\frac{fx}{e}\right)-4cfxF_1\left(\frac{3}{2};-n,3;\frac{5}{2};-\frac{dx}{c},-\frac{fx}{e}\right)\right)}+\frac{}{(e+fx)\left(3ceF_1\left(\frac{1}{2};-n,1;\right.\right.}\right.$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[((b*x)^(5/2)*(c + d*x)^n)/(e + f*x)^2,x]
```

```
[Out] (2*b^2*Sqrt[b*x]*(c + d*x)^n*((27*c*e^3*AppellF1[1/2, -n, 1, 3/2, 
 -((d*x)/c), -((f*x)/e)])/((e + f*x)*(3*c*e*AppellF1[1/2, -n, 1, 
3/2, -((d*x)/c), -((f*x)/e)] + 2*d*e*n*x*AppellF1[3/2, 1 - n, 1, 
5/2, -((d*x)/c), -((f*x)/e)] - 2*c*f*x*AppellF1[3/2, -n, 2, 5/2, 
-((d*x)/c), -((f*x)/e)])) - (9*c*e^4*AppellF1[1/2, -n, 2, 3/2, -(
(d*x)/c), -((f*x)/e)])/((e + f*x)^2*(3*c*e*AppellF1[1/2, -n, 2, 3
/2, -((d*x)/c), -((f*x)/e)] + 2*d*e*n*x*AppellF1[3/2, 1 - n, 2, 5
/2, -((d*x)/c), -((f*x)/e)] - 4*c*f*x*AppellF1[3/2, -n, 3, 5/2, -
((d*x)/c), -((f*x)/e)])) + (-6*e*Hypergeometric2F1[1/2, -n, 3/2,
```

```
-((d*x)/c)] + f*x*Hypergeometric2F1[3/2, -n, 5/2, -((d*x)/c)])/(1
 + (d*x)/c)^n))/(3*f^3)
```

Maple [F] time = 0.043, size = 0, normalized size = 0.

$$\int \frac{(dx+c)^n}{(fx+e)^2}(bx)^{\frac{5}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x)^(5/2)*(d*x+c)^n/(f*x+e)^2,x)
```

```
[Out] int((b*x)^(5/2)*(d*x+c)^n/(f*x+e)^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx)^{\frac{5}{2}}(dx+c)^n}{(fx+e)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x)^(5/2)*(d*x + c)^n/(f*x + e)^2,x, algorithm="maxima")
```

```
[Out] integrate((b*x)^(5/2)*(d*x + c)^n/(f*x + e)^2, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{bx}(dx+c)^n b^2x^2}{f^2x^2+2\,efx+e^2},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x)^(5/2)*(d*x + c)^n/(f*x + e)^2,x, algorithm="fricas")
```

```
[Out] integral(sqrt(b*x)*(d*x + c)^n*b^2*x^2/(f^2*x^2 + 2*e*f*x + e^2),
 x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x)**(5/2)*(d*x+c)**n/(f*x+e)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx)^{\frac{5}{2}}(dx+c)^n}{(fx+e)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x)^(5/2)*(d*x + c)^n/(f*x + e)^2,x, algorithm="giac")
```

```
[Out] integrate((b*x)^(5/2)*(d*x + c)^n/(f*x + e)^2, x)
```

3.940 $\int (bx)^m(c+dx)^n(e+fx)^2\,dx$

Optimal. Leaf size=209

$$\frac{(bx)^{m+1}(c+dx)^n\left(\frac{dx}{c}+1\right)^{-n}\left(c^2f^2\left(m^2+3m+2\right)-2cdef(m+1)(m+n+3)+d^2e^2\left(m^2+m(2n+5)+n^2+5n+6\right)\right)\,{}_2F_1\left(\right.}{bd^2(m+1)(m+n+2)(m+n+3)}-\frac{f(bx)^{m+1}(c+dx)^{n+1}(cf(m+2)-de(m+n+4))}{bd^2(m+n+2)(m+n+3)}+\frac{f(bx)^{m+1}(e+fx)(c+dx)^{n+1}}{bd(m+n+3)}$$

```
[Out] -((f*(c*f*(2 + m) - d*e*(4 + m + n))*(b*x)^(1 + m)*(c + d*x)^(1 +
 n))/(b*d^2*(2 + m + n)*(3 + m + n))) + (f*(b*x)^(1 + m)*(c + d*x
)^(1 + n)*(e + f*x))/(b*d*(3 + m + n)) + ((c^2*f^2*(2 + 3*m + m^2
) - 2*c*d*e*f*(1 + m)*(3 + m + n) + d^2*e^2*(6 + m^2 + 5*n + n^2
+ m*(5 + 2*n)))*(b*x)^(1 + m)*(c + d*x)^n*Hypergeometric2F1[1 + m
, -n, 2 + m, -((d*x)/c)])/(b*d^2*(1 + m)*(2 + m + n)*(3 + m + n)*
(1 + (d*x)/c)^n)
```

Rubi [A] time = 0.459052, antiderivative size = 209, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.2$

$$\frac{(bx)^{m+1}(c+dx)^n\left(\frac{dx}{c}+1\right)^{-n}\left(c^2f^2\left(m^2+3m+2\right)-2cdef(m+1)(m+n+3)+d^2e^2\left(m^2+m(2n+5)+n^2+5n+6\right)\right)\,{}_2F_1\left(\right.}{bd^2(m+1)(m+n+2)(m+n+3)}-\frac{f(bx)^{m+1}(c+dx)^{n+1}(cf(m+2)-de(m+n+4))}{bd^2(m+n+2)(m+n+3)}+\frac{f(bx)^{m+1}(e+fx)(c+dx)^{n+1}}{bd(m+n+3)}$$

Antiderivative was successfully verified.

```
[In]  Int[(b*x)^m*(c + d*x)^n*(e + f*x)^2,x]
```

```
[Out] -((f*(c*f*(2 + m) - d*e*(4 + m + n))*(b*x)^(1 + m)*(c + d*x)^(1 +
 n))/(b*d^2*(2 + m + n)*(3 + m + n))) + (f*(b*x)^(1 + m)*(c + d*x
)^(1 + n)*(e + f*x))/(b*d*(3 + m + n)) + ((c^2*f^2*(2 + 3*m + m^2
) - 2*c*d*e*f*(1 + m)*(3 + m + n) + d^2*e^2*(6 + m^2 + 5*n + n^2
+ m*(5 + 2*n)))*(b*x)^(1 + m)*(c + d*x)^n*Hypergeometric2F1[1 + m
, -n, 2 + m, -((d*x)/c)])/(b*d^2*(1 + m)*(2 + m + n)*(3 + m + n)*
(1 + (d*x)/c)^n)
```

Rubi in Sympy [A] time = 56.6678, size = 177, normalized size = 0.85

$$\frac{f\left(bx\right)^{m+1}\left(c+dx\right)^{n+1}\left(e+fx\right)}{bd\left(m+n+3\right)}-\frac{f\left(bx\right)^{m+1}\left(c+dx\right)^{n+1}\left(cf\left(m+2\right)-de\left(m+n+4\right)\right)}{bd^2\left(m+n+2\right)\left(m+n+3\right)}+\frac{\left(bx\right)^{m+1}\left(1+\frac{dx}{c}\right)^{-n}\left(c+dx\right)^n\left(cf\left(m+1\right)\left(cf\left(m+2\right)-de\left(m+n+4\right)\right)-de\left(cf\left(m+1\right)-de\left(m+n+3\right)\right)\left(m+n+2\right)\right){}_2F_1\left(\right.}{bd^2\left(m+1\right)\left(m+n+2\right)\left(m+n+3\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x)**m*(d*x+c)**n*(f*x+e)**2,x)
```

```
[Out] f*(b*x)**(m + 1)*(c + d*x)**(n + 1)*(e + f*x)/(b*d*(m + n + 3)) -
 f*(b*x)**(m + 1)*(c + d*x)**(n + 1)*(c*f*(m + 2) - d*e*(m + n +
4))/(b*d**2*(m + n + 2)*(m + n + 3)) + (b*x)**(m + 1)*(1 + d*x/c)
**(-n)*(c + d*x)**n*(c*f*(m + 1)*(c*f*(m + 2) - d*e*(m + n + 4))
- d*e*(c*f*(m + 1) - d*e*(m + n + 3))*(m + n + 2))*hyper((-n, m +
 1), (m + 2,), -d*x/c)/(b*d**2*(m + 1)*(m + n + 2)*(m + n + 3))
```

Mathematica [A] time = 0.200948, size = 124, normalized size = 0.59

$$\frac{x(bx)^m(c+dx)^n\left(\frac{dx}{c}+1\right)^{-n}\left(e^2\left(m^2+5m+6\right)\,{}_2F_1\left(m+1,-n;m+2;-\frac{dx}{c}\right)+f(m+1)x\left(2e(m+3)\,{}_2F_1\left(m+2,-n;m+3;-\right.\right.\right.}{(m+1)(m+2)(m+3)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(b*x)^m*(c + d*x)^n*(e + f*x)^2,x]
```

```
[Out] (x*(b*x)^m*(c + d*x)^n*(e^2*(6 + 5*m + m^2)*Hypergeometric2F1[1 +
 m, -n, 2 + m, -((d*x)/c)] + f*(1 + m)*x*(2*e*(3 + m)*Hypergeomet
ric2F1[2 + m, -n, 3 + m, -((d*x)/c)] + f*(2 + m)*x*Hypergeometric
2F1[3 + m, -n, 4 + m, -((d*x)/c)])))/((1 + m)*(2 + m)*(3 + m)*(1
+ (d*x)/c)^n)
```

Maple [F] time = 0.09, size = 0, normalized size = 0.

$$\int (bx)^m (dx+c)^n (fx+e)^2 \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x)^m*(d*x+c)^n*(f*x+e)^2,x)
```

```
[Out] int((b*x)^m*(d*x+c)^n*(f*x+e)^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (fx+e)^2 (bx)^m (dx+c)^n \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((f*x + e)^2*(b*x)^m*(d*x + c)^n,x, algorithm="maxima")
```

```
[Out] integrate((f*x + e)^2*(b*x)^m*(d*x + c)^n, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\left(f^2x^2 + 2\,efx + e^2\right)(bx)^m (dx+c)^n, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((f*x + e)^2*(b*x)^m*(d*x + c)^n,x, algorithm="fricas")
```

```
[Out] integral((f^2*x^2 + 2*e*f*x + e^2)*(b*x)^m*(d*x + c)^n, x)
```

Sympy [A] time = 83.2779, size = 131, normalized size = 0.63

$$\frac{b^m c^n e^2 x x^m (m+1)\,{}_2F_1\left(\begin{matrix}-n, m+1\\ m+2\end{matrix}\middle|\frac{dxe^{i\pi}}{c}\right)}{(m+2)} + \frac{2b^m c^n e f x^2 x^m (m+2)\,{}_2F_1\left(\begin{matrix}-n, m+2\\ m+3\end{matrix}\middle|\frac{dxe^{i\pi}}{c}\right)}{(m+3)} + \frac{b^m c^n f^2 x^3 x^m (m+3)\,{}_2F_1\left(\begin{matrix}-n, m+3\\ m+4\end{matrix}\middle|\frac{dxe^{i\pi}}{c}\right)}{(m+4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x)**m*(d*x+c)**n*(f*x+e)**2,x)
```

```
[Out] b**m*c**n*e**2*x*x**m*gamma(m + 1)*hyper((-n, m + 1), (m + 2,), d
*x*exp_polar(I*pi)/c)/gamma(m + 2) + 2*b**m*c**n*e*f*x**2*x**m*ga
mma(m + 2)*hyper((-n, m + 2), (m + 3,), d*x*exp_polar(I*pi)/c)/ga
mma(m + 3) + b**m*c**n*f**2*x**3*x**m*gamma(m + 3)*hyper((-n, m +
 3), (m + 4,), d*x*exp_polar(I*pi)/c)/gamma(m + 4)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (fx+e)^2 (bx)^m (dx+c)^n \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((f*x + e)^2*(b*x)^m*(d*x + c)^n,x, algorithm="giac")
```

```
[Out] integrate((f*x + e)^2*(b*x)^m*(d*x + c)^n, x)
```

3.941 $\int (bx)^m (c+dx)^n (e+fx)\,dx$

Optimal. Leaf size=108

$$\frac{f(bx)^{m+1}(c+dx)^{n+1}}{bd(m+n+2)}-\frac{(bx)^{m+1}(c+dx)^n\left(\frac{dx}{c}+1\right)^{-n}(cf(m+1)-de(m+n+2))\,{}_2F_1\left(m+1,-n;m+2;-\frac{dx}{c}\right)}{bd(m+1)(m+n+2)}$$

```
[Out] (f*(b*x)^(1 + m)*(c + d*x)^(1 + n))/(b*d*(2 + m + n)) - ((c*f*(1
+ m) - d*e*(2 + m + n))*(b*x)^(1 + m)*(c + d*x)^n*Hypergeometric2
F1[1 + m, -n, 2 + m, -((d*x)/c)])/(b*d*(1 + m)*(2 + m + n)*(1 + (
d*x)/c)^n)
```

Rubi [A] time = 0.137626, antiderivative size = 99, normalized size of antiderivative = 0.92, number of steps used = 3, number of rules used = 3, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$\frac{(bx)^{m+1}(c+dx)^n\left(\frac{dx}{c}+1\right)^{-n}\left(\frac{e}{m+1}-\frac{cf}{d(m+n+2)}\right)\,{}_2F_1\left(m+1,-n;m+2;-\frac{dx}{c}\right)}{b}+\frac{f(bx)^{m+1}(c+dx)^{n+1}}{bd(m+n+2)}$$

Antiderivative was successfully verified.

```
[In]  Int[(b*x)^m*(c + d*x)^n*(e + f*x),x]
```

```
[Out] (f*(b*x)^(1 + m)*(c + d*x)^(1 + n))/(b*d*(2 + m + n)) + ((e/(1 +
m) - (c*f)/(d*(2 + m + n)))*(b*x)^(1 + m)*(c + d*x)^n*Hypergeomet
ric2F1[1 + m, -n, 2 + m, -((d*x)/c)])/(b*(1 + (d*x)/c)^n)
```

Rubi in Sympy [A] time = 16.1035, size = 87, normalized size = 0.81

$$\frac{f\,(bx)^{m+1}\,(c+dx)^{n+1}}{bd\,(m+n+2)}-\frac{(bx)^{m+1}\left(1+\frac{dx}{c}\right)^{-n}(c+dx)^n\,(cf\,(m+1)-de\,(m+n+2))\,{}_2F_1\left(\left.\begin{matrix}-n,m+1\\m+2\end{matrix}\right|-\frac{dx}{c}\right)}{bd\,(m+1)\,(m+n+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x)**m*(d*x+c)**n*(f*x+e),x)
```

```
[Out] f*(b*x)**(m + 1)*(c + d*x)**(n + 1)/(b*d*(m + n + 2)) - (b*x)**(m
 + 1)*(1 + d*x/c)**(-n)*(c + d*x)**n*(c*f*(m + 1) - d*e*(m + n +
2))*hyper((-n, m + 1), (m + 2,), -d*x/c)/(b*d*(m + 1)*(m + n + 2)
)
```

Mathematica [A] time = 0.0868754, size = 82, normalized size = 0.76

$$\frac{x(bx)^m(c+dx)^n\left(\frac{dx}{c}+1\right)^{-n}\left(e(m+2)\,{}_2F_1\left(m+1,-n;m+2;-\frac{dx}{c}\right)+f(m+1)x\,{}_2F_1\left(m+2,-n;m+3;-\frac{dx}{c}\right)\right)}{(m+1)(m+2)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(b*x)^m*(c + d*x)^n*(e + f*x),x]
```

```
[Out] (x*(b*x)^m*(c + d*x)^n*(e*(2 + m)*Hypergeometric2F1[1 + m, -n, 2
+ m, -((d*x)/c)] + f*(1 + m)*x*Hypergeometric2F1[2 + m, -n, 3 + m
, -((d*x)/c)]))/((1 + m)*(2 + m)*(1 + (d*x)/c)^n)
```

Maple [F] time = 0.071, size = 0, normalized size = 0.

$$\int (bx)^m (dx+c)^n (fx+e)\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x)^m*(d*x+c)^n*(f*x+e),x)

[Out] int((b*x)^m*(d*x+c)^n*(f*x+e),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (fx+e)(bx)^m (dx+c)^n\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((f*x + e)*(b*x)^m*(d*x + c)^n,x, algorithm="maxima")

[Out] integrate((f*x + e)*(b*x)^m*(d*x + c)^n, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left((fx+e)(bx)^m (dx+c)^n, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((f*x + e)*(b*x)^m*(d*x + c)^n,x, algorithm="fricas")

[Out] integral((f*x + e)*(b*x)^m*(d*x + c)^n, x)
```

Sympy [A] time = 40.5567, size = 82, normalized size = 0.76

$$\frac{b^m c^n e x x^m (m+1)\, {}_2F_1\left(\begin{matrix} -n, m+1 \\ m+2 \end{matrix}\middle| \frac{dxe^{i\pi}}{c}\right)}{(m+2)} + \frac{b^m c^n f x^2 x^m (m+2)\, {}_2F_1\left(\begin{matrix} -n, m+2 \\ m+3 \end{matrix}\middle| \frac{dxe^{i\pi}}{c}\right)}{(m+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x)**m*(d*x+c)**n*(f*x+e),x)

[Out] b**m*c**n*e*x*x**m*gamma(m + 1)*hyper((-n, m + 1), (m + 2,), d*x*
exp_polar(I*pi)/c)/gamma(m + 2) + b**m*c**n*f*x**2*x**m*gamma(m +
 2)*hyper((-n, m + 2), (m + 3,), d*x*exp_polar(I*pi)/c)/gamma(m +
 3)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (fx+e)(bx)^m (dx+c)^n\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((f*x + e)*(b*x)^m*(d*x + c)^n,x, algorithm="giac")

[Out] integrate((f*x + e)*(b*x)^m*(d*x + c)^n, x)
```

3.942 $\int \frac{(bx)^m(c+dx)^n}{e+fx}\,dx$

Optimal. Leaf size=63

$$\frac{(bx)^{m+1}(c+dx)^n\left(\frac{dx}{c}+1\right)^{-n}F_1\left(m+1;-n,1;m+2;-\frac{dx}{c},-\frac{fx}{e}\right)}{be(m+1)}$$

```
[Out] ((b*x)^(1 + m)*(c + d*x)^n*AppellF1[1 + m, -n, 1, 2 + m, -((d*x)/
c), -((f*x)/e)])/(b*e*(1 + m)*(1 + (d*x)/c)^n)
```

Rubi [A] time = 0.102751, antiderivative size = 63, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.1

$$\frac{(bx)^{m+1}(c+dx)^n\left(\frac{dx}{c}+1\right)^{-n}F_1\left(m+1;-n,1;m+2;-\frac{dx}{c},-\frac{fx}{e}\right)}{be(m+1)}$$

Antiderivative was successfully verified.

```
[In]  Int[((b*x)^m*(c + d*x)^n)/(e + f*x),x]
```

```
[Out] ((b*x)^(1 + m)*(c + d*x)^n*AppellF1[1 + m, -n, 1, 2 + m, -((d*x)/
c), -((f*x)/e)])/(b*e*(1 + m)*(1 + (d*x)/c)^n)
```

Rubi in Sympy [A] time = 12.4671, size = 46, normalized size = 0.73

$$\frac{(bx)^{m+1}\left(1+\frac{dx}{c}\right)^{-n}(c+dx)^n\,\mathrm{appellf}_1\left(m+1,1,-n,m+2,-\frac{fx}{e},-\frac{dx}{c}\right)}{be\,(m+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x)**m*(d*x+c)**n/(f*x+e),x)
```

```
[Out] (b*x)**(m + 1)*(1 + d*x/c)**(-n)*(c + d*x)**n*appellf1(m + 1, 1,
-n, m + 2, -f*x/e, -d*x/c)/(b*e*(m + 1))
```

Mathematica [B] time = 0.402652, size = 153, normalized size = 2.43

$$\frac{ce(m+2)x(bx)^m(c+dx)^nF_1\left(m+1;-n,1;m+2;-\frac{dx}{c},-\frac{fx}{e}\right)}{(m+1)(e+fx)\left(ce(m+2)F_1\left(m+1;-n,1;m+2;-\frac{dx}{c},-\frac{fx}{e}\right)+x\left(denF_1\left(m+2;1-n,1;m+3;-\frac{dx}{c},-\frac{fx}{e}\right)-cfF_1\left(m+2;\right.\right.\right.}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[((b*x)^m*(c + d*x)^n)/(e + f*x),x]
```

```
[Out] (c*e*(2 + m)*x*(b*x)^m*(c + d*x)^n*AppellF1[1 + m, -n, 1, 2 + m,
-((d*x)/c), -((f*x)/e)])/((1 + m)*(e + f*x)*(c*e*(2 + m)*AppellF1
[1 + m, -n, 1, 2 + m, -((d*x)/c), -((f*x)/e)] + x*(d*e*n*AppellF1
[2 + m, 1 - n, 1, 3 + m, -((d*x)/c), -((f*x)/e)] - c*f*AppellF1[2
 + m, -n, 2, 3 + m, -((d*x)/c), -((f*x)/e)])))
```

Maple [F] time = 0.081, size = 0, normalized size = 0.

$$\int \frac{(bx)^m (dx+c)^n}{fx+e}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x)^m*(d*x+c)^n/(f*x+e),x)

[Out] int((b*x)^m*(d*x+c)^n/(f*x+e),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx)^m (dx+c)^n}{fx+e}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x)^m*(d*x + c)^n/(f*x + e),x, algorithm="maxima")

[Out] integrate((b*x)^m*(d*x + c)^n/(f*x + e), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx)^m (dx+c)^n}{fx+e}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x)^m*(d*x + c)^n/(f*x + e),x, algorithm="fricas")

[Out] integral((b*x)^m*(d*x + c)^n/(f*x + e), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x)**m*(d*x+c)**n/(f*x+e),x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx)^m (dx+c)^n}{fx+e}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x)^m*(d*x + c)^n/(f*x + e),x, algorithm="giac")

[Out] integrate((b*x)^m*(d*x + c)^n/(f*x + e), x)
```

3.943 $\int \frac{(bx)^m(c+dx)^n}{(e+fx)^2}\,dx$

Optimal. Leaf size=63

$$\frac{(bx)^{m+1}(c+dx)^n\left(\frac{dx}{c}+1\right)^{-n}F_1\left(m+1;-n,2;m+2;-\frac{dx}{c},-\frac{fx}{e}\right)}{be^2(m+1)}$$

```
[Out] ((b*x)^(1 + m)*(c + d*x)^n*AppellF1[1 + m, -n, 2, 2 + m, -((d*x)/
c), -((f*x)/e)])/(b*e^2*(1 + m)*(1 + (d*x)/c)^n)
```

Rubi [A] time = 0.102971, antiderivative size = 63, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.1

$$\frac{(bx)^{m+1}(c+dx)^n\left(\frac{dx}{c}+1\right)^{-n}F_1\left(m+1;-n,2;m+2;-\frac{dx}{c},-\frac{fx}{e}\right)}{be^2(m+1)}$$

Antiderivative was successfully verified.

```
[In]  Int[((b*x)^m*(c + d*x)^n)/(e + f*x)^2,x]
```

```
[Out] ((b*x)^(1 + m)*(c + d*x)^n*AppellF1[1 + m, -n, 2, 2 + m, -((d*x)/
c), -((f*x)/e)])/(b*e^2*(1 + m)*(1 + (d*x)/c)^n)
```

Rubi in Sympy [A] time = 12.6826, size = 48, normalized size = 0.76

$$\frac{(bx)^{m+1}\left(1+\frac{dx}{c}\right)^{-n}(c+dx)^n\operatorname{appellf}_1\left(m+1,2,-n,m+2,-\frac{fx}{e},-\frac{dx}{c}\right)}{be^2\,(m+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x)**m*(d*x+c)**n/(f*x+e)**2,x)
```

```
[Out] (b*x)**(m + 1)*(1 + d*x/c)**(-n)*(c + d*x)**n*appellf1(m + 1, 2,
-n, m + 2, -f*x/e, -d*x/c)/(b*e**2*(m + 1))
```

Mathematica [B] time = 0.415252, size = 153, normalized size = 2.43

$$\frac{ce(m+2)x(bx)^m(c+dx)^nF_1\left(m+1;-n,2;m+2;-\frac{dx}{c},-\frac{fx}{e}\right)}{(m+1)(e+fx)^2\left(ce(m+2)F_1\left(m+1;-n,2;m+2;-\frac{dx}{c},-\frac{fx}{e}\right)+x\left(denF_1\left(m+2;1-n,2;m+3;-\frac{dx}{c},-\frac{fx}{e}\right)-2cfF_1\left(m+\right.\right.\right.}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[((b*x)^m*(c + d*x)^n)/(e + f*x)^2,x]
```

```
[Out] (c*e*(2 + m)*x*(b*x)^m*(c + d*x)^n*AppellF1[1 + m, -n, 2, 2 + m,
-((d*x)/c), -((f*x)/e)])/((1 + m)*(e + f*x)^2*(c*e*(2 + m)*Appell
F1[1 + m, -n, 2, 2 + m, -((d*x)/c), -((f*x)/e)] + x*(d*e*n*Appell
F1[2 + m, 1 - n, 2, 3 + m, -((d*x)/c), -((f*x)/e)] - 2*c*f*Appell
F1[2 + m, -n, 3, 3 + m, -((d*x)/c), -((f*x)/e)])))
```

Maple [F] time = 0.086, size = 0, normalized size = 0.

$$\int \frac{(bx)^m (dx+c)^n}{(fx+e)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x)^m*(d*x+c)^n/(f*x+e)^2,x)
```

```
[Out] int((b*x)^m*(d*x+c)^n/(f*x+e)^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx)^m (dx+c)^n}{(fx+e)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x)^m*(d*x + c)^n/(f*x + e)^2,x, algorithm="maxima")
```

```
[Out] integrate((b*x)^m*(d*x + c)^n/(f*x + e)^2, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx)^m (dx+c)^n}{f^2x^2+2\,efx+e^2}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x)^m*(d*x + c)^n/(f*x + e)^2,x, algorithm="fricas")
```

```
[Out] integral((b*x)^m*(d*x + c)^n/(f^2*x^2 + 2*e*f*x + e^2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x)**m*(d*x+c)**n/(f*x+e)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx)^m (dx+c)^n}{(fx+e)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x)^m*(d*x + c)^n/(f*x + e)^2,x, algorithm="giac")
```

```
[Out] integrate((b*x)^m*(d*x + c)^n/(f*x + e)^2, x)
```

3.944 $\int (bx)^m(c+dx)^n(e+fx)^p\,dx$

Optimal. Leaf size=81

$$\frac{(bx)^{m+1}(c+dx)^n\left(\frac{dx}{c}+1\right)^{-n}(e+fx)^p\left(\frac{fx}{e}+1\right)^{-p}F_1\left(m+1;-n,-p;m+2;-\frac{dx}{c},-\frac{fx}{e}\right)}{b(m+1)}$$

```
[Out] ((b*x)^(1 + m)*(c + d*x)^n*(e + f*x)^p*AppellF1[1 + m, -n, -p, 2
+ m, -((d*x)/c), -((f*x)/e)])/(b*(1 + m)*(1 + (d*x)/c)^n*(1 + (f*
x)/e)^p)
```

Rubi [A] time = 0.139547, antiderivative size = 81, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 2, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.1$

$$\frac{(bx)^{m+1}(c+dx)^n\left(\frac{dx}{c}+1\right)^{-n}(e+fx)^p\left(\frac{fx}{e}+1\right)^{-p}F_1\left(m+1;-n,-p;m+2;-\frac{dx}{c},-\frac{fx}{e}\right)}{b(m+1)}$$

Antiderivative was successfully verified.

```
[In]  Int[(b*x)^m*(c + d*x)^n*(e + f*x)^p,x]
```

```
[Out] ((b*x)^(1 + m)*(c + d*x)^n*(e + f*x)^p*AppellF1[1 + m, -n, -p, 2
+ m, -((d*x)/c), -((f*x)/e)])/(b*(1 + m)*(1 + (d*x)/c)^n*(1 + (f*
x)/e)^p)
```

Rubi in Sympy [A] time = 19.9772, size = 61, normalized size = 0.75

$$\frac{(bx)^{m+1}\left(1+\frac{dx}{c}\right)^{-n}\left(1+\frac{fx}{e}\right)^{-p}(c+dx)^n(e+fx)^p\operatorname{appellf}_1\left(m+1,-n,-p,m+2,-\frac{dx}{c},-\frac{fx}{e}\right)}{b\,(m+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x)**m*(d*x+c)**n*(f*x+e)**p,x)
```

```
[Out] (b*x)**(m + 1)*(1 + d*x/c)**(-n)*(1 + f*x/e)**(-p)*(c + d*x)**n*(
e + f*x)**p*appellf1(m + 1, -n, -p, m + 2, -d*x/c, -f*x/e)/(b*(m
+ 1))
```

Mathematica [B] time = 0.516383, size = 163, normalized size = 2.01

$$\frac{ce(m+2)x(bx)^m(c+dx)^n(e+fx)^pF_1\left(m+1;-n,-p;m+2;-\frac{dx}{c},-\frac{fx}{e}\right)}{(m+1)\left(ce(m+2)F_1\left(m+1;-n,-p;m+2;-\frac{dx}{c},-\frac{fx}{e}\right)+x\left(denF_1\left(m+2;1-n,-p;m+3;-\frac{dx}{c},-\frac{fx}{e}\right)+cfpF_1(m+2;-n,\right.\right.}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(b*x)^m*(c + d*x)^n*(e + f*x)^p,x]
```

```
[Out] (c*e*(2 + m)*x*(b*x)^m*(c + d*x)^n*(e + f*x)^p*AppellF1[1 + m, -n
, -p, 2 + m, -((d*x)/c), -((f*x)/e)])/((1 + m)*(c*e*(2 + m)*Appel
lF1[1 + m, -n, -p, 2 + m, -((d*x)/c), -((f*x)/e)] + x*(d*e*n*Appe
llF1[2 + m, 1 - n, -p, 3 + m, -((d*x)/c), -((f*x)/e)] + c*f*p*App
ellF1[2 + m, -n, 1 - p, 3 + m, -((d*x)/c), -((f*x)/e)])))
```

Maple [F] time = 0.181, size = 0, normalized size = 0.

$$\int (bx)^m (dx+c)^n (fx+e)^p \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x)^m*(d*x+c)^n*(f*x+e)^p,x)
```

```
[Out] int((b*x)^m*(d*x+c)^n*(f*x+e)^p,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx)^m (dx+c)^n (fx+e)^p \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x)^m*(d*x + c)^n*(f*x + e)^p,x, algorithm="maxima")
```

```
[Out] integrate((b*x)^m*(d*x + c)^n*(f*x + e)^p, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left((bx)^m (dx+c)^n (fx+e)^p, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x)^m*(d*x + c)^n*(f*x + e)^p,x, algorithm="fricas")
```

```
[Out] integral((b*x)^m*(d*x + c)^n*(f*x + e)^p, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x)**m*(d*x+c)**n*(f*x+e)**p,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (bx)^m (dx+c)^n (fx+e)^p \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x)^m*(d*x + c)^n*(f*x + e)^p,x, algorithm="giac")
```

```
[Out] integrate((b*x)^m*(d*x + c)^n*(f*x + e)^p, x)
```

3.945 $\int (ex)^m(a-bx)^{2+n}(a+bx)^n\,dx$

Optimal. Leaf size=211

$$-\frac{2ab(ex)^{m+2}(a-bx)^n(a+bx)^n\left(1-\frac{b^2x^2}{a^2}\right)^{-n}\,{}_2F_1\left(\frac{m+2}{2},-n;\frac{m+4}{2};\frac{b^2x^2}{a^2}\right)}{e^2(m+2)}+\frac{2a^2(m+n+2)(ex)^{m+1}(a-bx)^n(a+bx)^n\left(1-\frac{b^2x^2}{a^2}\right)^{-n}\,{}_2F_1\left(\frac{m+1}{2},-n;\frac{m+3}{2};\frac{b^2x^2}{a^2}\right)}{e(m+1)(m+2n+3)}-\frac{(ex)^{m+1}(a-bx)^{n+1}(a+bx)^{n+1}}{e(m+2n+3)}$$

```
[Out] -(((e*x)^(1 + m)*(a - b*x)^(1 + n)*(a + b*x)^(1 + n))/(e*(3 + m +
 2*n))) + (2*a^2*(2 + m + n)*(e*x)^(1 + m)*(a - b*x)^n*(a + b*x)^
n*Hypergeometric2F1[(1 + m)/2, -n, (3 + m)/2, (b^2*x^2)/a^2])/(e*
(1 + m)*(3 + m + 2*n)*(1 - (b^2*x^2)/a^2)^n) - (2*a*b*(e*x)^(2 +
m)*(a - b*x)^n*(a + b*x)^n*Hypergeometric2F1[(2 + m)/2, -n, (4 +
m)/2, (b^2*x^2)/a^2])/(e^2*(2 + m)*(1 - (b^2*x^2)/a^2)^n)
```

Rubi [A] time = 0.42897, antiderivative size = 238, normalized size of antiderivative = 1.13, number of steps used = 11, number of rules used = 4, integrand size = 23, $\frac{\text{number of rules}}{\text{integrand size}} = 0.174$

$$\frac{b^2(ex)^{m+3}(a-bx)^n(a+bx)^n\left(1-\frac{b^2x^2}{a^2}\right)^{-n}\,{}_2F_1\left(\frac{m+3}{2},-n;\frac{m+5}{2};\frac{b^2x^2}{a^2}\right)}{e^3(m+3)}-\frac{2ab(ex)^{m+2}(a-bx)^n(a+bx)^n\left(1-\frac{b^2x^2}{a^2}\right)^{-n}\,{}_2F_1\left(\frac{m+2}{2},-n;\frac{m+4}{2};\frac{b^2x^2}{a^2}\right)}{e^2(m+2)}+\frac{a^2(ex)^{m+1}(a-bx)^n(a+bx)^n\left(1-\frac{b^2x^2}{a^2}\right)^{-n}\,{}_2F_1\left(\frac{m+1}{2},-n;\frac{m+3}{2};\frac{b^2x^2}{a^2}\right)}{e(m+1)}$$

Antiderivative was successfully verified.

```
[In]  Int[(e*x)^m*(a - b*x)^(2 + n)*(a + b*x)^n,x]
```

```
[Out] (a^2*(e*x)^(1 + m)*(a - b*x)^n*(a + b*x)^n*Hypergeometric2F1[(1 +
 m)/2, -n, (3 + m)/2, (b^2*x^2)/a^2])/(e*(1 + m)*(1 - (b^2*x^2)/a
^2)^n) - (2*a*b*(e*x)^(2 + m)*(a - b*x)^n*(a + b*x)^n*Hypergeomet
ric2F1[(2 + m)/2, -n, (4 + m)/2, (b^2*x^2)/a^2])/(e^2*(2 + m)*(1
- (b^2*x^2)/a^2)^n) + (b^2*(e*x)^(3 + m)*(a - b*x)^n*(a + b*x)^n*
Hypergeometric2F1[(3 + m)/2, -n, (5 + m)/2, (b^2*x^2)/a^2])/(e^3*
(3 + m)*(1 - (b^2*x^2)/a^2)^n)
```

Rubi in Sympy [A] time = 60.3433, size = 199, normalized size = 0.94

$$\frac{a^2\,(ex)^{m+1}\left(1-\frac{b^2x^2}{a^2}\right)^{-n}(a-bx)^n\,(a+bx)^n\,{}_2F_1\left(\begin{matrix}-n,\frac{m}{2}+\frac{1}{2}\\ \frac{m}{2}+\frac{3}{2}\end{matrix}\middle|\frac{b^2x^2}{a^2}\right)}{e\,(m+1)}-\frac{2ab\,(ex)^{m+2}\left(1-\frac{b^2x^2}{a^2}\right)^{-n}(a-bx)^n\,(a+bx)^n\,{}_2F_1\left(\begin{matrix}-n,\frac{m}{2}+1\\ \frac{m}{2}+2\end{matrix}\middle|\frac{b^2x^2}{a^2}\right)}{e^2\,(m+2)}+\frac{b^2\,(ex)^{m+3}\left(1-\frac{b^2x^2}{a^2}\right)^{-n}(a-bx)^n\,(a+bx)^n\,{}_2F_1\left(\begin{matrix}-n,\frac{m}{2}+\frac{3}{2}\\ \frac{m}{2}+\frac{5}{2}\end{matrix}\middle|\frac{b^2x^2}{a^2}\right)}{e^3\,(m+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((e*x)**m*(-b*x+a)**(2+n)*(b*x+a)**n,x)
```

```
[Out] a**2*(e*x)**(m + 1)*(1 - b**2*x**2/a**2)**(-n)*(a - b*x)**n*(a +
b*x)**n*hyper((-n, m/2 + 1/2), (m/2 + 3/2,), b**2*x**2/a**2)/(e*(
m + 1)) - 2*a*b*(e*x)**(m + 2)*(1 - b**2*x**2/a**2)**(-n)*(a - b*
x)**n*(a + b*x)**n*hyper((-n, m/2 + 1), (m/2 + 2,), b**2*x**2/a**
2)/(e**2*(m + 2)) + b**2*(e*x)**(m + 3)*(1 - b**2*x**2/a**2)**(-n
)*(a - b*x)**n*(a + b*x)**n*hyper((-n, m/2 + 3/2), (m/2 + 5/2,),
b**2*x**2/a**2)/(e**3*(m + 3))
```

Mathematica [A] time = 0.238422, size = 174, normalized size = 0.82

$$\frac{x(ex)^m(a-bx)^n(a+bx)^n\Big(1-\frac{b^2x^2}{a^2}\Big)^{-n}\Big((m+2)\Big(a^2(m+3)\,{}_2F_1\Big(\frac{m+1}{2},-n;\frac{m+3}{2};\frac{b^2x^2}{a^2}\Big)+b^2(m+1)x^2\,{}_2F_1\Big(\frac{m+3}{2},-n;\frac{m+5}{2};\frac{b^2x^2}{a^2}}{(m+1)(m+2)(m+3)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(e*x)^m*(a - b*x)^(2 + n)*(a + b*x)^n,x]
```

```
[Out] (x*(e*x)^m*(a - b*x)^n*(a + b*x)^n*(-2*a*b*(3 + 4*m + m^2)*x*Hype
rgeometric2F1[1 + m/2, -n, 2 + m/2, (b^2*x^2)/a^2] + (2 + m)*(a^2
*(3 + m)*Hypergeometric2F1[(1 + m)/2, -n, (3 + m)/2, (b^2*x^2)/a^
2] + b^2*(1 + m)*x^2*Hypergeometric2F1[(3 + m)/2, -n, (5 + m)/2,
(b^2*x^2)/a^2])))/((1 + m)*(2 + m)*(3 + m)*(1 - (b^2*x^2)/a^2)^n)
```

Maple [F] time = 0.2, size = 0, normalized size = 0.

$$\int (ex)^m\,(-bx+a)^{2+n}\,(bx+a)^n\;dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((e*x)^m*(-b*x+a)^(2+n)*(b*x+a)^n,x)
```

```
[Out] int((e*x)^m*(-b*x+a)^(2+n)*(b*x+a)^n,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^n(-bx+a)^{n+2}\,(ex)^m\;dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n*(-b*x + a)^(n + 2)*(e*x)^m,x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^n*(-b*x + a)^(n + 2)*(e*x)^m, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left((bx+a)^n(-bx+a)^{n+2}\,(ex)^m\,,x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n*(-b*x + a)^(n + 2)*(e*x)^m,x, algorithm="fricas")
```

```
[Out] integral((b*x + a)^n*(-b*x + a)^(n + 2)*(e*x)^m, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((e*x)**m*(-b*x+a)**(2+n)*(b*x+a)**n,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^n(-bx+a)^{n+2}(ex)^m\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^n*(-b*x + a)^(n + 2)*(e*x)^m,x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^n*(-b*x + a)^(n + 2)*(e*x)^m, x)
```

3.946 $\int x^2(a+bx)^n(c+dx)^p\,dx$

Optimal. Leaf size=206

$$-\frac{(a+bx)^{n+1}(c+dx)^{p+1}\left(a^2d^2\left(p^2+3p+2\right)+2abcd(n+1)(p+1)+b^2c^2\left(n^2+3n+2\right)\right)\,{}_2F_1\left(1,n+p+2;p+2;\frac{b(c+dx)}{bc-ad}\right)}{b^2d^2(p+1)(n+p+2)(n+p+3)(bc-ad)}-\frac{(a+bx)^{n+1}(c+dx)^{p+1}(ad(p+2)+bc(n+2))}{b^2d^2(n+p+2)(n+p+3)}+\frac{x(a+bx)^{n+1}(c+dx)^{p+1}}{bd(n+p+3)}$$

```
[Out] -(((b*c*(2 + n) + a*d*(2 + p))*(a + b*x)^(1 + n)*(c + d*x)^(1 + p
))/(b^2*d^2*(2 + n + p)*(3 + n + p))) + (x*(a + b*x)^(1 + n)*(c +
 d*x)^(1 + p))/(b*d*(3 + n + p)) - ((b^2*c^2*(2 + 3*n + n^2) + 2*
a*b*c*d*(1 + n)*(1 + p) + a^2*d^2*(2 + 3*p + p^2))*(a + b*x)^(1 +
 n)*(c + d*x)^(1 + p)*Hypergeometric2F1[1, 2 + n + p, 2 + p, (b*(
c + d*x))/(b*c - a*d)])/(b^2*d^2*(b*c - a*d)*(1 + p)*(2 + n + p)*
(3 + n + p))
```

Rubi [A] time = 0.424608, antiderivative size = 216, normalized size of antiderivative = 1.05, number of steps used = 4, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.222$

$$\frac{(a+bx)^{n+1}(c+dx)^p\left(a^2d^2\left(p^2+3p+2\right)+2abcd(n+1)(p+1)+b^2c^2\left(n^2+3n+2\right)\right)\left(\frac{b(c+dx)}{bc-ad}\right)^{-p}\,{}_2F_1\left(n+1,-p;n+2;-\frac{d(a+}{bc-}\right.}{b^3d^2(n+1)(n+p+2)(n+p+3)}-\frac{(a+bx)^{n+1}(c+dx)^{p+1}(ad(p+2)+bc(n+2))}{b^2d^2(n+p+2)(n+p+3)}+\frac{x(a+bx)^{n+1}(c+dx)^{p+1}}{bd(n+p+3)}$$

Antiderivative was successfully verified.

```
[In]  Int[x^2*(a + b*x)^n*(c + d*x)^p,x]
```

```
[Out] -(((b*c*(2 + n) + a*d*(2 + p))*(a + b*x)^(1 + n)*(c + d*x)^(1 + p
))/(b^2*d^2*(2 + n + p)*(3 + n + p))) + (x*(a + b*x)^(1 + n)*(c +
 d*x)^(1 + p))/(b*d*(3 + n + p)) + ((b^2*c^2*(2 + 3*n + n^2) + 2*
a*b*c*d*(1 + n)*(1 + p) + a^2*d^2*(2 + 3*p + p^2))*(a + b*x)^(1 +
 n)*(c + d*x)^p*Hypergeometric2F1[1 + n, -p, 2 + n, -((d*(a + b*x
))/(b*c - a*d))])/(b^3*d^2*(1 + n)*(2 + n + p)*(3 + n + p)*((b*(c
 + d*x))/(b*c - a*d))^p)
```

Rubi in Sympy [A] time = 60.6779, size = 185, normalized size = 0.9

$$\frac{x\,(a+bx)^{n+1}\,(c+dx)^{p+1}}{bd\,(n+p+3)}-\frac{(a+bx)^{n+1}\,(c+dx)^{p+1}\,(ad\,(p+2)+bc\,(n+2))}{b^2d^2\,(n+p+2)\,(n+p+3)}+\frac{\left(\frac{b(-c-dx)}{ad-bc}\right)^{-p}(a+bx)^{n+1}\,(c+dx)^p\,(-abcd\,(n+p+2)+(ad\,(p+1)+bc\,(n+1))\,(ad\,(p+2)+bc\,(n+2)))\,{}_2F_1\left(\begin{matrix}-p,n+1\\n+2\end{matrix}\middle|\frac{d(a+}{ad-}\right.}{b^3d^2\,(n+1)\,(n+p+2)\,(n+p+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(b*x+a)**n*(d*x+c)**p,x)
```

```
[Out] x*(a + b*x)**(n + 1)*(c + d*x)**(p + 1)/(b*d*(n + p + 3)) - (a +
b*x)**(n + 1)*(c + d*x)**(p + 1)*(a*d*(p + 2) + b*c*(n + 2))/(b**
2*d**2*(n + p + 2)*(n + p + 3)) + (b*(-c - d*x)/(a*d - b*c))**(-p
)*(a + b*x)**(n + 1)*(c + d*x)**p*(-a*b*c*d*(n + p + 2) + (a*d*(p
 + 1) + b*c*(n + 1))*(a*d*(p + 2) + b*c*(n + 2)))*hyper((-p, n +
1), (n + 2,), d*(a + b*x)/(a*d - b*c))/(b**3*d**2*(n + 1)*(n + p
+ 2)*(n + p + 3))
```

Mathematica [C] time = 0.390902, size = 136, normalized size = 0.66

$$\frac{4acx^3(a+bx)^n(c+dx)^pF_1\left(3;-n,-p;4;-\frac{bx}{a},-\frac{dx}{c}\right)}{3\left(4acF_1\left(3;-n,-p;4;-\frac{bx}{a},-\frac{dx}{c}\right)+bcnxF_1\left(4;1-n,-p;5;-\frac{bx}{a},-\frac{dx}{c}\right)+adpxF_1\left(4;-n,1-p;5;-\frac{bx}{a},-\frac{dx}{c}\right)\right)}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[x^2*(a + b*x)^n*(c + d*x)^p,x]
```

```
[Out] (4*a*c*x^3*(a + b*x)^n*(c + d*x)^p*AppellF1[3, -n, -p, 4, -((b*x)
/a), -((d*x)/c)])/(3*(4*a*c*AppellF1[3, -n, -p, 4, -((b*x)/a), -(
(d*x)/c)] + b*c*n*x*AppellF1[4, 1 - n, -p, 5, -((b*x)/a), -((d*x)
/c)] + a*d*p*x*AppellF1[4, -n, 1 - p, 5, -((b*x)/a), -((d*x)/c)])
)
```

Maple [F] time = 0.095, size = 0, normalized size = 0.

$$\int x^2 (bx+a)^n (dx+c)^p \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(b*x+a)^n*(d*x+c)^p,x)
```

```
[Out] int(x^2*(b*x+a)^n*(d*x+c)^p,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^n (dx+c)^p x^2 \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n*(d*x + c)^p*x^2,x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^n*(d*x + c)^p*x^2, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left((bx+a)^n (dx+c)^p x^2, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n*(d*x + c)^p*x^2,x, algorithm="fricas")
```

```
[Out] integral((b*x + a)^n*(d*x + c)^p*x^2, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(b*x+a)**n*(d*x+c)**p,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (bx + a)^n (dx + c)^p x^2 \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n*(d*x + c)^p*x^2,x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^n*(d*x + c)^p*x^2, x)
```

3.947 $\int x(a+bx)^n(c+dx)^p\,dx$

Optimal. Leaf size=117

$$\frac{(a+bx)^{n+1}(c+dx)^{p+1}(ad(p+1)+bc(n+1))\,{}_2F_1\left(1,n+p+2;p+2;\frac{b(c+dx)}{bc-ad}\right)}{bd(p+1)(n+p+2)(bc-ad)}+\frac{(a+bx)^{n+1}(c+dx)^{p+1}}{bd(n+p+2)}$$

```
[Out] ((a + b*x)^(1 + n)*(c + d*x)^(1 + p))/(b*d*(2 + n + p)) + ((b*c*(
1 + n) + a*d*(1 + p))*(a + b*x)^(1 + n)*(c + d*x)^(1 + p)*Hyperge
ometric2F1[1, 2 + n + p, 2 + p, (b*(c + d*x))/(b*c - a*d)])/(b*d*
(b*c - a*d)*(1 + p)*(2 + n + p))
```

Rubi [A] time = 0.14896, antiderivative size = 129, normalized size of antiderivative = 1.1, number of steps used = 3, number of rules used = 3, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.188

$$\frac{(a+bx)^{n+1}(c+dx)^{p+1}}{bd(n+p+2)}-\frac{(a+bx)^{n+1}(c+dx)^p(ad(p+1)+bc(n+1))\left(\frac{b(c+dx)}{bc-ad}\right)^{-p}{}_2F_1\left(n+1,-p;n+2;-\frac{d(a+bx)}{bc-ad}\right)}{b^2d(n+1)(n+p+2)}$$

Antiderivative was successfully verified.

```
[In]  Int[x*(a + b*x)^n*(c + d*x)^p,x]
```

```
[Out] ((a + b*x)^(1 + n)*(c + d*x)^(1 + p))/(b*d*(2 + n + p)) - ((b*c*(
1 + n) + a*d*(1 + p))*(a + b*x)^(1 + n)*(c + d*x)^p*Hypergeometri
c2F1[1 + n, -p, 2 + n, -((d*(a + b*x))/(b*c - a*d))])/(b^2*d*(1 +
 n)*(2 + n + p)*((b*(c + d*x))/(b*c - a*d))^p)
```

Rubi in Sympy [A] time = 25.7126, size = 104, normalized size = 0.89

$$\frac{(a+bx)^{n+1}(c+dx)^{p+1}}{bd(n+p+2)}-\frac{\left(\frac{b(-c-dx)}{ad-bc}\right)^{-p}(a+bx)^{n+1}(c+dx)^p(ad(p+1)+bc(n+1))\,{}_2F_1\left(\begin{matrix}-p,n+1\\n+2\end{matrix}\middle|\frac{d(a+bx)}{ad-bc}\right)}{b^2d(n+1)(n+p+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(b*x+a)**n*(d*x+c)**p,x)
```

```
[Out] (a + b*x)**(n + 1)*(c + d*x)**(p + 1)/(b*d*(n + p + 2)) - (b*(-c
- d*x)/(a*d - b*c))**(-p)*(a + b*x)**(n + 1)*(c + d*x)**p*(a*d*(p
 + 1) + b*c*(n + 1))*hyper((-p, n + 1), (n + 2,), d*(a + b*x)/(a*
d - b*c))/(b**2*d*(n + 1)*(n + p + 2))
```

Mathematica [C] time = 0.367063, size = 136, normalized size = 1.16

$$\frac{3acx^2(a+bx)^n(c+dx)^pF_1\left(2;-n,-p;3;-\frac{bx}{a},-\frac{dx}{c}\right)}{6acF_1\left(2;-n,-p;3;-\frac{bx}{a},-\frac{dx}{c}\right)+2bcnxF_1\left(3;1-n,-p;4;-\frac{bx}{a},-\frac{dx}{c}\right)+2adpxF_1\left(3;-n,1-p;4;-\frac{bx}{a},-\frac{dx}{c}\right)}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[x*(a + b*x)^n*(c + d*x)^p,x]
```

```
[Out] (3*a*c*x^2*(a + b*x)^n*(c + d*x)^p*AppellF1[2, -n, -p, 3, -((b*x)
/a), -((d*x)/c)])/(6*a*c*AppellF1[2, -n, -p, 3, -((b*x)/a), -((d*
x)/c)] + 2*b*c*n*x*AppellF1[3, 1 - n, -p, 4, -((b*x)/a), -((d*x)/
c)] + 2*a*d*p*x*AppellF1[3, -n, 1 - p, 4, -((b*x)/a), -((d*x)/c)]
)
```

Maple [F] time = 0.085, size = 0, normalized size = 0.

$$\int x\,(bx+a)^{n}\,(dx+c)^{p}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(b*x+a)^n*(d*x+c)^p,x)
```

```
[Out] int(x*(b*x+a)^n*(d*x+c)^p,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^{n}(dx+c)^{p}x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n*(d*x + c)^p*x,x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^n*(d*x + c)^p*x, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left((bx+a)^{n}(dx+c)^{p}x, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n*(d*x + c)^p*x,x, algorithm="fricas")
```

```
[Out] integral((b*x + a)^n*(d*x + c)^p*x, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(b*x+a)**n*(d*x+c)**p,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^{n}(dx+c)^{p}x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n*(d*x + c)^p*x,x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^n*(d*x + c)^p*x, x)
```

3.948 $\int (a+bx)^n(c+dx)^p\,dx$

Optimal. Leaf size=61

$$-\frac{(a+bx)^{n+1}(c+dx)^{p+1}\,{}_2F_1\left(1,n+p+2;p+2;\frac{b(c+dx)}{bc-ad}\right)}{(p+1)(bc-ad)}$$

```
[Out] -(((a + b*x)^(1 + n)*(c + d*x)^(1 + p)*Hypergeometric2F1[1, 2 + n
 + p, 2 + p, (b*(c + d*x))/(b*c - a*d)])/((b*c - a*d)*(1 + p)))
```

Rubi [A] time = 0.0651789, antiderivative size = 74, normalized size of antiderivative = 1.21, number of steps used = 2, number of rules used = 2, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}} = 0.133$

$$\frac{(a+bx)^{n+1}(c+dx)^p\left(\frac{b(c+dx)}{bc-ad}\right)^{-p}\,{}_2F_1\left(n+1,-p;n+2;-\frac{d(a+bx)}{bc-ad}\right)}{b(n+1)}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^n*(c + d*x)^p,x]
```

```
[Out] ((a + b*x)^(1 + n)*(c + d*x)^p*Hypergeometric2F1[1 + n, -p, 2 + n
, -((d*(a + b*x))/(b*c - a*d))])/(b*(1 + n)*((b*(c + d*x))/(b*c -
 a*d))^p)
```

Rubi in Sympy [A] time = 13.9201, size = 56, normalized size = 0.92

$$\frac{\left(\frac{b(-c-dx)}{ad-bc}\right)^{-p}(a+bx)^{n+1}(c+dx)^p\,{}_2F_1\left(\left.\begin{matrix}-p,n+1\\n+2\end{matrix}\right|\frac{d(a+bx)}{ad-bc}\right)}{b\,(n+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**n*(d*x+c)**p,x)
```

```
[Out] (b*(-c - d*x)/(a*d - b*c))**(-p)*(a + b*x)**(n + 1)*(c + d*x)**p*
hyper((-p, n + 1), (n + 2,), d*(a + b*x)/(a*d - b*c))/(b*(n + 1))
```

Mathematica [A] time = 0.0946055, size = 73, normalized size = 1.2

$$\frac{(a+bx)^n(c+dx)^{p+1}\left(\frac{d(a+bx)}{ad-bc}\right)^{-n}\,{}_2F_1\left(-n,p+1;p+2;\frac{b(c+dx)}{bc-ad}\right)}{d(p+1)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^n*(c + d*x)^p,x]
```

```
[Out] ((a + b*x)^n*(c + d*x)^(1 + p)*Hypergeometric2F1[-n, 1 + p, 2 + p
, (b*(c + d*x))/(b*c - a*d)])/(d*(1 + p)*((d*(a + b*x))/(-(b*c) +
 a*d))^n)
```

Maple [F] time = 0.121, size = 0, normalized size = 0.

$$\int (bx+a)^n\,(dx+c)^p\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^n*(d*x+c)^p,x)

[Out] int((b*x+a)^n*(d*x+c)^p,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^n(dx+c)^p\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n*(d*x + c)^p,x, algorithm="maxima")

[Out] integrate((b*x + a)^n*(d*x + c)^p, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left((bx+a)^n(dx+c)^p, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n*(d*x + c)^p,x, algorithm="fricas")

[Out] integral((b*x + a)^n*(d*x + c)^p, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**n*(d*x+c)**p,x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^n(dx+c)^p\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n*(d*x + c)^p,x, algorithm="giac")

[Out] integrate((b*x + a)^n*(d*x + c)^p, x)
```

3.949 $\int \frac{(a+bx)^n(c+dx)^p}{x}\,dx$

Optimal. Leaf size=85

$$-\frac{(a+bx)^{n+1}(c+dx)^p\left(\frac{b(c+dx)}{bc-ad}\right)^{-p}F_1\left(n+1;-p,1;n+2;-\frac{d(a+bx)}{bc-ad},\frac{a+bx}{a}\right)}{a(n+1)}$$

```
[Out] -(((a + b*x)^(1 + n)*(c + d*x)^p*AppellF1[1 + n, -p, 1, 2 + n, -(
(d*(a + b*x))/(b*c - a*d)), (a + b*x)/a])/(a*(1 + n)*((b*(c + d*x
))/(b*c - a*d))^p))
```

Rubi [A] time = 0.11613, antiderivative size = 85, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.111

$$-\frac{(a+bx)^{n+1}(c+dx)^p\left(\frac{b(c+dx)}{bc-ad}\right)^{-p}F_1\left(n+1;-p,1;n+2;-\frac{d(a+bx)}{bc-ad},\frac{a+bx}{a}\right)}{a(n+1)}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^n*(c + d*x)^p)/x,x]
```

```
[Out] -(((a + b*x)^(1 + n)*(c + d*x)^p*AppellF1[1 + n, -p, 1, 2 + n, -(
(d*(a + b*x))/(b*c - a*d)), (a + b*x)/a])/(a*(1 + n)*((b*(c + d*x
))/(b*c - a*d))^p))
```

Rubi in Sympy [A] time = 17.5235, size = 63, normalized size = 0.74

$$-\frac{\left(\frac{b(-c-dx)}{ad-bc}\right)^{-p}(a+bx)^{n+1}(c+dx)^p\operatorname{appellf}_1\left(n+1,1,-p,n+2,\frac{a+bx}{a},\frac{d(a+bx)}{ad-bc}\right)}{a(n+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**n*(d*x+c)**p/x,x)
```

```
[Out] -(b*(-c - d*x)/(a*d - b*c))**(-p)*(a + b*x)**(n + 1)*(c + d*x)**p
*appellf1(n + 1, 1, -p, n + 2, (a + b*x)/a, d*(a + b*x)/(a*d - b*
c))/(a*(n + 1))
```

Mathematica [B] time = 0.38233, size = 214, normalized size = 2.52

$$\frac{bdx(n+p-1)(a+bx)^n(c+dx)^pF_1\left(-n-p;-n,-p;-n-p+1;-\frac{a}{bx},-\frac{c}{d\ldots}\right.}{(n+p)\left(bdx(n+p-1)F_1\left(-n-p;-n,-p;-n-p+1;-\frac{a}{bx},-\frac{c}{dx}\right)-adnF_1\left(-n-p+1;1-n,-p;-n-p+2;-\frac{a}{bx},-\frac{c}{dx}\right)-\ldots\right.}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[((a + b*x)^n*(c + d*x)^p)/x,x]
```

```
[Out] (b*d*(-1 + n + p)*x*(a + b*x)^n*(c + d*x)^p*AppellF1[-n - p, -n,
-p, 1 - n - p, -(a/(b*x)), -(c/(d*x))])/((n + p)*(b*d*(-1 + n + p
)*x*AppellF1[-n - p, -n, -p, 1 - n - p, -(a/(b*x)), -(c/(d*x))] -
 a*d*n*AppellF1[1 - n - p, 1 - n, -p, 2 - n - p, -(a/(b*x)), -(c/
(d*x))] - b*c*p*AppellF1[1 - n - p, -n, 1 - p, 2 - n - p, -(a/(b*
x)), -(c/(d*x))]))
```

Maple [F] time = 0.079, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n (dx+c)^p}{x}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^n*(d*x+c)^p/x,x)

[Out] int((b*x+a)^n*(d*x+c)^p/x,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n (dx+c)^p}{x}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n*(d*x + c)^p/x,x, algorithm="maxima")

[Out] integrate((b*x + a)^n*(d*x + c)^p/x, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)^n (dx+c)^p}{x}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n*(d*x + c)^p/x,x, algorithm="fricas")

[Out] integral((b*x + a)^n*(d*x + c)^p/x, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**n*(d*x+c)**p/x,x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n (dx+c)^p}{x}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n*(d*x + c)^p/x,x, algorithm="giac")

[Out] integrate((b*x + a)^n*(d*x + c)^p/x, x)
```

3.950 $\int \frac{(a+bx)^n(c+dx)^p}{x^2}\,dx$

Optimal. Leaf size=85

$$\frac{b(a+bx)^{n+1}(c+dx)^p\left(\frac{b(c+dx)}{bc-ad}\right)^{-p}F_1\left(n+1;-p,2;n+2;-\frac{d(a+bx)}{bc-ad},\frac{a+bx}{a}\right)}{a^2(n+1)}$$

```
[Out] (b*(a + b*x)^(1 + n)*(c + d*x)^p*AppellF1[1 + n, -p, 2, 2 + n, -(
(d*(a + b*x))/(b*c - a*d)), (a + b*x)/a])/(a^2*(1 + n)*((b*(c + d
*x))/(b*c - a*d))^p)
```

Rubi [A] time = 0.121609, antiderivative size = 85, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.111$

$$\frac{b(a+bx)^{n+1}(c+dx)^p\left(\frac{b(c+dx)}{bc-ad}\right)^{-p}F_1\left(n+1;-p,2;n+2;-\frac{d(a+bx)}{bc-ad},\frac{a+bx}{a}\right)}{a^2(n+1)}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^n*(c + d*x)^p)/x^2,x]
```

```
[Out] (b*(a + b*x)^(1 + n)*(c + d*x)^p*AppellF1[1 + n, -p, 2, 2 + n, -(
(d*(a + b*x))/(b*c - a*d)), (a + b*x)/a])/(a^2*(1 + n)*((b*(c + d
*x))/(b*c - a*d))^p)
```

Rubi in Sympy [A] time = 17.4961, size = 65, normalized size = 0.76

$$\frac{b\left(\frac{b(-c-dx)}{ad-bc}\right)^{-p}(a+bx)^{n+1}(c+dx)^p\,\mathrm{appellf}_1\left(n+1,2,-p,n+2,\frac{a+bx}{a},\frac{d(a+bx)}{ad-bc}\right)}{a^2\,(n+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**n*(d*x+c)**p/x**2,x)
```

```
[Out] b*(b*(-c - d*x)/(a*d - b*c))**(-p)*(a + b*x)**(n + 1)*(c + d*x)**
p*appellf1(n + 1, 2, -p, n + 2, (a + b*x)/a, d*(a + b*x)/(a*d - b
*c))/(a**2*(n + 1))
```

Mathematica [B] time = 0.427185, size = 216, normalized size = 2.54

$$\frac{bd(n+p-2)(a+bx)^n(c+dx)^pF_1\left(-n-p+1;-n,-p;-n-p+2;-\frac{a}{b\ldots}\right.}{(n+p-1)\left(bdx(n+p-2)F_1\left(-n-p+1;-n,-p;-n-p+2;-\frac{a}{bx},-\frac{c}{dx}\right)-adnF_1\left(-n-p+2;1-n,-p;-n-p+3;-\frac{a}{bx},-\ldots\right.\right.}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[((a + b*x)^n*(c + d*x)^p)/x^2,x]
```

```
[Out] (b*d*(-2 + n + p)*(a + b*x)^n*(c + d*x)^p*AppellF1[1 - n - p, -n,
 -p, 2 - n - p, -(a/(b*x)), -(c/(d*x))])/((-1 + n + p)*(b*d*(-2 +
 n + p)*x*AppellF1[1 - n - p, -n, -p, 2 - n - p, -(a/(b*x)), -(c/
(d*x))] - a*d*n*AppellF1[2 - n - p, 1 - n, -p, 3 - n - p, -(a/(b*
x)), -(c/(d*x))] - b*c*p*AppellF1[2 - n - p, -n, 1 - p, 3 - n - p
, -(a/(b*x)), -(c/(d*x))]))
```

Maple [F] time = 0.082, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n (dx+c)^p}{x^2}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^n*(d*x+c)^p/x^2,x)

[Out] int((b*x+a)^n*(d*x+c)^p/x^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n (dx+c)^p}{x^2}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n*(d*x + c)^p/x^2,x, algorithm="maxima")

[Out] integrate((b*x + a)^n*(d*x + c)^p/x^2, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)^n (dx+c)^p}{x^2}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n*(d*x + c)^p/x^2,x, algorithm="fricas")

[Out] integral((b*x + a)^n*(d*x + c)^p/x^2, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**n*(d*x+c)**p/x**2,x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n (dx+c)^p}{x^2}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n*(d*x + c)^p/x^2,x, algorithm="giac")

[Out] integrate((b*x + a)^n*(d*x + c)^p/x^2, x)
```

3.951 $\int (bx)^{3/2}(c+dx)^n(e+fx)^p\,dx$

Optimal. Leaf size=79

$$\frac{2(bx)^{5/2}(c+dx)^n\left(\frac{dx}{c}+1\right)^{-n}(e+fx)^p\left(\frac{fx}{e}+1\right)^{-p}F_1\left(\frac{5}{2};-n,-p;\frac{7}{2};-\frac{dx}{c},-\frac{fx}{e}\right)}{5b}$$

```
[Out] (2*(b*x)^(5/2)*(c + d*x)^n*(e + f*x)^p*AppellF1[5/2, -n, -p, 7/2,
 -((d*x)/c), -((f*x)/e)])/(5*b*(1 + (d*x)/c)^n*(1 + (f*x)/e)^p)
```

Rubi [A] time = 0.133871, antiderivative size = 79, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 2, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.091$

$$\frac{2(bx)^{5/2}(c+dx)^n\left(\frac{dx}{c}+1\right)^{-n}(e+fx)^p\left(\frac{fx}{e}+1\right)^{-p}F_1\left(\frac{5}{2};-n,-p;\frac{7}{2};-\frac{dx}{c},-\frac{fx}{e}\right)}{5b}$$

Antiderivative was successfully verified.

```
[In]  Int[(b*x)^(3/2)*(c + d*x)^n*(e + f*x)^p,x]
```

```
[Out] (2*(b*x)^(5/2)*(c + d*x)^n*(e + f*x)^p*AppellF1[5/2, -n, -p, 7/2,
 -((d*x)/c), -((f*x)/e)])/(5*b*(1 + (d*x)/c)^n*(1 + (f*x)/e)^p)
```

Rubi in Sympy [A] time = 18.5378, size = 61, normalized size = 0.77

$$\frac{2\,(bx)^{\frac{5}{2}}\left(1+\frac{dx}{c}\right)^{-n}\left(1+\frac{fx}{e}\right)^{-p}(c+dx)^n\,(e+fx)^p\operatorname{appellf}_1\left(\frac{5}{2},-n,-p,\frac{7}{2},-\frac{dx}{c},-\frac{fx}{e}\right)}{5b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x)**(3/2)*(d*x+c)**n*(f*x+e)**p,x)
```

```
[Out] 2*(b*x)**(5/2)*(1 + d*x/c)**(-n)*(1 + f*x/e)**(-p)*(c + d*x)**n*(
e + f*x)**p*appellf1(5/2, -n, -p, 7/2, -d*x/c, -f*x/e)/(5*b)
```

Mathematica [B] time = 0.383816, size = 159, normalized size = 2.01

$$\frac{14cex(bx)^{3/2}(c+dx)^n(e+fx)^pF_1\left(\frac{5}{2};-n,-p;\frac{7}{2};-\frac{dx}{c},-\frac{fx}{e}\right)}{5\left(7ceF_1\left(\frac{5}{2};-n,-p;\frac{7}{2};-\frac{dx}{c},-\frac{fx}{e}\right)+2x\left(denF_1\left(\frac{7}{2};1-n,-p;\frac{9}{2};-\frac{dx}{c},-\frac{fx}{e}\right)+cfpF_1\left(\frac{7}{2};-n,1-p;\frac{9}{2};-\frac{dx}{c},-\frac{fx}{e}\right)\right)\right)}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(b*x)^(3/2)*(c + d*x)^n*(e + f*x)^p,x]
```

```
[Out] (14*c*e*x*(b*x)^(3/2)*(c + d*x)^n*(e + f*x)^p*AppellF1[5/2, -n, -
p, 7/2, -((d*x)/c), -((f*x)/e)])/(5*(7*c*e*AppellF1[5/2, -n, -p,
7/2, -((d*x)/c), -((f*x)/e)] + 2*x*(d*e*n*AppellF1[7/2, 1 - n, -p
, 9/2, -((d*x)/c), -((f*x)/e)] + c*f*p*AppellF1[7/2, -n, 1 - p, 9
/2, -((d*x)/c), -((f*x)/e)])))
```

Maple [F] time = 0.082, size = 0, normalized size = 0.

$$\int (bx)^{\frac{3}{2}}\,(dx+c)^n\,(fx+e)^p\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x)^(3/2)*(d*x+c)^n*(f*x+e)^p,x)
```

```
[Out] int((b*x)^(3/2)*(d*x+c)^n*(f*x+e)^p,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx)^{\frac{3}{2}} (dx + c)^n (fx + e)^p \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x)^(3/2)*(d*x + c)^n*(f*x + e)^p,x, algorithm="maxima")
```

```
[Out] integrate((b*x)^(3/2)*(d*x + c)^n*(f*x + e)^p, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\sqrt{bx}(dx + c)^n (fx + e)^p bx, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x)^(3/2)*(d*x + c)^n*(f*x + e)^p,x, algorithm="fricas")
```

```
[Out] integral(sqrt(b*x)*(d*x + c)^n*(f*x + e)^p*b*x, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x)**(3/2)*(d*x+c)**n*(f*x+e)**p,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (bx)^{\frac{3}{2}} (dx + c)^n (fx + e)^p \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x)^(3/2)*(d*x + c)^n*(f*x + e)^p,x, algorithm="giac")
```

```
[Out] integrate((b*x)^(3/2)*(d*x + c)^n*(f*x + e)^p, x)
```

3.952 $\int \sqrt{bx}(c+dx)^n(e+fx)^p\,dx$

Optimal. Leaf size=79

$$\frac{2(bx)^{3/2}(c+dx)^n\left(\frac{dx}{c}+1\right)^{-n}(e+fx)^p\left(\frac{fx}{e}+1\right)^{-p}F_1\left(\frac{3}{2};-n,-p;\frac{5}{2};-\frac{dx}{c},-\frac{fx}{e}\right)}{3b}$$

```
[Out] (2*(b*x)^(3/2)*(c + d*x)^n*(e + f*x)^p*AppellF1[3/2, -n, -p, 5/2,
 -((d*x)/c), -((f*x)/e)])/(3*b*(1 + (d*x)/c)^n*(1 + (f*x)/e)^p)
```

Rubi [A] time = 0.132804, antiderivative size = 79, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 2, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.091$

$$\frac{2(bx)^{3/2}(c+dx)^n\left(\frac{dx}{c}+1\right)^{-n}(e+fx)^p\left(\frac{fx}{e}+1\right)^{-p}F_1\left(\frac{3}{2};-n,-p;\frac{5}{2};-\frac{dx}{c},-\frac{fx}{e}\right)}{3b}$$

Antiderivative was successfully verified.

```
[In] Int[Sqrt[b*x]*(c + d*x)^n*(e + f*x)^p,x]
```

```
[Out] (2*(b*x)^(3/2)*(c + d*x)^n*(e + f*x)^p*AppellF1[3/2, -n, -p, 5/2,
 -((d*x)/c), -((f*x)/e)])/(3*b*(1 + (d*x)/c)^n*(1 + (f*x)/e)^p)
```

Rubi in Sympy [A] time = 18.3858, size = 61, normalized size = 0.77

$$\frac{2\,(bx)^{\frac{3}{2}}\left(1+\frac{dx}{c}\right)^{-n}\left(1+\frac{fx}{e}\right)^{-p}(c+dx)^n\,(e+fx)^p\operatorname{appellf}_1\left(\frac{3}{2},-n,-p,\frac{5}{2},-\frac{dx}{c},-\frac{fx}{e}\right)}{3b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x)**(1/2)*(d*x+c)**n*(f*x+e)**p,x)
```

```
[Out] 2*(b*x)**(3/2)*(1 + d*x/c)**(-n)*(1 + f*x/e)**(-p)*(c + d*x)**n*(
e + f*x)**p*appellf1(3/2, -n, -p, 5/2, -d*x/c, -f*x/e)/(3*b)
```

Mathematica [A] time = 0.374932, size = 157, normalized size = 1.99

$$\frac{10cex\sqrt{bx}(c+dx)^n(e+fx)^pF_1\left(\frac{3}{2};-n,-p;\frac{5}{2};-\frac{dx}{c},-\frac{fx}{e}\right)}{15ceF_1\left(\frac{3}{2};-n,-p;\frac{5}{2};-\frac{dx}{c},-\frac{fx}{e}\right)+6denxF_1\left(\frac{5}{2};1-n,-p;\frac{7}{2};-\frac{dx}{c},-\frac{fx}{e}\right)+6cfpxF_1\left(\frac{5}{2};-n,1-p;\frac{7}{2};-\frac{dx}{c},-\frac{fx}{e}\right)}$$

Warning: Unable to verify antiderivative.

```
[In] Integrate[Sqrt[b*x]*(c + d*x)^n*(e + f*x)^p,x]
```

```
[Out] (10*c*e*x*Sqrt[b*x]*(c + d*x)^n*(e + f*x)^p*AppellF1[3/2, -n, -p,
 5/2, -((d*x)/c), -((f*x)/e)])/(15*c*e*AppellF1[3/2, -n, -p, 5/2,
 -((d*x)/c), -((f*x)/e)] + 6*d*e*n*x*AppellF1[5/2, 1 - n, -p, 7/2
, -((d*x)/c), -((f*x)/e)] + 6*c*f*p*x*AppellF1[5/2, -n, 1 - p, 7/
2, -((d*x)/c), -((f*x)/e)])
```

Maple [F] time = 0.059, size = 0, normalized size = 0.

$$\int \sqrt{bx}\,(dx+c)^n\,(fx+e)^p\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x)^(1/2)*(d*x+c)^n*(f*x+e)^p,x)
```

```
[Out] int((b*x)^(1/2)*(d*x+c)^n*(f*x+e)^p,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \sqrt{bx}(dx+c)^n(fx+e)^p\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x)*(d*x + c)^n*(f*x + e)^p,x, algorithm="maxima")
```

```
[Out] integrate(sqrt(b*x)*(d*x + c)^n*(f*x + e)^p, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\sqrt{bx}(dx+c)^n(fx+e)^p, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x)*(d*x + c)^n*(f*x + e)^p,x, algorithm="fricas")
```

```
[Out] integral(sqrt(b*x)*(d*x + c)^n*(f*x + e)^p, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x)**(1/2)*(d*x+c)**n*(f*x+e)**p,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \sqrt{bx}(dx+c)^n(fx+e)^p\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x)*(d*x + c)^n*(f*x + e)^p,x, algorithm="giac")
```

```
[Out] integrate(sqrt(b*x)*(d*x + c)^n*(f*x + e)^p, x)
```

3.953 $\int \frac{(c+dx)^n(e+fx)^p}{\sqrt{bx}}\,dx$

Optimal. Leaf size=77

$$\frac{2\sqrt{bx}(c+dx)^n\left(\frac{dx}{c}+1\right)^{-n}(e+fx)^p\left(\frac{fx}{e}+1\right)^{-p}F_1\left(\frac{1}{2};-n,-p;\frac{3}{2};-\frac{dx}{c},-\frac{fx}{e}\right)}{b}$$

```
[Out] (2*Sqrt[b*x]*(c + d*x)^n*(e + f*x)^p*AppellF1[1/2, -n, -p, 3/2, -
((d*x)/c), -((f*x)/e)])/(b*(1 + (d*x)/c)^n*(1 + (f*x)/e)^p)
```

Rubi [A] time = 0.135999, antiderivative size = 77, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 2, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.091

$$\frac{2\sqrt{bx}(c+dx)^n\left(\frac{dx}{c}+1\right)^{-n}(e+fx)^p\left(\frac{fx}{e}+1\right)^{-p}F_1\left(\frac{1}{2};-n,-p;\frac{3}{2};-\frac{dx}{c},-\frac{fx}{e}\right)}{b}$$

Antiderivative was successfully verified.

```
[In]  Int[((c + d*x)^n*(e + f*x)^p)/Sqrt[b*x],x]
```

```
[Out] (2*Sqrt[b*x]*(c + d*x)^n*(e + f*x)^p*AppellF1[1/2, -n, -p, 3/2, -
((d*x)/c), -((f*x)/e)])/(b*(1 + (d*x)/c)^n*(1 + (f*x)/e)^p)
```

Rubi in Sympy [A] time = 18.3417, size = 60, normalized size = 0.78

$$\frac{2\sqrt{bx}\left(1+\frac{dx}{c}\right)^{-n}\left(1+\frac{fx}{e}\right)^{-p}(c+dx)^n(e+fx)^p\operatorname{appellf}_1\left(\frac{1}{2},-n,-p,\frac{3}{2},-\frac{dx}{c},-\frac{fx}{e}\right)}{b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**n*(f*x+e)**p/(b*x)**(1/2),x)
```

```
[Out] 2*sqrt(b*x)*(1 + d*x/c)**(-n)*(1 + f*x/e)**(-p)*(c + d*x)**n*(e +
 f*x)**p*appellf1(1/2, -n, -p, 3/2, -d*x/c, -f*x/e)/b
```

Mathematica [B] time = 0.365056, size = 157, normalized size = 2.04

$$\frac{6cex(c+dx)^n(e+fx)^pF_1\left(\frac{1}{2};-n,-p;\frac{3}{2};-\frac{dx}{c},-\frac{fx}{e}\right)}{\sqrt{bx}\left(3ceF_1\left(\frac{1}{2};-n,-p;\frac{3}{2};-\frac{dx}{c},-\frac{fx}{e}\right)+2denxF_1\left(\frac{3}{2};1-n,-p;\frac{5}{2};-\frac{dx}{c},-\frac{fx}{e}\right)+2cfpxF_1\left(\frac{3}{2};-n,1-p;\frac{5}{2};-\frac{dx}{c},-\frac{fx}{e}\right)\right)}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[((c + d*x)^n*(e + f*x)^p)/Sqrt[b*x],x]
```

```
[Out] (6*c*e*x*(c + d*x)^n*(e + f*x)^p*AppellF1[1/2, -n, -p, 3/2, -((d*
x)/c), -((f*x)/e)])/(Sqrt[b*x]*(3*c*e*AppellF1[1/2, -n, -p, 3/2,
-((d*x)/c), -((f*x)/e)] + 2*d*e*n*x*AppellF1[3/2, 1 - n, -p, 5/2,
 -((d*x)/c), -((f*x)/e)] + 2*c*f*p*x*AppellF1[3/2, -n, 1 - p, 5/2
, -((d*x)/c), -((f*x)/e)]))
```

Maple [F] time = 0.059, size = 0, normalized size = 0.

$$\int (dx+c)^{n} (fx+e)^{p} \frac{1}{\sqrt{bx}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^n*(f*x+e)^p/(b*x)^(1/2),x)
```

```
[Out] int((d*x+c)^n*(f*x+e)^p/(b*x)^(1/2),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(dx+c)^{n}(fx+e)^{p}}{\sqrt{bx}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^n*(f*x + e)^p/sqrt(b*x),x, algorithm="maxima")
```

```
[Out] integrate((d*x + c)^n*(f*x + e)^p/sqrt(b*x), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(dx+c)^{n}(fx+e)^{p}}{\sqrt{bx}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^n*(f*x + e)^p/sqrt(b*x),x, algorithm="fricas")
```

```
[Out] integral((d*x + c)^n*(f*x + e)^p/sqrt(b*x), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**n*(f*x+e)**p/(b*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(dx+c)^{n}(fx+e)^{p}}{\sqrt{bx}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^n*(f*x + e)^p/sqrt(b*x),x, algorithm="giac")
```

```
[Out] integrate((d*x + c)^n*(f*x + e)^p/sqrt(b*x), x)
```

3.954 $\int (bx)^m(\pi + dx)^n(e + fx)^p \, dx$

Optimal. Leaf size=49

$$\frac{\pi^n e^p (bx)^{m+1} F_1\left(m+1;-n,-p;m+2;-\frac{dx}{\pi},-\frac{fx}{e}\right)}{b(m+1)}$$

```
[Out] (E^p*Pi^n*(b*x)^(1 + m)*AppellF1[1 + m, -n, -p, 2 + m, -((d*x)/Pi
), -((f*x)/E)])/(b*(1 + m))
```

Rubi [A] time = 0.0663741, antiderivative size = 49, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$\frac{\pi^n e^p (bx)^{m+1} F_1\left(m+1;-n,-p;m+2;-\frac{dx}{\pi},-\frac{fx}{e}\right)}{b(m+1)}$$

Antiderivative was successfully verified.

```
[In]  Int[(b*x)^m*(Pi + d*x)^n*(E + f*x)^p,x]
```

```
[Out] (E^p*Pi^n*(b*x)^(1 + m)*AppellF1[1 + m, -n, -p, 2 + m, -((d*x)/Pi
), -((f*x)/E)])/(b*(1 + m))
```

Rubi in Sympy [A] time = 6.11013, size = 37, normalized size = 0.76

$$\frac{\pi^n \,(bx)^{m+1}\, e^p \operatorname{appellf}_1\left(m+1, -n, -p, m+2, -\frac{dx}{\pi}, -\frac{fx}{e}\right)}{b\,(m+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x)**m*(d*x+pi)**n*(f*x+E)**p,x)
```

```
[Out] pi**n*(b*x)**(m + 1)*exp(p)*appellf1(m + 1, -n, -p, m + 2, -d*x/p
i, -f*x*exp(-1))/(b*(m + 1))
```

Mathematica [B] time = 0.440346, size = 163, normalized size = 3.33

$$\frac{e\pi(m+2)x(bx)^m(dx+\pi)^n(fx+e)^p F_1\left(m+1;-n,-p;m+2;-\frac{dx}{\pi},-\frac{fx}{e}\right)}{(m+1)\left(e\pi(m+2)F_1\left(m+1;-n,-p;m+2;-\frac{dx}{\pi},-\frac{fx}{e}\right)+x\left(ednF_1\left(m+2;1-n,-p;m+3;-\frac{dx}{\pi},-\frac{fx}{e}\right)+\pi fpF_1\left(m+2;-\right.\right.\right.}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(b*x)^m*(Pi + d*x)^n*(E + f*x)^p,x]
```

```
[Out] (E*(2 + m)*Pi*x*(b*x)^m*(Pi + d*x)^n*(E + f*x)^p*AppellF1[1 + m,
-n, -p, 2 + m, -((d*x)/Pi), -((f*x)/E)])/((1 + m)*(E*(2 + m)*Pi*A
ppellF1[1 + m, -n, -p, 2 + m, -((d*x)/Pi), -((f*x)/E)] + x*(d*E*n
*AppellF1[2 + m, 1 - n, -p, 3 + m, -((d*x)/Pi), -((f*x)/E)] + f*p
*Pi*AppellF1[2 + m, -n, 1 - p, 3 + m, -((d*x)/Pi), -((f*x)/E)])))
```

Maple [F] time = 0.207, size = 0, normalized size = 0.

$$\int (bx)^m \,(dx+\pi)^n \,(fx+E)^p \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x)^m*(d*x+Pi)^n*(f*x+E)^p,x)

[Out] int((b*x)^m*(d*x+Pi)^n*(f*x+E)^p,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (\pi + dx)^n (bx)^m (fx + E)^p dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((pi + d*x)^n*(b*x)^m*(f*x + E)^p,x, algorithm="maxima")

[Out] integrate((pi + d*x)^n*(b*x)^m*(f*x + E)^p, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left((\pi + dx)^n (bx)^m (fx + E)^p, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((pi + d*x)^n*(b*x)^m*(f*x + E)^p,x, algorithm="fricas")

[Out] integral((pi + d*x)^n*(b*x)^m*(f*x + E)^p, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x)**m*(d*x+pi)**n*(f*x+E)**p,x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (\pi + dx)^n (bx)^m (fx + E)^p dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((pi + d*x)^n*(b*x)^m*(f*x + E)^p,x, algorithm="giac")

[Out] integrate((pi + d*x)^n*(b*x)^m*(f*x + E)^p, x)
```

3.955 $\int (bx)^m(\pi + dx)^n(e + fx)^p \, dx$

Optimal. Leaf size=65

$$\frac{\pi^n (bx)^{m+1}(e+fx)^p \left(\frac{fx}{e}+1\right)^{-p} F_1\left(m+1;-n,-p;m+2;-\frac{dx}{\pi},-\frac{fx}{e}\right)}{b(m+1)}$$

```
[Out] (Pi^n*(b*x)^(1 + m)*(e + f*x)^p*AppellF1[1 + m, -n, -p, 2 + m, -(
(d*x)/Pi), -((f*x)/e)])/(b*(1 + m)*(1 + (f*x)/e)^p)
```

Rubi [A] time = 0.101886, antiderivative size = 65, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.1$

$$\frac{\pi^n (bx)^{m+1}(e+fx)^p \left(\frac{fx}{e}+1\right)^{-p} F_1\left(m+1;-n,-p;m+2;-\frac{dx}{\pi},-\frac{fx}{e}\right)}{b(m+1)}$$

Antiderivative was successfully verified.

```
[In] Int[(b*x)^m*(Pi + d*x)^n*(e + f*x)^p,x]
```

```
[Out] (Pi^n*(b*x)^(1 + m)*(e + f*x)^p*AppellF1[1 + m, -n, -p, 2 + m, -(
(d*x)/Pi), -((f*x)/e)])/(b*(1 + m)*(1 + (f*x)/e)^p)
```

Rubi in Sympy [A] time = 12.4436, size = 49, normalized size = 0.75

$$\frac{\pi^n (bx)^{m+1} \left(1+\frac{fx}{e}\right)^{-p} (e+fx)^p \operatorname{appellf}_1\left(m+1,-n,-p,m+2,-\frac{dx}{\pi},-\frac{fx}{e}\right)}{b\,(m+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x)**m*(d*x+pi)**n*(f*x+e)**p,x)
```

```
[Out] pi**n*(b*x)**(m + 1)*(1 + f*x/e)**(-p)*(e + f*x)**p*appellf1(m +
1, -n, -p, m + 2, -d*x/pi, -f*x/e)/(b*(m + 1))
```

Mathematica [B] time = 0.514002, size = 163, normalized size = 2.51

$$\frac{\pi e(m+2)x(bx)^m(dx+\pi)^n(e+fx)^p F_1\left(m+1;-n,-p;m+2;-\frac{dx}{\pi},-\frac{fx}{e}\right)}{(m+1)\left(\pi e(m+2)F_1\left(m+1;-n,-p;m+2;-\frac{dx}{\pi},-\frac{fx}{e}\right)+x\left(denF_1\left(m+2;1-n,-p;m+3;-\frac{dx}{\pi},-\frac{fx}{e}\right)+\pi fpF_1\left(m+2;-\right.\right.\right.}$$

Warning: Unable to verify antiderivative.

```
[In] Integrate[(b*x)^m*(Pi + d*x)^n*(e + f*x)^p,x]
```

```
[Out] (e*(2 + m)*Pi*x*(b*x)^m*(Pi + d*x)^n*(e + f*x)^p*AppellF1[1 + m,
-n, -p, 2 + m, -((d*x)/Pi), -((f*x)/e)])/((1 + m)*(e*(2 + m)*Pi*A
ppellF1[1 + m, -n, -p, 2 + m, -((d*x)/Pi), -((f*x)/e)] + x*(d*e*n
*AppellF1[2 + m, 1 - n, -p, 3 + m, -((d*x)/Pi), -((f*x)/e)] + f*p
*Pi*AppellF1[2 + m, -n, 1 - p, 3 + m, -((d*x)/Pi), -((f*x)/e)])))
```

Maple [F] time = 0.178, size = 0, normalized size = 0.

$$\int (bx)^{m} (dx+\pi)^{n} (fx+e)^{p}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x)^m*(d*x+Pi)^n*(f*x+e)^p,x)

[Out] int((b*x)^m*(d*x+Pi)^n*(f*x+e)^p,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (\pi+dx)^{n} (bx)^{m} (fx+e)^{p}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((pi + d*x)^n*(b*x)^m*(f*x + e)^p,x, algorithm="maxima")

[Out] integrate((pi + d*x)^n*(b*x)^m*(f*x + e)^p, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left((\pi+dx)^{n} (bx)^{m} (fx+e)^{p}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((pi + d*x)^n*(b*x)^m*(f*x + e)^p,x, algorithm="fricas")

[Out] integral((pi + d*x)^n*(b*x)^m*(f*x + e)^p, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x)**m*(d*x+pi)**n*(f*x+e)**p,x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (\pi+dx)^{n} (bx)^{m} (fx+e)^{p}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((pi + d*x)^n*(b*x)^m*(f*x + e)^p,x, algorithm="giac")

[Out] integrate((pi + d*x)^n*(b*x)^m*(f*x + e)^p, x)
```

3.956 $\int (bx)^{5/2}(\pi + dx)^n(e + fx)^p \, dx$

Optimal. Leaf size=47

$$\frac{2\pi^n e^p (bx)^{7/2} F_1\left(\frac{7}{2}; -n, -p; \frac{9}{2}; -\frac{dx}{\pi}, -\frac{fx}{e}\right)}{7b}$$

```
[Out] (2*E^p*Pi^n*(b*x)^(7/2)*AppellF1[7/2, -n, -p, 9/2, -((d*x)/Pi), -
((f*x)/E)])/(7*b)
```

Rubi [A] time = 0.0545907, antiderivative size = 47, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$\frac{2\pi^n e^p (bx)^{7/2} F_1\left(\frac{7}{2}; -n, -p; \frac{9}{2}; -\frac{dx}{\pi}, -\frac{fx}{e}\right)}{7b}$$

Antiderivative was successfully verified.

```
[In]  Int[(b*x)^(5/2)*(Pi + d*x)^n*(E + f*x)^p,x]
```

```
[Out] (2*E^p*Pi^n*(b*x)^(7/2)*AppellF1[7/2, -n, -p, 9/2, -((d*x)/Pi), -
((f*x)/E)])/(7*b)
```

Rubi in Sympy [A] time = 5.63325, size = 37, normalized size = 0.79

$$\frac{2\pi^n (bx)^{\frac{7}{2}} e^p \operatorname{appellf}_1\left(\frac{7}{2}, -n, -p, \frac{9}{2}, -\frac{dx}{\pi}, -\frac{fx}{e}\right)}{7b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x)**(5/2)*(d*x+pi)**n*(f*x+E)**p,x)
```

```
[Out] 2*pi**n*(b*x)**(7/2)*exp(p)*appellf1(7/2, -n, -p, 9/2, -d*x/pi, -
f*x*exp(-1))/(7*b)
```

Mathematica [B] time = 0.321904, size = 159, normalized size = 3.38

$$\frac{18e\pi x(bx)^{5/2}(dx+\pi)^n(fx+e)^p F_1\left(\frac{7}{2}; -n, -p; \frac{9}{2}; -\frac{dx}{\pi}, -\frac{fx}{e}\right)}{7\left(9e\pi F_1\left(\frac{7}{2}; -n, -p; \frac{9}{2}; -\frac{dx}{\pi}, -\frac{fx}{e}\right) + 2x\left(ednF_1\left(\frac{9}{2}; 1-n, -p; \frac{11}{2}; -\frac{dx}{\pi}, -\frac{fx}{e}\right) + \pi fpF_1\left(\frac{9}{2}; -n, 1-p; \frac{11}{2}; -\frac{dx}{\pi}, -\frac{fx}{e}\right)\right)\right)}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(b*x)^(5/2)*(Pi + d*x)^n*(E + f*x)^p,x]
```

```
[Out] (18*E*Pi*x*(b*x)^(5/2)*(Pi + d*x)^n*(E + f*x)^p*AppellF1[7/2, -n,
 -p, 9/2, -((d*x)/Pi), -((f*x)/E)])/(7*(9*E*Pi*AppellF1[7/2, -n,
-p, 9/2, -((d*x)/Pi), -((f*x)/E)] + 2*x*(d*E*n*AppellF1[9/2, 1 -
n, -p, 11/2, -((d*x)/Pi), -((f*x)/E)] + f*p*Pi*AppellF1[9/2, -n,
1 - p, 11/2, -((d*x)/Pi), -((f*x)/E)])))
```

Maple [F] time = 0.073, size = 0, normalized size = 0.

$$\int (bx)^{\frac{5}{2}} (dx+\pi)^n (fx+E)^p \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x)^(5/2)*(d*x+Pi)^n*(f*x+E)^p,x)
```

```
[Out] int((b*x)^(5/2)*(d*x+Pi)^n*(f*x+E)^p,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx)^{\frac{5}{2}} (\pi + dx)^n (fx + E)^p \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x)^(5/2)*(pi + d*x)^n*(f*x + E)^p,x, algorithm="maxima")
```

```
[Out] integrate((b*x)^(5/2)*(pi + d*x)^n*(f*x + E)^p, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\sqrt{bx}(\pi + dx)^n (fx + E)^p b^2 x^2, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x)^(5/2)*(pi + d*x)^n*(f*x + E)^p,x, algorithm="fricas")
```

```
[Out] integral(sqrt(b*x)*(pi + d*x)^n*(f*x + E)^p*b^2*x^2, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x)**(5/2)*(d*x+pi)**n*(f*x+E)**p,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (bx)^{\frac{5}{2}} (\pi + dx)^n (fx + E)^p \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x)^(5/2)*(pi + d*x)^n*(f*x + E)^p,x, algorithm="giac")
```

```
[Out] integrate((b*x)^(5/2)*(pi + d*x)^n*(f*x + E)^p, x)
```

3.957 $\int (bx)^{5/2}(\pi + dx)^n(e + fx)^p \, dx$

Optimal. Leaf size=63

$$\frac{2\pi^n (bx)^{7/2}(e+fx)^p \left(\frac{fx}{e}+1\right)^{-p} F_1\left(\frac{7}{2};-n,-p;\frac{9}{2};-\frac{dx}{\pi},-\frac{fx}{e}\right)}{7b}$$

```
[Out] (2*Pi^n*(b*x)^(7/2)*(e + f*x)^p*AppellF1[7/2, -n, -p, 9/2, -((d*x
)/Pi), -((f*x)/e)])/(7*b*(1 + (f*x)/e)^p)
```

Rubi [A] time = 0.0936117, antiderivative size = 63, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.091$

$$\frac{2\pi^n (bx)^{7/2}(e+fx)^p \left(\frac{fx}{e}+1\right)^{-p} F_1\left(\frac{7}{2};-n,-p;\frac{9}{2};-\frac{dx}{\pi},-\frac{fx}{e}\right)}{7b}$$

Antiderivative was successfully verified.

```
[In]  Int[(b*x)^(5/2)*(Pi + d*x)^n*(e + f*x)^p,x]
```

```
[Out] (2*Pi^n*(b*x)^(7/2)*(e + f*x)^p*AppellF1[7/2, -n, -p, 9/2, -((d*x
)/Pi), -((f*x)/e)])/(7*b*(1 + (f*x)/e)^p)
```

Rubi in Sympy [A] time = 11.4303, size = 49, normalized size = 0.78

$$\frac{2\pi^n (bx)^{\frac{7}{2}} \left(1+\frac{fx}{e}\right)^{-p} (e+fx)^p \operatorname{appellf_1}\left(\frac{7}{2},-n,-p,\frac{9}{2},-\frac{dx}{\pi},-\frac{fx}{e}\right)}{7b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x)**(5/2)*(d*x+pi)**n*(f*x+e)**p,x)
```

```
[Out] 2*pi**n*(b*x)**(7/2)*(1 + f*x/e)**(-p)*(e + f*x)**p*appellf1(7/2,
 -n, -p, 9/2, -d*x/pi, -f*x/e)/(7*b)
```

Mathematica [B] time = 0.377245, size = 159, normalized size = 2.52

$$\frac{18\pi ex(bx)^{5/2}(dx+\pi)^n(e+fx)^p F_1\left(\frac{7}{2};-n,-p;\frac{9}{2};-\frac{dx}{\pi},-\frac{fx}{e}\right)}{7\left(9\pi eF_1\left(\frac{7}{2};-n,-p;\frac{9}{2};-\frac{dx}{\pi},-\frac{fx}{e}\right)+2x\left(denF_1\left(\frac{9}{2};1-n,-p;\frac{11}{2};-\frac{dx}{\pi},-\frac{fx}{e}\right)+\pi fpF_1\left(\frac{9}{2};-n,1-p;\frac{11}{2};-\frac{dx}{\pi},-\frac{fx}{e}\right)\right)\right)}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(b*x)^(5/2)*(Pi + d*x)^n*(e + f*x)^p,x]
```

```
[Out] (18*e*Pi*x*(b*x)^(5/2)*(Pi + d*x)^n*(e + f*x)^p*AppellF1[7/2, -n,
 -p, 9/2, -((d*x)/Pi), -((f*x)/e)])/(7*(9*e*Pi*AppellF1[7/2, -n,
-p, 9/2, -((d*x)/Pi), -((f*x)/e)] + 2*x*(d*e*n*AppellF1[9/2, 1 -
n, -p, 11/2, -((d*x)/Pi), -((f*x)/e)] + f*p*Pi*AppellF1[9/2, -n,
1 - p, 11/2, -((d*x)/Pi), -((f*x)/e)])))
```

Maple [F] time = 0.057, size = 0, normalized size = 0.

$$\int (bx)^{\frac{5}{2}} (dx+\pi)^n (fx+e)^p \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x)^(5/2)*(d*x+Pi)^n*(f*x+e)^p,x)
```

```
[Out] int((b*x)^(5/2)*(d*x+Pi)^n*(f*x+e)^p,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx)^{\frac{5}{2}} (\pi + dx)^n (fx + e)^p \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x)^(5/2)*(pi + d*x)^n*(f*x + e)^p,x, algorithm="maxima")
```

```
[Out] integrate((b*x)^(5/2)*(pi + d*x)^n*(f*x + e)^p, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\sqrt{bx}(\pi + dx)^n (fx + e)^p b^2 x^2, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x)^(5/2)*(pi + d*x)^n*(f*x + e)^p,x, algorithm="fricas")
```

```
[Out] integral(sqrt(b*x)*(pi + d*x)^n*(f*x + e)^p*b^2*x^2, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x)**(5/2)*(d*x+pi)**n*(f*x+e)**p,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (bx)^{\frac{5}{2}} (\pi + dx)^n (fx + e)^p \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x)^(5/2)*(pi + d*x)^n*(f*x + e)^p,x, algorithm="giac")
```

```
[Out] integrate((b*x)^(5/2)*(pi + d*x)^n*(f*x + e)^p, x)
```

3.958 $\int x^3(a+bx)^n(c+dx)^{-n}\,dx$

Optimal. Leaf size=295

$$\frac{(a+bx)^{n+1}(c+dx)^{1-n}\left(a^2d^2\left(n^2-5n+6\right)+2abcd\left(3-n^2\right)-2bdx(ad(3-n)+bc(n+3))+b^2c^2\left(n^2+5n+6\right)\right)}{24b^3d^3}-\frac{(a+bx)^{n+1}(c+dx)^{-n}\left(a^3d^3\left(-n^3+6n^2-11n+6\right)+3a^2bcd^2\left(n^3-2n^2-n+2\right)+3ab^2c^2d\left(-n^3-2n^2+n+2\right)+b^3c^3\left(n^3\right.\right.}{24b^4d^3(n+1)}+\frac{x^2(a+bx)^{n+1}(c+dx)^{1-n}}{4bd}$$

```
[Out] (x^2*(a + b*x)^(1 + n)*(c + d*x)^(1 - n))/(4*b*d) + ((a + b*x)^(1
 + n)*(c + d*x)^(1 - n)*(2*a*b*c*d*(3 - n^2) + a^2*d^2*(6 - 5*n +
 n^2) + b^2*c^2*(6 + 5*n + n^2) - 2*b*d*(a*d*(3 - n) + b*c*(3 + n
))*x))/(24*b^3*d^3) - ((3*a*b^2*c^2*d*(2 + n - 2*n^2 - n^3) + a^3
*d^3*(6 - 11*n + 6*n^2 - n^3) + 3*a^2*b*c*d^2*(2 - n - 2*n^2 + n^
3) + b^3*c^3*(6 + 11*n + 6*n^2 + n^3))*(a + b*x)^(1 + n)*((b*(c +
 d*x))/(b*c - a*d))^n*Hypergeometric2F1[n, 1 + n, 2 + n, -((d*(a
+ b*x))/(b*c - a*d))])/(24*b^4*d^3*(1 + n)*(c + d*x)^n)
```

Rubi [A] time = 0.604959, antiderivative size = 295, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.2$

$$\frac{(a+bx)^{n+1}(c+dx)^{1-n}\left(a^2d^2\left(n^2-5n+6\right)+2abcd\left(3-n^2\right)-2bdx(ad(3-n)+bc(n+3))+b^2c^2\left(n^2+5n+6\right)\right)}{24b^3d^3}-\frac{(a+bx)^{n+1}(c+dx)^{-n}\left(a^3d^3\left(-n^3+6n^2-11n+6\right)+3a^2bcd^2\left(n^3-2n^2-n+2\right)+3ab^2c^2d\left(-n^3-2n^2+n+2\right)+b^3c^3\left(n^3\right.\right.}{24b^4d^3(n+1)}+\frac{x^2(a+bx)^{n+1}(c+dx)^{1-n}}{4bd}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^3*(a + b*x)^n)/(c + d*x)^n,x]
```


```
[Out] (x^2*(a + b*x)^(1 + n)*(c + d*x)^(1 - n))/(4*b*d) + ((a + b*x)^(1
 + n)*(c + d*x)^(1 - n)*(2*a*b*c*d*(3 - n^2) + a^2*d^2*(6 - 5*n +
 n^2) + b^2*c^2*(6 + 5*n + n^2) - 2*b*d*(a*d*(3 - n) + b*c*(3 + n
))*x))/(24*b^3*d^3) - ((3*a*b^2*c^2*d*(2 + n - 2*n^2 - n^3) + a^3
*d^3*(6 - 11*n + 6*n^2 - n^3) + 3*a^2*b*c*d^2*(2 - n - 2*n^2 + n^
3) + b^3*c^3*(6 + 11*n + 6*n^2 + n^3))*(a + b*x)^(1 + n)*((b*(c +
 d*x))/(b*c - a*d))^n*Hypergeometric2F1[n, 1 + n, 2 + n, -((d*(a
+ b*x))/(b*c - a*d))])/(24*b^4*d^3*(1 + n)*(c + d*x)^n)
```

Rubi in Sympy [A] time = 51.7568, size = 275, normalized size = 0.93

$$\frac{x^2\left(a+bx\right)^{n+1}\left(c+dx\right)^{-n+1}}{4bd}-\frac{\left(a+bx\right)^{n+1}\left(c+dx\right)^{-n+1}\left(6abcd-ad\left(-n+2\right)\left(ad\left(-n+3\right)+bc\left(n+3\right)\right)-bc\left(n+2\right)\left(ad\left(-n+3\right)+bc\left(n+3\right)\right)+2bdx\left(ad\left(-\right.\right.\right.}{24b^3d^3}+\frac{\left(\frac{b(-c-dx)}{ad-bc}\right)^n\left(a+bx\right)^{n+1}\left(c+dx\right)^{-n}\left(-a^2d^2\left(-n+1\right)\left(-n+2\right)\left(ad\left(-n+3\right)+bc\left(n+3\right)\right)+2abcd\left(-n+1\right)\left(3ad-\left(n+1\right)\left(ad\left(-\right.\right.\right.\right.}{24b^4d^3\left(n+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**3*(b*x+a)**n/((d*x+c)**n),x)
```

```
[Out] x**2*(a + b*x)**(n + 1)*(c + d*x)**(-n + 1)/(4*b*d) - (a + b*x)**
(n + 1)*(c + d*x)**(-n + 1)*(6*a*b*c*d - a*d*(-n + 2)*(a*d*(-n +
```

```
3) + b*c*(n + 3)) - b*c*(n + 2)*(a*d*(-n + 3) + b*c*(n + 3)) + 2*
b*d*x*(a*d*(-n + 3) + b*c*(n + 3)))/(24*b**3*d**3) + (b*(-c - d*x
)/(a*d - b*c))**n*(a + b*x)**(n + 1)*(c + d*x)**(-n)*(-a**2*d**2*
(-n + 1)*(-n + 2)*(a*d*(-n + 3) + b*c*(n + 3)) + 2*a*b*c*d*(-n +
1)*(3*a*d - (n + 1)*(a*d*(-n + 3) + b*c*(n + 3))) + b**2*c**2*(n
+ 1)*(6*a*d - (n + 2)*(a*d*(-n + 3) + b*c*(n + 3))))*hyper((n, n
+ 1), (n + 2,), d*(a + b*x)/(a*d - b*c))/(24*b**4*d**3*(n + 1))
```

Mathematica [C] time = 0.363504, size = 130, normalized size = 0.44

$$\frac{5acx^4(a+bx)^n(c+dx)^{-n}F_1\left(4;-n,n;5;-\frac{bx}{a},-\frac{dx}{c}\right)}{20acF_1\left(4;-n,n;5;-\frac{bx}{a},-\frac{dx}{c}\right)+4bcnxF_1\left(5;1-n,n;6;-\frac{bx}{a},-\frac{dx}{c}\right)-4adnxF_1\left(5;-n,n+1;6;-\frac{bx}{a},-\frac{dx}{c}\right)}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(x^3*(a + b*x)^n)/(c + d*x)^n,x]
```

```
[Out] (5*a*c*x^4*(a + b*x)^n*AppellF1[4, -n, n, 5, -((b*x)/a), -((d*x)/
c)])/((c + d*x)^n*(20*a*c*AppellF1[4, -n, n, 5, -((b*x)/a), -((d*
x)/c)] + 4*b*c*n*x*AppellF1[5, 1 - n, n, 6, -((b*x)/a), -((d*x)/c
)] - 4*a*d*n*x*AppellF1[5, -n, 1 + n, 6, -((b*x)/a), -((d*x)/c)])
)
```

Maple [F] time = 0.092, size = 0, normalized size = 0.

$$\int \frac{x^3(bx+a)^n}{(dx+c)^n}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^3*(b*x+a)^n/((d*x+c)^n),x)
```

```
[Out] int(x^3*(b*x+a)^n/((d*x+c)^n),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^n(dx+c)^{-n}x^3\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n*x^3/(d*x + c)^n,x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^n*(d*x + c)^(-n)*x^3, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)^n x^3}{(dx+c)^n}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n*x^3/(d*x + c)^n,x, algorithm="fricas")
```

```
[Out] integral((b*x + a)^n*x^3/(d*x + c)^n, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**3*(b*x+a)**n/((d*x+c)**n),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n x^3}{(dx+c)^n}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n*x^3/(d*x + c)^n,x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^n*x^3/(d*x + c)^n, x)
```

3.959 $\int x^2(a+bx)^n(c+dx)^{-n}\,dx$

Optimal. Leaf size=199

$$\frac{(a+bx)^{n+1}(c+dx)^{-n}\left(a^2d^2\left(n^2-3n+2\right)+2abcd\left(1-n^2\right)+b^2c^2\left(n^2+3n+2\right)\right)\left(\frac{b(c+dx)}{bc-ad}\right)^n {}_2F_1\left(n,n+1;n+2;-\frac{d(a+bx)}{bc-ad}\right)}{6b^3d^2(n+1)} - \frac{(a+bx)^{n+1}(c+dx)^{1-n}(ad(2-n)+bc(n+2))}{6b^2d^2} + \frac{x(a+bx)^{n+1}(c+dx)^{1-n}}{3bd}$$

```
[Out] -((a*d*(2 - n) + b*c*(2 + n))*(a + b*x)^(1 + n)*(c + d*x)^(1 - n)
)/(6*b^2*d^2) + (x*(a + b*x)^(1 + n)*(c + d*x)^(1 - n))/(3*b*d) +
 ((2*a*b*c*d*(1 - n^2) + a^2*d^2*(2 - 3*n + n^2) + b^2*c^2*(2 + 3
*n + n^2))*(a + b*x)^(1 + n)*((b*(c + d*x))/(b*c - a*d))^n*Hyperg
eometric2F1[n, 1 + n, 2 + n, -((d*(a + b*x))/(b*c - a*d))])/(6*b^
3*d^2*(1 + n)*(c + d*x)^n)
```

Rubi [A] time = 0.367531, antiderivative size = 199, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.2$

$$\frac{(a+bx)^{n+1}(c+dx)^{-n}\left(a^2d^2\left(n^2-3n+2\right)+2abcd\left(1-n^2\right)+b^2c^2\left(n^2+3n+2\right)\right)\left(\frac{b(c+dx)}{bc-ad}\right)^n {}_2F_1\left(n,n+1;n+2;-\frac{d(a+bx)}{bc-ad}\right)}{6b^3d^2(n+1)} - \frac{(a+bx)^{n+1}(c+dx)^{1-n}(ad(2-n)+bc(n+2))}{6b^2d^2} + \frac{x(a+bx)^{n+1}(c+dx)^{1-n}}{3bd}$$

Antiderivative was successfully verified.

```
[In]  Int[(x^2*(a + b*x)^n)/(c + d*x)^n,x]
```

```
[Out] -((a*d*(2 - n) + b*c*(2 + n))*(a + b*x)^(1 + n)*(c + d*x)^(1 - n)
)/(6*b^2*d^2) + (x*(a + b*x)^(1 + n)*(c + d*x)^(1 - n))/(3*b*d) +
 ((2*a*b*c*d*(1 - n^2) + a^2*d^2*(2 - 3*n + n^2) + b^2*c^2*(2 + 3
*n + n^2))*(a + b*x)^(1 + n)*((b*(c + d*x))/(b*c - a*d))^n*Hyperg
eometric2F1[n, 1 + n, 2 + n, -((d*(a + b*x))/(b*c - a*d))])/(6*b^
3*d^2*(1 + n)*(c + d*x)^n)
```

Rubi in Sympy [A] time = 34.1977, size = 160, normalized size = 0.8

$$\frac{x\,(a+bx)^{n+1}\,(c+dx)^{-n+1}}{3bd} - \frac{(a+bx)^{n+1}\,(c+dx)^{-n+1}\,(ad\,(-n+2)+bc\,(n+2))}{6b^2d^2} + \frac{\left(\frac{b(-c-dx)}{ad-bc}\right)^n (a+bx)^{n+1}\,(c+dx)^{-n}\,(-2abcd+(ad\,(-n+1)+bc\,(n+1))\,(ad\,(-n+2)+bc\,(n+2)))\,{}_2F_1\left(\begin{matrix} n, n+1 \\ n+2 \end{matrix}\middle| \frac{d(a+bx)}{ad-bc}\right)}{6b^3d^2\,(n+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2*(b*x+a)**n/((d*x+c)**n),x)
```

```
[Out] x*(a + b*x)**(n + 1)*(c + d*x)**(-n + 1)/(3*b*d) - (a + b*x)**(n
+ 1)*(c + d*x)**(-n + 1)*(a*d*(-n + 2) + b*c*(n + 2))/(6*b**2*d**
2) + (b*(-c - d*x)/(a*d - b*c))**n*(a + b*x)**(n + 1)*(c + d*x)**
(-n)*(-2*a*b*c*d + (a*d*(-n + 1) + b*c*(n + 1))*(a*d*(-n + 2) + b
*c*(n + 2)))*hyper((n, n + 1), (n + 2,), d*(a + b*x)/(a*d - b*c))
/(6*b**3*d**2*(n + 1))
```

Mathematica [C] time = 0.108486, size = 130, normalized size = 0.65

$$\frac{4acx^3(a+bx)^n(c+dx)^{-n}F_1\left(3;-n,n;4;-\frac{bx}{a},-\frac{dx}{c}\right)}{12acF_1\left(3;-n,n;4;-\frac{bx}{a},-\frac{dx}{c}\right)+3bcnxF_1\left(4;1-n,n;5;-\frac{bx}{a},-\frac{dx}{c}\right)-3adnxF_1\left(4;-n,n+1;5;-\frac{bx}{a},-\frac{dx}{c}\right)}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(x^2*(a + b*x)^n)/(c + d*x)^n,x]
```

```
[Out] (4*a*c*x^3*(a + b*x)^n*AppellF1[3, -n, n, 4, -((b*x)/a), -((d*x)/
c)])/((c + d*x)^n*(12*a*c*AppellF1[3, -n, n, 4, -((b*x)/a), -((d*
x)/c)] + 3*b*c*n*x*AppellF1[4, 1 - n, n, 5, -((b*x)/a), -((d*x)/c
)] - 3*a*d*n*x*AppellF1[4, -n, 1 + n, 5, -((b*x)/a), -((d*x)/c)])
)
```

Maple [F] time = 0.089, size = 0, normalized size = 0.

$$\int \frac{x^2 (bx+a)^n}{(dx+c)^n}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(b*x+a)^n/((d*x+c)^n),x)
```

```
[Out] int(x^2*(b*x+a)^n/((d*x+c)^n),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^n (dx+c)^{-n} x^2\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n*x^2/(d*x + c)^n,x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^n*(d*x + c)^(-n)*x^2, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)^n x^2}{(dx+c)^n}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n*x^2/(d*x + c)^n,x, algorithm="fricas")
```

```
[Out] integral((b*x + a)^n*x^2/(d*x + c)^n, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2*(b*x+a)**n/((d*x+c)**n),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n x^2}{(dx+c)^n}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n*x^2/(d*x + c)^n,x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^n*x^2/(d*x + c)^n, x)
```

3.960 $\int x(a+bx)^n(c+dx)^{-n}\,dx$

Optimal. Leaf size=124

$$\frac{(a+bx)^{n+1}(c+dx)^{1-n}}{2bd}-\frac{(a+bx)^{n+1}(c+dx)^{-n}(ad(1-n)+bc(n+1))\left(\frac{b(c+dx)}{bc-ad}\right)^n {}_2F_1\left(n,n+1;n+2;-\frac{d(a+bx)}{bc-ad}\right)}{2b^2d(n+1)}$$

```
[Out] ((a + b*x)^(1 + n)*(c + d*x)^(1 - n))/(2*b*d) - ((a*d*(1 - n) + b
*c*(1 + n))*(a + b*x)^(1 + n)*((b*(c + d*x))/(b*c - a*d))^n*Hyper
geometric2F1[n, 1 + n, 2 + n, -((d*(a + b*x))/(b*c - a*d))])/(2*b
^2*d*(1 + n)*(c + d*x)^n)
```

Rubi [A] time = 0.157965, antiderivative size = 120, normalized size of antiderivative = 0.97, number of steps used = 3, number of rules used = 3, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$\frac{(a+bx)^{n+1}(c+dx)^{1-n}}{2bd}-\frac{(a+bx)^{n+1}(c+dx)^{-n}\left(\frac{a-an}{n+1}+\frac{bc}{d}\right)\left(\frac{b(c+dx)}{bc-ad}\right)^n {}_2F_1\left(n,n+1;n+2;-\frac{d(a+bx)}{bc-ad}\right)}{2b^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(x*(a + b*x)^n)/(c + d*x)^n,x]
```

```
[Out] ((a + b*x)^(1 + n)*(c + d*x)^(1 - n))/(2*b*d) - (((b*c)/d + (a -
a*n)/(1 + n))*(a + b*x)^(1 + n)*((b*(c + d*x))/(b*c - a*d))^n*Hyp
ergeometric2F1[n, 1 + n, 2 + n, -((d*(a + b*x))/(b*c - a*d))])/(2
*b^2*(c + d*x)^n)
```

Rubi in Sympy [A] time = 20.1902, size = 95, normalized size = 0.77

$$\frac{(a+bx)^{n+1}(c+dx)^{-n+1}}{2bd}-\frac{\left(\frac{b(-c-dx)}{ad-bc}\right)^n (a+bx)^{n+1}(c+dx)^{-n}(ad(-n+1)+bc(n+1))\,{}_2F_1\left(\begin{matrix} n,n+1 \\ n+2 \end{matrix}\middle|\frac{d(a+bx)}{ad-bc}\right)}{2b^2d(n+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x*(b*x+a)**n/((d*x+c)**n),x)
```

```
[Out] (a + b*x)**(n + 1)*(c + d*x)**(-n + 1)/(2*b*d) - (b*(-c - d*x)/(a
*d - b*c))**n*(a + b*x)**(n + 1)*(c + d*x)**(-n)*(a*d*(-n + 1) +
b*c*(n + 1))*hyper((n, n + 1), (n + 2,), d*(a + b*x)/(a*d - b*c))
/(2*b**2*d*(n + 1))
```

Mathematica [C] time = 0.117774, size = 130, normalized size = 1.05

$$\frac{3acx^2(a+bx)^n(c+dx)^{-n}F_1\left(2;-n,n;3;-\frac{bx}{a},-\frac{dx}{c}\right)}{6acF_1\left(2;-n,n;3;-\frac{bx}{a},-\frac{dx}{c}\right)+2nx\left(bcF_1\left(3;1-n,n;4;-\frac{bx}{a},-\frac{dx}{c}\right)-adF_1\left(3;-n,n+1;4;-\frac{bx}{a},-\frac{dx}{c}\right)\right)}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(x*(a + b*x)^n)/(c + d*x)^n,x]
```

```
[Out] (3*a*c*x^2*(a + b*x)^n*AppellF1[2, -n, n, 3, -((b*x)/a), -((d*x)/
c)])/((c + d*x)^n*(6*a*c*AppellF1[2, -n, n, 3, -((b*x)/a), -((d*x
)/c)] + 2*n*x*(b*c*AppellF1[3, 1 - n, n, 4, -((b*x)/a), -((d*x)/c
```

```
)] - a*d*AppellF1[3, -n, 1 + n, 4, -((b*x)/a), -((d*x)/c)])))
```

Maple [F] time = 0.082, size = 0, normalized size = 0.

$$\int \frac{x\,(bx+a)^n}{(dx+c)^n}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x*(b*x+a)^n/((d*x+c)^n),x)

[Out] int(x*(b*x+a)^n/((d*x+c)^n),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^n(dx+c)^{-n}x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n*x/(d*x + c)^n,x, algorithm="maxima")

[Out] integrate((b*x + a)^n*(d*x + c)^(-n)*x, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)^n x}{(dx+c)^n}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n*x/(d*x + c)^n,x, algorithm="fricas")

[Out] integral((b*x + a)^n*x/(d*x + c)^n, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(b*x+a)**n/((d*x+c)**n),x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n x}{(dx+c)^n}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n*x/(d*x + c)^n,x, algorithm="giac")

[Out] integrate((b*x + a)^n*x/(d*x + c)^n, x)
```

3.961 $\int (a+bx)^n (c+dx)^{-n}\,dx$

Optimal. Leaf size=72

$$\frac{(a+bx)^{n+1}(c+dx)^{-n}\left(\frac{b(c+dx)}{bc-ad}\right)^n {}_2F_1\left(n,n+1;n+2;-\frac{d(a+bx)}{bc-ad}\right)}{b(n+1)}$$

```
[Out] ((a + b*x)^(1 + n)*((b*(c + d*x))/(b*c - a*d))^n*Hypergeometric2F
1[n, 1 + n, 2 + n, -((d*(a + b*x))/(b*c - a*d))])/(b*(1 + n)*(c +
 d*x)^n)
```

Rubi [A] time = 0.0638382, antiderivative size = 72, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 17, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.118

$$\frac{(a+bx)^{n+1}(c+dx)^{-n}\left(\frac{b(c+dx)}{bc-ad}\right)^n {}_2F_1\left(n,n+1;n+2;-\frac{d(a+bx)}{bc-ad}\right)}{b(n+1)}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^n/(c + d*x)^n,x]
```

```
[Out] ((a + b*x)^(1 + n)*((b*(c + d*x))/(b*c - a*d))^n*Hypergeometric2F
1[n, 1 + n, 2 + n, -((d*(a + b*x))/(b*c - a*d))])/(b*(1 + n)*(c +
 d*x)^n)
```

Rubi in Sympy [A] time = 14.1665, size = 54, normalized size = 0.75

$$\frac{\left(\frac{b(-c-dx)}{ad-bc}\right)^n (a+bx)^{n+1}(c+dx)^{-n}\,{}_2F_1\left(\begin{matrix} n, n+1 \\ n+2 \end{matrix}\middle| \frac{d(a+bx)}{ad-bc}\right)}{b\,(n+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**n/((d*x+c)**n),x)
```

```
[Out] (b*(-c - d*x)/(a*d - b*c))**n*(a + b*x)**(n + 1)*(c + d*x)**(-n)*
hyper((n, n + 1), (n + 2,), d*(a + b*x)/(a*d - b*c))/(b*(n + 1))
```

Mathematica [A] time = 0.0692971, size = 80, normalized size = 1.11

$$-\frac{(a+bx)^n(c+dx)^{1-n}\left(\frac{d(a+bx)}{ad-bc}\right)^{-n} {}_2F_1\left(1-n,-n;2-n;\frac{b(c+dx)}{bc-ad}\right)}{d(n-1)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^n/(c + d*x)^n,x]
```

```
[Out] -(((a + b*x)^n*(c + d*x)^(1 - n)*Hypergeometric2F1[1 - n, -n, 2 -
 n, (b*(c + d*x))/(b*c - a*d)])/(d*(-1 + n)*((d*(a + b*x))/(-(b*c
) + a*d))^n))
```

Maple [F] time = 0.001, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n}{(dx+c)^n}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^n/((d*x+c)^n),x)

[Out] int((b*x+a)^n/((d*x+c)^n),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^n(dx+c)^{-n}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/(d*x + c)^n,x, algorithm="maxima")

[Out] integrate((b*x + a)^n*(d*x + c)^(-n), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)^n}{(dx+c)^n},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/(d*x + c)^n,x, algorithm="fricas")

[Out] integral((b*x + a)^n/(d*x + c)^n, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**n/((d*x+c)**n),x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n}{(dx+c)^n}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/(d*x + c)^n,x, algorithm="giac")

[Out] integrate((b*x + a)^n/(d*x + c)^n, x)
```

3.962 $\int \frac{(a+bx)^n(c+dx)^{-n}}{x}\,dx$

Optimal. Leaf size=108

$$\frac{(a+bx)^n(c+dx)^{-n}\left(\frac{b(c+dx)}{bc-ad}\right)^n {}_2F_1\left(n,n;n+1;-\frac{d(a+bx)}{bc-ad}\right)}{n}-\frac{(a+bx)^n(c+dx)^{-n}\,{}_2F_1\left(1,n;n+1;\frac{c(a+bx)}{a(c+dx)}\right)}{n}$$

```
[Out] -(((a + b*x)^n*Hypergeometric2F1[1, n, 1 + n, (c*(a + b*x))/(a*(c
 + d*x))])/(n*(c + d*x)^n)) + ((a + b*x)^n*((b*(c + d*x))/(b*c -
a*d))^n*Hypergeometric2F1[n, n, 1 + n, -((d*(a + b*x))/(b*c - a*d
))])/(n*(c + d*x)^n)
```

Rubi [A] time = 0.149724, antiderivative size = 108, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.2$

$$\frac{(a+bx)^n(c+dx)^{-n}\left(\frac{b(c+dx)}{bc-ad}\right)^n {}_2F_1\left(n,n;n+1;-\frac{d(a+bx)}{bc-ad}\right)}{n}-\frac{(a+bx)^n(c+dx)^{-n}\,{}_2F_1\left(1,n;n+1;\frac{c(a+bx)}{a(c+dx)}\right)}{n}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^n/(x*(c + d*x)^n),x]
```

```
[Out] -(((a + b*x)^n*Hypergeometric2F1[1, n, 1 + n, (c*(a + b*x))/(a*(c
 + d*x))])/(n*(c + d*x)^n)) + ((a + b*x)^n*((b*(c + d*x))/(b*c -
a*d))^n*Hypergeometric2F1[n, n, 1 + n, -((d*(a + b*x))/(b*c - a*d
))])/(n*(c + d*x)^n)
```

Rubi in Sympy [A] time = 23.1398, size = 90, normalized size = 0.83

$$-\frac{a(a+bx)^{n-1}(c+dx)^{-n+1}\,{}_2F_1\left(\begin{matrix}-n+1,1\\-n+2\end{matrix}\middle|\frac{a(c+dx)}{c(a+bx)}\right)}{c(-n+1)}+\frac{\left(\frac{b(-c-dx)}{ad-bc}\right)^n(a+bx)^n(c+dx)^{-n}\,{}_2F_1\left(\begin{matrix}n,n\\n+1\end{matrix}\middle|\frac{d(a+bx)}{ad-bc}\right)}{n}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**n/x/((d*x+c)**n),x)
```

```
[Out] -a*(a + b*x)**(n - 1)*(c + d*x)**(-n + 1)*hyper((-n + 1, 1), (-n
+ 2,), a*(c + d*x)/(c*(a + b*x)))/(c*(-n + 1)) + (b*(-c - d*x)/(a
*d - b*c))**n*(a + b*x)**n*(c + d*x)**(-n)*hyper((n, n), (n + 1,)
, d*(a + b*x)/(a*d - b*c))/n
```

Mathematica [C] time = 0.406255, size = 216, normalized size = 2.

$$\frac{a(n+2)(ad-bc)(a+bx)^{n+1}(c+dx)^{-n}F_1\left(n+1;n,1;n+2;\frac{d(a+bx)}{ad-bc},\frac{bx}{a}+1\right)}{b(n+1)x\left(a(n+2)(ad-bc)F_1\left(n+1;n,1;n+2;\frac{d(a+bx)}{ad-bc},\frac{bx}{a}+1\right)+(a+bx)\left((ad-bc)F_1\left(n+2;n,2;n+3;\frac{d(a+bx)}{ad-bc},\frac{bx}{a}+1\right)\right.\right.}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^n/(x*(c + d*x)^n),x]
```

```
[Out] (a*(-(b*c) + a*d)*(2 + n)*(a + b*x)^(1 + n)*AppellF1[1 + n, n, 1,
 2 + n, (d*(a + b*x))/(-(b*c) + a*d), 1 + (b*x)/a])/(b*(1 + n)*x*
(c + d*x)^n*(a*(-(b*c) + a*d)*(2 + n)*AppellF1[1 + n, n, 1, 2 + n
```

```
, (d*(a + b*x))/(-(b*c) + a*d), 1 + (b*x)/a] + (a + b*x)*((-(b*c)
 + a*d)*AppellF1[2 + n, n, 2, 3 + n, (d*(a + b*x))/(-(b*c) + a*d)
, 1 + (b*x)/a] + a*d*n*AppellF1[2 + n, 1 + n, 1, 3 + n, (d*(a + b
*x))/(-(b*c) + a*d), 1 + (b*x)/a]))
```

Maple [F] time = 0.079, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n}{x\,(dx+c)^n}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^n/x/((d*x+c)^n),x)

[Out] int((b*x+a)^n/x/((d*x+c)^n),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n(dx+c)^{-n}}{x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/((d*x + c)^n*x),x, algorithm="maxima")

[Out] integrate((b*x + a)^n*(d*x + c)^(-n)/x, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)^n}{(dx+c)^n x}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/((d*x + c)^n*x),x, algorithm="fricas")

[Out] integral((b*x + a)^n/((d*x + c)^n*x), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**n/x/((d*x+c)**n),x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n}{(dx+c)^n x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/((d*x + c)^n*x),x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^n/((d*x + c)^n*x), x)
```

3.963 $\int \frac{(a+bx)^n(c+dx)^{-n}}{x^2}\,dx$

Optimal. Leaf size=62

$$\frac{(bc-ad)(a+bx)^{n+1}(c+dx)^{-n-1}\,{}_2F_1\left(2,n+1;n+2;\frac{c(a+bx)}{a(c+dx)}\right)}{a^2(n+1)}$$

```
[Out] ((b*c - a*d)*(a + b*x)^(1 + n)*(c + d*x)^(-1 - n)*Hypergeometric2
F1[2, 1 + n, 2 + n, (c*(a + b*x))/(a*(c + d*x))])/(a^2*(1 + n))
```

Rubi [A] time = 0.0548857, antiderivative size = 62, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{(bc-ad)(a+bx)^{n+1}(c+dx)^{-n-1}\,{}_2F_1\left(2,n+1;n+2;\frac{c(a+bx)}{a(c+dx)}\right)}{a^2(n+1)}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^n/(x^2*(c + d*x)^n),x]
```

```
[Out] ((b*c - a*d)*(a + b*x)^(1 + n)*(c + d*x)^(-1 - n)*Hypergeometric2
F1[2, 1 + n, 2 + n, (c*(a + b*x))/(a*(c + d*x))])/(a^2*(1 + n))
```

Rubi in Sympy [A] time = 6.09716, size = 48, normalized size = 0.77

$$\frac{(a+bx)^{n-1}\,(c+dx)^{-n+1}\,(ad-bc)\,{}_2F_1\left(\begin{matrix}-n+1,2\\-n+2\end{matrix}\middle|\frac{a(c+dx)}{c(a+bx)}\right)}{c^2\,(-n+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**n/x**2/((d*x+c)**n),x)
```

```
[Out] (a + b*x)**(n - 1)*(c + d*x)**(-n + 1)*(a*d - b*c)*hyper((-n + 1,
 2), (-n + 2,), a*(c + d*x)/(c*(a + b*x)))/(c**2*(-n + 1))
```

Mathematica [C] time = 0.299455, size = 141, normalized size = 2.27

$$-\frac{2bd(a+bx)^n(c+dx)^{-n}F_1\left(1;-n,n;2;-\frac{a}{bx},-\frac{c}{dx}\right)}{2bdxF_1\left(1;-n,n;2;-\frac{a}{bx},-\frac{c}{dx}\right)+adnF_1\left(2;1-n,n;3;-\frac{a}{bx},-\frac{c}{dx}\right)-bcnF_1\left(2;-n,n+1;3;-\frac{a}{bx},-\frac{c}{dx}\right)}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^n/(x^2*(c + d*x)^n),x]
```

```
[Out] (-2*b*d*(a + b*x)^n*AppellF1[1, -n, n, 2, -(a/(b*x)), -(c/(d*x))]
)/((c + d*x)^n*(2*b*d*x*AppellF1[1, -n, n, 2, -(a/(b*x)), -(c/(d*
x))] + a*d*n*AppellF1[2, 1 - n, n, 3, -(a/(b*x)), -(c/(d*x))] - b
*c*n*AppellF1[2, -n, 1 + n, 3, -(a/(b*x)), -(c/(d*x))]))
```

Maple [F] time = 0.082, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n}{x^2\,(dx+c)^n}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^n/x^2/((d*x+c)^n),x)
```

```
[Out] int((b*x+a)^n/x^2/((d*x+c)^n),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n(dx+c)^{-n}}{x^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/((d*x + c)^n*x^2),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^n*(d*x + c)^(-n)/x^2, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)^n}{(dx+c)^n x^2}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/((d*x + c)^n*x^2),x, algorithm="fricas")
```

```
[Out] integral((b*x + a)^n/((d*x + c)^n*x^2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**n/x**2/((d*x+c)**n),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n}{(dx+c)^n x^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/((d*x + c)^n*x^2),x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^n/((d*x + c)^n*x^2), x)
```

3.964 $\int \frac{(a+bx)^n(c+dx)^{-n}}{x^3}\,dx$

Optimal. Leaf size=117

$$-\frac{(bc-ad)(a+bx)^{n+1}(c+dx)^{-n-1}(ad(n+1)+b(c-cn))\,{}_2F_1\left(2,n+1;n+2;\frac{c(a+bx)}{a(c+dx)}\right)}{2a^3c(n+1)}-\frac{(a+bx)^{n+1}(c+dx)^{1-n}}{2acx^2}$$

```
[Out] -((a + b*x)^(1 + n)*(c + d*x)^(1 - n))/(2*a*c*x^2) - ((b*c - a*d)
*(a*d*(1 + n) + b*(c - c*n))*(a + b*x)^(1 + n)*(c + d*x)^(-1 - n)
*Hypergeometric2F1[2, 1 + n, 2 + n, (c*(a + b*x))/(a*(c + d*x))])
/(2*a^3*c*(1 + n))
```

Rubi [A] time = 0.14183, antiderivative size = 117, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.1$

$$-\frac{(bc-ad)(a+bx)^{n+1}(c+dx)^{-n-1}(ad(n+1)+b(c-cn))\,{}_2F_1\left(2,n+1;n+2;\frac{c(a+bx)}{a(c+dx)}\right)}{2a^3c(n+1)}-\frac{(a+bx)^{n+1}(c+dx)^{1-n}}{2acx^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^n/(x^3*(c + d*x)^n),x]
```

```
[Out] -((a + b*x)^(1 + n)*(c + d*x)^(1 - n))/(2*a*c*x^2) - ((b*c - a*d)
*(a*d*(1 + n) + b*(c - c*n))*(a + b*x)^(1 + n)*(c + d*x)^(-1 - n)
*Hypergeometric2F1[2, 1 + n, 2 + n, (c*(a + b*x))/(a*(c + d*x))])
/(2*a^3*c*(1 + n))
```

Rubi in Sympy [A] time = 12.811, size = 92, normalized size = 0.79

$$-\frac{(a+bx)^{n+1}(c+dx)^{-n+1}}{2acx^2}+\frac{(a+bx)^{n+1}(c+dx)^{-n-1}(ad-bc)(ad(n+1)+bc(-n+1))\,{}_2F_1\left(\begin{matrix}n+1,2\\n+2\end{matrix}\middle|\frac{c(a+bx)}{a(c+dx)}\right)}{2a^3c(n+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**n/x**3/((d*x+c)**n),x)
```

```
[Out] -(a + b*x)**(n + 1)*(c + d*x)**(-n + 1)/(2*a*c*x**2) + (a + b*x)*
*(n + 1)*(c + d*x)**(-n - 1)*(a*d - b*c)*(a*d*(n + 1) + b*c*(-n +
 1))*hyper((n + 1, 2), (n + 2,), c*(a + b*x)/(a*(c + d*x)))/(2*a*
*3*c*(n + 1))
```

Mathematica [C] time = 0.363787, size = 146, normalized size = 1.25

$$-\frac{3bd(a+bx)^n(c+dx)^{-n}F_1\left(2;-n,n;3;-\frac{a}{bx},-\frac{c}{dx}\right)}{6bdx^2F_1\left(2;-n,n;3;-\frac{a}{bx},-\frac{c}{dx}\right)+2adnxF_1\left(3;1-n,n;4;-\frac{a}{bx},-\frac{c}{dx}\right)-2bcnxF_1\left(3;-n,n+1;4;-\frac{a}{bx},-\frac{c}{dx}\right)}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^n/(x^3*(c + d*x)^n),x]
```

```
[Out] (-3*b*d*(a + b*x)^n*AppellF1[2, -n, n, 3, -(a/(b*x)), -(c/(d*x))]
)/((c + d*x)^n*(6*b*d*x^2*AppellF1[2, -n, n, 3, -(a/(b*x)), -(c/(
d*x))] + 2*a*d*n*x*AppellF1[3, 1 - n, n, 4, -(a/(b*x)), -(c/(d*x)
)] - 2*b*c*n*x*AppellF1[3, -n, 1 + n, 4, -(a/(b*x)), -(c/(d*x))])
```

)

Maple [F] time = 0.094, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n}{x^3 (dx+c)^n}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^n/x^3/((d*x+c)^n),x)

[Out] int((b*x+a)^n/x^3/((d*x+c)^n),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n (dx+c)^{-n}}{x^3}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/((d*x + c)^n*x^3),x, algorithm="maxima")

[Out] integrate((b*x + a)^n*(d*x + c)^(-n)/x^3, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)^n}{(dx+c)^n x^3}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/((d*x + c)^n*x^3),x, algorithm="fricas")

[Out] integral((b*x + a)^n/((d*x + c)^n*x^3), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**n/x**3/((d*x+c)**n),x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n}{(dx+c)^n x^3}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/((d*x + c)^n*x^3),x, algorithm="giac")

[Out] integrate((b*x + a)^n/((d*x + c)^n*x^3), x)
```

3.965 $\int \frac{(a+bx)^n(c+dx)^{-n}}{x^4}\,dx$

Optimal. Leaf size=194

$$\frac{(a+bx)^{n+1}(c+dx)^{1-n}(ad(n+2)+bc(2-n))}{6a^2c^2x^2} + \frac{(bc-ad)(a+bx)^{n+1}(c+dx)^{-n-1}\left(a^2d^2\left(n^2+3n+2\right)+2abcd\left(1-n^2\right)+b^2c^2\left(n^2-3n+2\right)\right)\,{}_2F_1\left(2,n+1;n+2;\frac{c(a+bx)}{a(c+dx)}\right)}{6a^4c^2(n+1)} - \frac{(a+bx)^{n+1}(c+dx)^{1-n}}{3acx^3}$$

```
[Out] -((a + b*x)^(1 + n)*(c + d*x)^(1 - n))/(3*a*c*x^3) + ((b*c*(2 - n
) + a*d*(2 + n))*(a + b*x)^(1 + n)*(c + d*x)^(1 - n))/(6*a^2*c^2*
x^2) + ((b*c - a*d)*(2*a*b*c*d*(1 - n^2) + b^2*c^2*(2 - 3*n + n^2
) + a^2*d^2*(2 + 3*n + n^2))*(a + b*x)^(1 + n)*(c + d*x)^(-1 - n)
*Hypergeometric2F1[2, 1 + n, 2 + n, (c*(a + b*x))/(a*(c + d*x))])
/(6*a^4*c^2*(1 + n))
```

Rubi [A] time = 0.37606, antiderivative size = 194, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.2$

$$\frac{(a+bx)^{n+1}(c+dx)^{1-n}(ad(n+2)+bc(2-n))}{6a^2c^2x^2} + \frac{(bc-ad)(a+bx)^{n+1}(c+dx)^{-n-1}\left(a^2d^2\left(n^2+3n+2\right)+2abcd\left(1-n^2\right)+b^2c^2\left(n^2-3n+2\right)\right)\,{}_2F_1\left(2,n+1;n+2;\frac{c(a+bx)}{a(c+dx)}\right)}{6a^4c^2(n+1)} - \frac{(a+bx)^{n+1}(c+dx)^{1-n}}{3acx^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^n/(x^4*(c + d*x)^n),x]
```

```
[Out] -((a + b*x)^(1 + n)*(c + d*x)^(1 - n))/(3*a*c*x^3) + ((b*c*(2 - n
) + a*d*(2 + n))*(a + b*x)^(1 + n)*(c + d*x)^(1 - n))/(6*a^2*c^2*
x^2) + ((b*c - a*d)*(2*a*b*c*d*(1 - n^2) + b^2*c^2*(2 - 3*n + n^2
) + a^2*d^2*(2 + 3*n + n^2))*(a + b*x)^(1 + n)*(c + d*x)^(-1 - n)
*Hypergeometric2F1[2, 1 + n, 2 + n, (c*(a + b*x))/(a*(c + d*x))])
/(6*a^4*c^2*(1 + n))
```

Rubi in Sympy [A] time = 48.8883, size = 180, normalized size = 0.93

$$-\frac{(a+bx)^{n+1}\left(c+dx\right)^{-n+1}}{3acx^3} + \frac{(a+bx)^{n+1}\left(c+dx\right)^{-n+1}\left(ad\left(n+2\right)+bc\left(-n+2\right)\right)}{6a^2c^2x^2} + \frac{(a+bx)^{n-1}\left(c+dx\right)^{-n+1}\left(ad-bc\right)\left(-2abcd+\left(2ad+2bc\right)\left(ad\left(n+2\right)+bc\left(-n+2\right)\right)-\left(ad\left(-n+1\right)+bc\left(n+1\right)\right)\left(ad\left(n+2\right)+\right.\right.}{6a^2c^4\left(-n+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**n/x**4/((d*x+c)**n),x)
```

```
[Out] -(a + b*x)**(n + 1)*(c + d*x)**(-n + 1)/(3*a*c*x**3) + (a + b*x)*
*(n + 1)*(c + d*x)**(-n + 1)*(a*d*(n + 2) + b*c*(-n + 2))/(6*a**2
*c**2*x**2) + (a + b*x)**(n - 1)*(c + d*x)**(-n + 1)*(a*d - b*c)*
(-2*a*b*c*d + (2*a*d + 2*b*c)*(a*d*(n + 2) + b*c*(-n + 2)) - (a*d
*(-n + 1) + b*c*(n + 1))*(a*d*(n + 2) + b*c*(-n + 2)))*hyper((-n
+ 1, 2), (-n + 2,), a*(c + d*x)/(c*(a + b*x)))/(6*a**2*c**4*(-n +
 1))
```

Mathematica [C] time = 0.469868, size = 146, normalized size = 0.75

$$-\frac{4bd(a+bx)^n(c+dx)^{-n}F_1\left(3;-n,n;4;-\frac{a}{bx},-\frac{c}{dx}\right)}{3x^2\left(4bdxF_1\left(3;-n,n;4;-\frac{a}{bx},-\frac{c}{dx}\right)+adnF_1\left(4;1-n,n;5;-\frac{a}{bx},-\frac{c}{dx}\right)-bcnF_1\left(4;-n,n+1;5;-\frac{a}{bx},-\frac{c}{dx}\right)\right)}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^n/(x^4*(c + d*x)^n),x]
```

```
[Out] (-4*b*d*(a + b*x)^n*AppellF1[3, -n, n, 4, -(a/(b*x)), -(c/(d*x))]
)/(3*x^2*(c + d*x)^n*(4*b*d*x*AppellF1[3, -n, n, 4, -(a/(b*x)), -
(c/(d*x))] + a*d*n*AppellF1[4, 1 - n, n, 5, -(a/(b*x)), -(c/(d*x)
)] - b*c*n*AppellF1[4, -n, 1 + n, 5, -(a/(b*x)), -(c/(d*x))]))
```

Maple [F] time = 0.096, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n}{x^4(dx+c)^n}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^n/x^4/((d*x+c)^n),x)
```

```
[Out] int((b*x+a)^n/x^4/((d*x+c)^n),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n(dx+c)^{-n}}{x^4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/((d*x + c)^n*x^4),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^n*(d*x + c)^(-n)/x^4, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)^n}{(dx+c)^n x^4}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/((d*x + c)^n*x^4),x, algorithm="fricas")
```

```
[Out] integral((b*x + a)^n/((d*x + c)^n*x^4), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**n/x**4/((d*x+c)**n),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^n}{(dx+c)^n x^4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^n/((d*x + c)^n*x^4),x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^n/((d*x + c)^n*x^4), x)
```

3.966 $\int (1-x)^n x^3 (1+x)^{-n}\,dx$

Optimal. Leaf size=105

$$\frac{2^{-n} n \left(n^2+2\right) (1-x)^{n+1} {}_2F_1\left(n,n+1;n+2;\frac{1-x}{2}\right)}{3(n+1)} -\frac{1}{12}(1-x)^{n+1} \left(2n^2-2nx+3\right) (x+1)^{1-n}-\frac{1}{4}x^2(1-x)^{n+1}(x+1)^{1-n}$$

```
[Out] -((1 - x)^(1 + n)*x^2*(1 + x)^(1 - n))/4 - ((1 - x)^(1 + n)*(1 +
x)^(1 - n)*(3 + 2*n^2 - 2*n*x))/12 + (n*(2 + n^2)*(1 - x)^(1 + n)
*Hypergeometric2F1[n, 1 + n, 2 + n, (1 - x)/2])/(3*2^n*(1 + n))
```

Rubi [A] time = 0.184701, antiderivative size = 105, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$\frac{2^{-n} n \left(n^2+2\right) (1-x)^{n+1} {}_2F_1\left(n,n+1;n+2;\frac{1-x}{2}\right)}{3(n+1)} -\frac{1}{12}(1-x)^{n+1} \left(2n^2-2nx+3\right) (x+1)^{1-n}-\frac{1}{4}x^2(1-x)^{n+1}(x+1)^{1-n}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - x)^n*x^3)/(1 + x)^n,x]
```

```
[Out] -((1 - x)^(1 + n)*x^2*(1 + x)^(1 - n))/4 - ((1 - x)^(1 + n)*(1 +
x)^(1 - n)*(3 + 2*n^2 - 2*n*x))/12 + (n*(2 + n^2)*(1 - x)^(1 + n)
*Hypergeometric2F1[n, 1 + n, 2 + n, (1 - x)/2])/(3*2^n*(1 + n))
```

Rubi in Sympy [A] time = 11.058, size = 82, normalized size = 0.78

$$-\frac{2^{n} n \left(n^{2}+2\right) \left(x+1\right)^{-n+1} {}_{2}F_{1}\left(\begin{matrix} -n, -n+1 \\ -n+2 \end{matrix}\middle| {\frac{x}{2}+\frac{1}{2}} \right)}{3\left(-n+1\right)} - \frac{x^{2}\left(-x+1\right)^{n+1}\left(x+1\right)^{-n+1}}{4} - \frac{\left(-x+1\right)^{n+1}\left(x+1\right)^{-n+1}\left(4n^{2}-4nx+6\right)}{24}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-x)**n*x**3/((1+x)**n),x)
```

```
[Out] -2**n*n*(n**2 + 2)*(x + 1)**(-n + 1)*hyper((-n, -n + 1), (-n + 2,
), x/2 + 1/2)/(3*(-n + 1)) - x**2*(-x + 1)**(n + 1)*(x + 1)**(-n
+ 1)/4 - (-x + 1)**(n + 1)*(x + 1)**(-n + 1)*(4*n**2 - 4*n*x + 6)
/24
```

Mathematica [C] time = 0.172932, size = 79, normalized size = 0.75

$$\frac{5x^4(1-x)^n(x+1)^{-n}F_1(4;-n,n;5;x,-x)}{4(5F_1(4;-n,n;5;x,-x)-nx(F_1(5;1-n,n;6;x,-x)+F_1(5;-n,n+1;6;x,-x)))}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[((1 - x)^n*x^3)/(1 + x)^n,x]
```

```
[Out] (5*(1 - x)^n*x^4*AppellF1[4, -n, n, 5, x, -x])/(4*(1 + x)^n*(5*Ap
pellF1[4, -n, n, 5, x, -x] - n*x*(AppellF1[5, 1 - n, n, 6, x, -x]
```

```
+ AppellF1[5, -n, 1 + n, 6, x, -x]))
```

Maple [F] time = 0.098, size = 0, normalized size = 0.

$$\int \frac{(1-x)^n x^3}{(1+x)^n} dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-x)^n*x^3/((1+x)^n),x)

[Out] int((1-x)^n*x^3/((1+x)^n),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (x+1)^{-n} x^3 (-x+1)^n dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^3*(-x + 1)^n/(x + 1)^n,x, algorithm="maxima")

[Out] integrate((x + 1)^(-n)*x^3*(-x + 1)^n, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{x^3(-x+1)^n}{(x+1)^n}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^3*(-x + 1)^n/(x + 1)^n,x, algorithm="fricas")

[Out] integral(x^3*(-x + 1)^n/(x + 1)^n, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-x)**n*x**3/((1+x)**n),x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x^3(-x+1)^n}{(x+1)^n} dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^3*(-x + 1)^n/(x + 1)^n,x, algorithm="giac")

[Out] integrate(x^3*(-x + 1)^n/(x + 1)^n, x)
```

3.967 $\int (1-x)^n x^2 (1+x)^{-n}\,dx$

Optimal. Leaf size=94

$$-\frac{2^{-n}\left(2n^2+1\right)(1-x)^{n+1}\,{}_2F_1\left(n,n+1;n+2;\frac{1-x}{2}\right)}{3(n+1)}+\frac{1}{3}n(1-x)^{n+1}(x+1)^{1-n}-\frac{1}{3}x(1-x)^{n+1}(x+1)^{1-n}$$

```
[Out] (n*(1 - x)^(1 + n)*(1 + x)^(1 - n))/3 - ((1 - x)^(1 + n)*x*(1 + x
)^(1 - n))/3 - ((1 + 2*n^2)*(1 - x)^(1 + n)*Hypergeometric2F1[n,
1 + n, 2 + n, (1 - x)/2])/(3*2^n*(1 + n))
```

Rubi [A] time = 0.0965805, antiderivative size = 94, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$-\frac{2^{-n}\left(2n^2+1\right)(1-x)^{n+1}\,{}_2F_1\left(n,n+1;n+2;\frac{1-x}{2}\right)}{3(n+1)}+\frac{1}{3}n(1-x)^{n+1}(x+1)^{1-n}-\frac{1}{3}x(1-x)^{n+1}(x+1)^{1-n}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - x)^n*x^2)/(1 + x)^n,x]
```

```
[Out] (n*(1 - x)^(1 + n)*(1 + x)^(1 - n))/3 - ((1 - x)^(1 + n)*x*(1 + x
)^(1 - n))/3 - ((1 + 2*n^2)*(1 - x)^(1 + n)*Hypergeometric2F1[n,
1 + n, 2 + n, (1 - x)/2])/(3*2^n*(1 + n))
```

Rubi in Sympy [A] time = 9.55661, size = 68, normalized size = 0.72

$$\frac{2^n\left(2n^2+1\right)(x+1)^{-n+1}\,{}_2F_1\left(\begin{matrix}-n,-n+1\\-n+2\end{matrix}\middle|\frac{x}{2}+\frac{1}{2}\right)}{3(-n+1)}+\frac{n(-x+1)^{n+1}(x+1)^{-n+1}}{3}-\frac{x(-x+1)^{n+1}(x+1)^{-n+1}}{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-x)**n*x**2/((1+x)**n),x)
```

```
[Out] 2**n*(2*n**2 + 1)*(x + 1)**(-n + 1)*hyper((-n, -n + 1), (-n + 2,)
, x/2 + 1/2)/(3*(-n + 1)) + n*(-x + 1)**(n + 1)*(x + 1)**(-n + 1)
/3 - x*(-x + 1)**(n + 1)*(x + 1)**(-n + 1)/3
```

Mathematica [C] time = 0.147236, size = 79, normalized size = 0.84

$$\frac{4x^3(1-x)^n(x+1)^{-n}F_1(3;-n,n;4;x,-x)}{3(4F_1(3;-n,n;4;x,-x)-nx(F_1(4;1-n,n;5;x,-x)+F_1(4;-n,n+1;5;x,-x)))}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[((1 - x)^n*x^2)/(1 + x)^n,x]
```

```
[Out] (4*(1 - x)^n*x^3*AppellF1[3, -n, n, 4, x, -x])/(3*(1 + x)^n*(4*Ap
pellF1[3, -n, n, 4, x, -x] - n*x*(AppellF1[4, 1 - n, n, 5, x, -x]
 + AppellF1[4, -n, 1 + n, 5, x, -x])))
```

Maple [F] time = 0.079, size = 0, normalized size = 0.

$$\int \frac{(1-x)^n x^2}{(1+x)^n}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-x)^n*x^2/((1+x)^n),x)
```

```
[Out] int((1-x)^n*x^2/((1+x)^n),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (x+1)^{-n} x^2 (-x+1)^n \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2*(-x + 1)^n/(x + 1)^n,x, algorithm="maxima")
```

```
[Out] integrate((x + 1)^(-n)*x^2*(-x + 1)^n, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{x^2(-x+1)^n}{(x+1)^n}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2*(-x + 1)^n/(x + 1)^n,x, algorithm="fricas")
```

```
[Out] integral(x^2*(-x + 1)^n/(x + 1)^n, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-x)**n*x**2/((1+x)**n),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x^2(-x+1)^n}{(x+1)^n} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2*(-x + 1)^n/(x + 1)^n,x, algorithm="giac")
```

```
[Out] integrate(x^2*(-x + 1)^n/(x + 1)^n, x)
```

3.968 $\int (1-x)^n x(1+x)^{-n}\,dx$

Optimal. Leaf size=61

$$\frac{2^{-n}n(1-x)^{n+1}\,{}_2F_1\left(n,n+1;n+2;\frac{1-x}{2}\right)}{n+1}-\frac{1}{2}(1-x)^{n+1}(x+1)^{1-n}$$

```
[Out] -((1 - x)^(1 + n)*(1 + x)^(1 - n))/2 + (n*(1 - x)^(1 + n)*Hyperge
ometric2F1[n, 1 + n, 2 + n, (1 - x)/2])/(2^n*(1 + n))
```

Rubi [A] time = 0.0476947, antiderivative size = 61, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$\frac{2^{-n}n(1-x)^{n+1}\,{}_2F_1\left(n,n+1;n+2;\frac{1-x}{2}\right)}{n+1}-\frac{1}{2}(1-x)^{n+1}(x+1)^{1-n}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - x)^n*x)/(1 + x)^n,x]
```

```
[Out] -((1 - x)^(1 + n)*(1 + x)^(1 - n))/2 + (n*(1 - x)^(1 + n)*Hyperge
ometric2F1[n, 1 + n, 2 + n, (1 - x)/2])/(2^n*(1 + n))
```

Rubi in Sympy [A] time = 5.47795, size = 44, normalized size = 0.72

$$-\frac{2^n n\,(x+1)^{-n+1}\,{}_2F_1\left(\begin{matrix}-n,-n+1\\-n+2\end{matrix}\middle|\frac{x}{2}+\frac{1}{2}\right)}{-n+1}-\frac{(-x+1)^{n+1}\,(x+1)^{-n+1}}{2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-x)**n*x/((1+x)**n),x)
```

```
[Out] -2**n*n*(x + 1)**(-n + 1)*hyper((-n, -n + 1), (-n + 2,), x/2 + 1/
2)/(-n + 1) - (-x + 1)**(n + 1)*(x + 1)**(-n + 1)/2
```

Mathematica [C] time = 0.14617, size = 79, normalized size = 1.3

$$\frac{3x^2(1-x)^n(x+1)^{-n}F_1(2;-n,n;3;x,-x)}{2(3F_1(2;-n,n;3;x,-x)-nx(F_1(3;1-n,n;4;x,-x)+F_1(3;-n,n+1;4;x,-x)))}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[((1 - x)^n*x)/(1 + x)^n,x]
```

```
[Out] (3*(1 - x)^n*x^2*AppellF1[2, -n, n, 3, x, -x])/(2*(1 + x)^n*(3*Ap
pellF1[2, -n, n, 3, x, -x] - n*x*(AppellF1[3, 1 - n, n, 4, x, -x]
 + AppellF1[3, -n, 1 + n, 4, x, -x])))
```

Maple [F] time = 0.079, size = 0, normalized size = 0.

$$\int \frac{(1-x)^n\,x}{(1+x)^n}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-x)^n*x/((1+x)^n),x)
```

```
[Out] int((1-x)^n*x/((1+x)^n),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (x+1)^{-n}x(-x+1)^n\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(-x + 1)^n/(x + 1)^n,x, algorithm="maxima")
```

```
[Out] integrate((x + 1)^(-n)*x*(-x + 1)^n, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{x(-x+1)^n}{(x+1)^n},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(-x + 1)^n/(x + 1)^n,x, algorithm="fricas")
```

```
[Out] integral(x*(-x + 1)^n/(x + 1)^n, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-x)**n*x/((1+x)**n),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{x(-x+1)^n}{(x+1)^n}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x*(-x + 1)^n/(x + 1)^n,x, algorithm="giac")
```

```
[Out] integrate(x*(-x + 1)^n/(x + 1)^n, x)
```

3.969 $\int (1-x)^n(1+x)^{-n}\,dx$

Optimal. Leaf size=38

$$-\frac{2^{-n}(1-x)^{n+1}\,{}_2F_1\left(n,n+1;n+2;\frac{1-x}{2}\right)}{n+1}$$

```
[Out] -(((1 - x)^(1 + n)*Hypergeometric2F1[n, 1 + n, 2 + n, (1 - x)/2])
/(2^n*(1 + n)))
```

Rubi [A] time = 0.0223566, antiderivative size = 38, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.067

$$-\frac{2^{-n}(1-x)^{n+1}\,{}_2F_1\left(n,n+1;n+2;\frac{1-x}{2}\right)}{n+1}$$

Antiderivative was successfully verified.

```
[In] Int[(1 - x)^n/(1 + x)^n,x]
```

```
[Out] -(((1 - x)^(1 + n)*Hypergeometric2F1[n, 1 + n, 2 + n, (1 - x)/2])
/(2^n*(1 + n)))
```

Rubi in Sympy [A] time = 3.48828, size = 26, normalized size = 0.68

$$-\frac{2^{-n}\left(-x+1\right)^{n+1}{}_2F_1\left(\begin{matrix} n, n+1 \\ n+2 \end{matrix}\middle| -\frac{x}{2}+\frac{1}{2}\right)}{n+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-x)**n/((1+x)**n),x)
```

```
[Out] -2**(-n)*(-x + 1)**(n + 1)*hyper((n, n + 1), (n + 2,), -x/2 + 1/2
)/(n + 1)
```

Mathematica [A] time = 0.028162, size = 40, normalized size = 1.05

$$-\frac{2^n(x+1)^{1-n}\,{}_2F_1\left(1-n,-n;2-n;\frac{x+1}{2}\right)}{n-1}$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - x)^n/(1 + x)^n,x]
```

```
[Out] -((2^n*(1 + x)^(1 - n)*Hypergeometric2F1[1 - n, -n, 2 - n, (1 + x
)/2])/(-1 + n))
```

Maple [F] time = 0.088, size = 0, normalized size = 0.

$$\int \frac{(1-x)^n}{(1+x)^n}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-x)^n/((1+x)^n),x)

[Out] int((1-x)^n/((1+x)^n),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (x+1)^{-n}(-x+1)^n\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-x + 1)^n/(x + 1)^n,x, algorithm="maxima")

[Out] integrate((x + 1)^(-n)*(-x + 1)^n, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(-x+1)^n}{(x+1)^n}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-x + 1)^n/(x + 1)^n,x, algorithm="fricas")

[Out] integral((-x + 1)^n/(x + 1)^n, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-x)**n/((1+x)**n),x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-x+1)^n}{(x+1)^n}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-x + 1)^n/(x + 1)^n,x, algorithm="giac")

[Out] integrate((-x + 1)^n/(x + 1)^n, x)
```

3.970 $\int \frac{(1-x)^n(1+x)^{-n}}{x}\,dx$

Optimal. Leaf size=68

$$\frac{2^{-n}(1-x)^n\,{}_2F_1\left(n,n;n+1;\frac{1-x}{2}\right)}{n}-\frac{(1-x)^n(x+1)^{-n}\,{}_2F_1\left(1,n;n+1;\frac{1-x}{x+1}\right)}{n}$$

```
[Out] -(((1 - x)^n*Hypergeometric2F1[1, n, 1 + n, (1 - x)/(1 + x)])/(n*
(1 + x)^n)) + ((1 - x)^n*Hypergeometric2F1[n, n, 1 + n, (1 - x)/2
])/(2^n*n)
```

Rubi [A] time = 0.0767463, antiderivative size = 68, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$\frac{2^{-n}(1-x)^n\,{}_2F_1\left(n,n;n+1;\frac{1-x}{2}\right)}{n}-\frac{(1-x)^n(x+1)^{-n}\,{}_2F_1\left(1,n;n+1;\frac{1-x}{x+1}\right)}{n}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - x)^n/(x*(1 + x)^n),x]
```

```
[Out] -(((1 - x)^n*Hypergeometric2F1[1, n, 1 + n, (1 - x)/(1 + x)])/(n*
(1 + x)^n)) + ((1 - x)^n*Hypergeometric2F1[n, n, 1 + n, (1 - x)/2
])/(2^n*n)
```

Rubi in Sympy [A] time = 7.95134, size = 61, normalized size = 0.9

$$-\frac{(-x+1)^{n+1}(x+1)^{-n-1}\,{}_2F_1\left(\begin{matrix} n+1,1 \\ n+2 \end{matrix}\middle|\frac{x-1}{-x-1}\right)}{n+1}-\frac{2^{-n}(-x+1)^{n+1}\,{}_2F_1\left(\begin{matrix} n+1,n+1 \\ n+2 \end{matrix}\middle|-\frac{x}{2}+\frac{1}{2}\right)}{2(n+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-x)**n/x/((1+x)**n),x)
```

```
[Out] -(-x + 1)**(n + 1)*(x + 1)**(-n - 1)*hyper((n + 1, 1), (n + 2,),
(x - 1)/(-x - 1))/(n + 1) - 2**(-n)*(-x + 1)**(n + 1)*hyper((n +
1, n + 1), (n + 2,), -x/2 + 1/2)/(2*(n + 1))
```

Mathematica [C] time = 0.314842, size = 140, normalized size = 2.06

$$\frac{2(n+2)(1-x)^{n+1}(x+1)^{-n}F_1\left(n+1;n,1;n+2;\frac{1-x}{2},1-x\right)}{(n+1)x\left((x-1)\left(2F_1\left(n+2;n,2;n+3;\frac{1-x}{2},1-x\right)+nF_1\left(n+2;n+1,1;n+3;\frac{1-x}{2},1-x\right)\right)-2(n+2)F_1\left(n+1;n,1;n+2;\frac{1}{}\right.\right.}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(1 - x)^n/(x*(1 + x)^n),x]
```

```
[Out] (2*(2 + n)*(1 - x)^(1 + n)*AppellF1[1 + n, n, 1, 2 + n, (1 - x)/2
, 1 - x])/((1 + n)*x*(1 + x)^n*(-2*(2 + n)*AppellF1[1 + n, n, 1,
2 + n, (1 - x)/2, 1 - x] + (-1 + x)*(2*AppellF1[2 + n, n, 2, 3 +
n, (1 - x)/2, 1 - x] + n*AppellF1[2 + n, 1 + n, 1, 3 + n, (1 - x)
/2, 1 - x])))
```

Maple [F] time = 0.073, size = 0, normalized size = 0.

$$\int \frac{(1-x)^n}{x(1+x)^n}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-x)^n/x/((1+x)^n),x)
```

```
[Out] int((1-x)^n/x/((1+x)^n),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(x+1)^{-n}(-x+1)^n}{x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-x + 1)^n/((x + 1)^n*x),x, algorithm="maxima")
```

```
[Out] integrate((x + 1)^(-n)*(-x + 1)^n/x, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(-x+1)^n}{(x+1)^n x}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-x + 1)^n/((x + 1)^n*x),x, algorithm="fricas")
```

```
[Out] integral((-x + 1)^n/((x + 1)^n*x), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-x)**n/x/((1+x)**n),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-x+1)^n}{(x+1)^n x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-x + 1)^n/((x + 1)^n*x),x, algorithm="giac")
```

```
[Out] integrate((-x + 1)^n/((x + 1)^n*x), x)
```

3.971 $\int \frac{(1-x)^n(1+x)^{-n}}{x^2} dx$

Optimal. Leaf size=44

$$-\frac{2(1-x)^{n+1}(x+1)^{-n-1}\,_2F_1\left(2,n+1;n+2;\frac{1-x}{x+1}\right)}{n+1}$$

```
[Out] (-2*(1 - x)^(1 + n)*(1 + x)^(-1 - n)*Hypergeometric2F1[2, 1 + n,
2 + n, (1 - x)/(1 + x)])/(1 + n)
```

Rubi [A] time = 0.0361283, antiderivative size = 44, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.056$

$$-\frac{2(1-x)^{n+1}(x+1)^{-n-1}\,_2F_1\left(2,n+1;n+2;\frac{1-x}{x+1}\right)}{n+1}$$

Antiderivative was successfully verified.

```
[In] Int[(1 - x)^n/(x^2*(1 + x)^n),x]
```

```
[Out] (-2*(1 - x)^(1 + n)*(1 + x)^(-1 - n)*Hypergeometric2F1[2, 1 + n,
2 + n, (1 - x)/(1 + x)])/(1 + n)
```

Rubi in Sympy [A] time = 4.20806, size = 34, normalized size = 0.77

$$-\frac{2\left(-x+1\right)^{n+1}\left(x+1\right)^{-n-1}\,_2F_1\left(\begin{matrix} n+1,2 \\ n+2 \end{matrix}\middle| \frac{x-1}{-x-1}\right)}{n+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-x)**n/x**2/((1+x)**n),x)
```

```
[Out] -2*(-x + 1)**(n + 1)*(x + 1)**(-n - 1)*hyper((n + 1, 2), (n + 2,)
, (x - 1)/(-x - 1))/(n + 1)
```

Mathematica [C] time = 0.222281, size = 90, normalized size = 2.05

$$-\frac{2(1-x)^n(x+1)^{-n}F_1\left(1;-n,n;2;\frac{1}{x},-\frac{1}{x}\right)}{2xF_1\left(1;-n,n;2;\frac{1}{x},-\frac{1}{x}\right)-n\left(F_1\left(2;1-n,n;3;\frac{1}{x},-\frac{1}{x}\right)+F_1\left(2;-n,n+1;3;\frac{1}{x},-\frac{1}{x}\right)\right)}$$

Warning: Unable to verify antiderivative.

```
[In] Integrate[(1 - x)^n/(x^2*(1 + x)^n),x]
```

```
[Out] (-2*(1 - x)^n*AppellF1[1, -n, n, 2, x^(-1), -x^(-1)])/((1 + x)^n*
(2*x*AppellF1[1, -n, n, 2, x^(-1), -x^(-1)] - n*(AppellF1[2, 1 -
n, n, 3, x^(-1), -x^(-1)] + AppellF1[2, -n, 1 + n, 3, x^(-1), -x^
(-1)])))
```

Maple [F] time = 0.085, size = 0, normalized size = 0.

$$\int \frac{(1-x)^n}{x^2\left(1+x\right)^n}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-x)^n/x^2/((1+x)^n),x)
```

```
[Out] int((1-x)^n/x^2/((1+x)^n),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(x+1)^{-n}(-x+1)^n}{x^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-x + 1)^n/((x + 1)^n*x^2),x, algorithm="maxima")
```

```
[Out] integrate((x + 1)^(-n)*(-x + 1)^n/x^2, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(-x+1)^n}{(x+1)^n x^2}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-x + 1)^n/((x + 1)^n*x^2),x, algorithm="fricas")
```

```
[Out] integral((-x + 1)^n/((x + 1)^n*x^2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-x)**n/x**2/((1+x)**n),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-x+1)^n}{(x+1)^n x^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-x + 1)^n/((x + 1)^n*x^2),x, algorithm="giac")
```

```
[Out] integrate((-x + 1)^n/((x + 1)^n*x^2), x)
```

3.972 $\int \frac{(1-x)^n(1+x)^{-n}}{x^3} dx$

Optimal. Leaf size=71

$$\frac{2n(1-x)^{n+1}(x+1)^{-n-1}\,{}_2F_1\left(2,n+1;n+2;\frac{1-x}{x+1}\right)}{n+1}-\frac{(1-x)^{n+1}(x+1)^{1-n}}{2x^2}$$

```
[Out] -((1 - x)^(1 + n)*(1 + x)^(1 - n))/(2*x^2) + (2*n*(1 - x)^(1 + n)
*(1 + x)^(-1 - n)*Hypergeometric2F1[2, 1 + n, 2 + n, (1 - x)/(1 +
 x)])/(1 + n)
```

Rubi [A] time = 0.0606979, antiderivative size = 71, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.111$

$$\frac{2n(1-x)^{n+1}(x+1)^{-n-1}\,{}_2F_1\left(2,n+1;n+2;\frac{1-x}{x+1}\right)}{n+1}-\frac{(1-x)^{n+1}(x+1)^{1-n}}{2x^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - x)^n/(x^3*(1 + x)^n),x]
```

```
[Out] -((1 - x)^(1 + n)*(1 + x)^(1 - n))/(2*x^2) + (2*n*(1 - x)^(1 + n)
*(1 + x)^(-1 - n)*Hypergeometric2F1[2, 1 + n, 2 + n, (1 - x)/(1 +
 x)])/(1 + n)
```

Rubi in Sympy [A] time = 6.60783, size = 53, normalized size = 0.75

$$-\frac{2n\left(-x+1\right)^{n-1}\left(x+1\right)^{-n+1}{}_2F_1\left(\begin{matrix}-n+1,2\\-n+2\end{matrix}\middle|\frac{-x-1}{x-1}\right)}{-n+1}-\frac{\left(-x+1\right)^{n+1}\left(x+1\right)^{-n+1}}{2x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-x)**n/x**3/((1+x)**n),x)
```

```
[Out] -2*n*(-x + 1)**(n - 1)*(x + 1)**(-n + 1)*hyper((-n + 1, 2), (-n +
 2,), (-x - 1)/(x - 1))/(-n + 1) - (-x + 1)**(n + 1)*(x + 1)**(-n
 + 1)/(2*x**2)
```

Mathematica [C] time = 0.231674, size = 95, normalized size = 1.34

$$-\frac{3(1-x)^n(x+1)^{-n}F_1\left(2;-n,n;3;\frac{1}{x},-\frac{1}{x}\right)}{2x\left(3xF_1\left(2;-n,n;3;\frac{1}{x},-\frac{1}{x}\right)-n\left(F_1\left(3;1-n,n;4;\frac{1}{x},-\frac{1}{x}\right)+F_1\left(3;-n,n+1;4;\frac{1}{x},-\frac{1}{x}\right)\right)\right)}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(1 - x)^n/(x^3*(1 + x)^n),x]
```

```
[Out] (-3*(1 - x)^n*AppellF1[2, -n, n, 3, x^(-1), -x^(-1)])/(2*x*(1 + x
)^n*(3*x*AppellF1[2, -n, n, 3, x^(-1), -x^(-1)] - n*(AppellF1[3,
1 - n, n, 4, x^(-1), -x^(-1)] + AppellF1[3, -n, 1 + n, 4, x^(-1),
 -x^(-1)])))
```

Maple [F] time = 0.081, size = 0, normalized size = 0.

$$\int \frac{(1-x)^n}{x^3 (1+x)^n} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-x)^n/x^3/((1+x)^n),x)

[Out] int((1-x)^n/x^3/((1+x)^n),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(x+1)^{-n}(-x+1)^n}{x^3} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-x + 1)^n/((x + 1)^n*x^3),x, algorithm="maxima")

[Out] integrate((x + 1)^(-n)*(-x + 1)^n/x^3, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(-x+1)^n}{(x+1)^n x^3}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-x + 1)^n/((x + 1)^n*x^3),x, algorithm="fricas")

[Out] integral((-x + 1)^n/((x + 1)^n*x^3), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-x)**n/x**3/((1+x)**n),x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-x+1)^n}{(x+1)^n x^3} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-x + 1)^n/((x + 1)^n*x^3),x, algorithm="giac")

[Out] integrate((-x + 1)^n/((x + 1)^n*x^3), x)
```

3.973 $\int \frac{(1-x)^n(1+x)^{-n}}{x^4}\,dx$

Optimal. Leaf size=105

$$-\frac{2\left(2n^2+1\right)(1-x)^{n+1}(x+1)^{-n-1}\,{}_2F_1\left(2,n+1;n+2;\frac{1-x}{x+1}\right)}{3(n+1)}-\frac{(1-x)^{n+1}(x+1)^{1-n}}{3x^3}+\frac{n(1-x)^{n+1}(x+1)^{1-n}}{3x^2}$$

```
[Out] -((1 - x)^(1 + n)*(1 + x)^(1 - n))/(3*x^3) + (n*(1 - x)^(1 + n)*(
1 + x)^(1 - n))/(3*x^2) - (2*(1 + 2*n^2)*(1 - x)^(1 + n)*(1 + x)^
(-1 - n)*Hypergeometric2F1[2, 1 + n, 2 + n, (1 - x)/(1 + x)])/(3*
(1 + n))
```

Rubi [A] time = 0.124585, antiderivative size = 105, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.222$

$$-\frac{2\left(2n^2+1\right)(1-x)^{n+1}(x+1)^{-n-1}\,{}_2F_1\left(2,n+1;n+2;\frac{1-x}{x+1}\right)}{3(n+1)}-\frac{(1-x)^{n+1}(x+1)^{1-n}}{3x^3}+\frac{n(1-x)^{n+1}(x+1)^{1-n}}{3x^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - x)^n/(x^4*(1 + x)^n),x]
```

```
[Out] -((1 - x)^(1 + n)*(1 + x)^(1 - n))/(3*x^3) + (n*(1 - x)^(1 + n)*(
1 + x)^(1 - n))/(3*x^2) - (2*(1 + 2*n^2)*(1 - x)^(1 + n)*(1 + x)^
(-1 - n)*Hypergeometric2F1[2, 1 + n, 2 + n, (1 - x)/(1 + x)])/(3*
(1 + n))
```

Rubi in Sympy [A] time = 13.9519, size = 80, normalized size = 0.76

$$\frac{n\left(-x+1\right)^{n+1}\left(x+1\right)^{-n+1}}{3x^2}-\frac{2\left(2n^2+1\right)\left(-x+1\right)^{n+1}\left(x+1\right)^{-n-1}{}_2F_1\left(\begin{matrix}n+1,2\\n+2\end{matrix}\middle|\frac{x-1}{-x-1}\right)}{3\left(n+1\right)}-\frac{\left(-x+1\right)^{n+1}\left(x+1\right)^{-n+1}}{3x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-x)**n/x**4/((1+x)**n),x)
```

```
[Out] n*(-x + 1)**(n + 1)*(x + 1)**(-n + 1)/(3*x**2) - 2*(2*n**2 + 1)*(
-x + 1)**(n + 1)*(x + 1)**(-n - 1)*hyper((n + 1, 2), (n + 2,), (x
 - 1)/(-x - 1))/(3*(n + 1)) - (-x + 1)**(n + 1)*(x + 1)**(-n + 1)
/(3*x**3)
```

Mathematica [C] time = 0.239668, size = 95, normalized size = 0.9

$$-\frac{4(1-x)^n(x+1)^{-n}F_1\left(3;-n,n;4;\frac{1}{x},-\frac{1}{x}\right)}{3x^2\left(4xF_1\left(3;-n,n;4;\frac{1}{x},-\frac{1}{x}\right)-n\left(F_1\left(4;1-n,n;5;\frac{1}{x},-\frac{1}{x}\right)+F_1\left(4;-n,n+1;5;\frac{1}{x},-\frac{1}{x}\right)\right)\right)}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(1 - x)^n/(x^4*(1 + x)^n),x]
```

```
[Out] (-4*(1 - x)^n*AppellF1[3, -n, n, 4, x^(-1), -x^(-1)])/(3*x^2*(1 +
 x)^n*(4*x*AppellF1[3, -n, n, 4, x^(-1), -x^(-1)] - n*(AppellF1[4
, 1 - n, n, 5, x^(-1), -x^(-1)] + AppellF1[4, -n, 1 + n, 5, x^(-1
), -x^(-1)])))
```

Maple [F] time = 0.105, size = 0, normalized size = 0.

$$\int \frac{(1-x)^n}{x^4(1+x)^n}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-x)^n/x^4/((1+x)^n),x)
```

```
[Out] int((1-x)^n/x^4/((1+x)^n),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(x+1)^{-n}(-x+1)^n}{x^4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-x + 1)^n/((x + 1)^n*x^4),x, algorithm="maxima")
```

```
[Out] integrate((x + 1)^(-n)*(-x + 1)^n/x^4, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(-x+1)^n}{(x+1)^n x^4}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-x + 1)^n/((x + 1)^n*x^4),x, algorithm="fricas")
```

```
[Out] integral((-x + 1)^n/((x + 1)^n*x^4), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-x)**n/x**4/((1+x)**n),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-x+1)^n}{(x+1)^n x^4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-x + 1)^n/((x + 1)^n*x^4),x, algorithm="giac")
```

```
[Out] integrate((-x + 1)^n/((x + 1)^n*x^4), x)
```

3.974 $\int x^m(1-ax)^n(1+ax)^n\,dx$

Optimal. Leaf size=36

$$\frac{x^{m+1}\,{}_2F_1\left(\frac{m+1}{2},-n;\frac{m+3}{2};a^2x^2\right)}{m+1}$$

```
[Out] (x^(1 + m)*Hypergeometric2F1[(1 + m)/2, -n, (3 + m)/2, a^2*x^2])/
(1 + m)
```

Rubi [A] time = 0.0444997, antiderivative size = 36, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.105

$$\frac{x^{m+1}\,{}_2F_1\left(\frac{m+1}{2},-n;\frac{m+3}{2};a^2x^2\right)}{m+1}$$

Antiderivative was successfully verified.

```
[In]  Int[x^m*(1 - a*x)^n*(1 + a*x)^n,x]
```

```
[Out] (x^(1 + m)*Hypergeometric2F1[(1 + m)/2, -n, (3 + m)/2, a^2*x^2])/
(1 + m)
```

Rubi in Sympy [A] time = 7.40879, size = 27, normalized size = 0.75

$$\frac{x^{m+1}{}_2F_1\left(\begin{matrix}-n,\frac{m}{2}+\frac{1}{2}\\ \frac{m}{2}+\frac{3}{2}\end{matrix}\middle|a^2x^2\right)}{m+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**m*(-a*x+1)**n*(a*x+1)**n,x)
```

```
[Out] x**(m + 1)*hyper((-n, m/2 + 1/2), (m/2 + 3/2,), a**2*x**2)/(m + 1
)
```

Mathematica [A] time = 0.0380133, size = 38, normalized size = 1.06

$$\frac{x^{m+1}\,{}_2F_1\left(\frac{m+1}{2},-n;\frac{m+1}{2}+1;a^2x^2\right)}{m+1}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^m*(1 - a*x)^n*(1 + a*x)^n,x]
```

```
[Out] (x^(1 + m)*Hypergeometric2F1[(1 + m)/2, -n, 1 + (1 + m)/2, a^2*x^
2])/(1 + m)
```

Maple [F] time = 0.199, size = 0, normalized size = 0.

$$\int x^m\left(-ax+1\right)^n\left(ax+1\right)^n\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^m*(-a*x+1)^n*(a*x+1)^n,x)

[Out] int(x^m*(-a*x+1)^n*(a*x+1)^n,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (ax+1)^n(-ax+1)^n x^m \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((a*x + 1)^n*(-a*x + 1)^n*x^m,x, algorithm="maxima")

[Out] integrate((a*x + 1)^n*(-a*x + 1)^n*x^m, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left((ax+1)^n(-ax+1)^n x^m, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((a*x + 1)^n*(-a*x + 1)^n*x^m,x, algorithm="fricas")

[Out] integral((a*x + 1)^n*(-a*x + 1)^n*x^m, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**m*(-a*x+1)**n*(a*x+1)**n,x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (ax+1)^n(-ax+1)^n x^m \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((a*x + 1)^n*(-a*x + 1)^n*x^m,x, algorithm="giac")

[Out] integrate((a*x + 1)^n*(-a*x + 1)^n*x^m, x)
```

3.975 $\int x^m(1-ax)^n(2+2ax)^n\,dx$

Optimal. Leaf size=39

$$\frac{2^n x^{m+1}\,{}_2F_1\left(\frac{m+1}{2},-n;\frac{m+3}{2};a^2x^2\right)}{m+1}$$

```
[Out] (2^n*x^(1 + m)*Hypergeometric2F1[(1 + m)/2, -n, (3 + m)/2, a^2*x^
2])/(1 + m)
```

Rubi [A] time = 0.0479943, antiderivative size = 39, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.1$

$$\frac{2^n x^{m+1}\,{}_2F_1\left(\frac{m+1}{2},-n;\frac{m+3}{2};a^2x^2\right)}{m+1}$$

Antiderivative was successfully verified.

```
[In] Int[x^m*(1 - a*x)^n*(2 + 2*a*x)^n,x]
```

```
[Out] (2^n*x^(1 + m)*Hypergeometric2F1[(1 + m)/2, -n, (3 + m)/2, a^2*x^
2])/(1 + m)
```

Rubi in Sympy [A] time = 7.88774, size = 31, normalized size = 0.79

$$\frac{2^n x^{m+1}{}_2F_1\left(\begin{matrix}-n,\frac{m}{2}+\frac{1}{2}\\ \frac{m}{2}+\frac{3}{2}\end{matrix}\middle|a^2x^2\right)}{m+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(x**m*(-a*x+1)**n*(2*a*x+2)**n,x)
```

```
[Out] 2**n*x**(m + 1)*hyper((-n, m/2 + 1/2), (m/2 + 3/2,), a**2*x**2)/(
m + 1)
```

Mathematica [A] time = 0.0738082, size = 68, normalized size = 1.74

$$\frac{x^{m+1}(1-ax)^n(2ax+2)^n\left(1-a^2x^2\right)^{-n}\,{}_2F_1\left(\frac{m+1}{2},-n;\frac{m+1}{2}+1;a^2x^2\right)}{m+1}$$

Antiderivative was successfully verified.

```
[In] Integrate[x^m*(1 - a*x)^n*(2 + 2*a*x)^n,x]
```

```
[Out] (x^(1 + m)*(1 - a*x)^n*(2 + 2*a*x)^n*Hypergeometric2F1[(1 + m)/2,
 -n, 1 + (1 + m)/2, a^2*x^2])/((1 + m)*(1 - a^2*x^2)^n)
```

Maple [F] time = 0.243, size = 0, normalized size = 0.

$$\int x^m\left(-ax+1\right)^n\left(2\,ax+2\right)^n\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^m*(-a*x+1)^n*(2*a*x+2)^n,x)

[Out] int(x^m*(-a*x+1)^n*(2*a*x+2)^n,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (2\,ax+2)^n(-ax+1)^n x^m\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*a*x + 2)^n*(-a*x + 1)^n*x^m,x, algorithm="maxima")

[Out] integrate((2*a*x + 2)^n*(-a*x + 1)^n*x^m, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left((2\,ax+2)^n(-ax+1)^n x^m, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*a*x + 2)^n*(-a*x + 1)^n*x^m,x, algorithm="fricas")

[Out] integral((2*a*x + 2)^n*(-a*x + 1)^n*x^m, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**m*(-a*x+1)**n*(2*a*x+2)**n,x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (2\,ax+2)^n(-ax+1)^n x^m\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*a*x + 2)^n*(-a*x + 1)^n*x^m,x, algorithm="giac")

[Out] integrate((2*a*x + 2)^n*(-a*x + 1)^n*x^m, x)
```

3.976 $\int x^m(2-ax)^n(2+ax)^n\,dx$

Optimal. Leaf size=42

$$\frac{4^n x^{m+1}\,{}_2F_1\left(\frac{m+1}{2},-n;\frac{m+3}{2};\frac{a^2x^2}{4}\right)}{m+1}$$

```
[Out] (4^n*x^(1 + m)*Hypergeometric2F1[(1 + m)/2, -n, (3 + m)/2, (a^2*x
^2)/4])/(1 + m)
```

Rubi [A] time = 0.047354, antiderivative size = 42, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.105

$$\frac{4^n x^{m+1}\,{}_2F_1\left(\frac{m+1}{2},-n;\frac{m+3}{2};\frac{a^2x^2}{4}\right)}{m+1}$$

Antiderivative was successfully verified.

```
[In] Int[x^m*(2 - a*x)^n*(2 + a*x)^n,x]
```

```
[Out] (4^n*x^(1 + m)*Hypergeometric2F1[(1 + m)/2, -n, (3 + m)/2, (a^2*x
^2)/4])/(1 + m)
```

Rubi in Sympy [A] time = 7.50367, size = 32, normalized size = 0.76

$$\frac{4^n x^{m+1}{}_2F_1\left(\begin{matrix}-n,\frac{m}{2}+\frac{1}{2}\\ \frac{m}{2}+\frac{3}{2}\end{matrix}\middle|\frac{a^2x^2}{4}\right)}{m+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(x**m*(-a*x+2)**n*(a*x+2)**n,x)
```

```
[Out] 4**n*x**(m + 1)*hyper((-n, m/2 + 1/2), (m/2 + 3/2,), a**2*x**2/4)
/(m + 1)
```

Mathematica [A] time = 0.0498585, size = 42, normalized size = 1.

$$\frac{4^n x^{m+1}\,{}_2F_1\left(\frac{m+1}{2},-n;\frac{m+3}{2};\frac{a^2x^2}{4}\right)}{m+1}$$

Antiderivative was successfully verified.

```
[In] Integrate[x^m*(2 - a*x)^n*(2 + a*x)^n,x]
```

```
[Out] (4^n*x^(1 + m)*Hypergeometric2F1[(1 + m)/2, -n, (3 + m)/2, (a^2*x
^2)/4])/(1 + m)
```

Maple [F] time = 0.194, size = 0, normalized size = 0.

$$\int x^m\left(-ax+2\right)^n\left(ax+2\right)^n\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^m*(-a*x+2)^n*(a*x+2)^n,x)

[Out] int(x^m*(-a*x+2)^n*(a*x+2)^n,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (ax+2)^n(-ax+2)^n x^m \,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((a*x + 2)^n*(-a*x + 2)^n*x^m,x, algorithm="maxima")

[Out] integrate((a*x + 2)^n*(-a*x + 2)^n*x^m, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left((ax+2)^n(-ax+2)^n x^m, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((a*x + 2)^n*(-a*x + 2)^n*x^m,x, algorithm="fricas")

[Out] integral((a*x + 2)^n*(-a*x + 2)^n*x^m, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**m*(-a*x+2)**n*(a*x+2)**n,x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (ax+2)^n(-ax+2)^n x^m \,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((a*x + 2)^n*(-a*x + 2)^n*x^m,x, algorithm="giac")

[Out] integrate((a*x + 2)^n*(-a*x + 2)^n*x^m, x)
```

3.977 $\int x^m \left(1-\frac{ax}{2}\right)^n (2+ax)^n\,dx$

Optimal. Leaf size=42

$$\frac{2^n x^{m+1}\,{}_2F_1\left(\frac{m+1}{2},-n;\frac{m+3}{2};\frac{a^2x^2}{4}\right)}{m+1}$$

```
[Out] (2^n*x^(1 + m)*Hypergeometric2F1[(1 + m)/2, -n, (3 + m)/2, (a^2*x
^2)/4])/(1 + m)
```

Rubi [A] time = 0.0436796, antiderivative size = 42, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 21, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.095

$$\frac{2^n x^{m+1}\,{}_2F_1\left(\frac{m+1}{2},-n;\frac{m+3}{2};\frac{a^2x^2}{4}\right)}{m+1}$$

Antiderivative was successfully verified.

```
[In] Int[x^m*(1 - (a*x)/2)^n*(2 + a*x)^n,x]
```

```
[Out] (2^n*x^(1 + m)*Hypergeometric2F1[(1 + m)/2, -n, (3 + m)/2, (a^2*x
^2)/4])/(1 + m)
```

Rubi in Sympy [A] time = 7.48796, size = 32, normalized size = 0.76

$$\frac{2^n x^{m+1}{}_2F_1\left(\begin{matrix}-n,\frac{m}{2}+\frac{1}{2}\\ \frac{m}{2}+\frac{3}{2}\end{matrix}\middle|\frac{a^2x^2}{4}\right)}{m+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(x**m*(1-1/2*a*x)**n*(a*x+2)**n,x)
```

```
[Out] 2**n*x**(m + 1)*hyper((-n, m/2 + 1/2), (m/2 + 3/2,), a**2*x**2/4)
/(m + 1)
```

Mathematica [A] time = 0.0753358, size = 74, normalized size = 1.76

$$\frac{x^{m+1}\left(1-\frac{ax}{2}\right)^n (ax+2)^n \left(1-\frac{a^2x^2}{4}\right)^{-n}\,{}_2F_1\left(\frac{m+1}{2},-n;\frac{m+1}{2}+1;\frac{a^2x^2}{4}\right)}{m+1}$$

Antiderivative was successfully verified.

```
[In] Integrate[x^m*(1 - (a*x)/2)^n*(2 + a*x)^n,x]
```

```
[Out] (x^(1 + m)*(1 - (a*x)/2)^n*(2 + a*x)^n*Hypergeometric2F1[(1 + m)/
2, -n, 1 + (1 + m)/2, (a^2*x^2)/4])/((1 + m)*(1 - (a^2*x^2)/4)^n)
```

Maple [F] time = 0.224, size = 0, normalized size = 0.

$$\int x^m\left(1-\frac{ax}{2}\right)^n (ax+2)^n\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^m*(1-1/2*a*x)^n*(a*x+2)^n,x)

[Out] int(x^m*(1-1/2*a*x)^n*(a*x+2)^n,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (ax+2)^n \left(-\frac{1}{2}ax+1\right)^n x^m\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((a*x + 2)^n*(-1/2*a*x + 1)^n*x^m,x, algorithm="maxima")

[Out] integrate((a*x + 2)^n*(-1/2*a*x + 1)^n*x^m, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left((ax+2)^n \left(-\frac{1}{2}ax+1\right)^n x^m, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((a*x + 2)^n*(-1/2*a*x + 1)^n*x^m,x, algorithm="fricas")

[Out] integral((a*x + 2)^n*(-1/2*a*x + 1)^n*x^m, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**m*(1-1/2*a*x)**n*(a*x+2)**n,x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (ax+2)^n \left(-\frac{1}{2}ax+1\right)^n x^m\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((a*x + 2)^n*(-1/2*a*x + 1)^n*x^m,x, algorithm="giac")

[Out] integrate((a*x + 2)^n*(-1/2*a*x + 1)^n*x^m, x)
```

3.978 $\int x^m(3-2ax)^{2+n}(6+4ax)^n\,dx$

Optimal. Leaf size=151

$$\frac{2^n 9^{n+1} x^{m+1}\,{}_2F_1\left(\frac{m+1}{2},-n;\frac{m+3}{2};\frac{4a^2x^2}{9}\right)}{m+1}-\frac{a2^{n+2}3^{2n+1}x^{m+2}\,{}_2F_1\left(\frac{m+2}{2},-n;\frac{m+4}{2};\frac{4a^2x^2}{9}\right)}{m+2}+\frac{a^2 2^{n+2} 9^n x^{m+3}\,{}_2F_1\left(\frac{m+3}{2},-n;\frac{m+5}{2};\frac{4a^2x^2}{9}\right)}{m+3}$$

```
[Out] (2^n*9^(1 + n)*x^(1 + m)*Hypergeometric2F1[(1 + m)/2, -n, (3 + m)
/2, (4*a^2*x^2)/9])/(1 + m) - (2^(2 + n)*3^(1 + 2*n)*a*x^(2 + m)*
Hypergeometric2F1[(2 + m)/2, -n, (4 + m)/2, (4*a^2*x^2)/9])/(2 +
m) + (2^(2 + n)*9^n*a^2*x^(3 + m)*Hypergeometric2F1[(3 + m)/2, -n
, (5 + m)/2, (4*a^2*x^2)/9])/(3 + m)
```

Rubi [A] time = 0.250406, antiderivative size = 151, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.136

$$\frac{2^n 9^{n+1} x^{m+1}\,{}_2F_1\left(\frac{m+1}{2},-n;\frac{m+3}{2};\frac{4a^2x^2}{9}\right)}{m+1}-\frac{a2^{n+2}3^{2n+1}x^{m+2}\,{}_2F_1\left(\frac{m+2}{2},-n;\frac{m+4}{2};\frac{4a^2x^2}{9}\right)}{m+2}+\frac{a^2 2^{n+2} 9^n x^{m+3}\,{}_2F_1\left(\frac{m+3}{2},-n;\frac{m+5}{2};\frac{4a^2x^2}{9}\right)}{m+3}$$

Antiderivative was successfully verified.

```
[In]  Int[x^m*(3 - 2*a*x)^(2 + n)*(6 + 4*a*x)^n,x]
```

```
[Out] (2^n*9^(1 + n)*x^(1 + m)*Hypergeometric2F1[(1 + m)/2, -n, (3 + m)
/2, (4*a^2*x^2)/9])/(1 + m) - (2^(2 + n)*3^(1 + 2*n)*a*x^(2 + m)*
Hypergeometric2F1[(2 + m)/2, -n, (4 + m)/2, (4*a^2*x^2)/9])/(2 +
m) + (2^(2 + n)*9^n*a^2*x^(3 + m)*Hypergeometric2F1[(3 + m)/2, -n
, (5 + m)/2, (4*a^2*x^2)/9])/(3 + m)
```

Rubi in Sympy [A] time = 40.3112, size = 112, normalized size = 0.74

$$\frac{4\cdot 18^n a^2 x^{m+3}{}_2F_1\left(\begin{matrix}-n,\frac{m}{2}+\frac{3}{2}\\ \frac{m}{2}+\frac{5}{2}\end{matrix}\middle|\frac{4a^2x^2}{9}\right)}{m+3}-\frac{12\cdot 18^n a x^{m+2}{}_2F_1\left(\begin{matrix}-n,\frac{m}{2}+1\\ \frac{m}{2}+2\end{matrix}\middle|\frac{4a^2x^2}{9}\right)}{m+2}+\frac{9\cdot 18^n x^{m+1}{}_2F_1\left(\begin{matrix}-n,\frac{m}{2}+\frac{1}{2}\\ \frac{m}{2}+\frac{3}{2}\end{matrix}\middle|\frac{4a^2x^2}{9}\right)}{m+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**m*(-2*a*x+3)**(2+n)*(4*a*x+6)**n,x)
```

```
[Out] 4*18**n*a**2*x**(m + 3)*hyper((-n, m/2 + 3/2), (m/2 + 5/2,), 4*a*
*2*x**2/9)/(m + 3) - 12*18**n*a*x**(m + 2)*hyper((-n, m/2 + 1), (
m/2 + 2,), 4*a**2*x**2/9)/(m + 2) + 9*18**n*x**(m + 1)*hyper((-n,
 m/2 + 1/2), (m/2 + 3/2,), 4*a**2*x**2/9)/(m + 1)
```

Mathematica [A] time = 0.213474, size = 171, normalized size = 1.13

$$\frac{x^{m+1}(3-2ax)^n(4ax+6)^n\left(1-\frac{4a^2x^2}{9}\right)^{-n}\left((m+2)\left(4a^2(m+1)x^2\,{}_2F_1\left(\frac{m+3}{2},-n;\frac{m+5}{2};\frac{4a^2x^2}{9}\right)+9(m+3)\,{}_2F_1\left(\frac{m+1}{2},-n;\frac{m+3}{2};\frac{4a\right.\right.\right.}{(m+1)(m+2)(m+3)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^m*(3 - 2*a*x)^(2 + n)*(6 + 4*a*x)^n,x]
```

```
[Out] (x^(1 + m)*(3 - 2*a*x)^n*(6 + 4*a*x)^n*(-12*a*(3 + 4*m + m^2)*x*H
ypergeometric2F1[1 + m/2, -n, 2 + m/2, (4*a^2*x^2)/9] + (2 + m)*(
9*(3 + m)*Hypergeometric2F1[(1 + m)/2, -n, (3 + m)/2, (4*a^2*x^2)
/9] + 4*a^2*(1 + m)*x^2*Hypergeometric2F1[(3 + m)/2, -n, (5 + m)/
2, (4*a^2*x^2)/9])))/((1 + m)*(2 + m)*(3 + m)*(1 - (4*a^2*x^2)/9)
^n)
```

Maple [F] time = 0.24, size = 0, normalized size = 0.

$$\int x^{m} \left(-2 a x +3\right)^{2+n} \left(4 a x +6\right)^{n}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^m*(-2*a*x+3)^(2+n)*(4*a*x+6)^n,x)
```

```
[Out] int(x^m*(-2*a*x+3)^(2+n)*(4*a*x+6)^n,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (4 \, a x + 6)^{n} (-2 \, a x + 3)^{n + 2} x^{m}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((4*a*x + 6)^n*(-2*a*x + 3)^(n + 2)*x^m,x, algorithm="maxima")
```

```
[Out] integrate((4*a*x + 6)^n*(-2*a*x + 3)^(n + 2)*x^m, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left((4 \, a x + 6)^{n} (-2 \, a x + 3)^{n + 2} x^{m}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((4*a*x + 6)^n*(-2*a*x + 3)^(n + 2)*x^m,x, algorithm="fricas")
```

```
[Out] integral((4*a*x + 6)^n*(-2*a*x + 3)^(n + 2)*x^m, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**m*(-2*a*x+3)**(2+n)*(4*a*x+6)**n,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (4\,ax + 6)^n (-2\,ax + 3)^{n+2} x^m\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((4*a*x + 6)^n*(-2*a*x + 3)^(n + 2)*x^m,x, algorithm="giac")
```

```
[Out] integrate((4*a*x + 6)^n*(-2*a*x + 3)^(n + 2)*x^m, x)
```

3.979 $\int x^m(3-2ax)^{1+n}(6+4ax)^n\,dx$

Optimal. Leaf size=99

$$\frac{2^n 3^{2n+1} x^{m+1}\,{}_2F_1\left(\frac{m+1}{2},-n;\frac{m+3}{2};\frac{4a^2x^2}{9}\right)}{m+1}-\frac{a2^{n+1}9^n x^{m+2}\,{}_2F_1\left(\frac{m+2}{2},-n;\frac{m+4}{2};\frac{4a^2x^2}{9}\right)}{m+2}$$

```
[Out] (2^n*3^(1 + 2*n)*x^(1 + m)*Hypergeometric2F1[(1 + m)/2, -n, (3 +
m)/2, (4*a^2*x^2)/9])/(1 + m) - (2^(1 + n)*9^n*a*x^(2 + m)*Hyperg
eometric2F1[(2 + m)/2, -n, (4 + m)/2, (4*a^2*x^2)/9])/(2 + m)
```

Rubi [A] time = 0.136241, antiderivative size = 99, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.136

$$\frac{2^n 3^{2n+1} x^{m+1}\,{}_2F_1\left(\frac{m+1}{2},-n;\frac{m+3}{2};\frac{4a^2x^2}{9}\right)}{m+1}-\frac{a2^{n+1}9^n x^{m+2}\,{}_2F_1\left(\frac{m+2}{2},-n;\frac{m+4}{2};\frac{4a^2x^2}{9}\right)}{m+2}$$

Antiderivative was successfully verified.

```
[In]  Int[x^m*(3 - 2*a*x)^(1 + n)*(6 + 4*a*x)^n,x]
```

```
[Out] (2^n*3^(1 + 2*n)*x^(1 + m)*Hypergeometric2F1[(1 + m)/2, -n, (3 +
m)/2, (4*a^2*x^2)/9])/(1 + m) - (2^(1 + n)*9^n*a*x^(2 + m)*Hyperg
eometric2F1[(2 + m)/2, -n, (4 + m)/2, (4*a^2*x^2)/9])/(2 + m)
```

Rubi in Sympy [A] time = 15.5775, size = 71, normalized size = 0.72

$$-\frac{2\cdot 18^n a x^{m+2}{}_2F_1\left(\begin{matrix}-n,\frac{m}{2}+1\\ \frac{m}{2}+2\end{matrix}\middle|\frac{4a^2x^2}{9}\right)}{m+2}+\frac{3\cdot 18^n x^{m+1}{}_2F_1\left(\begin{matrix}-n,\frac{m}{2}+\frac{1}{2}\\ \frac{m}{2}+\frac{3}{2}\end{matrix}\middle|\frac{4a^2x^2}{9}\right)}{m+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**m*(-2*a*x+3)**(1+n)*(4*a*x+6)**n,x)
```

```
[Out] -2*18**n*a*x**(m + 2)*hyper((-n, m/2 + 1), (m/2 + 2,), 4*a**2*x**
2/9)/(m + 2) + 3*18**n*x**(m + 1)*hyper((-n, m/2 + 1/2), (m/2 + 3
/2,), 4*a**2*x**2/9)/(m + 1)
```

Mathematica [A] time = 0.147894, size = 117, normalized size = 1.18

$$\frac{x^{m+1}(3-2ax)^n(4ax+6)^n\left(1-\frac{4a^2x^2}{9}\right)^{-n}\left(3(m+2)\,{}_2F_1\left(\frac{m+1}{2},-n;\frac{m+3}{2};\frac{4a^2x^2}{9}\right)-2a(m+1)x\,{}_2F_1\left(\frac{m}{2}+1,-n;\frac{m}{2}+2;\frac{4a^2x^2}{9}\right)\right)}{(m+1)(m+2)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^m*(3 - 2*a*x)^(1 + n)*(6 + 4*a*x)^n,x]
```

```
[Out] (x^(1 + m)*(3 - 2*a*x)^n*(6 + 4*a*x)^n*(-2*a*(1 + m)*x*Hypergeome
tric2F1[1 + m/2, -n, 2 + m/2, (4*a^2*x^2)/9] + 3*(2 + m)*Hypergeo
metric2F1[(1 + m)/2, -n, (3 + m)/2, (4*a^2*x^2)/9]))/((1 + m)*(2
+ m)*(1 - (4*a^2*x^2)/9)^n)
```

Maple [F] time = 0.24, size = 0, normalized size = 0.

$$\int x^{m} \left(-2 a x + 3\right)^{1+n} \left(4 a x + 6\right)^{n} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^m*(-2*a*x+3)^(1+n)*(4*a*x+6)^n,x)

[Out] int(x^m*(-2*a*x+3)^(1+n)*(4*a*x+6)^n,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (4 a x + 6)^{n} (-2 a x + 3)^{n+1} x^{m} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((4*a*x + 6)^n*(-2*a*x + 3)^(n + 1)*x^m,x, algorithm="maxima")

[Out] integrate((4*a*x + 6)^n*(-2*a*x + 3)^(n + 1)*x^m, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left((4 a x + 6)^{n} (-2 a x + 3)^{n+1} x^{m}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((4*a*x + 6)^n*(-2*a*x + 3)^(n + 1)*x^m,x, algorithm="fricas")

[Out] integral((4*a*x + 6)^n*(-2*a*x + 3)^(n + 1)*x^m, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**m*(-2*a*x+3)**(1+n)*(4*a*x+6)**n,x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (4 a x + 6)^{n} (-2 a x + 3)^{n+1} x^{m} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((4*a*x + 6)^n*(-2*a*x + 3)^(n + 1)*x^m,x, algorithm="giac")

[Out] integrate((4*a*x + 6)^n*(-2*a*x + 3)^(n + 1)*x^m, x)
```

3.980 $\int x^m(3-2ax)^n(6+4ax)^n\,dx$

Optimal. Leaf size=42

$$\frac{18^n x^{m+1}\,{}_2F_1\left(\frac{m+1}{2},-n;\frac{m+3}{2};\frac{4a^2x^2}{9}\right)}{m+1}$$

```
[Out] (18^n*x^(1 + m)*Hypergeometric2F1[(1 + m)/2, -n, (3 + m)/2, (4*a^
2*x^2)/9])/(1 + m)
```

Rubi [A] time = 0.0448511, antiderivative size = 42, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.1$

$$\frac{18^n x^{m+1}\,{}_2F_1\left(\frac{m+1}{2},-n;\frac{m+3}{2};\frac{4a^2x^2}{9}\right)}{m+1}$$

Antiderivative was successfully verified.

```
[In]  Int[x^m*(3 - 2*a*x)^n*(6 + 4*a*x)^n,x]
```

```
[Out] (18^n*x^(1 + m)*Hypergeometric2F1[(1 + m)/2, -n, (3 + m)/2, (4*a^
2*x^2)/9])/(1 + m)
```

Rubi in Sympy [A] time = 7.86994, size = 34, normalized size = 0.81

$$\frac{18^n x^{m+1}{}_2F_1\left(\begin{matrix}-n,\frac{m}{2}+\frac{1}{2}\\ \frac{m}{2}+\frac{3}{2}\end{matrix}\middle|\frac{4a^2x^2}{9}\right)}{m+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**m*(-2*a*x+3)**n*(4*a*x+6)**n,x)
```

```
[Out] 18**n*x**(m + 1)*hyper((-n, m/2 + 1/2), (m/2 + 3/2,), 4*a**2*x**2
/9)/(m + 1)
```

Mathematica [A] time = 0.0629963, size = 73, normalized size = 1.74

$$\frac{x^{m+1}(3-2ax)^n(4ax+6)^n\left(1-\frac{4a^2x^2}{9}\right)^{-n}\,{}_2F_1\left(\frac{m+1}{2},-n;\frac{m+1}{2}+1;\frac{4a^2x^2}{9}\right)}{m+1}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^m*(3 - 2*a*x)^n*(6 + 4*a*x)^n,x]
```

```
[Out] (x^(1 + m)*(3 - 2*a*x)^n*(6 + 4*a*x)^n*Hypergeometric2F1[(1 + m)/
2, -n, 1 + (1 + m)/2, (4*a^2*x^2)/9])/((1 + m)*(1 - (4*a^2*x^2)/9
)^n)
```

Maple [F] time = 0.221, size = 0, normalized size = 0.

$$\int x^m\left(-2\,ax+3\right)^n\left(4\,ax+6\right)^n\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^m*(-2*a*x+3)^n*(4*a*x+6)^n,x)
```

```
[Out] int(x^m*(-2*a*x+3)^n*(4*a*x+6)^n,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (4\,ax+6)^n(-2\,ax+3)^n x^m\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((4*a*x + 6)^n*(-2*a*x + 3)^n*x^m,x, algorithm="maxima")
```

```
[Out] integrate((4*a*x + 6)^n*(-2*a*x + 3)^n*x^m, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\operatorname{integral}\left((4\,ax+6)^n(-2\,ax+3)^n x^m, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((4*a*x + 6)^n*(-2*a*x + 3)^n*x^m,x, algorithm="fricas")
```

```
[Out] integral((4*a*x + 6)^n*(-2*a*x + 3)^n*x^m, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**m*(-2*a*x+3)**n*(4*a*x+6)**n,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (4\,ax+6)^n(-2\,ax+3)^n x^m\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((4*a*x + 6)^n*(-2*a*x + 3)^n*x^m,x, algorithm="giac")
```

```
[Out] integrate((4*a*x + 6)^n*(-2*a*x + 3)^n*x^m, x)
```

3.981 $\int x^m(3-2ax)^{-1+n}(6+4ax)^n\,dx$

Optimal. Leaf size=104

$$\frac{2^n 3^{2n-1} x^{m+1}\,{}_2F_1\left(\frac{m+1}{2},1-n;\frac{m+3}{2};\frac{4a^2x^2}{9}\right)}{m+1}+\frac{a2^{n+1}9^{n-1}x^{m+2}\,{}_2F_1\left(\frac{m+2}{2},1-n;\frac{m+4}{2};\frac{4a^2x^2}{9}\right)}{m+2}$$

```
[Out] (2^n*3^(-1 + 2*n)*x^(1 + m)*Hypergeometric2F1[(1 + m)/2, 1 - n, (
3 + m)/2, (4*a^2*x^2)/9])/(1 + m) + (2^(1 + n)*9^(-1 + n)*a*x^(2
+ m)*Hypergeometric2F1[(2 + m)/2, 1 - n, (4 + m)/2, (4*a^2*x^2)/9
])/(2 + m)
```

Rubi [A] time = 0.191724, antiderivative size = 104, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.136

$$\frac{2^n 3^{2n-1} x^{m+1}\,{}_2F_1\left(\frac{m+1}{2},1-n;\frac{m+3}{2};\frac{4a^2x^2}{9}\right)}{m+1}+\frac{a2^{n+1}9^{n-1}x^{m+2}\,{}_2F_1\left(\frac{m+2}{2},1-n;\frac{m+4}{2};\frac{4a^2x^2}{9}\right)}{m+2}$$

Antiderivative was successfully verified.

```
[In]  Int[x^m*(3 - 2*a*x)^(-1 + n)*(6 + 4*a*x)^n,x]
```

```
[Out] (2^n*3^(-1 + 2*n)*x^(1 + m)*Hypergeometric2F1[(1 + m)/2, 1 - n, (
3 + m)/2, (4*a^2*x^2)/9])/(1 + m) + (2^(1 + n)*9^(-1 + n)*a*x^(2
+ m)*Hypergeometric2F1[(2 + m)/2, 1 - n, (4 + m)/2, (4*a^2*x^2)/9
])/(2 + m)
```

Rubi in Sympy [A] time = 16.7501, size = 75, normalized size = 0.72

$$\frac{4\cdot 18^{n-1}ax^{m+2}{}_2F_1\left(\begin{matrix}-n+1,\frac{m}{2}+1\\ \frac{m}{2}+2\end{matrix}\middle|\frac{4a^2x^2}{9}\right)}{m+2}+\frac{6\cdot 18^{n-1}x^{m+1}{}_2F_1\left(\begin{matrix}-n+1,\frac{m}{2}+\frac{1}{2}\\ \frac{m}{2}+\frac{3}{2}\end{matrix}\middle|\frac{4a^2x^2}{9}\right)}{m+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**m*(-2*a*x+3)**(-1+n)*(4*a*x+6)**n,x)
```

```
[Out] 4*18**(n - 1)*a*x**(m + 2)*hyper((-n + 1, m/2 + 1), (m/2 + 2,), 4
*a**2*x**2/9)/(m + 2) + 6*18**(n - 1)*x**(m + 1)*hyper((-n + 1, m
/2 + 1/2), (m/2 + 3/2,), 4*a**2*x**2/9)/(m + 1)
```

Mathematica [C] time = 0.395167, size = 168, normalized size = 1.62

$$-\frac{3(m+2)x^{m+1}\left(18-8a^2x^2\right)^n F_1\left(m+1;1-n,-n;m+2;\frac{2ax}{3},-\frac{2ax}{3}\right)}{(m+1)(2ax-3)\left(2ax\left(n\,{}_2F_1\left(\frac{m}{2}+1,1-n;\frac{m}{2}+2;\frac{4a^2x^2}{9}\right)-(n-1)F_1\left(m+2;2-n,-n;m+3;\frac{2ax}{3},-\frac{2ax}{3}\right)\right)+3(m+2)F_1\left(\right.\right.}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[x^m*(3 - 2*a*x)^(-1 + n)*(6 + 4*a*x)^n,x]
```

```
[Out] (-3*(2 + m)*x^(1 + m)*(18 - 8*a^2*x^2)^n*AppellF1[1 + m, 1 - n, -
n, 2 + m, (2*a*x)/3, (-2*a*x)/3])/((1 + m)*(-3 + 2*a*x)*(3*(2 + m
)*AppellF1[1 + m, 1 - n, -n, 2 + m, (2*a*x)/3, (-2*a*x)/3] + 2*a*
x*(-((-1 + n)*AppellF1[2 + m, 2 - n, -n, 3 + m, (2*a*x)/3, (-2*a*
x)/3]) + n*HypergeometricPFQ[{1 + m/2, 1 - n}, {2 + m/2}, (4*a^2*
```

```
x^2)/9])))
```

Maple [F] time = 0.237, size = 0, normalized size = 0.

$$\int x^{m} \left(-2 a x+3\right)^{-1+n} \left(4 a x+6\right)^{n}d x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^m*(-2*a*x+3)^(-1+n)*(4*a*x+6)^n,x)
```

```
[Out] int(x^m*(-2*a*x+3)^(-1+n)*(4*a*x+6)^n,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (4 ax + 6)^{n}(-2 ax + 3)^{n-1}x^{m} dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((4*a*x + 6)^n*(-2*a*x + 3)^(n - 1)*x^m,x, algorithm="maxima")
```

```
[Out] integrate((4*a*x + 6)^n*(-2*a*x + 3)^(n - 1)*x^m, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left((4 ax + 6)^{n}(-2 ax + 3)^{n-1}x^{m}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((4*a*x + 6)^n*(-2*a*x + 3)^(n - 1)*x^m,x, algorithm="fricas")
```

```
[Out] integral((4*a*x + 6)^n*(-2*a*x + 3)^(n - 1)*x^m, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**m*(-2*a*x+3)**(-1+n)*(4*a*x+6)**n,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (4 ax + 6)^{n}(-2 ax + 3)^{n-1}x^{m} dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((4*a*x + 6)^n*(-2*a*x + 3)^(n - 1)*x^m,x, algorithm="giac")
```

```
[Out] integrate((4*a*x + 6)^n*(-2*a*x + 3)^(n - 1)*x^m, x)
```

3.982 $\int x^m(3-2ax)^{-2+n}(6+4ax)^n\,dx$

Optimal. Leaf size=158

$$\frac{2^n9^{n-1}x^{m+1}\,{}_2F_1\left(\frac{m+1}{2},2-n;\frac{m+3}{2};\frac{4a^2x^2}{9}\right)}{m+1}+\frac{a2^{n+2}3^{2n-3}x^{m+2}\,{}_2F_1\left(\frac{m+2}{2},2-n;\frac{m+4}{2};\frac{4a^2x^2}{9}\right)}{m+2}+\frac{a^22^{n+2}9^{n-2}x^{m+3}\,{}_2F_1\left(\frac{m+3}{2},2-n;\frac{m+5}{2};\frac{4a^2x^2}{9}\right)}{m+3}$$

```
[Out] (2^n*9^(-1 + n)*x^(1 + m)*Hypergeometric2F1[(1 + m)/2, 2 - n, (3
+ m)/2, (4*a^2*x^2)/9])/(1 + m) + (2^(2 + n)*3^(-3 + 2*n)*a*x^(2
+ m)*Hypergeometric2F1[(2 + m)/2, 2 - n, (4 + m)/2, (4*a^2*x^2)/9
])/(2 + m) + (2^(2 + n)*9^(-2 + n)*a^2*x^(3 + m)*Hypergeometric2F
1[(3 + m)/2, 2 - n, (5 + m)/2, (4*a^2*x^2)/9])/(3 + m)
```

Rubi [A] time = 0.335826, antiderivative size = 158, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.136

$$\frac{2^n9^{n-1}x^{m+1}\,{}_2F_1\left(\frac{m+1}{2},2-n;\frac{m+3}{2};\frac{4a^2x^2}{9}\right)}{m+1}+\frac{a2^{n+2}3^{2n-3}x^{m+2}\,{}_2F_1\left(\frac{m+2}{2},2-n;\frac{m+4}{2};\frac{4a^2x^2}{9}\right)}{m+2}+\frac{a^22^{n+2}9^{n-2}x^{m+3}\,{}_2F_1\left(\frac{m+3}{2},2-n;\frac{m+5}{2};\frac{4a^2x^2}{9}\right)}{m+3}$$

Antiderivative was successfully verified.

```
[In]  Int[x^m*(3 - 2*a*x)^(-2 + n)*(6 + 4*a*x)^n,x]
```

```
[Out] (2^n*9^(-1 + n)*x^(1 + m)*Hypergeometric2F1[(1 + m)/2, 2 - n, (3
+ m)/2, (4*a^2*x^2)/9])/(1 + m) + (2^(2 + n)*3^(-3 + 2*n)*a*x^(2
+ m)*Hypergeometric2F1[(2 + m)/2, 2 - n, (4 + m)/2, (4*a^2*x^2)/9
])/(2 + m) + (2^(2 + n)*9^(-2 + n)*a^2*x^(3 + m)*Hypergeometric2F
1[(3 + m)/2, 2 - n, (5 + m)/2, (4*a^2*x^2)/9])/(3 + m)
```

Rubi in Sympy [A] time = 27.1876, size = 117, normalized size = 0.74

$$\frac{16\cdot 18^{n-2}a^2x^{m+3}{}_2F_1\left(\begin{matrix}-n+2,\frac{m}{2}+\frac{3}{2}\\ \frac{m}{2}+\frac{5}{2}\end{matrix}\middle|\frac{4a^2x^2}{9}\right)}{m+3}+\frac{48\cdot 18^{n-2}ax^{m+2}{}_2F_1\left(\begin{matrix}-n+2,\frac{m}{2}+1\\ \frac{m}{2}+2\end{matrix}\middle|\frac{4a^2x^2}{9}\right)}{m+2}+\frac{36\cdot 18^{n-2}x^{m+1}{}_2F_1\left(\begin{matrix}-n+2,\frac{m}{2}+\frac{1}{2}\\ \frac{m}{2}+\frac{3}{2}\end{matrix}\middle|\frac{4a^2x^2}{9}\right)}{m+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**m*(-2*a*x+3)**(-2+n)*(4*a*x+6)**n,x)
```

```
[Out] 16*18**(n - 2)*a**2*x**(m + 3)*hyper((-n + 2, m/2 + 3/2), (m/2 +
5/2,), 4*a**2*x**2/9)/(m + 3) + 48*18**(n - 2)*a*x**(m + 2)*hyper
((-n + 2, m/2 + 1), (m/2 + 2,), 4*a**2*x**2/9)/(m + 2) + 36*18**(
n - 2)*x**(m + 1)*hyper((-n + 2, m/2 + 1/2), (m/2 + 3/2,), 4*a**2
*x**2/9)/(m + 1)
```

Mathematica [C] time = 0.44254, size = 163, normalized size = 1.03

$$\frac{3(m+2)x^{m+1}(3-2ax)^{n-2}(4ax+6)^nF_1\left(m+1;2-n,-n;m+2;\frac{2ax}{3},-\frac{2ax}{3}\right)}{(m+1)\left(3(m+2)F_1\left(m+1;2-n,-n;m+2;\frac{2ax}{3},-\frac{2ax}{3}\right)+2ax\left(nF_1\left(m+2;2-n,1-n;m+3;\frac{2ax}{3},-\frac{2ax}{3}\right)-(n-2)F_1\left(m+\right.\right.\right.}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[x^m*(3 - 2*a*x)^(-2 + n)*(6 + 4*a*x)^n,x]
```

```
[Out] (3*(2 + m)*x^(1 + m)*(3 - 2*a*x)^(-2 + n)*(6 + 4*a*x)^n*AppellF1[
1 + m, 2 - n, -n, 2 + m, (2*a*x)/3, (-2*a*x)/3])/((1 + m)*(3*(2 +
 m)*AppellF1[1 + m, 2 - n, -n, 2 + m, (2*a*x)/3, (-2*a*x)/3] + 2*
a*x*(n*AppellF1[2 + m, 2 - n, 1 - n, 3 + m, (2*a*x)/3, (-2*a*x)/3
] - (-2 + n)*AppellF1[2 + m, 3 - n, -n, 3 + m, (2*a*x)/3, (-2*a*x
)/3])))
```

Maple [F] time = 0.234, size = 0, normalized size = 0.

$$\int x^{m} \left(-2 a x + 3\right)^{-2+n} \left(4 a x + 6\right)^{n}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^m*(-2*a*x+3)^(-2+n)*(4*a*x+6)^n,x)
```

```
[Out] int(x^m*(-2*a*x+3)^(-2+n)*(4*a*x+6)^n,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (4\,ax + 6)^{n}(-2\,ax + 3)^{n-2}x^{m}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((4*a*x + 6)^n*(-2*a*x + 3)^(n - 2)*x^m,x, algorithm="maxima")
```

```
[Out] integrate((4*a*x + 6)^n*(-2*a*x + 3)^(n - 2)*x^m, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left((4\,ax + 6)^{n}(-2\,ax + 3)^{n-2}x^{m}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((4*a*x + 6)^n*(-2*a*x + 3)^(n - 2)*x^m,x, algorithm="fricas")
```

```
[Out] integral((4*a*x + 6)^n*(-2*a*x + 3)^(n - 2)*x^m, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**m*(-2*a*x+3)**(-2+n)*(4*a*x+6)**n,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (4\,ax+6)^n(-2\,ax+3)^{n-2}x^m\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((4*a*x + 6)^n*(-2*a*x + 3)^(n - 2)*x^m,x, algorithm="giac")
```

```
[Out] integrate((4*a*x + 6)^n*(-2*a*x + 3)^(n - 2)*x^m, x)
```

3.983 $\int x^m(a+bx)^{1+n}(c+dx)^n\,dx$

Optimal. Leaf size=79

$$\frac{ax^{m+1}(a+bx)^n\left(\frac{bx}{a}+1\right)^{-n}(c+dx)^n\left(\frac{dx}{c}+1\right)^{-n}F_1\left(m+1;-n-1,-n;m+2;-\frac{bx}{a},-\frac{dx}{c}\right)}{m+1}$$

```
[Out] (a*x^(1 + m)*(a + b*x)^n*(c + d*x)^n*AppellF1[1 + m, -1 - n, -n, 
2 + m, -((b*x)/a), -((d*x)/c)])/((1 + m)*(1 + (b*x)/a)^n*(1 + (d*
x)/c)^n)
```

Rubi [A] time = 0.149882, antiderivative size = 79, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 2, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.1

$$\frac{ax^{m+1}(a+bx)^n\left(\frac{bx}{a}+1\right)^{-n}(c+dx)^n\left(\frac{dx}{c}+1\right)^{-n}F_1\left(m+1;-n-1,-n;m+2;-\frac{bx}{a},-\frac{dx}{c}\right)}{m+1}$$

Antiderivative was successfully verified.

```
[In]  Int[x^m*(a + b*x)^(1 + n)*(c + d*x)^n,x]
```

```
[Out] (a*x^(1 + m)*(a + b*x)^n*(c + d*x)^n*AppellF1[1 + m, -1 - n, -n, 
2 + m, -((b*x)/a), -((d*x)/c)])/((1 + m)*(1 + (b*x)/a)^n*(1 + (d*
x)/c)^n)
```

Rubi in Sympy [A] time = 16.9235, size = 61, normalized size = 0.77

$$\frac{ax^{m+1}\left(1+\frac{bx}{a}\right)^{-n}\left(1+\frac{dx}{c}\right)^{-n}(a+bx)^n(c+dx)^n\,\text{appellf}_1\left(m+1,-n,-n-1,m+2,-\frac{dx}{c},-\frac{bx}{a}\right)}{m+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**m*(b*x+a)**(1+n)*(d*x+c)**n,x)
```

```
[Out] a*x**(m + 1)*(1 + b*x/a)**(-n)*(1 + d*x/c)**(-n)*(a + b*x)**n*(c
+ d*x)**n*appellf1(m + 1, -n, -n - 1, m + 2, -d*x/c, -b*x/a)/(m +
 1)
```

Mathematica [B] time = 1.07948, size = 308, normalized size = 3.9

$$\frac{acx^{m+1}(a+bx)^n(c+dx)^n\left(\frac{a(m+2)^2F_1\left(m+1;-n,-n;m+2;-\frac{bx}{a},-\frac{dx}{c}\right)}{(m+1)\left(ac(m+2)F_1\left(m+1;-n,-n;m+2;-\frac{bx}{a},-\frac{dx}{c}\right)+nx\left(bcF_1\left(m+2;1-n,-n;m+3;-\frac{bx}{a},-\frac{dx}{c}\right)+adF_1\left(m+2;-n,1-n;m+3;-\frac{bx}{a},\right.\right.\right.}\right.}{m+2}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[x^m*(a + b*x)^(1 + n)*(c + d*x)^n,x]
```

```
[Out] (a*c*x^(1 + m)*(a + b*x)^n*(c + d*x)^n*((a*(2 + m)^2*AppellF1[1 +
 m, -n, -n, 2 + m, -((b*x)/a), -((d*x)/c)])/((1 + m)*(a*c*(2 + m)
*AppellF1[1 + m, -n, -n, 2 + m, -((b*x)/a), -((d*x)/c)] + n*x*(b*
c*AppellF1[2 + m, 1 - n, -n, 3 + m, -((b*x)/a), -((d*x)/c)] + a*d
*AppellF1[2 + m, -n, 1 - n, 3 + m, -((b*x)/a), -((d*x)/c)]))) + (
b*(3 + m)*x*AppellF1[2 + m, -n, -n, 3 + m, -((b*x)/a), -((d*x)/c)
])/(a*c*(3 + m)*AppellF1[2 + m, -n, -n, 3 + m, -((b*x)/a), -((d*x
```

```
)/c)] + n*x*(b*c*AppellF1[3 + m, 1 - n, -n, 4 + m, -((b*x)/a), -(
(d*x)/c)] + a*d*AppellF1[3 + m, -n, 1 - n, 4 + m, -((b*x)/a), -((
d*x)/c)]))))/(2 + m)
```

Maple [F] time = 0.214, size = 0, normalized size = 0.

$$\int x^m (bx+a)^{1+n} (dx+c)^n \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^m*(b*x+a)^(1+n)*(d*x+c)^n,x)
```

```
[Out] int(x^m*(b*x+a)^(1+n)*(d*x+c)^n,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^{n+1}(dx+c)^n x^m \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(n + 1)*(d*x + c)^n*x^m,x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^(n + 1)*(d*x + c)^n*x^m, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left((bx+a)^{n+1}(dx+c)^n x^m, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(n + 1)*(d*x + c)^n*x^m,x, algorithm="fricas")
```

```
[Out] integral((b*x + a)^(n + 1)*(d*x + c)^n*x^m, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**m*(b*x+a)**(1+n)*(d*x+c)**n,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^{n+1}(dx+c)^n x^m \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(n + 1)*(d*x + c)^n*x^m,x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^(n + 1)*(d*x + c)^n*x^m, x)
```

3.984 $\int (a-x)^m (fx)^p (c+dx)^n \, dx$

Optimal. Leaf size=79

$$\frac{(a-x)^m \left(1-\frac{x}{a}\right)^{-m} (fx)^{p+1} (c+dx)^n \left(\frac{dx}{c}+1\right)^{-n} F_1\left(p+1;-m,-n;p+2;\frac{x}{a},-\frac{dx}{c}\right)}{f(p+1)}$$

```
[Out] ((a - x)^m*(f*x)^(1 + p)*(c + d*x)^n*AppellF1[1 + p, -m, -n, 2 +
p, x/a, -((d*x)/c)])/(f*(1 + p)*(1 - x/a)^m*(1 + (d*x)/c)^n)
```

Rubi [A] time = 0.134097, antiderivative size = 79, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 2, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.1$

$$\frac{(a-x)^m \left(1-\frac{x}{a}\right)^{-m} (fx)^{p+1} (c+dx)^n \left(\frac{dx}{c}+1\right)^{-n} F_1\left(p+1;-m,-n;p+2;\frac{x}{a},-\frac{dx}{c}\right)}{f(p+1)}$$

Antiderivative was successfully verified.

```
[In] Int[(a - x)^m*(f*x)^p*(c + d*x)^n,x]
```

```
[Out] ((a - x)^m*(f*x)^(1 + p)*(c + d*x)^n*AppellF1[1 + p, -m, -n, 2 +
p, x/a, -((d*x)/c)])/(f*(1 + p)*(1 - x/a)^m*(1 + (d*x)/c)^n)
```

Rubi in Sympy [A] time = 18.8258, size = 54, normalized size = 0.68

$$\frac{(fx)^{p+1} \left(1-\frac{x}{a}\right)^{-m} \left(1+\frac{dx}{c}\right)^{-n} (a-x)^m (c+dx)^n \operatorname{appellf}_1\left(p+1,-m,-n,p+2,\frac{x}{a},-\frac{dx}{c}\right)}{f\,(p+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((a-x)**m*(f*x)**p*(d*x+c)**n,x)
```

```
[Out] (f*x)**(p + 1)*(1 - x/a)**(-m)*(1 + d*x/c)**(-n)*(a - x)**m*(c +
d*x)**n*appellf1(p + 1, -m, -n, p + 2, x/a, -d*x/c)/(f*(p + 1))
```

Mathematica [A] time = 0.464028, size = 154, normalized size = 1.95

$$\frac{ac(p+2)x(a-x)^m (fx)^p (c+dx)^n F_1\left(p+1;-m,-n;p+2;\frac{x}{a},-\frac{dx}{c}\right)}{(p+1)\left(ac(p+2)F_1\left(p+1;-m,-n;p+2;\frac{x}{a},-\frac{dx}{c}\right)-cmxF_1\left(p+2;1-m,-n;p+3;\frac{x}{a},-\frac{dx}{c}\right)+adnxF_1\left(p+2;-m,1-n;p\right.\right.}$$

Warning: Unable to verify antiderivative.

```
[In] Integrate[(a - x)^m*(f*x)^p*(c + d*x)^n,x]
```

```
[Out] (a*c*(2 + p)*(a - x)^m*x*(f*x)^p*(c + d*x)^n*AppellF1[1 + p, -m,
-n, 2 + p, x/a, -((d*x)/c)])/((1 + p)*(a*c*(2 + p)*AppellF1[1 + p
, -m, -n, 2 + p, x/a, -((d*x)/c)] - c*m*x*AppellF1[2 + p, 1 - m,
-n, 3 + p, x/a, -((d*x)/c)] + a*d*n*x*AppellF1[2 + p, -m, 1 - n,
3 + p, x/a, -((d*x)/c)]))
```

Maple [F] time = 0.2, size = 0, normalized size = 0.

$$\int (a-x)^m (fx)^p (dx+c)^n \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((a-x)^m*(f*x)^p*(d*x+c)^n,x)

[Out] int((a-x)^m*(f*x)^p*(d*x+c)^n,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (dx+c)^n (fx)^p (a-x)^m \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^n*(f*x)^p*(a - x)^m,x, algorithm="maxima")

[Out] integrate((d*x + c)^n*(f*x)^p*(a - x)^m, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left((dx+c)^n (fx)^p (a-x)^m, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^n*(f*x)^p*(a - x)^m,x, algorithm="fricas")

[Out] integral((d*x + c)^n*(f*x)^p*(a - x)^m, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((a-x)**m*(f*x)**p*(d*x+c)**n,x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (dx+c)^n (fx)^p (a-x)^m \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^n*(f*x)^p*(a - x)^m,x, algorithm="giac")

[Out] integrate((d*x + c)^n*(f*x)^p*(a - x)^m, x)
```

3.985 $\int (1-x)^{-\frac{1}{2}+p}(cx)^{-2(1+p)}(1+x)^{\frac{1}{2}+p}\,dx$

Optimal. Leaf size=83

$$-\frac{4^{p+1}(1-x)^{p+\frac{1}{2}}\left(\frac{x}{x+1}\right)^{2(p+1)}(x+1)^{p+\frac{3}{2}}(cx)^{-2(p+1)}\,{}_2F_1\left(p+\frac{1}{2},2(p+1);p+\frac{3}{2};\frac{1-x}{x+1}\right)}{2p+1}$$

```
[Out] -((4^(1 + p)*(1 - x)^(1/2 + p)*(x/(1 + x))^(2*(1 + p))*(1 + x)^(3
/2 + p)*Hypergeometric2F1[1/2 + p, 2*(1 + p), 3/2 + p, (1 - x)/(1
 + x)])/((1 + 2*p)*(c*x)^(2*(1 + p))))
```

Rubi [A] time = 0.0755755, antiderivative size = 83, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 30, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.033

$$-\frac{4^{p+1}(1-x)^{p+\frac{1}{2}}\left(\frac{x}{x+1}\right)^{2(p+1)}(x+1)^{p+\frac{3}{2}}(cx)^{-2(p+1)}\,{}_2F_1\left(p+\frac{1}{2},2(p+1);p+\frac{3}{2};\frac{1-x}{x+1}\right)}{2p+1}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - x)^(-1/2 + p)*(1 + x)^(1/2 + p))/(c*x)^(2*(1 + p)),x]
```

```
[Out] -((4^(1 + p)*(1 - x)^(1/2 + p)*(x/(1 + x))^(2*(1 + p))*(1 + x)^(3
/2 + p)*Hypergeometric2F1[1/2 + p, 2*(1 + p), 3/2 + p, (1 - x)/(1
 + x)])/((1 + 2*p)*(c*x)^(2*(1 + p))))
```

Rubi in Sympy [A] time = 5.89622, size = 71, normalized size = 0.86

$$-\frac{(cx)^{-2p-1}\left(\frac{x+1}{-x+1}\right)^{-p-\frac{1}{2}}(-x+1)^{p+\frac{1}{2}}(x+1)^{p+\frac{1}{2}}\,{}_2F_1\left(\begin{matrix}-2p-1,-p-\frac{1}{2}\\-2p\end{matrix}\middle|-\frac{2x}{-x+1}\right)}{c\,(2p+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-x)**(-1/2+p)*(1+x)**(1/2+p)/((c*x)**(2+2*p)),x)
```

```
[Out] -(c*x)**(-2*p - 1)*((x + 1)/(-x + 1))**(-p - 1/2)*(-x + 1)**(p +
1/2)*(x + 1)**(p + 1/2)*hyper((-2*p - 1, -p - 1/2), (-2*p,), -2*x
/(-x + 1))/(c*(2*p + 1))
```

Mathematica [A] time = 0.211395, size = 75, normalized size = 0.9

$$-\frac{\left(\frac{1-x}{x+1}\right)^{-p-\frac{1}{2}}\left(1-x^2\right)^{p+\frac{1}{2}}(cx)^{-2p-1}\,{}_2F_1\left(-2p-1,\frac{1}{2}-p;-2p;\frac{2x}{x+1}\right)}{2cp+c}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[((1 - x)^(-1/2 + p)*(1 + x)^(1/2 + p))/(c*x)^(2*(1 + p)),x]
```

```
[Out] -(((c*x)^(-1 - 2*p)*((1 - x)/(1 + x))^(-1/2 - p)*(1 - x^2)^(1/2 +
 p)*Hypergeometric2F1[-1 - 2*p, 1/2 - p, -2*p, (2*x)/(1 + x)])/(c
 + 2*c*p))
```

Maple [F] time = 0.201, size = 0, normalized size = 0.

$$\int \frac{1}{(cx)^{2+2p}} (1-x)^{-\frac{1}{2}+p} (1+x)^{\frac{1}{2}+p} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-x)^(-1/2+p)*(1+x)^(1/2+p)/((c*x)^(2+2*p)),x)

[Out] int((1-x)^(-1/2+p)*(1+x)^(1/2+p)/((c*x)^(2+2*p)),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (cx)^{-2p-2} (x+1)^{p+\frac{1}{2}} (-x+1)^{p-\frac{1}{2}} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((x + 1)^(p + 1/2)*(-x + 1)^(p - 1/2)/(c*x)^(2*p + 2),x, algorithm="maxim

[Out] integrate((c*x)^(-2*p - 2)*(x + 1)^(p + 1/2)*(-x + 1)^(p - 1/2),
x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(x+1)^{p+\frac{1}{2}}(-x+1)^{p-\frac{1}{2}}}{(cx)^{2p+2}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((x + 1)^(p + 1/2)*(-x + 1)^(p - 1/2)/(c*x)^(2*p + 2),x, algorithm="frica

[Out] integral((x + 1)^(p + 1/2)*(-x + 1)^(p - 1/2)/(c*x)^(2*p + 2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-x)**(-1/2+p)*(1+x)**(1/2+p)/((c*x)**(2+2*p)),x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(x+1)^{p+\frac{1}{2}}(-x+1)^{p-\frac{1}{2}}}{(cx)^{2p+2}} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((x + 1)^(p + 1/2)*(-x + 1)^(p - 1/2)/(c*x)^(2*p + 2),x, algorithm="giac'

[Out] integrate((x + 1)^(p + 1/2)*(-x + 1)^(p - 1/2)/(c*x)^(2*p + 2), x
)
```

3.986 $\int \frac{\left(1-\frac{x}{a}\right)^{-n/2}\left(1+\frac{x}{a}\right)^{n/2}}{x^2}\,dx$

Optimal. Leaf size=70

$$-\frac{4\left(1-\frac{x}{a}\right)^{1-\frac{n}{2}}\left(\frac{x}{a}+1\right)^{\frac{n-2}{2}}{}_2F_1\left(2,1-\frac{n}{2};2-\frac{n}{2};\frac{a-x}{a+x}\right)}{a(2-n)}$$

```
[Out] (-4*(1 - x/a)^(1 - n/2)*(1 + x/a)^((-2 + n)/2)*Hypergeometric2F1[
2, 1 - n/2, 2 - n/2, (a - x)/(a + x)])/(a*(2 - n))
```

Rubi [A] time = 0.0592106, antiderivative size = 70, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 31, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.032

$$-\frac{4\left(1-\frac{x}{a}\right)^{1-\frac{n}{2}}\left(\frac{x}{a}+1\right)^{\frac{n-2}{2}}{}_2F_1\left(2,1-\frac{n}{2};2-\frac{n}{2};\frac{a-x}{a+x}\right)}{a(2-n)}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 + x/a)^(n/2)/(x^2*(1 - x/a)^(n/2)),x]
```

```
[Out] (-4*(1 - x/a)^(1 - n/2)*(1 + x/a)^((-2 + n)/2)*Hypergeometric2F1[
2, 1 - n/2, 2 - n/2, (a - x)/(a + x)])/(a*(2 - n))
```

Rubi in Sympy [A] time = 7.21617, size = 44, normalized size = 0.63

$$-\frac{4\left(1-\frac{x}{a}\right)^{-\frac{n}{2}+1}\left(1+\frac{x}{a}\right)^{\frac{n}{2}-1}{}_2F_1\left(\begin{matrix}-\frac{n}{2}+1,2\\-\frac{n}{2}+2\end{matrix}\middle|\frac{-a+x}{-a-x}\right)}{a\left(-n+2\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1+x/a)**(1/2*n)/x**2/((1-x/a)**(1/2*n)),x)
```

```
[Out] -4*(1 - x/a)**(-n/2 + 1)*(1 + x/a)**(n/2 - 1)*hyper((-n/2 + 1, 2)
, (-n/2 + 2,), (-a + x)/(-a - x))/(a*(-n + 2))
```

Mathematica [C] time = 0.318252, size = 139, normalized size = 1.99

$$-\frac{4\left(\frac{a+x}{a}\right)^{n/2}\left(1-\frac{x}{a}\right)^{-n/2}F_1\left(1;-\frac{n}{2},\frac{n}{2};2;-\frac{a}{x},\frac{a}{x}\right)}{4xF_1\left(1;-\frac{n}{2},\frac{n}{2};2;-\frac{a}{x},\frac{a}{x}\right)+an\left(F_1\left(2;1-\frac{n}{2},\frac{n}{2};3;-\frac{a}{x},\frac{a}{x}\right)+F_1\left(2;-\frac{n}{2},\frac{n+2}{2};3;-\frac{a}{x},\frac{a}{x}\right)\right)}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(1 + x/a)^(n/2)/(x^2*(1 - x/a)^(n/2)),x]
```

```
[Out] (-4*((a + x)/a)^(n/2)*AppellF1[1, -n/2, n/2, 2, -(a/x), a/x])/((1
 - x/a)^(n/2)*(4*x*AppellF1[1, -n/2, n/2, 2, -(a/x), a/x] + a*n*(
AppellF1[2, 1 - n/2, n/2, 3, -(a/x), a/x] + AppellF1[2, -n/2, (2
+ n)/2, 3, -(a/x), a/x])))
```

Maple [F] time = 0.17, size = 0, normalized size = 0.

$$\int \frac{1}{x^2}\left(1+\frac{x}{a}\right)^{\frac{n}{2}}\left(\left(1-\frac{x}{a}\right)^{\frac{n}{2}}\right)^{-1}dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1+x/a)^(1/2*n)/x^2/((1-x/a)^(1/2*n)),x)
```

```
[Out] int((1+x/a)^(1/2*n)/x^2/((1-x/a)^(1/2*n)),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\left(\frac{x}{a}+1\right)^{\frac{1}{2}n}\left(-\frac{x}{a}+1\right)^{-\frac{1}{2}n}}{x^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((x/a + 1)^(1/2*n)/(x^2*(-x/a + 1)^(1/2*n)),x, algorithm="maxima")
```

```
[Out] integrate((x/a + 1)^(1/2*n)*(-x/a + 1)^(-1/2*n)/x^2, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(\frac{a+x}{a}\right)^{\frac{1}{2}n}}{x^2\left(\frac{a-x}{a}\right)^{\frac{1}{2}n}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((x/a + 1)^(1/2*n)/(x^2*(-x/a + 1)^(1/2*n)),x, algorithm="fricas")
```

```
[Out] integral(((a + x)/a)^(1/2*n)/(x^2*((a - x)/a)^(1/2*n)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1+x/a)**(1/2*n)/x**2/((1-x/a)**(1/2*n)),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\left(\frac{x}{a}+1\right)^{\frac{1}{2}n}}{x^2\left(-\frac{x}{a}+1\right)^{\frac{1}{2}n}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((x/a + 1)^(1/2*n)/(x^2*(-x/a + 1)^(1/2*n)),x, algorithm="giac")
```

```
[Out] integrate((x/a + 1)^(1/2*n)/(x^2*(-x/a + 1)^(1/2*n)), x)
```

3.987 $\int (bx)^{-2-2m}(1-ax)^m(1+ax)^m\,dx$

Optimal. Leaf size=50

$$-\frac{(bx)^{-2m-1}\,{}_2F_1\left(\frac{1}{2}(-2m-1),-m;\frac{1}{2}(1-2m);a^2x^2\right)}{b(2m+1)}$$

```
[Out] -(((b*x)^(-1 - 2*m)*Hypergeometric2F1[(-1 - 2*m)/2, -m, (1 - 2*m)
/2, a^2*x^2])/(b*(1 + 2*m)))
```

Rubi [A] time = 0.0640267, antiderivative size = 50, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 25, $\frac{\text{number of rules}}{\text{integrand size}} = 0.08$

$$-\frac{(bx)^{-2m-1}\,{}_2F_1\left(\frac{1}{2}(-2m-1),-m;\frac{1}{2}(1-2m);a^2x^2\right)}{b(2m+1)}$$

Antiderivative was successfully verified.

```
[In]  Int[(b*x)^(-2 - 2*m)*(1 - a*x)^m*(1 + a*x)^m,x]
```

```
[Out] -(((b*x)^(-1 - 2*m)*Hypergeometric2F1[(-1 - 2*m)/2, -m, (1 - 2*m)
/2, a^2*x^2])/(b*(1 + 2*m)))
```

Rubi in Sympy [A] time = 8.11651, size = 36, normalized size = 0.72

$$-\frac{(bx)^{-2m-1}\,{}_2F_1\left(\begin{matrix}-m,-m-\frac{1}{2}\\ -m+\frac{1}{2}\end{matrix}\middle|a^2x^2\right)}{b\,(2m+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x)**(-2-2*m)*(-a*x+1)**m*(a*x+1)**m,x)
```

```
[Out] -(b*x)**(-2*m - 1)*hyper((-m, -m - 1/2), (-m + 1/2,), a**2*x**2)/
(b*(2*m + 1))
```

Mathematica [A] time = 0.0484633, size = 44, normalized size = 0.88

$$-\frac{(bx)^{-2m-1}\,{}_2F_1\left(-m-\frac{1}{2},-m;\frac{1}{2}-m;a^2x^2\right)}{2bm+b}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(b*x)^(-2 - 2*m)*(1 - a*x)^m*(1 + a*x)^m,x]
```

```
[Out] -(((b*x)^(-1 - 2*m)*Hypergeometric2F1[-1/2 - m, -m, 1/2 - m, a^2*
x^2])/(b + 2*b*m))
```

Maple [F] time = 0.178, size = 0, normalized size = 0.

$$\int (bx)^{-2-2\,m}(-ax+1)^m(ax+1)^m\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x)^(-2-2*m)*(-a*x+1)^m*(a*x+1)^m,x)
```

```
[Out] int((b*x)^(-2-2*m)*(-a*x+1)^m*(a*x+1)^m,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (ax+1)^m(-ax+1)^m (bx)^{-2\,m-2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a*x + 1)^m*(-a*x + 1)^m*(b*x)^(-2*m - 2),x, algorithm="maxima")
```

```
[Out] integrate((a*x + 1)^m*(-a*x + 1)^m*(b*x)^(-2*m - 2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left((ax+1)^m(-ax+1)^m (bx)^{-2\,m-2}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a*x + 1)^m*(-a*x + 1)^m*(b*x)^(-2*m - 2),x, algorithm="fricas")
```

```
[Out] integral((a*x + 1)^m*(-a*x + 1)^m*(b*x)^(-2*m - 2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x)**(-2-2*m)*(-a*x+1)**m*(a*x+1)**m,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (ax+1)^m(-ax+1)^m (bx)^{-2\,m-2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a*x + 1)^m*(-a*x + 1)^m*(b*x)^(-2*m - 2),x, algorithm="giac")
```

```
[Out] integrate((a*x + 1)^m*(-a*x + 1)^m*(b*x)^(-2*m - 2), x)
```

3.988 $\int \frac{(1-ax)^{-n}(1+ax)^n}{x}\,dx$

Optimal. Leaf size=86

$$\frac{(1-ax)^{-n}(ax+1)^n\,{}_2F_1\left(1,-n;1-n;\frac{1-ax}{ax+1}\right)}{n}-\frac{2^n(1-ax)^{-n}\,{}_2F_1\left(-n,-n;1-n;\frac{1}{2}(1-ax)\right)}{n}$$

```
[Out] ((1 + a*x)^n*Hypergeometric2F1[1, -n, 1 - n, (1 - a*x)/(1 + a*x)]
)/(n*(1 - a*x)^n) - (2^n*Hypergeometric2F1[-n, -n, 1 - n, (1 - a*
x)/2])/(n*(1 - a*x)^n)
```

Rubi [A] time = 0.107359, antiderivative size = 86, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 21, $\frac{\text{number of rules}}{\text{integrand size}} = 0.143$

$$\frac{(1-ax)^{-n}(ax+1)^n\,{}_2F_1\left(1,-n;1-n;\frac{1-ax}{ax+1}\right)}{n}-\frac{2^n(1-ax)^{-n}\,{}_2F_1\left(-n,-n;1-n;\frac{1}{2}(1-ax)\right)}{n}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 + a*x)^n/(x*(1 - a*x)^n),x]
```

```
[Out] ((1 + a*x)^n*Hypergeometric2F1[1, -n, 1 - n, (1 - a*x)/(1 + a*x)]
)/(n*(1 - a*x)^n) - (2^n*Hypergeometric2F1[-n, -n, 1 - n, (1 - a*
x)/2])/(n*(1 - a*x)^n)
```

Rubi in Sympy [A] time = 12.6793, size = 70, normalized size = 0.81

$$-\frac{2^{n-1}\left(-ax+1\right)^{-n+1}\,{}_2F_1\left(\begin{matrix}-n+1,-n+1\\-n+2\end{matrix}\middle|-\frac{ax}{2}+\frac{1}{2}\right)}{-n+1}-\frac{\left(-ax+1\right)^{-n+1}\left(ax+1\right)^{n-1}\,{}_2F_1\left(\begin{matrix}-n+1,1\\-n+2\end{matrix}\middle|\frac{ax-1}{-ax-1}\right)}{-n+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((a*x+1)**n/x/((-a*x+1)**n),x)
```

```
[Out] -2**(n - 1)*(-a*x + 1)**(-n + 1)*hyper((-n + 1, -n + 1), (-n + 2,
), -a*x/2 + 1/2)/(-n + 1) - (-a*x + 1)**(-n + 1)*(a*x + 1)**(n -
1)*hyper((-n + 1, 1), (-n + 2,), (a*x - 1)/(-a*x - 1))/(-n + 1)
```

Mathematica [C] time = 0.353238, size = 182, normalized size = 2.12

$$\frac{2(n-2)(1-ax)^{1-n}(ax+1)^n F_1\left(1-n;-n,1;2-n;\frac{1}{2}(1-ax),1-ax\right)}{a(1-n)x\left((ax-1)\left(nF_1\left(2-n;1-n,1;3-n;\frac{1}{2}(1-ax),1-ax\right)-2F_1\left(2-n;-n,2;3-n;\frac{1}{2}(1-ax),1-ax\right)\right)-2(n-2)F\right.}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(1 + a*x)^n/(x*(1 - a*x)^n),x]
```

```
[Out] (2*(-2 + n)*(1 - a*x)^(1 - n)*(1 + a*x)^n*AppellF1[1 - n, -n, 1,
2 - n, (1 - a*x)/2, 1 - a*x])/(a*(1 - n)*x*(-2*(-2 + n)*AppellF1[
1 - n, -n, 1, 2 - n, (1 - a*x)/2, 1 - a*x] + (-1 + a*x)*(n*Appell
F1[2 - n, 1 - n, 1, 3 - n, (1 - a*x)/2, 1 - a*x] - 2*AppellF1[2 -
 n, -n, 2, 3 - n, (1 - a*x)/2, 1 - a*x])))
```

Maple [F] time = 0.072, size = 0, normalized size = 0.

$$\int \frac{(ax+1)^n}{x\,(-ax+1)^n}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((a*x+1)^n/x/((-a*x+1)^n),x)

[Out] int((a*x+1)^n/x/((-a*x+1)^n),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(ax+1)^n(-ax+1)^{-n}}{x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((a*x + 1)^n/((-a*x + 1)^n*x),x, algorithm="maxima")

[Out] integrate((a*x + 1)^n*(-a*x + 1)^(-n)/x, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(ax+1)^n}{(-ax+1)^n x}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((a*x + 1)^n/((-a*x + 1)^n*x),x, algorithm="fricas")

[Out] integral((a*x + 1)^n/((-a*x + 1)^n*x), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((a*x+1)**n/x/((-a*x+1)**n),x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(ax+1)^n}{(-ax+1)^n x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((a*x + 1)^n/((-a*x + 1)^n*x),x, algorithm="giac")

[Out] integrate((a*x + 1)^n/((-a*x + 1)^n*x), x)
```

3.989 $\int \frac{(1-ax)^{1-n}(1+ax)^{1+n}}{x^2}\,dx$

Optimal. Leaf size=131

$$-\frac{\left(a^2x^2+1\right)(ax+1)^n(1-ax)^{-n}}{x}-\frac{2an(ax+1)^{n-1}(1-ax)^{1-n}\,{}_2F_1\left(1,1-n;2-n;\frac{1-ax}{ax+1}\right)}{1-n}+\frac{a2^{-n}n(ax+1)^{n+1}\,{}_2F_1\left(n+1,n+1;n+2;\frac{1}{2}(ax+1)\right)}{n+1}$$

```
[Out] -((((1 + a*x)^n*(1 + a^2*x^2))/(x*(1 - a*x)^n)) - (2*a*n*(1 - a*x)
^(1 - n)*(1 + a*x)^(-1 + n)*Hypergeometric2F1[1, 1 - n, 2 - n, (1
 - a*x)/(1 + a*x)])/(1 - n) + (a*n*(1 + a*x)^(1 + n)*Hypergeometr
ic2F1[1 + n, 1 + n, 2 + n, (1 + a*x)/2])/(2^n*(1 + n))
```

Rubi [C] time = 0.0668912, antiderivative size = 48, normalized size of antiderivative = 0.37, number of steps used = 1, number of rules used = 1, integrand size = 25, $\frac{\text{number of rules}}{\text{integrand size}} = 0.04$

$$\frac{a2^{1-n}(ax+1)^{n+2}F_1\left(n+2;n-1,2;n+3;\frac{1}{2}(ax+1),ax+1\right)}{n+2}$$

Warning: Unable to verify antiderivative.

```
[In]  Int[((1 - a*x)^(1 - n)*(1 + a*x)^(1 + n))/x^2,x]
```

```
[Out] (2^(1 - n)*a*(1 + a*x)^(2 + n)*AppellF1[2 + n, -1 + n, 2, 3 + n,
(1 + a*x)/2, 1 + a*x])/(2 + n)
```

Rubi in Sympy [A] time = 6.50365, size = 36, normalized size = 0.27

$$\frac{2^{-n+1}a\,(ax+1)^{n+2}\,\text{appellf}_1\left(n+2,2,n-1,n+3,ax+1,\frac{ax}{2}+\frac{1}{2}\right)}{n+2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((-a*x+1)**(1-n)*(a*x+1)**(1+n)/x**2,x)
```

```
[Out] 2**(-n + 1)*a*(a*x + 1)**(n + 2)*appellf1(n + 2, 2, n - 1, n + 3,
 a*x + 1, a*x/2 + 1/2)/(n + 2)
```

Mathematica [C] time = 0.416634, size = 158, normalized size = 1.21

$$a(ax+1)^n\left(-\frac{2(1-ax)^{-n}F_1\left(1;n,-n;2;\frac{1}{ax},-\frac{1}{ax}\right)}{2axF_1\left(1;n,-n;2;\frac{1}{ax},-\frac{1}{ax}\right)+n\left(F_1\left(2;n,1-n;3;\frac{1}{ax},-\frac{1}{ax}\right)+F_1\left(2;n+1,-n;3;\frac{1}{ax},-\frac{1}{ax}\right)\right)}-\frac{2^{-n}(ax+1)\,{}_2F_1\left(n,n+1;n+2;\frac{1}{2}(ax+1)\right)}{n+1}\right)$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[((1 - a*x)^(1 - n)*(1 + a*x)^(1 + n))/x^2,x]
```

```
[Out] a*(1 + a*x)^n*((-2*AppellF1[1, n, -n, 2, 1/(a*x), -(1/(a*x))])/((
1 - a*x)^n*(2*a*x*AppellF1[1, n, -n, 2, 1/(a*x), -(1/(a*x))] + n*
(AppellF1[2, n, 1 - n, 3, 1/(a*x), -(1/(a*x))] + AppellF1[2, 1 +
n, -n, 3, 1/(a*x), -(1/(a*x))]))) - ((1 + a*x)*Hypergeometric2F1[
```

```
n, 1 + n, 2 + n, (1 + a*x)/2])/(2^n*(1 + n)))
```

Maple [F] time = 0.076, size = 0, normalized size = 0.

$$\int \frac{(-ax+1)^{1-n}(ax+1)^{1+n}}{x^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((-a*x+1)^(1-n)*(a*x+1)^(1+n)/x^2,x)

[Out] int((-a*x+1)^(1-n)*(a*x+1)^(1+n)/x^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(ax+1)^{n+1}(-ax+1)^{-n+1}}{x^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((a*x + 1)^(n + 1)*(-a*x + 1)^(-n + 1)/x^2,x, algorithm="maxima")

[Out] integrate((a*x + 1)^(n + 1)*(-a*x + 1)^(-n + 1)/x^2, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(ax+1)^{n+1}(-ax+1)^{-n+1}}{x^2}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((a*x + 1)^(n + 1)*(-a*x + 1)^(-n + 1)/x^2,x, algorithm="fricas")

[Out] integral((a*x + 1)^(n + 1)*(-a*x + 1)^(-n + 1)/x^2, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-a*x+1)**(1-n)*(a*x+1)**(1+n)/x**2,x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(ax+1)^{n+1}(-ax+1)^{-n+1}}{x^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a*x + 1)^(n + 1)*(-a*x + 1)^(-n + 1)/x^2,x, algorithm="giac")

[Out] integrate((a*x + 1)^(n + 1)*(-a*x + 1)^(-n + 1)/x^2, x)
```

3.990 $\int \frac{x^2}{(1-ax)^7(1+ax)^4}\,dx$

Optimal. Leaf size=28

$$-\frac{1-3ax}{24a^3(1-ax)^6(ax+1)^3}$$

```
[Out] -(1 - 3*a*x)/(24*a^3*(1 - a*x)^6*(1 + a*x)^3)
```

Rubi [A] time = 0.0376169, antiderivative size = 28, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}} = 0.053$

$$-\frac{1-3ax}{24a^3(1-ax)^6(ax+1)^3}$$

Antiderivative was successfully verified.

```
[In] Int[x^2/((1 - a*x)^7*(1 + a*x)^4),x]

[Out] -(1 - 3*a*x)/(24*a^3*(1 - a*x)^6*(1 + a*x)^3)
```

Rubi in Sympy [A] time = 4.18407, size = 26, normalized size = 0.93

$$-\frac{-9ax+3}{72a^3\left(-ax+1\right)^6\left(ax+1\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(x**2/(-a*x+1)**7/(a*x+1)**4,x)

[Out] -(-9*a*x + 3)/(72*a**3*(-a*x + 1)**6*(a*x + 1)**3)
```

Mathematica [A] time = 0.0303481, size = 27, normalized size = 0.96

$$\frac{3ax-1}{24a^3(ax-1)^6(ax+1)^3}$$

Antiderivative was successfully verified.

```
[In] Integrate[x^2/((1 - a*x)^7*(1 + a*x)^4),x]

[Out] (-1 + 3*a*x)/(24*a^3*(-1 + a*x)^6*(1 + a*x)^3)
```

Maple [B] time = 0.02, size = 98, normalized size = 3.5

$$\frac{1}{96\,a^3\left(ax-1\right)^6}+\frac{1}{96\,a^3\left(ax-1\right)^3}-\frac{5}{512\,a^3\left(ax-1\right)^2}+\frac{1}{128\,a^3\left(ax-1\right)}-\frac{1}{128\,a^3\left(ax-1\right)^4}-\frac{1}{384\,a^3\left(ax+1\right)^3}-\frac{3}{512\,a^3\left(ax+1\right)^2}-\frac{1}{128\,a^3\left(ax+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(x^2/(-a*x+1)^7/(a*x+1)^4,x)
```

```
[Out] 1/96/a^3/(a*x-1)^6+1/96/a^3/(a*x-1)^3-5/512/a^3/(a*x-1)^2+1/128/a
^3/(a*x-1)-1/128/a^3/(a*x-1)^4-1/384/a^3/(a*x+1)^3-3/512/a^3/(a*x
+1)^2-1/128/a^3/(a*x+1)
```

Maxima [A] time = 1.35665, size = 90, normalized size = 3.21

$$\frac{3\,ax-1}{24\,(a^{12}x^9-3\,a^{11}x^8+8\,a^9x^6-6\,a^8x^5-6\,a^7x^4+8\,a^6x^3-3\,a^4x+a^3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-x^2/((a*x + 1)^4*(a*x - 1)^7),x, algorithm="maxima")
```

```
[Out] 1/24*(3*a*x - 1)/(a^12*x^9 - 3*a^11*x^8 + 8*a^9*x^6 - 6*a^8*x^5 -
 6*a^7*x^4 + 8*a^6*x^3 - 3*a^4*x + a^3)
```

Fricas [A] time = 0.214797, size = 90, normalized size = 3.21

$$\frac{3\,ax-1}{24\,(a^{12}x^9-3\,a^{11}x^8+8\,a^9x^6-6\,a^8x^5-6\,a^7x^4+8\,a^6x^3-3\,a^4x+a^3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-x^2/((a*x + 1)^4*(a*x - 1)^7),x, algorithm="fricas")
```

```
[Out] 1/24*(3*a*x - 1)/(a^12*x^9 - 3*a^11*x^8 + 8*a^9*x^6 - 6*a^8*x^5 -
 6*a^7*x^4 + 8*a^6*x^3 - 3*a^4*x + a^3)
```

Sympy [A] time = 7.26122, size = 68, normalized size = 2.43

$$\frac{3ax-1}{24a^{12}x^9-72a^{11}x^8+192a^9x^6-144a^8x^5-144a^7x^4+192a^6x^3-72a^4x+24a^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2/(-a*x+1)**7/(a*x+1)**4,x)
```

```
[Out] (3*a*x - 1)/(24*a**12*x**9 - 72*a**11*x**8 + 192*a**9*x**6 - 144*
a**8*x**5 - 144*a**7*x**4 + 192*a**6*x**3 - 72*a**4*x + 24*a**3)
```

GIAC/XCAS [A] time = 0.215523, size = 104, normalized size = 3.71

$$-\frac{12\,a^2x^2+33\,ax+25}{1536\,(ax+1)^3a^3}+\frac{12\,a^5x^5-75\,a^4x^4+196\,a^3x^3-270\,a^2x^2+192\,ax-39}{1536\,(ax-1)^6a^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-x^2/((a*x + 1)^4*(a*x - 1)^7),x, algorithm="giac")
```

```
[Out] -1/1536*(12*a^2*x^2 + 33*a*x + 25)/((a*x + 1)^3*a^3) + 1/1536*(12
*a^5*x^5 - 75*a^4*x^4 + 196*a^3*x^3 - 270*a^2*x^2 + 192*a*x - 39)
/((a*x - 1)^6*a^3)
```

3.991 $\int \frac{x^2}{(1-ax)^{11}(1+ax)^7}\,dx$

Optimal. Leaf size=28

$$-\frac{1-4ax}{60a^3(1-ax)^{10}(ax+1)^6}$$

```
[Out] -(1 - 4*a*x)/(60*a^3*(1 - a*x)^10*(1 + a*x)^6)
```

Rubi [A] time = 0.0353828, antiderivative size = 28, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}} = 0.053$

$$-\frac{1-4ax}{60a^3(1-ax)^{10}(ax+1)^6}$$

Antiderivative was successfully verified.

```
[In]  Int[x^2/((1 - a*x)^11*(1 + a*x)^7),x]

[Out] -(1 - 4*a*x)/(60*a^3*(1 - a*x)^10*(1 + a*x)^6)
```

Rubi in Sympy [A] time = 4.2325, size = 26, normalized size = 0.93

$$-\frac{-16ax+4}{240a^3\left(-ax+1\right)^{10}\left(ax+1\right)^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**2/(-a*x+1)**11/(a*x+1)**7,x)

[Out] -(-16*a*x + 4)/(240*a**3*(-a*x + 1)**10*(a*x + 1)**6)
```

Mathematica [A] time = 0.0402119, size = 27, normalized size = 0.96

$$\frac{4ax-1}{60a^3(ax-1)^{10}(ax+1)^6}$$

Antiderivative was successfully verified.

```
[In]  Integrate[x^2/((1 - a*x)^11*(1 + a*x)^7),x]

[Out] (-1 + 4*a*x)/(60*a^3*(-1 + a*x)^10*(1 + a*x)^6)
```

Maple [B] time = 0.023, size = 182, normalized size = 6.5

$$\frac{1}{1280\,a^3\left(ax-1\right)^{10}}-\frac{1}{768\,a^3\left(ax-1\right)^{9}}-\frac{7}{6144\,a^3\left(ax-1\right)^{6}}+\frac{21}{10240\,a^3\left(ax-1\right)^{5}}+\frac{11}{4096\,a^3\left(ax-1\right)^{3}}-\frac{165}{65536\,a^3\left(ax-1\right)^{2}}+\frac{143}{65536\,a^3\left(ax-1\right)}+\frac{1}{1024\,a^3\left(ax-1\right)^{8}}-\frac{21}{8192\,a^3\left(ax-1\right)^{4}}-\frac{1}{12288\,a^3\left(ax+1\right)^{6}}-\frac{7}{20480\,a^3\left(ax+1\right)^{5}}-\frac{11}{8192\,a^3\left(ax+1\right)^{3}}-\frac{121}{65536\,a^3\left(ax+1\right)^{2}}-\frac{13}{16384\,a^3\left(ax+1\right)^{4}}-\frac{143}{65536\,a^3\left(ax+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2/(-a*x+1)^11/(a*x+1)^7,x)
```

```
[Out] 1/1280/a^3/(a*x-1)^10-1/768/a^3/(a*x-1)^9-7/6144/a^3/(a*x-1)^6+21
/10240/a^3/(a*x-1)^5+11/4096/a^3/(a*x-1)^3-165/65536/a^3/(a*x-1)^
2+143/65536/a^3/(a*x-1)+1/1024/a^3/(a*x-1)^8-21/8192/a^3/(a*x-1)^
4-1/12288/a^3/(a*x+1)^6-7/20480/a^3/(a*x+1)^5-11/8192/a^3/(a*x+1)
^3-121/65536/a^3/(a*x+1)^2-13/16384/a^3/(a*x+1)^4-143/65536/a^3/(
a*x+1)
```

Maxima [A] time = 1.38706, size = 166, normalized size = 5.93

$$\frac{4\,ax-1}{60\,(a^{19}x^{16}-4\,a^{18}x^{15}+20\,a^{16}x^{13}-20\,a^{15}x^{12}-36\,a^{14}x^{11}+64\,a^{13}x^{10}+20\,a^{12}x^{9}-90\,a^{11}x^{8}+20\,a^{10}x^{7}+64\,a^{9}x^{6}-36\,a^{8}x^{5}-$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-x^2/((a*x + 1)^7*(a*x - 1)^11),x, algorithm="maxima")
```

```
[Out] 1/60*(4*a*x - 1)/(a^19*x^16 - 4*a^18*x^15 + 20*a^16*x^13 - 20*a^1
5*x^12 - 36*a^14*x^11 + 64*a^13*x^10 + 20*a^12*x^9 - 90*a^11*x^8
+ 20*a^10*x^7 + 64*a^9*x^6 - 36*a^8*x^5 - 20*a^7*x^4 + 20*a^6*x^3
 - 4*a^4*x + a^3)
```

Fricas [A] time = 0.225491, size = 166, normalized size = 5.93

$$\frac{4\,ax-1}{60\,(a^{19}x^{16}-4\,a^{18}x^{15}+20\,a^{16}x^{13}-20\,a^{15}x^{12}-36\,a^{14}x^{11}+64\,a^{13}x^{10}+20\,a^{12}x^{9}-90\,a^{11}x^{8}+20\,a^{10}x^{7}+64\,a^{9}x^{6}-36\,a^{8}x^{5}-$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-x^2/((a*x + 1)^7*(a*x - 1)^11),x, algorithm="fricas")
```

```
[Out] 1/60*(4*a*x - 1)/(a^19*x^16 - 4*a^18*x^15 + 20*a^16*x^13 - 20*a^1
5*x^12 - 36*a^14*x^11 + 64*a^13*x^10 + 20*a^12*x^9 - 90*a^11*x^8
+ 20*a^10*x^7 + 64*a^9*x^6 - 36*a^8*x^5 - 20*a^7*x^4 + 20*a^6*x^3
 - 4*a^4*x + a^3)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2/(-a*x+1)**11/(a*x+1)**7,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.21762, size = 180, normalized size = 6.43

$$-\frac{2145\,a^{5}x^{5}+12540\,a^{4}x^{4}+30030\,a^{3}x^{3}+37080\,a^{2}x^{2}+23841\,ax+6476}{983040\,(ax+1)^{6}a^{3}}+\frac{2145\,a^{9}x^{9}-21780\,a^{8}x^{8}+99660\,a^{7}x^{7}-270480\,a^{6}x^{6}+481446\,a^{5}x^{5}-584920\,a^{4}x^{4}+486220\,a^{3}x^{3}-265680\,a^{2}x^{2}+84065\,ax}{983040\,(ax-1)^{10}a^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-x^2/((a*x + 1)^7*(a*x - 1)^11),x, algorithm="giac")
```

```
[Out] -1/983040*(2145*a^5*x^5 + 12540*a^4*x^4 + 30030*a^3*x^3 + 37080*a
^2*x^2 + 23841*a*x + 6476)/((a*x + 1)^6*a^3) + 1/983040*(2145*a^9
*x^9 - 21780*a^8*x^8 + 99660*a^7*x^7 - 270480*a^6*x^6 + 481446*a^
5*x^5 - 584920*a^4*x^4 + 486220*a^3*x^3 - 265680*a^2*x^2 + 84065*
a*x - 9908)/((a*x - 1)^10*a^3)
```

3.992 $\int \frac{x^2}{(1-ax)^{16}(1+ax)^{11}}\,dx$

Optimal. Leaf size=28

$$-\frac{1-5ax}{120a^3(1-ax)^{15}(ax+1)^{10}}$$

```
[Out] -(1 - 5*a*x)/(120*a^3*(1 - a*x)^15*(1 + a*x)^10)
```

Rubi [A] time = 0.0334248, antiderivative size = 28, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.053

$$-\frac{1-5ax}{120a^3(1-ax)^{15}(ax+1)^{10}}$$

Antiderivative was successfully verified.

```
[In] Int[x^2/((1 - a*x)^16*(1 + a*x)^11),x]

[Out] -(1 - 5*a*x)/(120*a^3*(1 - a*x)^15*(1 + a*x)^10)
```

Rubi in Sympy [A] time = 4.25312, size = 26, normalized size = 0.93

$$-\frac{-25ax+5}{600a^3\left(-ax+1\right)^{15}\left(ax+1\right)^{10}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(x**2/(-a*x+1)**16/(a*x+1)**11,x)

[Out] -(-25*a*x + 5)/(600*a**3*(-a*x + 1)**15*(a*x + 1)**10)
```

Mathematica [A] time = 0.0772151, size = 27, normalized size = 0.96

$$\frac{1-5ax}{120a^3(ax-1)^{15}(ax+1)^{10}}$$

Antiderivative was successfully verified.

```
[In] Integrate[x^2/((1 - a*x)^16*(1 + a*x)^11),x]

[Out] (1 - 5*a*x)/(120*a^3*(-1 + a*x)^15*(1 + a*x)^10)
```

Maple [B] time = 0.033, size = 290, normalized size = 10.4

$$-\frac{1}{30720\,a^3\,(ax-1)^{15}}+\frac{1}{8192\,a^3\,(ax-1)^{14}}+\frac{11}{32768\,a^3\,(ax-1)^{12}}-\frac{11}{32768\,a^3\,(ax-1)^{11}}+\frac{143}{655360\,a^3\,(ax-1)^{10}}+\frac{143}{262144\,a^3\,(ax-1)^{7}}-\frac{2431}{3145728\,a^3\,(ax-1)^{6}}+\frac{2431}{2621440\,a^3\,(ax-1)^{5}}+\frac{4199}{4194304\,a^3\,(ax-1)^{3}}-\frac{15827}{16777216\,a^3\,(ax-1)^{2}}+\frac{3553}{4194304\,a^3\,(ax-1)}-\frac{1}{4096\,a^3\,(ax-1)^{13}}-\frac{143}{524288\,a^3\,(ax-1)^{8}}-\frac{4199}{4194304\,a^3\,(ax-1)^{4}}-\frac{1}{655360\,a^3\,(ax+1)^{10}}-\frac{1}{98304\,a^3\,(ax+1)^{9}}-\frac{3}{32768\,a^3\,(ax+1)^{7}}-\frac{289}{1572864\,a^3\,(ax+1)^{6}}-\frac{51}{163840\,a^3\,(ax+1)^{5}}-\frac{323}{524288\,a^3\,(ax+1)^{3}}-\frac{12597}{16777216\,a^3\,(ax+1)^{2}}-\frac{19}{524288\,a^3\,(ax+1)^{8}}-\frac{969}{2097152\,a^3\,(ax+1)^{4}}-\frac{3553}{4194304\,a^3\,(ax+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2/(-a*x+1)^16/(a*x+1)^11,x)
```

```
[Out] -1/30720/a^3/(a*x-1)^15+1/8192/a^3/(a*x-1)^14+11/32768/a^3/(a*x-1
)^12-11/32768/a^3/(a*x-1)^11+143/655360/a^3/(a*x-1)^10+143/262144
/a^3/(a*x-1)^7-2431/3145728/a^3/(a*x-1)^6+2431/2621440/a^3/(a*x-1
)^5+4199/4194304/a^3/(a*x-1)^3-15827/16777216/a^3/(a*x-1)^2+3553/
4194304/a^3/(a*x-1)-1/4096/a^3/(a*x-1)^13-143/524288/a^3/(a*x-1)^
8-4199/4194304/a^3/(a*x-1)^4-1/655360/a^3/(a*x+1)^10-1/98304/a^3/
(a*x+1)^9-3/32768/a^3/(a*x+1)^7-289/1572864/a^3/(a*x+1)^6-51/1638
40/a^3/(a*x+1)^5-323/524288/a^3/(a*x+1)^3-12597/16777216/a^3/(a*x
+1)^2-19/524288/a^3/(a*x+1)^8-969/2097152/a^3/(a*x+1)^4-3553/4194
304/a^3/(a*x+1)
```

Maxima [A] time = 1.47322, size = 266, normalized size = 9.5

$$-\frac{}{120\,(a^{28}x^{25} - 5\,a^{27}x^{24} + 40\,a^{25}x^{22} - 50\,a^{24}x^{21} - 126\,a^{23}x^{20} + 280\,a^{22}x^{19} + 160\,a^{21}x^{18} - 765\,a^{20}x^{17} + 105\,a^{19}x^{16} + 1248\,a^{18}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2/((a*x + 1)^11*(a*x - 1)^16),x, algorithm="maxima")
```

```
[Out] -1/120*(5*a*x - 1)/(a^28*x^25 - 5*a^27*x^24 + 40*a^25*x^22 - 50*a
^24*x^21 - 126*a^23*x^20 + 280*a^22*x^19 + 160*a^21*x^18 - 765*a^
20*x^17 + 105*a^19*x^16 + 1248*a^18*x^15 - 720*a^17*x^14 - 1260*a
^16*x^13 + 1260*a^15*x^12 + 720*a^14*x^11 - 1248*a^13*x^10 - 105*
a^12*x^9 + 765*a^11*x^8 - 160*a^10*x^7 - 280*a^9*x^6 + 126*a^8*x^
5 + 50*a^7*x^4 - 40*a^6*x^3 + 5*a^4*x - a^3)
```

Fricas [A] time = 0.326674, size = 266, normalized size = 9.5

$$-\frac{}{120\,(a^{28}x^{25} - 5\,a^{27}x^{24} + 40\,a^{25}x^{22} - 50\,a^{24}x^{21} - 126\,a^{23}x^{20} + 280\,a^{22}x^{19} + 160\,a^{21}x^{18} - 765\,a^{20}x^{17} + 105\,a^{19}x^{16} + 1248\,a^{18}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2/((a*x + 1)^11*(a*x - 1)^16),x, algorithm="fricas")
```

```
[Out] -1/120*(5*a*x - 1)/(a^28*x^25 - 5*a^27*x^24 + 40*a^25*x^22 - 50*a
^24*x^21 - 126*a^23*x^20 + 280*a^22*x^19 + 160*a^21*x^18 - 765*a^
20*x^17 + 105*a^19*x^16 + 1248*a^18*x^15 - 720*a^17*x^14 - 1260*a
^16*x^13 + 1260*a^15*x^12 + 720*a^14*x^11 - 1248*a^13*x^10 - 105*
a^12*x^9 + 765*a^11*x^8 - 160*a^10*x^7 - 280*a^9*x^6 + 126*a^8*x^
5 + 50*a^7*x^4 - 40*a^6*x^3 + 5*a^4*x - a^3)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**2/(-a*x+1)**16/(a*x+1)**11,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.219872, size = 277, normalized size = 9.89

$$-\frac{213180\,a^{9}x^{9} + 2107575\,a^{8}x^{8} + 9341160\,a^{7}x^{7} + 24399420\,a^{6}x^{6} + 41474016\,a^{5}x^{5} + 47696050\,a^{4}x^{4} + 37231960\,a^{3}x^{3} + 191043}{251658240\,(ax+1)^{10}a^{3}}$$
$$+\frac{213180\,a^{14}x^{14} - 3221925\,a^{13}x^{13} + 22737585\,a^{12}x^{12} - 99390330\,a^{11}x^{11} + 300923766\,a^{10}x^{10} - 668342675\,a^{9}x^{9} + 1124389695}{2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x^2/((a*x + 1)^11*(a*x - 1)^16),x, algorithm="giac")
```

```
[Out] -1/251658240*(213180*a^9*x^9 + 2107575*a^8*x^8 + 9341160*a^7*x^7
+ 24399420*a^6*x^6 + 41474016*a^5*x^5 + 47696050*a^4*x^4 + 372319
60*a^3*x^3 + 19104300*a^2*x^2 + 5879780*a*x + 833135)/((a*x + 1)^
10*a^3) + 1/251658240*(213180*a^14*x^14 - 3221925*a^13*x^13 + 227
37585*a^12*x^12 - 99390330*a^11*x^11 + 300923766*a^10*x^10 - 6683
42675*a^9*x^9 + 1124389695*a^8*x^8 - 1457870700*a^7*x^7 + 1466424
960*a^6*x^6 - 1140648795*a^5*x^5 + 676154655*a^4*x^4 - 295952250*
a^3*x^3 + 89819310*a^2*x^2 - 16508685*a*x + 1264017)/((a*x - 1)^1
5*a^3)
```

3.993 $\int x^2(1-ax)^{-1-\frac{1}{2}n(1+n)}(1+ax)^{-1-\frac{1}{2}(-1+n)n}\,dx$

Optimal. Leaf size=54

$$\frac{(1-ax)^{-\frac{1}{2}n(n+1)}(ax+1)^{\frac{1}{2}(1-n)n}(1-anx)}{a^3n\,(1-n^2)}$$

```
[Out] ((1 + a*x)^(((1 - n)*n)/2)*(1 - a*n*x))/(a^3*n*(1 - n^2)*(1 - a*x
)^((n*(1 + n))/2))
```

Rubi [A] time = 0.0785213, antiderivative size = 54, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 37, $\frac{\text{number of rules}}{\text{integrand size}} = 0.027$

$$\frac{(1-ax)^{-\frac{1}{2}n(n+1)}(ax+1)^{\frac{1}{2}(1-n)n}(1-anx)}{a^3n\,(1-n^2)}$$

Antiderivative was successfully verified.

```
[In] Int[x^2*(1 - a*x)^(-1 - (n*(1 + n))/2)*(1 + a*x)^(-1 - ((-
1 + n)*n)/2),x]
```

```
[Out] ((1 + a*x)^(((1 - n)*n)/2)*(1 - a*n*x))/(a^3*n*(1 - n^2)*(1 - a*x
)^((n*(1 + n))/2))
```

Rubi in Sympy [A] time = 8.18278, size = 39, normalized size = 0.72

$$\frac{(-ax+1)^{-\frac{n(n+1)}{2}}(ax+1)^{-\frac{n(n-1)}{2}}(-anx+1)}{a^3n\,(-n^2+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(x**2*(-a*x+1)**(-1-1/2*n*(1+n))*(a*x+1)**(-1-1/2*(-
1+n)*n),x)
```

```
[Out] (-a*x + 1)**(-n*(n + 1)/2)*(a*x + 1)**(-n*(n - 1)/2)*(-a*n*x + 1)
/(a**3*n*(-n**2 + 1))
```

Mathematica [A] time = 0.096327, size = 49, normalized size = 0.91

$$\frac{(1-ax)^{-\frac{1}{2}n(n+1)}(ax+1)^{-\frac{1}{2}(n-1)n}(anx-1)}{a^3n\,(n^2-1)}$$

Antiderivative was successfully verified.

```
[In] Integrate[x^2*(1 - a*x)^(-1 - (n*(1 + n))/2)*(1 + a*x)^(-1 - ((-
1 + n)*n)/2),x]
```

```
[Out] (-1 + a*n*x)/(a^3*n*(-1 + n^2)*(1 - a*x)^((n*(1 + n))/2)*(1 + a*x
)^(((-1 + n)*n)/2))
```

Maple [A] time = 0.007, size = 52, normalized size = 1.

$$\frac{anx-1}{a^3n\,(n^2-1)}(ax+1)^{-\frac{n^2}{2}+\frac{n}{2}}(-ax+1)^{-\frac{n^2}{2}-\frac{n}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^2*(-a*x+1)^(-1-1/2*n*(1+n))*(a*x+1)^(-1-1/2*(-1+n)*n),x)
```

```
[Out] (a*x+1)^(-1/2*n^2+1/2*n)*(a*n*x-1)*(-a*x+1)^(-1/2*n^2-1/2*n)/a^3/
n/(n^2-1)
```

Maxima [A] time = 1.35544, size = 85, normalized size = 1.57

$$\frac{(anx-1)e^{\left(-\frac{1}{2}n^2\log(ax+1)-\frac{1}{2}n^2\log(-ax+1)+\frac{1}{2}n\log(ax+1)-\frac{1}{2}n\log(-ax+1)\right)}}{(n^3-n)a^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a*x + 1)^(-1/2*(n - 1)*n - 1)*(-a*x + 1)^(-1/2*(n + 1)*n - 1)*x^2,x, al
```

```
[Out] (a*n*x - 1)*e^(-1/2*n^2*log(a*x + 1) - 1/2*n^2*log(-a*x + 1) + 1/
2*n*log(a*x + 1) - 1/2*n*log(-a*x + 1))/((n^3 - n)*a^3)
```

Fricas [A] time = 0.238262, size = 100, normalized size = 1.85

$$-\frac{\left(a^3nx^3-a^2x^2-anx+1\right)(ax+1)^{-\frac{1}{2}n^2+\frac{1}{2}n-1}(-ax+1)^{-\frac{1}{2}n^2-\frac{1}{2}n-1}}{a^3n^3-a^3n}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a*x + 1)^(-1/2*(n - 1)*n - 1)*(-a*x + 1)^(-1/2*(n + 1)*n - 1)*x^2,x, al
```

```
[Out] -(a^3*n*x^3 - a^2*x^2 - a*n*x + 1)*(a*x + 1)^(-1/2*n^2 + 1/2*n -
1)*(-a*x + 1)^(-1/2*n^2 - 1/2*n - 1)/(a^3*n^3 - a^3*n)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(x**2*(-a*x+1)**(-1-1/2*n*(1+n))*(a*x+1)**(-1-1/2*(-1+n)*n),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.229957, size = 383, normalized size = 7.09

$$-\frac{a^3nx^3e^{\left(-\frac{1}{2}n^2\ln(ax+1)-\frac{1}{2}n^2\ln(-ax+1)+\frac{1}{2}n\ln(ax+1)-\frac{1}{2}n\ln(-ax+1)-\ln(ax+1)-\ln(-ax+1)\right)}-a^2x^2e^{\left(-\frac{1}{2}n^2\ln(ax+1)-\frac{1}{2}n^2\ln(-ax+1)+\frac{1}{2}n\ln(ax+1)-\frac{1}{2}n\ln\right.}}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((a*x + 1)^(-1/2*(n - 1)*n - 1)*(-a*x + 1)^(-1/2*(n + 1)*n - 1)*x^2,x, al
```

```
[Out] -(a^3*n*x^3*e^(-1/2*n^2*ln(a*x + 1) - 1/2*n^2*ln(-a*x + 1) + 1/2*
n*ln(a*x + 1) - 1/2*n*ln(-a*x + 1) - ln(a*x + 1) - ln(-a*x + 1))
- a^2*x^2*e^(-1/2*n^2*ln(a*x + 1) - 1/2*n^2*ln(-a*x + 1) + 1/2*n*
ln(a*x + 1) - 1/2*n*ln(-a*x + 1) - ln(a*x + 1) - ln(-a*x + 1)) -
```

```
a*n*x*e^(-1/2*n^2*ln(a*x + 1) - 1/2*n^2*ln(-a*x + 1) + 1/2*n*ln(a
*x + 1) - 1/2*n*ln(-a*x + 1) - ln(a*x + 1) - ln(-a*x + 1)) + e^(-
1/2*n^2*ln(a*x + 1) - 1/2*n^2*ln(-a*x + 1) + 1/2*n*ln(a*x + 1) -
1/2*n*ln(-a*x + 1) - ln(a*x + 1) - ln(-a*x + 1)))/(a^3*n^3 - a^3*
n)
```

3.994 $\int (a+bx)(A+Bx)(d+ex)^4\,dx$

Optimal. Leaf size=77

$$-\frac{(d+ex)^6(-aBe-Abe+2bBd)}{6e^3}+\frac{(d+ex)^5(bd-ae)(Bd-Ae)}{5e^3}+\frac{bB(d+ex)^7}{7e^3}$$

```
[Out] ((b*d - a*e)*(B*d - A*e)*(d + e*x)^5)/(5*e^3) - ((2*b*B*d - A*b*e
 - a*B*e)*(d + e*x)^6)/(6*e^3) + (b*B*(d + e*x)^7)/(7*e^3)
```

Rubi [A] time = 0.31494, antiderivative size = 77, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.056$

$$-\frac{(d+ex)^6(-aBe-Abe+2bBd)}{6e^3}+\frac{(d+ex)^5(bd-ae)(Bd-Ae)}{5e^3}+\frac{bB(d+ex)^7}{7e^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)*(A + B*x)*(d + e*x)^4,x]
```

```
[Out] ((b*d - a*e)*(B*d - A*e)*(d + e*x)^5)/(5*e^3) - ((2*b*B*d - A*b*e
 - a*B*e)*(d + e*x)^6)/(6*e^3) + (b*B*(d + e*x)^7)/(7*e^3)
```

Rubi in Sympy [A] time = 29.52, size = 68, normalized size = 0.88

$$\frac{Bb\,(d+ex)^7}{7e^3}+\frac{(d+ex)^6\,(Abe+Bae-2Bbd)}{6e^3}+\frac{(d+ex)^5\,(Ae-Bd)\,(ae-bd)}{5e^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(B*x+A)*(e*x+d)**4,x)
```

```
[Out] B*b*(d + e*x)**7/(7*e**3) + (d + e*x)**6*(A*b*e + B*a*e - 2*B*b*d
)/(6*e**3) + (d + e*x)**5*(A*e - B*d)*(a*e - b*d)/(5*e**3)
```

Mathematica [B] time = 0.102195, size = 172, normalized size = 2.23

$$\frac{1}{2}d^3x^2(4aAe+aBd+Abd)+\frac{1}{3}d^2x^3(2ae(3Ae+2Bd)+bd(4Ae+Bd))+\frac{1}{6}e^3x^6(aBe+Abe+4bBd)+\frac{1}{5}e^2x^5(ae(Ae+4Bd)+2bd(2Ae+3Bd))+\frac{1}{2}dex^4(ae(2Ae+3Bd)+bd(3Ae+2Bd))+aAd^4x+\frac{1}{7}bBe^4x^7$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)*(A + B*x)*(d + e*x)^4,x]
```

```
[Out] a*A*d^4*x + (d^3*(A*b*d + a*B*d + 4*a*A*e)*x^2)/2 + (d^2*(2*a*e*(
2*B*d + 3*A*e) + b*d*(B*d + 4*A*e))*x^3)/3 + (d*e*(a*e*(3*B*d + 2
*A*e) + b*d*(2*B*d + 3*A*e))*x^4)/2 + (e^2*(a*e*(4*B*d + A*e) + 2
*b*d*(3*B*d + 2*A*e))*x^5)/5 + (e^3*(4*b*B*d + A*b*e + a*B*e)*x^6
)/6 + (b*B*e^4*x^7)/7
```

Maple [B] time = 0.001, size = 176, normalized size = 2.3

$$\frac{bBe^4x^7}{7}+\frac{\left((Ab+Ba)\,e^4+4\,bBde^3\right)x^6}{6}+\frac{\left(aAe^4+4\,(Ab+Ba)\,de^3+6\,bBd^2e^2\right)x^5}{5}+\frac{\left(4\,aAde^3+6\,(Ab+Ba)\,d^2e^2+4\,bBd^3e\right)x^4}{4}+\frac{\left(6\,aAd^2e^2+4\,(Ab+Ba)\,d^3e+bBd^4\right)x^3}{3}+\frac{\left(4\,aAd^3e+(Ab+Ba)\,d^4\right)x^2}{2}+aAd^4x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(B*x+A)*(e*x+d)^4,x)
```

```
[Out] 1/7*b*B*e^4*x^7+1/6*((A*b+B*a)*e^4+4*b*B*d*e^3)*x^6+1/5*(a*A*e^4+
4*(A*b+B*a)*d*e^3+6*b*B*d^2*e^2)*x^5+1/4*(4*a*A*d*e^3+6*(A*b+B*a)
*d^2*e^2+4*b*B*d^3*e)*x^4+1/3*(6*a*A*d^2*e^2+4*(A*b+B*a)*d^3*e+b*
B*d^4)*x^3+1/2*(4*a*A*d^3*e+(A*b+B*a)*d^4)*x^2+a*A*d^4*x
```

Maxima [A] time = 1.33074, size = 236, normalized size = 3.06

$$\frac{1}{7}\,Bbe^4x^7+Aad^4x+\frac{1}{6}\left(4\,Bbde^3+(Ba+Ab)e^4\right)x^6+\frac{1}{5}\left(6\,Bbd^2e^2+Aae^4+4\,(Ba+Ab)de^3\right)x^5+\frac{1}{2}\left(2\,Bbd^3e+2\,Aade^3+3\,(Ba+Ab)d^2e^2\right)x^4+\frac{1}{3}\left(Bbd^4+6\,Aad^2e^2+4\,(Ba+Ab)d^3e\right)x^3+\frac{1}{2}\left(4\,Aad^3e+(Ba+Ab)d^4\right)x^2$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*(e*x + d)^4,x, algorithm="maxima")
```

```
[Out] 1/7*B*b*e^4*x^7 + A*a*d^4*x + 1/6*(4*B*b*d*e^3 + (B*a + A*b)*e^4)
*x^6 + 1/5*(6*B*b*d^2*e^2 + A*a*e^4 + 4*(B*a + A*b)*d*e^3)*x^5 +
1/2*(2*B*b*d^3*e + 2*A*a*d*e^3 + 3*(B*a + A*b)*d^2*e^2)*x^4 + 1/3
*(B*b*d^4 + 6*A*a*d^2*e^2 + 4*(B*a + A*b)*d^3*e)*x^3 + 1/2*(4*A*a
*d^3*e + (B*a + A*b)*d^4)*x^2
```

Fricas [A] time = 0.188146, size = 1, normalized size = 0.01

$$\frac{1}{7}x^7e^4bB+\frac{2}{3}x^6e^3dbB+\frac{1}{6}x^6e^4aB+\frac{1}{6}x^6e^4bA+\frac{6}{5}x^5e^2d^2bB+\frac{4}{5}x^5e^3daB+\frac{4}{5}x^5e^3dbA+\frac{1}{5}x^5e^4aA+x^4ed^3bB+\frac{3}{2}x^4e^2d^2aB+\frac{3}{2}x^4e^2d^2bA+x^4e^3daA+\frac{1}{3}x^3d^4bB+\frac{4}{3}x^3ed^3aB+\frac{4}{3}x^3ed^3bA+2x^3e^2d^2aA+\frac{1}{2}x^2d^4aB+\frac{1}{2}x^2d^4bA+2x^2ed^3aA+xd^4aA$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*(e*x + d)^4,x, algorithm="fricas")
```

```
[Out] 1/7*x^7*e^4*b*B + 2/3*x^6*e^3*d*b*B + 1/6*x^6*e^4*a*B + 1/6*x^6*e
^4*b*A + 6/5*x^5*e^2*d^2*b*B + 4/5*x^5*e^3*d*a*B + 4/5*x^5*e^3*d*
b*A + 1/5*x^5*e^4*a*A + x^4*e*d^3*b*B + 3/2*x^4*e^2*d^2*a*B + 3/2
*x^4*e^2*d^2*b*A + x^4*e^3*d*a*A + 1/3*x^3*d^4*b*B + 4/3*x^3*e*d^
3*a*B + 4/3*x^3*e*d^3*b*A + 2*x^3*e^2*d^2*a*A + 1/2*x^2*d^4*a*B +
 1/2*x^2*d^4*b*A + 2*x^2*e*d^3*a*A + x*d^4*a*A
```

Sympy [A] time = 0.1858, size = 226, normalized size = 2.94

$$Aad^4x + \frac{Bbe^4x^7}{7} + x^6\left(\frac{Abe^4}{6} + \frac{Bae^4}{6} + \frac{2Bbde^3}{3}\right) + x^5\left(\frac{Aae^4}{5} + \frac{4Abde^3}{5} + \frac{4Bade^3}{5} + \frac{6Bbd^2e^2}{5}\right) + x^4\left(Aade^3 + \frac{3Abd^2e^2}{2} + \frac{3Bad^2e^2}{2} + Bbd^3e\right) + x^3\left(2Aad^2e^2 + \frac{4Abd^3e}{3} + \frac{4Bad^3e}{3} + \frac{Bbd^4}{3}\right) + x^2\left(2Aad^3e + \frac{Abd^4}{2} + \frac{Bad^4}{2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(B*x+A)*(e*x+d)**4,x)
```

```
[Out] A*a*d**4*x + B*b*e**4*x**7/7 + x**6*(A*b*e**4/6 + B*a*e**4/6 + 2*
B*b*d*e**3/3) + x**5*(A*a*e**4/5 + 4*A*b*d*e**3/5 + 4*B*a*d*e**3/
5 + 6*B*b*d**2*e**2/5) + x**4*(A*a*d*e**3 + 3*A*b*d**2*e**2/2 + 3
*B*a*d**2*e**2/2 + B*b*d**3*e) + x**3*(2*A*a*d**2*e**2 + 4*A*b*d*
*3*e/3 + 4*B*a*d**3*e/3 + B*b*d**4/3) + x**2*(2*A*a*d**3*e + A*b*
d**4/2 + B*a*d**4/2)
```

GIAC/XCAS [A] time = 0.21501, size = 281, normalized size = 3.65

$$\frac{1}{7}Bbx^7e^4 + \frac{2}{3}Bbdx^6e^3 + \frac{6}{5}Bbd^2x^5e^2 + Bbd^3x^4e + \frac{1}{3}Bbd^4x^3 + \frac{1}{6}Bax^6e^4 + \frac{1}{6}Abx^6e^4 + \frac{4}{5}Badx^5e^3 + \frac{4}{5}Abdx^5e^3 + \frac{3}{2}Bad^2x^4e^2 + \frac{3}{2}Abd^2x^4e^2 + \frac{4}{3}Bad^3x^3e + \frac{4}{3}Abd^3x^3e + \frac{1}{2}Bad^4x^2 + \frac{1}{2}Abd^4x^2 + \frac{1}{5}Aax^5e^4 + Aadx^4e^3 + 2\,Aad^2x^3e^2 + 2\,Aad^3x^2e + Aad^4x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*(e*x + d)^4,x, algorithm="giac")
```

```
[Out] 1/7*B*b*x^7*e^4 + 2/3*B*b*d*x^6*e^3 + 6/5*B*b*d^2*x^5*e^2 + B*b*d
^3*x^4*e + 1/3*B*b*d^4*x^3 + 1/6*B*a*x^6*e^4 + 1/6*A*b*x^6*e^4 +
4/5*B*a*d*x^5*e^3 + 4/5*A*b*d*x^5*e^3 + 3/2*B*a*d^2*x^4*e^2 + 3/2
*A*b*d^2*x^4*e^2 + 4/3*B*a*d^3*x^3*e + 4/3*A*b*d^3*x^3*e + 1/2*B*
a*d^4*x^2 + 1/2*A*b*d^4*x^2 + 1/5*A*a*x^5*e^4 + A*a*d*x^4*e^3 + 2
*A*a*d^2*x^3*e^2 + 2*A*a*d^3*x^2*e + A*a*d^4*x
```

3.995 $\int (a+bx)(A+Bx)(d+ex)^3\,dx$

Optimal. Leaf size=77

$$-\frac{(d+ex)^5(-aBe-Abe+2bBd)}{5e^3}+\frac{(d+ex)^4(bd-ae)(Bd-Ae)}{4e^3}+\frac{bB(d+ex)^6}{6e^3}$$

```
[Out] ((b*d - a*e)*(B*d - A*e)*(d + e*x)^4)/(4*e^3) - ((2*b*B*d - A*b*e
 - a*B*e)*(d + e*x)^5)/(5*e^3) + (b*B*(d + e*x)^6)/(6*e^3)
```

Rubi [A] time = 0.221422, antiderivative size = 77, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{(d+ex)^5(-aBe-Abe+2bBd)}{5e^3}+\frac{(d+ex)^4(bd-ae)(Bd-Ae)}{4e^3}+\frac{bB(d+ex)^6}{6e^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)*(A + B*x)*(d + e*x)^3,x]
```

```
[Out] ((b*d - a*e)*(B*d - A*e)*(d + e*x)^4)/(4*e^3) - ((2*b*B*d - A*b*e
 - a*B*e)*(d + e*x)^5)/(5*e^3) + (b*B*(d + e*x)^6)/(6*e^3)
```

Rubi in Sympy [A] time = 25.103, size = 68, normalized size = 0.88

$$\frac{Bb\,(d+ex)^6}{6e^3}+\frac{(d+ex)^5\,(Abe+Bae-2Bbd)}{5e^3}+\frac{(d+ex)^4\,(Ae-Bd)\,(ae-bd)}{4e^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(B*x+A)*(e*x+d)**3,x)
```

```
[Out] B*b*(d + e*x)**6/(6*e**3) + (d + e*x)**5*(A*b*e + B*a*e - 2*B*b*d
)/(5*e**3) + (d + e*x)**4*(A*e - B*d)*(a*e - b*d)/(4*e**3)
```

Mathematica [A] time = 0.0726969, size = 130, normalized size = 1.69

$$\frac{1}{2}d^2x^2(3aAe+aBd+Abd)+\frac{1}{5}e^2x^5(aBe+Abe+3bBd)+\frac{1}{4}ex^4(ae(Ae+3Bd)+3bd(Ae+Bd))+\frac{1}{3}dx^3(3ae(Ae+Bd)+bd(3Ae+Bd))+aAd^3x+\frac{1}{6}bBe^3x^6$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)*(A + B*x)*(d + e*x)^3,x]
```

```
[Out] a*A*d^3*x + (d^2*(A*b*d + a*B*d + 3*a*A*e)*x^2)/2 + (d*(3*a*e*(B*
d + A*e) + b*d*(B*d + 3*A*e))*x^3)/3 + (e*(3*b*d*(B*d + A*e) + a*
e*(3*B*d + A*e))*x^4)/4 + (e^2*(3*b*B*d + A*b*e + a*B*e)*x^5)/5 +
 (b*B*e^3*x^6)/6
```

Maple [A] time = 0.002, size = 135, normalized size = 1.8

$$\frac{bBe^3x^6}{6}+\frac{\left((Ab+Ba)\,e^3+3\,bBde^2\right)x^5}{5}+\frac{\left(aAe^3+3\,(Ab+Ba)\,de^2+3\,bBd^2e\right)x^4}{4}+\frac{\left(3\,aAde^2+3\,(Ab+Ba)\,d^2e+bBd^3\right)x^3}{3}+\frac{\left(3\,aAd^2e+(Ab+Ba)\,d^3\right)x^2}{2}+aAd^3x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(B*x+A)*(e*x+d)^3,x)
```

```
[Out] 1/6*b*B*e^3*x^6+1/5*((A*b+B*a)*e^3+3*b*B*d*e^2)*x^5+1/4*(a*A*e^3+
3*(A*b+B*a)*d*e^2+3*b*B*d^2*e)*x^4+1/3*(3*a*A*d*e^2+3*(A*b+B*a)*d
^2*e+b*B*d^3)*x^3+1/2*(3*a*A*d^2*e+(A*b+B*a)*d^3)*x^2+a*A*d^3*x
```

Maxima [A] time = 1.34176, size = 181, normalized size = 2.35

$$\frac{1}{6}\,Bbe^3x^6 + Aad^3x + \frac{1}{5}\left(3\,Bbde^2 + (Ba + Ab)e^3\right)x^5 + \frac{1}{4}\left(3\,Bbd^2e + Aae^3 + 3\,(Ba + Ab)de^2\right)x^4 + \frac{1}{3}\left(Bbd^3 + 3\,Aade^2 + 3\,(Ba + Ab)d^2e\right)x^3 + \frac{1}{2}\left(3\,Aad^2e + (Ba + Ab)d^3\right)x^2$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*(e*x + d)^3,x, algorithm="maxima")
```

```
[Out] 1/6*B*b*e^3*x^6 + A*a*d^3*x + 1/5*(3*B*b*d*e^2 + (B*a + A*b)*e^3)
*x^5 + 1/4*(3*B*b*d^2*e + A*a*e^3 + 3*(B*a + A*b)*d*e^2)*x^4 + 1/
3*(B*b*d^3 + 3*A*a*d*e^2 + 3*(B*a + A*b)*d^2*e)*x^3 + 1/2*(3*A*a*
d^2*e + (B*a + A*b)*d^3)*x^2
```

Fricas [A] time = 0.184749, size = 1, normalized size = 0.01

$$\frac{1}{6}x^6e^3bB + \frac{3}{5}x^5e^2dbB + \frac{1}{5}x^5e^3aB + \frac{1}{5}x^5e^3bA + \frac{3}{4}x^4ed^2bB + \frac{3}{4}x^4e^2daB + \frac{3}{4}x^4e^2dbA + \frac{1}{4}x^4e^3aA + \frac{1}{3}x^3d^3bB + x^3ed^2aB + x^3ed^2bA + x^3e^2daA + \frac{1}{2}x^2d^3aB + \frac{1}{2}x^2d^3bA + \frac{3}{2}x^2ed^2aA + xd^3aA$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*(e*x + d)^3,x, algorithm="fricas")
```

```
[Out] 1/6*x^6*e^3*b*B + 3/5*x^5*e^2*d*b*B + 1/5*x^5*e^3*a*B + 1/5*x^5*e
^3*b*A + 3/4*x^4*e*d^2*b*B + 3/4*x^4*e^2*d*a*B + 3/4*x^4*e^2*d*b*
A + 1/4*x^4*e^3*a*A + 1/3*x^3*d^3*b*B + x^3*e*d^2*a*B + x^3*e*d^2
*b*A + x^3*e^2*d*a*A + 1/2*x^2*d^3*a*B + 1/2*x^2*d^3*b*A + 3/2*x^
2*e*d^2*a*A + x*d^3*a*A
```

Sympy [A] time = 0.155829, size = 168, normalized size = 2.18

$$Aad^3x + \frac{Bbe^3x^6}{6} + x^5\left(\frac{Abe^3}{5} + \frac{Bae^3}{5} + \frac{3Bbde^2}{5}\right) + x^4\left(\frac{Aae^3}{4} + \frac{3Abde^2}{4} + \frac{3Bade^2}{4} + \frac{3Bbd^2e}{4}\right) + x^3\left(Aade^2 + Abd^2e + Bad^2e + \frac{Bbd^3}{3}\right) + x^2\left(\frac{3Aad^2e}{2} + \frac{Abd^3}{2} + \frac{Bad^3}{2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(B*x+A)*(e*x+d)**3,x)
```

```
[Out] A*a*d**3*x + B*b*e**3*x**6/6 + x**5*(A*b*e**3/5 + B*a*e**3/5 + 3*
B*b*d*e**2/5) + x**4*(A*a*e**3/4 + 3*A*b*d*e**2/4 + 3*B*a*d*e**2/
4 + 3*B*b*d**2*e/4) + x**3*(A*a*d*e**2 + A*b*d**2*e + B*a*d**2*e
+ B*b*d**3/3) + x**2*(3*A*a*d**2*e/2 + A*b*d**3/2 + B*a*d**3/2)
```

GIAC/XCAS [A] time = 0.215268, size = 215, normalized size = 2.79

$$\frac{1}{6}Bbx^6e^3 + \frac{3}{5}Bbdx^5e^2 + \frac{3}{4}Bbd^2x^4e + \frac{1}{3}Bbd^3x^3 + \frac{1}{5}Bax^5e^3 + \frac{1}{5}Abx^5e^3 + \frac{3}{4}Badx^4e^2 + \frac{3}{4}Abdx^4e^2 + Bad^2x^3e + Abd^2x^3e + \frac{1}{2}Bad^3x^2 + \frac{1}{2}Abd^3x^2 + \frac{1}{4}Aax^4e^3 + Aadx^3e^2 + \frac{3}{2}Aad^2x^2e + Aad^3x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*(e*x + d)^3,x, algorithm="giac")
```

```
[Out] 1/6*B*b*x^6*e^3 + 3/5*B*b*d*x^5*e^2 + 3/4*B*b*d^2*x^4*e + 1/3*B*b
*d^3*x^3 + 1/5*B*a*x^5*e^3 + 1/5*A*b*x^5*e^3 + 3/4*B*a*d*x^4*e^2
+ 3/4*A*b*d*x^4*e^2 + B*a*d^2*x^3*e + A*b*d^2*x^3*e + 1/2*B*a*d^3
*x^2 + 1/2*A*b*d^3*x^2 + 1/4*A*a*x^4*e^3 + A*a*d*x^3*e^2 + 3/2*A*
a*d^2*x^2*e + A*a*d^3*x
```

3.996 $\int (a+bx)(A+Bx)(d+ex)^2\,dx$

Optimal. Leaf size=77

$$-\frac{(d+ex)^4(-aBe-Abe+2bBd)}{4e^3}+\frac{(d+ex)^3(bd-ae)(Bd-Ae)}{3e^3}+\frac{bB(d+ex)^5}{5e^3}$$

```
[Out] ((b*d - a*e)*(B*d - A*e)*(d + e*x)^3)/(3*e^3) - ((2*b*B*d - A*b*e
 - a*B*e)*(d + e*x)^4)/(4*e^3) + (b*B*(d + e*x)^5)/(5*e^3)
```

Rubi [A] time = 0.166841, antiderivative size = 77, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.056$

$$-\frac{(d+ex)^4(-aBe-Abe+2bBd)}{4e^3}+\frac{(d+ex)^3(bd-ae)(Bd-Ae)}{3e^3}+\frac{bB(d+ex)^5}{5e^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)*(A + B*x)*(d + e*x)^2,x]
```

```
[Out] ((b*d - a*e)*(B*d - A*e)*(d + e*x)^3)/(3*e^3) - ((2*b*B*d - A*b*e
 - a*B*e)*(d + e*x)^4)/(4*e^3) + (b*B*(d + e*x)^5)/(5*e^3)
```

Rubi in Sympy [A] time = 21.7773, size = 68, normalized size = 0.88

$$\frac{Bb\,(d+ex)^5}{5e^3}+\frac{(d+ex)^4\,(Abe+Bae-2Bbd)}{4e^3}+\frac{(d+ex)^3\,(Ae-Bd)\,(ae-bd)}{3e^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(B*x+A)*(e*x+d)**2,x)
```

```
[Out] B*b*(d + e*x)**5/(5*e**3) + (d + e*x)**4*(A*b*e + B*a*e - 2*B*b*d
)/(4*e**3) + (d + e*x)**3*(A*e - B*d)*(a*e - b*d)/(3*e**3)
```

Mathematica [A] time = 0.0520696, size = 96, normalized size = 1.25

$$\frac{1}{3}x^3\left(aAe^2+2aBde+2Abde+bBd^2\right)+\frac{1}{4}ex^4(aBe+Abe+2bBd)+\frac{1}{2}dx^2(2aAe+aBd+Abd)+aAd^2x+\frac{1}{5}bBe^2x^5$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)*(A + B*x)*(d + e*x)^2,x]
```

```
[Out] a*A*d^2*x + (d*(A*b*d + a*B*d + 2*a*A*e)*x^2)/2 + ((b*B*d^2 + 2*A
*b*d*e + 2*a*B*d*e + a*A*e^2)*x^3)/3 + (e*(2*b*B*d + A*b*e + a*B*
e)*x^4)/4 + (b*B*e^2*x^5)/5
```

Maple [A] time = 0.001, size = 94, normalized size = 1.2

$$\frac{bBe^2x^5}{5}+\frac{\left((Ab+Ba)\,e^2+2\,bBde\right)x^4}{4}+\frac{\left(aAe^2+2\,(Ab+Ba)\,de+bBd^2\right)x^3}{3}+\frac{\left(2\,aAde+(Ab+Ba)\,d^2\right)x^2}{2}+aAd^2x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((b*x+a)*(B*x+A)*(e*x+d)^2,x)
```

```
[Out] 1/5*b*B*e^2*x^5+1/4*((A*b+B*a)*e^2+2*b*B*d*e)*x^4+1/3*(a*A*e^2+2*
(A*b+B*a)*d*e+b*B*d^2)*x^3+1/2*(2*a*A*d*e+(A*b+B*a)*d^2)*x^2+a*A*
d^2*x
```

Maxima [A] time = 1.32366, size = 126, normalized size = 1.64

$$\frac{1}{5}\,Bbe^2x^5 + Aad^2x + \frac{1}{4}\left(2\,Bbde + (Ba + Ab)e^2\right)x^4 + \frac{1}{3}\left(Bbd^2 + Aae^2 + 2\,(Ba + Ab)de\right)x^3 + \frac{1}{2}\left(2\,Aade + (Ba + Ab)d^2\right)x^2$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*(b*x + a)*(e*x + d)^2,x, algorithm="maxima")
```

```
[Out] 1/5*B*b*e^2*x^5 + A*a*d^2*x + 1/4*(2*B*b*d*e + (B*a + A*b)*e^2)*x
^4 + 1/3*(B*b*d^2 + A*a*e^2 + 2*(B*a + A*b)*d*e)*x^3 + 1/2*(2*A*a
*d*e + (B*a + A*b)*d^2)*x^2
```

Fricas [A] time = 0.178681, size = 1, normalized size = 0.01

$$\frac{1}{5}x^5e^2bB + \frac{1}{2}x^4edbB + \frac{1}{4}x^4e^2aB + \frac{1}{4}x^4e^2bA + \frac{1}{3}x^3d^2bB + \frac{2}{3}x^3edaB + \frac{2}{3}x^3edbA + \frac{1}{3}x^3e^2aA + \frac{1}{2}x^2d^2aB + \frac{1}{2}x^2d^2bA + x^2edaA + xd^2aA$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*(b*x + a)*(e*x + d)^2,x, algorithm="fricas")
```

```
[Out] 1/5*x^5*e^2*b*B + 1/2*x^4*e*d*b*B + 1/4*x^4*e^2*a*B + 1/4*x^4*e^2
*b*A + 1/3*x^3*d^2*b*B + 2/3*x^3*e*d*a*B + 2/3*x^3*e*d*b*A + 1/3*
x^3*e^2*a*A + 1/2*x^2*d^2*a*B + 1/2*x^2*d^2*b*A + x^2*e*d*a*A + x
*d^2*a*A
```

Sympy [A] time = 0.13114, size = 116, normalized size = 1.51

$$Aad^2x + \frac{Bbe^2x^5}{5} + x^4\left(\frac{Abe^2}{4} + \frac{Bae^2}{4} + \frac{Bbde}{2}\right) + x^3\left(\frac{Aae^2}{3} + \frac{2Abde}{3} + \frac{2Bade}{3} + \frac{Bbd^2}{3}\right) + x^2\left(Aade + \frac{Abd^2}{2} + \frac{Bad^2}{2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((b*x+a)*(B*x+A)*(e*x+d)**2,x)
```

```
[Out] A*a*d**2*x + B*b*e**2*x**5/5 + x**4*(A*b*e**2/4 + B*a*e**2/4 + B*
b*d*e/2) + x**3*(A*a*e**2/3 + 2*A*b*d*e/3 + 2*B*a*d*e/3 + B*b*d**
2/3) + x**2*(A*a*d*e + A*b*d**2/2 + B*a*d**2/2)
```

GIAC/XCAS [A] time = 0.21537, size = 153, normalized size = 1.99

$$\frac{1}{5}Bbx^5e^2 + \frac{1}{2}Bbdx^4e + \frac{1}{3}Bbd^2x^3 + \frac{1}{4}Bax^4e^2 + \frac{1}{4}Abx^4e^2 + \frac{2}{3}Badx^3e + \frac{2}{3}Abdx^3e + \frac{1}{2}Bad^2x^2 + \frac{1}{2}Abd^2x^2 + \frac{1}{3}Aax^3e^2 + Aadx^2e + Aad^2x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*(e*x + d)^2,x, algorithm="giac")
```

```
[Out] 1/5*B*b*x^5*e^2 + 1/2*B*b*d*x^4*e + 1/3*B*b*d^2*x^3 + 1/4*B*a*x^4
*e^2 + 1/4*A*b*x^4*e^2 + 2/3*B*a*d*x^3*e + 2/3*A*b*d*x^3*e + 1/2*
B*a*d^2*x^2 + 1/2*A*b*d^2*x^2 + 1/3*A*a*x^3*e^2 + A*a*d*x^2*e + A
*a*d^2*x
```

3.997 $\int (a+bx)(A+Bx)(d+ex)\,dx$

Optimal. Leaf size=56

$$\frac{1}{3}x^3(aBe+Abe+bBd)+\frac{1}{2}x^2(aAe+aBd+Abd)+aAdx+\frac{1}{4}bBex^4$$

```
[Out] a*A*d*x + ((A*b*d + a*B*d + a*A*e)*x^2)/2 + ((b*B*d + A*b*e + a*B
*e)*x^3)/3 + (b*B*e*x^4)/4
```

Rubi [A] time = 0.107451, antiderivative size = 56, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}} = 0.062$

$$\frac{1}{3}x^3(aBe+Abe+bBd)+\frac{1}{2}x^2(aAe+aBd+Abd)+aAdx+\frac{1}{4}bBex^4$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)*(A + B*x)*(d + e*x),x]
```

```
[Out] a*A*d*x + ((A*b*d + a*B*d + a*A*e)*x^2)/2 + ((b*B*d + A*b*e + a*B
*e)*x^3)/3 + (b*B*e*x^4)/4
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{Bbex^4}{4}+ad\int A\,dx+x^3\left(\frac{Abe}{3}+\frac{Bae}{3}+\frac{Bbd}{3}\right)+(Aae+Abd+Bad)\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(B*x+A)*(e*x+d),x)
```

```
[Out] B*b*e*x**4/4 + a*d*Integral(A, x) + x**3*(A*b*e/3 + B*a*e/3 + B*b
*d/3) + (A*a*e + A*b*d + B*a*d)*Integral(x, x)
```

Mathematica [A] time = 0.0340552, size = 53, normalized size = 0.95

$$\frac{1}{12}x\left(4x^2(aBe+Abe+bBd)+6x(aAe+aBd+Abd)+12aAd+3bBex^3\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)*(A + B*x)*(d + e*x),x]
```

```
[Out] (x*(12*a*A*d + 6*(A*b*d + a*B*d + a*A*e)*x + 4*(b*B*d + A*b*e + a
*B*e)*x^2 + 3*b*B*e*x^3))/12
```

Maple [A] time = 0.002, size = 53, normalized size = 1.

$$\frac{bBex^4}{4}+\frac{((Ab+Ba)e+Bbd)x^3}{3}+\frac{(Aae+(Ab+Ba)d)x^2}{2}+aAdx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(B*x+A)*(e*x+d),x)
```

```
[Out] 1/4*b*B*e*x^4+1/3*((A*b+B*a)*e+B*b*d)*x^3+1/2*(A*a*e+(A*b+B*a)*d)
*x^2+a*A*d*x
```

Maxima [A] time = 1.32621, size = 70, normalized size = 1.25

$$\frac{1}{4} Bbex^4 + Aadx + \frac{1}{3} (Bbd + (Ba + Ab)e)x^3 + \frac{1}{2} (Aae + (Ba + Ab)d)x^2$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*(e*x + d),x, algorithm="maxima")
```

```
[Out] 1/4*B*b*e*x^4 + A*a*d*x + 1/3*(B*b*d + (B*a + A*b)*e)*x^3 + 1/2*(
A*a*e + (B*a + A*b)*d)*x^2
```

Fricas [A] time = 0.179902, size = 1, normalized size = 0.02

$$\frac{1}{4}x^4ebB + \frac{1}{3}x^3dbB + \frac{1}{3}x^3eaB + \frac{1}{3}x^3ebA + \frac{1}{2}x^2daB + \frac{1}{2}x^2dbA + \frac{1}{2}x^2eaA + xdaA$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*(e*x + d),x, algorithm="fricas")
```

```
[Out] 1/4*x^4*e*b*B + 1/3*x^3*d*b*B + 1/3*x^3*e*a*B + 1/3*x^3*e*b*A + 1
/2*x^2*d*a*B + 1/2*x^2*d*b*A + 1/2*x^2*e*a*A + x*d*a*A
```

Sympy [A] time = 0.098414, size = 63, normalized size = 1.12

$$Aadx + \frac{Bbex^4}{4} + x^3\left(\frac{Abe}{3} + \frac{Bae}{3} + \frac{Bbd}{3}\right) + x^2\left(\frac{Aae}{2} + \frac{Abd}{2} + \frac{Bad}{2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(B*x+A)*(e*x+d),x)
```

```
[Out] A*a*d*x + B*b*e*x**4/4 + x**3*(A*b*e/3 + B*a*e/3 + B*b*d/3) + x**
2*(A*a*e/2 + A*b*d/2 + B*a*d/2)
```

GIAC/XCAS [A] time = 0.21462, size = 89, normalized size = 1.59

$$\frac{1}{4} Bbx^4e + \frac{1}{3} Bbdx^3 + \frac{1}{3} Bax^3e + \frac{1}{3} Abx^3e + \frac{1}{2} Badx^2 + \frac{1}{2} Abdx^2 + \frac{1}{2} Aax^2e + Aadx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*(e*x + d),x, algorithm="giac")
```

```
[Out] 1/4*B*b*x^4*e + 1/3*B*b*d*x^3 + 1/3*B*a*x^3*e + 1/3*A*b*x^3*e + 1
/2*B*a*d*x^2 + 1/2*A*b*d*x^2 + 1/2*A*a*x^2*e + A*a*d*x
```

3.998 $\int (a+bx)(A+Bx)\,dx$

Optimal. Leaf size=28

$$\frac{1}{2}x^2(aB+Ab)+aAx+\frac{1}{3}bBx^3$$

```
[Out] a*A*x + ((A*b + a*B)*x^2)/2 + (b*B*x^3)/3
```

Rubi [A] time = 0.0414372, antiderivative size = 28, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 11, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.091

$$\frac{1}{2}x^2(aB+Ab)+aAx+\frac{1}{3}bBx^3$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)*(A + B*x),x]

[Out] a*A*x + ((A*b + a*B)*x^2)/2 + (b*B*x^3)/3
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{Bbx^3}{3}+a\int A\,dx+(Ab+Ba)\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(B*x+A),x)

[Out] B*b*x**3/3 + a*Integral(A, x) + (A*b + B*a)*Integral(x, x)
```

Mathematica [A] time = 0.00747448, size = 28, normalized size = 1.

$$\frac{1}{2}x^2(aB+Ab)+aAx+\frac{1}{3}bBx^3$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)*(A + B*x),x]

[Out] a*A*x + ((A*b + a*B)*x^2)/2 + (b*B*x^3)/3
```

Maple [A] time = 0.002, size = 25, normalized size = 0.9

$$aAx+\frac{(Ab+Ba)\,x^2}{2}+\frac{bBx^3}{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(B*x+A),x)

[Out] a*A*x+1/2*(A*b+B*a)*x^2+1/3*b*B*x^3
```

Maxima [A] time = 1.35983, size = 32, normalized size = 1.14

$$\frac{1}{3}Bbx^3 + Aax + \frac{1}{2}(Ba + Ab)x^2$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a),x, algorithm="maxima")
```

```
[Out] 1/3*B*b*x^3 + A*a*x + 1/2*(B*a + A*b)*x^2
```

Fricas [A] time = 0.191306, size = 1, normalized size = 0.04

$$\frac{1}{3}x^3bB + \frac{1}{2}x^2aB + \frac{1}{2}x^2bA + xaA$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a),x, algorithm="fricas")
```

```
[Out] 1/3*x^3*b*B + 1/2*x^2*a*B + 1/2*x^2*b*A + x*a*A
```

Sympy [A] time = 0.071371, size = 26, normalized size = 0.93

$$Aax + \frac{Bbx^3}{3} + x^2\left(\frac{Ab}{2} + \frac{Ba}{2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(B*x+A),x)
```

```
[Out] A*a*x + B*b*x**3/3 + x**2*(A*b/2 + B*a/2)
```

GIAC/XCAS [A] time = 0.211776, size = 35, normalized size = 1.25

$$\frac{1}{3}Bbx^3 + \frac{1}{2}Bax^2 + \frac{1}{2}Abx^2 + Aax$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a),x, algorithm="giac")
```

```
[Out] 1/3*B*b*x^3 + 1/2*B*a*x^2 + 1/2*A*b*x^2 + A*a*x
```

3.999 $\int \frac{(a+bx)(A+Bx)}{d+ex} dx$

Optimal. Leaf size=60

$$\frac{(bd-ae)(Bd-Ae)\log(d+ex)}{e^3}+\frac{B(a+bx)^2}{2be}-\frac{bx(Bd-Ae)}{e^2}$$

```
[Out] -((b*(B*d - A*e)*x)/e^2) + (B*(a + b*x)^2)/(2*b*e) + ((b*d - a*e)
*(B*d - A*e)*Log[d + e*x])/e^3
```

Rubi [A] time = 0.10138, antiderivative size = 60, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{(bd-ae)(Bd-Ae)\log(d+ex)}{e^3}+\frac{B(a+bx)^2}{2be}-\frac{bx(Bd-Ae)}{e^2}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(A + B*x))/(d + e*x),x]
```

```
[Out] -((b*(B*d - A*e)*x)/e^2) + (B*(a + b*x)^2)/(2*b*e) + ((b*d - a*e)
*(B*d - A*e)*Log[d + e*x])/e^3
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{(ae-bd)\int B\,dx}{e^2}+\frac{(Ae-Bd)\,(ae-bd)\log{(d+ex)}}{e^3}+\frac{b\,(A+Bx)^2}{2Be}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(B*x+A)/(e*x+d),x)
```

```
[Out] (a*e - b*d)*Integral(B, x)/e**2 + (A*e - B*d)*(a*e - b*d)*log(d +
 e*x)/e**3 + b*(A + B*x)**2/(2*B*e)
```

Mathematica [A] time = 0.0416093, size = 56, normalized size = 0.93

$$\frac{ex(2aBe+b(2Ae-2Bd+Bex))+2(bd-ae)(Bd-Ae)\log(d+ex)}{2e^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(A + B*x))/(d + e*x),x]
```

```
[Out] (e*x*(2*a*B*e + b*(-2*B*d + 2*A*e + B*e*x)) + 2*(b*d - a*e)*(B*d
- A*e)*Log[d + e*x])/(2*e^3)
```

Maple [A] time = 0.005, size = 90, normalized size = 1.5

$$\frac{bBx^2}{2\,e}+\frac{Abx}{e}+\frac{Bax}{e}-\frac{Bbdx}{e^2}+\frac{\ln{(ex+d)}\,aA}{e}-\frac{\ln{(ex+d)}\,Abd}{e^2}-\frac{\ln{(ex+d)}\,Bad}{e^2}+\frac{\ln{(ex+d)}\,bBd^2}{e^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(B*x+A)/(e*x+d),x)
```

```
[Out] 1/2/e*B*b*x^2+1/e*A*b*x+1/e*B*a*x-1/e^2*B*b*d*x+1/e*ln(e*x+d)*a*A
-1/e^2*ln(e*x+d)*A*b*d-1/e^2*ln(e*x+d)*B*a*d+1/e^3*ln(e*x+d)*b*B*
d^2
```

Maxima [A] time = 1.33978, size = 89, normalized size = 1.48

$$\frac{Bbex^2 - 2\,(Bbd - (Ba + Ab)e)x}{2\,e^2} + \frac{\left(Bbd^2 + Aae^2 - (Ba + Ab)de\right)\log\left(ex + d\right)}{e^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/(e*x + d),x, algorithm="maxima")
```

```
[Out] 1/2*(B*b*e*x^2 - 2*(B*b*d - (B*a + A*b)*e)*x)/e^2 + (B*b*d^2 + A*
a*e^2 - (B*a + A*b)*d*e)*log(e*x + d)/e^3
```

Fricas [A] time = 0.202655, size = 92, normalized size = 1.53

$$\frac{Bbe^2x^2 - 2\left(Bbde - (Ba + Ab)e^2\right)x + 2\left(Bbd^2 + Aae^2 - (Ba + Ab)de\right)\log\left(ex + d\right)}{2\,e^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/(e*x + d),x, algorithm="fricas")
```

```
[Out] 1/2*(B*b*e^2*x^2 - 2*(B*b*d*e - (B*a + A*b)*e^2)*x + 2*(B*b*d^2 +
 A*a*e^2 - (B*a + A*b)*d*e)*log(e*x + d))/e^3
```

Sympy [A] time = 1.81423, size = 53, normalized size = 0.88

$$\frac{Bbx^2}{2e} + \frac{x\,(Abe + Bae - Bbd)}{e^2} - \frac{(-Ae + Bd)\,(ae - bd)\log\left(d + ex\right)}{e^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(B*x+A)/(e*x+d),x)
```

```
[Out] B*b*x**2/(2*e) + x*(A*b*e + B*a*e - B*b*d)/e**2 - (-A*e + B*d)*(a
*e - b*d)*log(d + e*x)/e**3
```

GIAC/XCAS [A] time = 0.218211, size = 96, normalized size = 1.6

$$\left(Bbd^2 - Bade - Abde + Aae^2\right)e^{(-3)}\ln\left(|xe + d|\right) + \frac{1}{2}\left(Bbx^2e - 2\,Bbdx + 2\,Baxe + 2\,Abxe\right)e^{(-2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/(e*x + d),x, algorithm="giac")
```

```
[Out] (B*b*d^2 - B*a*d*e - A*b*d*e + A*a*e^2)*e^(-3)*ln(abs(x*e + d)) +
 1/2*(B*b*x^2*e - 2*B*b*d*x + 2*B*a*x*e + 2*A*b*x*e)*e^(-2)
```

3.1000 $\int \frac{(a+bx)(A+Bx)}{(d+ex)^2} dx$

Optimal. Leaf size=63

$$-\frac{(bd-ae)(Bd-Ae)}{e^3(d+ex)}-\frac{\log(d+ex)(-aBe-Abe+2bBd)}{e^3}+\frac{bBx}{e^2}$$

```
[Out] (b*B*x)/e^2 - ((b*d - a*e)*(B*d - A*e))/(e^3*(d + e*x)) - ((2*b*B
*d - A*b*e - a*B*e)*Log[d + e*x])/e^3
```

Rubi [A] time = 0.127972, antiderivative size = 63, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.056$

$$-\frac{(bd-ae)(Bd-Ae)}{e^3(d+ex)}-\frac{\log(d+ex)(-aBe-Abe+2bBd)}{e^3}+\frac{bBx}{e^2}$$

Antiderivative was successfully verified.

```
[In] Int[((a + b*x)*(A + B*x))/(d + e*x)^2,x]
```

```
[Out] (b*B*x)/e^2 - ((b*d - a*e)*(B*d - A*e))/(e^3*(d + e*x)) - ((2*b*B
*d - A*b*e - a*B*e)*Log[d + e*x])/e^3
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{b\int B\,dx}{e^2}+\frac{(Abe+Bae-2Bbd)\log(d+ex)}{e^3}-\frac{(Ae-Bd)(ae-bd)}{e^3(d+ex)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)*(B*x+A)/(e*x+d)**2,x)
```

```
[Out] b*Integral(B, x)/e**2 + (A*b*e + B*a*e - 2*B*b*d)*log(d + e*x)/e*
*3 - (A*e - B*d)*(a*e - b*d)/(e**3*(d + e*x))
```

Mathematica [A] time = 0.0840515, size = 56, normalized size = 0.89

$$\frac{-\frac{(bd-ae)(Bd-Ae)}{d+ex}+\log(d+ex)(aBe+Abe-2bBd)+bBex}{e^3}$$

Antiderivative was successfully verified.

```
[In] Integrate[((a + b*x)*(A + B*x))/(d + e*x)^2,x]
```

```
[Out] (b*B*e*x - ((b*d - a*e)*(B*d - A*e))/(d + e*x) + (-2*b*B*d + A*b*
e + a*B*e)*Log[d + e*x])/e^3
```

Maple [A] time = 0.012, size = 106, normalized size = 1.7

$$\frac{bBx}{e^2}+\frac{\ln(ex+d)\,Ab}{e^2}+\frac{\ln(ex+d)\,Ba}{e^2}-2\,\frac{\ln(ex+d)\,Bbd}{e^3}-\frac{aA}{e\,(ex+d)}+\frac{Adb}{e^2\,(ex+d)}+\frac{Bda}{e^2\,(ex+d)}-\frac{bBd^2}{e^3\,(ex+d)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(B*x+A)/(e*x+d)^2,x)
```

```
[Out] b*B*x/e^2+1/e^2*ln(e*x+d)*A*b+1/e^2*ln(e*x+d)*B*a-2/e^3*ln(e*x+d)
*B*b*d-1/e/(e*x+d)*a*A+1/e^2/(e*x+d)*A*d*b+1/e^2/(e*x+d)*B*d*a-1/
e^3/(e*x+d)*b*B*d^2
```

Maxima [A] time = 1.35431, size = 100, normalized size = 1.59

$$\frac{Bbx}{e^2} - \frac{Bbd^2 + Aae^2 - (Ba + Ab)de}{e^4x + de^3} - \frac{(2\,Bbd - (Ba + Ab)e)\log(ex + d)}{e^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/(e*x + d)^2,x, algorithm="maxima")
```

```
[Out] B*b*x/e^2 - (B*b*d^2 + A*a*e^2 - (B*a + A*b)*d*e)/(e^4*x + d*e^3)
 - (2*B*b*d - (B*a + A*b)*e)*log(e*x + d)/e^3
```

Fricas [A] time = 0.210915, size = 138, normalized size = 2.19

$$\frac{Bbe^2x^2 + Bbdex - Bbd^2 - Aae^2 + (Ba + Ab)de - \left(2\,Bbd^2 - (Ba + Ab)de + \left(2\,Bbde - (Ba + Ab)e^2\right)x\right)\log(ex + d)}{e^4x + de^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/(e*x + d)^2,x, algorithm="fricas")
```

```
[Out] (B*b*e^2*x^2 + B*b*d*e*x - B*b*d^2 - A*a*e^2 + (B*a + A*b)*d*e -
(2*B*b*d^2 - (B*a + A*b)*d*e + (2*B*b*d*e - (B*a + A*b)*e^2)*x)*l
og(e*x + d))/(e^4*x + d*e^3)
```

Sympy [A] time = 2.71573, size = 71, normalized size = 1.13

$$\frac{Bbx}{e^2} + \frac{-Aae^2 + Abde + Bade - Bbd^2}{de^3 + e^4x} + \frac{(Abe + Bae - 2Bbd)\log(d + ex)}{e^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(B*x+A)/(e*x+d)**2,x)
```

```
[Out] B*b*x/e**2 + (-A*a*e**2 + A*b*d*e + B*a*d*e - B*b*d**2)/(d*e**3 +
 e**4*x) + (A*b*e + B*a*e - 2*B*b*d)*log(d + e*x)/e**3
```

GIAC/XCAS [A] time = 0.231318, size = 157, normalized size = 2.49

$$(xe + d)Bbe^{(-3)} + (2\,Bbd - Bae - Abe)e^{(-3)}\ln\left(\frac{|xe + d|e^{(-1)}}{(xe + d)^2}\right) - \left(\frac{Bbd^2e}{xe + d} - \frac{Bade^2}{xe + d} - \frac{Abde^2}{xe + d} + \frac{Aae^3}{xe + d}\right)e^{(-4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/(e*x + d)^2,x, algorithm="giac")
```

```
[Out] (x*e + d)*B*b*e^(-3) + (2*B*b*d - B*a*e - A*b*e)*e^(-3)*ln(abs(x*
e + d)*e^(-1)/(x*e + d)^2) - (B*b*d^2*e/(x*e + d) - B*a*d*e^2/(x*
e + d) - A*b*d*e^2/(x*e + d) + A*a*e^3/(x*e + d))*e^(-4)
```

3.1001 $\int \frac{(a+bx)(A+Bx)}{(d+ex)^3} dx$

Optimal. Leaf size=70

$$-\frac{(bd-ae)(Bd-Ae)}{2e^3(d+ex)^2}+\frac{-aBe-Abe+2bBd}{e^3(d+ex)}+\frac{bB\log(d+ex)}{e^3}$$

```
[Out] -((b*d - a*e)*(B*d - A*e))/(2*e^3*(d + e*x)^2) + (2*b*B*d - A*b*e
 - a*B*e)/(e^3*(d + e*x)) + (b*B*Log[d + e*x])/e^3
```

Rubi [A] time = 0.11974, antiderivative size = 70, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{(bd-ae)(Bd-Ae)}{2e^3(d+ex)^2}+\frac{-aBe-Abe+2bBd}{e^3(d+ex)}+\frac{bB\log(d+ex)}{e^3}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(A + B*x))/(d + e*x)^3,x]
```

```
[Out] -((b*d - a*e)*(B*d - A*e))/(2*e^3*(d + e*x)^2) + (2*b*B*d - A*b*e
 - a*B*e)/(e^3*(d + e*x)) + (b*B*Log[d + e*x])/e^3
```

Rubi in Sympy [A] time = 19.1757, size = 63, normalized size = 0.9

$$\frac{Bb\log(d+ex)}{e^3}-\frac{Abe+Bae-2Bbd}{e^3(d+ex)}-\frac{(Ae-Bd)(ae-bd)}{2e^3(d+ex)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(B*x+A)/(e*x+d)**3,x)
```

```
[Out] B*b*log(d + e*x)/e**3 - (A*b*e + B*a*e - 2*B*b*d)/(e**3*(d + e*x)
) - (A*e - B*d)*(a*e - b*d)/(2*e**3*(d + e*x)**2)
```

Mathematica [A] time = 0.0574929, size = 72, normalized size = 1.03

$$\frac{-ae(Ae+B(d+2ex))+b(Bd(3d+4ex)-Ae(d+2ex))+2bB(d+ex)^2\log(d+ex)}{2e^3(d+ex)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(A + B*x))/(d + e*x)^3,x]
```

```
[Out] (-(a*e*(A*e + B*(d + 2*e*x))) + b*(-(A*e*(d + 2*e*x)) + B*d*(3*d
+ 4*e*x)) + 2*b*B*(d + e*x)^2*Log[d + e*x])/(2*e^3*(d + e*x)^2)
```

Maple [A] time = 0.01, size = 118, normalized size = 1.7

$$\frac{Bb\ln(ex+d)}{e^3}-\frac{Ab}{e^2(ex+d)}-\frac{Ba}{e^2(ex+d)}+2\frac{Bbd}{e^3(ex+d)}-\frac{Aa}{2e(ex+d)^2}+\frac{Abd}{2e^2(ex+d)^2}+\frac{Bad}{2e^2(ex+d)^2}-\frac{bBd^2}{2e^3(ex+d)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(B*x+A)/(e*x+d)^3,x)
```

```
[Out] b*B*ln(e*x+d)/e^3-1/e^2/(e*x+d)*A*b-1/e^2/(e*x+d)*B*a+2/e^3/(e*x+
d)*B*b*d-1/2/e/(e*x+d)^2*a*A+1/2/e^2/(e*x+d)^2*A*b*d+1/2/e^2/(e*x
+d)^2*B*a*d-1/2/e^3/(e*x+d)^2*b*B*d^2
```

Maxima [A] time = 1.34577, size = 117, normalized size = 1.67

$$\frac{3\,Bbd^2 - Aae^2 - (Ba + Ab)de + 2\left(2\,Bbde - (Ba + Ab)e^2\right)x}{2\,(e^5x^2 + 2\,de^4x + d^2e^3)} + \frac{Bb\log\left(ex + d\right)}{e^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/(e*x + d)^3,x, algorithm="maxima")
```

```
[Out] 1/2*(3*B*b*d^2 - A*a*e^2 - (B*a + A*b)*d*e + 2*(2*B*b*d*e - (B*a
+ A*b)*e^2)*x)/(e^5*x^2 + 2*d*e^4*x + d^2*e^3) + B*b*log(e*x + d)
/e^3
```

Fricas [A] time = 0.205933, size = 142, normalized size = 2.03

$$\frac{3\,Bbd^2 - Aae^2 - (Ba + Ab)de + 2\left(2\,Bbde - (Ba + Ab)e^2\right)x + 2\left(Bbe^2x^2 + 2\,Bbdex + Bbd^2\right)\log\left(ex + d\right)}{2\,(e^5x^2 + 2\,de^4x + d^2e^3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/(e*x + d)^3,x, algorithm="fricas")
```

```
[Out] 1/2*(3*B*b*d^2 - A*a*e^2 - (B*a + A*b)*d*e + 2*(2*B*b*d*e - (B*a
+ A*b)*e^2)*x + 2*(B*b*e^2*x^2 + 2*B*b*d*e*x + B*b*d^2)*log(e*x +
 d))/(e^5*x^2 + 2*d*e^4*x + d^2*e^3)
```

Sympy [A] time = 4.40619, size = 94, normalized size = 1.34

$$\frac{Bb\log\left(d + ex\right)}{e^3} - \frac{Aae^2 + Abde + Bade - 3Bbd^2 + x\left(2Abe^2 + 2Bae^2 - 4Bbde\right)}{2d^2e^3 + 4de^4x + 2e^5x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(B*x+A)/(e*x+d)**3,x)
```

```
[Out] B*b*log(d + e*x)/e**3 - (A*a*e**2 + A*b*d*e + B*a*d*e - 3*B*b*d**
2 + x*(2*A*b*e**2 + 2*B*a*e**2 - 4*B*b*d*e))/(2*d**2*e**3 + 4*d*e
**4*x + 2*e**5*x**2)
```

GIAC/XCAS [A] time = 0.219398, size = 107, normalized size = 1.53

$$Bbe^{(-3)}\ln\left(|xe + d|\right) + \frac{\left(2\,(2\,Bbd - Bae - Abe)x + \left(3\,Bbd^2 - Bade - Abde - Aae^2\right)e^{(-1)}\right)e^{(-2)}}{2\,(xe + d)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/(e*x + d)^3,x, algorithm="giac")
```

```
[Out] B*b*e^(-3)*ln(abs(x*e + d)) + 1/2*(2*(2*B*b*d - B*a*e - A*b*e)*x
+ (3*B*b*d^2 - B*a*d*e - A*b*d*e - A*a*e^2)*e^(-1))*e^(-2)/(x*e +
 d)^2
```

3.1002 $\int \frac{(a+bx)(A+Bx)}{(d+ex)^4} dx$

Optimal. Leaf size=75

$$\frac{-aBe - Abe + 2bBd}{2e^3(d+ex)^2} - \frac{(bd-ae)(Bd-Ae)}{3e^3(d+ex)^3} - \frac{bB}{e^3(d+ex)}$$

```
[Out] -((b*d - a*e)*(B*d - A*e))/(3*e^3*(d + e*x)^3) + (2*b*B*d - A*b*e
 - a*B*e)/(2*e^3*(d + e*x)^2) - (b*B)/(e^3*(d + e*x))
```

Rubi [A] time = 0.122256, antiderivative size = 75, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.056$

$$\frac{-aBe - Abe + 2bBd}{2e^3(d+ex)^2} - \frac{(bd-ae)(Bd-Ae)}{3e^3(d+ex)^3} - \frac{bB}{e^3(d+ex)}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(A + B*x))/(d + e*x)^4,x]
```

```
[Out] -((b*d - a*e)*(B*d - A*e))/(3*e^3*(d + e*x)^3) + (2*b*B*d - A*b*e
 - a*B*e)/(2*e^3*(d + e*x)^2) - (b*B)/(e^3*(d + e*x))
```

Rubi in Sympy [A] time = 19.5867, size = 66, normalized size = 0.88

$$-\frac{Bb}{e^3(d+ex)} - \frac{Abe + Bae - 2Bbd}{2e^3(d+ex)^2} - \frac{(Ae-Bd)(ae-bd)}{3e^3(d+ex)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(B*x+A)/(e*x+d)**4,x)
```

```
[Out] -B*b/(e**3*(d + e*x)) - (A*b*e + B*a*e - 2*B*b*d)/(2*e**3*(d + e*
x)**2) - (A*e - B*d)*(a*e - b*d)/(3*e**3*(d + e*x)**3)
```

Mathematica [A] time = 0.0524363, size = 63, normalized size = 0.84

$$-\frac{ae(2Ae + B(d+3ex)) + b\left(Ae(d+3ex) + 2B\left(d^2 + 3dex + 3e^2x^2\right)\right)}{6e^3(d+ex)^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(A + B*x))/(d + e*x)^4,x]
```

```
[Out] -(a*e*(2*A*e + B*(d + 3*e*x)) + b*(A*e*(d + 3*e*x) + 2*B*(d^2 + 3
*d*e*x + 3*e^2*x^2)))/(6*e^3*(d + e*x)^3)
```

Maple [A] time = 0.007, size = 79, normalized size = 1.1

$$-\frac{aAe^2 - Abde - Bade + bBd^2}{3e^3(ex+d)^3} - \frac{Bb}{e^3(ex+d)} - \frac{Abe + Bae - 2Bbd}{2e^3(ex+d)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(B*x+A)/(e*x+d)^4,x)
```

```
[Out] -1/3*(A*a*e^2-A*b*d*e-B*a*d*e+B*b*d^2)/e^3/(e*x+d)^3-b*B/e^3/(e*x
+d)-1/2*(A*b*e+B*a*e-2*B*b*d)/e^3/(e*x+d)^2
```

Maxima [A] time = 1.33904, size = 126, normalized size = 1.68

$$-\frac{6\,Bbe^2x^2 + 2\,Bbd^2 + 2\,Aae^2 + (Ba + Ab)de + 3\left(2\,Bbde + (Ba + Ab)e^2\right)x}{6\,(e^6x^3 + 3\,de^5x^2 + 3\,d^2e^4x + d^3e^3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/(e*x + d)^4,x, algorithm="maxima")
```

```
[Out] -1/6*(6*B*b*e^2*x^2 + 2*B*b*d^2 + 2*A*a*e^2 + (B*a + A*b)*d*e + 3
*(2*B*b*d*e + (B*a + A*b)*e^2)*x)/(e^6*x^3 + 3*d*e^5*x^2 + 3*d^2*
e^4*x + d^3*e^3)
```

Fricas [A] time = 0.203348, size = 126, normalized size = 1.68

$$-\frac{6\,Bbe^2x^2 + 2\,Bbd^2 + 2\,Aae^2 + (Ba + Ab)de + 3\left(2\,Bbde + (Ba + Ab)e^2\right)x}{6\,(e^6x^3 + 3\,de^5x^2 + 3\,d^2e^4x + d^3e^3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/(e*x + d)^4,x, algorithm="fricas")
```

```
[Out] -1/6*(6*B*b*e^2*x^2 + 2*B*b*d^2 + 2*A*a*e^2 + (B*a + A*b)*d*e + 3
*(2*B*b*d*e + (B*a + A*b)*e^2)*x)/(e^6*x^3 + 3*d*e^5*x^2 + 3*d^2*
e^4*x + d^3*e^3)
```

Sympy [A] time = 7.24132, size = 107, normalized size = 1.43

$$-\frac{2Aae^2 + Abde + Bade + 2Bbd^2 + 6Bbe^2x^2 + x\left(3Abe^2 + 3Bae^2 + 6Bbde\right)}{6d^3e^3 + 18d^2e^4x + 18de^5x^2 + 6e^6x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(B*x+A)/(e*x+d)**4,x)
```

```
[Out] -(2*A*a*e**2 + A*b*d*e + B*a*d*e + 2*B*b*d**2 + 6*B*b*e**2*x**2 +
 x*(3*A*b*e**2 + 3*B*a*e**2 + 6*B*b*d*e))/(6*d**3*e**3 + 18*d**2*
e**4*x + 18*d*e**5*x**2 + 6*e**6*x**3)
```

GIAC/XCAS [A] time = 0.216404, size = 93, normalized size = 1.24

$$-\frac{\left(6\,Bbx^2e^2 + 6\,Bbdxe + 2\,Bbd^2 + 3\,Baxe^2 + 3\,Abxe^2 + Bade + Abde + 2\,Aae^2\right)e^{(-3)}}{6\,(xe + d)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/(e*x + d)^4,x, algorithm="giac")
```

```
[Out] -1/6*(6*B*b*x^2*e^2 + 6*B*b*d*x*e + 2*B*b*d^2 + 3*B*a*x*e^2 + 3*A
*b*x*e^2 + B*a*d*e + A*b*d*e + 2*A*a*e^2)*e^(-3)/(x*e + d)^3
```

3.1003 $\int \frac{(a+bx)(A+Bx)}{(d+ex)^5} dx$

Optimal. Leaf size=77

$$\frac{-aBe - Abe + 2bBd}{3e^3(d+ex)^3} - \frac{(bd-ae)(Bd-Ae)}{4e^3(d+ex)^4} - \frac{bB}{2e^3(d+ex)^2}$$

```
[Out] -((b*d - a*e)*(B*d - A*e))/(4*e^3*(d + e*x)^4) + (2*b*B*d - A*b*e
 - a*B*e)/(3*e^3*(d + e*x)^3) - (b*B)/(2*e^3*(d + e*x)^2)
```

Rubi [A] time = 0.128088, antiderivative size = 77, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.056$

$$\frac{-aBe - Abe + 2bBd}{3e^3(d+ex)^3} - \frac{(bd-ae)(Bd-Ae)}{4e^3(d+ex)^4} - \frac{bB}{2e^3(d+ex)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(A + B*x))/(d + e*x)^5,x]
```

```
[Out] -((b*d - a*e)*(B*d - A*e))/(4*e^3*(d + e*x)^4) + (2*b*B*d - A*b*e
 - a*B*e)/(3*e^3*(d + e*x)^3) - (b*B)/(2*e^3*(d + e*x)^2)
```

Rubi in Sympy [A] time = 19.9748, size = 70, normalized size = 0.91

$$-\frac{Bb}{2e^3(d+ex)^2} - \frac{Abe + Bae - 2Bbd}{3e^3(d+ex)^3} - \frac{(Ae-Bd)(ae-bd)}{4e^3(d+ex)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(B*x+A)/(e*x+d)**5,x)
```

```
[Out] -B*b/(2*e**3*(d + e*x)**2) - (A*b*e + B*a*e - 2*B*b*d)/(3*e**3*(d
 + e*x)**3) - (A*e - B*d)*(a*e - b*d)/(4*e**3*(d + e*x)**4)
```

Mathematica [A] time = 0.0545648, size = 62, normalized size = 0.81

$$-\frac{ae(3Ae + B(d+4ex)) + b\left(Ae(d+4ex) + B\left(d^2 + 4dex + 6e^2x^2\right)\right)}{12e^3(d+ex)^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(A + B*x))/(d + e*x)^5,x]
```

```
[Out] -(a*e*(3*A*e + B*(d + 4*e*x)) + b*(A*e*(d + 4*e*x) + B*(d^2 + 4*d
*e*x + 6*e^2*x^2)))/(12*e^3*(d + e*x)^4)
```

Maple [A] time = 0.007, size = 79, normalized size = 1.

$$-\frac{Abe + Bae - 2\,Bbd}{3\,e^3\,(ex+d)^3} - \frac{Bb}{2\,e^3\,(ex+d)^2} - \frac{aAe^2 - Abde - Bade + bBd^2}{4\,e^3\,(ex+d)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(B*x+A)/(e*x+d)^5,x)
```

```
[Out] -1/3*(A*b*e+B*a*e-2*B*b*d)/e^3/(e*x+d)^3-1/2*b*B/e^3/(e*x+d)^2-1/
4*(A*a*e^2-A*b*d*e-B*a*d*e+B*b*d^2)/e^3/(e*x+d)^4
```

Maxima [A] time = 1.33743, size = 138, normalized size = 1.79

$$-\frac{6\,Bbe^2x^2 + Bbd^2 + 3\,Aae^2 + (Ba + Ab)de + 4\left(Bbde + (Ba + Ab)e^2\right)x}{12\,(e^7x^4 + 4\,de^6x^3 + 6\,d^2e^5x^2 + 4\,d^3e^4x + d^4e^3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/(e*x + d)^5,x, algorithm="maxima")
```

```
[Out] -1/12*(6*B*b*e^2*x^2 + B*b*d^2 + 3*A*a*e^2 + (B*a + A*b)*d*e + 4*
(B*b*d*e + (B*a + A*b)*e^2)*x)/(e^7*x^4 + 4*d*e^6*x^3 + 6*d^2*e^5
*x^2 + 4*d^3*e^4*x + d^4*e^3)
```

Fricas [A] time = 0.20064, size = 138, normalized size = 1.79

$$-\frac{6\,Bbe^2x^2 + Bbd^2 + 3\,Aae^2 + (Ba + Ab)de + 4\left(Bbde + (Ba + Ab)e^2\right)x}{12\,(e^7x^4 + 4\,de^6x^3 + 6\,d^2e^5x^2 + 4\,d^3e^4x + d^4e^3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/(e*x + d)^5,x, algorithm="fricas")
```

```
[Out] -1/12*(6*B*b*e^2*x^2 + B*b*d^2 + 3*A*a*e^2 + (B*a + A*b)*d*e + 4*
(B*b*d*e + (B*a + A*b)*e^2)*x)/(e^7*x^4 + 4*d*e^6*x^3 + 6*d^2*e^5
*x^2 + 4*d^3*e^4*x + d^4*e^3)
```

Sympy [A] time = 11.9947, size = 117, normalized size = 1.52

$$-\frac{3Aae^2 + Abde + Bade + Bbd^2 + 6Bbe^2x^2 + x\left(4Abe^2 + 4Bae^2 + 4Bbde\right)}{12d^4e^3 + 48d^3e^4x + 72d^2e^5x^2 + 48de^6x^3 + 12e^7x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(B*x+A)/(e*x+d)**5,x)
```

```
[Out] -(3*A*a*e**2 + A*b*d*e + B*a*d*e + B*b*d**2 + 6*B*b*e**2*x**2 + x
*(4*A*b*e**2 + 4*B*a*e**2 + 4*B*b*d*e))/(12*d**4*e**3 + 48*d**3*e
**4*x + 72*d**2*e**5*x**2 + 48*d*e**6*x**3 + 12*e**7*x**4)
```

GIAC/XCAS [A] time = 0.219088, size = 166, normalized size = 2.16

$$-\frac{1}{12}\left(\frac{6\,Bbe}{(xe+d)^2} - \frac{8\,Bbde}{(xe+d)^3} + \frac{3\,Bbd^2e}{(xe+d)^4} + \frac{4\,Bae^2}{(xe+d)^3} + \frac{4\,Abe^2}{(xe+d)^3} - \frac{3\,Bade^2}{(xe+d)^4} - \frac{3\,Abde^2}{(xe+d)^4} + \frac{3\,Aae^3}{(xe+d)^4}\right)e^{(-4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/(e*x + d)^5,x, algorithm="giac")
```

```
[Out] -1/12*(6*B*b*e/(x*e + d)^2 - 8*B*b*d*e/(x*e + d)^3 + 3*B*b*d^2*e/
(x*e + d)^4 + 4*B*a*e^2/(x*e + d)^3 + 4*A*b*e^2/(x*e + d)^3 - 3*B
```

```
*a*d*e^2/(x*e + d)^4 - 3*A*b*d*e^2/(x*e + d)^4 + 3*A*a*e^3/(x*e +
 d)^4)*e^(-4)
```

3.1004 $\int \frac{(a+bx)(A+Bx)}{(d+ex)^6} dx$

Optimal. Leaf size=77

$$\frac{-aBe - Abe + 2bBd}{4e^3(d+ex)^4} - \frac{(bd-ae)(Bd-Ae)}{5e^3(d+ex)^5} - \frac{bB}{3e^3(d+ex)^3}$$

```
[Out] -((b*d - a*e)*(B*d - A*e))/(5*e^3*(d + e*x)^5) + (2*b*B*d - A*b*e
 - a*B*e)/(4*e^3*(d + e*x)^4) - (b*B)/(3*e^3*(d + e*x)^3)
```

Rubi [A] time = 0.128985, antiderivative size = 77, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.056$

$$\frac{-aBe - Abe + 2bBd}{4e^3(d+ex)^4} - \frac{(bd-ae)(Bd-Ae)}{5e^3(d+ex)^5} - \frac{bB}{3e^3(d+ex)^3}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(A + B*x))/(d + e*x)^6,x]
```

```
[Out] -((b*d - a*e)*(B*d - A*e))/(5*e^3*(d + e*x)^5) + (2*b*B*d - A*b*e
 - a*B*e)/(4*e^3*(d + e*x)^4) - (b*B)/(3*e^3*(d + e*x)^3)
```

Rubi in Sympy [A] time = 20.2022, size = 70, normalized size = 0.91

$$-\frac{Bb}{3e^3(d+ex)^3} - \frac{Abe + Bae - 2Bbd}{4e^3(d+ex)^4} - \frac{(Ae - Bd)(ae - bd)}{5e^3(d+ex)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(B*x+A)/(e*x+d)**6,x)
```

```
[Out] -B*b/(3*e**3*(d + e*x)**3) - (A*b*e + B*a*e - 2*B*b*d)/(4*e**3*(d
 + e*x)**4) - (A*e - B*d)*(a*e - b*d)/(5*e**3*(d + e*x)**5)
```

Mathematica [A] time = 0.0550409, size = 65, normalized size = 0.84

$$-\frac{3ae(4Ae + B(d+5ex)) + b\left(3Ae(d+5ex) + 2B\left(d^2 + 5dex + 10e^2x^2\right)\right)}{60e^3(d+ex)^5}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(A + B*x))/(d + e*x)^6,x]
```

```
[Out] -(3*a*e*(4*A*e + B*(d + 5*e*x)) + b*(3*A*e*(d + 5*e*x) + 2*B*(d^2
 + 5*d*e*x + 10*e^2*x^2)))/(60*e^3*(d + e*x)^5)
```

Maple [A] time = 0.009, size = 79, normalized size = 1.

$$-\frac{Bb}{3\,e^3\,(ex+d)^3} - \frac{Abe + Bae - 2\,Bbd}{4\,e^3\,(ex+d)^4} - \frac{aAe^2 - Abde - Bade + bBd^2}{5\,e^3\,(ex+d)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(B*x+A)/(e*x+d)^6,x)
```

```
[Out] -1/3*b*B/e^3/(e*x+d)^3-1/4*(A*b*e+B*a*e-2*B*b*d)/e^3/(e*x+d)^4-1/
5*(A*a*e^2-A*b*d*e-B*a*d*e+B*b*d^2)/e^3/(e*x+d)^5
```

Maxima [A] time = 1.33772, size = 158, normalized size = 2.05

$$-\frac{20\,Bbe^{2}x^{2}+2\,Bbd^{2}+12\,Aae^{2}+3\,(Ba+Ab)de+5\,\left(2\,Bbde+3\,(Ba+Ab)e^{2}\right)x}{60\,(e^{8}x^{5}+5\,de^{7}x^{4}+10\,d^{2}e^{6}x^{3}+10\,d^{3}e^{5}x^{2}+5\,d^{4}e^{4}x+d^{5}e^{3})}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/(e*x + d)^6,x, algorithm="maxima")
```

```
[Out] -1/60*(20*B*b*e^2*x^2 + 2*B*b*d^2 + 12*A*a*e^2 + 3*(B*a + A*b)*d*
e + 5*(2*B*b*d*e + 3*(B*a + A*b)*e^2)*x)/(e^8*x^5 + 5*d*e^7*x^4 +
 10*d^2*e^6*x^3 + 10*d^3*e^5*x^2 + 5*d^4*e^4*x + d^5*e^3)
```

Fricas [A] time = 0.213581, size = 158, normalized size = 2.05

$$-\frac{20\,Bbe^{2}x^{2}+2\,Bbd^{2}+12\,Aae^{2}+3\,(Ba+Ab)de+5\,\left(2\,Bbde+3\,(Ba+Ab)e^{2}\right)x}{60\,(e^{8}x^{5}+5\,de^{7}x^{4}+10\,d^{2}e^{6}x^{3}+10\,d^{3}e^{5}x^{2}+5\,d^{4}e^{4}x+d^{5}e^{3})}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/(e*x + d)^6,x, algorithm="fricas")
```

```
[Out] -1/60*(20*B*b*e^2*x^2 + 2*B*b*d^2 + 12*A*a*e^2 + 3*(B*a + A*b)*d*
e + 5*(2*B*b*d*e + 3*(B*a + A*b)*e^2)*x)/(e^8*x^5 + 5*d*e^7*x^4 +
 10*d^2*e^6*x^3 + 10*d^3*e^5*x^2 + 5*d^4*e^4*x + d^5*e^3)
```

Sympy [A] time = 18.1612, size = 134, normalized size = 1.74

$$-\frac{12Aae^{2}+3Abde+3Bade+2Bbd^{2}+20Bbe^{2}x^{2}+x\left(15Abe^{2}+15Bae^{2}+10Bbde\right)}{60d^{5}e^{3}+300d^{4}e^{4}x+600d^{3}e^{5}x^{2}+600d^{2}e^{6}x^{3}+300de^{7}x^{4}+60e^{8}x^{5}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(B*x+A)/(e*x+d)**6,x)
```

```
[Out] -(12*A*a*e**2 + 3*A*b*d*e + 3*B*a*d*e + 2*B*b*d**2 + 20*B*b*e**2*
x**2 + x*(15*A*b*e**2 + 15*B*a*e**2 + 10*B*b*d*e))/(60*d**5*e**3
+ 300*d**4*e**4*x + 600*d**3*e**5*x**2 + 600*d**2*e**6*x**3 + 300
*d*e**7*x**4 + 60*e**8*x**5)
```

GIAC/XCAS [A] time = 0.219513, size = 96, normalized size = 1.25

$$-\frac{\left(20\,Bbx^{2}e^{2}+10\,Bbdxe+2\,Bbd^{2}+15\,Baxe^{2}+15\,Abxe^{2}+3\,Bade+3\,Abde+12\,Aae^{2}\right)e^{(-3)}}{60\,(xe+d)^{5}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/(e*x + d)^6,x, algorithm="giac")
```

```
[Out] -1/60*(20*B*b*x^2*e^2 + 10*B*b*d*x*e + 2*B*b*d^2 + 15*B*a*x*e^2 +
 15*A*b*x*e^2 + 3*B*a*d*e + 3*A*b*d*e + 12*A*a*e^2)*e^(-3)/(x*e +
 d)^5
```

3.1005 $\int (a+bx)^2(A+Bx)(d+ex)^4\,dx$

Optimal. Leaf size=120

$$-\frac{b(d+ex)^7(-2aBe-Abe+3bBd)}{7e^4}+\frac{(d+ex)^6(bd-ae)(-aBe-2Abe+3bBd)}{6e^4}-\frac{(d+ex)^5(bd-ae)^2(Bd-Ae)}{5e^4}+\frac{b^2B(d+ex)^8}{8e^4}$$

```
[Out] -((b*d - a*e)^2*(B*d - A*e)*(d + e*x)^5)/(5*e^4) + ((b*d - a*e)*(
3*b*B*d - 2*A*b*e - a*B*e)*(d + e*x)^6)/(6*e^4) - (b*(3*b*B*d - A
*b*e - 2*a*B*e)*(d + e*x)^7)/(7*e^4) + (b^2*B*(d + e*x)^8)/(8*e^4
)
```

Rubi [A] time = 0.578631, antiderivative size = 120, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{b(d+ex)^7(-2aBe-Abe+3bBd)}{7e^4}+\frac{(d+ex)^6(bd-ae)(-aBe-2Abe+3bBd)}{6e^4}-\frac{(d+ex)^5(bd-ae)^2(Bd-Ae)}{5e^4}+\frac{b^2B(d+ex)^8}{8e^4}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^2*(A + B*x)*(d + e*x)^4,x]
```

```
[Out] -((b*d - a*e)^2*(B*d - A*e)*(d + e*x)^5)/(5*e^4) + ((b*d - a*e)*(
3*b*B*d - 2*A*b*e - a*B*e)*(d + e*x)^6)/(6*e^4) - (b*(3*b*B*d - A
*b*e - 2*a*B*e)*(d + e*x)^7)/(7*e^4) + (b^2*B*(d + e*x)^8)/(8*e^4
)
```

Rubi in Sympy [A] time = 56.4106, size = 112, normalized size = 0.93

$$\frac{Bb^2(d+ex)^8}{8e^4}+\frac{b(d+ex)^7(Abe+2Bae-3Bbd)}{7e^4}+\frac{(d+ex)^6(ae-bd)(2Abe+Bae-3Bbd)}{6e^4}+\frac{(d+ex)^5(Ae-Bd)(ae-bd)^2}{5e^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**2*(B*x+A)*(e*x+d)**4,x)
```

```
[Out] B*b**2*(d + e*x)**8/(8*e**4) + b*(d + e*x)**7*(A*b*e + 2*B*a*e -
3*B*b*d)/(7*e**4) + (d + e*x)**6*(a*e - b*d)*(2*A*b*e + B*a*e - 3
*B*b*d)/(6*e**4) + (d + e*x)**5*(A*e - B*d)*(a*e - b*d)**2/(5*e**
4)
```

Mathematica [B] time = 0.162112, size = 283, normalized size = 2.36

$$\frac{1}{5}ex^5\left(a^2e^2(Ae+4Bd)+4abde(2Ae+3Bd)+2b^2d^2(3Ae+2Bd)\right)+\frac{1}{4}dx^4\left(2a^2e^2(2Ae+3Bd)+4abde(3Ae+2Bd)+b^2d^2(4Ae+Bd)\right)+\frac{1}{3}d^2x^3\left(A\left(6a^2e^2+8abde+b^2d^2\right)+2aBd(2ae+bd)\right)+\frac{1}{6}e^2x^6\left(a^2Be^2+2abe(Ae+4Bd)+2b^2d(2Ae+3Bd)\right)+a^2Ad^4x+\frac{1}{2}ad^3x^2(4aAe+aBd+2Abd)+\frac{1}{7}be^3x^7(2aBe+Abe+4bBd)+\frac{1}{8}b^2Be^4x^8$$

Antiderivative was successfully verified.

```
[In]   Integrate[(a + b*x)^2*(A + B*x)*(d + e*x)^4,x]
```

```
[Out] a^2*A*d^4*x + (a*d^3*(2*A*b*d + a*B*d + 4*a*A*e)*x^2)/2 + (d^2*(2
*a*B*d*(b*d + 2*a*e) + A*(b^2*d^2 + 8*a*b*d*e + 6*a^2*e^2))*x^3)/
3 + (d*(2*a^2*e^2*(3*B*d + 2*A*e) + 4*a*b*d*e*(2*B*d + 3*A*e) + b
^2*d^2*(B*d + 4*A*e))*x^4)/4 + (e*(a^2*e^2*(4*B*d + A*e) + 4*a*b*
d*e*(3*B*d + 2*A*e) + 2*b^2*d^2*(2*B*d + 3*A*e))*x^5)/5 + (e^2*(a
^2*B*e^2 + 2*a*b*e*(4*B*d + A*e) + 2*b^2*d*(3*B*d + 2*A*e))*x^6)/
6 + (b*e^3*(4*b*B*d + A*b*e + 2*a*B*e)*x^7)/7 + (b^2*B*e^4*x^8)/8
```

Maple [B] time = 0.003, size = 305, normalized size = 2.5

$$\frac{b^2Be^4x^8}{8}+\frac{\left(\left(b^2A+2\,Bba\right)e^4+4\,b^2Bde^3\right)x^7}{7}+\frac{\left(\left(2\,Aab+Ba^2\right)e^4+4\,\left(b^2A+2\,Bba\right)de^3+6\,b^2Bd^2e^2\right)x^6}{6}+\frac{\left(a^2Ae^4+4\,\left(2\,Aab+Ba^2\right)de^3+6\,\left(b^2A+2\,Bba\right)d^2e^2+4\,b^2Bd^3e\right)x^5}{5}+\frac{\left(4\,a^2Ade^3+6\,\left(2\,Aab+Ba^2\right)d^2e^2+4\,\left(b^2A+2\,Bba\right)d^3e+b^2Bd^4\right)x^4}{4}+\frac{\left(6\,a^2Ad^2e^2+4\,\left(2\,Aab+Ba^2\right)d^3e+\left(b^2A+2\,Bba\right)d^4\right)x^3}{3}+\frac{\left(4\,a^2Ad^3e+\left(2\,Aab+Ba^2\right)d^4\right)x^2}{2}+a^2Ad^4x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((b*x+a)^2*(B*x+A)*(e*x+d)^4,x)
```

```
[Out] 1/8*b^2*B*e^4*x^8+1/7*((A*b^2+2*B*a*b)*e^4+4*b^2*B*d*e^3)*x^7+1/6
*((2*A*a*b+B*a^2)*e^4+4*(A*b^2+2*B*a*b)*d*e^3+6*b^2*B*d^2*e^2)*x^
6+1/5*(a^2*A*e^4+4*(2*A*a*b+B*a^2)*d*e^3+6*(A*b^2+2*B*a*b)*d^2*e^
2+4*b^2*B*d^3*e)*x^5+1/4*(4*a^2*A*d*e^3+6*(2*A*a*b+B*a^2)*d^2*e^2
+4*(A*b^2+2*B*a*b)*d^3*e+b^2*B*d^4)*x^4+1/3*(6*a^2*A*d^2*e^2+4*(2
*A*a*b+B*a^2)*d^3*e+(A*b^2+2*B*a*b)*d^4)*x^3+1/2*(4*a^2*A*d^3*e+(
2*A*a*b+B*a^2)*d^4)*x^2+a^2*A*d^4*x
```

Maxima [A] time = 1.33565, size = 410, normalized size = 3.42

$$\frac{1}{8}\,Bb^2e^4x^8+Aa^2d^4x+\frac{1}{7}\left(4\,Bb^2de^3+\left(2\,Bab+Ab^2\right)e^4\right)x^7+\frac{1}{6}\left(6\,Bb^2d^2e^2+4\left(2\,Bab+Ab^2\right)de^3+\left(Ba^2+2\,Aab\right)e^4\right)x^6+\frac{1}{5}\left(4\,Bb^2d^3e+Aa^2e^4+6\left(2\,Bab+Ab^2\right)d^2e^2+4\left(Ba^2+2\,Aab\right)de^3\right)x^5+\frac{1}{4}\left(Bb^2d^4+4\,Aa^2de^3+4\left(2\,Bab+Ab^2\right)d^3e+6\left(Ba^2+2\,Aab\right)d^2e^2\right)x^4+\frac{1}{3}\left(6\,Aa^2d^2e^2+\left(2\,Bab+Ab^2\right)d^4+4\left(Ba^2+2\,Aab\right)d^3e\right)x^3+\frac{1}{2}\left(4\,Aa^2d^3e+\left(Ba^2+2\,Aab\right)d^4\right)x^2$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*(b*x + a)^2*(e*x + d)^4,x, algorithm="maxima")
```

```
[Out] 1/8*B*b^2*e^4*x^8 + A*a^2*d^4*x + 1/7*(4*B*b^2*d*e^3 + (2*B*a*b +
 A*b^2)*e^4)*x^7 + 1/6*(6*B*b^2*d^2*e^2 + 4*(2*B*a*b + A*b^2)*d*e
^3 + (B*a^2 + 2*A*a*b)*e^4)*x^6 + 1/5*(4*B*b^2*d^3*e + A*a^2*e^4
+ 6*(2*B*a*b + A*b^2)*d^2*e^2 + 4*(B*a^2 + 2*A*a*b)*d*e^3)*x^5 +
1/4*(B*b^2*d^4 + 4*A*a^2*d*e^3 + 4*(2*B*a*b + A*b^2)*d^3*e + 6*(B
*a^2 + 2*A*a*b)*d^2*e^2)*x^4 + 1/3*(6*A*a^2*d^2*e^2 + (2*B*a*b +
```

```
A*b^2)*d^4 + 4*(B*a^2 + 2*A*a*b)*d^3*e)*x^3 + 1/2*(4*A*a^2*d^3*e
+ (B*a^2 + 2*A*a*b)*d^4)*x^2
```

Fricas [A] time = 0.189521, size = 1, normalized size = 0.01

$$\frac{1}{8}x^8e^4b^2B+\frac{4}{7}x^7e^3db^2B+\frac{2}{7}x^7e^4baB+\frac{1}{7}x^7e^4b^2A+x^6e^2d^2b^2B+\frac{4}{3}x^6e^3dbaB+\frac{1}{6}x^6e^4a^2B+\frac{2}{3}x^6e^3db^2A+\frac{1}{3}x^6e^4baA+\frac{4}{5}x^5ed^3b^2B+\frac{12}{5}x^5e^2d^2baB+\frac{4}{5}x^5e^3da^2B+\frac{6}{5}x^5e^2d^2b^2A+\frac{8}{5}x^5e^3dbaA+\frac{1}{5}x^5e^4a^2A+\frac{1}{4}x^4d^4b^2B+2x^4ed^3baB+\frac{3}{2}x^4e^2d^2a^2B+x^4ed^3b^2A+3x^4e^2d^2baA+x^4e^3da^2A+\frac{2}{3}x^3d^4baB+\frac{4}{3}x^3ed^3a^2B+\frac{1}{3}x^3d^4b^2A+\frac{8}{3}x^3ed^3baA+2x^3e^2d^2a^2A+\frac{1}{2}x^2d^4a^2B+x^2d^4baA+2x^2ed^3a^2A+xd^4a^2A$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*(e*x + d)^4,x, algorithm="fricas")
```

```
[Out] 1/8*x^8*e^4*b^2*B + 4/7*x^7*e^3*d*b^2*B + 2/7*x^7*e^4*b*a*B + 1/7
*x^7*e^4*b^2*A + x^6*e^2*d^2*b^2*B + 4/3*x^6*e^3*d*b*a*B + 1/6*x^
6*e^4*a^2*B + 2/3*x^6*e^3*d*b^2*A + 1/3*x^6*e^4*b*a*A + 4/5*x^5*e
*d^3*b^2*B + 12/5*x^5*e^2*d^2*b*a*B + 4/5*x^5*e^3*d*a^2*B + 6/5*x
^5*e^2*d^2*b^2*A + 8/5*x^5*e^3*d*b*a*A + 1/5*x^5*e^4*a^2*A + 1/4*
x^4*d^4*b^2*B + 2*x^4*e*d^3*b*a*B + 3/2*x^4*e^2*d^2*a^2*B + x^4*e
*d^3*b^2*A + 3*x^4*e^2*d^2*b*a*A + x^4*e^3*d*a^2*A + 2/3*x^3*d^4*
b*a*B + 4/3*x^3*e*d^3*a^2*B + 1/3*x^3*d^4*b^2*A + 8/3*x^3*e*d^3*b
*a*A + 2*x^3*e^2*d^2*a^2*A + 1/2*x^2*d^4*a^2*B + x^2*d^4*b*a*A +
2*x^2*e*d^3*a^2*A + x*d^4*a^2*A
```

Sympy [A] time = 0.251048, size = 384, normalized size = 3.2

$$Aa^2d^4x+\frac{Bb^2e^4x^8}{8}+x^7\left(\frac{Ab^2e^4}{7}+\frac{2Babe^4}{7}+\frac{4Bb^2de^3}{7}\right)+x^6\left(\frac{Aabe^4}{3}+\frac{2Ab^2de^3}{3}+\frac{Ba^2e^4}{6}+\frac{4Babde^3}{3}+Bb^2d^2e^2\right)+x^5\left(\frac{Aa^2e^4}{5}+\frac{8Aabde^3}{5}+\frac{6Ab^2d^2e^2}{5}+\frac{4Ba^2de^3}{5}+\frac{12Babd^2e^2}{5}+\frac{4Bb^2d^3e}{5}\right)+x^4\left(Aa^2de^3+3Aabd^2e^2+Ab^2d^3e+\frac{3Ba^2d^2e^2}{2}+2Babd^3e+\frac{Bb^2d^4}{4}\right)+x^3\left(2Aa^2d^2e^2+\frac{8Aabd^3e}{3}+\frac{Ab^2d^4}{3}+\frac{4Ba^2d^3e}{3}+\frac{2Babd^4}{3}\right)+x^2\left(2Aa^2d^3e+Aabd^4+\frac{Ba^2d^4}{2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**2*(B*x+A)*(e*x+d)**4,x)
```

```
[Out] A*a**2*d**4*x + B*b**2*e**4*x**8/8 + x**7*(A*b**2*e**4/7 + 2*B*a*
b*e**4/7 + 4*B*b**2*d*e**3/7) + x**6*(A*a*b*e**4/3 + 2*A*b**2*d*e
**3/3 + B*a**2*e**4/6 + 4*B*a*b*d*e**3/3 + B*b**2*d**2*e**2) + x*
*5*(A*a**2*e**4/5 + 8*A*a*b*d*e**3/5 + 6*A*b**2*d**2*e**2/5 + 4*B
*a**2*d*e**3/5 + 12*B*a*b*d**2*e**2/5 + 4*B*b**2*d**3*e/5) + x**4
*(A*a**2*d*e**3 + 3*A*a*b*d**2*e**2 + A*b**2*d**3*e + 3*B*a**2*d*
*2*e**2/2 + 2*B*a*b*d**3*e + B*b**2*d**4/4) + x**3*(2*A*a**2*d**2
*e**2 + 8*A*a*b*d**3*e/3 + A*b**2*d**4/3 + 4*B*a**2*d**3*e/3 + 2*
B*a*b*d**4/3) + x**2*(2*A*a**2*d**3*e + A*a*b*d**4 + B*a**2*d**4/
2)
```

GIAC/XCAS [A] time = 0.212054, size = 489, normalized size = 4.08

$$\frac{1}{8}Bb^2x^8e^4 + \frac{4}{7}Bb^2dx^7e^3 + Bb^2d^2x^6e^2 + \frac{4}{5}Bb^2d^3x^5e + \frac{1}{4}Bb^2d^4x^4 + \frac{2}{7}Babx^7e^4 + \frac{1}{7}Ab^2x^7e^4 + \frac{4}{3}Babdx^6e^3 + \frac{2}{3}Ab^2dx^6e^3 + \frac{12}{5}Babd^2x^5e^2 + \frac{6}{5}Ab^2d^2x^5e^2 + 2Babd^3x^4e + Ab^2d^3x^4e + \frac{2}{3}Babd^4x^3 + \frac{1}{3}Ab^2d^4x^3 + \frac{1}{6}Ba^2x^6e^4 + \frac{1}{3}Aabx^6e^4 + \frac{4}{5}Ba^2dx^5e^3 + \frac{8}{5}Aabdx^5e^3 + \frac{3}{2}Ba^2d^2x^4e^2 + 3Aabd^2x^4e^2 + \frac{4}{3}Ba^2d^3x^3e + \frac{8}{3}Aabd^3x^3e + \frac{1}{2}Ba^2d^4x^2 + Aabd^4x^2 + \frac{1}{5}Aa^2x^5e^4 + Aa^2dx^4e^3 + 2Aa^2d^2x^3e^2 + 2Aa^2d^3x^2e + Aa^2d^4x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*(e*x + d)^4,x, algorithm="giac")
```

```
[Out] 1/8*B*b^2*x^8*e^4 + 4/7*B*b^2*d*x^7*e^3 + B*b^2*d^2*x^6*e^2 + 4/5
*B*b^2*d^3*x^5*e + 1/4*B*b^2*d^4*x^4 + 2/7*B*a*b*x^7*e^4 + 1/7*A*
b^2*x^7*e^4 + 4/3*B*a*b*d*x^6*e^3 + 2/3*A*b^2*d*x^6*e^3 + 12/5*B*
a*b*d^2*x^5*e^2 + 6/5*A*b^2*d^2*x^5*e^2 + 2*B*a*b*d^3*x^4*e + A*b
^2*d^3*x^4*e + 2/3*B*a*b*d^4*x^3 + 1/3*A*b^2*d^4*x^3 + 1/6*B*a^2*
x^6*e^4 + 1/3*A*a*b*x^6*e^4 + 4/5*B*a^2*d*x^5*e^3 + 8/5*A*a*b*d*x
^5*e^3 + 3/2*B*a^2*d^2*x^4*e^2 + 3*A*a*b*d^2*x^4*e^2 + 4/3*B*a^2*
d^3*x^3*e + 8/3*A*a*b*d^3*x^3*e + 1/2*B*a^2*d^4*x^2 + A*a*b*d^4*x
^2 + 1/5*A*a^2*x^5*e^4 + A*a^2*d*x^4*e^3 + 2*A*a^2*d^2*x^3*e^2 +
2*A*a^2*d^3*x^2*e + A*a^2*d^4*x
```

3.1006 $\int (a+bx)^2(A+Bx)(d+ex)^3\,dx$

Optimal. Leaf size=120

$$-\frac{b(d+ex)^6(-2aBe-Abe+3bBd)}{6e^4}+\frac{(d+ex)^5(bd-ae)(-aBe-2Abe+3bBd)}{5e^4}-\frac{(d+ex)^4(bd-ae)^2(Bd-Ae)}{4e^4}+\frac{b^2B(d+ex)^7}{7e^4}$$

```
[Out] -((b*d - a*e)^2*(B*d - A*e)*(d + e*x)^4)/(4*e^4) + ((b*d - a*e)*(
3*b*B*d - 2*A*b*e - a*B*e)*(d + e*x)^5)/(5*e^4) - (b*(3*b*B*d - A
*b*e - 2*a*B*e)*(d + e*x)^6)/(6*e^4) + (b^2*B*(d + e*x)^7)/(7*e^4
)
```

Rubi [A] time = 0.392271, antiderivative size = 120, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{b(d+ex)^6(-2aBe-Abe+3bBd)}{6e^4}+\frac{(d+ex)^5(bd-ae)(-aBe-2Abe+3bBd)}{5e^4}-\frac{(d+ex)^4(bd-ae)^2(Bd-Ae)}{4e^4}+\frac{b^2B(d+ex)^7}{7e^4}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^2*(A + B*x)*(d + e*x)^3,x]
```

```
[Out] -((b*d - a*e)^2*(B*d - A*e)*(d + e*x)^4)/(4*e^4) + ((b*d - a*e)*(
3*b*B*d - 2*A*b*e - a*B*e)*(d + e*x)^5)/(5*e^4) - (b*(3*b*B*d - A
*b*e - 2*a*B*e)*(d + e*x)^6)/(6*e^4) + (b^2*B*(d + e*x)^7)/(7*e^4
)
```

Rubi in Sympy [A] time = 46.3482, size = 112, normalized size = 0.93

$$\frac{Bb^2\left(d+ex\right)^7}{7e^4}+\frac{b\left(d+ex\right)^6\left(Abe+2Bae-3Bbd\right)}{6e^4}+\frac{\left(d+ex\right)^5\left(ae-bd\right)\left(2Abe+Bae-3Bbd\right)}{5e^4}+\frac{\left(d+ex\right)^4\left(Ae-Bd\right)\left(ae-bd\right)^2}{4e^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**2*(B*x+A)*(e*x+d)**3,x)
```

```
[Out] B*b**2*(d + e*x)**7/(7*e**4) + b*(d + e*x)**6*(A*b*e + 2*B*a*e -
3*B*b*d)/(6*e**4) + (d + e*x)**5*(a*e - b*d)*(2*A*b*e + B*a*e - 3
*B*b*d)/(5*e**4) + (d + e*x)**4*(A*e - B*d)*(a*e - b*d)**2/(4*e**
4)
```

Mathematica [A] time = 0.121081, size = 216, normalized size = 1.8

$$\frac{1}{4}x^4\left(a^2e^2(Ae+3Bd)+6abde(Ae+Bd)+b^2d^2(3Ae+Bd)\right)+\frac{1}{3}dx^3\left(A\left(3a^2e^2+6abde+b^2d^2\right)+aBd(3ae+2bd)\right)+\frac{1}{5}ex^5\left(a^2Be^2+2abe(Ae+3Bd)+3b^2d(Ae+Bd)\right)+a^2Ad^3x+\frac{1}{2}ad^2x^2(3aAe+aBd+2Abd)+\frac{1}{6}be^2x^6(2aBe+Abe+3bBd)+\frac{1}{7}b^2Be^3x^7$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^2*(A + B*x)*(d + e*x)^3,x]
```

```
[Out] a^2*A*d^3*x + (a*d^2*(2*A*b*d + a*B*d + 3*a*A*e)*x^2)/2 + (d*(a*B
*d*(2*b*d + 3*a*e) + A*(b^2*d^2 + 6*a*b*d*e + 3*a^2*e^2))*x^3)/3
+ ((6*a*b*d*e*(B*d + A*e) + a^2*e^2*(3*B*d + A*e) + b^2*d^2*(B*d
+ 3*A*e))*x^4)/4 + (e*(a^2*B*e^2 + 3*b^2*d*(B*d + A*e) + 2*a*b*e*
(3*B*d + A*e))*x^5)/5 + (b*e^2*(3*b*B*d + A*b*e + 2*a*B*e)*x^6)/6
 + (b^2*B*e^3*x^7)/7
```

Maple [B] time = 0.002, size = 237, normalized size = 2.

$$\frac{b^2Be^3x^7}{7}+\frac{\left(\left(b^2A+2\,Bba\right)e^3+3\,b^2Bde^2\right)x^6}{6}+\frac{\left(\left(2\,Aab+Ba^2\right)e^3+3\,\left(b^2A+2\,Bba\right)de^2+3\,b^2Bd^2e\right)x^5}{5}+\frac{\left(a^2Ae^3+3\,\left(2\,Aab+Ba^2\right)de^2+3\,\left(b^2A+2\,Bba\right)d^2e+b^2Bd^3\right)x^4}{4}+\frac{\left(3\,a^2Ade^2+3\,\left(2\,Aab+Ba^2\right)d^2e+\left(b^2A+2\,Bba\right)d^3\right)x^3}{3}+\frac{\left(3\,a^2Ad^2e+\left(2\,Aab+Ba^2\right)d^3\right)x^2}{2}+a^2Ad^3x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^2*(B*x+A)*(e*x+d)^3,x)
```

```
[Out] 1/7*b^2*B*e^3*x^7+1/6*((A*b^2+2*B*a*b)*e^3+3*b^2*B*d*e^2)*x^6+1/5
*((2*A*a*b+B*a^2)*e^3+3*(A*b^2+2*B*a*b)*d*e^2+3*b^2*B*d^2*e)*x^5+
1/4*(a^2*A*e^3+3*(2*A*a*b+B*a^2)*d*e^2+3*(A*b^2+2*B*a*b)*d^2*e+b^
2*B*d^3)*x^4+1/3*(3*a^2*A*d*e^2+3*(2*A*a*b+B*a^2)*d^2*e+(A*b^2+2*
B*a*b)*d^3)*x^3+1/2*(3*a^2*A*d^2*e+(2*A*a*b+B*a^2)*d^3)*x^2+a^2*A
*d^3*x
```

Maxima [A] time = 1.35192, size = 319, normalized size = 2.66

$$\frac{1}{7}\,Bb^2e^3x^7+Aa^2d^3x+\frac{1}{6}\left(3\,Bb^2de^2+\left(2\,Bab+Ab^2\right)e^3\right)x^6+\frac{1}{5}\left(3\,Bb^2d^2e+3\left(2\,Bab+Ab^2\right)de^2+\left(Ba^2+2\,Aab\right)e^3\right)x^5+\frac{1}{4}\left(Bb^2d^3+Aa^2e^3+3\left(2\,Bab+Ab^2\right)d^2e+3\left(Ba^2+2\,Aab\right)de^2\right)x^4+\frac{1}{3}\left(3\,Aa^2de^2+\left(2\,Bab+Ab^2\right)d^3+3\left(Ba^2+2\,Aab\right)d^2e\right)x^3+\frac{1}{2}\left(3\,Aa^2d^2e+\left(Ba^2+2\,Aab\right)d^3\right)x^2$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*(e*x + d)^3,x, algorithm="maxima")
```

```
[Out] 1/7*B*b^2*e^3*x^7 + A*a^2*d^3*x + 1/6*(3*B*b^2*d*e^2 + (2*B*a*b +
 A*b^2)*e^3)*x^6 + 1/5*(3*B*b^2*d^2*e + 3*(2*B*a*b + A*b^2)*d*e^2
 + (B*a^2 + 2*A*a*b)*e^3)*x^5 + 1/4*(B*b^2*d^3 + A*a^2*e^3 + 3*(2
*B*a*b + A*b^2)*d^2*e + 3*(B*a^2 + 2*A*a*b)*d*e^2)*x^4 + 1/3*(3*A
*a^2*d*e^2 + (2*B*a*b + A*b^2)*d^3 + 3*(B*a^2 + 2*A*a*b)*d^2*e)*x
^3 + 1/2*(3*A*a^2*d^2*e + (B*a^2 + 2*A*a*b)*d^3)*x^2
```

Fricas [A] time = 0.192586, size = 1, normalized size = 0.01

$$\frac{1}{7}x^7e^3b^2B + \frac{1}{2}x^6e^2db^2B + \frac{1}{3}x^6e^3baB + \frac{1}{6}x^6e^3b^2A + \frac{3}{5}x^5ed^2b^2B + \frac{6}{5}x^5e^2dbaB + \frac{1}{5}x^5e^3a^2B + \frac{3}{5}x^5e^2db^2A + \frac{2}{5}x^5e^3baA + \frac{1}{4}x^4d^3b^2B + \frac{3}{2}x^4ed^2baB + \frac{3}{4}x^4e^2da^2B + \frac{3}{4}x^4ed^2b^2A + \frac{3}{2}x^4e^2dbaA + \frac{1}{4}x^4e^3a^2A + \frac{2}{3}x^3d^3baB + x^3ed^2a^2B + \frac{1}{3}x^3d^3b^2A + 2x^3ed^2baA + x^3e^2da^2A + \frac{1}{2}x^2d^3a^2B + x^2d^3baA + \frac{3}{2}x^2ed^2a^2A + xd^3a^2A$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*(e*x + d)^3,x, algorithm="fricas")
```

```
[Out] 1/7*x^7*e^3*b^2*B + 1/2*x^6*e^2*d*b^2*B + 1/3*x^6*e^3*b*a*B + 1/6
*x^6*e^3*b^2*A + 3/5*x^5*e*d^2*b^2*B + 6/5*x^5*e^2*d*b*a*B + 1/5*
x^5*e^3*a^2*B + 3/5*x^5*e^2*d*b^2*A + 2/5*x^5*e^3*b*a*A + 1/4*x^4
*d^3*b^2*B + 3/2*x^4*e*d^2*b*a*B + 3/4*x^4*e^2*d*a^2*B + 3/4*x^4*
e*d^2*b^2*A + 3/2*x^4*e^2*d*b*a*A + 1/4*x^4*e^3*a^2*A + 2/3*x^3*d
^3*b*a*B + x^3*e*d^2*a^2*B + 1/3*x^3*d^3*b^2*A + 2*x^3*e*d^2*b*a*
A + x^3*e^2*d*a^2*A + 1/2*x^2*d^3*a^2*B + x^2*d^3*b*a*A + 3/2*x^2
*e*d^2*a^2*A + x*d^3*a^2*A
```

Sympy [A] time = 0.22338, size = 296, normalized size = 2.47

$$Aa^2d^3x + \frac{Bb^2e^3x^7}{7} + x^6\left(\frac{Ab^2e^3}{6} + \frac{Babe^3}{3} + \frac{Bb^2de^2}{2}\right) + x^5\left(\frac{2Aabe^3}{5} + \frac{3Ab^2de^2}{5} + \frac{Ba^2e^3}{5} + \frac{6Babde^2}{5} + \frac{3Bb^2d^2e}{5}\right) + x^4\left(\frac{Aa^2e^3}{4} + \frac{3Aabde^2}{2} + \frac{3Ab^2d^2e}{4} + \frac{3Ba^2de^2}{4} + \frac{3Babd^2e}{2} + \frac{Bb^2d^3}{4}\right) + x^3\left(Aa^2de^2 + 2Aabd^2e + \frac{Ab^2d^3}{3} + Ba^2d^2e + \frac{2Babd^3}{3}\right) + x^2\left(\frac{3Aa^2d^2e}{2} + Aabd^3 + \frac{Ba^2d^3}{2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**2*(B*x+A)*(e*x+d)**3,x)
```

```
[Out] A*a**2*d**3*x + B*b**2*e**3*x**7/7 + x**6*(A*b**2*e**3/6 + B*a*b*
e**3/3 + B*b**2*d*e**2/2) + x**5*(2*A*a*b*e**3/5 + 3*A*b**2*d*e**
2/5 + B*a**2*e**3/5 + 6*B*a*b*d*e**2/5 + 3*B*b**2*d**2*e/5) + x**
4*(A*a**2*e**3/4 + 3*A*a*b*d*e**2/2 + 3*A*b**2*d**2*e/4 + 3*B*a**
2*d*e**2/4 + 3*B*a*b*d**2*e/2 + B*b**2*d**3/4) + x**3*(A*a**2*d*e
**2 + 2*A*a*b*d**2*e + A*b**2*d**3/3 + B*a**2*d**2*e + 2*B*a*b*d*
*3/3) + x**2*(3*A*a**2*d**2*e/2 + A*a*b*d**3 + B*a**2*d**3/2)
```

GIAC/XCAS [A] time = 0.212746, size = 379, normalized size = 3.16

$$\frac{1}{7}Bb^2x^7e^3 + \frac{1}{2}Bb^2dx^6e^2 + \frac{3}{5}Bb^2d^2x^5e + \frac{1}{4}Bb^2d^3x^4 + \frac{1}{3}Babx^6e^3 + \frac{1}{6}Ab^2x^6e^3 + \frac{6}{5}Babdx^5e^2 + \frac{3}{5}Ab^2dx^5e^2 + \frac{3}{2}Babd^2x^4e + \frac{3}{4}Ab^2d^2x^4e + \frac{2}{3}Babd^3x^3 + \frac{1}{3}Ab^2d^3x^3 + \frac{1}{5}Ba^2x^5e^3 + \frac{2}{5}Aabx^5e^3 + \frac{3}{4}Ba^2dx^4e^2 + \frac{3}{2}Aabdx^4e^2 + Ba^2d^2x^3e + 2Aabd^2x^3e + \frac{1}{2}Ba^2d^3x^2 + Aabd^3x^2 + \frac{1}{4}Aa^2x^4e^3 + Aa^2dx^3e^2 + \frac{3}{2}Aa^2d^2x^2e + Aa^2d^3x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*(e*x + d)^3,x, algorithm="giac")
```

```
[Out] 1/7*B*b^2*x^7*e^3 + 1/2*B*b^2*d*x^6*e^2 + 3/5*B*b^2*d^2*x^5*e + 1
/4*B*b^2*d^3*x^4 + 1/3*B*a*b*x^6*e^3 + 1/6*A*b^2*x^6*e^3 + 6/5*B*
a*b*d*x^5*e^2 + 3/5*A*b^2*d*x^5*e^2 + 3/2*B*a*b*d^2*x^4*e + 3/4*A
*b^2*d^2*x^4*e + 2/3*B*a*b*d^3*x^3 + 1/3*A*b^2*d^3*x^3 + 1/5*B*a^
2*x^5*e^3 + 2/5*A*a*b*x^5*e^3 + 3/4*B*a^2*d*x^4*e^2 + 3/2*A*a*b*d
*x^4*e^2 + B*a^2*d^2*x^3*e + 2*A*a*b*d^2*x^3*e + 1/2*B*a^2*d^3*x^
2 + A*a*b*d^3*x^2 + 1/4*A*a^2*x^4*e^3 + A*a^2*d*x^3*e^2 + 3/2*A*a
^2*d^2*x^2*e + A*a^2*d^3*x
```

3.1007 $\int (a+bx)^2(A+Bx)(d+ex)^2\,dx$

Optimal. Leaf size=118

$$\frac{e(a+bx)^5(-3aBe+Abe+2bBd)}{5b^4}+\frac{(a+bx)^4(bd-ae)(-3aBe+2Abe+bBd)}{4b^4}+\frac{(a+bx)^3(Ab-aB)(bd-ae)^2}{3b^4}+\frac{Be^2(a+bx)^6}{6b^4}$$

```
[Out] ((A*b - a*B)*(b*d - a*e)^2*(a + b*x)^3)/(3*b^4) + ((b*d - a*e)*(b
*B*d + 2*A*b*e - 3*a*B*e)*(a + b*x)^4)/(4*b^4) + (e*(2*b*B*d + A*
b*e - 3*a*B*e)*(a + b*x)^5)/(5*b^4) + (B*e^2*(a + b*x)^6)/(6*b^4)
```

Rubi [A] time = 0.317168, antiderivative size = 118, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$\frac{e(a+bx)^5(-3aBe+Abe+2bBd)}{5b^4}+\frac{(a+bx)^4(bd-ae)(-3aBe+2Abe+bBd)}{4b^4}+\frac{(a+bx)^3(Ab-aB)(bd-ae)^2}{3b^4}+\frac{Be^2(a+bx)^6}{6b^4}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^2*(A + B*x)*(d + e*x)^2,x]
```

```
[Out] ((A*b - a*B)*(b*d - a*e)^2*(a + b*x)^3)/(3*b^4) + ((b*d - a*e)*(b
*B*d + 2*A*b*e - 3*a*B*e)*(a + b*x)^4)/(4*b^4) + (e*(2*b*B*d + A*
b*e - 3*a*B*e)*(a + b*x)^5)/(5*b^4) + (B*e^2*(a + b*x)^6)/(6*b^4)
```

Rubi in Sympy [A] time = 40.8849, size = 112, normalized size = 0.95

$$\frac{Be^2\left(a+bx\right)^6}{6b^4}+\frac{e\left(a+bx\right)^5\left(Abe-3Bae+2Bbd\right)}{5b^4}-\frac{\left(a+bx\right)^4\left(ae-bd\right)\left(2Abe-3Bae+Bbd\right)}{4b^4}+\frac{\left(a+bx\right)^3\left(Ab-Ba\right)\left(ae-bd\right)^2}{3b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**2*(B*x+A)*(e*x+d)**2,x)
```

```
[Out] B*e**2*(a + b*x)**6/(6*b**4) + e*(a + b*x)**5*(A*b*e - 3*B*a*e +
2*B*b*d)/(5*b**4) - (a + b*x)**4*(a*e - b*d)*(2*A*b*e - 3*B*a*e +
 B*b*d)/(4*b**4) + (a + b*x)**3*(A*b - B*a)*(a*e - b*d)**2/(3*b**
4)
```

Mathematica [A] time = 0.0875128, size = 157, normalized size = 1.33

$$\frac{1}{3}x^3\left(A\left(a^2e^2+4abde+b^2d^2\right)+2aBd(ae+bd)\right)+\frac{1}{4}x^4\left(a^2Be^2+2abe(Ae+2Bd)+b^2d(2Ae+Bd)\right)+a^2Ad^2x+\frac{1}{5}bex^5(2aBe+Abe+2bBd)+\frac{1}{2}adx^2(2A(ae+bd)+aBd)+\frac{1}{6}b^2Be^2x^6$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^2*(A + B*x)*(d + e*x)^2,x]
```

```
[Out] a^2*A*d^2*x + (a*d*(a*B*d + 2*A*(b*d + a*e))*x^2)/2 + ((2*a*B*d*(
b*d + a*e) + A*(b^2*d^2 + 4*a*b*d*e + a^2*e^2))*x^3)/3 + ((a^2*B*
```

```
e^2 + 2*a*b*e*(2*B*d + A*e) + b^2*d*(B*d + 2*A*e))*x^4)/4 + (b*e*
(2*b*B*d + A*b*e + 2*a*B*e)*x^5)/5 + (b^2*B*e^2*x^6)/6
```

Maple [A] time = 0.002, size = 169, normalized size = 1.4

$$\frac{b^2Be^2x^6}{6}+\frac{\left(\left(b^2A+2\,Bba\right)e^2+2\,b^2Bde\right)x^5}{5}+\frac{\left(\left(2\,Aab+Ba^2\right)e^2+2\,\left(b^2A+2\,Bba\right)de+b^2Bd^2\right)x^4}{4}+\frac{\left(a^2Ae^2+2\,\left(2\,Aab+Ba^2\right)de+\left(b^2A+2\,Bba\right)d^2\right)x^3}{3}+\frac{\left(2\,a^2Ade+\left(2\,Aab+Ba^2\right)d^2\right)x^2}{2}+a^2Ad^2x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^2*(B*x+A)*(e*x+d)^2,x)
```

```
[Out] 1/6*b^2*B*e^2*x^6+1/5*((A*b^2+2*B*a*b)*e^2+2*b^2*B*d*e)*x^5+1/4*(
(2*A*a*b+B*a^2)*e^2+2*(A*b^2+2*B*a*b)*d*e+b^2*B*d^2)*x^4+1/3*(a^2
*A*e^2+2*(2*A*a*b+B*a^2)*d*e+(A*b^2+2*B*a*b)*d^2)*x^3+1/2*(2*a^2*
A*d*e+(2*A*a*b+B*a^2)*d^2)*x^2+a^2*A*d^2*x
```

Maxima [A] time = 1.34709, size = 227, normalized size = 1.92

$$\frac{1}{6}\,Bb^2e^2x^6+Aa^2d^2x+\frac{1}{5}\left(2\,Bb^2de+\left(2\,Bab+Ab^2\right)e^2\right)x^5+\frac{1}{4}\left(Bb^2d^2+2\left(2\,Bab+Ab^2\right)de+\left(Ba^2+2\,Aab\right)e^2\right)x^4+\frac{1}{3}\left(Aa^2e^2+\left(2\,Bab+Ab^2\right)d^2+2\left(Ba^2+2\,Aab\right)de\right)x^3+\frac{1}{2}\left(2\,Aa^2de+\left(Ba^2+2\,Aab\right)d^2\right)x^2$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*(e*x + d)^2,x, algorithm="maxima")
```

```
[Out] 1/6*B*b^2*e^2*x^6 + A*a^2*d^2*x + 1/5*(2*B*b^2*d*e + (2*B*a*b + A
*b^2)*e^2)*x^5 + 1/4*(B*b^2*d^2 + 2*(2*B*a*b + A*b^2)*d*e + (B*a^
2 + 2*A*a*b)*e^2)*x^4 + 1/3*(A*a^2*e^2 + (2*B*a*b + A*b^2)*d^2 +
2*(B*a^2 + 2*A*a*b)*d*e)*x^3 + 1/2*(2*A*a^2*d*e + (B*a^2 + 2*A*a*
b)*d^2)*x^2
```

Fricas [A] time = 0.185555, size = 1, normalized size = 0.01

$$\frac{1}{6}x^6e^2b^2B+\frac{2}{5}x^5edb^2B+\frac{2}{5}x^5e^2baB+\frac{1}{5}x^5e^2b^2A+\frac{1}{4}x^4d^2b^2B+x^4edbaB+\frac{1}{4}x^4e^2a^2B+\frac{1}{2}x^4edb^2A+\frac{1}{2}x^4e^2baA+\frac{2}{3}x^3d^2baB+\frac{2}{3}x^3eda^2B+\frac{1}{3}x^3d^2b^2A+\frac{4}{3}x^3edbaA+\frac{1}{3}x^3e^2a^2A+\frac{1}{2}x^2d^2a^2B+x^2d^2baA+x^2eda^2A+xd^2a^2A$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*(e*x + d)^2,x, algorithm="fricas")
```

```
[Out] 1/6*x^6*e^2*b^2*B + 2/5*x^5*e*d*b^2*B + 2/5*x^5*e^2*b*a*B + 1/5*x
^5*e^2*b^2*A + 1/4*x^4*d^2*b^2*B + x^4*e*d*b*a*B + 1/4*x^4*e^2*a^
2*B + 1/2*x^4*e*d*b^2*A + 1/2*x^4*e^2*b*a*A + 2/3*x^3*d^2*b*a*B +
 2/3*x^3*e*d*a^2*B + 1/3*x^3*d^2*b^2*A + 4/3*x^3*e*d*b*a*A + 1/3*
x^3*e^2*a^2*A + 1/2*x^2*d^2*a^2*B + x^2*d^2*b*a*A + x^2*e*d*a^2*A
 + x*d^2*a^2*A
```

Sympy [A] time = 0.180842, size = 202, normalized size = 1.71

$$Aa^2d^2x + \frac{Bb^2e^2x^6}{6} + x^5\left(\frac{Ab^2e^2}{5} + \frac{2Babe^2}{5} + \frac{2Bb^2de}{5}\right) + x^4\left(\frac{Aabe^2}{2} + \frac{Ab^2de}{2} + \frac{Ba^2e^2}{4} + Babde + \frac{Bb^2d^2}{4}\right) + x^3\left(\frac{Aa^2e^2}{3} + \frac{4Aabde}{3} + \frac{Ab^2d^2}{3} + \frac{2Ba^2de}{3} + \frac{2Babd^2}{3}\right) + x^2\left(Aa^2de + Aabd^2 + \frac{Ba^2d^2}{2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**2*(B*x+A)*(e*x+d)**2,x)
```

```
[Out] A*a**2*d**2*x + B*b**2*e**2*x**6/6 + x**5*(A*b**2*e**2/5 + 2*B*a*
b*e**2/5 + 2*B*b**2*d*e/5) + x**4*(A*a*b*e**2/2 + A*b**2*d*e/2 +
B*a**2*e**2/4 + B*a*b*d*e + B*b**2*d**2/4) + x**3*(A*a**2*e**2/3
+ 4*A*a*b*d*e/3 + A*b**2*d**2/3 + 2*B*a**2*d*e/3 + 2*B*a*b*d**2/3
) + x**2*(A*a**2*d*e + A*a*b*d**2 + B*a**2*d**2/2)
```

GIAC/XCAS [A] time = 0.21072, size = 269, normalized size = 2.28

$$\frac{1}{6}Bb^2x^6e^2 + \frac{2}{5}Bb^2dx^5e + \frac{1}{4}Bb^2d^2x^4 + \frac{2}{5}Babx^5e^2 + \frac{1}{5}Ab^2x^5e^2 + Babdx^4e + \frac{1}{2}Ab^2dx^4e + \frac{2}{3}Babd^2x^3 + \frac{1}{3}Ab^2d^2x^3 + \frac{1}{4}Ba^2x^4e^2 + \frac{1}{2}Aabx^4e^2 + \frac{2}{3}Ba^2dx^3e + \frac{4}{3}Aabdx^3e + \frac{1}{2}Ba^2d^2x^2 + Aabd^2x^2 + \frac{1}{3}Aa^2x^3e^2 + Aa^2dx^2e + Aa^2d^2x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*(e*x + d)^2,x, algorithm="giac")
```

```
[Out] 1/6*B*b^2*x^6*e^2 + 2/5*B*b^2*d*x^5*e + 1/4*B*b^2*d^2*x^4 + 2/5*B
*a*b*x^5*e^2 + 1/5*A*b^2*x^5*e^2 + B*a*b*d*x^4*e + 1/2*A*b^2*d*x^
4*e + 2/3*B*a*b*d^2*x^3 + 1/3*A*b^2*d^2*x^3 + 1/4*B*a^2*x^4*e^2 +
 1/2*A*a*b*x^4*e^2 + 2/3*B*a^2*d*x^3*e + 4/3*A*a*b*d*x^3*e + 1/2*
B*a^2*d^2*x^2 + A*a*b*d^2*x^2 + 1/3*A*a^2*x^3*e^2 + A*a^2*d*x^2*e
 + A*a^2*d^2*x
```

3.1008 $\int (a+bx)^2(A+Bx)(d+ex)\,dx$

Optimal. Leaf size=75

$$\frac{(a+bx)^4(-2aBe+Abe+bBd)}{4b^3}+\frac{(a+bx)^3(Ab-aB)(bd-ae)}{3b^3}+\frac{Be(a+bx)^5}{5b^3}$$

```
[Out] ((A*b - a*B)*(b*d - a*e)*(a + b*x)^3)/(3*b^3) + ((b*B*d + A*b*e -
 2*a*B*e)*(a + b*x)^4)/(4*b^3) + (B*e*(a + b*x)^5)/(5*b^3)
```

Rubi [A] time = 0.172595, antiderivative size = 75, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{(a+bx)^4(-2aBe+Abe+bBd)}{4b^3}+\frac{(a+bx)^3(Ab-aB)(bd-ae)}{3b^3}+\frac{Be(a+bx)^5}{5b^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^2*(A + B*x)*(d + e*x),x]
```

```
[Out] ((A*b - a*B)*(b*d - a*e)*(a + b*x)^3)/(3*b^3) + ((b*B*d + A*b*e -
 2*a*B*e)*(a + b*x)^4)/(4*b^3) + (B*e*(a + b*x)^5)/(5*b^3)
```

Rubi in Sympy [A] time = 22.0623, size = 68, normalized size = 0.91

$$\frac{Be\,(a+bx)^5}{5b^3}+\frac{(a+bx)^4\,(Abe-2Bae+Bbd)}{4b^3}-\frac{(a+bx)^3\,(Ab-Ba)\,(ae-bd)}{3b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**2*(B*x+A)*(e*x+d),x)
```

```
[Out] B*e*(a + b*x)**5/(5*b**3) + (a + b*x)**4*(A*b*e - 2*B*a*e + B*b*d
)/(4*b**3) - (a + b*x)**3*(A*b - B*a)*(a*e - b*d)/(3*b**3)
```

Mathematica [A] time = 0.0450914, size = 96, normalized size = 1.28

$$\frac{1}{3}x^3\left(a^2Be+2aAbe+2abBd+Ab^2d\right)+a^2Adx+\frac{1}{4}bx^4(2aBe+Abe+bBd)+\frac{1}{2}ax^2(aAe+aBd+2Abd)+\frac{1}{5}b^2Bex^5$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^2*(A + B*x)*(d + e*x),x]
```

```
[Out] a^2*A*d*x + (a*(2*A*b*d + a*B*d + a*A*e)*x^2)/2 + ((A*b^2*d + 2*a
*b*B*d + 2*a*A*b*e + a^2*B*e)*x^3)/3 + (b*(b*B*d + A*b*e + 2*a*B*
e)*x^4)/4 + (b^2*B*e*x^5)/5
```

Maple [A] time = 0.001, size = 101, normalized size = 1.4

$$\frac{b^2Bex^5}{5}+\frac{\left((b^2A+2\,Bba)\,e+b^2Bd\right)x^4}{4}+\frac{\left((2\,Aab+Ba^2)\,e+(b^2A+2\,Bba)\,d\right)x^3}{3}+\frac{\left(a^2Ae+(2\,Aab+Ba^2)\,d\right)x^2}{2}+a^2Adx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^2*(B*x+A)*(e*x+d),x)
```

```
[Out] 1/5*b^2*B*e*x^5+1/4*((A*b^2+2*B*a*b)*e+b^2*B*d)*x^4+1/3*((2*A*a*b
+B*a^2)*e+(A*b^2+2*B*a*b)*d)*x^3+1/2*(a^2*A*e+(2*A*a*b+B*a^2)*d)*
x^2+a^2*A*d*x
```

Maxima [A] time = 1.34603, size = 135, normalized size = 1.8

$$\frac{1}{5}Bb^2ex^5 + Aa^2dx + \frac{1}{4}\left(Bb^2d + \left(2Bab + Ab^2\right)e\right)x^4 + \frac{1}{3}\left(\left(2Bab + Ab^2\right)d + \left(Ba^2 + 2Aab\right)e\right)x^3 + \frac{1}{2}\left(Aa^2e + \left(Ba^2 + 2Aab\right)d\right)x^2$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*(e*x + d),x, algorithm="maxima")
```

```
[Out] 1/5*B*b^2*e*x^5 + A*a^2*d*x + 1/4*(B*b^2*d + (2*B*a*b + A*b^2)*e)
*x^4 + 1/3*((2*B*a*b + A*b^2)*d + (B*a^2 + 2*A*a*b)*e)*x^3 + 1/2*
(A*a^2*e + (B*a^2 + 2*A*a*b)*d)*x^2
```

Fricas [A] time = 0.182706, size = 1, normalized size = 0.01

$$\frac{1}{5}x^5eb^2B + \frac{1}{4}x^4db^2B + \frac{1}{2}x^4ebaB + \frac{1}{4}x^4eb^2A + \frac{2}{3}x^3dbaB + \frac{1}{3}x^3ea^2B + \frac{1}{3}x^3db^2A + \frac{2}{3}x^3ebaA + \frac{1}{2}x^2da^2B + x^2dbaA + \frac{1}{2}x^2ea^2A + xda^2A$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*(e*x + d),x, algorithm="fricas")
```

```
[Out] 1/5*x^5*e*b^2*B + 1/4*x^4*d*b^2*B + 1/2*x^4*e*b*a*B + 1/4*x^4*e*b
^2*A + 2/3*x^3*d*b*a*B + 1/3*x^3*e*a^2*B + 1/3*x^3*d*b^2*A + 2/3*
x^3*e*b*a*A + 1/2*x^2*d*a^2*B + x^2*d*b*a*A + 1/2*x^2*e*a^2*A + x
*d*a^2*A
```

Sympy [A] time = 0.131955, size = 116, normalized size = 1.55

$$Aa^2dx + \frac{Bb^2ex^5}{5} + x^4\left(\frac{Ab^2e}{4} + \frac{Babe}{2} + \frac{Bb^2d}{4}\right) + x^3\left(\frac{2Aabe}{3} + \frac{Ab^2d}{3} + \frac{Ba^2e}{3} + \frac{2Babd}{3}\right) + x^2\left(\frac{Aa^2e}{2} + Aabd + \frac{Ba^2d}{2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**2*(B*x+A)*(e*x+d),x)
```

```
[Out] A*a**2*d*x + B*b**2*e*x**5/5 + x**4*(A*b**2*e/4 + B*a*b*e/2 + B*b
**2*d/4) + x**3*(2*A*a*b*e/3 + A*b**2*d/3 + B*a**2*e/3 + 2*B*a*b*
d/3) + x**2*(A*a**2*e/2 + A*a*b*d + B*a**2*d/2)
```

GIAC/XCAS [A] time = 0.216294, size = 161, normalized size = 2.15

$$\frac{1}{5}\,Bb^2x^5e+\frac{1}{4}\,Bb^2dx^4+\frac{1}{2}\,Babx^4e+\frac{1}{4}\,Ab^2x^4e+\frac{2}{3}\,Babdx^3+\frac{1}{3}\,Ab^2dx^3+\frac{1}{3}\,Ba^2x^3e+\frac{2}{3}\,Aabx^3e+\frac{1}{2}\,Ba^2dx^2+Aabdx^2+\frac{1}{2}\,Aa^2x^2e+Aa^2dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*(e*x + d),x, algorithm="giac")
```

```
[Out] 1/5*B*b^2*x^5*e + 1/4*B*b^2*d*x^4 + 1/2*B*a*b*x^4*e + 1/4*A*b^2*x
^4*e + 2/3*B*a*b*d*x^3 + 1/3*A*b^2*d*x^3 + 1/3*B*a^2*x^3*e + 2/3*
A*a*b*x^3*e + 1/2*B*a^2*d*x^2 + A*a*b*d*x^2 + 1/2*A*a^2*x^2*e + A
*a^2*d*x
```

3.1009 $\int (a+bx)^2(A+Bx)\,dx$

Optimal. Leaf size=38

$$\frac{(a+bx)^3(Ab-aB)}{3b^2}+\frac{B(a+bx)^4}{4b^2}$$

```
[Out] ((A*b - a*B)*(a + b*x)^3)/(3*b^2) + (B*(a + b*x)^4)/(4*b^2)
```

Rubi [A] time = 0.0675366, antiderivative size = 38, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 13, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.077

$$\frac{(a+bx)^3(Ab-aB)}{3b^2}+\frac{B(a+bx)^4}{4b^2}$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*x)^2*(A + B*x),x]

[Out] ((A*b - a*B)*(a + b*x)^3)/(3*b^2) + (B*(a + b*x)^4)/(4*b^2)
```

Rubi in Sympy [A] time = 9.44801, size = 31, normalized size = 0.82

$$\frac{B(a+bx)^4}{4b^2}+\frac{(a+bx)^3(Ab-Ba)}{3b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)**2*(B*x+A),x)

[Out] B*(a + b*x)**4/(4*b**2) + (a + b*x)**3*(A*b - B*a)/(3*b**2)
```

Mathematica [A] time = 0.0153297, size = 46, normalized size = 1.21

$$\frac{1}{12}x\left(6a^2(2A+Bx)+4abx(3A+2Bx)+b^2x^2(4A+3Bx)\right)$$

Antiderivative was successfully verified.

```
[In] Integrate[(a + b*x)^2*(A + B*x),x]

[Out] (x*(6*a^2*(2*A + B*x) + 4*a*b*x*(3*A + 2*B*x) + b^2*x^2*(4*A + 3*
B*x)))/12
```

Maple [A] time = 0., size = 49, normalized size = 1.3

$$\frac{b^2Bx^4}{4}+\frac{(b^2A+2\,Bba)\,x^3}{3}+\frac{(2\,Aab+Ba^2)\,x^2}{2}+a^2Ax$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((b*x+a)^2*(B*x+A),x)

[Out] 1/4*b^2*B*x^4+1/3*(A*b^2+2*B*a*b)*x^3+1/2*(2*A*a*b+B*a^2)*x^2+a^2
*A*x
```

Maxima [A] time = 1.3408, size = 65, normalized size = 1.71

$$\frac{1}{4}\,Bb^2x^4 + Aa^2x + \frac{1}{3}\,\left(2\,Bab + Ab^2\right)x^3 + \frac{1}{2}\,\left(Ba^2 + 2\,Aab\right)x^2$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2,x, algorithm="maxima")
```

```
[Out] 1/4*B*b^2*x^4 + A*a^2*x + 1/3*(2*B*a*b + A*b^2)*x^3 + 1/2*(B*a^2
+ 2*A*a*b)*x^2
```

Fricas [A] time = 0.183825, size = 1, normalized size = 0.03

$$\frac{1}{4}x^4b^2B + \frac{2}{3}x^3baB + \frac{1}{3}x^3b^2A + \frac{1}{2}x^2a^2B + x^2baA + xa^2A$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2,x, algorithm="fricas")
```

```
[Out] 1/4*x^4*b^2*B + 2/3*x^3*b*a*B + 1/3*x^3*b^2*A + 1/2*x^2*a^2*B + x
^2*b*a*A + x*a^2*A
```

Sympy [A] time = 0.112135, size = 49, normalized size = 1.29

$$Aa^2x + \frac{Bb^2x^4}{4} + x^3\left(\frac{Ab^2}{3} + \frac{2Bab}{3}\right) + x^2\left(Aab + \frac{Ba^2}{2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**2*(B*x+A),x)
```

```
[Out] A*a**2*x + B*b**2*x**4/4 + x**3*(A*b**2/3 + 2*B*a*b/3) + x**2*(A*
a*b + B*a**2/2)
```

GIAC/XCAS [A] time = 0.212113, size = 66, normalized size = 1.74

$$\frac{1}{4}\,Bb^2x^4 + \frac{2}{3}\,Babx^3 + \frac{1}{3}\,Ab^2x^3 + \frac{1}{2}\,Ba^2x^2 + Aabx^2 + Aa^2x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2,x, algorithm="giac")
```

```
[Out] 1/4*B*b^2*x^4 + 2/3*B*a*b*x^3 + 1/3*A*b^2*x^3 + 1/2*B*a^2*x^2 + A
*a*b*x^2 + A*a^2*x
```

3.1010 $\int \frac{(a+bx)^2(A+Bx)}{d+ex}\,dx$

Optimal. Leaf size=92

$$-\frac{(bd-ae)^2(Bd-Ae)\log(d+ex)}{e^4}+\frac{bx(bd-ae)(Bd-Ae)}{e^3}-\frac{(a+bx)^2(Bd-Ae)}{2e^2}+\frac{B(a+bx)^3}{3be}$$

```
[Out] (b*(b*d - a*e)*(B*d - A*e)*x)/e^3 - ((B*d - A*e)*(a + b*x)^2)/(2*
e^2) + (B*(a + b*x)^3)/(3*b*e) - ((b*d - a*e)^2*(B*d - A*e)*Log[d
 + e*x])/e^4
```

Rubi [A] time = 0.151674, antiderivative size = 92, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{(bd-ae)^2(Bd-Ae)\log(d+ex)}{e^4}+\frac{bx(bd-ae)(Bd-Ae)}{e^3}-\frac{(a+bx)^2(Bd-Ae)}{2e^2}+\frac{B(a+bx)^3}{3be}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^2*(A + B*x))/(d + e*x),x]
```

```
[Out] (b*(b*d - a*e)*(B*d - A*e)*x)/e^3 - ((B*d - A*e)*(a + b*x)^2)/(2*
e^2) + (B*(a + b*x)^3)/(3*b*e) - ((b*d - a*e)^2*(B*d - A*e)*Log[d
 + e*x])/e^4
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{B\left(a+bx\right)^3}{3be}+\frac{\left(a+bx\right)^2\left(Ae-Bd\right)}{2e^2}+\frac{\left(Ae-Bd\right)\left(ae-bd\right)\int b\,dx}{e^3}+\frac{\left(Ae-Bd\right)\left(ae-bd\right)^2\log\left(d+ex\right)}{e^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**2*(B*x+A)/(e*x+d),x)
```

```
[Out] B*(a + b*x)**3/(3*b*e) + (a + b*x)**2*(A*e - B*d)/(2*e**2) + (A*e
 - B*d)*(a*e - b*d)*Integral(b, x)/e**3 + (A*e - B*d)*(a*e - b*d)
**2*log(d + e*x)/e**4
```

Mathematica [A] time = 0.0969161, size = 102, normalized size = 1.11

$$\frac{ex\left(6a^2Be^2+6abe(2Ae-2Bd+Bex)+b^2\left(3Ae(ex-2d)+B\left(6d^2-3dex+2e^2x^2\right)\right)\right)-6(bd-ae)^2(Bd-Ae)\log(d+ex)}{6e^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^2*(A + B*x))/(d + e*x),x]
```

```
[Out] (e*x*(6*a^2*B*e^2 + 6*a*b*e*(-2*B*d + 2*A*e + B*e*x) + b^2*(3*A*e
*(-2*d + e*x) + B*(6*d^2 - 3*d*e*x + 2*e^2*x^2))) - 6*(b*d - a*e)
^2*(B*d - A*e)*Log[d + e*x])/(6*e^4)
```

Maple [B] time = 0.006, size = 197, normalized size = 2.1

$$\frac{Bb^2x^3}{3\,e}+\frac{Ab^2x^2}{2\,e}+\frac{Bx^2ab}{e}-\frac{b^2Bx^2d}{2\,e^2}+2\,\frac{aAbx}{e}-\frac{b^2Adx}{e^2}+\frac{a^2Bx}{e}-2\,\frac{Bbadx}{e^2}+\frac{b^2Bd^2x}{e^3}+\frac{\ln\left(ex+d\right)a^2A}{e}-2\,\frac{\ln\left(ex+d\right)Aabd}{e^2}+\frac{\ln\left(ex+d\right)Ab^2d^2}{e^3}-\frac{\ln\left(ex+d\right)Ba^2d}{e^2}+2\,\frac{\ln\left(ex+d\right)Babd^2}{e^3}-\frac{\ln\left(ex+d\right)b^2Bd^3}{e^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^2*(B*x+A)/(e*x+d),x)
```

```
[Out] 1/3/e*B*b^2*x^3+1/2/e*A*x^2*b^2+1/e*B*x^2*a*b-1/2/e^2*B*x^2*b^2*d
+2/e*A*a*b*x-1/e^2*A*b^2*d*x+1/e*B*a^2*x-2/e^2*B*a*b*d*x+1/e^3*b^
2*B*d^2*x+1/e*ln(e*x+d)*a^2*A-2/e^2*ln(e*x+d)*A*a*b*d+1/e^3*ln(e*
x+d)*A*b^2*d^2-1/e^2*ln(e*x+d)*B*a^2*d+2/e^3*ln(e*x+d)*B*a*b*d^2-
1/e^4*ln(e*x+d)*b^2*B*d^3
```

Maxima [A] time = 1.34764, size = 205, normalized size = 2.23

$$\frac{2\,Bb^2e^2x^3 - 3\left(Bb^2de - \left(2\,Bab + Ab^2\right)e^2\right)x^2 + 6\left(Bb^2d^2 - \left(2\,Bab + Ab^2\right)de + \left(Ba^2 + 2\,Aab\right)e^2\right)x}{6\,e^3} - \frac{\left(Bb^2d^3 - Aa^2e^3 - \left(2\,Bab + Ab^2\right)d^2e + \left(Ba^2 + 2\,Aab\right)de^2\right)\log\left(ex + d\right)}{e^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/(e*x + d),x, algorithm="maxima")
```

```
[Out] 1/6*(2*B*b^2*e^2*x^3 - 3*(B*b^2*d*e - (2*B*a*b + A*b^2)*e^2)*x^2
+ 6*(B*b^2*d^2 - (2*B*a*b + A*b^2)*d*e + (B*a^2 + 2*A*a*b)*e^2)*x
)/e^3 - (B*b^2*d^3 - A*a^2*e^3 - (2*B*a*b + A*b^2)*d^2*e + (B*a^2
 + 2*A*a*b)*d*e^2)*log(e*x + d)/e^4
```

Fricas [A] time = 0.209497, size = 207, normalized size = 2.25

$$\frac{2\,Bb^2e^3x^3 - 3\left(Bb^2de^2 - \left(2\,Bab + Ab^2\right)e^3\right)x^2 + 6\left(Bb^2d^2e - \left(2\,Bab + Ab^2\right)de^2 + \left(Ba^2 + 2\,Aab\right)e^3\right)x - 6\left(Bb^2d^3 - Aa^2e^3 - (\right.}{6\,e^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/(e*x + d),x, algorithm="fricas")
```

```
[Out] 1/6*(2*B*b^2*e^3*x^3 - 3*(B*b^2*d*e^2 - (2*B*a*b + A*b^2)*e^3)*x^
2 + 6*(B*b^2*d^2*e - (2*B*a*b + A*b^2)*d*e^2 + (B*a^2 + 2*A*a*b)*
e^3)*x - 6*(B*b^2*d^3 - A*a^2*e^3 - (2*B*a*b + A*b^2)*d^2*e + (B*
a^2 + 2*A*a*b)*d*e^2)*log(e*x + d))/e^4
```

Sympy [A] time = 2.63925, size = 117, normalized size = 1.27

$$\frac{Bb^2x^3}{3e} + \frac{x^2\left(Ab^2e + 2Babe - Bb^2d\right)}{2e^2} + \frac{x\left(2Aabe^2 - Ab^2de + Ba^2e^2 - 2Babde + Bb^2d^2\right)}{e^3} - \frac{\left(-Ae + Bd\right)\left(ae - bd\right)^2\log\left(d + ex\right)}{e^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**2*(B*x+A)/(e*x+d),x)
```

```
[Out] B*b**2*x**3/(3*e) + x**2*(A*b**2*e + 2*B*a*b*e - B*b**2*d)/(2*e**
2) + x*(2*A*a*b*e**2 - A*b**2*d*e + B*a**2*e**2 - 2*B*a*b*d*e + B
*b**2*d**2)/e**3 - (-A*e + B*d)*(a*e - b*d)**2*log(d + e*x)/e**4
```

GIAC/XCAS [A] time = 0.221417, size = 219, normalized size = 2.38

$$-\left(Bb^2d^3 - 2\,Babd^2e - Ab^2d^2e + Ba^2de^2 + 2\,Aabde^2 - Aa^2e^3\right)e^{(-4)}\ln\left(|xe + d|\right) + \frac{1}{6}\left(2\,Bb^2x^3e^2 - 3\,Bb^2dx^2e + 6\,Bb^2d^2x + 6\,Babx^2e^2 + 3\,Ab^2x^2e^2 - 12\,Babdxe - 6\,Ab^2dxe + 6\,Ba^2xe^2 + 12\,Aabxe^2\right)e^{(-3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/(e*x + d),x, algorithm="giac")
```

```
[Out] -(B*b^2*d^3 - 2*B*a*b*d^2*e - A*b^2*d^2*e + B*a^2*d*e^2 + 2*A*a*b
*d*e^2 - A*a^2*e^3)*e^(-4)*ln(abs(x*e + d)) + 1/6*(2*B*b^2*x^3*e^
2 - 3*B*b^2*d*x^2*e + 6*B*b^2*d^2*x + 6*B*a*b*x^2*e^2 + 3*A*b^2*x
^2*e^2 - 12*B*a*b*d*x*e - 6*A*b^2*d*x*e + 6*B*a^2*x*e^2 + 12*A*a*
b*x*e^2)*e^(-3)
```

3.1011 $\int \frac{(a+bx)^2(A+Bx)}{(d+ex)^2} dx$

Optimal. Leaf size=101

$$\frac{(bd-ae)^2(Bd-Ae)}{e^4(d+ex)}+\frac{(bd-ae)\log(d+ex)(-aBe-2Abe+3bBd)}{e^4}-\frac{bx(-2aBe-Abe+2bBd)}{e^3}+\frac{b^2Bx^2}{2e^2}$$

```
[Out] -((b*(2*b*B*d - A*b*e - 2*a*B*e)*x)/e^3) + (b^2*B*x^2)/(2*e^2) +
((b*d - a*e)^2*(B*d - A*e))/(e^4*(d + e*x)) + ((b*d - a*e)*(3*b*B
*d - 2*A*b*e - a*B*e)*Log[d + e*x])/e^4
```

Rubi [A] time = 0.246652, antiderivative size = 101, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$\frac{(bd-ae)^2(Bd-Ae)}{e^4(d+ex)}+\frac{(bd-ae)\log(d+ex)(-aBe-2Abe+3bBd)}{e^4}-\frac{bx(-2aBe-Abe+2bBd)}{e^3}+\frac{b^2Bx^2}{2e^2}$$

Antiderivative was successfully verified.

```
[In] Int[((a + b*x)^2*(A + B*x))/(d + e*x)^2,x]
```

```
[Out] -((b*(2*b*B*d - A*b*e - 2*a*B*e)*x)/e^3) + (b^2*B*x^2)/(2*e^2) +
((b*d - a*e)^2*(B*d - A*e))/(e^4*(d + e*x)) + ((b*d - a*e)*(3*b*B
*d - 2*A*b*e - a*B*e)*Log[d + e*x])/e^4
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{Bb^2\int x\,dx}{e^2}+\frac{(Abe+2Bae-2Bbd)\int b\,dx}{e^3}+\frac{(ae-bd)(2Abe+Bae-3Bbd)\log(d+ex)}{e^4}-\frac{(Ae-Bd)(ae-bd)^2}{e^4(d+ex)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)**2*(B*x+A)/(e*x+d)**2,x)
```

```
[Out] B*b**2*Integral(x, x)/e**2 + (A*b*e + 2*B*a*e - 2*B*b*d)*Integral
(b, x)/e**3 + (a*e - b*d)*(2*A*b*e + B*a*e - 3*B*b*d)*log(d + e*x
)/e**4 - (A*e - B*d)*(a*e - b*d)**2/(e**4*(d + e*x))
```

Mathematica [A] time = 0.140953, size = 98, normalized size = 0.97

$$\frac{\frac{2(bd-ae)^2(Bd-Ae)}{d+ex}+2bex(2aBe+Abe-2bBd)+2(bd-ae)\log(d+ex)(-aBe-2Abe+3bBd)+b^2Be^2x^2}{2e^4}$$

Antiderivative was successfully verified.

```
[In] Integrate[((a + b*x)^2*(A + B*x))/(d + e*x)^2,x]
```

```
[Out] (2*b*e*(-2*b*B*d + A*b*e + 2*a*B*e)*x + b^2*B*e^2*x^2 + (2*(b*d -
 a*e)^2*(B*d - A*e))/(d + e*x) + 2*(b*d - a*e)*(3*b*B*d - 2*A*b*e
 - a*B*e)*Log[d + e*x])/(2*e^4)
```

Maple [B] time = 0.013, size = 223, normalized size = 2.2

$$\frac{b^2Bx^2}{2\,e^2}+\frac{b^2Ax}{e^2}+2\,\frac{Bbax}{e^2}-2\,\frac{b^2Bdx}{e^3}+2\,\frac{\ln(ex+d)\,Aab}{e^2}-2\,\frac{\ln(ex+d)\,Ab^2d}{e^3}+\frac{\ln(ex+d)\,Ba^2}{e^2}-4\,\frac{\ln(ex+d)\,Babd}{e^3}+3\,\frac{\ln(ex+d)\,b^2Bd^2}{e^4}-\frac{a^2A}{e\,(ex+d)}+2\,\frac{Adab}{e^2\,(ex+d)}-\frac{b^2Ad^2}{e^3\,(ex+d)}+\frac{Bda^2}{e^2\,(ex+d)}-2\,\frac{abd^2B}{e^3\,(ex+d)}+\frac{b^2Bd^3}{e^4\,(ex+d)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^2*(B*x+A)/(e*x+d)^2,x)
```

```
[Out] 1/2*b^2*B*x^2/e^2+b^2/e^2*A*x+2*b/e^2*B*a*x-2*b^2/e^3*B*d*x+2/e^2
*ln(e*x+d)*A*a*b-2/e^3*ln(e*x+d)*A*b^2*d+1/e^2*ln(e*x+d)*B*a^2-4/
e^3*ln(e*x+d)*B*a*b*d+3/e^4*ln(e*x+d)*b^2*B*d^2-1/e/(e*x+d)*a^2*A
+2/e^2/(e*x+d)*A*d*a*b-1/e^3/(e*x+d)*A*b^2*d^2+1/e^2/(e*x+d)*B*d*
a^2-2/e^3/(e*x+d)*B*a*b*d^2+1/e^4/(e*x+d)*b^2*B*d^3
```

Maxima [A] time = 1.35124, size = 211, normalized size = 2.09

$$\frac{Bb^2d^3-Aa^2e^3-\left(2\,Bab+Ab^2\right)d^2e+\left(Ba^2+2\,Aab\right)de^2}{e^5x+de^4}+\frac{Bb^2ex^2-2\left(2\,Bb^2d-\left(2\,Bab+Ab^2\right)e\right)x}{2\,e^3}+\frac{\left(3\,Bb^2d^2-2\left(2\,Bab+Ab^2\right)de+\left(Ba^2+2\,Aab\right)e^2\right)\log\left(ex+d\right)}{e^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/(e*x + d)^2,x, algorithm="maxima")
```

```
[Out] (B*b^2*d^3 - A*a^2*e^3 - (2*B*a*b + A*b^2)*d^2*e + (B*a^2 + 2*A*a
*b)*d*e^2)/(e^5*x + d*e^4) + 1/2*(B*b^2*e*x^2 - 2*(2*B*b^2*d - (2
*B*a*b + A*b^2)*e)*x)/e^3 + (3*B*b^2*d^2 - 2*(2*B*a*b + A*b^2)*d*
e + (B*a^2 + 2*A*a*b)*e^2)*log(e*x + d)/e^4
```

Fricas [A] time = 0.207154, size = 321, normalized size = 3.18

$$Bb^2e^3x^3+2\,Bb^2d^3-2\,Aa^2e^3-2\left(2\,Bab+Ab^2\right)d^2e+2\left(Ba^2+2\,Aab\right)de^2-\left(3\,Bb^2de^2-2\left(2\,Bab+Ab^2\right)e^3\right)x^2-2\,(2\,Bb^2d^2$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/(e*x + d)^2,x, algorithm="fricas")
```

```
[Out] 1/2*(B*b^2*e^3*x^3 + 2*B*b^2*d^3 - 2*A*a^2*e^3 - 2*(2*B*a*b + A*b
^2)*d^2*e + 2*(B*a^2 + 2*A*a*b)*d*e^2 - (3*B*b^2*d*e^2 - 2*(2*B*a
*b + A*b^2)*e^3)*x^2 - 2*(2*B*b^2*d^2*e - (2*B*a*b + A*b^2)*d*e^2
)*x + 2*(3*B*b^2*d^3 - 2*(2*B*a*b + A*b^2)*d^2*e + (B*a^2 + 2*A*a
*b)*d*e^2 + (3*B*b^2*d^2*e - 2*(2*B*a*b + A*b^2)*d*e^2 + (B*a^2 +
 2*A*a*b)*e^3)*x)*log(e*x + d))/(e^5*x + d*e^4)
```

Sympy [A] time = 4.73731, size = 148, normalized size = 1.47

$$\frac{Bb^2x^2}{2e^2}+\frac{-Aa^2e^3+2Aabde^2-Ab^2d^2e+Ba^2de^2-2Babd^2e+Bb^2d^3}{de^4+e^5x}+\frac{x\left(Ab^2e+2Babe-2Bb^2d\right)}{e^3}+\frac{(ae-bd)\,(2Abe+Bae-3Bbd)\log\left(d+ex\right)}{e^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**2*(B*x+A)/(e*x+d)**2,x)
```

```
[Out] B*b**2*x**2/(2*e**2) + (-A*a**2*e**3 + 2*A*a*b*d*e**2 - A*b**2*d*
*2*e + B*a**2*d*e**2 - 2*B*a*b*d**2*e + B*b**2*d**3)/(d*e**4 + e*
*5*x) + x*(A*b**2*e + 2*B*a*b*e - 2*B*b**2*d)/e**3 + (a*e - b*d)*
(2*A*b*e + B*a*e - 3*B*b*d)*log(d + e*x)/e**4
```

GIAC/XCAS [A] time = 0.221662, size = 306, normalized size = 3.03

$$\frac{1}{2}\left(Bb^2 - \frac{2\left(3\,Bb^2de - 2\,Babe^2 - Ab^2e^2\right)e^{(-1)}}{xe + d}\right)(xe + d)^2e^{(-4)} - \left(3\,Bb^2d^2 - 4\,Babde - 2\,Ab^2de + Ba^2e^2 + 2\,Aabe^2\right)e^{(-4)}\ln\left(\frac{|xe + d|e^{(-1)}}{(xe + d)^2}\right) + \left(\frac{Bb^2d^3e^2}{xe + d} - \frac{2\,Babd^2e^3}{xe + d} - \frac{Ab^2d^2e^3}{xe + d} + \frac{Ba^2de^4}{xe + d} + \frac{2\,Aabde^4}{xe + d} - \frac{Aa^2e^5}{xe + d}\right)e^{(-6)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/(e*x + d)^2,x, algorithm="giac")
```

```
[Out] 1/2*(B*b^2 - 2*(3*B*b^2*d*e - 2*B*a*b*e^2 - A*b^2*e^2)*e^(-1)/(x*
e + d))*(x*e + d)^2*e^(-4) - (3*B*b^2*d^2 - 4*B*a*b*d*e - 2*A*b^2
*d*e + B*a^2*e^2 + 2*A*a*b*e^2)*e^(-4)*ln(abs(x*e + d)*e^(-1)/(x*
e + d)^2) + (B*b^2*d^3*e^2/(x*e + d) - 2*B*a*b*d^2*e^3/(x*e + d)
- A*b^2*d^2*e^3/(x*e + d) + B*a^2*d*e^4/(x*e + d) + 2*A*a*b*d*e^4
/(x*e + d) - A*a^2*e^5/(x*e + d))*e^(-6)
```

3.1012 $\int \frac{(a+bx)^2(A+Bx)}{(d+ex)^3} dx$

Optimal. Leaf size=106

$$-\frac{(bd-ae)(-aBe-2Abe+3bBd)}{e^4(d+ex)}+\frac{(bd-ae)^2(Bd-Ae)}{2e^4(d+ex)^2}-\frac{b\log(d+ex)(-2aBe-Abe+3bBd)}{e^4}+\frac{b^2Bx}{e^3}$$

```
[Out] (b^2*B*x)/e^3 + ((b*d - a*e)^2*(B*d - A*e))/(2*e^4*(d + e*x)^2) -
 ((b*d - a*e)*(3*b*B*d - 2*A*b*e - a*B*e))/(e^4*(d + e*x)) - (b*(
3*b*B*d - A*b*e - 2*a*B*e)*Log[d + e*x])/e^4
```

Rubi [A] time = 0.23508, antiderivative size = 106, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{(bd-ae)(-aBe-2Abe+3bBd)}{e^4(d+ex)}+\frac{(bd-ae)^2(Bd-Ae)}{2e^4(d+ex)^2}-\frac{b\log(d+ex)(-2aBe-Abe+3bBd)}{e^4}+\frac{b^2Bx}{e^3}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^2*(A + B*x))/(d + e*x)^3,x]
```

```
[Out] (b^2*B*x)/e^3 + ((b*d - a*e)^2*(B*d - A*e))/(2*e^4*(d + e*x)^2) -
 ((b*d - a*e)*(3*b*B*d - 2*A*b*e - a*B*e))/(e^4*(d + e*x)) - (b*(
3*b*B*d - A*b*e - 2*a*B*e)*Log[d + e*x])/e^4
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{b^2\int B\,dx}{e^3}+\frac{b\,(Abe+2Bae-3Bbd)\log{(d+ex)}}{e^4}-\frac{(ae-bd)\,(2Abe+Bae-3Bbd)}{e^4\,(d+ex)}-\frac{(Ae-Bd)\,(ae-bd)^2}{2e^4\,(d+ex)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**2*(B*x+A)/(e*x+d)**3,x)
```

```
[Out] b**2*Integral(B, x)/e**3 + b*(A*b*e + 2*B*a*e - 3*B*b*d)*log(d +
e*x)/e**4 - (a*e - b*d)*(2*A*b*e + B*a*e - 3*B*b*d)/(e**4*(d + e*
x)) - (A*e - B*d)*(a*e - b*d)**2/(2*e**4*(d + e*x)**2)
```

Mathematica [A] time = 0.131926, size = 143, normalized size = 1.35

$$-\frac{a^2e^2(Ae+B(d+2ex))+2abe(Ae(d+2ex)-Bd(3d+4ex))+2b(d+ex)^2\log(d+ex)(-2aBe-Abe+3bBd)+b^2\left(-\left(Ade(3\right.\right.}{2e^4(d+ex)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^2*(A + B*x))/(d + e*x)^3,x]
```

```
[Out] -(a^2*e^2*(A*e + B*(d + 2*e*x)) + 2*a*b*e*(A*e*(d + 2*e*x) - B*d*
(3*d + 4*e*x)) - b^2*(A*d*e*(3*d + 4*e*x) + B*(-5*d^3 - 4*d^2*e*x
 + 4*d*e^2*x^2 + 2*e^3*x^3)) + 2*b*(3*b*B*d - A*b*e - 2*a*B*e)*(d
 + e*x)^2*Log[d + e*x])/(2*e^4*(d + e*x)^2)
```

Maple [B] time = 0.013, size = 242, normalized size = 2.3

$$\frac{b^2Bx}{e^3}+\frac{b^2\ln(ex+d)A}{e^3}+2\frac{b\ln(ex+d)Ba}{e^3}-3\frac{b^2\ln(ex+d)Bd}{e^4}-2\frac{Aab}{e^2(ex+d)}+2\frac{b^2Ad}{e^3(ex+d)}-\frac{Ba^2}{e^2(ex+d)}+4\frac{Bbad}{e^3(ex+d)}-3\frac{b^2Bd^2}{e^4(ex+d)}-\frac{a^2A}{2e(ex+d)^2}+\frac{Adab}{e^2(ex+d)^2}-\frac{Ad^2b^2}{2e^3(ex+d)^2}+\frac{Bda^2}{2e^2(ex+d)^2}-\frac{Bd^2ab}{e^3(ex+d)^2}+\frac{b^2Bd^3}{2e^4(ex+d)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^2*(B*x+A)/(e*x+d)^3,x)
```

```
[Out] b^2*B*x/e^3+b^2/e^3*ln(e*x+d)*A+2*b/e^3*ln(e*x+d)*B*a-3*b^2/e^4*l
n(e*x+d)*B*d-2/e^2/(e*x+d)*A*a*b+2/e^3/(e*x+d)*A*b^2*d-1/e^2/(e*x
+d)*B*a^2+4/e^3/(e*x+d)*B*a*b*d-3/e^4/(e*x+d)*b^2*B*d^2-1/2/e/(e*
x+d)^2*a^2*A+1/e^2/(e*x+d)^2*A*d*a*b-1/2/e^3/(e*x+d)^2*A*d^2*b^2+
1/2/e^2/(e*x+d)^2*B*d*a^2-1/e^3/(e*x+d)^2*B*d^2*a*b+1/2/e^4/(e*x+
d)^2*b^2*B*d^3
```

Maxima [A] time = 1.37009, size = 224, normalized size = 2.11

$$\frac{Bb^2x}{e^3}-\frac{5\,Bb^2d^3+Aa^2e^3-3\left(2\,Bab+Ab^2\right)d^2e+\left(Ba^2+2\,Aab\right)de^2+2\left(3\,Bb^2d^2e-2\left(2\,Bab+Ab^2\right)de^2+\left(Ba^2+2\,Aab\right)e^3\right)x}{2\left(e^6x^2+2\,de^5x+d^2e^4\right)}-\frac{\left(3\,Bb^2d-\left(2\,Bab+Ab^2\right)e\right)\log\left(ex+d\right)}{e^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/(e*x + d)^3,x, algorithm="maxima")
```

```
[Out] B*b^2*x/e^3 - 1/2*(5*B*b^2*d^3 + A*a^2*e^3 - 3*(2*B*a*b + A*b^2)*
d^2*e + (B*a^2 + 2*A*a*b)*d*e^2 + 2*(3*B*b^2*d^2*e - 2*(2*B*a*b +
 A*b^2)*d*e^2 + (B*a^2 + 2*A*a*b)*e^3)*x)/(e^6*x^2 + 2*d*e^5*x +
d^2*e^4) - (3*B*b^2*d - (2*B*a*b + A*b^2)*e)*log(e*x + d)/e^4
```

Fricas [A] time = 0.211359, size = 333, normalized size = 3.14

$$\frac{2\,Bb^2e^3x^3+4\,Bb^2de^2x^2-5\,Bb^2d^3-Aa^2e^3+3\left(2\,Bab+Ab^2\right)d^2e-\left(Ba^2+2\,Aab\right)de^2-2\left(2\,Bb^2d^2e-2\left(2\,Bab+Ab^2\right)de^2+\right.}{2\,(e^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/(e*x + d)^3,x, algorithm="fricas")
```

```
[Out] 1/2*(2*B*b^2*e^3*x^3 + 4*B*b^2*d*e^2*x^2 - 5*B*b^2*d^3 - A*a^2*e^
3 + 3*(2*B*a*b + A*b^2)*d^2*e - (B*a^2 + 2*A*a*b)*d*e^2 - 2*(2*B*
b^2*d^2*e - 2*(2*B*a*b + A*b^2)*d*e^2 + (B*a^2 + 2*A*a*b)*e^3)*x
- 2*(3*B*b^2*d^3 - (2*B*a*b + A*b^2)*d^2*e + (3*B*b^2*d*e^2 - (2*
B*a*b + A*b^2)*e^3)*x^2 + 2*(3*B*b^2*d^2*e - (2*B*a*b + A*b^2)*d*
e^2)*x)*log(e*x + d))/(e^6*x^2 + 2*d*e^5*x + d^2*e^4)
```

Sympy [A] time = 11.4387, size = 187, normalized size = 1.76

$$\frac{Bb^2x}{e^3}+\frac{b\left(Abe+2Bae-3Bbd\right)\log\left(d+ex\right)}{e^4}-\frac{Aa^2e^3+2Aabde^2-3Ab^2d^2e+Ba^2de^2-6Babd^2e+5Bb^2d^3+x\left(4Aabe^3-4Ab^2de^2+2Ba^2e^3-8Babde^2+6Bb^2d^2e\right)}{2d^2e^4+4de^5x+2e^6x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**2*(B*x+A)/(e*x+d)**3,x)
```

```
[Out] B*b**2*x/e**3 + b*(A*b*e + 2*B*a*e - 3*B*b*d)*log(d + e*x)/e**4 -
 (A*a**2*e**3 + 2*A*a*b*d*e**2 - 3*A*b**2*d**2*e + B*a**2*d*e**2
- 6*B*a*b*d**2*e + 5*B*b**2*d**3 + x*(4*A*a*b*e**3 - 4*A*b**2*d*e
**2 + 2*B*a**2*e**3 - 8*B*a*b*d*e**2 + 6*B*b**2*d**2*e))/(2*d**2*
e**4 + 4*d*e**5*x + 2*e**6*x**2)
```

GIAC/XCAS [A] time = 0.21567, size = 211, normalized size = 1.99

$$Bb^2xe^{(-3)} - \left(3\,Bb^2d - 2\,Babe - Ab^2e\right)e^{(-4)}\ln\left(|xe + d|\right) - \frac{\left(5\,Bb^2d^3 - 6\,Babd^2e - 3\,Ab^2d^2e + Ba^2de^2 + 2\,Aabde^2 + Aa^2e^3 + 2\,\left(3\,Bb^2d^2e - 4\,Babde^2 - 2\,Ab^2de^2 + Ba^2e^3 + 2\,Aabe^3\right)x\right)}{2\,(xe + d)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/(e*x + d)^3,x, algorithm="giac")
```

```
[Out] B*b^2*x*e^(-3) - (3*B*b^2*d - 2*B*a*b*e - A*b^2*e)*e^(-4)*ln(abs(
x*e + d)) - 1/2*(5*B*b^2*d^3 - 6*B*a*b*d^2*e - 3*A*b^2*d^2*e + B*
a^2*d*e^2 + 2*A*a*b*d*e^2 + A*a^2*e^3 + 2*(3*B*b^2*d^2*e - 4*B*a*
b*d*e^2 - 2*A*b^2*d*e^2 + B*a^2*e^3 + 2*A*a*b*e^3)*x)*e^(-4)/(x*e
 + d)^2
```

3.1013 $\int \frac{(a+bx)^2(A+Bx)}{(d+ex)^4} dx$

Optimal. Leaf size=101

$$-\frac{(a+bx)^3(Bd-Ae)}{3e(d+ex)^3(bd-ae)}+\frac{2bB(bd-ae)}{e^4(d+ex)}-\frac{B(bd-ae)^2}{2e^4(d+ex)^2}+\frac{b^2B\log(d+ex)}{e^4}$$

```
[Out] -((B*d - A*e)*(a + b*x)^3)/(3*e*(b*d - a*e)*(d + e*x)^3) - (B*(b*
d - a*e)^2)/(2*e^4*(d + e*x)^2) + (2*b*B*(b*d - a*e))/(e^4*(d + e
*x)) + (b^2*B*Log[d + e*x])/e^4
```

Rubi [A] time = 0.188454, antiderivative size = 101, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 2, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.1$

$$-\frac{(a+bx)^3(Bd-Ae)}{3e(d+ex)^3(bd-ae)}+\frac{2bB(bd-ae)}{e^4(d+ex)}-\frac{B(bd-ae)^2}{2e^4(d+ex)^2}+\frac{b^2B\log(d+ex)}{e^4}$$

Antiderivative was successfully verified.

```
[In] Int[((a + b*x)^2*(A + B*x))/(d + e*x)^4,x]
```

```
[Out] -((B*d - A*e)*(a + b*x)^3)/(3*e*(b*d - a*e)*(d + e*x)^3) - (B*(b*
d - a*e)^2)/(2*e^4*(d + e*x)^2) + (2*b*B*(b*d - a*e))/(e^4*(d + e
*x)) + (b^2*B*Log[d + e*x])/e^4
```

Rubi in Sympy [A] time = 22.8368, size = 87, normalized size = 0.86

$$\frac{Bb^2\log(d+ex)}{e^4}-\frac{2Bb(ae-bd)}{e^4(d+ex)}-\frac{B(ae-bd)^2}{2e^4(d+ex)^2}-\frac{(a+bx)^3(Ae-Bd)}{3e(d+ex)^3(ae-bd)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)**2*(B*x+A)/(e*x+d)**4,x)
```

```
[Out] B*b**2*log(d + e*x)/e**4 - 2*B*b*(a*e - b*d)/(e**4*(d + e*x)) - B
*(a*e - b*d)**2/(2*e**4*(d + e*x)**2) - (a + b*x)**3*(A*e - B*d)/
(3*e*(d + e*x)**3*(a*e - b*d))
```

Mathematica [A] time = 0.138818, size = 138, normalized size = 1.37

$$\frac{-a^2e^2(2Ae+B(d+3ex))-2abe\left(Ae(d+3ex)+2B\left(d^2+3dex+3e^2x^2\right)\right)+b^2\left(Bd\left(11d^2+27dex+18e^2x^2\right)-2Ae\left(d^2+3d\right.\right.}{6e^4(d+ex)^3}$$

Antiderivative was successfully verified.

```
[In] Integrate[((a + b*x)^2*(A + B*x))/(d + e*x)^4,x]
```

```
[Out] (-(a^2*e^2*(2*A*e + B*(d + 3*e*x))) - 2*a*b*e*(A*e*(d + 3*e*x) +
2*B*(d^2 + 3*d*e*x + 3*e^2*x^2)) + b^2*(-2*A*e*(d^2 + 3*d*e*x + 3
*e^2*x^2) + B*d*(11*d^2 + 27*d*e*x + 18*e^2*x^2)) + 6*b^2*B*(d +
e*x)^3*Log[d + e*x])/(6*e^4*(d + e*x)^3)
```

Maple [B] time = 0.01, size = 251, normalized size = 2.5

$$\frac{Bb^2\ln(ex+d)}{e^4}-\frac{Aa^2}{3e(ex+d)^3}+\frac{2\,Aabd}{3\,e^2(ex+d)^3}-\frac{Ad^2b^2}{3\,e^3(ex+d)^3}+\frac{Ba^2d}{3\,e^2(ex+d)^3} -\frac{2\,Bd^2ab}{3\,e^3(ex+d)^3}+\frac{b^2Bd^3}{3\,e^4(ex+d)^3}-\frac{b^2A}{e^3(ex+d)}-2\,\frac{Bba}{e^3(ex+d)}+3\,\frac{b^2Bd}{e^4(ex+d)} -\frac{Aab}{e^2(ex+d)^2}+\frac{Adb^2}{e^3(ex+d)^2}-\frac{Ba^2}{2\,e^2(ex+d)^2}+2\,\frac{Bdab}{e^3(ex+d)^2}-\frac{3\,b^2Bd^2}{2\,e^4(ex+d)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^2*(B*x+A)/(e*x+d)^4,x)
```

```
[Out] b^2*B*ln(e*x+d)/e^4-1/3/e/(e*x+d)^3*a^2*A+2/3/e^2/(e*x+d)^3*A*a*b
*d-1/3/e^3/(e*x+d)^3*A*d^2*b^2+1/3/e^2/(e*x+d)^3*B*a^2*d-2/3/e^3/
(e*x+d)^3*B*d^2*a*b+1/3/e^4/(e*x+d)^3*b^2*B*d^3-b^2/e^3/(e*x+d)*A
-2*b/e^3/(e*x+d)*B*a+3*b^2/e^4/(e*x+d)*B*d-1/e^2/(e*x+d)^2*A*a*b+
1/e^3/(e*x+d)^2*A*d*b^2-1/2/e^2/(e*x+d)^2*B*a^2+2/e^3/(e*x+d)^2*B
*d*a*b-3/2/e^4/(e*x+d)^2*b^2*B*d^2
```

Maxima [A] time = 1.36134, size = 248, normalized size = 2.46

$$\frac{11\,Bb^2d^3-2\,Aa^2e^3-2\left(2\,Bab+Ab^2\right)d^2e-\left(Ba^2+2\,Aab\right)de^2+6\left(3\,Bb^2de^2-\left(2\,Bab+Ab^2\right)e^3\right)x^2+3\left(9\,Bb^2d^2e-2\left(2\,Bab\right.\right.}{6\left(e^7x^3+3\,de^6x^2+3\,d^2e^5x+d^3e^4\right)} + \frac{Bb^2\log(ex+d)}{e^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/(e*x + d)^4,x, algorithm="maxima")
```

```
[Out] 1/6*(11*B*b^2*d^3 - 2*A*a^2*e^3 - 2*(2*B*a*b + A*b^2)*d^2*e - (B*
a^2 + 2*A*a*b)*d*e^2 + 6*(3*B*b^2*d*e^2 - (2*B*a*b + A*b^2)*e^3)*
x^2 + 3*(9*B*b^2*d^2*e - 2*(2*B*a*b + A*b^2)*d*e^2 - (B*a^2 + 2*A
*a*b)*e^3)*x)/(e^7*x^3 + 3*d*e^6*x^2 + 3*d^2*e^5*x + d^3*e^4) + B
*b^2*log(e*x + d)/e^4
```

Fricas [A] time = 0.204096, size = 298, normalized size = 2.95

$$\frac{11\,Bb^2d^3-2\,Aa^2e^3-2\left(2\,Bab+Ab^2\right)d^2e-\left(Ba^2+2\,Aab\right)de^2+6\left(3\,Bb^2de^2-\left(2\,Bab+Ab^2\right)e^3\right)x^2+3\left(9\,Bb^2d^2e-2\left(2\,Bab\right.\right.}{6\left(e^7x^3+3\,de^6x^2+3\,d^2e^5x+d^3\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/(e*x + d)^4,x, algorithm="fricas")
```

```
[Out] 1/6*(11*B*b^2*d^3 - 2*A*a^2*e^3 - 2*(2*B*a*b + A*b^2)*d^2*e - (B*
a^2 + 2*A*a*b)*d*e^2 + 6*(3*B*b^2*d*e^2 - (2*B*a*b + A*b^2)*e^3)*
x^2 + 3*(9*B*b^2*d^2*e - 2*(2*B*a*b + A*b^2)*d*e^2 - (B*a^2 + 2*A
*a*b)*e^3)*x + 6*(B*b^2*e^3*x^3 + 3*B*b^2*d*e^2*x^2 + 3*B*b^2*d^2
*e*x + B*b^2*d^3)*log(e*x + d))/(e^7*x^3 + 3*d*e^6*x^2 + 3*d^2*e^
5*x + d^3*e^4)
```

Sympy [A] time = 25.2113, size = 211, normalized size = 2.09

$$\frac{Bb^2\log(d+ex)}{e^4} - \frac{2Aa^2e^3+2Aabde^2+2Ab^2d^2e+Ba^2de^2+4Babd^2e-11Bb^2d^3+x^2\left(6Ab^2e^3+12Babe^3-18Bb^2de^2\right)+x\left(6Aabe^3+6Ab^2d\right.}{6d^3e^4+18d^2e^5x+18de^6x^2+6e^7x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**2*(B*x+A)/(e*x+d)**4,x)
```

```
[Out] B*b**2*log(d + e*x)/e**4 - (2*A*a**2*e**3 + 2*A*a*b*d*e**2 + 2*A*
b**2*d**2*e + B*a**2*d*e**2 + 4*B*a*b*d**2*e - 11*B*b**2*d**3 + x
**2*(6*A*b**2*e**3 + 12*B*a*b*e**3 - 18*B*b**2*d*e**2) + x*(6*A*a
*b*e**3 + 6*A*b**2*d*e**2 + 3*B*a**2*e**3 + 12*B*a*b*d*e**2 - 27*
B*b**2*d**2*e))/(6*d**3*e**4 + 18*d**2*e**5*x + 18*d*e**6*x**2 +
6*e**7*x**3)
```

GIAC/XCAS [A] time = 0.216941, size = 220, normalized size = 2.18

$$Bb^2e^{(-4)}\ln(|xe+d|) + \frac{\left(6\left(3\,Bb^2de - 2\,Babe^2 - Ab^2e^2\right)x^2 + 3\left(9\,Bb^2d^2 - 4\,Babde - 2\,Ab^2de - Ba^2e^2 - 2\,Aabe^2\right)x + \left(11\,Bb^2d^3 - 4\,Babd^2e - 2\,Ab\right.}{6\,(xe+d)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/(e*x + d)^4,x, algorithm="giac")
```

```
[Out] B*b^2*e^(-4)*ln(abs(x*e + d)) + 1/6*(6*(3*B*b^2*d*e - 2*B*a*b*e^2
 - A*b^2*e^2)*x^2 + 3*(9*B*b^2*d^2 - 4*B*a*b*d*e - 2*A*b^2*d*e -
B*a^2*e^2 - 2*A*a*b*e^2)*x + (11*B*b^2*d^3 - 4*B*a*b*d^2*e - 2*A*
b^2*d^2*e - B*a^2*d*e^2 - 2*A*a*b*d*e^2 - 2*A*a^2*e^3)*e^(-1))*e^
(-3)/(x*e + d)^3
```

3.1014 $\int \frac{(a+bx)^2(A+Bx)}{(d+ex)^5} dx$

Optimal. Leaf size=86

$$\frac{(a+bx)^3(-4aBe+Abe+3bBd)}{12e(d+ex)^3(bd-ae)^2} - \frac{(a+bx)^3(Bd-Ae)}{4e(d+ex)^4(bd-ae)}$$

```
[Out] -((B*d - A*e)*(a + b*x)^3)/(4*e*(b*d - a*e)*(d + e*x)^4) + ((3*b*
B*d + A*b*e - 4*a*B*e)*(a + b*x)^3)/(12*e*(b*d - a*e)^2*(d + e*x)
^3)
```

Rubi [A] time = 0.106339, antiderivative size = 86, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.1$

$$\frac{(a+bx)^3(-4aBe+Abe+3bBd)}{12e(d+ex)^3(bd-ae)^2} - \frac{(a+bx)^3(Bd-Ae)}{4e(d+ex)^4(bd-ae)}$$

Antiderivative was successfully verified.

```
[In] Int[((a + b*x)^2*(A + B*x))/(d + e*x)^5,x]
```

```
[Out] -((B*d - A*e)*(a + b*x)^3)/(4*e*(b*d - a*e)*(d + e*x)^4) + ((3*b*
B*d + A*b*e - 4*a*B*e)*(a + b*x)^3)/(12*e*(b*d - a*e)^2*(d + e*x)
^3)
```

Rubi in Sympy [A] time = 11.8358, size = 73, normalized size = 0.85

$$-\frac{(a+bx)^3\left(-Abe+B\left(4ae-3bd\right)\right)}{12e\left(d+ex\right)^3\left(ae-bd\right)^2} - \frac{(a+bx)^3\left(Ae-Bd\right)}{4e\left(d+ex\right)^4\left(ae-bd\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)**2*(B*x+A)/(e*x+d)**5,x)
```

```
[Out] -(a + b*x)**3*(-A*b*e + B*(4*a*e - 3*b*d))/(12*e*(d + e*x)**3*(a*
e - b*d)**2) - (a + b*x)**3*(A*e - B*d)/(4*e*(d + e*x)**4*(a*e -
b*d))
```

Mathematica [A] time = 0.111387, size = 125, normalized size = 1.45

$$-\frac{a^2e^2(3Ae+B(d+4ex))+2abe\left(Ae(d+4ex)+B\left(d^2+4dex+6e^2x^2\right)\right)+b^2\left(Ae\left(d^2+4dex+6e^2x^2\right)+3B\left(d^3+4d^2ex+6d\right.\right.}{12e^4(d+ex)^4}$$

Antiderivative was successfully verified.

```
[In] Integrate[((a + b*x)^2*(A + B*x))/(d + e*x)^5,x]
```

```
[Out] -(a^2*e^2*(3*A*e + B*(d + 4*e*x)) + 2*a*b*e*(A*e*(d + 4*e*x) + B*
(d^2 + 4*d*e*x + 6*e^2*x^2)) + b^2*(A*e*(d^2 + 4*d*e*x + 6*e^2*x^
2) + 3*B*(d^3 + 4*d^2*e*x + 6*d*e^2*x^2 + 4*e^3*x^3)))/(12*e^4*(d
 + e*x)^4)
```

Maple [B] time = 0.007, size = 166, normalized size = 1.9

$$-\frac{2\,Aabe^{2}-2\,Adb^{2}e+Ba^{2}e^{2}-4\,Bdabe+3\,b^{2}Bd^{2}}{3\,e^{4}\,(ex+d)^{3}}-\frac{Bb^{2}}{e^{4}\,(ex+d)}-\frac{b\,(Abe+2\,Bae-3\,Bbd)}{2\,e^{4}\,(ex+d)^{2}}-\frac{a^{2}Ae^{3}-2\,Aabde^{2}+Ad^{2}b^{2}e-Ba^{2}de^{2}+2\,Bd^{2}abe-b^{2}Bd^{3}}{4\,e^{4}\,(ex+d)^{4}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^2*(B*x+A)/(e*x+d)^5,x)
```

```
[Out] -1/3*(2*A*a*b*e^2-2*A*b^2*d*e+B*a^2*e^2-4*B*a*b*d*e+3*B*b^2*d^2)/
e^4/(e*x+d)^3-B*b^2/e^4/(e*x+d)-1/2*b*(A*b*e+2*B*a*e-3*B*b*d)/e^4
/(e*x+d)^2-1/4*(A*a^2*e^3-2*A*a*b*d*e^2+A*b^2*d^2*e-B*a^2*d*e^2+2
*B*a*b*d^2*e-B*b^2*d^3)/e^4/(e*x+d)^4
```

Maxima [A] time = 1.3678, size = 252, normalized size = 2.93

$$-\frac{12\,Bb^{2}e^{3}x^{3}+3\,Bb^{2}d^{3}+3\,Aa^{2}e^{3}+\left(2\,Bab+Ab^{2}\right)d^{2}e+\left(Ba^{2}+2\,Aab\right)de^{2}+6\,\left(3\,Bb^{2}de^{2}+\left(2\,Bab+Ab^{2}\right)e^{3}\right)x^{2}+4\,\left(3\,Bb^{2}d^{2}\right.}{12\,\left(e^{8}x^{4}+4\,de^{7}x^{3}+6\,d^{2}e^{6}x^{2}+4\,d^{3}e^{5}x+d^{4}e^{4}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/(e*x + d)^5,x, algorithm="maxima")
```

```
[Out] -1/12*(12*B*b^2*e^3*x^3 + 3*B*b^2*d^3 + 3*A*a^2*e^3 + (2*B*a*b +
A*b^2)*d^2*e + (B*a^2 + 2*A*a*b)*d*e^2 + 6*(3*B*b^2*d*e^2 + (2*B*
a*b + A*b^2)*e^3)*x^2 + 4*(3*B*b^2*d^2*e + (2*B*a*b + A*b^2)*d*e^
2 + (B*a^2 + 2*A*a*b)*e^3)*x)/(e^8*x^4 + 4*d*e^7*x^3 + 6*d^2*e^6*
x^2 + 4*d^3*e^5*x + d^4*e^4)
```

Fricas [A] time = 0.201244, size = 252, normalized size = 2.93

$$-\frac{12\,Bb^{2}e^{3}x^{3}+3\,Bb^{2}d^{3}+3\,Aa^{2}e^{3}+\left(2\,Bab+Ab^{2}\right)d^{2}e+\left(Ba^{2}+2\,Aab\right)de^{2}+6\,\left(3\,Bb^{2}de^{2}+\left(2\,Bab+Ab^{2}\right)e^{3}\right)x^{2}+4\,\left(3\,Bb^{2}d^{2}\right.}{12\,\left(e^{8}x^{4}+4\,de^{7}x^{3}+6\,d^{2}e^{6}x^{2}+4\,d^{3}e^{5}x+d^{4}e^{4}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/(e*x + d)^5,x, algorithm="fricas")
```

```
[Out] -1/12*(12*B*b^2*e^3*x^3 + 3*B*b^2*d^3 + 3*A*a^2*e^3 + (2*B*a*b +
A*b^2)*d^2*e + (B*a^2 + 2*A*a*b)*d*e^2 + 6*(3*B*b^2*d*e^2 + (2*B*
a*b + A*b^2)*e^3)*x^2 + 4*(3*B*b^2*d^2*e + (2*B*a*b + A*b^2)*d*e^
2 + (B*a^2 + 2*A*a*b)*e^3)*x)/(e^8*x^4 + 4*d*e^7*x^3 + 6*d^2*e^6*
x^2 + 4*d^3*e^5*x + d^4*e^4)
```

Sympy [A] time = 51.9108, size = 221, normalized size = 2.57

$$-\frac{3Aa^{2}e^{3}+2Aabde^{2}+Ab^{2}d^{2}e+Ba^{2}de^{2}+2Babd^{2}e+3Bb^{2}d^{3}+12Bb^{2}e^{3}x^{3}+x^{2}\left(6Ab^{2}e^{3}+12Babe^{3}+18Bb^{2}de^{2}\right)+x\left(8Aabe\right.}{12d^{4}e^{4}+48d^{3}e^{5}x+72d^{2}e^{6}x^{2}+48de^{7}x^{3}+12e^{8}x^{4}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**2*(B*x+A)/(e*x+d)**5,x)
```

```
[Out] -(3*A*a**2*e**3 + 2*A*a*b*d*e**2 + A*b**2*d**2*e + B*a**2*d*e**2
+ 2*B*a*b*d**2*e + 3*B*b**2*d**3 + 12*B*b**2*e**3*x**3 + x**2*(6*
```

```
A*b**2*e**3 + 12*B*a*b*e**3 + 18*B*b**2*d*e**2) + x*(8*A*a*b*e**3
 + 4*A*b**2*d*e**2 + 4*B*a**2*e**3 + 8*B*a*b*d*e**2 + 12*B*b**2*d
**2*e))/(12*d**4*e**4 + 48*d**3*e**5*x + 72*d**2*e**6*x**2 + 48*d
*e**7*x**3 + 12*e**8*x**4)
```

GIAC/XCAS [A] time = 0.216092, size = 347, normalized size = 4.03

$$-\frac{1}{12}\left(\frac{12\,Bb^2e^8}{xe+d}-\frac{18\,Bb^2de^8}{(xe+d)^2}+\frac{12\,Bb^2d^2e^8}{(xe+d)^3}-\frac{3\,Bb^2d^3e^8}{(xe+d)^4}+\frac{12\,Babe^9}{(xe+d)^2}+\frac{6\,Ab^2e^9}{(xe+d)^2}-\frac{16\,Babde^9}{(xe+d)^3}-\frac{8\,Ab^2de^9}{(xe+d)^3}+\frac{6\,Babd^2e^9}{(xe+d)^4}+3\ldots\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/(e*x + d)^5,x, algorithm="giac")
```

```
[Out] -1/12*(12*B*b^2*e^8/(x*e + d) - 18*B*b^2*d*e^8/(x*e + d)^2 + 12*B
*b^2*d^2*e^8/(x*e + d)^3 - 3*B*b^2*d^3*e^8/(x*e + d)^4 + 12*B*a*b
*e^9/(x*e + d)^2 + 6*A*b^2*e^9/(x*e + d)^2 - 16*B*a*b*d*e^9/(x*e
+ d)^3 - 8*A*b^2*d*e^9/(x*e + d)^3 + 6*B*a*b*d^2*e^9/(x*e + d)^4
+ 3*A*b^2*d^2*e^9/(x*e + d)^4 + 4*B*a^2*e^10/(x*e + d)^3 + 8*A*a*
b*e^10/(x*e + d)^3 - 3*B*a^2*d*e^10/(x*e + d)^4 - 6*A*a*b*d*e^10/
(x*e + d)^4 + 3*A*a^2*e^11/(x*e + d)^4)*e^(-12)
```

3.1015 $\int \frac{(a+bx)^2(A+Bx)}{(d+ex)^6} dx$

Optimal. Leaf size=120

$$\frac{b(-2aBe-Abe+3bBd)}{3e^4(d+ex)^3}-\frac{(bd-ae)(-aBe-2Abe+3bBd)}{4e^4(d+ex)^4}+\frac{(bd-ae)^2(Bd-Ae)}{5e^4(d+ex)^5}-\frac{b^2B}{2e^4(d+ex)^2}$$

```
[Out] ((b*d - a*e)^2*(B*d - A*e))/(5*e^4*(d + e*x)^5) - ((b*d - a*e)*(3
*b*B*d - 2*A*b*e - a*B*e))/(4*e^4*(d + e*x)^4) + (b*(3*b*B*d - A*
b*e - 2*a*B*e))/(3*e^4*(d + e*x)^3) - (b^2*B)/(2*e^4*(d + e*x)^2)
```

Rubi [A] time = 0.255888, antiderivative size = 120, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{b(-2aBe-Abe+3bBd)}{3e^4(d+ex)^3}-\frac{(bd-ae)(-aBe-2Abe+3bBd)}{4e^4(d+ex)^4}+\frac{(bd-ae)^2(Bd-Ae)}{5e^4(d+ex)^5}-\frac{b^2B}{2e^4(d+ex)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^2*(A + B*x))/(d + e*x)^6,x]
```

```
[Out] ((b*d - a*e)^2*(B*d - A*e))/(5*e^4*(d + e*x)^5) - ((b*d - a*e)*(3
*b*B*d - 2*A*b*e - a*B*e))/(4*e^4*(d + e*x)^4) + (b*(3*b*B*d - A*
b*e - 2*a*B*e))/(3*e^4*(d + e*x)^3) - (b^2*B)/(2*e^4*(d + e*x)^2)
```

Rubi in Sympy [A] time = 36.1031, size = 114, normalized size = 0.95

$$-\frac{Bb^2}{2e^4(d+ex)^2}-\frac{b(Abe+2Bae-3Bbd)}{3e^4(d+ex)^3}-\frac{(ae-bd)(2Abe+Bae-3Bbd)}{4e^4(d+ex)^4}-\frac{(Ae-Bd)(ae-bd)^2}{5e^4(d+ex)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**2*(B*x+A)/(e*x+d)**6,x)
```

```
[Out] -B*b**2/(2*e**4*(d + e*x)**2) - b*(A*b*e + 2*B*a*e - 3*B*b*d)/(3*
e**4*(d + e*x)**3) - (a*e - b*d)*(2*A*b*e + B*a*e - 3*B*b*d)/(4*e
**4*(d + e*x)**4) - (A*e - B*d)*(a*e - b*d)**2/(5*e**4*(d + e*x)*
*5)
```

Mathematica [A] time = 0.114671, size = 129, normalized size = 1.08

$$-\frac{3a^2e^2(4Ae+B(d+5ex))+2abe(3Ae(d+5ex)+2B(d^2+5dex+10e^2x^2))+b^2(2Ae(d^2+5dex+10e^2x^2)+3B(d^3+5d^2}{60e^4(d+ex)^5}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^2*(A + B*x))/(d + e*x)^6,x]
```

```
[Out] -(3*a^2*e^2*(4*A*e + B*(d + 5*e*x)) + 2*a*b*e*(3*A*e*(d + 5*e*x)
+ 2*B*(d^2 + 5*d*e*x + 10*e^2*x^2)) + b^2*(2*A*e*(d^2 + 5*d*e*x +
 10*e^2*x^2) + 3*B*(d^3 + 5*d^2*e*x + 10*d*e^2*x^2 + 10*e^3*x^3))
)/(60*e^4*(d + e*x)^5)
```

Maple [A] time = 0.008, size = 166, normalized size = 1.4

$$-\frac{b(Abe+2Bae-3Bbd)}{3e^4(ex+d)^3}-\frac{Bb^2}{2e^4(ex+d)^2}-\frac{2Aabe^2-2Adb^2e+Ba^2e^2-4Bdabe+3b^2Bd^2}{4e^4(ex+d)^4}-\frac{a^2Ae^3-2Aabde^2+Ad^2b^2e-Ba^2de^2+2Bd^2abe-b^2Bd^3}{5e^4(ex+d)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^2*(B*x+A)/(e*x+d)^6,x)
```

```
[Out] -1/3*b*(A*b*e+2*B*a*e-3*B*b*d)/e^4/(e*x+d)^3-1/2*b^2*B/e^4/(e*x+d
)^2-1/4*(2*A*a*b*e^2-2*A*b^2*d*e+B*a^2*e^2-4*B*a*b*d*e+3*B*b^2*d^
2)/e^4/(e*x+d)^4-1/5*(A*a^2*e^3-2*A*a*b*d*e^2+A*b^2*d^2*e-B*a^2*d
*e^2+2*B*a*b*d^2*e-B*b^2*d^3)/e^4/(e*x+d)^5
```

Maxima [A] time = 1.36936, size = 274, normalized size = 2.28

$$-\frac{30\,Bb^2e^3x^3+3\,Bb^2d^3+12\,Aa^2e^3+2\,(2\,Bab+Ab^2)\,d^2e+3\,(Ba^2+2\,Aab)\,de^2+10\,(3\,Bb^2de^2+2\,(2\,Bab+Ab^2)\,e^3)\,x^2+5\,(3\,Bb^2d^2e+2\,(2\,Bab+Ab^2)\,de^2+3\,(Ba^2+2\,Aab)\,e^3)\,x}{60\,(e^9x^5+5\,de^8x^4+10\,d^2e^7x^3+10\,d^3e^6x^2+5\,d^4e^5x+d^5e^4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/(e*x + d)^6,x, algorithm="maxima")
```

```
[Out] -1/60*(30*B*b^2*e^3*x^3 + 3*B*b^2*d^3 + 12*A*a^2*e^3 + 2*(2*B*a*b
 + A*b^2)*d^2*e + 3*(B*a^2 + 2*A*a*b)*d*e^2 + 10*(3*B*b^2*d*e^2 +
 2*(2*B*a*b + A*b^2)*e^3)*x^2 + 5*(3*B*b^2*d^2*e + 2*(2*B*a*b + A
*b^2)*d*e^2 + 3*(B*a^2 + 2*A*a*b)*e^3)*x)/(e^9*x^5 + 5*d*e^8*x^4
+ 10*d^2*e^7*x^3 + 10*d^3*e^6*x^2 + 5*d^4*e^5*x + d^5*e^4)
```

Fricas [A] time = 0.216358, size = 274, normalized size = 2.28

$$-\frac{30\,Bb^2e^3x^3+3\,Bb^2d^3+12\,Aa^2e^3+2\,(2\,Bab+Ab^2)\,d^2e+3\,(Ba^2+2\,Aab)\,de^2+10\,(3\,Bb^2de^2+2\,(2\,Bab+Ab^2)\,e^3)\,x^2+5\,(3\,Bb^2d^2e+2\,(2\,Bab+Ab^2)\,de^2+3\,(Ba^2+2\,Aab)\,e^3)\,x}{60\,(e^9x^5+5\,de^8x^4+10\,d^2e^7x^3+10\,d^3e^6x^2+5\,d^4e^5x+d^5e^4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/(e*x + d)^6,x, algorithm="fricas")
```

```
[Out] -1/60*(30*B*b^2*e^3*x^3 + 3*B*b^2*d^3 + 12*A*a^2*e^3 + 2*(2*B*a*b
 + A*b^2)*d^2*e + 3*(B*a^2 + 2*A*a*b)*d*e^2 + 10*(3*B*b^2*d*e^2 +
 2*(2*B*a*b + A*b^2)*e^3)*x^2 + 5*(3*B*b^2*d^2*e + 2*(2*B*a*b + A
*b^2)*d*e^2 + 3*(B*a^2 + 2*A*a*b)*e^3)*x)/(e^9*x^5 + 5*d*e^8*x^4
+ 10*d^2*e^7*x^3 + 10*d^3*e^6*x^2 + 5*d^4*e^5*x + d^5*e^4)
```

Sympy [A] time = 104.11, size = 236, normalized size = 1.97

$$-\frac{12Aa^2e^3+6Aabde^2+2Ab^2d^2e+3Ba^2de^2+4Babd^2e+3Bb^2d^3+30Bb^2e^3x^3+x^2\left(20Ab^2e^3+40Babe^3+30Bb^2de^2\right)+x\left(3\right.}{60d^5e^4+300d^4e^5x+600d^3e^6x^2+600d^2e^7x^3+300de^8x^4+60e^9x^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**2*(B*x+A)/(e*x+d)**6,x)
```

```
[Out] -(12*A*a**2*e**3 + 6*A*a*b*d*e**2 + 2*A*b**2*d**2*e + 3*B*a**2*d*
e**2 + 4*B*a*b*d**2*e + 3*B*b**2*d**3 + 30*B*b**2*e**3*x**3 + x**
```

```
2*(20*A*b**2*e**3 + 40*B*a*b*e**3 + 30*B*b**2*d*e**2) + x*(30*A*a
*b*e**3 + 10*A*b**2*d*e**2 + 15*B*a**2*e**3 + 20*B*a*b*d*e**2 + 1
5*B*b**2*d**2*e))/(60*d**5*e**4 + 300*d**4*e**5*x + 600*d**3*e**6
*x**2 + 600*d**2*e**7*x**3 + 300*d*e**8*x**4 + 60*e**9*x**5)
```

GIAC/XCAS [A] time = 0.215372, size = 216, normalized size = 1.8

$$-\frac{\left(30\,Bb^2x^3e^3 + 30\,Bb^2dx^2e^2 + 15\,Bb^2d^2xe + 3\,Bb^2d^3 + 40\,Babx^2e^3 + 20\,Ab^2x^2e^3 + 20\,Babdxe^2 + 10\,Ab^2dxe^2 + 4\,Babd^2e + 2\right.}{60\,(xe + d)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/(e*x + d)^6,x, algorithm="giac")
```

```
[Out] -1/60*(30*B*b^2*x^3*e^3 + 30*B*b^2*d*x^2*e^2 + 15*B*b^2*d^2*x*e +
 3*B*b^2*d^3 + 40*B*a*b*x^2*e^3 + 20*A*b^2*x^2*e^3 + 20*B*a*b*d*x
*e^2 + 10*A*b^2*d*x*e^2 + 4*B*a*b*d^2*e + 2*A*b^2*d^2*e + 15*B*a^
2*x*e^3 + 30*A*a*b*x*e^3 + 3*B*a^2*d*e^2 + 6*A*a*b*d*e^2 + 12*A*a
^2*e^3)*e^(-4)/(x*e + d)^5
```

3.1016 $\int \frac{(a+bx)^2(A+Bx)}{(d+ex)^7} dx$

Optimal. Leaf size=120

$$\frac{b(-2aBe - Abe + 3bBd)}{4e^4(d+ex)^4} - \frac{(bd-ae)(-aBe - 2Abe + 3bBd)}{5e^4(d+ex)^5} + \frac{(bd-ae)^2(Bd-Ae)}{6e^4(d+ex)^6} - \frac{b^2B}{3e^4(d+ex)^3}$$

```
[Out] ((b*d - a*e)^2*(B*d - A*e))/(6*e^4*(d + e*x)^6) - ((b*d - a*e)*(3
*b*B*d - 2*A*b*e - a*B*e))/(5*e^4*(d + e*x)^5) + (b*(3*b*B*d - A*
b*e - 2*a*B*e))/(4*e^4*(d + e*x)^4) - (b^2*B)/(3*e^4*(d + e*x)^3)
```

Rubi [A] time = 0.234852, antiderivative size = 120, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{b(-2aBe - Abe + 3bBd)}{4e^4(d+ex)^4} - \frac{(bd-ae)(-aBe - 2Abe + 3bBd)}{5e^4(d+ex)^5} + \frac{(bd-ae)^2(Bd-Ae)}{6e^4(d+ex)^6} - \frac{b^2B}{3e^4(d+ex)^3}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^2*(A + B*x))/(d + e*x)^7,x]
```

```
[Out] ((b*d - a*e)^2*(B*d - A*e))/(6*e^4*(d + e*x)^6) - ((b*d - a*e)*(3
*b*B*d - 2*A*b*e - a*B*e))/(5*e^4*(d + e*x)^5) + (b*(3*b*B*d - A*
b*e - 2*a*B*e))/(4*e^4*(d + e*x)^4) - (b^2*B)/(3*e^4*(d + e*x)^3)
```

Rubi in Sympy [A] time = 36.8376, size = 114, normalized size = 0.95

$$-\frac{Bb^2}{3e^4(d+ex)^3} - \frac{b(Abe + 2Bae - 3Bbd)}{4e^4(d+ex)^4} - \frac{(ae-bd)(2Abe + Bae - 3Bbd)}{5e^4(d+ex)^5} - \frac{(Ae-Bd)(ae-bd)^2}{6e^4(d+ex)^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**2*(B*x+A)/(e*x+d)**7,x)
```

```
[Out] -B*b**2/(3*e**4*(d + e*x)**3) - b*(A*b*e + 2*B*a*e - 3*B*b*d)/(4*
e**4*(d + e*x)**4) - (a*e - b*d)*(2*A*b*e + B*a*e - 3*B*b*d)/(5*e
**4*(d + e*x)**5) - (A*e - B*d)*(a*e - b*d)**2/(6*e**4*(d + e*x)*
*6)
```

Mathematica [A] time = 0.107553, size = 126, normalized size = 1.05

$$-\frac{2a^2e^2(5Ae + B(d+6ex)) + 2abe\left(2Ae(d+6ex) + B\left(d^2 + 6dex + 15e^2x^2\right)\right) + b^2\left(Ae\left(d^2 + 6dex + 15e^2x^2\right) + B\left(d^3 + 6d^2ex\right.\right.}{60e^4(d+ex)^6}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^2*(A + B*x))/(d + e*x)^7,x]
```

```
[Out] -(2*a^2*e^2*(5*A*e + B*(d + 6*e*x)) + 2*a*b*e*(2*A*e*(d + 6*e*x)
+ B*(d^2 + 6*d*e*x + 15*e^2*x^2)) + b^2*(A*e*(d^2 + 6*d*e*x + 15*
e^2*x^2) + B*(d^3 + 6*d^2*e*x + 15*d*e^2*x^2 + 20*e^3*x^3)))/(60*
e^4*(d + e*x)^6)
```

Maple [A] time = 0.009, size = 166, normalized size = 1.4

$$-\frac{a^2Ae^3 - 2\,Aabde^2 + Ad^2b^2e - Ba^2de^2 + 2\,Bd^2abe - b^2Bd^3}{6\,e^4\,(ex+d)^6} - \frac{Bb^2}{3\,e^4\,(ex+d)^3} - \frac{b\,(Abe + 2\,Bae - 3\,Bbd)}{4\,e^4\,(ex+d)^4} - \frac{2\,Aabe^2 - 2\,Adb^2e + Ba^2e^2 - 4\,Bdabe + 3\,b^2Bd^2}{5\,e^4\,(ex+d)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^2*(B*x+A)/(e*x+d)^7,x)
```

```
[Out] -1/6*(A*a^2*e^3-2*A*a*b*d*e^2+A*b^2*d^2*e-B*a^2*d*e^2+2*B*a*b*d^2
*e-B*b^2*d^3)/e^4/(e*x+d)^6-1/3*b^2*B/e^4/(e*x+d)^3-1/4*b*(A*b*e+
2*B*a*e-3*B*b*d)/e^4/(e*x+d)^4-1/5*(2*A*a*b*e^2-2*A*b^2*d*e+B*a^2
*e^2-4*B*a*b*d*e+3*B*b^2*d^2)/e^4/(e*x+d)^5
```

Maxima [A] time = 1.36184, size = 281, normalized size = 2.34

$$-\frac{20\,Bb^2e^3x^3 + Bb^2d^3 + 10\,Aa^2e^3 + \left(2\,Bab + Ab^2\right)d^2e + 2\,\left(Ba^2 + 2\,Aab\right)de^2 + 15\,\left(Bb^2de^2 + \left(2\,Bab + Ab^2\right)e^3\right)x^2 + 6\,\left(Bb^2d^2e\right.}{60\,(e^{10}x^6 + 6\,de^9x^5 + 15\,d^2e^8x^4 + 20\,d^3e^7x^3 + 15\,d^4e^6x^2 + 6\,d^5e^5x + d^6e^4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/(e*x + d)^7,x, algorithm="maxima")
```

```
[Out] -1/60*(20*B*b^2*e^3*x^3 + B*b^2*d^3 + 10*A*a^2*e^3 + (2*B*a*b + A
*b^2)*d^2*e + 2*(B*a^2 + 2*A*a*b)*d*e^2 + 15*(B*b^2*d*e^2 + (2*B*
a*b + A*b^2)*e^3)*x^2 + 6*(B*b^2*d^2*e + (2*B*a*b + A*b^2)*d*e^2
+ 2*(B*a^2 + 2*A*a*b)*e^3)*x)/(e^10*x^6 + 6*d*e^9*x^5 + 15*d^2*e^
8*x^4 + 20*d^3*e^7*x^3 + 15*d^4*e^6*x^2 + 6*d^5*e^5*x + d^6*e^4)
```

Fricas [A] time = 0.208603, size = 281, normalized size = 2.34

$$-\frac{20\,Bb^2e^3x^3 + Bb^2d^3 + 10\,Aa^2e^3 + \left(2\,Bab + Ab^2\right)d^2e + 2\,\left(Ba^2 + 2\,Aab\right)de^2 + 15\,\left(Bb^2de^2 + \left(2\,Bab + Ab^2\right)e^3\right)x^2 + 6\,\left(Bb^2d^2e\right.}{60\,(e^{10}x^6 + 6\,de^9x^5 + 15\,d^2e^8x^4 + 20\,d^3e^7x^3 + 15\,d^4e^6x^2 + 6\,d^5e^5x + d^6e^4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/(e*x + d)^7,x, algorithm="fricas")
```

```
[Out] -1/60*(20*B*b^2*e^3*x^3 + B*b^2*d^3 + 10*A*a^2*e^3 + (2*B*a*b + A
*b^2)*d^2*e + 2*(B*a^2 + 2*A*a*b)*d*e^2 + 15*(B*b^2*d*e^2 + (2*B*
a*b + A*b^2)*e^3)*x^2 + 6*(B*b^2*d^2*e + (2*B*a*b + A*b^2)*d*e^2
+ 2*(B*a^2 + 2*A*a*b)*e^3)*x)/(e^10*x^6 + 6*d*e^9*x^5 + 15*d^2*e^
8*x^4 + 20*d^3*e^7*x^3 + 15*d^4*e^6*x^2 + 6*d^5*e^5*x + d^6*e^4)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**2*(B*x+A)/(e*x+d)**7,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.211438, size = 213, normalized size = 1.78

$$-\frac{(20\,Bb^2x^3e^3 + 15\,Bb^2dx^2e^2 + 6\,Bb^2d^2xe + Bb^2d^3 + 30\,Babx^2e^3 + 15\,Ab^2x^2e^3 + 12\,Babdxe^2 + 6\,Ab^2dxe^2 + 2\,Babd^2e + Ab^2d}{60\,(xe + d)^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/(e*x + d)^7,x, algorithm="giac")
```

```
[Out] -1/60*(20*B*b^2*x^3*e^3 + 15*B*b^2*d*x^2*e^2 + 6*B*b^2*d^2*x*e +
B*b^2*d^3 + 30*B*a*b*x^2*e^3 + 15*A*b^2*x^2*e^3 + 12*B*a*b*d*x*e^
2 + 6*A*b^2*d*x*e^2 + 2*B*a*b*d^2*e + A*b^2*d^2*e + 12*B*a^2*x*e^
3 + 24*A*a*b*x*e^3 + 2*B*a^2*d*e^2 + 4*A*a*b*d*e^2 + 10*A*a^2*e^3
)*e^(-4)/(x*e + d)^6
```

3.1017 $\int \frac{(a+bx)^2(A+Bx)}{(d+ex)^8}\,dx$

Optimal. Leaf size=120

$$\frac{b(-2aBe-Abe+3bBd)}{5e^4(d+ex)^5}-\frac{(bd-ae)(-aBe-2Abe+3bBd)}{6e^4(d+ex)^6}+\frac{(bd-ae)^2(Bd-Ae)}{7e^4(d+ex)^7}-\frac{b^2B}{4e^4(d+ex)^4}$$

```
[Out] ((b*d - a*e)^2*(B*d - A*e))/(7*e^4*(d + e*x)^7) - ((b*d - a*e)*(3
*b*B*d - 2*A*b*e - a*B*e))/(6*e^4*(d + e*x)^6) + (b*(3*b*B*d - A*
b*e - 2*a*B*e))/(5*e^4*(d + e*x)^5) - (b^2*B)/(4*e^4*(d + e*x)^4)
```

Rubi [A] time = 0.215853, antiderivative size = 120, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{b(-2aBe-Abe+3bBd)}{5e^4(d+ex)^5}-\frac{(bd-ae)(-aBe-2Abe+3bBd)}{6e^4(d+ex)^6}+\frac{(bd-ae)^2(Bd-Ae)}{7e^4(d+ex)^7}-\frac{b^2B}{4e^4(d+ex)^4}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^2*(A + B*x))/(d + e*x)^8,x]
```

```
[Out] ((b*d - a*e)^2*(B*d - A*e))/(7*e^4*(d + e*x)^7) - ((b*d - a*e)*(3
*b*B*d - 2*A*b*e - a*B*e))/(6*e^4*(d + e*x)^6) + (b*(3*b*B*d - A*
b*e - 2*a*B*e))/(5*e^4*(d + e*x)^5) - (b^2*B)/(4*e^4*(d + e*x)^4)
```

Rubi in Sympy [A] time = 37.637, size = 114, normalized size = 0.95

$$-\frac{Bb^2}{4e^4\,(d+ex)^4}-\frac{b\,(Abe+2Bae-3Bbd)}{5e^4\,(d+ex)^5}-\frac{(ae-bd)\,(2Abe+Bae-3Bbd)}{6e^4\,(d+ex)^6}-\frac{(Ae-Bd)\,(ae-bd)^2}{7e^4\,(d+ex)^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**2*(B*x+A)/(e*x+d)**8,x)
```

```
[Out] -B*b**2/(4*e**4*(d + e*x)**4) - b*(A*b*e + 2*B*a*e - 3*B*b*d)/(5*
e**4*(d + e*x)**5) - (a*e - b*d)*(2*A*b*e + B*a*e - 3*B*b*d)/(6*e
**4*(d + e*x)**6) - (A*e - B*d)*(a*e - b*d)**2/(7*e**4*(d + e*x)*
*7)
```

Mathematica [A] time = 0.103556, size = 129, normalized size = 1.08

$$-\frac{10a^2e^2(6Ae+B(d+7ex))+4abe\left(5Ae(d+7ex)+2B\left(d^2+7dex+21e^2x^2\right)\right)+b^2\left(4Ae\left(d^2+7dex+21e^2x^2\right)+3B\left(d^3+7d\right.\right.}{420e^4(d+ex)^7}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^2*(A + B*x))/(d + e*x)^8,x]
```

```
[Out] -(10*a^2*e^2*(6*A*e + B*(d + 7*e*x)) + 4*a*b*e*(5*A*e*(d + 7*e*x)
 + 2*B*(d^2 + 7*d*e*x + 21*e^2*x^2)) + b^2*(4*A*e*(d^2 + 7*d*e*x
+ 21*e^2*x^2) + 3*B*(d^3 + 7*d^2*e*x + 21*d*e^2*x^2 + 35*e^3*x^3)
))/(420*e^4*(d + e*x)^7)
```

Maple [A] time = 0.009, size = 166, normalized size = 1.4

$$-\frac{2\,Aab e^{2}-2\,Ad b^{2} e+B a^{2} e^{2}-4\,Bdabe+3\,b^{2} B d^{2}}{6\,e^{4} \left(ex+d\right)^{6}}-\frac{a^{2} A e^{3}-2\,Aabd e^{2}+A d^{2} b^{2} e-B a^{2} d e^{2}+2\,B d^{2} abe-b^{2} B d^{3}}{7\,e^{4} \left(ex+d\right)^{7}}-\frac{B b^{2}}{4\,e^{4} \left(ex+d\right)^{4}}-\frac{b \left(Abe+2\,Bae-3\,Bbd\right)}{5\,e^{4} \left(ex+d\right)^{5}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^2*(B*x+A)/(e*x+d)^8,x)
```

```
[Out] -1/6*(2*A*a*b*e^2-2*A*b^2*d*e+B*a^2*e^2-4*B*a*b*d*e+3*B*b^2*d^2)/
e^4/(e*x+d)^6-1/7*(A*a^2*e^3-2*A*a*b*d*e^2+A*b^2*d^2*e-B*a^2*d*e^
2+2*B*a*b*d^2*e-B*b^2*d^3)/e^4/(e*x+d)^7-1/4*b^2*B/e^4/(e*x+d)^4-
1/5*b*(A*b*e+2*B*a*e-3*B*b*d)/e^4/(e*x+d)^5
```

Maxima [A] time = 1.3652, size = 304, normalized size = 2.53

$$-\frac{105\,B b^{2} e^{3} x^{3}+3\,B b^{2} d^{3}+60\,A a^{2} e^{3}+4\,\left(2\,Bab+A b^{2}\right) d^{2} e+10\,\left(B a^{2}+2\,Aab\right) d e^{2}+21\,\left(3\,B b^{2} d e^{2}+4\,\left(2\,Bab+A b^{2}\right) e^{3}\right) x^{2}+7}{420\,\left(e^{11} x^{7}+7\,d e^{10} x^{6}+21\,d^{2} e^{9} x^{5}+35\,d^{3} e^{8} x^{4}+35\,d^{4} e^{7} x^{3}+21\,d^{5} e^{6} x^{2}+7\,d^{6}\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/(e*x + d)^8,x, algorithm="maxima")
```

```
[Out] -1/420*(105*B*b^2*e^3*x^3 + 3*B*b^2*d^3 + 60*A*a^2*e^3 + 4*(2*B*a
*b + A*b^2)*d^2*e + 10*(B*a^2 + 2*A*a*b)*d*e^2 + 21*(3*B*b^2*d*e^
2 + 4*(2*B*a*b + A*b^2)*e^3)*x^2 + 7*(3*B*b^2*d^2*e + 4*(2*B*a*b
+ A*b^2)*d*e^2 + 10*(B*a^2 + 2*A*a*b)*e^3)*x)/(e^11*x^7 + 7*d*e^1
0*x^6 + 21*d^2*e^9*x^5 + 35*d^3*e^8*x^4 + 35*d^4*e^7*x^3 + 21*d^5
*e^6*x^2 + 7*d^6*e^5*x + d^7*e^4)
```

Fricas [A] time = 0.219693, size = 304, normalized size = 2.53

$$-\frac{105\,B b^{2} e^{3} x^{3}+3\,B b^{2} d^{3}+60\,A a^{2} e^{3}+4\,\left(2\,Bab+A b^{2}\right) d^{2} e+10\,\left(B a^{2}+2\,Aab\right) d e^{2}+21\,\left(3\,B b^{2} d e^{2}+4\,\left(2\,Bab+A b^{2}\right) e^{3}\right) x^{2}+7}{420\,\left(e^{11} x^{7}+7\,d e^{10} x^{6}+21\,d^{2} e^{9} x^{5}+35\,d^{3} e^{8} x^{4}+35\,d^{4} e^{7} x^{3}+21\,d^{5} e^{6} x^{2}+7\,d^{6}\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/(e*x + d)^8,x, algorithm="fricas")
```

```
[Out] -1/420*(105*B*b^2*e^3*x^3 + 3*B*b^2*d^3 + 60*A*a^2*e^3 + 4*(2*B*a
*b + A*b^2)*d^2*e + 10*(B*a^2 + 2*A*a*b)*d*e^2 + 21*(3*B*b^2*d*e^
2 + 4*(2*B*a*b + A*b^2)*e^3)*x^2 + 7*(3*B*b^2*d^2*e + 4*(2*B*a*b
+ A*b^2)*d*e^2 + 10*(B*a^2 + 2*A*a*b)*e^3)*x)/(e^11*x^7 + 7*d*e^1
0*x^6 + 21*d^2*e^9*x^5 + 35*d^3*e^8*x^4 + 35*d^4*e^7*x^3 + 21*d^5
*e^6*x^2 + 7*d^6*e^5*x + d^7*e^4)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**2*(B*x+A)/(e*x+d)**8,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.218609, size = 216, normalized size = 1.8

$$-\frac{\left(105\,Bb^2x^3e^3 + 63\,Bb^2dx^2e^2 + 21\,Bb^2d^2xe + 3\,Bb^2d^3 + 168\,Babx^2e^3 + 84\,Ab^2x^2e^3 + 56\,Babdxe^2 + 28\,Ab^2dxe^2 + 8\,Babd^2e\right.}{420\,(xe+d)^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/(e*x + d)^8,x, algorithm="giac")
```

```
[Out] -1/420*(105*B*b^2*x^3*e^3 + 63*B*b^2*d*x^2*e^2 + 21*B*b^2*d^2*x*e
 + 3*B*b^2*d^3 + 168*B*a*b*x^2*e^3 + 84*A*b^2*x^2*e^3 + 56*B*a*b*
d*x*e^2 + 28*A*b^2*d*x*e^2 + 8*B*a*b*d^2*e + 4*A*b^2*d^2*e + 70*B
*a^2*x*e^3 + 140*A*a*b*x*e^3 + 10*B*a^2*d*e^2 + 20*A*a*b*d*e^2 +
60*A*a^2*e^3)*e^(-4)/(x*e + d)^7
```

3.1018 $\int (a+bx)^3(A+Bx)(d+ex)^5\,dx$

Optimal. Leaf size=163

$$-\frac{b^2(d+ex)^9(-3aBe-Abe+4bBd)}{9e^5}+\frac{3b(d+ex)^8(bd-ae)(-aBe-Abe+2bBd)}{8e^5}-\frac{(d+ex)^7(bd-ae)^2(-aBe-3Abe+4bBd)}{7e^5}+\frac{(d+ex)^6(bd-ae)^3(Bd-Ae)}{6e^5}+\frac{b^3B(d+ex)^{10}}{10e^5}$$

```
[Out] ((b*d - a*e)^3*(B*d - A*e)*(d + e*x)^6)/(6*e^5) - ((b*d - a*e)^2*
(4*b*B*d - 3*A*b*e - a*B*e)*(d + e*x)^7)/(7*e^5) + (3*b*(b*d - a*
e)*(2*b*B*d - A*b*e - a*B*e)*(d + e*x)^8)/(8*e^5) - (b^2*(4*b*B*d
 - A*b*e - 3*a*B*e)*(d + e*x)^9)/(9*e^5) + (b^3*B*(d + e*x)^10)/(
10*e^5)
```

Rubi [A] time = 1.02857, antiderivative size = 163, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{b^2(d+ex)^9(-3aBe-Abe+4bBd)}{9e^5}+\frac{3b(d+ex)^8(bd-ae)(-aBe-Abe+2bBd)}{8e^5}-\frac{(d+ex)^7(bd-ae)^2(-aBe-3Abe+4bBd)}{7e^5}+\frac{(d+ex)^6(bd-ae)^3(Bd-Ae)}{6e^5}+\frac{b^3B(d+ex)^{10}}{10e^5}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^3*(A + B*x)*(d + e*x)^5,x]
```

```
[Out] ((b*d - a*e)^3*(B*d - A*e)*(d + e*x)^6)/(6*e^5) - ((b*d - a*e)^2*
(4*b*B*d - 3*A*b*e - a*B*e)*(d + e*x)^7)/(7*e^5) + (3*b*(b*d - a*
e)*(2*b*B*d - A*b*e - a*B*e)*(d + e*x)^8)/(8*e^5) - (b^2*(4*b*B*d
 - A*b*e - 3*a*B*e)*(d + e*x)^9)/(9*e^5) + (b^3*B*(d + e*x)^10)/(
10*e^5)
```

Rubi in Sympy [A] time = 86.9955, size = 155, normalized size = 0.95

$$\frac{Bb^3\left(d+ex\right)^{10}}{10e^5}+\frac{b^2\left(d+ex\right)^9\left(Abe+3Bae-4Bbd\right)}{9e^5}+\frac{3b\left(d+ex\right)^8\left(ae-bd\right)\left(Abe+Bae-2Bbd\right)}{8e^5}+\frac{\left(d+ex\right)^7\left(ae-bd\right)^2\left(3Abe+Bae-4Bbd\right)}{7e^5}+\frac{\left(d+ex\right)^6\left(Ae-Bd\right)\left(ae-bd\right)^3}{6e^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**3*(B*x+A)*(e*x+d)**5,x)
```

```
[Out] B*b**3*(d + e*x)**10/(10*e**5) + b**2*(d + e*x)**9*(A*b*e + 3*B*a
*e - 4*B*b*d)/(9*e**5) + 3*b*(d + e*x)**8*(a*e - b*d)*(A*b*e + B*
a*e - 2*B*b*d)/(8*e**5) + (d + e*x)**7*(a*e - b*d)**2*(3*A*b*e +
B*a*e - 4*B*b*d)/(7*e**5) + (d + e*x)**6*(A*e - B*d)*(a*e - b*d)*
*3/(6*e**5)
```

Mathematica [B] time = 0.321565, size = 471, normalized size = 2.89

$$a^3Ad^5x+\frac{1}{3}ad^3x^3\left(A\left(10a^2e^2+15abde+3b^2d^2\right)+aBd(5ae+3bd)\right)+\frac{1}{8}be^3x^8\left(3a^2Be^2+3abe(Ae+5Bd)+5b^2d(Ae+2Bd)\right)+\frac{1}{2}a^2d^4x^2(5aAe+aBd+3Abd)+\frac{1}{7}e^2x^7\left(a^3Be^3+3a^2be^2(Ae+5Bd)+15ab^2de(Ae+2Bd)+10b^3d^2(Ae+Bd)\right)+\frac{1}{6}ex^6\left(a^3e^3(Ae+5Bd)+15a^2bde^2(Ae+2Bd)+30ab^2d^2e(Ae+Bd)+5b^3d^3(2Ae+Bd)\right)+\frac{1}{5}dx^5\left(5a^3e^3(Ae+2Bd)+30a^2bde^2(Ae+Bd)+15ab^2d^2e(2Ae+Bd)+b^3d^3(5Ae+Bd)\right)+\frac{1}{4}d^2x^4\left(aBd\left(10a^2e^2+15abde+3b^2d^2\right)+A\left(10a^3e^3+30a^2bde^2+15ab^2d^2e+b^3d^3\right)\right)+\frac{1}{9}b^2e^4x^9(3aBe+Abe+5bBd)+\frac{1}{10}b^3Be^5x^{10}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^3*(A + B*x)*(d + e*x)^5,x]
```

```
[Out] a^3*A*d^5*x + (a^2*d^4*(3*A*b*d + a*B*d + 5*a*A*e)*x^2)/2 + (a*d^
3*(a*B*d*(3*b*d + 5*a*e) + A*(3*b^2*d^2 + 15*a*b*d*e + 10*a^2*e^2
))*x^3)/3 + (d^2*(a*B*d*(3*b^2*d^2 + 15*a*b*d*e + 10*a^2*e^2) + A
*(b^3*d^3 + 15*a*b^2*d^2*e + 30*a^2*b*d*e^2 + 10*a^3*e^3))*x^4)/4
 + (d*(30*a^2*b*d*e^2*(B*d + A*e) + 5*a^3*e^3*(2*B*d + A*e) + 15*
a*b^2*d^2*e*(B*d + 2*A*e) + b^3*d^3*(B*d + 5*A*e))*x^5)/5 + (e*(3
0*a*b^2*d^2*e*(B*d + A*e) + 15*a^2*b*d*e^2*(2*B*d + A*e) + a^3*e^
3*(5*B*d + A*e) + 5*b^3*d^3*(B*d + 2*A*e))*x^6)/6 + (e^2*(a^3*B*e
^3 + 10*b^3*d^2*(B*d + A*e) + 15*a*b^2*d*e*(2*B*d + A*e) + 3*a^2*
b*e^2*(5*B*d + A*e))*x^7)/7 + (b*e^3*(3*a^2*B*e^2 + 5*b^2*d*(2*B*
d + A*e) + 3*a*b*e*(5*B*d + A*e))*x^8)/8 + (b^2*e^4*(5*b*B*d + A*
b*e + 3*a*B*e)*x^9)/9 + (b^3*B*e^5*x^10)/10
```

Maple [B] time = 0.004, size = 529, normalized size = 3.3

$$\frac{b^3Be^5x^{10}}{10}+\frac{\left(\left(b^3A+3\,ab^2B\right)e^5+5\,b^3Bde^4\right)x^9}{9}+\frac{\left(\left(3\,ab^2A+3\,a^2bB\right)e^5+5\,\left(b^3A+3\,ab^2B\right)de^4+10\,b^3Bd^2e^3\right)x^8}{8}+\frac{\left(\left(3\,Aa^2b+Ba^3\right)e^5+5\,\left(3\,ab^2A+3\,a^2bB\right)de^4+10\,\left(b^3A+3\,ab^2B\right)d^2e^3+10\,b^3Bd^3e^2\right)x^7}{7}+\frac{\left(a^3Ae^5+5\,\left(3\,Aa^2b+Ba^3\right)de^4+10\,\left(3\,ab^2A+3\,a^2bB\right)d^2e^3+10\,\left(b^3A+3\,ab^2B\right)d^3e^2+5\,b^3Bd^4e\right)x^6}{6}+\frac{\left(5\,a^3Ade^4+10\,\left(3\,Aa^2b+Ba^3\right)d^2e^3+10\,\left(3\,ab^2A+3\,a^2bB\right)d^3e^2+5\,\left(b^3A+3\,ab^2B\right)d^4e+b^3Bd^5\right)x^5}{5}+\frac{\left(10\,a^3Ad^2e^3+10\,\left(3\,Aa^2b+Ba^3\right)d^3e^2+5\,\left(3\,ab^2A+3\,a^2bB\right)d^4e+\left(b^3A+3\,ab^2B\right)d^5\right)x^4}{4}+\frac{\left(10\,a^3Ad^3e^2+5\,\left(3\,Aa^2b+Ba^3\right)d^4e+\left(3\,ab^2A+3\,a^2bB\right)d^5\right)x^3}{3}+\frac{\left(5\,a^3Ad^4e+\left(3\,Aa^2b+Ba^3\right)d^5\right)x^2}{2}+a^3Ad^5x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3*(B*x+A)*(e*x+d)^5,x)
```

```
[Out] 1/10*b^3*B*e^5*x^10+1/9*((A*b^3+3*B*a*b^2)*e^5+5*b^3*B*d*e^4)*x^9
+1/8*((3*A*a*b^2+3*B*a^2*b)*e^5+5*(A*b^3+3*B*a*b^2)*d*e^4+10*b^3*
B*d^2*e^3)*x^8+1/7*((3*A*a^2*b+B*a^3)*e^5+5*(3*A*a*b^2+3*B*a^2*b)
*d*e^4+10*(A*b^3+3*B*a*b^2)*d^2*e^3+10*b^3*B*d^3*e^2)*x^7+1/6*(a^
3*A*e^5+5*(3*A*a^2*b+B*a^3)*d*e^4+10*(3*A*a*b^2+3*B*a^2*b)*d^2*e^
3+10*(A*b^3+3*B*a*b^2)*d^3*e^2+5*b^3*B*d^4*e)*x^6+1/5*(5*a^3*A*d*
e^4+10*(3*A*a^2*b+B*a^3)*d^2*e^3+10*(3*A*a*b^2+3*B*a^2*b)*d^3*e^2
+5*(A*b^3+3*B*a*b^2)*d^4*e+b^3*B*d^5)*x^5+1/4*(10*a^3*A*d^2*e^3+1
```

```
0*(3*A*a^2*b+B*a^3)*d^3*e^2+5*(3*A*a*b^2+3*B*a^2*b)*d^4*e+(A*b^3+
3*B*a*b^2)*d^5)*x^4+1/3*(10*a^3*A*d^3*e^2+5*(3*A*a^2*b+B*a^3)*d^4
*e+(3*A*a*b^2+3*B*a^2*b)*d^5)*x^3+1/2*(5*a^3*A*d^4*e+(3*A*a^2*b+B
*a^3)*d^5)*x^2+a^3*A*d^5*x
```

Maxima [A] time = 1.36446, size = 699, normalized size = 4.29

$$\frac{1}{10}Bb^3e^5x^{10}+Aa^3d^5x+\frac{1}{9}\left(5Bb^3de^4+\left(3Bab^2+Ab^3\right)e^5\right)x^9+\frac{1}{8}\left(10Bb^3d^2e^3+5\left(3Bab^2+Ab^3\right)de^4+3\left(Ba^2b+Aab^2\right)e^5\right)x^8+\frac{1}{7}\left(10Bb^3d^3e^2+10\left(3Bab^2+Ab^3\right)d^2e^3+15\left(Ba^2b+Aab^2\right)de^4+\left(Ba^3+3Aa^2b\right)e^5\right)x^7+\frac{1}{6}\left(5Bb^3d^4e+Aa^3e^5+10\left(3Bab^2+Ab^3\right)d^3e^2+30\left(Ba^2b+Aab^2\right)d^2e^3+5\left(Ba^3+3Aa^2b\right)de^4\right)x^6+\frac{1}{5}\left(Bb^3d^5+5Aa^3de^4+5\left(3Bab^2+Ab^3\right)d^4e+30\left(Ba^2b+Aab^2\right)d^3e^2+10\left(Ba^3+3Aa^2b\right)d^2e^3\right)x^5+\frac{1}{4}\left(10Aa^3d^2e^3+\left(3Bab^2+Ab^3\right)d^5+15\left(Ba^2b+Aab^2\right)d^4e+10\left(Ba^3+3Aa^2b\right)d^3e^2\right)x^4+\frac{1}{3}\left(10Aa^3d^3e^2+3\left(Ba^2b+Aab^2\right)d^5+5\left(Ba^3+3Aa^2b\right)d^4e\right)x^3+\frac{1}{2}\left(5Aa^3d^4e+\left(Ba^3+3Aa^2b\right)d^5\right)x^2$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*(e*x + d)^5,x, algorithm="maxima")
```

```
[Out] 1/10*B*b^3*e^5*x^10 + A*a^3*d^5*x + 1/9*(5*B*b^3*d*e^4 + (3*B*a*b
^2 + A*b^3)*e^5)*x^9 + 1/8*(10*B*b^3*d^2*e^3 + 5*(3*B*a*b^2 + A*b
^3)*d*e^4 + 3*(B*a^2*b + A*a*b^2)*e^5)*x^8 + 1/7*(10*B*b^3*d^3*e^
2 + 10*(3*B*a*b^2 + A*b^3)*d^2*e^3 + 15*(B*a^2*b + A*a*b^2)*d*e^4
 + (B*a^3 + 3*A*a^2*b)*e^5)*x^7 + 1/6*(5*B*b^3*d^4*e + A*a^3*e^5
+ 10*(3*B*a*b^2 + A*b^3)*d^3*e^2 + 30*(B*a^2*b + A*a*b^2)*d^2*e^3
 + 5*(B*a^3 + 3*A*a^2*b)*d*e^4)*x^6 + 1/5*(B*b^3*d^5 + 5*A*a^3*d*
e^4 + 5*(3*B*a*b^2 + A*b^3)*d^4*e + 30*(B*a^2*b + A*a*b^2)*d^3*e^
2 + 10*(B*a^3 + 3*A*a^2*b)*d^2*e^3)*x^5 + 1/4*(10*A*a^3*d^2*e^3 +
 (3*B*a*b^2 + A*b^3)*d^5 + 15*(B*a^2*b + A*a*b^2)*d^4*e + 10*(B*a
^3 + 3*A*a^2*b)*d^3*e^2)*x^4 + 1/3*(10*A*a^3*d^3*e^2 + 3*(B*a^2*b
 + A*a*b^2)*d^5 + 5*(B*a^3 + 3*A*a^2*b)*d^4*e)*x^3 + 1/2*(5*A*a^3
*d^4*e + (B*a^3 + 3*A*a^2*b)*d^5)*x^2
```

Fricas [A] time = 0.190962, size = 1, normalized size = 0.01

$$\frac{1}{10}x^{10}e^5b^3B+\frac{5}{9}x^9e^4db^3B+\frac{1}{3}x^9e^5b^2aB+\frac{1}{9}x^9e^5b^3A+\frac{5}{4}x^8e^3d^2b^3B+\frac{15}{8}x^8e^4db^2aB+\frac{3}{8}x^8e^5ba^2B+\frac{5}{8}x^8e^4db^3A+\frac{3}{8}x^8e^5b^2aA+\frac{10}{7}x^7e^2d^3b^3B+\frac{30}{7}x^7e^3d^2b^2aB+\frac{15}{7}x^7e^4dba^2B+\frac{1}{7}x^7e^5a^3B+\frac{10}{7}x^7e^3d^2b^3A+\frac{15}{7}x^7e^4db^2aA+\frac{3}{7}x^7e^5ba^2A+\frac{5}{6}x^6ed^4b^3B+5x^6e^2d^3b^2aB+5x^6e^3d^2ba^2B+\frac{5}{6}x^6e^4da^3B+\frac{5}{3}x^6e^2d^3b^3A+5x^6e^3d^2b^2aA+\frac{5}{2}x^6e^4dba^2A+\frac{1}{6}x^6e^5a^3A+\frac{1}{5}x^5d^5b^3B+3x^5ed^4b^2aB+6x^5e^2d^3ba^2B+2x^5e^3d^2a^3B+x^5ed^4b^3A+6x^5e^2d^3b^2aA+6x^5e^3d^2ba^2A+x^5e^4da^3A+\frac{3}{4}x^4d^5b^2aB+\frac{15}{4}x^4ed^4ba^2B+\frac{5}{2}x^4e^2d^3a^3B+\frac{1}{4}x^4d^5b^3A+\frac{15}{4}x^4ed^4b^2aA+\frac{15}{2}x^4e^2d^3ba^2A+\frac{5}{2}x^4e^3d^2a^3A+x^3d^5ba^2B+\frac{5}{3}x^3ed^4a^3B+x^3d^5b^2aA+5x^3ed^4ba^2A+\frac{10}{3}x^3e^2d^3a^3A+\frac{1}{2}x^2d^5a^3B+\frac{3}{2}x^2d^5ba^2A+\frac{5}{2}x^2ed^4a^3A+xd^5a^3A$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*(e*x + d)^5,x, algorithm="fricas")
```

```
[Out] 1/10*x^10*e^5*b^3*B + 5/9*x^9*e^4*d*b^3*B + 1/3*x^9*e^5*b^2*a*B +
 1/9*x^9*e^5*b^3*A + 5/4*x^8*e^3*d^2*b^3*B + 15/8*x^8*e^4*d*b^2*a
```

```
*B + 3/8*x^8*e^5*b*a^2*B + 5/8*x^8*e^4*d*b^3*A + 3/8*x^8*e^5*b^2*
a*A + 10/7*x^7*e^2*d^3*b^3*B + 30/7*x^7*e^3*d^2*b^2*a*B + 15/7*x^
7*e^4*d*b*a^2*B + 1/7*x^7*e^5*a^3*B + 10/7*x^7*e^3*d^2*b^3*A + 15
/7*x^7*e^4*d*b^2*a*A + 3/7*x^7*e^5*b*a^2*A + 5/6*x^6*e*d^4*b^3*B
+ 5*x^6*e^2*d^3*b^2*a*B + 5*x^6*e^3*d^2*b*a^2*B + 5/6*x^6*e^4*d*a
^3*B + 5/3*x^6*e^2*d^3*b^3*A + 5*x^6*e^3*d^2*b^2*a*A + 5/2*x^6*e^
4*d*b*a^2*A + 1/6*x^6*e^5*a^3*A + 1/5*x^5*d^5*b^3*B + 3*x^5*e*d^4
*b^2*a*B + 6*x^5*e^2*d^3*b*a^2*B + 2*x^5*e^3*d^2*a^3*B + x^5*e*d^
4*b^3*A + 6*x^5*e^2*d^3*b^2*a*A + 6*x^5*e^3*d^2*b*a^2*A + x^5*e^4
*d*a^3*A + 3/4*x^4*d^5*b^2*a*B + 15/4*x^4*e*d^4*b*a^2*B + 5/2*x^4
*e^2*d^3*a^3*B + 1/4*x^4*d^5*b^3*A + 15/4*x^4*e*d^4*b^2*a*A + 15/
2*x^4*e^2*d^3*b*a^2*A + 5/2*x^4*e^3*d^2*a^3*A + x^3*d^5*b*a^2*B +
 5/3*x^3*e*d^4*a^3*B + x^3*d^5*b^2*a*A + 5*x^3*e*d^4*b*a^2*A + 10
/3*x^3*e^2*d^3*a^3*A + 1/2*x^2*d^5*a^3*B + 3/2*x^2*d^5*b*a^2*A +
5/2*x^2*e*d^4*a^3*A + x*d^5*a^3*A
```

Sympy [A] time = 0.367625, size = 678, normalized size = 4.16

$$
\begin{aligned}
&Aa^3d^5x + \frac{Bb^3e^5x^{10}}{10} + x^9\left(\frac{Ab^3e^5}{9} + \frac{Bab^2e^5}{3} + \frac{5Bb^3de^4}{9}\right)\\
&+ x^8\left(\frac{3Aab^2e^5}{8} + \frac{5Ab^3de^4}{8} + \frac{3Ba^2be^5}{8} + \frac{15Bab^2de^4}{8} + \frac{5Bb^3d^2e^3}{4}\right)\\
&+ x^7\left(\frac{3Aa^2be^5}{7} + \frac{15Aab^2de^4}{7} + \frac{10Ab^3d^2e^3}{7} + \frac{Ba^3e^5}{7} + \frac{15Ba^2bde^4}{7} + \frac{30Bab^2d^2e^3}{7} + \frac{10Bb^3d^3e^2}{7}\right)\\
&+ x^6\left(\frac{Aa^3e^5}{6} + \frac{5Aa^2bde^4}{2} + 5Aab^2d^2e^3 + \frac{5Ab^3d^3e^2}{3}\right.\\
&\left.+ \frac{5Ba^3de^4}{6} + 5Ba^2bd^2e^3 + 5Bab^2d^3e^2 + \frac{5Bb^3d^4e}{6}\right)\\
&+ x^5\left(Aa^3de^4 + 6Aa^2bd^2e^3 + 6Aab^2d^3e^2 + Ab^3d^4e + 2Ba^3d^2e^3 + 6Ba^2bd^3e^2 + 3Bab^2d^4e + \frac{Bb^3d^5}{5}\right)\\
&+ x^4\left(\frac{5Aa^3d^2e^3}{2} + \frac{15Aa^2bd^3e^2}{2} + \frac{15Aab^2d^4e}{4} + \frac{Ab^3d^5}{4} + \frac{5Ba^3d^3e^2}{2} + \frac{15Ba^2bd^4e}{4} + \frac{3Bab^2d^5}{4}\right)\\
&+ x^3\left(\frac{10Aa^3d^3e^2}{3} + 5Aa^2bd^4e + Aab^2d^5 + \frac{5Ba^3d^4e}{3} + Ba^2bd^5\right) + x^2\left(\frac{5Aa^3d^4e}{2} + \frac{3Aa^2bd^5}{2} + \frac{Ba^3d^5}{2}\right)
\end{aligned}
$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((b*x+a)**3*(B*x+A)*(e*x+d)**5,x)
```

```
[Out] A*a**3*d**5*x + B*b**3*e**5*x**10/10 + x**9*(A*b**3*e**5/9 + B*a*
b**2*e**5/3 + 5*B*b**3*d*e**4/9) + x**8*(3*A*a*b**2*e**5/8 + 5*A*
b**3*d*e**4/8 + 3*B*a**2*b*e**5/8 + 15*B*a*b**2*d*e**4/8 + 5*B*b*
*3*d**2*e**3/4) + x**7*(3*A*a**2*b*e**5/7 + 15*A*a*b**2*d*e**4/7
+ 10*A*b**3*d**2*e**3/7 + B*a**3*e**5/7 + 15*B*a**2*b*d*e**4/7 +
30*B*a*b**2*d**2*e**3/7 + 10*B*b**3*d**3*e**2/7) + x**6*(A*a**3*e
**5/6 + 5*A*a**2*b*d*e**4/2 + 5*A*a*b**2*d**2*e**3 + 5*A*b**3*d**
3*e**2/3 + 5*B*a**3*d*e**4/6 + 5*B*a**2*b*d**2*e**3 + 5*B*a*b**2*
d**3*e**2 + 5*B*b**3*d**4*e/6) + x**5*(A*a**3*d*e**4 + 6*A*a**2*b
*d**2*e**3 + 6*A*a*b**2*d**3*e**2 + A*b**3*d**4*e + 2*B*a**3*d**2
*e**3 + 6*B*a**2*b*d**3*e**2 + 3*B*a*b**2*d**4*e + B*b**3*d**5/5)
 + x**4*(5*A*a**3*d**2*e**3/2 + 15*A*a**2*b*d**3*e**2/2 + 15*A*a*
b**2*d**4*e/4 + A*b**3*d**5/4 + 5*B*a**3*d**3*e**2/2 + 15*B*a**2*
b*d**4*e/4 + 3*B*a*b**2*d**5/4) + x**3*(10*A*a**3*d**3*e**2/3 + 5
*A*a**2*b*d**4*e + A*a*b**2*d**5 + 5*B*a**3*d**4*e/3 + B*a**2*b*d
**5) + x**2*(5*A*a**3*d**4*e/2 + 3*A*a**2*b*d**5/2 + B*a**3*d**5/
2)
```

GIAC/XCAS [A] time = 0.214908, size = 856, normalized size = 5.25

$$\frac{1}{10}Bb^3x^{10}e^5+\frac{5}{9}Bb^3dx^9e^4+\frac{5}{4}Bb^3d^2x^8e^3+\frac{10}{7}Bb^3d^3x^7e^2+\frac{5}{6}Bb^3d^4x^6e+\frac{1}{5}Bb^3d^5x^5+\frac{1}{3}Bab^2x^9e^5+\frac{1}{9}Ab^3x^9e^5+\frac{15}{8}Bab^2dx^8e^4+\frac{5}{8}Ab^3dx^8e^4+\frac{30}{7}Bab^2d^2x^7e^3+\frac{10}{7}Ab^3d^2x^7e^3+5Bab^2d^3x^6e^2+\frac{5}{3}Ab^3d^3x^6e^2+3Bab^2d^4x^5e+Ab^3d^4x^5e+\frac{3}{4}Bab^2d^5x^4+\frac{1}{4}Ab^3d^5x^4+\frac{3}{8}Ba^2bx^8e^5+\frac{3}{8}Aab^2x^8e^5+\frac{15}{7}Ba^2bdx^7e^4+\frac{15}{7}Aab^2dx^7e^4+5Ba^2bd^2x^6e^3+5Aab^2d^2x^6e^3+6Ba^2bd^3x^5e^2+6Aab^2d^3x^5e^2+\frac{15}{4}Ba^2bd^4x^4e+\frac{15}{4}Aab^2d^4x^4e+Ba^2bd^5x^3+Aab^2d^5x^3+\frac{1}{7}Ba^3x^7e^5+\frac{3}{7}Aa^2bx^7e^5+\frac{5}{6}Ba^3dx^6e^4+\frac{5}{2}Aa^2bdx^6e^4+2Ba^3d^2x^5e^3+6Aa^2bd^2x^5e^3+\frac{5}{2}Ba^3d^3x^4e^2+\frac{15}{2}Aa^2bd^3x^4e^2+\frac{5}{3}Ba^3d^4x^3e+5Aa^2bd^4x^3e+\frac{1}{2}Ba^3d^5x^2+\frac{3}{2}Aa^2bd^5x^2+\frac{1}{6}Aa^3x^6e^5+Aa^3dx^5e^4+\frac{5}{2}Aa^3d^2x^4e^3+\frac{10}{3}Aa^3d^3x^3e^2+\frac{5}{2}Aa^3d^4x^2e+Aa^3d^5x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*(e*x + d)^5,x, algorithm="giac")
```

```
[Out] 1/10*B*b^3*x^10*e^5 + 5/9*B*b^3*d*x^9*e^4 + 5/4*B*b^3*d^2*x^8*e^3
 + 10/7*B*b^3*d^3*x^7*e^2 + 5/6*B*b^3*d^4*x^6*e + 1/5*B*b^3*d^5*x
^5 + 1/3*B*a*b^2*x^9*e^5 + 1/9*A*b^3*x^9*e^5 + 15/8*B*a*b^2*d*x^8
*e^4 + 5/8*A*b^3*d*x^8*e^4 + 30/7*B*a*b^2*d^2*x^7*e^3 + 10/7*A*b^
3*d^2*x^7*e^3 + 5*B*a*b^2*d^3*x^6*e^2 + 5/3*A*b^3*d^3*x^6*e^2 + 3
*B*a*b^2*d^4*x^5*e + A*b^3*d^4*x^5*e + 3/4*B*a*b^2*d^5*x^4 + 1/4*
A*b^3*d^5*x^4 + 3/8*B*a^2*b*x^8*e^5 + 3/8*A*a*b^2*x^8*e^5 + 15/7*
B*a^2*b*d*x^7*e^4 + 15/7*A*a*b^2*d*x^7*e^4 + 5*B*a^2*b*d^2*x^6*e^
3 + 5*A*a*b^2*d^2*x^6*e^3 + 6*B*a^2*b*d^3*x^5*e^2 + 6*A*a*b^2*d^3
*x^5*e^2 + 15/4*B*a^2*b*d^4*x^4*e + 15/4*A*a*b^2*d^4*x^4*e + B*a^
2*b*d^5*x^3 + A*a*b^2*d^5*x^3 + 1/7*B*a^3*x^7*e^5 + 3/7*A*a^2*b*x
^7*e^5 + 5/6*B*a^3*d*x^6*e^4 + 5/2*A*a^2*b*d*x^6*e^4 + 2*B*a^3*d^
2*x^5*e^3 + 6*A*a^2*b*d^2*x^5*e^3 + 5/2*B*a^3*d^3*x^4*e^2 + 15/2*
A*a^2*b*d^3*x^4*e^2 + 5/3*B*a^3*d^4*x^3*e + 5*A*a^2*b*d^4*x^3*e +
 1/2*B*a^3*d^5*x^2 + 3/2*A*a^2*b*d^5*x^2 + 1/6*A*a^3*x^6*e^5 + A*
a^3*d*x^5*e^4 + 5/2*A*a^3*d^2*x^4*e^3 + 10/3*A*a^3*d^3*x^3*e^2 +
5/2*A*a^3*d^4*x^2*e + A*a^3*d^5*x
```

3.1019 $\int (a+bx)^3(A+Bx)(d+ex)^4\,dx$

Optimal. Leaf size=163

$$-\frac{b^2(d+ex)^8(-3aBe-Abe+4bBd)}{8e^5}+\frac{3b(d+ex)^7(bd-ae)(-aBe-Abe+2bBd)}{7e^5}-\frac{(d+ex)^6(bd-ae)^2(-aBe-3Abe+4bBd)}{6e^5}+\frac{(d+ex)^5(bd-ae)^3(Bd-Ae)}{5e^5}+\frac{b^3B(d+ex)^9}{9e^5}$$

```
[Out] ((b*d - a*e)^3*(B*d - A*e)*(d + e*x)^5)/(5*e^5) - ((b*d - a*e)^2*
(4*b*B*d - 3*A*b*e - a*B*e)*(d + e*x)^6)/(6*e^5) + (3*b*(b*d - a*
e)*(2*b*B*d - A*b*e - a*B*e)*(d + e*x)^7)/(7*e^5) - (b^2*(4*b*B*d
 - A*b*e - 3*a*B*e)*(d + e*x)^8)/(8*e^5) + (b^3*B*(d + e*x)^9)/(9
*e^5)
```

Rubi [A] time = 0.844321, antiderivative size = 163, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{b^2(d+ex)^8(-3aBe-Abe+4bBd)}{8e^5}+\frac{3b(d+ex)^7(bd-ae)(-aBe-Abe+2bBd)}{7e^5}-\frac{(d+ex)^6(bd-ae)^2(-aBe-3Abe+4bBd)}{6e^5}+\frac{(d+ex)^5(bd-ae)^3(Bd-Ae)}{5e^5}+\frac{b^3B(d+ex)^9}{9e^5}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^3*(A + B*x)*(d + e*x)^4,x]
```

```
[Out] ((b*d - a*e)^3*(B*d - A*e)*(d + e*x)^5)/(5*e^5) - ((b*d - a*e)^2*
(4*b*B*d - 3*A*b*e - a*B*e)*(d + e*x)^6)/(6*e^5) + (3*b*(b*d - a*
e)*(2*b*B*d - A*b*e - a*B*e)*(d + e*x)^7)/(7*e^5) - (b^2*(4*b*B*d
 - A*b*e - 3*a*B*e)*(d + e*x)^8)/(8*e^5) + (b^3*B*(d + e*x)^9)/(9
*e^5)
```

Rubi in Sympy [A] time = 80.5366, size = 155, normalized size = 0.95

$$\frac{Bb^3\left(d+ex\right)^9}{9e^5}+\frac{b^2\left(d+ex\right)^8\left(Abe+3Bae-4Bbd\right)}{8e^5}+\frac{3b\left(d+ex\right)^7\left(ae-bd\right)\left(Abe+Bae-2Bbd\right)}{7e^5}+\frac{\left(d+ex\right)^6\left(ae-bd\right)^2\left(3Abe+Bae-4Bbd\right)}{6e^5}+\frac{\left(d+ex\right)^5\left(Ae-Bd\right)\left(ae-bd\right)^3}{5e^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**3*(B*x+A)*(e*x+d)**4,x)
```

```
[Out] B*b**3*(d + e*x)**9/(9*e**5) + b**2*(d + e*x)**8*(A*b*e + 3*B*a*e
 - 4*B*b*d)/(8*e**5) + 3*b*(d + e*x)**7*(a*e - b*d)*(A*b*e + B*a*
e - 2*B*b*d)/(7*e**5) + (d + e*x)**6*(a*e - b*d)**2*(3*A*b*e + B*
a*e - 4*B*b*d)/(6*e**5) + (d + e*x)**5*(A*e - B*d)*(a*e - b*d)**3
/(5*e**5)
```

Mathematica [B] time = 0.280052, size = 397, normalized size = 2.44

$$a^3Ad^4x+\frac{1}{3}ad^2x^3\left(3A\left(2a^2e^2+4abde+b^2d^2\right)+aBd(4ae+3bd)\right)+\frac{1}{7}be^2x^7\left(3a^2Be^2+3abe(Ae+4Bd)+2b^2d(2Ae+3Bd)\right)+\frac{1}{2}a^2d^3x^2(4aAe+aBd+3Abd)+\frac{1}{6}ex^6\left(a^3Be^3+3a^2be^2(Ae+4Bd)+6ab^2de(2Ae+3Bd)+2b^3d^2(3Ae+2Bd)\right)+\frac{1}{5}x^5\left(a^3e^3(Ae+4Bd)+6a^2bde^2(2Ae+3Bd)+6ab^2d^2e(3Ae+2Bd)+b^3d^3(4Ae+Bd)\right)+\frac{1}{4}dx^4\left(3aBd\left(2a^2e^2+4abde+b^2d^2\right)+A\left(4a^3e^3+18a^2bde^2+12ab^2d^2e+b^3d^3\right)\right)+\frac{1}{8}b^2e^3x^8(3aBe+Abe+4bBd)+\frac{1}{9}b^3Be^4x^9$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^3*(A + B*x)*(d + e*x)^4,x]
```

```
[Out] a^3*A*d^4*x + (a^2*d^3*(3*A*b*d + a*B*d + 4*a*A*e)*x^2)/2 + (a*d^
2*(a*B*d*(3*b*d + 4*a*e) + 3*A*(b^2*d^2 + 4*a*b*d*e + 2*a^2*e^2))
*x^3)/3 + (d*(3*a*B*d*(b^2*d^2 + 4*a*b*d*e + 2*a^2*e^2) + A*(b^3*
d^3 + 12*a*b^2*d^2*e + 18*a^2*b*d*e^2 + 4*a^3*e^3))*x^4)/4 + ((a^
3*e^3*(4*B*d + A*e) + 6*a^2*b*d*e^2*(3*B*d + 2*A*e) + 6*a*b^2*d^2
*e*(2*B*d + 3*A*e) + b^3*d^3*(B*d + 4*A*e))*x^5)/5 + (e*(a^3*B*e^
3 + 3*a^2*b*e^2*(4*B*d + A*e) + 6*a*b^2*d*e*(3*B*d + 2*A*e) + 2*b
^3*d^2*(2*B*d + 3*A*e))*x^6)/6 + (b*e^2*(3*a^2*B*e^2 + 3*a*b*e*(4
*B*d + A*e) + 2*b^2*d*(3*B*d + 2*A*e))*x^7)/7 + (b^2*e^3*(4*b*B*d
 + A*b*e + 3*a*B*e)*x^8)/8 + (b^3*B*e^4*x^9)/9
```

Maple [B] time = 0.001, size = 434, normalized size = 2.7

$$\frac{b^3Be^4x^9}{9}+\frac{\left(\left(b^3A+3\,ab^2B\right)e^4+4\,b^3Bde^3\right)x^8}{8}+\frac{\left(\left(3\,ab^2A+3\,a^2bB\right)e^4+4\,\left(b^3A+3\,ab^2B\right)de^3+6\,b^3Bd^2e^2\right)x^7}{7}+\frac{\left(\left(3\,Aa^2b+Ba^3\right)e^4+4\,\left(3\,ab^2A+3\,a^2bB\right)de^3+6\,\left(b^3A+3\,ab^2B\right)d^2e^2+4\,b^3Bd^3e\right)x^6}{6}+\frac{\left(a^3Ae^4+4\,\left(3\,Aa^2b+Ba^3\right)de^3+6\,\left(3\,ab^2A+3\,a^2bB\right)d^2e^2+4\,\left(b^3A+3\,ab^2B\right)d^3e+b^3Bd^4\right)x^5}{5}+\frac{\left(4\,a^3Ade^3+6\,\left(3\,Aa^2b+Ba^3\right)d^2e^2+4\,\left(3\,ab^2A+3\,a^2bB\right)d^3e+\left(b^3A+3\,ab^2B\right)d^4\right)x^4}{4}+\frac{\left(6\,a^3Ad^2e^2+4\,\left(3\,Aa^2b+Ba^3\right)d^3e+\left(3\,ab^2A+3\,a^2bB\right)d^4\right)x^3}{3}+\frac{\left(4\,a^3Ad^3e+\left(3\,Aa^2b+Ba^3\right)d^4\right)x^2}{2}+a^3Ad^4x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3*(B*x+A)*(e*x+d)^4,x)
```

```
[Out] 1/9*b^3*B*e^4*x^9+1/8*((A*b^3+3*B*a*b^2)*e^4+4*b^3*B*d*e^3)*x^8+1
/7*((3*A*a*b^2+3*B*a^2*b)*e^4+4*(A*b^3+3*B*a*b^2)*d*e^3+6*b^3*B*d
^2*e^2)*x^7+1/6*((3*A*a^2*b+B*a^3)*e^4+4*(3*A*a*b^2+3*B*a^2*b)*d*
e^3+6*(A*b^3+3*B*a*b^2)*d^2*e^2+4*b^3*B*d^3*e)*x^6+1/5*(a^3*A*e^4
+4*(3*A*a^2*b+B*a^3)*d*e^3+6*(3*A*a*b^2+3*B*a^2*b)*d^2*e^2+4*(A*b
^3+3*B*a*b^2)*d^3*e+b^3*B*d^4)*x^5+1/4*(4*a^3*A*d*e^3+6*(3*A*a^2*
b+B*a^3)*d^2*e^2+4*(3*A*a*b^2+3*B*a^2*b)*d^3*e+(A*b^3+3*B*a*b^2)*
d^4)*x^4+1/3*(6*a^3*A*d^2*e^2+4*(3*A*a^2*b+B*a^3)*d^3*e+(3*A*a*b^
2+3*B*a^2*b)*d^4)*x^3+1/2*(4*a^3*A*d^3*e+(3*A*a^2*b+B*a^3)*d^4)*x
^2+a^3*A*d^4*x
```

Maxima [A] time = 1.3632, size = 574, normalized size = 3.52

$$\frac{1}{9}Bb^3e^4x^9 + Aa^3d^4x + \frac{1}{8}\left(4Bb^3de^3 + \left(3Bab^2 + Ab^3\right)e^4\right)x^8 + \frac{1}{7}\left(6Bb^3d^2e^2 + 4\left(3Bab^2 + Ab^3\right)de^3 + 3\left(Ba^2b + Aab^2\right)e^4\right)x^7 + \frac{1}{6}\left(4Bb^3d^3e + 6\left(3Bab^2 + Ab^3\right)d^2e^2 + 12\left(Ba^2b + Aab^2\right)de^3 + \left(Ba^3 + 3Aa^2b\right)e^4\right)x^6 + \frac{1}{5}\left(Bb^3d^4 + Aa^3e^4 + 4\left(3Bab^2 + Ab^3\right)d^3e + 18\left(Ba^2b + Aab^2\right)d^2e^2 + 4\left(Ba^3 + 3Aa^2b\right)de^3\right)x^5 + \frac{1}{4}\left(4Aa^3de^3 + \left(3Bab^2 + Ab^3\right)d^4 + 12\left(Ba^2b + Aab^2\right)d^3e + 6\left(Ba^3 + 3Aa^2b\right)d^2e^2\right)x^4 + \frac{1}{3}\left(6Aa^3d^2e^2 + 3\left(Ba^2b + Aab^2\right)d^4 + 4\left(Ba^3 + 3Aa^2b\right)d^3e\right)x^3 + \frac{1}{2}\left(4Aa^3d^3e + \left(Ba^3 + 3Aa^2b\right)d^4\right)x^2$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*(e*x + d)^4,x, algorithm="maxima")
```

```
[Out] 1/9*B*b^3*e^4*x^9 + A*a^3*d^4*x + 1/8*(4*B*b^3*d*e^3 + (3*B*a*b^2
 + A*b^3)*e^4)*x^8 + 1/7*(6*B*b^3*d^2*e^2 + 4*(3*B*a*b^2 + A*b^3)
*d*e^3 + 3*(B*a^2*b + A*a*b^2)*e^4)*x^7 + 1/6*(4*B*b^3*d^3*e + 6*
(3*B*a*b^2 + A*b^3)*d^2*e^2 + 12*(B*a^2*b + A*a*b^2)*d*e^3 + (B*a
^3 + 3*A*a^2*b)*e^4)*x^6 + 1/5*(B*b^3*d^4 + A*a^3*e^4 + 4*(3*B*a*
b^2 + A*b^3)*d^3*e + 18*(B*a^2*b + A*a*b^2)*d^2*e^2 + 4*(B*a^3 +
3*A*a^2*b)*d*e^3)*x^5 + 1/4*(4*A*a^3*d*e^3 + (3*B*a*b^2 + A*b^3)*
d^4 + 12*(B*a^2*b + A*a*b^2)*d^3*e + 6*(B*a^3 + 3*A*a^2*b)*d^2*e^
2)*x^4 + 1/3*(6*A*a^3*d^2*e^2 + 3*(B*a^2*b + A*a*b^2)*d^4 + 4*(B*
a^3 + 3*A*a^2*b)*d^3*e)*x^3 + 1/2*(4*A*a^3*d^3*e + (B*a^3 + 3*A*a
^2*b)*d^4)*x^2
```

Fricas [A] time = 0.194733, size = 1, normalized size = 0.01

$$\frac{1}{9}x^9e^4b^3B + \frac{1}{2}x^8e^3db^3B + \frac{3}{8}x^8e^4b^2aB + \frac{1}{8}x^8e^4b^3A + \frac{6}{7}x^7e^2d^2b^3B + \frac{12}{7}x^7e^3db^2aB + \frac{3}{7}x^7e^4ba^2B + \frac{4}{7}x^7e^3db^3A + \frac{3}{7}x^7e^4b^2aA + \frac{2}{3}x^6ed^3b^3B + 3x^6e^2d^2b^2aB + 2x^6e^3dba^2B + \frac{1}{6}x^6e^4a^3B + x^6e^2d^2b^3A + 2x^6e^3db^2aA + \frac{1}{2}x^6e^4ba^2A + \frac{1}{5}x^5d^4b^3B + \frac{12}{5}x^5ed^3b^2aB + \frac{18}{5}x^5e^2d^2ba^2B + \frac{4}{5}x^5e^3da^3B + \frac{4}{5}x^5ed^3b^3A + \frac{18}{5}x^5e^2d^2b^2aA + \frac{12}{5}x^5e^3dba^2A + \frac{1}{5}x^5e^4a^3A + \frac{3}{4}x^4d^4b^2aB + 3x^4ed^3ba^2B + \frac{3}{2}x^4e^2d^2a^3B + \frac{1}{4}x^4d^4b^3A + 3x^4ed^3b^2aA + \frac{9}{2}x^4e^2d^2ba^2A + x^4e^3da^3A + x^3d^4ba^2B + \frac{4}{3}x^3ed^3a^3B + x^3d^4b^2aA + 4x^3ed^3ba^2A + 2x^3e^2d^2a^3A + \frac{1}{2}x^2d^4a^3B + \frac{3}{2}x^2d^4ba^2A + 2x^2ed^3a^3A + xd^4a^3A$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*(e*x + d)^4,x, algorithm="fricas")
```

```
[Out] 1/9*x^9*e^4*b^3*B + 1/2*x^8*e^3*d*b^3*B + 3/8*x^8*e^4*b^2*a*B + 1
/8*x^8*e^4*b^3*A + 6/7*x^7*e^2*d^2*b^3*B + 12/7*x^7*e^3*d*b^2*a*B
 + 3/7*x^7*e^4*b*a^2*B + 4/7*x^7*e^3*d*b^3*A + 3/7*x^7*e^4*b^2*a*
A + 2/3*x^6*e*d^3*b^3*B + 3*x^6*e^2*d^2*b^2*a*B + 2*x^6*e^3*d*b*a
^2*B + 1/6*x^6*e^4*a^3*B + x^6*e^2*d^2*b^3*A + 2*x^6*e^3*d*b^2*a*
A + 1/2*x^6*e^4*b*a^2*A + 1/5*x^5*d^4*b^3*B + 12/5*x^5*e*d^3*b^2*
a*B + 18/5*x^5*e^2*d^2*b*a^2*B + 4/5*x^5*e^3*d*a^3*B + 4/5*x^5*e*
d^3*b^3*A + 18/5*x^5*e^2*d^2*b^2*a*A + 12/5*x^5*e^3*d*b*a^2*A + 1
/5*x^5*e^4*a^3*A + 3/4*x^4*d^4*b^2*a*B + 3*x^4*e*d^3*b*a^2*B + 3/
2*x^4*e^2*d^2*a^3*B + 1/4*x^4*d^4*b^3*A + 3*x^4*e*d^3*b^2*a*A + 9
/2*x^4*e^2*d^2*b*a^2*A + x^4*e^3*d*a^3*A + x^3*d^4*b*a^2*B + 4/3*
x^3*e*d^3*a^3*B + x^3*d^4*b^2*a*A + 4*x^3*e*d^3*b*a^2*A + 2*x^3*e
^2*d^2*a^3*A + 1/2*x^2*d^4*a^3*B + 3/2*x^2*d^4*b*a^2*A + 2*x^2*e*
d^3*a^3*A + x*d^4*a^3*A
```

Sympy [A] time = 0.322296, size = 546, normalized size = 3.35

$$Aa^3d^4x + \frac{Bb^3e^4x^9}{9} + x^8\left(\frac{Ab^3e^4}{8} + \frac{3Bab^2e^4}{8} + \frac{Bb^3de^3}{2}\right) + x^7\left(\frac{3Aab^2e^4}{7} + \frac{4Ab^3de^3}{7} + \frac{3Ba^2be^4}{7} + \frac{12Bab^2de^3}{7} + \frac{6Bb^3d^2e^2}{7}\right) + x^6\left(\frac{Aa^2be^4}{2} + 2Aab^2de^3 + Ab^3d^2e^2 + \frac{Ba^3e^4}{6} + 2Ba^2bde^3 + 3Bab^2d^2e^2 + \frac{2Bb^3d^3e}{3}\right) + x^5\left(\frac{Aa^3e^4}{5} + \frac{12Aa^2bde^3}{5} + \frac{18Aab^2d^2e^2}{5} + \frac{4Ab^3d^3e}{5} + \frac{4Ba^3de^3}{5} + \frac{18Ba^2bd^2e^2}{5} + \frac{12Bab^2d^3e}{5} + \frac{Bb^3d^4}{5}\right) + x^4\left(Aa^3de^3 + \frac{9Aa^2bd^2e^2}{2} + 3Aab^2d^3e + \frac{Ab^3d^4}{4} + \frac{3Ba^3d^2e^2}{2} + 3Ba^2bd^3e + \frac{3Bab^2d^4}{4}\right) + x^3\left(2Aa^3d^2e^2 + 4Aa^2bd^3e + Aab^2d^4 + \frac{4Ba^3d^3e}{3} + Ba^2bd^4\right) + x^2\left(2Aa^3d^3e + \frac{3Aa^2bd^4}{2} + \frac{Ba^3d^4}{2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**3*(B*x+A)*(e*x+d)**4,x)
```

```
[Out] A*a**3*d**4*x + B*b**3*e**4*x**9/9 + x**8*(A*b**3*e**4/8 + 3*B*a*
b**2*e**4/8 + B*b**3*d*e**3/2) + x**7*(3*A*a*b**2*e**4/7 + 4*A*b*
*3*d*e**3/7 + 3*B*a**2*b*e**4/7 + 12*B*a*b**2*d*e**3/7 + 6*B*b**3
*d**2*e**2/7) + x**6*(A*a**2*b*e**4/2 + 2*A*a*b**2*d*e**3 + A*b**
3*d**2*e**2 + B*a**3*e**4/6 + 2*B*a**2*b*d*e**3 + 3*B*a*b**2*d**2
*e**2 + 2*B*b**3*d**3*e/3) + x**5*(A*a**3*e**4/5 + 12*A*a**2*b*d*
e**3/5 + 18*A*a*b**2*d**2*e**2/5 + 4*A*b**3*d**3*e/5 + 4*B*a**3*d
*e**3/5 + 18*B*a**2*b*d**2*e**2/5 + 12*B*a*b**2*d**3*e/5 + B*b**3
*d**4/5) + x**4*(A*a**3*d*e**3 + 9*A*a**2*b*d**2*e**2/2 + 3*A*a*b
**2*d**3*e + A*b**3*d**4/4 + 3*B*a**3*d**2*e**2/2 + 3*B*a**2*b*d*
*3*e + 3*B*a*b**2*d**4/4) + x**3*(2*A*a**3*d**2*e**2 + 4*A*a**2*b
*d**3*e + A*a*b**2*d**4 + 4*B*a**3*d**3*e/3 + B*a**2*b*d**4) + x*
*2*(2*A*a**3*d**3*e + 3*A*a**2*b*d**4/2 + B*a**3*d**4/2)
```

GIAC/XCAS [A] time = 0.221113, size = 699, normalized size = 4.29

$$\frac{1}{9}Bb^3x^9e^4 + \frac{1}{2}Bb^3dx^8e^3 + \frac{6}{7}Bb^3d^2x^7e^2 + \frac{2}{3}Bb^3d^3x^6e + \frac{1}{5}Bb^3d^4x^5 + \frac{3}{8}Bab^2x^8e^4 + \frac{1}{8}Ab^3x^8e^4 + \frac{12}{7}Bab^2dx^7e^3 + \frac{4}{7}Ab^3dx^7e^3 + 3Bab^2d^2x^6e^2 + Ab^3d^2x^6e^2 + \frac{12}{5}Bab^2d^3x^5e + \frac{4}{5}Ab^3d^3x^5e + \frac{3}{4}Bab^2d^4x^4 + \frac{1}{4}Ab^3d^4x^4 + \frac{3}{7}Ba^2bx^7e^4 + \frac{3}{7}Aab^2x^7e^4 + 2Ba^2bdx^6e^3 + 2Aab^2dx^6e^3 + \frac{18}{5}Ba^2bd^2x^5e^2 + \frac{18}{5}Aab^2d^2x^5e^2 + 3Ba^2bd^3x^4e + 3Aab^2d^3x^4e + Ba^2bd^4x^3 + Aab^2d^4x^3 + \frac{1}{6}Ba^3x^6e^4 + \frac{1}{2}Aa^2bx^6e^4 + \frac{4}{5}Ba^3dx^5e^3 + \frac{12}{5}Aa^2bdx^5e^3 + \frac{3}{2}Ba^3d^2x^4e^2 + \frac{9}{2}Aa^2bd^2x^4e^2 + \frac{4}{3}Ba^3d^3x^3e + 4Aa^2bd^3x^3e + \frac{1}{2}Ba^3d^4x^2 + \frac{3}{2}Aa^2bd^4x^2 + \frac{1}{5}Aa^3x^5e^4 + Aa^3dx^4e^3 + 2Aa^3d^2x^3e^2 + 2Aa^3d^3x^2e + Aa^3d^4x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*(e*x + d)^4,x, algorithm="giac")
```

```
[Out] 1/9*B*b^3*x^9*e^4 + 1/2*B*b^3*d*x^8*e^3 + 6/7*B*b^3*d^2*x^7*e^2 +
 2/3*B*b^3*d^3*x^6*e + 1/5*B*b^3*d^4*x^5 + 3/8*B*a*b^2*x^8*e^4 +
1/8*A*b^3*x^8*e^4 + 12/7*B*a*b^2*d*x^7*e^3 + 4/7*A*b^3*d*x^7*e^3
+ 3*B*a*b^2*d^2*x^6*e^2 + A*b^3*d^2*x^6*e^2 + 12/5*B*a*b^2*d^3*x^
5*e + 4/5*A*b^3*d^3*x^5*e + 3/4*B*a*b^2*d^4*x^4 + 1/4*A*b^3*d^4*x
^4 + 3/7*B*a^2*b*x^7*e^4 + 3/7*A*a*b^2*x^7*e^4 + 2*B*a^2*b*d*x^6*
e^3 + 2*A*a*b^2*d*x^6*e^3 + 18/5*B*a^2*b*d^2*x^5*e^2 + 18/5*A*a*b
^2*d^2*x^5*e^2 + 3*B*a^2*b*d^3*x^4*e + 3*A*a*b^2*d^3*x^4*e + B*a^
2*b*d^4*x^3 + A*a*b^2*d^4*x^3 + 1/6*B*a^3*x^6*e^4 + 1/2*A*a^2*b*x
```

```
^6*e^4 + 4/5*B*a^3*d*x^5*e^3 + 12/5*A*a^2*b*d*x^5*e^3 + 3/2*B*a^3
*d^2*x^4*e^2 + 9/2*A*a^2*b*d^2*x^4*e^2 + 4/3*B*a^3*d^3*x^3*e + 4*
A*a^2*b*d^3*x^3*e + 1/2*B*a^3*d^4*x^2 + 3/2*A*a^2*b*d^4*x^2 + 1/5
*A*a^3*x^5*e^4 + A*a^3*d*x^4*e^3 + 2*A*a^3*d^2*x^3*e^2 + 2*A*a^3*
d^3*x^2*e + A*a^3*d^4*x
```

3.1020 $\int (a+bx)^3(A+Bx)(d+ex)^3\,dx$

Optimal. Leaf size=159

$$\frac{e^2(a+bx)^7(-4aBe+Abe+3bBd)}{7b^5}+\frac{e(a+bx)^6(bd-ae)(-2aBe+Abe+bBd)}{2b^5}+\frac{(a+bx)^5(bd-ae)^2(-4aBe+3Abe+bBd)}{5b^5}+\frac{(a+bx)^4(Ab-aB)(bd-ae)^3}{4b^5}+\frac{Be^3(a+bx)^8}{8b^5}$$

```
[Out] ((A*b - a*B)*(b*d - a*e)^3*(a + b*x)^4)/(4*b^5) + ((b*d - a*e)^2*
(b*B*d + 3*A*b*e - 4*a*B*e)*(a + b*x)^5)/(5*b^5) + (e*(b*d - a*e)
*(b*B*d + A*b*e - 2*a*B*e)*(a + b*x)^6)/(2*b^5) + (e^2*(3*b*B*d +
 A*b*e - 4*a*B*e)*(a + b*x)^7)/(7*b^5) + (B*e^3*(a + b*x)^8)/(8*b
^5)
```

Rubi [A] time = 0.581042, antiderivative size = 159, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{e^2(a+bx)^7(-4aBe+Abe+3bBd)}{7b^5}+\frac{e(a+bx)^6(bd-ae)(-2aBe+Abe+bBd)}{2b^5}+\frac{(a+bx)^5(bd-ae)^2(-4aBe+3Abe+bBd)}{5b^5}+\frac{(a+bx)^4(Ab-aB)(bd-ae)^3}{4b^5}+\frac{Be^3(a+bx)^8}{8b^5}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^3*(A + B*x)*(d + e*x)^3,x]
```

```
[Out] ((A*b - a*B)*(b*d - a*e)^3*(a + b*x)^4)/(4*b^5) + ((b*d - a*e)^2*
(b*B*d + 3*A*b*e - 4*a*B*e)*(a + b*x)^5)/(5*b^5) + (e*(b*d - a*e)
*(b*B*d + A*b*e - 2*a*B*e)*(a + b*x)^6)/(2*b^5) + (e^2*(3*b*B*d +
 A*b*e - 4*a*B*e)*(a + b*x)^7)/(7*b^5) + (B*e^3*(a + b*x)^8)/(8*b
^5)
```

Rubi in Sympy [A] time = 72.6691, size = 153, normalized size = 0.96

$$\frac{Be^3\left(a+bx\right)^8}{8b^5}+\frac{e^2\left(a+bx\right)^7\left(Abe-4Bae+3Bbd\right)}{7b^5}-\frac{e\left(a+bx\right)^6\left(ae-bd\right)\left(Abe-2Bae+Bbd\right)}{2b^5}+\frac{\left(a+bx\right)^5\left(ae-bd\right)^2\left(3Abe-4Bae+Bbd\right)}{5b^5}-\frac{\left(a+bx\right)^4\left(Ab-Ba\right)\left(ae-bd\right)^3}{4b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**3*(B*x+A)*(e*x+d)**3,x)
```

```
[Out] B*e**3*(a + b*x)**8/(8*b**5) + e**2*(a + b*x)**7*(A*b*e - 4*B*a*e
 + 3*B*b*d)/(7*b**5) - e*(a + b*x)**6*(a*e - b*d)*(A*b*e - 2*B*a*
e + B*b*d)/(2*b**5) + (a + b*x)**5*(a*e - b*d)**2*(3*A*b*e - 4*B*
a*e + B*b*d)/(5*b**5) - (a + b*x)**4*(A*b - B*a)*(a*e - b*d)**3/(
4*b**5)
```

Mathematica [A] time = 0.181243, size = 297, normalized size = 1.87

$$a^3Ad^3x+adx^3\left(A\left(a^2e^2+3abde+b^2d^2\right)+aBd(ae+bd)\right)+\frac{1}{2}bex^6\left(a^2Be^2+abe(Ae+3Bd)+b^2d(Ae+Bd)\right)+\frac{1}{2}a^2d^2x^2(3A(ae+bd)+aBd)+\frac{1}{5}x^5\left(a^3Be^3+3a^2be^2(Ae+3Bd)+9ab^2de(Ae+Bd)+b^3d^2(3Ae+Bd)\right)+\frac{1}{4}x^4\left(3aBd\left(a^2e^2+3abde+b^2d^2\right)+A\left(a^3e^3+9a^2bde^2+9ab^2d^2e+b^3d^3\right)\right)+\frac{1}{7}b^2e^2x^7(3aBe+Abe+3bBd)+\frac{1}{8}b^3Be^3x^8$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^3*(A + B*x)*(d + e*x)^3,x]
```

```
[Out] a^3*A*d^3*x + (a^2*d^2*(a*B*d + 3*A*(b*d + a*e))*x^2)/2 + a*d*(a*
B*d*(b*d + a*e) + A*(b^2*d^2 + 3*a*b*d*e + a^2*e^2))*x^3 + ((3*a*
B*d*(b^2*d^2 + 3*a*b*d*e + a^2*e^2) + A*(b^3*d^3 + 9*a*b^2*d^2*e
+ 9*a^2*b*d*e^2 + a^3*e^3))*x^4)/4 + ((a^3*B*e^3 + 9*a*b^2*d*e*(B
*d + A*e) + 3*a^2*b*e^2*(3*B*d + A*e) + b^3*d^2*(B*d + 3*A*e))*x^
5)/5 + (b*e*(a^2*B*e^2 + b^2*d*(B*d + A*e) + a*b*e*(3*B*d + A*e))
*x^6)/2 + (b^2*e^2*(3*b*B*d + A*b*e + 3*a*B*e)*x^7)/7 + (b^3*B*e^
3*x^8)/8
```

Maple [B] time = 0.001, size = 339, normalized size = 2.1

$$\frac{b^3Be^3x^8}{8}+\frac{\left(\left(b^3A+3\,ab^2B\right)e^3+3\,b^3Bde^2\right)x^7}{7}+\frac{\left(\left(3\,ab^2A+3\,a^2bB\right)e^3+3\,\left(b^3A+3\,ab^2B\right)de^2+3\,b^3Bd^2e\right)x^6}{6}+\frac{\left(\left(3\,Aa^2b+Ba^3\right)e^3+3\,\left(3\,ab^2A+3\,a^2bB\right)de^2+3\,\left(b^3A+3\,ab^2B\right)d^2e+b^3Bd^3\right)x^5}{5}+\frac{\left(a^3Ae^3+3\,\left(3\,Aa^2b+Ba^3\right)de^2+3\,\left(3\,ab^2A+3\,a^2bB\right)d^2e+\left(b^3A+3\,ab^2B\right)d^3\right)x^4}{4}+\frac{\left(3\,a^3Ade^2+3\,\left(3\,Aa^2b+Ba^3\right)d^2e+\left(3\,ab^2A+3\,a^2bB\right)d^3\right)x^3}{3}+\frac{\left(3\,a^3Ad^2e+\left(3\,Aa^2b+Ba^3\right)d^3\right)x^2}{2}+a^3Ad^3x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3*(B*x+A)*(e*x+d)^3,x)
```

```
[Out] 1/8*b^3*B*e^3*x^8+1/7*((A*b^3+3*B*a*b^2)*e^3+3*b^3*B*d*e^2)*x^7+1
/6*((3*A*a*b^2+3*B*a^2*b)*e^3+3*(A*b^3+3*B*a*b^2)*d*e^2+3*b^3*B*d
^2*e)*x^6+1/5*((3*A*a^2*b+B*a^3)*e^3+3*(3*A*a*b^2+3*B*a^2*b)*d*e^
2+3*(A*b^3+3*B*a*b^2)*d^2*e+b^3*B*d^3)*x^5+1/4*(a^3*A*e^3+3*(3*A*
a^2*b+B*a^3)*d*e^2+3*(3*A*a*b^2+3*B*a^2*b)*d^2*e+(A*b^3+3*B*a*b^2
)*d^3)*x^4+1/3*(3*a^3*A*d*e^2+3*(3*A*a^2*b+B*a^3)*d^2*e+(3*A*a*b^
2+3*B*a^2*b)*d^3)*x^3+1/2*(3*a^3*A*d^2*e+(3*A*a^2*b+B*a^3)*d^3)*x
^2+a^3*A*d^3*x
```

Maxima [A] time = 1.35037, size = 439, normalized size = 2.76

$$\frac{1}{8}\,Bb^3e^3x^8+Aa^3d^3x+\frac{1}{7}\left(3\,Bb^3de^2+\left(3\,Bab^2+Ab^3\right)e^3\right)x^7+\frac{1}{2}\left(Bb^3d^2e+\left(3\,Bab^2+Ab^3\right)de^2+\left(Ba^2b+Aab^2\right)e^3\right)x^6+\frac{1}{5}\left(Bb^3d^3+3\left(3\,Bab^2+Ab^3\right)d^2e+9\left(Ba^2b+Aab^2\right)de^2+\left(Ba^3+3\,Aa^2b\right)e^3\right)x^5+\frac{1}{4}\left(Aa^3e^3+\left(3\,Bab^2+Ab^3\right)d^3+9\left(Ba^2b+Aab^2\right)d^2e+3\left(Ba^3+3\,Aa^2b\right)de^2\right)x^4+\left(Aa^3de^2+\left(Ba^2b+Aab^2\right)d^3+\left(Ba^3+3\,Aa^2b\right)d^2e\right)x^3+\frac{1}{2}\left(3\,Aa^3d^2e+\left(Ba^3+3\,Aa^2b\right)d^3\right)x^2$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*(e*x + d)^3,x, algorithm="maxima")
```

```
[Out] 1/8*B*b^3*e^3*x^8 + A*a^3*d^3*x + 1/7*(3*B*b^3*d*e^2 + (3*B*a*b^2
 + A*b^3)*e^3)*x^7 + 1/2*(B*b^3*d^2*e + (3*B*a*b^2 + A*b^3)*d*e^2
 + (B*a^2*b + A*a*b^2)*e^3)*x^6 + 1/5*(B*b^3*d^3 + 3*(3*B*a*b^2 +
 A*b^3)*d^2*e + 9*(B*a^2*b + A*a*b^2)*d*e^2 + (B*a^3 + 3*A*a^2*b)
```

```
*e^3)*x^5 + 1/4*(A*a^3*e^3 + (3*B*a*b^2 + A*b^3)*d^3 + 9*(B*a^2*b
 + A*a*b^2)*d^2*e + 3*(B*a^3 + 3*A*a^2*b)*d*e^2)*x^4 + (A*a^3*d*e
^2 + (B*a^2*b + A*a*b^2)*d^3 + (B*a^3 + 3*A*a^2*b)*d^2*e)*x^3 + 1
/2*(3*A*a^3*d^2*e + (B*a^3 + 3*A*a^2*b)*d^3)*x^2
```

Fricas [A] time = 0.1921, size = 1, normalized size = 0.01

$$\frac{1}{8}x^8e^3b^3B + \frac{3}{7}x^7e^2db^3B + \frac{3}{7}x^7e^3b^2aB + \frac{1}{7}x^7e^3b^3A + \frac{1}{2}x^6ed^2b^3B + \frac{3}{2}x^6e^2db^2aB + \frac{1}{2}x^6e^3ba^2B + \frac{1}{2}x^6e^2db^3A + \frac{1}{2}x^6e^3b^2aA + \frac{1}{5}x^5d^3b^3B + \frac{9}{5}x^5ed^2b^2aB + \frac{9}{5}x^5e^2dba^2B + \frac{1}{5}x^5e^3a^3B + \frac{3}{5}x^5ed^2b^3A + \frac{9}{5}x^5e^2db^2aA + \frac{3}{5}x^5e^3ba^2A + \frac{3}{4}x^4d^3b^2aB + \frac{9}{4}x^4ed^2ba^2B + \frac{3}{4}x^4e^2da^3B + \frac{1}{4}x^4d^3b^3A + \frac{9}{4}x^4ed^2b^2aA + \frac{9}{4}x^4e^2dba^2A + \frac{1}{4}x^4e^3a^3A + x^3d^3ba^2B + x^3ed^2a^3B + x^3d^3b^2aA + 3x^3ed^2ba^2A + x^3e^2da^3A + \frac{1}{2}x^2d^3a^3B + \frac{3}{2}x^2d^3ba^2A + \frac{3}{2}x^2ed^2a^3A + xd^3a^3A$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*(e*x + d)^3,x, algorithm="fricas")
```

```
[Out] 1/8*x^8*e^3*b^3*B + 3/7*x^7*e^2*d*b^3*B + 3/7*x^7*e^3*b^2*a*B + 1
/7*x^7*e^3*b^3*A + 1/2*x^6*e*d^2*b^3*B + 3/2*x^6*e^2*d*b^2*a*B +
1/2*x^6*e^3*b*a^2*B + 1/2*x^6*e^2*d*b^3*A + 1/2*x^6*e^3*b^2*a*A +
 1/5*x^5*d^3*b^3*B + 9/5*x^5*e*d^2*b^2*a*B + 9/5*x^5*e^2*d*b*a^2*
B + 1/5*x^5*e^3*a^3*B + 3/5*x^5*e*d^2*b^3*A + 9/5*x^5*e^2*d*b^2*a
*A + 3/5*x^5*e^3*b*a^2*A + 3/4*x^4*d^3*b^2*a*B + 9/4*x^4*e*d^2*b*
a^2*B + 3/4*x^4*e^2*d*a^3*B + 1/4*x^4*d^3*b^3*A + 9/4*x^4*e*d^2*b
^2*a*A + 9/4*x^4*e^2*d*b*a^2*A + 1/4*x^4*e^3*a^3*A + x^3*d^3*b*a^
2*B + x^3*e*d^2*a^3*B + x^3*d^3*b^2*a*A + 3*x^3*e*d^2*b*a^2*A + x
^3*e^2*d*a^3*A + 1/2*x^2*d^3*a^3*B + 3/2*x^2*d^3*b*a^2*A + 3/2*x^
2*e*d^2*a^3*A + x*d^3*a^3*A
```

Sympy [A] time = 0.280518, size = 422, normalized size = 2.65

$$Aa^3d^3x + \frac{Bb^3e^3x^8}{8} + x^7\left(\frac{Ab^3e^3}{7} + \frac{3Bab^2e^3}{7} + \frac{3Bb^3de^2}{7}\right) + x^6\left(\frac{Aab^2e^3}{2} + \frac{Ab^3de^2}{2} + \frac{Ba^2be^3}{2} + \frac{3Bab^2de^2}{2} + \frac{Bb^3d^2e}{2}\right) + x^5\left(\frac{3Aa^2be^3}{5} + \frac{9Aab^2de^2}{5} + \frac{3Ab^3d^2e}{5} + \frac{Ba^3e^3}{5} + \frac{9Ba^2bde^2}{5} + \frac{9Bab^2d^2e}{5} + \frac{Bb^3d^3}{5}\right) + x^4\left(\frac{Aa^3e^3}{4} + \frac{9Aa^2bde^2}{4} + \frac{9Aab^2d^2e}{4} + \frac{Ab^3d^3}{4} + \frac{3Ba^3de^2}{4} + \frac{9Ba^2bd^2e}{4} + \frac{3Bab^2d^3}{4}\right) + x^3\left(Aa^3de^2 + 3Aa^2bd^2e + Aab^2d^3 + Ba^3d^2e + Ba^2bd^3\right) + x^2\left(\frac{3Aa^3d^2e}{2} + \frac{3Aa^2bd^3}{2} + \frac{Ba^3d^3}{2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**3*(B*x+A)*(e*x+d)**3,x)
```

```
[Out] A*a**3*d**3*x + B*b**3*e**3*x**8/8 + x**7*(A*b**3*e**3/7 + 3*B*a*
b**2*e**3/7 + 3*B*b**3*d*e**2/7) + x**6*(A*a*b**2*e**3/2 + A*b**3
*d*e**2/2 + B*a**2*b*e**3/2 + 3*B*a*b**2*d*e**2/2 + B*b**3*d**2*e
/2) + x**5*(3*A*a**2*b*e**3/5 + 9*A*a*b**2*d*e**2/5 + 3*A*b**3*d*
*2*e/5 + B*a**3*e**3/5 + 9*B*a**2*b*d*e**2/5 + 9*B*a*b**2*d**2*e/
5 + B*b**3*d**3/5) + x**4*(A*a**3*e**3/4 + 9*A*a**2*b*d*e**2/4 +
9*A*a*b**2*d**2*e/4 + A*b**3*d**3/4 + 3*B*a**3*d*e**2/4 + 9*B*a**
2*b*d**2*e/4 + 3*B*a*b**2*d**3/4) + x**3*(A*a**3*d*e**2 + 3*A*a**
2*b*d**2*e + A*a*b**2*d**3 + B*a**3*d**2*e + B*a**2*b*d**3) + x**
2*(3*A*a**3*d**2*e/2 + 3*A*a**2*b*d**3/2 + B*a**3*d**3/2)
```

GIAC/XCAS [A] time = 0.218806, size = 543, normalized size = 3.42

$$\frac{1}{8}Bb^3x^8e^3 + \frac{3}{7}Bb^3dx^7e^2 + \frac{1}{2}Bb^3d^2x^6e + \frac{1}{5}Bb^3d^3x^5 + \frac{3}{7}Bab^2x^7e^3 + \frac{1}{7}Ab^3x^7e^3 + \frac{3}{2}Bab^2dx^6e^2 + \frac{1}{2}Ab^3dx^6e^2 + \frac{9}{5}Bab^2d^2x^5e + \frac{3}{5}Ab^3d^2x^5e + \frac{3}{4}Bab^2d^3x^4 + \frac{1}{4}Ab^3d^3x^4 + \frac{1}{2}Ba^2bx^6e^3 + \frac{1}{2}Aab^2x^6e^3 + \frac{9}{5}Ba^2bdx^5e^2 + \frac{9}{5}Aab^2dx^5e^2 + \frac{9}{4}Ba^2bd^2x^4e + \frac{9}{4}Aab^2d^2x^4e + Ba^2bd^3x^3 + Aab^2d^3x^3 + \frac{1}{5}Ba^3x^5e^3 + \frac{3}{5}Aa^2bx^5e^3 + \frac{3}{4}Ba^3dx^4e^2 + \frac{9}{4}Aa^2bdx^4e^2 + Ba^3d^2x^3e + 3\,Aa^2bd^2x^3e + \frac{1}{2}Ba^3d^3x^2 + \frac{3}{2}Aa^2bd^3x^2 + \frac{1}{4}Aa^3x^4e^3 + Aa^3dx^3e^2 + \frac{3}{2}Aa^3d^2x^2e + Aa^3d^3x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*(e*x + d)^3,x, algorithm="giac")
```

```
[Out] 1/8*B*b^3*x^8*e^3 + 3/7*B*b^3*d*x^7*e^2 + 1/2*B*b^3*d^2*x^6*e + 1
/5*B*b^3*d^3*x^5 + 3/7*B*a*b^2*x^7*e^3 + 1/7*A*b^3*x^7*e^3 + 3/2*
B*a*b^2*d*x^6*e^2 + 1/2*A*b^3*d*x^6*e^2 + 9/5*B*a*b^2*d^2*x^5*e +
 3/5*A*b^3*d^2*x^5*e + 3/4*B*a*b^2*d^3*x^4 + 1/4*A*b^3*d^3*x^4 +
1/2*B*a^2*b*x^6*e^3 + 1/2*A*a*b^2*x^6*e^3 + 9/5*B*a^2*b*d*x^5*e^2
 + 9/5*A*a*b^2*d*x^5*e^2 + 9/4*B*a^2*b*d^2*x^4*e + 9/4*A*a*b^2*d^
2*x^4*e + B*a^2*b*d^3*x^3 + A*a*b^2*d^3*x^3 + 1/5*B*a^3*x^5*e^3 +
 3/5*A*a^2*b*x^5*e^3 + 3/4*B*a^3*d*x^4*e^2 + 9/4*A*a^2*b*d*x^4*e^
2 + B*a^3*d^2*x^3*e + 3*A*a^2*b*d^2*x^3*e + 1/2*B*a^3*d^3*x^2 + 3
/2*A*a^2*b*d^3*x^2 + 1/4*A*a^3*x^4*e^3 + A*a^3*d*x^3*e^2 + 3/2*A*
a^3*d^2*x^2*e + A*a^3*d^3*x
```

3.1021 $\int (a+bx)^3(A+Bx)(d+ex)^2\,dx$

Optimal. Leaf size=118

$$\frac{e(a+bx)^6(-3aBe+Abe+2bBd)}{6b^4}+\frac{(a+bx)^5(bd-ae)(-3aBe+2Abe+bBd)}{5b^4}+\frac{(a+bx)^4(Ab-aB)(bd-ae)^2}{4b^4}+\frac{Be^2(a+bx)^7}{7b^4}$$

```
[Out] ((A*b - a*B)*(b*d - a*e)^2*(a + b*x)^4)/(4*b^4) + ((b*d - a*e)*(b
*B*d + 2*A*b*e - 3*a*B*e)*(a + b*x)^5)/(5*b^4) + (e*(2*b*B*d + A*
b*e - 3*a*B*e)*(a + b*x)^6)/(6*b^4) + (B*e^2*(a + b*x)^7)/(7*b^4)
```

Rubi [A] time = 0.383869, antiderivative size = 118, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$\frac{e(a+bx)^6(-3aBe+Abe+2bBd)}{6b^4}+\frac{(a+bx)^5(bd-ae)(-3aBe+2Abe+bBd)}{5b^4}+\frac{(a+bx)^4(Ab-aB)(bd-ae)^2}{4b^4}+\frac{Be^2(a+bx)^7}{7b^4}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^3*(A + B*x)*(d + e*x)^2,x]
```

```
[Out] ((A*b - a*B)*(b*d - a*e)^2*(a + b*x)^4)/(4*b^4) + ((b*d - a*e)*(b
*B*d + 2*A*b*e - 3*a*B*e)*(a + b*x)^5)/(5*b^4) + (e*(2*b*B*d + A*
b*e - 3*a*B*e)*(a + b*x)^6)/(6*b^4) + (B*e^2*(a + b*x)^7)/(7*b^4)
```

Rubi in Sympy [A] time = 46.9788, size = 112, normalized size = 0.95

$$\frac{Be^2\left(a+bx\right)^7}{7b^4}+\frac{e\left(a+bx\right)^6\left(Abe-3Bae+2Bbd\right)}{6b^4}-\frac{\left(a+bx\right)^5\left(ae-bd\right)\left(2Abe-3Bae+Bbd\right)}{5b^4}+\frac{\left(a+bx\right)^4\left(Ab-Ba\right)\left(ae-bd\right)^2}{4b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**3*(B*x+A)*(e*x+d)**2,x)
```

```
[Out] B*e**2*(a + b*x)**7/(7*b**4) + e*(a + b*x)**6*(A*b*e - 3*B*a*e +
2*B*b*d)/(6*b**4) - (a + b*x)**5*(a*e - b*d)*(2*A*b*e - 3*B*a*e +
 B*b*d)/(5*b**4) + (a + b*x)**4*(A*b - B*a)*(a*e - b*d)**2/(4*b**
4)
```

Mathematica [A] time = 0.120522, size = 224, normalized size = 1.9

$$a^3Ad^2x+\frac{1}{4}x^4\left(Ab\left(3a^2e^2+6abde+b^2d^2\right)+aB\left(a^2e^2+6abde+3b^2d^2\right)\right)+\frac{1}{3}ax^3\left(A\left(a^2e^2+6abde+3b^2d^2\right)+aBd(2ae+3bd)\right)+\frac{1}{5}bx^5\left(3a^2Be^2+3abe(Ae+2Bd)+b^2d(2Ae+Bd)\right)+\frac{1}{2}a^2dx^2(2aAe+aBd+3Abd)+\frac{1}{6}b^2ex^6(3aBe+Abe+2bBd)+\frac{1}{7}b^3Be^2x^7$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^3*(A + B*x)*(d + e*x)^2,x]
```

```
[Out] a^3*A*d^2*x + (a^2*d*(3*A*b*d + a*B*d + 2*a*A*e)*x^2)/2 + (a*(a*B
*d*(3*b*d + 2*a*e) + A*(3*b^2*d^2 + 6*a*b*d*e + a^2*e^2))*x^3)/3
+ ((a*B*(3*b^2*d^2 + 6*a*b*d*e + a^2*e^2) + A*b*(b^2*d^2 + 6*a*b*
d*e + 3*a^2*e^2))*x^4)/4 + (b*(3*a^2*B*e^2 + 3*a*b*e*(2*B*d + A*e
) + b^2*d*(B*d + 2*A*e))*x^5)/5 + (b^2*e*(2*b*B*d + A*b*e + 3*a*B
*e)*x^6)/6 + (b^3*B*e^2*x^7)/7
```

Maple [B] time = 0., size = 244, normalized size = 2.1

$$\frac{b^3Be^2x^7}{7}+\frac{\left(\left(b^3A+3\,ab^2B\right)e^2+2\,b^3Bde\right)x^6}{6}+\frac{\left(\left(3\,ab^2A+3\,a^2bB\right)e^2+2\,\left(b^3A+3\,ab^2B\right)de+b^3Bd^2\right)x^5}{5}+\frac{\left(\left(3\,Aa^2b+Ba^3\right)e^2+2\,\left(3\,ab^2A+3\,a^2bB\right)de+\left(b^3A+3\,ab^2B\right)d^2\right)x^4}{4}+\frac{\left(a^3Ae^2+2\,\left(3\,Aa^2b+Ba^3\right)de+\left(3\,ab^2A+3\,a^2bB\right)d^2\right)x^3}{3}+\frac{\left(2\,a^3Ade+\left(3\,Aa^2b+Ba^3\right)d^2\right)x^2}{2}+a^3Ad^2x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3*(B*x+A)*(e*x+d)^2,x)
```

```
[Out] 1/7*b^3*B*e^2*x^7+1/6*((A*b^3+3*B*a*b^2)*e^2+2*b^3*B*d*e)*x^6+1/5
*((3*A*a*b^2+3*B*a^2*b)*e^2+2*(A*b^3+3*B*a*b^2)*d*e+b^3*B*d^2)*x^
5+1/4*((3*A*a^2*b+B*a^3)*e^2+2*(3*A*a*b^2+3*B*a^2*b)*d*e+(A*b^3+3
*B*a*b^2)*d^2)*x^4+1/3*(a^3*A*e^2+2*(3*A*a^2*b+B*a^3)*d*e+(3*A*a*
b^2+3*B*a^2*b)*d^2)*x^3+1/2*(2*a^3*A*d*e+(3*A*a^2*b+B*a^3)*d^2)*x
^2+a^3*A*d^2*x
```

Maxima [A] time = 1.35716, size = 323, normalized size = 2.74

$$\frac{1}{7}\,Bb^3e^2x^7+Aa^3d^2x+\frac{1}{6}\,\left(2\,Bb^3de+\left(3\,Bab^2+Ab^3\right)e^2\right)x^6+\frac{1}{5}\,\left(Bb^3d^2+2\,\left(3\,Bab^2+Ab^3\right)de+3\,\left(Ba^2b+Aab^2\right)e^2\right)x^5+\frac{1}{4}\,\left(\left(3\,Bab^2+Ab^3\right)d^2+6\,\left(Ba^2b+Aab^2\right)de+\left(Ba^3+3\,Aa^2b\right)e^2\right)x^4+\frac{1}{3}\,\left(Aa^3e^2+3\,\left(Ba^2b+Aab^2\right)d^2+2\,\left(Ba^3+3\,Aa^2b\right)de\right)x^3+\frac{1}{2}\,\left(2\,Aa^3de+\left(Ba^3+3\,Aa^2b\right)d^2\right)x^2$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*(e*x + d)^2,x, algorithm="maxima")
```

```
[Out] 1/7*B*b^3*e^2*x^7 + A*a^3*d^2*x + 1/6*(2*B*b^3*d*e + (3*B*a*b^2 +
 A*b^3)*e^2)*x^6 + 1/5*(B*b^3*d^2 + 2*(3*B*a*b^2 + A*b^3)*d*e + 3
*(B*a^2*b + A*a*b^2)*e^2)*x^5 + 1/4*((3*B*a*b^2 + A*b^3)*d^2 + 6*
(B*a^2*b + A*a*b^2)*d*e + (B*a^3 + 3*A*a^2*b)*e^2)*x^4 + 1/3*(A*a
^3*e^2 + 3*(B*a^2*b + A*a*b^2)*d^2 + 2*(B*a^3 + 3*A*a^2*b)*d*e)*x
^3 + 1/2*(2*A*a^3*d*e + (B*a^3 + 3*A*a^2*b)*d^2)*x^2
```

Fricas [A] time = 0.192349, size = 1, normalized size = 0.01

$$\frac{1}{7}x^7e^2b^3B+\frac{1}{3}x^6edb^3B+\frac{1}{2}x^6e^2b^2aB+\frac{1}{6}x^6e^2b^3A+\frac{1}{5}x^5d^2b^3B+\frac{6}{5}x^5edb^2aB+\frac{3}{5}x^5e^2ba^2B+\frac{2}{5}x^5edb^3A+\frac{3}{5}x^5e^2b^2aA+\frac{3}{4}x^4d^2b^2aB+\frac{3}{2}x^4edba^2B+\frac{1}{4}x^4e^2a^3B+\frac{1}{4}x^4d^2b^3A+\frac{3}{2}x^4edb^2aA+\frac{3}{4}x^4e^2ba^2A+x^3d^2ba^2B+\frac{2}{3}x^3eda^3B+x^3d^2b^2aA+2x^3edba^2A+\frac{1}{3}x^3e^2a^3A+\frac{1}{2}x^2d^2a^3B+\frac{3}{2}x^2d^2ba^2A+x^2eda^3A+xd^2a^3A$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*(e*x + d)^2,x, algorithm="fricas")
```

```
[Out] 1/7*x^7*e^2*b^3*B + 1/3*x^6*e*d*b^3*B + 1/2*x^6*e^2*b^2*a*B + 1/6
*x^6*e^2*b^3*A + 1/5*x^5*d^2*b^3*B + 6/5*x^5*e*d*b^2*a*B + 3/5*x^
5*e^2*b*a^2*B + 2/5*x^5*e*d*b^3*A + 3/5*x^5*e^2*b^2*a*A + 3/4*x^4
*d^2*b^2*a*B + 3/2*x^4*e*d*b*a^2*B + 1/4*x^4*e^2*a^3*B + 1/4*x^4*
d^2*b^3*A + 3/2*x^4*e*d*b^2*a*A + 3/4*x^4*e^2*b*a^2*A + x^3*d^2*b
*a^2*B + 2/3*x^3*e*d*a^3*B + x^3*d^2*b^2*a*A + 2*x^3*e*d*b*a^2*A
+ 1/3*x^3*e^2*a^3*A + 1/2*x^2*d^2*a^3*B + 3/2*x^2*d^2*b*a^2*A + x
^2*e*d*a^3*A + x*d^2*a^3*A
```

Sympy [A] time = 0.234634, size = 296, normalized size = 2.51

$$Aa^3d^2x + \frac{Bb^3e^2x^7}{7} + x^6\left(\frac{Ab^3e^2}{6} + \frac{Bab^2e^2}{2} + \frac{Bb^3de}{3}\right) + x^5\left(\frac{3Aab^2e^2}{5} + \frac{2Ab^3de}{5} + \frac{3Ba^2be^2}{5} + \frac{6Bab^2de}{5} + \frac{Bb^3d^2}{5}\right) + x^4\left(\frac{3Aa^2be^2}{4} + \frac{3Aab^2de}{2} + \frac{Ab^3d^2}{4} + \frac{Ba^3e^2}{4} + \frac{3Ba^2bde}{2} + \frac{3Bab^2d^2}{4}\right) + x^3\left(\frac{Aa^3e^2}{3} + 2Aa^2bde + Aab^2d^2 + \frac{2Ba^3de}{3} + Ba^2bd^2\right) + x^2\left(Aa^3de + \frac{3Aa^2bd^2}{2} + \frac{Ba^3d^2}{2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**3*(B*x+A)*(e*x+d)**2,x)
```

```
[Out] A*a**3*d**2*x + B*b**3*e**2*x**7/7 + x**6*(A*b**3*e**2/6 + B*a*b*
*2*e**2/2 + B*b**3*d*e/3) + x**5*(3*A*a*b**2*e**2/5 + 2*A*b**3*d*
e/5 + 3*B*a**2*b*e**2/5 + 6*B*a*b**2*d*e/5 + B*b**3*d**2/5) + x**
4*(3*A*a**2*b*e**2/4 + 3*A*a*b**2*d*e/2 + A*b**3*d**2/4 + B*a**3*
e**2/4 + 3*B*a**2*b*d*e/2 + 3*B*a*b**2*d**2/4) + x**3*(A*a**3*e**
2/3 + 2*A*a**2*b*d*e + A*a*b**2*d**2 + 2*B*a**3*d*e/3 + B*a**2*b*
d**2) + x**2*(A*a**3*d*e + 3*A*a**2*b*d**2/2 + B*a**3*d**2/2)
```

GIAC/XCAS [A] time = 0.218202, size = 387, normalized size = 3.28

$$\frac{1}{7}Bb^3x^7e^2 + \frac{1}{3}Bb^3dx^6e + \frac{1}{5}Bb^3d^2x^5 + \frac{1}{2}Bab^2x^6e^2 + \frac{1}{6}Ab^3x^6e^2 + \frac{6}{5}Bab^2dx^5e + \frac{2}{5}Ab^3dx^5e + \frac{3}{4}Bab^2d^2x^4 + \frac{1}{4}Ab^3d^2x^4 + \frac{3}{5}Ba^2bx^5e^2 + \frac{3}{5}Aab^2x^5e^2 + \frac{3}{2}Ba^2bdx^4e + \frac{3}{2}Aab^2dx^4e + Ba^2bd^2x^3 + Aab^2d^2x^3 + \frac{1}{4}Ba^3x^4e^2 + \frac{3}{4}Aa^2bx^4e^2 + \frac{2}{3}Ba^3dx^3e + 2\,Aa^2bdx^3e + \frac{1}{2}Ba^3d^2x^2 + \frac{3}{2}Aa^2bd^2x^2 + \frac{1}{3}Aa^3x^3e^2 + Aa^3dx^2e + Aa^3d^2x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*(e*x + d)^2,x, algorithm="giac")
```

```
[Out] 1/7*B*b^3*x^7*e^2 + 1/3*B*b^3*d*x^6*e + 1/5*B*b^3*d^2*x^5 + 1/2*B
*a*b^2*x^6*e^2 + 1/6*A*b^3*x^6*e^2 + 6/5*B*a*b^2*d*x^5*e + 2/5*A*
b^3*d*x^5*e + 3/4*B*a*b^2*d^2*x^4 + 1/4*A*b^3*d^2*x^4 + 3/5*B*a^2
*b*x^5*e^2 + 3/5*A*a*b^2*x^5*e^2 + 3/2*B*a^2*b*d*x^4*e + 3/2*A*a*
b^2*d*x^4*e + B*a^2*b*d^2*x^3 + A*a*b^2*d^2*x^3 + 1/4*B*a^3*x^4*e
^2 + 3/4*A*a^2*b*x^4*e^2 + 2/3*B*a^3*d*x^3*e + 2*A*a^2*b*d*x^3*e
+ 1/2*B*a^3*d^2*x^2 + 3/2*A*a^2*b*d^2*x^2 + 1/3*A*a^3*x^3*e^2 + A
*a^3*d*x^2*e + A*a^3*d^2*x
```

3.1022 $\int (a+bx)^3(A+Bx)(d+ex)\,dx$

Optimal. Leaf size=75

$$\frac{(a+bx)^5(-2aBe+Abe+bBd)}{5b^3}+\frac{(a+bx)^4(Ab-aB)(bd-ae)}{4b^3}+\frac{Be(a+bx)^6}{6b^3}$$

```
[Out] ((A*b - a*B)*(b*d - a*e)*(a + b*x)^4)/(4*b^3) + ((b*B*d + A*b*e -
 2*a*B*e)*(a + b*x)^5)/(5*b^3) + (B*e*(a + b*x)^6)/(6*b^3)
```

Rubi [A] time = 0.240965, antiderivative size = 75, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{(a+bx)^5(-2aBe+Abe+bBd)}{5b^3}+\frac{(a+bx)^4(Ab-aB)(bd-ae)}{4b^3}+\frac{Be(a+bx)^6}{6b^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^3*(A + B*x)*(d + e*x),x]
```

```
[Out] ((A*b - a*B)*(b*d - a*e)*(a + b*x)^4)/(4*b^3) + ((b*B*d + A*b*e -
 2*a*B*e)*(a + b*x)^5)/(5*b^3) + (B*e*(a + b*x)^6)/(6*b^3)
```

Rubi in Sympy [A] time = 25.3431, size = 68, normalized size = 0.91

$$\frac{Be\,(a+bx)^6}{6b^3}+\frac{(a+bx)^5\,(Abe-2Bae+Bbd)}{5b^3}-\frac{(a+bx)^4\,(Ab-Ba)\,(ae-bd)}{4b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**3*(B*x+A)*(e*x+d),x)
```

```
[Out] B*e*(a + b*x)**6/(6*b**3) + (a + b*x)**5*(A*b*e - 2*B*a*e + B*b*d
)/(5*b**3) - (a + b*x)**4*(A*b - B*a)*(a*e - b*d)/(4*b**3)
```

Mathematica [A] time = 0.0661501, size = 130, normalized size = 1.73

$$a^3Adx+\frac{1}{2}a^2x^2(aAe+aBd+3Abd)+\frac{1}{5}b^2x^5(3aBe+Abe+bBd)$$
$$+\frac{1}{4}bx^4(Ab(3ae+bd)+3aB(ae+bd))+\frac{1}{3}ax^3(3Ab(ae+bd)+aB(ae+3bd))+\frac{1}{6}b^3Bex^6$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^3*(A + B*x)*(d + e*x),x]
```

```
[Out] a^3*A*d*x + (a^2*(3*A*b*d + a*B*d + a*A*e)*x^2)/2 + (a*(3*A*b*(b*
d + a*e) + a*B*(3*b*d + a*e))*x^3)/3 + (b*(3*a*B*(b*d + a*e) + A*
b*(b*d + 3*a*e))*x^4)/4 + (b^2*(b*B*d + A*b*e + 3*a*B*e)*x^5)/5 +
 (b^3*B*e*x^6)/6
```

Maple [B] time = 0.001, size = 149, normalized size = 2.

$$\frac{b^3Bex^6}{6}+\frac{\left(\left(b^3A+3\,ab^2B\right)e+b^3Bd\right)x^5}{5}+\frac{\left(\left(3\,ab^2A+3\,a^2bB\right)e+\left(b^3A+3\,ab^2B\right)d\right)x^4}{4}$$
$$+\frac{\left(\left(3\,Aa^2b+Ba^3\right)e+\left(3\,ab^2A+3\,a^2bB\right)d\right)x^3}{3}+\frac{\left(a^3Ae+\left(3\,Aa^2b+Ba^3\right)d\right)x^2}{2}+a^3Adx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3*(B*x+A)*(e*x+d),x)
```

```
[Out] 1/6*b^3*B*e*x^6+1/5*((A*b^3+3*B*a*b^2)*e+b^3*B*d)*x^5+1/4*((3*A*a
*b^2+3*B*a^2*b)*e+(A*b^3+3*B*a*b^2)*d)*x^4+1/3*((3*A*a^2*b+B*a^3)
*e+(3*A*a*b^2+3*B*a^2*b)*d)*x^3+1/2*(a^3*A*e+(3*A*a^2*b+B*a^3)*d)
*x^2+a^3*A*d*x
```

Maxima [A] time = 1.3522, size = 197, normalized size = 2.63

$$\frac{1}{6}Bb^3ex^6 + Aa^3dx + \frac{1}{5}\left(Bb^3d + \left(3\,Bab^2 + Ab^3\right)e\right)x^5 + \frac{1}{4}\left(\left(3\,Bab^2 + Ab^3\right)d + 3\left(Ba^2b + Aab^2\right)e\right)x^4 + \frac{1}{3}\left(3\left(Ba^2b + Aab^2\right)d + \left(Ba^3 + 3\,Aa^2b\right)e\right)x^3 + \frac{1}{2}\left(Aa^3e + \left(Ba^3 + 3\,Aa^2b\right)d\right)x^2$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*(e*x + d),x, algorithm="maxima")
```

```
[Out] 1/6*B*b^3*e*x^6 + A*a^3*d*x + 1/5*(B*b^3*d + (3*B*a*b^2 + A*b^3)*
e)*x^5 + 1/4*((3*B*a*b^2 + A*b^3)*d + 3*(B*a^2*b + A*a*b^2)*e)*x^
4 + 1/3*(3*(B*a^2*b + A*a*b^2)*d + (B*a^3 + 3*A*a^2*b)*e)*x^3 + 1
/2*(A*a^3*e + (B*a^3 + 3*A*a^2*b)*d)*x^2
```

Fricas [A] time = 0.185269, size = 1, normalized size = 0.01

$$\frac{1}{6}x^6eb^3B + \frac{1}{5}x^5db^3B + \frac{3}{5}x^5eb^2aB + \frac{1}{5}x^5eb^3A + \frac{3}{4}x^4db^2aB + \frac{3}{4}x^4eba^2B + \frac{1}{4}x^4db^3A + \frac{3}{4}x^4eb^2aA + x^3dba^2B + \frac{1}{3}x^3ea^3B + x^3db^2aA + x^3eba^2A + \frac{1}{2}x^2da^3B + \frac{3}{2}x^2dba^2A + \frac{1}{2}x^2ea^3A + xda^3A$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*(e*x + d),x, algorithm="fricas")
```

```
[Out] 1/6*x^6*e*b^3*B + 1/5*x^5*d*b^3*B + 3/5*x^5*e*b^2*a*B + 1/5*x^5*e
*b^3*A + 3/4*x^4*d*b^2*a*B + 3/4*x^4*e*b*a^2*B + 1/4*x^4*d*b^3*A
+ 3/4*x^4*e*b^2*a*A + x^3*d*b*a^2*B + 1/3*x^3*e*a^3*B + x^3*d*b^2
*a*A + x^3*e*b*a^2*A + 1/2*x^2*d*a^3*B + 3/2*x^2*d*b*a^2*A + 1/2*
x^2*e*a^3*A + x*d*a^3*A
```

Sympy [A] time = 0.171503, size = 168, normalized size = 2.24

$$Aa^3dx + \frac{Bb^3ex^6}{6} + x^5\left(\frac{Ab^3e}{5} + \frac{3Bab^2e}{5} + \frac{Bb^3d}{5}\right) + x^4\left(\frac{3Aab^2e}{4} + \frac{Ab^3d}{4} + \frac{3Ba^2be}{4} + \frac{3Bab^2d}{4}\right) + x^3\left(Aa^2be + Aab^2d + \frac{Ba^3e}{3} + Ba^2bd\right) + x^2\left(\frac{Aa^3e}{2} + \frac{3Aa^2bd}{2} + \frac{Ba^3d}{2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**3*(B*x+A)*(e*x+d),x)
```

```
[Out] A*a**3*d*x + B*b**3*e*x**6/6 + x**5*(A*b**3*e/5 + 3*B*a*b**2*e/5
+ B*b**3*d/5) + x**4*(3*A*a*b**2*e/4 + A*b**3*d/4 + 3*B*a**2*b*e/
4 + 3*B*a*b**2*d/4) + x**3*(A*a**2*b*e + A*a*b**2*d + B*a**3*e/3
+ B*a**2*b*d) + x**2*(A*a**3*e/2 + 3*A*a**2*b*d/2 + B*a**3*d/2)
```

GIAC/XCAS [A] time = 0.217882, size = 231, normalized size = 3.08

$$\frac{1}{6}Bb^3x^6e + \frac{1}{5}Bb^3dx^5 + \frac{3}{5}Bab^2x^5e + \frac{1}{5}Ab^3x^5e + \frac{3}{4}Bab^2dx^4 + \frac{1}{4}Ab^3dx^4 + \frac{3}{4}Ba^2bx^4e + \frac{3}{4}Aab^2x^4e + Ba^2bdx^3 + Aab^2dx^3 + \frac{1}{3}Ba^3x^3e + Aa^2bx^3e + \frac{1}{2}Ba^3dx^2 + \frac{3}{2}Aa^2bdx^2 + \frac{1}{2}Aa^3x^2e + Aa^3dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*(e*x + d),x, algorithm="giac")
```

```
[Out] 1/6*B*b^3*x^6*e + 1/5*B*b^3*d*x^5 + 3/5*B*a*b^2*x^5*e + 1/5*A*b^3
*x^5*e + 3/4*B*a*b^2*d*x^4 + 1/4*A*b^3*d*x^4 + 3/4*B*a^2*b*x^4*e
+ 3/4*A*a*b^2*x^4*e + B*a^2*b*d*x^3 + A*a*b^2*d*x^3 + 1/3*B*a^3*x
^3*e + A*a^2*b*x^3*e + 1/2*B*a^3*d*x^2 + 3/2*A*a^2*b*d*x^2 + 1/2*
A*a^3*x^2*e + A*a^3*d*x
```

3.1023 $\int (a+bx)^3(A+Bx)\,dx$

Optimal. Leaf size=38

$$\frac{(a+bx)^4(Ab-aB)}{4b^2}+\frac{B(a+bx)^5}{5b^2}$$

```
[Out] ((A*b - a*B)*(a + b*x)^4)/(4*b^2) + (B*(a + b*x)^5)/(5*b^2)
```

Rubi [A] time = 0.0449682, antiderivative size = 38, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 13, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.077

$$\frac{(a+bx)^4(Ab-aB)}{4b^2}+\frac{B(a+bx)^5}{5b^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^3*(A + B*x),x]
```

```
[Out] ((A*b - a*B)*(a + b*x)^4)/(4*b^2) + (B*(a + b*x)^5)/(5*b^2)
```

Rubi in Sympy [A] time = 10.59, size = 31, normalized size = 0.82

$$\frac{B\left(a+bx\right)^5}{5b^2}+\frac{\left(a+bx\right)^4\left(Ab-Ba\right)}{4b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**3*(B*x+A),x)
```

```
[Out] B*(a + b*x)**5/(5*b**2) + (a + b*x)**4*(A*b - B*a)/(4*b**2)
```

Mathematica [A] time = 0.0176512, size = 67, normalized size = 1.76

$$a^3Ax+\frac{1}{2}a^2x^2(aB+3Ab)+\frac{1}{4}b^2x^4(3aB+Ab)+abx^3(aB+Ab)+\frac{1}{5}b^3Bx^5$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^3*(A + B*x),x]
```

```
[Out] a^3*A*x + (a^2*(3*A*b + a*B)*x^2)/2 + a*b*(A*b + a*B)*x^3 + (b^2*
(A*b + 3*a*B)*x^4)/4 + (b^3*B*x^5)/5
```

Maple [B] time = 0., size = 73, normalized size = 1.9

$$\frac{Bb^3x^5}{5}+\frac{\left(b^3A+3\,ab^2B\right)x^4}{4}+\frac{\left(3\,ab^2A+3\,a^2bB\right)x^3}{3}+\frac{\left(3\,Aa^2b+Ba^3\right)x^2}{2}+a^3Ax$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3*(B*x+A),x)
```

```
[Out] 1/5*B*b^3*x^5+1/4*(A*b^3+3*B*a*b^2)*x^4+1/3*(3*A*a*b^2+3*B*a^2*b)
*x^3+1/2*(3*A*a^2*b+B*a^3)*x^2+a^3*A*x
```

Maxima [A] time = 1.34262, size = 93, normalized size = 2.45

$$\frac{1}{5}\,Bb^3x^5 + Aa^3x + \frac{1}{4}\left(3\,Bab^2 + Ab^3\right)x^4 + \left(Ba^2b + Aab^2\right)x^3 + \frac{1}{2}\left(Ba^3 + 3\,Aa^2b\right)x^2$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3,x, algorithm="maxima")
```

```
[Out] 1/5*B*b^3*x^5 + A*a^3*x + 1/4*(3*B*a*b^2 + A*b^3)*x^4 + (B*a^2*b
+ A*a*b^2)*x^3 + 1/2*(B*a^3 + 3*A*a^2*b)*x^2
```

Fricas [A] time = 0.186658, size = 1, normalized size = 0.03

$$\frac{1}{5}x^5b^3B + \frac{3}{4}x^4b^2aB + \frac{1}{4}x^4b^3A + x^3ba^2B + x^3b^2aA + \frac{1}{2}x^2a^3B + \frac{3}{2}x^2ba^2A + xa^3A$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3,x, algorithm="fricas")
```

```
[Out] 1/5*x^5*b^3*B + 3/4*x^4*b^2*a*B + 1/4*x^4*b^3*A + x^3*b*a^2*B + x
^3*b^2*a*A + 1/2*x^2*a^3*B + 3/2*x^2*b*a^2*A + x*a^3*A
```

Sympy [A] time = 0.129695, size = 73, normalized size = 1.92

$$Aa^3x + \frac{Bb^3x^5}{5} + x^4\left(\frac{Ab^3}{4} + \frac{3Bab^2}{4}\right) + x^3\left(Aab^2 + Ba^2b\right) + x^2\left(\frac{3Aa^2b}{2} + \frac{Ba^3}{2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**3*(B*x+A),x)
```

```
[Out] A*a**3*x + B*b**3*x**5/5 + x**4*(A*b**3/4 + 3*B*a*b**2/4) + x**3*
(A*a*b**2 + B*a**2*b) + x**2*(3*A*a**2*b/2 + B*a**3/2)
```

GIAC/XCAS [A] time = 0.228906, size = 97, normalized size = 2.55

$$\frac{1}{5}\,Bb^3x^5 + \frac{3}{4}\,Bab^2x^4 + \frac{1}{4}\,Ab^3x^4 + Ba^2bx^3 + Aab^2x^3 + \frac{1}{2}\,Ba^3x^2 + \frac{3}{2}\,Aa^2bx^2 + Aa^3x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3,x, algorithm="giac")
```

```
[Out] 1/5*B*b^3*x^5 + 3/4*B*a*b^2*x^4 + 1/4*A*b^3*x^4 + B*a^2*b*x^3 + A
*a*b^2*x^3 + 1/2*B*a^3*x^2 + 3/2*A*a^2*b*x^2 + A*a^3*x
```

3.1024 $\int \frac{(a+bx)^3(A+Bx)}{d+ex}\,dx$

Optimal. Leaf size=124

$$\frac{(bd-ae)^3(Bd-Ae)\log(d+ex)}{e^5}-\frac{bx(bd-ae)^2(Bd-Ae)}{e^4}+\frac{(a+bx)^2(bd-ae)(Bd-Ae)}{2e^3}-\frac{(a+bx)^3(Bd-Ae)}{3e^2}+\frac{B(a+bx)^4}{4be}$$

```
[Out] -((b*(b*d - a*e)^2*(B*d - A*e)*x)/e^4) + ((b*d - a*e)*(B*d - A*e)
*(a + b*x)^2)/(2*e^3) - ((B*d - A*e)*(a + b*x)^3)/(3*e^2) + (B*(a
 + b*x)^4)/(4*b*e) + ((b*d - a*e)^3*(B*d - A*e)*Log[d + e*x])/e^5
```

Rubi [A] time = 0.194018, antiderivative size = 124, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{(bd-ae)^3(Bd-Ae)\log(d+ex)}{e^5}-\frac{bx(bd-ae)^2(Bd-Ae)}{e^4}+\frac{(a+bx)^2(bd-ae)(Bd-Ae)}{2e^3}-\frac{(a+bx)^3(Bd-Ae)}{3e^2}+\frac{B(a+bx)^4}{4be}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^3*(A + B*x))/(d + e*x),x]
```

```
[Out] -((b*(b*d - a*e)^2*(B*d - A*e)*x)/e^4) + ((b*d - a*e)*(B*d - A*e)
*(a + b*x)^2)/(2*e^3) - ((B*d - A*e)*(a + b*x)^3)/(3*e^2) + (B*(a
 + b*x)^4)/(4*b*e) + ((b*d - a*e)^3*(B*d - A*e)*Log[d + e*x])/e^5
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{B\left(a+bx\right)^4}{4be}+\frac{\left(a+bx\right)^3\left(Ae-Bd\right)}{3e^2}+\frac{\left(a+bx\right)^2\left(Ae-Bd\right)\left(ae-bd\right)}{2e^3}+\frac{\left(Ae-Bd\right)\left(ae-bd\right)^2\int b\,dx}{e^4}+\frac{\left(Ae-Bd\right)\left(ae-bd\right)^3\log\left(d+ex\right)}{e^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**3*(B*x+A)/(e*x+d),x)
```

```
[Out] B*(a + b*x)**4/(4*b*e) + (a + b*x)**3*(A*e - B*d)/(3*e**2) + (a +
 b*x)**2*(A*e - B*d)*(a*e - b*d)/(2*e**3) + (A*e - B*d)*(a*e - b*
d)**2*Integral(b, x)/e**4 + (A*e - B*d)*(a*e - b*d)**3*log(d + e*
x)/e**5
```

Mathematica [A] time = 0.154064, size = 169, normalized size = 1.36

$$\frac{ex\left(12a^3Be^3+18a^2be^2(2Ae-2Bd+Bex)+6ab^2e\left(3Ae(ex-2d)+B\left(6d^2-3dex+2e^2x^2\right)\right)+b^3\left(2Ae\left(6d^2-3dex+2e^2x^2\right.\right.}{12e^5}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^3*(A + B*x))/(d + e*x),x]
```

```
[Out] (e*x*(12*a^3*B*e^3 + 18*a^2*b*e^2*(-2*B*d + 2*A*e + B*e*x) + 6*a*
b^2*e*(3*A*e*(-2*d + e*x) + B*(6*d^2 - 3*d*e*x + 2*e^2*x^2)) + b^
3*(2*A*e*(6*d^2 - 3*d*e*x + 2*e^2*x^2) + B*(-12*d^3 + 6*d^2*e*x -
```

```
4*d*e^2*x^2 + 3*e^3*x^3))) + 12*(b*d - a*e)^3*(B*d - A*e)*Log[d
+ e*x])/(12*e^5)
```

Maple [B] time = 0.007, size = 341, normalized size = 2.8

$$\frac{Bb^3x^4}{4e}+\frac{Ab^3x^3}{3e}+\frac{Bx^3ab^2}{e}-\frac{b^3Bx^3d}{3e^2}+\frac{3aAb^2x^2}{2e}-\frac{Ax^2b^3d}{2e^2}+\frac{3Bx^2a^2b}{2e}-\frac{3Bx^2ab^2d}{2e^2}+\frac{b^3Bx^2d^2}{2e^3}+3\frac{a^2Abx}{e}-3\frac{ab^2Adx}{e^2}+\frac{b^3Ad^2x}{e^3}+\frac{a^3Bx}{e}-3\frac{a^2bBdx}{e^2}+3\frac{ab^2Bd^2x}{e^3}-\frac{b^3Bd^3x}{e^4}+\frac{\ln(ex+d)a^3A}{e}-3\frac{\ln(ex+d)Aa^2bd}{e^2}+3\frac{\ln(ex+d)Aab^2d^2}{e^3}-\frac{\ln(ex+d)Ab^3d^3}{e^4}-\frac{\ln(ex+d)Ba^3d}{e^2}+3\frac{\ln(ex+d)Ba^2bd^2}{e^3}-3\frac{\ln(ex+d)Bab^2d^3}{e^4}+\frac{\ln(ex+d)b^3Bd^4}{e^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3*(B*x+A)/(e*x+d),x)
```

```
[Out] 1/4/e*B*b^3*x^4+1/3/e*A*x^3*b^3+1/e*B*x^3*a*b^2-1/3/e^2*B*x^3*b^3
*d+3/2/e*A*x^2*a*b^2-1/2/e^2*A*x^2*b^3*d+3/2/e*B*x^2*a^2*b-3/2/e^
2*B*x^2*a*b^2*d+1/2/e^3*B*x^2*b^3*d^2+3/e*A*a^2*b*x-3/e^2*A*a*b^2
*d*x+1/e^3*A*b^3*d^2*x+1/e*B*a^3*x-3/e^2*B*a^2*b*d*x+3/e^3*B*a*b^
2*d^2*x-1/e^4*b^3*B*d^3*x+1/e*ln(e*x+d)*a^3*A-3/e^2*ln(e*x+d)*A*a
^2*b*d+3/e^3*ln(e*x+d)*A*a*b^2*d^2-1/e^4*ln(e*x+d)*A*b^3*d^3-1/e^
2*ln(e*x+d)*B*a^3*d+3/e^3*ln(e*x+d)*B*a^2*b*d^2-3/e^4*ln(e*x+d)*B
*a*b^2*d^3+1/e^5*ln(e*x+d)*b^3*B*d^4
```

Maxima [A] time = 1.33862, size = 348, normalized size = 2.81

$$\frac{3Bb^3e^3x^4-4\left(Bb^3de^2-\left(3Bab^2+Ab^3\right)e^3\right)x^3+6\left(Bb^3d^2e-\left(3Bab^2+Ab^3\right)de^2+3\left(Ba^2b+Aab^2\right)e^3\right)x^2-12\left(Bb^3d^3-(3\ldots\right.}{12e^4}+\frac{\left(Bb^3d^4+Aa^3e^4-\left(3Bab^2+Ab^3\right)d^3e+3\left(Ba^2b+Aab^2\right)d^2e^2-\left(Ba^3+3Aa^2b\right)de^3\right)\log(ex+d)}{e^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/(e*x + d),x, algorithm="maxima")
```

```
[Out] 1/12*(3*B*b^3*e^3*x^4 - 4*(B*b^3*d*e^2 - (3*B*a*b^2 + A*b^3)*e^3)
*x^3 + 6*(B*b^3*d^2*e - (3*B*a*b^2 + A*b^3)*d*e^2 + 3*(B*a^2*b +
A*a*b^2)*e^3)*x^2 - 12*(B*b^3*d^3 - (3*B*a*b^2 + A*b^3)*d^2*e + 3
*(B*a^2*b + A*a*b^2)*d*e^2 - (B*a^3 + 3*A*a^2*b)*e^3)*x)/e^4 + (B
*b^3*d^4 + A*a^3*e^4 - (3*B*a*b^2 + A*b^3)*d^3*e + 3*(B*a^2*b + A
*a*b^2)*d^2*e^2 - (B*a^3 + 3*A*a^2*b)*d*e^3)*log(e*x + d)/e^5
```

Fricas [A] time = 0.210003, size = 351, normalized size = 2.83

$$\frac{3Bb^3e^4x^4-4\left(Bb^3de^3-\left(3Bab^2+Ab^3\right)e^4\right)x^3+6\left(Bb^3d^2e^2-\left(3Bab^2+Ab^3\right)de^3+3\left(Ba^2b+Aab^2\right)e^4\right)x^2-12\left(Bb^3d^3e-\left(\ldots\right.\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/(e*x + d),x, algorithm="fricas")
```

```
[Out] 1/12*(3*B*b^3*e^4*x^4 - 4*(B*b^3*d*e^3 - (3*B*a*b^2 + A*b^3)*e^4)
*x^3 + 6*(B*b^3*d^2*e^2 - (3*B*a*b^2 + A*b^3)*d*e^3 + 3*(B*a^2*b
+ A*a*b^2)*e^4)*x^2 - 12*(B*b^3*d^3*e - (3*B*a*b^2 + A*b^3)*d^2*e
^2 + 3*(B*a^2*b + A*a*b^2)*d*e^3 - (B*a^3 + 3*A*a^2*b)*e^4)*x + 1
2*(B*b^3*d^4 + A*a^3*e^4 - (3*B*a*b^2 + A*b^3)*d^3*e + 3*(B*a^2*b
```

```
 + A*a*b^2)*d^2*e^2 - (B*a^3 + 3*A*a^2*b)*d*e^3)*log(e*x + d))/e^
5
```

Sympy [A] time = 3.65603, size = 214, normalized size = 1.73

$$\frac{Bb^3x^4}{4e} + \frac{x^3\left(Ab^3e + 3Bab^2e - Bb^3d\right)}{3e^2} + \frac{x^2\left(3Aab^2e^2 - Ab^3de + 3Ba^2be^2 - 3Bab^2de + Bb^3d^2\right)}{2e^3} + \frac{x\left(3Aa^2be^3 - 3Aab^2de^2 + Ab^3d^2e + Ba^3e^3 - 3Ba^2bde^2 + 3Bab^2d^2e - Bb^3d^3\right)}{e^4} - \frac{(-Ae + Bd)(ae - bd)^3 \log(d + ex)}{e^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**3*(B*x+A)/(e*x+d),x)
```

```
[Out] B*b**3*x**4/(4*e) + x**3*(A*b**3*e + 3*B*a*b**2*e - B*b**3*d)/(3*
e**2) + x**2*(3*A*a*b**2*e**2 - A*b**3*d*e + 3*B*a**2*b*e**2 - 3*
B*a*b**2*d*e + B*b**3*d**2)/(2*e**3) + x*(3*A*a**2*b*e**3 - 3*A*a
*b**2*d*e**2 + A*b**3*d**2*e + B*a**3*e**3 - 3*B*a**2*b*d*e**2 +
3*B*a*b**2*d**2*e - B*b**3*d**3)/e**4 - (-A*e + B*d)*(a*e - b*d)*
*3*log(d + e*x)/e**5
```

GIAC/XCAS [A] time = 0.225781, size = 383, normalized size = 3.09

$$\left(Bb^3d^4 - 3\,Bab^2d^3e - Ab^3d^3e + 3\,Ba^2bd^2e^2 + 3\,Aab^2d^2e^2 - Ba^3de^3 - 3\,Aa^2bde^3 + Aa^3e^4\right)e^{(-5)}\ln\left(|xe + d|\right) + \frac{1}{12}\left(3\,Bb^3x^4e^3 - 4\,Bb^3dx^3e^2 + 6\,Bb^3d^2x^2e - 12\,Bb^3d^3x + 12\,Bab^2x^3e^3 + 4\,Ab^3x^3e^3 - 18\,Bab^2dx^2e^2 - 6\,Ab^3dx^2e^2 + 36\,Bab^2\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/(e*x + d),x, algorithm="giac")
```

```
[Out] (B*b^3*d^4 - 3*B*a*b^2*d^3*e - A*b^3*d^3*e + 3*B*a^2*b*d^2*e^2 +
3*A*a*b^2*d^2*e^2 - B*a^3*d*e^3 - 3*A*a^2*b*d*e^3 + A*a^3*e^4)*e^
(-5)*ln(abs(x*e + d)) + 1/12*(3*B*b^3*x^4*e^3 - 4*B*b^3*d*x^3*e^2
 + 6*B*b^3*d^2*x^2*e - 12*B*b^3*d^3*x + 12*B*a*b^2*x^3*e^3 + 4*A*
b^3*x^3*e^3 - 18*B*a*b^2*d*x^2*e^2 - 6*A*b^3*d*x^2*e^2 + 36*B*a*b
^2*d^2*x*e + 12*A*b^3*d^2*x*e + 18*B*a^2*b*x^2*e^3 + 18*A*a*b^2*x
^2*e^3 - 36*B*a^2*b*d*x*e^2 - 36*A*a*b^2*d*x*e^2 + 12*B*a^3*x*e^3
 + 36*A*a^2*b*x*e^3)*e^(-4)
```

3.1025 $\int \frac{(a+bx)^3(A+Bx)}{(d+ex)^2}\,dx$

Optimal. Leaf size=150

$$-\frac{b^2(d+ex)^2(-3aBe-Abe+4bBd)}{2e^5}-\frac{(bd-ae)^3(Bd-Ae)}{e^5(d+ex)}-\frac{(bd-ae)^2\log(d+ex)(-aBe-3Abe+4bBd)}{e^5}+\frac{3bx(bd-ae)(-aBe-Abe+2bBd)}{e^4}+\frac{b^3B(d+ex)^3}{3e^5}$$

```
[Out] (3*b*(b*d - a*e)*(2*b*B*d - A*b*e - a*B*e)*x)/e^4 - ((b*d - a*e)^
3*(B*d - A*e))/(e^5*(d + e*x)) - (b^2*(4*b*B*d - A*b*e - 3*a*B*e)
*(d + e*x)^2)/(2*e^5) + (b^3*B*(d + e*x)^3)/(3*e^5) - ((b*d - a*e
)^2*(4*b*B*d - 3*A*b*e - a*B*e)*Log[d + e*x])/e^5
```

Rubi [A] time = 0.414918, antiderivative size = 150, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{b^2(d+ex)^2(-3aBe-Abe+4bBd)}{2e^5}-\frac{(bd-ae)^3(Bd-Ae)}{e^5(d+ex)}-\frac{(bd-ae)^2\log(d+ex)(-aBe-3Abe+4bBd)}{e^5}+\frac{3bx(bd-ae)(-aBe-Abe+2bBd)}{e^4}+\frac{b^3B(d+ex)^3}{3e^5}$$

Antiderivative was successfully verified.

```
[In] Int[((a + b*x)^3*(A + B*x))/(d + e*x)^2,x]
```

```
[Out] (3*b*(b*d - a*e)*(2*b*B*d - A*b*e - a*B*e)*x)/e^4 - ((b*d - a*e)^
3*(B*d - A*e))/(e^5*(d + e*x)) - (b^2*(4*b*B*d - A*b*e - 3*a*B*e)
*(d + e*x)^2)/(2*e^5) + (b^3*B*(d + e*x)^3)/(3*e^5) - ((b*d - a*e
)^2*(4*b*B*d - 3*A*b*e - a*B*e)*Log[d + e*x])/e^5
```

Rubi in Sympy [A] time = 51.1853, size = 143, normalized size = 0.95

$$\frac{Bb^3\left(d+ex\right)^3}{3e^5}+\frac{b^2\left(d+ex\right)^2\left(Abe+3Bae-4Bbd\right)}{2e^5}+\frac{3bx\left(ae-bd\right)\left(Abe+Bae-2Bbd\right)}{e^4}+\frac{\left(ae-bd\right)^2\left(3Abe+Bae-4Bbd\right)\log\left(d+ex\right)}{e^5}-\frac{\left(Ae-Bd\right)\left(ae-bd\right)^3}{e^5\left(d+ex\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)**3*(B*x+A)/(e*x+d)**2,x)
```

```
[Out] B*b**3*(d + e*x)**3/(3*e**5) + b**2*(d + e*x)**2*(A*b*e + 3*B*a*e
 - 4*B*b*d)/(2*e**5) + 3*b*x*(a*e - b*d)*(A*b*e + B*a*e - 2*B*b*d
)/e**4 + (a*e - b*d)**2*(3*A*b*e + B*a*e - 4*B*b*d)*log(d + e*x)/
e**5 - (A*e - B*d)*(a*e - b*d)**3/(e**5*(d + e*x))
```

Mathematica [A] time = 0.181714, size = 244, normalized size = 1.63

$$6a^3e^3(Bd-Ae)+18a^2be^2\left(Ade+B\left(-d^2+dex+e^2x^2\right)\right)+9ab^2e\left(2Ae\left(-d^2+dex+e^2x^2\right)+B\left(2d^3-4d^2ex-3de^2x^2+e^3x\right.\right.$$

Antiderivative was successfully verified.

```
[In] Integrate[((a + b*x)^3*(A + B*x))/(d + e*x)^2,x]
```

```
[Out] (6*a^3*e^3*(B*d - A*e) + 18*a^2*b*e^2*(A*d*e + B*(-d^2 + d*e*x +
e^2*x^2)) + 9*a*b^2*e*(2*A*e*(-d^2 + d*e*x + e^2*x^2) + B*(2*d^3
- 4*d^2*e*x - 3*d*e^2*x^2 + e^3*x^3)) + b^3*(3*A*e*(2*d^3 - 4*d^2
*e*x - 3*d*e^2*x^2 + e^3*x^3) + 2*B*(-3*d^4 + 9*d^3*e*x + 6*d^2*e
^2*x^2 - 2*d*e^3*x^3 + e^4*x^4)) - 6*(b*d - a*e)^2*(4*b*B*d - 3*A
*b*e - a*B*e)*(d + e*x)*Log[d + e*x])/(6*e^5*(d + e*x))
```

Maple [B] time = 0.013, size = 376, normalized size = 2.5

$$\frac{b^3Bx^3}{3\,e^2}+\frac{b^3Ax^2}{2\,e^2}+\frac{3\,b^2Bx^2a}{2\,e^2}-\frac{b^3Bx^2d}{e^3}+3\,\frac{ab^2Ax}{e^2}-2\,\frac{b^3Adx}{e^3}+3\,\frac{a^2bBx}{e^2}-6\,\frac{ab^2Bdx}{e^3}+3\,\frac{b^3Bd^2x}{e^4}+3\,\frac{\ln(ex+d)\,Aa^2b}{e^2}-6\,\frac{\ln(ex+d)\,Aab^2d}{e^3}+3\,\frac{\ln(ex+d)\,Ab^3d^2}{e^4}+\frac{\ln(ex+d)\,Ba^3}{e^2}-6\,\frac{\ln(ex+d)\,Ba^2bd}{e^3}+9\,\frac{\ln(ex+d)\,Bab^2d^2}{e^4}-4\,\frac{\ln(ex+d)\,b^3Bd^3}{e^5}-\frac{a^3A}{e\,(ex+d)}+3\,\frac{Ada^2b}{e^2\,(ex+d)}-3\,\frac{ab^2Ad^2}{e^3\,(ex+d)}+\frac{b^3Ad^3}{e^4\,(ex+d)}+\frac{Bda^3}{e^2\,(ex+d)}-3\,\frac{ba^2d^2B}{e^3\,(ex+d)}+3\,\frac{b^2ad^3B}{e^4\,(ex+d)}-\frac{b^3Bd^4}{e^5\,(ex+d)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3*(B*x+A)/(e*x+d)^2,x)
```

```
[Out] 1/3*b^3/e^2*B*x^3+1/2*b^3/e^2*A*x^2+3/2*b^2/e^2*B*x^2*a-b^3/e^3*B
*x^2*d+3*b^2/e^2*A*a*x-2*b^3/e^3*A*d*x+3*b/e^2*B*a^2*x-6*b^2/e^3*
B*a*d*x+3*b^3/e^4*B*d^2*x+3/e^2*ln(e*x+d)*A*a^2*b-6/e^3*ln(e*x+d)
*A*a*b^2*d+3/e^4*ln(e*x+d)*A*b^3*d^2+1/e^2*ln(e*x+d)*B*a^3-6/e^3*
ln(e*x+d)*B*a^2*b*d+9/e^4*ln(e*x+d)*B*a*b^2*d^2-4/e^5*ln(e*x+d)*b
^3*B*d^3-1/e/(e*x+d)*a^3*A+3/e^2/(e*x+d)*A*d*a^2*b-3/e^3/(e*x+d)*
A*a*b^2*d^2+1/e^4/(e*x+d)*A*b^3*d^3+1/e^2/(e*x+d)*B*d*a^3-3/e^3/(
e*x+d)*B*a^2*b*d^2+3/e^4/(e*x+d)*B*a*b^2*d^3-1/e^5/(e*x+d)*b^3*B*
d^4
```

Maxima [A] time = 1.36813, size = 360, normalized size = 2.4

$$-\frac{Bb^3d^4+Aa^3e^4-\left(3\,Bab^2+Ab^3\right)d^3e+3\left(Ba^2b+Aab^2\right)d^2e^2-\left(Ba^3+3\,Aa^2b\right)de^3}{e^6x+de^5}+\frac{2\,Bb^3e^2x^3-3\left(2\,Bb^3de-\left(3\,Bab^2+Ab^3\right)e^2\right)x^2+6\left(3\,Bb^3d^2-2\left(3\,Bab^2+Ab^3\right)de+3\left(Ba^2b+Aab^2\right)e^2\right)x}{6\,e^4}-\frac{\left(4\,Bb^3d^3-3\left(3\,Bab^2+Ab^3\right)d^2e+6\left(Ba^2b+Aab^2\right)de^2-\left(Ba^3+3\,Aa^2b\right)e^3\right)\log(ex+d)}{e^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/(e*x + d)^2,x, algorithm="maxima")
```

```
[Out] -(B*b^3*d^4 + A*a^3*e^4 - (3*B*a*b^2 + A*b^3)*d^3*e + 3*(B*a^2*b
+ A*a*b^2)*d^2*e^2 - (B*a^3 + 3*A*a^2*b)*d*e^3)/(e^6*x + d*e^5) +
 1/6*(2*B*b^3*e^2*x^3 - 3*(2*B*b^3*d*e - (3*B*a*b^2 + A*b^3)*e^2)
*x^2 + 6*(3*B*b^3*d^2 - 2*(3*B*a*b^2 + A*b^3)*d*e + 3*(B*a^2*b +
A*a*b^2)*e^2)*x)/e^4 - (4*B*b^3*d^3 - 3*(3*B*a*b^2 + A*b^3)*d^2*e
 + 6*(B*a^2*b + A*a*b^2)*d*e^2 - (B*a^3 + 3*A*a^2*b)*e^3)*log(e*x
 + d)/e^5
```

Fricas [A] time = 0.215078, size = 535, normalized size = 3.57

$$2\,Bb^3e^4x^4-6\,Bb^3d^4-6\,Aa^3e^4+6\left(3\,Bab^2+Ab^3\right)d^3e-18\left(Ba^2b+Aab^2\right)d^2e^2+6\left(Ba^3+3\,Aa^2b\right)de^3-\left(4\,Bb^3de^3-3\left(3\,Ba\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/(e*x + d)^2,x, algorithm="fricas")
```

```
[Out] 1/6*(2*B*b^3*e^4*x^4 - 6*B*b^3*d^4 - 6*A*a^3*e^4 + 6*(3*B*a*b^2 +
 A*b^3)*d^3*e - 18*(B*a^2*b + A*a*b^2)*d^2*e^2 + 6*(B*a^3 + 3*A*a
^2*b)*d*e^3 - (4*B*b^3*d*e^3 - 3*(3*B*a*b^2 + A*b^3)*e^4)*x^3 + 3
*(4*B*b^3*d^2*e^2 - 3*(3*B*a*b^2 + A*b^3)*d*e^3 + 6*(B*a^2*b + A*
a*b^2)*e^4)*x^2 + 6*(3*B*b^3*d^3*e - 2*(3*B*a*b^2 + A*b^3)*d^2*e^
2 + 3*(B*a^2*b + A*a*b^2)*d*e^3)*x - 6*(4*B*b^3*d^4 - 3*(3*B*a*b^
2 + A*b^3)*d^3*e + 6*(B*a^2*b + A*a*b^2)*d^2*e^2 - (B*a^3 + 3*A*a
^2*b)*d*e^3 + (4*B*b^3*d^3*e - 3*(3*B*a*b^2 + A*b^3)*d^2*e^2 + 6*
(B*a^2*b + A*a*b^2)*d*e^3 - (B*a^3 + 3*A*a^2*b)*e^4)*x)*log(e*x +
 d))/(e^6*x + d*e^5)
```

Sympy [A] time = 7.55926, size = 250, normalized size = 1.67

$$\frac{Bb^3x^3}{3e^2}+\frac{-Aa^3e^4+3Aa^2bde^3-3Aab^2d^2e^2+Ab^3d^3e+Ba^3de^3-3Ba^2bd^2e^2+3Bab^2d^3e-Bb^3d^4}{de^5+e^6x}+\frac{x^2\left(Ab^3e+3Bab^2e-2Bb^3d\right)}{2e^3}+\frac{x\left(3Aab^2e^2-2Ab^3de+3Ba^2be^2-6Bab^2de+3Bb^3d^2\right)}{e^4}+\frac{(ae-bd)^2\left(3Abe+Bae-4Bbd\right)\log\left(d+ex\right)}{e^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**3*(B*x+A)/(e*x+d)**2,x)
```

```
[Out] B*b**3*x**3/(3*e**2) + (-A*a**3*e**4 + 3*A*a**2*b*d*e**3 - 3*A*a*
b**2*d**2*e**2 + A*b**3*d**3*e + B*a**3*d*e**3 - 3*B*a**2*b*d**2*
e**2 + 3*B*a*b**2*d**3*e - B*b**3*d**4)/(d*e**5 + e**6*x) + x**2*
(A*b**3*e + 3*B*a*b**2*e - 2*B*b**3*d)/(2*e**3) + x*(3*A*a*b**2*e
**2 - 2*A*b**3*d*e + 3*B*a**2*b*e**2 - 6*B*a*b**2*d*e + 3*B*b**3*
d**2)/e**4 + (a*e - b*d)**2*(3*A*b*e + B*a*e - 4*B*b*d)*log(d + e
*x)/e**5
```

GIAC/XCAS [A] time = 0.231515, size = 489, normalized size = 3.26

$$\frac{1}{6}\left(2\,Bb^3-\frac{3\left(4\,Bb^3de-3\,Bab^2e^2-Ab^3e^2\right)e^{(-1)}}{xe+d}+\frac{18\left(2\,Bb^3d^2e^2-3\,Bab^2de^3-Ab^3de^3+Ba^2be^4+Aab^2e^4\right)e^{(-2)}}{(xe+d)^2}\right)(xe+d)^3+\left(4\,Bb^3d^3-9\,Bab^2d^2e-3\,Ab^3d^2e+6\,Ba^2bde^2+6\,Aab^2de^2-Ba^3e^3-3\,Aa^2be^3\right)e^{(-5)}\ln\left(\frac{|xe+d|e^{(-1)}}{(xe+d)^2}\right)-\left(\frac{Bb^3d^4e^3}{xe+d}-\frac{3\,Bab^2d^3e^4}{xe+d}-\frac{Ab^3d^3e^4}{xe+d}+\frac{3\,Ba^2bd^2e^5}{xe+d}+\frac{3\,Aab^2d^2e^5}{xe+d}-\frac{Ba^3de^6}{xe+d}-\frac{3\,Aa^2bde^6}{xe+d}+\frac{Aa^3e^7}{xe+d}\right)e^{(-8)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/(e*x + d)^2,x, algorithm="giac")
```

```
[Out] 1/6*(2*B*b^3 - 3*(4*B*b^3*d*e - 3*B*a*b^2*e^2 - A*b^3*e^2)*e^(-1)
/(x*e + d) + 18*(2*B*b^3*d^2*e^2 - 3*B*a*b^2*d*e^3 - A*b^3*d*e^3
+ B*a^2*b*e^4 + A*a*b^2*e^4)*e^(-2)/(x*e + d)^2)*(x*e + d)^3*e^(-
5) + (4*B*b^3*d^3 - 9*B*a*b^2*d^2*e - 3*A*b^3*d^2*e + 6*B*a^2*b*d
*e^2 + 6*A*a*b^2*d*e^2 - B*a^3*e^3 - 3*A*a^2*b*e^3)*e^(-5)*ln(abs
(x*e + d)*e^(-1)/(x*e + d)^2) - (B*b^3*d^4*e^3/(x*e + d) - 3*B*a*
b^2*d^3*e^4/(x*e + d) - A*b^3*d^3*e^4/(x*e + d) + 3*B*a^2*b*d^2*e
^5/(x*e + d) + 3*A*a*b^2*d^2*e^5/(x*e + d) - B*a^3*d*e^6/(x*e + d
) - 3*A*a^2*b*d*e^6/(x*e + d) + A*a^3*e^7/(x*e + d))*e^(-8)
```

3.1026 $\int \frac{(a+bx)^3(A+Bx)}{(d+ex)^3}\,dx$

Optimal. Leaf size=145

$$-\frac{b^2x(-3aBe-Abe+3bBd)}{e^4}+\frac{(bd-ae)^2(-aBe-3Abe+4bBd)}{e^5(d+ex)}-\frac{(bd-ae)^3(Bd-Ae)}{2e^5(d+ex)^2}+\frac{3b(bd-ae)\log(d+ex)(-aBe-Abe+2bBd)}{e^5}+\frac{b^3Bx^2}{2e^3}$$

```
[Out] -((b^2*(3*b*B*d - A*b*e - 3*a*B*e)*x)/e^4) + (b^3*B*x^2)/(2*e^3)
- ((b*d - a*e)^3*(B*d - A*e))/(2*e^5*(d + e*x)^2) + ((b*d - a*e)^
2*(4*b*B*d - 3*A*b*e - a*B*e))/(e^5*(d + e*x)) + (3*b*(b*d - a*e)
*(2*b*B*d - A*b*e - a*B*e)*Log[d + e*x])/e^5
```

Rubi [A] time = 0.367595, antiderivative size = 145, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{b^2x(-3aBe-Abe+3bBd)}{e^4}+\frac{(bd-ae)^2(-aBe-3Abe+4bBd)}{e^5(d+ex)}-\frac{(bd-ae)^3(Bd-Ae)}{2e^5(d+ex)^2}+\frac{3b(bd-ae)\log(d+ex)(-aBe-Abe+2bBd)}{e^5}+\frac{b^3Bx^2}{2e^3}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^3*(A + B*x))/(d + e*x)^3,x]
```

```
[Out] -((b^2*(3*b*B*d - A*b*e - 3*a*B*e)*x)/e^4) + (b^3*B*x^2)/(2*e^3)
- ((b*d - a*e)^3*(B*d - A*e))/(2*e^5*(d + e*x)^2) + ((b*d - a*e)^
2*(4*b*B*d - 3*A*b*e - a*B*e))/(e^5*(d + e*x)) + (3*b*(b*d - a*e)
*(2*b*B*d - A*b*e - a*B*e)*Log[d + e*x])/e^5
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{Bb^3\int x\,dx}{e^3}+\frac{3b\,(ae-bd)\,(Abe+Bae-2Bbd)\log(d+ex)}{e^5}+\frac{(Abe+3Bae-3Bbd)\int b^2\,dx}{e^4}-\frac{(ae-bd)^2\,(3Abe+Bae-4Bbd)}{e^5\,(d+ex)}-\frac{(Ae-Bd)\,(ae-bd)^3}{2e^5\,(d+ex)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**3*(B*x+A)/(e*x+d)**3,x)
```

```
[Out] B*b**3*Integral(x, x)/e**3 + 3*b*(a*e - b*d)*(A*b*e + B*a*e - 2*B
*b*d)*log(d + e*x)/e**5 + (A*b*e + 3*B*a*e - 3*B*b*d)*Integral(b*
*2, x)/e**4 - (a*e - b*d)**2*(3*A*b*e + B*a*e - 4*B*b*d)/(e**5*(d
 + e*x)) - (A*e - B*d)*(a*e - b*d)**3/(2*e**5*(d + e*x)**2)
```

Mathematica [A] time = 0.195833, size = 238, normalized size = 1.64

$$-a^3e^3(Ae+B(d+2ex))-3a^2be^2(Ae(d+2ex)-Bd(3d+4ex))+3ab^2e\left(Ade(3d+4ex)+B\left(-5d^3-4d^2ex+4de^2x^2+2e^3x^3\right.\right.$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^3*(A + B*x))/(d + e*x)^3,x]
```

```
[Out] (-(a^3*e^3*(A*e + B*(d + 2*e*x))) - 3*a^2*b*e^2*(A*e*(d + 2*e*x)
- B*d*(3*d + 4*e*x)) + 3*a*b^2*e*(A*d*e*(3*d + 4*e*x) + B*(-5*d^3
 - 4*d^2*e*x + 4*d*e^2*x^2 + 2*e^3*x^3)) + b^3*(A*e*(-5*d^3 - 4*d
^2*e*x + 4*d*e^2*x^2 + 2*e^3*x^3) + B*(7*d^4 + 2*d^3*e*x - 11*d^2
*e^2*x^2 - 4*d*e^3*x^3 + e^4*x^4)) + 6*b*(b*d - a*e)*(2*b*B*d - A
*b*e - a*B*e)*(d + e*x)^2*Log[d + e*x])/(2*e^5*(d + e*x)^2)
```

Maple [B] time = 0.013, size = 404, normalized size = 2.8

$$\frac{b^3Bx^2}{2\,e^3}+\frac{b^3Ax}{e^3}+3\,\frac{ab^2Bx}{e^3}-3\,\frac{b^3Bdx}{e^4}+3\,\frac{b^2\ln(ex+d)\,Aa}{e^3}-3\,\frac{b^3\ln(ex+d)\,Ad}{e^4}+3\,\frac{b\ln(ex+d)\,Ba^2}{e^3}-9\,\frac{b^2\ln(ex+d)\,Bda}{e^4}+6\,\frac{b^3\ln(ex+d)\,Bd^2}{e^5}-3\,\frac{Aa^2b}{e^2\,(ex+d)}+6\,\frac{ab^2Ad}{e^3\,(ex+d)}-3\,\frac{b^3Ad^2}{e^4\,(ex+d)}-\frac{Ba^3}{e^2\,(ex+d)}+6\,\frac{a^2bBd}{e^3\,(ex+d)}-9\,\frac{b^2ad^2B}{e^4\,(ex+d)}+4\,\frac{b^3Bd^3}{e^5\,(ex+d)}-\frac{a^3A}{2\,e\,(ex+d)^2}+\frac{3\,Ada^2b}{2\,e^2\,(ex+d)^2}-\frac{3\,Ad^2ab^2}{2\,e^3\,(ex+d)^2}+\frac{b^3Ad^3}{2\,e^4\,(ex+d)^2}+\frac{Bda^3}{2\,e^2\,(ex+d)^2}-\frac{3\,Bd^2a^2b}{2\,e^3\,(ex+d)^2}+\frac{3\,b^2ad^3B}{2\,e^4\,(ex+d)^2}-\frac{b^3Bd^4}{2\,e^5\,(ex+d)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((b*x+a)^3*(B*x+A)/(e*x+d)^3,x)
```

```
[Out] 1/2*b^3*B*x^2/e^3+b^3/e^3*A*x+3*b^2/e^3*B*a*x-3*b^3/e^4*B*d*x+3*b
^2/e^3*ln(e*x+d)*A*a-3*b^3/e^4*ln(e*x+d)*A*d+3*b/e^3*ln(e*x+d)*B*
a^2-9*b^2/e^4*ln(e*x+d)*B*d*a+6*b^3/e^5*ln(e*x+d)*B*d^2-3/e^2/(e*
x+d)*A*a^2*b+6/e^3/(e*x+d)*A*a*b^2*d-3/e^4/(e*x+d)*A*b^3*d^2-1/e^
2/(e*x+d)*B*a^3+6/e^3/(e*x+d)*B*a^2*b*d-9/e^4/(e*x+d)*B*a*b^2*d^2
+4/e^5/(e*x+d)*b^3*B*d^3-1/2/e/(e*x+d)^2*a^3*A+3/2/e^2/(e*x+d)^2*
A*d*a^2*b-3/2/e^3/(e*x+d)^2*A*d^2*a*b^2+1/2/e^4/(e*x+d)^2*A*b^3*d
^3+1/2/e^2/(e*x+d)^2*B*d*a^3-3/2/e^3/(e*x+d)^2*B*d^2*a^2*b+3/2/e^
4/(e*x+d)^2*B*a*b^2*d^3-1/2/e^5/(e*x+d)^2*b^3*B*d^4
```

Maxima [A] time = 1.37558, size = 370, normalized size = 2.55

$$\frac{7\,Bb^3d^4-Aa^3e^4-5\left(3\,Bab^2+Ab^3\right)d^3e+9\left(Ba^2b+Aab^2\right)d^2e^2-\left(Ba^3+3\,Aa^2b\right)de^3+2\left(4\,Bb^3d^3e-3\left(3\,Bab^2+Ab^3\right)d^2e^2\right.}{2\left(e^7x^2+2\,de^6x+d^2e^5\right)}+\frac{Bb^3ex^2-2\left(3\,Bb^3d-\left(3\,Bab^2+Ab^3\right)e\right)x}{2\,e^4}+\frac{3\left(2\,Bb^3d^2-\left(3\,Bab^2+Ab^3\right)de+\left(Ba^2b+Aab^2\right)e^2\right)\log\left(ex+d\right)}{e^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*(b*x + a)^3/(e*x + d)^3,x, algorithm="maxima")
```

```
[Out] 1/2*(7*B*b^3*d^4 - A*a^3*e^4 - 5*(3*B*a*b^2 + A*b^3)*d^3*e + 9*(B
*a^2*b + A*a*b^2)*d^2*e^2 - (B*a^3 + 3*A*a^2*b)*d*e^3 + 2*(4*B*b^
3*d^3*e - 3*(3*B*a*b^2 + A*b^3)*d^2*e^2 + 6*(B*a^2*b + A*a*b^2)*d
*e^3 - (B*a^3 + 3*A*a^2*b)*e^4)*x)/(e^7*x^2 + 2*d*e^6*x + d^2*e^5
) + 1/2*(B*b^3*e*x^2 - 2*(3*B*b^3*d - (3*B*a*b^2 + A*b^3)*e)*x)/e
^4 + 3*(2*B*b^3*d^2 - (3*B*a*b^2 + A*b^3)*d*e + (B*a^2*b + A*a*b^
2)*e^2)*log(e*x + d)/e^5
```

Fricas [A] time = 0.212612, size = 567, normalized size = 3.91

$$\frac{Bb^3e^4x^4+7\,Bb^3d^4-Aa^3e^4-5\left(3\,Bab^2+Ab^3\right)d^3e+9\left(Ba^2b+Aab^2\right)d^2e^2-\left(Ba^3+3\,Aa^2b\right)de^3-2\left(2\,Bb^3de^3-\left(3\,Bab^2+A\right.\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/(e*x + d)^3,x, algorithm="fricas")
```

```
[Out] 1/2*(B*b^3*e^4*x^4 + 7*B*b^3*d^4 - A*a^3*e^4 - 5*(3*B*a*b^2 + A*b
^3)*d^3*e + 9*(B*a^2*b + A*a*b^2)*d^2*e^2 - (B*a^3 + 3*A*a^2*b)*d
*e^3 - 2*(2*B*b^3*d*e^3 - (3*B*a*b^2 + A*b^3)*e^4)*x^3 - (11*B*b^
3*d^2*e^2 - 4*(3*B*a*b^2 + A*b^3)*d*e^3)*x^2 + 2*(B*b^3*d^3*e - 2
*(3*B*a*b^2 + A*b^3)*d^2*e^2 + 6*(B*a^2*b + A*a*b^2)*d*e^3 - (B*a
^3 + 3*A*a^2*b)*e^4)*x + 6*(2*B*b^3*d^4 - (3*B*a*b^2 + A*b^3)*d^3
*e + (B*a^2*b + A*a*b^2)*d^2*e^2 + (2*B*b^3*d^2*e^2 - (3*B*a*b^2
+ A*b^3)*d*e^3 + (B*a^2*b + A*a*b^2)*e^4)*x^2 + 2*(2*B*b^3*d^3*e
- (3*B*a*b^2 + A*b^3)*d^2*e^2 + (B*a^2*b + A*a*b^2)*d*e^3)*x)*log
(e*x + d))/(e^7*x^2 + 2*d*e^6*x + d^2*e^5)
```

Sympy [A] time = 21.7589, size = 296, normalized size = 2.04

$$\frac{Bb^3x^2}{2e^3} + \frac{3b\,(ae-bd)\,(Abe+Bae-2Bbd)\log{(d+ex)}}{e^5} - \frac{Aa^3e^4 + 3Aa^2bde^3 - 9Aab^2d^2e^2 + 5Ab^3d^3e + Ba^3de^3 - 9Ba^2bd^2e^2 + 15Bab^2d^3e - 7Bb^3d^4 + x\left(6Aa^2be^4 - 12Aab^2de^3 + 6A\right.}{2d^2e^5 + 4de^6x + 2e^7x^2} + \frac{x\left(Ab^3e + 3Bab^2e - 3Bb^3d\right)}{e^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**3*(B*x+A)/(e*x+d)**3,x)
```

```
[Out] B*b**3*x**2/(2*e**3) + 3*b*(a*e - b*d)*(A*b*e + B*a*e - 2*B*b*d)*
log(d + e*x)/e**5 - (A*a**3*e**4 + 3*A*a**2*b*d*e**3 - 9*A*a*b**2
*d**2*e**2 + 5*A*b**3*d**3*e + B*a**3*d*e**3 - 9*B*a**2*b*d**2*e*
*2 + 15*B*a*b**2*d**3*e - 7*B*b**3*d**4 + x*(6*A*a**2*b*e**4 - 12
*A*a*b**2*d*e**3 + 6*A*b**3*d**2*e**2 + 2*B*a**3*e**4 - 12*B*a**2
*b*d*e**3 + 18*B*a*b**2*d**2*e**2 - 8*B*b**3*d**3*e))/(2*d**2*e**
5 + 4*d*e**6*x + 2*e**7*x**2) + x*(A*b**3*e + 3*B*a*b**2*e - 3*B*
b**3*d)/e**4
```

GIAC/XCAS [A] time = 0.227196, size = 369, normalized size = 2.54

$$3\left(2\,Bb^3d^2 - 3\,Bab^2de - Ab^3de + Ba^2be^2 + Aab^2e^2\right)e^{(-5)}\ln\left(|xe+d|\right) + \frac{1}{2}\left(Bb^3x^2e^3 - 6\,Bb^3dxe^2 + 6\,Bab^2xe^3 + 2\,Ab^3xe^3\right)e^{(-6)} + \frac{\left(7\,Bb^3d^4 - 15\,Bab^2d^3e - 5\,Ab^3d^3e + 9\,Ba^2bd^2e^2 + 9\,Aab^2d^2e^2 - Ba^3de^3 - 3\,Aa^2bde^3 - Aa^3e^4 + 2\left(4\,Bb^3d^3e - 9\,Bab^2d^2e^2\right.\right.}{2\,(xe+d)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/(e*x + d)^3,x, algorithm="giac")
```

```
[Out] 3*(2*B*b^3*d^2 - 3*B*a*b^2*d*e - A*b^3*d*e + B*a^2*b*e^2 + A*a*b^
2*e^2)*e^(-5)*ln(abs(x*e + d)) + 1/2*(B*b^3*x^2*e^3 - 6*B*b^3*d*x
*e^2 + 6*B*a*b^2*x*e^3 + 2*A*b^3*x*e^3)*e^(-6) + 1/2*(7*B*b^3*d^4
 - 15*B*a*b^2*d^3*e - 5*A*b^3*d^3*e + 9*B*a^2*b*d^2*e^2 + 9*A*a*b
^2*d^2*e^2 - B*a^3*d*e^3 - 3*A*a^2*b*d*e^3 - A*a^3*e^4 + 2*(4*B*b
^3*d^3*e - 9*B*a*b^2*d^2*e^2 - 3*A*b^3*d^2*e^2 + 6*B*a^2*b*d*e^3
+ 6*A*a*b^2*d*e^3 - B*a^3*e^4 - 3*A*a^2*b*e^4)*x)*e^(-5)/(x*e + d
)^2
```

3.1027 $\int \frac{(a+bx)^3(A+Bx)}{(d+ex)^4}\,dx$

Optimal. Leaf size=149

$$-\frac{b^2\log(d+ex)(-3aBe-Abe+4bBd)}{e^5}-\frac{3b(bd-ae)(-aBe-Abe+2bBd)}{e^5(d+ex)}+\frac{(bd-ae)^2(-aBe-3Abe+4bBd)}{2e^5(d+ex)^2}-\frac{(bd-ae)^3(Bd-Ae)}{3e^5(d+ex)^3}+\frac{b^3Bx}{e^4}$$

```
[Out] (b^3*B*x)/e^4 - ((b*d - a*e)^3*(B*d - A*e))/(3*e^5*(d + e*x)^3) +
 ((b*d - a*e)^2*(4*b*B*d - 3*A*b*e - a*B*e))/(2*e^5*(d + e*x)^2)
- (3*b*(b*d - a*e)*(2*b*B*d - A*b*e - a*B*e))/(e^5*(d + e*x)) - (
b^2*(4*b*B*d - A*b*e - 3*a*B*e)*Log[d + e*x])/e^5
```

Rubi [A] time = 0.368412, antiderivative size = 149, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{b^2\log(d+ex)(-3aBe-Abe+4bBd)}{e^5}-\frac{3b(bd-ae)(-aBe-Abe+2bBd)}{e^5(d+ex)}+\frac{(bd-ae)^2(-aBe-3Abe+4bBd)}{2e^5(d+ex)^2}-\frac{(bd-ae)^3(Bd-Ae)}{3e^5(d+ex)^3}+\frac{b^3Bx}{e^4}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^3*(A + B*x))/(d + e*x)^4,x]
```

```
[Out] (b^3*B*x)/e^4 - ((b*d - a*e)^3*(B*d - A*e))/(3*e^5*(d + e*x)^3) +
 ((b*d - a*e)^2*(4*b*B*d - 3*A*b*e - a*B*e))/(2*e^5*(d + e*x)^2)
- (3*b*(b*d - a*e)*(2*b*B*d - A*b*e - a*B*e))/(e^5*(d + e*x)) - (
b^2*(4*b*B*d - A*b*e - 3*a*B*e)*Log[d + e*x])/e^5
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{b^3\int B\,dx}{e^4}+\frac{b^2\left(Abe+3Bae-4Bbd\right)\log\left(d+ex\right)}{e^5}-\frac{3b\left(ae-bd\right)\left(Abe+Bae-2Bbd\right)}{e^5\left(d+ex\right)}-\frac{\left(ae-bd\right)^2\left(3Abe+Bae-4Bbd\right)}{2e^5\left(d+ex\right)^2}-\frac{\left(Ae-Bd\right)\left(ae-bd\right)^3}{3e^5\left(d+ex\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**3*(B*x+A)/(e*x+d)**4,x)
```

```
[Out] b**3*Integral(B, x)/e**4 + b**2*(A*b*e + 3*B*a*e - 4*B*b*d)*log(d
 + e*x)/e**5 - 3*b*(a*e - b*d)*(A*b*e + B*a*e - 2*B*b*d)/(e**5*(d
 + e*x)) - (a*e - b*d)**2*(3*A*b*e + B*a*e - 4*B*b*d)/(2*e**5*(d
+ e*x)**2) - (A*e - B*d)*(a*e - b*d)**3/(3*e**5*(d + e*x)**3)
```

Mathematica [A] time = 0.199357, size = 232, normalized size = 1.56

$$\frac{-a^3e^3(2Ae+B(d+3ex))-3a^2be^2\left(Ae(d+3ex)+2B\left(d^2+3dex+3e^2x^2\right)\right)+3ab^2e\left(Bd\left(11d^2+27dex+18e^2x^2\right)-2Ae\left(d^2\right.\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^3*(A + B*x))/(d + e*x)^4,x]
```

```
[Out] (-(a^3*e^3*(2*A*e + B*(d + 3*e*x))) - 3*a^2*b*e^2*(A*e*(d + 3*e*x
) + 2*B*(d^2 + 3*d*e*x + 3*e^2*x^2)) + 3*a*b^2*e*(-2*A*e*(d^2 + 3
*d*e*x + 3*e^2*x^2) + B*d*(11*d^2 + 27*d*e*x + 18*e^2*x^2)) + b^3
*(A*d*e*(11*d^2 + 27*d*e*x + 18*e^2*x^2) - 2*B*(13*d^4 + 27*d^3*e
*x + 9*d^2*e^2*x^2 - 9*d*e^3*x^3 - 3*e^4*x^4)) - 6*b^2*(4*b*B*d -
 A*b*e - 3*a*B*e)*(d + e*x)^3*Log[d + e*x])/(6*e^5*(d + e*x)^3)
```

Maple [B] time = 0.014, size = 419, normalized size = 2.8

$$\frac{b^3Bx}{e^4}+\frac{b^3\ln(ex+d)A}{e^4}+3\frac{b^2\ln(ex+d)Ba}{e^4}-4\frac{b^3\ln(ex+d)Bd}{e^5}-\frac{a^3A}{3e(ex+d)^3}+\frac{Ada^2b}{e^2(ex+d)^3}-\frac{Ad^2ab^2}{e^3(ex+d)^3}+\frac{Ad^3b^3}{3e^4(ex+d)^3}+\frac{Bda^3}{3e^2(ex+d)^3}-\frac{Bd^2a^2b}{e^3(ex+d)^3}+\frac{Bd^3ab^2}{e^4(ex+d)^3}-\frac{b^3Bd^4}{3e^5(ex+d)^3}-3\frac{ab^2A}{e^3(ex+d)}+3\frac{b^3Ad}{e^4(ex+d)}-3\frac{a^2bB}{e^3(ex+d)}+9\frac{b^2Bda}{e^4(ex+d)}-6\frac{b^3Bd^2}{e^5(ex+d)}-\frac{3Aa^2b}{2e^2(ex+d)^2}+3\frac{ab^2Ad}{e^3(ex+d)^2}-\frac{3b^3Ad^2}{2e^4(ex+d)^2}-\frac{Ba^3}{2e^2(ex+d)^2}+3\frac{a^2bBd}{e^3(ex+d)^2}-\frac{9ab^2Bd^2}{2e^4(ex+d)^2}+2\frac{b^3Bd^3}{e^5(ex+d)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3*(B*x+A)/(e*x+d)^4,x)
```

```
[Out] b^3*B*x/e^4+b^3/e^4*ln(e*x+d)*A+3*b^2/e^4*ln(e*x+d)*B*a-4*b^3/e^5
*ln(e*x+d)*B*d-1/3/e/(e*x+d)^3*a^3*A+1/e^2/(e*x+d)^3*A*d*a^2*b-1/
e^3/(e*x+d)^3*A*d^2*a*b^2+1/3/e^4/(e*x+d)^3*A*d^3*b^3+1/3/e^2/(e*
x+d)^3*B*d*a^3-1/e^3/(e*x+d)^3*B*d^2*a^2*b+1/e^4/(e*x+d)^3*B*d^3*
a*b^2-1/3/e^5/(e*x+d)^3*b^3*B*d^4-3*b^2/e^3/(e*x+d)*A*a+3*b^3/e^4
/(e*x+d)*A*d-3*b/e^3/(e*x+d)*B*a^2+9*b^2/e^4/(e*x+d)*B*d*a-6*b^3/
e^5/(e*x+d)*B*d^2-3/2/e^2/(e*x+d)^2*A*a^2*b+3/e^3/(e*x+d)^2*A*a*b
^2*d-3/2/e^4/(e*x+d)^2*A*b^3*d^2-1/2/e^2/(e*x+d)^2*B*a^3+3/e^3/(e
*x+d)^2*B*a^2*b*d-9/2/e^4/(e*x+d)^2*B*a*b^2*d^2+2/e^5/(e*x+d)^2*b
^3*B*d^3
```

Maxima [A] time = 1.3682, size = 383, normalized size = 2.57

$$\frac{Bb^3x}{e^4}-\frac{26\,Bb^3d^4+2\,Aa^3e^4-11\left(3\,Bab^2+Ab^3\right)d^3e+6\left(Ba^2b+Aab^2\right)d^2e^2+\left(Ba^3+3\,Aa^2b\right)de^3+18\left(2\,Bb^3d^2e^2-\left(3\,Bab^2+Ab^3\right)\right.}{6\left(e^8x^3+3\,de^7x^2+3\,d\right.}-\frac{\left(4\,Bb^3d-\left(3\,Bab^2+Ab^3\right)e\right)\log(ex+d)}{e^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/(e*x + d)^4,x, algorithm="maxima")
```

```
[Out] B*b^3*x/e^4 - 1/6*(26*B*b^3*d^4 + 2*A*a^3*e^4 - 11*(3*B*a*b^2 + A
*b^3)*d^3*e + 6*(B*a^2*b + A*a*b^2)*d^2*e^2 + (B*a^3 + 3*A*a^2*b)
*d*e^3 + 18*(2*B*b^3*d^2*e^2 - (3*B*a*b^2 + A*b^3)*d*e^3 + (B*a^2
*b + A*a*b^2)*e^4)*x^2 + 3*(20*B*b^3*d^3*e - 9*(3*B*a*b^2 + A*b^3
)*d^2*e^2 + 6*(B*a^2*b + A*a*b^2)*d*e^3 + (B*a^3 + 3*A*a^2*b)*e^4
)*x)/(e^8*x^3 + 3*d*e^7*x^2 + 3*d^2*e^6*x + d^3*e^5) - (4*B*b^3*d
 - (3*B*a*b^2 + A*b^3)*e)*log(e*x + d)/e^5
```

Fricas [A] time = 0.215132, size = 548, normalized size = 3.68

$$\frac{6\,Bb^3e^4x^4+18\,Bb^3de^3x^3-26\,Bb^3d^4-2\,Aa^3e^4+11\left(3\,Bab^2+Ab^3\right)d^3e-6\left(Ba^2b+Aab^2\right)d^2e^2-\left(Ba^3+3\,Aa^2b\right)de^3-18\,(\ldots}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/(e*x + d)^4,x, algorithm="fricas")
```

```
[Out] 1/6*(6*B*b^3*e^4*x^4 + 18*B*b^3*d*e^3*x^3 - 26*B*b^3*d^4 - 2*A*a^
3*e^4 + 11*(3*B*a*b^2 + A*b^3)*d^3*e - 6*(B*a^2*b + A*a*b^2)*d^2*
e^2 - (B*a^3 + 3*A*a^2*b)*d*e^3 - 18*(B*b^3*d^2*e^2 - (3*B*a*b^2
+ A*b^3)*d*e^3 + (B*a^2*b + A*a*b^2)*e^4)*x^2 - 3*(18*B*b^3*d^3*e
 - 9*(3*B*a*b^2 + A*b^3)*d^2*e^2 + 6*(B*a^2*b + A*a*b^2)*d*e^3 +
(B*a^3 + 3*A*a^2*b)*e^4)*x - 6*(4*B*b^3*d^4 - (3*B*a*b^2 + A*b^3)
*d^3*e + (4*B*b^3*d*e^3 - (3*B*a*b^2 + A*b^3)*e^4)*x^3 + 3*(4*B*b
^3*d^2*e^2 - (3*B*a*b^2 + A*b^3)*d*e^3)*x^2 + 3*(4*B*b^3*d^3*e -
(3*B*a*b^2 + A*b^3)*d^2*e^2)*x)*log(e*x + d))/(e^8*x^3 + 3*d*e^7*
x^2 + 3*d^2*e^6*x + d^3*e^5)
```

Sympy [A] time = 62.646, size = 337, normalized size = 2.26

$$\frac{Bb^3x}{e^4} + \frac{b^2\left(Abe + 3Bae - 4Bbd\right)\log\left(d + ex\right)}{e^5} - \frac{2Aa^3e^4 + 3Aa^2bde^3 + 6Aab^2d^2e^2 - 11Ab^3d^3e + Ba^3de^3 + 6Ba^2bd^2e^2 - 33Bab^2d^3e + 26Bb^3d^4 + x^2\left(18Aab^2e^4 - 18Ab^3de^3\right.}{6d^3e^5 + 18d^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**3*(B*x+A)/(e*x+d)**4,x)
```

```
[Out] B*b**3*x/e**4 + b**2*(A*b*e + 3*B*a*e - 4*B*b*d)*log(d + e*x)/e**
5 - (2*A*a**3*e**4 + 3*A*a**2*b*d*e**3 + 6*A*a*b**2*d**2*e**2 - 1
1*A*b**3*d**3*e + B*a**3*d*e**3 + 6*B*a**2*b*d**2*e**2 - 33*B*a*b
**2*d**3*e + 26*B*b**3*d**4 + x**2*(18*A*a*b**2*e**4 - 18*A*b**3*
d*e**3 + 18*B*a**2*b*e**4 - 54*B*a*b**2*d*e**3 + 36*B*b**3*d**2*e
**2) + x*(9*A*a**2*b*e**4 + 18*A*a*b**2*d*e**3 - 27*A*b**3*d**2*e
**2 + 3*B*a**3*e**4 + 18*B*a**2*b*d*e**3 - 81*B*a*b**2*d**2*e**2
+ 60*B*b**3*d**3*e))/(6*d**3*e**5 + 18*d**2*e**6*x + 18*d*e**7*x*
*2 + 6*e**8*x**3)
```

GIAC/XCAS [A] time = 0.222395, size = 360, normalized size = 2.42

$$Bb^3xe^{(-4)} - \left(4\,Bb^3d - 3\,Bab^2e - Ab^3e\right)e^{(-5)}\ln\left(|xe + d|\right) - \frac{\left(26\,Bb^3d^4 - 33\,Bab^2d^3e - 11\,Ab^3d^3e + 6\,Ba^2bd^2e^2 + 6\,Aab^2d^2e^2 + Ba^3de^3 + 3\,Aa^2bde^3 + 2\,Aa^3e^4 + 18\left(2\,Bb^3d^2e^2 - 3\,Bab^2\right.\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/(e*x + d)^4,x, algorithm="giac")
```

```
[Out] B*b^3*x*e^(-4) - (4*B*b^3*d - 3*B*a*b^2*e - A*b^3*e)*e^(-5)*ln(ab
s(x*e + d)) - 1/6*(26*B*b^3*d^4 - 33*B*a*b^2*d^3*e - 11*A*b^3*d^3
*e + 6*B*a^2*b*d^2*e^2 + 6*A*a*b^2*d^2*e^2 + B*a^3*d*e^3 + 3*A*a^
2*b*d*e^3 + 2*A*a^3*e^4 + 18*(2*B*b^3*d^2*e^2 - 3*B*a*b^2*d*e^3 -
 A*b^3*d*e^3 + B*a^2*b*e^4 + A*a*b^2*e^4)*x^2 + 3*(20*B*b^3*d^3*e
 - 27*B*a*b^2*d^2*e^2 - 9*A*b^3*d^2*e^2 + 6*B*a^2*b*d*e^3 + 6*A*a
*b^2*d*e^3 + B*a^3*e^4 + 3*A*a^2*b*e^4)*x)*e^(-5)/(x*e + d)^3
```

3.1028 $\int \frac{(a+bx)^3(A+Bx)}{(d+ex)^5}\,dx$

Optimal. Leaf size=129

$$-\frac{(a+bx)^4(Bd-Ae)}{4e(d+ex)^4(bd-ae)}+\frac{3b^2B(bd-ae)}{e^5(d+ex)}-\frac{3bB(bd-ae)^2}{2e^5(d+ex)^2}+\frac{B(bd-ae)^3}{3e^5(d+ex)^3}+\frac{b^3B\log(d+ex)}{e^5}$$

```
[Out] -((B*d - A*e)*(a + b*x)^4)/(4*e*(b*d - a*e)*(d + e*x)^4) + (B*(b*
d - a*e)^3)/(3*e^5*(d + e*x)^3) - (3*b*B*(b*d - a*e)^2)/(2*e^5*(d
 + e*x)^2) + (3*b^2*B*(b*d - a*e))/(e^5*(d + e*x)) + (b^3*B*Log[d
 + e*x])/e^5
```

Rubi [A] time = 0.24802, antiderivative size = 129, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 2, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.1

$$-\frac{(a+bx)^4(Bd-Ae)}{4e(d+ex)^4(bd-ae)}+\frac{3b^2B(bd-ae)}{e^5(d+ex)}-\frac{3bB(bd-ae)^2}{2e^5(d+ex)^2}+\frac{B(bd-ae)^3}{3e^5(d+ex)^3}+\frac{b^3B\log(d+ex)}{e^5}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^3*(A + B*x))/(d + e*x)^5,x]
```

```
[Out] -((B*d - A*e)*(a + b*x)^4)/(4*e*(b*d - a*e)*(d + e*x)^4) + (B*(b*
d - a*e)^3)/(3*e^5*(d + e*x)^3) - (3*b*B*(b*d - a*e)^2)/(2*e^5*(d
 + e*x)^2) + (3*b^2*B*(b*d - a*e))/(e^5*(d + e*x)) + (b^3*B*Log[d
 + e*x])/e^5
```

Rubi in Sympy [A] time = 33.0899, size = 114, normalized size = 0.88

$$\frac{Bb^3\log\left(d+ex\right)}{e^5}-\frac{3Bb^2\left(ae-bd\right)}{e^5\left(d+ex\right)}-\frac{3Bb\left(ae-bd\right)^2}{2e^5\left(d+ex\right)^2}-\frac{B\left(ae-bd\right)^3}{3e^5\left(d+ex\right)^3}-\frac{\left(a+bx\right)^4\left(Ae-Bd\right)}{4e\left(d+ex\right)^4\left(ae-bd\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**3*(B*x+A)/(e*x+d)**5,x)
```

```
[Out] B*b**3*log(d + e*x)/e**5 - 3*B*b**2*(a*e - b*d)/(e**5*(d + e*x))
- 3*B*b*(a*e - b*d)**2/(2*e**5*(d + e*x)**2) - B*(a*e - b*d)**3/(
3*e**5*(d + e*x)**3) - (a + b*x)**4*(A*e - B*d)/(4*e*(d + e*x)**4
*(a*e - b*d))
```

Mathematica [A] time = 0.193607, size = 222, normalized size = 1.72

$$\frac{-a^3e^3(3Ae+B(d+4ex))-3a^2be^2\left(Ae(d+4ex)+B\left(d^2+4dex+6e^2x^2\right)\right)-3ab^2e\left(Ae\left(d^2+4dex+6e^2x^2\right)+3B\left(d^3+4d^2e\right.\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^3*(A + B*x))/(d + e*x)^5,x]
```

```
[Out] (-(a^3*e^3*(3*A*e + B*(d + 4*e*x))) - 3*a^2*b*e^2*(A*e*(d + 4*e*x
) + B*(d^2 + 4*d*e*x + 6*e^2*x^2)) - 3*a*b^2*e*(A*e*(d^2 + 4*d*e*
x + 6*e^2*x^2) + 3*B*(d^3 + 4*d^2*e*x + 6*d*e^2*x^2 + 4*e^3*x^3))
 + b^3*(-3*A*e*(d^3 + 4*d^2*e*x + 6*d*e^2*x^2 + 4*e^3*x^3) + B*d*
(25*d^3 + 88*d^2*e*x + 108*d*e^2*x^2 + 48*e^3*x^3)) + 12*b^3*B*(d
 + e*x)^4*Log[d + e*x])/(12*e^5*(d + e*x)^4)
```

Maple [B] time = 0.012, size = 430, normalized size = 3.3

$$\frac{Bb^3\ln(ex+d)}{e^5}-\frac{Aa^2b}{e^2(ex+d)^3}+2\frac{Adab^2}{e^3(ex+d)^3}-\frac{Ad^2b^3}{e^4(ex+d)^3}-\frac{Ba^3}{3e^2(ex+d)^3}+2\frac{Bda^2b}{e^3(ex+d)^3}-3\frac{Bd^2ab^2}{e^4(ex+d)^3}+\frac{4b^3Bd^3}{3e^5(ex+d)^3}-\frac{b^3A}{e^4(ex+d)}-3\frac{ab^2B}{e^4(ex+d)}+4\frac{b^3Bd}{e^5(ex+d)}-\frac{3ab^2A}{2e^3(ex+d)^2}+\frac{3Adb^3}{2e^4(ex+d)^2}-\frac{3a^2bB}{2e^3(ex+d)^2}+\frac{9Bdab^2}{2e^4(ex+d)^2}-3\frac{b^3Bd^2}{e^5(ex+d)^2}-\frac{Aa^3}{4e(ex+d)^4}+\frac{3Aa^2bd}{4e^2(ex+d)^4}-\frac{3Ad^2ab^2}{4e^3(ex+d)^4}+\frac{Ad^3b^3}{4e^4(ex+d)^4}+\frac{Ba^3d}{4e^2(ex+d)^4}-\frac{3Bd^2a^2b}{4e^3(ex+d)^4}+\frac{3Bd^3ab^2}{4e^4(ex+d)^4}-\frac{b^3Bd^4}{4e^5(ex+d)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3*(B*x+A)/(e*x+d)^5,x)
```

```
[Out] b^3*B*ln(e*x+d)/e^5-1/e^2/(e*x+d)^3*A*a^2*b+2/e^3/(e*x+d)^3*A*d*a
*b^2-1/e^4/(e*x+d)^3*A*d^2*b^3-1/3/e^2/(e*x+d)^3*B*a^3+2/e^3/(e*x
+d)^3*B*d*a^2*b-3/e^4/(e*x+d)^3*B*d^2*a*b^2+4/3/e^5/(e*x+d)^3*b^3
*B*d^3-b^3/e^4/(e*x+d)*A-3*b^2/e^4/(e*x+d)*B*a+4*b^3/e^5/(e*x+d)*
B*d-3/2*b^2/e^3/(e*x+d)^2*A*a+3/2*b^3/e^4/(e*x+d)^2*A*d-3/2*b/e^3
/(e*x+d)^2*B*a^2+9/2*b^2/e^4/(e*x+d)^2*B*d*a-3*b^3/e^5/(e*x+d)^2*
B*d^2-1/4/e/(e*x+d)^4*a^3*A+3/4/e^2/(e*x+d)^4*A*a^2*b*d-3/4/e^3/(
e*x+d)^4*A*d^2*a*b^2+1/4/e^4/(e*x+d)^4*A*d^3*b^3+1/4/e^2/(e*x+d)^
4*B*a^3*d-3/4/e^3/(e*x+d)^4*B*d^2*a^2*b+3/4/e^4/(e*x+d)^4*B*d^3*a
*b^2-1/4/e^5/(e*x+d)^4*b^3*B*d^4
```

Maxima [A] time = 1.38053, size = 408, normalized size = 3.16

$$\frac{25\,Bb^3d^4-3\,Aa^3e^4-3\left(3\,Bab^2+Ab^3\right)d^3e-3\left(Ba^2b+Aab^2\right)d^2e^2-\left(Ba^3+3\,Aa^2b\right)de^3+12\left(4\,Bb^3de^3-\left(3\,Bab^2+Ab^3\right)e^4\right.}{12\left(e^9x^4+\right.}$$
$$+\frac{Bb^3\log(ex+d)}{e^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/(e*x + d)^5,x, algorithm="maxima")
```

```
[Out] 1/12*(25*B*b^3*d^4 - 3*A*a^3*e^4 - 3*(3*B*a*b^2 + A*b^3)*d^3*e -
3*(B*a^2*b + A*a*b^2)*d^2*e^2 - (B*a^3 + 3*A*a^2*b)*d*e^3 + 12*(4
*B*b^3*d*e^3 - (3*B*a*b^2 + A*b^3)*e^4)*x^3 + 18*(6*B*b^3*d^2*e^2
 - (3*B*a*b^2 + A*b^3)*d*e^3 - (B*a^2*b + A*a*b^2)*e^4)*x^2 + 4*(
22*B*b^3*d^3*e - 3*(3*B*a*b^2 + A*b^3)*d^2*e^2 - 3*(B*a^2*b + A*a
*b^2)*d*e^3 - (B*a^3 + 3*A*a^2*b)*e^4)*x)/(e^9*x^4 + 4*d*e^8*x^3
+ 6*d^2*e^7*x^2 + 4*d^3*e^6*x + d^4*e^5) + B*b^3*log(e*x + d)/e^5
```

Fricas [A] time = 0.20861, size = 478, normalized size = 3.71

$$\frac{25\,Bb^3d^4-3\,Aa^3e^4-3\left(3\,Bab^2+Ab^3\right)d^3e-3\left(Ba^2b+Aab^2\right)d^2e^2-\left(Ba^3+3\,Aa^2b\right)de^3+12\left(4\,Bb^3de^3-\left(3\,Bab^2+Ab^3\right)e^4\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/(e*x + d)^5,x, algorithm="fricas")
```

```
[Out] 1/12*(25*B*b^3*d^4 - 3*A*a^3*e^4 - 3*(3*B*a*b^2 + A*b^3)*d^3*e -
3*(B*a^2*b + A*a*b^2)*d^2*e^2 - (B*a^3 + 3*A*a^2*b)*d*e^3 + 12*(4
*B*b^3*d*e^3 - (3*B*a*b^2 + A*b^3)*e^4)*x^3 + 18*(6*B*b^3*d^2*e^2
 - (3*B*a*b^2 + A*b^3)*d*e^3 - (B*a^2*b + A*a*b^2)*e^4)*x^2 + 4*(
22*B*b^3*d^3*e - 3*(3*B*a*b^2 + A*b^3)*d^2*e^2 - 3*(B*a^2*b + A*a
```

```
*b^2)*d*e^3 - (B*a^3 + 3*A*a^2*b)*e^4)*x + 12*(B*b^3*e^4*x^4 + 4*
B*b^3*d*e^3*x^3 + 6*B*b^3*d^2*e^2*x^2 + 4*B*b^3*d^3*e*x + B*b^3*d
^4)*log(e*x + d))/(e^9*x^4 + 4*d*e^8*x^3 + 6*d^2*e^7*x^2 + 4*d^3*
e^6*x + d^4*e^5)
```

Sympy [A] time = 171.014, size = 359, normalized size = 2.78

$$\frac{Bb^3 \log(d+ex)}{e^5} - \frac{3Aa^3e^4 + 3Aa^2bde^3 + 3Aab^2d^2e^2 + 3Ab^3d^3e + Ba^3de^3 + 3Ba^2bd^2e^2 + 9Bab^2d^3e - 25Bb^3d^4 + x^3\left(12Ab^3e^4 + 36Bab^2e^4 - 48\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**3*(B*x+A)/(e*x+d)**5,x)
```

```
[Out] B*b**3*log(d + e*x)/e**5 - (3*A*a**3*e**4 + 3*A*a**2*b*d*e**3 + 3
*A*a*b**2*d**2*e**2 + 3*A*b**3*d**3*e + B*a**3*d*e**3 + 3*B*a**2*
b*d**2*e**2 + 9*B*a*b**2*d**3*e - 25*B*b**3*d**4 + x**3*(12*A*b**
3*e**4 + 36*B*a*b**2*e**4 - 48*B*b**3*d*e**3) + x**2*(18*A*a*b**2
*e**4 + 18*A*b**3*d*e**3 + 18*B*a**2*b*e**4 + 54*B*a*b**2*d*e**3
- 108*B*b**3*d**2*e**2) + x*(12*A*a**2*b*e**4 + 12*A*a*b**2*d*e**
3 + 12*A*b**3*d**2*e**2 + 4*B*a**3*e**4 + 12*B*a**2*b*d*e**3 + 36
*B*a*b**2*d**2*e**2 - 88*B*b**3*d**3*e))/(12*d**4*e**5 + 48*d**3*
e**6*x + 72*d**2*e**7*x**2 + 48*d*e**8*x**3 + 12*e**9*x**4)
```

GIAC/XCAS [A] time = 0.244741, size = 603, normalized size = 4.67

$$-Bb^3e^{(-5)}\ln\left(\frac{|xe+d|e^{(-1)}}{(xe+d)^2}\right) + \frac{1}{12}\left(\frac{48\,Bb^3de^{15}}{xe+d} - \frac{36\,Bb^3d^2e^{15}}{(xe+d)^2} + \frac{16\,Bb^3d^3e^{15}}{(xe+d)^3} - \frac{3\,Bb^3d^4e^{15}}{(xe+d)^4} - \frac{36\,Bab^2e^{16}}{xe+d} - \frac{12\,Ab^3e^{16}}{xe+d} + \frac{54\,Bab^2de^{16}}{(xe+d)^2} + \frac{18\,Ab^3de^{16}}{(xe+d)^2} - \frac{36}{(}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/(e*x + d)^5,x, algorithm="giac")
```

```
[Out] -B*b^3*e^(-5)*ln(abs(x*e + d)*e^(-1)/(x*e + d)^2) + 1/12*(48*B*b^
3*d*e^15/(x*e + d) - 36*B*b^3*d^2*e^15/(x*e + d)^2 + 16*B*b^3*d^3
*e^15/(x*e + d)^3 - 3*B*b^3*d^4*e^15/(x*e + d)^4 - 36*B*a*b^2*e^1
6/(x*e + d) - 12*A*b^3*e^16/(x*e + d) + 54*B*a*b^2*d*e^16/(x*e +
d)^2 + 18*A*b^3*d*e^16/(x*e + d)^2 - 36*B*a*b^2*d^2*e^16/(x*e + d
)^3 - 12*A*b^3*d^2*e^16/(x*e + d)^3 + 9*B*a*b^2*d^3*e^16/(x*e + d
)^4 + 3*A*b^3*d^3*e^16/(x*e + d)^4 - 18*B*a^2*b*e^17/(x*e + d)^2
- 18*A*a*b^2*e^17/(x*e + d)^2 + 24*B*a^2*b*d*e^17/(x*e + d)^3 + 2
4*A*a*b^2*d*e^17/(x*e + d)^3 - 9*B*a^2*b*d^2*e^17/(x*e + d)^4 - 9
*A*a*b^2*d^2*e^17/(x*e + d)^4 - 4*B*a^3*e^18/(x*e + d)^3 - 12*A*a
^2*b*e^18/(x*e + d)^3 + 3*B*a^3*d*e^18/(x*e + d)^4 + 9*A*a^2*b*d*
e^18/(x*e + d)^4 - 3*A*a^3*e^19/(x*e + d)^4)*e^(-20)
```

3.1029 $\int \frac{(a+bx)^3(A+Bx)}{(d+ex)^6}\,dx$

Optimal. Leaf size=86

$$\frac{(a+bx)^4(-5aBe+Abe+4bBd)}{20e(d+ex)^4(bd-ae)^2}-\frac{(a+bx)^4(Bd-Ae)}{5e(d+ex)^5(bd-ae)}$$

```
[Out] -((B*d - A*e)*(a + b*x)^4)/(5*e*(b*d - a*e)*(d + e*x)^5) + ((4*b*
B*d + A*b*e - 5*a*B*e)*(a + b*x)^4)/(20*e*(b*d - a*e)^2*(d + e*x)
^4)
```

Rubi [A] time = 0.106267, antiderivative size = 86, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.1

$$\frac{(a+bx)^4(-5aBe+Abe+4bBd)}{20e(d+ex)^4(bd-ae)^2}-\frac{(a+bx)^4(Bd-Ae)}{5e(d+ex)^5(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^3*(A + B*x))/(d + e*x)^6,x]
```

```
[Out] -((B*d - A*e)*(a + b*x)^4)/(5*e*(b*d - a*e)*(d + e*x)^5) + ((4*b*
B*d + A*b*e - 5*a*B*e)*(a + b*x)^4)/(20*e*(b*d - a*e)^2*(d + e*x)
^4)
```

Rubi in Sympy [A] time = 11.9524, size = 73, normalized size = 0.85

$$-\frac{(a+bx)^4\left(-Abe+B(5ae-4bd)\right)}{20e\,(d+ex)^4\,(ae-bd)^2}-\frac{(a+bx)^4\,(Ae-Bd)}{5e\,(d+ex)^5\,(ae-bd)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**3*(B*x+A)/(e*x+d)**6,x)
```

```
[Out] -(a + b*x)**4*(-A*b*e + B*(5*a*e - 4*b*d))/(20*e*(d + e*x)**4*(a*
e - b*d)**2) - (a + b*x)**4*(A*e - B*d)/(5*e*(d + e*x)**5*(a*e -
b*d))
```

Mathematica [B] time = 0.199758, size = 211, normalized size = 2.45

$$-\frac{a^3e^3(4Ae+B(d+5ex))+a^2be^2\left(3Ae(d+5ex)+2B\left(d^2+5dex+10e^2x^2\right)\right)+ab^2e\left(2Ae\left(d^2+5dex+10e^2x^2\right)+3B\left(d^3+5\cdots\right.\right.}{20e^5(d\cdots}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^3*(A + B*x))/(d + e*x)^6,x]
```

```
[Out] -(a^3*e^3*(4*A*e + B*(d + 5*e*x)) + a^2*b*e^2*(3*A*e*(d + 5*e*x)
+ 2*B*(d^2 + 5*d*e*x + 10*e^2*x^2)) + a*b^2*e*(2*A*e*(d^2 + 5*d*e
*x + 10*e^2*x^2) + 3*B*(d^3 + 5*d^2*e*x + 10*d*e^2*x^2 + 10*e^3*x
^3)) + b^3*(A*e*(d^3 + 5*d^2*e*x + 10*d*e^2*x^2 + 10*e^3*x^3) + 4
*B*(d^4 + 5*d^3*e*x + 10*d^2*e^2*x^2 + 10*d*e^3*x^3 + 5*e^4*x^4))
)/(20*e^5*(d + e*x)^5)
```

Maple [B] time = 0.01, size = 281, normalized size = 3.3

$$-\frac{b\left(Aabe^2-Adb^2e+Ba^2e^2-3\,Bdabe+2\,b^2Bd^2\right)}{e^5\left(ex+d\right)^3}-\frac{Bb^3}{e^5\left(ex+d\right)}-\frac{b^2\left(Abe+3\,Bae-4\,Bbd\right)}{2\,e^5\left(ex+d\right)^2}-\frac{3\,Aa^2be^3-6\,Adab^2e^2+3\,Ad^2b^3e+Ba^3e^3-6\,Bda^2be^2+9\,Bd^2ab^2e-4\,b^3Bd^3}{4\,e^5\left(ex+d\right)^4}-\frac{a^3Ae^4-3\,Aa^2bde^3+3\,Ad^2ab^2e^2-Ad^3b^3e-Ba^3de^3+3\,Bd^2a^2be^2-3\,Bd^3ab^2e+b^3Bd^4}{5\,e^5\left(ex+d\right)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3*(B*x+A)/(e*x+d)^6,x)
```

```
[Out] -b*(A*a*b*e^2-A*b^2*d*e+B*a^2*e^2-3*B*a*b*d*e+2*B*b^2*d^2)/e^5/(e
*x+d)^3-B*b^3/e^5/(e*x+d)-1/2*b^2*(A*b*e+3*B*a*e-4*B*b*d)/e^5/(e*
x+d)^2-1/4*(3*A*a^2*b*e^3-6*A*a*b^2*d*e^2+3*A*b^3*d^2*e+B*a^3*e^3
-6*B*a^2*b*d*e^2+9*B*a*b^2*d^2*e-4*B*b^3*d^3)/e^5/(e*x+d)^4-1/5*(
A*a^3*e^4-3*A*a^2*b*d*e^3+3*A*a*b^2*d^2*e^2-A*b^3*d^3*e-B*a^3*d*e
^3+3*B*a^2*b*d^2*e^2-3*B*a*b^2*d^3*e+B*b^3*d^4)/e^5/(e*x+d)^5
```

Maxima [A] time = 1.37996, size = 410, normalized size = 4.77

$$-\frac{20\,Bb^3e^4x^4+4\,Bb^3d^4+4\,Aa^3e^4+\left(3\,Bab^2+Ab^3\right)d^3e+2\left(Ba^2b+Aab^2\right)d^2e^2+\left(Ba^3+3\,Aa^2b\right)de^3+10\left(4\,Bb^3de^3+\left(3\,Bab\right.\right.}{20\left(e^{10}x^5+5\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/(e*x + d)^6,x, algorithm="maxima")
```

```
[Out] -1/20*(20*B*b^3*e^4*x^4 + 4*B*b^3*d^4 + 4*A*a^3*e^4 + (3*B*a*b^2
+ A*b^3)*d^3*e + 2*(B*a^2*b + A*a*b^2)*d^2*e^2 + (B*a^3 + 3*A*a^2
*b)*d*e^3 + 10*(4*B*b^3*d*e^3 + (3*B*a*b^2 + A*b^3)*e^4)*x^3 + 10
*(4*B*b^3*d^2*e^2 + (3*B*a*b^2 + A*b^3)*d*e^3 + 2*(B*a^2*b + A*a*
b^2)*e^4)*x^2 + 5*(4*B*b^3*d^3*e + (3*B*a*b^2 + A*b^3)*d^2*e^2 +
2*(B*a^2*b + A*a*b^2)*d*e^3 + (B*a^3 + 3*A*a^2*b)*e^4)*x)/(e^10*x
^5 + 5*d*e^9*x^4 + 10*d^2*e^8*x^3 + 10*d^3*e^7*x^2 + 5*d^4*e^6*x
+ d^5*e^5)
```

Fricas [A] time = 0.208097, size = 410, normalized size = 4.77

$$-\frac{20\,Bb^3e^4x^4+4\,Bb^3d^4+4\,Aa^3e^4+\left(3\,Bab^2+Ab^3\right)d^3e+2\left(Ba^2b+Aab^2\right)d^2e^2+\left(Ba^3+3\,Aa^2b\right)de^3+10\left(4\,Bb^3de^3+\left(3\,Bab\right.\right.}{20\left(e^{10}x^5+5\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/(e*x + d)^6,x, algorithm="fricas")
```

```
[Out] -1/20*(20*B*b^3*e^4*x^4 + 4*B*b^3*d^4 + 4*A*a^3*e^4 + (3*B*a*b^2
+ A*b^3)*d^3*e + 2*(B*a^2*b + A*a*b^2)*d^2*e^2 + (B*a^3 + 3*A*a^2
*b)*d*e^3 + 10*(4*B*b^3*d*e^3 + (3*B*a*b^2 + A*b^3)*e^4)*x^3 + 10
*(4*B*b^3*d^2*e^2 + (3*B*a*b^2 + A*b^3)*d*e^3 + 2*(B*a^2*b + A*a*
b^2)*e^4)*x^2 + 5*(4*B*b^3*d^3*e + (3*B*a*b^2 + A*b^3)*d^2*e^2 +
2*(B*a^2*b + A*a*b^2)*d*e^3 + (B*a^3 + 3*A*a^2*b)*e^4)*x)/(e^10*x
^5 + 5*d*e^9*x^4 + 10*d^2*e^8*x^3 + 10*d^3*e^7*x^2 + 5*d^4*e^6*x
+ d^5*e^5)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**3*(B*x+A)/(e*x+d)**6,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.227322, size = 379, normalized size = 4.41

$$-\frac{(20\,Bb^3x^4e^4 + 40\,Bb^3dx^3e^3 + 40\,Bb^3d^2x^2e^2 + 20\,Bb^3d^3xe + 4\,Bb^3d^4 + 30\,Bab^2x^3e^4 + 10\,Ab^3x^3e^4 + 30\,Bab^2dx^2e^3 + 10\,Ab^3d}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/(e*x + d)^6,x, algorithm="giac")
```

```
[Out] -1/20*(20*B*b^3*x^4*e^4 + 40*B*b^3*d*x^3*e^3 + 40*B*b^3*d^2*x^2*e
^2 + 20*B*b^3*d^3*x*e + 4*B*b^3*d^4 + 30*B*a*b^2*x^3*e^4 + 10*A*b
^3*x^3*e^4 + 30*B*a*b^2*d*x^2*e^3 + 10*A*b^3*d*x^2*e^3 + 15*B*a*b
^2*d^2*x*e^2 + 5*A*b^3*d^2*x*e^2 + 3*B*a*b^2*d^3*e + A*b^3*d^3*e
+ 20*B*a^2*b*x^2*e^4 + 20*A*a*b^2*x^2*e^4 + 10*B*a^2*b*d*x*e^3 +
10*A*a*b^2*d*x*e^3 + 2*B*a^2*b*d^2*e^2 + 2*A*a*b^2*d^2*e^2 + 5*B*
a^3*x*e^4 + 15*A*a^2*b*x*e^4 + B*a^3*d*e^3 + 3*A*a^2*b*d*e^3 + 4*
A*a^3*e^4)*e^(-5)/(x*e + d)^5
```

3.1030 $\int \frac{(a+bx)^3(A+Bx)}{(d+ex)^7}\,dx$

Optimal. Leaf size=133

$$\frac{b(a+bx)^4(-3aBe+Abe+2bBd)}{60e(d+ex)^4(bd-ae)^3}+\frac{(a+bx)^4(-3aBe+Abe+2bBd)}{15e(d+ex)^5(bd-ae)^2}-\frac{(a+bx)^4(Bd-Ae)}{6e(d+ex)^6(bd-ae)}$$

```
[Out] -((B*d - A*e)*(a + b*x)^4)/(6*e*(b*d - a*e)*(d + e*x)^6) + ((2*b*
B*d + A*b*e - 3*a*B*e)*(a + b*x)^4)/(15*e*(b*d - a*e)^2*(d + e*x)
^5) + (b*(2*b*B*d + A*b*e - 3*a*B*e)*(a + b*x)^4)/(60*e*(b*d - a*
e)^3*(d + e*x)^4)
```

Rubi [A] time = 0.212311, antiderivative size = 133, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.15

$$\frac{b(a+bx)^4(-3aBe+Abe+2bBd)}{60e(d+ex)^4(bd-ae)^3}+\frac{(a+bx)^4(-3aBe+Abe+2bBd)}{15e(d+ex)^5(bd-ae)^2}-\frac{(a+bx)^4(Bd-Ae)}{6e(d+ex)^6(bd-ae)}$$

Antiderivative was successfully verified.

```
[In] Int[((a + b*x)^3*(A + B*x))/(d + e*x)^7,x]
```

```
[Out] -((B*d - A*e)*(a + b*x)^4)/(6*e*(b*d - a*e)*(d + e*x)^6) + ((2*b*
B*d + A*b*e - 3*a*B*e)*(a + b*x)^4)/(15*e*(b*d - a*e)^2*(d + e*x)
^5) + (b*(2*b*B*d + A*b*e - 3*a*B*e)*(a + b*x)^4)/(60*e*(b*d - a*
e)^3*(d + e*x)^4)
```

Rubi in Sympy [A] time = 20.9617, size = 116, normalized size = 0.87

$$\frac{b\left(a+bx\right)^4\left(-Abe+B\left(3ae-2bd\right)\right)}{60e\left(d+ex\right)^4\left(ae-bd\right)^3}-\frac{\left(a+bx\right)^4\left(-Abe+B\left(3ae-2bd\right)\right)}{15e\left(d+ex\right)^5\left(ae-bd\right)^2}-\frac{\left(a+bx\right)^4\left(Ae-Bd\right)}{6e\left(d+ex\right)^6\left(ae-bd\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)**3*(B*x+A)/(e*x+d)**7,x)
```

```
[Out] b*(a + b*x)**4*(-A*b*e + B*(3*a*e - 2*b*d))/(60*e*(d + e*x)**4*(a
*e - b*d)**3) - (a + b*x)**4*(-A*b*e + B*(3*a*e - 2*b*d))/(15*e*(
d + e*x)**5*(a*e - b*d)**2) - (a + b*x)**4*(A*e - B*d)/(6*e*(d +
e*x)**6*(a*e - b*d))
```

Mathematica [A] time = 0.174243, size = 211, normalized size = 1.59

$$-\frac{2a^3e^3(5Ae+B(d+6ex))+3a^2be^2\left(2Ae(d+6ex)+B\left(d^2+6dex+15e^2x^2\right)\right)+3ab^2e\left(Ae\left(d^2+6dex+15e^2x^2\right)+B\left(d^3+6\right.\right.}{60e^5(d}$$

Antiderivative was successfully verified.

```
[In] Integrate[((a + b*x)^3*(A + B*x))/(d + e*x)^7,x]
```

```
[Out] -(2*a^3*e^3*(5*A*e + B*(d + 6*e*x)) + 3*a^2*b*e^2*(2*A*e*(d + 6*e
*x) + B*(d^2 + 6*d*e*x + 15*e^2*x^2)) + 3*a*b^2*e*(A*e*(d^2 + 6*d
*e*x + 15*e^2*x^2) + B*(d^3 + 6*d^2*e*x + 15*d*e^2*x^2 + 20*e^3*x
^3)) + b^3*(A*e*(d^3 + 6*d^2*e*x + 15*d*e^2*x^2 + 20*e^3*x^3) + 2
*B*(d^4 + 6*d^3*e*x + 15*d^2*e^2*x^2 + 20*d*e^3*x^3 + 15*e^4*x^4)
))/(60*e^5*(d + e*x)^6)
```

Maple [B] time = 0.008, size = 281, normalized size = 2.1

$$-\frac{a^3Ae^4-3Aa^2bde^3+3Ad^2ab^2e^2-Ad^3b^3e-Ba^3de^3+3Bd^2a^2be^2-3Bd^3ab^2e+b^3Bd^4}{6e^5(ex+d)^6}-\frac{b^2(Abe+3Bae-4Bbd)}{3e^5(ex+d)^3}-\frac{Bb^3}{2e^5(ex+d)^2}-\frac{3b\left(Aabe^2-Adb^2e+Ba^2e^2-3Bdabe+2b^2Bd^2\right)}{4e^5(ex+d)^4}-\frac{3Aa^2be^3-6Adab^2e^2+3Ad^2b^3e+Ba^3e^3-6Bda^2be^2+9Bd^2ab^2e-4b^3Bd^3}{5e^5(ex+d)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3*(B*x+A)/(e*x+d)^7,x)
```

```
[Out] -1/6*(A*a^3*e^4-3*A*a^2*b*d*e^3+3*A*a*b^2*d^2*e^2-A*b^3*d^3*e-B*a
^3*d*e^3+3*B*a^2*b*d^2*e^2-3*B*a*b^2*d^3*e+B*b^3*d^4)/e^5/(e*x+d)
^6-1/3*b^2*(A*b*e+3*B*a*e-4*B*b*d)/e^5/(e*x+d)^3-1/2*B*b^3/e^5/(e
*x+d)^2-3/4*b*(A*a*b*e^2-A*b^2*d*e+B*a^2*e^2-3*B*a*b*d*e+2*B*b^2*
d^2)/e^5/(e*x+d)^4-1/5*(3*A*a^2*b*e^3-6*A*a*b^2*d*e^2+3*A*b^3*d^2
*e+B*a^3*e^3-6*B*a^2*b*d*e^2+9*B*a*b^2*d^2*e-4*B*b^3*d^3)/e^5/(e*
x+d)^5
```

Maxima [A] time = 1.37713, size = 428, normalized size = 3.22

$$-\frac{30Bb^3e^4x^4+2Bb^3d^4+10Aa^3e^4+\left(3Bab^2+Ab^3\right)d^3e+3\left(Ba^2b+Aab^2\right)d^2e^2+2\left(Ba^3+3Aa^2b\right)de^3+20\left(2Bb^3de^3+(3B\right.}{60\left(e^{11}x^6+6de^{1}\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/(e*x + d)^7,x, algorithm="maxima")
```

```
[Out] -1/60*(30*B*b^3*e^4*x^4 + 2*B*b^3*d^4 + 10*A*a^3*e^4 + (3*B*a*b^2
 + A*b^3)*d^3*e + 3*(B*a^2*b + A*a*b^2)*d^2*e^2 + 2*(B*a^3 + 3*A*
a^2*b)*d*e^3 + 20*(2*B*b^3*d*e^3 + (3*B*a*b^2 + A*b^3)*e^4)*x^3 +
 15*(2*B*b^3*d^2*e^2 + (3*B*a*b^2 + A*b^3)*d*e^3 + 3*(B*a^2*b + A
*a*b^2)*e^4)*x^2 + 6*(2*B*b^3*d^3*e + (3*B*a*b^2 + A*b^3)*d^2*e^2
 + 3*(B*a^2*b + A*a*b^2)*d*e^3 + 2*(B*a^3 + 3*A*a^2*b)*e^4)*x)/(e
^11*x^6 + 6*d*e^10*x^5 + 15*d^2*e^9*x^4 + 20*d^3*e^8*x^3 + 15*d^4
*e^7*x^2 + 6*d^5*e^6*x + d^6*e^5)
```

Fricas [A] time = 0.209425, size = 428, normalized size = 3.22

$$-\frac{30Bb^3e^4x^4+2Bb^3d^4+10Aa^3e^4+\left(3Bab^2+Ab^3\right)d^3e+3\left(Ba^2b+Aab^2\right)d^2e^2+2\left(Ba^3+3Aa^2b\right)de^3+20\left(2Bb^3de^3+(3B\right.}{60\left(e^{11}x^6+6de^{1}\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/(e*x + d)^7,x, algorithm="fricas")
```

```
[Out] -1/60*(30*B*b^3*e^4*x^4 + 2*B*b^3*d^4 + 10*A*a^3*e^4 + (3*B*a*b^2
 + A*b^3)*d^3*e + 3*(B*a^2*b + A*a*b^2)*d^2*e^2 + 2*(B*a^3 + 3*A*
a^2*b)*d*e^3 + 20*(2*B*b^3*d*e^3 + (3*B*a*b^2 + A*b^3)*e^4)*x^3 +
 15*(2*B*b^3*d^2*e^2 + (3*B*a*b^2 + A*b^3)*d*e^3 + 3*(B*a^2*b + A
*a*b^2)*e^4)*x^2 + 6*(2*B*b^3*d^3*e + (3*B*a*b^2 + A*b^3)*d^2*e^2
 + 3*(B*a^2*b + A*a*b^2)*d*e^3 + 2*(B*a^3 + 3*A*a^2*b)*e^4)*x)/(e
^11*x^6 + 6*d*e^10*x^5 + 15*d^2*e^9*x^4 + 20*d^3*e^8*x^3 + 15*d^4
*e^7*x^2 + 6*d^5*e^6*x + d^6*e^5)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**3*(B*x+A)/(e*x+d)**7,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.233076, size = 381, normalized size = 2.86

$$-\frac{(30\,Bb^3x^4e^4 + 40\,Bb^3dx^3e^3 + 30\,Bb^3d^2x^2e^2 + 12\,Bb^3d^3xe + 2\,Bb^3d^4 + 60\,Bab^2x^3e^4 + 20\,Ab^3x^3e^4 + 45\,Bab^2dx^2e^3 + 15\,Ab^3d}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/(e*x + d)^7,x, algorithm="giac")
```

```
[Out] -1/60*(30*B*b^3*x^4*e^4 + 40*B*b^3*d*x^3*e^3 + 30*B*b^3*d^2*x^2*e
^2 + 12*B*b^3*d^3*x*e + 2*B*b^3*d^4 + 60*B*a*b^2*x^3*e^4 + 20*A*b
^3*x^3*e^4 + 45*B*a*b^2*d*x^2*e^3 + 15*A*b^3*d*x^2*e^3 + 18*B*a*b
^2*d^2*x*e^2 + 6*A*b^3*d^2*x*e^2 + 3*B*a*b^2*d^3*e + A*b^3*d^3*e
+ 45*B*a^2*b*x^2*e^4 + 45*A*a*b^2*x^2*e^4 + 18*B*a^2*b*d*x*e^3 +
18*A*a*b^2*d*x*e^3 + 3*B*a^2*b*d^2*e^2 + 3*A*a*b^2*d^2*e^2 + 12*B
*a^3*x*e^4 + 36*A*a^2*b*x*e^4 + 2*B*a^3*d*e^3 + 6*A*a^2*b*d*e^3 +
 10*A*a^3*e^4)*e^(-5)/(x*e + d)^6
```

3.1031 $\int \frac{(a+bx)^3(A+Bx)}{(d+ex)^8}\,dx$

Optimal. Leaf size=163

$$\frac{b^2(-3aBe-Abe+4bBd)}{4e^5(d+ex)^4}-\frac{3b(bd-ae)(-aBe-Abe+2bBd)}{5e^5(d+ex)^5}+\frac{(bd-ae)^2(-aBe-3Abe+4bBd)}{6e^5(d+ex)^6}-\frac{(bd-ae)^3(Bd-Ae)}{7e^5(d+ex)^7}-\frac{b^3B}{3e^5(d+ex)^3}$$

```
[Out] -((b*d - a*e)^3*(B*d - A*e))/(7*e^5*(d + e*x)^7) + ((b*d - a*e)^2
*(4*b*B*d - 3*A*b*e - a*B*e))/(6*e^5*(d + e*x)^6) - (3*b*(b*d - a
*e)*(2*b*B*d - A*b*e - a*B*e))/(5*e^5*(d + e*x)^5) + (b^2*(4*b*B*
d - A*b*e - 3*a*B*e))/(4*e^5*(d + e*x)^4) - (b^3*B)/(3*e^5*(d + e
*x)^3)
```

Rubi [A] time = 0.393306, antiderivative size = 163, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{b^2(-3aBe-Abe+4bBd)}{4e^5(d+ex)^4}-\frac{3b(bd-ae)(-aBe-Abe+2bBd)}{5e^5(d+ex)^5}+\frac{(bd-ae)^2(-aBe-3Abe+4bBd)}{6e^5(d+ex)^6}-\frac{(bd-ae)^3(Bd-Ae)}{7e^5(d+ex)^7}-\frac{b^3B}{3e^5(d+ex)^3}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^3*(A + B*x))/(d + e*x)^8,x]
```

```
[Out] -((b*d - a*e)^3*(B*d - A*e))/(7*e^5*(d + e*x)^7) + ((b*d - a*e)^2
*(4*b*B*d - 3*A*b*e - a*B*e))/(6*e^5*(d + e*x)^6) - (3*b*(b*d - a
*e)*(2*b*B*d - A*b*e - a*B*e))/(5*e^5*(d + e*x)^5) + (b^2*(4*b*B*
d - A*b*e - 3*a*B*e))/(4*e^5*(d + e*x)^4) - (b^3*B)/(3*e^5*(d + e
*x)^3)
```

Rubi in Sympy [A] time = 57.3834, size = 156, normalized size = 0.96

$$-\frac{Bb^3}{3e^5\left(d+ex\right)^3}-\frac{b^2\left(Abe+3Bae-4Bbd\right)}{4e^5\left(d+ex\right)^4}-\frac{3b\left(ae-bd\right)\left(Abe+Bae-2Bbd\right)}{5e^5\left(d+ex\right)^5}-\frac{\left(ae-bd\right)^2\left(3Abe+Bae-4Bbd\right)}{6e^5\left(d+ex\right)^6}-\frac{\left(Ae-Bd\right)\left(ae-bd\right)^3}{7e^5\left(d+ex\right)^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**3*(B*x+A)/(e*x+d)**8,x)
```

```
[Out] -B*b**3/(3*e**5*(d + e*x)**3) - b**2*(A*b*e + 3*B*a*e - 4*B*b*d)/
(4*e**5*(d + e*x)**4) - 3*b*(a*e - b*d)*(A*b*e + B*a*e - 2*B*b*d)
/(5*e**5*(d + e*x)**5) - (a*e - b*d)**2*(3*A*b*e + B*a*e - 4*B*b*
d)/(6*e**5*(d + e*x)**6) - (A*e - B*d)*(a*e - b*d)**3/(7*e**5*(d
+ e*x)**7)
```

Mathematica [A] time = 0.160947, size = 215, normalized size = 1.32

$$-\frac{10a^3e^3(6Ae+B(d+7ex))+6a^2be^2\left(5Ae(d+7ex)+2B\left(d^2+7dex+21e^2x^2\right)\right)+3ab^2e\left(4Ae\left(d^2+7dex+21e^2x^2\right)+3B\left(d\right.\right.}{420e}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^3*(A + B*x))/(d + e*x)^8,x]
```

```
[Out] -(10*a^3*e^3*(6*A*e + B*(d + 7*e*x)) + 6*a^2*b*e^2*(5*A*e*(d + 7*
e*x) + 2*B*(d^2 + 7*d*e*x + 21*e^2*x^2)) + 3*a*b^2*e*(4*A*e*(d^2
+ 7*d*e*x + 21*e^2*x^2) + 3*B*(d^3 + 7*d^2*e*x + 21*d*e^2*x^2 + 3
5*e^3*x^3)) + b^3*(3*A*e*(d^3 + 7*d^2*e*x + 21*d*e^2*x^2 + 35*e^3
*x^3) + 4*B*(d^4 + 7*d^3*e*x + 21*d^2*e^2*x^2 + 35*d*e^3*x^3 + 35
*e^4*x^4)))/(420*e^5*(d + e*x)^7)
```

Maple [A] time = 0.01, size = 281, normalized size = 1.7

$$-\frac{3\,Aa^2be^3-6\,Adab^2e^2+3\,Ad^2b^3e+Ba^3e^3-6\,Bda^2be^2+9\,Bd^2ab^2e-4\,b^3Bd^3}{6\,e^5\,(ex+d)^6}-\frac{a^3Ae^4-3\,Aa^2bde^3+3\,Ad^2ab^2e^2-Ad^3b^3e-Ba^3de^3+3\,Bd^2a^2be^2-3\,Bd^3ab^2e+b^3Bd^4}{7\,e^5\,(ex+d)^7}-\frac{Bb^3}{3\,e^5\,(ex+d)^3}-\frac{b^2\,(Abe+3\,Bae-4\,Bbd)}{4\,e^5\,(ex+d)^4}-\frac{3\,b\,\left(Aabe^2-Adb^2e+Ba^2e^2-3\,Bdabe+2\,b^2Bd^2\right)}{5\,e^5\,(ex+d)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3*(B*x+A)/(e*x+d)^8,x)
```

```
[Out] -1/6*(3*A*a^2*b*e^3-6*A*a*b^2*d*e^2+3*A*b^3*d^2*e+B*a^3*e^3-6*B*a
^2*b*d*e^2+9*B*a*b^2*d^2*e-4*B*b^3*d^3)/e^5/(e*x+d)^6-1/7*(A*a^3*
e^4-3*A*a^2*b*d*e^3+3*A*a*b^2*d^2*e^2-A*b^3*d^3*e-B*a^3*d*e^3+3*B
*a^2*b*d^2*e^2-3*B*a*b^2*d^3*e+B*b^3*d^4)/e^5/(e*x+d)^7-1/3*b^3*B
/e^5/(e*x+d)^3-1/4*b^2*(A*b*e+3*B*a*e-4*B*b*d)/e^5/(e*x+d)^4-3/5*
b*(A*a*b*e^2-A*b^2*d*e+B*a^2*e^2-3*B*a*b*d*e+2*B*b^2*d^2)/e^5/(e*
x+d)^5
```

Maxima [A] time = 1.3809, size = 448, normalized size = 2.75

$$-\frac{140\,Bb^3e^4x^4+4\,Bb^3d^4+60\,Aa^3e^4+3\,\left(3\,Bab^2+Ab^3\right)d^3e+12\,\left(Ba^2b+Aab^2\right)d^2e^2+10\,\left(Ba^3+3\,Aa^2b\right)de^3+35\,\left(4\,Bb^3de^3\right.}{420\,(e^{12}x^7+7\,de}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/(e*x + d)^8,x, algorithm="maxima")
```

```
[Out] -1/420*(140*B*b^3*e^4*x^4 + 4*B*b^3*d^4 + 60*A*a^3*e^4 + 3*(3*B*a
*b^2 + A*b^3)*d^3*e + 12*(B*a^2*b + A*a*b^2)*d^2*e^2 + 10*(B*a^3
+ 3*A*a^2*b)*d*e^3 + 35*(4*B*b^3*d*e^3 + 3*(3*B*a*b^2 + A*b^3)*e^
4)*x^3 + 21*(4*B*b^3*d^2*e^2 + 3*(3*B*a*b^2 + A*b^3)*d*e^3 + 12*(
B*a^2*b + A*a*b^2)*e^4)*x^2 + 7*(4*B*b^3*d^3*e + 3*(3*B*a*b^2 + A
*b^3)*d^2*e^2 + 12*(B*a^2*b + A*a*b^2)*d*e^3 + 10*(B*a^3 + 3*A*a^
2*b)*e^4)*x)/(e^12*x^7 + 7*d*e^11*x^6 + 21*d^2*e^10*x^5 + 35*d^3*
e^9*x^4 + 35*d^4*e^8*x^3 + 21*d^5*e^7*x^2 + 7*d^6*e^6*x + d^7*e^5
)
```

Fricas [A] time = 0.201955, size = 448, normalized size = 2.75

$$-\frac{140\,Bb^3e^4x^4+4\,Bb^3d^4+60\,Aa^3e^4+3\,\left(3\,Bab^2+Ab^3\right)d^3e+12\,\left(Ba^2b+Aab^2\right)d^2e^2+10\,\left(Ba^3+3\,Aa^2b\right)de^3+35\,\left(4\,Bb^3de^3\right.}{420\,(e^{12}x^7+7\,de}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/(e*x + d)^8,x, algorithm="fricas")
```

```
[Out] -1/420*(140*B*b^3*e^4*x^4 + 4*B*b^3*d^4 + 60*A*a^3*e^4 + 3*(3*B*a
*b^2 + A*b^3)*d^3*e + 12*(B*a^2*b + A*a*b^2)*d^2*e^2 + 10*(B*a^3
+ 3*A*a^2*b)*d*e^3 + 35*(4*B*b^3*d*e^3 + 3*(3*B*a*b^2 + A*b^3)*e^
4)*x^3 + 21*(4*B*b^3*d^2*e^2 + 3*(3*B*a*b^2 + A*b^3)*d*e^3 + 12*(
B*a^2*b + A*a*b^2)*e^4)*x^2 + 7*(4*B*b^3*d^3*e + 3*(3*B*a*b^2 + A
*b^3)*d^2*e^2 + 12*(B*a^2*b + A*a*b^2)*d*e^3 + 10*(B*a^3 + 3*A*a^
2*b)*e^4)*x)/(e^12*x^7 + 7*d*e^11*x^6 + 21*d^2*e^10*x^5 + 35*d^3*
e^9*x^4 + 35*d^4*e^8*x^3 + 21*d^5*e^7*x^2 + 7*d^6*e^6*x + d^7*e^5
)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**3*(B*x+A)/(e*x+d)**8,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.231896, size = 382, normalized size = 2.34

$$-\frac{(140\,Bb^3x^4e^4 + 140\,Bb^3dx^3e^3 + 84\,Bb^3d^2x^2e^2 + 28\,Bb^3d^3xe + 4\,Bb^3d^4 + 315\,Bab^2x^3e^4 + 105\,Ab^3x^3e^4 + 189\,Bab^2dx^2e^3 + 6}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/(e*x + d)^8,x, algorithm="giac")
```

```
[Out] -1/420*(140*B*b^3*x^4*e^4 + 140*B*b^3*d*x^3*e^3 + 84*B*b^3*d^2*x^
2*e^2 + 28*B*b^3*d^3*x*e + 4*B*b^3*d^4 + 315*B*a*b^2*x^3*e^4 + 10
5*A*b^3*x^3*e^4 + 189*B*a*b^2*d*x^2*e^3 + 63*A*b^3*d*x^2*e^3 + 63
*B*a*b^2*d^2*x*e^2 + 21*A*b^3*d^2*x*e^2 + 9*B*a*b^2*d^3*e + 3*A*b
^3*d^3*e + 252*B*a^2*b*x^2*e^4 + 252*A*a*b^2*x^2*e^4 + 84*B*a^2*b
*d*x*e^3 + 84*A*a*b^2*d*x*e^3 + 12*B*a^2*b*d^2*e^2 + 12*A*a*b^2*d
^2*e^2 + 70*B*a^3*x*e^4 + 210*A*a^2*b*x*e^4 + 10*B*a^3*d*e^3 + 30
*A*a^2*b*d*e^3 + 60*A*a^3*e^4)*e^(-5)/(x*e + d)^7
```

3.1032 $\int \frac{(a+bx)^3(A+Bx)}{(d+ex)^9} dx$

Optimal. Leaf size=163

$$\frac{b^2(-3aBe-Abe+4bBd)}{5e^5(d+ex)^5}-\frac{b(bd-ae)(-aBe-Abe+2bBd)}{2e^5(d+ex)^6}+\frac{(bd-ae)^2(-aBe-3Abe+4bBd)}{7e^5(d+ex)^7}-\frac{(bd-ae)^3(Bd-Ae)}{8e^5(d+ex)^8}-\frac{b^3B}{4e^5(d+ex)^4}$$

```
[Out] -((b*d - a*e)^3*(B*d - A*e))/(8*e^5*(d + e*x)^8) + ((b*d - a*e)^2
*(4*b*B*d - 3*A*b*e - a*B*e))/(7*e^5*(d + e*x)^7) - (b*(b*d - a*e
)*(2*b*B*d - A*b*e - a*B*e))/(2*e^5*(d + e*x)^6) + (b^2*(4*b*B*d
- A*b*e - 3*a*B*e))/(5*e^5*(d + e*x)^5) - (b^3*B)/(4*e^5*(d + e*x
)^4)
```

Rubi [A] time = 0.37256, antiderivative size = 163, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$\frac{b^2(-3aBe-Abe+4bBd)}{5e^5(d+ex)^5}-\frac{b(bd-ae)(-aBe-Abe+2bBd)}{2e^5(d+ex)^6}+\frac{(bd-ae)^2(-aBe-3Abe+4bBd)}{7e^5(d+ex)^7}-\frac{(bd-ae)^3(Bd-Ae)}{8e^5(d+ex)^8}-\frac{b^3B}{4e^5(d+ex)^4}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^3*(A + B*x))/(d + e*x)^9,x]
```

```
[Out] -((b*d - a*e)^3*(B*d - A*e))/(8*e^5*(d + e*x)^8) + ((b*d - a*e)^2
*(4*b*B*d - 3*A*b*e - a*B*e))/(7*e^5*(d + e*x)^7) - (b*(b*d - a*e
)*(2*b*B*d - A*b*e - a*B*e))/(2*e^5*(d + e*x)^6) + (b^2*(4*b*B*d
- A*b*e - 3*a*B*e))/(5*e^5*(d + e*x)^5) - (b^3*B)/(4*e^5*(d + e*x
)^4)
```

Rubi in Sympy [A] time = 60.0028, size = 155, normalized size = 0.95

$$-\frac{Bb^3}{4e^5(d+ex)^4}-\frac{b^2(Abe+3Bae-4Bbd)}{5e^5(d+ex)^5}-\frac{b(ae-bd)(Abe+Bae-2Bbd)}{2e^5(d+ex)^6}-\frac{(ae-bd)^2(3Abe+Bae-4Bbd)}{7e^5(d+ex)^7}-\frac{(Ae-Bd)(ae-bd)^3}{8e^5(d+ex)^8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**3*(B*x+A)/(e*x+d)**9,x)
```

```
[Out] -B*b**3/(4*e**5*(d + e*x)**4) - b**2*(A*b*e + 3*B*a*e - 4*B*b*d)/
(5*e**5*(d + e*x)**5) - b*(a*e - b*d)*(A*b*e + B*a*e - 2*B*b*d)/(
2*e**5*(d + e*x)**6) - (a*e - b*d)**2*(3*A*b*e + B*a*e - 4*B*b*d)
/(7*e**5*(d + e*x)**7) - (A*e - B*d)*(a*e - b*d)**3/(8*e**5*(d +
e*x)**8)
```

Mathematica [A] time = 0.180137, size = 211, normalized size = 1.29

$$-\frac{5a^3e^3(7Ae+B(d+8ex))+5a^2be^2\left(3Ae(d+8ex)+B\left(d^2+8dex+28e^2x^2\right)\right)+ab^2e\left(5Ae\left(d^2+8dex+28e^2x^2\right)+3B\left(d^3+\right.\right.}{280e^5(a}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^3*(A + B*x))/(d + e*x)^9,x]
```

```
[Out] -(5*a^3*e^3*(7*A*e + B*(d + 8*e*x)) + 5*a^2*b*e^2*(3*A*e*(d + 8*e
*x) + B*(d^2 + 8*d*e*x + 28*e^2*x^2)) + a*b^2*e*(5*A*e*(d^2 + 8*d
*e*x + 28*e^2*x^2) + 3*B*(d^3 + 8*d^2*e*x + 28*d*e^2*x^2 + 56*e^3
*x^3)) + b^3*(A*e*(d^3 + 8*d^2*e*x + 28*d*e^2*x^2 + 56*e^3*x^3) +
 B*(d^4 + 8*d^3*e*x + 28*d^2*e^2*x^2 + 56*d*e^3*x^3 + 70*e^4*x^4)
))/(280*e^5*(d + e*x)^8)
```

Maple [A] time = 0.01, size = 281, normalized size = 1.7

$$-\frac{b\left(Aabe^{2}-Adb^{2}e+Ba^{2}e^{2}-3\,Bdabe+2\,b^{2}Bd^{2}\right)}{2\,e^{5}\left(ex+d\right)^{6}}-\frac{a^{3}Ae^{4}-3\,Aa^{2}bde^{3}+3\,Ad^{2}ab^{2}e^{2}-Ad^{3}b^{3}e-Ba^{3}de^{3}+3\,Bd^{2}a^{2}be^{2}-3\,Bd^{3}ab^{2}e+b^{3}Bd^{4}}{8\,e^{5}\left(ex+d\right)^{8}}-\frac{3\,Aa^{2}be^{3}-6\,Adab^{2}e^{2}+3\,Ad^{2}b^{3}e+Ba^{3}e^{3}-6\,Bda^{2}be^{2}+9\,Bd^{2}ab^{2}e-4\,b^{3}Bd^{3}}{7\,e^{5}\left(ex+d\right)^{7}}-\frac{Bb^{3}}{4\,e^{5}\left(ex+d\right)^{4}}-\frac{b^{2}\left(Abe+3\,Bae-4\,Bbd\right)}{5\,e^{5}\left(ex+d\right)^{5}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3*(B*x+A)/(e*x+d)^9,x)
```

```
[Out] -1/2*b*(A*a*b*e^2-A*b^2*d*e+B*a^2*e^2-3*B*a*b*d*e+2*B*b^2*d^2)/e^
5/(e*x+d)^6-1/8*(A*a^3*e^4-3*A*a^2*b*d*e^3+3*A*a*b^2*d^2*e^2-A*b^
3*d^3*e-B*a^3*d*e^3+3*B*a^2*b*d^2*e^2-3*B*a*b^2*d^3*e+B*b^3*d^4)/
e^5/(e*x+d)^8-1/7*(3*A*a^2*b*e^3-6*A*a*b^2*d*e^2+3*A*b^3*d^2*e+B*
a^3*e^3-6*B*a^2*b*d*e^2+9*B*a*b^2*d^2*e-4*B*b^3*d^3)/e^5/(e*x+d)^
7-1/4*b^3*B/e^5/(e*x+d)^4-1/5*b^2*(A*b*e+3*B*a*e-4*B*b*d)/e^5/(e*
x+d)^5
```

Maxima [A] time = 1.39244, size = 452, normalized size = 2.77

$$-\frac{70\,Bb^{3}e^{4}x^{4}+Bb^{3}d^{4}+35\,Aa^{3}e^{4}+\left(3\,Bab^{2}+Ab^{3}\right)d^{3}e+5\left(Ba^{2}b+Aab^{2}\right)d^{2}e^{2}+5\left(Ba^{3}+3\,Aa^{2}b\right)de^{3}+56\left(Bb^{3}de^{3}+\left(3\,Bab\right.\right.}{280\left(e^{13}x^{8}+8\,de^{12}x^{7}+28\,d^{2}e^{11}x\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/(e*x + d)^9,x, algorithm="maxima")
```

```
[Out] -1/280*(70*B*b^3*e^4*x^4 + B*b^3*d^4 + 35*A*a^3*e^4 + (3*B*a*b^2
+ A*b^3)*d^3*e + 5*(B*a^2*b + A*a*b^2)*d^2*e^2 + 5*(B*a^3 + 3*A*a
^2*b)*d*e^3 + 56*(B*b^3*d*e^3 + (3*B*a*b^2 + A*b^3)*e^4)*x^3 + 28
*(B*b^3*d^2*e^2 + (3*B*a*b^2 + A*b^3)*d*e^3 + 5*(B*a^2*b + A*a*b^
2)*e^4)*x^2 + 8*(B*b^3*d^3*e + (3*B*a*b^2 + A*b^3)*d^2*e^2 + 5*(B
*a^2*b + A*a*b^2)*d*e^3 + 5*(B*a^3 + 3*A*a^2*b)*e^4)*x)/(e^13*x^8
 + 8*d*e^12*x^7 + 28*d^2*e^11*x^6 + 56*d^3*e^10*x^5 + 70*d^4*e^9*
x^4 + 56*d^5*e^8*x^3 + 28*d^6*e^7*x^2 + 8*d^7*e^6*x + d^8*e^5)
```

Fricas [A] time = 0.206879, size = 452, normalized size = 2.77

$$-\frac{70\,Bb^{3}e^{4}x^{4}+Bb^{3}d^{4}+35\,Aa^{3}e^{4}+\left(3\,Bab^{2}+Ab^{3}\right)d^{3}e+5\left(Ba^{2}b+Aab^{2}\right)d^{2}e^{2}+5\left(Ba^{3}+3\,Aa^{2}b\right)de^{3}+56\left(Bb^{3}de^{3}+\left(3\,Bab\right.\right.}{280\left(e^{13}x^{8}+8\,de^{12}x^{7}+28\,d^{2}e^{11}x\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/(e*x + d)^9,x, algorithm="fricas")
```

```
[Out] -1/280*(70*B*b^3*e^4*x^4 + B*b^3*d^4 + 35*A*a^3*e^4 + (3*B*a*b^2
+ A*b^3)*d^3*e + 5*(B*a^2*b + A*a*b^2)*d^2*e^2 + 5*(B*a^3 + 3*A*a
^2*b)*d*e^3 + 56*(B*b^3*d*e^3 + (3*B*a*b^2 + A*b^3)*e^4)*x^3 + 28
*(B*b^3*d^2*e^2 + (3*B*a*b^2 + A*b^3)*d*e^3 + 5*(B*a^2*b + A*a*b^
2)*e^4)*x^2 + 8*(B*b^3*d^3*e + (3*B*a*b^2 + A*b^3)*d^2*e^2 + 5*(B
*a^2*b + A*a*b^2)*d*e^3 + 5*(B*a^3 + 3*A*a^2*b)*e^4)*x)/(e^13*x^8
 + 8*d*e^12*x^7 + 28*d^2*e^11*x^6 + 56*d^3*e^10*x^5 + 70*d^4*e^9*
x^4 + 56*d^5*e^8*x^3 + 28*d^6*e^7*x^2 + 8*d^7*e^6*x + d^8*e^5)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**3*(B*x+A)/(e*x+d)**9,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.212734, size = 379, normalized size = 2.33

$$-\frac{(70\,Bb^3x^4e^4 + 56\,Bb^3dx^3e^3 + 28\,Bb^3d^2x^2e^2 + 8\,Bb^3d^3xe + Bb^3d^4 + 168\,Bab^2x^3e^4 + 56\,Ab^3x^3e^4 + 84\,Bab^2dx^2e^3 + 28\,Ab^3dx}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/(e*x + d)^9,x, algorithm="giac")
```

```
[Out] -1/280*(70*B*b^3*x^4*e^4 + 56*B*b^3*d*x^3*e^3 + 28*B*b^3*d^2*x^2*
e^2 + 8*B*b^3*d^3*x*e + B*b^3*d^4 + 168*B*a*b^2*x^3*e^4 + 56*A*b^
3*x^3*e^4 + 84*B*a*b^2*d*x^2*e^3 + 28*A*b^3*d*x^2*e^3 + 24*B*a*b^
2*d^2*x*e^2 + 8*A*b^3*d^2*x*e^2 + 3*B*a*b^2*d^3*e + A*b^3*d^3*e +
 140*B*a^2*b*x^2*e^4 + 140*A*a*b^2*x^2*e^4 + 40*B*a^2*b*d*x*e^3 +
 40*A*a*b^2*d*x*e^3 + 5*B*a^2*b*d^2*e^2 + 5*A*a*b^2*d^2*e^2 + 40*
B*a^3*x*e^4 + 120*A*a^2*b*x*e^4 + 5*B*a^3*d*e^3 + 15*A*a^2*b*d*e^
3 + 35*A*a^3*e^4)*e^(-5)/(x*e + d)^8
```

3.1033 $\int \frac{(a+bx)^3(A+Bx)}{(d+ex)^{10}} dx$

Optimal. Leaf size=163

$$\frac{b^2(-3aBe-Abe+4bBd)}{6e^5(d+ex)^6}-\frac{3b(bd-ae)(-aBe-Abe+2bBd)}{7e^5(d+ex)^7}+\frac{(bd-ae)^2(-aBe-3Abe+4bBd)}{8e^5(d+ex)^8}-\frac{(bd-ae)^3(Bd-Ae)}{9e^5(d+ex)^9}-\frac{b^3B}{5e^5(d+ex)^5}$$

```
[Out] -((b*d - a*e)^3*(B*d - A*e))/(9*e^5*(d + e*x)^9) + ((b*d - a*e)^2
*(4*b*B*d - 3*A*b*e - a*B*e))/(8*e^5*(d + e*x)^8) - (3*b*(b*d - a
*e)*(2*b*B*d - A*b*e - a*B*e))/(7*e^5*(d + e*x)^7) + (b^2*(4*b*B*
d - A*b*e - 3*a*B*e))/(6*e^5*(d + e*x)^6) - (b^3*B)/(5*e^5*(d + e
*x)^5)
```

Rubi [A] time = 0.360841, antiderivative size = 163, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{b^2(-3aBe-Abe+4bBd)}{6e^5(d+ex)^6}-\frac{3b(bd-ae)(-aBe-Abe+2bBd)}{7e^5(d+ex)^7}+\frac{(bd-ae)^2(-aBe-3Abe+4bBd)}{8e^5(d+ex)^8}-\frac{(bd-ae)^3(Bd-Ae)}{9e^5(d+ex)^9}-\frac{b^3B}{5e^5(d+ex)^5}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^3*(A + B*x))/(d + e*x)^10,x]
```

```
[Out] -((b*d - a*e)^3*(B*d - A*e))/(9*e^5*(d + e*x)^9) + ((b*d - a*e)^2
*(4*b*B*d - 3*A*b*e - a*B*e))/(8*e^5*(d + e*x)^8) - (3*b*(b*d - a
*e)*(2*b*B*d - A*b*e - a*B*e))/(7*e^5*(d + e*x)^7) + (b^2*(4*b*B*
d - A*b*e - 3*a*B*e))/(6*e^5*(d + e*x)^6) - (b^3*B)/(5*e^5*(d + e
*x)^5)
```

Rubi in Sympy [A] time = 62.8212, size = 156, normalized size = 0.96

$$-\frac{Bb^3}{5e^5\left(d+ex\right)^5}-\frac{b^2\left(Abe+3Bae-4Bbd\right)}{6e^5\left(d+ex\right)^6}-\frac{3b\left(ae-bd\right)\left(Abe+Bae-2Bbd\right)}{7e^5\left(d+ex\right)^7}-\frac{\left(ae-bd\right)^2\left(3Abe+Bae-4Bbd\right)}{8e^5\left(d+ex\right)^8}-\frac{\left(Ae-Bd\right)\left(ae-bd\right)^3}{9e^5\left(d+ex\right)^9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**3*(B*x+A)/(e*x+d)**10,x)
```

```
[Out] -B*b**3/(5*e**5*(d + e*x)**5) - b**2*(A*b*e + 3*B*a*e - 4*B*b*d)/
(6*e**5*(d + e*x)**6) - 3*b*(a*e - b*d)*(A*b*e + B*a*e - 2*B*b*d)
/(7*e**5*(d + e*x)**7) - (a*e - b*d)**2*(3*A*b*e + B*a*e - 4*B*b*
d)/(8*e**5*(d + e*x)**8) - (A*e - B*d)*(a*e - b*d)**3/(9*e**5*(d
+ e*x)**9)
```

Mathematica [A] time = 0.189841, size = 214, normalized size = 1.31

$$-\frac{35a^3e^3(8Ae+B(d+9ex))+15a^2be^2\left(7Ae(d+9ex)+2B\left(d^2+9dex+36e^2x^2\right)\right)+15ab^2e\left(2Ae\left(d^2+9dex+36e^2x^2\right)+B\left(\ldots\right.\right.}{252\ldots}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^3*(A + B*x))/(d + e*x)^10,x]
```

```
[Out] -(35*a^3*e^3*(8*A*e + B*(d + 9*e*x)) + 15*a^2*b*e^2*(7*A*e*(d + 9
*e*x) + 2*B*(d^2 + 9*d*e*x + 36*e^2*x^2)) + 15*a*b^2*e*(2*A*e*(d^
2 + 9*d*e*x + 36*e^2*x^2) + B*(d^3 + 9*d^2*e*x + 36*d*e^2*x^2 + 8
4*e^3*x^3)) + b^3*(5*A*e*(d^3 + 9*d^2*e*x + 36*d*e^2*x^2 + 84*e^3
*x^3) + 4*B*(d^4 + 9*d^3*e*x + 36*d^2*e^2*x^2 + 84*d*e^3*x^3 + 12
6*e^4*x^4)))/(2520*e^5*(d + e*x)^9)
```

Maple [A] time = 0.01, size = 281, normalized size = 1.7

$$-\frac{a^3Ae^4-3\,Aa^2bde^3+3\,Ad^2ab^2e^2-Ad^3b^3e-Ba^3de^3+3\,Bd^2a^2be^2-3\,Bd^3ab^2e+b^3Bd^4}{9\,e^5\,(ex+d)^9}-\frac{b^2\,(Abe+3\,Bae-4\,Bbd)}{6\,e^5\,(ex+d)^6}-\frac{3\,Aa^2be^3-6\,Adab^2e^2+3\,Ad^2b^3e+Ba^3e^3-6\,Bda^2be^2+9\,Bd^2ab^2e-4\,b^3Bd^3}{8\,e^5\,(ex+d)^8}-\frac{3\,b\left(Aabe^2-Adb^2e+Ba^2e^2-3\,Bdabe+2\,b^2Bd^2\right)}{7\,e^5\,(ex+d)^7}-\frac{Bb^3}{5\,e^5\,(ex+d)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3*(B*x+A)/(e*x+d)^10,x)
```

```
[Out] -1/9*(A*a^3*e^4-3*A*a^2*b*d*e^3+3*A*a*b^2*d^2*e^2-A*b^3*d^3*e-B*a
^3*d*e^3+3*B*a^2*b*d^2*e^2-3*B*a*b^2*d^3*e+B*b^3*d^4)/e^5/(e*x+d)
^9-1/6*b^2*(A*b*e+3*B*a*e-4*B*b*d)/e^5/(e*x+d)^6-1/8*(3*A*a^2*b*e
^3-6*A*a*b^2*d*e^2+3*A*b^3*d^2*e+B*a^3*e^3-6*B*a^2*b*d*e^2+9*B*a*
b^2*d^2*e-4*B*b^3*d^3)/e^5/(e*x+d)^8-3/7*b*(A*a*b*e^2-A*b^2*d*e+B
*a^2*e^2-3*B*a*b*d*e+2*B*b^2*d^2)/e^5/(e*x+d)^7-1/5*b^3*B/e^5/(e*
x+d)^5
```

Maxima [A] time = 1.43773, size = 478, normalized size = 2.93

$$-\frac{504\,Bb^3e^4x^4+4\,Bb^3d^4+280\,Aa^3e^4+5\left(3\,Bab^2+Ab^3\right)d^3e+30\left(Ba^2b+Aab^2\right)d^2e^2+35\left(Ba^3+3\,Aa^2b\right)de^3+84\left(4\,Bb^3de^3\right.}{2520\,(e^{14}x^9+9\,de^{13}x^8+36\,d^2e}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/(e*x + d)^10,x, algorithm="maxima")
```

```
[Out] -1/2520*(504*B*b^3*e^4*x^4 + 4*B*b^3*d^4 + 280*A*a^3*e^4 + 5*(3*B
*a*b^2 + A*b^3)*d^3*e + 30*(B*a^2*b + A*a*b^2)*d^2*e^2 + 35*(B*a^
3 + 3*A*a^2*b)*d*e^3 + 84*(4*B*b^3*d*e^3 + 5*(3*B*a*b^2 + A*b^3)*
e^4)*x^3 + 36*(4*B*b^3*d^2*e^2 + 5*(3*B*a*b^2 + A*b^3)*d*e^3 + 30
*(B*a^2*b + A*a*b^2)*e^4)*x^2 + 9*(4*B*b^3*d^3*e + 5*(3*B*a*b^2 +
 A*b^3)*d^2*e^2 + 30*(B*a^2*b + A*a*b^2)*d*e^3 + 35*(B*a^3 + 3*A*
a^2*b)*e^4)*x)/(e^14*x^9 + 9*d*e^13*x^8 + 36*d^2*e^12*x^7 + 84*d^
3*e^11*x^6 + 126*d^4*e^10*x^5 + 126*d^5*e^9*x^4 + 84*d^6*e^8*x^3
+ 36*d^7*e^7*x^2 + 9*d^8*e^6*x + d^9*e^5)
```

Fricas [A] time = 0.209798, size = 478, normalized size = 2.93

$$-\frac{504\,Bb^3e^4x^4+4\,Bb^3d^4+280\,Aa^3e^4+5\left(3\,Bab^2+Ab^3\right)d^3e+30\left(Ba^2b+Aab^2\right)d^2e^2+35\left(Ba^3+3\,Aa^2b\right)de^3+84\left(4\,Bb^3de^3\right.}{2520\,(e^{14}x^9+9\,de^{13}x^8+36\,d^2e}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/(e*x + d)^10,x, algorithm="fricas")
```

```
[Out] -1/2520*(504*B*b^3*e^4*x^4 + 4*B*b^3*d^4 + 280*A*a^3*e^4 + 5*(3*B
*a*b^2 + A*b^3)*d^3*e + 30*(B*a^2*b + A*a*b^2)*d^2*e^2 + 35*(B*a^
3 + 3*A*a^2*b)*d*e^3 + 84*(4*B*b^3*d*e^3 + 5*(3*B*a*b^2 + A*b^3)*
e^4)*x^3 + 36*(4*B*b^3*d^2*e^2 + 5*(3*B*a*b^2 + A*b^3)*d*e^3 + 30
*(B*a^2*b + A*a*b^2)*e^4)*x^2 + 9*(4*B*b^3*d^3*e + 5*(3*B*a*b^2 +
 A*b^3)*d^2*e^2 + 30*(B*a^2*b + A*a*b^2)*d*e^3 + 35*(B*a^3 + 3*A*
a^2*b)*e^4)*x)/(e^14*x^9 + 9*d*e^13*x^8 + 36*d^2*e^12*x^7 + 84*d^
3*e^11*x^6 + 126*d^4*e^10*x^5 + 126*d^5*e^9*x^4 + 84*d^6*e^8*x^3
+ 36*d^7*e^7*x^2 + 9*d^8*e^6*x + d^9*e^5)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**3*(B*x+A)/(e*x+d)**10,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.212314, size = 382, normalized size = 2.34

$$-\frac{\left(504\,Bb^3x^4e^4 + 336\,Bb^3dx^3e^3 + 144\,Bb^3d^2x^2e^2 + 36\,Bb^3d^3xe + 4\,Bb^3d^4 + 1260\,Bab^2x^3e^4 + 420\,Ab^3x^3e^4 + 540\,Bab^2dx^2e^3 + \cdots\right.}{\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/(e*x + d)^10,x, algorithm="giac")
```

```
[Out] -1/2520*(504*B*b^3*x^4*e^4 + 336*B*b^3*d*x^3*e^3 + 144*B*b^3*d^2*
x^2*e^2 + 36*B*b^3*d^3*x*e + 4*B*b^3*d^4 + 1260*B*a*b^2*x^3*e^4 +
 420*A*b^3*x^3*e^4 + 540*B*a*b^2*d*x^2*e^3 + 180*A*b^3*d*x^2*e^3
+ 135*B*a*b^2*d^2*x*e^2 + 45*A*b^3*d^2*x*e^2 + 15*B*a*b^2*d^3*e +
 5*A*b^3*d^3*e + 1080*B*a^2*b*x^2*e^4 + 1080*A*a*b^2*x^2*e^4 + 27
0*B*a^2*b*d*x*e^3 + 270*A*a*b^2*d*x*e^3 + 30*B*a^2*b*d^2*e^2 + 30
*A*a*b^2*d^2*e^2 + 315*B*a^3*x*e^4 + 945*A*a^2*b*x*e^4 + 35*B*a^3
*d*e^3 + 105*A*a^2*b*d*e^3 + 280*A*a^3*e^4)*e^(-5)/(x*e + d)^9
```

3.1034 $\int (a+bx)^6(A+Bx)(d+ex)^8\,dx$

Optimal. Leaf size=292

$$-\frac{b^5(d+ex)^{15}(-6aBe-Abe+7bBd)}{15e^8}+\frac{3b^4(d+ex)^{14}(bd-ae)(-5aBe-2Abe+7bBd)}{14e^8}-\frac{5b^3(d+ex)^{13}(bd-ae)^2(-4aBe-3Abe+7bBd)}{13e^8}+\frac{5b^2(d+ex)^{12}(bd-ae)^3(-3aBe-4Abe+7bBd)}{12e^8}-\frac{3b(d+ex)^{11}(bd-ae)^4(-2aBe-5Abe+7bBd)}{11e^8}+\frac{(d+ex)^{10}(bd-ae)^5(-aBe-6Abe+7bBd)}{10e^8}-\frac{(d+ex)^9(bd-ae)^6(Bd-Ae)}{9e^8}+\frac{b^6B(d+ex)^{16}}{16e^8}$$

```
[Out] -((b*d - a*e)^6*(B*d - A*e)*(d + e*x)^9)/(9*e^8) + ((b*d - a*e)^5
*(7*b*B*d - 6*A*b*e - a*B*e)*(d + e*x)^10)/(10*e^8) - (3*b*(b*d -
 a*e)^4*(7*b*B*d - 5*A*b*e - 2*a*B*e)*(d + e*x)^11)/(11*e^8) + (5
*b^2*(b*d - a*e)^3*(7*b*B*d - 4*A*b*e - 3*a*B*e)*(d + e*x)^12)/(1
2*e^8) - (5*b^3*(b*d - a*e)^2*(7*b*B*d - 3*A*b*e - 4*a*B*e)*(d +
e*x)^13)/(13*e^8) + (3*b^4*(b*d - a*e)*(7*b*B*d - 2*A*b*e - 5*a*B
*e)*(d + e*x)^14)/(14*e^8) - (b^5*(7*b*B*d - A*b*e - 6*a*B*e)*(d
+ e*x)^15)/(15*e^8) + (b^6*B*(d + e*x)^16)/(16*e^8)
```

Rubi [A] time = 4.94768, antiderivative size = 292, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{b^5(d+ex)^{15}(-6aBe-Abe+7bBd)}{15e^8}+\frac{3b^4(d+ex)^{14}(bd-ae)(-5aBe-2Abe+7bBd)}{14e^8}-\frac{5b^3(d+ex)^{13}(bd-ae)^2(-4aBe-3Abe+7bBd)}{13e^8}+\frac{5b^2(d+ex)^{12}(bd-ae)^3(-3aBe-4Abe+7bBd)}{12e^8}-\frac{3b(d+ex)^{11}(bd-ae)^4(-2aBe-5Abe+7bBd)}{11e^8}+\frac{(d+ex)^{10}(bd-ae)^5(-aBe-6Abe+7bBd)}{10e^8}-\frac{(d+ex)^9(bd-ae)^6(Bd-Ae)}{9e^8}+\frac{b^6B(d+ex)^{16}}{16e^8}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^6*(A + B*x)*(d + e*x)^8,x]
```



```
[Out] -((b*d - a*e)^6*(B*d - A*e)*(d + e*x)^9)/(9*e^8) + ((b*d - a*e)^5
*(7*b*B*d - 6*A*b*e - a*B*e)*(d + e*x)^10)/(10*e^8) - (3*b*(b*d -
 a*e)^4*(7*b*B*d - 5*A*b*e - 2*a*B*e)*(d + e*x)^11)/(11*e^8) + (5
*b^2*(b*d - a*e)^3*(7*b*B*d - 4*A*b*e - 3*a*B*e)*(d + e*x)^12)/(1
2*e^8) - (5*b^3*(b*d - a*e)^2*(7*b*B*d - 3*A*b*e - 4*a*B*e)*(d +
e*x)^13)/(13*e^8) + (3*b^4*(b*d - a*e)*(7*b*B*d - 2*A*b*e - 5*a*B
*e)*(d + e*x)^14)/(14*e^8) - (b^5*(7*b*B*d - A*b*e - 6*a*B*e)*(d
+ e*x)^15)/(15*e^8) + (b^6*B*(d + e*x)^16)/(16*e^8)
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**6*(B*x+A)*(e*x+d)**8,x)
```

```
[Out] Timed out
```

Mathematica [B] time = 1.07923, size = 1385, normalized size = 4.74

$$\frac{1}{16}b^6Be^8x^{16}+\frac{1}{15}b^5e^7(8bBd+Abe+6aBe)x^{15}+\frac{1}{14}b^4e^6\left(4d(7Bd+2Ae)b^2+6ae(8Bd+Ae)b+15a^2Be^2\right)x^{14}+\frac{1}{13}b^3e^5\left(28d^2(2Bd+Ae)b^3+24ade(7Bd+2Ae)b^2+15a^2e^2(8Bd+Ae)b+20a^3Be^3\right)x^{13}+\frac{1}{12}b^2e^4\left(14d^3(5Bd+4Ae)b^4+168ad^2e(2Bd+Ae)b^3+60a^2de^2(7Bd+2Ae)b^2+20a^3e^3(8Bd+Ae)b+15a^4Be^4\right)x^{12}+\frac{1}{11}be^3\left(14d^4(4Bd+5Ae)b^5+84ad^3e(5Bd+4Ae)b^4+420a^2d^2e^2(2Bd+Ae)b^3+80a^3de^3(7Bd+2Ae)b^2+15a^4e^4(8Bd+Ae)b+6a^5Be^5\right)x^{11}+\frac{1}{10}e^2\left(28d^5(Bd+2Ae)b^6+84ad^4e(4Bd+5Ae)b^5+210a^2d^3e^2(5Bd+4Ae)b^4+560a^3d^2e^3(2Bd+Ae)b^3+60a^4de^4(7Bd+2Ae)b^2+6a^5e^5(8Bd+Ae)b+a^6Be^6\right)x^{10}+\frac{1}{9}e\left(4b^6(2Bd+7Ae)d^6+168ab^5e(Bd+2Ae)d^5+210a^2b^4e^2(4Bd+5Ae)d^4+280a^3b^3e^3(5Bd+4Ae)d^3+420a^4b^2e^4(2Bd+Ae)d^2+24a^5be^5(7Bd+2Ae)d+a^6e^6(8Bd+Ae)\right)x^9+\frac{1}{8}d\left(b^6(Bd+8Ae)d^6+24ab^5e(2Bd+7Ae)d^5+420a^2b^4e^2(Bd+2Ae)d^4+280a^3b^3e^3(4Bd+5Ae)d^3+210a^4b^2e^4(5Bd+4Ae)d^2+168a^5be^5(2Bd+Ae)d+4a^6e^6(7Bd+2Ae)\right)x^8+\frac{1}{7}d^2\left(2aBd\left(3b^5d^5+60ab^4ed^4+280a^2b^3e^2d^3+420a^3b^2e^3d^2+210a^4be^4d+28a^5e^5\right)+A\left(b^6d^6+48ab^5ed^5+420a^2b^4e^2d^4+1120a^3b^3e^3d^3+1050a^4b^2e^4d^2+336a^5be^5d+28a^6e^6\right)\right)x^7+\frac{1}{6}ad^3\left(aBd\left(15b^4d^4+160ab^3ed^3+420a^2b^2e^2d^2+336a^3be^3d+70a^4e^4\right)+2A\left(3b^5d^5+60ab^4ed^4+280a^2b^3e^2d^3+420a^3b^2e^3d^2+210a^4be^4d+28a^5e^5\right)\right)x^6+\frac{1}{5}a^2d^4\left(4aBd\left(5b^3d^3+30ab^2ed^2+42a^2be^2d+14a^3e^3\right)+A\left(15b^4d^4+160ab^3ed^3+420a^2b^2e^2d^2+336a^3be^3d+70a^4e^4\right)\right)x^5+\frac{1}{4}a^3d^5\left(aBd\left(15b^2d^2+48abed+28a^2e^2\right)+4A\left(5b^3d^3+30ab^2ed^2+42a^2be^2d+14a^3e^3\right)\right)x^4+\frac{1}{3}a^4d^6\left(2aBd(3bd+4ae)+A\left(15b^2d^2+48abed+28a^2e^2\right)\right)x^3+\frac{1}{2}a^5d^7(6Abd+aBd+8aAe)x^2+a^6Ad^8x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^6*(A + B*x)*(d + e*x)^8,x]
```

```
[Out] a^6*A*d^8*x + (a^5*d^7*(6*A*b*d + a*B*d + 8*a*A*e)*x^2)/2 + (a^4*
d^6*(2*a*B*d*(3*b*d + 4*a*e) + A*(15*b^2*d^2 + 48*a*b*d*e + 28*a^
2*e^2))*x^3)/3 + (a^3*d^5*(a*B*d*(15*b^2*d^2 + 48*a*b*d*e + 28*a^
2*e^2) + 4*A*(5*b^3*d^3 + 30*a*b^2*d^2*e + 42*a^2*b*d*e^2 + 14*a^
3*e^3))*x^4)/4 + (a^2*d^4*(4*a*B*d*(5*b^3*d^3 + 30*a*b^2*d^2*e +
42*a^2*b*d*e^2 + 14*a^3*e^3) + A*(15*b^4*d^4 + 160*a*b^3*d^3*e +
420*a^2*b^2*d^2*e^2 + 336*a^3*b*d*e^3 + 70*a^4*e^4))*x^5)/5 + (a*
d^3*(a*B*d*(15*b^4*d^4 + 160*a*b^3*d^3*e + 420*a^2*b^2*d^2*e^2 +
336*a^3*b*d*e^3 + 70*a^4*e^4) + 2*A*(3*b^5*d^5 + 60*a*b^4*d^4*e +
 280*a^2*b^3*d^3*e^2 + 420*a^3*b^2*d^2*e^3 + 210*a^4*b*d*e^4 + 28
*a^5*e^5))*x^6)/6 + (d^2*(2*a*B*d*(3*b^5*d^5 + 60*a*b^4*d^4*e + 2
80*a^2*b^3*d^3*e^2 + 420*a^3*b^2*d^2*e^3 + 210*a^4*b*d*e^4 + 28*a
^5*e^5) + A*(b^6*d^6 + 48*a*b^5*d^5*e + 420*a^2*b^4*d^4*e^2 + 112
0*a^3*b^3*d^3*e^3 + 1050*a^4*b^2*d^2*e^4 + 336*a^5*b*d*e^5 + 28*a
^6*e^6))*x^7)/7 + (d*(168*a^5*b*d*e^5*(2*B*d + A*e) + 420*a^2*b^4
*d^4*e^2*(B*d + 2*A*e) + 4*a^6*e^6*(7*B*d + 2*A*e) + 210*a^4*b^2*
d^2*e^4*(5*B*d + 4*A*e) + 280*a^3*b^3*d^3*e^3*(4*B*d + 5*A*e) + 2
4*a*b^5*d^5*e*(2*B*d + 7*A*e) + b^6*d^6*(B*d + 8*A*e))*x^8)/8 + (
e*(420*a^4*b^2*d^2*e^4*(2*B*d + A*e) + a^6*e^6*(8*B*d + A*e) + 16
8*a*b^5*d^5*e*(B*d + 2*A*e) + 24*a^5*b*d*e^5*(7*B*d + 2*A*e) + 28
0*a^3*b^3*d^3*e^3*(5*B*d + 4*A*e) + 210*a^2*b^4*d^4*e^2*(4*B*d +
```

```
5*A*e) + 4*b^6*d^6*(2*B*d + 7*A*e))*x^9)/9 + (e^2*(a^6*B*e^6 + 56
0*a^3*b^3*d^2*e^3*(2*B*d + A*e) + 6*a^5*b*e^5*(8*B*d + A*e) + 28*
b^6*d^5*(B*d + 2*A*e) + 60*a^4*b^2*d*e^4*(7*B*d + 2*A*e) + 210*a^
2*b^4*d^3*e^2*(5*B*d + 4*A*e) + 84*a*b^5*d^4*e*(4*B*d + 5*A*e))*x
^10)/10 + (b*e^3*(6*a^5*B*e^5 + 420*a^2*b^3*d^2*e^2*(2*B*d + A*e)
 + 15*a^4*b*e^4*(8*B*d + A*e) + 80*a^3*b^2*d*e^3*(7*B*d + 2*A*e)
+ 84*a*b^4*d^3*e*(5*B*d + 4*A*e) + 14*b^5*d^4*(4*B*d + 5*A*e))*x^
11)/11 + (b^2*e^4*(15*a^4*B*e^4 + 168*a*b^3*d^2*e*(2*B*d + A*e) +
 20*a^3*b*e^3*(8*B*d + A*e) + 60*a^2*b^2*d*e^2*(7*B*d + 2*A*e) +
14*b^4*d^3*(5*B*d + 4*A*e))*x^12)/12 + (b^3*e^5*(20*a^3*B*e^3 + 2
8*b^3*d^2*(2*B*d + A*e) + 15*a^2*b*e^2*(8*B*d + A*e) + 24*a*b^2*d
*e*(7*B*d + 2*A*e))*x^13)/13 + (b^4*e^6*(15*a^2*B*e^2 + 6*a*b*e*(
8*B*d + A*e) + 4*b^2*d*(7*B*d + 2*A*e))*x^14)/14 + (b^5*e^7*(8*b*
B*d + A*b*e + 6*a*B*e)*x^15)/15 + (b^6*B*e^8*x^16)/16
```

Maple [B] time = 0.003, size = 1525, normalized size = 5.2

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^6*(B*x+A)*(e*x+d)^8,x)
```

```
[Out] 1/16*b^6*B*e^8*x^16+1/15*((A*b^6+6*B*a*b^5)*e^8+8*b^6*B*d*e^7)*x^
15+1/14*((6*A*a*b^5+15*B*a^2*b^4)*e^8+8*(A*b^6+6*B*a*b^5)*d*e^7+2
8*b^6*B*d^2*e^6)*x^14+1/13*((15*A*a^2*b^4+20*B*a^3*b^3)*e^8+8*(6*
A*a*b^5+15*B*a^2*b^4)*d*e^7+28*(A*b^6+6*B*a*b^5)*d^2*e^6+56*b^6*B
*d^3*e^5)*x^13+1/12*((20*A*a^3*b^3+15*B*a^4*b^2)*e^8+8*(15*A*a^2*
b^4+20*B*a^3*b^3)*d*e^7+28*(6*A*a*b^5+15*B*a^2*b^4)*d^2*e^6+56*(A
*b^6+6*B*a*b^5)*d^3*e^5+70*b^6*B*d^4*e^4)*x^12+1/11*((15*A*a^4*b^
2+6*B*a^5*b)*e^8+8*(20*A*a^3*b^3+15*B*a^4*b^2)*d*e^7+28*(15*A*a^2
*b^4+20*B*a^3*b^3)*d^2*e^6+56*(6*A*a*b^5+15*B*a^2*b^4)*d^3*e^5+70
*(A*b^6+6*B*a*b^5)*d^4*e^4+56*b^6*B*d^5*e^3)*x^11+1/10*((6*A*a^5*
b+B*a^6)*e^8+8*(15*A*a^4*b^2+6*B*a^5*b)*d*e^7+28*(20*A*a^3*b^3+15
*B*a^4*b^2)*d^2*e^6+56*(15*A*a^2*b^4+20*B*a^3*b^3)*d^3*e^5+70*(6*
A*a*b^5+15*B*a^2*b^4)*d^4*e^4+56*(A*b^6+6*B*a*b^5)*d^5*e^3+28*b^6
*B*d^6*e^2)*x^10+1/9*(a^6*A*e^8+8*(6*A*a^5*b+B*a^6)*d*e^7+28*(15*
A*a^4*b^2+6*B*a^5*b)*d^2*e^6+56*(20*A*a^3*b^3+15*B*a^4*b^2)*d^3*e
^5+70*(15*A*a^2*b^4+20*B*a^3*b^3)*d^4*e^4+56*(6*A*a*b^5+15*B*a^2*
b^4)*d^5*e^3+28*(A*b^6+6*B*a*b^5)*d^6*e^2+8*b^6*B*d^7*e)*x^9+1/8*
(8*a^6*A*d*e^7+28*(6*A*a^5*b+B*a^6)*d^2*e^6+56*(15*A*a^4*b^2+6*B*
a^5*b)*d^3*e^5+70*(20*A*a^3*b^3+15*B*a^4*b^2)*d^4*e^4+56*(15*A*a^
2*b^4+20*B*a^3*b^3)*d^5*e^3+28*(6*A*a*b^5+15*B*a^2*b^4)*d^6*e^2+8
*(A*b^6+6*B*a*b^5)*d^7*e+b^6*B*d^8)*x^8+1/7*(28*a^6*A*d^2*e^6+56*
(6*A*a^5*b+B*a^6)*d^3*e^5+70*(15*A*a^4*b^2+6*B*a^5*b)*d^4*e^4+56*
(20*A*a^3*b^3+15*B*a^4*b^2)*d^5*e^3+28*(15*A*a^2*b^4+20*B*a^3*b^3
)*d^6*e^2+8*(6*A*a*b^5+15*B*a^2*b^4)*d^7*e+(A*b^6+6*B*a*b^5)*d^8)
*x^7+1/6*(56*a^6*A*d^3*e^5+70*(6*A*a^5*b+B*a^6)*d^4*e^4+56*(15*A*
a^4*b^2+6*B*a^5*b)*d^5*e^3+28*(20*A*a^3*b^3+15*B*a^4*b^2)*d^6*e^2
+8*(15*A*a^2*b^4+20*B*a^3*b^3)*d^7*e+(6*A*a*b^5+15*B*a^2*b^4)*d^8
)*x^6+1/5*(70*a^6*A*d^4*e^4+56*(6*A*a^5*b+B*a^6)*d^5*e^3+28*(15*A
*a^4*b^2+6*B*a^5*b)*d^6*e^2+8*(20*A*a^3*b^3+15*B*a^4*b^2)*d^7*e+(
15*A*a^2*b^4+20*B*a^3*b^3)*d^8)*x^5+1/4*(56*a^6*A*d^5*e^3+28*(6*A
*a^5*b+B*a^6)*d^6*e^2+8*(15*A*a^4*b^2+6*B*a^5*b)*d^7*e+(20*A*a^3*
b^3+15*B*a^4*b^2)*d^8)*x^4+1/3*(28*a^6*A*d^6*e^2+8*(6*A*a^5*b+B*a
^6)*d^7*e+(15*A*a^4*b^2+6*B*a^5*b)*d^8)*x^3+1/2*(8*a^6*A*d^7*e+(6
*A*a^5*b+B*a^6)*d^8)*x^2+a^6*A*d^8*x
```

Maxima [A] time = 1.38791, size = 2068, normalized size = 7.08

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6*(e*x + d)^8,x, algorithm="maxima")
```

```
[Out] 1/16*B*b^6*e^8*x^16 + A*a^6*d^8*x + 1/15*(8*B*b^6*d*e^7 + (6*B*a*
b^5 + A*b^6)*e^8)*x^15 + 1/14*(28*B*b^6*d^2*e^6 + 8*(6*B*a*b^5 +
A*b^6)*d*e^7 + 3*(5*B*a^2*b^4 + 2*A*a*b^5)*e^8)*x^14 + 1/13*(56*B
*b^6*d^3*e^5 + 28*(6*B*a*b^5 + A*b^6)*d^2*e^6 + 24*(5*B*a^2*b^4 +
 2*A*a*b^5)*d*e^7 + 5*(4*B*a^3*b^3 + 3*A*a^2*b^4)*e^8)*x^13 + 1/1
2*(70*B*b^6*d^4*e^4 + 56*(6*B*a*b^5 + A*b^6)*d^3*e^5 + 84*(5*B*a^
2*b^4 + 2*A*a*b^5)*d^2*e^6 + 40*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d*e^7
 + 5*(3*B*a^4*b^2 + 4*A*a^3*b^3)*e^8)*x^12 + 1/11*(56*B*b^6*d^5*e
^3 + 70*(6*B*a*b^5 + A*b^6)*d^4*e^4 + 168*(5*B*a^2*b^4 + 2*A*a*b^
5)*d^3*e^5 + 140*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^2*e^6 + 40*(3*B*a^
4*b^2 + 4*A*a^3*b^3)*d*e^7 + 3*(2*B*a^5*b + 5*A*a^4*b^2)*e^8)*x^1
1 + 1/10*(28*B*b^6*d^6*e^2 + 56*(6*B*a*b^5 + A*b^6)*d^5*e^3 + 210
*(5*B*a^2*b^4 + 2*A*a*b^5)*d^4*e^4 + 280*(4*B*a^3*b^3 + 3*A*a^2*b
^4)*d^3*e^5 + 140*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d^2*e^6 + 24*(2*B*a
^5*b + 5*A*a^4*b^2)*d*e^7 + (B*a^6 + 6*A*a^5*b)*e^8)*x^10 + 1/9*(
8*B*b^6*d^7*e + A*a^6*e^8 + 28*(6*B*a*b^5 + A*b^6)*d^6*e^2 + 168*
(5*B*a^2*b^4 + 2*A*a*b^5)*d^5*e^3 + 350*(4*B*a^3*b^3 + 3*A*a^2*b^
4)*d^4*e^4 + 280*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d^3*e^5 + 84*(2*B*a^
5*b + 5*A*a^4*b^2)*d^2*e^6 + 8*(B*a^6 + 6*A*a^5*b)*d*e^7)*x^9 + 1
/8*(B*b^6*d^8 + 8*A*a^6*d*e^7 + 8*(6*B*a*b^5 + A*b^6)*d^7*e + 84*
(5*B*a^2*b^4 + 2*A*a*b^5)*d^6*e^2 + 280*(4*B*a^3*b^3 + 3*A*a^2*b^
4)*d^5*e^3 + 350*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d^4*e^4 + 168*(2*B*a
^5*b + 5*A*a^4*b^2)*d^3*e^5 + 28*(B*a^6 + 6*A*a^5*b)*d^2*e^6)*x^8
 + 1/7*(28*A*a^6*d^2*e^6 + (6*B*a*b^5 + A*b^6)*d^8 + 24*(5*B*a^2*
b^4 + 2*A*a*b^5)*d^7*e + 140*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^6*e^2
+ 280*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d^5*e^3 + 210*(2*B*a^5*b + 5*A*
a^4*b^2)*d^4*e^4 + 56*(B*a^6 + 6*A*a^5*b)*d^3*e^5)*x^7 + 1/6*(56*
A*a^6*d^3*e^5 + 3*(5*B*a^2*b^4 + 2*A*a*b^5)*d^8 + 40*(4*B*a^3*b^3
 + 3*A*a^2*b^4)*d^7*e + 140*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d^6*e^2 +
 168*(2*B*a^5*b + 5*A*a^4*b^2)*d^5*e^3 + 70*(B*a^6 + 6*A*a^5*b)*d
^4*e^4)*x^6 + 1/5*(70*A*a^6*d^4*e^4 + 5*(4*B*a^3*b^3 + 3*A*a^2*b^
4)*d^8 + 40*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d^7*e + 84*(2*B*a^5*b + 5
*A*a^4*b^2)*d^6*e^2 + 56*(B*a^6 + 6*A*a^5*b)*d^5*e^3)*x^5 + 1/4*(
56*A*a^6*d^5*e^3 + 5*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d^8 + 24*(2*B*a^
5*b + 5*A*a^4*b^2)*d^7*e + 28*(B*a^6 + 6*A*a^5*b)*d^6*e^2)*x^4 +
1/3*(28*A*a^6*d^6*e^2 + 3*(2*B*a^5*b + 5*A*a^4*b^2)*d^8 + 8*(B*a^
6 + 6*A*a^5*b)*d^7*e)*x^3 + 1/2*(8*A*a^6*d^7*e + (B*a^6 + 6*A*a^5
*b)*d^8)*x^2
```

Fricas [A] time = 0.208038, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6*(e*x + d)^8,x, algorithm="fricas")
```

```
[Out] 1/16*x^16*e^8*b^6*B + 8/15*x^15*e^7*d*b^6*B + 2/5*x^15*e^8*b^5*a*
B + 1/15*x^15*e^8*b^6*A + 2*x^14*e^6*d^2*b^6*B + 24/7*x^14*e^7*d*
b^5*a*B + 15/14*x^14*e^8*b^4*a^2*B + 4/7*x^14*e^7*d*b^6*A + 3/7*x
^14*e^8*b^5*a*A + 56/13*x^13*e^5*d^3*b^6*B + 168/13*x^13*e^6*d^2*
b^5*a*B + 120/13*x^13*e^7*d*b^4*a^2*B + 20/13*x^13*e^8*b^3*a^3*B
+ 28/13*x^13*e^6*d^2*b^6*A + 48/13*x^13*e^7*d*b^5*a*A + 15/13*x^1
3*e^8*b^4*a^2*A + 35/6*x^12*e^4*d^4*b^6*B + 28*x^12*e^5*d^3*b^5*a
*B + 35*x^12*e^6*d^2*b^4*a^2*B + 40/3*x^12*e^7*d*b^3*a^3*B + 5/4*
x^12*e^8*b^2*a^4*B + 14/3*x^12*e^5*d^3*b^6*A + 14*x^12*e^6*d^2*b^
5*a*A + 10*x^12*e^7*d*b^4*a^2*A + 5/3*x^12*e^8*b^3*a^3*A + 56/11*
x^11*e^3*d^5*b^6*B + 420/11*x^11*e^4*d^4*b^5*a*B + 840/11*x^11*e^
5*d^3*b^4*a^2*B + 560/11*x^11*e^6*d^2*b^3*a^3*B + 120/11*x^11*e^7
*d*b^2*a^4*B + 6/11*x^11*e^8*b*a^5*B + 70/11*x^11*e^4*d^4*b^6*A +
 336/11*x^11*e^5*d^3*b^5*a*A + 420/11*x^11*e^6*d^2*b^4*a^2*A + 16
0/11*x^11*e^7*d*b^3*a^3*A + 15/11*x^11*e^8*b^2*a^4*A + 14/5*x^10*
e^2*d^6*b^6*B + 168/5*x^10*e^3*d^5*b^5*a*B + 105*x^10*e^4*d^4*b^4
*a^2*B + 112*x^10*e^5*d^3*b^3*a^3*B + 42*x^10*e^6*d^2*b^2*a^4*B +
 24/5*x^10*e^7*d*b*a^5*B + 1/10*x^10*e^8*a^6*B + 28/5*x^10*e^3*d^
5*b^6*A + 42*x^10*e^4*d^4*b^5*a*A + 84*x^10*e^5*d^3*b^4*a^2*A + 5
6*x^10*e^6*d^2*b^3*a^3*A + 12*x^10*e^7*d*b^2*a^4*A + 3/5*x^10*e^8
*b*a^5*A + 8/9*x^9*e*d^7*b^6*B + 56/3*x^9*e^2*d^6*b^5*a*B + 280/3
*x^9*e^3*d^5*b^4*a^2*B + 1400/9*x^9*e^4*d^4*b^3*a^3*B + 280/3*x^9
*e^5*d^3*b^2*a^4*B + 56/3*x^9*e^6*d^2*b*a^5*B + 8/9*x^9*e^7*d*a^6
```

```
*B + 28/9*x^9*e^2*d^6*b^6*A + 112/3*x^9*e^3*d^5*b^5*a*A + 350/3*x
^9*e^4*d^4*b^4*a^2*A + 1120/9*x^9*e^5*d^3*b^3*a^3*A + 140/3*x^9*e
^6*d^2*b^2*a^4*A + 16/3*x^9*e^7*d*b*a^5*A + 1/9*x^9*e^8*a^6*A + 1
/8*x^8*d^8*b^6*B + 6*x^8*e*d^7*b^5*a*B + 105/2*x^8*e^2*d^6*b^4*a^
2*B + 140*x^8*e^3*d^5*b^3*a^3*B + 525/4*x^8*e^4*d^4*b^2*a^4*B + 4
2*x^8*e^5*d^3*b*a^5*B + 7/2*x^8*e^6*d^2*a^6*B + x^8*e*d^7*b^6*A +
 21*x^8*e^2*d^6*b^5*a*A + 105*x^8*e^3*d^5*b^4*a^2*A + 175*x^8*e^4
*d^4*b^3*a^3*A + 105*x^8*e^5*d^3*b^2*a^4*A + 21*x^8*e^6*d^2*b*a^5
*A + x^8*e^7*d*a^6*A + 6/7*x^7*d^8*b^5*a*B + 120/7*x^7*e*d^7*b^4*
a^2*B + 80*x^7*e^2*d^6*b^3*a^3*B + 120*x^7*e^3*d^5*b^2*a^4*B + 60
*x^7*e^4*d^4*b*a^5*B + 8*x^7*e^5*d^3*a^6*B + 1/7*x^7*d^8*b^6*A +
48/7*x^7*e*d^7*b^5*a*A + 60*x^7*e^2*d^6*b^4*a^2*A + 160*x^7*e^3*d
^5*b^3*a^3*A + 150*x^7*e^4*d^4*b^2*a^4*A + 48*x^7*e^5*d^3*b*a^5*A
 + 4*x^7*e^6*d^2*a^6*A + 5/2*x^6*d^8*b^4*a^2*B + 80/3*x^6*e*d^7*b
^3*a^3*B + 70*x^6*e^2*d^6*b^2*a^4*B + 56*x^6*e^3*d^5*b*a^5*B + 35
/3*x^6*e^4*d^4*a^6*B + x^6*d^8*b^5*a*A + 20*x^6*e*d^7*b^4*a^2*A +
 280/3*x^6*e^2*d^6*b^3*a^3*A + 140*x^6*e^3*d^5*b^2*a^4*A + 70*x^6
*e^4*d^4*b*a^5*A + 28/3*x^6*e^5*d^3*a^6*A + 4*x^5*d^8*b^3*a^3*B +
 24*x^5*e*d^7*b^2*a^4*B + 168/5*x^5*e^2*d^6*b*a^5*B + 56/5*x^5*e^
3*d^5*a^6*B + 3*x^5*d^8*b^4*a^2*A + 32*x^5*e*d^7*b^3*a^3*A + 84*x
^5*e^2*d^6*b^2*a^4*A + 336/5*x^5*e^3*d^5*b*a^5*A + 14*x^5*e^4*d^4
*a^6*A + 15/4*x^4*d^8*b^2*a^4*B + 12*x^4*e*d^7*b*a^5*B + 7*x^4*e^
2*d^6*a^6*B + 5*x^4*d^8*b^3*a^3*A + 30*x^4*e*d^7*b^2*a^4*A + 42*x
^4*e^2*d^6*b*a^5*A + 14*x^4*e^3*d^5*a^6*A + 2*x^3*d^8*b*a^5*B + 8
/3*x^3*e*d^7*a^6*B + 5*x^3*d^8*b^2*a^4*A + 16*x^3*e*d^7*b*a^5*A +
 28/3*x^3*e^2*d^6*a^6*A + 1/2*x^2*d^8*a^6*B + 3*x^2*d^8*b*a^5*A +
 4*x^2*e*d^7*a^6*A + x*d^8*a^6*A
```

Sympy [A] time = 0.837158, size = 1969, normalized size = 6.74

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**6*(B*x+A)*(e*x+d)**8,x)
```

```
[Out] A*a**6*d**8*x + B*b**6*e**8*x**16/16 + x**15*(A*b**6*e**8/15 + 2*
B*a*b**5*e**8/5 + 8*B*b**6*d*e**7/15) + x**14*(3*A*a*b**5*e**8/7
+ 4*A*b**6*d*e**7/7 + 15*B*a**2*b**4*e**8/14 + 24*B*a*b**5*d*e**7
/7 + 2*B*b**6*d**2*e**6) + x**13*(15*A*a**2*b**4*e**8/13 + 48*A*a
*b**5*d*e**7/13 + 28*A*b**6*d**2*e**6/13 + 20*B*a**3*b**3*e**8/13
 + 120*B*a**2*b**4*d*e**7/13 + 168*B*a*b**5*d**2*e**6/13 + 56*B*b
**6*d**3*e**5/13) + x**12*(5*A*a**3*b**3*e**8/3 + 10*A*a**2*b**4*
d*e**7 + 14*A*a*b**5*d**2*e**6 + 14*A*b**6*d**3*e**5/3 + 5*B*a**4
*b**2*e**8/4 + 40*B*a**3*b**3*d*e**7/3 + 35*B*a**2*b**4*d**2*e**6
 + 28*B*a*b**5*d**3*e**5 + 35*B*b**6*d**4*e**4/6) + x**11*(15*A*a
**4*b**2*e**8/11 + 160*A*a**3*b**3*d*e**7/11 + 420*A*a**2*b**4*d*
*2*e**6/11 + 336*A*a*b**5*d**3*e**5/11 + 70*A*b**6*d**4*e**4/11 +
 6*B*a**5*b*e**8/11 + 120*B*a**4*b**2*d*e**7/11 + 560*B*a**3*b**3
*d**2*e**6/11 + 840*B*a**2*b**4*d**3*e**5/11 + 420*B*a*b**5*d**4*
e**4/11 + 56*B*b**6*d**5*e**3/11) + x**10*(3*A*a**5*b*e**8/5 + 12
*A*a**4*b**2*d*e**7 + 56*A*a**3*b**3*d**2*e**6 + 84*A*a**2*b**4*d
**3*e**5 + 42*A*a*b**5*d**4*e**4 + 28*A*b**6*d**5*e**3/5 + B*a**6
*e**8/10 + 24*B*a**5*b*d*e**7/5 + 42*B*a**4*b**2*d**2*e**6 + 112*
B*a**3*b**3*d**3*e**5 + 105*B*a**2*b**4*d**4*e**4 + 168*B*a*b**5*
d**5*e**3/5 + 14*B*b**6*d**6*e**2/5) + x**9*(A*a**6*e**8/9 + 16*A
*a**5*b*d*e**7/3 + 140*A*a**4*b**2*d**2*e**6/3 + 1120*A*a**3*b**3
*d**3*e**5/9 + 350*A*a**2*b**4*d**4*e**4/3 + 112*A*a*b**5*d**5*e*
*3/3 + 28*A*b**6*d**6*e**2/9 + 8*B*a**6*d*e**7/9 + 56*B*a**5*b*d*
*2*e**6/3 + 280*B*a**4*b**2*d**3*e**5/3 + 1400*B*a**3*b**3*d**4*e
**4/9 + 280*B*a**2*b**4*d**5*e**3/3 + 56*B*a*b**5*d**6*e**2/3 + 8
*B*b**6*d**7*e/9) + x**8*(A*a**6*d*e**7 + 21*A*a**5*b*d**2*e**6 +
 105*A*a**4*b**2*d**3*e**5 + 175*A*a**3*b**3*d**4*e**4 + 105*A*a*
*2*b**4*d**5*e**3 + 21*A*a*b**5*d**6*e**2 + A*b**6*d**7*e + 7*B*a
**6*d**2*e**6/2 + 42*B*a**5*b*d**3*e**5 + 525*B*a**4*b**2*d**4*e*
*4/4 + 140*B*a**3*b**3*d**5*e**3 + 105*B*a**2*b**4*d**6*e**2/2 +
6*B*a*b**5*d**7*e + B*b**6*d**8/8) + x**7*(4*A*a**6*d**2*e**6 + 4
8*A*a**5*b*d**3*e**5 + 150*A*a**4*b**2*d**4*e**4 + 160*A*a**3*b**
3*d**5*e**3 + 60*A*a**2*b**4*d**6*e**2 + 48*A*a*b**5*d**7*e/7 + A
*b**6*d**8/7 + 8*B*a**6*d**3*e**5 + 60*B*a**5*b*d**4*e**4 + 120*B
```

```
*a**4*b**2*d**5*e**3 + 80*B*a**3*b**3*d**6*e**2 + 120*B*a**2*b**4
*d**7*e/7 + 6*B*a*b**5*d**8/7) + x**6*(28*A*a**6*d**3*e**5/3 + 70
*A*a**5*b*d**4*e**4 + 140*A*a**4*b**2*d**5*e**3 + 280*A*a**3*b**3
*d**6*e**2/3 + 20*A*a**2*b**4*d**7*e + A*a*b**5*d**8 + 35*B*a**6*
d**4*e**4/3 + 56*B*a**5*b*d**5*e**3 + 70*B*a**4*b**2*d**6*e**2 +
80*B*a**3*b**3*d**7*e/3 + 5*B*a**2*b**4*d**8/2) + x**5*(14*A*a**6
*d**4*e**4 + 336*A*a**5*b*d**5*e**3/5 + 84*A*a**4*b**2*d**6*e**2
+ 32*A*a**3*b**3*d**7*e + 3*A*a**2*b**4*d**8 + 56*B*a**6*d**5*e**
3/5 + 168*B*a**5*b*d**6*e**2/5 + 24*B*a**4*b**2*d**7*e + 4*B*a**3
*b**3*d**8) + x**4*(14*A*a**6*d**5*e**3 + 42*A*a**5*b*d**6*e**2 +
 30*A*a**4*b**2*d**7*e + 5*A*a**3*b**3*d**8 + 7*B*a**6*d**6*e**2
+ 12*B*a**5*b*d**7*e + 15*B*a**4*b**2*d**8/4) + x**3*(28*A*a**6*d
**6*e**2/3 + 16*A*a**5*b*d**7*e + 5*A*a**4*b**2*d**8 + 8*B*a**6*d
**7*e/3 + 2*B*a**5*b*d**8) + x**2*(4*A*a**6*d**7*e + 3*A*a**5*b*d
**8 + B*a**6*d**8/2)
```

GIAC/XCAS [A] time = 0.213142, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6*(e*x + d)^8,x, algorithm="giac")
```

```
[Out] Done
```

3.1035 $\int (a+bx)^6(A+Bx)(d+ex)^7\,dx$

Optimal. Leaf size=292

$$-\frac{b^5(d+ex)^{14}(-6aBe-Abe+7bBd)}{14e^8}+\frac{3b^4(d+ex)^{13}(bd-ae)(-5aBe-2Abe+7bBd)}{13e^8}-\frac{5b^3(d+ex)^{12}(bd-ae)^2(-4aBe-3Abe+7bBd)}{12e^8}+\frac{5b^2(d+ex)^{11}(bd-ae)^3(-3aBe-4Abe+7bBd)}{11e^8}-\frac{3b(d+ex)^{10}(bd-ae)^4(-2aBe-5Abe+7bBd)}{10e^8}+\frac{(d+ex)^9(bd-ae)^5(-aBe-6Abe+7bBd)}{9e^8}-\frac{(d+ex)^8(bd-ae)^6(Bd-Ae)}{8e^8}+\frac{b^6B(d+ex)^{15}}{15e^8}$$

```
[Out] -((b*d - a*e)^6*(B*d - A*e)*(d + e*x)^8)/(8*e^8) + ((b*d - a*e)^5
*(7*b*B*d - 6*A*b*e - a*B*e)*(d + e*x)^9)/(9*e^8) - (3*b*(b*d - a
*e)^4*(7*b*B*d - 5*A*b*e - 2*a*B*e)*(d + e*x)^10)/(10*e^8) + (5*b
^2*(b*d - a*e)^3*(7*b*B*d - 4*A*b*e - 3*a*B*e)*(d + e*x)^11)/(11*
e^8) - (5*b^3*(b*d - a*e)^2*(7*b*B*d - 3*A*b*e - 4*a*B*e)*(d + e*
x)^12)/(12*e^8) + (3*b^4*(b*d - a*e)*(7*b*B*d - 2*A*b*e - 5*a*B*e
)*(d + e*x)^13)/(13*e^8) - (b^5*(7*b*B*d - A*b*e - 6*a*B*e)*(d +
e*x)^14)/(14*e^8) + (b^6*B*(d + e*x)^15)/(15*e^8)
```

Rubi [A] time = 3.80977, antiderivative size = 292, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{b^5(d+ex)^{14}(-6aBe-Abe+7bBd)}{14e^8}+\frac{3b^4(d+ex)^{13}(bd-ae)(-5aBe-2Abe+7bBd)}{13e^8}-\frac{5b^3(d+ex)^{12}(bd-ae)^2(-4aBe-3Abe+7bBd)}{12e^8}+\frac{5b^2(d+ex)^{11}(bd-ae)^3(-3aBe-4Abe+7bBd)}{11e^8}-\frac{3b(d+ex)^{10}(bd-ae)^4(-2aBe-5Abe+7bBd)}{10e^8}+\frac{(d+ex)^9(bd-ae)^5(-aBe-6Abe+7bBd)}{9e^8}-\frac{(d+ex)^8(bd-ae)^6(Bd-Ae)}{8e^8}+\frac{b^6B(d+ex)^{15}}{15e^8}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^6*(A + B*x)*(d + e*x)^7,x]
```


```
[Out] -((b*d - a*e)^6*(B*d - A*e)*(d + e*x)^8)/(8*e^8) + ((b*d - a*e)^5
*(7*b*B*d - 6*A*b*e - a*B*e)*(d + e*x)^9)/(9*e^8) - (3*b*(b*d - a
*e)^4*(7*b*B*d - 5*A*b*e - 2*a*B*e)*(d + e*x)^10)/(10*e^8) + (5*b
^2*(b*d - a*e)^3*(7*b*B*d - 4*A*b*e - 3*a*B*e)*(d + e*x)^11)/(11*
e^8) - (5*b^3*(b*d - a*e)^2*(7*b*B*d - 3*A*b*e - 4*a*B*e)*(d + e*
x)^12)/(12*e^8) + (3*b^4*(b*d - a*e)*(7*b*B*d - 2*A*b*e - 5*a*B*e
)*(d + e*x)^13)/(13*e^8) - (b^5*(7*b*B*d - A*b*e - 6*a*B*e)*(d +
e*x)^14)/(14*e^8) + (b^6*B*(d + e*x)^15)/(15*e^8)
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**6*(B*x+A)*(e*x+d)**7,x)
```

```
[Out] Timed out
```

Mathematica [B] time = 0.951084, size = 1224, normalized size = 4.19

$$\frac{1}{15}b^6Be^7x^{15}+\frac{1}{14}b^5e^6(7bBd+Abe+6aBe)x^{14}+\frac{1}{13}b^4e^5\left(7d(3Bd+Ae)b^2+6ae(7Bd+Ae)b+15a^2Be^2\right)x^{13}+\frac{1}{12}b^3e^4\left(7d^2(5Bd+3Ae)b^3+42ade(3Bd+Ae)b^2+15a^2e^2(7Bd+Ae)b+20a^3Be^3\right)x^{12}+\frac{1}{11}b^2e^3\left(35d^3(Bd+Ae)b^4+42ad^2e(5Bd+3Ae)b^3+105a^2de^2(3Bd+Ae)b^2+20a^3e^3(7Bd+Ae)b+15a^4Be^4\right)x^{11}+\frac{1}{10}be^2\left(7d^4(3Bd+5Ae)b^5+210ad^3e(Bd+Ae)b^4+105a^2d^2e^2(5Bd+3Ae)b^3+140a^3de^3(3Bd+Ae)b^2+15a^4e^4(7Bd+Ae)b+6a^5Be^5\right)x^{10}+\frac{1}{9}e\left(7d^5(Bd+3Ae)b^6+42ad^4e(3Bd+5Ae)b^5+525a^2d^3e^2(Bd+Ae)b^4+140a^3d^2e^3(5Bd+3Ae)b^3+105a^4de^4(3Bd+Ae)b^2+6a^5e^5(7Bd+Ae)b+a^6Be^6\right)x^9+\frac{1}{8}\left(b^6(Bd+7Ae)d^6+42ab^5e(Bd+3Ae)d^5+105a^2b^4e^2(3Bd+5Ae)d^4+700a^3b^3e^3(Bd+Ae)d^3+105a^4b^2e^4(5Bd+3Ae)d^2+42a^5be^5(3Bd+Ae)d+a^6e^6(7Bd+Ae)\right)x^8+\frac{1}{7}d\left(3aBd\left(2b^5d^5+35ab^4ed^4+140a^2b^3e^2d^3+175a^3b^2e^3d^2+70a^4be^4d+7a^5e^5\right)+A\left(b^6d^6+42ab^5ed^5+315a^2b^4e^2d^4+700a^3b^3e^3d^3+525a^4b^2e^4d^2+126a^5be^5d+7a^6e^6\right)\right)x^7+\frac{1}{6}ad^2\left(5aBd\left(3b^4d^4+28ab^3ed^3+63a^2b^2e^2d^2+42a^3be^3d+7a^4e^4\right)+3A\left(2b^5d^5+35ab^4ed^4+140a^2b^3e^2d^3+175a^3b^2e^3d^2+70a^4be^4d+7a^5e^5\right)\right)x^6+\frac{1}{5}a^2d^3\left(aBd\left(20b^3d^3+105ab^2ed^2+126a^2be^2d+35a^3e^3\right)+5A\left(3b^4d^4+28ab^3ed^3+63a^2b^2e^2d^2+42a^3be^3d+7a^4e^4\right)\right)x^5+\frac{1}{4}a^3d^4\left(3aBd\left(5b^2d^2+14abed+7a^2e^2\right)+A\left(20b^3d^3+105ab^2ed^2+126a^2be^2d+35a^3e^3\right)\right)x^4+\frac{1}{3}a^4d^5\left(aBd(6bd+7ae)+3A\left(5b^2d^2+14abed+7a^2e^2\right)\right)x^3+\frac{1}{2}a^5d^6(6Abd+aBd+7aAe)x^2+a^6Ad^7x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^6*(A + B*x)*(d + e*x)^7,x]
```

```
[Out] a^6*A*d^7*x + (a^5*d^6*(6*A*b*d + a*B*d + 7*a*A*e)*x^2)/2 + (a^4*
d^5*(a*B*d*(6*b*d + 7*a*e) + 3*A*(5*b^2*d^2 + 14*a*b*d*e + 7*a^2*
e^2))*x^3)/3 + (a^3*d^4*(3*a*B*d*(5*b^2*d^2 + 14*a*b*d*e + 7*a^2*
e^2) + A*(20*b^3*d^3 + 105*a*b^2*d^2*e + 126*a^2*b*d*e^2 + 35*a^3
*e^3))*x^4)/4 + (a^2*d^3*(a*B*d*(20*b^3*d^3 + 105*a*b^2*d^2*e + 1
26*a^2*b*d*e^2 + 35*a^3*e^3) + 5*A*(3*b^4*d^4 + 28*a*b^3*d^3*e +
63*a^2*b^2*d^2*e^2 + 42*a^3*b*d*e^3 + 7*a^4*e^4))*x^5)/5 + (a*d^2
*(5*a*B*d*(3*b^4*d^4 + 28*a*b^3*d^3*e + 63*a^2*b^2*d^2*e^2 + 42*a
^3*b*d*e^3 + 7*a^4*e^4) + 3*A*(2*b^5*d^5 + 35*a*b^4*d^4*e + 140*a
^2*b^3*d^3*e^2 + 175*a^3*b^2*d^2*e^3 + 70*a^4*b*d*e^4 + 7*a^5*e^5
))*x^6)/6 + (d*(3*a*B*d*(2*b^5*d^5 + 35*a*b^4*d^4*e + 140*a^2*b^3
*d^3*e^2 + 175*a^3*b^2*d^2*e^3 + 70*a^4*b*d*e^4 + 7*a^5*e^5) + A*
(b^6*d^6 + 42*a*b^5*d^5*e + 315*a^2*b^4*d^4*e^2 + 700*a^3*b^3*d^3
*e^3 + 525*a^4*b^2*d^2*e^4 + 126*a^5*b*d*e^5 + 7*a^6*e^6))*x^7)/7
 + ((700*a^3*b^3*d^3*e^3*(B*d + A*e) + 42*a^5*b*d*e^5*(3*B*d + A*
e) + a^6*e^6*(7*B*d + A*e) + 42*a*b^5*d^5*e*(B*d + 3*A*e) + 105*a
^4*b^2*d^2*e^4*(5*B*d + 3*A*e) + 105*a^2*b^4*d^4*e^2*(3*B*d + 5*A
*e) + b^6*d^6*(B*d + 7*A*e))*x^8)/8 + (e*(a^6*B*e^6 + 525*a^2*b^4
*d^3*e^2*(B*d + A*e) + 105*a^4*b^2*d*e^4*(3*B*d + A*e) + 6*a^5*b*
e^5*(7*B*d + A*e) + 7*b^6*d^5*(B*d + 3*A*e) + 140*a^3*b^3*d^2*e^3
*(5*B*d + 3*A*e) + 42*a*b^5*d^4*e*(3*B*d + 5*A*e))*x^9)/9 + (b*e^
2*(6*a^5*B*e^5 + 210*a*b^4*d^3*e*(B*d + A*e) + 140*a^3*b^2*d*e^3*
(3*B*d + A*e) + 15*a^4*b*e^4*(7*B*d + A*e) + 105*a^2*b^3*d^2*e^2*
(5*B*d + 3*A*e) + 7*b^5*d^4*(3*B*d + 5*A*e))*x^10)/10 + (b^2*e^3*
(15*a^4*B*e^4 + 35*b^4*d^3*(B*d + A*e) + 105*a^2*b^2*d*e^2*(3*B*d
```

```
 + A*e) + 20*a^3*b*e^3*(7*B*d + A*e) + 42*a*b^3*d^2*e*(5*B*d + 3*
A*e))*x^11)/11 + (b^3*e^4*(20*a^3*B*e^3 + 42*a*b^2*d*e*(3*B*d + A
*e) + 15*a^2*b*e^2*(7*B*d + A*e) + 7*b^3*d^2*(5*B*d + 3*A*e))*x^1
2)/12 + (b^4*e^5*(15*a^2*B*e^2 + 7*b^2*d*(3*B*d + A*e) + 6*a*b*e*
(7*B*d + A*e))*x^13)/13 + (b^5*e^6*(7*b*B*d + A*b*e + 6*a*B*e)*x^
14)/14 + (b^6*B*e^7*x^15)/15
```

Maple [B] time = 0.004, size = 1349, normalized size = 4.6

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^6*(B*x+A)*(e*x+d)^7,x)
```

```
[Out] 1/15*b^6*B*e^7*x^15+1/14*((A*b^6+6*B*a*b^5)*e^7+7*b^6*B*d*e^6)*x^
14+1/13*((6*A*a*b^5+15*B*a^2*b^4)*e^7+7*(A*b^6+6*B*a*b^5)*d*e^6+2
1*b^6*B*d^2*e^5)*x^13+1/12*((15*A*a^2*b^4+20*B*a^3*b^3)*e^7+7*(6*
A*a*b^5+15*B*a^2*b^4)*d*e^6+21*(A*b^6+6*B*a*b^5)*d^2*e^5+35*b^6*B
*d^3*e^4)*x^12+1/11*((20*A*a^3*b^3+15*B*a^4*b^2)*e^7+7*(15*A*a^2*
b^4+20*B*a^3*b^3)*d*e^6+21*(6*A*a*b^5+15*B*a^2*b^4)*d^2*e^5+35*(A
*b^6+6*B*a*b^5)*d^3*e^4+35*b^6*B*d^4*e^3)*x^11+1/10*((15*A*a^4*b^
2+6*B*a^5*b)*e^7+7*(20*A*a^3*b^3+15*B*a^4*b^2)*d*e^6+21*(15*A*a^2
*b^4+20*B*a^3*b^3)*d^2*e^5+35*(6*A*a*b^5+15*B*a^2*b^4)*d^3*e^4+35
*(A*b^6+6*B*a*b^5)*d^4*e^3+21*b^6*B*d^5*e^2)*x^10+1/9*((6*A*a^5*b
+B*a^6)*e^7+7*(15*A*a^4*b^2+6*B*a^5*b)*d*e^6+21*(20*A*a^3*b^3+15*
B*a^4*b^2)*d^2*e^5+35*(15*A*a^2*b^4+20*B*a^3*b^3)*d^3*e^4+35*(6*A
*a*b^5+15*B*a^2*b^4)*d^4*e^3+21*(A*b^6+6*B*a*b^5)*d^5*e^2+7*b^6*B
*d^6*e)*x^9+1/8*(a^6*A*e^7+7*(6*A*a^5*b+B*a^6)*d*e^6+21*(15*A*a^4
*b^2+6*B*a^5*b)*d^2*e^5+35*(20*A*a^3*b^3+15*B*a^4*b^2)*d^3*e^4+35
*(15*A*a^2*b^4+20*B*a^3*b^3)*d^4*e^3+21*(6*A*a*b^5+15*B*a^2*b^4)*
d^5*e^2+7*(A*b^6+6*B*a*b^5)*d^6*e+b^6*B*d^7)*x^8+1/7*(7*a^6*A*d*e
^6+21*(6*A*a^5*b+B*a^6)*d^2*e^5+35*(15*A*a^4*b^2+6*B*a^5*b)*d^3*e
^4+35*(20*A*a^3*b^3+15*B*a^4*b^2)*d^4*e^3+21*(15*A*a^2*b^4+20*B*a
^3*b^3)*d^5*e^2+7*(6*A*a*b^5+15*B*a^2*b^4)*d^6*e+(A*b^6+6*B*a*b^5
)*d^7)*x^7+1/6*(21*a^6*A*d^2*e^5+35*(6*A*a^5*b+B*a^6)*d^3*e^4+35*
(15*A*a^4*b^2+6*B*a^5*b)*d^4*e^3+21*(20*A*a^3*b^3+15*B*a^4*b^2)*d
^5*e^2+7*(15*A*a^2*b^4+20*B*a^3*b^3)*d^6*e+(6*A*a*b^5+15*B*a^2*b^
4)*d^7)*x^6+1/5*(35*a^6*A*d^3*e^4+35*(6*A*a^5*b+B*a^6)*d^4*e^3+21
*(15*A*a^4*b^2+6*B*a^5*b)*d^5*e^2+7*(20*A*a^3*b^3+15*B*a^4*b^2)*d
^6*e+(15*A*a^2*b^4+20*B*a^3*b^3)*d^7)*x^5+1/4*(35*a^6*A*d^4*e^3+2
1*(6*A*a^5*b+B*a^6)*d^5*e^2+7*(15*A*a^4*b^2+6*B*a^5*b)*d^6*e+(20*
A*a^3*b^3+15*B*a^4*b^2)*d^7)*x^4+1/3*(21*a^6*A*d^5*e^2+7*(6*A*a^5
*b+B*a^6)*d^6*e+(15*A*a^4*b^2+6*B*a^5*b)*d^7)*x^3+1/2*(7*a^6*A*d^
6*e+(6*A*a^5*b+B*a^6)*d^7)*x^2+a^6*A*d^7*x
```

Maxima [A] time = 1.39572, size = 1831, normalized size = 6.27

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6*(e*x + d)^7,x, algorithm="maxima")
```

```
[Out] 1/15*B*b^6*e^7*x^15 + A*a^6*d^7*x + 1/14*(7*B*b^6*d*e^6 + (6*B*a*
b^5 + A*b^6)*e^7)*x^14 + 1/13*(21*B*b^6*d^2*e^5 + 7*(6*B*a*b^5 +
A*b^6)*d*e^6 + 3*(5*B*a^2*b^4 + 2*A*a*b^5)*e^7)*x^13 + 1/12*(35*B
*b^6*d^3*e^4 + 21*(6*B*a*b^5 + A*b^6)*d^2*e^5 + 21*(5*B*a^2*b^4 +
 2*A*a*b^5)*d*e^6 + 5*(4*B*a^3*b^3 + 3*A*a^2*b^4)*e^7)*x^12 + 1/1
1*(35*B*b^6*d^4*e^3 + 35*(6*B*a*b^5 + A*b^6)*d^3*e^4 + 63*(5*B*a^
2*b^4 + 2*A*a*b^5)*d^2*e^5 + 35*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d*e^6
 + 5*(3*B*a^4*b^2 + 4*A*a^3*b^3)*e^7)*x^11 + 1/10*(21*B*b^6*d^5*e
^2 + 35*(6*B*a*b^5 + A*b^6)*d^4*e^3 + 105*(5*B*a^2*b^4 + 2*A*a*b^
5)*d^3*e^4 + 105*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^2*e^5 + 35*(3*B*a^
4*b^2 + 4*A*a^3*b^3)*d*e^6 + 3*(2*B*a^5*b + 5*A*a^4*b^2)*e^7)*x^1
```

```
0 + 1/9*(7*B*b^6*d^6*e + 21*(6*B*a*b^5 + A*b^6)*d^5*e^2 + 105*(5*
B*a^2*b^4 + 2*A*a*b^5)*d^4*e^3 + 175*(4*B*a^3*b^3 + 3*A*a^2*b^4)*
d^3*e^4 + 105*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d^2*e^5 + 21*(2*B*a^5*b
 + 5*A*a^4*b^2)*d*e^6 + (B*a^6 + 6*A*a^5*b)*e^7)*x^9 + 1/8*(B*b^6
*d^7 + A*a^6*e^7 + 7*(6*B*a*b^5 + A*b^6)*d^6*e + 63*(5*B*a^2*b^4
+ 2*A*a*b^5)*d^5*e^2 + 175*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^4*e^3 +
175*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d^3*e^4 + 63*(2*B*a^5*b + 5*A*a^4
*b^2)*d^2*e^5 + 7*(B*a^6 + 6*A*a^5*b)*d*e^6)*x^8 + 1/7*(7*A*a^6*d
*e^6 + (6*B*a*b^5 + A*b^6)*d^7 + 21*(5*B*a^2*b^4 + 2*A*a*b^5)*d^6
*e + 105*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^5*e^2 + 175*(3*B*a^4*b^2 +
 4*A*a^3*b^3)*d^4*e^3 + 105*(2*B*a^5*b + 5*A*a^4*b^2)*d^3*e^4 + 2
1*(B*a^6 + 6*A*a^5*b)*d^2*e^5)*x^7 + 1/6*(21*A*a^6*d^2*e^5 + 3*(5
*B*a^2*b^4 + 2*A*a*b^5)*d^7 + 35*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^6*
e + 105*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d^5*e^2 + 105*(2*B*a^5*b + 5*
A*a^4*b^2)*d^4*e^3 + 35*(B*a^6 + 6*A*a^5*b)*d^3*e^4)*x^6 + 1/5*(3
5*A*a^6*d^3*e^4 + 5*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^7 + 35*(3*B*a^4
*b^2 + 4*A*a^3*b^3)*d^6*e + 63*(2*B*a^5*b + 5*A*a^4*b^2)*d^5*e^2
+ 35*(B*a^6 + 6*A*a^5*b)*d^4*e^3)*x^5 + 1/4*(35*A*a^6*d^4*e^3 + 5
*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d^7 + 21*(2*B*a^5*b + 5*A*a^4*b^2)*d
^6*e + 21*(B*a^6 + 6*A*a^5*b)*d^5*e^2)*x^4 + 1/3*(21*A*a^6*d^5*e^
2 + 3*(2*B*a^5*b + 5*A*a^4*b^2)*d^7 + 7*(B*a^6 + 6*A*a^5*b)*d^6*e
)*x^3 + 1/2*(7*A*a^6*d^6*e + (B*a^6 + 6*A*a^5*b)*d^7)*x^2
```

Fricas [A] time = 0.191088, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6*(e*x + d)^7,x, algorithm="fricas")
```

```
[Out] 1/15*x^15*e^7*b^6*B + 1/2*x^14*e^6*d*b^6*B + 3/7*x^14*e^7*b^5*a*B
 + 1/14*x^14*e^7*b^6*A + 21/13*x^13*e^5*d^2*b^6*B + 42/13*x^13*e^
6*d*b^5*a*B + 15/13*x^13*e^7*b^4*a^2*B + 7/13*x^13*e^6*d*b^6*A +
6/13*x^13*e^7*b^5*a*A + 35/12*x^12*e^4*d^3*b^6*B + 21/2*x^12*e^5*
d^2*b^5*a*B + 35/4*x^12*e^6*d*b^4*a^2*B + 5/3*x^12*e^7*b^3*a^3*B
+ 7/4*x^12*e^5*d^2*b^6*A + 7/2*x^12*e^6*d*b^5*a*A + 5/4*x^12*e^7*
b^4*a^2*A + 35/11*x^11*e^3*d^4*b^6*B + 210/11*x^11*e^4*d^3*b^5*a*
B + 315/11*x^11*e^5*d^2*b^4*a^2*B + 140/11*x^11*e^6*d*b^3*a^3*B +
 15/11*x^11*e^7*b^2*a^4*B + 35/11*x^11*e^4*d^3*b^6*A + 126/11*x^1
1*e^5*d^2*b^5*a*A + 105/11*x^11*e^6*d*b^4*a^2*A + 20/11*x^11*e^7*
b^3*a^3*A + 21/10*x^10*e^2*d^5*b^6*B + 21*x^10*e^3*d^4*b^5*a*B +
105/2*x^10*e^4*d^3*b^4*a^2*B + 42*x^10*e^5*d^2*b^3*a^3*B + 21/2*x
^10*e^6*d*b^2*a^4*B + 3/5*x^10*e^7*b*a^5*B + 7/2*x^10*e^3*d^4*b^6
*A + 21*x^10*e^4*d^3*b^5*a*A + 63/2*x^10*e^5*d^2*b^4*a^2*A + 14*x
^10*e^6*d*b^3*a^3*A + 3/2*x^10*e^7*b^2*a^4*A + 7/9*x^9*e*d^6*b^6*
B + 14*x^9*e^2*d^5*b^5*a*B + 175/3*x^9*e^3*d^4*b^4*a^2*B + 700/9*
x^9*e^4*d^3*b^3*a^3*B + 35*x^9*e^5*d^2*b^2*a^4*B + 14/3*x^9*e^6*d
*b*a^5*B + 1/9*x^9*e^7*a^6*B + 7/3*x^9*e^2*d^5*b^6*A + 70/3*x^9*e
^3*d^4*b^5*a*A + 175/3*x^9*e^4*d^3*b^4*a^2*A + 140/3*x^9*e^5*d^2*
b^3*a^3*A + 35/3*x^9*e^6*d*b^2*a^4*A + 2/3*x^9*e^7*b*a^5*A + 1/8*
x^8*d^7*b^6*B + 21/4*x^8*e*d^6*b^5*a*B + 315/8*x^8*e^2*d^5*b^4*a^
2*B + 175/2*x^8*e^3*d^4*b^3*a^3*B + 525/8*x^8*e^4*d^3*b^2*a^4*B +
 63/4*x^8*e^5*d^2*b*a^5*B + 7/8*x^8*e^6*d*a^6*B + 7/8*x^8*e*d^6*b
^6*A + 63/4*x^8*e^2*d^5*b^5*a*A + 525/8*x^8*e^3*d^4*b^4*a^2*A + 1
75/2*x^8*e^4*d^3*b^3*a^3*A + 315/8*x^8*e^5*d^2*b^2*a^4*A + 21/4*x
^8*e^6*d*b*a^5*A + 1/8*x^8*e^7*a^6*A + 6/7*x^7*d^7*b^5*a*B + 15*x
^7*e*d^6*b^4*a^2*B + 60*x^7*e^2*d^5*b^3*a^3*B + 75*x^7*e^3*d^4*b^
2*a^4*B + 30*x^7*e^4*d^3*b*a^5*B + 3*x^7*e^5*d^2*a^6*B + 1/7*x^7*
d^7*b^6*A + 6*x^7*e*d^6*b^5*a*A + 45*x^7*e^2*d^5*b^4*a^2*A + 100*
x^7*e^3*d^4*b^3*a^3*A + 75*x^7*e^4*d^3*b^2*a^4*A + 18*x^7*e^5*d^2
*b*a^5*A + x^7*e^6*d*a^6*A + 5/2*x^6*d^7*b^4*a^2*B + 70/3*x^6*e*d
^6*b^3*a^3*B + 105/2*x^6*e^2*d^5*b^2*a^4*B + 35*x^6*e^3*d^4*b*a^5
*B + 35/6*x^6*e^4*d^3*a^6*B + x^6*d^7*b^5*a*A + 35/2*x^6*e*d^6*b^
4*a^2*A + 70*x^6*e^2*d^5*b^3*a^3*A + 175/2*x^6*e^3*d^4*b^2*a^4*A
+ 35*x^6*e^4*d^3*b*a^5*A + 7/2*x^6*e^5*d^2*a^6*A + 4*x^5*d^7*b^3*
a^3*B + 21*x^5*e*d^6*b^2*a^4*B + 126/5*x^5*e^2*d^5*b*a^5*B + 7*x^
5*e^3*d^4*a^6*B + 3*x^5*d^7*b^4*a^2*A + 28*x^5*e*d^6*b^3*a^3*A +
63*x^5*e^2*d^5*b^2*a^4*A + 42*x^5*e^3*d^4*b*a^5*A + 7*x^5*e^4*d^3
*a^6*A + 15/4*x^4*d^7*b^2*a^4*B + 21/2*x^4*e*d^6*b*a^5*B + 21/4*x
```

```
^4*e^2*d^5*a^6*B + 5*x^4*d^7*b^3*a^3*A + 105/4*x^4*e*d^6*b^2*a^4*
A + 63/2*x^4*e^2*d^5*b*a^5*A + 35/4*x^4*e^3*d^4*a^6*A + 2*x^3*d^7
*b*a^5*B + 7/3*x^3*e*d^6*a^6*B + 5*x^3*d^7*b^2*a^4*A + 14*x^3*e*d
^6*b*a^5*A + 7*x^3*e^2*d^5*a^6*A + 1/2*x^2*d^7*a^6*B + 3*x^2*d^7*
b*a^5*A + 7/2*x^2*e*d^6*a^6*A + x*d^7*a^6*A
```

Sympy [A] time = 0.749868, size = 1756, normalized size = 6.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**6*(B*x+A)*(e*x+d)**7,x)
```

```
[Out] A*a**6*d**7*x + B*b**6*e**7*x**15/15 + x**14*(A*b**6*e**7/14 + 3*
B*a*b**5*e**7/7 + B*b**6*d*e**6/2) + x**13*(6*A*a*b**5*e**7/13 +
7*A*b**6*d*e**6/13 + 15*B*a**2*b**4*e**7/13 + 42*B*a*b**5*d*e**6/
13 + 21*B*b**6*d**2*e**5/13) + x**12*(5*A*a**2*b**4*e**7/4 + 7*A*
a*b**5*d*e**6/2 + 7*A*b**6*d**2*e**5/4 + 5*B*a**3*b**3*e**7/3 + 3
5*B*a**2*b**4*d*e**6/4 + 21*B*a*b**5*d**2*e**5/2 + 35*B*b**6*d**3
*e**4/12) + x**11*(20*A*a**3*b**3*e**7/11 + 105*A*a**2*b**4*d*e**
6/11 + 126*A*a*b**5*d**2*e**5/11 + 35*A*b**6*d**3*e**4/11 + 15*B*
a**4*b**2*e**7/11 + 140*B*a**3*b**3*d*e**6/11 + 315*B*a**2*b**4*d
**2*e**5/11 + 210*B*a*b**5*d**3*e**4/11 + 35*B*b**6*d**4*e**3/11)
 + x**10*(3*A*a**4*b**2*e**7/2 + 14*A*a**3*b**3*d*e**6 + 63*A*a**
2*b**4*d**2*e**5/2 + 21*A*a*b**5*d**3*e**4 + 7*A*b**6*d**4*e**3/2
 + 3*B*a**5*b*e**7/5 + 21*B*a**4*b**2*d*e**6/2 + 42*B*a**3*b**3*d
**2*e**5 + 105*B*a**2*b**4*d**3*e**4/2 + 21*B*a*b**5*d**4*e**3 +
21*B*b**6*d**5*e**2/10) + x**9*(2*A*a**5*b*e**7/3 + 35*A*a**4*b**
2*d*e**6/3 + 140*A*a**3*b**3*d**2*e**5/3 + 175*A*a**2*b**4*d**3*e
**4/3 + 70*A*a*b**5*d**4*e**3/3 + 7*A*b**6*d**5*e**2/3 + B*a**6*e
**7/9 + 14*B*a**5*b*d*e**6/3 + 35*B*a**4*b**2*d**2*e**5 + 700*B*a
**3*b**3*d**3*e**4/9 + 175*B*a**2*b**4*d**4*e**3/3 + 14*B*a*b**5*
d**5*e**2 + 7*B*b**6*d**6*e/9) + x**8*(A*a**6*e**7/8 + 21*A*a**5*
b*d*e**6/4 + 315*A*a**4*b**2*d**2*e**5/8 + 175*A*a**3*b**3*d**3*e
**4/2 + 525*A*a**2*b**4*d**4*e**3/8 + 63*A*a*b**5*d**5*e**2/4 + 7
*A*b**6*d**6*e/8 + 7*B*a**6*d*e**6/8 + 63*B*a**5*b*d**2*e**5/4 +
525*B*a**4*b**2*d**3*e**4/8 + 175*B*a**3*b**3*d**4*e**3/2 + 315*B
*a**2*b**4*d**5*e**2/8 + 21*B*a*b**5*d**6*e/4 + B*b**6*d**7/8) +
x**7*(A*a**6*d*e**6 + 18*A*a**5*b*d**2*e**5 + 75*A*a**4*b**2*d**3
*e**4 + 100*A*a**3*b**3*d**4*e**3 + 45*A*a**2*b**4*d**5*e**2 + 6*
A*a*b**5*d**6*e + A*b**6*d**7/7 + 3*B*a**6*d**2*e**5 + 30*B*a**5*
b*d**3*e**4 + 75*B*a**4*b**2*d**4*e**3 + 60*B*a**3*b**3*d**5*e**2
 + 15*B*a**2*b**4*d**6*e + 6*B*a*b**5*d**7/7) + x**6*(7*A*a**6*d*
*2*e**5/2 + 35*A*a**5*b*d**3*e**4 + 175*A*a**4*b**2*d**4*e**3/2 +
 70*A*a**3*b**3*d**5*e**2 + 35*A*a**2*b**4*d**6*e/2 + A*a*b**5*d*
*7 + 35*B*a**6*d**3*e**4/6 + 35*B*a**5*b*d**4*e**3 + 105*B*a**4*b
**2*d**5*e**2/2 + 70*B*a**3*b**3*d**6*e/3 + 5*B*a**2*b**4*d**7/2)
 + x**5*(7*A*a**6*d**3*e**4 + 42*A*a**5*b*d**4*e**3 + 63*A*a**4*b
**2*d**5*e**2 + 28*A*a**3*b**3*d**6*e + 3*A*a**2*b**4*d**7 + 7*B*
a**6*d**4*e**3 + 126*B*a**5*b*d**5*e**2/5 + 21*B*a**4*b**2*d**6*e
 + 4*B*a**3*b**3*d**7) + x**4*(35*A*a**6*d**4*e**3/4 + 63*A*a**5*
b*d**5*e**2/2 + 105*A*a**4*b**2*d**6*e/4 + 5*A*a**3*b**3*d**7 + 2
1*B*a**6*d**5*e**2/4 + 21*B*a**5*b*d**6*e/2 + 15*B*a**4*b**2*d**7
/4) + x**3*(7*A*a**6*d**5*e**2 + 14*A*a**5*b*d**6*e + 5*A*a**4*b*
*2*d**7 + 7*B*a**6*d**6*e/3 + 2*B*a**5*b*d**7) + x**2*(7*A*a**6*d
**6*e/2 + 3*A*a**5*b*d**7 + B*a**6*d**7/2)
```

GIAC/XCAS [A] time = 0.21563, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6*(e*x + d)^7,x, algorithm="giac")
```

```
[Out] Done
```

3.1036 $\int (a+bx)^6(A+Bx)(d+ex)^6\,dx$

Optimal. Leaf size=290

$$\frac{e^5(a+bx)^{13}(-7aBe+Abe+6bBd)}{13b^8}+\frac{e^4(a+bx)^{12}(bd-ae)(-7aBe+2Abe+5bBd)}{4b^8}+\frac{5e^3(a+bx)^{11}(bd-ae)^2(-7aBe+3Abe+4bBd)}{11b^8}+\frac{e^2(a+bx)^{10}(bd-ae)^3(-7aBe+4Abe+3bBd)}{2b^8}+\frac{e(a+bx)^9(bd-ae)^4(-7aBe+5Abe+2bBd)}{3b^8}+\frac{(a+bx)^8(bd-ae)^5(-7aBe+6Abe+bBd)}{8b^8}+\frac{(a+bx)^7(Ab-aB)(bd-ae)^6}{7b^8}+\frac{Be^6(a+bx)^{14}}{14b^8}$$

```
[Out] ((A*b - a*B)*(b*d - a*e)^6*(a + b*x)^7)/(7*b^8) + ((b*d - a*e)^5*
(b*B*d + 6*A*b*e - 7*a*B*e)*(a + b*x)^8)/(8*b^8) + (e*(b*d - a*e)
^4*(2*b*B*d + 5*A*b*e - 7*a*B*e)*(a + b*x)^9)/(3*b^8) + (e^2*(b*d
 - a*e)^3*(3*b*B*d + 4*A*b*e - 7*a*B*e)*(a + b*x)^10)/(2*b^8) + (
5*e^3*(b*d - a*e)^2*(4*b*B*d + 3*A*b*e - 7*a*B*e)*(a + b*x)^11)/(
11*b^8) + (e^4*(b*d - a*e)*(5*b*B*d + 2*A*b*e - 7*a*B*e)*(a + b*x
)^12)/(4*b^8) + (e^5*(6*b*B*d + A*b*e - 7*a*B*e)*(a + b*x)^13)/(1
3*b^8) + (B*e^6*(a + b*x)^14)/(14*b^8)
```

Rubi [A] time = 3.21046, antiderivative size = 290, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$\frac{e^5(a+bx)^{13}(-7aBe+Abe+6bBd)}{13b^8}+\frac{e^4(a+bx)^{12}(bd-ae)(-7aBe+2Abe+5bBd)}{4b^8}+\frac{5e^3(a+bx)^{11}(bd-ae)^2(-7aBe+3Abe+4bBd)}{11b^8}+\frac{e^2(a+bx)^{10}(bd-ae)^3(-7aBe+4Abe+3bBd)}{2b^8}+\frac{e(a+bx)^9(bd-ae)^4(-7aBe+5Abe+2bBd)}{3b^8}+\frac{(a+bx)^8(bd-ae)^5(-7aBe+6Abe+bBd)}{8b^8}+\frac{(a+bx)^7(Ab-aB)(bd-ae)^6}{7b^8}+\frac{Be^6(a+bx)^{14}}{14b^8}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^6*(A + B*x)*(d + e*x)^6,x]
```

```
[Out] ((A*b - a*B)*(b*d - a*e)^6*(a + b*x)^7)/(7*b^8) + ((b*d - a*e)^5*
(b*B*d + 6*A*b*e - 7*a*B*e)*(a + b*x)^8)/(8*b^8) + (e*(b*d - a*e)
^4*(2*b*B*d + 5*A*b*e - 7*a*B*e)*(a + b*x)^9)/(3*b^8) + (e^2*(b*d
 - a*e)^3*(3*b*B*d + 4*A*b*e - 7*a*B*e)*(a + b*x)^10)/(2*b^8) + (
5*e^3*(b*d - a*e)^2*(4*b*B*d + 3*A*b*e - 7*a*B*e)*(a + b*x)^11)/(
11*b^8) + (e^4*(b*d - a*e)*(5*b*B*d + 2*A*b*e - 7*a*B*e)*(a + b*x
)^12)/(4*b^8) + (e^5*(6*b*B*d + A*b*e - 7*a*B*e)*(a + b*x)^13)/(1
3*b^8) + (B*e^6*(a + b*x)^14)/(14*b^8)
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**6*(B*x+A)*(e*x+d)**6,x)
```

```
[Out] Timed out
```

Mathematica [B] time = 0.804869, size = 1069, normalized size = 3.69

$$\frac{1}{14}b^6Be^6x^{14}+\frac{1}{13}b^5e^5(6bBd+Abe+6aBe)x^{13}+\frac{1}{4}b^4e^4\left(d(5Bd+2Ae)b^2+2ae(6Bd+Ae)b+5a^2Be^2\right)x^{12}$$
$$+\frac{1}{11}b^3e^3\left(5d^2(4Bd+3Ae)b^3+18ade(5Bd+2Ae)b^2+15a^2e^2(6Bd+Ae)b+20a^3Be^3\right)x^{11}$$
$$+\frac{1}{2}b^2e^2\left(d^3(3Bd+4Ae)b^4+6ad^2e(4Bd+3Ae)b^3+9a^2de^2(5Bd+2Ae)b^2+4a^3e^3(6Bd+Ae)b+3a^4Be^4\right)x^{10}$$
$$+\frac{1}{3}be\left(d^4(2Bd+5Ae)b^5+10ad^3e(3Bd+4Ae)b^4+25a^2d^2e^2(4Bd+3Ae)b^3+20a^3de^3(5Bd+2Ae)b^2\right.$$
$$\left.+5a^4e^4(6Bd+Ae)b+2a^5Be^5\right)x^9+\frac{1}{8}\left(d^5(Bd+6Ae)b^6+18ad^4e(2Bd+5Ae)b^5+75a^2d^3e^2(3Bd+4Ae)b^4\right.$$
$$\left.+100a^3d^2e^3(4Bd+3Ae)b^3+45a^4de^4(5Bd+2Ae)b^2+6a^5e^5(6Bd+Ae)b+a^6Be^6\right)x^8$$
$$+\frac{1}{7}\left(6aBd\left(b^5d^5+15ab^4ed^4+50a^2b^3e^2d^3+50a^3b^2e^3d^2+15a^4be^4d+a^5e^5\right)\right.$$
$$\left.+A\left(b^6d^6+36ab^5ed^5+225a^2b^4e^2d^4+400a^3b^3e^3d^3+225a^4b^2e^4d^2+36a^5be^5d+a^6e^6\right)\right)x^7$$
$$+\frac{1}{2}ad\left(5aBd\left(b^4d^4+8ab^3ed^3+15a^2b^2e^2d^2+8a^3be^3d+a^4e^4\right)\right.$$
$$\left.+2A\left(b^5d^5+15ab^4ed^4+50a^2b^3e^2d^3+50a^3b^2e^3d^2+15a^4be^4d+a^5e^5\right)\right)x^6$$
$$+a^2d^2\left(2aBd\left(2b^3d^3+9ab^2ed^2+9a^2be^2d+2a^3e^3\right)+3A\left(b^4d^4+8ab^3ed^3+15a^2b^2e^2d^2+8a^3be^3d+a^4e^4\right)\right)x^5$$
$$+\frac{1}{4}a^3d^3\left(3aBd\left(5b^2d^2+12abed+5a^2e^2\right)+10A\left(2b^3d^3+9ab^2ed^2+9a^2be^2d+2a^3e^3\right)\right)x^4$$
$$+a^4d^4\left(2aBd(bd+ae)+A\left(5b^2d^2+12abed+5a^2e^2\right)\right)x^3+\frac{1}{2}a^5d^5(aBd+6A(bd+ae))x^2+a^6Ad^6x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^6*(A + B*x)*(d + e*x)^6,x]
```

```
[Out] a^6*A*d^6*x + (a^5*d^5*(a*B*d + 6*A*(b*d + a*e))*x^2)/2 + a^4*d^4
*(2*a*B*d*(b*d + a*e) + A*(5*b^2*d^2 + 12*a*b*d*e + 5*a^2*e^2))*x
^3 + (a^3*d^3*(3*a*B*d*(5*b^2*d^2 + 12*a*b*d*e + 5*a^2*e^2) + 10*
A*(2*b^3*d^3 + 9*a*b^2*d^2*e + 9*a^2*b*d*e^2 + 2*a^3*e^3))*x^4)/4
 + a^2*d^2*(2*a*B*d*(2*b^3*d^3 + 9*a*b^2*d^2*e + 9*a^2*b*d*e^2 +
2*a^3*e^3) + 3*A*(b^4*d^4 + 8*a*b^3*d^3*e + 15*a^2*b^2*d^2*e^2 +
8*a^3*b*d*e^3 + a^4*e^4))*x^5 + (a*d*(5*a*B*d*(b^4*d^4 + 8*a*b^3*
d^3*e + 15*a^2*b^2*d^2*e^2 + 8*a^3*b*d*e^3 + a^4*e^4) + 2*A*(b^5*
d^5 + 15*a*b^4*d^4*e + 50*a^2*b^3*d^3*e^2 + 50*a^3*b^2*d^2*e^3 +
15*a^4*b*d*e^4 + a^5*e^5))*x^6)/2 + ((6*a*B*d*(b^5*d^5 + 15*a*b^4
*d^4*e + 50*a^2*b^3*d^3*e^2 + 50*a^3*b^2*d^2*e^3 + 15*a^4*b*d*e^4
 + a^5*e^5) + A*(b^6*d^6 + 36*a*b^5*d^5*e + 225*a^2*b^4*d^4*e^2 +
 400*a^3*b^3*d^3*e^3 + 225*a^4*b^2*d^2*e^4 + 36*a^5*b*d*e^5 + a^6
*e^6))*x^7)/7 + ((a^6*B*e^6 + 6*a^5*b*e^5*(6*B*d + A*e) + 45*a^4*
b^2*d*e^4*(5*B*d + 2*A*e) + 100*a^3*b^3*d^2*e^3*(4*B*d + 3*A*e) +
 75*a^2*b^4*d^3*e^2*(3*B*d + 4*A*e) + 18*a*b^5*d^4*e*(2*B*d + 5*A
*e) + b^6*d^5*(B*d + 6*A*e))*x^8)/8 + (b*e*(2*a^5*B*e^5 + 5*a^4*b
*e^4*(6*B*d + A*e) + 20*a^3*b^2*d*e^3*(5*B*d + 2*A*e) + 25*a^2*b^
3*d^2*e^2*(4*B*d + 3*A*e) + 10*a*b^4*d^3*e*(3*B*d + 4*A*e) + b^5*
d^4*(2*B*d + 5*A*e))*x^9)/3 + (b^2*e^2*(3*a^4*B*e^4 + 4*a^3*b*e^3
*(6*B*d + A*e) + 9*a^2*b^2*d*e^2*(5*B*d + 2*A*e) + 6*a*b^3*d^2*e*
(4*B*d + 3*A*e) + b^4*d^3*(3*B*d + 4*A*e))*x^10)/2 + (b^3*e^3*(20
*a^3*B*e^3 + 15*a^2*b*e^2*(6*B*d + A*e) + 18*a*b^2*d*e*(5*B*d + 2
*A*e) + 5*b^3*d^2*(4*B*d + 3*A*e))*x^11)/11 + (b^4*e^4*(5*a^2*B*e
^2 + 2*a*b*e*(6*B*d + A*e) + b^2*d*(5*B*d + 2*A*e))*x^12)/4 + (b^
5*e^5*(6*b*B*d + A*b*e + 6*a*B*e)*x^13)/13 + (b^6*B*e^6*x^14)/14
```

Maple [B] time = 0.003, size = 1173, normalized size = 4.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^6*(B*x+A)*(e*x+d)^6,x)
```

```
[Out] 1/14*b^6*B*e^6*x^14+1/13*((A*b^6+6*B*a*b^5)*e^6+6*b^6*B*d*e^5)*x^
13+1/12*((6*A*a*b^5+15*B*a^2*b^4)*e^6+6*(A*b^6+6*B*a*b^5)*d*e^5+1
```

```
5*b^6*B*d^2*e^4)*x^12+1/11*((15*A*a^2*b^4+20*B*a^3*b^3)*e^6+6*(6*
A*a*b^5+15*B*a^2*b^4)*d*e^5+15*(A*b^6+6*B*a*b^5)*d^2*e^4+20*b^6*B
*d^3*e^3)*x^11+1/10*((20*A*a^3*b^3+15*B*a^4*b^2)*e^6+6*(15*A*a^2*
b^4+20*B*a^3*b^3)*d*e^5+15*(6*A*a*b^5+15*B*a^2*b^4)*d^2*e^4+20*(A
*b^6+6*B*a*b^5)*d^3*e^3+15*b^6*B*d^4*e^2)*x^10+1/9*((15*A*a^4*b^2
+6*B*a^5*b)*e^6+6*(20*A*a^3*b^3+15*B*a^4*b^2)*d*e^5+15*(15*A*a^2*
b^4+20*B*a^3*b^3)*d^2*e^4+20*(6*A*a*b^5+15*B*a^2*b^4)*d^3*e^3+15*
(A*b^6+6*B*a*b^5)*d^4*e^2+6*b^6*B*d^5*e)*x^9+1/8*((6*A*a^5*b+B*a^
6)*e^6+6*(15*A*a^4*b^2+6*B*a^5*b)*d*e^5+15*(20*A*a^3*b^3+15*B*a^4
*b^2)*d^2*e^4+20*(15*A*a^2*b^4+20*B*a^3*b^3)*d^3*e^3+15*(6*A*a*b^
5+15*B*a^2*b^4)*d^4*e^2+6*(A*b^6+6*B*a*b^5)*d^5*e+b^6*B*d^6)*x^8+
1/7*(a^6*A*e^6+6*(6*A*a^5*b+B*a^6)*d*e^5+15*(15*A*a^4*b^2+6*B*a^5
*b)*d^2*e^4+20*(20*A*a^3*b^3+15*B*a^4*b^2)*d^3*e^3+15*(15*A*a^2*b
^4+20*B*a^3*b^3)*d^4*e^2+6*(6*A*a*b^5+15*B*a^2*b^4)*d^5*e+(A*b^6+
6*B*a*b^5)*d^6)*x^7+1/6*(6*a^6*A*d*e^5+15*(6*A*a^5*b+B*a^6)*d^2*e
^4+20*(15*A*a^4*b^2+6*B*a^5*b)*d^3*e^3+15*(20*A*a^3*b^3+15*B*a^4*
b^2)*d^4*e^2+6*(15*A*a^2*b^4+20*B*a^3*b^3)*d^5*e+(6*A*a*b^5+15*B*
a^2*b^4)*d^6)*x^6+1/5*(15*a^6*A*d^2*e^4+20*(6*A*a^5*b+B*a^6)*d^3*
e^3+15*(15*A*a^4*b^2+6*B*a^5*b)*d^4*e^2+6*(20*A*a^3*b^3+15*B*a^4*
b^2)*d^5*e+(15*A*a^2*b^4+20*B*a^3*b^3)*d^6)*x^5+1/4*(20*a^6*A*d^3
*e^3+15*(6*A*a^5*b+B*a^6)*d^4*e^2+6*(15*A*a^4*b^2+6*B*a^5*b)*d^5*
e+(20*A*a^3*b^3+15*B*a^4*b^2)*d^6)*x^4+1/3*(15*a^6*A*d^4*e^2+6*(6
*A*a^5*b+B*a^6)*d^5*e+(15*A*a^4*b^2+6*B*a^5*b)*d^6)*x^3+1/2*(6*a^
6*A*d^5*e+(6*A*a^5*b+B*a^6)*d^6)*x^2+a^6*A*d^6*x
```

Maxima [A] time = 1.37574, size = 1582, normalized size = 5.46

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6*(e*x + d)^6,x, algorithm="maxima")
```

```
[Out] 1/14*B*b^6*e^6*x^14 + A*a^6*d^6*x + 1/13*(6*B*b^6*d*e^5 + (6*B*a*
b^5 + A*b^6)*e^6)*x^13 + 1/4*(5*B*b^6*d^2*e^4 + 2*(6*B*a*b^5 + A*
b^6)*d*e^5 + (5*B*a^2*b^4 + 2*A*a*b^5)*e^6)*x^12 + 1/11*(20*B*b^6
*d^3*e^3 + 15*(6*B*a*b^5 + A*b^6)*d^2*e^4 + 18*(5*B*a^2*b^4 + 2*A
*a*b^5)*d*e^5 + 5*(4*B*a^3*b^3 + 3*A*a^2*b^4)*e^6)*x^11 + 1/2*(3*
B*b^6*d^4*e^2 + 4*(6*B*a*b^5 + A*b^6)*d^3*e^3 + 9*(5*B*a^2*b^4 +
2*A*a*b^5)*d^2*e^4 + 6*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d*e^5 + (3*B*a
^4*b^2 + 4*A*a^3*b^3)*e^6)*x^10 + 1/3*(2*B*b^6*d^5*e + 5*(6*B*a*b
^5 + A*b^6)*d^4*e^2 + 20*(5*B*a^2*b^4 + 2*A*a*b^5)*d^3*e^3 + 25*(
4*B*a^3*b^3 + 3*A*a^2*b^4)*d^2*e^4 + 10*(3*B*a^4*b^2 + 4*A*a^3*b^
3)*d*e^5 + (2*B*a^5*b + 5*A*a^4*b^2)*e^6)*x^9 + 1/8*(B*b^6*d^6 +
6*(6*B*a*b^5 + A*b^6)*d^5*e + 45*(5*B*a^2*b^4 + 2*A*a*b^5)*d^4*e^
2 + 100*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^3*e^3 + 75*(3*B*a^4*b^2 + 4
*A*a^3*b^3)*d^2*e^4 + 18*(2*B*a^5*b + 5*A*a^4*b^2)*d*e^5 + (B*a^6
 + 6*A*a^5*b)*e^6)*x^8 + 1/7*(A*a^6*e^6 + (6*B*a*b^5 + A*b^6)*d^6
 + 18*(5*B*a^2*b^4 + 2*A*a*b^5)*d^5*e + 75*(4*B*a^3*b^3 + 3*A*a^2
*b^4)*d^4*e^2 + 100*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d^3*e^3 + 45*(2*B
*a^5*b + 5*A*a^4*b^2)*d^2*e^4 + 6*(B*a^6 + 6*A*a^5*b)*d*e^5)*x^7
+ 1/2*(2*A*a^6*d*e^5 + (5*B*a^2*b^4 + 2*A*a*b^5)*d^6 + 10*(4*B*a^
3*b^3 + 3*A*a^2*b^4)*d^5*e + 25*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d^4*e
^2 + 20*(2*B*a^5*b + 5*A*a^4*b^2)*d^3*e^3 + 5*(B*a^6 + 6*A*a^5*b)
*d^2*e^4)*x^6 + (3*A*a^6*d^2*e^4 + (4*B*a^3*b^3 + 3*A*a^2*b^4)*d^
6 + 6*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d^5*e + 9*(2*B*a^5*b + 5*A*a^4*
b^2)*d^4*e^2 + 4*(B*a^6 + 6*A*a^5*b)*d^3*e^3)*x^5 + 1/4*(20*A*a^6
*d^3*e^3 + 5*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d^6 + 18*(2*B*a^5*b + 5*
A*a^4*b^2)*d^5*e + 15*(B*a^6 + 6*A*a^5*b)*d^4*e^2)*x^4 + (5*A*a^6
*d^4*e^2 + (2*B*a^5*b + 5*A*a^4*b^2)*d^6 + 2*(B*a^6 + 6*A*a^5*b)*
d^5*e)*x^3 + 1/2*(6*A*a^6*d^5*e + (B*a^6 + 6*A*a^5*b)*d^6)*x^2
```

Fricas [A] time = 0.195779, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6*(e*x + d)^6,x, algorithm="fricas")
```

```
[Out] 1/14*x^14*e^6*b^6*B + 6/13*x^13*e^5*d*b^6*B + 6/13*x^13*e^6*b^5*a
*B + 1/13*x^13*e^6*b^6*A + 5/4*x^12*e^4*d^2*b^6*B + 3*x^12*e^5*d*
b^5*a*B + 5/4*x^12*e^6*b^4*a^2*B + 1/2*x^12*e^5*d*b^6*A + 1/2*x^1
2*e^6*b^5*a*A + 20/11*x^11*e^3*d^3*b^6*B + 90/11*x^11*e^4*d^2*b^5
*a*B + 90/11*x^11*e^5*d*b^4*a^2*B + 20/11*x^11*e^6*b^3*a^3*B + 15
/11*x^11*e^4*d^2*b^6*A + 36/11*x^11*e^5*d*b^5*a*A + 15/11*x^11*e^
6*b^4*a^2*A + 3/2*x^10*e^2*d^4*b^6*B + 12*x^10*e^3*d^3*b^5*a*B +
45/2*x^10*e^4*d^2*b^4*a^2*B + 12*x^10*e^5*d*b^3*a^3*B + 3/2*x^10*
e^6*b^2*a^4*B + 2*x^10*e^3*d^3*b^6*A + 9*x^10*e^4*d^2*b^5*a*A + 9
*x^10*e^5*d*b^4*a^2*A + 2*x^10*e^6*b^3*a^3*A + 2/3*x^9*e*d^5*b^6*
B + 10*x^9*e^2*d^4*b^5*a*B + 100/3*x^9*e^3*d^3*b^4*a^2*B + 100/3*
x^9*e^4*d^2*b^3*a^3*B + 10*x^9*e^5*d*b^2*a^4*B + 2/3*x^9*e^6*b*a^
5*B + 5/3*x^9*e^2*d^4*b^6*A + 40/3*x^9*e^3*d^3*b^5*a*A + 25*x^9*e
^4*d^2*b^4*a^2*A + 40/3*x^9*e^5*d*b^3*a^3*A + 5/3*x^9*e^6*b^2*a^4
*A + 1/8*x^8*d^6*b^6*B + 9/2*x^8*e*d^5*b^5*a*B + 225/8*x^8*e^2*d^
4*b^4*a^2*B + 50*x^8*e^3*d^3*b^3*a^3*B + 225/8*x^8*e^4*d^2*b^2*a^
4*B + 9/2*x^8*e^5*d*b*a^5*B + 1/8*x^8*e^6*a^6*B + 3/4*x^8*e*d^5*b
^6*A + 45/4*x^8*e^2*d^4*b^5*a*A + 75/2*x^8*e^3*d^3*b^4*a^2*A + 75
/2*x^8*e^4*d^2*b^3*a^3*A + 45/4*x^8*e^5*d*b^2*a^4*A + 3/4*x^8*e^6
*b*a^5*A + 6/7*x^7*d^6*b^5*a*B + 90/7*x^7*e*d^5*b^4*a^2*B + 300/7
*x^7*e^2*d^4*b^3*a^3*B + 300/7*x^7*e^3*d^3*b^2*a^4*B + 90/7*x^7*e
^4*d^2*b*a^5*B + 6/7*x^7*e^5*d*a^6*B + 1/7*x^7*d^6*b^6*A + 36/7*x
^7*e*d^5*b^5*a*A + 225/7*x^7*e^2*d^4*b^4*a^2*A + 400/7*x^7*e^3*d^
3*b^3*a^3*A + 225/7*x^7*e^4*d^2*b^2*a^4*A + 36/7*x^7*e^5*d*b*a^5*
A + 1/7*x^7*e^6*a^6*A + 5/2*x^6*d^6*b^4*a^2*B + 20*x^6*e*d^5*b^3*
a^3*B + 75/2*x^6*e^2*d^4*b^2*a^4*B + 20*x^6*e^3*d^3*b*a^5*B + 5/2
*x^6*e^4*d^2*a^6*B + x^6*d^6*b^5*a*A + 15*x^6*e*d^5*b^4*a^2*A + 5
0*x^6*e^2*d^4*b^3*a^3*A + 50*x^6*e^3*d^3*b^2*a^4*A + 15*x^6*e^4*d
^2*b*a^5*A + x^6*e^5*d*a^6*A + 4*x^5*d^6*b^3*a^3*B + 18*x^5*e*d^5
*b^2*a^4*B + 18*x^5*e^2*d^4*b*a^5*B + 4*x^5*e^3*d^3*a^6*B + 3*x^5
*d^6*b^4*a^2*A + 24*x^5*e*d^5*b^3*a^3*A + 45*x^5*e^2*d^4*b^2*a^4*
A + 24*x^5*e^3*d^3*b*a^5*A + 3*x^5*e^4*d^2*a^6*A + 15/4*x^4*d^6*b
^2*a^4*B + 9*x^4*e*d^5*b*a^5*B + 15/4*x^4*e^2*d^4*a^6*B + 5*x^4*d
^6*b^3*a^3*A + 45/2*x^4*e*d^5*b^2*a^4*A + 45/2*x^4*e^2*d^4*b*a^5*
A + 5*x^4*e^3*d^3*a^6*A + 2*x^3*d^6*b*a^5*B + 2*x^3*e*d^5*a^6*B +
 5*x^3*d^6*b^2*a^4*A + 12*x^3*e*d^5*b*a^5*A + 5*x^3*e^2*d^4*a^6*A
 + 1/2*x^2*d^6*a^6*B + 3*x^2*d^6*b*a^5*A + 3*x^2*e*d^5*a^6*A + x*
d^6*a^6*A
```

Sympy [A] time = 0.703402, size = 1504, normalized size = 5.19

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**6*(B*x+A)*(e*x+d)**6,x)
```

```
[Out] A*a**6*d**6*x + B*b**6*e**6*x**14/14 + x**13*(A*b**6*e**6/13 + 6*
B*a*b**5*e**6/13 + 6*B*b**6*d*e**5/13) + x**12*(A*a*b**5*e**6/2 +
 A*b**6*d*e**5/2 + 5*B*a**2*b**4*e**6/4 + 3*B*a*b**5*d*e**5 + 5*B
*b**6*d**2*e**4/4) + x**11*(15*A*a**2*b**4*e**6/11 + 36*A*a*b**5*
d*e**5/11 + 15*A*b**6*d**2*e**4/11 + 20*B*a**3*b**3*e**6/11 + 90*
B*a**2*b**4*d*e**5/11 + 90*B*a*b**5*d**2*e**4/11 + 20*B*b**6*d**3
*e**3/11) + x**10*(2*A*a**3*b**3*e**6 + 9*A*a**2*b**4*d*e**5 + 9*
A*a*b**5*d**2*e**4 + 2*A*b**6*d**3*e**3 + 3*B*a**4*b**2*e**6/2 +
12*B*a**3*b**3*d*e**5 + 45*B*a**2*b**4*d**2*e**4/2 + 12*B*a*b**5*
d**3*e**3 + 3*B*b**6*d**4*e**2/2) + x**9*(5*A*a**4*b**2*e**6/3 +
40*A*a**3*b**3*d*e**5/3 + 25*A*a**2*b**4*d**2*e**4 + 40*A*a*b**5*
d**3*e**3/3 + 5*A*b**6*d**4*e**2/3 + 2*B*a**5*b*e**6/3 + 10*B*a**
4*b**2*d*e**5 + 100*B*a**3*b**3*d**2*e**4/3 + 100*B*a**2*b**4*d**
3*e**3/3 + 10*B*a*b**5*d**4*e**2 + 2*B*b**6*d**5*e/3) + x**8*(3*A
*a**5*b*e**6/4 + 45*A*a**4*b**2*d*e**5/4 + 75*A*a**3*b**3*d**2*e*
*4/2 + 75*A*a**2*b**4*d**3*e**3/2 + 45*A*a*b**5*d**4*e**2/4 + 3*A
*b**6*d**5*e/4 + B*a**6*e**6/8 + 9*B*a**5*b*d*e**5/2 + 225*B*a**4
*b**2*d**2*e**4/8 + 50*B*a**3*b**3*d**3*e**3 + 225*B*a**2*b**4*d*
*4*e**2/8 + 9*B*a*b**5*d**5*e/2 + B*b**6*d**6/8) + x**7*(A*a**6*e
**6/7 + 36*A*a**5*b*d*e**5/7 + 225*A*a**4*b**2*d**2*e**4/7 + 400*
```

```
A*a**3*b**3*d**3*e**3/7 + 225*A*a**2*b**4*d**4*e**2/7 + 36*A*a*b*
*5*d**5*e/7 + A*b**6*d**6/7 + 6*B*a**6*d*e**5/7 + 90*B*a**5*b*d**
2*e**4/7 + 300*B*a**4*b**2*d**3*e**3/7 + 300*B*a**3*b**3*d**4*e**
2/7 + 90*B*a**2*b**4*d**5*e/7 + 6*B*a*b**5*d**6/7) + x**6*(A*a**6
*d*e**5 + 15*A*a**5*b*d**2*e**4 + 50*A*a**4*b**2*d**3*e**3 + 50*A
*a**3*b**3*d**4*e**2 + 15*A*a**2*b**4*d**5*e + A*a*b**5*d**6 + 5*
B*a**6*d**2*e**4/2 + 20*B*a**5*b*d**3*e**3 + 75*B*a**4*b**2*d**4*
e**2/2 + 20*B*a**3*b**3*d**5*e + 5*B*a**2*b**4*d**6/2) + x**5*(3*
A*a**6*d**2*e**4 + 24*A*a**5*b*d**3*e**3 + 45*A*a**4*b**2*d**4*e*
*2 + 24*A*a**3*b**3*d**5*e + 3*A*a**2*b**4*d**6 + 4*B*a**6*d**3*e
**3 + 18*B*a**5*b*d**4*e**2 + 18*B*a**4*b**2*d**5*e + 4*B*a**3*b*
*3*d**6) + x**4*(5*A*a**6*d**3*e**3 + 45*A*a**5*b*d**4*e**2/2 + 4
5*A*a**4*b**2*d**5*e/2 + 5*A*a**3*b**3*d**6 + 15*B*a**6*d**4*e**2
/4 + 9*B*a**5*b*d**5*e + 15*B*a**4*b**2*d**6/4) + x**3*(5*A*a**6*
d**4*e**2 + 12*A*a**5*b*d**5*e + 5*A*a**4*b**2*d**6 + 2*B*a**6*d*
*5*e + 2*B*a**5*b*d**6) + x**2*(3*A*a**6*d**5*e + 3*A*a**5*b*d**6
 + B*a**6*d**6/2)
```

GIAC/XCAS [A] time = 0.225089, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6*(e*x + d)^6,x, algorithm="giac")
```

```
[Out] Done
```

3.1037 $\int (a+bx)^6(A+Bx)(d+ex)^5\,dx$

Optimal. Leaf size=240

$$\frac{e^4(a+bx)^{12}(-6aBe+Abe+5bBd)}{12b^7}+\frac{5e^3(a+bx)^{11}(bd-ae)(-3aBe+Abe+2bBd)}{11b^7}+\frac{e^2(a+bx)^{10}(bd-ae)^2(-2aBe+Abe+bBd)}{b^7}+\frac{5e(a+bx)^9(bd-ae)^3(-3aBe+2Abe+bBd)}{9b^7}+\frac{(a+bx)^8(bd-ae)^4(-6aBe+5Abe+bBd)}{8b^7}+\frac{(a+bx)^7(Ab-aB)(bd-ae)^5}{7b^7}+\frac{Be^5(a+bx)^{13}}{13b^7}$$

```
[Out] ((A*b - a*B)*(b*d - a*e)^5*(a + b*x)^7)/(7*b^7) + ((b*d - a*e)^4*
(b*B*d + 5*A*b*e - 6*a*B*e)*(a + b*x)^8)/(8*b^7) + (5*e*(b*d - a*
e)^3*(b*B*d + 2*A*b*e - 3*a*B*e)*(a + b*x)^9)/(9*b^7) + (e^2*(b*d
 - a*e)^2*(b*B*d + A*b*e - 2*a*B*e)*(a + b*x)^10)/b^7 + (5*e^3*(b
*d - a*e)*(2*b*B*d + A*b*e - 3*a*B*e)*(a + b*x)^11)/(11*b^7) + (e
^4*(5*b*B*d + A*b*e - 6*a*B*e)*(a + b*x)^12)/(12*b^7) + (B*e^5*(a
 + b*x)^13)/(13*b^7)
```

Rubi [A] time = 2.49393, antiderivative size = 240, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{e^4(a+bx)^{12}(-6aBe+Abe+5bBd)}{12b^7}+\frac{5e^3(a+bx)^{11}(bd-ae)(-3aBe+Abe+2bBd)}{11b^7}+\frac{e^2(a+bx)^{10}(bd-ae)^2(-2aBe+Abe+bBd)}{b^7}+\frac{5e(a+bx)^9(bd-ae)^3(-3aBe+2Abe+bBd)}{9b^7}+\frac{(a+bx)^8(bd-ae)^4(-6aBe+5Abe+bBd)}{8b^7}+\frac{(a+bx)^7(Ab-aB)(bd-ae)^5}{7b^7}+\frac{Be^5(a+bx)^{13}}{13b^7}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^6*(A + B*x)*(d + e*x)^5,x]
```

```
[Out] ((A*b - a*B)*(b*d - a*e)^5*(a + b*x)^7)/(7*b^7) + ((b*d - a*e)^4*
(b*B*d + 5*A*b*e - 6*a*B*e)*(a + b*x)^8)/(8*b^7) + (5*e*(b*d - a*
e)^3*(b*B*d + 2*A*b*e - 3*a*B*e)*(a + b*x)^9)/(9*b^7) + (e^2*(b*d
 - a*e)^2*(b*B*d + A*b*e - 2*a*B*e)*(a + b*x)^10)/b^7 + (5*e^3*(b
*d - a*e)*(2*b*B*d + A*b*e - 3*a*B*e)*(a + b*x)^11)/(11*b^7) + (e
^4*(5*b*B*d + A*b*e - 6*a*B*e)*(a + b*x)^12)/(12*b^7) + (B*e^5*(a
 + b*x)^13)/(13*b^7)
```

Rubi in Sympy [A] time = 158.159, size = 240, normalized size = 1.

$$\frac{Be^5\,(a+bx)^{13}}{13b^7}+\frac{e^4\,(a+bx)^{12}\,(Abe-6Bae+5Bbd)}{12b^7}-\frac{5e^3\,(a+bx)^{11}\,(ae-bd)\,(Abe-3Bae+2Bbd)}{11b^7}+\frac{e^2\,(a+bx)^{10}\,(ae-bd)^2\,(Abe-2Bae+Bbd)}{b^7}-\frac{5e\,(a+bx)^9\,(ae-bd)^3\,(2Abe-3Bae+Bbd)}{9b^7}+\frac{(a+bx)^8\,(ae-bd)^4\,(5Abe-6Bae+Bbd)}{8b^7}-\frac{(a+bx)^7\,(Ab-Ba)\,(ae-bd)^5}{7b^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**6*(B*x+A)*(e*x+d)**5,x)
```

```
[Out] B*e**5*(a + b*x)**13/(13*b**7) + e**4*(a + b*x)**12*(A*b*e - 6*B*
a*e + 5*B*b*d)/(12*b**7) - 5*e**3*(a + b*x)**11*(a*e - b*d)*(A*b*
e - 3*B*a*e + 2*B*b*d)/(11*b**7) + e**2*(a + b*x)**10*(a*e - b*d)
**2*(A*b*e - 2*B*a*e + B*b*d)/b**7 - 5*e*(a + b*x)**9*(a*e - b*d)
**3*(2*A*b*e - 3*B*a*e + B*b*d)/(9*b**7) + (a + b*x)**8*(a*e - b*
d)**4*(5*A*b*e - 6*B*a*e + B*b*d)/(8*b**7) - (a + b*x)**7*(A*b -
B*a)*(a*e - b*d)**5/(7*b**7)
```

Mathematica [B] time = 0.652819, size = 907, normalized size = 3.78

$$\frac{1}{13}b^6Be^5x^{13}+\frac{1}{12}b^5e^4(5bBd+Abe+6aBe)x^{12}+\frac{1}{11}b^4e^3\left(5d(2Bd+Ae)b^2+6ae(5Bd+Ae)b+15a^2Be^2\right)x^{11}+\frac{1}{2}b^3e^2\left(2d^2(Bd+Ae)b^3+6ade(2Bd+Ae)b^2+3a^2e^2(5Bd+Ae)b+4a^3Be^3\right)x^{10}+\frac{5}{9}b^2e\left(d^3(Bd+2Ae)b^4+12ad^2e(Bd+Ae)b^3+15a^2de^2(2Bd+Ae)b^2+4a^3e^3(5Bd+Ae)b+3a^4Be^4\right)x^9+\frac{1}{8}b\left(d^4(Bd+5Ae)b^5+30ad^3e(Bd+2Ae)b^4+150a^2d^2e^2(Bd+Ae)b^3+100a^3de^3(2Bd+Ae)b^2+15a^4e^4(5Bd+Ae)b+6a^5Be^5\right)x^8+\frac{1}{7}\left(aB\left(6b^5d^5+75ab^4ed^4+200a^2b^3e^2d^3+150a^3b^2e^3d^2+30a^4be^4d+a^5e^5\right)+Ab\left(b^5d^5+30ab^4ed^4+150a^2b^3e^2d^3+200a^3b^2e^3d^2+75a^4be^4d+6a^5e^5\right)\right)x^7+\frac{1}{6}a\left(5aBd\left(3b^4d^4+20ab^3ed^3+30a^2b^2e^2d^2+12a^3be^3d+a^4e^4\right)+A\left(6b^5d^5+75ab^4ed^4+200a^2b^3e^2d^3+150a^3b^2e^3d^2+30a^4be^4d+a^5e^5\right)\right)x^6+a^2d\left(aBd\left(4b^3d^3+15ab^2ed^2+12a^2be^2d+2a^3e^3\right)+A\left(3b^4d^4+20ab^3ed^3+30a^2b^2e^2d^2+12a^3be^3d+a^4e^4\right)\right)x^5+\frac{5}{4}a^3d^2\left(aBd\left(3b^2d^2+6abed+2a^2e^2\right)+A\left(4b^3d^3+15ab^2ed^2+12a^2be^2d+2a^3e^3\right)\right)x^4+\frac{1}{3}a^4d^3\left(aBd(6bd+5ae)+5A\left(3b^2d^2+6abed+2a^2e^2\right)\right)x^3+\frac{1}{2}a^5d^4(6Abd+aBd+5aAe)x^2+a^6Ad^5x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^6*(A + B*x)*(d + e*x)^5,x]
```

```
[Out] a^6*A*d^5*x + (a^5*d^4*(6*A*b*d + a*B*d + 5*a*A*e)*x^2)/2 + (a^4*
d^3*(a*B*d*(6*b*d + 5*a*e) + 5*A*(3*b^2*d^2 + 6*a*b*d*e + 2*a^2*e
^2))*x^3)/3 + (5*a^3*d^2*(a*B*d*(3*b^2*d^2 + 6*a*b*d*e + 2*a^2*e^
2) + A*(4*b^3*d^3 + 15*a*b^2*d^2*e + 12*a^2*b*d*e^2 + 2*a^3*e^3))
*x^4)/4 + a^2*d*(a*B*d*(4*b^3*d^3 + 15*a*b^2*d^2*e + 12*a^2*b*d*e
^2 + 2*a^3*e^3) + A*(3*b^4*d^4 + 20*a*b^3*d^3*e + 30*a^2*b^2*d^2*
e^2 + 12*a^3*b*d*e^3 + a^4*e^4))*x^5 + (a*(5*a*B*d*(3*b^4*d^4 + 2
0*a*b^3*d^3*e + 30*a^2*b^2*d^2*e^2 + 12*a^3*b*d*e^3 + a^4*e^4) +
A*(6*b^5*d^5 + 75*a*b^4*d^4*e + 200*a^2*b^3*d^3*e^2 + 150*a^3*b^2
*d^2*e^3 + 30*a^4*b*d*e^4 + a^5*e^5))*x^6)/6 + ((a*B*(6*b^5*d^5 +
 75*a*b^4*d^4*e + 200*a^2*b^3*d^3*e^2 + 150*a^3*b^2*d^2*e^3 + 30*
a^4*b*d*e^4 + a^5*e^5) + A*b*(b^5*d^5 + 30*a*b^4*d^4*e + 150*a^2*
b^3*d^3*e^2 + 200*a^3*b^2*d^2*e^3 + 75*a^4*b*d*e^4 + 6*a^5*e^5))*
x^7)/7 + (b*(6*a^5*B*e^5 + 150*a^2*b^3*d^2*e^2*(B*d + A*e) + 100*
a^3*b^2*d*e^3*(2*B*d + A*e) + 15*a^4*b*e^4*(5*B*d + A*e) + 30*a*b
^4*d^3*e*(B*d + 2*A*e) + b^5*d^4*(B*d + 5*A*e))*x^8)/8 + (5*b^2*e
*(3*a^4*B*e^4 + 12*a*b^3*d^2*e*(B*d + A*e) + 15*a^2*b^2*d*e^2*(2*
B*d + A*e) + 4*a^3*b*e^3*(5*B*d + A*e) + b^4*d^3*(B*d + 2*A*e))*x
^9)/9 + (b^3*e^2*(4*a^3*B*e^3 + 2*b^3*d^2*(B*d + A*e) + 6*a*b^2*d
*e*(2*B*d + A*e) + 3*a^2*b*e^2*(5*B*d + A*e))*x^10)/2 + (b^4*e^3*
(15*a^2*B*e^2 + 5*b^2*d*(2*B*d + A*e) + 6*a*b*e*(5*B*d + A*e))*x^
11)/11 + (b^5*e^4*(5*b*B*d + A*b*e + 6*a*B*e)*x^12)/12 + (b^6*B*e
^5*x^13)/13
```

Maple [B] time = 0.003, size = 997, normalized size = 4.2

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^6*(B*x+A)*(e*x+d)^5,x)
```

```
[Out] 1/13*b^6*B*e^5*x^13+1/12*((A*b^6+6*B*a*b^5)*e^5+5*b^6*B*d*e^4)*x^
12+1/11*((6*A*a*b^5+15*B*a^2*b^4)*e^5+5*(A*b^6+6*B*a*b^5)*d*e^4+1
0*b^6*B*d^2*e^3)*x^11+1/10*((15*A*a^2*b^4+20*B*a^3*b^3)*e^5+5*(6*
A*a*b^5+15*B*a^2*b^4)*d*e^4+10*(A*b^6+6*B*a*b^5)*d^2*e^3+10*b^6*B
*d^3*e^2)*x^10+1/9*((20*A*a^3*b^3+15*B*a^4*b^2)*e^5+5*(15*A*a^2*b
^4+20*B*a^3*b^3)*d*e^4+10*(6*A*a*b^5+15*B*a^2*b^4)*d^2*e^3+10*(A*
b^6+6*B*a*b^5)*d^3*e^2+5*b^6*B*d^4*e)*x^9+1/8*((15*A*a^4*b^2+6*B*
a^5*b)*e^5+5*(20*A*a^3*b^3+15*B*a^4*b^2)*d*e^4+10*(15*A*a^2*b^4+2
0*B*a^3*b^3)*d^2*e^3+10*(6*A*a*b^5+15*B*a^2*b^4)*d^3*e^2+5*(A*b^6
+6*B*a*b^5)*d^4*e+b^6*B*d^5)*x^8+1/7*((6*A*a^5*b+B*a^6)*e^5+5*(15
*A*a^4*b^2+6*B*a^5*b)*d*e^4+10*(20*A*a^3*b^3+15*B*a^4*b^2)*d^2*e^
3+10*(15*A*a^2*b^4+20*B*a^3*b^3)*d^3*e^2+5*(6*A*a*b^5+15*B*a^2*b^
4)*d^4*e+(A*b^6+6*B*a*b^5)*d^5)*x^7+1/6*(a^6*A*e^5+5*(6*A*a^5*b+B
*a^6)*d*e^4+10*(15*A*a^4*b^2+6*B*a^5*b)*d^2*e^3+10*(20*A*a^3*b^3+
15*B*a^4*b^2)*d^3*e^2+5*(15*A*a^2*b^4+20*B*a^3*b^3)*d^4*e+(6*A*a*
b^5+15*B*a^2*b^4)*d^5)*x^6+1/5*(5*a^6*A*d*e^4+10*(6*A*a^5*b+B*a^6
)*d^2*e^3+10*(15*A*a^4*b^2+6*B*a^5*b)*d^3*e^2+5*(20*A*a^3*b^3+15*
B*a^4*b^2)*d^4*e+(15*A*a^2*b^4+20*B*a^3*b^3)*d^5)*x^5+1/4*(10*a^6
*A*d^2*e^3+10*(6*A*a^5*b+B*a^6)*d^3*e^2+5*(15*A*a^4*b^2+6*B*a^5*b
)*d^4*e+(20*A*a^3*b^3+15*B*a^4*b^2)*d^5)*x^4+1/3*(10*a^6*A*d^3*e^
2+5*(6*A*a^5*b+B*a^6)*d^4*e+(15*A*a^4*b^2+6*B*a^5*b)*d^5)*x^3+1/2
*(5*a^6*A*d^4*e+(6*A*a^5*b+B*a^6)*d^5)*x^2+a^6*A*d^5*x
```

Maxima [A] time = 1.35772, size = 1346, normalized size = 5.61

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6*(e*x + d)^5,x, algorithm="maxima")
```

```
[Out] 1/13*B*b^6*e^5*x^13 + A*a^6*d^5*x + 1/12*(5*B*b^6*d*e^4 + (6*B*a*
b^5 + A*b^6)*e^5)*x^12 + 1/11*(10*B*b^6*d^2*e^3 + 5*(6*B*a*b^5 +
A*b^6)*d*e^4 + 3*(5*B*a^2*b^4 + 2*A*a*b^5)*e^5)*x^11 + 1/2*(2*B*b
^6*d^3*e^2 + 2*(6*B*a*b^5 + A*b^6)*d^2*e^3 + 3*(5*B*a^2*b^4 + 2*A
*a*b^5)*d*e^4 + (4*B*a^3*b^3 + 3*A*a^2*b^4)*e^5)*x^10 + 5/9*(B*b^
6*d^4*e + 2*(6*B*a*b^5 + A*b^6)*d^3*e^2 + 6*(5*B*a^2*b^4 + 2*A*a*
b^5)*d^2*e^3 + 5*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d*e^4 + (3*B*a^4*b^2
 + 4*A*a^3*b^3)*e^5)*x^9 + 1/8*(B*b^6*d^5 + 5*(6*B*a*b^5 + A*b^6)
*d^4*e + 30*(5*B*a^2*b^4 + 2*A*a*b^5)*d^3*e^2 + 50*(4*B*a^3*b^3 +
 3*A*a^2*b^4)*d^2*e^3 + 25*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d*e^4 + 3*
(2*B*a^5*b + 5*A*a^4*b^2)*e^5)*x^8 + 1/7*((6*B*a*b^5 + A*b^6)*d^5
 + 15*(5*B*a^2*b^4 + 2*A*a*b^5)*d^4*e + 50*(4*B*a^3*b^3 + 3*A*a^2
*b^4)*d^3*e^2 + 50*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d^2*e^3 + 15*(2*B*
a^5*b + 5*A*a^4*b^2)*d*e^4 + (B*a^6 + 6*A*a^5*b)*e^5)*x^7 + 1/6*(
A*a^6*e^5 + 3*(5*B*a^2*b^4 + 2*A*a*b^5)*d^5 + 25*(4*B*a^3*b^3 + 3
*A*a^2*b^4)*d^4*e + 50*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d^3*e^2 + 30*(
2*B*a^5*b + 5*A*a^4*b^2)*d^2*e^3 + 5*(B*a^6 + 6*A*a^5*b)*d*e^4)*x
^6 + (A*a^6*d*e^4 + (4*B*a^3*b^3 + 3*A*a^2*b^4)*d^5 + 5*(3*B*a^4*
b^2 + 4*A*a^3*b^3)*d^4*e + 6*(2*B*a^5*b + 5*A*a^4*b^2)*d^3*e^2 +
2*(B*a^6 + 6*A*a^5*b)*d^2*e^3)*x^5 + 5/4*(2*A*a^6*d^2*e^3 + (3*B*
a^4*b^2 + 4*A*a^3*b^3)*d^5 + 3*(2*B*a^5*b + 5*A*a^4*b^2)*d^4*e +
2*(B*a^6 + 6*A*a^5*b)*d^3*e^2)*x^4 + 1/3*(10*A*a^6*d^3*e^2 + 3*(2
*B*a^5*b + 5*A*a^4*b^2)*d^5 + 5*(B*a^6 + 6*A*a^5*b)*d^4*e)*x^3 +
1/2*(5*A*a^6*d^4*e + (B*a^6 + 6*A*a^5*b)*d^5)*x^2
```

Fricas [A] time = 0.19399, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6*(e*x + d)^5,x, algorithm="fricas")
```

```
[Out] 1/13*x^13*e^5*b^6*B + 5/12*x^12*e^4*d*b^6*B + 1/2*x^12*e^5*b^5*a*
B + 1/12*x^12*e^5*b^6*A + 10/11*x^11*e^3*d^2*b^6*B + 30/11*x^11*e
```

```
^4*d*b^5*a*B + 15/11*x^11*e^5*b^4*a^2*B + 5/11*x^11*e^4*d*b^6*A +
 6/11*x^11*e^5*b^5*a*A + x^10*e^2*d^3*b^6*B + 6*x^10*e^3*d^2*b^5*
a*B + 15/2*x^10*e^4*d*b^4*a^2*B + 2*x^10*e^5*b^3*a^3*B + x^10*e^3
*d^2*b^6*A + 3*x^10*e^4*d*b^5*a*A + 3/2*x^10*e^5*b^4*a^2*A + 5/9*
x^9*e*d^4*b^6*B + 20/3*x^9*e^2*d^3*b^5*a*B + 50/3*x^9*e^3*d^2*b^4
*a^2*B + 100/9*x^9*e^4*d*b^3*a^3*B + 5/3*x^9*e^5*b^2*a^4*B + 10/9
*x^9*e^2*d^3*b^6*A + 20/3*x^9*e^3*d^2*b^5*a*A + 25/3*x^9*e^4*d*b^
4*a^2*A + 20/9*x^9*e^5*b^3*a^3*A + 1/8*x^8*d^5*b^6*B + 15/4*x^8*e
*d^4*b^5*a*B + 75/4*x^8*e^2*d^3*b^4*a^2*B + 25*x^8*e^3*d^2*b^3*a^
3*B + 75/8*x^8*e^4*d*b^2*a^4*B + 3/4*x^8*e^5*b*a^5*B + 5/8*x^8*e*
d^4*b^6*A + 15/2*x^8*e^2*d^3*b^5*a*A + 75/4*x^8*e^3*d^2*b^4*a^2*A
 + 25/2*x^8*e^4*d*b^3*a^3*A + 15/8*x^8*e^5*b^2*a^4*A + 6/7*x^7*d^
5*b^5*a*B + 75/7*x^7*e*d^4*b^4*a^2*B + 200/7*x^7*e^2*d^3*b^3*a^3*
B + 150/7*x^7*e^3*d^2*b^2*a^4*B + 30/7*x^7*e^4*d*b*a^5*B + 1/7*x^
7*e^5*a^6*B + 1/7*x^7*d^5*b^6*A + 30/7*x^7*e*d^4*b^5*a*A + 150/7*
x^7*e^2*d^3*b^4*a^2*A + 200/7*x^7*e^3*d^2*b^3*a^3*A + 75/7*x^7*e^
4*d*b^2*a^4*A + 6/7*x^7*e^5*b*a^5*A + 5/2*x^6*d^5*b^4*a^2*B + 50/
3*x^6*e*d^4*b^3*a^3*B + 25*x^6*e^2*d^3*b^2*a^4*B + 10*x^6*e^3*d^2
*b*a^5*B + 5/6*x^6*e^4*d*a^6*B + x^6*d^5*b^5*a*A + 25/2*x^6*e*d^4
*b^4*a^2*A + 100/3*x^6*e^2*d^3*b^3*a^3*A + 25*x^6*e^3*d^2*b^2*a^4
*A + 5*x^6*e^4*d*b*a^5*A + 1/6*x^6*e^5*a^6*A + 4*x^5*d^5*b^3*a^3*
B + 15*x^5*e*d^4*b^2*a^4*B + 12*x^5*e^2*d^3*b*a^5*B + 2*x^5*e^3*d
^2*a^6*B + 3*x^5*d^5*b^4*a^2*A + 20*x^5*e*d^4*b^3*a^3*A + 30*x^5*
e^2*d^3*b^2*a^4*A + 12*x^5*e^3*d^2*b*a^5*A + x^5*e^4*d*a^6*A + 15
/4*x^4*d^5*b^2*a^4*B + 15/2*x^4*e*d^4*b*a^5*B + 5/2*x^4*e^2*d^3*a
^6*B + 5*x^4*d^5*b^3*a^3*A + 75/4*x^4*e*d^4*b^2*a^4*A + 15*x^4*e^
2*d^3*b*a^5*A + 5/2*x^4*e^3*d^2*a^6*A + 2*x^3*d^5*b*a^5*B + 5/3*x
^3*e*d^4*a^6*B + 5*x^3*d^5*b^2*a^4*A + 10*x^3*e*d^4*b*a^5*A + 10/
3*x^3*e^2*d^3*a^6*A + 1/2*x^2*d^5*a^6*B + 3*x^2*d^5*b*a^5*A + 5/2
*x^2*e*d^4*a^6*A + x*d^5*a^6*A
```

Sympy [A] time = 0.603019, size = 1278, normalized size = 5.32

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**6*(B*x+A)*(e*x+d)**5,x)
```

```
[Out] A*a**6*d**5*x + B*b**6*e**5*x**13/13 + x**12*(A*b**6*e**5/12 + B*
a*b**5*e**5/2 + 5*B*b**6*d*e**4/12) + x**11*(6*A*a*b**5*e**5/11 +
 5*A*b**6*d*e**4/11 + 15*B*a**2*b**4*e**5/11 + 30*B*a*b**5*d*e**4
/11 + 10*B*b**6*d**2*e**3/11) + x**10*(3*A*a**2*b**4*e**5/2 + 3*A
*a*b**5*d*e**4 + A*b**6*d**2*e**3 + 2*B*a**3*b**3*e**5 + 15*B*a**
2*b**4*d*e**4/2 + 6*B*a*b**5*d**2*e**3 + B*b**6*d**3*e**2) + x**9
*(20*A*a**3*b**3*e**5/9 + 25*A*a**2*b**4*d*e**4/3 + 20*A*a*b**5*d
**2*e**3/3 + 10*A*b**6*d**3*e**2/9 + 5*B*a**4*b**2*e**5/3 + 100*B
*a**3*b**3*d*e**4/9 + 50*B*a**2*b**4*d**2*e**3/3 + 20*B*a*b**5*d*
*3*e**2/3 + 5*B*b**6*d**4*e/9) + x**8*(15*A*a**4*b**2*e**5/8 + 25
*A*a**3*b**3*d*e**4/2 + 75*A*a**2*b**4*d**2*e**3/4 + 15*A*a*b**5*
d**3*e**2/2 + 5*A*b**6*d**4*e/8 + 3*B*a**5*b*e**5/4 + 75*B*a**4*b
**2*d*e**4/8 + 25*B*a**3*b**3*d**2*e**3 + 75*B*a**2*b**4*d**3*e**
2/4 + 15*B*a*b**5*d**4*e/4 + B*b**6*d**5/8) + x**7*(6*A*a**5*b*e*
*5/7 + 75*A*a**4*b**2*d*e**4/7 + 200*A*a**3*b**3*d**2*e**3/7 + 15
0*A*a**2*b**4*d**3*e**2/7 + 30*A*a*b**5*d**4*e/7 + A*b**6*d**5/7
+ B*a**6*e**5/7 + 30*B*a**5*b*d*e**4/7 + 150*B*a**4*b**2*d**2*e**
3/7 + 200*B*a**3*b**3*d**3*e**2/7 + 75*B*a**2*b**4*d**4*e/7 + 6*B
*a*b**5*d**5/7) + x**6*(A*a**6*e**5/6 + 5*A*a**5*b*d*e**4 + 25*A*
a**4*b**2*d**2*e**3 + 100*A*a**3*b**3*d**3*e**2/3 + 25*A*a**2*b**
4*d**4*e/2 + A*a*b**5*d**5 + 5*B*a**6*d*e**4/6 + 10*B*a**5*b*d**2
*e**3 + 25*B*a**4*b**2*d**3*e**2 + 50*B*a**3*b**3*d**4*e/3 + 5*B*
a**2*b**4*d**5/2) + x**5*(A*a**6*d*e**4 + 12*A*a**5*b*d**2*e**3 +
 30*A*a**4*b**2*d**3*e**2 + 20*A*a**3*b**3*d**4*e + 3*A*a**2*b**4
*d**5 + 2*B*a**6*d**2*e**3 + 12*B*a**5*b*d**3*e**2 + 15*B*a**4*b*
*2*d**4*e + 4*B*a**3*b**3*d**5) + x**4*(5*A*a**6*d**2*e**3/2 + 15
*A*a**5*b*d**3*e**2 + 75*A*a**4*b**2*d**4*e/4 + 5*A*a**3*b**3*d**
5 + 5*B*a**6*d**3*e**2/2 + 15*B*a**5*b*d**4*e/2 + 15*B*a**4*b**2*
d**5/4) + x**3*(10*A*a**6*d**3*e**2/3 + 10*A*a**5*b*d**4*e + 5*A*
a**4*b**2*d**5 + 5*B*a**6*d**4*e/3 + 2*B*a**5*b*d**5) + x**2*(5*A
*a**6*d**4*e/2 + 3*A*a**5*b*d**5 + B*a**6*d**5/2)
```

GIAC/XCAS [A] time = 0.231424, size = 1, normalized size = 0.

$$Done$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6*(e*x + d)^5,x, algorithm="giac")
```

```
[Out] Done
```

3.1038 $\int (a+bx)^6(A+Bx)(d+ex)^4\,dx$

Optimal. Leaf size=204

$$\frac{e^3(a+bx)^{11}(-5aBe+Abe+4bBd)}{11b^6}+\frac{e^2(a+bx)^{10}(bd-ae)(-5aBe+2Abe+3bBd)}{5b^6}+\frac{2e(a+bx)^9(bd-ae)^2(-5aBe+3Abe+2bBd)}{9b^6}+\frac{(a+bx)^8(bd-ae)^3(-5aBe+4Abe+bBd)}{8b^6}+\frac{(a+bx)^7(Ab-aB)(bd-ae)^4}{7b^6}+\frac{Be^4(a+bx)^{12}}{12b^6}$$

```
[Out] ((A*b - a*B)*(b*d - a*e)^4*(a + b*x)^7)/(7*b^6) + ((b*d - a*e)^3*
(b*B*d + 4*A*b*e - 5*a*B*e)*(a + b*x)^8)/(8*b^6) + (2*e*(b*d - a*
e)^2*(2*b*B*d + 3*A*b*e - 5*a*B*e)*(a + b*x)^9)/(9*b^6) + (e^2*(b
*d - a*e)*(3*b*B*d + 2*A*b*e - 5*a*B*e)*(a + b*x)^10)/(5*b^6) + (
e^3*(4*b*B*d + A*b*e - 5*a*B*e)*(a + b*x)^11)/(11*b^6) + (B*e^4*(
a + b*x)^12)/(12*b^6)
```

Rubi [A] time = 1.94016, antiderivative size = 204, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{e^3(a+bx)^{11}(-5aBe+Abe+4bBd)}{11b^6}+\frac{e^2(a+bx)^{10}(bd-ae)(-5aBe+2Abe+3bBd)}{5b^6}+\frac{2e(a+bx)^9(bd-ae)^2(-5aBe+3Abe+2bBd)}{9b^6}+\frac{(a+bx)^8(bd-ae)^3(-5aBe+4Abe+bBd)}{8b^6}+\frac{(a+bx)^7(Ab-aB)(bd-ae)^4}{7b^6}+\frac{Be^4(a+bx)^{12}}{12b^6}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^6*(A + B*x)*(d + e*x)^4,x]
```

```
[Out] ((A*b - a*B)*(b*d - a*e)^4*(a + b*x)^7)/(7*b^6) + ((b*d - a*e)^3*
(b*B*d + 4*A*b*e - 5*a*B*e)*(a + b*x)^8)/(8*b^6) + (2*e*(b*d - a*
e)^2*(2*b*B*d + 3*A*b*e - 5*a*B*e)*(a + b*x)^9)/(9*b^6) + (e^2*(b
*d - a*e)*(3*b*B*d + 2*A*b*e - 5*a*B*e)*(a + b*x)^10)/(5*b^6) + (
e^3*(4*b*B*d + A*b*e - 5*a*B*e)*(a + b*x)^11)/(11*b^6) + (B*e^4*(
a + b*x)^12)/(12*b^6)
```

Rubi in Sympy [A] time = 118.162, size = 202, normalized size = 0.99

$$\frac{Be^4(a+bx)^{12}}{12b^6}+\frac{e^3(a+bx)^{11}(Abe-5Bae+4Bbd)}{11b^6}-\frac{e^2(a+bx)^{10}(ae-bd)(2Abe-5Bae+3Bbd)}{5b^6}+\frac{2e(a+bx)^9(ae-bd)^2(3Abe-5Bae+2Bbd)}{9b^6}-\frac{(a+bx)^8(ae-bd)^3(4Abe-5Bae+Bbd)}{8b^6}+\frac{(a+bx)^7(Ab-Ba)(ae-bd)^4}{7b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**6*(B*x+A)*(e*x+d)**4,x)
```

```
[Out] B*e**4*(a + b*x)**12/(12*b**6) + e**3*(a + b*x)**11*(A*b*e - 5*B*
a*e + 4*B*b*d)/(11*b**6) - e**2*(a + b*x)**10*(a*e - b*d)*(2*A*b*
e - 5*B*a*e + 3*B*b*d)/(5*b**6) + 2*e*(a + b*x)**9*(a*e - b*d)**2
*(3*A*b*e - 5*B*a*e + 2*B*b*d)/(9*b**6) - (a + b*x)**8*(a*e - b*d
)**3*(4*A*b*e - 5*B*a*e + B*b*d)/(8*b**6) + (a + b*x)**7*(A*b - B
*a)*(a*e - b*d)**4/(7*b**6)
```

Mathematica [B] time = 0.528021, size = 762, normalized size = 3.74

$$a^6Ad^4x+\frac{1}{2}a^5d^3x^2(4aAe+aBd+6Abd)+\frac{1}{10}b^4e^2x^{10}\left(15a^2Be^2+6abe(Ae+4Bd)+2b^2d(2Ae+3Bd)\right)+\frac{1}{3}a^4d^2x^3\left(3A\left(2a^2e^2+8abde+5b^2d^2\right)+2aBd(2ae+3bd)\right)+\frac{1}{9}b^3ex^9\left(20a^3Be^3+15a^2be^2(Ae+4Bd)+12ab^2de(2Ae+3Bd)+2b^3d^2(3Ae+2Bd)\right)+\frac{1}{4}a^3dx^4\left(3aBd\left(2a^2e^2+8abde+5b^2d^2\right)+4A\left(a^3e^3+9a^2bde^2+15ab^2d^2e+5b^3d^3\right)\right)+\frac{1}{8}b^2x^8\left(15a^4Be^4+20a^3be^3(Ae+4Bd)+30a^2b^2de^2(2Ae+3Bd)+12ab^3d^2e(3Ae+2Bd)+b^4d^3(4Ae+Bd)\right)+\frac{1}{7}bx^7\left(Ab\left(15a^4e^4+80a^3bde^3+90a^2b^2d^2e^2+24ab^3d^3e+b^4d^4\right)+6aB\left(a^4e^4+10a^3bde^3+20a^2b^2d^2e^2+10ab^3d^3e+b^4d^4\right)\right)+\frac{1}{6}ax^6\left(6Ab\left(a^4e^4+10a^3bde^3+20a^2b^2d^2e^2+10ab^3d^3e+b^4d^4\right)+aB\left(a^4e^4+24a^3bde^3+90a^2b^2d^2e^2+80ab^3d^3e+15b^4d^4\right)\right)+\frac{1}{5}a^2x^5\left(4aBd\left(a^3e^3+9a^2bde^2+15ab^2d^2e+5b^3d^3\right)+A\left(a^4e^4+24a^3bde^3+90a^2b^2d^2e^2+80ab^3d^3e+15b^4d^4\right)\right)+\frac{1}{11}b^5e^3x^{11}(6aBe+Abe+4bBd)+\frac{1}{12}b^6Be^4x^{12}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^6*(A + B*x)*(d + e*x)^4,x]
```

```
[Out] a^6*A*d^4*x + (a^5*d^3*(6*A*b*d + a*B*d + 4*a*A*e)*x^2)/2 + (a^4*
d^2*(2*a*B*d*(3*b*d + 2*a*e) + 3*A*(5*b^2*d^2 + 8*a*b*d*e + 2*a^2
*e^2))*x^3)/3 + (a^3*d*(3*a*B*d*(5*b^2*d^2 + 8*a*b*d*e + 2*a^2*e^
2) + 4*A*(5*b^3*d^3 + 15*a*b^2*d^2*e + 9*a^2*b*d*e^2 + a^3*e^3))*
x^4)/4 + (a^2*(4*a*B*d*(5*b^3*d^3 + 15*a*b^2*d^2*e + 9*a^2*b*d*e^
2 + a^3*e^3) + A*(15*b^4*d^4 + 80*a*b^3*d^3*e + 90*a^2*b^2*d^2*e^
2 + 24*a^3*b*d*e^3 + a^4*e^4))*x^5)/5 + (a*(6*A*b*(b^4*d^4 + 10*a
*b^3*d^3*e + 20*a^2*b^2*d^2*e^2 + 10*a^3*b*d*e^3 + a^4*e^4) + a*B
*(15*b^4*d^4 + 80*a*b^3*d^3*e + 90*a^2*b^2*d^2*e^2 + 24*a^3*b*d*e
^3 + a^4*e^4))*x^6)/6 + (b*(6*a*B*(b^4*d^4 + 10*a*b^3*d^3*e + 20*
a^2*b^2*d^2*e^2 + 10*a^3*b*d*e^3 + a^4*e^4) + A*b*(b^4*d^4 + 24*a
*b^3*d^3*e + 90*a^2*b^2*d^2*e^2 + 80*a^3*b*d*e^3 + 15*a^4*e^4))*x
^7)/7 + (b^2*(15*a^4*B*e^4 + 20*a^3*b*e^3*(4*B*d + A*e) + 30*a^2*
b^2*d*e^2*(3*B*d + 2*A*e) + 12*a*b^3*d^2*e*(2*B*d + 3*A*e) + b^4*
d^3*(B*d + 4*A*e))*x^8)/8 + (b^3*e*(20*a^3*B*e^3 + 15*a^2*b*e^2*(
4*B*d + A*e) + 12*a*b^2*d*e*(3*B*d + 2*A*e) + 2*b^3*d^2*(2*B*d +
3*A*e))*x^9)/9 + (b^4*e^2*(15*a^2*B*e^2 + 6*a*b*e*(4*B*d + A*e) +
 2*b^2*d*(3*B*d + 2*A*e))*x^10)/10 + (b^5*e^3*(4*b*B*d + A*b*e +
6*a*B*e)*x^11)/11 + (b^6*B*e^4*x^12)/12
```

Maple [B] time = 0.003, size = 821, normalized size = 4.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^6*(B*x+A)*(e*x+d)^4,x)
```

```
[Out] 1/12*b^6*B*e^4*x^12+1/11*((A*b^6+6*B*a*b^5)*e^4+4*b^6*B*d*e^3)*x^
11+1/10*((6*A*a*b^5+15*B*a^2*b^4)*e^4+4*(A*b^6+6*B*a*b^5)*d*e^3+6
*b^6*B*d^2*e^2)*x^10+1/9*((15*A*a^2*b^4+20*B*a^3*b^3)*e^4+4*(6*A*
a*b^5+15*B*a^2*b^4)*d*e^3+6*(A*b^6+6*B*a*b^5)*d^2*e^2+4*b^6*B*d^3
*e)*x^9+1/8*((20*A*a^3*b^3+15*B*a^4*b^2)*e^4+4*(15*A*a^2*b^4+20*B
*a^3*b^3)*d*e^3+6*(6*A*a*b^5+15*B*a^2*b^4)*d^2*e^2+4*(A*b^6+6*B*a
*b^5)*d^3*e+b^6*B*d^4)*x^8+1/7*((15*A*a^4*b^2+6*B*a^5*b)*e^4+4*(2
0*A*a^3*b^3+15*B*a^4*b^2)*d*e^3+6*(15*A*a^2*b^4+20*B*a^3*b^3)*d^2
```

```
*e^2+4*(6*A*a*b^5+15*B*a^2*b^4)*d^3*e+(A*b^6+6*B*a*b^5)*d^4)*x^7+
1/6*((6*A*a^5*b+B*a^6)*e^4+4*(15*A*a^4*b^2+6*B*a^5*b)*d*e^3+6*(20
*A*a^3*b^3+15*B*a^4*b^2)*d^2*e^2+4*(15*A*a^2*b^4+20*B*a^3*b^3)*d^
3*e+(6*A*a*b^5+15*B*a^2*b^4)*d^4)*x^6+1/5*(a^6*A*e^4+4*(6*A*a^5*b
+B*a^6)*d*e^3+6*(15*A*a^4*b^2+6*B*a^5*b)*d^2*e^2+4*(20*A*a^3*b^3+
15*B*a^4*b^2)*d^3*e+(15*A*a^2*b^4+20*B*a^3*b^3)*d^4)*x^5+1/4*(4*a
^6*A*d*e^3+6*(6*A*a^5*b+B*a^6)*d^2*e^2+4*(15*A*a^4*b^2+6*B*a^5*b)
*d^3*e+(20*A*a^3*b^3+15*B*a^4*b^2)*d^4)*x^4+1/3*(6*a^6*A*d^2*e^2+
4*(6*A*a^5*b+B*a^6)*d^3*e+(15*A*a^4*b^2+6*B*a^5*b)*d^4)*x^3+1/2*(
4*a^6*A*d^3*e+(6*A*a^5*b+B*a^6)*d^4)*x^2+a^6*A*d^4*x
```

Maxima [A] time = 1.35751, size = 1118, normalized size = 5.48

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6*(e*x + d)^4,x, algorithm="maxima")
```

```
[Out] 1/12*B*b^6*e^4*x^12 + A*a^6*d^4*x + 1/11*(4*B*b^6*d*e^3 + (6*B*a*
b^5 + A*b^6)*e^4)*x^11 + 1/10*(6*B*b^6*d^2*e^2 + 4*(6*B*a*b^5 + A
*b^6)*d*e^3 + 3*(5*B*a^2*b^4 + 2*A*a*b^5)*e^4)*x^10 + 1/9*(4*B*b^
6*d^3*e + 6*(6*B*a*b^5 + A*b^6)*d^2*e^2 + 12*(5*B*a^2*b^4 + 2*A*a
*b^5)*d*e^3 + 5*(4*B*a^3*b^3 + 3*A*a^2*b^4)*e^4)*x^9 + 1/8*(B*b^6
*d^4 + 4*(6*B*a*b^5 + A*b^6)*d^3*e + 18*(5*B*a^2*b^4 + 2*A*a*b^5)
*d^2*e^2 + 20*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d*e^3 + 5*(3*B*a^4*b^2
+ 4*A*a^3*b^3)*e^4)*x^8 + 1/7*((6*B*a*b^5 + A*b^6)*d^4 + 12*(5*B*
a^2*b^4 + 2*A*a*b^5)*d^3*e + 30*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^2*e
^2 + 20*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d*e^3 + 3*(2*B*a^5*b + 5*A*a^
4*b^2)*e^4)*x^7 + 1/6*(3*(5*B*a^2*b^4 + 2*A*a*b^5)*d^4 + 20*(4*B*
a^3*b^3 + 3*A*a^2*b^4)*d^3*e + 30*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d^2
*e^2 + 12*(2*B*a^5*b + 5*A*a^4*b^2)*d*e^3 + (B*a^6 + 6*A*a^5*b)*e
^4)*x^6 + 1/5*(A*a^6*e^4 + 5*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^4 + 20
*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d^3*e + 18*(2*B*a^5*b + 5*A*a^4*b^2)
*d^2*e^2 + 4*(B*a^6 + 6*A*a^5*b)*d*e^3)*x^5 + 1/4*(4*A*a^6*d*e^3
+ 5*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d^4 + 12*(2*B*a^5*b + 5*A*a^4*b^2
)*d^3*e + 6*(B*a^6 + 6*A*a^5*b)*d^2*e^2)*x^4 + 1/3*(6*A*a^6*d^2*e
^2 + 3*(2*B*a^5*b + 5*A*a^4*b^2)*d^4 + 4*(B*a^6 + 6*A*a^5*b)*d^3*
e)*x^3 + 1/2*(4*A*a^6*d^3*e + (B*a^6 + 6*A*a^5*b)*d^4)*x^2
```

Fricas [A] time = 0.19137, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6*(e*x + d)^4,x, algorithm="fricas")
```

```
[Out] 1/12*x^12*e^4*b^6*B + 4/11*x^11*e^3*d*b^6*B + 6/11*x^11*e^4*b^5*a
*B + 1/11*x^11*e^4*b^6*A + 3/5*x^10*e^2*d^2*b^6*B + 12/5*x^10*e^3
*d*b^5*a*B + 3/2*x^10*e^4*b^4*a^2*B + 2/5*x^10*e^3*d*b^6*A + 3/5*
x^10*e^4*b^5*a*A + 4/9*x^9*e*d^3*b^6*B + 4*x^9*e^2*d^2*b^5*a*B +
20/3*x^9*e^3*d*b^4*a^2*B + 20/9*x^9*e^4*b^3*a^3*B + 2/3*x^9*e^2*d
^2*b^6*A + 8/3*x^9*e^3*d*b^5*a*A + 5/3*x^9*e^4*b^4*a^2*A + 1/8*x^
8*d^4*b^6*B + 3*x^8*e*d^3*b^5*a*B + 45/4*x^8*e^2*d^2*b^4*a^2*B +
10*x^8*e^3*d*b^3*a^3*B + 15/8*x^8*e^4*b^2*a^4*B + 1/2*x^8*e*d^3*b
^6*A + 9/2*x^8*e^2*d^2*b^5*a*A + 15/2*x^8*e^3*d*b^4*a^2*A + 5/2*x
^8*e^4*b^3*a^3*A + 6/7*x^7*d^4*b^5*a*B + 60/7*x^7*e*d^3*b^4*a^2*B
 + 120/7*x^7*e^2*d^2*b^3*a^3*B + 60/7*x^7*e^3*d*b^2*a^4*B + 6/7*x
^7*e^4*b*a^5*B + 1/7*x^7*d^4*b^6*A + 24/7*x^7*e*d^3*b^5*a*A + 90/
7*x^7*e^2*d^2*b^4*a^2*A + 80/7*x^7*e^3*d*b^3*a^3*A + 15/7*x^7*e^4
*b^2*a^4*A + 5/2*x^6*d^4*b^4*a^2*B + 40/3*x^6*e*d^3*b^3*a^3*B + 1
5*x^6*e^2*d^2*b^2*a^4*B + 4*x^6*e^3*d*b*a^5*B + 1/6*x^6*e^4*a^6*B
 + x^6*d^4*b^5*a*A + 10*x^6*e*d^3*b^4*a^2*A + 20*x^6*e^2*d^2*b^3*
a^3*A + 10*x^6*e^3*d*b^2*a^4*A + x^6*e^4*b*a^5*A + 4*x^5*d^4*b^3*
```

```
a^3*B + 12*x^5*e*d^3*b^2*a^4*B + 36/5*x^5*e^2*d^2*b*a^5*B + 4/5*x
^5*e^3*d*a^6*B + 3*x^5*d^4*b^4*a^2*A + 16*x^5*e*d^3*b^3*a^3*A + 1
8*x^5*e^2*d^2*b^2*a^4*A + 24/5*x^5*e^3*d*b*a^5*A + 1/5*x^5*e^4*a^
6*A + 15/4*x^4*d^4*b^2*a^4*B + 6*x^4*e*d^3*b*a^5*B + 3/2*x^4*e^2*
d^2*a^6*B + 5*x^4*d^4*b^3*a^3*A + 15*x^4*e*d^3*b^2*a^4*A + 9*x^4*
e^2*d^2*b*a^5*A + x^4*e^3*d*a^6*A + 2*x^3*d^4*b*a^5*B + 4/3*x^3*e
*d^3*a^6*B + 5*x^3*d^4*b^2*a^4*A + 8*x^3*e*d^3*b*a^5*A + 2*x^3*e^
2*d^2*a^6*A + 1/2*x^2*d^4*a^6*B + 3*x^2*d^4*b*a^5*A + 2*x^2*e*d^3
*a^6*A + x*d^4*a^6*A
```

Sympy [A] time = 0.515343, size = 1035, normalized size = 5.07

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**6*(B*x+A)*(e*x+d)**4,x)
```

```
[Out] A*a**6*d**4*x + B*b**6*e**4*x**12/12 + x**11*(A*b**6*e**4/11 + 6*
B*a*b**5*e**4/11 + 4*B*b**6*d*e**3/11) + x**10*(3*A*a*b**5*e**4/5
 + 2*A*b**6*d*e**3/5 + 3*B*a**2*b**4*e**4/2 + 12*B*a*b**5*d*e**3/
5 + 3*B*b**6*d**2*e**2/5) + x**9*(5*A*a**2*b**4*e**4/3 + 8*A*a*b*
*5*d*e**3/3 + 2*A*b**6*d**2*e**2/3 + 20*B*a**3*b**3*e**4/9 + 20*B
*a**2*b**4*d*e**3/3 + 4*B*a*b**5*d**2*e**2 + 4*B*b**6*d**3*e/9) +
 x**8*(5*A*a**3*b**3*e**4/2 + 15*A*a**2*b**4*d*e**3/2 + 9*A*a*b**
5*d**2*e**2/2 + A*b**6*d**3*e/2 + 15*B*a**4*b**2*e**4/8 + 10*B*a*
*3*b**3*d*e**3 + 45*B*a**2*b**4*d**2*e**2/4 + 3*B*a*b**5*d**3*e +
 B*b**6*d**4/8) + x**7*(15*A*a**4*b**2*e**4/7 + 80*A*a**3*b**3*d*
e**3/7 + 90*A*a**2*b**4*d**2*e**2/7 + 24*A*a*b**5*d**3*e/7 + A*b*
*6*d**4/7 + 6*B*a**5*b*e**4/7 + 60*B*a**4*b**2*d*e**3/7 + 120*B*a
**3*b**3*d**2*e**2/7 + 60*B*a**2*b**4*d**3*e/7 + 6*B*a*b**5*d**4/
7) + x**6*(A*a**5*b*e**4 + 10*A*a**4*b**2*d*e**3 + 20*A*a**3*b**3
*d**2*e**2 + 10*A*a**2*b**4*d**3*e + A*a*b**5*d**4 + B*a**6*e**4/
6 + 4*B*a**5*b*d*e**3 + 15*B*a**4*b**2*d**2*e**2 + 40*B*a**3*b**3
*d**3*e/3 + 5*B*a**2*b**4*d**4/2) + x**5*(A*a**6*e**4/5 + 24*A*a*
*5*b*d*e**3/5 + 18*A*a**4*b**2*d**2*e**2 + 16*A*a**3*b**3*d**3*e
+ 3*A*a**2*b**4*d**4 + 4*B*a**6*d*e**3/5 + 36*B*a**5*b*d**2*e**2/
5 + 12*B*a**4*b**2*d**3*e + 4*B*a**3*b**3*d**4) + x**4*(A*a**6*d*
e**3 + 9*A*a**5*b*d**2*e**2 + 15*A*a**4*b**2*d**3*e + 5*A*a**3*b*
*3*d**4 + 3*B*a**6*d**2*e**2/2 + 6*B*a**5*b*d**3*e + 15*B*a**4*b*
*2*d**4/4) + x**3*(2*A*a**6*d**2*e**2 + 8*A*a**5*b*d**3*e + 5*A*a
**4*b**2*d**4 + 4*B*a**6*d**3*e/3 + 2*B*a**5*b*d**4) + x**2*(2*A*
a**6*d**3*e + 3*A*a**5*b*d**4 + B*a**6*d**4/2)
```

GIAC/XCAS [A] time = 0.226031, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6*(e*x + d)^4,x, algorithm="giac")
```

```
[Out] Done
```

3.1039 $\int (a+bx)^6(A+Bx)(d+ex)^3\,dx$

Optimal. Leaf size=159

$$\frac{e^2(a+bx)^{10}(-4aBe+Abe+3bBd)}{10b^5}+\frac{e(a+bx)^9(bd-ae)(-2aBe+Abe+bBd)}{3b^5}+\frac{(a+bx)^8(bd-ae)^2(-4aBe+3Abe+bBd)}{8b^5}+\frac{(a+bx)^7(Ab-aB)(bd-ae)^3}{7b^5}+\frac{Be^3(a+bx)^{11}}{11b^5}$$

```
[Out] ((A*b - a*B)*(b*d - a*e)^3*(a + b*x)^7)/(7*b^5) + ((b*d - a*e)^2*
(b*B*d + 3*A*b*e - 4*a*B*e)*(a + b*x)^8)/(8*b^5) + (e*(b*d - a*e)
*(b*B*d + A*b*e - 2*a*B*e)*(a + b*x)^9)/(3*b^5) + (e^2*(3*b*B*d +
 A*b*e - 4*a*B*e)*(a + b*x)^10)/(10*b^5) + (B*e^3*(a + b*x)^11)/(
11*b^5)
```

Rubi [A] time = 1.21043, antiderivative size = 159, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{e^2(a+bx)^{10}(-4aBe+Abe+3bBd)}{10b^5}+\frac{e(a+bx)^9(bd-ae)(-2aBe+Abe+bBd)}{3b^5}+\frac{(a+bx)^8(bd-ae)^2(-4aBe+3Abe+bBd)}{8b^5}+\frac{(a+bx)^7(Ab-aB)(bd-ae)^3}{7b^5}+\frac{Be^3(a+bx)^{11}}{11b^5}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^6*(A + B*x)*(d + e*x)^3,x]
```

```
[Out] ((A*b - a*B)*(b*d - a*e)^3*(a + b*x)^7)/(7*b^5) + ((b*d - a*e)^2*
(b*B*d + 3*A*b*e - 4*a*B*e)*(a + b*x)^8)/(8*b^5) + (e*(b*d - a*e)
*(b*B*d + A*b*e - 2*a*B*e)*(a + b*x)^9)/(3*b^5) + (e^2*(3*b*B*d +
 A*b*e - 4*a*B*e)*(a + b*x)^10)/(10*b^5) + (B*e^3*(a + b*x)^11)/(
11*b^5)
```

Rubi in Sympy [A] time = 83.2105, size = 153, normalized size = 0.96

$$\frac{Be^3\,(a+bx)^{11}}{11b^5}+\frac{e^2\,(a+bx)^{10}\,(Abe-4Bae+3Bbd)}{10b^5}-\frac{e\,(a+bx)^9\,(ae-bd)\,(Abe-2Bae+Bbd)}{3b^5}+\frac{(a+bx)^8\,(ae-bd)^2\,(3Abe-4Bae+Bbd)}{8b^5}-\frac{(a+bx)^7\,(Ab-Ba)\,(ae-bd)^3}{7b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**6*(B*x+A)*(e*x+d)**3,x)
```

```
[Out] B*e**3*(a + b*x)**11/(11*b**5) + e**2*(a + b*x)**10*(A*b*e - 4*B*
a*e + 3*B*b*d)/(10*b**5) - e*(a + b*x)**9*(a*e - b*d)*(A*b*e - 2*
B*a*e + B*b*d)/(3*b**5) + (a + b*x)**8*(a*e - b*d)**2*(3*A*b*e -
4*B*a*e + B*b*d)/(8*b**5) - (a + b*x)**7*(A*b - B*a)*(a*e - b*d)*
*3/(7*b**5)
```

Mathematica [B] time = 0.383657, size = 586, normalized size = 3.69

$$a^6Ad^3x+\frac{1}{2}a^5d^2x^2(3aAe+aBd+6Abd)+\frac{1}{3}b^4ex^9\left(5a^2Be^2+2abe(Ae+3Bd)+b^2d(Ae+Bd)\right)+a^4dx^3\left(A\left(a^2e^2+6abde+5b^2d^2\right)+aBd(ae+2bd)\right)+\frac{1}{8}b^3x^8\left(20a^3Be^3+15a^2be^2(Ae+3Bd)+18ab^2de(Ae+Bd)+b^3d^2(3Ae+Bd)\right)+\frac{1}{7}b^2x^7\left(Ab\left(20a^3e^3+45a^2bde^2+18ab^2d^2e+b^3d^3\right)+3aB\left(5a^3e^3+20a^2bde^2+15ab^2d^2e+2b^3d^3\right)\right)+\frac{1}{2}abx^6\left(Ab\left(5a^3e^3+20a^2bde^2+15ab^2d^2e+2b^3d^3\right)+aB\left(2a^3e^3+15a^2bde^2+20ab^2d^2e+5b^3d^3\right)\right)+\frac{1}{5}a^2x^5\left(3Ab\left(2a^3e^3+15a^2bde^2+20ab^2d^2e+5b^3d^3\right)+aB\left(a^3e^3+18a^2bde^2+45ab^2d^2e+20b^3d^3\right)\right)+\frac{1}{4}a^3x^4\left(3aBd\left(a^2e^2+6abde+5b^2d^2\right)+A\left(a^3e^3+18a^2bde^2+45ab^2d^2e+20b^3d^3\right)\right)+\frac{1}{10}b^5e^2x^{10}(6aBe+Abe+3bBd)+\frac{1}{11}b^6Be^3x^{11}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^6*(A + B*x)*(d + e*x)^3,x]
```

```
[Out] a^6*A*d^3*x + (a^5*d^2*(6*A*b*d + a*B*d + 3*a*A*e)*x^2)/2 + a^4*d
*(a*B*d*(2*b*d + a*e) + A*(5*b^2*d^2 + 6*a*b*d*e + a^2*e^2))*x^3
+ (a^3*(3*a*B*d*(5*b^2*d^2 + 6*a*b*d*e + a^2*e^2) + A*(20*b^3*d^3
 + 45*a*b^2*d^2*e + 18*a^2*b*d*e^2 + a^3*e^3))*x^4)/4 + (a^2*(a*B
*(20*b^3*d^3 + 45*a*b^2*d^2*e + 18*a^2*b*d*e^2 + a^3*e^3) + 3*A*b
*(5*b^3*d^3 + 20*a*b^2*d^2*e + 15*a^2*b*d*e^2 + 2*a^3*e^3))*x^5)/
5 + (a*b*(a*B*(5*b^3*d^3 + 20*a*b^2*d^2*e + 15*a^2*b*d*e^2 + 2*a^
3*e^3) + A*b*(2*b^3*d^3 + 15*a*b^2*d^2*e + 20*a^2*b*d*e^2 + 5*a^3
*e^3))*x^6)/2 + (b^2*(3*a*B*(2*b^3*d^3 + 15*a*b^2*d^2*e + 20*a^2*
b*d*e^2 + 5*a^3*e^3) + A*b*(b^3*d^3 + 18*a*b^2*d^2*e + 45*a^2*b*d
*e^2 + 20*a^3*e^3))*x^7)/7 + (b^3*(20*a^3*B*e^3 + 18*a*b^2*d*e*(B
*d + A*e) + 15*a^2*b*e^2*(3*B*d + A*e) + b^3*d^2*(B*d + 3*A*e))*x
^8)/8 + (b^4*e*(5*a^2*B*e^2 + b^2*d*(B*d + A*e) + 2*a*b*e*(3*B*d
+ A*e))*x^9)/3 + (b^5*e^2*(3*b*B*d + A*b*e + 6*a*B*e)*x^10)/10 +
(b^6*B*e^3*x^11)/11
```

Maple [B] time = 0.003, size = 645, normalized size = 4.1

$$\frac{b^6Be^3x^{11}}{11}+\frac{\left(\left(b^6A+6\,ab^5B\right)e^3+3\,b^6Bde^2\right)x^{10}}{10}+\frac{\left(\left(6\,ab^5A+15\,a^2b^4B\right)e^3+3\,\left(b^6A+6\,ab^5B\right)de^2+3\,b^6Bd^2e\right)x^9}{9}+\frac{\left(\left(15\,a^2b^4A+20\,a^3b^3B\right)e^3+3\,\left(6\,ab^5A+15\,a^2b^4B\right)de^2+3\,\left(b^6A+6\,ab^5B\right)d^2e+b^6Bd^3\right)x^8}{8}+\frac{\left(\left(20\,a^3b^3A+15\,a^4b^2B\right)e^3+3\,\left(15\,a^2b^4A+20\,a^3b^3B\right)de^2+3\,\left(6\,ab^5A+15\,a^2b^4B\right)d^2e+\left(b^6A+6\,ab^5B\right)d^3\right)x^7}{7}+\frac{\left(\left(15\,a^4b^2A+6\,a^5bB\right)e^3+3\,\left(20\,a^3b^3A+15\,a^4b^2B\right)de^2+3\,\left(15\,a^2b^4A+20\,a^3b^3B\right)d^2e+\left(6\,ab^5A+15\,a^2b^4B\right)d^3\right)x^6}{6}+\frac{\left(\left(6\,a^5bA+a^6B\right)e^3+3\,\left(15\,a^4b^2A+6\,a^5bB\right)de^2+3\,\left(20\,a^3b^3A+15\,a^4b^2B\right)d^2e+\left(15\,a^2b^4A+20\,a^3b^3B\right)d^3\right)x^5}{5}+\frac{\left(a^6Ae^3+3\,\left(6\,a^5bA+a^6B\right)de^2+3\,\left(15\,a^4b^2A+6\,a^5bB\right)d^2e+\left(20\,a^3b^3A+15\,a^4b^2B\right)d^3\right)x^4}{4}+\frac{\left(3\,a^6Ade^2+3\,\left(6\,a^5bA+a^6B\right)d^2e+\left(15\,a^4b^2A+6\,a^5bB\right)d^3\right)x^3}{3}+\frac{\left(3\,a^6Ad^2e+\left(6\,a^5bA+a^6B\right)d^3\right)x^2}{2}+a^6Ad^3x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^6*(B*x+A)*(e*x+d)^3,x)
```

```
[Out] 1/11*b^6*B*e^3*x^11+1/10*((A*b^6+6*B*a*b^5)*e^3+3*b^6*B*d*e^2)*x^
10+1/9*((6*A*a*b^5+15*B*a^2*b^4)*e^3+3*(A*b^6+6*B*a*b^5)*d*e^2+3*
b^6*B*d^2*e)*x^9+1/8*((15*A*a^2*b^4+20*B*a^3*b^3)*e^3+3*(6*A*a*b^
5+15*B*a^2*b^4)*d*e^2+3*(A*b^6+6*B*a*b^5)*d^2*e+b^6*B*d^3)*x^8+1/
7*((20*A*a^3*b^3+15*B*a^4*b^2)*e^3+3*(15*A*a^2*b^4+20*B*a^3*b^3)*
d*e^2+3*(6*A*a*b^5+15*B*a^2*b^4)*d^2*e+(A*b^6+6*B*a*b^5)*d^3)*x^7
+1/6*((15*A*a^4*b^2+6*B*a^5*b)*e^3+3*(20*A*a^3*b^3+15*B*a^4*b^2)*
d*e^2+3*(15*A*a^2*b^4+20*B*a^3*b^3)*d^2*e+(6*A*a*b^5+15*B*a^2*b^4
)*d^3)*x^6+1/5*((6*A*a^5*b+B*a^6)*e^3+3*(15*A*a^4*b^2+6*B*a^5*b)*
d*e^2+3*(20*A*a^3*b^3+15*B*a^4*b^2)*d^2*e+(15*A*a^2*b^4+20*B*a^3*
b^3)*d^3)*x^5+1/4*(a^6*A*e^3+3*(6*A*a^5*b+B*a^6)*d*e^2+3*(15*A*a^
4*b^2+6*B*a^5*b)*d^2*e+(20*A*a^3*b^3+15*B*a^4*b^2)*d^3)*x^4+1/3*(
3*a^6*A*d*e^2+3*(6*A*a^5*b+B*a^6)*d^2*e+(15*A*a^4*b^2+6*B*a^5*b)*
d^3)*x^3+1/2*(3*a^6*A*d^2*e+(6*A*a^5*b+B*a^6)*d^3)*x^2+a^6*A*d^3*
x
```

Maxima [A] time = 1.35515, size = 868, normalized size = 5.46

$$
\begin{aligned}
&\frac{1}{11}\,Bb^6e^3x^{11} + Aa^6d^3x + \frac{1}{10}\left(3\,Bb^6de^2 + \left(6\,Bab^5 + Ab^6\right)e^3\right)x^{10}\\
&+\frac{1}{3}\left(Bb^6d^2e + \left(6\,Bab^5 + Ab^6\right)de^2 + \left(5\,Ba^2b^4 + 2\,Aab^5\right)e^3\right)x^9\\
&+\frac{1}{8}\left(Bb^6d^3 + 3\left(6\,Bab^5 + Ab^6\right)d^2e + 9\left(5\,Ba^2b^4 + 2\,Aab^5\right)de^2 + 5\left(4\,Ba^3b^3 + 3\,Aa^2b^4\right)e^3\right)x^8\\
&+\frac{1}{7}\left(\left(6\,Bab^5 + Ab^6\right)d^3 + 9\left(5\,Ba^2b^4 + 2\,Aab^5\right)d^2e + 15\left(4\,Ba^3b^3 + 3\,Aa^2b^4\right)de^2 + 5\left(3\,Ba^4b^2 + 4\,Aa^3b^3\right)e^3\right)x^7\\
&+\frac{1}{2}\left(\left(5\,Ba^2b^4 + 2\,Aab^5\right)d^3 + 5\left(4\,Ba^3b^3 + 3\,Aa^2b^4\right)d^2e + 5\left(3\,Ba^4b^2 + 4\,Aa^3b^3\right)de^2 + \left(2\,Ba^5b + 5\,Aa^4b^2\right)e^3\right)x^6\\
&+\frac{1}{5}\left(5\left(4\,Ba^3b^3 + 3\,Aa^2b^4\right)d^3 + 15\left(3\,Ba^4b^2 + 4\,Aa^3b^3\right)d^2e + 9\left(2\,Ba^5b + 5\,Aa^4b^2\right)de^2 + \left(Ba^6 + 6\,Aa^5b\right)e^3\right)x^5\\
&+\frac{1}{4}\left(Aa^6e^3 + 5\left(3\,Ba^4b^2 + 4\,Aa^3b^3\right)d^3 + 9\left(2\,Ba^5b + 5\,Aa^4b^2\right)d^2e + 3\left(Ba^6 + 6\,Aa^5b\right)de^2\right)x^4\\
&+\left(Aa^6de^2 + \left(2\,Ba^5b + 5\,Aa^4b^2\right)d^3 + \left(Ba^6 + 6\,Aa^5b\right)d^2e\right)x^3 + \frac{1}{2}\left(3\,Aa^6d^2e + \left(Ba^6 + 6\,Aa^5b\right)d^3\right)x^2
\end{aligned}
$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6*(e*x + d)^3,x, algorithm="maxima")
```

```
[Out] 1/11*B*b^6*e^3*x^11 + A*a^6*d^3*x + 1/10*(3*B*b^6*d*e^2 + (6*B*a*
b^5 + A*b^6)*e^3)*x^10 + 1/3*(B*b^6*d^2*e + (6*B*a*b^5 + A*b^6)*d
*e^2 + (5*B*a^2*b^4 + 2*A*a*b^5)*e^3)*x^9 + 1/8*(B*b^6*d^3 + 3*(6
*B*a*b^5 + A*b^6)*d^2*e + 9*(5*B*a^2*b^4 + 2*A*a*b^5)*d*e^2 + 5*(
4*B*a^3*b^3 + 3*A*a^2*b^4)*e^3)*x^8 + 1/7*((6*B*a*b^5 + A*b^6)*d^
3 + 9*(5*B*a^2*b^4 + 2*A*a*b^5)*d^2*e + 15*(4*B*a^3*b^3 + 3*A*a^2
*b^4)*d*e^2 + 5*(3*B*a^4*b^2 + 4*A*a^3*b^3)*e^3)*x^7 + 1/2*((5*B*
a^2*b^4 + 2*A*a*b^5)*d^3 + 5*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^2*e +
5*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d*e^2 + (2*B*a^5*b + 5*A*a^4*b^2)*e
^3)*x^6 + 1/5*(5*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^3 + 15*(3*B*a^4*b^
2 + 4*A*a^3*b^3)*d^2*e + 9*(2*B*a^5*b + 5*A*a^4*b^2)*d*e^2 + (B*a
^6 + 6*A*a^5*b)*e^3)*x^5 + 1/4*(A*a^6*e^3 + 5*(3*B*a^4*b^2 + 4*A*
a^3*b^3)*d^3 + 9*(2*B*a^5*b + 5*A*a^4*b^2)*d^2*e + 3*(B*a^6 + 6*A
*a^5*b)*d*e^2)*x^4 + (A*a^6*d*e^2 + (2*B*a^5*b + 5*A*a^4*b^2)*d^3
 + (B*a^6 + 6*A*a^5*b)*d^2*e)*x^3 + 1/2*(3*A*a^6*d^2*e + (B*a^6 +
 6*A*a^5*b)*d^3)*x^2
```

Fricas [A] time = 0.18929, size = 1, normalized size = 0.01

$$\frac{1}{11}x^{11}e^3b^6B+\frac{3}{10}x^{10}e^2db^6B+\frac{3}{5}x^{10}e^3b^5aB+\frac{1}{10}x^{10}e^3b^6A+\frac{1}{3}x^9ed^2b^6B+2x^9e^2db^5aB+\frac{5}{3}x^9e^3b^4a^2B+\frac{1}{3}x^9e^2db^6A+\frac{2}{3}x^9e^3b^5aA+\frac{1}{8}x^8d^3b^6B+\frac{9}{4}x^8ed^2b^5aB+\frac{45}{8}x^8e^2db^4a^2B+\frac{5}{2}x^8e^3b^3a^3B+\frac{3}{8}x^8ed^2b^6A+\frac{9}{4}x^8e^2db^5aA+\frac{15}{8}x^8e^3b^4a^2A+\frac{6}{7}x^7d^3b^5aB+\frac{45}{7}x^7ed^2b^4a^2B+\frac{60}{7}x^7e^2db^3a^3B+\frac{15}{7}x^7e^3b^2a^4B+\frac{1}{7}x^7d^3b^6A+\frac{18}{7}x^7ed^2b^5aA+\frac{45}{7}x^7e^2db^4a^2A+\frac{20}{7}x^7e^3b^3a^3A+\frac{5}{2}x^6d^3b^4a^2B+10x^6ed^2b^3a^3B+\frac{15}{2}x^6e^2db^2a^4B+x^6e^3ba^5B+x^6d^3b^5aA+\frac{15}{2}x^6ed^2b^4a^2A+10x^6e^2db^3a^3A+\frac{5}{2}x^6e^3b^2a^4A+4x^5d^3b^3a^3B+9x^5ed^2b^2a^4B+\frac{18}{5}x^5e^2dba^5B+\frac{1}{5}x^5e^3a^6B+3x^5d^3b^4a^2A+12x^5ed^2b^3a^3A+9x^5e^2db^2a^4A+\frac{6}{5}x^5e^3ba^5A+\frac{15}{4}x^4d^3b^2a^4B+\frac{9}{2}x^4ed^2ba^5B+\frac{3}{4}x^4e^2da^6B+5x^4d^3b^3a^3A+\frac{45}{4}x^4ed^2b^2a^4A+\frac{9}{2}x^4e^2dba^5A+\frac{1}{4}x^4e^3a^6A+2x^3d^3ba^5B+x^3ed^2a^6B+5x^3d^3b^2a^4A+6x^3ed^2ba^5A+x^3e^2da^6A+\frac{1}{2}x^2d^3a^6B+3x^2d^3ba^5A+\frac{3}{2}x^2ed^2a^6A+xd^3a^6A$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6*(e*x + d)^3,x, algorithm="fricas")
```

```
[Out] 1/11*x^11*e^3*b^6*B + 3/10*x^10*e^2*d*b^6*B + 3/5*x^10*e^3*b^5*a*
B + 1/10*x^10*e^3*b^6*A + 1/3*x^9*e*d^2*b^6*B + 2*x^9*e^2*d*b^5*a
*B + 5/3*x^9*e^3*b^4*a^2*B + 1/3*x^9*e^2*d*b^6*A + 2/3*x^9*e^3*b^
5*a*A + 1/8*x^8*d^3*b^6*B + 9/4*x^8*e*d^2*b^5*a*B + 45/8*x^8*e^2*
d*b^4*a^2*B + 5/2*x^8*e^3*b^3*a^3*B + 3/8*x^8*e*d^2*b^6*A + 9/4*x
^8*e^2*d*b^5*a*A + 15/8*x^8*e^3*b^4*a^2*A + 6/7*x^7*d^3*b^5*a*B +
 45/7*x^7*e*d^2*b^4*a^2*B + 60/7*x^7*e^2*d*b^3*a^3*B + 15/7*x^7*e
^3*b^2*a^4*B + 1/7*x^7*d^3*b^6*A + 18/7*x^7*e*d^2*b^5*a*A + 45/7*
x^7*e^2*d*b^4*a^2*A + 20/7*x^7*e^3*b^3*a^3*A + 5/2*x^6*d^3*b^4*a^
2*B + 10*x^6*e*d^2*b^3*a^3*B + 15/2*x^6*e^2*d*b^2*a^4*B + x^6*e^3
*b*a^5*B + x^6*d^3*b^5*a*A + 15/2*x^6*e*d^2*b^4*a^2*A + 10*x^6*e^
2*d*b^3*a^3*A + 5/2*x^6*e^3*b^2*a^4*A + 4*x^5*d^3*b^3*a^3*B + 9*x
^5*e*d^2*b^2*a^4*B + 18/5*x^5*e^2*d*b*a^5*B + 1/5*x^5*e^3*a^6*B +
 3*x^5*d^3*b^4*a^2*A + 12*x^5*e*d^2*b^3*a^3*A + 9*x^5*e^2*d*b^2*a
^4*A + 6/5*x^5*e^3*b*a^5*A + 15/4*x^4*d^3*b^2*a^4*B + 9/2*x^4*e*d
^2*b*a^5*B + 3/4*x^4*e^2*d*a^6*B + 5*x^4*d^3*b^3*a^3*A + 45/4*x^4
*e*d^2*b^2*a^4*A + 9/2*x^4*e^2*d*b*a^5*A + 1/4*x^4*e^3*a^6*A + 2*
x^3*d^3*b*a^5*B + x^3*e*d^2*a^6*B + 5*x^3*d^3*b^2*a^4*A + 6*x^3*e
*d^2*b*a^5*A + x^3*e^2*d*a^6*A + 1/2*x^2*d^3*a^6*B + 3*x^2*d^3*b*
a^5*A + 3/2*x^2*e*d^2*a^6*A + x*d^3*a^6*A
```

Sympy [A] time = 0.436541, size = 802, normalized size = 5.04

$$Aa^6d^3x+\frac{Bb^6e^3x^{11}}{11}+x^{10}\left(\frac{Ab^6e^3}{10}+\frac{3Bab^5e^3}{5}+\frac{3Bb^6de^2}{10}\right)+x^9\left(\frac{2Aab^5e^3}{3}+\frac{Ab^6de^2}{3}+\frac{5Ba^2b^4e^3}{3}+2Bab^5de^2+\frac{Bb^6d^2e}{3}\right)+x^8\left(\frac{15Aa^2b^4e^3}{8}+\frac{9Aab^5de^2}{4}+\frac{3Ab^6d^2e}{8}+\frac{5Ba^3b^3e^3}{2}+\frac{45Ba^2b^4de^2}{8}+\frac{9Bab^5d^2e}{4}+\frac{Bb^6d^3}{8}\right)+x^7\left(\frac{20Aa^3b^3e^3}{7}+\frac{45Aa^2b^4de^2}{7}+\frac{18Aab^5d^2e}{7}+\frac{Ab^6d^3}{7}+\frac{15Ba^4b^2e^3}{7}+\frac{60Ba^3b^3de^2}{7}+\frac{45Ba^2b^4d^2e}{7}+\frac{6Bab^5d^3}{7}\right)+x^6\left(\frac{5Aa^4b^2e^3}{2}+10Aa^3b^3de^2+\frac{15Aa^2b^4d^2e}{2}+Aab^5d^3+Ba^5be^3+\frac{15Ba^4b^2de^2}{2}+10Ba^3b^3d^2e+\frac{5Ba^2b^4d^3}{2}\right)+x^5\left(\frac{6Aa^5be^3}{5}+9Aa^4b^2de^2+12Aa^3b^3d^2e+3Aa^2b^4d^3+\frac{Ba^6e^3}{5}+\frac{18Ba^5bde^2}{5}+9Ba^4b^2d^2e+4Ba^3b^3d^3\right)+x^4\left(\frac{Aa^6e^3}{4}+\frac{9Aa^5bde^2}{2}+\frac{45Aa^4b^2d^2e}{4}+5Aa^3b^3d^3+\frac{3Ba^6de^2}{4}+\frac{9Ba^5bd^2e}{2}+\frac{15Ba^4b^2d^3}{4}\right)+x^3\left(Aa^6de^2+6Aa^5bd^2e+5Aa^4b^2d^3+Ba^6d^2e+2Ba^5bd^3\right)+x^2\left(\frac{3Aa^6d^2e}{2}+3Aa^5bd^3+\frac{Ba^6d^3}{2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**6*(B*x+A)*(e*x+d)**3,x)
```

```
[Out] A*a**6*d**3*x + B*b**6*e**3*x**11/11 + x**10*(A*b**6*e**3/10 + 3*
B*a*b**5*e**3/5 + 3*B*b**6*d*e**2/10) + x**9*(2*A*a*b**5*e**3/3 +
 A*b**6*d*e**2/3 + 5*B*a**2*b**4*e**3/3 + 2*B*a*b**5*d*e**2 + B*b
**6*d**2*e/3) + x**8*(15*A*a**2*b**4*e**3/8 + 9*A*a*b**5*d*e**2/4
 + 3*A*b**6*d**2*e/8 + 5*B*a**3*b**3*e**3/2 + 45*B*a**2*b**4*d*e*
*2/8 + 9*B*a*b**5*d**2*e/4 + B*b**6*d**3/8) + x**7*(20*A*a**3*b**
3*e**3/7 + 45*A*a**2*b**4*d*e**2/7 + 18*A*a*b**5*d**2*e/7 + A*b**
6*d**3/7 + 15*B*a**4*b**2*e**3/7 + 60*B*a**3*b**3*d*e**2/7 + 45*B
*a**2*b**4*d**2*e/7 + 6*B*a*b**5*d**3/7) + x**6*(5*A*a**4*b**2*e*
*3/2 + 10*A*a**3*b**3*d*e**2 + 15*A*a**2*b**4*d**2*e/2 + A*a*b**5
*d**3 + B*a**5*b*e**3 + 15*B*a**4*b**2*d*e**2/2 + 10*B*a**3*b**3*
d**2*e + 5*B*a**2*b**4*d**3/2) + x**5*(6*A*a**5*b*e**3/5 + 9*A*a*
*4*b**2*d*e**2 + 12*A*a**3*b**3*d**2*e + 3*A*a**2*b**4*d**3 + B*a
**6*e**3/5 + 18*B*a**5*b*d*e**2/5 + 9*B*a**4*b**2*d**2*e + 4*B*a*
*3*b**3*d**3) + x**4*(A*a**6*e**3/4 + 9*A*a**5*b*d*e**2/2 + 45*A*
a**4*b**2*d**2*e/4 + 5*A*a**3*b**3*d**3 + 3*B*a**6*d*e**2/4 + 9*B
*a**5*b*d**2*e/2 + 15*B*a**4*b**2*d**3/4) + x**3*(A*a**6*d*e**2 +
 6*A*a**5*b*d**2*e + 5*A*a**4*b**2*d**3 + B*a**6*d**2*e + 2*B*a**
5*b*d**3) + x**2*(3*A*a**6*d**2*e/2 + 3*A*a**5*b*d**3 + B*a**6*d*
*3/2)
```

GIAC/XCAS [A] time = 0.227724, size = 1037, normalized size = 6.52

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6*(e*x + d)^3,x, algorithm="giac")
```

```
[Out] 1/11*B*b^6*x^11*e^3 + 3/10*B*b^6*d*x^10*e^2 + 1/3*B*b^6*d^2*x^9*e
 + 1/8*B*b^6*d^3*x^8 + 3/5*B*a*b^5*x^10*e^3 + 1/10*A*b^6*x^10*e^3
 + 2*B*a*b^5*d*x^9*e^2 + 1/3*A*b^6*d*x^9*e^2 + 9/4*B*a*b^5*d^2*x^
8*e + 3/8*A*b^6*d^2*x^8*e + 6/7*B*a*b^5*d^3*x^7 + 1/7*A*b^6*d^3*x
^7 + 5/3*B*a^2*b^4*x^9*e^3 + 2/3*A*a*b^5*x^9*e^3 + 45/8*B*a^2*b^4
*d*x^8*e^2 + 9/4*A*a*b^5*d*x^8*e^2 + 45/7*B*a^2*b^4*d^2*x^7*e + 1
8/7*A*a*b^5*d^2*x^7*e + 5/2*B*a^2*b^4*d^3*x^6 + A*a*b^5*d^3*x^6 +
 5/2*B*a^3*b^3*x^8*e^3 + 15/8*A*a^2*b^4*x^8*e^3 + 60/7*B*a^3*b^3*
d*x^7*e^2 + 45/7*A*a^2*b^4*d*x^7*e^2 + 10*B*a^3*b^3*d^2*x^6*e + 1
5/2*A*a^2*b^4*d^2*x^6*e + 4*B*a^3*b^3*d^3*x^5 + 3*A*a^2*b^4*d^3*x
^5 + 15/7*B*a^4*b^2*x^7*e^3 + 20/7*A*a^3*b^3*x^7*e^3 + 15/2*B*a^4
*b^2*d*x^6*e^2 + 10*A*a^3*b^3*d*x^6*e^2 + 9*B*a^4*b^2*d^2*x^5*e +
 12*A*a^3*b^3*d^2*x^5*e + 15/4*B*a^4*b^2*d^3*x^4 + 5*A*a^3*b^3*d^
3*x^4 + B*a^5*b*x^6*e^3 + 5/2*A*a^4*b^2*x^6*e^3 + 18/5*B*a^5*b*d*
x^5*e^2 + 9*A*a^4*b^2*d*x^5*e^2 + 9/2*B*a^5*b*d^2*x^4*e + 45/4*A*
a^4*b^2*d^2*x^4*e + 2*B*a^5*b*d^3*x^3 + 5*A*a^4*b^2*d^3*x^3 + 1/5
*B*a^6*x^5*e^3 + 6/5*A*a^5*b*x^5*e^3 + 3/4*B*a^6*d*x^4*e^2 + 9/2*
A*a^5*b*d*x^4*e^2 + B*a^6*d^2*x^3*e + 6*A*a^5*b*d^2*x^3*e + 1/2*B
*a^6*d^3*x^2 + 3*A*a^5*b*d^3*x^2 + 1/4*A*a^6*x^4*e^3 + A*a^6*d*x^
3*e^2 + 3/2*A*a^6*d^2*x^2*e + A*a^6*d^3*x
```

3.1040 $\int (a+bx)^6(A+Bx)(d+ex)^2\,dx$

Optimal. Leaf size=118

$$\frac{e(a+bx)^9(-3aBe+Abe+2bBd)}{9b^4}+\frac{(a+bx)^8(bd-ae)(-3aBe+2Abe+bBd)}{8b^4}+\frac{(a+bx)^7(Ab-aB)(bd-ae)^2}{7b^4}+\frac{Be^2(a+bx)^{10}}{10b^4}$$

```
[Out] ((A*b - a*B)*(b*d - a*e)^2*(a + b*x)^7)/(7*b^4) + ((b*d - a*e)*(b
*B*d + 2*A*b*e - 3*a*B*e)*(a + b*x)^8)/(8*b^4) + (e*(2*b*B*d + A*
b*e - 3*a*B*e)*(a + b*x)^9)/(9*b^4) + (B*e^2*(a + b*x)^10)/(10*b^
4)
```

Rubi [A] time = 0.869071, antiderivative size = 118, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{e(a+bx)^9(-3aBe+Abe+2bBd)}{9b^4}+\frac{(a+bx)^8(bd-ae)(-3aBe+2Abe+bBd)}{8b^4}+\frac{(a+bx)^7(Ab-aB)(bd-ae)^2}{7b^4}+\frac{Be^2(a+bx)^{10}}{10b^4}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^6*(A + B*x)*(d + e*x)^2,x]
```

```
[Out] ((A*b - a*B)*(b*d - a*e)^2*(a + b*x)^7)/(7*b^4) + ((b*d - a*e)*(b
*B*d + 2*A*b*e - 3*a*B*e)*(a + b*x)^8)/(8*b^4) + (e*(2*b*B*d + A*
b*e - 3*a*B*e)*(a + b*x)^9)/(9*b^4) + (B*e^2*(a + b*x)^10)/(10*b^
4)
```

Rubi in Sympy [A] time = 56.3559, size = 112, normalized size = 0.95

$$\frac{Be^2\left(a+bx\right)^{10}}{10b^4}+\frac{e\left(a+bx\right)^9\left(Abe-3Bae+2Bbd\right)}{9b^4}-\frac{\left(a+bx\right)^8\left(ae-bd\right)\left(2Abe-3Bae+Bbd\right)}{8b^4}+\frac{\left(a+bx\right)^7\left(Ab-Ba\right)\left(ae-bd\right)^2}{7b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**6*(B*x+A)*(e*x+d)**2,x)
```

```
[Out] B*e**2*(a + b*x)**10/(10*b**4) + e*(a + b*x)**9*(A*b*e - 3*B*a*e
+ 2*B*b*d)/(9*b**4) - (a + b*x)**8*(a*e - b*d)*(2*A*b*e - 3*B*a*e
 + B*b*d)/(8*b**4) + (a + b*x)**7*(A*b - B*a)*(a*e - b*d)**2/(7*b
**4)
```

Mathematica [B] time = 0.561149, size = 386, normalized size = 3.27

$$x\left(210a^6\left(4A\left(3d^2+3dex+e^2x^2\right)+Bx\left(6d^2+8dex+3e^2x^2\right)\right)+252a^5bx\left(5A\left(6d^2+8dex+3e^2x^2\right)+2Bx\left(10d^2+15dex+\right.\right.\right.$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^6*(A + B*x)*(d + e*x)^2,x]
```

```
[Out] (x*(210*a^6*(4*A*(3*d^2 + 3*d*e*x + e^2*x^2) + B*x*(6*d^2 + 8*d*e
*x + 3*e^2*x^2)) + 252*a^5*b*x*(5*A*(6*d^2 + 8*d*e*x + 3*e^2*x^2)
```

```
 + 2*B*x*(10*d^2 + 15*d*e*x + 6*e^2*x^2)) + 630*a^4*b^2*x^2*(2*A*
(10*d^2 + 15*d*e*x + 6*e^2*x^2) + B*x*(15*d^2 + 24*d*e*x + 10*e^2
*x^2)) + 120*a^3*b^3*x^3*(7*A*(15*d^2 + 24*d*e*x + 10*e^2*x^2) +
4*B*x*(21*d^2 + 35*d*e*x + 15*e^2*x^2)) + 45*a^2*b^4*x^4*(8*A*(21
*d^2 + 35*d*e*x + 15*e^2*x^2) + 5*B*x*(28*d^2 + 48*d*e*x + 21*e^2
*x^2)) + 30*a*b^5*x^5*(3*A*(28*d^2 + 48*d*e*x + 21*e^2*x^2) + 2*B
*x*(36*d^2 + 63*d*e*x + 28*e^2*x^2)) + b^6*x^6*(10*A*(36*d^2 + 63
*d*e*x + 28*e^2*x^2) + 7*B*x*(45*d^2 + 80*d*e*x + 36*e^2*x^2))))/
2520
```

Maple [B] time = 0.003, size = 469, normalized size = 4.

$$\frac{b^6Be^2x^{10}}{10}+\frac{\left(\left(b^6A+6\,ab^5B\right)e^2+2\,b^6Bde\right)x^9}{9}+\frac{\left(\left(6\,ab^5A+15\,a^2b^4B\right)e^2+2\,\left(b^6A+6\,ab^5B\right)de+b^6Bd^2\right)x^8}{8}+\frac{\left(\left(15\,a^2b^4A+20\,a^3b^3B\right)e^2+2\,\left(6\,ab^5A+15\,a^2b^4B\right)de+\left(b^6A+6\,ab^5B\right)d^2\right)x^7}{7}+\frac{\left(\left(20\,a^3b^3A+15\,a^4b^2B\right)e^2+2\,\left(15\,a^2b^4A+20\,a^3b^3B\right)de+\left(6\,ab^5A+15\,a^2b^4B\right)d^2\right)x^6}{6}+\frac{\left(\left(15\,a^4b^2A+6\,a^5bB\right)e^2+2\,\left(20\,a^3b^3A+15\,a^4b^2B\right)de+\left(15\,a^2b^4A+20\,a^3b^3B\right)d^2\right)x^5}{5}+\frac{\left(\left(6\,a^5bA+a^6B\right)e^2+2\,\left(15\,a^4b^2A+6\,a^5bB\right)de+\left(20\,a^3b^3A+15\,a^4b^2B\right)d^2\right)x^4}{4}+\frac{\left(a^6Ae^2+2\,\left(6\,a^5bA+a^6B\right)de+\left(15\,a^4b^2A+6\,a^5bB\right)d^2\right)x^3}{3}+\frac{\left(2\,a^6Ade+\left(6\,a^5bA+a^6B\right)d^2\right)x^2}{2}+a^6Ad^2x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^6*(B*x+A)*(e*x+d)^2,x)
```

```
[Out] 1/10*b^6*B*e^2*x^10+1/9*((A*b^6+6*B*a*b^5)*e^2+2*b^6*B*d*e)*x^9+1
/8*((6*A*a*b^5+15*B*a^2*b^4)*e^2+2*(A*b^6+6*B*a*b^5)*d*e+b^6*B*d^
2)*x^8+1/7*((15*A*a^2*b^4+20*B*a^3*b^3)*e^2+2*(6*A*a*b^5+15*B*a^2
*b^4)*d*e+(A*b^6+6*B*a*b^5)*d^2)*x^7+1/6*((20*A*a^3*b^3+15*B*a^4*
b^2)*e^2+2*(15*A*a^2*b^4+20*B*a^3*b^3)*d*e+(6*A*a*b^5+15*B*a^2*b^
4)*d^2)*x^6+1/5*((15*A*a^4*b^2+6*B*a^5*b)*e^2+2*(20*A*a^3*b^3+15*
B*a^4*b^2)*d*e+(15*A*a^2*b^4+20*B*a^3*b^3)*d^2)*x^5+1/4*((6*A*a^5
*b+B*a^6)*e^2+2*(15*A*a^4*b^2+6*B*a^5*b)*d*e+(20*A*a^3*b^3+15*B*a
^4*b^2)*d^2)*x^4+1/3*(a^6*A*e^2+2*(6*A*a^5*b+B*a^6)*d*e+(15*A*a^4
*b^2+6*B*a^5*b)*d^2)*x^3+1/2*(2*a^6*A*d*e+(6*A*a^5*b+B*a^6)*d^2)*
x^2+a^6*A*d^2*x
```

Maxima [A] time = 1.33687, size = 643, normalized size = 5.45

$$\frac{1}{10}\,Bb^6e^2x^{10}+Aa^6d^2x+\frac{1}{9}\left(2\,Bb^6de+\left(6\,Bab^5+Ab^6\right)e^2\right)x^9+\frac{1}{8}\left(Bb^6d^2+2\left(6\,Bab^5+Ab^6\right)de+3\left(5\,Ba^2b^4+2\,Aab^5\right)e^2\right)x^8+\frac{1}{7}\left(\left(6\,Bab^5+Ab^6\right)d^2+6\left(5\,Ba^2b^4+2\,Aab^5\right)de+5\left(4\,Ba^3b^3+3\,Aa^2b^4\right)e^2\right)x^7+\frac{1}{6}\left(3\left(5\,Ba^2b^4+2\,Aab^5\right)d^2+10\left(4\,Ba^3b^3+3\,Aa^2b^4\right)de+5\left(3\,Ba^4b^2+4\,Aa^3b^3\right)e^2\right)x^6+\frac{1}{5}\left(5\left(4\,Ba^3b^3+3\,Aa^2b^4\right)d^2+10\left(3\,Ba^4b^2+4\,Aa^3b^3\right)de+3\left(2\,Ba^5b+5\,Aa^4b^2\right)e^2\right)x^5+\frac{1}{4}\left(5\left(3\,Ba^4b^2+4\,Aa^3b^3\right)d^2+6\left(2\,Ba^5b+5\,Aa^4b^2\right)de+\left(Ba^6+6\,Aa^5b\right)e^2\right)x^4+\frac{1}{3}\left(Aa^6e^2+3\left(2\,Ba^5b+5\,Aa^4b^2\right)d^2+2\left(Ba^6+6\,Aa^5b\right)de\right)x^3+\frac{1}{2}\left(2\,Aa^6de+\left(Ba^6+6\,Aa^5b\right)d^2\right)x^2$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6*(e*x + d)^2,x, algorithm="maxima")
```

```
[Out] 1/10*B*b^6*e^2*x^10 + A*a^6*d^2*x + 1/9*(2*B*b^6*d*e + (6*B*a*b^5
 + A*b^6)*e^2)*x^9 + 1/8*(B*b^6*d^2 + 2*(6*B*a*b^5 + A*b^6)*d*e +
 3*(5*B*a^2*b^4 + 2*A*a*b^5)*e^2)*x^8 + 1/7*((6*B*a*b^5 + A*b^6)*
d^2 + 6*(5*B*a^2*b^4 + 2*A*a*b^5)*d*e + 5*(4*B*a^3*b^3 + 3*A*a^2*
b^4)*e^2)*x^7 + 1/6*(3*(5*B*a^2*b^4 + 2*A*a*b^5)*d^2 + 10*(4*B*a^
3*b^3 + 3*A*a^2*b^4)*d*e + 5*(3*B*a^4*b^2 + 4*A*a^3*b^3)*e^2)*x^6
 + 1/5*(5*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^2 + 10*(3*B*a^4*b^2 + 4*A
*a^3*b^3)*d*e + 3*(2*B*a^5*b + 5*A*a^4*b^2)*e^2)*x^5 + 1/4*(5*(3*
B*a^4*b^2 + 4*A*a^3*b^3)*d^2 + 6*(2*B*a^5*b + 5*A*a^4*b^2)*d*e +
(B*a^6 + 6*A*a^5*b)*e^2)*x^4 + 1/3*(A*a^6*e^2 + 3*(2*B*a^5*b + 5*
A*a^4*b^2)*d^2 + 2*(B*a^6 + 6*A*a^5*b)*d*e)*x^3 + 1/2*(2*A*a^6*d*
e + (B*a^6 + 6*A*a^5*b)*d^2)*x^2
```

Fricas [A] time = 0.190751, size = 1, normalized size = 0.01

$$\frac{1}{10}x^{10}e^2b^6B + \frac{2}{9}x^9edb^6B + \frac{2}{3}x^9e^2b^5aB + \frac{1}{9}x^9e^2b^6A + \frac{1}{8}x^8d^2b^6B + \frac{3}{2}x^8edb^5aB + \frac{15}{8}x^8e^2b^4a^2B + \frac{1}{4}x^8edb^6A + \frac{3}{4}x^8e^2b^5aA + \frac{6}{7}x^7d^2b^5aB + \frac{30}{7}x^7edb^4a^2B + \frac{20}{7}x^7e^2b^3a^3B + \frac{1}{7}x^7d^2b^6A + \frac{12}{7}x^7edb^5aA + \frac{15}{7}x^7e^2b^4a^2A + \frac{5}{2}x^6d^2b^4a^2B + \frac{20}{3}x^6edb^3a^3B + \frac{5}{2}x^6e^2b^2a^4B + x^6d^2b^5aA + 5x^6edb^4a^2A + \frac{10}{3}x^6e^2b^3a^3A + 4x^5d^2b^3a^3B + 6x^5edb^2a^4B + \frac{6}{5}x^5e^2ba^5B + 3x^5d^2b^4a^2A + 8x^5edb^3a^3A + 3x^5e^2b^2a^4A + \frac{15}{4}x^4d^2b^2a^4B + 3x^4edba^5B + \frac{1}{4}x^4e^2a^6B + 5x^4d^2b^3a^3A + \frac{15}{2}x^4edb^2a^4A + \frac{3}{2}x^4e^2ba^5A + 2x^3d^2ba^5B + \frac{2}{3}x^3eda^6B + 5x^3d^2b^2a^4A + 4x^3edba^5A + \frac{1}{3}x^3e^2a^6A + \frac{1}{2}x^2d^2a^6B + 3x^2d^2ba^5A + x^2eda^6A + xd^2a^6A$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6*(e*x + d)^2,x, algorithm="fricas")
```

```
[Out] 1/10*x^10*e^2*b^6*B + 2/9*x^9*e*d*b^6*B + 2/3*x^9*e^2*b^5*a*B + 1
/9*x^9*e^2*b^6*A + 1/8*x^8*d^2*b^6*B + 3/2*x^8*e*d*b^5*a*B + 15/8
*x^8*e^2*b^4*a^2*B + 1/4*x^8*e*d*b^6*A + 3/4*x^8*e^2*b^5*a*A + 6/
7*x^7*d^2*b^5*a*B + 30/7*x^7*e*d*b^4*a^2*B + 20/7*x^7*e^2*b^3*a^3
*B + 1/7*x^7*d^2*b^6*A + 12/7*x^7*e*d*b^5*a*A + 15/7*x^7*e^2*b^4*
a^2*A + 5/2*x^6*d^2*b^4*a^2*B + 20/3*x^6*e*d*b^3*a^3*B + 5/2*x^6*
e^2*b^2*a^4*B + x^6*d^2*b^5*a*A + 5*x^6*e*d*b^4*a^2*A + 10/3*x^6*
e^2*b^3*a^3*A + 4*x^5*d^2*b^3*a^3*B + 6*x^5*e*d*b^2*a^4*B + 6/5*x
^5*e^2*b*a^5*B + 3*x^5*d^2*b^4*a^2*A + 8*x^5*e*d*b^3*a^3*A + 3*x^
5*e^2*b^2*a^4*A + 15/4*x^4*d^2*b^2*a^4*B + 3*x^4*e*d*b*a^5*B + 1/
4*x^4*e^2*a^6*B + 5*x^4*d^2*b^3*a^3*A + 15/2*x^4*e*d*b^2*a^4*A +
3/2*x^4*e^2*b*a^5*A + 2*x^3*d^2*b*a^5*B + 2/3*x^3*e*d*a^6*B + 5*x
^3*d^2*b^2*a^4*A + 4*x^3*e*d*b*a^5*A + 1/3*x^3*e^2*a^6*A + 1/2*x^
2*d^2*a^6*B + 3*x^2*d^2*b*a^5*A + x^2*e*d*a^6*A + x*d^2*a^6*A
```

Sympy [A] time = 0.339248, size = 568, normalized size = 4.81

$$Aa^6d^2x + \frac{Bb^6e^2x^{10}}{10} + x^9\left(\frac{Ab^6e^2}{9} + \frac{2Bab^5e^2}{3} + \frac{2Bb^6de}{9}\right) + x^8\left(\frac{3Aab^5e^2}{4} + \frac{Ab^6de}{4} + \frac{15Ba^2b^4e^2}{8} + \frac{3Bab^5de}{2} + \frac{Bb^6d^2}{8}\right) + x^7\left(\frac{15Aa^2b^4e^2}{7} + \frac{12Aab^5de}{7} + \frac{Ab^6d^2}{7} + \frac{20Ba^3b^3e^2}{7} + \frac{30Ba^2b^4de}{7} + \frac{6Bab^5d^2}{7}\right) + x^6\left(\frac{10Aa^3b^3e^2}{3} + 5Aa^2b^4de + Aab^5d^2 + \frac{5Ba^4b^2e^2}{2} + \frac{20Ba^3b^3de}{3} + \frac{5Ba^2b^4d^2}{2}\right) + x^5\left(3Aa^4b^2e^2 + 8Aa^3b^3de + 3Aa^2b^4d^2 + \frac{6Ba^5be^2}{5} + 6Ba^4b^2de + 4Ba^3b^3d^2\right) + x^4\left(\frac{3Aa^5be^2}{2} + \frac{15Aa^4b^2de}{2} + 5Aa^3b^3d^2 + \frac{Ba^6e^2}{4} + 3Ba^5bde + \frac{15Ba^4b^2d^2}{4}\right) + x^3\left(\frac{Aa^6e^2}{3} + 4Aa^5bde + 5Aa^4b^2d^2 + \frac{2Ba^6de}{3} + 2Ba^5bd^2\right) + x^2\left(Aa^6de + 3Aa^5bd^2 + \frac{Ba^6d^2}{2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**6*(B*x+A)*(e*x+d)**2,x)
```

```
[Out] A*a**6*d**2*x + B*b**6*e**2*x**10/10 + x**9*(A*b**6*e**2/9 + 2*B*
a*b**5*e**2/3 + 2*B*b**6*d*e/9) + x**8*(3*A*a*b**5*e**2/4 + A*b**
6*d*e/4 + 15*B*a**2*b**4*e**2/8 + 3*B*a*b**5*d*e/2 + B*b**6*d**2/
8) + x**7*(15*A*a**2*b**4*e**2/7 + 12*A*a*b**5*d*e/7 + A*b**6*d**
2/7 + 20*B*a**3*b**3*e**2/7 + 30*B*a**2*b**4*d*e/7 + 6*B*a*b**5*d
**2/7) + x**6*(10*A*a**3*b**3*e**2/3 + 5*A*a**2*b**4*d*e + A*a*b*
*5*d**2 + 5*B*a**4*b**2*e**2/2 + 20*B*a**3*b**3*d*e/3 + 5*B*a**2*
b**4*d**2/2) + x**5*(3*A*a**4*b**2*e**2 + 8*A*a**3*b**3*d*e + 3*A
*a**2*b**4*d**2 + 6*B*a**5*b*e**2/5 + 6*B*a**4*b**2*d*e + 4*B*a**
3*b**3*d**2) + x**4*(3*A*a**5*b*e**2/2 + 15*A*a**4*b**2*d*e/2 + 5
*A*a**3*b**3*d**2 + B*a**6*e**2/4 + 3*B*a**5*b*d*e + 15*B*a**4*b*
*2*d**2/4) + x**3*(A*a**6*e**2/3 + 4*A*a**5*b*d*e + 5*A*a**4*b**2
*d**2 + 2*B*a**6*d*e/3 + 2*B*a**5*b*d**2) + x**2*(A*a**6*d*e + 3*
A*a**5*b*d**2 + B*a**6*d**2/2)
```

GIAC/XCAS [A] time = 0.227954, size = 745, normalized size = 6.31

$$\frac{1}{10}Bb^6x^{10}e^2 + \frac{2}{9}Bb^6dx^9e + \frac{1}{8}Bb^6d^2x^8 + \frac{2}{3}Bab^5x^9e^2 + \frac{1}{9}Ab^6x^9e^2 + \frac{3}{2}Bab^5dx^8e + \frac{1}{4}Ab^6dx^8e + \frac{6}{7}Bab^5d^2x^7 + \frac{1}{7}Ab^6d^2x^7 + \frac{15}{8}Ba^2b^4x^8e^2 + \frac{3}{4}Aab^5x^8e^2 + \frac{30}{7}Ba^2b^4dx^7e + \frac{12}{7}Aab^5dx^7e + \frac{5}{2}Ba^2b^4d^2x^6 + Aab^5d^2x^6 + \frac{20}{7}Ba^3b^3x^7e^2 + \frac{15}{7}Aa^2b^4x^7e^2 + \frac{20}{3}Ba^3b^3dx^6e + 5Aa^2b^4dx^6e + 4Ba^3b^3d^2x^5 + 3Aa^2b^4d^2x^5 + \frac{5}{2}Ba^4b^2x^6e^2 + \frac{10}{3}Aa^3b^3x^6e^2 + 6Ba^4b^2dx^5e + 8Aa^3b^3dx^5e + \frac{15}{4}Ba^4b^2d^2x^4 + 5Aa^3b^3d^2x^4 + \frac{6}{5}Ba^5bx^5e^2 + 3Aa^4b^2x^5e^2 + 3Ba^5bdx^4e + \frac{15}{2}Aa^4b^2dx^4e + 2Ba^5bd^2x^3 + 5Aa^4b^2d^2x^3 + \frac{1}{4}Ba^6x^4e^2 + \frac{3}{2}Aa^5bx^4e^2 + \frac{2}{3}Ba^6dx^3e + 4Aa^5bdx^3e + \frac{1}{2}Ba^6d^2x^2 + 3Aa^5bd^2x^2 + \frac{1}{3}Aa^6x^3e^2 + Aa^6dx^2e + Aa^6d^2x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6*(e*x + d)^2,x, algorithm="giac")
```

```
[Out] 1/10*B*b^6*x^10*e^2 + 2/9*B*b^6*d*x^9*e + 1/8*B*b^6*d^2*x^8 + 2/3
*B*a*b^5*x^9*e^2 + 1/9*A*b^6*x^9*e^2 + 3/2*B*a*b^5*d*x^8*e + 1/4*
A*b^6*d*x^8*e + 6/7*B*a*b^5*d^2*x^7 + 1/7*A*b^6*d^2*x^7 + 15/8*B*
a^2*b^4*x^8*e^2 + 3/4*A*a*b^5*x^8*e^2 + 30/7*B*a^2*b^4*d*x^7*e +
12/7*A*a*b^5*d*x^7*e + 5/2*B*a^2*b^4*d^2*x^6 + A*a*b^5*d^2*x^6 +
20/7*B*a^3*b^3*x^7*e^2 + 15/7*A*a^2*b^4*x^7*e^2 + 20/3*B*a^3*b^3*
d*x^6*e + 5*A*a^2*b^4*d*x^6*e + 4*B*a^3*b^3*d^2*x^5 + 3*A*a^2*b^4
```

```
*d^2*x^5 + 5/2*B*a^4*b^2*x^6*e^2 + 10/3*A*a^3*b^3*x^6*e^2 + 6*B*a
^4*b^2*d*x^5*e + 8*A*a^3*b^3*d*x^5*e + 15/4*B*a^4*b^2*d^2*x^4 + 5
*A*a^3*b^3*d^2*x^4 + 6/5*B*a^5*b*x^5*e^2 + 3*A*a^4*b^2*x^5*e^2 +
3*B*a^5*b*d*x^4*e + 15/2*A*a^4*b^2*d*x^4*e + 2*B*a^5*b*d^2*x^3 +
5*A*a^4*b^2*d^2*x^3 + 1/4*B*a^6*x^4*e^2 + 3/2*A*a^5*b*x^4*e^2 + 2
/3*B*a^6*d*x^3*e + 4*A*a^5*b*d*x^3*e + 1/2*B*a^6*d^2*x^2 + 3*A*a^
5*b*d^2*x^2 + 1/3*A*a^6*x^3*e^2 + A*a^6*d*x^2*e + A*a^6*d^2*x
```

3.1041 $\int (a+bx)^6(A+Bx)(d+ex)\,dx$

Optimal. Leaf size=75

$$\frac{(a+bx)^8(-2aBe+Abe+bBd)}{8b^3}+\frac{(a+bx)^7(Ab-aB)(bd-ae)}{7b^3}+\frac{Be(a+bx)^9}{9b^3}$$

```
[Out] ((A*b - a*B)*(b*d - a*e)*(a + b*x)^7)/(7*b^3) + ((b*B*d + A*b*e -
 2*a*B*e)*(a + b*x)^8)/(8*b^3) + (B*e*(a + b*x)^9)/(9*b^3)
```

Rubi [A] time = 0.457141, antiderivative size = 75, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.056$

$$\frac{(a+bx)^8(-2aBe+Abe+bBd)}{8b^3}+\frac{(a+bx)^7(Ab-aB)(bd-ae)}{7b^3}+\frac{Be(a+bx)^9}{9b^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^6*(A + B*x)*(d + e*x),x]
```

```
[Out] ((A*b - a*B)*(b*d - a*e)*(a + b*x)^7)/(7*b^3) + ((b*B*d + A*b*e -
 2*a*B*e)*(a + b*x)^8)/(8*b^3) + (B*e*(a + b*x)^9)/(9*b^3)
```

Rubi in Sympy [A] time = 33.7465, size = 68, normalized size = 0.91

$$\frac{Be\,(a+bx)^9}{9b^3}+\frac{(a+bx)^8\,(Abe-2Bae+Bbd)}{8b^3}-\frac{(a+bx)^7\,(Ab-Ba)\,(ae-bd)}{7b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**6*(B*x+A)*(e*x+d),x)
```

```
[Out] B*e*(a + b*x)**9/(9*b**3) + (a + b*x)**8*(A*b*e - 2*B*a*e + B*b*d
)/(8*b**3) - (a + b*x)**7*(A*b - B*a)*(a*e - b*d)/(7*b**3)
```

Mathematica [B] time = 0.283676, size = 231, normalized size = 3.08

$$\frac{1}{504}x\left(84a^6(3A(2d+ex)+Bx(3d+2ex))+252a^5bx(A(6d+4ex)+Bx(4d+3ex))\right.$$
$$+126a^4b^2x^2(5A(4d+3ex)+3Bx(5d+4ex))$$
$$+168a^3b^3x^3(3A(5d+4ex)+2Bx(6d+5ex))+36a^2b^4x^4(7A(6d+5ex)+5Bx(7d+6ex))$$
$$\left.+18ab^5x^5(4A(7d+6ex)+3Bx(8d+7ex))+b^6x^6(9A(8d+7ex)+7Bx(9d+8ex))\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^6*(A + B*x)*(d + e*x),x]
```

```
[Out] (x*(84*a^6*(3*A*(2*d + e*x) + B*x*(3*d + 2*e*x)) + 126*a^4*b^2*x^
2*(5*A*(4*d + 3*e*x) + 3*B*x*(5*d + 4*e*x)) + 252*a^5*b*x*(B*x*(4
*d + 3*e*x) + A*(6*d + 4*e*x)) + 168*a^3*b^3*x^3*(3*A*(5*d + 4*e*
x) + 2*B*x*(6*d + 5*e*x)) + 36*a^2*b^4*x^4*(7*A*(6*d + 5*e*x) + 5
*B*x*(7*d + 6*e*x)) + 18*a*b^5*x^5*(4*A*(7*d + 6*e*x) + 3*B*x*(8*
d + 7*e*x)) + b^6*x^6*(9*A*(8*d + 7*e*x) + 7*B*x*(9*d + 8*e*x))))
/504
```

Maple [B] time = 0.001, size = 293, normalized size = 3.9

$$\frac{b^6Bex^9}{9}+\frac{\left(\left(b^6A+6\,ab^5B\right)\,e+b^6Bd\right)\,x^8}{8}+\frac{\left(\left(6\,ab^5A+15\,a^2b^4B\right)\,e+\left(b^6A+6\,ab^5B\right)\,d\right)\,x^7}{7}+\frac{\left(\left(15\,a^2b^4A+20\,a^3b^3B\right)\,e+\left(6\,ab^5A+15\,a^2b^4B\right)\,d\right)\,x^6}{6}+\frac{\left(\left(20\,a^3b^3A+15\,a^4b^2B\right)\,e+\left(15\,a^2b^4A+20\,a^3b^3B\right)\,d\right)\,x^5}{5}+\frac{\left(\left(15\,a^4b^2A+6\,a^5bB\right)\,e+\left(20\,a^3b^3A+15\,a^4b^2B\right)\,d\right)\,x^4}{4}+\frac{\left(\left(6\,a^5bA+a^6B\right)\,e+\left(15\,a^4b^2A+6\,a^5bB\right)\,d\right)\,x^3}{3}+\frac{\left(a^6Ae+\left(6\,a^5bA+a^6B\right)\,d\right)\,x^2}{2}+a^6Adx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^6*(B*x+A)*(e*x+d),x)
```

```
[Out] 1/9*b^6*B*e*x^9+1/8*((A*b^6+6*B*a*b^5)*e+b^6*B*d)*x^8+1/7*((6*A*a
*b^5+15*B*a^2*b^4)*e+(A*b^6+6*B*a*b^5)*d)*x^7+1/6*((15*A*a^2*b^4+
20*B*a^3*b^3)*e+(6*A*a*b^5+15*B*a^2*b^4)*d)*x^6+1/5*((20*A*a^3*b^
3+15*B*a^4*b^2)*e+(15*A*a^2*b^4+20*B*a^3*b^3)*d)*x^5+1/4*((15*A*a
^4*b^2+6*B*a^5*b)*e+(20*A*a^3*b^3+15*B*a^4*b^2)*d)*x^4+1/3*((6*A*
a^5*b+B*a^6)*e+(15*A*a^4*b^2+6*B*a^5*b)*d)*x^3+1/2*(a^6*A*e+(6*A*
a^5*b+B*a^6)*d)*x^2+a^6*A*d*x
```

Maxima [A] time = 1.3341, size = 401, normalized size = 5.35

$$\frac{1}{9}\,Bb^6ex^9+Aa^6dx+\frac{1}{8}\,\left(Bb^6d+\left(6\,Bab^5+Ab^6\right)e\right)x^8+\frac{1}{7}\,\left(\left(6\,Bab^5+Ab^6\right)d+3\,\left(5\,Ba^2b^4+2\,Aab^5\right)e\right)x^7+\frac{1}{6}\,\left(3\,\left(5\,Ba^2b^4+2\,Aab^5\right)d+5\,\left(4\,Ba^3b^3+3\,Aa^2b^4\right)e\right)x^6+\left(\left(4\,Ba^3b^3+3\,Aa^2b^4\right)d+\left(3\,Ba^4b^2+4\,Aa^3b^3\right)e\right)x^5+\frac{1}{4}\,\left(5\,\left(3\,Ba^4b^2+4\,Aa^3b^3\right)d+3\,\left(2\,Ba^5b+5\,Aa^4b^2\right)e\right)x^4+\frac{1}{3}\,\left(3\,\left(2\,Ba^5b+5\,Aa^4b^2\right)d+\left(Ba^6+6\,Aa^5b\right)e\right)x^3+\frac{1}{2}\,\left(Aa^6e+\left(Ba^6+6\,Aa^5b\right)d\right)x^2$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6*(e*x + d),x, algorithm="maxima")
```

```
[Out] 1/9*B*b^6*e*x^9 + A*a^6*d*x + 1/8*(B*b^6*d + (6*B*a*b^5 + A*b^6)*
e)*x^8 + 1/7*((6*B*a*b^5 + A*b^6)*d + 3*(5*B*a^2*b^4 + 2*A*a*b^5)
*e)*x^7 + 1/6*(3*(5*B*a^2*b^4 + 2*A*a*b^5)*d + 5*(4*B*a^3*b^3 + 3
*A*a^2*b^4)*e)*x^6 + ((4*B*a^3*b^3 + 3*A*a^2*b^4)*d + (3*B*a^4*b^
2 + 4*A*a^3*b^3)*e)*x^5 + 1/4*(5*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d +
3*(2*B*a^5*b + 5*A*a^4*b^2)*e)*x^4 + 1/3*(3*(2*B*a^5*b + 5*A*a^4*
b^2)*d + (B*a^6 + 6*A*a^5*b)*e)*x^3 + 1/2*(A*a^6*e + (B*a^6 + 6*A
*a^5*b)*d)*x^2
```

Fricas [A] time = 0.185666, size = 1, normalized size = 0.01

$$\frac{1}{9}x^9eb^6B+\frac{1}{8}x^8db^6B+\frac{3}{4}x^8eb^5aB+\frac{1}{8}x^8eb^6A+\frac{6}{7}x^7db^5aB+\frac{15}{7}x^7eb^4a^2B+\frac{1}{7}x^7db^6A+\frac{6}{7}x^7eb^5aA+\frac{5}{2}x^6db^4a^2B+\frac{10}{3}x^6eb^3a^3B+x^6db^5aA+\frac{5}{2}x^6eb^4a^2A+4x^5db^3a^3B+3x^5eb^2a^4B+3x^5db^4a^2A+4x^5eb^3a^3A+\frac{15}{4}x^4db^2a^4B+\frac{3}{2}x^4eba^5B+5x^4db^3a^3A+\frac{15}{4}x^4eb^2a^4A+2x^3dba^5B+\frac{1}{3}x^3ea^6B+5x^3db^2a^4A+2x^3eba^5A+\frac{1}{2}x^2da^6B+3x^2dba^5A+\frac{1}{2}x^2ea^6A+xda^6A$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6*(e*x + d),x, algorithm="fricas")
```

```
[Out] 1/9*x^9*e*b^6*B + 1/8*x^8*d*b^6*B + 3/4*x^8*e*b^5*a*B + 1/8*x^8*e
*b^6*A + 6/7*x^7*d*b^5*a*B + 15/7*x^7*e*b^4*a^2*B + 1/7*x^7*d*b^6
*A + 6/7*x^7*e*b^5*a*A + 5/2*x^6*d*b^4*a^2*B + 10/3*x^6*e*b^3*a^3
*B + x^6*d*b^5*a*A + 5/2*x^6*e*b^4*a^2*A + 4*x^5*d*b^3*a^3*B + 3*
x^5*e*b^2*a^4*B + 3*x^5*d*b^4*a^2*A + 4*x^5*e*b^3*a^3*A + 15/4*x^
4*d*b^2*a^4*B + 3/2*x^4*e*b*a^5*B + 5*x^4*d*b^3*a^3*A + 15/4*x^4*
e*b^2*a^4*A + 2*x^3*d*b*a^5*B + 1/3*x^3*e*a^6*B + 5*x^3*d*b^2*a^4
*A + 2*x^3*e*b*a^5*A + 1/2*x^2*d*a^6*B + 3*x^2*d*b*a^5*A + 1/2*x^
2*e*a^6*A + x*d*a^6*A
```

Sympy [A] time = 0.244716, size = 333, normalized size = 4.44

$$Aa^6dx + \frac{Bb^6ex^9}{9} + x^8\left(\frac{Ab^6e}{8} + \frac{3Bab^5e}{4} + \frac{Bb^6d}{8}\right) + x^7\left(\frac{6Aab^5e}{7} + \frac{Ab^6d}{7} + \frac{15Ba^2b^4e}{7} + \frac{6Bab^5d}{7}\right) + x^6\left(\frac{5Aa^2b^4e}{2} + Aab^5d + \frac{10Ba^3b^3e}{3} + \frac{5Ba^2b^4d}{2}\right) + x^5\left(4Aa^3b^3e + 3Aa^2b^4d + 3Ba^4b^2e + 4Ba^3b^3d\right) + x^4\left(\frac{15Aa^4b^2e}{4} + 5Aa^3b^3d + \frac{3Ba^5be}{2} + \frac{15Ba^4b^2d}{4}\right) + x^3\left(2Aa^5be + 5Aa^4b^2d + \frac{Ba^6e}{3} + 2Ba^5bd\right) + x^2\left(\frac{Aa^6e}{2} + 3Aa^5bd + \frac{Ba^6d}{2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**6*(B*x+A)*(e*x+d),x)
```

```
[Out] A*a**6*d*x + B*b**6*e*x**9/9 + x**8*(A*b**6*e/8 + 3*B*a*b**5*e/4
+ B*b**6*d/8) + x**7*(6*A*a*b**5*e/7 + A*b**6*d/7 + 15*B*a**2*b**
4*e/7 + 6*B*a*b**5*d/7) + x**6*(5*A*a**2*b**4*e/2 + A*a*b**5*d +
10*B*a**3*b**3*e/3 + 5*B*a**2*b**4*d/2) + x**5*(4*A*a**3*b**3*e +
 3*A*a**2*b**4*d + 3*B*a**4*b**2*e + 4*B*a**3*b**3*d) + x**4*(15*
A*a**4*b**2*e/4 + 5*A*a**3*b**3*d + 3*B*a**5*b*e/2 + 15*B*a**4*b*
*2*d/4) + x**3*(2*A*a**5*b*e + 5*A*a**4*b**2*d + B*a**6*e/3 + 2*B
*a**5*b*d) + x**2*(A*a**6*e/2 + 3*A*a**5*b*d + B*a**6*d/2)
```

GIAC/XCAS [A] time = 0.239808, size = 452, normalized size = 6.03

$$\frac{1}{9}Bb^6x^9e + \frac{1}{8}Bb^6dx^8 + \frac{3}{4}Bab^5x^8e + \frac{1}{8}Ab^6x^8e + \frac{6}{7}Bab^5dx^7 + \frac{1}{7}Ab^6dx^7 + \frac{15}{7}Ba^2b^4x^7e + \frac{6}{7}Aab^5x^7e + \frac{5}{2}Ba^2b^4dx^6 + Aab^5dx^6 + \frac{10}{3}Ba^3b^3x^6e + \frac{5}{2}Aa^2b^4x^6e + 4\,Ba^3b^3dx^5 + 3\,Aa^2b^4dx^5 + 3\,Ba^4b^2x^5e + 4\,Aa^3b^3x^5e + \frac{15}{4}Ba^4b^2dx^4 + 5\,Aa^3b^3dx^4 + \frac{3}{2}Ba^5bx^4e + \frac{15}{4}Aa^4b^2x^4e + 2\,Ba^5bdx^3 + 5\,Aa^4b^2dx^3 + \frac{1}{3}Ba^6x^3e + 2\,Aa^5bx^3e + \frac{1}{2}Ba^6dx^2 + 3\,Aa^5bdx^2 + \frac{1}{2}Aa^6x^2e + Aa^6dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6*(e*x + d),x, algorithm="giac")
```

```
[Out] 1/9*B*b^6*x^9*e + 1/8*B*b^6*d*x^8 + 3/4*B*a*b^5*x^8*e + 1/8*A*b^6
*x^8*e + 6/7*B*a*b^5*d*x^7 + 1/7*A*b^6*d*x^7 + 15/7*B*a^2*b^4*x^7
*e + 6/7*A*a*b^5*x^7*e + 5/2*B*a^2*b^4*d*x^6 + A*a*b^5*d*x^6 + 10
/3*B*a^3*b^3*x^6*e + 5/2*A*a^2*b^4*x^6*e + 4*B*a^3*b^3*d*x^5 + 3*
A*a^2*b^4*d*x^5 + 3*B*a^4*b^2*x^5*e + 4*A*a^3*b^3*x^5*e + 15/4*B*
a^4*b^2*d*x^4 + 5*A*a^3*b^3*d*x^4 + 3/2*B*a^5*b*x^4*e + 15/4*A*a^
4*b^2*x^4*e + 2*B*a^5*b*d*x^3 + 5*A*a^4*b^2*d*x^3 + 1/3*B*a^6*x^3
*e + 2*A*a^5*b*x^3*e + 1/2*B*a^6*d*x^2 + 3*A*a^5*b*d*x^2 + 1/2*A*
a^6*x^2*e + A*a^6*d*x
```

3.1042 $\int (a+bx)^6(A+Bx)\,dx$

Optimal. Leaf size=38

$$\frac{(a+bx)^7(Ab-aB)}{7b^2}+\frac{B(a+bx)^8}{8b^2}$$

```
[Out] ((A*b - a*B)*(a + b*x)^7)/(7*b^2) + (B*(a + b*x)^8)/(8*b^2)
```

Rubi [A] time = 0.0476074, antiderivative size = 38, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 13, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.077

$$\frac{(a+bx)^7(Ab-aB)}{7b^2}+\frac{B(a+bx)^8}{8b^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^6*(A + B*x),x]

[Out] ((A*b - a*B)*(a + b*x)^7)/(7*b^2) + (B*(a + b*x)^8)/(8*b^2)
```

Rubi in Sympy [A] time = 16.8256, size = 31, normalized size = 0.82

$$\frac{B(a+bx)^8}{8b^2}+\frac{(a+bx)^7(Ab-Ba)}{7b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**6*(B*x+A),x)

[Out] B*(a + b*x)**8/(8*b**2) + (a + b*x)**7*(A*b - B*a)/(7*b**2)
```

Mathematica [B] time = 0.0614748, size = 122, normalized size = 3.21

$$\frac{1}{56}x\left(28a^6(2A+Bx)+56a^5bx(3A+2Bx)+70a^4b^2x^2(4A+3Bx)+56a^3b^3x^3(5A+4Bx)\right.$$
$$\left.+28a^2b^4x^4(6A+5Bx)+8ab^5x^5(7A+6Bx)+b^6x^6(8A+7Bx)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^6*(A + B*x),x]

[Out] (x*(28*a^6*(2*A + B*x) + 56*a^5*b*x*(3*A + 2*B*x) + 70*a^4*b^2*x^
2*(4*A + 3*B*x) + 56*a^3*b^3*x^3*(5*A + 4*B*x) + 28*a^2*b^4*x^4*(
6*A + 5*B*x) + 8*a*b^5*x^5*(7*A + 6*B*x) + b^6*x^6*(8*A + 7*B*x))
)/56
```

Maple [B] time = 0.003, size = 145, normalized size = 3.8

$$\frac{b^6Bx^8}{8}+\frac{(b^6A+6\,ab^5B)\,x^7}{7}+\frac{(6\,ab^5A+15\,a^2b^4B)\,x^6}{6}+\frac{(15\,a^2b^4A+20\,a^3b^3B)\,x^5}{5}$$
$$+\frac{(20\,a^3b^3A+15\,a^4b^2B)\,x^4}{4}+\frac{(15\,a^4b^2A+6\,a^5bB)\,x^3}{3}+\frac{(6\,a^5bA+a^6B)\,x^2}{2}+a^6Ax$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^6*(B*x+A),x)
```

```
[Out] 1/8*b^6*B*x^8+1/7*(A*b^6+6*B*a*b^5)*x^7+1/6*(6*A*a*b^5+15*B*a^2*b
^4)*x^6+1/5*(15*A*a^2*b^4+20*B*a^3*b^3)*x^5+1/4*(20*A*a^3*b^3+15*
B*a^4*b^2)*x^4+1/3*(15*A*a^4*b^2+6*B*a^5*b)*x^3+1/2*(6*A*a^5*b+B*
a^6)*x^2+a^6*A*x
```

Maxima [A] time = 1.33433, size = 192, normalized size = 5.05

$$\frac{1}{8}Bb^6x^8 + Aa^6x + \frac{1}{7}\left(6\,Bab^5 + Ab^6\right)x^7 + \frac{1}{2}\left(5\,Ba^2b^4 + 2\,Aab^5\right)x^6 + \left(4\,Ba^3b^3 + 3\,Aa^2b^4\right)x^5 + \frac{5}{4}\left(3\,Ba^4b^2 + 4\,Aa^3b^3\right)x^4 + \left(2\,Ba^5b + 5\,Aa^4b^2\right)x^3 + \frac{1}{2}\left(Ba^6 + 6\,Aa^5b\right)x^2$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6,x, algorithm="maxima")
```

```
[Out] 1/8*B*b^6*x^8 + A*a^6*x + 1/7*(6*B*a*b^5 + A*b^6)*x^7 + 1/2*(5*B*
a^2*b^4 + 2*A*a*b^5)*x^6 + (4*B*a^3*b^3 + 3*A*a^2*b^4)*x^5 + 5/4*
(3*B*a^4*b^2 + 4*A*a^3*b^3)*x^4 + (2*B*a^5*b + 5*A*a^4*b^2)*x^3 +
 1/2*(B*a^6 + 6*A*a^5*b)*x^2
```

Fricas [A] time = 0.187833, size = 1, normalized size = 0.03

$$\frac{1}{8}x^8b^6B + \frac{6}{7}x^7b^5aB + \frac{1}{7}x^7b^6A + \frac{5}{2}x^6b^4a^2B + x^6b^5aA + 4x^5b^3a^3B + 3x^5b^4a^2A + \frac{15}{4}x^4b^2a^4B + 5x^4b^3a^3A + 2x^3ba^5B + 5x^3b^2a^4A + \frac{1}{2}x^2a^6B + 3x^2ba^5A + xa^6A$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6,x, algorithm="fricas")
```

```
[Out] 1/8*x^8*b^6*B + 6/7*x^7*b^5*a*B + 1/7*x^7*b^6*A + 5/2*x^6*b^4*a^2
*B + x^6*b^5*a*A + 4*x^5*b^3*a^3*B + 3*x^5*b^4*a^2*A + 15/4*x^4*b
^2*a^4*B + 5*x^4*b^3*a^3*A + 2*x^3*b*a^5*B + 5*x^3*b^2*a^4*A + 1/
2*x^2*a^6*B + 3*x^2*b*a^5*A + x*a^6*A
```

Sympy [A] time = 0.186531, size = 148, normalized size = 3.89

$$Aa^6x + \frac{Bb^6x^8}{8} + x^7\left(\frac{Ab^6}{7} + \frac{6Bab^5}{7}\right) + x^6\left(Aab^5 + \frac{5Ba^2b^4}{2}\right) + x^5\left(3Aa^2b^4 + 4Ba^3b^3\right) + x^4\left(5Aa^3b^3 + \frac{15Ba^4b^2}{4}\right) + x^3\left(5Aa^4b^2 + 2Ba^5b\right) + x^2\left(3Aa^5b + \frac{Ba^6}{2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**6*(B*x+A),x)
```

```
[Out] A*a**6*x + B*b**6*x**8/8 + x**7*(A*b**6/7 + 6*B*a*b**5/7) + x**6*
(A*a*b**5 + 5*B*a**2*b**4/2) + x**5*(3*A*a**2*b**4 + 4*B*a**3*b**
3) + x**4*(5*A*a**3*b**3 + 15*B*a**4*b**2/4) + x**3*(5*A*a**4*b**
2 + 2*B*a**5*b) + x**2*(3*A*a**5*b + B*a**6/2)
```

GIAC/XCAS [A] time = 0.229448, size = 196, normalized size = 5.16

$$\frac{1}{8} Bb^6x^8 + \frac{6}{7} Bab^5x^7 + \frac{1}{7} Ab^6x^7 + \frac{5}{2} Ba^2b^4x^6 + Aab^5x^6 + 4 Ba^3b^3x^5 + 3 Aa^2b^4x^5 + \frac{15}{4} Ba^4b^2x^4 + 5 Aa^3b^3x^4 + 2 Ba^5bx^3 + 5 Aa^4b^2x^3 + \frac{1}{2} Ba^6x^2 + 3 Aa^5bx^2 + Aa^6x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6,x, algorithm="giac")
```

```
[Out] 1/8*B*b^6*x^8 + 6/7*B*a*b^5*x^7 + 1/7*A*b^6*x^7 + 5/2*B*a^2*b^4*x
^6 + A*a*b^5*x^6 + 4*B*a^3*b^3*x^5 + 3*A*a^2*b^4*x^5 + 15/4*B*a^4
*b^2*x^4 + 5*A*a^3*b^3*x^4 + 2*B*a^5*b*x^3 + 5*A*a^4*b^2*x^3 + 1/
2*B*a^6*x^2 + 3*A*a^5*b*x^2 + A*a^6*x
```

3.1043 $\int \frac{(a+bx)^6(A+Bx)}{d+ex}\,dx$

Optimal. Leaf size=220

$$-\frac{(bd-ae)^6(Bd-Ae)\log(d+ex)}{e^8}+\frac{bx(bd-ae)^5(Bd-Ae)}{e^7}-\frac{(a+bx)^2(bd-ae)^4(Bd-Ae)}{2e^6}+\frac{(a+bx)^3(bd-ae)^3(Bd-Ae)}{3e^5}-\frac{(a+bx)^4(bd-ae)^2(Bd-Ae)}{4e^4}+\frac{(a+bx)^5(bd-ae)(Bd-Ae)}{5e^3}-\frac{(a+bx)^6(Bd-Ae)}{6e^2}+\frac{B(a+bx)^7}{7be}$$

```
[Out] (b*(b*d - a*e)^5*(B*d - A*e)*x)/e^7 - ((b*d - a*e)^4*(B*d - A*e)*
(a + b*x)^2)/(2*e^6) + ((b*d - a*e)^3*(B*d - A*e)*(a + b*x)^3)/(3
*e^5) - ((b*d - a*e)^2*(B*d - A*e)*(a + b*x)^4)/(4*e^4) + ((b*d -
 a*e)*(B*d - A*e)*(a + b*x)^5)/(5*e^3) - ((B*d - A*e)*(a + b*x)^6
)/(6*e^2) + (B*(a + b*x)^7)/(7*b*e) - ((b*d - a*e)^6*(B*d - A*e)*
Log[d + e*x])/e^8
```

Rubi [A] time = 0.409064, antiderivative size = 220, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{(bd-ae)^6(Bd-Ae)\log(d+ex)}{e^8}+\frac{bx(bd-ae)^5(Bd-Ae)}{e^7}-\frac{(a+bx)^2(bd-ae)^4(Bd-Ae)}{2e^6}+\frac{(a+bx)^3(bd-ae)^3(Bd-Ae)}{3e^5}-\frac{(a+bx)^4(bd-ae)^2(Bd-Ae)}{4e^4}+\frac{(a+bx)^5(bd-ae)(Bd-Ae)}{5e^3}-\frac{(a+bx)^6(Bd-Ae)}{6e^2}+\frac{B(a+bx)^7}{7be}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^6*(A + B*x))/(d + e*x),x]
```

```
[Out] (b*(b*d - a*e)^5*(B*d - A*e)*x)/e^7 - ((b*d - a*e)^4*(B*d - A*e)*
(a + b*x)^2)/(2*e^6) + ((b*d - a*e)^3*(B*d - A*e)*(a + b*x)^3)/(3
*e^5) - ((b*d - a*e)^2*(B*d - A*e)*(a + b*x)^4)/(4*e^4) + ((b*d -
 a*e)*(B*d - A*e)*(a + b*x)^5)/(5*e^3) - ((B*d - A*e)*(a + b*x)^6
)/(6*e^2) + (B*(a + b*x)^7)/(7*b*e) - ((b*d - a*e)^6*(B*d - A*e)*
Log[d + e*x])/e^8
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{B\left(a+bx\right)^7}{7be}+\frac{\left(a+bx\right)^6\left(Ae-Bd\right)}{6e^2}+\frac{\left(a+bx\right)^5\left(Ae-Bd\right)\left(ae-bd\right)}{5e^3}+\frac{\left(a+bx\right)^4\left(Ae-Bd\right)\left(ae-bd\right)^2}{4e^4}+\frac{\left(a+bx\right)^3\left(Ae-Bd\right)\left(ae-bd\right)^3}{3e^5}+\frac{\left(a+bx\right)^2\left(Ae-Bd\right)\left(ae-bd\right)^4}{2e^6}+\frac{\left(Ae-Bd\right)\left(ae-bd\right)^5\int b\,dx}{e^7}+\frac{\left(Ae-Bd\right)\left(ae-bd\right)^6\log\left(d+ex\right)}{e^8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**6*(B*x+A)/(e*x+d),x)
```

```
[Out] B*(a + b*x)**7/(7*b*e) + (a + b*x)**6*(A*e - B*d)/(6*e**2) + (a +
 b*x)**5*(A*e - B*d)*(a*e - b*d)/(5*e**3) + (a + b*x)**4*(A*e - B
*d)*(a*e - b*d)**2/(4*e**4) + (a + b*x)**3*(A*e - B*d)*(a*e - b*d
)**3/(3*e**5) + (a + b*x)**2*(A*e - B*d)*(a*e - b*d)**4/(2*e**6)
+ (A*e - B*d)*(a*e - b*d)**5*Integral(b, x)/e**7 + (A*e - B*d)*(a
*e - b*d)**6*log(d + e*x)/e**8
```

Mathematica [B] time = 0.543037, size = 501, normalized size = 2.28

$$ex\left(420a^6Be^6+1260a^5be^5(2Ae-2Bd+Bex)+1050a^4b^2e^4\left(3Ae(ex-2d)+B\left(6d^2-3dex+2e^2x^2\right)\right)+700a^3b^3e^3\left(2Ae\left(6d\right.\right.\right.$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^6*(A + B*x))/(d + e*x),x]
```

```
[Out] (e*x*(420*a^6*B*e^6 + 1260*a^5*b*e^5*(-2*B*d + 2*A*e + B*e*x) + 1
050*a^4*b^2*e^4*(3*A*e*(-2*d + e*x) + B*(6*d^2 - 3*d*e*x + 2*e^2*
x^2)) + 700*a^3*b^3*e^3*(2*A*e*(6*d^2 - 3*d*e*x + 2*e^2*x^2) + B*
(-12*d^3 + 6*d^2*e*x - 4*d*e^2*x^2 + 3*e^3*x^3)) + 105*a^2*b^4*e^
2*(5*A*e*(-12*d^3 + 6*d^2*e*x - 4*d*e^2*x^2 + 3*e^3*x^3) + B*(60*
d^4 - 30*d^3*e*x + 20*d^2*e^2*x^2 - 15*d*e^3*x^3 + 12*e^4*x^4)) +
 42*a*b^5*e*(A*e*(60*d^4 - 30*d^3*e*x + 20*d^2*e^2*x^2 - 15*d*e^3
*x^3 + 12*e^4*x^4) + B*(-60*d^5 + 30*d^4*e*x - 20*d^3*e^2*x^2 + 1
5*d^2*e^3*x^3 - 12*d*e^4*x^4 + 10*e^5*x^5)) + b^6*(7*A*e*(-60*d^5
 + 30*d^4*e*x - 20*d^3*e^2*x^2 + 15*d^2*e^3*x^3 - 12*d*e^4*x^4 +
10*e^5*x^5) + B*(420*d^6 - 210*d^5*e*x + 140*d^4*e^2*x^2 - 105*d^
3*e^3*x^3 + 84*d^2*e^4*x^4 - 70*d*e^5*x^5 + 60*e^6*x^6))) - 420*(
b*d - a*e)^6*(B*d - A*e)*Log[d + e*x])/(420*e^8)
```

Maple [B] time = 0.011, size = 989, normalized size = 4.5

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^6*(B*x+A)/(e*x+d),x)
```

```
[Out] 1/e*B*a^6*x+1/7/e*B*b^6*x^7+1/6/e*A*x^6*b^6+1/e*ln(e*x+d)*a^6*A-1
/e^8*ln(e*x+d)*b^6*B*d^7+20/3/e*A*x^3*a^3*b^3-1/4/e^4*B*x^4*b^6*d
^3+5/e*B*x^3*a^4*b^2-1/3/e^4*A*x^3*b^6*d^3+1/4/e^3*A*x^4*b^6*d^2+
15/4/e*A*x^4*a^2*b^4+1/5/e^3*B*x^5*b^6*d^2+5/e*B*x^4*a^3*b^3+3/e*
B*x^2*a^5*b+1/3/e^5*B*x^3*b^6*d^4+1/2/e^5*A*x^2*b^6*d^4+15/2/e*A*
x^2*a^4*b^2+1/e^7*b^6*B*d^6*x+1/e*B*x^6*a*b^5+3/e*B*x^5*a^2*b^4-1
/5/e^2*A*x^5*b^6*d-20/3/e^2*B*x^3*a^3*b^3*d+5/e^3*B*x^3*a^2*b^4*d
^2-2/e^4*B*x^3*a*b^5*d^3+10/e^3*B*x^2*a^3*b^3*d^2-15/2/e^4*B*x^2*
a^2*b^4*d^3+3/e^5*B*x^2*a*b^5*d^4-15/e^2*A*a^4*b^2*d*x+20/e^3*A*a
^3*b^3*d^2*x-15/e^4*A*a^2*b^4*d^3*x+6/e^5*A*a*b^5*d^4*x-6/e^2*B*a
^5*b*d*x+15/e^3*B*a^4*b^2*d^2*x-20/e^4*B*a^3*b^3*d^3*x+15/e^5*B*a
^2*b^4*d^4*x-6/e^6*B*a*b^5*d^5*x+15/2/e^3*A*x^2*a^2*b^4*d^2-3/e^4
*A*x^2*a*b^5*d^3-15/2/e^2*B*x^2*a^4*b^2*d-10/e^2*A*x^2*a^3*b^3*d-
6/e^2*ln(e*x+d)*A*a^5*b*d+15/e^3*ln(e*x+d)*A*a^4*b^2*d^2-20/e^4*l
n(e*x+d)*A*a^3*b^3*d^3+15/e^5*ln(e*x+d)*A*a^2*b^4*d^4-6/e^6*ln(e*
x+d)*A*a*b^5*d^5+6/e^3*ln(e*x+d)*B*a^5*b*d^2-15/e^4*ln(e*x+d)*B*a
^4*b^2*d^3+20/e^5*ln(e*x+d)*B*a^3*b^3*d^4-15/e^6*ln(e*x+d)*B*a^2*
b^4*d^5+6/e^7*ln(e*x+d)*B*a*b^5*d^6-3/2/e^2*A*x^4*a*b^5*d-6/5/e^2
*B*x^5*a*b^5*d-5/e^2*A*x^3*a^2*b^4*d+2/e^3*A*x^3*a*b^5*d^2-15/4/e
^2*B*x^4*a^2*b^4*d+3/2/e^3*B*x^4*a*b^5*d^2-1/6/e^2*B*x^6*b^6*d-1/
e^6*A*b^6*d^5*x+6/5/e*A*x^5*a*b^5-1/2/e^6*B*x^2*b^6*d^5+6/e*A*a^5
*b*x+1/e^7*ln(e*x+d)*A*b^6*d^6-1/e^2*ln(e*x+d)*B*a^6*d
```

Maxima [A] time = 1.38635, size = 1029, normalized size = 4.68

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6/(e*x + d),x, algorithm="maxima")
```

```
[Out] 1/420*(60*B*b^6*e^6*x^7 - 70*(B*b^6*d*e^5 - (6*B*a*b^5 + A*b^6)*e
^6)*x^6 + 84*(B*b^6*d^2*e^4 - (6*B*a*b^5 + A*b^6)*d*e^5 + 3*(5*B*
```

```
a^2*b^4 + 2*A*a*b^5)*e^6)*x^5 - 105*(B*b^6*d^3*e^3 - (6*B*a*b^5 +
 A*b^6)*d^2*e^4 + 3*(5*B*a^2*b^4 + 2*A*a*b^5)*d*e^5 - 5*(4*B*a^3*
b^3 + 3*A*a^2*b^4)*e^6)*x^4 + 140*(B*b^6*d^4*e^2 - (6*B*a*b^5 + A
*b^6)*d^3*e^3 + 3*(5*B*a^2*b^4 + 2*A*a*b^5)*d^2*e^4 - 5*(4*B*a^3*
b^3 + 3*A*a^2*b^4)*d*e^5 + 5*(3*B*a^4*b^2 + 4*A*a^3*b^3)*e^6)*x^3
 - 210*(B*b^6*d^5*e - (6*B*a*b^5 + A*b^6)*d^4*e^2 + 3*(5*B*a^2*b^
4 + 2*A*a*b^5)*d^3*e^3 - 5*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^2*e^4 +
5*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d*e^5 - 3*(2*B*a^5*b + 5*A*a^4*b^2)
*e^6)*x^2 + 420*(B*b^6*d^6 - (6*B*a*b^5 + A*b^6)*d^5*e + 3*(5*B*a
^2*b^4 + 2*A*a*b^5)*d^4*e^2 - 5*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^3*e
^3 + 5*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d^2*e^4 - 3*(2*B*a^5*b + 5*A*a
^4*b^2)*d*e^5 + (B*a^6 + 6*A*a^5*b)*e^6)*x)/e^7 - (B*b^6*d^7 - A*
a^6*e^7 - (6*B*a*b^5 + A*b^6)*d^6*e + 3*(5*B*a^2*b^4 + 2*A*a*b^5)
*d^5*e^2 - 5*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^4*e^3 + 5*(3*B*a^4*b^2
 + 4*A*a^3*b^3)*d^3*e^4 - 3*(2*B*a^5*b + 5*A*a^4*b^2)*d^2*e^5 + (
B*a^6 + 6*A*a^5*b)*d*e^6)*log(e*x + d)/e^8
```

Fricas [A] time = 0.210198, size = 1030, normalized size = 4.68

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6/(e*x + d),x, algorithm="fricas")
```

```
[Out] 1/420*(60*B*b^6*e^7*x^7 - 70*(B*b^6*d*e^6 - (6*B*a*b^5 + A*b^6)*e
^7)*x^6 + 84*(B*b^6*d^2*e^5 - (6*B*a*b^5 + A*b^6)*d*e^6 + 3*(5*B*
a^2*b^4 + 2*A*a*b^5)*e^7)*x^5 - 105*(B*b^6*d^3*e^4 - (6*B*a*b^5 +
 A*b^6)*d^2*e^5 + 3*(5*B*a^2*b^4 + 2*A*a*b^5)*d*e^6 - 5*(4*B*a^3*
b^3 + 3*A*a^2*b^4)*e^7)*x^4 + 140*(B*b^6*d^4*e^3 - (6*B*a*b^5 + A
*b^6)*d^3*e^4 + 3*(5*B*a^2*b^4 + 2*A*a*b^5)*d^2*e^5 - 5*(4*B*a^3*
b^3 + 3*A*a^2*b^4)*d*e^6 + 5*(3*B*a^4*b^2 + 4*A*a^3*b^3)*e^7)*x^3
 - 210*(B*b^6*d^5*e^2 - (6*B*a*b^5 + A*b^6)*d^4*e^3 + 3*(5*B*a^2*
b^4 + 2*A*a*b^5)*d^3*e^4 - 5*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^2*e^5
+ 5*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d*e^6 - 3*(2*B*a^5*b + 5*A*a^4*b^
2)*e^7)*x^2 + 420*(B*b^6*d^6*e - (6*B*a*b^5 + A*b^6)*d^5*e^2 + 3*
(5*B*a^2*b^4 + 2*A*a*b^5)*d^4*e^3 - 5*(4*B*a^3*b^3 + 3*A*a^2*b^4)
*d^3*e^4 + 5*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d^2*e^5 - 3*(2*B*a^5*b +
 5*A*a^4*b^2)*d*e^6 + (B*a^6 + 6*A*a^5*b)*e^7)*x - 420*(B*b^6*d^7
 - A*a^6*e^7 - (6*B*a*b^5 + A*b^6)*d^6*e + 3*(5*B*a^2*b^4 + 2*A*a
*b^5)*d^5*e^2 - 5*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^4*e^3 + 5*(3*B*a^
4*b^2 + 4*A*a^3*b^3)*d^3*e^4 - 3*(2*B*a^5*b + 5*A*a^4*b^2)*d^2*e^
5 + (B*a^6 + 6*A*a^5*b)*d*e^6)*log(e*x + d))/e^8
```

Sympy [A] time = 8.34195, size = 709, normalized size = 3.22

$$\frac{Bb^6x^7}{7e} + \frac{x^6\left(Ab^6e + 6Bab^5e - Bb^6d\right)}{6e^2} + \frac{x^5\left(6Aab^5e^2 - Ab^6de + 15Ba^2b^4e^2 - 6Bab^5de + Bb^6d^2\right)}{5e^3}$$
$$+ \frac{x^4\left(15Aa^2b^4e^3 - 6Aab^5de^2 + Ab^6d^2e + 20Ba^3b^3e^3 - 15Ba^2b^4de^2 + 6Bab^5d^2e - Bb^6d^3\right)}{4e^4}$$
$$+ \frac{x^3\left(20Aa^3b^3e^4 - 15Aa^2b^4de^3 + 6Aab^5d^2e^2 - Ab^6d^3e + 15Ba^4b^2e^4 - 20Ba^3b^3de^3 + 15Ba^2b^4d^2e^2 - 6Bab^5d^3e + Bb^6d^4\right)}{3e^5}$$
$$+ \frac{x^2\left(15Aa^4b^2e^5 - 20Aa^3b^3de^4 + 15Aa^2b^4d^2e^3 - 6Aab^5d^3e^2 + Ab^6d^4e + 6Ba^5be^5 - 15Ba^4b^2de^4 + 20Ba^3b^3d^2e^3 - 15Ba^2b^4d^3 \cdots\right)}{2e^6}$$
$$+ \frac{x\left(6Aa^5be^6 - 15Aa^4b^2de^5 + 20Aa^3b^3d^2e^4 - 15Aa^2b^4d^3e^3 + 6Aab^5d^4e^2 - Ab^6d^5e + Ba^6e^6 - 6Ba^5bde^5 + 15Ba^4b^2d^2e^4 - 20 \cdots\right)}{e^7}$$
$$- \frac{(-Ae + Bd)(ae - bd)^6 \log(d + ex)}{e^8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**6*(B*x+A)/(e*x+d),x)
```

```
[Out] B*b**6*x**7/(7*e) + x**6*(A*b**6*e + 6*B*a*b**5*e - B*b**6*d)/(6*
e**2) + x**5*(6*A*a*b**5*e**2 - A*b**6*d*e + 15*B*a**2*b**4*e**2
- 6*B*a*b**5*d*e + B*b**6*d**2)/(5*e**3) + x**4*(15*A*a**2*b**4*e
**3 - 6*A*a*b**5*d*e**2 + A*b**6*d**2*e + 20*B*a**3*b**3*e**3 - 1
5*B*a**2*b**4*d*e**2 + 6*B*a*b**5*d**2*e - B*b**6*d**3)/(4*e**4)
+ x**3*(20*A*a**3*b**3*e**4 - 15*A*a**2*b**4*d*e**3 + 6*A*a*b**5*
d**2*e**2 - A*b**6*d**3*e + 15*B*a**4*b**2*e**4 - 20*B*a**3*b**3*
d*e**3 + 15*B*a**2*b**4*d**2*e**2 - 6*B*a*b**5*d**3*e + B*b**6*d*
*4)/(3*e**5) + x**2*(15*A*a**4*b**2*e**5 - 20*A*a**3*b**3*d*e**4
+ 15*A*a**2*b**4*d**2*e**3 - 6*A*a*b**5*d**3*e**2 + A*b**6*d**4*e
 + 6*B*a**5*b*e**5 - 15*B*a**4*b**2*d*e**4 + 20*B*a**3*b**3*d**2*
e**3 - 15*B*a**2*b**4*d**3*e**2 + 6*B*a*b**5*d**4*e - B*b**6*d**5
)/(2*e**6) + x*(6*A*a**5*b*e**6 - 15*A*a**4*b**2*d*e**5 + 20*A*a*
*3*b**3*d**2*e**4 - 15*A*a**2*b**4*d**3*e**3 + 6*A*a*b**5*d**4*e*
*2 - A*b**6*d**5*e + B*a**6*e**6 - 6*B*a**5*b*d*e**5 + 15*B*a**4*
b**2*d**2*e**4 - 20*B*a**3*b**3*d**3*e**3 + 15*B*a**2*b**4*d**4*e
**2 - 6*B*a*b**5*d**5*e + B*b**6*d**6)/e**7 - (-A*e + B*d)*(a*e -
 b*d)**6*log(d + e*x)/e**8
```

GIAC/XCAS [A] time = 0.223249, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6/(e*x + d),x, algorithm="giac")
```

```
[Out] Done
```

3.1044 $\int \frac{(a+bx)^6(A+Bx)}{(d+ex)^2}\,dx$

Optimal. Leaf size=277

$$-\frac{b^5(d+ex)^5(-6aBe-Abe+7bBd)}{5e^8}+\frac{3b^4(d+ex)^4(bd-ae)(-5aBe-2Abe+7bBd)}{4e^8}-\frac{5b^3(d+ex)^3(bd-ae)^2(-4aBe-3Abe+7bBd)}{3e^8}+\frac{5b^2(d+ex)^2(bd-ae)^3(-3aBe-4Abe+7bBd)}{2e^8}+\frac{(bd-ae)^6(Bd-Ae)}{e^8(d+ex)}+\frac{(bd-ae)^5\log(d+ex)(-aBe-6Abe+7bBd)}{e^8}-\frac{3bx(bd-ae)^4(-2aBe-5Abe+7bBd)}{e^7}+\frac{b^6B(d+ex)^6}{6e^8}$$

```
[Out] (-3*b*(b*d - a*e)^4*(7*b*B*d - 5*A*b*e - 2*a*B*e)*x)/e^7 + ((b*d
- a*e)^6*(B*d - A*e))/(e^8*(d + e*x)) + (5*b^2*(b*d - a*e)^3*(7*b
*B*d - 4*A*b*e - 3*a*B*e)*(d + e*x)^2)/(2*e^8) - (5*b^3*(b*d - a*
e)^2*(7*b*B*d - 3*A*b*e - 4*a*B*e)*(d + e*x)^3)/(3*e^8) + (3*b^4*
(b*d - a*e)*(7*b*B*d - 2*A*b*e - 5*a*B*e)*(d + e*x)^4)/(4*e^8) -
(b^5*(7*b*B*d - A*b*e - 6*a*B*e)*(d + e*x)^5)/(5*e^8) + (b^6*B*(d
 + e*x)^6)/(6*e^8) + ((b*d - a*e)^5*(7*b*B*d - 6*A*b*e - a*B*e)*L
og[d + e*x])/e^8
```

Rubi [A] time = 1.55178, antiderivative size = 277, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{b^5(d+ex)^5(-6aBe-Abe+7bBd)}{5e^8}+\frac{3b^4(d+ex)^4(bd-ae)(-5aBe-2Abe+7bBd)}{4e^8}-\frac{5b^3(d+ex)^3(bd-ae)^2(-4aBe-3Abe+7bBd)}{3e^8}+\frac{5b^2(d+ex)^2(bd-ae)^3(-3aBe-4Abe+7bBd)}{2e^8}+\frac{(bd-ae)^6(Bd-Ae)}{e^8(d+ex)}+\frac{(bd-ae)^5\log(d+ex)(-aBe-6Abe+7bBd)}{e^8}-\frac{3bx(bd-ae)^4(-2aBe-5Abe+7bBd)}{e^7}+\frac{b^6B(d+ex)^6}{6e^8}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^6*(A + B*x))/(d + e*x)^2,x]
```

```
[Out] (-3*b*(b*d - a*e)^4*(7*b*B*d - 5*A*b*e - 2*a*B*e)*x)/e^7 + ((b*d
- a*e)^6*(B*d - A*e))/(e^8*(d + e*x)) + (5*b^2*(b*d - a*e)^3*(7*b
*B*d - 4*A*b*e - 3*a*B*e)*(d + e*x)^2)/(2*e^8) - (5*b^3*(b*d - a*
e)^2*(7*b*B*d - 3*A*b*e - 4*a*B*e)*(d + e*x)^3)/(3*e^8) + (3*b^4*
(b*d - a*e)*(7*b*B*d - 2*A*b*e - 5*a*B*e)*(d + e*x)^4)/(4*e^8) -
(b^5*(7*b*B*d - A*b*e - 6*a*B*e)*(d + e*x)^5)/(5*e^8) + (b^6*B*(d
 + e*x)^6)/(6*e^8) + ((b*d - a*e)^5*(7*b*B*d - 6*A*b*e - a*B*e)*L
og[d + e*x])/e^8
```

Rubi in Sympy [A] time = 151.415, size = 284, normalized size = 1.03

$$\frac{Bb^6\left(d+ex\right)^6}{6e^8}+\frac{b^5\left(d+ex\right)^5\left(Abe+6Bae-7Bbd\right)}{5e^8}+\frac{3b^4\left(d+ex\right)^4\left(ae-bd\right)\left(2Abe+5Bae-7Bbd\right)}{4e^8}+\frac{5b^3\left(d+ex\right)^3\left(ae-bd\right)^2\left(3Abe+4Bae-7Bbd\right)}{3e^8}+\frac{5b^2\left(d+ex\right)^2\left(ae-bd\right)^3\left(4Abe+3Bae-7Bbd\right)}{2e^8}+\frac{3bx\left(ae-bd\right)^4\left(5Abe+2Bae-7Bbd\right)}{e^7}+\frac{\left(ae-bd\right)^5\left(6Abe+Bae-7Bbd\right)\log\left(d+ex\right)}{e^8}-\frac{\left(Ae-Bd\right)\left(ae-bd\right)^6}{e^8\left(d+ex\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**6*(B*x+A)/(e*x+d)**2,x)
```

```
[Out] B*b**6*(d + e*x)**6/(6*e**8) + b**5*(d + e*x)**5*(A*b*e + 6*B*a*e
 - 7*B*b*d)/(5*e**8) + 3*b**4*(d + e*x)**4*(a*e - b*d)*(2*A*b*e +
 5*B*a*e - 7*B*b*d)/(4*e**8) + 5*b**3*(d + e*x)**3*(a*e - b*d)**2
*(3*A*b*e + 4*B*a*e - 7*B*b*d)/(3*e**8) + 5*b**2*(d + e*x)**2*(a*
e - b*d)**3*(4*A*b*e + 3*B*a*e - 7*B*b*d)/(2*e**8) + 3*b*x*(a*e -
 b*d)**4*(5*A*b*e + 2*B*a*e - 7*B*b*d)/e**7 + (a*e - b*d)**5*(6*A
*b*e + B*a*e - 7*B*b*d)*log(d + e*x)/e**8 - (A*e - B*d)*(a*e - b*
d)**6/(e**8*(d + e*x))
```

Mathematica [B] time = 0.574292, size = 643, normalized size = 2.32

$$60a^6e^6(Bd-Ae)+360a^5be^5\left(Ade+B\left(-d^2+dex+e^2x^2\right)\right)+450a^4b^2e^4\left(2Ae\left(-d^2+dex+e^2x^2\right)+B\left(2d^3-4d^2ex-3de^2x\right.\right.$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^6*(A + B*x))/(d + e*x)^2,x]
```

```
[Out] (60*a^6*e^6*(B*d - A*e) + 360*a^5*b*e^5*(A*d*e + B*(-d^2 + d*e*x
+ e^2*x^2)) + 450*a^4*b^2*e^4*(2*A*e*(-d^2 + d*e*x + e^2*x^2) + B
*(2*d^3 - 4*d^2*e*x - 3*d*e^2*x^2 + e^3*x^3)) + 200*a^3*b^3*e^3*(
3*A*e*(2*d^3 - 4*d^2*e*x - 3*d*e^2*x^2 + e^3*x^3) + 2*B*(-3*d^4 +
 9*d^3*e*x + 6*d^2*e^2*x^2 - 2*d*e^3*x^3 + e^4*x^4)) + 75*a^2*b^4
*e^2*(4*A*e*(-3*d^4 + 9*d^3*e*x + 6*d^2*e^2*x^2 - 2*d*e^3*x^3 + e
^4*x^4) + B*(12*d^5 - 48*d^4*e*x - 30*d^3*e^2*x^2 + 10*d^2*e^3*x^
3 - 5*d*e^4*x^4 + 3*e^5*x^5)) + 6*a*b^5*e*(5*A*e*(12*d^5 - 48*d^4
*e*x - 30*d^3*e^2*x^2 + 10*d^2*e^3*x^3 - 5*d*e^4*x^4 + 3*e^5*x^5)
 - 6*B*(10*d^6 - 50*d^5*e*x - 30*d^4*e^2*x^2 + 10*d^3*e^3*x^3 - 5
*d^2*e^4*x^4 + 3*d*e^5*x^5 - 2*e^6*x^6)) + b^6*(6*A*e*(-10*d^6 +
50*d^5*e*x + 30*d^4*e^2*x^2 - 10*d^3*e^3*x^3 + 5*d^2*e^4*x^4 - 3*
d*e^5*x^5 + 2*e^6*x^6) + B*(60*d^7 - 360*d^6*e*x - 210*d^5*e^2*x^
2 + 70*d^4*e^3*x^3 - 35*d^3*e^4*x^4 + 21*d^2*e^5*x^5 - 14*d*e^6*x
^6 + 10*e^7*x^7)) + 60*(b*d - a*e)^5*(7*b*B*d - 6*A*b*e - a*B*e)*
(d + e*x)*Log[d + e*x])/(60*e^8*(d + e*x))
```

Maple [B] time = 0.02, size = 1047, normalized size = 3.8

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^6*(B*x+A)/(e*x+d)^2,x)
```

```
[Out] 5*b^4/e^2*A*x^3*a^2+6/5*b^5/e^2*B*x^5*a+b^6/e^4*A*x^3*d^2-2*b^6/e
^5*A*x^2*d^3+6/e^2*ln(e*x+d)*A*a^5*b-1/e/(e*x+d)*a^6*A+1/6*b^6/e^
2*B*x^6+1/5*b^6/e^2*A*x^5+1/e^2*ln(e*x+d)*B*a^6+20/3*b^3/e^2*B*x^
3*a^3-4/3*b^6/e^5*B*x^3*d^3+30/e^6*ln(e*x+d)*A*a*b^5*d^4-12/e^3*l
n(e*x+d)*B*a^5*b*d+45/e^4*ln(e*x+d)*B*a^4*b^2*d^2-30*b^2/e^3*B*a^
4*d*x+60*b^3/e^4*B*a^3*d^2*x-60*b^4/e^5*B*a^2*d^3*x+30*b^5/e^6*B*
a*d^4*x+20/e^4/(e*x+d)*A*a^3*b^3*d^3-15/e^5/(e*x+d)*A*a^2*b^4*d^4
+6/e^6/(e*x+d)*A*a*b^5*d^5-15/e^3/(e*x+d)*A*a^4*b^2*d^2-30/e^3*ln
(e*x+d)*A*a^4*b^2*d+60/e^4*ln(e*x+d)*A*a^3*b^3*d^2-60/e^5*ln(e*x+
d)*A*a^2*b^4*d^3-6/e^3/(e*x+d)*B*a^5*b*d^2+15/e^4/(e*x+d)*B*a^4*b
^2*d^3-12*b^5/e^5*B*x^2*a*d^3-40*b^3/e^3*A*a^3*d*x+45*b^4/e^4*A*a
^2*d^2*x-24*b^5/e^5*A*a*d^3*x-80/e^5*ln(e*x+d)*B*a^3*b^3*d^3+75/e
^6*ln(e*x+d)*B*a^2*b^4*d^4-36/e^7*ln(e*x+d)*B*a*b^5*d^5+6/e^2/(e*
x+d)*A*d*a^5*b-20/e^5/(e*x+d)*B*a^3*b^3*d^4+15/e^6/(e*x+d)*B*a^2*
b^4*d^5-6/e^7/(e*x+d)*B*a*b^5*d^6-3*b^5/e^3*B*x^4*a*d-4*b^5/e^3*A
*x^3*a*d-10*b^4/e^3*B*x^3*a^2*d+6*b^5/e^4*B*x^3*a*d^2-15*b^4/e^3*
A*x^2*a^2*d+9*b^5/e^4*A*x^2*a*d^2-20*b^3/e^3*B*x^2*a^3*d+45/2*b^4
```

```
/e^4*B*x^2*a^2*d^2-6/e^7*ln(e*x+d)*A*b^6*d^5+7/e^8*ln(e*x+d)*b^6*
B*d^6-1/e^7/(e*x+d)*A*b^6*d^6+1/e^2/(e*x+d)*B*d*a^6+1/e^8/(e*x+d)
*b^6*B*d^7-6*b^6/e^7*B*d^5*x+6*b/e^2*B*a^5*x+15/2*b^2/e^2*B*x^2*a
^4+5/2*b^6/e^6*B*x^2*d^4+15*b^2/e^2*A*a^4*x+5*b^6/e^6*A*d^4*x+10*
b^3/e^2*A*x^2*a^3-2/5*b^6/e^3*B*x^5*d+3/2*b^5/e^2*A*x^4*a-1/2*b^6
/e^3*A*x^4*d+15/4*b^4/e^2*B*x^4*a^2+3/4*b^6/e^4*B*x^4*d^2
```

Maxima [A] time = 1.35193, size = 1041, normalized size = 3.76

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6/(e*x + d)^2,x, algorithm="maxima")
```

```
[Out] (B*b^6*d^7 - A*a^6*e^7 - (6*B*a*b^5 + A*b^6)*d^6*e + 3*(5*B*a^2*b
^4 + 2*A*a*b^5)*d^5*e^2 - 5*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^4*e^3 +
 5*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d^3*e^4 - 3*(2*B*a^5*b + 5*A*a^4*b
^2)*d^2*e^5 + (B*a^6 + 6*A*a^5*b)*d*e^6)/(e^9*x + d*e^8) + 1/60*(
10*B*b^6*e^5*x^6 - 12*(2*B*b^6*d*e^4 - (6*B*a*b^5 + A*b^6)*e^5)*x
^5 + 15*(3*B*b^6*d^2*e^3 - 2*(6*B*a*b^5 + A*b^6)*d*e^4 + 3*(5*B*a
^2*b^4 + 2*A*a*b^5)*e^5)*x^4 - 20*(4*B*b^6*d^3*e^2 - 3*(6*B*a*b^5
 + A*b^6)*d^2*e^3 + 6*(5*B*a^2*b^4 + 2*A*a*b^5)*d*e^4 - 5*(4*B*a^
3*b^3 + 3*A*a^2*b^4)*e^5)*x^3 + 30*(5*B*b^6*d^4*e - 4*(6*B*a*b^5
+ A*b^6)*d^3*e^2 + 9*(5*B*a^2*b^4 + 2*A*a*b^5)*d^2*e^3 - 10*(4*B*
a^3*b^3 + 3*A*a^2*b^4)*d*e^4 + 5*(3*B*a^4*b^2 + 4*A*a^3*b^3)*e^5)
*x^2 - 60*(6*B*b^6*d^5 - 5*(6*B*a*b^5 + A*b^6)*d^4*e + 12*(5*B*a^
2*b^4 + 2*A*a*b^5)*d^3*e^2 - 15*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^2*e
^3 + 10*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d*e^4 - 3*(2*B*a^5*b + 5*A*a^
4*b^2)*e^5)*x)/e^7 + (7*B*b^6*d^6 - 6*(6*B*a*b^5 + A*b^6)*d^5*e +
 15*(5*B*a^2*b^4 + 2*A*a*b^5)*d^4*e^2 - 20*(4*B*a^3*b^3 + 3*A*a^2
*b^4)*d^3*e^3 + 15*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d^2*e^4 - 6*(2*B*a
^5*b + 5*A*a^4*b^2)*d*e^5 + (B*a^6 + 6*A*a^5*b)*e^6)*log(e*x + d)
/e^8
```

Fricas [A] time = 0.217274, size = 1440, normalized size = 5.2

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6/(e*x + d)^2,x, algorithm="fricas")
```

```
[Out] 1/60*(10*B*b^6*e^7*x^7 + 60*B*b^6*d^7 - 60*A*a^6*e^7 - 60*(6*B*a*
b^5 + A*b^6)*d^6*e + 180*(5*B*a^2*b^4 + 2*A*a*b^5)*d^5*e^2 - 300*
(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^4*e^3 + 300*(3*B*a^4*b^2 + 4*A*a^3*
b^3)*d^3*e^4 - 180*(2*B*a^5*b + 5*A*a^4*b^2)*d^2*e^5 + 60*(B*a^6
+ 6*A*a^5*b)*d*e^6 - 2*(7*B*b^6*d*e^6 - 6*(6*B*a*b^5 + A*b^6)*e^7
)*x^6 + 3*(7*B*b^6*d^2*e^5 - 6*(6*B*a*b^5 + A*b^6)*d*e^6 + 15*(5*
B*a^2*b^4 + 2*A*a*b^5)*e^7)*x^5 - 5*(7*B*b^6*d^3*e^4 - 6*(6*B*a*b
^5 + A*b^6)*d^2*e^5 + 15*(5*B*a^2*b^4 + 2*A*a*b^5)*d*e^6 - 20*(4*
B*a^3*b^3 + 3*A*a^2*b^4)*e^7)*x^4 + 10*(7*B*b^6*d^4*e^3 - 6*(6*B*
a*b^5 + A*b^6)*d^3*e^4 + 15*(5*B*a^2*b^4 + 2*A*a*b^5)*d^2*e^5 - 2
0*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d*e^6 + 15*(3*B*a^4*b^2 + 4*A*a^3*b
^3)*e^7)*x^3 - 30*(7*B*b^6*d^5*e^2 - 6*(6*B*a*b^5 + A*b^6)*d^4*e^
3 + 15*(5*B*a^2*b^4 + 2*A*a*b^5)*d^3*e^4 - 20*(4*B*a^3*b^3 + 3*A*
a^2*b^4)*d^2*e^5 + 15*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d*e^6 - 6*(2*B*
a^5*b + 5*A*a^4*b^2)*e^7)*x^2 - 60*(6*B*b^6*d^6*e - 5*(6*B*a*b^5
+ A*b^6)*d^5*e^2 + 12*(5*B*a^2*b^4 + 2*A*a*b^5)*d^4*e^3 - 15*(4*B
*a^3*b^3 + 3*A*a^2*b^4)*d^3*e^4 + 10*(3*B*a^4*b^2 + 4*A*a^3*b^3)*
d^2*e^5 - 3*(2*B*a^5*b + 5*A*a^4*b^2)*d*e^6)*x + 60*(7*B*b^6*d^7
- 6*(6*B*a*b^5 + A*b^6)*d^6*e + 15*(5*B*a^2*b^4 + 2*A*a*b^5)*d^5*
e^2 - 20*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^4*e^3 + 15*(3*B*a^4*b^2 +
4*A*a^3*b^3)*d^3*e^4 - 6*(2*B*a^5*b + 5*A*a^4*b^2)*d^2*e^5 + (B*a
^6 + 6*A*a^5*b)*d*e^6 + (7*B*b^6*d^6*e - 6*(6*B*a*b^5 + A*b^6)*d^
```

```
5*e^2 + 15*(5*B*a^2*b^4 + 2*A*a*b^5)*d^4*e^3 - 20*(4*B*a^3*b^3 +
3*A*a^2*b^4)*d^3*e^4 + 15*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d^2*e^5 - 6
*(2*B*a^5*b + 5*A*a^4*b^2)*d*e^6 + (B*a^6 + 6*A*a^5*b)*e^7)*x)*lo
g(e*x + d))/(e^9*x + d*e^8)
```

Sympy [A] time = 18.1544, size = 755, normalized size = 2.73

$$\frac{Bb^6x^6}{6e^2} + \frac{-Aa^6e^7 + 6Aa^5bde^6 - 15Aa^4b^2d^2e^5 + 20Aa^3b^3d^3e^4 - 15Aa^2b^4d^4e^3 + 6Aab^5d^5e^2 - Ab^6d^6e + Ba^6de^6 - 6Ba^5bd^2e^5 + 15Ba^4b}{de^8 + e^9x} + \frac{x^5\left(Ab^6e + 6Bab^5e - 2Bb^6d\right)}{5e^3} + \frac{x^4\left(6Aab^5e^2 - 2Ab^6de + 15Ba^2b^4e^2 - 12Bab^5de + 3Bb^6d^2\right)}{4e^4} + \frac{x^3\left(15Aa^2b^4e^3 - 12Aab^5de^2 + 3Ab^6d^2e + 20Ba^3b^3e^3 - 30Ba^2b^4de^2 + 18Bab^5d^2e - 4Bb^6d^3\right)}{3e^5} + \frac{x^2\left(20Aa^3b^3e^4 - 30Aa^2b^4de^3 + 18Aab^5d^2e^2 - 4Ab^6d^3e + 15Ba^4b^2e^4 - 40Ba^3b^3de^3 + 45Ba^2b^4d^2e^2 - 24Bab^5d^3e + 5Bb^6d^4\right)}{2e^6} + \frac{x\left(15Aa^4b^2e^5 - 40Aa^3b^3de^4 + 45Aa^2b^4d^2e^3 - 24Aab^5d^3e^2 + 5Ab^6d^4e + 6Ba^5be^5 - 30Ba^4b^2de^4 + 60Ba^3b^3d^2e^3 - 60Ba^2b^4d}{e^7} + \frac{(ae - bd)^5\,(6Abe + Bae - 7Bbd)\log(d + ex)}{e^8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**6*(B*x+A)/(e*x+d)**2,x)
```

```
[Out] B*b**6*x**6/(6*e**2) + (-A*a**6*e**7 + 6*A*a**5*b*d*e**6 - 15*A*a
**4*b**2*d**2*e**5 + 20*A*a**3*b**3*d**3*e**4 - 15*A*a**2*b**4*d*
*4*e**3 + 6*A*a*b**5*d**5*e**2 - A*b**6*d**6*e + B*a**6*d*e**6 -
6*B*a**5*b*d**2*e**5 + 15*B*a**4*b**2*d**3*e**4 - 20*B*a**3*b**3*
d**4*e**3 + 15*B*a**2*b**4*d**5*e**2 - 6*B*a*b**5*d**6*e + B*b**6
*d**7)/(d*e**8 + e**9*x) + x**5*(A*b**6*e + 6*B*a*b**5*e - 2*B*b*
*6*d)/(5*e**3) + x**4*(6*A*a*b**5*e**2 - 2*A*b**6*d*e + 15*B*a**2
*b**4*e**2 - 12*B*a*b**5*d*e + 3*B*b**6*d**2)/(4*e**4) + x**3*(15
*A*a**2*b**4*e**3 - 12*A*a*b**5*d*e**2 + 3*A*b**6*d**2*e + 20*B*a
**3*b**3*e**3 - 30*B*a**2*b**4*d*e**2 + 18*B*a*b**5*d**2*e - 4*B*
b**6*d**3)/(3*e**5) + x**2*(20*A*a**3*b**3*e**4 - 30*A*a**2*b**4*
d*e**3 + 18*A*a*b**5*d**2*e**2 - 4*A*b**6*d**3*e + 15*B*a**4*b**2
*e**4 - 40*B*a**3*b**3*d*e**3 + 45*B*a**2*b**4*d**2*e**2 - 24*B*a
*b**5*d**3*e + 5*B*b**6*d**4)/(2*e**6) + x*(15*A*a**4*b**2*e**5 -
 40*A*a**3*b**3*d*e**4 + 45*A*a**2*b**4*d**2*e**3 - 24*A*a*b**5*d
**3*e**2 + 5*A*b**6*d**4*e + 6*B*a**5*b*e**5 - 30*B*a**4*b**2*d*e
**4 + 60*B*a**3*b**3*d**2*e**3 - 60*B*a**2*b**4*d**3*e**2 + 30*B*
a*b**5*d**4*e - 6*B*b**6*d**5)/e**7 + (a*e - b*d)**5*(6*A*b*e + B
*a*e - 7*B*b*d)*log(d + e*x)/e**8
```

GIAC/XCAS [A] time = 0.231462, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6/(e*x + d)^2,x, algorithm="giac")
```

```
[Out] Done
```

3.1045 $\int \frac{(a+bx)^6(A+Bx)}{(d+ex)^3}\,dx$

Optimal. Leaf size=276

$$-\frac{b^5(d+ex)^4(-6aBe-Abe+7bBd)}{4e^8}+\frac{b^4(d+ex)^3(bd-ae)(-5aBe-2Abe+7bBd)}{e^8}-\frac{5b^3(d+ex)^2(bd-ae)^2(-4aBe-3Abe+7bBd)}{2e^8}+\frac{5b^2x(bd-ae)^3(-3aBe-4Abe+7bBd)}{e^7}-\frac{(bd-ae)^5(-aBe-6Abe+7bBd)}{e^8(d+ex)}+\frac{(bd-ae)^6(Bd-Ae)}{2e^8(d+ex)^2}-\frac{3b(bd-ae)^4\log(d+ex)(-2aBe-5Abe+7bBd)}{e^8}+\frac{b^6B(d+ex)^5}{5e^8}$$

```
[Out] (5*b^2*(b*d - a*e)^3*(7*b*B*d - 4*A*b*e - 3*a*B*e)*x)/e^7 + ((b*d
 - a*e)^6*(B*d - A*e))/(2*e^8*(d + e*x)^2) - ((b*d - a*e)^5*(7*b*
B*d - 6*A*b*e - a*B*e))/(e^8*(d + e*x)) - (5*b^3*(b*d - a*e)^2*(7
*b*B*d - 3*A*b*e - 4*a*B*e)*(d + e*x)^2)/(2*e^8) + (b^4*(b*d - a*
e)*(7*b*B*d - 2*A*b*e - 5*a*B*e)*(d + e*x)^3)/e^8 - (b^5*(7*b*B*d
 - A*b*e - 6*a*B*e)*(d + e*x)^4)/(4*e^8) + (b^6*B*(d + e*x)^5)/(5
*e^8) - (3*b*(b*d - a*e)^4*(7*b*B*d - 5*A*b*e - 2*a*B*e)*Log[d +
e*x])/e^8
```

Rubi [A] time = 1.31269, antiderivative size = 276, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{b^5(d+ex)^4(-6aBe-Abe+7bBd)}{4e^8}+\frac{b^4(d+ex)^3(bd-ae)(-5aBe-2Abe+7bBd)}{e^8}-\frac{5b^3(d+ex)^2(bd-ae)^2(-4aBe-3Abe+7bBd)}{2e^8}+\frac{5b^2x(bd-ae)^3(-3aBe-4Abe+7bBd)}{e^7}-\frac{(bd-ae)^5(-aBe-6Abe+7bBd)}{e^8(d+ex)}+\frac{(bd-ae)^6(Bd-Ae)}{2e^8(d+ex)^2}-\frac{3b(bd-ae)^4\log(d+ex)(-2aBe-5Abe+7bBd)}{e^8}+\frac{b^6B(d+ex)^5}{5e^8}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^6*(A + B*x))/(d + e*x)^3,x]
```

```
[Out] (5*b^2*(b*d - a*e)^3*(7*b*B*d - 4*A*b*e - 3*a*B*e)*x)/e^7 + ((b*d
 - a*e)^6*(B*d - A*e))/(2*e^8*(d + e*x)^2) - ((b*d - a*e)^5*(7*b*
B*d - 6*A*b*e - a*B*e))/(e^8*(d + e*x)) - (5*b^3*(b*d - a*e)^2*(7
*b*B*d - 3*A*b*e - 4*a*B*e)*(d + e*x)^2)/(2*e^8) + (b^4*(b*d - a*
e)*(7*b*B*d - 2*A*b*e - 5*a*B*e)*(d + e*x)^3)/e^8 - (b^5*(7*b*B*d
 - A*b*e - 6*a*B*e)*(d + e*x)^4)/(4*e^8) + (b^6*B*(d + e*x)^5)/(5
*e^8) - (3*b*(b*d - a*e)^4*(7*b*B*d - 5*A*b*e - 2*a*B*e)*Log[d +
e*x])/e^8
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{Bb^6(d+ex)^5}{5e^8}+\frac{b^5(d+ex)^4(Abe+6Bae-7Bbd)}{4e^8}+\frac{b^4(d+ex)^3(ae-bd)(2Abe+5Bae-7Bbd)}{e^8}+\frac{5b^3(d+ex)^2(ae-bd)^2(3Abe+4Bae-7Bbd)}{2e^8}+\frac{3b(ae-bd)^4(5Abe+2Bae-7Bbd)\log(d+ex)}{e^8}+\frac{5(ae-bd)^3(4Abe+3Bae-7Bbd)\int b^2\,dx}{e^7}-\frac{(ae-bd)^5(6Abe+Bae-7Bbd)}{e^8(d+ex)}-\frac{(Ae-Bd)(ae-bd)^6}{2e^8(d+ex)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**6*(B*x+A)/(e*x+d)**3,x)
```

```
[Out] B*b**6*(d + e*x)**5/(5*e**8) + b**5*(d + e*x)**4*(A*b*e + 6*B*a*e
 - 7*B*b*d)/(4*e**8) + b**4*(d + e*x)**3*(a*e - b*d)*(2*A*b*e + 5
*B*a*e - 7*B*b*d)/e**8 + 5*b**3*(d + e*x)**2*(a*e - b*d)**2*(3*A*
b*e + 4*B*a*e - 7*B*b*d)/(2*e**8) + 3*b*(a*e - b*d)**4*(5*A*b*e +
 2*B*a*e - 7*B*b*d)*log(d + e*x)/e**8 + 5*(a*e - b*d)**3*(4*A*b*e
 + 3*B*a*e - 7*B*b*d)*Integral(b**2, x)/e**7 - (a*e - b*d)**5*(6*
A*b*e + B*a*e - 7*B*b*d)/(e**8*(d + e*x)) - (A*e - B*d)*(a*e - b*
d)**6/(2*e**8*(d + e*x)**2)
```

Mathematica [A] time = 0.3415, size = 352, normalized size = 1.28

$$\frac{-20b^4e^3x^3\left(-5a^2Be^2-2abe(Ae-3Bd)+b^2d(Ae-2Bd)\right)+10b^3e^2x^2\left(20a^3Be^3+15a^2be^2(Ae-3Bd)+18ab^2de(2Bd-Ae)\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^6*(A + B*x))/(d + e*x)^3,x]
```

```
[Out] (-20*b^2*e*(-15*a^4*B*e^4 + 12*a*b^3*d^2*e*(5*B*d - 3*A*e) - 5*b^
4*d^3*(3*B*d - 2*A*e) - 20*a^3*b*e^3*(-3*B*d + A*e) + 45*a^2*b^2*
d*e^2*(-2*B*d + A*e))*x + 10*b^3*e^2*(20*a^3*B*e^3 + 18*a*b^2*d*e
*(2*B*d - A*e) + 15*a^2*b*e^2*(-3*B*d + A*e) + 2*b^3*d^2*(-5*B*d
+ 3*A*e))*x^2 - 20*b^4*e^3*(-5*a^2*B*e^2 - 2*a*b*e*(-3*B*d + A*e)
 + b^2*d*(-2*B*d + A*e))*x^3 + 5*b^5*e^4*(-3*b*B*d + A*b*e + 6*a*
B*e)*x^4 + 4*b^6*B*e^5*x^5 + (10*(b*d - a*e)^6*(B*d - A*e))/(d +
e*x)^2 - (20*(b*d - a*e)^5*(7*b*B*d - 6*A*b*e - a*B*e))/(d + e*x)
 - 60*b*(b*d - a*e)^4*(7*b*B*d - 5*A*b*e - 2*a*B*e)*Log[d + e*x])
/(20*e^8)
```

Maple [B] time = 0.025, size = 1101, normalized size = 4.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^6*(B*x+A)/(e*x+d)^3,x)
```

```
[Out] -1/e^2/(e*x+d)*B*a^6-1/2/e/(e*x+d)^2*a^6*A+1/4*b^6/e^3*A*x^4+1/5*
b^6/e^3*B*x^5-7/e^8/(e*x+d)*b^6*B*d^6-1/2/e^7/(e*x+d)^2*A*b^6*d^6
+1/2/e^2/(e*x+d)^2*B*d*a^6+1/2/e^8/(e*x+d)^2*b^6*B*d^7+2*b^5/e^3*
A*x^3*a-b^6/e^4*A*x^3*d+15/2/e^6/(e*x+d)^2*B*a^2*b^4*d^5-3/e^7/(e
*x+d)^2*B*a*b^5*d^6+90*b^4/e^5*ln(e*x+d)*A*a^2*d^2-60*b^5/e^6*ln(
e*x+d)*A*a*d^3-45*b^2/e^4*ln(e*x+d)*B*a^4*d+120*b^3/e^5*ln(e*x+d)
*B*a^3*d^2-150*b^4/e^6*ln(e*x+d)*B*a^2*d^3+90*b^5/e^7*ln(e*x+d)*B
*a*d^4+30/e^3/(e*x+d)*A*a^4*b^2*d-9*b^5/e^4*A*x^2*a*d-45/2*b^4/e^
4*B*x^2*a^2*d-60/e^4/(e*x+d)*A*a^3*b^3*d^2+60/e^5/(e*x+d)*A*a^2*b
^4*d^3-30/e^6/(e*x+d)*A*a*b^5*d^4+12/e^3/(e*x+d)*B*a^5*b*d-45/e^4
/(e*x+d)*B*a^4*b^2*d^2+80/e^5/(e*x+d)*B*a^3*b^3*d^3-75/e^6/(e*x+d
)*B*a^2*b^4*d^4+36/e^7/(e*x+d)*B*a*b^5*d^5+3/e^2/(e*x+d)^2*A*d*a^
5*b-15/2/e^3/(e*x+d)^2*A*d^2*a^4*b^2+10/e^4/(e*x+d)^2*A*a^3*b^3*d
^3-15/2/e^5/(e*x+d)^2*A*a^2*b^4*d^4+3/e^6/(e*x+d)^2*A*a*b^5*d^5-3
/e^3/(e*x+d)^2*B*d^2*a^5*b+15/2/e^4/(e*x+d)^2*B*a^4*b^2*d^3-10/e^
5/(e*x+d)^2*B*a^3*b^3*d^4+18*b^5/e^5*B*x^2*a*d^2-45*b^4/e^4*A*a^2
*d*x+36*b^5/e^5*A*a*d^2*x-60*b^3/e^4*B*a^3*d*x+90*b^4/e^5*B*a^2*d
^2*x-60*b^5/e^6*B*a*d^3*x-6*b^5/e^4*B*x^3*a*d-60*b^3/e^4*ln(e*x+d
)*A*a^3*d+5*b^4/e^3*B*x^3*a^2+2*b^6/e^5*B*x^3*d^2+15/2*b^4/e^3*A*
x^2*a^2+3*b^6/e^5*A*x^2*d^2+3/2*b^5/e^3*B*x^4*a+15*b^2/e^3*ln(e*x
+d)*A*a^4+15*b^6/e^7*ln(e*x+d)*A*d^4+6*b/e^3*ln(e*x+d)*B*a^5-21*b
^6/e^8*ln(e*x+d)*B*d^5+20*b^3/e^3*A*a^3*x-10*b^6/e^6*A*d^3*x+15*b
^2/e^3*B*a^4*x+15*b^6/e^7*B*d^4*x-3/4*b^6/e^4*B*x^4*d+10*b^3/e^3*
B*x^2*a^3-5*b^6/e^6*B*x^2*d^3+6/e^7/(e*x+d)*A*b^6*d^5-6/e^2/(e*x+
```

```
d)*A*a^5*b
```

Maxima [A] time = 1.38605, size = 1052, normalized size = 3.81

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6/(e*x + d)^3,x, algorithm="maxima")
```

```
[Out] -1/2*(13*B*b^6*d^7 + A*a^6*e^7 - 11*(6*B*a*b^5 + A*b^6)*d^6*e + 2
7*(5*B*a^2*b^4 + 2*A*a*b^5)*d^5*e^2 - 35*(4*B*a^3*b^3 + 3*A*a^2*b
^4)*d^4*e^3 + 25*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d^3*e^4 - 9*(2*B*a^5
*b + 5*A*a^4*b^2)*d^2*e^5 + (B*a^6 + 6*A*a^5*b)*d*e^6 + 2*(7*B*b^
6*d^6*e - 6*(6*B*a*b^5 + A*b^6)*d^5*e^2 + 15*(5*B*a^2*b^4 + 2*A*a
*b^5)*d^4*e^3 - 20*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^3*e^4 + 15*(3*B*
a^4*b^2 + 4*A*a^3*b^3)*d^2*e^5 - 6*(2*B*a^5*b + 5*A*a^4*b^2)*d*e^
6 + (B*a^6 + 6*A*a^5*b)*e^7)*x)/(e^10*x^2 + 2*d*e^9*x + d^2*e^8)
+ 1/20*(4*B*b^6*e^4*x^5 - 5*(3*B*b^6*d*e^3 - (6*B*a*b^5 + A*b^6)*
e^4)*x^4 + 20*(2*B*b^6*d^2*e^2 - (6*B*a*b^5 + A*b^6)*d*e^3 + (5*B
*a^2*b^4 + 2*A*a*b^5)*e^4)*x^3 - 10*(10*B*b^6*d^3*e - 6*(6*B*a*b^
5 + A*b^6)*d^2*e^2 + 9*(5*B*a^2*b^4 + 2*A*a*b^5)*d*e^3 - 5*(4*B*a
^3*b^3 + 3*A*a^2*b^4)*e^4)*x^2 + 20*(15*B*b^6*d^4 - 10*(6*B*a*b^5
 + A*b^6)*d^3*e + 18*(5*B*a^2*b^4 + 2*A*a*b^5)*d^2*e^2 - 15*(4*B*
a^3*b^3 + 3*A*a^2*b^4)*d*e^3 + 5*(3*B*a^4*b^2 + 4*A*a^3*b^3)*e^4)
*x)/e^7 - 3*(7*B*b^6*d^5 - 5*(6*B*a*b^5 + A*b^6)*d^4*e + 10*(5*B*
a^2*b^4 + 2*A*a*b^5)*d^3*e^2 - 10*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^2
*e^3 + 5*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d*e^4 - (2*B*a^5*b + 5*A*a^4
*b^2)*e^5)*log(e*x + d)/e^8
```

Fricas [A] time = 0.213403, size = 1589, normalized size = 5.76

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6/(e*x + d)^3,x, algorithm="fricas")
```

```
[Out] 1/20*(4*B*b^6*e^7*x^7 - 130*B*b^6*d^7 - 10*A*a^6*e^7 + 110*(6*B*a
*b^5 + A*b^6)*d^6*e - 270*(5*B*a^2*b^4 + 2*A*a*b^5)*d^5*e^2 + 350
*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^4*e^3 - 250*(3*B*a^4*b^2 + 4*A*a^3
*b^3)*d^3*e^4 + 90*(2*B*a^5*b + 5*A*a^4*b^2)*d^2*e^5 - 10*(B*a^6
+ 6*A*a^5*b)*d*e^6 - (7*B*b^6*d*e^6 - 5*(6*B*a*b^5 + A*b^6)*e^7)*
x^6 + 2*(7*B*b^6*d^2*e^5 - 5*(6*B*a*b^5 + A*b^6)*d*e^6 + 10*(5*B*
a^2*b^4 + 2*A*a*b^5)*e^7)*x^5 - 5*(7*B*b^6*d^3*e^4 - 5*(6*B*a*b^5
 + A*b^6)*d^2*e^5 + 10*(5*B*a^2*b^4 + 2*A*a*b^5)*d*e^6 - 10*(4*B*
a^3*b^3 + 3*A*a^2*b^4)*e^7)*x^4 + 20*(7*B*b^6*d^4*e^3 - 5*(6*B*a*
b^5 + A*b^6)*d^3*e^4 + 10*(5*B*a^2*b^4 + 2*A*a*b^5)*d^2*e^5 - 10*
(4*B*a^3*b^3 + 3*A*a^2*b^4)*d*e^6 + 5*(3*B*a^4*b^2 + 4*A*a^3*b^3)
*e^7)*x^3 + 10*(50*B*b^6*d^5*e^2 - 34*(6*B*a*b^5 + A*b^6)*d^4*e^3
 + 63*(5*B*a^2*b^4 + 2*A*a*b^5)*d^3*e^4 - 55*(4*B*a^3*b^3 + 3*A*a
^2*b^4)*d^2*e^5 + 20*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d*e^6)*x^2 + 20*
(8*B*b^6*d^6*e - 4*(6*B*a*b^5 + A*b^6)*d^5*e^2 + 3*(5*B*a^2*b^4 +
 2*A*a*b^5)*d^4*e^3 + 5*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^3*e^4 - 10*
(3*B*a^4*b^2 + 4*A*a^3*b^3)*d^2*e^5 + 6*(2*B*a^5*b + 5*A*a^4*b^2)
*d*e^6 - (B*a^6 + 6*A*a^5*b)*e^7)*x - 60*(7*B*b^6*d^7 - 5*(6*B*a*
b^5 + A*b^6)*d^6*e + 10*(5*B*a^2*b^4 + 2*A*a*b^5)*d^5*e^2 - 10*(4
*B*a^3*b^3 + 3*A*a^2*b^4)*d^4*e^3 + 5*(3*B*a^4*b^2 + 4*A*a^3*b^3)
*d^3*e^4 - (2*B*a^5*b + 5*A*a^4*b^2)*d^2*e^5 + (7*B*b^6*d^5*e^2 -
 5*(6*B*a*b^5 + A*b^6)*d^4*e^3 + 10*(5*B*a^2*b^4 + 2*A*a*b^5)*d^3
*e^4 - 10*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^2*e^5 + 5*(3*B*a^4*b^2 +
4*A*a^3*b^3)*d*e^6 - (2*B*a^5*b + 5*A*a^4*b^2)*e^7)*x^2 + 2*(7*B*
b^6*d^6*e - 5*(6*B*a*b^5 + A*b^6)*d^5*e^2 + 10*(5*B*a^2*b^4 + 2*A
*a*b^5)*d^4*e^3 - 10*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^3*e^4 + 5*(3*B
*a^4*b^2 + 4*A*a^3*b^3)*d^2*e^5 - (2*B*a^5*b + 5*A*a^4*b^2)*d*e^6
```

```
)*x)*log(e*x + d))/(e^10*x^2 + 2*d*e^9*x + d^2*e^8)
```

Sympy [A] time = 74.4923, size = 802, normalized size = 2.91

$$\frac{Bb^6x^5}{5e^3}+\frac{3b(ae-bd)^4(5Abe+2Bae-7Bbd)\log(d+ex)}{e^8}-\frac{Aa^6e^7+6Aa^5bde^6-45Aa^4b^2d^2e^5+100Aa^3b^3d^3e^4-105Aa^2b^4d^4e^3+54Aab^5d^5e^2-11Ab^6d^6e+Ba^6de^6-18Ba^5bd^2e^5+7}{}$$
$$+\frac{x^4\left(Ab^6e+6Bab^5e-3Bb^6d\right)}{4e^4}+\frac{x^3\left(2Aab^5e^2-Ab^6de+5Ba^2b^4e^2-6Bab^5de+2Bb^6d^2\right)}{e^5}$$
$$+\frac{x^2\left(15Aa^2b^4e^3-18Aab^5de^2+6Ab^6d^2e+20Ba^3b^3e^3-45Ba^2b^4de^2+36Bab^5d^2e-10Bb^6d^3\right)}{2e^6}$$
$$+\frac{x\left(20Aa^3b^3e^4-45Aa^2b^4de^3+36Aab^5d^2e^2-10Ab^6d^3e+15Ba^4b^2e^4-60Ba^3b^3de^3+90Ba^2b^4d^2e^2-60Bab^5d^3e+15Bb^6d^4\right)}{e^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**6*(B*x+A)/(e*x+d)**3,x)
```

```
[Out] B*b**6*x**5/(5*e**3) + 3*b*(a*e - b*d)**4*(5*A*b*e + 2*B*a*e - 7*
B*b*d)*log(d + e*x)/e**8 - (A*a**6*e**7 + 6*A*a**5*b*d*e**6 - 45*
A*a**4*b**2*d**2*e**5 + 100*A*a**3*b**3*d**3*e**4 - 105*A*a**2*b*
*4*d**4*e**3 + 54*A*a*b**5*d**5*e**2 - 11*A*b**6*d**6*e + B*a**6*
d*e**6 - 18*B*a**5*b*d**2*e**5 + 75*B*a**4*b**2*d**3*e**4 - 140*B
*a**3*b**3*d**4*e**3 + 135*B*a**2*b**4*d**5*e**2 - 66*B*a*b**5*d*
*6*e + 13*B*b**6*d**7 + x*(12*A*a**5*b*e**7 - 60*A*a**4*b**2*d*e*
*6 + 120*A*a**3*b**3*d**2*e**5 - 120*A*a**2*b**4*d**3*e**4 + 60*A
*a*b**5*d**4*e**3 - 12*A*b**6*d**5*e**2 + 2*B*a**6*e**7 - 24*B*a*
*5*b*d*e**6 + 90*B*a**4*b**2*d**2*e**5 - 160*B*a**3*b**3*d**3*e**
4 + 150*B*a**2*b**4*d**4*e**3 - 72*B*a*b**5*d**5*e**2 + 14*B*b**6
*d**6*e))/(2*d**2*e**8 + 4*d*e**9*x + 2*e**10*x**2) + x**4*(A*b**
6*e + 6*B*a*b**5*e - 3*B*b**6*d)/(4*e**4) + x**3*(2*A*a*b**5*e**2
 - A*b**6*d*e + 5*B*a**2*b**4*e**2 - 6*B*a*b**5*d*e + 2*B*b**6*d*
*2)/e**5 + x**2*(15*A*a**2*b**4*e**3 - 18*A*a*b**5*d*e**2 + 6*A*b
**6*d**2*e + 20*B*a**3*b**3*e**3 - 45*B*a**2*b**4*d*e**2 + 36*B*a
*b**5*d**2*e - 10*B*b**6*d**3)/(2*e**6) + x*(20*A*a**3*b**3*e**4
- 45*A*a**2*b**4*d*e**3 + 36*A*a*b**5*d**2*e**2 - 10*A*b**6*d**3*
e + 15*B*a**4*b**2*e**4 - 60*B*a**3*b**3*d*e**3 + 90*B*a**2*b**4*
d**2*e**2 - 60*B*a*b**5*d**3*e + 15*B*b**6*d**4)/e**7
```

GIAC/XCAS [A] time = 0.233065, size = 1094, normalized size = 3.96

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6/(e*x + d)^3,x, algorithm="giac")
```

```
[Out] -3*(7*B*b^6*d^5 - 30*B*a*b^5*d^4*e - 5*A*b^6*d^4*e + 50*B*a^2*b^4
*d^3*e^2 + 20*A*a*b^5*d^3*e^2 - 40*B*a^3*b^3*d^2*e^3 - 30*A*a^2*b
^4*d^2*e^3 + 15*B*a^4*b^2*d*e^4 + 20*A*a^3*b^3*d*e^4 - 2*B*a^5*b*
e^5 - 5*A*a^4*b^2*e^5)*e^(-8)*ln(abs(x*e + d)) + 1/20*(4*B*b^6*x^
5*e^12 - 15*B*b^6*d*x^4*e^11 + 40*B*b^6*d^2*x^3*e^10 - 100*B*b^6*
d^3*x^2*e^9 + 300*B*b^6*d^4*x*e^8 + 30*B*a*b^5*x^4*e^12 + 5*A*b^6
*x^4*e^12 - 120*B*a*b^5*d*x^3*e^11 - 20*A*b^6*d*x^3*e^11 + 360*B*
a*b^5*d^2*x^2*e^10 + 60*A*b^6*d^2*x^2*e^10 - 1200*B*a*b^5*d^3*x*e
^9 - 200*A*b^6*d^3*x*e^9 + 100*B*a^2*b^4*x^3*e^12 + 40*A*a*b^5*x^
3*e^12 - 450*B*a^2*b^4*d*x^2*e^11 - 180*A*a*b^5*d*x^2*e^11 + 1800
*B*a^2*b^4*d^2*x*e^10 + 720*A*a*b^5*d^2*x*e^10 + 200*B*a^3*b^3*x^
2*e^12 + 150*A*a^2*b^4*x^2*e^12 - 1200*B*a^3*b^3*d*x*e^11 - 900*A
*a^2*b^4*d*x*e^11 + 300*B*a^4*b^2*x*e^12 + 400*A*a^3*b^3*x*e^12)*
e^(-15) - 1/2*(13*B*b^6*d^7 - 66*B*a*b^5*d^6*e - 11*A*b^6*d^6*e +
 135*B*a^2*b^4*d^5*e^2 + 54*A*a*b^5*d^5*e^2 - 140*B*a^3*b^3*d^4*e
^3 - 105*A*a^2*b^4*d^4*e^3 + 75*B*a^4*b^2*d^3*e^4 + 100*A*a^3*b^3
```

```
*d^3*e^4 - 18*B*a^5*b*d^2*e^5 - 45*A*a^4*b^2*d^2*e^5 + B*a^6*d*e^
6 + 6*A*a^5*b*d*e^6 + A*a^6*e^7 + 2*(7*B*b^6*d^6*e - 36*B*a*b^5*d
^5*e^2 - 6*A*b^6*d^5*e^2 + 75*B*a^2*b^4*d^4*e^3 + 30*A*a*b^5*d^4*
e^3 - 80*B*a^3*b^3*d^3*e^4 - 60*A*a^2*b^4*d^3*e^4 + 45*B*a^4*b^2*
d^2*e^5 + 60*A*a^3*b^3*d^2*e^5 - 12*B*a^5*b*d*e^6 - 30*A*a^4*b^2*
d*e^6 + B*a^6*e^7 + 6*A*a^5*b*e^7)*x)*e^(-8)/(x*e + d)^2
```

3.1046 $\int \frac{(a+bx)^6(A+Bx)}{(d+ex)^4}\,dx$

Optimal. Leaf size=279

$$-\frac{b^5(d+ex)^3(-6aBe-Abe+7bBd)}{3e^8}+\frac{3b^4(d+ex)^2(bd-ae)(-5aBe-2Abe+7bBd)}{2e^8}-\frac{5b^3x(bd-ae)^2(-4aBe-3Abe+7bBd)}{e^7}+\frac{5b^2(bd-ae)^3\log(d+ex)(-3aBe-4Abe+7bBd)}{e^8}+\frac{3b(bd-ae)^4(-2aBe-5Abe+7bBd)}{e^8(d+ex)}-\frac{(bd-ae)^5(-aBe-6Abe+7bBd)}{2e^8(d+ex)^2}+\frac{(bd-ae)^6(Bd-Ae)}{3e^8(d+ex)^3}+\frac{b^6B(d+ex)^4}{4e^8}$$

```
[Out] (-5*b^3*(b*d - a*e)^2*(7*b*B*d - 3*A*b*e - 4*a*B*e)*x)/e^7 + ((b*
d - a*e)^6*(B*d - A*e))/(3*e^8*(d + e*x)^3) - ((b*d - a*e)^5*(7*b
*B*d - 6*A*b*e - a*B*e))/(2*e^8*(d + e*x)^2) + (3*b*(b*d - a*e)^4
*(7*b*B*d - 5*A*b*e - 2*a*B*e))/(e^8*(d + e*x)) + (3*b^4*(b*d - a
*e)*(7*b*B*d - 2*A*b*e - 5*a*B*e)*(d + e*x)^2)/(2*e^8) - (b^5*(7*
b*B*d - A*b*e - 6*a*B*e)*(d + e*x)^3)/(3*e^8) + (b^6*B*(d + e*x)^
4)/(4*e^8) + (5*b^2*(b*d - a*e)^3*(7*b*B*d - 4*A*b*e - 3*a*B*e)*L
og[d + e*x])/e^8
```

Rubi [A] time = 1.20712, antiderivative size = 279, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{b^5(d+ex)^3(-6aBe-Abe+7bBd)}{3e^8}+\frac{3b^4(d+ex)^2(bd-ae)(-5aBe-2Abe+7bBd)}{2e^8}-\frac{5b^3x(bd-ae)^2(-4aBe-3Abe+7bBd)}{e^7}+\frac{5b^2(bd-ae)^3\log(d+ex)(-3aBe-4Abe+7bBd)}{e^8}+\frac{3b(bd-ae)^4(-2aBe-5Abe+7bBd)}{e^8(d+ex)}-\frac{(bd-ae)^5(-aBe-6Abe+7bBd)}{2e^8(d+ex)^2}+\frac{(bd-ae)^6(Bd-Ae)}{3e^8(d+ex)^3}+\frac{b^6B(d+ex)^4}{4e^8}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^6*(A + B*x))/(d + e*x)^4,x]
```

```
[Out] (-5*b^3*(b*d - a*e)^2*(7*b*B*d - 3*A*b*e - 4*a*B*e)*x)/e^7 + ((b*
d - a*e)^6*(B*d - A*e))/(3*e^8*(d + e*x)^3) - ((b*d - a*e)^5*(7*b
*B*d - 6*A*b*e - a*B*e))/(2*e^8*(d + e*x)^2) + (3*b*(b*d - a*e)^4
*(7*b*B*d - 5*A*b*e - 2*a*B*e))/(e^8*(d + e*x)) + (3*b^4*(b*d - a
*e)*(7*b*B*d - 2*A*b*e - 5*a*B*e)*(d + e*x)^2)/(2*e^8) - (b^5*(7*
b*B*d - A*b*e - 6*a*B*e)*(d + e*x)^3)/(3*e^8) + (b^6*B*(d + e*x)^
4)/(4*e^8) + (5*b^2*(b*d - a*e)^3*(7*b*B*d - 4*A*b*e - 3*a*B*e)*L
og[d + e*x])/e^8
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{Bb^6\left(d+ex\right)^4}{4e^8}+\frac{b^5\left(d+ex\right)^3\left(Abe+6Bae-7Bbd\right)}{3e^8}+\frac{3b^4\left(d+ex\right)^2\left(ae-bd\right)\left(2Abe+5Bae-7Bbd\right)}{2e^8}+\frac{5b^2\left(ae-bd\right)^3\left(4Abe+3Bae-7Bbd\right)\log\left(d+ex\right)}{e^8}-\frac{3b\left(ae-bd\right)^4\left(5Abe+2Bae-7Bbd\right)}{e^8\left(d+ex\right)}+\frac{5\left(ae-bd\right)^2\left(3Abe+4Bae-7Bbd\right)\int b^3\,dx}{e^7}-\frac{\left(ae-bd\right)^5\left(6Abe+Bae-7Bbd\right)}{2e^8\left(d+ex\right)^2}-\frac{\left(Ae-Bd\right)\left(ae-bd\right)^6}{3e^8\left(d+ex\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**6*(B*x+A)/(e*x+d)**4,x)
```

```
[Out] B*b**6*(d + e*x)**4/(4*e**8) + b**5*(d + e*x)**3*(A*b*e + 6*B*a*e
 - 7*B*b*d)/(3*e**8) + 3*b**4*(d + e*x)**2*(a*e - b*d)*(2*A*b*e +
 5*B*a*e - 7*B*b*d)/(2*e**8) + 5*b**2*(a*e - b*d)**3*(4*A*b*e + 3
*B*a*e - 7*B*b*d)*log(d + e*x)/e**8 - 3*b*(a*e - b*d)**4*(5*A*b*e
 + 2*B*a*e - 7*B*b*d)/(e**8*(d + e*x)) + 5*(a*e - b*d)**2*(3*A*b*
e + 4*B*a*e - 7*B*b*d)*Integral(b**3, x)/e**7 - (a*e - b*d)**5*(6
*A*b*e + B*a*e - 7*B*b*d)/(2*e**8*(d + e*x)**2) - (A*e - B*d)*(a*
e - b*d)**6/(3*e**8*(d + e*x)**3)
```

Mathematica [A] time = 0.324283, size = 297, normalized size = 1.06

$$\frac{-6b^4e^2x^2\left(-15a^2Be^2-6abe(Ae-4Bd)+2b^2d(2Ae-5Bd)\right)+12b^3ex\left(20a^3Be^3+15a^2be^2(Ae-4Bd)+12ab^2de(5Bd-2Ae\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^6*(A + B*x))/(d + e*x)^4,x]
```

```
[Out] (12*b^3*e*(20*a^3*B*e^3 + 12*a*b^2*d*e*(5*B*d - 2*A*e) + 15*a^2*b
*e^2*(-4*B*d + A*e) + 10*b^3*d^2*(-2*B*d + A*e))*x - 6*b^4*e^2*(-
15*a^2*B*e^2 - 6*a*b*e*(-4*B*d + A*e) + 2*b^2*d*(-5*B*d + 2*A*e))
*x^2 + 4*b^5*e^3*(-4*b*B*d + A*b*e + 6*a*B*e)*x^3 + 3*b^6*B*e^4*x
^4 + (4*(b*d - a*e)^6*(B*d - A*e))/(d + e*x)^3 - (6*(b*d - a*e)^5
*(7*b*B*d - 6*A*b*e - a*B*e))/(d + e*x)^2 + (36*b*(b*d - a*e)^4*(
7*b*B*d - 5*A*b*e - 2*a*B*e))/(d + e*x) + 60*b^2*(b*d - a*e)^3*(7
*b*B*d - 4*A*b*e - 3*a*B*e)*Log[d + e*x])/(12*e^8)
```

Maple [B] time = 0.026, size = 1143, normalized size = 4.1

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^6*(B*x+A)/(e*x+d)^4,x)
```

```
[Out] -1/3/e/(e*x+d)^3*a^6*A-1/2/e^2/(e*x+d)^2*B*a^6+1/4*b^6/e^4*B*x^4+
1/3*b^6/e^4*A*x^3+1/3/e^8/(e*x+d)^3*b^6*B*d^7-15*b^2/e^3/(e*x+d)*
A*a^4-15*b^6/e^7/(e*x+d)*A*d^4-6*b/e^3/(e*x+d)*B*a^5+21*b^6/e^8/(
e*x+d)*B*d^5-3/e^2/(e*x+d)^2*A*a^5*b+3/e^7/(e*x+d)^2*A*b^6*d^5+20
*b^3/e^4*B*a^3*x-20*b^6/e^7*B*d^3*x+20*b^3/e^4*ln(e*x+d)*A*a^3-7/
2/e^8/(e*x+d)^2*b^6*B*d^6-20*b^6/e^7*ln(e*x+d)*A*d^3+15*b^2/e^4*l
n(e*x+d)*B*a^4+35*b^6/e^8*ln(e*x+d)*B*d^4+2*b^5/e^4*B*x^3*a-4/3*b
^6/e^5*B*x^3*d+2/e^2/(e*x+d)^3*A*d*a^5*b-5/e^3/(e*x+d)^3*A*d^2*a^
4*b^2+20/3/e^4/(e*x+d)^3*A*d^3*a^3*b^3-5/e^5/(e*x+d)^3*A*a^2*b^4*
d^4+2/e^6/(e*x+d)^3*A*a*b^5*d^5-2/e^3/(e*x+d)^3*B*d^2*a^5*b+5/e^4
/(e*x+d)^3*B*d^3*a^4*b^2-20/3/e^5/(e*x+d)^3*B*a^3*b^3*d^4+5/e^6/(
e*x+d)^3*B*a^2*b^4*d^5-2/e^7/(e*x+d)^3*B*a*b^5*d^6+60*b^3/e^4/(e*
x+d)*A*a^3*d-90*b^4/e^5/(e*x+d)*A*a^2*d^2+60*b^5/e^6/(e*x+d)*A*a*
d^3-80*b^3/e^5*ln(e*x+d)*B*a^3*d+150*b^4/e^6*ln(e*x+d)*B*a^2*d^2-
120*b^5/e^7*ln(e*x+d)*B*a*d^3-12*b^5/e^5*B*x^2*a*d-24*b^5/e^5*A*a
*d*x-60*b^4/e^5*B*a^2*d*x+60*b^5/e^6*B*a*d^2*x-60*b^4/e^5*ln(e*x+
d)*A*a^2*d+60*b^5/e^6*ln(e*x+d)*A*a*d^2-75/2/e^6/(e*x+d)^2*B*a^2*
b^4*d^4+18/e^7/(e*x+d)^2*B*a*b^5*d^5+45*b^2/e^4/(e*x+d)*B*a^4*d-1
20*b^3/e^5/(e*x+d)*B*a^3*d^2+150*b^4/e^6/(e*x+d)*B*a^2*d^3-90*b^5
/e^7/(e*x+d)*B*a*d^4+15/e^3/(e*x+d)^2*A*a^4*b^2*d-30/e^4/(e*x+d)^
2*A*a^3*b^3*d^2+30/e^5/(e*x+d)^2*A*a^2*b^4*d^3-15/e^6/(e*x+d)^2*A
*a*b^5*d^4+6/e^3/(e*x+d)^2*B*a^5*b*d-45/2/e^4/(e*x+d)^2*B*a^4*b^2
*d^2+40/e^5/(e*x+d)^2*B*a^3*b^3*d^3+3*b^5/e^4*A*x^2*a-2*b^6/e^5*A
*x^2*d+15/2*b^4/e^4*B*x^2*a^2+5*b^6/e^6*B*x^2*d^2+15*b^4/e^4*A*a^
2*x+10*b^6/e^6*A*d^2*x-1/3/e^7/(e*x+d)^3*A*b^6*d^6+1/3/e^2/(e*x+d
)^3*B*d*a^6
```

Maxima [A] time = 1.40138, size = 1071, normalized size = 3.84

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6/(e*x + d)^4,x, algorithm="maxima")
```

```
[Out] 1/6*(107*B*b^6*d^7 - 2*A*a^6*e^7 - 74*(6*B*a*b^5 + A*b^6)*d^6*e +
 141*(5*B*a^2*b^4 + 2*A*a*b^5)*d^5*e^2 - 130*(4*B*a^3*b^3 + 3*A*a
^2*b^4)*d^4*e^3 + 55*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d^3*e^4 - 6*(2*B
*a^5*b + 5*A*a^4*b^2)*d^2*e^5 - (B*a^6 + 6*A*a^5*b)*d*e^6 + 18*(7
*B*b^6*d^5*e^2 - 5*(6*B*a*b^5 + A*b^6)*d^4*e^3 + 10*(5*B*a^2*b^4
+ 2*A*a*b^5)*d^3*e^4 - 10*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^2*e^5 + 5
*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d*e^6 - (2*B*a^5*b + 5*A*a^4*b^2)*e^
7)*x^2 + 3*(77*B*b^6*d^6*e - 54*(6*B*a*b^5 + A*b^6)*d^5*e^2 + 105
*(5*B*a^2*b^4 + 2*A*a*b^5)*d^4*e^3 - 100*(4*B*a^3*b^3 + 3*A*a^2*b
^4)*d^3*e^4 + 45*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d^2*e^5 - 6*(2*B*a^5
*b + 5*A*a^4*b^2)*d*e^6 - (B*a^6 + 6*A*a^5*b)*e^7)*x)/(e^11*x^3 +
 3*d*e^10*x^2 + 3*d^2*e^9*x + d^3*e^8) + 1/12*(3*B*b^6*e^3*x^4 -
4*(4*B*b^6*d*e^2 - (6*B*a*b^5 + A*b^6)*e^3)*x^3 + 6*(10*B*b^6*d^2
*e - 4*(6*B*a*b^5 + A*b^6)*d*e^2 + 3*(5*B*a^2*b^4 + 2*A*a*b^5)*e^
3)*x^2 - 12*(20*B*b^6*d^3 - 10*(6*B*a*b^5 + A*b^6)*d^2*e + 12*(5*
B*a^2*b^4 + 2*A*a*b^5)*d*e^2 - 5*(4*B*a^3*b^3 + 3*A*a^2*b^4)*e^3)
*x)/e^7 + 5*(7*B*b^6*d^4 - 4*(6*B*a*b^5 + A*b^6)*d^3*e + 6*(5*B*a
^2*b^4 + 2*A*a*b^5)*d^2*e^2 - 4*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d*e^3
 + (3*B*a^4*b^2 + 4*A*a^3*b^3)*e^4)*log(e*x + d)/e^8
```

Fricas [A] time = 0.210869, size = 1654, normalized size = 5.93

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6/(e*x + d)^4,x, algorithm="fricas")
```

```
[Out] 1/12*(3*B*b^6*e^7*x^7 + 214*B*b^6*d^7 - 4*A*a^6*e^7 - 148*(6*B*a*
b^5 + A*b^6)*d^6*e + 282*(5*B*a^2*b^4 + 2*A*a*b^5)*d^5*e^2 - 260*
(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^4*e^3 + 110*(3*B*a^4*b^2 + 4*A*a^3*
b^3)*d^3*e^4 - 12*(2*B*a^5*b + 5*A*a^4*b^2)*d^2*e^5 - 2*(B*a^6 +
6*A*a^5*b)*d*e^6 - (7*B*b^6*d*e^6 - 4*(6*B*a*b^5 + A*b^6)*e^7)*x^
6 + 3*(7*B*b^6*d^2*e^5 - 4*(6*B*a*b^5 + A*b^6)*d*e^6 + 6*(5*B*a^2
*b^4 + 2*A*a*b^5)*e^7)*x^5 - 15*(7*B*b^6*d^3*e^4 - 4*(6*B*a*b^5 +
 A*b^6)*d^2*e^5 + 6*(5*B*a^2*b^4 + 2*A*a*b^5)*d*e^6 - 4*(4*B*a^3*
b^3 + 3*A*a^2*b^4)*e^7)*x^4 - 2*(278*B*b^6*d^4*e^3 - 146*(6*B*a*b
^5 + A*b^6)*d^3*e^4 + 189*(5*B*a^2*b^4 + 2*A*a*b^5)*d^2*e^5 - 90*
(4*B*a^3*b^3 + 3*A*a^2*b^4)*d*e^6)*x^3 - 6*(68*B*b^6*d^5*e^2 - 26
*(6*B*a*b^5 + A*b^6)*d^4*e^3 + 9*(5*B*a^2*b^4 + 2*A*a*b^5)*d^3*e^
4 + 30*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^2*e^5 - 30*(3*B*a^4*b^2 + 4*
A*a^3*b^3)*d*e^6 + 6*(2*B*a^5*b + 5*A*a^4*b^2)*e^7)*x^2 + 6*(37*B
*b^6*d^6*e - 34*(6*B*a*b^5 + A*b^6)*d^5*e^2 + 81*(5*B*a^2*b^4 + 2
*A*a*b^5)*d^4*e^3 - 90*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^3*e^4 + 45*(
3*B*a^4*b^2 + 4*A*a^3*b^3)*d^2*e^5 - 6*(2*B*a^5*b + 5*A*a^4*b^2)*
d*e^6 - (B*a^6 + 6*A*a^5*b)*e^7)*x + 60*(7*B*b^6*d^7 - 4*(6*B*a*b
^5 + A*b^6)*d^6*e + 6*(5*B*a^2*b^4 + 2*A*a*b^5)*d^5*e^2 - 4*(4*B*
a^3*b^3 + 3*A*a^2*b^4)*d^4*e^3 + (3*B*a^4*b^2 + 4*A*a^3*b^3)*d^3*
e^4 + (7*B*b^6*d^4*e^3 - 4*(6*B*a*b^5 + A*b^6)*d^3*e^4 + 6*(5*B*a
^2*b^4 + 2*A*a*b^5)*d^2*e^5 - 4*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d*e^6
 + (3*B*a^4*b^2 + 4*A*a^3*b^3)*e^7)*x^3 + 3*(7*B*b^6*d^5*e^2 - 4*
(6*B*a*b^5 + A*b^6)*d^4*e^3 + 6*(5*B*a^2*b^4 + 2*A*a*b^5)*d^3*e^4
 - 4*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^2*e^5 + (3*B*a^4*b^2 + 4*A*a^3
*b^3)*d*e^6)*x^2 + 3*(7*B*b^6*d^6*e - 4*(6*B*a*b^5 + A*b^6)*d^5*e
^2 + 6*(5*B*a^2*b^4 + 2*A*a*b^5)*d^4*e^3 - 4*(4*B*a^3*b^3 + 3*A*a
^2*b^4)*d^3*e^4 + (3*B*a^4*b^2 + 4*A*a^3*b^3)*d^2*e^5)*x)*log(e*x
 + d))/(e^11*x^3 + 3*d*e^10*x^2 + 3*d^2*e^9*x + d^3*e^8)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**6*(B*x+A)/(e*x+d)**4,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.233239, size = 1075, normalized size = 3.85

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6/(e*x + d)^4,x, algorithm="giac")
```

```
[Out] 5*(7*B*b^6*d^4 - 24*B*a*b^5*d^3*e - 4*A*b^6*d^3*e + 30*B*a^2*b^4*
d^2*e^2 + 12*A*a*b^5*d^2*e^2 - 16*B*a^3*b^3*d*e^3 - 12*A*a^2*b^4*
d*e^3 + 3*B*a^4*b^2*e^4 + 4*A*a^3*b^3*e^4)*e^(-8)*ln(abs(x*e + d)
) + 1/12*(3*B*b^6*x^4*e^12 - 16*B*b^6*d*x^3*e^11 + 60*B*b^6*d^2*x
^2*e^10 - 240*B*b^6*d^3*x*e^9 + 24*B*a*b^5*x^3*e^12 + 4*A*b^6*x^3
*e^12 - 144*B*a*b^5*d*x^2*e^11 - 24*A*b^6*d*x^2*e^11 + 720*B*a*b^
5*d^2*x*e^10 + 120*A*b^6*d^2*x*e^10 + 90*B*a^2*b^4*x^2*e^12 + 36*
A*a*b^5*x^2*e^12 - 720*B*a^2*b^4*d*x*e^11 - 288*A*a*b^5*d*x*e^11
+ 240*B*a^3*b^3*x*e^12 + 180*A*a^2*b^4*x*e^12)*e^(-16) + 1/6*(107
*B*b^6*d^7 - 444*B*a*b^5*d^6*e - 74*A*b^6*d^6*e + 705*B*a^2*b^4*d
^5*e^2 + 282*A*a*b^5*d^5*e^2 - 520*B*a^3*b^3*d^4*e^3 - 390*A*a^2*
b^4*d^4*e^3 + 165*B*a^4*b^2*d^3*e^4 + 220*A*a^3*b^3*d^3*e^4 - 12*
B*a^5*b*d^2*e^5 - 30*A*a^4*b^2*d^2*e^5 - B*a^6*d*e^6 - 6*A*a^5*b*
d*e^6 - 2*A*a^6*e^7 + 18*(7*B*b^6*d^5*e^2 - 30*B*a*b^5*d^4*e^3 -
5*A*b^6*d^4*e^3 + 50*B*a^2*b^4*d^3*e^4 + 20*A*a*b^5*d^3*e^4 - 40*
B*a^3*b^3*d^2*e^5 - 30*A*a^2*b^4*d^2*e^5 + 15*B*a^4*b^2*d*e^6 + 2
0*A*a^3*b^3*d*e^6 - 2*B*a^5*b*e^7 - 5*A*a^4*b^2*e^7)*x^2 + 3*(77*
B*b^6*d^6*e - 324*B*a*b^5*d^5*e^2 - 54*A*b^6*d^5*e^2 + 525*B*a^2*
b^4*d^4*e^3 + 210*A*a*b^5*d^4*e^3 - 400*B*a^3*b^3*d^3*e^4 - 300*A
*a^2*b^4*d^3*e^4 + 135*B*a^4*b^2*d^2*e^5 + 180*A*a^3*b^3*d^2*e^5
- 12*B*a^5*b*d*e^6 - 30*A*a^4*b^2*d*e^6 - B*a^6*e^7 - 6*A*a^5*b*e
^7)*x)*e^(-8)/(x*e + d)^3
```

3.1047 $\int \frac{(a+bx)^6(A+Bx)}{(d+ex)^5}\,dx$

Optimal. Leaf size=279

$$-\frac{b^5(d+ex)^2(-6aBe-Abe+7bBd)}{2e^8}+\frac{3b^4x(bd-ae)(-5aBe-2Abe+7bBd)}{e^7}-\frac{5b^3(bd-ae)^2\log(d+ex)(-4aBe-3Abe+7bBd)}{e^8}-\frac{5b^2(bd-ae)^3(-3aBe-4Abe+7bBd)}{e^8(d+ex)}+\frac{3b(bd-ae)^4(-2aBe-5Abe+7bBd)}{2e^8(d+ex)^2}-\frac{(bd-ae)^5(-aBe-6Abe+7bBd)}{3e^8(d+ex)^3}+\frac{(bd-ae)^6(Bd-Ae)}{4e^8(d+ex)^4}+\frac{b^6B(d+ex)^3}{3e^8}$$

```
[Out] (3*b^4*(b*d - a*e)*(7*b*B*d - 2*A*b*e - 5*a*B*e)*x)/e^7 + ((b*d -
 a*e)^6*(B*d - A*e))/(4*e^8*(d + e*x)^4) - ((b*d - a*e)^5*(7*b*B*
d - 6*A*b*e - a*B*e))/(3*e^8*(d + e*x)^3) + (3*b*(b*d - a*e)^4*(7
*b*B*d - 5*A*b*e - 2*a*B*e))/(2*e^8*(d + e*x)^2) - (5*b^2*(b*d -
a*e)^3*(7*b*B*d - 4*A*b*e - 3*a*B*e))/(e^8*(d + e*x)) - (b^5*(7*b
*B*d - A*b*e - 6*a*B*e)*(d + e*x)^2)/(2*e^8) + (b^6*B*(d + e*x)^3
)/(3*e^8) - (5*b^3*(b*d - a*e)^2*(7*b*B*d - 3*A*b*e - 4*a*B*e)*Lo
g[d + e*x])/e^8
```

Rubi [A] time = 1.11175, antiderivative size = 279, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{b^5(d+ex)^2(-6aBe-Abe+7bBd)}{2e^8}+\frac{3b^4x(bd-ae)(-5aBe-2Abe+7bBd)}{e^7}-\frac{5b^3(bd-ae)^2\log(d+ex)(-4aBe-3Abe+7bBd)}{e^8}-\frac{5b^2(bd-ae)^3(-3aBe-4Abe+7bBd)}{e^8(d+ex)}+\frac{3b(bd-ae)^4(-2aBe-5Abe+7bBd)}{2e^8(d+ex)^2}-\frac{(bd-ae)^5(-aBe-6Abe+7bBd)}{3e^8(d+ex)^3}+\frac{(bd-ae)^6(Bd-Ae)}{4e^8(d+ex)^4}+\frac{b^6B(d+ex)^3}{3e^8}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^6*(A + B*x))/(d + e*x)^5,x]
```

```
[Out] (3*b^4*(b*d - a*e)*(7*b*B*d - 2*A*b*e - 5*a*B*e)*x)/e^7 + ((b*d -
 a*e)^6*(B*d - A*e))/(4*e^8*(d + e*x)^4) - ((b*d - a*e)^5*(7*b*B*
d - 6*A*b*e - a*B*e))/(3*e^8*(d + e*x)^3) + (3*b*(b*d - a*e)^4*(7
*b*B*d - 5*A*b*e - 2*a*B*e))/(2*e^8*(d + e*x)^2) - (5*b^2*(b*d -
a*e)^3*(7*b*B*d - 4*A*b*e - 3*a*B*e))/(e^8*(d + e*x)) - (b^5*(7*b
*B*d - A*b*e - 6*a*B*e)*(d + e*x)^2)/(2*e^8) + (b^6*B*(d + e*x)^3
)/(3*e^8) - (5*b^3*(b*d - a*e)^2*(7*b*B*d - 3*A*b*e - 4*a*B*e)*Lo
g[d + e*x])/e^8
```

Rubi in Sympy [A] time = 129.116, size = 284, normalized size = 1.02

$$\frac{Bb^6\left(d+ex\right)^3}{3e^8}+\frac{b^5\left(d+ex\right)^2\left(Abe+6Bae-7Bbd\right)}{2e^8}+\frac{3b^4x\left(ae-bd\right)\left(2Abe+5Bae-7Bbd\right)}{e^7}+\frac{5b^3\left(ae-bd\right)^2\left(3Abe+4Bae-7Bbd\right)\log\left(d+ex\right)}{e^8}-\frac{5b^2\left(ae-bd\right)^3\left(4Abe+3Bae-7Bbd\right)}{e^8\left(d+ex\right)}-\frac{3b\left(ae-bd\right)^4\left(5Abe+2Bae-7Bbd\right)}{2e^8\left(d+ex\right)^2}-\frac{\left(ae-bd\right)^5\left(6Abe+Bae-7Bbd\right)}{3e^8\left(d+ex\right)^3}-\frac{\left(Ae-Bd\right)\left(ae-bd\right)^6}{4e^8\left(d+ex\right)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**6*(B*x+A)/(e*x+d)**5,x)
```

```
[Out] B*b**6*(d + e*x)**3/(3*e**8) + b**5*(d + e*x)**2*(A*b*e + 6*B*a*e
 - 7*B*b*d)/(2*e**8) + 3*b**4*x*(a*e - b*d)*(2*A*b*e + 5*B*a*e -
7*B*b*d)/e**7 + 5*b**3*(a*e - b*d)**2*(3*A*b*e + 4*B*a*e - 7*B*b*
d)*log(d + e*x)/e**8 - 5*b**2*(a*e - b*d)**3*(4*A*b*e + 3*B*a*e -
 7*B*b*d)/(e**8*(d + e*x)) - 3*b*(a*e - b*d)**4*(5*A*b*e + 2*B*a*
e - 7*B*b*d)/(2*e**8*(d + e*x)**2) - (a*e - b*d)**5*(6*A*b*e + B*
a*e - 7*B*b*d)/(3*e**8*(d + e*x)**3) - (A*e - B*d)*(a*e - b*d)**6
/(4*e**8*(d + e*x)**4)
```

Mathematica [A] time = 0.376862, size = 263, normalized size = 0.94

$$-12b^4ex\left(-15a^2Be^2-6abe(Ae-5Bd)+5b^2d(Ae-3Bd)\right)+6b^5e^2x^2(6aBe+Abe-5bBd)-60b^3(bd-ae)^2\log(d+ex)(-4a$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^6*(A + B*x))/(d + e*x)^5,x]
```

```
[Out] (-12*b^4*e*(-15*a^2*B*e^2 - 6*a*b*e*(-5*B*d + A*e) + 5*b^2*d*(-3*
B*d + A*e))*x + 6*b^5*e^2*(-5*b*B*d + A*b*e + 6*a*B*e)*x^2 + 4*b^
6*B*e^3*x^3 + (3*(b*d - a*e)^6*(B*d - A*e))/(d + e*x)^4 - (4*(b*d
 - a*e)^5*(7*b*B*d - 6*A*b*e - a*B*e))/(d + e*x)^3 + (18*b*(b*d -
 a*e)^4*(7*b*B*d - 5*A*b*e - 2*a*B*e))/(d + e*x)^2 - (60*b^2*(b*d
 - a*e)^3*(7*b*B*d - 4*A*b*e - 3*a*B*e))/(d + e*x) - 60*b^3*(b*d
- a*e)^2*(7*b*B*d - 3*A*b*e - 4*a*B*e)*Log[d + e*x])/(12*e^8)
```

Maple [B] time = 0.024, size = 1177, normalized size = 4.2

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^6*(B*x+A)/(e*x+d)^5,x)
```

```
[Out] 15*b^4/e^5*B*a^2*x+15*b^6/e^7*B*d^2*x+15*b^4/e^5*ln(e*x+d)*A*a^2+
15*b^6/e^7*ln(e*x+d)*A*d^2+20*b^3/e^5*ln(e*x+d)*B*a^3-35*b^6/e^8*
ln(e*x+d)*B*d^3-2/e^2/(e*x+d)^3*A*a^5*b+2/e^7/(e*x+d)^3*A*b^6*d^5
-7/3/e^8/(e*x+d)^3*b^6*B*d^6-20*b^3/e^4/(e*x+d)*A*a^3+20*b^6/e^7/
(e*x+d)*A*d^3-15*b^2/e^4/(e*x+d)*B*a^4-35*b^6/e^8/(e*x+d)*B*d^4-1
5/2*b^2/e^3/(e*x+d)^2*A*a^4-15/2*b^6/e^7/(e*x+d)^2*A*d^4-3*b/e^3/
(e*x+d)^2*B*a^5+21/2*b^6/e^8/(e*x+d)^2*B*d^5-1/4/e^7/(e*x+d)^4*A*
b^6*d^6+1/4/e^2/(e*x+d)^4*B*d*a^6+1/4/e^8/(e*x+d)^4*b^6*B*d^7+3*b
^5/e^5*B*x^2*a-5/2*b^6/e^6*B*x^2*d-1/4/e/(e*x+d)^4*a^6*A+1/3*b^6/
e^5*B*x^3+1/2*b^6/e^5*A*x^2-1/3/e^2/(e*x+d)^3*B*a^6+6*b^5/e^5*A*a
*x-5*b^6/e^6*A*d*x-30*b^5/e^6*ln(e*x+d)*A*d*a-75*b^4/e^6*ln(e*x+d
)*B*a^2*d+90*b^5/e^7*ln(e*x+d)*B*d^2*a+10/e^3/(e*x+d)^3*A*a^4*b^2
*d-20/e^4/(e*x+d)^3*A*a^3*b^3*d^2+20/e^5/(e*x+d)^3*A*a^2*b^4*d^3-
10/e^6/(e*x+d)^3*A*a*b^5*d^4+4/e^3/(e*x+d)^3*B*a^5*b*d-15/e^4/(e*
x+d)^3*B*a^4*b^2*d^2+80/3/e^5/(e*x+d)^3*B*a^3*b^3*d^3-25/e^6/(e*x
+d)^3*B*a^2*b^4*d^4-30*b^5/e^6*B*a*d*x+30*b^3/e^4/(e*x+d)^2*A*a^3
*d-45*b^4/e^5/(e*x+d)^2*A*a^2*d^2+30*b^5/e^6/(e*x+d)^2*A*a*d^3+45
/2*b^2/e^4/(e*x+d)^2*B*a^4*d-60*b^3/e^5/(e*x+d)^2*B*a^3*d^2+75*b^
4/e^6/(e*x+d)^2*B*a^2*d^3-45*b^5/e^7/(e*x+d)^2*B*a*d^4+3/2/e^2/(e
*x+d)^4*A*d*a^5*b-15/4/e^3/(e*x+d)^4*A*d^2*a^4*b^2+5/e^4/(e*x+d)^
4*A*d^3*a^3*b^3-15/4/e^5/(e*x+d)^4*A*d^4*a^2*b^4+3/2/e^6/(e*x+d)^
4*A*a*b^5*d^5-3/2/e^3/(e*x+d)^4*B*d^2*a^5*b+15/4/e^4/(e*x+d)^4*B*
d^3*a^4*b^2-5/e^5/(e*x+d)^4*B*d^4*a^3*b^3+15/4/e^6/(e*x+d)^4*B*a^
2*b^4*d^5-3/2/e^7/(e*x+d)^4*B*a*b^5*d^6+12/e^7/(e*x+d)^3*B*a*b^5*
d^5+60*b^4/e^5/(e*x+d)*A*a^2*d-60*b^5/e^6/(e*x+d)*A*a*d^2+80*b^3/
e^5/(e*x+d)*B*a^3*d-150*b^4/e^6/(e*x+d)*B*a^2*d^2+120*b^5/e^7/(e*
x+d)*B*a*d^3
```

Maxima [A] time = 1.42267, size = 1081, normalized size = 3.87

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6/(e*x + d)^5,x, algorithm="maxima")
```

```
[Out] -1/12*(319*B*b^6*d^7 + 3*A*a^6*e^7 - 171*(6*B*a*b^5 + A*b^6)*d^6*
e + 231*(5*B*a^2*b^4 + 2*A*a*b^5)*d^5*e^2 - 125*(4*B*a^3*b^3 + 3*
A*a^2*b^4)*d^4*e^3 + 15*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d^3*e^4 + 3*(
2*B*a^5*b + 5*A*a^4*b^2)*d^2*e^5 + (B*a^6 + 6*A*a^5*b)*d*e^6 + 60
*(7*B*b^6*d^4*e^3 - 4*(6*B*a*b^5 + A*b^6)*d^3*e^4 + 6*(5*B*a^2*b^
4 + 2*A*a*b^5)*d^2*e^5 - 4*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d*e^6 + (3
*B*a^4*b^2 + 4*A*a^3*b^3)*e^7)*x^3 + 18*(63*B*b^6*d^5*e^2 - 35*(6
*B*a*b^5 + A*b^6)*d^4*e^3 + 50*(5*B*a^2*b^4 + 2*A*a*b^5)*d^3*e^4
- 30*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^2*e^5 + 5*(3*B*a^4*b^2 + 4*A*a
^3*b^3)*d*e^6 + (2*B*a^5*b + 5*A*a^4*b^2)*e^7)*x^2 + 4*(259*B*b^6
*d^6*e - 141*(6*B*a*b^5 + A*b^6)*d^5*e^2 + 195*(5*B*a^2*b^4 + 2*A
*a*b^5)*d^4*e^3 - 110*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^3*e^4 + 15*(3
*B*a^4*b^2 + 4*A*a^3*b^3)*d^2*e^5 + 3*(2*B*a^5*b + 5*A*a^4*b^2)*d
*e^6 + (B*a^6 + 6*A*a^5*b)*e^7)*x)/(e^12*x^4 + 4*d*e^11*x^3 + 6*d
^2*e^10*x^2 + 4*d^3*e^9*x + d^4*e^8) + 1/6*(2*B*b^6*e^2*x^3 - 3*(
5*B*b^6*d*e - (6*B*a*b^5 + A*b^6)*e^2)*x^2 + 6*(15*B*b^6*d^2 - 5*
(6*B*a*b^5 + A*b^6)*d*e + 3*(5*B*a^2*b^4 + 2*A*a*b^5)*e^2)*x)/e^7
 - 5*(7*B*b^6*d^3 - 3*(6*B*a*b^5 + A*b^6)*d^2*e + 3*(5*B*a^2*b^4
+ 2*A*a*b^5)*d*e^2 - (4*B*a^3*b^3 + 3*A*a^2*b^4)*e^3)*log(e*x + d
)/e^8
```

Fricas [A] time = 0.218999, size = 1650, normalized size = 5.91

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6/(e*x + d)^5,x, algorithm="fricas")
```

```
[Out] 1/12*(4*B*b^6*e^7*x^7 - 319*B*b^6*d^7 - 3*A*a^6*e^7 + 171*(6*B*a*
b^5 + A*b^6)*d^6*e - 231*(5*B*a^2*b^4 + 2*A*a*b^5)*d^5*e^2 + 125*
(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^4*e^3 - 15*(3*B*a^4*b^2 + 4*A*a^3*b
^3)*d^3*e^4 - 3*(2*B*a^5*b + 5*A*a^4*b^2)*d^2*e^5 - (B*a^6 + 6*A*
a^5*b)*d*e^6 - 2*(7*B*b^6*d*e^6 - 3*(6*B*a*b^5 + A*b^6)*e^7)*x^6
+ 12*(7*B*b^6*d^2*e^5 - 3*(6*B*a*b^5 + A*b^6)*d*e^6 + 3*(5*B*a^2*
b^4 + 2*A*a*b^5)*e^7)*x^5 + 4*(139*B*b^6*d^3*e^4 - 51*(6*B*a*b^5
+ A*b^6)*d^2*e^5 + 36*(5*B*a^2*b^4 + 2*A*a*b^5)*d*e^6)*x^4 + 4*(1
36*B*b^6*d^4*e^3 - 24*(6*B*a*b^5 + A*b^6)*d^3*e^4 - 36*(5*B*a^2*b
^4 + 2*A*a*b^5)*d^2*e^5 + 60*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d*e^6 -
15*(3*B*a^4*b^2 + 4*A*a^3*b^3)*e^7)*x^3 - 6*(74*B*b^6*d^5*e^2 - 6
6*(6*B*a*b^5 + A*b^6)*d^4*e^3 + 126*(5*B*a^2*b^4 + 2*A*a*b^5)*d^3
*e^4 - 90*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^2*e^5 + 15*(3*B*a^4*b^2 +
 4*A*a^3*b^3)*d*e^6 + 3*(2*B*a^5*b + 5*A*a^4*b^2)*e^7)*x^2 - 4*(2
14*B*b^6*d^6*e - 126*(6*B*a*b^5 + A*b^6)*d^5*e^2 + 186*(5*B*a^2*b
^4 + 2*A*a*b^5)*d^4*e^3 - 110*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^3*e^4
 + 15*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d^2*e^5 + 3*(2*B*a^5*b + 5*A*a^
4*b^2)*d*e^6 + (B*a^6 + 6*A*a^5*b)*e^7)*x - 60*(7*B*b^6*d^7 - 3*(
6*B*a*b^5 + A*b^6)*d^6*e + 3*(5*B*a^2*b^4 + 2*A*a*b^5)*d^5*e^2 -
(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^4*e^3 + (7*B*b^6*d^3*e^4 - 3*(6*B*a
*b^5 + A*b^6)*d^2*e^5 + 3*(5*B*a^2*b^4 + 2*A*a*b^5)*d*e^6 - (4*B*
a^3*b^3 + 3*A*a^2*b^4)*e^7)*x^4 + 4*(7*B*b^6*d^4*e^3 - 3*(6*B*a*b
^5 + A*b^6)*d^3*e^4 + 3*(5*B*a^2*b^4 + 2*A*a*b^5)*d^2*e^5 - (4*B*
a^3*b^3 + 3*A*a^2*b^4)*d*e^6)*x^3 + 6*(7*B*b^6*d^5*e^2 - 3*(6*B*a
*b^5 + A*b^6)*d^4*e^3 + 3*(5*B*a^2*b^4 + 2*A*a*b^5)*d^3*e^4 - (4*
B*a^3*b^3 + 3*A*a^2*b^4)*d^2*e^5)*x^2 + 4*(7*B*b^6*d^6*e - 3*(6*B
*a*b^5 + A*b^6)*d^5*e^2 + 3*(5*B*a^2*b^4 + 2*A*a*b^5)*d^4*e^3 - (
4*B*a^3*b^3 + 3*A*a^2*b^4)*d^3*e^4)*x)*log(e*x + d))/(e^12*x^4 +
4*d*e^11*x^3 + 6*d^2*e^10*x^2 + 4*d^3*e^9*x + d^4*e^8)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**6*(B*x+A)/(e*x+d)**5,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.229964, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6/(e*x + d)^5,x, algorithm="giac")
```

```
[Out] Done
```

3.1048 $\int \frac{(a+bx)^6(A+Bx)}{(d+ex)^6} dx$

Optimal. Leaf size=272

$$-\frac{b^5x(-6aBe-Abe+6bBd)}{e^7}+\frac{3b^4(bd-ae)\log(d+ex)(-5aBe-2Abe+7bBd)}{e^8}+\frac{5b^3(bd-ae)^2(-4aBe-3Abe+7bBd)}{e^8(d+ex)}-\frac{5b^2(bd-ae)^3(-3aBe-4Abe+7bBd)}{2e^8(d+ex)^2}+\frac{b(bd-ae)^4(-2aBe-5Abe+7bBd)}{e^8(d+ex)^3}-\frac{(bd-ae)^5(-aBe-6Abe+7bBd)}{4e^8(d+ex)^4}+\frac{(bd-ae)^6(Bd-Ae)}{5e^8(d+ex)^5}+\frac{b^6Bx^2}{2e^6}$$

```
[Out] -((b^5*(6*b*B*d - A*b*e - 6*a*B*e)*x)/e^7) + (b^6*B*x^2)/(2*e^6)
+ ((b*d - a*e)^6*(B*d - A*e))/(5*e^8*(d + e*x)^5) - ((b*d - a*e)^
5*(7*b*B*d - 6*A*b*e - a*B*e))/(4*e^8*(d + e*x)^4) + (b*(b*d - a*
e)^4*(7*b*B*d - 5*A*b*e - 2*a*B*e))/(e^8*(d + e*x)^3) - (5*b^2*(b
*d - a*e)^3*(7*b*B*d - 4*A*b*e - 3*a*B*e))/(2*e^8*(d + e*x)^2) +
(5*b^3*(b*d - a*e)^2*(7*b*B*d - 3*A*b*e - 4*a*B*e))/(e^8*(d + e*x
)) + (3*b^4*(b*d - a*e)*(7*b*B*d - 2*A*b*e - 5*a*B*e)*Log[d + e*x
])/e^8
```

Rubi [A] time = 1.01362, antiderivative size = 272, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{b^5x(-6aBe-Abe+6bBd)}{e^7}+\frac{3b^4(bd-ae)\log(d+ex)(-5aBe-2Abe+7bBd)}{e^8}+\frac{5b^3(bd-ae)^2(-4aBe-3Abe+7bBd)}{e^8(d+ex)}-\frac{5b^2(bd-ae)^3(-3aBe-4Abe+7bBd)}{2e^8(d+ex)^2}+\frac{b(bd-ae)^4(-2aBe-5Abe+7bBd)}{e^8(d+ex)^3}-\frac{(bd-ae)^5(-aBe-6Abe+7bBd)}{4e^8(d+ex)^4}+\frac{(bd-ae)^6(Bd-Ae)}{5e^8(d+ex)^5}+\frac{b^6Bx^2}{2e^6}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^6*(A + B*x))/(d + e*x)^6,x]
```



```
[Out] -((b^5*(6*b*B*d - A*b*e - 6*a*B*e)*x)/e^7) + (b^6*B*x^2)/(2*e^6)
+ ((b*d - a*e)^6*(B*d - A*e))/(5*e^8*(d + e*x)^5) - ((b*d - a*e)^
5*(7*b*B*d - 6*A*b*e - a*B*e))/(4*e^8*(d + e*x)^4) + (b*(b*d - a*
e)^4*(7*b*B*d - 5*A*b*e - 2*a*B*e))/(e^8*(d + e*x)^3) - (5*b^2*(b
*d - a*e)^3*(7*b*B*d - 4*A*b*e - 3*a*B*e))/(2*e^8*(d + e*x)^2) +
(5*b^3*(b*d - a*e)^2*(7*b*B*d - 3*A*b*e - 4*a*B*e))/(e^8*(d + e*x
)) + (3*b^4*(b*d - a*e)*(7*b*B*d - 2*A*b*e - 5*a*B*e)*Log[d + e*x
])/e^8
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{Bb^6\int x\,dx}{e^6}+\frac{3b^4(ae-bd)(2Abe+5Bae-7Bbd)\log(d+ex)}{e^8}-\frac{5b^3(ae-bd)^2(3Abe+4Bae-7Bbd)}{e^8(d+ex)}-\frac{5b^2(ae-bd)^3(4Abe+3Bae-7Bbd)}{2e^8(d+ex)^2}-\frac{b(ae-bd)^4(5Abe+2Bae-7Bbd)}{e^8(d+ex)^3}+\frac{(Abe+6Bae-6Bbd)\int b^5\,dx}{e^7}-\frac{(ae-bd)^5(6Abe+Bae-7Bbd)}{4e^8(d+ex)^4}-\frac{(Ae-Bd)(ae-bd)^6}{5e^8(d+ex)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**6*(B*x+A)/(e*x+d)**6,x)
```

```
[Out] B*b**6*Integral(x, x)/e**6 + 3*b**4*(a*e - b*d)*(2*A*b*e + 5*B*a*
e - 7*B*b*d)*log(d + e*x)/e**8 - 5*b**3*(a*e - b*d)**2*(3*A*b*e +
 4*B*a*e - 7*B*b*d)/(e**8*(d + e*x)) - 5*b**2*(a*e - b*d)**3*(4*A
*b*e + 3*B*a*e - 7*B*b*d)/(2*e**8*(d + e*x)**2) - b*(a*e - b*d)**
4*(5*A*b*e + 2*B*a*e - 7*B*b*d)/(e**8*(d + e*x)**3) + (A*b*e + 6*
B*a*e - 6*B*b*d)*Integral(b**5, x)/e**7 - (a*e - b*d)**5*(6*A*b*e
 + B*a*e - 7*B*b*d)/(4*e**8*(d + e*x)**4) - (A*e - B*d)*(a*e - b*
d)**6/(5*e**8*(d + e*x)**5)
```

Mathematica [B] time = 0.648653, size = 633, normalized size = 2.33

$$-a^6e^6(4Ae + B(d + 5ex)) - 2a^5be^5\left(3Ae(d + 5ex) + 2B\left(d^2 + 5dex + 10e^2x^2\right)\right) - 5a^4b^2e^4\left(2Ae\left(d^2 + 5dex + 10e^2x^2\right) + 3B\left(d\right.\right.$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^6*(A + B*x))/(d + e*x)^6,x]
```

```
[Out] (-(a^6*e^6*(4*A*e + B*(d + 5*e*x))) - 2*a^5*b*e^5*(3*A*e*(d + 5*e
*x) + 2*B*(d^2 + 5*d*e*x + 10*e^2*x^2)) - 5*a^4*b^2*e^4*(2*A*e*(d
^2 + 5*d*e*x + 10*e^2*x^2) + 3*B*(d^3 + 5*d^2*e*x + 10*d*e^2*x^2
+ 10*e^3*x^3)) - 20*a^3*b^3*e^3*(A*e*(d^3 + 5*d^2*e*x + 10*d*e^2*
x^2 + 10*e^3*x^3) + 4*B*(d^4 + 5*d^3*e*x + 10*d^2*e^2*x^2 + 10*d*
e^3*x^3 + 5*e^4*x^4)) + 5*a^2*b^4*e^2*(-12*A*e*(d^4 + 5*d^3*e*x +
 10*d^2*e^2*x^2 + 10*d*e^3*x^3 + 5*e^4*x^4) + B*d*(137*d^4 + 625*
d^3*e*x + 1100*d^2*e^2*x^2 + 900*d*e^3*x^3 + 300*e^4*x^4)) + 2*a*
b^5*e*(A*d*e*(137*d^4 + 625*d^3*e*x + 1100*d^2*e^2*x^2 + 900*d*e^
3*x^3 + 300*e^4*x^4) - 6*B*(87*d^6 + 375*d^5*e*x + 600*d^4*e^2*x^
2 + 400*d^3*e^3*x^3 + 50*d^2*e^4*x^4 - 50*d*e^5*x^5 - 10*e^6*x^6)
) + b^6*(-2*A*e*(87*d^6 + 375*d^5*e*x + 600*d^4*e^2*x^2 + 400*d^3
*e^3*x^3 + 50*d^2*e^4*x^4 - 50*d*e^5*x^5 - 10*e^6*x^6) + B*(459*d
^7 + 1875*d^6*e*x + 2700*d^5*e^2*x^2 + 1300*d^4*e^3*x^3 - 400*d^3
*e^4*x^4 - 500*d^2*e^5*x^5 - 70*d*e^6*x^6 + 10*e^7*x^7)) + 60*b^4
*(b*d - a*e)*(7*b*B*d - 2*A*b*e - 5*a*B*e)*(d + e*x)^5*Log[d + e*
x])/(20*e^8*(d + e*x)^5)
```

Maple [B] time = 0.029, size = 1202, normalized size = 4.4

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^6*(B*x+A)/(e*x+d)^6,x)
```

```
[Out] 1/5/e^8/(e*x+d)^5*b^6*B*d^7-5*b^2/e^3/(e*x+d)^3*A*a^4-5*b^6/e^7/(
e*x+d)^3*A*d^4-2*b/e^3/(e*x+d)^3*B*a^5+7*b^6/e^8/(e*x+d)^3*B*d^5-
15*b^4/e^5/(e*x+d)*A*a^2-15*b^6/e^7/(e*x+d)*A*d^2-20*b^3/e^5/(e*x
+d)*B*a^3+35*b^6/e^8/(e*x+d)*B*d^3-10*b^3/e^4/(e*x+d)^2*A*a^3+10*
b^6/e^7/(e*x+d)^2*A*d^3-15/2*b^2/e^4/(e*x+d)^2*B*a^4-35/2*b^6/e^8
/(e*x+d)^2*B*d^4+6*b^5/e^6*B*a*x-6*b^6/e^7*B*d*x+6*b^5/e^6*ln(e*x
+d)*A*a-6*b^6/e^7*ln(e*x+d)*A*d+15*b^4/e^6*ln(e*x+d)*B*a^2+21*b^6
/e^8*ln(e*x+d)*B*d^2-6/5/e^3/(e*x+d)^5*B*d^2*a^5*b+3/e^4/(e*x+d)^
5*B*d^3*a^4*b^2-4/e^5/(e*x+d)^5*B*d^4*a^3*b^3+3/e^6/(e*x+d)^5*B*d
^5*a^2*b^4-6/5/e^7/(e*x+d)^5*B*a*b^5*d^6+20*b^3/e^4/(e*x+d)^3*A*a
^3*d-30*b^4/e^5/(e*x+d)^3*A*a^2*d^2+b^6/e^6*A*x-1/4/e^2/(e*x+d)^4
*B*a^6-1/5/e/(e*x+d)^5*a^6*A-7/4/e^8/(e*x+d)^4*b^6*B*d^6-1/5/e^7/
(e*x+d)^5*A*b^6*d^6+1/5/e^2/(e*x+d)^5*B*d*a^6+1/2*b^6*B*x^2/e^6-3
0*b^5/e^6/(e*x+d)^2*A*a*d^2+40*b^3/e^5/(e*x+d)^2*B*a^3*d-75*b^4/e
^6/(e*x+d)^2*B*a^2*d^2+60*b^5/e^7/(e*x+d)^2*B*a*d^3+15/2/e^3/(e*x
+d)^4*A*a^4*b^2*d-15/e^4/(e*x+d)^4*A*a^3*b^3*d^2+15/e^5/(e*x+d)^4
*A*a^2*b^4*d^3-15/2/e^6/(e*x+d)^4*A*a*b^5*d^4+3/e^3/(e*x+d)^4*B*a
^5*b*d-45/4/e^4/(e*x+d)^4*B*a^4*b^2*d^2+20/e^5/(e*x+d)^4*B*a^3*b^
```

```
3*d^3-75/4/e^6/(e*x+d)^4*B*a^2*b^4*d^4+9/e^7/(e*x+d)^4*B*a*b^5*d^
5+6/5/e^2/(e*x+d)^5*A*d*a^5*b-3/e^3/(e*x+d)^5*A*d^2*a^4*b^2+4/e^4
/(e*x+d)^5*A*d^3*a^3*b^3-3/e^5/(e*x+d)^5*A*d^4*a^2*b^4+6/5/e^6/(e
*x+d)^5*A*d^5*a*b^5+75*b^4/e^6/(e*x+d)*B*a^2*d-90*b^5/e^7/(e*x+d)
*B*d^2*a+30*b^4/e^5/(e*x+d)^2*A*a^2*d+20*b^5/e^6/(e*x+d)^3*A*a*d^
3-36*b^5/e^7*ln(e*x+d)*B*d*a+15*b^2/e^4/(e*x+d)^3*B*a^4*d-40*b^3/
e^5/(e*x+d)^3*B*a^3*d^2+50*b^4/e^6/(e*x+d)^3*B*a^2*d^3-30*b^5/e^7
/(e*x+d)^3*B*a*d^4+30*b^5/e^6/(e*x+d)*A*d*a-3/2/e^2/(e*x+d)^4*A*a
^5*b+3/2/e^7/(e*x+d)^4*A*b^6*d^5
```

Maxima [A] time = 1.42056, size = 1099, normalized size = 4.04

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6/(e*x + d)^6,x, algorithm="maxima")
```

```
[Out] 1/20*(459*B*b^6*d^7 - 4*A*a^6*e^7 - 174*(6*B*a*b^5 + A*b^6)*d^6*e
 + 137*(5*B*a^2*b^4 + 2*A*a*b^5)*d^5*e^2 - 20*(4*B*a^3*b^3 + 3*A*
a^2*b^4)*d^4*e^3 - 5*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d^3*e^4 - 2*(2*B
*a^5*b + 5*A*a^4*b^2)*d^2*e^5 - (B*a^6 + 6*A*a^5*b)*d*e^6 + 100*(
7*B*b^6*d^3*e^4 - 3*(6*B*a*b^5 + A*b^6)*d^2*e^5 + 3*(5*B*a^2*b^4
+ 2*A*a*b^5)*d*e^6 - (4*B*a^3*b^3 + 3*A*a^2*b^4)*e^7)*x^4 + 50*(4
9*B*b^6*d^4*e^3 - 20*(6*B*a*b^5 + A*b^6)*d^3*e^4 + 18*(5*B*a^2*b^
4 + 2*A*a*b^5)*d^2*e^5 - 4*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d*e^6 - (3
*B*a^4*b^2 + 4*A*a^3*b^3)*e^7)*x^3 + 10*(329*B*b^6*d^5*e^2 - 130*
(6*B*a*b^5 + A*b^6)*d^4*e^3 + 110*(5*B*a^2*b^4 + 2*A*a*b^5)*d^3*e
^4 - 20*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^2*e^5 - 5*(3*B*a^4*b^2 + 4*
A*a^3*b^3)*d*e^6 - 2*(2*B*a^5*b + 5*A*a^4*b^2)*e^7)*x^2 + 5*(399*
B*b^6*d^6*e - 154*(6*B*a*b^5 + A*b^6)*d^5*e^2 + 125*(5*B*a^2*b^4
+ 2*A*a*b^5)*d^4*e^3 - 20*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^3*e^4 - 5
*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d^2*e^5 - 2*(2*B*a^5*b + 5*A*a^4*b^2
)*d*e^6 - (B*a^6 + 6*A*a^5*b)*e^7)*x)/(e^13*x^5 + 5*d*e^12*x^4 +
10*d^2*e^11*x^3 + 10*d^3*e^10*x^2 + 5*d^4*e^9*x + d^5*e^8) + 1/2*
(B*b^6*e*x^2 - 2*(6*B*b^6*d - (6*B*a*b^5 + A*b^6)*e)*x)/e^7 + 3*(
7*B*b^6*d^2 - 2*(6*B*a*b^5 + A*b^6)*d*e + (5*B*a^2*b^4 + 2*A*a*b^
5)*e^2)*log(e*x + d)/e^8
```

Fricas [A] time = 0.224599, size = 1562, normalized size = 5.74

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6/(e*x + d)^6,x, algorithm="fricas")
```

```
[Out] 1/20*(10*B*b^6*e^7*x^7 + 459*B*b^6*d^7 - 4*A*a^6*e^7 - 174*(6*B*a
*b^5 + A*b^6)*d^6*e + 137*(5*B*a^2*b^4 + 2*A*a*b^5)*d^5*e^2 - 20*
(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^4*e^3 - 5*(3*B*a^4*b^2 + 4*A*a^3*b^
3)*d^3*e^4 - 2*(2*B*a^5*b + 5*A*a^4*b^2)*d^2*e^5 - (B*a^6 + 6*A*a
^5*b)*d*e^6 - 10*(7*B*b^6*d*e^6 - 2*(6*B*a*b^5 + A*b^6)*e^7)*x^6
- 100*(5*B*b^6*d^2*e^5 - (6*B*a*b^5 + A*b^6)*d*e^6)*x^5 - 100*(4*
B*b^6*d^3*e^4 + (6*B*a*b^5 + A*b^6)*d^2*e^5 - 3*(5*B*a^2*b^4 + 2*
A*a*b^5)*d*e^6 + (4*B*a^3*b^3 + 3*A*a^2*b^4)*e^7)*x^4 + 50*(26*B*
b^6*d^4*e^3 - 16*(6*B*a*b^5 + A*b^6)*d^3*e^4 + 18*(5*B*a^2*b^4 +
2*A*a*b^5)*d^2*e^5 - 4*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d*e^6 - (3*B*a
^4*b^2 + 4*A*a^3*b^3)*e^7)*x^3 + 10*(270*B*b^6*d^5*e^2 - 120*(6*B
*a*b^5 + A*b^6)*d^4*e^3 + 110*(5*B*a^2*b^4 + 2*A*a*b^5)*d^3*e^4 -
 20*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^2*e^5 - 5*(3*B*a^4*b^2 + 4*A*a^
3*b^3)*d*e^6 - 2*(2*B*a^5*b + 5*A*a^4*b^2)*e^7)*x^2 + 5*(375*B*b^
6*d^6*e - 150*(6*B*a*b^5 + A*b^6)*d^5*e^2 + 125*(5*B*a^2*b^4 + 2*
A*a*b^5)*d^4*e^3 - 20*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^3*e^4 - 5*(3*
B*a^4*b^2 + 4*A*a^3*b^3)*d^2*e^5 - 2*(2*B*a^5*b + 5*A*a^4*b^2)*d*
e^6 - (B*a^6 + 6*A*a^5*b)*e^7)*x + 60*(7*B*b^6*d^7 - 2*(6*B*a*b^5
```

```
 + A*b^6)*d^6*e + (5*B*a^2*b^4 + 2*A*a*b^5)*d^5*e^2 + (7*B*b^6*d^
2*e^5 - 2*(6*B*a*b^5 + A*b^6)*d*e^6 + (5*B*a^2*b^4 + 2*A*a*b^5)*e
^7)*x^5 + 5*(7*B*b^6*d^3*e^4 - 2*(6*B*a*b^5 + A*b^6)*d^2*e^5 + (5
*B*a^2*b^4 + 2*A*a*b^5)*d*e^6)*x^4 + 10*(7*B*b^6*d^4*e^3 - 2*(6*B
*a*b^5 + A*b^6)*d^3*e^4 + (5*B*a^2*b^4 + 2*A*a*b^5)*d^2*e^5)*x^3
+ 10*(7*B*b^6*d^5*e^2 - 2*(6*B*a*b^5 + A*b^6)*d^4*e^3 + (5*B*a^2*
b^4 + 2*A*a*b^5)*d^3*e^4)*x^2 + 5*(7*B*b^6*d^6*e - 2*(6*B*a*b^5 +
 A*b^6)*d^5*e^2 + (5*B*a^2*b^4 + 2*A*a*b^5)*d^4*e^3)*x)*log(e*x +
 d))/(e^13*x^5 + 5*d*e^12*x^4 + 10*d^2*e^11*x^3 + 10*d^3*e^10*x^2
 + 5*d^4*e^9*x + d^5*e^8)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**6*(B*x+A)/(e*x+d)**6,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.229194, size = 1052, normalized size = 3.87

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6/(e*x + d)^6,x, algorithm="giac")
```

```
[Out] 3*(7*B*b^6*d^2 - 12*B*a*b^5*d*e - 2*A*b^6*d*e + 5*B*a^2*b^4*e^2 +
 2*A*a*b^5*e^2)*e^(-8)*ln(abs(x*e + d)) + 1/2*(B*b^6*x^2*e^6 - 12
*B*b^6*d*x*e^5 + 12*B*a*b^5*x*e^6 + 2*A*b^6*x*e^6)*e^(-12) + 1/20
*(459*B*b^6*d^7 - 1044*B*a*b^5*d^6*e - 174*A*b^6*d^6*e + 685*B*a^
2*b^4*d^5*e^2 + 274*A*a*b^5*d^5*e^2 - 80*B*a^3*b^3*d^4*e^3 - 60*A
*a^2*b^4*d^4*e^3 - 15*B*a^4*b^2*d^3*e^4 - 20*A*a^3*b^3*d^3*e^4 -
4*B*a^5*b*d^2*e^5 - 10*A*a^4*b^2*d^2*e^5 - B*a^6*d*e^6 - 6*A*a^5*
b*d*e^6 - 4*A*a^6*e^7 + 100*(7*B*b^6*d^3*e^4 - 18*B*a*b^5*d^2*e^5
 - 3*A*b^6*d^2*e^5 + 15*B*a^2*b^4*d*e^6 + 6*A*a*b^5*d*e^6 - 4*B*a
^3*b^3*e^7 - 3*A*a^2*b^4*e^7)*x^4 + 50*(49*B*b^6*d^4*e^3 - 120*B*
a*b^5*d^3*e^4 - 20*A*b^6*d^3*e^4 + 90*B*a^2*b^4*d^2*e^5 + 36*A*a*
b^5*d^2*e^5 - 16*B*a^3*b^3*d*e^6 - 12*A*a^2*b^4*d*e^6 - 3*B*a^4*b
^2*e^7 - 4*A*a^3*b^3*e^7)*x^3 + 10*(329*B*b^6*d^5*e^2 - 780*B*a*b
^5*d^4*e^3 - 130*A*b^6*d^4*e^3 + 550*B*a^2*b^4*d^3*e^4 + 220*A*a*
b^5*d^3*e^4 - 80*B*a^3*b^3*d^2*e^5 - 60*A*a^2*b^4*d^2*e^5 - 15*B*
a^4*b^2*d*e^6 - 20*A*a^3*b^3*d*e^6 - 4*B*a^5*b*e^7 - 10*A*a^4*b^2
*e^7)*x^2 + 5*(399*B*b^6*d^6*e - 924*B*a*b^5*d^5*e^2 - 154*A*b^6*
d^5*e^2 + 625*B*a^2*b^4*d^4*e^3 + 250*A*a*b^5*d^4*e^3 - 80*B*a^3*
b^3*d^3*e^4 - 60*A*a^2*b^4*d^3*e^4 - 15*B*a^4*b^2*d^2*e^5 - 20*A*
a^3*b^3*d^2*e^5 - 4*B*a^5*b*d*e^6 - 10*A*a^4*b^2*d*e^6 - B*a^6*e^
7 - 6*A*a^5*b*e^7)*x)*e^(-8)/(x*e + d)^5
```

3.1049 $\int \frac{(a+bx)^6(A+Bx)}{(d+ex)^7} dx$

Optimal. Leaf size=278

$$-\frac{b^5\log(d+ex)(-6aBe-Abe+7bBd)}{e^8}-\frac{3b^4(bd-ae)(-5aBe-2Abe+7bBd)}{e^8(d+ex)}+\frac{5b^3(bd-ae)^2(-4aBe-3Abe+7bBd)}{2e^8(d+ex)^2}-\frac{5b^2(bd-ae)^3(-3aBe-4Abe+7bBd)}{3e^8(d+ex)^3}+\frac{3b(bd-ae)^4(-2aBe-5Abe+7bBd)}{4e^8(d+ex)^4}-\frac{(bd-ae)^5(-aBe-6Abe+7bBd)}{5e^8(d+ex)^5}+\frac{(bd-ae)^6(Bd-Ae)}{6e^8(d+ex)^6}+\frac{b^6Bx}{e^7}$$

```
[Out] (b^6*B*x)/e^7 + ((b*d - a*e)^6*(B*d - A*e))/(6*e^8*(d + e*x)^6) -
 ((b*d - a*e)^5*(7*b*B*d - 6*A*b*e - a*B*e))/(5*e^8*(d + e*x)^5)
+ (3*b*(b*d - a*e)^4*(7*b*B*d - 5*A*b*e - 2*a*B*e))/(4*e^8*(d + e
*x)^4) - (5*b^2*(b*d - a*e)^3*(7*b*B*d - 4*A*b*e - 3*a*B*e))/(3*e
^8*(d + e*x)^3) + (5*b^3*(b*d - a*e)^2*(7*b*B*d - 3*A*b*e - 4*a*B
*e))/(2*e^8*(d + e*x)^2) - (3*b^4*(b*d - a*e)*(7*b*B*d - 2*A*b*e
- 5*a*B*e))/(e^8*(d + e*x)) - (b^5*(7*b*B*d - A*b*e - 6*a*B*e)*Lo
g[d + e*x])/e^8
```

Rubi [A] time = 1.02532, antiderivative size = 278, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{b^5\log(d+ex)(-6aBe-Abe+7bBd)}{e^8}-\frac{3b^4(bd-ae)(-5aBe-2Abe+7bBd)}{e^8(d+ex)}+\frac{5b^3(bd-ae)^2(-4aBe-3Abe+7bBd)}{2e^8(d+ex)^2}-\frac{5b^2(bd-ae)^3(-3aBe-4Abe+7bBd)}{3e^8(d+ex)^3}+\frac{3b(bd-ae)^4(-2aBe-5Abe+7bBd)}{4e^8(d+ex)^4}-\frac{(bd-ae)^5(-aBe-6Abe+7bBd)}{5e^8(d+ex)^5}+\frac{(bd-ae)^6(Bd-Ae)}{6e^8(d+ex)^6}+\frac{b^6Bx}{e^7}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^6*(A + B*x))/(d + e*x)^7,x]
```

```
[Out] (b^6*B*x)/e^7 + ((b*d - a*e)^6*(B*d - A*e))/(6*e^8*(d + e*x)^6) -
 ((b*d - a*e)^5*(7*b*B*d - 6*A*b*e - a*B*e))/(5*e^8*(d + e*x)^5)
+ (3*b*(b*d - a*e)^4*(7*b*B*d - 5*A*b*e - 2*a*B*e))/(4*e^8*(d + e
*x)^4) - (5*b^2*(b*d - a*e)^3*(7*b*B*d - 4*A*b*e - 3*a*B*e))/(3*e
^8*(d + e*x)^3) + (5*b^3*(b*d - a*e)^2*(7*b*B*d - 3*A*b*e - 4*a*B
*e))/(2*e^8*(d + e*x)^2) - (3*b^4*(b*d - a*e)*(7*b*B*d - 2*A*b*e
- 5*a*B*e))/(e^8*(d + e*x)) - (b^5*(7*b*B*d - A*b*e - 6*a*B*e)*Lo
g[d + e*x])/e^8
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{b^6\int B\,dx}{e^7}+\frac{b^5\left(Abe+6Bae-7Bbd\right)\log\left(d+ex\right)}{e^8}-\frac{3b^4\left(ae-bd\right)\left(2Abe+5Bae-7Bbd\right)}{e^8\left(d+ex\right)}-\frac{5b^3\left(ae-bd\right)^2\left(3Abe+4Bae-7Bbd\right)}{2e^8\left(d+ex\right)^2}-\frac{5b^2\left(ae-bd\right)^3\left(4Abe+3Bae-7Bbd\right)}{3e^8\left(d+ex\right)^3}-\frac{3b\left(ae-bd\right)^4\left(5Abe+2Bae-7Bbd\right)}{4e^8\left(d+ex\right)^4}-\frac{\left(ae-bd\right)^5\left(6Abe+Bae-7Bbd\right)}{5e^8\left(d+ex\right)^5}-\frac{\left(Ae-Bd\right)\left(ae-bd\right)^6}{6e^8\left(d+ex\right)^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**6*(B*x+A)/(e*x+d)**7,x)
```

```
[Out] b**6*Integral(B, x)/e**7 + b**5*(A*b*e + 6*B*a*e - 7*B*b*d)*log(d
 + e*x)/e**8 - 3*b**4*(a*e - b*d)*(2*A*b*e + 5*B*a*e - 7*B*b*d)/(
e**8*(d + e*x)) - 5*b**3*(a*e - b*d)**2*(3*A*b*e + 4*B*a*e - 7*B*
b*d)/(2*e**8*(d + e*x)**2) - 5*b**2*(a*e - b*d)**3*(4*A*b*e + 3*B
*a*e - 7*B*b*d)/(3*e**8*(d + e*x)**3) - 3*b*(a*e - b*d)**4*(5*A*b
*e + 2*B*a*e - 7*B*b*d)/(4*e**8*(d + e*x)**4) - (a*e - b*d)**5*(6
*A*b*e + B*a*e - 7*B*b*d)/(5*e**8*(d + e*x)**5) - (A*e - B*d)*(a*
e - b*d)**6/(6*e**8*(d + e*x)**6)
```

Mathematica [B] time = 0.644549, size = 619, normalized size = 2.23

$$-\frac{2a^6e^6(5Ae + B(d + 6ex)) + 6a^5be^5\left(2Ae(d + 6ex) + B\left(d^2 + 6dex + 15e^2x^2\right)\right) + 15a^4b^2e^4\left(Ae\left(d^2 + 6dex + 15e^2x^2\right) + B\left(d^3\right.\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^6*(A + B*x))/(d + e*x)^7,x]
```

```
[Out] -(2*a^6*e^6*(5*A*e + B*(d + 6*e*x)) + 6*a^5*b*e^5*(2*A*e*(d + 6*e
*x) + B*(d^2 + 6*d*e*x + 15*e^2*x^2)) + 15*a^4*b^2*e^4*(A*e*(d^2
+ 6*d*e*x + 15*e^2*x^2) + B*(d^3 + 6*d^2*e*x + 15*d*e^2*x^2 + 20*
e^3*x^3)) + 20*a^3*b^3*e^3*(A*e*(d^3 + 6*d^2*e*x + 15*d*e^2*x^2 +
 20*e^3*x^3) + 2*B*(d^4 + 6*d^3*e*x + 15*d^2*e^2*x^2 + 20*d*e^3*x
^3 + 15*e^4*x^4)) + 30*a^2*b^4*e^2*(A*e*(d^4 + 6*d^3*e*x + 15*d^2
*e^2*x^2 + 20*d*e^3*x^3 + 15*e^4*x^4) + 5*B*(d^5 + 6*d^4*e*x + 15
*d^3*e^2*x^2 + 20*d^2*e^3*x^3 + 15*d*e^4*x^4 + 6*e^5*x^5)) - 6*a*
b^5*e*(-10*A*e*(d^5 + 6*d^4*e*x + 15*d^3*e^2*x^2 + 20*d^2*e^3*x^3
 + 15*d*e^4*x^4 + 6*e^5*x^5) + B*d*(147*d^5 + 822*d^4*e*x + 1875*
d^3*e^2*x^2 + 2200*d^2*e^3*x^3 + 1350*d*e^4*x^4 + 360*e^5*x^5)) -
 b^6*(A*d*e*(147*d^5 + 822*d^4*e*x + 1875*d^3*e^2*x^2 + 2200*d^2*
e^3*x^3 + 1350*d*e^4*x^4 + 360*e^5*x^5) - B*(669*d^7 + 3594*d^6*e
*x + 7725*d^5*e^2*x^2 + 8200*d^4*e^3*x^3 + 4050*d^3*e^4*x^4 + 360
*d^2*e^5*x^5 - 360*d*e^6*x^6 - 60*e^7*x^7)) + 60*b^5*(7*b*B*d - A
*b*e - 6*a*B*e)*(d + e*x)^6*Log[d + e*x])/(60*e^8*(d + e*x)^6)
```

Maple [B] time = 0.022, size = 1217, normalized size = 4.4

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^6*(B*x+A)/(e*x+d)^7,x)
```

```
[Out] 21/4*b^6/e^8/(e*x+d)^4*B*d^5-6/5/e^2/(e*x+d)^5*A*a^5*b+6/5/e^7/(e
*x+d)^5*A*b^6*d^5-7/5/e^8/(e*x+d)^5*b^6*B*d^6-5*b^2/e^4/(e*x+d)^3
*B*a^4-35/3*b^6/e^8/(e*x+d)^3*B*d^4-6*b^5/e^6/(e*x+d)*A*a+6*b^6/e
^7/(e*x+d)*A*d-15*b^4/e^6/(e*x+d)*B*a^2-21*b^6/e^8/(e*x+d)*B*d^2-
1/5/e^2/(e*x+d)^5*B*a^6+b^6/e^7*ln(e*x+d)*A-1/6/e/(e*x+d)^6*a^6*A
-9/e^4/(e*x+d)^5*B*a^4*b^2*d^2+16/e^5/(e*x+d)^5*B*a^3*b^3*d^3-15/
e^6/(e*x+d)^5*B*a^2*b^4*d^4+36/5/e^7/(e*x+d)^5*B*a*b^5*d^5+5/2/e^
4/(e*x+d)^6*B*d^3*a^4*b^2-10/3/e^5/(e*x+d)^6*B*d^4*a^3*b^3+5/2/e^
6/(e*x+d)^6*B*d^5*a^2*b^4-1/e^7/(e*x+d)^6*B*d^6*a*b^5+20*b^4/e^5/
(e*x+d)^3*A*a^2*d-20*b^5/e^6/(e*x+d)^3*A*a*d^2+1/e^2/(e*x+d)^6*A*
d*a^5*b-5/2/e^3/(e*x+d)^6*A*d^2*a^4*b^2+80/3*b^3/e^5/(e*x+d)^3*B*
a^3*d-50*b^4/e^6/(e*x+d)^3*B*a^2*d^2+40*b^5/e^7/(e*x+d)^3*B*a*d^3
+36*b^5/e^7/(e*x+d)*B*d*a+15*b^5/e^6/(e*x+d)^2*A*d*a+75/2*b^4/e^6
/(e*x+d)^2*B*a^2*d-45*b^5/e^7/(e*x+d)^2*B*d^2*a+15*b^3/e^4/(e*x+d
)^4*A*a^3*d-45/2*b^4/e^5/(e*x+d)^4*A*a^2*d^2+15*b^5/e^6/(e*x+d)^4
*A*a*d^3+45/4*b^2/e^4/(e*x+d)^4*B*a^4*d-30*b^3/e^5/(e*x+d)^4*B*a^
3*d^2+75/2*b^4/e^6/(e*x+d)^4*B*a^2*d^3-45/2*b^5/e^7/(e*x+d)^4*B*a
*d^4+6/e^3/(e*x+d)^5*A*a^4*b^2*d-12/e^4/(e*x+d)^5*A*a^3*b^3*d^2+1
2/e^5/(e*x+d)^5*A*a^2*b^4*d^3-6/e^6/(e*x+d)^5*A*a*b^5*d^4+12/5/e^
3/(e*x+d)^5*B*a^5*b*d+10/3/e^4/(e*x+d)^6*A*d^3*a^3*b^3-5/2/e^5/(e
*x+d)^6*A*d^4*a^2*b^4+1/e^6/(e*x+d)^6*A*d^5*a*b^5-1/e^3/(e*x+d)^6
*B*d^2*a^5*b+b^6*B*x/e^7-15/4*b^6/e^7/(e*x+d)^4*A*d^4-3/2*b/e^3/(
```

```
e*x+d)^4*B*a^5-7*b^6/e^8*ln(e*x+d)*B*d-1/6/e^7/(e*x+d)^6*A*d^6*b^
6+1/6/e^2/(e*x+d)^6*B*d*a^6+1/6/e^8/(e*x+d)^6*b^6*B*d^7-20/3*b^3/
e^4/(e*x+d)^3*A*a^3+20/3*b^6/e^7/(e*x+d)^3*A*d^3-15/2*b^4/e^5/(e*
x+d)^2*A*a^2-15/2*b^6/e^7/(e*x+d)^2*A*d^2-10*b^3/e^5/(e*x+d)^2*B*
a^3+35/2*b^6/e^8/(e*x+d)^2*B*d^3-15/4*b^2/e^3/(e*x+d)^4*A*a^4+6*b
^5/e^7*ln(e*x+d)*B*a
```

Maxima [A] time = 1.4249, size = 1112, normalized size = 4.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6/(e*x + d)^7,x, algorithm="maxima")
```

```
[Out] B*b^6*x/e^7 - 1/60*(669*B*b^6*d^7 + 10*A*a^6*e^7 - 147*(6*B*a*b^5
 + A*b^6)*d^6*e + 30*(5*B*a^2*b^4 + 2*A*a*b^5)*d^5*e^2 + 10*(4*B*
a^3*b^3 + 3*A*a^2*b^4)*d^4*e^3 + 5*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d^
3*e^4 + 3*(2*B*a^5*b + 5*A*a^4*b^2)*d^2*e^5 + 2*(B*a^6 + 6*A*a^5*
b)*d*e^6 + 180*(7*B*b^6*d^2*e^5 - 2*(6*B*a*b^5 + A*b^6)*d*e^6 + (
5*B*a^2*b^4 + 2*A*a*b^5)*e^7)*x^5 + 150*(35*B*b^6*d^3*e^4 - 9*(6*
B*a*b^5 + A*b^6)*d^2*e^5 + 3*(5*B*a^2*b^4 + 2*A*a*b^5)*d*e^6 + (4
*B*a^3*b^3 + 3*A*a^2*b^4)*e^7)*x^4 + 100*(91*B*b^6*d^4*e^3 - 22*(
6*B*a*b^5 + A*b^6)*d^3*e^4 + 6*(5*B*a^2*b^4 + 2*A*a*b^5)*d^2*e^5
+ 2*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d*e^6 + (3*B*a^4*b^2 + 4*A*a^3*b^
3)*e^7)*x^3 + 15*(539*B*b^6*d^5*e^2 - 125*(6*B*a*b^5 + A*b^6)*d^4
*e^3 + 30*(5*B*a^2*b^4 + 2*A*a*b^5)*d^3*e^4 + 10*(4*B*a^3*b^3 + 3
*A*a^2*b^4)*d^2*e^5 + 5*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d*e^6 + 3*(2*
B*a^5*b + 5*A*a^4*b^2)*e^7)*x^2 + 6*(609*B*b^6*d^6*e - 137*(6*B*a
*b^5 + A*b^6)*d^5*e^2 + 30*(5*B*a^2*b^4 + 2*A*a*b^5)*d^4*e^3 + 10
*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^3*e^4 + 5*(3*B*a^4*b^2 + 4*A*a^3*b
^3)*d^2*e^5 + 3*(2*B*a^5*b + 5*A*a^4*b^2)*d*e^6 + 2*(B*a^6 + 6*A*
a^5*b)*e^7)*x)/(e^14*x^6 + 6*d*e^13*x^5 + 15*d^2*e^12*x^4 + 20*d^
3*e^11*x^3 + 15*d^4*e^10*x^2 + 6*d^5*e^9*x + d^6*e^8) - (7*B*b^6*
d - (6*B*a*b^5 + A*b^6)*e)*log(e*x + d)/e^8
```

Fricas [A] time = 0.222165, size = 1435, normalized size = 5.16

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6/(e*x + d)^7,x, algorithm="fricas")
```

```
[Out] 1/60*(60*B*b^6*e^7*x^7 + 360*B*b^6*d*e^6*x^6 - 669*B*b^6*d^7 - 10
*A*a^6*e^7 + 147*(6*B*a*b^5 + A*b^6)*d^6*e - 30*(5*B*a^2*b^4 + 2*
A*a*b^5)*d^5*e^2 - 10*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^4*e^3 - 5*(3*
B*a^4*b^2 + 4*A*a^3*b^3)*d^3*e^4 - 3*(2*B*a^5*b + 5*A*a^4*b^2)*d^
2*e^5 - 2*(B*a^6 + 6*A*a^5*b)*d*e^6 - 180*(2*B*b^6*d^2*e^5 - 2*(6
*B*a*b^5 + A*b^6)*d*e^6 + (5*B*a^2*b^4 + 2*A*a*b^5)*e^7)*x^5 - 15
0*(27*B*b^6*d^3*e^4 - 9*(6*B*a*b^5 + A*b^6)*d^2*e^5 + 3*(5*B*a^2*
b^4 + 2*A*a*b^5)*d*e^6 + (4*B*a^3*b^3 + 3*A*a^2*b^4)*e^7)*x^4 - 1
00*(82*B*b^6*d^4*e^3 - 22*(6*B*a*b^5 + A*b^6)*d^3*e^4 + 6*(5*B*a^
2*b^4 + 2*A*a*b^5)*d^2*e^5 + 2*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d*e^6
+ (3*B*a^4*b^2 + 4*A*a^3*b^3)*e^7)*x^3 - 15*(515*B*b^6*d^5*e^2 -
125*(6*B*a*b^5 + A*b^6)*d^4*e^3 + 30*(5*B*a^2*b^4 + 2*A*a*b^5)*d^
3*e^4 + 10*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^2*e^5 + 5*(3*B*a^4*b^2 +
 4*A*a^3*b^3)*d*e^6 + 3*(2*B*a^5*b + 5*A*a^4*b^2)*e^7)*x^2 - 6*(5
99*B*b^6*d^6*e - 137*(6*B*a*b^5 + A*b^6)*d^5*e^2 + 30*(5*B*a^2*b^
4 + 2*A*a*b^5)*d^4*e^3 + 10*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^3*e^4 +
 5*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d^2*e^5 + 3*(2*B*a^5*b + 5*A*a^4*b
^2)*d*e^6 + 2*(B*a^6 + 6*A*a^5*b)*e^7)*x - 60*(7*B*b^6*d^7 - (6*B
*a*b^5 + A*b^6)*d^6*e + (7*B*b^6*d*e^6 - (6*B*a*b^5 + A*b^6)*e^7)
*x^6 + 6*(7*B*b^6*d^2*e^5 - (6*B*a*b^5 + A*b^6)*d*e^6)*x^5 + 15*(
7*B*b^6*d^3*e^4 - (6*B*a*b^5 + A*b^6)*d^2*e^5)*x^4 + 20*(7*B*b^6*
```

```
d^4*e^3 - (6*B*a*b^5 + A*b^6)*d^3*e^4)*x^3 + 15*(7*B*b^6*d^5*e^2
- (6*B*a*b^5 + A*b^6)*d^4*e^3)*x^2 + 6*(7*B*b^6*d^6*e - (6*B*a*b^
5 + A*b^6)*d^5*e^2)*x)*log(e*x + d))/(e^14*x^6 + 6*d*e^13*x^5 + 1
5*d^2*e^12*x^4 + 20*d^3*e^11*x^3 + 15*d^4*e^10*x^2 + 6*d^5*e^9*x
+ d^6*e^8)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**6*(B*x+A)/(e*x+d)**7,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.233259, size = 1046, normalized size = 3.76

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6/(e*x + d)^7,x, algorithm="giac")
```

```
[Out] B*b^6*x*e^(-7) - (7*B*b^6*d - 6*B*a*b^5*e - A*b^6*e)*e^(-8)*ln(ab
s(x*e + d)) - 1/60*(669*B*b^6*d^7 - 882*B*a*b^5*d^6*e - 147*A*b^6
*d^6*e + 150*B*a^2*b^4*d^5*e^2 + 60*A*a*b^5*d^5*e^2 + 40*B*a^3*b^
3*d^4*e^3 + 30*A*a^2*b^4*d^4*e^3 + 15*B*a^4*b^2*d^3*e^4 + 20*A*a^
3*b^3*d^3*e^4 + 6*B*a^5*b*d^2*e^5 + 15*A*a^4*b^2*d^2*e^5 + 2*B*a^
6*d*e^6 + 12*A*a^5*b*d*e^6 + 10*A*a^6*e^7 + 180*(7*B*b^6*d^2*e^5
- 12*B*a*b^5*d*e^6 - 2*A*b^6*d*e^6 + 5*B*a^2*b^4*e^7 + 2*A*a*b^5*
e^7)*x^5 + 150*(35*B*b^6*d^3*e^4 - 54*B*a*b^5*d^2*e^5 - 9*A*b^6*d
^2*e^5 + 15*B*a^2*b^4*d*e^6 + 6*A*a*b^5*d*e^6 + 4*B*a^3*b^3*e^7 +
 3*A*a^2*b^4*e^7)*x^4 + 100*(91*B*b^6*d^4*e^3 - 132*B*a*b^5*d^3*e
^4 - 22*A*b^6*d^3*e^4 + 30*B*a^2*b^4*d^2*e^5 + 12*A*a*b^5*d^2*e^5
 + 8*B*a^3*b^3*d*e^6 + 6*A*a^2*b^4*d*e^6 + 3*B*a^4*b^2*e^7 + 4*A*
a^3*b^3*e^7)*x^3 + 15*(539*B*b^6*d^5*e^2 - 750*B*a*b^5*d^4*e^3 -
125*A*b^6*d^4*e^3 + 150*B*a^2*b^4*d^3*e^4 + 60*A*a*b^5*d^3*e^4 +
40*B*a^3*b^3*d^2*e^5 + 30*A*a^2*b^4*d^2*e^5 + 15*B*a^4*b^2*d*e^6
+ 20*A*a^3*b^3*d*e^6 + 6*B*a^5*b*e^7 + 15*A*a^4*b^2*e^7)*x^2 + 6*
(609*B*b^6*d^6*e - 822*B*a*b^5*d^5*e^2 - 137*A*b^6*d^5*e^2 + 150*
B*a^2*b^4*d^4*e^3 + 60*A*a*b^5*d^4*e^3 + 40*B*a^3*b^3*d^3*e^4 + 3
0*A*a^2*b^4*d^3*e^4 + 15*B*a^4*b^2*d^2*e^5 + 20*A*a^3*b^3*d^2*e^5
 + 6*B*a^5*b*d*e^6 + 15*A*a^4*b^2*d*e^6 + 2*B*a^6*e^7 + 12*A*a^5*
b*e^7)*x)*e^(-8)/(x*e + d)^6
```

3.1050 $\int \frac{(a+bx)^6(A+Bx)}{(d+ex)^8}\,dx$

Optimal. Leaf size=213

$$-\frac{(a+bx)^7(Bd-Ae)}{7e(d+ex)^7(bd-ae)}+\frac{6b^5B(bd-ae)}{e^8(d+ex)}-\frac{15b^4B(bd-ae)^2}{2e^8(d+ex)^2}+\frac{20b^3B(bd-ae)^3}{3e^8(d+ex)^3}-\frac{15b^2B(bd-ae)^4}{4e^8(d+ex)^4}+\frac{6bB(bd-ae)^5}{5e^8(d+ex)^5}-\frac{B(bd-ae)^6}{6e^8(d+ex)^6}+\frac{b^6B\log(d+ex)}{e^8}$$

```
[Out] -((B*d - A*e)*(a + b*x)^7)/(7*e*(b*d - a*e)*(d + e*x)^7) - (B*(b*
d - a*e)^6)/(6*e^8*(d + e*x)^6) + (6*b*B*(b*d - a*e)^5)/(5*e^8*(d
 + e*x)^5) - (15*b^2*B*(b*d - a*e)^4)/(4*e^8*(d + e*x)^4) + (20*b
^3*B*(b*d - a*e)^3)/(3*e^8*(d + e*x)^3) - (15*b^4*B*(b*d - a*e)^2
)/(2*e^8*(d + e*x)^2) + (6*b^5*B*(b*d - a*e))/(e^8*(d + e*x)) + (
b^6*B*Log[d + e*x])/e^8
```

Rubi [A] time = 0.529529, antiderivative size = 213, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 2, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.1$

$$-\frac{(a+bx)^7(Bd-Ae)}{7e(d+ex)^7(bd-ae)}+\frac{6b^5B(bd-ae)}{e^8(d+ex)}-\frac{15b^4B(bd-ae)^2}{2e^8(d+ex)^2}+\frac{20b^3B(bd-ae)^3}{3e^8(d+ex)^3}-\frac{15b^2B(bd-ae)^4}{4e^8(d+ex)^4}+\frac{6bB(bd-ae)^5}{5e^8(d+ex)^5}-\frac{B(bd-ae)^6}{6e^8(d+ex)^6}+\frac{b^6B\log(d+ex)}{e^8}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^6*(A + B*x))/(d + e*x)^8,x]
```

```
[Out] -((B*d - A*e)*(a + b*x)^7)/(7*e*(b*d - a*e)*(d + e*x)^7) - (B*(b*
d - a*e)^6)/(6*e^8*(d + e*x)^6) + (6*b*B*(b*d - a*e)^5)/(5*e^8*(d
 + e*x)^5) - (15*b^2*B*(b*d - a*e)^4)/(4*e^8*(d + e*x)^4) + (20*b
^3*B*(b*d - a*e)^3)/(3*e^8*(d + e*x)^3) - (15*b^4*B*(b*d - a*e)^2
)/(2*e^8*(d + e*x)^2) + (6*b^5*B*(b*d - a*e))/(e^8*(d + e*x)) + (
b^6*B*Log[d + e*x])/e^8
```

Rubi in Sympy [A] time = 74.5426, size = 196, normalized size = 0.92

$$\frac{Bb^6\log(d+ex)}{e^8}-\frac{6Bb^5(ae-bd)}{e^8(d+ex)}-\frac{15Bb^4(ae-bd)^2}{2e^8(d+ex)^2}-\frac{20Bb^3(ae-bd)^3}{3e^8(d+ex)^3}-\frac{15Bb^2(ae-bd)^4}{4e^8(d+ex)^4}-\frac{6Bb(ae-bd)^5}{5e^8(d+ex)^5}-\frac{B(ae-bd)^6}{6e^8(d+ex)^6}-\frac{(a+bx)^7(Ae-Bd)}{7e(d+ex)^7(ae-bd)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**6*(B*x+A)/(e*x+d)**8,x)
```

```
[Out] B*b**6*log(d + e*x)/e**8 - 6*B*b**5*(a*e - b*d)/(e**8*(d + e*x))
- 15*B*b**4*(a*e - b*d)**2/(2*e**8*(d + e*x)**2) - 20*B*b**3*(a*e
 - b*d)**3/(3*e**8*(d + e*x)**3) - 15*B*b**2*(a*e - b*d)**4/(4*e*
*8*(d + e*x)**4) - 6*B*b*(a*e - b*d)**5/(5*e**8*(d + e*x)**5) - B
*(a*e - b*d)**6/(6*e**8*(d + e*x)**6) - (a + b*x)**7*(A*e - B*d)/
(7*e*(d + e*x)**7*(a*e - b*d))
```

Mathematica [B] time = 3.09127, size = 615, normalized size = 2.89

$$-\frac{10a^6e^6(6Ae+B(d+7ex))+12a^5be^5\left(5Ae(d+7ex)+2B\left(d^2+7dex+21e^2x^2\right)\right)+15a^4b^2e^4\left(4Ae\left(d^2+7dex+21e^2x^2\right)+3\ldots\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^6*(A + B*x))/(d + e*x)^8,x]
```

```
[Out] -(10*a^6*e^6*(6*A*e + B*(d + 7*e*x)) + 12*a^5*b*e^5*(5*A*e*(d + 7
*e*x) + 2*B*(d^2 + 7*d*e*x + 21*e^2*x^2)) + 15*a^4*b^2*e^4*(4*A*e
*(d^2 + 7*d*e*x + 21*e^2*x^2) + 3*B*(d^3 + 7*d^2*e*x + 21*d*e^2*x
^2 + 35*e^3*x^3)) + 20*a^3*b^3*e^3*(3*A*e*(d^3 + 7*d^2*e*x + 21*d
*e^2*x^2 + 35*e^3*x^3) + 4*B*(d^4 + 7*d^3*e*x + 21*d^2*e^2*x^2 +
35*d*e^3*x^3 + 35*e^4*x^4)) + 30*a^2*b^4*e^2*(2*A*e*(d^4 + 7*d^3*
e*x + 21*d^2*e^2*x^2 + 35*d*e^3*x^3 + 35*e^4*x^4) + 5*B*(d^5 + 7*
d^4*e*x + 21*d^3*e^2*x^2 + 35*d^2*e^3*x^3 + 35*d*e^4*x^4 + 21*e^5
*x^5)) + 60*a*b^5*e*(A*e*(d^5 + 7*d^4*e*x + 21*d^3*e^2*x^2 + 35*d
^2*e^3*x^3 + 35*d*e^4*x^4 + 21*e^5*x^5) + 6*B*(d^6 + 7*d^5*e*x +
21*d^4*e^2*x^2 + 35*d^3*e^3*x^3 + 35*d^2*e^4*x^4 + 21*d*e^5*x^5 +
 7*e^6*x^6)) + b^6*(60*A*e*(d^6 + 7*d^5*e*x + 21*d^4*e^2*x^2 + 35
*d^3*e^3*x^3 + 35*d^2*e^4*x^4 + 21*d*e^5*x^5 + 7*e^6*x^6) - B*d*(
1089*d^6 + 7203*d^5*e*x + 20139*d^4*e^2*x^2 + 30625*d^3*e^3*x^3 +
 26950*d^2*e^4*x^4 + 13230*d*e^5*x^5 + 2940*e^6*x^6)) - 420*b^6*B
*(d + e*x)^7*Log[d + e*x])/(420*e^8*(d + e*x)^7)
```

Maple [B] time = 0.018, size = 1227, normalized size = 5.8

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^6*(B*x+A)/(e*x+d)^8,x)
```

```
[Out] -b^6/e^7/(e*x+d)*A-1/6/e^2/(e*x+d)^6*a^6*B-1/7/e/(e*x+d)^7*a^6*A+
5*b^6/e^7/(e*x+d)^4*A*d^3-15/4*b^2/e^4/(e*x+d)^4*B*a^4-35/4*b^6/e
^8/(e*x+d)^4*B*d^4-5*b^6/e^7/(e*x+d)^3*A*d^2-20/3*b^3/e^5/(e*x+d)
^3*B*a^3+35/3*b^6/e^8/(e*x+d)^3*B*d^3-6*b^5/e^7/(e*x+d)*B*a+7*b^6
/e^8/(e*x+d)*B*d-6/5*b/e^3/(e*x+d)^5*B*a^5+21/5*b^6/e^8/(e*x+d)^5
*B*d^5-5*b^3/e^4/(e*x+d)^4*A*a^3+b^6*B*ln(e*x+d)/e^8+9*b^2/e^4/(e
*x+d)^5*B*a^4*d-24*b^3/e^5/(e*x+d)^5*B*a^3*d^2+30*b^4/e^6/(e*x+d)
^5*B*a^2*d^3-18*b^5/e^7/(e*x+d)^5*B*a*d^4+10*b^5/e^6/(e*x+d)^3*A*
d*a+25*b^4/e^6/(e*x+d)^3*B*a^2*d-30*b^5/e^7/(e*x+d)^3*B*d^2*a+18*
b^5/e^7/(e*x+d)^2*B*d*a+15*b^4/e^5/(e*x+d)^4*A*a^2*d-15*b^5/e^6/(
e*x+d)^4*A*a*d^2+20*b^3/e^5/(e*x+d)^4*B*a^3*d-75/2*b^4/e^6/(e*x+d
)^4*B*a^2*d^2+30*b^5/e^7/(e*x+d)^4*B*a*d^3+12*b^3/e^4/(e*x+d)^5*A
*a^3*d-18*b^4/e^5/(e*x+d)^5*A*a^2*d^2-15/7/e^5/(e*x+d)^7*A*d^4*a^
2*b^4+6/7/e^6/(e*x+d)^7*A*d^5*a*b^5-6/7/e^3/(e*x+d)^7*B*d^2*a^5*b
+15/7/e^4/(e*x+d)^7*B*d^3*a^4*b^2-20/7/e^5/(e*x+d)^7*B*d^4*a^3*b^
3+15/7/e^6/(e*x+d)^7*B*d^5*a^2*b^4-6/7/e^7/(e*x+d)^7*B*d^6*a*b^5+
5/e^3/(e*x+d)^6*A*d*a^4*b^2-5/e^6/(e*x+d)^6*A*d^4*a*b^5+2/e^3/(e*
x+d)^6*B*d*a^5*b-15/2/e^4/(e*x+d)^6*B*d^2*a^4*b^2+40/3/e^5/(e*x+d
)^6*B*d^3*a^3*b^3-25/2/e^6/(e*x+d)^6*B*d^4*a^2*b^4+6/e^7/(e*x+d)^
6*B*d^5*a*b^5+6/7/e^2/(e*x+d)^7*A*d*a^5*b-15/7/e^3/(e*x+d)^7*A*d^
2*a^4*b^2+20/7/e^4/(e*x+d)^7*A*d^3*a^3*b^3-10/e^4/(e*x+d)^6*A*d^2
*a^3*b^3+10/e^5/(e*x+d)^6*A*d^3*a^2*b^4+12*b^5/e^6/(e*x+d)^5*A*a*
d^3-3*b^5/e^6/(e*x+d)^2*A*a+3*b^6/e^7/(e*x+d)^2*A*d-15/2*b^4/e^6/
(e*x+d)^2*B*a^2-21/2*b^6/e^8/(e*x+d)^2*B*d^2-1/e^2/(e*x+d)^6*A*a^
5*b+1/e^7/(e*x+d)^6*A*d^5*b^6-7/6/e^8/(e*x+d)^6*b^6*B*d^6-1/7/e^7
/(e*x+d)^7*A*d^6*b^6+1/7/e^2/(e*x+d)^7*B*d*a^6+1/7/e^8/(e*x+d)^7*
b^6*B*d^7-5*b^4/e^5/(e*x+d)^3*A*a^2-3*b^2/e^3/(e*x+d)^5*A*a^4-3*b
^6/e^7/(e*x+d)^5*A*d^4
```

Maxima [A] time = 1.40617, size = 1137, normalized size = 5.34

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6/(e*x + d)^8,x, algorithm="maxima")
```

```
[Out] 1/420*(1089*B*b^6*d^7 - 60*A*a^6*e^7 - 60*(6*B*a*b^5 + A*b^6)*d^6
*e - 30*(5*B*a^2*b^4 + 2*A*a*b^5)*d^5*e^2 - 20*(4*B*a^3*b^3 + 3*A
*a^2*b^4)*d^4*e^3 - 15*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d^3*e^4 - 12*(
2*B*a^5*b + 5*A*a^4*b^2)*d^2*e^5 - 10*(B*a^6 + 6*A*a^5*b)*d*e^6 +
 420*(7*B*b^6*d*e^6 - (6*B*a*b^5 + A*b^6)*e^7)*x^6 + 630*(21*B*b^
6*d^2*e^5 - 2*(6*B*a*b^5 + A*b^6)*d*e^6 - (5*B*a^2*b^4 + 2*A*a*b^
5)*e^7)*x^5 + 350*(77*B*b^6*d^3*e^4 - 6*(6*B*a*b^5 + A*b^6)*d^2*e
^5 - 3*(5*B*a^2*b^4 + 2*A*a*b^5)*d*e^6 - 2*(4*B*a^3*b^3 + 3*A*a^2
*b^4)*e^7)*x^4 + 175*(175*B*b^6*d^4*e^3 - 12*(6*B*a*b^5 + A*b^6)*
d^3*e^4 - 6*(5*B*a^2*b^4 + 2*A*a*b^5)*d^2*e^5 - 4*(4*B*a^3*b^3 +
3*A*a^2*b^4)*d*e^6 - 3*(3*B*a^4*b^2 + 4*A*a^3*b^3)*e^7)*x^3 + 21*
(959*B*b^6*d^5*e^2 - 60*(6*B*a*b^5 + A*b^6)*d^4*e^3 - 30*(5*B*a^2
*b^4 + 2*A*a*b^5)*d^3*e^4 - 20*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^2*e^
5 - 15*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d*e^6 - 12*(2*B*a^5*b + 5*A*a^
4*b^2)*e^7)*x^2 + 7*(1029*B*b^6*d^6*e - 60*(6*B*a*b^5 + A*b^6)*d^
5*e^2 - 30*(5*B*a^2*b^4 + 2*A*a*b^5)*d^4*e^3 - 20*(4*B*a^3*b^3 +
3*A*a^2*b^4)*d^3*e^4 - 15*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d^2*e^5 - 1
2*(2*B*a^5*b + 5*A*a^4*b^2)*d*e^6 - 10*(B*a^6 + 6*A*a^5*b)*e^7)*x
)/(e^15*x^7 + 7*d*e^14*x^6 + 21*d^2*e^13*x^5 + 35*d^3*e^12*x^4 +
35*d^4*e^11*x^3 + 21*d^5*e^10*x^2 + 7*d^6*e^9*x + d^7*e^8) + B*b^
6*log(e*x + d)/e^8
```

Fricas [A] time = 0.218354, size = 1268, normalized size = 5.95

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6/(e*x + d)^8,x, algorithm="fricas")
```

```
[Out] 1/420*(1089*B*b^6*d^7 - 60*A*a^6*e^7 - 60*(6*B*a*b^5 + A*b^6)*d^6
*e - 30*(5*B*a^2*b^4 + 2*A*a*b^5)*d^5*e^2 - 20*(4*B*a^3*b^3 + 3*A
*a^2*b^4)*d^4*e^3 - 15*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d^3*e^4 - 12*(
2*B*a^5*b + 5*A*a^4*b^2)*d^2*e^5 - 10*(B*a^6 + 6*A*a^5*b)*d*e^6 +
 420*(7*B*b^6*d*e^6 - (6*B*a*b^5 + A*b^6)*e^7)*x^6 + 630*(21*B*b^
6*d^2*e^5 - 2*(6*B*a*b^5 + A*b^6)*d*e^6 - (5*B*a^2*b^4 + 2*A*a*b^
5)*e^7)*x^5 + 350*(77*B*b^6*d^3*e^4 - 6*(6*B*a*b^5 + A*b^6)*d^2*e
^5 - 3*(5*B*a^2*b^4 + 2*A*a*b^5)*d*e^6 - 2*(4*B*a^3*b^3 + 3*A*a^2
*b^4)*e^7)*x^4 + 175*(175*B*b^6*d^4*e^3 - 12*(6*B*a*b^5 + A*b^6)*
d^3*e^4 - 6*(5*B*a^2*b^4 + 2*A*a*b^5)*d^2*e^5 - 4*(4*B*a^3*b^3 +
3*A*a^2*b^4)*d*e^6 - 3*(3*B*a^4*b^2 + 4*A*a^3*b^3)*e^7)*x^3 + 21*
(959*B*b^6*d^5*e^2 - 60*(6*B*a*b^5 + A*b^6)*d^4*e^3 - 30*(5*B*a^2
*b^4 + 2*A*a*b^5)*d^3*e^4 - 20*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^2*e^
5 - 15*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d*e^6 - 12*(2*B*a^5*b + 5*A*a^
4*b^2)*e^7)*x^2 + 7*(1029*B*b^6*d^6*e - 60*(6*B*a*b^5 + A*b^6)*d^
5*e^2 - 30*(5*B*a^2*b^4 + 2*A*a*b^5)*d^4*e^3 - 20*(4*B*a^3*b^3 +
3*A*a^2*b^4)*d^3*e^4 - 15*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d^2*e^5 - 1
2*(2*B*a^5*b + 5*A*a^4*b^2)*d*e^6 - 10*(B*a^6 + 6*A*a^5*b)*e^7)*x
 + 420*(B*b^6*e^7*x^7 + 7*B*b^6*d*e^6*x^6 + 21*B*b^6*d^2*e^5*x^5
+ 35*B*b^6*d^3*e^4*x^4 + 35*B*b^6*d^4*e^3*x^3 + 21*B*b^6*d^5*e^2*
x^2 + 7*B*b^6*d^6*e*x + B*b^6*d^7)*log(e*x + d))/(e^15*x^7 + 7*d*
e^14*x^6 + 21*d^2*e^13*x^5 + 35*d^3*e^12*x^4 + 35*d^4*e^11*x^3 +
21*d^5*e^10*x^2 + 7*d^6*e^9*x + d^7*e^8)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**6*(B*x+A)/(e*x+d)**8,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.236386, size = 1052, normalized size = 4.94

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6/(e*x + d)^8,x, algorithm="giac")
```

```
[Out] B*b^6*e^(-8)*ln(abs(x*e + d)) + 1/420*(420*(7*B*b^6*d*e^5 - 6*B*a
*b^5*e^6 - A*b^6*e^6)*x^6 + 630*(21*B*b^6*d^2*e^4 - 12*B*a*b^5*d*
e^5 - 2*A*b^6*d*e^5 - 5*B*a^2*b^4*e^6 - 2*A*a*b^5*e^6)*x^5 + 350*
(77*B*b^6*d^3*e^3 - 36*B*a*b^5*d^2*e^4 - 6*A*b^6*d^2*e^4 - 15*B*a
^2*b^4*d*e^5 - 6*A*a*b^5*d*e^5 - 8*B*a^3*b^3*e^6 - 6*A*a^2*b^4*e^
6)*x^4 + 175*(175*B*b^6*d^4*e^2 - 72*B*a*b^5*d^3*e^3 - 12*A*b^6*d
^3*e^3 - 30*B*a^2*b^4*d^2*e^4 - 12*A*a*b^5*d^2*e^4 - 16*B*a^3*b^3
*d*e^5 - 12*A*a^2*b^4*d*e^5 - 9*B*a^4*b^2*e^6 - 12*A*a^3*b^3*e^6)
*x^3 + 21*(959*B*b^6*d^5*e - 360*B*a*b^5*d^4*e^2 - 60*A*b^6*d^4*e
^2 - 150*B*a^2*b^4*d^3*e^3 - 60*A*a*b^5*d^3*e^3 - 80*B*a^3*b^3*d^
2*e^4 - 60*A*a^2*b^4*d^2*e^4 - 45*B*a^4*b^2*d*e^5 - 60*A*a^3*b^3*
d*e^5 - 24*B*a^5*b*e^6 - 60*A*a^4*b^2*e^6)*x^2 + 7*(1029*B*b^6*d^
6 - 360*B*a*b^5*d^5*e - 60*A*b^6*d^5*e - 150*B*a^2*b^4*d^4*e^2 -
60*A*a*b^5*d^4*e^2 - 80*B*a^3*b^3*d^3*e^3 - 60*A*a^2*b^4*d^3*e^3
- 45*B*a^4*b^2*d^2*e^4 - 60*A*a^3*b^3*d^2*e^4 - 24*B*a^5*b*d*e^5
- 60*A*a^4*b^2*d*e^5 - 10*B*a^6*e^6 - 60*A*a^5*b*e^6)*x + (1089*B
*b^6*d^7 - 360*B*a*b^5*d^6*e - 60*A*b^6*d^6*e - 150*B*a^2*b^4*d^5
*e^2 - 60*A*a*b^5*d^5*e^2 - 80*B*a^3*b^3*d^4*e^3 - 60*A*a^2*b^4*d
^4*e^3 - 45*B*a^4*b^2*d^3*e^4 - 60*A*a^3*b^3*d^3*e^4 - 24*B*a^5*b
*d^2*e^5 - 60*A*a^4*b^2*d^2*e^5 - 10*B*a^6*d*e^6 - 60*A*a^5*b*d*e
^6 - 60*A*a^6*e^7)*e^(-1))*e^(-7)/(x*e + d)^7
```

3.1051 $\int \frac{(a+bx)^6(A+Bx)}{(d+ex)^9}\,dx$

Optimal. Leaf size=86

$$\frac{(a+bx)^7(-8aBe+Abe+7bBd)}{56e(d+ex)^7(bd-ae)^2}-\frac{(a+bx)^7(Bd-Ae)}{8e(d+ex)^8(bd-ae)}$$

```
[Out] -((B*d - A*e)*(a + b*x)^7)/(8*e*(b*d - a*e)*(d + e*x)^8) + ((7*b*
B*d + A*b*e - 8*a*B*e)*(a + b*x)^7)/(56*e*(b*d - a*e)^2*(d + e*x)
^7)
```

Rubi [A] time = 0.117163, antiderivative size = 86, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.1$

$$\frac{(a+bx)^7(-8aBe+Abe+7bBd)}{56e(d+ex)^7(bd-ae)^2}-\frac{(a+bx)^7(Bd-Ae)}{8e(d+ex)^8(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^6*(A + B*x))/(d + e*x)^9,x]
```

```
[Out] -((B*d - A*e)*(a + b*x)^7)/(8*e*(b*d - a*e)*(d + e*x)^8) + ((7*b*
B*d + A*b*e - 8*a*B*e)*(a + b*x)^7)/(56*e*(b*d - a*e)^2*(d + e*x)
^7)
```

Rubi in Sympy [A] time = 12.6572, size = 73, normalized size = 0.85

$$-\frac{(a+bx)^7\left(-Abe+B\left(8ae-7bd\right)\right)}{56e\left(d+ex\right)^7\left(ae-bd\right)^2}-\frac{(a+bx)^7\left(Ae-Bd\right)}{8e\left(d+ex\right)^8\left(ae-bd\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**6*(B*x+A)/(e*x+d)**9,x)
```

```
[Out] -(a + b*x)**7*(-A*b*e + B*(8*a*e - 7*b*d))/(56*e*(d + e*x)**7*(a*
e - b*d)**2) - (a + b*x)**7*(A*e - B*d)/(8*e*(d + e*x)**8*(a*e -
b*d))
```

Mathematica [B] time = 0.95043, size = 597, normalized size = 6.94

$$-\frac{a^6e^6(7Ae+B(d+8ex))+2a^5be^5\left(3Ae(d+8ex)+B\left(d^2+8dex+28e^2x^2\right)\right)+a^4b^2e^4\left(5Ae\left(d^2+8dex+28e^2x^2\right)+3B\left(d^3+\right.\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^6*(A + B*x))/(d + e*x)^9,x]
```

```
[Out] -(a^6*e^6*(7*A*e + B*(d + 8*e*x)) + 2*a^5*b*e^5*(3*A*e*(d + 8*e*x
) + B*(d^2 + 8*d*e*x + 28*e^2*x^2)) + a^4*b^2*e^4*(5*A*e*(d^2 + 8
*d*e*x + 28*e^2*x^2) + 3*B*(d^3 + 8*d^2*e*x + 28*d*e^2*x^2 + 56*e
^3*x^3)) + 4*a^3*b^3*e^3*(A*e*(d^3 + 8*d^2*e*x + 28*d*e^2*x^2 + 5
6*e^3*x^3) + B*(d^4 + 8*d^3*e*x + 28*d^2*e^2*x^2 + 56*d*e^3*x^3 +
 70*e^4*x^4)) + a^2*b^4*e^2*(3*A*e*(d^4 + 8*d^3*e*x + 28*d^2*e^2*
x^2 + 56*d*e^3*x^3 + 70*e^4*x^4) + 5*B*(d^5 + 8*d^4*e*x + 28*d^3*
e^2*x^2 + 56*d^2*e^3*x^3 + 70*d*e^4*x^4 + 56*e^5*x^5)) + 2*a*b^5*
e*(A*e*(d^5 + 8*d^4*e*x + 28*d^3*e^2*x^2 + 56*d^2*e^3*x^3 + 70*d*
e^4*x^4 + 56*e^5*x^5) + 3*B*(d^6 + 8*d^5*e*x + 28*d^4*e^2*x^2 + 5
```

```
6*d^3*e^3*x^3 + 70*d^2*e^4*x^4 + 56*d*e^5*x^5 + 28*e^6*x^6)) + b^
6*(A*e*(d^6 + 8*d^5*e*x + 28*d^4*e^2*x^2 + 56*d^3*e^3*x^3 + 70*d^
2*e^4*x^4 + 56*d*e^5*x^5 + 28*e^6*x^6) + 7*B*(d^7 + 8*d^6*e*x + 2
8*d^5*e^2*x^2 + 56*d^4*e^3*x^3 + 70*d^3*e^4*x^4 + 56*d^2*e^5*x^5
+ 28*d*e^6*x^6 + 8*e^7*x^7)))/(56*e^8*(d + e*x)^8)
```

Maple [B] time = 0.016, size = 814, normalized size = 9.5

$$-\frac{b\left(5\,Aa^4be^5-20\,Aa^3b^2de^4+30\,Aa^2b^3d^2e^3-20\,Aab^4d^3e^2+5\,Ab^5d^4e+2\,Ba^5e^5-15\,Ba^4bde^4+40\,Ba^3b^2d^2e^3-50\,Ba^2b^3d\right.}{2\,e^8\,(ex+d)^6}$$
$$-\frac{a^6Ae^7-6\,Ada^5be^6+15\,Ad^2a^4b^2e^5-20\,Ad^3a^3b^3e^4+15\,Ad^4a^2b^4e^3-6\,Ad^5ab^5e^2+Ad^6b^6e-Bda^6e^6+6\,Bd^2a^5be^5-15\,B}{8\,e^8\,(ex+d)^8}$$
$$-\frac{6\,Aa^5be^6-30\,Ada^4b^2e^5+60\,Ad^2a^3b^3e^4-60\,Ad^3a^2b^4e^3+30\,Ad^4ab^5e^2-6\,Ad^5b^6e+a^6Be^6-12\,Bda^5be^5+45\,Bd^2a^4b^2e^4}{7\,e^8\,(ex+d)^7}$$
$$-\frac{b^4\left(2\,Aabe^2-2\,Adb^2e+5\,Ba^2e^2-12\,Bdabe+7\,b^2Bd^2\right)}{e^8\,(ex+d)^3}-\frac{Bb^6}{e^8\,(ex+d)}-\frac{b^5\,(Abe+6\,Bae-7\,Bbd)}{2\,e^8\,(ex+d)^2}$$
$$-\frac{5\,b^3\left(3\,Aa^2be^3-6\,Adab^2e^2+3\,Ab^3d^2e+4\,Ba^3e^3-15\,Ba^2bde^2+18\,Bd^2ab^2e-7\,b^3Bd^3\right)}{4\,e^8\,(ex+d)^4}$$
$$-\frac{b^2\left(4\,Aa^3be^4-12\,Aa^2b^2de^3+12\,Aab^3d^2e^2-4\,Ab^4d^3e+3\,Ba^4e^4-16\,Ba^3bde^3+30\,Ba^2b^2d^2e^2-24\,Bab^3d^3e+7\,Bb^4d^4\right)}{e^8\,(ex+d)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^6*(B*x+A)/(e*x+d)^9,x)
```

```
[Out] -1/2*b*(5*A*a^4*b*e^5-20*A*a^3*b^2*d*e^4+30*A*a^2*b^3*d^2*e^3-20*
A*a*b^4*d^3*e^2+5*A*b^5*d^4*e+2*B*a^5*e^5-15*B*a^4*b*d*e^4+40*B*a
^3*b^2*d^2*e^3-50*B*a^2*b^3*d^3*e^2+30*B*a*b^4*d^4*e-7*B*b^5*d^5)
/e^8/(e*x+d)^6-1/8*(A*a^6*e^7-6*A*a^5*b*d*e^6+15*A*a^4*b^2*d^2*e^
5-20*A*a^3*b^3*d^3*e^4+15*A*a^2*b^4*d^4*e^3-6*A*a*b^5*d^5*e^2+A*b
^6*d^6*e-B*a^6*d*e^6+6*B*a^5*b*d^2*e^5-15*B*a^4*b^2*d^3*e^4+20*B*
a^3*b^3*d^4*e^3-15*B*a^2*b^4*d^5*e^2+6*B*a*b^5*d^6*e-B*b^6*d^7)/e
^8/(e*x+d)^8-1/7*(6*A*a^5*b*e^6-30*A*a^4*b^2*d*e^5+60*A*a^3*b^3*d
^2*e^4-60*A*a^2*b^4*d^3*e^3+30*A*a*b^5*d^4*e^2-6*A*b^6*d^5*e+B*a^
6*e^6-12*B*a^5*b*d*e^5+45*B*a^4*b^2*d^2*e^4-80*B*a^3*b^3*d^3*e^3+
75*B*a^2*b^4*d^4*e^2-36*B*a*b^5*d^5*e+7*B*b^6*d^6)/e^8/(e*x+d)^7-
b^4*(2*A*a*b*e^2-2*A*b^2*d*e+5*B*a^2*e^2-12*B*a*b*d*e+7*B*b^2*d^2
)/e^8/(e*x+d)^3-B*b^6/e^8/(e*x+d)-1/2*b^5*(A*b*e+6*B*a*e-7*B*b*d)
/e^8/(e*x+d)^2-5/4*b^3*(3*A*a^2*b*e^3-6*A*a*b^2*d*e^2+3*A*b^3*d^2
*e+4*B*a^3*e^3-15*B*a^2*b*d*e^2+18*B*a*b^2*d^2*e-7*B*b^3*d^3)/e^8
/(e*x+d)^4-b^2*(4*A*a^3*b*e^4-12*A*a^2*b^2*d*e^3+12*A*a*b^3*d^2*e
^2-4*A*b^4*d^3*e+3*B*a^4*e^4-16*B*a^3*b*d*e^3+30*B*a^2*b^2*d^2*e^
2-24*B*a*b^3*d^3*e+7*B*b^4*d^4)/e^8/(e*x+d)^5
```

Maxima [A] time = 1.51874, size = 1111, normalized size = 12.92

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6/(e*x + d)^9,x, algorithm="maxima")
```

```
[Out] -1/56*(56*B*b^6*e^7*x^7 + 7*B*b^6*d^7 + 7*A*a^6*e^7 + (6*B*a*b^5
+ A*b^6)*d^6*e + (5*B*a^2*b^4 + 2*A*a*b^5)*d^5*e^2 + (4*B*a^3*b^3
 + 3*A*a^2*b^4)*d^4*e^3 + (3*B*a^4*b^2 + 4*A*a^3*b^3)*d^3*e^4 + (
2*B*a^5*b + 5*A*a^4*b^2)*d^2*e^5 + (B*a^6 + 6*A*a^5*b)*d*e^6 + 28
*(7*B*b^6*d*e^6 + (6*B*a*b^5 + A*b^6)*e^7)*x^6 + 56*(7*B*b^6*d^2*
e^5 + (6*B*a*b^5 + A*b^6)*d*e^6 + (5*B*a^2*b^4 + 2*A*a*b^5)*e^7)*
x^5 + 70*(7*B*b^6*d^3*e^4 + (6*B*a*b^5 + A*b^6)*d^2*e^5 + (5*B*a^
2*b^4 + 2*A*a*b^5)*d*e^6 + (4*B*a^3*b^3 + 3*A*a^2*b^4)*e^7)*x^4 +
 56*(7*B*b^6*d^4*e^3 + (6*B*a*b^5 + A*b^6)*d^3*e^4 + (5*B*a^2*b^4
 + 2*A*a*b^5)*d^2*e^5 + (4*B*a^3*b^3 + 3*A*a^2*b^4)*d*e^6 + (3*B*
```

```
a^4*b^2 + 4*A*a^3*b^3)*e^7)*x^3 + 28*(7*B*b^6*d^5*e^2 + (6*B*a*b^
5 + A*b^6)*d^4*e^3 + (5*B*a^2*b^4 + 2*A*a*b^5)*d^3*e^4 + (4*B*a^3
*b^3 + 3*A*a^2*b^4)*d^2*e^5 + (3*B*a^4*b^2 + 4*A*a^3*b^3)*d*e^6 +
 (2*B*a^5*b + 5*A*a^4*b^2)*e^7)*x^2 + 8*(7*B*b^6*d^6*e + (6*B*a*b
^5 + A*b^6)*d^5*e^2 + (5*B*a^2*b^4 + 2*A*a*b^5)*d^4*e^3 + (4*B*a^
3*b^3 + 3*A*a^2*b^4)*d^3*e^4 + (3*B*a^4*b^2 + 4*A*a^3*b^3)*d^2*e^
5 + (2*B*a^5*b + 5*A*a^4*b^2)*d*e^6 + (B*a^6 + 6*A*a^5*b)*e^7)*x)
/(e^16*x^8 + 8*d*e^15*x^7 + 28*d^2*e^14*x^6 + 56*d^3*e^13*x^5 + 7
0*d^4*e^12*x^4 + 56*d^5*e^11*x^3 + 28*d^6*e^10*x^2 + 8*d^7*e^9*x
+ d^8*e^8)
```

Fricas [A] time = 0.216188, size = 1111, normalized size = 12.92

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6/(e*x + d)^9,x, algorithm="fricas")
```

```
[Out] -1/56*(56*B*b^6*e^7*x^7 + 7*B*b^6*d^7 + 7*A*a^6*e^7 + (6*B*a*b^5
+ A*b^6)*d^6*e + (5*B*a^2*b^4 + 2*A*a*b^5)*d^5*e^2 + (4*B*a^3*b^3
 + 3*A*a^2*b^4)*d^4*e^3 + (3*B*a^4*b^2 + 4*A*a^3*b^3)*d^3*e^4 + (
2*B*a^5*b + 5*A*a^4*b^2)*d^2*e^5 + (B*a^6 + 6*A*a^5*b)*d*e^6 + 28
*(7*B*b^6*d*e^6 + (6*B*a*b^5 + A*b^6)*e^7)*x^6 + 56*(7*B*b^6*d^2*
e^5 + (6*B*a*b^5 + A*b^6)*d*e^6 + (5*B*a^2*b^4 + 2*A*a*b^5)*e^7)*
x^5 + 70*(7*B*b^6*d^3*e^4 + (6*B*a*b^5 + A*b^6)*d^2*e^5 + (5*B*a^
2*b^4 + 2*A*a*b^5)*d*e^6 + (4*B*a^3*b^3 + 3*A*a^2*b^4)*e^7)*x^4 +
 56*(7*B*b^6*d^4*e^3 + (6*B*a*b^5 + A*b^6)*d^3*e^4 + (5*B*a^2*b^4
 + 2*A*a*b^5)*d^2*e^5 + (4*B*a^3*b^3 + 3*A*a^2*b^4)*d*e^6 + (3*B*
a^4*b^2 + 4*A*a^3*b^3)*e^7)*x^3 + 28*(7*B*b^6*d^5*e^2 + (6*B*a*b^
5 + A*b^6)*d^4*e^3 + (5*B*a^2*b^4 + 2*A*a*b^5)*d^3*e^4 + (4*B*a^3
*b^3 + 3*A*a^2*b^4)*d^2*e^5 + (3*B*a^4*b^2 + 4*A*a^3*b^3)*d*e^6 +
 (2*B*a^5*b + 5*A*a^4*b^2)*e^7)*x^2 + 8*(7*B*b^6*d^6*e + (6*B*a*b
^5 + A*b^6)*d^5*e^2 + (5*B*a^2*b^4 + 2*A*a*b^5)*d^4*e^3 + (4*B*a^
3*b^3 + 3*A*a^2*b^4)*d^3*e^4 + (3*B*a^4*b^2 + 4*A*a^3*b^3)*d^2*e^
5 + (2*B*a^5*b + 5*A*a^4*b^2)*d*e^6 + (B*a^6 + 6*A*a^5*b)*e^7)*x)
/(e^16*x^8 + 8*d*e^15*x^7 + 28*d^2*e^14*x^6 + 56*d^3*e^13*x^5 + 7
0*d^4*e^12*x^4 + 56*d^5*e^11*x^3 + 28*d^6*e^10*x^2 + 8*d^7*e^9*x
+ d^8*e^8)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**6*(B*x+A)/(e*x+d)**9,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.240644, size = 1, normalized size = 0.01

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6/(e*x + d)^9,x, algorithm="giac")
```

```
[Out] Done
```

3.1052 $\int \frac{(a+bx)^6(A+Bx)}{(d+ex)^{10}}\,dx$

Optimal. Leaf size=135

$$\frac{b(a+bx)^7(-9aBe+2Abe+7bBd)}{504e(d+ex)^7(bd-ae)^3}+\frac{(a+bx)^7(-9aBe+2Abe+7bBd)}{72e(d+ex)^8(bd-ae)^2}-\frac{(a+bx)^7(Bd-Ae)}{9e(d+ex)^9(bd-ae)}$$

```
[Out] -((B*d - A*e)*(a + b*x)^7)/(9*e*(b*d - a*e)*(d + e*x)^9) + ((7*b*
B*d + 2*A*b*e - 9*a*B*e)*(a + b*x)^7)/(72*e*(b*d - a*e)^2*(d + e*
x)^8) + (b*(7*b*B*d + 2*A*b*e - 9*a*B*e)*(a + b*x)^7)/(504*e*(b*d
 - a*e)^3*(d + e*x)^7)
```

Rubi [A] time = 0.1735, antiderivative size = 135, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.15

$$\frac{b(a+bx)^7(-9aBe+2Abe+7bBd)}{504e(d+ex)^7(bd-ae)^3}+\frac{(a+bx)^7(-9aBe+2Abe+7bBd)}{72e(d+ex)^8(bd-ae)^2}-\frac{(a+bx)^7(Bd-Ae)}{9e(d+ex)^9(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^6*(A + B*x))/(d + e*x)^10,x]
```

```
[Out] -((B*d - A*e)*(a + b*x)^7)/(9*e*(b*d - a*e)*(d + e*x)^9) + ((7*b*
B*d + 2*A*b*e - 9*a*B*e)*(a + b*x)^7)/(72*e*(b*d - a*e)^2*(d + e*
x)^8) + (b*(7*b*B*d + 2*A*b*e - 9*a*B*e)*(a + b*x)^7)/(504*e*(b*d
 - a*e)^3*(d + e*x)^7)
```

Rubi in Sympy [A] time = 25.472, size = 122, normalized size = 0.9

$$-\frac{b\left(a+bx\right)^7\left(2Abe-9Bae+7Bbd\right)}{504e\left(d+ex\right)^7\left(ae-bd\right)^3}+\frac{\left(a+bx\right)^7\left(2Abe-9Bae+7Bbd\right)}{72e\left(d+ex\right)^8\left(ae-bd\right)^2}-\frac{\left(a+bx\right)^7\left(Ae-Bd\right)}{9e\left(d+ex\right)^9\left(ae-bd\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**6*(B*x+A)/(e*x+d)**10,x)
```

```
[Out] -b*(a + b*x)**7*(2*A*b*e - 9*B*a*e + 7*B*b*d)/(504*e*(d + e*x)**7
*(a*e - b*d)**3) + (a + b*x)**7*(2*A*b*e - 9*B*a*e + 7*B*b*d)/(72
*e*(d + e*x)**8*(a*e - b*d)**2) - (a + b*x)**7*(A*e - B*d)/(9*e*(
d + e*x)**9*(a*e - b*d))
```

Mathematica [B] time = 0.999067, size = 603, normalized size = 4.47

$$-\frac{7a^6e^6(8Ae+B(d+9ex))+6a^5be^5\left(7Ae(d+9ex)+2B\left(d^2+9dex+36e^2x^2\right)\right)+15a^4b^2e^4\left(2Ae\left(d^2+9dex+36e^2x^2\right)+B\left(a\right.\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^6*(A + B*x))/(d + e*x)^10,x]
```

```
[Out] -(7*a^6*e^6*(8*A*e + B*(d + 9*e*x)) + 6*a^5*b*e^5*(7*A*e*(d + 9*e
*x) + 2*B*(d^2 + 9*d*e*x + 36*e^2*x^2)) + 15*a^4*b^2*e^4*(2*A*e*(
d^2 + 9*d*e*x + 36*e^2*x^2) + B*(d^3 + 9*d^2*e*x + 36*d*e^2*x^2 +
 84*e^3*x^3)) + 4*a^3*b^3*e^3*(5*A*e*(d^3 + 9*d^2*e*x + 36*d*e^2*
x^2 + 84*e^3*x^3) + 4*B*(d^4 + 9*d^3*e*x + 36*d^2*e^2*x^2 + 84*d*
e^3*x^3 + 126*e^4*x^4)) + 3*a^2*b^4*e^2*(4*A*e*(d^4 + 9*d^3*e*x +
 36*d^2*e^2*x^2 + 84*d*e^3*x^3 + 126*e^4*x^4) + 5*B*(d^5 + 9*d^4*
```

```
e*x + 36*d^3*e^2*x^2 + 84*d^2*e^3*x^3 + 126*d*e^4*x^4 + 126*e^5*x
^5)) + 6*a*b^5*e*(A*e*(d^5 + 9*d^4*e*x + 36*d^3*e^2*x^2 + 84*d^2*
e^3*x^3 + 126*d*e^4*x^4 + 126*e^5*x^5) + 2*B*(d^6 + 9*d^5*e*x + 3
6*d^4*e^2*x^2 + 84*d^3*e^3*x^3 + 126*d^2*e^4*x^4 + 126*d*e^5*x^5
+ 84*e^6*x^6)) + b^6*(2*A*e*(d^6 + 9*d^5*e*x + 36*d^4*e^2*x^2 + 8
4*d^3*e^3*x^3 + 126*d^2*e^4*x^4 + 126*d*e^5*x^5 + 84*e^6*x^6) + 7
*B*(d^7 + 9*d^6*e*x + 36*d^5*e^2*x^2 + 84*d^4*e^3*x^3 + 126*d^3*e
^4*x^4 + 126*d^2*e^5*x^5 + 84*d*e^6*x^6 + 36*e^7*x^7)))/(504*e^8*
(d + e*x)^9)
```

Maple [B] time = 0.013, size = 814, normalized size = 6.

$$-\frac{a^6Ae^7-6\,Ada^5be^6+15\,Ad^2a^4b^2e^5-20\,Ad^3a^3b^3e^4+15\,Ad^4a^2b^4e^3-6\,Ad^5ab^5e^2+Ad^6b^6e-Bda^6e^6+6\,Bd^2a^5be^5-15\,Bc}{9\,e^8\,(ex+d)^9}$$
$$-\frac{5\,b^2\left(4\,Aa^3be^4-12\,Aa^2b^2de^3+12\,Aab^3d^2e^2-4\,Ab^4d^3e+3\,Ba^4e^4-16\,Ba^3bde^3+30\,Ba^2b^2d^2e^2-24\,Bab^3d^3e+7\,Bb^4d^4\right)}{6\,e^8\,(ex+d)^6}$$
$$-\frac{6\,Aa^5be^6-30\,Ada^4b^2e^5+60\,Ad^2a^3b^3e^4-60\,Ad^3a^2b^4e^3+30\,Ad^4ab^5e^2-6\,Ad^5b^6e+a^6Be^6-12\,Bda^5be^5+45\,Bd^2a^4b^2e^4}{8\,e^8\,(ex+d)^8}$$
$$-\frac{3\,b\left(5\,Aa^4be^5-20\,Aa^3b^2de^4+30\,Aa^2b^3d^2e^3-20\,Aab^4d^3e^2+5\,Ab^5d^4e+2\,Ba^5e^5-15\,Ba^4bde^4+40\,Ba^3b^2d^2e^3-50\,Ba^2b^3\right.}{7\,e^8\,(ex+d)^7}$$
$$-\frac{b^5\,(Abe+6\,Bae-7\,Bbd)}{3\,e^8\,(ex+d)^3}-\frac{Bb^6}{2\,e^8\,(ex+d)^2}-\frac{3\,b^4\left(2\,Aabe^2-2\,Adb^2e+5\,Ba^2e^2-12\,Bdabe+7\,b^2Bd^2\right)}{4\,e^8\,(ex+d)^4}$$
$$-\frac{b^3\left(3\,Aa^2be^3-6\,Adab^2e^2+3\,Ab^3d^2e+4\,Ba^3e^3-15\,Ba^2bde^2+18\,Bd^2ab^2e-7\,b^3Bd^3\right)}{e^8\,(ex+d)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^6*(B*x+A)/(e*x+d)^10,x)
```

```
[Out] -1/9*(A*a^6*e^7-6*A*a^5*b*d*e^6+15*A*a^4*b^2*d^2*e^5-20*A*a^3*b^3
*d^3*e^4+15*A*a^2*b^4*d^4*e^3-6*A*a*b^5*d^5*e^2+A*b^6*d^6*e-B*a^6
*d*e^6+6*B*a^5*b*d^2*e^5-15*B*a^4*b^2*d^3*e^4+20*B*a^3*b^3*d^4*e^
3-15*B*a^2*b^4*d^5*e^2+6*B*a*b^5*d^6*e-B*b^6*d^7)/e^8/(e*x+d)^9-5
/6*b^2*(4*A*a^3*b*e^4-12*A*a^2*b^2*d*e^3+12*A*a*b^3*d^2*e^2-4*A*b
^4*d^3*e+3*B*a^4*e^4-16*B*a^3*b*d*e^3+30*B*a^2*b^2*d^2*e^2-24*B*a
*b^3*d^3*e+7*B*b^4*d^4)/e^8/(e*x+d)^6-1/8*(6*A*a^5*b*e^6-30*A*a^4
*b^2*d*e^5+60*A*a^3*b^3*d^2*e^4-60*A*a^2*b^4*d^3*e^3+30*A*a*b^5*d
^4*e^2-6*A*b^6*d^5*e+B*a^6*e^6-12*B*a^5*b*d*e^5+45*B*a^4*b^2*d^2*
e^4-80*B*a^3*b^3*d^3*e^3+75*B*a^2*b^4*d^4*e^2-36*B*a*b^5*d^5*e+7*
B*b^6*d^6)/e^8/(e*x+d)^8-3/7*b*(5*A*a^4*b*e^5-20*A*a^3*b^2*d*e^4+
30*A*a^2*b^3*d^2*e^3-20*A*a*b^4*d^3*e^2+5*A*b^5*d^4*e+2*B*a^5*e^5
-15*B*a^4*b*d*e^4+40*B*a^3*b^2*d^2*e^3-50*B*a^2*b^3*d^3*e^2+30*B*
a*b^4*d^4*e-7*B*b^5*d^5)/e^8/(e*x+d)^7-1/3*b^5*(A*b*e+6*B*a*e-7*B
*b*d)/e^8/(e*x+d)^3-1/2*B*b^6/e^8/(e*x+d)^2-3/4*b^4*(2*A*a*b*e^2-
2*A*b^2*d*e+5*B*a^2*e^2-12*B*a*b*d*e+7*B*b^2*d^2)/e^8/(e*x+d)^4-b
^3*(3*A*a^2*b*e^3-6*A*a*b^2*d*e^2+3*A*b^3*d^2*e+4*B*a^3*e^3-15*B*
a^2*b*d*e^2+18*B*a*b^2*d^2*e-7*B*b^3*d^3)/e^8/(e*x+d)^5
```

Maxima [A] time = 1.42421, size = 1162, normalized size = 8.61

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6/(e*x + d)^10,x, algorithm="maxima")
```

```
[Out] -1/504*(252*B*b^6*e^7*x^7 + 7*B*b^6*d^7 + 56*A*a^6*e^7 + 2*(6*B*a
*b^5 + A*b^6)*d^6*e + 3*(5*B*a^2*b^4 + 2*A*a*b^5)*d^5*e^2 + 4*(4*
B*a^3*b^3 + 3*A*a^2*b^4)*d^4*e^3 + 5*(3*B*a^4*b^2 + 4*A*a^3*b^3)*
d^3*e^4 + 6*(2*B*a^5*b + 5*A*a^4*b^2)*d^2*e^5 + 7*(B*a^6 + 6*A*a^
5*b)*d*e^6 + 84*(7*B*b^6*d*e^6 + 2*(6*B*a*b^5 + A*b^6)*e^7)*x^6 +
 126*(7*B*b^6*d^2*e^5 + 2*(6*B*a*b^5 + A*b^6)*d*e^6 + 3*(5*B*a^2*
```

```
b^4 + 2*A*a*b^5)*e^7)*x^5 + 126*(7*B*b^6*d^3*e^4 + 2*(6*B*a*b^5 +
 A*b^6)*d^2*e^5 + 3*(5*B*a^2*b^4 + 2*A*a*b^5)*d*e^6 + 4*(4*B*a^3*
b^3 + 3*A*a^2*b^4)*e^7)*x^4 + 84*(7*B*b^6*d^4*e^3 + 2*(6*B*a*b^5
+ A*b^6)*d^3*e^4 + 3*(5*B*a^2*b^4 + 2*A*a*b^5)*d^2*e^5 + 4*(4*B*a
^3*b^3 + 3*A*a^2*b^4)*d*e^6 + 5*(3*B*a^4*b^2 + 4*A*a^3*b^3)*e^7)*
x^3 + 36*(7*B*b^6*d^5*e^2 + 2*(6*B*a*b^5 + A*b^6)*d^4*e^3 + 3*(5*
B*a^2*b^4 + 2*A*a*b^5)*d^3*e^4 + 4*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^
2*e^5 + 5*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d*e^6 + 6*(2*B*a^5*b + 5*A*
a^4*b^2)*e^7)*x^2 + 9*(7*B*b^6*d^6*e + 2*(6*B*a*b^5 + A*b^6)*d^5*
e^2 + 3*(5*B*a^2*b^4 + 2*A*a*b^5)*d^4*e^3 + 4*(4*B*a^3*b^3 + 3*A*
a^2*b^4)*d^3*e^4 + 5*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d^2*e^5 + 6*(2*B
*a^5*b + 5*A*a^4*b^2)*d*e^6 + 7*(B*a^6 + 6*A*a^5*b)*e^7)*x)/(e^17
*x^9 + 9*d*e^16*x^8 + 36*d^2*e^15*x^7 + 84*d^3*e^14*x^6 + 126*d^4
*e^13*x^5 + 126*d^5*e^12*x^4 + 84*d^6*e^11*x^3 + 36*d^7*e^10*x^2
+ 9*d^8*e^9*x + d^9*e^8)
```

Fricas [A] time = 0.210887, size = 1162, normalized size = 8.61

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6/(e*x + d)^10,x, algorithm="fricas")
```

```
[Out] -1/504*(252*B*b^6*e^7*x^7 + 7*B*b^6*d^7 + 56*A*a^6*e^7 + 2*(6*B*a
*b^5 + A*b^6)*d^6*e + 3*(5*B*a^2*b^4 + 2*A*a*b^5)*d^5*e^2 + 4*(4*
B*a^3*b^3 + 3*A*a^2*b^4)*d^4*e^3 + 5*(3*B*a^4*b^2 + 4*A*a^3*b^3)*
d^3*e^4 + 6*(2*B*a^5*b + 5*A*a^4*b^2)*d^2*e^5 + 7*(B*a^6 + 6*A*a^
5*b)*d*e^6 + 84*(7*B*b^6*d*e^6 + 2*(6*B*a*b^5 + A*b^6)*e^7)*x^6 +
 126*(7*B*b^6*d^2*e^5 + 2*(6*B*a*b^5 + A*b^6)*d*e^6 + 3*(5*B*a^2*
b^4 + 2*A*a*b^5)*e^7)*x^5 + 126*(7*B*b^6*d^3*e^4 + 2*(6*B*a*b^5 +
 A*b^6)*d^2*e^5 + 3*(5*B*a^2*b^4 + 2*A*a*b^5)*d*e^6 + 4*(4*B*a^3*
b^3 + 3*A*a^2*b^4)*e^7)*x^4 + 84*(7*B*b^6*d^4*e^3 + 2*(6*B*a*b^5
+ A*b^6)*d^3*e^4 + 3*(5*B*a^2*b^4 + 2*A*a*b^5)*d^2*e^5 + 4*(4*B*a
^3*b^3 + 3*A*a^2*b^4)*d*e^6 + 5*(3*B*a^4*b^2 + 4*A*a^3*b^3)*e^7)*
x^3 + 36*(7*B*b^6*d^5*e^2 + 2*(6*B*a*b^5 + A*b^6)*d^4*e^3 + 3*(5*
B*a^2*b^4 + 2*A*a*b^5)*d^3*e^4 + 4*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^
2*e^5 + 5*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d*e^6 + 6*(2*B*a^5*b + 5*A*
a^4*b^2)*e^7)*x^2 + 9*(7*B*b^6*d^6*e + 2*(6*B*a*b^5 + A*b^6)*d^5*
e^2 + 3*(5*B*a^2*b^4 + 2*A*a*b^5)*d^4*e^3 + 4*(4*B*a^3*b^3 + 3*A*
a^2*b^4)*d^3*e^4 + 5*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d^2*e^5 + 6*(2*B
*a^5*b + 5*A*a^4*b^2)*d*e^6 + 7*(B*a^6 + 6*A*a^5*b)*e^7)*x)/(e^17
*x^9 + 9*d*e^16*x^8 + 36*d^2*e^15*x^7 + 84*d^3*e^14*x^6 + 126*d^4
*e^13*x^5 + 126*d^5*e^12*x^4 + 84*d^6*e^11*x^3 + 36*d^7*e^10*x^2
+ 9*d^8*e^9*x + d^9*e^8)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**6*(B*x+A)/(e*x+d)**10,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.23846, size = 1, normalized size = 0.01

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6/(e*x + d)^10,x, algorithm="giac")
```

```
[Out] Done
```

3.1053 $\int \frac{(a+bx)^6(A+Bx)}{(d+ex)^{11}} dx$

Optimal. Leaf size=185

$$\frac{b^2(a+bx)^7(-10aBe+3Abe+7bBd)}{2520e(d+ex)^7(bd-ae)^4}+\frac{b(a+bx)^7(-10aBe+3Abe+7bBd)}{360e(d+ex)^8(bd-ae)^3}+\frac{(a+bx)^7(-10aBe+3Abe+7bBd)}{90e(d+ex)^9(bd-ae)^2}-\frac{(a+bx)^7(Bd-Ae)}{10e(d+ex)^{10}(bd-ae)}$$

```
[Out] -((B*d - A*e)*(a + b*x)^7)/(10*e*(b*d - a*e)*(d + e*x)^10) + ((7*
b*B*d + 3*A*b*e - 10*a*B*e)*(a + b*x)^7)/(90*e*(b*d - a*e)^2*(d +
 e*x)^9) + (b*(7*b*B*d + 3*A*b*e - 10*a*B*e)*(a + b*x)^7)/(360*e*
(b*d - a*e)^3*(d + e*x)^8) + (b^2*(7*b*B*d + 3*A*b*e - 10*a*B*e)*
(a + b*x)^7)/(2520*e*(b*d - a*e)^4*(d + e*x)^7)
```

Rubi [A] time = 0.243867, antiderivative size = 185, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.15$

$$\frac{b^2(a+bx)^7(-10aBe+3Abe+7bBd)}{2520e(d+ex)^7(bd-ae)^4}+\frac{b(a+bx)^7(-10aBe+3Abe+7bBd)}{360e(d+ex)^8(bd-ae)^3}+\frac{(a+bx)^7(-10aBe+3Abe+7bBd)}{90e(d+ex)^9(bd-ae)^2}-\frac{(a+bx)^7(Bd-Ae)}{10e(d+ex)^{10}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^6*(A + B*x))/(d + e*x)^11,x]
```



```
[Out] -((B*d - A*e)*(a + b*x)^7)/(10*e*(b*d - a*e)*(d + e*x)^10) + ((7*
b*B*d + 3*A*b*e - 10*a*B*e)*(a + b*x)^7)/(90*e*(b*d - a*e)^2*(d +
 e*x)^9) + (b*(7*b*B*d + 3*A*b*e - 10*a*B*e)*(a + b*x)^7)/(360*e*
(b*d - a*e)^3*(d + e*x)^8) + (b^2*(7*b*B*d + 3*A*b*e - 10*a*B*e)*
(a + b*x)^7)/(2520*e*(b*d - a*e)^4*(d + e*x)^7)
```

Rubi in Sympy [A] time = 37.4228, size = 172, normalized size = 0.93

$$\frac{b^2 (a+bx)^7 (3Abe-10Bae+7Bbd)}{2520e (d+ex)^7 (ae-bd)^4}-\frac{b (a+bx)^7 (3Abe-10Bae+7Bbd)}{360e (d+ex)^8 (ae-bd)^3}+\frac{(a+bx)^7 (3Abe-10Bae+7Bbd)}{90e (d+ex)^9 (ae-bd)^2}-\frac{(a+bx)^7 (Ae-Bd)}{10e (d+ex)^{10} (ae-bd)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**6*(B*x+A)/(e*x+d)**11,x)
```

```
[Out] b**2*(a + b*x)**7*(3*A*b*e - 10*B*a*e + 7*B*b*d)/(2520*e*(d + e*x
)**7*(a*e - b*d)**4) - b*(a + b*x)**7*(3*A*b*e - 10*B*a*e + 7*B*b
*d)/(360*e*(d + e*x)**8*(a*e - b*d)**3) + (a + b*x)**7*(3*A*b*e -
 10*B*a*e + 7*B*b*d)/(90*e*(d + e*x)**9*(a*e - b*d)**2) - (a + b*
x)**7*(A*e - B*d)/(10*e*(d + e*x)**10*(a*e - b*d))
```

Mathematica [B] time = 0.956069, size = 602, normalized size = 3.25

$$-\frac{28a^6e^6(9Ae+B(d+10ex))+42a^5be^5\left(4Ae(d+10ex)+B\left(d^2+10dex+45e^2x^2\right)\right)+15a^4b^2e^4\left(7Ae\left(d^2+10dex+45e^2x^2\right)\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^6*(A + B*x))/(d + e*x)^11,x]
```

```
[Out] -(28*a^6*e^6*(9*A*e + B*(d + 10*e*x)) + 42*a^5*b*e^5*(4*A*e*(d +
10*e*x) + B*(d^2 + 10*d*e*x + 45*e^2*x^2)) + 15*a^4*b^2*e^4*(7*A*
e*(d^2 + 10*d*e*x + 45*e^2*x^2) + 3*B*(d^3 + 10*d^2*e*x + 45*d*e^
2*x^2 + 120*e^3*x^3)) + 20*a^3*b^3*e^3*(3*A*e*(d^3 + 10*d^2*e*x +
 45*d*e^2*x^2 + 120*e^3*x^3) + 2*B*(d^4 + 10*d^3*e*x + 45*d^2*e^2
*x^2 + 120*d*e^3*x^3 + 210*e^4*x^4)) + 30*a^2*b^4*e^2*(A*e*(d^4 +
 10*d^3*e*x + 45*d^2*e^2*x^2 + 120*d*e^3*x^3 + 210*e^4*x^4) + B*(
d^5 + 10*d^4*e*x + 45*d^3*e^2*x^2 + 120*d^2*e^3*x^3 + 210*d*e^4*x
^4 + 252*e^5*x^5)) + 6*a*b^5*e*(2*A*e*(d^5 + 10*d^4*e*x + 45*d^3*
e^2*x^2 + 120*d^2*e^3*x^3 + 210*d*e^4*x^4 + 252*e^5*x^5) + 3*B*(d
^6 + 10*d^5*e*x + 45*d^4*e^2*x^2 + 120*d^3*e^3*x^3 + 210*d^2*e^4*
x^4 + 252*d*e^5*x^5 + 210*e^6*x^6)) + b^6*(3*A*e*(d^6 + 10*d^5*e*
x + 45*d^4*e^2*x^2 + 120*d^3*e^3*x^3 + 210*d^2*e^4*x^4 + 252*d*e^
5*x^5 + 210*e^6*x^6) + 7*B*(d^7 + 10*d^6*e*x + 45*d^5*e^2*x^2 + 1
20*d^4*e^3*x^3 + 210*d^3*e^4*x^4 + 252*d^2*e^5*x^5 + 210*d*e^6*x^
6 + 120*e^7*x^7)))/(2520*e^8*(d + e*x)^10)
```

Maple [B] time = 0.012, size = 814, normalized size = 4.4

$$-\frac{6Aa^5be^6-30Ada^4b^2e^5+60Ad^2a^3b^3e^4-60Ad^3a^2b^4e^3+30Ad^4ab^5e^2-6Ad^5b^6e+a^6Be^6-12Bda^5be^5+45Bd^2a^4b^2e^4 \cdots}{9e^8(ex+d)^9}$$
$$-\frac{a^6Ae^7-6Ada^5be^6+15Ad^2a^4b^2e^5-20Ad^3a^3b^3e^4+15Ad^4a^2b^4e^3-6Ad^5ab^5e^2+Ad^6b^6e-Bda^6e^6+6Bd^2a^5be^5-15B \cdots}{10e^8(ex+d)^{10}}$$
$$-\frac{5b^3(3Aa^2be^3-6Adab^2e^2+3Ab^3d^2e+4Ba^3e^3-15Ba^2bde^2+18Bd^2ab^2e-7b^3Bd^3)}{6e^8(ex+d)^6}$$
$$-\frac{3b(5Aa^4be^5-20Aa^3b^2de^4+30Aa^2b^3d^2e^3-20Aab^4d^3e^2+5Ab^5d^4e+2Ba^5e^5-15Ba^4bde^4+40Ba^3b^2d^2e^3-50Ba^2b^3 \cdots}{8e^8(ex+d)^8}$$
$$-\frac{5b^2(4Aa^3be^4-12Aa^2b^2de^3+12Aab^3d^2e^2-4Ab^4d^3e+3Ba^4e^4-16Ba^3bde^3+30Ba^2b^2d^2e^2-24Bab^3d^3e+7Bb^4d^4)}{7e^8(ex+d)^7}$$
$$-\frac{Bb^6}{3e^8(ex+d)^3}-\frac{b^5(Abe+6Bae-7Bbd)}{4e^8(ex+d)^4}-\frac{3b^4(2Aabe^2-2Adb^2e+5Ba^2e^2-12Bdabe+7b^2Bd^2)}{5e^8(ex+d)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^6*(B*x+A)/(e*x+d)^11,x)
```

```
[Out] -1/9*(6*A*a^5*b*e^6-30*A*a^4*b^2*d*e^5+60*A*a^3*b^3*d^2*e^4-60*A*
a^2*b^4*d^3*e^3+30*A*a*b^5*d^4*e^2-6*A*b^6*d^5*e+B*a^6*e^6-12*B*a
^5*b*d*e^5+45*B*a^4*b^2*d^2*e^4-80*B*a^3*b^3*d^3*e^3+75*B*a^2*b^4
*d^4*e^2-36*B*a*b^5*d^5*e+7*B*b^6*d^6)/e^8/(e*x+d)^9-1/10*(A*a^6*
e^7-6*A*a^5*b*d*e^6+15*A*a^4*b^2*d^2*e^5-20*A*a^3*b^3*d^3*e^4+15*
A*a^2*b^4*d^4*e^3-6*A*a*b^5*d^5*e^2+A*b^6*d^6*e-B*a^6*d*e^6+6*B*a
^5*b*d^2*e^5-15*B*a^4*b^2*d^3*e^4+20*B*a^3*b^3*d^4*e^3-15*B*a^2*b
^4*d^5*e^2+6*B*a*b^5*d^6*e-B*b^6*d^7)/e^8/(e*x+d)^10-5/6*b^3*(3*A
*a^2*b*e^3-6*A*a*b^2*d*e^2+3*A*b^3*d^2*e+4*B*a^3*e^3-15*B*a^2*b*d
*e^2+18*B*a*b^2*d^2*e-7*B*b^3*d^3)/e^8/(e*x+d)^6-3/8*b*(5*A*a^4*b
*e^5-20*A*a^3*b^2*d*e^4+30*A*a^2*b^3*d^2*e^3-20*A*a*b^4*d^3*e^2+5
*A*b^5*d^4*e+2*B*a^5*e^5-15*B*a^4*b*d*e^4+40*B*a^3*b^2*d^2*e^3-50
*B*a^2*b^3*d^3*e^2+30*B*a*b^4*d^4*e-7*B*b^5*d^5)/e^8/(e*x+d)^8-5/
7*b^2*(4*A*a^3*b*e^4-12*A*a^2*b^2*d*e^3+12*A*a*b^3*d^2*e^2-4*A*b^
4*d^3*e+3*B*a^4*e^4-16*B*a^3*b*d*e^3+30*B*a^2*b^2*d^2*e^2-24*B*a*
b^3*d^3*e+7*B*b^4*d^4)/e^8/(e*x+d)^7-1/3*B*b^6/e^8/(e*x+d)^3-1/4*
b^5*(A*b*e+6*B*a*e-7*B*b*d)/e^8/(e*x+d)^4-3/5*b^4*(2*A*a*b*e^2-2*
A*b^2*d*e+5*B*a^2*e^2-12*B*a*b*d*e+7*B*b^2*d^2)/e^8/(e*x+d)^5
```

Maxima [A] time = 1.43003, size = 1177, normalized size = 6.36

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6/(e*x + d)^11,x, algorithm="maxima")
```

```
[Out] -1/2520*(840*B*b^6*e^7*x^7 + 7*B*b^6*d^7 + 252*A*a^6*e^7 + 3*(6*B
*a*b^5 + A*b^6)*d^6*e + 6*(5*B*a^2*b^4 + 2*A*a*b^5)*d^5*e^2 + 10*
(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^4*e^3 + 15*(3*B*a^4*b^2 + 4*A*a^3*b
^3)*d^3*e^4 + 21*(2*B*a^5*b + 5*A*a^4*b^2)*d^2*e^5 + 28*(B*a^6 +
6*A*a^5*b)*d*e^6 + 210*(7*B*b^6*d*e^6 + 3*(6*B*a*b^5 + A*b^6)*e^7
)*x^6 + 252*(7*B*b^6*d^2*e^5 + 3*(6*B*a*b^5 + A*b^6)*d*e^6 + 6*(5
*B*a^2*b^4 + 2*A*a*b^5)*e^7)*x^5 + 210*(7*B*b^6*d^3*e^4 + 3*(6*B*
a*b^5 + A*b^6)*d^2*e^5 + 6*(5*B*a^2*b^4 + 2*A*a*b^5)*d*e^6 + 10*(
4*B*a^3*b^3 + 3*A*a^2*b^4)*e^7)*x^4 + 120*(7*B*b^6*d^4*e^3 + 3*(6
*B*a*b^5 + A*b^6)*d^3*e^4 + 6*(5*B*a^2*b^4 + 2*A*a*b^5)*d^2*e^5 +
 10*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d*e^6 + 15*(3*B*a^4*b^2 + 4*A*a^3
*b^3)*e^7)*x^3 + 45*(7*B*b^6*d^5*e^2 + 3*(6*B*a*b^5 + A*b^6)*d^4*
e^3 + 6*(5*B*a^2*b^4 + 2*A*a*b^5)*d^3*e^4 + 10*(4*B*a^3*b^3 + 3*A
*a^2*b^4)*d^2*e^5 + 15*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d*e^6 + 21*(2*
B*a^5*b + 5*A*a^4*b^2)*e^7)*x^2 + 10*(7*B*b^6*d^6*e + 3*(6*B*a*b^
5 + A*b^6)*d^5*e^2 + 6*(5*B*a^2*b^4 + 2*A*a*b^5)*d^4*e^3 + 10*(4*
B*a^3*b^3 + 3*A*a^2*b^4)*d^3*e^4 + 15*(3*B*a^4*b^2 + 4*A*a^3*b^3)
*d^2*e^5 + 21*(2*B*a^5*b + 5*A*a^4*b^2)*d*e^6 + 28*(B*a^6 + 6*A*a
^5*b)*e^7)*x)/(e^18*x^10 + 10*d*e^17*x^9 + 45*d^2*e^16*x^8 + 120*
d^3*e^15*x^7 + 210*d^4*e^14*x^6 + 252*d^5*e^13*x^5 + 210*d^6*e^12
*x^4 + 120*d^7*e^11*x^3 + 45*d^8*e^10*x^2 + 10*d^9*e^9*x + d^10*e
^8)
```

Fricas [A] time = 0.205851, size = 1177, normalized size = 6.36

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6/(e*x + d)^11,x, algorithm="fricas")
```


```
[Out] -1/2520*(840*B*b^6*e^7*x^7 + 7*B*b^6*d^7 + 252*A*a^6*e^7 + 3*(6*B
*a*b^5 + A*b^6)*d^6*e + 6*(5*B*a^2*b^4 + 2*A*a*b^5)*d^5*e^2 + 10*
(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^4*e^3 + 15*(3*B*a^4*b^2 + 4*A*a^3*b
^3)*d^3*e^4 + 21*(2*B*a^5*b + 5*A*a^4*b^2)*d^2*e^5 + 28*(B*a^6 +
6*A*a^5*b)*d*e^6 + 210*(7*B*b^6*d*e^6 + 3*(6*B*a*b^5 + A*b^6)*e^7
)*x^6 + 252*(7*B*b^6*d^2*e^5 + 3*(6*B*a*b^5 + A*b^6)*d*e^6 + 6*(5
*B*a^2*b^4 + 2*A*a*b^5)*e^7)*x^5 + 210*(7*B*b^6*d^3*e^4 + 3*(6*B*
a*b^5 + A*b^6)*d^2*e^5 + 6*(5*B*a^2*b^4 + 2*A*a*b^5)*d*e^6 + 10*(
4*B*a^3*b^3 + 3*A*a^2*b^4)*e^7)*x^4 + 120*(7*B*b^6*d^4*e^3 + 3*(6
*B*a*b^5 + A*b^6)*d^3*e^4 + 6*(5*B*a^2*b^4 + 2*A*a*b^5)*d^2*e^5 +
 10*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d*e^6 + 15*(3*B*a^4*b^2 + 4*A*a^3
*b^3)*e^7)*x^3 + 45*(7*B*b^6*d^5*e^2 + 3*(6*B*a*b^5 + A*b^6)*d^4*
e^3 + 6*(5*B*a^2*b^4 + 2*A*a*b^5)*d^3*e^4 + 10*(4*B*a^3*b^3 + 3*A
*a^2*b^4)*d^2*e^5 + 15*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d*e^6 + 21*(2*
B*a^5*b + 5*A*a^4*b^2)*e^7)*x^2 + 10*(7*B*b^6*d^6*e + 3*(6*B*a*b^
5 + A*b^6)*d^5*e^2 + 6*(5*B*a^2*b^4 + 2*A*a*b^5)*d^4*e^3 + 10*(4*
B*a^3*b^3 + 3*A*a^2*b^4)*d^3*e^4 + 15*(3*B*a^4*b^2 + 4*A*a^3*b^3)
*d^2*e^5 + 21*(2*B*a^5*b + 5*A*a^4*b^2)*d*e^6 + 28*(B*a^6 + 6*A*a
^5*b)*e^7)*x)/(e^18*x^10 + 10*d*e^17*x^9 + 45*d^2*e^16*x^8 + 120*
d^3*e^15*x^7 + 210*d^4*e^14*x^6 + 252*d^5*e^13*x^5 + 210*d^6*e^12
*x^4 + 120*d^7*e^11*x^3 + 45*d^8*e^10*x^2 + 10*d^9*e^9*x + d^10*e
^8)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**6*(B*x+A)/(e*x+d)**11,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.233276, size = 1, normalized size = 0.01

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6/(e*x + d)^11,x, algorithm="giac")
```

```
[Out] Done
```

3.1054 $\int \frac{(a+bx)^6(A+Bx)}{(d+ex)^{12}}\,dx$

Optimal. Leaf size=235

$$\frac{b^3(a+bx)^7(-11aBe+4Abe+7bBd)}{9240e(d+ex)^7(bd-ae)^5}+\frac{b^2(a+bx)^7(-11aBe+4Abe+7bBd)}{1320e(d+ex)^8(bd-ae)^4}+\frac{b(a+bx)^7(-11aBe+4Abe+7bBd)}{330e(d+ex)^9(bd-ae)^3}+\frac{(a+bx)^7(-11aBe+4Abe+7bBd)}{110e(d+ex)^{10}(bd-ae)^2}-\frac{(a+bx)^7(Bd-Ae)}{11e(d+ex)^{11}(bd-ae)}$$

```
[Out] -((B*d - A*e)*(a + b*x)^7)/(11*e*(b*d - a*e)*(d + e*x)^11) + ((7*
b*B*d + 4*A*b*e - 11*a*B*e)*(a + b*x)^7)/(110*e*(b*d - a*e)^2*(d
+ e*x)^10) + (b*(7*b*B*d + 4*A*b*e - 11*a*B*e)*(a + b*x)^7)/(330*
e*(b*d - a*e)^3*(d + e*x)^9) + (b^2*(7*b*B*d + 4*A*b*e - 11*a*B*e
)*(a + b*x)^7)/(1320*e*(b*d - a*e)^4*(d + e*x)^8) + (b^3*(7*b*B*d
 + 4*A*b*e - 11*a*B*e)*(a + b*x)^7)/(9240*e*(b*d - a*e)^5*(d + e*
x)^7)
```

Rubi [A] time = 0.30075, antiderivative size = 235, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.15$

$$\frac{b^3(a+bx)^7(-11aBe+4Abe+7bBd)}{9240e(d+ex)^7(bd-ae)^5}+\frac{b^2(a+bx)^7(-11aBe+4Abe+7bBd)}{1320e(d+ex)^8(bd-ae)^4}+\frac{b(a+bx)^7(-11aBe+4Abe+7bBd)}{330e(d+ex)^9(bd-ae)^3}+\frac{(a+bx)^7(-11aBe+4Abe+7bBd)}{110e(d+ex)^{10}(bd-ae)^2}-\frac{(a+bx)^7(Bd-Ae)}{11e(d+ex)^{11}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^6*(A + B*x))/(d + e*x)^12,x]
```

```
[Out] -((B*d - A*e)*(a + b*x)^7)/(11*e*(b*d - a*e)*(d + e*x)^11) + ((7*
b*B*d + 4*A*b*e - 11*a*B*e)*(a + b*x)^7)/(110*e*(b*d - a*e)^2*(d
+ e*x)^10) + (b*(7*b*B*d + 4*A*b*e - 11*a*B*e)*(a + b*x)^7)/(330*
e*(b*d - a*e)^3*(d + e*x)^9) + (b^2*(7*b*B*d + 4*A*b*e - 11*a*B*e
)*(a + b*x)^7)/(1320*e*(b*d - a*e)^4*(d + e*x)^8) + (b^3*(7*b*B*d
 + 4*A*b*e - 11*a*B*e)*(a + b*x)^7)/(9240*e*(b*d - a*e)^5*(d + e*
x)^7)
```

Rubi in Sympy [A] time = 50.5696, size = 221, normalized size = 0.94

$$-\frac{b^3(a+bx)^7(4Abe-11Bae+7Bbd)}{9240e(d+ex)^7(ae-bd)^5}+\frac{b^2(a+bx)^7(4Abe-11Bae+7Bbd)}{1320e(d+ex)^8(ae-bd)^4}-\frac{b(a+bx)^7(4Abe-11Bae+7Bbd)}{330e(d+ex)^9(ae-bd)^3}+\frac{(a+bx)^7(4Abe-11Bae+7Bbd)}{110e(d+ex)^{10}(ae-bd)^2}-\frac{(a+bx)^7(Ae-Bd)}{11e(d+ex)^{11}(ae-bd)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**6*(B*x+A)/(e*x+d)**12,x)
```

```
[Out] -b**3*(a + b*x)**7*(4*A*b*e - 11*B*a*e + 7*B*b*d)/(9240*e*(d + e*
x)**7*(a*e - b*d)**5) + b**2*(a + b*x)**7*(4*A*b*e - 11*B*a*e + 7
*B*b*d)/(1320*e*(d + e*x)**8*(a*e - b*d)**4) - b*(a + b*x)**7*(4*
A*b*e - 11*B*a*e + 7*B*b*d)/(330*e*(d + e*x)**9*(a*e - b*d)**3) +
 (a + b*x)**7*(4*A*b*e - 11*B*a*e + 7*B*b*d)/(110*e*(d + e*x)**10
*(a*e - b*d)**2) - (a + b*x)**7*(A*e - B*d)/(11*e*(d + e*x)**11*(
a*e - b*d))
```

Mathematica [B] time = 0.964981, size = 605, normalized size = 2.57

$$-\frac{84a^6e^6(10Ae+B(d+11ex))+56a^5be^5\left(9Ae(d+11ex)+2B\left(d^2+11dex+55e^2x^2\right)\right)+35a^4b^2e^4\left(8Ae\left(d^2+11dex+55e^2x^2\right)\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^6*(A + B*x))/(d + e*x)^12,x]
```

```
[Out] -(84*a^6*e^6*(10*A*e + B*(d + 11*e*x)) + 56*a^5*b*e^5*(9*A*e*(d +
 11*e*x) + 2*B*(d^2 + 11*d*e*x + 55*e^2*x^2)) + 35*a^4*b^2*e^4*(8
*A*e*(d^2 + 11*d*e*x + 55*e^2*x^2) + 3*B*(d^3 + 11*d^2*e*x + 55*d
*e^2*x^2 + 165*e^3*x^3)) + 20*a^3*b^3*e^3*(7*A*e*(d^3 + 11*d^2*e*
x + 55*d*e^2*x^2 + 165*e^3*x^3) + 4*B*(d^4 + 11*d^3*e*x + 55*d^2*
e^2*x^2 + 165*d*e^3*x^3 + 330*e^4*x^4)) + 10*a^2*b^4*e^2*(6*A*e*(
d^4 + 11*d^3*e*x + 55*d^2*e^2*x^2 + 165*d*e^3*x^3 + 330*e^4*x^4)
+ 5*B*(d^5 + 11*d^4*e*x + 55*d^3*e^2*x^2 + 165*d^2*e^3*x^3 + 330*
d*e^4*x^4 + 462*e^5*x^5)) + 4*a*b^5*e*(5*A*e*(d^5 + 11*d^4*e*x +
55*d^3*e^2*x^2 + 165*d^2*e^3*x^3 + 330*d*e^4*x^4 + 462*e^5*x^5) +
 6*B*(d^6 + 11*d^5*e*x + 55*d^4*e^2*x^2 + 165*d^3*e^3*x^3 + 330*d
^2*e^4*x^4 + 462*d*e^5*x^5 + 462*e^6*x^6)) + b^6*(4*A*e*(d^6 + 11
*d^5*e*x + 55*d^4*e^2*x^2 + 165*d^3*e^3*x^3 + 330*d^2*e^4*x^4 + 4
62*d*e^5*x^5 + 462*e^6*x^6) + 7*B*(d^7 + 11*d^6*e*x + 55*d^5*e^2*
x^2 + 165*d^4*e^3*x^3 + 330*d^3*e^4*x^4 + 462*d^2*e^5*x^5 + 462*d
*e^6*x^6 + 330*e^7*x^7)))/(9240*e^8*(d + e*x)^11)
```

Maple [B] time = 0.013, size = 814, normalized size = 3.5

$$-\frac{b\left(5\,Aa^4be^5-20\,Aa^3b^2de^4+30\,Aa^2b^3d^2e^3-20\,Aab^4d^3e^2+5\,Ab^5d^4e+2\,Ba^5e^5-15\,Ba^4bde^4+40\,Ba^3b^2d^2e^3-50\,Ba^2b^3d\right.}{3\,e^8\left(ex+d\right)^9}$$
$$-\frac{6\,Aa^5be^6-30\,Ada^4b^2e^5+60\,Ad^2a^3b^3e^4-60\,Ad^3a^2b^4e^3+30\,Ad^4ab^5e^2-6\,Ad^5b^6e+a^6Be^6-12\,Bda^5be^5+45\,Bd^2a^4b^2e^4}{10\,e^8\left(ex+d\right)^{10}}$$
$$-\frac{b^4\left(2\,Aabe^2-2\,Adb^2e+5\,Ba^2e^2-12\,Bdabe+7\,b^2Bd^2\right)}{2\,e^8\left(ex+d\right)^6}$$
$$-\frac{5\,b^2\left(4\,Aa^3be^4-12\,Aa^2b^2de^3+12\,Aab^3d^2e^2-4\,Ab^4d^3e+3\,Ba^4e^4-16\,Ba^3bde^3+30\,Ba^2b^2d^2e^2-24\,Bab^3d^3e+7\,Bb^4d^4\right)}{8\,e^8\left(ex+d\right)^8}$$
$$-\frac{5\,b^3\left(3\,Aa^2be^3-6\,Adab^2e^2+3\,Ab^3d^2e+4\,Ba^3e^3-15\,Ba^2bde^2+18\,Bd^2ab^2e-7\,b^3Bd^3\right)}{7\,e^8\left(ex+d\right)^7}$$
$$-\frac{a^6Ae^7-6\,Ada^5be^6+15\,Ad^2a^4b^2e^5-20\,Ad^3a^3b^3e^4+15\,Ad^4a^2b^4e^3-6\,Ad^5ab^5e^2+Ad^6b^6e-Bda^6e^6+6\,Bd^2a^5be^5-15\,Bc}{11\,e^8\left(ex+d\right)^{11}}$$
$$-\frac{Bb^6}{4\,e^8\left(ex+d\right)^4}-\frac{b^5\left(Abe+6\,Bae-7\,Bbd\right)}{5\,e^8\left(ex+d\right)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^6*(B*x+A)/(e*x+d)^12,x)
```

```
[Out] -1/3*b*(5*A*a^4*b*e^5-20*A*a^3*b^2*d*e^4+30*A*a^2*b^3*d^2*e^3-20*
A*a*b^4*d^3*e^2+5*A*b^5*d^4*e+2*B*a^5*e^5-15*B*a^4*b*d*e^4+40*B*a
^3*b^2*d^2*e^3-50*B*a^2*b^3*d^3*e^2+30*B*a*b^4*d^4*e-7*B*b^5*d^5)
/e^8/(e*x+d)^9-1/10*(6*A*a^5*b*e^6-30*A*a^4*b^2*d*e^5+60*A*a^3*b^
3*d^2*e^4-60*A*a^2*b^4*d^3*e^3+30*A*a*b^5*d^4*e^2-6*A*b^6*d^5*e+B
*a^6*e^6-12*B*a^5*b*d*e^5+45*B*a^4*b^2*d^2*e^4-80*B*a^3*b^3*d^3*e
^3+75*B*a^2*b^4*d^4*e^2-36*B*a*b^5*d^5*e+7*B*b^6*d^6)/e^8/(e*x+d)
^10-1/2*b^4*(2*A*a*b*e^2-2*A*b^2*d*e+5*B*a^2*e^2-12*B*a*b*d*e+7*B
*b^2*d^2)/e^8/(e*x+d)^6-5/8*b^2*(4*A*a^3*b*e^4-12*A*a^2*b^2*d*e^3
+12*A*a*b^3*d^2*e^2-4*A*b^4*d^3*e+3*B*a^4*e^4-16*B*a^3*b*d*e^3+30
*B*a^2*b^2*d^2*e^2-24*B*a*b^3*d^3*e+7*B*b^4*d^4)/e^8/(e*x+d)^8-5/
7*b^3*(3*A*a^2*b*e^3-6*A*a*b^2*d*e^2+3*A*b^3*d^2*e+4*B*a^3*e^3-15
*B*a^2*b*d*e^2+18*B*a*b^2*d^2*e-7*B*b^3*d^3)/e^8/(e*x+d)^7-1/11*(
A*a^6*e^7-6*A*a^5*b*d*e^6+15*A*a^4*b^2*d^2*e^5-20*A*a^3*b^3*d^3*e
^4+15*A*a^2*b^4*d^4*e^3-6*A*a*b^5*d^5*e^2+A*b^6*d^6*e-B*a^6*d*e^6
+6*B*a^5*b*d^2*e^5-15*B*a^4*b^2*d^3*e^4+20*B*a^3*b^3*d^4*e^3-15*B
*a^2*b^4*d^5*e^2+6*B*a*b^5*d^6*e-B*b^6*d^7)/e^8/(e*x+d)^11-1/4*B*
b^6/e^8/(e*x+d)^4-1/5*b^5*(A*b*e+6*B*a*e-7*B*b*d)/e^8/(e*x+d)^5
```

Maxima [A] time = 1.42132, size = 1192, normalized size = 5.07

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6/(e*x + d)^12,x, algorithm="maxima")
```

```
[Out] -1/9240*(2310*B*b^6*e^7*x^7 + 7*B*b^6*d^7 + 840*A*a^6*e^7 + 4*(6*
B*a*b^5 + A*b^6)*d^6*e + 10*(5*B*a^2*b^4 + 2*A*a*b^5)*d^5*e^2 + 2
0*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^4*e^3 + 35*(3*B*a^4*b^2 + 4*A*a^3
*b^3)*d^3*e^4 + 56*(2*B*a^5*b + 5*A*a^4*b^2)*d^2*e^5 + 84*(B*a^6
+ 6*A*a^5*b)*d*e^6 + 462*(7*B*b^6*d*e^6 + 4*(6*B*a*b^5 + A*b^6)*e
^7)*x^6 + 462*(7*B*b^6*d^2*e^5 + 4*(6*B*a*b^5 + A*b^6)*d*e^6 + 10
*(5*B*a^2*b^4 + 2*A*a*b^5)*e^7)*x^5 + 330*(7*B*b^6*d^3*e^4 + 4*(6
*B*a*b^5 + A*b^6)*d^2*e^5 + 10*(5*B*a^2*b^4 + 2*A*a*b^5)*d*e^6 +
20*(4*B*a^3*b^3 + 3*A*a^2*b^4)*e^7)*x^4 + 165*(7*B*b^6*d^4*e^3 +
4*(6*B*a*b^5 + A*b^6)*d^3*e^4 + 10*(5*B*a^2*b^4 + 2*A*a*b^5)*d^2*
e^5 + 20*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d*e^6 + 35*(3*B*a^4*b^2 + 4*
A*a^3*b^3)*e^7)*x^3 + 55*(7*B*b^6*d^5*e^2 + 4*(6*B*a*b^5 + A*b^6)
*d^4*e^3 + 10*(5*B*a^2*b^4 + 2*A*a*b^5)*d^3*e^4 + 20*(4*B*a^3*b^3
 + 3*A*a^2*b^4)*d^2*e^5 + 35*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d*e^6 +
56*(2*B*a^5*b + 5*A*a^4*b^2)*e^7)*x^2 + 11*(7*B*b^6*d^6*e + 4*(6*
B*a*b^5 + A*b^6)*d^5*e^2 + 10*(5*B*a^2*b^4 + 2*A*a*b^5)*d^4*e^3 +
 20*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^3*e^4 + 35*(3*B*a^4*b^2 + 4*A*a
^3*b^3)*d^2*e^5 + 56*(2*B*a^5*b + 5*A*a^4*b^2)*d*e^6 + 84*(B*a^6
+ 6*A*a^5*b)*e^7)*x)/(e^19*x^11 + 11*d*e^18*x^10 + 55*d^2*e^17*x^
9 + 165*d^3*e^16*x^8 + 330*d^4*e^15*x^7 + 462*d^5*e^14*x^6 + 462*
d^6*e^13*x^5 + 330*d^7*e^12*x^4 + 165*d^8*e^11*x^3 + 55*d^9*e^10*
x^2 + 11*d^10*e^9*x + d^11*e^8)
```

Fricas [A] time = 0.209802, size = 1192, normalized size = 5.07

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6/(e*x + d)^12,x, algorithm="fricas")
```

```
[Out] -1/9240*(2310*B*b^6*e^7*x^7 + 7*B*b^6*d^7 + 840*A*a^6*e^7 + 4*(6*
B*a*b^5 + A*b^6)*d^6*e + 10*(5*B*a^2*b^4 + 2*A*a*b^5)*d^5*e^2 + 2
0*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^4*e^3 + 35*(3*B*a^4*b^2 + 4*A*a^3
*b^3)*d^3*e^4 + 56*(2*B*a^5*b + 5*A*a^4*b^2)*d^2*e^5 + 84*(B*a^6
+ 6*A*a^5*b)*d*e^6 + 462*(7*B*b^6*d*e^6 + 4*(6*B*a*b^5 + A*b^6)*e
^7)*x^6 + 462*(7*B*b^6*d^2*e^5 + 4*(6*B*a*b^5 + A*b^6)*d*e^6 + 10
*(5*B*a^2*b^4 + 2*A*a*b^5)*e^7)*x^5 + 330*(7*B*b^6*d^3*e^4 + 4*(6
*B*a*b^5 + A*b^6)*d^2*e^5 + 10*(5*B*a^2*b^4 + 2*A*a*b^5)*d*e^6 +
20*(4*B*a^3*b^3 + 3*A*a^2*b^4)*e^7)*x^4 + 165*(7*B*b^6*d^4*e^3 +
4*(6*B*a*b^5 + A*b^6)*d^3*e^4 + 10*(5*B*a^2*b^4 + 2*A*a*b^5)*d^2*
e^5 + 20*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d*e^6 + 35*(3*B*a^4*b^2 + 4*
A*a^3*b^3)*e^7)*x^3 + 55*(7*B*b^6*d^5*e^2 + 4*(6*B*a*b^5 + A*b^6)
*d^4*e^3 + 10*(5*B*a^2*b^4 + 2*A*a*b^5)*d^3*e^4 + 20*(4*B*a^3*b^3
 + 3*A*a^2*b^4)*d^2*e^5 + 35*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d*e^6 +
56*(2*B*a^5*b + 5*A*a^4*b^2)*e^7)*x^2 + 11*(7*B*b^6*d^6*e + 4*(6*
B*a*b^5 + A*b^6)*d^5*e^2 + 10*(5*B*a^2*b^4 + 2*A*a*b^5)*d^4*e^3 +
 20*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^3*e^4 + 35*(3*B*a^4*b^2 + 4*A*a
^3*b^3)*d^2*e^5 + 56*(2*B*a^5*b + 5*A*a^4*b^2)*d*e^6 + 84*(B*a^6
+ 6*A*a^5*b)*e^7)*x)/(e^19*x^11 + 11*d*e^18*x^10 + 55*d^2*e^17*x^
9 + 165*d^3*e^16*x^8 + 330*d^4*e^15*x^7 + 462*d^5*e^14*x^6 + 462*
d^6*e^13*x^5 + 330*d^7*e^12*x^4 + 165*d^8*e^11*x^3 + 55*d^9*e^10*
x^2 + 11*d^10*e^9*x + d^11*e^8)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**6*(B*x+A)/(e*x+d)**12,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.230363, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6/(e*x + d)^12,x, algorithm="giac")
```

```
[Out] Done
```

3.1055 $\int \frac{(a+bx)^6(A+Bx)}{(d+ex)^{13}}\,dx$

Optimal. Leaf size=292

$$\frac{b^5(-6aBe-Abe+7bBd)}{6e^8(d+ex)^6}-\frac{3b^4(bd-ae)(-5aBe-2Abe+7bBd)}{7e^8(d+ex)^7}+\frac{5b^3(bd-ae)^2(-4aBe-3Abe+7bBd)}{8e^8(d+ex)^8}-\frac{5b^2(bd-ae)^3(-3aBe-4Abe+7bBd)}{9e^8(d+ex)^9}+\frac{3b(bd-ae)^4(-2aBe-5Abe+7bBd)}{10e^8(d+ex)^{10}}-\frac{(bd-ae)^5(-aBe-6Abe+7bBd)}{11e^8(d+ex)^{11}}+\frac{(bd-ae)^6(Bd-Ae)}{12e^8(d+ex)^{12}}-\frac{b^6B}{5e^8(d+ex)^5}$$

```
[Out] ((b*d - a*e)^6*(B*d - A*e))/(12*e^8*(d + e*x)^12) - ((b*d - a*e)^
5*(7*b*B*d - 6*A*b*e - a*B*e))/(11*e^8*(d + e*x)^11) + (3*b*(b*d
 - a*e)^4*(7*b*B*d - 5*A*b*e - 2*a*B*e))/(10*e^8*(d + e*x)^10) - (
5*b^2*(b*d - a*e)^3*(7*b*B*d - 4*A*b*e - 3*a*B*e))/(9*e^8*(d + e*
x)^9) + (5*b^3*(b*d - a*e)^2*(7*b*B*d - 3*A*b*e - 4*a*B*e))/(8*e^
8*(d + e*x)^8) - (3*b^4*(b*d - a*e)*(7*b*B*d - 2*A*b*e - 5*a*B*e)
)/(7*e^8*(d + e*x)^7) + (b^5*(7*b*B*d - A*b*e - 6*a*B*e))/(6*e^8*
(d + e*x)^6) - (b^6*B)/(5*e^8*(d + e*x)^5)
```

Rubi [A] time = 1.02502, antiderivative size = 292, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$\frac{b^5(-6aBe-Abe+7bBd)}{6e^8(d+ex)^6}-\frac{3b^4(bd-ae)(-5aBe-2Abe+7bBd)}{7e^8(d+ex)^7}+\frac{5b^3(bd-ae)^2(-4aBe-3Abe+7bBd)}{8e^8(d+ex)^8}-\frac{5b^2(bd-ae)^3(-3aBe-4Abe+7bBd)}{9e^8(d+ex)^9}+\frac{3b(bd-ae)^4(-2aBe-5Abe+7bBd)}{10e^8(d+ex)^{10}}-\frac{(bd-ae)^5(-aBe-6Abe+7bBd)}{11e^8(d+ex)^{11}}+\frac{(bd-ae)^6(Bd-Ae)}{12e^8(d+ex)^{12}}-\frac{b^6B}{5e^8(d+ex)^5}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^6*(A + B*x))/(d + e*x)^13,x]
```


```
[Out] ((b*d - a*e)^6*(B*d - A*e))/(12*e^8*(d + e*x)^12) - ((b*d - a*e)^
5*(7*b*B*d - 6*A*b*e - a*B*e))/(11*e^8*(d + e*x)^11) + (3*b*(b*d
 - a*e)^4*(7*b*B*d - 5*A*b*e - 2*a*B*e))/(10*e^8*(d + e*x)^10) - (
5*b^2*(b*d - a*e)^3*(7*b*B*d - 4*A*b*e - 3*a*B*e))/(9*e^8*(d + e*
x)^9) + (5*b^3*(b*d - a*e)^2*(7*b*B*d - 3*A*b*e - 4*a*B*e))/(8*e^
8*(d + e*x)^8) - (3*b^4*(b*d - a*e)*(7*b*B*d - 2*A*b*e - 5*a*B*e)
)/(7*e^8*(d + e*x)^7) + (b^5*(7*b*B*d - A*b*e - 6*a*B*e))/(6*e^8*
(d + e*x)^6) - (b^6*B)/(5*e^8*(d + e*x)^5)
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**6*(B*x+A)/(e*x+d)**13,x)
```

```
[Out] Timed out
```

Mathematica [B] time = 0.995513, size = 600, normalized size = 2.05

$$-\frac{210a^6e^6(11Ae + B(d + 12ex)) + 252a^5be^5\left(5Ae(d + 12ex) + B\left(d^2 + 12dex + 66e^2x^2\right)\right) + 210a^4b^2e^4\left(3Ae\left(d^2 + 12dex + 66e\right.\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^6*(A + B*x))/(d + e*x)^13,x]
```

```
[Out] -(210*a^6*e^6*(11*A*e + B*(d + 12*e*x)) + 252*a^5*b*e^5*(5*A*e*(d
 + 12*e*x) + B*(d^2 + 12*d*e*x + 66*e^2*x^2)) + 210*a^4*b^2*e^4*(
3*A*e*(d^2 + 12*d*e*x + 66*e^2*x^2) + B*(d^3 + 12*d^2*e*x + 66*d*
e^2*x^2 + 220*e^3*x^3)) + 140*a^3*b^3*e^3*(2*A*e*(d^3 + 12*d^2*e*
x + 66*d*e^2*x^2 + 220*e^3*x^3) + B*(d^4 + 12*d^3*e*x + 66*d^2*e^
2*x^2 + 220*d*e^3*x^3 + 495*e^4*x^4)) + 15*a^2*b^4*e^2*(7*A*e*(d^
4 + 12*d^3*e*x + 66*d^2*e^2*x^2 + 220*d*e^3*x^3 + 495*e^4*x^4) +
5*B*(d^5 + 12*d^4*e*x + 66*d^3*e^2*x^2 + 220*d^2*e^3*x^3 + 495*d*
e^4*x^4 + 792*e^5*x^5)) + 30*a*b^5*e*(A*e*(d^5 + 12*d^4*e*x + 66*
d^3*e^2*x^2 + 220*d^2*e^3*x^3 + 495*d*e^4*x^4 + 792*e^5*x^5) + B*
(d^6 + 12*d^5*e*x + 66*d^4*e^2*x^2 + 220*d^3*e^3*x^3 + 495*d^2*e^
4*x^4 + 792*d*e^5*x^5 + 924*e^6*x^6)) + b^6*(5*A*e*(d^6 + 12*d^5*
e*x + 66*d^4*e^2*x^2 + 220*d^3*e^3*x^3 + 495*d^2*e^4*x^4 + 792*d*
e^5*x^5 + 924*e^6*x^6) + 7*B*(d^7 + 12*d^6*e*x + 66*d^5*e^2*x^2 +
 220*d^4*e^3*x^3 + 495*d^3*e^4*x^4 + 792*d^2*e^5*x^5 + 924*d*e^6*
x^6 + 792*e^7*x^7)))/(27720*e^8*(d + e*x)^12)
```

Maple [B] time = 0.013, size = 814, normalized size = 2.8

$$-\frac{5\,b^2\left(4\,Aa^3be^4 - 12\,Aa^2b^2de^3 + 12\,Aab^3d^2e^2 - 4\,Ab^4d^3e + 3\,Ba^4e^4 - 16\,Ba^3bde^3 + 30\,Ba^2b^2d^2e^2 - 24\,Bab^3d^3e + 7\,Bb^4d^4\right)}{9\,e^8\,(ex + d)^9}$$
$$-\frac{3\,b\left(5\,Aa^4be^5 - 20\,Aa^3b^2de^4 + 30\,Aa^2b^3d^2e^3 - 20\,Aab^4d^3e^2 + 5\,Ab^5d^4e + 2\,Ba^5e^5 - 15\,Ba^4bde^4 + 40\,Ba^3b^2d^2e^3 - 50\,Ba^2b\right.}{10\,e^8\,(ex + d)^{10}}$$
$$-\frac{b^5\,(Abe + 6\,Bae - 7\,Bbd)}{6\,e^8\,(ex + d)^6}$$
$$-\frac{5\,b^3\left(3\,Aa^2be^3 - 6\,Adab^2e^2 + 3\,Ab^3d^2e + 4\,Ba^3e^3 - 15\,Ba^2bde^2 + 18\,Bd^2ab^2e - 7\,b^3Bd^3\right)}{8\,e^8\,(ex + d)^8}$$
$$-\frac{3\,b^4\left(2\,Aabe^2 - 2\,Adb^2e + 5\,Ba^2e^2 - 12\,Bdabe + 7\,b^2Bd^2\right)}{7\,e^8\,(ex + d)^7}$$
$$-\frac{a^6Ae^7 - 6\,Ada^5be^6 + 15\,Ad^2a^4b^2e^5 - 20\,Ad^3a^3b^3e^4 + 15\,Ad^4a^2b^4e^3 - 6\,Ad^5ab^5e^2 + Ad^6b^6e - Bda^6e^6 + 6\,Bd^2a^5be^5 - 15\,B}{12\,e^8\,(ex + d)^{12}}$$
$$-\frac{6\,Aa^5be^6 - 30\,Ada^4b^2e^5 + 60\,Ad^2a^3b^3e^4 - 60\,Ad^3a^2b^4e^3 + 30\,Ad^4ab^5e^2 - 6\,Ad^5b^6e + a^6Be^6 - 12\,Bda^5be^5 + 45\,Bd^2a^4b^2e^4}{11\,e^8\,(ex + d)^{11}}$$
$$-\frac{Bb^6}{5\,e^8\,(ex + d)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^6*(B*x+A)/(e*x+d)^13,x)
```

```
[Out] -5/9*b^2*(4*A*a^3*b*e^4-12*A*a^2*b^2*d*e^3+12*A*a*b^3*d^2*e^2-4*A
*b^4*d^3*e+3*B*a^4*e^4-16*B*a^3*b*d*e^3+30*B*a^2*b^2*d^2*e^2-24*B
*a*b^3*d^3*e+7*B*b^4*d^4)/e^8/(e*x+d)^9-3/10*b*(5*A*a^4*b*e^5-20*
A*a^3*b^2*d*e^4+30*A*a^2*b^3*d^2*e^3-20*A*a*b^4*d^3*e^2+5*A*b^5*d
^4*e+2*B*a^5*e^5-15*B*a^4*b*d*e^4+40*B*a^3*b^2*d^2*e^3-50*B*a^2*b
^3*d^3*e^2+30*B*a*b^4*d^4*e-7*B*b^5*d^5)/e^8/(e*x+d)^10-1/6*b^5*(
A*b*e+6*B*a*e-7*B*b*d)/e^8/(e*x+d)^6-5/8*b^3*(3*A*a^2*b*e^3-6*A*a
*b^2*d*e^2+3*A*b^3*d^2*e+4*B*a^3*e^3-15*B*a^2*b*d*e^2+18*B*a*b^2*
d^2*e-7*B*b^3*d^3)/e^8/(e*x+d)^8-3/7*b^4*(2*A*a*b*e^2-2*A*b^2*d*e
+5*B*a^2*e^2-12*B*a*b*d*e+7*B*b^2*d^2)/e^8/(e*x+d)^7-1/12*(A*a^6*
e^7-6*A*a^5*b*d*e^6+15*A*a^4*b^2*d^2*e^5-20*A*a^3*b^3*d^3*e^4+15*
A*a^2*b^4*d^4*e^3-6*A*a*b^5*d^5*e^2+A*b^6*d^6*e-B*a^6*d*e^6+6*B*a
^5*b*d^2*e^5-15*B*a^4*b^2*d^3*e^4+20*B*a^3*b^3*d^4*e^3-15*B*a^2*b
^4*d^5*e^2+6*B*a*b^5*d^6*e-B*b^6*d^7)/e^8/(e*x+d)^12-1/11*(6*A*a^
```

```
5*b*e^6-30*A*a^4*b^2*d*e^5+60*A*a^3*b^3*d^2*e^4-60*A*a^2*b^4*d^3*
e^3+30*A*a*b^5*d^4*e^2-6*A*b^6*d^5*e+B*a^6*e^6-12*B*a^5*b*d*e^5+4
5*B*a^4*b^2*d^2*e^4-80*B*a^3*b^3*d^3*e^3+75*B*a^2*b^4*d^4*e^2-36*
B*a*b^5*d^5*e+7*B*b^6*d^6)/e^8/(e*x+d)^11-1/5*b^6*B/e^8/(e*x+d)^5
```

Maxima [A] time = 1.43153, size = 1207, normalized size = 4.13

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6/(e*x + d)^13,x, algorithm="maxima")
```

```
[Out] -1/27720*(5544*B*b^6*e^7*x^7 + 7*B*b^6*d^7 + 2310*A*a^6*e^7 + 5*(
6*B*a*b^5 + A*b^6)*d^6*e + 15*(5*B*a^2*b^4 + 2*A*a*b^5)*d^5*e^2 +
 35*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^4*e^3 + 70*(3*B*a^4*b^2 + 4*A*a
^3*b^3)*d^3*e^4 + 126*(2*B*a^5*b + 5*A*a^4*b^2)*d^2*e^5 + 210*(B*
a^6 + 6*A*a^5*b)*d*e^6 + 924*(7*B*b^6*d*e^6 + 5*(6*B*a*b^5 + A*b^
6)*e^7)*x^6 + 792*(7*B*b^6*d^2*e^5 + 5*(6*B*a*b^5 + A*b^6)*d*e^6
+ 15*(5*B*a^2*b^4 + 2*A*a*b^5)*e^7)*x^5 + 495*(7*B*b^6*d^3*e^4 +
5*(6*B*a*b^5 + A*b^6)*d^2*e^5 + 15*(5*B*a^2*b^4 + 2*A*a*b^5)*d*e^
6 + 35*(4*B*a^3*b^3 + 3*A*a^2*b^4)*e^7)*x^4 + 220*(7*B*b^6*d^4*e^
3 + 5*(6*B*a*b^5 + A*b^6)*d^3*e^4 + 15*(5*B*a^2*b^4 + 2*A*a*b^5)*
d^2*e^5 + 35*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d*e^6 + 70*(3*B*a^4*b^2
+ 4*A*a^3*b^3)*e^7)*x^3 + 66*(7*B*b^6*d^5*e^2 + 5*(6*B*a*b^5 + A*
b^6)*d^4*e^3 + 15*(5*B*a^2*b^4 + 2*A*a*b^5)*d^3*e^4 + 35*(4*B*a^3
*b^3 + 3*A*a^2*b^4)*d^2*e^5 + 70*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d*e^
6 + 126*(2*B*a^5*b + 5*A*a^4*b^2)*e^7)*x^2 + 12*(7*B*b^6*d^6*e +
5*(6*B*a*b^5 + A*b^6)*d^5*e^2 + 15*(5*B*a^2*b^4 + 2*A*a*b^5)*d^4*
e^3 + 35*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^3*e^4 + 70*(3*B*a^4*b^2 +
4*A*a^3*b^3)*d^2*e^5 + 126*(2*B*a^5*b + 5*A*a^4*b^2)*d*e^6 + 210*
(B*a^6 + 6*A*a^5*b)*e^7)*x)/(e^20*x^12 + 12*d*e^19*x^11 + 66*d^2*
e^18*x^10 + 220*d^3*e^17*x^9 + 495*d^4*e^16*x^8 + 792*d^5*e^15*x^
7 + 924*d^6*e^14*x^6 + 792*d^7*e^13*x^5 + 495*d^8*e^12*x^4 + 220*
d^9*e^11*x^3 + 66*d^10*e^10*x^2 + 12*d^11*e^9*x + d^12*e^8)
```

Fricas [A] time = 0.216972, size = 1207, normalized size = 4.13

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6/(e*x + d)^13,x, algorithm="fricas")
```

```
[Out] -1/27720*(5544*B*b^6*e^7*x^7 + 7*B*b^6*d^7 + 2310*A*a^6*e^7 + 5*(
6*B*a*b^5 + A*b^6)*d^6*e + 15*(5*B*a^2*b^4 + 2*A*a*b^5)*d^5*e^2 +
 35*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^4*e^3 + 70*(3*B*a^4*b^2 + 4*A*a
^3*b^3)*d^3*e^4 + 126*(2*B*a^5*b + 5*A*a^4*b^2)*d^2*e^5 + 210*(B*
a^6 + 6*A*a^5*b)*d*e^6 + 924*(7*B*b^6*d*e^6 + 5*(6*B*a*b^5 + A*b^
6)*e^7)*x^6 + 792*(7*B*b^6*d^2*e^5 + 5*(6*B*a*b^5 + A*b^6)*d*e^6
+ 15*(5*B*a^2*b^4 + 2*A*a*b^5)*e^7)*x^5 + 495*(7*B*b^6*d^3*e^4 +
5*(6*B*a*b^5 + A*b^6)*d^2*e^5 + 15*(5*B*a^2*b^4 + 2*A*a*b^5)*d*e^
6 + 35*(4*B*a^3*b^3 + 3*A*a^2*b^4)*e^7)*x^4 + 220*(7*B*b^6*d^4*e^
3 + 5*(6*B*a*b^5 + A*b^6)*d^3*e^4 + 15*(5*B*a^2*b^4 + 2*A*a*b^5)*
d^2*e^5 + 35*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d*e^6 + 70*(3*B*a^4*b^2
+ 4*A*a^3*b^3)*e^7)*x^3 + 66*(7*B*b^6*d^5*e^2 + 5*(6*B*a*b^5 + A*
b^6)*d^4*e^3 + 15*(5*B*a^2*b^4 + 2*A*a*b^5)*d^3*e^4 + 35*(4*B*a^3
*b^3 + 3*A*a^2*b^4)*d^2*e^5 + 70*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d*e^
6 + 126*(2*B*a^5*b + 5*A*a^4*b^2)*e^7)*x^2 + 12*(7*B*b^6*d^6*e +
5*(6*B*a*b^5 + A*b^6)*d^5*e^2 + 15*(5*B*a^2*b^4 + 2*A*a*b^5)*d^4*
e^3 + 35*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^3*e^4 + 70*(3*B*a^4*b^2 +
4*A*a^3*b^3)*d^2*e^5 + 126*(2*B*a^5*b + 5*A*a^4*b^2)*d*e^6 + 210*
(B*a^6 + 6*A*a^5*b)*e^7)*x)/(e^20*x^12 + 12*d*e^19*x^11 + 66*d^2*
e^18*x^10 + 220*d^3*e^17*x^9 + 495*d^4*e^16*x^8 + 792*d^5*e^15*x^
7 + 924*d^6*e^14*x^6 + 792*d^7*e^13*x^5 + 495*d^8*e^12*x^4 + 220*
```

```
d^9*e^11*x^3 + 66*d^10*e^10*x^2 + 12*d^11*e^9*x + d^12*e^8)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**6*(B*x+A)/(e*x+d)**13,x)

[Out] Timed out
```

GIAC/XCAS [A] time = 0.226434, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6/(e*x + d)^13,x, algorithm="giac")

[Out] Done
```

3.1056 $\int \frac{(a+bx)^6(A+Bx)}{(d+ex)^{14}}\,dx$

Optimal. Leaf size=292

$$\frac{b^5(-6aBe-Abe+7bBd)}{7e^8(d+ex)^7}-\frac{3b^4(bd-ae)(-5aBe-2Abe+7bBd)}{8e^8(d+ex)^8}+\frac{5b^3(bd-ae)^2(-4aBe-3Abe+7bBd)}{9e^8(d+ex)^9}-\frac{b^2(bd-ae)^3(-3aBe-4Abe+7bBd)}{2e^8(d+ex)^{10}}+\frac{3b(bd-ae)^4(-2aBe-5Abe+7bBd)}{11e^8(d+ex)^{11}}-\frac{(bd-ae)^5(-aBe-6Abe+7bBd)}{12e^8(d+ex)^{12}}+\frac{(bd-ae)^6(Bd-Ae)}{13e^8(d+ex)^{13}}-\frac{b^6B}{6e^8(d+ex)^6}$$

```
[Out] ((b*d - a*e)^6*(B*d - A*e))/(13*e^8*(d + e*x)^13) - ((b*d - a*e)^
5*(7*b*B*d - 6*A*b*e - a*B*e))/(12*e^8*(d + e*x)^12) + (3*b*(b*d
- a*e)^4*(7*b*B*d - 5*A*b*e - 2*a*B*e))/(11*e^8*(d + e*x)^11) - (
b^2*(b*d - a*e)^3*(7*b*B*d - 4*A*b*e - 3*a*B*e))/(2*e^8*(d + e*x)
^10) + (5*b^3*(b*d - a*e)^2*(7*b*B*d - 3*A*b*e - 4*a*B*e))/(9*e^8
*(d + e*x)^9) - (3*b^4*(b*d - a*e)*(7*b*B*d - 2*A*b*e - 5*a*B*e))
/(8*e^8*(d + e*x)^8) + (b^5*(7*b*B*d - A*b*e - 6*a*B*e))/(7*e^8*(
d + e*x)^7) - (b^6*B)/(6*e^8*(d + e*x)^6)
```

Rubi [A] time = 1.00359, antiderivative size = 292, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{b^5(-6aBe-Abe+7bBd)}{7e^8(d+ex)^7}-\frac{3b^4(bd-ae)(-5aBe-2Abe+7bBd)}{8e^8(d+ex)^8}+\frac{5b^3(bd-ae)^2(-4aBe-3Abe+7bBd)}{9e^8(d+ex)^9}-\frac{b^2(bd-ae)^3(-3aBe-4Abe+7bBd)}{2e^8(d+ex)^{10}}+\frac{3b(bd-ae)^4(-2aBe-5Abe+7bBd)}{11e^8(d+ex)^{11}}-\frac{(bd-ae)^5(-aBe-6Abe+7bBd)}{12e^8(d+ex)^{12}}+\frac{(bd-ae)^6(Bd-Ae)}{13e^8(d+ex)^{13}}-\frac{b^6B}{6e^8(d+ex)^6}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^6*(A + B*x))/(d + e*x)^14,x]
```


```
[Out] ((b*d - a*e)^6*(B*d - A*e))/(13*e^8*(d + e*x)^13) - ((b*d - a*e)^
5*(7*b*B*d - 6*A*b*e - a*B*e))/(12*e^8*(d + e*x)^12) + (3*b*(b*d
- a*e)^4*(7*b*B*d - 5*A*b*e - 2*a*B*e))/(11*e^8*(d + e*x)^11) - (
b^2*(b*d - a*e)^3*(7*b*B*d - 4*A*b*e - 3*a*B*e))/(2*e^8*(d + e*x)
^10) + (5*b^3*(b*d - a*e)^2*(7*b*B*d - 3*A*b*e - 4*a*B*e))/(9*e^8
*(d + e*x)^9) - (3*b^4*(b*d - a*e)*(7*b*B*d - 2*A*b*e - 5*a*B*e))
/(8*e^8*(d + e*x)^8) + (b^5*(7*b*B*d - A*b*e - 6*a*B*e))/(7*e^8*(
d + e*x)^7) - (b^6*B)/(6*e^8*(d + e*x)^6)
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**6*(B*x+A)/(e*x+d)**14,x)
```

```
[Out] Timed out
```

Mathematica [B] time = 0.968186, size = 605, normalized size = 2.07

$$-\frac{462a^6e^6(12Ae+B(d+13ex))+252a^5be^5\left(11Ae(d+13ex)+2B\left(d^2+13dex+78e^2x^2\right)\right)+126a^4b^2e^4\left(10Ae\left(d^2+13dex+\right.\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^6*(A + B*x))/(d + e*x)^14,x]
```

```
[Out] -(462*a^6*e^6*(12*A*e + B*(d + 13*e*x)) + 252*a^5*b*e^5*(11*A*e*(
d + 13*e*x) + 2*B*(d^2 + 13*d*e*x + 78*e^2*x^2)) + 126*a^4*b^2*e^
4*(10*A*e*(d^2 + 13*d*e*x + 78*e^2*x^2) + 3*B*(d^3 + 13*d^2*e*x +
 78*d*e^2*x^2 + 286*e^3*x^3)) + 56*a^3*b^3*e^3*(9*A*e*(d^3 + 13*d
^2*e*x + 78*d*e^2*x^2 + 286*e^3*x^3) + 4*B*(d^4 + 13*d^3*e*x + 78
*d^2*e^2*x^2 + 286*d*e^3*x^3 + 715*e^4*x^4)) + 21*a^2*b^4*e^2*(8*
A*e*(d^4 + 13*d^3*e*x + 78*d^2*e^2*x^2 + 286*d*e^3*x^3 + 715*e^4*
x^4) + 5*B*(d^5 + 13*d^4*e*x + 78*d^3*e^2*x^2 + 286*d^2*e^3*x^3 +
 715*d*e^4*x^4 + 1287*e^5*x^5)) + 6*a*b^5*e*(7*A*e*(d^5 + 13*d^4*
e*x + 78*d^3*e^2*x^2 + 286*d^2*e^3*x^3 + 715*d*e^4*x^4 + 1287*e^5
*x^5) + 6*B*(d^6 + 13*d^5*e*x + 78*d^4*e^2*x^2 + 286*d^3*e^3*x^3
+ 715*d^2*e^4*x^4 + 1287*d*e^5*x^5 + 1716*e^6*x^6)) + b^6*(6*A*e*
(d^6 + 13*d^5*e*x + 78*d^4*e^2*x^2 + 286*d^3*e^3*x^3 + 715*d^2*e^
4*x^4 + 1287*d*e^5*x^5 + 1716*e^6*x^6) + 7*B*(d^7 + 13*d^6*e*x +
78*d^5*e^2*x^2 + 286*d^4*e^3*x^3 + 715*d^3*e^4*x^4 + 1287*d^2*e^5
*x^5 + 1716*d*e^6*x^6 + 1716*e^7*x^7)))/(72072*e^8*(d + e*x)^13)
```

Maple [B] time = 0.013, size = 814, normalized size = 2.8

$$-\frac{5\,b^3\left(3\,Aa^2be^3-6\,Adab^2e^2+3\,Ab^3d^2e+4\,Ba^3e^3-15\,Ba^2bde^2+18\,Bd^2ab^2e-7\,b^3Bd^3\right)}{9\,e^8\,(ex+d)^9}$$
$$-\frac{b^2\left(4\,Aa^3be^4-12\,Aa^2b^2de^3+12\,Aab^3d^2e^2-4\,Ab^4d^3e+3\,Ba^4e^4-16\,Ba^3bde^3+30\,Ba^2b^2d^2e^2-24\,Bab^3d^3e+7\,Bb^4d^4\right)}{2\,e^8\,(ex+d)^{10}}$$
$$-\frac{Bb^6}{6\,e^8\,(ex+d)^6}-\frac{3\,b^4\left(2\,Aabe^2-2\,Adb^2e+5\,Ba^2e^2-12\,Bdabe+7\,b^2Bd^2\right)}{8\,e^8\,(ex+d)^8}-\frac{b^5\,(Abe+6\,Bae-7\,Bbd)}{7\,e^8\,(ex+d)^7}$$
$$-\frac{6\,Aa^5be^6-30\,Ada^4b^2e^5+60\,Ad^2a^3b^3e^4-60\,Ad^3a^2b^4e^3+30\,Ad^4ab^5e^2-6\,Ad^5b^6e+a^6Be^6-12\,Bda^5be^5+45\,Bd^2a^4b^2e^4}{12\,e^8\,(ex+d)^{12}}$$
$$-\frac{3\,b\left(5\,Aa^4be^5-20\,Aa^3b^2de^4+30\,Aa^2b^3d^2e^3-20\,Aab^4d^3e^2+5\,Ab^5d^4e+2\,Ba^5e^5-15\,Ba^4bde^4+40\,Ba^3b^2d^2e^3-50\,Ba^2b\right.}{11\,e^8\,(ex+d)^{11}}$$
$$-\frac{a^6Ae^7-6\,Ada^5be^6+15\,Ad^2a^4b^2e^5-20\,Ad^3a^3b^3e^4+15\,Ad^4a^2b^4e^3-6\,Ad^5ab^5e^2+Ad^6b^6e-Bda^6e^6+6\,Bd^2a^5be^5-15\,B}{13\,e^8\,(ex+d)^{13}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^6*(B*x+A)/(e*x+d)^14,x)
```

```
[Out] -5/9*b^3*(3*A*a^2*b*e^3-6*A*a*b^2*d*e^2+3*A*b^3*d^2*e+4*B*a^3*e^3
-15*B*a^2*b*d*e^2+18*B*a*b^2*d^2*e-7*B*b^3*d^3)/e^8/(e*x+d)^9-1/2
*b^2*(4*A*a^3*b*e^4-12*A*a^2*b^2*d*e^3+12*A*a*b^3*d^2*e^2-4*A*b^4
*d^3*e+3*B*a^4*e^4-16*B*a^3*b*d*e^3+30*B*a^2*b^2*d^2*e^2-24*B*a*b
^3*d^3*e+7*B*b^4*d^4)/e^8/(e*x+d)^10-1/6*b^6*B/e^8/(e*x+d)^6-3/8*
b^4*(2*A*a*b*e^2-2*A*b^2*d*e+5*B*a^2*e^2-12*B*a*b*d*e+7*B*b^2*d^2
)/e^8/(e*x+d)^8-1/7*b^5*(A*b*e+6*B*a*e-7*B*b*d)/e^8/(e*x+d)^7-1/1
2*(6*A*a^5*b*e^6-30*A*a^4*b^2*d*e^5+60*A*a^3*b^3*d^2*e^4-60*A*a^2
*b^4*d^3*e^3+30*A*a*b^5*d^4*e^2-6*A*b^6*d^5*e+B*a^6*e^6-12*B*a^5*
b*d*e^5+45*B*a^4*b^2*d^2*e^4-80*B*a^3*b^3*d^3*e^3+75*B*a^2*b^4*d^
4*e^2-36*B*a*b^5*d^5*e+7*B*b^6*d^6)/e^8/(e*x+d)^12-3/11*b*(5*A*a^
4*b*e^5-20*A*a^3*b^2*d*e^4+30*A*a^2*b^3*d^2*e^3-20*A*a*b^4*d^3*e^
2+5*A*b^5*d^4*e+2*B*a^5*e^5-15*B*a^4*b*d*e^4+40*B*a^3*b^2*d^2*e^3
-50*B*a^2*b^3*d^3*e^2+30*B*a*b^4*d^4*e-7*B*b^5*d^5)/e^8/(e*x+d)^1
1-1/13*(A*a^6*e^7-6*A*a^5*b*d*e^6+15*A*a^4*b^2*d^2*e^5-20*A*a^3*b
^3*d^3*e^4+15*A*a^2*b^4*d^4*e^3-6*A*a*b^5*d^5*e^2+A*b^6*d^6*e-B*a
^6*d*e^6+6*B*a^5*b*d^2*e^5-15*B*a^4*b^2*d^3*e^4+20*B*a^3*b^3*d^4*
e^3-15*B*a^2*b^4*d^5*e^2+6*B*a*b^5*d^6*e-B*b^6*d^7)/e^8/(e*x+d)^1
3
```

Maxima [A] time = 1.44659, size = 1222, normalized size = 4.18

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6/(e*x + d)^14,x, algorithm="maxima")
```

```
[Out] -1/72072*(12012*B*b^6*e^7*x^7 + 7*B*b^6*d^7 + 5544*A*a^6*e^7 + 6*
(6*B*a*b^5 + A*b^6)*d^6*e + 21*(5*B*a^2*b^4 + 2*A*a*b^5)*d^5*e^2
+ 56*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^4*e^3 + 126*(3*B*a^4*b^2 + 4*A
*a^3*b^3)*d^3*e^4 + 252*(2*B*a^5*b + 5*A*a^4*b^2)*d^2*e^5 + 462*(
B*a^6 + 6*A*a^5*b)*d*e^6 + 1716*(7*B*b^6*d*e^6 + 6*(6*B*a*b^5 + A
*b^6)*e^7)*x^6 + 1287*(7*B*b^6*d^2*e^5 + 6*(6*B*a*b^5 + A*b^6)*d*
e^6 + 21*(5*B*a^2*b^4 + 2*A*a*b^5)*e^7)*x^5 + 715*(7*B*b^6*d^3*e^
4 + 6*(6*B*a*b^5 + A*b^6)*d^2*e^5 + 21*(5*B*a^2*b^4 + 2*A*a*b^5)*
d*e^6 + 56*(4*B*a^3*b^3 + 3*A*a^2*b^4)*e^7)*x^4 + 286*(7*B*b^6*d^
4*e^3 + 6*(6*B*a*b^5 + A*b^6)*d^3*e^4 + 21*(5*B*a^2*b^4 + 2*A*a*b
^5)*d^2*e^5 + 56*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d*e^6 + 126*(3*B*a^4
*b^2 + 4*A*a^3*b^3)*e^7)*x^3 + 78*(7*B*b^6*d^5*e^2 + 6*(6*B*a*b^5
 + A*b^6)*d^4*e^3 + 21*(5*B*a^2*b^4 + 2*A*a*b^5)*d^3*e^4 + 56*(4*
B*a^3*b^3 + 3*A*a^2*b^4)*d^2*e^5 + 126*(3*B*a^4*b^2 + 4*A*a^3*b^3
)*d*e^6 + 252*(2*B*a^5*b + 5*A*a^4*b^2)*e^7)*x^2 + 13*(7*B*b^6*d^
6*e + 6*(6*B*a*b^5 + A*b^6)*d^5*e^2 + 21*(5*B*a^2*b^4 + 2*A*a*b^5
)*d^4*e^3 + 56*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^3*e^4 + 126*(3*B*a^4
*b^2 + 4*A*a^3*b^3)*d^2*e^5 + 252*(2*B*a^5*b + 5*A*a^4*b^2)*d*e^6
 + 462*(B*a^6 + 6*A*a^5*b)*e^7)*x)/(e^21*x^13 + 13*d*e^20*x^12 +
78*d^2*e^19*x^11 + 286*d^3*e^18*x^10 + 715*d^4*e^17*x^9 + 1287*d^
5*e^16*x^8 + 1716*d^6*e^15*x^7 + 1716*d^7*e^14*x^6 + 1287*d^8*e^1
3*x^5 + 715*d^9*e^12*x^4 + 286*d^10*e^11*x^3 + 78*d^11*e^10*x^2 +
 13*d^12*e^9*x + d^13*e^8)
```

Fricas [A] time = 0.213393, size = 1222, normalized size = 4.18

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6/(e*x + d)^14,x, algorithm="fricas")
```

```
[Out] -1/72072*(12012*B*b^6*e^7*x^7 + 7*B*b^6*d^7 + 5544*A*a^6*e^7 + 6*
(6*B*a*b^5 + A*b^6)*d^6*e + 21*(5*B*a^2*b^4 + 2*A*a*b^5)*d^5*e^2
+ 56*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^4*e^3 + 126*(3*B*a^4*b^2 + 4*A
*a^3*b^3)*d^3*e^4 + 252*(2*B*a^5*b + 5*A*a^4*b^2)*d^2*e^5 + 462*(
B*a^6 + 6*A*a^5*b)*d*e^6 + 1716*(7*B*b^6*d*e^6 + 6*(6*B*a*b^5 + A
*b^6)*e^7)*x^6 + 1287*(7*B*b^6*d^2*e^5 + 6*(6*B*a*b^5 + A*b^6)*d*
e^6 + 21*(5*B*a^2*b^4 + 2*A*a*b^5)*e^7)*x^5 + 715*(7*B*b^6*d^3*e^
4 + 6*(6*B*a*b^5 + A*b^6)*d^2*e^5 + 21*(5*B*a^2*b^4 + 2*A*a*b^5)*
d*e^6 + 56*(4*B*a^3*b^3 + 3*A*a^2*b^4)*e^7)*x^4 + 286*(7*B*b^6*d^
4*e^3 + 6*(6*B*a*b^5 + A*b^6)*d^3*e^4 + 21*(5*B*a^2*b^4 + 2*A*a*b
^5)*d^2*e^5 + 56*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d*e^6 + 126*(3*B*a^4
*b^2 + 4*A*a^3*b^3)*e^7)*x^3 + 78*(7*B*b^6*d^5*e^2 + 6*(6*B*a*b^5
 + A*b^6)*d^4*e^3 + 21*(5*B*a^2*b^4 + 2*A*a*b^5)*d^3*e^4 + 56*(4*
B*a^3*b^3 + 3*A*a^2*b^4)*d^2*e^5 + 126*(3*B*a^4*b^2 + 4*A*a^3*b^3
)*d*e^6 + 252*(2*B*a^5*b + 5*A*a^4*b^2)*e^7)*x^2 + 13*(7*B*b^6*d^
6*e + 6*(6*B*a*b^5 + A*b^6)*d^5*e^2 + 21*(5*B*a^2*b^4 + 2*A*a*b^5
)*d^4*e^3 + 56*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^3*e^4 + 126*(3*B*a^4
*b^2 + 4*A*a^3*b^3)*d^2*e^5 + 252*(2*B*a^5*b + 5*A*a^4*b^2)*d*e^6
 + 462*(B*a^6 + 6*A*a^5*b)*e^7)*x)/(e^21*x^13 + 13*d*e^20*x^12 +
78*d^2*e^19*x^11 + 286*d^3*e^18*x^10 + 715*d^4*e^17*x^9 + 1287*d^
5*e^16*x^8 + 1716*d^6*e^15*x^7 + 1716*d^7*e^14*x^6 + 1287*d^8*e^1
3*x^5 + 715*d^9*e^12*x^4 + 286*d^10*e^11*x^3 + 78*d^11*e^10*x^2 +
 13*d^12*e^9*x + d^13*e^8)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**6*(B*x+A)/(e*x+d)**14,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.230852, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6/(e*x + d)^14,x, algorithm="giac")
```

```
[Out] Done
```

3.1057 $\int \frac{(a+bx)^6(A+Bx)}{(d+ex)^{15}} dx$

Optimal. Leaf size=292

$$\frac{b^5(-6aBe-Abe+7bBd)}{8e^8(d+ex)^8}-\frac{b^4(bd-ae)(-5aBe-2Abe+7bBd)}{3e^8(d+ex)^9}+\frac{b^3(bd-ae)^2(-4aBe-3Abe+7bBd)}{2e^8(d+ex)^{10}}-\frac{5b^2(bd-ae)^3(-3aBe-4Abe+7bBd)}{11e^8(d+ex)^{11}}+\frac{b(bd-ae)^4(-2aBe-5Abe+7bBd)}{4e^8(d+ex)^{12}}-\frac{(bd-ae)^5(-aBe-6Abe+7bBd)}{13e^8(d+ex)^{13}}+\frac{(bd-ae)^6(Bd-Ae)}{14e^8(d+ex)^{14}}-\frac{b^6B}{7e^8(d+ex)^7}$$

```
[Out] ((b*d - a*e)^6*(B*d - A*e))/(14*e^8*(d + e*x)^14) - ((b*d - a*e)^
5*(7*b*B*d - 6*A*b*e - a*B*e))/(13*e^8*(d + e*x)^13) + (b*(b*d -
a*e)^4*(7*b*B*d - 5*A*b*e - 2*a*B*e))/(4*e^8*(d + e*x)^12) - (5*b
^2*(b*d - a*e)^3*(7*b*B*d - 4*A*b*e - 3*a*B*e))/(11*e^8*(d + e*x)
^11) + (b^3*(b*d - a*e)^2*(7*b*B*d - 3*A*b*e - 4*a*B*e))/(2*e^8*(
d + e*x)^10) - (b^4*(b*d - a*e)*(7*b*B*d - 2*A*b*e - 5*a*B*e))/(3
*e^8*(d + e*x)^9) + (b^5*(7*b*B*d - A*b*e - 6*a*B*e))/(8*e^8*(d +
 e*x)^8) - (b^6*B)/(7*e^8*(d + e*x)^7)
```

Rubi [A] time = 1.01193, antiderivative size = 292, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{b^5(-6aBe-Abe+7bBd)}{8e^8(d+ex)^8}-\frac{b^4(bd-ae)(-5aBe-2Abe+7bBd)}{3e^8(d+ex)^9}+\frac{b^3(bd-ae)^2(-4aBe-3Abe+7bBd)}{2e^8(d+ex)^{10}}-\frac{5b^2(bd-ae)^3(-3aBe-4Abe+7bBd)}{11e^8(d+ex)^{11}}+\frac{b(bd-ae)^4(-2aBe-5Abe+7bBd)}{4e^8(d+ex)^{12}}-\frac{(bd-ae)^5(-aBe-6Abe+7bBd)}{13e^8(d+ex)^{13}}+\frac{(bd-ae)^6(Bd-Ae)}{14e^8(d+ex)^{14}}-\frac{b^6B}{7e^8(d+ex)^7}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^6*(A + B*x))/(d + e*x)^15,x]
```

```
[Out] ((b*d - a*e)^6*(B*d - A*e))/(14*e^8*(d + e*x)^14) - ((b*d - a*e)^
5*(7*b*B*d - 6*A*b*e - a*B*e))/(13*e^8*(d + e*x)^13) + (b*(b*d -
a*e)^4*(7*b*B*d - 5*A*b*e - 2*a*B*e))/(4*e^8*(d + e*x)^12) - (5*b
^2*(b*d - a*e)^3*(7*b*B*d - 4*A*b*e - 3*a*B*e))/(11*e^8*(d + e*x)
^11) + (b^3*(b*d - a*e)^2*(7*b*B*d - 3*A*b*e - 4*a*B*e))/(2*e^8*(
d + e*x)^10) - (b^4*(b*d - a*e)*(7*b*B*d - 2*A*b*e - 5*a*B*e))/(3
*e^8*(d + e*x)^9) + (b^5*(7*b*B*d - A*b*e - 6*a*B*e))/(8*e^8*(d +
 e*x)^8) - (b^6*B)/(7*e^8*(d + e*x)^7)
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**6*(B*x+A)/(e*x+d)**15,x)
```

```
[Out] Timed out
```

Mathematica [B] time = 0.968726, size = 602, normalized size = 2.06

$$-\frac{132a^6e^6(13Ae + B(d + 14ex)) + 132a^5be^5\left(6Ae(d + 14ex) + B\left(d^2 + 14dex + 91e^2x^2\right)\right) + 30a^4b^2e^4\left(11Ae\left(d^2 + 14dex + 91e^2\right.\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^6*(A + B*x))/(d + e*x)^15,x]
```

```
[Out] -(132*a^6*e^6*(13*A*e + B*(d + 14*e*x)) + 132*a^5*b*e^5*(6*A*e*(d
 + 14*e*x) + B*(d^2 + 14*d*e*x + 91*e^2*x^2)) + 30*a^4*b^2*e^4*(1
1*A*e*(d^2 + 14*d*e*x + 91*e^2*x^2) + 3*B*(d^3 + 14*d^2*e*x + 91*
d*e^2*x^2 + 364*e^3*x^3)) + 24*a^3*b^3*e^3*(5*A*e*(d^3 + 14*d^2*e
*x + 91*d*e^2*x^2 + 364*e^3*x^3) + 2*B*(d^4 + 14*d^3*e*x + 91*d^2
*e^2*x^2 + 364*d*e^3*x^3 + 1001*e^4*x^4)) + 4*a^2*b^4*e^2*(9*A*e*
(d^4 + 14*d^3*e*x + 91*d^2*e^2*x^2 + 364*d*e^3*x^3 + 1001*e^4*x^4
) + 5*B*(d^5 + 14*d^4*e*x + 91*d^3*e^2*x^2 + 364*d^2*e^3*x^3 + 10
01*d*e^4*x^4 + 2002*e^5*x^5)) + 2*a*b^5*e*(4*A*e*(d^5 + 14*d^4*e*
x + 91*d^3*e^2*x^2 + 364*d^2*e^3*x^3 + 1001*d*e^4*x^4 + 2002*e^5*
x^5) + 3*B*(d^6 + 14*d^5*e*x + 91*d^4*e^2*x^2 + 364*d^3*e^3*x^3 +
 1001*d^2*e^4*x^4 + 2002*d*e^5*x^5 + 3003*e^6*x^6)) + b^6*(A*e*(d
^6 + 14*d^5*e*x + 91*d^4*e^2*x^2 + 364*d^3*e^3*x^3 + 1001*d^2*e^4
*x^4 + 2002*d*e^5*x^5 + 3003*e^6*x^6) + B*(d^7 + 14*d^6*e*x + 91*
d^5*e^2*x^2 + 364*d^4*e^3*x^3 + 1001*d^3*e^4*x^4 + 2002*d^2*e^5*x
^5 + 3003*d*e^6*x^6 + 3432*e^7*x^7)))/(24024*e^8*(d + e*x)^14)
```

Maple [B] time = 0.013, size = 814, normalized size = 2.8

$$-\frac{a^6Ae^7 - 6\,Ada^5be^6 + 15\,Ad^2a^4b^2e^5 - 20\,Ad^3a^3b^3e^4 + 15\,Ad^4a^2b^4e^3 - 6\,Ad^5ab^5e^2 + Ad^6b^6e - Bda^6e^6 + 6\,Bd^2a^5be^5 - 15\,Bd}{14\,e^8\,(ex + d)^{14}}$$
$$-\frac{b^4\left(2\,Aabe^2 - 2\,Adb^2e + 5\,Ba^2e^2 - 12\,Bdabe + 7\,b^2Bd^2\right)}{3\,e^8\,(ex + d)^9}$$
$$-\frac{b^3\left(3\,Aa^2be^3 - 6\,Adab^2e^2 + 3\,Ab^3d^2e + 4\,Ba^3e^3 - 15\,Ba^2bde^2 + 18\,Bd^2ab^2e - 7\,b^3Bd^3\right)}{2\,e^8\,(ex + d)^{10}}$$
$$-\frac{b^5\,(Abe + 6\,Bae - 7\,Bbd)}{8\,e^8\,(ex + d)^8} - \frac{Bb^6}{7\,e^8\,(ex + d)^7}$$
$$-\frac{b\left(5\,Aa^4be^5 - 20\,Aa^3b^2de^4 + 30\,Aa^2b^3d^2e^3 - 20\,Aab^4d^3e^2 + 5\,Ab^5d^4e + 2\,Ba^5e^5 - 15\,Ba^4bde^4 + 40\,Ba^3b^2d^2e^3 - 50\,Ba^2b^3d\right.}{4\,e^8\,(ex + d)^{12}}$$
$$-\frac{5\,b^2\left(4\,Aa^3be^4 - 12\,Aa^2b^2de^3 + 12\,Aab^3d^2e^2 - 4\,Ab^4d^3e + 3\,Ba^4e^4 - 16\,Ba^3bde^3 + 30\,Ba^2b^2d^2e^2 - 24\,Bab^3d^3e + 7\,Bb^4d^4\right)}{11\,e^8\,(ex + d)^{11}}$$
$$-\frac{6\,Aa^5be^6 - 30\,Ada^4b^2e^5 + 60\,Ad^2a^3b^3e^4 - 60\,Ad^3a^2b^4e^3 + 30\,Ad^4ab^5e^2 - 6\,Ad^5b^6e + a^6Be^6 - 12\,Bda^5be^5 + 45\,Bd^2a^4b^2e^4}{13\,e^8\,(ex + d)^{13}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^6*(B*x+A)/(e*x+d)^15,x)
```

```
[Out] -1/14*(A*a^6*e^7-6*A*a^5*b*d*e^6+15*A*a^4*b^2*d^2*e^5-20*A*a^3*b^
3*d^3*e^4+15*A*a^2*b^4*d^4*e^3-6*A*a*b^5*d^5*e^2+A*b^6*d^6*e-B*a^
6*d*e^6+6*B*a^5*b*d^2*e^5-15*B*a^4*b^2*d^3*e^4+20*B*a^3*b^3*d^4*e
^3-15*B*a^2*b^4*d^5*e^2+6*B*a*b^5*d^6*e-B*b^6*d^7)/e^8/(e*x+d)^14
-1/3*b^4*(2*A*a*b*e^2-2*A*b^2*d*e+5*B*a^2*e^2-12*B*a*b*d*e+7*B*b^
2*d^2)/e^8/(e*x+d)^9-1/2*b^3*(3*A*a^2*b*e^3-6*A*a*b^2*d*e^2+3*A*b
^3*d^2*e+4*B*a^3*e^3-15*B*a^2*b*d*e^2+18*B*a*b^2*d^2*e-7*B*b^3*d^
3)/e^8/(e*x+d)^10-1/8*b^5*(A*b*e+6*B*a*e-7*B*b*d)/e^8/(e*x+d)^8-1
/7*b^6*B/e^8/(e*x+d)^7-1/4*b*(5*A*a^4*b*e^5-20*A*a^3*b^2*d*e^4+30
*A*a^2*b^3*d^2*e^3-20*A*a*b^4*d^3*e^2+5*A*b^5*d^4*e+2*B*a^5*e^5-1
5*B*a^4*b*d*e^4+40*B*a^3*b^2*d^2*e^3-50*B*a^2*b^3*d^3*e^2+30*B*a*
b^4*d^4*e-7*B*b^5*d^5)/e^8/(e*x+d)^12-5/11*b^2*(4*A*a^3*b*e^4-12*
A*a^2*b^2*d*e^3+12*A*a*b^3*d^2*e^2-4*A*b^4*d^3*e+3*B*a^4*e^4-16*B
*a^3*b*d*e^3+30*B*a^2*b^2*d^2*e^2-24*B*a*b^3*d^3*e+7*B*b^4*d^4)/e
^8/(e*x+d)^11-1/13*(6*A*a^5*b*e^6-30*A*a^4*b^2*d*e^5+60*A*a^3*b^3
*d^2*e^4-60*A*a^2*b^4*d^3*e^3+30*A*a*b^5*d^4*e^2-6*A*b^6*d^5*e+B*
a^6*e^6-12*B*a^5*b*d*e^5+45*B*a^4*b^2*d^2*e^4-80*B*a^3*b^3*d^3*e^
```

```
3+75*B*a^2*b^4*d^4*e^2-36*B*a*b^5*d^5*e+7*B*b^6*d^6)/e^8/(e*x+d)^
13
```

Maxima [A] time = 1.44844, size = 1218, normalized size = 4.17

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6/(e*x + d)^15,x, algorithm="maxima")
```

```
[Out] -1/24024*(3432*B*b^6*e^7*x^7 + B*b^6*d^7 + 1716*A*a^6*e^7 + (6*B*
a*b^5 + A*b^6)*d^6*e + 4*(5*B*a^2*b^4 + 2*A*a*b^5)*d^5*e^2 + 12*(
4*B*a^3*b^3 + 3*A*a^2*b^4)*d^4*e^3 + 30*(3*B*a^4*b^2 + 4*A*a^3*b^
3)*d^3*e^4 + 66*(2*B*a^5*b + 5*A*a^4*b^2)*d^2*e^5 + 132*(B*a^6 +
6*A*a^5*b)*d*e^6 + 3003*(B*b^6*d*e^6 + (6*B*a*b^5 + A*b^6)*e^7)*x
^6 + 2002*(B*b^6*d^2*e^5 + (6*B*a*b^5 + A*b^6)*d*e^6 + 4*(5*B*a^2
*b^4 + 2*A*a*b^5)*e^7)*x^5 + 1001*(B*b^6*d^3*e^4 + (6*B*a*b^5 + A
*b^6)*d^2*e^5 + 4*(5*B*a^2*b^4 + 2*A*a*b^5)*d*e^6 + 12*(4*B*a^3*b
^3 + 3*A*a^2*b^4)*e^7)*x^4 + 364*(B*b^6*d^4*e^3 + (6*B*a*b^5 + A*
b^6)*d^3*e^4 + 4*(5*B*a^2*b^4 + 2*A*a*b^5)*d^2*e^5 + 12*(4*B*a^3*
b^3 + 3*A*a^2*b^4)*d*e^6 + 30*(3*B*a^4*b^2 + 4*A*a^3*b^3)*e^7)*x^
3 + 91*(B*b^6*d^5*e^2 + (6*B*a*b^5 + A*b^6)*d^4*e^3 + 4*(5*B*a^2*
b^4 + 2*A*a*b^5)*d^3*e^4 + 12*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^2*e^5
 + 30*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d*e^6 + 66*(2*B*a^5*b + 5*A*a^4
*b^2)*e^7)*x^2 + 14*(B*b^6*d^6*e + (6*B*a*b^5 + A*b^6)*d^5*e^2 +
4*(5*B*a^2*b^4 + 2*A*a*b^5)*d^4*e^3 + 12*(4*B*a^3*b^3 + 3*A*a^2*b
^4)*d^3*e^4 + 30*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d^2*e^5 + 66*(2*B*a^
5*b + 5*A*a^4*b^2)*d*e^6 + 132*(B*a^6 + 6*A*a^5*b)*e^7)*x)/(e^22*
x^14 + 14*d*e^21*x^13 + 91*d^2*e^20*x^12 + 364*d^3*e^19*x^11 + 10
01*d^4*e^18*x^10 + 2002*d^5*e^17*x^9 + 3003*d^6*e^16*x^8 + 3432*d
^7*e^15*x^7 + 3003*d^8*e^14*x^6 + 2002*d^9*e^13*x^5 + 1001*d^10*e
^12*x^4 + 364*d^11*e^11*x^3 + 91*d^12*e^10*x^2 + 14*d^13*e^9*x +
d^14*e^8)
```

Fricas [A] time = 0.215072, size = 1218, normalized size = 4.17

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6/(e*x + d)^15,x, algorithm="fricas")
```

```
[Out] -1/24024*(3432*B*b^6*e^7*x^7 + B*b^6*d^7 + 1716*A*a^6*e^7 + (6*B*
a*b^5 + A*b^6)*d^6*e + 4*(5*B*a^2*b^4 + 2*A*a*b^5)*d^5*e^2 + 12*(
4*B*a^3*b^3 + 3*A*a^2*b^4)*d^4*e^3 + 30*(3*B*a^4*b^2 + 4*A*a^3*b^
3)*d^3*e^4 + 66*(2*B*a^5*b + 5*A*a^4*b^2)*d^2*e^5 + 132*(B*a^6 +
6*A*a^5*b)*d*e^6 + 3003*(B*b^6*d*e^6 + (6*B*a*b^5 + A*b^6)*e^7)*x
^6 + 2002*(B*b^6*d^2*e^5 + (6*B*a*b^5 + A*b^6)*d*e^6 + 4*(5*B*a^2
*b^4 + 2*A*a*b^5)*e^7)*x^5 + 1001*(B*b^6*d^3*e^4 + (6*B*a*b^5 + A
*b^6)*d^2*e^5 + 4*(5*B*a^2*b^4 + 2*A*a*b^5)*d*e^6 + 12*(4*B*a^3*b
^3 + 3*A*a^2*b^4)*e^7)*x^4 + 364*(B*b^6*d^4*e^3 + (6*B*a*b^5 + A*
b^6)*d^3*e^4 + 4*(5*B*a^2*b^4 + 2*A*a*b^5)*d^2*e^5 + 12*(4*B*a^3*
b^3 + 3*A*a^2*b^4)*d*e^6 + 30*(3*B*a^4*b^2 + 4*A*a^3*b^3)*e^7)*x^
3 + 91*(B*b^6*d^5*e^2 + (6*B*a*b^5 + A*b^6)*d^4*e^3 + 4*(5*B*a^2*
b^4 + 2*A*a*b^5)*d^3*e^4 + 12*(4*B*a^3*b^3 + 3*A*a^2*b^4)*d^2*e^5
 + 30*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d*e^6 + 66*(2*B*a^5*b + 5*A*a^4
*b^2)*e^7)*x^2 + 14*(B*b^6*d^6*e + (6*B*a*b^5 + A*b^6)*d^5*e^2 +
4*(5*B*a^2*b^4 + 2*A*a*b^5)*d^4*e^3 + 12*(4*B*a^3*b^3 + 3*A*a^2*b
^4)*d^3*e^4 + 30*(3*B*a^4*b^2 + 4*A*a^3*b^3)*d^2*e^5 + 66*(2*B*a^
5*b + 5*A*a^4*b^2)*d*e^6 + 132*(B*a^6 + 6*A*a^5*b)*e^7)*x)/(e^22*
x^14 + 14*d*e^21*x^13 + 91*d^2*e^20*x^12 + 364*d^3*e^19*x^11 + 10
01*d^4*e^18*x^10 + 2002*d^5*e^17*x^9 + 3003*d^6*e^16*x^8 + 3432*d
^7*e^15*x^7 + 3003*d^8*e^14*x^6 + 2002*d^9*e^13*x^5 + 1001*d^10*e
^12*x^4 + 364*d^11*e^11*x^3 + 91*d^12*e^10*x^2 + 14*d^13*e^9*x +
```

```
d^14*e^8)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**6*(B*x+A)/(e*x+d)**15,x)

[Out] Timed out
```

GIAC/XCAS [A] time = 0.223274, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^6/(e*x + d)^15,x, algorithm="giac")

[Out] Done
```

3.1058 $\int (a+bx)^{10}(A+Bx)(d+ex)^{13}\,dx$

Optimal. Leaf size=464

$$-\frac{b^9(d+ex)^{24}(-10aBe-Abe+11bBd)}{24e^{12}}+\frac{5b^8(d+ex)^{23}(bd-ae)(-9aBe-2Abe+11bBd)}{23e^{12}}-\frac{15b^7(d+ex)^{22}(bd-ae)^2(-8aBe-3Abe+11bBd)}{22e^{12}}+\frac{10b^6(d+ex)^{21}(bd-ae)^3(-7aBe-4Abe+11bBd)}{7e^{12}}-\frac{21b^5(d+ex)^{20}(bd-ae)^4(-6aBe-5Abe+11bBd)}{10e^{12}}+\frac{42b^4(d+ex)^{19}(bd-ae)^5(-5aBe-6Abe+11bBd)}{19e^{12}}-\frac{5b^3(d+ex)^{18}(bd-ae)^6(-4aBe-7Abe+11bBd)}{3e^{12}}+\frac{15b^2(d+ex)^{17}(bd-ae)^7(-3aBe-8Abe+11bBd)}{17e^{12}}-\frac{5b(d+ex)^{16}(bd-ae)^8(-2aBe-9Abe+11bBd)}{16e^{12}}+\frac{(d+ex)^{15}(bd-ae)^9(-aBe-10Abe+11bBd)}{15e^{12}}-\frac{(d+ex)^{14}(bd-ae)^{10}(Bd-Ae)}{14e^{12}}+\frac{b^{10}B(d+ex)^{25}}{25e^{12}}$$

```
[Out] -((b*d - a*e)^10*(B*d - A*e)*(d + e*x)^14)/(14*e^12) + ((b*d - a*
e)^9*(11*b*B*d - 10*A*b*e - a*B*e)*(d + e*x)^15)/(15*e^12) - (5*b
*(b*d - a*e)^8*(11*b*B*d - 9*A*b*e - 2*a*B*e)*(d + e*x)^16)/(16*e
^12) + (15*b^2*(b*d - a*e)^7*(11*b*B*d - 8*A*b*e - 3*a*B*e)*(d +
e*x)^17)/(17*e^12) - (5*b^3*(b*d - a*e)^6*(11*b*B*d - 7*A*b*e - 4
*a*B*e)*(d + e*x)^18)/(3*e^12) + (42*b^4*(b*d - a*e)^5*(11*b*B*d
- 6*A*b*e - 5*a*B*e)*(d + e*x)^19)/(19*e^12) - (21*b^5*(b*d - a*e
)^4*(11*b*B*d - 5*A*b*e - 6*a*B*e)*(d + e*x)^20)/(10*e^12) + (10*
b^6*(b*d - a*e)^3*(11*b*B*d - 4*A*b*e - 7*a*B*e)*(d + e*x)^21)/(7
*e^12) - (15*b^7*(b*d - a*e)^2*(11*b*B*d - 3*A*b*e - 8*a*B*e)*(d
+ e*x)^22)/(22*e^12) + (5*b^8*(b*d - a*e)*(11*b*B*d - 2*A*b*e - 9
*a*B*e)*(d + e*x)^23)/(23*e^12) - (b^9*(11*b*B*d - A*b*e - 10*a*B
*e)*(d + e*x)^24)/(24*e^12) + (b^10*B*(d + e*x)^25)/(25*e^12)
```

Rubi [A] time = 23.7666, antiderivative size = 464, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{b^9(d+ex)^{24}(-10aBe-Abe+11bBd)}{24e^{12}}+\frac{5b^8(d+ex)^{23}(bd-ae)(-9aBe-2Abe+11bBd)}{23e^{12}}-\frac{15b^7(d+ex)^{22}(bd-ae)^2(-8aBe-3Abe+11bBd)}{22e^{12}}+\frac{10b^6(d+ex)^{21}(bd-ae)^3(-7aBe-4Abe+11bBd)}{7e^{12}}-\frac{21b^5(d+ex)^{20}(bd-ae)^4(-6aBe-5Abe+11bBd)}{10e^{12}}+\frac{42b^4(d+ex)^{19}(bd-ae)^5(-5aBe-6Abe+11bBd)}{19e^{12}}-\frac{5b^3(d+ex)^{18}(bd-ae)^6(-4aBe-7Abe+11bBd)}{3e^{12}}+\frac{15b^2(d+ex)^{17}(bd-ae)^7(-3aBe-8Abe+11bBd)}{17e^{12}}-\frac{5b(d+ex)^{16}(bd-ae)^8(-2aBe-9Abe+11bBd)}{16e^{12}}+\frac{(d+ex)^{15}(bd-ae)^9(-aBe-10Abe+11bBd)}{15e^{12}}-\frac{(d+ex)^{14}(bd-ae)^{10}(Bd-Ae)}{14e^{12}}+\frac{b^{10}B(d+ex)^{25}}{25e^{12}}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^10*(A + B*x)*(d + e*x)^13,x]
```

```
[Out] -((b*d - a*e)^10*(B*d - A*e)*(d + e*x)^14)/(14*e^12) + ((b*d - a*
e)^9*(11*b*B*d - 10*A*b*e - a*B*e)*(d + e*x)^15)/(15*e^12) - (5*b
*(b*d - a*e)^8*(11*b*B*d - 9*A*b*e - 2*a*B*e)*(d + e*x)^16)/(16*e
^12) + (15*b^2*(b*d - a*e)^7*(11*b*B*d - 8*A*b*e - 3*a*B*e)*(d +
e*x)^17)/(17*e^12) - (5*b^3*(b*d - a*e)^6*(11*b*B*d - 7*A*b*e - 4
*a*B*e)*(d + e*x)^18)/(3*e^12) + (42*b^4*(b*d - a*e)^5*(11*b*B*d
- 6*A*b*e - 5*a*B*e)*(d + e*x)^19)/(19*e^12) - (21*b^5*(b*d - a*e
)^4*(11*b*B*d - 5*A*b*e - 6*a*B*e)*(d + e*x)^20)/(10*e^12) + (10*
b^6*(b*d - a*e)^3*(11*b*B*d - 4*A*b*e - 7*a*B*e)*(d + e*x)^21)/(7
*e^12) - (15*b^7*(b*d - a*e)^2*(11*b*B*d - 3*A*b*e - 8*a*B*e)*(d
+ e*x)^22)/(22*e^12) + (5*b^8*(b*d - a*e)*(11*b*B*d - 2*A*b*e - 9
*a*B*e)*(d + e*x)^23)/(23*e^12) - (b^9*(11*b*B*d - A*b*e - 10*a*B
*e)*(d + e*x)^24)/(24*e^12) + (b^10*B*(d + e*x)^25)/(25*e^12)
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)*(e*x+d)**13,x)
```

```
[Out] Timed out
```

Mathematica [B] time = 3.28137, size = 3532, normalized size = 7.61

Result too large to show

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^10*(A + B*x)*(d + e*x)^13,x]
```

```
[Out] a^10*A*d^13*x + (a^9*d^12*(10*A*b*d + a*B*d + 13*a*A*e)*x^2)/2 +
(a^8*d^11*(a*B*d*(10*b*d + 13*a*e) + A*(45*b^2*d^2 + 130*a*b*d*e
+ 78*a^2*e^2))*x^3)/3 + (a^7*d^10*(a*B*d*(45*b^2*d^2 + 130*a*b*d*
e + 78*a^2*e^2) + A*(120*b^3*d^3 + 585*a*b^2*d^2*e + 780*a^2*b*d*
e^2 + 286*a^3*e^3))*x^4)/4 + (a^6*d^9*(a*B*d*(120*b^3*d^3 + 585*a
*b^2*d^2*e + 780*a^2*b*d*e^2 + 286*a^3*e^3) + 5*A*(42*b^4*d^4 + 3
12*a*b^3*d^3*e + 702*a^2*b^2*d^2*e^2 + 572*a^3*b*d*e^3 + 143*a^4*
e^4))*x^5)/5 + (a^5*d^8*(5*a*B*d*(42*b^4*d^4 + 312*a*b^3*d^3*e +
702*a^2*b^2*d^2*e^2 + 572*a^3*b*d*e^3 + 143*a^4*e^4) + A*(252*b^5
*d^5 + 2730*a*b^4*d^4*e + 9360*a^2*b^3*d^3*e^2 + 12870*a^3*b^2*d^
2*e^3 + 7150*a^4*b*d*e^4 + 1287*a^5*e^5))*x^6)/6 + (a^4*d^7*(a*B*
d*(252*b^5*d^5 + 2730*a*b^4*d^4*e + 9360*a^2*b^3*d^3*e^2 + 12870*
a^3*b^2*d^2*e^3 + 7150*a^4*b*d*e^4 + 1287*a^5*e^5) + 3*A*(70*b^6*
d^6 + 1092*a*b^5*d^5*e + 5460*a^2*b^4*d^4*e^2 + 11440*a^3*b^3*d^3
*e^3 + 10725*a^4*b^2*d^2*e^4 + 4290*a^5*b*d*e^5 + 572*a^6*e^6))*x
^7)/7 + (3*a^3*d^6*(a*B*d*(70*b^6*d^6 + 1092*a*b^5*d^5*e + 5460*a
^2*b^4*d^4*e^2 + 11440*a^3*b^3*d^3*e^3 + 10725*a^4*b^2*d^2*e^4 +
4290*a^5*b*d*e^5 + 572*a^6*e^6) + A*(40*b^7*d^7 + 910*a*b^6*d^6*e
 + 6552*a^2*b^5*d^5*e^2 + 20020*a^3*b^4*d^4*e^3 + 28600*a^4*b^3*d
^3*e^4 + 19305*a^5*b^2*d^2*e^5 + 5720*a^6*b*d*e^6 + 572*a^7*e^7))
*x^8)/8 + (a^2*d^5*(a*B*d*(40*b^7*d^7 + 910*a*b^6*d^6*e + 6552*a^
2*b^5*d^5*e^2 + 20020*a^3*b^4*d^4*e^3 + 28600*a^4*b^3*d^3*e^4 + 1
9305*a^5*b^2*d^2*e^5 + 5720*a^6*b*d*e^6 + 572*a^7*e^7) + A*(15*b^
8*d^8 + 520*a*b^7*d^7*e + 5460*a^2*b^6*d^6*e^2 + 24024*a^3*b^5*d^
5*e^3 + 50050*a^4*b^4*d^4*e^4 + 51480*a^5*b^3*d^3*e^5 + 25740*a^6
*b^2*d^2*e^6 + 5720*a^7*b*d*e^7 + 429*a^8*e^8))*x^9)/3 + (a*d^4*(
3*a*B*d*(15*b^8*d^8 + 520*a*b^7*d^7*e + 5460*a^2*b^6*d^6*e^2 + 24
024*a^3*b^5*d^5*e^3 + 50050*a^4*b^4*d^4*e^4 + 51480*a^5*b^3*d^3*e
^5 + 25740*a^6*b^2*d^2*e^6 + 5720*a^7*b*d*e^7 + 429*a^8*e^8) + 5*
A*(2*b^9*d^9 + 117*a*b^8*d^8*e + 1872*a^2*b^7*d^7*e^2 + 12012*a^3
```

```
*b^6*d^6*e^3 + 36036*a^4*b^5*d^5*e^4 + 54054*a^5*b^4*d^4*e^5 + 41
184*a^6*b^3*d^3*e^6 + 15444*a^7*b^2*d^2*e^7 + 2574*a^8*b*d*e^8 +
143*a^9*e^9))*x^10)/10 + (d^3*(5*a*B*d*(2*b^9*d^9 + 117*a*b^8*d^8
*e + 1872*a^2*b^7*d^7*e^2 + 12012*a^3*b^6*d^6*e^3 + 36036*a^4*b^5
*d^5*e^4 + 54054*a^5*b^4*d^4*e^5 + 41184*a^6*b^3*d^3*e^6 + 15444*
a^7*b^2*d^2*e^7 + 2574*a^8*b*d*e^8 + 143*a^9*e^9) + A*(b^10*d^10
+ 130*a*b^9*d^9*e + 3510*a^2*b^8*d^8*e^2 + 34320*a^3*b^7*d^7*e^3
+ 150150*a^4*b^6*d^6*e^4 + 324324*a^5*b^5*d^5*e^5 + 360360*a^6*b^
4*d^4*e^6 + 205920*a^7*b^3*d^3*e^7 + 57915*a^8*b^2*d^2*e^8 + 7150
*a^9*b*d*e^9 + 286*a^10*e^10))*x^11)/11 + (d^2*(360360*a^6*b^4*d^
4*e^6*(B*d + A*e) + 1430*a^9*b*d*e^9*(5*B*d + 2*A*e) + 51480*a^7*
b^3*d^3*e^7*(4*B*d + 3*A*e) + 26*a^10*e^10*(11*B*d + 3*A*e) + 108
108*a^5*b^5*d^5*e^5*(3*B*d + 4*A*e) + 17160*a^3*b^7*d^7*e^3*(2*B*
d + 5*A*e) + 6435*a^8*b^2*d^2*e^8*(9*B*d + 5*A*e) + 130*a*b^9*d^9
*e*(B*d + 6*A*e) + 30030*a^4*b^6*d^6*e^4*(5*B*d + 9*A*e) + 1170*a
^2*b^8*d^8*e^2*(3*B*d + 11*A*e) + b^10*d^10*(B*d + 13*A*e))*x^12)
/12 + d*e*(33264*a^5*b^5*d^5*e^5*(B*d + A*e) + a^10*e^10*(6*B*d +
 A*e) + 495*a^8*b^2*d^2*e^8*(5*B*d + 2*A*e) + 6930*a^6*b^4*d^4*e^
6*(4*B*d + 3*A*e) + 20*a^9*b*d*e^9*(11*B*d + 3*A*e) + 6930*a^4*b^
6*d^6*e^4*(3*B*d + 4*A*e) + 495*a^2*b^8*d^8*e^2*(2*B*d + 5*A*e) +
 1320*a^7*b^3*d^3*e^7*(9*B*d + 5*A*e) + b^10*d^10*(B*d + 6*A*e) +
 1320*a^3*b^7*d^7*e^3*(5*B*d + 9*A*e) + 20*a*b^9*d^9*e*(3*B*d + 1
1*A*e))*x^13 + (e^2*(360360*a^4*b^6*d^6*e^4*(B*d + A*e) + 130*a^9
*b*d*e^9*(6*B*d + A*e) + a^10*e^10*(13*B*d + A*e) + 17160*a^7*b^3
*d^3*e^7*(5*B*d + 2*A*e) + 108108*a^5*b^5*d^5*e^5*(4*B*d + 3*A*e)
 + 1170*a^8*b^2*d^2*e^8*(11*B*d + 3*A*e) + 51480*a^3*b^7*d^7*e^3*
(3*B*d + 4*A*e) + 1430*a*b^9*d^9*e*(2*B*d + 5*A*e) + 30030*a^6*b^
4*d^4*e^6*(9*B*d + 5*A*e) + 6435*a^2*b^8*d^8*e^2*(5*B*d + 9*A*e)
+ 26*b^10*d^10*(3*B*d + 11*A*e))*x^14)/14 + (e^3*(a^10*B*e^10 + 2
05920*a^3*b^7*d^6*e^3*(B*d + A*e) + 585*a^8*b^2*d*e^8*(6*B*d + A*
e) + 10*a^9*b*e^9*(13*B*d + A*e) + 30030*a^6*b^4*d^3*e^6*(5*B*d +
 2*A*e) + 90090*a^4*b^6*d^5*e^4*(4*B*d + 3*A*e) + 3120*a^7*b^3*d^
2*e^7*(11*B*d + 3*A*e) + 19305*a^2*b^8*d^7*e^2*(3*B*d + 4*A*e) +
143*b^10*d^9*(2*B*d + 5*A*e) + 36036*a^5*b^5*d^4*e^5*(9*B*d + 5*A
*e) + 1430*a*b^9*d^8*e*(5*B*d + 9*A*e))*x^15)/15 + (b*e^4*(10*a^9
*B*e^9 + 77220*a^2*b^7*d^6*e^2*(B*d + A*e) + 1560*a^7*b^2*d*e^7*(
6*B*d + A*e) + 45*a^8*b*e^8*(13*B*d + A*e) + 36036*a^5*b^4*d^3*e^
5*(5*B*d + 2*A*e) + 51480*a^3*b^6*d^5*e^3*(4*B*d + 3*A*e) + 5460*
a^6*b^3*d^2*e^6*(11*B*d + 3*A*e) + 4290*a*b^8*d^7*e*(3*B*d + 4*A*
e) + 30030*a^4*b^5*d^4*e^4*(9*B*d + 5*A*e) + 143*b^9*d^8*(5*B*d +
 9*A*e))*x^16)/16 + (3*b^2*e^5*(15*a^8*B*e^8 + 5720*a*b^7*d^6*e*(
B*d + A*e) + 910*a^6*b^2*d*e^6*(6*B*d + A*e) + 40*a^7*b*e^7*(13*B
*d + A*e) + 10010*a^4*b^4*d^3*e^4*(5*B*d + 2*A*e) + 6435*a^2*b^6*
d^5*e^2*(4*B*d + 3*A*e) + 2184*a^5*b^3*d^2*e^5*(11*B*d + 3*A*e) +
 143*b^8*d^7*(3*B*d + 4*A*e) + 5720*a^3*b^5*d^4*e^3*(9*B*d + 5*A*
e))*x^17)/17 + (b^3*e^6*(40*a^7*B*e^7 + 572*b^7*d^6*(B*d + A*e) +
 1092*a^5*b^2*d*e^5*(6*B*d + A*e) + 70*a^6*b*e^6*(13*B*d + A*e) +
 5720*a^3*b^4*d^3*e^3*(5*B*d + 2*A*e) + 1430*a*b^6*d^5*e*(4*B*d +
 3*A*e) + 1820*a^4*b^3*d^2*e^4*(11*B*d + 3*A*e) + 2145*a^2*b^5*d^
4*e^2*(9*B*d + 5*A*e))*x^18)/6 + (b^4*e^7*(210*a^6*B*e^6 + 2730*a
^4*b^2*d*e^4*(6*B*d + A*e) + 252*a^5*b*e^5*(13*B*d + A*e) + 6435*
a^2*b^4*d^3*e^2*(5*B*d + 2*A*e) + 429*b^6*d^5*(4*B*d + 3*A*e) + 3
120*a^3*b^3*d^2*e^3*(11*B*d + 3*A*e) + 1430*a*b^5*d^4*e*(9*B*d +
5*A*e))*x^19)/19 + (b^5*e^8*(252*a^5*B*e^5 + 1560*a^3*b^2*d*e^3*(
6*B*d + A*e) + 210*a^4*b*e^4*(13*B*d + A*e) + 1430*a*b^4*d^3*e*(5
*B*d + 2*A*e) + 1170*a^2*b^3*d^2*e^2*(11*B*d + 3*A*e) + 143*b^5*d
^4*(9*B*d + 5*A*e))*x^20)/20 + (b^6*e^9*(210*a^4*B*e^4 + 585*a^2*
b^2*d*e^2*(6*B*d + A*e) + 120*a^3*b*e^3*(13*B*d + A*e) + 143*b^4*
d^3*(5*B*d + 2*A*e) + 260*a*b^3*d^2*e*(11*B*d + 3*A*e))*x^21)/21
+ (b^7*e^10*(120*a^3*B*e^3 + 130*a*b^2*d*e*(6*B*d + A*e) + 45*a^2
*b*e^2*(13*B*d + A*e) + 26*b^3*d^2*(11*B*d + 3*A*e))*x^22)/22 + (
b^8*e^11*(45*a^2*B*e^2 + 13*b^2*d*(6*B*d + A*e) + 10*a*b*e*(13*B*
d + A*e))*x^23)/23 + (b^9*e^12*(13*b*B*d + A*b*e + 10*a*B*e)*x^24
)/24 + (b^10*B*e^13*x^25)/25
```

Maple [B] time = 0.005, size = 3893, normalized size = 8.4

output too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^10*(B*x+A)*(e*x+d)^13,x)
```

```
[Out] 1/4*(286*a^10*A*d^10*e^3+78*(10*A*a^9*b+B*a^10)*d^11*e^2+13*(45*A
*a^8*b^2+10*B*a^9*b)*d^12*e+(120*A*a^7*b^3+45*B*a^8*b^2)*d^13)*x^
4+1/3*(78*a^10*A*d^11*e^2+13*(10*A*a^9*b+B*a^10)*d^12*e+(45*A*a^8
*b^2+10*B*a^9*b)*d^13)*x^3+1/2*(13*a^10*A*d^12*e+(10*A*a^9*b+B*a^
10)*d^13)*x^2+1/24*((A*b^10+10*B*a*b^9)*e^13+13*b^10*B*d*e^12)*x^
24+1/23*((10*A*a*b^9+45*B*a^2*b^8)*e^13+13*(A*b^10+10*B*a*b^9)*d*
e^12+78*b^10*B*d^2*e^11)*x^23+1/22*((45*A*a^2*b^8+120*B*a^3*b^7)*
e^13+13*(10*A*a*b^9+45*B*a^2*b^8)*d*e^12+78*(A*b^10+10*B*a*b^9)*d
^2*e^11+286*b^10*B*d^3*e^10)*x^22+1/21*((120*A*a^3*b^7+210*B*a^4*
b^6)*e^13+13*(45*A*a^2*b^8+120*B*a^3*b^7)*d*e^12+78*(10*A*a*b^9+4
5*B*a^2*b^8)*d^2*e^11+286*(A*b^10+10*B*a*b^9)*d^3*e^10+715*b^10*B
*d^4*e^9)*x^21+1/20*((210*A*a^4*b^6+252*B*a^5*b^5)*e^13+13*(120*A
*a^3*b^7+210*B*a^4*b^6)*d*e^12+78*(45*A*a^2*b^8+120*B*a^3*b^7)*d^
2*e^11+286*(10*A*a*b^9+45*B*a^2*b^8)*d^3*e^10+715*(A*b^10+10*B*a*
b^9)*d^4*e^9+1287*b^10*B*d^5*e^8)*x^20+1/19*((252*A*a^5*b^5+210*B
*a^6*b^4)*e^13+13*(210*A*a^4*b^6+252*B*a^5*b^5)*d*e^12+78*(120*A*
a^3*b^7+210*B*a^4*b^6)*d^2*e^11+286*(45*A*a^2*b^8+120*B*a^3*b^7)*
d^3*e^10+715*(10*A*a*b^9+45*B*a^2*b^8)*d^4*e^9+1287*(A*b^10+10*B*
a*b^9)*d^5*e^8+1716*b^10*B*d^6*e^7)*x^19+1/18*((210*A*a^6*b^4+120
*B*a^7*b^3)*e^13+13*(252*A*a^5*b^5+210*B*a^6*b^4)*d*e^12+78*(210*
A*a^4*b^6+252*B*a^5*b^5)*d^2*e^11+286*(120*A*a^3*b^7+210*B*a^4*b^
6)*d^3*e^10+715*(45*A*a^2*b^8+120*B*a^3*b^7)*d^4*e^9+1287*(10*A*a
*b^9+45*B*a^2*b^8)*d^5*e^8+1716*(A*b^10+10*B*a*b^9)*d^6*e^7+1716*
b^10*B*d^7*e^6)*x^18+1/17*((120*A*a^7*b^3+45*B*a^8*b^2)*e^13+13*(
210*A*a^6*b^4+120*B*a^7*b^3)*d*e^12+78*(252*A*a^5*b^5+210*B*a^6*b
^4)*d^2*e^11+286*(210*A*a^4*b^6+252*B*a^5*b^5)*d^3*e^10+715*(120*
A*a^3*b^7+210*B*a^4*b^6)*d^4*e^9+1287*(45*A*a^2*b^8+120*B*a^3*b^7
)*d^5*e^8+1716*(10*A*a*b^9+45*B*a^2*b^8)*d^6*e^7+1716*(A*b^10+10*
B*a*b^9)*d^7*e^6+1287*b^10*B*d^8*e^5)*x^17+1/16*((45*A*a^8*b^2+10
*B*a^9*b)*e^13+13*(120*A*a^7*b^3+45*B*a^8*b^2)*d*e^12+78*(210*A*a
^6*b^4+120*B*a^7*b^3)*d^2*e^11+286*(252*A*a^5*b^5+210*B*a^6*b^4)*
d^3*e^10+715*(210*A*a^4*b^6+252*B*a^5*b^5)*d^4*e^9+1287*(120*A*a^
3*b^7+210*B*a^4*b^6)*d^5*e^8+1716*(45*A*a^2*b^8+120*B*a^3*b^7)*d^
6*e^7+1716*(10*A*a*b^9+45*B*a^2*b^8)*d^7*e^6+1287*(A*b^10+10*B*a*
b^9)*d^8*e^5+715*b^10*B*d^9*e^4)*x^16+1/15*((10*A*a^9*b+B*a^10)*e
^13+13*(45*A*a^8*b^2+10*B*a^9*b)*d*e^12+78*(120*A*a^7*b^3+45*B*a^
8*b^2)*d^2*e^11+286*(210*A*a^6*b^4+120*B*a^7*b^3)*d^3*e^10+715*(2
52*A*a^5*b^5+210*B*a^6*b^4)*d^4*e^9+1287*(210*A*a^4*b^6+252*B*a^5
*b^5)*d^5*e^8+1716*(120*A*a^3*b^7+210*B*a^4*b^6)*d^6*e^7+1716*(45
*A*a^2*b^8+120*B*a^3*b^7)*d^7*e^6+1287*(10*A*a*b^9+45*B*a^2*b^8)*
d^8*e^5+715*(A*b^10+10*B*a*b^9)*d^9*e^4+286*b^10*B*d^10*e^3)*x^15
+1/14*(a^10*A*e^13+13*(10*A*a^9*b+B*a^10)*d*e^12+78*(45*A*a^8*b^2
+10*B*a^9*b)*d^2*e^11+286*(120*A*a^7*b^3+45*B*a^8*b^2)*d^3*e^10+7
15*(210*A*a^6*b^4+120*B*a^7*b^3)*d^4*e^9+1287*(252*A*a^5*b^5+210*
B*a^6*b^4)*d^5*e^8+1716*(210*A*a^4*b^6+252*B*a^5*b^5)*d^6*e^7+171
6*(120*A*a^3*b^7+210*B*a^4*b^6)*d^7*e^6+1287*(45*A*a^2*b^8+120*B*
a^3*b^7)*d^8*e^5+715*(10*A*a*b^9+45*B*a^2*b^8)*d^9*e^4+286*(A*b^1
0+10*B*a*b^9)*d^10*e^3+78*b^10*B*d^11*e^2)*x^14+1/13*(13*a^10*A*d
*e^12+78*(10*A*a^9*b+B*a^10)*d^2*e^11+286*(45*A*a^8*b^2+10*B*a^9*
b)*d^3*e^10+715*(120*A*a^7*b^3+45*B*a^8*b^2)*d^4*e^9+1287*(210*A*
a^6*b^4+120*B*a^7*b^3)*d^5*e^8+1716*(252*A*a^5*b^5+210*B*a^6*b^4)
*d^6*e^7+1716*(210*A*a^4*b^6+252*B*a^5*b^5)*d^7*e^6+1287*(120*A*a
^3*b^7+210*B*a^4*b^6)*d^8*e^5+715*(45*A*a^2*b^8+120*B*a^3*b^7)*d^
9*e^4+286*(10*A*a*b^9+45*B*a^2*b^8)*d^10*e^3+78*(A*b^10+10*B*a*b^
9)*d^11*e^2+13*b^10*B*d^12*e)*x^13+1/12*(78*a^10*A*d^2*e^11+286*(
10*A*a^9*b+B*a^10)*d^3*e^10+715*(45*A*a^8*b^2+10*B*a^9*b)*d^4*e^9
+1287*(120*A*a^7*b^3+45*B*a^8*b^2)*d^5*e^8+1716*(210*A*a^6*b^4+12
0*B*a^7*b^3)*d^6*e^7+1716*(252*A*a^5*b^5+210*B*a^6*b^4)*d^7*e^6+1
287*(210*A*a^4*b^6+252*B*a^5*b^5)*d^8*e^5+715*(120*A*a^3*b^7+210*
B*a^4*b^6)*d^9*e^4+286*(45*A*a^2*b^8+120*B*a^3*b^7)*d^10*e^3+78*(
10*A*a*b^9+45*B*a^2*b^8)*d^11*e^2+13*(A*b^10+10*B*a*b^9)*d^12*e+b
^10*B*d^13)*x^12+1/11*(286*a^10*A*d^3*e^10+715*(10*A*a^9*b+B*a^10
)*d^4*e^9+1287*(45*A*a^8*b^2+10*B*a^9*b)*d^5*e^8+1716*(120*A*a^7*
b^3+45*B*a^8*b^2)*d^6*e^7+1716*(210*A*a^6*b^4+120*B*a^7*b^3)*d^7*
e^6+1287*(252*A*a^5*b^5+210*B*a^6*b^4)*d^8*e^5+715*(210*A*a^4*b^6
+252*B*a^5*b^5)*d^9*e^4+286*(120*A*a^3*b^7+210*B*a^4*b^6)*d^10*e^
3+78*(45*A*a^2*b^8+120*B*a^3*b^7)*d^11*e^2+13*(10*A*a*b^9+45*B*a^
2*b^8)*d^12*e+(A*b^10+10*B*a*b^9)*d^13)*x^11+1/10*(715*a^10*A*d^4
*e^9+1287*(10*A*a^9*b+B*a^10)*d^5*e^8+1716*(45*A*a^8*b^2+10*B*a^9
*b)*d^6*e^7+1716*(120*A*a^7*b^3+45*B*a^8*b^2)*d^7*e^6+1287*(210*A
*a^6*b^4+120*B*a^7*b^3)*d^8*e^5+715*(252*A*a^5*b^5+210*B*a^6*b^4)
```

```
*d^9*e^4+286*(210*A*a^4*b^6+252*B*a^5*b^5)*d^10*e^3+78*(120*A*a^3
*b^7+210*B*a^4*b^6)*d^11*e^2+13*(45*A*a^2*b^8+120*B*a^3*b^7)*d^12
*e+(10*A*a*b^9+45*B*a^2*b^8)*d^13)*x^10+1/9*(1287*a^10*A*d^5*e^8+
1716*(10*A*a^9*b+B*a^10)*d^6*e^7+1716*(45*A*a^8*b^2+10*B*a^9*b)*d
^7*e^6+1287*(120*A*a^7*b^3+45*B*a^8*b^2)*d^8*e^5+715*(210*A*a^6*b
^4+120*B*a^7*b^3)*d^9*e^4+286*(252*A*a^5*b^5+210*B*a^6*b^4)*d^10*
e^3+78*(210*A*a^4*b^6+252*B*a^5*b^5)*d^11*e^2+13*(120*A*a^3*b^7+2
10*B*a^4*b^6)*d^12*e+(45*A*a^2*b^8+120*B*a^3*b^7)*d^13)*x^9+1/8*(
1716*a^10*A*d^6*e^7+1716*(10*A*a^9*b+B*a^10)*d^7*e^6+1287*(45*A*a
^8*b^2+10*B*a^9*b)*d^8*e^5+715*(120*A*a^7*b^3+45*B*a^8*b^2)*d^9*e
^4+286*(210*A*a^6*b^4+120*B*a^7*b^3)*d^10*e^3+78*(252*A*a^5*b^5+2
10*B*a^6*b^4)*d^11*e^2+13*(210*A*a^4*b^6+252*B*a^5*b^5)*d^12*e+(1
20*A*a^3*b^7+210*B*a^4*b^6)*d^13)*x^8+1/7*(1716*a^10*A*d^7*e^6+12
87*(10*A*a^9*b+B*a^10)*d^8*e^5+715*(45*A*a^8*b^2+10*B*a^9*b)*d^9*
e^4+286*(120*A*a^7*b^3+45*B*a^8*b^2)*d^10*e^3+78*(210*A*a^6*b^4+1
20*B*a^7*b^3)*d^11*e^2+13*(252*A*a^5*b^5+210*B*a^6*b^4)*d^12*e+(2
10*A*a^4*b^6+252*B*a^5*b^5)*d^13)*x^7+1/6*(1287*a^10*A*d^8*e^5+71
5*(10*A*a^9*b+B*a^10)*d^9*e^4+286*(45*A*a^8*b^2+10*B*a^9*b)*d^10*
e^3+78*(120*A*a^7*b^3+45*B*a^8*b^2)*d^11*e^2+13*(210*A*a^6*b^4+12
0*B*a^7*b^3)*d^12*e+(252*A*a^5*b^5+210*B*a^6*b^4)*d^13)*x^6+1/5*(
715*a^10*A*d^9*e^4+286*(10*A*a^9*b+B*a^10)*d^10*e^3+78*(45*A*a^8*
b^2+10*B*a^9*b)*d^11*e^2+13*(120*A*a^7*b^3+45*B*a^8*b^2)*d^12*e+(
210*A*a^6*b^4+120*B*a^7*b^3)*d^13)*x^5+1/25*b^10*B*e^13*x^25+a^10
*A*d^13*x
```

Maxima [A] time = 1.43361, size = 5272, normalized size = 11.36

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^10*(e*x + d)^13,x, algorithm="maxima")
```

```
[Out] 1/25*B*b^10*e^13*x^25 + A*a^10*d^13*x + 1/24*(13*B*b^10*d*e^12 +
(10*B*a*b^9 + A*b^10)*e^13)*x^24 + 1/23*(78*B*b^10*d^2*e^11 + 13*
(10*B*a*b^9 + A*b^10)*d*e^12 + 5*(9*B*a^2*b^8 + 2*A*a*b^9)*e^13)*
x^23 + 1/22*(286*B*b^10*d^3*e^10 + 78*(10*B*a*b^9 + A*b^10)*d^2*e
^11 + 65*(9*B*a^2*b^8 + 2*A*a*b^9)*d*e^12 + 15*(8*B*a^3*b^7 + 3*A
*a^2*b^8)*e^13)*x^22 + 1/21*(715*B*b^10*d^4*e^9 + 286*(10*B*a*b^9
 + A*b^10)*d^3*e^10 + 390*(9*B*a^2*b^8 + 2*A*a*b^9)*d^2*e^11 + 19
5*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d*e^12 + 30*(7*B*a^4*b^6 + 4*A*a^3*
b^7)*e^13)*x^21 + 1/20*(1287*B*b^10*d^5*e^8 + 715*(10*B*a*b^9 + A
*b^10)*d^4*e^9 + 1430*(9*B*a^2*b^8 + 2*A*a*b^9)*d^3*e^10 + 1170*(
8*B*a^3*b^7 + 3*A*a^2*b^8)*d^2*e^11 + 390*(7*B*a^4*b^6 + 4*A*a^3*
b^7)*d*e^12 + 42*(6*B*a^5*b^5 + 5*A*a^4*b^6)*e^13)*x^20 + 1/19*(1
716*B*b^10*d^6*e^7 + 1287*(10*B*a*b^9 + A*b^10)*d^5*e^8 + 3575*(9
*B*a^2*b^8 + 2*A*a*b^9)*d^4*e^9 + 4290*(8*B*a^3*b^7 + 3*A*a^2*b^8
)*d^3*e^10 + 2340*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^2*e^11 + 546*(6*B
*a^5*b^5 + 5*A*a^4*b^6)*d*e^12 + 42*(5*B*a^6*b^4 + 6*A*a^5*b^5)*e
^13)*x^19 + 1/6*(572*B*b^10*d^7*e^6 + 572*(10*B*a*b^9 + A*b^10)*d
^6*e^7 + 2145*(9*B*a^2*b^8 + 2*A*a*b^9)*d^5*e^8 + 3575*(8*B*a^3*b
^7 + 3*A*a^2*b^8)*d^4*e^9 + 2860*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^3*
e^10 + 1092*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^2*e^11 + 182*(5*B*a^6*b
^4 + 6*A*a^5*b^5)*d*e^12 + 10*(4*B*a^7*b^3 + 7*A*a^6*b^4)*e^13)*x
^18 + 3/17*(429*B*b^10*d^8*e^5 + 572*(10*B*a*b^9 + A*b^10)*d^7*e^
6 + 2860*(9*B*a^2*b^8 + 2*A*a*b^9)*d^6*e^7 + 6435*(8*B*a^3*b^7 +
3*A*a^2*b^8)*d^5*e^8 + 7150*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^4*e^9 +
 4004*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^3*e^10 + 1092*(5*B*a^6*b^4 +
6*A*a^5*b^5)*d^2*e^11 + 130*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d*e^12 +
5*(3*B*a^8*b^2 + 8*A*a^7*b^3)*e^13)*x^17 + 1/16*(715*B*b^10*d^9*e
^4 + 1287*(10*B*a*b^9 + A*b^10)*d^8*e^5 + 8580*(9*B*a^2*b^8 + 2*A
*a*b^9)*d^7*e^6 + 25740*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^6*e^7 + 386
10*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^5*e^8 + 30030*(6*B*a^5*b^5 + 5*A
*a^4*b^6)*d^4*e^9 + 12012*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^3*e^10 +
2340*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^2*e^11 + 195*(3*B*a^8*b^2 + 8*
A*a^7*b^3)*d*e^12 + 5*(2*B*a^9*b + 9*A*a^8*b^2)*e^13)*x^16 + 1/15
*(286*B*b^10*d^10*e^3 + 715*(10*B*a*b^9 + A*b^10)*d^9*e^4 + 6435*
(9*B*a^2*b^8 + 2*A*a*b^9)*d^8*e^5 + 25740*(8*B*a^3*b^7 + 3*A*a^2*
b^8)*d^7*e^6 + 51480*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^6*e^7 + 54054*
(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^5*e^8 + 30030*(5*B*a^6*b^4 + 6*A*a^
```

```
5*b^5)*d^4*e^9 + 8580*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^3*e^10 + 1170
*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^2*e^11 + 65*(2*B*a^9*b + 9*A*a^8*b
^2)*d*e^12 + (B*a^10 + 10*A*a^9*b)*e^13)*x^15 + 1/14*(78*B*b^10*d
^11*e^2 + A*a^10*e^13 + 286*(10*B*a*b^9 + A*b^10)*d^10*e^3 + 3575
*(9*B*a^2*b^8 + 2*A*a*b^9)*d^9*e^4 + 19305*(8*B*a^3*b^7 + 3*A*a^2
*b^8)*d^8*e^5 + 51480*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^7*e^6 + 72072
*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^6*e^7 + 54054*(5*B*a^6*b^4 + 6*A*a
^5*b^5)*d^5*e^8 + 21450*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^4*e^9 + 429
0*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^3*e^10 + 390*(2*B*a^9*b + 9*A*a^8
*b^2)*d^2*e^11 + 13*(B*a^10 + 10*A*a^9*b)*d*e^12)*x^14 + (B*b^10*
d^12*e + A*a^10*d*e^12 + 6*(10*B*a*b^9 + A*b^10)*d^11*e^2 + 110*(
9*B*a^2*b^8 + 2*A*a*b^9)*d^10*e^3 + 825*(8*B*a^3*b^7 + 3*A*a^2*b^
8)*d^9*e^4 + 2970*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^8*e^5 + 5544*(6*B
*a^5*b^5 + 5*A*a^4*b^6)*d^7*e^6 + 5544*(5*B*a^6*b^4 + 6*A*a^5*b^5
)*d^6*e^7 + 2970*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^5*e^8 + 825*(3*B*a
^8*b^2 + 8*A*a^7*b^3)*d^4*e^9 + 110*(2*B*a^9*b + 9*A*a^8*b^2)*d^3
*e^10 + 6*(B*a^10 + 10*A*a^9*b)*d^2*e^11)*x^13 + 1/12*(B*b^10*d^1
3 + 78*A*a^10*d^2*e^11 + 13*(10*B*a*b^9 + A*b^10)*d^12*e + 390*(9
*B*a^2*b^8 + 2*A*a*b^9)*d^11*e^2 + 4290*(8*B*a^3*b^7 + 3*A*a^2*b^
8)*d^10*e^3 + 21450*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^9*e^4 + 54054*(
6*B*a^5*b^5 + 5*A*a^4*b^6)*d^8*e^5 + 72072*(5*B*a^6*b^4 + 6*A*a^5
*b^5)*d^7*e^6 + 51480*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^6*e^7 + 19305
*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^5*e^8 + 3575*(2*B*a^9*b + 9*A*a^8*
b^2)*d^4*e^9 + 286*(B*a^10 + 10*A*a^9*b)*d^3*e^10)*x^12 + 1/11*(2
86*A*a^10*d^3*e^10 + (10*B*a*b^9 + A*b^10)*d^13 + 65*(9*B*a^2*b^8
 + 2*A*a*b^9)*d^12*e + 1170*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^11*e^2
+ 8580*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^10*e^3 + 30030*(6*B*a^5*b^5
+ 5*A*a^4*b^6)*d^9*e^4 + 54054*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^8*e^
5 + 51480*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^7*e^6 + 25740*(3*B*a^8*b^
2 + 8*A*a^7*b^3)*d^6*e^7 + 6435*(2*B*a^9*b + 9*A*a^8*b^2)*d^5*e^8
 + 715*(B*a^10 + 10*A*a^9*b)*d^4*e^9)*x^11 + 1/10*(715*A*a^10*d^4
*e^9 + 5*(9*B*a^2*b^8 + 2*A*a*b^9)*d^13 + 195*(8*B*a^3*b^7 + 3*A*
a^2*b^8)*d^12*e + 2340*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^11*e^2 + 120
12*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^10*e^3 + 30030*(5*B*a^6*b^4 + 6*
A*a^5*b^5)*d^9*e^4 + 38610*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^8*e^5 +
25740*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^7*e^6 + 8580*(2*B*a^9*b + 9*A
*a^8*b^2)*d^6*e^7 + 1287*(B*a^10 + 10*A*a^9*b)*d^5*e^8)*x^10 + 1/
3*(429*A*a^10*d^5*e^8 + 5*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^13 + 130*
(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^12*e + 1092*(6*B*a^5*b^5 + 5*A*a^4*
b^6)*d^11*e^2 + 4004*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^10*e^3 + 7150*
(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^9*e^4 + 6435*(3*B*a^8*b^2 + 8*A*a^7
*b^3)*d^8*e^5 + 2860*(2*B*a^9*b + 9*A*a^8*b^2)*d^7*e^6 + 572*(B*a
^10 + 10*A*a^9*b)*d^6*e^7)*x^9 + 3/8*(572*A*a^10*d^6*e^7 + 10*(7*
B*a^4*b^6 + 4*A*a^3*b^7)*d^13 + 182*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d
^12*e + 1092*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^11*e^2 + 2860*(4*B*a^7
*b^3 + 7*A*a^6*b^4)*d^10*e^3 + 3575*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d
^9*e^4 + 2145*(2*B*a^9*b + 9*A*a^8*b^2)*d^8*e^5 + 572*(B*a^10 + 1
0*A*a^9*b)*d^7*e^6)*x^8 + 1/7*(1716*A*a^10*d^7*e^6 + 42*(6*B*a^5*
b^5 + 5*A*a^4*b^6)*d^13 + 546*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^12*e
+ 2340*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^11*e^2 + 4290*(3*B*a^8*b^2 +
 8*A*a^7*b^3)*d^10*e^3 + 3575*(2*B*a^9*b + 9*A*a^8*b^2)*d^9*e^4 +
 1287*(B*a^10 + 10*A*a^9*b)*d^8*e^5)*x^7 + 1/6*(1287*A*a^10*d^8*e
^5 + 42*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^13 + 390*(4*B*a^7*b^3 + 7*A
*a^6*b^4)*d^12*e + 1170*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^11*e^2 + 14
30*(2*B*a^9*b + 9*A*a^8*b^2)*d^10*e^3 + 715*(B*a^10 + 10*A*a^9*b)
*d^9*e^4)*x^6 + 1/5*(715*A*a^10*d^9*e^4 + 30*(4*B*a^7*b^3 + 7*A*a
^6*b^4)*d^13 + 195*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^12*e + 390*(2*B*
a^9*b + 9*A*a^8*b^2)*d^11*e^2 + 286*(B*a^10 + 10*A*a^9*b)*d^10*e^
3)*x^5 + 1/4*(286*A*a^10*d^10*e^3 + 15*(3*B*a^8*b^2 + 8*A*a^7*b^3
)*d^13 + 65*(2*B*a^9*b + 9*A*a^8*b^2)*d^12*e + 78*(B*a^10 + 10*A*
a^9*b)*d^11*e^2)*x^4 + 1/3*(78*A*a^10*d^11*e^2 + 5*(2*B*a^9*b + 9
*A*a^8*b^2)*d^13 + 13*(B*a^10 + 10*A*a^9*b)*d^12*e)*x^3 + 1/2*(13
*A*a^10*d^12*e + (B*a^10 + 10*A*a^9*b)*d^13)*x^2
```

Fricas [A] time = 0.196357, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^10*(e*x + d)^13,x, algorithm="fricas")
```

[Out] 1/25*x^25*e^13*b^10*B + 13/24*x^24*e^12*d*b^10*B + 5/12*x^24*e^13
*b^9*a*B + 1/24*x^24*e^13*b^10*A + 78/23*x^23*e^11*d^2*b^10*B + 1
30/23*x^23*e^12*d*b^9*a*B + 45/23*x^23*e^13*b^8*a^2*B + 13/23*x^2
3*e^12*d*b^10*A + 10/23*x^23*e^13*b^9*a*A + 13*x^22*e^10*d^3*b^10
*B + 390/11*x^22*e^11*d^2*b^9*a*B + 585/22*x^22*e^12*d*b^8*a^2*B
+ 60/11*x^22*e^13*b^7*a^3*B + 39/11*x^22*e^11*d^2*b^10*A + 65/11*
x^22*e^12*d*b^9*a*A + 45/22*x^22*e^13*b^8*a^2*A + 715/21*x^21*e^9
*d^4*b^10*B + 2860/21*x^21*e^10*d^3*b^9*a*B + 1170/7*x^21*e^11*d^
2*b^8*a^2*B + 520/7*x^21*e^12*d*b^7*a^3*B + 10*x^21*e^13*b^6*a^4*
B + 286/21*x^21*e^10*d^3*b^10*A + 260/7*x^21*e^11*d^2*b^9*a*A + 1
95/7*x^21*e^12*d*b^8*a^2*A + 40/7*x^21*e^13*b^7*a^3*A + 1287/20*x
^20*e^8*d^5*b^10*B + 715/2*x^20*e^9*d^4*b^9*a*B + 1287/2*x^20*e^1
0*d^3*b^8*a^2*B + 468*x^20*e^11*d^2*b^7*a^3*B + 273/2*x^20*e^12*d
*b^6*a^4*B + 63/5*x^20*e^13*b^5*a^5*B + 143/4*x^20*e^9*d^4*b^10*A
 + 143*x^20*e^10*d^3*b^9*a*A + 351/2*x^20*e^11*d^2*b^8*a^2*A + 78
*x^20*e^12*d*b^7*a^3*A + 21/2*x^20*e^13*b^6*a^4*A + 1716/19*x^19*
e^7*d^6*b^10*B + 12870/19*x^19*e^8*d^5*b^9*a*B + 32175/19*x^19*e^
9*d^4*b^8*a^2*B + 34320/19*x^19*e^10*d^3*b^7*a^3*B + 16380/19*x^1
9*e^11*d^2*b^6*a^4*B + 3276/19*x^19*e^12*d*b^5*a^5*B + 210/19*x^1
9*e^13*b^4*a^6*B + 1287/19*x^19*e^8*d^5*b^10*A + 7150/19*x^19*e^9
*d^4*b^9*a*A + 12870/19*x^19*e^10*d^3*b^8*a^2*A + 9360/19*x^19*e^
11*d^2*b^7*a^3*A + 2730/19*x^19*e^12*d*b^6*a^4*A + 252/19*x^19*e^
13*b^5*a^5*A + 286/3*x^18*e^6*d^7*b^10*B + 2860/3*x^18*e^7*d^6*b^
9*a*B + 6435/2*x^18*e^8*d^5*b^8*a^2*B + 14300/3*x^18*e^9*d^4*b^7*
a^3*B + 10010/3*x^18*e^10*d^3*b^6*a^4*B + 1092*x^18*e^11*d^2*b^5*
a^5*B + 455/3*x^18*e^12*d*b^4*a^6*B + 20/3*x^18*e^13*b^3*a^7*B +
286/3*x^18*e^7*d^6*b^10*A + 715*x^18*e^8*d^5*b^9*a*A + 3575/2*x^1
8*e^9*d^4*b^8*a^2*A + 5720/3*x^18*e^10*d^3*b^7*a^3*A + 910*x^18*e
^11*d^2*b^6*a^4*A + 182*x^18*e^12*d*b^5*a^5*A + 35/3*x^18*e^13*b^
4*a^6*A + 1287/17*x^17*e^5*d^8*b^10*B + 17160/17*x^17*e^6*d^7*b^9
*a*B + 77220/17*x^17*e^7*d^6*b^8*a^2*B + 154440/17*x^17*e^8*d^5*b
^7*a^3*B + 150150/17*x^17*e^9*d^4*b^6*a^4*B + 72072/17*x^17*e^10*
d^3*b^5*a^5*B + 16380/17*x^17*e^11*d^2*b^4*a^6*B + 1560/17*x^17*e
^12*d*b^3*a^7*B + 45/17*x^17*e^13*b^2*a^8*B + 1716/17*x^17*e^6*d^
7*b^10*A + 17160/17*x^17*e^7*d^6*b^9*a*A + 57915/17*x^17*e^8*d^5*
b^8*a^2*A + 85800/17*x^17*e^9*d^4*b^7*a^3*A + 60060/17*x^17*e^10*
d^3*b^6*a^4*A + 19656/17*x^17*e^11*d^2*b^5*a^5*A + 2730/17*x^17*e
^12*d*b^4*a^6*A + 120/17*x^17*e^13*b^3*a^7*A + 715/16*x^16*e^4*d^
9*b^10*B + 6435/8*x^16*e^5*d^8*b^9*a*B + 19305/4*x^16*e^6*d^7*b^8
*a^2*B + 12870*x^16*e^7*d^6*b^7*a^3*B + 135135/8*x^16*e^8*d^5*b^6
*a^4*B + 45045/4*x^16*e^9*d^4*b^5*a^5*B + 15015/4*x^16*e^10*d^3*b
^4*a^6*B + 585*x^16*e^11*d^2*b^3*a^7*B + 585/16*x^16*e^12*d*b^2*a
^8*B + 5/8*x^16*e^13*b*a^9*B + 1287/16*x^16*e^5*d^8*b^10*A + 2145
/2*x^16*e^6*d^7*b^9*a*A + 19305/4*x^16*e^7*d^6*b^8*a^2*A + 19305/
2*x^16*e^8*d^5*b^7*a^3*A + 75075/8*x^16*e^9*d^4*b^6*a^4*A + 9009/
2*x^16*e^10*d^3*b^5*a^5*A + 4095/4*x^16*e^11*d^2*b^4*a^6*A + 195/
2*x^16*e^12*d*b^3*a^7*A + 45/16*x^16*e^13*b^2*a^8*A + 286/15*x^15
*e^3*d^10*b^10*B + 1430/3*x^15*e^4*d^9*b^9*a*B + 3861*x^15*e^5*d^
8*b^8*a^2*B + 13728*x^15*e^6*d^7*b^7*a^3*B + 24024*x^15*e^7*d^6*b
^6*a^4*B + 108108/5*x^15*e^8*d^5*b^5*a^5*B + 10010*x^15*e^9*d^4*b
^4*a^6*B + 2288*x^15*e^10*d^3*b^3*a^7*B + 234*x^15*e^11*d^2*b^2*a
^8*B + 26/3*x^15*e^12*d*b*a^9*B + 1/15*x^15*e^13*a^10*B + 143/3*x
^15*e^4*d^9*b^10*A + 858*x^15*e^5*d^8*b^9*a*A + 5148*x^15*e^6*d^7
*b^8*a^2*A + 13728*x^15*e^7*d^6*b^7*a^3*A + 18018*x^15*e^8*d^5*b^
6*a^4*A + 12012*x^15*e^9*d^4*b^5*a^5*A + 4004*x^15*e^10*d^3*b^4*a
^6*A + 624*x^15*e^11*d^2*b^3*a^7*A + 39*x^15*e^12*d*b^2*a^8*A + 2
/3*x^15*e^13*b*a^9*A + 39/7*x^14*e^2*d^11*b^10*B + 1430/7*x^14*e^
3*d^10*b^9*a*B + 32175/14*x^14*e^4*d^9*b^8*a^2*B + 77220/7*x^14*e
^5*d^8*b^7*a^3*B + 25740*x^14*e^6*d^7*b^6*a^4*B + 30888*x^14*e^7*
d^6*b^5*a^5*B + 19305*x^14*e^8*d^5*b^4*a^6*B + 42900/7*x^14*e^9*d
^4*b^3*a^7*B + 6435/7*x^14*e^10*d^3*b^2*a^8*B + 390/7*x^14*e^11*d
^2*b*a^9*B + 13/14*x^14*e^12*d*a^10*B + 143/7*x^14*e^3*d^10*b^10*
A + 3575/7*x^14*e^4*d^9*b^9*a*A + 57915/14*x^14*e^5*d^8*b^8*a^2*A
 + 102960/7*x^14*e^6*d^7*b^7*a^3*A + 25740*x^14*e^7*d^6*b^6*a^4*A
 + 23166*x^14*e^8*d^5*b^5*a^5*A + 10725*x^14*e^9*d^4*b^4*a^6*A +
17160/7*x^14*e^10*d^3*b^3*a^7*A + 1755/7*x^14*e^11*d^2*b^2*a^8*A
+ 65/7*x^14*e^12*d*b*a^9*A + 1/14*x^14*e^13*a^10*A + x^13*e*d^12*
b^10*B + 60*x^13*e^2*d^11*b^9*a*B + 990*x^13*e^3*d^10*b^8*a^2*B +
 6600*x^13*e^4*d^9*b^7*a^3*B + 20790*x^13*e^5*d^8*b^6*a^4*B + 332
64*x^13*e^6*d^7*b^5*a^5*B + 27720*x^13*e^7*d^6*b^4*a^6*B + 11880*
x^13*e^8*d^5*b^3*a^7*B + 2475*x^13*e^9*d^4*b^2*a^8*B + 220*x^13*e
^10*d^3*b*a^9*B + 6*x^13*e^11*d^2*a^10*B + 6*x^13*e^2*d^11*b^10*A
 + 220*x^13*e^3*d^10*b^9*a*A + 2475*x^13*e^4*d^9*b^8*a^2*A + 1188

```
0*x^13*e^5*d^8*b^7*a^3*A + 27720*x^13*e^6*d^7*b^6*a^4*A + 33264*x
^13*e^7*d^6*b^5*a^5*A + 20790*x^13*e^8*d^5*b^4*a^6*A + 6600*x^13*
e^9*d^4*b^3*a^7*A + 990*x^13*e^10*d^3*b^2*a^8*A + 60*x^13*e^11*d^
2*b*a^9*A + x^13*e^12*d*a^10*A + 1/12*x^12*d^13*b^10*B + 65/6*x^1
2*e*d^12*b^9*a*B + 585/2*x^12*e^2*d^11*b^8*a^2*B + 2860*x^12*e^3*
d^10*b^7*a^3*B + 25025/2*x^12*e^4*d^9*b^6*a^4*B + 27027*x^12*e^5*
d^8*b^5*a^5*B + 30030*x^12*e^6*d^7*b^4*a^6*B + 17160*x^12*e^7*d^6
*b^3*a^7*B + 19305/4*x^12*e^8*d^5*b^2*a^8*B + 3575/6*x^12*e^9*d^4
*b*a^9*B + 143/6*x^12*e^10*d^3*a^10*B + 13/12*x^12*e*d^12*b^10*A
+ 65*x^12*e^2*d^11*b^9*a*A + 2145/2*x^12*e^3*d^10*b^8*a^2*A + 715
0*x^12*e^4*d^9*b^7*a^3*A + 45045/2*x^12*e^5*d^8*b^6*a^4*A + 36036
*x^12*e^6*d^7*b^5*a^5*A + 30030*x^12*e^7*d^6*b^4*a^6*A + 12870*x^
12*e^8*d^5*b^3*a^7*A + 10725/4*x^12*e^9*d^4*b^2*a^8*A + 715/3*x^1
2*e^10*d^3*b*a^9*A + 13/2*x^12*e^11*d^2*a^10*A + 10/11*x^11*d^13*
b^9*a*B + 585/11*x^11*e*d^12*b^8*a^2*B + 9360/11*x^11*e^2*d^11*b^
7*a^3*B + 5460*x^11*e^3*d^10*b^6*a^4*B + 16380*x^11*e^4*d^9*b^5*a
^5*B + 24570*x^11*e^5*d^8*b^4*a^6*B + 18720*x^11*e^6*d^7*b^3*a^7*
B + 7020*x^11*e^7*d^6*b^2*a^8*B + 1170*x^11*e^8*d^5*b*a^9*B + 65*
x^11*e^9*d^4*a^10*B + 1/11*x^11*d^13*b^10*A + 130/11*x^11*e*d^12*
b^9*a*A + 3510/11*x^11*e^2*d^11*b^8*a^2*A + 3120*x^11*e^3*d^10*b^
7*a^3*A + 13650*x^11*e^4*d^9*b^6*a^4*A + 29484*x^11*e^5*d^8*b^5*a
^5*A + 32760*x^11*e^6*d^7*b^4*a^6*A + 18720*x^11*e^7*d^6*b^3*a^7*
A + 5265*x^11*e^8*d^5*b^2*a^8*A + 650*x^11*e^9*d^4*b*a^9*A + 26*x
^11*e^10*d^3*a^10*A + 9/2*x^10*d^13*b^8*a^2*B + 156*x^10*e*d^12*b
^7*a^3*B + 1638*x^10*e^2*d^11*b^6*a^4*B + 36036/5*x^10*e^3*d^10*b
^5*a^5*B + 15015*x^10*e^4*d^9*b^4*a^6*B + 15444*x^10*e^5*d^8*b^3*
a^7*B + 7722*x^10*e^6*d^7*b^2*a^8*B + 1716*x^10*e^7*d^6*b*a^9*B +
 1287/10*x^10*e^8*d^5*a^10*B + x^10*d^13*b^9*a*A + 117/2*x^10*e*d
^12*b^8*a^2*A + 936*x^10*e^2*d^11*b^7*a^3*A + 6006*x^10*e^3*d^10*
b^6*a^4*A + 18018*x^10*e^4*d^9*b^5*a^5*A + 27027*x^10*e^5*d^8*b^4
*a^6*A + 20592*x^10*e^6*d^7*b^3*a^7*A + 7722*x^10*e^7*d^6*b^2*a^8
*A + 1287*x^10*e^8*d^5*b*a^9*A + 143/2*x^10*e^9*d^4*a^10*A + 40/3
*x^9*d^13*b^7*a^3*B + 910/3*x^9*e*d^12*b^6*a^4*B + 2184*x^9*e^2*d
^11*b^5*a^5*B + 20020/3*x^9*e^3*d^10*b^4*a^6*B + 28600/3*x^9*e^4*
d^9*b^3*a^7*B + 6435*x^9*e^5*d^8*b^2*a^8*B + 5720/3*x^9*e^6*d^7*b
*a^9*B + 572/3*x^9*e^7*d^6*a^10*B + 5*x^9*d^13*b^8*a^2*A + 520/3*
x^9*e*d^12*b^7*a^3*A + 1820*x^9*e^2*d^11*b^6*a^4*A + 8008*x^9*e^3
*d^10*b^5*a^5*A + 50050/3*x^9*e^4*d^9*b^4*a^6*A + 17160*x^9*e^5*d
^8*b^3*a^7*A + 8580*x^9*e^6*d^7*b^2*a^8*A + 5720/3*x^9*e^7*d^6*b*
a^9*A + 143*x^9*e^8*d^5*a^10*A + 105/4*x^8*d^13*b^6*a^4*B + 819/2
*x^8*e*d^12*b^5*a^5*B + 4095/2*x^8*e^2*d^11*b^4*a^6*B + 4290*x^8*
e^3*d^10*b^3*a^7*B + 32175/8*x^8*e^4*d^9*b^2*a^8*B + 6435/4*x^8*e
^5*d^8*b*a^9*B + 429/2*x^8*e^6*d^7*a^10*B + 15*x^8*d^13*b^7*a^3*A
 + 1365/4*x^8*e*d^12*b^6*a^4*A + 2457*x^8*e^2*d^11*b^5*a^5*A + 15
015/2*x^8*e^3*d^10*b^4*a^6*A + 10725*x^8*e^4*d^9*b^3*a^7*A + 5791
5/8*x^8*e^5*d^8*b^2*a^8*A + 2145*x^8*e^6*d^7*b*a^9*A + 429/2*x^8*
e^7*d^6*a^10*A + 36*x^7*d^13*b^5*a^5*B + 390*x^7*e*d^12*b^4*a^6*B
 + 9360/7*x^7*e^2*d^11*b^3*a^7*B + 12870/7*x^7*e^3*d^10*b^2*a^8*B
 + 7150/7*x^7*e^4*d^9*b*a^9*B + 1287/7*x^7*e^5*d^8*a^10*B + 30*x^
7*d^13*b^6*a^4*A + 468*x^7*e*d^12*b^5*a^5*A + 2340*x^7*e^2*d^11*b
^4*a^6*A + 34320/7*x^7*e^3*d^10*b^3*a^7*A + 32175/7*x^7*e^4*d^9*b
^2*a^8*A + 12870/7*x^7*e^5*d^8*b*a^9*A + 1716/7*x^7*e^6*d^7*a^10*
A + 35*x^6*d^13*b^4*a^6*B + 260*x^6*e*d^12*b^3*a^7*B + 585*x^6*e^
2*d^11*b^2*a^8*B + 1430/3*x^6*e^3*d^10*b*a^9*B + 715/6*x^6*e^4*d^
9*a^10*B + 42*x^6*d^13*b^5*a^5*A + 455*x^6*e*d^12*b^4*a^6*A + 156
0*x^6*e^2*d^11*b^3*a^7*A + 2145*x^6*e^3*d^10*b^2*a^8*A + 3575/3*x
^6*e^4*d^9*b*a^9*A + 429/2*x^6*e^5*d^8*a^10*A + 24*x^5*d^13*b^3*a
^7*B + 117*x^5*e*d^12*b^2*a^8*B + 156*x^5*e^2*d^11*b*a^9*B + 286/
5*x^5*e^3*d^10*a^10*B + 42*x^5*d^13*b^4*a^6*A + 312*x^5*e*d^12*b^
3*a^7*A + 702*x^5*e^2*d^11*b^2*a^8*A + 572*x^5*e^3*d^10*b*a^9*A +
 143*x^5*e^4*d^9*a^10*A + 45/4*x^4*d^13*b^2*a^8*B + 65/2*x^4*e*d^
12*b*a^9*B + 39/2*x^4*e^2*d^11*a^10*B + 30*x^4*d^13*b^3*a^7*A + 5
85/4*x^4*e*d^12*b^2*a^8*A + 195*x^4*e^2*d^11*b*a^9*A + 143/2*x^4*
e^3*d^10*a^10*A + 10/3*x^3*d^13*b*a^9*B + 13/3*x^3*e*d^12*a^10*B
+ 15*x^3*d^13*b^2*a^8*A + 130/3*x^3*e*d^12*b*a^9*A + 26*x^3*e^2*d
^11*a^10*A + 1/2*x^2*d^13*a^10*B + 5*x^2*d^13*b*a^9*A + 13/2*x^2*
e*d^12*a^10*A + x*d^13*a^10*A
```

Sympy [A] time = 1.99148, size = 5092, normalized size = 10.97

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)*(e*x+d)**13,x)
```

```
[Out] A*a**10*d**13*x + B*b**10*e**13*x**25/25 + x**24*(A*b**10*e**13/2
4 + 5*B*a*b**9*e**13/12 + 13*B*b**10*d*e**12/24) + x**23*(10*A*a*
b**9*e**13/23 + 13*A*b**10*d*e**12/23 + 45*B*a**2*b**8*e**13/23 +
 130*B*a*b**9*d*e**12/23 + 78*B*b**10*d**2*e**11/23) + x**22*(45*
A*a**2*b**8*e**13/22 + 65*A*a*b**9*d*e**12/11 + 39*A*b**10*d**2*e
**11/11 + 60*B*a**3*b**7*e**13/11 + 585*B*a**2*b**8*d*e**12/22 +
390*B*a*b**9*d**2*e**11/11 + 13*B*b**10*d**3*e**10) + x**21*(40*A
*a**3*b**7*e**13/7 + 195*A*a**2*b**8*d*e**12/7 + 260*A*a*b**9*d**
2*e**11/7 + 286*A*b**10*d**3*e**10/21 + 10*B*a**4*b**6*e**13 + 52
0*B*a**3*b**7*d*e**12/7 + 1170*B*a**2*b**8*d**2*e**11/7 + 2860*B*
a*b**9*d**3*e**10/21 + 715*B*b**10*d**4*e**9/21) + x**20*(21*A*a*
*4*b**6*e**13/2 + 78*A*a**3*b**7*d*e**12 + 351*A*a**2*b**8*d**2*e
**11/2 + 143*A*a*b**9*d**3*e**10 + 143*A*b**10*d**4*e**9/4 + 63*B
*a**5*b**5*e**13/5 + 273*B*a**4*b**6*d*e**12/2 + 468*B*a**3*b**7*
d**2*e**11 + 1287*B*a**2*b**8*d**3*e**10/2 + 715*B*a*b**9*d**4*e*
*9/2 + 1287*B*b**10*d**5*e**8/20) + x**19*(252*A*a**5*b**5*e**13/
19 + 2730*A*a**4*b**6*d*e**12/19 + 9360*A*a**3*b**7*d**2*e**11/19
 + 12870*A*a**2*b**8*d**3*e**10/19 + 7150*A*a*b**9*d**4*e**9/19 +
 1287*A*b**10*d**5*e**8/19 + 210*B*a**6*b**4*e**13/19 + 3276*B*a*
*5*b**5*d*e**12/19 + 16380*B*a**4*b**6*d**2*e**11/19 + 34320*B*a*
*3*b**7*d**3*e**10/19 + 32175*B*a**2*b**8*d**4*e**9/19 + 12870*B*
a*b**9*d**5*e**8/19 + 1716*B*b**10*d**6*e**7/19) + x**18*(35*A*a*
*6*b**4*e**13/3 + 182*A*a**5*b**5*d*e**12 + 910*A*a**4*b**6*d**2*
e**11 + 5720*A*a**3*b**7*d**3*e**10/3 + 3575*A*a**2*b**8*d**4*e**
9/2 + 715*A*a*b**9*d**5*e**8 + 286*A*b**10*d**6*e**7/3 + 20*B*a**
7*b**3*e**13/3 + 455*B*a**6*b**4*d*e**12/3 + 1092*B*a**5*b**5*d**
2*e**11 + 10010*B*a**4*b**6*d**3*e**10/3 + 14300*B*a**3*b**7*d**4
*e**9/3 + 6435*B*a**2*b**8*d**5*e**8/2 + 2860*B*a*b**9*d**6*e**7/
3 + 286*B*b**10*d**7*e**6/3) + x**17*(120*A*a**7*b**3*e**13/17 +
2730*A*a**6*b**4*d*e**12/17 + 19656*A*a**5*b**5*d**2*e**11/17 + 6
0060*A*a**4*b**6*d**3*e**10/17 + 85800*A*a**3*b**7*d**4*e**9/17 +
 57915*A*a**2*b**8*d**5*e**8/17 + 17160*A*a*b**9*d**6*e**7/17 + 1
716*A*b**10*d**7*e**6/17 + 45*B*a**8*b**2*e**13/17 + 1560*B*a**7*
b**3*d*e**12/17 + 16380*B*a**6*b**4*d**2*e**11/17 + 72072*B*a**5*
b**5*d**3*e**10/17 + 150150*B*a**4*b**6*d**4*e**9/17 + 154440*B*a
**3*b**7*d**5*e**8/17 + 77220*B*a**2*b**8*d**6*e**7/17 + 17160*B*
a*b**9*d**7*e**6/17 + 1287*B*b**10*d**8*e**5/17) + x**16*(45*A*a*
*8*b**2*e**13/16 + 195*A*a**7*b**3*d*e**12/2 + 4095*A*a**6*b**4*d
**2*e**11/4 + 9009*A*a**5*b**5*d**3*e**10/2 + 75075*A*a**4*b**6*d
**4*e**9/8 + 19305*A*a**3*b**7*d**5*e**8/2 + 19305*A*a**2*b**8*d*
*6*e**7/4 + 2145*A*a*b**9*d**7*e**6/2 + 1287*A*b**10*d**8*e**5/16
 + 5*B*a**9*b*e**13/8 + 585*B*a**8*b**2*d*e**12/16 + 585*B*a**7*b
**3*d**2*e**11 + 15015*B*a**6*b**4*d**3*e**10/4 + 45045*B*a**5*b*
*5*d**4*e**9/4 + 135135*B*a**4*b**6*d**5*e**8/8 + 12870*B*a**3*b*
*7*d**6*e**7 + 19305*B*a**2*b**8*d**7*e**6/4 + 6435*B*a*b**9*d**8
*e**5/8 + 715*B*b**10*d**9*e**4/16) + x**15*(2*A*a**9*b*e**13/3 +
 39*A*a**8*b**2*d*e**12 + 624*A*a**7*b**3*d**2*e**11 + 4004*A*a**
6*b**4*d**3*e**10 + 12012*A*a**5*b**5*d**4*e**9 + 18018*A*a**4*b*
*6*d**5*e**8 + 13728*A*a**3*b**7*d**6*e**7 + 5148*A*a**2*b**8*d**
7*e**6 + 858*A*a*b**9*d**8*e**5 + 143*A*b**10*d**9*e**4/3 + B*a**
10*e**13/15 + 26*B*a**9*b*d*e**12/3 + 234*B*a**8*b**2*d**2*e**11
+ 2288*B*a**7*b**3*d**3*e**10 + 10010*B*a**6*b**4*d**4*e**9 + 108
108*B*a**5*b**5*d**5*e**8/5 + 24024*B*a**4*b**6*d**6*e**7 + 13728
*B*a**3*b**7*d**7*e**6 + 3861*B*a**2*b**8*d**8*e**5 + 1430*B*a*b*
*9*d**9*e**4/3 + 286*B*b**10*d**10*e**3/15) + x**14*(A*a**10*e**1
3/14 + 65*A*a**9*b*d*e**12/7 + 1755*A*a**8*b**2*d**2*e**11/7 + 17
160*A*a**7*b**3*d**3*e**10/7 + 10725*A*a**6*b**4*d**4*e**9 + 2316
6*A*a**5*b**5*d**5*e**8 + 25740*A*a**4*b**6*d**6*e**7 + 102960*A*
a**3*b**7*d**7*e**6/7 + 57915*A*a**2*b**8*d**8*e**5/14 + 3575*A*a
*b**9*d**9*e**4/7 + 143*A*b**10*d**10*e**3/7 + 13*B*a**10*d*e**12
/14 + 390*B*a**9*b*d**2*e**11/7 + 6435*B*a**8*b**2*d**3*e**10/7 +
 42900*B*a**7*b**3*d**4*e**9/7 + 19305*B*a**6*b**4*d**5*e**8 + 30
888*B*a**5*b**5*d**6*e**7 + 25740*B*a**4*b**6*d**7*e**6 + 77220*B
*a**3*b**7*d**8*e**5/7 + 32175*B*a**2*b**8*d**9*e**4/14 + 1430*B*
a*b**9*d**10*e**3/7 + 39*B*b**10*d**11*e**2/7) + x**13*(A*a**10*d
*e**12 + 60*A*a**9*b*d**2*e**11 + 990*A*a**8*b**2*d**3*e**10 + 66
00*A*a**7*b**3*d**4*e**9 + 20790*A*a**6*b**4*d**5*e**8 + 33264*A*
a**5*b**5*d**6*e**7 + 27720*A*a**4*b**6*d**7*e**6 + 11880*A*a**3*
b**7*d**8*e**5 + 2475*A*a**2*b**8*d**9*e**4 + 220*A*a*b**9*d**10*
```

```
e**3 + 6*A*b**10*d**11*e**2 + 6*B*a**10*d**2*e**11 + 220*B*a**9*b
*d**3*e**10 + 2475*B*a**8*b**2*d**4*e**9 + 11880*B*a**7*b**3*d**5
*e**8 + 27720*B*a**6*b**4*d**6*e**7 + 33264*B*a**5*b**5*d**7*e**6
 + 20790*B*a**4*b**6*d**8*e**5 + 6600*B*a**3*b**7*d**9*e**4 + 990
*B*a**2*b**8*d**10*e**3 + 60*B*a*b**9*d**11*e**2 + B*b**10*d**12*
e) + x**12*(13*A*a**10*d**2*e**11/2 + 715*A*a**9*b*d**3*e**10/3 +
 10725*A*a**8*b**2*d**4*e**9/4 + 12870*A*a**7*b**3*d**5*e**8 + 30
030*A*a**6*b**4*d**6*e**7 + 36036*A*a**5*b**5*d**7*e**6 + 45045*A
*a**4*b**6*d**8*e**5/2 + 7150*A*a**3*b**7*d**9*e**4 + 2145*A*a**2
*b**8*d**10*e**3/2 + 65*A*a*b**9*d**11*e**2 + 13*A*b**10*d**12*e/
12 + 143*B*a**10*d**3*e**10/6 + 3575*B*a**9*b*d**4*e**9/6 + 19305
*B*a**8*b**2*d**5*e**8/4 + 17160*B*a**7*b**3*d**6*e**7 + 30030*B*
a**6*b**4*d**7*e**6 + 27027*B*a**5*b**5*d**8*e**5 + 25025*B*a**4*
b**6*d**9*e**4/2 + 2860*B*a**3*b**7*d**10*e**3 + 585*B*a**2*b**8*
d**11*e**2/2 + 65*B*a*b**9*d**12*e/6 + B*b**10*d**13/12) + x**11*
(26*A*a**10*d**3*e**10 + 650*A*a**9*b*d**4*e**9 + 5265*A*a**8*b**
2*d**5*e**8 + 18720*A*a**7*b**3*d**6*e**7 + 32760*A*a**6*b**4*d**
7*e**6 + 29484*A*a**5*b**5*d**8*e**5 + 13650*A*a**4*b**6*d**9*e**
4 + 3120*A*a**3*b**7*d**10*e**3 + 3510*A*a**2*b**8*d**11*e**2/11
+ 130*A*a*b**9*d**12*e/11 + A*b**10*d**13/11 + 65*B*a**10*d**4*e*
*9 + 1170*B*a**9*b*d**5*e**8 + 7020*B*a**8*b**2*d**6*e**7 + 18720
*B*a**7*b**3*d**7*e**6 + 24570*B*a**6*b**4*d**8*e**5 + 16380*B*a*
*5*b**5*d**9*e**4 + 5460*B*a**4*b**6*d**10*e**3 + 9360*B*a**3*b**
7*d**11*e**2/11 + 585*B*a**2*b**8*d**12*e/11 + 10*B*a*b**9*d**13/
11) + x**10*(143*A*a**10*d**4*e**9/2 + 1287*A*a**9*b*d**5*e**8 +
7722*A*a**8*b**2*d**6*e**7 + 20592*A*a**7*b**3*d**7*e**6 + 27027*
A*a**6*b**4*d**8*e**5 + 18018*A*a**5*b**5*d**9*e**4 + 6006*A*a**4
*b**6*d**10*e**3 + 936*A*a**3*b**7*d**11*e**2 + 117*A*a**2*b**8*d
**12*e/2 + A*a*b**9*d**13 + 1287*B*a**10*d**5*e**8/10 + 1716*B*a*
*9*b*d**6*e**7 + 7722*B*a**8*b**2*d**7*e**6 + 15444*B*a**7*b**3*d
**8*e**5 + 15015*B*a**6*b**4*d**9*e**4 + 36036*B*a**5*b**5*d**10*
e**3/5 + 1638*B*a**4*b**6*d**11*e**2 + 156*B*a**3*b**7*d**12*e +
9*B*a**2*b**8*d**13/2) + x**9*(143*A*a**10*d**5*e**8 + 5720*A*a**
9*b*d**6*e**7/3 + 8580*A*a**8*b**2*d**7*e**6 + 17160*A*a**7*b**3*
d**8*e**5 + 50050*A*a**6*b**4*d**9*e**4/3 + 8008*A*a**5*b**5*d**1
0*e**3 + 1820*A*a**4*b**6*d**11*e**2 + 520*A*a**3*b**7*d**12*e/3
+ 5*A*a**2*b**8*d**13 + 572*B*a**10*d**6*e**7/3 + 5720*B*a**9*b*d
**7*e**6/3 + 6435*B*a**8*b**2*d**8*e**5 + 28600*B*a**7*b**3*d**9*
e**4/3 + 20020*B*a**6*b**4*d**10*e**3/3 + 2184*B*a**5*b**5*d**11*
e**2 + 910*B*a**4*b**6*d**12*e/3 + 40*B*a**3*b**7*d**13/3) + x**8
*(429*A*a**10*d**6*e**7/2 + 2145*A*a**9*b*d**7*e**6 + 57915*A*a**
8*b**2*d**8*e**5/8 + 10725*A*a**7*b**3*d**9*e**4 + 15015*A*a**6*b
**4*d**10*e**3/2 + 2457*A*a**5*b**5*d**11*e**2 + 1365*A*a**4*b**6
*d**12*e/4 + 15*A*a**3*b**7*d**13 + 429*B*a**10*d**7*e**6/2 + 643
5*B*a**9*b*d**8*e**5/4 + 32175*B*a**8*b**2*d**9*e**4/8 + 4290*B*a
**7*b**3*d**10*e**3 + 4095*B*a**6*b**4*d**11*e**2/2 + 819*B*a**5*
b**5*d**12*e/2 + 105*B*a**4*b**6*d**13/4) + x**7*(1716*A*a**10*d*
*7*e**6/7 + 12870*A*a**9*b*d**8*e**5/7 + 32175*A*a**8*b**2*d**9*e
**4/7 + 34320*A*a**7*b**3*d**10*e**3/7 + 2340*A*a**6*b**4*d**11*e
**2 + 468*A*a**5*b**5*d**12*e + 30*A*a**4*b**6*d**13 + 1287*B*a**
10*d**8*e**5/7 + 7150*B*a**9*b*d**9*e**4/7 + 12870*B*a**8*b**2*d*
*10*e**3/7 + 9360*B*a**7*b**3*d**11*e**2/7 + 390*B*a**6*b**4*d**1
2*e + 36*B*a**5*b**5*d**13) + x**6*(429*A*a**10*d**8*e**5/2 + 357
5*A*a**9*b*d**9*e**4/3 + 2145*A*a**8*b**2*d**10*e**3 + 1560*A*a**
7*b**3*d**11*e**2 + 455*A*a**6*b**4*d**12*e + 42*A*a**5*b**5*d**1
3 + 715*B*a**10*d**9*e**4/6 + 1430*B*a**9*b*d**10*e**3/3 + 585*B*
a**8*b**2*d**11*e**2 + 260*B*a**7*b**3*d**12*e + 35*B*a**6*b**4*d
**13) + x**5*(143*A*a**10*d**9*e**4 + 572*A*a**9*b*d**10*e**3 + 7
02*A*a**8*b**2*d**11*e**2 + 312*A*a**7*b**3*d**12*e + 42*A*a**6*b
**4*d**13 + 286*B*a**10*d**10*e**3/5 + 156*B*a**9*b*d**11*e**2 +
117*B*a**8*b**2*d**12*e + 24*B*a**7*b**3*d**13) + x**4*(143*A*a**
10*d**10*e**3/2 + 195*A*a**9*b*d**11*e**2 + 585*A*a**8*b**2*d**12
*e/4 + 30*A*a**7*b**3*d**13 + 39*B*a**10*d**11*e**2/2 + 65*B*a**9
*b*d**12*e/2 + 45*B*a**8*b**2*d**13/4) + x**3*(26*A*a**10*d**11*e
**2 + 130*A*a**9*b*d**12*e/3 + 15*A*a**8*b**2*d**13 + 13*B*a**10*
d**12*e/3 + 10*B*a**9*b*d**13/3) + x**2*(13*A*a**10*d**12*e/2 + 5
*A*a**9*b*d**13 + B*a**10*d**13/2)
```

GIAC/XCAS [A] time = 0.223165, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*(e*x + d)^13,x, algorithm="giac")

[Out] Done
```

3.1059 $\int (a+bx)^{10}(A+Bx)(d+ex)^{12}\,dx$

Optimal. Leaf size=464

$$-\frac{b^9(d+ex)^{23}(-10aBe-Abe+11bBd)}{23e^{12}}+\frac{5b^8(d+ex)^{22}(bd-ae)(-9aBe-2Abe+11bBd)}{22e^{12}}-\frac{5b^7(d+ex)^{21}(bd-ae)^2(-8aBe-3Abe+11bBd)}{7e^{12}}+\frac{3b^6(d+ex)^{20}(bd-ae)^3(-7aBe-4Abe+11bBd)}{2e^{12}}-\frac{42b^5(d+ex)^{19}(bd-ae)^4(-6aBe-5Abe+11bBd)}{19e^{12}}+\frac{7b^4(d+ex)^{18}(bd-ae)^5(-5aBe-6Abe+11bBd)}{3e^{12}}-\frac{30b^3(d+ex)^{17}(bd-ae)^6(-4aBe-7Abe+11bBd)}{17e^{12}}+\frac{15b^2(d+ex)^{16}(bd-ae)^7(-3aBe-8Abe+11bBd)}{16e^{12}}-\frac{b(d+ex)^{15}(bd-ae)^8(-2aBe-9Abe+11bBd)}{3e^{12}}+\frac{(d+ex)^{14}(bd-ae)^9(-aBe-10Abe+11bBd)}{14e^{12}}-\frac{(d+ex)^{13}(bd-ae)^{10}(Bd-Ae)}{13e^{12}}+\frac{b^{10}B(d+ex)^{24}}{24e^{12}}$$

```
[Out] -((b*d - a*e)^10*(B*d - A*e)*(d + e*x)^13)/(13*e^12) + ((b*d - a*
e)^9*(11*b*B*d - 10*A*b*e - a*B*e)*(d + e*x)^14)/(14*e^12) - (b*(
b*d - a*e)^8*(11*b*B*d - 9*A*b*e - 2*a*B*e)*(d + e*x)^15)/(3*e^12
) + (15*b^2*(b*d - a*e)^7*(11*b*B*d - 8*A*b*e - 3*a*B*e)*(d + e*x
)^16)/(16*e^12) - (30*b^3*(b*d - a*e)^6*(11*b*B*d - 7*A*b*e - 4*a
*B*e)*(d + e*x)^17)/(17*e^12) + (7*b^4*(b*d - a*e)^5*(11*b*B*d -
6*A*b*e - 5*a*B*e)*(d + e*x)^18)/(3*e^12) - (42*b^5*(b*d - a*e)^4
*(11*b*B*d - 5*A*b*e - 6*a*B*e)*(d + e*x)^19)/(19*e^12) + (3*b^6*
(b*d - a*e)^3*(11*b*B*d - 4*A*b*e - 7*a*B*e)*(d + e*x)^20)/(2*e^1
2) - (5*b^7*(b*d - a*e)^2*(11*b*B*d - 3*A*b*e - 8*a*B*e)*(d + e*x
)^21)/(7*e^12) + (5*b^8*(b*d - a*e)*(11*b*B*d - 2*A*b*e - 9*a*B*e
)*(d + e*x)^22)/(22*e^12) - (b^9*(11*b*B*d - A*b*e - 10*a*B*e)*(d
 + e*x)^23)/(23*e^12) + (b^10*B*(d + e*x)^24)/(24*e^12)
```

Rubi [A] time = 20.667, antiderivative size = 464, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{b^9(d+ex)^{23}(-10aBe-Abe+11bBd)}{23e^{12}}+\frac{5b^8(d+ex)^{22}(bd-ae)(-9aBe-2Abe+11bBd)}{22e^{12}}-\frac{5b^7(d+ex)^{21}(bd-ae)^2(-8aBe-3Abe+11bBd)}{7e^{12}}+\frac{3b^6(d+ex)^{20}(bd-ae)^3(-7aBe-4Abe+11bBd)}{2e^{12}}-\frac{42b^5(d+ex)^{19}(bd-ae)^4(-6aBe-5Abe+11bBd)}{19e^{12}}+\frac{7b^4(d+ex)^{18}(bd-ae)^5(-5aBe-6Abe+11bBd)}{3e^{12}}-\frac{30b^3(d+ex)^{17}(bd-ae)^6(-4aBe-7Abe+11bBd)}{17e^{12}}+\frac{15b^2(d+ex)^{16}(bd-ae)^7(-3aBe-8Abe+11bBd)}{16e^{12}}-\frac{b(d+ex)^{15}(bd-ae)^8(-2aBe-9Abe+11bBd)}{3e^{12}}+\frac{(d+ex)^{14}(bd-ae)^9(-aBe-10Abe+11bBd)}{14e^{12}}-\frac{(d+ex)^{13}(bd-ae)^{10}(Bd-Ae)}{13e^{12}}+\frac{b^{10}B(d+ex)^{24}}{24e^{12}}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^10*(A + B*x)*(d + e*x)^12,x]
```

```
[Out] -((b*d - a*e)^10*(B*d - A*e)*(d + e*x)^13)/(13*e^12) + ((b*d - a*
e)^9*(11*b*B*d - 10*A*b*e - a*B*e)*(d + e*x)^14)/(14*e^12) - (b*(
b*d - a*e)^8*(11*b*B*d - 9*A*b*e - 2*a*B*e)*(d + e*x)^15)/(3*e^12
) + (15*b^2*(b*d - a*e)^7*(11*b*B*d - 8*A*b*e - 3*a*B*e)*(d + e*x
)^16)/(16*e^12) - (30*b^3*(b*d - a*e)^6*(11*b*B*d - 7*A*b*e - 4*a
*B*e)*(d + e*x)^17)/(17*e^12) + (7*b^4*(b*d - a*e)^5*(11*b*B*d -
6*A*b*e - 5*a*B*e)*(d + e*x)^18)/(3*e^12) - (42*b^5*(b*d - a*e)^4
*(11*b*B*d - 5*A*b*e - 6*a*B*e)*(d + e*x)^19)/(19*e^12) + (3*b^6*
(b*d - a*e)^3*(11*b*B*d - 4*A*b*e - 7*a*B*e)*(d + e*x)^20)/(2*e^1
2) - (5*b^7*(b*d - a*e)^2*(11*b*B*d - 3*A*b*e - 8*a*B*e)*(d + e*x
)^21)/(7*e^12) + (5*b^8*(b*d - a*e)*(11*b*B*d - 2*A*b*e - 9*a*B*e
)*(d + e*x)^22)/(22*e^12) - (b^9*(11*b*B*d - A*b*e - 10*a*B*e)*(d
 + e*x)^23)/(23*e^12) + (b^10*B*(d + e*x)^24)/(24*e^12)
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)*(e*x+d)**12,x)
```

```
[Out] Timed out
```

Mathematica [B] time = 3.09988, size = 3320, normalized size = 7.16

Result too large to show

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^10*(A + B*x)*(d + e*x)^12,x]
```

```
[Out] a^10*A*d^12*x + (a^9*d^11*(a*B*d + 2*A*(5*b*d + 6*a*e))*x^2)/2 +
(a^8*d^10*(2*a*B*d*(5*b*d + 6*a*e) + 3*A*(15*b^2*d^2 + 40*a*b*d*e
 + 22*a^2*e^2))*x^3)/3 + (a^7*d^9*(3*a*B*d*(15*b^2*d^2 + 40*a*b*d
*e + 22*a^2*e^2) + 20*A*(6*b^3*d^3 + 27*a*b^2*d^2*e + 33*a^2*b*d*
e^2 + 11*a^3*e^3))*x^4)/4 + a^6*d^8*(4*a*B*d*(6*b^3*d^3 + 27*a*b^
2*d^2*e + 33*a^2*b*d*e^2 + 11*a^3*e^3) + A*(42*b^4*d^4 + 288*a*b^
3*d^3*e + 594*a^2*b^2*d^2*e^2 + 440*a^3*b*d*e^3 + 99*a^4*e^4))*x^
5 + (a^5*d^7*(5*a*B*d*(42*b^4*d^4 + 288*a*b^3*d^3*e + 594*a^2*b^2
*d^2*e^2 + 440*a^3*b*d*e^3 + 99*a^4*e^4) + 18*A*(14*b^5*d^5 + 140
*a*b^4*d^4*e + 440*a^2*b^3*d^3*e^2 + 550*a^3*b^2*d^2*e^3 + 275*a^
4*b*d*e^4 + 44*a^5*e^5))*x^6)/6 + (3*a^4*d^6*(6*a*B*d*(14*b^5*d^5
 + 140*a*b^4*d^4*e + 440*a^2*b^3*d^3*e^2 + 550*a^3*b^2*d^2*e^3 +
275*a^4*b*d*e^4 + 44*a^5*e^5) + A*(70*b^6*d^6 + 1008*a*b^5*d^5*e
+ 4620*a^2*b^4*d^4*e^2 + 8800*a^3*b^3*d^3*e^3 + 7425*a^4*b^2*d^2*
e^4 + 2640*a^5*b*d*e^5 + 308*a^6*e^6))*x^7)/7 + (3*a^3*d^5*(a*B*d
*(70*b^6*d^6 + 1008*a*b^5*d^5*e + 4620*a^2*b^4*d^4*e^2 + 8800*a^3
*b^3*d^3*e^3 + 7425*a^4*b^2*d^2*e^4 + 2640*a^5*b*d*e^5 + 308*a^6*
e^6) + 8*A*(5*b^7*d^7 + 105*a*b^6*d^6*e + 693*a^2*b^5*d^5*e^2 + 1
925*a^3*b^4*d^4*e^3 + 2475*a^4*b^3*d^3*e^4 + 1485*a^5*b^2*d^2*e^5
 + 385*a^6*b*d*e^6 + 33*a^7*e^7))*x^8)/8 + (a^2*d^4*(8*a*B*d*(5*b
^7*d^7 + 105*a*b^6*d^6*e + 693*a^2*b^5*d^5*e^2 + 1925*a^3*b^4*d^4
*e^3 + 2475*a^4*b^3*d^3*e^4 + 1485*a^5*b^2*d^2*e^5 + 385*a^6*b*d*
e^6 + 33*a^7*e^7) + 15*A*(b^8*d^8 + 32*a*b^7*d^7*e + 308*a^2*b^6*
d^6*e^2 + 1232*a^3*b^5*d^5*e^3 + 2310*a^4*b^4*d^4*e^4 + 2112*a^5*
b^3*d^3*e^5 + 924*a^6*b^2*d^2*e^6 + 176*a^7*b*d*e^7 + 11*a^8*e^8)
)*x^9)/3 + (a*d^3*(9*a*B*d*(b^8*d^8 + 32*a*b^7*d^7*e + 308*a^2*b^
6*d^6*e^2 + 1232*a^3*b^5*d^5*e^3 + 2310*a^4*b^4*d^4*e^4 + 2112*a^
5*b^3*d^3*e^5 + 924*a^6*b^2*d^2*e^6 + 176*a^7*b*d*e^7 + 11*a^8*e^
8) + 2*A*(b^9*d^9 + 54*a*b^8*d^8*e + 792*a^2*b^7*d^7*e^2 + 4620*a
^3*b^6*d^6*e^3 + 12474*a^4*b^5*d^5*e^4 + 16632*a^5*b^4*d^4*e^5 +
```

```
11088*a^6*b^3*d^3*e^6 + 3564*a^7*b^2*d^2*e^7 + 495*a^8*b*d*e^8 +
22*a^9*e^9))*x^10)/2 + (d^2*(10*a*B*d*(b^9*d^9 + 54*a*b^8*d^8*e +
 792*a^2*b^7*d^7*e^2 + 4620*a^3*b^6*d^6*e^3 + 12474*a^4*b^5*d^5*e
^4 + 16632*a^5*b^4*d^4*e^5 + 11088*a^6*b^3*d^3*e^6 + 3564*a^7*b^2
*d^2*e^7 + 495*a^8*b*d*e^8 + 22*a^9*e^9) + A*(b^10*d^10 + 120*a*b
^9*d^9*e + 2970*a^2*b^8*d^8*e^2 + 26400*a^3*b^7*d^7*e^3 + 103950*
a^4*b^6*d^6*e^4 + 199584*a^5*b^5*d^5*e^5 + 194040*a^6*b^4*d^4*e^6
 + 95040*a^7*b^3*d^3*e^7 + 22275*a^8*b^2*d^2*e^8 + 2200*a^9*b*d*e
^9 + 66*a^10*e^10))*x^11)/11 + (d*(6*a^10*e^10*(11*B*d + 2*A*e) +
 220*a^9*b*d*e^9*(10*B*d + 3*A*e) + 2475*a^8*b^2*d^2*e^8*(9*B*d +
 4*A*e) + 11880*a^7*b^3*d^3*e^7*(8*B*d + 5*A*e) + 27720*a^6*b^4*d
^4*e^6*(7*B*d + 6*A*e) + 33264*a^5*b^5*d^5*e^5*(6*B*d + 7*A*e) +
20790*a^4*b^6*d^6*e^4*(5*B*d + 8*A*e) + 6600*a^3*b^7*d^7*e^3*(4*B
*d + 9*A*e) + 990*a^2*b^8*d^8*e^2*(3*B*d + 10*A*e) + 60*a*b^9*d^9
*e*(2*B*d + 11*A*e) + b^10*d^10*(B*d + 12*A*e))*x^12)/12 + (e*(a^
10*e^10*(12*B*d + A*e) + 60*a^9*b*d*e^9*(11*B*d + 2*A*e) + 990*a^
8*b^2*d^2*e^8*(10*B*d + 3*A*e) + 6600*a^7*b^3*d^3*e^7*(9*B*d + 4*
A*e) + 20790*a^6*b^4*d^4*e^6*(8*B*d + 5*A*e) + 33264*a^5*b^5*d^5*
e^5*(7*B*d + 6*A*e) + 27720*a^4*b^6*d^6*e^4*(6*B*d + 7*A*e) + 118
80*a^3*b^7*d^7*e^3*(5*B*d + 8*A*e) + 2475*a^2*b^8*d^8*e^2*(4*B*d
+ 9*A*e) + 220*a*b^9*d^9*e*(3*B*d + 10*A*e) + 6*b^10*d^10*(2*B*d
+ 11*A*e))*x^13)/13 + (e^2*(a^10*B*e^10 + 10*a^9*b*e^9*(12*B*d +
A*e) + 270*a^8*b^2*d*e^8*(11*B*d + 2*A*e) + 2640*a^7*b^3*d^2*e^7*
(10*B*d + 3*A*e) + 11550*a^6*b^4*d^3*e^6*(9*B*d + 4*A*e) + 24948*
a^5*b^5*d^4*e^5*(8*B*d + 5*A*e) + 27720*a^4*b^6*d^5*e^4*(7*B*d +
6*A*e) + 15840*a^3*b^7*d^6*e^3*(6*B*d + 7*A*e) + 4455*a^2*b^8*d^7
*e^2*(5*B*d + 8*A*e) + 550*a*b^9*d^8*e*(4*B*d + 9*A*e) + 22*b^10*
d^9*(3*B*d + 10*A*e))*x^14)/14 + (b*e^3*(2*a^9*B*e^9 + 9*a^8*b*e^
8*(12*B*d + A*e) + 144*a^7*b^2*d*e^7*(11*B*d + 2*A*e) + 924*a^6*b
^3*d^2*e^6*(10*B*d + 3*A*e) + 2772*a^5*b^4*d^3*e^5*(9*B*d + 4*A*e
) + 4158*a^4*b^5*d^4*e^4*(8*B*d + 5*A*e) + 3168*a^3*b^6*d^5*e^3*(
7*B*d + 6*A*e) + 1188*a^2*b^7*d^6*e^2*(6*B*d + 7*A*e) + 198*a*b^8
*d^7*e*(5*B*d + 8*A*e) + 11*b^9*d^8*(4*B*d + 9*A*e))*x^15)/3 + (3
*b^2*e^4*(15*a^8*B*e^8 + 40*a^7*b*e^7*(12*B*d + A*e) + 420*a^6*b^
2*d*e^6*(11*B*d + 2*A*e) + 1848*a^5*b^3*d^2*e^5*(10*B*d + 3*A*e)
+ 3850*a^4*b^4*d^3*e^4*(9*B*d + 4*A*e) + 3960*a^3*b^5*d^4*e^3*(8*
B*d + 5*A*e) + 1980*a^2*b^6*d^5*e^2*(7*B*d + 6*A*e) + 440*a*b^7*d
^6*e*(6*B*d + 7*A*e) + 33*b^8*d^7*(5*B*d + 8*A*e))*x^16)/16 + (3*
b^3*e^5*(40*a^7*B*e^7 + 70*a^6*b*e^6*(12*B*d + A*e) + 504*a^5*b^2
*d*e^5*(11*B*d + 2*A*e) + 1540*a^4*b^3*d^2*e^4*(10*B*d + 3*A*e) +
 2200*a^3*b^4*d^3*e^3*(9*B*d + 4*A*e) + 1485*a^2*b^5*d^4*e^2*(8*B
*d + 5*A*e) + 440*a*b^6*d^5*e*(7*B*d + 6*A*e) + 44*b^7*d^6*(6*B*d
 + 7*A*e))*x^17)/17 + (b^4*e^6*(70*a^6*B*e^6 + 84*a^5*b*e^5*(12*B
*d + A*e) + 420*a^4*b^2*d*e^4*(11*B*d + 2*A*e) + 880*a^3*b^3*d^2*
e^3*(10*B*d + 3*A*e) + 825*a^2*b^4*d^3*e^2*(9*B*d + 4*A*e) + 330*
a*b^5*d^4*e*(8*B*d + 5*A*e) + 44*b^6*d^5*(7*B*d + 6*A*e))*x^18)/6
 + (b^5*e^7*(252*a^5*B*e^5 + 210*a^4*b*e^4*(12*B*d + A*e) + 720*a
^3*b^2*d*e^3*(11*B*d + 2*A*e) + 990*a^2*b^3*d^2*e^2*(10*B*d + 3*A
*e) + 550*a*b^4*d^3*e*(9*B*d + 4*A*e) + 99*b^5*d^4*(8*B*d + 5*A*e
))*x^19)/19 + (b^6*e^8*(42*a^4*B*e^4 + 24*a^3*b*e^3*(12*B*d + A*e
) + 54*a^2*b^2*d*e^2*(11*B*d + 2*A*e) + 44*a*b^3*d^2*e*(10*B*d +
3*A*e) + 11*b^4*d^3*(9*B*d + 4*A*e))*x^20)/4 + (b^7*e^9*(120*a^3*
B*e^3 + 45*a^2*b*e^2*(12*B*d + A*e) + 60*a*b^2*d*e*(11*B*d + 2*A*
e) + 22*b^3*d^2*(10*B*d + 3*A*e))*x^21)/21 + (b^8*e^10*(45*a^2*B*
e^2 + 10*a*b*e*(12*B*d + A*e) + 6*b^2*d*(11*B*d + 2*A*e))*x^22)/2
2 + (b^9*e^11*(12*b*B*d + A*b*e + 10*a*B*e)*x^23)/23 + (b^10*B*e^
12*x^24)/24
```

Maple [B] time = 0.006, size = 3609, normalized size = 7.8

output too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^10*(B*x+A)*(e*x+d)^12,x)
```

```
[Out] 1/24*b^10*B*e^12*x^24+1/23*((A*b^10+10*B*a*b^9)*e^12+12*b^10*B*d*
e^11)*x^23+1/22*((10*A*a*b^9+45*B*a^2*b^8)*e^12+12*(A*b^10+10*B*a
*b^9)*d*e^11+66*b^10*B*d^2*e^10)*x^22+1/21*((45*A*a^2*b^8+120*B*a
^3*b^7)*e^12+12*(10*A*a*b^9+45*B*a^2*b^8)*d*e^11+66*(A*b^10+10*B*
```

a*b^9)*d^2*e^10+220*b^10*B*d^3*e^9)*x^21+1/20*((120*A*a^3*b^7+210*B*a^4*b^6)*e^12+12*(45*A*a^2*b^8+120*B*a^3*b^7)*d*e^11+66*(10*A*a*b^9+45*B*a^2*b^8)*d^2*e^10+220*(A*b^10+10*B*a*b^9)*d^3*e^9+495*b^10*B*d^4*e^8)*x^20+1/19*((210*A*a^4*b^6+252*B*a^5*b^5)*e^12+12*(120*A*a^3*b^7+210*B*a^4*b^6)*d*e^11+66*(45*A*a^2*b^8+120*B*a^3*b^7)*d^2*e^10+220*(10*A*a*b^9+45*B*a^2*b^8)*d^3*e^9+495*(A*b^10+10*B*a*b^9)*d^4*e^8+792*b^10*B*d^5*e^7)*x^19+1/18*((252*A*a^5*b^5+210*B*a^6*b^4)*e^12+12*(210*A*a^4*b^6+252*B*a^5*b^5)*d*e^11+66*(120*A*a^3*b^7+210*B*a^4*b^6)*d^2*e^10+220*(45*A*a^2*b^8+120*B*a^3*b^7)*d^3*e^9+495*(10*A*a*b^9+45*B*a^2*b^8)*d^4*e^8+792*(A*b^10+10*B*a*b^9)*d^5*e^7+924*b^10*B*d^6*e^6)*x^18+1/17*((210*A*a^6*b^4+120*B*a^7*b^3)*e^12+12*(252*A*a^5*b^5+210*B*a^6*b^4)*d*e^11+66*(210*A*a^4*b^6+252*B*a^5*b^5)*d^2*e^10+220*(120*A*a^3*b^7+210*B*a^4*b^6)*d^3*e^9+495*(45*A*a^2*b^8+120*B*a^3*b^7)*d^4*e^8+792*(10*A*a*b^9+45*B*a^2*b^8)*d^5*e^7+924*(A*b^10+10*B*a*b^9)*d^6*e^6+792*b^10*B*d^7*e^5)*x^17+1/16*((120*A*a^7*b^3+45*B*a^8*b^2)*e^12+12*(210*A*a^6*b^4+120*B*a^7*b^3)*d*e^11+66*(252*A*a^5*b^5+210*B*a^6*b^4)*d^2*e^10+220*(210*A*a^4*b^6+252*B*a^5*b^5)*d^3*e^9+495*(120*A*a^3*b^7+210*B*a^4*b^6)*d^4*e^8+792*(45*A*a^2*b^8+120*B*a^3*b^7)*d^5*e^7+924*(10*A*a*b^9+45*B*a^2*b^8)*d^6*e^6+792*(A*b^10+10*B*a*b^9)*d^7*e^5+495*b^10*B*d^8*e^4)*x^16+1/15*((45*A*a^8*b^2+10*B*a^9*b)*e^12+12*(120*A*a^7*b^3+45*B*a^8*b^2)*d*e^11+66*(210*A*a^6*b^4+120*B*a^7*b^3)*d^2*e^10+220*(252*A*a^5*b^5+210*B*a^6*b^4)*d^3*e^9+495*(210*A*a^4*b^6+252*B*a^5*b^5)*d^4*e^8+792*(120*A*a^3*b^7+210*B*a^4*b^6)*d^5*e^7+924*(45*A*a^2*b^8+120*B*a^3*b^7)*d^6*e^6+792*(10*A*a*b^9+45*B*a^2*b^8)*d^7*e^5+495*(A*b^10+10*B*a*b^9)*d^8*e^4+220*b^10*B*d^9*e^3)*x^15+1/14*((10*A*a^9*b+B*a^10)*e^12+12*(45*A*a^8*b^2+10*B*a^9*b)*d*e^11+66*(120*A*a^7*b^3+45*B*a^8*b^2)*d^2*e^10+220*(210*A*a^6*b^4+120*B*a^7*b^3)*d^3*e^9+495*(252*A*a^5*b^5+210*B*a^6*b^4)*d^4*e^8+792*(210*A*a^4*b^6+252*B*a^5*b^5)*d^5*e^7+924*(120*A*a^3*b^7+210*B*a^4*b^6)*d^6*e^6+792*(45*A*a^2*b^8+120*B*a^3*b^7)*d^7*e^5+495*(10*A*a*b^9+45*B*a^2*b^8)*d^8*e^4+220*(A*b^10+10*B*a*b^9)*d^9*e^3+66*b^10*B*d^10*e^2)*x^14+1/13*(a^10*A*e^12+12*(10*A*a^9*b+B*a^10)*d*e^11+66*(45*A*a^8*b^2+10*B*a^9*b)*d^2*e^10+220*(120*A*a^7*b^3+45*B*a^8*b^2)*d^3*e^9+495*(210*A*a^6*b^4+120*B*a^7*b^3)*d^4*e^8+792*(252*A*a^5*b^5+210*B*a^6*b^4)*d^5*e^7+924*(210*A*a^4*b^6+252*B*a^5*b^5)*d^6*e^6+792*(120*A*a^3*b^7+210*B*a^4*b^6)*d^7*e^5+495*(45*A*a^2*b^8+120*B*a^3*b^7)*d^8*e^4+220*(10*A*a*b^9+45*B*a^2*b^8)*d^9*e^3+66*(A*b^10+10*B*a*b^9)*d^10*e^2+12*b^10*B*d^11*e)*x^13+1/12*(12*a^10*A*d*e^11+66*(10*A*a^9*b+B*a^10)*d^2*e^10+220*(45*A*a^8*b^2+10*B*a^9*b)*d^3*e^9+495*(120*A*a^7*b^3+45*B*a^8*b^2)*d^4*e^8+792*(210*A*a^6*b^4+120*B*a^7*b^3)*d^5*e^7+924*(252*A*a^5*b^5+210*B*a^6*b^4)*d^6*e^6+792*(210*A*a^4*b^6+252*B*a^5*b^5)*d^7*e^5+495*(120*A*a^3*b^7+210*B*a^4*b^6)*d^8*e^4+220*(45*A*a^2*b^8+120*B*a^3*b^7)*d^9*e^3+66*(10*A*a*b^9+45*B*a^2*b^8)*d^10*e^2+12*(A*b^10+10*B*a*b^9)*d^11*e+b^10*B*d^12)*x^12+1/11*(66*a^10*A*d^2*e^10+220*(10*A*a^9*b+B*a^10)*d^3*e^9+495*(45*A*a^8*b^2+10*B*a^9*b)*d^4*e^8+792*(120*A*a^7*b^3+45*B*a^8*b^2)*d^5*e^7+924*(210*A*a^6*b^4+120*B*a^7*b^3)*d^6*e^6+792*(252*A*a^5*b^5+210*B*a^6*b^4)*d^7*e^5+495*(210*A*a^4*b^6+252*B*a^5*b^5)*d^8*e^4+220*(120*A*a^3*b^7+210*B*a^4*b^6)*d^9*e^3+66*(45*A*a^2*b^8+120*B*a^3*b^7)*d^10*e^2+12*(10*A*a*b^9+45*B*a^2*b^8)*d^11*e+(A*b^10+10*B*a*b^9)*d^12)*x^11+1/10*(220*a^10*A*d^3*e^9+495*(10*A*a^9*b+B*a^10)*d^4*e^8+792*(45*A*a^8*b^2+10*B*a^9*b)*d^5*e^7+924*(120*A*a^7*b^3+45*B*a^8*b^2)*d^6*e^6+792*(210*A*a^6*b^4+120*B*a^7*b^3)*d^7*e^5+495*(252*A*a^5*b^5+210*B*a^6*b^4)*d^8*e^4+220*(210*A*a^4*b^6+252*B*a^5*b^5)*d^9*e^3+66*(120*A*a^3*b^7+210*B*a^4*b^6)*d^10*e^2+12*(45*A*a^2*b^8+120*B*a^3*b^7)*d^11*e+(10*A*a*b^9+45*B*a^2*b^8)*d^12)*x^10+1/9*(495*a^10*A*d^4*e^8+792*(10*A*a^9*b+B*a^10)*d^5*e^7+924*(45*A*a^8*b^2+10*B*a^9*b)*d^6*e^6+792*(120*A*a^7*b^3+45*B*a^8*b^2)*d^7*e^5+495*(210*A*a^6*b^4+120*B*a^7*b^3)*d^8*e^4+220*(252*A*a^5*b^5+210*B*a^6*b^4)*d^9*e^3+66*(210*A*a^4*b^6+252*B*a^5*b^5)*d^10*e^2+12*(120*A*a^3*b^7+210*B*a^4*b^6)*d^11*e+(45*A*a^2*b^8+120*B*a^3*b^7)*d^12)*x^9+1/8*(792*a^10*A*d^5*e^7+924*(10*A*a^9*b+B*a^10)*d^6*e^6+792*(45*A*a^8*b^2+10*B*a^9*b)*d^7*e^5+495*(120*A*a^7*b^3+45*B*a^8*b^2)*d^8*e^4+220*(210*A*a^6*b^4+120*B*a^7*b^3)*d^9*e^3+66*(252*A*a^5*b^5+210*B*a^6*b^4)*d^10*e^2+12*(210*A*a^4*b^6+252*B*a^5*b^5)*d^11*e+(120*A*a^3*b^7+210*B*a^4*b^6)*d^12)*x^8+1/7*(924*a^10*A*d^6*e^6+792*(10*A*a^9*b+B*a^10)*d^7*e^5+495*(45*A*a^8*b^2+10*B*a^9*b)*d^8*e^4+220*(120*A*a^7*b^3+45*B*a^8*b^2)*d^9*e^3+66*(210*A*a^6*b^4+120*B*a^7*b^3)*d^10*e^2+12*(252*A*a^5*b^5+210*B*a^6*b^4)*d^11*e+(210*A*a^4*b^6+252*B*a^5*b^5)*d^12)*x^7+1/6*(792*a^10*A*d^7*e^5+495*(10*A*a^9*b+B*a^10)*d^8*e^4+220*(45*A*a^8*b^2+10*B*a^9*b)*d^9*e^3+66*(120*A*a^7*b^3+45*B*a^8*b^2)*d^10*e^2+12

```
*(210*A*a^6*b^4+120*B*a^7*b^3)*d^11*e+(252*A*a^5*b^5+210*B*a^6*b^
4)*d^12)*x^6+1/5*(495*a^10*A*d^8*e^4+220*(10*A*a^9*b+B*a^10)*d^9*
e^3+66*(45*A*a^8*b^2+10*B*a^9*b)*d^10*e^2+12*(120*A*a^7*b^3+45*B*
a^8*b^2)*d^11*e+(210*A*a^6*b^4+120*B*a^7*b^3)*d^12)*x^5+1/4*(220*
a^10*A*d^9*e^3+66*(10*A*a^9*b+B*a^10)*d^10*e^2+12*(45*A*a^8*b^2+1
0*B*a^9*b)*d^11*e+(120*A*a^7*b^3+45*B*a^8*b^2)*d^12)*x^4+1/3*(66*
a^10*A*d^10*e^2+12*(10*A*a^9*b+B*a^10)*d^11*e+(45*A*a^8*b^2+10*B*
a^9*b)*d^12)*x^3+1/2*(12*a^10*A*d^11*e+(10*A*a^9*b+B*a^10)*d^12)*
x^2+a^10*A*d^12*x
```

Maxima [A] time = 1.42141, size = 4888, normalized size = 10.53

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^10*(e*x + d)^12,x, algorithm="maxima")
```

```
[Out] 1/24*B*b^10*e^12*x^24 + A*a^10*d^12*x + 1/23*(12*B*b^10*d*e^11 +
(10*B*a*b^9 + A*b^10)*e^12)*x^23 + 1/22*(66*B*b^10*d^2*e^10 + 12*
(10*B*a*b^9 + A*b^10)*d*e^11 + 5*(9*B*a^2*b^8 + 2*A*a*b^9)*e^12)*
x^22 + 1/21*(220*B*b^10*d^3*e^9 + 66*(10*B*a*b^9 + A*b^10)*d^2*e^
10 + 60*(9*B*a^2*b^8 + 2*A*a*b^9)*d*e^11 + 15*(8*B*a^3*b^7 + 3*A*
a^2*b^8)*e^12)*x^21 + 1/4*(99*B*b^10*d^4*e^8 + 44*(10*B*a*b^9 + A
*b^10)*d^3*e^9 + 66*(9*B*a^2*b^8 + 2*A*a*b^9)*d^2*e^10 + 36*(8*B*
a^3*b^7 + 3*A*a^2*b^8)*d*e^11 + 6*(7*B*a^4*b^6 + 4*A*a^3*b^7)*e^1
2)*x^20 + 1/19*(792*B*b^10*d^5*e^7 + 495*(10*B*a*b^9 + A*b^10)*d^
4*e^8 + 1100*(9*B*a^2*b^8 + 2*A*a*b^9)*d^3*e^9 + 990*(8*B*a^3*b^7
 + 3*A*a^2*b^8)*d^2*e^10 + 360*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d*e^11
 + 42*(6*B*a^5*b^5 + 5*A*a^4*b^6)*e^12)*x^19 + 1/6*(308*B*b^10*d^
6*e^6 + 264*(10*B*a*b^9 + A*b^10)*d^5*e^7 + 825*(9*B*a^2*b^8 + 2*
A*a*b^9)*d^4*e^8 + 1100*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^3*e^9 + 660
*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^2*e^10 + 168*(6*B*a^5*b^5 + 5*A*a^
4*b^6)*d*e^11 + 14*(5*B*a^6*b^4 + 6*A*a^5*b^5)*e^12)*x^18 + 3/17*
(264*B*b^10*d^7*e^5 + 308*(10*B*a*b^9 + A*b^10)*d^6*e^6 + 1320*(9
*B*a^2*b^8 + 2*A*a*b^9)*d^5*e^7 + 2475*(8*B*a^3*b^7 + 3*A*a^2*b^8
)*d^4*e^8 + 2200*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^3*e^9 + 924*(6*B*a
^5*b^5 + 5*A*a^4*b^6)*d^2*e^10 + 168*(5*B*a^6*b^4 + 6*A*a^5*b^5)*
d*e^11 + 10*(4*B*a^7*b^3 + 7*A*a^6*b^4)*e^12)*x^17 + 3/16*(165*B*
b^10*d^8*e^4 + 264*(10*B*a*b^9 + A*b^10)*d^7*e^5 + 1540*(9*B*a^2*
b^8 + 2*A*a*b^9)*d^6*e^6 + 3960*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^5*e
^7 + 4950*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^4*e^8 + 3080*(6*B*a^5*b^5
 + 5*A*a^4*b^6)*d^3*e^9 + 924*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^2*e^1
0 + 120*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d*e^11 + 5*(3*B*a^8*b^2 + 8*A
*a^7*b^3)*e^12)*x^16 + 1/3*(44*B*b^10*d^9*e^3 + 99*(10*B*a*b^9 +
A*b^10)*d^8*e^4 + 792*(9*B*a^2*b^8 + 2*A*a*b^9)*d^7*e^5 + 2772*(8
*B*a^3*b^7 + 3*A*a^2*b^8)*d^6*e^6 + 4752*(7*B*a^4*b^6 + 4*A*a^3*b
^7)*d^5*e^7 + 4158*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^4*e^8 + 1848*(5*
B*a^6*b^4 + 6*A*a^5*b^5)*d^3*e^9 + 396*(4*B*a^7*b^3 + 7*A*a^6*b^4
)*d^2*e^10 + 36*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d*e^11 + (2*B*a^9*b +
 9*A*a^8*b^2)*e^12)*x^15 + 1/14*(66*B*b^10*d^10*e^2 + 220*(10*B*a
*b^9 + A*b^10)*d^9*e^3 + 2475*(9*B*a^2*b^8 + 2*A*a*b^9)*d^8*e^4 +
 11880*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^7*e^5 + 27720*(7*B*a^4*b^6 +
 4*A*a^3*b^7)*d^6*e^6 + 33264*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^5*e^7
 + 20790*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^4*e^8 + 6600*(4*B*a^7*b^3
+ 7*A*a^6*b^4)*d^3*e^9 + 990*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^2*e^10
 + 60*(2*B*a^9*b + 9*A*a^8*b^2)*d*e^11 + (B*a^10 + 10*A*a^9*b)*e^
12)*x^14 + 1/13*(12*B*b^10*d^11*e + A*a^10*e^12 + 66*(10*B*a*b^9
+ A*b^10)*d^10*e^2 + 1100*(9*B*a^2*b^8 + 2*A*a*b^9)*d^9*e^3 + 742
5*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^8*e^4 + 23760*(7*B*a^4*b^6 + 4*A*
a^3*b^7)*d^7*e^5 + 38808*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^6*e^6 + 33
264*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^5*e^7 + 14850*(4*B*a^7*b^3 + 7*
A*a^6*b^4)*d^4*e^8 + 3300*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^3*e^9 + 3
30*(2*B*a^9*b + 9*A*a^8*b^2)*d^2*e^10 + 12*(B*a^10 + 10*A*a^9*b)*
d*e^11)*x^13 + 1/12*(B*b^10*d^12 + 12*A*a^10*d*e^11 + 12*(10*B*a*
b^9 + A*b^10)*d^11*e + 330*(9*B*a^2*b^8 + 2*A*a*b^9)*d^10*e^2 + 3
300*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^9*e^3 + 14850*(7*B*a^4*b^6 + 4*
A*a^3*b^7)*d^8*e^4 + 33264*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^7*e^5 +
38808*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^6*e^6 + 23760*(4*B*a^7*b^3 +
7*A*a^6*b^4)*d^5*e^7 + 7425*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^4*e^8 +
```

```
1100*(2*B*a^9*b + 9*A*a^8*b^2)*d^3*e^9 + 66*(B*a^10 + 10*A*a^9*b
)*d^2*e^10)*x^12 + 1/11*(66*A*a^10*d^2*e^10 + (10*B*a*b^9 + A*b^1
0)*d^12 + 60*(9*B*a^2*b^8 + 2*A*a*b^9)*d^11*e + 990*(8*B*a^3*b^7
+ 3*A*a^2*b^8)*d^10*e^2 + 6600*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^9*e^
3 + 20790*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^8*e^4 + 33264*(5*B*a^6*b^
4 + 6*A*a^5*b^5)*d^7*e^5 + 27720*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^6*
e^6 + 11880*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^5*e^7 + 2475*(2*B*a^9*b
 + 9*A*a^8*b^2)*d^4*e^8 + 220*(B*a^10 + 10*A*a^9*b)*d^3*e^9)*x^11
 + 1/2*(44*A*a^10*d^3*e^9 + (9*B*a^2*b^8 + 2*A*a*b^9)*d^12 + 36*(
8*B*a^3*b^7 + 3*A*a^2*b^8)*d^11*e + 396*(7*B*a^4*b^6 + 4*A*a^3*b^
7)*d^10*e^2 + 1848*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^9*e^3 + 4158*(5*
B*a^6*b^4 + 6*A*a^5*b^5)*d^8*e^4 + 4752*(4*B*a^7*b^3 + 7*A*a^6*b^
4)*d^7*e^5 + 2772*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^6*e^6 + 792*(2*B*
a^9*b + 9*A*a^8*b^2)*d^5*e^7 + 99*(B*a^10 + 10*A*a^9*b)*d^4*e^8)*
x^10 + 1/3*(165*A*a^10*d^4*e^8 + 5*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^
12 + 120*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^11*e + 924*(6*B*a^5*b^5 +
5*A*a^4*b^6)*d^10*e^2 + 3080*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^9*e^3
+ 4950*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^8*e^4 + 3960*(3*B*a^8*b^2 +
8*A*a^7*b^3)*d^7*e^5 + 1540*(2*B*a^9*b + 9*A*a^8*b^2)*d^6*e^6 + 2
64*(B*a^10 + 10*A*a^9*b)*d^5*e^7)*x^9 + 3/8*(264*A*a^10*d^5*e^7 +
 10*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^12 + 168*(6*B*a^5*b^5 + 5*A*a^4
*b^6)*d^11*e + 924*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^10*e^2 + 2200*(4
*B*a^7*b^3 + 7*A*a^6*b^4)*d^9*e^3 + 2475*(3*B*a^8*b^2 + 8*A*a^7*b
^3)*d^8*e^4 + 1320*(2*B*a^9*b + 9*A*a^8*b^2)*d^7*e^5 + 308*(B*a^1
0 + 10*A*a^9*b)*d^6*e^6)*x^8 + 3/7*(308*A*a^10*d^6*e^6 + 14*(6*B*
a^5*b^5 + 5*A*a^4*b^6)*d^12 + 168*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^1
1*e + 660*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^10*e^2 + 1100*(3*B*a^8*b^
2 + 8*A*a^7*b^3)*d^9*e^3 + 825*(2*B*a^9*b + 9*A*a^8*b^2)*d^8*e^4
+ 264*(B*a^10 + 10*A*a^9*b)*d^7*e^5)*x^7 + 1/6*(792*A*a^10*d^7*e^
5 + 42*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^12 + 360*(4*B*a^7*b^3 + 7*A*
a^6*b^4)*d^11*e + 990*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^10*e^2 + 1100
*(2*B*a^9*b + 9*A*a^8*b^2)*d^9*e^3 + 495*(B*a^10 + 10*A*a^9*b)*d^
8*e^4)*x^6 + (99*A*a^10*d^8*e^4 + 6*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d
^12 + 36*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^11*e + 66*(2*B*a^9*b + 9*A
*a^8*b^2)*d^10*e^2 + 44*(B*a^10 + 10*A*a^9*b)*d^9*e^3)*x^5 + 1/4*
(220*A*a^10*d^9*e^3 + 15*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^12 + 60*(2
*B*a^9*b + 9*A*a^8*b^2)*d^11*e + 66*(B*a^10 + 10*A*a^9*b)*d^10*e^
2)*x^4 + 1/3*(66*A*a^10*d^10*e^2 + 5*(2*B*a^9*b + 9*A*a^8*b^2)*d^
12 + 12*(B*a^10 + 10*A*a^9*b)*d^11*e)*x^3 + 1/2*(12*A*a^10*d^11*e
 + (B*a^10 + 10*A*a^9*b)*d^12)*x^2
```

Fricas [A] time = 0.191254, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^10*(e*x + d)^12,x, algorithm="fricas")
```

```
[Out] 1/24*x^24*e^12*b^10*B + 12/23*x^23*e^11*d*b^10*B + 10/23*x^23*e^1
2*b^9*a*B + 1/23*x^23*e^12*b^10*A + 3*x^22*e^10*d^2*b^10*B + 60/1
1*x^22*e^11*d*b^9*a*B + 45/22*x^22*e^12*b^8*a^2*B + 6/11*x^22*e^1
1*d*b^10*A + 5/11*x^22*e^12*b^9*a*A + 220/21*x^21*e^9*d^3*b^10*B
+ 220/7*x^21*e^10*d^2*b^9*a*B + 180/7*x^21*e^11*d*b^8*a^2*B + 40/
7*x^21*e^12*b^7*a^3*B + 22/7*x^21*e^10*d^2*b^10*A + 40/7*x^21*e^1
1*d*b^9*a*A + 15/7*x^21*e^12*b^8*a^2*A + 99/4*x^20*e^8*d^4*b^10*B
 + 110*x^20*e^9*d^3*b^9*a*B + 297/2*x^20*e^10*d^2*b^8*a^2*B + 72*
x^20*e^11*d*b^7*a^3*B + 21/2*x^20*e^12*b^6*a^4*B + 11*x^20*e^9*d^
3*b^10*A + 33*x^20*e^10*d^2*b^9*a*A + 27*x^20*e^11*d*b^8*a^2*A +
6*x^20*e^12*b^7*a^3*A + 792/19*x^19*e^7*d^5*b^10*B + 4950/19*x^19
*e^8*d^4*b^9*a*B + 9900/19*x^19*e^9*d^3*b^8*a^2*B + 7920/19*x^19*
e^10*d^2*b^7*a^3*B + 2520/19*x^19*e^11*d*b^6*a^4*B + 252/19*x^19*
e^12*b^5*a^5*B + 495/19*x^19*e^8*d^4*b^10*A + 2200/19*x^19*e^9*d^
3*b^9*a*A + 2970/19*x^19*e^10*d^2*b^8*a^2*A + 1440/19*x^19*e^11*d
*b^7*a^3*A + 210/19*x^19*e^12*b^6*a^4*A + 154/3*x^18*e^6*d^6*b^10
*B + 440*x^18*e^7*d^5*b^9*a*B + 2475/2*x^18*e^8*d^4*b^8*a^2*B + 4
400/3*x^18*e^9*d^3*b^7*a^3*B + 770*x^18*e^10*d^2*b^6*a^4*B + 168*
x^18*e^11*d*b^5*a^5*B + 35/3*x^18*e^12*b^4*a^6*B + 44*x^18*e^7*d^
5*b^10*A + 275*x^18*e^8*d^4*b^9*a*A + 550*x^18*e^9*d^3*b^8*a^2*A
+ 440*x^18*e^10*d^2*b^7*a^3*A + 140*x^18*e^11*d*b^6*a^4*A + 14*x^
```

18*e^12*b^5*a^5*A + 792/17*x^17*e^5*d^7*b^10*B + 9240/17*x^17*e^6*d^6*b^9*a*B + 35640/17*x^17*e^7*d^5*b^8*a^2*B + 59400/17*x^17*e^8*d^4*b^7*a^3*B + 46200/17*x^17*e^9*d^3*b^6*a^4*B + 16632/17*x^17*e^10*d^2*b^5*a^5*B + 2520/17*x^17*e^11*d*b^4*a^6*B + 120/17*x^17*e^12*b^3*a^7*B + 924/17*x^17*e^6*d^6*b^10*A + 7920/17*x^17*e^7*d^5*b^9*a*A + 22275/17*x^17*e^8*d^4*b^8*a^2*A + 26400/17*x^17*e^9*d^3*b^7*a^3*A + 13860/17*x^17*e^10*d^2*b^6*a^4*A + 3024/17*x^17*e^11*d*b^5*a^5*A + 210/17*x^17*e^12*b^4*a^6*A + 495/16*x^16*e^4*d^8*b^10*B + 495*x^16*e^5*d^7*b^9*a*B + 10395/4*x^16*e^6*d^6*b^8*a^2*B + 5940*x^16*e^7*d^5*b^7*a^3*B + 51975/8*x^16*e^8*d^4*b^6*a^4*B + 3465*x^16*e^9*d^3*b^5*a^5*B + 3465/4*x^16*e^10*d^2*b^4*a^6*B + 90*x^16*e^11*d*b^3*a^7*B + 45/16*x^16*e^12*b^2*a^8*B + 99/2*x^16*e^5*d^7*b^10*A + 1155/2*x^16*e^6*d^6*b^9*a*A + 4455/2*x^16*e^7*d^5*b^8*a^2*A + 7425/2*x^16*e^8*d^4*b^7*a^3*A + 5775/2*x^16*e^9*d^3*b^6*a^4*A + 2079/2*x^16*e^10*d^2*b^5*a^5*A + 315/2*x^16*e^11*d*b^4*a^6*A + 15/2*x^16*e^12*b^3*a^7*A + 44/3*x^15*e^3*d^9*b^10*B + 330*x^15*e^4*d^8*b^9*a*B + 2376*x^15*e^5*d^7*b^8*a^2*B + 7392*x^15*e^6*d^6*b^7*a^3*B + 11088*x^15*e^7*d^5*b^6*a^4*B + 8316*x^15*e^8*d^4*b^5*a^5*B + 3080*x^15*e^9*d^3*b^4*a^6*B + 528*x^15*e^10*d^2*b^3*a^7*B + 36*x^15*e^11*d*b^2*a^8*B + 2/3*x^15*e^12*b*a^9*B + 33*x^15*e^4*d^8*b^10*A + 528*x^15*e^5*d^7*b^9*a*A + 2772*x^15*e^6*d^6*b^8*a^2*A + 6336*x^15*e^7*d^5*b^7*a^3*A + 6930*x^15*e^8*d^4*b^6*a^4*A + 3696*x^15*e^9*d^3*b^5*a^5*A + 924*x^15*e^10*d^2*b^4*a^6*A + 96*x^15*e^11*d*b^3*a^7*A + 3*x^15*e^12*b^2*a^8*A + 33/7*x^14*e^2*d^10*b^10*B + 1100/7*x^14*e^3*d^9*b^9*a*B + 22275/14*x^14*e^4*d^8*b^8*a^2*B + 47520/7*x^14*e^5*d^7*b^7*a^3*B + 13860*x^14*e^6*d^6*b^6*a^4*B + 14256*x^14*e^7*d^5*b^5*a^5*B + 7425*x^14*e^8*d^4*b^4*a^6*B + 13200/7*x^14*e^9*d^3*b^3*a^7*B + 1485/7*x^14*e^10*d^2*b^2*a^8*B + 60/7*x^14*e^11*d*b*a^9*B + 1/14*x^14*e^12*a^10*B + 110/7*x^14*e^3*d^9*b^10*A + 2475/7*x^14*e^4*d^8*b^9*a*A + 17820/7*x^14*e^5*d^7*b^8*a^2*A + 7920*x^14*e^6*d^6*b^7*a^3*A + 11880*x^14*e^7*d^5*b^6*a^4*A + 8910*x^14*e^8*d^4*b^5*a^5*A + 3300*x^14*e^9*d^3*b^4*a^6*A + 3960/7*x^14*e^10*d^2*b^3*a^7*A + 270/7*x^14*e^11*d*b^2*a^8*A + 5/7*x^14*e^12*b*a^9*A + 12/13*x^13*e*d^11*b^10*B + 660/13*x^13*e^2*d^10*b^9*a*B + 9900/13*x^13*e^3*d^9*b^8*a^2*B + 59400/13*x^13*e^4*d^8*b^7*a^3*B + 166320/13*x^13*e^5*d^7*b^6*a^4*B + 232848/13*x^13*e^6*d^6*b^5*a^5*B + 166320/13*x^13*e^7*d^5*b^4*a^6*B + 59400/13*x^13*e^8*d^4*b^3*a^7*B + 9900/13*x^13*e^9*d^3*b^2*a^8*B + 660/13*x^13*e^10*d^2*b*a^9*B + 12/13*x^13*e^11*d*a^10*B + 66/13*x^13*e^2*d^10*b^10*A + 2200/13*x^13*e^3*d^9*b^9*a*A + 22275/13*x^13*e^4*d^8*b^8*a^2*A + 95040/13*x^13*e^5*d^7*b^7*a^3*A + 194040/13*x^13*e^6*d^6*b^6*a^4*A + 199584/13*x^13*e^7*d^5*b^5*a^5*A + 103950/13*x^13*e^8*d^4*b^4*a^6*A + 26400/13*x^13*e^9*d^3*b^3*a^7*A + 2970/13*x^13*e^10*d^2*b^2*a^8*A + 120/13*x^13*e^11*d*b*a^9*A + 1/13*x^13*e^12*a^10*A + 1/12*x^12*d^12*b^10*B + 10*x^12*e*d^11*b^9*a*B + 495/2*x^12*e^2*d^10*b^8*a^2*B + 2200*x^12*e^3*d^9*b^7*a^3*B + 17325/2*x^12*e^4*d^8*b^6*a^4*B + 16632*x^12*e^5*d^7*b^5*a^5*B + 16170*x^12*e^6*d^6*b^4*a^6*B + 7920*x^12*e^7*d^5*b^3*a^7*B + 7425/4*x^12*e^8*d^4*b^2*a^8*B + 550/3*x^12*e^9*d^3*b*a^9*B + 11/2*x^12*e^10*d^2*a^10*B + x^12*e*d^11*b^10*A + 55*x^12*e^2*d^10*b^9*a*A + 825*x^12*e^3*d^9*b^8*a^2*A + 4950*x^12*e^4*d^8*b^7*a^3*A + 13860*x^12*e^5*d^7*b^6*a^4*A + 19404*x^12*e^6*d^6*b^5*a^5*A + 13860*x^12*e^7*d^5*b^4*a^6*A + 4950*x^12*e^8*d^4*b^3*a^7*A + 825*x^12*e^9*d^3*b^2*a^8*A + 55*x^12*e^10*d^2*b*a^9*A + x^12*e^11*d*a^10*A + 10/11*x^11*d^12*b^9*a*B + 540/11*x^11*e*d^11*b^8*a^2*B + 720*x^11*e^2*d^10*b^7*a^3*B + 4200*x^11*e^3*d^9*b^6*a^4*B + 11340*x^11*e^4*d^8*b^5*a^5*B + 15120*x^11*e^5*d^7*b^4*a^6*B + 10080*x^11*e^6*d^6*b^3*a^7*B + 3240*x^11*e^7*d^5*b^2*a^8*B + 450*x^11*e^8*d^4*b*a^9*B + 20*x^11*e^9*d^3*a^10*B + 1/11*x^11*d^12*b^10*A + 120/11*x^11*e*d^11*b^9*a*A + 270*x^11*e^2*d^10*b^8*a^2*A + 2400*x^11*e^3*d^9*b^7*a^3*A + 9450*x^11*e^4*d^8*b^6*a^4*A + 18144*x^11*e^5*d^7*b^5*a^5*A + 17640*x^11*e^6*d^6*b^4*a^6*A + 8640*x^11*e^7*d^5*b^3*a^7*A + 2025*x^11*e^8*d^4*b^2*a^8*A + 200*x^11*e^9*d^3*b*a^9*A + 6*x^11*e^10*d^2*a^10*A + 9/2*x^10*d^12*b^8*a^2*B + 144*x^10*e*d^11*b^7*a^3*B + 1386*x^10*e^2*d^10*b^6*a^4*B + 5544*x^10*e^3*d^9*b^5*a^5*B + 10395*x^10*e^4*d^8*b^4*a^6*B + 9504*x^10*e^5*d^7*b^3*a^7*B + 4158*x^10*e^6*d^6*b^2*a^8*B + 792*x^10*e^7*d^5*b*a^9*B + 99/2*x^10*e^8*d^4*a^10*B + x^10*d^12*b^9*a*A + 54*x^10*e*d^11*b^8*a^2*A + 792*x^10*e^2*d^10*b^7*a^3*A + 4620*x^10*e^3*d^9*b^6*a^4*A + 12474*x^10*e^4*d^8*b^5*a^5*A + 16632*x^10*e^5*d^7*b^4*a^6*A + 11088*x^10*e^6*d^6*b^3*a^7*A + 3564*x^10*e^7*d^5*b^2*a^8*A + 495*x^10*e^8*d^4*b*a^9*A + 22*x^10*e^9*d^3*a^10*A + 40/3*x^9*d^12*b^7*a^3*B + 280*x^9*e*d^11*b^6*a^4*B + 1848*x^9*e^2*d^10*b^5*a^5*B + 15400/3*x^9*e^3*d^9*b^4*a^6*B + 6600*x^9*e^4*d^8

```
*b^3*a^7*B + 3960*x^9*e^5*d^7*b^2*a^8*B + 3080/3*x^9*e^6*d^6*b*a^
9*B + 88*x^9*e^7*d^5*a^10*B + 5*x^9*d^12*b^8*a^2*A + 160*x^9*e*d^
11*b^7*a^3*A + 1540*x^9*e^2*d^10*b^6*a^4*A + 6160*x^9*e^3*d^9*b^5
*a^5*A + 11550*x^9*e^4*d^8*b^4*a^6*A + 10560*x^9*e^5*d^7*b^3*a^7*
A + 4620*x^9*e^6*d^6*b^2*a^8*A + 880*x^9*e^7*d^5*b*a^9*A + 55*x^9
*e^8*d^4*a^10*A + 105/4*x^8*d^12*b^6*a^4*B + 378*x^8*e*d^11*b^5*a
^5*B + 3465/2*x^8*e^2*d^10*b^4*a^6*B + 3300*x^8*e^3*d^9*b^3*a^7*B
 + 22275/8*x^8*e^4*d^8*b^2*a^8*B + 990*x^8*e^5*d^7*b*a^9*B + 231/
2*x^8*e^6*d^6*a^10*B + 15*x^8*d^12*b^7*a^3*A + 315*x^8*e*d^11*b^6
*a^4*A + 2079*x^8*e^2*d^10*b^5*a^5*A + 5775*x^8*e^3*d^9*b^4*a^6*A
 + 7425*x^8*e^4*d^8*b^3*a^7*A + 4455*x^8*e^5*d^7*b^2*a^8*A + 1155
*x^8*e^6*d^6*b*a^9*A + 99*x^8*e^7*d^5*a^10*A + 36*x^7*d^12*b^5*a^
5*B + 360*x^7*e*d^11*b^4*a^6*B + 7920/7*x^7*e^2*d^10*b^3*a^7*B +
9900/7*x^7*e^3*d^9*b^2*a^8*B + 4950/7*x^7*e^4*d^8*b*a^9*B + 792/7
*x^7*e^5*d^7*a^10*B + 30*x^7*d^12*b^6*a^4*A + 432*x^7*e*d^11*b^5*
a^5*A + 1980*x^7*e^2*d^10*b^4*a^6*A + 26400/7*x^7*e^3*d^9*b^3*a^7
*A + 22275/7*x^7*e^4*d^8*b^2*a^8*A + 7920/7*x^7*e^5*d^7*b*a^9*A +
 132*x^7*e^6*d^6*a^10*A + 35*x^6*d^12*b^4*a^6*B + 240*x^6*e*d^11*
b^3*a^7*B + 495*x^6*e^2*d^10*b^2*a^8*B + 1100/3*x^6*e^3*d^9*b*a^9
*B + 165/2*x^6*e^4*d^8*a^10*B + 42*x^6*d^12*b^5*a^5*A + 420*x^6*e
*d^11*b^4*a^6*A + 1320*x^6*e^2*d^10*b^3*a^7*A + 1650*x^6*e^3*d^9*
b^2*a^8*A + 825*x^6*e^4*d^8*b*a^9*A + 132*x^6*e^5*d^7*a^10*A + 24
*x^5*d^12*b^3*a^7*B + 108*x^5*e*d^11*b^2*a^8*B + 132*x^5*e^2*d^10
*b*a^9*B + 44*x^5*e^3*d^9*a^10*B + 42*x^5*d^12*b^4*a^6*A + 288*x^
5*e*d^11*b^3*a^7*A + 594*x^5*e^2*d^10*b^2*a^8*A + 440*x^5*e^3*d^9
*b*a^9*A + 99*x^5*e^4*d^8*a^10*A + 45/4*x^4*d^12*b^2*a^8*B + 30*x
^4*e*d^11*b*a^9*B + 33/2*x^4*e^2*d^10*a^10*B + 30*x^4*d^12*b^3*a^
7*A + 135*x^4*e*d^11*b^2*a^8*A + 165*x^4*e^2*d^10*b*a^9*A + 55*x^
4*e^3*d^9*a^10*A + 10/3*x^3*d^12*b*a^9*B + 4*x^3*e*d^11*a^10*B +
15*x^3*d^12*b^2*a^8*A + 40*x^3*e*d^11*b*a^9*A + 22*x^3*e^2*d^10*a
^10*A + 1/2*x^2*d^12*a^10*B + 5*x^2*d^12*b*a^9*A + 6*x^2*e*d^11*a
^10*A + x*d^12*a^10*A
```

Sympy [A] time = 1.87995, size = 4655, normalized size = 10.03

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)*(e*x+d)**12,x)
```

```
[Out] A*a**10*d**12*x + B*b**10*e**12*x**24/24 + x**23*(A*b**10*e**12/2
3 + 10*B*a*b**9*e**12/23 + 12*B*b**10*d*e**11/23) + x**22*(5*A*a*
b**9*e**12/11 + 6*A*b**10*d*e**11/11 + 45*B*a**2*b**8*e**12/22 +
60*B*a*b**9*d*e**11/11 + 3*B*b**10*d**2*e**10) + x**21*(15*A*a**2
*b**8*e**12/7 + 40*A*a*b**9*d*e**11/7 + 22*A*b**10*d**2*e**10/7 +
 40*B*a**3*b**7*e**12/7 + 180*B*a**2*b**8*d*e**11/7 + 220*B*a*b**
9*d**2*e**10/7 + 220*B*b**10*d**3*e**9/21) + x**20*(6*A*a**3*b**7
*e**12 + 27*A*a**2*b**8*d*e**11 + 33*A*a*b**9*d**2*e**10 + 11*A*b
**10*d**3*e**9 + 21*B*a**4*b**6*e**12/2 + 72*B*a**3*b**7*d*e**11
+ 297*B*a**2*b**8*d**2*e**10/2 + 110*B*a*b**9*d**3*e**9 + 99*B*b*
*10*d**4*e**8/4) + x**19*(210*A*a**4*b**6*e**12/19 + 1440*A*a**3*
b**7*d*e**11/19 + 2970*A*a**2*b**8*d**2*e**10/19 + 2200*A*a*b**9*
d**3*e**9/19 + 495*A*b**10*d**4*e**8/19 + 252*B*a**5*b**5*e**12/1
9 + 2520*B*a**4*b**6*d*e**11/19 + 7920*B*a**3*b**7*d**2*e**10/19
+ 9900*B*a**2*b**8*d**3*e**9/19 + 4950*B*a*b**9*d**4*e**8/19 + 79
2*B*b**10*d**5*e**7/19) + x**18*(14*A*a**5*b**5*e**12 + 140*A*a**
4*b**6*d*e**11 + 440*A*a**3*b**7*d**2*e**10 + 550*A*a**2*b**8*d**
3*e**9 + 275*A*a*b**9*d**4*e**8 + 44*A*b**10*d**5*e**7 + 35*B*a**
6*b**4*e**12/3 + 168*B*a**5*b**5*d*e**11 + 770*B*a**4*b**6*d**2*e
**10 + 4400*B*a**3*b**7*d**3*e**9/3 + 2475*B*a**2*b**8*d**4*e**8/
2 + 440*B*a*b**9*d**5*e**7 + 154*B*b**10*d**6*e**6/3) + x**17*(21
0*A*a**6*b**4*e**12/17 + 3024*A*a**5*b**5*d*e**11/17 + 13860*A*a*
*4*b**6*d**2*e**10/17 + 26400*A*a**3*b**7*d**3*e**9/17 + 22275*A*
a**2*b**8*d**4*e**8/17 + 7920*A*a*b**9*d**5*e**7/17 + 924*A*b**10
*d**6*e**6/17 + 120*B*a**7*b**3*e**12/17 + 2520*B*a**6*b**4*d*e**
11/17 + 16632*B*a**5*b**5*d**2*e**10/17 + 46200*B*a**4*b**6*d**3*
e**9/17 + 59400*B*a**3*b**7*d**4*e**8/17 + 35640*B*a**2*b**8*d**5
*e**7/17 + 9240*B*a*b**9*d**6*e**6/17 + 792*B*b**10*d**7*e**5/17)
 + x**16*(15*A*a**7*b**3*e**12/2 + 315*A*a**6*b**4*d*e**11/2 + 20
```

```
79*A*a**5*b**5*d**2*e**10/2 + 5775*A*a**4*b**6*d**3*e**9/2 + 7425
*A*a**3*b**7*d**4*e**8/2 + 4455*A*a**2*b**8*d**5*e**7/2 + 1155*A*
a*b**9*d**6*e**6/2 + 99*A*b**10*d**7*e**5/2 + 45*B*a**8*b**2*e**1
2/16 + 90*B*a**7*b**3*d*e**11 + 3465*B*a**6*b**4*d**2*e**10/4 + 3
465*B*a**5*b**5*d**3*e**9 + 51975*B*a**4*b**6*d**4*e**8/8 + 5940*
B*a**3*b**7*d**5*e**7 + 10395*B*a**2*b**8*d**6*e**6/4 + 495*B*a*b
**9*d**7*e**5 + 495*B*b**10*d**8*e**4/16) + x**15*(3*A*a**8*b**2*
e**12 + 96*A*a**7*b**3*d*e**11 + 924*A*a**6*b**4*d**2*e**10 + 369
6*A*a**5*b**5*d**3*e**9 + 6930*A*a**4*b**6*d**4*e**8 + 6336*A*a**
3*b**7*d**5*e**7 + 2772*A*a**2*b**8*d**6*e**6 + 528*A*a*b**9*d**7
*e**5 + 33*A*b**10*d**8*e**4 + 2*B*a**9*b*e**12/3 + 36*B*a**8*b**
2*d*e**11 + 528*B*a**7*b**3*d**2*e**10 + 3080*B*a**6*b**4*d**3*e*
*9 + 8316*B*a**5*b**5*d**4*e**8 + 11088*B*a**4*b**6*d**5*e**7 + 7
392*B*a**3*b**7*d**6*e**6 + 2376*B*a**2*b**8*d**7*e**5 + 330*B*a*
b**9*d**8*e**4 + 44*B*b**10*d**9*e**3/3) + x**14*(5*A*a**9*b*e**1
2/7 + 270*A*a**8*b**2*d*e**11/7 + 3960*A*a**7*b**3*d**2*e**10/7 +
 3300*A*a**6*b**4*d**3*e**9 + 8910*A*a**5*b**5*d**4*e**8 + 11880*
A*a**4*b**6*d**5*e**7 + 7920*A*a**3*b**7*d**6*e**6 + 17820*A*a**2
*b**8*d**7*e**5/7 + 2475*A*a*b**9*d**8*e**4/7 + 110*A*b**10*d**9*
e**3/7 + B*a**10*e**12/14 + 60*B*a**9*b*d*e**11/7 + 1485*B*a**8*b
**2*d**2*e**10/7 + 13200*B*a**7*b**3*d**3*e**9/7 + 7425*B*a**6*b*
*4*d**4*e**8 + 14256*B*a**5*b**5*d**5*e**7 + 13860*B*a**4*b**6*d*
*6*e**6 + 47520*B*a**3*b**7*d**7*e**5/7 + 22275*B*a**2*b**8*d**8*
e**4/14 + 1100*B*a*b**9*d**9*e**3/7 + 33*B*b**10*d**10*e**2/7) +
x**13*(A*a**10*e**12/13 + 120*A*a**9*b*d*e**11/13 + 2970*A*a**8*b
**2*d**2*e**10/13 + 26400*A*a**7*b**3*d**3*e**9/13 + 103950*A*a**
6*b**4*d**4*e**8/13 + 199584*A*a**5*b**5*d**5*e**7/13 + 194040*A*
a**4*b**6*d**6*e**6/13 + 95040*A*a**3*b**7*d**7*e**5/13 + 22275*A
*a**2*b**8*d**8*e**4/13 + 2200*A*a*b**9*d**9*e**3/13 + 66*A*b**10
*d**10*e**2/13 + 12*B*a**10*d*e**11/13 + 660*B*a**9*b*d**2*e**10/
13 + 9900*B*a**8*b**2*d**3*e**9/13 + 59400*B*a**7*b**3*d**4*e**8/
13 + 166320*B*a**6*b**4*d**5*e**7/13 + 232848*B*a**5*b**5*d**6*e*
*6/13 + 166320*B*a**4*b**6*d**7*e**5/13 + 59400*B*a**3*b**7*d**8*
e**4/13 + 9900*B*a**2*b**8*d**9*e**3/13 + 660*B*a*b**9*d**10*e**2
/13 + 12*B*b**10*d**11*e/13) + x**12*(A*a**10*d*e**11 + 55*A*a**9
*b*d**2*e**10 + 825*A*a**8*b**2*d**3*e**9 + 4950*A*a**7*b**3*d**4
*e**8 + 13860*A*a**6*b**4*d**5*e**7 + 19404*A*a**5*b**5*d**6*e**6
 + 13860*A*a**4*b**6*d**7*e**5 + 4950*A*a**3*b**7*d**8*e**4 + 825
*A*a**2*b**8*d**9*e**3 + 55*A*a*b**9*d**10*e**2 + A*b**10*d**11*e
 + 11*B*a**10*d**2*e**10/2 + 550*B*a**9*b*d**3*e**9/3 + 7425*B*a*
*8*b**2*d**4*e**8/4 + 7920*B*a**7*b**3*d**5*e**7 + 16170*B*a**6*b
**4*d**6*e**6 + 16632*B*a**5*b**5*d**7*e**5 + 17325*B*a**4*b**6*d
**8*e**4/2 + 2200*B*a**3*b**7*d**9*e**3 + 495*B*a**2*b**8*d**10*e
**2/2 + 10*B*a*b**9*d**11*e + B*b**10*d**12/12) + x**11*(6*A*a**1
0*d**2*e**10 + 200*A*a**9*b*d**3*e**9 + 2025*A*a**8*b**2*d**4*e**
8 + 8640*A*a**7*b**3*d**5*e**7 + 17640*A*a**6*b**4*d**6*e**6 + 18
144*A*a**5*b**5*d**7*e**5 + 9450*A*a**4*b**6*d**8*e**4 + 2400*A*a
**3*b**7*d**9*e**3 + 270*A*a**2*b**8*d**10*e**2 + 120*A*a*b**9*d*
*11*e/11 + A*b**10*d**12/11 + 20*B*a**10*d**3*e**9 + 450*B*a**9*b
*d**4*e**8 + 3240*B*a**8*b**2*d**5*e**7 + 10080*B*a**7*b**3*d**6*
e**6 + 15120*B*a**6*b**4*d**7*e**5 + 11340*B*a**5*b**5*d**8*e**4
+ 4200*B*a**4*b**6*d**9*e**3 + 720*B*a**3*b**7*d**10*e**2 + 540*B
*a**2*b**8*d**11*e/11 + 10*B*a*b**9*d**12/11) + x**10*(22*A*a**10
*d**3*e**9 + 495*A*a**9*b*d**4*e**8 + 3564*A*a**8*b**2*d**5*e**7
+ 11088*A*a**7*b**3*d**6*e**6 + 16632*A*a**6*b**4*d**7*e**5 + 124
74*A*a**5*b**5*d**8*e**4 + 4620*A*a**4*b**6*d**9*e**3 + 792*A*a**
3*b**7*d**10*e**2 + 54*A*a**2*b**8*d**11*e + A*a*b**9*d**12 + 99*
B*a**10*d**4*e**8/2 + 792*B*a**9*b*d**5*e**7 + 4158*B*a**8*b**2*d
**6*e**6 + 9504*B*a**7*b**3*d**7*e**5 + 10395*B*a**6*b**4*d**8*e*
*4 + 5544*B*a**5*b**5*d**9*e**3 + 1386*B*a**4*b**6*d**10*e**2 + 1
44*B*a**3*b**7*d**11*e + 9*B*a**2*b**8*d**12/2) + x**9*(55*A*a**1
0*d**4*e**8 + 880*A*a**9*b*d**5*e**7 + 4620*A*a**8*b**2*d**6*e**6
 + 10560*A*a**7*b**3*d**7*e**5 + 11550*A*a**6*b**4*d**8*e**4 + 61
60*A*a**5*b**5*d**9*e**3 + 1540*A*a**4*b**6*d**10*e**2 + 160*A*a*
*3*b**7*d**11*e + 5*A*a**2*b**8*d**12 + 88*B*a**10*d**5*e**7 + 30
80*B*a**9*b*d**6*e**6/3 + 3960*B*a**8*b**2*d**7*e**5 + 6600*B*a**
7*b**3*d**8*e**4 + 15400*B*a**6*b**4*d**9*e**3/3 + 1848*B*a**5*b*
*5*d**10*e**2 + 280*B*a**4*b**6*d**11*e + 40*B*a**3*b**7*d**12/3)
 + x**8*(99*A*a**10*d**5*e**7 + 1155*A*a**9*b*d**6*e**6 + 4455*A*
a**8*b**2*d**7*e**5 + 7425*A*a**7*b**3*d**8*e**4 + 5775*A*a**6*b*
*4*d**9*e**3 + 2079*A*a**5*b**5*d**10*e**2 + 315*A*a**4*b**6*d**1
1*e + 15*A*a**3*b**7*d**12 + 231*B*a**10*d**6*e**6/2 + 990*B*a**9
*b*d**7*e**5 + 22275*B*a**8*b**2*d**8*e**4/8 + 3300*B*a**7*b**3*d
**9*e**3 + 3465*B*a**6*b**4*d**10*e**2/2 + 378*B*a**5*b**5*d**11*
```

```
e + 105*B*a**4*b**6*d**12/4) + x**7*(132*A*a**10*d**6*e**6 + 7920
*A*a**9*b*d**7*e**5/7 + 22275*A*a**8*b**2*d**8*e**4/7 + 26400*A*a
**7*b**3*d**9*e**3/7 + 1980*A*a**6*b**4*d**10*e**2 + 432*A*a**5*b
**5*d**11*e + 30*A*a**4*b**6*d**12 + 792*B*a**10*d**7*e**5/7 + 49
50*B*a**9*b*d**8*e**4/7 + 9900*B*a**8*b**2*d**9*e**3/7 + 7920*B*a
**7*b**3*d**10*e**2/7 + 360*B*a**6*b**4*d**11*e + 36*B*a**5*b**5*
d**12) + x**6*(132*A*a**10*d**7*e**5 + 825*A*a**9*b*d**8*e**4 + 1
650*A*a**8*b**2*d**9*e**3 + 1320*A*a**7*b**3*d**10*e**2 + 420*A*a
**6*b**4*d**11*e + 42*A*a**5*b**5*d**12 + 165*B*a**10*d**8*e**4/2
 + 1100*B*a**9*b*d**9*e**3/3 + 495*B*a**8*b**2*d**10*e**2 + 240*B
*a**7*b**3*d**11*e + 35*B*a**6*b**4*d**12) + x**5*(99*A*a**10*d**
8*e**4 + 440*A*a**9*b*d**9*e**3 + 594*A*a**8*b**2*d**10*e**2 + 28
8*A*a**7*b**3*d**11*e + 42*A*a**6*b**4*d**12 + 44*B*a**10*d**9*e*
*3 + 132*B*a**9*b*d**10*e**2 + 108*B*a**8*b**2*d**11*e + 24*B*a**
7*b**3*d**12) + x**4*(55*A*a**10*d**9*e**3 + 165*A*a**9*b*d**10*e
**2 + 135*A*a**8*b**2*d**11*e + 30*A*a**7*b**3*d**12 + 33*B*a**10
*d**10*e**2/2 + 30*B*a**9*b*d**11*e + 45*B*a**8*b**2*d**12/4) + x
**3*(22*A*a**10*d**10*e**2 + 40*A*a**9*b*d**11*e + 15*A*a**8*b**2
*d**12 + 4*B*a**10*d**11*e + 10*B*a**9*b*d**12/3) + x**2*(6*A*a**
10*d**11*e + 5*A*a**9*b*d**12 + B*a**10*d**12/2)
```

GIAC/XCAS [A] time = 0.215134, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*(e*x + d)^12,x, algorithm="giac")
```

```
[Out] Done
```

3.1060 $\int (a+bx)^{10}(A+Bx)(d+ex)^{11}\,dx$

Optimal. Leaf size=461

$$-\frac{b^9(d+ex)^{22}(-10aBe-Abe+11bBd)}{22e^{12}}+\frac{5b^8(d+ex)^{21}(bd-ae)(-9aBe-2Abe+11bBd)}{21e^{12}}-\frac{3b^7(d+ex)^{20}(bd-ae)^2(-8aBe-3Abe+11bBd)}{4e^{12}}+\frac{30b^6(d+ex)^{19}(bd-ae)^3(-7aBe-4Abe+11bBd)}{19e^{12}}-\frac{7b^5(d+ex)^{18}(bd-ae)^4(-6aBe-5Abe+11bBd)}{3e^{12}}+\frac{42b^4(d+ex)^{17}(bd-ae)^5(-5aBe-6Abe+11bBd)}{17e^{12}}-\frac{15b^3(d+ex)^{16}(bd-ae)^6(-4aBe-7Abe+11bBd)}{8e^{12}}+\frac{b^2(d+ex)^{15}(bd-ae)^7(-3aBe-8Abe+11bBd)}{e^{12}}-\frac{5b(d+ex)^{14}(bd-ae)^8(-2aBe-9Abe+11bBd)}{14e^{12}}+\frac{(d+ex)^{13}(bd-ae)^9(-aBe-10Abe+11bBd)}{13e^{12}}-\frac{(d+ex)^{12}(bd-ae)^{10}(Bd-Ae)}{12e^{12}}+\frac{b^{10}B(d+ex)^{23}}{23e^{12}}$$

```
[Out] -((b*d - a*e)^10*(B*d - A*e)*(d + e*x)^12)/(12*e^12) + ((b*d - a*
e)^9*(11*b*B*d - 10*A*b*e - a*B*e)*(d + e*x)^13)/(13*e^12) - (5*b
*(b*d - a*e)^8*(11*b*B*d - 9*A*b*e - 2*a*B*e)*(d + e*x)^14)/(14*e
^12) + (b^2*(b*d - a*e)^7*(11*b*B*d - 8*A*b*e - 3*a*B*e)*(d + e*x
)^15)/e^12 - (15*b^3*(b*d - a*e)^6*(11*b*B*d - 7*A*b*e - 4*a*B*e)
*(d + e*x)^16)/(8*e^12) + (42*b^4*(b*d - a*e)^5*(11*b*B*d - 6*A*b
*e - 5*a*B*e)*(d + e*x)^17)/(17*e^12) - (7*b^5*(b*d - a*e)^4*(11*
b*B*d - 5*A*b*e - 6*a*B*e)*(d + e*x)^18)/(3*e^12) + (30*b^6*(b*d
- a*e)^3*(11*b*B*d - 4*A*b*e - 7*a*B*e)*(d + e*x)^19)/(19*e^12) -
 (3*b^7*(b*d - a*e)^2*(11*b*B*d - 3*A*b*e - 8*a*B*e)*(d + e*x)^20
)/(4*e^12) + (5*b^8*(b*d - a*e)*(11*b*B*d - 2*A*b*e - 9*a*B*e)*(d
 + e*x)^21)/(21*e^12) - (b^9*(11*b*B*d - A*b*e - 10*a*B*e)*(d + e
*x)^22)/(22*e^12) + (b^10*B*(d + e*x)^23)/(23*e^12)
```

Rubi [A] time = 18.3676, antiderivative size = 461, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{b^9(d+ex)^{22}(-10aBe-Abe+11bBd)}{22e^{12}}+\frac{5b^8(d+ex)^{21}(bd-ae)(-9aBe-2Abe+11bBd)}{21e^{12}}-\frac{3b^7(d+ex)^{20}(bd-ae)^2(-8aBe-3Abe+11bBd)}{4e^{12}}+\frac{30b^6(d+ex)^{19}(bd-ae)^3(-7aBe-4Abe+11bBd)}{19e^{12}}-\frac{7b^5(d+ex)^{18}(bd-ae)^4(-6aBe-5Abe+11bBd)}{3e^{12}}+\frac{42b^4(d+ex)^{17}(bd-ae)^5(-5aBe-6Abe+11bBd)}{17e^{12}}-\frac{15b^3(d+ex)^{16}(bd-ae)^6(-4aBe-7Abe+11bBd)}{8e^{12}}+\frac{b^2(d+ex)^{15}(bd-ae)^7(-3aBe-8Abe+11bBd)}{e^{12}}-\frac{5b(d+ex)^{14}(bd-ae)^8(-2aBe-9Abe+11bBd)}{14e^{12}}+\frac{(d+ex)^{13}(bd-ae)^9(-aBe-10Abe+11bBd)}{13e^{12}}-\frac{(d+ex)^{12}(bd-ae)^{10}(Bd-Ae)}{12e^{12}}+\frac{b^{10}B(d+ex)^{23}}{23e^{12}}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^10*(A + B*x)*(d + e*x)^11,x]
```

```
[Out] -((b*d - a*e)^10*(B*d - A*e)*(d + e*x)^12)/(12*e^12) + ((b*d - a*
e)^9*(11*b*B*d - 10*A*b*e - a*B*e)*(d + e*x)^13)/(13*e^12) - (5*b
*(b*d - a*e)^8*(11*b*B*d - 9*A*b*e - 2*a*B*e)*(d + e*x)^14)/(14*e
^12) + (b^2*(b*d - a*e)^7*(11*b*B*d - 8*A*b*e - 3*a*B*e)*(d + e*x
)^15)/e^12 - (15*b^3*(b*d - a*e)^6*(11*b*B*d - 7*A*b*e - 4*a*B*e)
*(d + e*x)^16)/(8*e^12) + (42*b^4*(b*d - a*e)^5*(11*b*B*d - 6*A*b
*e - 5*a*B*e)*(d + e*x)^17)/(17*e^12) - (7*b^5*(b*d - a*e)^4*(11*
b*B*d - 5*A*b*e - 6*a*B*e)*(d + e*x)^18)/(3*e^12) + (30*b^6*(b*d
- a*e)^3*(11*b*B*d - 4*A*b*e - 7*a*B*e)*(d + e*x)^19)/(19*e^12) -
 (3*b^7*(b*d - a*e)^2*(11*b*B*d - 3*A*b*e - 8*a*B*e)*(d + e*x)^20
)/(4*e^12) + (5*b^8*(b*d - a*e)*(11*b*B*d - 2*A*b*e - 9*a*B*e)*(d
 + e*x)^21)/(21*e^12) - (b^9*(11*b*B*d - A*b*e - 10*a*B*e)*(d + e
*x)^22)/(22*e^12) + (b^10*B*(d + e*x)^23)/(23*e^12)
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)*(e*x+d)**11,x)
```

```
[Out] Timed out
```

Mathematica [B] time = 2.67136, size = 3018, normalized size = 6.55

Result too large to show

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^10*(A + B*x)*(d + e*x)^11,x]
```

```
[Out] a^10*A*d^11*x + (a^9*d^10*(10*A*b*d + a*B*d + 11*a*A*e)*x^2)/2 +
(a^8*d^9*(a*B*d*(10*b*d + 11*a*e) + 5*A*(9*b^2*d^2 + 22*a*b*d*e +
 11*a^2*e^2))*x^3)/3 + (5*a^7*d^8*(a*B*d*(9*b^2*d^2 + 22*a*b*d*e
+ 11*a^2*e^2) + A*(24*b^3*d^3 + 99*a*b^2*d^2*e + 110*a^2*b*d*e^2
+ 33*a^3*e^3))*x^4)/4 + a^6*d^7*(a*B*d*(24*b^3*d^3 + 99*a*b^2*d^2
*e + 110*a^2*b*d*e^2 + 33*a^3*e^3) + 3*A*(14*b^4*d^4 + 88*a*b^3*d
^3*e + 165*a^2*b^2*d^2*e^2 + 110*a^3*b*d*e^3 + 22*a^4*e^4))*x^5 +
 (a^5*d^6*(5*a*B*d*(14*b^4*d^4 + 88*a*b^3*d^3*e + 165*a^2*b^2*d^2
*e^2 + 110*a^3*b*d*e^3 + 22*a^4*e^4) + A*(84*b^5*d^5 + 770*a*b^4*
d^4*e + 2200*a^2*b^3*d^3*e^2 + 2475*a^3*b^2*d^2*e^3 + 1100*a^4*b*
d*e^4 + 154*a^5*e^5))*x^6)/2 + (3*a^4*d^5*(a*B*d*(84*b^5*d^5 + 77
0*a*b^4*d^4*e + 2200*a^2*b^3*d^3*e^2 + 2475*a^3*b^2*d^2*e^3 + 110
0*a^4*b*d*e^4 + 154*a^5*e^5) + 2*A*(35*b^6*d^6 + 462*a*b^5*d^5*e
+ 1925*a^2*b^4*d^4*e^2 + 3300*a^3*b^3*d^3*e^3 + 2475*a^4*b^2*d^2*
e^4 + 770*a^5*b*d*e^5 + 77*a^6*e^6))*x^7)/7 + (3*a^3*d^4*(a*B*d*(
35*b^6*d^6 + 462*a*b^5*d^5*e + 1925*a^2*b^4*d^4*e^2 + 3300*a^3*b^
3*d^3*e^3 + 2475*a^4*b^2*d^2*e^4 + 770*a^5*b*d*e^5 + 77*a^6*e^6)
+ 5*A*(4*b^7*d^7 + 77*a*b^6*d^6*e + 462*a^2*b^5*d^5*e^2 + 1155*a^
3*b^4*d^4*e^3 + 1320*a^4*b^3*d^3*e^4 + 693*a^5*b^2*d^2*e^5 + 154*
a^6*b*d*e^6 + 11*a^7*e^7))*x^8)/4 + (5*a^2*d^3*(2*a*B*d*(4*b^7*d^
7 + 77*a*b^6*d^6*e + 462*a^2*b^5*d^5*e^2 + 1155*a^3*b^4*d^4*e^3 +
 1320*a^4*b^3*d^3*e^4 + 693*a^5*b^2*d^2*e^5 + 154*a^6*b*d*e^6 + 1
1*a^7*e^7) + A*(3*b^8*d^8 + 88*a*b^7*d^7*e + 770*a^2*b^6*d^6*e^2
+ 2772*a^3*b^5*d^5*e^3 + 4620*a^4*b^4*d^4*e^4 + 3696*a^5*b^3*d^3*
e^5 + 1386*a^6*b^2*d^2*e^6 + 220*a^7*b*d*e^7 + 11*a^8*e^8))*x^9)/
3 + (a*d^2*(3*a*B*d*(3*b^8*d^8 + 88*a*b^7*d^7*e + 770*a^2*b^6*d^6
*e^2 + 2772*a^3*b^5*d^5*e^3 + 4620*a^4*b^4*d^4*e^4 + 3696*a^5*b^3
*d^3*e^5 + 1386*a^6*b^2*d^2*e^6 + 220*a^7*b*d*e^7 + 11*a^8*e^8) +
 A*(2*b^9*d^9 + 99*a*b^8*d^8*e + 1320*a^2*b^7*d^7*e^2 + 6930*a^3*
b^6*d^6*e^3 + 16632*a^4*b^5*d^5*e^4 + 19404*a^5*b^4*d^4*e^5 + 110
```

```
88*a^6*b^3*d^3*e^6 + 2970*a^7*b^2*d^2*e^7 + 330*a^8*b*d*e^8 + 11*
a^9*e^9))*x^10)/2 + (d*(5*a*B*d*(2*b^9*d^9 + 99*a*b^8*d^8*e + 132
0*a^2*b^7*d^7*e^2 + 6930*a^3*b^6*d^6*e^3 + 16632*a^4*b^5*d^5*e^4
+ 19404*a^5*b^4*d^4*e^5 + 11088*a^6*b^3*d^3*e^6 + 2970*a^7*b^2*d^
2*e^7 + 330*a^8*b*d*e^8 + 11*a^9*e^9) + A*(b^10*d^10 + 110*a*b^9*
d^9*e + 2475*a^2*b^8*d^8*e^2 + 19800*a^3*b^7*d^7*e^3 + 69300*a^4*
b^6*d^6*e^4 + 116424*a^5*b^5*d^5*e^5 + 97020*a^6*b^4*d^4*e^6 + 39
600*a^7*b^3*d^3*e^7 + 7425*a^8*b^2*d^2*e^8 + 550*a^9*b*d*e^9 + 11
*a^10*e^10))*x^11)/11 + ((116424*a^5*b^5*d^5*e^5*(B*d + A*e) + 19
800*a^7*b^3*d^3*e^7*(2*B*d + A*e) + 2475*a^8*b^2*d^2*e^8*(3*B*d +
 A*e) + 110*a^9*b*d*e^9*(5*B*d + A*e) + a^10*e^10*(11*B*d + A*e)
+ 19800*a^3*b^7*d^7*e^3*(B*d + 2*A*e) + 2475*a^2*b^8*d^8*e^2*(B*d
 + 3*A*e) + 110*a*b^9*d^9*e*(B*d + 5*A*e) + 13860*a^6*b^4*d^4*e^6
*(7*B*d + 5*A*e) + 13860*a^4*b^6*d^6*e^4*(5*B*d + 7*A*e) + b^10*d
^10*(B*d + 11*A*e))*x^12)/12 + (e*(a^10*B*e^10 + 97020*a^4*b^6*d^
5*e^4*(B*d + A*e) + 34650*a^6*b^4*d^3*e^6*(2*B*d + A*e) + 6600*a^
7*b^3*d^2*e^7*(3*B*d + A*e) + 495*a^8*b^2*d*e^8*(5*B*d + A*e) + 1
0*a^9*b*e^9*(11*B*d + A*e) + 7425*a^2*b^8*d^7*e^2*(B*d + 2*A*e) +
 550*a*b^9*d^8*e*(B*d + 3*A*e) + 11*b^10*d^9*(B*d + 5*A*e) + 1663
2*a^5*b^5*d^4*e^5*(7*B*d + 5*A*e) + 7920*a^3*b^7*d^6*e^3*(5*B*d +
 7*A*e))*x^13)/13 + (5*b*e^2*(2*a^9*B*e^9 + 11088*a^3*b^6*d^5*e^3
*(B*d + A*e) + 8316*a^5*b^4*d^3*e^5*(2*B*d + A*e) + 2310*a^6*b^3*
d^2*e^6*(3*B*d + A*e) + 264*a^7*b^2*d*e^7*(5*B*d + A*e) + 9*a^8*b
*e^8*(11*B*d + A*e) + 330*a*b^8*d^7*e*(B*d + 2*A*e) + 11*b^9*d^8*
(B*d + 3*A*e) + 2772*a^4*b^5*d^4*e^4*(7*B*d + 5*A*e) + 594*a^2*b^
7*d^6*e^2*(5*B*d + 7*A*e))*x^14)/14 + b^2*e^3*(3*a^8*B*e^8 + 1386
*a^2*b^6*d^5*e^2*(B*d + A*e) + 2310*a^4*b^4*d^3*e^4*(2*B*d + A*e)
 + 924*a^5*b^3*d^2*e^5*(3*B*d + A*e) + 154*a^6*b^2*d*e^6*(5*B*d +
 A*e) + 8*a^7*b*e^7*(11*B*d + A*e) + 11*b^8*d^7*(B*d + 2*A*e) + 5
28*a^3*b^5*d^4*e^3*(7*B*d + 5*A*e) + 44*a*b^7*d^6*e*(5*B*d + 7*A*
e))*x^15 + (3*b^3*e^4*(20*a^7*B*e^7 + 770*a*b^6*d^5*e*(B*d + A*e)
 + 3300*a^3*b^4*d^3*e^3*(2*B*d + A*e) + 1925*a^4*b^3*d^2*e^4*(3*B
*d + A*e) + 462*a^5*b^2*d*e^5*(5*B*d + A*e) + 35*a^6*b*e^6*(11*B*
d + A*e) + 495*a^2*b^5*d^4*e^2*(7*B*d + 5*A*e) + 11*b^7*d^6*(5*B*
d + 7*A*e))*x^16)/8 + (3*b^4*e^5*(70*a^6*B*e^6 + 154*b^6*d^5*(B*d
 + A*e) + 2475*a^2*b^4*d^3*e^2*(2*B*d + A*e) + 2200*a^3*b^3*d^2*e
^3*(3*B*d + A*e) + 770*a^4*b^2*d*e^4*(5*B*d + A*e) + 84*a^5*b*e^5
*(11*B*d + A*e) + 220*a*b^5*d^4*e*(7*B*d + 5*A*e))*x^17)/17 + (b^
5*e^6*(84*a^5*B*e^5 + 550*a*b^4*d^3*e*(2*B*d + A*e) + 825*a^2*b^3
*d^2*e^2*(3*B*d + A*e) + 440*a^3*b^2*d*e^3*(5*B*d + A*e) + 70*a^4
*b*e^4*(11*B*d + A*e) + 22*b^5*d^4*(7*B*d + 5*A*e))*x^18)/6 + (5*
b^6*e^7*(42*a^4*B*e^4 + 33*b^4*d^3*(2*B*d + A*e) + 110*a*b^3*d^2*
e*(3*B*d + A*e) + 99*a^2*b^2*d*e^2*(5*B*d + A*e) + 24*a^3*b*e^3*(
11*B*d + A*e))*x^19)/19 + (b^7*e^8*(24*a^3*B*e^3 + 11*b^3*d^2*(3*
B*d + A*e) + 22*a*b^2*d*e*(5*B*d + A*e) + 9*a^2*b*e^2*(11*B*d + A
*e))*x^20)/4 + (b^8*e^9*(45*a^2*B*e^2 + 11*b^2*d*(5*B*d + A*e) +
10*a*b*e*(11*B*d + A*e))*x^21)/21 + (b^9*e^10*(11*b*B*d + A*b*e +
 10*a*B*e)*x^22)/22 + (b^10*B*e^11*x^23)/23
```

Maple [B] time = 0.004, size = 3325, normalized size = 7.2

output too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^10*(B*x+A)*(e*x+d)^11,x)
```

```
[Out] 1/23*b^10*B*e^11*x^23+1/22*((A*b^10+10*B*a*b^9)*e^11+11*b^10*B*d*
e^10)*x^22+1/21*((10*A*a*b^9+45*B*a^2*b^8)*e^11+11*(A*b^10+10*B*a
*b^9)*d*e^10+55*b^10*B*d^2*e^9)*x^21+1/20*((45*A*a^2*b^8+120*B*a^
3*b^7)*e^11+11*(10*A*a*b^9+45*B*a^2*b^8)*d*e^10+55*(A*b^10+10*B*a
*b^9)*d^2*e^9+165*b^10*B*d^3*e^8)*x^20+1/19*((120*A*a^3*b^7+210*B
*a^4*b^6)*e^11+11*(45*A*a^2*b^8+120*B*a^3*b^7)*d*e^10+55*(10*A*a*
b^9+45*B*a^2*b^8)*d^2*e^9+165*(A*b^10+10*B*a*b^9)*d^3*e^8+330*b^1
0*B*d^4*e^7)*x^19+1/18*((210*A*a^4*b^6+252*B*a^5*b^5)*e^11+11*(12
0*A*a^3*b^7+210*B*a^4*b^6)*d*e^10+55*(45*A*a^2*b^8+120*B*a^3*b^7)
*d^2*e^9+165*(10*A*a*b^9+45*B*a^2*b^8)*d^3*e^8+330*(A*b^10+10*B*a
*b^9)*d^4*e^7+462*b^10*B*d^5*e^6)*x^18+1/17*((252*A*a^5*b^5+210*B
*a^6*b^4)*e^11+11*(210*A*a^4*b^6+252*B*a^5*b^5)*d*e^10+55*(120*A*
a^3*b^7+210*B*a^4*b^6)*d^2*e^9+165*(45*A*a^2*b^8+120*B*a^3*b^7)*d
```

```
^3*e^8+330*(10*A*a*b^9+45*B*a^2*b^8)*d^4*e^7+462*(A*b^10+10*B*a*b
^9)*d^5*e^6+462*b^10*B*d^6*e^5)*x^17+1/16*((210*A*a^6*b^4+120*B*a
^7*b^3)*e^11+11*(252*A*a^5*b^5+210*B*a^6*b^4)*d*e^10+55*(210*A*a^
4*b^6+252*B*a^5*b^5)*d^2*e^9+165*(120*A*a^3*b^7+210*B*a^4*b^6)*d^
3*e^8+330*(45*A*a^2*b^8+120*B*a^3*b^7)*d^4*e^7+462*(10*A*a*b^9+45
*B*a^2*b^8)*d^5*e^6+462*(A*b^10+10*B*a*b^9)*d^6*e^5+330*b^10*B*d^
7*e^4)*x^16+1/15*((120*A*a^7*b^3+45*B*a^8*b^2)*e^11+11*(210*A*a^6
*b^4+120*B*a^7*b^3)*d*e^10+55*(252*A*a^5*b^5+210*B*a^6*b^4)*d^2*e
^9+165*(210*A*a^4*b^6+252*B*a^5*b^5)*d^3*e^8+330*(120*A*a^3*b^7+2
10*B*a^4*b^6)*d^4*e^7+462*(45*A*a^2*b^8+120*B*a^3*b^7)*d^5*e^6+46
2*(10*A*a*b^9+45*B*a^2*b^8)*d^6*e^5+330*(A*b^10+10*B*a*b^9)*d^7*e
^4+165*b^10*B*d^8*e^3)*x^15+1/14*((45*A*a^8*b^2+10*B*a^9*b)*e^11+
11*(120*A*a^7*b^3+45*B*a^8*b^2)*d*e^10+55*(210*A*a^6*b^4+120*B*a^
7*b^3)*d^2*e^9+165*(252*A*a^5*b^5+210*B*a^6*b^4)*d^3*e^8+330*(210
*A*a^4*b^6+252*B*a^5*b^5)*d^4*e^7+462*(120*A*a^3*b^7+210*B*a^4*b^
6)*d^5*e^6+462*(45*A*a^2*b^8+120*B*a^3*b^7)*d^6*e^5+330*(10*A*a*b
^9+45*B*a^2*b^8)*d^7*e^4+165*(A*b^10+10*B*a*b^9)*d^8*e^3+55*b^10*
B*d^9*e^2)*x^14+1/13*((10*A*a^9*b+B*a^10)*e^11+11*(45*A*a^8*b^2+1
0*B*a^9*b)*d*e^10+55*(120*A*a^7*b^3+45*B*a^8*b^2)*d^2*e^9+165*(21
0*A*a^6*b^4+120*B*a^7*b^3)*d^3*e^8+330*(252*A*a^5*b^5+210*B*a^6*b
^4)*d^4*e^7+462*(210*A*a^4*b^6+252*B*a^5*b^5)*d^5*e^6+462*(120*A*
a^3*b^7+210*B*a^4*b^6)*d^6*e^5+330*(45*A*a^2*b^8+120*B*a^3*b^7)*d
^7*e^4+165*(10*A*a*b^9+45*B*a^2*b^8)*d^8*e^3+55*(A*b^10+10*B*a*b^
9)*d^9*e^2+11*b^10*B*d^10*e)*x^13+1/12*(a^10*A*e^11+11*(10*A*a^9*
b+B*a^10)*d*e^10+55*(45*A*a^8*b^2+10*B*a^9*b)*d^2*e^9+165*(120*A*
a^7*b^3+45*B*a^8*b^2)*d^3*e^8+330*(210*A*a^6*b^4+120*B*a^7*b^3)*d
^4*e^7+462*(252*A*a^5*b^5+210*B*a^6*b^4)*d^5*e^6+462*(210*A*a^4*b
^6+252*B*a^5*b^5)*d^6*e^5+330*(120*A*a^3*b^7+210*B*a^4*b^6)*d^7*e
^4+165*(45*A*a^2*b^8+120*B*a^3*b^7)*d^8*e^3+55*(10*A*a*b^9+45*B*a
^2*b^8)*d^9*e^2+11*(A*b^10+10*B*a*b^9)*d^10*e+b^10*B*d^11)*x^12+1
/11*(11*a^10*A*d*e^10+55*(10*A*a^9*b+B*a^10)*d^2*e^9+165*(45*A*a^
8*b^2+10*B*a^9*b)*d^3*e^8+330*(120*A*a^7*b^3+45*B*a^8*b^2)*d^4*e^
7+462*(210*A*a^6*b^4+120*B*a^7*b^3)*d^5*e^6+462*(252*A*a^5*b^5+21
0*B*a^6*b^4)*d^6*e^5+330*(210*A*a^4*b^6+252*B*a^5*b^5)*d^7*e^4+16
5*(120*A*a^3*b^7+210*B*a^4*b^6)*d^8*e^3+55*(45*A*a^2*b^8+120*B*a^
3*b^7)*d^9*e^2+11*(10*A*a*b^9+45*B*a^2*b^8)*d^10*e+(A*b^10+10*B*a
*b^9)*d^11)*x^11+1/10*(55*a^10*A*d^2*e^9+165*(10*A*a^9*b+B*a^10)*
d^3*e^8+330*(45*A*a^8*b^2+10*B*a^9*b)*d^4*e^7+462*(120*A*a^7*b^3+
45*B*a^8*b^2)*d^5*e^6+462*(210*A*a^6*b^4+120*B*a^7*b^3)*d^6*e^5+3
30*(252*A*a^5*b^5+210*B*a^6*b^4)*d^7*e^4+165*(210*A*a^4*b^6+252*B
*a^5*b^5)*d^8*e^3+55*(120*A*a^3*b^7+210*B*a^4*b^6)*d^9*e^2+11*(45
*A*a^2*b^8+120*B*a^3*b^7)*d^10*e+(10*A*a*b^9+45*B*a^2*b^8)*d^11)*
x^10+1/9*(165*a^10*A*d^3*e^8+330*(10*A*a^9*b+B*a^10)*d^4*e^7+462*
(45*A*a^8*b^2+10*B*a^9*b)*d^5*e^6+462*(120*A*a^7*b^3+45*B*a^8*b^2
)*d^6*e^5+330*(210*A*a^6*b^4+120*B*a^7*b^3)*d^7*e^4+165*(252*A*a^
5*b^5+210*B*a^6*b^4)*d^8*e^3+55*(210*A*a^4*b^6+252*B*a^5*b^5)*d^9
*e^2+11*(120*A*a^3*b^7+210*B*a^4*b^6)*d^10*e+(45*A*a^2*b^8+120*B*
a^3*b^7)*d^11)*x^9+1/8*(330*a^10*A*d^4*e^7+462*(10*A*a^9*b+B*a^10
)*d^5*e^6+462*(45*A*a^8*b^2+10*B*a^9*b)*d^6*e^5+330*(120*A*a^7*b^
3+45*B*a^8*b^2)*d^7*e^4+165*(210*A*a^6*b^4+120*B*a^7*b^3)*d^8*e^3
+55*(252*A*a^5*b^5+210*B*a^6*b^4)*d^9*e^2+11*(210*A*a^4*b^6+252*B
*a^5*b^5)*d^10*e+(120*A*a^3*b^7+210*B*a^4*b^6)*d^11)*x^8+1/7*(462
*a^10*A*d^5*e^6+462*(10*A*a^9*b+B*a^10)*d^6*e^5+330*(45*A*a^8*b^2
+10*B*a^9*b)*d^7*e^4+165*(120*A*a^7*b^3+45*B*a^8*b^2)*d^8*e^3+55*
(210*A*a^6*b^4+120*B*a^7*b^3)*d^9*e^2+11*(252*A*a^5*b^5+210*B*a^6
*b^4)*d^10*e+(210*A*a^4*b^6+252*B*a^5*b^5)*d^11)*x^7+1/6*(462*a^1
0*A*d^6*e^5+330*(10*A*a^9*b+B*a^10)*d^7*e^4+165*(45*A*a^8*b^2+10*
B*a^9*b)*d^8*e^3+55*(120*A*a^7*b^3+45*B*a^8*b^2)*d^9*e^2+11*(210*
A*a^6*b^4+120*B*a^7*b^3)*d^10*e+(252*A*a^5*b^5+210*B*a^6*b^4)*d^1
1)*x^6+1/5*(330*a^10*A*d^7*e^4+165*(10*A*a^9*b+B*a^10)*d^8*e^3+55
*(45*A*a^8*b^2+10*B*a^9*b)*d^9*e^2+11*(120*A*a^7*b^3+45*B*a^8*b^2
)*d^10*e+(210*A*a^6*b^4+120*B*a^7*b^3)*d^11)*x^5+1/4*(165*a^10*A*
d^8*e^3+55*(10*A*a^9*b+B*a^10)*d^9*e^2+11*(45*A*a^8*b^2+10*B*a^9*
b)*d^10*e+(120*A*a^7*b^3+45*B*a^8*b^2)*d^11)*x^4+1/3*(55*a^10*A*d
^9*e^2+11*(10*A*a^9*b+B*a^10)*d^10*e+(45*A*a^8*b^2+10*B*a^9*b)*d^
11)*x^3+1/2*(11*a^10*A*d^10*e+(10*A*a^9*b+B*a^10)*d^11)*x^2+a^10*
A*d^11*x
```

Maxima [A] time = 1.42884, size = 4501, normalized size = 9.76

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*(e*x + d)^11,x, algorithm="maxima")
```

```
[Out] 1/23*B*b^10*e^11*x^23 + A*a^10*d^11*x + 1/22*(11*B*b^10*d*e^10 +
(10*B*a*b^9 + A*b^10)*e^11)*x^22 + 1/21*(55*B*b^10*d^2*e^9 + 11*(
10*B*a*b^9 + A*b^10)*d*e^10 + 5*(9*B*a^2*b^8 + 2*A*a*b^9)*e^11)*x
^21 + 1/4*(33*B*b^10*d^3*e^8 + 11*(10*B*a*b^9 + A*b^10)*d^2*e^9 +
 11*(9*B*a^2*b^8 + 2*A*a*b^9)*d*e^10 + 3*(8*B*a^3*b^7 + 3*A*a^2*b
^8)*e^11)*x^20 + 5/19*(66*B*b^10*d^4*e^7 + 33*(10*B*a*b^9 + A*b^1
0)*d^3*e^8 + 55*(9*B*a^2*b^8 + 2*A*a*b^9)*d^2*e^9 + 33*(8*B*a^3*b
^7 + 3*A*a^2*b^8)*d*e^10 + 6*(7*B*a^4*b^6 + 4*A*a^3*b^7)*e^11)*x^
19 + 1/6*(154*B*b^10*d^5*e^6 + 110*(10*B*a*b^9 + A*b^10)*d^4*e^7
+ 275*(9*B*a^2*b^8 + 2*A*a*b^9)*d^3*e^8 + 275*(8*B*a^3*b^7 + 3*A*
a^2*b^8)*d^2*e^9 + 110*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d*e^10 + 14*(6
*B*a^5*b^5 + 5*A*a^4*b^6)*e^11)*x^18 + 3/17*(154*B*b^10*d^6*e^5 +
 154*(10*B*a*b^9 + A*b^10)*d^5*e^6 + 550*(9*B*a^2*b^8 + 2*A*a*b^9
)*d^4*e^7 + 825*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^3*e^8 + 550*(7*B*a^
4*b^6 + 4*A*a^3*b^7)*d^2*e^9 + 154*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d*
e^10 + 14*(5*B*a^6*b^4 + 6*A*a^5*b^5)*e^11)*x^17 + 3/8*(55*B*b^10
*d^7*e^4 + 77*(10*B*a*b^9 + A*b^10)*d^6*e^5 + 385*(9*B*a^2*b^8 +
2*A*a*b^9)*d^5*e^6 + 825*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^4*e^7 + 82
5*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^3*e^8 + 385*(6*B*a^5*b^5 + 5*A*a^
4*b^6)*d^2*e^9 + 77*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d*e^10 + 5*(4*B*a
^7*b^3 + 7*A*a^6*b^4)*e^11)*x^16 + (11*B*b^10*d^8*e^3 + 22*(10*B*
a*b^9 + A*b^10)*d^7*e^4 + 154*(9*B*a^2*b^8 + 2*A*a*b^9)*d^6*e^5 +
 462*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^5*e^6 + 660*(7*B*a^4*b^6 + 4*A
*a^3*b^7)*d^4*e^7 + 462*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^3*e^8 + 154
*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^2*e^9 + 22*(4*B*a^7*b^3 + 7*A*a^6*
b^4)*d*e^10 + (3*B*a^8*b^2 + 8*A*a^7*b^3)*e^11)*x^15 + 5/14*(11*B
*b^10*d^9*e^2 + 33*(10*B*a*b^9 + A*b^10)*d^8*e^3 + 330*(9*B*a^2*b
^8 + 2*A*a*b^9)*d^7*e^4 + 1386*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^6*e^
5 + 2772*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^5*e^6 + 2772*(6*B*a^5*b^5
+ 5*A*a^4*b^6)*d^4*e^7 + 1386*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^3*e^8
 + 330*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^2*e^9 + 33*(3*B*a^8*b^2 + 8*
A*a^7*b^3)*d*e^10 + (2*B*a^9*b + 9*A*a^8*b^2)*e^11)*x^14 + 1/13*(
11*B*b^10*d^10*e + 55*(10*B*a*b^9 + A*b^10)*d^9*e^2 + 825*(9*B*a^
2*b^8 + 2*A*a*b^9)*d^8*e^3 + 4950*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^7
*e^4 + 13860*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^6*e^5 + 19404*(6*B*a^5
*b^5 + 5*A*a^4*b^6)*d^5*e^6 + 13860*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d
^4*e^7 + 4950*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^3*e^8 + 825*(3*B*a^8*
b^2 + 8*A*a^7*b^3)*d^2*e^9 + 55*(2*B*a^9*b + 9*A*a^8*b^2)*d*e^10
+ (B*a^10 + 10*A*a^9*b)*e^11)*x^13 + 1/12*(B*b^10*d^11 + A*a^10*e
^11 + 11*(10*B*a*b^9 + A*b^10)*d^10*e + 275*(9*B*a^2*b^8 + 2*A*a*
b^9)*d^9*e^2 + 2475*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^8*e^3 + 9900*(7
*B*a^4*b^6 + 4*A*a^3*b^7)*d^7*e^4 + 19404*(6*B*a^5*b^5 + 5*A*a^4*
b^6)*d^6*e^5 + 19404*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^5*e^6 + 9900*(
4*B*a^7*b^3 + 7*A*a^6*b^4)*d^4*e^7 + 2475*(3*B*a^8*b^2 + 8*A*a^7*
b^3)*d^3*e^8 + 275*(2*B*a^9*b + 9*A*a^8*b^2)*d^2*e^9 + 11*(B*a^10
 + 10*A*a^9*b)*d*e^10)*x^12 + 1/11*(11*A*a^10*d*e^10 + (10*B*a*b^
9 + A*b^10)*d^11 + 55*(9*B*a^2*b^8 + 2*A*a*b^9)*d^10*e + 825*(8*B
*a^3*b^7 + 3*A*a^2*b^8)*d^9*e^2 + 4950*(7*B*a^4*b^6 + 4*A*a^3*b^7
)*d^8*e^3 + 13860*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^7*e^4 + 19404*(5*
B*a^6*b^4 + 6*A*a^5*b^5)*d^6*e^5 + 13860*(4*B*a^7*b^3 + 7*A*a^6*b
^4)*d^5*e^6 + 4950*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^4*e^7 + 825*(2*B
*a^9*b + 9*A*a^8*b^2)*d^3*e^8 + 55*(B*a^10 + 10*A*a^9*b)*d^2*e^9)
*x^11 + 1/2*(11*A*a^10*d^2*e^9 + (9*B*a^2*b^8 + 2*A*a*b^9)*d^11 +
 33*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^10*e + 330*(7*B*a^4*b^6 + 4*A*a
^3*b^7)*d^9*e^2 + 1386*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^8*e^3 + 2772
*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^7*e^4 + 2772*(4*B*a^7*b^3 + 7*A*a^
6*b^4)*d^6*e^5 + 1386*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^5*e^6 + 330*(
2*B*a^9*b + 9*A*a^8*b^2)*d^4*e^7 + 33*(B*a^10 + 10*A*a^9*b)*d^3*e
^8)*x^10 + 5/3*(11*A*a^10*d^3*e^8 + (8*B*a^3*b^7 + 3*A*a^2*b^8)*d
^11 + 22*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^10*e + 154*(6*B*a^5*b^5 +
5*A*a^4*b^6)*d^9*e^2 + 462*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^8*e^3 +
660*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^7*e^4 + 462*(3*B*a^8*b^2 + 8*A*
a^7*b^3)*d^6*e^5 + 154*(2*B*a^9*b + 9*A*a^8*b^2)*d^5*e^6 + 22*(B*
a^10 + 10*A*a^9*b)*d^4*e^7)*x^9 + 3/4*(55*A*a^10*d^4*e^7 + 5*(7*B
*a^4*b^6 + 4*A*a^3*b^7)*d^11 + 77*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^1
0*e + 385*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^9*e^2 + 825*(4*B*a^7*b^3
+ 7*A*a^6*b^4)*d^8*e^3 + 825*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^7*e^4
+ 385*(2*B*a^9*b + 9*A*a^8*b^2)*d^6*e^5 + 77*(B*a^10 + 10*A*a^9*b
)*d^5*e^6)*x^8 + 3/7*(154*A*a^10*d^5*e^6 + 14*(6*B*a^5*b^5 + 5*A*
```

```
a^4*b^6)*d^11 + 154*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^10*e + 550*(4*B
*a^7*b^3 + 7*A*a^6*b^4)*d^9*e^2 + 825*(3*B*a^8*b^2 + 8*A*a^7*b^3)
*d^8*e^3 + 550*(2*B*a^9*b + 9*A*a^8*b^2)*d^7*e^4 + 154*(B*a^10 +
10*A*a^9*b)*d^6*e^5)*x^7 + 1/2*(154*A*a^10*d^6*e^5 + 14*(5*B*a^6*
b^4 + 6*A*a^5*b^5)*d^11 + 110*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^10*e
+ 275*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^9*e^2 + 275*(2*B*a^9*b + 9*A*
a^8*b^2)*d^8*e^3 + 110*(B*a^10 + 10*A*a^9*b)*d^7*e^4)*x^6 + (66*A
*a^10*d^7*e^4 + 6*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^11 + 33*(3*B*a^8*
b^2 + 8*A*a^7*b^3)*d^10*e + 55*(2*B*a^9*b + 9*A*a^8*b^2)*d^9*e^2
+ 33*(B*a^10 + 10*A*a^9*b)*d^8*e^3)*x^5 + 5/4*(33*A*a^10*d^8*e^3
+ 3*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^11 + 11*(2*B*a^9*b + 9*A*a^8*b^
2)*d^10*e + 11*(B*a^10 + 10*A*a^9*b)*d^9*e^2)*x^4 + 1/3*(55*A*a^1
0*d^9*e^2 + 5*(2*B*a^9*b + 9*A*a^8*b^2)*d^11 + 11*(B*a^10 + 10*A*
a^9*b)*d^10*e)*x^3 + 1/2*(11*A*a^10*d^10*e + (B*a^10 + 10*A*a^9*b
)*d^11)*x^2
```

Fricas [A] time = 0.195416, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^10*(e*x + d)^11,x, algorithm="fricas")
```

```
[Out] 1/23*x^23*e^11*b^10*B + 1/2*x^22*e^10*d*b^10*B + 5/11*x^22*e^11*b
^9*a*B + 1/22*x^22*e^11*b^10*A + 55/21*x^21*e^9*d^2*b^10*B + 110/
21*x^21*e^10*d*b^9*a*B + 15/7*x^21*e^11*b^8*a^2*B + 11/21*x^21*e^
10*d*b^10*A + 10/21*x^21*e^11*b^9*a*A + 33/4*x^20*e^8*d^3*b^10*B
+ 55/2*x^20*e^9*d^2*b^9*a*B + 99/4*x^20*e^10*d*b^8*a^2*B + 6*x^20
*e^11*b^7*a^3*B + 11/4*x^20*e^9*d^2*b^10*A + 11/2*x^20*e^10*d*b^9
*a*A + 9/4*x^20*e^11*b^8*a^2*A + 330/19*x^19*e^7*d^4*b^10*B + 165
0/19*x^19*e^8*d^3*b^9*a*B + 2475/19*x^19*e^9*d^2*b^8*a^2*B + 1320
/19*x^19*e^10*d*b^7*a^3*B + 210/19*x^19*e^11*b^6*a^4*B + 165/19*x
^19*e^8*d^3*b^10*A + 550/19*x^19*e^9*d^2*b^9*a*A + 495/19*x^19*e^
10*d*b^8*a^2*A + 120/19*x^19*e^11*b^7*a^3*A + 77/3*x^18*e^6*d^5*b
^10*B + 550/3*x^18*e^7*d^4*b^9*a*B + 825/2*x^18*e^8*d^3*b^8*a^2*B
 + 1100/3*x^18*e^9*d^2*b^7*a^3*B + 385/3*x^18*e^10*d*b^6*a^4*B +
14*x^18*e^11*b^5*a^5*B + 55/3*x^18*e^7*d^4*b^10*A + 275/3*x^18*e^
8*d^3*b^9*a*A + 275/2*x^18*e^9*d^2*b^8*a^2*A + 220/3*x^18*e^10*d*
b^7*a^3*A + 35/3*x^18*e^11*b^6*a^4*A + 462/17*x^17*e^5*d^6*b^10*B
 + 4620/17*x^17*e^6*d^5*b^9*a*B + 14850/17*x^17*e^7*d^4*b^8*a^2*B
 + 19800/17*x^17*e^8*d^3*b^7*a^3*B + 11550/17*x^17*e^9*d^2*b^6*a^
4*B + 2772/17*x^17*e^10*d*b^5*a^5*B + 210/17*x^17*e^11*b^4*a^6*B
+ 462/17*x^17*e^6*d^5*b^10*A + 3300/17*x^17*e^7*d^4*b^9*a*A + 742
5/17*x^17*e^8*d^3*b^8*a^2*A + 6600/17*x^17*e^9*d^2*b^7*a^3*A + 23
10/17*x^17*e^10*d*b^6*a^4*A + 252/17*x^17*e^11*b^5*a^5*A + 165/8*
x^16*e^4*d^7*b^10*B + 1155/4*x^16*e^5*d^6*b^9*a*B + 10395/8*x^16*
e^6*d^5*b^8*a^2*B + 2475*x^16*e^7*d^4*b^7*a^3*B + 17325/8*x^16*e^
8*d^3*b^6*a^4*B + 3465/4*x^16*e^9*d^2*b^5*a^5*B + 1155/8*x^16*e^1
0*d*b^4*a^6*B + 15/2*x^16*e^11*b^3*a^7*B + 231/8*x^16*e^5*d^6*b^1
0*A + 1155/4*x^16*e^6*d^5*b^9*a*A + 7425/8*x^16*e^7*d^4*b^8*a^2*A
 + 2475/2*x^16*e^8*d^3*b^7*a^3*A + 5775/8*x^16*e^9*d^2*b^6*a^4*A
+ 693/4*x^16*e^10*d*b^5*a^5*A + 105/8*x^16*e^11*b^4*a^6*A + 11*x^
15*e^3*d^8*b^10*B + 220*x^15*e^4*d^7*b^9*a*B + 1386*x^15*e^5*d^6*
b^8*a^2*B + 3696*x^15*e^6*d^5*b^7*a^3*B + 4620*x^15*e^7*d^4*b^6*a
^4*B + 2772*x^15*e^8*d^3*b^5*a^5*B + 770*x^15*e^9*d^2*b^4*a^6*B +
 88*x^15*e^10*d*b^3*a^7*B + 3*x^15*e^11*b^2*a^8*B + 22*x^15*e^4*d
^7*b^10*A + 308*x^15*e^5*d^6*b^9*a*A + 1386*x^15*e^6*d^5*b^8*a^2*
A + 2640*x^15*e^7*d^4*b^7*a^3*A + 2310*x^15*e^8*d^3*b^6*a^4*A + 9
24*x^15*e^9*d^2*b^5*a^5*A + 154*x^15*e^10*d*b^4*a^6*A + 8*x^15*e^
11*b^3*a^7*A + 55/14*x^14*e^2*d^9*b^10*B + 825/7*x^14*e^3*d^8*b^9
*a*B + 7425/7*x^14*e^4*d^7*b^8*a^2*B + 3960*x^14*e^5*d^6*b^7*a^3*
B + 6930*x^14*e^6*d^5*b^6*a^4*B + 5940*x^14*e^7*d^4*b^5*a^5*B + 2
475*x^14*e^8*d^3*b^4*a^6*B + 3300/7*x^14*e^9*d^2*b^3*a^7*B + 495/
14*x^14*e^10*d*b^2*a^8*B + 5/7*x^14*e^11*b*a^9*B + 165/14*x^14*e^
3*d^8*b^10*A + 1650/7*x^14*e^4*d^7*b^9*a*A + 1485*x^14*e^5*d^6*b^
8*a^2*A + 3960*x^14*e^6*d^5*b^7*a^3*A + 4950*x^14*e^7*d^4*b^6*a^4
*A + 2970*x^14*e^8*d^3*b^5*a^5*A + 825*x^14*e^9*d^2*b^4*a^6*A + 6
60/7*x^14*e^10*d*b^3*a^7*A + 45/14*x^14*e^11*b^2*a^8*A + 11/13*x^
13*e*d^10*b^10*B + 550/13*x^13*e^2*d^9*b^9*a*B + 7425/13*x^13*e^3
```

*d^8*b^8*a^2*B + 39600/13*x^13*e^4*d^7*b^7*a^3*B + 97020/13*x^13*
e^5*d^6*b^6*a^4*B + 116424/13*x^13*e^6*d^5*b^5*a^5*B + 69300/13*x
^13*e^7*d^4*b^4*a^6*B + 19800/13*x^13*e^8*d^3*b^3*a^7*B + 2475/13
*x^13*e^9*d^2*b^2*a^8*B + 110/13*x^13*e^10*d*b*a^9*B + 1/13*x^13*
e^11*a^10*B + 55/13*x^13*e^2*d^9*b^10*A + 1650/13*x^13*e^3*d^8*b^
9*a*A + 14850/13*x^13*e^4*d^7*b^8*a^2*A + 55440/13*x^13*e^5*d^6*b
^7*a^3*A + 97020/13*x^13*e^6*d^5*b^6*a^4*A + 83160/13*x^13*e^7*d^
4*b^5*a^5*A + 34650/13*x^13*e^8*d^3*b^4*a^6*A + 6600/13*x^13*e^9*
d^2*b^3*a^7*A + 495/13*x^13*e^10*d*b^2*a^8*A + 10/13*x^13*e^11*b*
a^9*A + 1/12*x^12*d^11*b^10*B + 55/6*x^12*e*d^10*b^9*a*B + 825/4*
x^12*e^2*d^9*b^8*a^2*B + 1650*x^12*e^3*d^8*b^7*a^3*B + 5775*x^12*
e^4*d^7*b^6*a^4*B + 9702*x^12*e^5*d^6*b^5*a^5*B + 8085*x^12*e^6*d
^5*b^4*a^6*B + 3300*x^12*e^7*d^4*b^3*a^7*B + 2475/4*x^12*e^8*d^3*
b^2*a^8*B + 275/6*x^12*e^9*d^2*b*a^9*B + 11/12*x^12*e^10*d*a^10*B
 + 11/12*x^12*e*d^10*b^10*A + 275/6*x^12*e^2*d^9*b^9*a*A + 2475/4
*x^12*e^3*d^8*b^8*a^2*A + 3300*x^12*e^4*d^7*b^7*a^3*A + 8085*x^12
*e^5*d^6*b^6*a^4*A + 9702*x^12*e^6*d^5*b^5*a^5*A + 5775*x^12*e^7*
d^4*b^4*a^6*A + 1650*x^12*e^8*d^3*b^3*a^7*A + 825/4*x^12*e^9*d^2*
b^2*a^8*A + 55/6*x^12*e^10*d*b*a^9*A + 1/12*x^12*e^11*a^10*A + 10
/11*x^11*d^11*b^9*a*B + 45*x^11*e*d^10*b^8*a^2*B + 600*x^11*e^2*d
^9*b^7*a^3*B + 3150*x^11*e^3*d^8*b^6*a^4*B + 7560*x^11*e^4*d^7*b^
5*a^5*B + 8820*x^11*e^5*d^6*b^4*a^6*B + 5040*x^11*e^6*d^5*b^3*a^7
*B + 1350*x^11*e^7*d^4*b^2*a^8*B + 150*x^11*e^8*d^3*b*a^9*B + 5*x
^11*e^9*d^2*a^10*B + 1/11*x^11*d^11*b^10*A + 10*x^11*e*d^10*b^9*a
*A + 225*x^11*e^2*d^9*b^8*a^2*A + 1800*x^11*e^3*d^8*b^7*a^3*A + 6
300*x^11*e^4*d^7*b^6*a^4*A + 10584*x^11*e^5*d^6*b^5*a^5*A + 8820*
x^11*e^6*d^5*b^4*a^6*A + 3600*x^11*e^7*d^4*b^3*a^7*A + 675*x^11*e
^8*d^3*b^2*a^8*A + 50*x^11*e^9*d^2*b*a^9*A + x^11*e^10*d*a^10*A +
 9/2*x^10*d^11*b^8*a^2*B + 132*x^10*e*d^10*b^7*a^3*B + 1155*x^10*
e^2*d^9*b^6*a^4*B + 4158*x^10*e^3*d^8*b^5*a^5*B + 6930*x^10*e^4*d
^7*b^4*a^6*B + 5544*x^10*e^5*d^6*b^3*a^7*B + 2079*x^10*e^6*d^5*b^
2*a^8*B + 330*x^10*e^7*d^4*b*a^9*B + 33/2*x^10*e^8*d^3*a^10*B + x
^10*d^11*b^9*a*A + 99/2*x^10*e*d^10*b^8*a^2*A + 660*x^10*e^2*d^9*
b^7*a^3*A + 3465*x^10*e^3*d^8*b^6*a^4*A + 8316*x^10*e^4*d^7*b^5*a
^5*A + 9702*x^10*e^5*d^6*b^4*a^6*A + 5544*x^10*e^6*d^5*b^3*a^7*A
+ 1485*x^10*e^7*d^4*b^2*a^8*A + 165*x^10*e^8*d^3*b*a^9*A + 11/2*x
^10*e^9*d^2*a^10*A + 40/3*x^9*d^11*b^7*a^3*B + 770/3*x^9*e*d^10*b
^6*a^4*B + 1540*x^9*e^2*d^9*b^5*a^5*B + 3850*x^9*e^3*d^8*b^4*a^6*
B + 4400*x^9*e^4*d^7*b^3*a^7*B + 2310*x^9*e^5*d^6*b^2*a^8*B + 154
0/3*x^9*e^6*d^5*b*a^9*B + 110/3*x^9*e^7*d^4*a^10*B + 5*x^9*d^11*b
^8*a^2*A + 440/3*x^9*e*d^10*b^7*a^3*A + 3850/3*x^9*e^2*d^9*b^6*a^
4*A + 4620*x^9*e^3*d^8*b^5*a^5*A + 7700*x^9*e^4*d^7*b^4*a^6*A + 6
160*x^9*e^5*d^6*b^3*a^7*A + 2310*x^9*e^6*d^5*b^2*a^8*A + 1100/3*x
^9*e^7*d^4*b*a^9*A + 55/3*x^9*e^8*d^3*a^10*A + 105/4*x^8*d^11*b^6
*a^4*B + 693/2*x^8*e*d^10*b^5*a^5*B + 5775/4*x^8*e^2*d^9*b^4*a^6*
B + 2475*x^8*e^3*d^8*b^3*a^7*B + 7425/4*x^8*e^4*d^7*b^2*a^8*B + 1
155/2*x^8*e^5*d^6*b*a^9*B + 231/4*x^8*e^6*d^5*a^10*B + 15*x^8*d^1
1*b^7*a^3*A + 1155/4*x^8*e*d^10*b^6*a^4*A + 3465/2*x^8*e^2*d^9*b^
5*a^5*A + 17325/4*x^8*e^3*d^8*b^4*a^6*A + 4950*x^8*e^4*d^7*b^3*a^
7*A + 10395/4*x^8*e^5*d^6*b^2*a^8*A + 1155/2*x^8*e^6*d^5*b*a^9*A
+ 165/4*x^8*e^7*d^4*a^10*A + 36*x^7*d^11*b^5*a^5*B + 330*x^7*e*d^
10*b^4*a^6*B + 6600/7*x^7*e^2*d^9*b^3*a^7*B + 7425/7*x^7*e^3*d^8*
b^2*a^8*B + 3300/7*x^7*e^4*d^7*b*a^9*B + 66*x^7*e^5*d^6*a^10*B +
30*x^7*d^11*b^6*a^4*A + 396*x^7*e*d^10*b^5*a^5*A + 1650*x^7*e^2*d
^9*b^4*a^6*A + 19800/7*x^7*e^3*d^8*b^3*a^7*A + 14850/7*x^7*e^4*d^
7*b^2*a^8*A + 660*x^7*e^5*d^6*b*a^9*A + 66*x^7*e^6*d^5*a^10*A + 3
5*x^6*d^11*b^4*a^6*B + 220*x^6*e*d^10*b^3*a^7*B + 825/2*x^6*e^2*d
^9*b^2*a^8*B + 275*x^6*e^3*d^8*b*a^9*B + 55*x^6*e^4*d^7*a^10*B +
42*x^6*d^11*b^5*a^5*A + 385*x^6*e*d^10*b^4*a^6*A + 1100*x^6*e^2*d
^9*b^3*a^7*A + 2475/2*x^6*e^3*d^8*b^2*a^8*A + 550*x^6*e^4*d^7*b*a
^9*A + 77*x^6*e^5*d^6*a^10*A + 24*x^5*d^11*b^3*a^7*B + 99*x^5*e*d
^10*b^2*a^8*B + 110*x^5*e^2*d^9*b*a^9*B + 33*x^5*e^3*d^8*a^10*B +
 42*x^5*d^11*b^4*a^6*A + 264*x^5*e*d^10*b^3*a^7*A + 495*x^5*e^2*d
^9*b^2*a^8*A + 330*x^5*e^3*d^8*b*a^9*A + 66*x^5*e^4*d^7*a^10*A +
45/4*x^4*d^11*b^2*a^8*B + 55/2*x^4*e*d^10*b*a^9*B + 55/4*x^4*e^2*
d^9*a^10*B + 30*x^4*d^11*b^3*a^7*A + 495/4*x^4*e*d^10*b^2*a^8*A +
 275/2*x^4*e^2*d^9*b*a^9*A + 165/4*x^4*e^3*d^8*a^10*A + 10/3*x^3*
d^11*b*a^9*B + 11/3*x^3*e*d^10*a^10*B + 15*x^3*d^11*b^2*a^8*A + 1
10/3*x^3*e*d^10*b*a^9*A + 55/3*x^3*e^2*d^9*a^10*A + 1/2*x^2*d^11*
a^10*B + 5*x^2*d^11*b*a^9*A + 11/2*x^2*e*d^10*a^10*A + x*d^11*a^1
0*A

Sympy [A] time = 1.75521, size = 4328, normalized size = 9.39

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)*(e*x+d)**11,x)
```

```
[Out] A*a**10*d**11*x + B*b**10*e**11*x**23/23 + x**22*(A*b**10*e**11/2
2 + 5*B*a*b**9*e**11/11 + B*b**10*d*e**10/2) + x**21*(10*A*a*b**9
*e**11/21 + 11*A*b**10*d*e**10/21 + 15*B*a**2*b**8*e**11/7 + 110*
B*a*b**9*d*e**10/21 + 55*B*b**10*d**2*e**9/21) + x**20*(9*A*a**2*
b**8*e**11/4 + 11*A*a*b**9*d*e**10/2 + 11*A*b**10*d**2*e**9/4 + 6
*B*a**3*b**7*e**11 + 99*B*a**2*b**8*d*e**10/4 + 55*B*a*b**9*d**2*
e**9/2 + 33*B*b**10*d**3*e**8/4) + x**19*(120*A*a**3*b**7*e**11/1
9 + 495*A*a**2*b**8*d*e**10/19 + 550*A*a*b**9*d**2*e**9/19 + 165*
A*b**10*d**3*e**8/19 + 210*B*a**4*b**6*e**11/19 + 1320*B*a**3*b**
7*d*e**10/19 + 2475*B*a**2*b**8*d**2*e**9/19 + 1650*B*a*b**9*d**3
*e**8/19 + 330*B*b**10*d**4*e**7/19) + x**18*(35*A*a**4*b**6*e**1
1/3 + 220*A*a**3*b**7*d*e**10/3 + 275*A*a**2*b**8*d**2*e**9/2 + 2
75*A*a*b**9*d**3*e**8/3 + 55*A*b**10*d**4*e**7/3 + 14*B*a**5*b**5
*e**11 + 385*B*a**4*b**6*d*e**10/3 + 1100*B*a**3*b**7*d**2*e**9/3
 + 825*B*a**2*b**8*d**3*e**8/2 + 550*B*a*b**9*d**4*e**7/3 + 77*B*
b**10*d**5*e**6/3) + x**17*(252*A*a**5*b**5*e**11/17 + 2310*A*a**
4*b**6*d*e**10/17 + 6600*A*a**3*b**7*d**2*e**9/17 + 7425*A*a**2*b
**8*d**3*e**8/17 + 3300*A*a*b**9*d**4*e**7/17 + 462*A*b**10*d**5*
e**6/17 + 210*B*a**6*b**4*e**11/17 + 2772*B*a**5*b**5*d*e**10/17
+ 11550*B*a**4*b**6*d**2*e**9/17 + 19800*B*a**3*b**7*d**3*e**8/17
 + 14850*B*a**2*b**8*d**4*e**7/17 + 4620*B*a*b**9*d**5*e**6/17 +
462*B*b**10*d**6*e**5/17) + x**16*(105*A*a**6*b**4*e**11/8 + 693*
A*a**5*b**5*d*e**10/4 + 5775*A*a**4*b**6*d**2*e**9/8 + 2475*A*a**
3*b**7*d**3*e**8/2 + 7425*A*a**2*b**8*d**4*e**7/8 + 1155*A*a*b**9
*d**5*e**6/4 + 231*A*b**10*d**6*e**5/8 + 15*B*a**7*b**3*e**11/2 +
 1155*B*a**6*b**4*d*e**10/8 + 3465*B*a**5*b**5*d**2*e**9/4 + 1732
5*B*a**4*b**6*d**3*e**8/8 + 2475*B*a**3*b**7*d**4*e**7 + 10395*B*
a**2*b**8*d**5*e**6/8 + 1155*B*a*b**9*d**6*e**5/4 + 165*B*b**10*d
**7*e**4/8) + x**15*(8*A*a**7*b**3*e**11 + 154*A*a**6*b**4*d*e**1
0 + 924*A*a**5*b**5*d**2*e**9 + 2310*A*a**4*b**6*d**3*e**8 + 2640
*A*a**3*b**7*d**4*e**7 + 1386*A*a**2*b**8*d**5*e**6 + 308*A*a*b**
9*d**6*e**5 + 22*A*b**10*d**7*e**4 + 3*B*a**8*b**2*e**11 + 88*B*a
**7*b**3*d*e**10 + 770*B*a**6*b**4*d**2*e**9 + 2772*B*a**5*b**5*d
**3*e**8 + 4620*B*a**4*b**6*d**4*e**7 + 3696*B*a**3*b**7*d**5*e**
6 + 1386*B*a**2*b**8*d**6*e**5 + 220*B*a*b**9*d**7*e**4 + 11*B*b*
*10*d**8*e**3) + x**14*(45*A*a**8*b**2*e**11/14 + 660*A*a**7*b**3
*d*e**10/7 + 825*A*a**6*b**4*d**2*e**9 + 2970*A*a**5*b**5*d**3*e*
*8 + 4950*A*a**4*b**6*d**4*e**7 + 3960*A*a**3*b**7*d**5*e**6 + 14
85*A*a**2*b**8*d**6*e**5 + 1650*A*a*b**9*d**7*e**4/7 + 165*A*b**1
0*d**8*e**3/14 + 5*B*a**9*b*e**11/7 + 495*B*a**8*b**2*d*e**10/14
+ 3300*B*a**7*b**3*d**2*e**9/7 + 2475*B*a**6*b**4*d**3*e**8 + 594
0*B*a**5*b**5*d**4*e**7 + 6930*B*a**4*b**6*d**5*e**6 + 3960*B*a**
3*b**7*d**6*e**5 + 7425*B*a**2*b**8*d**7*e**4/7 + 825*B*a*b**9*d*
*8*e**3/7 + 55*B*b**10*d**9*e**2/14) + x**13*(10*A*a**9*b*e**11/1
3 + 495*A*a**8*b**2*d*e**10/13 + 6600*A*a**7*b**3*d**2*e**9/13 +
34650*A*a**6*b**4*d**3*e**8/13 + 83160*A*a**5*b**5*d**4*e**7/13 +
 97020*A*a**4*b**6*d**5*e**6/13 + 55440*A*a**3*b**7*d**6*e**5/13
+ 14850*A*a**2*b**8*d**7*e**4/13 + 1650*A*a*b**9*d**8*e**3/13 + 5
5*A*b**10*d**9*e**2/13 + B*a**10*e**11/13 + 110*B*a**9*b*d*e**10/
13 + 2475*B*a**8*b**2*d**2*e**9/13 + 19800*B*a**7*b**3*d**3*e**8/
13 + 69300*B*a**6*b**4*d**4*e**7/13 + 116424*B*a**5*b**5*d**5*e**
6/13 + 97020*B*a**4*b**6*d**6*e**5/13 + 39600*B*a**3*b**7*d**7*e*
*4/13 + 7425*B*a**2*b**8*d**8*e**3/13 + 550*B*a*b**9*d**9*e**2/13
 + 11*B*b**10*d**10*e/13) + x**12*(A*a**10*e**11/12 + 55*A*a**9*b
*d*e**10/6 + 825*A*a**8*b**2*d**2*e**9/4 + 1650*A*a**7*b**3*d**3*
e**8 + 5775*A*a**6*b**4*d**4*e**7 + 9702*A*a**5*b**5*d**5*e**6 +
8085*A*a**4*b**6*d**6*e**5 + 3300*A*a**3*b**7*d**7*e**4 + 2475*A*
a**2*b**8*d**8*e**3/4 + 275*A*a*b**9*d**9*e**2/6 + 11*A*b**10*d**
10*e/12 + 11*B*a**10*d*e**10/12 + 275*B*a**9*b*d**2*e**9/6 + 2475
*B*a**8*b**2*d**3*e**8/4 + 3300*B*a**7*b**3*d**4*e**7 + 8085*B*a*
*6*b**4*d**5*e**6 + 9702*B*a**5*b**5*d**6*e**5 + 5775*B*a**4*b**6
*d**7*e**4 + 1650*B*a**3*b**7*d**8*e**3 + 825*B*a**2*b**8*d**9*e*
*2/4 + 55*B*a*b**9*d**10*e/6 + B*b**10*d**11/12) + x**11*(A*a**10
*d*e**10 + 50*A*a**9*b*d**2*e**9 + 675*A*a**8*b**2*d**3*e**8 + 36
```

```
00*A*a**7*b**3*d**4*e**7 + 8820*A*a**6*b**4*d**5*e**6 + 10584*A*a
**5*b**5*d**6*e**5 + 6300*A*a**4*b**6*d**7*e**4 + 1800*A*a**3*b**
7*d**8*e**3 + 225*A*a**2*b**8*d**9*e**2 + 10*A*a*b**9*d**10*e + A
*b**10*d**11/11 + 5*B*a**10*d**2*e**9 + 150*B*a**9*b*d**3*e**8 +
1350*B*a**8*b**2*d**4*e**7 + 5040*B*a**7*b**3*d**5*e**6 + 8820*B*
a**6*b**4*d**6*e**5 + 7560*B*a**5*b**5*d**7*e**4 + 3150*B*a**4*b*
*6*d**8*e**3 + 600*B*a**3*b**7*d**9*e**2 + 45*B*a**2*b**8*d**10*e
 + 10*B*a*b**9*d**11/11) + x**10*(11*A*a**10*d**2*e**9/2 + 165*A*
a**9*b*d**3*e**8 + 1485*A*a**8*b**2*d**4*e**7 + 5544*A*a**7*b**3*
d**5*e**6 + 9702*A*a**6*b**4*d**6*e**5 + 8316*A*a**5*b**5*d**7*e*
*4 + 3465*A*a**4*b**6*d**8*e**3 + 660*A*a**3*b**7*d**9*e**2 + 99*
A*a**2*b**8*d**10*e/2 + A*a*b**9*d**11 + 33*B*a**10*d**3*e**8/2 +
 330*B*a**9*b*d**4*e**7 + 2079*B*a**8*b**2*d**5*e**6 + 5544*B*a**
7*b**3*d**6*e**5 + 6930*B*a**6*b**4*d**7*e**4 + 4158*B*a**5*b**5*
d**8*e**3 + 1155*B*a**4*b**6*d**9*e**2 + 132*B*a**3*b**7*d**10*e
+ 9*B*a**2*b**8*d**11/2) + x**9*(55*A*a**10*d**3*e**8/3 + 1100*A*
a**9*b*d**4*e**7/3 + 2310*A*a**8*b**2*d**5*e**6 + 6160*A*a**7*b**
3*d**6*e**5 + 7700*A*a**6*b**4*d**7*e**4 + 4620*A*a**5*b**5*d**8*
e**3 + 3850*A*a**4*b**6*d**9*e**2/3 + 440*A*a**3*b**7*d**10*e/3 +
 5*A*a**2*b**8*d**11 + 110*B*a**10*d**4*e**7/3 + 1540*B*a**9*b*d*
*5*e**6/3 + 2310*B*a**8*b**2*d**6*e**5 + 4400*B*a**7*b**3*d**7*e*
*4 + 3850*B*a**6*b**4*d**8*e**3 + 1540*B*a**5*b**5*d**9*e**2 + 77
0*B*a**4*b**6*d**10*e/3 + 40*B*a**3*b**7*d**11/3) + x**8*(165*A*a
**10*d**4*e**7/4 + 1155*A*a**9*b*d**5*e**6/2 + 10395*A*a**8*b**2*
d**6*e**5/4 + 4950*A*a**7*b**3*d**7*e**4 + 17325*A*a**6*b**4*d**8
*e**3/4 + 3465*A*a**5*b**5*d**9*e**2/2 + 1155*A*a**4*b**6*d**10*e
/4 + 15*A*a**3*b**7*d**11 + 231*B*a**10*d**5*e**6/4 + 1155*B*a**9
*b*d**6*e**5/2 + 7425*B*a**8*b**2*d**7*e**4/4 + 2475*B*a**7*b**3*
d**8*e**3 + 5775*B*a**6*b**4*d**9*e**2/4 + 693*B*a**5*b**5*d**10*
e/2 + 105*B*a**4*b**6*d**11/4) + x**7*(66*A*a**10*d**5*e**6 + 660
*A*a**9*b*d**6*e**5 + 14850*A*a**8*b**2*d**7*e**4/7 + 19800*A*a**
7*b**3*d**8*e**3/7 + 1650*A*a**6*b**4*d**9*e**2 + 396*A*a**5*b**5
*d**10*e + 30*A*a**4*b**6*d**11 + 66*B*a**10*d**6*e**5 + 3300*B*a
**9*b*d**7*e**4/7 + 7425*B*a**8*b**2*d**8*e**3/7 + 6600*B*a**7*b*
*3*d**9*e**2/7 + 330*B*a**6*b**4*d**10*e + 36*B*a**5*b**5*d**11)
+ x**6*(77*A*a**10*d**6*e**5 + 550*A*a**9*b*d**7*e**4 + 2475*A*a*
*8*b**2*d**8*e**3/2 + 1100*A*a**7*b**3*d**9*e**2 + 385*A*a**6*b**
4*d**10*e + 42*A*a**5*b**5*d**11 + 55*B*a**10*d**7*e**4 + 275*B*a
**9*b*d**8*e**3 + 825*B*a**8*b**2*d**9*e**2/2 + 220*B*a**7*b**3*d
**10*e + 35*B*a**6*b**4*d**11) + x**5*(66*A*a**10*d**7*e**4 + 330
*A*a**9*b*d**8*e**3 + 495*A*a**8*b**2*d**9*e**2 + 264*A*a**7*b**3
*d**10*e + 42*A*a**6*b**4*d**11 + 33*B*a**10*d**8*e**3 + 110*B*a*
*9*b*d**9*e**2 + 99*B*a**8*b**2*d**10*e + 24*B*a**7*b**3*d**11) +
 x**4*(165*A*a**10*d**8*e**3/4 + 275*A*a**9*b*d**9*e**2/2 + 495*A
*a**8*b**2*d**10*e/4 + 30*A*a**7*b**3*d**11 + 55*B*a**10*d**9*e**
2/4 + 55*B*a**9*b*d**10*e/2 + 45*B*a**8*b**2*d**11/4) + x**3*(55*
A*a**10*d**9*e**2/3 + 110*A*a**9*b*d**10*e/3 + 15*A*a**8*b**2*d**
11 + 11*B*a**10*d**10*e/3 + 10*B*a**9*b*d**11/3) + x**2*(11*A*a**
10*d**10*e/2 + 5*A*a**9*b*d**11 + B*a**10*d**11/2)
```

GIAC/XCAS [A] time = 0.21873, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*(e*x + d)^11,x, algorithm="giac")
```

```
[Out] Done
```

3.1061 $\int (a+bx)^{10}(A+Bx)(d+ex)^{10}\,dx$

Optimal. Leaf size=460

$$\frac{e^9(a+bx)^{21}(-11aBe+Abe+10bBd)}{21b^{12}}+\frac{e^8(a+bx)^{20}(bd-ae)(-11aBe+2Abe+9bBd)}{4b^{12}}+\frac{15e^7(a+bx)^{19}(bd-ae)^2(-11aBe+3Abe+8bBd)}{19b^{12}}+\frac{5e^6(a+bx)^{18}(bd-ae)^3(-11aBe+4Abe+7bBd)}{3b^{12}}+\frac{42e^5(a+bx)^{17}(bd-ae)^4(-11aBe+5Abe+6bBd)}{17b^{12}}+\frac{21e^4(a+bx)^{16}(bd-ae)^5(-11aBe+6Abe+5bBd)}{8b^{12}}+\frac{2e^3(a+bx)^{15}(bd-ae)^6(-11aBe+7Abe+4bBd)}{b^{12}}+\frac{15e^2(a+bx)^{14}(bd-ae)^7(-11aBe+8Abe+3bBd)}{14b^{12}}+\frac{5e(a+bx)^{13}(bd-ae)^8(-11aBe+9Abe+2bBd)}{13b^{12}}+\frac{(a+bx)^{12}(bd-ae)^9(-11aBe+10Abe+bBd)}{12b^{12}}+\frac{(a+bx)^{11}(Ab-aB)(bd-ae)^{10}}{11b^{12}}+\frac{Be^{10}(a+bx)^{22}}{22b^{12}}$$

```
[Out] ((A*b - a*B)*(b*d - a*e)^10*(a + b*x)^11)/(11*b^12) + ((b*d - a*e
)^9*(b*B*d + 10*A*b*e - 11*a*B*e)*(a + b*x)^12)/(12*b^12) + (5*e*
(b*d - a*e)^8*(2*b*B*d + 9*A*b*e - 11*a*B*e)*(a + b*x)^13)/(13*b^
12) + (15*e^2*(b*d - a*e)^7*(3*b*B*d + 8*A*b*e - 11*a*B*e)*(a + b
*x)^14)/(14*b^12) + (2*e^3*(b*d - a*e)^6*(4*b*B*d + 7*A*b*e - 11*
a*B*e)*(a + b*x)^15)/b^12 + (21*e^4*(b*d - a*e)^5*(5*b*B*d + 6*A*
b*e - 11*a*B*e)*(a + b*x)^16)/(8*b^12) + (42*e^5*(b*d - a*e)^4*(6
*b*B*d + 5*A*b*e - 11*a*B*e)*(a + b*x)^17)/(17*b^12) + (5*e^6*(b*
d - a*e)^3*(7*b*B*d + 4*A*b*e - 11*a*B*e)*(a + b*x)^18)/(3*b^12)
+ (15*e^7*(b*d - a*e)^2*(8*b*B*d + 3*A*b*e - 11*a*B*e)*(a + b*x)^
19)/(19*b^12) + (e^8*(b*d - a*e)*(9*b*B*d + 2*A*b*e - 11*a*B*e)*(
a + b*x)^20)/(4*b^12) + (e^9*(10*b*B*d + A*b*e - 11*a*B*e)*(a + b
*x)^21)/(21*b^12) + (B*e^10*(a + b*x)^22)/(22*b^12)
```

Rubi [A] time = 15.8952, antiderivative size = 460, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$\frac{e^9(a+bx)^{21}(-11aBe+Abe+10bBd)}{21b^{12}}+\frac{e^8(a+bx)^{20}(bd-ae)(-11aBe+2Abe+9bBd)}{4b^{12}}+\frac{15e^7(a+bx)^{19}(bd-ae)^2(-11aBe+3Abe+8bBd)}{19b^{12}}+\frac{5e^6(a+bx)^{18}(bd-ae)^3(-11aBe+4Abe+7bBd)}{3b^{12}}+\frac{42e^5(a+bx)^{17}(bd-ae)^4(-11aBe+5Abe+6bBd)}{17b^{12}}+\frac{21e^4(a+bx)^{16}(bd-ae)^5(-11aBe+6Abe+5bBd)}{8b^{12}}+\frac{2e^3(a+bx)^{15}(bd-ae)^6(-11aBe+7Abe+4bBd)}{b^{12}}+\frac{15e^2(a+bx)^{14}(bd-ae)^7(-11aBe+8Abe+3bBd)}{14b^{12}}+\frac{5e(a+bx)^{13}(bd-ae)^8(-11aBe+9Abe+2bBd)}{13b^{12}}+\frac{(a+bx)^{12}(bd-ae)^9(-11aBe+10Abe+bBd)}{12b^{12}}+\frac{(a+bx)^{11}(Ab-aB)(bd-ae)^{10}}{11b^{12}}+\frac{Be^{10}(a+bx)^{22}}{22b^{12}}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^10*(A + B*x)*(d + e*x)^10,x]
```

```
[Out] ((A*b - a*B)*(b*d - a*e)^10*(a + b*x)^11)/(11*b^12) + ((b*d - a*e
)^9*(b*B*d + 10*A*b*e - 11*a*B*e)*(a + b*x)^12)/(12*b^12) + (5*e*
(b*d - a*e)^8*(2*b*B*d + 9*A*b*e - 11*a*B*e)*(a + b*x)^13)/(13*b^
12) + (15*e^2*(b*d - a*e)^7*(3*b*B*d + 8*A*b*e - 11*a*B*e)*(a + b
*x)^14)/(14*b^12) + (2*e^3*(b*d - a*e)^6*(4*b*B*d + 7*A*b*e - 11*
a*B*e)*(a + b*x)^15)/b^12 + (21*e^4*(b*d - a*e)^5*(5*b*B*d + 6*A*
b*e - 11*a*B*e)*(a + b*x)^16)/(8*b^12) + (42*e^5*(b*d - a*e)^4*(6
*b*B*d + 5*A*b*e - 11*a*B*e)*(a + b*x)^17)/(17*b^12) + (5*e^6*(b*
d - a*e)^3*(7*b*B*d + 4*A*b*e - 11*a*B*e)*(a + b*x)^18)/(3*b^12)
+ (15*e^7*(b*d - a*e)^2*(8*b*B*d + 3*A*b*e - 11*a*B*e)*(a + b*x)^
19)/(19*b^12) + (e^8*(b*d - a*e)*(9*b*B*d + 2*A*b*e - 11*a*B*e)*(
a + b*x)^20)/(4*b^12) + (e^9*(10*b*B*d + A*b*e - 11*a*B*e)*(a + b
*x)^21)/(21*b^12) + (B*e^10*(a + b*x)^22)/(22*b^12)
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)*(e*x+d)**10,x)
```

```
[Out] Timed out
```

Mathematica [B] time = 2.36964, size = 2815, normalized size = 6.12

Result too large to show

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^10*(A + B*x)*(d + e*x)^10,x]
```

```
[Out] a^10*A*d^10*x + (a^9*d^9*(a*B*d + 10*A*(b*d + a*e))*x^2)/2 + (5*a
^8*d^8*(2*a*B*d*(b*d + a*e) + A*(9*b^2*d^2 + 20*a*b*d*e + 9*a^2*e
^2))*x^3)/3 + (5*a^7*d^7*(a*B*d*(9*b^2*d^2 + 20*a*b*d*e + 9*a^2*e
^2) + 6*A*(4*b^3*d^3 + 15*a*b^2*d^2*e + 15*a^2*b*d*e^2 + 4*a^3*e^
3))*x^4)/4 + 3*a^6*d^6*(2*a*B*d*(4*b^3*d^3 + 15*a*b^2*d^2*e + 15*
a^2*b*d*e^2 + 4*a^3*e^3) + A*(14*b^4*d^4 + 80*a*b^3*d^3*e + 135*a
^2*b^2*d^2*e^2 + 80*a^3*b*d*e^3 + 14*a^4*e^4))*x^5 + (a^5*d^5*(5*
a*B*d*(14*b^4*d^4 + 80*a*b^3*d^3*e + 135*a^2*b^2*d^2*e^2 + 80*a^3
*b*d*e^3 + 14*a^4*e^4) + 4*A*(21*b^5*d^5 + 175*a*b^4*d^4*e + 450*
a^2*b^3*d^3*e^2 + 450*a^3*b^2*d^2*e^3 + 175*a^4*b*d*e^4 + 21*a^5*
e^5))*x^6)/2 + (6*a^4*d^4*(2*a*B*d*(21*b^5*d^5 + 175*a*b^4*d^4*e
+ 450*a^2*b^3*d^3*e^2 + 450*a^3*b^2*d^2*e^3 + 175*a^4*b*d*e^4 + 2
1*a^5*e^5) + 5*A*(7*b^6*d^6 + 84*a*b^5*d^5*e + 315*a^2*b^4*d^4*e^
2 + 480*a^3*b^3*d^3*e^3 + 315*a^4*b^2*d^2*e^4 + 84*a^5*b*d*e^5 +
7*a^6*e^6))*x^7)/7 + (15*a^3*d^3*(a*B*d*(7*b^6*d^6 + 84*a*b^5*d^5
*e + 315*a^2*b^4*d^4*e^2 + 480*a^3*b^3*d^3*e^3 + 315*a^4*b^2*d^2*
e^4 + 84*a^5*b*d*e^5 + 7*a^6*e^6) + A*(4*b^7*d^7 + 70*a*b^6*d^6*e
 + 378*a^2*b^5*d^5*e^2 + 840*a^3*b^4*d^4*e^3 + 840*a^4*b^3*d^3*e^
4 + 378*a^5*b^2*d^2*e^5 + 70*a^6*b*d*e^6 + 4*a^7*e^7))*x^8)/4 + (
5*a^2*d^2*(4*a*B*d*(2*b^7*d^7 + 35*a*b^6*d^6*e + 189*a^2*b^5*d^5*
e^2 + 420*a^3*b^4*d^4*e^3 + 420*a^4*b^3*d^3*e^4 + 189*a^5*b^2*d^2
*e^5 + 35*a^6*b*d*e^6 + 2*a^7*e^7) + A*(3*b^8*d^8 + 80*a*b^7*d^7*
e + 630*a^2*b^6*d^6*e^2 + 2016*a^3*b^5*d^5*e^3 + 2940*a^4*b^4*d^4
*e^4 + 2016*a^5*b^3*d^3*e^5 + 630*a^6*b^2*d^2*e^6 + 80*a^7*b*d*e^
7 + 3*a^8*e^8))*x^9)/3 + (a*d*(3*a*B*d*(3*b^8*d^8 + 80*a*b^7*d^7*
e + 630*a^2*b^6*d^6*e^2 + 2016*a^3*b^5*d^5*e^3 + 2940*a^4*b^4*d^4
*e^4 + 2016*a^5*b^3*d^3*e^5 + 630*a^6*b^2*d^2*e^6 + 80*a^7*b*d*e^
7 + 3*a^8*e^8) + 2*A*(b^9*d^9 + 45*a*b^8*d^8*e + 540*a^2*b^7*d^7*
e^2 + 2520*a^3*b^6*d^6*e^3 + 5292*a^4*b^5*d^5*e^4 + 5292*a^5*b^4*
d^4*e^5 + 2520*a^6*b^3*d^3*e^6 + 540*a^7*b^2*d^2*e^7 + 45*a^8*b*d
```

```
*e^8 + a^9*e^9))*x^10)/2 + ((10*a*B*d*(b^9*d^9 + 45*a*b^8*d^8*e +
 540*a^2*b^7*d^7*e^2 + 2520*a^3*b^6*d^6*e^3 + 5292*a^4*b^5*d^5*e^
4 + 5292*a^5*b^4*d^4*e^5 + 2520*a^6*b^3*d^3*e^6 + 540*a^7*b^2*d^2
*e^7 + 45*a^8*b*d*e^8 + a^9*e^9) + A*(b^10*d^10 + 100*a*b^9*d^9*e
 + 2025*a^2*b^8*d^8*e^2 + 14400*a^3*b^7*d^7*e^3 + 44100*a^4*b^6*d
^6*e^4 + 63504*a^5*b^5*d^5*e^5 + 44100*a^6*b^4*d^4*e^6 + 14400*a^
7*b^3*d^3*e^7 + 2025*a^8*b^2*d^2*e^8 + 100*a^9*b*d*e^9 + a^10*e^1
0))*x^11)/11 + ((a^10*B*e^10 + 10*a^9*b*e^9*(10*B*d + A*e) + 225*
a^8*b^2*d*e^8*(9*B*d + 2*A*e) + 1800*a^7*b^3*d^2*e^7*(8*B*d + 3*A
*e) + 6300*a^6*b^4*d^3*e^6*(7*B*d + 4*A*e) + 10584*a^5*b^5*d^4*e^
5*(6*B*d + 5*A*e) + 8820*a^4*b^6*d^5*e^4*(5*B*d + 6*A*e) + 3600*a
^3*b^7*d^6*e^3*(4*B*d + 7*A*e) + 675*a^2*b^8*d^7*e^2*(3*B*d + 8*A
*e) + 50*a*b^9*d^8*e*(2*B*d + 9*A*e) + b^10*d^9*(B*d + 10*A*e))*x
^12)/12 + (5*b*e*(2*a^9*B*e^9 + 9*a^8*b*e^8*(10*B*d + A*e) + 120*
a^7*b^2*d*e^7*(9*B*d + 2*A*e) + 630*a^6*b^3*d^2*e^6*(8*B*d + 3*A*
e) + 1512*a^5*b^4*d^3*e^5*(7*B*d + 4*A*e) + 1764*a^4*b^5*d^4*e^4*
(6*B*d + 5*A*e) + 1008*a^3*b^6*d^5*e^3*(5*B*d + 6*A*e) + 270*a^2*
b^7*d^6*e^2*(4*B*d + 7*A*e) + 30*a*b^8*d^7*e*(3*B*d + 8*A*e) + b^
9*d^8*(2*B*d + 9*A*e))*x^13)/13 + (15*b^2*e^2*(3*a^8*B*e^8 + 8*a^
7*b*e^7*(10*B*d + A*e) + 70*a^6*b^2*d*e^6*(9*B*d + 2*A*e) + 252*a
^5*b^3*d^2*e^5*(8*B*d + 3*A*e) + 420*a^4*b^4*d^3*e^4*(7*B*d + 4*A
*e) + 336*a^3*b^5*d^4*e^3*(6*B*d + 5*A*e) + 126*a^2*b^6*d^5*e^2*(
5*B*d + 6*A*e) + 20*a*b^7*d^6*e*(4*B*d + 7*A*e) + b^8*d^7*(3*B*d
+ 8*A*e))*x^14)/14 + 2*b^3*e^3*(4*a^7*B*e^7 + 7*a^6*b*e^6*(10*B*d
 + A*e) + 42*a^5*b^2*d*e^5*(9*B*d + 2*A*e) + 105*a^4*b^3*d^2*e^4*
(8*B*d + 3*A*e) + 120*a^3*b^4*d^3*e^3*(7*B*d + 4*A*e) + 63*a^2*b^
5*d^4*e^2*(6*B*d + 5*A*e) + 14*a*b^6*d^5*e*(5*B*d + 6*A*e) + b^7*
d^6*(4*B*d + 7*A*e))*x^15 + (3*b^4*e^4*(35*a^6*B*e^6 + 42*a^5*b*e
^5*(10*B*d + A*e) + 175*a^4*b^2*d*e^4*(9*B*d + 2*A*e) + 300*a^3*b
^3*d^2*e^3*(8*B*d + 3*A*e) + 225*a^2*b^4*d^3*e^2*(7*B*d + 4*A*e)
+ 70*a*b^5*d^4*e*(6*B*d + 5*A*e) + 7*b^6*d^5*(5*B*d + 6*A*e))*x^1
6)/8 + (3*b^5*e^5*(84*a^5*B*e^5 + 70*a^4*b*e^4*(10*B*d + A*e) + 2
00*a^3*b^2*d*e^3*(9*B*d + 2*A*e) + 225*a^2*b^3*d^2*e^2*(8*B*d + 3
*A*e) + 100*a*b^4*d^3*e*(7*B*d + 4*A*e) + 14*b^5*d^4*(6*B*d + 5*A
*e))*x^17)/17 + (5*b^6*e^6*(14*a^4*B*e^4 + 8*a^3*b*e^3*(10*B*d +
A*e) + 15*a^2*b^2*d*e^2*(9*B*d + 2*A*e) + 10*a*b^3*d^2*e*(8*B*d +
 3*A*e) + 2*b^4*d^3*(7*B*d + 4*A*e))*x^18)/6 + (5*b^7*e^7*(24*a^3
*B*e^3 + 9*a^2*b*e^2*(10*B*d + A*e) + 10*a*b^2*d*e*(9*B*d + 2*A*e
) + 3*b^3*d^2*(8*B*d + 3*A*e))*x^19)/19 + (b^8*e^8*(9*a^2*B*e^2 +
 2*a*b*e*(10*B*d + A*e) + b^2*d*(9*B*d + 2*A*e))*x^20)/4 + (b^9*e
^9*(10*b*B*d + A*b*e + 10*a*B*e)*x^21)/21 + (b^10*B*e^10*x^22)/22
```

Maple [B] time = 0.006, size = 3041, normalized size = 6.6

output too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^10*(B*x+A)*(e*x+d)^10,x)
```

```
[Out] 1/22*b^10*B*e^10*x^22+1/21*((A*b^10+10*B*a*b^9)*e^10+10*b^10*B*d*
e^9)*x^21+1/20*((10*A*a*b^9+45*B*a^2*b^8)*e^10+10*(A*b^10+10*B*a*
b^9)*d*e^9+45*b^10*B*d^2*e^8)*x^20+1/19*((45*A*a^2*b^8+120*B*a^3*
b^7)*e^10+10*(10*A*a*b^9+45*B*a^2*b^8)*d*e^9+45*(A*b^10+10*B*a*b^
9)*d^2*e^8+120*b^10*B*d^3*e^7)*x^19+1/18*((120*A*a^3*b^7+210*B*a^
4*b^6)*e^10+10*(45*A*a^2*b^8+120*B*a^3*b^7)*d*e^9+45*(10*A*a*b^9+
45*B*a^2*b^8)*d^2*e^8+120*(A*b^10+10*B*a*b^9)*d^3*e^7+210*b^10*B*
d^4*e^6)*x^18+1/17*((210*A*a^4*b^6+252*B*a^5*b^5)*e^10+10*(120*A*
a^3*b^7+210*B*a^4*b^6)*d*e^9+45*(45*A*a^2*b^8+120*B*a^3*b^7)*d^2*
e^8+120*(10*A*a*b^9+45*B*a^2*b^8)*d^3*e^7+210*(A*b^10+10*B*a*b^9)
*d^4*e^6+252*b^10*B*d^5*e^5)*x^17+1/16*((252*A*a^5*b^5+210*B*a^6*
b^4)*e^10+10*(210*A*a^4*b^6+252*B*a^5*b^5)*d*e^9+45*(120*A*a^3*b^
7+210*B*a^4*b^6)*d^2*e^8+120*(45*A*a^2*b^8+120*B*a^3*b^7)*d^3*e^7
+210*(10*A*a*b^9+45*B*a^2*b^8)*d^4*e^6+252*(A*b^10+10*B*a*b^9)*d^
5*e^5+210*b^10*B*d^6*e^4)*x^16+1/15*((210*A*a^6*b^4+120*B*a^7*b^3
)*e^10+10*(252*A*a^5*b^5+210*B*a^6*b^4)*d*e^9+45*(210*A*a^4*b^6+2
52*B*a^5*b^5)*d^2*e^8+120*(120*A*a^3*b^7+210*B*a^4*b^6)*d^3*e^7+2
10*(45*A*a^2*b^8+120*B*a^3*b^7)*d^4*e^6+252*(10*A*a*b^9+45*B*a^2*
b^8)*d^5*e^5+210*(A*b^10+10*B*a*b^9)*d^6*e^4+120*b^10*B*d^7*e^3)*
x^15+1/14*((120*A*a^7*b^3+45*B*a^8*b^2)*e^10+10*(210*A*a^6*b^4+12
```

```
0*B*a^7*b^3)*d*e^9+45*(252*A*a^5*b^5+210*B*a^6*b^4)*d^2*e^8+120*(
210*A*a^4*b^6+252*B*a^5*b^5)*d^3*e^7+210*(120*A*a^3*b^7+210*B*a^4
*b^6)*d^4*e^6+252*(45*A*a^2*b^8+120*B*a^3*b^7)*d^5*e^5+210*(10*A*
a*b^9+45*B*a^2*b^8)*d^6*e^4+120*(A*b^10+10*B*a*b^9)*d^7*e^3+45*b^
10*B*d^8*e^2)*x^14+1/13*((45*A*a^8*b^2+10*B*a^9*b)*e^10+10*(120*A
*a^7*b^3+45*B*a^8*b^2)*d*e^9+45*(210*A*a^6*b^4+120*B*a^7*b^3)*d^2
*e^8+120*(252*A*a^5*b^5+210*B*a^6*b^4)*d^3*e^7+210*(210*A*a^4*b^6
+252*B*a^5*b^5)*d^4*e^6+252*(120*A*a^3*b^7+210*B*a^4*b^6)*d^5*e^5
+210*(45*A*a^2*b^8+120*B*a^3*b^7)*d^6*e^4+120*(10*A*a*b^9+45*B*a^
2*b^8)*d^7*e^3+45*(A*b^10+10*B*a*b^9)*d^8*e^2+10*b^10*B*d^9*e)*x^
13+1/12*((10*A*a^9*b+B*a^10)*e^10+10*(45*A*a^8*b^2+10*B*a^9*b)*d*
e^9+45*(120*A*a^7*b^3+45*B*a^8*b^2)*d^2*e^8+120*(210*A*a^6*b^4+12
0*B*a^7*b^3)*d^3*e^7+210*(252*A*a^5*b^5+210*B*a^6*b^4)*d^4*e^6+25
2*(210*A*a^4*b^6+252*B*a^5*b^5)*d^5*e^5+210*(120*A*a^3*b^7+210*B*
a^4*b^6)*d^6*e^4+120*(45*A*a^2*b^8+120*B*a^3*b^7)*d^7*e^3+45*(10*
A*a*b^9+45*B*a^2*b^8)*d^8*e^2+10*(A*b^10+10*B*a*b^9)*d^9*e+b^10*B
*d^10)*x^12+1/11*(a^10*A*e^10+10*(10*A*a^9*b+B*a^10)*d*e^9+45*(45
*A*a^8*b^2+10*B*a^9*b)*d^2*e^8+120*(120*A*a^7*b^3+45*B*a^8*b^2)*d
^3*e^7+210*(210*A*a^6*b^4+120*B*a^7*b^3)*d^4*e^6+252*(252*A*a^5*b
^5+210*B*a^6*b^4)*d^5*e^5+210*(210*A*a^4*b^6+252*B*a^5*b^5)*d^6*e
^4+120*(120*A*a^3*b^7+210*B*a^4*b^6)*d^7*e^3+45*(45*A*a^2*b^8+120
*B*a^3*b^7)*d^8*e^2+10*(10*A*a*b^9+45*B*a^2*b^8)*d^9*e+(A*b^10+10
*B*a*b^9)*d^10)*x^11+1/10*(10*a^10*A*d*e^9+45*(10*A*a^9*b+B*a^10)
*d^2*e^8+120*(45*A*a^8*b^2+10*B*a^9*b)*d^3*e^7+210*(120*A*a^7*b^3
+45*B*a^8*b^2)*d^4*e^6+252*(210*A*a^6*b^4+120*B*a^7*b^3)*d^5*e^5+
210*(252*A*a^5*b^5+210*B*a^6*b^4)*d^6*e^4+120*(210*A*a^4*b^6+252*
B*a^5*b^5)*d^7*e^3+45*(120*A*a^3*b^7+210*B*a^4*b^6)*d^8*e^2+10*(4
5*A*a^2*b^8+120*B*a^3*b^7)*d^9*e+(10*A*a*b^9+45*B*a^2*b^8)*d^10)*
x^10+1/9*(45*a^10*A*d^2*e^8+120*(10*A*a^9*b+B*a^10)*d^3*e^7+210*(
45*A*a^8*b^2+10*B*a^9*b)*d^4*e^6+252*(120*A*a^7*b^3+45*B*a^8*b^2)
*d^5*e^5+210*(210*A*a^6*b^4+120*B*a^7*b^3)*d^6*e^4+120*(252*A*a^5
*b^5+210*B*a^6*b^4)*d^7*e^3+45*(210*A*a^4*b^6+252*B*a^5*b^5)*d^8*
e^2+10*(120*A*a^3*b^7+210*B*a^4*b^6)*d^9*e+(45*A*a^2*b^8+120*B*a^
3*b^7)*d^10)*x^9+1/8*(120*a^10*A*d^3*e^7+210*(10*A*a^9*b+B*a^10)*
d^4*e^6+252*(45*A*a^8*b^2+10*B*a^9*b)*d^5*e^5+210*(120*A*a^7*b^3+
45*B*a^8*b^2)*d^6*e^4+120*(210*A*a^6*b^4+120*B*a^7*b^3)*d^7*e^3+4
5*(252*A*a^5*b^5+210*B*a^6*b^4)*d^8*e^2+10*(210*A*a^4*b^6+252*B*a
^5*b^5)*d^9*e+(120*A*a^3*b^7+210*B*a^4*b^6)*d^10)*x^8+1/7*(210*a^
10*A*d^4*e^6+252*(10*A*a^9*b+B*a^10)*d^5*e^5+210*(45*A*a^8*b^2+10
*B*a^9*b)*d^6*e^4+120*(120*A*a^7*b^3+45*B*a^8*b^2)*d^7*e^3+45*(21
0*A*a^6*b^4+120*B*a^7*b^3)*d^8*e^2+10*(252*A*a^5*b^5+210*B*a^6*b^
4)*d^9*e+(210*A*a^4*b^6+252*B*a^5*b^5)*d^10)*x^7+1/6*(252*a^10*A*
d^5*e^5+210*(10*A*a^9*b+B*a^10)*d^6*e^4+120*(45*A*a^8*b^2+10*B*a^
9*b)*d^7*e^3+45*(120*A*a^7*b^3+45*B*a^8*b^2)*d^8*e^2+10*(210*A*a^
6*b^4+120*B*a^7*b^3)*d^9*e+(252*A*a^5*b^5+210*B*a^6*b^4)*d^10)*x^
6+1/5*(210*a^10*A*d^6*e^4+120*(10*A*a^9*b+B*a^10)*d^7*e^3+45*(45*
A*a^8*b^2+10*B*a^9*b)*d^8*e^2+10*(120*A*a^7*b^3+45*B*a^8*b^2)*d^9
*e+(210*A*a^6*b^4+120*B*a^7*b^3)*d^10)*x^5+1/4*(120*a^10*A*d^7*e^
3+45*(10*A*a^9*b+B*a^10)*d^8*e^2+10*(45*A*a^8*b^2+10*B*a^9*b)*d^9
*e+(120*A*a^7*b^3+45*B*a^8*b^2)*d^10)*x^4+1/3*(45*a^10*A*d^8*e^2+
10*(10*A*a^9*b+B*a^10)*d^9*e+(45*A*a^8*b^2+10*B*a^9*b)*d^10)*x^3+
1/2*(10*a^10*A*d^9*e+(10*A*a^9*b+B*a^10)*d^10)*x^2+a^10*A*d^10*x
```

Maxima [A] time = 1.41395, size = 4115, normalized size = 8.95

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^10*(e*x + d)^10,x, algorithm="maxima")
```

```
[Out] 1/22*B*b^10*e^10*x^22 + A*a^10*d^10*x + 1/21*(10*B*b^10*d*e^9 + (
10*B*a*b^9 + A*b^10)*e^10)*x^21 + 1/4*(9*B*b^10*d^2*e^8 + 2*(10*B
*a*b^9 + A*b^10)*d*e^9 + (9*B*a^2*b^8 + 2*A*a*b^9)*e^10)*x^20 + 5
/19*(24*B*b^10*d^3*e^7 + 9*(10*B*a*b^9 + A*b^10)*d^2*e^8 + 10*(9*
B*a^2*b^8 + 2*A*a*b^9)*d*e^9 + 3*(8*B*a^3*b^7 + 3*A*a^2*b^8)*e^10
)*x^19 + 5/6*(14*B*b^10*d^4*e^6 + 8*(10*B*a*b^9 + A*b^10)*d^3*e^7
 + 15*(9*B*a^2*b^8 + 2*A*a*b^9)*d^2*e^8 + 10*(8*B*a^3*b^7 + 3*A*a
^2*b^8)*d*e^9 + 2*(7*B*a^4*b^6 + 4*A*a^3*b^7)*e^10)*x^18 + 3/17*(
84*B*b^10*d^5*e^5 + 70*(10*B*a*b^9 + A*b^10)*d^4*e^6 + 200*(9*B*a
```

```
^2*b^8 + 2*A*a*b^9)*d^3*e^7 + 225*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^2
*e^8 + 100*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d*e^9 + 14*(6*B*a^5*b^5 +
5*A*a^4*b^6)*e^10)*x^17 + 3/8*(35*B*b^10*d^6*e^4 + 42*(10*B*a*b^9
 + A*b^10)*d^5*e^5 + 175*(9*B*a^2*b^8 + 2*A*a*b^9)*d^4*e^6 + 300*
(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^3*e^7 + 225*(7*B*a^4*b^6 + 4*A*a^3*
b^7)*d^2*e^8 + 70*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d*e^9 + 7*(5*B*a^6*
b^4 + 6*A*a^5*b^5)*e^10)*x^16 + 2*(4*B*b^10*d^7*e^3 + 7*(10*B*a*b
^9 + A*b^10)*d^6*e^4 + 42*(9*B*a^2*b^8 + 2*A*a*b^9)*d^5*e^5 + 105
*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^4*e^6 + 120*(7*B*a^4*b^6 + 4*A*a^3
*b^7)*d^3*e^7 + 63*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^2*e^8 + 14*(5*B*
a^6*b^4 + 6*A*a^5*b^5)*d*e^9 + (4*B*a^7*b^3 + 7*A*a^6*b^4)*e^10)*
x^15 + 15/14*(3*B*b^10*d^8*e^2 + 8*(10*B*a*b^9 + A*b^10)*d^7*e^3
+ 70*(9*B*a^2*b^8 + 2*A*a*b^9)*d^6*e^4 + 252*(8*B*a^3*b^7 + 3*A*a
^2*b^8)*d^5*e^5 + 420*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^4*e^6 + 336*(
6*B*a^5*b^5 + 5*A*a^4*b^6)*d^3*e^7 + 126*(5*B*a^6*b^4 + 6*A*a^5*b
^5)*d^2*e^8 + 20*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d*e^9 + (3*B*a^8*b^2
 + 8*A*a^7*b^3)*e^10)*x^14 + 5/13*(2*B*b^10*d^9*e + 9*(10*B*a*b^9
 + A*b^10)*d^8*e^2 + 120*(9*B*a^2*b^8 + 2*A*a*b^9)*d^7*e^3 + 630*
(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^6*e^4 + 1512*(7*B*a^4*b^6 + 4*A*a^3
*b^7)*d^5*e^5 + 1764*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^4*e^6 + 1008*(
5*B*a^6*b^4 + 6*A*a^5*b^5)*d^3*e^7 + 270*(4*B*a^7*b^3 + 7*A*a^6*b
^4)*d^2*e^8 + 30*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d*e^9 + (2*B*a^9*b +
 9*A*a^8*b^2)*e^10)*x^13 + 1/12*(B*b^10*d^10 + 10*(10*B*a*b^9 + A
*b^10)*d^9*e + 225*(9*B*a^2*b^8 + 2*A*a*b^9)*d^8*e^2 + 1800*(8*B*
a^3*b^7 + 3*A*a^2*b^8)*d^7*e^3 + 6300*(7*B*a^4*b^6 + 4*A*a^3*b^7)
*d^6*e^4 + 10584*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^5*e^5 + 8820*(5*B*
a^6*b^4 + 6*A*a^5*b^5)*d^4*e^6 + 3600*(4*B*a^7*b^3 + 7*A*a^6*b^4)
*d^3*e^7 + 675*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^2*e^8 + 50*(2*B*a^9*
b + 9*A*a^8*b^2)*d*e^9 + (B*a^10 + 10*A*a^9*b)*e^10)*x^12 + 1/11*
(A*a^10*e^10 + (10*B*a*b^9 + A*b^10)*d^10 + 50*(9*B*a^2*b^8 + 2*A
*a*b^9)*d^9*e + 675*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^8*e^2 + 3600*(7
*B*a^4*b^6 + 4*A*a^3*b^7)*d^7*e^3 + 8820*(6*B*a^5*b^5 + 5*A*a^4*b
^6)*d^6*e^4 + 10584*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^5*e^5 + 6300*(4
*B*a^7*b^3 + 7*A*a^6*b^4)*d^4*e^6 + 1800*(3*B*a^8*b^2 + 8*A*a^7*b
^3)*d^3*e^7 + 225*(2*B*a^9*b + 9*A*a^8*b^2)*d^2*e^8 + 10*(B*a^10
+ 10*A*a^9*b)*d*e^9)*x^11 + 1/2*(2*A*a^10*d*e^9 + (9*B*a^2*b^8 +
2*A*a*b^9)*d^10 + 30*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^9*e + 270*(7*B
*a^4*b^6 + 4*A*a^3*b^7)*d^8*e^2 + 1008*(6*B*a^5*b^5 + 5*A*a^4*b^6
)*d^7*e^3 + 1764*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^6*e^4 + 1512*(4*B*
a^7*b^3 + 7*A*a^6*b^4)*d^5*e^5 + 630*(3*B*a^8*b^2 + 8*A*a^7*b^3)*
d^4*e^6 + 120*(2*B*a^9*b + 9*A*a^8*b^2)*d^3*e^7 + 9*(B*a^10 + 10*
A*a^9*b)*d^2*e^8)*x^10 + 5/3*(3*A*a^10*d^2*e^8 + (8*B*a^3*b^7 + 3
*A*a^2*b^8)*d^10 + 20*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^9*e + 126*(6*
B*a^5*b^5 + 5*A*a^4*b^6)*d^8*e^2 + 336*(5*B*a^6*b^4 + 6*A*a^5*b^5
)*d^7*e^3 + 420*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^6*e^4 + 252*(3*B*a^
8*b^2 + 8*A*a^7*b^3)*d^5*e^5 + 70*(2*B*a^9*b + 9*A*a^8*b^2)*d^4*e
^6 + 8*(B*a^10 + 10*A*a^9*b)*d^3*e^7)*x^9 + 15/4*(4*A*a^10*d^3*e^
7 + (7*B*a^4*b^6 + 4*A*a^3*b^7)*d^10 + 14*(6*B*a^5*b^5 + 5*A*a^4*
b^6)*d^9*e + 63*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^8*e^2 + 120*(4*B*a^
7*b^3 + 7*A*a^6*b^4)*d^7*e^3 + 105*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^
6*e^4 + 42*(2*B*a^9*b + 9*A*a^8*b^2)*d^5*e^5 + 7*(B*a^10 + 10*A*a
^9*b)*d^4*e^6)*x^8 + 6/7*(35*A*a^10*d^4*e^6 + 7*(6*B*a^5*b^5 + 5*
A*a^4*b^6)*d^10 + 70*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^9*e + 225*(4*B
*a^7*b^3 + 7*A*a^6*b^4)*d^8*e^2 + 300*(3*B*a^8*b^2 + 8*A*a^7*b^3)
*d^7*e^3 + 175*(2*B*a^9*b + 9*A*a^8*b^2)*d^6*e^4 + 42*(B*a^10 + 1
0*A*a^9*b)*d^5*e^5)*x^7 + 1/2*(84*A*a^10*d^5*e^5 + 14*(5*B*a^6*b^
4 + 6*A*a^5*b^5)*d^10 + 100*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^9*e + 2
25*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^8*e^2 + 200*(2*B*a^9*b + 9*A*a^8
*b^2)*d^7*e^3 + 70*(B*a^10 + 10*A*a^9*b)*d^6*e^4)*x^6 + 3*(14*A*a
^10*d^6*e^4 + 2*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^10 + 10*(3*B*a^8*b^
2 + 8*A*a^7*b^3)*d^9*e + 15*(2*B*a^9*b + 9*A*a^8*b^2)*d^8*e^2 + 8
*(B*a^10 + 10*A*a^9*b)*d^7*e^3)*x^5 + 5/4*(24*A*a^10*d^7*e^3 + 3*
(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^10 + 10*(2*B*a^9*b + 9*A*a^8*b^2)*d
^9*e + 9*(B*a^10 + 10*A*a^9*b)*d^8*e^2)*x^4 + 5/3*(9*A*a^10*d^8*e
^2 + (2*B*a^9*b + 9*A*a^8*b^2)*d^10 + 2*(B*a^10 + 10*A*a^9*b)*d^9
*e)*x^3 + 1/2*(10*A*a^10*d^9*e + (B*a^10 + 10*A*a^9*b)*d^10)*x^2
```

<u>Fricas</u> [A] time = 0.19901, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^10*(e*x + d)^10,x, algorithm="fricas")
```

```
[Out] 1/22*x^22*e^10*b^10*B + 10/21*x^21*e^9*d*b^10*B + 10/21*x^21*e^10
*b^9*a*B + 1/21*x^21*e^10*b^10*A + 9/4*x^20*e^8*d^2*b^10*B + 5*x^
20*e^9*d*b^9*a*B + 9/4*x^20*e^10*b^8*a^2*B + 1/2*x^20*e^9*d*b^10*
A + 1/2*x^20*e^10*b^9*a*A + 120/19*x^19*e^7*d^3*b^10*B + 450/19*x
^19*e^8*d^2*b^9*a*B + 450/19*x^19*e^9*d*b^8*a^2*B + 120/19*x^19*e
^10*b^7*a^3*B + 45/19*x^19*e^8*d^2*b^10*A + 100/19*x^19*e^9*d*b^9
*a*A + 45/19*x^19*e^10*b^8*a^2*A + 35/3*x^18*e^6*d^4*b^10*B + 200
/3*x^18*e^7*d^3*b^9*a*B + 225/2*x^18*e^8*d^2*b^8*a^2*B + 200/3*x^
18*e^9*d*b^7*a^3*B + 35/3*x^18*e^10*b^6*a^4*B + 20/3*x^18*e^7*d^3
*b^10*A + 25*x^18*e^8*d^2*b^9*a*A + 25*x^18*e^9*d*b^8*a^2*A + 20/
3*x^18*e^10*b^7*a^3*A + 252/17*x^17*e^5*d^5*b^10*B + 2100/17*x^17
*e^6*d^4*b^9*a*B + 5400/17*x^17*e^7*d^3*b^8*a^2*B + 5400/17*x^17*
e^8*d^2*b^7*a^3*B + 2100/17*x^17*e^9*d*b^6*a^4*B + 252/17*x^17*e^
10*b^5*a^5*B + 210/17*x^17*e^6*d^4*b^10*A + 1200/17*x^17*e^7*d^3*
b^9*a*A + 2025/17*x^17*e^8*d^2*b^8*a^2*A + 1200/17*x^17*e^9*d*b^7
*a^3*A + 210/17*x^17*e^10*b^6*a^4*A + 105/8*x^16*e^4*d^6*b^10*B +
 315/2*x^16*e^5*d^5*b^9*a*B + 4725/8*x^16*e^6*d^4*b^8*a^2*B + 900
*x^16*e^7*d^3*b^7*a^3*B + 4725/8*x^16*e^8*d^2*b^6*a^4*B + 315/2*x
^16*e^9*d*b^5*a^5*B + 105/8*x^16*e^10*b^4*a^6*B + 63/4*x^16*e^5*d
^5*b^10*A + 525/4*x^16*e^6*d^4*b^9*a*A + 675/2*x^16*e^7*d^3*b^8*a
^2*A + 675/2*x^16*e^8*d^2*b^7*a^3*A + 525/4*x^16*e^9*d*b^6*a^4*A
+ 63/4*x^16*e^10*b^5*a^5*A + 8*x^15*e^3*d^7*b^10*B + 140*x^15*e^4
*d^6*b^9*a*B + 756*x^15*e^5*d^5*b^8*a^2*B + 1680*x^15*e^6*d^4*b^7
*a^3*B + 1680*x^15*e^7*d^3*b^6*a^4*B + 756*x^15*e^8*d^2*b^5*a^5*B
 + 140*x^15*e^9*d*b^4*a^6*B + 8*x^15*e^10*b^3*a^7*B + 14*x^15*e^4
*d^6*b^10*A + 168*x^15*e^5*d^5*b^9*a*A + 630*x^15*e^6*d^4*b^8*a^2
*A + 960*x^15*e^7*d^3*b^7*a^3*A + 630*x^15*e^8*d^2*b^6*a^4*A + 16
8*x^15*e^9*d*b^5*a^5*A + 14*x^15*e^10*b^4*a^6*A + 45/14*x^14*e^2*
d^8*b^10*B + 600/7*x^14*e^3*d^7*b^9*a*B + 675*x^14*e^4*d^6*b^8*a^
2*B + 2160*x^14*e^5*d^5*b^7*a^3*B + 3150*x^14*e^6*d^4*b^6*a^4*B +
 2160*x^14*e^7*d^3*b^5*a^5*B + 675*x^14*e^8*d^2*b^4*a^6*B + 600/7
*x^14*e^9*d*b^3*a^7*B + 45/14*x^14*e^10*b^2*a^8*B + 60/7*x^14*e^3
*d^7*b^10*A + 150*x^14*e^4*d^6*b^9*a*A + 810*x^14*e^5*d^5*b^8*a^2
*A + 1800*x^14*e^6*d^4*b^7*a^3*A + 1800*x^14*e^7*d^3*b^6*a^4*A +
810*x^14*e^8*d^2*b^5*a^5*A + 150*x^14*e^9*d*b^4*a^6*A + 60/7*x^14
*e^10*b^3*a^7*A + 10/13*x^13*e*d^9*b^10*B + 450/13*x^13*e^2*d^8*b
^9*a*B + 5400/13*x^13*e^3*d^7*b^8*a^2*B + 25200/13*x^13*e^4*d^6*b
^7*a^3*B + 52920/13*x^13*e^5*d^5*b^6*a^4*B + 52920/13*x^13*e^6*d^
4*b^5*a^5*B + 25200/13*x^13*e^7*d^3*b^4*a^6*B + 5400/13*x^13*e^8*
d^2*b^3*a^7*B + 450/13*x^13*e^9*d*b^2*a^8*B + 10/13*x^13*e^10*b*a
^9*B + 45/13*x^13*e^2*d^8*b^10*A + 1200/13*x^13*e^3*d^7*b^9*a*A +
 9450/13*x^13*e^4*d^6*b^8*a^2*A + 30240/13*x^13*e^5*d^5*b^7*a^3*A
 + 44100/13*x^13*e^6*d^4*b^6*a^4*A + 30240/13*x^13*e^7*d^3*b^5*a^
5*A + 9450/13*x^13*e^8*d^2*b^4*a^6*A + 1200/13*x^13*e^9*d*b^3*a^7
*A + 45/13*x^13*e^10*b^2*a^8*A + 1/12*x^12*d^10*b^10*B + 25/3*x^1
2*e*d^9*b^9*a*B + 675/4*x^12*e^2*d^8*b^8*a^2*B + 1200*x^12*e^3*d^
7*b^7*a^3*B + 3675*x^12*e^4*d^6*b^6*a^4*B + 5292*x^12*e^5*d^5*b^5
*a^5*B + 3675*x^12*e^6*d^4*b^4*a^6*B + 1200*x^12*e^7*d^3*b^3*a^7*
B + 675/4*x^12*e^8*d^2*b^2*a^8*B + 25/3*x^12*e^9*d*b*a^9*B + 1/12
*x^12*e^10*a^10*B + 5/6*x^12*e*d^9*b^10*A + 75/2*x^12*e^2*d^8*b^9
*a*A + 450*x^12*e^3*d^7*b^8*a^2*A + 2100*x^12*e^4*d^6*b^7*a^3*A +
 4410*x^12*e^5*d^5*b^6*a^4*A + 4410*x^12*e^6*d^4*b^5*a^5*A + 2100
*x^12*e^7*d^3*b^4*a^6*A + 450*x^12*e^8*d^2*b^3*a^7*A + 75/2*x^12*
e^9*d*b^2*a^8*A + 5/6*x^12*e^10*b*a^9*A + 10/11*x^11*d^10*b^9*a*B
 + 450/11*x^11*e*d^9*b^8*a^2*B + 5400/11*x^11*e^2*d^8*b^7*a^3*B +
 25200/11*x^11*e^3*d^7*b^6*a^4*B + 52920/11*x^11*e^4*d^6*b^5*a^5*
B + 52920/11*x^11*e^5*d^5*b^4*a^6*B + 25200/11*x^11*e^6*d^4*b^3*a
^7*B + 5400/11*x^11*e^7*d^3*b^2*a^8*B + 450/11*x^11*e^8*d^2*b*a^9
*B + 10/11*x^11*e^9*d*a^10*B + 1/11*x^11*d^10*b^10*A + 100/11*x^1
1*e*d^9*b^9*a*A + 2025/11*x^11*e^2*d^8*b^8*a^2*A + 14400/11*x^11*
e^3*d^7*b^7*a^3*A + 44100/11*x^11*e^4*d^6*b^6*a^4*A + 63504/11*x^
11*e^5*d^5*b^5*a^5*A + 44100/11*x^11*e^6*d^4*b^4*a^6*A + 14400/11
*x^11*e^7*d^3*b^3*a^7*A + 2025/11*x^11*e^8*d^2*b^2*a^8*A + 100/11
*x^11*e^9*d*b*a^9*A + 1/11*x^11*e^10*a^10*A + 9/2*x^10*d^10*b^8*a
^2*B + 120*x^10*e*d^9*b^7*a^3*B + 945*x^10*e^2*d^8*b^6*a^4*B + 30
24*x^10*e^3*d^7*b^5*a^5*B + 4410*x^10*e^4*d^6*b^4*a^6*B + 3024*x^
10*e^5*d^5*b^3*a^7*B + 945*x^10*e^6*d^4*b^2*a^8*B + 120*x^10*e^7*
d^3*b*a^9*B + 9/2*x^10*e^8*d^2*a^10*B + x^10*d^10*b^9*a*A + 45*x^
10*e*d^9*b^8*a^2*A + 540*x^10*e^2*d^8*b^7*a^3*A + 2520*x^10*e^3*d
^7*b^6*a^4*A + 5292*x^10*e^4*d^6*b^5*a^5*A + 5292*x^10*e^5*d^5*b^
4*a^6*A + 2520*x^10*e^6*d^4*b^3*a^7*A + 540*x^10*e^7*d^3*b^2*a^8*
```

```
A + 45*x^10*e^8*d^2*b*a^9*A + x^10*e^9*d*a^10*A + 40/3*x^9*d^10*b
^7*a^3*B + 700/3*x^9*e*d^9*b^6*a^4*B + 1260*x^9*e^2*d^8*b^5*a^5*B
 + 2800*x^9*e^3*d^7*b^4*a^6*B + 2800*x^9*e^4*d^6*b^3*a^7*B + 1260
*x^9*e^5*d^5*b^2*a^8*B + 700/3*x^9*e^6*d^4*b*a^9*B + 40/3*x^9*e^7
*d^3*a^10*B + 5*x^9*d^10*b^8*a^2*A + 400/3*x^9*e*d^9*b^7*a^3*A +
1050*x^9*e^2*d^8*b^6*a^4*A + 3360*x^9*e^3*d^7*b^5*a^5*A + 4900*x^
9*e^4*d^6*b^4*a^6*A + 3360*x^9*e^5*d^5*b^3*a^7*A + 1050*x^9*e^6*d
^4*b^2*a^8*A + 400/3*x^9*e^7*d^3*b*a^9*A + 5*x^9*e^8*d^2*a^10*A +
 105/4*x^8*d^10*b^6*a^4*B + 315*x^8*e*d^9*b^5*a^5*B + 4725/4*x^8*
e^2*d^8*b^4*a^6*B + 1800*x^8*e^3*d^7*b^3*a^7*B + 4725/4*x^8*e^4*d
^6*b^2*a^8*B + 315*x^8*e^5*d^5*b*a^9*B + 105/4*x^8*e^6*d^4*a^10*B
 + 15*x^8*d^10*b^7*a^3*A + 525/2*x^8*e*d^9*b^6*a^4*A + 2835/2*x^8
*e^2*d^8*b^5*a^5*A + 3150*x^8*e^3*d^7*b^4*a^6*A + 3150*x^8*e^4*d^
6*b^3*a^7*A + 2835/2*x^8*e^5*d^5*b^2*a^8*A + 525/2*x^8*e^6*d^4*b*
a^9*A + 15*x^8*e^7*d^3*a^10*A + 36*x^7*d^10*b^5*a^5*B + 300*x^7*e
*d^9*b^4*a^6*B + 5400/7*x^7*e^2*d^8*b^3*a^7*B + 5400/7*x^7*e^3*d^
7*b^2*a^8*B + 300*x^7*e^4*d^6*b*a^9*B + 36*x^7*e^5*d^5*a^10*B + 3
0*x^7*d^10*b^6*a^4*A + 360*x^7*e*d^9*b^5*a^5*A + 1350*x^7*e^2*d^8
*b^4*a^6*A + 14400/7*x^7*e^3*d^7*b^3*a^7*A + 1350*x^7*e^4*d^6*b^2
*a^8*A + 360*x^7*e^5*d^5*b*a^9*A + 30*x^7*e^6*d^4*a^10*A + 35*x^6
*d^10*b^4*a^6*B + 200*x^6*e*d^9*b^3*a^7*B + 675/2*x^6*e^2*d^8*b^2
*a^8*B + 200*x^6*e^3*d^7*b*a^9*B + 35*x^6*e^4*d^6*a^10*B + 42*x^6
*d^10*b^5*a^5*A + 350*x^6*e*d^9*b^4*a^6*A + 900*x^6*e^2*d^8*b^3*a
^7*A + 900*x^6*e^3*d^7*b^2*a^8*A + 350*x^6*e^4*d^6*b*a^9*A + 42*x
^6*e^5*d^5*a^10*A + 24*x^5*d^10*b^3*a^7*B + 90*x^5*e*d^9*b^2*a^8*
B + 90*x^5*e^2*d^8*b*a^9*B + 24*x^5*e^3*d^7*a^10*B + 42*x^5*d^10*
b^4*a^6*A + 240*x^5*e*d^9*b^3*a^7*A + 405*x^5*e^2*d^8*b^2*a^8*A +
 240*x^5*e^3*d^7*b*a^9*A + 42*x^5*e^4*d^6*a^10*A + 45/4*x^4*d^10*
b^2*a^8*B + 25*x^4*e*d^9*b*a^9*B + 45/4*x^4*e^2*d^8*a^10*B + 30*x
^4*d^10*b^3*a^7*A + 225/2*x^4*e*d^9*b^2*a^8*A + 225/2*x^4*e^2*d^8
*b*a^9*A + 30*x^4*e^3*d^7*a^10*A + 10/3*x^3*d^10*b*a^9*B + 10/3*x
^3*e*d^9*a^10*B + 15*x^3*d^10*b^2*a^8*A + 100/3*x^3*e*d^9*b*a^9*A
 + 15*x^3*e^2*d^8*a^10*A + 1/2*x^2*d^10*a^10*B + 5*x^2*d^10*b*a^9
*A + 5*x^2*e*d^9*a^10*A + x*d^10*a^10*A
```

Sympy [A] time = 1.62988, size = 3936, normalized size = 8.56

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)*(e*x+d)**10,x)
```

```
[Out] A*a**10*d**10*x + B*b**10*e**10*x**22/22 + x**21*(A*b**10*e**10/2
1 + 10*B*a*b**9*e**10/21 + 10*B*b**10*d*e**9/21) + x**20*(A*a*b**
9*e**10/2 + A*b**10*d*e**9/2 + 9*B*a**2*b**8*e**10/4 + 5*B*a*b**9
*d*e**9 + 9*B*b**10*d**2*e**8/4) + x**19*(45*A*a**2*b**8*e**10/19
 + 100*A*a*b**9*d*e**9/19 + 45*A*b**10*d**2*e**8/19 + 120*B*a**3*
b**7*e**10/19 + 450*B*a**2*b**8*d*e**9/19 + 450*B*a*b**9*d**2*e**
8/19 + 120*B*b**10*d**3*e**7/19) + x**18*(20*A*a**3*b**7*e**10/3
+ 25*A*a**2*b**8*d*e**9 + 25*A*a*b**9*d**2*e**8 + 20*A*b**10*d**3
*e**7/3 + 35*B*a**4*b**6*e**10/3 + 200*B*a**3*b**7*d*e**9/3 + 225
*B*a**2*b**8*d**2*e**8/2 + 200*B*a*b**9*d**3*e**7/3 + 35*B*b**10*
d**4*e**6/3) + x**17*(210*A*a**4*b**6*e**10/17 + 1200*A*a**3*b**7
*d*e**9/17 + 2025*A*a**2*b**8*d**2*e**8/17 + 1200*A*a*b**9*d**3*e
**7/17 + 210*A*b**10*d**4*e**6/17 + 252*B*a**5*b**5*e**10/17 + 21
00*B*a**4*b**6*d*e**9/17 + 5400*B*a**3*b**7*d**2*e**8/17 + 5400*B
*a**2*b**8*d**3*e**7/17 + 2100*B*a*b**9*d**4*e**6/17 + 252*B*b**1
0*d**5*e**5/17) + x**16*(63*A*a**5*b**5*e**10/4 + 525*A*a**4*b**6
*d*e**9/4 + 675*A*a**3*b**7*d**2*e**8/2 + 675*A*a**2*b**8*d**3*e*
*7/2 + 525*A*a*b**9*d**4*e**6/4 + 63*A*b**10*d**5*e**5/4 + 105*B*
a**6*b**4*e**10/8 + 315*B*a**5*b**5*d*e**9/2 + 4725*B*a**4*b**6*d
**2*e**8/8 + 900*B*a**3*b**7*d**3*e**7 + 4725*B*a**2*b**8*d**4*e*
*6/8 + 315*B*a*b**9*d**5*e**5/2 + 105*B*b**10*d**6*e**4/8) + x**1
5*(14*A*a**6*b**4*e**10 + 168*A*a**5*b**5*d*e**9 + 630*A*a**4*b**
6*d**2*e**8 + 960*A*a**3*b**7*d**3*e**7 + 630*A*a**2*b**8*d**4*e*
*6 + 168*A*a*b**9*d**5*e**5 + 14*A*b**10*d**6*e**4 + 8*B*a**7*b**
3*e**10 + 140*B*a**6*b**4*d*e**9 + 756*B*a**5*b**5*d**2*e**8 + 16
80*B*a**4*b**6*d**3*e**7 + 1680*B*a**3*b**7*d**4*e**6 + 756*B*a**
2*b**8*d**5*e**5 + 140*B*a*b**9*d**6*e**4 + 8*B*b**10*d**7*e**3)
```

```
+ x**14*(60*A*a**7*b**3*e**10/7 + 150*A*a**6*b**4*d*e**9 + 810*A*
a**5*b**5*d**2*e**8 + 1800*A*a**4*b**6*d**3*e**7 + 1800*A*a**3*b*
*7*d**4*e**6 + 810*A*a**2*b**8*d**5*e**5 + 150*A*a*b**9*d**6*e**4
 + 60*A*b**10*d**7*e**3/7 + 45*B*a**8*b**2*e**10/14 + 600*B*a**7*
b**3*d*e**9/7 + 675*B*a**6*b**4*d**2*e**8 + 2160*B*a**5*b**5*d**3
*e**7 + 3150*B*a**4*b**6*d**4*e**6 + 2160*B*a**3*b**7*d**5*e**5 +
 675*B*a**2*b**8*d**6*e**4 + 600*B*a*b**9*d**7*e**3/7 + 45*B*b**1
0*d**8*e**2/14) + x**13*(45*A*a**8*b**2*e**10/13 + 1200*A*a**7*b*
*3*d*e**9/13 + 9450*A*a**6*b**4*d**2*e**8/13 + 30240*A*a**5*b**5*
d**3*e**7/13 + 44100*A*a**4*b**6*d**4*e**6/13 + 30240*A*a**3*b**7
*d**5*e**5/13 + 9450*A*a**2*b**8*d**6*e**4/13 + 1200*A*a*b**9*d**
7*e**3/13 + 45*A*b**10*d**8*e**2/13 + 10*B*a**9*b*e**10/13 + 450*
B*a**8*b**2*d*e**9/13 + 5400*B*a**7*b**3*d**2*e**8/13 + 25200*B*a
**6*b**4*d**3*e**7/13 + 52920*B*a**5*b**5*d**4*e**6/13 + 52920*B*
a**4*b**6*d**5*e**5/13 + 25200*B*a**3*b**7*d**6*e**4/13 + 5400*B*
a**2*b**8*d**7*e**3/13 + 450*B*a*b**9*d**8*e**2/13 + 10*B*b**10*d
**9*e/13) + x**12*(5*A*a**9*b*e**10/6 + 75*A*a**8*b**2*d*e**9/2 +
 450*A*a**7*b**3*d**2*e**8 + 2100*A*a**6*b**4*d**3*e**7 + 4410*A*
a**5*b**5*d**4*e**6 + 4410*A*a**4*b**6*d**5*e**5 + 2100*A*a**3*b*
*7*d**6*e**4 + 450*A*a**2*b**8*d**7*e**3 + 75*A*a*b**9*d**8*e**2/
2 + 5*A*b**10*d**9*e/6 + B*a**10*e**10/12 + 25*B*a**9*b*d*e**9/3
+ 675*B*a**8*b**2*d**2*e**8/4 + 1200*B*a**7*b**3*d**3*e**7 + 3675
*B*a**6*b**4*d**4*e**6 + 5292*B*a**5*b**5*d**5*e**5 + 3675*B*a**4
*b**6*d**6*e**4 + 1200*B*a**3*b**7*d**7*e**3 + 675*B*a**2*b**8*d*
*8*e**2/4 + 25*B*a*b**9*d**9*e/3 + B*b**10*d**10/12) + x**11*(A*a
**10*e**10/11 + 100*A*a**9*b*d*e**9/11 + 2025*A*a**8*b**2*d**2*e*
*8/11 + 14400*A*a**7*b**3*d**3*e**7/11 + 44100*A*a**6*b**4*d**4*e
**6/11 + 63504*A*a**5*b**5*d**5*e**5/11 + 44100*A*a**4*b**6*d**6*
e**4/11 + 14400*A*a**3*b**7*d**7*e**3/11 + 2025*A*a**2*b**8*d**8*
e**2/11 + 100*A*a*b**9*d**9*e/11 + A*b**10*d**10/11 + 10*B*a**10*
d*e**9/11 + 450*B*a**9*b*d**2*e**8/11 + 5400*B*a**8*b**2*d**3*e**
7/11 + 25200*B*a**7*b**3*d**4*e**6/11 + 52920*B*a**6*b**4*d**5*e*
*5/11 + 52920*B*a**5*b**5*d**6*e**4/11 + 25200*B*a**4*b**6*d**7*e
**3/11 + 5400*B*a**3*b**7*d**8*e**2/11 + 450*B*a**2*b**8*d**9*e/1
1 + 10*B*a*b**9*d**10/11) + x**10*(A*a**10*d*e**9 + 45*A*a**9*b*d
**2*e**8 + 540*A*a**8*b**2*d**3*e**7 + 2520*A*a**7*b**3*d**4*e**6
 + 5292*A*a**6*b**4*d**5*e**5 + 5292*A*a**5*b**5*d**6*e**4 + 2520
*A*a**4*b**6*d**7*e**3 + 540*A*a**3*b**7*d**8*e**2 + 45*A*a**2*b*
*8*d**9*e + A*a*b**9*d**10 + 9*B*a**10*d**2*e**8/2 + 120*B*a**9*b
*d**3*e**7 + 945*B*a**8*b**2*d**4*e**6 + 3024*B*a**7*b**3*d**5*e*
*5 + 4410*B*a**6*b**4*d**6*e**4 + 3024*B*a**5*b**5*d**7*e**3 + 94
5*B*a**4*b**6*d**8*e**2 + 120*B*a**3*b**7*d**9*e + 9*B*a**2*b**8*
d**10/2) + x**9*(5*A*a**10*d**2*e**8 + 400*A*a**9*b*d**3*e**7/3 +
 1050*A*a**8*b**2*d**4*e**6 + 3360*A*a**7*b**3*d**5*e**5 + 4900*A
*a**6*b**4*d**6*e**4 + 3360*A*a**5*b**5*d**7*e**3 + 1050*A*a**4*b
**6*d**8*e**2 + 400*A*a**3*b**7*d**9*e/3 + 5*A*a**2*b**8*d**10 +
40*B*a**10*d**3*e**7/3 + 700*B*a**9*b*d**4*e**6/3 + 1260*B*a**8*b
**2*d**5*e**5 + 2800*B*a**7*b**3*d**6*e**4 + 2800*B*a**6*b**4*d**
7*e**3 + 1260*B*a**5*b**5*d**8*e**2 + 700*B*a**4*b**6*d**9*e/3 +
40*B*a**3*b**7*d**10/3) + x**8*(15*A*a**10*d**3*e**7 + 525*A*a**9
*b*d**4*e**6/2 + 2835*A*a**8*b**2*d**5*e**5/2 + 3150*A*a**7*b**3*
d**6*e**4 + 3150*A*a**6*b**4*d**7*e**3 + 2835*A*a**5*b**5*d**8*e*
*2/2 + 525*A*a**4*b**6*d**9*e/2 + 15*A*a**3*b**7*d**10 + 105*B*a*
*10*d**4*e**6/4 + 315*B*a**9*b*d**5*e**5 + 4725*B*a**8*b**2*d**6*
e**4/4 + 1800*B*a**7*b**3*d**7*e**3 + 4725*B*a**6*b**4*d**8*e**2/
4 + 315*B*a**5*b**5*d**9*e + 105*B*a**4*b**6*d**10/4) + x**7*(30*
A*a**10*d**4*e**6 + 360*A*a**9*b*d**5*e**5 + 1350*A*a**8*b**2*d**
6*e**4 + 14400*A*a**7*b**3*d**7*e**3/7 + 1350*A*a**6*b**4*d**8*e*
*2 + 360*A*a**5*b**5*d**9*e + 30*A*a**4*b**6*d**10 + 36*B*a**10*d
**5*e**5 + 300*B*a**9*b*d**6*e**4 + 5400*B*a**8*b**2*d**7*e**3/7
+ 5400*B*a**7*b**3*d**8*e**2/7 + 300*B*a**6*b**4*d**9*e + 36*B*a*
*5*b**5*d**10) + x**6*(42*A*a**10*d**5*e**5 + 350*A*a**9*b*d**6*e
**4 + 900*A*a**8*b**2*d**7*e**3 + 900*A*a**7*b**3*d**8*e**2 + 350
*A*a**6*b**4*d**9*e + 42*A*a**5*b**5*d**10 + 35*B*a**10*d**6*e**4
 + 200*B*a**9*b*d**7*e**3 + 675*B*a**8*b**2*d**8*e**2/2 + 200*B*a
**7*b**3*d**9*e + 35*B*a**6*b**4*d**10) + x**5*(42*A*a**10*d**6*e
**4 + 240*A*a**9*b*d**7*e**3 + 405*A*a**8*b**2*d**8*e**2 + 240*A*
a**7*b**3*d**9*e + 42*A*a**6*b**4*d**10 + 24*B*a**10*d**7*e**3 +
90*B*a**9*b*d**8*e**2 + 90*B*a**8*b**2*d**9*e + 24*B*a**7*b**3*d*
*10) + x**4*(30*A*a**10*d**7*e**3 + 225*A*a**9*b*d**8*e**2/2 + 22
5*A*a**8*b**2*d**9*e/2 + 30*A*a**7*b**3*d**10 + 45*B*a**10*d**8*e
**2/4 + 25*B*a**9*b*d**9*e + 45*B*a**8*b**2*d**10/4) + x**3*(15*A
*a**10*d**8*e**2 + 100*A*a**9*b*d**9*e/3 + 15*A*a**8*b**2*d**10 +
 10*B*a**10*d**9*e/3 + 10*B*a**9*b*d**10/3) + x**2*(5*A*a**10*d**
```

```
9*e + 5*A*a**9*b*d**10 + B*a**10*d**10/2)
```

GIAC/XCAS [A] time = 0.21111, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*(e*x + d)^10,x, algorithm="giac")

[Out] Done
```

3.1062 $\int (a+bx)^{10}(A+Bx)(d+ex)^9\,dx$

Optimal. Leaf size=415

$$\frac{e^8(a+bx)^{20}(-10aBe+Abe+9bBd)}{20b^{11}}+\frac{9e^7(a+bx)^{19}(bd-ae)(-5aBe+Abe+4bBd)}{19b^{11}}+\frac{2e^6(a+bx)^{18}(bd-ae)^2(-10aBe+3Abe+7bBd)}{3b^{11}}+\frac{42e^5(a+bx)^{17}(bd-ae)^3(-5aBe+2Abe+3bBd)}{17b^{11}}+\frac{63e^4(a+bx)^{16}(bd-ae)^4(-2aBe+Abe+bBd)}{8b^{11}}+\frac{14e^3(a+bx)^{15}(bd-ae)^5(-5aBe+3Abe+2bBd)}{5b^{11}}+\frac{6e^2(a+bx)^{14}(bd-ae)^6(-10aBe+7Abe+3bBd)}{7b^{11}}+\frac{9e(a+bx)^{13}(bd-ae)^7(-5aBe+4Abe+bBd)}{13b^{11}}+\frac{(a+bx)^{12}(bd-ae)^8(-10aBe+9Abe+bBd)}{12b^{11}}+\frac{(a+bx)^{11}(Ab-aB)(bd-ae)^9}{11b^{11}}+\frac{Be^9(a+bx)^{21}}{21b^{11}}$$

```
[Out] ((A*b - a*B)*(b*d - a*e)^9*(a + b*x)^11)/(11*b^11) + ((b*d - a*e)
^8*(b*B*d + 9*A*b*e - 10*a*B*e)*(a + b*x)^12)/(12*b^11) + (9*e*(b
*d - a*e)^7*(b*B*d + 4*A*b*e - 5*a*B*e)*(a + b*x)^13)/(13*b^11) +
 (6*e^2*(b*d - a*e)^6*(3*b*B*d + 7*A*b*e - 10*a*B*e)*(a + b*x)^14
)/(7*b^11) + (14*e^3*(b*d - a*e)^5*(2*b*B*d + 3*A*b*e - 5*a*B*e)*
(a + b*x)^15)/(5*b^11) + (63*e^4*(b*d - a*e)^4*(b*B*d + A*b*e - 2
*a*B*e)*(a + b*x)^16)/(8*b^11) + (42*e^5*(b*d - a*e)^3*(3*b*B*d +
 2*A*b*e - 5*a*B*e)*(a + b*x)^17)/(17*b^11) + (2*e^6*(b*d - a*e)^
2*(7*b*B*d + 3*A*b*e - 10*a*B*e)*(a + b*x)^18)/(3*b^11) + (9*e^7*
(b*d - a*e)*(4*b*B*d + A*b*e - 5*a*B*e)*(a + b*x)^19)/(19*b^11) +
 (e^8*(9*b*B*d + A*b*e - 10*a*B*e)*(a + b*x)^20)/(20*b^11) + (B*e
^9*(a + b*x)^21)/(21*b^11)
```

Rubi [A] time = 12.5811, antiderivative size = 415, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{e^8(a+bx)^{20}(-10aBe+Abe+9bBd)}{20b^{11}}+\frac{9e^7(a+bx)^{19}(bd-ae)(-5aBe+Abe+4bBd)}{19b^{11}}+\frac{2e^6(a+bx)^{18}(bd-ae)^2(-10aBe+3Abe+7bBd)}{3b^{11}}+\frac{42e^5(a+bx)^{17}(bd-ae)^3(-5aBe+2Abe+3bBd)}{17b^{11}}+\frac{63e^4(a+bx)^{16}(bd-ae)^4(-2aBe+Abe+bBd)}{8b^{11}}+\frac{14e^3(a+bx)^{15}(bd-ae)^5(-5aBe+3Abe+2bBd)}{5b^{11}}+\frac{6e^2(a+bx)^{14}(bd-ae)^6(-10aBe+7Abe+3bBd)}{7b^{11}}+\frac{9e(a+bx)^{13}(bd-ae)^7(-5aBe+4Abe+bBd)}{13b^{11}}+\frac{(a+bx)^{12}(bd-ae)^8(-10aBe+9Abe+bBd)}{12b^{11}}+\frac{(a+bx)^{11}(Ab-aB)(bd-ae)^9}{11b^{11}}+\frac{Be^9(a+bx)^{21}}{21b^{11}}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^10*(A + B*x)*(d + e*x)^9,x]
```

```
[Out] ((A*b - a*B)*(b*d - a*e)^9*(a + b*x)^11)/(11*b^11) + ((b*d - a*e)
^8*(b*B*d + 9*A*b*e - 10*a*B*e)*(a + b*x)^12)/(12*b^11) + (9*e*(b
*d - a*e)^7*(b*B*d + 4*A*b*e - 5*a*B*e)*(a + b*x)^13)/(13*b^11) +
 (6*e^2*(b*d - a*e)^6*(3*b*B*d + 7*A*b*e - 10*a*B*e)*(a + b*x)^14
)/(7*b^11) + (14*e^3*(b*d - a*e)^5*(2*b*B*d + 3*A*b*e - 5*a*B*e)*
(a + b*x)^15)/(5*b^11) + (63*e^4*(b*d - a*e)^4*(b*B*d + A*b*e - 2
```

```
*a*B*e)*(a + b*x)^16)/(8*b^11) + (42*e^5*(b*d - a*e)^3*(3*b*B*d +
 2*A*b*e - 5*a*B*e)*(a + b*x)^17)/(17*b^11) + (2*e^6*(b*d - a*e)^
2*(7*b*B*d + 3*A*b*e - 10*a*B*e)*(a + b*x)^18)/(3*b^11) + (9*e^7*
(b*d - a*e)*(4*b*B*d + A*b*e - 5*a*B*e)*(a + b*x)^19)/(19*b^11) +
 (e^8*(9*b*B*d + A*b*e - 10*a*B*e)*(a + b*x)^20)/(20*b^11) + (B*e
^9*(a + b*x)^21)/(21*b^11)
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)*(e*x+d)**9,x)
```

```
[Out] Timed out
```

Mathematica [B] time = 2.06357, size = 2553, normalized size = 6.15

Result too large to show

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^10*(A + B*x)*(d + e*x)^9,x]
```

```
[Out] a^10*A*d^9*x + (a^9*d^8*(10*A*b*d + a*B*d + 9*a*A*e)*x^2)/2 + (a^
8*d^7*(a*B*d*(10*b*d + 9*a*e) + 9*A*(5*b^2*d^2 + 10*a*b*d*e + 4*a
^2*e^2))*x^3)/3 + (3*a^7*d^6*(3*a*B*d*(5*b^2*d^2 + 10*a*b*d*e + 4
*a^2*e^2) + A*(40*b^3*d^3 + 135*a*b^2*d^2*e + 120*a^2*b*d*e^2 + 2
8*a^3*e^3))*x^4)/4 + (3*a^6*d^5*(a*B*d*(40*b^3*d^3 + 135*a*b^2*d^
2*e + 120*a^2*b*d*e^2 + 28*a^3*e^3) + A*(70*b^4*d^4 + 360*a*b^3*d
^3*e + 540*a^2*b^2*d^2*e^2 + 280*a^3*b*d*e^3 + 42*a^4*e^4))*x^5)/
5 + a^5*d^4*(a*B*d*(35*b^4*d^4 + 180*a*b^3*d^3*e + 270*a^2*b^2*d^
2*e^2 + 140*a^3*b*d*e^3 + 21*a^4*e^4) + 3*A*(14*b^5*d^5 + 105*a*b
^4*d^4*e + 240*a^2*b^3*d^3*e^2 + 210*a^3*b^2*d^2*e^3 + 70*a^4*b*d
*e^4 + 7*a^5*e^5))*x^6 + (6*a^4*d^3*(3*a*B*d*(14*b^5*d^5 + 105*a*
b^4*d^4*e + 240*a^2*b^3*d^3*e^2 + 210*a^3*b^2*d^2*e^3 + 70*a^4*b*
d*e^4 + 7*a^5*e^5) + 7*A*(5*b^6*d^6 + 54*a*b^5*d^5*e + 180*a^2*b^
4*d^4*e^2 + 240*a^3*b^3*d^3*e^3 + 135*a^4*b^2*d^2*e^4 + 30*a^5*b*
d*e^5 + 2*a^6*e^6))*x^7)/7 + (3*a^3*d^2*(7*a*B*d*(5*b^6*d^6 + 54*
a*b^5*d^5*e + 180*a^2*b^4*d^4*e^2 + 240*a^3*b^3*d^3*e^3 + 135*a^4
*b^2*d^2*e^4 + 30*a^5*b*d*e^5 + 2*a^6*e^6) + A*(20*b^7*d^7 + 315*
a*b^6*d^6*e + 1512*a^2*b^5*d^5*e^2 + 2940*a^3*b^4*d^4*e^3 + 2520*
a^4*b^3*d^3*e^4 + 945*a^5*b^2*d^2*e^5 + 140*a^6*b*d*e^6 + 6*a^7*e
^7))*x^8)/4 + (a^2*d*(2*a*B*d*(20*b^7*d^7 + 315*a*b^6*d^6*e + 151
2*a^2*b^5*d^5*e^2 + 2940*a^3*b^4*d^4*e^3 + 2520*a^4*b^3*d^3*e^4 +
 945*a^5*b^2*d^2*e^5 + 140*a^6*b*d*e^6 + 6*a^7*e^7) + 3*A*(5*b^8*
d^8 + 120*a*b^7*d^7*e + 840*a^2*b^6*d^6*e^2 + 2352*a^3*b^5*d^5*e^
3 + 2940*a^4*b^4*d^4*e^4 + 1680*a^5*b^3*d^3*e^5 + 420*a^6*b^2*d^2
*e^6 + 40*a^7*b*d*e^7 + a^8*e^8))*x^9)/3 + (a*(9*a*B*d*(5*b^8*d^8
 + 120*a*b^7*d^7*e + 840*a^2*b^6*d^6*e^2 + 2352*a^3*b^5*d^5*e^3 +
 2940*a^4*b^4*d^4*e^4 + 1680*a^5*b^3*d^3*e^5 + 420*a^6*b^2*d^2*e^
6 + 40*a^7*b*d*e^7 + a^8*e^8) + A*(10*b^9*d^9 + 405*a*b^8*d^8*e +
 4320*a^2*b^7*d^7*e^2 + 17640*a^3*b^6*d^6*e^3 + 31752*a^4*b^5*d^5
*e^4 + 26460*a^5*b^4*d^4*e^5 + 10080*a^6*b^3*d^3*e^6 + 1620*a^7*b
^2*d^2*e^7 + 90*a^8*b*d*e^8 + a^9*e^9))*x^10)/10 + ((a*B*(10*b^9*
d^9 + 405*a*b^8*d^8*e + 4320*a^2*b^7*d^7*e^2 + 17640*a^3*b^6*d^6*
e^3 + 31752*a^4*b^5*d^5*e^4 + 26460*a^5*b^4*d^4*e^5 + 10080*a^6*b
^3*d^3*e^6 + 1620*a^7*b^2*d^2*e^7 + 90*a^8*b*d*e^8 + a^9*e^9) + A
*b*(b^9*d^9 + 90*a*b^8*d^8*e + 1620*a^2*b^7*d^7*e^2 + 10080*a^3*b
^6*d^6*e^3 + 26460*a^4*b^5*d^5*e^4 + 31752*a^5*b^4*d^4*e^5 + 1764
0*a^6*b^3*d^3*e^6 + 4320*a^7*b^2*d^2*e^7 + 405*a^8*b*d*e^8 + 10*a
^9*e^9))*x^11)/11 + (b*(10*a^9*B*e^9 + 26460*a^4*b^5*d^4*e^4*(B*d
 + A*e) + 1080*a^7*b^2*d*e^7*(4*B*d + A*e) + 45*a^8*b*e^8*(9*B*d
+ A*e) + 10584*a^5*b^4*d^3*e^5*(3*B*d + 2*A*e) + 5040*a^3*b^6*d^5
```

```
*e^3*(2*B*d + 3*A*e) + 2520*a^6*b^3*d^2*e^6*(7*B*d + 3*A*e) + 90*
a*b^8*d^7*e*(B*d + 4*A*e) + 540*a^2*b^7*d^6*e^2*(3*B*d + 7*A*e) +
 b^9*d^8*(B*d + 9*A*e))*x^12)/12 + (3*b^2*e*(15*a^8*B*e^8 + 5040*
a^3*b^5*d^4*e^3*(B*d + A*e) + 630*a^6*b^2*d*e^6*(4*B*d + A*e) + 4
0*a^7*b*e^7*(9*B*d + A*e) + 2940*a^4*b^4*d^3*e^4*(3*B*d + 2*A*e)
+ 630*a^2*b^6*d^5*e^2*(2*B*d + 3*A*e) + 1008*a^5*b^3*d^2*e^5*(7*B
*d + 3*A*e) + 3*b^8*d^7*(B*d + 4*A*e) + 40*a*b^7*d^6*e*(3*B*d + 7
*A*e))*x^13)/13 + (3*b^3*e^2*(20*a^7*B*e^7 + 945*a^2*b^5*d^4*e^2*
(B*d + A*e) + 378*a^5*b^2*d*e^5*(4*B*d + A*e) + 35*a^6*b*e^6*(9*B
*d + A*e) + 840*a^3*b^4*d^3*e^3*(3*B*d + 2*A*e) + 70*a*b^6*d^5*e*
(2*B*d + 3*A*e) + 420*a^4*b^3*d^2*e^4*(7*B*d + 3*A*e) + 2*b^7*d^6
*(3*B*d + 7*A*e))*x^14)/7 + (2*b^4*e^3*(35*a^6*B*e^6 + 210*a*b^5*
d^4*e*(B*d + A*e) + 315*a^4*b^2*d*e^4*(4*B*d + A*e) + 42*a^5*b*e^
5*(9*B*d + A*e) + 315*a^2*b^4*d^3*e^2*(3*B*d + 2*A*e) + 7*b^6*d^5
*(2*B*d + 3*A*e) + 240*a^3*b^3*d^2*e^3*(7*B*d + 3*A*e))*x^15)/5 +
 (3*b^5*e^4*(42*a^5*B*e^5 + 21*b^5*d^4*(B*d + A*e) + 180*a^3*b^2*
d*e^3*(4*B*d + A*e) + 35*a^4*b*e^4*(9*B*d + A*e) + 70*a*b^4*d^3*e
*(3*B*d + 2*A*e) + 90*a^2*b^3*d^2*e^2*(7*B*d + 3*A*e))*x^16)/8 +
(3*b^6*e^5*(70*a^4*B*e^4 + 135*a^2*b^2*d*e^2*(4*B*d + A*e) + 40*a
^3*b*e^3*(9*B*d + A*e) + 14*b^4*d^3*(3*B*d + 2*A*e) + 40*a*b^3*d^
2*e*(7*B*d + 3*A*e))*x^17)/17 + (b^7*e^6*(40*a^3*B*e^3 + 30*a*b^2
*d*e*(4*B*d + A*e) + 15*a^2*b*e^2*(9*B*d + A*e) + 4*b^3*d^2*(7*B*
d + 3*A*e))*x^18)/6 + (b^8*e^7*(45*a^2*B*e^2 + 9*b^2*d*(4*B*d + A
*e) + 10*a*b*e*(9*B*d + A*e))*x^19)/19 + (b^9*e^8*(9*b*B*d + A*b*
e + 10*a*B*e)*x^20)/20 + (b^10*B*e^9*x^21)/21
```

Maple [B] time = 0.006, size = 2757, normalized size = 6.6

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((b*x+a)^10*(B*x+A)*(e*x+d)^9,x)
```

```
[Out] 1/21*b^10*B*e^9*x^21+1/20*((A*b^10+10*B*a*b^9)*e^9+9*b^10*B*d*e^8
)*x^20+1/19*((10*A*a*b^9+45*B*a^2*b^8)*e^9+9*(A*b^10+10*B*a*b^9)*
d*e^8+36*b^10*B*d^2*e^7)*x^19+1/18*((45*A*a^2*b^8+120*B*a^3*b^7)*
e^9+9*(10*A*a*b^9+45*B*a^2*b^8)*d*e^8+36*(A*b^10+10*B*a*b^9)*d^2*
e^7+84*b^10*B*d^3*e^6)*x^18+1/17*((120*A*a^3*b^7+210*B*a^4*b^6)*e
^9+9*(45*A*a^2*b^8+120*B*a^3*b^7)*d*e^8+36*(10*A*a*b^9+45*B*a^2*b
^8)*d^2*e^7+84*(A*b^10+10*B*a*b^9)*d^3*e^6+126*b^10*B*d^4*e^5)*x^
17+1/16*((210*A*a^4*b^6+252*B*a^5*b^5)*e^9+9*(120*A*a^3*b^7+210*B
*a^4*b^6)*d*e^8+36*(45*A*a^2*b^8+120*B*a^3*b^7)*d^2*e^7+84*(10*A*
a*b^9+45*B*a^2*b^8)*d^3*e^6+126*(A*b^10+10*B*a*b^9)*d^4*e^5+126*b
^10*B*d^5*e^4)*x^16+1/15*((252*A*a^5*b^5+210*B*a^6*b^4)*e^9+9*(21
0*A*a^4*b^6+252*B*a^5*b^5)*d*e^8+36*(120*A*a^3*b^7+210*B*a^4*b^6)
*d^2*e^7+84*(45*A*a^2*b^8+120*B*a^3*b^7)*d^3*e^6+126*(10*A*a*b^9+
45*B*a^2*b^8)*d^4*e^5+126*(A*b^10+10*B*a*b^9)*d^5*e^4+84*b^10*B*d
^6*e^3)*x^15+1/14*((210*A*a^6*b^4+120*B*a^7*b^3)*e^9+9*(252*A*a^5
*b^5+210*B*a^6*b^4)*d*e^8+36*(210*A*a^4*b^6+252*B*a^5*b^5)*d^2*e^
7+84*(120*A*a^3*b^7+210*B*a^4*b^6)*d^3*e^6+126*(45*A*a^2*b^8+120*
B*a^3*b^7)*d^4*e^5+126*(10*A*a*b^9+45*B*a^2*b^8)*d^5*e^4+84*(A*b^
10+10*B*a*b^9)*d^6*e^3+36*b^10*B*d^7*e^2)*x^14+1/13*((120*A*a^7*b
^3+45*B*a^8*b^2)*e^9+9*(210*A*a^6*b^4+120*B*a^7*b^3)*d*e^8+36*(25
2*A*a^5*b^5+210*B*a^6*b^4)*d^2*e^7+84*(210*A*a^4*b^6+252*B*a^5*b^
5)*d^3*e^6+126*(120*A*a^3*b^7+210*B*a^4*b^6)*d^4*e^5+126*(45*A*a^
2*b^8+120*B*a^3*b^7)*d^5*e^4+84*(10*A*a*b^9+45*B*a^2*b^8)*d^6*e^3
+36*(A*b^10+10*B*a*b^9)*d^7*e^2+9*b^10*B*d^8*e)*x^13+1/12*((45*A*
a^8*b^2+10*B*a^9*b)*e^9+9*(120*A*a^7*b^3+45*B*a^8*b^2)*d*e^8+36*(
210*A*a^6*b^4+120*B*a^7*b^3)*d^2*e^7+84*(252*A*a^5*b^5+210*B*a^6*
b^4)*d^3*e^6+126*(210*A*a^4*b^6+252*B*a^5*b^5)*d^4*e^5+126*(120*A
*a^3*b^7+210*B*a^4*b^6)*d^5*e^4+84*(45*A*a^2*b^8+120*B*a^3*b^7)*d
^6*e^3+36*(10*A*a*b^9+45*B*a^2*b^8)*d^7*e^2+9*(A*b^10+10*B*a*b^9)
*d^8*e+b^10*B*d^9)*x^12+1/11*((10*A*a^9*b+B*a^10)*e^9+9*(45*A*a^8
*b^2+10*B*a^9*b)*d*e^8+36*(120*A*a^7*b^3+45*B*a^8*b^2)*d^2*e^7+84
*(210*A*a^6*b^4+120*B*a^7*b^3)*d^3*e^6+126*(252*A*a^5*b^5+210*B*a
^6*b^4)*d^4*e^5+126*(210*A*a^4*b^6+252*B*a^5*b^5)*d^5*e^4+84*(120
*A*a^3*b^7+210*B*a^4*b^6)*d^6*e^3+36*(45*A*a^2*b^8+120*B*a^3*b^7)
*d^7*e^2+9*(10*A*a*b^9+45*B*a^2*b^8)*d^8*e+(A*b^10+10*B*a*b^9)*d^
9)*x^11+1/10*(a^10*A*e^9+9*(10*A*a^9*b+B*a^10)*d*e^8+36*(45*A*a^8
```

```
*b^2+10*B*a^9*b)*d^2*e^7+84*(120*A*a^7*b^3+45*B*a^8*b^2)*d^3*e^6+
126*(210*A*a^6*b^4+120*B*a^7*b^3)*d^4*e^5+126*(252*A*a^5*b^5+210*
B*a^6*b^4)*d^5*e^4+84*(210*A*a^4*b^6+252*B*a^5*b^5)*d^6*e^3+36*(1
20*A*a^3*b^7+210*B*a^4*b^6)*d^7*e^2+9*(45*A*a^2*b^8+120*B*a^3*b^7
)*d^8*e+(10*A*a*b^9+45*B*a^2*b^8)*d^9)*x^10+1/9*(9*a^10*A*d*e^8+3
6*(10*A*a^9*b+B*a^10)*d^2*e^7+84*(45*A*a^8*b^2+10*B*a^9*b)*d^3*e^
6+126*(120*A*a^7*b^3+45*B*a^8*b^2)*d^4*e^5+126*(210*A*a^6*b^4+120
*B*a^7*b^3)*d^5*e^4+84*(252*A*a^5*b^5+210*B*a^6*b^4)*d^6*e^3+36*(
210*A*a^4*b^6+252*B*a^5*b^5)*d^7*e^2+9*(120*A*a^3*b^7+210*B*a^4*b
^6)*d^8*e+(45*A*a^2*b^8+120*B*a^3*b^7)*d^9)*x^9+1/8*(36*a^10*A*d^
2*e^7+84*(10*A*a^9*b+B*a^10)*d^3*e^6+126*(45*A*a^8*b^2+10*B*a^9*b
)*d^4*e^5+126*(120*A*a^7*b^3+45*B*a^8*b^2)*d^5*e^4+84*(210*A*a^6*
b^4+120*B*a^7*b^3)*d^6*e^3+36*(252*A*a^5*b^5+210*B*a^6*b^4)*d^7*e
^2+9*(210*A*a^4*b^6+252*B*a^5*b^5)*d^8*e+(120*A*a^3*b^7+210*B*a^4
*b^6)*d^9)*x^8+1/7*(84*a^10*A*d^3*e^6+126*(10*A*a^9*b+B*a^10)*d^4
*e^5+126*(45*A*a^8*b^2+10*B*a^9*b)*d^5*e^4+84*(120*A*a^7*b^3+45*B
*a^8*b^2)*d^6*e^3+36*(210*A*a^6*b^4+120*B*a^7*b^3)*d^7*e^2+9*(252
*A*a^5*b^5+210*B*a^6*b^4)*d^8*e+(210*A*a^4*b^6+252*B*a^5*b^5)*d^9
)*x^7+1/6*(126*a^10*A*d^4*e^5+126*(10*A*a^9*b+B*a^10)*d^5*e^4+84*
(45*A*a^8*b^2+10*B*a^9*b)*d^6*e^3+36*(120*A*a^7*b^3+45*B*a^8*b^2)
*d^7*e^2+9*(210*A*a^6*b^4+120*B*a^7*b^3)*d^8*e+(252*A*a^5*b^5+210
*B*a^6*b^4)*d^9)*x^6+1/5*(126*a^10*A*d^5*e^4+84*(10*A*a^9*b+B*a^1
0)*d^6*e^3+36*(45*A*a^8*b^2+10*B*a^9*b)*d^7*e^2+9*(120*A*a^7*b^3+
45*B*a^8*b^2)*d^8*e+(210*A*a^6*b^4+120*B*a^7*b^3)*d^9)*x^5+1/4*(8
4*a^10*A*d^6*e^3+36*(10*A*a^9*b+B*a^10)*d^7*e^2+9*(45*A*a^8*b^2+1
0*B*a^9*b)*d^8*e+(120*A*a^7*b^3+45*B*a^8*b^2)*d^9)*x^4+1/3*(36*a^
10*A*d^7*e^2+9*(10*A*a^9*b+B*a^10)*d^8*e+(45*A*a^8*b^2+10*B*a^9*b
)*d^9)*x^3+1/2*(9*a^10*A*d^8*e+(10*A*a^9*b+B*a^10)*d^9)*x^2+a^10*
A*d^9*x
```

Maxima [A] time = 1.41182, size = 3741, normalized size = 9.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*(e*x + d)^9,x, algorithm="maxima")
```

```
[Out] 1/21*B*b^10*e^9*x^21 + A*a^10*d^9*x + 1/20*(9*B*b^10*d*e^8 + (10*
B*a*b^9 + A*b^10)*e^9)*x^20 + 1/19*(36*B*b^10*d^2*e^7 + 9*(10*B*a
*b^9 + A*b^10)*d*e^8 + 5*(9*B*a^2*b^8 + 2*A*a*b^9)*e^9)*x^19 + 1/
6*(28*B*b^10*d^3*e^6 + 12*(10*B*a*b^9 + A*b^10)*d^2*e^7 + 15*(9*B
*a^2*b^8 + 2*A*a*b^9)*d*e^8 + 5*(8*B*a^3*b^7 + 3*A*a^2*b^8)*e^9)*
x^18 + 3/17*(42*B*b^10*d^4*e^5 + 28*(10*B*a*b^9 + A*b^10)*d^3*e^6
 + 60*(9*B*a^2*b^8 + 2*A*a*b^9)*d^2*e^7 + 45*(8*B*a^3*b^7 + 3*A*a
^2*b^8)*d*e^8 + 10*(7*B*a^4*b^6 + 4*A*a^3*b^7)*e^9)*x^17 + 3/8*(2
1*B*b^10*d^5*e^4 + 21*(10*B*a*b^9 + A*b^10)*d^4*e^5 + 70*(9*B*a^2
*b^8 + 2*A*a*b^9)*d^3*e^6 + 90*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^2*e^
7 + 45*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d*e^8 + 7*(6*B*a^5*b^5 + 5*A*a
^4*b^6)*e^9)*x^16 + 2/5*(14*B*b^10*d^6*e^3 + 21*(10*B*a*b^9 + A*b
^10)*d^5*e^4 + 105*(9*B*a^2*b^8 + 2*A*a*b^9)*d^4*e^5 + 210*(8*B*a
^3*b^7 + 3*A*a^2*b^8)*d^3*e^6 + 180*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d
^2*e^7 + 63*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d*e^8 + 7*(5*B*a^6*b^4 +
6*A*a^5*b^5)*e^9)*x^15 + 3/7*(6*B*b^10*d^7*e^2 + 14*(10*B*a*b^9 +
 A*b^10)*d^6*e^3 + 105*(9*B*a^2*b^8 + 2*A*a*b^9)*d^5*e^4 + 315*(8
*B*a^3*b^7 + 3*A*a^2*b^8)*d^4*e^5 + 420*(7*B*a^4*b^6 + 4*A*a^3*b^
7)*d^3*e^6 + 252*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^2*e^7 + 63*(5*B*a^
6*b^4 + 6*A*a^5*b^5)*d*e^8 + 5*(4*B*a^7*b^3 + 7*A*a^6*b^4)*e^9)*x
^14 + 3/13*(3*B*b^10*d^8*e + 12*(10*B*a*b^9 + A*b^10)*d^7*e^2 + 1
40*(9*B*a^2*b^8 + 2*A*a*b^9)*d^6*e^3 + 630*(8*B*a^3*b^7 + 3*A*a^2
*b^8)*d^5*e^4 + 1260*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^4*e^5 + 1176*(
6*B*a^5*b^5 + 5*A*a^4*b^6)*d^3*e^6 + 504*(5*B*a^6*b^4 + 6*A*a^5*b
^5)*d^2*e^7 + 90*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d*e^8 + 5*(3*B*a^8*b
^2 + 8*A*a^7*b^3)*e^9)*x^13 + 1/12*(B*b^10*d^9 + 9*(10*B*a*b^9 +
A*b^10)*d^8*e + 180*(9*B*a^2*b^8 + 2*A*a*b^9)*d^7*e^2 + 1260*(8*B
*a^3*b^7 + 3*A*a^2*b^8)*d^6*e^3 + 3780*(7*B*a^4*b^6 + 4*A*a^3*b^7
)*d^5*e^4 + 5292*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^4*e^5 + 3528*(5*B*
a^6*b^4 + 6*A*a^5*b^5)*d^3*e^6 + 1080*(4*B*a^7*b^3 + 7*A*a^6*b^4)
*d^2*e^7 + 135*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d*e^8 + 5*(2*B*a^9*b +
 9*A*a^8*b^2)*e^9)*x^12 + 1/11*((10*B*a*b^9 + A*b^10)*d^9 + 45*(9
```

```
*B*a^2*b^8 + 2*A*a*b^9)*d^8*e + 540*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d
^7*e^2 + 2520*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^6*e^3 + 5292*(6*B*a^5
*b^5 + 5*A*a^4*b^6)*d^5*e^4 + 5292*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^
4*e^5 + 2520*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^3*e^6 + 540*(3*B*a^8*b
^2 + 8*A*a^7*b^3)*d^2*e^7 + 45*(2*B*a^9*b + 9*A*a^8*b^2)*d*e^8 +
(B*a^10 + 10*A*a^9*b)*e^9)*x^11 + 1/10*(A*a^10*e^9 + 5*(9*B*a^2*b
^8 + 2*A*a*b^9)*d^9 + 135*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^8*e + 108
0*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^7*e^2 + 3528*(6*B*a^5*b^5 + 5*A*a
^4*b^6)*d^6*e^3 + 5292*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^5*e^4 + 3780
*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^4*e^5 + 1260*(3*B*a^8*b^2 + 8*A*a^
7*b^3)*d^3*e^6 + 180*(2*B*a^9*b + 9*A*a^8*b^2)*d^2*e^7 + 9*(B*a^1
0 + 10*A*a^9*b)*d*e^8)*x^10 + 1/3*(3*A*a^10*d*e^8 + 5*(8*B*a^3*b^
7 + 3*A*a^2*b^8)*d^9 + 90*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^8*e + 504
*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^7*e^2 + 1176*(5*B*a^6*b^4 + 6*A*a^
5*b^5)*d^6*e^3 + 1260*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^5*e^4 + 630*(
3*B*a^8*b^2 + 8*A*a^7*b^3)*d^4*e^5 + 140*(2*B*a^9*b + 9*A*a^8*b^2
)*d^3*e^6 + 12*(B*a^10 + 10*A*a^9*b)*d^2*e^7)*x^9 + 3/4*(6*A*a^10
*d^2*e^7 + 5*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^9 + 63*(6*B*a^5*b^5 +
5*A*a^4*b^6)*d^8*e + 252*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^7*e^2 + 42
0*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^6*e^3 + 315*(3*B*a^8*b^2 + 8*A*a^
7*b^3)*d^5*e^4 + 105*(2*B*a^9*b + 9*A*a^8*b^2)*d^4*e^5 + 14*(B*a^
10 + 10*A*a^9*b)*d^3*e^6)*x^8 + 6/7*(14*A*a^10*d^3*e^6 + 7*(6*B*a
^5*b^5 + 5*A*a^4*b^6)*d^9 + 63*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^8*e
+ 180*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^7*e^2 + 210*(3*B*a^8*b^2 + 8*
A*a^7*b^3)*d^6*e^3 + 105*(2*B*a^9*b + 9*A*a^8*b^2)*d^5*e^4 + 21*(
B*a^10 + 10*A*a^9*b)*d^4*e^5)*x^7 + (21*A*a^10*d^4*e^5 + 7*(5*B*a
^6*b^4 + 6*A*a^5*b^5)*d^9 + 45*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^8*e
+ 90*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^7*e^2 + 70*(2*B*a^9*b + 9*A*a^
8*b^2)*d^6*e^3 + 21*(B*a^10 + 10*A*a^9*b)*d^5*e^4)*x^6 + 3/5*(42*
A*a^10*d^5*e^4 + 10*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^9 + 45*(3*B*a^8
*b^2 + 8*A*a^7*b^3)*d^8*e + 60*(2*B*a^9*b + 9*A*a^8*b^2)*d^7*e^2
+ 28*(B*a^10 + 10*A*a^9*b)*d^6*e^3)*x^5 + 3/4*(28*A*a^10*d^6*e^3
+ 5*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^9 + 15*(2*B*a^9*b + 9*A*a^8*b^2
)*d^8*e + 12*(B*a^10 + 10*A*a^9*b)*d^7*e^2)*x^4 + 1/3*(36*A*a^10*
d^7*e^2 + 5*(2*B*a^9*b + 9*A*a^8*b^2)*d^9 + 9*(B*a^10 + 10*A*a^9*
b)*d^8*e)*x^3 + 1/2*(9*A*a^10*d^8*e + (B*a^10 + 10*A*a^9*b)*d^9)*
x^2
```

Fricas [A] time = 0.20035, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*(e*x + d)^9,x, algorithm="fricas")
```

```
[Out] 1/21*x^21*e^9*b^10*B + 9/20*x^20*e^8*d*b^10*B + 1/2*x^20*e^9*b^9*
a*B + 1/20*x^20*e^9*b^10*A + 36/19*x^19*e^7*d^2*b^10*B + 90/19*x^
19*e^8*d*b^9*a*B + 45/19*x^19*e^9*b^8*a^2*B + 9/19*x^19*e^8*d*b^1
0*A + 10/19*x^19*e^9*b^9*a*A + 14/3*x^18*e^6*d^3*b^10*B + 20*x^18
*e^7*d^2*b^9*a*B + 45/2*x^18*e^8*d*b^8*a^2*B + 20/3*x^18*e^9*b^7*
a^3*B + 2*x^18*e^7*d^2*b^10*A + 5*x^18*e^8*d*b^9*a*A + 5/2*x^18*e
^9*b^8*a^2*A + 126/17*x^17*e^5*d^4*b^10*B + 840/17*x^17*e^6*d^3*b
^9*a*B + 1620/17*x^17*e^7*d^2*b^8*a^2*B + 1080/17*x^17*e^8*d*b^7*
a^3*B + 210/17*x^17*e^9*b^6*a^4*B + 84/17*x^17*e^6*d^3*b^10*A + 3
60/17*x^17*e^7*d^2*b^9*a*A + 405/17*x^17*e^8*d*b^8*a^2*A + 120/17
*x^17*e^9*b^7*a^3*A + 63/8*x^16*e^4*d^5*b^10*B + 315/4*x^16*e^5*d
^4*b^9*a*B + 945/4*x^16*e^6*d^3*b^8*a^2*B + 270*x^16*e^7*d^2*b^7*
a^3*B + 945/8*x^16*e^8*d*b^6*a^4*B + 63/4*x^16*e^9*b^5*a^5*B + 63
/8*x^16*e^5*d^4*b^10*A + 105/2*x^16*e^6*d^3*b^9*a*A + 405/4*x^16*
e^7*d^2*b^8*a^2*A + 135/2*x^16*e^8*d*b^7*a^3*A + 105/8*x^16*e^9*b
^6*a^4*A + 28/5*x^15*e^3*d^6*b^10*B + 84*x^15*e^4*d^5*b^9*a*B + 3
78*x^15*e^5*d^4*b^8*a^2*B + 672*x^15*e^6*d^3*b^7*a^3*B + 504*x^15
*e^7*d^2*b^6*a^4*B + 756/5*x^15*e^8*d*b^5*a^5*B + 14*x^15*e^9*b^4
*a^6*B + 42/5*x^15*e^4*d^5*b^10*A + 84*x^15*e^5*d^4*b^9*a*A + 252
*x^15*e^6*d^3*b^8*a^2*A + 288*x^15*e^7*d^2*b^7*a^3*A + 126*x^15*e
^8*d*b^6*a^4*A + 84/5*x^15*e^9*b^5*a^5*A + 18/7*x^14*e^2*d^7*b^10
*B + 60*x^14*e^3*d^6*b^9*a*B + 405*x^14*e^4*d^5*b^8*a^2*B + 1080*
x^14*e^5*d^4*b^7*a^3*B + 1260*x^14*e^6*d^3*b^6*a^4*B + 648*x^14*e
^7*d^2*b^5*a^5*B + 135*x^14*e^8*d*b^4*a^6*B + 60/7*x^14*e^9*b^3*a
```

^7*B + 6*x^14*e^3*d^6*b^10*A + 90*x^14*e^4*d^5*b^9*a*A + 405*x^14
*e^5*d^4*b^8*a^2*A + 720*x^14*e^6*d^3*b^7*a^3*A + 540*x^14*e^7*d^
2*b^6*a^4*A + 162*x^14*e^8*d*b^5*a^5*A + 15*x^14*e^9*b^4*a^6*A +
9/13*x^13*e*d^8*b^10*B + 360/13*x^13*e^2*d^7*b^9*a*B + 3780/13*x^
13*e^3*d^6*b^8*a^2*B + 15120/13*x^13*e^4*d^5*b^7*a^3*B + 26460/13
*x^13*e^5*d^4*b^6*a^4*B + 21168/13*x^13*e^6*d^3*b^5*a^5*B + 7560/
13*x^13*e^7*d^2*b^4*a^6*B + 1080/13*x^13*e^8*d*b^3*a^7*B + 45/13*
x^13*e^9*b^2*a^8*B + 36/13*x^13*e^2*d^7*b^10*A + 840/13*x^13*e^3*
d^6*b^9*a*A + 5670/13*x^13*e^4*d^5*b^8*a^2*A + 15120/13*x^13*e^5*
d^4*b^7*a^3*A + 17640/13*x^13*e^6*d^3*b^6*a^4*A + 9072/13*x^13*e^
7*d^2*b^5*a^5*A + 1890/13*x^13*e^8*d*b^4*a^6*A + 120/13*x^13*e^9*
b^3*a^7*A + 1/12*x^12*d^9*b^10*B + 15/2*x^12*e*d^8*b^9*a*B + 135*
x^12*e^2*d^7*b^8*a^2*B + 840*x^12*e^3*d^6*b^7*a^3*B + 2205*x^12*e
^4*d^5*b^6*a^4*B + 2646*x^12*e^5*d^4*b^5*a^5*B + 1470*x^12*e^6*d^
3*b^4*a^6*B + 360*x^12*e^7*d^2*b^3*a^7*B + 135/4*x^12*e^8*d*b^2*a
^8*B + 5/6*x^12*e^9*b*a^9*B + 3/4*x^12*e*d^8*b^10*A + 30*x^12*e^2
*d^7*b^9*a*A + 315*x^12*e^3*d^6*b^8*a^2*A + 1260*x^12*e^4*d^5*b^7
*a^3*A + 2205*x^12*e^5*d^4*b^6*a^4*A + 1764*x^12*e^6*d^3*b^5*a^5*
A + 630*x^12*e^7*d^2*b^4*a^6*A + 90*x^12*e^8*d*b^3*a^7*A + 15/4*x
^12*e^9*b^2*a^8*A + 10/11*x^11*d^9*b^9*a*B + 405/11*x^11*e*d^8*b^
8*a^2*B + 4320/11*x^11*e^2*d^7*b^7*a^3*B + 17640/11*x^11*e^3*d^6*
b^6*a^4*B + 31752/11*x^11*e^4*d^5*b^5*a^5*B + 26460/11*x^11*e^5*d
^4*b^4*a^6*B + 10080/11*x^11*e^6*d^3*b^3*a^7*B + 1620/11*x^11*e^7
*d^2*b^2*a^8*B + 90/11*x^11*e^8*d*b*a^9*B + 1/11*x^11*e^9*a^10*B
+ 1/11*x^11*d^9*b^10*A + 90/11*x^11*e*d^8*b^9*a*A + 1620/11*x^11*
e^2*d^7*b^8*a^2*A + 10080/11*x^11*e^3*d^6*b^7*a^3*A + 26460/11*x^
11*e^4*d^5*b^6*a^4*A + 31752/11*x^11*e^5*d^4*b^5*a^5*A + 17640/11
*x^11*e^6*d^3*b^4*a^6*A + 4320/11*x^11*e^7*d^2*b^3*a^7*A + 405/11
*x^11*e^8*d*b^2*a^8*A + 10/11*x^11*e^9*b*a^9*A + 9/2*x^10*d^9*b^8
*a^2*B + 108*x^10*e*d^8*b^7*a^3*B + 756*x^10*e^2*d^7*b^6*a^4*B +
10584/5*x^10*e^3*d^6*b^5*a^5*B + 2646*x^10*e^4*d^5*b^4*a^6*B + 15
12*x^10*e^5*d^4*b^3*a^7*B + 378*x^10*e^6*d^3*b^2*a^8*B + 36*x^10*
e^7*d^2*b*a^9*B + 9/10*x^10*e^8*d*a^10*B + x^10*d^9*b^9*a*A + 81/
2*x^10*e*d^8*b^8*a^2*A + 432*x^10*e^2*d^7*b^7*a^3*A + 1764*x^10*e
^3*d^6*b^6*a^4*A + 15876/5*x^10*e^4*d^5*b^5*a^5*A + 2646*x^10*e^5
*d^4*b^4*a^6*A + 1008*x^10*e^6*d^3*b^3*a^7*A + 162*x^10*e^7*d^2*b
^2*a^8*A + 9*x^10*e^8*d*b*a^9*A + 1/10*x^10*e^9*a^10*A + 40/3*x^9
*d^9*b^7*a^3*B + 210*x^9*e*d^8*b^6*a^4*B + 1008*x^9*e^2*d^7*b^5*a
^5*B + 1960*x^9*e^3*d^6*b^4*a^6*B + 1680*x^9*e^4*d^5*b^3*a^7*B +
630*x^9*e^5*d^4*b^2*a^8*B + 280/3*x^9*e^6*d^3*b*a^9*B + 4*x^9*e^7
*d^2*a^10*B + 5*x^9*d^9*b^8*a^2*A + 120*x^9*e*d^8*b^7*a^3*A + 840
*x^9*e^2*d^7*b^6*a^4*A + 2352*x^9*e^3*d^6*b^5*a^5*A + 2940*x^9*e^
4*d^5*b^4*a^6*A + 1680*x^9*e^5*d^4*b^3*a^7*A + 420*x^9*e^6*d^3*b^
2*a^8*A + 40*x^9*e^7*d^2*b*a^9*A + x^9*e^8*d*a^10*A + 105/4*x^8*d
^9*b^6*a^4*B + 567/2*x^8*e*d^8*b^5*a^5*B + 945*x^8*e^2*d^7*b^4*a^
6*B + 1260*x^8*e^3*d^6*b^3*a^7*B + 2835/4*x^8*e^4*d^5*b^2*a^8*B +
315/2*x^8*e^5*d^4*b*a^9*B + 21/2*x^8*e^6*d^3*a^10*B + 15*x^8*d^9
*b^7*a^3*A + 945/4*x^8*e*d^8*b^6*a^4*A + 1134*x^8*e^2*d^7*b^5*a^5
*A + 2205*x^8*e^3*d^6*b^4*a^6*A + 1890*x^8*e^4*d^5*b^3*a^7*A + 28
35/4*x^8*e^5*d^4*b^2*a^8*A + 105*x^8*e^6*d^3*b*a^9*A + 9/2*x^8*e^
7*d^2*a^10*A + 36*x^7*d^9*b^5*a^5*B + 270*x^7*e*d^8*b^4*a^6*B + 4
320/7*x^7*e^2*d^7*b^3*a^7*B + 540*x^7*e^3*d^6*b^2*a^8*B + 180*x^7
*e^4*d^5*b*a^9*B + 18*x^7*e^5*d^4*a^10*B + 30*x^7*d^9*b^6*a^4*A +
324*x^7*e*d^8*b^5*a^5*A + 1080*x^7*e^2*d^7*b^4*a^6*A + 1440*x^7*
e^3*d^6*b^3*a^7*A + 810*x^7*e^4*d^5*b^2*a^8*A + 180*x^7*e^5*d^4*b
*a^9*A + 12*x^7*e^6*d^3*a^10*A + 35*x^6*d^9*b^4*a^6*B + 180*x^6*e
*d^8*b^3*a^7*B + 270*x^6*e^2*d^7*b^2*a^8*B + 140*x^6*e^3*d^6*b*a^
9*B + 21*x^6*e^4*d^5*a^10*B + 42*x^6*d^9*b^5*a^5*A + 315*x^6*e*d^
8*b^4*a^6*A + 720*x^6*e^2*d^7*b^3*a^7*A + 630*x^6*e^3*d^6*b^2*a^8
*A + 210*x^6*e^4*d^5*b*a^9*A + 21*x^6*e^5*d^4*a^10*A + 24*x^5*d^9
*b^3*a^7*B + 81*x^5*e*d^8*b^2*a^8*B + 72*x^5*e^2*d^7*b*a^9*B + 84
/5*x^5*e^3*d^6*a^10*B + 42*x^5*d^9*b^4*a^6*A + 216*x^5*e*d^8*b^3*
a^7*A + 324*x^5*e^2*d^7*b^2*a^8*A + 168*x^5*e^3*d^6*b*a^9*A + 126
/5*x^5*e^4*d^5*a^10*A + 45/4*x^4*d^9*b^2*a^8*B + 45/2*x^4*e*d^8*b
*a^9*B + 9*x^4*e^2*d^7*a^10*B + 30*x^4*d^9*b^3*a^7*A + 405/4*x^4*
e*d^8*b^2*a^8*A + 90*x^4*e^2*d^7*b*a^9*A + 21*x^4*e^3*d^6*a^10*A
+ 10/3*x^3*d^9*b*a^9*B + 3*x^3*e*d^8*a^10*B + 15*x^3*d^9*b^2*a^8*
A + 30*x^3*e*d^8*b*a^9*A + 12*x^3*e^2*d^7*a^10*A + 1/2*x^2*d^9*a^
10*B + 5*x^2*d^9*b*a^9*A + 9/2*x^2*e*d^8*a^10*A + x*d^9*a^10*A

Sympy [A] time = 1.45604, size = 3541, normalized size = 8.53

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)*(e*x+d)**9,x)
```

```
[Out] A*a**10*d**9*x + B*b**10*e**9*x**21/21 + x**20*(A*b**10*e**9/20 +
 B*a*b**9*e**9/2 + 9*B*b**10*d*e**8/20) + x**19*(10*A*a*b**9*e**9
/19 + 9*A*b**10*d*e**8/19 + 45*B*a**2*b**8*e**9/19 + 90*B*a*b**9*
d*e**8/19 + 36*B*b**10*d**2*e**7/19) + x**18*(5*A*a**2*b**8*e**9/
2 + 5*A*a*b**9*d*e**8 + 2*A*b**10*d**2*e**7 + 20*B*a**3*b**7*e**9
/3 + 45*B*a**2*b**8*d*e**8/2 + 20*B*a*b**9*d**2*e**7 + 14*B*b**10
*d**3*e**6/3) + x**17*(120*A*a**3*b**7*e**9/17 + 405*A*a**2*b**8*
d*e**8/17 + 360*A*a*b**9*d**2*e**7/17 + 84*A*b**10*d**3*e**6/17 +
 210*B*a**4*b**6*e**9/17 + 1080*B*a**3*b**7*d*e**8/17 + 1620*B*a*
*2*b**8*d**2*e**7/17 + 840*B*a*b**9*d**3*e**6/17 + 126*B*b**10*d*
*4*e**5/17) + x**16*(105*A*a**4*b**6*e**9/8 + 135*A*a**3*b**7*d*e
**8/2 + 405*A*a**2*b**8*d**2*e**7/4 + 105*A*a*b**9*d**3*e**6/2 +
63*A*b**10*d**4*e**5/8 + 63*B*a**5*b**5*e**9/4 + 945*B*a**4*b**6*
d*e**8/8 + 270*B*a**3*b**7*d**2*e**7 + 945*B*a**2*b**8*d**3*e**6/
4 + 315*B*a*b**9*d**4*e**5/4 + 63*B*b**10*d**5*e**4/8) + x**15*(8
4*A*a**5*b**5*e**9/5 + 126*A*a**4*b**6*d*e**8 + 288*A*a**3*b**7*d
**2*e**7 + 252*A*a**2*b**8*d**3*e**6 + 84*A*a*b**9*d**4*e**5 + 42
*A*b**10*d**5*e**4/5 + 14*B*a**6*b**4*e**9 + 756*B*a**5*b**5*d*e*
*8/5 + 504*B*a**4*b**6*d**2*e**7 + 672*B*a**3*b**7*d**3*e**6 + 37
8*B*a**2*b**8*d**4*e**5 + 84*B*a*b**9*d**5*e**4 + 28*B*b**10*d**6
*e**3/5) + x**14*(15*A*a**6*b**4*e**9 + 162*A*a**5*b**5*d*e**8 +
540*A*a**4*b**6*d**2*e**7 + 720*A*a**3*b**7*d**3*e**6 + 405*A*a**
2*b**8*d**4*e**5 + 90*A*a*b**9*d**5*e**4 + 6*A*b**10*d**6*e**3 +
60*B*a**7*b**3*e**9/7 + 135*B*a**6*b**4*d*e**8 + 648*B*a**5*b**5*
d**2*e**7 + 1260*B*a**4*b**6*d**3*e**6 + 1080*B*a**3*b**7*d**4*e*
*5 + 405*B*a**2*b**8*d**5*e**4 + 60*B*a*b**9*d**6*e**3 + 18*B*b**
10*d**7*e**2/7) + x**13*(120*A*a**7*b**3*e**9/13 + 1890*A*a**6*b*
*4*d*e**8/13 + 9072*A*a**5*b**5*d**2*e**7/13 + 17640*A*a**4*b**6*
d**3*e**6/13 + 15120*A*a**3*b**7*d**4*e**5/13 + 5670*A*a**2*b**8*
d**5*e**4/13 + 840*A*a*b**9*d**6*e**3/13 + 36*A*b**10*d**7*e**2/1
3 + 45*B*a**8*b**2*e**9/13 + 1080*B*a**7*b**3*d*e**8/13 + 7560*B*
a**6*b**4*d**2*e**7/13 + 21168*B*a**5*b**5*d**3*e**6/13 + 26460*B
*a**4*b**6*d**4*e**5/13 + 15120*B*a**3*b**7*d**5*e**4/13 + 3780*B
*a**2*b**8*d**6*e**3/13 + 360*B*a*b**9*d**7*e**2/13 + 9*B*b**10*d
**8*e/13) + x**12*(15*A*a**8*b**2*e**9/4 + 90*A*a**7*b**3*d*e**8
+ 630*A*a**6*b**4*d**2*e**7 + 1764*A*a**5*b**5*d**3*e**6 + 2205*A
*a**4*b**6*d**4*e**5 + 1260*A*a**3*b**7*d**5*e**4 + 315*A*a**2*b*
*8*d**6*e**3 + 30*A*a*b**9*d**7*e**2 + 3*A*b**10*d**8*e/4 + 5*B*a
**9*b*e**9/6 + 135*B*a**8*b**2*d*e**8/4 + 360*B*a**7*b**3*d**2*e*
*7 + 1470*B*a**6*b**4*d**3*e**6 + 2646*B*a**5*b**5*d**4*e**5 + 22
05*B*a**4*b**6*d**5*e**4 + 840*B*a**3*b**7*d**6*e**3 + 135*B*a**2
*b**8*d**7*e**2 + 15*B*a*b**9*d**8*e/2 + B*b**10*d**9/12) + x**11
*(10*A*a**9*b*e**9/11 + 405*A*a**8*b**2*d*e**8/11 + 4320*A*a**7*b
**3*d**2*e**7/11 + 17640*A*a**6*b**4*d**3*e**6/11 + 31752*A*a**5*
b**5*d**4*e**5/11 + 26460*A*a**4*b**6*d**5*e**4/11 + 10080*A*a**3
*b**7*d**6*e**3/11 + 1620*A*a**2*b**8*d**7*e**2/11 + 90*A*a*b**9*
d**8*e/11 + A*b**10*d**9/11 + B*a**10*e**9/11 + 90*B*a**9*b*d*e**
8/11 + 1620*B*a**8*b**2*d**2*e**7/11 + 10080*B*a**7*b**3*d**3*e**
6/11 + 26460*B*a**6*b**4*d**4*e**5/11 + 31752*B*a**5*b**5*d**5*e*
*4/11 + 17640*B*a**4*b**6*d**6*e**3/11 + 4320*B*a**3*b**7*d**7*e*
*2/11 + 405*B*a**2*b**8*d**8*e/11 + 10*B*a*b**9*d**9/11) + x**10*
(A*a**10*e**9/10 + 9*A*a**9*b*d*e**8 + 162*A*a**8*b**2*d**2*e**7
+ 1008*A*a**7*b**3*d**3*e**6 + 2646*A*a**6*b**4*d**4*e**5 + 15876
*A*a**5*b**5*d**5*e**4/5 + 1764*A*a**4*b**6*d**6*e**3 + 432*A*a**
3*b**7*d**7*e**2 + 81*A*a**2*b**8*d**8*e/2 + A*a*b**9*d**9 + 9*B*
a**10*d*e**8/10 + 36*B*a**9*b*d**2*e**7 + 378*B*a**8*b**2*d**3*e*
*6 + 1512*B*a**7*b**3*d**4*e**5 + 2646*B*a**6*b**4*d**5*e**4 + 10
584*B*a**5*b**5*d**6*e**3/5 + 756*B*a**4*b**6*d**7*e**2 + 108*B*a
**3*b**7*d**8*e + 9*B*a**2*b**8*d**9/2) + x**9*(A*a**10*d*e**8 +
40*A*a**9*b*d**2*e**7 + 420*A*a**8*b**2*d**3*e**6 + 1680*A*a**7*b
**3*d**4*e**5 + 2940*A*a**6*b**4*d**5*e**4 + 2352*A*a**5*b**5*d**
6*e**3 + 840*A*a**4*b**6*d**7*e**2 + 120*A*a**3*b**7*d**8*e + 5*A
*a**2*b**8*d**9 + 4*B*a**10*d**2*e**7 + 280*B*a**9*b*d**3*e**6/3
+ 630*B*a**8*b**2*d**4*e**5 + 1680*B*a**7*b**3*d**5*e**4 + 1960*B
```

```
*a**6*b**4*d**6*e**3 + 1008*B*a**5*b**5*d**7*e**2 + 210*B*a**4*b*
*6*d**8*e + 40*B*a**3*b**7*d**9/3) + x**8*(9*A*a**10*d**2*e**7/2
+ 105*A*a**9*b*d**3*e**6 + 2835*A*a**8*b**2*d**4*e**5/4 + 1890*A*
a**7*b**3*d**5*e**4 + 2205*A*a**6*b**4*d**6*e**3 + 1134*A*a**5*b*
*5*d**7*e**2 + 945*A*a**4*b**6*d**8*e/4 + 15*A*a**3*b**7*d**9 + 2
1*B*a**10*d**3*e**6/2 + 315*B*a**9*b*d**4*e**5/2 + 2835*B*a**8*b*
*2*d**5*e**4/4 + 1260*B*a**7*b**3*d**6*e**3 + 945*B*a**6*b**4*d**
7*e**2 + 567*B*a**5*b**5*d**8*e/2 + 105*B*a**4*b**6*d**9/4) + x**
7*(12*A*a**10*d**3*e**6 + 180*A*a**9*b*d**4*e**5 + 810*A*a**8*b**
2*d**5*e**4 + 1440*A*a**7*b**3*d**6*e**3 + 1080*A*a**6*b**4*d**7*
e**2 + 324*A*a**5*b**5*d**8*e + 30*A*a**4*b**6*d**9 + 18*B*a**10*
d**4*e**5 + 180*B*a**9*b*d**5*e**4 + 540*B*a**8*b**2*d**6*e**3 +
4320*B*a**7*b**3*d**7*e**2/7 + 270*B*a**6*b**4*d**8*e + 36*B*a**5
*b**5*d**9) + x**6*(21*A*a**10*d**4*e**5 + 210*A*a**9*b*d**5*e**4
 + 630*A*a**8*b**2*d**6*e**3 + 720*A*a**7*b**3*d**7*e**2 + 315*A*
a**6*b**4*d**8*e + 42*A*a**5*b**5*d**9 + 21*B*a**10*d**5*e**4 + 1
40*B*a**9*b*d**6*e**3 + 270*B*a**8*b**2*d**7*e**2 + 180*B*a**7*b*
*3*d**8*e + 35*B*a**6*b**4*d**9) + x**5*(126*A*a**10*d**5*e**4/5
+ 168*A*a**9*b*d**6*e**3 + 324*A*a**8*b**2*d**7*e**2 + 216*A*a**7
*b**3*d**8*e + 42*A*a**6*b**4*d**9 + 84*B*a**10*d**6*e**3/5 + 72*
B*a**9*b*d**7*e**2 + 81*B*a**8*b**2*d**8*e + 24*B*a**7*b**3*d**9)
 + x**4*(21*A*a**10*d**6*e**3 + 90*A*a**9*b*d**7*e**2 + 405*A*a**
8*b**2*d**8*e/4 + 30*A*a**7*b**3*d**9 + 9*B*a**10*d**7*e**2 + 45*
B*a**9*b*d**8*e/2 + 45*B*a**8*b**2*d**9/4) + x**3*(12*A*a**10*d**
7*e**2 + 30*A*a**9*b*d**8*e + 15*A*a**8*b**2*d**9 + 3*B*a**10*d**
8*e + 10*B*a**9*b*d**9/3) + x**2*(9*A*a**10*d**8*e/2 + 5*A*a**9*b
*d**9 + B*a**10*d**9/2)
```

GIAC/XCAS [A] time = 0.211624, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*(e*x + d)^9,x, algorithm="giac")
```

```
[Out] Done
```

3.1063 $\int (a+bx)^{10}(A+Bx)(d+ex)^8\,dx$

Optimal. Leaf size=372

$$\frac{e^7(a+bx)^{19}(-9aBe+Abe+8bBd)}{19b^{10}}+\frac{2e^6(a+bx)^{18}(bd-ae)(-9aBe+2Abe+7bBd)}{9b^{10}}+\frac{28e^5(a+bx)^{17}(bd-ae)^2(-3aBe+Abe+2bBd)}{17b^{10}}+\frac{7e^4(a+bx)^{16}(bd-ae)^3(-9aBe+4Abe+5bBd)}{8b^{10}}+\frac{14e^3(a+bx)^{15}(bd-ae)^4(-9aBe+5Abe+4bBd)}{15b^{10}}+\frac{2e^2(a+bx)^{14}(bd-ae)^5(-3aBe+2Abe+bBd)}{b^{10}}+\frac{4e(a+bx)^{13}(bd-ae)^6(-9aBe+7Abe+2bBd)}{13b^{10}}+\frac{(a+bx)^{12}(bd-ae)^7(-9aBe+8Abe+bBd)}{12b^{10}}+\frac{(a+bx)^{11}(Ab-aB)(bd-ae)^8}{11b^{10}}+\frac{Be^8(a+bx)^{20}}{20b^{10}}$$

```
[Out] ((A*b - a*B)*(b*d - a*e)^8*(a + b*x)^11)/(11*b^10) + ((b*d - a*e)
^7*(b*B*d + 8*A*b*e - 9*a*B*e)*(a + b*x)^12)/(12*b^10) + (4*e*(b*
d - a*e)^6*(2*b*B*d + 7*A*b*e - 9*a*B*e)*(a + b*x)^13)/(13*b^10)
+ (2*e^2*(b*d - a*e)^5*(b*B*d + 2*A*b*e - 3*a*B*e)*(a + b*x)^14)/
b^10 + (14*e^3*(b*d - a*e)^4*(4*b*B*d + 5*A*b*e - 9*a*B*e)*(a + b
*x)^15)/(15*b^10) + (7*e^4*(b*d - a*e)^3*(5*b*B*d + 4*A*b*e - 9*a
*B*e)*(a + b*x)^16)/(8*b^10) + (28*e^5*(b*d - a*e)^2*(2*b*B*d + A
*b*e - 3*a*B*e)*(a + b*x)^17)/(17*b^10) + (2*e^6*(b*d - a*e)*(7*b
*B*d + 2*A*b*e - 9*a*B*e)*(a + b*x)^18)/(9*b^10) + (e^7*(8*b*B*d
+ A*b*e - 9*a*B*e)*(a + b*x)^19)/(19*b^10) + (B*e^8*(a + b*x)^20)
/(20*b^10)
```

Rubi [A] time = 10.7956, antiderivative size = 372, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$\frac{e^7(a+bx)^{19}(-9aBe+Abe+8bBd)}{19b^{10}}+\frac{2e^6(a+bx)^{18}(bd-ae)(-9aBe+2Abe+7bBd)}{9b^{10}}+\frac{28e^5(a+bx)^{17}(bd-ae)^2(-3aBe+Abe+2bBd)}{17b^{10}}+\frac{7e^4(a+bx)^{16}(bd-ae)^3(-9aBe+4Abe+5bBd)}{8b^{10}}+\frac{14e^3(a+bx)^{15}(bd-ae)^4(-9aBe+5Abe+4bBd)}{15b^{10}}+\frac{2e^2(a+bx)^{14}(bd-ae)^5(-3aBe+2Abe+bBd)}{b^{10}}+\frac{4e(a+bx)^{13}(bd-ae)^6(-9aBe+7Abe+2bBd)}{13b^{10}}+\frac{(a+bx)^{12}(bd-ae)^7(-9aBe+8Abe+bBd)}{12b^{10}}+\frac{(a+bx)^{11}(Ab-aB)(bd-ae)^8}{11b^{10}}+\frac{Be^8(a+bx)^{20}}{20b^{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^10*(A + B*x)*(d + e*x)^8,x]
```


```
[Out] ((A*b - a*B)*(b*d - a*e)^8*(a + b*x)^11)/(11*b^10) + ((b*d - a*e)
^7*(b*B*d + 8*A*b*e - 9*a*B*e)*(a + b*x)^12)/(12*b^10) + (4*e*(b*
d - a*e)^6*(2*b*B*d + 7*A*b*e - 9*a*B*e)*(a + b*x)^13)/(13*b^10)
+ (2*e^2*(b*d - a*e)^5*(b*B*d + 2*A*b*e - 3*a*B*e)*(a + b*x)^14)/
b^10 + (14*e^3*(b*d - a*e)^4*(4*b*B*d + 5*A*b*e - 9*a*B*e)*(a + b
*x)^15)/(15*b^10) + (7*e^4*(b*d - a*e)^3*(5*b*B*d + 4*A*b*e - 9*a
*B*e)*(a + b*x)^16)/(8*b^10) + (28*e^5*(b*d - a*e)^2*(2*b*B*d + A
*b*e - 3*a*B*e)*(a + b*x)^17)/(17*b^10) + (2*e^6*(b*d - a*e)*(7*b
*B*d + 2*A*b*e - 9*a*B*e)*(a + b*x)^18)/(9*b^10) + (e^7*(8*b*B*d
+ A*b*e - 9*a*B*e)*(a + b*x)^19)/(19*b^10) + (B*e^8*(a + b*x)^20)
/(20*b^10)
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)*(e*x+d)**8,x)
```

```
[Out] Timed out
```

Mathematica [B] time = 1.76947, size = 2307, normalized size = 6.2

Result too large to show

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^10*(A + B*x)*(d + e*x)^8,x]
```

```
[Out] a^10*A*d^8*x + (a^9*d^7*(10*A*b*d + a*B*d + 8*a*A*e)*x^2)/2 + (a^
8*d^6*(2*a*B*d*(5*b*d + 4*a*e) + A*(45*b^2*d^2 + 80*a*b*d*e + 28*
a^2*e^2))*x^3)/3 + (a^7*d^5*(a*B*d*(45*b^2*d^2 + 80*a*b*d*e + 28*
a^2*e^2) + 8*A*(15*b^3*d^3 + 45*a*b^2*d^2*e + 35*a^2*b*d*e^2 + 7*
a^3*e^3))*x^4)/4 + (2*a^6*d^4*(4*a*B*d*(15*b^3*d^3 + 45*a*b^2*d^2
*e + 35*a^2*b*d*e^2 + 7*a^3*e^3) + 5*A*(21*b^4*d^4 + 96*a*b^3*d^3
*e + 126*a^2*b^2*d^2*e^2 + 56*a^3*b*d*e^3 + 7*a^4*e^4))*x^5)/5 +
(a^5*d^3*(5*a*B*d*(21*b^4*d^4 + 96*a*b^3*d^3*e + 126*a^2*b^2*d^2*
e^2 + 56*a^3*b*d*e^3 + 7*a^4*e^4) + 14*A*(9*b^5*d^5 + 60*a*b^4*d^
4*e + 120*a^2*b^3*d^3*e^2 + 90*a^3*b^2*d^2*e^3 + 25*a^4*b*d*e^4 +
 2*a^5*e^5))*x^6)/3 + 2*a^4*d^2*(2*a*B*d*(9*b^5*d^5 + 60*a*b^4*d^
4*e + 120*a^2*b^3*d^3*e^2 + 90*a^3*b^2*d^2*e^3 + 25*a^4*b*d*e^4 +
 2*a^5*e^5) + A*(15*b^6*d^6 + 144*a*b^5*d^5*e + 420*a^2*b^4*d^4*e
^2 + 480*a^3*b^3*d^3*e^3 + 225*a^4*b^2*d^2*e^4 + 40*a^5*b*d*e^5 +
 2*a^6*e^6))*x^7 + (a^3*d*(7*a*B*d*(15*b^6*d^6 + 144*a*b^5*d^5*e
+ 420*a^2*b^4*d^4*e^2 + 480*a^3*b^3*d^3*e^3 + 225*a^4*b^2*d^2*e^4
 + 40*a^5*b*d*e^5 + 2*a^6*e^6) + 4*A*(15*b^7*d^7 + 210*a*b^6*d^6*
e + 882*a^2*b^5*d^5*e^2 + 1470*a^3*b^4*d^4*e^3 + 1050*a^4*b^3*d^3
*e^4 + 315*a^5*b^2*d^2*e^5 + 35*a^6*b*d*e^6 + a^7*e^7))*x^8)/4 +
(a^2*(8*a*B*d*(15*b^7*d^7 + 210*a*b^6*d^6*e + 882*a^2*b^5*d^5*e^2
 + 1470*a^3*b^4*d^4*e^3 + 1050*a^4*b^3*d^3*e^4 + 315*a^5*b^2*d^2*
e^5 + 35*a^6*b*d*e^6 + a^7*e^7) + A*(45*b^8*d^8 + 960*a*b^7*d^7*e
 + 5880*a^2*b^6*d^6*e^2 + 14112*a^3*b^5*d^5*e^3 + 14700*a^4*b^4*d
^4*e^4 + 6720*a^5*b^3*d^3*e^5 + 1260*a^6*b^2*d^2*e^6 + 80*a^7*b*d
*e^7 + a^8*e^8))*x^9)/9 + (a*(10*A*b*(b^8*d^8 + 36*a*b^7*d^7*e +
336*a^2*b^6*d^6*e^2 + 1176*a^3*b^5*d^5*e^3 + 1764*a^4*b^4*d^4*e^4
 + 1176*a^5*b^3*d^3*e^5 + 336*a^6*b^2*d^2*e^6 + 36*a^7*b*d*e^7 +
a^8*e^8) + a*B*(45*b^8*d^8 + 960*a*b^7*d^7*e + 5880*a^2*b^6*d^6*e
^2 + 14112*a^3*b^5*d^5*e^3 + 14700*a^4*b^4*d^4*e^4 + 6720*a^5*b^3
*d^3*e^5 + 1260*a^6*b^2*d^2*e^6 + 80*a^7*b*d*e^7 + a^8*e^8))*x^10
)/10 + (b*(10*a*B*(b^8*d^8 + 36*a*b^7*d^7*e + 336*a^2*b^6*d^6*e^2
 + 1176*a^3*b^5*d^5*e^3 + 1764*a^4*b^4*d^4*e^4 + 1176*a^5*b^3*d^3
*e^5 + 336*a^6*b^2*d^2*e^6 + 36*a^7*b*d*e^7 + a^8*e^8) + A*b*(b^8
*d^8 + 80*a*b^7*d^7*e + 1260*a^2*b^6*d^6*e^2 + 6720*a^3*b^5*d^5*e
^3 + 14700*a^4*b^4*d^4*e^4 + 14112*a^5*b^3*d^3*e^5 + 5880*a^6*b^2
*d^2*e^6 + 960*a^7*b*d*e^7 + 45*a^8*e^8))*x^11)/11 + (b^2*(45*a^8
*B*e^8 + 7056*a^5*b^3*d^2*e^5*(2*B*d + A*e) + 120*a^7*b*e^7*(8*B*
d + A*e) + 1260*a^2*b^6*d^5*e^2*(B*d + 2*A*e) + 840*a^6*b^2*d*e^6
*(7*B*d + 2*A*e) + 2940*a^4*b^4*d^3*e^4*(5*B*d + 4*A*e) + 1680*a^
3*b^5*d^4*e^3*(4*B*d + 5*A*e) + 40*a*b^7*d^6*e*(2*B*d + 7*A*e) +
b^8*d^7*(B*d + 8*A*e))*x^12)/12 + (2*b^3*e*(60*a^7*B*e^7 + 2940*a
^4*b^3*d^2*e^4*(2*B*d + A*e) + 105*a^6*b*e^6*(8*B*d + A*e) + 140*
a*b^6*d^5*e*(B*d + 2*A*e) + 504*a^5*b^2*d*e^5*(7*B*d + 2*A*e) + 8
40*a^3*b^4*d^3*e^3*(5*B*d + 4*A*e) + 315*a^2*b^5*d^4*e^2*(4*B*d +
 5*A*e) + 2*b^7*d^6*(2*B*d + 7*A*e))*x^13)/13 + b^4*e^2*(15*a^6*B
*e^6 + 240*a^3*b^3*d^2*e^3*(2*B*d + A*e) + 18*a^5*b*e^5*(8*B*d +
A*e) + 2*b^6*d^5*(B*d + 2*A*e) + 60*a^4*b^2*d*e^4*(7*B*d + 2*A*e)
 + 45*a^2*b^4*d^3*e^2*(5*B*d + 4*A*e) + 10*a*b^5*d^4*e*(4*B*d + 5
```

```
*A*e))*x^14 + (2*b^5*e^3*(126*a^5*B*e^5 + 630*a^2*b^3*d^2*e^2*(2*
B*d + A*e) + 105*a^4*b*e^4*(8*B*d + A*e) + 240*a^3*b^2*d*e^3*(7*B
*d + 2*A*e) + 70*a*b^4*d^3*e*(5*B*d + 4*A*e) + 7*b^5*d^4*(4*B*d +
 5*A*e))*x^15)/15 + (b^6*e^4*(105*a^4*B*e^4 + 140*a*b^3*d^2*e*(2*
B*d + A*e) + 60*a^3*b*e^3*(8*B*d + A*e) + 90*a^2*b^2*d*e^2*(7*B*d
 + 2*A*e) + 7*b^4*d^3*(5*B*d + 4*A*e))*x^16)/8 + (b^7*e^5*(120*a^
3*B*e^3 + 28*b^3*d^2*(2*B*d + A*e) + 45*a^2*b*e^2*(8*B*d + A*e) +
 40*a*b^2*d*e*(7*B*d + 2*A*e))*x^17)/17 + (b^8*e^6*(45*a^2*B*e^2
+ 10*a*b*e*(8*B*d + A*e) + 4*b^2*d*(7*B*d + 2*A*e))*x^18)/18 + (b
^9*e^7*(8*b*B*d + A*b*e + 10*a*B*e)*x^19)/19 + (b^10*B*e^8*x^20)/
20
```

Maple [B] time = 0.006, size = 2473, normalized size = 6.7

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((b*x+a)^10*(B*x+A)*(e*x+d)^8,x)
```

```
[Out] 1/20*b^10*B*e^8*x^20+1/19*((A*b^10+10*B*a*b^9)*e^8+8*b^10*B*d*e^7
)*x^19+1/18*((10*A*a*b^9+45*B*a^2*b^8)*e^8+8*(A*b^10+10*B*a*b^9)*
d*e^7+28*b^10*B*d^2*e^6)*x^18+1/17*((45*A*a^2*b^8+120*B*a^3*b^7)*
e^8+8*(10*A*a*b^9+45*B*a^2*b^8)*d*e^7+28*(A*b^10+10*B*a*b^9)*d^2*
e^6+56*b^10*B*d^3*e^5)*x^17+1/16*((120*A*a^3*b^7+210*B*a^4*b^6)*e
^8+8*(45*A*a^2*b^8+120*B*a^3*b^7)*d*e^7+28*(10*A*a*b^9+45*B*a^2*b
^8)*d^2*e^6+56*(A*b^10+10*B*a*b^9)*d^3*e^5+70*b^10*B*d^4*e^4)*x^1
6+1/15*((210*A*a^4*b^6+252*B*a^5*b^5)*e^8+8*(120*A*a^3*b^7+210*B*
a^4*b^6)*d*e^7+28*(45*A*a^2*b^8+120*B*a^3*b^7)*d^2*e^6+56*(10*A*a
*b^9+45*B*a^2*b^8)*d^3*e^5+70*(A*b^10+10*B*a*b^9)*d^4*e^4+56*b^10
*B*d^5*e^3)*x^15+1/14*((252*A*a^5*b^5+210*B*a^6*b^4)*e^8+8*(210*A
*a^4*b^6+252*B*a^5*b^5)*d*e^7+28*(120*A*a^3*b^7+210*B*a^4*b^6)*d^
2*e^6+56*(45*A*a^2*b^8+120*B*a^3*b^7)*d^3*e^5+70*(10*A*a*b^9+45*B
*a^2*b^8)*d^4*e^4+56*(A*b^10+10*B*a*b^9)*d^5*e^3+28*b^10*B*d^6*e^
2)*x^14+1/13*((210*A*a^6*b^4+120*B*a^7*b^3)*e^8+8*(252*A*a^5*b^5+
210*B*a^6*b^4)*d*e^7+28*(210*A*a^4*b^6+252*B*a^5*b^5)*d^2*e^6+56*
(120*A*a^3*b^7+210*B*a^4*b^6)*d^3*e^5+70*(45*A*a^2*b^8+120*B*a^3*
b^7)*d^4*e^4+56*(10*A*a*b^9+45*B*a^2*b^8)*d^5*e^3+28*(A*b^10+10*B
*a*b^9)*d^6*e^2+8*b^10*B*d^7*e)*x^13+1/12*((120*A*a^7*b^3+45*B*a^
8*b^2)*e^8+8*(210*A*a^6*b^4+120*B*a^7*b^3)*d*e^7+28*(252*A*a^5*b^
5+210*B*a^6*b^4)*d^2*e^6+56*(210*A*a^4*b^6+252*B*a^5*b^5)*d^3*e^5
+70*(120*A*a^3*b^7+210*B*a^4*b^6)*d^4*e^4+56*(45*A*a^2*b^8+120*B*
a^3*b^7)*d^5*e^3+28*(10*A*a*b^9+45*B*a^2*b^8)*d^6*e^2+8*(A*b^10+1
0*B*a*b^9)*d^7*e+b^10*B*d^8)*x^12+1/11*((45*A*a^8*b^2+10*B*a^9*b)
*e^8+8*(120*A*a^7*b^3+45*B*a^8*b^2)*d*e^7+28*(210*A*a^6*b^4+120*B
*a^7*b^3)*d^2*e^6+56*(252*A*a^5*b^5+210*B*a^6*b^4)*d^3*e^5+70*(21
0*A*a^4*b^6+252*B*a^5*b^5)*d^4*e^4+56*(120*A*a^3*b^7+210*B*a^4*b^
6)*d^5*e^3+28*(45*A*a^2*b^8+120*B*a^3*b^7)*d^6*e^2+8*(10*A*a*b^9+
45*B*a^2*b^8)*d^7*e+(A*b^10+10*B*a*b^9)*d^8)*x^11+1/10*((10*A*a^9
*b+B*a^10)*e^8+8*(45*A*a^8*b^2+10*B*a^9*b)*d*e^7+28*(120*A*a^7*b^
3+45*B*a^8*b^2)*d^2*e^6+56*(210*A*a^6*b^4+120*B*a^7*b^3)*d^3*e^5+
70*(252*A*a^5*b^5+210*B*a^6*b^4)*d^4*e^4+56*(210*A*a^4*b^6+252*B*
a^5*b^5)*d^5*e^3+28*(120*A*a^3*b^7+210*B*a^4*b^6)*d^6*e^2+8*(45*A
*a^2*b^8+120*B*a^3*b^7)*d^7*e+(10*A*a*b^9+45*B*a^2*b^8)*d^8)*x^10
+1/9*(a^10*A*e^8+8*(10*A*a^9*b+B*a^10)*d*e^7+28*(45*A*a^8*b^2+10*
B*a^9*b)*d^2*e^6+56*(120*A*a^7*b^3+45*B*a^8*b^2)*d^3*e^5+70*(210*
A*a^6*b^4+120*B*a^7*b^3)*d^4*e^4+56*(252*A*a^5*b^5+210*B*a^6*b^4)
*d^5*e^3+28*(210*A*a^4*b^6+252*B*a^5*b^5)*d^6*e^2+8*(120*A*a^3*b^
7+210*B*a^4*b^6)*d^7*e+(45*A*a^2*b^8+120*B*a^3*b^7)*d^8)*x^9+1/8*
(8*a^10*A*d*e^7+28*(10*A*a^9*b+B*a^10)*d^2*e^6+56*(45*A*a^8*b^2+1
0*B*a^9*b)*d^3*e^5+70*(120*A*a^7*b^3+45*B*a^8*b^2)*d^4*e^4+56*(21
0*A*a^6*b^4+120*B*a^7*b^3)*d^5*e^3+28*(252*A*a^5*b^5+210*B*a^6*b^
4)*d^6*e^2+8*(210*A*a^4*b^6+252*B*a^5*b^5)*d^7*e+(120*A*a^3*b^7+2
10*B*a^4*b^6)*d^8)*x^8+1/7*(28*a^10*A*d^2*e^6+56*(10*A*a^9*b+B*a^
10)*d^3*e^5+70*(45*A*a^8*b^2+10*B*a^9*b)*d^4*e^4+56*(120*A*a^7*b^
3+45*B*a^8*b^2)*d^5*e^3+28*(210*A*a^6*b^4+120*B*a^7*b^3)*d^6*e^2+
8*(252*A*a^5*b^5+210*B*a^6*b^4)*d^7*e+(210*A*a^4*b^6+252*B*a^5*b^
5)*d^8)*x^7+1/6*(56*a^10*A*d^3*e^5+70*(10*A*a^9*b+B*a^10)*d^4*e^4
+56*(45*A*a^8*b^2+10*B*a^9*b)*d^5*e^3+28*(120*A*a^7*b^3+45*B*a^8*
b^2)*d^6*e^2+8*(210*A*a^6*b^4+120*B*a^7*b^3)*d^7*e+(252*A*a^5*b^5
```

```
+210*B*a^6*b^4)*d^8)*x^6+1/5*(70*a^10*A*d^4*e^4+56*(10*A*a^9*b+B*
a^10)*d^5*e^3+28*(45*A*a^8*b^2+10*B*a^9*b)*d^6*e^2+8*(120*A*a^7*b
^3+45*B*a^8*b^2)*d^7*e+(210*A*a^6*b^4+120*B*a^7*b^3)*d^8)*x^5+1/4
*(56*a^10*A*d^5*e^3+28*(10*A*a^9*b+B*a^10)*d^6*e^2+8*(45*A*a^8*b^
2+10*B*a^9*b)*d^7*e+(120*A*a^7*b^3+45*B*a^8*b^2)*d^8)*x^4+1/3*(28
*a^10*A*d^6*e^2+8*(10*A*a^9*b+B*a^10)*d^7*e+(45*A*a^8*b^2+10*B*a^
9*b)*d^8)*x^3+1/2*(8*a^10*A*d^7*e+(10*A*a^9*b+B*a^10)*d^8)*x^2+a^
10*A*d^8*x
```

Maxima [A] time = 1.40381, size = 3357, normalized size = 9.02

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*(e*x + d)^8,x, algorithm="maxima")
```

```
[Out] 1/20*B*b^10*e^8*x^20 + A*a^10*d^8*x + 1/19*(8*B*b^10*d*e^7 + (10*
B*a*b^9 + A*b^10)*e^8)*x^19 + 1/18*(28*B*b^10*d^2*e^6 + 8*(10*B*a
*b^9 + A*b^10)*d*e^7 + 5*(9*B*a^2*b^8 + 2*A*a*b^9)*e^8)*x^18 + 1/
17*(56*B*b^10*d^3*e^5 + 28*(10*B*a*b^9 + A*b^10)*d^2*e^6 + 40*(9*
B*a^2*b^8 + 2*A*a*b^9)*d*e^7 + 15*(8*B*a^3*b^7 + 3*A*a^2*b^8)*e^8
)*x^17 + 1/8*(35*B*b^10*d^4*e^4 + 28*(10*B*a*b^9 + A*b^10)*d^3*e^
5 + 70*(9*B*a^2*b^8 + 2*A*a*b^9)*d^2*e^6 + 60*(8*B*a^3*b^7 + 3*A*
a^2*b^8)*d*e^7 + 15*(7*B*a^4*b^6 + 4*A*a^3*b^7)*e^8)*x^16 + 2/15*
(28*B*b^10*d^5*e^3 + 35*(10*B*a*b^9 + A*b^10)*d^4*e^4 + 140*(9*B*
a^2*b^8 + 2*A*a*b^9)*d^3*e^5 + 210*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^
2*e^6 + 120*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d*e^7 + 21*(6*B*a^5*b^5 +
 5*A*a^4*b^6)*e^8)*x^15 + (2*B*b^10*d^6*e^2 + 4*(10*B*a*b^9 + A*b
^10)*d^5*e^3 + 25*(9*B*a^2*b^8 + 2*A*a*b^9)*d^4*e^4 + 60*(8*B*a^3
*b^7 + 3*A*a^2*b^8)*d^3*e^5 + 60*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^2*
e^6 + 24*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d*e^7 + 3*(5*B*a^6*b^4 + 6*A
*a^5*b^5)*e^8)*x^14 + 2/13*(4*B*b^10*d^7*e + 14*(10*B*a*b^9 + A*b
^10)*d^6*e^2 + 140*(9*B*a^2*b^8 + 2*A*a*b^9)*d^5*e^3 + 525*(8*B*a
^3*b^7 + 3*A*a^2*b^8)*d^4*e^4 + 840*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d
^3*e^5 + 588*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^2*e^6 + 168*(5*B*a^6*b
^4 + 6*A*a^5*b^5)*d*e^7 + 15*(4*B*a^7*b^3 + 7*A*a^6*b^4)*e^8)*x^1
3 + 1/12*(B*b^10*d^8 + 8*(10*B*a*b^9 + A*b^10)*d^7*e + 140*(9*B*a
^2*b^8 + 2*A*a*b^9)*d^6*e^2 + 840*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^5
*e^3 + 2100*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^4*e^4 + 2352*(6*B*a^5*b
^5 + 5*A*a^4*b^6)*d^3*e^5 + 1176*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^2*
e^6 + 240*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d*e^7 + 15*(3*B*a^8*b^2 + 8
*A*a^7*b^3)*e^8)*x^12 + 1/11*((10*B*a*b^9 + A*b^10)*d^8 + 40*(9*B
*a^2*b^8 + 2*A*a*b^9)*d^7*e + 420*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^6
*e^2 + 1680*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^5*e^3 + 2940*(6*B*a^5*b
^5 + 5*A*a^4*b^6)*d^4*e^4 + 2352*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^3*
e^5 + 840*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^2*e^6 + 120*(3*B*a^8*b^2
+ 8*A*a^7*b^3)*d*e^7 + 5*(2*B*a^9*b + 9*A*a^8*b^2)*e^8)*x^11 + 1/
10*(5*(9*B*a^2*b^8 + 2*A*a*b^9)*d^8 + 120*(8*B*a^3*b^7 + 3*A*a^2*
b^8)*d^7*e + 840*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^6*e^2 + 2352*(6*B*
a^5*b^5 + 5*A*a^4*b^6)*d^5*e^3 + 2940*(5*B*a^6*b^4 + 6*A*a^5*b^5)
*d^4*e^4 + 1680*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^3*e^5 + 420*(3*B*a^
8*b^2 + 8*A*a^7*b^3)*d^2*e^6 + 40*(2*B*a^9*b + 9*A*a^8*b^2)*d*e^7
 + (B*a^10 + 10*A*a^9*b)*e^8)*x^10 + 1/9*(A*a^10*e^8 + 15*(8*B*a^
3*b^7 + 3*A*a^2*b^8)*d^8 + 240*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^7*e
+ 1176*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^6*e^2 + 2352*(5*B*a^6*b^4 +
6*A*a^5*b^5)*d^5*e^3 + 2100*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^4*e^4 +
 840*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^3*e^5 + 140*(2*B*a^9*b + 9*A*a
^8*b^2)*d^2*e^6 + 8*(B*a^10 + 10*A*a^9*b)*d*e^7)*x^9 + 1/4*(4*A*a
^10*d*e^7 + 15*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^8 + 168*(6*B*a^5*b^5
 + 5*A*a^4*b^6)*d^7*e + 588*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^6*e^2 +
 840*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^5*e^3 + 525*(3*B*a^8*b^2 + 8*A
*a^7*b^3)*d^4*e^4 + 140*(2*B*a^9*b + 9*A*a^8*b^2)*d^3*e^5 + 14*(B
*a^10 + 10*A*a^9*b)*d^2*e^6)*x^8 + 2*(2*A*a^10*d^2*e^6 + 3*(6*B*a
^5*b^5 + 5*A*a^4*b^6)*d^8 + 24*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^7*e
+ 60*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^6*e^2 + 60*(3*B*a^8*b^2 + 8*A*
a^7*b^3)*d^5*e^3 + 25*(2*B*a^9*b + 9*A*a^8*b^2)*d^4*e^4 + 4*(B*a^
10 + 10*A*a^9*b)*d^3*e^5)*x^7 + 1/3*(28*A*a^10*d^3*e^5 + 21*(5*B*
a^6*b^4 + 6*A*a^5*b^5)*d^8 + 120*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^7*
e + 210*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^6*e^2 + 140*(2*B*a^9*b + 9*
```

```
A*a^8*b^2)*d^5*e^3 + 35*(B*a^10 + 10*A*a^9*b)*d^4*e^4)*x^6 + 2/5*
(35*A*a^10*d^4*e^4 + 15*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^8 + 60*(3*B
*a^8*b^2 + 8*A*a^7*b^3)*d^7*e + 70*(2*B*a^9*b + 9*A*a^8*b^2)*d^6*
e^2 + 28*(B*a^10 + 10*A*a^9*b)*d^5*e^3)*x^5 + 1/4*(56*A*a^10*d^5*
e^3 + 15*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^8 + 40*(2*B*a^9*b + 9*A*a^
8*b^2)*d^7*e + 28*(B*a^10 + 10*A*a^9*b)*d^6*e^2)*x^4 + 1/3*(28*A*
a^10*d^6*e^2 + 5*(2*B*a^9*b + 9*A*a^8*b^2)*d^8 + 8*(B*a^10 + 10*A
*a^9*b)*d^7*e)*x^3 + 1/2*(8*A*a^10*d^7*e + (B*a^10 + 10*A*a^9*b)*
d^8)*x^2
```

Fricas [A] time = 0.195447, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^10*(e*x + d)^8,x, algorithm="fricas")
```

```
[Out] 1/20*x^20*e^8*b^10*B + 8/19*x^19*e^7*d*b^10*B + 10/19*x^19*e^8*b^
9*a*B + 1/19*x^19*e^8*b^10*A + 14/9*x^18*e^6*d^2*b^10*B + 40/9*x^
18*e^7*d*b^9*a*B + 5/2*x^18*e^8*b^8*a^2*B + 4/9*x^18*e^7*d*b^10*A
 + 5/9*x^18*e^8*b^9*a*A + 56/17*x^17*e^5*d^3*b^10*B + 280/17*x^17
*e^6*d^2*b^9*a*B + 360/17*x^17*e^7*d*b^8*a^2*B + 120/17*x^17*e^8*
b^7*a^3*B + 28/17*x^17*e^6*d^2*b^10*A + 80/17*x^17*e^7*d*b^9*a*A
+ 45/17*x^17*e^8*b^8*a^2*A + 35/8*x^16*e^4*d^4*b^10*B + 35*x^16*e
^5*d^3*b^9*a*B + 315/4*x^16*e^6*d^2*b^8*a^2*B + 60*x^16*e^7*d*b^7
*a^3*B + 105/8*x^16*e^8*b^6*a^4*B + 7/2*x^16*e^5*d^3*b^10*A + 35/
2*x^16*e^6*d^2*b^9*a*A + 45/2*x^16*e^7*d*b^8*a^2*A + 15/2*x^16*e^
8*b^7*a^3*A + 56/15*x^15*e^3*d^5*b^10*B + 140/3*x^15*e^4*d^4*b^9*
a*B + 168*x^15*e^5*d^3*b^8*a^2*B + 224*x^15*e^6*d^2*b^7*a^3*B + 1
12*x^15*e^7*d*b^6*a^4*B + 84/5*x^15*e^8*b^5*a^5*B + 14/3*x^15*e^4
*d^4*b^10*A + 112/3*x^15*e^5*d^3*b^9*a*A + 84*x^15*e^6*d^2*b^8*a^
2*A + 64*x^15*e^7*d*b^7*a^3*A + 14*x^15*e^8*b^6*a^4*A + 2*x^14*e^
2*d^6*b^10*B + 40*x^14*e^3*d^5*b^9*a*B + 225*x^14*e^4*d^4*b^8*a^2
*B + 480*x^14*e^5*d^3*b^7*a^3*B + 420*x^14*e^6*d^2*b^6*a^4*B + 14
4*x^14*e^7*d*b^5*a^5*B + 15*x^14*e^8*b^4*a^6*B + 4*x^14*e^3*d^5*b
^10*A + 50*x^14*e^4*d^4*b^9*a*A + 180*x^14*e^5*d^3*b^8*a^2*A + 24
0*x^14*e^6*d^2*b^7*a^3*A + 120*x^14*e^7*d*b^6*a^4*A + 18*x^14*e^8
*b^5*a^5*A + 8/13*x^13*e*d^7*b^10*B + 280/13*x^13*e^2*d^6*b^9*a*B
 + 2520/13*x^13*e^3*d^5*b^8*a^2*B + 8400/13*x^13*e^4*d^4*b^7*a^3*
B + 11760/13*x^13*e^5*d^3*b^6*a^4*B + 7056/13*x^13*e^6*d^2*b^5*a^
5*B + 1680/13*x^13*e^7*d*b^4*a^6*B + 120/13*x^13*e^8*b^3*a^7*B +
28/13*x^13*e^2*d^6*b^10*A + 560/13*x^13*e^3*d^5*b^9*a*A + 3150/13
*x^13*e^4*d^4*b^8*a^2*A + 6720/13*x^13*e^5*d^3*b^7*a^3*A + 5880/1
3*x^13*e^6*d^2*b^6*a^4*A + 2016/13*x^13*e^7*d*b^5*a^5*A + 210/13*
x^13*e^8*b^4*a^6*A + 1/12*x^12*d^8*b^10*B + 20/3*x^12*e*d^7*b^9*a
*B + 105*x^12*e^2*d^6*b^8*a^2*B + 560*x^12*e^3*d^5*b^7*a^3*B + 12
25*x^12*e^4*d^4*b^6*a^4*B + 1176*x^12*e^5*d^3*b^5*a^5*B + 490*x^1
2*e^6*d^2*b^4*a^6*B + 80*x^12*e^7*d*b^3*a^7*B + 15/4*x^12*e^8*b^2
*a^8*B + 2/3*x^12*e*d^7*b^10*A + 70/3*x^12*e^2*d^6*b^9*a*A + 210*
x^12*e^3*d^5*b^8*a^2*A + 700*x^12*e^4*d^4*b^7*a^3*A + 980*x^12*e^
5*d^3*b^6*a^4*A + 588*x^12*e^6*d^2*b^5*a^5*A + 140*x^12*e^7*d*b^4
*a^6*A + 10*x^12*e^8*b^3*a^7*A + 10/11*x^11*d^8*b^9*a*B + 360/11*
x^11*e*d^7*b^8*a^2*B + 3360/11*x^11*e^2*d^6*b^7*a^3*B + 11760/11*
x^11*e^3*d^5*b^6*a^4*B + 17640/11*x^11*e^4*d^4*b^5*a^5*B + 11760/
11*x^11*e^5*d^3*b^4*a^6*B + 3360/11*x^11*e^6*d^2*b^3*a^7*B + 360/
11*x^11*e^7*d*b^2*a^8*B + 10/11*x^11*e^8*b*a^9*B + 1/11*x^11*d^8*
b^10*A + 80/11*x^11*e*d^7*b^9*a*A + 1260/11*x^11*e^2*d^6*b^8*a^2*
A + 6720/11*x^11*e^3*d^5*b^7*a^3*A + 14700/11*x^11*e^4*d^4*b^6*a^
4*A + 14112/11*x^11*e^5*d^3*b^5*a^5*A + 5880/11*x^11*e^6*d^2*b^4*
a^6*A + 960/11*x^11*e^7*d*b^3*a^7*A + 45/11*x^11*e^8*b^2*a^8*A +
9/2*x^10*d^8*b^8*a^2*B + 96*x^10*e*d^7*b^7*a^3*B + 588*x^10*e^2*d
^6*b^6*a^4*B + 7056/5*x^10*e^3*d^5*b^5*a^5*B + 1470*x^10*e^4*d^4*
b^4*a^6*B + 672*x^10*e^5*d^3*b^3*a^7*B + 126*x^10*e^6*d^2*b^2*a^8
*B + 8*x^10*e^7*d*b*a^9*B + 1/10*x^10*e^8*a^10*B + x^10*d^8*b^9*a
*A + 36*x^10*e*d^7*b^8*a^2*A + 336*x^10*e^2*d^6*b^7*a^3*A + 1176*
x^10*e^3*d^5*b^6*a^4*A + 1764*x^10*e^4*d^4*b^5*a^5*A + 1176*x^10*
e^5*d^3*b^4*a^6*A + 336*x^10*e^6*d^2*b^3*a^7*A + 36*x^10*e^7*d*b^
2*a^8*A + x^10*e^8*b*a^9*A + 40/3*x^9*d^8*b^7*a^3*B + 560/3*x^9*e
*d^7*b^6*a^4*B + 784*x^9*e^2*d^6*b^5*a^5*B + 3920/3*x^9*e^3*d^5*b
```

```
^4*a^6*B + 2800/3*x^9*e^4*d^4*b^3*a^7*B + 280*x^9*e^5*d^3*b^2*a^8
*B + 280/9*x^9*e^6*d^2*b*a^9*B + 8/9*x^9*e^7*d*a^10*B + 5*x^9*d^8
*b^8*a^2*A + 320/3*x^9*e*d^7*b^7*a^3*A + 1960/3*x^9*e^2*d^6*b^6*a
^4*A + 1568*x^9*e^3*d^5*b^5*a^5*A + 4900/3*x^9*e^4*d^4*b^4*a^6*A
+ 2240/3*x^9*e^5*d^3*b^3*a^7*A + 140*x^9*e^6*d^2*b^2*a^8*A + 80/9
*x^9*e^7*d*b*a^9*A + 1/9*x^9*e^8*a^10*A + 105/4*x^8*d^8*b^6*a^4*B
 + 252*x^8*e*d^7*b^5*a^5*B + 735*x^8*e^2*d^6*b^4*a^6*B + 840*x^8*
e^3*d^5*b^3*a^7*B + 1575/4*x^8*e^4*d^4*b^2*a^8*B + 70*x^8*e^5*d^3
*b*a^9*B + 7/2*x^8*e^6*d^2*a^10*B + 15*x^8*d^8*b^7*a^3*A + 210*x^
8*e*d^7*b^6*a^4*A + 882*x^8*e^2*d^6*b^5*a^5*A + 1470*x^8*e^3*d^5*
b^4*a^6*A + 1050*x^8*e^4*d^4*b^3*a^7*A + 315*x^8*e^5*d^3*b^2*a^8*
A + 35*x^8*e^6*d^2*b*a^9*A + x^8*e^7*d*a^10*A + 36*x^7*d^8*b^5*a^
5*B + 240*x^7*e*d^7*b^4*a^6*B + 480*x^7*e^2*d^6*b^3*a^7*B + 360*x
^7*e^3*d^5*b^2*a^8*B + 100*x^7*e^4*d^4*b*a^9*B + 8*x^7*e^5*d^3*a^
10*B + 30*x^7*d^8*b^6*a^4*A + 288*x^7*e*d^7*b^5*a^5*A + 840*x^7*e
^2*d^6*b^4*a^6*A + 960*x^7*e^3*d^5*b^3*a^7*A + 450*x^7*e^4*d^4*b^
2*a^8*A + 80*x^7*e^5*d^3*b*a^9*A + 4*x^7*e^6*d^2*a^10*A + 35*x^6*
d^8*b^4*a^6*B + 160*x^6*e*d^7*b^3*a^7*B + 210*x^6*e^2*d^6*b^2*a^8
*B + 280/3*x^6*e^3*d^5*b*a^9*B + 35/3*x^6*e^4*d^4*a^10*B + 42*x^6
*d^8*b^5*a^5*A + 280*x^6*e*d^7*b^4*a^6*A + 560*x^6*e^2*d^6*b^3*a^
7*A + 420*x^6*e^3*d^5*b^2*a^8*A + 350/3*x^6*e^4*d^4*b*a^9*A + 28/
3*x^6*e^5*d^3*a^10*A + 24*x^5*d^8*b^3*a^7*B + 72*x^5*e*d^7*b^2*a^
8*B + 56*x^5*e^2*d^6*b*a^9*B + 56/5*x^5*e^3*d^5*a^10*B + 42*x^5*d
^8*b^4*a^6*A + 192*x^5*e*d^7*b^3*a^7*A + 252*x^5*e^2*d^6*b^2*a^8*
A + 112*x^5*e^3*d^5*b*a^9*A + 14*x^5*e^4*d^4*a^10*A + 45/4*x^4*d^
8*b^2*a^8*B + 20*x^4*e*d^7*b*a^9*B + 7*x^4*e^2*d^6*a^10*B + 30*x^
4*d^8*b^3*a^7*A + 90*x^4*e*d^7*b^2*a^8*A + 70*x^4*e^2*d^6*b*a^9*A
 + 14*x^4*e^3*d^5*a^10*A + 10/3*x^3*d^8*b*a^9*B + 8/3*x^3*e*d^7*a
^10*B + 15*x^3*d^8*b^2*a^8*A + 80/3*x^3*e*d^7*b*a^9*A + 28/3*x^3*
e^2*d^6*a^10*A + 1/2*x^2*d^8*a^10*B + 5*x^2*d^8*b*a^9*A + 4*x^2*e
*d^7*a^10*A + x*d^8*a^10*A
```

Sympy [A] time = 1.31325, size = 3165, normalized size = 8.51

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)*(e*x+d)**8,x)
```

```
[Out] A*a**10*d**8*x + B*b**10*e**8*x**20/20 + x**19*(A*b**10*e**8/19 +
 10*B*a*b**9*e**8/19 + 8*B*b**10*d*e**7/19) + x**18*(5*A*a*b**9*e
**8/9 + 4*A*b**10*d*e**7/9 + 5*B*a**2*b**8*e**8/2 + 40*B*a*b**9*d
*e**7/9 + 14*B*b**10*d**2*e**6/9) + x**17*(45*A*a**2*b**8*e**8/17
 + 80*A*a*b**9*d*e**7/17 + 28*A*b**10*d**2*e**6/17 + 120*B*a**3*b
**7*e**8/17 + 360*B*a**2*b**8*d*e**7/17 + 280*B*a*b**9*d**2*e**6/
17 + 56*B*b**10*d**3*e**5/17) + x**16*(15*A*a**3*b**7*e**8/2 + 45
*A*a**2*b**8*d*e**7/2 + 35*A*a*b**9*d**2*e**6/2 + 7*A*b**10*d**3*
e**5/2 + 105*B*a**4*b**6*e**8/8 + 60*B*a**3*b**7*d*e**7 + 315*B*a
**2*b**8*d**2*e**6/4 + 35*B*a*b**9*d**3*e**5 + 35*B*b**10*d**4*e*
*4/8) + x**15*(14*A*a**4*b**6*e**8 + 64*A*a**3*b**7*d*e**7 + 84*A
*a**2*b**8*d**2*e**6 + 112*A*a*b**9*d**3*e**5/3 + 14*A*b**10*d**4
*e**4/3 + 84*B*a**5*b**5*e**8/5 + 112*B*a**4*b**6*d*e**7 + 224*B*
a**3*b**7*d**2*e**6 + 168*B*a**2*b**8*d**3*e**5 + 140*B*a*b**9*d*
*4*e**4/3 + 56*B*b**10*d**5*e**3/15) + x**14*(18*A*a**5*b**5*e**8
 + 120*A*a**4*b**6*d*e**7 + 240*A*a**3*b**7*d**2*e**6 + 180*A*a**
2*b**8*d**3*e**5 + 50*A*a*b**9*d**4*e**4 + 4*A*b**10*d**5*e**3 +
15*B*a**6*b**4*e**8 + 144*B*a**5*b**5*d*e**7 + 420*B*a**4*b**6*d*
*2*e**6 + 480*B*a**3*b**7*d**3*e**5 + 225*B*a**2*b**8*d**4*e**4 +
 40*B*a*b**9*d**5*e**3 + 2*B*b**10*d**6*e**2) + x**13*(210*A*a**6
*b**4*e**8/13 + 2016*A*a**5*b**5*d*e**7/13 + 5880*A*a**4*b**6*d**
2*e**6/13 + 6720*A*a**3*b**7*d**3*e**5/13 + 3150*A*a**2*b**8*d**4
*e**4/13 + 560*A*a*b**9*d**5*e**3/13 + 28*A*b**10*d**6*e**2/13 +
120*B*a**7*b**3*e**8/13 + 1680*B*a**6*b**4*d*e**7/13 + 7056*B*a**
5*b**5*d**2*e**6/13 + 11760*B*a**4*b**6*d**3*e**5/13 + 8400*B*a**
3*b**7*d**4*e**4/13 + 2520*B*a**2*b**8*d**5*e**3/13 + 280*B*a*b**
9*d**6*e**2/13 + 8*B*b**10*d**7*e/13) + x**12*(10*A*a**7*b**3*e**
8 + 140*A*a**6*b**4*d*e**7 + 588*A*a**5*b**5*d**2*e**6 + 980*A*a*
*4*b**6*d**3*e**5 + 700*A*a**3*b**7*d**4*e**4 + 210*A*a**2*b**8*d
**5*e**3 + 70*A*a*b**9*d**6*e**2/3 + 2*A*b**10*d**7*e/3 + 15*B*a*
```

```
*8*b**2*e**8/4 + 80*B*a**7*b**3*d*e**7 + 490*B*a**6*b**4*d**2*e**
6 + 1176*B*a**5*b**5*d**3*e**5 + 1225*B*a**4*b**6*d**4*e**4 + 560
*B*a**3*b**7*d**5*e**3 + 105*B*a**2*b**8*d**6*e**2 + 20*B*a*b**9*
d**7*e/3 + B*b**10*d**8/12) + x**11*(45*A*a**8*b**2*e**8/11 + 960
*A*a**7*b**3*d*e**7/11 + 5880*A*a**6*b**4*d**2*e**6/11 + 14112*A*
a**5*b**5*d**3*e**5/11 + 14700*A*a**4*b**6*d**4*e**4/11 + 6720*A*
a**3*b**7*d**5*e**3/11 + 1260*A*a**2*b**8*d**6*e**2/11 + 80*A*a*b
**9*d**7*e/11 + A*b**10*d**8/11 + 10*B*a**9*b*e**8/11 + 360*B*a**
8*b**2*d*e**7/11 + 3360*B*a**7*b**3*d**2*e**6/11 + 11760*B*a**6*b
**4*d**3*e**5/11 + 17640*B*a**5*b**5*d**4*e**4/11 + 11760*B*a**4*
b**6*d**5*e**3/11 + 3360*B*a**3*b**7*d**6*e**2/11 + 360*B*a**2*b*
*8*d**7*e/11 + 10*B*a*b**9*d**8/11) + x**10*(A*a**9*b*e**8 + 36*A
*a**8*b**2*d*e**7 + 336*A*a**7*b**3*d**2*e**6 + 1176*A*a**6*b**4*
d**3*e**5 + 1764*A*a**5*b**5*d**4*e**4 + 1176*A*a**4*b**6*d**5*e*
*3 + 336*A*a**3*b**7*d**6*e**2 + 36*A*a**2*b**8*d**7*e + A*a*b**9
*d**8 + B*a**10*e**8/10 + 8*B*a**9*b*d*e**7 + 126*B*a**8*b**2*d**
2*e**6 + 672*B*a**7*b**3*d**3*e**5 + 1470*B*a**6*b**4*d**4*e**4 +
 7056*B*a**5*b**5*d**5*e**3/5 + 588*B*a**4*b**6*d**6*e**2 + 96*B*
a**3*b**7*d**7*e + 9*B*a**2*b**8*d**8/2) + x**9*(A*a**10*e**8/9 +
 80*A*a**9*b*d*e**7/9 + 140*A*a**8*b**2*d**2*e**6 + 2240*A*a**7*b
**3*d**3*e**5/3 + 4900*A*a**6*b**4*d**4*e**4/3 + 1568*A*a**5*b**5
*d**5*e**3 + 1960*A*a**4*b**6*d**6*e**2/3 + 320*A*a**3*b**7*d**7*
e/3 + 5*A*a**2*b**8*d**8 + 8*B*a**10*d*e**7/9 + 280*B*a**9*b*d**2
*e**6/9 + 280*B*a**8*b**2*d**3*e**5 + 2800*B*a**7*b**3*d**4*e**4/
3 + 3920*B*a**6*b**4*d**5*e**3/3 + 784*B*a**5*b**5*d**6*e**2 + 56
0*B*a**4*b**6*d**7*e/3 + 40*B*a**3*b**7*d**8/3) + x**8*(A*a**10*d
*e**7 + 35*A*a**9*b*d**2*e**6 + 315*A*a**8*b**2*d**3*e**5 + 1050*
A*a**7*b**3*d**4*e**4 + 1470*A*a**6*b**4*d**5*e**3 + 882*A*a**5*b
**5*d**6*e**2 + 210*A*a**4*b**6*d**7*e + 15*A*a**3*b**7*d**8 + 7*
B*a**10*d**2*e**6/2 + 70*B*a**9*b*d**3*e**5 + 1575*B*a**8*b**2*d*
*4*e**4/4 + 840*B*a**7*b**3*d**5*e**3 + 735*B*a**6*b**4*d**6*e**2
 + 252*B*a**5*b**5*d**7*e + 105*B*a**4*b**6*d**8/4) + x**7*(4*A*a
**10*d**2*e**6 + 80*A*a**9*b*d**3*e**5 + 450*A*a**8*b**2*d**4*e**
4 + 960*A*a**7*b**3*d**5*e**3 + 840*A*a**6*b**4*d**6*e**2 + 288*A
*a**5*b**5*d**7*e + 30*A*a**4*b**6*d**8 + 8*B*a**10*d**3*e**5 + 1
00*B*a**9*b*d**4*e**4 + 360*B*a**8*b**2*d**5*e**3 + 480*B*a**7*b*
*3*d**6*e**2 + 240*B*a**6*b**4*d**7*e + 36*B*a**5*b**5*d**8) + x*
*6*(28*A*a**10*d**3*e**5/3 + 350*A*a**9*b*d**4*e**4/3 + 420*A*a**
8*b**2*d**5*e**3 + 560*A*a**7*b**3*d**6*e**2 + 280*A*a**6*b**4*d*
*7*e + 42*A*a**5*b**5*d**8 + 35*B*a**10*d**4*e**4/3 + 280*B*a**9*
b*d**5*e**3/3 + 210*B*a**8*b**2*d**6*e**2 + 160*B*a**7*b**3*d**7*
e + 35*B*a**6*b**4*d**8) + x**5*(14*A*a**10*d**4*e**4 + 112*A*a**
9*b*d**5*e**3 + 252*A*a**8*b**2*d**6*e**2 + 192*A*a**7*b**3*d**7*
e + 42*A*a**6*b**4*d**8 + 56*B*a**10*d**5*e**3/5 + 56*B*a**9*b*d*
*6*e**2 + 72*B*a**8*b**2*d**7*e + 24*B*a**7*b**3*d**8) + x**4*(14
*A*a**10*d**5*e**3 + 70*A*a**9*b*d**6*e**2 + 90*A*a**8*b**2*d**7*
e + 30*A*a**7*b**3*d**8 + 7*B*a**10*d**6*e**2 + 20*B*a**9*b*d**7*
e + 45*B*a**8*b**2*d**8/4) + x**3*(28*A*a**10*d**6*e**2/3 + 80*A*
a**9*b*d**7*e/3 + 15*A*a**8*b**2*d**8 + 8*B*a**10*d**7*e/3 + 10*B
*a**9*b*d**8/3) + x**2*(4*A*a**10*d**7*e + 5*A*a**9*b*d**8 + B*a*
*10*d**8/2)
```

GIAC/XCAS [A] time = 0.212053, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*(e*x + d)^8,x, algorithm="giac")
```

```
[Out] Done
```

3.1064 $\int (a+bx)^{10}(A+Bx)(d+ex)^7\,dx$

Optimal. Leaf size=329

$$\frac{e^6(a+bx)^{18}(-8aBe+Abe+7bBd)}{18b^9}+\frac{7e^5(a+bx)^{17}(bd-ae)(-4aBe+Abe+3bBd)}{17b^9}+\frac{7e^4(a+bx)^{16}(bd-ae)^2(-8aBe+3Abe+5bBd)}{16b^9}+\frac{7e^3(a+bx)^{15}(bd-ae)^3(-2aBe+Abe+bBd)}{3b^9}+\frac{e^2(a+bx)^{14}(bd-ae)^4(-8aBe+5Abe+3bBd)}{2b^9}+\frac{7e(a+bx)^{13}(bd-ae)^5(-4aBe+3Abe+bBd)}{13b^9}+\frac{(a+bx)^{12}(bd-ae)^6(-8aBe+7Abe+bBd)}{12b^9}+\frac{(a+bx)^{11}(Ab-aB)(bd-ae)^7}{11b^9}+\frac{Be^7(a+bx)^{19}}{19b^9}$$

```
[Out] ((A*b - a*B)*(b*d - a*e)^7*(a + b*x)^11)/(11*b^9) + ((b*d - a*e)^
6*(b*B*d + 7*A*b*e - 8*a*B*e)*(a + b*x)^12)/(12*b^9) + (7*e*(b*d
- a*e)^5*(b*B*d + 3*A*b*e - 4*a*B*e)*(a + b*x)^13)/(13*b^9) + (e^
2*(b*d - a*e)^4*(3*b*B*d + 5*A*b*e - 8*a*B*e)*(a + b*x)^14)/(2*b^
9) + (7*e^3*(b*d - a*e)^3*(b*B*d + A*b*e - 2*a*B*e)*(a + b*x)^15)
/(3*b^9) + (7*e^4*(b*d - a*e)^2*(5*b*B*d + 3*A*b*e - 8*a*B*e)*(a
+ b*x)^16)/(16*b^9) + (7*e^5*(b*d - a*e)*(3*b*B*d + A*b*e - 4*a*B
*e)*(a + b*x)^17)/(17*b^9) + (e^6*(7*b*B*d + A*b*e - 8*a*B*e)*(a
+ b*x)^18)/(18*b^9) + (B*e^7*(a + b*x)^19)/(19*b^9)
```

Rubi [A] time = 8.31475, antiderivative size = 329, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{e^6(a+bx)^{18}(-8aBe+Abe+7bBd)}{18b^9}+\frac{7e^5(a+bx)^{17}(bd-ae)(-4aBe+Abe+3bBd)}{17b^9}+\frac{7e^4(a+bx)^{16}(bd-ae)^2(-8aBe+3Abe+5bBd)}{16b^9}+\frac{7e^3(a+bx)^{15}(bd-ae)^3(-2aBe+Abe+bBd)}{3b^9}+\frac{e^2(a+bx)^{14}(bd-ae)^4(-8aBe+5Abe+3bBd)}{2b^9}+\frac{7e(a+bx)^{13}(bd-ae)^5(-4aBe+3Abe+bBd)}{13b^9}+\frac{(a+bx)^{12}(bd-ae)^6(-8aBe+7Abe+bBd)}{12b^9}+\frac{(a+bx)^{11}(Ab-aB)(bd-ae)^7}{11b^9}+\frac{Be^7(a+bx)^{19}}{19b^9}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^10*(A + B*x)*(d + e*x)^7,x]
```


```
[Out] ((A*b - a*B)*(b*d - a*e)^7*(a + b*x)^11)/(11*b^9) + ((b*d - a*e)^
6*(b*B*d + 7*A*b*e - 8*a*B*e)*(a + b*x)^12)/(12*b^9) + (7*e*(b*d
- a*e)^5*(b*B*d + 3*A*b*e - 4*a*B*e)*(a + b*x)^13)/(13*b^9) + (e^
2*(b*d - a*e)^4*(3*b*B*d + 5*A*b*e - 8*a*B*e)*(a + b*x)^14)/(2*b^
9) + (7*e^3*(b*d - a*e)^3*(b*B*d + A*b*e - 2*a*B*e)*(a + b*x)^15)
/(3*b^9) + (7*e^4*(b*d - a*e)^2*(5*b*B*d + 3*A*b*e - 8*a*B*e)*(a
+ b*x)^16)/(16*b^9) + (7*e^5*(b*d - a*e)*(3*b*B*d + A*b*e - 4*a*B
*e)*(a + b*x)^17)/(17*b^9) + (e^6*(7*b*B*d + A*b*e - 8*a*B*e)*(a
+ b*x)^18)/(18*b^9) + (B*e^7*(a + b*x)^19)/(19*b^9)
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)*(e*x+d)**7,x)
```

```
[Out] Timed out
```

Mathematica [B] time = 1.51416, size = 2034, normalized size = 6.18

Result too large to show

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^10*(A + B*x)*(d + e*x)^7,x]
```

```
[Out] a^10*A*d^7*x + (a^9*d^6*(10*A*b*d + a*B*d + 7*a*A*e)*x^2)/2 + (a^
8*d^5*(a*B*d*(10*b*d + 7*a*e) + A*(45*b^2*d^2 + 70*a*b*d*e + 21*a
^2*e^2))*x^3)/3 + (a^7*d^4*(a*B*d*(45*b^2*d^2 + 70*a*b*d*e + 21*a
^2*e^2) + 5*A*(24*b^3*d^3 + 63*a*b^2*d^2*e + 42*a^2*b*d*e^2 + 7*a
^3*e^3))*x^4)/4 + a^6*d^3*(a*B*d*(24*b^3*d^3 + 63*a*b^2*d^2*e + 4
2*a^2*b*d*e^2 + 7*a^3*e^3) + 7*A*(6*b^4*d^4 + 24*a*b^3*d^3*e + 27
*a^2*b^2*d^2*e^2 + 10*a^3*b*d*e^3 + a^4*e^4))*x^5 + (7*a^5*d^2*(5
*a*B*d*(6*b^4*d^4 + 24*a*b^3*d^3*e + 27*a^2*b^2*d^2*e^2 + 10*a^3*
b*d*e^3 + a^4*e^4) + A*(36*b^5*d^5 + 210*a*b^4*d^4*e + 360*a^2*b^
3*d^3*e^2 + 225*a^3*b^2*d^2*e^3 + 50*a^4*b*d*e^4 + 3*a^5*e^5))*x^
6)/6 + a^4*d*(a*B*d*(36*b^5*d^5 + 210*a*b^4*d^4*e + 360*a^2*b^3*d
^3*e^2 + 225*a^3*b^2*d^2*e^3 + 50*a^4*b*d*e^4 + 3*a^5*e^5) + A*(3
0*b^6*d^6 + 252*a*b^5*d^5*e + 630*a^2*b^4*d^4*e^2 + 600*a^3*b^3*d
^3*e^3 + 225*a^4*b^2*d^2*e^4 + 30*a^5*b*d*e^5 + a^6*e^6))*x^7 + (
a^3*(7*a*B*d*(30*b^6*d^6 + 252*a*b^5*d^5*e + 630*a^2*b^4*d^4*e^2
+ 600*a^3*b^3*d^3*e^3 + 225*a^4*b^2*d^2*e^4 + 30*a^5*b*d*e^5 + a^
6*e^6) + A*(120*b^7*d^7 + 1470*a*b^6*d^6*e + 5292*a^2*b^5*d^5*e^2
 + 7350*a^3*b^4*d^4*e^3 + 4200*a^4*b^3*d^3*e^4 + 945*a^5*b^2*d^2*
e^5 + 70*a^6*b*d*e^6 + a^7*e^7))*x^8)/8 + (a^2*(a*B*(120*b^7*d^7
+ 1470*a*b^6*d^6*e + 5292*a^2*b^5*d^5*e^2 + 7350*a^3*b^4*d^4*e^3
+ 4200*a^4*b^3*d^3*e^4 + 945*a^5*b^2*d^2*e^5 + 70*a^6*b*d*e^6 + a
^7*e^7) + 5*A*b*(9*b^7*d^7 + 168*a*b^6*d^6*e + 882*a^2*b^5*d^5*e^
2 + 1764*a^3*b^4*d^4*e^3 + 1470*a^4*b^3*d^3*e^4 + 504*a^5*b^2*d^2
*e^5 + 63*a^6*b*d*e^6 + 2*a^7*e^7))*x^9)/9 + (a*b*(a*B*(9*b^7*d^7
 + 168*a*b^6*d^6*e + 882*a^2*b^5*d^5*e^2 + 1764*a^3*b^4*d^4*e^3 +
 1470*a^4*b^3*d^3*e^4 + 504*a^5*b^2*d^2*e^5 + 63*a^6*b*d*e^6 + 2*
a^7*e^7) + A*b*(2*b^7*d^7 + 63*a*b^6*d^6*e + 504*a^2*b^5*d^5*e^2
+ 1470*a^3*b^4*d^4*e^3 + 1764*a^4*b^3*d^3*e^4 + 882*a^5*b^2*d^2*e
^5 + 168*a^6*b*d*e^6 + 9*a^7*e^7))*x^10)/2 + (b^2*(5*a*B*(2*b^7*d
^7 + 63*a*b^6*d^6*e + 504*a^2*b^5*d^5*e^2 + 1470*a^3*b^4*d^4*e^3
+ 1764*a^4*b^3*d^3*e^4 + 882*a^5*b^2*d^2*e^5 + 168*a^6*b*d*e^6 +
9*a^7*e^7) + A*b*(b^7*d^7 + 70*a*b^6*d^6*e + 945*a^2*b^5*d^5*e^2
+ 4200*a^3*b^4*d^4*e^3 + 7350*a^4*b^3*d^3*e^4 + 5292*a^5*b^2*d^2*
e^5 + 1470*a^6*b*d*e^6 + 120*a^7*e^7))*x^11)/11 + (b^3*(120*a^7*B
*e^7 + 4200*a^3*b^4*d^3*e^3*(B*d + A*e) + 1764*a^5*b^2*d*e^5*(3*B
*d + A*e) + 210*a^6*b*e^6*(7*B*d + A*e) + 70*a*b^6*d^5*e*(B*d + 3
*A*e) + 1470*a^4*b^3*d^2*e^4*(5*B*d + 3*A*e) + 315*a^2*b^5*d^4*e^
2*(3*B*d + 5*A*e) + b^7*d^6*(B*d + 7*A*e))*x^12)/12 + (7*b^4*e*(3
0*a^6*B*e^6 + 225*a^2*b^4*d^3*e^2*(B*d + A*e) + 210*a^4*b^2*d*e^4
*(3*B*d + A*e) + 36*a^5*b*e^5*(7*B*d + A*e) + b^6*d^5*(B*d + 3*A*
e) + 120*a^3*b^3*d^2*e^3*(5*B*d + 3*A*e) + 10*a*b^5*d^4*e*(3*B*d
+ 5*A*e))*x^13)/13 + (b^5*e^2*(36*a^5*B*e^5 + 50*a*b^4*d^3*e*(B*d
 + A*e) + 120*a^3*b^2*d*e^3*(3*B*d + A*e) + 30*a^4*b*e^4*(7*B*d +
 A*e) + 45*a^2*b^3*d^2*e^2*(5*B*d + 3*A*e) + b^5*d^4*(3*B*d + 5*A
*e))*x^14)/2 + (b^6*e^3*(42*a^4*B*e^4 + 7*b^4*d^3*(B*d + A*e) + 6
3*a^2*b^2*d*e^2*(3*B*d + A*e) + 24*a^3*b*e^3*(7*B*d + A*e) + 14*a
*b^3*d^2*e*(5*B*d + 3*A*e))*x^15)/3 + (b^7*e^4*(120*a^3*B*e^3 + 7
0*a*b^2*d*e*(3*B*d + A*e) + 45*a^2*b*e^2*(7*B*d + A*e) + 7*b^3*d^
2*(5*B*d + 3*A*e))*x^16)/16 + (b^8*e^5*(45*a^2*B*e^2 + 7*b^2*d*(3
*B*d + A*e) + 10*a*b*e*(7*B*d + A*e))*x^17)/17 + (b^9*e^6*(7*b*B*
d + A*b*e + 10*a*B*e)*x^18)/18 + (b^10*B*e^7*x^19)/19
```

Maple [B] time = 0.004, size = 2189, normalized size = 6.7

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^10*(B*x+A)*(e*x+d)^7,x)
```

```
[Out] 1/19*b^10*B*e^7*x^19+1/18*((A*b^10+10*B*a*b^9)*e^7+7*b^10*B*d*e^6
)*x^18+1/17*((10*A*a*b^9+45*B*a^2*b^8)*e^7+7*(A*b^10+10*B*a*b^9)*
d*e^6+21*b^10*B*d^2*e^5)*x^17+1/16*((45*A*a^2*b^8+120*B*a^3*b^7)*
e^7+7*(10*A*a*b^9+45*B*a^2*b^8)*d*e^6+21*(A*b^10+10*B*a*b^9)*d^2*
e^5+35*b^10*B*d^3*e^4)*x^16+1/15*((120*A*a^3*b^7+210*B*a^4*b^6)*e
^7+7*(45*A*a^2*b^8+120*B*a^3*b^7)*d*e^6+21*(10*A*a*b^9+45*B*a^2*b
^8)*d^2*e^5+35*(A*b^10+10*B*a*b^9)*d^3*e^4+35*b^10*B*d^4*e^3)*x^1
5+1/14*((210*A*a^4*b^6+252*B*a^5*b^5)*e^7+7*(120*A*a^3*b^7+210*B*
a^4*b^6)*d*e^6+21*(45*A*a^2*b^8+120*B*a^3*b^7)*d^2*e^5+35*(10*A*a
*b^9+45*B*a^2*b^8)*d^3*e^4+35*(A*b^10+10*B*a*b^9)*d^4*e^3+21*b^10
*B*d^5*e^2)*x^14+1/13*((252*A*a^5*b^5+210*B*a^6*b^4)*e^7+7*(210*A
*a^4*b^6+252*B*a^5*b^5)*d*e^6+21*(120*A*a^3*b^7+210*B*a^4*b^6)*d^
2*e^5+35*(45*A*a^2*b^8+120*B*a^3*b^7)*d^3*e^4+35*(10*A*a*b^9+45*B
*a^2*b^8)*d^4*e^3+21*(A*b^10+10*B*a*b^9)*d^5*e^2+7*b^10*B*d^6*e)*
x^13+1/12*((210*A*a^6*b^4+120*B*a^7*b^3)*e^7+7*(252*A*a^5*b^5+210
*B*a^6*b^4)*d*e^6+21*(210*A*a^4*b^6+252*B*a^5*b^5)*d^2*e^5+35*(12
0*A*a^3*b^7+210*B*a^4*b^6)*d^3*e^4+35*(45*A*a^2*b^8+120*B*a^3*b^7
)*d^4*e^3+21*(10*A*a*b^9+45*B*a^2*b^8)*d^5*e^2+7*(A*b^10+10*B*a*b
^9)*d^6*e+b^10*B*d^7)*x^12+1/11*((120*A*a^7*b^3+45*B*a^8*b^2)*e^7
+7*(210*A*a^6*b^4+120*B*a^7*b^3)*d*e^6+21*(252*A*a^5*b^5+210*B*a^
6*b^4)*d^2*e^5+35*(210*A*a^4*b^6+252*B*a^5*b^5)*d^3*e^4+35*(120*A
*a^3*b^7+210*B*a^4*b^6)*d^4*e^3+21*(45*A*a^2*b^8+120*B*a^3*b^7)*d
^5*e^2+7*(10*A*a*b^9+45*B*a^2*b^8)*d^6*e+(A*b^10+10*B*a*b^9)*d^7)
*x^11+1/10*((45*A*a^8*b^2+10*B*a^9*b)*e^7+7*(120*A*a^7*b^3+45*B*a
^8*b^2)*d*e^6+21*(210*A*a^6*b^4+120*B*a^7*b^3)*d^2*e^5+35*(252*A*
a^5*b^5+210*B*a^6*b^4)*d^3*e^4+35*(210*A*a^4*b^6+252*B*a^5*b^5)*d
^4*e^3+21*(120*A*a^3*b^7+210*B*a^4*b^6)*d^5*e^2+7*(45*A*a^2*b^8+1
20*B*a^3*b^7)*d^6*e+(10*A*a*b^9+45*B*a^2*b^8)*d^7)*x^10+1/9*((10*
A*a^9*b+B*a^10)*e^7+7*(45*A*a^8*b^2+10*B*a^9*b)*d*e^6+21*(120*A*a
^7*b^3+45*B*a^8*b^2)*d^2*e^5+35*(210*A*a^6*b^4+120*B*a^7*b^3)*d^3
*e^4+35*(252*A*a^5*b^5+210*B*a^6*b^4)*d^4*e^3+21*(210*A*a^4*b^6+2
52*B*a^5*b^5)*d^5*e^2+7*(120*A*a^3*b^7+210*B*a^4*b^6)*d^6*e+(45*A
*a^2*b^8+120*B*a^3*b^7)*d^7)*x^9+1/8*(a^10*A*e^7+7*(10*A*a^9*b+B*
a^10)*d*e^6+21*(45*A*a^8*b^2+10*B*a^9*b)*d^2*e^5+35*(120*A*a^7*b^
3+45*B*a^8*b^2)*d^3*e^4+35*(210*A*a^6*b^4+120*B*a^7*b^3)*d^4*e^3+
21*(252*A*a^5*b^5+210*B*a^6*b^4)*d^5*e^2+7*(210*A*a^4*b^6+252*B*a
^5*b^5)*d^6*e+(120*A*a^3*b^7+210*B*a^4*b^6)*d^7)*x^8+1/7*(7*a^10*
A*d*e^6+21*(10*A*a^9*b+B*a^10)*d^2*e^5+35*(45*A*a^8*b^2+10*B*a^9*
b)*d^3*e^4+35*(120*A*a^7*b^3+45*B*a^8*b^2)*d^4*e^3+21*(210*A*a^6*
b^4+120*B*a^7*b^3)*d^5*e^2+7*(252*A*a^5*b^5+210*B*a^6*b^4)*d^6*e+
(210*A*a^4*b^6+252*B*a^5*b^5)*d^7)*x^7+1/6*(21*a^10*A*d^2*e^5+35*
(10*A*a^9*b+B*a^10)*d^3*e^4+35*(45*A*a^8*b^2+10*B*a^9*b)*d^4*e^3+
21*(120*A*a^7*b^3+45*B*a^8*b^2)*d^5*e^2+7*(210*A*a^6*b^4+120*B*a^
7*b^3)*d^6*e+(252*A*a^5*b^5+210*B*a^6*b^4)*d^7)*x^6+1/5*(35*a^10*
A*d^3*e^4+35*(10*A*a^9*b+B*a^10)*d^4*e^3+21*(45*A*a^8*b^2+10*B*a^
9*b)*d^5*e^2+7*(120*A*a^7*b^3+45*B*a^8*b^2)*d^6*e+(210*A*a^6*b^4+
120*B*a^7*b^3)*d^7)*x^5+1/4*(35*a^10*A*d^4*e^3+21*(10*A*a^9*b+B*a
^10)*d^5*e^2+7*(45*A*a^8*b^2+10*B*a^9*b)*d^6*e+(120*A*a^7*b^3+45*
B*a^8*b^2)*d^7)*x^4+1/3*(21*a^10*A*d^5*e^2+7*(10*A*a^9*b+B*a^10)*
d^6*e+(45*A*a^8*b^2+10*B*a^9*b)*d^7)*x^3+1/2*(7*a^10*A*d^6*e+(10*
A*a^9*b+B*a^10)*d^7)*x^2+a^10*A*d^7*x
```

Maxima [A] time = 1.39962, size = 2967, normalized size = 9.02

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*(e*x + d)^7,x, algorithm="maxima")
```

```
[Out] 1/19*B*b^10*e^7*x^19 + A*a^10*d^7*x + 1/18*(7*B*b^10*d*e^6 + (10*
B*a*b^9 + A*b^10)*e^7)*x^18 + 1/17*(21*B*b^10*d^2*e^5 + 7*(10*B*a
*b^9 + A*b^10)*d*e^6 + 5*(9*B*a^2*b^8 + 2*A*a*b^9)*e^7)*x^17 + 1/
16*(35*B*b^10*d^3*e^4 + 21*(10*B*a*b^9 + A*b^10)*d^2*e^5 + 35*(9*
B*a^2*b^8 + 2*A*a*b^9)*d*e^6 + 15*(8*B*a^3*b^7 + 3*A*a^2*b^8)*e^7
)*x^16 + 1/3*(7*B*b^10*d^4*e^3 + 7*(10*B*a*b^9 + A*b^10)*d^3*e^4
+ 21*(9*B*a^2*b^8 + 2*A*a*b^9)*d^2*e^5 + 21*(8*B*a^3*b^7 + 3*A*a^
2*b^8)*d*e^6 + 6*(7*B*a^4*b^6 + 4*A*a^3*b^7)*e^7)*x^15 + 1/2*(3*B
*b^10*d^5*e^2 + 5*(10*B*a*b^9 + A*b^10)*d^4*e^3 + 25*(9*B*a^2*b^8
 + 2*A*a*b^9)*d^3*e^4 + 45*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^2*e^5 +
```

```
30*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d*e^6 + 6*(6*B*a^5*b^5 + 5*A*a^4*b
^6)*e^7)*x^14 + 7/13*(B*b^10*d^6*e + 3*(10*B*a*b^9 + A*b^10)*d^5*
e^2 + 25*(9*B*a^2*b^8 + 2*A*a*b^9)*d^4*e^3 + 75*(8*B*a^3*b^7 + 3*
A*a^2*b^8)*d^3*e^4 + 90*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^2*e^5 + 42*
(6*B*a^5*b^5 + 5*A*a^4*b^6)*d*e^6 + 6*(5*B*a^6*b^4 + 6*A*a^5*b^5)
*e^7)*x^13 + 1/12*(B*b^10*d^7 + 7*(10*B*a*b^9 + A*b^10)*d^6*e + 1
05*(9*B*a^2*b^8 + 2*A*a*b^9)*d^5*e^2 + 525*(8*B*a^3*b^7 + 3*A*a^2
*b^8)*d^4*e^3 + 1050*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^3*e^4 + 882*(6
*B*a^5*b^5 + 5*A*a^4*b^6)*d^2*e^5 + 294*(5*B*a^6*b^4 + 6*A*a^5*b^
5)*d*e^6 + 30*(4*B*a^7*b^3 + 7*A*a^6*b^4)*e^7)*x^12 + 1/11*((10*B
*a*b^9 + A*b^10)*d^7 + 35*(9*B*a^2*b^8 + 2*A*a*b^9)*d^6*e + 315*(
8*B*a^3*b^7 + 3*A*a^2*b^8)*d^5*e^2 + 1050*(7*B*a^4*b^6 + 4*A*a^3*
b^7)*d^4*e^3 + 1470*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^3*e^4 + 882*(5*
B*a^6*b^4 + 6*A*a^5*b^5)*d^2*e^5 + 210*(4*B*a^7*b^3 + 7*A*a^6*b^4
)*d*e^6 + 15*(3*B*a^8*b^2 + 8*A*a^7*b^3)*e^7)*x^11 + 1/2*((9*B*a^
2*b^8 + 2*A*a*b^9)*d^7 + 21*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^6*e + 1
26*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^5*e^2 + 294*(6*B*a^5*b^5 + 5*A*a
^4*b^6)*d^4*e^3 + 294*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^3*e^4 + 126*(
4*B*a^7*b^3 + 7*A*a^6*b^4)*d^2*e^5 + 21*(3*B*a^8*b^2 + 8*A*a^7*b^
3)*d*e^6 + (2*B*a^9*b + 9*A*a^8*b^2)*e^7)*x^10 + 1/9*(15*(8*B*a^3
*b^7 + 3*A*a^2*b^8)*d^7 + 210*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^6*e +
 882*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^5*e^2 + 1470*(5*B*a^6*b^4 + 6*
A*a^5*b^5)*d^4*e^3 + 1050*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^3*e^4 + 3
15*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^2*e^5 + 35*(2*B*a^9*b + 9*A*a^8*
b^2)*d*e^6 + (B*a^10 + 10*A*a^9*b)*e^7)*x^9 + 1/8*(A*a^10*e^7 + 3
0*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^7 + 294*(6*B*a^5*b^5 + 5*A*a^4*b^
6)*d^6*e + 882*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^5*e^2 + 1050*(4*B*a^
7*b^3 + 7*A*a^6*b^4)*d^4*e^3 + 525*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^
3*e^4 + 105*(2*B*a^9*b + 9*A*a^8*b^2)*d^2*e^5 + 7*(B*a^10 + 10*A*
a^9*b)*d*e^6)*x^8 + (A*a^10*d*e^6 + 6*(6*B*a^5*b^5 + 5*A*a^4*b^6)
*d^7 + 42*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^6*e + 90*(4*B*a^7*b^3 + 7
*A*a^6*b^4)*d^5*e^2 + 75*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^4*e^3 + 25
*(2*B*a^9*b + 9*A*a^8*b^2)*d^3*e^4 + 3*(B*a^10 + 10*A*a^9*b)*d^2*
e^5)*x^7 + 7/6*(3*A*a^10*d^2*e^5 + 6*(5*B*a^6*b^4 + 6*A*a^5*b^5)*
d^7 + 30*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^6*e + 45*(3*B*a^8*b^2 + 8*
A*a^7*b^3)*d^5*e^2 + 25*(2*B*a^9*b + 9*A*a^8*b^2)*d^4*e^3 + 5*(B*
a^10 + 10*A*a^9*b)*d^3*e^4)*x^6 + (7*A*a^10*d^3*e^4 + 6*(4*B*a^7*
b^3 + 7*A*a^6*b^4)*d^7 + 21*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^6*e + 2
1*(2*B*a^9*b + 9*A*a^8*b^2)*d^5*e^2 + 7*(B*a^10 + 10*A*a^9*b)*d^4
*e^3)*x^5 + 1/4*(35*A*a^10*d^4*e^3 + 15*(3*B*a^8*b^2 + 8*A*a^7*b^
3)*d^7 + 35*(2*B*a^9*b + 9*A*a^8*b^2)*d^6*e + 21*(B*a^10 + 10*A*a
^9*b)*d^5*e^2)*x^4 + 1/3*(21*A*a^10*d^5*e^2 + 5*(2*B*a^9*b + 9*A*
a^8*b^2)*d^7 + 7*(B*a^10 + 10*A*a^9*b)*d^6*e)*x^3 + 1/2*(7*A*a^10
*d^6*e + (B*a^10 + 10*A*a^9*b)*d^7)*x^2
```

Fricas [A] time = 0.19273, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^10*(e*x + d)^7,x, algorithm="fricas")
```

```
[Out] 1/19*x^19*e^7*b^10*B + 7/18*x^18*e^6*d*b^10*B + 5/9*x^18*e^7*b^9*
a*B + 1/18*x^18*e^7*b^10*A + 21/17*x^17*e^5*d^2*b^10*B + 70/17*x^
17*e^6*d*b^9*a*B + 45/17*x^17*e^7*b^8*a^2*B + 7/17*x^17*e^6*d*b^1
0*A + 10/17*x^17*e^7*b^9*a*A + 35/16*x^16*e^4*d^3*b^10*B + 105/8*
x^16*e^5*d^2*b^9*a*B + 315/16*x^16*e^6*d*b^8*a^2*B + 15/2*x^16*e^
7*b^7*a^3*B + 21/16*x^16*e^5*d^2*b^10*A + 35/8*x^16*e^6*d*b^9*a*A
 + 45/16*x^16*e^7*b^8*a^2*A + 7/3*x^15*e^3*d^4*b^10*B + 70/3*x^15
*e^4*d^3*b^9*a*B + 63*x^15*e^5*d^2*b^8*a^2*B + 56*x^15*e^6*d*b^7*
a^3*B + 14*x^15*e^7*b^6*a^4*B + 7/3*x^15*e^4*d^3*b^10*A + 14*x^15
*e^5*d^2*b^9*a*A + 21*x^15*e^6*d*b^8*a^2*A + 8*x^15*e^7*b^7*a^3*A
 + 3/2*x^14*e^2*d^5*b^10*B + 25*x^14*e^3*d^4*b^9*a*B + 225/2*x^14
*e^4*d^3*b^8*a^2*B + 180*x^14*e^5*d^2*b^7*a^3*B + 105*x^14*e^6*d*
b^6*a^4*B + 18*x^14*e^7*b^5*a^5*B + 5/2*x^14*e^3*d^4*b^10*A + 25*
x^14*e^4*d^3*b^9*a*A + 135/2*x^14*e^5*d^2*b^8*a^2*A + 60*x^14*e^6
*d*b^7*a^3*A + 15*x^14*e^7*b^6*a^4*A + 7/13*x^13*e*d^6*b^10*B + 2
10/13*x^13*e^2*d^5*b^9*a*B + 1575/13*x^13*e^3*d^4*b^8*a^2*B + 420
0/13*x^13*e^4*d^3*b^7*a^3*B + 4410/13*x^13*e^5*d^2*b^6*a^4*B + 17
```

```
64/13*x^13*e^6*d*b^5*a^5*B + 210/13*x^13*e^7*b^4*a^6*B + 21/13*x^
13*e^2*d^5*b^10*A + 350/13*x^13*e^3*d^4*b^9*a*A + 1575/13*x^13*e^
4*d^3*b^8*a^2*A + 2520/13*x^13*e^5*d^2*b^7*a^3*A + 1470/13*x^13*e
^6*d*b^6*a^4*A + 252/13*x^13*e^7*b^5*a^5*A + 1/12*x^12*d^7*b^10*B
 + 35/6*x^12*e*d^6*b^9*a*B + 315/4*x^12*e^2*d^5*b^8*a^2*B + 350*x
^12*e^3*d^4*b^7*a^3*B + 1225/2*x^12*e^4*d^3*b^6*a^4*B + 441*x^12*
e^5*d^2*b^5*a^5*B + 245/2*x^12*e^6*d*b^4*a^6*B + 10*x^12*e^7*b^3*
a^7*B + 7/12*x^12*e*d^6*b^10*A + 35/2*x^12*e^2*d^5*b^9*a*A + 525/
4*x^12*e^3*d^4*b^8*a^2*A + 350*x^12*e^4*d^3*b^7*a^3*A + 735/2*x^1
2*e^5*d^2*b^6*a^4*A + 147*x^12*e^6*d*b^5*a^5*A + 35/2*x^12*e^7*b^
4*a^6*A + 10/11*x^11*d^7*b^9*a*B + 315/11*x^11*e*d^6*b^8*a^2*B +
2520/11*x^11*e^2*d^5*b^7*a^3*B + 7350/11*x^11*e^3*d^4*b^6*a^4*B +
 8820/11*x^11*e^4*d^3*b^5*a^5*B + 4410/11*x^11*e^5*d^2*b^4*a^6*B
+ 840/11*x^11*e^6*d*b^3*a^7*B + 45/11*x^11*e^7*b^2*a^8*B + 1/11*x
^11*d^7*b^10*A + 70/11*x^11*e*d^6*b^9*a*A + 945/11*x^11*e^2*d^5*b
^8*a^2*A + 4200/11*x^11*e^3*d^4*b^7*a^3*A + 7350/11*x^11*e^4*d^3*
b^6*a^4*A + 5292/11*x^11*e^5*d^2*b^5*a^5*A + 1470/11*x^11*e^6*d*b
^4*a^6*A + 120/11*x^11*e^7*b^3*a^7*A + 9/2*x^10*d^7*b^8*a^2*B + 8
4*x^10*e*d^6*b^7*a^3*B + 441*x^10*e^2*d^5*b^6*a^4*B + 882*x^10*e^
3*d^4*b^5*a^5*B + 735*x^10*e^4*d^3*b^4*a^6*B + 252*x^10*e^5*d^2*b
^3*a^7*B + 63/2*x^10*e^6*d*b^2*a^8*B + x^10*e^7*b*a^9*B + x^10*d^
7*b^9*a*A + 63/2*x^10*e*d^6*b^8*a^2*A + 252*x^10*e^2*d^5*b^7*a^3*
A + 735*x^10*e^3*d^4*b^6*a^4*A + 882*x^10*e^4*d^3*b^5*a^5*A + 441
*x^10*e^5*d^2*b^4*a^6*A + 84*x^10*e^6*d*b^3*a^7*A + 9/2*x^10*e^7*
b^2*a^8*A + 40/3*x^9*d^7*b^7*a^3*B + 490/3*x^9*e*d^6*b^6*a^4*B +
588*x^9*e^2*d^5*b^5*a^5*B + 2450/3*x^9*e^3*d^4*b^4*a^6*B + 1400/3
*x^9*e^4*d^3*b^3*a^7*B + 105*x^9*e^5*d^2*b^2*a^8*B + 70/9*x^9*e^6
*d*b*a^9*B + 1/9*x^9*e^7*a^10*B + 5*x^9*d^7*b^8*a^2*A + 280/3*x^9
*e*d^6*b^7*a^3*A + 490*x^9*e^2*d^5*b^6*a^4*A + 980*x^9*e^3*d^4*b^
5*a^5*A + 2450/3*x^9*e^4*d^3*b^4*a^6*A + 280*x^9*e^5*d^2*b^3*a^7*
A + 35*x^9*e^6*d*b^2*a^8*A + 10/9*x^9*e^7*b*a^9*A + 105/4*x^8*d^7
*b^6*a^4*B + 441/2*x^8*e*d^6*b^5*a^5*B + 2205/4*x^8*e^2*d^5*b^4*a
^6*B + 525*x^8*e^3*d^4*b^3*a^7*B + 1575/8*x^8*e^4*d^3*b^2*a^8*B +
 105/4*x^8*e^5*d^2*b*a^9*B + 7/8*x^8*e^6*d*a^10*B + 15*x^8*d^7*b^
7*a^3*A + 735/4*x^8*e*d^6*b^6*a^4*A + 1323/2*x^8*e^2*d^5*b^5*a^5*
A + 3675/4*x^8*e^3*d^4*b^4*a^6*A + 525*x^8*e^4*d^3*b^3*a^7*A + 94
5/8*x^8*e^5*d^2*b^2*a^8*A + 35/4*x^8*e^6*d*b*a^9*A + 1/8*x^8*e^7*
a^10*A + 36*x^7*d^7*b^5*a^5*B + 210*x^7*e*d^6*b^4*a^6*B + 360*x^7
*e^2*d^5*b^3*a^7*B + 225*x^7*e^3*d^4*b^2*a^8*B + 50*x^7*e^4*d^3*b
*a^9*B + 3*x^7*e^5*d^2*a^10*B + 30*x^7*d^7*b^6*a^4*A + 252*x^7*e*
d^6*b^5*a^5*A + 630*x^7*e^2*d^5*b^4*a^6*A + 600*x^7*e^3*d^4*b^3*a
^7*A + 225*x^7*e^4*d^3*b^2*a^8*A + 30*x^7*e^5*d^2*b*a^9*A + x^7*e
^6*d*a^10*A + 35*x^6*d^7*b^4*a^6*B + 140*x^6*e*d^6*b^3*a^7*B + 31
5/2*x^6*e^2*d^5*b^2*a^8*B + 175/3*x^6*e^3*d^4*b*a^9*B + 35/6*x^6*
e^4*d^3*a^10*B + 42*x^6*d^7*b^5*a^5*A + 245*x^6*e*d^6*b^4*a^6*A +
 420*x^6*e^2*d^5*b^3*a^7*A + 525/2*x^6*e^3*d^4*b^2*a^8*A + 175/3*
x^6*e^4*d^3*b*a^9*A + 7/2*x^6*e^5*d^2*a^10*A + 24*x^5*d^7*b^3*a^7
*B + 63*x^5*e*d^6*b^2*a^8*B + 42*x^5*e^2*d^5*b*a^9*B + 7*x^5*e^3*
d^4*a^10*B + 42*x^5*d^7*b^4*a^6*A + 168*x^5*e*d^6*b^3*a^7*A + 189
*x^5*e^2*d^5*b^2*a^8*A + 70*x^5*e^3*d^4*b*a^9*A + 7*x^5*e^4*d^3*a
^10*A + 45/4*x^4*d^7*b^2*a^8*B + 35/2*x^4*e*d^6*b*a^9*B + 21/4*x^
4*e^2*d^5*a^10*B + 30*x^4*d^7*b^3*a^7*A + 315/4*x^4*e*d^6*b^2*a^8
*A + 105/2*x^4*e^2*d^5*b*a^9*A + 35/4*x^4*e^3*d^4*a^10*A + 10/3*x
^3*d^7*b*a^9*B + 7/3*x^3*e*d^6*a^10*B + 15*x^3*d^7*b^2*a^8*A + 70
/3*x^3*e*d^6*b*a^9*A + 7*x^3*e^2*d^5*a^10*A + 1/2*x^2*d^7*a^10*B
+ 5*x^2*d^7*b*a^9*A + 7/2*x^2*e*d^6*a^10*A + x*d^7*a^10*A
```

Sympy [A] time = 1.19447, size = 2824, normalized size = 8.58

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)*(e*x+d)**7,x)
```

```
[Out] A*a**10*d**7*x + B*b**10*e**7*x**19/19 + x**18*(A*b**10*e**7/18 +
 5*B*a*b**9*e**7/9 + 7*B*b**10*d*e**6/18) + x**17*(10*A*a*b**9*e*
*7/17 + 7*A*b**10*d*e**6/17 + 45*B*a**2*b**8*e**7/17 + 70*B*a*b**
9*d*e**6/17 + 21*B*b**10*d**2*e**5/17) + x**16*(45*A*a**2*b**8*e*
*7/16 + 35*A*a*b**9*d*e**6/8 + 21*A*b**10*d**2*e**5/16 + 15*B*a**
```

```
3*b**7*e**7/2 + 315*B*a**2*b**8*d*e**6/16 + 105*B*a*b**9*d**2*e**
5/8 + 35*B*b**10*d**3*e**4/16) + x**15*(8*A*a**3*b**7*e**7 + 21*A
*a**2*b**8*d*e**6 + 14*A*a*b**9*d**2*e**5 + 7*A*b**10*d**3*e**4/3
 + 14*B*a**4*b**6*e**7 + 56*B*a**3*b**7*d*e**6 + 63*B*a**2*b**8*d
**2*e**5 + 70*B*a*b**9*d**3*e**4/3 + 7*B*b**10*d**4*e**3/3) + x**
14*(15*A*a**4*b**6*e**7 + 60*A*a**3*b**7*d*e**6 + 135*A*a**2*b**8
*d**2*e**5/2 + 25*A*a*b**9*d**3*e**4 + 5*A*b**10*d**4*e**3/2 + 18
*B*a**5*b**5*e**7 + 105*B*a**4*b**6*d*e**6 + 180*B*a**3*b**7*d**2
*e**5 + 225*B*a**2*b**8*d**3*e**4/2 + 25*B*a*b**9*d**4*e**3 + 3*B
*b**10*d**5*e**2/2) + x**13*(252*A*a**5*b**5*e**7/13 + 1470*A*a**
4*b**6*d*e**6/13 + 2520*A*a**3*b**7*d**2*e**5/13 + 1575*A*a**2*b*
*8*d**3*e**4/13 + 350*A*a*b**9*d**4*e**3/13 + 21*A*b**10*d**5*e**
2/13 + 210*B*a**6*b**4*e**7/13 + 1764*B*a**5*b**5*d*e**6/13 + 441
0*B*a**4*b**6*d**2*e**5/13 + 4200*B*a**3*b**7*d**3*e**4/13 + 1575
*B*a**2*b**8*d**4*e**3/13 + 210*B*a*b**9*d**5*e**2/13 + 7*B*b**10
*d**6*e/13) + x**12*(35*A*a**6*b**4*e**7/2 + 147*A*a**5*b**5*d*e*
*6 + 735*A*a**4*b**6*d**2*e**5/2 + 350*A*a**3*b**7*d**3*e**4 + 52
5*A*a**2*b**8*d**4*e**3/4 + 35*A*a*b**9*d**5*e**2/2 + 7*A*b**10*d
**6*e/12 + 10*B*a**7*b**3*e**7 + 245*B*a**6*b**4*d*e**6/2 + 441*B
*a**5*b**5*d**2*e**5 + 1225*B*a**4*b**6*d**3*e**4/2 + 350*B*a**3*
b**7*d**4*e**3 + 315*B*a**2*b**8*d**5*e**2/4 + 35*B*a*b**9*d**6*e
/6 + B*b**10*d**7/12) + x**11*(120*A*a**7*b**3*e**7/11 + 1470*A*a
**6*b**4*d*e**6/11 + 5292*A*a**5*b**5*d**2*e**5/11 + 7350*A*a**4*
b**6*d**3*e**4/11 + 4200*A*a**3*b**7*d**4*e**3/11 + 945*A*a**2*b*
*8*d**5*e**2/11 + 70*A*a*b**9*d**6*e/11 + A*b**10*d**7/11 + 45*B*
a**8*b**2*e**7/11 + 840*B*a**7*b**3*d*e**6/11 + 4410*B*a**6*b**4*
d**2*e**5/11 + 8820*B*a**5*b**5*d**3*e**4/11 + 7350*B*a**4*b**6*d
**4*e**3/11 + 2520*B*a**3*b**7*d**5*e**2/11 + 315*B*a**2*b**8*d**
6*e/11 + 10*B*a*b**9*d**7/11) + x**10*(9*A*a**8*b**2*e**7/2 + 84*
A*a**7*b**3*d*e**6 + 441*A*a**6*b**4*d**2*e**5 + 882*A*a**5*b**5*
d**3*e**4 + 735*A*a**4*b**6*d**4*e**3 + 252*A*a**3*b**7*d**5*e**2
 + 63*A*a**2*b**8*d**6*e/2 + A*a*b**9*d**7 + B*a**9*b*e**7 + 63*B
*a**8*b**2*d*e**6/2 + 252*B*a**7*b**3*d**2*e**5 + 735*B*a**6*b**4
*d**3*e**4 + 882*B*a**5*b**5*d**4*e**3 + 441*B*a**4*b**6*d**5*e**
2 + 84*B*a**3*b**7*d**6*e + 9*B*a**2*b**8*d**7/2) + x**9*(10*A*a*
*9*b*e**7/9 + 35*A*a**8*b**2*d*e**6 + 280*A*a**7*b**3*d**2*e**5 +
 2450*A*a**6*b**4*d**3*e**4/3 + 980*A*a**5*b**5*d**4*e**3 + 490*A
*a**4*b**6*d**5*e**2 + 280*A*a**3*b**7*d**6*e/3 + 5*A*a**2*b**8*d
**7 + B*a**10*e**7/9 + 70*B*a**9*b*d*e**6/9 + 105*B*a**8*b**2*d**
2*e**5 + 1400*B*a**7*b**3*d**3*e**4/3 + 2450*B*a**6*b**4*d**4*e**
3/3 + 588*B*a**5*b**5*d**5*e**2 + 490*B*a**4*b**6*d**6*e/3 + 40*B
*a**3*b**7*d**7/3) + x**8*(A*a**10*e**7/8 + 35*A*a**9*b*d*e**6/4
+ 945*A*a**8*b**2*d**2*e**5/8 + 525*A*a**7*b**3*d**3*e**4 + 3675*
A*a**6*b**4*d**4*e**3/4 + 1323*A*a**5*b**5*d**5*e**2/2 + 735*A*a*
*4*b**6*d**6*e/4 + 15*A*a**3*b**7*d**7 + 7*B*a**10*d*e**6/8 + 105
*B*a**9*b*d**2*e**5/4 + 1575*B*a**8*b**2*d**3*e**4/8 + 525*B*a**7
*b**3*d**4*e**3 + 2205*B*a**6*b**4*d**5*e**2/4 + 441*B*a**5*b**5*
d**6*e/2 + 105*B*a**4*b**6*d**7/4) + x**7*(A*a**10*d*e**6 + 30*A*
a**9*b*d**2*e**5 + 225*A*a**8*b**2*d**3*e**4 + 600*A*a**7*b**3*d*
*4*e**3 + 630*A*a**6*b**4*d**5*e**2 + 252*A*a**5*b**5*d**6*e + 30
*A*a**4*b**6*d**7 + 3*B*a**10*d**2*e**5 + 50*B*a**9*b*d**3*e**4 +
 225*B*a**8*b**2*d**4*e**3 + 360*B*a**7*b**3*d**5*e**2 + 210*B*a*
*6*b**4*d**6*e + 36*B*a**5*b**5*d**7) + x**6*(7*A*a**10*d**2*e**5
/2 + 175*A*a**9*b*d**3*e**4/3 + 525*A*a**8*b**2*d**4*e**3/2 + 420
*A*a**7*b**3*d**5*e**2 + 245*A*a**6*b**4*d**6*e + 42*A*a**5*b**5*
d**7 + 35*B*a**10*d**3*e**4/6 + 175*B*a**9*b*d**4*e**3/3 + 315*B*
a**8*b**2*d**5*e**2/2 + 140*B*a**7*b**3*d**6*e + 35*B*a**6*b**4*d
**7) + x**5*(7*A*a**10*d**3*e**4 + 70*A*a**9*b*d**4*e**3 + 189*A*
a**8*b**2*d**5*e**2 + 168*A*a**7*b**3*d**6*e + 42*A*a**6*b**4*d**
7 + 7*B*a**10*d**4*e**3 + 42*B*a**9*b*d**5*e**2 + 63*B*a**8*b**2*
d**6*e + 24*B*a**7*b**3*d**7) + x**4*(35*A*a**10*d**4*e**3/4 + 10
5*A*a**9*b*d**5*e**2/2 + 315*A*a**8*b**2*d**6*e/4 + 30*A*a**7*b**
3*d**7 + 21*B*a**10*d**5*e**2/4 + 35*B*a**9*b*d**6*e/2 + 45*B*a**
8*b**2*d**7/4) + x**3*(7*A*a**10*d**5*e**2 + 70*A*a**9*b*d**6*e/3
 + 15*A*a**8*b**2*d**7 + 7*B*a**10*d**6*e/3 + 10*B*a**9*b*d**7/3)
 + x**2*(7*A*a**10*d**6*e/2 + 5*A*a**9*b*d**7 + B*a**10*d**7/2)
```

GIAC/XCAS [A] time = 0.212046, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*(e*x + d)^7,x, algorithm="giac")

[Out] Done
```

3.1065 $\int (a+bx)^{10}(A+Bx)(d+ex)^6\,dx$

Optimal. Leaf size=290

$$\frac{e^5(a+bx)^{17}(-7aBe+Abe+6bBd)}{17b^8}+\frac{3e^4(a+bx)^{16}(bd-ae)(-7aBe+2Abe+5bBd)}{16b^8}+\frac{e^3(a+bx)^{15}(bd-ae)^2(-7aBe+3Abe+4bBd)}{3b^8}+\frac{5e^2(a+bx)^{14}(bd-ae)^3(-7aBe+4Abe+3bBd)}{14b^8}+\frac{3e(a+bx)^{13}(bd-ae)^4(-7aBe+5Abe+2bBd)}{13b^8}+\frac{(a+bx)^{12}(bd-ae)^5(-7aBe+6Abe+bBd)}{12b^8}+\frac{(a+bx)^{11}(Ab-aB)(bd-ae)^6}{11b^8}+\frac{Be^6(a+bx)^{18}}{18b^8}$$

```
[Out] ((A*b - a*B)*(b*d - a*e)^6*(a + b*x)^11)/(11*b^8) + ((b*d - a*e)^
5*(b*B*d + 6*A*b*e - 7*a*B*e)*(a + b*x)^12)/(12*b^8) + (3*e*(b*d
- a*e)^4*(2*b*B*d + 5*A*b*e - 7*a*B*e)*(a + b*x)^13)/(13*b^8) + (
5*e^2*(b*d - a*e)^3*(3*b*B*d + 4*A*b*e - 7*a*B*e)*(a + b*x)^14)/(
14*b^8) + (e^3*(b*d - a*e)^2*(4*b*B*d + 3*A*b*e - 7*a*B*e)*(a + b
*x)^15)/(3*b^8) + (3*e^4*(b*d - a*e)*(5*b*B*d + 2*A*b*e - 7*a*B*e
)*(a + b*x)^16)/(16*b^8) + (e^5*(6*b*B*d + A*b*e - 7*a*B*e)*(a +
b*x)^17)/(17*b^8) + (B*e^6*(a + b*x)^18)/(18*b^8)
```

Rubi [A] time = 6.8467, antiderivative size = 290, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{e^5(a+bx)^{17}(-7aBe+Abe+6bBd)}{17b^8}+\frac{3e^4(a+bx)^{16}(bd-ae)(-7aBe+2Abe+5bBd)}{16b^8}+\frac{e^3(a+bx)^{15}(bd-ae)^2(-7aBe+3Abe+4bBd)}{3b^8}+\frac{5e^2(a+bx)^{14}(bd-ae)^3(-7aBe+4Abe+3bBd)}{14b^8}+\frac{3e(a+bx)^{13}(bd-ae)^4(-7aBe+5Abe+2bBd)}{13b^8}+\frac{(a+bx)^{12}(bd-ae)^5(-7aBe+6Abe+bBd)}{12b^8}+\frac{(a+bx)^{11}(Ab-aB)(bd-ae)^6}{11b^8}+\frac{Be^6(a+bx)^{18}}{18b^8}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^10*(A + B*x)*(d + e*x)^6,x]
```

```
[Out] ((A*b - a*B)*(b*d - a*e)^6*(a + b*x)^11)/(11*b^8) + ((b*d - a*e)^
5*(b*B*d + 6*A*b*e - 7*a*B*e)*(a + b*x)^12)/(12*b^8) + (3*e*(b*d
- a*e)^4*(2*b*B*d + 5*A*b*e - 7*a*B*e)*(a + b*x)^13)/(13*b^8) + (
5*e^2*(b*d - a*e)^3*(3*b*B*d + 4*A*b*e - 7*a*B*e)*(a + b*x)^14)/(
14*b^8) + (e^3*(b*d - a*e)^2*(4*b*B*d + 3*A*b*e - 7*a*B*e)*(a + b
*x)^15)/(3*b^8) + (3*e^4*(b*d - a*e)*(5*b*B*d + 2*A*b*e - 7*a*B*e
)*(a + b*x)^16)/(16*b^8) + (e^5*(6*b*B*d + A*b*e - 7*a*B*e)*(a +
b*x)^17)/(17*b^8) + (B*e^6*(a + b*x)^18)/(18*b^8)
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)*(e*x+d)**6,x)
```

```
[Out] Timed out
```

Mathematica [B] time = 1.35146, size = 1788, normalized size = 6.17

result too large to display

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^10*(A + B*x)*(d + e*x)^6,x]
```

```
[Out] a^10*A*d^6*x + (a^9*d^5*(10*A*b*d + a*B*d + 6*a*A*e)*x^2)/2 + (a^
8*d^4*(2*a*B*d*(5*b*d + 3*a*e) + 15*A*(3*b^2*d^2 + 4*a*b*d*e + a^
2*e^2))*x^3)/3 + (5*a^7*d^3*(3*a*B*d*(3*b^2*d^2 + 4*a*b*d*e + a^2
*e^2) + A*(24*b^3*d^3 + 54*a*b^2*d^2*e + 30*a^2*b*d*e^2 + 4*a^3*e
^3))*x^4)/4 + a^6*d^2*(2*a*B*d*(12*b^3*d^3 + 27*a*b^2*d^2*e + 15*
a^2*b*d*e^2 + 2*a^3*e^3) + A*(42*b^4*d^4 + 144*a*b^3*d^3*e + 135*
a^2*b^2*d^2*e^2 + 40*a^3*b*d*e^3 + 3*a^4*e^4))*x^5 + (a^5*d*(5*a*
B*d*(42*b^4*d^4 + 144*a*b^3*d^3*e + 135*a^2*b^2*d^2*e^2 + 40*a^3*
b*d*e^3 + 3*a^4*e^4) + 6*A*(42*b^5*d^5 + 210*a*b^4*d^4*e + 300*a^
2*b^3*d^3*e^2 + 150*a^3*b^2*d^2*e^3 + 25*a^4*b*d*e^4 + a^5*e^5))*
x^6)/6 + (a^4*(6*a*B*d*(42*b^5*d^5 + 210*a*b^4*d^4*e + 300*a^2*b^
3*d^3*e^2 + 150*a^3*b^2*d^2*e^3 + 25*a^4*b*d*e^4 + a^5*e^5) + A*(
210*b^6*d^6 + 1512*a*b^5*d^5*e + 3150*a^2*b^4*d^4*e^2 + 2400*a^3*
b^3*d^3*e^3 + 675*a^4*b^2*d^2*e^4 + 60*a^5*b*d*e^5 + a^6*e^6))*x^
7)/7 + (a^3*(10*A*b*(12*b^6*d^6 + 126*a*b^5*d^5*e + 378*a^2*b^4*d
^4*e^2 + 420*a^3*b^3*d^3*e^3 + 180*a^4*b^2*d^2*e^4 + 27*a^5*b*d*e
^5 + a^6*e^6) + a*B*(210*b^6*d^6 + 1512*a*b^5*d^5*e + 3150*a^2*b^
4*d^4*e^2 + 2400*a^3*b^3*d^3*e^3 + 675*a^4*b^2*d^2*e^4 + 60*a^5*b
*d*e^5 + a^6*e^6))*x^8)/8 + (5*a^2*b*(9*A*b*(b^6*d^6 + 16*a*b^5*d
^5*e + 70*a^2*b^4*d^4*e^2 + 112*a^3*b^3*d^3*e^3 + 70*a^4*b^2*d^2*
e^4 + 16*a^5*b*d*e^5 + a^6*e^6) + 2*a*B*(12*b^6*d^6 + 126*a*b^5*d
^5*e + 378*a^2*b^4*d^4*e^2 + 420*a^3*b^3*d^3*e^3 + 180*a^4*b^2*d^
2*e^4 + 27*a^5*b*d*e^5 + a^6*e^6))*x^9)/9 + (a*b^2*(9*a*B*(b^6*d^
6 + 16*a*b^5*d^5*e + 70*a^2*b^4*d^4*e^2 + 112*a^3*b^3*d^3*e^3 + 7
0*a^4*b^2*d^2*e^4 + 16*a^5*b*d*e^5 + a^6*e^6) + 2*A*b*(b^6*d^6 +
27*a*b^5*d^5*e + 180*a^2*b^4*d^4*e^2 + 420*a^3*b^3*d^3*e^3 + 378*
a^4*b^2*d^2*e^4 + 126*a^5*b*d*e^5 + 12*a^6*e^6))*x^10)/2 + (b^3*(
10*a*B*(b^6*d^6 + 27*a*b^5*d^5*e + 180*a^2*b^4*d^4*e^2 + 420*a^3*
b^3*d^3*e^3 + 378*a^4*b^2*d^2*e^4 + 126*a^5*b*d*e^5 + 12*a^6*e^6)
 + A*b*(b^6*d^6 + 60*a*b^5*d^5*e + 675*a^2*b^4*d^4*e^2 + 2400*a^3
*b^3*d^3*e^3 + 3150*a^4*b^2*d^2*e^4 + 1512*a^5*b*d*e^5 + 210*a^6*
e^6))*x^11)/11 + (b^4*(210*a^6*B*e^6 + 252*a^5*b*e^5*(6*B*d + A*e
) + 630*a^4*b^2*d*e^4*(5*B*d + 2*A*e) + 600*a^3*b^3*d^2*e^3*(4*B*
d + 3*A*e) + 225*a^2*b^4*d^3*e^2*(3*B*d + 4*A*e) + 30*a*b^5*d^4*e
*(2*B*d + 5*A*e) + b^6*d^5*(B*d + 6*A*e))*x^12)/12 + (b^5*e*(252*
a^5*B*e^5 + 210*a^4*b*e^4*(6*B*d + A*e) + 360*a^3*b^2*d*e^3*(5*B*
d + 2*A*e) + 225*a^2*b^3*d^2*e^2*(4*B*d + 3*A*e) + 50*a*b^4*d^3*e
*(3*B*d + 4*A*e) + 3*b^5*d^4*(2*B*d + 5*A*e))*x^13)/13 + (5*b^6*e
^2*(42*a^4*B*e^4 + 24*a^3*b*e^3*(6*B*d + A*e) + 27*a^2*b^2*d*e^2*
(5*B*d + 2*A*e) + 10*a*b^3*d^2*e*(4*B*d + 3*A*e) + b^4*d^3*(3*B*d
 + 4*A*e))*x^14)/14 + (b^7*e^3*(24*a^3*B*e^3 + 9*a^2*b*e^2*(6*B*d
 + A*e) + 6*a*b^2*d*e*(5*B*d + 2*A*e) + b^3*d^2*(4*B*d + 3*A*e))*
x^15)/3 + (b^8*e^4*(45*a^2*B*e^2 + 10*a*b*e*(6*B*d + A*e) + 3*b^2
*d*(5*B*d + 2*A*e))*x^16)/16 + (b^9*e^5*(6*b*B*d + A*b*e + 10*a*B
*e)*x^17)/17 + (b^10*B*e^6*x^18)/18
```

Maple [B] time = 0.004, size = 1905, normalized size = 6.6

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^10*(B*x+A)*(e*x+d)^6,x)
```

```
[Out] 1/18*b^10*B*e^6*x^18+1/17*((A*b^10+10*B*a*b^9)*e^6+6*b^10*B*d*e^5
)*x^17+1/16*((10*A*a*b^9+45*B*a^2*b^8)*e^6+6*(A*b^10+10*B*a*b^9)*
d*e^5+15*b^10*B*d^2*e^4)*x^16+1/15*((45*A*a^2*b^8+120*B*a^3*b^7)*
e^6+6*(10*A*a*b^9+45*B*a^2*b^8)*d*e^5+15*(A*b^10+10*B*a*b^9)*d^2*
e^4+20*b^10*B*d^3*e^3)*x^15+1/14*((120*A*a^3*b^7+210*B*a^4*b^6)*e
^6+6*(45*A*a^2*b^8+120*B*a^3*b^7)*d*e^5+15*(10*A*a*b^9+45*B*a^2*b
^8)*d^2*e^4+20*(A*b^10+10*B*a*b^9)*d^3*e^3+15*b^10*B*d^4*e^2)*x^1
4+1/13*((210*A*a^4*b^6+252*B*a^5*b^5)*e^6+6*(120*A*a^3*b^7+210*B*
a^4*b^6)*d*e^5+15*(45*A*a^2*b^8+120*B*a^3*b^7)*d^2*e^4+20*(10*A*a
*b^9+45*B*a^2*b^8)*d^3*e^3+15*(A*b^10+10*B*a*b^9)*d^4*e^2+6*b^10*
B*d^5*e)*x^13+1/12*((252*A*a^5*b^5+210*B*a^6*b^4)*e^6+6*(210*A*a^
```

```
4*b^6+252*B*a^5*b^5)*d*e^5+15*(120*A*a^3*b^7+210*B*a^4*b^6)*d^2*e
^4+20*(45*A*a^2*b^8+120*B*a^3*b^7)*d^3*e^3+15*(10*A*a*b^9+45*B*a^
2*b^8)*d^4*e^2+6*(A*b^10+10*B*a*b^9)*d^5*e+b^10*B*d^6)*x^12+1/11*
((210*A*a^6*b^4+120*B*a^7*b^3)*e^6+6*(252*A*a^5*b^5+210*B*a^6*b^4
)*d*e^5+15*(210*A*a^4*b^6+252*B*a^5*b^5)*d^2*e^4+20*(120*A*a^3*b^
7+210*B*a^4*b^6)*d^3*e^3+15*(45*A*a^2*b^8+120*B*a^3*b^7)*d^4*e^2+
6*(10*A*a*b^9+45*B*a^2*b^8)*d^5*e+(A*b^10+10*B*a*b^9)*d^6)*x^11+1
/10*((120*A*a^7*b^3+45*B*a^8*b^2)*e^6+6*(210*A*a^6*b^4+120*B*a^7*
b^3)*d*e^5+15*(252*A*a^5*b^5+210*B*a^6*b^4)*d^2*e^4+20*(210*A*a^4
*b^6+252*B*a^5*b^5)*d^3*e^3+15*(120*A*a^3*b^7+210*B*a^4*b^6)*d^4*
e^2+6*(45*A*a^2*b^8+120*B*a^3*b^7)*d^5*e+(10*A*a*b^9+45*B*a^2*b^8
)*d^6)*x^10+1/9*((45*A*a^8*b^2+10*B*a^9*b)*e^6+6*(120*A*a^7*b^3+4
5*B*a^8*b^2)*d*e^5+15*(210*A*a^6*b^4+120*B*a^7*b^3)*d^2*e^4+20*(2
52*A*a^5*b^5+210*B*a^6*b^4)*d^3*e^3+15*(210*A*a^4*b^6+252*B*a^5*b
^5)*d^4*e^2+6*(120*A*a^3*b^7+210*B*a^4*b^6)*d^5*e+(45*A*a^2*b^8+1
20*B*a^3*b^7)*d^6)*x^9+1/8*((10*A*a^9*b+B*a^10)*e^6+6*(45*A*a^8*b
^2+10*B*a^9*b)*d*e^5+15*(120*A*a^7*b^3+45*B*a^8*b^2)*d^2*e^4+20*(
210*A*a^6*b^4+120*B*a^7*b^3)*d^3*e^3+15*(252*A*a^5*b^5+210*B*a^6*
b^4)*d^4*e^2+6*(210*A*a^4*b^6+252*B*a^5*b^5)*d^5*e+(120*A*a^3*b^7
+210*B*a^4*b^6)*d^6)*x^8+1/7*(a^10*A*e^6+6*(10*A*a^9*b+B*a^10)*d*
e^5+15*(45*A*a^8*b^2+10*B*a^9*b)*d^2*e^4+20*(120*A*a^7*b^3+45*B*a
^8*b^2)*d^3*e^3+15*(210*A*a^6*b^4+120*B*a^7*b^3)*d^4*e^2+6*(252*A
*a^5*b^5+210*B*a^6*b^4)*d^5*e+(210*A*a^4*b^6+252*B*a^5*b^5)*d^6)*
x^7+1/6*(6*a^10*A*d*e^5+15*(10*A*a^9*b+B*a^10)*d^2*e^4+20*(45*A*a
^8*b^2+10*B*a^9*b)*d^3*e^3+15*(120*A*a^7*b^3+45*B*a^8*b^2)*d^4*e^
2+6*(210*A*a^6*b^4+120*B*a^7*b^3)*d^5*e+(252*A*a^5*b^5+210*B*a^6*
b^4)*d^6)*x^6+1/5*(15*a^10*A*d^2*e^4+20*(10*A*a^9*b+B*a^10)*d^3*e
^3+15*(45*A*a^8*b^2+10*B*a^9*b)*d^4*e^2+6*(120*A*a^7*b^3+45*B*a^8
*b^2)*d^5*e+(210*A*a^6*b^4+120*B*a^7*b^3)*d^6)*x^5+1/4*(20*a^10*A
*d^3*e^3+15*(10*A*a^9*b+B*a^10)*d^4*e^2+6*(45*A*a^8*b^2+10*B*a^9*
b)*d^5*e+(120*A*a^7*b^3+45*B*a^8*b^2)*d^6)*x^4+1/3*(15*a^10*A*d^4
*e^2+6*(10*A*a^9*b+B*a^10)*d^5*e+(45*A*a^8*b^2+10*B*a^9*b)*d^6)*x
^3+1/2*(6*a^10*A*d^5*e+(10*A*a^9*b+B*a^10)*d^6)*x^2+a^10*A*d^6*x
```

Maxima [A] time = 1.39183, size = 2588, normalized size = 8.92

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*(e*x + d)^6,x, algorithm="maxima")
```

```
[Out] 1/18*B*b^10*e^6*x^18 + A*a^10*d^6*x + 1/17*(6*B*b^10*d*e^5 + (10*
B*a*b^9 + A*b^10)*e^6)*x^17 + 1/16*(15*B*b^10*d^2*e^4 + 6*(10*B*a
*b^9 + A*b^10)*d*e^5 + 5*(9*B*a^2*b^8 + 2*A*a*b^9)*e^6)*x^16 + 1/
3*(4*B*b^10*d^3*e^3 + 3*(10*B*a*b^9 + A*b^10)*d^2*e^4 + 6*(9*B*a^
2*b^8 + 2*A*a*b^9)*d*e^5 + 3*(8*B*a^3*b^7 + 3*A*a^2*b^8)*e^6)*x^1
5 + 5/14*(3*B*b^10*d^4*e^2 + 4*(10*B*a*b^9 + A*b^10)*d^3*e^3 + 15
*(9*B*a^2*b^8 + 2*A*a*b^9)*d^2*e^4 + 18*(8*B*a^3*b^7 + 3*A*a^2*b^
8)*d*e^5 + 6*(7*B*a^4*b^6 + 4*A*a^3*b^7)*e^6)*x^14 + 1/13*(6*B*b^
10*d^5*e + 15*(10*B*a*b^9 + A*b^10)*d^4*e^2 + 100*(9*B*a^2*b^8 +
2*A*a*b^9)*d^3*e^3 + 225*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^2*e^4 + 18
0*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d*e^5 + 42*(6*B*a^5*b^5 + 5*A*a^4*b
^6)*e^6)*x^13 + 1/12*(B*b^10*d^6 + 6*(10*B*a*b^9 + A*b^10)*d^5*e
+ 75*(9*B*a^2*b^8 + 2*A*a*b^9)*d^4*e^2 + 300*(8*B*a^3*b^7 + 3*A*a
^2*b^8)*d^3*e^3 + 450*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^2*e^4 + 252*(
6*B*a^5*b^5 + 5*A*a^4*b^6)*d*e^5 + 42*(5*B*a^6*b^4 + 6*A*a^5*b^5)
*e^6)*x^12 + 1/11*((10*B*a*b^9 + A*b^10)*d^6 + 30*(9*B*a^2*b^8 +
2*A*a*b^9)*d^5*e + 225*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^4*e^2 + 600*
(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^3*e^3 + 630*(6*B*a^5*b^5 + 5*A*a^4*
b^6)*d^2*e^4 + 252*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d*e^5 + 30*(4*B*a^
7*b^3 + 7*A*a^6*b^4)*e^6)*x^11 + 1/2*((9*B*a^2*b^8 + 2*A*a*b^9)*d
^6 + 18*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^5*e + 90*(7*B*a^4*b^6 + 4*A
*a^3*b^7)*d^4*e^2 + 168*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^3*e^3 + 126
*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^2*e^4 + 36*(4*B*a^7*b^3 + 7*A*a^6*
b^4)*d*e^5 + 3*(3*B*a^8*b^2 + 8*A*a^7*b^3)*e^6)*x^10 + 5/9*(3*(8*
B*a^3*b^7 + 3*A*a^2*b^8)*d^6 + 36*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^5
*e + 126*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^4*e^2 + 168*(5*B*a^6*b^4 +
 6*A*a^5*b^5)*d^3*e^3 + 90*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^2*e^4 +
18*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d*e^5 + (2*B*a^9*b + 9*A*a^8*b^2)*
```

```
e^6)*x^9 + 1/8*(30*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^6 + 252*(6*B*a^5
*b^5 + 5*A*a^4*b^6)*d^5*e + 630*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^4*e
^2 + 600*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^3*e^3 + 225*(3*B*a^8*b^2 +
 8*A*a^7*b^3)*d^2*e^4 + 30*(2*B*a^9*b + 9*A*a^8*b^2)*d*e^5 + (B*a
^10 + 10*A*a^9*b)*e^6)*x^8 + 1/7*(A*a^10*e^6 + 42*(6*B*a^5*b^5 +
5*A*a^4*b^6)*d^6 + 252*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^5*e + 450*(4
*B*a^7*b^3 + 7*A*a^6*b^4)*d^4*e^2 + 300*(3*B*a^8*b^2 + 8*A*a^7*b^
3)*d^3*e^3 + 75*(2*B*a^9*b + 9*A*a^8*b^2)*d^2*e^4 + 6*(B*a^10 + 1
0*A*a^9*b)*d*e^5)*x^7 + 1/6*(6*A*a^10*d*e^5 + 42*(5*B*a^6*b^4 + 6
*A*a^5*b^5)*d^6 + 180*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^5*e + 225*(3*
B*a^8*b^2 + 8*A*a^7*b^3)*d^4*e^2 + 100*(2*B*a^9*b + 9*A*a^8*b^2)*
d^3*e^3 + 15*(B*a^10 + 10*A*a^9*b)*d^2*e^4)*x^6 + (3*A*a^10*d^2*e
^4 + 6*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^6 + 18*(3*B*a^8*b^2 + 8*A*a^
7*b^3)*d^5*e + 15*(2*B*a^9*b + 9*A*a^8*b^2)*d^4*e^2 + 4*(B*a^10 +
 10*A*a^9*b)*d^3*e^3)*x^5 + 5/4*(4*A*a^10*d^3*e^3 + 3*(3*B*a^8*b^
2 + 8*A*a^7*b^3)*d^6 + 6*(2*B*a^9*b + 9*A*a^8*b^2)*d^5*e + 3*(B*a
^10 + 10*A*a^9*b)*d^4*e^2)*x^4 + 1/3*(15*A*a^10*d^4*e^2 + 5*(2*B*
a^9*b + 9*A*a^8*b^2)*d^6 + 6*(B*a^10 + 10*A*a^9*b)*d^5*e)*x^3 + 1
/2*(6*A*a^10*d^5*e + (B*a^10 + 10*A*a^9*b)*d^6)*x^2
```

Fricas [A] time = 0.194352, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*(e*x + d)^6,x, algorithm="fricas")
```

```
[Out] 1/18*x^18*e^6*b^10*B + 6/17*x^17*e^5*d*b^10*B + 10/17*x^17*e^6*b^
9*a*B + 1/17*x^17*e^6*b^10*A + 15/16*x^16*e^4*d^2*b^10*B + 15/4*x
^16*e^5*d*b^9*a*B + 45/16*x^16*e^6*b^8*a^2*B + 3/8*x^16*e^5*d*b^1
0*A + 5/8*x^16*e^6*b^9*a*A + 4/3*x^15*e^3*d^3*b^10*B + 10*x^15*e^
4*d^2*b^9*a*B + 18*x^15*e^5*d*b^8*a^2*B + 8*x^15*e^6*b^7*a^3*B +
x^15*e^4*d^2*b^10*A + 4*x^15*e^5*d*b^9*a*A + 3*x^15*e^6*b^8*a^2*A
 + 15/14*x^14*e^2*d^4*b^10*B + 100/7*x^14*e^3*d^3*b^9*a*B + 675/1
4*x^14*e^4*d^2*b^8*a^2*B + 360/7*x^14*e^5*d*b^7*a^3*B + 15*x^14*e
^6*b^6*a^4*B + 10/7*x^14*e^3*d^3*b^10*A + 75/7*x^14*e^4*d^2*b^9*a
*A + 135/7*x^14*e^5*d*b^8*a^2*A + 60/7*x^14*e^6*b^7*a^3*A + 6/13*
x^13*e*d^5*b^10*B + 150/13*x^13*e^2*d^4*b^9*a*B + 900/13*x^13*e^3
*d^3*b^8*a^2*B + 1800/13*x^13*e^4*d^2*b^7*a^3*B + 1260/13*x^13*e^
5*d*b^6*a^4*B + 252/13*x^13*e^6*b^5*a^5*B + 15/13*x^13*e^2*d^4*b^
10*A + 200/13*x^13*e^3*d^3*b^9*a*A + 675/13*x^13*e^4*d^2*b^8*a^2*
A + 720/13*x^13*e^5*d*b^7*a^3*A + 210/13*x^13*e^6*b^6*a^4*A + 1/1
2*x^12*d^6*b^10*B + 5*x^12*e*d^5*b^9*a*B + 225/4*x^12*e^2*d^4*b^8
*a^2*B + 200*x^12*e^3*d^3*b^7*a^3*B + 525/2*x^12*e^4*d^2*b^6*a^4*
B + 126*x^12*e^5*d*b^5*a^5*B + 35/2*x^12*e^6*b^4*a^6*B + 1/2*x^12
*e*d^5*b^10*A + 25/2*x^12*e^2*d^4*b^9*a*A + 75*x^12*e^3*d^3*b^8*a
^2*A + 150*x^12*e^4*d^2*b^7*a^3*A + 105*x^12*e^5*d*b^6*a^4*A + 21
*x^12*e^6*b^5*a^5*A + 10/11*x^11*d^6*b^9*a*B + 270/11*x^11*e*d^5*
b^8*a^2*B + 1800/11*x^11*e^2*d^4*b^7*a^3*B + 4200/11*x^11*e^3*d^3
*b^6*a^4*B + 3780/11*x^11*e^4*d^2*b^5*a^5*B + 1260/11*x^11*e^5*d*
b^4*a^6*B + 120/11*x^11*e^6*b^3*a^7*B + 1/11*x^11*d^6*b^10*A + 60
/11*x^11*e*d^5*b^9*a*A + 675/11*x^11*e^2*d^4*b^8*a^2*A + 2400/11*
x^11*e^3*d^3*b^7*a^3*A + 3150/11*x^11*e^4*d^2*b^6*a^4*A + 1512/11
*x^11*e^5*d*b^5*a^5*A + 210/11*x^11*e^6*b^4*a^6*A + 9/2*x^10*d^6*
b^8*a^2*B + 72*x^10*e*d^5*b^7*a^3*B + 315*x^10*e^2*d^4*b^6*a^4*B
+ 504*x^10*e^3*d^3*b^5*a^5*B + 315*x^10*e^4*d^2*b^4*a^6*B + 72*x^
10*e^5*d*b^3*a^7*B + 9/2*x^10*e^6*b^2*a^8*B + x^10*d^6*b^9*a*A +
27*x^10*e*d^5*b^8*a^2*A + 180*x^10*e^2*d^4*b^7*a^3*A + 420*x^10*e
^3*d^3*b^6*a^4*A + 378*x^10*e^4*d^2*b^5*a^5*A + 126*x^10*e^5*d*b^
4*a^6*A + 12*x^10*e^6*b^3*a^7*A + 40/3*x^9*d^6*b^7*a^3*B + 140*x^
9*e*d^5*b^6*a^4*B + 420*x^9*e^2*d^4*b^5*a^5*B + 1400/3*x^9*e^3*d^
3*b^4*a^6*B + 200*x^9*e^4*d^2*b^3*a^7*B + 30*x^9*e^5*d*b^2*a^8*B
+ 10/9*x^9*e^6*b*a^9*B + 5*x^9*d^6*b^8*a^2*A + 80*x^9*e*d^5*b^7*a
^3*A + 350*x^9*e^2*d^4*b^6*a^4*A + 560*x^9*e^3*d^3*b^5*a^5*A + 35
0*x^9*e^4*d^2*b^4*a^6*A + 80*x^9*e^5*d*b^3*a^7*A + 5*x^9*e^6*b^2*
a^8*A + 105/4*x^8*d^6*b^6*a^4*B + 189*x^8*e*d^5*b^5*a^5*B + 1575/
4*x^8*e^2*d^4*b^4*a^6*B + 300*x^8*e^3*d^3*b^3*a^7*B + 675/8*x^8*e
^4*d^2*b^2*a^8*B + 15/2*x^8*e^5*d*b*a^9*B + 1/8*x^8*e^6*a^10*B +
15*x^8*d^6*b^7*a^3*A + 315/2*x^8*e*d^5*b^6*a^4*A + 945/2*x^8*e^2*
```

```
d^4*b^5*a^5*A + 525*x^8*e^3*d^3*b^4*a^6*A + 225*x^8*e^4*d^2*b^3*a
^7*A + 135/4*x^8*e^5*d*b^2*a^8*A + 5/4*x^8*e^6*b*a^9*A + 36*x^7*d
^6*b^5*a^5*B + 180*x^7*e*d^5*b^4*a^6*B + 1800/7*x^7*e^2*d^4*b^3*a
^7*B + 900/7*x^7*e^3*d^3*b^2*a^8*B + 150/7*x^7*e^4*d^2*b*a^9*B +
6/7*x^7*e^5*d*a^10*B + 30*x^7*d^6*b^6*a^4*A + 216*x^7*e*d^5*b^5*a
^5*A + 450*x^7*e^2*d^4*b^4*a^6*A + 2400/7*x^7*e^3*d^3*b^3*a^7*A +
 675/7*x^7*e^4*d^2*b^2*a^8*A + 60/7*x^7*e^5*d*b*a^9*A + 1/7*x^7*e
^6*a^10*A + 35*x^6*d^6*b^4*a^6*B + 120*x^6*e*d^5*b^3*a^7*B + 225/
2*x^6*e^2*d^4*b^2*a^8*B + 100/3*x^6*e^3*d^3*b*a^9*B + 5/2*x^6*e^4
*d^2*a^10*B + 42*x^6*d^6*b^5*a^5*A + 210*x^6*e*d^5*b^4*a^6*A + 30
0*x^6*e^2*d^4*b^3*a^7*A + 150*x^6*e^3*d^3*b^2*a^8*A + 25*x^6*e^4*
d^2*b*a^9*A + x^6*e^5*d*a^10*A + 24*x^5*d^6*b^3*a^7*B + 54*x^5*e*
d^5*b^2*a^8*B + 30*x^5*e^2*d^4*b*a^9*B + 4*x^5*e^3*d^3*a^10*B + 4
2*x^5*d^6*b^4*a^6*A + 144*x^5*e*d^5*b^3*a^7*A + 135*x^5*e^2*d^4*b
^2*a^8*A + 40*x^5*e^3*d^3*b*a^9*A + 3*x^5*e^4*d^2*a^10*A + 45/4*x
^4*d^6*b^2*a^8*B + 15*x^4*e*d^5*b*a^9*B + 15/4*x^4*e^2*d^4*a^10*B
 + 30*x^4*d^6*b^3*a^7*A + 135/2*x^4*e*d^5*b^2*a^8*A + 75/2*x^4*e^
2*d^4*b*a^9*A + 5*x^4*e^3*d^3*a^10*A + 10/3*x^3*d^6*b*a^9*B + 2*x
^3*e*d^5*a^10*B + 15*x^3*d^6*b^2*a^8*A + 20*x^3*e*d^5*b*a^9*A + 5
*x^3*e^2*d^4*a^10*A + 1/2*x^2*d^6*a^10*B + 5*x^2*d^6*b*a^9*A + 3*
x^2*e*d^5*a^10*A + x*d^6*a^10*A
```

Sympy [A] time = 1.05469, size = 2424, normalized size = 8.36

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)*(e*x+d)**6,x)
```

```
[Out] A*a**10*d**6*x + B*b**10*e**6*x**18/18 + x**17*(A*b**10*e**6/17 +
 10*B*a*b**9*e**6/17 + 6*B*b**10*d*e**5/17) + x**16*(5*A*a*b**9*e
**6/8 + 3*A*b**10*d*e**5/8 + 45*B*a**2*b**8*e**6/16 + 15*B*a*b**9
*d*e**5/4 + 15*B*b**10*d**2*e**4/16) + x**15*(3*A*a**2*b**8*e**6
+ 4*A*a*b**9*d*e**5 + A*b**10*d**2*e**4 + 8*B*a**3*b**7*e**6 + 18
*B*a**2*b**8*d*e**5 + 10*B*a*b**9*d**2*e**4 + 4*B*b**10*d**3*e**3
/3) + x**14*(60*A*a**3*b**7*e**6/7 + 135*A*a**2*b**8*d*e**5/7 + 7
5*A*a*b**9*d**2*e**4/7 + 10*A*b**10*d**3*e**3/7 + 15*B*a**4*b**6*
e**6 + 360*B*a**3*b**7*d*e**5/7 + 675*B*a**2*b**8*d**2*e**4/14 +
100*B*a*b**9*d**3*e**3/7 + 15*B*b**10*d**4*e**2/14) + x**13*(210*
A*a**4*b**6*e**6/13 + 720*A*a**3*b**7*d*e**5/13 + 675*A*a**2*b**8
*d**2*e**4/13 + 200*A*a*b**9*d**3*e**3/13 + 15*A*b**10*d**4*e**2/
13 + 252*B*a**5*b**5*e**6/13 + 1260*B*a**4*b**6*d*e**5/13 + 1800*
B*a**3*b**7*d**2*e**4/13 + 900*B*a**2*b**8*d**3*e**3/13 + 150*B*a
*b**9*d**4*e**2/13 + 6*B*b**10*d**5*e/13) + x**12*(21*A*a**5*b**5
*e**6 + 105*A*a**4*b**6*d*e**5 + 150*A*a**3*b**7*d**2*e**4 + 75*A
*a**2*b**8*d**3*e**3 + 25*A*a*b**9*d**4*e**2/2 + A*b**10*d**5*e/2
 + 35*B*a**6*b**4*e**6/2 + 126*B*a**5*b**5*d*e**5 + 525*B*a**4*b*
*6*d**2*e**4/2 + 200*B*a**3*b**7*d**3*e**3 + 225*B*a**2*b**8*d**4
*e**2/4 + 5*B*a*b**9*d**5*e + B*b**10*d**6/12) + x**11*(210*A*a**
6*b**4*e**6/11 + 1512*A*a**5*b**5*d*e**5/11 + 3150*A*a**4*b**6*d*
*2*e**4/11 + 2400*A*a**3*b**7*d**3*e**3/11 + 675*A*a**2*b**8*d**4
*e**2/11 + 60*A*a*b**9*d**5*e/11 + A*b**10*d**6/11 + 120*B*a**7*b
**3*e**6/11 + 1260*B*a**6*b**4*d*e**5/11 + 3780*B*a**5*b**5*d**2*
e**4/11 + 4200*B*a**4*b**6*d**3*e**3/11 + 1800*B*a**3*b**7*d**4*e
**2/11 + 270*B*a**2*b**8*d**5*e/11 + 10*B*a*b**9*d**6/11) + x**10
*(12*A*a**7*b**3*e**6 + 126*A*a**6*b**4*d*e**5 + 378*A*a**5*b**5*
d**2*e**4 + 420*A*a**4*b**6*d**3*e**3 + 180*A*a**3*b**7*d**4*e**2
 + 27*A*a**2*b**8*d**5*e + A*a*b**9*d**6 + 9*B*a**8*b**2*e**6/2 +
 72*B*a**7*b**3*d*e**5 + 315*B*a**6*b**4*d**2*e**4 + 504*B*a**5*b
**5*d**3*e**3 + 315*B*a**4*b**6*d**4*e**2 + 72*B*a**3*b**7*d**5*e
 + 9*B*a**2*b**8*d**6/2) + x**9*(5*A*a**8*b**2*e**6 + 80*A*a**7*b
**3*d*e**5 + 350*A*a**6*b**4*d**2*e**4 + 560*A*a**5*b**5*d**3*e**
3 + 350*A*a**4*b**6*d**4*e**2 + 80*A*a**3*b**7*d**5*e + 5*A*a**2*
b**8*d**6 + 10*B*a**9*b*e**6/9 + 30*B*a**8*b**2*d*e**5 + 200*B*a*
*7*b**3*d**2*e**4 + 1400*B*a**6*b**4*d**3*e**3/3 + 420*B*a**5*b**
5*d**4*e**2 + 140*B*a**4*b**6*d**5*e + 40*B*a**3*b**7*d**6/3) + x
**8*(5*A*a**9*b*e**6/4 + 135*A*a**8*b**2*d*e**5/4 + 225*A*a**7*b*
*3*d**2*e**4 + 525*A*a**6*b**4*d**3*e**3 + 945*A*a**5*b**5*d**4*e
**2/2 + 315*A*a**4*b**6*d**5*e/2 + 15*A*a**3*b**7*d**6 + B*a**10*
```

```
e**6/8 + 15*B*a**9*b*d*e**5/2 + 675*B*a**8*b**2*d**2*e**4/8 + 300
*B*a**7*b**3*d**3*e**3 + 1575*B*a**6*b**4*d**4*e**2/4 + 189*B*a**
5*b**5*d**5*e + 105*B*a**4*b**6*d**6/4) + x**7*(A*a**10*e**6/7 +
60*A*a**9*b*d*e**5/7 + 675*A*a**8*b**2*d**2*e**4/7 + 2400*A*a**7*
b**3*d**3*e**3/7 + 450*A*a**6*b**4*d**4*e**2 + 216*A*a**5*b**5*d*
*5*e + 30*A*a**4*b**6*d**6 + 6*B*a**10*d*e**5/7 + 150*B*a**9*b*d*
*2*e**4/7 + 900*B*a**8*b**2*d**3*e**3/7 + 1800*B*a**7*b**3*d**4*e
**2/7 + 180*B*a**6*b**4*d**5*e + 36*B*a**5*b**5*d**6) + x**6*(A*a
**10*d*e**5 + 25*A*a**9*b*d**2*e**4 + 150*A*a**8*b**2*d**3*e**3 +
 300*A*a**7*b**3*d**4*e**2 + 210*A*a**6*b**4*d**5*e + 42*A*a**5*b
**5*d**6 + 5*B*a**10*d**2*e**4/2 + 100*B*a**9*b*d**3*e**3/3 + 225
*B*a**8*b**2*d**4*e**2/2 + 120*B*a**7*b**3*d**5*e + 35*B*a**6*b**
4*d**6) + x**5*(3*A*a**10*d**2*e**4 + 40*A*a**9*b*d**3*e**3 + 135
*A*a**8*b**2*d**4*e**2 + 144*A*a**7*b**3*d**5*e + 42*A*a**6*b**4*
d**6 + 4*B*a**10*d**3*e**3 + 30*B*a**9*b*d**4*e**2 + 54*B*a**8*b*
*2*d**5*e + 24*B*a**7*b**3*d**6) + x**4*(5*A*a**10*d**3*e**3 + 75
*A*a**9*b*d**4*e**2/2 + 135*A*a**8*b**2*d**5*e/2 + 30*A*a**7*b**3
*d**6 + 15*B*a**10*d**4*e**2/4 + 15*B*a**9*b*d**5*e + 45*B*a**8*b
**2*d**6/4) + x**3*(5*A*a**10*d**4*e**2 + 20*A*a**9*b*d**5*e + 15
*A*a**8*b**2*d**6 + 2*B*a**10*d**5*e + 10*B*a**9*b*d**6/3) + x**2
*(3*A*a**10*d**5*e + 5*A*a**9*b*d**6 + B*a**10*d**6/2)
```

GIAC/XCAS [A] time = 0.211092, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*(e*x + d)^6,x, algorithm="giac")
```

```
[Out] Done
```

3.1066 $\int (a+bx)^{10}(A+Bx)(d+ex)^5\,dx$

Optimal. Leaf size=243

$$\frac{e^4(a+bx)^{16}(-6aBe+Abe+5bBd)}{16b^7}+\frac{e^3(a+bx)^{15}(bd-ae)(-3aBe+Abe+2bBd)}{3b^7}+\frac{5e^2(a+bx)^{14}(bd-ae)^2(-2aBe+Abe+bBd)}{7b^7}+\frac{5e(a+bx)^{13}(bd-ae)^3(-3aBe+2Abe+bBd)}{13b^7}+\frac{(a+bx)^{12}(bd-ae)^4(-6aBe+5Abe+bBd)}{12b^7}+\frac{(a+bx)^{11}(Ab-aB)(bd-ae)^5}{11b^7}+\frac{Be^5(a+bx)^{17}}{17b^7}$$

```
[Out] ((A*b - a*B)*(b*d - a*e)^5*(a + b*x)^11)/(11*b^7) + ((b*d - a*e)^
4*(b*B*d + 5*A*b*e - 6*a*B*e)*(a + b*x)^12)/(12*b^7) + (5*e*(b*d
- a*e)^3*(b*B*d + 2*A*b*e - 3*a*B*e)*(a + b*x)^13)/(13*b^7) + (5*
e^2*(b*d - a*e)^2*(b*B*d + A*b*e - 2*a*B*e)*(a + b*x)^14)/(7*b^7)
 + (e^3*(b*d - a*e)*(2*b*B*d + A*b*e - 3*a*B*e)*(a + b*x)^15)/(3*
b^7) + (e^4*(5*b*B*d + A*b*e - 6*a*B*e)*(a + b*x)^16)/(16*b^7) +
(B*e^5*(a + b*x)^17)/(17*b^7)
```

Rubi [A] time = 5.17353, antiderivative size = 243, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{e^4(a+bx)^{16}(-6aBe+Abe+5bBd)}{16b^7}+\frac{e^3(a+bx)^{15}(bd-ae)(-3aBe+Abe+2bBd)}{3b^7}+\frac{5e^2(a+bx)^{14}(bd-ae)^2(-2aBe+Abe+bBd)}{7b^7}+\frac{5e(a+bx)^{13}(bd-ae)^3(-3aBe+2Abe+bBd)}{13b^7}+\frac{(a+bx)^{12}(bd-ae)^4(-6aBe+5Abe+bBd)}{12b^7}+\frac{(a+bx)^{11}(Ab-aB)(bd-ae)^5}{11b^7}+\frac{Be^5(a+bx)^{17}}{17b^7}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^10*(A + B*x)*(d + e*x)^5,x]
```

```
[Out] ((A*b - a*B)*(b*d - a*e)^5*(a + b*x)^11)/(11*b^7) + ((b*d - a*e)^
4*(b*B*d + 5*A*b*e - 6*a*B*e)*(a + b*x)^12)/(12*b^7) + (5*e*(b*d
- a*e)^3*(b*B*d + 2*A*b*e - 3*a*B*e)*(a + b*x)^13)/(13*b^7) + (5*
e^2*(b*d - a*e)^2*(b*B*d + A*b*e - 2*a*B*e)*(a + b*x)^14)/(7*b^7)
 + (e^3*(b*d - a*e)*(2*b*B*d + A*b*e - 3*a*B*e)*(a + b*x)^15)/(3*
b^7) + (e^4*(5*b*B*d + A*b*e - 6*a*B*e)*(a + b*x)^16)/(16*b^7) +
(B*e^5*(a + b*x)^17)/(17*b^7)
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)*(e*x+d)**5,x)
```

```
[Out] Timed out
```

Mathematica [B] time = 1.07009, size = 1509, normalized size = 6.21

$$\frac{1}{17}b^{10}Be^5x^{17}+\frac{1}{16}b^9e^4(5bBd+Abe+10aBe)x^{16}+\frac{1}{3}b^8e^3\left(d(2Bd+Ae)b^2+2ae(5Bd+Ae)b+9a^2Be^2\right)x^{15}$$
$$+\frac{5}{14}b^7e^2\left(2d^2(Bd+Ae)b^3+10ade(2Bd+Ae)b^2+9a^2e^2(5Bd+Ae)b+24a^3Be^3\right)x^{14}$$
$$+\frac{5}{13}b^6e\left(d^3(Bd+2Ae)b^4+20ad^2e(Bd+Ae)b^3+45a^2de^2(2Bd+Ae)b^2+24a^3e^3(5Bd+Ae)b+42a^4Be^4\right)x^{13}$$
$$+\frac{1}{12}b^5\left(d^4(Bd+5Ae)b^5+50ad^3e(Bd+2Ae)b^4+450a^2d^2e^2(Bd+Ae)b^3\right.$$
$$\left.+600a^3de^3(2Bd+Ae)b^2+210a^4e^4(5Bd+Ae)b+252a^5Be^5\right)x^{12}$$
$$+\frac{1}{11}b^4\left(5aB\left(2b^5d^5+45ab^4ed^4+240a^2b^3e^2d^3+420a^3b^2e^3d^2+252a^4be^4d+42a^5e^5\right)\right.$$
$$\left.+Ab\left(b^5d^5+50ab^4ed^4+450a^2b^3e^2d^3+1200a^3b^2e^3d^2+1050a^4be^4d+252a^5e^5\right)\right)x^{11}$$
$$+\frac{1}{2}ab^3\left(3aB\left(3b^5d^5+40ab^4ed^4+140a^2b^3e^2d^3+168a^3b^2e^3d^2+70a^4be^4d+8a^5e^5\right)\right.$$
$$\left.+Ab\left(2b^5d^5+45ab^4ed^4+240a^2b^3e^2d^3+420a^3b^2e^3d^2+252a^4be^4d+42a^5e^5\right)\right)x^{10}$$
$$+\frac{5}{3}a^2b^2\left(aB\left(8b^5d^5+70ab^4ed^4+168a^2b^3e^2d^3+140a^3b^2e^3d^2+40a^4be^4d+3a^5e^5\right)\right.$$
$$\left.+Ab\left(3b^5d^5+40ab^4ed^4+140a^2b^3e^2d^3+168a^3b^2e^3d^2+70a^4be^4d+8a^5e^5\right)\right)x^9$$
$$+\frac{5}{8}a^3b\left(aB\left(42b^5d^5+252ab^4ed^4+420a^2b^3e^2d^3+240a^3b^2e^3d^2+45a^4be^4d+2a^5e^5\right)\right.$$
$$\left.+3Ab\left(8b^5d^5+70ab^4ed^4+168a^2b^3e^2d^3+140a^3b^2e^3d^2+40a^4be^4d+3a^5e^5\right)\right)x^8$$
$$+\frac{1}{7}a^4\left(aB\left(252b^5d^5+1050ab^4ed^4+1200a^2b^3e^2d^3+450a^3b^2e^3d^2+50a^4be^4d+a^5e^5\right)\right.$$
$$\left.+5Ab\left(42b^5d^5+252ab^4ed^4+420a^2b^3e^2d^3+240a^3b^2e^3d^2+45a^4be^4d+2a^5e^5\right)\right)x^7$$
$$+\frac{1}{6}a^5\left(5aBd\left(42b^4d^4+120ab^3ed^3+90a^2b^2e^2d^2+20a^3be^3d+a^4e^4\right)\right.$$
$$\left.+A\left(252b^5d^5+1050ab^4ed^4+1200a^2b^3e^2d^3+450a^3b^2e^3d^2+50a^4be^4d+a^5e^5\right)\right)x^6$$
$$+a^6d\left(aBd\left(24b^3d^3+45ab^2ed^2+20a^2be^2d+2a^3e^3\right)\right.$$
$$\left.+A\left(42b^4d^4+120ab^3ed^3+90a^2b^2e^2d^2+20a^3be^3d+a^4e^4\right)\right)x^5$$
$$+\frac{5}{4}a^7d^2\left(aBd\left(9b^2d^2+10abed+2a^2e^2\right)+A\left(24b^3d^3+45ab^2ed^2+20a^2be^2d+2a^3e^3\right)\right)x^4$$
$$+\frac{5}{3}a^8d^3\left(aBd(2bd+ae)+A\left(9b^2d^2+10abed+2a^2e^2\right)\right)x^3+\frac{1}{2}a^9d^4(aBd+5A(2bd+ae))x^2+a^{10}Ad^5x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^10*(A + B*x)*(d + e*x)^5,x]
```

```
[Out] a^10*A*d^5*x + (a^9*d^4*(a*B*d + 5*A*(2*b*d + a*e))*x^2)/2 + (5*a
^8*d^3*(a*B*d*(2*b*d + a*e) + A*(9*b^2*d^2 + 10*a*b*d*e + 2*a^2*e
^2))*x^3)/3 + (5*a^7*d^2*(a*B*d*(9*b^2*d^2 + 10*a*b*d*e + 2*a^2*e
^2) + A*(24*b^3*d^3 + 45*a*b^2*d^2*e + 20*a^2*b*d*e^2 + 2*a^3*e^3
))*x^4)/4 + a^6*d*(a*B*d*(24*b^3*d^3 + 45*a*b^2*d^2*e + 20*a^2*b*
d*e^2 + 2*a^3*e^3) + A*(42*b^4*d^4 + 120*a*b^3*d^3*e + 90*a^2*b^2
*d^2*e^2 + 20*a^3*b*d*e^3 + a^4*e^4))*x^5 + (a^5*(5*a*B*d*(42*b^4
*d^4 + 120*a*b^3*d^3*e + 90*a^2*b^2*d^2*e^2 + 20*a^3*b*d*e^3 + a^
4*e^4) + A*(252*b^5*d^5 + 1050*a*b^4*d^4*e + 1200*a^2*b^3*d^3*e^2
 + 450*a^3*b^2*d^2*e^3 + 50*a^4*b*d*e^4 + a^5*e^5))*x^6)/6 + (a^4
*(a*B*(252*b^5*d^5 + 1050*a*b^4*d^4*e + 1200*a^2*b^3*d^3*e^2 + 45
0*a^3*b^2*d^2*e^3 + 50*a^4*b*d*e^4 + a^5*e^5) + 5*A*b*(42*b^5*d^5
 + 252*a*b^4*d^4*e + 420*a^2*b^3*d^3*e^2 + 240*a^3*b^2*d^2*e^3 +
45*a^4*b*d*e^4 + 2*a^5*e^5))*x^7)/7 + (5*a^3*b*(a*B*(42*b^5*d^5 +
 252*a*b^4*d^4*e + 420*a^2*b^3*d^3*e^2 + 240*a^3*b^2*d^2*e^3 + 45
*a^4*b*d*e^4 + 2*a^5*e^5) + 3*A*b*(8*b^5*d^5 + 70*a*b^4*d^4*e + 1
68*a^2*b^3*d^3*e^2 + 140*a^3*b^2*d^2*e^3 + 40*a^4*b*d*e^4 + 3*a^5
*e^5))*x^8)/8 + (5*a^2*b^2*(a*B*(8*b^5*d^5 + 70*a*b^4*d^4*e + 168
*a^2*b^3*d^3*e^2 + 140*a^3*b^2*d^2*e^3 + 40*a^4*b*d*e^4 + 3*a^5*e
^5) + A*b*(3*b^5*d^5 + 40*a*b^4*d^4*e + 140*a^2*b^3*d^3*e^2 + 168
*a^3*b^2*d^2*e^3 + 70*a^4*b*d*e^4 + 8*a^5*e^5))*x^9)/3 + (a*b^3*(
3*a*B*(3*b^5*d^5 + 40*a*b^4*d^4*e + 140*a^2*b^3*d^3*e^2 + 168*a^3
*b^2*d^2*e^3 + 70*a^4*b*d*e^4 + 8*a^5*e^5) + A*b*(2*b^5*d^5 + 45*
a*b^4*d^4*e + 240*a^2*b^3*d^3*e^2 + 420*a^3*b^2*d^2*e^3 + 252*a^4
*b*d*e^4 + 42*a^5*e^5))*x^10)/2 + (b^4*(5*a*B*(2*b^5*d^5 + 45*a*b
^4*d^4*e + 240*a^2*b^3*d^3*e^2 + 420*a^3*b^2*d^2*e^3 + 252*a^4*b*
d*e^4 + 42*a^5*e^5) + A*b*(b^5*d^5 + 50*a*b^4*d^4*e + 450*a^2*b^3
*d^3*e^2 + 1200*a^3*b^2*d^2*e^3 + 1050*a^4*b*d*e^4 + 252*a^5*e^5)
)*x^11)/11 + (b^5*(252*a^5*B*e^5 + 450*a^2*b^3*d^2*e^2*(B*d + A*e
```

```
) + 600*a^3*b^2*d*e^3*(2*B*d + A*e) + 210*a^4*b*e^4*(5*B*d + A*e)
 + 50*a*b^4*d^3*e*(B*d + 2*A*e) + b^5*d^4*(B*d + 5*A*e))*x^12)/12
 + (5*b^6*e*(42*a^4*B*e^4 + 20*a*b^3*d^2*e*(B*d + A*e) + 45*a^2*b
^2*d*e^2*(2*B*d + A*e) + 24*a^3*b*e^3*(5*B*d + A*e) + b^4*d^3*(B*
d + 2*A*e))*x^13)/13 + (5*b^7*e^2*(24*a^3*B*e^3 + 2*b^3*d^2*(B*d
+ A*e) + 10*a*b^2*d*e*(2*B*d + A*e) + 9*a^2*b*e^2*(5*B*d + A*e))*
x^14)/14 + (b^8*e^3*(9*a^2*B*e^2 + b^2*d*(2*B*d + A*e) + 2*a*b*e*
(5*B*d + A*e))*x^15)/3 + (b^9*e^4*(5*b*B*d + A*b*e + 10*a*B*e)*x^
16)/16 + (b^10*B*e^5*x^17)/17
```

Maple [B] time = 0.004, size = 1621, normalized size = 6.7

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^10*(B*x+A)*(e*x+d)^5,x)
```

```
[Out] 1/17*b^10*B*e^5*x^17+1/16*((A*b^10+10*B*a*b^9)*e^5+5*b^10*B*d*e^4
)*x^16+1/15*((10*A*a*b^9+45*B*a^2*b^8)*e^5+5*(A*b^10+10*B*a*b^9)*
d*e^4+10*b^10*B*d^2*e^3)*x^15+1/14*((45*A*a^2*b^8+120*B*a^3*b^7)*
e^5+5*(10*A*a*b^9+45*B*a^2*b^8)*d*e^4+10*(A*b^10+10*B*a*b^9)*d^2*
e^3+10*b^10*B*d^3*e^2)*x^14+1/13*((120*A*a^3*b^7+210*B*a^4*b^6)*e
^5+5*(45*A*a^2*b^8+120*B*a^3*b^7)*d*e^4+10*(10*A*a*b^9+45*B*a^2*b
^8)*d^2*e^3+10*(A*b^10+10*B*a*b^9)*d^3*e^2+5*b^10*B*d^4*e)*x^13+1
/12*((210*A*a^4*b^6+252*B*a^5*b^5)*e^5+5*(120*A*a^3*b^7+210*B*a^4
*b^6)*d*e^4+10*(45*A*a^2*b^8+120*B*a^3*b^7)*d^2*e^3+10*(10*A*a*b^
9+45*B*a^2*b^8)*d^3*e^2+5*(A*b^10+10*B*a*b^9)*d^4*e+b^10*B*d^5)*x
^12+1/11*((252*A*a^5*b^5+210*B*a^6*b^4)*e^5+5*(210*A*a^4*b^6+252*
B*a^5*b^5)*d*e^4+10*(120*A*a^3*b^7+210*B*a^4*b^6)*d^2*e^3+10*(45*
A*a^2*b^8+120*B*a^3*b^7)*d^3*e^2+5*(10*A*a*b^9+45*B*a^2*b^8)*d^4*
e+(A*b^10+10*B*a*b^9)*d^5)*x^11+1/10*((210*A*a^6*b^4+120*B*a^7*b^
3)*e^5+5*(252*A*a^5*b^5+210*B*a^6*b^4)*d*e^4+10*(210*A*a^4*b^6+25
2*B*a^5*b^5)*d^2*e^3+10*(120*A*a^3*b^7+210*B*a^4*b^6)*d^3*e^2+5*(
45*A*a^2*b^8+120*B*a^3*b^7)*d^4*e+(10*A*a*b^9+45*B*a^2*b^8)*d^5)*
x^10+1/9*((120*A*a^7*b^3+45*B*a^8*b^2)*e^5+5*(210*A*a^6*b^4+120*B
*a^7*b^3)*d*e^4+10*(252*A*a^5*b^5+210*B*a^6*b^4)*d^2*e^3+10*(210*
A*a^4*b^6+252*B*a^5*b^5)*d^3*e^2+5*(120*A*a^3*b^7+210*B*a^4*b^6)*
d^4*e+(45*A*a^2*b^8+120*B*a^3*b^7)*d^5)*x^9+1/8*((45*A*a^8*b^2+10
*B*a^9*b)*e^5+5*(120*A*a^7*b^3+45*B*a^8*b^2)*d*e^4+10*(210*A*a^6*
b^4+120*B*a^7*b^3)*d^2*e^3+10*(252*A*a^5*b^5+210*B*a^6*b^4)*d^3*e
^2+5*(210*A*a^4*b^6+252*B*a^5*b^5)*d^4*e+(120*A*a^3*b^7+210*B*a^4
*b^6)*d^5)*x^8+1/7*((10*A*a^9*b+B*a^10)*e^5+5*(45*A*a^8*b^2+10*B*
a^9*b)*d*e^4+10*(120*A*a^7*b^3+45*B*a^8*b^2)*d^2*e^3+10*(210*A*a^
6*b^4+120*B*a^7*b^3)*d^3*e^2+5*(252*A*a^5*b^5+210*B*a^6*b^4)*d^4*
e+(210*A*a^4*b^6+252*B*a^5*b^5)*d^5)*x^7+1/6*(a^10*A*e^5+5*(10*A*
a^9*b+B*a^10)*d*e^4+10*(45*A*a^8*b^2+10*B*a^9*b)*d^2*e^3+10*(120*
A*a^7*b^3+45*B*a^8*b^2)*d^3*e^2+5*(210*A*a^6*b^4+120*B*a^7*b^3)*d
^4*e+(252*A*a^5*b^5+210*B*a^6*b^4)*d^5)*x^6+1/5*(5*a^10*A*d*e^4+1
0*(10*A*a^9*b+B*a^10)*d^2*e^3+10*(45*A*a^8*b^2+10*B*a^9*b)*d^3*e^
2+5*(120*A*a^7*b^3+45*B*a^8*b^2)*d^4*e+(210*A*a^6*b^4+120*B*a^7*b
^3)*d^5)*x^5+1/4*(10*a^10*A*d^2*e^3+10*(10*A*a^9*b+B*a^10)*d^3*e^
2+5*(45*A*a^8*b^2+10*B*a^9*b)*d^4*e+(120*A*a^7*b^3+45*B*a^8*b^2)*
d^5)*x^4+1/3*(10*a^10*A*d^3*e^2+5*(10*A*a^9*b+B*a^10)*d^4*e+(45*A
*a^8*b^2+10*B*a^9*b)*d^5)*x^3+1/2*(5*a^10*A*d^4*e+(10*A*a^9*b+B*a
^10)*d^5)*x^2+a^10*A*d^5*x
```

Maxima [A] time = 1.39617, size = 2194, normalized size = 9.03

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*(e*x + d)^5,x, algorithm="maxima")
```

```
[Out] 1/17*B*b^10*e^5*x^17 + A*a^10*d^5*x + 1/16*(5*B*b^10*d*e^4 + (10*
B*a*b^9 + A*b^10)*e^5)*x^16 + 1/3*(2*B*b^10*d^2*e^3 + (10*B*a*b^9
 + A*b^10)*d*e^4 + (9*B*a^2*b^8 + 2*A*a*b^9)*e^5)*x^15 + 5/14*(2*
B*b^10*d^3*e^2 + 2*(10*B*a*b^9 + A*b^10)*d^2*e^3 + 5*(9*B*a^2*b^8
 + 2*A*a*b^9)*d*e^4 + 3*(8*B*a^3*b^7 + 3*A*a^2*b^8)*e^5)*x^14 + 5
/13*(B*b^10*d^4*e + 2*(10*B*a*b^9 + A*b^10)*d^3*e^2 + 10*(9*B*a^2
*b^8 + 2*A*a*b^9)*d^2*e^3 + 15*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d*e^4
+ 6*(7*B*a^4*b^6 + 4*A*a^3*b^7)*e^5)*x^13 + 1/12*(B*b^10*d^5 + 5*
(10*B*a*b^9 + A*b^10)*d^4*e + 50*(9*B*a^2*b^8 + 2*A*a*b^9)*d^3*e^
2 + 150*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^2*e^3 + 150*(7*B*a^4*b^6 +
4*A*a^3*b^7)*d*e^4 + 42*(6*B*a^5*b^5 + 5*A*a^4*b^6)*e^5)*x^12 + 1
/11*((10*B*a*b^9 + A*b^10)*d^5 + 25*(9*B*a^2*b^8 + 2*A*a*b^9)*d^4
*e + 150*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^3*e^2 + 300*(7*B*a^4*b^6 +
 4*A*a^3*b^7)*d^2*e^3 + 210*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d*e^4 + 4
2*(5*B*a^6*b^4 + 6*A*a^5*b^5)*e^5)*x^11 + 1/2*((9*B*a^2*b^8 + 2*A
*a*b^9)*d^5 + 15*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^4*e + 60*(7*B*a^4*
b^6 + 4*A*a^3*b^7)*d^3*e^2 + 84*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^2*e
^3 + 42*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d*e^4 + 6*(4*B*a^7*b^3 + 7*A*
a^6*b^4)*e^5)*x^10 + 5/3*((8*B*a^3*b^7 + 3*A*a^2*b^8)*d^5 + 10*(7
*B*a^4*b^6 + 4*A*a^3*b^7)*d^4*e + 28*(6*B*a^5*b^5 + 5*A*a^4*b^6)*
d^3*e^2 + 28*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^2*e^3 + 10*(4*B*a^7*b^
3 + 7*A*a^6*b^4)*d*e^4 + (3*B*a^8*b^2 + 8*A*a^7*b^3)*e^5)*x^9 + 5
/8*(6*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^5 + 42*(6*B*a^5*b^5 + 5*A*a^4
*b^6)*d^4*e + 84*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^3*e^2 + 60*(4*B*a^
7*b^3 + 7*A*a^6*b^4)*d^2*e^3 + 15*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d*e
^4 + (2*B*a^9*b + 9*A*a^8*b^2)*e^5)*x^8 + 1/7*(42*(6*B*a^5*b^5 +
5*A*a^4*b^6)*d^5 + 210*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^4*e + 300*(4
*B*a^7*b^3 + 7*A*a^6*b^4)*d^3*e^2 + 150*(3*B*a^8*b^2 + 8*A*a^7*b^
3)*d^2*e^3 + 25*(2*B*a^9*b + 9*A*a^8*b^2)*d*e^4 + (B*a^10 + 10*A*
a^9*b)*e^5)*x^7 + 1/6*(A*a^10*e^5 + 42*(5*B*a^6*b^4 + 6*A*a^5*b^5
)*d^5 + 150*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^4*e + 150*(3*B*a^8*b^2
+ 8*A*a^7*b^3)*d^3*e^2 + 50*(2*B*a^9*b + 9*A*a^8*b^2)*d^2*e^3 + 5
*(B*a^10 + 10*A*a^9*b)*d*e^4)*x^6 + (A*a^10*d*e^4 + 6*(4*B*a^7*b^
3 + 7*A*a^6*b^4)*d^5 + 15*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^4*e + 10*
(2*B*a^9*b + 9*A*a^8*b^2)*d^3*e^2 + 2*(B*a^10 + 10*A*a^9*b)*d^2*e
^3)*x^5 + 5/4*(2*A*a^10*d^2*e^3 + 3*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d
^5 + 5*(2*B*a^9*b + 9*A*a^8*b^2)*d^4*e + 2*(B*a^10 + 10*A*a^9*b)*
d^3*e^2)*x^4 + 5/3*(2*A*a^10*d^3*e^2 + (2*B*a^9*b + 9*A*a^8*b^2)*
d^5 + (B*a^10 + 10*A*a^9*b)*d^4*e)*x^3 + 1/2*(5*A*a^10*d^4*e + (B
*a^10 + 10*A*a^9*b)*d^5)*x^2
```

Fricas [A] time = 0.207581, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^10*(e*x + d)^5,x, algorithm="fricas")
```

```
[Out] 1/17*x^17*e^5*b^10*B + 5/16*x^16*e^4*d*b^10*B + 5/8*x^16*e^5*b^9*
a*B + 1/16*x^16*e^5*b^10*A + 2/3*x^15*e^3*d^2*b^10*B + 10/3*x^15*
e^4*d*b^9*a*B + 3*x^15*e^5*b^8*a^2*B + 1/3*x^15*e^4*d*b^10*A + 2/
3*x^15*e^5*b^9*a*A + 5/7*x^14*e^2*d^3*b^10*B + 50/7*x^14*e^3*d^2*
b^9*a*B + 225/14*x^14*e^4*d*b^8*a^2*B + 60/7*x^14*e^5*b^7*a^3*B +
 5/7*x^14*e^3*d^2*b^10*A + 25/7*x^14*e^4*d*b^9*a*A + 45/14*x^14*e
^5*b^8*a^2*A + 5/13*x^13*e*d^4*b^10*B + 100/13*x^13*e^2*d^3*b^9*a
*B + 450/13*x^13*e^3*d^2*b^8*a^2*B + 600/13*x^13*e^4*d*b^7*a^3*B
+ 210/13*x^13*e^5*b^6*a^4*B + 10/13*x^13*e^2*d^3*b^10*A + 100/13*
x^13*e^3*d^2*b^9*a*A + 225/13*x^13*e^4*d*b^8*a^2*A + 120/13*x^13*
e^5*b^7*a^3*A + 1/12*x^12*d^5*b^10*B + 25/6*x^12*e*d^4*b^9*a*B +
75/2*x^12*e^2*d^3*b^8*a^2*B + 100*x^12*e^3*d^2*b^7*a^3*B + 175/2*
x^12*e^4*d*b^6*a^4*B + 21*x^12*e^5*b^5*a^5*B + 5/12*x^12*e*d^4*b^
10*A + 25/3*x^12*e^2*d^3*b^9*a*A + 75/2*x^12*e^3*d^2*b^8*a^2*A +
50*x^12*e^4*d*b^7*a^3*A + 35/2*x^12*e^5*b^6*a^4*A + 10/11*x^11*d^
5*b^9*a*B + 225/11*x^11*e*d^4*b^8*a^2*B + 1200/11*x^11*e^2*d^3*b^
7*a^3*B + 2100/11*x^11*e^3*d^2*b^6*a^4*B + 1260/11*x^11*e^4*d*b^5
*a^5*B + 210/11*x^11*e^5*b^4*a^6*B + 1/11*x^11*d^5*b^10*A + 50/11
*x^11*e*d^4*b^9*a*A + 450/11*x^11*e^2*d^3*b^8*a^2*A + 1200/11*x^1
1*e^3*d^2*b^7*a^3*A + 1050/11*x^11*e^4*d*b^6*a^4*A + 252/11*x^11*
e^5*b^5*a^5*A + 9/2*x^10*d^5*b^8*a^2*B + 60*x^10*e*d^4*b^7*a^3*B
```

```
+ 210*x^10*e^2*d^3*b^6*a^4*B + 252*x^10*e^3*d^2*b^5*a^5*B + 105*x
^10*e^4*d*b^4*a^6*B + 12*x^10*e^5*b^3*a^7*B + x^10*d^5*b^9*a*A +
45/2*x^10*e*d^4*b^8*a^2*A + 120*x^10*e^2*d^3*b^7*a^3*A + 210*x^10
*e^3*d^2*b^6*a^4*A + 126*x^10*e^4*d*b^5*a^5*A + 21*x^10*e^5*b^4*a
^6*A + 40/3*x^9*d^5*b^7*a^3*B + 350/3*x^9*e*d^4*b^6*a^4*B + 280*x
^9*e^2*d^3*b^5*a^5*B + 700/3*x^9*e^3*d^2*b^4*a^6*B + 200/3*x^9*e^
4*d*b^3*a^7*B + 5*x^9*e^5*b^2*a^8*B + 5*x^9*d^5*b^8*a^2*A + 200/3
*x^9*e*d^4*b^7*a^3*A + 700/3*x^9*e^2*d^3*b^6*a^4*A + 280*x^9*e^3*
d^2*b^5*a^5*A + 350/3*x^9*e^4*d*b^4*a^6*A + 40/3*x^9*e^5*b^3*a^7*
A + 105/4*x^8*d^5*b^6*a^4*B + 315/2*x^8*e*d^4*b^5*a^5*B + 525/2*x
^8*e^2*d^3*b^4*a^6*B + 150*x^8*e^3*d^2*b^3*a^7*B + 225/8*x^8*e^4*
d*b^2*a^8*B + 5/4*x^8*e^5*b*a^9*B + 15*x^8*d^5*b^7*a^3*A + 525/4*
x^8*e*d^4*b^6*a^4*A + 315*x^8*e^2*d^3*b^5*a^5*A + 525/2*x^8*e^3*d
^2*b^4*a^6*A + 75*x^8*e^4*d*b^3*a^7*A + 45/8*x^8*e^5*b^2*a^8*A +
36*x^7*d^5*b^5*a^5*B + 150*x^7*e*d^4*b^4*a^6*B + 1200/7*x^7*e^2*d
^3*b^3*a^7*B + 450/7*x^7*e^3*d^2*b^2*a^8*B + 50/7*x^7*e^4*d*b*a^9
*B + 1/7*x^7*e^5*a^10*B + 30*x^7*d^5*b^6*a^4*A + 180*x^7*e*d^4*b^
5*a^5*A + 300*x^7*e^2*d^3*b^4*a^6*A + 1200/7*x^7*e^3*d^2*b^3*a^7*
A + 225/7*x^7*e^4*d*b^2*a^8*A + 10/7*x^7*e^5*b*a^9*A + 35*x^6*d^5
*b^4*a^6*B + 100*x^6*e*d^4*b^3*a^7*B + 75*x^6*e^2*d^3*b^2*a^8*B +
 50/3*x^6*e^3*d^2*b*a^9*B + 5/6*x^6*e^4*d*a^10*B + 42*x^6*d^5*b^5
*a^5*A + 175*x^6*e*d^4*b^4*a^6*A + 200*x^6*e^2*d^3*b^3*a^7*A + 75
*x^6*e^3*d^2*b^2*a^8*A + 25/3*x^6*e^4*d*b*a^9*A + 1/6*x^6*e^5*a^1
0*A + 24*x^5*d^5*b^3*a^7*B + 45*x^5*e*d^4*b^2*a^8*B + 20*x^5*e^2*
d^3*b*a^9*B + 2*x^5*e^3*d^2*a^10*B + 42*x^5*d^5*b^4*a^6*A + 120*x
^5*e*d^4*b^3*a^7*A + 90*x^5*e^2*d^3*b^2*a^8*A + 20*x^5*e^3*d^2*b*
a^9*A + x^5*e^4*d*a^10*A + 45/4*x^4*d^5*b^2*a^8*B + 25/2*x^4*e*d^
4*b*a^9*B + 5/2*x^4*e^2*d^3*a^10*B + 30*x^4*d^5*b^3*a^7*A + 225/4
*x^4*e*d^4*b^2*a^8*A + 25*x^4*e^2*d^3*b*a^9*A + 5/2*x^4*e^3*d^2*a
^10*A + 10/3*x^3*d^5*b*a^9*B + 5/3*x^3*e*d^4*a^10*B + 15*x^3*d^5*
b^2*a^8*A + 50/3*x^3*e*d^4*b*a^9*A + 10/3*x^3*e^2*d^3*a^10*A + 1/
2*x^2*d^5*a^10*B + 5*x^2*d^5*b*a^9*A + 5/2*x^2*e*d^4*a^10*A + x*d
^5*a^10*A
```

Sympy [A] time = 0.930112, size = 2076, normalized size = 8.54

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)*(e*x+d)**5,x)
```

```
[Out] A*a**10*d**5*x + B*b**10*e**5*x**17/17 + x**16*(A*b**10*e**5/16 +
 5*B*a*b**9*e**5/8 + 5*B*b**10*d*e**4/16) + x**15*(2*A*a*b**9*e**
5/3 + A*b**10*d*e**4/3 + 3*B*a**2*b**8*e**5 + 10*B*a*b**9*d*e**4/
3 + 2*B*b**10*d**2*e**3/3) + x**14*(45*A*a**2*b**8*e**5/14 + 25*A
*a*b**9*d*e**4/7 + 5*A*b**10*d**2*e**3/7 + 60*B*a**3*b**7*e**5/7
+ 225*B*a**2*b**8*d*e**4/14 + 50*B*a*b**9*d**2*e**3/7 + 5*B*b**10
*d**3*e**2/7) + x**13*(120*A*a**3*b**7*e**5/13 + 225*A*a**2*b**8*
d*e**4/13 + 100*A*a*b**9*d**2*e**3/13 + 10*A*b**10*d**3*e**2/13 +
 210*B*a**4*b**6*e**5/13 + 600*B*a**3*b**7*d*e**4/13 + 450*B*a**2
*b**8*d**2*e**3/13 + 100*B*a*b**9*d**3*e**2/13 + 5*B*b**10*d**4*e
/13) + x**12*(35*A*a**4*b**6*e**5/2 + 50*A*a**3*b**7*d*e**4 + 75*
A*a**2*b**8*d**2*e**3/2 + 25*A*a*b**9*d**3*e**2/3 + 5*A*b**10*d**
4*e/12 + 21*B*a**5*b**5*e**5 + 175*B*a**4*b**6*d*e**4/2 + 100*B*a
**3*b**7*d**2*e**3 + 75*B*a**2*b**8*d**3*e**2/2 + 25*B*a*b**9*d**
4*e/6 + B*b**10*d**5/12) + x**11*(252*A*a**5*b**5*e**5/11 + 1050*
A*a**4*b**6*d*e**4/11 + 1200*A*a**3*b**7*d**2*e**3/11 + 450*A*a**
2*b**8*d**3*e**2/11 + 50*A*a*b**9*d**4*e/11 + A*b**10*d**5/11 + 2
10*B*a**6*b**4*e**5/11 + 1260*B*a**5*b**5*d*e**4/11 + 2100*B*a**4
*b**6*d**2*e**3/11 + 1200*B*a**3*b**7*d**3*e**2/11 + 225*B*a**2*b
**8*d**4*e/11 + 10*B*a*b**9*d**5/11) + x**10*(21*A*a**6*b**4*e**5
 + 126*A*a**5*b**5*d*e**4 + 210*A*a**4*b**6*d**2*e**3 + 120*A*a**
3*b**7*d**3*e**2 + 45*A*a**2*b**8*d**4*e/2 + A*a*b**9*d**5 + 12*B
*a**7*b**3*e**5 + 105*B*a**6*b**4*d*e**4 + 252*B*a**5*b**5*d**2*e
**3 + 210*B*a**4*b**6*d**3*e**2 + 60*B*a**3*b**7*d**4*e + 9*B*a**
2*b**8*d**5/2) + x**9*(40*A*a**7*b**3*e**5/3 + 350*A*a**6*b**4*d*
e**4/3 + 280*A*a**5*b**5*d**2*e**3 + 700*A*a**4*b**6*d**3*e**2/3
+ 200*A*a**3*b**7*d**4*e/3 + 5*A*a**2*b**8*d**5 + 5*B*a**8*b**2*e
**5 + 200*B*a**7*b**3*d*e**4/3 + 700*B*a**6*b**4*d**2*e**3/3 + 28
```

```
0*B*a**5*b**5*d**3*e**2 + 350*B*a**4*b**6*d**4*e/3 + 40*B*a**3*b*
*7*d**5/3) + x**8*(45*A*a**8*b**2*e**5/8 + 75*A*a**7*b**3*d*e**4
+ 525*A*a**6*b**4*d**2*e**3/2 + 315*A*a**5*b**5*d**3*e**2 + 525*A
*a**4*b**6*d**4*e/4 + 15*A*a**3*b**7*d**5 + 5*B*a**9*b*e**5/4 + 2
25*B*a**8*b**2*d*e**4/8 + 150*B*a**7*b**3*d**2*e**3 + 525*B*a**6*
b**4*d**3*e**2/2 + 315*B*a**5*b**5*d**4*e/2 + 105*B*a**4*b**6*d**
5/4) + x**7*(10*A*a**9*b*e**5/7 + 225*A*a**8*b**2*d*e**4/7 + 1200
*A*a**7*b**3*d**2*e**3/7 + 300*A*a**6*b**4*d**3*e**2 + 180*A*a**5
*b**5*d**4*e + 30*A*a**4*b**6*d**5 + B*a**10*e**5/7 + 50*B*a**9*b
*d*e**4/7 + 450*B*a**8*b**2*d**2*e**3/7 + 1200*B*a**7*b**3*d**3*e
**2/7 + 150*B*a**6*b**4*d**4*e + 36*B*a**5*b**5*d**5) + x**6*(A*a
**10*e**5/6 + 25*A*a**9*b*d*e**4/3 + 75*A*a**8*b**2*d**2*e**3 + 2
00*A*a**7*b**3*d**3*e**2 + 175*A*a**6*b**4*d**4*e + 42*A*a**5*b**
5*d**5 + 5*B*a**10*d*e**4/6 + 50*B*a**9*b*d**2*e**3/3 + 75*B*a**8
*b**2*d**3*e**2 + 100*B*a**7*b**3*d**4*e + 35*B*a**6*b**4*d**5) +
 x**5*(A*a**10*d*e**4 + 20*A*a**9*b*d**2*e**3 + 90*A*a**8*b**2*d*
*3*e**2 + 120*A*a**7*b**3*d**4*e + 42*A*a**6*b**4*d**5 + 2*B*a**1
0*d**2*e**3 + 20*B*a**9*b*d**3*e**2 + 45*B*a**8*b**2*d**4*e + 24*
B*a**7*b**3*d**5) + x**4*(5*A*a**10*d**2*e**3/2 + 25*A*a**9*b*d**
3*e**2 + 225*A*a**8*b**2*d**4*e/4 + 30*A*a**7*b**3*d**5 + 5*B*a**
10*d**3*e**2/2 + 25*B*a**9*b*d**4*e/2 + 45*B*a**8*b**2*d**5/4) +
x**3*(10*A*a**10*d**3*e**2/3 + 50*A*a**9*b*d**4*e/3 + 15*A*a**8*b
**2*d**5 + 5*B*a**10*d**4*e/3 + 10*B*a**9*b*d**5/3) + x**2*(5*A*a
**10*d**4*e/2 + 5*A*a**9*b*d**5 + B*a**10*d**5/2)
```

GIAC/XCAS [A] time = 0.210135, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*(e*x + d)^5,x, algorithm="giac")
```

```
[Out] Done
```

3.1067 $\int (a+bx)^{10}(A+Bx)(d+ex)^4\,dx$

Optimal. Leaf size=204

$$\frac{e^3(a+bx)^{15}(-5aBe+Abe+4bBd)}{15b^6}+\frac{e^2(a+bx)^{14}(bd-ae)(-5aBe+2Abe+3bBd)}{7b^6}+\frac{2e(a+bx)^{13}(bd-ae)^2(-5aBe+3Abe+2bBd)}{13b^6}+\frac{(a+bx)^{12}(bd-ae)^3(-5aBe+4Abe+bBd)}{12b^6}+\frac{(a+bx)^{11}(Ab-aB)(bd-ae)^4}{11b^6}+\frac{Be^4(a+bx)^{16}}{16b^6}$$

```
[Out] ((A*b - a*B)*(b*d - a*e)^4*(a + b*x)^11)/(11*b^6) + ((b*d - a*e)^
3*(b*B*d + 4*A*b*e - 5*a*B*e)*(a + b*x)^12)/(12*b^6) + (2*e*(b*d
- a*e)^2*(2*b*B*d + 3*A*b*e - 5*a*B*e)*(a + b*x)^13)/(13*b^6) + (
e^2*(b*d - a*e)*(3*b*B*d + 2*A*b*e - 5*a*B*e)*(a + b*x)^14)/(7*b^
6) + (e^3*(4*b*B*d + A*b*e - 5*a*B*e)*(a + b*x)^15)/(15*b^6) + (B
*e^4*(a + b*x)^16)/(16*b^6)
```

Rubi [A] time = 3.94455, antiderivative size = 204, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{e^3(a+bx)^{15}(-5aBe+Abe+4bBd)}{15b^6}+\frac{e^2(a+bx)^{14}(bd-ae)(-5aBe+2Abe+3bBd)}{7b^6}+\frac{2e(a+bx)^{13}(bd-ae)^2(-5aBe+3Abe+2bBd)}{13b^6}+\frac{(a+bx)^{12}(bd-ae)^3(-5aBe+4Abe+bBd)}{12b^6}+\frac{(a+bx)^{11}(Ab-aB)(bd-ae)^4}{11b^6}+\frac{Be^4(a+bx)^{16}}{16b^6}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^10*(A + B*x)*(d + e*x)^4,x]
```

```
[Out] ((A*b - a*B)*(b*d - a*e)^4*(a + b*x)^11)/(11*b^6) + ((b*d - a*e)^
3*(b*B*d + 4*A*b*e - 5*a*B*e)*(a + b*x)^12)/(12*b^6) + (2*e*(b*d
- a*e)^2*(2*b*B*d + 3*A*b*e - 5*a*B*e)*(a + b*x)^13)/(13*b^6) + (
e^2*(b*d - a*e)*(3*b*B*d + 2*A*b*e - 5*a*B*e)*(a + b*x)^14)/(7*b^
6) + (e^3*(4*b*B*d + A*b*e - 5*a*B*e)*(a + b*x)^15)/(15*b^6) + (B
*e^4*(a + b*x)^16)/(16*b^6)
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)*(e*x+d)**4,x)
```

```
[Out] Timed out
```

Mathematica [B] time = 2.26341, size = 1098, normalized size = 5.38

$$x\left(8008\left(6A\left(5d^4+10exd^3+10e^2x^2d^2+5e^3x^3d+e^4x^4\right)+Bx\left(15d^4+40exd^3+45e^2x^2d^2+24e^3x^3d+5e^4x^4\right)\right)a^{10}+11440b$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^10*(A + B*x)*(d + e*x)^4,x]
```

```
[Out] (x*(8008*a^10*(6*A*(5*d^4 + 10*d^3*e*x + 10*d^2*e^2*x^2 + 5*d*e^3
*x^3 + e^4*x^4) + B*x*(15*d^4 + 40*d^3*e*x + 45*d^2*e^2*x^2 + 24*
d*e^3*x^3 + 5*e^4*x^4)) + 11440*a^9*b*x*(7*A*(15*d^4 + 40*d^3*e*x
 + 45*d^2*e^2*x^2 + 24*d*e^3*x^3 + 5*e^4*x^4) + 2*B*x*(35*d^4 + 1
05*d^3*e*x + 126*d^2*e^2*x^2 + 70*d*e^3*x^3 + 15*e^4*x^4)) + 1287
0*a^8*b^2*x^2*(8*A*(35*d^4 + 105*d^3*e*x + 126*d^2*e^2*x^2 + 70*d
*e^3*x^3 + 15*e^4*x^4) + 3*B*x*(70*d^4 + 224*d^3*e*x + 280*d^2*e^
2*x^2 + 160*d*e^3*x^3 + 35*e^4*x^4)) + 11440*a^7*b^3*x^3*(9*A*(70
*d^4 + 224*d^3*e*x + 280*d^2*e^2*x^2 + 160*d*e^3*x^3 + 35*e^4*x^4
) + 4*B*x*(126*d^4 + 420*d^3*e*x + 540*d^2*e^2*x^2 + 315*d*e^3*x^
3 + 70*e^4*x^4)) + 40040*a^6*b^4*x^4*(2*A*(126*d^4 + 420*d^3*e*x
+ 540*d^2*e^2*x^2 + 315*d*e^3*x^3 + 70*e^4*x^4) + B*x*(210*d^4 +
720*d^3*e*x + 945*d^2*e^2*x^2 + 560*d*e^3*x^3 + 126*e^4*x^4)) + 4
368*a^5*b^5*x^5*(11*A*(210*d^4 + 720*d^3*e*x + 945*d^2*e^2*x^2 +
560*d*e^3*x^3 + 126*e^4*x^4) + 6*B*x*(330*d^4 + 1155*d^3*e*x + 15
40*d^2*e^2*x^2 + 924*d*e^3*x^3 + 210*e^4*x^4)) + 1820*a^4*b^6*x^6
*(12*A*(330*d^4 + 1155*d^3*e*x + 1540*d^2*e^2*x^2 + 924*d*e^3*x^3
 + 210*e^4*x^4) + 7*B*x*(495*d^4 + 1760*d^3*e*x + 2376*d^2*e^2*x^
2 + 1440*d*e^3*x^3 + 330*e^4*x^4)) + 560*a^3*b^7*x^7*(13*A*(495*d
^4 + 1760*d^3*e*x + 2376*d^2*e^2*x^2 + 1440*d*e^3*x^3 + 330*e^4*x
^4) + 8*B*x*(715*d^4 + 2574*d^3*e*x + 3510*d^2*e^2*x^2 + 2145*d*e
^3*x^3 + 495*e^4*x^4)) + 120*a^2*b^8*x^8*(14*A*(715*d^4 + 2574*d^
3*e*x + 3510*d^2*e^2*x^2 + 2145*d*e^3*x^3 + 495*e^4*x^4) + 9*B*x*
(1001*d^4 + 3640*d^3*e*x + 5005*d^2*e^2*x^2 + 3080*d*e^3*x^3 + 71
5*e^4*x^4)) + 80*a*b^9*x^9*(3*A*(1001*d^4 + 3640*d^3*e*x + 5005*d
^2*e^2*x^2 + 3080*d*e^3*x^3 + 715*e^4*x^4) + 2*B*x*(1365*d^4 + 50
05*d^3*e*x + 6930*d^2*e^2*x^2 + 4290*d*e^3*x^3 + 1001*e^4*x^4)) +
 b^10*x^10*(16*A*(1365*d^4 + 5005*d^3*e*x + 6930*d^2*e^2*x^2 + 42
90*d*e^3*x^3 + 1001*e^4*x^4) + 11*B*x*(1820*d^4 + 6720*d^3*e*x +
9360*d^2*e^2*x^2 + 5824*d*e^3*x^3 + 1365*e^4*x^4))))/240240
```

Maple [B] time = 0.003, size = 1337, normalized size = 6.6

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^10*(B*x+A)*(e*x+d)^4,x)
```

```
[Out] 1/16*b^10*B*e^4*x^16+1/15*((A*b^10+10*B*a*b^9)*e^4+4*b^10*B*d*e^3
)*x^15+1/14*((10*A*a*b^9+45*B*a^2*b^8)*e^4+4*(A*b^10+10*B*a*b^9)*
d*e^3+6*b^10*B*d^2*e^2)*x^14+1/13*((45*A*a^2*b^8+120*B*a^3*b^7)*e
^4+4*(10*A*a*b^9+45*B*a^2*b^8)*d*e^3+6*(A*b^10+10*B*a*b^9)*d^2*e^
2+4*b^10*B*d^3*e)*x^13+1/12*((120*A*a^3*b^7+210*B*a^4*b^6)*e^4+4*
(45*A*a^2*b^8+120*B*a^3*b^7)*d*e^3+6*(10*A*a*b^9+45*B*a^2*b^8)*d^
2*e^2+4*(A*b^10+10*B*a*b^9)*d^3*e+b^10*B*d^4)*x^12+1/11*((210*A*a
^4*b^6+252*B*a^5*b^5)*e^4+4*(120*A*a^3*b^7+210*B*a^4*b^6)*d*e^3+6
*(45*A*a^2*b^8+120*B*a^3*b^7)*d^2*e^2+4*(10*A*a*b^9+45*B*a^2*b^8)
*d^3*e+(A*b^10+10*B*a*b^9)*d^4)*x^11+1/10*((252*A*a^5*b^5+210*B*a
^6*b^4)*e^4+4*(210*A*a^4*b^6+252*B*a^5*b^5)*d*e^3+6*(120*A*a^3*b^
7+210*B*a^4*b^6)*d^2*e^2+4*(45*A*a^2*b^8+120*B*a^3*b^7)*d^3*e+(10
*A*a*b^9+45*B*a^2*b^8)*d^4)*x^10+1/9*((210*A*a^6*b^4+120*B*a^7*b^
3)*e^4+4*(252*A*a^5*b^5+210*B*a^6*b^4)*d*e^3+6*(210*A*a^4*b^6+252
*B*a^5*b^5)*d^2*e^2+4*(120*A*a^3*b^7+210*B*a^4*b^6)*d^3*e+(45*A*a
^2*b^8+120*B*a^3*b^7)*d^4)*x^9+1/8*((120*A*a^7*b^3+45*B*a^8*b^2)*
e^4+4*(210*A*a^6*b^4+120*B*a^7*b^3)*d*e^3+6*(252*A*a^5*b^5+210*B*
a^6*b^4)*d^2*e^2+4*(210*A*a^4*b^6+252*B*a^5*b^5)*d^3*e+(120*A*a^3
*b^7+210*B*a^4*b^6)*d^4)*x^8+1/7*((45*A*a^8*b^2+10*B*a^9*b)*e^4+4
*(120*A*a^7*b^3+45*B*a^8*b^2)*d*e^3+6*(210*A*a^6*b^4+120*B*a^7*b^
3)*d^2*e^2+4*(252*A*a^5*b^5+210*B*a^6*b^4)*d^3*e+(210*A*a^4*b^6+2
52*B*a^5*b^5)*d^4)*x^7+1/6*((10*A*a^9*b+B*a^10)*e^4+4*(45*A*a^8*b
^2+10*B*a^9*b)*d*e^3+6*(120*A*a^7*b^3+45*B*a^8*b^2)*d^2*e^2+4*(21
0*A*a^6*b^4+120*B*a^7*b^3)*d^3*e+(252*A*a^5*b^5+210*B*a^6*b^4)*d^
4)*x^6+1/5*(a^10*A*e^4+4*(10*A*a^9*b+B*a^10)*d*e^3+6*(45*A*a^8*b^
2+10*B*a^9*b)*d^2*e^2+4*(120*A*a^7*b^3+45*B*a^8*b^2)*d^3*e+(210*A
*a^6*b^4+120*B*a^7*b^3)*d^4)*x^5+1/4*(4*a^10*A*d*e^3+6*(10*A*a^9*
b+B*a^10)*d^2*e^2+4*(45*A*a^8*b^2+10*B*a^9*b)*d^3*e+(120*A*a^7*b^
3+45*B*a^8*b^2)*d^4)*x^4+1/3*(6*a^10*A*d^2*e^2+4*(10*A*a^9*b+B*a^
10)*d^3*e+(45*A*a^8*b^2+10*B*a^9*b)*d^4)*x^3+1/2*(4*a^10*A*d^3*e+
(10*A*a^9*b+B*a^10)*d^4)*x^2+a^10*A*d^4*x
```

Maxima [A] time = 1.3745, size = 1825, normalized size = 8.95

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*(e*x + d)^4,x, algorithm="maxima")
```

```
[Out] 1/16*B*b^10*e^4*x^16 + A*a^10*d^4*x + 1/15*(4*B*b^10*d*e^3 + (10*
B*a*b^9 + A*b^10)*e^4)*x^15 + 1/14*(6*B*b^10*d^2*e^2 + 4*(10*B*a*
b^9 + A*b^10)*d*e^3 + 5*(9*B*a^2*b^8 + 2*A*a*b^9)*e^4)*x^14 + 1/1
3*(4*B*b^10*d^3*e + 6*(10*B*a*b^9 + A*b^10)*d^2*e^2 + 20*(9*B*a^2
*b^8 + 2*A*a*b^9)*d*e^3 + 15*(8*B*a^3*b^7 + 3*A*a^2*b^8)*e^4)*x^1
3 + 1/12*(B*b^10*d^4 + 4*(10*B*a*b^9 + A*b^10)*d^3*e + 30*(9*B*a^
2*b^8 + 2*A*a*b^9)*d^2*e^2 + 60*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d*e^3
 + 30*(7*B*a^4*b^6 + 4*A*a^3*b^7)*e^4)*x^12 + 1/11*((10*B*a*b^9 +
 A*b^10)*d^4 + 20*(9*B*a^2*b^8 + 2*A*a*b^9)*d^3*e + 90*(8*B*a^3*b
^7 + 3*A*a^2*b^8)*d^2*e^2 + 120*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d*e^3
 + 42*(6*B*a^5*b^5 + 5*A*a^4*b^6)*e^4)*x^11 + 1/10*(5*(9*B*a^2*b^
8 + 2*A*a*b^9)*d^4 + 60*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^3*e + 180*(
7*B*a^4*b^6 + 4*A*a^3*b^7)*d^2*e^2 + 168*(6*B*a^5*b^5 + 5*A*a^4*b
^6)*d*e^3 + 42*(5*B*a^6*b^4 + 6*A*a^5*b^5)*e^4)*x^10 + 1/3*(5*(8*
B*a^3*b^7 + 3*A*a^2*b^8)*d^4 + 40*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^3
*e + 84*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^2*e^2 + 56*(5*B*a^6*b^4 + 6
*A*a^5*b^5)*d*e^3 + 10*(4*B*a^7*b^3 + 7*A*a^6*b^4)*e^4)*x^9 + 3/8
*(10*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^4 + 56*(6*B*a^5*b^5 + 5*A*a^4*
b^6)*d^3*e + 84*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^2*e^2 + 40*(4*B*a^7
*b^3 + 7*A*a^6*b^4)*d*e^3 + 5*(3*B*a^8*b^2 + 8*A*a^7*b^3)*e^4)*x^
8 + 1/7*(42*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^4 + 168*(5*B*a^6*b^4 +
6*A*a^5*b^5)*d^3*e + 180*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^2*e^2 + 60
*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d*e^3 + 5*(2*B*a^9*b + 9*A*a^8*b^2)*
e^4)*x^7 + 1/6*(42*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^4 + 120*(4*B*a^7
*b^3 + 7*A*a^6*b^4)*d^3*e + 90*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^2*e^
2 + 20*(2*B*a^9*b + 9*A*a^8*b^2)*d*e^3 + (B*a^10 + 10*A*a^9*b)*e^
4)*x^6 + 1/5*(A*a^10*e^4 + 30*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^4 + 6
0*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^3*e + 30*(2*B*a^9*b + 9*A*a^8*b^2
)*d^2*e^2 + 4*(B*a^10 + 10*A*a^9*b)*d*e^3)*x^5 + 1/4*(4*A*a^10*d*
e^3 + 15*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^4 + 20*(2*B*a^9*b + 9*A*a^
8*b^2)*d^3*e + 6*(B*a^10 + 10*A*a^9*b)*d^2*e^2)*x^4 + 1/3*(6*A*a^
10*d^2*e^2 + 5*(2*B*a^9*b + 9*A*a^8*b^2)*d^4 + 4*(B*a^10 + 10*A*a
^9*b)*d^3*e)*x^3 + 1/2*(4*A*a^10*d^3*e + (B*a^10 + 10*A*a^9*b)*d^
4)*x^2
```

Fricas [A] time = 0.198461, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*(e*x + d)^4,x, algorithm="fricas")
```

```
[Out] 1/16*x^16*e^4*b^10*B + 4/15*x^15*e^3*d*b^10*B + 2/3*x^15*e^4*b^9*
a*B + 1/15*x^15*e^4*b^10*A + 3/7*x^14*e^2*d^2*b^10*B + 20/7*x^14*
e^3*d*b^9*a*B + 45/14*x^14*e^4*b^8*a^2*B + 2/7*x^14*e^3*d*b^10*A
+ 5/7*x^14*e^4*b^9*a*A + 4/13*x^13*e*d^3*b^10*B + 60/13*x^13*e^2*
d^2*b^9*a*B + 180/13*x^13*e^3*d*b^8*a^2*B + 120/13*x^13*e^4*b^7*a
^3*B + 6/13*x^13*e^2*d^2*b^10*A + 40/13*x^13*e^3*d*b^9*a*A + 45/1
3*x^13*e^4*b^8*a^2*A + 1/12*x^12*d^4*b^10*B + 10/3*x^12*e*d^3*b^9
*a*B + 45/2*x^12*e^2*d^2*b^8*a^2*B + 40*x^12*e^3*d*b^7*a^3*B + 35
/2*x^12*e^4*b^6*a^4*B + 1/3*x^12*e*d^3*b^10*A + 5*x^12*e^2*d^2*b^
9*a*A + 15*x^12*e^3*d*b^8*a^2*A + 10*x^12*e^4*b^7*a^3*A + 10/11*x
^11*d^4*b^9*a*B + 180/11*x^11*e*d^3*b^8*a^2*B + 720/11*x^11*e^2*d
^2*b^7*a^3*B + 840/11*x^11*e^3*d*b^6*a^4*B + 252/11*x^11*e^4*b^5*
a^5*B + 1/11*x^11*d^4*b^10*A + 40/11*x^11*e*d^3*b^9*a*A + 270/11*
```

```
x^11*e^2*d^2*b^8*a^2*A + 480/11*x^11*e^3*d*b^7*a^3*A + 210/11*x^1
1*e^4*b^6*a^4*A + 9/2*x^10*d^4*b^8*a^2*B + 48*x^10*e*d^3*b^7*a^3*
B + 126*x^10*e^2*d^2*b^6*a^4*B + 504/5*x^10*e^3*d*b^5*a^5*B + 21*
x^10*e^4*b^4*a^6*B + x^10*d^4*b^9*a*A + 18*x^10*e*d^3*b^8*a^2*A +
 72*x^10*e^2*d^2*b^7*a^3*A + 84*x^10*e^3*d*b^6*a^4*A + 126/5*x^10
*e^4*b^5*a^5*A + 40/3*x^9*d^4*b^7*a^3*B + 280/3*x^9*e*d^3*b^6*a^4
*B + 168*x^9*e^2*d^2*b^5*a^5*B + 280/3*x^9*e^3*d*b^4*a^6*B + 40/3
*x^9*e^4*b^3*a^7*B + 5*x^9*d^4*b^8*a^2*A + 160/3*x^9*e*d^3*b^7*a^
3*A + 140*x^9*e^2*d^2*b^6*a^4*A + 112*x^9*e^3*d*b^5*a^5*A + 70/3*
x^9*e^4*b^4*a^6*A + 105/4*x^8*d^4*b^6*a^4*B + 126*x^8*e*d^3*b^5*a
^5*B + 315/2*x^8*e^2*d^2*b^4*a^6*B + 60*x^8*e^3*d*b^3*a^7*B + 45/
8*x^8*e^4*b^2*a^8*B + 15*x^8*d^4*b^7*a^3*A + 105*x^8*e*d^3*b^6*a^
4*A + 189*x^8*e^2*d^2*b^5*a^5*A + 105*x^8*e^3*d*b^4*a^6*A + 15*x^
8*e^4*b^3*a^7*A + 36*x^7*d^4*b^5*a^5*B + 120*x^7*e*d^3*b^4*a^6*B
+ 720/7*x^7*e^2*d^2*b^3*a^7*B + 180/7*x^7*e^3*d*b^2*a^8*B + 10/7*
x^7*e^4*b*a^9*B + 30*x^7*d^4*b^6*a^4*A + 144*x^7*e*d^3*b^5*a^5*A
+ 180*x^7*e^2*d^2*b^4*a^6*A + 480/7*x^7*e^3*d*b^3*a^7*A + 45/7*x^
7*e^4*b^2*a^8*A + 35*x^6*d^4*b^4*a^6*B + 80*x^6*e*d^3*b^3*a^7*B +
 45*x^6*e^2*d^2*b^2*a^8*B + 20/3*x^6*e^3*d*b*a^9*B + 1/6*x^6*e^4*
a^10*B + 42*x^6*d^4*b^5*a^5*A + 140*x^6*e*d^3*b^4*a^6*A + 120*x^6
*e^2*d^2*b^3*a^7*A + 30*x^6*e^3*d*b^2*a^8*A + 5/3*x^6*e^4*b*a^9*A
 + 24*x^5*d^4*b^3*a^7*B + 36*x^5*e*d^3*b^2*a^8*B + 12*x^5*e^2*d^2
*b*a^9*B + 4/5*x^5*e^3*d*a^10*B + 42*x^5*d^4*b^4*a^6*A + 96*x^5*e
*d^3*b^3*a^7*A + 54*x^5*e^2*d^2*b^2*a^8*A + 8*x^5*e^3*d*b*a^9*A +
 1/5*x^5*e^4*a^10*A + 45/4*x^4*d^4*b^2*a^8*B + 10*x^4*e*d^3*b*a^9
*B + 3/2*x^4*e^2*d^2*a^10*B + 30*x^4*d^4*b^3*a^7*A + 45*x^4*e*d^3
*b^2*a^8*A + 15*x^4*e^2*d^2*b*a^9*A + x^4*e^3*d*a^10*A + 10/3*x^3
*d^4*b*a^9*B + 4/3*x^3*e*d^3*a^10*B + 15*x^3*d^4*b^2*a^8*A + 40/3
*x^3*e*d^3*b*a^9*A + 2*x^3*e^2*d^2*a^10*A + 1/2*x^2*d^4*a^10*B +
5*x^2*d^4*b*a^9*A + 2*x^2*e*d^3*a^10*A + x*d^4*a^10*A
```

Sympy [A] time = 0.77546, size = 1676, normalized size = 8.22

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)*(e*x+d)**4,x)
```

```
[Out] A*a**10*d**4*x + B*b**10*e**4*x**16/16 + x**15*(A*b**10*e**4/15 +
 2*B*a*b**9*e**4/3 + 4*B*b**10*d*e**3/15) + x**14*(5*A*a*b**9*e**
4/7 + 2*A*b**10*d*e**3/7 + 45*B*a**2*b**8*e**4/14 + 20*B*a*b**9*d
*e**3/7 + 3*B*b**10*d**2*e**2/7) + x**13*(45*A*a**2*b**8*e**4/13
+ 40*A*a*b**9*d*e**3/13 + 6*A*b**10*d**2*e**2/13 + 120*B*a**3*b**
7*e**4/13 + 180*B*a**2*b**8*d*e**3/13 + 60*B*a*b**9*d**2*e**2/13
+ 4*B*b**10*d**3*e/13) + x**12*(10*A*a**3*b**7*e**4 + 15*A*a**2*b
**8*d*e**3 + 5*A*a*b**9*d**2*e**2 + A*b**10*d**3*e/3 + 35*B*a**4*
b**6*e**4/2 + 40*B*a**3*b**7*d*e**3 + 45*B*a**2*b**8*d**2*e**2/2
+ 10*B*a*b**9*d**3*e/3 + B*b**10*d**4/12) + x**11*(210*A*a**4*b**
6*e**4/11 + 480*A*a**3*b**7*d*e**3/11 + 270*A*a**2*b**8*d**2*e**2
/11 + 40*A*a*b**9*d**3*e/11 + A*b**10*d**4/11 + 252*B*a**5*b**5*e
**4/11 + 840*B*a**4*b**6*d*e**3/11 + 720*B*a**3*b**7*d**2*e**2/11
 + 180*B*a**2*b**8*d**3*e/11 + 10*B*a*b**9*d**4/11) + x**10*(126*
A*a**5*b**5*e**4/5 + 84*A*a**4*b**6*d*e**3 + 72*A*a**3*b**7*d**2*
e**2 + 18*A*a**2*b**8*d**3*e + A*a*b**9*d**4 + 21*B*a**6*b**4*e**
4 + 504*B*a**5*b**5*d*e**3/5 + 126*B*a**4*b**6*d**2*e**2 + 48*B*a
**3*b**7*d**3*e + 9*B*a**2*b**8*d**4/2) + x**9*(70*A*a**6*b**4*e*
*4/3 + 112*A*a**5*b**5*d*e**3 + 140*A*a**4*b**6*d**2*e**2 + 160*A
*a**3*b**7*d**3*e/3 + 5*A*a**2*b**8*d**4 + 40*B*a**7*b**3*e**4/3
+ 280*B*a**6*b**4*d*e**3/3 + 168*B*a**5*b**5*d**2*e**2 + 280*B*a*
*4*b**6*d**3*e/3 + 40*B*a**3*b**7*d**4/3) + x**8*(15*A*a**7*b**3*
e**4 + 105*A*a**6*b**4*d*e**3 + 189*A*a**5*b**5*d**2*e**2 + 105*A
*a**4*b**6*d**3*e + 15*A*a**3*b**7*d**4 + 45*B*a**8*b**2*e**4/8 +
 60*B*a**7*b**3*d*e**3 + 315*B*a**6*b**4*d**2*e**2/2 + 126*B*a**5
*b**5*d**3*e + 105*B*a**4*b**6*d**4/4) + x**7*(45*A*a**8*b**2*e**
4/7 + 480*A*a**7*b**3*d*e**3/7 + 180*A*a**6*b**4*d**2*e**2 + 144*
A*a**5*b**5*d**3*e + 30*A*a**4*b**6*d**4 + 10*B*a**9*b*e**4/7 + 1
80*B*a**8*b**2*d*e**3/7 + 720*B*a**7*b**3*d**2*e**2/7 + 120*B*a**
6*b**4*d**3*e + 36*B*a**5*b**5*d**4) + x**6*(5*A*a**9*b*e**4/3 +
30*A*a**8*b**2*d*e**3 + 120*A*a**7*b**3*d**2*e**2 + 140*A*a**6*b*
```

```
*4*d**3*e + 42*A*a**5*b**5*d**4 + B*a**10*e**4/6 + 20*B*a**9*b*d*
e**3/3 + 45*B*a**8*b**2*d**2*e**2 + 80*B*a**7*b**3*d**3*e + 35*B*
a**6*b**4*d**4) + x**5*(A*a**10*e**4/5 + 8*A*a**9*b*d*e**3 + 54*A
*a**8*b**2*d**2*e**2 + 96*A*a**7*b**3*d**3*e + 42*A*a**6*b**4*d**
4 + 4*B*a**10*d*e**3/5 + 12*B*a**9*b*d**2*e**2 + 36*B*a**8*b**2*d
**3*e + 24*B*a**7*b**3*d**4) + x**4*(A*a**10*d*e**3 + 15*A*a**9*b
*d**2*e**2 + 45*A*a**8*b**2*d**3*e + 30*A*a**7*b**3*d**4 + 3*B*a*
*10*d**2*e**2/2 + 10*B*a**9*b*d**3*e + 45*B*a**8*b**2*d**4/4) + x
**3*(2*A*a**10*d**2*e**2 + 40*A*a**9*b*d**3*e/3 + 15*A*a**8*b**2*
d**4 + 4*B*a**10*d**3*e/3 + 10*B*a**9*b*d**4/3) + x**2*(2*A*a**10
*d**3*e + 5*A*a**9*b*d**4 + B*a**10*d**4/2)
```

GIAC/XCAS [A] time = 0.21632, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*(e*x + d)^4,x, algorithm="giac")
```

```
[Out] Done
```

3.1068 $\int (a+bx)^{10}(A+Bx)(d+ex)^3\,dx$

Optimal. Leaf size=159

$$\frac{e^2(a+bx)^{14}(-4aBe+Abe+3bBd)}{14b^5}+\frac{3e(a+bx)^{13}(bd-ae)(-2aBe+Abe+bBd)}{13b^5}+\frac{(a+bx)^{12}(bd-ae)^2(-4aBe+3Abe+bBd)}{12b^5}+\frac{(a+bx)^{11}(Ab-aB)(bd-ae)^3}{11b^5}+\frac{Be^3(a+bx)^{15}}{15b^5}$$

```
[Out] ((A*b - a*B)*(b*d - a*e)^3*(a + b*x)^11)/(11*b^5) + ((b*d - a*e)^
2*(b*B*d + 3*A*b*e - 4*a*B*e)*(a + b*x)^12)/(12*b^5) + (3*e*(b*d
- a*e)*(b*B*d + A*b*e - 2*a*B*e)*(a + b*x)^13)/(13*b^5) + (e^2*(3
*b*B*d + A*b*e - 4*a*B*e)*(a + b*x)^14)/(14*b^5) + (B*e^3*(a + b*
x)^15)/(15*b^5)
```

Rubi [A] time = 2.69715, antiderivative size = 159, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{e^2(a+bx)^{14}(-4aBe+Abe+3bBd)}{14b^5}+\frac{3e(a+bx)^{13}(bd-ae)(-2aBe+Abe+bBd)}{13b^5}+\frac{(a+bx)^{12}(bd-ae)^2(-4aBe+3Abe+bBd)}{12b^5}+\frac{(a+bx)^{11}(Ab-aB)(bd-ae)^3}{11b^5}+\frac{Be^3(a+bx)^{15}}{15b^5}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^10*(A + B*x)*(d + e*x)^3,x]
```

```
[Out] ((A*b - a*B)*(b*d - a*e)^3*(a + b*x)^11)/(11*b^5) + ((b*d - a*e)^
2*(b*B*d + 3*A*b*e - 4*a*B*e)*(a + b*x)^12)/(12*b^5) + (3*e*(b*d
- a*e)*(b*B*d + A*b*e - 2*a*B*e)*(a + b*x)^13)/(13*b^5) + (e^2*(3
*b*B*d + A*b*e - 4*a*B*e)*(a + b*x)^14)/(14*b^5) + (B*e^3*(a + b*
x)^15)/(15*b^5)
```

Rubi in Sympy [A] time = 136.67, size = 155, normalized size = 0.97

$$\frac{Be^3\left(a+bx\right)^{15}}{15b^5}+\frac{e^2\left(a+bx\right)^{14}\left(Abe-4Bae+3Bbd\right)}{14b^5}-\frac{3e\left(a+bx\right)^{13}\left(ae-bd\right)\left(Abe-2Bae+Bbd\right)}{13b^5}+\frac{\left(a+bx\right)^{12}\left(ae-bd\right)^2\left(3Abe-4Bae+Bbd\right)}{12b^5}-\frac{\left(a+bx\right)^{11}\left(Ab-Ba\right)\left(ae-bd\right)^3}{11b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)*(e*x+d)**3,x)
```

```
[Out] B*e**3*(a + b*x)**15/(15*b**5) + e**2*(a + b*x)**14*(A*b*e - 4*B*
a*e + 3*B*b*d)/(14*b**5) - 3*e*(a + b*x)**13*(a*e - b*d)*(A*b*e -
 2*B*a*e + B*b*d)/(13*b**5) + (a + b*x)**12*(a*e - b*d)**2*(3*A*b
*e - 4*B*a*e + B*b*d)/(12*b**5) - (a + b*x)**11*(A*b - B*a)*(a*e
- b*d)**3/(11*b**5)
```

Mathematica [B] time = 1.4773, size = 855, normalized size = 5.38

$$\frac{x\left(3003\left(5A\left(4d^3+6exd^2+4e^2x^2d+e^3x^3\right)+Bx\left(10d^3+20exd^2+15e^2x^2d+4e^3x^3\right)\right)a^{10}+10010bx\left(3A\left(10d^3+20exd^2+\right.\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^10*(A + B*x)*(d + e*x)^3,x]
```

```
[Out] (x*(3003*a^10*(5*A*(4*d^3 + 6*d^2*e*x + 4*d*e^2*x^2 + e^3*x^3) +
B*x*(10*d^3 + 20*d^2*e*x + 15*d*e^2*x^2 + 4*e^3*x^3)) + 10010*a^9
*b*x*(3*A*(10*d^3 + 20*d^2*e*x + 15*d*e^2*x^2 + 4*e^3*x^3) + B*x*
(20*d^3 + 45*d^2*e*x + 36*d*e^2*x^2 + 10*e^3*x^3)) + 6435*a^8*b^2
*x^2*(7*A*(20*d^3 + 45*d^2*e*x + 36*d*e^2*x^2 + 10*e^3*x^3) + 3*B
*x*(35*d^3 + 84*d^2*e*x + 70*d*e^2*x^2 + 20*e^3*x^3)) + 25740*a^7
*b^3*x^3*(2*A*(35*d^3 + 84*d^2*e*x + 70*d*e^2*x^2 + 20*e^3*x^3) +
 B*x*(56*d^3 + 140*d^2*e*x + 120*d*e^2*x^2 + 35*e^3*x^3)) + 5005*
a^6*b^4*x^4*(9*A*(56*d^3 + 140*d^2*e*x + 120*d*e^2*x^2 + 35*e^3*x
^3) + 5*B*x*(84*d^3 + 216*d^2*e*x + 189*d*e^2*x^2 + 56*e^3*x^3))
+ 6006*a^5*b^5*x^5*(5*A*(84*d^3 + 216*d^2*e*x + 189*d*e^2*x^2 + 5
6*e^3*x^3) + 3*B*x*(120*d^3 + 315*d^2*e*x + 280*d*e^2*x^2 + 84*e^
3*x^3)) + 1365*a^4*b^6*x^6*(11*A*(120*d^3 + 315*d^2*e*x + 280*d*e
^2*x^2 + 84*e^3*x^3) + 7*B*x*(165*d^3 + 440*d^2*e*x + 396*d*e^2*x
^2 + 120*e^3*x^3)) + 1820*a^3*b^7*x^7*(3*A*(165*d^3 + 440*d^2*e*x
 + 396*d*e^2*x^2 + 120*e^3*x^3) + 2*B*x*(220*d^3 + 594*d^2*e*x +
540*d*e^2*x^2 + 165*e^3*x^3)) + 105*a^2*b^8*x^8*(13*A*(220*d^3 +
594*d^2*e*x + 540*d*e^2*x^2 + 165*e^3*x^3) + 9*B*x*(286*d^3 + 780
*d^2*e*x + 715*d*e^2*x^2 + 220*e^3*x^3)) + 30*a*b^9*x^9*(7*A*(286
*d^3 + 780*d^2*e*x + 715*d*e^2*x^2 + 220*e^3*x^3) + 5*B*x*(364*d^
3 + 1001*d^2*e*x + 924*d*e^2*x^2 + 286*e^3*x^3)) + b^10*x^10*(15*
A*(364*d^3 + 1001*d^2*e*x + 924*d*e^2*x^2 + 286*e^3*x^3) + 11*B*x
*(455*d^3 + 1260*d^2*e*x + 1170*d*e^2*x^2 + 364*e^3*x^3))))/60060
```

Maple [B] time = 0.004, size = 1053, normalized size = 6.6

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((b*x+a)^10*(B*x+A)*(e*x+d)^3,x)
```

```
[Out] 1/15*b^10*B*e^3*x^15+1/14*((A*b^10+10*B*a*b^9)*e^3+3*b^10*B*d*e^2
)*x^14+1/13*((10*A*a*b^9+45*B*a^2*b^8)*e^3+3*(A*b^10+10*B*a*b^9)*
d*e^2+3*b^10*B*d^2*e)*x^13+1/12*((45*A*a^2*b^8+120*B*a^3*b^7)*e^3
+3*(10*A*a*b^9+45*B*a^2*b^8)*d*e^2+3*(A*b^10+10*B*a*b^9)*d^2*e+b^
10*B*d^3)*x^12+1/11*((120*A*a^3*b^7+210*B*a^4*b^6)*e^3+3*(45*A*a^
2*b^8+120*B*a^3*b^7)*d*e^2+3*(10*A*a*b^9+45*B*a^2*b^8)*d^2*e+(A*b
^10+10*B*a*b^9)*d^3)*x^11+1/10*((210*A*a^4*b^6+252*B*a^5*b^5)*e^3
+3*(120*A*a^3*b^7+210*B*a^4*b^6)*d*e^2+3*(45*A*a^2*b^8+120*B*a^3*
b^7)*d^2*e+(10*A*a*b^9+45*B*a^2*b^8)*d^3)*x^10+1/9*((252*A*a^5*b^
5+210*B*a^6*b^4)*e^3+3*(210*A*a^4*b^6+252*B*a^5*b^5)*d*e^2+3*(120
*A*a^3*b^7+210*B*a^4*b^6)*d^2*e+(45*A*a^2*b^8+120*B*a^3*b^7)*d^3)
*x^9+1/8*((210*A*a^6*b^4+120*B*a^7*b^3)*e^3+3*(252*A*a^5*b^5+210*
B*a^6*b^4)*d*e^2+3*(210*A*a^4*b^6+252*B*a^5*b^5)*d^2*e+(120*A*a^3
*b^7+210*B*a^4*b^6)*d^3)*x^8+1/7*((120*A*a^7*b^3+45*B*a^8*b^2)*e^
3+3*(210*A*a^6*b^4+120*B*a^7*b^3)*d*e^2+3*(252*A*a^5*b^5+210*B*a^
6*b^4)*d^2*e+(210*A*a^4*b^6+252*B*a^5*b^5)*d^3)*x^7+1/6*((45*A*a^
8*b^2+10*B*a^9*b)*e^3+3*(120*A*a^7*b^3+45*B*a^8*b^2)*d*e^2+3*(210
*A*a^6*b^4+120*B*a^7*b^3)*d^2*e+(252*A*a^5*b^5+210*B*a^6*b^4)*d^3
)*x^6+1/5*((10*A*a^9*b+B*a^10)*e^3+3*(45*A*a^8*b^2+10*B*a^9*b)*d*
e^2+3*(120*A*a^7*b^3+45*B*a^8*b^2)*d^2*e+(210*A*a^6*b^4+120*B*a^7
*b^3)*d^3)*x^5+1/4*(a^10*A*e^3+3*(10*A*a^9*b+B*a^10)*d*e^2+3*(45*
A*a^8*b^2+10*B*a^9*b)*d^2*e+(120*A*a^7*b^3+45*B*a^8*b^2)*d^3)*x^4
+1/3*(3*a^10*A*d*e^2+3*(10*A*a^9*b+B*a^10)*d^2*e+(45*A*a^8*b^2+10
*B*a^9*b)*d^3)*x^3+1/2*(3*a^10*A*d^2*e+(10*A*a^9*b+B*a^10)*d^3)*x
^2+a^10*A*d^3*x
```

Maxima [A] time = 1.37387, size = 1442, normalized size = 9.07

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^10*(e*x + d)^3,x, algorithm="maxima")
```

```
[Out] 1/15*B*b^10*e^3*x^15 + A*a^10*d^3*x + 1/14*(3*B*b^10*d*e^2 + (10*
B*a*b^9 + A*b^10)*e^3)*x^14 + 1/13*(3*B*b^10*d^2*e + 3*(10*B*a*b^
9 + A*b^10)*d*e^2 + 5*(9*B*a^2*b^8 + 2*A*a*b^9)*e^3)*x^13 + 1/12*
(B*b^10*d^3 + 3*(10*B*a*b^9 + A*b^10)*d^2*e + 15*(9*B*a^2*b^8 + 2
*A*a*b^9)*d*e^2 + 15*(8*B*a^3*b^7 + 3*A*a^2*b^8)*e^3)*x^12 + 1/11
*((10*B*a*b^9 + A*b^10)*d^3 + 15*(9*B*a^2*b^8 + 2*A*a*b^9)*d^2*e
+ 45*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d*e^2 + 30*(7*B*a^4*b^6 + 4*A*a^
3*b^7)*e^3)*x^11 + 1/10*(5*(9*B*a^2*b^8 + 2*A*a*b^9)*d^3 + 45*(8*
B*a^3*b^7 + 3*A*a^2*b^8)*d^2*e + 90*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d
*e^2 + 42*(6*B*a^5*b^5 + 5*A*a^4*b^6)*e^3)*x^10 + 1/3*(5*(8*B*a^3
*b^7 + 3*A*a^2*b^8)*d^3 + 30*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^2*e +
42*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d*e^2 + 14*(5*B*a^6*b^4 + 6*A*a^5*
b^5)*e^3)*x^9 + 3/4*(5*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^3 + 21*(6*B*
a^5*b^5 + 5*A*a^4*b^6)*d^2*e + 21*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d*e
^2 + 5*(4*B*a^7*b^3 + 7*A*a^6*b^4)*e^3)*x^8 + 3/7*(14*(6*B*a^5*b^
5 + 5*A*a^4*b^6)*d^3 + 42*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^2*e + 30*
(4*B*a^7*b^3 + 7*A*a^6*b^4)*d*e^2 + 5*(3*B*a^8*b^2 + 8*A*a^7*b^3)
*e^3)*x^7 + 1/6*(42*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^3 + 90*(4*B*a^7
*b^3 + 7*A*a^6*b^4)*d^2*e + 45*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d*e^2
+ 5*(2*B*a^9*b + 9*A*a^8*b^2)*e^3)*x^6 + 1/5*(30*(4*B*a^7*b^3 + 7
*A*a^6*b^4)*d^3 + 45*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^2*e + 15*(2*B*
a^9*b + 9*A*a^8*b^2)*d*e^2 + (B*a^10 + 10*A*a^9*b)*e^3)*x^5 + 1/4
*(A*a^10*e^3 + 15*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^3 + 15*(2*B*a^9*b
 + 9*A*a^8*b^2)*d^2*e + 3*(B*a^10 + 10*A*a^9*b)*d*e^2)*x^4 + 1/3*
(3*A*a^10*d*e^2 + 5*(2*B*a^9*b + 9*A*a^8*b^2)*d^3 + 3*(B*a^10 + 1
0*A*a^9*b)*d^2*e)*x^3 + 1/2*(3*A*a^10*d^2*e + (B*a^10 + 10*A*a^9*
b)*d^3)*x^2
```

Fricas [A] time = 0.195863, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*(e*x + d)^3,x, algorithm="fricas")
```

```
[Out] 1/15*x^15*e^3*b^10*B + 3/14*x^14*e^2*d*b^10*B + 5/7*x^14*e^3*b^9*
a*B + 1/14*x^14*e^3*b^10*A + 3/13*x^13*e*d^2*b^10*B + 30/13*x^13*
e^2*d*b^9*a*B + 45/13*x^13*e^3*b^8*a^2*B + 3/13*x^13*e^2*d*b^10*A
 + 10/13*x^13*e^3*b^9*a*A + 1/12*x^12*d^3*b^10*B + 5/2*x^12*e*d^2
*b^9*a*B + 45/4*x^12*e^2*d*b^8*a^2*B + 10*x^12*e^3*b^7*a^3*B + 1/
4*x^12*e*d^2*b^10*A + 5/2*x^12*e^2*d*b^9*a*A + 15/4*x^12*e^3*b^8*
a^2*A + 10/11*x^11*d^3*b^9*a*B + 135/11*x^11*e*d^2*b^8*a^2*B + 36
0/11*x^11*e^2*d*b^7*a^3*B + 210/11*x^11*e^3*b^6*a^4*B + 1/11*x^11
*d^3*b^10*A + 30/11*x^11*e*d^2*b^9*a*A + 135/11*x^11*e^2*d*b^8*a^
2*A + 120/11*x^11*e^3*b^7*a^3*A + 9/2*x^10*d^3*b^8*a^2*B + 36*x^1
0*e*d^2*b^7*a^3*B + 63*x^10*e^2*d*b^6*a^4*B + 126/5*x^10*e^3*b^5*
a^5*B + x^10*d^3*b^9*a*A + 27/2*x^10*e*d^2*b^8*a^2*A + 36*x^10*e^
2*d*b^7*a^3*A + 21*x^10*e^3*b^6*a^4*A + 40/3*x^9*d^3*b^7*a^3*B +
70*x^9*e*d^2*b^6*a^4*B + 84*x^9*e^2*d*b^5*a^5*B + 70/3*x^9*e^3*b^
4*a^6*B + 5*x^9*d^3*b^8*a^2*A + 40*x^9*e*d^2*b^7*a^3*A + 70*x^9*e
^2*d*b^6*a^4*A + 28*x^9*e^3*b^5*a^5*A + 105/4*x^8*d^3*b^6*a^4*B +
 189/2*x^8*e*d^2*b^5*a^5*B + 315/4*x^8*e^2*d*b^4*a^6*B + 15*x^8*e
^3*b^3*a^7*B + 15*x^8*d^3*b^7*a^3*A + 315/4*x^8*e*d^2*b^6*a^4*A +
 189/2*x^8*e^2*d*b^5*a^5*A + 105/4*x^8*e^3*b^4*a^6*A + 36*x^7*d^3
*b^5*a^5*B + 90*x^7*e*d^2*b^4*a^6*B + 360/7*x^7*e^2*d*b^3*a^7*B +
 45/7*x^7*e^3*b^2*a^8*B + 30*x^7*d^3*b^6*a^4*A + 108*x^7*e*d^2*b^
5*a^5*A + 90*x^7*e^2*d*b^4*a^6*A + 120/7*x^7*e^3*b^3*a^7*A + 35*x
^6*d^3*b^4*a^6*B + 60*x^6*e*d^2*b^3*a^7*B + 45/2*x^6*e^2*d*b^2*a^
8*B + 5/3*x^6*e^3*b*a^9*B + 42*x^6*d^3*b^5*a^5*A + 105*x^6*e*d^2*
b^4*a^6*A + 60*x^6*e^2*d*b^3*a^7*A + 15/2*x^6*e^3*b^2*a^8*A + 24*
x^5*d^3*b^3*a^7*B + 27*x^5*e*d^2*b^2*a^8*B + 6*x^5*e^2*d*b*a^9*B
+ 1/5*x^5*e^3*a^10*B + 42*x^5*d^3*b^4*a^6*A + 72*x^5*e*d^2*b^3*a^
7*A + 27*x^5*e^2*d*b^2*a^8*A + 2*x^5*e^3*b*a^9*A + 45/4*x^4*d^3*b
^2*a^8*B + 15/2*x^4*e*d^2*b*a^9*B + 3/4*x^4*e^2*d*a^10*B + 30*x^4
*d^3*b^3*a^7*A + 135/4*x^4*e*d^2*b^2*a^8*A + 15/2*x^4*e^2*d*b*a^9
*A + 1/4*x^4*e^3*a^10*A + 10/3*x^3*d^3*b*a^9*B + x^3*e*d^2*a^10*B
 + 15*x^3*d^3*b^2*a^8*A + 10*x^3*e*d^2*b*a^9*A + x^3*e^2*d*a^10*A
 + 1/2*x^2*d^3*a^10*B + 5*x^2*d^3*b*a^9*A + 3/2*x^2*e*d^2*a^10*A
+ x*d^3*a^10*A
```

Sympy [A] time = 0.619819, size = 1302, normalized size = 8.19

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)*(e*x+d)**3,x)
```

```
[Out] A*a**10*d**3*x + B*b**10*e**3*x**15/15 + x**14*(A*b**10*e**3/14 +
 5*B*a*b**9*e**3/7 + 3*B*b**10*d*e**2/14) + x**13*(10*A*a*b**9*e*
*3/13 + 3*A*b**10*d*e**2/13 + 45*B*a**2*b**8*e**3/13 + 30*B*a*b**
9*d*e**2/13 + 3*B*b**10*d**2*e/13) + x**12*(15*A*a**2*b**8*e**3/4
 + 5*A*a*b**9*d*e**2/2 + A*b**10*d**2*e/4 + 10*B*a**3*b**7*e**3 +
 45*B*a**2*b**8*d*e**2/4 + 5*B*a*b**9*d**2*e/2 + B*b**10*d**3/12)
 + x**11*(120*A*a**3*b**7*e**3/11 + 135*A*a**2*b**8*d*e**2/11 + 3
0*A*a*b**9*d**2*e/11 + A*b**10*d**3/11 + 210*B*a**4*b**6*e**3/11
+ 360*B*a**3*b**7*d*e**2/11 + 135*B*a**2*b**8*d**2*e/11 + 10*B*a*
b**9*d**3/11) + x**10*(21*A*a**4*b**6*e**3 + 36*A*a**3*b**7*d*e**
2 + 27*A*a**2*b**8*d**2*e/2 + A*a*b**9*d**3 + 126*B*a**5*b**5*e**
3/5 + 63*B*a**4*b**6*d*e**2 + 36*B*a**3*b**7*d**2*e + 9*B*a**2*b*
*8*d**3/2) + x**9*(28*A*a**5*b**5*e**3 + 70*A*a**4*b**6*d*e**2 +
40*A*a**3*b**7*d**2*e + 5*A*a**2*b**8*d**3 + 70*B*a**6*b**4*e**3/
3 + 84*B*a**5*b**5*d*e**2 + 70*B*a**4*b**6*d**2*e + 40*B*a**3*b**
7*d**3/3) + x**8*(105*A*a**6*b**4*e**3/4 + 189*A*a**5*b**5*d*e**2
/2 + 315*A*a**4*b**6*d**2*e/4 + 15*A*a**3*b**7*d**3 + 15*B*a**7*b
**3*e**3 + 315*B*a**6*b**4*d*e**2/4 + 189*B*a**5*b**5*d**2*e/2 +
105*B*a**4*b**6*d**3/4) + x**7*(120*A*a**7*b**3*e**3/7 + 90*A*a**
6*b**4*d*e**2 + 108*A*a**5*b**5*d**2*e + 30*A*a**4*b**6*d**3 + 45
*B*a**8*b**2*e**3/7 + 360*B*a**7*b**3*d*e**2/7 + 90*B*a**6*b**4*d
**2*e + 36*B*a**5*b**5*d**3) + x**6*(15*A*a**8*b**2*e**3/2 + 60*A
*a**7*b**3*d*e**2 + 105*A*a**6*b**4*d**2*e + 42*A*a**5*b**5*d**3
+ 5*B*a**9*b*e**3/3 + 45*B*a**8*b**2*d*e**2/2 + 60*B*a**7*b**3*d*
*2*e + 35*B*a**6*b**4*d**3) + x**5*(2*A*a**9*b*e**3 + 27*A*a**8*b
**2*d*e**2 + 72*A*a**7*b**3*d**2*e + 42*A*a**6*b**4*d**3 + B*a**1
0*e**3/5 + 6*B*a**9*b*d*e**2 + 27*B*a**8*b**2*d**2*e + 24*B*a**7*
b**3*d**3) + x**4*(A*a**10*e**3/4 + 15*A*a**9*b*d*e**2/2 + 135*A*
a**8*b**2*d**2*e/4 + 30*A*a**7*b**3*d**3 + 3*B*a**10*d*e**2/4 + 1
5*B*a**9*b*d**2*e/2 + 45*B*a**8*b**2*d**3/4) + x**3*(A*a**10*d*e*
*2 + 10*A*a**9*b*d**2*e + 15*A*a**8*b**2*d**3 + B*a**10*d**2*e +
10*B*a**9*b*d**3/3) + x**2*(3*A*a**10*d**2*e/2 + 5*A*a**9*b*d**3
+ B*a**10*d**3/2)
```

GIAC/XCAS [A] time = 0.226177, size = 1, normalized size = 0.01

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*(e*x + d)^3,x, algorithm="giac")
```

```
[Out] Done
```

3.1069 $\int (a+bx)^{10}(A+Bx)(d+ex)^2\,dx$

Optimal. Leaf size=118

$$\frac{e(a+bx)^{13}(-3aBe+Abe+2bBd)}{13b^4}+\frac{(a+bx)^{12}(bd-ae)(-3aBe+2Abe+bBd)}{12b^4}+\frac{(a+bx)^{11}(Ab-aB)(bd-ae)^2}{11b^4}+\frac{Be^2(a+bx)^{14}}{14b^4}$$

```
[Out] ((A*b - a*B)*(b*d - a*e)^2*(a + b*x)^11)/(11*b^4) + ((b*d - a*e)*
(b*B*d + 2*A*b*e - 3*a*B*e)*(a + b*x)^12)/(12*b^4) + (e*(2*b*B*d
+ A*b*e - 3*a*B*e)*(a + b*x)^13)/(13*b^4) + (B*e^2*(a + b*x)^14)/
(14*b^4)
```

Rubi [A] time = 1.88172, antiderivative size = 118, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$\frac{e(a+bx)^{13}(-3aBe+Abe+2bBd)}{13b^4}+\frac{(a+bx)^{12}(bd-ae)(-3aBe+2Abe+bBd)}{12b^4}+\frac{(a+bx)^{11}(Ab-aB)(bd-ae)^2}{11b^4}+\frac{Be^2(a+bx)^{14}}{14b^4}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^10*(A + B*x)*(d + e*x)^2,x]
```

```
[Out] ((A*b - a*B)*(b*d - a*e)^2*(a + b*x)^11)/(11*b^4) + ((b*d - a*e)*
(b*B*d + 2*A*b*e - 3*a*B*e)*(a + b*x)^12)/(12*b^4) + (e*(2*b*B*d
+ A*b*e - 3*a*B*e)*(a + b*x)^13)/(13*b^4) + (B*e^2*(a + b*x)^14)/
(14*b^4)
```

Rubi in Sympy [A] time = 92.747, size = 112, normalized size = 0.95

$$\frac{Be^2(a+bx)^{14}}{14b^4}+\frac{e(a+bx)^{13}(Abe-3Bae+2Bbd)}{13b^4}-\frac{(a+bx)^{12}(ae-bd)(2Abe-3Bae+Bbd)}{12b^4}+\frac{(a+bx)^{11}(Ab-Ba)(ae-bd)^2}{11b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)*(e*x+d)**2,x)
```

```
[Out] B*e**2*(a + b*x)**14/(14*b**4) + e*(a + b*x)**13*(A*b*e - 3*B*a*e
 + 2*B*b*d)/(13*b**4) - (a + b*x)**12*(a*e - b*d)*(2*A*b*e - 3*B*
a*e + B*b*d)/(12*b**4) + (a + b*x)**11*(A*b - B*a)*(a*e - b*d)**2
/(11*b**4)
```

Mathematica [B] time = 1.18388, size = 614, normalized size = 5.2

$$x\left(1001a^{10}\left(4A\left(3d^2+3dex+e^2x^2\right)+Bx\left(6d^2+8dex+3e^2x^2\right)\right)+2002a^9bx\left(5A\left(6d^2+8dex+3e^2x^2\right)+2Bx\left(10d^2+15de\right.\right.\right.$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^10*(A + B*x)*(d + e*x)^2,x]
```

```
[Out] (x*(1001*a^10*(4*A*(3*d^2 + 3*d*e*x + e^2*x^2) + B*x*(6*d^2 + 8*d
*e*x + 3*e^2*x^2)) + 2002*a^9*b*x*(5*A*(6*d^2 + 8*d*e*x + 3*e^2*x
```

```
^2) + 2*B*x*(10*d^2 + 15*d*e*x + 6*e^2*x^2)) + 9009*a^8*b^2*x^2*(
2*A*(10*d^2 + 15*d*e*x + 6*e^2*x^2) + B*x*(15*d^2 + 24*d*e*x + 10
*e^2*x^2)) + 3432*a^7*b^3*x^3*(7*A*(15*d^2 + 24*d*e*x + 10*e^2*x^
2) + 4*B*x*(21*d^2 + 35*d*e*x + 15*e^2*x^2)) + 3003*a^6*b^4*x^4*(
8*A*(21*d^2 + 35*d*e*x + 15*e^2*x^2) + 5*B*x*(28*d^2 + 48*d*e*x +
 21*e^2*x^2)) + 6006*a^5*b^5*x^5*(3*A*(28*d^2 + 48*d*e*x + 21*e^2
*x^2) + 2*B*x*(36*d^2 + 63*d*e*x + 28*e^2*x^2)) + 1001*a^4*b^6*x^
6*(10*A*(36*d^2 + 63*d*e*x + 28*e^2*x^2) + 7*B*x*(45*d^2 + 80*d*e
*x + 36*e^2*x^2)) + 364*a^3*b^7*x^7*(11*A*(45*d^2 + 80*d*e*x + 36
*e^2*x^2) + 8*B*x*(55*d^2 + 99*d*e*x + 45*e^2*x^2)) + 273*a^2*b^8
*x^8*(4*A*(55*d^2 + 99*d*e*x + 45*e^2*x^2) + 3*B*x*(66*d^2 + 120*
d*e*x + 55*e^2*x^2)) + 14*a*b^9*x^9*(13*A*(66*d^2 + 120*d*e*x + 5
5*e^2*x^2) + 10*B*x*(78*d^2 + 143*d*e*x + 66*e^2*x^2)) + b^10*x^1
0*(14*A*(78*d^2 + 143*d*e*x + 66*e^2*x^2) + 11*B*x*(91*d^2 + 168*
d*e*x + 78*e^2*x^2))))/12012
```

Maple [B] time = 0.003, size = 769, normalized size = 6.5

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^10*(B*x+A)*(e*x+d)^2,x)
```

```
[Out] 1/14*b^10*B*e^2*x^14+1/13*((A*b^10+10*B*a*b^9)*e^2+2*b^10*B*d*e)*
x^13+1/12*((10*A*a*b^9+45*B*a^2*b^8)*e^2+2*(A*b^10+10*B*a*b^9)*d*
e+b^10*B*d^2)*x^12+1/11*((45*A*a^2*b^8+120*B*a^3*b^7)*e^2+2*(10*A
*a*b^9+45*B*a^2*b^8)*d*e+(A*b^10+10*B*a*b^9)*d^2)*x^11+1/10*((120
*A*a^3*b^7+210*B*a^4*b^6)*e^2+2*(45*A*a^2*b^8+120*B*a^3*b^7)*d*e+
(10*A*a*b^9+45*B*a^2*b^8)*d^2)*x^10+1/9*((210*A*a^4*b^6+252*B*a^5
*b^5)*e^2+2*(120*A*a^3*b^7+210*B*a^4*b^6)*d*e+(45*A*a^2*b^8+120*B
*a^3*b^7)*d^2)*x^9+1/8*((252*A*a^5*b^5+210*B*a^6*b^4)*e^2+2*(210*
A*a^4*b^6+252*B*a^5*b^5)*d*e+(120*A*a^3*b^7+210*B*a^4*b^6)*d^2)*x
^8+1/7*((210*A*a^6*b^4+120*B*a^7*b^3)*e^2+2*(252*A*a^5*b^5+210*B*
a^6*b^4)*d*e+(210*A*a^4*b^6+252*B*a^5*b^5)*d^2)*x^7+1/6*((120*A*a
^7*b^3+45*B*a^8*b^2)*e^2+2*(210*A*a^6*b^4+120*B*a^7*b^3)*d*e+(252
*A*a^5*b^5+210*B*a^6*b^4)*d^2)*x^6+1/5*((45*A*a^8*b^2+10*B*a^9*b)
*e^2+2*(120*A*a^7*b^3+45*B*a^8*b^2)*d*e+(210*A*a^6*b^4+120*B*a^7*
b^3)*d^2)*x^5+1/4*((10*A*a^9*b+B*a^10)*e^2+2*(45*A*a^8*b^2+10*B*a
^9*b)*d*e+(120*A*a^7*b^3+45*B*a^8*b^2)*d^2)*x^4+1/3*(a^10*A*e^2+2
*(10*A*a^9*b+B*a^10)*d*e+(45*A*a^8*b^2+10*B*a^9*b)*d^2)*x^3+1/2*(
2*a^10*A*d*e+(10*A*a^9*b+B*a^10)*d^2)*x^2+a^10*A*d^2*x
```

Maxima [A] time = 1.3706, size = 1054, normalized size = 8.93

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*(e*x + d)^2,x, algorithm="maxima")
```

```
[Out] 1/14*B*b^10*e^2*x^14 + A*a^10*d^2*x + 1/13*(2*B*b^10*d*e + (10*B*
a*b^9 + A*b^10)*e^2)*x^13 + 1/12*(B*b^10*d^2 + 2*(10*B*a*b^9 + A*
b^10)*d*e + 5*(9*B*a^2*b^8 + 2*A*a*b^9)*e^2)*x^12 + 1/11*((10*B*a
*b^9 + A*b^10)*d^2 + 10*(9*B*a^2*b^8 + 2*A*a*b^9)*d*e + 15*(8*B*a
^3*b^7 + 3*A*a^2*b^8)*e^2)*x^11 + 1/2*((9*B*a^2*b^8 + 2*A*a*b^9)*
d^2 + 6*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d*e + 6*(7*B*a^4*b^6 + 4*A*a^
3*b^7)*e^2)*x^10 + 1/3*(5*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^2 + 20*(7
*B*a^4*b^6 + 4*A*a^3*b^7)*d*e + 14*(6*B*a^5*b^5 + 5*A*a^4*b^6)*e^
2)*x^9 + 3/4*(5*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^2 + 14*(6*B*a^5*b^5
 + 5*A*a^4*b^6)*d*e + 7*(5*B*a^6*b^4 + 6*A*a^5*b^5)*e^2)*x^8 + 6/
7*(7*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^2 + 14*(5*B*a^6*b^4 + 6*A*a^5*
b^5)*d*e + 5*(4*B*a^7*b^3 + 7*A*a^6*b^4)*e^2)*x^7 + 1/2*(14*(5*B*
a^6*b^4 + 6*A*a^5*b^5)*d^2 + 20*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d*e +
 5*(3*B*a^8*b^2 + 8*A*a^7*b^3)*e^2)*x^6 + (6*(4*B*a^7*b^3 + 7*A*a
```

```
^6*b^4)*d^2 + 6*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d*e + (2*B*a^9*b + 9*
A*a^8*b^2)*e^2)*x^5 + 1/4*(15*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^2 + 1
0*(2*B*a^9*b + 9*A*a^8*b^2)*d*e + (B*a^10 + 10*A*a^9*b)*e^2)*x^4
+ 1/3*(A*a^10*e^2 + 5*(2*B*a^9*b + 9*A*a^8*b^2)*d^2 + 2*(B*a^10 +
 10*A*a^9*b)*d*e)*x^3 + 1/2*(2*A*a^10*d*e + (B*a^10 + 10*A*a^9*b)
*d^2)*x^2
```

Fricas [A] time = 0.196975, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*(e*x + d)^2,x, algorithm="fricas")
```

```
[Out] 1/14*x^14*e^2*b^10*B + 2/13*x^13*e*d*b^10*B + 10/13*x^13*e^2*b^9*
a*B + 1/13*x^13*e^2*b^10*A + 1/12*x^12*d^2*b^10*B + 5/3*x^12*e*d*
b^9*a*B + 15/4*x^12*e^2*b^8*a^2*B + 1/6*x^12*e*d*b^10*A + 5/6*x^1
2*e^2*b^9*a*A + 10/11*x^11*d^2*b^9*a*B + 90/11*x^11*e*d*b^8*a^2*B
 + 120/11*x^11*e^2*b^7*a^3*B + 1/11*x^11*d^2*b^10*A + 20/11*x^11*
e*d*b^9*a*A + 45/11*x^11*e^2*b^8*a^2*A + 9/2*x^10*d^2*b^8*a^2*B +
 24*x^10*e*d*b^7*a^3*B + 21*x^10*e^2*b^6*a^4*B + x^10*d^2*b^9*a*A
 + 9*x^10*e*d*b^8*a^2*A + 12*x^10*e^2*b^7*a^3*A + 40/3*x^9*d^2*b^
7*a^3*B + 140/3*x^9*e*d*b^6*a^4*B + 28*x^9*e^2*b^5*a^5*B + 5*x^9*
d^2*b^8*a^2*A + 80/3*x^9*e*d*b^7*a^3*A + 70/3*x^9*e^2*b^6*a^4*A +
 105/4*x^8*d^2*b^6*a^4*B + 63*x^8*e*d*b^5*a^5*B + 105/4*x^8*e^2*b
^4*a^6*B + 15*x^8*d^2*b^7*a^3*A + 105/2*x^8*e*d*b^6*a^4*A + 63/2*
x^8*e^2*b^5*a^5*A + 36*x^7*d^2*b^5*a^5*B + 60*x^7*e*d*b^4*a^6*B +
 120/7*x^7*e^2*b^3*a^7*B + 30*x^7*d^2*b^6*a^4*A + 72*x^7*e*d*b^5*
a^5*A + 30*x^7*e^2*b^4*a^6*A + 35*x^6*d^2*b^4*a^6*B + 40*x^6*e*d*
b^3*a^7*B + 15/2*x^6*e^2*b^2*a^8*B + 42*x^6*d^2*b^5*a^5*A + 70*x^
6*e*d*b^4*a^6*A + 20*x^6*e^2*b^3*a^7*A + 24*x^5*d^2*b^3*a^7*B + 1
8*x^5*e*d*b^2*a^8*B + 2*x^5*e^2*b*a^9*B + 42*x^5*d^2*b^4*a^6*A +
48*x^5*e*d*b^3*a^7*A + 9*x^5*e^2*b^2*a^8*A + 45/4*x^4*d^2*b^2*a^8
*B + 5*x^4*e*d*b*a^9*B + 1/4*x^4*e^2*a^10*B + 30*x^4*d^2*b^3*a^7*
A + 45/2*x^4*e*d*b^2*a^8*A + 5/2*x^4*e^2*b*a^9*A + 10/3*x^3*d^2*b
*a^9*B + 2/3*x^3*e*d*a^10*B + 15*x^3*d^2*b^2*a^8*A + 20/3*x^3*e*d
*b*a^9*A + 1/3*x^3*e^2*a^10*A + 1/2*x^2*d^2*a^10*B + 5*x^2*d^2*b*
a^9*A + x^2*e*d*a^10*A + x*d^2*a^10*A
```

Sympy [A] time = 0.488616, size = 921, normalized size = 7.81

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)*(e*x+d)**2,x)
```

```
[Out] A*a**10*d**2*x + B*b**10*e**2*x**14/14 + x**13*(A*b**10*e**2/13 +
 10*B*a*b**9*e**2/13 + 2*B*b**10*d*e/13) + x**12*(5*A*a*b**9*e**2
/6 + A*b**10*d*e/6 + 15*B*a**2*b**8*e**2/4 + 5*B*a*b**9*d*e/3 + B
*b**10*d**2/12) + x**11*(45*A*a**2*b**8*e**2/11 + 20*A*a*b**9*d*e
/11 + A*b**10*d**2/11 + 120*B*a**3*b**7*e**2/11 + 90*B*a**2*b**8*
d*e/11 + 10*B*a*b**9*d**2/11) + x**10*(12*A*a**3*b**7*e**2 + 9*A*
a**2*b**8*d*e + A*a*b**9*d**2 + 21*B*a**4*b**6*e**2 + 24*B*a**3*b
**7*d*e + 9*B*a**2*b**8*d**2/2) + x**9*(70*A*a**4*b**6*e**2/3 + 8
0*A*a**3*b**7*d*e/3 + 5*A*a**2*b**8*d**2 + 28*B*a**5*b**5*e**2 +
140*B*a**4*b**6*d*e/3 + 40*B*a**3*b**7*d**2/3) + x**8*(63*A*a**5*
b**5*e**2/2 + 105*A*a**4*b**6*d*e/2 + 15*A*a**3*b**7*d**2 + 105*B
*a**6*b**4*e**2/4 + 63*B*a**5*b**5*d*e + 105*B*a**4*b**6*d**2/4)
+ x**7*(30*A*a**6*b**4*e**2 + 72*A*a**5*b**5*d*e + 30*A*a**4*b**6
*d**2 + 120*B*a**7*b**3*e**2/7 + 60*B*a**6*b**4*d*e + 36*B*a**5*b
**5*d**2) + x**6*(20*A*a**7*b**3*e**2 + 70*A*a**6*b**4*d*e + 42*A
*a**5*b**5*d**2 + 15*B*a**8*b**2*e**2/2 + 40*B*a**7*b**3*d*e + 35
*B*a**6*b**4*d**2) + x**5*(9*A*a**8*b**2*e**2 + 48*A*a**7*b**3*d*
```

```
e + 42*A*a**6*b**4*d**2 + 2*B*a**9*b*e**2 + 18*B*a**8*b**2*d*e +
24*B*a**7*b**3*d**2) + x**4*(5*A*a**9*b*e**2/2 + 45*A*a**8*b**2*d
*e/2 + 30*A*a**7*b**3*d**2 + B*a**10*e**2/4 + 5*B*a**9*b*d*e + 45
*B*a**8*b**2*d**2/4) + x**3*(A*a**10*e**2/3 + 20*A*a**9*b*d*e/3 +
 15*A*a**8*b**2*d**2 + 2*B*a**10*d*e/3 + 10*B*a**9*b*d**2/3) + x*
*2*(A*a**10*d*e + 5*A*a**9*b*d**2 + B*a**10*d**2/2)
```

GIAC/XCAS [A] time = 0.210818, size = 1, normalized size = 0.01

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*(e*x + d)^2,x, algorithm="giac")

[Out] Done
```

3.1070 $\int (a+bx)^{10}(A+Bx)(d+ex)\,dx$

Optimal. Leaf size=75

$$\frac{(a+bx)^{12}(-2aBe+Abe+bBd)}{12b^3}+\frac{(a+bx)^{11}(Ab-aB)(bd-ae)}{11b^3}+\frac{Be(a+bx)^{13}}{13b^3}$$

```
[Out] ((A*b - a*B)*(b*d - a*e)*(a + b*x)^11)/(11*b^3) + ((b*B*d + A*b*e
 - 2*a*B*e)*(a + b*x)^12)/(12*b^3) + (B*e*(a + b*x)^13)/(13*b^3)
```

Rubi [A] time = 1.04434, antiderivative size = 75, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.056$

$$\frac{(a+bx)^{12}(-2aBe+Abe+bBd)}{12b^3}+\frac{(a+bx)^{11}(Ab-aB)(bd-ae)}{11b^3}+\frac{Be(a+bx)^{13}}{13b^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^10*(A + B*x)*(d + e*x),x]
```

```
[Out] ((A*b - a*B)*(b*d - a*e)*(a + b*x)^11)/(11*b^3) + ((b*B*d + A*b*e
 - 2*a*B*e)*(a + b*x)^12)/(12*b^3) + (B*e*(a + b*x)^13)/(13*b^3)
```

Rubi in Sympy [A] time = 52.2085, size = 68, normalized size = 0.91

$$\frac{Be\,(a+bx)^{13}}{13b^3}+\frac{(a+bx)^{12}\,(Abe-2Bae+Bbd)}{12b^3}-\frac{(a+bx)^{11}\,(Ab-Ba)\,(ae-bd)}{11b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)*(e*x+d),x)
```

```
[Out] B*e*(a + b*x)**13/(13*b**3) + (a + b*x)**12*(A*b*e - 2*B*a*e + B*
b*d)/(12*b**3) - (a + b*x)**11*(A*b - B*a)*(a*e - b*d)/(11*b**3)
```

Mathematica [B] time = 0.35781, size = 383, normalized size = 5.11

$$\frac{1}{6}a^{10}x(3A(2d+ex)+Bx(3d+2ex))+\frac{5}{6}a^9bx^2(A(6d+4ex)+Bx(4d+3ex)) +\frac{3}{4}a^8b^2x^3(5A(4d+3ex)+3Bx(5d+4ex))+2a^7b^3x^4(3A(5d+4ex)+2Bx(6d+5ex)) +a^6b^4x^5(7A(6d+5ex)+5Bx(7d+6ex))+\frac{3}{2}a^5b^5x^6(4A(7d+6ex)+3Bx(8d+7ex)) +\frac{5}{12}a^4b^6x^7(9A(8d+7ex)+7Bx(9d+8ex))+\frac{1}{3}a^3b^7x^8(5A(9d+8ex)+4Bx(10d+9ex)) +\frac{1}{22}a^2b^8x^9\left(110Ad+99Aex+99Bdx+90Bex^2\right) +\frac{1}{66}ab^9x^{10}\left(66Ad+60Aex+60Bdx+55Bex^2\right)+\frac{b^{10}x^{11}(13A(12d+11ex)+11Bx(13d+12ex))}{1716}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^10*(A + B*x)*(d + e*x),x]
```

```
[Out] (a*b^9*x^10*(66*A*d + 60*B*d*x + 60*A*e*x + 55*B*e*x^2))/66 + (a^
2*b^8*x^9*(110*A*d + 99*B*d*x + 99*A*e*x + 90*B*e*x^2))/22 + (a^1
0*x*(3*A*(2*d + e*x) + B*x*(3*d + 2*e*x)))/6 + (3*a^8*b^2*x^3*(5*
A*(4*d + 3*e*x) + 3*B*x*(5*d + 4*e*x)))/4 + (5*a^9*b*x^2*(B*x*(4*
```

```
d + 3*e*x) + A*(6*d + 4*e*x)))/6 + 2*a^7*b^3*x^4*(3*A*(5*d + 4*e*
x) + 2*B*x*(6*d + 5*e*x)) + a^6*b^4*x^5*(7*A*(6*d + 5*e*x) + 5*B*
x*(7*d + 6*e*x)) + (3*a^5*b^5*x^6*(4*A*(7*d + 6*e*x) + 3*B*x*(8*d
 + 7*e*x)))/2 + (5*a^4*b^6*x^7*(9*A*(8*d + 7*e*x) + 7*B*x*(9*d +
8*e*x)))/12 + (a^3*b^7*x^8*(5*A*(9*d + 8*e*x) + 4*B*x*(10*d + 9*e
*x)))/3 + (b^10*x^11*(13*A*(12*d + 11*e*x) + 11*B*x*(13*d + 12*e*
x)))/1716
```

Maple [B] time = 0.003, size = 485, normalized size = 6.5

$$\frac{b^{10}Bex^{13}}{13}+\frac{\left(\left(b^{10}A+10\,ab^{9}B\right)\,e+b^{10}Bd\right)\,x^{12}}{12}+\frac{\left(\left(10\,ab^{9}A+45\,a^{2}b^{8}B\right)\,e+\left(b^{10}A+10\,ab^{9}B\right)\,d\right)\,x^{11}}{11}+\frac{\left(\left(45\,a^{2}b^{8}A+120\,a^{3}b^{7}B\right)\,e+\left(10\,ab^{9}A+45\,a^{2}b^{8}B\right)\,d\right)\,x^{10}}{10}+\frac{\left(\left(120\,a^{3}b^{7}A+210\,a^{4}b^{6}B\right)\,e+\left(45\,a^{2}b^{8}A+120\,a^{3}b^{7}B\right)\,d\right)\,x^{9}}{9}+\frac{\left(\left(210\,a^{4}b^{6}A+252\,a^{5}b^{5}B\right)\,e+\left(120\,a^{3}b^{7}A+210\,a^{4}b^{6}B\right)\,d\right)\,x^{8}}{8}+\frac{\left(\left(252\,a^{5}b^{5}A+210\,a^{6}b^{4}B\right)\,e+\left(210\,a^{4}b^{6}A+252\,a^{5}b^{5}B\right)\,d\right)\,x^{7}}{7}+\frac{\left(\left(210\,a^{6}b^{4}A+120\,a^{7}b^{3}B\right)\,e+\left(252\,a^{5}b^{5}A+210\,a^{6}b^{4}B\right)\,d\right)\,x^{6}}{6}+\frac{\left(\left(120\,a^{7}b^{3}A+45\,a^{8}b^{2}B\right)\,e+\left(210\,a^{6}b^{4}A+120\,a^{7}b^{3}B\right)\,d\right)\,x^{5}}{5}+\frac{\left(\left(45\,a^{8}b^{2}A+10\,a^{9}bB\right)\,e+\left(120\,a^{7}b^{3}A+45\,a^{8}b^{2}B\right)\,d\right)\,x^{4}}{4}+\frac{\left(\left(10\,a^{9}bA+a^{10}B\right)\,e+\left(45\,a^{8}b^{2}A+10\,a^{9}bB\right)\,d\right)\,x^{3}}{3}+\frac{\left(a^{10}Ae+\left(10\,a^{9}bA+a^{10}B\right)\,d\right)\,x^{2}}{2}+a^{10}Adx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^10*(B*x+A)*(e*x+d),x)
```

```
[Out] 1/13*b^10*B*e*x^13+1/12*((A*b^10+10*B*a*b^9)*e+b^10*B*d)*x^12+1/1
1*((10*A*a*b^9+45*B*a^2*b^8)*e+(A*b^10+10*B*a*b^9)*d)*x^11+1/10*(
(45*A*a^2*b^8+120*B*a^3*b^7)*e+(10*A*a*b^9+45*B*a^2*b^8)*d)*x^10+
1/9*((120*A*a^3*b^7+210*B*a^4*b^6)*e+(45*A*a^2*b^8+120*B*a^3*b^7)
*d)*x^9+1/8*((210*A*a^4*b^6+252*B*a^5*b^5)*e+(120*A*a^3*b^7+210*B
*a^4*b^6)*d)*x^8+1/7*((252*A*a^5*b^5+210*B*a^6*b^4)*e+(210*A*a^4*
b^6+252*B*a^5*b^5)*d)*x^7+1/6*((210*A*a^6*b^4+120*B*a^7*b^3)*e+(2
52*A*a^5*b^5+210*B*a^6*b^4)*d)*x^6+1/5*((120*A*a^7*b^3+45*B*a^8*b
^2)*e+(210*A*a^6*b^4+120*B*a^7*b^3)*d)*x^5+1/4*((45*A*a^8*b^2+10*
B*a^9*b)*e+(120*A*a^7*b^3+45*B*a^8*b^2)*d)*x^4+1/3*((10*A*a^9*b+B
*a^10)*e+(45*A*a^8*b^2+10*B*a^9*b)*d)*x^3+1/2*(a^10*A*e+(10*A*a^9
*b+B*a^10)*d)*x^2+a^10*A*d*x
```

Maxima [A] time = 1.35677, size = 666, normalized size = 8.88

$$\frac{1}{13}Bb^{10}ex^{13}+Aa^{10}dx+\frac{1}{12}\left(Bb^{10}d+\left(10\,Bab^{9}+Ab^{10}\right)e\right)x^{12}+\frac{1}{11}\left(\left(10\,Bab^{9}+Ab^{10}\right)d+5\left(9\,Ba^{2}b^{8}+2\,Aab^{9}\right)e\right)x^{11}+\frac{1}{2}\left(\left(9\,Ba^{2}b^{8}+2\,Aab^{9}\right)d+3\left(8\,Ba^{3}b^{7}+3\,Aa^{2}b^{8}\right)e\right)x^{10}+\frac{5}{3}\left(\left(8\,Ba^{3}b^{7}+3\,Aa^{2}b^{8}\right)d+2\left(7\,Ba^{4}b^{6}+4\,Aa^{3}b^{7}\right)e\right)x^{9}+\frac{3}{4}\left(5\left(7\,Ba^{4}b^{6}+4\,Aa^{3}b^{7}\right)d+7\left(6\,Ba^{5}b^{5}+5\,Aa^{4}b^{6}\right)e\right)x^{8}+6\left(\left(6\,Ba^{5}b^{5}+5\,Aa^{4}b^{6}\right)d+\left(5\,Ba^{6}b^{4}+6\,Aa^{5}b^{5}\right)e\right)x^{7}+\left(7\left(5\,Ba^{6}b^{4}+6\,Aa^{5}b^{5}\right)d+5\left(4\,Ba^{7}b^{3}+7\,Aa^{6}b^{4}\right)e\right)x^{6}+3\left(2\left(4\,Ba^{7}b^{3}+7\,Aa^{6}b^{4}\right)d+\left(3\,Ba^{8}b^{2}+8\,Aa^{7}b^{3}\right)e\right)x^{5}+\frac{5}{4}\left(3\left(3\,Ba^{8}b^{2}+8\,Aa^{7}b^{3}\right)d+\left(2\,Ba^{9}b+9\,Aa^{8}b^{2}\right)e\right)x^{4}+\frac{1}{3}\left(5\left(2\,Ba^{9}b+9\,Aa^{8}b^{2}\right)d+\left(Ba^{10}+10\,Aa^{9}b\right)e\right)x^{3}+\frac{1}{2}\left(Aa^{10}e+\left(Ba^{10}+10\,Aa^{9}b\right)d\right)x^{2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*(e*x + d),x, algorithm="maxima")
```

```
[Out] 1/13*B*b^10*e*x^13 + A*a^10*d*x + 1/12*(B*b^10*d + (10*B*a*b^9 +
A*b^10)*e)*x^12 + 1/11*((10*B*a*b^9 + A*b^10)*d + 5*(9*B*a^2*b^8
+ 2*A*a*b^9)*e)*x^11 + 1/2*((9*B*a^2*b^8 + 2*A*a*b^9)*d + 3*(8*B*
a^3*b^7 + 3*A*a^2*b^8)*e)*x^10 + 5/3*((8*B*a^3*b^7 + 3*A*a^2*b^8)
*d + 2*(7*B*a^4*b^6 + 4*A*a^3*b^7)*e)*x^9 + 3/4*(5*(7*B*a^4*b^6 +
 4*A*a^3*b^7)*d + 7*(6*B*a^5*b^5 + 5*A*a^4*b^6)*e)*x^8 + 6*((6*B*
a^5*b^5 + 5*A*a^4*b^6)*d + (5*B*a^6*b^4 + 6*A*a^5*b^5)*e)*x^7 + (
7*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d + 5*(4*B*a^7*b^3 + 7*A*a^6*b^4)*e
)*x^6 + 3*(2*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d + (3*B*a^8*b^2 + 8*A*a
^7*b^3)*e)*x^5 + 5/4*(3*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d + (2*B*a^9*
b + 9*A*a^8*b^2)*e)*x^4 + 1/3*(5*(2*B*a^9*b + 9*A*a^8*b^2)*d + (B
*a^10 + 10*A*a^9*b)*e)*x^3 + 1/2*(A*a^10*e + (B*a^10 + 10*A*a^9*b
)*d)*x^2
```

Fricas [A] time = 0.19203, size = 1, normalized size = 0.01

$$\frac{1}{13}x^{13}eb^{10}B+\frac{1}{12}x^{12}db^{10}B+\frac{5}{6}x^{12}eb^{9}aB+\frac{1}{12}x^{12}eb^{10}A+\frac{10}{11}x^{11}db^{9}aB+\frac{45}{11}x^{11}eb^{8}a^{2}B+\frac{1}{11}x^{11}db^{10}A+\frac{10}{11}x^{11}eb^{9}aA+\frac{9}{2}x^{10}db^{8}a^{2}B+12x^{10}eb^{7}a^{3}B+x^{10}db^{9}aA+\frac{9}{2}x^{10}eb^{8}a^{2}A+\frac{40}{3}x^{9}db^{7}a^{3}B+\frac{70}{3}x^{9}eb^{6}a^{4}B+5x^{9}db^{8}a^{2}A+\frac{40}{3}x^{9}eb^{7}a^{3}A+\frac{105}{4}x^{8}db^{6}a^{4}B+\frac{63}{2}x^{8}eb^{5}a^{5}B+15x^{8}db^{7}a^{3}A+\frac{105}{4}x^{8}eb^{6}a^{4}A+36x^{7}db^{5}a^{5}B+30x^{7}eb^{4}a^{6}B+30x^{7}db^{6}a^{4}A+36x^{7}eb^{5}a^{5}A+35x^{6}db^{4}a^{6}B+20x^{6}eb^{3}a^{7}B+42x^{6}db^{5}a^{5}A+35x^{6}eb^{4}a^{6}A+24x^{5}db^{3}a^{7}B+9x^{5}eb^{2}a^{8}B+42x^{5}db^{4}a^{6}A+24x^{5}eb^{3}a^{7}A+\frac{45}{4}x^{4}db^{2}a^{8}B+\frac{5}{2}x^{4}eba^{9}B+30x^{4}db^{3}a^{7}A+\frac{45}{4}x^{4}eb^{2}a^{8}A+\frac{10}{3}x^{3}dba^{9}B+\frac{1}{3}x^{3}ea^{10}B+15x^{3}db^{2}a^{8}A+\frac{10}{3}x^{3}eba^{9}A+\frac{1}{2}x^{2}da^{10}B+5x^{2}dba^{9}A+\frac{1}{2}x^{2}ea^{10}A+xda^{10}A$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*(e*x + d),x, algorithm="fricas")
```

```
[Out] 1/13*x^13*e*b^10*B + 1/12*x^12*d*b^10*B + 5/6*x^12*e*b^9*a*B + 1/
12*x^12*e*b^10*A + 10/11*x^11*d*b^9*a*B + 45/11*x^11*e*b^8*a^2*B
+ 1/11*x^11*d*b^10*A + 10/11*x^11*e*b^9*a*A + 9/2*x^10*d*b^8*a^2*
B + 12*x^10*e*b^7*a^3*B + x^10*d*b^9*a*A + 9/2*x^10*e*b^8*a^2*A +
 40/3*x^9*d*b^7*a^3*B + 70/3*x^9*e*b^6*a^4*B + 5*x^9*d*b^8*a^2*A
+ 40/3*x^9*e*b^7*a^3*A + 105/4*x^8*d*b^6*a^4*B + 63/2*x^8*e*b^5*a
^5*B + 15*x^8*d*b^7*a^3*A + 105/4*x^8*e*b^6*a^4*A + 36*x^7*d*b^5*
```

```
a^5*B + 30*x^7*e*b^4*a^6*B + 30*x^7*d*b^6*a^4*A + 36*x^7*e*b^5*a^
5*A + 35*x^6*d*b^4*a^6*B + 20*x^6*e*b^3*a^7*B + 42*x^6*d*b^5*a^5*
A + 35*x^6*e*b^4*a^6*A + 24*x^5*d*b^3*a^7*B + 9*x^5*e*b^2*a^8*B +
 42*x^5*d*b^4*a^6*A + 24*x^5*e*b^3*a^7*A + 45/4*x^4*d*b^2*a^8*B +
 5/2*x^4*e*b*a^9*B + 30*x^4*d*b^3*a^7*A + 45/4*x^4*e*b^2*a^8*A +
10/3*x^3*d*b*a^9*B + 1/3*x^3*e*a^10*B + 15*x^3*d*b^2*a^8*A + 10/3
*x^3*e*b*a^9*A + 1/2*x^2*d*a^10*B + 5*x^2*d*b*a^9*A + 1/2*x^2*e*a
^10*A + x*d*a^10*A
```

Sympy [A] time = 0.34957, size = 549, normalized size = 7.32

$$Aa^{10}dx + \frac{Bb^{10}ex^{13}}{13} + x^{12}\left(\frac{Ab^{10}e}{12} + \frac{5Bab^9e}{6} + \frac{Bb^{10}d}{12}\right) + x^{11}\left(\frac{10Aab^9e}{11} + \frac{Ab^{10}d}{11} + \frac{45Ba^2b^8e}{11} + \frac{10Bab^9d}{11}\right) + x^{10}\left(\frac{9Aa^2b^8e}{2} + Aab^9d + 12Ba^3b^7e + \frac{9Ba^2b^8d}{2}\right) + x^9\left(\frac{40Aa^3b^7e}{3} + 5Aa^2b^8d + \frac{70Ba^4b^6e}{3} + \frac{40Ba^3b^7d}{3}\right) + x^8\left(\frac{105Aa^4b^6e}{4} + 15Aa^3b^7d + \frac{63Ba^5b^5e}{2} + \frac{105Ba^4b^6d}{4}\right) + x^7\left(36Aa^5b^5e + 30Aa^4b^6d + 30Ba^6b^4e + 36Ba^5b^5d\right) + x^6\left(35Aa^6b^4e + 42Aa^5b^5d + 20Ba^7b^3e + 35Ba^6b^4d\right) + x^5\left(24Aa^7b^3e + 42Aa^6b^4d + 9Ba^8b^2e + 24Ba^7b^3d\right) + x^4\left(\frac{45Aa^8b^2e}{4} + 30Aa^7b^3d + \frac{5Ba^9be}{2} + \frac{45Ba^8b^2d}{4}\right) + x^3\left(\frac{10Aa^9be}{3} + 15Aa^8b^2d + \frac{Ba^{10}e}{3} + \frac{10Ba^9bd}{3}\right) + x^2\left(\frac{Aa^{10}e}{2} + 5Aa^9bd + \frac{Ba^{10}d}{2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)*(e*x+d),x)
```

```
[Out] A*a**10*d*x + B*b**10*e*x**13/13 + x**12*(A*b**10*e/12 + 5*B*a*b*
*9*e/6 + B*b**10*d/12) + x**11*(10*A*a*b**9*e/11 + A*b**10*d/11 +
 45*B*a**2*b**8*e/11 + 10*B*a*b**9*d/11) + x**10*(9*A*a**2*b**8*e
/2 + A*a*b**9*d + 12*B*a**3*b**7*e + 9*B*a**2*b**8*d/2) + x**9*(4
0*A*a**3*b**7*e/3 + 5*A*a**2*b**8*d + 70*B*a**4*b**6*e/3 + 40*B*a
**3*b**7*d/3) + x**8*(105*A*a**4*b**6*e/4 + 15*A*a**3*b**7*d + 63
*B*a**5*b**5*e/2 + 105*B*a**4*b**6*d/4) + x**7*(36*A*a**5*b**5*e
+ 30*A*a**4*b**6*d + 30*B*a**6*b**4*e + 36*B*a**5*b**5*d) + x**6*
(35*A*a**6*b**4*e + 42*A*a**5*b**5*d + 20*B*a**7*b**3*e + 35*B*a*
*6*b**4*d) + x**5*(24*A*a**7*b**3*e + 42*A*a**6*b**4*d + 9*B*a**8
*b**2*e + 24*B*a**7*b**3*d) + x**4*(45*A*a**8*b**2*e/4 + 30*A*a**
7*b**3*d + 5*B*a**9*b*e/2 + 45*B*a**8*b**2*d/4) + x**3*(10*A*a**9
*b*e/3 + 15*A*a**8*b**2*d + B*a**10*e/3 + 10*B*a**9*b*d/3) + x**2
*(A*a**10*e/2 + 5*A*a**9*b*d + B*a**10*d/2)
```

GIAC/XCAS [A] time = 0.212814, size = 744, normalized size = 9.92

$$\frac{1}{13}\,Bb^{10}x^{13}e + \frac{1}{12}\,Bb^{10}dx^{12} + \frac{5}{6}\,Bab^{9}x^{12}e + \frac{1}{12}\,Ab^{10}x^{12}e + \frac{10}{11}\,Bab^{9}dx^{11} + \frac{1}{11}\,Ab^{10}dx^{11} + \frac{45}{11}\,Ba^{2}b^{8}x^{11}e + \frac{10}{11}\,Aab^{9}x^{11}e + \frac{9}{2}\,Ba^{2}b^{8}dx^{10} + Aab^{9}dx^{10} + 12\,Ba^{3}b^{7}x^{10}e + \frac{9}{2}\,Aa^{2}b^{8}x^{10}e + \frac{40}{3}\,Ba^{3}b^{7}dx^{9} + 5\,Aa^{2}b^{8}dx^{9} + \frac{70}{3}\,Ba^{4}b^{6}x^{9}e + \frac{40}{3}\,Aa^{3}b^{7}x^{9}e + \frac{105}{4}\,Ba^{4}b^{6}dx^{8} + 15\,Aa^{3}b^{7}dx^{8} + \frac{63}{2}\,Ba^{5}b^{5}x^{8}e + \frac{105}{4}\,Aa^{4}b^{6}x^{8}e + 36\,Ba^{5}b^{5}dx^{7} + 30\,Aa^{4}b^{6}dx^{7} + 30\,Ba^{6}b^{4}x^{7}e + 36\,Aa^{5}b^{5}x^{7}e + 35\,Ba^{6}b^{4}dx^{6} + 42\,Aa^{5}b^{5}dx^{6} + 20\,Ba^{7}b^{3}x^{6}e + 35\,Aa^{6}b^{4}x^{6}e + 24\,Ba^{7}b^{3}dx^{5} + 42\,Aa^{6}b^{4}dx^{5} + 9\,Ba^{8}b^{2}x^{5}e + 24\,Aa^{7}b^{3}x^{5}e + \frac{45}{4}\,Ba^{8}b^{2}dx^{4} + 30\,Aa^{7}b^{3}dx^{4} + \frac{5}{2}\,Ba^{9}bx^{4}e + \frac{45}{4}\,Aa^{8}b^{2}x^{4}e + \frac{10}{3}\,Ba^{9}bdx^{3} + 15\,Aa^{8}b^{2}dx^{3} + \frac{1}{3}\,Ba^{10}x^{3}e + \frac{10}{3}\,Aa^{9}bx^{3}e + \frac{1}{2}\,Ba^{10}dx^{2} + 5\,Aa^{9}bdx^{2} + \frac{1}{2}\,Aa^{10}x^{2}e + Aa^{10}dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10*(e*x + d),x, algorithm="giac")
```

```
[Out] 1/13*B*b^10*x^13*e + 1/12*B*b^10*d*x^12 + 5/6*B*a*b^9*x^12*e + 1/
12*A*b^10*x^12*e + 10/11*B*a*b^9*d*x^11 + 1/11*A*b^10*d*x^11 + 45
/11*B*a^2*b^8*x^11*e + 10/11*A*a*b^9*x^11*e + 9/2*B*a^2*b^8*d*x^1
0 + A*a*b^9*d*x^10 + 12*B*a^3*b^7*x^10*e + 9/2*A*a^2*b^8*x^10*e +
 40/3*B*a^3*b^7*d*x^9 + 5*A*a^2*b^8*d*x^9 + 70/3*B*a^4*b^6*x^9*e
+ 40/3*A*a^3*b^7*x^9*e + 105/4*B*a^4*b^6*d*x^8 + 15*A*a^3*b^7*d*x
^8 + 63/2*B*a^5*b^5*x^8*e + 105/4*A*a^4*b^6*x^8*e + 36*B*a^5*b^5*
d*x^7 + 30*A*a^4*b^6*d*x^7 + 30*B*a^6*b^4*x^7*e + 36*A*a^5*b^5*x^
7*e + 35*B*a^6*b^4*d*x^6 + 42*A*a^5*b^5*d*x^6 + 20*B*a^7*b^3*x^6*
e + 35*A*a^6*b^4*x^6*e + 24*B*a^7*b^3*d*x^5 + 42*A*a^6*b^4*d*x^5
+ 9*B*a^8*b^2*x^5*e + 24*A*a^7*b^3*x^5*e + 45/4*B*a^8*b^2*d*x^4 +
 30*A*a^7*b^3*d*x^4 + 5/2*B*a^9*b*x^4*e + 45/4*A*a^8*b^2*x^4*e +
10/3*B*a^9*b*d*x^3 + 15*A*a^8*b^2*d*x^3 + 1/3*B*a^10*x^3*e + 10/3
*A*a^9*b*x^3*e + 1/2*B*a^10*d*x^2 + 5*A*a^9*b*d*x^2 + 1/2*A*a^10*
x^2*e + A*a^10*d*x
```

3.1071 $\int (a+bx)^{10}(A+Bx)\,dx$

Optimal. Leaf size=38

$$\frac{(a+bx)^{11}(Ab-aB)}{11b^2}+\frac{B(a+bx)^{12}}{12b^2}$$

```
[Out] ((A*b - a*B)*(a + b*x)^11)/(11*b^2) + (B*(a + b*x)^12)/(12*b^2)
```

Rubi [A] time = 0.0532029, antiderivative size = 38, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 13, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.077

$$\frac{(a+bx)^{11}(Ab-aB)}{11b^2}+\frac{B(a+bx)^{12}}{12b^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^10*(A + B*x),x]

[Out] ((A*b - a*B)*(a + b*x)^11)/(11*b^2) + (B*(a + b*x)^12)/(12*b^2)
```

Rubi in Sympy [A] time = 20.714, size = 31, normalized size = 0.82

$$\frac{B(a+bx)^{12}}{12b^2}+\frac{(a+bx)^{11}(Ab-Ba)}{11b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A),x)

[Out] B*(a + b*x)**12/(12*b**2) + (a + b*x)**11*(A*b - B*a)/(11*b**2)
```

Mathematica [B] time = 0.106713, size = 198, normalized size = 5.21

$$\frac{1}{132}x\left(66a^{10}(2A+Bx)+220a^9bx(3A+2Bx)+495a^8b^2x^2(4A+3Bx)+792a^7b^3x^3(5A+4Bx)\right.$$
$$+924a^6b^4x^4(6A+5Bx)+792a^5b^5x^5(7A+6Bx)+495a^4b^6x^6(8A+7Bx)$$
$$\left.+220a^3b^7x^7(9A+8Bx)+66a^2b^8x^8(10A+9Bx)+12ab^9x^9(11A+10Bx)+b^{10}x^{10}(12A+11Bx)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^10*(A + B*x),x]

[Out] (x*(66*a^10*(2*A + B*x) + 220*a^9*b*x*(3*A + 2*B*x) + 495*a^8*b^2
*x^2*(4*A + 3*B*x) + 792*a^7*b^3*x^3*(5*A + 4*B*x) + 924*a^6*b^4*
x^4*(6*A + 5*B*x) + 792*a^5*b^5*x^5*(7*A + 6*B*x) + 495*a^4*b^6*x
^6*(8*A + 7*B*x) + 220*a^3*b^7*x^7*(9*A + 8*B*x) + 66*a^2*b^8*x^8
*(10*A + 9*B*x) + 12*a*b^9*x^9*(11*A + 10*B*x) + b^10*x^10*(12*A
+ 11*B*x)))/132
```

Maple [B] time = 0.003, size = 241, normalized size = 6.3

$$\frac{b^{10}Bx^{12}}{12}+\frac{\left(b^{10}A+10\,ab^{9}B\right)x^{11}}{11}+\frac{\left(10\,ab^{9}A+45\,a^{2}b^{8}B\right)x^{10}}{10}+\frac{\left(45\,a^{2}b^{8}A+120\,a^{3}b^{7}B\right)x^{9}}{9}+\frac{\left(120\,a^{3}b^{7}A+210\,a^{4}b^{6}B\right)x^{8}}{8}+\frac{\left(210\,a^{4}b^{6}A+252\,a^{5}b^{5}B\right)x^{7}}{7}+\frac{\left(252\,a^{5}b^{5}A+210\,a^{6}b^{4}B\right)x^{6}}{6}+\frac{\left(210\,a^{6}b^{4}A+120\,a^{7}b^{3}B\right)x^{5}}{5}+\frac{\left(120\,a^{7}b^{3}A+45\,a^{8}b^{2}B\right)x^{4}}{4}+\frac{\left(45\,a^{8}b^{2}A+10\,a^{9}bB\right)x^{3}}{3}+\frac{\left(10\,a^{9}bA+a^{10}B\right)x^{2}}{2}+a^{10}Ax$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^10*(B*x+A),x)
```

```
[Out] 1/12*b^10*B*x^12+1/11*(A*b^10+10*B*a*b^9)*x^11+1/10*(10*A*a*b^9+4
5*B*a^2*b^8)*x^10+1/9*(45*A*a^2*b^8+120*B*a^3*b^7)*x^9+1/8*(120*A
*a^3*b^7+210*B*a^4*b^6)*x^8+1/7*(210*A*a^4*b^6+252*B*a^5*b^5)*x^7
+1/6*(252*A*a^5*b^5+210*B*a^6*b^4)*x^6+1/5*(210*A*a^6*b^4+120*B*a
^7*b^3)*x^5+1/4*(120*A*a^7*b^3+45*B*a^8*b^2)*x^4+1/3*(45*A*a^8*b^
2+10*B*a^9*b)*x^3+1/2*(10*A*a^9*b+B*a^10)*x^2+a^10*A*x
```

Maxima [A] time = 1.35768, size = 324, normalized size = 8.53

$$\frac{1}{12}\,Bb^{10}x^{12}+Aa^{10}x+\frac{1}{11}\left(10\,Bab^{9}+Ab^{10}\right)x^{11}+\frac{1}{2}\left(9\,Ba^{2}b^{8}+2\,Aab^{9}\right)x^{10}+\frac{5}{3}\left(8\,Ba^{3}b^{7}+3\,Aa^{2}b^{8}\right)x^{9}+\frac{15}{4}\left(7\,Ba^{4}b^{6}+4\,Aa^{3}b^{7}\right)x^{8}+6\left(6\,Ba^{5}b^{5}+5\,Aa^{4}b^{6}\right)x^{7}+7\left(5\,Ba^{6}b^{4}+6\,Aa^{5}b^{5}\right)x^{6}+6\left(4\,Ba^{7}b^{3}+7\,Aa^{6}b^{4}\right)x^{5}+\frac{15}{4}\left(3\,Ba^{8}b^{2}+8\,Aa^{7}b^{3}\right)x^{4}+\frac{5}{3}\left(2\,Ba^{9}b+9\,Aa^{8}b^{2}\right)x^{3}+\frac{1}{2}\left(Ba^{10}+10\,Aa^{9}b\right)x^{2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10,x, algorithm="maxima")
```

```
[Out] 1/12*B*b^10*x^12 + A*a^10*x + 1/11*(10*B*a*b^9 + A*b^10)*x^11 + 1
/2*(9*B*a^2*b^8 + 2*A*a*b^9)*x^10 + 5/3*(8*B*a^3*b^7 + 3*A*a^2*b^
8)*x^9 + 15/4*(7*B*a^4*b^6 + 4*A*a^3*b^7)*x^8 + 6*(6*B*a^5*b^5 +
5*A*a^4*b^6)*x^7 + 7*(5*B*a^6*b^4 + 6*A*a^5*b^5)*x^6 + 6*(4*B*a^7
*b^3 + 7*A*a^6*b^4)*x^5 + 15/4*(3*B*a^8*b^2 + 8*A*a^7*b^3)*x^4 +
5/3*(2*B*a^9*b + 9*A*a^8*b^2)*x^3 + 1/2*(B*a^10 + 10*A*a^9*b)*x^2
```

Fricas [A] time = 0.185818, size = 1, normalized size = 0.03

$$\frac{1}{12}x^{12}b^{10}B+\frac{10}{11}x^{11}b^{9}aB+\frac{1}{11}x^{11}b^{10}A+\frac{9}{2}x^{10}b^{8}a^{2}B+x^{10}b^{9}aA+\frac{40}{3}x^{9}b^{7}a^{3}B+5x^{9}b^{8}a^{2}A+\frac{105}{4}x^{8}b^{6}a^{4}B+15x^{8}b^{7}a^{3}A+36x^{7}b^{5}a^{5}B+30x^{7}b^{6}a^{4}A+35x^{6}b^{4}a^{6}B+42x^{6}b^{5}a^{5}A+24x^{5}b^{3}a^{7}B+42x^{5}b^{4}a^{6}A+\frac{45}{4}x^{4}b^{2}a^{8}B+30x^{4}b^{3}a^{7}A+\frac{10}{3}x^{3}ba^{9}B+15x^{3}b^{2}a^{8}A+\frac{1}{2}x^{2}a^{10}B+5x^{2}ba^{9}A+xa^{10}A$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10,x, algorithm="fricas")
```

```
[Out] 1/12*x^12*b^10*B + 10/11*x^11*b^9*a*B + 1/11*x^11*b^10*A + 9/2*x^
10*b^8*a^2*B + x^10*b^9*a*A + 40/3*x^9*b^7*a^3*B + 5*x^9*b^8*a^2*
A + 105/4*x^8*b^6*a^4*B + 15*x^8*b^7*a^3*A + 36*x^7*b^5*a^5*B + 3
0*x^7*b^6*a^4*A + 35*x^6*b^4*a^6*B + 42*x^6*b^5*a^5*A + 24*x^5*b^
3*a^7*B + 42*x^5*b^4*a^6*A + 45/4*x^4*b^2*a^8*B + 30*x^4*b^3*a^7*
A + 10/3*x^3*b*a^9*B + 15*x^3*b^2*a^8*A + 1/2*x^2*a^10*B + 5*x^2*
```

```
b*a^9*A + x*a^10*A
```

Sympy [A] time = 0.25231, size = 248, normalized size = 6.53

$$Aa^{10}x + \frac{Bb^{10}x^{12}}{12} + x^{11}\left(\frac{Ab^{10}}{11} + \frac{10Bab^{9}}{11}\right) + x^{10}\left(Aab^{9} + \frac{9Ba^{2}b^{8}}{2}\right) + x^{9}\left(5Aa^{2}b^{8} + \frac{40Ba^{3}b^{7}}{3}\right) + x^{8}\left(15Aa^{3}b^{7} + \frac{105Ba^{4}b^{6}}{4}\right) + x^{7}\left(30Aa^{4}b^{6} + 36Ba^{5}b^{5}\right) + x^{6}\left(42Aa^{5}b^{5} + 35Ba^{6}b^{4}\right) + x^{5}\left(42Aa^{6}b^{4} + 24Ba^{7}b^{3}\right) + x^{4}\left(30Aa^{7}b^{3} + \frac{45Ba^{8}b^{2}}{4}\right) + x^{3}\left(15Aa^{8}b^{2} + \frac{10Ba^{9}b}{3}\right) + x^{2}\left(5Aa^{9}b + \frac{Ba^{10}}{2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A),x)
```

```
[Out] A*a**10*x + B*b**10*x**12/12 + x**11*(A*b**10/11 + 10*B*a*b**9/11
) + x**10*(A*a*b**9 + 9*B*a**2*b**8/2) + x**9*(5*A*a**2*b**8 + 40
*B*a**3*b**7/3) + x**8*(15*A*a**3*b**7 + 105*B*a**4*b**6/4) + x**
7*(30*A*a**4*b**6 + 36*B*a**5*b**5) + x**6*(42*A*a**5*b**5 + 35*B
*a**6*b**4) + x**5*(42*A*a**6*b**4 + 24*B*a**7*b**3) + x**4*(30*A
*a**7*b**3 + 45*B*a**8*b**2/4) + x**3*(15*A*a**8*b**2 + 10*B*a**9
*b/3) + x**2*(5*A*a**9*b + B*a**10/2)
```

GIAC/XCAS [A] time = 0.21321, size = 325, normalized size = 8.55

$$\frac{1}{12}\,Bb^{10}x^{12} + \frac{10}{11}\,Bab^{9}x^{11} + \frac{1}{11}\,Ab^{10}x^{11} + \frac{9}{2}\,Ba^{2}b^{8}x^{10} + Aab^{9}x^{10} + \frac{40}{3}\,Ba^{3}b^{7}x^{9} + 5\,Aa^{2}b^{8}x^{9} + \frac{105}{4}\,Ba^{4}b^{6}x^{8} + 15\,Aa^{3}b^{7}x^{8} + 36\,Ba^{5}b^{5}x^{7} + 30\,Aa^{4}b^{6}x^{7} + 35\,Ba^{6}b^{4}x^{6} + 42\,Aa^{5}b^{5}x^{6} + 24\,Ba^{7}b^{3}x^{5} + 42\,Aa^{6}b^{4}x^{5} + \frac{45}{4}\,Ba^{8}b^{2}x^{4} + 30\,Aa^{7}b^{3}x^{4} + \frac{10}{3}\,Ba^{9}bx^{3} + 15\,Aa^{8}b^{2}x^{3} + \frac{1}{2}\,Ba^{10}x^{2} + 5\,Aa^{9}bx^{2} + Aa^{10}x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10,x, algorithm="giac")
```

```
[Out] 1/12*B*b^10*x^12 + 10/11*B*a*b^9*x^11 + 1/11*A*b^10*x^11 + 9/2*B*
a^2*b^8*x^10 + A*a*b^9*x^10 + 40/3*B*a^3*b^7*x^9 + 5*A*a^2*b^8*x^
9 + 105/4*B*a^4*b^6*x^8 + 15*A*a^3*b^7*x^8 + 36*B*a^5*b^5*x^7 + 3
0*A*a^4*b^6*x^7 + 35*B*a^6*b^4*x^6 + 42*A*a^5*b^5*x^6 + 24*B*a^7*
b^3*x^5 + 42*A*a^6*b^4*x^5 + 45/4*B*a^8*b^2*x^4 + 30*A*a^7*b^3*x^
4 + 10/3*B*a^9*b*x^3 + 15*A*a^8*b^2*x^3 + 1/2*B*a^10*x^2 + 5*A*a^
9*b*x^2 + A*a^10*x
```

3.1072 $\int \frac{(a+bx)^{10}(A+Bx)}{d+ex}\,dx$

Optimal. Leaf size=348

$$-\frac{(bd-ae)^{10}(Bd-Ae)\log(d+ex)}{e^{12}}+\frac{bx(bd-ae)^9(Bd-Ae)}{e^{11}}-\frac{(a+bx)^2(bd-ae)^8(Bd-Ae)}{2e^{10}}+\frac{(a+bx)^3(bd-ae)^7(Bd-Ae)}{3e^9}-\frac{(a+bx)^4(bd-ae)^6(Bd-Ae)}{4e^8}+\frac{(a+bx)^5(bd-ae)^5(Bd-Ae)}{5e^7}-\frac{(a+bx)^6(bd-ae)^4(Bd-Ae)}{6e^6}+\frac{(a+bx)^7(bd-ae)^3(Bd-Ae)}{7e^5}-\frac{(a+bx)^8(bd-ae)^2(Bd-Ae)}{8e^4}+\frac{(a+bx)^9(bd-ae)(Bd-Ae)}{9e^3}-\frac{(a+bx)^{10}(Bd-Ae)}{10e^2}+\frac{B(a+bx)^{11}}{11be}$$

```
[Out] (b*(b*d - a*e)^9*(B*d - A*e)*x)/e^11 - ((b*d - a*e)^8*(B*d - A*e)
*(a + b*x)^2)/(2*e^10) + ((b*d - a*e)^7*(B*d - A*e)*(a + b*x)^3)/
(3*e^9) - ((b*d - a*e)^6*(B*d - A*e)*(a + b*x)^4)/(4*e^8) + ((b*d
 - a*e)^5*(B*d - A*e)*(a + b*x)^5)/(5*e^7) - ((b*d - a*e)^4*(B*d
- A*e)*(a + b*x)^6)/(6*e^6) + ((b*d - a*e)^3*(B*d - A*e)*(a + b*x
)^7)/(7*e^5) - ((b*d - a*e)^2*(B*d - A*e)*(a + b*x)^8)/(8*e^4) +
((b*d - a*e)*(B*d - A*e)*(a + b*x)^9)/(9*e^3) - ((B*d - A*e)*(a +
 b*x)^10)/(10*e^2) + (B*(a + b*x)^11)/(11*b*e) - ((b*d - a*e)^10*
(B*d - A*e)*Log[d + e*x])/e^12
```

Rubi [A] time = 0.749002, antiderivative size = 348, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{(bd-ae)^{10}(Bd-Ae)\log(d+ex)}{e^{12}}+\frac{bx(bd-ae)^9(Bd-Ae)}{e^{11}}-\frac{(a+bx)^2(bd-ae)^8(Bd-Ae)}{2e^{10}}+\frac{(a+bx)^3(bd-ae)^7(Bd-Ae)}{3e^9}-\frac{(a+bx)^4(bd-ae)^6(Bd-Ae)}{4e^8}+\frac{(a+bx)^5(bd-ae)^5(Bd-Ae)}{5e^7}-\frac{(a+bx)^6(bd-ae)^4(Bd-Ae)}{6e^6}+\frac{(a+bx)^7(bd-ae)^3(Bd-Ae)}{7e^5}-\frac{(a+bx)^8(bd-ae)^2(Bd-Ae)}{8e^4}+\frac{(a+bx)^9(bd-ae)(Bd-Ae)}{9e^3}-\frac{(a+bx)^{10}(Bd-Ae)}{10e^2}+\frac{B(a+bx)^{11}}{11be}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^10*(A + B*x))/(d + e*x),x]
```

```
[Out] (b*(b*d - a*e)^9*(B*d - A*e)*x)/e^11 - ((b*d - a*e)^8*(B*d - A*e)
*(a + b*x)^2)/(2*e^10) + ((b*d - a*e)^7*(B*d - A*e)*(a + b*x)^3)/
(3*e^9) - ((b*d - a*e)^6*(B*d - A*e)*(a + b*x)^4)/(4*e^8) + ((b*d
 - a*e)^5*(B*d - A*e)*(a + b*x)^5)/(5*e^7) - ((b*d - a*e)^4*(B*d
- A*e)*(a + b*x)^6)/(6*e^6) + ((b*d - a*e)^3*(B*d - A*e)*(a + b*x
)^7)/(7*e^5) - ((b*d - a*e)^2*(B*d - A*e)*(a + b*x)^8)/(8*e^4) +
((b*d - a*e)*(B*d - A*e)*(a + b*x)^9)/(9*e^3) - ((B*d - A*e)*(a +
 b*x)^10)/(10*e^2) + (B*(a + b*x)^11)/(11*b*e) - ((b*d - a*e)^10*
(B*d - A*e)*Log[d + e*x])/e^12
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{B(a+bx)^{11}}{11be}+\frac{(a+bx)^{10}(Ae-Bd)}{10e^2}+\frac{(a+bx)^9(Ae-Bd)(ae-bd)}{9e^3}+\frac{(a+bx)^8(Ae-Bd)(ae-bd)^2}{8e^4}+\frac{(a+bx)^7(Ae-Bd)(ae-bd)^3}{7e^5}+\frac{(a+bx)^6(Ae-Bd)(ae-bd)^4}{6e^6}+\frac{(a+bx)^5(Ae-Bd)(ae-bd)^5}{5e^7}+\frac{(a+bx)^4(Ae-Bd)(ae-bd)^6}{4e^8}+\frac{(a+bx)^3(Ae-Bd)(ae-bd)^7}{3e^9}+\frac{(a+bx)^2(Ae-Bd)(ae-bd)^8}{2e^{10}}+\frac{(Ae-Bd)(ae-bd)^9\int b\,dx}{e^{11}}+\frac{(Ae-Bd)(ae-bd)^{10}\log(d+ex)}{e^{12}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)/(e*x+d),x)
```

```
[Out] B*(a + b*x)**11/(11*b*e) + (a + b*x)**10*(A*e - B*d)/(10*e**2) +
(a + b*x)**9*(A*e - B*d)*(a*e - b*d)/(9*e**3) + (a + b*x)**8*(A*e
 - B*d)*(a*e - b*d)**2/(8*e**4) + (a + b*x)**7*(A*e - B*d)*(a*e -
 b*d)**3/(7*e**5) + (a + b*x)**6*(A*e - B*d)*(a*e - b*d)**4/(6*e*
*6) + (a + b*x)**5*(A*e - B*d)*(a*e - b*d)**5/(5*e**7) + (a + b*x
)**4*(A*e - B*d)*(a*e - b*d)**6/(4*e**8) + (a + b*x)**3*(A*e - B*
d)*(a*e - b*d)**7/(3*e**9) + (a + b*x)**2*(A*e - B*d)*(a*e - b*d)
**8/(2*e**10) + (A*e - B*d)*(a*e - b*d)**9*Integral(b, x)/e**11 +
 (A*e - B*d)*(a*e - b*d)**10*log(d + e*x)/e**12
```

Mathematica [B] time = 6.14148, size = 1915, normalized size = 5.5

result too large to display

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^10*(A + B*x))/(d + e*x),x]
```

```
[Out] ((b^10*B*d^10 - A*b^10*d^9*e - 10*a*b^9*B*d^9*e + 10*a*A*b^9*d^8*
e^2 + 45*a^2*b^8*B*d^8*e^2 - 45*a^2*A*b^8*d^7*e^3 - 120*a^3*b^7*B
*d^7*e^3 + 120*a^3*A*b^7*d^6*e^4 + 210*a^4*b^6*B*d^6*e^4 - 210*a^
4*A*b^6*d^5*e^5 - 252*a^5*b^5*B*d^5*e^5 + 252*a^5*A*b^5*d^4*e^6 +
 210*a^6*b^4*B*d^4*e^6 - 210*a^6*A*b^4*d^3*e^7 - 120*a^7*b^3*B*d^
3*e^7 + 120*a^7*A*b^3*d^2*e^8 + 45*a^8*b^2*B*d^2*e^8 - 45*a^8*A*b
^2*d*e^9 - 10*a^9*b*B*d*e^9 + 10*a^9*A*b*e^10 + a^10*B*e^10)*x)/e
^11 + ((-(b^10*B*d^9) + A*b^10*d^8*e + 10*a*b^9*B*d^8*e - 10*a*A*
b^9*d^7*e^2 - 45*a^2*b^8*B*d^7*e^2 + 45*a^2*A*b^8*d^6*e^3 + 120*a
^3*b^7*B*d^6*e^3 - 120*a^3*A*b^7*d^5*e^4 - 210*a^4*b^6*B*d^5*e^4
+ 210*a^4*A*b^6*d^4*e^5 + 252*a^5*b^5*B*d^4*e^5 - 252*a^5*A*b^5*d
^3*e^6 - 210*a^6*b^4*B*d^3*e^6 + 210*a^6*A*b^4*d^2*e^7 + 120*a^7*
b^3*B*d^2*e^7 - 120*a^7*A*b^3*d*e^8 - 45*a^8*b^2*B*d*e^8 + 45*a^8
*A*b^2*e^9 + 10*a^9*b*B*e^9)*x^2)/(2*e^10) + ((b^10*B*d^8 - A*b^1
0*d^7*e - 10*a*b^9*B*d^7*e + 10*a*A*b^9*d^6*e^2 + 45*a^2*b^8*B*d^
6*e^2 - 45*a^2*A*b^8*d^5*e^3 - 120*a^3*b^7*B*d^5*e^3 + 120*a^3*A*
b^7*d^4*e^4 + 210*a^4*b^6*B*d^4*e^4 - 210*a^4*A*b^6*d^3*e^5 - 252
*a^5*b^5*B*d^3*e^5 + 252*a^5*A*b^5*d^2*e^6 + 210*a^6*b^4*B*d^2*e^
6 - 210*a^6*A*b^4*d*e^7 - 120*a^7*b^3*B*d*e^7 + 120*a^7*A*b^3*e^8
 + 45*a^8*b^2*B*e^8)*x^3)/(3*e^9) + ((-(b^10*B*d^7) + A*b^10*d^6*
e + 10*a*b^9*B*d^6*e - 10*a*A*b^9*d^5*e^2 - 45*a^2*b^8*B*d^5*e^2
+ 45*a^2*A*b^8*d^4*e^3 + 120*a^3*b^7*B*d^4*e^3 - 120*a^3*A*b^7*d^
3*e^4 - 210*a^4*b^6*B*d^3*e^4 + 210*a^4*A*b^6*d^2*e^5 + 252*a^5*b
^5*B*d^2*e^5 - 252*a^5*A*b^5*d*e^6 - 210*a^6*b^4*B*d*e^6 + 210*a^
6*A*b^4*e^7 + 120*a^7*b^3*B*e^7)*x^4)/(4*e^8) - (b^4*(-(b^6*B*d^6
) + A*b^6*d^5*e + 10*a*b^5*B*d^5*e - 10*a*A*b^5*d^4*e^2 - 45*a^2*
b^4*B*d^4*e^2 + 45*a^2*A*b^4*d^3*e^3 + 120*a^3*b^3*B*d^3*e^3 - 12
0*a^3*A*b^3*d^2*e^4 - 210*a^4*b^2*B*d^2*e^4 + 210*a^4*A*b^2*d*e^5
 + 252*a^5*b*B*d*e^5 - 252*a^5*A*b*e^6 - 210*a^6*B*e^6)*x^5)/(5*e
^7) + (b^5*(-(b^5*B*d^5) + A*b^5*d^4*e + 10*a*b^4*B*d^4*e - 10*a*
A*b^4*d^3*e^2 - 45*a^2*b^3*B*d^3*e^2 + 45*a^2*A*b^3*d^2*e^3 + 120
*a^3*b^2*B*d^2*e^3 - 120*a^3*A*b^2*d*e^4 - 210*a^4*b*B*d*e^4 + 21
0*a^4*A*b*e^5 + 252*a^5*B*e^5)*x^6)/(6*e^6) - (b^6*(-(b^4*B*d^4)
+ A*b^4*d^3*e + 10*a*b^3*B*d^3*e - 10*a*A*b^3*d^2*e^2 - 45*a^2*b^
2*B*d^2*e^2 + 45*a^2*A*b^2*d*e^3 + 120*a^3*b*B*d*e^3 - 120*a^3*A*
b*e^4 - 210*a^4*B*e^4)*x^7)/(7*e^5) + (b^7*(-(b^3*B*d^3) + A*b^3*
d^2*e + 10*a*b^2*B*d^2*e - 10*a*A*b^2*d*e^2 - 45*a^2*b*B*d*e^2 +
45*a^2*A*b*e^3 + 120*a^3*B*e^3)*x^8)/(8*e^4) - (b^8*(-(b^2*B*d^2)
 + A*b^2*d*e + 10*a*b*B*d*e - 10*a*A*b*e^2 - 45*a^2*B*e^2)*x^9)/(
9*e^3) + (b^9*(-(b*B*d) + A*b*e + 10*a*B*e)*x^10)/(10*e^2) + (b^1
0*B*x^11)/(11*e) + ((-(b^10*B*d^11) + A*b^10*d^10*e + 10*a*b^9*B*
d^10*e - 10*a*A*b^9*d^9*e^2 - 45*a^2*b^8*B*d^9*e^2 + 45*a^2*A*b^8
*d^8*e^3 + 120*a^3*b^7*B*d^8*e^3 - 120*a^3*A*b^7*d^7*e^4 - 210*a^
4*b^6*B*d^7*e^4 + 210*a^4*A*b^6*d^6*e^5 + 252*a^5*b^5*B*d^6*e^5 -
 252*a^5*A*b^5*d^5*e^6 - 210*a^6*b^4*B*d^5*e^6 + 210*a^6*A*b^4*d^
4*e^7 + 120*a^7*b^3*B*d^4*e^7 - 120*a^7*A*b^3*d^3*e^8 - 45*a^8*b^
2*B*d^3*e^8 + 45*a^8*A*b^2*d^2*e^9 + 10*a^9*b*B*d^2*e^9 - 10*a^9*
A*b*d*e^10 - a^10*B*d*e^10 + a^10*A*e^11)*Log[d + e*x])/e^12
```

Maple [B] time = 0.021, size = 2357, normalized size = 6.8

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((b*x+a)^10*(B*x+A)/(e*x+d),x)
```

```
[Out] 1/e*ln(e*x+d)*a^10*A+1/e*B*a^10*x+1/11/e*B*b^10*x^11+1/10/e*A*x^1
0*b^10+126/e^5*B*x^2*a^5*b^5*d^4-105/e^6*B*x^2*a^4*b^6*d^5+60/e^7
*B*x^2*a^3*b^7*d^6+84/e^3*A*x^3*a^5*b^5*d^2-70/e^4*A*x^3*a^4*b^6*
d^3+40/e^5*A*x^3*a^3*b^7*d^4+5/e^9*B*x^2*a*b^9*d^8-45/e^2*A*a^8*b
^2*d*x+120/e^3*A*a^7*b^3*d^2*x-210/e^4*A*a^6*b^4*d^3*x-2/e^6*B*x^
5*a*b^9*d^5-63/e^2*A*x^4*a^5*b^5*d+105/2/e^3*A*x^4*a^4*b^6*d^2-30
/e^4*A*x^4*a^3*b^7*d^3-10/9/e^2*B*x^9*a*b^9*d-5/4/e^2*A*x^8*a*b^9
*d+9/e^5*B*x^5*a^2*b^8*d^4-45/2/e^8*B*x^2*a^2*b^8*d^7+15/e^7*B*x^
3*a^2*b^8*d^6-10/3/e^8*B*x^3*a*b^9*d^7-60/e^2*A*x^2*a^7*b^3*d+30/
e^5*B*x^4*a^3*b^7*d^4-45/4/e^6*B*x^4*a^2*b^8*d^5+5/2/e^7*B*x^4*a*
b^9*d^6-70/e^2*A*x^3*a^6*b^4*d+45/4/e^5*A*x^4*a^2*b^8*d^4-5/2/e^6
*A*x^4*a*b^9*d^5-105/2/e^2*B*x^4*a^6*b^4*d+63/e^3*B*x^4*a^5*b^5*d
^2-105/2/e^4*B*x^4*a^4*b^6*d^3-45/7/e^2*A*x^7*a^2*b^8*d+10/7/e^3*
A*x^7*a*b^9*d^2-120/7/e^2*B*x^7*a^3*b^7*d-5/3/e^4*A*x^6*a*b^9*d^3
-35/e^2*B*x^6*a^4*b^6*d+20/e^3*B*x^6*a^3*b^7*d^2-15/2/e^4*B*x^6*a
^2*b^8*d^3+5/3/e^5*B*x^6*a*b^9*d^4+1/5/e^7*B*x^5*b^10*d^6+1/8/e^3
*A*x^8*b^10*d^2-120/e^8*ln(e*x+d)*A*a^3*b^7*d^7+45/e^9*ln(e*x+d)*
A*a^2*b^8*d^8-10/e^10*ln(e*x+d)*A*a*b^9*d^9+10/e^3*ln(e*x+d)*B*a^
9*b*d^2-15/e^6*A*x^3*a^2*b^8*d^5+10/3/e^7*A*x^3*a*b^9*d^6-40/e^2*
B*x^3*a^7*b^3*d-5/e^8*A*x^2*a*b^9*d^7-45/2/e^2*B*x^2*a^8*b^2*d+60
/e^3*B*x^2*a^7*b^3*d^2-105/e^4*B*x^2*a^6*b^4*d^3+70/e^3*B*x^3*a^6
*b^4*d^2-84/e^4*B*x^3*a^5*b^5*d^3+70/e^5*B*x^3*a^4*b^6*d^4-40/e^6
*B*x^3*a^3*b^7*d^5+252/e^5*A*a^5*b^5*d^4*x-210/e^6*A*a^4*b^6*d^5*
x+120/e^7*A*a^3*b^7*d^6*x-45/e^8*A*a^2*b^8*d^7*x+10/e^9*A*a*b^9*d
^8*x-10/e^2*B*a^9*b*d*x+45/e^3*B*a^8*b^2*d^2*x-120/e^4*B*a^7*b^3*
d^3*x+210/e^5*B*a^6*b^4*d^4*x-252/e^6*B*a^5*b^5*d^5*x+210/e^7*B*a
^4*b^6*d^6*x-120/e^8*B*a^3*b^7*d^7*x+45/e^9*B*a^2*b^8*d^8*x-10/e^
10*B*a*b^9*d^9*x+105/e^3*A*x^2*a^6*b^4*d^2-126/e^4*A*x^2*a^5*b^5*
d^3+105/e^5*A*x^2*a^4*b^6*d^4-60/e^6*A*x^2*a^3*b^7*d^5+45/2/e^7*A
*x^2*a^2*b^8*d^6+45/7/e^3*B*x^7*a^2*b^8*d^2-10/7/e^4*B*x^7*a*b^9*
d^3-20/e^2*A*x^6*a^3*b^7*d+15/2/e^3*A*x^6*a^2*b^8*d^2+5/4/e^3*B*x
^8*a*b^9*d^2-42/e^2*A*x^5*a^4*b^6*d-45/8/e^2*B*x^8*a^2*b^8*d+24/e
^3*A*x^5*a^3*b^7*d^2-9/e^4*A*x^5*a^2*b^8*d^3+2/e^5*A*x^5*a*b^9*d^
4-252/5/e^2*B*x^5*a^5*b^5*d+42/e^3*B*x^5*a^4*b^6*d^2-24/e^4*B*x^5
*a^3*b^7*d^3-45/e^4*ln(e*x+d)*B*a^8*b^2*d^3+120/e^5*ln(e*x+d)*B*a
^7*b^3*d^4-210/e^6*ln(e*x+d)*B*a^6*b^4*d^5+252/e^7*ln(e*x+d)*B*a^
5*b^5*d^6-210/e^8*ln(e*x+d)*B*a^4*b^6*d^7+120/e^9*ln(e*x+d)*B*a^3
*b^7*d^8-45/e^10*ln(e*x+d)*B*a^2*b^8*d^9+10/e^11*ln(e*x+d)*B*a*b^
9*d^10-10/e^2*ln(e*x+d)*A*a^9*b*d+45/e^3*ln(e*x+d)*A*a^8*b^2*d^2-
120/e^4*ln(e*x+d)*A*a^7*b^3*d^3+210/e^5*ln(e*x+d)*A*a^6*b^4*d^4-2
52/e^6*ln(e*x+d)*A*a^5*b^5*d^5+210/e^7*ln(e*x+d)*A*a^4*b^6*d^6+1/
9/e^3*B*x^9*b^10*d^2+45/8/e*A*x^8*a^2*b^8-1/9/e^2*A*x^9*b^10*d+10
/9/e*A*x^9*a*b^9-1/10/e^2*B*x^10*b^10*d+1/e^11*b^10*B*d^10*x-1/4/
e^8*B*x^4*b^10*d^7+30/e*B*x^4*a^7*b^3+5/e*B*x^9*a^2*b^8+5/e*B*x^2
*a^9*b-1/2/e^10*B*x^2*b^10*d^9+10/e*A*a^9*b*x-1/e^10*A*b^10*d^9*x
+1/7/e^5*B*x^7*b^10*d^4+1/e*B*x^10*a*b^9+1/2/e^9*A*x^2*b^10*d^8+4
5/2/e*A*x^2*a^8*b^2+15/e*B*x^3*a^8*b^2+40/e*A*x^3*a^7*b^3-1/3/e^8
*A*x^3*b^10*d^7+1/4/e^7*A*x^4*b^10*d^6-1/6/e^6*B*x^6*b^10*d^5+252
/5/e*A*x^5*a^5*b^5-1/5/e^6*A*x^5*b^10*d^5+42/e*B*x^5*a^6*b^4-1/7/
e^4*A*x^7*b^10*d^3+120/7/e*A*x^7*a^3*b^7-1/8/e^4*B*x^8*b^10*d^3+1
5/e*B*x^8*a^3*b^7+1/6/e^5*A*x^6*b^10*d^4+42/e*B*x^6*a^5*b^5+30/e*
B*x^7*a^4*b^6+105/2/e*A*x^4*a^6*b^4+1/3/e^9*B*x^3*b^10*d^8+35/e*A
*x^6*a^4*b^6+1/e^11*ln(e*x+d)*A*b^10*d^10-1/e^2*ln(e*x+d)*B*a^10*
d-1/e^12*ln(e*x+d)*b^10*B*d^11
```

Maxima [A] time = 1.39255, size = 2435, normalized size = 7.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d),x, algorithm="maxima")
```

```
[Out] 1/27720*(2520*B*b^10*e^10*x^11 - 2772*(B*b^10*d*e^9 - (10*B*a*b^9
 + A*b^10)*e^10)*x^10 + 3080*(B*b^10*d^2*e^8 - (10*B*a*b^9 + A*b^
10)*d*e^9 + 5*(9*B*a^2*b^8 + 2*A*a*b^9)*e^10)*x^9 - 3465*(B*b^10*
d^3*e^7 - (10*B*a*b^9 + A*b^10)*d^2*e^8 + 5*(9*B*a^2*b^8 + 2*A*a*
b^9)*d*e^9 - 15*(8*B*a^3*b^7 + 3*A*a^2*b^8)*e^10)*x^8 + 3960*(B*b
^10*d^4*e^6 - (10*B*a*b^9 + A*b^10)*d^3*e^7 + 5*(9*B*a^2*b^8 + 2*
A*a*b^9)*d^2*e^8 - 15*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d*e^9 + 30*(7*B
*a^4*b^6 + 4*A*a^3*b^7)*e^10)*x^7 - 4620*(B*b^10*d^5*e^5 - (10*B*
a*b^9 + A*b^10)*d^4*e^6 + 5*(9*B*a^2*b^8 + 2*A*a*b^9)*d^3*e^7 - 1
5*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^2*e^8 + 30*(7*B*a^4*b^6 + 4*A*a^3
*b^7)*d*e^9 - 42*(6*B*a^5*b^5 + 5*A*a^4*b^6)*e^10)*x^6 + 5544*(B*
b^10*d^6*e^4 - (10*B*a*b^9 + A*b^10)*d^5*e^5 + 5*(9*B*a^2*b^8 + 2
*A*a*b^9)*d^4*e^6 - 15*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^3*e^7 + 30*(
7*B*a^4*b^6 + 4*A*a^3*b^7)*d^2*e^8 - 42*(6*B*a^5*b^5 + 5*A*a^4*b^
6)*d*e^9 + 42*(5*B*a^6*b^4 + 6*A*a^5*b^5)*e^10)*x^5 - 6930*(B*b^1
0*d^7*e^3 - (10*B*a*b^9 + A*b^10)*d^6*e^4 + 5*(9*B*a^2*b^8 + 2*A*
a*b^9)*d^5*e^5 - 15*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^4*e^6 + 30*(7*B
*a^4*b^6 + 4*A*a^3*b^7)*d^3*e^7 - 42*(6*B*a^5*b^5 + 5*A*a^4*b^6)*
d^2*e^8 + 42*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d*e^9 - 30*(4*B*a^7*b^3
+ 7*A*a^6*b^4)*e^10)*x^4 + 9240*(B*b^10*d^8*e^2 - (10*B*a*b^9 + A
*b^10)*d^7*e^3 + 5*(9*B*a^2*b^8 + 2*A*a*b^9)*d^6*e^4 - 15*(8*B*a^
3*b^7 + 3*A*a^2*b^8)*d^5*e^5 + 30*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^4
*e^6 - 42*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^3*e^7 + 42*(5*B*a^6*b^4 +
 6*A*a^5*b^5)*d^2*e^8 - 30*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d*e^9 + 15
*(3*B*a^8*b^2 + 8*A*a^7*b^3)*e^10)*x^3 - 13860*(B*b^10*d^9*e - (1
0*B*a*b^9 + A*b^10)*d^8*e^2 + 5*(9*B*a^2*b^8 + 2*A*a*b^9)*d^7*e^3
 - 15*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^6*e^4 + 30*(7*B*a^4*b^6 + 4*A
*a^3*b^7)*d^5*e^5 - 42*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^4*e^6 + 42*(
5*B*a^6*b^4 + 6*A*a^5*b^5)*d^3*e^7 - 30*(4*B*a^7*b^3 + 7*A*a^6*b^
4)*d^2*e^8 + 15*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d*e^9 - 5*(2*B*a^9*b
+ 9*A*a^8*b^2)*e^10)*x^2 + 27720*(B*b^10*d^10 - (10*B*a*b^9 + A*b
^10)*d^9*e + 5*(9*B*a^2*b^8 + 2*A*a*b^9)*d^8*e^2 - 15*(8*B*a^3*b^
7 + 3*A*a^2*b^8)*d^7*e^3 + 30*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^6*e^4
 - 42*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^5*e^5 + 42*(5*B*a^6*b^4 + 6*A
*a^5*b^5)*d^4*e^6 - 30*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^3*e^7 + 15*(
3*B*a^8*b^2 + 8*A*a^7*b^3)*d^2*e^8 - 5*(2*B*a^9*b + 9*A*a^8*b^2)*
d*e^9 + (B*a^10 + 10*A*a^9*b)*e^10)*x)/e^11 - (B*b^10*d^11 - A*a^
10*e^11 - (10*B*a*b^9 + A*b^10)*d^10*e + 5*(9*B*a^2*b^8 + 2*A*a*b
^9)*d^9*e^2 - 15*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^8*e^3 + 30*(7*B*a^
4*b^6 + 4*A*a^3*b^7)*d^7*e^4 - 42*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^6
*e^5 + 42*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^5*e^6 - 30*(4*B*a^7*b^3 +
 7*A*a^6*b^4)*d^4*e^7 + 15*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^3*e^8 -
5*(2*B*a^9*b + 9*A*a^8*b^2)*d^2*e^9 + (B*a^10 + 10*A*a^9*b)*d*e^1
0)*log(e*x + d)/e^12
```

Fricas [A] time = 0.215134, size = 2437, normalized size = 7.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d),x, algorithm="fricas")
```

```
[Out] 1/27720*(2520*B*b^10*e^11*x^11 - 2772*(B*b^10*d*e^10 - (10*B*a*b^
9 + A*b^10)*e^11)*x^10 + 3080*(B*b^10*d^2*e^9 - (10*B*a*b^9 + A*b
^10)*d*e^10 + 5*(9*B*a^2*b^8 + 2*A*a*b^9)*e^11)*x^9 - 3465*(B*b^1
0*d^3*e^8 - (10*B*a*b^9 + A*b^10)*d^2*e^9 + 5*(9*B*a^2*b^8 + 2*A*
a*b^9)*d*e^10 - 15*(8*B*a^3*b^7 + 3*A*a^2*b^8)*e^11)*x^8 + 3960*(
B*b^10*d^4*e^7 - (10*B*a*b^9 + A*b^10)*d^3*e^8 + 5*(9*B*a^2*b^8 +
 2*A*a*b^9)*d^2*e^9 - 15*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d*e^10 + 30*
(7*B*a^4*b^6 + 4*A*a^3*b^7)*e^11)*x^7 - 4620*(B*b^10*d^5*e^6 - (1
0*B*a*b^9 + A*b^10)*d^4*e^7 + 5*(9*B*a^2*b^8 + 2*A*a*b^9)*d^3*e^8
 - 15*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^2*e^9 + 30*(7*B*a^4*b^6 + 4*A
*a^3*b^7)*d*e^10 - 42*(6*B*a^5*b^5 + 5*A*a^4*b^6)*e^11)*x^6 + 554
4*(B*b^10*d^6*e^5 - (10*B*a*b^9 + A*b^10)*d^5*e^6 + 5*(9*B*a^2*b^
8 + 2*A*a*b^9)*d^4*e^7 - 15*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^3*e^8 +
 30*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^2*e^9 - 42*(6*B*a^5*b^5 + 5*A*a
```

```
^4*b^6)*d*e^10 + 42*(5*B*a^6*b^4 + 6*A*a^5*b^5)*e^11)*x^5 - 6930*
(B*b^10*d^7*e^4 - (10*B*a*b^9 + A*b^10)*d^6*e^5 + 5*(9*B*a^2*b^8
+ 2*A*a*b^9)*d^5*e^6 - 15*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^4*e^7 + 3
0*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^3*e^8 - 42*(6*B*a^5*b^5 + 5*A*a^4
*b^6)*d^2*e^9 + 42*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d*e^10 - 30*(4*B*a
^7*b^3 + 7*A*a^6*b^4)*e^11)*x^4 + 9240*(B*b^10*d^8*e^3 - (10*B*a*
b^9 + A*b^10)*d^7*e^4 + 5*(9*B*a^2*b^8 + 2*A*a*b^9)*d^6*e^5 - 15*
(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^5*e^6 + 30*(7*B*a^4*b^6 + 4*A*a^3*b
^7)*d^4*e^7 - 42*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^3*e^8 + 42*(5*B*a^
6*b^4 + 6*A*a^5*b^5)*d^2*e^9 - 30*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d*e
^10 + 15*(3*B*a^8*b^2 + 8*A*a^7*b^3)*e^11)*x^3 - 13860*(B*b^10*d^
9*e^2 - (10*B*a*b^9 + A*b^10)*d^8*e^3 + 5*(9*B*a^2*b^8 + 2*A*a*b^
9)*d^7*e^4 - 15*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^6*e^5 + 30*(7*B*a^4
*b^6 + 4*A*a^3*b^7)*d^5*e^6 - 42*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^4*
e^7 + 42*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^3*e^8 - 30*(4*B*a^7*b^3 +
7*A*a^6*b^4)*d^2*e^9 + 15*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d*e^10 - 5*
(2*B*a^9*b + 9*A*a^8*b^2)*e^11)*x^2 + 27720*(B*b^10*d^10*e - (10*
B*a*b^9 + A*b^10)*d^9*e^2 + 5*(9*B*a^2*b^8 + 2*A*a*b^9)*d^8*e^3 -
 15*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^7*e^4 + 30*(7*B*a^4*b^6 + 4*A*a
^3*b^7)*d^6*e^5 - 42*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^5*e^6 + 42*(5*
B*a^6*b^4 + 6*A*a^5*b^5)*d^4*e^7 - 30*(4*B*a^7*b^3 + 7*A*a^6*b^4)
*d^3*e^8 + 15*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^2*e^9 - 5*(2*B*a^9*b
+ 9*A*a^8*b^2)*d*e^10 + (B*a^10 + 10*A*a^9*b)*e^11)*x - 27720*(B*
b^10*d^11 - A*a^10*e^11 - (10*B*a*b^9 + A*b^10)*d^10*e + 5*(9*B*a
^2*b^8 + 2*A*a*b^9)*d^9*e^2 - 15*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^8*
e^3 + 30*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^7*e^4 - 42*(6*B*a^5*b^5 +
5*A*a^4*b^6)*d^6*e^5 + 42*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^5*e^6 - 3
0*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^4*e^7 + 15*(3*B*a^8*b^2 + 8*A*a^7
*b^3)*d^3*e^8 - 5*(2*B*a^9*b + 9*A*a^8*b^2)*d^2*e^9 + (B*a^10 + 1
0*A*a^9*b)*d*e^10)*log(e*x + d))/e^12
```

Sympy [A] time = 18.0486, size = 1844, normalized size = 5.3

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)/(e*x+d),x)
```

```
[Out] B*b**10*x**11/(11*e) + x**10*(A*b**10*e + 10*B*a*b**9*e - B*b**10
*d)/(10*e**2) + x**9*(10*A*a*b**9*e**2 - A*b**10*d*e + 45*B*a**2*
b**8*e**2 - 10*B*a*b**9*d*e + B*b**10*d**2)/(9*e**3) + x**8*(45*A
*a**2*b**8*e**3 - 10*A*a*b**9*d*e**2 + A*b**10*d**2*e + 120*B*a**
3*b**7*e**3 - 45*B*a**2*b**8*d*e**2 + 10*B*a*b**9*d**2*e - B*b**1
0*d**3)/(8*e**4) + x**7*(120*A*a**3*b**7*e**4 - 45*A*a**2*b**8*d*
e**3 + 10*A*a*b**9*d**2*e**2 - A*b**10*d**3*e + 210*B*a**4*b**6*e
**4 - 120*B*a**3*b**7*d*e**3 + 45*B*a**2*b**8*d**2*e**2 - 10*B*a*
b**9*d**3*e + B*b**10*d**4)/(7*e**5) + x**6*(210*A*a**4*b**6*e**5
 - 120*A*a**3*b**7*d*e**4 + 45*A*a**2*b**8*d**2*e**3 - 10*A*a*b**
9*d**3*e**2 + A*b**10*d**4*e + 252*B*a**5*b**5*e**5 - 210*B*a**4*
b**6*d*e**4 + 120*B*a**3*b**7*d**2*e**3 - 45*B*a**2*b**8*d**3*e**
2 + 10*B*a*b**9*d**4*e - B*b**10*d**5)/(6*e**6) + x**5*(252*A*a**
5*b**5*e**6 - 210*A*a**4*b**6*d*e**5 + 120*A*a**3*b**7*d**2*e**4
- 45*A*a**2*b**8*d**3*e**3 + 10*A*a*b**9*d**4*e**2 - A*b**10*d**5
*e + 210*B*a**6*b**4*e**6 - 252*B*a**5*b**5*d*e**5 + 210*B*a**4*b
**6*d**2*e**4 - 120*B*a**3*b**7*d**3*e**3 + 45*B*a**2*b**8*d**4*e
**2 - 10*B*a*b**9*d**5*e + B*b**10*d**6)/(5*e**7) + x**4*(210*A*a
**6*b**4*e**7 - 252*A*a**5*b**5*d*e**6 + 210*A*a**4*b**6*d**2*e**
5 - 120*A*a**3*b**7*d**3*e**4 + 45*A*a**2*b**8*d**4*e**3 - 10*A*a
*b**9*d**5*e**2 + A*b**10*d**6*e + 120*B*a**7*b**3*e**7 - 210*B*a
**6*b**4*d*e**6 + 252*B*a**5*b**5*d**2*e**5 - 210*B*a**4*b**6*d**
3*e**4 + 120*B*a**3*b**7*d**4*e**3 - 45*B*a**2*b**8*d**5*e**2 + 1
0*B*a*b**9*d**6*e - B*b**10*d**7)/(4*e**8) + x**3*(120*A*a**7*b**
3*e**8 - 210*A*a**6*b**4*d*e**7 + 252*A*a**5*b**5*d**2*e**6 - 210
*A*a**4*b**6*d**3*e**5 + 120*A*a**3*b**7*d**4*e**4 - 45*A*a**2*b*
*8*d**5*e**3 + 10*A*a*b**9*d**6*e**2 - A*b**10*d**7*e + 45*B*a**8
*b**2*e**8 - 120*B*a**7*b**3*d*e**7 + 210*B*a**6*b**4*d**2*e**6 -
 252*B*a**5*b**5*d**3*e**5 + 210*B*a**4*b**6*d**4*e**4 - 120*B*a*
*3*b**7*d**5*e**3 + 45*B*a**2*b**8*d**6*e**2 - 10*B*a*b**9*d**7*e
 + B*b**10*d**8)/(3*e**9) + x**2*(45*A*a**8*b**2*e**9 - 120*A*a**
```

```
7*b**3*d*e**8 + 210*A*a**6*b**4*d**2*e**7 - 252*A*a**5*b**5*d**3*
e**6 + 210*A*a**4*b**6*d**4*e**5 - 120*A*a**3*b**7*d**5*e**4 + 45
*A*a**2*b**8*d**6*e**3 - 10*A*a*b**9*d**7*e**2 + A*b**10*d**8*e +
 10*B*a**9*b*e**9 - 45*B*a**8*b**2*d*e**8 + 120*B*a**7*b**3*d**2*
e**7 - 210*B*a**6*b**4*d**3*e**6 + 252*B*a**5*b**5*d**4*e**5 - 21
0*B*a**4*b**6*d**5*e**4 + 120*B*a**3*b**7*d**6*e**3 - 45*B*a**2*b
**8*d**7*e**2 + 10*B*a*b**9*d**8*e - B*b**10*d**9)/(2*e**10) + x*
(10*A*a**9*b*e**10 - 45*A*a**8*b**2*d*e**9 + 120*A*a**7*b**3*d**2
*e**8 - 210*A*a**6*b**4*d**3*e**7 + 252*A*a**5*b**5*d**4*e**6 - 2
10*A*a**4*b**6*d**5*e**5 + 120*A*a**3*b**7*d**6*e**4 - 45*A*a**2*
b**8*d**7*e**3 + 10*A*a*b**9*d**8*e**2 - A*b**10*d**9*e + B*a**10
*e**10 - 10*B*a**9*b*d*e**9 + 45*B*a**8*b**2*d**2*e**8 - 120*B*a*
*7*b**3*d**3*e**7 + 210*B*a**6*b**4*d**4*e**6 - 252*B*a**5*b**5*d
**5*e**5 + 210*B*a**4*b**6*d**6*e**4 - 120*B*a**3*b**7*d**7*e**3
+ 45*B*a**2*b**8*d**8*e**2 - 10*B*a*b**9*d**9*e + B*b**10*d**10)/
e**11 - (-A*e + B*d)*(a*e - b*d)**10*log(d + e*x)/e**12
```

GIAC/XCAS [A] time = 0.212216, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d),x, algorithm="giac")
```

```
[Out] Done
```

3.1073 $\int \frac{(a+bx)^{10}(A+Bx)}{(d+ex)^2}\,dx$

Optimal. Leaf size=445

$$-\frac{b^9(d+ex)^9(-10aBe-Abe+11bBd)}{9e^{12}}+\frac{5b^8(d+ex)^8(bd-ae)(-9aBe-2Abe+11bBd)}{8e^{12}}-\frac{15b^7(d+ex)^7(bd-ae)^2(-8aBe-3Abe+11bBd)}{7e^{12}}+\frac{5b^6(d+ex)^6(bd-ae)^3(-7aBe-4Abe+11bBd)}{e^{12}}-\frac{42b^5(d+ex)^5(bd-ae)^4(-6aBe-5Abe+11bBd)}{5e^{12}}+\frac{21b^4(d+ex)^4(bd-ae)^5(-5aBe-6Abe+11bBd)}{2e^{12}}-\frac{10b^3(d+ex)^3(bd-ae)^6(-4aBe-7Abe+11bBd)}{e^{12}}+\frac{15b^2(d+ex)^2(bd-ae)^7(-3aBe-8Abe+11bBd)}{2e^{12}}+\frac{(bd-ae)^{10}(Bd-Ae)}{e^{12}(d+ex)}+\frac{(bd-ae)^9\log(d+ex)(-aBe-10Abe+11bBd)}{e^{12}}-\frac{5bx(bd-ae)^8(-2aBe-9Abe+11bBd)}{e^{11}}+\frac{b^{10}B(d+ex)^{10}}{10e^{12}}$$

```
[Out] (-5*b*(b*d - a*e)^8*(11*b*B*d - 9*A*b*e - 2*a*B*e)*x)/e^11 + ((b*
d - a*e)^10*(B*d - A*e))/(e^12*(d + e*x)) + (15*b^2*(b*d - a*e)^7
*(11*b*B*d - 8*A*b*e - 3*a*B*e)*(d + e*x)^2)/(2*e^12) - (10*b^3*(
b*d - a*e)^6*(11*b*B*d - 7*A*b*e - 4*a*B*e)*(d + e*x)^3)/e^12 + (
21*b^4*(b*d - a*e)^5*(11*b*B*d - 6*A*b*e - 5*a*B*e)*(d + e*x)^4)/
(2*e^12) - (42*b^5*(b*d - a*e)^4*(11*b*B*d - 5*A*b*e - 6*a*B*e)*(
d + e*x)^5)/(5*e^12) + (5*b^6*(b*d - a*e)^3*(11*b*B*d - 4*A*b*e -
 7*a*B*e)*(d + e*x)^6)/e^12 - (15*b^7*(b*d - a*e)^2*(11*b*B*d - 3
*A*b*e - 8*a*B*e)*(d + e*x)^7)/(7*e^12) + (5*b^8*(b*d - a*e)*(11*
b*B*d - 2*A*b*e - 9*a*B*e)*(d + e*x)^8)/(8*e^12) - (b^9*(11*b*B*d
 - A*b*e - 10*a*B*e)*(d + e*x)^9)/(9*e^12) + (b^10*B*(d + e*x)^10
)/(10*e^12) + ((b*d - a*e)^9*(11*b*B*d - 10*A*b*e - a*B*e)*Log[d
+ e*x])/e^12
```

Rubi [A] time = 6.50756, antiderivative size = 445, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{b^9(d+ex)^9(-10aBe-Abe+11bBd)}{9e^{12}}+\frac{5b^8(d+ex)^8(bd-ae)(-9aBe-2Abe+11bBd)}{8e^{12}}-\frac{15b^7(d+ex)^7(bd-ae)^2(-8aBe-3Abe+11bBd)}{7e^{12}}+\frac{5b^6(d+ex)^6(bd-ae)^3(-7aBe-4Abe+11bBd)}{e^{12}}-\frac{42b^5(d+ex)^5(bd-ae)^4(-6aBe-5Abe+11bBd)}{5e^{12}}+\frac{21b^4(d+ex)^4(bd-ae)^5(-5aBe-6Abe+11bBd)}{2e^{12}}-\frac{10b^3(d+ex)^3(bd-ae)^6(-4aBe-7Abe+11bBd)}{e^{12}}+\frac{15b^2(d+ex)^2(bd-ae)^7(-3aBe-8Abe+11bBd)}{2e^{12}}+\frac{(bd-ae)^{10}(Bd-Ae)}{e^{12}(d+ex)}+\frac{(bd-ae)^9\log(d+ex)(-aBe-10Abe+11bBd)}{e^{12}}-\frac{5bx(bd-ae)^8(-2aBe-9Abe+11bBd)}{e^{11}}+\frac{b^{10}B(d+ex)^{10}}{10e^{12}}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^10*(A + B*x))/(d + e*x)^2,x]
```

```
[Out] (-5*b*(b*d - a*e)^8*(11*b*B*d - 9*A*b*e - 2*a*B*e)*x)/e^11 + ((b*
d - a*e)^10*(B*d - A*e))/(e^12*(d + e*x)) + (15*b^2*(b*d - a*e)^7
*(11*b*B*d - 8*A*b*e - 3*a*B*e)*(d + e*x)^2)/(2*e^12) - (10*b^3*(
b*d - a*e)^6*(11*b*B*d - 7*A*b*e - 4*a*B*e)*(d + e*x)^3)/e^12 + (
21*b^4*(b*d - a*e)^5*(11*b*B*d - 6*A*b*e - 5*a*B*e)*(d + e*x)^4)/
(2*e^12) - (42*b^5*(b*d - a*e)^4*(11*b*B*d - 5*A*b*e - 6*a*B*e)*(
d + e*x)^5)/(5*e^12) + (5*b^6*(b*d - a*e)^3*(11*b*B*d - 4*A*b*e -
 7*a*B*e)*(d + e*x)^6)/e^12 - (15*b^7*(b*d - a*e)^2*(11*b*B*d - 3
*A*b*e - 8*a*B*e)*(d + e*x)^7)/(7*e^12) + (5*b^8*(b*d - a*e)*(11*
b*B*d - 2*A*b*e - 9*a*B*e)*(d + e*x)^8)/(8*e^12) - (b^9*(11*b*B*d
 - A*b*e - 10*a*B*e)*(d + e*x)^9)/(9*e^12) + (b^10*B*(d + e*x)^10
)/(10*e^12) + ((b*d - a*e)^9*(11*b*B*d - 10*A*b*e - a*B*e)*Log[d
+ e*x])/e^12
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)/(e*x+d)**2,x)
```

```
[Out] Timed out
```

Mathematica [B] time = 1.56113, size = 1486, normalized size = 3.34

$$\frac{(10Ae\left(-252d^{10}+2268exd^9+1260e^2x^2d^8-420e^3x^3d^7+210e^4x^4d^6-126e^5x^5d^5+84e^6x^6d^4-60e^7x^7d^3+45e^8x^8d^2-35e^{}\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^10*(A + B*x))/(d + e*x)^2,x]
```

```
[Out] (-2520*a^10*e^10*(-(B*d) + A*e) + 25200*a^9*b*e^9*(A*d*e + B*(-d^
2 + d*e*x + e^2*x^2)) + 56700*a^8*b^2*e^8*(2*A*e*(-d^2 + d*e*x +
e^2*x^2) + B*(2*d^3 - 4*d^2*e*x - 3*d*e^2*x^2 + e^3*x^3)) + 50400
*a^7*b^3*e^7*(3*A*e*(2*d^3 - 4*d^2*e*x - 3*d*e^2*x^2 + e^3*x^3) +
 2*B*(-3*d^4 + 9*d^3*e*x + 6*d^2*e^2*x^2 - 2*d*e^3*x^3 + e^4*x^4)
) + 44100*a^6*b^4*e^6*(4*A*e*(-3*d^4 + 9*d^3*e*x + 6*d^2*e^2*x^2
- 2*d*e^3*x^3 + e^4*x^4) + B*(12*d^5 - 48*d^4*e*x - 30*d^3*e^2*x^
2 + 10*d^2*e^3*x^3 - 5*d*e^4*x^4 + 3*e^5*x^5)) + 10584*a^5*b^5*e^
5*(5*A*e*(12*d^5 - 48*d^4*e*x - 30*d^3*e^2*x^2 + 10*d^2*e^3*x^3 -
 5*d*e^4*x^4 + 3*e^5*x^5) - 6*B*(10*d^6 - 50*d^5*e*x - 30*d^4*e^2
*x^2 + 10*d^3*e^3*x^3 - 5*d^2*e^4*x^4 + 3*d*e^5*x^5 - 2*e^6*x^6))
 + 8820*a^4*b^6*e^4*(6*A*e*(-10*d^6 + 50*d^5*e*x + 30*d^4*e^2*x^2
 - 10*d^3*e^3*x^3 + 5*d^2*e^4*x^4 - 3*d*e^5*x^5 + 2*e^6*x^6) + B*
(60*d^7 - 360*d^6*e*x - 210*d^5*e^2*x^2 + 70*d^4*e^3*x^3 - 35*d^3
*e^4*x^4 + 21*d^2*e^5*x^5 - 14*d*e^6*x^6 + 10*e^7*x^7)) + 720*a^3
*b^7*e^3*(7*A*e*(60*d^7 - 360*d^6*e*x - 210*d^5*e^2*x^2 + 70*d^4*
e^3*x^3 - 35*d^3*e^4*x^4 + 21*d^2*e^5*x^5 - 14*d*e^6*x^6 + 10*e^7
*x^7) - 4*B*(105*d^8 - 735*d^7*e*x - 420*d^6*e^2*x^2 + 140*d^5*e^
3*x^3 - 70*d^4*e^4*x^4 + 42*d^3*e^5*x^5 - 28*d^2*e^6*x^6 + 20*d*e
^7*x^7 - 15*e^8*x^8)) + 135*a^2*b^8*e^2*(8*A*e*(-105*d^8 + 735*d^
7*e*x + 420*d^6*e^2*x^2 - 140*d^5*e^3*x^3 + 70*d^4*e^4*x^4 - 42*d
^3*e^5*x^5 + 28*d^2*e^6*x^6 - 20*d*e^7*x^7 + 15*e^8*x^8) + 3*B*(2
80*d^9 - 2240*d^8*e*x - 1260*d^7*e^2*x^2 + 420*d^6*e^3*x^3 - 210*
d^5*e^4*x^4 + 126*d^4*e^5*x^5 - 84*d^3*e^6*x^6 + 60*d^2*e^7*x^7 -
 45*d*e^8*x^8 + 35*e^9*x^9)) + 10*a*b^9*e*(9*A*e*(280*d^9 - 2240*
d^8*e*x - 1260*d^7*e^2*x^2 + 420*d^6*e^3*x^3 - 210*d^5*e^4*x^4 +
126*d^4*e^5*x^5 - 84*d^3*e^6*x^6 + 60*d^2*e^7*x^7 - 45*d*e^8*x^8
+ 35*e^9*x^9) - 10*B*(252*d^10 - 2268*d^9*e*x - 1260*d^8*e^2*x^2
+ 420*d^7*e^3*x^3 - 210*d^6*e^4*x^4 + 126*d^5*e^5*x^5 - 84*d^4*e^
6*x^6 + 60*d^3*e^7*x^7 - 45*d^2*e^8*x^8 + 35*d*e^9*x^9 - 28*e^10*
x^10)) + b^10*(10*A*e*(-252*d^10 + 2268*d^9*e*x + 1260*d^8*e^2*x^
2 - 420*d^7*e^3*x^3 + 210*d^6*e^4*x^4 - 126*d^5*e^5*x^5 + 84*d^4*
```

```
e^6*x^6 - 60*d^3*e^7*x^7 + 45*d^2*e^8*x^8 - 35*d*e^9*x^9 + 28*e^1
0*x^10) + B*(2520*d^11 - 25200*d^10*e*x - 13860*d^9*e^2*x^2 + 462
0*d^8*e^3*x^3 - 2310*d^7*e^4*x^4 + 1386*d^6*e^5*x^5 - 924*d^5*e^6
*x^6 + 660*d^4*e^7*x^7 - 495*d^3*e^8*x^8 + 385*d^2*e^9*x^9 - 308*
d*e^10*x^10 + 252*e^11*x^11)) + 2520*(b*d - a*e)^9*(11*b*B*d - 10
*A*b*e - a*B*e)*(d + e*x)*Log[d + e*x])/(2520*e^12*(d + e*x))
```

Maple [B] time = 0.033, size = 2447, normalized size = 5.5

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^10*(B*x+A)/(e*x+d)^2,x)
```

```
[Out] 45*b^2/e^2*A*a^8*x+9*b^10/e^10*A*d^8*x+10/e^2*ln(e*x+d)*A*a^9*b+1
/10*b^10/e^2*B*x^10+1/9*b^10/e^2*A*x^9+1/e^2*ln(e*x+d)*B*a^10-1/e
/(e*x+d)*a^10*A-3/2*b^10/e^7*A*x^4*d^5+105/2*b^4/e^2*B*x^4*a^6+7/
4*b^10/e^8*B*x^4*d^6+70*b^4/e^2*A*x^3*a^6+7/3*b^10/e^8*A*x^3*d^6+
40*b^3/e^2*B*x^3*a^7-8/3*b^10/e^9*B*x^3*d^7+60*b^3/e^2*A*x^2*a^7-
4*b^10/e^9*A*x^2*d^7+45/2*b^2/e^2*B*x^2*a^8+9/2*b^10/e^10*B*x^2*d
^8-10/e^11*ln(e*x+d)*A*b^10*d^9+11/e^12*ln(e*x+d)*b^10*B*d^10-1/e
^11/(e*x+d)*A*b^10*d^10+1/e^2/(e*x+d)*B*d*a^10+1/e^12/(e*x+d)*b^1
0*B*d^11+10*b/e^2*B*a^9*x-10*b^10/e^11*B*d^9*x+45/7*b^8/e^2*A*x^7
*a^2+3/7*b^10/e^4*A*x^7*d^2+120/7*b^7/e^2*B*x^7*a^3-4/7*b^10/e^5*
B*x^7*d^3+20*b^7/e^2*A*x^6*a^3-2/3*b^10/e^5*A*x^6*d^3+35*b^6/e^2*
B*x^6*a^4+5/6*b^10/e^6*B*x^6*d^4+42*b^6/e^2*A*x^5*a^4+252/5*b^5/e
^2*B*x^5*a^5+10/9*b^9/e^2*B*x^9*a-6/5*b^10/e^7*B*x^5*d^5+63*b^5/e
^2*A*x^4*a^5-135*b^8/e^7*A*x^2*a^2*d^5+35*b^9/e^8*A*x^2*a*d^6+25/
2*b^9/e^6*A*x^4*a*d^4-126*b^5/e^3*B*x^4*a^5*d+315/2*b^6/e^4*B*x^4
*a^4*d^2-120*b^7/e^5*B*x^4*a^3*d^3+225/4*b^8/e^6*B*x^4*a^2*d^4-15
*b^9/e^7*B*x^4*a*d^5-168*b^5/e^3*A*x^3*a^5*d+210*b^6/e^4*A*x^3*a^
4*d^2-160*b^7/e^5*A*x^3*a^3*d^3+5*b^9/e^4*A*x^6*a*d^2-40*b^7/e^3*
B*x^6*a^3*d+45/2*b^8/e^4*B*x^6*a^2*d^2-20/3*b^9/e^5*B*x^6*a*d^3-4
8*b^7/e^3*A*x^5*a^3*d+27*b^8/e^4*A*x^5*a^2*d^2-8*b^9/e^5*A*x^5*a*
d^3-84*b^6/e^3*B*x^5*a^4*d+72*b^7/e^4*B*x^5*a^3*d^2-36*b^8/e^5*B*
x^5*a^2*d^3+10*b^9/e^6*B*x^5*a*d^4-105*b^6/e^3*A*x^4*a^4*d+90*b^7
/e^4*A*x^4*a^3*d^2-45*b^8/e^5*A*x^4*a^2*d^3-90/7*b^8/e^3*B*x^7*a^
2*d+30/7*b^9/e^4*B*x^7*a*d^2-15*b^8/e^3*A*x^6*a^2*d-5/2*b^9/e^3*B
*x^8*a*d-20/7*b^9/e^3*A*x^7*a*d+315*b^8/e^8*A*a^2*d^6*x+75*b^8/e^
6*A*x^3*a^2*d^4-20*b^9/e^7*A*x^3*a*d^5-140*b^4/e^3*B*x^3*a^6*d+25
2*b^5/e^4*B*x^3*a^5*d^2-280*b^6/e^5*B*x^3*a^4*d^3+200*b^7/e^6*B*x
^3*a^3*d^4-90*b^8/e^7*B*x^3*a^2*d^5-90/e^3*ln(e*x+d)*A*a^8*b^2*d+
360/e^4*ln(e*x+d)*A*a^7*b^3*d^2-840/e^5*ln(e*x+d)*A*a^6*b^4*d^3+1
260/e^6*ln(e*x+d)*A*a^5*b^5*d^4-1260/e^7*ln(e*x+d)*A*a^4*b^6*d^5+
840/e^8*ln(e*x+d)*A*a^3*b^7*d^6-360/e^9*ln(e*x+d)*A*a^2*b^8*d^7+9
0/e^10*ln(e*x+d)*A*a*b^9*d^8-20/e^3*ln(e*x+d)*B*a^9*b*d+135/e^4*l
n(e*x+d)*B*a^8*b^2*d^2-480/e^5*ln(e*x+d)*B*a^7*b^3*d^3+1050/e^6*l
n(e*x+d)*B*a^6*b^4*d^4-1512/e^7*ln(e*x+d)*B*a^5*b^5*d^5+1470/e^8*
ln(e*x+d)*B*a^4*b^6*d^6-960/e^9*ln(e*x+d)*B*a^3*b^7*d^7+405/e^10*
ln(e*x+d)*B*a^2*b^8*d^8-100/e^11*ln(e*x+d)*B*a*b^9*d^9+10/e^2/(e*
x+d)*A*d*a^9*b-45/e^3/(e*x+d)*A*a^8*b^2*d^2+120/e^4/(e*x+d)*A*a^7
*b^3*d^3-210/e^5/(e*x+d)*A*a^6*b^4*d^4+252/e^6/(e*x+d)*A*a^5*b^5*
d^5-210/e^7/(e*x+d)*A*a^4*b^6*d^6+120/e^8/(e*x+d)*A*a^3*b^7*d^7-4
5/e^9/(e*x+d)*A*a^2*b^8*d^8+10/e^10/(e*x+d)*A*a*b^9*d^9+70/3*b^9/
e^8*B*x^3*a*d^6-210*b^4/e^3*A*x^2*a^6*d+378*b^5/e^4*A*x^2*a^5*d^2
-420*b^6/e^5*A*x^2*a^4*d^3+300*b^7/e^6*A*x^2*a^3*d^4-10/e^3/(e*x+
d)*B*a^9*b*d^2+45/e^4/(e*x+d)*B*a^8*b^2*d^3-120/e^5/(e*x+d)*B*a^7
*b^3*d^4+210/e^6/(e*x+d)*B*a^6*b^4*d^5-252/e^7/(e*x+d)*B*a^5*b^5*
d^6+210/e^8/(e*x+d)*B*a^4*b^6*d^7-120/e^9/(e*x+d)*B*a^3*b^7*d^8+4
5/e^10/(e*x+d)*B*a^2*b^8*d^9-10/e^11/(e*x+d)*B*a*b^9*d^10+1260*b^
5/e^6*B*a^5*d^4*x-1260*b^6/e^7*B*a^4*d^5*x+840*b^7/e^8*B*a^3*d^6*
x-360*b^8/e^9*B*a^2*d^7*x+90*b^9/e^10*B*a*d^8*x-80*b^9/e^9*A*a*d^
7*x-90*b^2/e^3*B*a^8*d*x+360*b^3/e^4*B*a^7*d^2*x-840*b^4/e^5*B*a^
6*d^3*x-120*b^3/e^3*B*x^2*a^7*d+315*b^4/e^4*B*x^2*a^6*d^2-504*b^5
/e^5*B*x^2*a^5*d^3+525*b^6/e^6*B*x^2*a^4*d^4-360*b^7/e^7*B*x^2*a^
3*d^5+315/2*b^8/e^8*B*x^2*a^2*d^6-40*b^9/e^9*B*x^2*a*d^7-240*b^3/
e^3*A*a^7*d*x+630*b^4/e^4*A*a^6*d^2*x-1008*b^5/e^5*A*a^5*d^3*x+10
50*b^6/e^6*A*a^4*d^4*x-720*b^7/e^7*A*a^3*d^5*x-2/9*b^10/e^3*B*x^9
*d+5/4*b^9/e^2*A*x^8*a-1/4*b^10/e^3*A*x^8*d+45/8*b^8/e^2*B*x^8*a^
```

```
2+3/8*b^10/e^4*B*x^8*d^2+b^10/e^6*A*x^5*d^4
```

Maxima [A] time = 1.39465, size = 2453, normalized size = 5.51

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^10/(e*x + d)^2,x, algorithm="maxima")
```

```
[Out] (B*b^10*d^11 - A*a^10*e^11 - (10*B*a*b^9 + A*b^10)*d^10*e + 5*(9*
B*a^2*b^8 + 2*A*a*b^9)*d^9*e^2 - 15*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d
^8*e^3 + 30*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^7*e^4 - 42*(6*B*a^5*b^5
 + 5*A*a^4*b^6)*d^6*e^5 + 42*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^5*e^6
- 30*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^4*e^7 + 15*(3*B*a^8*b^2 + 8*A*
a^7*b^3)*d^3*e^8 - 5*(2*B*a^9*b + 9*A*a^8*b^2)*d^2*e^9 + (B*a^10
+ 10*A*a^9*b)*d*e^10)/(e^13*x + d*e^12) + 1/2520*(252*B*b^10*e^9*
x^10 - 280*(2*B*b^10*d*e^8 - (10*B*a*b^9 + A*b^10)*e^9)*x^9 + 315
*(3*B*b^10*d^2*e^7 - 2*(10*B*a*b^9 + A*b^10)*d*e^8 + 5*(9*B*a^2*b
^8 + 2*A*a*b^9)*e^9)*x^8 - 360*(4*B*b^10*d^3*e^6 - 3*(10*B*a*b^9
+ A*b^10)*d^2*e^7 + 10*(9*B*a^2*b^8 + 2*A*a*b^9)*d*e^8 - 15*(8*B*
a^3*b^7 + 3*A*a^2*b^8)*e^9)*x^7 + 420*(5*B*b^10*d^4*e^5 - 4*(10*B
*a*b^9 + A*b^10)*d^3*e^6 + 15*(9*B*a^2*b^8 + 2*A*a*b^9)*d^2*e^7 -
 30*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d*e^8 + 30*(7*B*a^4*b^6 + 4*A*a^3
*b^7)*e^9)*x^6 - 504*(6*B*b^10*d^5*e^4 - 5*(10*B*a*b^9 + A*b^10)*
d^4*e^5 + 20*(9*B*a^2*b^8 + 2*A*a*b^9)*d^3*e^6 - 45*(8*B*a^3*b^7
+ 3*A*a^2*b^8)*d^2*e^7 + 60*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d*e^8 - 4
2*(6*B*a^5*b^5 + 5*A*a^4*b^6)*e^9)*x^5 + 630*(7*B*b^10*d^6*e^3 -
6*(10*B*a*b^9 + A*b^10)*d^5*e^4 + 25*(9*B*a^2*b^8 + 2*A*a*b^9)*d^
4*e^5 - 60*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^3*e^6 + 90*(7*B*a^4*b^6
+ 4*A*a^3*b^7)*d^2*e^7 - 84*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d*e^8 + 4
2*(5*B*a^6*b^4 + 6*A*a^5*b^5)*e^9)*x^4 - 840*(8*B*b^10*d^7*e^2 -
7*(10*B*a*b^9 + A*b^10)*d^6*e^3 + 30*(9*B*a^2*b^8 + 2*A*a*b^9)*d^
5*e^4 - 75*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^4*e^5 + 120*(7*B*a^4*b^6
 + 4*A*a^3*b^7)*d^3*e^6 - 126*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^2*e^7
 + 84*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d*e^8 - 30*(4*B*a^7*b^3 + 7*A*a
^6*b^4)*e^9)*x^3 + 1260*(9*B*b^10*d^8*e - 8*(10*B*a*b^9 + A*b^10)
*d^7*e^2 + 35*(9*B*a^2*b^8 + 2*A*a*b^9)*d^6*e^3 - 90*(8*B*a^3*b^7
 + 3*A*a^2*b^8)*d^5*e^4 + 150*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^4*e^5
 - 168*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^3*e^6 + 126*(5*B*a^6*b^4 + 6
*A*a^5*b^5)*d^2*e^7 - 60*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d*e^8 + 15*(
3*B*a^8*b^2 + 8*A*a^7*b^3)*e^9)*x^2 - 2520*(10*B*b^10*d^9 - 9*(10
*B*a*b^9 + A*b^10)*d^8*e + 40*(9*B*a^2*b^8 + 2*A*a*b^9)*d^7*e^2 -
 105*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^6*e^3 + 180*(7*B*a^4*b^6 + 4*A
*a^3*b^7)*d^5*e^4 - 210*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^4*e^5 + 168
*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^3*e^6 - 90*(4*B*a^7*b^3 + 7*A*a^6*
b^4)*d^2*e^7 + 30*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d*e^8 - 5*(2*B*a^9*
b + 9*A*a^8*b^2)*e^9)*x)/e^11 + (11*B*b^10*d^10 - 10*(10*B*a*b^9
+ A*b^10)*d^9*e + 45*(9*B*a^2*b^8 + 2*A*a*b^9)*d^8*e^2 - 120*(8*B
*a^3*b^7 + 3*A*a^2*b^8)*d^7*e^3 + 210*(7*B*a^4*b^6 + 4*A*a^3*b^7)
*d^6*e^4 - 252*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^5*e^5 + 210*(5*B*a^6
*b^4 + 6*A*a^5*b^5)*d^4*e^6 - 120*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^3
*e^7 + 45*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^2*e^8 - 10*(2*B*a^9*b + 9
*A*a^8*b^2)*d*e^9 + (B*a^10 + 10*A*a^9*b)*e^10)*log(e*x + d)/e^12
```

Fricas [A] time = 0.245803, size = 3144, normalized size = 7.07

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^10/(e*x + d)^2,x, algorithm="fricas")
```

```
[Out] 1/2520*(252*B*b^10*e^11*x^11 + 2520*B*b^10*d^11 - 2520*A*a^10*e^1
1 - 2520*(10*B*a*b^9 + A*b^10)*d^10*e + 12600*(9*B*a^2*b^8 + 2*A*
```

```
a*b^9)*d^9*e^2 - 37800*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^8*e^3 + 7560
0*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^7*e^4 - 105840*(6*B*a^5*b^5 + 5*A
*a^4*b^6)*d^6*e^5 + 105840*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^5*e^6 -
75600*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^4*e^7 + 37800*(3*B*a^8*b^2 +
8*A*a^7*b^3)*d^3*e^8 - 12600*(2*B*a^9*b + 9*A*a^8*b^2)*d^2*e^9 +
2520*(B*a^10 + 10*A*a^9*b)*d*e^10 - 28*(11*B*b^10*d*e^10 - 10*(10
*B*a*b^9 + A*b^10)*e^11)*x^10 + 35*(11*B*b^10*d^2*e^9 - 10*(10*B*
a*b^9 + A*b^10)*d*e^10 + 45*(9*B*a^2*b^8 + 2*A*a*b^9)*e^11)*x^9 -
 45*(11*B*b^10*d^3*e^8 - 10*(10*B*a*b^9 + A*b^10)*d^2*e^9 + 45*(9
*B*a^2*b^8 + 2*A*a*b^9)*d*e^10 - 120*(8*B*a^3*b^7 + 3*A*a^2*b^8)*
e^11)*x^8 + 60*(11*B*b^10*d^4*e^7 - 10*(10*B*a*b^9 + A*b^10)*d^3*
e^8 + 45*(9*B*a^2*b^8 + 2*A*a*b^9)*d^2*e^9 - 120*(8*B*a^3*b^7 + 3
*A*a^2*b^8)*d*e^10 + 210*(7*B*a^4*b^6 + 4*A*a^3*b^7)*e^11)*x^7 -
84*(11*B*b^10*d^5*e^6 - 10*(10*B*a*b^9 + A*b^10)*d^4*e^7 + 45*(9*
B*a^2*b^8 + 2*A*a*b^9)*d^3*e^8 - 120*(8*B*a^3*b^7 + 3*A*a^2*b^8)*
d^2*e^9 + 210*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d*e^10 - 252*(6*B*a^5*b
^5 + 5*A*a^4*b^6)*e^11)*x^6 + 126*(11*B*b^10*d^6*e^5 - 10*(10*B*a
*b^9 + A*b^10)*d^5*e^6 + 45*(9*B*a^2*b^8 + 2*A*a*b^9)*d^4*e^7 - 1
20*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^3*e^8 + 210*(7*B*a^4*b^6 + 4*A*a
^3*b^7)*d^2*e^9 - 252*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d*e^10 + 210*(5
*B*a^6*b^4 + 6*A*a^5*b^5)*e^11)*x^5 - 210*(11*B*b^10*d^7*e^4 - 10
*(10*B*a*b^9 + A*b^10)*d^6*e^5 + 45*(9*B*a^2*b^8 + 2*A*a*b^9)*d^5
*e^6 - 120*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^4*e^7 + 210*(7*B*a^4*b^6
 + 4*A*a^3*b^7)*d^3*e^8 - 252*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^2*e^9
 + 210*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d*e^10 - 120*(4*B*a^7*b^3 + 7*
A*a^6*b^4)*e^11)*x^4 + 420*(11*B*b^10*d^8*e^3 - 10*(10*B*a*b^9 +
A*b^10)*d^7*e^4 + 45*(9*B*a^2*b^8 + 2*A*a*b^9)*d^6*e^5 - 120*(8*B
*a^3*b^7 + 3*A*a^2*b^8)*d^5*e^6 + 210*(7*B*a^4*b^6 + 4*A*a^3*b^7)
*d^4*e^7 - 252*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^3*e^8 + 210*(5*B*a^6
*b^4 + 6*A*a^5*b^5)*d^2*e^9 - 120*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d*e
^10 + 45*(3*B*a^8*b^2 + 8*A*a^7*b^3)*e^11)*x^3 - 1260*(11*B*b^10*
d^9*e^2 - 10*(10*B*a*b^9 + A*b^10)*d^8*e^3 + 45*(9*B*a^2*b^8 + 2*
A*a*b^9)*d^7*e^4 - 120*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^6*e^5 + 210*
(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^5*e^6 - 252*(6*B*a^5*b^5 + 5*A*a^4*
b^6)*d^4*e^7 + 210*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^3*e^8 - 120*(4*B
*a^7*b^3 + 7*A*a^6*b^4)*d^2*e^9 + 45*(3*B*a^8*b^2 + 8*A*a^7*b^3)*
d*e^10 - 10*(2*B*a^9*b + 9*A*a^8*b^2)*e^11)*x^2 - 2520*(10*B*b^10
*d^10*e - 9*(10*B*a*b^9 + A*b^10)*d^9*e^2 + 40*(9*B*a^2*b^8 + 2*A
*a*b^9)*d^8*e^3 - 105*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^7*e^4 + 180*(
7*B*a^4*b^6 + 4*A*a^3*b^7)*d^6*e^5 - 210*(6*B*a^5*b^5 + 5*A*a^4*b
^6)*d^5*e^6 + 168*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^4*e^7 - 90*(4*B*a
^7*b^3 + 7*A*a^6*b^4)*d^3*e^8 + 30*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^
2*e^9 - 5*(2*B*a^9*b + 9*A*a^8*b^2)*d*e^10)*x + 2520*(11*B*b^10*d
^11 - 10*(10*B*a*b^9 + A*b^10)*d^10*e + 45*(9*B*a^2*b^8 + 2*A*a*b
^9)*d^9*e^2 - 120*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^8*e^3 + 210*(7*B*
a^4*b^6 + 4*A*a^3*b^7)*d^7*e^4 - 252*(6*B*a^5*b^5 + 5*A*a^4*b^6)*
d^6*e^5 + 210*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^5*e^6 - 120*(4*B*a^7*
b^3 + 7*A*a^6*b^4)*d^4*e^7 + 45*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^3*e
^8 - 10*(2*B*a^9*b + 9*A*a^8*b^2)*d^2*e^9 + (B*a^10 + 10*A*a^9*b)
*d*e^10 + (11*B*b^10*d^10*e - 10*(10*B*a*b^9 + A*b^10)*d^9*e^2 +
45*(9*B*a^2*b^8 + 2*A*a*b^9)*d^8*e^3 - 120*(8*B*a^3*b^7 + 3*A*a^2
*b^8)*d^7*e^4 + 210*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^6*e^5 - 252*(6*
B*a^5*b^5 + 5*A*a^4*b^6)*d^5*e^6 + 210*(5*B*a^6*b^4 + 6*A*a^5*b^5
)*d^4*e^7 - 120*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^3*e^8 + 45*(3*B*a^8
*b^2 + 8*A*a^7*b^3)*d^2*e^9 - 10*(2*B*a^9*b + 9*A*a^8*b^2)*d*e^10
 + (B*a^10 + 10*A*a^9*b)*e^11)*x)*log(e*x + d))/(e^13*x + d*e^12)
```

Sympy [A] time = 40.1854, size = 1904, normalized size = 4.28

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)/(e*x+d)**2,x)
```

```
[Out] B*b**10*x**10/(10*e**2) + (-A*a**10*e**11 + 10*A*a**9*b*d*e**10 -
 45*A*a**8*b**2*d**2*e**9 + 120*A*a**7*b**3*d**3*e**8 - 210*A*a**
6*b**4*d**4*e**7 + 252*A*a**5*b**5*d**5*e**6 - 210*A*a**4*b**6*d*
*6*e**5 + 120*A*a**3*b**7*d**7*e**4 - 45*A*a**2*b**8*d**8*e**3 +
10*A*a*b**9*d**9*e**2 - A*b**10*d**10*e + B*a**10*d*e**10 - 10*B*
```

```
a**9*b*d**2*e**9 + 45*B*a**8*b**2*d**3*e**8 - 120*B*a**7*b**3*d**
4*e**7 + 210*B*a**6*b**4*d**5*e**6 - 252*B*a**5*b**5*d**6*e**5 +
210*B*a**4*b**6*d**7*e**4 - 120*B*a**3*b**7*d**8*e**3 + 45*B*a**2
*b**8*d**9*e**2 - 10*B*a*b**9*d**10*e + B*b**10*d**11)/(d*e**12 +
 e**13*x) + x**9*(A*b**10*e + 10*B*a*b**9*e - 2*B*b**10*d)/(9*e**
3) + x**8*(10*A*a*b**9*e**2 - 2*A*b**10*d*e + 45*B*a**2*b**8*e**2
 - 20*B*a*b**9*d*e + 3*B*b**10*d**2)/(8*e**4) + x**7*(45*A*a**2*b
**8*e**3 - 20*A*a*b**9*d*e**2 + 3*A*b**10*d**2*e + 120*B*a**3*b**
7*e**3 - 90*B*a**2*b**8*d*e**2 + 30*B*a*b**9*d**2*e - 4*B*b**10*d
**3)/(7*e**5) + x**6*(120*A*a**3*b**7*e**4 - 90*A*a**2*b**8*d*e**
3 + 30*A*a*b**9*d**2*e**2 - 4*A*b**10*d**3*e + 210*B*a**4*b**6*e*
*4 - 240*B*a**3*b**7*d*e**3 + 135*B*a**2*b**8*d**2*e**2 - 40*B*a*
b**9*d**3*e + 5*B*b**10*d**4)/(6*e**6) + x**5*(210*A*a**4*b**6*e*
*5 - 240*A*a**3*b**7*d*e**4 + 135*A*a**2*b**8*d**2*e**3 - 40*A*a*
b**9*d**3*e**2 + 5*A*b**10*d**4*e + 252*B*a**5*b**5*e**5 - 420*B*
a**4*b**6*d*e**4 + 360*B*a**3*b**7*d**2*e**3 - 180*B*a**2*b**8*d*
*3*e**2 + 50*B*a*b**9*d**4*e - 6*B*b**10*d**5)/(5*e**7) + x**4*(2
52*A*a**5*b**5*e**6 - 420*A*a**4*b**6*d*e**5 + 360*A*a**3*b**7*d*
*2*e**4 - 180*A*a**2*b**8*d**3*e**3 + 50*A*a*b**9*d**4*e**2 - 6*A
*b**10*d**5*e + 210*B*a**6*b**4*e**6 - 504*B*a**5*b**5*d*e**5 + 6
30*B*a**4*b**6*d**2*e**4 - 480*B*a**3*b**7*d**3*e**3 + 225*B*a**2
*b**8*d**4*e**2 - 60*B*a*b**9*d**5*e + 7*B*b**10*d**6)/(4*e**8) +
 x**3*(210*A*a**6*b**4*e**7 - 504*A*a**5*b**5*d*e**6 + 630*A*a**4
*b**6*d**2*e**5 - 480*A*a**3*b**7*d**3*e**4 + 225*A*a**2*b**8*d**
4*e**3 - 60*A*a*b**9*d**5*e**2 + 7*A*b**10*d**6*e + 120*B*a**7*b*
*3*e**7 - 420*B*a**6*b**4*d*e**6 + 756*B*a**5*b**5*d**2*e**5 - 84
0*B*a**4*b**6*d**3*e**4 + 600*B*a**3*b**7*d**4*e**3 - 270*B*a**2*
b**8*d**5*e**2 + 70*B*a*b**9*d**6*e - 8*B*b**10*d**7)/(3*e**9) +
x**2*(120*A*a**7*b**3*e**8 - 420*A*a**6*b**4*d*e**7 + 756*A*a**5*
b**5*d**2*e**6 - 840*A*a**4*b**6*d**3*e**5 + 600*A*a**3*b**7*d**4
*e**4 - 270*A*a**2*b**8*d**5*e**3 + 70*A*a*b**9*d**6*e**2 - 8*A*b
**10*d**7*e + 45*B*a**8*b**2*e**8 - 240*B*a**7*b**3*d*e**7 + 630*
B*a**6*b**4*d**2*e**6 - 1008*B*a**5*b**5*d**3*e**5 + 1050*B*a**4*
b**6*d**4*e**4 - 720*B*a**3*b**7*d**5*e**3 + 315*B*a**2*b**8*d**6
*e**2 - 80*B*a*b**9*d**7*e + 9*B*b**10*d**8)/(2*e**10) + x*(45*A*
a**8*b**2*e**9 - 240*A*a**7*b**3*d*e**8 + 630*A*a**6*b**4*d**2*e*
*7 - 1008*A*a**5*b**5*d**3*e**6 + 1050*A*a**4*b**6*d**4*e**5 - 72
0*A*a**3*b**7*d**5*e**4 + 315*A*a**2*b**8*d**6*e**3 - 80*A*a*b**9
*d**7*e**2 + 9*A*b**10*d**8*e + 10*B*a**9*b*e**9 - 90*B*a**8*b**2
*d*e**8 + 360*B*a**7*b**3*d**2*e**7 - 840*B*a**6*b**4*d**3*e**6 +
 1260*B*a**5*b**5*d**4*e**5 - 1260*B*a**4*b**6*d**5*e**4 + 840*B*
a**3*b**7*d**6*e**3 - 360*B*a**2*b**8*d**7*e**2 + 90*B*a*b**9*d**
8*e - 10*B*b**10*d**9)/e**11 + (a*e - b*d)**9*(10*A*b*e + B*a*e -
 11*B*b*d)*log(d + e*x)/e**12
```

GIAC/XCAS [A] time = 0.224234, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d)^2,x, algorithm="giac")
```

```
[Out] Done
```

3.1074 $\int \frac{(a+bx)^{10}(A+Bx)}{(d+ex)^3} dx$

Optimal. Leaf size=445

$$-\frac{b^9(d+ex)^8(-10aBe-Abe+11bBd)}{8e^{12}}+\frac{5b^8(d+ex)^7(bd-ae)(-9aBe-2Abe+11bBd)}{7e^{12}}-\frac{5b^7(d+ex)^6(bd-ae)^2(-8aBe-3Abe+11bBd)}{2e^{12}}+\frac{6b^6(d+ex)^5(bd-ae)^3(-7aBe-4Abe+11bBd)}{e^{12}}-\frac{21b^5(d+ex)^4(bd-ae)^4(-6aBe-5Abe+11bBd)}{2e^{12}}+\frac{14b^4(d+ex)^3(bd-ae)^5(-5aBe-6Abe+11bBd)}{e^{12}}-\frac{15b^3(d+ex)^2(bd-ae)^6(-4aBe-7Abe+11bBd)}{e^{12}}+\frac{15b^2x(bd-ae)^7(-3aBe-8Abe+11bBd)}{e^{11}}-\frac{(bd-ae)^9(-aBe-10Abe+11bBd)}{e^{12}(d+ex)}+\frac{(bd-ae)^{10}(Bd-Ae)}{2e^{12}(d+ex)^2}-\frac{5b(bd-ae)^8\log(d+ex)(-2aBe-9Abe+11bBd)}{e^{12}}+\frac{b^{10}B(d+ex)^9}{9e^{12}}$$

```
[Out] (15*b^2*(b*d - a*e)^7*(11*b*B*d - 8*A*b*e - 3*a*B*e)*x)/e^11 + ((
b*d - a*e)^10*(B*d - A*e))/(2*e^12*(d + e*x)^2) - ((b*d - a*e)^9*
(11*b*B*d - 10*A*b*e - a*B*e))/(e^12*(d + e*x)) - (15*b^3*(b*d -
a*e)^6*(11*b*B*d - 7*A*b*e - 4*a*B*e)*(d + e*x)^2)/e^12 + (14*b^4
*(b*d - a*e)^5*(11*b*B*d - 6*A*b*e - 5*a*B*e)*(d + e*x)^3)/e^12 -
 (21*b^5*(b*d - a*e)^4*(11*b*B*d - 5*A*b*e - 6*a*B*e)*(d + e*x)^4
)/(2*e^12) + (6*b^6*(b*d - a*e)^3*(11*b*B*d - 4*A*b*e - 7*a*B*e)*
(d + e*x)^5)/e^12 - (5*b^7*(b*d - a*e)^2*(11*b*B*d - 3*A*b*e - 8*
a*B*e)*(d + e*x)^6)/(2*e^12) + (5*b^8*(b*d - a*e)*(11*b*B*d - 2*A
*b*e - 9*a*B*e)*(d + e*x)^7)/(7*e^12) - (b^9*(11*b*B*d - A*b*e -
10*a*B*e)*(d + e*x)^8)/(8*e^12) + (b^10*B*(d + e*x)^9)/(9*e^12) -
 (5*b*(b*d - a*e)^8*(11*b*B*d - 9*A*b*e - 2*a*B*e)*Log[d + e*x])/
e^12
```

Rubi [A] time = 5.38035, antiderivative size = 445, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{b^9(d+ex)^8(-10aBe-Abe+11bBd)}{8e^{12}}+\frac{5b^8(d+ex)^7(bd-ae)(-9aBe-2Abe+11bBd)}{7e^{12}}-\frac{5b^7(d+ex)^6(bd-ae)^2(-8aBe-3Abe+11bBd)}{2e^{12}}+\frac{6b^6(d+ex)^5(bd-ae)^3(-7aBe-4Abe+11bBd)}{e^{12}}-\frac{21b^5(d+ex)^4(bd-ae)^4(-6aBe-5Abe+11bBd)}{2e^{12}}+\frac{14b^4(d+ex)^3(bd-ae)^5(-5aBe-6Abe+11bBd)}{e^{12}}-\frac{15b^3(d+ex)^2(bd-ae)^6(-4aBe-7Abe+11bBd)}{e^{12}}+\frac{15b^2x(bd-ae)^7(-3aBe-8Abe+11bBd)}{e^{11}}-\frac{(bd-ae)^9(-aBe-10Abe+11bBd)}{e^{12}(d+ex)}+\frac{(bd-ae)^{10}(Bd-Ae)}{2e^{12}(d+ex)^2}-\frac{5b(bd-ae)^8\log(d+ex)(-2aBe-9Abe+11bBd)}{e^{12}}+\frac{b^{10}B(d+ex)^9}{9e^{12}}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^10*(A + B*x))/(d + e*x)^3,x]
```


```
[Out] (15*b^2*(b*d - a*e)^7*(11*b*B*d - 8*A*b*e - 3*a*B*e)*x)/e^11 + ((
b*d - a*e)^10*(B*d - A*e))/(2*e^12*(d + e*x)^2) - ((b*d - a*e)^9*
(11*b*B*d - 10*A*b*e - a*B*e))/(e^12*(d + e*x)) - (15*b^3*(b*d -
a*e)^6*(11*b*B*d - 7*A*b*e - 4*a*B*e)*(d + e*x)^2)/e^12 + (14*b^4
```

```
*(b*d - a*e)^5*(11*b*B*d - 6*A*b*e - 5*a*B*e)*(d + e*x)^3)/e^12 -
 (21*b^5*(b*d - a*e)^4*(11*b*B*d - 5*A*b*e - 6*a*B*e)*(d + e*x)^4
)/(2*e^12) + (6*b^6*(b*d - a*e)^3*(11*b*B*d - 4*A*b*e - 7*a*B*e)*
(d + e*x)^5)/e^12 - (5*b^7*(b*d - a*e)^2*(11*b*B*d - 3*A*b*e - 8*
a*B*e)*(d + e*x)^6)/(2*e^12) + (5*b^8*(b*d - a*e)*(11*b*B*d - 2*A
*b*e - 9*a*B*e)*(d + e*x)^7)/(7*e^12) - (b^9*(11*b*B*d - A*b*e -
10*a*B*e)*(d + e*x)^8)/(8*e^12) + (b^10*B*(d + e*x)^9)/(9*e^12) -
 (5*b*(b*d - a*e)^8*(11*b*B*d - 9*A*b*e - 2*a*B*e)*Log[d + e*x])/
e^12
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)/(e*x+d)**3,x)
```

```
[Out] Timed out
```

Mathematica [B] time = 1.60084, size = 1480, normalized size = 3.33

$$\frac{(9Ae\,(532d^{10} - 1456exd^9 - 3248e^2x^2d^8 - 840e^3x^3d^7 + 210e^4x^4d^6 - 84e^5x^5d^5 + 42e^6x^6d^4 - 24e^7x^7d^3 + 15e^8x^8d^2 - 10e^9x^9}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^10*(A + B*x))/(d + e*x)^3,x]
```

```
[Out] (-252*a^10*e^10*(A*e + B*(d + 2*e*x)) - 2520*a^9*b*e^9*(A*e*(d +
2*e*x) - B*d*(3*d + 4*e*x)) + 11340*a^8*b^2*e^8*(A*d*e*(3*d + 4*e
*x) + B*(-5*d^3 - 4*d^2*e*x + 4*d*e^2*x^2 + 2*e^3*x^3)) + 30240*a
^7*b^3*e^7*(A*e*(-5*d^3 - 4*d^2*e*x + 4*d*e^2*x^2 + 2*e^3*x^3) +
B*(7*d^4 + 2*d^3*e*x - 11*d^2*e^2*x^2 - 4*d*e^3*x^3 + e^4*x^4)) +
 17640*a^6*b^4*e^6*(3*A*e*(7*d^4 + 2*d^3*e*x - 11*d^2*e^2*x^2 - 4
*d*e^3*x^3 + e^4*x^4) + B*(-27*d^5 + 6*d^4*e*x + 63*d^3*e^2*x^2 +
 20*d^2*e^3*x^3 - 5*d*e^4*x^4 + 2*e^5*x^5)) + 10584*a^5*b^5*e^5*(
2*A*e*(-27*d^5 + 6*d^4*e*x + 63*d^3*e^2*x^2 + 20*d^2*e^3*x^3 - 5*
d*e^4*x^4 + 2*e^5*x^5) + 3*B*(22*d^6 - 16*d^5*e*x - 68*d^4*e^2*x^
2 - 20*d^3*e^3*x^3 + 5*d^2*e^4*x^4 - 2*d*e^5*x^5 + e^6*x^6)) + 52
92*a^4*b^6*e^4*(5*A*e*(22*d^6 - 16*d^5*e*x - 68*d^4*e^2*x^2 - 20*
d^3*e^3*x^3 + 5*d^2*e^4*x^4 - 2*d*e^5*x^5 + e^6*x^6) + B*(-130*d^
7 + 160*d^6*e*x + 500*d^5*e^2*x^2 + 140*d^4*e^3*x^3 - 35*d^3*e^4*
x^4 + 14*d^2*e^5*x^5 - 7*d*e^6*x^6 + 4*e^7*x^7)) + 1008*a^3*b^7*e
^3*(3*A*e*(-130*d^7 + 160*d^6*e*x + 500*d^5*e^2*x^2 + 140*d^4*e^3
*x^3 - 35*d^3*e^4*x^4 + 14*d^2*e^5*x^5 - 7*d*e^6*x^6 + 4*e^7*x^7)
 + 2*B*(225*d^8 - 390*d^7*e*x - 1035*d^6*e^2*x^2 - 280*d^5*e^3*x^
3 + 70*d^4*e^4*x^4 - 28*d^3*e^5*x^5 + 14*d^2*e^6*x^6 - 8*d*e^7*x^
7 + 5*e^8*x^8)) + 108*a^2*b^8*e^2*(7*A*e*(225*d^8 - 390*d^7*e*x -
 1035*d^6*e^2*x^2 - 280*d^5*e^3*x^3 + 70*d^4*e^4*x^4 - 28*d^3*e^5
*x^5 + 14*d^2*e^6*x^6 - 8*d*e^7*x^7 + 5*e^8*x^8) - 3*B*(595*d^9 -
 1330*d^8*e*x - 3185*d^7*e^2*x^2 - 840*d^6*e^3*x^3 + 210*d^5*e^4*
x^4 - 84*d^4*e^5*x^5 + 42*d^3*e^6*x^6 - 24*d^2*e^7*x^7 + 15*d*e^8
*x^8 - 10*e^9*x^9)) + 18*a*b^9*e*(4*A*e*(-595*d^9 + 1330*d^8*e*x
+ 3185*d^7*e^2*x^2 + 840*d^6*e^3*x^3 - 210*d^5*e^4*x^4 + 84*d^4*e
^5*x^5 - 42*d^3*e^6*x^6 + 24*d^2*e^7*x^7 - 15*d*e^8*x^8 + 10*e^9*
x^9) + 5*B*(532*d^10 - 1456*d^9*e*x - 3248*d^8*e^2*x^2 - 840*d^7*
e^3*x^3 + 210*d^6*e^4*x^4 - 84*d^5*e^5*x^5 + 42*d^4*e^6*x^6 - 24*
d^3*e^7*x^7 + 15*d^2*e^8*x^8 - 10*d*e^9*x^9 + 7*e^10*x^10)) + b^1
0*(9*A*e*(532*d^10 - 1456*d^9*e*x - 3248*d^8*e^2*x^2 - 840*d^7*e^
3*x^3 + 210*d^6*e^4*x^4 - 84*d^5*e^5*x^5 + 42*d^4*e^6*x^6 - 24*d^
3*e^7*x^7 + 15*d^2*e^8*x^8 - 10*d*e^9*x^9 + 7*e^10*x^10) + B*(-52
92*d^11 + 17136*d^10*e*x + 36288*d^9*e^2*x^2 + 9240*d^8*e^3*x^3 -
 2310*d^7*e^4*x^4 + 924*d^6*e^5*x^5 - 462*d^5*e^6*x^6 + 264*d^4*e
^7*x^7 - 165*d^3*e^8*x^8 + 110*d^2*e^9*x^9 - 77*d*e^10*x^10 + 56*
```

```
e^11*x^11)) - 2520*b*(b*d - a*e)^8*(11*b*B*d - 9*A*b*e - 2*a*B*e)
*(d + e*x)^2*Log[d + e*x])/(504*e^12*(d + e*x)^2)
```

Maple [B] time = 0.037, size = 2532, normalized size = 5.7

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^10*(B*x+A)/(e*x+d)^3,x)
```

```
[Out] 630*b^6/e^5*A*x^2*a^4*d^2-252*b^5/e^4*B*x^3*a^5*d+420*b^6/e^5*B*x
^3*a^4*d^2-400*b^7/e^6*B*x^3*a^3*d^3+225*b^8/e^7*B*x^3*a^2*d^4-70
*b^9/e^8*B*x^3*a*d^5-378*b^5/e^4*A*x^2*a^5*d-210*b^6/e^4*A*x^3*a^
4*d+240*b^7/e^5*A*x^3*a^3*d^2-150*b^8/e^6*A*x^3*a^2*d^3+50*b^9/e^
7*A*x^3*a*d^4+45*b^2/e^3*B*a^8*x+45*b^10/e^11*B*d^8*x+1260*b^4/e^
5*ln(e*x+d)*A*a^6*d^2-2520*b^5/e^6*ln(e*x+d)*A*a^5*d^3+3150*b^6/e
^7*ln(e*x+d)*A*a^4*d^4-2520*b^7/e^8*ln(e*x+d)*A*a^3*d^5+1260*b^8/
e^9*ln(e*x+d)*A*a^2*d^6-360*b^9/e^10*ln(e*x+d)*A*a*d^7-135*b^2/e^
4*ln(e*x+d)*B*a^8*d+720*b^3/e^5*ln(e*x+d)*B*a^7*d^2-2100*b^4/e^6*
ln(e*x+d)*B*a^6*d^3+3780*b^5/e^7*ln(e*x+d)*B*a^5*d^4-4410*b^6/e^8
*ln(e*x+d)*B*a^4*d^5+3360*b^7/e^9*ln(e*x+d)*B*a^3*d^6-1620*b^8/e^
10*ln(e*x+d)*B*a^2*d^7+450*b^9/e^11*ln(e*x+d)*B*a*d^8+90/e^3/(e*x
+d)*A*a^8*b^2*d-360/e^4/(e*x+d)*A*a^7*b^3*d^2+840/e^5/(e*x+d)*A*a
^6*b^4*d^3-1260/e^6/(e*x+d)*A*a^5*b^5*d^4+1260/e^7/(e*x+d)*A*a^4*
b^6*d^5-840/e^8/(e*x+d)*A*a^3*b^7*d^6+360/e^9/(e*x+d)*A*a^2*b^8*d
^7-90/e^10/(e*x+d)*A*a*b^9*d^8+20/e^3/(e*x+d)*B*a^9*b*d-135/e^4/(
e*x+d)*B*a^8*b^2*d^2+480/e^5/(e*x+d)*B*a^7*b^3*d^3-1050/e^6/(e*x+
d)*B*a^6*b^4*d^4+1512/e^7/(e*x+d)*B*a^5*b^5*d^5-1470/e^8/(e*x+d)*
B*a^4*b^6*d^6+960/e^9/(e*x+d)*B*a^3*b^7*d^7-405/e^10/(e*x+d)*B*a^
2*b^8*d^8+100/e^11/(e*x+d)*B*a*b^9*d^9+5/e^2/(e*x+d)^2*A*d*a^9*b-
45/2/e^3/(e*x+d)^2*A*d^2*a^8*b^2+60/e^4/(e*x+d)^2*A*a^7*b^3*d^3-1
05/e^5/(e*x+d)^2*A*a^6*b^4*d^4+126/e^6/(e*x+d)^2*A*a^5*b^5*d^5-10
5/e^7/(e*x+d)^2*A*a^4*b^6*d^6+60/e^8/(e*x+d)^2*A*a^3*b^7*d^7-45/2
/e^9/(e*x+d)^2*A*a^2*b^8*d^8+75/2*b^9/e^7*B*x^4*a*d^4+12*b^9/e^5*
A*x^5*a*d^2-72*b^7/e^4*B*x^5*a^3*d+54*b^8/e^5*B*x^5*a^2*d^2-20*b^
9/e^6*B*x^5*a*d^3-90*b^7/e^4*A*x^4*a^3*d+135/2*b^8/e^5*A*x^4*a^2*
d^2-25*b^9/e^6*A*x^4*a*d^3-315/2*b^6/e^4*B*x^4*a^4*d+180*b^7/e^5*
B*x^4*a^3*d^2-225/2*b^8/e^6*B*x^4*a^2*d^3-5*b^9/e^4*A*x^6*a*d-45/
2*b^8/e^4*B*x^6*a^2*d+10*b^9/e^5*B*x^6*a*d^2-27*b^8/e^4*A*x^5*a^2
*d-30/7*b^9/e^4*B*x^7*a*d-600*b^7/e^6*A*x^2*a^3*d^3+140*b^9/e^9*B
*x^2*a*d^6-630*b^4/e^4*A*a^6*d*x+675/2*b^8/e^7*A*x^2*a^2*d^4-105*
b^9/e^8*A*x^2*a*d^5-315*b^4/e^4*B*x^2*a^6*d+756*b^5/e^5*B*x^2*a^5
*d^2-1050*b^6/e^6*B*x^2*a^4*d^3+900*b^7/e^7*B*x^2*a^3*d^4+1512*b^
5/e^5*A*a^5*d^2*x-2100*b^6/e^6*A*a^4*d^3*x+1800*b^7/e^7*A*a^3*d^4
*x-945*b^8/e^8*A*a^2*d^5*x+280*b^9/e^9*A*a*d^6*x-360*b^3/e^4*B*a^
7*d*x+1260*b^4/e^5*B*a^6*d^2*x-2520*b^5/e^6*B*a^5*d^3*x+3150*b^6/
e^7*B*a^4*d^4*x-2520*b^7/e^8*B*a^3*d^5*x+1260*b^8/e^9*B*a^2*d^6*x
-360*b^9/e^10*B*a*d^7*x-945/2*b^8/e^8*B*x^2*a^2*d^5-360*b^3/e^4*l
n(e*x+d)*A*a^7*d+120*b^3/e^3*A*a^7*x-36*b^10/e^10*A*d^7*x+b^10/e^
5*A*x^6*d^2+5/4*b^9/e^3*B*x^8*a-3/8*b^10/e^4*B*x^8*d+20*b^7/e^3*B
*x^6*a^3-5/3*b^10/e^6*B*x^6*d^3+10/7*b^9/e^3*A*x^7*a-3/7*b^10/e^4
*A*x^7*d+45/7*b^8/e^3*B*x^7*a^2+6/7*b^10/e^5*B*x^7*d^2+15/2*b^8/e
^3*A*x^6*a^2+45*b^2/e^3*ln(e*x+d)*A*a^8+45*b^10/e^11*ln(e*x+d)*A*
d^8+10*b/e^3*ln(e*x+d)*B*a^9-55*b^10/e^12*ln(e*x+d)*B*d^9-10/e^2/
(e*x+d)*A*a^9*b+10/e^11/(e*x+d)*A*b^10*d^9-11/e^12/(e*x+d)*b^10*B
*d^10-1/2/e^11/(e*x+d)^2*A*b^10*d^10+1/2/e^2/(e*x+d)^2*B*d*a^10+1
/2/e^12/(e*x+d)^2*b^10*B*d^11+1/9*b^10/e^3*B*x^9+1/8*b^10/e^3*A*x
^8-1/e^2/(e*x+d)*B*a^10-1/2/e/(e*x+d)^2*a^10*A+63*b^5/e^3*B*x^4*a
^5-21/4*b^10/e^8*B*x^4*d^5+84*b^5/e^3*A*x^3*a^5-7*b^10/e^8*A*x^3*
d^5+70*b^4/e^3*B*x^3*a^6+28/3*b^10/e^9*B*x^3*d^6+105*b^4/e^3*A*x^
2*a^6+14*b^10/e^9*A*x^2*d^6+60*b^3/e^3*B*x^2*a^7-18*b^10/e^10*B*x
^2*d^7+5/e^10/(e*x+d)^2*A*a*b^9*d^9-5/e^3/(e*x+d)^2*B*d^2*a^9*b+4
5/2/e^4/(e*x+d)^2*B*a^8*b^2*d^3-60/e^5/(e*x+d)^2*B*a^7*b^3*d^4+10
5/e^6/(e*x+d)^2*B*a^6*b^4*d^5-126/e^7/(e*x+d)^2*B*a^5*b^5*d^6+105
/e^8/(e*x+d)^2*B*a^4*b^6*d^7-60/e^9/(e*x+d)^2*B*a^3*b^7*d^8+45/2/
e^10/(e*x+d)^2*B*a^2*b^8*d^9-5/e^11/(e*x+d)^2*B*a*b^9*d^10+24*b^7
/e^3*A*x^5*a^3-2*b^10/e^6*A*x^5*d^3+42*b^6/e^3*B*x^5*a^4+3*b^10/e
^7*B*x^5*d^4+105/2*b^6/e^3*A*x^4*a^4+15/4*b^10/e^7*A*x^4*d^4
```

Maxima [A] time = 1.43321, size = 2465, normalized size = 5.54

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^10/(e*x + d)^3,x, algorithm="maxima")
```

```
[Out] -1/2*(21*B*b^10*d^11 + A*a^10*e^11 - 19*(10*B*a*b^9 + A*b^10)*d^1
0*e + 85*(9*B*a^2*b^8 + 2*A*a*b^9)*d^9*e^2 - 225*(8*B*a^3*b^7 + 3
*A*a^2*b^8)*d^8*e^3 + 390*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^7*e^4 - 4
62*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^6*e^5 + 378*(5*B*a^6*b^4 + 6*A*a
^5*b^5)*d^5*e^6 - 210*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^4*e^7 + 75*(3
*B*a^8*b^2 + 8*A*a^7*b^3)*d^3*e^8 - 15*(2*B*a^9*b + 9*A*a^8*b^2)*
d^2*e^9 + (B*a^10 + 10*A*a^9*b)*d*e^10 + 2*(11*B*b^10*d^10*e - 10
*(10*B*a*b^9 + A*b^10)*d^9*e^2 + 45*(9*B*a^2*b^8 + 2*A*a*b^9)*d^8
*e^3 - 120*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^7*e^4 + 210*(7*B*a^4*b^6
 + 4*A*a^3*b^7)*d^6*e^5 - 252*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^5*e^6
 + 210*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^4*e^7 - 120*(4*B*a^7*b^3 + 7
*A*a^6*b^4)*d^3*e^8 + 45*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^2*e^9 - 10
*(2*B*a^9*b + 9*A*a^8*b^2)*d*e^10 + (B*a^10 + 10*A*a^9*b)*e^11)*x
)/(e^14*x^2 + 2*d*e^13*x + d^2*e^12) + 1/504*(56*B*b^10*e^8*x^9 -
 63*(3*B*b^10*d*e^7 - (10*B*a*b^9 + A*b^10)*e^8)*x^8 + 72*(6*B*b^
10*d^2*e^6 - 3*(10*B*a*b^9 + A*b^10)*d*e^7 + 5*(9*B*a^2*b^8 + 2*A
*a*b^9)*e^8)*x^7 - 84*(10*B*b^10*d^3*e^5 - 6*(10*B*a*b^9 + A*b^10
)*d^2*e^6 + 15*(9*B*a^2*b^8 + 2*A*a*b^9)*d*e^7 - 15*(8*B*a^3*b^7
+ 3*A*a^2*b^8)*e^8)*x^6 + 504*(3*B*b^10*d^4*e^4 - 2*(10*B*a*b^9 +
 A*b^10)*d^3*e^5 + 6*(9*B*a^2*b^8 + 2*A*a*b^9)*d^2*e^6 - 9*(8*B*a
^3*b^7 + 3*A*a^2*b^8)*d*e^7 + 6*(7*B*a^4*b^6 + 4*A*a^3*b^7)*e^8)*
x^5 - 126*(21*B*b^10*d^5*e^3 - 15*(10*B*a*b^9 + A*b^10)*d^4*e^4 +
 50*(9*B*a^2*b^8 + 2*A*a*b^9)*d^3*e^5 - 90*(8*B*a^3*b^7 + 3*A*a^2
*b^8)*d^2*e^6 + 90*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d*e^7 - 42*(6*B*a^
5*b^5 + 5*A*a^4*b^6)*e^8)*x^4 + 168*(28*B*b^10*d^6*e^2 - 21*(10*B
*a*b^9 + A*b^10)*d^5*e^3 + 75*(9*B*a^2*b^8 + 2*A*a*b^9)*d^4*e^4 -
 150*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^3*e^5 + 180*(7*B*a^4*b^6 + 4*A
*a^3*b^7)*d^2*e^6 - 126*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d*e^7 + 42*(5
*B*a^6*b^4 + 6*A*a^5*b^5)*e^8)*x^3 - 252*(36*B*b^10*d^7*e - 28*(1
0*B*a*b^9 + A*b^10)*d^6*e^2 + 105*(9*B*a^2*b^8 + 2*A*a*b^9)*d^5*e
^3 - 225*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^4*e^4 + 300*(7*B*a^4*b^6 +
 4*A*a^3*b^7)*d^3*e^5 - 252*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^2*e^6 +
 126*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d*e^7 - 30*(4*B*a^7*b^3 + 7*A*a^
6*b^4)*e^8)*x^2 + 504*(45*B*b^10*d^8 - 36*(10*B*a*b^9 + A*b^10)*d
^7*e + 140*(9*B*a^2*b^8 + 2*A*a*b^9)*d^6*e^2 - 315*(8*B*a^3*b^7 +
 3*A*a^2*b^8)*d^5*e^3 + 450*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^4*e^4 -
 420*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^3*e^5 + 252*(5*B*a^6*b^4 + 6*A
*a^5*b^5)*d^2*e^6 - 90*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d*e^7 + 15*(3*
B*a^8*b^2 + 8*A*a^7*b^3)*e^8)*x)/e^11 - 5*(11*B*b^10*d^9 - 9*(10*
B*a*b^9 + A*b^10)*d^8*e + 36*(9*B*a^2*b^8 + 2*A*a*b^9)*d^7*e^2 -
84*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^6*e^3 + 126*(7*B*a^4*b^6 + 4*A*a
^3*b^7)*d^5*e^4 - 126*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^4*e^5 + 84*(5
*B*a^6*b^4 + 6*A*a^5*b^5)*d^3*e^6 - 36*(4*B*a^7*b^3 + 7*A*a^6*b^4
)*d^2*e^7 + 9*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d*e^8 - (2*B*a^9*b + 9*
A*a^8*b^2)*e^9)*log(e*x + d)/e^12
```

Fricas [A] time = 0.255489, size = 3438, normalized size = 7.73

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^10/(e*x + d)^3,x, algorithm="fricas")
```

```
[Out] 1/504*(56*B*b^10*e^11*x^11 - 5292*B*b^10*d^11 - 252*A*a^10*e^11 +
 4788*(10*B*a*b^9 + A*b^10)*d^10*e - 21420*(9*B*a^2*b^8 + 2*A*a*b
^9)*d^9*e^2 + 56700*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^8*e^3 - 98280*(
7*B*a^4*b^6 + 4*A*a^3*b^7)*d^7*e^4 + 116424*(6*B*a^5*b^5 + 5*A*a^
```

```
4*b^6)*d^6*e^5 - 95256*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^5*e^6 + 5292
0*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^4*e^7 - 18900*(3*B*a^8*b^2 + 8*A*
a^7*b^3)*d^3*e^8 + 3780*(2*B*a^9*b + 9*A*a^8*b^2)*d^2*e^9 - 252*(
B*a^10 + 10*A*a^9*b)*d*e^10 - 7*(11*B*b^10*d*e^10 - 9*(10*B*a*b^9
 + A*b^10)*e^11)*x^10 + 10*(11*B*b^10*d^2*e^9 - 9*(10*B*a*b^9 + A
*b^10)*d*e^10 + 36*(9*B*a^2*b^8 + 2*A*a*b^9)*e^11)*x^9 - 15*(11*B
*b^10*d^3*e^8 - 9*(10*B*a*b^9 + A*b^10)*d^2*e^9 + 36*(9*B*a^2*b^8
 + 2*A*a*b^9)*d*e^10 - 84*(8*B*a^3*b^7 + 3*A*a^2*b^8)*e^11)*x^8 +
 24*(11*B*b^10*d^4*e^7 - 9*(10*B*a*b^9 + A*b^10)*d^3*e^8 + 36*(9*
B*a^2*b^8 + 2*A*a*b^9)*d^2*e^9 - 84*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d
*e^10 + 126*(7*B*a^4*b^6 + 4*A*a^3*b^7)*e^11)*x^7 - 42*(11*B*b^10
*d^5*e^6 - 9*(10*B*a*b^9 + A*b^10)*d^4*e^7 + 36*(9*B*a^2*b^8 + 2*
A*a*b^9)*d^3*e^8 - 84*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^2*e^9 + 126*(
7*B*a^4*b^6 + 4*A*a^3*b^7)*d*e^10 - 126*(6*B*a^5*b^5 + 5*A*a^4*b^
6)*e^11)*x^6 + 84*(11*B*b^10*d^6*e^5 - 9*(10*B*a*b^9 + A*b^10)*d^
5*e^6 + 36*(9*B*a^2*b^8 + 2*A*a*b^9)*d^4*e^7 - 84*(8*B*a^3*b^7 +
3*A*a^2*b^8)*d^3*e^8 + 126*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^2*e^9 -
126*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d*e^10 + 84*(5*B*a^6*b^4 + 6*A*a^
5*b^5)*e^11)*x^5 - 210*(11*B*b^10*d^7*e^4 - 9*(10*B*a*b^9 + A*b^1
0)*d^6*e^5 + 36*(9*B*a^2*b^8 + 2*A*a*b^9)*d^5*e^6 - 84*(8*B*a^3*b
^7 + 3*A*a^2*b^8)*d^4*e^7 + 126*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^3*e
^8 - 126*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^2*e^9 + 84*(5*B*a^6*b^4 +
6*A*a^5*b^5)*d*e^10 - 36*(4*B*a^7*b^3 + 7*A*a^6*b^4)*e^11)*x^4 +
840*(11*B*b^10*d^8*e^3 - 9*(10*B*a*b^9 + A*b^10)*d^7*e^4 + 36*(9*
B*a^2*b^8 + 2*A*a*b^9)*d^6*e^5 - 84*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d
^5*e^6 + 126*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^4*e^7 - 126*(6*B*a^5*b
^5 + 5*A*a^4*b^6)*d^3*e^8 + 84*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^2*e^
9 - 36*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d*e^10 + 9*(3*B*a^8*b^2 + 8*A*
a^7*b^3)*e^11)*x^3 + 252*(144*B*b^10*d^9*e^2 - 116*(10*B*a*b^9 +
A*b^10)*d^8*e^3 + 455*(9*B*a^2*b^8 + 2*A*a*b^9)*d^7*e^4 - 1035*(8
*B*a^3*b^7 + 3*A*a^2*b^8)*d^6*e^5 + 1500*(7*B*a^4*b^6 + 4*A*a^3*b
^7)*d^5*e^6 - 1428*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^4*e^7 + 882*(5*B
*a^6*b^4 + 6*A*a^5*b^5)*d^3*e^8 - 330*(4*B*a^7*b^3 + 7*A*a^6*b^4)
*d^2*e^9 + 60*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d*e^10)*x^2 + 504*(34*B
*b^10*d^10*e - 26*(10*B*a*b^9 + A*b^10)*d^9*e^2 + 95*(9*B*a^2*b^8
 + 2*A*a*b^9)*d^8*e^3 - 195*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^7*e^4 +
 240*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^6*e^5 - 168*(6*B*a^5*b^5 + 5*A
*a^4*b^6)*d^5*e^6 + 42*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^4*e^7 + 30*(
4*B*a^7*b^3 + 7*A*a^6*b^4)*d^3*e^8 - 30*(3*B*a^8*b^2 + 8*A*a^7*b^
3)*d^2*e^9 + 10*(2*B*a^9*b + 9*A*a^8*b^2)*d*e^10 - (B*a^10 + 10*A
*a^9*b)*e^11)*x - 2520*(11*B*b^10*d^11 - 9*(10*B*a*b^9 + A*b^10)*
d^10*e + 36*(9*B*a^2*b^8 + 2*A*a*b^9)*d^9*e^2 - 84*(8*B*a^3*b^7 +
 3*A*a^2*b^8)*d^8*e^3 + 126*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^7*e^4 -
 126*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^6*e^5 + 84*(5*B*a^6*b^4 + 6*A*
a^5*b^5)*d^5*e^6 - 36*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^4*e^7 + 9*(3*
B*a^8*b^2 + 8*A*a^7*b^3)*d^3*e^8 - (2*B*a^9*b + 9*A*a^8*b^2)*d^2*
e^9 + (11*B*b^10*d^9*e^2 - 9*(10*B*a*b^9 + A*b^10)*d^8*e^3 + 36*(
9*B*a^2*b^8 + 2*A*a*b^9)*d^7*e^4 - 84*(8*B*a^3*b^7 + 3*A*a^2*b^8)
*d^6*e^5 + 126*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^5*e^6 - 126*(6*B*a^5
*b^5 + 5*A*a^4*b^6)*d^4*e^7 + 84*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^3*
e^8 - 36*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^2*e^9 + 9*(3*B*a^8*b^2 + 8
*A*a^7*b^3)*d*e^10 - (2*B*a^9*b + 9*A*a^8*b^2)*e^11)*x^2 + 2*(11*
B*b^10*d^10*e - 9*(10*B*a*b^9 + A*b^10)*d^9*e^2 + 36*(9*B*a^2*b^8
 + 2*A*a*b^9)*d^8*e^3 - 84*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^7*e^4 +
126*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^6*e^5 - 126*(6*B*a^5*b^5 + 5*A*
a^4*b^6)*d^5*e^6 + 84*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^4*e^7 - 36*(4
*B*a^7*b^3 + 7*A*a^6*b^4)*d^3*e^8 + 9*(3*B*a^8*b^2 + 8*A*a^7*b^3)
*d^2*e^9 - (2*B*a^9*b + 9*A*a^8*b^2)*d*e^10)*x)*log(e*x + d))/(e^
14*x^2 + 2*d*e^13*x + d^2*e^12)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)/(e*x+d)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.214191, size = 1, normalized size = 0.

$$\text{Done}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d)^3,x, algorithm="giac")
```

```
[Out] Done
```

3.1075 $\int \frac{(a+bx)^{10}(A+Bx)}{(d+ex)^4} \, dx$

Optimal. Leaf size=445

$$-\frac{b^9(d+ex)^7(-10aBe-Abe+11bBd)}{7e^{12}}+\frac{5b^8(d+ex)^6(bd-ae)(-9aBe-2Abe+11bBd)}{6e^{12}}-\frac{3b^7(d+ex)^5(bd-ae)^2(-8aBe-3Abe+11bBd)}{e^{12}}+\frac{15b^6(d+ex)^4(bd-ae)^3(-7aBe-4Abe+11bBd)}{2e^{12}}-\frac{14b^5(d+ex)^3(bd-ae)^4(-6aBe-5Abe+11bBd)}{e^{12}}+\frac{21b^4(d+ex)^2(bd-ae)^5(-5aBe-6Abe+11bBd)}{e^{12}}-\frac{30b^3x(bd-ae)^6(-4aBe-7Abe+11bBd)}{e^{11}}+\frac{15b^2(bd-ae)^7\log(d+ex)(-3aBe-8Abe+11bBd)}{e^{12}}+\frac{5b(bd-ae)^8(-2aBe-9Abe+11bBd)}{e^{12}(d+ex)}-\frac{(bd-ae)^9(-aBe-10Abe+11bBd)}{2e^{12}(d+ex)^2}+\frac{(bd-ae)^{10}(Bd-Ae)}{3e^{12}(d+ex)^3}+\frac{b^{10}B(d+ex)^8}{8e^{12}}$$

```
[Out] (-30*b^3*(b*d - a*e)^6*(11*b*B*d - 7*A*b*e - 4*a*B*e)*x)/e^11 + (
(b*d - a*e)^10*(B*d - A*e))/(3*e^12*(d + e*x)^3) - ((b*d - a*e)^9
*(11*b*B*d - 10*A*b*e - a*B*e))/(2*e^12*(d + e*x)^2) + (5*b*(b*d
- a*e)^8*(11*b*B*d - 9*A*b*e - 2*a*B*e))/(e^12*(d + e*x)) + (21*b
^4*(b*d - a*e)^5*(11*b*B*d - 6*A*b*e - 5*a*B*e)*(d + e*x)^2)/e^12
 - (14*b^5*(b*d - a*e)^4*(11*b*B*d - 5*A*b*e - 6*a*B*e)*(d + e*x)
^3)/e^12 + (15*b^6*(b*d - a*e)^3*(11*b*B*d - 4*A*b*e - 7*a*B*e)*(
d + e*x)^4)/(2*e^12) - (3*b^7*(b*d - a*e)^2*(11*b*B*d - 3*A*b*e -
 8*a*B*e)*(d + e*x)^5)/e^12 + (5*b^8*(b*d - a*e)*(11*b*B*d - 2*A*
b*e - 9*a*B*e)*(d + e*x)^6)/(6*e^12) - (b^9*(11*b*B*d - A*b*e - 1
0*a*B*e)*(d + e*x)^7)/(7*e^12) + (b^10*B*(d + e*x)^8)/(8*e^12) +
(15*b^2*(b*d - a*e)^7*(11*b*B*d - 8*A*b*e - 3*a*B*e)*Log[d + e*x]
)/e^12
```

Rubi [A] time = 4.41532, antiderivative size = 445, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{b^9(d+ex)^7(-10aBe-Abe+11bBd)}{7e^{12}}+\frac{5b^8(d+ex)^6(bd-ae)(-9aBe-2Abe+11bBd)}{6e^{12}}-\frac{3b^7(d+ex)^5(bd-ae)^2(-8aBe-3Abe+11bBd)}{e^{12}}+\frac{15b^6(d+ex)^4(bd-ae)^3(-7aBe-4Abe+11bBd)}{2e^{12}}-\frac{14b^5(d+ex)^3(bd-ae)^4(-6aBe-5Abe+11bBd)}{e^{12}}+\frac{21b^4(d+ex)^2(bd-ae)^5(-5aBe-6Abe+11bBd)}{e^{12}}-\frac{30b^3x(bd-ae)^6(-4aBe-7Abe+11bBd)}{e^{11}}+\frac{15b^2(bd-ae)^7\log(d+ex)(-3aBe-8Abe+11bBd)}{e^{12}}+\frac{5b(bd-ae)^8(-2aBe-9Abe+11bBd)}{e^{12}(d+ex)}-\frac{(bd-ae)^9(-aBe-10Abe+11bBd)}{2e^{12}(d+ex)^2}+\frac{(bd-ae)^{10}(Bd-Ae)}{3e^{12}(d+ex)^3}+\frac{b^{10}B(d+ex)^8}{8e^{12}}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^10*(A + B*x))/(d + e*x)^4,x]
```


```
[Out] (-30*b^3*(b*d - a*e)^6*(11*b*B*d - 7*A*b*e - 4*a*B*e)*x)/e^11 + (
(b*d - a*e)^10*(B*d - A*e))/(3*e^12*(d + e*x)^3) - ((b*d - a*e)^9
*(11*b*B*d - 10*A*b*e - a*B*e))/(2*e^12*(d + e*x)^2) + (5*b*(b*d
- a*e)^8*(11*b*B*d - 9*A*b*e - 2*a*B*e))/(e^12*(d + e*x)) + (21*b
^4*(b*d - a*e)^5*(11*b*B*d - 6*A*b*e - 5*a*B*e)*(d + e*x)^2)/e^12
 - (14*b^5*(b*d - a*e)^4*(11*b*B*d - 5*A*b*e - 6*a*B*e)*(d + e*x)
^3)/e^12 + (15*b^6*(b*d - a*e)^3*(11*b*B*d - 4*A*b*e - 7*a*B*e)*(
d + e*x)^4)/(2*e^12) - (3*b^7*(b*d - a*e)^2*(11*b*B*d - 3*A*b*e -
 8*a*B*e)*(d + e*x)^5)/e^12 + (5*b^8*(b*d - a*e)*(11*b*B*d - 2*A*
b*e - 9*a*B*e)*(d + e*x)^6)/(6*e^12) - (b^9*(11*b*B*d - A*b*e - 1
0*a*B*e)*(d + e*x)^7)/(7*e^12) + (b^10*B*(d + e*x)^8)/(8*e^12) +
(15*b^2*(b*d - a*e)^7*(11*b*B*d - 8*A*b*e - 3*a*B*e)*Log[d + e*x]
```

```
)/e^12
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)/(e*x+d)**4,x)

[Out] Timed out
```

Mathematica [A] time = 1.00022, size = 814, normalized size = 1.83

$$\frac{21Be^8x^8b^{10} + 24e^7(-4bBd + Abe + 10aBe)x^7b^9 - 28e^6\left(2d(2Ae - 5Bd)b^2 - 10ae(Ae - 4Bd)b - 45a^2Be^2\right)x^6b^8 + 168e^5\left(2d^2(\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^10*(A + B*x))/(d + e*x)^4,x]

[Out] (168*b^3*e*(120*a^7*B*e^7 - 315*a^2*b^5*d^4*e^2*(8*B*d - 5*A*e) +
 600*a^3*b^4*d^3*e^3*(7*B*d - 4*A*e) + 280*a*b^6*d^5*e*(3*B*d - 2
*A*e) + 504*a^5*b^2*d*e^5*(5*B*d - 2*A*e) - 2100*a^4*b^3*d^2*e^4*
(2*B*d - A*e) + 210*a^6*b*e^6*(-4*B*d + A*e) + 12*b^7*d^6*(-10*B*
d + 7*A*e))*x - 84*b^4*e^2*(-210*a^6*B*e^6 + 70*a*b^5*d^4*e*(8*B*
d - 5*A*e) - 225*a^2*b^4*d^3*e^2*(7*B*d - 4*A*e) - 420*a^4*b^2*d*
e^4*(5*B*d - 2*A*e) + 1200*a^3*b^3*d^2*e^3*(2*B*d - A*e) - 252*a^
5*b*e^5*(-4*B*d + A*e) + 28*b^6*d^5*(-3*B*d + 2*A*e))*x^2 + 56*b^
5*e^3*(252*a^5*B*e^5 - 7*b^5*d^4*(8*B*d - 5*A*e) + 50*a*b^4*d^3*e
*(7*B*d - 4*A*e) + 240*a^3*b^2*d*e^3*(5*B*d - 2*A*e) - 450*a^2*b^
3*d^2*e^2*(2*B*d - A*e) + 210*a^4*b*e^4*(-4*B*d + A*e))*x^3 - 210
*b^6*e^4*(-42*a^4*B*e^4 + 20*a*b^3*d^2*e*(2*B*d - A*e) - 24*a^3*b
*e^3*(-4*B*d + A*e) + 18*a^2*b^2*d*e^2*(-5*B*d + 2*A*e) + b^4*d^3
*(-7*B*d + 4*A*e))*x^4 + 168*b^7*e^5*(24*a^3*B*e^3 + 4*a*b^2*d*e*
(5*B*d - 2*A*e) + 9*a^2*b*e^2*(-4*B*d + A*e) + 2*b^3*d^2*(-2*B*d
+ A*e))*x^5 - 28*b^8*e^6*(-45*a^2*B*e^2 - 10*a*b*e*(-4*B*d + A*e)
 + 2*b^2*d*(-5*B*d + 2*A*e))*x^6 + 24*b^9*e^7*(-4*b*B*d + A*b*e +
 10*a*B*e)*x^7 + 21*b^10*B*e^8*x^8 + (56*(b*d - a*e)^10*(B*d - A*
e))/(d + e*x)^3 - (84*(b*d - a*e)^9*(11*b*B*d - 10*A*b*e - a*B*e)
)/(d + e*x)^2 + (840*b*(b*d - a*e)^8*(11*b*B*d - 9*A*b*e - 2*a*B*
e))/(d + e*x) + 2520*b^2*(b*d - a*e)^7*(11*b*B*d - 8*A*b*e - 3*a*
B*e)*Log[d + e*x])/(168*e^12)
```

Maple [B] time = 0.042, size = 2607, normalized size = 5.9

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^10*(B*x+A)/(e*x+d)^4,x)

[Out] 105*b^4/e^4*B*x^2*a^6+42*b^10/e^10*B*x^2*d^6+1/8*b^10/e^4*B*x^8+1
/7*b^10/e^4*A*x^7-1/3/e/(e*x+d)^3*a^10*A-1/2/e^2/(e*x+d)^2*B*a^10
-1/3/e^11/(e*x+d)^3*A*b^10*d^10+1/3/e^2/(e*x+d)^3*B*d*a^10+1/3/e^
12/(e*x+d)^3*b^10*B*d^11-5/e^2/(e*x+d)^2*A*a^9*b+5/e^11/(e*x+d)^2
*A*b^10*d^9-11/2/e^12/(e*x+d)^2*b^10*B*d^10-45*b^2/e^3/(e*x+d)*A*
a^8-45*b^10/e^11/(e*x+d)*A*d^8-10*b/e^3/(e*x+d)*B*a^9+55*b^10/e^1
2/(e*x+d)*B*d^9+10/7*b^9/e^4*B*x^7*a-4/7*b^10/e^5*B*x^7*d+5/3*b^9
/e^4*A*x^6*a-2/3*b^10/e^5*A*x^6*d+15/2*b^8/e^4*B*x^6*a^2+5/3*b^10
```

```
/e^6*B*x^6*d^2+9*b^8/e^4*A*x^5*a^2+2*b^10/e^6*A*x^5*d^2+120*b^3/e
^4*ln(e*x+d)*A*a^7-120*b^10/e^11*ln(e*x+d)*A*d^7+84*b^10/e^10*A*d
^6*x+40/e^8/(e*x+d)^3*A*a^3*b^7*d^7-15/e^9/(e*x+d)^3*A*a^2*b^8*d^
8+10/3/e^10/(e*x+d)^3*A*a*b^9*d^9-10/3/e^3/(e*x+d)^3*B*d^2*a^9*b+
15/e^4/(e*x+d)^3*B*d^3*a^8*b^2-40/e^5/(e*x+d)^3*B*a^7*b^3*d^4+70/
e^6/(e*x+d)^3*B*a^6*b^4*d^5-84/e^7/(e*x+d)^3*B*a^5*b^5*d^6+70/e^8
/(e*x+d)^3*B*a^4*b^6*d^7-40/e^9/(e*x+d)^3*B*a^3*b^7*d^8+15/e^10/(
e*x+d)^3*B*a^2*b^8*d^9-10/3/e^11/(e*x+d)^3*B*a*b^9*d^10+360*b^3/e
^4/(e*x+d)*A*a^7*d-1260*b^4/e^5/(e*x+d)*A*a^6*d^2+2520*b^5/e^6/(e
*x+d)*A*a^5*d^3-3150*b^6/e^7/(e*x+d)*A*a^4*d^4+2520*b^7/e^8/(e*x+
d)*A*a^3*d^5-1260*b^8/e^9/(e*x+d)*A*a^2*d^6+360*b^9/e^10/(e*x+d)*
A*a*d^7+135*b^2/e^4/(e*x+d)*B*a^8*d-720*b^3/e^5/(e*x+d)*B*a^7*d^2
+2100*b^4/e^6/(e*x+d)*B*a^6*d^3-3780*b^5/e^7/(e*x+d)*B*a^5*d^4+44
10*b^6/e^8/(e*x+d)*B*a^4*d^5-3360*b^7/e^9/(e*x+d)*B*a^3*d^6+1620*
b^8/e^10/(e*x+d)*B*a^2*d^7-450*b^9/e^11/(e*x+d)*B*a*d^8+45/e^3/(e
*x+d)^2*A*a^8*b^2*d-180/e^4/(e*x+d)^2*A*a^7*b^3*d^2+420/e^5/(e*x+
d)^2*A*a^6*b^4*d^3-630/e^6/(e*x+d)^2*A*a^5*b^5*d^4+630/e^7/(e*x+d
)^2*A*a^4*b^6*d^5-420/e^8/(e*x+d)^2*A*a^3*b^7*d^6+180/e^9/(e*x+d)
^2*A*a^2*b^8*d^7-45/e^10/(e*x+d)^2*A*a*b^9*d^8+10/e^3/(e*x+d)^2*B
*a^9*b*d-135/2/e^4/(e*x+d)^2*B*a^8*b^2*d^2+240/e^5/(e*x+d)^2*B*a^
7*b^3*d^3-525/e^6/(e*x+d)^2*B*a^6*b^4*d^4-20/3*b^9/e^5*B*x^6*a*d-
8*b^9/e^5*A*x^5*a*d-36*b^8/e^5*B*x^5*a^2*d+20*b^9/e^6*B*x^5*a*d^2
-45*b^8/e^5*A*x^4*a^2*d+25*b^9/e^6*A*x^4*a*d^2-120*b^7/e^5*B*x^4*
a^3*d+225/2*b^8/e^6*B*x^4*a^2*d^2-50*b^9/e^7*B*x^4*a*d^3-160*b^7/
e^5*A*x^3*a^3*d+150*b^8/e^6*A*x^3*a^2*d^2-200/3*b^9/e^7*A*x^3*a*d
^3-280*b^6/e^5*B*x^3*a^4*d+400*b^7/e^6*B*x^3*a^3*d^2-300*b^8/e^7*
B*x^3*a^2*d^3+350/3*b^9/e^8*B*x^3*a*d^4-4200*b^6/e^7*B*a^4*d^3*x+
4200*b^7/e^8*B*a^3*d^4*x-2520*b^8/e^9*B*a^2*d^5*x+840*b^9/e^10*B*
a*d^6*x-420*b^6/e^5*A*x^2*a^4*d+600*b^7/e^6*A*x^2*a^3*d^2-450*b^8
/e^7*A*x^2*a^2*d^3+175*b^9/e^8*A*x^2*a*d^4-504*b^5/e^5*B*x^2*a^5*
d+1050*b^6/e^6*B*x^2*a^4*d^2-1200*b^7/e^7*B*x^2*a^3*d^3+1575/2*b^
8/e^8*B*x^2*a^2*d^4-280*b^9/e^9*B*x^2*a*d^5+756/e^7/(e*x+d)^2*B*a
^5*b^5*d^5-735/e^8/(e*x+d)^2*B*a^4*b^6*d^6+480/e^9/(e*x+d)^2*B*a^
3*b^7*d^7-405/2/e^10/(e*x+d)^2*B*a^2*b^8*d^8+50/e^11/(e*x+d)^2*B*
a*b^9*d^9-1008*b^5/e^5*A*a^5*d*x+2100*b^6/e^6*A*a^4*d^2*x-2400*b^
7/e^7*A*a^3*d^3*x+1575*b^8/e^8*A*a^2*d^4*x-560*b^9/e^9*A*a*d^5*x-
840*b^4/e^5*B*a^6*d*x+2520*b^5/e^6*B*a^5*d^2*x-840*b^4/e^5*ln(e*x
+d)*A*a^6*d+2520*b^5/e^6*ln(e*x+d)*A*a^5*d^2-4200*b^6/e^7*ln(e*x+
d)*A*a^4*d^3+4200*b^7/e^8*ln(e*x+d)*A*a^3*d^4-2520*b^8/e^9*ln(e*x
+d)*A*a^2*d^5+840*b^9/e^10*ln(e*x+d)*A*a*d^6-480*b^3/e^5*ln(e*x+d
)*B*a^7*d+2100*b^4/e^6*ln(e*x+d)*B*a^6*d^2-5040*b^5/e^7*ln(e*x+d)
*B*a^5*d^3+7350*b^6/e^8*ln(e*x+d)*B*a^4*d^4-6720*b^7/e^9*ln(e*x+d
)*B*a^3*d^5+3780*b^8/e^10*ln(e*x+d)*B*a^2*d^6-1200*b^9/e^11*ln(e*
x+d)*B*a*d^7+10/3/e^2/(e*x+d)^3*A*d*a^9*b-15/e^3/(e*x+d)^3*A*d^2*
a^8*b^2+40/e^4/(e*x+d)^3*A*d^3*a^7*b^3-70/e^5/(e*x+d)^3*A*a^6*b^4
*d^4+84/e^6/(e*x+d)^3*A*a^5*b^5*d^5-70/e^7/(e*x+d)^3*A*a^4*b^6*d^
6+120*b^3/e^4*B*a^7*x-120*b^10/e^11*B*d^7*x+24*b^7/e^4*B*x^5*a^3-
4*b^10/e^7*B*x^5*d^3+30*b^7/e^4*A*x^4*a^3-5*b^10/e^7*A*x^4*d^3+10
5/2*b^6/e^4*B*x^4*a^4+35/4*b^10/e^8*B*x^4*d^4+210*b^4/e^4*A*a^6*x
+45*b^2/e^4*ln(e*x+d)*B*a^8+165*b^10/e^12*ln(e*x+d)*B*d^8+70*b^6/
e^4*A*x^3*a^4+35/3*b^10/e^8*A*x^3*d^4+84*b^5/e^4*B*x^3*a^5-56/3*b
^10/e^9*B*x^3*d^5+126*b^5/e^4*A*x^2*a^5-28*b^10/e^9*A*x^2*d^5
```

Maxima [A] time = 1.47122, size = 2483, normalized size = 5.58

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d)^4,x, algorithm="maxima")
```

```
[Out] 1/6*(299*B*b^10*d^11 - 2*A*a^10*e^11 - 242*(10*B*a*b^9 + A*b^10)*
d^10*e + 955*(9*B*a^2*b^8 + 2*A*a*b^9)*d^9*e^2 - 2190*(8*B*a^3*b^
7 + 3*A*a^2*b^8)*d^8*e^3 + 3210*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^7*e
^4 - 3108*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^6*e^5 + 1974*(5*B*a^6*b^4
 + 6*A*a^5*b^5)*d^5*e^6 - 780*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^4*e^7
 + 165*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^3*e^8 - 10*(2*B*a^9*b + 9*A*
a^8*b^2)*d^2*e^9 - (B*a^10 + 10*A*a^9*b)*d*e^10 + 30*(11*B*b^10*d
^9*e^2 - 9*(10*B*a*b^9 + A*b^10)*d^8*e^3 + 36*(9*B*a^2*b^8 + 2*A*
a*b^9)*d^7*e^4 - 84*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^6*e^5 + 126*(7*
```

```
B*a^4*b^6 + 4*A*a^3*b^7)*d^5*e^6 - 126*(6*B*a^5*b^5 + 5*A*a^4*b^6
)*d^4*e^7 + 84*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^3*e^8 - 36*(4*B*a^7*
b^3 + 7*A*a^6*b^4)*d^2*e^9 + 9*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d*e^10
 - (2*B*a^9*b + 9*A*a^8*b^2)*e^11)*x^2 + 3*(209*B*b^10*d^10*e - 1
70*(10*B*a*b^9 + A*b^10)*d^9*e^2 + 675*(9*B*a^2*b^8 + 2*A*a*b^9)*
d^8*e^3 - 1560*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^7*e^4 + 2310*(7*B*a^
4*b^6 + 4*A*a^3*b^7)*d^6*e^5 - 2268*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d
^5*e^6 + 1470*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^4*e^7 - 600*(4*B*a^7*
b^3 + 7*A*a^6*b^4)*d^3*e^8 + 135*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^2*
e^9 - 10*(2*B*a^9*b + 9*A*a^8*b^2)*d*e^10 - (B*a^10 + 10*A*a^9*b)
*e^11)*x)/(e^15*x^3 + 3*d*e^14*x^2 + 3*d^2*e^13*x + d^3*e^12) + 1
/168*(21*B*b^10*e^7*x^8 - 24*(4*B*b^10*d*e^6 - (10*B*a*b^9 + A*b^
10)*e^7)*x^7 + 28*(10*B*b^10*d^2*e^5 - 4*(10*B*a*b^9 + A*b^10)*d*
e^6 + 5*(9*B*a^2*b^8 + 2*A*a*b^9)*e^7)*x^6 - 168*(4*B*b^10*d^3*e^
4 - 2*(10*B*a*b^9 + A*b^10)*d^2*e^5 + 4*(9*B*a^2*b^8 + 2*A*a*b^9)
*d*e^6 - 3*(8*B*a^3*b^7 + 3*A*a^2*b^8)*e^7)*x^5 + 210*(7*B*b^10*d
^4*e^3 - 4*(10*B*a*b^9 + A*b^10)*d^3*e^4 + 10*(9*B*a^2*b^8 + 2*A*
a*b^9)*d^2*e^5 - 12*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d*e^6 + 6*(7*B*a^
4*b^6 + 4*A*a^3*b^7)*e^7)*x^4 - 56*(56*B*b^10*d^5*e^2 - 35*(10*B*
a*b^9 + A*b^10)*d^4*e^3 + 100*(9*B*a^2*b^8 + 2*A*a*b^9)*d^3*e^4 -
 150*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^2*e^5 + 120*(7*B*a^4*b^6 + 4*A
*a^3*b^7)*d*e^6 - 42*(6*B*a^5*b^5 + 5*A*a^4*b^6)*e^7)*x^3 + 84*(8
4*B*b^10*d^6*e - 56*(10*B*a*b^9 + A*b^10)*d^5*e^2 + 175*(9*B*a^2*
b^8 + 2*A*a*b^9)*d^4*e^3 - 300*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^3*e^
4 + 300*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^2*e^5 - 168*(6*B*a^5*b^5 +
5*A*a^4*b^6)*d*e^6 + 42*(5*B*a^6*b^4 + 6*A*a^5*b^5)*e^7)*x^2 - 16
8*(120*B*b^10*d^7 - 84*(10*B*a*b^9 + A*b^10)*d^6*e + 280*(9*B*a^2
*b^8 + 2*A*a*b^9)*d^5*e^2 - 525*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^4*e
^3 + 600*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^3*e^4 - 420*(6*B*a^5*b^5 +
 5*A*a^4*b^6)*d^2*e^5 + 168*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d*e^6 - 3
0*(4*B*a^7*b^3 + 7*A*a^6*b^4)*e^7)*x)/e^11 + 15*(11*B*b^10*d^8 -
8*(10*B*a*b^9 + A*b^10)*d^7*e + 28*(9*B*a^2*b^8 + 2*A*a*b^9)*d^6*
e^2 - 56*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^5*e^3 + 70*(7*B*a^4*b^6 +
4*A*a^3*b^7)*d^4*e^4 - 56*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^3*e^5 + 2
8*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^2*e^6 - 8*(4*B*a^7*b^3 + 7*A*a^6*
b^4)*d*e^7 + (3*B*a^8*b^2 + 8*A*a^7*b^3)*e^8)*log(e*x + d)/e^12
```

Fricas [A] time = 0.251136, size = 3648, normalized size = 8.2

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d)^4,x, algorithm="fricas")
```

```
[Out] 1/168*(21*B*b^10*e^11*x^11 + 8372*B*b^10*d^11 - 56*A*a^10*e^11 -
6776*(10*B*a*b^9 + A*b^10)*d^10*e + 26740*(9*B*a^2*b^8 + 2*A*a*b^
9)*d^9*e^2 - 61320*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^8*e^3 + 89880*(7
*B*a^4*b^6 + 4*A*a^3*b^7)*d^7*e^4 - 87024*(6*B*a^5*b^5 + 5*A*a^4*
b^6)*d^6*e^5 + 55272*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^5*e^6 - 21840*
(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^4*e^7 + 4620*(3*B*a^8*b^2 + 8*A*a^7
*b^3)*d^3*e^8 - 280*(2*B*a^9*b + 9*A*a^8*b^2)*d^2*e^9 - 28*(B*a^1
0 + 10*A*a^9*b)*d*e^10 - 3*(11*B*b^10*d*e^10 - 8*(10*B*a*b^9 + A*
b^10)*e^11)*x^10 + 5*(11*B*b^10*d^2*e^9 - 8*(10*B*a*b^9 + A*b^10)
*d*e^10 + 28*(9*B*a^2*b^8 + 2*A*a*b^9)*e^11)*x^9 - 9*(11*B*b^10*d
^3*e^8 - 8*(10*B*a*b^9 + A*b^10)*d^2*e^9 + 28*(9*B*a^2*b^8 + 2*A*
a*b^9)*d*e^10 - 56*(8*B*a^3*b^7 + 3*A*a^2*b^8)*e^11)*x^8 + 18*(11
*B*b^10*d^4*e^7 - 8*(10*B*a*b^9 + A*b^10)*d^3*e^8 + 28*(9*B*a^2*b
^8 + 2*A*a*b^9)*d^2*e^9 - 56*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d*e^10 +
 70*(7*B*a^4*b^6 + 4*A*a^3*b^7)*e^11)*x^7 - 42*(11*B*b^10*d^5*e^6
 - 8*(10*B*a*b^9 + A*b^10)*d^4*e^7 + 28*(9*B*a^2*b^8 + 2*A*a*b^9)
*d^3*e^8 - 56*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^2*e^9 + 70*(7*B*a^4*b
^6 + 4*A*a^3*b^7)*d*e^10 - 56*(6*B*a^5*b^5 + 5*A*a^4*b^6)*e^11)*x
^6 + 126*(11*B*b^10*d^6*e^5 - 8*(10*B*a*b^9 + A*b^10)*d^5*e^6 + 2
8*(9*B*a^2*b^8 + 2*A*a*b^9)*d^4*e^7 - 56*(8*B*a^3*b^7 + 3*A*a^2*b
^8)*d^3*e^8 + 70*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^2*e^9 - 56*(6*B*a^
5*b^5 + 5*A*a^4*b^6)*d*e^10 + 28*(5*B*a^6*b^4 + 6*A*a^5*b^5)*e^11
)*x^5 - 630*(11*B*b^10*d^7*e^4 - 8*(10*B*a*b^9 + A*b^10)*d^6*e^5
+ 28*(9*B*a^2*b^8 + 2*A*a*b^9)*d^5*e^6 - 56*(8*B*a^3*b^7 + 3*A*a^
2*b^8)*d^4*e^7 + 70*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^3*e^8 - 56*(6*B
```

```
*a^5*b^5 + 5*A*a^4*b^6)*d^2*e^9 + 28*(5*B*a^6*b^4 + 6*A*a^5*b^5)*
d*e^10 - 8*(4*B*a^7*b^3 + 7*A*a^6*b^4)*e^11)*x^4 - 28*(1516*B*b^1
0*d^8*e^3 - 1078*(10*B*a*b^9 + A*b^10)*d^7*e^4 + 3665*(9*B*a^2*b^
8 + 2*A*a*b^9)*d^6*e^5 - 7050*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^5*e^6
 + 8340*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^4*e^7 - 6132*(6*B*a^5*b^5 +
 5*A*a^4*b^6)*d^3*e^8 + 2646*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^2*e^9
- 540*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d*e^10)*x^3 - 84*(526*B*b^10*d^
9*e^2 - 358*(10*B*a*b^9 + A*b^10)*d^8*e^3 + 1145*(9*B*a^2*b^8 + 2
*A*a*b^9)*d^7*e^4 - 2010*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^6*e^5 + 20
40*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^5*e^6 - 1092*(6*B*a^5*b^5 + 5*A*
a^4*b^6)*d^4*e^7 + 126*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^3*e^8 + 180*
(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^2*e^9 - 90*(3*B*a^8*b^2 + 8*A*a^7*b
^3)*d*e^10 + 10*(2*B*a^9*b + 9*A*a^8*b^2)*e^11)*x^2 - 84*(31*B*b^
10*d^10*e + 2*(10*B*a*b^9 + A*b^10)*d^9*e^2 - 115*(9*B*a^2*b^8 +
2*A*a*b^9)*d^8*e^3 + 510*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^7*e^4 - 11
10*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^6*e^5 + 1428*(6*B*a^5*b^5 + 5*A*
a^4*b^6)*d^5*e^6 - 1134*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^4*e^7 + 540
*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^3*e^8 - 135*(3*B*a^8*b^2 + 8*A*a^7
*b^3)*d^2*e^9 + 10*(2*B*a^9*b + 9*A*a^8*b^2)*d*e^10 + (B*a^10 + 1
0*A*a^9*b)*e^11)*x + 2520*(11*B*b^10*d^11 - 8*(10*B*a*b^9 + A*b^1
0)*d^10*e + 28*(9*B*a^2*b^8 + 2*A*a*b^9)*d^9*e^2 - 56*(8*B*a^3*b^
7 + 3*A*a^2*b^8)*d^8*e^3 + 70*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^7*e^4
 - 56*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^6*e^5 + 28*(5*B*a^6*b^4 + 6*A
*a^5*b^5)*d^5*e^6 - 8*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^4*e^7 + (3*B*
a^8*b^2 + 8*A*a^7*b^3)*d^3*e^8 + (11*B*b^10*d^8*e^3 - 8*(10*B*a*b
^9 + A*b^10)*d^7*e^4 + 28*(9*B*a^2*b^8 + 2*A*a*b^9)*d^6*e^5 - 56*
(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^5*e^6 + 70*(7*B*a^4*b^6 + 4*A*a^3*b
^7)*d^4*e^7 - 56*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^3*e^8 + 28*(5*B*a^
6*b^4 + 6*A*a^5*b^5)*d^2*e^9 - 8*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d*e^
10 + (3*B*a^8*b^2 + 8*A*a^7*b^3)*e^11)*x^3 + 3*(11*B*b^10*d^9*e^2
 - 8*(10*B*a*b^9 + A*b^10)*d^8*e^3 + 28*(9*B*a^2*b^8 + 2*A*a*b^9)
*d^7*e^4 - 56*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^6*e^5 + 70*(7*B*a^4*b
^6 + 4*A*a^3*b^7)*d^5*e^6 - 56*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^4*e^
7 + 28*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^3*e^8 - 8*(4*B*a^7*b^3 + 7*A
*a^6*b^4)*d^2*e^9 + (3*B*a^8*b^2 + 8*A*a^7*b^3)*d*e^10)*x^2 + 3*(
11*B*b^10*d^10*e - 8*(10*B*a*b^9 + A*b^10)*d^9*e^2 + 28*(9*B*a^2*
b^8 + 2*A*a*b^9)*d^8*e^3 - 56*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^7*e^4
 + 70*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^6*e^5 - 56*(6*B*a^5*b^5 + 5*A
*a^4*b^6)*d^5*e^6 + 28*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^4*e^7 - 8*(4
*B*a^7*b^3 + 7*A*a^6*b^4)*d^3*e^8 + (3*B*a^8*b^2 + 8*A*a^7*b^3)*d
^2*e^9)*x)*log(e*x + d))/(e^15*x^3 + 3*d*e^14*x^2 + 3*d^2*e^13*x
+ d^3*e^12)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)/(e*x+d)**4,x)

[Out] Timed out
```

GIAC/XCAS [A] time = 0.21584, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d)^4,x, algorithm="giac")

[Out] Done
```

3.1076 $\int \frac{(a+bx)^{10}(A+Bx)}{(d+ex)^5}\,dx$

Optimal. Leaf size=444

$$-\frac{b^9(d+ex)^6(-10aBe-Abe+11bBd)}{6e^{12}}+\frac{b^8(d+ex)^5(bd-ae)(-9aBe-2Abe+11bBd)}{e^{12}}-\frac{15b^7(d+ex)^4(bd-ae)^2(-8aBe-3Abe+11bBd)}{4e^{12}}+\frac{10b^6(d+ex)^3(bd-ae)^3(-7aBe-4Abe+11bBd)}{e^{12}}-\frac{21b^5(d+ex)^2(bd-ae)^4(-6aBe-5Abe+11bBd)}{e^{12}}+\frac{42b^4x(bd-ae)^5(-5aBe-6Abe+11bBd)}{e^{11}}-\frac{30b^3(bd-ae)^6\log(d+ex)(-4aBe-7Abe+11bBd)}{e^{12}}-\frac{15b^2(bd-ae)^7(-3aBe-8Abe+11bBd)}{e^{12}(d+ex)}+\frac{5b(bd-ae)^8(-2aBe-9Abe+11bBd)}{2e^{12}(d+ex)^2}-\frac{(bd-ae)^9(-aBe-10Abe+11bBd)}{3e^{12}(d+ex)^3}+\frac{(bd-ae)^{10}(Bd-Ae)}{4e^{12}(d+ex)^4}+\frac{b^{10}B(d+ex)^7}{7e^{12}}$$

```
[Out] (42*b^4*(b*d - a*e)^5*(11*b*B*d - 6*A*b*e - 5*a*B*e)*x)/e^11 + ((
b*d - a*e)^10*(B*d - A*e))/(4*e^12*(d + e*x)^4) - ((b*d - a*e)^9*
(11*b*B*d - 10*A*b*e - a*B*e))/(3*e^12*(d + e*x)^3) + (5*b*(b*d -
 a*e)^8*(11*b*B*d - 9*A*b*e - 2*a*B*e))/(2*e^12*(d + e*x)^2) - (1
5*b^2*(b*d - a*e)^7*(11*b*B*d - 8*A*b*e - 3*a*B*e))/(e^12*(d + e*
x)) - (21*b^5*(b*d - a*e)^4*(11*b*B*d - 5*A*b*e - 6*a*B*e)*(d + e
*x)^2)/e^12 + (10*b^6*(b*d - a*e)^3*(11*b*B*d - 4*A*b*e - 7*a*B*e
)*(d + e*x)^3)/e^12 - (15*b^7*(b*d - a*e)^2*(11*b*B*d - 3*A*b*e -
 8*a*B*e)*(d + e*x)^4)/(4*e^12) + (b^8*(b*d - a*e)*(11*b*B*d - 2*
A*b*e - 9*a*B*e)*(d + e*x)^5)/e^12 - (b^9*(11*b*B*d - A*b*e - 10*
a*B*e)*(d + e*x)^6)/(6*e^12) + (b^10*B*(d + e*x)^7)/(7*e^12) - (3
0*b^3*(b*d - a*e)^6*(11*b*B*d - 7*A*b*e - 4*a*B*e)*Log[d + e*x])/
e^12
```

Rubi [A] time = 3.83138, antiderivative size = 444, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{b^9(d+ex)^6(-10aBe-Abe+11bBd)}{6e^{12}}+\frac{b^8(d+ex)^5(bd-ae)(-9aBe-2Abe+11bBd)}{e^{12}}-\frac{15b^7(d+ex)^4(bd-ae)^2(-8aBe-3Abe+11bBd)}{4e^{12}}+\frac{10b^6(d+ex)^3(bd-ae)^3(-7aBe-4Abe+11bBd)}{e^{12}}-\frac{21b^5(d+ex)^2(bd-ae)^4(-6aBe-5Abe+11bBd)}{e^{12}}+\frac{42b^4x(bd-ae)^5(-5aBe-6Abe+11bBd)}{e^{11}}-\frac{30b^3(bd-ae)^6\log(d+ex)(-4aBe-7Abe+11bBd)}{e^{12}}-\frac{15b^2(bd-ae)^7(-3aBe-8Abe+11bBd)}{e^{12}(d+ex)}+\frac{5b(bd-ae)^8(-2aBe-9Abe+11bBd)}{2e^{12}(d+ex)^2}-\frac{(bd-ae)^9(-aBe-10Abe+11bBd)}{3e^{12}(d+ex)^3}+\frac{(bd-ae)^{10}(Bd-Ae)}{4e^{12}(d+ex)^4}+\frac{b^{10}B(d+ex)^7}{7e^{12}}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^10*(A + B*x))/(d + e*x)^5,x]
```


```
[Out] (42*b^4*(b*d - a*e)^5*(11*b*B*d - 6*A*b*e - 5*a*B*e)*x)/e^11 + ((
b*d - a*e)^10*(B*d - A*e))/(4*e^12*(d + e*x)^4) - ((b*d - a*e)^9*
(11*b*B*d - 10*A*b*e - a*B*e))/(3*e^12*(d + e*x)^3) + (5*b*(b*d -
 a*e)^8*(11*b*B*d - 9*A*b*e - 2*a*B*e))/(2*e^12*(d + e*x)^2) - (1
5*b^2*(b*d - a*e)^7*(11*b*B*d - 8*A*b*e - 3*a*B*e))/(e^12*(d + e*
x)) - (21*b^5*(b*d - a*e)^4*(11*b*B*d - 5*A*b*e - 6*a*B*e)*(d + e
*x)^2)/e^12 + (10*b^6*(b*d - a*e)^3*(11*b*B*d - 4*A*b*e - 7*a*B*e
)*(d + e*x)^3)/e^12 - (15*b^7*(b*d - a*e)^2*(11*b*B*d - 3*A*b*e -
```

```
 8*a*B*e)*(d + e*x)^4)/(4*e^12) + (b^8*(b*d - a*e)*(11*b*B*d - 2*
A*b*e - 9*a*B*e)*(d + e*x)^5)/e^12 - (b^9*(11*b*B*d - A*b*e - 10*
a*B*e)*(d + e*x)^6)/(6*e^12) + (b^10*B*(d + e*x)^7)/(7*e^12) - (3
0*b^3*(b*d - a*e)^6*(11*b*B*d - 7*A*b*e - 4*a*B*e)*Log[d + e*x])/
e^12
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)/(e*x+d)**5,x)
```

```
[Out] Timed out
```

Mathematica [A] time = 0.948639, size = 686, normalized size = 1.55

$$-84b^8e^5x^5\left(-9a^2Be^2-2abe(Ae-5Bd)+b^2d(Ae-3Bd)\right)+105b^7e^4x^4\left(24a^3Be^3+9a^2be^2(Ae-5Bd)+10ab^2de(3Bd-Ae)\right.$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^10*(A + B*x))/(d + e*x)^5,x]
```

```
[Out] (-84*b^4*e*(-210*a^6*B*e^6 + 140*a*b^5*d^4*e*(9*B*d - 5*A*e) - 42
*b^6*d^5*(5*B*d - 3*A*e) + 600*a^3*b^3*d^2*e^3*(7*B*d - 3*A*e) -
1575*a^2*b^4*d^3*e^2*(2*B*d - A*e) - 1050*a^4*b^2*d*e^4*(3*B*d -
A*e) - 252*a^5*b*e^5*(-5*B*d + A*e))*x + 42*b^5*e^2*(252*a^5*B*e^
5 - 14*b^5*d^4*(9*B*d - 5*A*e) - 225*a^2*b^3*d^2*e^2*(7*B*d - 3*A
*e) + 350*a*b^4*d^3*e*(2*B*d - A*e) + 600*a^3*b^2*d*e^3*(3*B*d -
A*e) + 210*a^4*b*e^4*(-5*B*d + A*e))*x^2 - 140*b^6*e^3*(-42*a^4*B
*e^4 + 10*a*b^3*d^2*e*(7*B*d - 3*A*e) - 45*a^2*b^2*d*e^2*(3*B*d -
 A*e) - 24*a^3*b*e^3*(-5*B*d + A*e) + 7*b^4*d^3*(-2*B*d + A*e))*x
^3 + 105*b^7*e^4*(24*a^3*B*e^3 + 10*a*b^2*d*e*(3*B*d - A*e) + 9*a
^2*b*e^2*(-5*B*d + A*e) + b^3*d^2*(-7*B*d + 3*A*e))*x^4 - 84*b^8*
e^5*(-9*a^2*B*e^2 - 2*a*b*e*(-5*B*d + A*e) + b^2*d*(-3*B*d + A*e)
)*x^5 + 14*b^9*e^6*(-5*b*B*d + A*b*e + 10*a*B*e)*x^6 + 12*b^10*B*
e^7*x^7 + (21*(b*d - a*e)^10*(B*d - A*e))/(d + e*x)^4 - (28*(b*d
- a*e)^9*(11*b*B*d - 10*A*b*e - a*B*e))/(d + e*x)^3 + (210*b*(b*d
 - a*e)^8*(11*b*B*d - 9*A*b*e - 2*a*B*e))/(d + e*x)^2 - (1260*b^2
*(b*d - a*e)^7*(11*b*B*d - 8*A*b*e - 3*a*B*e))/(d + e*x) - 2520*b
^3*(b*d - a*e)^6*(11*b*B*d - 7*A*b*e - 4*a*B*e)*Log[d + e*x])/(84
*e^12)
```

Maple [B] time = 0.045, size = 2673, normalized size = 6.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^10*(B*x+A)/(e*x+d)^5,x)
```

```
[Out] 1/7*b^10/e^5*B*x^7+1/6*b^10/e^5*A*x^6-1/3/e^2/(e*x+d)^3*B*a^10-1/
4/e/(e*x+d)^4*a^10*A-25/2*b^9/e^6*A*x^4*a*d-10*b^9/e^6*B*x^5*a*d-
75*b^8/e^6*A*x^3*a^2*d+50*b^9/e^7*A*x^3*a*d^2-225/4*b^8/e^6*B*x^4
*a^2*d+75/2*b^9/e^7*B*x^4*a*d^2-200*b^7/e^6*B*x^3*a^3*d+225*b^8/e
^7*B*x^3*a^2*d^2-350/3*b^9/e^8*B*x^3*a*d^3+900*b^7/e^7*B*x^2*a^3*
d^2-1575/2*b^8/e^8*B*x^2*a^2*d^3+350*b^9/e^9*B*x^2*a*d^4-1050*b^6
/e^6*A*a^4*d*x+1800*b^7/e^7*A*a^3*d^2*x-1575*b^8/e^8*A*a^2*d^3*x+
```

```
700*b^9/e^9*A*a*d^4*x-1260*b^5/e^6*B*a^5*d*x+3150*b^6/e^7*B*a^4*d
^2*x-4200*b^7/e^8*B*a^3*d^3*x+3150*b^8/e^9*B*a^2*d^4*x-1260*b^9/e
^10*B*a*d^5*x+675/2*b^8/e^7*A*x^2*a^2*d^2-175*b^9/e^8*A*x^2*a*d^3
-525*b^6/e^6*B*x^2*a^4*d-300*b^7/e^6*A*x^2*a^3*d-1260*b^5/e^6*ln(
e*x+d)*A*a^5*d+3150*b^6/e^7*ln(e*x+d)*A*a^4*d^2-4200*b^7/e^8*ln(e
*x+d)*A*a^3*d^3+3150*b^8/e^9*ln(e*x+d)*A*a^2*d^4-1260*b^9/e^10*ln
(e*x+d)*A*a*d^5-1050*b^4/e^6*ln(e*x+d)*B*a^6*d+3780*b^5/e^7*ln(e*
x+d)*B*a^5*d^2-7350*b^6/e^8*ln(e*x+d)*B*a^4*d^3+8400*b^7/e^9*ln(e
*x+d)*B*a^3*d^4-5670*b^8/e^10*ln(e*x+d)*B*a^2*d^5+2100*b^9/e^11*l
n(e*x+d)*B*a*d^6+30/e^3/(e*x+d)^3*A*a^8*b^2*d-120/e^4/(e*x+d)^3*A
*a^7*b^3*d^2+280/e^5/(e*x+d)^3*A*a^6*b^4*d^3-420/e^6/(e*x+d)^3*A*
a^5*b^5*d^4+420/e^7/(e*x+d)^3*A*a^4*b^6*d^5-280/e^8/(e*x+d)^3*A*a
^3*b^7*d^6+120/e^9/(e*x+d)^3*A*a^2*b^8*d^7-30/e^10/(e*x+d)^3*A*a*
b^9*d^8+20/3/e^3/(e*x+d)^3*B*a^9*b*d-45/e^4/(e*x+d)^3*B*a^8*b^2*d
^2+160/e^5/(e*x+d)^3*B*a^7*b^3*d^3-350/e^6/(e*x+d)^3*B*a^6*b^4*d^
4+504/e^7/(e*x+d)^3*B*a^5*b^5*d^5-490/e^8/(e*x+d)^3*B*a^4*b^6*d^6
+320/e^9/(e*x+d)^3*B*a^3*b^7*d^7-135/e^10/(e*x+d)^3*B*a^2*b^8*d^8
+100/3/e^11/(e*x+d)^3*B*a*b^9*d^9+840*b^4/e^5/(e*x+d)*A*a^6*d-252
0*b^5/e^6/(e*x+d)*A*a^5*d^2+4200*b^6/e^7/(e*x+d)*A*a^4*d^3-4200*b
^7/e^8/(e*x+d)*A*a^3*d^4+2520*b^8/e^9/(e*x+d)*A*a^2*d^5-840*b^9/e
^10/(e*x+d)*A*a*d^6+480*b^3/e^5/(e*x+d)*B*a^7*d-2100*b^4/e^6/(e*x
+d)*B*a^6*d^2+5040*b^5/e^7/(e*x+d)*B*a^5*d^3-7350*b^6/e^8/(e*x+d)
*B*a^4*d^4-126*b^10/e^10*A*d^5*x+252*b^5/e^5*A*a^5*x-63*b^10/e^10
*B*x^2*d^5+126*b^5/e^5*B*x^2*a^5+210*b^4/e^5*ln(e*x+d)*A*a^6+210*
b^10/e^11*ln(e*x+d)*A*d^6+120*b^3/e^5*ln(e*x+d)*B*a^7-330*b^10/e^
12*ln(e*x+d)*B*d^7+5/3*b^9/e^5*B*x^6*a+35*b^10/e^9*A*x^2*d^4-10/3
/e^2/(e*x+d)^3*A*a^9*b+10/3/e^11/(e*x+d)^3*A*b^10*d^9-11/3/e^12/(
e*x+d)^3*b^10*B*d^10-120*b^3/e^4/(e*x+d)*A*a^7+120*b^10/e^11/(e*x
+d)*A*d^7-45*b^2/e^4/(e*x+d)*B*a^8-165*b^10/e^12/(e*x+d)*B*d^8-45
/2*b^2/e^3/(e*x+d)^2*A*a^8-45/2*b^10/e^11/(e*x+d)^2*A*d^8-5*b/e^3
/(e*x+d)^2*B*a^9+55/2*b^10/e^12/(e*x+d)^2*B*d^9-1/4/e^11/(e*x+d)^
4*A*b^10*d^10+1/4/e^2/(e*x+d)^4*B*d*a^10+1/4/e^12/(e*x+d)^4*b^10*
B*d^11+210*b^10/e^11*B*d^6*x+210*b^4/e^5*B*a^6*x+6720*b^7/e^9/(e*
x+d)*B*a^3*d^5-3780*b^8/e^10/(e*x+d)*B*a^2*d^6+1200*b^9/e^11/(e*x
+d)*B*a*d^7+180*b^3/e^4/(e*x+d)^2*A*a^7*d-630*b^4/e^5/(e*x+d)^2*A
*a^6*d^2+1260*b^5/e^6/(e*x+d)^2*A*a^5*d^3-1575*b^6/e^7/(e*x+d)^2*
A*a^4*d^4+1260*b^7/e^8/(e*x+d)^2*A*a^3*d^5-630*b^8/e^9/(e*x+d)^2*
A*a^2*d^6+180*b^9/e^10/(e*x+d)^2*A*a*d^7+135/2*b^2/e^4/(e*x+d)^2*
B*a^8*d-360*b^3/e^5/(e*x+d)^2*B*a^7*d^2+1050*b^4/e^6/(e*x+d)^2*B*
a^6*d^3-1890*b^5/e^7/(e*x+d)^2*B*a^5*d^4+2205*b^6/e^8/(e*x+d)^2*B
*a^4*d^5-1680*b^7/e^9/(e*x+d)^2*B*a^3*d^6+810*b^8/e^10/(e*x+d)^2*
B*a^2*d^7-225*b^9/e^11/(e*x+d)^2*B*a*d^8+5/2/e^2/(e*x+d)^4*A*d*a^
9*b-45/4/e^3/(e*x+d)^4*A*d^2*a^8*b^2+30/e^4/(e*x+d)^4*A*d^3*a^7*b
^3-105/2/e^5/(e*x+d)^4*A*d^4*a^6*b^4+63/e^6/(e*x+d)^4*A*a^5*b^5*d
^5-105/2/e^7/(e*x+d)^4*A*a^4*b^6*d^6+30/e^8/(e*x+d)^4*A*a^3*b^7*d
^7-45/4/e^9/(e*x+d)^4*A*a^2*b^8*d^8+5/2/e^10/(e*x+d)^4*A*a*b^9*d^
9-5/2/e^3/(e*x+d)^4*B*d^2*a^9*b+45/4/e^4/(e*x+d)^4*B*d^3*a^8*b^2-
30/e^5/(e*x+d)^4*B*d^4*a^7*b^3+105/2/e^6/(e*x+d)^4*B*a^6*b^4*d^5-
63/e^7/(e*x+d)^4*B*a^5*b^5*d^6+105/2/e^8/(e*x+d)^4*B*a^4*b^6*d^7-
30/e^9/(e*x+d)^4*B*a^3*b^7*d^8+45/4/e^10/(e*x+d)^4*B*a^2*b^8*d^9-
5/2/e^11/(e*x+d)^4*B*a*b^9*d^10+105*b^6/e^5*A*x^2*a^4+70/3*b^10/e
^9*B*x^3*d^4+70*b^6/e^5*B*x^3*a^4-35/3*b^10/e^8*A*x^3*d^3+40*b^7/
e^5*A*x^3*a^3-35/4*b^10/e^8*B*x^4*d^3+30*b^7/e^5*B*x^4*a^3+15/4*b
^10/e^7*A*x^4*d^2+3*b^10/e^7*B*x^5*d^2+45/4*b^8/e^5*A*x^4*a^2+9*b
^8/e^5*B*x^5*a^2-b^10/e^6*A*x^5*d+2*b^9/e^5*A*x^5*a-5/6*b^10/e^6*
B*x^6*d
```

Maxima [A] time = 1.5774, size = 2492, normalized size = 5.61

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d)^5,x, algorithm="maxima")
```

```
[Out] -1/12*(1691*B*b^10*d^11 + 3*A*a^10*e^11 - 1207*(10*B*a*b^9 + A*b^
10)*d^10*e + 4125*(9*B*a^2*b^8 + 2*A*a*b^9)*d^9*e^2 - 7995*(8*B*a
^3*b^7 + 3*A*a^2*b^8)*d^8*e^3 + 9570*(7*B*a^4*b^6 + 4*A*a^3*b^7)*
d^7*e^4 - 7182*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^6*e^5 + 3234*(5*B*a^
6*b^4 + 6*A*a^5*b^5)*d^5*e^6 - 750*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^
```

```
4*e^7 + 45*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^3*e^8 + 5*(2*B*a^9*b + 9
*A*a^8*b^2)*d^2*e^9 + (B*a^10 + 10*A*a^9*b)*d*e^10 + 180*(11*B*b^
10*d^8*e^3 - 8*(10*B*a*b^9 + A*b^10)*d^7*e^4 + 28*(9*B*a^2*b^8 +
2*A*a*b^9)*d^6*e^5 - 56*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^5*e^6 + 70*
(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^4*e^7 - 56*(6*B*a^5*b^5 + 5*A*a^4*b
^6)*d^3*e^8 + 28*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^2*e^9 - 8*(4*B*a^7
*b^3 + 7*A*a^6*b^4)*d*e^10 + (3*B*a^8*b^2 + 8*A*a^7*b^3)*e^11)*x^
3 + 30*(187*B*b^10*d^9*e^2 - 135*(10*B*a*b^9 + A*b^10)*d^8*e^3 +
468*(9*B*a^2*b^8 + 2*A*a*b^9)*d^7*e^4 - 924*(8*B*a^3*b^7 + 3*A*a^
2*b^8)*d^6*e^5 + 1134*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^5*e^6 - 882*(
6*B*a^5*b^5 + 5*A*a^4*b^6)*d^4*e^7 + 420*(5*B*a^6*b^4 + 6*A*a^5*b
^5)*d^3*e^8 - 108*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^2*e^9 + 9*(3*B*a^
8*b^2 + 8*A*a^7*b^3)*d*e^10 + (2*B*a^9*b + 9*A*a^8*b^2)*e^11)*x^2
 + 4*(1331*B*b^10*d^10*e - 955*(10*B*a*b^9 + A*b^10)*d^9*e^2 + 32
85*(9*B*a^2*b^8 + 2*A*a*b^9)*d^8*e^3 - 6420*(8*B*a^3*b^7 + 3*A*a^
2*b^8)*d^7*e^4 + 7770*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^6*e^5 - 5922*
(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^5*e^6 + 2730*(5*B*a^6*b^4 + 6*A*a^5
*b^5)*d^4*e^7 - 660*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^3*e^8 + 45*(3*B
*a^8*b^2 + 8*A*a^7*b^3)*d^2*e^9 + 5*(2*B*a^9*b + 9*A*a^8*b^2)*d*e
^10 + (B*a^10 + 10*A*a^9*b)*e^11)*x)/(e^16*x^4 + 4*d*e^15*x^3 + 6
*d^2*e^14*x^2 + 4*d^3*e^13*x + d^4*e^12) + 1/84*(12*B*b^10*e^6*x^
7 - 14*(5*B*b^10*d*e^5 - (10*B*a*b^9 + A*b^10)*e^6)*x^6 + 84*(3*B
*b^10*d^2*e^4 - (10*B*a*b^9 + A*b^10)*d*e^5 + (9*B*a^2*b^8 + 2*A*
a*b^9)*e^6)*x^5 - 105*(7*B*b^10*d^3*e^3 - 3*(10*B*a*b^9 + A*b^10)
*d^2*e^4 + 5*(9*B*a^2*b^8 + 2*A*a*b^9)*d*e^5 - 3*(8*B*a^3*b^7 + 3
*A*a^2*b^8)*e^6)*x^4 + 140*(14*B*b^10*d^4*e^2 - 7*(10*B*a*b^9 + A
*b^10)*d^3*e^3 + 15*(9*B*a^2*b^8 + 2*A*a*b^9)*d^2*e^4 - 15*(8*B*a
^3*b^7 + 3*A*a^2*b^8)*d*e^5 + 6*(7*B*a^4*b^6 + 4*A*a^3*b^7)*e^6)*
x^3 - 42*(126*B*b^10*d^5*e - 70*(10*B*a*b^9 + A*b^10)*d^4*e^2 + 1
75*(9*B*a^2*b^8 + 2*A*a*b^9)*d^3*e^3 - 225*(8*B*a^3*b^7 + 3*A*a^2
*b^8)*d^2*e^4 + 150*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d*e^5 - 42*(6*B*a
^5*b^5 + 5*A*a^4*b^6)*e^6)*x^2 + 84*(210*B*b^10*d^6 - 126*(10*B*a
*b^9 + A*b^10)*d^5*e + 350*(9*B*a^2*b^8 + 2*A*a*b^9)*d^4*e^2 - 52
5*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^3*e^3 + 450*(7*B*a^4*b^6 + 4*A*a^
3*b^7)*d^2*e^4 - 210*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d*e^5 + 42*(5*B*
a^6*b^4 + 6*A*a^5*b^5)*e^6)*x)/e^11 - 30*(11*B*b^10*d^7 - 7*(10*B
*a*b^9 + A*b^10)*d^6*e + 21*(9*B*a^2*b^8 + 2*A*a*b^9)*d^5*e^2 - 3
5*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^4*e^3 + 35*(7*B*a^4*b^6 + 4*A*a^3
*b^7)*d^3*e^4 - 21*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^2*e^5 + 7*(5*B*a
^6*b^4 + 6*A*a^5*b^5)*d*e^6 - (4*B*a^7*b^3 + 7*A*a^6*b^4)*e^7)*lo
g(e*x + d)/e^12
```

Fricas [A] time = 0.25695, size = 3791, normalized size = 8.54

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d)^5,x, algorithm="fricas")
```

```
[Out] 1/84*(12*B*b^10*e^11*x^11 - 11837*B*b^10*d^11 - 21*A*a^10*e^11 +
8449*(10*B*a*b^9 + A*b^10)*d^10*e - 28875*(9*B*a^2*b^8 + 2*A*a*b^
9)*d^9*e^2 + 55965*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^8*e^3 - 66990*(7
*B*a^4*b^6 + 4*A*a^3*b^7)*d^7*e^4 + 50274*(6*B*a^5*b^5 + 5*A*a^4*
b^6)*d^6*e^5 - 22638*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^5*e^6 + 5250*(
4*B*a^7*b^3 + 7*A*a^6*b^4)*d^4*e^7 - 315*(3*B*a^8*b^2 + 8*A*a^7*b
^3)*d^3*e^8 - 35*(2*B*a^9*b + 9*A*a^8*b^2)*d^2*e^9 - 7*(B*a^10 +
10*A*a^9*b)*d*e^10 - 2*(11*B*b^10*d*e^10 - 7*(10*B*a*b^9 + A*b^10
)*e^11)*x^10 + 4*(11*B*b^10*d^2*e^9 - 7*(10*B*a*b^9 + A*b^10)*d*e
^10 + 21*(9*B*a^2*b^8 + 2*A*a*b^9)*e^11)*x^9 - 9*(11*B*b^10*d^3*e
^8 - 7*(10*B*a*b^9 + A*b^10)*d^2*e^9 + 21*(9*B*a^2*b^8 + 2*A*a*b^
9)*d*e^10 - 35*(8*B*a^3*b^7 + 3*A*a^2*b^8)*e^11)*x^8 + 24*(11*B*b
^10*d^4*e^7 - 7*(10*B*a*b^9 + A*b^10)*d^3*e^8 + 21*(9*B*a^2*b^8 +
 2*A*a*b^9)*d^2*e^9 - 35*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d*e^10 + 35*
(7*B*a^4*b^6 + 4*A*a^3*b^7)*e^11)*x^7 - 84*(11*B*b^10*d^5*e^6 - 7
*(10*B*a*b^9 + A*b^10)*d^4*e^7 + 21*(9*B*a^2*b^8 + 2*A*a*b^9)*d^3
*e^8 - 35*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^2*e^9 + 35*(7*B*a^4*b^6 +
 4*A*a^3*b^7)*d*e^10 - 21*(6*B*a^5*b^5 + 5*A*a^4*b^6)*e^11)*x^6 +
 504*(11*B*b^10*d^6*e^5 - 7*(10*B*a*b^9 + A*b^10)*d^5*e^6 + 21*(9
*B*a^2*b^8 + 2*A*a*b^9)*d^4*e^7 - 35*(8*B*a^3*b^7 + 3*A*a^2*b^8)*
```

```
d^3*e^8 + 35*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^2*e^9 - 21*(6*B*a^5*b^
5 + 5*A*a^4*b^6)*d*e^10 + 7*(5*B*a^6*b^4 + 6*A*a^5*b^5)*e^11)*x^5
 + 7*(6559*B*b^10*d^7*e^4 - 4043*(10*B*a*b^9 + A*b^10)*d^6*e^5 +
11625*(9*B*a^2*b^8 + 2*A*a*b^9)*d^5*e^6 - 18255*(8*B*a^3*b^7 + 3*
A*a^2*b^8)*d^4*e^7 + 16680*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^3*e^8 -
8568*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^2*e^9 + 2016*(5*B*a^6*b^4 + 6*
A*a^5*b^5)*d*e^10)*x^4 + 28*(2599*B*b^10*d^8*e^3 - 1523*(10*B*a*b
^9 + A*b^10)*d^7*e^4 + 4065*(9*B*a^2*b^8 + 2*A*a*b^9)*d^6*e^5 - 5
655*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^5*e^6 + 4080*(7*B*a^4*b^6 + 4*A
*a^3*b^7)*d^4*e^7 - 1008*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^3*e^8 - 50
4*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^2*e^9 + 360*(4*B*a^7*b^3 + 7*A*a^
6*b^4)*d*e^10 - 45*(3*B*a^8*b^2 + 8*A*a^7*b^3)*e^11)*x^3 + 42*(61
9*B*b^10*d^9*e^2 - 263*(10*B*a*b^9 + A*b^10)*d^8*e^3 + 285*(9*B*a
^2*b^8 + 2*A*a*b^9)*d^7*e^4 + 645*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^6
*e^5 - 2220*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^5*e^6 + 2772*(6*B*a^5*b
^5 + 5*A*a^4*b^6)*d^4*e^7 - 1764*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^3*
e^8 + 540*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^2*e^9 - 45*(3*B*a^8*b^2 +
 8*A*a^7*b^3)*d*e^10 - 5*(2*B*a^9*b + 9*A*a^8*b^2)*e^11)*x^2 - 28
*(701*B*b^10*d^10*e - 577*(10*B*a*b^9 + A*b^10)*d^9*e^2 + 2235*(9
*B*a^2*b^8 + 2*A*a*b^9)*d^8*e^3 - 4845*(8*B*a^3*b^7 + 3*A*a^2*b^8
)*d^7*e^4 + 6420*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^6*e^5 - 5292*(6*B*
a^5*b^5 + 5*A*a^4*b^6)*d^5*e^6 + 2604*(5*B*a^6*b^4 + 6*A*a^5*b^5)
*d^4*e^7 - 660*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^3*e^8 + 45*(3*B*a^8*
b^2 + 8*A*a^7*b^3)*d^2*e^9 + 5*(2*B*a^9*b + 9*A*a^8*b^2)*d*e^10 +
 (B*a^10 + 10*A*a^9*b)*e^11)*x - 2520*(11*B*b^10*d^11 - 7*(10*B*a
*b^9 + A*b^10)*d^10*e + 21*(9*B*a^2*b^8 + 2*A*a*b^9)*d^9*e^2 - 35
*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^8*e^3 + 35*(7*B*a^4*b^6 + 4*A*a^3*
b^7)*d^7*e^4 - 21*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^6*e^5 + 7*(5*B*a^
6*b^4 + 6*A*a^5*b^5)*d^5*e^6 - (4*B*a^7*b^3 + 7*A*a^6*b^4)*d^4*e^
7 + (11*B*b^10*d^7*e^4 - 7*(10*B*a*b^9 + A*b^10)*d^6*e^5 + 21*(9*
B*a^2*b^8 + 2*A*a*b^9)*d^5*e^6 - 35*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d
^4*e^7 + 35*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^3*e^8 - 21*(6*B*a^5*b^5
 + 5*A*a^4*b^6)*d^2*e^9 + 7*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d*e^10 -
(4*B*a^7*b^3 + 7*A*a^6*b^4)*e^11)*x^4 + 4*(11*B*b^10*d^8*e^3 - 7*
(10*B*a*b^9 + A*b^10)*d^7*e^4 + 21*(9*B*a^2*b^8 + 2*A*a*b^9)*d^6*
e^5 - 35*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^5*e^6 + 35*(7*B*a^4*b^6 +
4*A*a^3*b^7)*d^4*e^7 - 21*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^3*e^8 + 7
*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^2*e^9 - (4*B*a^7*b^3 + 7*A*a^6*b^4
)*d*e^10)*x^3 + 6*(11*B*b^10*d^9*e^2 - 7*(10*B*a*b^9 + A*b^10)*d^
8*e^3 + 21*(9*B*a^2*b^8 + 2*A*a*b^9)*d^7*e^4 - 35*(8*B*a^3*b^7 +
3*A*a^2*b^8)*d^6*e^5 + 35*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^5*e^6 - 2
1*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^4*e^7 + 7*(5*B*a^6*b^4 + 6*A*a^5*
b^5)*d^3*e^8 - (4*B*a^7*b^3 + 7*A*a^6*b^4)*d^2*e^9)*x^2 + 4*(11*B
*b^10*d^10*e - 7*(10*B*a*b^9 + A*b^10)*d^9*e^2 + 21*(9*B*a^2*b^8
+ 2*A*a*b^9)*d^8*e^3 - 35*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^7*e^4 + 3
5*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^6*e^5 - 21*(6*B*a^5*b^5 + 5*A*a^4
*b^6)*d^5*e^6 + 7*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^4*e^7 - (4*B*a^7*
b^3 + 7*A*a^6*b^4)*d^3*e^8)*x)*log(e*x + d))/(e^16*x^4 + 4*d*e^15
*x^3 + 6*d^2*e^14*x^2 + 4*d^3*e^13*x + d^4*e^12)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)/(e*x+d)**5,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.227785, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d)^5,x, algorithm="giac")

[Out] Done
```

3.1077 $\int \frac{(a+bx)^{10}(A+Bx)}{(d+ex)^6} \, dx$

Optimal. Leaf size=447

$$-\frac{b^9(d+ex)^5(-10aBe-Abe+11bBd)}{5e^{12}}+\frac{5b^8(d+ex)^4(bd-ae)(-9aBe-2Abe+11bBd)}{4e^{12}}-\frac{5b^7(d+ex)^3(bd-ae)^2(-8aBe-3Abe+11bBd)}{e^{12}}+\frac{15b^6(d+ex)^2(bd-ae)^3(-7aBe-4Abe+11bBd)}{e^{12}}-\frac{42b^5x(bd-ae)^4(-6aBe-5Abe+11bBd)}{e^{11}}+\frac{42b^4(bd-ae)^5\log(d+ex)(-5aBe-6Abe+11bBd)}{e^{12}}+\frac{30b^3(bd-ae)^6(-4aBe-7Abe+11bBd)}{e^{12}(d+ex)}-\frac{15b^2(bd-ae)^7(-3aBe-8Abe+11bBd)}{2e^{12}(d+ex)^2}+\frac{5b(bd-ae)^8(-2aBe-9Abe+11bBd)}{3e^{12}(d+ex)^3}-\frac{(bd-ae)^9(-aBe-10Abe+11bBd)}{4e^{12}(d+ex)^4}+\frac{(bd-ae)^{10}(Bd-Ae)}{5e^{12}(d+ex)^5}+\frac{b^{10}B(d+ex)^6}{6e^{12}}$$

```
[Out] (-42*b^5*(b*d - a*e)^4*(11*b*B*d - 5*A*b*e - 6*a*B*e)*x)/e^11 + (
(b*d - a*e)^10*(B*d - A*e))/(5*e^12*(d + e*x)^5) - ((b*d - a*e)^9
*(11*b*B*d - 10*A*b*e - a*B*e))/(4*e^12*(d + e*x)^4) + (5*b*(b*d
- a*e)^8*(11*b*B*d - 9*A*b*e - 2*a*B*e))/(3*e^12*(d + e*x)^3) - (
15*b^2*(b*d - a*e)^7*(11*b*B*d - 8*A*b*e - 3*a*B*e))/(2*e^12*(d +
 e*x)^2) + (30*b^3*(b*d - a*e)^6*(11*b*B*d - 7*A*b*e - 4*a*B*e))/
(e^12*(d + e*x)) + (15*b^6*(b*d - a*e)^3*(11*b*B*d - 4*A*b*e - 7*
a*B*e)*(d + e*x)^2)/e^12 - (5*b^7*(b*d - a*e)^2*(11*b*B*d - 3*A*b
*e - 8*a*B*e)*(d + e*x)^3)/e^12 + (5*b^8*(b*d - a*e)*(11*b*B*d -
2*A*b*e - 9*a*B*e)*(d + e*x)^4)/(4*e^12) - (b^9*(11*b*B*d - A*b*e
 - 10*a*B*e)*(d + e*x)^5)/(5*e^12) + (b^10*B*(d + e*x)^6)/(6*e^12
) + (42*b^4*(b*d - a*e)^5*(11*b*B*d - 6*A*b*e - 5*a*B*e)*Log[d +
e*x])/e^12
```

Rubi [A] time = 3.51419, antiderivative size = 447, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{b^9(d+ex)^5(-10aBe-Abe+11bBd)}{5e^{12}}+\frac{5b^8(d+ex)^4(bd-ae)(-9aBe-2Abe+11bBd)}{4e^{12}}-\frac{5b^7(d+ex)^3(bd-ae)^2(-8aBe-3Abe+11bBd)}{e^{12}}+\frac{15b^6(d+ex)^2(bd-ae)^3(-7aBe-4Abe+11bBd)}{e^{12}}-\frac{42b^5x(bd-ae)^4(-6aBe-5Abe+11bBd)}{e^{11}}+\frac{42b^4(bd-ae)^5\log(d+ex)(-5aBe-6Abe+11bBd)}{e^{12}}+\frac{30b^3(bd-ae)^6(-4aBe-7Abe+11bBd)}{e^{12}(d+ex)}-\frac{15b^2(bd-ae)^7(-3aBe-8Abe+11bBd)}{2e^{12}(d+ex)^2}+\frac{5b(bd-ae)^8(-2aBe-9Abe+11bBd)}{3e^{12}(d+ex)^3}-\frac{(bd-ae)^9(-aBe-10Abe+11bBd)}{4e^{12}(d+ex)^4}+\frac{(bd-ae)^{10}(Bd-Ae)}{5e^{12}(d+ex)^5}+\frac{b^{10}B(d+ex)^6}{6e^{12}}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^10*(A + B*x))/(d + e*x)^6,x]
```

```
[Out] (-42*b^5*(b*d - a*e)^4*(11*b*B*d - 5*A*b*e - 6*a*B*e)*x)/e^11 + (
(b*d - a*e)^10*(B*d - A*e))/(5*e^12*(d + e*x)^5) - ((b*d - a*e)^9
*(11*b*B*d - 10*A*b*e - a*B*e))/(4*e^12*(d + e*x)^4) + (5*b*(b*d
- a*e)^8*(11*b*B*d - 9*A*b*e - 2*a*B*e))/(3*e^12*(d + e*x)^3) - (
15*b^2*(b*d - a*e)^7*(11*b*B*d - 8*A*b*e - 3*a*B*e))/(2*e^12*(d +
 e*x)^2) + (30*b^3*(b*d - a*e)^6*(11*b*B*d - 7*A*b*e - 4*a*B*e))/
(e^12*(d + e*x)) + (15*b^6*(b*d - a*e)^3*(11*b*B*d - 4*A*b*e - 7*
a*B*e)*(d + e*x)^2)/e^12 - (5*b^7*(b*d - a*e)^2*(11*b*B*d - 3*A*b
*e - 8*a*B*e)*(d + e*x)^3)/e^12 + (5*b^8*(b*d - a*e)*(11*b*B*d -
2*A*b*e - 9*a*B*e)*(d + e*x)^4)/(4*e^12) - (b^9*(11*b*B*d - A*b*e
 - 10*a*B*e)*(d + e*x)^5)/(5*e^12) + (b^10*B*(d + e*x)^6)/(6*e^12
) + (42*b^4*(b*d - a*e)^5*(11*b*B*d - 6*A*b*e - 5*a*B*e)*Log[d +
```

```
e*x])/e^12
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)/(e*x+d)**6,x)
```

```
[Out] Timed out
```

Mathematica [A] time = 0.960009, size = 587, normalized size = 1.31

$$-15b^8e^4x^4\left(-45a^2Be^2-10abe(Ae-6Bd)+3b^2d(2Ae-7Bd)\right)+20b^7e^3x^3\left(120a^3Be^3+45a^2be^2(Ae-6Bd)+30ab^2de(7Bd\right.$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^10*(A + B*x))/(d + e*x)^6,x]
```

```
[Out] (60*b^5*e*(252*a^5*B*e^5 + 140*a*b^4*d^3*e*(9*B*d - 4*A*e) - 315*
a^2*b^3*d^2*e^2*(8*B*d - 3*A*e) + 360*a^3*b^2*d*e^3*(7*B*d - 2*A*
e) - 126*b^5*d^4*(2*B*d - A*e) + 210*a^4*b*e^4*(-6*B*d + A*e))*x
- 30*b^6*e^2*(-210*a^4*B*e^4 - 14*b^4*d^3*(9*B*d - 4*A*e) + 70*a*
b^3*d^2*e*(8*B*d - 3*A*e) - 135*a^2*b^2*d*e^2*(7*B*d - 2*A*e) - 1
20*a^3*b*e^3*(-6*B*d + A*e))*x^2 + 20*b^7*e^3*(120*a^3*B*e^3 - 7*
b^3*d^2*(8*B*d - 3*A*e) + 30*a*b^2*d*e*(7*B*d - 2*A*e) + 45*a^2*b
*e^2*(-6*B*d + A*e))*x^3 - 15*b^8*e^4*(-45*a^2*B*e^2 - 10*a*b*e*(
-6*B*d + A*e) + 3*b^2*d*(-7*B*d + 2*A*e))*x^4 + 12*b^9*e^5*(-6*b*
B*d + A*b*e + 10*a*B*e)*x^5 + 10*b^10*B*e^6*x^6 + (12*(b*d - a*e)
^10*(B*d - A*e))/(d + e*x)^5 - (15*(b*d - a*e)^9*(11*b*B*d - 10*A
*b*e - a*B*e))/(d + e*x)^4 + (100*b*(b*d - a*e)^8*(11*b*B*d - 9*A
*b*e - 2*a*B*e))/(d + e*x)^3 - (450*b^2*(b*d - a*e)^7*(11*b*B*d -
 8*A*b*e - 3*a*B*e))/(d + e*x)^2 + (1800*b^3*(b*d - a*e)^6*(11*b*
B*d - 7*A*b*e - 4*a*B*e))/(d + e*x) + 2520*b^4*(b*d - a*e)^5*(11*
b*B*d - 6*A*b*e - 5*a*B*e)*Log[d + e*x])/(60*e^12)
```

Maple [B] time = 0.049, size = 2731, normalized size = 6.1

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^10*(B*x+A)/(e*x+d)^6,x)
```

```
[Out] -45/2/e^10/(e*x+d)^4*A*a*b^9*d^8+5/e^3/(e*x+d)^4*B*a^9*b*d-135/4/
e^4/(e*x+d)^4*B*a^8*b^2*d^2+120/e^5/(e*x+d)^4*B*a^7*b^3*d^3-525/2
/e^6/(e*x+d)^4*B*a^6*b^4*d^4+378/e^7/(e*x+d)^4*B*a^5*b^5*d^5-735/
2/e^8/(e*x+d)^4*B*a^4*b^6*d^6+240/e^9/(e*x+d)^4*B*a^3*b^7*d^7-405
/4/e^10/(e*x+d)^4*B*a^2*b^8*d^8+25/e^11/(e*x+d)^4*B*a*b^9*d^9+2/e
^2/(e*x+d)^5*A*d*a^9*b-9/e^3/(e*x+d)^5*A*d^2*a^8*b^2+24/e^4/(e*x+
d)^5*A*d^3*a^7*b^3-42/e^5/(e*x+d)^5*A*d^4*a^6*b^4+252/5/e^6/(e*x+
d)^5*A*d^5*a^5*b^5-42/e^7/(e*x+d)^5*A*a^4*b^6*d^6+24/e^8/(e*x+d)^
5*A*a^3*b^7*d^7-9/e^9/(e*x+d)^5*A*a^2*b^8*d^8+2/e^10/(e*x+d)^5*A*
a*b^9*d^9-2/e^3/(e*x+d)^5*B*d^2*a^9*b+9/e^4/(e*x+d)^5*B*d^3*a^8*b
^2-24/e^5/(e*x+d)^5*B*d^4*a^7*b^3+42/e^6/(e*x+d)^5*B*d^5*a^6*b^4-
252/5/e^7/(e*x+d)^5*B*a^5*b^5*d^6+42/e^8/(e*x+d)^5*B*a^4*b^6*d^7-
24/e^9/(e*x+d)^5*B*a^3*b^7*d^8+9/e^10/(e*x+d)^5*B*a^2*b^8*d^9-2/e
^11/(e*x+d)^5*B*a*b^9*d^10-280*b^9/e^9*B*x^2*a*d^3-720*b^7/e^7*A*
```

```
a^3*d*x+945*b^8/e^8*A*a^2*d^2*x-560*b^9/e^9*A*a*d^3*x-1260*b^6/e^
7*B*a^4*d*x+2520*b^7/e^8*B*a^3*d^2*x-2520*b^8/e^9*B*a^2*d^3*x+126
0*b^9/e^10*B*a*d^4*x-15*b^9/e^7*B*x^4*a*d-20*b^9/e^7*A*x^3*a*d-90
*b^8/e^7*B*x^3*a^2*d+70*b^9/e^8*B*x^3*a*d^2-135*b^8/e^7*A*x^2*a^2
*d+105*b^9/e^8*A*x^2*a*d^2-360*b^7/e^7*B*x^2*a^3*d+945/2*b^8/e^8*
B*x^2*a^2*d^2-1260*b^6/e^7*ln(e*x+d)*A*a^4*d+2520*b^7/e^8*ln(e*x+
d)*A*a^3*d^2-2520*b^8/e^9*ln(e*x+d)*A*a^2*d^3+1260*b^9/e^10*ln(e*
x+d)*A*a*d^4-1512*b^5/e^7*ln(e*x+d)*B*a^5*d+4410*b^6/e^8*ln(e*x+d
)*B*a^4*d^2+1/6*b^10/e^6*B*x^6+1/5*b^10/e^6*A*x^5-1/4/e^2/(e*x+d)
^4*B*a^10-1/5/e/(e*x+d)^5*a^10*A-6720*b^7/e^9*ln(e*x+d)*B*a^3*d^3
+5670*b^8/e^10*ln(e*x+d)*B*a^2*d^4-2520*b^9/e^11*ln(e*x+d)*B*a*d^
5+120*b^3/e^4/(e*x+d)^3*A*a^7*d-420*b^4/e^5/(e*x+d)^3*A*a^6*d^2+8
40*b^5/e^6/(e*x+d)^3*A*a^5*d^3-1050*b^6/e^7/(e*x+d)^3*A*a^4*d^4+8
40*b^7/e^8/(e*x+d)^3*A*a^3*d^5-420*b^8/e^9/(e*x+d)^3*A*a^2*d^6+12
0*b^9/e^10/(e*x+d)^3*A*a*d^7+45*b^2/e^4/(e*x+d)^3*B*a^8*d-240*b^3
/e^5/(e*x+d)^3*B*a^7*d^2+700*b^4/e^6/(e*x+d)^3*B*a^6*d^3-1260*b^5
/e^7/(e*x+d)^3*B*a^5*d^4+1470*b^6/e^8/(e*x+d)^3*B*a^4*d^5-1120*b^
7/e^9/(e*x+d)^3*B*a^3*d^6+540*b^8/e^10/(e*x+d)^3*B*a^2*d^7-150*b^
9/e^11/(e*x+d)^3*B*a*d^8+1260*b^5/e^6/(e*x+d)*A*a^5*d-3150*b^6/e^
7/(e*x+d)*A*a^4*d^2+4200*b^7/e^8/(e*x+d)*A*a^3*d^3-3150*b^8/e^9/(
e*x+d)*A*a^2*d^4+1260*b^9/e^10/(e*x+d)*A*a*d^5+1050*b^4/e^6/(e*x+
d)*B*a^6*d-3780*b^5/e^7/(e*x+d)*B*a^5*d^2+7350*b^6/e^8/(e*x+d)*B*
a^4*d^3-8400*b^7/e^9/(e*x+d)*B*a^3*d^4+5670*b^8/e^10/(e*x+d)*B*a^
2*d^5-2100*b^9/e^11/(e*x+d)*B*a*d^6+420*b^4/e^5/(e*x+d)^2*A*a^6*d
-1260*b^5/e^6/(e*x+d)^2*A*a^5*d^2+2100*b^6/e^7/(e*x+d)^2*A*a^4*d^
3-2100*b^7/e^8/(e*x+d)^2*A*a^3*d^4+1260*b^8/e^9/(e*x+d)^2*A*a^2*d
^5-420*b^9/e^10/(e*x+d)^2*A*a*d^6+240*b^3/e^5/(e*x+d)^2*B*a^7*d-1
050*b^4/e^6/(e*x+d)^2*B*a^6*d^2+2520*b^5/e^7/(e*x+d)^2*B*a^5*d^3-
3675*b^6/e^8/(e*x+d)^2*B*a^4*d^4-210*b^4/e^5/(e*x+d)*A*a^6-210*b^
10/e^11/(e*x+d)*A*d^6-120*b^3/e^5/(e*x+d)*B*a^7+330*b^10/e^12/(e*
x+d)*B*d^7-60*b^3/e^4/(e*x+d)^2*A*a^7+60*b^10/e^11/(e*x+d)^2*A*d^
7-45/2*b^2/e^4/(e*x+d)^2*B*a^8-165/2*b^10/e^12/(e*x+d)^2*B*d^8-5/
2/e^2/(e*x+d)^4*A*a^9*b+5/2/e^11/(e*x+d)^4*A*b^10*d^9-11/4/e^12/(
e*x+d)^4*b^10*B*d^10-1/5/e^11/(e*x+d)^5*A*b^10*d^10+1/5/e^2/(e*x+
d)^5*B*d*a^10+1/5/e^12/(e*x+d)^5*b^10*B*d^11-252*b^10/e^11*B*d^5*
x+252*b^5/e^6*B*a^5*x+105*b^6/e^6*B*x^2*a^4+63*b^10/e^10*B*x^2*d^
4+210*b^6/e^6*A*a^4*x+126*b^10/e^10*A*d^4*x+60*b^7/e^6*A*x^2*a^3-
6/5*b^10/e^7*B*x^5*d+5/2*b^9/e^6*A*x^4*a-3/2*b^10/e^7*A*x^4*d+45/
4*b^8/e^6*B*x^4*a^2+21/4*b^10/e^8*B*x^4*d^2+15*b^8/e^6*A*x^3*a^2+
40*b^7/e^6*B*x^3*a^3-56/3*b^10/e^9*B*x^3*d^3+2*b^9/e^6*B*x^5*a+25
2*b^5/e^6*ln(e*x+d)*A*a^5-252*b^10/e^11*ln(e*x+d)*A*d^5+210*b^4/e
^6*ln(e*x+d)*B*a^6+462*b^10/e^12*ln(e*x+d)*B*d^6-15*b^2/e^3/(e*x+
d)^3*A*a^8-15*b^10/e^11/(e*x+d)^3*A*d^8-10/3*b/e^3/(e*x+d)^3*B*a^
9+55/3*b^10/e^12/(e*x+d)^3*B*d^9+3360*b^7/e^9/(e*x+d)^2*B*a^3*d^5
-1890*b^8/e^10/(e*x+d)^2*B*a^2*d^6+600*b^9/e^11/(e*x+d)^2*B*a*d^7
+45/2/e^3/(e*x+d)^4*A*a^8*b^2*d-90/e^4/(e*x+d)^4*A*a^7*b^3*d^2+21
0/e^5/(e*x+d)^4*A*a^6*b^4*d^3-315/e^6/(e*x+d)^4*A*a^5*b^5*d^4+315
/e^7/(e*x+d)^4*A*a^4*b^6*d^5-210/e^8/(e*x+d)^4*A*a^3*b^7*d^6+90/e
^9/(e*x+d)^4*A*a^2*b^8*d^7+7*b^10/e^8*A*x^3*d^2-28*b^10/e^9*A*x^2
*d^3
```

Maxima [A] time = 1.58466, size = 2512, normalized size = 5.62

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d)^6,x, algorithm="maxima")
```

```
[Out] 1/60*(15797*B*b^10*d^11 - 12*A*a^10*e^11 - 9762*(10*B*a*b^9 + A*b
^10)*d^10*e + 28185*(9*B*a^2*b^8 + 2*A*a*b^9)*d^9*e^2 - 44580*(8*
B*a^3*b^7 + 3*A*a^2*b^8)*d^8*e^3 + 41310*(7*B*a^4*b^6 + 4*A*a^3*b
^7)*d^7*e^4 - 21924*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^6*e^5 + 5754*(5
*B*a^6*b^4 + 6*A*a^5*b^5)*d^5*e^6 - 360*(4*B*a^7*b^3 + 7*A*a^6*b^
4)*d^4*e^7 - 45*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^3*e^8 - 10*(2*B*a^9
*b + 9*A*a^8*b^2)*d^2*e^9 - 3*(B*a^10 + 10*A*a^9*b)*d*e^10 + 1800
*(11*B*b^10*d^7*e^4 - 7*(10*B*a*b^9 + A*b^10)*d^6*e^5 + 21*(9*B*a
^2*b^8 + 2*A*a*b^9)*d^5*e^6 - 35*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^4*
e^7 + 35*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^3*e^8 - 21*(6*B*a^5*b^5 +
5*A*a^4*b^6)*d^2*e^9 + 7*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d*e^10 - (4*
```

```
B*a^7*b^3 + 7*A*a^6*b^4)*e^11)*x^4 + 450*(165*B*b^10*d^8*e^3 - 10
4*(10*B*a*b^9 + A*b^10)*d^7*e^4 + 308*(9*B*a^2*b^8 + 2*A*a*b^9)*d
^6*e^5 - 504*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^5*e^6 + 490*(7*B*a^4*b
^6 + 4*A*a^3*b^7)*d^4*e^7 - 280*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^3*e
^8 + 84*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^2*e^9 - 8*(4*B*a^7*b^3 + 7*
A*a^6*b^4)*d*e^10 - (3*B*a^8*b^2 + 8*A*a^7*b^3)*e^11)*x^3 + 50*(2
101*B*b^10*d^9*e^2 - 1314*(10*B*a*b^9 + A*b^10)*d^8*e^3 + 3852*(9
*B*a^2*b^8 + 2*A*a*b^9)*d^7*e^4 - 6216*(8*B*a^3*b^7 + 3*A*a^2*b^8
)*d^6*e^5 + 5922*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^5*e^6 - 3276*(6*B*
a^5*b^5 + 5*A*a^4*b^6)*d^4*e^7 + 924*(5*B*a^6*b^4 + 6*A*a^5*b^5)*
d^3*e^8 - 72*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^2*e^9 - 9*(3*B*a^8*b^2
 + 8*A*a^7*b^3)*d*e^10 - 2*(2*B*a^9*b + 9*A*a^8*b^2)*e^11)*x^2 +
5*(13277*B*b^10*d^10*e - 8250*(10*B*a*b^9 + A*b^10)*d^9*e^2 + 239
85*(9*B*a^2*b^8 + 2*A*a*b^9)*d^8*e^3 - 38280*(8*B*a^3*b^7 + 3*A*a
^2*b^8)*d^7*e^4 + 35910*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^6*e^5 - 194
04*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^5*e^6 + 5250*(5*B*a^6*b^4 + 6*A*
a^5*b^5)*d^4*e^7 - 360*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^3*e^8 - 45*(
3*B*a^8*b^2 + 8*A*a^7*b^3)*d^2*e^9 - 10*(2*B*a^9*b + 9*A*a^8*b^2)
*d*e^10 - 3*(B*a^10 + 10*A*a^9*b)*e^11)*x)/(e^17*x^5 + 5*d*e^16*x
^4 + 10*d^2*e^15*x^3 + 10*d^3*e^14*x^2 + 5*d^4*e^13*x + d^5*e^12)
 + 1/60*(10*B*b^10*e^5*x^6 - 12*(6*B*b^10*d*e^4 - (10*B*a*b^9 + A
*b^10)*e^5)*x^5 + 15*(21*B*b^10*d^2*e^3 - 6*(10*B*a*b^9 + A*b^10)
*d*e^4 + 5*(9*B*a^2*b^8 + 2*A*a*b^9)*e^5)*x^4 - 20*(56*B*b^10*d^3
*e^2 - 21*(10*B*a*b^9 + A*b^10)*d^2*e^3 + 30*(9*B*a^2*b^8 + 2*A*a
*b^9)*d*e^4 - 15*(8*B*a^3*b^7 + 3*A*a^2*b^8)*e^5)*x^3 + 30*(126*B
*b^10*d^4*e - 56*(10*B*a*b^9 + A*b^10)*d^3*e^2 + 105*(9*B*a^2*b^8
 + 2*A*a*b^9)*d^2*e^3 - 90*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d*e^4 + 30
*(7*B*a^4*b^6 + 4*A*a^3*b^7)*e^5)*x^2 - 60*(252*B*b^10*d^5 - 126*
(10*B*a*b^9 + A*b^10)*d^4*e + 280*(9*B*a^2*b^8 + 2*A*a*b^9)*d^3*e
^2 - 315*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^2*e^3 + 180*(7*B*a^4*b^6 +
 4*A*a^3*b^7)*d*e^4 - 42*(6*B*a^5*b^5 + 5*A*a^4*b^6)*e^5)*x)/e^11
 + 42*(11*B*b^10*d^6 - 6*(10*B*a*b^9 + A*b^10)*d^5*e + 15*(9*B*a^
2*b^8 + 2*A*a*b^9)*d^4*e^2 - 20*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^3*e
^3 + 15*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^2*e^4 - 6*(6*B*a^5*b^5 + 5*
A*a^4*b^6)*d*e^5 + (5*B*a^6*b^4 + 6*A*a^5*b^5)*e^6)*log(e*x + d)/
e^12
```

Fricas [A] time = 0.230425, size = 3849, normalized size = 8.61

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d)^6,x, algorithm="fricas")
```

```
[Out] 1/60*(10*B*b^10*e^11*x^11 + 15797*B*b^10*d^11 - 12*A*a^10*e^11 -
9762*(10*B*a*b^9 + A*b^10)*d^10*e + 28185*(9*B*a^2*b^8 + 2*A*a*b^
9)*d^9*e^2 - 44580*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^8*e^3 + 41310*(7
*B*a^4*b^6 + 4*A*a^3*b^7)*d^7*e^4 - 21924*(6*B*a^5*b^5 + 5*A*a^4*
b^6)*d^6*e^5 + 5754*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^5*e^6 - 360*(4*
B*a^7*b^3 + 7*A*a^6*b^4)*d^4*e^7 - 45*(3*B*a^8*b^2 + 8*A*a^7*b^3)
*d^3*e^8 - 10*(2*B*a^9*b + 9*A*a^8*b^2)*d^2*e^9 - 3*(B*a^10 + 10*
A*a^9*b)*d*e^10 - 2*(11*B*b^10*d*e^10 - 6*(10*B*a*b^9 + A*b^10)*e
^11)*x^10 + 5*(11*B*b^10*d^2*e^9 - 6*(10*B*a*b^9 + A*b^10)*d*e^10
 + 15*(9*B*a^2*b^8 + 2*A*a*b^9)*e^11)*x^9 - 15*(11*B*b^10*d^3*e^8
 - 6*(10*B*a*b^9 + A*b^10)*d^2*e^9 + 15*(9*B*a^2*b^8 + 2*A*a*b^9)
*d*e^10 - 20*(8*B*a^3*b^7 + 3*A*a^2*b^8)*e^11)*x^8 + 60*(11*B*b^1
0*d^4*e^7 - 6*(10*B*a*b^9 + A*b^10)*d^3*e^8 + 15*(9*B*a^2*b^8 + 2
*A*a*b^9)*d^2*e^9 - 20*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d*e^10 + 15*(7
*B*a^4*b^6 + 4*A*a^3*b^7)*e^11)*x^7 - 420*(11*B*b^10*d^5*e^6 - 6*
(10*B*a*b^9 + A*b^10)*d^4*e^7 + 15*(9*B*a^2*b^8 + 2*A*a*b^9)*d^3*
e^8 - 20*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^2*e^9 + 15*(7*B*a^4*b^6 +
4*A*a^3*b^7)*d*e^10 - 6*(6*B*a^5*b^5 + 5*A*a^4*b^6)*e^11)*x^6 - (
47497*B*b^10*d^6*e^5 - 24762*(10*B*a*b^9 + A*b^10)*d^5*e^6 + 5812
5*(9*B*a^2*b^8 + 2*A*a*b^9)*d^4*e^7 - 70500*(8*B*a^3*b^7 + 3*A*a^
2*b^8)*d^3*e^8 + 45000*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^2*e^9 - 1260
0*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d*e^10)*x^5 - 5*(19777*B*b^10*d^7*e
^4 - 9642*(10*B*a*b^9 + A*b^10)*d^6*e^5 + 20325*(9*B*a^2*b^8 + 2*
A*a*b^9)*d^5*e^6 - 20100*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^4*e^7 + 72
00*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^3*e^8 + 2520*(6*B*a^5*b^5 + 5*A*
```

```
a^4*b^6)*d^2*e^9 - 2520*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d*e^10 + 360*
(4*B*a^7*b^3 + 7*A*a^6*b^4)*e^11)*x^4 - 10*(5917*B*b^10*d^8*e^3 -
 2082*(10*B*a*b^9 + A*b^10)*d^7*e^4 + 1425*(9*B*a^2*b^8 + 2*A*a*b
^9)*d^6*e^5 + 5100*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^5*e^6 - 11700*(7
*B*a^4*b^6 + 4*A*a^3*b^7)*d^4*e^7 + 10080*(6*B*a^5*b^5 + 5*A*a^4*
b^6)*d^3*e^8 - 3780*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^2*e^9 + 360*(4*
B*a^7*b^3 + 7*A*a^6*b^4)*d*e^10 + 45*(3*B*a^8*b^2 + 8*A*a^7*b^3)*
e^11)*x^3 + 10*(3323*B*b^10*d^9*e^2 - 2958*(10*B*a*b^9 + A*b^10)*
d^8*e^3 + 11175*(9*B*a^2*b^8 + 2*A*a*b^9)*d^7*e^4 - 21900*(8*B*a^
3*b^7 + 3*A*a^2*b^8)*d^6*e^5 + 24300*(7*B*a^4*b^6 + 4*A*a^3*b^7)*
d^5*e^6 - 15120*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^4*e^7 + 4620*(5*B*a
^6*b^4 + 6*A*a^5*b^5)*d^3*e^8 - 360*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d
^2*e^9 - 45*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d*e^10 - 10*(2*B*a^9*b +
9*A*a^8*b^2)*e^11)*x^2 + 5*(10253*B*b^10*d^10*e - 6738*(10*B*a*b^
9 + A*b^10)*d^9*e^2 + 20625*(9*B*a^2*b^8 + 2*A*a*b^9)*d^8*e^3 - 3
4500*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^7*e^4 + 33750*(7*B*a^4*b^6 + 4
*A*a^3*b^7)*d^6*e^5 - 18900*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^5*e^6 +
 5250*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^4*e^7 - 360*(4*B*a^7*b^3 + 7*
A*a^6*b^4)*d^3*e^8 - 45*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^2*e^9 - 10*
(2*B*a^9*b + 9*A*a^8*b^2)*d*e^10 - 3*(B*a^10 + 10*A*a^9*b)*e^11)*
x + 2520*(11*B*b^10*d^11 - 6*(10*B*a*b^9 + A*b^10)*d^10*e + 15*(9
*B*a^2*b^8 + 2*A*a*b^9)*d^9*e^2 - 20*(8*B*a^3*b^7 + 3*A*a^2*b^8)*
d^8*e^3 + 15*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^7*e^4 - 6*(6*B*a^5*b^5
 + 5*A*a^4*b^6)*d^6*e^5 + (5*B*a^6*b^4 + 6*A*a^5*b^5)*d^5*e^6 + (
11*B*b^10*d^6*e^5 - 6*(10*B*a*b^9 + A*b^10)*d^5*e^6 + 15*(9*B*a^2
*b^8 + 2*A*a*b^9)*d^4*e^7 - 20*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^3*e^
8 + 15*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^2*e^9 - 6*(6*B*a^5*b^5 + 5*A
*a^4*b^6)*d*e^10 + (5*B*a^6*b^4 + 6*A*a^5*b^5)*e^11)*x^5 + 5*(11*
B*b^10*d^7*e^4 - 6*(10*B*a*b^9 + A*b^10)*d^6*e^5 + 15*(9*B*a^2*b^
8 + 2*A*a*b^9)*d^5*e^6 - 20*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^4*e^7 +
 15*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^3*e^8 - 6*(6*B*a^5*b^5 + 5*A*a^
4*b^6)*d^2*e^9 + (5*B*a^6*b^4 + 6*A*a^5*b^5)*d*e^10)*x^4 + 10*(11
*B*b^10*d^8*e^3 - 6*(10*B*a*b^9 + A*b^10)*d^7*e^4 + 15*(9*B*a^2*b
^8 + 2*A*a*b^9)*d^6*e^5 - 20*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^5*e^6
+ 15*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^4*e^7 - 6*(6*B*a^5*b^5 + 5*A*a
^4*b^6)*d^3*e^8 + (5*B*a^6*b^4 + 6*A*a^5*b^5)*d^2*e^9)*x^3 + 10*(
11*B*b^10*d^9*e^2 - 6*(10*B*a*b^9 + A*b^10)*d^8*e^3 + 15*(9*B*a^2
*b^8 + 2*A*a*b^9)*d^7*e^4 - 20*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^6*e^
5 + 15*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^5*e^6 - 6*(6*B*a^5*b^5 + 5*A
*a^4*b^6)*d^4*e^7 + (5*B*a^6*b^4 + 6*A*a^5*b^5)*d^3*e^8)*x^2 + 5*
(11*B*b^10*d^10*e - 6*(10*B*a*b^9 + A*b^10)*d^9*e^2 + 15*(9*B*a^2
*b^8 + 2*A*a*b^9)*d^8*e^3 - 20*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^7*e^
4 + 15*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^6*e^5 - 6*(6*B*a^5*b^5 + 5*A
*a^4*b^6)*d^5*e^6 + (5*B*a^6*b^4 + 6*A*a^5*b^5)*d^4*e^7)*x)*log(e
*x + d))/(e^17*x^5 + 5*d*e^16*x^4 + 10*d^2*e^15*x^3 + 10*d^3*e^14
*x^2 + 5*d^4*e^13*x + d^5*e^12)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)/(e*x+d)**6,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.216592, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d)^6,x, algorithm="giac")
```

```
[Out] Done
```

3.1078 $\int \frac{(a+bx)^{10}(A+Bx)}{(d+ex)^7} dx$

Optimal. Leaf size=447

$$-\frac{b^9(d+ex)^4(-10aBe-Abe+11bBd)}{4e^{12}}+\frac{5b^8(d+ex)^3(bd-ae)(-9aBe-2Abe+11bBd)}{3e^{12}}-\frac{15b^7(d+ex)^2(bd-ae)^2(-8aBe-3Abe+11bBd)}{2e^{12}}+\frac{30b^6x(bd-ae)^3(-7aBe-4Abe+11bBd)}{e^{11}}-\frac{42b^5(bd-ae)^4\log(d+ex)(-6aBe-5Abe+11bBd)}{e^{12}}-\frac{42b^4(bd-ae)^5(-5aBe-6Abe+11bBd)}{e^{12}(d+ex)}+\frac{15b^3(bd-ae)^6(-4aBe-7Abe+11bBd)}{e^{12}(d+ex)^2}-\frac{5b^2(bd-ae)^7(-3aBe-8Abe+11bBd)}{e^{12}(d+ex)^3}+\frac{5b(bd-ae)^8(-2aBe-9Abe+11bBd)}{4e^{12}(d+ex)^4}-\frac{(bd-ae)^9(-aBe-10Abe+11bBd)}{5e^{12}(d+ex)^5}+\frac{(bd-ae)^{10}(Bd-Ae)}{6e^{12}(d+ex)^6}+\frac{b^{10}B(d+ex)^5}{5e^{12}}$$

```
[Out] (30*b^6*(b*d - a*e)^3*(11*b*B*d - 4*A*b*e - 7*a*B*e)*x)/e^11 + ((
b*d - a*e)^10*(B*d - A*e))/(6*e^12*(d + e*x)^6) - ((b*d - a*e)^9*
(11*b*B*d - 10*A*b*e - a*B*e))/(5*e^12*(d + e*x)^5) + (5*b*(b*d -
 a*e)^8*(11*b*B*d - 9*A*b*e - 2*a*B*e))/(4*e^12*(d + e*x)^4) - (5
*b^2*(b*d - a*e)^7*(11*b*B*d - 8*A*b*e - 3*a*B*e))/(e^12*(d + e*x
)^3) + (15*b^3*(b*d - a*e)^6*(11*b*B*d - 7*A*b*e - 4*a*B*e))/(e^1
2*(d + e*x)^2) - (42*b^4*(b*d - a*e)^5*(11*b*B*d - 6*A*b*e - 5*a*
B*e))/(e^12*(d + e*x)) - (15*b^7*(b*d - a*e)^2*(11*b*B*d - 3*A*b*
e - 8*a*B*e)*(d + e*x)^2)/(2*e^12) + (5*b^8*(b*d - a*e)*(11*b*B*d
 - 2*A*b*e - 9*a*B*e)*(d + e*x)^3)/(3*e^12) - (b^9*(11*b*B*d - A*
b*e - 10*a*B*e)*(d + e*x)^4)/(4*e^12) + (b^10*B*(d + e*x)^5)/(5*e
^12) - (42*b^5*(b*d - a*e)^4*(11*b*B*d - 5*A*b*e - 6*a*B*e)*Log[d
 + e*x])/e^12
```

Rubi [A] time = 2.94573, antiderivative size = 447, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{b^9(d+ex)^4(-10aBe-Abe+11bBd)}{4e^{12}}+\frac{5b^8(d+ex)^3(bd-ae)(-9aBe-2Abe+11bBd)}{3e^{12}}-\frac{15b^7(d+ex)^2(bd-ae)^2(-8aBe-3Abe+11bBd)}{2e^{12}}+\frac{30b^6x(bd-ae)^3(-7aBe-4Abe+11bBd)}{e^{11}}-\frac{42b^5(bd-ae)^4\log(d+ex)(-6aBe-5Abe+11bBd)}{e^{12}}-\frac{42b^4(bd-ae)^5(-5aBe-6Abe+11bBd)}{e^{12}(d+ex)}+\frac{15b^3(bd-ae)^6(-4aBe-7Abe+11bBd)}{e^{12}(d+ex)^2}-\frac{5b^2(bd-ae)^7(-3aBe-8Abe+11bBd)}{e^{12}(d+ex)^3}+\frac{5b(bd-ae)^8(-2aBe-9Abe+11bBd)}{4e^{12}(d+ex)^4}-\frac{(bd-ae)^9(-aBe-10Abe+11bBd)}{5e^{12}(d+ex)^5}+\frac{(bd-ae)^{10}(Bd-Ae)}{6e^{12}(d+ex)^6}+\frac{b^{10}B(d+ex)^5}{5e^{12}}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^10*(A + B*x))/(d + e*x)^7,x]
```

```
[Out] (30*b^6*(b*d - a*e)^3*(11*b*B*d - 4*A*b*e - 7*a*B*e)*x)/e^11 + ((
b*d - a*e)^10*(B*d - A*e))/(6*e^12*(d + e*x)^6) - ((b*d - a*e)^9*
(11*b*B*d - 10*A*b*e - a*B*e))/(5*e^12*(d + e*x)^5) + (5*b*(b*d -
 a*e)^8*(11*b*B*d - 9*A*b*e - 2*a*B*e))/(4*e^12*(d + e*x)^4) - (5
*b^2*(b*d - a*e)^7*(11*b*B*d - 8*A*b*e - 3*a*B*e))/(e^12*(d + e*x
)^3) + (15*b^3*(b*d - a*e)^6*(11*b*B*d - 7*A*b*e - 4*a*B*e))/(e^1
2*(d + e*x)^2) - (42*b^4*(b*d - a*e)^5*(11*b*B*d - 6*A*b*e - 5*a*
B*e))/(e^12*(d + e*x)) - (15*b^7*(b*d - a*e)^2*(11*b*B*d - 3*A*b*
e - 8*a*B*e)*(d + e*x)^2)/(2*e^12) + (5*b^8*(b*d - a*e)*(11*b*B*d
 - 2*A*b*e - 9*a*B*e)*(d + e*x)^3)/(3*e^12) - (b^9*(11*b*B*d - A*
b*e - 10*a*B*e)*(d + e*x)^4)/(4*e^12) + (b^10*B*(d + e*x)^5)/(5*e
^12) - (42*b^5*(b*d - a*e)^4*(11*b*B*d - 5*A*b*e - 6*a*B*e)*Log[d
```

```
+ e*x])/e^12
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)/(e*x+d)**7,x)

[Out] Timed out
```

Mathematica [A] time = 1.01454, size = 505, normalized size = 1.13

$$\frac{-20b^8e^3x^3\left(-45a^2Be^2-10abe(Ae-7Bd)+7b^2d(Ae-4Bd)\right)+30b^7e^2x^2\left(120a^3Be^3+45a^2be^2(Ae-7Bd)+70ab^2de(4Bd-\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^10*(A + B*x))/(d + e*x)^7,x]

[Out] (-60*b^6*e*(-210*a^4*B*e^4 - 42*b^4*d^3*(5*B*d - 2*A*e) + 280*a*b
^3*d^2*e*(3*B*d - A*e) - 315*a^2*b^2*d*e^2*(4*B*d - A*e) - 120*a^
3*b*e^3*(-7*B*d + A*e))*x + 30*b^7*e^2*(120*a^3*B*e^3 + 70*a*b^2*
d*e*(4*B*d - A*e) + 45*a^2*b*e^2*(-7*B*d + A*e) + 28*b^3*d^2*(-3*
B*d + A*e))*x^2 - 20*b^8*e^3*(-45*a^2*B*e^2 - 10*a*b*e*(-7*B*d +
A*e) + 7*b^2*d*(-4*B*d + A*e))*x^3 + 15*b^9*e^4*(-7*b*B*d + A*b*e
 + 10*a*B*e)*x^4 + 12*b^10*B*e^5*x^5 + (10*(b*d - a*e)^10*(B*d -
A*e))/(d + e*x)^6 - (12*(b*d - a*e)^9*(11*b*B*d - 10*A*b*e - a*B*
e))/(d + e*x)^5 + (75*b*(b*d - a*e)^8*(11*b*B*d - 9*A*b*e - 2*a*B
*e))/(d + e*x)^4 - (300*b^2*(b*d - a*e)^7*(11*b*B*d - 8*A*b*e - 3
*a*B*e))/(d + e*x)^3 + (900*b^3*(b*d - a*e)^6*(11*b*B*d - 7*A*b*e
 - 4*a*B*e))/(d + e*x)^2 - (2520*b^4*(b*d - a*e)^5*(11*b*B*d - 6*
A*b*e - 5*a*B*e))/(d + e*x) - 2520*b^5*(b*d - a*e)^4*(11*b*B*d -
5*A*b*e - 6*a*B*e)*Log[d + e*x])/(60*e^12)
```

Maple [B] time = 0.05, size = 2781, normalized size = 6.2

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^10*(B*x+A)/(e*x+d)^7,x)

[Out] 1400*b^6/e^7/(e*x+d)^3*A*a^4*d^3-1400*b^7/e^8/(e*x+d)^3*A*a^3*d^4
+840*b^8/e^9/(e*x+d)^3*A*a^2*d^5-280*b^9/e^10/(e*x+d)^3*A*a*d^6+1
60*b^3/e^5/(e*x+d)^3*B*a^7*d-700*b^4/e^6/(e*x+d)^3*B*a^6*d^2+1680
*b^5/e^7/(e*x+d)^3*B*a^5*d^3-2450*b^6/e^8/(e*x+d)^3*B*a^4*d^4+224
0*b^7/e^9/(e*x+d)^3*B*a^3*d^5-1260*b^8/e^10/(e*x+d)^3*B*a^2*d^6+4
00*b^9/e^11/(e*x+d)^3*B*a*d^7+1260*b^6/e^7/(e*x+d)*A*a^4*d-2520*b
^7/e^8/(e*x+d)*A*a^3*d^2+2520*b^8/e^9/(e*x+d)*A*a^2*d^3-1260*b^9/
e^10/(e*x+d)*A*a*d^4+1/4*b^10/e^7*A*x^4+1/5*b^10/e^7*B*x^5-1/6/e/
(e*x+d)^6*a^10*A-1/5/e^2/(e*x+d)^5*B*a^10+280*b^4/e^5/(e*x+d)^3*A
*a^6*d-840*b^5/e^6/(e*x+d)^3*A*a^5*d^2-35*b^9/e^8*A*x^2*a*d-315/2
*b^8/e^8*B*x^2*a^2*d+140*b^9/e^9*B*x^2*a*d^2-315*b^8/e^8*A*a^2*d*
x+60*b^7/e^7*B*x^2*a^3+120*b^7/e^7*A*a^3*x+1512*b^5/e^7/(e*x+d)*B
*a^5*d-4410*b^6/e^8/(e*x+d)*B*a^4*d^2+6720*b^7/e^9/(e*x+d)*B*a^3*
d^3-5670*b^8/e^10/(e*x+d)*B*a^2*d^4+2520*b^9/e^11/(e*x+d)*B*a*d^5
+630*b^5/e^6/(e*x+d)^2*A*a^5*d-1575*b^6/e^7/(e*x+d)^2*A*a^4*d^2+2
100*b^7/e^8/(e*x+d)^2*A*a^3*d^3-1575*b^8/e^9/(e*x+d)^2*A*a^2*d^4+
```

```
630*b^9/e^10/(e*x+d)^2*A*a*d^5+525*b^4/e^6/(e*x+d)^2*B*a^6*d-1890
*b^5/e^7/(e*x+d)^2*B*a^5*d^2+3675*b^6/e^8/(e*x+d)^2*B*a^4*d^3-420
0*b^7/e^9/(e*x+d)^2*B*a^3*d^4+2835*b^8/e^10/(e*x+d)^2*B*a^2*d^5-1
050*b^9/e^11/(e*x+d)^2*B*a*d^6+90*b^3/e^4/(e*x+d)^4*A*a^7*d-315*b
^4/e^5/(e*x+d)^4*A*a^6*d^2+630*b^5/e^6/(e*x+d)^4*A*a^5*d^3-1575/2
*b^6/e^7/(e*x+d)^4*A*a^4*d^4+630*b^7/e^8/(e*x+d)^4*A*a^3*d^5-315*
b^8/e^9/(e*x+d)^4*A*a^2*d^6+90*b^9/e^10/(e*x+d)^4*A*a*d^7+135/4*b
^2/e^4/(e*x+d)^4*B*a^8*d-180*b^3/e^5/(e*x+d)^4*B*a^7*d^2+525*b^4/
e^6/(e*x+d)^4*B*a^6*d^3-945*b^5/e^7/(e*x+d)^4*B*a^5*d^4+2205/2*b^
6/e^8/(e*x+d)^4*B*a^4*d^5-840*b^7/e^9/(e*x+d)^4*B*a^3*d^6+405*b^8
/e^10/(e*x+d)^4*B*a^2*d^7-225/2*b^9/e^11/(e*x+d)^4*B*a*d^8+18/e^3
/(e*x+d)^5*A*a^8*b^2*d-72/e^4/(e*x+d)^5*A*a^7*b^3*d^2+168/e^5/(e*
x+d)^5*A*a^6*b^4*d^3-252/e^6/(e*x+d)^5*A*a^5*b^5*d^4+252/e^7/(e*x
+d)^5*A*a^4*b^6*d^5-168/e^8/(e*x+d)^5*A*a^3*b^7*d^6+72/e^9/(e*x+d
)^5*A*a^2*b^8*d^7-18/e^10/(e*x+d)^5*A*a*b^9*d^8-7/4*b^10/e^8*B*x^
4*d+10/3*b^9/e^7*A*x^3*a-42*b^10/e^10*B*x^2*d^3-7/3*b^10/e^8*A*x^
3*d+15*b^8/e^7*B*x^3*a^2+28/3*b^10/e^9*B*x^3*d^2+45/2*b^8/e^7*A*x
^2*a^2+14*b^10/e^9*A*x^2*d^2+5/2*b^9/e^7*B*x^4*a+210*b^6/e^7*ln(e
*x+d)*A*a^4+210*b^10/e^11*ln(e*x+d)*A*d^4+252*b^5/e^7*ln(e*x+d)*B
*a^5-462*b^10/e^12*ln(e*x+d)*B*d^5-1/6/e^11/(e*x+d)^6*A*b^10*d^10
+1/6/e^2/(e*x+d)^6*B*d*a^10+1/6/e^12/(e*x+d)^6*b^10*B*d^11-40*b^3
/e^4/(e*x+d)^3*A*a^7+40*b^10/e^11/(e*x+d)^3*A*d^7-15*b^2/e^4/(e*x
+d)^3*B*a^8-55*b^10/e^12/(e*x+d)^3*B*d^8-252*b^5/e^6/(e*x+d)*A*a^
5+252*b^10/e^11/(e*x+d)*A*d^5-210*b^4/e^6/(e*x+d)*B*a^6-462*b^10/
e^12/(e*x+d)*B*d^6-105*b^4/e^5/(e*x+d)^2*A*a^6-105*b^10/e^11/(e*x
+d)^2*A*d^6-60*b^3/e^5/(e*x+d)^2*B*a^7+165*b^10/e^12/(e*x+d)^2*B*
d^7-45/4*b^2/e^3/(e*x+d)^4*A*a^8-45/4*b^10/e^11/(e*x+d)^4*A*d^8-5
/2*b/e^3/(e*x+d)^4*B*a^9+55/4*b^10/e^12/(e*x+d)^4*B*d^9-2/e^2/(e*
x+d)^5*A*a^9*b+2/e^11/(e*x+d)^5*A*b^10*d^9-11/5/e^12/(e*x+d)^5*b^
10*B*d^10-84*b^10/e^10*A*d^3*x+210*b^6/e^7*B*a^4*x+210*b^10/e^11*
B*d^4*x+4/e^3/(e*x+d)^5*B*a^9*b*d-27/e^4/(e*x+d)^5*B*a^8*b^2*d^2+
96/e^5/(e*x+d)^5*B*a^7*b^3*d^3-210/e^6/(e*x+d)^5*B*a^6*b^4*d^4+15
12/5/e^7/(e*x+d)^5*B*a^5*b^5*d^5-294/e^8/(e*x+d)^5*B*a^4*b^6*d^6+
192/e^9/(e*x+d)^5*B*a^3*b^7*d^7-81/e^10/(e*x+d)^5*B*a^2*b^8*d^8+2
0/e^11/(e*x+d)^5*B*a*b^9*d^9+280*b^9/e^9*A*a*d^2*x-840*b^7/e^8*B*
a^3*d*x+1260*b^8/e^9*B*a^2*d^2*x-840*b^9/e^10*B*a*d^3*x-70/3*b^9/
e^8*B*x^3*a*d-840*b^7/e^8*ln(e*x+d)*A*a^3*d+1260*b^8/e^9*ln(e*x+d
)*A*a^2*d^2-840*b^9/e^10*ln(e*x+d)*A*a*d^3-1470*b^6/e^8*ln(e*x+d)
*B*a^4*d+3360*b^7/e^9*ln(e*x+d)*B*a^3*d^2-3780*b^8/e^10*ln(e*x+d)
*B*a^2*d^3+2100*b^9/e^11*ln(e*x+d)*B*a*d^4+5/3/e^2/(e*x+d)^6*A*d*
a^9*b-15/2/e^3/(e*x+d)^6*A*d^2*a^8*b^2+20/e^4/(e*x+d)^6*A*d^3*a^7
*b^3-35/e^5/(e*x+d)^6*A*d^4*a^6*b^4+42/e^6/(e*x+d)^6*A*d^5*a^5*b^
5-35/e^7/(e*x+d)^6*A*d^6*a^4*b^6+20/e^8/(e*x+d)^6*A*a^3*b^7*d^7-1
5/2/e^9/(e*x+d)^6*A*a^2*b^8*d^8+5/3/e^10/(e*x+d)^6*A*a*b^9*d^9-5/
3/e^3/(e*x+d)^6*B*d^2*a^9*b+15/2/e^4/(e*x+d)^6*B*d^3*a^8*b^2-20/e
^5/(e*x+d)^6*B*d^4*a^7*b^3+35/e^6/(e*x+d)^6*B*d^5*a^6*b^4-42/e^7/
(e*x+d)^6*B*d^6*a^5*b^5+35/e^8/(e*x+d)^6*B*a^4*b^6*d^7-20/e^9/(e*
x+d)^6*B*a^3*b^7*d^8+15/2/e^10/(e*x+d)^6*B*a^2*b^8*d^9-5/3/e^11/(
e*x+d)^6*B*a*b^9*d^10
```

Maxima [A] time = 1.63018, size = 2523, normalized size = 5.64

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d)^7,x, algorithm="maxima")
```

```
[Out] -1/60*(20417*B*b^10*d^11 + 10*A*a^10*e^11 - 10655*(10*B*a*b^9 + A
*b^10)*d^10*e + 25090*(9*B*a^2*b^8 + 2*A*a*b^9)*d^9*e^2 - 30690*(
8*B*a^3*b^7 + 3*A*a^2*b^8)*d^8*e^3 + 20070*(7*B*a^4*b^6 + 4*A*a^3
*b^7)*d^7*e^4 - 6174*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^6*e^5 + 420*(5
*B*a^6*b^4 + 6*A*a^5*b^5)*d^5*e^6 + 60*(4*B*a^7*b^3 + 7*A*a^6*b^4
)*d^4*e^7 + 15*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^3*e^8 + 5*(2*B*a^9*b
 + 9*A*a^8*b^2)*d^2*e^9 + 2*(B*a^10 + 10*A*a^9*b)*d*e^10 + 2520*(
11*B*b^10*d^6*e^5 - 6*(10*B*a*b^9 + A*b^10)*d^5*e^6 + 15*(9*B*a^2
*b^8 + 2*A*a*b^9)*d^4*e^7 - 20*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^3*e^
8 + 15*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^2*e^9 - 6*(6*B*a^5*b^5 + 5*A
*a^4*b^6)*d*e^10 + (5*B*a^6*b^4 + 6*A*a^5*b^5)*e^11)*x^5 + 900*(1
43*B*b^10*d^7*e^4 - 77*(10*B*a*b^9 + A*b^10)*d^6*e^5 + 189*(9*B*a
```

```
^2*b^8 + 2*A*a*b^9)*d^5*e^6 - 245*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^4
*e^7 + 175*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^3*e^8 - 63*(6*B*a^5*b^5
+ 5*A*a^4*b^6)*d^2*e^9 + 7*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d*e^10 + (
4*B*a^7*b^3 + 7*A*a^6*b^4)*e^11)*x^4 + 300*(803*B*b^10*d^8*e^3 -
428*(10*B*a*b^9 + A*b^10)*d^7*e^4 + 1036*(9*B*a^2*b^8 + 2*A*a*b^9
)*d^6*e^5 - 1316*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^5*e^6 + 910*(7*B*a
^4*b^6 + 4*A*a^3*b^7)*d^4*e^7 - 308*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d
^3*e^8 + 28*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^2*e^9 + 4*(4*B*a^7*b^3
+ 7*A*a^6*b^4)*d*e^10 + (3*B*a^8*b^2 + 8*A*a^7*b^3)*e^11)*x^3 + 7
5*(3025*B*b^10*d^9*e^2 - 1599*(10*B*a*b^9 + A*b^10)*d^8*e^3 + 382
8*(9*B*a^2*b^8 + 2*A*a*b^9)*d^7*e^4 - 4788*(8*B*a^3*b^7 + 3*A*a^2
*b^8)*d^6*e^5 + 3234*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^5*e^6 - 1050*(
6*B*a^5*b^5 + 5*A*a^4*b^6)*d^4*e^7 + 84*(5*B*a^6*b^4 + 6*A*a^5*b^
5)*d^3*e^8 + 12*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^2*e^9 + 3*(3*B*a^8*
b^2 + 8*A*a^7*b^3)*d*e^10 + (2*B*a^9*b + 9*A*a^8*b^2)*e^11)*x^2 +
 6*(17897*B*b^10*d^10*e - 9395*(10*B*a*b^9 + A*b^10)*d^9*e^2 + 22
290*(9*B*a^2*b^8 + 2*A*a*b^9)*d^8*e^3 - 27540*(8*B*a^3*b^7 + 3*A*
a^2*b^8)*d^7*e^4 + 18270*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^6*e^5 - 57
54*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^5*e^6 + 420*(5*B*a^6*b^4 + 6*A*a
^5*b^5)*d^4*e^7 + 60*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^3*e^8 + 15*(3*
B*a^8*b^2 + 8*A*a^7*b^3)*d^2*e^9 + 5*(2*B*a^9*b + 9*A*a^8*b^2)*d*
e^10 + 2*(B*a^10 + 10*A*a^9*b)*e^11)*x)/(e^18*x^6 + 6*d*e^17*x^5
+ 15*d^2*e^16*x^4 + 20*d^3*e^15*x^3 + 15*d^4*e^14*x^2 + 6*d^5*e^1
3*x + d^6*e^12) + 1/60*(12*B*b^10*e^4*x^5 - 15*(7*B*b^10*d*e^3 -
(10*B*a*b^9 + A*b^10)*e^4)*x^4 + 20*(28*B*b^10*d^2*e^2 - 7*(10*B*
a*b^9 + A*b^10)*d*e^3 + 5*(9*B*a^2*b^8 + 2*A*a*b^9)*e^4)*x^3 - 30
*(84*B*b^10*d^3*e - 28*(10*B*a*b^9 + A*b^10)*d^2*e^2 + 35*(9*B*a^
2*b^8 + 2*A*a*b^9)*d*e^3 - 15*(8*B*a^3*b^7 + 3*A*a^2*b^8)*e^4)*x^
2 + 60*(210*B*b^10*d^4 - 84*(10*B*a*b^9 + A*b^10)*d^3*e + 140*(9*
B*a^2*b^8 + 2*A*a*b^9)*d^2*e^2 - 105*(8*B*a^3*b^7 + 3*A*a^2*b^8)*
d*e^3 + 30*(7*B*a^4*b^6 + 4*A*a^3*b^7)*e^4)*x)/e^11 - 42*(11*B*b^
10*d^5 - 5*(10*B*a*b^9 + A*b^10)*d^4*e + 10*(9*B*a^2*b^8 + 2*A*a*
b^9)*d^3*e^2 - 10*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^2*e^3 + 5*(7*B*a^
4*b^6 + 4*A*a^3*b^7)*d*e^4 - (6*B*a^5*b^5 + 5*A*a^4*b^6)*e^5)*log
(e*x + d)/e^12
```

Fricas [A] time = 0.228962, size = 3848, normalized size = 8.61

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d)^7,x, algorithm="fricas")
```

```
[Out] 1/60*(12*B*b^10*e^11*x^11 - 20417*B*b^10*d^11 - 10*A*a^10*e^11 +
10655*(10*B*a*b^9 + A*b^10)*d^10*e - 25090*(9*B*a^2*b^8 + 2*A*a*b
^9)*d^9*e^2 + 30690*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^8*e^3 - 20070*(
7*B*a^4*b^6 + 4*A*a^3*b^7)*d^7*e^4 + 6174*(6*B*a^5*b^5 + 5*A*a^4*
b^6)*d^6*e^5 - 420*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^5*e^6 - 60*(4*B*
a^7*b^3 + 7*A*a^6*b^4)*d^4*e^7 - 15*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d
^3*e^8 - 5*(2*B*a^9*b + 9*A*a^8*b^2)*d^2*e^9 - 2*(B*a^10 + 10*A*a
^9*b)*d*e^10 - 3*(11*B*b^10*d*e^10 - 5*(10*B*a*b^9 + A*b^10)*e^11
)*x^10 + 10*(11*B*b^10*d^2*e^9 - 5*(10*B*a*b^9 + A*b^10)*d*e^10 +
 10*(9*B*a^2*b^8 + 2*A*a*b^9)*e^11)*x^9 - 45*(11*B*b^10*d^3*e^8 -
 5*(10*B*a*b^9 + A*b^10)*d^2*e^9 + 10*(9*B*a^2*b^8 + 2*A*a*b^9)*d
*e^10 - 10*(8*B*a^3*b^7 + 3*A*a^2*b^8)*e^11)*x^8 + 360*(11*B*b^10
*d^4*e^7 - 5*(10*B*a*b^9 + A*b^10)*d^3*e^8 + 10*(9*B*a^2*b^8 + 2*
A*a*b^9)*d^2*e^9 - 10*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d*e^10 + 5*(7*B
*a^4*b^6 + 4*A*a^3*b^7)*e^11)*x^7 + (47497*B*b^10*d^5*e^6 - 20215
*(10*B*a*b^9 + A*b^10)*d^4*e^7 + 36650*(9*B*a^2*b^8 + 2*A*a*b^9)*
d^3*e^8 - 31050*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^2*e^9 + 10800*(7*B*
a^4*b^6 + 4*A*a^3*b^7)*d*e^10)*x^6 + 6*(19777*B*b^10*d^6*e^5 - 76
15*(10*B*a*b^9 + A*b^10)*d^5*e^6 + 11450*(9*B*a^2*b^8 + 2*A*a*b^9
)*d^4*e^7 - 5850*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^3*e^8 - 1800*(7*B*
a^4*b^6 + 4*A*a^3*b^7)*d^2*e^9 + 2520*(6*B*a^5*b^5 + 5*A*a^4*b^6)
*d*e^10 - 420*(5*B*a^6*b^4 + 6*A*a^5*b^5)*e^11)*x^5 + 15*(5917*B*
b^10*d^7*e^4 - 1315*(10*B*a*b^9 + A*b^10)*d^6*e^5 - 1150*(9*B*a^2
*b^8 + 2*A*a*b^9)*d^5*e^6 + 6750*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^4*
e^7 - 8100*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^3*e^8 + 3780*(6*B*a^5*b^
5 + 5*A*a^4*b^6)*d^2*e^9 - 420*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d*e^10
```

```
 - 60*(4*B*a^7*b^3 + 7*A*a^6*b^4)*e^11)*x^4 - 20*(3323*B*b^10*d^8
*e^3 - 2885*(10*B*a*b^9 + A*b^10)*d^7*e^4 + 9550*(9*B*a^2*b^8 + 2
*A*a*b^9)*d^6*e^5 - 15150*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^5*e^6 + 1
2300*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^4*e^7 - 4620*(6*B*a^5*b^5 + 5*
A*a^4*b^6)*d^3*e^8 + 420*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^2*e^9 + 60
*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d*e^10 + 15*(3*B*a^8*b^2 + 8*A*a^7*b
^3)*e^11)*x^3 - 15*(10253*B*b^10*d^9*e^2 - 6035*(10*B*a*b^9 + A*b
^10)*d^8*e^3 + 15850*(9*B*a^2*b^8 + 2*A*a*b^9)*d^7*e^4 - 21450*(8
*B*a^3*b^7 + 3*A*a^2*b^8)*d^6*e^5 + 15450*(7*B*a^4*b^6 + 4*A*a^3*
b^7)*d^5*e^6 - 5250*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^4*e^7 + 420*(5*
B*a^6*b^4 + 6*A*a^5*b^5)*d^3*e^8 + 60*(4*B*a^7*b^3 + 7*A*a^6*b^4)
*d^2*e^9 + 15*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d*e^10 + 5*(2*B*a^9*b +
 9*A*a^8*b^2)*e^11)*x^2 - 6*(15797*B*b^10*d^10*e - 8555*(10*B*a*b
^9 + A*b^10)*d^9*e^2 + 20890*(9*B*a^2*b^8 + 2*A*a*b^9)*d^8*e^3 -
26490*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^7*e^4 + 17970*(7*B*a^4*b^6 +
4*A*a^3*b^7)*d^6*e^5 - 5754*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^5*e^6 +
 420*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^4*e^7 + 60*(4*B*a^7*b^3 + 7*A*
a^6*b^4)*d^3*e^8 + 15*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^2*e^9 + 5*(2*
B*a^9*b + 9*A*a^8*b^2)*d*e^10 + 2*(B*a^10 + 10*A*a^9*b)*e^11)*x -
 2520*(11*B*b^10*d^11 - 5*(10*B*a*b^9 + A*b^10)*d^10*e + 10*(9*B*
a^2*b^8 + 2*A*a*b^9)*d^9*e^2 - 10*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^8
*e^3 + 5*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^7*e^4 - (6*B*a^5*b^5 + 5*A
*a^4*b^6)*d^6*e^5 + (11*B*b^10*d^5*e^6 - 5*(10*B*a*b^9 + A*b^10)*
d^4*e^7 + 10*(9*B*a^2*b^8 + 2*A*a*b^9)*d^3*e^8 - 10*(8*B*a^3*b^7
+ 3*A*a^2*b^8)*d^2*e^9 + 5*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d*e^10 - (
6*B*a^5*b^5 + 5*A*a^4*b^6)*e^11)*x^6 + 6*(11*B*b^10*d^6*e^5 - 5*(
10*B*a*b^9 + A*b^10)*d^5*e^6 + 10*(9*B*a^2*b^8 + 2*A*a*b^9)*d^4*e
^7 - 10*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^3*e^8 + 5*(7*B*a^4*b^6 + 4*
A*a^3*b^7)*d^2*e^9 - (6*B*a^5*b^5 + 5*A*a^4*b^6)*d*e^10)*x^5 + 15
*(11*B*b^10*d^7*e^4 - 5*(10*B*a*b^9 + A*b^10)*d^6*e^5 + 10*(9*B*a
^2*b^8 + 2*A*a*b^9)*d^5*e^6 - 10*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^4*
e^7 + 5*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^3*e^8 - (6*B*a^5*b^5 + 5*A*
a^4*b^6)*d^2*e^9)*x^4 + 20*(11*B*b^10*d^8*e^3 - 5*(10*B*a*b^9 + A
*b^10)*d^7*e^4 + 10*(9*B*a^2*b^8 + 2*A*a*b^9)*d^6*e^5 - 10*(8*B*a
^3*b^7 + 3*A*a^2*b^8)*d^5*e^6 + 5*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^4
*e^7 - (6*B*a^5*b^5 + 5*A*a^4*b^6)*d^3*e^8)*x^3 + 15*(11*B*b^10*d
^9*e^2 - 5*(10*B*a*b^9 + A*b^10)*d^8*e^3 + 10*(9*B*a^2*b^8 + 2*A*
a*b^9)*d^7*e^4 - 10*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^6*e^5 + 5*(7*B*
a^4*b^6 + 4*A*a^3*b^7)*d^5*e^6 - (6*B*a^5*b^5 + 5*A*a^4*b^6)*d^4*
e^7)*x^2 + 6*(11*B*b^10*d^10*e - 5*(10*B*a*b^9 + A*b^10)*d^9*e^2
+ 10*(9*B*a^2*b^8 + 2*A*a*b^9)*d^8*e^3 - 10*(8*B*a^3*b^7 + 3*A*a^
2*b^8)*d^7*e^4 + 5*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^6*e^5 - (6*B*a^5
*b^5 + 5*A*a^4*b^6)*d^5*e^6)*x)*log(e*x + d))/(e^18*x^6 + 6*d*e^1
7*x^5 + 15*d^2*e^16*x^4 + 20*d^3*e^15*x^3 + 15*d^4*e^14*x^2 + 6*d
^5*e^13*x + d^6*e^12)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)/(e*x+d)**7,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.216229, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d)^7,x, algorithm="giac")
```

```
[Out] Done
```

3.1079 $\int \frac{(a+bx)^{10}(A+Bx)}{(d+ex)^8}\,dx$

Optimal. Leaf size=444

$$-\frac{b^9(d+ex)^3(-10aBe-Abe+11bBd)}{3e^{12}}+\frac{5b^8(d+ex)^2(bd-ae)(-9aBe-2Abe+11bBd)}{2e^{12}}-\frac{15b^7x(bd-ae)^2(-8aBe-3Abe+11bBd)}{e^{11}}+\frac{30b^6(bd-ae)^3\log(d+ex)(-7aBe-4Abe+11bBd)}{e^{12}}+\frac{42b^5(bd-ae)^4(-6aBe-5Abe+11bBd)}{e^{12}(d+ex)}-\frac{21b^4(bd-ae)^5(-5aBe-6Abe+11bBd)}{e^{12}(d+ex)^2}+\frac{10b^3(bd-ae)^6(-4aBe-7Abe+11bBd)}{e^{12}(d+ex)^3}-\frac{15b^2(bd-ae)^7(-3aBe-8Abe+11bBd)}{4e^{12}(d+ex)^4}+\frac{b(bd-ae)^8(-2aBe-9Abe+11bBd)}{e^{12}(d+ex)^5}-\frac{(bd-ae)^9(-aBe-10Abe+11bBd)}{6e^{12}(d+ex)^6}+\frac{(bd-ae)^{10}(Bd-Ae)}{7e^{12}(d+ex)^7}+\frac{b^{10}B(d+ex)^4}{4e^{12}}$$

```
[Out] (-15*b^7*(b*d - a*e)^2*(11*b*B*d - 3*A*b*e - 8*a*B*e)*x)/e^11 + (
(b*d - a*e)^10*(B*d - A*e))/(7*e^12*(d + e*x)^7) - ((b*d - a*e)^9
*(11*b*B*d - 10*A*b*e - a*B*e))/(6*e^12*(d + e*x)^6) + (b*(b*d -
a*e)^8*(11*b*B*d - 9*A*b*e - 2*a*B*e))/(e^12*(d + e*x)^5) - (15*b
^2*(b*d - a*e)^7*(11*b*B*d - 8*A*b*e - 3*a*B*e))/(4*e^12*(d + e*x
)^4) + (10*b^3*(b*d - a*e)^6*(11*b*B*d - 7*A*b*e - 4*a*B*e))/(e^1
2*(d + e*x)^3) - (21*b^4*(b*d - a*e)^5*(11*b*B*d - 6*A*b*e - 5*a*
B*e))/(e^12*(d + e*x)^2) + (42*b^5*(b*d - a*e)^4*(11*b*B*d - 5*A*
b*e - 6*a*B*e))/(e^12*(d + e*x)) + (5*b^8*(b*d - a*e)*(11*b*B*d -
 2*A*b*e - 9*a*B*e)*(d + e*x)^2)/(2*e^12) - (b^9*(11*b*B*d - A*b*
e - 10*a*B*e)*(d + e*x)^3)/(3*e^12) + (b^10*B*(d + e*x)^4)/(4*e^1
2) + (30*b^6*(b*d - a*e)^3*(11*b*B*d - 4*A*b*e - 7*a*B*e)*Log[d +
 e*x])/e^12
```

Rubi [A] time = 2.83424, antiderivative size = 444, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{b^9(d+ex)^3(-10aBe-Abe+11bBd)}{3e^{12}}+\frac{5b^8(d+ex)^2(bd-ae)(-9aBe-2Abe+11bBd)}{2e^{12}}-\frac{15b^7x(bd-ae)^2(-8aBe-3Abe+11bBd)}{e^{11}}+\frac{30b^6(bd-ae)^3\log(d+ex)(-7aBe-4Abe+11bBd)}{e^{12}}+\frac{42b^5(bd-ae)^4(-6aBe-5Abe+11bBd)}{e^{12}(d+ex)}-\frac{21b^4(bd-ae)^5(-5aBe-6Abe+11bBd)}{e^{12}(d+ex)^2}+\frac{10b^3(bd-ae)^6(-4aBe-7Abe+11bBd)}{e^{12}(d+ex)^3}-\frac{15b^2(bd-ae)^7(-3aBe-8Abe+11bBd)}{4e^{12}(d+ex)^4}+\frac{b(bd-ae)^8(-2aBe-9Abe+11bBd)}{e^{12}(d+ex)^5}-\frac{(bd-ae)^9(-aBe-10Abe+11bBd)}{6e^{12}(d+ex)^6}+\frac{(bd-ae)^{10}(Bd-Ae)}{7e^{12}(d+ex)^7}+\frac{b^{10}B(d+ex)^4}{4e^{12}}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^10*(A + B*x))/(d + e*x)^8,x]
```

```
[Out] (-15*b^7*(b*d - a*e)^2*(11*b*B*d - 3*A*b*e - 8*a*B*e)*x)/e^11 + (
(b*d - a*e)^10*(B*d - A*e))/(7*e^12*(d + e*x)^7) - ((b*d - a*e)^9
*(11*b*B*d - 10*A*b*e - a*B*e))/(6*e^12*(d + e*x)^6) + (b*(b*d -
a*e)^8*(11*b*B*d - 9*A*b*e - 2*a*B*e))/(e^12*(d + e*x)^5) - (15*b
^2*(b*d - a*e)^7*(11*b*B*d - 8*A*b*e - 3*a*B*e))/(4*e^12*(d + e*x
)^4) + (10*b^3*(b*d - a*e)^6*(11*b*B*d - 7*A*b*e - 4*a*B*e))/(e^1
2*(d + e*x)^3) - (21*b^4*(b*d - a*e)^5*(11*b*B*d - 6*A*b*e - 5*a*
B*e))/(e^12*(d + e*x)^2) + (42*b^5*(b*d - a*e)^4*(11*b*B*d - 5*A*
b*e - 6*a*B*e))/(e^12*(d + e*x)) + (5*b^8*(b*d - a*e)*(11*b*B*d -
 2*A*b*e - 9*a*B*e)*(d + e*x)^2)/(2*e^12) - (b^9*(11*b*B*d - A*b*
e - 10*a*B*e)*(d + e*x)^3)/(3*e^12) + (b^10*B*(d + e*x)^4)/(4*e^1
2) + (30*b^6*(b*d - a*e)^3*(11*b*B*d - 4*A*b*e - 7*a*B*e)*Log[d +
```

```
e*x])/e^12
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)/(e*x+d)**8,x)
```

```
[Out] Timed out
```

Mathematica [A] time = 1.06658, size = 450, normalized size = 1.01

$$-42b^8e^2x^2\left(-45a^2Be^2-10abe(Ae-8Bd)+4b^2d(2Ae-9Bd)\right)+84b^7ex\left(120a^3Be^3+45a^2be^2(Ae-8Bd)+40ab^2de(9Bd-\right.$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^10*(A + B*x))/(d + e*x)^8,x]
```

```
[Out] (84*b^7*e*(120*a^3*B*e^3 + 40*a*b^2*d*e*(9*B*d - 2*A*e) + 45*a^2*
b*e^2*(-8*B*d + A*e) + 12*b^3*d^2*(-10*B*d + 3*A*e))*x - 42*b^8*e
^2*(-45*a^2*B*e^2 - 10*a*b*e*(-8*B*d + A*e) + 4*b^2*d*(-9*B*d + 2
*A*e))*x^2 + 28*b^9*e^3*(-8*b*B*d + A*b*e + 10*a*B*e)*x^3 + 21*b^
10*B*e^4*x^4 + (12*(b*d - a*e)^10*(B*d - A*e))/(d + e*x)^7 - (14*
(b*d - a*e)^9*(11*b*B*d - 10*A*b*e - a*B*e))/(d + e*x)^6 + (84*b*
(b*d - a*e)^8*(11*b*B*d - 9*A*b*e - 2*a*B*e))/(d + e*x)^5 - (315*
b^2*(b*d - a*e)^7*(11*b*B*d - 8*A*b*e - 3*a*B*e))/(d + e*x)^4 + (
840*b^3*(b*d - a*e)^6*(11*b*B*d - 7*A*b*e - 4*a*B*e))/(d + e*x)^3
 - (1764*b^4*(b*d - a*e)^5*(11*b*B*d - 6*A*b*e - 5*a*B*e))/(d + e
*x)^2 + (3528*b^5*(b*d - a*e)^4*(11*b*B*d - 5*A*b*e - 6*a*B*e))/(
d + e*x) + 2520*b^6*(b*d - a*e)^3*(11*b*B*d - 4*A*b*e - 7*a*B*e)*
Log[d + e*x])/(84*e^12)
```

Maple [B] time = 0.048, size = 2823, normalized size = 6.4

output too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^10*(B*x+A)/(e*x+d)^8,x)
```

```
[Out] -140/e^8/(e*x+d)^6*A*a^3*b^7*d^6+60/e^9/(e*x+d)^6*A*a^2*b^8*d^7-1
5/e^10/(e*x+d)^6*A*a*b^9*d^8+10/3/e^3/(e*x+d)^6*B*a^9*b*d-45/2/e^
4/(e*x+d)^6*B*a^8*b^2*d^2+80/e^5/(e*x+d)^6*B*a^7*b^3*d^3-175/e^6/
(e*x+d)^6*B*a^6*b^4*d^4+252/e^7/(e*x+d)^6*B*a^5*b^5*d^5-245/e^8/(
e*x+d)^6*B*a^4*b^6*d^6+160/e^9/(e*x+d)^6*B*a^3*b^7*d^7-135/2/e^10
/(e*x+d)^6*B*a^2*b^8*d^8+50/3/e^11/(e*x+d)^6*B*a*b^9*d^9+10/7/e^2
/(e*x+d)^7*A*d*a^9*b-45/7/e^3/(e*x+d)^7*A*d^2*a^8*b^2+120/7/e^4/(
e*x+d)^7*A*d^3*a^7*b^3-30/e^5/(e*x+d)^7*A*d^4*a^6*b^4+36/e^6/(e*x
+d)^7*A*d^5*a^5*b^5-30/e^7/(e*x+d)^7*A*d^6*a^4*b^6+120/7/e^8/(e*x
+d)^7*A*d^7*a^3*b^7-45/7/e^9/(e*x+d)^7*A*a^2*b^8*d^8+10/7/e^10/(e
*x+d)^7*A*a*b^9*d^9-10/7/e^3/(e*x+d)^7*B*d^2*a^9*b+45/7/e^4/(e*x+
d)^7*B*d^3*a^8*b^2-120/7/e^5/(e*x+d)^7*B*d^4*a^7*b^3+30/e^6/(e*x+
d)^7*B*d^5*a^6*b^4-36/e^7/(e*x+d)^7*B*d^6*a^5*b^5+30/e^8/(e*x+d)^
7*B*d^7*a^4*b^6-120/7/e^9/(e*x+d)^7*B*a^3*b^7*d^8+45/7/e^10/(e*x+
d)^7*B*a^2*b^8*d^9-10/7/e^11/(e*x+d)^7*B*a*b^9*d^10+420*b^5/e^6/(
e*x+d)^3*A*a^5*d-1050*b^6/e^7/(e*x+d)^3*A*a^4*d^2+1400*b^7/e^8/(e
*x+d)^3*A*a^3*d^3-1050*b^8/e^9/(e*x+d)^3*A*a^2*d^4+420*b^9/e^10/(
```

```
e*x+d)^3*A*a*d^5+350*b^4/e^6/(e*x+d)^3*B*a^6*d-1260*b^5/e^7/(e*x+
d)^3*B*a^5*d^2+2450*b^6/e^8/(e*x+d)^3*B*a^4*d^3-2800*b^7/e^9/(e*x
+d)^3*B*a^3*d^4+1890*b^8/e^10/(e*x+d)^3*B*a^2*d^5-700*b^9/e^11/(e
*x+d)^3*B*a*d^6+840*b^7/e^8/(e*x+d)*A*a^3*d-1260*b^8/e^9/(e*x+d)*
A*a^2*d^2+840*b^9/e^10/(e*x+d)*A*a*d^3+1470*b^6/e^8/(e*x+d)*B*a^4
*d-3360*b^7/e^9/(e*x+d)*B*a^3*d^2+3780*b^8/e^10/(e*x+d)*B*a^2*d^3
-2100*b^9/e^11/(e*x+d)*B*a*d^4+630*b^6/e^7/(e*x+d)^2*A*a^4*d-1260
*b^7/e^8/(e*x+d)^2*A*a^3*d^2+1260*b^8/e^9/(e*x+d)^2*A*a^2*d^3-630
*b^9/e^10/(e*x+d)^2*A*a*d^4+756*b^5/e^7/(e*x+d)^2*B*a^5*d-2205*b^
6/e^8/(e*x+d)^2*B*a^4*d^2+3360*b^7/e^9/(e*x+d)^2*B*a^3*d^3-2835*b
^8/e^10/(e*x+d)^2*B*a^2*d^4+1260*b^9/e^11/(e*x+d)^2*B*a*d^5+210*b
^4/e^5/(e*x+d)^4*A*a^6*d-630*b^5/e^6/(e*x+d)^4*A*a^5*d^2+1050*b^6
/e^7/(e*x+d)^4*A*a^4*d^3-1050*b^7/e^8/(e*x+d)^4*A*a^3*d^4+630*b^8
/e^9/(e*x+d)^4*A*a^2*d^5-210*b^9/e^10/(e*x+d)^4*A*a*d^6+120*b^3/e
^5/(e*x+d)^4*B*a^7*d-525*b^4/e^6/(e*x+d)^4*B*a^6*d^2+1260*b^5/e^7
/(e*x+d)^4*B*a^5*d^3-3675/2*b^6/e^8/(e*x+d)^4*B*a^4*d^4+1680*b^7/
e^9/(e*x+d)^4*B*a^3*d^5-945*b^8/e^10/(e*x+d)^4*B*a^2*d^6+300*b^9/
e^11/(e*x+d)^4*B*a*d^7+72*b^3/e^4/(e*x+d)^5*A*a^7*d-252*b^4/e^5/(
e*x+d)^5*A*a^6*d^2+504*b^5/e^6/(e*x+d)^5*A*a^5*d^3-630*b^6/e^7/(e
*x+d)^5*A*a^4*d^4+504*b^7/e^8/(e*x+d)^5*A*a^3*d^5-252*b^8/e^9/(e*
x+d)^5*A*a^2*d^6+72*b^9/e^10/(e*x+d)^5*A*a*d^7+27*b^2/e^4/(e*x+d)
^5*B*a^8*d-144*b^3/e^5/(e*x+d)^5*B*a^7*d^2+420*b^4/e^6/(e*x+d)^5*
B*a^6*d^3-756*b^5/e^7/(e*x+d)^5*B*a^5*d^4+882*b^6/e^8/(e*x+d)^5*B
*a^4*d^5-672*b^7/e^9/(e*x+d)^5*B*a^3*d^6+324*b^8/e^10/(e*x+d)^5*B
*a^2*d^7-90*b^9/e^11/(e*x+d)^5*B*a*d^8-2*b/e^3/(e*x+d)^5*B*a^9+11
*b^10/e^12/(e*x+d)^5*B*d^9+10/3*b^9/e^8*B*x^3*a-8/3*b^10/e^9*B*x^
3*d+5*b^9/e^8*A*x^2*a-4*b^10/e^9*A*x^2*d+45/2*b^8/e^8*B*x^2*a^2+1
8*b^10/e^10*B*x^2*d^2+45*b^8/e^8*A*a^2*x+36*b^10/e^10*A*d^2*x+120
*b^7/e^8*B*a^3*x-120*b^10/e^11*B*d^3*x+120*b^7/e^8*ln(e*x+d)*A*a^
3-120*b^10/e^11*ln(e*x+d)*A*d^3+210*b^6/e^8*ln(e*x+d)*B*a^4+330*b
^10/e^12*ln(e*x+d)*B*d^4-5/3/e^2/(e*x+d)^6*A*a^9*b+5/3/e^11/(e*x+
d)^6*A*b^10*d^9-11/6/e^12/(e*x+d)^6*b^10*B*d^10-1/7/e^11/(e*x+d)^
7*A*b^10*d^10+1/7/e^2/(e*x+d)^7*B*d*a^10+1/7/e^12/(e*x+d)^7*b^10*
B*d^11-70*b^4/e^5/(e*x+d)^3*A*a^6-70*b^10/e^11/(e*x+d)^3*A*d^6-40
*b^3/e^5/(e*x+d)^3*B*a^7+110*b^10/e^12/(e*x+d)^3*B*d^7-30*b^3/e^4
/(e*x+d)^4*A*a^7-1/6/e^2/(e*x+d)^6*B*a^10-1/7/e/(e*x+d)^7*a^10*A+
1/4*b^10/e^8*B*x^4+1/3*b^10/e^8*A*x^3-9*b^2/e^3/(e*x+d)^5*A*a^8-9
*b^10/e^11/(e*x+d)^5*A*d^8+30*b^10/e^11/(e*x+d)^4*A*d^7-45/4*b^2/
e^4/(e*x+d)^4*B*a^8-165/4*b^10/e^12/(e*x+d)^4*B*d^8-210*b^6/e^7/(
e*x+d)*A*a^4-210*b^10/e^11/(e*x+d)*A*d^4-252*b^5/e^7/(e*x+d)*B*a^
5+462*b^10/e^12/(e*x+d)*B*d^5-126*b^5/e^6/(e*x+d)^2*A*a^5+126*b^1
0/e^11/(e*x+d)^2*A*d^5-105*b^4/e^6/(e*x+d)^2*B*a^6-231*b^10/e^12/
(e*x+d)^2*B*d^6-40*b^9/e^9*B*x^2*a*d-80*b^9/e^9*A*a*d*x-360*b^8/e
^9*B*a^2*d*x+360*b^9/e^10*B*a*d^2*x-360*b^8/e^9*ln(e*x+d)*A*a^2*d
+360*b^9/e^10*ln(e*x+d)*A*a*d^2-960*b^7/e^9*ln(e*x+d)*B*a^3*d+162
0*b^8/e^10*ln(e*x+d)*B*a^2*d^2-1200*b^9/e^11*ln(e*x+d)*B*a*d^3+15
/e^3/(e*x+d)^6*A*a^8*b^2*d-60/e^4/(e*x+d)^6*A*a^7*b^3*d^2+140/e^5
/(e*x+d)^6*A*a^6*b^4*d^3-210/e^6/(e*x+d)^6*A*a^5*b^5*d^4+210/e^7/
(e*x+d)^6*A*a^4*b^6*d^5
```

Maxima [A] time = 1.67412, size = 2542, normalized size = 5.73

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d)^8,x, algorithm="maxima")
```

```
[Out] 1/84*(25961*B*b^10*d^11 - 12*A*a^10*e^11 - 11044*(10*B*a*b^9 + A*
b^10)*d^10*e + 20094*(9*B*a^2*b^8 + 2*A*a*b^9)*d^9*e^2 - 17316*(8
*B*a^3*b^7 + 3*A*a^2*b^8)*d^8*e^3 + 6534*(7*B*a^4*b^6 + 4*A*a^3*b
^7)*d^7*e^4 - 504*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^6*e^5 - 84*(5*B*a
^6*b^4 + 6*A*a^5*b^5)*d^5*e^6 - 24*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^
4*e^7 - 9*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^3*e^8 - 4*(2*B*a^9*b + 9*
A*a^8*b^2)*d^2*e^9 - 2*(B*a^10 + 10*A*a^9*b)*d*e^10 + 3528*(11*B*
b^10*d^5*e^6 - 5*(10*B*a*b^9 + A*b^10)*d^4*e^7 + 10*(9*B*a^2*b^8
+ 2*A*a*b^9)*d^3*e^8 - 10*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^2*e^9 + 5
*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d*e^10 - (6*B*a^5*b^5 + 5*A*a^4*b^6)
*e^11)*x^6 + 1764*(121*B*b^10*d^6*e^5 - 54*(10*B*a*b^9 + A*b^10)*
d^5*e^6 + 105*(9*B*a^2*b^8 + 2*A*a*b^9)*d^4*e^7 - 100*(8*B*a^3*b^
```

```
7 + 3*A*a^2*b^8)*d^3*e^8 + 45*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^2*e^9
 - 6*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d*e^10 - (5*B*a^6*b^4 + 6*A*a^5*
b^5)*e^11)*x^5 + 420*(1177*B*b^10*d^7*e^4 - 518*(10*B*a*b^9 + A*b
^10)*d^6*e^5 + 987*(9*B*a^2*b^8 + 2*A*a*b^9)*d^5*e^6 - 910*(8*B*a
^3*b^7 + 3*A*a^2*b^8)*d^4*e^7 + 385*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d
^3*e^8 - 42*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^2*e^9 - 7*(5*B*a^6*b^4
+ 6*A*a^5*b^5)*d*e^10 - 2*(4*B*a^7*b^3 + 7*A*a^6*b^4)*e^11)*x^4 +
 105*(5863*B*b^10*d^8*e^3 - 2552*(10*B*a*b^9 + A*b^10)*d^7*e^4 +
4788*(9*B*a^2*b^8 + 2*A*a*b^9)*d^6*e^5 - 4312*(8*B*a^3*b^7 + 3*A*
a^2*b^8)*d^5*e^6 + 1750*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^4*e^7 - 168
*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^3*e^8 - 28*(5*B*a^6*b^4 + 6*A*a^5*
b^5)*d^2*e^9 - 8*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d*e^10 - 3*(3*B*a^8*
b^2 + 8*A*a^7*b^3)*e^11)*x^3 + 21*(20669*B*b^10*d^9*e^2 - 8916*(1
0*B*a*b^9 + A*b^10)*d^8*e^3 + 16524*(9*B*a^2*b^8 + 2*A*a*b^9)*d^7
*e^4 - 14616*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^6*e^5 + 5754*(7*B*a^4*
b^6 + 4*A*a^3*b^7)*d^5*e^6 - 504*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^4*
e^7 - 84*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^3*e^8 - 24*(4*B*a^7*b^3 +
7*A*a^6*b^4)*d^2*e^9 - 9*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d*e^10 - 4*(
2*B*a^9*b + 9*A*a^8*b^2)*e^11)*x^2 + 7*(23441*B*b^10*d^10*e - 100
36*(10*B*a*b^9 + A*b^10)*d^9*e^2 + 18414*(9*B*a^2*b^8 + 2*A*a*b^9
)*d^8*e^3 - 16056*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^7*e^4 + 6174*(7*B
*a^4*b^6 + 4*A*a^3*b^7)*d^6*e^5 - 504*(6*B*a^5*b^5 + 5*A*a^4*b^6)
*d^5*e^6 - 84*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^4*e^7 - 24*(4*B*a^7*b
^3 + 7*A*a^6*b^4)*d^3*e^8 - 9*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^2*e^9
 - 4*(2*B*a^9*b + 9*A*a^8*b^2)*d*e^10 - 2*(B*a^10 + 10*A*a^9*b)*e
^11)*x)/(e^19*x^7 + 7*d*e^18*x^6 + 21*d^2*e^17*x^5 + 35*d^3*e^16*
x^4 + 35*d^4*e^15*x^3 + 21*d^5*e^14*x^2 + 7*d^6*e^13*x + d^7*e^12
) + 1/12*(3*B*b^10*e^3*x^4 - 4*(8*B*b^10*d*e^2 - (10*B*a*b^9 + A*
b^10)*e^3)*x^3 + 6*(36*B*b^10*d^2*e - 8*(10*B*a*b^9 + A*b^10)*d*e
^2 + 5*(9*B*a^2*b^8 + 2*A*a*b^9)*e^3)*x^2 - 12*(120*B*b^10*d^3 -
36*(10*B*a*b^9 + A*b^10)*d^2*e + 40*(9*B*a^2*b^8 + 2*A*a*b^9)*d*e
^2 - 15*(8*B*a^3*b^7 + 3*A*a^2*b^8)*e^3)*x)/e^11 + 30*(11*B*b^10*
d^4 - 4*(10*B*a*b^9 + A*b^10)*d^3*e + 6*(9*B*a^2*b^8 + 2*A*a*b^9)
*d^2*e^2 - 4*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d*e^3 + (7*B*a^4*b^6 + 4
*A*a^3*b^7)*e^4)*log(e*x + d)/e^12
```

Fricas [A] time = 0.232631, size = 3757, normalized size = 8.46

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d)^8,x, algorithm="fricas")
```

```
[Out] 1/84*(21*B*b^10*e^11*x^11 + 25961*B*b^10*d^11 - 12*A*a^10*e^11 -
11044*(10*B*a*b^9 + A*b^10)*d^10*e + 20094*(9*B*a^2*b^8 + 2*A*a*b
^9)*d^9*e^2 - 17316*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^8*e^3 + 6534*(7
*B*a^4*b^6 + 4*A*a^3*b^7)*d^7*e^4 - 504*(6*B*a^5*b^5 + 5*A*a^4*b^
6)*d^6*e^5 - 84*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^5*e^6 - 24*(4*B*a^7
*b^3 + 7*A*a^6*b^4)*d^4*e^7 - 9*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^3*e
^8 - 4*(2*B*a^9*b + 9*A*a^8*b^2)*d^2*e^9 - 2*(B*a^10 + 10*A*a^9*b
)*d*e^10 - 7*(11*B*b^10*d*e^10 - 4*(10*B*a*b^9 + A*b^10)*e^11)*x^
10 + 35*(11*B*b^10*d^2*e^9 - 4*(10*B*a*b^9 + A*b^10)*d*e^10 + 6*(
9*B*a^2*b^8 + 2*A*a*b^9)*e^11)*x^9 - 315*(11*B*b^10*d^3*e^8 - 4*(
10*B*a*b^9 + A*b^10)*d^2*e^9 + 6*(9*B*a^2*b^8 + 2*A*a*b^9)*d*e^10
 - 4*(8*B*a^3*b^7 + 3*A*a^2*b^8)*e^11)*x^8 - 49*(937*B*b^10*d^4*e
^7 - 308*(10*B*a*b^9 + A*b^10)*d^3*e^8 + 390*(9*B*a^2*b^8 + 2*A*a
*b^9)*d^2*e^9 - 180*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d*e^10)*x^7 - 49*
(2599*B*b^10*d^5*e^6 - 716*(10*B*a*b^9 + A*b^10)*d^4*e^7 + 570*(9
*B*a^2*b^8 + 2*A*a*b^9)*d^3*e^8 + 180*(8*B*a^3*b^7 + 3*A*a^2*b^8)
*d^2*e^9 - 360*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d*e^10 + 72*(6*B*a^5*b
^5 + 5*A*a^4*b^6)*e^11)*x^6 - 147*(619*B*b^10*d^6*e^5 + 4*(10*B*a
*b^9 + A*b^10)*d^5*e^6 - 510*(9*B*a^2*b^8 + 2*A*a*b^9)*d^4*e^7 +
900*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^3*e^8 - 540*(7*B*a^4*b^6 + 4*A*
a^3*b^7)*d^2*e^9 + 72*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d*e^10 + 12*(5*
B*a^6*b^4 + 6*A*a^5*b^5)*e^11)*x^5 + 35*(4907*B*b^10*d^7*e^4 - 33
88*(10*B*a*b^9 + A*b^10)*d^6*e^5 + 8610*(9*B*a^2*b^8 + 2*A*a*b^9)
*d^5*e^6 - 9660*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^4*e^7 + 4620*(7*B*a
^4*b^6 + 4*A*a^3*b^7)*d^3*e^8 - 504*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d
^2*e^9 - 84*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d*e^10 - 24*(4*B*a^7*b^3
```

```
+ 7*A*a^6*b^4)*e^11)*x^4 + 35*(11837*B*b^10*d^8*e^3 - 5908*(10*B*
a*b^9 + A*b^10)*d^7*e^4 + 12390*(9*B*a^2*b^8 + 2*A*a*b^9)*d^6*e^5
 - 12180*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^5*e^6 + 5250*(7*B*a^4*b^6
+ 4*A*a^3*b^7)*d^4*e^7 - 504*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^3*e^8
- 84*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^2*e^9 - 24*(4*B*a^7*b^3 + 7*A*
a^6*b^4)*d*e^10 - 9*(3*B*a^8*b^2 + 8*A*a^7*b^3)*e^11)*x^3 + 21*(1
7381*B*b^10*d^9*e^2 - 7924*(10*B*a*b^9 + A*b^10)*d^8*e^3 + 15414*
(9*B*a^2*b^8 + 2*A*a*b^9)*d^7*e^4 - 14196*(8*B*a^3*b^7 + 3*A*a^2*
b^8)*d^6*e^5 + 5754*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^5*e^6 - 504*(6*
B*a^5*b^5 + 5*A*a^4*b^6)*d^4*e^7 - 84*(5*B*a^6*b^4 + 6*A*a^5*b^5)
*d^3*e^8 - 24*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^2*e^9 - 9*(3*B*a^8*b^
2 + 8*A*a^7*b^3)*d*e^10 - 4*(2*B*a^9*b + 9*A*a^8*b^2)*e^11)*x^2 +
 7*(22001*B*b^10*d^10*e - 9604*(10*B*a*b^9 + A*b^10)*d^9*e^2 + 17
934*(9*B*a^2*b^8 + 2*A*a*b^9)*d^8*e^3 - 15876*(8*B*a^3*b^7 + 3*A*
a^2*b^8)*d^7*e^4 + 6174*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^6*e^5 - 504
*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^5*e^6 - 84*(5*B*a^6*b^4 + 6*A*a^5*
b^5)*d^4*e^7 - 24*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^3*e^8 - 9*(3*B*a^
8*b^2 + 8*A*a^7*b^3)*d^2*e^9 - 4*(2*B*a^9*b + 9*A*a^8*b^2)*d*e^10
 - 2*(B*a^10 + 10*A*a^9*b)*e^11)*x + 2520*(11*B*b^10*d^11 - 4*(10
*B*a*b^9 + A*b^10)*d^10*e + 6*(9*B*a^2*b^8 + 2*A*a*b^9)*d^9*e^2 -
 4*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^8*e^3 + (7*B*a^4*b^6 + 4*A*a^3*b
^7)*d^7*e^4 + (11*B*b^10*d^4*e^7 - 4*(10*B*a*b^9 + A*b^10)*d^3*e^
8 + 6*(9*B*a^2*b^8 + 2*A*a*b^9)*d^2*e^9 - 4*(8*B*a^3*b^7 + 3*A*a^
2*b^8)*d*e^10 + (7*B*a^4*b^6 + 4*A*a^3*b^7)*e^11)*x^7 + 7*(11*B*b
^10*d^5*e^6 - 4*(10*B*a*b^9 + A*b^10)*d^4*e^7 + 6*(9*B*a^2*b^8 +
2*A*a*b^9)*d^3*e^8 - 4*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^2*e^9 + (7*B
*a^4*b^6 + 4*A*a^3*b^7)*d*e^10)*x^6 + 21*(11*B*b^10*d^6*e^5 - 4*(
10*B*a*b^9 + A*b^10)*d^5*e^6 + 6*(9*B*a^2*b^8 + 2*A*a*b^9)*d^4*e^
7 - 4*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^3*e^8 + (7*B*a^4*b^6 + 4*A*a^
3*b^7)*d^2*e^9)*x^5 + 35*(11*B*b^10*d^7*e^4 - 4*(10*B*a*b^9 + A*b
^10)*d^6*e^5 + 6*(9*B*a^2*b^8 + 2*A*a*b^9)*d^5*e^6 - 4*(8*B*a^3*b
^7 + 3*A*a^2*b^8)*d^4*e^7 + (7*B*a^4*b^6 + 4*A*a^3*b^7)*d^3*e^8)*
x^4 + 35*(11*B*b^10*d^8*e^3 - 4*(10*B*a*b^9 + A*b^10)*d^7*e^4 + 6
*(9*B*a^2*b^8 + 2*A*a*b^9)*d^6*e^5 - 4*(8*B*a^3*b^7 + 3*A*a^2*b^8
)*d^5*e^6 + (7*B*a^4*b^6 + 4*A*a^3*b^7)*d^4*e^7)*x^3 + 21*(11*B*b
^10*d^9*e^2 - 4*(10*B*a*b^9 + A*b^10)*d^8*e^3 + 6*(9*B*a^2*b^8 +
2*A*a*b^9)*d^7*e^4 - 4*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^6*e^5 + (7*B
*a^4*b^6 + 4*A*a^3*b^7)*d^5*e^6)*x^2 + 7*(11*B*b^10*d^10*e - 4*(1
0*B*a*b^9 + A*b^10)*d^9*e^2 + 6*(9*B*a^2*b^8 + 2*A*a*b^9)*d^8*e^3
 - 4*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^7*e^4 + (7*B*a^4*b^6 + 4*A*a^3
*b^7)*d^6*e^5)*x)*log(e*x + d))/(e^19*x^7 + 7*d*e^18*x^6 + 21*d^2
*e^17*x^5 + 35*d^3*e^16*x^4 + 35*d^4*e^15*x^3 + 21*d^5*e^14*x^2 +
 7*d^6*e^13*x + d^7*e^12)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)/(e*x+d)**8,x)

[Out] Timed out
```

GIAC/XCAS [A] time = 0.217106, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d)^8,x, algorithm="giac")

[Out] Done
```

3.1080 $\int \frac{(a+bx)^{10}(A+Bx)}{(d+ex)^9}\,dx$

Optimal. Leaf size=445

$$-\frac{b^9(d+ex)^2(-10aBe-Abe+11bBd)}{2e^{12}}+\frac{5b^8x(bd-ae)(-9aBe-2Abe+11bBd)}{e^{11}}-\frac{15b^7(bd-ae)^2\log(d+ex)(-8aBe-3Abe+11bBd)}{e^{12}}-\frac{30b^6(bd-ae)^3(-7aBe-4Abe+11bBd)}{e^{12}(d+ex)}+\frac{21b^5(bd-ae)^4(-6aBe-5Abe+11bBd)}{e^{12}(d+ex)^2}-\frac{14b^4(bd-ae)^5(-5aBe-6Abe+11bBd)}{e^{12}(d+ex)^3}+\frac{15b^3(bd-ae)^6(-4aBe-7Abe+11bBd)}{2e^{12}(d+ex)^4}-\frac{3b^2(bd-ae)^7(-3aBe-8Abe+11bBd)}{e^{12}(d+ex)^5}+\frac{5b(bd-ae)^8(-2aBe-9Abe+11bBd)}{6e^{12}(d+ex)^6}-\frac{(bd-ae)^9(-aBe-10Abe+11bBd)}{7e^{12}(d+ex)^7}+\frac{(bd-ae)^{10}(Bd-Ae)}{8e^{12}(d+ex)^8}+\frac{b^{10}B(d+ex)^3}{3e^{12}}$$

```
[Out] (5*b^8*(b*d - a*e)*(11*b*B*d - 2*A*b*e - 9*a*B*e)*x)/e^11 + ((b*d
 - a*e)^10*(B*d - A*e))/(8*e^12*(d + e*x)^8) - ((b*d - a*e)^9*(11
*b*B*d - 10*A*b*e - a*B*e))/(7*e^12*(d + e*x)^7) + (5*b*(b*d - a*
e)^8*(11*b*B*d - 9*A*b*e - 2*a*B*e))/(6*e^12*(d + e*x)^6) - (3*b^
2*(b*d - a*e)^7*(11*b*B*d - 8*A*b*e - 3*a*B*e))/(e^12*(d + e*x)^5
) + (15*b^3*(b*d - a*e)^6*(11*b*B*d - 7*A*b*e - 4*a*B*e))/(2*e^12
*(d + e*x)^4) - (14*b^4*(b*d - a*e)^5*(11*b*B*d - 6*A*b*e - 5*a*B
*e))/(e^12*(d + e*x)^3) + (21*b^5*(b*d - a*e)^4*(11*b*B*d - 5*A*b
*e - 6*a*B*e))/(e^12*(d + e*x)^2) - (30*b^6*(b*d - a*e)^3*(11*b*B
*d - 4*A*b*e - 7*a*B*e))/(e^12*(d + e*x)) - (b^9*(11*b*B*d - A*b*
e - 10*a*B*e)*(d + e*x)^2)/(2*e^12) + (b^10*B*(d + e*x)^3)/(3*e^1
2) - (15*b^7*(b*d - a*e)^2*(11*b*B*d - 3*A*b*e - 8*a*B*e)*Log[d +
 e*x])/e^12
```

Rubi [A] time = 2.61882, antiderivative size = 445, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{b^9(d+ex)^2(-10aBe-Abe+11bBd)}{2e^{12}}+\frac{5b^8x(bd-ae)(-9aBe-2Abe+11bBd)}{e^{11}}-\frac{15b^7(bd-ae)^2\log(d+ex)(-8aBe-3Abe+11bBd)}{e^{12}}-\frac{30b^6(bd-ae)^3(-7aBe-4Abe+11bBd)}{e^{12}(d+ex)}+\frac{21b^5(bd-ae)^4(-6aBe-5Abe+11bBd)}{e^{12}(d+ex)^2}-\frac{14b^4(bd-ae)^5(-5aBe-6Abe+11bBd)}{e^{12}(d+ex)^3}+\frac{15b^3(bd-ae)^6(-4aBe-7Abe+11bBd)}{2e^{12}(d+ex)^4}-\frac{3b^2(bd-ae)^7(-3aBe-8Abe+11bBd)}{e^{12}(d+ex)^5}+\frac{5b(bd-ae)^8(-2aBe-9Abe+11bBd)}{6e^{12}(d+ex)^6}-\frac{(bd-ae)^9(-aBe-10Abe+11bBd)}{7e^{12}(d+ex)^7}+\frac{(bd-ae)^{10}(Bd-Ae)}{8e^{12}(d+ex)^8}+\frac{b^{10}B(d+ex)^3}{3e^{12}}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^10*(A + B*x))/(d + e*x)^9,x]
```


```
[Out] (5*b^8*(b*d - a*e)*(11*b*B*d - 2*A*b*e - 9*a*B*e)*x)/e^11 + ((b*d
 - a*e)^10*(B*d - A*e))/(8*e^12*(d + e*x)^8) - ((b*d - a*e)^9*(11
*b*B*d - 10*A*b*e - a*B*e))/(7*e^12*(d + e*x)^7) + (5*b*(b*d - a*
e)^8*(11*b*B*d - 9*A*b*e - 2*a*B*e))/(6*e^12*(d + e*x)^6) - (3*b^
2*(b*d - a*e)^7*(11*b*B*d - 8*A*b*e - 3*a*B*e))/(e^12*(d + e*x)^5
) + (15*b^3*(b*d - a*e)^6*(11*b*B*d - 7*A*b*e - 4*a*B*e))/(2*e^12
*(d + e*x)^4) - (14*b^4*(b*d - a*e)^5*(11*b*B*d - 6*A*b*e - 5*a*B
*e))/(e^12*(d + e*x)^3) + (21*b^5*(b*d - a*e)^4*(11*b*B*d - 5*A*b
*e - 6*a*B*e))/(e^12*(d + e*x)^2) - (30*b^6*(b*d - a*e)^3*(11*b*B
*d - 4*A*b*e - 7*a*B*e))/(e^12*(d + e*x)) - (b^9*(11*b*B*d - A*b*
e - 10*a*B*e)*(d + e*x)^2)/(2*e^12) + (b^10*B*(d + e*x)^3)/(3*e^1
2) - (15*b^7*(b*d - a*e)^2*(11*b*B*d - 3*A*b*e - 8*a*B*e)*Log[d +
```

```
e*x])/e^12
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)**10*(B*x+A)/(e*x+d)**9,x)

[Out] Timed out
```

Mathematica [A] time = 1.13854, size = 415, normalized size = 0.93

$$\frac{-168b^8ex\left(-45a^2Be^2-10abe(Ae-9Bd)+9b^2d(Ae-5Bd)\right)+84b^9e^2x^2(10aBe+Abe-9bBd)-2520b^7(bd-ae)^2\log(d+}{}$$

Antiderivative was successfully verified.

```
[In] Integrate[((a + b*x)^10*(A + B*x))/(d + e*x)^9,x]

[Out] (-168*b^8*e*(-45*a^2*B*e^2 - 10*a*b*e*(-9*B*d + A*e) + 9*b^2*d*(-
5*B*d + A*e))*x + 84*b^9*e^2*(-9*b*B*d + A*b*e + 10*a*B*e)*x^2 +
56*b^10*B*e^3*x^3 + (21*(b*d - a*e)^10*(B*d - A*e))/(d + e*x)^8 -
 (24*(b*d - a*e)^9*(11*b*B*d - 10*A*b*e - a*B*e))/(d + e*x)^7 + (
140*b*(b*d - a*e)^8*(11*b*B*d - 9*A*b*e - 2*a*B*e))/(d + e*x)^6 -
 (504*b^2*(b*d - a*e)^7*(11*b*B*d - 8*A*b*e - 3*a*B*e))/(d + e*x)
^5 + (1260*b^3*(b*d - a*e)^6*(11*b*B*d - 7*A*b*e - 4*a*B*e))/(d +
 e*x)^4 - (2352*b^4*(b*d - a*e)^5*(11*b*B*d - 6*A*b*e - 5*a*B*e))
/(d + e*x)^3 + (3528*b^5*(b*d - a*e)^4*(11*b*B*d - 5*A*b*e - 6*a*
B*e))/(d + e*x)^2 - (5040*b^6*(b*d - a*e)^3*(11*b*B*d - 4*A*b*e -
 7*a*B*e))/(d + e*x) - 2520*b^7*(b*d - a*e)^2*(11*b*B*d - 3*A*b*e
 - 8*a*B*e)*Log[d + e*x])/(168*e^12)
```

Maple [B] time = 0.044, size = 2857, normalized size = 6.4

output too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((b*x+a)^10*(B*x+A)/(e*x+d)^9,x)

[Out] 1/2*b^10/e^9*A*x^2-1/8/e/(e*x+d)^8*a^10*A-1/7/e^2/(e*x+d)^7*B*a^1
0+1/3*b^10/e^9*B*x^3-330*b^10/e^12/(e*x+d)*B*d^4-105*b^6/e^7/(e*x
+d)^2*A*a^4-105*b^10/e^11/(e*x+d)^2*A*d^4-126*b^5/e^7/(e*x+d)^2*B
*a^5+231*b^10/e^12/(e*x+d)^2*B*d^5-105/2*b^4/e^5/(e*x+d)^4*A*a^6-
105/2*b^10/e^11/(e*x+d)^4*A*d^6+120*b^10/e^11/(e*x+d)*A*d^3-210*b
^6/e^8/(e*x+d)*B*a^4-45/8/e^3/(e*x+d)^8*A*d^2*a^8*b^2+15/e^4/(e*x
+d)^8*A*d^3*a^7*b^3-105/4/e^5/(e*x+d)^8*A*d^4*a^6*b^4+63/2/e^6/(e
*x+d)^8*A*d^5*a^5*b^5-105/4/e^7/(e*x+d)^8*A*d^6*a^4*b^6+15/e^8/(e
*x+d)^8*A*d^7*a^3*b^7-45/8/e^9/(e*x+d)^8*A*d^8*a^2*b^8+5/4/e^10/(
e*x+d)^8*A*a*b^9*d^9-5/4/e^3/(e*x+d)^8*B*d^2*a^9*b+45/8/e^4/(e*x+
d)^8*B*d^3*a^8*b^2-15/e^5/(e*x+d)^8*B*d^4*a^7*b^3+105/4/e^6/(e*x+
d)^8*B*d^5*a^6*b^4-63/2/e^7/(e*x+d)^8*B*d^6*a^5*b^5+105/4/e^8/(e*
x+d)^8*B*d^7*a^4*b^6-15/e^9/(e*x+d)^8*B*d^8*a^3*b^7+45/8/e^10/(e*
x+d)^8*B*a^2*b^8*d^9-5/4/e^11/(e*x+d)^8*B*a*b^9*d^10+90/7/e^3/(e*
x+d)^7*A*a^8*b^2*d-360/7/e^4/(e*x+d)^7*A*a^7*b^3*d^2+120/e^5/(e*x
+d)^7*A*a^6*b^4*d^3-180/e^6/(e*x+d)^7*A*a^5*b^5*d^4+180/e^7/(e*x+
d)^7*A*a^4*b^6*d^5-120/e^8/(e*x+d)^7*A*a^3*b^7*d^6+360/7/e^9/(e*x
+d)^7*A*a^2*b^8*d^7-90/7/e^10/(e*x+d)^7*A*a*b^9*d^8+20/7/e^3/(e*x
```

```
+d)^7*B*a^9*b*d-135/7/e^4/(e*x+d)^7*B*a^8*b^2*d^2+480/7/e^5/(e*x+
d)^7*B*a^7*b^3*d^3-150/e^6/(e*x+d)^7*B*a^6*b^4*d^4+216/e^7/(e*x+d
)^7*B*a^5*b^5*d^5-210/e^8/(e*x+d)^7*B*a^4*b^6*d^6+960/7/e^9/(e*x+
d)^7*B*a^3*b^7*d^7-405/7/e^10/(e*x+d)^7*B*a^2*b^8*d^8+100/7/e^11/
(e*x+d)^7*B*a*b^9*d^9+525/2*b^4/e^6/(e*x+d)^4*B*a^6*d-945*b^5/e^7
/(e*x+d)^4*B*a^5*d^2+3675/2*b^6/e^8/(e*x+d)^4*B*a^4*d^3-2100*b^7/
e^9/(e*x+d)^4*B*a^3*d^4+2835/2*b^8/e^10/(e*x+d)^4*B*a^2*d^5-525*b
^9/e^11/(e*x+d)^4*B*a*d^6-90*b^9/e^10*B*a*d*x-90*b^9/e^10*ln(e*x+
d)*A*a*d-405*b^8/e^10*ln(e*x+d)*B*a^2*d+450*b^9/e^11*ln(e*x+d)*B*
a*d^2+60*b^3/e^4/(e*x+d)^6*A*a^7*d-210*b^4/e^5/(e*x+d)^6*A*a^6*d^
2+420*b^5/e^6/(e*x+d)^6*A*a^5*d^3-525*b^6/e^7/(e*x+d)^6*A*a^4*d^4
+420*b^7/e^8/(e*x+d)^6*A*a^3*d^5-210*b^8/e^9/(e*x+d)^6*A*a^2*d^6+
60*b^9/e^10/(e*x+d)^6*A*a*d^7+45/2*b^2/e^4/(e*x+d)^6*B*a^8*d+168*
b^4/e^5/(e*x+d)^5*A*a^6*d-504*b^5/e^6/(e*x+d)^5*A*a^5*d^2+840*b^6
/e^7/(e*x+d)^5*A*a^4*d^3-840*b^7/e^8/(e*x+d)^5*A*a^3*d^4+504*b^8/
e^9/(e*x+d)^5*A*a^2*d^5-168*b^9/e^10/(e*x+d)^5*A*a*d^6+96*b^3/e^5
/(e*x+d)^5*B*a^7*d-420*b^4/e^6/(e*x+d)^5*B*a^6*d^2+1008*b^5/e^7/(
e*x+d)^5*B*a^5*d^3-1470*b^6/e^8/(e*x+d)^5*B*a^4*d^4+1344*b^7/e^9/
(e*x+d)^5*B*a^3*d^5-756*b^8/e^10/(e*x+d)^5*B*a^2*d^6+240*b^9/e^11
/(e*x+d)^5*B*a*d^7-120*b^3/e^5/(e*x+d)^6*B*a^7*d^2+350*b^4/e^6/(e
*x+d)^6*B*a^6*d^3-630*b^5/e^7/(e*x+d)^6*B*a^5*d^4+735*b^6/e^8/(e*
x+d)^6*B*a^4*d^5-560*b^7/e^9/(e*x+d)^6*B*a^3*d^6+270*b^8/e^10/(e*
x+d)^6*B*a^2*d^7-75*b^9/e^11/(e*x+d)^6*B*a*d^8+5/4/e^2/(e*x+d)^8*
A*d*a^9*b+420*b^6/e^7/(e*x+d)^3*A*a^4*d-840*b^7/e^8/(e*x+d)^3*A*a
^3*d^2+840*b^8/e^9/(e*x+d)^3*A*a^2*d^3-420*b^9/e^10/(e*x+d)^3*A*a
*d^4+504*b^5/e^7/(e*x+d)^3*B*a^5*d-1470*b^6/e^8/(e*x+d)^3*B*a^4*d
^2+2240*b^7/e^9/(e*x+d)^3*B*a^3*d^3-1890*b^8/e^10/(e*x+d)^3*B*a^2
*d^4+840*b^9/e^11/(e*x+d)^3*B*a*d^5+360*b^8/e^9/(e*x+d)*A*a^2*d-3
60*b^9/e^10/(e*x+d)*A*a*d^2+960*b^7/e^9/(e*x+d)*B*a^3*d-1620*b^8/
e^10/(e*x+d)*B*a^2*d^2+1200*b^9/e^11/(e*x+d)*B*a*d^3+420*b^7/e^8/
(e*x+d)^2*A*a^3*d-630*b^8/e^9/(e*x+d)^2*A*a^2*d^2+420*b^9/e^10/(e
*x+d)^2*A*a*d^3+735*b^6/e^8/(e*x+d)^2*B*a^4*d-1680*b^7/e^9/(e*x+d
)^2*B*a^3*d^2+1890*b^8/e^10/(e*x+d)^2*B*a^2*d^3-1050*b^9/e^11/(e*
x+d)^2*B*a*d^4+315*b^5/e^6/(e*x+d)^4*A*a^5*d-1575/2*b^6/e^7/(e*x+
d)^4*A*a^4*d^2+1050*b^7/e^8/(e*x+d)^4*A*a^3*d^3-1575/2*b^8/e^9/(e
*x+d)^4*A*a^2*d^4+315*b^9/e^10/(e*x+d)^4*A*a*d^5-9*b^10/e^10*A*d*
x+45*b^8/e^9*B*a^2*x+45*b^10/e^11*B*d^2*x+45*b^8/e^9*ln(e*x+d)*A*
a^2+45*b^10/e^11*ln(e*x+d)*A*d^2+120*b^7/e^9*ln(e*x+d)*B*a^3-165*
b^10/e^12*ln(e*x+d)*B*d^3-15/2*b^2/e^3/(e*x+d)^6*A*a^8-15/2*b^10/
e^11/(e*x+d)^6*A*d^8-5/3*b/e^3/(e*x+d)^6*B*a^9+55/6*b^10/e^12/(e*
x+d)^6*B*d^9-1/8/e^11/(e*x+d)^8*A*b^10*d^10-30*b^3/e^5/(e*x+d)^4*
B*a^7+165/2*b^10/e^12/(e*x+d)^4*B*d^7-24*b^3/e^4/(e*x+d)^5*A*a^7+
24*b^10/e^11/(e*x+d)^5*A*d^7-9*b^2/e^4/(e*x+d)^5*B*a^8-33*b^10/e^
12/(e*x+d)^5*B*d^8+5*b^9/e^9*B*x^2*a-9/2*b^10/e^10*B*x^2*d+10*b^9
/e^9*A*a*x+1/8/e^2/(e*x+d)^8*B*d*a^10+1/8/e^12/(e*x+d)^8*b^10*B*d
^11-10/7/e^2/(e*x+d)^7*A*a^9*b+10/7/e^11/(e*x+d)^7*A*b^10*d^9-11/
7/e^12/(e*x+d)^7*b^10*B*d^10-84*b^5/e^6/(e*x+d)^3*A*a^5+84*b^10/e
^11/(e*x+d)^3*A*d^5-70*b^4/e^6/(e*x+d)^3*B*a^6-154*b^10/e^12/(e*x
+d)^3*B*d^6-120*b^7/e^8/(e*x+d)*A*a^3
```

Maxima [A] time = 2.64546, size = 2554, normalized size = 5.74

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d)^9,x, algorithm="maxima")
```

```
[Out] -1/168*(32891*B*b^10*d^11 + 21*A*a^10*e^11 - 10803*(10*B*a*b^9 +
A*b^10)*d^10*e + 13827*(9*B*a^2*b^8 + 2*A*a*b^9)*d^9*e^2 - 6849*(
8*B*a^3*b^7 + 3*A*a^2*b^8)*d^8*e^3 + 630*(7*B*a^4*b^6 + 4*A*a^3*b
^7)*d^7*e^4 + 126*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^6*e^5 + 42*(5*B*a
^6*b^4 + 6*A*a^5*b^5)*d^5*e^6 + 18*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^
4*e^7 + 9*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^3*e^8 + 5*(2*B*a^9*b + 9*
A*a^8*b^2)*d^2*e^9 + 3*(B*a^10 + 10*A*a^9*b)*d*e^10 + 5040*(11*B*
b^10*d^4*e^7 - 4*(10*B*a*b^9 + A*b^10)*d^3*e^8 + 6*(9*B*a^2*b^8 +
 2*A*a*b^9)*d^2*e^9 - 4*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d*e^10 + (7*B
*a^4*b^6 + 4*A*a^3*b^7)*e^11)*x^7 + 3528*(99*B*b^10*d^5*e^6 - 35*
(10*B*a*b^9 + A*b^10)*d^4*e^7 + 50*(9*B*a^2*b^8 + 2*A*a*b^9)*d^3*
e^8 - 30*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^2*e^9 + 5*(7*B*a^4*b^6 + 4
```

```
*A*a^3*b^7)*d*e^10 + (6*B*a^5*b^5 + 5*A*a^4*b^6)*e^11)*x^6 + 2352
*(407*B*b^10*d^6*e^5 - 141*(10*B*a*b^9 + A*b^10)*d^5*e^6 + 195*(9
*B*a^2*b^8 + 2*A*a*b^9)*d^4*e^7 - 110*(8*B*a^3*b^7 + 3*A*a^2*b^8)
*d^3*e^8 + 15*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^2*e^9 + 3*(6*B*a^5*b^
5 + 5*A*a^4*b^6)*d*e^10 + (5*B*a^6*b^4 + 6*A*a^5*b^5)*e^11)*x^5 +
 420*(3509*B*b^10*d^7*e^4 - 1197*(10*B*a*b^9 + A*b^10)*d^6*e^5 +
1617*(9*B*a^2*b^8 + 2*A*a*b^9)*d^5*e^6 - 875*(8*B*a^3*b^7 + 3*A*a
^2*b^8)*d^4*e^7 + 105*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^3*e^8 + 21*(6
*B*a^5*b^5 + 5*A*a^4*b^6)*d^2*e^9 + 7*(5*B*a^6*b^4 + 6*A*a^5*b^5)
*d*e^10 + 3*(4*B*a^7*b^3 + 7*A*a^6*b^4)*e^11)*x^4 + 168*(8173*B*b
^10*d^8*e^3 - 2754*(10*B*a*b^9 + A*b^10)*d^7*e^4 + 3654*(9*B*a^2*
b^8 + 2*A*a*b^9)*d^6*e^5 - 1918*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^5*e
^6 + 210*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^4*e^7 + 42*(6*B*a^5*b^5 +
5*A*a^4*b^6)*d^3*e^8 + 14*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^2*e^9 + 6
*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d*e^10 + 3*(3*B*a^8*b^2 + 8*A*a^7*b^
3)*e^11)*x^3 + 28*(27599*B*b^10*d^9*e^2 - 9207*(10*B*a*b^9 + A*b^
10)*d^8*e^3 + 12042*(9*B*a^2*b^8 + 2*A*a*b^9)*d^7*e^4 - 6174*(8*B
*a^3*b^7 + 3*A*a^2*b^8)*d^6*e^5 + 630*(7*B*a^4*b^6 + 4*A*a^3*b^7)
*d^5*e^6 + 126*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^4*e^7 + 42*(5*B*a^6*
b^4 + 6*A*a^5*b^5)*d^3*e^8 + 18*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^2*e
^9 + 9*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d*e^10 + 5*(2*B*a^9*b + 9*A*a^
8*b^2)*e^11)*x^2 + 8*(30371*B*b^10*d^10*e - 10047*(10*B*a*b^9 + A
*b^10)*d^9*e^2 + 12987*(9*B*a^2*b^8 + 2*A*a*b^9)*d^8*e^3 - 6534*(
8*B*a^3*b^7 + 3*A*a^2*b^8)*d^7*e^4 + 630*(7*B*a^4*b^6 + 4*A*a^3*b
^7)*d^6*e^5 + 126*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^5*e^6 + 42*(5*B*a
^6*b^4 + 6*A*a^5*b^5)*d^4*e^7 + 18*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^
3*e^8 + 9*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^2*e^9 + 5*(2*B*a^9*b + 9*
A*a^8*b^2)*d*e^10 + 3*(B*a^10 + 10*A*a^9*b)*e^11)*x)/(e^20*x^8 +
8*d*e^19*x^7 + 28*d^2*e^18*x^6 + 56*d^3*e^17*x^5 + 70*d^4*e^16*x^
4 + 56*d^5*e^15*x^3 + 28*d^6*e^14*x^2 + 8*d^7*e^13*x + d^8*e^12)
+ 1/6*(2*B*b^10*e^2*x^3 - 3*(9*B*b^10*d*e - (10*B*a*b^9 + A*b^10)
*e^2)*x^2 + 6*(45*B*b^10*d^2 - 9*(10*B*a*b^9 + A*b^10)*d*e + 5*(9
*B*a^2*b^8 + 2*A*a*b^9)*e^2)*x)/e^11 - 15*(11*B*b^10*d^3 - 3*(10*
B*a*b^9 + A*b^10)*d^2*e + 3*(9*B*a^2*b^8 + 2*A*a*b^9)*d*e^2 - (8*
B*a^3*b^7 + 3*A*a^2*b^8)*e^3)*log(e*x + d)/e^12
```

Fricas [A] time = 0.239727, size = 3614, normalized size = 8.12

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d)^9,x, algorithm="fricas")
```

```
[Out] 1/168*(56*B*b^10*e^11*x^11 - 32891*B*b^10*d^11 - 21*A*a^10*e^11 +
 10803*(10*B*a*b^9 + A*b^10)*d^10*e - 13827*(9*B*a^2*b^8 + 2*A*a*
b^9)*d^9*e^2 + 6849*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^8*e^3 - 630*(7*
B*a^4*b^6 + 4*A*a^3*b^7)*d^7*e^4 - 126*(6*B*a^5*b^5 + 5*A*a^4*b^6
)*d^6*e^5 - 42*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^5*e^6 - 18*(4*B*a^7*
b^3 + 7*A*a^6*b^4)*d^4*e^7 - 9*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^3*e^
8 - 5*(2*B*a^9*b + 9*A*a^8*b^2)*d^2*e^9 - 3*(B*a^10 + 10*A*a^9*b)
*d*e^10 - 28*(11*B*b^10*d*e^10 - 3*(10*B*a*b^9 + A*b^10)*e^11)*x^
10 + 280*(11*B*b^10*d^2*e^9 - 3*(10*B*a*b^9 + A*b^10)*d*e^10 + 3*
(9*B*a^2*b^8 + 2*A*a*b^9)*e^11)*x^9 + 112*(379*B*b^10*d^3*e^8 - 8
7*(10*B*a*b^9 + A*b^10)*d^2*e^9 + 60*(9*B*a^2*b^8 + 2*A*a*b^9)*d*
e^10)*x^8 + 112*(1052*B*b^10*d^4*e^7 - 156*(10*B*a*b^9 + A*b^10)*
d^3*e^8 - 60*(9*B*a^2*b^8 + 2*A*a*b^9)*d^2*e^9 + 180*(8*B*a^3*b^7
 + 3*A*a^2*b^8)*d*e^10 - 45*(7*B*a^4*b^6 + 4*A*a^3*b^7)*e^11)*x^7
 + 392*(62*B*b^10*d^5*e^6 + 114*(10*B*a*b^9 + A*b^10)*d^4*e^7 - 3
30*(9*B*a^2*b^8 + 2*A*a*b^9)*d^3*e^8 + 270*(8*B*a^3*b^7 + 3*A*a^2
*b^8)*d^2*e^9 - 45*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d*e^10 - 9*(6*B*a^
5*b^5 + 5*A*a^4*b^6)*e^11)*x^6 - 784*(598*B*b^10*d^6*e^5 - 294*(1
0*B*a*b^9 + A*b^10)*d^5*e^6 + 510*(9*B*a^2*b^8 + 2*A*a*b^9)*d^4*e
^7 - 330*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^3*e^8 + 45*(7*B*a^4*b^6 +
4*A*a^3*b^7)*d^2*e^9 + 9*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d*e^10 + 3*(
5*B*a^6*b^4 + 6*A*a^5*b^5)*e^11)*x^5 - 140*(7651*B*b^10*d^7*e^4 -
 3003*(10*B*a*b^9 + A*b^10)*d^6*e^5 + 4515*(9*B*a^2*b^8 + 2*A*a*b
^9)*d^5*e^6 - 2625*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^4*e^7 + 315*(7*B
*a^4*b^6 + 4*A*a^3*b^7)*d^3*e^8 + 63*(6*B*a^5*b^5 + 5*A*a^4*b^6)*
d^2*e^9 + 21*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d*e^10 + 9*(4*B*a^7*b^3
```

```
+ 7*A*a^6*b^4)*e^11)*x^4 - 56*(20846*B*b^10*d^8*e^3 - 7518*(10*B*
a*b^9 + A*b^10)*d^7*e^4 + 10542*(9*B*a^2*b^8 + 2*A*a*b^9)*d^6*e^5
 - 5754*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^5*e^6 + 630*(7*B*a^4*b^6 +
4*A*a^3*b^7)*d^4*e^7 + 126*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^3*e^8 +
42*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^2*e^9 + 18*(4*B*a^7*b^3 + 7*A*a^
6*b^4)*d*e^10 + 9*(3*B*a^8*b^2 + 8*A*a^7*b^3)*e^11)*x^3 - 28*(254
66*B*b^10*d^9*e^2 - 8778*(10*B*a*b^9 + A*b^10)*d^8*e^3 + 11802*(9
*B*a^2*b^8 + 2*A*a*b^9)*d^7*e^4 - 6174*(8*B*a^3*b^7 + 3*A*a^2*b^8
)*d^6*e^5 + 630*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^5*e^6 + 126*(6*B*a^
5*b^5 + 5*A*a^4*b^6)*d^4*e^7 + 42*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^3
*e^8 + 18*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^2*e^9 + 9*(3*B*a^8*b^2 +
8*A*a^7*b^3)*d*e^10 + 5*(2*B*a^9*b + 9*A*a^8*b^2)*e^11)*x^2 - 8*(
29426*B*b^10*d^10*e - 9858*(10*B*a*b^9 + A*b^10)*d^9*e^2 + 12882*
(9*B*a^2*b^8 + 2*A*a*b^9)*d^8*e^3 - 6534*(8*B*a^3*b^7 + 3*A*a^2*b
^8)*d^7*e^4 + 630*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^6*e^5 + 126*(6*B*
a^5*b^5 + 5*A*a^4*b^6)*d^5*e^6 + 42*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d
^4*e^7 + 18*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^3*e^8 + 9*(3*B*a^8*b^2
+ 8*A*a^7*b^3)*d^2*e^9 + 5*(2*B*a^9*b + 9*A*a^8*b^2)*d*e^10 + 3*(
B*a^10 + 10*A*a^9*b)*e^11)*x - 2520*(11*B*b^10*d^11 - 3*(10*B*a*b
^9 + A*b^10)*d^10*e + 3*(9*B*a^2*b^8 + 2*A*a*b^9)*d^9*e^2 - (8*B*
a^3*b^7 + 3*A*a^2*b^8)*d^8*e^3 + (11*B*b^10*d^3*e^8 - 3*(10*B*a*b
^9 + A*b^10)*d^2*e^9 + 3*(9*B*a^2*b^8 + 2*A*a*b^9)*d*e^10 - (8*B*
a^3*b^7 + 3*A*a^2*b^8)*e^11)*x^8 + 8*(11*B*b^10*d^4*e^7 - 3*(10*B
*a*b^9 + A*b^10)*d^3*e^8 + 3*(9*B*a^2*b^8 + 2*A*a*b^9)*d^2*e^9 -
(8*B*a^3*b^7 + 3*A*a^2*b^8)*d*e^10)*x^7 + 28*(11*B*b^10*d^5*e^6 -
 3*(10*B*a*b^9 + A*b^10)*d^4*e^7 + 3*(9*B*a^2*b^8 + 2*A*a*b^9)*d^
3*e^8 - (8*B*a^3*b^7 + 3*A*a^2*b^8)*d^2*e^9)*x^6 + 56*(11*B*b^10*
d^6*e^5 - 3*(10*B*a*b^9 + A*b^10)*d^5*e^6 + 3*(9*B*a^2*b^8 + 2*A*
a*b^9)*d^4*e^7 - (8*B*a^3*b^7 + 3*A*a^2*b^8)*d^3*e^8)*x^5 + 70*(1
1*B*b^10*d^7*e^4 - 3*(10*B*a*b^9 + A*b^10)*d^6*e^5 + 3*(9*B*a^2*b
^8 + 2*A*a*b^9)*d^5*e^6 - (8*B*a^3*b^7 + 3*A*a^2*b^8)*d^4*e^7)*x^
4 + 56*(11*B*b^10*d^8*e^3 - 3*(10*B*a*b^9 + A*b^10)*d^7*e^4 + 3*(
9*B*a^2*b^8 + 2*A*a*b^9)*d^6*e^5 - (8*B*a^3*b^7 + 3*A*a^2*b^8)*d^
5*e^6)*x^3 + 28*(11*B*b^10*d^9*e^2 - 3*(10*B*a*b^9 + A*b^10)*d^8*
e^3 + 3*(9*B*a^2*b^8 + 2*A*a*b^9)*d^7*e^4 - (8*B*a^3*b^7 + 3*A*a^
2*b^8)*d^6*e^5)*x^2 + 8*(11*B*b^10*d^10*e - 3*(10*B*a*b^9 + A*b^1
0)*d^9*e^2 + 3*(9*B*a^2*b^8 + 2*A*a*b^9)*d^8*e^3 - (8*B*a^3*b^7 +
 3*A*a^2*b^8)*d^7*e^4)*x)*log(e*x + d))/(e^20*x^8 + 8*d*e^19*x^7
+ 28*d^2*e^18*x^6 + 56*d^3*e^17*x^5 + 70*d^4*e^16*x^4 + 56*d^5*e^
15*x^3 + 28*d^6*e^14*x^2 + 8*d^7*e^13*x + d^8*e^12)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)/(e*x+d)**9,x)

[Out] Timed out
```

GIAC/XCAS [A] time = 0.213116, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d)^9,x, algorithm="giac")

[Out] Done
```

3.1081 $\int \frac{(a+bx)^{10}(A+Bx)}{(d+ex)^{10}}\,dx$

Optimal. Leaf size=441

$$-\frac{b^9x(-10aBe-Abe+10bBd)}{e^{11}}+\frac{5b^8(bd-ae)\log(d+ex)(-9aBe-2Abe+11bBd)}{e^{12}}+\frac{15b^7(bd-ae)^2(-8aBe-3Abe+11bBd)}{e^{12}(d+ex)}-\frac{15b^6(bd-ae)^3(-7aBe-4Abe+11bBd)}{e^{12}(d+ex)^2}+\frac{14b^5(bd-ae)^4(-6aBe-5Abe+11bBd)}{e^{12}(d+ex)^3}-\frac{21b^4(bd-ae)^5(-5aBe-6Abe+11bBd)}{2e^{12}(d+ex)^4}+\frac{6b^3(bd-ae)^6(-4aBe-7Abe+11bBd)}{e^{12}(d+ex)^5}-\frac{5b^2(bd-ae)^7(-3aBe-8Abe+11bBd)}{2e^{12}(d+ex)^6}+\frac{5b(bd-ae)^8(-2aBe-9Abe+11bBd)}{7e^{12}(d+ex)^7}-\frac{(bd-ae)^9(-aBe-10Abe+11bBd)}{8e^{12}(d+ex)^8}+\frac{(bd-ae)^{10}(Bd-Ae)}{9e^{12}(d+ex)^9}+\frac{b^{10}Bx^2}{2e^{10}}$$

```
[Out] -((b^9*(10*b*B*d - A*b*e - 10*a*B*e)*x)/e^11) + (b^10*B*x^2)/(2*e
^10) + ((b*d - a*e)^10*(B*d - A*e))/(9*e^12*(d + e*x)^9) - ((b*d
- a*e)^9*(11*b*B*d - 10*A*b*e - a*B*e))/(8*e^12*(d + e*x)^8) + (5
*b*(b*d - a*e)^8*(11*b*B*d - 9*A*b*e - 2*a*B*e))/(7*e^12*(d + e*x
)^7) - (5*b^2*(b*d - a*e)^7*(11*b*B*d - 8*A*b*e - 3*a*B*e))/(2*e^
12*(d + e*x)^6) + (6*b^3*(b*d - a*e)^6*(11*b*B*d - 7*A*b*e - 4*a*
B*e))/(e^12*(d + e*x)^5) - (21*b^4*(b*d - a*e)^5*(11*b*B*d - 6*A*
b*e - 5*a*B*e))/(2*e^12*(d + e*x)^4) + (14*b^5*(b*d - a*e)^4*(11*
b*B*d - 5*A*b*e - 6*a*B*e))/(e^12*(d + e*x)^3) - (15*b^6*(b*d - a
*e)^3*(11*b*B*d - 4*A*b*e - 7*a*B*e))/(e^12*(d + e*x)^2) + (15*b^
7*(b*d - a*e)^2*(11*b*B*d - 3*A*b*e - 8*a*B*e))/(e^12*(d + e*x))
+ (5*b^8*(b*d - a*e)*(11*b*B*d - 2*A*b*e - 9*a*B*e)*Log[d + e*x])
/e^12
```

Rubi [A] time = 2.46144, antiderivative size = 441, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{b^9x(-10aBe-Abe+10bBd)}{e^{11}}+\frac{5b^8(bd-ae)\log(d+ex)(-9aBe-2Abe+11bBd)}{e^{12}}+\frac{15b^7(bd-ae)^2(-8aBe-3Abe+11bBd)}{e^{12}(d+ex)}-\frac{15b^6(bd-ae)^3(-7aBe-4Abe+11bBd)}{e^{12}(d+ex)^2}+\frac{14b^5(bd-ae)^4(-6aBe-5Abe+11bBd)}{e^{12}(d+ex)^3}-\frac{21b^4(bd-ae)^5(-5aBe-6Abe+11bBd)}{2e^{12}(d+ex)^4}+\frac{6b^3(bd-ae)^6(-4aBe-7Abe+11bBd)}{e^{12}(d+ex)^5}-\frac{5b^2(bd-ae)^7(-3aBe-8Abe+11bBd)}{2e^{12}(d+ex)^6}+\frac{5b(bd-ae)^8(-2aBe-9Abe+11bBd)}{7e^{12}(d+ex)^7}-\frac{(bd-ae)^9(-aBe-10Abe+11bBd)}{8e^{12}(d+ex)^8}+\frac{(bd-ae)^{10}(Bd-Ae)}{9e^{12}(d+ex)^9}+\frac{b^{10}Bx^2}{2e^{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^10*(A + B*x))/(d + e*x)^10,x]
```

```
[Out] -((b^9*(10*b*B*d - A*b*e - 10*a*B*e)*x)/e^11) + (b^10*B*x^2)/(2*e
^10) + ((b*d - a*e)^10*(B*d - A*e))/(9*e^12*(d + e*x)^9) - ((b*d
- a*e)^9*(11*b*B*d - 10*A*b*e - a*B*e))/(8*e^12*(d + e*x)^8) + (5
*b*(b*d - a*e)^8*(11*b*B*d - 9*A*b*e - 2*a*B*e))/(7*e^12*(d + e*x
)^7) - (5*b^2*(b*d - a*e)^7*(11*b*B*d - 8*A*b*e - 3*a*B*e))/(2*e^
12*(d + e*x)^6) + (6*b^3*(b*d - a*e)^6*(11*b*B*d - 7*A*b*e - 4*a*
B*e))/(e^12*(d + e*x)^5) - (21*b^4*(b*d - a*e)^5*(11*b*B*d - 6*A*
b*e - 5*a*B*e))/(2*e^12*(d + e*x)^4) + (14*b^5*(b*d - a*e)^4*(11*
b*B*d - 5*A*b*e - 6*a*B*e))/(e^12*(d + e*x)^3) - (15*b^6*(b*d - a
*e)^3*(11*b*B*d - 4*A*b*e - 7*a*B*e))/(e^12*(d + e*x)^2) + (15*b^
7*(b*d - a*e)^2*(11*b*B*d - 3*A*b*e - 8*a*B*e))/(e^12*(d + e*x))
+ (5*b^8*(b*d - a*e)*(11*b*B*d - 2*A*b*e - 9*a*B*e)*Log[d + e*x])
```

```
/e^12
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)/(e*x+d)**10,x)

[Out] Timed out
```

Mathematica [B] time = 2.02466, size = 1460, normalized size = 3.31

$$-\frac{-\left(B\left(42131d^{11}+351459exd^{10}+1281096e^2x^2d^9+2656584e^3x^3d^8+3402756e^4x^4d^7+2704212e^5x^5d^6+1220688e^6x^6d^5+\right.\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^10*(A + B*x))/(d + e*x)^10,x]

[Out] -(7*a^10*e^10*(8*A*e + B*(d + 9*e*x)) + 10*a^9*b*e^9*(7*A*e*(d +
9*e*x) + 2*B*(d^2 + 9*d*e*x + 36*e^2*x^2)) + 45*a^8*b^2*e^8*(2*A*
e*(d^2 + 9*d*e*x + 36*e^2*x^2) + B*(d^3 + 9*d^2*e*x + 36*d*e^2*x^
2 + 84*e^3*x^3)) + 24*a^7*b^3*e^7*(5*A*e*(d^3 + 9*d^2*e*x + 36*d*
e^2*x^2 + 84*e^3*x^3) + 4*B*(d^4 + 9*d^3*e*x + 36*d^2*e^2*x^2 + 8
4*d*e^3*x^3 + 126*e^4*x^4)) + 42*a^6*b^4*e^6*(4*A*e*(d^4 + 9*d^3*
e*x + 36*d^2*e^2*x^2 + 84*d*e^3*x^3 + 126*e^4*x^4) + 5*B*(d^5 + 9
*d^4*e*x + 36*d^3*e^2*x^2 + 84*d^2*e^3*x^3 + 126*d*e^4*x^4 + 126*
e^5*x^5)) + 252*a^5*b^5*e^5*(A*e*(d^5 + 9*d^4*e*x + 36*d^3*e^2*x^
2 + 84*d^2*e^3*x^3 + 126*d*e^4*x^4 + 126*e^5*x^5) + 2*B*(d^6 + 9*
d^5*e*x + 36*d^4*e^2*x^2 + 84*d^3*e^3*x^3 + 126*d^2*e^4*x^4 + 126
*d*e^5*x^5 + 84*e^6*x^6)) + 210*a^4*b^6*e^4*(2*A*e*(d^6 + 9*d^5*e
*x + 36*d^4*e^2*x^2 + 84*d^3*e^3*x^3 + 126*d^2*e^4*x^4 + 126*d*e^
5*x^5 + 84*e^6*x^6) + 7*B*(d^7 + 9*d^6*e*x + 36*d^5*e^2*x^2 + 84*
d^4*e^3*x^3 + 126*d^3*e^4*x^4 + 126*d^2*e^5*x^5 + 84*d*e^6*x^6 +
36*e^7*x^7)) + 840*a^3*b^7*e^3*(A*e*(d^7 + 9*d^6*e*x + 36*d^5*e^2
*x^2 + 84*d^4*e^3*x^3 + 126*d^3*e^4*x^4 + 126*d^2*e^5*x^5 + 84*d*
e^6*x^6 + 36*e^7*x^7) + 8*B*(d^8 + 9*d^7*e*x + 36*d^6*e^2*x^2 + 8
4*d^5*e^3*x^3 + 126*d^4*e^4*x^4 + 126*d^3*e^5*x^5 + 84*d^2*e^6*x^
6 + 36*d*e^7*x^7 + 9*e^8*x^8)) - 9*a^2*b^8*e^2*(-280*A*e*(d^8 + 9
*d^7*e*x + 36*d^6*e^2*x^2 + 84*d^5*e^3*x^3 + 126*d^4*e^4*x^4 + 12
6*d^3*e^5*x^5 + 84*d^2*e^6*x^6 + 36*d*e^7*x^7 + 9*e^8*x^8) + B*d*
(7129*d^8 + 61641*d^7*e*x + 235224*d^6*e^2*x^2 + 518616*d^5*e^3*x
^3 + 725004*d^4*e^4*x^4 + 661500*d^3*e^5*x^5 + 388080*d^2*e^6*x^6
 + 136080*d*e^7*x^7 + 22680*e^8*x^8)) - 2*a*b^9*e*(A*d*e*(7129*d^
8 + 61641*d^7*e*x + 235224*d^6*e^2*x^2 + 518616*d^5*e^3*x^3 + 725
004*d^4*e^4*x^4 + 661500*d^3*e^5*x^5 + 388080*d^2*e^6*x^6 + 13608
0*d*e^7*x^7 + 22680*e^8*x^8) - 10*B*(4861*d^10 + 41229*d^9*e*x +
153576*d^8*e^2*x^2 + 328104*d^7*e^3*x^3 + 439236*d^6*e^4*x^4 + 37
5732*d^5*e^5*x^5 + 197568*d^4*e^6*x^6 + 54432*d^3*e^7*x^7 + 2268*
d^2*e^8*x^8 - 2268*d*e^9*x^9 - 252*e^10*x^10)) - b^10*(-2*A*e*(48
61*d^10 + 41229*d^9*e*x + 153576*d^8*e^2*x^2 + 328104*d^7*e^3*x^3
 + 439236*d^6*e^4*x^4 + 375732*d^5*e^5*x^5 + 197568*d^4*e^6*x^6 +
 54432*d^3*e^7*x^7 + 2268*d^2*e^8*x^8 - 2268*d*e^9*x^9 - 252*e^10
*x^10) + B*(42131*d^11 + 351459*d^10*e*x + 1281096*d^9*e^2*x^2 +
2656584*d^8*e^3*x^3 + 3402756*d^7*e^4*x^4 + 2704212*d^6*e^5*x^5 +
 1220688*d^5*e^6*x^6 + 190512*d^4*e^7*x^7 - 77112*d^3*e^8*x^8 - 3
6288*d^2*e^9*x^9 - 2772*d*e^10*x^10 + 252*e^11*x^11)) - 2520*b^8*
(b*d - a*e)*(11*b*B*d - 2*A*b*e - 9*a*B*e)*(d + e*x)^9*Log[d + e*
x])/(504*e^12*(d + e*x)^9)
```

Maple [B] time = 0.04, size = 2882, normalized size = 6.5

output too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((b*x+a)^10*(B*x+A)/(e*x+d)^10,x)
```

```
[Out] 55*b^10/e^12*ln(e*x+d)*B*d^2-1/9/e^11/(e*x+d)^9*A*b^10*d^10+1/2*b
^10*B*x^2/e^10+b^10/e^10*A*x-1/9/e/(e*x+d)^9*a^10*A-28/e^7/(e*x+d
)^9*B*d^6*a^5*b^5+70/3/e^8/(e*x+d)^9*B*d^7*a^4*b^6-40/3/e^9/(e*x+
d)^9*B*d^8*a^3*b^7+5/e^10/(e*x+d)^9*B*d^9*a^2*b^8-10/9/e^11/(e*x+
d)^9*B*a*b^9*d^10+140*b^4/e^5/(e*x+d)^6*A*a^6*d-420*b^5/e^6/(e*x+
d)^6*A*a^5*d^2+700*b^6/e^7/(e*x+d)^6*A*a^4*d^3-700*b^7/e^8/(e*x+d
)^6*A*a^3*d^4+420*b^8/e^9/(e*x+d)^6*A*a^2*d^5-140*b^9/e^10/(e*x+d
)^6*A*a*d^6+80*b^3/e^5/(e*x+d)^6*B*a^7*d-350*b^4/e^6/(e*x+d)^6*B*
a^6*d^2+840*b^5/e^7/(e*x+d)^6*B*a^5*d^3-1225*b^6/e^8/(e*x+d)^6*B*
a^4*d^4+1120*b^7/e^9/(e*x+d)^6*B*a^3*d^5-630*b^8/e^10/(e*x+d)^6*B
*a^2*d^6+200*b^9/e^11/(e*x+d)^6*B*a*d^7+45/4/e^3/(e*x+d)^8*A*a^8*
b^2*d-45/e^4/(e*x+d)^8*A*a^7*b^3*d^2+105/e^5/(e*x+d)^8*A*a^6*b^4*
d^3-1/8/e^2/(e*x+d)^8*B*a^10+315*b^6/e^7/(e*x+d)^4*A*a^4*d-630*b^
7/e^8/(e*x+d)^4*A*a^3*d^2+630*b^8/e^9/(e*x+d)^4*A*a^2*d^3-315*b^9
/e^10/(e*x+d)^4*A*a*d^4+378*b^5/e^7/(e*x+d)^4*B*a^5*d-2205/2*b^6/
e^8/(e*x+d)^4*B*a^4*d^2+1680*b^7/e^9/(e*x+d)^4*B*a^3*d^3-2835/2*b
^8/e^10/(e*x+d)^4*B*a^2*d^4+630*b^9/e^11/(e*x+d)^4*B*a*d^5+252*b^
5/e^6/(e*x+d)^5*A*a^5*d-630*b^6/e^7/(e*x+d)^5*A*a^4*d^2+840*b^7/e
^8/(e*x+d)^5*A*a^3*d^3-630*b^8/e^9/(e*x+d)^5*A*a^2*d^4+252*b^9/e^
10/(e*x+d)^5*A*a*d^5+210*b^4/e^6/(e*x+d)^5*B*a^6*d-756*b^5/e^7/(e
*x+d)^5*B*a^5*d^2+1470*b^6/e^8/(e*x+d)^5*B*a^4*d^3-1680*b^7/e^9/(
e*x+d)^5*B*a^3*d^4+1134*b^8/e^10/(e*x+d)^5*B*a^2*d^5-420*b^9/e^11
/(e*x+d)^5*B*a*d^6+5/2/e^3/(e*x+d)^8*B*a^9*b*d-135/8/e^4/(e*x+d)^
8*B*a^8*b^2*d^2+60/e^5/(e*x+d)^8*B*a^7*b^3*d^3-525/4/e^6/(e*x+d)^
8*B*a^6*b^4*d^4+189/e^7/(e*x+d)^8*B*a^5*b^5*d^5-735/4/e^8/(e*x+d)
^8*B*a^4*b^6*d^6+120/e^9/(e*x+d)^8*B*a^3*b^7*d^7-405/8/e^10/(e*x+
d)^8*B*a^2*b^8*d^8+25/2/e^11/(e*x+d)^8*B*a*b^9*d^9+360/7*b^3/e^4/
(e*x+d)^7*A*a^7*d-180*b^4/e^5/(e*x+d)^7*A*a^6*d^2+360*b^5/e^6/(e*
x+d)^7*A*a^5*d^3-450*b^6/e^7/(e*x+d)^7*A*a^4*d^4+360*b^7/e^8/(e*x
+d)^7*A*a^3*d^5-180*b^8/e^9/(e*x+d)^7*A*a^2*d^6+360/7*b^9/e^10/(e
*x+d)^7*A*a*d^7+135/7*b^2/e^4/(e*x+d)^7*B*a^8*d-720/7*b^3/e^5/(e*
x+d)^7*B*a^7*d^2+300*b^4/e^6/(e*x+d)^7*B*a^6*d^3-540*b^5/e^7/(e*x
+d)^7*B*a^5*d^4+630*b^6/e^8/(e*x+d)^7*B*a^4*d^5-480*b^7/e^9/(e*x+
d)^7*B*a^3*d^6+1620/7*b^8/e^10/(e*x+d)^7*B*a^2*d^7-450/7*b^9/e^11
/(e*x+d)^7*B*a*d^8+280*b^7/e^8/(e*x+d)^3*A*a^3*d-420*b^8/e^9/(e*x
+d)^3*A*a^2*d^2+280*b^9/e^10/(e*x+d)^3*A*a*d^3+490*b^6/e^8/(e*x+d
)^3*B*a^4*d-1120*b^7/e^9/(e*x+d)^3*B*a^3*d^2+1260*b^8/e^10/(e*x+d
)^3*B*a^2*d^3-700*b^9/e^11/(e*x+d)^3*B*a*d^4+90*b^9/e^10/(e*x+d)*
A*a*d+405*b^8/e^10/(e*x+d)*B*a^2*d-450*b^9/e^11/(e*x+d)*B*a*d^2+1
80*b^8/e^9/(e*x+d)^2*A*a^2*d-180*b^9/e^10/(e*x+d)^2*A*a*d^2+480*b
^7/e^9/(e*x+d)^2*B*a^3*d-810*b^8/e^10/(e*x+d)^2*B*a^2*d^2+600*b^9
/e^11/(e*x+d)^2*B*a*d^3-315/2/e^6/(e*x+d)^8*A*a^5*b^5*d^4+315/2/e
^7/(e*x+d)^8*A*a^4*b^6*d^5-105/e^8/(e*x+d)^8*A*a^3*b^7*d^6+45/e^9
/(e*x+d)^8*A*a^2*b^8*d^7-45/4/e^10/(e*x+d)^8*A*a*b^9*d^8+40/3/e^8
/(e*x+d)^9*A*d^7*a^3*b^7-5/e^9/(e*x+d)^9*A*d^8*a^2*b^8+10/9/e^10/
(e*x+d)^9*A*d^9*a*b^9-10/9/e^3/(e*x+d)^9*B*d^2*a^9*b+5/e^4/(e*x+d
)^9*B*d^3*a^8*b^2-40/3/e^5/(e*x+d)^9*B*d^4*a^7*b^3+70/3/e^6/(e*x+
d)^9*B*d^5*a^6*b^4-10*b^10/e^11*ln(e*x+d)*A*d+45*b^8/e^10*ln(e*x+
d)*B*a^2-45/7*b^2/e^3/(e*x+d)^7*A*a^8-45/7*b^10/e^11/(e*x+d)^7*A*
d^8-10/7*b/e^3/(e*x+d)^7*B*a^9+55/7*b^10/e^12/(e*x+d)^7*B*d^9-70*
b^6/e^7/(e*x+d)^3*A*a^4-70*b^10/e^11/(e*x+d)^3*A*d^4-84*b^5/e^7/(
e*x+d)^3*B*a^5+154*b^10/e^12/(e*x+d)^3*B*d^5-63*b^5/e^6/(e*x+d)^4
*A*a^5+63*b^10/e^11/(e*x+d)^4*A*d^5-105/2*b^4/e^6/(e*x+d)^4*B*a^6
-231/2*b^10/e^12/(e*x+d)^4*B*d^6-42*b^4/e^5/(e*x+d)^5*A*a^6-42*b^
10/e^11/(e*x+d)^5*A*d^6-24*b^3/e^5/(e*x+d)^5*B*a^7+66*b^10/e^12/(
e*x+d)^5*B*d^7-5/4/e^2/(e*x+d)^8*A*a^9*b+5/4/e^11/(e*x+d)^8*A*b^1
0*d^9-11/8/e^12/(e*x+d)^8*b^10*B*d^10-100*b^9/e^11*ln(e*x+d)*B*a*
d+10/9/e^2/(e*x+d)^9*A*d*a^9*b-5/e^3/(e*x+d)^9*A*d^2*a^8*b^2+40/3
/e^4/(e*x+d)^9*A*d^3*a^7*b^3-70/3/e^5/(e*x+d)^9*A*d^4*a^6*b^4+28/
e^6/(e*x+d)^9*A*d^5*a^5*b^5-70/3/e^7/(e*x+d)^9*A*d^6*a^4*b^6-45*b
^8/e^9/(e*x+d)*A*a^2-45*b^10/e^11/(e*x+d)*A*d^2-120*b^7/e^9/(e*x+
d)*B*a^3+165*b^10/e^12/(e*x+d)*B*d^3+1/9/e^2/(e*x+d)^9*B*d*a^10+1
/9/e^12/(e*x+d)^9*b^10*B*d^11-20*b^3/e^4/(e*x+d)^6*A*a^7+20*b^10/
e^11/(e*x+d)^6*A*d^7-15/2*b^2/e^4/(e*x+d)^6*B*a^8-55/2*b^10/e^12/
```

```
(e*x+d)^6*B*d^8-60*b^7/e^8/(e*x+d)^2*A*a^3+60*b^10/e^11/(e*x+d)^2
*A*d^3-105*b^6/e^8/(e*x+d)^2*B*a^4-165*b^10/e^12/(e*x+d)^2*B*d^4+
10*b^9/e^10*B*a*x-10*b^10/e^11*B*d*x+10*b^9/e^10*ln(e*x+d)*A*a
```

Maxima [A] time = 1.62831, size = 2570, normalized size = 5.83

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^10/(e*x + d)^10,x, algorithm="maxima")
```

```
[Out] 1/504*(42131*B*b^10*d^11 - 56*A*a^10*e^11 - 9722*(10*B*a*b^9 + A*
b^10)*d^10*e + 7129*(9*B*a^2*b^8 + 2*A*a*b^9)*d^9*e^2 - 840*(8*B*
a^3*b^7 + 3*A*a^2*b^8)*d^8*e^3 - 210*(7*B*a^4*b^6 + 4*A*a^3*b^7)*
d^7*e^4 - 84*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^6*e^5 - 42*(5*B*a^6*b^
4 + 6*A*a^5*b^5)*d^5*e^6 - 24*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^4*e^7
 - 15*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^3*e^8 - 10*(2*B*a^9*b + 9*A*a
^8*b^2)*d^2*e^9 - 7*(B*a^10 + 10*A*a^9*b)*d*e^10 + 7560*(11*B*b^1
0*d^3*e^8 - 3*(10*B*a*b^9 + A*b^10)*d^2*e^9 + 3*(9*B*a^2*b^8 + 2*
A*a*b^9)*d*e^10 - (8*B*a^3*b^7 + 3*A*a^2*b^8)*e^11)*x^8 + 7560*(7
7*B*b^10*d^4*e^7 - 20*(10*B*a*b^9 + A*b^10)*d^3*e^8 + 18*(9*B*a^2
*b^8 + 2*A*a*b^9)*d^2*e^9 - 4*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d*e^10
- (7*B*a^4*b^6 + 4*A*a^3*b^7)*e^11)*x^7 + 3528*(517*B*b^10*d^5*e^
6 - 130*(10*B*a*b^9 + A*b^10)*d^4*e^7 + 110*(9*B*a^2*b^8 + 2*A*a*
b^9)*d^3*e^8 - 20*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^2*e^9 - 5*(7*B*a^
4*b^6 + 4*A*a^3*b^7)*d*e^10 - 2*(6*B*a^5*b^5 + 5*A*a^4*b^6)*e^11)
*x^6 + 5292*(627*B*b^10*d^6*e^5 - 154*(10*B*a*b^9 + A*b^10)*d^5*e
^6 + 125*(9*B*a^2*b^8 + 2*A*a*b^9)*d^4*e^7 - 20*(8*B*a^3*b^7 + 3*
A*a^2*b^8)*d^3*e^8 - 5*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^2*e^9 - 2*(6
*B*a^5*b^5 + 5*A*a^4*b^6)*d*e^10 - (5*B*a^6*b^4 + 6*A*a^5*b^5)*e^
11)*x^5 + 756*(5049*B*b^10*d^7*e^4 - 1218*(10*B*a*b^9 + A*b^10)*d
^6*e^5 + 959*(9*B*a^2*b^8 + 2*A*a*b^9)*d^5*e^6 - 140*(8*B*a^3*b^7
 + 3*A*a^2*b^8)*d^4*e^7 - 35*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^3*e^8
- 14*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^2*e^9 - 7*(5*B*a^6*b^4 + 6*A*a
^5*b^5)*d*e^10 - 4*(4*B*a^7*b^3 + 7*A*a^6*b^4)*e^11)*x^4 + 252*(1
1253*B*b^10*d^8*e^3 - 2676*(10*B*a*b^9 + A*b^10)*d^7*e^4 + 2058*(
9*B*a^2*b^8 + 2*A*a*b^9)*d^6*e^5 - 280*(8*B*a^3*b^7 + 3*A*a^2*b^8
)*d^5*e^6 - 70*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^4*e^7 - 28*(6*B*a^5*
b^5 + 5*A*a^4*b^6)*d^3*e^8 - 14*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^2*e
^9 - 8*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d*e^10 - 5*(3*B*a^8*b^2 + 8*A*
a^7*b^3)*e^11)*x^3 + 36*(36839*B*b^10*d^9*e^2 - 8658*(10*B*a*b^9
+ A*b^10)*d^8*e^3 + 6534*(9*B*a^2*b^8 + 2*A*a*b^9)*d^7*e^4 - 840*
(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^6*e^5 - 210*(7*B*a^4*b^6 + 4*A*a^3*
b^7)*d^5*e^6 - 84*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^4*e^7 - 42*(5*B*a
^6*b^4 + 6*A*a^5*b^5)*d^3*e^8 - 24*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^
2*e^9 - 15*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d*e^10 - 10*(2*B*a^9*b + 9
*A*a^8*b^2)*e^11)*x^2 + 9*(39611*B*b^10*d^10*e - 9218*(10*B*a*b^9
 + A*b^10)*d^9*e^2 + 6849*(9*B*a^2*b^8 + 2*A*a*b^9)*d^8*e^3 - 840
*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^7*e^4 - 210*(7*B*a^4*b^6 + 4*A*a^3
*b^7)*d^6*e^5 - 84*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^5*e^6 - 42*(5*B*
a^6*b^4 + 6*A*a^5*b^5)*d^4*e^7 - 24*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d
^3*e^8 - 15*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^2*e^9 - 10*(2*B*a^9*b +
 9*A*a^8*b^2)*d*e^10 - 7*(B*a^10 + 10*A*a^9*b)*e^11)*x)/(e^21*x^9
 + 9*d*e^20*x^8 + 36*d^2*e^19*x^7 + 84*d^3*e^18*x^6 + 126*d^4*e^1
7*x^5 + 126*d^5*e^16*x^4 + 84*d^6*e^15*x^3 + 36*d^7*e^14*x^2 + 9*
d^8*e^13*x + d^9*e^12) + 1/2*(B*b^10*e*x^2 - 2*(10*B*b^10*d - (10
*B*a*b^9 + A*b^10)*e)*x)/e^11 + 5*(11*B*b^10*d^2 - 2*(10*B*a*b^9
+ A*b^10)*d*e + (9*B*a^2*b^8 + 2*A*a*b^9)*e^2)*log(e*x + d)/e^12
```

Fricas [A] time = 0.227761, size = 3376, normalized size = 7.66

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d)^10,x, algorithm="fricas")
```

```
[Out] 1/504*(252*B*b^10*e^11*x^11 + 42131*B*b^10*d^11 - 56*A*a^10*e^11
- 9722*(10*B*a*b^9 + A*b^10)*d^10*e + 7129*(9*B*a^2*b^8 + 2*A*a*b
^9)*d^9*e^2 - 840*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^8*e^3 - 210*(7*B*
a^4*b^6 + 4*A*a^3*b^7)*d^7*e^4 - 84*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d
^6*e^5 - 42*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^5*e^6 - 24*(4*B*a^7*b^3
 + 7*A*a^6*b^4)*d^4*e^7 - 15*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^3*e^8
- 10*(2*B*a^9*b + 9*A*a^8*b^2)*d^2*e^9 - 7*(B*a^10 + 10*A*a^9*b)*
d*e^10 - 252*(11*B*b^10*d*e^10 - 2*(10*B*a*b^9 + A*b^10)*e^11)*x^
10 - 4536*(8*B*b^10*d^2*e^9 - (10*B*a*b^9 + A*b^10)*d*e^10)*x^9 -
 1512*(51*B*b^10*d^3*e^8 + 3*(10*B*a*b^9 + A*b^10)*d^2*e^9 - 15*(
9*B*a^2*b^8 + 2*A*a*b^9)*d*e^10 + 5*(8*B*a^3*b^7 + 3*A*a^2*b^8)*e
^11)*x^8 + 1512*(126*B*b^10*d^4*e^7 - 72*(10*B*a*b^9 + A*b^10)*d^
3*e^8 + 90*(9*B*a^2*b^8 + 2*A*a*b^9)*d^2*e^9 - 20*(8*B*a^3*b^7 +
3*A*a^2*b^8)*d*e^10 - 5*(7*B*a^4*b^6 + 4*A*a^3*b^7)*e^11)*x^7 + 3
528*(346*B*b^10*d^5*e^6 - 112*(10*B*a*b^9 + A*b^10)*d^4*e^7 + 110
*(9*B*a^2*b^8 + 2*A*a*b^9)*d^3*e^8 - 20*(8*B*a^3*b^7 + 3*A*a^2*b^
8)*d^2*e^9 - 5*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d*e^10 - 2*(6*B*a^5*b^
5 + 5*A*a^4*b^6)*e^11)*x^6 + 5292*(511*B*b^10*d^6*e^5 - 142*(10*B
*a*b^9 + A*b^10)*d^5*e^6 + 125*(9*B*a^2*b^8 + 2*A*a*b^9)*d^4*e^7
- 20*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^3*e^8 - 5*(7*B*a^4*b^6 + 4*A*a
^3*b^7)*d^2*e^9 - 2*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d*e^10 - (5*B*a^6
*b^4 + 6*A*a^5*b^5)*e^11)*x^5 + 756*(4501*B*b^10*d^7*e^4 - 1162*(
10*B*a*b^9 + A*b^10)*d^6*e^5 + 959*(9*B*a^2*b^8 + 2*A*a*b^9)*d^5*
e^6 - 140*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^4*e^7 - 35*(7*B*a^4*b^6 +
 4*A*a^3*b^7)*d^3*e^8 - 14*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^2*e^9 -
7*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d*e^10 - 4*(4*B*a^7*b^3 + 7*A*a^6*b
^4)*e^11)*x^4 + 252*(10542*B*b^10*d^8*e^3 - 2604*(10*B*a*b^9 + A*
b^10)*d^7*e^4 + 2058*(9*B*a^2*b^8 + 2*A*a*b^9)*d^6*e^5 - 280*(8*B
*a^3*b^7 + 3*A*a^2*b^8)*d^5*e^6 - 70*(7*B*a^4*b^6 + 4*A*a^3*b^7)*
d^4*e^7 - 28*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^3*e^8 - 14*(5*B*a^6*b^
4 + 6*A*a^5*b^5)*d^2*e^9 - 8*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d*e^10 -
 5*(3*B*a^8*b^2 + 8*A*a^7*b^3)*e^11)*x^3 + 36*(35586*B*b^10*d^9*e
^2 - 8532*(10*B*a*b^9 + A*b^10)*d^8*e^3 + 6534*(9*B*a^2*b^8 + 2*A
*a*b^9)*d^7*e^4 - 840*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^6*e^5 - 210*(
7*B*a^4*b^6 + 4*A*a^3*b^7)*d^5*e^6 - 84*(6*B*a^5*b^5 + 5*A*a^4*b^
6)*d^4*e^7 - 42*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^3*e^8 - 24*(4*B*a^7
*b^3 + 7*A*a^6*b^4)*d^2*e^9 - 15*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d*e^
10 - 10*(2*B*a^9*b + 9*A*a^8*b^2)*e^11)*x^2 + 9*(39051*B*b^10*d^1
0*e - 9162*(10*B*a*b^9 + A*b^10)*d^9*e^2 + 6849*(9*B*a^2*b^8 + 2*
A*a*b^9)*d^8*e^3 - 840*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^7*e^4 - 210*
(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^6*e^5 - 84*(6*B*a^5*b^5 + 5*A*a^4*b
^6)*d^5*e^6 - 42*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^4*e^7 - 24*(4*B*a^
7*b^3 + 7*A*a^6*b^4)*d^3*e^8 - 15*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^2
*e^9 - 10*(2*B*a^9*b + 9*A*a^8*b^2)*d*e^10 - 7*(B*a^10 + 10*A*a^9
*b)*e^11)*x + 2520*(11*B*b^10*d^11 - 2*(10*B*a*b^9 + A*b^10)*d^10
*e + (9*B*a^2*b^8 + 2*A*a*b^9)*d^9*e^2 + (11*B*b^10*d^2*e^9 - 2*(
10*B*a*b^9 + A*b^10)*d*e^10 + (9*B*a^2*b^8 + 2*A*a*b^9)*e^11)*x^9
 + 9*(11*B*b^10*d^3*e^8 - 2*(10*B*a*b^9 + A*b^10)*d^2*e^9 + (9*B*
a^2*b^8 + 2*A*a*b^9)*d*e^10)*x^8 + 36*(11*B*b^10*d^4*e^7 - 2*(10*
B*a*b^9 + A*b^10)*d^3*e^8 + (9*B*a^2*b^8 + 2*A*a*b^9)*d^2*e^9)*x^
7 + 84*(11*B*b^10*d^5*e^6 - 2*(10*B*a*b^9 + A*b^10)*d^4*e^7 + (9*
B*a^2*b^8 + 2*A*a*b^9)*d^3*e^8)*x^6 + 126*(11*B*b^10*d^6*e^5 - 2*
(10*B*a*b^9 + A*b^10)*d^5*e^6 + (9*B*a^2*b^8 + 2*A*a*b^9)*d^4*e^7
)*x^5 + 126*(11*B*b^10*d^7*e^4 - 2*(10*B*a*b^9 + A*b^10)*d^6*e^5
+ (9*B*a^2*b^8 + 2*A*a*b^9)*d^5*e^6)*x^4 + 84*(11*B*b^10*d^8*e^3
- 2*(10*B*a*b^9 + A*b^10)*d^7*e^4 + (9*B*a^2*b^8 + 2*A*a*b^9)*d^6
*e^5)*x^3 + 36*(11*B*b^10*d^9*e^2 - 2*(10*B*a*b^9 + A*b^10)*d^8*e
^3 + (9*B*a^2*b^8 + 2*A*a*b^9)*d^7*e^4)*x^2 + 9*(11*B*b^10*d^10*e
 - 2*(10*B*a*b^9 + A*b^10)*d^9*e^2 + (9*B*a^2*b^8 + 2*A*a*b^9)*d^
8*e^3)*x)*log(e*x + d))/(e^21*x^9 + 9*d*e^20*x^8 + 36*d^2*e^19*x^
7 + 84*d^3*e^18*x^6 + 126*d^4*e^17*x^5 + 126*d^5*e^16*x^4 + 84*d^
6*e^15*x^3 + 36*d^7*e^14*x^2 + 9*d^8*e^13*x + d^9*e^12)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)/(e*x+d)**10,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.213478, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d)^10,x, algorithm="giac")
```

```
[Out] Done
```

3.1082 $\int \frac{(a+bx)^{10}(A+Bx)}{(d+ex)^{11}} dx$

Optimal. Leaf size=446

$$-\frac{b^9\log(d+ex)(-10aBe-Abe+11bBd)}{e^{12}}-\frac{5b^8(bd-ae)(-9aBe-2Abe+11bBd)}{e^{12}(d+ex)}+\frac{15b^7(bd-ae)^2(-8aBe-3Abe+11bBd)}{2e^{12}(d+ex)^2}-\frac{10b^6(bd-ae)^3(-7aBe-4Abe+11bBd)}{e^{12}(d+ex)^3}+\frac{21b^5(bd-ae)^4(-6aBe-5Abe+11bBd)}{2e^{12}(d+ex)^4}-\frac{42b^4(bd-ae)^5(-5aBe-6Abe+11bBd)}{5e^{12}(d+ex)^5}+\frac{5b^3(bd-ae)^6(-4aBe-7Abe+11bBd)}{e^{12}(d+ex)^6}-\frac{15b^2(bd-ae)^7(-3aBe-8Abe+11bBd)}{7e^{12}(d+ex)^7}+\frac{5b(bd-ae)^8(-2aBe-9Abe+11bBd)}{8e^{12}(d+ex)^8}-\frac{(bd-ae)^9(-aBe-10Abe+11bBd)}{9e^{12}(d+ex)^9}+\frac{(bd-ae)^{10}(Bd-Ae)}{10e^{12}(d+ex)^{10}}+\frac{b^{10}Bx}{e^{11}}$$

```
[Out] (b^10*B*x)/e^11 + ((b*d - a*e)^10*(B*d - A*e))/(10*e^12*(d + e*x)
^10) - ((b*d - a*e)^9*(11*b*B*d - 10*A*b*e - a*B*e))/(9*e^12*(d +
 e*x)^9) + (5*b*(b*d - a*e)^8*(11*b*B*d - 9*A*b*e - 2*a*B*e))/(8*
e^12*(d + e*x)^8) - (15*b^2*(b*d - a*e)^7*(11*b*B*d - 8*A*b*e - 3
*a*B*e))/(7*e^12*(d + e*x)^7) + (5*b^3*(b*d - a*e)^6*(11*b*B*d -
7*A*b*e - 4*a*B*e))/(e^12*(d + e*x)^6) - (42*b^4*(b*d - a*e)^5*(1
1*b*B*d - 6*A*b*e - 5*a*B*e))/(5*e^12*(d + e*x)^5) + (21*b^5*(b*d
 - a*e)^4*(11*b*B*d - 5*A*b*e - 6*a*B*e))/(2*e^12*(d + e*x)^4) -
(10*b^6*(b*d - a*e)^3*(11*b*B*d - 4*A*b*e - 7*a*B*e))/(e^12*(d +
e*x)^3) + (15*b^7*(b*d - a*e)^2*(11*b*B*d - 3*A*b*e - 8*a*B*e))/(
2*e^12*(d + e*x)^2) - (5*b^8*(b*d - a*e)*(11*b*B*d - 2*A*b*e - 9*
a*B*e))/(e^12*(d + e*x)) - (b^9*(11*b*B*d - A*b*e - 10*a*B*e)*Log
[d + e*x])/e^12
```

Rubi [A] time = 2.4784, antiderivative size = 446, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{b^9\log(d+ex)(-10aBe-Abe+11bBd)}{e^{12}}-\frac{5b^8(bd-ae)(-9aBe-2Abe+11bBd)}{e^{12}(d+ex)}+\frac{15b^7(bd-ae)^2(-8aBe-3Abe+11bBd)}{2e^{12}(d+ex)^2}-\frac{10b^6(bd-ae)^3(-7aBe-4Abe+11bBd)}{e^{12}(d+ex)^3}+\frac{21b^5(bd-ae)^4(-6aBe-5Abe+11bBd)}{2e^{12}(d+ex)^4}-\frac{42b^4(bd-ae)^5(-5aBe-6Abe+11bBd)}{5e^{12}(d+ex)^5}+\frac{5b^3(bd-ae)^6(-4aBe-7Abe+11bBd)}{e^{12}(d+ex)^6}-\frac{15b^2(bd-ae)^7(-3aBe-8Abe+11bBd)}{7e^{12}(d+ex)^7}+\frac{5b(bd-ae)^8(-2aBe-9Abe+11bBd)}{8e^{12}(d+ex)^8}-\frac{(bd-ae)^9(-aBe-10Abe+11bBd)}{9e^{12}(d+ex)^9}+\frac{(bd-ae)^{10}(Bd-Ae)}{10e^{12}(d+ex)^{10}}+\frac{b^{10}Bx}{e^{11}}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^10*(A + B*x))/(d + e*x)^11,x]
```


```
[Out] (b^10*B*x)/e^11 + ((b*d - a*e)^10*(B*d - A*e))/(10*e^12*(d + e*x)
^10) - ((b*d - a*e)^9*(11*b*B*d - 10*A*b*e - a*B*e))/(9*e^12*(d +
 e*x)^9) + (5*b*(b*d - a*e)^8*(11*b*B*d - 9*A*b*e - 2*a*B*e))/(8*
e^12*(d + e*x)^8) - (15*b^2*(b*d - a*e)^7*(11*b*B*d - 8*A*b*e - 3
*a*B*e))/(7*e^12*(d + e*x)^7) + (5*b^3*(b*d - a*e)^6*(11*b*B*d -
7*A*b*e - 4*a*B*e))/(e^12*(d + e*x)^6) - (42*b^4*(b*d - a*e)^5*(1
1*b*B*d - 6*A*b*e - 5*a*B*e))/(5*e^12*(d + e*x)^5) + (21*b^5*(b*d
 - a*e)^4*(11*b*B*d - 5*A*b*e - 6*a*B*e))/(2*e^12*(d + e*x)^4) -
(10*b^6*(b*d - a*e)^3*(11*b*B*d - 4*A*b*e - 7*a*B*e))/(e^12*(d +
e*x)^3) + (15*b^7*(b*d - a*e)^2*(11*b*B*d - 3*A*b*e - 8*a*B*e))/(
2*e^12*(d + e*x)^2) - (5*b^8*(b*d - a*e)*(11*b*B*d - 2*A*b*e - 9*
a*B*e))/(e^12*(d + e*x)) - (b^9*(11*b*B*d - A*b*e - 10*a*B*e)*Log
```

```
[d + e*x])/e^12
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)/(e*x+d)**11,x)
```

```
[Out] Timed out
```

Mathematica [B] time = 1.95462, size = 1447, normalized size = 3.24

$$-\frac{-\left(Ade\left(7381d^9+71290exd^8+308205e^2x^2d^7+784080e^3x^3d^6+1296540e^4x^4d^5+1450008e^5x^5d^4+1102500e^6x^6d^3+554\ldots\right.\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^10*(A + B*x))/(d + e*x)^11,x]
```

```
[Out] -(28*a^10*e^10*(9*A*e + B*(d + 10*e*x)) + 70*a^9*b*e^9*(4*A*e*(d
+ 10*e*x) + B*(d^2 + 10*d*e*x + 45*e^2*x^2)) + 45*a^8*b^2*e^8*(7*
A*e*(d^2 + 10*d*e*x + 45*e^2*x^2) + 3*B*(d^3 + 10*d^2*e*x + 45*d*
e^2*x^2 + 120*e^3*x^3)) + 120*a^7*b^3*e^7*(3*A*e*(d^3 + 10*d^2*e*
x + 45*d*e^2*x^2 + 120*e^3*x^3) + 2*B*(d^4 + 10*d^3*e*x + 45*d^2*
e^2*x^2 + 120*d*e^3*x^3 + 210*e^4*x^4)) + 420*a^6*b^4*e^6*(A*e*(d
^4 + 10*d^3*e*x + 45*d^2*e^2*x^2 + 120*d*e^3*x^3 + 210*e^4*x^4) +
 B*(d^5 + 10*d^4*e*x + 45*d^3*e^2*x^2 + 120*d^2*e^3*x^3 + 210*d*e
^4*x^4 + 252*e^5*x^5)) + 252*a^5*b^5*e^5*(2*A*e*(d^5 + 10*d^4*e*x
 + 45*d^3*e^2*x^2 + 120*d^2*e^3*x^3 + 210*d*e^4*x^4 + 252*e^5*x^5
) + 3*B*(d^6 + 10*d^5*e*x + 45*d^4*e^2*x^2 + 120*d^3*e^3*x^3 + 21
0*d^2*e^4*x^4 + 252*d*e^5*x^5 + 210*e^6*x^6)) + 210*a^4*b^6*e^4*(
3*A*e*(d^6 + 10*d^5*e*x + 45*d^4*e^2*x^2 + 120*d^3*e^3*x^3 + 210*
d^2*e^4*x^4 + 252*d*e^5*x^5 + 210*e^6*x^6) + 7*B*(d^7 + 10*d^6*e*
x + 45*d^5*e^2*x^2 + 120*d^4*e^3*x^3 + 210*d^3*e^4*x^4 + 252*d^2*
e^5*x^5 + 210*d*e^6*x^6 + 120*e^7*x^7)) + 840*a^3*b^7*e^3*(A*e*(d
^7 + 10*d^6*e*x + 45*d^5*e^2*x^2 + 120*d^4*e^3*x^3 + 210*d^3*e^4*
x^4 + 252*d^2*e^5*x^5 + 210*d*e^6*x^6 + 120*e^7*x^7) + 4*B*(d^8 +
 10*d^7*e*x + 45*d^6*e^2*x^2 + 120*d^5*e^3*x^3 + 210*d^4*e^4*x^4
+ 252*d^3*e^5*x^5 + 210*d^2*e^6*x^6 + 120*d*e^7*x^7 + 45*e^8*x^8)
) + 1260*a^2*b^8*e^2*(A*e*(d^8 + 10*d^7*e*x + 45*d^6*e^2*x^2 + 12
0*d^5*e^3*x^3 + 210*d^4*e^4*x^4 + 252*d^3*e^5*x^5 + 210*d^2*e^6*x
^6 + 120*d*e^7*x^7 + 45*e^8*x^8) + 9*B*(d^9 + 10*d^8*e*x + 45*d^7
*e^2*x^2 + 120*d^6*e^3*x^3 + 210*d^5*e^4*x^4 + 252*d^4*e^5*x^5 +
210*d^3*e^6*x^6 + 120*d^2*e^7*x^7 + 45*d*e^8*x^8 + 10*e^9*x^9)) -
 10*a*b^9*e*(-252*A*e*(d^9 + 10*d^8*e*x + 45*d^7*e^2*x^2 + 120*d^
6*e^3*x^3 + 210*d^5*e^4*x^4 + 252*d^4*e^5*x^5 + 210*d^3*e^6*x^6 +
 120*d^2*e^7*x^7 + 45*d*e^8*x^8 + 10*e^9*x^9) + B*d*(7381*d^9 + 7
1290*d^8*e*x + 308205*d^7*e^2*x^2 + 784080*d^6*e^3*x^3 + 1296540*
d^5*e^4*x^4 + 1450008*d^4*e^5*x^5 + 1102500*d^3*e^6*x^6 + 554400*
d^2*e^7*x^7 + 170100*d*e^8*x^8 + 25200*e^9*x^9)) - b^10*(A*d*e*(7
381*d^9 + 71290*d^8*e*x + 308205*d^7*e^2*x^2 + 784080*d^6*e^3*x^3
 + 1296540*d^5*e^4*x^4 + 1450008*d^4*e^5*x^5 + 1102500*d^3*e^6*x^
6 + 554400*d^2*e^7*x^7 + 170100*d*e^8*x^8 + 25200*e^9*x^9) - B*(5
5991*d^11 + 532190*d^10*e*x + 2256255*d^9*e^2*x^2 + 5600880*d^8*e
^3*x^3 + 8969940*d^7*e^4*x^4 + 9599688*d^6*e^5*x^5 + 6835500*d^5*
e^6*x^6 + 3074400*d^4*e^7*x^7 + 737100*d^3*e^8*x^8 + 25200*d^2*e^
9*x^9 - 25200*d*e^10*x^10 - 2520*e^11*x^11)) + 2520*b^9*(11*b*B*d
 - A*b*e - 10*a*B*e)*(d + e*x)^10*Log[d + e*x])/(2520*e^12*(d + e
*x)^10)
```

Maple [B] time = 0.033, size = 2897, normalized size = 6.5

output too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^10*(B*x+A)/(e*x+d)^11,x)
```

```
[Out] -42*b^4/e^6/(e*x+d)^5*B*a^6-462/5*b^10/e^12/(e*x+d)^5*B*d^6-120/7
*b^3/e^4/(e*x+d)^7*A*a^7+120/7*b^10/e^11/(e*x+d)^7*A*d^7-45/7*b^2
/e^4/(e*x+d)^7*B*a^8-165/7*b^10/e^12/(e*x+d)^7*B*d^8-40*b^7/e^8/(
e*x+d)^3*A*a^3+40*b^10/e^11/(e*x+d)^3*A*d^3-70*b^6/e^8/(e*x+d)^3*
B*a^4-110*b^10/e^12/(e*x+d)^3*B*d^4-10*b^9/e^10/(e*x+d)*A*a+10*b^
10/e^11/(e*x+d)*A*d-45*b^8/e^10/(e*x+d)*B*a^2-55*b^10/e^12/(e*x+d
)*B*d^2-45/2*b^8/e^9/(e*x+d)^2*A*a^2-45/2*b^10/e^11/(e*x+d)^2*A*d
^2-60*b^7/e^9/(e*x+d)^2*B*a^3+165/2*b^10/e^12/(e*x+d)^2*B*d^3-105
/2*b^6/e^7/(e*x+d)^4*A*a^4-105/2*b^10/e^11/(e*x+d)^4*A*d^4-63*b^5
/e^7/(e*x+d)^4*B*a^5+231/2*b^10/e^12/(e*x+d)^4*B*d^5+10*b^9/e^11*
ln(e*x+d)*B*a-11*b^10/e^12*ln(e*x+d)*B*d-10/9/e^2/(e*x+d)^9*A*a^9
*b+10/9/e^11/(e*x+d)^9*A*b^10*d^9+b^10*B*x/e^11+b^10/e^11*ln(e*x+
d)*A-1/9/e^2/(e*x+d)^9*B*a^10-1/10/e/(e*x+d)^10*a^10*A+100*b^9/e^
11/(e*x+d)*B*a*d+45*b^9/e^10/(e*x+d)^2*A*a*d+405/2*b^8/e^10/(e*x+
d)^2*B*a^2*d-225*b^9/e^11/(e*x+d)^2*B*a*d^2+210*b^7/e^8/(e*x+d)^4
*A*a^3*d-315*b^8/e^9/(e*x+d)^4*A*a^2*d^2+210*b^9/e^10/(e*x+d)^4*A
*a*d^3+120*b^4/e^5/(e*x+d)^7*A*a^6*d-360*b^5/e^6/(e*x+d)^7*A*a^5*
d^2+600*b^6/e^7/(e*x+d)^7*A*a^4*d^3-600*b^7/e^8/(e*x+d)^7*A*a^3*d
^4+360*b^8/e^9/(e*x+d)^7*A*a^2*d^5-120*b^9/e^10/(e*x+d)^7*A*a*d^6
+480/7*b^3/e^5/(e*x+d)^7*B*a^7*d-300*b^4/e^6/(e*x+d)^7*B*a^6*d^2+
720*b^5/e^7/(e*x+d)^7*B*a^5*d^3-1050*b^6/e^8/(e*x+d)^7*B*a^4*d^4+
960*b^7/e^9/(e*x+d)^7*B*a^3*d^5-540*b^8/e^10/(e*x+d)^7*B*a^2*d^6+
280/3/e^5/(e*x+d)^9*A*a^6*b^4*d^3-140/e^6/(e*x+d)^9*A*a^5*b^5*d^4
+140/e^7/(e*x+d)^9*A*a^4*b^6*d^5+45*b^9/e^10/(e*x+d)^8*A*a*d^7+13
5/8*b^2/e^4/(e*x+d)^8*B*a^8*d-90*b^3/e^5/(e*x+d)^8*B*a^7*d^2+525/
2*b^4/e^6/(e*x+d)^8*B*a^6*d^3-945/2*b^5/e^7/(e*x+d)^8*B*a^5*d^4+2
205/4*b^6/e^8/(e*x+d)^8*B*a^4*d^5-420*b^7/e^9/(e*x+d)^8*B*a^3*d^6
+405/2*b^8/e^10/(e*x+d)^8*B*a^2*d^7-225/4*b^9/e^11/(e*x+d)^8*B*a*
d^8-9/2/e^3/(e*x+d)^10*A*d^2*a^8*b^2+12/e^4/(e*x+d)^10*A*d^3*a^7*
b^3-21/e^5/(e*x+d)^10*A*d^4*a^6*b^4+126/5/e^6/(e*x+d)^10*A*d^5*a^
5*b^5-21/e^7/(e*x+d)^10*A*d^6*a^4*b^6+12/e^8/(e*x+d)^10*A*d^7*a^3
*b^7-9/2/e^9/(e*x+d)^10*A*d^8*a^2*b^8+1/e^10/(e*x+d)^10*A*d^9*a*b
^9+21/e^6/(e*x+d)^10*B*d^5*a^6*b^4-126/5/e^7/(e*x+d)^10*B*d^6*a^5
*b^5+21/e^8/(e*x+d)^10*B*d^7*a^4*b^6-12/e^9/(e*x+d)^10*B*d^8*a^3*
b^7+9/2/e^10/(e*x+d)^10*B*d^9*a^2*b^8-1/e^11/(e*x+d)^10*B*d^10*a*
b^9+210*b^5/e^6/(e*x+d)^6*A*a^5*d-525*b^6/e^7/(e*x+d)^6*A*a^4*d^2
+700*b^7/e^8/(e*x+d)^6*A*a^3*d^3-525*b^8/e^9/(e*x+d)^6*A*a^2*d^4+
210*b^9/e^10/(e*x+d)^6*A*a*d^5+175*b^4/e^6/(e*x+d)^6*B*a^6*d-630*
b^5/e^7/(e*x+d)^6*B*a^5*d^2+1225*b^6/e^8/(e*x+d)^6*B*a^4*d^3-1400
*b^7/e^9/(e*x+d)^6*B*a^3*d^4+945*b^8/e^10/(e*x+d)^6*B*a^2*d^5-350
*b^9/e^11/(e*x+d)^6*B*a*d^6+45*b^3/e^4/(e*x+d)^8*A*a^7*d-315/2*b^
4/e^5/(e*x+d)^8*A*a^6*d^2+315*b^5/e^6/(e*x+d)^8*A*a^5*d^3-1575/4*
b^6/e^7/(e*x+d)^8*A*a^4*d^4+315*b^7/e^8/(e*x+d)^8*A*a^3*d^5-315/2
*b^8/e^9/(e*x+d)^8*A*a^2*d^6+10/e^3/(e*x+d)^9*A*a^8*b^2*d-40/e^4/
(e*x+d)^9*A*a^7*b^3*d^2+735/2*b^6/e^8/(e*x+d)^4*B*a^4*d-840*b^7/e
^9/(e*x+d)^4*B*a^3*d^2+945*b^8/e^10/(e*x+d)^4*B*a^2*d^3-525*b^9/e
^11/(e*x+d)^4*B*a*d^4+252*b^6/e^7/(e*x+d)^5*A*a^4*d-504*b^7/e^8/(
e*x+d)^5*A*a^3*d^2+504*b^8/e^9/(e*x+d)^5*A*a^2*d^3-252*b^9/e^10/(
e*x+d)^5*A*a*d^4+1512/5*b^5/e^7/(e*x+d)^5*B*a^5*d-882*b^6/e^8/(e*
x+d)^5*B*a^4*d^2+1344*b^7/e^9/(e*x+d)^5*B*a^3*d^3-1134*b^8/e^10/(
e*x+d)^5*B*a^2*d^4+504*b^9/e^11/(e*x+d)^5*B*a*d^5+120*b^8/e^9/(e*
x+d)^3*A*a^2*d-120*b^9/e^10/(e*x+d)^3*A*a*d^2+320*b^7/e^9/(e*x+d)
^3*B*a^3*d-540*b^8/e^10/(e*x+d)^3*B*a^2*d^2+400*b^9/e^11/(e*x+d)^
3*B*a*d^3+1200/7*b^9/e^11/(e*x+d)^7*B*a*d^7-280/3/e^8/(e*x+d)^9*A
*a^3*b^7*d^6+40/e^9/(e*x+d)^9*A*a^2*b^8*d^7-10/e^10/(e*x+d)^9*A*a
*b^9*d^8+20/9/e^3/(e*x+d)^9*B*a^9*b*d-15/e^4/(e*x+d)^9*B*a^8*b^2*
d^2+160/3/e^5/(e*x+d)^9*B*a^7*b^3*d^3-350/3/e^6/(e*x+d)^9*B*a^6*b
^4*d^4+168/e^7/(e*x+d)^9*B*a^5*b^5*d^5-490/3/e^8/(e*x+d)^9*B*a^4*
b^6*d^6+320/3/e^9/(e*x+d)^9*B*a^3*b^7*d^7-45/e^10/(e*x+d)^9*B*a^2
*b^8*d^8+100/9/e^11/(e*x+d)^9*B*a*b^9*d^9+1/e^2/(e*x+d)^10*A*d*a^
9*b-252/5*b^5/e^6/(e*x+d)^5*A*a^5+252/5*b^10/e^11/(e*x+d)^5*A*d^5
-1/e^3/(e*x+d)^10*B*d^2*a^9*b+9/2/e^4/(e*x+d)^10*B*d^3*a^8*b^2-12
/e^5/(e*x+d)^10*B*d^4*a^7*b^3-11/9/e^12/(e*x+d)^9*b^10*B*d^10-1/1
0/e^11/(e*x+d)^10*A*d^10*b^10+1/10/e^2/(e*x+d)^10*B*d*a^10+1/10/e
```

```
^12/(e*x+d)^10*b^10*B*d^11-35*b^4/e^5/(e*x+d)^6*A*a^6-35*b^10/e^1
1/(e*x+d)^6*A*d^6-20*b^3/e^5/(e*x+d)^6*B*a^7+55*b^10/e^12/(e*x+d)
^6*B*d^7-45/8*b^2/e^3/(e*x+d)^8*A*a^8-45/8*b^10/e^11/(e*x+d)^8*A*
d^8-5/4*b/e^3/(e*x+d)^8*B*a^9+55/8*b^10/e^12/(e*x+d)^8*B*d^9
```

Maxima [A] time = 1.53627, size = 2584, normalized size = 5.79

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^10/(e*x + d)^11,x, algorithm="maxima")
```

```
[Out] B*b^10*x/e^11 - 1/2520*(55991*B*b^10*d^11 + 252*A*a^10*e^11 - 738
1*(10*B*a*b^9 + A*b^10)*d^10*e + 1260*(9*B*a^2*b^8 + 2*A*a*b^9)*d
^9*e^2 + 420*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^8*e^3 + 210*(7*B*a^4*b
^6 + 4*A*a^3*b^7)*d^7*e^4 + 126*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^6*e
^5 + 84*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^5*e^6 + 60*(4*B*a^7*b^3 + 7
*A*a^6*b^4)*d^4*e^7 + 45*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^3*e^8 + 35
*(2*B*a^9*b + 9*A*a^8*b^2)*d^2*e^9 + 28*(B*a^10 + 10*A*a^9*b)*d*e
^10 + 12600*(11*B*b^10*d^2*e^9 - 2*(10*B*a*b^9 + A*b^10)*d*e^10 +
 (9*B*a^2*b^8 + 2*A*a*b^9)*e^11)*x^9 + 18900*(55*B*b^10*d^3*e^8 -
 9*(10*B*a*b^9 + A*b^10)*d^2*e^9 + 3*(9*B*a^2*b^8 + 2*A*a*b^9)*d*
e^10 + (8*B*a^3*b^7 + 3*A*a^2*b^8)*e^11)*x^8 + 25200*(143*B*b^10*
d^4*e^7 - 22*(10*B*a*b^9 + A*b^10)*d^3*e^8 + 6*(9*B*a^2*b^8 + 2*A
*a*b^9)*d^2*e^9 + 2*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d*e^10 + (7*B*a^4
*b^6 + 4*A*a^3*b^7)*e^11)*x^7 + 8820*(847*B*b^10*d^5*e^6 - 125*(1
0*B*a*b^9 + A*b^10)*d^4*e^7 + 30*(9*B*a^2*b^8 + 2*A*a*b^9)*d^3*e^
8 + 10*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^2*e^9 + 5*(7*B*a^4*b^6 + 4*A
*a^3*b^7)*d*e^10 + 3*(6*B*a^5*b^5 + 5*A*a^4*b^6)*e^11)*x^6 + 1058
4*(957*B*b^10*d^6*e^5 - 137*(10*B*a*b^9 + A*b^10)*d^5*e^6 + 30*(9
*B*a^2*b^8 + 2*A*a*b^9)*d^4*e^7 + 10*(8*B*a^3*b^7 + 3*A*a^2*b^8)*
d^3*e^8 + 5*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^2*e^9 + 3*(6*B*a^5*b^5
+ 5*A*a^4*b^6)*d*e^10 + 2*(5*B*a^6*b^4 + 6*A*a^5*b^5)*e^11)*x^5 +
 1260*(7359*B*b^10*d^7*e^4 - 1029*(10*B*a*b^9 + A*b^10)*d^6*e^5 +
 210*(9*B*a^2*b^8 + 2*A*a*b^9)*d^5*e^6 + 70*(8*B*a^3*b^7 + 3*A*a^
2*b^8)*d^4*e^7 + 35*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^3*e^8 + 21*(6*B
*a^5*b^5 + 5*A*a^4*b^6)*d^2*e^9 + 14*(5*B*a^6*b^4 + 6*A*a^5*b^5)*
d*e^10 + 10*(4*B*a^7*b^3 + 7*A*a^6*b^4)*e^11)*x^4 + 360*(15873*B*
b^10*d^8*e^3 - 2178*(10*B*a*b^9 + A*b^10)*d^7*e^4 + 420*(9*B*a^2*
b^8 + 2*A*a*b^9)*d^6*e^5 + 140*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^5*e^
6 + 70*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^4*e^7 + 42*(6*B*a^5*b^5 + 5*
A*a^4*b^6)*d^3*e^8 + 28*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^2*e^9 + 20*
(4*B*a^7*b^3 + 7*A*a^6*b^4)*d*e^10 + 15*(3*B*a^8*b^2 + 8*A*a^7*b^
3)*e^11)*x^3 + 45*(50699*B*b^10*d^9*e^2 - 6849*(10*B*a*b^9 + A*b^
10)*d^8*e^3 + 1260*(9*B*a^2*b^8 + 2*A*a*b^9)*d^7*e^4 + 420*(8*B*a
^3*b^7 + 3*A*a^2*b^8)*d^6*e^5 + 210*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d
^5*e^6 + 126*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^4*e^7 + 84*(5*B*a^6*b^
4 + 6*A*a^5*b^5)*d^3*e^8 + 60*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^2*e^9
 + 45*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d*e^10 + 35*(2*B*a^9*b + 9*A*a^
8*b^2)*e^11)*x^2 + 10*(53471*B*b^10*d^10*e - 7129*(10*B*a*b^9 + A
*b^10)*d^9*e^2 + 1260*(9*B*a^2*b^8 + 2*A*a*b^9)*d^8*e^3 + 420*(8*
B*a^3*b^7 + 3*A*a^2*b^8)*d^7*e^4 + 210*(7*B*a^4*b^6 + 4*A*a^3*b^7
)*d^6*e^5 + 126*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^5*e^6 + 84*(5*B*a^6
*b^4 + 6*A*a^5*b^5)*d^4*e^7 + 60*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^3*
e^8 + 45*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^2*e^9 + 35*(2*B*a^9*b + 9*
A*a^8*b^2)*d*e^10 + 28*(B*a^10 + 10*A*a^9*b)*e^11)*x)/(e^22*x^10
+ 10*d*e^21*x^9 + 45*d^2*e^20*x^8 + 120*d^3*e^19*x^7 + 210*d^4*e^
18*x^6 + 252*d^5*e^17*x^5 + 210*d^6*e^16*x^4 + 120*d^7*e^15*x^3 +
 45*d^8*e^14*x^2 + 10*d^9*e^13*x + d^10*e^12) - (11*B*b^10*d - (1
0*B*a*b^9 + A*b^10)*e)*log(e*x + d)/e^12
```

Fricas [A] time = 0.237211, size = 3117, normalized size = 6.99

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^10/(e*x + d)^11,x, algorithm="fricas")
```

```
[Out] 1/2520*(2520*B*b^10*e^11*x^11 + 25200*B*b^10*d*e^10*x^10 - 55991*
B*b^10*d^11 - 252*A*a^10*e^11 + 7381*(10*B*a*b^9 + A*b^10)*d^10*e
 - 1260*(9*B*a^2*b^8 + 2*A*a*b^9)*d^9*e^2 - 420*(8*B*a^3*b^7 + 3*
A*a^2*b^8)*d^8*e^3 - 210*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^7*e^4 - 12
6*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^6*e^5 - 84*(5*B*a^6*b^4 + 6*A*a^5
*b^5)*d^5*e^6 - 60*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^4*e^7 - 45*(3*B*
a^8*b^2 + 8*A*a^7*b^3)*d^3*e^8 - 35*(2*B*a^9*b + 9*A*a^8*b^2)*d^2
*e^9 - 28*(B*a^10 + 10*A*a^9*b)*d*e^10 - 12600*(2*B*b^10*d^2*e^9
- 2*(10*B*a*b^9 + A*b^10)*d*e^10 + (9*B*a^2*b^8 + 2*A*a*b^9)*e^11
)*x^9 - 18900*(39*B*b^10*d^3*e^8 - 9*(10*B*a*b^9 + A*b^10)*d^2*e^
9 + 3*(9*B*a^2*b^8 + 2*A*a*b^9)*d*e^10 + (8*B*a^3*b^7 + 3*A*a^2*b
^8)*e^11)*x^8 - 25200*(122*B*b^10*d^4*e^7 - 22*(10*B*a*b^9 + A*b^
10)*d^3*e^8 + 6*(9*B*a^2*b^8 + 2*A*a*b^9)*d^2*e^9 + 2*(8*B*a^3*b^
7 + 3*A*a^2*b^8)*d*e^10 + (7*B*a^4*b^6 + 4*A*a^3*b^7)*e^11)*x^7 -
 8820*(775*B*b^10*d^5*e^6 - 125*(10*B*a*b^9 + A*b^10)*d^4*e^7 + 3
0*(9*B*a^2*b^8 + 2*A*a*b^9)*d^3*e^8 + 10*(8*B*a^3*b^7 + 3*A*a^2*b
^8)*d^2*e^9 + 5*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d*e^10 + 3*(6*B*a^5*b
^5 + 5*A*a^4*b^6)*e^11)*x^6 - 10584*(907*B*b^10*d^6*e^5 - 137*(10
*B*a*b^9 + A*b^10)*d^5*e^6 + 30*(9*B*a^2*b^8 + 2*A*a*b^9)*d^4*e^7
 + 10*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^3*e^8 + 5*(7*B*a^4*b^6 + 4*A*
a^3*b^7)*d^2*e^9 + 3*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d*e^10 + 2*(5*B*
a^6*b^4 + 6*A*a^5*b^5)*e^11)*x^5 - 1260*(7119*B*b^10*d^7*e^4 - 10
29*(10*B*a*b^9 + A*b^10)*d^6*e^5 + 210*(9*B*a^2*b^8 + 2*A*a*b^9)*
d^5*e^6 + 70*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^4*e^7 + 35*(7*B*a^4*b^
6 + 4*A*a^3*b^7)*d^3*e^8 + 21*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^2*e^9
 + 14*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d*e^10 + 10*(4*B*a^7*b^3 + 7*A*
a^6*b^4)*e^11)*x^4 - 360*(15558*B*b^10*d^8*e^3 - 2178*(10*B*a*b^9
 + A*b^10)*d^7*e^4 + 420*(9*B*a^2*b^8 + 2*A*a*b^9)*d^6*e^5 + 140*
(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^5*e^6 + 70*(7*B*a^4*b^6 + 4*A*a^3*b
^7)*d^4*e^7 + 42*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^3*e^8 + 28*(5*B*a^
6*b^4 + 6*A*a^5*b^5)*d^2*e^9 + 20*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d*e
^10 + 15*(3*B*a^8*b^2 + 8*A*a^7*b^3)*e^11)*x^3 - 45*(50139*B*b^10
*d^9*e^2 - 6849*(10*B*a*b^9 + A*b^10)*d^8*e^3 + 1260*(9*B*a^2*b^8
 + 2*A*a*b^9)*d^7*e^4 + 420*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^6*e^5 +
 210*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^5*e^6 + 126*(6*B*a^5*b^5 + 5*A
*a^4*b^6)*d^4*e^7 + 84*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^3*e^8 + 60*(
4*B*a^7*b^3 + 7*A*a^6*b^4)*d^2*e^9 + 45*(3*B*a^8*b^2 + 8*A*a^7*b^
3)*d*e^10 + 35*(2*B*a^9*b + 9*A*a^8*b^2)*e^11)*x^2 - 10*(53219*B*
b^10*d^10*e - 7129*(10*B*a*b^9 + A*b^10)*d^9*e^2 + 1260*(9*B*a^2*
b^8 + 2*A*a*b^9)*d^8*e^3 + 420*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^7*e^
4 + 210*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^6*e^5 + 126*(6*B*a^5*b^5 +
5*A*a^4*b^6)*d^5*e^6 + 84*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^4*e^7 + 6
0*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^3*e^8 + 45*(3*B*a^8*b^2 + 8*A*a^7
*b^3)*d^2*e^9 + 35*(2*B*a^9*b + 9*A*a^8*b^2)*d*e^10 + 28*(B*a^10
+ 10*A*a^9*b)*e^11)*x - 2520*(11*B*b^10*d^11 - (10*B*a*b^9 + A*b^
10)*d^10*e + (11*B*b^10*d*e^10 - (10*B*a*b^9 + A*b^10)*e^11)*x^10
 + 10*(11*B*b^10*d^2*e^9 - (10*B*a*b^9 + A*b^10)*d*e^10)*x^9 + 45
*(11*B*b^10*d^3*e^8 - (10*B*a*b^9 + A*b^10)*d^2*e^9)*x^8 + 120*(1
1*B*b^10*d^4*e^7 - (10*B*a*b^9 + A*b^10)*d^3*e^8)*x^7 + 210*(11*B
*b^10*d^5*e^6 - (10*B*a*b^9 + A*b^10)*d^4*e^7)*x^6 + 252*(11*B*b^
10*d^6*e^5 - (10*B*a*b^9 + A*b^10)*d^5*e^6)*x^5 + 210*(11*B*b^10*
d^7*e^4 - (10*B*a*b^9 + A*b^10)*d^6*e^5)*x^4 + 120*(11*B*b^10*d^8
*e^3 - (10*B*a*b^9 + A*b^10)*d^7*e^4)*x^3 + 45*(11*B*b^10*d^9*e^2
 - (10*B*a*b^9 + A*b^10)*d^8*e^3)*x^2 + 10*(11*B*b^10*d^10*e - (1
0*B*a*b^9 + A*b^10)*d^9*e^2)*x)*log(e*x + d))/(e^22*x^10 + 10*d*e
^21*x^9 + 45*d^2*e^20*x^8 + 120*d^3*e^19*x^7 + 210*d^4*e^18*x^6 +
 252*d^5*e^17*x^5 + 210*d^6*e^16*x^4 + 120*d^7*e^15*x^3 + 45*d^8*
e^14*x^2 + 10*d^9*e^13*x + d^10*e^12)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**10*(B*x+A)/(e*x+d)**11,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.220877, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d)^11,x, algorithm="giac")
```

```
[Out] Done
```

3.1083 $\int \frac{(a+bx)^{10}(A+Bx)}{(d+ex)^{12}}\,dx$

Optimal. Leaf size=321

$$-\frac{(a+bx)^{11}(Bd-Ae)}{11e(d+ex)^{11}(bd-ae)}+\frac{10b^9B(bd-ae)}{e^{12}(d+ex)}-\frac{45b^8B(bd-ae)^2}{2e^{12}(d+ex)^2}+\frac{40b^7B(bd-ae)^3}{e^{12}(d+ex)^3}-\frac{105b^6B(bd-ae)^4}{2e^{12}(d+ex)^4}+\frac{252b^5B(bd-ae)^5}{5e^{12}(d+ex)^5}-\frac{35b^4B(bd-ae)^6}{e^{12}(d+ex)^6}+\frac{120b^3B(bd-ae)^7}{7e^{12}(d+ex)^7}-\frac{45b^2B(bd-ae)^8}{8e^{12}(d+ex)^8}+\frac{10bB(bd-ae)^9}{9e^{12}(d+ex)^9}-\frac{B(bd-ae)^{10}}{10e^{12}(d+ex)^{10}}+\frac{b^{10}B\log(d+ex)}{e^{12}}$$

```
[Out] -((B*d - A*e)*(a + b*x)^11)/(11*e*(b*d - a*e)*(d + e*x)^11) - (B*
(b*d - a*e)^10)/(10*e^12*(d + e*x)^10) + (10*b*B*(b*d - a*e)^9)/(
9*e^12*(d + e*x)^9) - (45*b^2*B*(b*d - a*e)^8)/(8*e^12*(d + e*x)^
8) + (120*b^3*B*(b*d - a*e)^7)/(7*e^12*(d + e*x)^7) - (35*b^4*B*(
b*d - a*e)^6)/(e^12*(d + e*x)^6) + (252*b^5*B*(b*d - a*e)^5)/(5*e
^12*(d + e*x)^5) - (105*b^6*B*(b*d - a*e)^4)/(2*e^12*(d + e*x)^4)
 + (40*b^7*B*(b*d - a*e)^3)/(e^12*(d + e*x)^3) - (45*b^8*B*(b*d -
 a*e)^2)/(2*e^12*(d + e*x)^2) + (10*b^9*B*(b*d - a*e))/(e^12*(d +
 e*x)) + (b^10*B*Log[d + e*x])/e^12
```

Rubi [A] time = 1.10631, antiderivative size = 321, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 2, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.1$

$$-\frac{(a+bx)^{11}(Bd-Ae)}{11e(d+ex)^{11}(bd-ae)}+\frac{10b^9B(bd-ae)}{e^{12}(d+ex)}-\frac{45b^8B(bd-ae)^2}{2e^{12}(d+ex)^2}+\frac{40b^7B(bd-ae)^3}{e^{12}(d+ex)^3}-\frac{105b^6B(bd-ae)^4}{2e^{12}(d+ex)^4}+\frac{252b^5B(bd-ae)^5}{5e^{12}(d+ex)^5}-\frac{35b^4B(bd-ae)^6}{e^{12}(d+ex)^6}+\frac{120b^3B(bd-ae)^7}{7e^{12}(d+ex)^7}-\frac{45b^2B(bd-ae)^8}{8e^{12}(d+ex)^8}+\frac{10bB(bd-ae)^9}{9e^{12}(d+ex)^9}-\frac{B(bd-ae)^{10}}{10e^{12}(d+ex)^{10}}+\frac{b^{10}B\log(d+ex)}{e^{12}}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^10*(A + B*x))/(d + e*x)^12,x]
```


```
[Out] -((B*d - A*e)*(a + b*x)^11)/(11*e*(b*d - a*e)*(d + e*x)^11) - (B*
(b*d - a*e)^10)/(10*e^12*(d + e*x)^10) + (10*b*B*(b*d - a*e)^9)/(
9*e^12*(d + e*x)^9) - (45*b^2*B*(b*d - a*e)^8)/(8*e^12*(d + e*x)^
8) + (120*b^3*B*(b*d - a*e)^7)/(7*e^12*(d + e*x)^7) - (35*b^4*B*(
b*d - a*e)^6)/(e^12*(d + e*x)^6) + (252*b^5*B*(b*d - a*e)^5)/(5*e
^12*(d + e*x)^5) - (105*b^6*B*(b*d - a*e)^4)/(2*e^12*(d + e*x)^4)
 + (40*b^7*B*(b*d - a*e)^3)/(e^12*(d + e*x)^3) - (45*b^8*B*(b*d -
 a*e)^2)/(2*e^12*(d + e*x)^2) + (10*b^9*B*(b*d - a*e))/(e^12*(d +
 e*x)) + (b^10*B*Log[d + e*x])/e^12
```

Rubi in Sympy [A] time = 146.666, size = 301, normalized size = 0.94

$$\frac{Bb^{10}\log(d+ex)}{e^{12}}-\frac{10Bb^9(ae-bd)}{e^{12}(d+ex)}-\frac{45Bb^8(ae-bd)^2}{2e^{12}(d+ex)^2}-\frac{40Bb^7(ae-bd)^3}{e^{12}(d+ex)^3}-\frac{105Bb^6(ae-bd)^4}{2e^{12}(d+ex)^4}-\frac{252Bb^5(ae-bd)^5}{5e^{12}(d+ex)^5}-\frac{35Bb^4(ae-bd)^6}{e^{12}(d+ex)^6}-\frac{120Bb^3(ae-bd)^7}{7e^{12}(d+ex)^7}-\frac{45Bb^2(ae-bd)^8}{8e^{12}(d+ex)^8}-\frac{10Bb(ae-bd)^9}{9e^{12}(d+ex)^9}-\frac{B(ae-bd)^{10}}{10e^{12}(d+ex)^{10}}-\frac{(a+bx)^{11}(Ae-Bd)}{11e(d+ex)^{11}(ae-bd)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)/(e*x+d)**12,x)
```

```
[Out] B*b**10*log(d + e*x)/e**12 - 10*B*b**9*(a*e - b*d)/(e**12*(d + e*
x)) - 45*B*b**8*(a*e - b*d)**2/(2*e**12*(d + e*x)**2) - 40*B*b**7
```

```
*(a*e - b*d)**3/(e**12*(d + e*x)**3) - 105*B*b**6*(a*e - b*d)**4/
(2*e**12*(d + e*x)**4) - 252*B*b**5*(a*e - b*d)**5/(5*e**12*(d +
e*x)**5) - 35*B*b**4*(a*e - b*d)**6/(e**12*(d + e*x)**6) - 120*B*
b**3*(a*e - b*d)**7/(7*e**12*(d + e*x)**7) - 45*B*b**2*(a*e - b*d
)**8/(8*e**12*(d + e*x)**8) - 10*B*b*(a*e - b*d)**9/(9*e**12*(d +
 e*x)**9) - B*(a*e - b*d)**10/(10*e**12*(d + e*x)**10) - (a + b*x
)**11*(A*e - B*d)/(11*e*(d + e*x)**11*(a*e - b*d))
```

Mathematica [B] time = 6.4491, size = 1992, normalized size = 6.21

result too large to display

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^10*(A + B*x))/(d + e*x)^12,x]
```

```
[Out] (b^10*B*d^11 - A*b^10*d^10*e - 10*a*b^9*B*d^10*e + 10*a*A*b^9*d^9
*e^2 + 45*a^2*b^8*B*d^9*e^2 - 45*a^2*A*b^8*d^8*e^3 - 120*a^3*b^7*
B*d^8*e^3 + 120*a^3*A*b^7*d^7*e^4 + 210*a^4*b^6*B*d^7*e^4 - 210*a
^4*A*b^6*d^6*e^5 - 252*a^5*b^5*B*d^6*e^5 + 252*a^5*A*b^5*d^5*e^6
+ 210*a^6*b^4*B*d^5*e^6 - 210*a^6*A*b^4*d^4*e^7 - 120*a^7*b^3*B*d
^4*e^7 + 120*a^7*A*b^3*d^3*e^8 + 45*a^8*b^2*B*d^3*e^8 - 45*a^8*A*
b^2*d^2*e^9 - 10*a^9*b*B*d^2*e^9 + 10*a^9*A*b*d*e^10 + a^10*B*d*e
^10 - a^10*A*e^11)/(11*e^12*(d + e*x)^11) + (-11*b^10*B*d^10 + 10
*A*b^10*d^9*e + 100*a*b^9*B*d^9*e - 90*a*A*b^9*d^8*e^2 - 405*a^2*
b^8*B*d^8*e^2 + 360*a^2*A*b^8*d^7*e^3 + 960*a^3*b^7*B*d^7*e^3 - 8
40*a^3*A*b^7*d^6*e^4 - 1470*a^4*b^6*B*d^6*e^4 + 1260*a^4*A*b^6*d^
5*e^5 + 1512*a^5*b^5*B*d^5*e^5 - 1260*a^5*A*b^5*d^4*e^6 - 1050*a^
6*b^4*B*d^4*e^6 + 840*a^6*A*b^4*d^3*e^7 + 480*a^7*b^3*B*d^3*e^7 -
 360*a^7*A*b^3*d^2*e^8 - 135*a^8*b^2*B*d^2*e^8 + 90*a^8*A*b^2*d*e
^9 + 20*a^9*b*B*d*e^9 - 10*a^9*A*b*e^10 - a^10*B*e^10)/(10*e^12*(
d + e*x)^10) - (5*(-11*b^10*B*d^9 + 9*A*b^10*d^8*e + 90*a*b^9*B*d
^8*e - 72*a*A*b^9*d^7*e^2 - 324*a^2*b^8*B*d^7*e^2 + 252*a^2*A*b^8
*d^6*e^3 + 672*a^3*b^7*B*d^6*e^3 - 504*a^3*A*b^7*d^5*e^4 - 882*a^
4*b^6*B*d^5*e^4 + 630*a^4*A*b^6*d^4*e^5 + 756*a^5*b^5*B*d^4*e^5 -
 504*a^5*A*b^5*d^3*e^6 - 420*a^6*b^4*B*d^3*e^6 + 252*a^6*A*b^4*d^
2*e^7 + 144*a^7*b^3*B*d^2*e^7 - 72*a^7*A*b^3*d*e^8 - 27*a^8*b^2*B
*d*e^8 + 9*a^8*A*b^2*e^9 + 2*a^9*b*B*e^9))/(9*e^12*(d + e*x)^9) -
 (15*(11*b^10*B*d^8 - 8*A*b^10*d^7*e - 80*a*b^9*B*d^7*e + 56*a*A*
b^9*d^6*e^2 + 252*a^2*b^8*B*d^6*e^2 - 168*a^2*A*b^8*d^5*e^3 - 448
*a^3*b^7*B*d^5*e^3 + 280*a^3*A*b^7*d^4*e^4 + 490*a^4*b^6*B*d^4*e^
4 - 280*a^4*A*b^6*d^3*e^5 - 336*a^5*b^5*B*d^3*e^5 + 168*a^5*A*b^5
*d^2*e^6 + 140*a^6*b^4*B*d^2*e^6 - 56*a^6*A*b^4*d*e^7 - 32*a^7*b^
3*B*d*e^7 + 8*a^7*A*b^3*e^8 + 3*a^8*b^2*B*e^8))/(8*e^12*(d + e*x)
^8) - (30*(-11*b^10*B*d^7 + 7*A*b^10*d^6*e + 70*a*b^9*B*d^6*e - 4
2*a*A*b^9*d^5*e^2 - 189*a^2*b^8*B*d^5*e^2 + 105*a^2*A*b^8*d^4*e^3
 + 280*a^3*b^7*B*d^4*e^3 - 140*a^3*A*b^7*d^3*e^4 - 245*a^4*b^6*B*
d^3*e^4 + 105*a^4*A*b^6*d^2*e^5 + 126*a^5*b^5*B*d^2*e^5 - 42*a^5*
A*b^5*d*e^6 - 35*a^6*b^4*B*d*e^6 + 7*a^6*A*b^4*e^7 + 4*a^7*b^3*B*
e^7))/(7*e^12*(d + e*x)^7) - (7*(11*b^10*B*d^6 - 6*A*b^10*d^5*e -
 60*a*b^9*B*d^5*e + 30*a*A*b^9*d^4*e^2 + 135*a^2*b^8*B*d^4*e^2 -
60*a^2*A*b^8*d^3*e^3 - 160*a^3*b^7*B*d^3*e^3 + 60*a^3*A*b^7*d^2*e
^4 + 105*a^4*b^6*B*d^2*e^4 - 30*a^4*A*b^6*d*e^5 - 36*a^5*b^5*B*d*
e^5 + 6*a^5*A*b^5*e^6 + 5*a^6*b^4*B*e^6))/(e^12*(d + e*x)^6) - (4
2*(-11*b^10*B*d^5 + 5*A*b^10*d^4*e + 50*a*b^9*B*d^4*e - 20*a*A*b^
9*d^3*e^2 - 90*a^2*b^8*B*d^3*e^2 + 30*a^2*A*b^8*d^2*e^3 + 80*a^3*
b^7*B*d^2*e^3 - 20*a^3*A*b^7*d*e^4 - 35*a^4*b^6*B*d*e^4 + 5*a^4*A
*b^6*e^5 + 6*a^5*b^5*B*e^5))/(5*e^12*(d + e*x)^5) - (15*(11*b^10*
B*d^4 - 4*A*b^10*d^3*e - 40*a*b^9*B*d^3*e + 12*a*A*b^9*d^2*e^2 +
54*a^2*b^8*B*d^2*e^2 - 12*a^2*A*b^8*d*e^3 - 32*a^3*b^7*B*d*e^3 +
4*a^3*A*b^7*e^4 + 7*a^4*b^6*B*e^4))/(2*e^12*(d + e*x)^4) - (5*(-1
1*b^10*B*d^3 + 3*A*b^10*d^2*e + 30*a*b^9*B*d^2*e - 6*a*A*b^9*d*e^
2 - 27*a^2*b^8*B*d*e^2 + 3*a^2*A*b^8*e^3 + 8*a^3*b^7*B*e^3))/(e^1
2*(d + e*x)^3) - (5*(11*b^10*B*d^2 - 2*A*b^10*d*e - 20*a*b^9*B*d*
e + 2*a*A*b^9*e^2 + 9*a^2*b^8*B*e^2))/(2*e^12*(d + e*x)^2) + (11*
b^10*B*d - A*b^10*e - 10*a*b^9*B*e)/(e^12*(d + e*x)) + (b^10*B*Lo
g[d + e*x])/e^12
```

Maple [B] time = 0.024, size = 2907, normalized size = 9.1

output too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^10*(B*x+A)/(e*x+d)^12,x)
```

```
[Out] -140*b^4/e^5/(e*x+d)^9*A*a^6*d^2+280*b^5/e^6/(e*x+d)^9*A*a^5*d^3+
30*b^9/e^10/(e*x+d)^3*A*a*d+135*b^8/e^10/(e*x+d)^3*B*a^2*d-150*b^
9/e^11/(e*x+d)^3*B*a*d^2+5*b^10/e^11/(e*x+d)^2*A*d-45/2*b^8/e^10/
(e*x+d)^2*B*a^2-55/2*b^10/e^12/(e*x+d)^2*B*d^2-30*b^7/e^8/(e*x+d)
^4*A*a^3+30*b^10/e^11/(e*x+d)^4*A*d^3-105/2*b^6/e^8/(e*x+d)^4*B*a
^4-42*b^5/e^6/(e*x+d)^6*A*a^5+42*b^10/e^11/(e*x+d)^6*A*d^5-35*b^4
/e^6/(e*x+d)^6*B*a^6-77*b^10/e^12/(e*x+d)^6*B*d^6-15*b^3/e^4/(e*x
+d)^8*A*a^7+15*b^10/e^11/(e*x+d)^8*A*d^7-45/8*b^2/e^4/(e*x+d)^8*B
*a^8-165/8*b^10/e^12/(e*x+d)^8*B*d^8-165/2*b^10/e^12/(e*x+d)^4*B*
d^4-42*b^6/e^7/(e*x+d)^5*A*a^4-42*b^10/e^11/(e*x+d)^5*A*d^4-252/5
*b^5/e^7/(e*x+d)^5*B*a^5+462/5*b^10/e^12/(e*x+d)^5*B*d^5-120/7*b^
3/e^5/(e*x+d)^7*B*a^7+330/7*b^10/e^12/(e*x+d)^7*B*d^7-15*b^8/e^9/
(e*x+d)^3*A*a^2-15*b^10/e^11/(e*x+d)^3*A*d^2-40*b^7/e^9/(e*x+d)^3
*B*a^3+55*b^10/e^12/(e*x+d)^3*B*d^3-1/11/e^11/(e*x+d)^11*A*d^10*b
^10+1/11/e^2/(e*x+d)^11*a^10*B*d+b^10*B*ln(e*x+d)/e^12-5*b^2/e^3/
(e*x+d)^9*A*a^8-5*b^10/e^11/(e*x+d)^9*A*d^8-1/10/e^2/(e*x+d)^10*a
^10*B-1/11/e/(e*x+d)^11*a^10*A-b^10/e^11/(e*x+d)*A-420*b^7/e^8/(e
*x+d)^6*A*a^3*d^2+420*b^8/e^9/(e*x+d)^6*A*a^2*d^3-210*b^9/e^10/(e
*x+d)^6*A*a*d^4+252*b^5/e^7/(e*x+d)^6*B*a^5*d-735*b^6/e^8/(e*x+d)
^6*B*a^4*d^2+1120*b^7/e^9/(e*x+d)^6*B*a^3*d^3-945*b^8/e^10/(e*x+d
)^6*B*a^2*d^4+420*b^9/e^11/(e*x+d)^6*B*a*d^5+105*b^4/e^5/(e*x+d)^
8*A*a^6*d-315*b^5/e^6/(e*x+d)^8*A*a^5*d^2+525*b^6/e^7/(e*x+d)^8*A
*a^4*d^3-525*b^7/e^8/(e*x+d)^8*A*a^3*d^4+315*b^8/e^9/(e*x+d)^8*A*
a^2*d^5-105*b^9/e^10/(e*x+d)^8*A*a*d^6+60*b^3/e^5/(e*x+d)^8*B*a^7
*d-525/2*b^4/e^6/(e*x+d)^8*B*a^6*d^2+630*b^5/e^7/(e*x+d)^8*B*a^5*
d^3-3675/4*b^6/e^8/(e*x+d)^8*B*a^4*d^4+840*b^7/e^9/(e*x+d)^8*B*a^
3*d^5-945/2*b^8/e^10/(e*x+d)^8*B*a^2*d^6+150*b^9/e^11/(e*x+d)^8*B
*a*d^7+180*b^5/e^6/(e*x+d)^7*A*a^5*d-450*b^6/e^7/(e*x+d)^7*A*a^4*
d^2+600*b^7/e^8/(e*x+d)^7*A*a^3*d^3-450*b^8/e^9/(e*x+d)^7*A*a^2*d
^4+180*b^9/e^10/(e*x+d)^7*A*a*d^5+150*b^4/e^6/(e*x+d)^7*B*a^6*d-5
40*b^5/e^7/(e*x+d)^7*B*a^5*d^2+1050*b^6/e^8/(e*x+d)^7*B*a^4*d^3-1
200*b^7/e^9/(e*x+d)^7*B*a^3*d^4+810*b^8/e^10/(e*x+d)^7*B*a^2*d^5-
300*b^9/e^11/(e*x+d)^7*B*a*d^6-350*b^6/e^7/(e*x+d)^9*A*a^4*d^4+28
0*b^7/e^8/(e*x+d)^9*A*a^3*d^5-140*b^8/e^9/(e*x+d)^9*A*a^2*d^6+40*
b^9/e^10/(e*x+d)^9*A*a*d^7+15*b^2/e^4/(e*x+d)^9*B*a^8*d-80*b^3/e^
5/(e*x+d)^9*B*a^7*d^2+700/3*b^4/e^6/(e*x+d)^9*B*a^6*d^3-420*b^5/e
^7/(e*x+d)^9*B*a^5*d^4+490*b^6/e^8/(e*x+d)^9*B*a^4*d^5-1120/3*b^7
/e^9/(e*x+d)^9*B*a^3*d^6+180*b^8/e^10/(e*x+d)^9*B*a^2*d^7-50*b^9/
e^11/(e*x+d)^9*B*a*d^8+9/e^3/(e*x+d)^10*A*d*a^8*b^2-36/e^4/(e*x+d
)^10*A*d^2*a^7*b^3+84/e^5/(e*x+d)^10*A*d^3*a^6*b^4-126/e^6/(e*x+d
)^10*A*d^4*a^5*b^5+126/e^7/(e*x+d)^10*A*d^5*a^4*b^6-84/e^8/(e*x+d
)^10*A*d^6*a^3*b^7+36/e^9/(e*x+d)^10*A*d^7*a^2*b^8-9/e^10/(e*x+d)
^10*A*d^8*a*b^9+2/e^3/(e*x+d)^10*B*d*a^9*b-27/2/e^4/(e*x+d)^10*B*
d^2*a^8*b^2+48/e^5/(e*x+d)^10*B*d^3*a^7*b^3+10/11/e^2/(e*x+d)^11*
a^9*b*A*d-45/11/e^3/(e*x+d)^11*A*d^2*a^8*b^2+120/11/e^4/(e*x+d)^1
1*A*d^3*a^7*b^3-210/11/e^5/(e*x+d)^11*A*d^4*a^6*b^4+252/11/e^6/(e
*x+d)^11*A*d^5*a^5*b^5-210/11/e^7/(e*x+d)^11*A*d^6*a^4*b^6+120/11
/e^8/(e*x+d)^11*A*d^7*a^3*b^7-45/11/e^9/(e*x+d)^11*A*d^8*a^2*b^8+
10/11/e^10/(e*x+d)^11*A*d^9*a*b^9-10/11/e^3/(e*x+d)^11*B*d^2*a^9*
b+45/11/e^4/(e*x+d)^11*B*d^3*a^8*b^2-120/11/e^5/(e*x+d)^11*B*d^4*
a^7*b^3+210/11/e^6/(e*x+d)^11*B*d^5*a^6*b^4-252/11/e^7/(e*x+d)^11
*B*d^6*a^5*b^5+210/11/e^8/(e*x+d)^11*B*d^7*a^4*b^6-120/11/e^9/(e*
x+d)^11*B*d^8*a^3*b^7+45/11/e^10/(e*x+d)^11*B*d^9*a^2*b^8-10/11/e
^11/(e*x+d)^11*B*d^10*a*b^9+50*b^9/e^11/(e*x+d)^2*B*a*d+90*b^8/e^
9/(e*x+d)^4*A*a^2*d-90*b^9/e^10/(e*x+d)^4*A*a*d^2+240*b^7/e^9/(e*
x+d)^4*B*a^3*d-405*b^8/e^10/(e*x+d)^4*B*a^2*d^2+300*b^9/e^11/(e*x
+d)^4*B*a*d^3+168*b^7/e^8/(e*x+d)^5*A*a^3*d-252*b^8/e^9/(e*x+d)^5
*A*a^2*d^2+168*b^9/e^10/(e*x+d)^5*A*a*d^3+294*b^6/e^8/(e*x+d)^5*B
*a^4*d-672*b^7/e^9/(e*x+d)^5*B*a^3*d^2+756*b^8/e^10/(e*x+d)^5*B*a
^2*d^3-420*b^9/e^11/(e*x+d)^5*B*a*d^4+40*b^3/e^4/(e*x+d)^9*A*a^7*
d-105/e^6/(e*x+d)^10*B*d^4*a^6*b^4+756/5/e^7/(e*x+d)^10*B*d^5*a^5
*b^5-147/e^8/(e*x+d)^10*B*d^6*a^4*b^6+96/e^9/(e*x+d)^10*B*d^7*a^3
*b^7-81/2/e^10/(e*x+d)^10*B*d^8*a^2*b^8+10/e^11/(e*x+d)^10*B*d^9*
a*b^9+210*b^6/e^7/(e*x+d)^6*A*a^4*d-10/9*b/e^3/(e*x+d)^9*B*a^9+55
```

```
/9*b^10/e^12/(e*x+d)^9*B*d^9-1/e^2/(e*x+d)^10*a^9*b*A+1/e^11/(e*x
+d)^10*A*d^9*b^10-11/10/e^12/(e*x+d)^10*b^10*B*d^10-30*b^4/e^5/(e
*x+d)^7*A*a^6-30*b^10/e^11/(e*x+d)^7*A*d^6+1/11/e^12/(e*x+d)^11*b
^10*B*d^11-10*b^9/e^11/(e*x+d)*B*a+11*b^10/e^12/(e*x+d)*B*d-5*b^9
/e^10/(e*x+d)^2*A*a
```

Maxima [A] time = 1.53003, size = 2608, normalized size = 8.12

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^10/(e*x + d)^12,x, algorithm="maxima")
```

```
[Out] 1/27720*(83711*B*b^10*d^11 - 2520*A*a^10*e^11 - 2520*(10*B*a*b^9
+ A*b^10)*d^10*e - 1260*(9*B*a^2*b^8 + 2*A*a*b^9)*d^9*e^2 - 840*(
8*B*a^3*b^7 + 3*A*a^2*b^8)*d^8*e^3 - 630*(7*B*a^4*b^6 + 4*A*a^3*b
^7)*d^7*e^4 - 504*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^6*e^5 - 420*(5*B*
a^6*b^4 + 6*A*a^5*b^5)*d^5*e^6 - 360*(4*B*a^7*b^3 + 7*A*a^6*b^4)*
d^4*e^7 - 315*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^3*e^8 - 280*(2*B*a^9*
b + 9*A*a^8*b^2)*d^2*e^9 - 252*(B*a^10 + 10*A*a^9*b)*d*e^10 + 277
20*(11*B*b^10*d*e^10 - (10*B*a*b^9 + A*b^10)*e^11)*x^10 + 69300*(
33*B*b^10*d^2*e^9 - 2*(10*B*a*b^9 + A*b^10)*d*e^10 - (9*B*a^2*b^8
 + 2*A*a*b^9)*e^11)*x^9 + 69300*(121*B*b^10*d^3*e^8 - 6*(10*B*a*b
^9 + A*b^10)*d^2*e^9 - 3*(9*B*a^2*b^8 + 2*A*a*b^9)*d*e^10 - 2*(8*
B*a^3*b^7 + 3*A*a^2*b^8)*e^11)*x^8 + 69300*(275*B*b^10*d^4*e^7 -
12*(10*B*a*b^9 + A*b^10)*d^3*e^8 - 6*(9*B*a^2*b^8 + 2*A*a*b^9)*d^
2*e^9 - 4*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d*e^10 - 3*(7*B*a^4*b^6 + 4
*A*a^3*b^7)*e^11)*x^7 + 19404*(1507*B*b^10*d^5*e^6 - 60*(10*B*a*b
^9 + A*b^10)*d^4*e^7 - 30*(9*B*a^2*b^8 + 2*A*a*b^9)*d^3*e^8 - 20*
(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^2*e^9 - 15*(7*B*a^4*b^6 + 4*A*a^3*b
^7)*d*e^10 - 12*(6*B*a^5*b^5 + 5*A*a^4*b^6)*e^11)*x^6 + 19404*(16
17*B*b^10*d^6*e^5 - 60*(10*B*a*b^9 + A*b^10)*d^5*e^6 - 30*(9*B*a^
2*b^8 + 2*A*a*b^9)*d^4*e^7 - 20*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^3*e
^8 - 15*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^2*e^9 - 12*(6*B*a^5*b^5 + 5
*A*a^4*b^6)*d*e^10 - 10*(5*B*a^6*b^4 + 6*A*a^5*b^5)*e^11)*x^5 + 1
980*(11979*B*b^10*d^7*e^4 - 420*(10*B*a*b^9 + A*b^10)*d^6*e^5 - 2
10*(9*B*a^2*b^8 + 2*A*a*b^9)*d^5*e^6 - 140*(8*B*a^3*b^7 + 3*A*a^2
*b^8)*d^4*e^7 - 105*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^3*e^8 - 84*(6*B
*a^5*b^5 + 5*A*a^4*b^6)*d^2*e^9 - 70*(5*B*a^6*b^4 + 6*A*a^5*b^5)*
d*e^10 - 60*(4*B*a^7*b^3 + 7*A*a^6*b^4)*e^11)*x^4 + 495*(25113*B*
b^10*d^8*e^3 - 840*(10*B*a*b^9 + A*b^10)*d^7*e^4 - 420*(9*B*a^2*b
^8 + 2*A*a*b^9)*d^6*e^5 - 280*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^5*e^6
 - 210*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^4*e^7 - 168*(6*B*a^5*b^5 + 5
*A*a^4*b^6)*d^3*e^8 - 140*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^2*e^9 - 1
20*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d*e^10 - 105*(3*B*a^8*b^2 + 8*A*a^
7*b^3)*e^11)*x^3 + 55*(78419*B*b^10*d^9*e^2 - 2520*(10*B*a*b^9 +
A*b^10)*d^8*e^3 - 1260*(9*B*a^2*b^8 + 2*A*a*b^9)*d^7*e^4 - 840*(8
*B*a^3*b^7 + 3*A*a^2*b^8)*d^6*e^5 - 630*(7*B*a^4*b^6 + 4*A*a^3*b^
7)*d^5*e^6 - 504*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^4*e^7 - 420*(5*B*a
^6*b^4 + 6*A*a^5*b^5)*d^3*e^8 - 360*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d
^2*e^9 - 315*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d*e^10 - 280*(2*B*a^9*b
+ 9*A*a^8*b^2)*e^11)*x^2 + 11*(81191*B*b^10*d^10*e - 2520*(10*B*a
*b^9 + A*b^10)*d^9*e^2 - 1260*(9*B*a^2*b^8 + 2*A*a*b^9)*d^8*e^3 -
 840*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^7*e^4 - 630*(7*B*a^4*b^6 + 4*A
*a^3*b^7)*d^6*e^5 - 504*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^5*e^6 - 420
*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^4*e^7 - 360*(4*B*a^7*b^3 + 7*A*a^6
*b^4)*d^3*e^8 - 315*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^2*e^9 - 280*(2*
B*a^9*b + 9*A*a^8*b^2)*d*e^10 - 252*(B*a^10 + 10*A*a^9*b)*e^11)*x
)/(e^23*x^11 + 11*d*e^22*x^10 + 55*d^2*e^21*x^9 + 165*d^3*e^20*x^
8 + 330*d^4*e^19*x^7 + 462*d^5*e^18*x^6 + 462*d^6*e^17*x^5 + 330*
d^7*e^16*x^4 + 165*d^8*e^15*x^3 + 55*d^9*e^14*x^2 + 11*d^10*e^13*
x + d^11*e^12) + B*b^10*log(e*x + d)/e^12
```

Fricas [A] time = 0.221473, size = 2820, normalized size = 8.79

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d)^12,x, algorithm="fricas")
```

```
[Out] 1/27720*(83711*B*b^10*d^11 - 2520*A*a^10*e^11 - 2520*(10*B*a*b^9
+ A*b^10)*d^10*e - 1260*(9*B*a^2*b^8 + 2*A*a*b^9)*d^9*e^2 - 840*(
8*B*a^3*b^7 + 3*A*a^2*b^8)*d^8*e^3 - 630*(7*B*a^4*b^6 + 4*A*a^3*b
^7)*d^7*e^4 - 504*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^6*e^5 - 420*(5*B*
a^6*b^4 + 6*A*a^5*b^5)*d^5*e^6 - 360*(4*B*a^7*b^3 + 7*A*a^6*b^4)*
d^4*e^7 - 315*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^3*e^8 - 280*(2*B*a^9*
b + 9*A*a^8*b^2)*d^2*e^9 - 252*(B*a^10 + 10*A*a^9*b)*d*e^10 + 277
20*(11*B*b^10*d*e^10 - (10*B*a*b^9 + A*b^10)*e^11)*x^10 + 69300*(
33*B*b^10*d^2*e^9 - 2*(10*B*a*b^9 + A*b^10)*d*e^10 - (9*B*a^2*b^8
 + 2*A*a*b^9)*e^11)*x^9 + 69300*(121*B*b^10*d^3*e^8 - 6*(10*B*a*b
^9 + A*b^10)*d^2*e^9 - 3*(9*B*a^2*b^8 + 2*A*a*b^9)*d*e^10 - 2*(8*
B*a^3*b^7 + 3*A*a^2*b^8)*e^11)*x^8 + 69300*(275*B*b^10*d^4*e^7 -
12*(10*B*a*b^9 + A*b^10)*d^3*e^8 - 6*(9*B*a^2*b^8 + 2*A*a*b^9)*d^
2*e^9 - 4*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d*e^10 - 3*(7*B*a^4*b^6 + 4
*A*a^3*b^7)*e^11)*x^7 + 19404*(1507*B*b^10*d^5*e^6 - 60*(10*B*a*b
^9 + A*b^10)*d^4*e^7 - 30*(9*B*a^2*b^8 + 2*A*a*b^9)*d^3*e^8 - 20*
(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^2*e^9 - 15*(7*B*a^4*b^6 + 4*A*a^3*b
^7)*d*e^10 - 12*(6*B*a^5*b^5 + 5*A*a^4*b^6)*e^11)*x^6 + 19404*(16
17*B*b^10*d^6*e^5 - 60*(10*B*a*b^9 + A*b^10)*d^5*e^6 - 30*(9*B*a^
2*b^8 + 2*A*a*b^9)*d^4*e^7 - 20*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^3*e
^8 - 15*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^2*e^9 - 12*(6*B*a^5*b^5 + 5
*A*a^4*b^6)*d*e^10 - 10*(5*B*a^6*b^4 + 6*A*a^5*b^5)*e^11)*x^5 + 1
980*(11979*B*b^10*d^7*e^4 - 420*(10*B*a*b^9 + A*b^10)*d^6*e^5 - 2
10*(9*B*a^2*b^8 + 2*A*a*b^9)*d^5*e^6 - 140*(8*B*a^3*b^7 + 3*A*a^2
*b^8)*d^4*e^7 - 105*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^3*e^8 - 84*(6*B
*a^5*b^5 + 5*A*a^4*b^6)*d^2*e^9 - 70*(5*B*a^6*b^4 + 6*A*a^5*b^5)*
d*e^10 - 60*(4*B*a^7*b^3 + 7*A*a^6*b^4)*e^11)*x^4 + 495*(25113*B*
b^10*d^8*e^3 - 840*(10*B*a*b^9 + A*b^10)*d^7*e^4 - 420*(9*B*a^2*b
^8 + 2*A*a*b^9)*d^6*e^5 - 280*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^5*e^6
 - 210*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^4*e^7 - 168*(6*B*a^5*b^5 + 5
*A*a^4*b^6)*d^3*e^8 - 140*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^2*e^9 - 1
20*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d*e^10 - 105*(3*B*a^8*b^2 + 8*A*a^
7*b^3)*e^11)*x^3 + 55*(78419*B*b^10*d^9*e^2 - 2520*(10*B*a*b^9 +
A*b^10)*d^8*e^3 - 1260*(9*B*a^2*b^8 + 2*A*a*b^9)*d^7*e^4 - 840*(8
*B*a^3*b^7 + 3*A*a^2*b^8)*d^6*e^5 - 630*(7*B*a^4*b^6 + 4*A*a^3*b^
7)*d^5*e^6 - 504*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^4*e^7 - 420*(5*B*a
^6*b^4 + 6*A*a^5*b^5)*d^3*e^8 - 360*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d
^2*e^9 - 315*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d*e^10 - 280*(2*B*a^9*b
+ 9*A*a^8*b^2)*e^11)*x^2 + 11*(81191*B*b^10*d^10*e - 2520*(10*B*a
*b^9 + A*b^10)*d^9*e^2 - 1260*(9*B*a^2*b^8 + 2*A*a*b^9)*d^8*e^3 -
 840*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^7*e^4 - 630*(7*B*a^4*b^6 + 4*A
*a^3*b^7)*d^6*e^5 - 504*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^5*e^6 - 420
*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^4*e^7 - 360*(4*B*a^7*b^3 + 7*A*a^6
*b^4)*d^3*e^8 - 315*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^2*e^9 - 280*(2*
B*a^9*b + 9*A*a^8*b^2)*d*e^10 - 252*(B*a^10 + 10*A*a^9*b)*e^11)*x
 + 27720*(B*b^10*e^11*x^11 + 11*B*b^10*d*e^10*x^10 + 55*B*b^10*d^
2*e^9*x^9 + 165*B*b^10*d^3*e^8*x^8 + 330*B*b^10*d^4*e^7*x^7 + 462
*B*b^10*d^5*e^6*x^6 + 462*B*b^10*d^6*e^5*x^5 + 330*B*b^10*d^7*e^4
*x^4 + 165*B*b^10*d^8*e^3*x^3 + 55*B*b^10*d^9*e^2*x^2 + 11*B*b^10
*d^10*e*x + B*b^10*d^11)*log(e*x + d))/(e^23*x^11 + 11*d*e^22*x^1
0 + 55*d^2*e^21*x^9 + 165*d^3*e^20*x^8 + 330*d^4*e^19*x^7 + 462*d
^5*e^18*x^6 + 462*d^6*e^17*x^5 + 330*d^7*e^16*x^4 + 165*d^8*e^15*
x^3 + 55*d^9*e^14*x^2 + 11*d^10*e^13*x + d^11*e^12)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)/(e*x+d)**12,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.214489, size = 1, normalized size = 0.

$$Done$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d)^12,x, algorithm="giac")

[Out] Done
```

3.1084 $\int \frac{(a+bx)^{10}(A+Bx)}{(d+ex)^{13}}\,dx$

Optimal. Leaf size=86

$$\frac{(a+bx)^{11}(-12aBe+Abe+11bBd)}{132e(d+ex)^{11}(bd-ae)^2}-\frac{(a+bx)^{11}(Bd-Ae)}{12e(d+ex)^{12}(bd-ae)}$$

```
[Out] -((B*d - A*e)*(a + b*x)^11)/(12*e*(b*d - a*e)*(d + e*x)^12) + ((1
1*b*B*d + A*b*e - 12*a*B*e)*(a + b*x)^11)/(132*e*(b*d - a*e)^2*(d
 + e*x)^11)
```

Rubi [A] time = 0.126572, antiderivative size = 86, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.1$

$$\frac{(a+bx)^{11}(-12aBe+Abe+11bBd)}{132e(d+ex)^{11}(bd-ae)^2}-\frac{(a+bx)^{11}(Bd-Ae)}{12e(d+ex)^{12}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^10*(A + B*x))/(d + e*x)^13,x]
```

```
[Out] -((B*d - A*e)*(a + b*x)^11)/(12*e*(b*d - a*e)*(d + e*x)^12) + ((1
1*b*B*d + A*b*e - 12*a*B*e)*(a + b*x)^11)/(132*e*(b*d - a*e)^2*(d
 + e*x)^11)
```

Rubi in Sympy [A] time = 12.5811, size = 73, normalized size = 0.85

$$-\frac{(a+bx)^{11}\left(-Abe+B\left(12ae-11bd\right)\right)}{132e\left(d+ex\right)^{11}\left(ae-bd\right)^{2}}-\frac{(a+bx)^{11}\left(Ae-Bd\right)}{12e\left(d+ex\right)^{12}\left(ae-bd\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)/(e*x+d)**13,x)
```

```
[Out] -(a + b*x)**11*(-A*b*e + B*(12*a*e - 11*b*d))/(132*e*(d + e*x)**1
1*(a*e - b*d)**2) - (a + b*x)**11*(A*e - B*d)/(12*e*(d + e*x)**12
*(a*e - b*d))
```

Mathematica [B] time = 2.8009, size = 1421, normalized size = 16.52

$$-\frac{\left(Ae\left(d^{10}+12exd^9+66e^2x^2d^8+220e^3x^3d^7+495e^4x^4d^6+792e^5x^5d^5+924e^6x^6d^4+792e^7x^7d^3+495e^8x^8d^2+220e^9x^9d+\right.\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^10*(A + B*x))/(d + e*x)^13,x]
```

```
[Out] -(a^10*e^10*(11*A*e + B*(d + 12*e*x)) + 2*a^9*b*e^9*(5*A*e*(d + 1
2*e*x) + B*(d^2 + 12*d*e*x + 66*e^2*x^2)) + 3*a^8*b^2*e^8*(3*A*e*
(d^2 + 12*d*e*x + 66*e^2*x^2) + B*(d^3 + 12*d^2*e*x + 66*d*e^2*x^
2 + 220*e^3*x^3)) + 4*a^7*b^3*e^7*(2*A*e*(d^3 + 12*d^2*e*x + 66*d
*e^2*x^2 + 220*e^3*x^3) + B*(d^4 + 12*d^3*e*x + 66*d^2*e^2*x^2 +
220*d*e^3*x^3 + 495*e^4*x^4)) + a^6*b^4*e^6*(7*A*e*(d^4 + 12*d^3*
e*x + 66*d^2*e^2*x^2 + 220*d*e^3*x^3 + 495*e^4*x^4) + 5*B*(d^5 +
12*d^4*e*x + 66*d^3*e^2*x^2 + 220*d^2*e^3*x^3 + 495*d*e^4*x^4 + 7
92*e^5*x^5)) + 6*a^5*b^5*e^5*(A*e*(d^5 + 12*d^4*e*x + 66*d^3*e^2*
x^2 + 220*d^2*e^3*x^3 + 495*d*e^4*x^4 + 792*e^5*x^5) + B*(d^6 + 1
```

```
2*d^5*e*x + 66*d^4*e^2*x^2 + 220*d^3*e^3*x^3 + 495*d^2*e^4*x^4 +
792*d*e^5*x^5 + 924*e^6*x^6)) + a^4*b^6*e^4*(5*A*e*(d^6 + 12*d^5*
e*x + 66*d^4*e^2*x^2 + 220*d^3*e^3*x^3 + 495*d^2*e^4*x^4 + 792*d*
e^5*x^5 + 924*e^6*x^6) + 7*B*(d^7 + 12*d^6*e*x + 66*d^5*e^2*x^2 +
 220*d^4*e^3*x^3 + 495*d^3*e^4*x^4 + 792*d^2*e^5*x^5 + 924*d*e^6*
x^6 + 792*e^7*x^7)) + 4*a^3*b^7*e^3*(A*e*(d^7 + 12*d^6*e*x + 66*d
^5*e^2*x^2 + 220*d^4*e^3*x^3 + 495*d^3*e^4*x^4 + 792*d^2*e^5*x^5
+ 924*d*e^6*x^6 + 792*e^7*x^7) + 2*B*(d^8 + 12*d^7*e*x + 66*d^6*e
^2*x^2 + 220*d^5*e^3*x^3 + 495*d^4*e^4*x^4 + 792*d^3*e^5*x^5 + 92
4*d^2*e^6*x^6 + 792*d*e^7*x^7 + 495*e^8*x^8)) + 3*a^2*b^8*e^2*(A*
e*(d^8 + 12*d^7*e*x + 66*d^6*e^2*x^2 + 220*d^5*e^3*x^3 + 495*d^4*
e^4*x^4 + 792*d^3*e^5*x^5 + 924*d^2*e^6*x^6 + 792*d*e^7*x^7 + 495
*e^8*x^8) + 3*B*(d^9 + 12*d^8*e*x + 66*d^7*e^2*x^2 + 220*d^6*e^3*
x^3 + 495*d^5*e^4*x^4 + 792*d^4*e^5*x^5 + 924*d^3*e^6*x^6 + 792*d
^2*e^7*x^7 + 495*d*e^8*x^8 + 220*e^9*x^9)) + 2*a*b^9*e*(A*e*(d^9
+ 12*d^8*e*x + 66*d^7*e^2*x^2 + 220*d^6*e^3*x^3 + 495*d^5*e^4*x^4
 + 792*d^4*e^5*x^5 + 924*d^3*e^6*x^6 + 792*d^2*e^7*x^7 + 495*d*e^
8*x^8 + 220*e^9*x^9) + 5*B*(d^10 + 12*d^9*e*x + 66*d^8*e^2*x^2 +
220*d^7*e^3*x^3 + 495*d^6*e^4*x^4 + 792*d^5*e^5*x^5 + 924*d^4*e^6
*x^6 + 792*d^3*e^7*x^7 + 495*d^2*e^8*x^8 + 220*d*e^9*x^9 + 66*e^1
0*x^10)) + b^10*(A*e*(d^10 + 12*d^9*e*x + 66*d^8*e^2*x^2 + 220*d^
7*e^3*x^3 + 495*d^6*e^4*x^4 + 792*d^5*e^5*x^5 + 924*d^4*e^6*x^6 +
 792*d^3*e^7*x^7 + 495*d^2*e^8*x^8 + 220*d*e^9*x^9 + 66*e^10*x^10
) + 11*B*(d^11 + 12*d^10*e*x + 66*d^9*e^2*x^2 + 220*d^8*e^3*x^3 +
 495*d^7*e^4*x^4 + 792*d^6*e^5*x^5 + 924*d^5*e^6*x^6 + 792*d^4*e^
7*x^7 + 495*d^3*e^8*x^8 + 220*d^2*e^9*x^9 + 66*d*e^10*x^10 + 12*e
^11*x^11)))/(132*e^12*(d + e*x)^12)
```

Maple [B] time = 0.018, size = 1942, normalized size = 22.6

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^10*(B*x+A)/(e*x+d)^13,x)
```

```
[Out] -5/3*b^2*(8*A*a^7*b*e^8-56*A*a^6*b^2*d*e^7+168*A*a^5*b^3*d^2*e^6-
280*A*a^4*b^4*d^3*e^5+280*A*a^3*b^5*d^4*e^4-168*A*a^2*b^6*d^5*e^3
+56*A*a*b^7*d^6*e^2-8*A*b^8*d^7*e+3*B*a^8*e^8-32*B*a^7*b*d*e^7+14
0*B*a^6*b^2*d^2*e^6-336*B*a^5*b^3*d^3*e^5+490*B*a^4*b^4*d^4*e^4-4
48*B*a^3*b^5*d^5*e^3+252*B*a^2*b^6*d^6*e^2-80*B*a*b^7*d^7*e+11*B*
b^8*d^8)/e^12/(e*x+d)^9-1/2*b*(9*A*a^8*b*e^9-72*A*a^7*b^2*d*e^8+2
52*A*a^6*b^3*d^2*e^7-504*A*a^5*b^4*d^3*e^6+630*A*a^4*b^5*d^4*e^5-
504*A*a^3*b^6*d^5*e^4+252*A*a^2*b^7*d^6*e^3-72*A*a*b^8*d^7*e^2+9*
A*b^9*d^8*e+2*B*a^9*e^9-27*B*a^8*b*d*e^8+144*B*a^7*b^2*d^2*e^7-42
0*B*a^6*b^3*d^3*e^6+756*B*a^5*b^4*d^4*e^5-882*B*a^4*b^5*d^5*e^4+6
72*B*a^3*b^6*d^6*e^3-324*B*a^2*b^7*d^7*e^2+90*B*a*b^8*d^8*e-11*B*
b^9*d^9)/e^12/(e*x+d)^10-7*b^5*(5*A*a^4*b*e^5-20*A*a^3*b^2*d*e^4+
30*A*a^2*b^3*d^2*e^3-20*A*a*b^4*d^3*e^2+5*A*b^5*d^4*e+6*B*a^5*e^5
-35*B*a^4*b*d*e^4+80*B*a^3*b^2*d^2*e^3-90*B*a^2*b^3*d^3*e^2+50*B*
a*b^4*d^4*e-11*B*b^5*d^5)/e^12/(e*x+d)^6-15/4*b^3*(7*A*a^6*b*e^7-
42*A*a^5*b^2*d*e^6+105*A*a^4*b^3*d^2*e^5-140*A*a^3*b^4*d^3*e^4+10
5*A*a^2*b^5*d^4*e^3-42*A*a*b^6*d^5*e^2+7*A*b^7*d^6*e+4*B*a^7*e^7-
35*B*a^6*b*d*e^6+126*B*a^5*b^2*d^2*e^5-245*B*a^4*b^3*d^3*e^4+280*
B*a^3*b^4*d^4*e^3-189*B*a^2*b^5*d^5*e^2+70*B*a*b^6*d^6*e-11*B*b^7
*d^7)/e^12/(e*x+d)^8-6*b^4*(6*A*a^5*b*e^6-30*A*a^4*b^2*d*e^5+60*A
*a^3*b^3*d^2*e^4-60*A*a^2*b^4*d^3*e^3+30*A*a*b^5*d^4*e^2-6*A*b^6*
d^5*e+5*B*a^6*e^6-36*B*a^5*b*d*e^5+105*B*a^4*b^2*d^2*e^4-160*B*a^
3*b^3*d^3*e^3+135*B*a^2*b^4*d^4*e^2-60*B*a*b^5*d^5*e+11*B*b^6*d^6
)/e^12/(e*x+d)^7-5/3*b^8*(2*A*a*b*e^2-2*A*b^2*d*e+9*B*a^2*e^2-20*
B*a*b*d*e+11*B*b^2*d^2)/e^12/(e*x+d)^3-1/12*(A*a^10*e^11-10*A*a^9
*b*d*e^10+45*A*a^8*b^2*d^2*e^9-120*A*a^7*b^3*d^3*e^8+210*A*a^6*b^
4*d^4*e^7-252*A*a^5*b^5*d^5*e^6+210*A*a^4*b^6*d^6*e^5-120*A*a^3*b
^7*d^7*e^4+45*A*a^2*b^8*d^8*e^3-10*A*a*b^9*d^9*e^2+A*b^10*d^10*e-
B*a^10*d*e^10+10*B*a^9*b*d^2*e^9-45*B*a^8*b^2*d^3*e^8+120*B*a^7*b
^3*d^4*e^7-210*B*a^6*b^4*d^5*e^6+252*B*a^5*b^5*d^6*e^5-210*B*a^4*
b^6*d^7*e^4+120*B*a^3*b^7*d^8*e^3-45*B*a^2*b^8*d^9*e^2+10*B*a*b^9
*d^10*e-B*b^10*d^11)/e^12/(e*x+d)^12-1/11*(10*A*a^9*b*e^10-90*A*a
^8*b^2*d*e^9+360*A*a^7*b^3*d^2*e^8-840*A*a^6*b^4*d^3*e^7+1260*A*a
^5*b^5*d^4*e^6-1260*A*a^4*b^6*d^5*e^5+840*A*a^3*b^7*d^6*e^4-360*A
```

```
*a^2*b^8*d^7*e^3+90*A*a*b^9*d^8*e^2-10*A*b^10*d^9*e+B*a^10*e^10-2
0*B*a^9*b*d*e^9+135*B*a^8*b^2*d^2*e^8-480*B*a^7*b^3*d^3*e^7+1050*
B*a^6*b^4*d^4*e^6-1512*B*a^5*b^5*d^5*e^5+1470*B*a^4*b^6*d^6*e^4-9
60*B*a^3*b^7*d^7*e^3+405*B*a^2*b^8*d^8*e^2-100*B*a*b^9*d^9*e+11*B
*b^10*d^10)/e^12/(e*x+d)^11-B*b^10/e^12/(e*x+d)-1/2*b^9*(A*b*e+10
*B*a*e-11*B*b*d)/e^12/(e*x+d)^2-15/4*b^7*(3*A*a^2*b*e^3-6*A*a*b^2
*d*e^2+3*A*b^3*d^2*e+8*B*a^3*e^3-27*B*a^2*b*d*e^2+30*B*a*b^2*d^2*
e-11*B*b^3*d^3)/e^12/(e*x+d)^4-6*b^6*(4*A*a^3*b*e^4-12*A*a^2*b^2*
d*e^3+12*A*a*b^3*d^2*e^2-4*A*b^4*d^3*e+7*B*a^4*e^4-32*B*a^3*b*d*e
^3+54*B*a^2*b^2*d^2*e^2-40*B*a*b^3*d^3*e+11*B*b^4*d^4)/e^12/(e*x+
d)^5
```

Maxima [A] time = 1.53474, size = 2531, normalized size = 29.43

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d)^13,x, algorithm="maxima")
```

```
[Out] -1/132*(132*B*b^10*e^11*x^11 + 11*B*b^10*d^11 + 11*A*a^10*e^11 +
(10*B*a*b^9 + A*b^10)*d^10*e + (9*B*a^2*b^8 + 2*A*a*b^9)*d^9*e^2
+ (8*B*a^3*b^7 + 3*A*a^2*b^8)*d^8*e^3 + (7*B*a^4*b^6 + 4*A*a^3*b^
7)*d^7*e^4 + (6*B*a^5*b^5 + 5*A*a^4*b^6)*d^6*e^5 + (5*B*a^6*b^4 +
 6*A*a^5*b^5)*d^5*e^6 + (4*B*a^7*b^3 + 7*A*a^6*b^4)*d^4*e^7 + (3*
B*a^8*b^2 + 8*A*a^7*b^3)*d^3*e^8 + (2*B*a^9*b + 9*A*a^8*b^2)*d^2*
e^9 + (B*a^10 + 10*A*a^9*b)*d*e^10 + 66*(11*B*b^10*d*e^10 + (10*B
*a*b^9 + A*b^10)*e^11)*x^10 + 220*(11*B*b^10*d^2*e^9 + (10*B*a*b^
9 + A*b^10)*d*e^10 + (9*B*a^2*b^8 + 2*A*a*b^9)*e^11)*x^9 + 495*(1
1*B*b^10*d^3*e^8 + (10*B*a*b^9 + A*b^10)*d^2*e^9 + (9*B*a^2*b^8 +
 2*A*a*b^9)*d*e^10 + (8*B*a^3*b^7 + 3*A*a^2*b^8)*e^11)*x^8 + 792*
(11*B*b^10*d^4*e^7 + (10*B*a*b^9 + A*b^10)*d^3*e^8 + (9*B*a^2*b^8
 + 2*A*a*b^9)*d^2*e^9 + (8*B*a^3*b^7 + 3*A*a^2*b^8)*d*e^10 + (7*B
*a^4*b^6 + 4*A*a^3*b^7)*e^11)*x^7 + 924*(11*B*b^10*d^5*e^6 + (10*
B*a*b^9 + A*b^10)*d^4*e^7 + (9*B*a^2*b^8 + 2*A*a*b^9)*d^3*e^8 + (
8*B*a^3*b^7 + 3*A*a^2*b^8)*d^2*e^9 + (7*B*a^4*b^6 + 4*A*a^3*b^7)*
d*e^10 + (6*B*a^5*b^5 + 5*A*a^4*b^6)*e^11)*x^6 + 792*(11*B*b^10*d
^6*e^5 + (10*B*a*b^9 + A*b^10)*d^5*e^6 + (9*B*a^2*b^8 + 2*A*a*b^9
)*d^4*e^7 + (8*B*a^3*b^7 + 3*A*a^2*b^8)*d^3*e^8 + (7*B*a^4*b^6 +
4*A*a^3*b^7)*d^2*e^9 + (6*B*a^5*b^5 + 5*A*a^4*b^6)*d*e^10 + (5*B*
a^6*b^4 + 6*A*a^5*b^5)*e^11)*x^5 + 495*(11*B*b^10*d^7*e^4 + (10*B
*a*b^9 + A*b^10)*d^6*e^5 + (9*B*a^2*b^8 + 2*A*a*b^9)*d^5*e^6 + (8
*B*a^3*b^7 + 3*A*a^2*b^8)*d^4*e^7 + (7*B*a^4*b^6 + 4*A*a^3*b^7)*d
^3*e^8 + (6*B*a^5*b^5 + 5*A*a^4*b^6)*d^2*e^9 + (5*B*a^6*b^4 + 6*A
*a^5*b^5)*d*e^10 + (4*B*a^7*b^3 + 7*A*a^6*b^4)*e^11)*x^4 + 220*(1
1*B*b^10*d^8*e^3 + (10*B*a*b^9 + A*b^10)*d^7*e^4 + (9*B*a^2*b^8 +
 2*A*a*b^9)*d^6*e^5 + (8*B*a^3*b^7 + 3*A*a^2*b^8)*d^5*e^6 + (7*B*
a^4*b^6 + 4*A*a^3*b^7)*d^4*e^7 + (6*B*a^5*b^5 + 5*A*a^4*b^6)*d^3*
e^8 + (5*B*a^6*b^4 + 6*A*a^5*b^5)*d^2*e^9 + (4*B*a^7*b^3 + 7*A*a^
6*b^4)*d*e^10 + (3*B*a^8*b^2 + 8*A*a^7*b^3)*e^11)*x^3 + 66*(11*B*
b^10*d^9*e^2 + (10*B*a*b^9 + A*b^10)*d^8*e^3 + (9*B*a^2*b^8 + 2*A
*a*b^9)*d^7*e^4 + (8*B*a^3*b^7 + 3*A*a^2*b^8)*d^6*e^5 + (7*B*a^4*
b^6 + 4*A*a^3*b^7)*d^5*e^6 + (6*B*a^5*b^5 + 5*A*a^4*b^6)*d^4*e^7
+ (5*B*a^6*b^4 + 6*A*a^5*b^5)*d^3*e^8 + (4*B*a^7*b^3 + 7*A*a^6*b^
4)*d^2*e^9 + (3*B*a^8*b^2 + 8*A*a^7*b^3)*d*e^10 + (2*B*a^9*b + 9*
A*a^8*b^2)*e^11)*x^2 + 12*(11*B*b^10*d^10*e + (10*B*a*b^9 + A*b^1
0)*d^9*e^2 + (9*B*a^2*b^8 + 2*A*a*b^9)*d^8*e^3 + (8*B*a^3*b^7 + 3
*A*a^2*b^8)*d^7*e^4 + (7*B*a^4*b^6 + 4*A*a^3*b^7)*d^6*e^5 + (6*B*
a^5*b^5 + 5*A*a^4*b^6)*d^5*e^6 + (5*B*a^6*b^4 + 6*A*a^5*b^5)*d^4*
e^7 + (4*B*a^7*b^3 + 7*A*a^6*b^4)*d^3*e^8 + (3*B*a^8*b^2 + 8*A*a^
7*b^3)*d^2*e^9 + (2*B*a^9*b + 9*A*a^8*b^2)*d*e^10 + (B*a^10 + 10*
A*a^9*b)*e^11)*x)/(e^24*x^12 + 12*d*e^23*x^11 + 66*d^2*e^22*x^10
+ 220*d^3*e^21*x^9 + 495*d^4*e^20*x^8 + 792*d^5*e^19*x^7 + 924*d^
6*e^18*x^6 + 792*d^7*e^17*x^5 + 495*d^8*e^16*x^4 + 220*d^9*e^15*x
^3 + 66*d^10*e^14*x^2 + 12*d^11*e^13*x + d^12*e^12)
```

Fricas [A] time = 0.218395, size = 2531, normalized size = 29.43

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^10/(e*x + d)^13,x, algorithm="fricas")
```

```
[Out] -1/132*(132*B*b^10*e^11*x^11 + 11*B*b^10*d^11 + 11*A*a^10*e^11 +
(10*B*a*b^9 + A*b^10)*d^10*e + (9*B*a^2*b^8 + 2*A*a*b^9)*d^9*e^2
+ (8*B*a^3*b^7 + 3*A*a^2*b^8)*d^8*e^3 + (7*B*a^4*b^6 + 4*A*a^3*b^
7)*d^7*e^4 + (6*B*a^5*b^5 + 5*A*a^4*b^6)*d^6*e^5 + (5*B*a^6*b^4 +
 6*A*a^5*b^5)*d^5*e^6 + (4*B*a^7*b^3 + 7*A*a^6*b^4)*d^4*e^7 + (3*
B*a^8*b^2 + 8*A*a^7*b^3)*d^3*e^8 + (2*B*a^9*b + 9*A*a^8*b^2)*d^2*
e^9 + (B*a^10 + 10*A*a^9*b)*d*e^10 + 66*(11*B*b^10*d*e^10 + (10*B
*a*b^9 + A*b^10)*e^11)*x^10 + 220*(11*B*b^10*d^2*e^9 + (10*B*a*b^
9 + A*b^10)*d*e^10 + (9*B*a^2*b^8 + 2*A*a*b^9)*e^11)*x^9 + 495*(1
1*B*b^10*d^3*e^8 + (10*B*a*b^9 + A*b^10)*d^2*e^9 + (9*B*a^2*b^8 +
 2*A*a*b^9)*d*e^10 + (8*B*a^3*b^7 + 3*A*a^2*b^8)*e^11)*x^8 + 792*
(11*B*b^10*d^4*e^7 + (10*B*a*b^9 + A*b^10)*d^3*e^8 + (9*B*a^2*b^8
 + 2*A*a*b^9)*d^2*e^9 + (8*B*a^3*b^7 + 3*A*a^2*b^8)*d*e^10 + (7*B
*a^4*b^6 + 4*A*a^3*b^7)*e^11)*x^7 + 924*(11*B*b^10*d^5*e^6 + (10*
B*a*b^9 + A*b^10)*d^4*e^7 + (9*B*a^2*b^8 + 2*A*a*b^9)*d^3*e^8 + (
8*B*a^3*b^7 + 3*A*a^2*b^8)*d^2*e^9 + (7*B*a^4*b^6 + 4*A*a^3*b^7)*
d*e^10 + (6*B*a^5*b^5 + 5*A*a^4*b^6)*e^11)*x^6 + 792*(11*B*b^10*d
^6*e^5 + (10*B*a*b^9 + A*b^10)*d^5*e^6 + (9*B*a^2*b^8 + 2*A*a*b^9
)*d^4*e^7 + (8*B*a^3*b^7 + 3*A*a^2*b^8)*d^3*e^8 + (7*B*a^4*b^6 +
4*A*a^3*b^7)*d^2*e^9 + (6*B*a^5*b^5 + 5*A*a^4*b^6)*d*e^10 + (5*B*
a^6*b^4 + 6*A*a^5*b^5)*e^11)*x^5 + 495*(11*B*b^10*d^7*e^4 + (10*B
*a*b^9 + A*b^10)*d^6*e^5 + (9*B*a^2*b^8 + 2*A*a*b^9)*d^5*e^6 + (8
*B*a^3*b^7 + 3*A*a^2*b^8)*d^4*e^7 + (7*B*a^4*b^6 + 4*A*a^3*b^7)*d
^3*e^8 + (6*B*a^5*b^5 + 5*A*a^4*b^6)*d^2*e^9 + (5*B*a^6*b^4 + 6*A
*a^5*b^5)*d*e^10 + (4*B*a^7*b^3 + 7*A*a^6*b^4)*e^11)*x^4 + 220*(1
1*B*b^10*d^8*e^3 + (10*B*a*b^9 + A*b^10)*d^7*e^4 + (9*B*a^2*b^8 +
 2*A*a*b^9)*d^6*e^5 + (8*B*a^3*b^7 + 3*A*a^2*b^8)*d^5*e^6 + (7*B*
a^4*b^6 + 4*A*a^3*b^7)*d^4*e^7 + (6*B*a^5*b^5 + 5*A*a^4*b^6)*d^3*
e^8 + (5*B*a^6*b^4 + 6*A*a^5*b^5)*d^2*e^9 + (4*B*a^7*b^3 + 7*A*a^
6*b^4)*d*e^10 + (3*B*a^8*b^2 + 8*A*a^7*b^3)*e^11)*x^3 + 66*(11*B*
b^10*d^9*e^2 + (10*B*a*b^9 + A*b^10)*d^8*e^3 + (9*B*a^2*b^8 + 2*A
*a*b^9)*d^7*e^4 + (8*B*a^3*b^7 + 3*A*a^2*b^8)*d^6*e^5 + (7*B*a^4*
b^6 + 4*A*a^3*b^7)*d^5*e^6 + (6*B*a^5*b^5 + 5*A*a^4*b^6)*d^4*e^7
+ (5*B*a^6*b^4 + 6*A*a^5*b^5)*d^3*e^8 + (4*B*a^7*b^3 + 7*A*a^6*b^
4)*d^2*e^9 + (3*B*a^8*b^2 + 8*A*a^7*b^3)*d*e^10 + (2*B*a^9*b + 9*
A*a^8*b^2)*e^11)*x^2 + 12*(11*B*b^10*d^10*e + (10*B*a*b^9 + A*b^1
0)*d^9*e^2 + (9*B*a^2*b^8 + 2*A*a*b^9)*d^8*e^3 + (8*B*a^3*b^7 + 3
*A*a^2*b^8)*d^7*e^4 + (7*B*a^4*b^6 + 4*A*a^3*b^7)*d^6*e^5 + (6*B*
a^5*b^5 + 5*A*a^4*b^6)*d^5*e^6 + (5*B*a^6*b^4 + 6*A*a^5*b^5)*d^4*
e^7 + (4*B*a^7*b^3 + 7*A*a^6*b^4)*d^3*e^8 + (3*B*a^8*b^2 + 8*A*a^
7*b^3)*d^2*e^9 + (2*B*a^9*b + 9*A*a^8*b^2)*d*e^10 + (B*a^10 + 10*
A*a^9*b)*e^11)*x)/(e^24*x^12 + 12*d*e^23*x^11 + 66*d^2*e^22*x^10
+ 220*d^3*e^21*x^9 + 495*d^4*e^20*x^8 + 792*d^5*e^19*x^7 + 924*d^
6*e^18*x^6 + 792*d^7*e^17*x^5 + 495*d^8*e^16*x^4 + 220*d^9*e^15*x
^3 + 66*d^10*e^14*x^2 + 12*d^11*e^13*x + d^12*e^12)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**10*(B*x+A)/(e*x+d)**13,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.217602, size = 1, normalized size = 0.01

$$Done$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d)^13,x, algorithm="giac")
```

```
[Out] Done
```

3.1085 $\int \frac{(a+bx)^{10}(A+Bx)}{(d+ex)^{14}} dx$

Optimal. Leaf size=135

$$\frac{b(a+bx)^{11}(-13aBe+2Abe+11bBd)}{1716e(d+ex)^{11}(bd-ae)^3}+\frac{(a+bx)^{11}(-13aBe+2Abe+11bBd)}{156e(d+ex)^{12}(bd-ae)^2}-\frac{(a+bx)^{11}(Bd-Ae)}{13e(d+ex)^{13}(bd-ae)}$$

```
[Out] -((B*d - A*e)*(a + b*x)^11)/(13*e*(b*d - a*e)*(d + e*x)^13) + ((1
1*b*B*d + 2*A*b*e - 13*a*B*e)*(a + b*x)^11)/(156*e*(b*d - a*e)^2*
(d + e*x)^12) + (b*(11*b*B*d + 2*A*b*e - 13*a*B*e)*(a + b*x)^11)/
(1716*e*(b*d - a*e)^3*(d + e*x)^11)
```

Rubi [A] time = 0.183297, antiderivative size = 135, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.15

$$\frac{b(a+bx)^{11}(-13aBe+2Abe+11bBd)}{1716e(d+ex)^{11}(bd-ae)^3}+\frac{(a+bx)^{11}(-13aBe+2Abe+11bBd)}{156e(d+ex)^{12}(bd-ae)^2}-\frac{(a+bx)^{11}(Bd-Ae)}{13e(d+ex)^{13}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^10*(A + B*x))/(d + e*x)^14,x]
```

```
[Out] -((B*d - A*e)*(a + b*x)^11)/(13*e*(b*d - a*e)*(d + e*x)^13) + ((1
1*b*B*d + 2*A*b*e - 13*a*B*e)*(a + b*x)^11)/(156*e*(b*d - a*e)^2*
(d + e*x)^12) + (b*(11*b*B*d + 2*A*b*e - 13*a*B*e)*(a + b*x)^11)/
(1716*e*(b*d - a*e)^3*(d + e*x)^11)
```

Rubi in Sympy [A] time = 24.7609, size = 122, normalized size = 0.9

$$-\frac{b\left(a+bx\right)^{11}\left(2Abe-13Bae+11Bbd\right)}{1716e\left(d+ex\right)^{11}\left(ae-bd\right)^3}+\frac{\left(a+bx\right)^{11}\left(2Abe-13Bae+11Bbd\right)}{156e\left(d+ex\right)^{12}\left(ae-bd\right)^2}-\frac{\left(a+bx\right)^{11}\left(Ae-Bd\right)}{13e\left(d+ex\right)^{13}\left(ae-bd\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)/(e*x+d)**14,x)
```

```
[Out] -b*(a + b*x)**11*(2*A*b*e - 13*B*a*e + 11*B*b*d)/(1716*e*(d + e*x
)**11*(a*e - b*d)**3) + (a + b*x)**11*(2*A*b*e - 13*B*a*e + 11*B*
b*d)/(156*e*(d + e*x)**12*(a*e - b*d)**2) - (a + b*x)**11*(A*e -
B*d)/(13*e*(d + e*x)**13*(a*e - b*d))
```

Mathematica [B] time = 3.03138, size = 1433, normalized size = 10.61

$$-\frac{\left(2Ae\left(d^{10}+13exd^9+78e^2x^2d^8+286e^3x^3d^7+715e^4x^4d^6+1287e^5x^5d^5+1716e^6x^6d^4+1716e^7x^7d^3+1287e^8x^8d^2+715e^9\right.\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^10*(A + B*x))/(d + e*x)^14,x]
```

```
[Out] -(11*a^10*e^10*(12*A*e + B*(d + 13*e*x)) + 10*a^9*b*e^9*(11*A*e*(
d + 13*e*x) + 2*B*(d^2 + 13*d*e*x + 78*e^2*x^2)) + 9*a^8*b^2*e^8*
(10*A*e*(d^2 + 13*d*e*x + 78*e^2*x^2) + 3*B*(d^3 + 13*d^2*e*x + 7
8*d*e^2*x^2 + 286*e^3*x^3)) + 8*a^7*b^3*e^7*(9*A*e*(d^3 + 13*d^2*
e*x + 78*d*e^2*x^2 + 286*e^3*x^3) + 4*B*(d^4 + 13*d^3*e*x + 78*d^
2*e^2*x^2 + 286*d*e^3*x^3 + 715*e^4*x^4)) + 7*a^6*b^4*e^6*(8*A*e*
(d^4 + 13*d^3*e*x + 78*d^2*e^2*x^2 + 286*d*e^3*x^3 + 715*e^4*x^4)
```

```
 + 5*B*(d^5 + 13*d^4*e*x + 78*d^3*e^2*x^2 + 286*d^2*e^3*x^3 + 715
*d*e^4*x^4 + 1287*e^5*x^5)) + 6*a^5*b^5*e^5*(7*A*e*(d^5 + 13*d^4*
e*x + 78*d^3*e^2*x^2 + 286*d^2*e^3*x^3 + 715*d*e^4*x^4 + 1287*e^5
*x^5) + 6*B*(d^6 + 13*d^5*e*x + 78*d^4*e^2*x^2 + 286*d^3*e^3*x^3
+ 715*d^2*e^4*x^4 + 1287*d*e^5*x^5 + 1716*e^6*x^6)) + 5*a^4*b^6*e
^4*(6*A*e*(d^6 + 13*d^5*e*x + 78*d^4*e^2*x^2 + 286*d^3*e^3*x^3 +
715*d^2*e^4*x^4 + 1287*d*e^5*x^5 + 1716*e^6*x^6) + 7*B*(d^7 + 13*
d^6*e*x + 78*d^5*e^2*x^2 + 286*d^4*e^3*x^3 + 715*d^3*e^4*x^4 + 12
87*d^2*e^5*x^5 + 1716*d*e^6*x^6 + 1716*e^7*x^7)) + 4*a^3*b^7*e^3*
(5*A*e*(d^7 + 13*d^6*e*x + 78*d^5*e^2*x^2 + 286*d^4*e^3*x^3 + 715
*d^3*e^4*x^4 + 1287*d^2*e^5*x^5 + 1716*d*e^6*x^6 + 1716*e^7*x^7)
+ 8*B*(d^8 + 13*d^7*e*x + 78*d^6*e^2*x^2 + 286*d^5*e^3*x^3 + 715*
d^4*e^4*x^4 + 1287*d^3*e^5*x^5 + 1716*d^2*e^6*x^6 + 1716*d*e^7*x^
7 + 1287*e^8*x^8)) + 3*a^2*b^8*e^2*(4*A*e*(d^8 + 13*d^7*e*x + 78*
d^6*e^2*x^2 + 286*d^5*e^3*x^3 + 715*d^4*e^4*x^4 + 1287*d^3*e^5*x^
5 + 1716*d^2*e^6*x^6 + 1716*d*e^7*x^7 + 1287*e^8*x^8) + 9*B*(d^9
+ 13*d^8*e*x + 78*d^7*e^2*x^2 + 286*d^6*e^3*x^3 + 715*d^5*e^4*x^4
 + 1287*d^4*e^5*x^5 + 1716*d^3*e^6*x^6 + 1716*d^2*e^7*x^7 + 1287*
d*e^8*x^8 + 715*e^9*x^9)) + 2*a*b^9*e*(3*A*e*(d^9 + 13*d^8*e*x +
78*d^7*e^2*x^2 + 286*d^6*e^3*x^3 + 715*d^5*e^4*x^4 + 1287*d^4*e^5
*x^5 + 1716*d^3*e^6*x^6 + 1716*d^2*e^7*x^7 + 1287*d*e^8*x^8 + 715
*e^9*x^9) + 10*B*(d^10 + 13*d^9*e*x + 78*d^8*e^2*x^2 + 286*d^7*e^
3*x^3 + 715*d^6*e^4*x^4 + 1287*d^5*e^5*x^5 + 1716*d^4*e^6*x^6 + 1
716*d^3*e^7*x^7 + 1287*d^2*e^8*x^8 + 715*d*e^9*x^9 + 286*e^10*x^1
0)) + b^10*(2*A*e*(d^10 + 13*d^9*e*x + 78*d^8*e^2*x^2 + 286*d^7*e
^3*x^3 + 715*d^6*e^4*x^4 + 1287*d^5*e^5*x^5 + 1716*d^4*e^6*x^6 +
1716*d^3*e^7*x^7 + 1287*d^2*e^8*x^8 + 715*d*e^9*x^9 + 286*e^10*x^
10) + 11*B*(d^11 + 13*d^10*e*x + 78*d^9*e^2*x^2 + 286*d^8*e^3*x^3
 + 715*d^7*e^4*x^4 + 1287*d^6*e^5*x^5 + 1716*d^5*e^6*x^6 + 1716*d
^4*e^7*x^7 + 1287*d^3*e^8*x^8 + 715*d^2*e^9*x^9 + 286*d*e^10*x^10
 + 78*e^11*x^11)))/(1716*e^12*(d + e*x)^13)
```

Maple [B] time = 0.016, size = 1942, normalized size = 14.4

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^10*(B*x+A)/(e*x+d)^14,x)
```

```
[Out] -10/3*b^3*(7*A*a^6*b*e^7-42*A*a^5*b^2*d*e^6+105*A*a^4*b^3*d^2*e^5
-140*A*a^3*b^4*d^3*e^4+105*A*a^2*b^5*d^4*e^3-42*A*a*b^6*d^5*e^2+7
*A*b^7*d^6*e+4*B*a^7*e^7-35*B*a^6*b*d*e^6+126*B*a^5*b^2*d^2*e^5-2
45*B*a^4*b^3*d^3*e^4+280*B*a^3*b^4*d^4*e^3-189*B*a^2*b^5*d^5*e^2+
70*B*a*b^6*d^6*e-11*B*b^7*d^7)/e^12/(e*x+d)^9-3/2*b^2*(8*A*a^7*b*
e^8-56*A*a^6*b^2*d*e^7+168*A*a^5*b^3*d^2*e^6-280*A*a^4*b^4*d^3*e^
5+280*A*a^3*b^5*d^4*e^4-168*A*a^2*b^6*d^5*e^3+56*A*a*b^7*d^6*e^2-
8*A*b^8*d^7*e+3*B*a^8*e^8-32*B*a^7*b*d*e^7+140*B*a^6*b^2*d^2*e^6-
336*B*a^5*b^3*d^3*e^5+490*B*a^4*b^4*d^4*e^4-448*B*a^3*b^5*d^5*e^3
+252*B*a^2*b^6*d^6*e^2-80*B*a*b^7*d^7*e+11*B*b^8*d^8)/e^12/(e*x+d
)^10-5*b^6*(4*A*a^3*b*e^4-12*A*a^2*b^2*d*e^3+12*A*a*b^3*d^2*e^2-4
*A*b^4*d^3*e+7*B*a^4*e^4-32*B*a^3*b*d*e^3+54*B*a^2*b^2*d^2*e^2-40
*B*a*b^3*d^3*e+11*B*b^4*d^4)/e^12/(e*x+d)^6-21/4*b^4*(6*A*a^5*b*e
^6-30*A*a^4*b^2*d*e^5+60*A*a^3*b^3*d^2*e^4-60*A*a^2*b^4*d^3*e^3+3
0*A*a*b^5*d^4*e^2-6*A*b^6*d^5*e+5*B*a^6*e^6-36*B*a^5*b*d*e^5+105*
B*a^4*b^2*d^2*e^4-160*B*a^3*b^3*d^3*e^3+135*B*a^2*b^4*d^4*e^2-60*
B*a*b^5*d^5*e+11*B*b^6*d^6)/e^12/(e*x+d)^8-6*b^5*(5*A*a^4*b*e^5-2
0*A*a^3*b^2*d*e^4+30*A*a^2*b^3*d^2*e^3-20*A*a*b^4*d^3*e^2+5*A*b^5
*d^4*e+6*B*a^5*e^5-35*B*a^4*b*d*e^4+80*B*a^3*b^2*d^2*e^3-90*B*a^2
*b^3*d^3*e^2+50*B*a*b^4*d^4*e-11*B*b^5*d^5)/e^12/(e*x+d)^7-1/3*b^
9*(A*b*e+10*B*a*e-11*B*b*d)/e^12/(e*x+d)^3-1/12*(10*A*a^9*b*e^10-
90*A*a^8*b^2*d*e^9+360*A*a^7*b^3*d^2*e^8-840*A*a^6*b^4*d^3*e^7+12
60*A*a^5*b^5*d^4*e^6-1260*A*a^4*b^6*d^5*e^5+840*A*a^3*b^7*d^6*e^4
-360*A*a^2*b^8*d^7*e^3+90*A*a*b^9*d^8*e^2-10*A*b^10*d^9*e+B*a^10*
e^10-20*B*a^9*b*d*e^9+135*B*a^8*b^2*d^2*e^8-480*B*a^7*b^3*d^3*e^7
+1050*B*a^6*b^4*d^4*e^6-1512*B*a^5*b^5*d^5*e^5+1470*B*a^4*b^6*d^6
*e^4-960*B*a^3*b^7*d^7*e^3+405*B*a^2*b^8*d^8*e^2-100*B*a*b^9*d^9*
e+11*B*b^10*d^10)/e^12/(e*x+d)^12-5/11*b*(9*A*a^8*b*e^9-72*A*a^7*
b^2*d*e^8+252*A*a^6*b^3*d^2*e^7-504*A*a^5*b^4*d^3*e^6+630*A*a^4*b
^5*d^4*e^5-504*A*a^3*b^6*d^5*e^4+252*A*a^2*b^7*d^6*e^3-72*A*a*b^8
```

```
*d^7*e^2+9*A*b^9*d^8*e+2*B*a^9*e^9-27*B*a^8*b*d*e^8+144*B*a^7*b^2
*d^2*e^7-420*B*a^6*b^3*d^3*e^6+756*B*a^5*b^4*d^4*e^5-882*B*a^4*b^
5*d^5*e^4+672*B*a^3*b^6*d^6*e^3-324*B*a^2*b^7*d^7*e^2+90*B*a*b^8*
d^8*e-11*B*b^9*d^9)/e^12/(e*x+d)^11-1/13*(A*a^10*e^11-10*A*a^9*b*
d*e^10+45*A*a^8*b^2*d^2*e^9-120*A*a^7*b^3*d^3*e^8+210*A*a^6*b^4*d
^4*e^7-252*A*a^5*b^5*d^5*e^6+210*A*a^4*b^6*d^6*e^5-120*A*a^3*b^7*
d^7*e^4+45*A*a^2*b^8*d^8*e^3-10*A*a*b^9*d^9*e^2+A*b^10*d^10*e-B*a
^10*d*e^10+10*B*a^9*b*d^2*e^9-45*B*a^8*b^2*d^3*e^8+120*B*a^7*b^3*
d^4*e^7-210*B*a^6*b^4*d^5*e^6+252*B*a^5*b^5*d^6*e^5-210*B*a^4*b^6
*d^7*e^4+120*B*a^3*b^7*d^8*e^3-45*B*a^2*b^8*d^9*e^2+10*B*a*b^9*d^
10*e-B*b^10*d^11)/e^12/(e*x+d)^13-1/2*B*b^10/e^12/(e*x+d)^2-5/4*b
^8*(2*A*a*b*e^2-2*A*b^2*d*e+9*B*a^2*e^2-20*B*a*b*d*e+11*B*b^2*d^2
)/e^12/(e*x+d)^4-3*b^7*(3*A*a^2*b*e^3-6*A*a*b^2*d*e^2+3*A*b^3*d^2
*e+8*B*a^3*e^3-27*B*a^2*b*d*e^2+30*B*a*b^2*d^2*e-11*B*b^3*d^3)/e^
12/(e*x+d)^5
```

Maxima [A] time = 1.53606, size = 2634, normalized size = 19.51

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^10/(e*x + d)^14,x, algorithm="maxima")
```

```
[Out] -1/1716*(858*B*b^10*e^11*x^11 + 11*B*b^10*d^11 + 132*A*a^10*e^11
+ 2*(10*B*a*b^9 + A*b^10)*d^10*e + 3*(9*B*a^2*b^8 + 2*A*a*b^9)*d^
9*e^2 + 4*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^8*e^3 + 5*(7*B*a^4*b^6 +
4*A*a^3*b^7)*d^7*e^4 + 6*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^6*e^5 + 7*
(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^5*e^6 + 8*(4*B*a^7*b^3 + 7*A*a^6*b^
4)*d^4*e^7 + 9*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^3*e^8 + 10*(2*B*a^9*
b + 9*A*a^8*b^2)*d^2*e^9 + 11*(B*a^10 + 10*A*a^9*b)*d*e^10 + 286*
(11*B*b^10*d*e^10 + 2*(10*B*a*b^9 + A*b^10)*e^11)*x^10 + 715*(11*
B*b^10*d^2*e^9 + 2*(10*B*a*b^9 + A*b^10)*d*e^10 + 3*(9*B*a^2*b^8
+ 2*A*a*b^9)*e^11)*x^9 + 1287*(11*B*b^10*d^3*e^8 + 2*(10*B*a*b^9
+ A*b^10)*d^2*e^9 + 3*(9*B*a^2*b^8 + 2*A*a*b^9)*d*e^10 + 4*(8*B*a
^3*b^7 + 3*A*a^2*b^8)*e^11)*x^8 + 1716*(11*B*b^10*d^4*e^7 + 2*(10
*B*a*b^9 + A*b^10)*d^3*e^8 + 3*(9*B*a^2*b^8 + 2*A*a*b^9)*d^2*e^9
+ 4*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d*e^10 + 5*(7*B*a^4*b^6 + 4*A*a^3
*b^7)*e^11)*x^7 + 1716*(11*B*b^10*d^5*e^6 + 2*(10*B*a*b^9 + A*b^1
0)*d^4*e^7 + 3*(9*B*a^2*b^8 + 2*A*a*b^9)*d^3*e^8 + 4*(8*B*a^3*b^7
 + 3*A*a^2*b^8)*d^2*e^9 + 5*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d*e^10 +
6*(6*B*a^5*b^5 + 5*A*a^4*b^6)*e^11)*x^6 + 1287*(11*B*b^10*d^6*e^5
 + 2*(10*B*a*b^9 + A*b^10)*d^5*e^6 + 3*(9*B*a^2*b^8 + 2*A*a*b^9)*
d^4*e^7 + 4*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^3*e^8 + 5*(7*B*a^4*b^6
+ 4*A*a^3*b^7)*d^2*e^9 + 6*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d*e^10 + 7
*(5*B*a^6*b^4 + 6*A*a^5*b^5)*e^11)*x^5 + 715*(11*B*b^10*d^7*e^4 +
 2*(10*B*a*b^9 + A*b^10)*d^6*e^5 + 3*(9*B*a^2*b^8 + 2*A*a*b^9)*d^
5*e^6 + 4*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^4*e^7 + 5*(7*B*a^4*b^6 +
4*A*a^3*b^7)*d^3*e^8 + 6*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^2*e^9 + 7*
(5*B*a^6*b^4 + 6*A*a^5*b^5)*d*e^10 + 8*(4*B*a^7*b^3 + 7*A*a^6*b^4
)*e^11)*x^4 + 286*(11*B*b^10*d^8*e^3 + 2*(10*B*a*b^9 + A*b^10)*d^
7*e^4 + 3*(9*B*a^2*b^8 + 2*A*a*b^9)*d^6*e^5 + 4*(8*B*a^3*b^7 + 3*
A*a^2*b^8)*d^5*e^6 + 5*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^4*e^7 + 6*(6
*B*a^5*b^5 + 5*A*a^4*b^6)*d^3*e^8 + 7*(5*B*a^6*b^4 + 6*A*a^5*b^5)
*d^2*e^9 + 8*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d*e^10 + 9*(3*B*a^8*b^2
+ 8*A*a^7*b^3)*e^11)*x^3 + 78*(11*B*b^10*d^9*e^2 + 2*(10*B*a*b^9
+ A*b^10)*d^8*e^3 + 3*(9*B*a^2*b^8 + 2*A*a*b^9)*d^7*e^4 + 4*(8*B*
a^3*b^7 + 3*A*a^2*b^8)*d^6*e^5 + 5*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^
5*e^6 + 6*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^4*e^7 + 7*(5*B*a^6*b^4 +
6*A*a^5*b^5)*d^3*e^8 + 8*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^2*e^9 + 9*
(3*B*a^8*b^2 + 8*A*a^7*b^3)*d*e^10 + 10*(2*B*a^9*b + 9*A*a^8*b^2)
*e^11)*x^2 + 13*(11*B*b^10*d^10*e + 2*(10*B*a*b^9 + A*b^10)*d^9*e
^2 + 3*(9*B*a^2*b^8 + 2*A*a*b^9)*d^8*e^3 + 4*(8*B*a^3*b^7 + 3*A*a
^2*b^8)*d^7*e^4 + 5*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^6*e^5 + 6*(6*B*
a^5*b^5 + 5*A*a^4*b^6)*d^5*e^6 + 7*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^
4*e^7 + 8*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^3*e^8 + 9*(3*B*a^8*b^2 +
8*A*a^7*b^3)*d^2*e^9 + 10*(2*B*a^9*b + 9*A*a^8*b^2)*d*e^10 + 11*(
B*a^10 + 10*A*a^9*b)*e^11)*x)/(e^25*x^13 + 13*d*e^24*x^12 + 78*d^
2*e^23*x^11 + 286*d^3*e^22*x^10 + 715*d^4*e^21*x^9 + 1287*d^5*e^2
0*x^8 + 1716*d^6*e^19*x^7 + 1716*d^7*e^18*x^6 + 1287*d^8*e^17*x^5
```

```
 + 715*d^9*e^16*x^4 + 286*d^10*e^15*x^3 + 78*d^11*e^14*x^2 + 13*d
^12*e^13*x + d^13*e^12)
```

Fricas [A] time = 0.217003, size = 2634, normalized size = 19.51

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d)^14,x, algorithm="fricas")
```

```
[Out] -1/1716*(858*B*b^10*e^11*x^11 + 11*B*b^10*d^11 + 132*A*a^10*e^11
+ 2*(10*B*a*b^9 + A*b^10)*d^10*e + 3*(9*B*a^2*b^8 + 2*A*a*b^9)*d^
9*e^2 + 4*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^8*e^3 + 5*(7*B*a^4*b^6 +
4*A*a^3*b^7)*d^7*e^4 + 6*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^6*e^5 + 7*
(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^5*e^6 + 8*(4*B*a^7*b^3 + 7*A*a^6*b^
4)*d^4*e^7 + 9*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^3*e^8 + 10*(2*B*a^9*
b + 9*A*a^8*b^2)*d^2*e^9 + 11*(B*a^10 + 10*A*a^9*b)*d*e^10 + 286*
(11*B*b^10*d*e^10 + 2*(10*B*a*b^9 + A*b^10)*e^11)*x^10 + 715*(11*
B*b^10*d^2*e^9 + 2*(10*B*a*b^9 + A*b^10)*d*e^10 + 3*(9*B*a^2*b^8
+ 2*A*a*b^9)*e^11)*x^9 + 1287*(11*B*b^10*d^3*e^8 + 2*(10*B*a*b^9
+ A*b^10)*d^2*e^9 + 3*(9*B*a^2*b^8 + 2*A*a*b^9)*d*e^10 + 4*(8*B*a
^3*b^7 + 3*A*a^2*b^8)*e^11)*x^8 + 1716*(11*B*b^10*d^4*e^7 + 2*(10
*B*a*b^9 + A*b^10)*d^3*e^8 + 3*(9*B*a^2*b^8 + 2*A*a*b^9)*d^2*e^9
+ 4*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d*e^10 + 5*(7*B*a^4*b^6 + 4*A*a^3
*b^7)*e^11)*x^7 + 1716*(11*B*b^10*d^5*e^6 + 2*(10*B*a*b^9 + A*b^1
0)*d^4*e^7 + 3*(9*B*a^2*b^8 + 2*A*a*b^9)*d^3*e^8 + 4*(8*B*a^3*b^7
 + 3*A*a^2*b^8)*d^2*e^9 + 5*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d*e^10 +
6*(6*B*a^5*b^5 + 5*A*a^4*b^6)*e^11)*x^6 + 1287*(11*B*b^10*d^6*e^5
 + 2*(10*B*a*b^9 + A*b^10)*d^5*e^6 + 3*(9*B*a^2*b^8 + 2*A*a*b^9)*
d^4*e^7 + 4*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^3*e^8 + 5*(7*B*a^4*b^6
+ 4*A*a^3*b^7)*d^2*e^9 + 6*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d*e^10 + 7
*(5*B*a^6*b^4 + 6*A*a^5*b^5)*e^11)*x^5 + 715*(11*B*b^10*d^7*e^4 +
 2*(10*B*a*b^9 + A*b^10)*d^6*e^5 + 3*(9*B*a^2*b^8 + 2*A*a*b^9)*d^
5*e^6 + 4*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^4*e^7 + 5*(7*B*a^4*b^6 +
4*A*a^3*b^7)*d^3*e^8 + 6*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^2*e^9 + 7*
(5*B*a^6*b^4 + 6*A*a^5*b^5)*d*e^10 + 8*(4*B*a^7*b^3 + 7*A*a^6*b^4
)*e^11)*x^4 + 286*(11*B*b^10*d^8*e^3 + 2*(10*B*a*b^9 + A*b^10)*d^
7*e^4 + 3*(9*B*a^2*b^8 + 2*A*a*b^9)*d^6*e^5 + 4*(8*B*a^3*b^7 + 3*
A*a^2*b^8)*d^5*e^6 + 5*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^4*e^7 + 6*(6
*B*a^5*b^5 + 5*A*a^4*b^6)*d^3*e^8 + 7*(5*B*a^6*b^4 + 6*A*a^5*b^5)
*d^2*e^9 + 8*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d*e^10 + 9*(3*B*a^8*b^2
+ 8*A*a^7*b^3)*e^11)*x^3 + 78*(11*B*b^10*d^9*e^2 + 2*(10*B*a*b^9
+ A*b^10)*d^8*e^3 + 3*(9*B*a^2*b^8 + 2*A*a*b^9)*d^7*e^4 + 4*(8*B*
a^3*b^7 + 3*A*a^2*b^8)*d^6*e^5 + 5*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^
5*e^6 + 6*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^4*e^7 + 7*(5*B*a^6*b^4 +
6*A*a^5*b^5)*d^3*e^8 + 8*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^2*e^9 + 9*
(3*B*a^8*b^2 + 8*A*a^7*b^3)*d*e^10 + 10*(2*B*a^9*b + 9*A*a^8*b^2)
*e^11)*x^2 + 13*(11*B*b^10*d^10*e + 2*(10*B*a*b^9 + A*b^10)*d^9*e
^2 + 3*(9*B*a^2*b^8 + 2*A*a*b^9)*d^8*e^3 + 4*(8*B*a^3*b^7 + 3*A*a
^2*b^8)*d^7*e^4 + 5*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^6*e^5 + 6*(6*B*
a^5*b^5 + 5*A*a^4*b^6)*d^5*e^6 + 7*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^
4*e^7 + 8*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^3*e^8 + 9*(3*B*a^8*b^2 +
8*A*a^7*b^3)*d^2*e^9 + 10*(2*B*a^9*b + 9*A*a^8*b^2)*d*e^10 + 11*(
B*a^10 + 10*A*a^9*b)*e^11)*x)/(e^25*x^13 + 13*d*e^24*x^12 + 78*d^
2*e^23*x^11 + 286*d^3*e^22*x^10 + 715*d^4*e^21*x^9 + 1287*d^5*e^2
0*x^8 + 1716*d^6*e^19*x^7 + 1716*d^7*e^18*x^6 + 1287*d^8*e^17*x^5
 + 715*d^9*e^16*x^4 + 286*d^10*e^15*x^3 + 78*d^11*e^14*x^2 + 13*d
^12*e^13*x + d^13*e^12)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)/(e*x+d)**14,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.215198, size = 1, normalized size = 0.01

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d)^14,x, algorithm="giac")
```

```
[Out] Done
```

3.1086 $\int \frac{(a+bx)^{10}(A+Bx)}{(d+ex)^{15}} dx$

Optimal. Leaf size=185

$$\frac{b^2(a+bx)^{11}(-14aBe+3Abe+11bBd)}{12012e(d+ex)^{11}(bd-ae)^4}+\frac{b(a+bx)^{11}(-14aBe+3Abe+11bBd)}{1092e(d+ex)^{12}(bd-ae)^3}+\frac{(a+bx)^{11}(-14aBe+3Abe+11bBd)}{182e(d+ex)^{13}(bd-ae)^2}-\frac{(a+bx)^{11}(Bd-Ae)}{14e(d+ex)^{14}(bd-ae)}$$

```
[Out] -((B*d - A*e)*(a + b*x)^11)/(14*e*(b*d - a*e)*(d + e*x)^14) + ((1
1*b*B*d + 3*A*b*e - 14*a*B*e)*(a + b*x)^11)/(182*e*(b*d - a*e)^2*
(d + e*x)^13) + (b*(11*b*B*d + 3*A*b*e - 14*a*B*e)*(a + b*x)^11)/
(1092*e*(b*d - a*e)^3*(d + e*x)^12) + (b^2*(11*b*B*d + 3*A*b*e -
14*a*B*e)*(a + b*x)^11)/(12012*e*(b*d - a*e)^4*(d + e*x)^11)
```

Rubi [A] time = 0.242714, antiderivative size = 185, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.15$

$$\frac{b^2(a+bx)^{11}(-14aBe+3Abe+11bBd)}{12012e(d+ex)^{11}(bd-ae)^4}+\frac{b(a+bx)^{11}(-14aBe+3Abe+11bBd)}{1092e(d+ex)^{12}(bd-ae)^3}+\frac{(a+bx)^{11}(-14aBe+3Abe+11bBd)}{182e(d+ex)^{13}(bd-ae)^2}-\frac{(a+bx)^{11}(Bd-Ae)}{14e(d+ex)^{14}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^10*(A + B*x))/(d + e*x)^15,x]
```

```
[Out] -((B*d - A*e)*(a + b*x)^11)/(14*e*(b*d - a*e)*(d + e*x)^14) + ((1
1*b*B*d + 3*A*b*e - 14*a*B*e)*(a + b*x)^11)/(182*e*(b*d - a*e)^2*
(d + e*x)^13) + (b*(11*b*B*d + 3*A*b*e - 14*a*B*e)*(a + b*x)^11)/
(1092*e*(b*d - a*e)^3*(d + e*x)^12) + (b^2*(11*b*B*d + 3*A*b*e -
14*a*B*e)*(a + b*x)^11)/(12012*e*(b*d - a*e)^4*(d + e*x)^11)
```

Rubi in Sympy [A] time = 36.7231, size = 172, normalized size = 0.93

$$\frac{b^2\left(a+bx\right)^{11}\left(3Abe-14Bae+11Bbd\right)}{12012e\left(d+ex\right)^{11}\left(ae-bd\right)^4}-\frac{b\left(a+bx\right)^{11}\left(3Abe-14Bae+11Bbd\right)}{1092e\left(d+ex\right)^{12}\left(ae-bd\right)^3}+\frac{\left(a+bx\right)^{11}\left(3Abe-14Bae+11Bbd\right)}{182e\left(d+ex\right)^{13}\left(ae-bd\right)^2}-\frac{\left(a+bx\right)^{11}\left(Ae-Bd\right)}{14e\left(d+ex\right)^{14}\left(ae-bd\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)/(e*x+d)**15,x)
```

```
[Out] b**2*(a + b*x)**11*(3*A*b*e - 14*B*a*e + 11*B*b*d)/(12012*e*(d +
e*x)**11*(a*e - b*d)**4) - b*(a + b*x)**11*(3*A*b*e - 14*B*a*e +
11*B*b*d)/(1092*e*(d + e*x)**12*(a*e - b*d)**3) + (a + b*x)**11*(
3*A*b*e - 14*B*a*e + 11*B*b*d)/(182*e*(d + e*x)**13*(a*e - b*d)**
2) - (a + b*x)**11*(A*e - B*d)/(14*e*(d + e*x)**14*(a*e - b*d))
```

Mathematica [B] time = 3.10065, size = 1430, normalized size = 7.73

$$-\frac{(3Ae\,(d^{10}+14exd^9+91e^2x^2d^8+364e^3x^3d^7+1001e^4x^4d^6+2002e^5x^5d^5+3003e^6x^6d^4+3432e^7x^7d^3+3003e^8x^8d^2+2002}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^10*(A + B*x))/(d + e*x)^15,x]
```

```
[Out] -(66*a^10*e^10*(13*A*e + B*(d + 14*e*x)) + 110*a^9*b*e^9*(6*A*e*(
d + 14*e*x) + B*(d^2 + 14*d*e*x + 91*e^2*x^2)) + 45*a^8*b^2*e^8*(
11*A*e*(d^2 + 14*d*e*x + 91*e^2*x^2) + 3*B*(d^3 + 14*d^2*e*x + 91
*d*e^2*x^2 + 364*e^3*x^3)) + 72*a^7*b^3*e^7*(5*A*e*(d^3 + 14*d^2*
e*x + 91*d*e^2*x^2 + 364*e^3*x^3) + 2*B*(d^4 + 14*d^3*e*x + 91*d^
2*e^2*x^2 + 364*d*e^3*x^3 + 1001*e^4*x^4)) + 28*a^6*b^4*e^6*(9*A*
e*(d^4 + 14*d^3*e*x + 91*d^2*e^2*x^2 + 364*d*e^3*x^3 + 1001*e^4*x
^4) + 5*B*(d^5 + 14*d^4*e*x + 91*d^3*e^2*x^2 + 364*d^2*e^3*x^3 +
1001*d*e^4*x^4 + 2002*e^5*x^5)) + 42*a^5*b^5*e^5*(4*A*e*(d^5 + 14
*d^4*e*x + 91*d^3*e^2*x^2 + 364*d^2*e^3*x^3 + 1001*d*e^4*x^4 + 20
02*e^5*x^5) + 3*B*(d^6 + 14*d^5*e*x + 91*d^4*e^2*x^2 + 364*d^3*e^
3*x^3 + 1001*d^2*e^4*x^4 + 2002*d*e^5*x^5 + 3003*e^6*x^6)) + 105*
a^4*b^6*e^4*(A*e*(d^6 + 14*d^5*e*x + 91*d^4*e^2*x^2 + 364*d^3*e^3
*x^3 + 1001*d^2*e^4*x^4 + 2002*d*e^5*x^5 + 3003*e^6*x^6) + B*(d^7
 + 14*d^6*e*x + 91*d^5*e^2*x^2 + 364*d^4*e^3*x^3 + 1001*d^3*e^4*x
^4 + 2002*d^2*e^5*x^5 + 3003*d*e^6*x^6 + 3432*e^7*x^7)) + 20*a^3*
b^7*e^3*(3*A*e*(d^7 + 14*d^6*e*x + 91*d^5*e^2*x^2 + 364*d^4*e^3*x
^3 + 1001*d^3*e^4*x^4 + 2002*d^2*e^5*x^5 + 3003*d*e^6*x^6 + 3432*
e^7*x^7) + 4*B*(d^8 + 14*d^7*e*x + 91*d^6*e^2*x^2 + 364*d^5*e^3*x
^3 + 1001*d^4*e^4*x^4 + 2002*d^3*e^5*x^5 + 3003*d^2*e^6*x^6 + 343
2*d*e^7*x^7 + 3003*e^8*x^8)) + 6*a^2*b^8*e^2*(5*A*e*(d^8 + 14*d^7
*e*x + 91*d^6*e^2*x^2 + 364*d^5*e^3*x^3 + 1001*d^4*e^4*x^4 + 2002
*d^3*e^5*x^5 + 3003*d^2*e^6*x^6 + 3432*d*e^7*x^7 + 3003*e^8*x^8)
+ 9*B*(d^9 + 14*d^8*e*x + 91*d^7*e^2*x^2 + 364*d^6*e^3*x^3 + 1001
*d^5*e^4*x^4 + 2002*d^4*e^5*x^5 + 3003*d^3*e^6*x^6 + 3432*d^2*e^7
*x^7 + 3003*d*e^8*x^8 + 2002*e^9*x^9)) + 6*a*b^9*e*(2*A*e*(d^9 +
14*d^8*e*x + 91*d^7*e^2*x^2 + 364*d^6*e^3*x^3 + 1001*d^5*e^4*x^4
+ 2002*d^4*e^5*x^5 + 3003*d^3*e^6*x^6 + 3432*d^2*e^7*x^7 + 3003*d
*e^8*x^8 + 2002*e^9*x^9) + 5*B*(d^10 + 14*d^9*e*x + 91*d^8*e^2*x^
2 + 364*d^7*e^3*x^3 + 1001*d^6*e^4*x^4 + 2002*d^5*e^5*x^5 + 3003*
d^4*e^6*x^6 + 3432*d^3*e^7*x^7 + 3003*d^2*e^8*x^8 + 2002*d*e^9*x^
9 + 1001*e^10*x^10)) + b^10*(3*A*e*(d^10 + 14*d^9*e*x + 91*d^8*e^
2*x^2 + 364*d^7*e^3*x^3 + 1001*d^6*e^4*x^4 + 2002*d^5*e^5*x^5 + 3
003*d^4*e^6*x^6 + 3432*d^3*e^7*x^7 + 3003*d^2*e^8*x^8 + 2002*d*e^
9*x^9 + 1001*e^10*x^10) + 11*B*(d^11 + 14*d^10*e*x + 91*d^9*e^2*x
^2 + 364*d^8*e^3*x^3 + 1001*d^7*e^4*x^4 + 2002*d^6*e^5*x^5 + 3003
*d^5*e^6*x^6 + 3432*d^4*e^7*x^7 + 3003*d^3*e^8*x^8 + 2002*d^2*e^9
*x^9 + 1001*d*e^10*x^10 + 364*e^11*x^11)))/(12012*e^12*(d + e*x)^
14)
```

Maple [B] time = 0.018, size = 1942, normalized size = 10.5

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^10*(B*x+A)/(e*x+d)^15,x)
```

```
[Out] -1/14*(A*a^10*e^11-10*A*a^9*b*d*e^10+45*A*a^8*b^2*d^2*e^9-120*A*a
^7*b^3*d^3*e^8+210*A*a^6*b^4*d^4*e^7-252*A*a^5*b^5*d^5*e^6+210*A*
a^4*b^6*d^6*e^5-120*A*a^3*b^7*d^7*e^4+45*A*a^2*b^8*d^8*e^3-10*A*a
*b^9*d^9*e^2+A*b^10*d^10*e-B*a^10*d*e^10+10*B*a^9*b*d^2*e^9-45*B*
a^8*b^2*d^3*e^8+120*B*a^7*b^3*d^4*e^7-210*B*a^6*b^4*d^5*e^6+252*B
*a^5*b^5*d^6*e^5-210*B*a^4*b^6*d^7*e^4+120*B*a^3*b^7*d^8*e^3-45*B
*a^2*b^8*d^9*e^2+10*B*a*b^9*d^10*e-B*b^10*d^11)/e^12/(e*x+d)^14-1
4/3*b^4*(6*A*a^5*b*e^6-30*A*a^4*b^2*d*e^5+60*A*a^3*b^3*d^2*e^4-60
*A*a^2*b^4*d^3*e^3+30*A*a*b^5*d^4*e^2-6*A*b^6*d^5*e+5*B*a^6*e^6-3
6*B*a^5*b*d*e^5+105*B*a^4*b^2*d^2*e^4-160*B*a^3*b^3*d^3*e^3+135*B
*a^2*b^4*d^4*e^2-60*B*a*b^5*d^5*e+11*B*b^6*d^6)/e^12/(e*x+d)^9-3*
b^3*(7*A*a^6*b*e^7-42*A*a^5*b^2*d*e^6+105*A*a^4*b^3*d^2*e^5-140*A
*a^3*b^4*d^3*e^4+105*A*a^2*b^5*d^4*e^3-42*A*a*b^6*d^5*e^2+7*A*b^7
*d^6*e+4*B*a^7*e^7-35*B*a^6*b*d*e^6+126*B*a^5*b^2*d^2*e^5-245*B*a
^4*b^3*d^3*e^4+280*B*a^3*b^4*d^4*e^3-189*B*a^2*b^5*d^5*e^2+70*B*a
*b^6*d^6*e-11*B*b^7*d^7)/e^12/(e*x+d)^10-5/2*b^7*(3*A*a^2*b*e^3-6
*A*a*b^2*d*e^2+3*A*b^3*d^2*e+8*B*a^3*e^3-27*B*a^2*b*d*e^2+30*B*a*
b^2*d^2*e-11*B*b^3*d^3)/e^12/(e*x+d)^6-21/4*b^5*(5*A*a^4*b*e^5-20
*A*a^3*b^2*d*e^4+30*A*a^2*b^3*d^2*e^3-20*A*a*b^4*d^3*e^2+5*A*b^5*
```

```
d^4*e+6*B*a^5*e^5-35*B*a^4*b*d*e^4+80*B*a^3*b^2*d^2*e^3-90*B*a^2*
b^3*d^3*e^2+50*B*a*b^4*d^4*e-11*B*b^5*d^5)/e^12/(e*x+d)^8-30/7*b^
6*(4*A*a^3*b*e^4-12*A*a^2*b^2*d*e^3+12*A*a*b^3*d^2*e^2-4*A*b^4*d^
3*e+7*B*a^4*e^4-32*B*a^3*b*d*e^3+54*B*a^2*b^2*d^2*e^2-40*B*a*b^3*
d^3*e+11*B*b^4*d^4)/e^12/(e*x+d)^7-1/3*B*b^10/e^12/(e*x+d)^3-5/12
*b*(9*A*a^8*b*e^9-72*A*a^7*b^2*d*e^8+252*A*a^6*b^3*d^2*e^7-504*A*
a^5*b^4*d^3*e^6+630*A*a^4*b^5*d^4*e^5-504*A*a^3*b^6*d^5*e^4+252*A
*a^2*b^7*d^6*e^3-72*A*a*b^8*d^7*e^2+9*A*b^9*d^8*e+2*B*a^9*e^9-27*
B*a^8*b*d*e^8+144*B*a^7*b^2*d^2*e^7-420*B*a^6*b^3*d^3*e^6+756*B*a
^5*b^4*d^4*e^5-882*B*a^4*b^5*d^5*e^4+672*B*a^3*b^6*d^6*e^3-324*B*
a^2*b^7*d^7*e^2+90*B*a*b^8*d^8*e-11*B*b^9*d^9)/e^12/(e*x+d)^12-15
/11*b^2*(8*A*a^7*b*e^8-56*A*a^6*b^2*d*e^7+168*A*a^5*b^3*d^2*e^6-2
80*A*a^4*b^4*d^3*e^5+280*A*a^3*b^5*d^4*e^4-168*A*a^2*b^6*d^5*e^3+
56*A*a*b^7*d^6*e^2-8*A*b^8*d^7*e+3*B*a^8*e^8-32*B*a^7*b*d*e^7+140
*B*a^6*b^2*d^2*e^6-336*B*a^5*b^3*d^3*e^5+490*B*a^4*b^4*d^4*e^4-44
8*B*a^3*b^5*d^5*e^3+252*B*a^2*b^6*d^6*e^2-80*B*a*b^7*d^7*e+11*B*b
^8*d^8)/e^12/(e*x+d)^11-1/13*(10*A*a^9*b*e^10-90*A*a^8*b^2*d*e^9+
360*A*a^7*b^3*d^2*e^8-840*A*a^6*b^4*d^3*e^7+1260*A*a^5*b^5*d^4*e^
6-1260*A*a^4*b^6*d^5*e^5+840*A*a^3*b^7*d^6*e^4-360*A*a^2*b^8*d^7*
e^3+90*A*a*b^9*d^8*e^2-10*A*b^10*d^9*e+B*a^10*e^10-20*B*a^9*b*d*e
^9+135*B*a^8*b^2*d^2*e^8-480*B*a^7*b^3*d^3*e^7+1050*B*a^6*b^4*d^4
*e^6-1512*B*a^5*b^5*d^5*e^5+1470*B*a^4*b^6*d^6*e^4-960*B*a^3*b^7*
d^7*e^3+405*B*a^2*b^8*d^8*e^2-100*B*a*b^9*d^9*e+11*B*b^10*d^10)/e
^12/(e*x+d)^13-1/4*b^9*(A*b*e+10*B*a*e-11*B*b*d)/e^12/(e*x+d)^4-b
^8*(2*A*a*b*e^2-2*A*b^2*d*e+9*B*a^2*e^2-20*B*a*b*d*e+11*B*b^2*d^2
)/e^12/(e*x+d)^5
```

Maxima [A] time = 1.56019, size = 2649, normalized size = 14.32

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d)^15,x, algorithm="maxima")
```

```
[Out] -1/12012*(4004*B*b^10*e^11*x^11 + 11*B*b^10*d^11 + 858*A*a^10*e^1
1 + 3*(10*B*a*b^9 + A*b^10)*d^10*e + 6*(9*B*a^2*b^8 + 2*A*a*b^9)*
d^9*e^2 + 10*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^8*e^3 + 15*(7*B*a^4*b^
6 + 4*A*a^3*b^7)*d^7*e^4 + 21*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^6*e^5
 + 28*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^5*e^6 + 36*(4*B*a^7*b^3 + 7*A
*a^6*b^4)*d^4*e^7 + 45*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^3*e^8 + 55*(
2*B*a^9*b + 9*A*a^8*b^2)*d^2*e^9 + 66*(B*a^10 + 10*A*a^9*b)*d*e^1
0 + 1001*(11*B*b^10*d*e^10 + 3*(10*B*a*b^9 + A*b^10)*e^11)*x^10 +
 2002*(11*B*b^10*d^2*e^9 + 3*(10*B*a*b^9 + A*b^10)*d*e^10 + 6*(9*
B*a^2*b^8 + 2*A*a*b^9)*e^11)*x^9 + 3003*(11*B*b^10*d^3*e^8 + 3*(1
0*B*a*b^9 + A*b^10)*d^2*e^9 + 6*(9*B*a^2*b^8 + 2*A*a*b^9)*d*e^10
+ 10*(8*B*a^3*b^7 + 3*A*a^2*b^8)*e^11)*x^8 + 3432*(11*B*b^10*d^4*
e^7 + 3*(10*B*a*b^9 + A*b^10)*d^3*e^8 + 6*(9*B*a^2*b^8 + 2*A*a*b^
9)*d^2*e^9 + 10*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d*e^10 + 15*(7*B*a^4*
b^6 + 4*A*a^3*b^7)*e^11)*x^7 + 3003*(11*B*b^10*d^5*e^6 + 3*(10*B*
a*b^9 + A*b^10)*d^4*e^7 + 6*(9*B*a^2*b^8 + 2*A*a*b^9)*d^3*e^8 + 1
0*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^2*e^9 + 15*(7*B*a^4*b^6 + 4*A*a^3
*b^7)*d*e^10 + 21*(6*B*a^5*b^5 + 5*A*a^4*b^6)*e^11)*x^6 + 2002*(1
1*B*b^10*d^6*e^5 + 3*(10*B*a*b^9 + A*b^10)*d^5*e^6 + 6*(9*B*a^2*b
^8 + 2*A*a*b^9)*d^4*e^7 + 10*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^3*e^8
+ 15*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^2*e^9 + 21*(6*B*a^5*b^5 + 5*A*
a^4*b^6)*d*e^10 + 28*(5*B*a^6*b^4 + 6*A*a^5*b^5)*e^11)*x^5 + 1001
*(11*B*b^10*d^7*e^4 + 3*(10*B*a*b^9 + A*b^10)*d^6*e^5 + 6*(9*B*a^
2*b^8 + 2*A*a*b^9)*d^5*e^6 + 10*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^4*e
^7 + 15*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^3*e^8 + 21*(6*B*a^5*b^5 + 5
*A*a^4*b^6)*d^2*e^9 + 28*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d*e^10 + 36*
(4*B*a^7*b^3 + 7*A*a^6*b^4)*e^11)*x^4 + 364*(11*B*b^10*d^8*e^3 +
3*(10*B*a*b^9 + A*b^10)*d^7*e^4 + 6*(9*B*a^2*b^8 + 2*A*a*b^9)*d^6
*e^5 + 10*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^5*e^6 + 15*(7*B*a^4*b^6 +
 4*A*a^3*b^7)*d^4*e^7 + 21*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^3*e^8 +
28*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^2*e^9 + 36*(4*B*a^7*b^3 + 7*A*a^
6*b^4)*d*e^10 + 45*(3*B*a^8*b^2 + 8*A*a^7*b^3)*e^11)*x^3 + 91*(11
*B*b^10*d^9*e^2 + 3*(10*B*a*b^9 + A*b^10)*d^8*e^3 + 6*(9*B*a^2*b^
8 + 2*A*a*b^9)*d^7*e^4 + 10*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^6*e^5 +
 15*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^5*e^6 + 21*(6*B*a^5*b^5 + 5*A*a
```

```
^4*b^6)*d^4*e^7 + 28*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^3*e^8 + 36*(4*
B*a^7*b^3 + 7*A*a^6*b^4)*d^2*e^9 + 45*(3*B*a^8*b^2 + 8*A*a^7*b^3)
*d*e^10 + 55*(2*B*a^9*b + 9*A*a^8*b^2)*e^11)*x^2 + 14*(11*B*b^10*
d^10*e + 3*(10*B*a*b^9 + A*b^10)*d^9*e^2 + 6*(9*B*a^2*b^8 + 2*A*a
*b^9)*d^8*e^3 + 10*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^7*e^4 + 15*(7*B*
a^4*b^6 + 4*A*a^3*b^7)*d^6*e^5 + 21*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d
^5*e^6 + 28*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^4*e^7 + 36*(4*B*a^7*b^3
 + 7*A*a^6*b^4)*d^3*e^8 + 45*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^2*e^9
 + 55*(2*B*a^9*b + 9*A*a^8*b^2)*d*e^10 + 66*(B*a^10 + 10*A*a^9*b)*
e^11)*x)/(e^26*x^14 + 14*d*e^25*x^13 + 91*d^2*e^24*x^12 + 364*d^3
*e^23*x^11 + 1001*d^4*e^22*x^10 + 2002*d^5*e^21*x^9 + 3003*d^6*e^
20*x^8 + 3432*d^7*e^19*x^7 + 3003*d^8*e^18*x^6 + 2002*d^9*e^17*x^
5 + 1001*d^10*e^16*x^4 + 364*d^11*e^15*x^3 + 91*d^12*e^14*x^2 + 1
4*d^13*e^13*x + d^14*e^12)
```

Fricas [A] time = 0.216062, size = 2649, normalized size = 14.32

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^10/(e*x + d)^15,x, algorithm="fricas")
```

```
[Out] -1/12012*(4004*B*b^10*e^11*x^11 + 11*B*b^10*d^11 + 858*A*a^10*e^1
1 + 3*(10*B*a*b^9 + A*b^10)*d^10*e + 6*(9*B*a^2*b^8 + 2*A*a*b^9)*
d^9*e^2 + 10*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^8*e^3 + 15*(7*B*a^4*b^
6 + 4*A*a^3*b^7)*d^7*e^4 + 21*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^6*e^5
 + 28*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^5*e^6 + 36*(4*B*a^7*b^3 + 7*A
*a^6*b^4)*d^4*e^7 + 45*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^3*e^8 + 55*(
2*B*a^9*b + 9*A*a^8*b^2)*d^2*e^9 + 66*(B*a^10 + 10*A*a^9*b)*d*e^1
0 + 1001*(11*B*b^10*d*e^10 + 3*(10*B*a*b^9 + A*b^10)*e^11)*x^10 +
 2002*(11*B*b^10*d^2*e^9 + 3*(10*B*a*b^9 + A*b^10)*d*e^10 + 6*(9*
B*a^2*b^8 + 2*A*a*b^9)*e^11)*x^9 + 3003*(11*B*b^10*d^3*e^8 + 3*(1
0*B*a*b^9 + A*b^10)*d^2*e^9 + 6*(9*B*a^2*b^8 + 2*A*a*b^9)*d*e^10
 + 10*(8*B*a^3*b^7 + 3*A*a^2*b^8)*e^11)*x^8 + 3432*(11*B*b^10*d^4*
e^7 + 3*(10*B*a*b^9 + A*b^10)*d^3*e^8 + 6*(9*B*a^2*b^8 + 2*A*a*b^
9)*d^2*e^9 + 10*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d*e^10 + 15*(7*B*a^4*
b^6 + 4*A*a^3*b^7)*e^11)*x^7 + 3003*(11*B*b^10*d^5*e^6 + 3*(10*B*
a*b^9 + A*b^10)*d^4*e^7 + 6*(9*B*a^2*b^8 + 2*A*a*b^9)*d^3*e^8 + 1
0*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^2*e^9 + 15*(7*B*a^4*b^6 + 4*A*a^3
*b^7)*d*e^10 + 21*(6*B*a^5*b^5 + 5*A*a^4*b^6)*e^11)*x^6 + 2002*(1
1*B*b^10*d^6*e^5 + 3*(10*B*a*b^9 + A*b^10)*d^5*e^6 + 6*(9*B*a^2*b
^8 + 2*A*a*b^9)*d^4*e^7 + 10*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^3*e^8
 + 15*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^2*e^9 + 21*(6*B*a^5*b^5 + 5*A*
a^4*b^6)*d*e^10 + 28*(5*B*a^6*b^4 + 6*A*a^5*b^5)*e^11)*x^5 + 1001
*(11*B*b^10*d^7*e^4 + 3*(10*B*a*b^9 + A*b^10)*d^6*e^5 + 6*(9*B*a^
2*b^8 + 2*A*a*b^9)*d^5*e^6 + 10*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^4*e
^7 + 15*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^3*e^8 + 21*(6*B*a^5*b^5 + 5
*A*a^4*b^6)*d^2*e^9 + 28*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d*e^10 + 36*
(4*B*a^7*b^3 + 7*A*a^6*b^4)*e^11)*x^4 + 364*(11*B*b^10*d^8*e^3 +
3*(10*B*a*b^9 + A*b^10)*d^7*e^4 + 6*(9*B*a^2*b^8 + 2*A*a*b^9)*d^6
*e^5 + 10*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^5*e^6 + 15*(7*B*a^4*b^6 +
 4*A*a^3*b^7)*d^4*e^7 + 21*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^3*e^8 +
28*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^2*e^9 + 36*(4*B*a^7*b^3 + 7*A*a^
6*b^4)*d*e^10 + 45*(3*B*a^8*b^2 + 8*A*a^7*b^3)*e^11)*x^3 + 91*(11
*B*b^10*d^9*e^2 + 3*(10*B*a*b^9 + A*b^10)*d^8*e^3 + 6*(9*B*a^2*b^
8 + 2*A*a*b^9)*d^7*e^4 + 10*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^6*e^5 +
 15*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^5*e^6 + 21*(6*B*a^5*b^5 + 5*A*a
^4*b^6)*d^4*e^7 + 28*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^3*e^8 + 36*(4*
B*a^7*b^3 + 7*A*a^6*b^4)*d^2*e^9 + 45*(3*B*a^8*b^2 + 8*A*a^7*b^3)
*d*e^10 + 55*(2*B*a^9*b + 9*A*a^8*b^2)*e^11)*x^2 + 14*(11*B*b^10*
d^10*e + 3*(10*B*a*b^9 + A*b^10)*d^9*e^2 + 6*(9*B*a^2*b^8 + 2*A*a
*b^9)*d^8*e^3 + 10*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^7*e^4 + 15*(7*B*
a^4*b^6 + 4*A*a^3*b^7)*d^6*e^5 + 21*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d
^5*e^6 + 28*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^4*e^7 + 36*(4*B*a^7*b^3
 + 7*A*a^6*b^4)*d^3*e^8 + 45*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^2*e^9
 + 55*(2*B*a^9*b + 9*A*a^8*b^2)*d*e^10 + 66*(B*a^10 + 10*A*a^9*b)*
e^11)*x)/(e^26*x^14 + 14*d*e^25*x^13 + 91*d^2*e^24*x^12 + 364*d^3
*e^23*x^11 + 1001*d^4*e^22*x^10 + 2002*d^5*e^21*x^9 + 3003*d^6*e^
20*x^8 + 3432*d^7*e^19*x^7 + 3003*d^8*e^18*x^6 + 2002*d^9*e^17*x^
```

```
5 + 1001*d^10*e^16*x^4 + 364*d^11*e^15*x^3 + 91*d^12*e^14*x^2 + 1
4*d^13*e^13*x + d^14*e^12)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)/(e*x+d)**15,x)

[Out] Timed out
```

GIAC/XCAS [A] time = 0.221746, size = 1, normalized size = 0.01

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d)^15,x, algorithm="giac")

[Out] Done
```

3.1087 $\int \frac{(a+bx)^{10}(A+Bx)}{(d+ex)^{16}}\,dx$

Optimal. Leaf size=235

$$\frac{b^3(a+bx)^{11}(-15aBe+4Abe+11bBd)}{60060e(d+ex)^{11}(bd-ae)^5}+\frac{b^2(a+bx)^{11}(-15aBe+4Abe+11bBd)}{5460e(d+ex)^{12}(bd-ae)^4}+\frac{b(a+bx)^{11}(-15aBe+4Abe+11bBd)}{910e(d+ex)^{13}(bd-ae)^3}+\frac{(a+bx)^{11}(-15aBe+4Abe+11bBd)}{210e(d+ex)^{14}(bd-ae)^2}-\frac{(a+bx)^{11}(Bd-Ae)}{15e(d+ex)^{15}(bd-ae)}$$

```
[Out] -((B*d - A*e)*(a + b*x)^11)/(15*e*(b*d - a*e)*(d + e*x)^15) + ((1
1*b*B*d + 4*A*b*e - 15*a*B*e)*(a + b*x)^11)/(210*e*(b*d - a*e)^2*
(d + e*x)^14) + (b*(11*b*B*d + 4*A*b*e - 15*a*B*e)*(a + b*x)^11)/
(910*e*(b*d - a*e)^3*(d + e*x)^13) + (b^2*(11*b*B*d + 4*A*b*e - 1
5*a*B*e)*(a + b*x)^11)/(5460*e*(b*d - a*e)^4*(d + e*x)^12) + (b^3
*(11*b*B*d + 4*A*b*e - 15*a*B*e)*(a + b*x)^11)/(60060*e*(b*d - a*
e)^5*(d + e*x)^11)
```

Rubi [A] time = 0.309208, antiderivative size = 235, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.15

$$\frac{b^3(a+bx)^{11}(-15aBe+4Abe+11bBd)}{60060e(d+ex)^{11}(bd-ae)^5}+\frac{b^2(a+bx)^{11}(-15aBe+4Abe+11bBd)}{5460e(d+ex)^{12}(bd-ae)^4}+\frac{b(a+bx)^{11}(-15aBe+4Abe+11bBd)}{910e(d+ex)^{13}(bd-ae)^3}+\frac{(a+bx)^{11}(-15aBe+4Abe+11bBd)}{210e(d+ex)^{14}(bd-ae)^2}-\frac{(a+bx)^{11}(Bd-Ae)}{15e(d+ex)^{15}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^10*(A + B*x))/(d + e*x)^16,x]
```

```
[Out] -((B*d - A*e)*(a + b*x)^11)/(15*e*(b*d - a*e)*(d + e*x)^15) + ((1
1*b*B*d + 4*A*b*e - 15*a*B*e)*(a + b*x)^11)/(210*e*(b*d - a*e)^2*
(d + e*x)^14) + (b*(11*b*B*d + 4*A*b*e - 15*a*B*e)*(a + b*x)^11)/
(910*e*(b*d - a*e)^3*(d + e*x)^13) + (b^2*(11*b*B*d + 4*A*b*e - 1
5*a*B*e)*(a + b*x)^11)/(5460*e*(b*d - a*e)^4*(d + e*x)^12) + (b^3
*(11*b*B*d + 4*A*b*e - 15*a*B*e)*(a + b*x)^11)/(60060*e*(b*d - a*
e)^5*(d + e*x)^11)
```

Rubi in Sympy [A] time = 50.4587, size = 221, normalized size = 0.94

$$-\frac{b^3\left(a+bx\right)^{11}\left(4Abe-15Bae+11Bbd\right)}{60060e\left(d+ex\right)^{11}\left(ae-bd\right)^5}+\frac{b^2\left(a+bx\right)^{11}\left(4Abe-15Bae+11Bbd\right)}{5460e\left(d+ex\right)^{12}\left(ae-bd\right)^4}-\frac{b\left(a+bx\right)^{11}\left(4Abe-15Bae+11Bbd\right)}{910e\left(d+ex\right)^{13}\left(ae-bd\right)^3}+\frac{\left(a+bx\right)^{11}\left(4Abe-15Bae+11Bbd\right)}{210e\left(d+ex\right)^{14}\left(ae-bd\right)^2}-\frac{\left(a+bx\right)^{11}\left(Ae-Bd\right)}{15e\left(d+ex\right)^{15}\left(ae-bd\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)/(e*x+d)**16,x)
```

```
[Out] -b**3*(a + b*x)**11*(4*A*b*e - 15*B*a*e + 11*B*b*d)/(60060*e*(d +
 e*x)**11*(a*e - b*d)**5) + b**2*(a + b*x)**11*(4*A*b*e - 15*B*a*
e + 11*B*b*d)/(5460*e*(d + e*x)**12*(a*e - b*d)**4) - b*(a + b*x)
**11*(4*A*b*e - 15*B*a*e + 11*B*b*d)/(910*e*(d + e*x)**13*(a*e -
b*d)**3) + (a + b*x)**11*(4*A*b*e - 15*B*a*e + 11*B*b*d)/(210*e*(
```

```
d + e*x)**14*(a*e - b*d)**2) - (a + b*x)**11*(A*e - B*d)/(15*e*(d
 + e*x)**15*(a*e - b*d))
```

Mathematica [B] time = 3.02969, size = 1430, normalized size = 6.09

$$-\frac{\left(4Ae\left(d^{10}+15exd^9+105e^2x^2d^8+455e^3x^3d^7+1365e^4x^4d^6+3003e^5x^5d^5+5005e^6x^6d^4+6435e^7x^7d^3+6435e^8x^8d^2+500\right.\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^10*(A + B*x))/(d + e*x)^16,x]
```

```
[Out] -(286*a^10*e^10*(14*A*e + B*(d + 15*e*x)) + 220*a^9*b*e^9*(13*A*e
*(d + 15*e*x) + 2*B*(d^2 + 15*d*e*x + 105*e^2*x^2)) + 495*a^8*b^2
*e^8*(4*A*e*(d^2 + 15*d*e*x + 105*e^2*x^2) + B*(d^3 + 15*d^2*e*x
+ 105*d*e^2*x^2 + 455*e^3*x^3)) + 120*a^7*b^3*e^7*(11*A*e*(d^3 +
15*d^2*e*x + 105*d*e^2*x^2 + 455*e^3*x^3) + 4*B*(d^4 + 15*d^3*e*x
 + 105*d^2*e^2*x^2 + 455*d*e^3*x^3 + 1365*e^4*x^4)) + 420*a^6*b^4
*e^6*(2*A*e*(d^4 + 15*d^3*e*x + 105*d^2*e^2*x^2 + 455*d*e^3*x^3 +
 1365*e^4*x^4) + B*(d^5 + 15*d^4*e*x + 105*d^3*e^2*x^2 + 455*d^2*
e^3*x^3 + 1365*d*e^4*x^4 + 3003*e^5*x^5)) + 168*a^5*b^5*e^5*(3*A*
e*(d^5 + 15*d^4*e*x + 105*d^3*e^2*x^2 + 455*d^2*e^3*x^3 + 1365*d*
e^4*x^4 + 3003*e^5*x^5) + 2*B*(d^6 + 15*d^5*e*x + 105*d^4*e^2*x^2
 + 455*d^3*e^3*x^3 + 1365*d^2*e^4*x^4 + 3003*d*e^5*x^5 + 5005*e^6
*x^6)) + 35*a^4*b^6*e^4*(8*A*e*(d^6 + 15*d^5*e*x + 105*d^4*e^2*x^
2 + 455*d^3*e^3*x^3 + 1365*d^2*e^4*x^4 + 3003*d*e^5*x^5 + 5005*e^
6*x^6) + 7*B*(d^7 + 15*d^6*e*x + 105*d^5*e^2*x^2 + 455*d^4*e^3*x^
3 + 1365*d^3*e^4*x^4 + 3003*d^2*e^5*x^5 + 5005*d*e^6*x^6 + 6435*e
^7*x^7)) + 20*a^3*b^7*e^3*(7*A*e*(d^7 + 15*d^6*e*x + 105*d^5*e^2*
x^2 + 455*d^4*e^3*x^3 + 1365*d^3*e^4*x^4 + 3003*d^2*e^5*x^5 + 500
5*d*e^6*x^6 + 6435*e^7*x^7) + 8*B*(d^8 + 15*d^7*e*x + 105*d^6*e^2
*x^2 + 455*d^5*e^3*x^3 + 1365*d^4*e^4*x^4 + 3003*d^3*e^5*x^5 + 50
05*d^2*e^6*x^6 + 6435*d*e^7*x^7 + 6435*e^8*x^8)) + 30*a^2*b^8*e^2
*(2*A*e*(d^8 + 15*d^7*e*x + 105*d^6*e^2*x^2 + 455*d^5*e^3*x^3 + 1
365*d^4*e^4*x^4 + 3003*d^3*e^5*x^5 + 5005*d^2*e^6*x^6 + 6435*d*e^
7*x^7 + 6435*e^8*x^8) + 3*B*(d^9 + 15*d^8*e*x + 105*d^7*e^2*x^2 +
 455*d^6*e^3*x^3 + 1365*d^5*e^4*x^4 + 3003*d^4*e^5*x^5 + 5005*d^3
*e^6*x^6 + 6435*d^2*e^7*x^7 + 6435*d*e^8*x^8 + 5005*e^9*x^9)) + 2
0*a*b^9*e*(A*e*(d^9 + 15*d^8*e*x + 105*d^7*e^2*x^2 + 455*d^6*e^3*
x^3 + 1365*d^5*e^4*x^4 + 3003*d^4*e^5*x^5 + 5005*d^3*e^6*x^6 + 64
35*d^2*e^7*x^7 + 6435*d*e^8*x^8 + 5005*e^9*x^9) + 2*B*(d^10 + 15*
d^9*e*x + 105*d^8*e^2*x^2 + 455*d^7*e^3*x^3 + 1365*d^6*e^4*x^4 +
3003*d^5*e^5*x^5 + 5005*d^4*e^6*x^6 + 6435*d^3*e^7*x^7 + 6435*d^2
*e^8*x^8 + 5005*d*e^9*x^9 + 3003*e^10*x^10)) + b^10*(4*A*e*(d^10
+ 15*d^9*e*x + 105*d^8*e^2*x^2 + 455*d^7*e^3*x^3 + 1365*d^6*e^4*x
^4 + 3003*d^5*e^5*x^5 + 5005*d^4*e^6*x^6 + 6435*d^3*e^7*x^7 + 643
5*d^2*e^8*x^8 + 5005*d*e^9*x^9 + 3003*e^10*x^10) + 11*B*(d^11 + 1
5*d^10*e*x + 105*d^9*e^2*x^2 + 455*d^8*e^3*x^3 + 1365*d^7*e^4*x^4
 + 3003*d^6*e^5*x^5 + 5005*d^5*e^6*x^6 + 6435*d^4*e^7*x^7 + 6435*
d^3*e^8*x^8 + 5005*d^2*e^9*x^9 + 3003*d*e^10*x^10 + 1365*e^11*x^1
1)))/(60060*e^12*(d + e*x)^15)
```

Maple [B] time = 0.016, size = 1942, normalized size = 8.3

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^10*(B*x+A)/(e*x+d)^16,x)
```

```
[Out] -1/14*(10*A*a^9*b*e^10-90*A*a^8*b^2*d*e^9+360*A*a^7*b^3*d^2*e^8-8
40*A*a^6*b^4*d^3*e^7+1260*A*a^5*b^5*d^4*e^6-1260*A*a^4*b^6*d^5*e^
5+840*A*a^3*b^7*d^6*e^4-360*A*a^2*b^8*d^7*e^3+90*A*a*b^9*d^8*e^2-
10*A*b^10*d^9*e+B*a^10*e^10-20*B*a^9*b*d*e^9+135*B*a^8*b^2*d^2*e^
8-480*B*a^7*b^3*d^3*e^7+1050*B*a^6*b^4*d^4*e^6-1512*B*a^5*b^5*d^5
```

```
*e^5+1470*B*a^4*b^6*d^6*e^4-960*B*a^3*b^7*d^7*e^3+405*B*a^2*b^8*d
^8*e^2-100*B*a*b^9*d^9*e+11*B*b^10*d^10)/e^12/(e*x+d)^14-14/3*b^5
*(5*A*a^4*b*e^5-20*A*a^3*b^2*d*e^4+30*A*a^2*b^3*d^2*e^3-20*A*a*b^
4*d^3*e^2+5*A*b^5*d^4*e+6*B*a^5*e^5-35*B*a^4*b*d*e^4+80*B*a^3*b^2
*d^2*e^3-90*B*a^2*b^3*d^3*e^2+50*B*a*b^4*d^4*e-11*B*b^5*d^5)/e^12
/(e*x+d)^9-21/5*b^4*(6*A*a^5*b*e^6-30*A*a^4*b^2*d*e^5+60*A*a^3*b^
3*d^2*e^4-60*A*a^2*b^4*d^3*e^3+30*A*a*b^5*d^4*e^2-6*A*b^6*d^5*e+5
*B*a^6*e^6-36*B*a^5*b*d*e^5+105*B*a^4*b^2*d^2*e^4-160*B*a^3*b^3*d
^3*e^3+135*B*a^2*b^4*d^4*e^2-60*B*a*b^5*d^5*e+11*B*b^6*d^6)/e^12/
(e*x+d)^10-5/6*b^8*(2*A*a*b*e^2-2*A*b^2*d*e+9*B*a^2*e^2-20*B*a*b*
d*e+11*B*b^2*d^2)/e^12/(e*x+d)^6-15/4*b^6*(4*A*a^3*b*e^4-12*A*a^2
*b^2*d*e^3+12*A*a*b^3*d^2*e^2-4*A*b^4*d^3*e+7*B*a^4*e^4-32*B*a^3*
b*d*e^3+54*B*a^2*b^2*d^2*e^2-40*B*a*b^3*d^3*e+11*B*b^4*d^4)/e^12/
(e*x+d)^8-15/7*b^7*(3*A*a^2*b*e^3-6*A*a*b^2*d*e^2+3*A*b^3*d^2*e+8
*B*a^3*e^3-27*B*a^2*b*d*e^2+30*B*a*b^2*d^2*e-11*B*b^3*d^3)/e^12/(
e*x+d)^7-5/4*b^2*(8*A*a^7*b*e^8-56*A*a^6*b^2*d*e^7+168*A*a^5*b^3*
d^2*e^6-280*A*a^4*b^4*d^3*e^5+280*A*a^3*b^5*d^4*e^4-168*A*a^2*b^6
*d^5*e^3+56*A*a*b^7*d^6*e^2-8*A*b^8*d^7*e+3*B*a^8*e^8-32*B*a^7*b*
d*e^7+140*B*a^6*b^2*d^2*e^6-336*B*a^5*b^3*d^3*e^5+490*B*a^4*b^4*d
^4*e^4-448*B*a^3*b^5*d^5*e^3+252*B*a^2*b^6*d^6*e^2-80*B*a*b^7*d^7
*e+11*B*b^8*d^8)/e^12/(e*x+d)^12-30/11*b^3*(7*A*a^6*b*e^7-42*A*a^
5*b^2*d*e^6+105*A*a^4*b^3*d^2*e^5-140*A*a^3*b^4*d^3*e^4+105*A*a^2
*b^5*d^4*e^3-42*A*a*b^6*d^5*e^2+7*A*b^7*d^6*e+4*B*a^7*e^7-35*B*a^
6*b*d*e^6+126*B*a^5*b^2*d^2*e^5-245*B*a^4*b^3*d^3*e^4+280*B*a^3*b
^4*d^4*e^3-189*B*a^2*b^5*d^5*e^2+70*B*a*b^6*d^6*e-11*B*b^7*d^7)/e
^12/(e*x+d)^11-5/13*b*(9*A*a^8*b*e^9-72*A*a^7*b^2*d*e^8+252*A*a^6
*b^3*d^2*e^7-504*A*a^5*b^4*d^3*e^6+630*A*a^4*b^5*d^4*e^5-504*A*a^
3*b^6*d^5*e^4+252*A*a^2*b^7*d^6*e^3-72*A*a*b^8*d^7*e^2+9*A*b^9*d^
8*e+2*B*a^9*e^9-27*B*a^8*b*d*e^8+144*B*a^7*b^2*d^2*e^7-420*B*a^6*
b^3*d^3*e^6+756*B*a^5*b^4*d^4*e^5-882*B*a^4*b^5*d^5*e^4+672*B*a^3
*b^6*d^6*e^3-324*B*a^2*b^7*d^7*e^2+90*B*a*b^8*d^8*e-11*B*b^9*d^9)
/e^12/(e*x+d)^13-1/4*B*b^10/e^12/(e*x+d)^4-1/5*b^9*(A*b*e+10*B*a*
e-11*B*b*d)/e^12/(e*x+d)^5-1/15*(A*a^10*e^11-10*A*a^9*b*d*e^10+45
*A*a^8*b^2*d^2*e^9-120*A*a^7*b^3*d^3*e^8+210*A*a^6*b^4*d^4*e^7-25
2*A*a^5*b^5*d^5*e^6+210*A*a^4*b^6*d^6*e^5-120*A*a^3*b^7*d^7*e^4+4
5*A*a^2*b^8*d^8*e^3-10*A*a*b^9*d^9*e^2+A*b^10*d^10*e-B*a^10*d*e^1
0+10*B*a^9*b*d^2*e^9-45*B*a^8*b^2*d^3*e^8+120*B*a^7*b^3*d^4*e^7-2
10*B*a^6*b^4*d^5*e^6+252*B*a^5*b^5*d^6*e^5-210*B*a^4*b^6*d^7*e^4+
120*B*a^3*b^7*d^8*e^3-45*B*a^2*b^8*d^9*e^2+10*B*a*b^9*d^10*e-B*b^
10*d^11)/e^12/(e*x+d)^15
```

Maxima [A] time = 1.56702, size = 2664, normalized size = 11.34

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^10/(e*x + d)^16,x, algorithm="maxima")
```

```
[Out] -1/60060*(15015*B*b^10*e^11*x^11 + 11*B*b^10*d^11 + 4004*A*a^10*e
^11 + 4*(10*B*a*b^9 + A*b^10)*d^10*e + 10*(9*B*a^2*b^8 + 2*A*a*b^
9)*d^9*e^2 + 20*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^8*e^3 + 35*(7*B*a^4
*b^6 + 4*A*a^3*b^7)*d^7*e^4 + 56*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^6*
e^5 + 84*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^5*e^6 + 120*(4*B*a^7*b^3 +
 7*A*a^6*b^4)*d^4*e^7 + 165*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^3*e^8 +
 220*(2*B*a^9*b + 9*A*a^8*b^2)*d^2*e^9 + 286*(B*a^10 + 10*A*a^9*b
)*d*e^10 + 3003*(11*B*b^10*d*e^10 + 4*(10*B*a*b^9 + A*b^10)*e^11)
*x^10 + 5005*(11*B*b^10*d^2*e^9 + 4*(10*B*a*b^9 + A*b^10)*d*e^10
+ 10*(9*B*a^2*b^8 + 2*A*a*b^9)*e^11)*x^9 + 6435*(11*B*b^10*d^3*e^
8 + 4*(10*B*a*b^9 + A*b^10)*d^2*e^9 + 10*(9*B*a^2*b^8 + 2*A*a*b^9
)*d*e^10 + 20*(8*B*a^3*b^7 + 3*A*a^2*b^8)*e^11)*x^8 + 6435*(11*B*
b^10*d^4*e^7 + 4*(10*B*a*b^9 + A*b^10)*d^3*e^8 + 10*(9*B*a^2*b^8
+ 2*A*a*b^9)*d^2*e^9 + 20*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d*e^10 + 35
*(7*B*a^4*b^6 + 4*A*a^3*b^7)*e^11)*x^7 + 5005*(11*B*b^10*d^5*e^6
+ 4*(10*B*a*b^9 + A*b^10)*d^4*e^7 + 10*(9*B*a^2*b^8 + 2*A*a*b^9)*
d^3*e^8 + 20*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^2*e^9 + 35*(7*B*a^4*b^
6 + 4*A*a^3*b^7)*d*e^10 + 56*(6*B*a^5*b^5 + 5*A*a^4*b^6)*e^11)*x^
6 + 3003*(11*B*b^10*d^6*e^5 + 4*(10*B*a*b^9 + A*b^10)*d^5*e^6 + 1
0*(9*B*a^2*b^8 + 2*A*a*b^9)*d^4*e^7 + 20*(8*B*a^3*b^7 + 3*A*a^2*b
^8)*d^3*e^8 + 35*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^2*e^9 + 56*(6*B*a^
```

```
5*b^5 + 5*A*a^4*b^6)*d*e^10 + 84*(5*B*a^6*b^4 + 6*A*a^5*b^5)*e^11
)*x^5 + 1365*(11*B*b^10*d^7*e^4 + 4*(10*B*a*b^9 + A*b^10)*d^6*e^5
 + 10*(9*B*a^2*b^8 + 2*A*a*b^9)*d^5*e^6 + 20*(8*B*a^3*b^7 + 3*A*a
^2*b^8)*d^4*e^7 + 35*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^3*e^8 + 56*(6*
B*a^5*b^5 + 5*A*a^4*b^6)*d^2*e^9 + 84*(5*B*a^6*b^4 + 6*A*a^5*b^5)
*d*e^10 + 120*(4*B*a^7*b^3 + 7*A*a^6*b^4)*e^11)*x^4 + 455*(11*B*b
^10*d^8*e^3 + 4*(10*B*a*b^9 + A*b^10)*d^7*e^4 + 10*(9*B*a^2*b^8 +
 2*A*a*b^9)*d^6*e^5 + 20*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^5*e^6 + 35
*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^4*e^7 + 56*(6*B*a^5*b^5 + 5*A*a^4*
b^6)*d^3*e^8 + 84*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^2*e^9 + 120*(4*B*
a^7*b^3 + 7*A*a^6*b^4)*d*e^10 + 165*(3*B*a^8*b^2 + 8*A*a^7*b^3)*e
^11)*x^3 + 105*(11*B*b^10*d^9*e^2 + 4*(10*B*a*b^9 + A*b^10)*d^8*e
^3 + 10*(9*B*a^2*b^8 + 2*A*a*b^9)*d^7*e^4 + 20*(8*B*a^3*b^7 + 3*A
*a^2*b^8)*d^6*e^5 + 35*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^5*e^6 + 56*(
6*B*a^5*b^5 + 5*A*a^4*b^6)*d^4*e^7 + 84*(5*B*a^6*b^4 + 6*A*a^5*b^
5)*d^3*e^8 + 120*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^2*e^9 + 165*(3*B*a
^8*b^2 + 8*A*a^7*b^3)*d*e^10 + 220*(2*B*a^9*b + 9*A*a^8*b^2)*e^11
)*x^2 + 15*(11*B*b^10*d^10*e + 4*(10*B*a*b^9 + A*b^10)*d^9*e^2 +
10*(9*B*a^2*b^8 + 2*A*a*b^9)*d^8*e^3 + 20*(8*B*a^3*b^7 + 3*A*a^2*
b^8)*d^7*e^4 + 35*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^6*e^5 + 56*(6*B*a
^5*b^5 + 5*A*a^4*b^6)*d^5*e^6 + 84*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^
4*e^7 + 120*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^3*e^8 + 165*(3*B*a^8*b^
2 + 8*A*a^7*b^3)*d^2*e^9 + 220*(2*B*a^9*b + 9*A*a^8*b^2)*d*e^10 +
 286*(B*a^10 + 10*A*a^9*b)*e^11)*x)/(e^27*x^15 + 15*d*e^26*x^14 +
 105*d^2*e^25*x^13 + 455*d^3*e^24*x^12 + 1365*d^4*e^23*x^11 + 300
3*d^5*e^22*x^10 + 5005*d^6*e^21*x^9 + 6435*d^7*e^20*x^8 + 6435*d^
8*e^19*x^7 + 5005*d^9*e^18*x^6 + 3003*d^10*e^17*x^5 + 1365*d^11*e
^16*x^4 + 455*d^12*e^15*x^3 + 105*d^13*e^14*x^2 + 15*d^14*e^13*x
+ d^15*e^12)
```

Fricas [A] time = 0.212822, size = 2664, normalized size = 11.34

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^10/(e*x + d)^16,x, algorithm="fricas")
```

```
[Out] -1/60060*(15015*B*b^10*e^11*x^11 + 11*B*b^10*d^11 + 4004*A*a^10*e
^11 + 4*(10*B*a*b^9 + A*b^10)*d^10*e + 10*(9*B*a^2*b^8 + 2*A*a*b^
9)*d^9*e^2 + 20*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^8*e^3 + 35*(7*B*a^4
*b^6 + 4*A*a^3*b^7)*d^7*e^4 + 56*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^6*
e^5 + 84*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^5*e^6 + 120*(4*B*a^7*b^3 +
 7*A*a^6*b^4)*d^4*e^7 + 165*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^3*e^8 +
 220*(2*B*a^9*b + 9*A*a^8*b^2)*d^2*e^9 + 286*(B*a^10 + 10*A*a^9*b
)*d*e^10 + 3003*(11*B*b^10*d*e^10 + 4*(10*B*a*b^9 + A*b^10)*e^11)
*x^10 + 5005*(11*B*b^10*d^2*e^9 + 4*(10*B*a*b^9 + A*b^10)*d*e^10
+ 10*(9*B*a^2*b^8 + 2*A*a*b^9)*e^11)*x^9 + 6435*(11*B*b^10*d^3*e^
8 + 4*(10*B*a*b^9 + A*b^10)*d^2*e^9 + 10*(9*B*a^2*b^8 + 2*A*a*b^9
)*d*e^10 + 20*(8*B*a^3*b^7 + 3*A*a^2*b^8)*e^11)*x^8 + 6435*(11*B*
b^10*d^4*e^7 + 4*(10*B*a*b^9 + A*b^10)*d^3*e^8 + 10*(9*B*a^2*b^8
+ 2*A*a*b^9)*d^2*e^9 + 20*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d*e^10 + 35
*(7*B*a^4*b^6 + 4*A*a^3*b^7)*e^11)*x^7 + 5005*(11*B*b^10*d^5*e^6
+ 4*(10*B*a*b^9 + A*b^10)*d^4*e^7 + 10*(9*B*a^2*b^8 + 2*A*a*b^9)*
d^3*e^8 + 20*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^2*e^9 + 35*(7*B*a^4*b^
6 + 4*A*a^3*b^7)*d*e^10 + 56*(6*B*a^5*b^5 + 5*A*a^4*b^6)*e^11)*x^
6 + 3003*(11*B*b^10*d^6*e^5 + 4*(10*B*a*b^9 + A*b^10)*d^5*e^6 + 1
0*(9*B*a^2*b^8 + 2*A*a*b^9)*d^4*e^7 + 20*(8*B*a^3*b^7 + 3*A*a^2*b
^8)*d^3*e^8 + 35*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^2*e^9 + 56*(6*B*a^
5*b^5 + 5*A*a^4*b^6)*d*e^10 + 84*(5*B*a^6*b^4 + 6*A*a^5*b^5)*e^11
)*x^5 + 1365*(11*B*b^10*d^7*e^4 + 4*(10*B*a*b^9 + A*b^10)*d^6*e^5
 + 10*(9*B*a^2*b^8 + 2*A*a*b^9)*d^5*e^6 + 20*(8*B*a^3*b^7 + 3*A*a
^2*b^8)*d^4*e^7 + 35*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^3*e^8 + 56*(6*
B*a^5*b^5 + 5*A*a^4*b^6)*d^2*e^9 + 84*(5*B*a^6*b^4 + 6*A*a^5*b^5)
*d*e^10 + 120*(4*B*a^7*b^3 + 7*A*a^6*b^4)*e^11)*x^4 + 455*(11*B*b
^10*d^8*e^3 + 4*(10*B*a*b^9 + A*b^10)*d^7*e^4 + 10*(9*B*a^2*b^8 +
 2*A*a*b^9)*d^6*e^5 + 20*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^5*e^6 + 35
*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^4*e^7 + 56*(6*B*a^5*b^5 + 5*A*a^4*
b^6)*d^3*e^8 + 84*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^2*e^9 + 120*(4*B*
a^7*b^3 + 7*A*a^6*b^4)*d*e^10 + 165*(3*B*a^8*b^2 + 8*A*a^7*b^3)*e
```

```
^11)*x^3 + 105*(11*B*b^10*d^9*e^2 + 4*(10*B*a*b^9 + A*b^10)*d^8*e
^3 + 10*(9*B*a^2*b^8 + 2*A*a*b^9)*d^7*e^4 + 20*(8*B*a^3*b^7 + 3*A
*a^2*b^8)*d^6*e^5 + 35*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^5*e^6 + 56*(
6*B*a^5*b^5 + 5*A*a^4*b^6)*d^4*e^7 + 84*(5*B*a^6*b^4 + 6*A*a^5*b^
5)*d^3*e^8 + 120*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^2*e^9 + 165*(3*B*a
^8*b^2 + 8*A*a^7*b^3)*d*e^10 + 220*(2*B*a^9*b + 9*A*a^8*b^2)*e^11
)*x^2 + 15*(11*B*b^10*d^10*e + 4*(10*B*a*b^9 + A*b^10)*d^9*e^2 +
10*(9*B*a^2*b^8 + 2*A*a*b^9)*d^8*e^3 + 20*(8*B*a^3*b^7 + 3*A*a^2*
b^8)*d^7*e^4 + 35*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^6*e^5 + 56*(6*B*a
^5*b^5 + 5*A*a^4*b^6)*d^5*e^6 + 84*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^
4*e^7 + 120*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^3*e^8 + 165*(3*B*a^8*b^
2 + 8*A*a^7*b^3)*d^2*e^9 + 220*(2*B*a^9*b + 9*A*a^8*b^2)*d*e^10 +
 286*(B*a^10 + 10*A*a^9*b)*e^11)*x)/(e^27*x^15 + 15*d*e^26*x^14 +
 105*d^2*e^25*x^13 + 455*d^3*e^24*x^12 + 1365*d^4*e^23*x^11 + 300
3*d^5*e^22*x^10 + 5005*d^6*e^21*x^9 + 6435*d^7*e^20*x^8 + 6435*d^
8*e^19*x^7 + 5005*d^9*e^18*x^6 + 3003*d^10*e^17*x^5 + 1365*d^11*e
^16*x^4 + 455*d^12*e^15*x^3 + 105*d^13*e^14*x^2 + 15*d^14*e^13*x
+ d^15*e^12)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)/(e*x+d)**16,x)

[Out] Timed out
```

GIAC/XCAS [A] time = 0.216318, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d)^16,x, algorithm="giac")

[Out] Done
```

3.1088 $\int \frac{(a+bx)^{10}(A+Bx)}{(d+ex)^{17}}\,dx$

Optimal. Leaf size=285

$$\frac{b^4(a+bx)^{11}(-16aBe+5Abe+11bBd)}{240240e(d+ex)^{11}(bd-ae)^6}+\frac{b^3(a+bx)^{11}(-16aBe+5Abe+11bBd)}{21840e(d+ex)^{12}(bd-ae)^5}+\frac{b^2(a+bx)^{11}(-16aBe+5Abe+11bBd)}{3640e(d+ex)^{13}(bd-ae)^4}+\frac{b(a+bx)^{11}(-16aBe+5Abe+11bBd)}{840e(d+ex)^{14}(bd-ae)^3}+\frac{(a+bx)^{11}(-16aBe+5Abe+11bBd)}{240e(d+ex)^{15}(bd-ae)^2}-\frac{(a+bx)^{11}(Bd-Ae)}{16e(d+ex)^{16}(bd-ae)}$$

```
[Out] -((B*d - A*e)*(a + b*x)^11)/(16*e*(b*d - a*e)*(d + e*x)^16) + ((1
1*b*B*d + 5*A*b*e - 16*a*B*e)*(a + b*x)^11)/(240*e*(b*d - a*e)^2*
(d + e*x)^15) + (b*(11*b*B*d + 5*A*b*e - 16*a*B*e)*(a + b*x)^11)/
(840*e*(b*d - a*e)^3*(d + e*x)^14) + (b^2*(11*b*B*d + 5*A*b*e - 1
6*a*B*e)*(a + b*x)^11)/(3640*e*(b*d - a*e)^4*(d + e*x)^13) + (b^3
*(11*b*B*d + 5*A*b*e - 16*a*B*e)*(a + b*x)^11)/(21840*e*(b*d - a*
e)^5*(d + e*x)^12) + (b^4*(11*b*B*d + 5*A*b*e - 16*a*B*e)*(a + b*
x)^11)/(240240*e*(b*d - a*e)^6*(d + e*x)^11)
```

Rubi [A] time = 0.391027, antiderivative size = 285, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.15$

$$\frac{b^4(a+bx)^{11}(-16aBe+5Abe+11bBd)}{240240e(d+ex)^{11}(bd-ae)^6}+\frac{b^3(a+bx)^{11}(-16aBe+5Abe+11bBd)}{21840e(d+ex)^{12}(bd-ae)^5}+\frac{b^2(a+bx)^{11}(-16aBe+5Abe+11bBd)}{3640e(d+ex)^{13}(bd-ae)^4}+\frac{b(a+bx)^{11}(-16aBe+5Abe+11bBd)}{840e(d+ex)^{14}(bd-ae)^3}+\frac{(a+bx)^{11}(-16aBe+5Abe+11bBd)}{240e(d+ex)^{15}(bd-ae)^2}-\frac{(a+bx)^{11}(Bd-Ae)}{16e(d+ex)^{16}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^10*(A + B*x))/(d + e*x)^17,x]
```

```
[Out] -((B*d - A*e)*(a + b*x)^11)/(16*e*(b*d - a*e)*(d + e*x)^16) + ((1
1*b*B*d + 5*A*b*e - 16*a*B*e)*(a + b*x)^11)/(240*e*(b*d - a*e)^2*
(d + e*x)^15) + (b*(11*b*B*d + 5*A*b*e - 16*a*B*e)*(a + b*x)^11)/
(840*e*(b*d - a*e)^3*(d + e*x)^14) + (b^2*(11*b*B*d + 5*A*b*e - 1
6*a*B*e)*(a + b*x)^11)/(3640*e*(b*d - a*e)^4*(d + e*x)^13) + (b^3
*(11*b*B*d + 5*A*b*e - 16*a*B*e)*(a + b*x)^11)/(21840*e*(b*d - a*
e)^5*(d + e*x)^12) + (b^4*(11*b*B*d + 5*A*b*e - 16*a*B*e)*(a + b*
x)^11)/(240240*e*(b*d - a*e)^6*(d + e*x)^11)
```

Rubi in Sympy [A] time = 65.8406, size = 270, normalized size = 0.95

$$\frac{b^4\left(a+bx\right)^{11}\left(5Abe-16Bae+11Bbd\right)}{240240e\left(d+ex\right)^{11}\left(ae-bd\right)^6}-\frac{b^3\left(a+bx\right)^{11}\left(5Abe-16Bae+11Bbd\right)}{21840e\left(d+ex\right)^{12}\left(ae-bd\right)^5}+\frac{b^2\left(a+bx\right)^{11}\left(5Abe-16Bae+11Bbd\right)}{3640e\left(d+ex\right)^{13}\left(ae-bd\right)^4}-\frac{b\left(a+bx\right)^{11}\left(5Abe-16Bae+11Bbd\right)}{840e\left(d+ex\right)^{14}\left(ae-bd\right)^3}+\frac{\left(a+bx\right)^{11}\left(5Abe-16Bae+11Bbd\right)}{240e\left(d+ex\right)^{15}\left(ae-bd\right)^2}-\frac{\left(a+bx\right)^{11}\left(Ae-Bd\right)}{16e\left(d+ex\right)^{16}\left(ae-bd\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)/(e*x+d)**17,x)
```

```
[Out] b**4*(a + b*x)**11*(5*A*b*e - 16*B*a*e + 11*B*b*d)/(240240*e*(d +
 e*x)**11*(a*e - b*d)**6) - b**3*(a + b*x)**11*(5*A*b*e - 16*B*a*
e + 11*B*b*d)/(21840*e*(d + e*x)**12*(a*e - b*d)**5) + b**2*(a +
```

```
b*x)**11*(5*A*b*e - 16*B*a*e + 11*B*b*d)/(3640*e*(d + e*x)**13*(a
*e - b*d)**4) - b*(a + b*x)**11*(5*A*b*e - 16*B*a*e + 11*B*b*d)/(
840*e*(d + e*x)**14*(a*e - b*d)**3) + (a + b*x)**11*(5*A*b*e - 16
*B*a*e + 11*B*b*d)/(240*e*(d + e*x)**15*(a*e - b*d)**2) - (a + b*
x)**11*(A*e - B*d)/(16*e*(d + e*x)**16*(a*e - b*d))
```

Mathematica [B] time = 2.91994, size = 1429, normalized size = 5.01

$$-\frac{(5Ae\left(d^{10}+16exd^9+120e^2x^2d^8+560e^3x^3d^7+1820e^4x^4d^6+4368e^5x^5d^5+8008e^6x^6d^4+11440e^7x^7d^3+12870e^8x^8d^2+1\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^10*(A + B*x))/(d + e*x)^17,x]
```

```
[Out] -(1001*a^10*e^10*(15*A*e + B*(d + 16*e*x)) + 1430*a^9*b*e^9*(7*A*
e*(d + 16*e*x) + B*(d^2 + 16*d*e*x + 120*e^2*x^2)) + 495*a^8*b^2*
e^8*(13*A*e*(d^2 + 16*d*e*x + 120*e^2*x^2) + 3*B*(d^3 + 16*d^2*e*
x + 120*d*e^2*x^2 + 560*e^3*x^3)) + 1320*a^7*b^3*e^7*(3*A*e*(d^3
+ 16*d^2*e*x + 120*d*e^2*x^2 + 560*e^3*x^3) + B*(d^4 + 16*d^3*e*x
 + 120*d^2*e^2*x^2 + 560*d*e^3*x^3 + 1820*e^4*x^4)) + 210*a^6*b^4
*e^6*(11*A*e*(d^4 + 16*d^3*e*x + 120*d^2*e^2*x^2 + 560*d*e^3*x^3
+ 1820*e^4*x^4) + 5*B*(d^5 + 16*d^4*e*x + 120*d^3*e^2*x^2 + 560*d
^2*e^3*x^3 + 1820*d*e^4*x^4 + 4368*e^5*x^5)) + 252*a^5*b^5*e^5*(5
*A*e*(d^5 + 16*d^4*e*x + 120*d^3*e^2*x^2 + 560*d^2*e^3*x^3 + 1820
*d*e^4*x^4 + 4368*e^5*x^5) + 3*B*(d^6 + 16*d^5*e*x + 120*d^4*e^2*
x^2 + 560*d^3*e^3*x^3 + 1820*d^2*e^4*x^4 + 4368*d*e^5*x^5 + 8008*
e^6*x^6)) + 70*a^4*b^6*e^4*(9*A*e*(d^6 + 16*d^5*e*x + 120*d^4*e^2
*x^2 + 560*d^3*e^3*x^3 + 1820*d^2*e^4*x^4 + 4368*d*e^5*x^5 + 8008
*e^6*x^6) + 7*B*(d^7 + 16*d^6*e*x + 120*d^5*e^2*x^2 + 560*d^4*e^3
*x^3 + 1820*d^3*e^4*x^4 + 4368*d^2*e^5*x^5 + 8008*d*e^6*x^6 + 114
40*e^7*x^7)) + 280*a^3*b^7*e^3*(A*e*(d^7 + 16*d^6*e*x + 120*d^5*e
^2*x^2 + 560*d^4*e^3*x^3 + 1820*d^3*e^4*x^4 + 4368*d^2*e^5*x^5 +
8008*d*e^6*x^6 + 11440*e^7*x^7) + B*(d^8 + 16*d^7*e*x + 120*d^6*e
^2*x^2 + 560*d^5*e^3*x^3 + 1820*d^4*e^4*x^4 + 4368*d^3*e^5*x^5 +
8008*d^2*e^6*x^6 + 11440*d*e^7*x^7 + 12870*e^8*x^8)) + 15*a^2*b^8
*e^2*(7*A*e*(d^8 + 16*d^7*e*x + 120*d^6*e^2*x^2 + 560*d^5*e^3*x^3
 + 1820*d^4*e^4*x^4 + 4368*d^3*e^5*x^5 + 8008*d^2*e^6*x^6 + 11440
*d*e^7*x^7 + 12870*e^8*x^8) + 9*B*(d^9 + 16*d^8*e*x + 120*d^7*e^2
*x^2 + 560*d^6*e^3*x^3 + 1820*d^5*e^4*x^4 + 4368*d^4*e^5*x^5 + 80
08*d^3*e^6*x^6 + 11440*d^2*e^7*x^7 + 12870*d*e^8*x^8 + 11440*e^9*
x^9)) + 10*a*b^9*e*(3*A*e*(d^9 + 16*d^8*e*x + 120*d^7*e^2*x^2 + 5
60*d^6*e^3*x^3 + 1820*d^5*e^4*x^4 + 4368*d^4*e^5*x^5 + 8008*d^3*e
^6*x^6 + 11440*d^2*e^7*x^7 + 12870*d*e^8*x^8 + 11440*e^9*x^9) + 5
*B*(d^10 + 16*d^9*e*x + 120*d^8*e^2*x^2 + 560*d^7*e^3*x^3 + 1820*
d^6*e^4*x^4 + 4368*d^5*e^5*x^5 + 8008*d^4*e^6*x^6 + 11440*d^3*e^7
*x^7 + 12870*d^2*e^8*x^8 + 11440*d*e^9*x^9 + 8008*e^10*x^10)) + b
^10*(5*A*e*(d^10 + 16*d^9*e*x + 120*d^8*e^2*x^2 + 560*d^7*e^3*x^3
 + 1820*d^6*e^4*x^4 + 4368*d^5*e^5*x^5 + 8008*d^4*e^6*x^6 + 11440
*d^3*e^7*x^7 + 12870*d^2*e^8*x^8 + 11440*d*e^9*x^9 + 8008*e^10*x^
10) + 11*B*(d^11 + 16*d^10*e*x + 120*d^9*e^2*x^2 + 560*d^8*e^3*x^
3 + 1820*d^7*e^4*x^4 + 4368*d^6*e^5*x^5 + 8008*d^5*e^6*x^6 + 1144
0*d^4*e^7*x^7 + 12870*d^3*e^8*x^8 + 11440*d^2*e^9*x^9 + 8008*d*e^
10*x^10 + 4368*e^11*x^11)))/(240240*e^12*(d + e*x)^16)
```

Maple [B] time = 0.016, size = 1942, normalized size = 6.8

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^10*(B*x+A)/(e*x+d)^17,x)
```

```
[Out] -5/14*b*(9*A*a^8*b*e^9-72*A*a^7*b^2*d*e^8+252*A*a^6*b^3*d^2*e^7-5
04*A*a^5*b^4*d^3*e^6+630*A*a^4*b^5*d^4*e^5-504*A*a^3*b^6*d^5*e^4+
```

```
252*A*a^2*b^7*d^6*e^3-72*A*a*b^8*d^7*e^2+9*A*b^9*d^8*e+2*B*a^9*e^
9-27*B*a^8*b*d*e^8+144*B*a^7*b^2*d^2*e^7-420*B*a^6*b^3*d^3*e^6+75
6*B*a^5*b^4*d^4*e^5-882*B*a^4*b^5*d^5*e^4+672*B*a^3*b^6*d^6*e^3-3
24*B*a^2*b^7*d^7*e^2+90*B*a*b^8*d^8*e-11*B*b^9*d^9)/e^12/(e*x+d)^
14-10/3*b^6*(4*A*a^3*b*e^4-12*A*a^2*b^2*d*e^3+12*A*a*b^3*d^2*e^2-
4*A*b^4*d^3*e+7*B*a^4*e^4-32*B*a^3*b*d*e^3+54*B*a^2*b^2*d^2*e^2-4
0*B*a*b^3*d^3*e+11*B*b^4*d^4)/e^12/(e*x+d)^9-21/5*b^5*(5*A*a^4*b*
e^5-20*A*a^3*b^2*d*e^4+30*A*a^2*b^3*d^2*e^3-20*A*a*b^4*d^3*e^2+5*
A*b^5*d^4*e+6*B*a^5*e^5-35*B*a^4*b*d*e^4+80*B*a^3*b^2*d^2*e^3-90*
B*a^2*b^3*d^3*e^2+50*B*a*b^4*d^4*e-11*B*b^5*d^5)/e^12/(e*x+d)^10-
1/6*b^9*(A*b*e+10*B*a*e-11*B*b*d)/e^12/(e*x+d)^6-15/8*b^7*(3*A*a^
2*b*e^3-6*A*a*b^2*d*e^2+3*A*b^3*d^2*e+8*B*a^3*e^3-27*B*a^2*b*d*e^
2+30*B*a*b^2*d^2*e-11*B*b^3*d^3)/e^12/(e*x+d)^8-5/7*b^8*(2*A*a*b*
e^2-2*A*b^2*d*e+9*B*a^2*e^2-20*B*a*b*d*e+11*B*b^2*d^2)/e^12/(e*x+
d)^7-5/2*b^3*(7*A*a^6*b*e^7-42*A*a^5*b^2*d*e^6+105*A*a^4*b^3*d^2*
e^5-140*A*a^3*b^4*d^3*e^4+105*A*a^2*b^5*d^4*e^3-42*A*a*b^6*d^5*e^
2+7*A*b^7*d^6*e+4*B*a^7*e^7-35*B*a^6*b*d*e^6+126*B*a^5*b^2*d^2*e^
5-245*B*a^4*b^3*d^3*e^4+280*B*a^3*b^4*d^4*e^3-189*B*a^2*b^5*d^5*e
^2+70*B*a*b^6*d^6*e-11*B*b^7*d^7)/e^12/(e*x+d)^12-42/11*b^4*(6*A*
a^5*b*e^6-30*A*a^4*b^2*d*e^5+60*A*a^3*b^3*d^2*e^4-60*A*a^2*b^4*d^
3*e^3+30*A*a*b^5*d^4*e^2-6*A*b^6*d^5*e+5*B*a^6*e^6-36*B*a^5*b*d*e
^5+105*B*a^4*b^2*d^2*e^4-160*B*a^3*b^3*d^3*e^3+135*B*a^2*b^4*d^4*
e^2-60*B*a*b^5*d^5*e+11*B*b^6*d^6)/e^12/(e*x+d)^11-1/16*(A*a^10*e
^11-10*A*a^9*b*d*e^10+45*A*a^8*b^2*d^2*e^9-120*A*a^7*b^3*d^3*e^8+
210*A*a^6*b^4*d^4*e^7-252*A*a^5*b^5*d^5*e^6+210*A*a^4*b^6*d^6*e^5
-120*A*a^3*b^7*d^7*e^4+45*A*a^2*b^8*d^8*e^3-10*A*a*b^9*d^9*e^2+A*
b^10*d^10*e-B*a^10*d*e^10+10*B*a^9*b*d^2*e^9-45*B*a^8*b^2*d^3*e^8
+120*B*a^7*b^3*d^4*e^7-210*B*a^6*b^4*d^5*e^6+252*B*a^5*b^5*d^6*e^
5-210*B*a^4*b^6*d^7*e^4+120*B*a^3*b^7*d^8*e^3-45*B*a^2*b^8*d^9*e^
2+10*B*a*b^9*d^10*e-B*b^10*d^11)/e^12/(e*x+d)^16-15/13*b^2*(8*A*a
^7*b*e^8-56*A*a^6*b^2*d*e^7+168*A*a^5*b^3*d^2*e^6-280*A*a^4*b^4*d
^3*e^5+280*A*a^3*b^5*d^4*e^4-168*A*a^2*b^6*d^5*e^3+56*A*a*b^7*d^6
*e^2-8*A*b^8*d^7*e+3*B*a^8*e^8-32*B*a^7*b*d*e^7+140*B*a^6*b^2*d^2
*e^6-336*B*a^5*b^3*d^3*e^5+490*B*a^4*b^4*d^4*e^4-448*B*a^3*b^5*d^
5*e^3+252*B*a^2*b^6*d^6*e^2-80*B*a*b^7*d^7*e+11*B*b^8*d^8)/e^12/(
e*x+d)^13-1/5*B*b^10/e^12/(e*x+d)^5-1/15*(10*A*a^9*b*e^10-90*A*a^
8*b^2*d*e^9+360*A*a^7*b^3*d^2*e^8-840*A*a^6*b^4*d^3*e^7+1260*A*a^
5*b^5*d^4*e^6-1260*A*a^4*b^6*d^5*e^5+840*A*a^3*b^7*d^6*e^4-360*A*
a^2*b^8*d^7*e^3+90*A*a*b^9*d^8*e^2-10*A*b^10*d^9*e+B*a^10*e^10-20
*B*a^9*b*d*e^9+135*B*a^8*b^2*d^2*e^8-480*B*a^7*b^3*d^3*e^7+1050*B
*a^6*b^4*d^4*e^6-1512*B*a^5*b^5*d^5*e^5+1470*B*a^4*b^6*d^6*e^4-96
0*B*a^3*b^7*d^7*e^3+405*B*a^2*b^8*d^8*e^2-100*B*a*b^9*d^9*e+11*B*
b^10*d^10)/e^12/(e*x+d)^15
```

Maxima [A] time = 1.57435, size = 2678, normalized size = 9.4

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^10/(e*x + d)^17,x, algorithm="maxima")
```

```
[Out] -1/240240*(48048*B*b^10*e^11*x^11 + 11*B*b^10*d^11 + 15015*A*a^10
*e^11 + 5*(10*B*a*b^9 + A*b^10)*d^10*e + 15*(9*B*a^2*b^8 + 2*A*a*
b^9)*d^9*e^2 + 35*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^8*e^3 + 70*(7*B*a
^4*b^6 + 4*A*a^3*b^7)*d^7*e^4 + 126*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d
^6*e^5 + 210*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^5*e^6 + 330*(4*B*a^7*b
^3 + 7*A*a^6*b^4)*d^4*e^7 + 495*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^3*e
^8 + 715*(2*B*a^9*b + 9*A*a^8*b^2)*d^2*e^9 + 1001*(B*a^10 + 10*A*
a^9*b)*d*e^10 + 8008*(11*B*b^10*d*e^10 + 5*(10*B*a*b^9 + A*b^10)*
e^11)*x^10 + 11440*(11*B*b^10*d^2*e^9 + 5*(10*B*a*b^9 + A*b^10)*d
*e^10 + 15*(9*B*a^2*b^8 + 2*A*a*b^9)*e^11)*x^9 + 12870*(11*B*b^10
*d^3*e^8 + 5*(10*B*a*b^9 + A*b^10)*d^2*e^9 + 15*(9*B*a^2*b^8 + 2*
A*a*b^9)*d*e^10 + 35*(8*B*a^3*b^7 + 3*A*a^2*b^8)*e^11)*x^8 + 1144
0*(11*B*b^10*d^4*e^7 + 5*(10*B*a*b^9 + A*b^10)*d^3*e^8 + 15*(9*B*
a^2*b^8 + 2*A*a*b^9)*d^2*e^9 + 35*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d*e
^10 + 70*(7*B*a^4*b^6 + 4*A*a^3*b^7)*e^11)*x^7 + 8008*(11*B*b^10*
d^5*e^6 + 5*(10*B*a*b^9 + A*b^10)*d^4*e^7 + 15*(9*B*a^2*b^8 + 2*A
*a*b^9)*d^3*e^8 + 35*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^2*e^9 + 70*(7*
B*a^4*b^6 + 4*A*a^3*b^7)*d*e^10 + 126*(6*B*a^5*b^5 + 5*A*a^4*b^6)
```

```
*e^11)*x^6 + 4368*(11*B*b^10*d^6*e^5 + 5*(10*B*a*b^9 + A*b^10)*d^
5*e^6 + 15*(9*B*a^2*b^8 + 2*A*a*b^9)*d^4*e^7 + 35*(8*B*a^3*b^7 +
3*A*a^2*b^8)*d^3*e^8 + 70*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^2*e^9 + 1
26*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d*e^10 + 210*(5*B*a^6*b^4 + 6*A*a^
5*b^5)*e^11)*x^5 + 1820*(11*B*b^10*d^7*e^4 + 5*(10*B*a*b^9 + A*b^
10)*d^6*e^5 + 15*(9*B*a^2*b^8 + 2*A*a*b^9)*d^5*e^6 + 35*(8*B*a^3*
b^7 + 3*A*a^2*b^8)*d^4*e^7 + 70*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^3*e
^8 + 126*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^2*e^9 + 210*(5*B*a^6*b^4 +
 6*A*a^5*b^5)*d*e^10 + 330*(4*B*a^7*b^3 + 7*A*a^6*b^4)*e^11)*x^4
+ 560*(11*B*b^10*d^8*e^3 + 5*(10*B*a*b^9 + A*b^10)*d^7*e^4 + 15*(
9*B*a^2*b^8 + 2*A*a*b^9)*d^6*e^5 + 35*(8*B*a^3*b^7 + 3*A*a^2*b^8)
*d^5*e^6 + 70*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^4*e^7 + 126*(6*B*a^5*
b^5 + 5*A*a^4*b^6)*d^3*e^8 + 210*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^2*
e^9 + 330*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d*e^10 + 495*(3*B*a^8*b^2 +
 8*A*a^7*b^3)*e^11)*x^3 + 120*(11*B*b^10*d^9*e^2 + 5*(10*B*a*b^9
+ A*b^10)*d^8*e^3 + 15*(9*B*a^2*b^8 + 2*A*a*b^9)*d^7*e^4 + 35*(8*
B*a^3*b^7 + 3*A*a^2*b^8)*d^6*e^5 + 70*(7*B*a^4*b^6 + 4*A*a^3*b^7)
*d^5*e^6 + 126*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^4*e^7 + 210*(5*B*a^6
*b^4 + 6*A*a^5*b^5)*d^3*e^8 + 330*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^2
*e^9 + 495*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d*e^10 + 715*(2*B*a^9*b +
9*A*a^8*b^2)*e^11)*x^2 + 16*(11*B*b^10*d^10*e + 5*(10*B*a*b^9 + A
*b^10)*d^9*e^2 + 15*(9*B*a^2*b^8 + 2*A*a*b^9)*d^8*e^3 + 35*(8*B*a
^3*b^7 + 3*A*a^2*b^8)*d^7*e^4 + 70*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^
6*e^5 + 126*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^5*e^6 + 210*(5*B*a^6*b^
4 + 6*A*a^5*b^5)*d^4*e^7 + 330*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^3*e^
8 + 495*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^2*e^9 + 715*(2*B*a^9*b + 9*
A*a^8*b^2)*d*e^10 + 1001*(B*a^10 + 10*A*a^9*b)*e^11)*x)/(e^28*x^1
6 + 16*d*e^27*x^15 + 120*d^2*e^26*x^14 + 560*d^3*e^25*x^13 + 1820
*d^4*e^24*x^12 + 4368*d^5*e^23*x^11 + 8008*d^6*e^22*x^10 + 11440*
d^7*e^21*x^9 + 12870*d^8*e^20*x^8 + 11440*d^9*e^19*x^7 + 8008*d^1
0*e^18*x^6 + 4368*d^11*e^17*x^5 + 1820*d^12*e^16*x^4 + 560*d^13*e
^15*x^3 + 120*d^14*e^14*x^2 + 16*d^15*e^13*x + d^16*e^12)
```

Fricas [A] time = 0.213339, size = 2678, normalized size = 9.4

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^10/(e*x + d)^17,x, algorithm="fricas")
```

```
[Out] -1/240240*(48048*B*b^10*e^11*x^11 + 11*B*b^10*d^11 + 15015*A*a^10
*e^11 + 5*(10*B*a*b^9 + A*b^10)*d^10*e + 15*(9*B*a^2*b^8 + 2*A*a*
b^9)*d^9*e^2 + 35*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^8*e^3 + 70*(7*B*a
^4*b^6 + 4*A*a^3*b^7)*d^7*e^4 + 126*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d
^6*e^5 + 210*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^5*e^6 + 330*(4*B*a^7*b
^3 + 7*A*a^6*b^4)*d^4*e^7 + 495*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^3*e
^8 + 715*(2*B*a^9*b + 9*A*a^8*b^2)*d^2*e^9 + 1001*(B*a^10 + 10*A*
a^9*b)*d*e^10 + 8008*(11*B*b^10*d*e^10 + 5*(10*B*a*b^9 + A*b^10)*
e^11)*x^10 + 11440*(11*B*b^10*d^2*e^9 + 5*(10*B*a*b^9 + A*b^10)*d
*e^10 + 15*(9*B*a^2*b^8 + 2*A*a*b^9)*e^11)*x^9 + 12870*(11*B*b^10
*d^3*e^8 + 5*(10*B*a*b^9 + A*b^10)*d^2*e^9 + 15*(9*B*a^2*b^8 + 2*
A*a*b^9)*d*e^10 + 35*(8*B*a^3*b^7 + 3*A*a^2*b^8)*e^11)*x^8 + 1144
0*(11*B*b^10*d^4*e^7 + 5*(10*B*a*b^9 + A*b^10)*d^3*e^8 + 15*(9*B*
a^2*b^8 + 2*A*a*b^9)*d^2*e^9 + 35*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d*e
^10 + 70*(7*B*a^4*b^6 + 4*A*a^3*b^7)*e^11)*x^7 + 8008*(11*B*b^10*
d^5*e^6 + 5*(10*B*a*b^9 + A*b^10)*d^4*e^7 + 15*(9*B*a^2*b^8 + 2*A
*a*b^9)*d^3*e^8 + 35*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^2*e^9 + 70*(7*
B*a^4*b^6 + 4*A*a^3*b^7)*d*e^10 + 126*(6*B*a^5*b^5 + 5*A*a^4*b^6)
*e^11)*x^6 + 4368*(11*B*b^10*d^6*e^5 + 5*(10*B*a*b^9 + A*b^10)*d^
5*e^6 + 15*(9*B*a^2*b^8 + 2*A*a*b^9)*d^4*e^7 + 35*(8*B*a^3*b^7 +
3*A*a^2*b^8)*d^3*e^8 + 70*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^2*e^9 + 1
26*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d*e^10 + 210*(5*B*a^6*b^4 + 6*A*a^
5*b^5)*e^11)*x^5 + 1820*(11*B*b^10*d^7*e^4 + 5*(10*B*a*b^9 + A*b^
10)*d^6*e^5 + 15*(9*B*a^2*b^8 + 2*A*a*b^9)*d^5*e^6 + 35*(8*B*a^3*
b^7 + 3*A*a^2*b^8)*d^4*e^7 + 70*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^3*e
^8 + 126*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^2*e^9 + 210*(5*B*a^6*b^4 +
 6*A*a^5*b^5)*d*e^10 + 330*(4*B*a^7*b^3 + 7*A*a^6*b^4)*e^11)*x^4
+ 560*(11*B*b^10*d^8*e^3 + 5*(10*B*a*b^9 + A*b^10)*d^7*e^4 + 15*(
9*B*a^2*b^8 + 2*A*a*b^9)*d^6*e^5 + 35*(8*B*a^3*b^7 + 3*A*a^2*b^8)
```

```
*d^5*e^6 + 70*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^4*e^7 + 126*(6*B*a^5*
b^5 + 5*A*a^4*b^6)*d^3*e^8 + 210*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^2*
e^9 + 330*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d*e^10 + 495*(3*B*a^8*b^2 +
 8*A*a^7*b^3)*e^11)*x^3 + 120*(11*B*b^10*d^9*e^2 + 5*(10*B*a*b^9
+ A*b^10)*d^8*e^3 + 15*(9*B*a^2*b^8 + 2*A*a*b^9)*d^7*e^4 + 35*(8*
B*a^3*b^7 + 3*A*a^2*b^8)*d^6*e^5 + 70*(7*B*a^4*b^6 + 4*A*a^3*b^7)
*d^5*e^6 + 126*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^4*e^7 + 210*(5*B*a^6
*b^4 + 6*A*a^5*b^5)*d^3*e^8 + 330*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^2
*e^9 + 495*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d*e^10 + 715*(2*B*a^9*b +
9*A*a^8*b^2)*e^11)*x^2 + 16*(11*B*b^10*d^10*e + 5*(10*B*a*b^9 + A
*b^10)*d^9*e^2 + 15*(9*B*a^2*b^8 + 2*A*a*b^9)*d^8*e^3 + 35*(8*B*a
^3*b^7 + 3*A*a^2*b^8)*d^7*e^4 + 70*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^
6*e^5 + 126*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^5*e^6 + 210*(5*B*a^6*b^
4 + 6*A*a^5*b^5)*d^4*e^7 + 330*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^3*e^
8 + 495*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^2*e^9 + 715*(2*B*a^9*b + 9*
A*a^8*b^2)*d*e^10 + 1001*(B*a^10 + 10*A*a^9*b)*e^11)*x)/(e^28*x^1
6 + 16*d*e^27*x^15 + 120*d^2*e^26*x^14 + 560*d^3*e^25*x^13 + 1820
*d^4*e^24*x^12 + 4368*d^5*e^23*x^11 + 8008*d^6*e^22*x^10 + 11440*
d^7*e^21*x^9 + 12870*d^8*e^20*x^8 + 11440*d^9*e^19*x^7 + 8008*d^1
0*e^18*x^6 + 4368*d^11*e^17*x^5 + 1820*d^12*e^16*x^4 + 560*d^13*e
^15*x^3 + 120*d^14*e^14*x^2 + 16*d^15*e^13*x + d^16*e^12)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)/(e*x+d)**17,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.215456, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d)^17,x, algorithm="giac")
```

```
[Out] Done
```

3.1089 $\int \frac{(a+bx)^{10}(A+Bx)}{(d+ex)^{18}}\,dx$

Optimal. Leaf size=335

$$\frac{b^5(a+bx)^{11}(-17aBe+6Abe+11bBd)}{816816e(d+ex)^{11}(bd-ae)^7}+\frac{b^4(a+bx)^{11}(-17aBe+6Abe+11bBd)}{74256e(d+ex)^{12}(bd-ae)^6}+\frac{b^3(a+bx)^{11}(-17aBe+6Abe+11bBd)}{12376e(d+ex)^{13}(bd-ae)^5}+\frac{b^2(a+bx)^{11}(-17aBe+6Abe+11bBd)}{2856e(d+ex)^{14}(bd-ae)^4}+\frac{b(a+bx)^{11}(-17aBe+6Abe+11bBd)}{816e(d+ex)^{15}(bd-ae)^3}+\frac{(a+bx)^{11}(-17aBe+6Abe+11bBd)}{272e(d+ex)^{16}(bd-ae)^2}-\frac{(a+bx)^{11}(Bd-Ae)}{17e(d+ex)^{17}(bd-ae)}$$

```
[Out] -((B*d - A*e)*(a + b*x)^11)/(17*e*(b*d - a*e)*(d + e*x)^17) + ((1
1*b*B*d + 6*A*b*e - 17*a*B*e)*(a + b*x)^11)/(272*e*(b*d - a*e)^2*
(d + e*x)^16) + (b*(11*b*B*d + 6*A*b*e - 17*a*B*e)*(a + b*x)^11)/
(816*e*(b*d - a*e)^3*(d + e*x)^15) + (b^2*(11*b*B*d + 6*A*b*e - 1
7*a*B*e)*(a + b*x)^11)/(2856*e*(b*d - a*e)^4*(d + e*x)^14) + (b^3
*(11*b*B*d + 6*A*b*e - 17*a*B*e)*(a + b*x)^11)/(12376*e*(b*d - a*
e)^5*(d + e*x)^13) + (b^4*(11*b*B*d + 6*A*b*e - 17*a*B*e)*(a + b*
x)^11)/(74256*e*(b*d - a*e)^6*(d + e*x)^12) + (b^5*(11*b*B*d + 6*
A*b*e - 17*a*B*e)*(a + b*x)^11)/(816816*e*(b*d - a*e)^7*(d + e*x)
^11)
```

Rubi [A] time = 0.463332, antiderivative size = 335, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.15$

$$\frac{b^5(a+bx)^{11}(-17aBe+6Abe+11bBd)}{816816e(d+ex)^{11}(bd-ae)^7}+\frac{b^4(a+bx)^{11}(-17aBe+6Abe+11bBd)}{74256e(d+ex)^{12}(bd-ae)^6}+\frac{b^3(a+bx)^{11}(-17aBe+6Abe+11bBd)}{12376e(d+ex)^{13}(bd-ae)^5}+\frac{b^2(a+bx)^{11}(-17aBe+6Abe+11bBd)}{2856e(d+ex)^{14}(bd-ae)^4}+\frac{b(a+bx)^{11}(-17aBe+6Abe+11bBd)}{816e(d+ex)^{15}(bd-ae)^3}+\frac{(a+bx)^{11}(-17aBe+6Abe+11bBd)}{272e(d+ex)^{16}(bd-ae)^2}-\frac{(a+bx)^{11}(Bd-Ae)}{17e(d+ex)^{17}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^10*(A + B*x))/(d + e*x)^18,x]
```


```
[Out] -((B*d - A*e)*(a + b*x)^11)/(17*e*(b*d - a*e)*(d + e*x)^17) + ((1
1*b*B*d + 6*A*b*e - 17*a*B*e)*(a + b*x)^11)/(272*e*(b*d - a*e)^2*
(d + e*x)^16) + (b*(11*b*B*d + 6*A*b*e - 17*a*B*e)*(a + b*x)^11)/
(816*e*(b*d - a*e)^3*(d + e*x)^15) + (b^2*(11*b*B*d + 6*A*b*e - 1
7*a*B*e)*(a + b*x)^11)/(2856*e*(b*d - a*e)^4*(d + e*x)^14) + (b^3
*(11*b*B*d + 6*A*b*e - 17*a*B*e)*(a + b*x)^11)/(12376*e*(b*d - a*
e)^5*(d + e*x)^13) + (b^4*(11*b*B*d + 6*A*b*e - 17*a*B*e)*(a + b*
x)^11)/(74256*e*(b*d - a*e)^6*(d + e*x)^12) + (b^5*(11*b*B*d + 6*
A*b*e - 17*a*B*e)*(a + b*x)^11)/(816816*e*(b*d - a*e)^7*(d + e*x)
^11)
```

Rubi in Sympy [A] time = 83.7477, size = 320, normalized size = 0.96

$$-\frac{b^5\left(a+bx\right)^{11}\left(6Abe-17Bae+11Bbd\right)}{816816e\left(d+ex\right)^{11}\left(ae-bd\right)^7}+\frac{b^4\left(a+bx\right)^{11}\left(6Abe-17Bae+11Bbd\right)}{74256e\left(d+ex\right)^{12}\left(ae-bd\right)^6}-\frac{b^3\left(a+bx\right)^{11}\left(6Abe-17Bae+11Bbd\right)}{12376e\left(d+ex\right)^{13}\left(ae-bd\right)^5}+\frac{b^2\left(a+bx\right)^{11}\left(6Abe-17Bae+11Bbd\right)}{2856e\left(d+ex\right)^{14}\left(ae-bd\right)^4}-\frac{b\left(a+bx\right)^{11}\left(6Abe-17Bae+11Bbd\right)}{816e\left(d+ex\right)^{15}\left(ae-bd\right)^3}+\frac{\left(a+bx\right)^{11}\left(6Abe-17Bae+11Bbd\right)}{272e\left(d+ex\right)^{16}\left(ae-bd\right)^2}-\frac{\left(a+bx\right)^{11}\left(Ae-Bd\right)}{17e\left(d+ex\right)^{17}\left(ae-bd\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)/(e*x+d)**18,x)
```

```
[Out] -b**5*(a + b*x)**11*(6*A*b*e - 17*B*a*e + 11*B*b*d)/(816816*e*(d
+ e*x)**11*(a*e - b*d)**7) + b**4*(a + b*x)**11*(6*A*b*e - 17*B*a
*e + 11*B*b*d)/(74256*e*(d + e*x)**12*(a*e - b*d)**6) - b**3*(a +
 b*x)**11*(6*A*b*e - 17*B*a*e + 11*B*b*d)/(12376*e*(d + e*x)**13*
(a*e - b*d)**5) + b**2*(a + b*x)**11*(6*A*b*e - 17*B*a*e + 11*B*b
*d)/(2856*e*(d + e*x)**14*(a*e - b*d)**4) - b*(a + b*x)**11*(6*A*
b*e - 17*B*a*e + 11*B*b*d)/(816*e*(d + e*x)**15*(a*e - b*d)**3) +
 (a + b*x)**11*(6*A*b*e - 17*B*a*e + 11*B*b*d)/(272*e*(d + e*x)**
16*(a*e - b*d)**2) - (a + b*x)**11*(A*e - B*d)/(17*e*(d + e*x)**1
7*(a*e - b*d))
```

Mathematica [B] time = 3.99291, size = 1433, normalized size = 4.28

$$-\frac{(6Ae\,(d^{10} + 17exd^9 + 136e^2x^2d^8 + 680e^3x^3d^7 + 2380e^4x^4d^6 + 6188e^5x^5d^5 + 12376e^6x^6d^4 + 19448e^7x^7d^3 + 24310e^8x^8d^2 +}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^10*(A + B*x))/(d + e*x)^18,x]
```

```
[Out] -(3003*a^10*e^10*(16*A*e + B*(d + 17*e*x)) + 2002*a^9*b*e^9*(15*A
*e*(d + 17*e*x) + 2*B*(d^2 + 17*d*e*x + 136*e^2*x^2)) + 1287*a^8*
b^2*e^8*(14*A*e*(d^2 + 17*d*e*x + 136*e^2*x^2) + 3*B*(d^3 + 17*d^
2*e*x + 136*d*e^2*x^2 + 680*e^3*x^3)) + 792*a^7*b^3*e^7*(13*A*e*(
d^3 + 17*d^2*e*x + 136*d*e^2*x^2 + 680*e^3*x^3) + 4*B*(d^4 + 17*d
^3*e*x + 136*d^2*e^2*x^2 + 680*d*e^3*x^3 + 2380*e^4*x^4)) + 462*a
^6*b^4*e^6*(12*A*e*(d^4 + 17*d^3*e*x + 136*d^2*e^2*x^2 + 680*d*e^
3*x^3 + 2380*e^4*x^4) + 5*B*(d^5 + 17*d^4*e*x + 136*d^3*e^2*x^2 +
 680*d^2*e^3*x^3 + 2380*d*e^4*x^4 + 6188*e^5*x^5)) + 252*a^5*b^5*
e^5*(11*A*e*(d^5 + 17*d^4*e*x + 136*d^3*e^2*x^2 + 680*d^2*e^3*x^3
 + 2380*d*e^4*x^4 + 6188*e^5*x^5) + 6*B*(d^6 + 17*d^5*e*x + 136*d
^4*e^2*x^2 + 680*d^3*e^3*x^3 + 2380*d^2*e^4*x^4 + 6188*d*e^5*x^5
+ 12376*e^6*x^6)) + 126*a^4*b^6*e^4*(10*A*e*(d^6 + 17*d^5*e*x + 1
36*d^4*e^2*x^2 + 680*d^3*e^3*x^3 + 2380*d^2*e^4*x^4 + 6188*d*e^5*
x^5 + 12376*e^6*x^6) + 7*B*(d^7 + 17*d^6*e*x + 136*d^5*e^2*x^2 +
680*d^4*e^3*x^3 + 2380*d^3*e^4*x^4 + 6188*d^2*e^5*x^5 + 12376*d*e
^6*x^6 + 19448*e^7*x^7)) + 56*a^3*b^7*e^3*(9*A*e*(d^7 + 17*d^6*e*
x + 136*d^5*e^2*x^2 + 680*d^4*e^3*x^3 + 2380*d^3*e^4*x^4 + 6188*d
^2*e^5*x^5 + 12376*d*e^6*x^6 + 19448*e^7*x^7) + 8*B*(d^8 + 17*d^7
*e*x + 136*d^6*e^2*x^2 + 680*d^5*e^3*x^3 + 2380*d^4*e^4*x^4 + 618
8*d^3*e^5*x^5 + 12376*d^2*e^6*x^6 + 19448*d*e^7*x^7 + 24310*e^8*x
^8)) + 21*a^2*b^8*e^2*(8*A*e*(d^8 + 17*d^7*e*x + 136*d^6*e^2*x^2
+ 680*d^5*e^3*x^3 + 2380*d^4*e^4*x^4 + 6188*d^3*e^5*x^5 + 12376*d
^2*e^6*x^6 + 19448*d*e^7*x^7 + 24310*e^8*x^8) + 9*B*(d^9 + 17*d^8
*e*x + 136*d^7*e^2*x^2 + 680*d^6*e^3*x^3 + 2380*d^5*e^4*x^4 + 618
8*d^4*e^5*x^5 + 12376*d^3*e^6*x^6 + 19448*d^2*e^7*x^7 + 24310*d*e
^8*x^8 + 24310*e^9*x^9)) + 6*a*b^9*e*(7*A*e*(d^9 + 17*d^8*e*x + 1
36*d^7*e^2*x^2 + 680*d^6*e^3*x^3 + 2380*d^5*e^4*x^4 + 6188*d^4*e^
5*x^5 + 12376*d^3*e^6*x^6 + 19448*d^2*e^7*x^7 + 24310*d*e^8*x^8 +
 24310*e^9*x^9) + 10*B*(d^10 + 17*d^9*e*x + 136*d^8*e^2*x^2 + 680
*d^7*e^3*x^3 + 2380*d^6*e^4*x^4 + 6188*d^5*e^5*x^5 + 12376*d^4*e^
6*x^6 + 19448*d^3*e^7*x^7 + 24310*d^2*e^8*x^8 + 24310*d*e^9*x^9 +
 19448*e^10*x^10)) + b^10*(6*A*e*(d^10 + 17*d^9*e*x + 136*d^8*e^2
*x^2 + 680*d^7*e^3*x^3 + 2380*d^6*e^4*x^4 + 6188*d^5*e^5*x^5 + 12
376*d^4*e^6*x^6 + 19448*d^3*e^7*x^7 + 24310*d^2*e^8*x^8 + 24310*d
*e^9*x^9 + 19448*e^10*x^10) + 11*B*(d^11 + 17*d^10*e*x + 136*d^9*
e^2*x^2 + 680*d^8*e^3*x^3 + 2380*d^7*e^4*x^4 + 6188*d^6*e^5*x^5 +
 12376*d^5*e^6*x^6 + 19448*d^4*e^7*x^7 + 24310*d^3*e^8*x^8 + 2431
0*d^2*e^9*x^9 + 19448*d*e^10*x^10 + 12376*e^11*x^11)))/(816816*e^
12*(d + e*x)^17)
```

Maple [B] time = 0.016, size = 1942, normalized size = 5.8

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^10*(B*x+A)/(e*x+d)^18,x)
```

```
[Out] -15/14*b^2*(8*A*a^7*b*e^8-56*A*a^6*b^2*d*e^7+168*A*a^5*b^3*d^2*e^
6-280*A*a^4*b^4*d^3*e^5+280*A*a^3*b^5*d^4*e^4-168*A*a^2*b^6*d^5*e
^3+56*A*a*b^7*d^6*e^2-8*A*b^8*d^7*e+3*B*a^8*e^8-32*B*a^7*b*d*e^7+
140*B*a^6*b^2*d^2*e^6-336*B*a^5*b^3*d^3*e^5+490*B*a^4*b^4*d^4*e^4
-448*B*a^3*b^5*d^5*e^3+252*B*a^2*b^6*d^6*e^2-80*B*a*b^7*d^7*e+11*
B*b^8*d^8)/e^12/(e*x+d)^14-5/3*b^7*(3*A*a^2*b*e^3-6*A*a*b^2*d*e^2
+3*A*b^3*d^2*e+8*B*a^3*e^3-27*B*a^2*b*d*e^2+30*B*a*b^2*d^2*e-11*B
*b^3*d^3)/e^12/(e*x+d)^9-3*b^6*(4*A*a^3*b*e^4-12*A*a^2*b^2*d*e^3+
12*A*a*b^3*d^2*e^2-4*A*b^4*d^3*e+7*B*a^4*e^4-32*B*a^3*b*d*e^3+54*
B*a^2*b^2*d^2*e^2-40*B*a*b^3*d^3*e+11*B*b^4*d^4)/e^12/(e*x+d)^10-
1/6*B*b^10/e^12/(e*x+d)^6-5/8*b^8*(2*A*a*b*e^2-2*A*b^2*d*e+9*B*a^
2*e^2-20*B*a*b*d*e+11*B*b^2*d^2)/e^12/(e*x+d)^8-1/7*b^9*(A*b*e+10
*B*a*e-11*B*b*d)/e^12/(e*x+d)^7-7/2*b^4*(6*A*a^5*b*e^6-30*A*a^4*b
^2*d*e^5+60*A*a^3*b^3*d^2*e^4-60*A*a^2*b^4*d^3*e^3+30*A*a*b^5*d^4
*e^2-6*A*b^6*d^5*e+5*B*a^6*e^6-36*B*a^5*b*d*e^5+105*B*a^4*b^2*d^2
*e^4-160*B*a^3*b^3*d^3*e^3+135*B*a^2*b^4*d^4*e^2-60*B*a*b^5*d^5*e
+11*B*b^6*d^6)/e^12/(e*x+d)^12-42/11*b^5*(5*A*a^4*b*e^5-20*A*a^3*
b^2*d*e^4+30*A*a^2*b^3*d^2*e^3-20*A*a*b^4*d^3*e^2+5*A*b^5*d^4*e+6
*B*a^5*e^5-35*B*a^4*b*d*e^4+80*B*a^3*b^2*d^2*e^3-90*B*a^2*b^3*d^3
*e^2+50*B*a*b^4*d^4*e-11*B*b^5*d^5)/e^12/(e*x+d)^11-1/16*(10*A*a^
9*b*e^10-90*A*a^8*b^2*d*e^9+360*A*a^7*b^3*d^2*e^8-840*A*a^6*b^4*d
^3*e^7+1260*A*a^5*b^5*d^4*e^6-1260*A*a^4*b^6*d^5*e^5+840*A*a^3*b^
7*d^6*e^4-360*A*a^2*b^8*d^7*e^3+90*A*a*b^9*d^8*e^2-10*A*b^10*d^9*
e+B*a^10*e^10-20*B*a^9*b*d*e^9+135*B*a^8*b^2*d^2*e^8-480*B*a^7*b^
3*d^3*e^7+1050*B*a^6*b^4*d^4*e^6-1512*B*a^5*b^5*d^5*e^5+1470*B*a^
4*b^6*d^6*e^4-960*B*a^3*b^7*d^7*e^3+405*B*a^2*b^8*d^8*e^2-100*B*a
*b^9*d^9*e+11*B*b^10*d^10)/e^12/(e*x+d)^16-1/17*(A*a^10*e^11-10*A
*a^9*b*d*e^10+45*A*a^8*b^2*d^2*e^9-120*A*a^7*b^3*d^3*e^8+210*A*a^
6*b^4*d^4*e^7-252*A*a^5*b^5*d^5*e^6+210*A*a^4*b^6*d^6*e^5-120*A*a
^3*b^7*d^7*e^4+45*A*a^2*b^8*d^8*e^3-10*A*a*b^9*d^9*e^2+A*b^10*d^1
0*e-B*a^10*d*e^10+10*B*a^9*b*d^2*e^9-45*B*a^8*b^2*d^3*e^8+120*B*a
^7*b^3*d^4*e^7-210*B*a^6*b^4*d^5*e^6+252*B*a^5*b^5*d^6*e^5-210*B*
a^4*b^6*d^7*e^4+120*B*a^3*b^7*d^8*e^3-45*B*a^2*b^8*d^9*e^2+10*B*a
*b^9*d^10*e-B*b^10*d^11)/e^12/(e*x+d)^17-30/13*b^3*(7*A*a^6*b*e^7
-42*A*a^5*b^2*d*e^6+105*A*a^4*b^3*d^2*e^5-140*A*a^3*b^4*d^3*e^4+1
05*A*a^2*b^5*d^4*e^3-42*A*a*b^6*d^5*e^2+7*A*b^7*d^6*e+4*B*a^7*e^7
-35*B*a^6*b*d*e^6+126*B*a^5*b^2*d^2*e^5-245*B*a^4*b^3*d^3*e^4+280
*B*a^3*b^4*d^4*e^3-189*B*a^2*b^5*d^5*e^2+70*B*a*b^6*d^6*e-11*B*b^
7*d^7)/e^12/(e*x+d)^13-1/3*b*(9*A*a^8*b*e^9-72*A*a^7*b^2*d*e^8+25
2*A*a^6*b^3*d^2*e^7-504*A*a^5*b^4*d^3*e^6+630*A*a^4*b^5*d^4*e^5-5
04*A*a^3*b^6*d^5*e^4+252*A*a^2*b^7*d^6*e^3-72*A*a*b^8*d^7*e^2+9*A
*b^9*d^8*e+2*B*a^9*e^9-27*B*a^8*b*d*e^8+144*B*a^7*b^2*d^2*e^7-420
*B*a^6*b^3*d^3*e^6+756*B*a^5*b^4*d^4*e^5-882*B*a^4*b^5*d^5*e^4+67
2*B*a^3*b^6*d^6*e^3-324*B*a^2*b^7*d^7*e^2+90*B*a*b^8*d^8*e-11*B*b
^9*d^9)/e^12/(e*x+d)^15
```

Maxima [A] time = 1.57147, size = 2693, normalized size = 8.04

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d)^18,x, algorithm="maxima")
```

```
[Out] -1/816816*(136136*B*b^10*e^11*x^11 + 11*B*b^10*d^11 + 48048*A*a^1
0*e^11 + 6*(10*B*a*b^9 + A*b^10)*d^10*e + 21*(9*B*a^2*b^8 + 2*A*a
*b^9)*d^9*e^2 + 56*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^8*e^3 + 126*(7*B
*a^4*b^6 + 4*A*a^3*b^7)*d^7*e^4 + 252*(6*B*a^5*b^5 + 5*A*a^4*b^6)
*d^6*e^5 + 462*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^5*e^6 + 792*(4*B*a^7
*b^3 + 7*A*a^6*b^4)*d^4*e^7 + 1287*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^
```

```
3*e^8 + 2002*(2*B*a^9*b + 9*A*a^8*b^2)*d^2*e^9 + 3003*(B*a^10 + 1
0*A*a^9*b)*d*e^10 + 19448*(11*B*b^10*d*e^10 + 6*(10*B*a*b^9 + A*b
^10)*e^11)*x^10 + 24310*(11*B*b^10*d^2*e^9 + 6*(10*B*a*b^9 + A*b^
10)*d*e^10 + 21*(9*B*a^2*b^8 + 2*A*a*b^9)*e^11)*x^9 + 24310*(11*B
*b^10*d^3*e^8 + 6*(10*B*a*b^9 + A*b^10)*d^2*e^9 + 21*(9*B*a^2*b^8
 + 2*A*a*b^9)*d*e^10 + 56*(8*B*a^3*b^7 + 3*A*a^2*b^8)*e^11)*x^8 +
 19448*(11*B*b^10*d^4*e^7 + 6*(10*B*a*b^9 + A*b^10)*d^3*e^8 + 21*
(9*B*a^2*b^8 + 2*A*a*b^9)*d^2*e^9 + 56*(8*B*a^3*b^7 + 3*A*a^2*b^8
)*d*e^10 + 126*(7*B*a^4*b^6 + 4*A*a^3*b^7)*e^11)*x^7 + 12376*(11*
B*b^10*d^5*e^6 + 6*(10*B*a*b^9 + A*b^10)*d^4*e^7 + 21*(9*B*a^2*b^
8 + 2*A*a*b^9)*d^3*e^8 + 56*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^2*e^9 +
 126*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d*e^10 + 252*(6*B*a^5*b^5 + 5*A*
a^4*b^6)*e^11)*x^6 + 6188*(11*B*b^10*d^6*e^5 + 6*(10*B*a*b^9 + A*
b^10)*d^5*e^6 + 21*(9*B*a^2*b^8 + 2*A*a*b^9)*d^4*e^7 + 56*(8*B*a^
3*b^7 + 3*A*a^2*b^8)*d^3*e^8 + 126*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^
2*e^9 + 252*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d*e^10 + 462*(5*B*a^6*b^4
 + 6*A*a^5*b^5)*e^11)*x^5 + 2380*(11*B*b^10*d^7*e^4 + 6*(10*B*a*b
^9 + A*b^10)*d^6*e^5 + 21*(9*B*a^2*b^8 + 2*A*a*b^9)*d^5*e^6 + 56*
(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^4*e^7 + 126*(7*B*a^4*b^6 + 4*A*a^3*
b^7)*d^3*e^8 + 252*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^2*e^9 + 462*(5*B
*a^6*b^4 + 6*A*a^5*b^5)*d*e^10 + 792*(4*B*a^7*b^3 + 7*A*a^6*b^4)*
e^11)*x^4 + 680*(11*B*b^10*d^8*e^3 + 6*(10*B*a*b^9 + A*b^10)*d^7*
e^4 + 21*(9*B*a^2*b^8 + 2*A*a*b^9)*d^6*e^5 + 56*(8*B*a^3*b^7 + 3*
A*a^2*b^8)*d^5*e^6 + 126*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^4*e^7 + 25
2*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^3*e^8 + 462*(5*B*a^6*b^4 + 6*A*a^
5*b^5)*d^2*e^9 + 792*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d*e^10 + 1287*(3
*B*a^8*b^2 + 8*A*a^7*b^3)*e^11)*x^3 + 136*(11*B*b^10*d^9*e^2 + 6*
(10*B*a*b^9 + A*b^10)*d^8*e^3 + 21*(9*B*a^2*b^8 + 2*A*a*b^9)*d^7*
e^4 + 56*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^6*e^5 + 126*(7*B*a^4*b^6 +
 4*A*a^3*b^7)*d^5*e^6 + 252*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^4*e^7 +
 462*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^3*e^8 + 792*(4*B*a^7*b^3 + 7*A
*a^6*b^4)*d^2*e^9 + 1287*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d*e^10 + 200
2*(2*B*a^9*b + 9*A*a^8*b^2)*e^11)*x^2 + 17*(11*B*b^10*d^10*e + 6*
(10*B*a*b^9 + A*b^10)*d^9*e^2 + 21*(9*B*a^2*b^8 + 2*A*a*b^9)*d^8*
e^3 + 56*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^7*e^4 + 126*(7*B*a^4*b^6 +
 4*A*a^3*b^7)*d^6*e^5 + 252*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^5*e^6 +
 462*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^4*e^7 + 792*(4*B*a^7*b^3 + 7*A
*a^6*b^4)*d^3*e^8 + 1287*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^2*e^9 + 20
02*(2*B*a^9*b + 9*A*a^8*b^2)*d*e^10 + 3003*(B*a^10 + 10*A*a^9*b)*
e^11)*x)/(e^29*x^17 + 17*d*e^28*x^16 + 136*d^2*e^27*x^15 + 680*d^
3*e^26*x^14 + 2380*d^4*e^25*x^13 + 6188*d^5*e^24*x^12 + 12376*d^6
*e^23*x^11 + 19448*d^7*e^22*x^10 + 24310*d^8*e^21*x^9 + 24310*d^9
*e^20*x^8 + 19448*d^10*e^19*x^7 + 12376*d^11*e^18*x^6 + 6188*d^12
*e^17*x^5 + 2380*d^13*e^16*x^4 + 680*d^14*e^15*x^3 + 136*d^15*e^1
4*x^2 + 17*d^16*e^13*x + d^17*e^12)
```

Fricas [A] time = 0.220115, size = 2693, normalized size = 8.04

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^10/(e*x + d)^18,x, algorithm="fricas")
```

```
[Out] -1/816816*(136136*B*b^10*e^11*x^11 + 11*B*b^10*d^11 + 48048*A*a^1
0*e^11 + 6*(10*B*a*b^9 + A*b^10)*d^10*e + 21*(9*B*a^2*b^8 + 2*A*a
*b^9)*d^9*e^2 + 56*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^8*e^3 + 126*(7*B
*a^4*b^6 + 4*A*a^3*b^7)*d^7*e^4 + 252*(6*B*a^5*b^5 + 5*A*a^4*b^6)
*d^6*e^5 + 462*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^5*e^6 + 792*(4*B*a^7
*b^3 + 7*A*a^6*b^4)*d^4*e^7 + 1287*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^
3*e^8 + 2002*(2*B*a^9*b + 9*A*a^8*b^2)*d^2*e^9 + 3003*(B*a^10 + 1
0*A*a^9*b)*d*e^10 + 19448*(11*B*b^10*d*e^10 + 6*(10*B*a*b^9 + A*b
^10)*e^11)*x^10 + 24310*(11*B*b^10*d^2*e^9 + 6*(10*B*a*b^9 + A*b^
10)*d*e^10 + 21*(9*B*a^2*b^8 + 2*A*a*b^9)*e^11)*x^9 + 24310*(11*B
*b^10*d^3*e^8 + 6*(10*B*a*b^9 + A*b^10)*d^2*e^9 + 21*(9*B*a^2*b^8
 + 2*A*a*b^9)*d*e^10 + 56*(8*B*a^3*b^7 + 3*A*a^2*b^8)*e^11)*x^8 +
 19448*(11*B*b^10*d^4*e^7 + 6*(10*B*a*b^9 + A*b^10)*d^3*e^8 + 21*
(9*B*a^2*b^8 + 2*A*a*b^9)*d^2*e^9 + 56*(8*B*a^3*b^7 + 3*A*a^2*b^8
)*d*e^10 + 126*(7*B*a^4*b^6 + 4*A*a^3*b^7)*e^11)*x^7 + 12376*(11*
B*b^10*d^5*e^6 + 6*(10*B*a*b^9 + A*b^10)*d^4*e^7 + 21*(9*B*a^2*b^
```

```
8 + 2*A*a*b^9)*d^3*e^8 + 56*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^2*e^9 +
 126*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d*e^10 + 252*(6*B*a^5*b^5 + 5*A*
a^4*b^6)*e^11)*x^6 + 6188*(11*B*b^10*d^6*e^5 + 6*(10*B*a*b^9 + A*
b^10)*d^5*e^6 + 21*(9*B*a^2*b^8 + 2*A*a*b^9)*d^4*e^7 + 56*(8*B*a^
3*b^7 + 3*A*a^2*b^8)*d^3*e^8 + 126*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^
2*e^9 + 252*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d*e^10 + 462*(5*B*a^6*b^4
 + 6*A*a^5*b^5)*e^11)*x^5 + 2380*(11*B*b^10*d^7*e^4 + 6*(10*B*a*b
^9 + A*b^10)*d^6*e^5 + 21*(9*B*a^2*b^8 + 2*A*a*b^9)*d^5*e^6 + 56*
(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^4*e^7 + 126*(7*B*a^4*b^6 + 4*A*a^3*
b^7)*d^3*e^8 + 252*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^2*e^9 + 462*(5*B
*a^6*b^4 + 6*A*a^5*b^5)*d*e^10 + 792*(4*B*a^7*b^3 + 7*A*a^6*b^4)*
e^11)*x^4 + 680*(11*B*b^10*d^8*e^3 + 6*(10*B*a*b^9 + A*b^10)*d^7*
e^4 + 21*(9*B*a^2*b^8 + 2*A*a*b^9)*d^6*e^5 + 56*(8*B*a^3*b^7 + 3*
A*a^2*b^8)*d^5*e^6 + 126*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^4*e^7 + 25
2*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^3*e^8 + 462*(5*B*a^6*b^4 + 6*A*a^
5*b^5)*d^2*e^9 + 792*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d*e^10 + 1287*(3
*B*a^8*b^2 + 8*A*a^7*b^3)*e^11)*x^3 + 136*(11*B*b^10*d^9*e^2 + 6*
(10*B*a*b^9 + A*b^10)*d^8*e^3 + 21*(9*B*a^2*b^8 + 2*A*a*b^9)*d^7*
e^4 + 56*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^6*e^5 + 126*(7*B*a^4*b^6 +
 4*A*a^3*b^7)*d^5*e^6 + 252*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^4*e^7 +
 462*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^3*e^8 + 792*(4*B*a^7*b^3 + 7*A
*a^6*b^4)*d^2*e^9 + 1287*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d*e^10 + 200
2*(2*B*a^9*b + 9*A*a^8*b^2)*e^11)*x^2 + 17*(11*B*b^10*d^10*e + 6*
(10*B*a*b^9 + A*b^10)*d^9*e^2 + 21*(9*B*a^2*b^8 + 2*A*a*b^9)*d^8*
e^3 + 56*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^7*e^4 + 126*(7*B*a^4*b^6 +
 4*A*a^3*b^7)*d^6*e^5 + 252*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^5*e^6 +
 462*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^4*e^7 + 792*(4*B*a^7*b^3 + 7*A
*a^6*b^4)*d^3*e^8 + 1287*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^2*e^9 + 20
02*(2*B*a^9*b + 9*A*a^8*b^2)*d*e^10 + 3003*(B*a^10 + 10*A*a^9*b)*
e^11)*x)/(e^29*x^17 + 17*d*e^28*x^16 + 136*d^2*e^27*x^15 + 680*d^
3*e^26*x^14 + 2380*d^4*e^25*x^13 + 6188*d^5*e^24*x^12 + 12376*d^6
*e^23*x^11 + 19448*d^7*e^22*x^10 + 24310*d^8*e^21*x^9 + 24310*d^9
*e^20*x^8 + 19448*d^10*e^19*x^7 + 12376*d^11*e^18*x^6 + 6188*d^12
*e^17*x^5 + 2380*d^13*e^16*x^4 + 680*d^14*e^15*x^3 + 136*d^15*e^1
4*x^2 + 17*d^16*e^13*x + d^17*e^12)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)/(e*x+d)**18,x)

[Out] Timed out
```

GIAC/XCAS [A] time = 0.215481, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d)^18,x, algorithm="giac")

[Out] Done
```

3.1090 $\int \frac{(a+bx)^{10}(A+Bx)}{(d+ex)^{19}} dx$

Optimal. Leaf size=385

$$\frac{b^6(a+bx)^{11}(-18aBe+7Abe+11bBd)}{2450448e(d+ex)^{11}(bd-ae)^8}+\frac{b^5(a+bx)^{11}(-18aBe+7Abe+11bBd)}{222768e(d+ex)^{12}(bd-ae)^7}+\frac{b^4(a+bx)^{11}(-18aBe+7Abe+11bBd)}{37128e(d+ex)^{13}(bd-ae)^6}+\frac{b^3(a+bx)^{11}(-18aBe+7Abe+11bBd)}{8568e(d+ex)^{14}(bd-ae)^5}+\frac{b^2(a+bx)^{11}(-18aBe+7Abe+11bBd)}{2448e(d+ex)^{15}(bd-ae)^4}+\frac{b(a+bx)^{11}(-18aBe+7Abe+11bBd)}{816e(d+ex)^{16}(bd-ae)^3}+\frac{(a+bx)^{11}(-18aBe+7Abe+11bBd)}{306e(d+ex)^{17}(bd-ae)^2}-\frac{(a+bx)^{11}(Bd-Ae)}{18e(d+ex)^{18}(bd-ae)}$$

```
[Out] -((B*d - A*e)*(a + b*x)^11)/(18*e*(b*d - a*e)*(d + e*x)^18) + ((1
1*b*B*d + 7*A*b*e - 18*a*B*e)*(a + b*x)^11)/(306*e*(b*d - a*e)^2*
(d + e*x)^17) + (b*(11*b*B*d + 7*A*b*e - 18*a*B*e)*(a + b*x)^11)/
(816*e*(b*d - a*e)^3*(d + e*x)^16) + (b^2*(11*b*B*d + 7*A*b*e - 1
8*a*B*e)*(a + b*x)^11)/(2448*e*(b*d - a*e)^4*(d + e*x)^15) + (b^3
*(11*b*B*d + 7*A*b*e - 18*a*B*e)*(a + b*x)^11)/(8568*e*(b*d - a*e
)^5*(d + e*x)^14) + (b^4*(11*b*B*d + 7*A*b*e - 18*a*B*e)*(a + b*x
)^11)/(37128*e*(b*d - a*e)^6*(d + e*x)^13) + (b^5*(11*b*B*d + 7*A
*b*e - 18*a*B*e)*(a + b*x)^11)/(222768*e*(b*d - a*e)^7*(d + e*x)^
12) + (b^6*(11*b*B*d + 7*A*b*e - 18*a*B*e)*(a + b*x)^11)/(2450448
*e*(b*d - a*e)^8*(d + e*x)^11)
```

Rubi [A] time = 0.547008, antiderivative size = 385, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.15$

$$\frac{b^6(a+bx)^{11}(-18aBe+7Abe+11bBd)}{2450448e(d+ex)^{11}(bd-ae)^8}+\frac{b^5(a+bx)^{11}(-18aBe+7Abe+11bBd)}{222768e(d+ex)^{12}(bd-ae)^7}+\frac{b^4(a+bx)^{11}(-18aBe+7Abe+11bBd)}{37128e(d+ex)^{13}(bd-ae)^6}+\frac{b^3(a+bx)^{11}(-18aBe+7Abe+11bBd)}{8568e(d+ex)^{14}(bd-ae)^5}+\frac{b^2(a+bx)^{11}(-18aBe+7Abe+11bBd)}{2448e(d+ex)^{15}(bd-ae)^4}+\frac{b(a+bx)^{11}(-18aBe+7Abe+11bBd)}{816e(d+ex)^{16}(bd-ae)^3}+\frac{(a+bx)^{11}(-18aBe+7Abe+11bBd)}{306e(d+ex)^{17}(bd-ae)^2}-\frac{(a+bx)^{11}(Bd-Ae)}{18e(d+ex)^{18}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^10*(A + B*x))/(d + e*x)^19,x]
```


```
[Out] -((B*d - A*e)*(a + b*x)^11)/(18*e*(b*d - a*e)*(d + e*x)^18) + ((1
1*b*B*d + 7*A*b*e - 18*a*B*e)*(a + b*x)^11)/(306*e*(b*d - a*e)^2*
(d + e*x)^17) + (b*(11*b*B*d + 7*A*b*e - 18*a*B*e)*(a + b*x)^11)/
(816*e*(b*d - a*e)^3*(d + e*x)^16) + (b^2*(11*b*B*d + 7*A*b*e - 1
8*a*B*e)*(a + b*x)^11)/(2448*e*(b*d - a*e)^4*(d + e*x)^15) + (b^3
*(11*b*B*d + 7*A*b*e - 18*a*B*e)*(a + b*x)^11)/(8568*e*(b*d - a*e
)^5*(d + e*x)^14) + (b^4*(11*b*B*d + 7*A*b*e - 18*a*B*e)*(a + b*x
)^11)/(37128*e*(b*d - a*e)^6*(d + e*x)^13) + (b^5*(11*b*B*d + 7*A
*b*e - 18*a*B*e)*(a + b*x)^11)/(222768*e*(b*d - a*e)^7*(d + e*x)^
12) + (b^6*(11*b*B*d + 7*A*b*e - 18*a*B*e)*(a + b*x)^11)/(2450448
*e*(b*d - a*e)^8*(d + e*x)^11)
```

Rubi in Sympy [A] time = 103.81, size = 369, normalized size = 0.96

$$\frac{b^6(a+bx)^{11}(7Abe-18Bae+11Bbd)}{2450448e(d+ex)^{11}(ae-bd)^8}-\frac{b^5(a+bx)^{11}(7Abe-18Bae+11Bbd)}{222768e(d+ex)^{12}(ae-bd)^7}+\frac{b^4(a+bx)^{11}(7Abe-18Bae+11Bbd)}{37128e(d+ex)^{13}(ae-bd)^6}-\frac{b^3(a+bx)^{11}(7Abe-18Bae+11Bbd)}{8568e(d+ex)^{14}(ae-bd)^5}+\frac{b^2(a+bx)^{11}(7Abe-18Bae+11Bbd)}{2448e(d+ex)^{15}(ae-bd)^4}-\frac{b(a+bx)^{11}(7Abe-18Bae+11Bbd)}{816e(d+ex)^{16}(ae-bd)^3}+\frac{(a+bx)^{11}(7Abe-18Bae+11Bbd)}{306e(d+ex)^{17}(ae-bd)^2}-\frac{(a+bx)^{11}(Ae-Bd)}{18e(d+ex)^{18}(ae-bd)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)/(e*x+d)**19,x)
```

```
[Out] b**6*(a + b*x)**11*(7*A*b*e - 18*B*a*e + 11*B*b*d)/(2450448*e*(d
+ e*x)**11*(a*e - b*d)**8) - b**5*(a + b*x)**11*(7*A*b*e - 18*B*a
*e + 11*B*b*d)/(222768*e*(d + e*x)**12*(a*e - b*d)**7) + b**4*(a
+ b*x)**11*(7*A*b*e - 18*B*a*e + 11*B*b*d)/(37128*e*(d + e*x)**13
*(a*e - b*d)**6) - b**3*(a + b*x)**11*(7*A*b*e - 18*B*a*e + 11*B*
b*d)/(8568*e*(d + e*x)**14*(a*e - b*d)**5) + b**2*(a + b*x)**11*(
7*A*b*e - 18*B*a*e + 11*B*b*d)/(2448*e*(d + e*x)**15*(a*e - b*d)*
*4) - b*(a + b*x)**11*(7*A*b*e - 18*B*a*e + 11*B*b*d)/(816*e*(d +
 e*x)**16*(a*e - b*d)**3) + (a + b*x)**11*(7*A*b*e - 18*B*a*e + 1
1*B*b*d)/(306*e*(d + e*x)**17*(a*e - b*d)**2) - (a + b*x)**11*(A*
e - B*d)/(18*e*(d + e*x)**18*(a*e - b*d))
```

Mathematica [B] time = 3.05253, size = 1428, normalized size = 3.71

$$-\frac{\left(7Ae\left(d^{10}+18exd^9+153e^2x^2d^8+816e^3x^3d^7+3060e^4x^4d^6+8568e^5x^5d^5+18564e^6x^6d^4+31824e^7x^7d^3+43758e^8x^8d^2+\right.\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^10*(A + B*x))/(d + e*x)^19,x]
```

```
[Out] -(8008*a^10*e^10*(17*A*e + B*(d + 18*e*x)) + 10010*a^9*b*e^9*(8*A
*e*(d + 18*e*x) + B*(d^2 + 18*d*e*x + 153*e^2*x^2)) + 9009*a^8*b^
2*e^8*(5*A*e*(d^2 + 18*d*e*x + 153*e^2*x^2) + B*(d^3 + 18*d^2*e*x
 + 153*d*e^2*x^2 + 816*e^3*x^3)) + 3432*a^7*b^3*e^7*(7*A*e*(d^3 +
 18*d^2*e*x + 153*d*e^2*x^2 + 816*e^3*x^3) + 2*B*(d^4 + 18*d^3*e*
x + 153*d^2*e^2*x^2 + 816*d*e^3*x^3 + 3060*e^4*x^4)) + 924*a^6*b^
4*e^6*(13*A*e*(d^4 + 18*d^3*e*x + 153*d^2*e^2*x^2 + 816*d*e^3*x^3
 + 3060*e^4*x^4) + 5*B*(d^5 + 18*d^4*e*x + 153*d^3*e^2*x^2 + 816*
d^2*e^3*x^3 + 3060*d*e^4*x^4 + 8568*e^5*x^5)) + 2772*a^5*b^5*e^5*
(2*A*e*(d^5 + 18*d^4*e*x + 153*d^3*e^2*x^2 + 816*d^2*e^3*x^3 + 30
60*d*e^4*x^4 + 8568*e^5*x^5) + B*(d^6 + 18*d^5*e*x + 153*d^4*e^2*
x^2 + 816*d^3*e^3*x^3 + 3060*d^2*e^4*x^4 + 8568*d*e^5*x^5 + 18564
*e^6*x^6)) + 210*a^4*b^6*e^4*(11*A*e*(d^6 + 18*d^5*e*x + 153*d^4*
e^2*x^2 + 816*d^3*e^3*x^3 + 3060*d^2*e^4*x^4 + 8568*d*e^5*x^5 + 1
8564*e^6*x^6) + 7*B*(d^7 + 18*d^6*e*x + 153*d^5*e^2*x^2 + 816*d^4
*e^3*x^3 + 3060*d^3*e^4*x^4 + 8568*d^2*e^5*x^5 + 18564*d*e^6*x^6
+ 31824*e^7*x^7)) + 168*a^3*b^7*e^3*(5*A*e*(d^7 + 18*d^6*e*x + 15
3*d^5*e^2*x^2 + 816*d^4*e^3*x^3 + 3060*d^3*e^4*x^4 + 8568*d^2*e^5
*x^5 + 18564*d*e^6*x^6 + 31824*e^7*x^7) + 4*B*(d^8 + 18*d^7*e*x +
 153*d^6*e^2*x^2 + 816*d^5*e^3*x^3 + 3060*d^4*e^4*x^4 + 8568*d^3*
e^5*x^5 + 18564*d^2*e^6*x^6 + 31824*d*e^7*x^7 + 43758*e^8*x^8)) +
 252*a^2*b^8*e^2*(A*e*(d^8 + 18*d^7*e*x + 153*d^6*e^2*x^2 + 816*d
^5*e^3*x^3 + 3060*d^4*e^4*x^4 + 8568*d^3*e^5*x^5 + 18564*d^2*e^6*
x^6 + 31824*d*e^7*x^7 + 43758*e^8*x^8) + B*(d^9 + 18*d^8*e*x + 15
3*d^7*e^2*x^2 + 816*d^6*e^3*x^3 + 3060*d^5*e^4*x^4 + 8568*d^4*e^5
*x^5 + 18564*d^3*e^6*x^6 + 31824*d^2*e^7*x^7 + 43758*d*e^8*x^8 +
48620*e^9*x^9)) + 14*a*b^9*e*(4*A*e*(d^9 + 18*d^8*e*x + 153*d^7*e
^2*x^2 + 816*d^6*e^3*x^3 + 3060*d^5*e^4*x^4 + 8568*d^4*e^5*x^5 +
18564*d^3*e^6*x^6 + 31824*d^2*e^7*x^7 + 43758*d*e^8*x^8 + 48620*e
```

```
^9*x^9) + 5*B*(d^10 + 18*d^9*e*x + 153*d^8*e^2*x^2 + 816*d^7*e^3*
x^3 + 3060*d^6*e^4*x^4 + 8568*d^5*e^5*x^5 + 18564*d^4*e^6*x^6 + 3
1824*d^3*e^7*x^7 + 43758*d^2*e^8*x^8 + 48620*d*e^9*x^9 + 43758*e^
10*x^10)) + b^10*(7*A*e*(d^10 + 18*d^9*e*x + 153*d^8*e^2*x^2 + 81
6*d^7*e^3*x^3 + 3060*d^6*e^4*x^4 + 8568*d^5*e^5*x^5 + 18564*d^4*e
^6*x^6 + 31824*d^3*e^7*x^7 + 43758*d^2*e^8*x^8 + 48620*d*e^9*x^9
+ 43758*e^10*x^10) + 11*B*(d^11 + 18*d^10*e*x + 153*d^9*e^2*x^2 +
 816*d^8*e^3*x^3 + 3060*d^7*e^4*x^4 + 8568*d^6*e^5*x^5 + 18564*d^
5*e^6*x^6 + 31824*d^4*e^7*x^7 + 43758*d^3*e^8*x^8 + 48620*d^2*e^9
*x^9 + 43758*d*e^10*x^10 + 31824*e^11*x^11)))/(2450448*e^12*(d +
e*x)^18)
```

Maple [B] time = 0.016, size = 1942, normalized size = 5.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^10*(B*x+A)/(e*x+d)^19,x)
```

```
[Out] -15/7*b^3*(7*A*a^6*b*e^7-42*A*a^5*b^2*d*e^6+105*A*a^4*b^3*d^2*e^5
-140*A*a^3*b^4*d^3*e^4+105*A*a^2*b^5*d^4*e^3-42*A*a*b^6*d^5*e^2+7
*A*b^7*d^6*e+4*B*a^7*e^7-35*B*a^6*b*d*e^6+126*B*a^5*b^2*d^2*e^5-2
45*B*a^4*b^3*d^3*e^4+280*B*a^3*b^4*d^4*e^3-189*B*a^2*b^5*d^5*e^2+
70*B*a*b^6*d^6*e-11*B*b^7*d^7)/e^12/(e*x+d)^14-1/18*(A*a^10*e^11-
10*A*a^9*b*d*e^10+45*A*a^8*b^2*d^2*e^9-120*A*a^7*b^3*d^3*e^8+210*
A*a^6*b^4*d^4*e^7-252*A*a^5*b^5*d^5*e^6+210*A*a^4*b^6*d^6*e^5-120
*A*a^3*b^7*d^7*e^4+45*A*a^2*b^8*d^8*e^3-10*A*a*b^9*d^9*e^2+A*b^10
*d^10*e-B*a^10*d*e^10+10*B*a^9*b*d^2*e^9-45*B*a^8*b^2*d^3*e^8+120
*B*a^7*b^3*d^4*e^7-210*B*a^6*b^4*d^5*e^6+252*B*a^5*b^5*d^6*e^5-21
0*B*a^4*b^6*d^7*e^4+120*B*a^3*b^7*d^8*e^3-45*B*a^2*b^8*d^9*e^2+10
*B*a*b^9*d^10*e-B*b^10*d^11)/e^12/(e*x+d)^18-5/9*b^8*(2*A*a*b*e^2
-2*A*b^2*d*e+9*B*a^2*e^2-20*B*a*b*d*e+11*B*b^2*d^2)/e^12/(e*x+d)^
9-3/2*b^7*(3*A*a^2*b*e^3-6*A*a*b^2*d*e^2+3*A*b^3*d^2*e+8*B*a^3*e^
3-27*B*a^2*b*d*e^2+30*B*a*b^2*d^2*e-11*B*b^3*d^3)/e^12/(e*x+d)^10
-1/8*b^9*(A*b*e+10*B*a*e-11*B*b*d)/e^12/(e*x+d)^8-1/7*B*b^10/e^12
/(e*x+d)^7-7/2*b^5*(5*A*a^4*b*e^5-20*A*a^3*b^2*d*e^4+30*A*a^2*b^3
*d^2*e^3-20*A*a*b^4*d^3*e^2+5*A*b^5*d^4*e+6*B*a^5*e^5-35*B*a^4*b*
d*e^4+80*B*a^3*b^2*d^2*e^3-90*B*a^2*b^3*d^3*e^2+50*B*a*b^4*d^4*e-
11*B*b^5*d^5)/e^12/(e*x+d)^12-30/11*b^6*(4*A*a^3*b*e^4-12*A*a^2*b
^2*d*e^3+12*A*a*b^3*d^2*e^2-4*A*b^4*d^3*e+7*B*a^4*e^4-32*B*a^3*b*
d*e^3+54*B*a^2*b^2*d^2*e^2-40*B*a*b^3*d^3*e+11*B*b^4*d^4)/e^12/(e
*x+d)^11-5/16*b*(9*A*a^8*b*e^9-72*A*a^7*b^2*d*e^8+252*A*a^6*b^3*d
^2*e^7-504*A*a^5*b^4*d^3*e^6+630*A*a^4*b^5*d^4*e^5-504*A*a^3*b^6*
d^5*e^4+252*A*a^2*b^7*d^6*e^3-72*A*a*b^8*d^7*e^2+9*A*b^9*d^8*e+2*
B*a^9*e^9-27*B*a^8*b*d*e^8+144*B*a^7*b^2*d^2*e^7-420*B*a^6*b^3*d^
3*e^6+756*B*a^5*b^4*d^4*e^5-882*B*a^4*b^5*d^5*e^4+672*B*a^3*b^6*d
^6*e^3-324*B*a^2*b^7*d^7*e^2+90*B*a*b^8*d^8*e-11*B*b^9*d^9)/e^12/
(e*x+d)^16-1/17*(10*A*a^9*b*e^10-90*A*a^8*b^2*d*e^9+360*A*a^7*b^3
*d^2*e^8-840*A*a^6*b^4*d^3*e^7+1260*A*a^5*b^5*d^4*e^6-1260*A*a^4*
b^6*d^5*e^5+840*A*a^3*b^7*d^6*e^4-360*A*a^2*b^8*d^7*e^3+90*A*a*b^
9*d^8*e^2-10*A*b^10*d^9*e+B*a^10*e^10-20*B*a^9*b*d*e^9+135*B*a^8*
b^2*d^2*e^8-480*B*a^7*b^3*d^3*e^7+1050*B*a^6*b^4*d^4*e^6-1512*B*a
^5*b^5*d^5*e^5+1470*B*a^4*b^6*d^6*e^4-960*B*a^3*b^7*d^7*e^3+405*B
*a^2*b^8*d^8*e^2-100*B*a*b^9*d^9*e+11*B*b^10*d^10)/e^12/(e*x+d)^1
7-42/13*b^4*(6*A*a^5*b*e^6-30*A*a^4*b^2*d*e^5+60*A*a^3*b^3*d^2*e^
4-60*A*a^2*b^4*d^3*e^3+30*A*a*b^5*d^4*e^2-6*A*b^6*d^5*e+5*B*a^6*e
^6-36*B*a^5*b*d*e^5+105*B*a^4*b^2*d^2*e^4-160*B*a^3*b^3*d^3*e^3+1
35*B*a^2*b^4*d^4*e^2-60*B*a*b^5*d^5*e+11*B*b^6*d^6)/e^12/(e*x+d)^
13-b^2*(8*A*a^7*b*e^8-56*A*a^6*b^2*d*e^7+168*A*a^5*b^3*d^2*e^6-28
0*A*a^4*b^4*d^3*e^5+280*A*a^3*b^5*d^4*e^4-168*A*a^2*b^6*d^5*e^3+5
6*A*a*b^7*d^6*e^2-8*A*b^8*d^7*e+3*B*a^8*e^8-32*B*a^7*b*d*e^7+140*
B*a^6*b^2*d^2*e^6-336*B*a^5*b^3*d^3*e^5+490*B*a^4*b^4*d^4*e^4-448
*B*a^3*b^5*d^5*e^3+252*B*a^2*b^6*d^6*e^2-80*B*a*b^7*d^7*e+11*B*b^
8*d^8)/e^12/(e*x+d)^15
```

Maxima [A] time = 1.60563, size = 2708, normalized size = 7.03

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^10/(e*x + d)^19,x, algorithm="maxima")
```

```
[Out] -1/2450448*(350064*B*b^10*e^11*x^11 + 11*B*b^10*d^11 + 136136*A*a
^10*e^11 + 7*(10*B*a*b^9 + A*b^10)*d^10*e + 28*(9*B*a^2*b^8 + 2*A
*a*b^9)*d^9*e^2 + 84*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^8*e^3 + 210*(7
*B*a^4*b^6 + 4*A*a^3*b^7)*d^7*e^4 + 462*(6*B*a^5*b^5 + 5*A*a^4*b^
6)*d^6*e^5 + 924*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^5*e^6 + 1716*(4*B*
a^7*b^3 + 7*A*a^6*b^4)*d^4*e^7 + 3003*(3*B*a^8*b^2 + 8*A*a^7*b^3)
*d^3*e^8 + 5005*(2*B*a^9*b + 9*A*a^8*b^2)*d^2*e^9 + 8008*(B*a^10
+ 10*A*a^9*b)*d*e^10 + 43758*(11*B*b^10*d*e^10 + 7*(10*B*a*b^9 +
A*b^10)*e^11)*x^10 + 48620*(11*B*b^10*d^2*e^9 + 7*(10*B*a*b^9 + A
*b^10)*d*e^10 + 28*(9*B*a^2*b^8 + 2*A*a*b^9)*e^11)*x^9 + 43758*(1
1*B*b^10*d^3*e^8 + 7*(10*B*a*b^9 + A*b^10)*d^2*e^9 + 28*(9*B*a^2*
b^8 + 2*A*a*b^9)*d*e^10 + 84*(8*B*a^3*b^7 + 3*A*a^2*b^8)*e^11)*x^
8 + 31824*(11*B*b^10*d^4*e^7 + 7*(10*B*a*b^9 + A*b^10)*d^3*e^8 +
28*(9*B*a^2*b^8 + 2*A*a*b^9)*d^2*e^9 + 84*(8*B*a^3*b^7 + 3*A*a^2*
b^8)*d*e^10 + 210*(7*B*a^4*b^6 + 4*A*a^3*b^7)*e^11)*x^7 + 18564*(
11*B*b^10*d^5*e^6 + 7*(10*B*a*b^9 + A*b^10)*d^4*e^7 + 28*(9*B*a^2
*b^8 + 2*A*a*b^9)*d^3*e^8 + 84*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^2*e^
9 + 210*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d*e^10 + 462*(6*B*a^5*b^5 + 5
*A*a^4*b^6)*e^11)*x^6 + 8568*(11*B*b^10*d^6*e^5 + 7*(10*B*a*b^9 +
 A*b^10)*d^5*e^6 + 28*(9*B*a^2*b^8 + 2*A*a*b^9)*d^4*e^7 + 84*(8*B
*a^3*b^7 + 3*A*a^2*b^8)*d^3*e^8 + 210*(7*B*a^4*b^6 + 4*A*a^3*b^7)
*d^2*e^9 + 462*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d*e^10 + 924*(5*B*a^6*
b^4 + 6*A*a^5*b^5)*e^11)*x^5 + 3060*(11*B*b^10*d^7*e^4 + 7*(10*B*
a*b^9 + A*b^10)*d^6*e^5 + 28*(9*B*a^2*b^8 + 2*A*a*b^9)*d^5*e^6 +
84*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^4*e^7 + 210*(7*B*a^4*b^6 + 4*A*a
^3*b^7)*d^3*e^8 + 462*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^2*e^9 + 924*(
5*B*a^6*b^4 + 6*A*a^5*b^5)*d*e^10 + 1716*(4*B*a^7*b^3 + 7*A*a^6*b
^4)*e^11)*x^4 + 816*(11*B*b^10*d^8*e^3 + 7*(10*B*a*b^9 + A*b^10)*
d^7*e^4 + 28*(9*B*a^2*b^8 + 2*A*a*b^9)*d^6*e^5 + 84*(8*B*a^3*b^7
+ 3*A*a^2*b^8)*d^5*e^6 + 210*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^4*e^7
+ 462*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^3*e^8 + 924*(5*B*a^6*b^4 + 6*
A*a^5*b^5)*d^2*e^9 + 1716*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d*e^10 + 30
03*(3*B*a^8*b^2 + 8*A*a^7*b^3)*e^11)*x^3 + 153*(11*B*b^10*d^9*e^2
 + 7*(10*B*a*b^9 + A*b^10)*d^8*e^3 + 28*(9*B*a^2*b^8 + 2*A*a*b^9)
*d^7*e^4 + 84*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^6*e^5 + 210*(7*B*a^4*
b^6 + 4*A*a^3*b^7)*d^5*e^6 + 462*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^4*
e^7 + 924*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^3*e^8 + 1716*(4*B*a^7*b^3
 + 7*A*a^6*b^4)*d^2*e^9 + 3003*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d*e^10
 + 5005*(2*B*a^9*b + 9*A*a^8*b^2)*e^11)*x^2 + 18*(11*B*b^10*d^10*
e + 7*(10*B*a*b^9 + A*b^10)*d^9*e^2 + 28*(9*B*a^2*b^8 + 2*A*a*b^9
)*d^8*e^3 + 84*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^7*e^4 + 210*(7*B*a^4
*b^6 + 4*A*a^3*b^7)*d^6*e^5 + 462*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^5
*e^6 + 924*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^4*e^7 + 1716*(4*B*a^7*b^
3 + 7*A*a^6*b^4)*d^3*e^8 + 3003*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^2*e
^9 + 5005*(2*B*a^9*b + 9*A*a^8*b^2)*d*e^10 + 8008*(B*a^10 + 10*A*
a^9*b)*e^11)*x)/(e^30*x^18 + 18*d*e^29*x^17 + 153*d^2*e^28*x^16 +
 816*d^3*e^27*x^15 + 3060*d^4*e^26*x^14 + 8568*d^5*e^25*x^13 + 18
564*d^6*e^24*x^12 + 31824*d^7*e^23*x^11 + 43758*d^8*e^22*x^10 + 4
8620*d^9*e^21*x^9 + 43758*d^10*e^20*x^8 + 31824*d^11*e^19*x^7 + 1
8564*d^12*e^18*x^6 + 8568*d^13*e^17*x^5 + 3060*d^14*e^16*x^4 + 81
6*d^15*e^15*x^3 + 153*d^16*e^14*x^2 + 18*d^17*e^13*x + d^18*e^12)
```

Fricas [A] time = 0.218566, size = 2708, normalized size = 7.03

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^10/(e*x + d)^19,x, algorithm="fricas")
```

```
[Out] -1/2450448*(350064*B*b^10*e^11*x^11 + 11*B*b^10*d^11 + 136136*A*a
^10*e^11 + 7*(10*B*a*b^9 + A*b^10)*d^10*e + 28*(9*B*a^2*b^8 + 2*A
*a*b^9)*d^9*e^2 + 84*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^8*e^3 + 210*(7
*B*a^4*b^6 + 4*A*a^3*b^7)*d^7*e^4 + 462*(6*B*a^5*b^5 + 5*A*a^4*b^
6)*d^6*e^5 + 924*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^5*e^6 + 1716*(4*B*
a^7*b^3 + 7*A*a^6*b^4)*d^4*e^7 + 3003*(3*B*a^8*b^2 + 8*A*a^7*b^3)
*d^3*e^8 + 5005*(2*B*a^9*b + 9*A*a^8*b^2)*d^2*e^9 + 8008*(B*a^10
+ 10*A*a^9*b)*d*e^10 + 43758*(11*B*b^10*d*e^10 + 7*(10*B*a*b^9 +
A*b^10)*e^11)*x^10 + 48620*(11*B*b^10*d^2*e^9 + 7*(10*B*a*b^9 + A
*b^10)*d*e^10 + 28*(9*B*a^2*b^8 + 2*A*a*b^9)*e^11)*x^9 + 43758*(1
1*B*b^10*d^3*e^8 + 7*(10*B*a*b^9 + A*b^10)*d^2*e^9 + 28*(9*B*a^2*
b^8 + 2*A*a*b^9)*d*e^10 + 84*(8*B*a^3*b^7 + 3*A*a^2*b^8)*e^11)*x^
8 + 31824*(11*B*b^10*d^4*e^7 + 7*(10*B*a*b^9 + A*b^10)*d^3*e^8 +
28*(9*B*a^2*b^8 + 2*A*a*b^9)*d^2*e^9 + 84*(8*B*a^3*b^7 + 3*A*a^2*
b^8)*d*e^10 + 210*(7*B*a^4*b^6 + 4*A*a^3*b^7)*e^11)*x^7 + 18564*(
11*B*b^10*d^5*e^6 + 7*(10*B*a*b^9 + A*b^10)*d^4*e^7 + 28*(9*B*a^2
*b^8 + 2*A*a*b^9)*d^3*e^8 + 84*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^2*e^
9 + 210*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d*e^10 + 462*(6*B*a^5*b^5 + 5
*A*a^4*b^6)*e^11)*x^6 + 8568*(11*B*b^10*d^6*e^5 + 7*(10*B*a*b^9 +
 A*b^10)*d^5*e^6 + 28*(9*B*a^2*b^8 + 2*A*a*b^9)*d^4*e^7 + 84*(8*B
*a^3*b^7 + 3*A*a^2*b^8)*d^3*e^8 + 210*(7*B*a^4*b^6 + 4*A*a^3*b^7)
*d^2*e^9 + 462*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d*e^10 + 924*(5*B*a^6*
b^4 + 6*A*a^5*b^5)*e^11)*x^5 + 3060*(11*B*b^10*d^7*e^4 + 7*(10*B*
a*b^9 + A*b^10)*d^6*e^5 + 28*(9*B*a^2*b^8 + 2*A*a*b^9)*d^5*e^6 +
84*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^4*e^7 + 210*(7*B*a^4*b^6 + 4*A*a
^3*b^7)*d^3*e^8 + 462*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^2*e^9 + 924*(
5*B*a^6*b^4 + 6*A*a^5*b^5)*d*e^10 + 1716*(4*B*a^7*b^3 + 7*A*a^6*b
^4)*e^11)*x^4 + 816*(11*B*b^10*d^8*e^3 + 7*(10*B*a*b^9 + A*b^10)*
d^7*e^4 + 28*(9*B*a^2*b^8 + 2*A*a*b^9)*d^6*e^5 + 84*(8*B*a^3*b^7
+ 3*A*a^2*b^8)*d^5*e^6 + 210*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^4*e^7
+ 462*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^3*e^8 + 924*(5*B*a^6*b^4 + 6*
A*a^5*b^5)*d^2*e^9 + 1716*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d*e^10 + 30
03*(3*B*a^8*b^2 + 8*A*a^7*b^3)*e^11)*x^3 + 153*(11*B*b^10*d^9*e^2
 + 7*(10*B*a*b^9 + A*b^10)*d^8*e^3 + 28*(9*B*a^2*b^8 + 2*A*a*b^9)
*d^7*e^4 + 84*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^6*e^5 + 210*(7*B*a^4*
b^6 + 4*A*a^3*b^7)*d^5*e^6 + 462*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^4*
e^7 + 924*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^3*e^8 + 1716*(4*B*a^7*b^3
 + 7*A*a^6*b^4)*d^2*e^9 + 3003*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d*e^10
 + 5005*(2*B*a^9*b + 9*A*a^8*b^2)*e^11)*x^2 + 18*(11*B*b^10*d^10*
e + 7*(10*B*a*b^9 + A*b^10)*d^9*e^2 + 28*(9*B*a^2*b^8 + 2*A*a*b^9
)*d^8*e^3 + 84*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^7*e^4 + 210*(7*B*a^4
*b^6 + 4*A*a^3*b^7)*d^6*e^5 + 462*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^5
*e^6 + 924*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^4*e^7 + 1716*(4*B*a^7*b^
3 + 7*A*a^6*b^4)*d^3*e^8 + 3003*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^2*e
^9 + 5005*(2*B*a^9*b + 9*A*a^8*b^2)*d*e^10 + 8008*(B*a^10 + 10*A*
a^9*b)*e^11)*x)/(e^30*x^18 + 18*d*e^29*x^17 + 153*d^2*e^28*x^16 +
 816*d^3*e^27*x^15 + 3060*d^4*e^26*x^14 + 8568*d^5*e^25*x^13 + 18
564*d^6*e^24*x^12 + 31824*d^7*e^23*x^11 + 43758*d^8*e^22*x^10 + 4
8620*d^9*e^21*x^9 + 43758*d^10*e^20*x^8 + 31824*d^11*e^19*x^7 + 1
8564*d^12*e^18*x^6 + 8568*d^13*e^17*x^5 + 3060*d^14*e^16*x^4 + 81
6*d^15*e^15*x^3 + 153*d^16*e^14*x^2 + 18*d^17*e^13*x + d^18*e^12)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)/(e*x+d)**19,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.215653, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d)^19,x, algorithm="giac")

[Out] Done
```

3.1091 $\int \frac{(a+bx)^{10}(A+Bx)}{(d+ex)^{20}}\,dx$

Optimal. Leaf size=460

$$\frac{b^9(-10aBe-Abe+11bBd)}{9e^{12}(d+ex)^9}-\frac{b^8(bd-ae)(-9aBe-2Abe+11bBd)}{2e^{12}(d+ex)^{10}}+\frac{15b^7(bd-ae)^2(-8aBe-3Abe+11bBd)}{11e^{12}(d+ex)^{11}}-\frac{5b^6(bd-ae)^3(-7aBe-4Abe+11bBd)}{2e^{12}(d+ex)^{12}}+\frac{42b^5(bd-ae)^4(-6aBe-5Abe+11bBd)}{13e^{12}(d+ex)^{13}}-\frac{3b^4(bd-ae)^5(-5aBe-6Abe+11bBd)}{e^{12}(d+ex)^{14}}+\frac{2b^3(bd-ae)^6(-4aBe-7Abe+11bBd)}{e^{12}(d+ex)^{15}}-\frac{15b^2(bd-ae)^7(-3aBe-8Abe+11bBd)}{16e^{12}(d+ex)^{16}}+\frac{5b(bd-ae)^8(-2aBe-9Abe+11bBd)}{17e^{12}(d+ex)^{17}}-\frac{(bd-ae)^9(-aBe-10Abe+11bBd)}{18e^{12}(d+ex)^{18}}+\frac{(bd-ae)^{10}(Bd-Ae)}{19e^{12}(d+ex)^{19}}-\frac{b^{10}B}{8e^{12}(d+ex)^8}$$

```
[Out] ((b*d - a*e)^10*(B*d - A*e))/(19*e^12*(d + e*x)^19) - ((b*d - a*e
)^9*(11*b*B*d - 10*A*b*e - a*B*e))/(18*e^12*(d + e*x)^18) + (5*b*
(b*d - a*e)^8*(11*b*B*d - 9*A*b*e - 2*a*B*e))/(17*e^12*(d + e*x)^
17) - (15*b^2*(b*d - a*e)^7*(11*b*B*d - 8*A*b*e - 3*a*B*e))/(16*e
^12*(d + e*x)^16) + (2*b^3*(b*d - a*e)^6*(11*b*B*d - 7*A*b*e - 4*
a*B*e))/(e^12*(d + e*x)^15) - (3*b^4*(b*d - a*e)^5*(11*b*B*d - 6*
A*b*e - 5*a*B*e))/(e^12*(d + e*x)^14) + (42*b^5*(b*d - a*e)^4*(11
*b*B*d - 5*A*b*e - 6*a*B*e))/(13*e^12*(d + e*x)^13) - (5*b^6*(b*d
 - a*e)^3*(11*b*B*d - 4*A*b*e - 7*a*B*e))/(2*e^12*(d + e*x)^12) +
 (15*b^7*(b*d - a*e)^2*(11*b*B*d - 3*A*b*e - 8*a*B*e))/(11*e^12*(
d + e*x)^11) - (b^8*(b*d - a*e)*(11*b*B*d - 2*A*b*e - 9*a*B*e))/(
2*e^12*(d + e*x)^10) + (b^9*(11*b*B*d - A*b*e - 10*a*B*e))/(9*e^1
2*(d + e*x)^9) - (b^10*B)/(8*e^12*(d + e*x)^8)
```

Rubi [A] time = 2.48261, antiderivative size = 460, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$\frac{b^9(-10aBe-Abe+11bBd)}{9e^{12}(d+ex)^9}-\frac{b^8(bd-ae)(-9aBe-2Abe+11bBd)}{2e^{12}(d+ex)^{10}}+\frac{15b^7(bd-ae)^2(-8aBe-3Abe+11bBd)}{11e^{12}(d+ex)^{11}}-\frac{5b^6(bd-ae)^3(-7aBe-4Abe+11bBd)}{2e^{12}(d+ex)^{12}}+\frac{42b^5(bd-ae)^4(-6aBe-5Abe+11bBd)}{13e^{12}(d+ex)^{13}}-\frac{3b^4(bd-ae)^5(-5aBe-6Abe+11bBd)}{e^{12}(d+ex)^{14}}+\frac{2b^3(bd-ae)^6(-4aBe-7Abe+11bBd)}{e^{12}(d+ex)^{15}}-\frac{15b^2(bd-ae)^7(-3aBe-8Abe+11bBd)}{16e^{12}(d+ex)^{16}}+\frac{5b(bd-ae)^8(-2aBe-9Abe+11bBd)}{17e^{12}(d+ex)^{17}}-\frac{(bd-ae)^9(-aBe-10Abe+11bBd)}{18e^{12}(d+ex)^{18}}+\frac{(bd-ae)^{10}(Bd-Ae)}{19e^{12}(d+ex)^{19}}-\frac{b^{10}B}{8e^{12}(d+ex)^8}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^10*(A + B*x))/(d + e*x)^20,x]
```


```
[Out] ((b*d - a*e)^10*(B*d - A*e))/(19*e^12*(d + e*x)^19) - ((b*d - a*e
)^9*(11*b*B*d - 10*A*b*e - a*B*e))/(18*e^12*(d + e*x)^18) + (5*b*
(b*d - a*e)^8*(11*b*B*d - 9*A*b*e - 2*a*B*e))/(17*e^12*(d + e*x)^
17) - (15*b^2*(b*d - a*e)^7*(11*b*B*d - 8*A*b*e - 3*a*B*e))/(16*e
^12*(d + e*x)^16) + (2*b^3*(b*d - a*e)^6*(11*b*B*d - 7*A*b*e - 4*
a*B*e))/(e^12*(d + e*x)^15) - (3*b^4*(b*d - a*e)^5*(11*b*B*d - 6*
A*b*e - 5*a*B*e))/(e^12*(d + e*x)^14) + (42*b^5*(b*d - a*e)^4*(11
*b*B*d - 5*A*b*e - 6*a*B*e))/(13*e^12*(d + e*x)^13) - (5*b^6*(b*d
 - a*e)^3*(11*b*B*d - 4*A*b*e - 7*a*B*e))/(2*e^12*(d + e*x)^12) +
 (15*b^7*(b*d - a*e)^2*(11*b*B*d - 3*A*b*e - 8*a*B*e))/(11*e^12*(
d + e*x)^11) - (b^8*(b*d - a*e)*(11*b*B*d - 2*A*b*e - 9*a*B*e))/(
2*e^12*(d + e*x)^10) + (b^9*(11*b*B*d - A*b*e - 10*a*B*e))/(9*e^1
```

```
2*(d + e*x)^9) - (b^10*B)/(8*e^12*(d + e*x)^8)
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)/(e*x+d)**20,x)
```

```
[Out] Timed out
```

Mathematica [B] time = 3.0945, size = 1433, normalized size = 3.12

$$-\frac{\left(8Ae\left(d^{10}+19exd^{9}+171e^{2}x^{2}d^{8}+969e^{3}x^{3}d^{7}+3876e^{4}x^{4}d^{6}+11628e^{5}x^{5}d^{5}+27132e^{6}x^{6}d^{4}+50388e^{7}x^{7}d^{3}+75582e^{8}x^{8}d^{2}+\right.\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^10*(A + B*x))/(d + e*x)^20,x]
```

```
[Out] -(19448*a^10*e^10*(18*A*e + B*(d + 19*e*x)) + 11440*a^9*b*e^9*(17
*A*e*(d + 19*e*x) + 2*B*(d^2 + 19*d*e*x + 171*e^2*x^2)) + 6435*a^
8*b^2*e^8*(16*A*e*(d^2 + 19*d*e*x + 171*e^2*x^2) + 3*B*(d^3 + 19*
d^2*e*x + 171*d*e^2*x^2 + 969*e^3*x^3)) + 3432*a^7*b^3*e^7*(15*A*
e*(d^3 + 19*d^2*e*x + 171*d*e^2*x^2 + 969*e^3*x^3) + 4*B*(d^4 + 1
9*d^3*e*x + 171*d^2*e^2*x^2 + 969*d*e^3*x^3 + 3876*e^4*x^4)) + 17
16*a^6*b^4*e^6*(14*A*e*(d^4 + 19*d^3*e*x + 171*d^2*e^2*x^2 + 969*
d*e^3*x^3 + 3876*e^4*x^4) + 5*B*(d^5 + 19*d^4*e*x + 171*d^3*e^2*x
^2 + 969*d^2*e^3*x^3 + 3876*d*e^4*x^4 + 11628*e^5*x^5)) + 792*a^5
*b^5*e^5*(13*A*e*(d^5 + 19*d^4*e*x + 171*d^3*e^2*x^2 + 969*d^2*e^
3*x^3 + 3876*d*e^4*x^4 + 11628*e^5*x^5) + 6*B*(d^6 + 19*d^5*e*x +
 171*d^4*e^2*x^2 + 969*d^3*e^3*x^3 + 3876*d^2*e^4*x^4 + 11628*d*e
^5*x^5 + 27132*e^6*x^6)) + 330*a^4*b^6*e^4*(12*A*e*(d^6 + 19*d^5*
e*x + 171*d^4*e^2*x^2 + 969*d^3*e^3*x^3 + 3876*d^2*e^4*x^4 + 1162
8*d*e^5*x^5 + 27132*e^6*x^6) + 7*B*(d^7 + 19*d^6*e*x + 171*d^5*e^
2*x^2 + 969*d^4*e^3*x^3 + 3876*d^3*e^4*x^4 + 11628*d^2*e^5*x^5 +
27132*d*e^6*x^6 + 50388*e^7*x^7)) + 120*a^3*b^7*e^3*(11*A*e*(d^7
+ 19*d^6*e*x + 171*d^5*e^2*x^2 + 969*d^4*e^3*x^3 + 3876*d^3*e^4*x
^4 + 11628*d^2*e^5*x^5 + 27132*d*e^6*x^6 + 50388*e^7*x^7) + 8*B*(
d^8 + 19*d^7*e*x + 171*d^6*e^2*x^2 + 969*d^5*e^3*x^3 + 3876*d^4*e
^4*x^4 + 11628*d^3*e^5*x^5 + 27132*d^2*e^6*x^6 + 50388*d*e^7*x^7
+ 75582*e^8*x^8)) + 36*a^2*b^8*e^2*(10*A*e*(d^8 + 19*d^7*e*x + 17
1*d^6*e^2*x^2 + 969*d^5*e^3*x^3 + 3876*d^4*e^4*x^4 + 11628*d^3*e^
5*x^5 + 27132*d^2*e^6*x^6 + 50388*d*e^7*x^7 + 75582*e^8*x^8) + 9*
B*(d^9 + 19*d^8*e*x + 171*d^7*e^2*x^2 + 969*d^6*e^3*x^3 + 3876*d^
5*e^4*x^4 + 11628*d^4*e^5*x^5 + 27132*d^3*e^6*x^6 + 50388*d^2*e^7
*x^7 + 75582*d*e^8*x^8 + 92378*e^9*x^9)) + 8*a*b^9*e*(9*A*e*(d^9
+ 19*d^8*e*x + 171*d^7*e^2*x^2 + 969*d^6*e^3*x^3 + 3876*d^5*e^4*x
^4 + 11628*d^4*e^5*x^5 + 27132*d^3*e^6*x^6 + 50388*d^2*e^7*x^7 +
75582*d*e^8*x^8 + 92378*e^9*x^9) + 10*B*(d^10 + 19*d^9*e*x + 171*
d^8*e^2*x^2 + 969*d^7*e^3*x^3 + 3876*d^6*e^4*x^4 + 11628*d^5*e^5*
x^5 + 27132*d^4*e^6*x^6 + 50388*d^3*e^7*x^7 + 75582*d^2*e^8*x^8 +
 92378*d*e^9*x^9 + 92378*e^10*x^10)) + b^10*(8*A*e*(d^10 + 19*d^9
*e*x + 171*d^8*e^2*x^2 + 969*d^7*e^3*x^3 + 3876*d^6*e^4*x^4 + 116
28*d^5*e^5*x^5 + 27132*d^4*e^6*x^6 + 50388*d^3*e^7*x^7 + 75582*d^
2*e^8*x^8 + 92378*d*e^9*x^9 + 92378*e^10*x^10) + 11*B*(d^11 + 19*
d^10*e*x + 171*d^9*e^2*x^2 + 969*d^8*e^3*x^3 + 3876*d^7*e^4*x^4 +
 11628*d^6*e^5*x^5 + 27132*d^5*e^6*x^6 + 50388*d^4*e^7*x^7 + 7558
2*d^3*e^8*x^8 + 92378*d^2*e^9*x^9 + 92378*d*e^10*x^10 + 75582*e^1
1*x^11)))/(6651216*e^12*(d + e*x)^19)
```

Maple [B] time = 0.016, size = 1942, normalized size = 4.2

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^10*(B*x+A)/(e*x+d)^20,x)
```

```
[Out] -3*b^4*(6*A*a^5*b*e^6-30*A*a^4*b^2*d*e^5+60*A*a^3*b^3*d^2*e^4-60*
A*a^2*b^4*d^3*e^3+30*A*a*b^5*d^4*e^2-6*A*b^6*d^5*e+5*B*a^6*e^6-36
*B*a^5*b*d*e^5+105*B*a^4*b^2*d^2*e^4-160*B*a^3*b^3*d^3*e^3+135*B*
a^2*b^4*d^4*e^2-60*B*a*b^5*d^5*e+11*B*b^6*d^6)/e^12/(e*x+d)^14-1/
18*(10*A*a^9*b*e^10-90*A*a^8*b^2*d*e^9+360*A*a^7*b^3*d^2*e^8-840*
A*a^6*b^4*d^3*e^7+1260*A*a^5*b^5*d^4*e^6-1260*A*a^4*b^6*d^5*e^5+8
40*A*a^3*b^7*d^6*e^4-360*A*a^2*b^8*d^7*e^3+90*A*a*b^9*d^8*e^2-10*
A*b^10*d^9*e+B*a^10*e^10-20*B*a^9*b*d*e^9+135*B*a^8*b^2*d^2*e^8-4
80*B*a^7*b^3*d^3*e^7+1050*B*a^6*b^4*d^4*e^6-1512*B*a^5*b^5*d^5*e^
5+1470*B*a^4*b^6*d^6*e^4-960*B*a^3*b^7*d^7*e^3+405*B*a^2*b^8*d^8*
e^2-100*B*a*b^9*d^9*e+11*B*b^10*d^10)/e^12/(e*x+d)^18-1/9*b^9*(A*
b*e+10*B*a*e-11*B*b*d)/e^12/(e*x+d)^9-1/2*b^8*(2*A*a*b*e^2-2*A*b^
2*d*e+9*B*a^2*e^2-20*B*a*b*d*e+11*B*b^2*d^2)/e^12/(e*x+d)^10-1/8*
b^10*B/e^12/(e*x+d)^8-5/2*b^6*(4*A*a^3*b*e^4-12*A*a^2*b^2*d*e^3+1
2*A*a*b^3*d^2*e^2-4*A*b^4*d^3*e+7*B*a^4*e^4-32*B*a^3*b*d*e^3+54*B
*a^2*b^2*d^2*e^2-40*B*a*b^3*d^3*e+11*B*b^4*d^4)/e^12/(e*x+d)^12-1
5/11*b^7*(3*A*a^2*b*e^3-6*A*a*b^2*d*e^2+3*A*b^3*d^2*e+8*B*a^3*e^3
-27*B*a^2*b*d*e^2+30*B*a*b^2*d^2*e-11*B*b^3*d^3)/e^12/(e*x+d)^11-
1/19*(A*a^10*e^11-10*A*a^9*b*d*e^10+45*A*a^8*b^2*d^2*e^9-120*A*a^
7*b^3*d^3*e^8+210*A*a^6*b^4*d^4*e^7-252*A*a^5*b^5*d^5*e^6+210*A*a
^4*b^6*d^6*e^5-120*A*a^3*b^7*d^7*e^4+45*A*a^2*b^8*d^8*e^3-10*A*a*
b^9*d^9*e^2+A*b^10*d^10*e-B*a^10*d*e^10+10*B*a^9*b*d^2*e^9-45*B*a
^8*b^2*d^3*e^8+120*B*a^7*b^3*d^4*e^7-210*B*a^6*b^4*d^5*e^6+252*B*
a^5*b^5*d^6*e^5-210*B*a^4*b^6*d^7*e^4+120*B*a^3*b^7*d^8*e^3-45*B*
a^2*b^8*d^9*e^2+10*B*a*b^9*d^10*e-B*b^10*d^11)/e^12/(e*x+d)^19-15
/16*b^2*(8*A*a^7*b*e^8-56*A*a^6*b^2*d*e^7+168*A*a^5*b^3*d^2*e^6-2
80*A*a^4*b^4*d^3*e^5+280*A*a^3*b^5*d^4*e^4-168*A*a^2*b^6*d^5*e^3+
56*A*a*b^7*d^6*e^2-8*A*b^8*d^7*e+3*B*a^8*e^8-32*B*a^7*b*d*e^7+140
*B*a^6*b^2*d^2*e^6-336*B*a^5*b^3*d^3*e^5+490*B*a^4*b^4*d^4*e^4-44
8*B*a^3*b^5*d^5*e^3+252*B*a^2*b^6*d^6*e^2-80*B*a*b^7*d^7*e+11*B*b
^8*d^8)/e^12/(e*x+d)^16-5/17*b*(9*A*a^8*b*e^9-72*A*a^7*b^2*d*e^8+
252*A*a^6*b^3*d^2*e^7-504*A*a^5*b^4*d^3*e^6+630*A*a^4*b^5*d^4*e^5
-504*A*a^3*b^6*d^5*e^4+252*A*a^2*b^7*d^6*e^3-72*A*a*b^8*d^7*e^2+9
*A*b^9*d^8*e+2*B*a^9*e^9-27*B*a^8*b*d*e^8+144*B*a^7*b^2*d^2*e^7-4
20*B*a^6*b^3*d^3*e^6+756*B*a^5*b^4*d^4*e^5-882*B*a^4*b^5*d^5*e^4+
672*B*a^3*b^6*d^6*e^3-324*B*a^2*b^7*d^7*e^2+90*B*a*b^8*d^8*e-11*B
*b^9*d^9)/e^12/(e*x+d)^17-42/13*b^5*(5*A*a^4*b*e^5-20*A*a^3*b^2*d
*e^4+30*A*a^2*b^3*d^2*e^3-20*A*a*b^4*d^3*e^2+5*A*b^5*d^4*e+6*B*a^
5*e^5-35*B*a^4*b*d*e^4+80*B*a^3*b^2*d^2*e^3-90*B*a^2*b^3*d^3*e^2+
50*B*a*b^4*d^4*e-11*B*b^5*d^5)/e^12/(e*x+d)^13-2*b^3*(7*A*a^6*b*e
^7-42*A*a^5*b^2*d*e^6+105*A*a^4*b^3*d^2*e^5-140*A*a^3*b^4*d^3*e^4
+105*A*a^2*b^5*d^4*e^3-42*A*a*b^6*d^5*e^2+7*A*b^7*d^6*e+4*B*a^7*e
^7-35*B*a^6*b*d*e^6+126*B*a^5*b^2*d^2*e^5-245*B*a^4*b^3*d^3*e^4+2
80*B*a^3*b^4*d^4*e^3-189*B*a^2*b^5*d^5*e^2+70*B*a*b^6*d^6*e-11*B*
b^7*d^7)/e^12/(e*x+d)^15
```

Maxima [A] time = 1.59378, size = 2723, normalized size = 5.92

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d)^20,x, algorithm="maxima")
```

```
[Out] -1/6651216*(831402*B*b^10*e^11*x^11 + 11*B*b^10*d^11 + 350064*A*a
^10*e^11 + 8*(10*B*a*b^9 + A*b^10)*d^10*e + 36*(9*B*a^2*b^8 + 2*A
*a*b^9)*d^9*e^2 + 120*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^8*e^3 + 330*(
7*B*a^4*b^6 + 4*A*a^3*b^7)*d^7*e^4 + 792*(6*B*a^5*b^5 + 5*A*a^4*b
^6)*d^6*e^5 + 1716*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^5*e^6 + 3432*(4*
B*a^7*b^3 + 7*A*a^6*b^4)*d^4*e^7 + 6435*(3*B*a^8*b^2 + 8*A*a^7*b^
```

```
3)*d^3*e^8 + 11440*(2*B*a^9*b + 9*A*a^8*b^2)*d^2*e^9 + 19448*(B*a
^10 + 10*A*a^9*b)*d*e^10 + 92378*(11*B*b^10*d*e^10 + 8*(10*B*a*b^
9 + A*b^10)*e^11)*x^10 + 92378*(11*B*b^10*d^2*e^9 + 8*(10*B*a*b^9
 + A*b^10)*d*e^10 + 36*(9*B*a^2*b^8 + 2*A*a*b^9)*e^11)*x^9 + 7558
2*(11*B*b^10*d^3*e^8 + 8*(10*B*a*b^9 + A*b^10)*d^2*e^9 + 36*(9*B*
a^2*b^8 + 2*A*a*b^9)*d*e^10 + 120*(8*B*a^3*b^7 + 3*A*a^2*b^8)*e^1
1)*x^8 + 50388*(11*B*b^10*d^4*e^7 + 8*(10*B*a*b^9 + A*b^10)*d^3*e
^8 + 36*(9*B*a^2*b^8 + 2*A*a*b^9)*d^2*e^9 + 120*(8*B*a^3*b^7 + 3*
A*a^2*b^8)*d*e^10 + 330*(7*B*a^4*b^6 + 4*A*a^3*b^7)*e^11)*x^7 + 2
7132*(11*B*b^10*d^5*e^6 + 8*(10*B*a*b^9 + A*b^10)*d^4*e^7 + 36*(9
*B*a^2*b^8 + 2*A*a*b^9)*d^3*e^8 + 120*(8*B*a^3*b^7 + 3*A*a^2*b^8)
*d^2*e^9 + 330*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d*e^10 + 792*(6*B*a^5*
b^5 + 5*A*a^4*b^6)*e^11)*x^6 + 11628*(11*B*b^10*d^6*e^5 + 8*(10*B
*a*b^9 + A*b^10)*d^5*e^6 + 36*(9*B*a^2*b^8 + 2*A*a*b^9)*d^4*e^7 +
 120*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^3*e^8 + 330*(7*B*a^4*b^6 + 4*A
*a^3*b^7)*d^2*e^9 + 792*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d*e^10 + 1716
*(5*B*a^6*b^4 + 6*A*a^5*b^5)*e^11)*x^5 + 3876*(11*B*b^10*d^7*e^4
+ 8*(10*B*a*b^9 + A*b^10)*d^6*e^5 + 36*(9*B*a^2*b^8 + 2*A*a*b^9)*
d^5*e^6 + 120*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^4*e^7 + 330*(7*B*a^4*
b^6 + 4*A*a^3*b^7)*d^3*e^8 + 792*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^2*
e^9 + 1716*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d*e^10 + 3432*(4*B*a^7*b^3
 + 7*A*a^6*b^4)*e^11)*x^4 + 969*(11*B*b^10*d^8*e^3 + 8*(10*B*a*b^
9 + A*b^10)*d^7*e^4 + 36*(9*B*a^2*b^8 + 2*A*a*b^9)*d^6*e^5 + 120*
(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^5*e^6 + 330*(7*B*a^4*b^6 + 4*A*a^3*
b^7)*d^4*e^7 + 792*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^3*e^8 + 1716*(5*
B*a^6*b^4 + 6*A*a^5*b^5)*d^2*e^9 + 3432*(4*B*a^7*b^3 + 7*A*a^6*b^
4)*d*e^10 + 6435*(3*B*a^8*b^2 + 8*A*a^7*b^3)*e^11)*x^3 + 171*(11*
B*b^10*d^9*e^2 + 8*(10*B*a*b^9 + A*b^10)*d^8*e^3 + 36*(9*B*a^2*b^
8 + 2*A*a*b^9)*d^7*e^4 + 120*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^6*e^5
+ 330*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^5*e^6 + 792*(6*B*a^5*b^5 + 5*
A*a^4*b^6)*d^4*e^7 + 1716*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^3*e^8 + 3
432*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^2*e^9 + 6435*(3*B*a^8*b^2 + 8*A
*a^7*b^3)*d*e^10 + 11440*(2*B*a^9*b + 9*A*a^8*b^2)*e^11)*x^2 + 19
*(11*B*b^10*d^10*e + 8*(10*B*a*b^9 + A*b^10)*d^9*e^2 + 36*(9*B*a^
2*b^8 + 2*A*a*b^9)*d^8*e^3 + 120*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^7*
e^4 + 330*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^6*e^5 + 792*(6*B*a^5*b^5
+ 5*A*a^4*b^6)*d^5*e^6 + 1716*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^4*e^7
 + 3432*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^3*e^8 + 6435*(3*B*a^8*b^2 +
 8*A*a^7*b^3)*d^2*e^9 + 11440*(2*B*a^9*b + 9*A*a^8*b^2)*d*e^10 +
19448*(B*a^10 + 10*A*a^9*b)*e^11)*x)/(e^31*x^19 + 19*d*e^30*x^18
+ 171*d^2*e^29*x^17 + 969*d^3*e^28*x^16 + 3876*d^4*e^27*x^15 + 11
628*d^5*e^26*x^14 + 27132*d^6*e^25*x^13 + 50388*d^7*e^24*x^12 + 7
5582*d^8*e^23*x^11 + 92378*d^9*e^22*x^10 + 92378*d^10*e^21*x^9 +
75582*d^11*e^20*x^8 + 50388*d^12*e^19*x^7 + 27132*d^13*e^18*x^6 +
 11628*d^14*e^17*x^5 + 3876*d^15*e^16*x^4 + 969*d^16*e^15*x^3 + 1
71*d^17*e^14*x^2 + 19*d^18*e^13*x + d^19*e^12)
```

Fricas [A] time = 0.222085, size = 2723, normalized size = 5.92

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d)^20,x, algorithm="fricas")
```

```
[Out] -1/6651216*(831402*B*b^10*e^11*x^11 + 11*B*b^10*d^11 + 350064*A*a
^10*e^11 + 8*(10*B*a*b^9 + A*b^10)*d^10*e + 36*(9*B*a^2*b^8 + 2*A
*a*b^9)*d^9*e^2 + 120*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^8*e^3 + 330*(
7*B*a^4*b^6 + 4*A*a^3*b^7)*d^7*e^4 + 792*(6*B*a^5*b^5 + 5*A*a^4*b
^6)*d^6*e^5 + 1716*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^5*e^6 + 3432*(4*
B*a^7*b^3 + 7*A*a^6*b^4)*d^4*e^7 + 6435*(3*B*a^8*b^2 + 8*A*a^7*b^
3)*d^3*e^8 + 11440*(2*B*a^9*b + 9*A*a^8*b^2)*d^2*e^9 + 19448*(B*a
^10 + 10*A*a^9*b)*d*e^10 + 92378*(11*B*b^10*d*e^10 + 8*(10*B*a*b^
9 + A*b^10)*e^11)*x^10 + 92378*(11*B*b^10*d^2*e^9 + 8*(10*B*a*b^9
 + A*b^10)*d*e^10 + 36*(9*B*a^2*b^8 + 2*A*a*b^9)*e^11)*x^9 + 7558
2*(11*B*b^10*d^3*e^8 + 8*(10*B*a*b^9 + A*b^10)*d^2*e^9 + 36*(9*B*
a^2*b^8 + 2*A*a*b^9)*d*e^10 + 120*(8*B*a^3*b^7 + 3*A*a^2*b^8)*e^1
1)*x^8 + 50388*(11*B*b^10*d^4*e^7 + 8*(10*B*a*b^9 + A*b^10)*d^3*e
^8 + 36*(9*B*a^2*b^8 + 2*A*a*b^9)*d^2*e^9 + 120*(8*B*a^3*b^7 + 3*
A*a^2*b^8)*d*e^10 + 330*(7*B*a^4*b^6 + 4*A*a^3*b^7)*e^11)*x^7 + 2
```

```
7132*(11*B*b^10*d^5*e^6 + 8*(10*B*a*b^9 + A*b^10)*d^4*e^7 + 36*(9
*B*a^2*b^8 + 2*A*a*b^9)*d^3*e^8 + 120*(8*B*a^3*b^7 + 3*A*a^2*b^8)
*d^2*e^9 + 330*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d*e^10 + 792*(6*B*a^5*
b^5 + 5*A*a^4*b^6)*e^11)*x^6 + 11628*(11*B*b^10*d^6*e^5 + 8*(10*B
*a*b^9 + A*b^10)*d^5*e^6 + 36*(9*B*a^2*b^8 + 2*A*a*b^9)*d^4*e^7 +
 120*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^3*e^8 + 330*(7*B*a^4*b^6 + 4*A
*a^3*b^7)*d^2*e^9 + 792*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d*e^10 + 1716
*(5*B*a^6*b^4 + 6*A*a^5*b^5)*e^11)*x^5 + 3876*(11*B*b^10*d^7*e^4
+ 8*(10*B*a*b^9 + A*b^10)*d^6*e^5 + 36*(9*B*a^2*b^8 + 2*A*a*b^9)*
d^5*e^6 + 120*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^4*e^7 + 330*(7*B*a^4*
b^6 + 4*A*a^3*b^7)*d^3*e^8 + 792*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^2*
e^9 + 1716*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d*e^10 + 3432*(4*B*a^7*b^3
 + 7*A*a^6*b^4)*e^11)*x^4 + 969*(11*B*b^10*d^8*e^3 + 8*(10*B*a*b^
9 + A*b^10)*d^7*e^4 + 36*(9*B*a^2*b^8 + 2*A*a*b^9)*d^6*e^5 + 120*
(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^5*e^6 + 330*(7*B*a^4*b^6 + 4*A*a^3*
b^7)*d^4*e^7 + 792*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^3*e^8 + 1716*(5*
B*a^6*b^4 + 6*A*a^5*b^5)*d^2*e^9 + 3432*(4*B*a^7*b^3 + 7*A*a^6*b^
4)*d*e^10 + 6435*(3*B*a^8*b^2 + 8*A*a^7*b^3)*e^11)*x^3 + 171*(11*
B*b^10*d^9*e^2 + 8*(10*B*a*b^9 + A*b^10)*d^8*e^3 + 36*(9*B*a^2*b^
8 + 2*A*a*b^9)*d^7*e^4 + 120*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^6*e^5
+ 330*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^5*e^6 + 792*(6*B*a^5*b^5 + 5*
A*a^4*b^6)*d^4*e^7 + 1716*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^3*e^8 + 3
432*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^2*e^9 + 6435*(3*B*a^8*b^2 + 8*A
*a^7*b^3)*d*e^10 + 11440*(2*B*a^9*b + 9*A*a^8*b^2)*e^11)*x^2 + 19
*(11*B*b^10*d^10*e + 8*(10*B*a*b^9 + A*b^10)*d^9*e^2 + 36*(9*B*a^
2*b^8 + 2*A*a*b^9)*d^8*e^3 + 120*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^7*
e^4 + 330*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^6*e^5 + 792*(6*B*a^5*b^5
+ 5*A*a^4*b^6)*d^5*e^6 + 1716*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^4*e^7
 + 3432*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^3*e^8 + 6435*(3*B*a^8*b^2 +
 8*A*a^7*b^3)*d^2*e^9 + 11440*(2*B*a^9*b + 9*A*a^8*b^2)*d*e^10 +
19448*(B*a^10 + 10*A*a^9*b)*e^11)*x)/(e^31*x^19 + 19*d*e^30*x^18
+ 171*d^2*e^29*x^17 + 969*d^3*e^28*x^16 + 3876*d^4*e^27*x^15 + 11
628*d^5*e^26*x^14 + 27132*d^6*e^25*x^13 + 50388*d^7*e^24*x^12 + 7
5582*d^8*e^23*x^11 + 92378*d^9*e^22*x^10 + 92378*d^10*e^21*x^9 +
75582*d^11*e^20*x^8 + 50388*d^12*e^19*x^7 + 27132*d^13*e^18*x^6 +
 11628*d^14*e^17*x^5 + 3876*d^15*e^16*x^4 + 969*d^16*e^15*x^3 + 1
71*d^17*e^14*x^2 + 19*d^18*e^13*x + d^19*e^12)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)/(e*x+d)**20,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.213929, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d)^20,x, algorithm="giac")
```

```
[Out] Done
```

3.1092 $\int \frac{(a+bx)^{10}(A+Bx)}{(d+ex)^{21}}\,dx$

Optimal. Leaf size=462

$$\frac{b^9(-10aBe-Abe+11bBd)}{10e^{12}(d+ex)^{10}}-\frac{5b^8(bd-ae)(-9aBe-2Abe+11bBd)}{11e^{12}(d+ex)^{11}}+\frac{5b^7(bd-ae)^2(-8aBe-3Abe+11bBd)}{4e^{12}(d+ex)^{12}}-\frac{30b^6(bd-ae)^3(-7aBe-4Abe+11bBd)}{13e^{12}(d+ex)^{13}}+\frac{3b^5(bd-ae)^4(-6aBe-5Abe+11bBd)}{e^{12}(d+ex)^{14}}-\frac{14b^4(bd-ae)^5(-5aBe-6Abe+11bBd)}{5e^{12}(d+ex)^{15}}+\frac{15b^3(bd-ae)^6(-4aBe-7Abe+11bBd)}{8e^{12}(d+ex)^{16}}-\frac{15b^2(bd-ae)^7(-3aBe-8Abe+11bBd)}{17e^{12}(d+ex)^{17}}+\frac{5b(bd-ae)^8(-2aBe-9Abe+11bBd)}{18e^{12}(d+ex)^{18}}-\frac{(bd-ae)^9(-aBe-10Abe+11bBd)}{19e^{12}(d+ex)^{19}}+\frac{(bd-ae)^{10}(Bd-Ae)}{20e^{12}(d+ex)^{20}}-\frac{b^{10}B}{9e^{12}(d+ex)^9}$$

```
[Out] ((b*d - a*e)^10*(B*d - A*e))/(20*e^12*(d + e*x)^20) - ((b*d - a*e
)^9*(11*b*B*d - 10*A*b*e - a*B*e))/(19*e^12*(d + e*x)^19) + (5*b*
(b*d - a*e)^8*(11*b*B*d - 9*A*b*e - 2*a*B*e))/(18*e^12*(d + e*x)^
18) - (15*b^2*(b*d - a*e)^7*(11*b*B*d - 8*A*b*e - 3*a*B*e))/(17*e
^12*(d + e*x)^17) + (15*b^3*(b*d - a*e)^6*(11*b*B*d - 7*A*b*e - 4
*a*B*e))/(8*e^12*(d + e*x)^16) - (14*b^4*(b*d - a*e)^5*(11*b*B*d
- 6*A*b*e - 5*a*B*e))/(5*e^12*(d + e*x)^15) + (3*b^5*(b*d - a*e)^
4*(11*b*B*d - 5*A*b*e - 6*a*B*e))/(e^12*(d + e*x)^14) - (30*b^6*(
b*d - a*e)^3*(11*b*B*d - 4*A*b*e - 7*a*B*e))/(13*e^12*(d + e*x)^1
3) + (5*b^7*(b*d - a*e)^2*(11*b*B*d - 3*A*b*e - 8*a*B*e))/(4*e^12
*(d + e*x)^12) - (5*b^8*(b*d - a*e)*(11*b*B*d - 2*A*b*e - 9*a*B*e
))/(11*e^12*(d + e*x)^11) + (b^9*(11*b*B*d - A*b*e - 10*a*B*e))/(
10*e^12*(d + e*x)^10) - (b^10*B)/(9*e^12*(d + e*x)^9)
```

Rubi [A] time = 2.48199, antiderivative size = 462, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$\frac{b^9(-10aBe-Abe+11bBd)}{10e^{12}(d+ex)^{10}}-\frac{5b^8(bd-ae)(-9aBe-2Abe+11bBd)}{11e^{12}(d+ex)^{11}}+\frac{5b^7(bd-ae)^2(-8aBe-3Abe+11bBd)}{4e^{12}(d+ex)^{12}}-\frac{30b^6(bd-ae)^3(-7aBe-4Abe+11bBd)}{13e^{12}(d+ex)^{13}}+\frac{3b^5(bd-ae)^4(-6aBe-5Abe+11bBd)}{e^{12}(d+ex)^{14}}-\frac{14b^4(bd-ae)^5(-5aBe-6Abe+11bBd)}{5e^{12}(d+ex)^{15}}+\frac{15b^3(bd-ae)^6(-4aBe-7Abe+11bBd)}{8e^{12}(d+ex)^{16}}-\frac{15b^2(bd-ae)^7(-3aBe-8Abe+11bBd)}{17e^{12}(d+ex)^{17}}+\frac{5b(bd-ae)^8(-2aBe-9Abe+11bBd)}{18e^{12}(d+ex)^{18}}-\frac{(bd-ae)^9(-aBe-10Abe+11bBd)}{19e^{12}(d+ex)^{19}}+\frac{(bd-ae)^{10}(Bd-Ae)}{20e^{12}(d+ex)^{20}}-\frac{b^{10}B}{9e^{12}(d+ex)^9}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^10*(A + B*x))/(d + e*x)^21,x]
```


```
[Out] ((b*d - a*e)^10*(B*d - A*e))/(20*e^12*(d + e*x)^20) - ((b*d - a*e
)^9*(11*b*B*d - 10*A*b*e - a*B*e))/(19*e^12*(d + e*x)^19) + (5*b*
(b*d - a*e)^8*(11*b*B*d - 9*A*b*e - 2*a*B*e))/(18*e^12*(d + e*x)^
18) - (15*b^2*(b*d - a*e)^7*(11*b*B*d - 8*A*b*e - 3*a*B*e))/(17*e
^12*(d + e*x)^17) + (15*b^3*(b*d - a*e)^6*(11*b*B*d - 7*A*b*e - 4
*a*B*e))/(8*e^12*(d + e*x)^16) - (14*b^4*(b*d - a*e)^5*(11*b*B*d
- 6*A*b*e - 5*a*B*e))/(5*e^12*(d + e*x)^15) + (3*b^5*(b*d - a*e)^
4*(11*b*B*d - 5*A*b*e - 6*a*B*e))/(e^12*(d + e*x)^14) - (30*b^6*(
b*d - a*e)^3*(11*b*B*d - 4*A*b*e - 7*a*B*e))/(13*e^12*(d + e*x)^1
3) + (5*b^7*(b*d - a*e)^2*(11*b*B*d - 3*A*b*e - 8*a*B*e))/(4*e^12
*(d + e*x)^12) - (5*b^8*(b*d - a*e)*(11*b*B*d - 2*A*b*e - 9*a*B*e
))/(11*e^12*(d + e*x)^11) + (b^9*(11*b*B*d - A*b*e - 10*a*B*e))/(
```

```
10*e^12*(d + e*x)^10) - (b^10*B)/(9*e^12*(d + e*x)^9)
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)/(e*x+d)**21,x)
```

```
[Out] Timed out
```

Mathematica [B] time = 3.77445, size = 1428, normalized size = 3.09

$$-\frac{(9Ae\,(d^{10} + 20exd^9 + 190e^2x^2d^8 + 1140e^3x^3d^7 + 4845e^4x^4d^6 + 15504e^5x^5d^5 + 38760e^6x^6d^4 + 77520e^7x^7d^3 + 125970e^8x^8d}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^10*(A + B*x))/(d + e*x)^21,x]
```

```
[Out] -(43758*a^10*e^10*(19*A*e + B*(d + 20*e*x)) + 48620*a^9*b*e^9*(9*
A*e*(d + 20*e*x) + B*(d^2 + 20*d*e*x + 190*e^2*x^2)) + 12870*a^8*
b^2*e^8*(17*A*e*(d^2 + 20*d*e*x + 190*e^2*x^2) + 3*B*(d^3 + 20*d^
2*e*x + 190*d*e^2*x^2 + 1140*e^3*x^3)) + 25740*a^7*b^3*e^7*(4*A*e
*(d^3 + 20*d^2*e*x + 190*d*e^2*x^2 + 1140*e^3*x^3) + B*(d^4 + 20*
d^3*e*x + 190*d^2*e^2*x^2 + 1140*d*e^3*x^3 + 4845*e^4*x^4)) + 150
15*a^6*b^4*e^6*(3*A*e*(d^4 + 20*d^3*e*x + 190*d^2*e^2*x^2 + 1140*
d*e^3*x^3 + 4845*e^4*x^4) + B*(d^5 + 20*d^4*e*x + 190*d^3*e^2*x^2
 + 1140*d^2*e^3*x^3 + 4845*d*e^4*x^4 + 15504*e^5*x^5)) + 2574*a^5
*b^5*e^5*(7*A*e*(d^5 + 20*d^4*e*x + 190*d^3*e^2*x^2 + 1140*d^2*e^
3*x^3 + 4845*d*e^4*x^4 + 15504*e^5*x^5) + 3*B*(d^6 + 20*d^5*e*x +
 190*d^4*e^2*x^2 + 1140*d^3*e^3*x^3 + 4845*d^2*e^4*x^4 + 15504*d*
e^5*x^5 + 38760*e^6*x^6)) + 495*a^4*b^6*e^4*(13*A*e*(d^6 + 20*d^5
*e*x + 190*d^4*e^2*x^2 + 1140*d^3*e^3*x^3 + 4845*d^2*e^4*x^4 + 15
504*d*e^5*x^5 + 38760*e^6*x^6) + 7*B*(d^7 + 20*d^6*e*x + 190*d^5*
e^2*x^2 + 1140*d^4*e^3*x^3 + 4845*d^3*e^4*x^4 + 15504*d^2*e^5*x^5
 + 38760*d*e^6*x^6 + 77520*e^7*x^7)) + 660*a^3*b^7*e^3*(3*A*e*(d^
7 + 20*d^6*e*x + 190*d^5*e^2*x^2 + 1140*d^4*e^3*x^3 + 4845*d^3*e^
4*x^4 + 15504*d^2*e^5*x^5 + 38760*d*e^6*x^6 + 77520*e^7*x^7) + 2*
B*(d^8 + 20*d^7*e*x + 190*d^6*e^2*x^2 + 1140*d^5*e^3*x^3 + 4845*d
^4*e^4*x^4 + 15504*d^3*e^5*x^5 + 38760*d^2*e^6*x^6 + 77520*d*e^7*
x^7 + 125970*e^8*x^8)) + 45*a^2*b^8*e^2*(11*A*e*(d^8 + 20*d^7*e*x
 + 190*d^6*e^2*x^2 + 1140*d^5*e^3*x^3 + 4845*d^4*e^4*x^4 + 15504*
d^3*e^5*x^5 + 38760*d^2*e^6*x^6 + 77520*d*e^7*x^7 + 125970*e^8*x^
8) + 9*B*(d^9 + 20*d^8*e*x + 190*d^7*e^2*x^2 + 1140*d^6*e^3*x^3 +
 4845*d^5*e^4*x^4 + 15504*d^4*e^5*x^5 + 38760*d^3*e^6*x^6 + 77520
*d^2*e^7*x^7 + 125970*d*e^8*x^8 + 167960*e^9*x^9)) + 90*a*b^9*e*(
A*e*(d^9 + 20*d^8*e*x + 190*d^7*e^2*x^2 + 1140*d^6*e^3*x^3 + 4845
*d^5*e^4*x^4 + 15504*d^4*e^5*x^5 + 38760*d^3*e^6*x^6 + 77520*d^2*
e^7*x^7 + 125970*d*e^8*x^8 + 167960*e^9*x^9) + B*(d^10 + 20*d^9*e
*x + 190*d^8*e^2*x^2 + 1140*d^7*e^3*x^3 + 4845*d^6*e^4*x^4 + 1550
4*d^5*e^5*x^5 + 38760*d^4*e^6*x^6 + 77520*d^3*e^7*x^7 + 125970*d^
2*e^8*x^8 + 167960*d*e^9*x^9 + 184756*e^10*x^10)) + b^10*(9*A*e*(
d^10 + 20*d^9*e*x + 190*d^8*e^2*x^2 + 1140*d^7*e^3*x^3 + 4845*d^6
*e^4*x^4 + 15504*d^5*e^5*x^5 + 38760*d^4*e^6*x^6 + 77520*d^3*e^7*
x^7 + 125970*d^2*e^8*x^8 + 167960*d*e^9*x^9 + 184756*e^10*x^10) +
 11*B*(d^11 + 20*d^10*e*x + 190*d^9*e^2*x^2 + 1140*d^8*e^3*x^3 +
4845*d^7*e^4*x^4 + 15504*d^6*e^5*x^5 + 38760*d^5*e^6*x^6 + 77520*
d^4*e^7*x^7 + 125970*d^3*e^8*x^8 + 167960*d^2*e^9*x^9 + 184756*d*
e^10*x^10 + 167960*e^11*x^11)))/(16628040*e^12*(d + e*x)^20)
```

Maple [B] time = 0.017, size = 1942, normalized size = 4.2

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^10*(B*x+A)/(e*x+d)^21,x)
```

```
[Out] -3*b^5*(5*A*a^4*b*e^5-20*A*a^3*b^2*d*e^4+30*A*a^2*b^3*d^2*e^3-20*
A*a*b^4*d^3*e^2+5*A*b^5*d^4*e+6*B*a^5*e^5-35*B*a^4*b*d*e^4+80*B*a
^3*b^2*d^2*e^3-90*B*a^2*b^3*d^3*e^2+50*B*a*b^4*d^4*e-11*B*b^5*d^5
)/e^12/(e*x+d)^14-5/18*b*(9*A*a^8*b*e^9-72*A*a^7*b^2*d*e^8+252*A*
a^6*b^3*d^2*e^7-504*A*a^5*b^4*d^3*e^6+630*A*a^4*b^5*d^4*e^5-504*A
*a^3*b^6*d^5*e^4+252*A*a^2*b^7*d^6*e^3-72*A*a*b^8*d^7*e^2+9*A*b^9
*d^8*e+2*B*a^9*e^9-27*B*a^8*b*d*e^8+144*B*a^7*b^2*d^2*e^7-420*B*a
^6*b^3*d^3*e^6+756*B*a^5*b^4*d^4*e^5-882*B*a^4*b^5*d^5*e^4+672*B*
a^3*b^6*d^6*e^3-324*B*a^2*b^7*d^7*e^2+90*B*a*b^8*d^8*e-11*B*b^9*d
^9)/e^12/(e*x+d)^18-1/9*b^10*B/e^12/(e*x+d)^9-1/10*b^9*(A*b*e+10*
B*a*e-11*B*b*d)/e^12/(e*x+d)^10-5/4*b^7*(3*A*a^2*b*e^3-6*A*a*b^2*
d*e^2+3*A*b^3*d^2*e+8*B*a^3*e^3-27*B*a^2*b*d*e^2+30*B*a*b^2*d^2*e
-11*B*b^3*d^3)/e^12/(e*x+d)^12-5/11*b^8*(2*A*a*b*e^2-2*A*b^2*d*e+
9*B*a^2*e^2-20*B*a*b*d*e+11*B*b^2*d^2)/e^12/(e*x+d)^11-1/19*(10*A
*a^9*b*e^10-90*A*a^8*b^2*d*e^9+360*A*a^7*b^3*d^2*e^8-840*A*a^6*b^
4*d^3*e^7+1260*A*a^5*b^5*d^4*e^6-1260*A*a^4*b^6*d^5*e^5+840*A*a^3
*b^7*d^6*e^4-360*A*a^2*b^8*d^7*e^3+90*A*a*b^9*d^8*e^2-10*A*b^10*d
^9*e+B*a^10*e^10-20*B*a^9*b*d*e^9+135*B*a^8*b^2*d^2*e^8-480*B*a^7
*b^3*d^3*e^7+1050*B*a^6*b^4*d^4*e^6-1512*B*a^5*b^5*d^5*e^5+1470*B
*a^4*b^6*d^6*e^4-960*B*a^3*b^7*d^7*e^3+405*B*a^2*b^8*d^8*e^2-100*
B*a*b^9*d^9*e+11*B*b^10*d^10)/e^12/(e*x+d)^19-15/8*b^3*(7*A*a^6*b
*e^7-42*A*a^5*b^2*d*e^6+105*A*a^4*b^3*d^2*e^5-140*A*a^3*b^4*d^3*e
^4+105*A*a^2*b^5*d^4*e^3-42*A*a*b^6*d^5*e^2+7*A*b^7*d^6*e+4*B*a^7
*e^7-35*B*a^6*b*d*e^6+126*B*a^5*b^2*d^2*e^5-245*B*a^4*b^3*d^3*e^4
+280*B*a^3*b^4*d^4*e^3-189*B*a^2*b^5*d^5*e^2+70*B*a*b^6*d^6*e-11*
B*b^7*d^7)/e^12/(e*x+d)^16-15/17*b^2*(8*A*a^7*b*e^8-56*A*a^6*b^2*
d*e^7+168*A*a^5*b^3*d^2*e^6-280*A*a^4*b^4*d^3*e^5+280*A*a^3*b^5*d
^4*e^4-168*A*a^2*b^6*d^5*e^3+56*A*a*b^7*d^6*e^2-8*A*b^8*d^7*e+3*B
*a^8*e^8-32*B*a^7*b*d*e^7+140*B*a^6*b^2*d^2*e^6-336*B*a^5*b^3*d^3
*e^5+490*B*a^4*b^4*d^4*e^4-448*B*a^3*b^5*d^5*e^3+252*B*a^2*b^6*d^
6*e^2-80*B*a*b^7*d^7*e+11*B*b^8*d^8)/e^12/(e*x+d)^17-30/13*b^6*(4
*A*a^3*b*e^4-12*A*a^2*b^2*d*e^3+12*A*a*b^3*d^2*e^2-4*A*b^4*d^3*e+
7*B*a^4*e^4-32*B*a^3*b*d*e^3+54*B*a^2*b^2*d^2*e^2-40*B*a*b^3*d^3*
e+11*B*b^4*d^4)/e^12/(e*x+d)^13-1/20*(A*a^10*e^11-10*A*a^9*b*d*e^
10+45*A*a^8*b^2*d^2*e^9-120*A*a^7*b^3*d^3*e^8+210*A*a^6*b^4*d^4*e
^7-252*A*a^5*b^5*d^5*e^6+210*A*a^4*b^6*d^6*e^5-120*A*a^3*b^7*d^7*
e^4+45*A*a^2*b^8*d^8*e^3-10*A*a*b^9*d^9*e^2+A*b^10*d^10*e-B*a^10*
d*e^10+10*B*a^9*b*d^2*e^9-45*B*a^8*b^2*d^3*e^8+120*B*a^7*b^3*d^4*
e^7-210*B*a^6*b^4*d^5*e^6+252*B*a^5*b^5*d^6*e^5-210*B*a^4*b^6*d^7
*e^4+120*B*a^3*b^7*d^8*e^3-45*B*a^2*b^8*d^9*e^2+10*B*a*b^9*d^10*e
-B*b^10*d^11)/e^12/(e*x+d)^20-14/5*b^4*(6*A*a^5*b*e^6-30*A*a^4*b^
2*d*e^5+60*A*a^3*b^3*d^2*e^4-60*A*a^2*b^4*d^3*e^3+30*A*a*b^5*d^4*
e^2-6*A*b^6*d^5*e+5*B*a^6*e^6-36*B*a^5*b*d*e^5+105*B*a^4*b^2*d^2*
e^4-160*B*a^3*b^3*d^3*e^3+135*B*a^2*b^4*d^4*e^2-60*B*a*b^5*d^5*e+
11*B*b^6*d^6)/e^12/(e*x+d)^15
```

Maxima [A] time = 1.6089, size = 2738, normalized size = 5.93

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d)^21,x, algorithm="maxima")
```

```
[Out] -1/16628040*(1847560*B*b^10*e^11*x^11 + 11*B*b^10*d^11 + 831402*A
*a^10*e^11 + 9*(10*B*a*b^9 + A*b^10)*d^10*e + 45*(9*B*a^2*b^8 + 2
*A*a*b^9)*d^9*e^2 + 165*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^8*e^3 + 495
*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^7*e^4 + 1287*(6*B*a^5*b^5 + 5*A*a^
4*b^6)*d^6*e^5 + 3003*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^5*e^6 + 6435*
(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^4*e^7 + 12870*(3*B*a^8*b^2 + 8*A*a^
```

```
7*b^3)*d^3*e^8 + 24310*(2*B*a^9*b + 9*A*a^8*b^2)*d^2*e^9 + 43758*
(B*a^10 + 10*A*a^9*b)*d*e^10 + 184756*(11*B*b^10*d*e^10 + 9*(10*B
*a*b^9 + A*b^10)*e^11)*x^10 + 167960*(11*B*b^10*d^2*e^9 + 9*(10*B
*a*b^9 + A*b^10)*d*e^10 + 45*(9*B*a^2*b^8 + 2*A*a*b^9)*e^11)*x^9
+ 125970*(11*B*b^10*d^3*e^8 + 9*(10*B*a*b^9 + A*b^10)*d^2*e^9 + 4
5*(9*B*a^2*b^8 + 2*A*a*b^9)*d*e^10 + 165*(8*B*a^3*b^7 + 3*A*a^2*b
^8)*e^11)*x^8 + 77520*(11*B*b^10*d^4*e^7 + 9*(10*B*a*b^9 + A*b^10
)*d^3*e^8 + 45*(9*B*a^2*b^8 + 2*A*a*b^9)*d^2*e^9 + 165*(8*B*a^3*b
^7 + 3*A*a^2*b^8)*d*e^10 + 495*(7*B*a^4*b^6 + 4*A*a^3*b^7)*e^11)*
x^7 + 38760*(11*B*b^10*d^5*e^6 + 9*(10*B*a*b^9 + A*b^10)*d^4*e^7
+ 45*(9*B*a^2*b^8 + 2*A*a*b^9)*d^3*e^8 + 165*(8*B*a^3*b^7 + 3*A*a
^2*b^8)*d^2*e^9 + 495*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d*e^10 + 1287*(
6*B*a^5*b^5 + 5*A*a^4*b^6)*e^11)*x^6 + 15504*(11*B*b^10*d^6*e^5 +
 9*(10*B*a*b^9 + A*b^10)*d^5*e^6 + 45*(9*B*a^2*b^8 + 2*A*a*b^9)*d
^4*e^7 + 165*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^3*e^8 + 495*(7*B*a^4*b
^6 + 4*A*a^3*b^7)*d^2*e^9 + 1287*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d*e^
10 + 3003*(5*B*a^6*b^4 + 6*A*a^5*b^5)*e^11)*x^5 + 4845*(11*B*b^10
*d^7*e^4 + 9*(10*B*a*b^9 + A*b^10)*d^6*e^5 + 45*(9*B*a^2*b^8 + 2*
A*a*b^9)*d^5*e^6 + 165*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^4*e^7 + 495*
(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^3*e^8 + 1287*(6*B*a^5*b^5 + 5*A*a^4
*b^6)*d^2*e^9 + 3003*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d*e^10 + 6435*(4
*B*a^7*b^3 + 7*A*a^6*b^4)*e^11)*x^4 + 1140*(11*B*b^10*d^8*e^3 + 9
*(10*B*a*b^9 + A*b^10)*d^7*e^4 + 45*(9*B*a^2*b^8 + 2*A*a*b^9)*d^6
*e^5 + 165*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^5*e^6 + 495*(7*B*a^4*b^6
 + 4*A*a^3*b^7)*d^4*e^7 + 1287*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^3*e^
8 + 3003*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^2*e^9 + 6435*(4*B*a^7*b^3
+ 7*A*a^6*b^4)*d*e^10 + 12870*(3*B*a^8*b^2 + 8*A*a^7*b^3)*e^11)*x
^3 + 190*(11*B*b^10*d^9*e^2 + 9*(10*B*a*b^9 + A*b^10)*d^8*e^3 + 4
5*(9*B*a^2*b^8 + 2*A*a*b^9)*d^7*e^4 + 165*(8*B*a^3*b^7 + 3*A*a^2*
b^8)*d^6*e^5 + 495*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^5*e^6 + 1287*(6*
B*a^5*b^5 + 5*A*a^4*b^6)*d^4*e^7 + 3003*(5*B*a^6*b^4 + 6*A*a^5*b^
5)*d^3*e^8 + 6435*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^2*e^9 + 12870*(3*
B*a^8*b^2 + 8*A*a^7*b^3)*d*e^10 + 24310*(2*B*a^9*b + 9*A*a^8*b^2)
*e^11)*x^2 + 20*(11*B*b^10*d^10*e + 9*(10*B*a*b^9 + A*b^10)*d^9*e
^2 + 45*(9*B*a^2*b^8 + 2*A*a*b^9)*d^8*e^3 + 165*(8*B*a^3*b^7 + 3*
A*a^2*b^8)*d^7*e^4 + 495*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^6*e^5 + 12
87*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^5*e^6 + 3003*(5*B*a^6*b^4 + 6*A*
a^5*b^5)*d^4*e^7 + 6435*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^3*e^8 + 128
70*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^2*e^9 + 24310*(2*B*a^9*b + 9*A*a
^8*b^2)*d*e^10 + 43758*(B*a^10 + 10*A*a^9*b)*e^11)*x)/(e^32*x^20
+ 20*d*e^31*x^19 + 190*d^2*e^30*x^18 + 1140*d^3*e^29*x^17 + 4845*
d^4*e^28*x^16 + 15504*d^5*e^27*x^15 + 38760*d^6*e^26*x^14 + 77520
*d^7*e^25*x^13 + 125970*d^8*e^24*x^12 + 167960*d^9*e^23*x^11 + 18
4756*d^10*e^22*x^10 + 167960*d^11*e^21*x^9 + 125970*d^12*e^20*x^8
 + 77520*d^13*e^19*x^7 + 38760*d^14*e^18*x^6 + 15504*d^15*e^17*x^
5 + 4845*d^16*e^16*x^4 + 1140*d^17*e^15*x^3 + 190*d^18*e^14*x^2 +
 20*d^19*e^13*x + d^20*e^12)
```

Fricas [A] time = 0.216516, size = 2738, normalized size = 5.93

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d)^21,x, algorithm="fricas")
```

```
[Out] -1/16628040*(1847560*B*b^10*e^11*x^11 + 11*B*b^10*d^11 + 831402*A
*a^10*e^11 + 9*(10*B*a*b^9 + A*b^10)*d^10*e + 45*(9*B*a^2*b^8 + 2
*A*a*b^9)*d^9*e^2 + 165*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^8*e^3 + 495
*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^7*e^4 + 1287*(6*B*a^5*b^5 + 5*A*a^
4*b^6)*d^6*e^5 + 3003*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^5*e^6 + 6435*
(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^4*e^7 + 12870*(3*B*a^8*b^2 + 8*A*a^
7*b^3)*d^3*e^8 + 24310*(2*B*a^9*b + 9*A*a^8*b^2)*d^2*e^9 + 43758*
(B*a^10 + 10*A*a^9*b)*d*e^10 + 184756*(11*B*b^10*d*e^10 + 9*(10*B
*a*b^9 + A*b^10)*e^11)*x^10 + 167960*(11*B*b^10*d^2*e^9 + 9*(10*B
*a*b^9 + A*b^10)*d*e^10 + 45*(9*B*a^2*b^8 + 2*A*a*b^9)*e^11)*x^9
+ 125970*(11*B*b^10*d^3*e^8 + 9*(10*B*a*b^9 + A*b^10)*d^2*e^9 + 4
5*(9*B*a^2*b^8 + 2*A*a*b^9)*d*e^10 + 165*(8*B*a^3*b^7 + 3*A*a^2*b
^8)*e^11)*x^8 + 77520*(11*B*b^10*d^4*e^7 + 9*(10*B*a*b^9 + A*b^10
)*d^3*e^8 + 45*(9*B*a^2*b^8 + 2*A*a*b^9)*d^2*e^9 + 165*(8*B*a^3*b
```

```
^7 + 3*A*a^2*b^8)*d*e^10 + 495*(7*B*a^4*b^6 + 4*A*a^3*b^7)*e^11)*
x^7 + 38760*(11*B*b^10*d^5*e^6 + 9*(10*B*a*b^9 + A*b^10)*d^4*e^7
+ 45*(9*B*a^2*b^8 + 2*A*a*b^9)*d^3*e^8 + 165*(8*B*a^3*b^7 + 3*A*a
^2*b^8)*d^2*e^9 + 495*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d*e^10 + 1287*(
6*B*a^5*b^5 + 5*A*a^4*b^6)*e^11)*x^6 + 15504*(11*B*b^10*d^6*e^5 +
 9*(10*B*a*b^9 + A*b^10)*d^5*e^6 + 45*(9*B*a^2*b^8 + 2*A*a*b^9)*d
^4*e^7 + 165*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^3*e^8 + 495*(7*B*a^4*b
^6 + 4*A*a^3*b^7)*d^2*e^9 + 1287*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d*e^
10 + 3003*(5*B*a^6*b^4 + 6*A*a^5*b^5)*e^11)*x^5 + 4845*(11*B*b^10
*d^7*e^4 + 9*(10*B*a*b^9 + A*b^10)*d^6*e^5 + 45*(9*B*a^2*b^8 + 2*
A*a*b^9)*d^5*e^6 + 165*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^4*e^7 + 495*
(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^3*e^8 + 1287*(6*B*a^5*b^5 + 5*A*a^4
*b^6)*d^2*e^9 + 3003*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d*e^10 + 6435*(4
*B*a^7*b^3 + 7*A*a^6*b^4)*e^11)*x^4 + 1140*(11*B*b^10*d^8*e^3 + 9
*(10*B*a*b^9 + A*b^10)*d^7*e^4 + 45*(9*B*a^2*b^8 + 2*A*a*b^9)*d^6
*e^5 + 165*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^5*e^6 + 495*(7*B*a^4*b^6
 + 4*A*a^3*b^7)*d^4*e^7 + 1287*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^3*e^
8 + 3003*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^2*e^9 + 6435*(4*B*a^7*b^3
+ 7*A*a^6*b^4)*d*e^10 + 12870*(3*B*a^8*b^2 + 8*A*a^7*b^3)*e^11)*x
^3 + 190*(11*B*b^10*d^9*e^2 + 9*(10*B*a*b^9 + A*b^10)*d^8*e^3 + 4
5*(9*B*a^2*b^8 + 2*A*a*b^9)*d^7*e^4 + 165*(8*B*a^3*b^7 + 3*A*a^2*
b^8)*d^6*e^5 + 495*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^5*e^6 + 1287*(6*
B*a^5*b^5 + 5*A*a^4*b^6)*d^4*e^7 + 3003*(5*B*a^6*b^4 + 6*A*a^5*b^
5)*d^3*e^8 + 6435*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^2*e^9 + 12870*(3*
B*a^8*b^2 + 8*A*a^7*b^3)*d*e^10 + 24310*(2*B*a^9*b + 9*A*a^8*b^2)
*e^11)*x^2 + 20*(11*B*b^10*d^10*e + 9*(10*B*a*b^9 + A*b^10)*d^9*e
^2 + 45*(9*B*a^2*b^8 + 2*A*a*b^9)*d^8*e^3 + 165*(8*B*a^3*b^7 + 3*
A*a^2*b^8)*d^7*e^4 + 495*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^6*e^5 + 12
87*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^5*e^6 + 3003*(5*B*a^6*b^4 + 6*A*
a^5*b^5)*d^4*e^7 + 6435*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^3*e^8 + 128
70*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^2*e^9 + 24310*(2*B*a^9*b + 9*A*a
^8*b^2)*d*e^10 + 43758*(B*a^10 + 10*A*a^9*b)*e^11)*x)/(e^32*x^20
+ 20*d*e^31*x^19 + 190*d^2*e^30*x^18 + 1140*d^3*e^29*x^17 + 4845*
d^4*e^28*x^16 + 15504*d^5*e^27*x^15 + 38760*d^6*e^26*x^14 + 77520
*d^7*e^25*x^13 + 125970*d^8*e^24*x^12 + 167960*d^9*e^23*x^11 + 18
4756*d^10*e^22*x^10 + 167960*d^11*e^21*x^9 + 125970*d^12*e^20*x^8
 + 77520*d^13*e^19*x^7 + 38760*d^14*e^18*x^6 + 15504*d^15*e^17*x^
5 + 4845*d^16*e^16*x^4 + 1140*d^17*e^15*x^3 + 190*d^18*e^14*x^2 +
 20*d^19*e^13*x + d^20*e^12)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)/(e*x+d)**21,x)

[Out] Timed out
```

GIAC/XCAS [A] time = 0.21756, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d)^21,x, algorithm="giac")

[Out] Done
```

3.1093 $\int \frac{(a+bx)^{10}(A+Bx)}{(d+ex)^{22}}\,dx$

Optimal. Leaf size=464

$$\frac{b^9(-10aBe-Abe+11bBd)}{11e^{12}(d+ex)^{11}}-\frac{5b^8(bd-ae)(-9aBe-2Abe+11bBd)}{12e^{12}(d+ex)^{12}}+\frac{15b^7(bd-ae)^2(-8aBe-3Abe+11bBd)}{13e^{12}(d+ex)^{13}}-\frac{15b^6(bd-ae)^3(-7aBe-4Abe+11bBd)}{7e^{12}(d+ex)^{14}}+\frac{14b^5(bd-ae)^4(-6aBe-5Abe+11bBd)}{5e^{12}(d+ex)^{15}}-\frac{21b^4(bd-ae)^5(-5aBe-6Abe+11bBd)}{8e^{12}(d+ex)^{16}}+\frac{30b^3(bd-ae)^6(-4aBe-7Abe+11bBd)}{17e^{12}(d+ex)^{17}}-\frac{5b^2(bd-ae)^7(-3aBe-8Abe+11bBd)}{6e^{12}(d+ex)^{18}}+\frac{5b(bd-ae)^8(-2aBe-9Abe+11bBd)}{19e^{12}(d+ex)^{19}}-\frac{(bd-ae)^9(-aBe-10Abe+11bBd)}{20e^{12}(d+ex)^{20}}+\frac{(bd-ae)^{10}(Bd-Ae)}{21e^{12}(d+ex)^{21}}-\frac{b^{10}B}{10e^{12}(d+ex)^{10}}$$

```
[Out] ((b*d - a*e)^10*(B*d - A*e))/(21*e^12*(d + e*x)^21) - ((b*d - a*e
)^9*(11*b*B*d - 10*A*b*e - a*B*e))/(20*e^12*(d + e*x)^20) + (5*b*
(b*d - a*e)^8*(11*b*B*d - 9*A*b*e - 2*a*B*e))/(19*e^12*(d + e*x)^
19) - (5*b^2*(b*d - a*e)^7*(11*b*B*d - 8*A*b*e - 3*a*B*e))/(6*e^1
2*(d + e*x)^18) + (30*b^3*(b*d - a*e)^6*(11*b*B*d - 7*A*b*e - 4*a
*B*e))/(17*e^12*(d + e*x)^17) - (21*b^4*(b*d - a*e)^5*(11*b*B*d -
 6*A*b*e - 5*a*B*e))/(8*e^12*(d + e*x)^16) + (14*b^5*(b*d - a*e)^
4*(11*b*B*d - 5*A*b*e - 6*a*B*e))/(5*e^12*(d + e*x)^15) - (15*b^6
*(b*d - a*e)^3*(11*b*B*d - 4*A*b*e - 7*a*B*e))/(7*e^12*(d + e*x)^
14) + (15*b^7*(b*d - a*e)^2*(11*b*B*d - 3*A*b*e - 8*a*B*e))/(13*e
^12*(d + e*x)^13) - (5*b^8*(b*d - a*e)*(11*b*B*d - 2*A*b*e - 9*a*
B*e))/(12*e^12*(d + e*x)^12) + (b^9*(11*b*B*d - A*b*e - 10*a*B*e)
)/(11*e^12*(d + e*x)^11) - (b^10*B)/(10*e^12*(d + e*x)^10)
```

Rubi [A] time = 2.45798, antiderivative size = 464, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{b^9(-10aBe-Abe+11bBd)}{11e^{12}(d+ex)^{11}}-\frac{5b^8(bd-ae)(-9aBe-2Abe+11bBd)}{12e^{12}(d+ex)^{12}}+\frac{15b^7(bd-ae)^2(-8aBe-3Abe+11bBd)}{13e^{12}(d+ex)^{13}}-\frac{15b^6(bd-ae)^3(-7aBe-4Abe+11bBd)}{7e^{12}(d+ex)^{14}}+\frac{14b^5(bd-ae)^4(-6aBe-5Abe+11bBd)}{5e^{12}(d+ex)^{15}}-\frac{21b^4(bd-ae)^5(-5aBe-6Abe+11bBd)}{8e^{12}(d+ex)^{16}}+\frac{30b^3(bd-ae)^6(-4aBe-7Abe+11bBd)}{17e^{12}(d+ex)^{17}}-\frac{5b^2(bd-ae)^7(-3aBe-8Abe+11bBd)}{6e^{12}(d+ex)^{18}}+\frac{5b(bd-ae)^8(-2aBe-9Abe+11bBd)}{19e^{12}(d+ex)^{19}}-\frac{(bd-ae)^9(-aBe-10Abe+11bBd)}{20e^{12}(d+ex)^{20}}+\frac{(bd-ae)^{10}(Bd-Ae)}{21e^{12}(d+ex)^{21}}-\frac{b^{10}B}{10e^{12}(d+ex)^{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^10*(A + B*x))/(d + e*x)^22,x]
```


```
[Out] ((b*d - a*e)^10*(B*d - A*e))/(21*e^12*(d + e*x)^21) - ((b*d - a*e
)^9*(11*b*B*d - 10*A*b*e - a*B*e))/(20*e^12*(d + e*x)^20) + (5*b*
(b*d - a*e)^8*(11*b*B*d - 9*A*b*e - 2*a*B*e))/(19*e^12*(d + e*x)^
19) - (5*b^2*(b*d - a*e)^7*(11*b*B*d - 8*A*b*e - 3*a*B*e))/(6*e^1
2*(d + e*x)^18) + (30*b^3*(b*d - a*e)^6*(11*b*B*d - 7*A*b*e - 4*a
*B*e))/(17*e^12*(d + e*x)^17) - (21*b^4*(b*d - a*e)^5*(11*b*B*d -
 6*A*b*e - 5*a*B*e))/(8*e^12*(d + e*x)^16) + (14*b^5*(b*d - a*e)^
4*(11*b*B*d - 5*A*b*e - 6*a*B*e))/(5*e^12*(d + e*x)^15) - (15*b^6
*(b*d - a*e)^3*(11*b*B*d - 4*A*b*e - 7*a*B*e))/(7*e^12*(d + e*x)^
14) + (15*b^7*(b*d - a*e)^2*(11*b*B*d - 3*A*b*e - 8*a*B*e))/(13*e
^12*(d + e*x)^13) - (5*b^8*(b*d - a*e)*(11*b*B*d - 2*A*b*e - 9*a*
B*e))/(12*e^12*(d + e*x)^12) + (b^9*(11*b*B*d - A*b*e - 10*a*B*e)
```

```
)/(11*e^12*(d + e*x)^11) - (b^10*B)/(10*e^12*(d + e*x)^10)
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**10*(B*x+A)/(e*x+d)**22,x)

[Out] Timed out
```

Mathematica [B] time = 3.1433, size = 1431, normalized size = 3.08

$$-\frac{\left(10Ae\left(d^{10}+21exd^{9}+210e^{2}x^{2}d^{8}+1330e^{3}x^{3}d^{7}+5985e^{4}x^{4}d^{6}+20349e^{5}x^{5}d^{5}+54264e^{6}x^{6}d^{4}+116280e^{7}x^{7}d^{3}+203490e^{8}x\right.\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^10*(A + B*x))/(d + e*x)^22,x]

[Out] -(92378*a^10*e^10*(20*A*e + B*(d + 21*e*x)) + 48620*a^9*b*e^9*(19
*A*e*(d + 21*e*x) + 2*B*(d^2 + 21*d*e*x + 210*e^2*x^2)) + 72930*a
^8*b^2*e^8*(6*A*e*(d^2 + 21*d*e*x + 210*e^2*x^2) + B*(d^3 + 21*d^
2*e*x + 210*d*e^2*x^2 + 1330*e^3*x^3)) + 11440*a^7*b^3*e^7*(17*A*
e*(d^3 + 21*d^2*e*x + 210*d*e^2*x^2 + 1330*e^3*x^3) + 4*B*(d^4 +
21*d^3*e*x + 210*d^2*e^2*x^2 + 1330*d*e^3*x^3 + 5985*e^4*x^4)) +
5005*a^6*b^4*e^6*(16*A*e*(d^4 + 21*d^3*e*x + 210*d^2*e^2*x^2 + 13
30*d*e^3*x^3 + 5985*e^4*x^4) + 5*B*(d^5 + 21*d^4*e*x + 210*d^3*e^
2*x^2 + 1330*d^2*e^3*x^3 + 5985*d*e^4*x^4 + 20349*e^5*x^5)) + 600
6*a^5*b^5*e^5*(5*A*e*(d^5 + 21*d^4*e*x + 210*d^3*e^2*x^2 + 1330*d
^2*e^3*x^3 + 5985*d*e^4*x^4 + 20349*e^5*x^5) + 2*B*(d^6 + 21*d^5*
e*x + 210*d^4*e^2*x^2 + 1330*d^3*e^3*x^3 + 5985*d^2*e^4*x^4 + 203
49*d*e^5*x^5 + 54264*e^6*x^6)) + 5005*a^4*b^6*e^4*(2*A*e*(d^6 + 2
1*d^5*e*x + 210*d^4*e^2*x^2 + 1330*d^3*e^3*x^3 + 5985*d^2*e^4*x^4
 + 20349*d*e^5*x^5 + 54264*e^6*x^6) + B*(d^7 + 21*d^6*e*x + 210*d
^5*e^2*x^2 + 1330*d^4*e^3*x^3 + 5985*d^3*e^4*x^4 + 20349*d^2*e^5*
x^5 + 54264*d*e^6*x^6 + 116280*e^7*x^7)) + 220*a^3*b^7*e^3*(13*A*
e*(d^7 + 21*d^6*e*x + 210*d^5*e^2*x^2 + 1330*d^4*e^3*x^3 + 5985*d
^3*e^4*x^4 + 20349*d^2*e^5*x^5 + 54264*d*e^6*x^6 + 116280*e^7*x^7
) + 8*B*(d^8 + 21*d^7*e*x + 210*d^6*e^2*x^2 + 1330*d^5*e^3*x^3 +
5985*d^4*e^4*x^4 + 20349*d^3*e^5*x^5 + 54264*d^2*e^6*x^6 + 116280
*d*e^7*x^7 + 203490*e^8*x^8)) + 165*a^2*b^8*e^2*(4*A*e*(d^8 + 21*
d^7*e*x + 210*d^6*e^2*x^2 + 1330*d^5*e^3*x^3 + 5985*d^4*e^4*x^4 +
 20349*d^3*e^5*x^5 + 54264*d^2*e^6*x^6 + 116280*d*e^7*x^7 + 20349
0*e^8*x^8) + 3*B*(d^9 + 21*d^8*e*x + 210*d^7*e^2*x^2 + 1330*d^6*e
^3*x^3 + 5985*d^5*e^4*x^4 + 20349*d^4*e^5*x^5 + 54264*d^3*e^6*x^6
 + 116280*d^2*e^7*x^7 + 203490*d*e^8*x^8 + 293930*e^9*x^9)) + 10*
a*b^9*e*(11*A*e*(d^9 + 21*d^8*e*x + 210*d^7*e^2*x^2 + 1330*d^6*e^
3*x^3 + 5985*d^5*e^4*x^4 + 20349*d^4*e^5*x^5 + 54264*d^3*e^6*x^6
+ 116280*d^2*e^7*x^7 + 203490*d*e^8*x^8 + 293930*e^9*x^9) + 10*B*
(d^10 + 21*d^9*e*x + 210*d^8*e^2*x^2 + 1330*d^7*e^3*x^3 + 5985*d^
6*e^4*x^4 + 20349*d^5*e^5*x^5 + 54264*d^4*e^6*x^6 + 116280*d^3*e^
7*x^7 + 203490*d^2*e^8*x^8 + 293930*d*e^9*x^9 + 352716*e^10*x^10)
) + b^10*(10*A*e*(d^10 + 21*d^9*e*x + 210*d^8*e^2*x^2 + 1330*d^7*
e^3*x^3 + 5985*d^6*e^4*x^4 + 20349*d^5*e^5*x^5 + 54264*d^4*e^6*x^
6 + 116280*d^3*e^7*x^7 + 203490*d^2*e^8*x^8 + 293930*d*e^9*x^9 +
352716*e^10*x^10) + 11*B*(d^11 + 21*d^10*e*x + 210*d^9*e^2*x^2 +
1330*d^8*e^3*x^3 + 5985*d^7*e^4*x^4 + 20349*d^6*e^5*x^5 + 54264*d
^5*e^6*x^6 + 116280*d^4*e^7*x^7 + 203490*d^3*e^8*x^8 + 293930*d^2
*e^9*x^9 + 352716*d*e^10*x^10 + 352716*e^11*x^11)))/(38798760*e^1
2*(d + e*x)^21)
```

Maple [B] time = 0.017, size = 1942, normalized size = 4.2

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^10*(B*x+A)/(e*x+d)^22,x)
```

```
[Out] -15/7*b^6*(4*A*a^3*b*e^4-12*A*a^2*b^2*d*e^3+12*A*a*b^3*d^2*e^2-4*
A*b^4*d^3*e+7*B*a^4*e^4-32*B*a^3*b*d*e^3+54*B*a^2*b^2*d^2*e^2-40*
B*a*b^3*d^3*e+11*B*b^4*d^4)/e^12/(e*x+d)^14-5/6*b^2*(8*A*a^7*b*e^
8-56*A*a^6*b^2*d*e^7+168*A*a^5*b^3*d^2*e^6-280*A*a^4*b^4*d^3*e^5+
280*A*a^3*b^5*d^4*e^4-168*A*a^2*b^6*d^5*e^3+56*A*a*b^7*d^6*e^2-8*
A*b^8*d^7*e+3*B*a^8*e^8-32*B*a^7*b*d*e^7+140*B*a^6*b^2*d^2*e^6-33
6*B*a^5*b^3*d^3*e^5+490*B*a^4*b^4*d^4*e^4-448*B*a^3*b^5*d^5*e^3+2
52*B*a^2*b^6*d^6*e^2-80*B*a*b^7*d^7*e+11*B*b^8*d^8)/e^12/(e*x+d)^
18-1/10*b^10*B/e^12/(e*x+d)^10-5/12*b^8*(2*A*a*b*e^2-2*A*b^2*d*e+
9*B*a^2*e^2-20*B*a*b*d*e+11*B*b^2*d^2)/e^12/(e*x+d)^12-1/11*b^9*(
A*b*e+10*B*a*e-11*B*b*d)/e^12/(e*x+d)^11-5/19*b*(9*A*a^8*b*e^9-72
*A*a^7*b^2*d*e^8+252*A*a^6*b^3*d^2*e^7-504*A*a^5*b^4*d^3*e^6+630*
A*a^4*b^5*d^4*e^5-504*A*a^3*b^6*d^5*e^4+252*A*a^2*b^7*d^6*e^3-72*
A*a*b^8*d^7*e^2+9*A*b^9*d^8*e+2*B*a^9*e^9-27*B*a^8*b*d*e^8+144*B*
a^7*b^2*d^2*e^7-420*B*a^6*b^3*d^3*e^6+756*B*a^5*b^4*d^4*e^5-882*B
*a^4*b^5*d^5*e^4+672*B*a^3*b^6*d^6*e^3-324*B*a^2*b^7*d^7*e^2+90*B
*a*b^8*d^8*e-11*B*b^9*d^9)/e^12/(e*x+d)^19-21/8*b^4*(6*A*a^5*b*e^
6-30*A*a^4*b^2*d*e^5+60*A*a^3*b^3*d^2*e^4-60*A*a^2*b^4*d^3*e^3+30
*A*a*b^5*d^4*e^2-6*A*b^6*d^5*e+5*B*a^6*e^6-36*B*a^5*b*d*e^5+105*B
*a^4*b^2*d^2*e^4-160*B*a^3*b^3*d^3*e^3+135*B*a^2*b^4*d^4*e^2-60*B
*a*b^5*d^5*e+11*B*b^6*d^6)/e^12/(e*x+d)^16-30/17*b^3*(7*A*a^6*b*e
^7-42*A*a^5*b^2*d*e^6+105*A*a^4*b^3*d^2*e^5-140*A*a^3*b^4*d^3*e^4
+105*A*a^2*b^5*d^4*e^3-42*A*a*b^6*d^5*e^2+7*A*b^7*d^6*e+4*B*a^7*e
^7-35*B*a^6*b*d*e^6+126*B*a^5*b^2*d^2*e^5-245*B*a^4*b^3*d^3*e^4+2
80*B*a^3*b^4*d^4*e^3-189*B*a^2*b^5*d^5*e^2+70*B*a*b^6*d^6*e-11*B*
b^7*d^7)/e^12/(e*x+d)^17-15/13*b^7*(3*A*a^2*b*e^3-6*A*a*b^2*d*e^2
+3*A*b^3*d^2*e+8*B*a^3*e^3-27*B*a^2*b*d*e^2+30*B*a*b^2*d^2*e-11*B
*b^3*d^3)/e^12/(e*x+d)^13-1/21*(A*a^10*e^11-10*A*a^9*b*d*e^10+45*
A*a^8*b^2*d^2*e^9-120*A*a^7*b^3*d^3*e^8+210*A*a^6*b^4*d^4*e^7-252
*A*a^5*b^5*d^5*e^6+210*A*a^4*b^6*d^6*e^5-120*A*a^3*b^7*d^7*e^4+45
*A*a^2*b^8*d^8*e^3-10*A*a*b^9*d^9*e^2+A*b^10*d^10*e-B*a^10*d*e^10
+10*B*a^9*b*d^2*e^9-45*B*a^8*b^2*d^3*e^8+120*B*a^7*b^3*d^4*e^7-21
0*B*a^6*b^4*d^5*e^6+252*B*a^5*b^5*d^6*e^5-210*B*a^4*b^6*d^7*e^4+1
20*B*a^3*b^7*d^8*e^3-45*B*a^2*b^8*d^9*e^2+10*B*a*b^9*d^10*e-B*b^1
0*d^11)/e^12/(e*x+d)^21-1/20*(10*A*a^9*b*e^10-90*A*a^8*b^2*d*e^9+
360*A*a^7*b^3*d^2*e^8-840*A*a^6*b^4*d^3*e^7+1260*A*a^5*b^5*d^4*e^
6-1260*A*a^4*b^6*d^5*e^5+840*A*a^3*b^7*d^6*e^4-360*A*a^2*b^8*d^7*
e^3+90*A*a*b^9*d^8*e^2-10*A*b^10*d^9*e+B*a^10*e^10-20*B*a^9*b*d*e
^9+135*B*a^8*b^2*d^2*e^8-480*B*a^7*b^3*d^3*e^7+1050*B*a^6*b^4*d^4
*e^6-1512*B*a^5*b^5*d^5*e^5+1470*B*a^4*b^6*d^6*e^4-960*B*a^3*b^7*
d^7*e^3+405*B*a^2*b^8*d^8*e^2-100*B*a*b^9*d^9*e+11*B*b^10*d^10)/e
^12/(e*x+d)^20-14/5*b^5*(5*A*a^4*b*e^5-20*A*a^3*b^2*d*e^4+30*A*a^
2*b^3*d^2*e^3-20*A*a*b^4*d^3*e^2+5*A*b^5*d^4*e+6*B*a^5*e^5-35*B*a
^4*b*d*e^4+80*B*a^3*b^2*d^2*e^3-90*B*a^2*b^3*d^3*e^2+50*B*a*b^4*d
^4*e-11*B*b^5*d^5)/e^12/(e*x+d)^15
```

Maxima [A] time = 1.60397, size = 2753, normalized size = 5.93

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d)^22,x, algorithm="maxima")
```

```
[Out] -1/38798760*(3879876*B*b^10*e^11*x^11 + 11*B*b^10*d^11 + 1847560*
A*a^10*e^11 + 10*(10*B*a*b^9 + A*b^10)*d^10*e + 55*(9*B*a^2*b^8 +
 2*A*a*b^9)*d^9*e^2 + 220*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^8*e^3 + 7
15*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^7*e^4 + 2002*(6*B*a^5*b^5 + 5*A*
a^4*b^6)*d^6*e^5 + 5005*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^5*e^6 + 114
40*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^4*e^7 + 24310*(3*B*a^8*b^2 + 8*A
```

```
*a^7*b^3)*d^3*e^8 + 48620*(2*B*a^9*b + 9*A*a^8*b^2)*d^2*e^9 + 923
78*(B*a^10 + 10*A*a^9*b)*d*e^10 + 352716*(11*B*b^10*d*e^10 + 10*(
10*B*a*b^9 + A*b^10)*e^11)*x^10 + 293930*(11*B*b^10*d^2*e^9 + 10*
(10*B*a*b^9 + A*b^10)*d*e^10 + 55*(9*B*a^2*b^8 + 2*A*a*b^9)*e^11)
*x^9 + 203490*(11*B*b^10*d^3*e^8 + 10*(10*B*a*b^9 + A*b^10)*d^2*e
^9 + 55*(9*B*a^2*b^8 + 2*A*a*b^9)*d*e^10 + 220*(8*B*a^3*b^7 + 3*A
*a^2*b^8)*e^11)*x^8 + 116280*(11*B*b^10*d^4*e^7 + 10*(10*B*a*b^9
+ A*b^10)*d^3*e^8 + 55*(9*B*a^2*b^8 + 2*A*a*b^9)*d^2*e^9 + 220*(8
*B*a^3*b^7 + 3*A*a^2*b^8)*d*e^10 + 715*(7*B*a^4*b^6 + 4*A*a^3*b^7
)*e^11)*x^7 + 54264*(11*B*b^10*d^5*e^6 + 10*(10*B*a*b^9 + A*b^10)
*d^4*e^7 + 55*(9*B*a^2*b^8 + 2*A*a*b^9)*d^3*e^8 + 220*(8*B*a^3*b^
7 + 3*A*a^2*b^8)*d^2*e^9 + 715*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d*e^10
 + 2002*(6*B*a^5*b^5 + 5*A*a^4*b^6)*e^11)*x^6 + 20349*(11*B*b^10*
d^6*e^5 + 10*(10*B*a*b^9 + A*b^10)*d^5*e^6 + 55*(9*B*a^2*b^8 + 2*
A*a*b^9)*d^4*e^7 + 220*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^3*e^8 + 715*
(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^2*e^9 + 2002*(6*B*a^5*b^5 + 5*A*a^4
*b^6)*d*e^10 + 5005*(5*B*a^6*b^4 + 6*A*a^5*b^5)*e^11)*x^5 + 5985*
(11*B*b^10*d^7*e^4 + 10*(10*B*a*b^9 + A*b^10)*d^6*e^5 + 55*(9*B*a
^2*b^8 + 2*A*a*b^9)*d^5*e^6 + 220*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^4
*e^7 + 715*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^3*e^8 + 2002*(6*B*a^5*b^
5 + 5*A*a^4*b^6)*d^2*e^9 + 5005*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d*e^1
0 + 11440*(4*B*a^7*b^3 + 7*A*a^6*b^4)*e^11)*x^4 + 1330*(11*B*b^10
*d^8*e^3 + 10*(10*B*a*b^9 + A*b^10)*d^7*e^4 + 55*(9*B*a^2*b^8 + 2
*A*a*b^9)*d^6*e^5 + 220*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^5*e^6 + 715
*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^4*e^7 + 2002*(6*B*a^5*b^5 + 5*A*a^
4*b^6)*d^3*e^8 + 5005*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^2*e^9 + 11440
*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d*e^10 + 24310*(3*B*a^8*b^2 + 8*A*a^
7*b^3)*e^11)*x^3 + 210*(11*B*b^10*d^9*e^2 + 10*(10*B*a*b^9 + A*b^
10)*d^8*e^3 + 55*(9*B*a^2*b^8 + 2*A*a*b^9)*d^7*e^4 + 220*(8*B*a^3
*b^7 + 3*A*a^2*b^8)*d^6*e^5 + 715*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^5
*e^6 + 2002*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^4*e^7 + 5005*(5*B*a^6*b
^4 + 6*A*a^5*b^5)*d^3*e^8 + 11440*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^2
*e^9 + 24310*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d*e^10 + 48620*(2*B*a^9*
b + 9*A*a^8*b^2)*e^11)*x^2 + 21*(11*B*b^10*d^10*e + 10*(10*B*a*b^
9 + A*b^10)*d^9*e^2 + 55*(9*B*a^2*b^8 + 2*A*a*b^9)*d^8*e^3 + 220*
(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^7*e^4 + 715*(7*B*a^4*b^6 + 4*A*a^3*
b^7)*d^6*e^5 + 2002*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^5*e^6 + 5005*(5
*B*a^6*b^4 + 6*A*a^5*b^5)*d^4*e^7 + 11440*(4*B*a^7*b^3 + 7*A*a^6*
b^4)*d^3*e^8 + 24310*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^2*e^9 + 48620*
(2*B*a^9*b + 9*A*a^8*b^2)*d*e^10 + 92378*(B*a^10 + 10*A*a^9*b)*e^
11)*x)/(e^33*x^21 + 21*d*e^32*x^20 + 210*d^2*e^31*x^19 + 1330*d^3
*e^30*x^18 + 5985*d^4*e^29*x^17 + 20349*d^5*e^28*x^16 + 54264*d^6
*e^27*x^15 + 116280*d^7*e^26*x^14 + 203490*d^8*e^25*x^13 + 293930
*d^9*e^24*x^12 + 352716*d^10*e^23*x^11 + 352716*d^11*e^22*x^10 +
293930*d^12*e^21*x^9 + 203490*d^13*e^20*x^8 + 116280*d^14*e^19*x^
7 + 54264*d^15*e^18*x^6 + 20349*d^16*e^17*x^5 + 5985*d^17*e^16*x^
4 + 1330*d^18*e^15*x^3 + 210*d^19*e^14*x^2 + 21*d^20*e^13*x + d^2
1*e^12)
```

Fricas [A] time = 0.22005, size = 2753, normalized size = 5.93

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d)^22,x, algorithm="fricas")
```

```
[Out] -1/38798760*(3879876*B*b^10*e^11*x^11 + 11*B*b^10*d^11 + 1847560*
A*a^10*e^11 + 10*(10*B*a*b^9 + A*b^10)*d^10*e + 55*(9*B*a^2*b^8 +
 2*A*a*b^9)*d^9*e^2 + 220*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^8*e^3 + 7
15*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^7*e^4 + 2002*(6*B*a^5*b^5 + 5*A*
a^4*b^6)*d^6*e^5 + 5005*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^5*e^6 + 114
40*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^4*e^7 + 24310*(3*B*a^8*b^2 + 8*A
*a^7*b^3)*d^3*e^8 + 48620*(2*B*a^9*b + 9*A*a^8*b^2)*d^2*e^9 + 923
78*(B*a^10 + 10*A*a^9*b)*d*e^10 + 352716*(11*B*b^10*d*e^10 + 10*(
10*B*a*b^9 + A*b^10)*e^11)*x^10 + 293930*(11*B*b^10*d^2*e^9 + 10*
(10*B*a*b^9 + A*b^10)*d*e^10 + 55*(9*B*a^2*b^8 + 2*A*a*b^9)*e^11)
*x^9 + 203490*(11*B*b^10*d^3*e^8 + 10*(10*B*a*b^9 + A*b^10)*d^2*e
^9 + 55*(9*B*a^2*b^8 + 2*A*a*b^9)*d*e^10 + 220*(8*B*a^3*b^7 + 3*A
*a^2*b^8)*e^11)*x^8 + 116280*(11*B*b^10*d^4*e^7 + 10*(10*B*a*b^9
```

```
+ A*b^10)*d^3*e^8 + 55*(9*B*a^2*b^8 + 2*A*a*b^9)*d^2*e^9 + 220*(8
*B*a^3*b^7 + 3*A*a^2*b^8)*d*e^10 + 715*(7*B*a^4*b^6 + 4*A*a^3*b^7
)*e^11)*x^7 + 54264*(11*B*b^10*d^5*e^6 + 10*(10*B*a*b^9 + A*b^10)
*d^4*e^7 + 55*(9*B*a^2*b^8 + 2*A*a*b^9)*d^3*e^8 + 220*(8*B*a^3*b^
7 + 3*A*a^2*b^8)*d^2*e^9 + 715*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d*e^10
 + 2002*(6*B*a^5*b^5 + 5*A*a^4*b^6)*e^11)*x^6 + 20349*(11*B*b^10*
d^6*e^5 + 10*(10*B*a*b^9 + A*b^10)*d^5*e^6 + 55*(9*B*a^2*b^8 + 2*
A*a*b^9)*d^4*e^7 + 220*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^3*e^8 + 715*
(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^2*e^9 + 2002*(6*B*a^5*b^5 + 5*A*a^4
*b^6)*d*e^10 + 5005*(5*B*a^6*b^4 + 6*A*a^5*b^5)*e^11)*x^5 + 5985*
(11*B*b^10*d^7*e^4 + 10*(10*B*a*b^9 + A*b^10)*d^6*e^5 + 55*(9*B*a
^2*b^8 + 2*A*a*b^9)*d^5*e^6 + 220*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^4
*e^7 + 715*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^3*e^8 + 2002*(6*B*a^5*b^
5 + 5*A*a^4*b^6)*d^2*e^9 + 5005*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d*e^1
0 + 11440*(4*B*a^7*b^3 + 7*A*a^6*b^4)*e^11)*x^4 + 1330*(11*B*b^10
*d^8*e^3 + 10*(10*B*a*b^9 + A*b^10)*d^7*e^4 + 55*(9*B*a^2*b^8 + 2
*A*a*b^9)*d^6*e^5 + 220*(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^5*e^6 + 715
*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^4*e^7 + 2002*(6*B*a^5*b^5 + 5*A*a^
4*b^6)*d^3*e^8 + 5005*(5*B*a^6*b^4 + 6*A*a^5*b^5)*d^2*e^9 + 11440
*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d*e^10 + 24310*(3*B*a^8*b^2 + 8*A*a^
7*b^3)*e^11)*x^3 + 210*(11*B*b^10*d^9*e^2 + 10*(10*B*a*b^9 + A*b^
10)*d^8*e^3 + 55*(9*B*a^2*b^8 + 2*A*a*b^9)*d^7*e^4 + 220*(8*B*a^3
*b^7 + 3*A*a^2*b^8)*d^6*e^5 + 715*(7*B*a^4*b^6 + 4*A*a^3*b^7)*d^5
*e^6 + 2002*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^4*e^7 + 5005*(5*B*a^6*b
^4 + 6*A*a^5*b^5)*d^3*e^8 + 11440*(4*B*a^7*b^3 + 7*A*a^6*b^4)*d^2
*e^9 + 24310*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d*e^10 + 48620*(2*B*a^9*
b + 9*A*a^8*b^2)*e^11)*x^2 + 21*(11*B*b^10*d^10*e + 10*(10*B*a*b^
9 + A*b^10)*d^9*e^2 + 55*(9*B*a^2*b^8 + 2*A*a*b^9)*d^8*e^3 + 220*
(8*B*a^3*b^7 + 3*A*a^2*b^8)*d^7*e^4 + 715*(7*B*a^4*b^6 + 4*A*a^3*
b^7)*d^6*e^5 + 2002*(6*B*a^5*b^5 + 5*A*a^4*b^6)*d^5*e^6 + 5005*(5
*B*a^6*b^4 + 6*A*a^5*b^5)*d^4*e^7 + 11440*(4*B*a^7*b^3 + 7*A*a^6*
b^4)*d^3*e^8 + 24310*(3*B*a^8*b^2 + 8*A*a^7*b^3)*d^2*e^9 + 48620*
(2*B*a^9*b + 9*A*a^8*b^2)*d*e^10 + 92378*(B*a^10 + 10*A*a^9*b)*e^
11)*x)/(e^33*x^21 + 21*d*e^32*x^20 + 210*d^2*e^31*x^19 + 1330*d^3
*e^30*x^18 + 5985*d^4*e^29*x^17 + 20349*d^5*e^28*x^16 + 54264*d^6
*e^27*x^15 + 116280*d^7*e^26*x^14 + 203490*d^8*e^25*x^13 + 293930
*d^9*e^24*x^12 + 352716*d^10*e^23*x^11 + 352716*d^11*e^22*x^10 +
293930*d^12*e^21*x^9 + 203490*d^13*e^20*x^8 + 116280*d^14*e^19*x^
7 + 54264*d^15*e^18*x^6 + 20349*d^16*e^17*x^5 + 5985*d^17*e^16*x^
4 + 1330*d^18*e^15*x^3 + 210*d^19*e^14*x^2 + 21*d^20*e^13*x + d^2
1*e^12)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**10*(B*x+A)/(e*x+d)**22,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.214007, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^10/(e*x + d)^22,x, algorithm="giac")
```

```
[Out] Done
```

3.1094 $\int \frac{(A+Bx)(d+ex)^5}{a+bx}\,dx$

Optimal. Leaf size=187

$$\frac{(Ab-aB)(bd-ae)^5\log(a+bx)}{b^7}+\frac{ex(Ab-aB)(bd-ae)^4}{b^6}+\frac{(d+ex)^2(Ab-aB)(bd-ae)^3}{2b^5}+\frac{(d+ex)^3(Ab-aB)(bd-ae)^2}{3b^4}+\frac{(d+ex)^4(Ab-aB)(bd-ae)}{4b^3}+\frac{(d+ex)^5(Ab-aB)}{5b^2}+\frac{B(d+ex)^6}{6be}$$

```
[Out] ((A*b - a*B)*e*(b*d - a*e)^4*x)/b^6 + ((A*b - a*B)*(b*d - a*e)^3*
(d + e*x)^2)/(2*b^5) + ((A*b - a*B)*(b*d - a*e)^2*(d + e*x)^3)/(3
*b^4) + ((A*b - a*B)*(b*d - a*e)*(d + e*x)^4)/(4*b^3) + ((A*b - a
*B)*(d + e*x)^5)/(5*b^2) + (B*(d + e*x)^6)/(6*b*e) + ((A*b - a*B)
*(b*d - a*e)^5*Log[a + b*x])/b^7
```

Rubi [A] time = 0.269328, antiderivative size = 187, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$\frac{(Ab-aB)(bd-ae)^5\log(a+bx)}{b^7}+\frac{ex(Ab-aB)(bd-ae)^4}{b^6}+\frac{(d+ex)^2(Ab-aB)(bd-ae)^3}{2b^5}+\frac{(d+ex)^3(Ab-aB)(bd-ae)^2}{3b^4}+\frac{(d+ex)^4(Ab-aB)(bd-ae)}{4b^3}+\frac{(d+ex)^5(Ab-aB)}{5b^2}+\frac{B(d+ex)^6}{6be}$$

Antiderivative was successfully verified.

```
[In]  Int[((A + B*x)*(d + e*x)^5)/(a + b*x),x]
```

```
[Out] ((A*b - a*B)*e*(b*d - a*e)^4*x)/b^6 + ((A*b - a*B)*(b*d - a*e)^3*
(d + e*x)^2)/(2*b^5) + ((A*b - a*B)*(b*d - a*e)^2*(d + e*x)^3)/(3
*b^4) + ((A*b - a*B)*(b*d - a*e)*(d + e*x)^4)/(4*b^3) + ((A*b - a
*B)*(d + e*x)^5)/(5*b^2) + (B*(d + e*x)^6)/(6*b*e) + ((A*b - a*B)
*(b*d - a*e)^5*Log[a + b*x])/b^7
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{B\left(d+ex\right)^6}{6be}+\frac{\left(d+ex\right)^5\left(Ab-Ba\right)}{5b^2}-\frac{\left(d+ex\right)^4\left(Ab-Ba\right)\left(ae-bd\right)}{4b^3}+\frac{\left(d+ex\right)^3\left(Ab-Ba\right)\left(ae-bd\right)^2}{3b^4}-\frac{\left(d+ex\right)^2\left(Ab-Ba\right)\left(ae-bd\right)^3}{2b^5}+\frac{\left(Ab-Ba\right)\left(ae-bd\right)^4\int e\,dx}{b^6}-\frac{\left(Ab-Ba\right)\left(ae-bd\right)^5\log\left(a+bx\right)}{b^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(e*x+d)**5/(b*x+a),x)
```

```
[Out] B*(d + e*x)**6/(6*b*e) + (d + e*x)**5*(A*b - B*a)/(5*b**2) - (d +
 e*x)**4*(A*b - B*a)*(a*e - b*d)/(4*b**3) + (d + e*x)**3*(A*b - B
*a)*(a*e - b*d)**2/(3*b**4) - (d + e*x)**2*(A*b - B*a)*(a*e - b*d
)**3/(2*b**5) + (A*b - B*a)*(a*e - b*d)**4*Integral(e, x)/b**6 -
(A*b - B*a)*(a*e - b*d)**5*log(a + b*x)/b**7
```

Mathematica [A] time = 0.357371, size = 368, normalized size = 1.97

$$\frac{bx\left(-60a^5Be^5+30a^4be^4(2Ae+10Bd+Bex)-10a^3b^2e^3\left(3Ae(10d+ex)+B\left(60d^2+15dex+2e^2x^2\right)\right)+5a^2b^3e^2\left(2Ae\left(60d^2\right.\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((A + B*x)*(d + e*x)^5)/(a + b*x),x]
```

```
[Out] (b*x*(-60*a^5*B*e^5 + 30*a^4*b*e^4*(10*B*d + 2*A*e + B*e*x) - 10*
a^3*b^2*e^3*(3*A*e*(10*d + e*x) + B*(60*d^2 + 15*d*e*x + 2*e^2*x^
2)) + 5*a^2*b^3*e^2*(2*A*e*(60*d^2 + 15*d*e*x + 2*e^2*x^2) + B*(1
20*d^3 + 60*d^2*e*x + 20*d*e^2*x^2 + 3*e^3*x^3)) - a*b^4*e*(5*A*e
*(120*d^3 + 60*d^2*e*x + 20*d*e^2*x^2 + 3*e^3*x^3) + B*(300*d^4 +
 300*d^3*e*x + 200*d^2*e^2*x^2 + 75*d*e^3*x^3 + 12*e^4*x^4)) + b^
5*(A*e*(300*d^4 + 300*d^3*e*x + 200*d^2*e^2*x^2 + 75*d*e^3*x^3 +
12*e^4*x^4) + 10*B*(6*d^5 + 15*d^4*e*x + 20*d^3*e^2*x^2 + 15*d^2*
e^3*x^3 + 6*d*e^4*x^4 + e^5*x^5))) + 60*(A*b - a*B)*(b*d - a*e)^5
*Log[a + b*x])/(60*b^7)
```

Maple [B] time = 0.01, size = 737, normalized size = 3.9

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(e*x+d)^5/(b*x+a),x)
```

```
[Out] 5/b*A*d^4*e*x+1/6/b*B*x^6*e^5+1/5/b*A*x^5*e^5+1/b*B*d^5*x+1/b*ln(
b*x+a)*A*d^5+10/3/b*A*x^3*d^2*e^3-1/b^6*ln(b*x+a)*A*a^5*e^5-1/b^6
*B*a^5*e^5*x+10/3/b*B*x^3*d^3*e^2+1/3/b^3*A*x^3*a^2*e^5-1/5/b^2*B
*x^5*a*e^5+1/b^7*ln(b*x+a)*B*a^6*e^5-1/b^2*ln(b*x+a)*B*a*d^5-5/b^
4*A*a^3*d*e^4*x-5/b^2*B*x^2*a*d^3*e^2+5/2/b^3*A*x^2*a^2*d*e^4-5/b
^2*A*x^2*a*d^2*e^3-5/2/b^4*B*x^2*a^3*d*e^4+5/b^3*B*x^2*a^2*d^2*e^
3+10/b^3*A*a^2*d^2*e^3*x-10/b^2*A*a*d^3*e^2*x+5/b^5*B*a^4*d*e^4*x
-10/b^4*B*a^3*d^2*e^3*x+10/b^3*B*a^2*d^3*e^2*x-5/b^2*B*a*d^4*e*x-
5/4/b^2*B*x^4*a*d*e^4-5/b^6*ln(b*x+a)*B*a^5*d*e^4+10/b^5*ln(b*x+a
)*B*a^4*d^2*e^3-10/b^4*ln(b*x+a)*B*a^3*d^3*e^2+5/b^3*ln(b*x+a)*B*
a^2*d^4*e-5/3/b^2*A*x^3*a*d*e^4+5/3/b^3*B*x^3*a^2*d*e^4-10/3/b^2*
B*x^3*a*d^2*e^3+5/b^5*ln(b*x+a)*A*a^4*d*e^4-10/b^4*ln(b*x+a)*A*a^
3*d^2*e^3+10/b^3*ln(b*x+a)*A*a^2*d^3*e^2-5/b^2*ln(b*x+a)*A*a*d^4*
e+1/2/b^5*B*x^2*a^4*e^5-1/3/b^4*B*x^3*a^3*e^5+5/2/b*B*x^4*d^2*e^3
+1/4/b^3*B*x^4*a^2*e^5-1/4/b^2*A*x^4*a*e^5+5/4/b*A*x^4*d*e^4+5/b*
A*x^2*d^3*e^2+1/b^5*A*a^4*e^5*x-1/2/b^4*A*x^2*a^3*e^5+1/b*B*x^5*d
*e^4+5/2/b*B*x^2*d^4*e
```

Maxima [A] time = 1.36747, size = 760, normalized size = 4.06

$$\frac{10\,Bb^5e^5x^6 + 12\left(5\,Bb^5de^4 - \left(Bab^4 - Ab^5\right)e^5\right)x^5 + 15\left(10\,Bb^5d^2e^3 - 5\left(Bab^4 - Ab^5\right)de^4 + \left(Ba^2b^3 - Aab^4\right)e^5\right)x^4 + 20\left(10\,Bb \cdots\right.}{\cdots} - \frac{\left(\left(Bab^5 - Ab^6\right)d^5 - 5\left(Ba^2b^4 - Aab^5\right)d^4e + 10\left(Ba^3b^3 - Aa^2b^4\right)d^3e^2 - 10\left(Ba^4b^2 - Aa^3b^3\right)d^2e^3 + 5\left(Ba^5b - Aa^4b^2\right)de^4 - \cdots\right.}{b^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^5/(b*x + a),x, algorithm="maxima")
```

```
[Out] 1/60*(10*B*b^5*e^5*x^6 + 12*(5*B*b^5*d*e^4 - (B*a*b^4 - A*b^5)*e^
5)*x^5 + 15*(10*B*b^5*d^2*e^3 - 5*(B*a*b^4 - A*b^5)*d*e^4 + (B*a^
2*b^3 - A*a*b^4)*e^5)*x^4 + 20*(10*B*b^5*d^3*e^2 - 10*(B*a*b^4 -
A*b^5)*d^2*e^3 + 5*(B*a^2*b^3 - A*a*b^4)*d*e^4 - (B*a^3*b^2 - A*a
^2*b^3)*e^5)*x^3 + 30*(5*B*b^5*d^4*e - 10*(B*a*b^4 - A*b^5)*d^3*e
^2 + 10*(B*a^2*b^3 - A*a*b^4)*d^2*e^3 - 5*(B*a^3*b^2 - A*a^2*b^3)
*d*e^4 + (B*a^4*b - A*a^3*b^2)*e^5)*x^2 + 60*(B*b^5*d^5 - 5*(B*a*
b^4 - A*b^5)*d^4*e + 10*(B*a^2*b^3 - A*a*b^4)*d^3*e^2 - 10*(B*a^3
*b^2 - A*a^2*b^3)*d^2*e^3 + 5*(B*a^4*b - A*a^3*b^2)*d*e^4 - (B*a^
5 - A*a^4*b)*e^5)*x)/b^6 - ((B*a*b^5 - A*b^6)*d^5 - 5*(B*a^2*b^4
- A*a*b^5)*d^4*e + 10*(B*a^3*b^3 - A*a^2*b^4)*d^3*e^2 - 10*(B*a^4
*b^2 - A*a^3*b^3)*d^2*e^3 + 5*(B*a^5*b - A*a^4*b^2)*d*e^4 - (B*a^
6 - A*a^5*b)*e^5)*log(b*x + a)/b^7
```

Fricas [A] time = 0.208087, size = 764, normalized size = 4.09

$$\frac{10\,Bb^6e^5x^6+12\left(5\,Bb^6de^4-\left(Bab^5-Ab^6\right)e^5\right)x^5+15\left(10\,Bb^6d^2e^3-5\left(Bab^5-Ab^6\right)de^4+\left(Ba^2b^4-Aab^5\right)e^5\right)x^4+20\left(10\,Bb\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^5/(b*x + a),x, algorithm="fricas")
```

```
[Out] 1/60*(10*B*b^6*e^5*x^6 + 12*(5*B*b^6*d*e^4 - (B*a*b^5 - A*b^6)*e^
5)*x^5 + 15*(10*B*b^6*d^2*e^3 - 5*(B*a*b^5 - A*b^6)*d*e^4 + (B*a^
2*b^4 - A*a*b^5)*e^5)*x^4 + 20*(10*B*b^6*d^3*e^2 - 10*(B*a*b^5 -
A*b^6)*d^2*e^3 + 5*(B*a^2*b^4 - A*a*b^5)*d*e^4 - (B*a^3*b^3 - A*a
^2*b^4)*e^5)*x^3 + 30*(5*B*b^6*d^4*e - 10*(B*a*b^5 - A*b^6)*d^3*e
^2 + 10*(B*a^2*b^4 - A*a*b^5)*d^2*e^3 - 5*(B*a^3*b^3 - A*a^2*b^4)
*d*e^4 + (B*a^4*b^2 - A*a^3*b^3)*e^5)*x^2 + 60*(B*b^6*d^5 - 5*(B*
a*b^5 - A*b^6)*d^4*e + 10*(B*a^2*b^4 - A*a*b^5)*d^3*e^2 - 10*(B*a
^3*b^3 - A*a^2*b^4)*d^2*e^3 + 5*(B*a^4*b^2 - A*a^3*b^3)*d*e^4 - (
B*a^5*b - A*a^4*b^2)*e^5)*x - 60*((B*a*b^5 - A*b^6)*d^5 - 5*(B*a^
2*b^4 - A*a*b^5)*d^4*e + 10*(B*a^3*b^3 - A*a^2*b^4)*d^3*e^2 - 10*
(B*a^4*b^2 - A*a^3*b^3)*d^2*e^3 + 5*(B*a^5*b - A*a^4*b^2)*d*e^4 -
 (B*a^6 - A*a^5*b)*e^5)*log(b*x + a))/b^7
```

Sympy [A] time = 6.48152, size = 510, normalized size = 2.73

$$\frac{Be^5x^6}{6b}-\frac{x^5\left(-Abe^5+Bae^5-5Bbde^4\right)}{5b^2}+\frac{x^4\left(-Aabe^5+5Ab^2de^4+Ba^2e^5-5Babde^4+10Bb^2d^2e^3\right)}{4b^3}$$
$$-\frac{x^3\left(-Aa^2be^5+5Aab^2de^4-10Ab^3d^2e^3+Ba^3e^5-5Ba^2bde^4+10Bab^2d^2e^3-10Bb^3d^3e^2\right)}{3b^4}$$
$$+\frac{x^2\left(-Aa^3be^5+5Aa^2b^2de^4-10Aab^3d^2e^3+10Ab^4d^3e^2+Ba^4e^5-5Ba^3bde^4+10Ba^2b^2d^2e^3-10Bab^3d^3e^2+5Bb^4d^4e\right)}{2b^5}$$
$$-\frac{x\left(-Aa^4be^5+5Aa^3b^2de^4-10Aa^2b^3d^2e^3+10Aab^4d^3e^2-5Ab^5d^4e+Ba^5e^5-5Ba^4bde^4+10Ba^3b^2d^2e^3-10Ba^2b^3d^3e^2+5\right.}{b^6}$$
$$+\frac{(-Ab+Ba)(ae-bd)^5\log(a+bx)}{b^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(e*x+d)**5/(b*x+a),x)
```

```
[Out] B*e**5*x**6/(6*b) - x**5*(-A*b*e**5 + B*a*e**5 - 5*B*b*d*e**4)/(5
*b**2) + x**4*(-A*a*b*e**5 + 5*A*b**2*d*e**4 + B*a**2*e**5 - 5*B*
a*b*d*e**4 + 10*B*b**2*d**2*e**3)/(4*b**3) - x**3*(-A*a**2*b*e**5
 + 5*A*a*b**2*d*e**4 - 10*A*b**3*d**2*e**3 + B*a**3*e**5 - 5*B*a*
*2*b*d*e**4 + 10*B*a*b**2*d**2*e**3 - 10*B*b**3*d**3*e**2)/(3*b**
4) + x**2*(-A*a**3*b*e**5 + 5*A*a**2*b**2*d*e**4 - 10*A*a*b**3*d*
*2*e**3 + 10*A*b**4*d**3*e**2 + B*a**4*e**5 - 5*B*a**3*b*d*e**4 +
 10*B*a**2*b**2*d**2*e**3 - 10*B*a*b**3*d**3*e**2 + 5*B*b**4*d**4
*e)/(2*b**5) - x*(-A*a**4*b*e**5 + 5*A*a**3*b**2*d*e**4 - 10*A*a*
*2*b**3*d**2*e**3 + 10*A*a*b**4*d**3*e**2 - 5*A*b**5*d**4*e + B*a
**5*e**5 - 5*B*a**4*b*d*e**4 + 10*B*a**3*b**2*d**2*e**3 - 10*B*a*
*2*b**3*d**3*e**2 + 5*B*a*b**4*d**4*e - B*b**5*d**5)/b**6 + (-A*b
 + B*a)*(a*e - b*d)**5*log(a + b*x)/b**7
```

GIAC/XCAS [A] time = 0.223438, size = 857, normalized size = 4.58

$$\frac{10\,Bb^5x^6e^5+60\,Bb^5dx^5e^4+150\,Bb^5d^2x^4e^3+200\,Bb^5d^3x^3e^2+150\,Bb^5d^4x^2e+60\,Bb^5d^5x-12\,Bab^4x^5e^5+12\,Ab^5x^5e^5-75}{}$$
$$-\frac{\left(Bab^5d^5-Ab^6d^5-5\,Ba^2b^4d^4e+5\,Aab^5d^4e+10\,Ba^3b^3d^3e^2-10\,Aa^2b^4d^3e^2-10\,Ba^4b^2d^2e^3+10\,Aa^3b^3d^2e^3+5\,Ba^5bde^4-\right.}{b^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^5/(b*x + a),x, algorithm="giac")
```

```
[Out] 1/60*(10*B*b^5*x^6*e^5 + 60*B*b^5*d*x^5*e^4 + 150*B*b^5*d^2*x^4*e
^3 + 200*B*b^5*d^3*x^3*e^2 + 150*B*b^5*d^4*x^2*e + 60*B*b^5*d^5*x
 - 12*B*a*b^4*x^5*e^5 + 12*A*b^5*x^5*e^5 - 75*B*a*b^4*d*x^4*e^4 +
 75*A*b^5*d*x^4*e^4 - 200*B*a*b^4*d^2*x^3*e^3 + 200*A*b^5*d^2*x^3
*e^3 - 300*B*a*b^4*d^3*x^2*e^2 + 300*A*b^5*d^3*x^2*e^2 - 300*B*a*
b^4*d^4*x*e + 300*A*b^5*d^4*x*e + 15*B*a^2*b^3*x^4*e^5 - 15*A*a*b
^4*x^4*e^5 + 100*B*a^2*b^3*d*x^3*e^4 - 100*A*a*b^4*d*x^3*e^4 + 30
0*B*a^2*b^3*d^2*x^2*e^3 - 300*A*a*b^4*d^2*x^2*e^3 + 600*B*a^2*b^3
*d^3*x*e^2 - 600*A*a*b^4*d^3*x*e^2 - 20*B*a^3*b^2*x^3*e^5 + 20*A*
a^2*b^3*x^3*e^5 - 150*B*a^3*b^2*d*x^2*e^4 + 150*A*a^2*b^3*d*x^2*e
^4 - 600*B*a^3*b^2*d^2*x*e^3 + 600*A*a^2*b^3*d^2*x*e^3 + 30*B*a^4
*b*x^2*e^5 - 30*A*a^3*b^2*x^2*e^5 + 300*B*a^4*b*d*x*e^4 - 300*A*a
^3*b^2*d*x*e^4 - 60*B*a^5*x*e^5 + 60*A*a^4*b*x*e^5)/b^6 - (B*a*b^
5*d^5 - A*b^6*d^5 - 5*B*a^2*b^4*d^4*e + 5*A*a*b^5*d^4*e + 10*B*a^
3*b^3*d^3*e^2 - 10*A*a^2*b^4*d^3*e^2 - 10*B*a^4*b^2*d^2*e^3 + 10*
A*a^3*b^3*d^2*e^3 + 5*B*a^5*b*d*e^4 - 5*A*a^4*b^2*d*e^4 - B*a^6*e
^5 + A*a^5*b*e^5)*ln(abs(b*x + a))/b^7
```

3.1095 $\int \frac{(A+Bx)(d+ex)^4}{a+bx} dx$

Optimal. Leaf size=155

$$\frac{(Ab-aB)(bd-ae)^4\log(a+bx)}{b^6}+\frac{ex(Ab-aB)(bd-ae)^3}{b^5}+\frac{(d+ex)^2(Ab-aB)(bd-ae)^2}{2b^4}+\frac{(d+ex)^3(Ab-aB)(bd-ae)}{3b^3}+\frac{(d+ex)^4(Ab-aB)}{4b^2}+\frac{B(d+ex)^5}{5be}$$

```
[Out] ((A*b - a*B)*e*(b*d - a*e)^3*x)/b^5 + ((A*b - a*B)*(b*d - a*e)^2*
(d + e*x)^2)/(2*b^4) + ((A*b - a*B)*(b*d - a*e)*(d + e*x)^3)/(3*b
^3) + ((A*b - a*B)*(d + e*x)^4)/(4*b^2) + (B*(d + e*x)^5)/(5*b*e)
 + ((A*b - a*B)*(b*d - a*e)^4*Log[a + b*x])/b^6
```

Rubi [A] time = 0.21558, antiderivative size = 155, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$\frac{(Ab-aB)(bd-ae)^4\log(a+bx)}{b^6}+\frac{ex(Ab-aB)(bd-ae)^3}{b^5}+\frac{(d+ex)^2(Ab-aB)(bd-ae)^2}{2b^4}+\frac{(d+ex)^3(Ab-aB)(bd-ae)}{3b^3}+\frac{(d+ex)^4(Ab-aB)}{4b^2}+\frac{B(d+ex)^5}{5be}$$

Antiderivative was successfully verified.

```
[In]  Int[((A + B*x)*(d + e*x)^4)/(a + b*x),x]
```

```
[Out] ((A*b - a*B)*e*(b*d - a*e)^3*x)/b^5 + ((A*b - a*B)*(b*d - a*e)^2*
(d + e*x)^2)/(2*b^4) + ((A*b - a*B)*(b*d - a*e)*(d + e*x)^3)/(3*b
^3) + ((A*b - a*B)*(d + e*x)^4)/(4*b^2) + (B*(d + e*x)^5)/(5*b*e)
 + ((A*b - a*B)*(b*d - a*e)^4*Log[a + b*x])/b^6
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{B(d+ex)^5}{5be}+\frac{(d+ex)^4(Ab-Ba)}{4b^2}-\frac{(d+ex)^3(Ab-Ba)(ae-bd)}{3b^3}+\frac{(d+ex)^2(Ab-Ba)(ae-bd)^2}{2b^4}-\frac{(Ab-Ba)(ae-bd)^3\int e\,dx}{b^5}+\frac{(Ab-Ba)(ae-bd)^4\log(a+bx)}{b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(e*x+d)**4/(b*x+a),x)
```

```
[Out] B*(d + e*x)**5/(5*b*e) + (d + e*x)**4*(A*b - B*a)/(4*b**2) - (d +
 e*x)**3*(A*b - B*a)*(a*e - b*d)/(3*b**3) + (d + e*x)**2*(A*b - B
*a)*(a*e - b*d)**2/(2*b**4) - (A*b - B*a)*(a*e - b*d)**3*Integral
(e, x)/b**5 + (A*b - B*a)*(a*e - b*d)**4*log(a + b*x)/b**6
```

Mathematica [A] time = 0.246446, size = 257, normalized size = 1.66

$$\frac{bx\left(60a^4Be^4-30a^3be^3(2Ae+8Bd+Bex)+10a^2b^2e^2\left(3Ae(8d+ex)+2B\left(18d^2+6dex+e^2x^2\right)\right)-5ab^3e\left(4Ae\left(18d^2+6dex\right.\right.\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((A + B*x)*(d + e*x)^4)/(a + b*x),x]
```

```
[Out] (b*x*(60*a^4*B*e^4 - 30*a^3*b*e^3*(8*B*d + 2*A*e + B*e*x) + 10*a^
2*b^2*e^2*(3*A*e*(8*d + e*x) + 2*B*(18*d^2 + 6*d*e*x + e^2*x^2))
```

```
- 5*a*b^3*e*(4*A*e*(18*d^2 + 6*d*e*x + e^2*x^2) + B*(48*d^3 + 36*
d^2*e*x + 16*d*e^2*x^2 + 3*e^3*x^3)) + b^4*(5*A*e*(48*d^3 + 36*d^
2*e*x + 16*d*e^2*x^2 + 3*e^3*x^3) + 12*B*(5*d^4 + 10*d^3*e*x + 10
*d^2*e^2*x^2 + 5*d*e^3*x^3 + e^4*x^4))) + 60*(A*b - a*B)*(b*d - a
*e)^4*Log[a + b*x])/(60*b^6)
```

Maple [B] time = 0.008, size = 521, normalized size = 3.4

$$-4\,{\frac {B{a}^{3}d{e}^{3}x}{{b}^{4}}}+6\,{\frac {B{a}^{2}{d}^{2}{e}^{2}x}{{b}^{3}}}-4\,{\frac {\ln \left(bx+a \right) A{a}^{3}d{e}^{3}}{{b}^{4}}}+6\,{\frac {\ln \left(bx+a \right) A{a}^{2}{d}^{2}{e}^{2}}{{b}^{3}}}+{\frac {A{x}^{4}{e}^{4}}{4\,b}}+{\frac {\ln \left(bx+a \right) A{d}^{4}}{b}}+{\frac {B{d}^{4}x}{b}}+{\frac {B{x}^{5}{e}^{4}}{5\,b}}-4\,{\frac {Ba{d}^{3}ex}{{b}^{2}}}-{\frac {4\,B{x}^{3}ad{e}^{3}}{3\,{b}^{2}}}-3\,{\frac {B{x}^{2}a{d}^{2}{e}^{2}}{{b}^{2}}}+4\,{\frac {{a}^{2}Ad{e}^{3}x}{{b}^{3}}}-6\,{\frac {Aa{d}^{2}{e}^{2}x}{{b}^{2}}}-{\frac {aA{x}^{3}{e}^{4}}{3\,{b}^{2}}}-{\frac {{a}^{3}A{e}^{4}x}{{b}^{4}}}-{\frac {B{x}^{2}{a}^{3}{e}^{4}}{2\,{b}^{4}}}+2\,{\frac {B{x}^{2}{d}^{3}e}{b}}+{\frac {B{x}^{3}{a}^{2}{e}^{4}}{3\,{b}^{3}}}+2\,{\frac {B{x}^{3}{d}^{2}{e}^{2}}{b}}+{\frac {{a}^{2}A{x}^{2}{e}^{4}}{2\,{b}^{3}}}+4\,{\frac {A{d}^{3}ex}{b}}+{\frac {B{a}^{4}{e}^{4}x}{{b}^{5}}}+{\frac {B{x}^{4}d{e}^{3}}{b}}+{\frac {4\,A{x}^{3}d{e}^{3}}{3\,b}}+3\,{\frac {A{x}^{2}{d}^{2}{e}^{2}}{b}}-{\frac {B{x}^{4}a{e}^{4}}{4\,{b}^{2}}}-{\frac {\ln \left(bx+a \right) Ba{d}^{4}}{{b}^{2}}}+{\frac {\ln \left(bx+a \right) A{a}^{4}{e}^{4}}{{b}^{5}}}-{\frac {\ln \left(bx+a \right) B{a}^{5}{e}^{4}}{{b}^{6}}}-4\,{\frac {\ln \left(bx+a \right) Aa{d}^{3}e}{{b}^{2}}}+4\,{\frac {\ln \left(bx+a \right) B{a}^{4}d{e}^{3}}{{b}^{5}}}-6\,{\frac {\ln \left(bx+a \right) B{a}^{3}{d}^{2}{e}^{2}}{{b}^{4}}}+4\,{\frac {\ln \left(bx+a \right) B{a}^{2}{d}^{3}e}{{b}^{3}}}-2\,{\frac {aA{x}^{2}d{e}^{3}}{{b}^{2}}}+2\,{\frac {B{x}^{2}{a}^{2}d{e}^{3}}{{b}^{3}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((B*x+A)*(e*x+d)^4/(b*x+a),x)
```

```
[Out] -4/b^4*B*a^3*d*e^3*x+6/b^3*B*a^2*d^2*e^2*x-4/b^4*ln(b*x+a)*A*a^3*
d*e^3+6/b^3*ln(b*x+a)*A*a^2*d^2*e^2+1/4/b*A*x^4*e^4+1/b*ln(b*x+a)
*A*d^4+1/b*B*d^4*x+1/5/b*B*x^5*e^4-4/b^2*B*a*d^3*e*x-4/3/b^2*B*x^
3*a*d*e^3-3/b^2*B*x^2*a*d^2*e^2+4/b^3*A*a^2*d*e^3*x-6/b^2*A*a*d^2
*e^2*x-1/3/b^2*A*x^3*a*e^4-1/b^4*A*a^3*e^4*x-1/2/b^4*B*x^2*a^3*e^
4+2/b*B*x^2*d^3*e+1/3/b^3*B*x^3*a^2*e^4+2/b*B*x^3*d^2*e^2+1/2/b^3
*A*x^2*a^2*e^4+4/b*A*d^3*e*x+1/b^5*B*a^4*e^4*x+1/b*B*x^4*d*e^3+4/
3/b*A*x^3*d*e^3+3/b*A*x^2*d^2*e^2-1/4/b^2*B*x^4*a*e^4-1/b^2*ln(b*
x+a)*B*a*d^4+1/b^5*ln(b*x+a)*A*a^4*e^4-1/b^6*ln(b*x+a)*B*a^5*e^4-
4/b^2*ln(b*x+a)*A*a*d^3*e+4/b^5*ln(b*x+a)*B*a^4*d*e^3-6/b^4*ln(b*
x+a)*B*a^3*d^2*e^2+4/b^3*ln(b*x+a)*B*a^2*d^3*e-2/b^2*A*x^2*a*d*e^
3+2/b^3*B*x^2*a^2*d*e^3
```

Maxima [A] time = 1.34963, size = 540, normalized size = 3.48

$$12\,Bb^4e^4x^5 + 15\left(4\,Bb^4de^3 - \left(Bab^3 - Ab^4\right)e^4\right)x^4 + 20\left(6\,Bb^4d^2e^2 - 4\left(Bab^3 - Ab^4\right)de^3 + \left(Ba^2b^2 - Aab^3\right)e^4\right)x^3 + 30\left(4\,Bb^4d\right.$$

$$-\frac{\left(\left(Bab^4 - Ab^5\right)d^4 - 4\left(Ba^2b^3 - Aab^4\right)d^3e + 6\left(Ba^3b^2 - Aa^2b^3\right)d^2e^2 - 4\left(Ba^4b - Aa^3b^2\right)de^3 + \left(Ba^5 - Aa^4b\right)e^4\right)\log\left(bx + a\right.}{b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*(e*x + d)^4/(b*x + a),x, algorithm="maxima")
```

```
[Out] 1/60*(12*B*b^4*e^4*x^5 + 15*(4*B*b^4*d*e^3 - (B*a*b^3 - A*b^4)*e^
4)*x^4 + 20*(6*B*b^4*d^2*e^2 - 4*(B*a*b^3 - A*b^4)*d*e^3 + (B*a^2
*b^2 - A*a*b^3)*e^4)*x^3 + 30*(4*B*b^4*d^3*e - 6*(B*a*b^3 - A*b^4
)*d^2*e^2 + 4*(B*a^2*b^2 - A*a*b^3)*d*e^3 - (B*a^3*b - A*a^2*b^2)
*e^4)*x^2 + 60*(B*b^4*d^4 - 4*(B*a*b^3 - A*b^4)*d^3*e + 6*(B*a^2*
b^2 - A*a*b^3)*d^2*e^2 - 4*(B*a^3*b - A*a^2*b^2)*d*e^3 + (B*a^4 -
 A*a^3*b)*e^4)*x)/b^5 - ((B*a*b^4 - A*b^5)*d^4 - 4*(B*a^2*b^3 - A
*a*b^4)*d^3*e + 6*(B*a^3*b^2 - A*a^2*b^3)*d^2*e^2 - 4*(B*a^4*b -
A*a^3*b^2)*d*e^3 + (B*a^5 - A*a^4*b)*e^4)*log(b*x + a)/b^6
```

Fricas [A] time = 0.213599, size = 544, normalized size = 3.51

$$\frac{12\,Bb^5e^4x^5 + 15\,\left(4\,Bb^5de^3 - \left(Bab^4 - Ab^5\right)e^4\right)x^4 + 20\,\left(6\,Bb^5d^2e^2 - 4\,\left(Bab^4 - Ab^5\right)de^3 + \left(Ba^2b^3 - Aab^4\right)e^4\right)x^3 + 30\,\left(4\,Bb^5d\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^4/(b*x + a),x, algorithm="fricas")
```

```
[Out] 1/60*(12*B*b^5*e^4*x^5 + 15*(4*B*b^5*d*e^3 - (B*a*b^4 - A*b^5)*e^
4)*x^4 + 20*(6*B*b^5*d^2*e^2 - 4*(B*a*b^4 - A*b^5)*d*e^3 + (B*a^2
*b^3 - A*a*b^4)*e^4)*x^3 + 30*(4*B*b^5*d^3*e - 6*(B*a*b^4 - A*b^5
)*d^2*e^2 + 4*(B*a^2*b^3 - A*a*b^4)*d*e^3 - (B*a^3*b^2 - A*a^2*b^
3)*e^4)*x^2 + 60*(B*b^5*d^4 - 4*(B*a*b^4 - A*b^5)*d^3*e + 6*(B*a^
2*b^3 - A*a*b^4)*d^2*e^2 - 4*(B*a^3*b^2 - A*a^2*b^3)*d*e^3 + (B*a
^4*b - A*a^3*b^2)*e^4)*x - 60*((B*a*b^4 - A*b^5)*d^4 - 4*(B*a^2*b
^3 - A*a*b^4)*d^3*e + 6*(B*a^3*b^2 - A*a^2*b^3)*d^2*e^2 - 4*(B*a^
4*b - A*a^3*b^2)*d*e^3 + (B*a^5 - A*a^4*b)*e^4)*log(b*x + a))/b^6
```

Sympy [A] time = 4.93179, size = 345, normalized size = 2.23

$$\frac{Be^4x^5}{5b} - \frac{x^4\left(-Abe^4 + Bae^4 - 4Bbde^3\right)}{4b^2} + \frac{x^3\left(-Aabe^4 + 4Ab^2de^3 + Ba^2e^4 - 4Babde^3 + 6Bb^2d^2e^2\right)}{3b^3} - \frac{x^2\left(-Aa^2be^4 + 4Aab^2de^3 - 6Ab^3d^2e^2 + Ba^3e^4 - 4Ba^2bde^3 + 6Bab^2d^2e^2 - 4Bb^3d^3e\right)}{2b^4} + \frac{x\left(-Aa^3be^4 + 4Aa^2b^2de^3 - 6Aab^3d^2e^2 + 4Ab^4d^3e + Ba^4e^4 - 4Ba^3bde^3 + 6Ba^2b^2d^2e^2 - 4Bab^3d^3e + Bb^4d^4\right)}{b^5} - \frac{(-Ab + Ba)(ae - bd)^4\log(a + bx)}{b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(e*x+d)**4/(b*x+a),x)
```

```
[Out] B*e**4*x**5/(5*b) - x**4*(-A*b*e**4 + B*a*e**4 - 4*B*b*d*e**3)/(4
*b**2) + x**3*(-A*a*b*e**4 + 4*A*b**2*d*e**3 + B*a**2*e**4 - 4*B*
a*b*d*e**3 + 6*B*b**2*d**2*e**2)/(3*b**3) - x**2*(-A*a**2*b*e**4
+ 4*A*a*b**2*d*e**3 - 6*A*b**3*d**2*e**2 + B*a**3*e**4 - 4*B*a**2
*b*d*e**3 + 6*B*a*b**2*d**2*e**2 - 4*B*b**3*d**3*e)/(2*b**4) + x*
(-A*a**3*b*e**4 + 4*A*a**2*b**2*d*e**3 - 6*A*a*b**3*d**2*e**2 + 4
*A*b**4*d**3*e + B*a**4*e**4 - 4*B*a**3*b*d*e**3 + 6*B*a**2*b**2*
d**2*e**2 - 4*B*a*b**3*d**3*e + B*b**4*d**4)/b**5 - (-A*b + B*a)*
(a*e - b*d)**4*log(a + b*x)/b**6
```

GIAC/XCAS [A] time = 0.216763, size = 599, normalized size = 3.86

$$\frac{12\,Bb^4x^5e^4 + 60\,Bb^4dx^4e^3 + 120\,Bb^4d^2x^3e^2 + 120\,Bb^4d^3x^2e + 60\,Bb^4d^4x - 15\,Bab^3x^4e^4 + 15\,Ab^4x^4e^4 - 80\,Bab^3dx^3e^3 + 80\,A}{}$$

$$-\frac{\left(Bab^4d^4 - Ab^5d^4 - 4\,Ba^2b^3d^3e + 4\,Aab^4d^3e + 6\,Ba^3b^2d^2e^2 - 6\,Aa^2b^3d^2e^2 - 4\,Ba^4bde^3 + 4\,Aa^3b^2de^3 + Ba^5e^4 - Aa^4be^4\right)\ln}{b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^4/(b*x + a),x, algorithm="giac")
```

```
[Out] 1/60*(12*B*b^4*x^5*e^4 + 60*B*b^4*d*x^4*e^3 + 120*B*b^4*d^2*x^3*e
^2 + 120*B*b^4*d^3*x^2*e + 60*B*b^4*d^4*x - 15*B*a*b^3*x^4*e^4 +
15*A*b^4*x^4*e^4 - 80*B*a*b^3*d*x^3*e^3 + 80*A*b^4*d*x^3*e^3 - 18
0*B*a*b^3*d^2*x^2*e^2 + 180*A*b^4*d^2*x^2*e^2 - 240*B*a*b^3*d^3*x
*e + 240*A*b^4*d^3*x*e + 20*B*a^2*b^2*x^3*e^4 - 20*A*a*b^3*x^3*e^
4 + 120*B*a^2*b^2*d*x^2*e^3 - 120*A*a*b^3*d*x^2*e^3 + 360*B*a^2*b
```

^2*d^2*x*e^2 - 360*A*a*b^3*d^2*x*e^2 - 30*B*a^3*b*x^2*e^4 + 30*A*a^2*b^2*x^2*e^4 - 240*B*a^3*b*d*x*e^3 + 240*A*a^2*b^2*d*x*e^3 + 60*B*a^4*x*e^4 - 60*A*a^3*b*x*e^4)/b^5 - (B*a*b^4*d^4 - A*b^5*d^4 - 4*B*a^2*b^3*d^3*e + 4*A*a*b^4*d^3*e + 6*B*a^3*b^2*d^2*e^2 - 6*A*a^2*b^3*d^2*e^2 - 4*B*a^4*b*d*e^3 + 4*A*a^3*b^2*d*e^3 + B*a^5*e^4 - A*a^4*b*e^4)*ln(abs(b*x + a))/b^6

3.1096 $\int \frac{(A+Bx)(d+ex)^3}{a+bx}\,dx$

Optimal. Leaf size=123

$$\frac{(Ab-aB)(bd-ae)^3\log(a+bx)}{b^5}+\frac{ex(Ab-aB)(bd-ae)^2}{b^4}+\frac{(d+ex)^2(Ab-aB)(bd-ae)}{2b^3}+\frac{(d+ex)^3(Ab-aB)}{3b^2}+\frac{B(d+ex)^4}{4be}$$

```
[Out] ((A*b - a*B)*e*(b*d - a*e)^2*x)/b^4 + ((A*b - a*B)*(b*d - a*e)*(d
 + e*x)^2)/(2*b^3) + ((A*b - a*B)*(d + e*x)^3)/(3*b^2) + (B*(d +
e*x)^4)/(4*b*e) + ((A*b - a*B)*(b*d - a*e)^3*Log[a + b*x])/b^5
```

Rubi [A] time = 0.169826, antiderivative size = 123, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{(Ab-aB)(bd-ae)^3\log(a+bx)}{b^5}+\frac{ex(Ab-aB)(bd-ae)^2}{b^4}+\frac{(d+ex)^2(Ab-aB)(bd-ae)}{2b^3}+\frac{(d+ex)^3(Ab-aB)}{3b^2}+\frac{B(d+ex)^4}{4be}$$

Antiderivative was successfully verified.

```
[In]  Int[((A + B*x)*(d + e*x)^3)/(a + b*x),x]
```

```
[Out] ((A*b - a*B)*e*(b*d - a*e)^2*x)/b^4 + ((A*b - a*B)*(b*d - a*e)*(d
 + e*x)^2)/(2*b^3) + ((A*b - a*B)*(d + e*x)^3)/(3*b^2) + (B*(d +
e*x)^4)/(4*b*e) + ((A*b - a*B)*(b*d - a*e)^3*Log[a + b*x])/b^5
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{B\left(d+ex\right)^4}{4be}+\frac{\left(d+ex\right)^3\left(Ab-Ba\right)}{3b^2}-\frac{\left(d+ex\right)^2\left(Ab-Ba\right)\left(ae-bd\right)}{2b^3}+\frac{\left(Ab-Ba\right)\left(ae-bd\right)^2\int e\,dx}{b^4}-\frac{\left(Ab-Ba\right)\left(ae-bd\right)^3\log\left(a+bx\right)}{b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(e*x+d)**3/(b*x+a),x)
```

```
[Out] B*(d + e*x)**4/(4*b*e) + (d + e*x)**3*(A*b - B*a)/(3*b**2) - (d +
 e*x)**2*(A*b - B*a)*(a*e - b*d)/(2*b**3) + (A*b - B*a)*(a*e - b*
d)**2*Integral(e, x)/b**4 - (A*b - B*a)*(a*e - b*d)**3*log(a + b*
x)/b**5
```

Mathematica [A] time = 0.162693, size = 169, normalized size = 1.37

$$\frac{bx\left(-12a^3Be^3+6a^2be^2(2Ae+6Bd+Bex)-2ab^2e\left(3Ae(6d+ex)+B\left(18d^2+9dex+2e^2x^2\right)\right)+b^3\left(2Ae\left(18d^2+9dex+2e^2\right.\right.\right.}{12b^5}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((A + B*x)*(d + e*x)^3)/(a + b*x),x]
```

```
[Out] (b*x*(-12*a^3*B*e^3 + 6*a^2*b*e^2*(6*B*d + 2*A*e + B*e*x) - 2*a*b
^2*e*(3*A*e*(6*d + e*x) + B*(18*d^2 + 9*d*e*x + 2*e^2*x^2)) + b^3
*(2*A*e*(18*d^2 + 9*d*e*x + 2*e^2*x^2) + 3*B*(4*d^3 + 6*d^2*e*x +
```

```
 4*d*e^2*x^2 + e^3*x^3))) + 12*(A*b - a*B)*(b*d - a*e)^3*Log[a +
b*x])/(12*b^5)
```

Maple [B] time = 0.007, size = 341, normalized size = 2.8

$$\frac{Bx^4e^3}{4\,b}+\frac{Ax^3e^3}{3\,b}-\frac{Bx^3ae^3}{3\,b^2}+\frac{Bx^3de^2}{b}-\frac{aAx^2e^3}{2\,b^2}+\frac{3\,Ax^2de^2}{2\,b}+\frac{Bx^2a^2e^3}{2\,b^3}-\frac{3\,Bx^2ade^2}{2\,b^2}+\frac{3\,Bx^2d^2e}{2\,b}+\frac{a^2Ae^3x}{b^3}-3\,\frac{aAde^2x}{b^2}+3\,\frac{Ad^2ex}{b}-\frac{Ba^3e^3x}{b^4}+3\,\frac{Ba^2de^2x}{b^3}-3\,\frac{Bad^2ex}{b^2}+\frac{Bd^3x}{b}-\frac{\ln(bx+a)\,Aa^3e^3}{b^4}+3\,\frac{\ln(bx+a)\,Aa^2de^2}{b^3}-3\,\frac{\ln(bx+a)\,Aad^2e}{b^2}+\frac{\ln(bx+a)\,Ad^3}{b}+\frac{\ln(bx+a)\,Ba^4e^3}{b^5}-3\,\frac{\ln(bx+a)\,Ba^3de^2}{b^4}+3\,\frac{\ln(bx+a)\,Ba^2d^2e}{b^3}-\frac{\ln(bx+a)\,Bad^3}{b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(e*x+d)^3/(b*x+a),x)
```

```
[Out] 1/4/b*B*x^4*e^3+1/3/b*A*x^3*e^3-1/3/b^2*B*x^3*a*e^3+1/b*B*x^3*d*e
^2-1/2/b^2*A*x^2*a*e^3+3/2/b*A*x^2*d*e^2+1/2/b^3*B*x^2*a^2*e^3-3/
2/b^2*B*x^2*a*d*e^2+3/2/b*B*x^2*d^2*e+1/b^3*A*a^2*e^3*x-3/b^2*A*a
*d*e^2*x+3/b*A*d^2*e*x-1/b^4*B*a^3*e^3*x+3/b^3*B*a^2*d*e^2*x-3/b^
2*B*a*d^2*e*x+1/b*B*d^3*x-1/b^4*ln(b*x+a)*A*a^3*e^3+3/b^3*ln(b*x+
a)*A*a^2*d*e^2-3/b^2*ln(b*x+a)*A*a*d^2*e+1/b*ln(b*x+a)*A*d^3+1/b^
5*ln(b*x+a)*B*a^4*e^3-3/b^4*ln(b*x+a)*B*a^3*d*e^2+3/b^3*ln(b*x+a)
*B*a^2*d^2*e-1/b^2*ln(b*x+a)*B*a*d^3
```

Maxima [A] time = 1.35029, size = 359, normalized size = 2.92

$$\frac{3\,Bb^3e^3x^4+4\left(3\,Bb^3de^2-\left(Bab^2-Ab^3\right)e^3\right)x^3+6\left(3\,Bb^3d^2e-3\left(Bab^2-Ab^3\right)de^2+\left(Ba^2b-Aab^2\right)e^3\right)x^2+12\left(Bb^3d^3-3\left(\right.\right.}{12\,b^4}-\frac{\left(\left(Bab^3-Ab^4\right)d^3-3\left(Ba^2b^2-Aab^3\right)d^2e+3\left(Ba^3b-Aa^2b^2\right)de^2-\left(Ba^4-Aa^3b\right)e^3\right)\log\left(bx+a\right)}{b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^3/(b*x + a),x, algorithm="maxima")
```

```
[Out] 1/12*(3*B*b^3*e^3*x^4 + 4*(3*B*b^3*d*e^2 - (B*a*b^2 - A*b^3)*e^3)
*x^3 + 6*(3*B*b^3*d^2*e - 3*(B*a*b^2 - A*b^3)*d*e^2 + (B*a^2*b -
A*a*b^2)*e^3)*x^2 + 12*(B*b^3*d^3 - 3*(B*a*b^2 - A*b^3)*d^2*e + 3
*(B*a^2*b - A*a*b^2)*d*e^2 - (B*a^3 - A*a^2*b)*e^3)*x)/b^4 - ((B*
a*b^3 - A*b^4)*d^3 - 3*(B*a^2*b^2 - A*a*b^3)*d^2*e + 3*(B*a^3*b -
 A*a^2*b^2)*d*e^2 - (B*a^4 - A*a^3*b)*e^3)*log(b*x + a)/b^5
```

Fricas [A] time = 0.208702, size = 363, normalized size = 2.95

$$3\,Bb^4e^3x^4+4\left(3\,Bb^4de^2-\left(Bab^3-Ab^4\right)e^3\right)x^3+6\left(3\,Bb^4d^2e-3\left(Bab^3-Ab^4\right)de^2+\left(Ba^2b^2-Aab^3\right)e^3\right)x^2+12\left(Bb^4d^3-3\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^3/(b*x + a),x, algorithm="fricas")
```

```
[Out] 1/12*(3*B*b^4*e^3*x^4 + 4*(3*B*b^4*d*e^2 - (B*a*b^3 - A*b^4)*e^3)
*x^3 + 6*(3*B*b^4*d^2*e - 3*(B*a*b^3 - A*b^4)*d*e^2 + (B*a^2*b^2
- A*a*b^3)*e^3)*x^2 + 12*(B*b^4*d^3 - 3*(B*a*b^3 - A*b^4)*d^2*e +
 3*(B*a^2*b^2 - A*a*b^3)*d*e^2 - (B*a^3*b - A*a^2*b^2)*e^3)*x - 1
2*((B*a*b^3 - A*b^4)*d^3 - 3*(B*a^2*b^2 - A*a*b^3)*d^2*e + 3*(B*a
```

```
^3*b - A*a^2*b^2)*d*e^2 - (B*a^4 - A*a^3*b)*e^3)*log(b*x + a))/b^
5
```

Sympy [A] time = 3.48891, size = 214, normalized size = 1.74

$$\frac{Be^3x^4}{4b} - \frac{x^3\left(-Abe^3 + Bae^3 - 3Bbde^2\right)}{3b^2} + \frac{x^2\left(-Aabe^3 + 3Ab^2de^2 + Ba^2e^3 - 3Babde^2 + 3Bb^2d^2e\right)}{2b^3} - \frac{x\left(-Aa^2be^3 + 3Aab^2de^2 - 3Ab^3d^2e + Ba^3e^3 - 3Ba^2bde^2 + 3Bab^2d^2e - Bb^3d^3\right)}{b^4} + \frac{(-Ab + Ba)(ae - bd)^3\log(a + bx)}{b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(e*x+d)**3/(b*x+a),x)
```

```
[Out] B*e**3*x**4/(4*b) - x**3*(-A*b*e**3 + B*a*e**3 - 3*B*b*d*e**2)/(3
*b**2) + x**2*(-A*a*b*e**3 + 3*A*b**2*d*e**2 + B*a**2*e**3 - 3*B*
a*b*d*e**2 + 3*B*b**2*d**2*e)/(2*b**3) - x*(-A*a**2*b*e**3 + 3*A*
a*b**2*d*e**2 - 3*A*b**3*d**2*e + B*a**3*e**3 - 3*B*a**2*b*d*e**2
 + 3*B*a*b**2*d**2*e - B*b**3*d**3)/b**4 + (-A*b + B*a)*(a*e - b*
d)**3*log(a + b*x)/b**5
```

GIAC/XCAS [A] time = 0.218309, size = 387, normalized size = 3.15

$$\frac{3\,Bb^3x^4e^3 + 12\,Bb^3dx^3e^2 + 18\,Bb^3d^2x^2e + 12\,Bb^3d^3x - 4\,Bab^2x^3e^3 + 4\,Ab^3x^3e^3 - 18\,Bab^2dx^2e^2 + 18\,Ab^3dx^2e^2 - 36\,Bab^2d^2\ldots}{12\,b^4} - \frac{\left(Bab^3d^3 - Ab^4d^3 - 3\,Ba^2b^2d^2e + 3\,Aab^3d^2e + 3\,Ba^3bde^2 - 3\,Aa^2b^2de^2 - Ba^4e^3 + Aa^3be^3\right)\ln\left(|bx + a|\right)}{b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^3/(b*x + a),x, algorithm="giac")
```

```
[Out] 1/12*(3*B*b^3*x^4*e^3 + 12*B*b^3*d*x^3*e^2 + 18*B*b^3*d^2*x^2*e +
 12*B*b^3*d^3*x - 4*B*a*b^2*x^3*e^3 + 4*A*b^3*x^3*e^3 - 18*B*a*b^
2*d*x^2*e^2 + 18*A*b^3*d*x^2*e^2 - 36*B*a*b^2*d^2*x*e + 36*A*b^3*
d^2*x*e + 6*B*a^2*b*x^2*e^3 - 6*A*a*b^2*x^2*e^3 + 36*B*a^2*b*d*x*
e^2 - 36*A*a*b^2*d*x*e^2 - 12*B*a^3*x*e^3 + 12*A*a^2*b*x*e^3)/b^4
 - (B*a*b^3*d^3 - A*b^4*d^3 - 3*B*a^2*b^2*d^2*e + 3*A*a*b^3*d^2*e
 + 3*B*a^3*b*d*e^2 - 3*A*a^2*b^2*d*e^2 - B*a^4*e^3 + A*a^3*b*e^3)
*ln(abs(b*x + a))/b^5
```

3.1097 $\int \frac{(A+Bx)(d+ex)^2}{a+bx} dx$

Optimal. Leaf size=91

$$\frac{(Ab-aB)(bd-ae)^2\log(a+bx)}{b^4}+\frac{ex(Ab-aB)(bd-ae)}{b^3}+\frac{(d+ex)^2(Ab-aB)}{2b^2}+\frac{B(d+ex)^3}{3be}$$

```
[Out] ((A*b - a*B)*e*(b*d - a*e)*x)/b^3 + ((A*b - a*B)*(d + e*x)^2)/(2*
b^2) + (B*(d + e*x)^3)/(3*b*e) + ((A*b - a*B)*(b*d - a*e)^2*Log[a
 + b*x])/b^4
```

Rubi [A] time = 0.124051, antiderivative size = 91, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{(Ab-aB)(bd-ae)^2\log(a+bx)}{b^4}+\frac{ex(Ab-aB)(bd-ae)}{b^3}+\frac{(d+ex)^2(Ab-aB)}{2b^2}+\frac{B(d+ex)^3}{3be}$$

Antiderivative was successfully verified.

```
[In]  Int[((A + B*x)*(d + e*x)^2)/(a + b*x),x]
```

```
[Out] ((A*b - a*B)*e*(b*d - a*e)*x)/b^3 + ((A*b - a*B)*(d + e*x)^2)/(2*
b^2) + (B*(d + e*x)^3)/(3*b*e) + ((A*b - a*B)*(b*d - a*e)^2*Log[a
 + b*x])/b^4
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{B(d+ex)^3}{3be}+\frac{(d+ex)^2(Ab-Ba)}{2b^2}-\frac{(Ab-Ba)(ae-bd)\int e\,dx}{b^3}+\frac{(Ab-Ba)(ae-bd)^2\log(a+bx)}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(e*x+d)**2/(b*x+a),x)
```

```
[Out] B*(d + e*x)**3/(3*b*e) + (d + e*x)**2*(A*b - B*a)/(2*b**2) - (A*b
 - B*a)*(a*e - b*d)*Integral(e, x)/b**3 + (A*b - B*a)*(a*e - b*d)
**2*log(a + b*x)/b**4
```

Mathematica [A] time = 0.0942936, size = 102, normalized size = 1.12

$$\frac{bx\left(6a^2Be^2-3abe(2Ae+4Bd+Bex)+b^2\left(3Ae(4d+ex)+2B\left(3d^2+3dex+e^2x^2\right)\right)\right)+6(Ab-aB)(bd-ae)^2\log(a+bx)}{6b^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((A + B*x)*(d + e*x)^2)/(a + b*x),x]
```

```
[Out] (b*x*(6*a^2*B*e^2 - 3*a*b*e*(4*B*d + 2*A*e + B*e*x) + b^2*(3*A*e*
(4*d + e*x) + 2*B*(3*d^2 + 3*d*e*x + e^2*x^2))) + 6*(A*b - a*B)*(
b*d - a*e)^2*Log[a + b*x])/(6*b^4)
```

Maple [B] time = 0.004, size = 197, normalized size = 2.2

$$\frac{Bx^3e^2}{3b}+\frac{Ax^2e^2}{2b}-\frac{Bx^2ae^2}{2b^2}+\frac{Bx^2de}{b}-\frac{aAe^2x}{b^2}+2\frac{Adex}{b}+\frac{Ba^2e^2x}{b^3}-2\frac{Badex}{b^2}+\frac{Bd^2x}{b}+\frac{\ln(bx+a)Aa^2e^2}{b^3}-2\frac{\ln(bx+a)Aade}{b^2}+\frac{\ln(bx+a)Ad^2}{b}-\frac{\ln(bx+a)Ba^3e^2}{b^4}+2\frac{\ln(bx+a)Ba^2de}{b^3}-\frac{\ln(bx+a)Bad^2}{b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(e*x+d)^2/(b*x+a),x)
```

```
[Out] 1/3/b*B*x^3*e^2+1/2/b*A*x^2*e^2-1/2/b^2*B*x^2*a*e^2+1/b*B*x^2*d*e
-1/b^2*A*a*e^2*x+2/b*A*d*e*x+1/b^3*B*a^2*e^2*x-2/b^2*B*a*d*e*x+1/
b*B*d^2*x+1/b^3*ln(b*x+a)*A*a^2*e^2-2/b^2*ln(b*x+a)*A*a*d*e+1/b*l
n(b*x+a)*A*d^2-1/b^4*ln(b*x+a)*B*a^3*e^2+2/b^3*ln(b*x+a)*B*a^2*d*
e-1/b^2*ln(b*x+a)*B*a*d^2
```

Maxima [A] time = 1.35531, size = 209, normalized size = 2.3

$$\frac{2\,Bb^2e^2x^3+3\,\left(2\,Bb^2de-\left(Bab-Ab^2\right)e^2\right)x^2+6\,\left(Bb^2d^2-2\,\left(Bab-Ab^2\right)de+\left(Ba^2-Aab\right)e^2\right)x}{6\,b^3}-\frac{\left(\left(Bab^2-Ab^3\right)d^2-2\,\left(Ba^2b-Aab^2\right)de+\left(Ba^3-Aa^2b\right)e^2\right)\log\left(bx+a\right)}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^2/(b*x + a),x, algorithm="maxima")
```

```
[Out] 1/6*(2*B*b^2*e^2*x^3 + 3*(2*B*b^2*d*e - (B*a*b - A*b^2)*e^2)*x^2
+ 6*(B*b^2*d^2 - 2*(B*a*b - A*b^2)*d*e + (B*a^2 - A*a*b)*e^2)*x)/
b^3 - ((B*a*b^2 - A*b^3)*d^2 - 2*(B*a^2*b - A*a*b^2)*d*e + (B*a^3
 - A*a^2*b)*e^2)*log(b*x + a)/b^4
```

Fricas [A] time = 0.214637, size = 213, normalized size = 2.34

$$\frac{2\,Bb^3e^2x^3+3\,\left(2\,Bb^3de-\left(Bab^2-Ab^3\right)e^2\right)x^2+6\,\left(Bb^3d^2-2\,\left(Bab^2-Ab^3\right)de+\left(Ba^2b-Aab^2\right)e^2\right)x-6\,\left(\left(Bab^2-Ab^3\right)d^2-\right.}{6\,b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^2/(b*x + a),x, algorithm="fricas")
```

```
[Out] 1/6*(2*B*b^3*e^2*x^3 + 3*(2*B*b^3*d*e - (B*a*b^2 - A*b^3)*e^2)*x^
2 + 6*(B*b^3*d^2 - 2*(B*a*b^2 - A*b^3)*d*e + (B*a^2*b - A*a*b^2)*
e^2)*x - 6*((B*a*b^2 - A*b^3)*d^2 - 2*(B*a^2*b - A*a*b^2)*d*e + (
B*a^3 - A*a^2*b)*e^2)*log(b*x + a))/b^4
```

Sympy [A] time = 2.50195, size = 117, normalized size = 1.29

$$\frac{Be^2x^3}{3b}-\frac{x^2\left(-Abe^2+Bae^2-2Bbde\right)}{2b^2}+\frac{x\left(-Aabe^2+2Ab^2de+Ba^2e^2-2Babde+Bb^2d^2\right)}{b^3}-\frac{\left(-Ab+Ba\right)\left(ae-bd\right)^2\log\left(a+bx\right)}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(e*x+d)**2/(b*x+a),x)
```

```
[Out] B*e**2*x**3/(3*b) - x**2*(-A*b*e**2 + B*a*e**2 - 2*B*b*d*e)/(2*b*
*2) + x*(-A*a*b*e**2 + 2*A*b**2*d*e + B*a**2*e**2 - 2*B*a*b*d*e +
 B*b**2*d**2)/b**3 - (-A*b + B*a)*(a*e - b*d)**2*log(a + b*x)/b**
4
```

GIAC/XCAS [A] time = 0.216391, size = 221, normalized size = 2.43

$$\frac{2\,Bb^2x^3e^2 + 6\,Bb^2dx^2e + 6\,Bb^2d^2x - 3\,Babx^2e^2 + 3\,Ab^2x^2e^2 - 12\,Babdxe + 12\,Ab^2dxe + 6\,Ba^2xe^2 - 6\,Aabxe^2}{6\,b^3} - \frac{\left(Bab^2d^2 - Ab^3d^2 - 2\,Ba^2bde + 2\,Aab^2de + Ba^3e^2 - Aa^2be^2\right)\ln\left(|bx + a|\right)}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^2/(b*x + a),x, algorithm="giac")
```

```
[Out] 1/6*(2*B*b^2*x^3*e^2 + 6*B*b^2*d*x^2*e + 6*B*b^2*d^2*x - 3*B*a*b*
x^2*e^2 + 3*A*b^2*x^2*e^2 - 12*B*a*b*d*x*e + 12*A*b^2*d*x*e + 6*B
*a^2*x*e^2 - 6*A*a*b*x*e^2)/b^3 - (B*a*b^2*d^2 - A*b^3*d^2 - 2*B*
a^2*b*d*e + 2*A*a*b^2*d*e + B*a^3*e^2 - A*a^2*b*e^2)*ln(abs(b*x +
 a))/b^4
```

3.1098 $\int \frac{(A+Bx)(d+ex)}{a+bx} dx$

Optimal. Leaf size=59

$$\frac{(Ab-aB)(bd-ae)\log(a+bx)}{b^3}+\frac{Bx(bd-ae)}{b^2}+\frac{e(A+Bx)^2}{2bB}$$

```
[Out] (B*(b*d - a*e)*x)/b^2 + (e*(A + B*x)^2)/(2*b*B) + ((A*b - a*B)*(b
*d - a*e)*Log[a + b*x])/b^3
```

Rubi [A] time = 0.0948833, antiderivative size = 59, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{(Ab-aB)(bd-ae)\log(a+bx)}{b^3}+\frac{Bx(bd-ae)}{b^2}+\frac{e(A+Bx)^2}{2bB}$$

Antiderivative was successfully verified.

```
[In] Int[((A + B*x)*(d + e*x))/(a + b*x),x]
```

```
[Out] (B*(b*d - a*e)*x)/b^2 + (e*(A + B*x)^2)/(2*b*B) + ((A*b - a*B)*(b
*d - a*e)*Log[a + b*x])/b^3
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{(ae-bd)\int B\,dx}{b^2}-\frac{(Ab-Ba)\,(ae-bd)\log{(a+bx)}}{b^3}+\frac{e\,(A+Bx)^2}{2Bb}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((B*x+A)*(e*x+d)/(b*x+a),x)
```

```
[Out] -(a*e - b*d)*Integral(B, x)/b**2 - (A*b - B*a)*(a*e - b*d)*log(a
+ b*x)/b**3 + e*(A + B*x)**2/(2*B*b)
```

Mathematica [A] time = 0.0385519, size = 56, normalized size = 0.95

$$\frac{bx(b(2Ae+2Bd+Bex)-2aBe)+2(Ab-aB)(bd-ae)\log(a+bx)}{2b^3}$$

Antiderivative was successfully verified.

```
[In] Integrate[((A + B*x)*(d + e*x))/(a + b*x),x]
```

```
[Out] (b*x*(-2*a*B*e + b*(2*B*d + 2*A*e + B*e*x)) + 2*(A*b - a*B)*(b*d
- a*e)*Log[a + b*x])/(2*b^3)
```

Maple [A] time = 0.004, size = 90, normalized size = 1.5

$$\frac{Bx^2e}{2\,b}+\frac{Aex}{b}-\frac{Baex}{b^2}+\frac{Bdx}{b}-\frac{\ln{(bx+a)}\,Aae}{b^2}+\frac{\ln{(bx+a)}\,Ad}{b}+\frac{\ln{(bx+a)}\,Ba^2e}{b^3}-\frac{\ln{(bx+a)}\,Bad}{b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(e*x+d)/(b*x+a),x)
```

```
[Out] 1/2/b*B*x^2*e+1/b*A*e*x-1/b^2*B*a*e*x+1/b*B*d*x-1/b^2*ln(b*x+a)*A
*a*e+1/b*ln(b*x+a)*A*d+1/b^3*ln(b*x+a)*B*a^2*e-1/b^2*ln(b*x+a)*B*
a*d
```

Maxima [A] time = 1.35463, size = 97, normalized size = 1.64

$$\frac{Bbex^2 + 2\,(Bbd - (Ba - Ab)e)x}{2\,b^2} - \frac{\left(\left(Bab - Ab^2\right)d - \left(Ba^2 - Aab\right)e\right)\,\log\left(bx + a\right)}{b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)/(b*x + a),x, algorithm="maxima")
```

```
[Out] 1/2*(B*b*e*x^2 + 2*(B*b*d - (B*a - A*b)*e)*x)/b^2 - ((B*a*b - A*b
^2)*d - (B*a^2 - A*a*b)*e)*log(b*x + a)/b^3
```

Fricas [A] time = 0.222031, size = 101, normalized size = 1.71

$$\frac{Bb^2ex^2 + 2\left(Bb^2d - \left(Bab - Ab^2\right)e\right)x - 2\left(\left(Bab - Ab^2\right)d - \left(Ba^2 - Aab\right)e\right)\,\log\left(bx + a\right)}{2\,b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)/(b*x + a),x, algorithm="fricas")
```

```
[Out] 1/2*(B*b^2*e*x^2 + 2*(B*b^2*d - (B*a*b - A*b^2)*e)*x - 2*((B*a*b
- A*b^2)*d - (B*a^2 - A*a*b)*e)*log(b*x + a))/b^3
```

Sympy [A] time = 1.80958, size = 53, normalized size = 0.9

$$\frac{Bex^2}{2b} - \frac{x\,(-Abe + Bae - Bbd)}{b^2} + \frac{(-Ab + Ba)\,(ae - bd)\log\left(a + bx\right)}{b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(e*x+d)/(b*x+a),x)
```

```
[Out] B*e*x**2/(2*b) - x*(-A*b*e + B*a*e - B*b*d)/b**2 + (-A*b + B*a)*(
a*e - b*d)*log(a + b*x)/b**3
```

GIAC/XCAS [A] time = 0.214571, size = 100, normalized size = 1.69

$$\frac{Bbx^2e + 2\,Bbdx - 2\,Baxe + 2\,Abxe}{2\,b^2} - \frac{\left(Babd - Ab^2d - Ba^2e + Aabe\right)\ln\left(|bx + a|\right)}{b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)/(b*x + a),x, algorithm="giac")
```

```
[Out] 1/2*(B*b*x^2*e + 2*B*b*d*x - 2*B*a*x*e + 2*A*b*x*e)/b^2 - (B*a*b*
d - A*b^2*d - B*a^2*e + A*a*b*e)*ln(abs(b*x + a))/b^3
```

3.1099 $\int \frac{A+Bx}{a+bx} \, dx$

Optimal. Leaf size=25

$$\frac{(Ab-aB)\log(a+bx)}{b^2}+\frac{Bx}{b}$$

```
[Out] (B*x)/b + ((A*b - a*B)*Log[a + b*x])/b^2
```

Rubi [A] time = 0.0380137, antiderivative size = 25, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 13, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.077

$$\frac{(Ab-aB)\log(a+bx)}{b^2}+\frac{Bx}{b}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(a + b*x),x]
```

```
[Out] (B*x)/b + ((A*b - a*B)*Log[a + b*x])/b^2
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{\int B\,dx}{b}+\frac{(Ab-Ba)\log(a+bx)}{b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(b*x+a),x)
```

```
[Out] Integral(B, x)/b + (A*b - B*a)*log(a + b*x)/b**2
```

Mathematica [A] time = 0.0125523, size = 25, normalized size = 1.

$$\frac{(Ab-aB)\log(a+bx)}{b^2}+\frac{Bx}{b}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(a + b*x),x]
```

```
[Out] (B*x)/b + ((A*b - a*B)*Log[a + b*x])/b^2
```

Maple [A] time = 0.002, size = 32, normalized size = 1.3

$$\frac{Bx}{b}+\frac{\ln(bx+a)A}{b}-\frac{\ln(bx+a)Ba}{b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(b*x+a),x)
```

```
[Out] B*x/b+1/b*ln(b*x+a)*A-1/b^2*ln(b*x+a)*B*a
```

Maxima [A] time = 1.3442, size = 35, normalized size = 1.4

$$\frac{Bx}{b} - \frac{(Ba - Ab)\log(bx + a)}{b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(b*x + a),x, algorithm="maxima")
```

```
[Out] B*x/b - (B*a - A*b)*log(b*x + a)/b^2
```

Fricas [A] time = 0.213457, size = 34, normalized size = 1.36

$$\frac{Bbx - (Ba - Ab)\log(bx + a)}{b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(b*x + a),x, algorithm="fricas")
```

```
[Out] (B*b*x - (B*a - A*b)*log(b*x + a))/b^2
```

Sympy [A] time = 1.23174, size = 20, normalized size = 0.8

$$\frac{Bx}{b} - \frac{(-Ab + Ba)\log(a + bx)}{b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(b*x+a),x)
```

```
[Out] B*x/b - (-A*b + B*a)*log(a + b*x)/b**2
```

GIAC/XCAS [A] time = 0.22582, size = 36, normalized size = 1.44

$$\frac{Bx}{b} - \frac{(Ba - Ab)\ln(|bx + a|)}{b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(b*x + a),x, algorithm="giac")
```

```
[Out] B*x/b - (B*a - A*b)*ln(abs(b*x + a))/b^2
```

3.1100 $\int \frac{A+Bx}{(a+bx)(d+ex)}\,dx$

Optimal. Leaf size=57

$$\frac{(Ab-aB)\log(a+bx)}{b(bd-ae)}+\frac{(Bd-Ae)\log(d+ex)}{e(bd-ae)}$$

```
[Out] ((A*b - a*B)*Log[a + b*x])/(b*(b*d - a*e)) + ((B*d - A*e)*Log[d +
 e*x])/(e*(b*d - a*e))
```

Rubi [A] time = 0.0973859, antiderivative size = 57, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{(Ab-aB)\log(a+bx)}{b(bd-ae)}+\frac{(Bd-Ae)\log(d+ex)}{e(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/((a + b*x)*(d + e*x)),x]
```

```
[Out] ((A*b - a*B)*Log[a + b*x])/(b*(b*d - a*e)) + ((B*d - A*e)*Log[d +
 e*x])/(e*(b*d - a*e))
```

Rubi in Sympy [A] time = 14.9519, size = 42, normalized size = 0.74

$$\frac{(Ae-Bd)\log{(d+ex)}}{e\,(ae-bd)}-\frac{(Ab-Ba)\log{(a+bx)}}{b\,(ae-bd)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(b*x+a)/(e*x+d),x)
```

```
[Out] (A*e - B*d)*log(d + e*x)/(e*(a*e - b*d)) - (A*b - B*a)*log(a + b*
x)/(b*(a*e - b*d))
```

Mathematica [A] time = 0.0439829, size = 50, normalized size = 0.88

$$\frac{e(Ab-aB)\log(a+bx)+b(Bd-Ae)\log(d+ex)}{be(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/((a + b*x)*(d + e*x)),x]
```

```
[Out] ((A*b - a*B)*e*Log[a + b*x] + b*(B*d - A*e)*Log[d + e*x])/(b*e*(b
*d - a*e))
```

Maple [A] time = 0.009, size = 84, normalized size = 1.5

$$\frac{\ln{(ex+d)}\,A}{ae-bd}-\frac{\ln{(ex+d)}\,Bd}{e\,(ae-bd)}-\frac{\ln{(bx+a)}\,A}{ae-bd}+\frac{\ln{(bx+a)}\,Ba}{b\,(ae-bd)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(b*x+a)/(e*x+d),x)
```

```
[Out] 1/(a*e-b*d)*ln(e*x+d)*A-1/(a*e-b*d)/e*ln(e*x+d)*B*d-1/(a*e-b*d)*l
n(b*x+a)*A+1/(a*e-b*d)/b*ln(b*x+a)*B*a
```

Maxima [A] time = 1.34706, size = 78, normalized size = 1.37

$$-\frac{(Ba-Ab)\log(bx+a)}{b^2d-abe}+\frac{(Bd-Ae)\log(ex+d)}{bde-ae^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*(e*x + d)),x, algorithm="maxima")
```

```
[Out] -(B*a - A*b)*log(b*x + a)/(b^2*d - a*b*e) + (B*d - A*e)*log(e*x +
 d)/(b*d*e - a*e^2)
```

Fricas [A] time = 0.221928, size = 72, normalized size = 1.26

$$-\frac{(Ba-Ab)e\log(bx+a)-(Bbd-Abe)\log(ex+d)}{b^2de-abe^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*(e*x + d)),x, algorithm="fricas")
```

```
[Out] -((B*a - A*b)*e*log(b*x + a) - (B*b*d - A*b*e)*log(e*x + d))/(b^2
*d*e - a*b*e^2)
```

Sympy [A] time = 4.53306, size = 226, normalized size = 3.96

$$-\frac{(-Ae+Bd)\log\left(x+\frac{-Aae-Abd+2Bad-\frac{a^2e(-Ae+Bd)}{ae-bd}+\frac{2abd(-Ae+Bd)}{ae-bd}-\frac{b^2d^2(-Ae+Bd)}{e(ae-bd)}}{-2Abe+Bae+Bbd}\right)}{e(ae-bd)}+\frac{(-Ab+Ba)\log\left(x+\frac{-Aae-Abd+2Bad+\frac{a^2e^2(-Ab+Ba)}{b(ae-bd)}-\frac{2ade(-Ab+Ba)}{ae-bd}+\frac{bd^2(-Ab+Ba)}{ae-bd}}{-2Abe+Bae+Bbd}\right)}{b(ae-bd)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(b*x+a)/(e*x+d),x)
```

```
[Out] -(-A*e + B*d)*log(x + (-A*a*e - A*b*d + 2*B*a*d - a**2*e*(-A*e +
B*d)/(a*e - b*d) + 2*a*b*d*(-A*e + B*d)/(a*e - b*d) - b**2*d**2*(
-A*e + B*d)/(e*(a*e - b*d)))/(-2*A*b*e + B*a*e + B*b*d))/(e*(a*e
- b*d)) + (-A*b + B*a)*log(x + (-A*a*e - A*b*d + 2*B*a*d + a**2*e
**2*(-A*b + B*a)/(b*(a*e - b*d)) - 2*a*d*e*(-A*b + B*a)/(a*e - b*
d) + b*d**2*(-A*b + B*a)/(a*e - b*d))/(-2*A*b*e + B*a*e + B*b*d))
/(b*(a*e - b*d))
```

GIAC/XCAS [A] time = 0.245323, size = 165, normalized size = 2.89

$$\frac{Be^{(-1)}\ln\left(\left|bx^2e+bdx+axe+ad\right|\right)}{2b}-\frac{(Bbd+Bae-2Abe)e^{(-1)}\ln\left(\frac{|2bxe+bd+ae-|bd-ae||}{|2bxe+bd+ae+|bd-ae||}\right)}{2b|bd-ae|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*(e*x + d)),x, algorithm="giac")
```

```
[Out] 1/2*B*e^(-1)*ln(abs(b*x^2*e + b*d*x + a*x*e + a*d))/b - 1/2*(B*b*
d + B*a*e - 2*A*b*e)*e^(-1)*ln(abs(2*b*x*e + b*d + a*e - abs(b*d
- a*e))/abs(2*b*x*e + b*d + a*e + abs(b*d - a*e)))/(b*abs(b*d - a
*e))
```

3.1101 $\int \frac{A+Bx}{(a+bx)(d+ex)^2} \, dx$

Optimal. Leaf size=82

$$-\frac{Bd-Ae}{e(d+ex)(bd-ae)}+\frac{(Ab-aB)\log(a+bx)}{(bd-ae)^2}-\frac{(Ab-aB)\log(d+ex)}{(bd-ae)^2}$$

```
[Out] -((B*d - A*e)/(e*(b*d - a*e)*(d + e*x))) + ((A*b - a*B)*Log[a + b
*x])/(b*d - a*e)^2 - ((A*b - a*B)*Log[d + e*x])/(b*d - a*e)^2
```

Rubi [A] time = 0.136302, antiderivative size = 82, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{Bd-Ae}{e(d+ex)(bd-ae)}+\frac{(Ab-aB)\log(a+bx)}{(bd-ae)^2}-\frac{(Ab-aB)\log(d+ex)}{(bd-ae)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/((a + b*x)*(d + e*x)^2),x]
```

```
[Out] -((B*d - A*e)/(e*(b*d - a*e)*(d + e*x))) + ((A*b - a*B)*Log[a + b
*x])/(b*d - a*e)^2 - ((A*b - a*B)*Log[d + e*x])/(b*d - a*e)^2
```

Rubi in Sympy [A] time = 21.6505, size = 63, normalized size = 0.77

$$\frac{(Ab-Ba)\log(a+bx)}{(ae-bd)^2}-\frac{(Ab-Ba)\log(d+ex)}{(ae-bd)^2}-\frac{Ae-Bd}{e(d+ex)(ae-bd)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(b*x+a)/(e*x+d)**2,x)
```

```
[Out] (A*b - B*a)*log(a + b*x)/(a*e - b*d)**2 - (A*b - B*a)*log(d + e*x
)/(a*e - b*d)**2 - (A*e - B*d)/(e*(d + e*x)*(a*e - b*d))
```

Mathematica [A] time = 0.141624, size = 80, normalized size = 0.98

$$\frac{Bd-Ae}{e(d+ex)(ae-bd)}+\frac{(Ab-aB)\log(a+bx)}{(bd-ae)^2}+\frac{(aB-Ab)\log(d+ex)}{(bd-ae)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/((a + b*x)*(d + e*x)^2),x]
```

```
[Out] (B*d - A*e)/(e*(-(b*d) + a*e)*(d + e*x)) + ((A*b - a*B)*Log[a + b
*x])/(b*d - a*e)^2 + ((-(A*b) + a*B)*Log[d + e*x])/(b*d - a*e)^2
```

Maple [A] time = 0.026, size = 123, normalized size = 1.5

$$-\frac{A}{(ae-bd)(ex+d)}+\frac{Bd}{e(ae-bd)(ex+d)}-\frac{\ln(ex+d)Ab}{(ae-bd)^2}+\frac{\ln(ex+d)Ba}{(ae-bd)^2}+\frac{\ln(bx+a)Ab}{(ae-bd)^2}-\frac{\ln(bx+a)Ba}{(ae-bd)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(b*x+a)/(e*x+d)^2,x)
```

```
[Out] -1/(a*e-b*d)/(e*x+d)*A+1/(a*e-b*d)/e/(e*x+d)*B*d-1/(a*e-b*d)^2*ln
(e*x+d)*A*b+1/(a*e-b*d)^2*ln(e*x+d)*B*a+1/(a*e-b*d)^2*ln(b*x+a)*A
*b-1/(a*e-b*d)^2*ln(b*x+a)*B*a
```

Maxima [A] time = 1.35046, size = 161, normalized size = 1.96

$$-\frac{(Ba-Ab)\log(bx+a)}{b^2d^2-2\,abde+a^2e^2}+\frac{(Ba-Ab)\log(ex+d)}{b^2d^2-2\,abde+a^2e^2}-\frac{Bd-Ae}{bd^2e-ade^2+(bde^2-ae^3)x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*(e*x + d)^2),x, algorithm="maxima")
```

```
[Out] -(B*a - A*b)*log(b*x + a)/(b^2*d^2 - 2*a*b*d*e + a^2*e^2) + (B*a
- A*b)*log(e*x + d)/(b^2*d^2 - 2*a*b*d*e + a^2*e^2) - (B*d - A*e)
/(b*d^2*e - a*d*e^2 + (b*d*e^2 - a*e^3)*x)
```

Fricas [A] time = 0.214947, size = 200, normalized size = 2.44

$$-\frac{Bbd^2+Aae^2-(Ba+Ab)de+\left((Ba-Ab)e^2x+(Ba-Ab)de\right)\log(bx+a)-\left((Ba-Ab)e^2x+(Ba-Ab)de\right)\log(ex+d)}{b^2d^3e-2\,abd^2e^2+a^2de^3+(b^2d^2e^2-2\,abde^3+a^2e^4)x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*(e*x + d)^2),x, algorithm="fricas")
```

```
[Out] -(B*b*d^2 + A*a*e^2 - (B*a + A*b)*d*e + ((B*a - A*b)*e^2*x + (B*a
 - A*b)*d*e)*log(b*x + a) - ((B*a - A*b)*e^2*x + (B*a - A*b)*d*e)
*log(e*x + d))/(b^2*d^3*e - 2*a*b*d^2*e^2 + a^2*d*e^3 + (b^2*d^2*
e^2 - 2*a*b*d*e^3 + a^2*e^4)*x)
```

Sympy [A] time = 4.94733, size = 355, normalized size = 4.33

$$\frac{(-Ab+Ba)\log\left(x+\frac{-Aabe-Ab^2d+Ba^2e+Babd-\frac{a^3e^3(-Ab+Ba)}{(ae-bd)^2}+\frac{3a^2bde^2(-Ab+Ba)}{(ae-bd)^2}-\frac{3ab^2d^2e(-Ab+Ba)}{(ae-bd)^2}+\frac{b^3d^3(-Ab+Ba)}{(ae-bd)^2}}{-2Ab^2e+2Babe}\right)}{(ae-bd)^2}-\frac{(-Ab+Ba)\log\left(x+\frac{-Aabe-Ab^2d+Ba^2e+Babd+\frac{a^3e^3(-Ab+Ba)}{(ae-bd)^2}-\frac{3a^2bde^2(-Ab+Ba)}{(ae-bd)^2}+\frac{3ab^2d^2e(-Ab+Ba)}{(ae-bd)^2}-\frac{b^3d^3(-Ab+Ba)}{(ae-bd)^2}}{-2Ab^2e+2Babe}\right)}{(ae-bd)^2}+\frac{-Ae+Bd}{ade^2-bd^2e+x\,(ae^3-bde^2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(b*x+a)/(e*x+d)**2,x)
```

```
[Out] (-A*b + B*a)*log(x + (-A*a*b*e - A*b**2*d + B*a**2*e + B*a*b*d -
a**3*e**3*(-A*b + B*a)/(a*e - b*d)**2 + 3*a**2*b*d*e**2*(-A*b + B
*a)/(a*e - b*d)**2 - 3*a*b**2*d**2*e*(-A*b + B*a)/(a*e - b*d)**2
+ b**3*d**3*(-A*b + B*a)/(a*e - b*d)**2)/(-2*A*b**2*e + 2*B*a*b*e
))/(a*e - b*d)**2 - (-A*b + B*a)*log(x + (-A*a*b*e - A*b**2*d + B
*a**2*e + B*a*b*d + a**3*e**3*(-A*b + B*a)/(a*e - b*d)**2 - 3*a**
2*b*d*e**2*(-A*b + B*a)/(a*e - b*d)**2 + 3*a*b**2*d**2*e*(-A*b +
B*a)/(a*e - b*d)**2 - b**3*d**3*(-A*b + B*a)/(a*e - b*d)**2)/(-2*
A*b**2*e + 2*B*a*b*e))/(a*e - b*d)**2 + (-A*e + B*d)/(a*d*e**2 -
```

```
b*d**2*e + x*(a*e**3 - b*d*e**2))
```

GIAC/XCAS [A] time = 0.218259, size = 149, normalized size = 1.82

$$-\frac{(Bae - Abe)\ln\left(\left|-b + \frac{bd}{xe+d} - \frac{ae}{xe+d}\right|\right)}{b^2d^2e - 2\,abde^2 + a^2e^3} - \frac{\frac{Bd}{xe+d} - \frac{Ae}{xe+d}}{bde - ae^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*(e*x + d)^2),x, algorithm="giac")
```

```
[Out] -(B*a*e - A*b*e)*ln(abs(-b + b*d/(x*e + d) - a*e/(x*e + d)))/(b^2
*d^2*e - 2*a*b*d*e^2 + a^2*e^3) - (B*d/(x*e + d) - A*e/(x*e + d))
/(b*d*e - a*e^2)
```

3.1102 $\int \frac{A+Bx}{(a+bx)(d+ex)^3}\,dx$

Optimal. Leaf size=112

$$\frac{Ab-aB}{(d+ex)(bd-ae)^2}-\frac{Bd-Ae}{2e(d+ex)^2(bd-ae)}+\frac{b(Ab-aB)\log(a+bx)}{(bd-ae)^3}-\frac{b(Ab-aB)\log(d+ex)}{(bd-ae)^3}$$

```
[Out] -(B*d - A*e)/(2*e*(b*d - a*e)*(d + e*x)^2) + (A*b - a*B)/((b*d -
a*e)^2*(d + e*x)) + (b*(A*b - a*B)*Log[a + b*x])/(b*d - a*e)^3 -
(b*(A*b - a*B)*Log[d + e*x])/(b*d - a*e)^3
```

Rubi [A] time = 0.198713, antiderivative size = 112, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{Ab-aB}{(d+ex)(bd-ae)^2}-\frac{Bd-Ae}{2e(d+ex)^2(bd-ae)}+\frac{b(Ab-aB)\log(a+bx)}{(bd-ae)^3}-\frac{b(Ab-aB)\log(d+ex)}{(bd-ae)^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/((a + b*x)*(d + e*x)^3),x]
```

```
[Out] -(B*d - A*e)/(2*e*(b*d - a*e)*(d + e*x)^2) + (A*b - a*B)/((b*d -
a*e)^2*(d + e*x)) + (b*(A*b - a*B)*Log[a + b*x])/(b*d - a*e)^3 -
(b*(A*b - a*B)*Log[d + e*x])/(b*d - a*e)^3
```

Rubi in Sympy [A] time = 30.1428, size = 90, normalized size = 0.8

$$-\frac{b\,(Ab-Ba)\log\,(a+bx)}{(ae-bd)^3}+\frac{b\,(Ab-Ba)\log\,(d+ex)}{(ae-bd)^3}+\frac{Ab-Ba}{(d+ex)\,(ae-bd)^2}-\frac{Ae-Bd}{2e\,(d+ex)^2\,(ae-bd)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(b*x+a)/(e*x+d)**3,x)
```

```
[Out] -b*(A*b - B*a)*log(a + b*x)/(a*e - b*d)**3 + b*(A*b - B*a)*log(d
+ e*x)/(a*e - b*d)**3 + (A*b - B*a)/((d + e*x)*(a*e - b*d)**2) -
(A*e - B*d)/(2*e*(d + e*x)**2*(a*e - b*d))
```

Mathematica [A] time = 0.168621, size = 112, normalized size = 1.

$$\frac{Ab-aB}{(d+ex)(bd-ae)^2}+\frac{Bd-Ae}{2e(d+ex)^2(ae-bd)}+\frac{b(Ab-aB)\log(a+bx)}{(bd-ae)^3}-\frac{b(Ab-aB)\log(d+ex)}{(bd-ae)^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/((a + b*x)*(d + e*x)^3),x]
```

```
[Out] (B*d - A*e)/(2*e*(-(b*d) + a*e)*(d + e*x)^2) + (A*b - a*B)/((b*d
- a*e)^2*(d + e*x)) + (b*(A*b - a*B)*Log[a + b*x])/(b*d - a*e)^3
- (b*(A*b - a*B)*Log[d + e*x])/(b*d - a*e)^3
```

Maple [A] time = 0.016, size = 171, normalized size = 1.5

$$-\frac{A}{(2\,ae-2\,bd)\,(ex+d)^2}+\frac{Bd}{(2\,ae-2\,bd)\,e\,(ex+d)^2}+\frac{b^2\ln\,(ex+d)\,A}{(ae-bd)^3}-\frac{b\ln\,(ex+d)\,Ba}{(ae-bd)^3}+\frac{Ab}{(ae-bd)^2\,(ex+d)}-\frac{Ba}{(ae-bd)^2\,(ex+d)}-\frac{b^2\ln\,(bx+a)\,A}{(ae-bd)^3}+\frac{b\ln\,(bx+a)\,Ba}{(ae-bd)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((B*x+A)/(b*x+a)/(e*x+d)^3,x)
```

```
[Out] -1/2/(a*e-b*d)/(e*x+d)^2*A+1/2/(a*e-b*d)/e/(e*x+d)^2*B*d+b^2/(a*e
-b*d)^3*ln(e*x+d)*A-b/(a*e-b*d)^3*ln(e*x+d)*B*a+1/(a*e-b*d)^2/(e*
x+d)*A*b-1/(a*e-b*d)^2/(e*x+d)*B*a-b^2/(a*e-b*d)^3*ln(b*x+a)*A+b/
(a*e-b*d)^3*ln(b*x+a)*B*a
```

Maxima [A] time = 1.38007, size = 333, normalized size = 2.97

$$-\frac{\left(Bab - Ab^2\right)\log\left(bx + a\right)}{b^3d^3 - 3\,ab^2d^2e + 3\,a^2bde^2 - a^3e^3} + \frac{\left(Bab - Ab^2\right)\log\left(ex + d\right)}{b^3d^3 - 3\,ab^2d^2e + 3\,a^2bde^2 - a^3e^3} - \frac{Bbd^2 + Aae^2 + 2\,(Ba - Ab)e^2x + (Ba - 3\,Ab)de}{2\,(b^2d^4e - 2\,abd^3e^2 + a^2d^2e^3 + (b^2d^2e^3 - 2\,abde^4 + a^2e^5)x^2 + 2\,(b^2d^3e^2 - 2\,abd^2e^3 + a^2de^4)x)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)/((b*x + a)*(e*x + d)^3),x, algorithm="maxima")
```

```
[Out] -(B*a*b - A*b^2)*log(b*x + a)/(b^3*d^3 - 3*a*b^2*d^2*e + 3*a^2*b*
d*e^2 - a^3*e^3) + (B*a*b - A*b^2)*log(e*x + d)/(b^3*d^3 - 3*a*b^
2*d^2*e + 3*a^2*b*d*e^2 - a^3*e^3) - 1/2*(B*b*d^2 + A*a*e^2 + 2*(
B*a - A*b)*e^2*x + (B*a - 3*A*b)*d*e)/(b^2*d^4*e - 2*a*b*d^3*e^2
+ a^2*d^2*e^3 + (b^2*d^2*e^3 - 2*a*b*d*e^4 + a^2*e^5)*x^2 + 2*(b^
2*d^3*e^2 - 2*a*b*d^2*e^3 + a^2*d*e^4)*x)
```

Fricas [A] time = 0.214324, size = 463, normalized size = 4.13

$$-\frac{Bb^2d^3 - 3\,Ab^2d^2e - Aa^2e^3 - \left(Ba^2 - 4\,Aab\right)de^2 + 2\,\left(\left(Bab - Ab^2\right)de^2 - \left(Ba^2 - Aab\right)e^3\right)x + 2\,\left(\left(Bab - Ab^2\right)e^3x^2 + 2\,\left(Bab \right.\right.}{2\,(b^3d^5e - 3\,ab^2d^4e^2 + 3\,a^2bd^3e^3 - a^3d^2e^4 + (b^3d^3e^3 - 3\,ab^2d^2e^4 + }$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)/((b*x + a)*(e*x + d)^3),x, algorithm="fricas")
```

```
[Out] -1/2*(B*b^2*d^3 - 3*A*b^2*d^2*e - A*a^2*e^3 - (B*a^2 - 4*A*a*b)*d
*e^2 + 2*((B*a*b - A*b^2)*d*e^2 - (B*a^2 - A*a*b)*e^3)*x + 2*((B*
a*b - A*b^2)*e^3*x^2 + 2*(B*a*b - A*b^2)*d*e^2*x + (B*a*b - A*b^2
)*d^2*e)*log(b*x + a) - 2*((B*a*b - A*b^2)*e^3*x^2 + 2*(B*a*b - A
*b^2)*d*e^2*x + (B*a*b - A*b^2)*d^2*e)*log(e*x + d))/(b^3*d^5*e -
 3*a*b^2*d^4*e^2 + 3*a^2*b*d^3*e^3 - a^3*d^2*e^4 + (b^3*d^3*e^3 -
 3*a*b^2*d^2*e^4 + 3*a^2*b*d*e^5 - a^3*e^6)*x^2 + 2*(b^3*d^4*e^2
- 3*a*b^2*d^3*e^3 + 3*a^2*b*d^2*e^4 - a^3*d*e^5)*x)
```

Sympy [A] time = 7.95817, size = 558, normalized size = 4.98

$$-\frac{b\left(-Ab + Ba\right)\log\left(x + \frac{-Aab^2e - Ab^3d + Ba^2be + Bab^2d - \frac{a^4be^4(-Ab+Ba)}{(ae-bd)^3} + \frac{4a^3b^2de^3(-Ab+Ba)}{(ae-bd)^3} - \frac{6a^2b^3d^2e^2(-Ab+Ba)}{(ae-bd)^3} + \frac{4ab^4d^3e(-Ab+Ba)}{(ae-bd)^3} - \frac{b^5d^4(-Ab+Ba)}{(ae-bd)^3}}{-2Ab^3e+2Bab^2e}\right)}{\left(ae - bd\right)^3} + \frac{b\left(-Ab + Ba\right)\log\left(x + \frac{-Aab^2e - Ab^3d + Ba^2be + Bab^2d + \frac{a^4be^4(-Ab+Ba)}{(ae-bd)^3} - \frac{4a^3b^2de^3(-Ab+Ba)}{(ae-bd)^3} + \frac{6a^2b^3d^2e^2(-Ab+Ba)}{(ae-bd)^3} - \frac{4ab^4d^3e(-Ab+Ba)}{(ae-bd)^3} + \frac{b^5d^4(-Ab+Ba)}{(ae-bd)^3}}{-2Ab^3e+2Bab^2e}\right)}{\left(ae - bd\right)^3} - \frac{Aae^2 - 3Abde + Bade + Bbd^2 + x\left(-2Abe^2 + 2Bae^2\right)}{2a^2d^2e^3 - 4abd^3e^2 + 2b^2d^4e + x^2\left(2a^2e^5 - 4abde^4 + 2b^2d^2e^3\right) + x\left(4a^2de^4 - 8abd^2e^3 + 4b^2d^3e^2\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(b*x+a)/(e*x+d)**3,x)
```

```
[Out] -b*(-A*b + B*a)*log(x + (-A*a*b**2*e - A*b**3*d + B*a**2*b*e + B*
a*b**2*d - a**4*b*e**4*(-A*b + B*a)/(a*e - b*d)**3 + 4*a**3*b**2*
d*e**3*(-A*b + B*a)/(a*e - b*d)**3 - 6*a**2*b**3*d**2*e**2*(-A*b
+ B*a)/(a*e - b*d)**3 + 4*a*b**4*d**3*e*(-A*b + B*a)/(a*e - b*d)*
*3 - b**5*d**4*(-A*b + B*a)/(a*e - b*d)**3)/(-2*A*b**3*e + 2*B*a*
b**2*e))/(a*e - b*d)**3 + b*(-A*b + B*a)*log(x + (-A*a*b**2*e - A
*b**3*d + B*a**2*b*e + B*a*b**2*d + a**4*b*e**4*(-A*b + B*a)/(a*e
 - b*d)**3 - 4*a**3*b**2*d*e**3*(-A*b + B*a)/(a*e - b*d)**3 + 6*a
**2*b**3*d**2*e**2*(-A*b + B*a)/(a*e - b*d)**3 - 4*a*b**4*d**3*e*
(-A*b + B*a)/(a*e - b*d)**3 + b**5*d**4*(-A*b + B*a)/(a*e - b*d)*
*3)/(-2*A*b**3*e + 2*B*a*b**2*e))/(a*e - b*d)**3 - (A*a*e**2 - 3*
A*b*d*e + B*a*d*e + B*b*d**2 + x*(-2*A*b*e**2 + 2*B*a*e**2))/(2*a
**2*d**2*e**3 - 4*a*b*d**3*e**2 + 2*b**2*d**4*e + x**2*(2*a**2*e*
*5 - 4*a*b*d*e**4 + 2*b**2*d**2*e**3) + x*(4*a**2*d*e**4 - 8*a*b*
d**2*e**3 + 4*b**2*d**3*e**2))
```

GIAC/XCAS [A] time = 0.215593, size = 308, normalized size = 2.75

$$-\frac{\left(Bab^{2}-Ab^{3}\right)\ln\left(|bx+a|\right)}{b^{4}d^{3}-3\,ab^{3}d^{2}e+3\,a^{2}b^{2}de^{2}-a^{3}be^{3}}+\frac{\left(Babe-Ab^{2}e\right)\ln\left(|xe+d|\right)}{b^{3}d^{3}e-3\,ab^{2}d^{2}e^{2}+3\,a^{2}bde^{3}-a^{3}e^{4}}-\frac{\left(Bb^{2}d^{3}-3\,Ab^{2}d^{2}e-Ba^{2}de^{2}+4\,Aabde^{2}-Aa^{2}e^{3}+2\left(Babde^{2}-Ab^{2}de^{2}-Ba^{2}e^{3}+Aabe^{3}\right)x\right)e^{(-1)}}{2\,(bd-ae)^{3}(xe+d)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*(e*x + d)^3),x, algorithm="giac")
```

```
[Out] -(B*a*b^2 - A*b^3)*ln(abs(b*x + a))/(b^4*d^3 - 3*a*b^3*d^2*e + 3*
a^2*b^2*d*e^2 - a^3*b*e^3) + (B*a*b*e - A*b^2*e)*ln(abs(x*e + d))
/(b^3*d^3*e - 3*a*b^2*d^2*e^2 + 3*a^2*b*d*e^3 - a^3*e^4) - 1/2*(B
*b^2*d^3 - 3*A*b^2*d^2*e - B*a^2*d*e^2 + 4*A*a*b*d*e^2 - A*a^2*e^
3 + 2*(B*a*b*d*e^2 - A*b^2*d*e^2 - B*a^2*e^3 + A*a*b*e^3)*x)*e^(-
1)/((b*d - a*e)^3*(x*e + d)^2)
```

3.1103 $\int \frac{A+Bx}{(a+bx)(d+ex)^4} dx$

Optimal. Leaf size=146

$$\frac{b^2(Ab-aB)\log(a+bx)}{(bd-ae)^4}-\frac{b^2(Ab-aB)\log(d+ex)}{(bd-ae)^4}+\frac{b(Ab-aB)}{(d+ex)(bd-ae)^3}+\frac{Ab-aB}{2(d+ex)^2(bd-ae)^2}-\frac{Bd-Ae}{3e(d+ex)^3(bd-ae)}$$

```
[Out] -(B*d - A*e)/(3*e*(b*d - a*e)*(d + e*x)^3) + (A*b - a*B)/(2*(b*d
- a*e)^2*(d + e*x)^2) + (b*(A*b - a*B))/((b*d - a*e)^3*(d + e*x))
 + (b^2*(A*b - a*B)*Log[a + b*x])/(b*d - a*e)^4 - (b^2*(A*b - a*B
)*Log[d + e*x])/(b*d - a*e)^4
```

Rubi [A] time = 0.263098, antiderivative size = 146, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{b^2(Ab-aB)\log(a+bx)}{(bd-ae)^4}-\frac{b^2(Ab-aB)\log(d+ex)}{(bd-ae)^4}+\frac{b(Ab-aB)}{(d+ex)(bd-ae)^3}+\frac{Ab-aB}{2(d+ex)^2(bd-ae)^2}-\frac{Bd-Ae}{3e(d+ex)^3(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/((a + b*x)*(d + e*x)^4),x]
```

```
[Out] -(B*d - A*e)/(3*e*(b*d - a*e)*(d + e*x)^3) + (A*b - a*B)/(2*(b*d
- a*e)^2*(d + e*x)^2) + (b*(A*b - a*B))/((b*d - a*e)^3*(d + e*x))
 + (b^2*(A*b - a*B)*Log[a + b*x])/(b*d - a*e)^4 - (b^2*(A*b - a*B
)*Log[d + e*x])/(b*d - a*e)^4
```

Rubi in Sympy [A] time = 43.4842, size = 119, normalized size = 0.82

$$\frac{b^2\left(Ab-Ba\right)\log\left(a+bx\right)}{\left(ae-bd\right)^4}-\frac{b^2\left(Ab-Ba\right)\log\left(d+ex\right)}{\left(ae-bd\right)^4}-\frac{b\left(Ab-Ba\right)}{\left(d+ex\right)\left(ae-bd\right)^3}+\frac{Ab-Ba}{2\left(d+ex\right)^2\left(ae-bd\right)^2}-\frac{Ae-Bd}{3e\left(d+ex\right)^3\left(ae-bd\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(b*x+a)/(e*x+d)**4,x)
```

```
[Out] b**2*(A*b - B*a)*log(a + b*x)/(a*e - b*d)**4 - b**2*(A*b - B*a)*l
og(d + e*x)/(a*e - b*d)**4 - b*(A*b - B*a)/((d + e*x)*(a*e - b*d)
**3) + (A*b - B*a)/(2*(d + e*x)**2*(a*e - b*d)**2) - (A*e - B*d)/
(3*e*(d + e*x)**3*(a*e - b*d))
```

Mathematica [A] time = 0.35529, size = 145, normalized size = 0.99

$$\frac{b^2(Ab-aB)\log(a+bx)}{(bd-ae)^4}+\frac{b^2(aB-Ab)\log(d+ex)}{(bd-ae)^4}+\frac{b(Ab-aB)}{(d+ex)(bd-ae)^3}+\frac{Ab-aB}{2(d+ex)^2(bd-ae)^2}+\frac{Bd-Ae}{3e(d+ex)^3(ae-bd)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/((a + b*x)*(d + e*x)^4),x]
```

```
[Out] (B*d - A*e)/(3*e*(-(b*d) + a*e)*(d + e*x)^3) + (A*b - a*B)/(2*(b*
d - a*e)^2*(d + e*x)^2) + (b*(A*b - a*B))/((b*d - a*e)^3*(d + e*x
)) + (b^2*(A*b - a*B)*Log[a + b*x])/(b*d - a*e)^4 + (b^2*(-(A*b)
+ a*B)*Log[d + e*x])/(b*d - a*e)^4
```

Maple [A] time = 0.018, size = 220, normalized size = 1.5

$$-\frac{A}{(3\,ae-3\,bd)\,(ex+d)^{3}}+\frac{Bd}{(3\,ae-3\,bd)\,e\,(ex+d)^{3}}-\frac{b^{2}A}{(ae-bd)^{3}\,(ex+d)}+\frac{Bba}{(ae-bd)^{3}\,(ex+d)}+\frac{Ab}{2\,(ae-bd)^{2}\,(ex+d)^{2}}-\frac{Ba}{2\,(ae-bd)^{2}\,(ex+d)^{2}}-\frac{b^{3}\ln(ex+d)\,A}{(ae-bd)^{4}}+\frac{b^{2}\ln(ex+d)\,Ba}{(ae-bd)^{4}}+\frac{b^{3}\ln(bx+a)\,A}{(ae-bd)^{4}}-\frac{b^{2}\ln(bx+a)\,Ba}{(ae-bd)^{4}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(b*x+a)/(e*x+d)^4,x)
```

```
[Out] -1/3/(a*e-b*d)/(e*x+d)^3*A+1/3/(a*e-b*d)/e/(e*x+d)^3*B*d-b^2/(a*e
-b*d)^3/(e*x+d)*A+b/(a*e-b*d)^3/(e*x+d)*B*a+1/2/(a*e-b*d)^2/(e*x+
d)^2*A*b-1/2/(a*e-b*d)^2/(e*x+d)^2*B*a-b^3/(a*e-b*d)^4*ln(e*x+d)*
A+b^2/(a*e-b*d)^4*ln(e*x+d)*B*a+b^3/(a*e-b*d)^4*ln(b*x+a)*A-b^2/(
a*e-b*d)^4*ln(b*x+a)*B*a
```

Maxima [A] time = 1.38131, size = 599, normalized size = 4.1

$$-\frac{\left(Bab^{2}-Ab^{3}\right)\log\left(bx+a\right)}{b^{4}d^{4}-4\,ab^{3}d^{3}e+6\,a^{2}b^{2}d^{2}e^{2}-4\,a^{3}bde^{3}+a^{4}e^{4}}+\frac{\left(Bab^{2}-Ab^{3}\right)\log\left(ex+d\right)}{b^{4}d^{4}-4\,ab^{3}d^{3}e+6\,a^{2}b^{2}d^{2}e^{2}-4\,a^{3}bde^{3}+a^{4}e^{4}}-\frac{2\,Bb^{2}d^{3}-2\,Aa^{2}e^{3}+6\left(Bab-Ab^{2}\right)e^{3}x^{2}+\left(5\,Bab-11\,Ab^{2}\right)d^{2}e-\left(Ba^{2}-7\,Aab\right)de^{2}+3\left(5\left(Ba\cdots\right.\right.}{6\left(b^{3}d^{6}e-3\,ab^{2}d^{5}e^{2}+3\,a^{2}bd^{4}e^{3}-a^{3}d^{3}e^{4}+(b^{3}d^{3}e^{4}-3\,ab^{2}d^{2}e^{5}+3\,a^{2}bde^{6}-a^{3}e^{7})x^{3}+3\,(b^{3}d^{4}e^{3}-3\,ab^{2}d^{3}e^{4}+3\,a^{2}bd^{2}e^{5}\cdots\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*(e*x + d)^4),x, algorithm="maxima")
```

```
[Out] -(B*a*b^2 - A*b^3)*log(b*x + a)/(b^4*d^4 - 4*a*b^3*d^3*e + 6*a^2*
b^2*d^2*e^2 - 4*a^3*b*d*e^3 + a^4*e^4) + (B*a*b^2 - A*b^3)*log(e*
x + d)/(b^4*d^4 - 4*a*b^3*d^3*e + 6*a^2*b^2*d^2*e^2 - 4*a^3*b*d*e
^3 + a^4*e^4) - 1/6*(2*B*b^2*d^3 - 2*A*a^2*e^3 + 6*(B*a*b - A*b^2
)*e^3*x^2 + (5*B*a*b - 11*A*b^2)*d^2*e - (B*a^2 - 7*A*a*b)*d*e^2
+ 3*(5*(B*a*b - A*b^2)*d*e^2 - (B*a^2 - A*a*b)*e^3)*x)/(b^3*d^6*e
 - 3*a*b^2*d^5*e^2 + 3*a^2*b*d^4*e^3 - a^3*d^3*e^4 + (b^3*d^3*e^4
 - 3*a*b^2*d^2*e^5 + 3*a^2*b*d*e^6 - a^3*e^7)*x^3 + 3*(b^3*d^4*e^
3 - 3*a*b^2*d^3*e^4 + 3*a^2*b*d^2*e^5 - a^3*d*e^6)*x^2 + 3*(b^3*d
^5*e^2 - 3*a*b^2*d^4*e^3 + 3*a^2*b*d^3*e^4 - a^3*d^2*e^5)*x)
```

Fricas [A] time = 0.219307, size = 821, normalized size = 5.62

$$-\frac{2\,Bb^{3}d^{4}+2\,Aa^{3}e^{4}+\left(3\,Bab^{2}-11\,Ab^{3}\right)d^{3}e-6\left(Ba^{2}b-3\,Aab^{2}\right)d^{2}e^{2}+\left(Ba^{3}-9\,Aa^{2}b\right)de^{3}+6\left(\left(Bab^{2}-Ab^{3}\right)de^{3}-\left(Ba^{2}b\cdots\right.\right.}{6\left(b^{4}d^{7}e-4\,ab^{3}d^{6}e^{2}+6\,a^{2}b^{2}d^{5}\cdots\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*(e*x + d)^4),x, algorithm="fricas")
```

```
[Out] -1/6*(2*B*b^3*d^4 + 2*A*a^3*e^4 + (3*B*a*b^2 - 11*A*b^3)*d^3*e -
6*(B*a^2*b - 3*A*a*b^2)*d^2*e^2 + (B*a^3 - 9*A*a^2*b)*d*e^3 + 6*(
(B*a*b^2 - A*b^3)*d*e^3 - (B*a^2*b - A*a*b^2)*e^4)*x^2 + 3*(5*(B*
```

```
a*b^2 - A*b^3)*d^2*e^2 - 6*(B*a^2*b - A*a*b^2)*d*e^3 + (B*a^3 - A
*a^2*b)*e^4)*x + 6*((B*a*b^2 - A*b^3)*e^4*x^3 + 3*(B*a*b^2 - A*b^
3)*d*e^3*x^2 + 3*(B*a*b^2 - A*b^3)*d^2*e^2*x + (B*a*b^2 - A*b^3)*
d^3*e)*log(b*x + a) - 6*((B*a*b^2 - A*b^3)*e^4*x^3 + 3*(B*a*b^2 -
 A*b^3)*d*e^3*x^2 + 3*(B*a*b^2 - A*b^3)*d^2*e^2*x + (B*a*b^2 - A*
b^3)*d^3*e)*log(e*x + d))/(b^4*d^7*e - 4*a*b^3*d^6*e^2 + 6*a^2*b^
2*d^5*e^3 - 4*a^3*b*d^4*e^4 + a^4*d^3*e^5 + (b^4*d^4*e^4 - 4*a*b^
3*d^3*e^5 + 6*a^2*b^2*d^2*e^6 - 4*a^3*b*d*e^7 + a^4*e^8)*x^3 + 3*
(b^4*d^5*e^3 - 4*a*b^3*d^4*e^4 + 6*a^2*b^2*d^3*e^5 - 4*a^3*b*d^2*
e^6 + a^4*d*e^7)*x^2 + 3*(b^4*d^6*e^2 - 4*a*b^3*d^5*e^3 + 6*a^2*b
^2*d^4*e^4 - 4*a^3*b*d^3*e^5 + a^4*d^2*e^6)*x)
```

Sympy [A] time = 11.9238, size = 818, normalized size = 5.6

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(b*x+a)/(e*x+d)**4,x)
```

```
[Out] b**2*(-A*b + B*a)*log(x + (-A*a*b**3*e - A*b**4*d + B*a**2*b**2*e
 + B*a*b**3*d - a**5*b**2*e**5*(-A*b + B*a)/(a*e - b*d)**4 + 5*a*
*4*b**3*d*e**4*(-A*b + B*a)/(a*e - b*d)**4 - 10*a**3*b**4*d**2*e*
*3*(-A*b + B*a)/(a*e - b*d)**4 + 10*a**2*b**5*d**3*e**2*(-A*b + B
*a)/(a*e - b*d)**4 - 5*a*b**6*d**4*e*(-A*b + B*a)/(a*e - b*d)**4
+ b**7*d**5*(-A*b + B*a)/(a*e - b*d)**4)/(-2*A*b**4*e + 2*B*a*b**
3*e))/(a*e - b*d)**4 - b**2*(-A*b + B*a)*log(x + (-A*a*b**3*e - A
*b**4*d + B*a**2*b**2*e + B*a*b**3*d + a**5*b**2*e**5*(-A*b + B*a
)/(a*e - b*d)**4 - 5*a**4*b**3*d*e**4*(-A*b + B*a)/(a*e - b*d)**4
 + 10*a**3*b**4*d**2*e**3*(-A*b + B*a)/(a*e - b*d)**4 - 10*a**2*b
**5*d**3*e**2*(-A*b + B*a)/(a*e - b*d)**4 + 5*a*b**6*d**4*e*(-A*b
 + B*a)/(a*e - b*d)**4 - b**7*d**5*(-A*b + B*a)/(a*e - b*d)**4)/(
-2*A*b**4*e + 2*B*a*b**3*e))/(a*e - b*d)**4 + (-2*A*a**2*e**3 + 7
*A*a*b*d*e**2 - 11*A*b**2*d**2*e - B*a**2*d*e**2 + 5*B*a*b*d**2*e
 + 2*B*b**2*d**3 + x**2*(-6*A*b**2*e**3 + 6*B*a*b*e**3) + x*(3*A*
a*b*e**3 - 15*A*b**2*d*e**2 - 3*B*a**2*e**3 + 15*B*a*b*d*e**2))/(
6*a**3*d**3*e**4 - 18*a**2*b*d**4*e**3 + 18*a*b**2*d**5*e**2 - 6*
b**3*d**6*e + x**3*(6*a**3*e**7 - 18*a**2*b*d*e**6 + 18*a*b**2*d*
*2*e**5 - 6*b**3*d**3*e**4) + x**2*(18*a**3*d*e**6 - 54*a**2*b*d*
*2*e**5 + 54*a*b**2*d**3*e**4 - 18*b**3*d**4*e**3) + x*(18*a**3*d
**2*e**5 - 54*a**2*b*d**3*e**4 + 54*a*b**2*d**4*e**3 - 18*b**3*d*
*5*e**2))
```

GIAC/XCAS [A] time = 0.215111, size = 489, normalized size = 3.35

$$-\frac{\left(Bab^3 - Ab^4\right)\ln\left(|bx+a|\right)}{b^5d^4 - 4\,ab^4d^3e + 6\,a^2b^3d^2e^2 - 4\,a^3b^2de^3 + a^4be^4} + \frac{\left(Bab^2e - Ab^3e\right)\ln\left(|xe+d|\right)}{b^4d^4e - 4\,ab^3d^3e^2 + 6\,a^2b^2d^2e^3 - 4\,a^3bde^4 + a^4e^5}$$
$$-\frac{\left(2\,Bb^3d^4 + 3\,Bab^2d^3e - 11\,Ab^3d^3e - 6\,Ba^2bd^2e^2 + 18\,Aab^2d^2e^2 + Ba^3de^3 - 9\,Aa^2bde^3 + 2\,Aa^3e^4 + 6\,\left(Bab^2de^3 - Ab^3de^3 - \right.\right.}{6\,(bd-ae)^4(xe+d)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*(e*x + d)^4),x, algorithm="giac")
```

```
[Out] -(B*a*b^3 - A*b^4)*ln(abs(b*x + a))/(b^5*d^4 - 4*a*b^4*d^3*e + 6*
a^2*b^3*d^2*e^2 - 4*a^3*b^2*d*e^3 + a^4*b*e^4) + (B*a*b^2*e - A*b
^3*e)*ln(abs(x*e + d))/(b^4*d^4*e - 4*a*b^3*d^3*e^2 + 6*a^2*b^2*d
^2*e^3 - 4*a^3*b*d*e^4 + a^4*e^5) - 1/6*(2*B*b^3*d^4 + 3*B*a*b^2*
d^3*e - 11*A*b^3*d^3*e - 6*B*a^2*b*d^2*e^2 + 18*A*a*b^2*d^2*e^2 +
 B*a^3*d*e^3 - 9*A*a^2*b*d*e^3 + 2*A*a^3*e^4 + 6*(B*a*b^2*d*e^3 -
 A*b^3*d*e^3 - B*a^2*b*e^4 + A*a*b^2*e^4)*x^2 + 3*(5*B*a*b^2*d^2*
e^2 - 5*A*b^3*d^2*e^2 - 6*B*a^2*b*d*e^3 + 6*A*a*b^2*d*e^3 + B*a^3
*e^4 - A*a^2*b*e^4)*x)*e^(-1)/((b*d - a*e)^4*(x*e + d)^3)
```

3.1104 $\int \frac{A+Bx}{(a+bx)(d+ex)^5} dx$

Optimal. Leaf size=178

$$\frac{b^3(Ab-aB)\log(a+bx)}{(bd-ae)^5}-\frac{b^3(Ab-aB)\log(d+ex)}{(bd-ae)^5}+\frac{b^2(Ab-aB)}{(d+ex)(bd-ae)^4}+\frac{b(Ab-aB)}{2(d+ex)^2(bd-ae)^3}+\frac{Ab-aB}{3(d+ex)^3(bd-ae)^2}-\frac{Bd-Ae}{4e(d+ex)^4(bd-ae)}$$

```
[Out] -(B*d - A*e)/(4*e*(b*d - a*e)*(d + e*x)^4) + (A*b - a*B)/(3*(b*d
- a*e)^2*(d + e*x)^3) + (b*(A*b - a*B))/(2*(b*d - a*e)^3*(d + e*x
)^2) + (b^2*(A*b - a*B))/((b*d - a*e)^4*(d + e*x)) + (b^3*(A*b -
a*B)*Log[a + b*x])/(b*d - a*e)^5 - (b^3*(A*b - a*B)*Log[d + e*x])
/(b*d - a*e)^5
```

Rubi [A] time = 0.349995, antiderivative size = 178, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$\frac{b^3(Ab-aB)\log(a+bx)}{(bd-ae)^5}-\frac{b^3(Ab-aB)\log(d+ex)}{(bd-ae)^5}+\frac{b^2(Ab-aB)}{(d+ex)(bd-ae)^4}+\frac{b(Ab-aB)}{2(d+ex)^2(bd-ae)^3}+\frac{Ab-aB}{3(d+ex)^3(bd-ae)^2}-\frac{Bd-Ae}{4e(d+ex)^4(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/((a + b*x)*(d + e*x)^5),x]
```

```
[Out] -(B*d - A*e)/(4*e*(b*d - a*e)*(d + e*x)^4) + (A*b - a*B)/(3*(b*d
- a*e)^2*(d + e*x)^3) + (b*(A*b - a*B))/(2*(b*d - a*e)^3*(d + e*x
)^2) + (b^2*(A*b - a*B))/((b*d - a*e)^4*(d + e*x)) + (b^3*(A*b -
a*B)*Log[a + b*x])/(b*d - a*e)^5 - (b^3*(A*b - a*B)*Log[d + e*x])
/(b*d - a*e)^5
```

Rubi in Sympy [A] time = 60.2527, size = 146, normalized size = 0.82

$$-\frac{b^3\left(Ab-Ba\right)\log\left(a+bx\right)}{\left(ae-bd\right)^5}+\frac{b^3\left(Ab-Ba\right)\log\left(d+ex\right)}{\left(ae-bd\right)^5}+\frac{b^2\left(Ab-Ba\right)}{\left(d+ex\right)\left(ae-bd\right)^4}-\frac{b\left(Ab-Ba\right)}{2\left(d+ex\right)^2\left(ae-bd\right)^3}+\frac{Ab-Ba}{3\left(d+ex\right)^3\left(ae-bd\right)^2}-\frac{Ae-Bd}{4e\left(d+ex\right)^4\left(ae-bd\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(b*x+a)/(e*x+d)**5,x)
```

```
[Out] -b**3*(A*b - B*a)*log(a + b*x)/(a*e - b*d)**5 + b**3*(A*b - B*a)*
log(d + e*x)/(a*e - b*d)**5 + b**2*(A*b - B*a)/((d + e*x)*(a*e -
b*d)**4) - b*(A*b - B*a)/(2*(d + e*x)**2*(a*e - b*d)**3) + (A*b -
 B*a)/(3*(d + e*x)**3*(a*e - b*d)**2) - (A*e - B*d)/(4*e*(d + e*x
)**4*(a*e - b*d))
```

Mathematica [A] time = 0.188343, size = 183, normalized size = 1.03

$$\frac{12b^3e(d+ex)^4(Ab-aB)\log(a+bx)-12b^3e(d+ex)^4(Ab-aB)\log(d+ex)+12b^2e(d+ex)^3(Ab-aB)(bd-ae)+4e(d+ex}{12e(d+ex)^4(bd-ae)^5}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/((a + b*x)*(d + e*x)^5),x]
```

```
[Out] (-3*(b*d - a*e)^4*(B*d - A*e) + 4*(A*b - a*B)*e*(b*d - a*e)^3*(d
+ e*x) + 6*b*(A*b - a*B)*e*(b*d - a*e)^2*(d + e*x)^2 + 12*b^2*(A*
b - a*B)*e*(b*d - a*e)*(d + e*x)^3 + 12*b^3*(A*b - a*B)*e*(d + e*
x)^4*Log[a + b*x] - 12*b^3*(A*b - a*B)*e*(d + e*x)^4*Log[d + e*x]
)/(12*e*(b*d - a*e)^5*(d + e*x)^4)
```

Maple [A] time = 0.02, size = 267, normalized size = 1.5

$$-\frac{A}{(4ae-4bd)(ex+d)^4}+\frac{Bd}{(4ae-4bd)e(ex+d)^4}-\frac{b^2A}{2(ae-bd)^3(ex+d)^2}+\frac{Bba}{2(ae-bd)^3(ex+d)^2}+\frac{b^4\ln(ex+d)A}{(ae-bd)^5}-\frac{b^3\ln(ex+d)Ba}{(ae-bd)^5}+\frac{Ab}{3(ae-bd)^2(ex+d)^3}-\frac{Ba}{3(ae-bd)^2(ex+d)^3}+\frac{b^3A}{(ae-bd)^4(ex+d)}-\frac{b^2Ba}{(ae-bd)^4(ex+d)}-\frac{b^4\ln(bx+a)A}{(ae-bd)^5}+\frac{b^3\ln(bx+a)Ba}{(ae-bd)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(b*x+a)/(e*x+d)^5,x)
```

```
[Out] -1/4/(a*e-b*d)/(e*x+d)^4*A+1/4/(a*e-b*d)/e/(e*x+d)^4*B*d-1/2*b^2/
(a*e-b*d)^3/(e*x+d)^2*A+1/2*b/(a*e-b*d)^3/(e*x+d)^2*B*a+b^4/(a*e-
b*d)^5*ln(e*x+d)*A-b^3/(a*e-b*d)^5*ln(e*x+d)*B*a+1/3/(a*e-b*d)^2/
(e*x+d)^3*A*b-1/3/(a*e-b*d)^2/(e*x+d)^3*B*a+b^3/(a*e-b*d)^4/(e*x+
d)*A-b^2/(a*e-b*d)^4/(e*x+d)*B*a-b^4/(a*e-b*d)^5*ln(b*x+a)*A+b^3/
(a*e-b*d)^5*ln(b*x+a)*B*a
```

Maxima [A] time = 1.41961, size = 927, normalized size = 5.21

$$-\frac{(Bab^3-Ab^4)\log(bx+a)}{b^5d^5-5ab^4d^4e+10a^2b^3d^3e^2-10a^3b^2d^2e^3+5a^4bde^4-a^5e^5}+\frac{(Bab^3-Ab^4)\log(ex+d)}{b^5d^5-5ab^4d^4e+10a^2b^3d^3e^2-10a^3b^2d^2e^3+5a^4bde^4-a^5e^5}-\frac{3Bb^3d^4+3Aa^3e^4+12(Bab^2-Ab^3)e^4x^3+(13Bab^2-25Ab^3)d^3e-(5Ba^2b-23Aab^2)d\cdots}{12(b^4d^8e-4ab^3d^7e^2+6a^2b^2d^6e^3-4a^3bd^5e^4+a^4d^4e^5+(b^4d^4e^5-4ab^3d^3e^6+6a^2b^2d^2e^7-4a^3bde^8+a^4e^9)x^4+4(b^4d^5\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*(e*x + d)^5),x, algorithm="maxima")
```

```
[Out] -(B*a*b^3 - A*b^4)*log(b*x + a)/(b^5*d^5 - 5*a*b^4*d^4*e + 10*a^2
*b^3*d^3*e^2 - 10*a^3*b^2*d^2*e^3 + 5*a^4*b*d*e^4 - a^5*e^5) + (B
*a*b^3 - A*b^4)*log(e*x + d)/(b^5*d^5 - 5*a*b^4*d^4*e + 10*a^2*b^
3*d^3*e^2 - 10*a^3*b^2*d^2*e^3 + 5*a^4*b*d*e^4 - a^5*e^5) - 1/12*
(3*B*b^3*d^4 + 3*A*a^3*e^4 + 12*(B*a*b^2 - A*b^3)*e^4*x^3 + (13*B
*a*b^2 - 25*A*b^3)*d^3*e - (5*B*a^2*b - 23*A*a*b^2)*d^2*e^2 + (B*
a^3 - 13*A*a^2*b)*d*e^3 + 6*(7*(B*a*b^2 - A*b^3)*d*e^3 - (B*a^2*b
 - A*a*b^2)*e^4)*x^2 + 4*(13*(B*a*b^2 - A*b^3)*d^2*e^2 - 5*(B*a^2
*b - A*a*b^2)*d*e^3 + (B*a^3 - A*a^2*b)*e^4)*x)/(b^4*d^8*e - 4*a*
b^3*d^7*e^2 + 6*a^2*b^2*d^6*e^3 - 4*a^3*b*d^5*e^4 + a^4*d^4*e^5 +
 (b^4*d^4*e^5 - 4*a*b^3*d^3*e^6 + 6*a^2*b^2*d^2*e^7 - 4*a^3*b*d*e
^8 + a^4*e^9)*x^4 + 4*(b^4*d^5*e^4 - 4*a*b^3*d^4*e^5 + 6*a^2*b^2*
d^3*e^6 - 4*a^3*b*d^2*e^7 + a^4*d*e^8)*x^3 + 6*(b^4*d^6*e^3 - 4*a
*b^3*d^5*e^4 + 6*a^2*b^2*d^4*e^5 - 4*a^3*b*d^3*e^6 + a^4*d^2*e^7)
*x^2 + 4*(b^4*d^7*e^2 - 4*a*b^3*d^6*e^3 + 6*a^2*b^2*d^5*e^4 - 4*a
^3*b*d^4*e^5 + a^4*d^3*e^6)*x)
```

Fricas [A] time = 0.22304, size = 1245, normalized size = 6.99

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*(e*x + d)^5),x, algorithm="fricas")
```

```
[Out] -1/12*(3*B*b^4*d^5 - 3*A*a^4*e^5 + 5*(2*B*a*b^3 - 5*A*b^4)*d^4*e
- 6*(3*B*a^2*b^2 - 8*A*a*b^3)*d^3*e^2 + 6*(B*a^3*b - 6*A*a^2*b^2)
*d^2*e^3 - (B*a^4 - 16*A*a^3*b)*d*e^4 + 12*((B*a*b^3 - A*b^4)*d*e
^4 - (B*a^2*b^2 - A*a*b^3)*e^5)*x^3 + 6*(7*(B*a*b^3 - A*b^4)*d^2*
e^3 - 8*(B*a^2*b^2 - A*a*b^3)*d*e^4 + (B*a^3*b - A*a^2*b^2)*e^5)*
x^2 + 4*(13*(B*a*b^3 - A*b^4)*d^3*e^2 - 18*(B*a^2*b^2 - A*a*b^3)*
d^2*e^3 + 6*(B*a^3*b - A*a^2*b^2)*d*e^4 - (B*a^4 - A*a^3*b)*e^5)*
x + 12*((B*a*b^3 - A*b^4)*e^5*x^4 + 4*(B*a*b^3 - A*b^4)*d*e^4*x^3
 + 6*(B*a*b^3 - A*b^4)*d^2*e^3*x^2 + 4*(B*a*b^3 - A*b^4)*d^3*e^2*
x + (B*a*b^3 - A*b^4)*d^4*e)*log(b*x + a) - 12*((B*a*b^3 - A*b^4)
*e^5*x^4 + 4*(B*a*b^3 - A*b^4)*d*e^4*x^3 + 6*(B*a*b^3 - A*b^4)*d^
2*e^3*x^2 + 4*(B*a*b^3 - A*b^4)*d^3*e^2*x + (B*a*b^3 - A*b^4)*d^4
*e)*log(e*x + d))/(b^5*d^9*e - 5*a*b^4*d^8*e^2 + 10*a^2*b^3*d^7*e
^3 - 10*a^3*b^2*d^6*e^4 + 5*a^4*b*d^5*e^5 - a^5*d^4*e^6 + (b^5*d^
5*e^5 - 5*a*b^4*d^4*e^6 + 10*a^2*b^3*d^3*e^7 - 10*a^3*b^2*d^2*e^8
 + 5*a^4*b*d*e^9 - a^5*e^10)*x^4 + 4*(b^5*d^6*e^4 - 5*a*b^4*d^5*e
^5 + 10*a^2*b^3*d^4*e^6 - 10*a^3*b^2*d^3*e^7 + 5*a^4*b*d^2*e^8 -
a^5*d*e^9)*x^3 + 6*(b^5*d^7*e^3 - 5*a*b^4*d^6*e^4 + 10*a^2*b^3*d^
5*e^5 - 10*a^3*b^2*d^4*e^6 + 5*a^4*b*d^3*e^7 - a^5*d^2*e^8)*x^2 +
 4*(b^5*d^8*e^2 - 5*a*b^4*d^7*e^3 + 10*a^2*b^3*d^6*e^4 - 10*a^3*b
^2*d^5*e^5 + 5*a^4*b*d^4*e^6 - a^5*d^3*e^7)*x)
```

Sympy [A] time = 18.0924, size = 1132, normalized size = 6.36

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(b*x+a)/(e*x+d)**5,x)
```

```
[Out] -b**3*(-A*b + B*a)*log(x + (-A*a*b**4*e - A*b**5*d + B*a**2*b**3*
e + B*a*b**4*d - a**6*b**3*e**6*(-A*b + B*a)/(a*e - b*d)**5 + 6*a
**5*b**4*d*e**5*(-A*b + B*a)/(a*e - b*d)**5 - 15*a**4*b**5*d**2*e
**4*(-A*b + B*a)/(a*e - b*d)**5 + 20*a**3*b**6*d**3*e**3*(-A*b +
B*a)/(a*e - b*d)**5 - 15*a**2*b**7*d**4*e**2*(-A*b + B*a)/(a*e -
b*d)**5 + 6*a*b**8*d**5*e*(-A*b + B*a)/(a*e - b*d)**5 - b**9*d**6
*(-A*b + B*a)/(a*e - b*d)**5)/(-2*A*b**5*e + 2*B*a*b**4*e))/(a*e
- b*d)**5 + b**3*(-A*b + B*a)*log(x + (-A*a*b**4*e - A*b**5*d + B
*a**2*b**3*e + B*a*b**4*d + a**6*b**3*e**6*(-A*b + B*a)/(a*e - b*
d)**5 - 6*a**5*b**4*d*e**5*(-A*b + B*a)/(a*e - b*d)**5 + 15*a**4*
b**5*d**2*e**4*(-A*b + B*a)/(a*e - b*d)**5 - 20*a**3*b**6*d**3*e*
*3*(-A*b + B*a)/(a*e - b*d)**5 + 15*a**2*b**7*d**4*e**2*(-A*b + B
*a)/(a*e - b*d)**5 - 6*a*b**8*d**5*e*(-A*b + B*a)/(a*e - b*d)**5
+ b**9*d**6*(-A*b + B*a)/(a*e - b*d)**5)/(-2*A*b**5*e + 2*B*a*b**
4*e))/(a*e - b*d)**5 - (3*A*a**3*e**4 - 13*A*a**2*b*d*e**3 + 23*A
*a*b**2*d**2*e**2 - 25*A*b**3*d**3*e + B*a**3*d*e**3 - 5*B*a**2*b
*d**2*e**2 + 13*B*a*b**2*d**3*e + 3*B*b**3*d**4 + x**3*(-12*A*b**
3*e**4 + 12*B*a*b**2*e**4) + x**2*(6*A*a*b**2*e**4 - 42*A*b**3*d*
e**3 - 6*B*a**2*b*e**4 + 42*B*a*b**2*d*e**3) + x*(-4*A*a**2*b*e**
4 + 20*A*a*b**2*d*e**3 - 52*A*b**3*d**2*e**2 + 4*B*a**3*e**4 - 20
*B*a**2*b*d*e**3 + 52*B*a*b**2*d**2*e**2))/(12*a**4*d**4*e**5 - 4
8*a**3*b*d**5*e**4 + 72*a**2*b**2*d**6*e**3 - 48*a*b**3*d**7*e**2
 + 12*b**4*d**8*e + x**4*(12*a**4*e**9 - 48*a**3*b*d*e**8 + 72*a*
*2*b**2*d**2*e**7 - 48*a*b**3*d**3*e**6 + 12*b**4*d**4*e**5) + x*
*3*(48*a**4*d*e**8 - 192*a**3*b*d**2*e**7 + 288*a**2*b**2*d**3*e*
*6 - 192*a*b**3*d**4*e**5 + 48*b**4*d**5*e**4) + x**2*(72*a**4*d*
*2*e**7 - 288*a**3*b*d**3*e**6 + 432*a**2*b**2*d**4*e**5 - 288*a*
b**3*d**5*e**4 + 72*b**4*d**6*e**3) + x*(48*a**4*d**3*e**6 - 192*
a**3*b*d**4*e**5 + 288*a**2*b**2*d**5*e**4 - 192*a*b**3*d**6*e**3
 + 48*b**4*d**7*e**2))
```

GIAC/XCAS [A] time = 0.220201, size = 713, normalized size = 4.01

$$-\frac{\left(Bab^3e - Ab^4e\right)\ln\left(\left|-b + \frac{bd}{xe+d} - \frac{ae}{xe+d}\right|\right)}{b^5d^5e - 5\,ab^4d^4e^2 + 10\,a^2b^3d^3e^3 - 10\,a^3b^2d^2e^4 + 5\,a^4bde^5 - a^5e^6} - \frac{\frac{3\,Bb^3d^4e^3}{(xe+d)^4} + \frac{12\,Bab^2e^4}{xe+d} - \frac{12\,Ab^3e^4}{xe+d} + \frac{6\,Bab^2de^4}{(xe+d)^2} - \frac{6\,Ab^3de^4}{(xe+d)^2} + \frac{4\,Bab^2d^2e^4}{(xe+d)^3} - \frac{4\,Ab^3d^2e^4}{(xe+d)^3} - \frac{9\,Bab^2d^3e^4}{(xe+d)^4} - \frac{3\,Ab^3d^3e^4}{(xe+d)^4} - \frac{6\,Ba^2be^5}{(xe+d)^2} + \frac{6\,Aab^2e^5}{(xe+d)^2}}{12\left(b^4d^4e^4 - 4\,ab^3d^3e^5 + 6\,a^2b^2d^2e^6 - \right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*(e*x + d)^5),x, algorithm="giac")
```

```
[Out] -(B*a*b^3*e - A*b^4*e)*ln(abs(-b + b*d/(x*e + d) - a*e/(x*e + d))
)/(b^5*d^5*e - 5*a*b^4*d^4*e^2 + 10*a^2*b^3*d^3*e^3 - 10*a^3*b^2*
d^2*e^4 + 5*a^4*b*d*e^5 - a^5*e^6) - 1/12*(3*B*b^3*d^4*e^3/(x*e +
 d)^4 + 12*B*a*b^2*e^4/(x*e + d) - 12*A*b^3*e^4/(x*e + d) + 6*B*a
*b^2*d*e^4/(x*e + d)^2 - 6*A*b^3*d*e^4/(x*e + d)^2 + 4*B*a*b^2*d^
2*e^4/(x*e + d)^3 - 4*A*b^3*d^2*e^4/(x*e + d)^3 - 9*B*a*b^2*d^3*e
^4/(x*e + d)^4 - 3*A*b^3*d^3*e^4/(x*e + d)^4 - 6*B*a^2*b*e^5/(x*e
 + d)^2 + 6*A*a*b^2*e^5/(x*e + d)^2 - 8*B*a^2*b*d*e^5/(x*e + d)^3
 + 8*A*a*b^2*d*e^5/(x*e + d)^3 + 9*B*a^2*b*d^2*e^5/(x*e + d)^4 +
9*A*a*b^2*d^2*e^5/(x*e + d)^4 + 4*B*a^3*e^6/(x*e + d)^3 - 4*A*a^2
*b*e^6/(x*e + d)^3 - 3*B*a^3*d*e^6/(x*e + d)^4 - 9*A*a^2*b*d*e^6/
(x*e + d)^4 + 3*A*a^3*e^7/(x*e + d)^4)/(b^4*d^4*e^4 - 4*a*b^3*d^3
*e^5 + 6*a^2*b^2*d^2*e^6 - 4*a^3*b*d*e^7 + a^4*e^8)
```

3.1105 $\int \frac{(A+Bx)(d+ex)^5}{(a+bx)^2}\,dx$

Optimal. Leaf size=227

$$\frac{e^4(a+bx)^4(-6aBe+Abe+5bBd)}{4b^7}+\frac{5e^3(a+bx)^3(bd-ae)(-3aBe+Abe+2bBd)}{3b^7}+\frac{5e^2(a+bx)^2(bd-ae)^2(-2aBe+Abe+bBd)}{b^7}-\frac{(Ab-aB)(bd-ae)^5}{b^7(a+bx)}+\frac{(bd-ae)^4\log(a+bx)(-6aBe+5Abe+bBd)}{b^7}+\frac{5ex(bd-ae)^3(-3aBe+2Abe+bBd)}{b^6}+\frac{Be^5(a+bx)^5}{5b^7}$$

```
[Out] (5*e*(b*d - a*e)^3*(b*B*d + 2*A*b*e - 3*a*B*e)*x)/b^6 - ((A*b - a
*B)*(b*d - a*e)^5)/(b^7*(a + b*x)) + (5*e^2*(b*d - a*e)^2*(b*B*d
+ A*b*e - 2*a*B*e)*(a + b*x)^2)/b^7 + (5*e^3*(b*d - a*e)*(2*b*B*d
 + A*b*e - 3*a*B*e)*(a + b*x)^3)/(3*b^7) + (e^4*(5*b*B*d + A*b*e
- 6*a*B*e)*(a + b*x)^4)/(4*b^7) + (B*e^5*(a + b*x)^5)/(5*b^7) + (
(b*d - a*e)^4*(b*B*d + 5*A*b*e - 6*a*B*e)*Log[a + b*x])/b^7
```

Rubi [A] time = 0.803545, antiderivative size = 227, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$\frac{e^4(a+bx)^4(-6aBe+Abe+5bBd)}{4b^7}+\frac{5e^3(a+bx)^3(bd-ae)(-3aBe+Abe+2bBd)}{3b^7}+\frac{5e^2(a+bx)^2(bd-ae)^2(-2aBe+Abe+bBd)}{b^7}-\frac{(Ab-aB)(bd-ae)^5}{b^7(a+bx)}+\frac{(bd-ae)^4\log(a+bx)(-6aBe+5Abe+bBd)}{b^7}+\frac{5ex(bd-ae)^3(-3aBe+2Abe+bBd)}{b^6}+\frac{Be^5(a+bx)^5}{5b^7}$$

Antiderivative was successfully verified.

```
[In]  Int[((A + B*x)*(d + e*x)^5)/(a + b*x)^2,x]
```

```
[Out] (5*e*(b*d - a*e)^3*(b*B*d + 2*A*b*e - 3*a*B*e)*x)/b^6 - ((A*b - a
*B)*(b*d - a*e)^5)/(b^7*(a + b*x)) + (5*e^2*(b*d - a*e)^2*(b*B*d
+ A*b*e - 2*a*B*e)*(a + b*x)^2)/b^7 + (5*e^3*(b*d - a*e)*(2*b*B*d
 + A*b*e - 3*a*B*e)*(a + b*x)^3)/(3*b^7) + (e^4*(5*b*B*d + A*b*e
- 6*a*B*e)*(a + b*x)^4)/(4*b^7) + (B*e^5*(a + b*x)^5)/(5*b^7) + (
(b*d - a*e)^4*(b*B*d + 5*A*b*e - 6*a*B*e)*Log[a + b*x])/b^7
```

Rubi in Sympy [A] time = 105.298, size = 230, normalized size = 1.01

$$\frac{Be^5\left(a+bx\right)^5}{5b^7}-\frac{5ex\left(ae-bd\right)^3\left(2Abe-3Bae+Bbd\right)}{b^6}+\frac{e^4\left(a+bx\right)^4\left(Abe-6Bae+5Bbd\right)}{4b^7}-\frac{5e^3\left(a+bx\right)^3\left(ae-bd\right)\left(Abe-3Bae+2Bbd\right)}{3b^7}+\frac{5e^2\left(a+bx\right)^2\left(ae-bd\right)^2\left(Abe-2Bae+Bbd\right)}{b^7}+\frac{\left(ae-bd\right)^4\left(5Abe-6Bae+Bbd\right)\log\left(a+bx\right)}{b^7}+\frac{\left(Ab-Ba\right)\left(ae-bd\right)^5}{b^7\left(a+bx\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(e*x+d)**5/(b*x+a)**2,x)
```

```
[Out] B*e**5*(a + b*x)**5/(5*b**7) - 5*e*x*(a*e - b*d)**3*(2*A*b*e - 3*
B*a*e + B*b*d)/b**6 + e**4*(a + b*x)**4*(A*b*e - 6*B*a*e + 5*B*b*
d)/(4*b**7) - 5*e**3*(a + b*x)**3*(a*e - b*d)*(A*b*e - 3*B*a*e +
2*B*b*d)/(3*b**7) + 5*e**2*(a + b*x)**2*(a*e - b*d)**2*(A*b*e - 2
```

```
*B*a*e + B*b*d)/b**7 + (a*e - b*d)**4*(5*A*b*e - 6*B*a*e + B*b*d)
*log(a + b*x)/b**7 + (A*b - B*a)*(a*e - b*d)**5/(b**7*(a + b*x))
```

Mathematica [B] time = 0.46199, size = 500, normalized size = 2.2

$$\frac{-5Ab\left(-12a^5e^5+12a^4be^4(5d+4ex)+30a^3b^2e^3\left(-4d^2-6dex+e^2x^2\right)-10a^2b^3e^2\left(-12d^3-24d^2ex+12de^2x^2+e^3x^3\right)+5a\cdots\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((A + B*x)*(d + e*x)^5)/(a + b*x)^2,x]
```

```
[Out] (B*(-60*a^6*e^5 + 300*a^5*b*e^4*(d + e*x) + 60*a^4*b^2*e^3*(-10*d
^2 - 20*d*e*x + 3*e^2*x^2) + 30*a^3*b^3*e^2*(20*d^3 + 60*d^2*e*x
- 25*d*e^2*x^2 - 2*e^3*x^3) + 10*a^2*b^4*e*(-30*d^4 - 120*d^3*e*x
 + 120*d^2*e^2*x^2 + 25*d*e^3*x^3 + 3*e^4*x^4) + b^6*e*x^2*(300*d
^4 + 300*d^3*e*x + 200*d^2*e^2*x^2 + 75*d*e^3*x^3 + 12*e^4*x^4) +
 a*b^5*(60*d^5 + 300*d^4*e*x - 900*d^3*e^2*x^2 - 400*d^2*e^3*x^3
- 125*d*e^4*x^4 - 18*e^5*x^5)) - 5*A*b*(-12*a^5*e^5 + 12*a^4*b*e^
4*(5*d + 4*e*x) + 30*a^3*b^2*e^3*(-4*d^2 - 6*d*e*x + e^2*x^2) - 1
0*a^2*b^3*e^2*(-12*d^3 - 24*d^2*e*x + 12*d*e^2*x^2 + e^3*x^3) + 5
*a*b^4*e*(-12*d^4 - 24*d^3*e*x + 36*d^2*e^2*x^2 + 8*d*e^3*x^3 + e
^4*x^4) + b^5*(12*d^5 - 120*d^3*e^2*x^2 - 60*d^2*e^3*x^3 - 20*d*e
^4*x^4 - 3*e^5*x^5)) + 60*(b*d - a*e)^4*(b*B*d + 5*A*b*e - 6*a*B*
e)*(a + b*x)*Log[a + b*x])/(60*b^7*(a + b*x))
```

Maple [B] time = 0.019, size = 787, normalized size = 3.5

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(e*x+d)^5/(b*x+a)^2,x)
```

```
[Out] -1/b/(b*x+a)*A*d^5+1/4*e^5/b^2*A*x^4+1/5*e^5/b^2*B*x^5+1/b^2*ln(b
*x+a)*B*d^5+10/b^4/(b*x+a)*A*a^3*d^2*e^3+5/b^6/(b*x+a)*B*a^5*d*e^
4-10/b^5/(b*x+a)*B*a^4*d^2*e^3+10/b^4/(b*x+a)*B*a^3*d^3*e^2-5/b^3
/(b*x+a)*B*a^2*d^4*e-10/b^3/(b*x+a)*A*a^2*d^3*e^2+5/b^2/(b*x+a)*A
*a*d^4*e+5*e^5/b^6*B*a^4*x+5*e/b^2*B*d^4*x+5/4*e^4/b^2*B*x^4*d-2/
3*e^5/b^3*A*x^3*a+5/3*e^4/b^2*A*x^3*d+e^5/b^4*B*x^3*a^2+10/3*e^3/
b^2*B*x^3*d^2+3/2*e^5/b^4*A*x^2*a^2+5*e^3/b^2*A*x^2*d^2-1/2*e^5/b
^3*B*x^4*a-5*e^4/b^3*A*x^2*a*d+15/2*e^4/b^4*B*x^2*a^2*d-10*e^3/b^
3*B*x^2*a*d^2+15*e^4/b^4*A*a^2*d*x-20*e^3/b^3*A*a*d^2*x-20*e^4/b^
5*B*a^3*d*x+30*e^3/b^4*B*a^2*d^2*x-20*e^2/b^3*B*a*d^3*x-10/3*e^4/
b^3*B*x^3*a*d-20/b^5*ln(b*x+a)*A*a^3*d*e^4+30/b^4*ln(b*x+a)*A*a^2
*d^2*e^3-20/b^3*ln(b*x+a)*A*a*d^3*e^2+25/b^6*ln(b*x+a)*B*a^4*d*e^
4-40/b^5*ln(b*x+a)*B*a^3*d^2*e^3+30/b^4*ln(b*x+a)*B*a^2*d^3*e^2-1
0/b^3*ln(b*x+a)*B*a*d^4*e-5/b^5/(b*x+a)*A*a^4*d*e^4+5/b^6*ln(b*x+
a)*A*a^4*e^5+5/b^2*ln(b*x+a)*A*d^4*e-6/b^7*ln(b*x+a)*B*a^5*e^5+1/
b^6/(b*x+a)*A*a^5*e^5-1/b^7/(b*x+a)*B*a^6*e^5+1/b^2/(b*x+a)*B*a*d
^5-2*e^5/b^5*B*x^2*a^3+5*e^2/b^2*B*x^2*d^3-4*e^5/b^5*A*a^3*x+10*e
^2/b^2*A*d^3*x
```

Maxima [A] time = 1.3716, size = 782, normalized size = 3.44

$$\frac{\left(Bab^5-Ab^6\right)d^5-5\left(Ba^2b^4-Aab^5\right)d^4e+10\left(Ba^3b^3-Aa^2b^4\right)d^3e^2-10\left(Ba^4b^2-Aa^3b^3\right)d^2e^3+5\left(Ba^5b-Aa^4b^2\right)de^4-\left(B\cdots\right.}{b^8x+ab^7}$$
$$+\frac{12\,Bb^4e^5x^5+15\left(5\,Bb^4de^4-\left(2\,Bab^3-Ab^4\right)e^5\right)x^4+20\left(10\,Bb^4d^2e^3-5\left(2\,Bab^3-Ab^4\right)de^4+\left(3\,Ba^2b^2-2\,Aab^3\right)e^5\right)x^3+3\cdots}{}$$
$$+\frac{\left(Bb^5d^5-5\left(2\,Bab^4-Ab^5\right)d^4e+10\left(3\,Ba^2b^3-2\,Aab^4\right)d^3e^2-10\left(4\,Ba^3b^2-3\,Aa^2b^3\right)d^2e^3+5\left(5\,Ba^4b-4\,Aa^3b^2\right)de^4-\left(6\cdots\right.}{b^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^5/(b*x + a)^2,x, algorithm="maxima")
```

```
[Out] ((B*a*b^5 - A*b^6)*d^5 - 5*(B*a^2*b^4 - A*a*b^5)*d^4*e + 10*(B*a^
3*b^3 - A*a^2*b^4)*d^3*e^2 - 10*(B*a^4*b^2 - A*a^3*b^3)*d^2*e^3 +
 5*(B*a^5*b - A*a^4*b^2)*d*e^4 - (B*a^6 - A*a^5*b)*e^5)/(b^8*x +
a*b^7) + 1/60*(12*B*b^4*e^5*x^5 + 15*(5*B*b^4*d*e^4 - (2*B*a*b^3
- A*b^4)*e^5)*x^4 + 20*(10*B*b^4*d^2*e^3 - 5*(2*B*a*b^3 - A*b^4)*
d*e^4 + (3*B*a^2*b^2 - 2*A*a*b^3)*e^5)*x^3 + 30*(10*B*b^4*d^3*e^2
 - 10*(2*B*a*b^3 - A*b^4)*d^2*e^3 + 5*(3*B*a^2*b^2 - 2*A*a*b^3)*d
*e^4 - (4*B*a^3*b - 3*A*a^2*b^2)*e^5)*x^2 + 60*(5*B*b^4*d^4*e - 1
0*(2*B*a*b^3 - A*b^4)*d^3*e^2 + 10*(3*B*a^2*b^2 - 2*A*a*b^3)*d^2*
e^3 - 5*(4*B*a^3*b - 3*A*a^2*b^2)*d*e^4 + (5*B*a^4 - 4*A*a^3*b)*e
^5)*x)/b^6 + (B*b^5*d^5 - 5*(2*B*a*b^4 - A*b^5)*d^4*e + 10*(3*B*a
^2*b^3 - 2*A*a*b^4)*d^3*e^2 - 10*(4*B*a^3*b^2 - 3*A*a^2*b^3)*d^2*
e^3 + 5*(5*B*a^4*b - 4*A*a^3*b^2)*d*e^4 - (6*B*a^5 - 5*A*a^4*b)*e
^5)*log(b*x + a)/b^7
```

Fricas [A] time = 0.212266, size = 1123, normalized size = 4.95

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^5/(b*x + a)^2,x, algorithm="fricas")
```

```
[Out] 1/60*(12*B*b^6*e^5*x^6 + 60*(B*a*b^5 - A*b^6)*d^5 - 300*(B*a^2*b^
4 - A*a*b^5)*d^4*e + 600*(B*a^3*b^3 - A*a^2*b^4)*d^3*e^2 - 600*(B
*a^4*b^2 - A*a^3*b^3)*d^2*e^3 + 300*(B*a^5*b - A*a^4*b^2)*d*e^4 -
 60*(B*a^6 - A*a^5*b)*e^5 + 3*(25*B*b^6*d*e^4 - (6*B*a*b^5 - 5*A*
b^6)*e^5)*x^5 + 5*(40*B*b^6*d^2*e^3 - 5*(5*B*a*b^5 - 4*A*b^6)*d*e
^4 + (6*B*a^2*b^4 - 5*A*a*b^5)*e^5)*x^4 + 10*(30*B*b^6*d^3*e^2 -
10*(4*B*a*b^5 - 3*A*b^6)*d^2*e^3 + 5*(5*B*a^2*b^4 - 4*A*a*b^5)*d*
e^4 - (6*B*a^3*b^3 - 5*A*a^2*b^4)*e^5)*x^3 + 30*(10*B*b^6*d^4*e -
 10*(3*B*a*b^5 - 2*A*b^6)*d^3*e^2 + 10*(4*B*a^2*b^4 - 3*A*a*b^5)*
d^2*e^3 - 5*(5*B*a^3*b^3 - 4*A*a^2*b^4)*d*e^4 + (6*B*a^4*b^2 - 5*
A*a^3*b^3)*e^5)*x^2 + 60*(5*B*a*b^5*d^4*e - 10*(2*B*a^2*b^4 - A*a
*b^5)*d^3*e^2 + 10*(3*B*a^3*b^3 - 2*A*a^2*b^4)*d^2*e^3 - 5*(4*B*a
^4*b^2 - 3*A*a^3*b^3)*d*e^4 + (5*B*a^5*b - 4*A*a^4*b^2)*e^5)*x +
60*(B*a*b^5*d^5 - 5*(2*B*a^2*b^4 - A*a*b^5)*d^4*e + 10*(3*B*a^3*b
^3 - 2*A*a^2*b^4)*d^3*e^2 - 10*(4*B*a^4*b^2 - 3*A*a^3*b^3)*d^2*e^
3 + 5*(5*B*a^5*b - 4*A*a^4*b^2)*d*e^4 - (6*B*a^6 - 5*A*a^5*b)*e^5
 + (B*b^6*d^5 - 5*(2*B*a*b^5 - A*b^6)*d^4*e + 10*(3*B*a^2*b^4 - 2
*A*a*b^5)*d^3*e^2 - 10*(4*B*a^3*b^3 - 3*A*a^2*b^4)*d^2*e^3 + 5*(5
*B*a^4*b^2 - 4*A*a^3*b^3)*d*e^4 - (6*B*a^5*b - 5*A*a^4*b^2)*e^5)*
x)*log(b*x + a))/(b^8*x + a*b^7)
```

Sympy [A] time = 13.6166, size = 552, normalized size = 2.43

$$\frac{Be^5x^5}{5b^2} - \frac{-Aa^5be^5 + 5Aa^4b^2de^4 - 10Aa^3b^3d^2e^3 + 10Aa^2b^4d^3e^2 - 5Aab^5d^4e + Ab^6d^5 + Ba^6e^5 - 5Ba^5bde^4 + 10Ba^4b^2d^2e^3 - 10Ba^3b^3}{ab^7 + b^8x}$$
$$- \frac{x^4\left(-Abe^5 + 2Bae^5 - 5Bbde^4\right)}{4b^3} + \frac{x^3\left(-2Aabe^5 + 5Ab^2de^4 + 3Ba^2e^5 - 10Babde^4 + 10Bb^2d^2e^3\right)}{3b^4}$$
$$- \frac{x^2\left(-3Aa^2be^5 + 10Aab^2de^4 - 10Ab^3d^2e^3 + 4Ba^3e^5 - 15Ba^2bde^4 + 20Bab^2d^2e^3 - 10Bb^3d^3e^2\right)}{2b^5}$$
$$+ \frac{x\left(-4Aa^3be^5 + 15Aa^2b^2de^4 - 20Aab^3d^2e^3 + 10Ab^4d^3e^2 + 5Ba^4e^5 - 20Ba^3bde^4 + 30Ba^2b^2d^2e^3 - 20Bab^3d^3e^2 + 5Bb^4d^4e\right)}{b^6}$$
$$- \frac{(ae - bd)^4\left(-5Abe + 6Bae - Bbd\right)\log\left(a + bx\right)}{b^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(e*x+d)**5/(b*x+a)**2,x)
```

```
[Out] B*e**5*x**5/(5*b**2) - (-A*a**5*b*e**5 + 5*A*a**4*b**2*d*e**4 - 1
0*A*a**3*b**3*d**2*e**3 + 10*A*a**2*b**4*d**3*e**2 - 5*A*a*b**5*d
**4*e + A*b**6*d**5 + B*a**6*e**5 - 5*B*a**5*b*d*e**4 + 10*B*a**4
*b**2*d**2*e**3 - 10*B*a**3*b**3*d**3*e**2 + 5*B*a**2*b**4*d**4*e
 - B*a*b**5*d**5)/(a*b**7 + b**8*x) - x**4*(-A*b*e**5 + 2*B*a*e**
5 - 5*B*b*d*e**4)/(4*b**3) + x**3*(-2*A*a*b*e**5 + 5*A*b**2*d*e**
4 + 3*B*a**2*e**5 - 10*B*a*b*d*e**4 + 10*B*b**2*d**2*e**3)/(3*b**
4) - x**2*(-3*A*a**2*b*e**5 + 10*A*a*b**2*d*e**4 - 10*A*b**3*d**2
*e**3 + 4*B*a**3*e**5 - 15*B*a**2*b*d*e**4 + 20*B*a*b**2*d**2*e**
3 - 10*B*b**3*d**3*e**2)/(2*b**5) + x*(-4*A*a**3*b*e**5 + 15*A*a*
*2*b**2*d*e**4 - 20*A*a*b**3*d**2*e**3 + 10*A*b**4*d**3*e**2 + 5*
B*a**4*e**5 - 20*B*a**3*b*d*e**4 + 30*B*a**2*b**2*d**2*e**3 - 20*
B*a*b**3*d**3*e**2 + 5*B*b**4*d**4*e)/b**6 - (a*e - b*d)**4*(-5*A
*b*e + 6*B*a*e - B*b*d)*log(a + b*x)/b**7
```

GIAC/XCAS [A] time = 0.234027, size = 953, normalized size = 4.2

$$\frac{(bx+a)^5\left(12\,Be^5 + \frac{15\,(5\,Bb^2de^4-6\,Babe^5+Ab^2e^5)}{(bx+a)b} + \frac{100\,(2\,Bb^4d^2e^3-5\,Bab^3de^4+Ab^4de^4+3\,Ba^2b^2e^5-Aab^3e^5)}{(bx+a)^2b^2} + \frac{300\,(Bb^6d^3e^2-4\,Bab^5d^2e^3+Ab^6d^2 \cdots}{\cdots}\right.}{\cdots}$$

$$-\frac{\left(Bb^5d^5 - 10\,Bab^4d^4e + 5\,Ab^5d^4e + 30\,Ba^2b^3d^3e^2 - 20\,Aab^4d^3e^2 - 40\,Ba^3b^2d^2e^3 + 30\,Aa^2b^3d^2e^3 + 25\,Ba^4bde^4 - 20\,Aa^3b^2 \cdots\right.}{b^7}$$

$$+\frac{\frac{Bab^{10}d^5}{bx+a} - \frac{Ab^{11}d^5}{bx+a} - \frac{5\,Ba^2b^9d^4e}{bx+a} + \frac{5\,Aab^{10}d^4e}{bx+a} + \frac{10\,Ba^3b^8d^3e^2}{bx+a} - \frac{10\,Aa^2b^9d^3e^2}{bx+a} - \frac{10\,Ba^4b^7d^2e^3}{bx+a} + \frac{10\,Aa^3b^8d^2e^3}{bx+a} + \frac{5\,Ba^5b^6de^4}{bx+a} - \frac{5\,Aa^4b^7de^4}{bx+a} \cdots}{b^{12}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^5/(b*x + a)^2,x, algorithm="giac")
```

```
[Out] 1/60*(b*x + a)^5*(12*B*e^5 + 15*(5*B*b^2*d*e^4 - 6*B*a*b*e^5 + A*
b^2*e^5)/((b*x + a)*b) + 100*(2*B*b^4*d^2*e^3 - 5*B*a*b^3*d*e^4 +
 A*b^4*d*e^4 + 3*B*a^2*b^2*e^5 - A*a*b^3*e^5)/((b*x + a)^2*b^2) +
 300*(B*b^6*d^3*e^2 - 4*B*a*b^5*d^2*e^3 + A*b^6*d^2*e^3 + 5*B*a^2
*b^4*d*e^4 - 2*A*a*b^5*d*e^4 - 2*B*a^3*b^3*e^5 + A*a^2*b^4*e^5)/(
(b*x + a)^3*b^3) + 300*(B*b^8*d^4*e - 6*B*a*b^7*d^3*e^2 + 2*A*b^8
*d^3*e^2 + 12*B*a^2*b^6*d^2*e^3 - 6*A*a*b^7*d^2*e^3 - 10*B*a^3*b^
5*d*e^4 + 6*A*a^2*b^6*d*e^4 + 3*B*a^4*b^4*e^5 - 2*A*a^3*b^5*e^5)/
((b*x + a)^4*b^4))/b^7 - (B*b^5*d^5 - 10*B*a*b^4*d^4*e + 5*A*b^5*
d^4*e + 30*B*a^2*b^3*d^3*e^2 - 20*A*a*b^4*d^3*e^2 - 40*B*a^3*b^2*
d^2*e^3 + 30*A*a^2*b^3*d^2*e^3 + 25*B*a^4*b*d*e^4 - 20*A*a^3*b^2*
d*e^4 - 6*B*a^5*e^5 + 5*A*a^4*b*e^5)*ln(abs(b*x + a)/((b*x + a)^2
*abs(b)))/b^7 + (B*a*b^10*d^5/(b*x + a) - A*b^11*d^5/(b*x + a) -
5*B*a^2*b^9*d^4*e/(b*x + a) + 5*A*a*b^10*d^4*e/(b*x + a) + 10*B*a
^3*b^8*d^3*e^2/(b*x + a) - 10*A*a^2*b^9*d^3*e^2/(b*x + a) - 10*B*
a^4*b^7*d^2*e^3/(b*x + a) + 10*A*a^3*b^8*d^2*e^3/(b*x + a) + 5*B*
a^5*b^6*d*e^4/(b*x + a) - 5*A*a^4*b^7*d*e^4/(b*x + a) - B*a^6*b^5
*e^5/(b*x + a) + A*a^5*b^6*e^5/(b*x + a))/b^12
```

3.1106 $\int \frac{(A+Bx)(d+ex)^4}{(a+bx)^2} dx$

Optimal. Leaf size=187

$$\frac{e^3(a+bx)^3(-5aBe+Abe+4bBd)}{3b^6}+\frac{e^2(a+bx)^2(bd-ae)(-5aBe+2Abe+3bBd)}{b^6}-\frac{(Ab-aB)(bd-ae)^4}{b^6(a+bx)}+\frac{(bd-ae)^3\log(a+bx)(-5aBe+4Abe+bBd)}{b^6}+\frac{2ex(bd-ae)^2(-5aBe+3Abe+2bBd)}{b^5}+\frac{Be^4(a+bx)^4}{4b^6}$$

```
[Out] (2*e*(b*d - a*e)^2*(2*b*B*d + 3*A*b*e - 5*a*B*e)*x)/b^5 - ((A*b -
 a*B)*(b*d - a*e)^4)/(b^6*(a + b*x)) + (e^2*(b*d - a*e)*(3*b*B*d
+ 2*A*b*e - 5*a*B*e)*(a + b*x)^2)/b^6 + (e^3*(4*b*B*d + A*b*e - 5
*a*B*e)*(a + b*x)^3)/(3*b^6) + (B*e^4*(a + b*x)^4)/(4*b^6) + ((b*
d - a*e)^3*(b*B*d + 4*A*b*e - 5*a*B*e)*Log[a + b*x])/b^6
```

Rubi [A] time = 0.546661, antiderivative size = 187, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{e^3(a+bx)^3(-5aBe+Abe+4bBd)}{3b^6}+\frac{e^2(a+bx)^2(bd-ae)(-5aBe+2Abe+3bBd)}{b^6}-\frac{(Ab-aB)(bd-ae)^4}{b^6(a+bx)}+\frac{(bd-ae)^3\log(a+bx)(-5aBe+4Abe+bBd)}{b^6}+\frac{2ex(bd-ae)^2(-5aBe+3Abe+2bBd)}{b^5}+\frac{Be^4(a+bx)^4}{4b^6}$$

Antiderivative was successfully verified.

```
[In]  Int[((A + B*x)*(d + e*x)^4)/(a + b*x)^2,x]
```

```
[Out] (2*e*(b*d - a*e)^2*(2*b*B*d + 3*A*b*e - 5*a*B*e)*x)/b^5 - ((A*b -
 a*B)*(b*d - a*e)^4)/(b^6*(a + b*x)) + (e^2*(b*d - a*e)*(3*b*B*d
+ 2*A*b*e - 5*a*B*e)*(a + b*x)^2)/b^6 + (e^3*(4*b*B*d + A*b*e - 5
*a*B*e)*(a + b*x)^3)/(3*b^6) + (B*e^4*(a + b*x)^4)/(4*b^6) + ((b*
d - a*e)^3*(b*B*d + 4*A*b*e - 5*a*B*e)*Log[a + b*x])/b^6
```

Rubi in Sympy [A] time = 71.7643, size = 189, normalized size = 1.01

$$\frac{Be^4\left(a+bx\right)^4}{4b^6}+\frac{2ex\left(ae-bd\right)^2\left(3Abe-5Bae+2Bbd\right)}{b^5}+\frac{e^3\left(a+bx\right)^3\left(Abe-5Bae+4Bbd\right)}{3b^6}-\frac{e^2\left(a+bx\right)^2\left(ae-bd\right)\left(2Abe-5Bae+3Bbd\right)}{b^6}-\frac{\left(ae-bd\right)^3\left(4Abe-5Bae+Bbd\right)\log\left(a+bx\right)}{b^6}-\frac{\left(Ab-Ba\right)\left(ae-bd\right)^4}{b^6\left(a+bx\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(e*x+d)**4/(b*x+a)**2,x)
```

```
[Out] B*e**4*(a + b*x)**4/(4*b**6) + 2*e*x*(a*e - b*d)**2*(3*A*b*e - 5*
B*a*e + 2*B*b*d)/b**5 + e**3*(a + b*x)**3*(A*b*e - 5*B*a*e + 4*B*
b*d)/(3*b**6) - e**2*(a + b*x)**2*(a*e - b*d)*(2*A*b*e - 5*B*a*e
+ 3*B*b*d)/b**6 - (a*e - b*d)**3*(4*A*b*e - 5*B*a*e + B*b*d)*log(
a + b*x)/b**6 - (A*b - B*a)*(a*e - b*d)**4/(b**6*(a + b*x))
```

Mathematica [A] time = 0.374233, size = 365, normalized size = 1.95

$$\frac{-4Ab\left(3a^4e^4-3a^3be^3(4d+3ex)+6a^2b^2e^2\left(3d^2+4dex-e^2x^2\right)+2ab^3e\left(-6d^3-9d^2ex+9de^2x^2+e^3x^3\right)+b^4\left(3d^4-18d^2e\right.\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((A + B*x)*(d + e*x)^4)/(a + b*x)^2,x]
```

```
[Out] (B*(12*a^5*e^4 - 48*a^4*b*e^3*(d + e*x) + 6*a^3*b^2*e^2*(12*d^2 +
 24*d*e*x - 5*e^2*x^2) + b^5*e*x^2*(48*d^3 + 36*d^2*e*x + 16*d*e^
2*x^2 + 3*e^3*x^3) + 2*a^2*b^3*e*(-24*d^3 - 72*d^2*e*x + 48*d*e^2
*x^2 + 5*e^3*x^3) + a*b^4*(12*d^4 + 48*d^3*e*x - 108*d^2*e^2*x^2
- 32*d*e^3*x^3 - 5*e^4*x^4)) - 4*A*b*(3*a^4*e^4 - 3*a^3*b*e^3*(4*
d + 3*e*x) + 6*a^2*b^2*e^2*(3*d^2 + 4*d*e*x - e^2*x^2) + 2*a*b^3*
e*(-6*d^3 - 9*d^2*e*x + 9*d*e^2*x^2 + e^3*x^3) + b^4*(3*d^4 - 18*
d^2*e^2*x^2 - 6*d*e^3*x^3 - e^4*x^4)) + 12*(b*d - a*e)^3*(b*B*d +
 4*A*b*e - 5*a*B*e)*(a + b*x)*Log[a + b*x])/(12*b^6*(a + b*x))
```

Maple [B] time = 0.017, size = 564, normalized size = 3.

$$5\,\frac{\ln(bx+a)Ba^4e^4}{b^6}-\frac{Aa^4e^4}{(bx+a)\,b^5}+\frac{Ba^5e^4}{(bx+a)\,b^6}+\frac{Bad^4}{(bx+a)\,b^2}+2\,\frac{e^3Ax^2d}{b^2}+\frac{\ln(bx+a)Bd^4}{b^2}-\frac{Ad^4}{b\,(bx+a)}+\frac{Be^4x^4}{4\,b^2}$$
$$+\frac{e^4Ax^3}{3\,b^2}+4\,\frac{a^3Ade^3}{(bx+a)\,b^4}-6\,\frac{a^2Ad^2e^2}{(bx+a)\,b^3}+4\,\frac{Aad^3e}{(bx+a)\,b^2}+12\,\frac{\ln(bx+a)Aa^2de^3}{b^4}-12\,\frac{\ln(bx+a)Aad^2e^2}{b^3}$$
$$-16\,\frac{\ln(bx+a)Ba^3de^3}{b^5}+18\,\frac{\ln(bx+a)Ba^2d^2e^2}{b^4}-8\,\frac{\ln(bx+a)Bad^3e}{b^3}-12\,\frac{e^2Bad^2x}{b^3}+12\,\frac{e^3Ba^2dx}{b^4}$$
$$-4\,\frac{e^3Bx^2ad}{b^3}-4\,\frac{Ba^4de^3}{(bx+a)\,b^5}+6\,\frac{Ba^3d^2e^2}{(bx+a)\,b^4}-4\,\frac{Ba^2d^3e}{(bx+a)\,b^3}-8\,\frac{aAe^3dx}{b^3}+\frac{3\,Be^4x^2a^2}{2\,b^4}+3\,\frac{e^2Bx^2d^2}{b^2}+3\,\frac{a^2Ae^4x}{b^4}$$
$$+6\,\frac{e^2Ad^2x}{b^2}-4\,\frac{Ba^3e^4x}{b^5}+4\,\frac{eBd^3x}{b^2}-\frac{e^4Ax^2a}{b^3}-\frac{2\,Be^4x^3a}{3\,b^3}+\frac{4\,e^3Bx^3d}{3\,b^2}-4\,\frac{\ln(bx+a)Aa^3e^4}{b^5}+4\,\frac{\ln(bx+a)Ad^3e}{b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(e*x+d)^4/(b*x+a)^2,x)
```

```
[Out] 5/b^6*ln(b*x+a)*B*a^4*e^4-1/(b*x+a)/b^5*A*a^4*e^4+1/(b*x+a)/b^6*B
*a^5*e^4+1/(b*x+a)/b^2*B*a*d^4+2*e^3/b^2*A*x^2*d+1/b^2*ln(b*x+a)*
B*d^4-1/(b*x+a)/b*A*d^4+1/4*e^4/b^2*B*x^4+1/3*e^4/b^2*A*x^3+4/(b*
x+a)/b^4*A*a^3*d*e^3-6/(b*x+a)/b^3*A*a^2*d^2*e^2+4/(b*x+a)/b^2*A*
a*d^3*e+12/b^4*ln(b*x+a)*A*a^2*d*e^3-12/b^3*ln(b*x+a)*A*a*d^2*e^2
-16/b^5*ln(b*x+a)*B*a^3*d*e^3+18/b^4*ln(b*x+a)*B*a^2*d^2*e^2-8/b^
3*ln(b*x+a)*B*a*d^3*e-12*e^2/b^3*B*a*d^2*x+12*e^3/b^4*B*a^2*d*x-4
*e^3/b^3*B*x^2*a*d-4/(b*x+a)/b^5*B*a^4*d*e^3+6/(b*x+a)/b^4*B*a^3*
d^2*e^2-4/(b*x+a)/b^3*B*a^2*d^3*e-8*e^3/b^3*A*a*d*x+3/2*e^4/b^4*B
*x^2*a^2+3*e^2/b^2*B*x^2*d^2+3*e^4/b^4*A*a^2*x+6*e^2/b^2*A*d^2*x-
4*e^4/b^5*B*a^3*x+4*e/b^2*B*d^3*x-e^4/b^3*A*x^2*a-2/3*e^4/b^3*B*x
^3*a+4/3*e^3/b^2*B*x^3*d-4/b^5*ln(b*x+a)*A*a^3*e^4+4/b^2*ln(b*x+a
)*A*d^3*e
```

Maxima [A] time = 1.37238, size = 555, normalized size = 2.97

$$\frac{\left(Bab^4-Ab^5\right)d^4-4\left(Ba^2b^3-Aab^4\right)d^3e+6\left(Ba^3b^2-Aa^2b^3\right)d^2e^2-4\left(Ba^4b-Aa^3b^2\right)de^3+\left(Ba^5-Aa^4b\right)e^4}{b^7x+ab^6}$$
$$+\frac{3\,Bb^3e^4x^4+4\left(4\,Bb^3de^3-\left(2\,Bab^2-Ab^3\right)e^4\right)x^3+6\left(6\,Bb^3d^2e^2-4\left(2\,Bab^2-Ab^3\right)de^3+\left(3\,Ba^2b-2\,Aab^2\right)e^4\right)x^2+12\left(4\,B\right.}{12\,b^5}$$
$$+\frac{\left(Bb^4d^4-4\left(2\,Bab^3-Ab^4\right)d^3e+6\left(3\,Ba^2b^2-2\,Aab^3\right)d^2e^2-4\left(4\,Ba^3b-3\,Aa^2b^2\right)de^3+\left(5\,Ba^4-4\,Aa^3b\right)e^4\right)\log\left(bx+a\right)}{b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^4/(b*x + a)^2,x, algorithm="maxima")
```

```
[Out] ((B*a*b^4 - A*b^5)*d^4 - 4*(B*a^2*b^3 - A*a*b^4)*d^3*e + 6*(B*a^3
*b^2 - A*a^2*b^3)*d^2*e^2 - 4*(B*a^4*b - A*a^3*b^2)*d*e^3 + (B*a^
5 - A*a^4*b)*e^4)/(b^7*x + a*b^6) + 1/12*(3*B*b^3*e^4*x^4 + 4*(4*
B*b^3*d*e^3 - (2*B*a*b^2 - A*b^3)*e^4)*x^3 + 6*(6*B*b^3*d^2*e^2 -
 4*(2*B*a*b^2 - A*b^3)*d*e^3 + (3*B*a^2*b - 2*A*a*b^2)*e^4)*x^2 +
 12*(4*B*b^3*d^3*e - 6*(2*B*a*b^2 - A*b^3)*d^2*e^2 + 4*(3*B*a^2*b
 - 2*A*a*b^2)*d*e^3 - (4*B*a^3 - 3*A*a^2*b)*e^4)*x)/b^5 + (B*b^4*
d^4 - 4*(2*B*a*b^3 - A*b^4)*d^3*e + 6*(3*B*a^2*b^2 - 2*A*a*b^3)*d
^2*e^2 - 4*(4*B*a^3*b - 3*A*a^2*b^2)*d*e^3 + (5*B*a^4 - 4*A*a^3*b
)*e^4)*log(b*x + a)/b^6
```

Fricas [A] time = 0.214714, size = 824, normalized size = 4.41

$$\frac{3\,Bb^5e^4x^5 + 12\,\left(Bab^4 - Ab^5\right)d^4 - 48\,\left(Ba^2b^3 - Aab^4\right)d^3e + 72\,\left(Ba^3b^2 - Aa^2b^3\right)d^2e^2 - 48\,\left(Ba^4b - Aa^3b^2\right)de^3 + 12\,\left(Ba^5 - A\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^4/(b*x + a)^2,x, algorithm="fricas")
```

```
[Out] 1/12*(3*B*b^5*e^4*x^5 + 12*(B*a*b^4 - A*b^5)*d^4 - 48*(B*a^2*b^3
- A*a*b^4)*d^3*e + 72*(B*a^3*b^2 - A*a^2*b^3)*d^2*e^2 - 48*(B*a^4
*b - A*a^3*b^2)*d*e^3 + 12*(B*a^5 - A*a^4*b)*e^4 + (16*B*b^5*d*e^
3 - (5*B*a*b^4 - 4*A*b^5)*e^4)*x^4 + 2*(18*B*b^5*d^2*e^2 - 4*(4*B
*a*b^4 - 3*A*b^5)*d*e^3 + (5*B*a^2*b^3 - 4*A*a*b^4)*e^4)*x^3 + 6*
(8*B*b^5*d^3*e - 6*(3*B*a*b^4 - 2*A*b^5)*d^2*e^2 + 4*(4*B*a^2*b^3
 - 3*A*a*b^4)*d*e^3 - (5*B*a^3*b^2 - 4*A*a^2*b^3)*e^4)*x^2 + 12*(
4*B*a*b^4*d^3*e - 6*(2*B*a^2*b^3 - A*a*b^4)*d^2*e^2 + 4*(3*B*a^3*
b^2 - 2*A*a^2*b^3)*d*e^3 - (4*B*a^4*b - 3*A*a^3*b^2)*e^4)*x + 12*
(B*a*b^4*d^4 - 4*(2*B*a^2*b^3 - A*a*b^4)*d^3*e + 6*(3*B*a^3*b^2 -
 2*A*a^2*b^3)*d^2*e^2 - 4*(4*B*a^4*b - 3*A*a^3*b^2)*d*e^3 + (5*B*
a^5 - 4*A*a^4*b)*e^4 + (B*b^5*d^4 - 4*(2*B*a*b^4 - A*b^5)*d^3*e +
 6*(3*B*a^2*b^3 - 2*A*a*b^4)*d^2*e^2 - 4*(4*B*a^3*b^2 - 3*A*a^2*b
^3)*d*e^3 + (5*B*a^4*b - 4*A*a^3*b^2)*e^4)*x)*log(b*x + a))/(b^7*
x + a*b^6)
```

Sympy [A] time = 10.0499, size = 384, normalized size = 2.05

$$\frac{Be^4x^4}{4b^2} + \frac{-Aa^4be^4 + 4Aa^3b^2de^3 - 6Aa^2b^3d^2e^2 + 4Aab^4d^3e - Ab^5d^4 + Ba^5e^4 - 4Ba^4bde^3 + 6Ba^3b^2d^2e^2 - 4Ba^2b^3d^3e + Bab^4d^4}{ab^6 + b^7x} - \frac{x^3\left(-Abe^4 + 2Bae^4 - 4Bbde^3\right)}{3b^3} + \frac{x^2\left(-2Aabe^4 + 4Ab^2de^3 + 3Ba^2e^4 - 8Babde^3 + 6Bb^2d^2e^2\right)}{2b^4} - \frac{x\left(-3Aa^2be^4 + 8Aab^2de^3 - 6Ab^3d^2e^2 + 4Ba^3e^4 - 12Ba^2bde^3 + 12Bab^2d^2e^2 - 4Bb^3d^3e\right)}{b^5} + \frac{(ae - bd)^3\left(-4Abe + 5Bae - Bbd\right)\log\left(a + bx\right)}{b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(e*x+d)**4/(b*x+a)**2,x)
```

```
[Out] B*e**4*x**4/(4*b**2) + (-A*a**4*b*e**4 + 4*A*a**3*b**2*d*e**3 - 6
*A*a**2*b**3*d**2*e**2 + 4*A*a*b**4*d**3*e - A*b**5*d**4 + B*a**5
*e**4 - 4*B*a**4*b*d*e**3 + 6*B*a**3*b**2*d**2*e**2 - 4*B*a**2*b*
*3*d**3*e + B*a*b**4*d**4)/(a*b**6 + b**7*x) - x**3*(-A*b*e**4 +
2*B*a*e**4 - 4*B*b*d*e**3)/(3*b**3) + x**2*(-2*A*a*b*e**4 + 4*A*b
**2*d*e**3 + 3*B*a**2*e**4 - 8*B*a*b*d*e**3 + 6*B*b**2*d**2*e**2)
/(2*b**4) - x*(-3*A*a**2*b*e**4 + 8*A*a*b**2*d*e**3 - 6*A*b**3*d*
*2*e**2 + 4*B*a**3*e**4 - 12*B*a**2*b*d*e**3 + 12*B*a*b**2*d**2*e
```

```
**2 - 4*B*b**3*d**3*e)/b**5 + (a*e - b*d)**3*(-4*A*b*e + 5*B*a*e
- B*b*d)*log(a + b*x)/b**6
```

GIAC/XCAS [A] time = 0.232748, size = 705, normalized size = 3.77

$$\frac{(bx+a)^4\left(3\,Be^4+\frac{4\,(4\,Bb^2de^3-5\,Babe^4+Ab^2e^4)}{(bx+a)b}+\frac{12\,(3\,Bb^4d^2e^2-8\,Bab^3de^3+2\,Ab^4de^3+5\,Ba^2b^2e^4-2\,Aab^3e^4)}{(bx+a)^2b^2}+\frac{24\,(2\,Bb^6d^3e-9\,Bab^5d^2e^2+3\,Ab^6d^2\cdots}{\cdots}\right.}{12\,b^6}$$

$$-\frac{\left(Bb^4d^4-8\,Bab^3d^3e+4\,Ab^4d^3e+18\,Ba^2b^2d^2e^2-12\,Aab^3d^2e^2-16\,Ba^3bde^3+12\,Aa^2b^2de^3+5\,Ba^4e^4-4\,Aa^3be^4\right)\ln\left(\frac{|b\cdots}{(bx+\cdots}\right.}{b^6}$$

$$+\frac{\frac{Bab^8d^4}{bx+a}-\frac{Ab^9d^4}{bx+a}-\frac{4\,Ba^2b^7d^3e}{bx+a}+\frac{4\,Aab^8d^3e}{bx+a}+\frac{6\,Ba^3b^6d^2e^2}{bx+a}-\frac{6\,Aa^2b^7d^2e^2}{bx+a}-\frac{4\,Ba^4b^5de^3}{bx+a}+\frac{4\,Aa^3b^6de^3}{bx+a}+\frac{Ba^5b^4e^4}{bx+a}-\frac{Aa^4b^5e^4}{bx+a}}{b^{10}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^4/(b*x + a)^2,x, algorithm="giac")
```

```
[Out] 1/12*(b*x + a)^4*(3*B*e^4 + 4*(4*B*b^2*d*e^3 - 5*B*a*b*e^4 + A*b^
2*e^4)/((b*x + a)*b) + 12*(3*B*b^4*d^2*e^2 - 8*B*a*b^3*d*e^3 + 2*
A*b^4*d*e^3 + 5*B*a^2*b^2*e^4 - 2*A*a*b^3*e^4)/((b*x + a)^2*b^2)
+ 24*(2*B*b^6*d^3*e - 9*B*a*b^5*d^2*e^2 + 3*A*b^6*d^2*e^2 + 12*B*
a^2*b^4*d*e^3 - 6*A*a*b^5*d*e^3 - 5*B*a^3*b^3*e^4 + 3*A*a^2*b^4*e
^4)/((b*x + a)^3*b^3))/b^6 - (B*b^4*d^4 - 8*B*a*b^3*d^3*e + 4*A*b
^4*d^3*e + 18*B*a^2*b^2*d^2*e^2 - 12*A*a*b^3*d^2*e^2 - 16*B*a^3*b
*d*e^3 + 12*A*a^2*b^2*d*e^3 + 5*B*a^4*e^4 - 4*A*a^3*b*e^4)*ln(abs
(b*x + a)/((b*x + a)^2*abs(b)))/b^6 + (B*a*b^8*d^4/(b*x + a) - A*
b^9*d^4/(b*x + a) - 4*B*a^2*b^7*d^3*e/(b*x + a) + 4*A*a*b^8*d^3*e
/(b*x + a) + 6*B*a^3*b^6*d^2*e^2/(b*x + a) - 6*A*a^2*b^7*d^2*e^2/
(b*x + a) - 4*B*a^4*b^5*d*e^3/(b*x + a) + 4*A*a^3*b^6*d*e^3/(b*x
+ a) + B*a^5*b^4*e^4/(b*x + a) - A*a^4*b^5*e^4/(b*x + a))/b^10
```

3.1107 $\int \frac{(A+Bx)(d+ex)^3}{(a+bx)^2} dx$

Optimal. Leaf size=145

$$\frac{e^2(a+bx)^2(-4aBe+Abe+3bBd)}{2b^5}-\frac{(Ab-aB)(bd-ae)^3}{b^5(a+bx)}+\frac{(bd-ae)^2\log(a+bx)(-4aBe+3Abe+bBd)}{b^5}+\frac{3ex(bd-ae)(-2aBe+Abe+bBd)}{b^4}+\frac{Be^3(a+bx)^3}{3b^5}$$

```
[Out] (3*e*(b*d - a*e)*(b*B*d + A*b*e - 2*a*B*e)*x)/b^4 - ((A*b - a*B)*
(b*d - a*e)^3)/(b^5*(a + b*x)) + (e^2*(3*b*B*d + A*b*e - 4*a*B*e)
*(a + b*x)^2)/(2*b^5) + (B*e^3*(a + b*x)^3)/(3*b^5) + ((b*d - a*e
)^2*(b*B*d + 3*A*b*e - 4*a*B*e)*Log[a + b*x])/b^5
```

Rubi [A] time = 0.376969, antiderivative size = 145, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{e^2(a+bx)^2(-4aBe+Abe+3bBd)}{2b^5}-\frac{(Ab-aB)(bd-ae)^3}{b^5(a+bx)}+\frac{(bd-ae)^2\log(a+bx)(-4aBe+3Abe+bBd)}{b^5}+\frac{3ex(bd-ae)(-2aBe+Abe+bBd)}{b^4}+\frac{Be^3(a+bx)^3}{3b^5}$$

Antiderivative was successfully verified.

```
[In]  Int[((A + B*x)*(d + e*x)^3)/(a + b*x)^2,x]
```

```
[Out] (3*e*(b*d - a*e)*(b*B*d + A*b*e - 2*a*B*e)*x)/b^4 - ((A*b - a*B)*
(b*d - a*e)^3)/(b^5*(a + b*x)) + (e^2*(3*b*B*d + A*b*e - 4*a*B*e)
*(a + b*x)^2)/(2*b^5) + (B*e^3*(a + b*x)^3)/(3*b^5) + ((b*d - a*e
)^2*(b*B*d + 3*A*b*e - 4*a*B*e)*Log[a + b*x])/b^5
```

Rubi in Sympy [A] time = 51.1264, size = 143, normalized size = 0.99

$$\frac{Be^3(a+bx)^3}{3b^5}-\frac{3ex(ae-bd)(Abe-2Bae+Bbd)}{b^4}+\frac{e^2(a+bx)^2(Abe-4Bae+3Bbd)}{2b^5}+\frac{(ae-bd)^2(3Abe-4Bae+Bbd)\log(a+bx)}{b^5}+\frac{(Ab-Ba)(ae-bd)^3}{b^5(a+bx)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(e*x+d)**3/(b*x+a)**2,x)
```

```
[Out] B*e**3*(a + b*x)**3/(3*b**5) - 3*e*x*(a*e - b*d)*(A*b*e - 2*B*a*e
 + B*b*d)/b**4 + e**2*(a + b*x)**2*(A*b*e - 4*B*a*e + 3*B*b*d)/(2
*b**5) + (a*e - b*d)**2*(3*A*b*e - 4*B*a*e + B*b*d)*log(a + b*x)/
b**5 + (A*b - B*a)*(a*e - b*d)**3/(b**5*(a + b*x))
```

Mathematica [A] time = 0.223717, size = 250, normalized size = 1.72

$$-3Ab\left(-2a^3e^3+2a^2be^2(3d+2ex)+3ab^2e\left(-2d^2-2dex+e^2x^2\right)+b^3\left(2d^3-6de^2x^2-e^3x^3\right)\right)+B\left(-6a^4e^3+18a^3be^2(d+e\right.$$

Antiderivative was successfully verified.

```
[In]  Integrate[((A + B*x)*(d + e*x)^3)/(a + b*x)^2,x]
```

```
[Out] (B*(-6*a^4*e^3 + 18*a^3*b*e^2*(d + e*x) + 6*a^2*b^2*e*(-3*d^2 - 6
*d*e*x + 2*e^2*x^2) + b^4*e*x^2*(18*d^2 + 9*d*e*x + 2*e^2*x^2) +
a*b^3*(6*d^3 + 18*d^2*e*x - 27*d*e^2*x^2 - 4*e^3*x^3)) - 3*A*b*(-
2*a^3*e^3 + 2*a^2*b*e^2*(3*d + 2*e*x) + 3*a*b^2*e*(-2*d^2 - 2*d*e
*x + e^2*x^2) + b^3*(2*d^3 - 6*d*e^2*x^2 - e^3*x^3)) + 6*(b*d - a
*e)^2*(b*B*d + 3*A*b*e - 4*a*B*e)*(a + b*x)*Log[a + b*x])/(6*b^5*
(a + b*x))
```

Maple [B] time = 0.015, size = 376, normalized size = 2.6

$$\frac{Be^3x^3}{3\,b^2}+\frac{e^3Ax^2}{2\,b^2}-\frac{Be^3x^2a}{b^3}+\frac{3\,e^2Bx^2d}{2\,b^2}-2\,\frac{aAe^3x}{b^3}+3\,\frac{e^2Adx}{b^2}+3\,\frac{Ba^2e^3x}{b^4}-6\,\frac{e^2Badx}{b^3}+3\,\frac{eBd^2x}{b^2}+3\,\frac{\ln(bx+a)\,Aa^2e^3}{b^4}-6\,\frac{\ln(bx+a)\,Aade^2}{b^3}+3\,\frac{\ln(bx+a)\,Ad^2e}{b^2}-4\,\frac{\ln(bx+a)\,Ba^3e^3}{b^5}+9\,\frac{\ln(bx+a)\,Ba^2de^2}{b^4}-6\,\frac{\ln(bx+a)\,Bad^2e}{b^3}+\frac{\ln(bx+a)\,Bd^3}{b^2}+\frac{a^3Ae^3}{b^4(bx+a)}-3\,\frac{a^2Ade^2}{b^3(bx+a)}+3\,\frac{aAd^2e}{b^2(bx+a)}-\frac{Ad^3}{b(bx+a)}-\frac{Ba^4e^3}{b^5(bx+a)}+3\,\frac{Ba^3de^2}{b^4(bx+a)}-3\,\frac{Ba^2d^2e}{b^3(bx+a)}+\frac{Bad^3}{b^2(bx+a)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(e*x+d)^3/(b*x+a)^2,x)
```

```
[Out] 1/3*e^3/b^2*B*x^3+1/2*e^3/b^2*A*x^2-e^3/b^3*B*x^2*a+3/2*e^2/b^2*B
*x^2*d-2*e^3/b^3*A*a*x+3*e^2/b^2*A*d*x+3*e^3/b^4*B*a^2*x-6*e^2/b^
3*B*a*d*x+3*e/b^2*B*d^2*x+3/b^4*ln(b*x+a)*A*a^2*e^3-6/b^3*ln(b*x+
a)*A*a*d*e^2+3/b^2*ln(b*x+a)*A*d^2*e-4/b^5*ln(b*x+a)*B*a^3*e^3+9/
b^4*ln(b*x+a)*B*a^2*d*e^2-6/b^3*ln(b*x+a)*B*a*d^2*e+1/b^2*ln(b*x+
a)*B*d^3+1/b^4/(b*x+a)*A*a^3*e^3-3/b^3/(b*x+a)*A*a^2*d*e^2+3/b^2/
(b*x+a)*A*a*d^2*e-1/b/(b*x+a)*A*d^3-1/b^5/(b*x+a)*B*a^4*e^3+3/b^4
/(b*x+a)*B*a^3*d*e^2-3/b^3/(b*x+a)*B*a^2*d^2*e+1/b^2/(b*x+a)*B*a*
d^3
```

Maxima [A] time = 1.36326, size = 369, normalized size = 2.54

$$\frac{\left(Bab^3-Ab^4\right)d^3-3\left(Ba^2b^2-Aab^3\right)d^2e+3\left(Ba^3b-Aa^2b^2\right)de^2-\left(Ba^4-Aa^3b\right)e^3}{b^6x+ab^5}+\frac{2\,Bb^2e^3x^3+3\left(3\,Bb^2de^2-\left(2\,Bab-Ab^2\right)e^3\right)x^2+6\left(3\,Bb^2d^2e-3\left(2\,Bab-Ab^2\right)de^2+\left(3\,Ba^2-2\,Aab\right)e^3\right)x}{6\,b^4}+\frac{\left(Bb^3d^3-3\left(2\,Bab^2-Ab^3\right)d^2e+3\left(3\,Ba^2b-2\,Aab^2\right)de^2-\left(4\,Ba^3-3\,Aa^2b\right)e^3\right)\log(bx+a)}{b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^3/(b*x + a)^2,x, algorithm="maxima")
```

```
[Out] ((B*a*b^3 - A*b^4)*d^3 - 3*(B*a^2*b^2 - A*a*b^3)*d^2*e + 3*(B*a^3
*b - A*a^2*b^2)*d*e^2 - (B*a^4 - A*a^3*b)*e^3)/(b^6*x + a*b^5) +
1/6*(2*B*b^2*e^3*x^3 + 3*(3*B*b^2*d*e^2 - (2*B*a*b - A*b^2)*e^3)*
x^2 + 6*(3*B*b^2*d^2*e - 3*(2*B*a*b - A*b^2)*d*e^2 + (3*B*a^2 - 2
*A*a*b)*e^3)*x)/b^4 + (B*b^3*d^3 - 3*(2*B*a*b^2 - A*b^3)*d^2*e +
3*(3*B*a^2*b - 2*A*a*b^2)*d*e^2 - (4*B*a^3 - 3*A*a^2*b)*e^3)*log(
b*x + a)/b^5
```

Fricas [A] time = 0.207824, size = 563, normalized size = 3.88

$$\frac{2\,Bb^4e^3x^4+6\left(Bab^3-Ab^4\right)d^3-18\left(Ba^2b^2-Aab^3\right)d^2e+18\left(Ba^3b-Aa^2b^2\right)de^2-6\left(Ba^4-Aa^3b\right)e^3+\left(9\,Bb^4de^2-\left(4\,Bab^3\right.\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^3/(b*x + a)^2,x, algorithm="fricas")
```

```
[Out] 1/6*(2*B*b^4*e^3*x^4 + 6*(B*a*b^3 - A*b^4)*d^3 - 18*(B*a^2*b^2 -
A*a*b^3)*d^2*e + 18*(B*a^3*b - A*a^2*b^2)*d*e^2 - 6*(B*a^4 - A*a^
3*b)*e^3 + (9*B*b^4*d*e^2 - (4*B*a*b^3 - 3*A*b^4)*e^3)*x^3 + 3*(6
*B*b^4*d^2*e - 3*(3*B*a*b^3 - 2*A*b^4)*d*e^2 + (4*B*a^2*b^2 - 3*A
*a*b^3)*e^3)*x^2 + 6*(3*B*a*b^3*d^2*e - 3*(2*B*a^2*b^2 - A*a*b^3)
*d*e^2 + (3*B*a^3*b - 2*A*a^2*b^2)*e^3)*x + 6*(B*a*b^3*d^3 - 3*(2
*B*a^2*b^2 - A*a*b^3)*d^2*e + 3*(3*B*a^3*b - 2*A*a^2*b^2)*d*e^2 -
 (4*B*a^4 - 3*A*a^3*b)*e^3 + (B*b^4*d^3 - 3*(2*B*a*b^3 - A*b^4)*d
^2*e + 3*(3*B*a^2*b^2 - 2*A*a*b^3)*d*e^2 - (4*B*a^3*b - 3*A*a^2*b
^2)*e^3)*x)*log(b*x + a))/(b^6*x + a*b^5)
```

Sympy [A] time = 7.2904, size = 250, normalized size = 1.72

$$\frac{Be^3x^3}{3b^2} - \frac{-Aa^3be^3 + 3Aa^2b^2de^2 - 3Aab^3d^2e + Ab^4d^3 + Ba^4e^3 - 3Ba^3bde^2 + 3Ba^2b^2d^2e - Bab^3d^3}{ab^5 + b^6x} - \frac{x^2\left(-Abe^3 + 2Bae^3 - 3Bbde^2\right)}{2b^3} + \frac{x\left(-2Aabe^3 + 3Ab^2de^2 + 3Ba^2e^3 - 6Babde^2 + 3Bb^2d^2e\right)}{b^4} - \frac{(ae-bd)^2\left(-3Abe + 4Bae - Bbd\right)\log(a+bx)}{b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(e*x+d)**3/(b*x+a)**2,x)
```

```
[Out] B*e**3*x**3/(3*b**2) - (-A*a**3*b*e**3 + 3*A*a**2*b**2*d*e**2 - 3
*A*a*b**3*d**2*e + A*b**4*d**3 + B*a**4*e**3 - 3*B*a**3*b*d*e**2
+ 3*B*a**2*b**2*d**2*e - B*a*b**3*d**3)/(a*b**5 + b**6*x) - x**2*
(-A*b*e**3 + 2*B*a*e**3 - 3*B*b*d*e**2)/(2*b**3) + x*(-2*A*a*b*e*
*3 + 3*A*b**2*d*e**2 + 3*B*a**2*e**3 - 6*B*a*b*d*e**2 + 3*B*b**2*
d**2*e)/b**4 - (a*e - b*d)**2*(-3*A*b*e + 4*B*a*e - B*b*d)*log(a
+ b*x)/b**5
```

GIAC/XCAS [A] time = 0.233693, size = 485, normalized size = 3.34

$$\frac{(bx+a)^3\left(2\,Be^3 + \frac{3\left(3\,Bb^2de^2 - 4\,Babe^3 + Ab^2e^3\right)}{(bx+a)b} + \frac{18\left(Bb^4d^2e - 3\,Bab^3de^2 + Ab^4de^2 + 2\,Ba^2b^2e^3 - Aab^3e^3\right)}{(bx+a)^2b^2}\right)}{6\,b^5} - \frac{\left(Bb^3d^3 - 6\,Bab^2d^2e + 3\,Ab^3d^2e + 9\,Ba^2bde^2 - 6\,Aab^2de^2 - 4\,Ba^3e^3 + 3\,Aa^2be^3\right)\ln\left(\frac{|bx+a|}{(bx+a)^2|b|}\right)}{b^5} + \frac{\frac{Bab^6d^3}{bx+a} - \frac{Ab^7d^3}{bx+a} - \frac{3\,Ba^2b^5d^2e}{bx+a} + \frac{3\,Aab^6d^2e}{bx+a} + \frac{3\,Ba^3b^4de^2}{bx+a} - \frac{3\,Aa^2b^5de^2}{bx+a} - \frac{Ba^4b^3e^3}{bx+a} + \frac{Aa^3b^4e^3}{bx+a}}{b^8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^3/(b*x + a)^2,x, algorithm="giac")
```

```
[Out] 1/6*(b*x + a)^3*(2*B*e^3 + 3*(3*B*b^2*d*e^2 - 4*B*a*b*e^3 + A*b^2
*e^3)/((b*x + a)*b) + 18*(B*b^4*d^2*e - 3*B*a*b^3*d*e^2 + A*b^4*d
*e^2 + 2*B*a^2*b^2*e^3 - A*a*b^3*e^3)/((b*x + a)^2*b^2))/b^5 - (B
*b^3*d^3 - 6*B*a*b^2*d^2*e + 3*A*b^3*d^2*e + 9*B*a^2*b*d*e^2 - 6*
A*a*b^2*d*e^2 - 4*B*a^3*e^3 + 3*A*a^2*b*e^3)*ln(abs(b*x + a)/((b*
x + a)^2*abs(b)))/b^5 + (B*a*b^6*d^3/(b*x + a) - A*b^7*d^3/(b*x +
 a) - 3*B*a^2*b^5*d^2*e/(b*x + a) + 3*A*a*b^6*d^2*e/(b*x + a) + 3
*B*a^3*b^4*d*e^2/(b*x + a) - 3*A*a^2*b^5*d*e^2/(b*x + a) - B*a^4*
b^3*e^3/(b*x + a) + A*a^3*b^4*e^3/(b*x + a))/b^8
```

3.1108 $\int \frac{(A+Bx)(d+ex)^2}{(a+bx)^2} dx$

Optimal. Leaf size=99

$$-\frac{(Ab-aB)(bd-ae)^2}{b^4(a+bx)}+\frac{(bd-ae)\log(a+bx)(-3aBe+2Abe+bBd)}{b^4}+\frac{ex(-2aBe+Abe+2bBd)}{b^3}+\frac{Be^2x^2}{2b^2}$$

```
[Out] (e*(2*b*B*d + A*b*e - 2*a*B*e)*x)/b^3 + (B*e^2*x^2)/(2*b^2) - ((A
*b - a*B)*(b*d - a*e)^2)/(b^4*(a + b*x)) + ((b*d - a*e)*(b*B*d +
2*A*b*e - 3*a*B*e)*Log[a + b*x])/b^4
```

Rubi [A] time = 0.215418, antiderivative size = 99, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{(Ab-aB)(bd-ae)^2}{b^4(a+bx)}+\frac{(bd-ae)\log(a+bx)(-3aBe+2Abe+bBd)}{b^4}+\frac{ex(-2aBe+Abe+2bBd)}{b^3}+\frac{Be^2x^2}{2b^2}$$

Antiderivative was successfully verified.

```
[In]  Int[((A + B*x)*(d + e*x)^2)/(a + b*x)^2,x]
```

```
[Out] (e*(2*b*B*d + A*b*e - 2*a*B*e)*x)/b^3 + (B*e^2*x^2)/(2*b^2) - ((A
*b - a*B)*(b*d - a*e)^2)/(b^4*(a + b*x)) + ((b*d - a*e)*(b*B*d +
2*A*b*e - 3*a*B*e)*Log[a + b*x])/b^4
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{Be^2\int x\,dx}{b^2}+\frac{(Abe-2Bae+2Bbd)\int e\,dx}{b^3}-\frac{(ae-bd)(2Abe-3Bae+Bbd)\log(a+bx)}{b^4}-\frac{(Ab-Ba)(ae-bd)^2}{b^4(a+bx)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(e*x+d)**2/(b*x+a)**2,x)
```

```
[Out] B*e**2*Integral(x, x)/b**2 + (A*b*e - 2*B*a*e + 2*B*b*d)*Integral
(e, x)/b**3 - (a*e - b*d)*(2*A*b*e - 3*B*a*e + B*b*d)*log(a + b*x
)/b**4 - (A*b - B*a)*(a*e - b*d)**2/(b**4*(a + b*x))
```

Mathematica [A] time = 0.131049, size = 153, normalized size = 1.55

$$\frac{\log(a+bx)\left(3a^2Be^2-2aAbe^2-4abBde+2Ab^2de+b^2Bd^2\right)}{b^4}+\frac{a^3Be^2-a^2Abe^2-2a^2bBde+2aAb^2de+ab^2Bd^2-Ab^3d^2}{b^4(a+bx)}+\frac{ex(-2aBe+Abe+2bBd)}{b^3}+\frac{Be^2x^2}{2b^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((A + B*x)*(d + e*x)^2)/(a + b*x)^2,x]
```

```
[Out] (e*(2*b*B*d + A*b*e - 2*a*B*e)*x)/b^3 + (B*e^2*x^2)/(2*b^2) + (-(
A*b^3*d^2) + a*b^2*B*d^2 + 2*a*A*b^2*d*e - 2*a^2*b*B*d*e - a^2*A*
b*e^2 + a^3*B*e^2)/(b^4*(a + b*x)) + ((b^2*B*d^2 + 2*A*b^2*d*e -
4*a*b*B*d*e - 2*a*A*b*e^2 + 3*a^2*B*e^2)*Log[a + b*x])/b^4
```

Maple [B] time = 0.013, size = 223, normalized size = 2.3

$$\frac{Be^2x^2}{2\,b^2}+\frac{e^2Ax}{b^2}-2\,\frac{Bae^2x}{b^3}+2\,\frac{eBdx}{b^2}-2\,\frac{\ln\left(bx+a\right)Aae^2}{b^3}+2\,\frac{\ln\left(bx+a\right)Ade}{b^2}+3\,\frac{\ln\left(bx+a\right)Ba^2e^2}{b^4}-4\,\frac{\ln\left(bx+a\right)Bade}{b^3}+\frac{\ln\left(bx+a\right)Bd^2}{b^2}-\frac{a^2Ae^2}{b^3\left(bx+a\right)}+2\,\frac{aAde}{b^2\left(bx+a\right)}-\frac{Ad^2}{b\left(bx+a\right)}+\frac{Ba^3e^2}{b^4\left(bx+a\right)}-2\,\frac{Ba^2de}{b^3\left(bx+a\right)}+\frac{Bad^2}{b^2\left(bx+a\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((B*x+A)*(e*x+d)^2/(b*x+a)^2,x)
```

```
[Out] 1/2*B*e^2*x^2/b^2+e^2/b^2*A*x-2*e^2/b^3*B*a*x+2*e/b^2*B*d*x-2/b^3
*ln(b*x+a)*A*a*e^2+2/b^2*ln(b*x+a)*A*d*e+3/b^4*ln(b*x+a)*B*a^2*e^
2-4/b^3*ln(b*x+a)*B*a*d*e+1/b^2*ln(b*x+a)*B*d^2-1/b^3/(b*x+a)*A*a
^2*e^2+2/b^2/(b*x+a)*A*a*d*e-1/b/(b*x+a)*A*d^2+1/b^4/(b*x+a)*B*a^
3*e^2-2/b^3/(b*x+a)*B*a^2*d*e+1/b^2/(b*x+a)*B*a*d^2
```

Maxima [A] time = 1.35616, size = 213, normalized size = 2.15

$$\frac{\left(Bab^2-Ab^3\right)d^2-2\left(Ba^2b-Aab^2\right)de+\left(Ba^3-Aa^2b\right)e^2}{b^5x+ab^4}+\frac{Bbe^2x^2+2\left(2\,Bbde-(2\,Ba-Ab)e^2\right)x}{2\,b^3}+\frac{\left(Bb^2d^2-2\left(2\,Bab-Ab^2\right)de+\left(3\,Ba^2-2\,Aab\right)e^2\right)\log\left(bx+a\right)}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*(e*x + d)^2/(b*x + a)^2,x, algorithm="maxima")
```

```
[Out] ((B*a*b^2 - A*b^3)*d^2 - 2*(B*a^2*b - A*a*b^2)*d*e + (B*a^3 - A*a
^2*b)*e^2)/(b^5*x + a*b^4) + 1/2*(B*b*e^2*x^2 + 2*(2*B*b*d*e - (2
*B*a - A*b)*e^2)*x)/b^3 + (B*b^2*d^2 - 2*(2*B*a*b - A*b^2)*d*e +
(3*B*a^2 - 2*A*a*b)*e^2)*log(b*x + a)/b^4
```

Fricas [A] time = 0.21542, size = 336, normalized size = 3.39

$$Bb^3e^2x^3+2\left(Bab^2-Ab^3\right)d^2-4\left(Ba^2b-Aab^2\right)de+2\left(Ba^3-Aa^2b\right)e^2+\left(4\,Bb^3de-\left(3\,Bab^2-2\,Ab^3\right)e^2\right)x^2+2\left(2\,Bab^2de-\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*(e*x + d)^2/(b*x + a)^2,x, algorithm="fricas")
```

```
[Out] 1/2*(B*b^3*e^2*x^3 + 2*(B*a*b^2 - A*b^3)*d^2 - 4*(B*a^2*b - A*a*b
^2)*d*e + 2*(B*a^3 - A*a^2*b)*e^2 + (4*B*b^3*d*e - (3*B*a*b^2 - 2
*A*b^3)*e^2)*x^2 + 2*(2*B*a*b^2*d*e - (2*B*a^2*b - A*a*b^2)*e^2)*
x + 2*(B*a*b^2*d^2 - 2*(2*B*a^2*b - A*a*b^2)*d*e + (3*B*a^3 - 2*A
*a^2*b)*e^2 + (B*b^3*d^2 - 2*(2*B*a*b^2 - A*b^3)*d*e + (3*B*a^2*b
 - 2*A*a*b^2)*e^2)*x)*log(b*x + a))/(b^5*x + a*b^4)
```

Sympy [A] time = 4.76636, size = 148, normalized size = 1.49

$$\frac{Be^2x^2}{2b^2}+\frac{-Aa^2be^2+2Aab^2de-Ab^3d^2+Ba^3e^2-2Ba^2bde+Bab^2d^2}{ab^4+b^5x}-\frac{x\left(-Abe^2+2Bae^2-2Bbde\right)}{b^3}+\frac{(ae-bd)\left(-2Abe+3Bae-Bbd\right)\log\left(a+bx\right)}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(e*x+d)**2/(b*x+a)**2,x)
```

```
[Out] B*e**2*x**2/(2*b**2) + (-A*a**2*b*e**2 + 2*A*a*b**2*d*e - A*b**3*
d**2 + B*a**3*e**2 - 2*B*a**2*b*d*e + B*a*b**2*d**2)/(a*b**4 + b*
*5*x) - x*(-A*b*e**2 + 2*B*a*e**2 - 2*B*b*d*e)/b**3 + (a*e - b*d)
*(-2*A*b*e + 3*B*a*e - B*b*d)*log(a + b*x)/b**4
```

GIAC/XCAS [A] time = 0.223935, size = 306, normalized size = 3.09

$$\frac{(bx+a)^2\left(Be^2+\frac{2\,(2\,Bb^2de-3\,Babe^2+Ab^2e^2)}{(bx+a)b}\right)}{2\,b^4}-\frac{\left(Bb^2d^2-4\,Babde+2\,Ab^2de+3\,Ba^2e^2-2\,Aabe^2\right)\ln\left(\frac{|bx+a|}{(bx+a)^2|b|}\right)}{b^4}+\frac{\frac{Bab^4d^2}{bx+a}-\frac{Ab^5d^2}{bx+a}-\frac{2\,Ba^2b^3de}{bx+a}+\frac{2\,Aab^4de}{bx+a}+\frac{Ba^3b^2e^2}{bx+a}-\frac{Aa^2b^3e^2}{bx+a}}{b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^2/(b*x + a)^2,x, algorithm="giac")
```

```
[Out] 1/2*(b*x + a)^2*(B*e^2 + 2*(2*B*b^2*d*e - 3*B*a*b*e^2 + A*b^2*e^2
)/((b*x + a)*b))/b^4 - (B*b^2*d^2 - 4*B*a*b*d*e + 2*A*b^2*d*e + 3
*B*a^2*e^2 - 2*A*a*b*e^2)*ln(abs(b*x + a)/((b*x + a)^2*abs(b)))/b
^4 + (B*a*b^4*d^2/(b*x + a) - A*b^5*d^2/(b*x + a) - 2*B*a^2*b^3*d
*e/(b*x + a) + 2*A*a*b^4*d*e/(b*x + a) + B*a^3*b^2*e^2/(b*x + a)
- A*a^2*b^3*e^2/(b*x + a))/b^6
```

3.1109 $\int \frac{(A+Bx)(d+ex)}{(a+bx)^2}\,dx$

Optimal. Leaf size=60

$$-\frac{(Ab-aB)(bd-ae)}{b^3(a+bx)}+\frac{\log(a+bx)(-2aBe+Abe+bBd)}{b^3}+\frac{Bex}{b^2}$$

```
[Out] (B*e*x)/b^2 - ((A*b - a*B)*(b*d - a*e))/(b^3*(a + b*x)) + ((b*B*d
 + A*b*e - 2*a*B*e)*Log[a + b*x])/b^3
```

Rubi [A] time = 0.121914, antiderivative size = 60, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{(Ab-aB)(bd-ae)}{b^3(a+bx)}+\frac{\log(a+bx)(-2aBe+Abe+bBd)}{b^3}+\frac{Bex}{b^2}$$

Antiderivative was successfully verified.

```
[In]  Int[((A + B*x)*(d + e*x))/(a + b*x)^2,x]
```

```
[Out] (B*e*x)/b^2 - ((A*b - a*B)*(b*d - a*e))/(b^3*(a + b*x)) + ((b*B*d
 + A*b*e - 2*a*B*e)*Log[a + b*x])/b^3
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{e\int B\,dx}{b^2}+\frac{(Abe-2Bae+Bbd)\log{(a+bx)}}{b^3}+\frac{(Ab-Ba)\,(ae-bd)}{b^3\,(a+bx)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(e*x+d)/(b*x+a)**2,x)
```

```
[Out] e*Integral(B, x)/b**2 + (A*b*e - 2*B*a*e + B*b*d)*log(a + b*x)/b*
*3 + (A*b - B*a)*(a*e - b*d)/(b**3*(a + b*x))
```

Mathematica [A] time = 0.0785974, size = 56, normalized size = 0.93

$$\frac{-\frac{(Ab-aB)(bd-ae)}{a+bx}+\log(a+bx)(-2aBe+Abe+bBd)+bBex}{b^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((A + B*x)*(d + e*x))/(a + b*x)^2,x]
```

```
[Out] (b*B*e*x - ((A*b - a*B)*(b*d - a*e))/(a + b*x) + (b*B*d + A*b*e -
 2*a*B*e)*Log[a + b*x])/b^3
```

Maple [A] time = 0.01, size = 106, normalized size = 1.8

$$\frac{Bex}{b^2}+\frac{\ln{(bx+a)}\,Ae}{b^2}-2\,\frac{\ln{(bx+a)}\,Bae}{b^3}+\frac{\ln{(bx+a)}\,Bd}{b^2}+\frac{Aae}{(bx+a)\,b^2}-\frac{Ad}{b\,(bx+a)}-\frac{Ba^2e}{(bx+a)\,b^3}+\frac{Bad}{(bx+a)\,b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(e*x+d)/(b*x+a)^2,x)
```

```
[Out] B*e*x/b^2+1/b^2*ln(b*x+a)*A*e-2/b^3*ln(b*x+a)*B*a*e+1/b^2*ln(b*x+
a)*B*d+1/(b*x+a)/b^2*A*a*e-1/(b*x+a)/b*A*d-1/(b*x+a)/b^3*B*a^2*e+
1/(b*x+a)/b^2*B*a*d
```

Maxima [A] time = 1.35248, size = 104, normalized size = 1.73

$$\frac{Bex}{b^2}+\frac{\left(Bab-Ab^2\right)d-\left(Ba^2-Aab\right)e}{b^4x+ab^3}+\frac{\left(Bbd-\left(2\,Ba-Ab\right)e\right)\log\left(bx+a\right)}{b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)/(b*x + a)^2,x, algorithm="maxima")
```

```
[Out] B*e*x/b^2 + ((B*a*b - A*b^2)*d - (B*a^2 - A*a*b)*e)/(b^4*x + a*b^
3) + (B*b*d - (2*B*a - A*b)*e)*log(b*x + a)/b^3
```

Fricas [A] time = 0.212625, size = 147, normalized size = 2.45

$$\frac{Bb^2ex^2+Babex+\left(Bab-Ab^2\right)d-\left(Ba^2-Aab\right)e+\left(Babd-\left(2\,Ba^2-Aab\right)e+\left(Bb^2d-\left(2\,Bab-Ab^2\right)e\right)x\right)\log\left(bx+a\right)}{b^4x+ab^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)/(b*x + a)^2,x, algorithm="fricas")
```

```
[Out] (B*b^2*e*x^2 + B*a*b*e*x + (B*a*b - A*b^2)*d - (B*a^2 - A*a*b)*e
+ (B*a*b*d - (2*B*a^2 - A*a*b)*e + (B*b^2*d - (2*B*a*b - A*b^2)*e
)*x)*log(b*x + a))/(b^4*x + a*b^3)
```

Sympy [A] time = 2.67258, size = 71, normalized size = 1.18

$$\frac{Bex}{b^2}-\frac{-Aabe+Ab^2d+Ba^2e-Babd}{ab^3+b^4x}-\frac{\left(-Abe+2Bae-Bbd\right)\log\left(a+bx\right)}{b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(e*x+d)/(b*x+a)**2,x)
```

```
[Out] B*e*x/b**2 - (-A*a*b*e + A*b**2*d + B*a**2*e - B*a*b*d)/(a*b**3 +
 b**4*x) - (-A*b*e + 2*B*a*e - B*b*d)*log(a + b*x)/b**3
```

GIAC/XCAS [A] time = 0.244464, size = 158, normalized size = 2.63

$$\frac{(bx+a)Be}{b^3}-\frac{\left(Bbd-2\,Bae+Abe\right)\ln\left(\frac{|bx+a|}{(bx+a)^2|b|}\right)}{b^3}+\frac{\frac{Bab^2d}{bx+a}-\frac{Ab^3d}{bx+a}-\frac{Ba^2be}{bx+a}+\frac{Aab^2e}{bx+a}}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)/(b*x + a)^2,x, algorithm="giac")
```

```
[Out] (b*x + a)*B*e/b^3 - (B*b*d - 2*B*a*e + A*b*e)*ln(abs(b*x + a)/((b
*x + a)^2*abs(b)))/b^3 + (B*a*b^2*d/(b*x + a) - A*b^3*d/(b*x + a)
 - B*a^2*b*e/(b*x + a) + A*a*b^2*e/(b*x + a))/b^4
```

3.1110 $\int \frac{A+Bx}{(a+bx)^2}\,dx$

Optimal. Leaf size=32

$$\frac{B\log(a+bx)}{b^2}-\frac{Ab-aB}{b^2(a+bx)}$$

```
[Out] -((A*b - a*B)/(b^2*(a + b*x))) + (B*Log[a + b*x])/b^2
```

Rubi [A] time = 0.0508162, antiderivative size = 32, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 13, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.077

$$\frac{B\log(a+bx)}{b^2}-\frac{Ab-aB}{b^2(a+bx)}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(a + b*x)^2,x]

[Out] -((A*b - a*B)/(b^2*(a + b*x))) + (B*Log[a + b*x])/b^2
```

Rubi in Sympy [A] time = 7.95116, size = 26, normalized size = 0.81

$$\frac{B\log\left(a+bx\right)}{b^2}-\frac{Ab-Ba}{b^2\left(a+bx\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(b*x+a)**2,x)

[Out] B*log(a + b*x)/b**2 - (A*b - B*a)/(b**2*(a + b*x))
```

Mathematica [A] time = 0.0194492, size = 31, normalized size = 0.97

$$\frac{aB-Ab}{b^2(a+bx)}+\frac{B\log(a+bx)}{b^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(a + b*x)^2,x]

[Out] (-(A*b) + a*B)/(b^2*(a + b*x)) + (B*Log[a + b*x])/b^2
```

Maple [A] time = 0.003, size = 39, normalized size = 1.2

$$\frac{B\ln\left(bx+a\right)}{b^2}-\frac{A}{b\left(bx+a\right)}+\frac{Ba}{\left(bx+a\right)b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(b*x+a)^2,x)

[Out] B*ln(b*x+a)/b^2-1/(b*x+a)/b*A+1/(b*x+a)/b^2*B*a
```

Maxima [A] time = 1.34647, size = 46, normalized size = 1.44

$$\frac{Ba - Ab}{b^3x + ab^2} + \frac{B\log(bx + a)}{b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(b*x + a)^2,x, algorithm="maxima")
```

```
[Out] (B*a - A*b)/(b^3*x + a*b^2) + B*log(b*x + a)/b^2
```

Fricas [A] time = 0.216087, size = 50, normalized size = 1.56

$$\frac{Ba - Ab + (Bbx + Ba)\log(bx + a)}{b^3x + ab^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(b*x + a)^2,x, algorithm="fricas")
```

```
[Out] (B*a - A*b + (B*b*x + B*a)*log(b*x + a))/(b^3*x + a*b^2)
```

Sympy [A] time = 1.39364, size = 27, normalized size = 0.84

$$\frac{B\log(a + bx)}{b^2} + \frac{-Ab + Ba}{ab^2 + b^3x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(b*x+a)**2,x)
```

```
[Out] B*log(a + b*x)/b**2 + (-A*b + B*a)/(a*b**2 + b**3*x)
```

GIAC/XCAS [A] time = 0.224075, size = 77, normalized size = 2.41

$$-\frac{B\left(\frac{\ln\left(\frac{|bx+a|}{(bx+a)^2|b|}\right)}{b} - \frac{a}{(bx+a)b}\right)}{b} - \frac{A}{(bx + a)b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(b*x + a)^2,x, algorithm="giac")
```

```
[Out] -B*(ln(abs(b*x + a)/((b*x + a)^2*abs(b)))/b - a/((b*x + a)*b))/b
- A/((b*x + a)*b)
```

3.1111 $\int \frac{A+Bx}{(a+bx)^2(d+ex)}\,dx$

Optimal. Leaf size=82

$$-\frac{Ab-aB}{b(a+bx)(bd-ae)}+\frac{\log(a+bx)(Bd-Ae)}{(bd-ae)^2}-\frac{(Bd-Ae)\log(d+ex)}{(bd-ae)^2}$$

```
[Out] -((A*b - a*B)/(b*(b*d - a*e)*(a + b*x))) + ((B*d - A*e)*Log[a + b
*x])/(b*d - a*e)^2 - ((B*d - A*e)*Log[d + e*x])/(b*d - a*e)^2
```

Rubi [A] time = 0.136209, antiderivative size = 82, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{Ab-aB}{b(a+bx)(bd-ae)}+\frac{\log(a+bx)(Bd-Ae)}{(bd-ae)^2}-\frac{(Bd-Ae)\log(d+ex)}{(bd-ae)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/((a + b*x)^2*(d + e*x)),x]
```

```
[Out] -((A*b - a*B)/(b*(b*d - a*e)*(a + b*x))) + ((B*d - A*e)*Log[a + b
*x])/(b*d - a*e)^2 - ((B*d - A*e)*Log[d + e*x])/(b*d - a*e)^2
```

Rubi in Sympy [A] time = 21.593, size = 63, normalized size = 0.77

$$-\frac{(Ae-Bd)\log{(a+bx)}}{(ae-bd)^2}+\frac{(Ae-Bd)\log{(d+ex)}}{(ae-bd)^2}+\frac{Ab-Ba}{b\,(a+bx)\,(ae-bd)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(b*x+a)**2/(e*x+d),x)
```

```
[Out] -(A*e - B*d)*log(a + b*x)/(a*e - b*d)**2 + (A*e - B*d)*log(d + e*
x)/(a*e - b*d)**2 + (A*b - B*a)/(b*(a + b*x)*(a*e - b*d))
```

Mathematica [A] time = 0.105662, size = 69, normalized size = 0.84

$$\frac{\frac{(aB-Ab)(bd-ae)}{b(a+bx)}+\log(a+bx)(Bd-Ae)+(Ae-Bd)\log(d+ex)}{(bd-ae)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/((a + b*x)^2*(d + e*x)),x]
```

```
[Out] (((-(A*b) + a*B)*(b*d - a*e))/(b*(a + b*x)) + (B*d - A*e)*Log[a +
 b*x] + (-(B*d) + A*e)*Log[d + e*x])/(b*d - a*e)^2
```

Maple [A] time = 0.02, size = 123, normalized size = 1.5

$$\frac{\ln{(ex+d)}\,Ae}{(ae-bd)^2}-\frac{\ln{(ex+d)}\,Bd}{(ae-bd)^2}+\frac{A}{(ae-bd)\,(bx+a)}-\frac{Ba}{b\,(ae-bd)\,(bx+a)}-\frac{\ln{(bx+a)}\,Ae}{(ae-bd)^2}+\frac{\ln{(bx+a)}\,Bd}{(ae-bd)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(b*x+a)^2/(e*x+d),x)
```

```
[Out] 1/(a*e-b*d)^2*ln(e*x+d)*A*e-1/(a*e-b*d)^2*ln(e*x+d)*B*d+1/(a*e-b*
d)/(b*x+a)*A-1/(a*e-b*d)/b/(b*x+a)*B*a-1/(a*e-b*d)^2*ln(b*x+a)*A*
e+1/(a*e-b*d)^2*ln(b*x+a)*B*d
```

Maxima [A] time = 1.34958, size = 159, normalized size = 1.94

$$\frac{(Bd-Ae)\log(bx+a)}{b^2d^2-2\,abde+a^2e^2}-\frac{(Bd-Ae)\log(ex+d)}{b^2d^2-2\,abde+a^2e^2}+\frac{Ba-Ab}{ab^2d-a^2be+(b^3d-ab^2e)x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^2*(e*x + d)),x, algorithm="maxima")
```

```
[Out] (B*d - A*e)*log(b*x + a)/(b^2*d^2 - 2*a*b*d*e + a^2*e^2) - (B*d -
 A*e)*log(e*x + d)/(b^2*d^2 - 2*a*b*d*e + a^2*e^2) + (B*a - A*b)/
(a*b^2*d - a^2*b*e + (b^3*d - a*b^2*e)*x)
```

Fricas [A] time = 0.214531, size = 212, normalized size = 2.59

$$\frac{\left(Bab-Ab^2\right)d-\left(Ba^2-Aab\right)e+\left(Babd-Aabe+\left(Bb^2d-Ab^2e\right)x\right)\log(bx+a)-\left(Babd-Aabe+\left(Bb^2d-Ab^2e\right)x\right)\log(e}{ab^3d^2-2\,a^2b^2de+a^3be^2+(b^4d^2-2\,ab^3de+a^2b^2e^2)x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^2*(e*x + d)),x, algorithm="fricas")
```

```
[Out] ((B*a*b - A*b^2)*d - (B*a^2 - A*a*b)*e + (B*a*b*d - A*a*b*e + (B*
b^2*d - A*b^2*e)*x)*log(b*x + a) - (B*a*b*d - A*a*b*e + (B*b^2*d
- A*b^2*e)*x)*log(e*x + d))/(a*b^3*d^2 - 2*a^2*b^2*d*e + a^3*b*e^
2 + (b^4*d^2 - 2*a*b^3*d*e + a^2*b^2*e^2)*x)
```

Sympy [A] time = 4.78678, size = 355, normalized size = 4.33

$$-\frac{-Ab+Ba}{a^2be-ab^2d+x\,(ab^2e-b^3d)}-\frac{(-Ae+Bd)\log\left(x+\frac{-Aae^2-Abde+Bade+Bbd^2-\frac{a^3e^3(-Ae+Bd)}{(ae-bd)^2}+\frac{3a^2bde^2(-Ae+Bd)}{(ae-bd)^2}-\frac{3ab^2d^2e(-Ae+Bd)}{(ae-bd)^2}+\frac{b^3d^3(-Ae+Bd)}{(ae-bd)^2}}{-2Abe^2+2Bbde}\right)}{(ae-bd)^2}+\frac{(-Ae+Bd)\log\left(x+\frac{-Aae^2-Abde+Bade+Bbd^2+\frac{a^3e^3(-Ae+Bd)}{(ae-bd)^2}-\frac{3a^2bde^2(-Ae+Bd)}{(ae-bd)^2}+\frac{3ab^2d^2e(-Ae+Bd)}{(ae-bd)^2}-\frac{b^3d^3(-Ae+Bd)}{(ae-bd)^2}}{-2Abe^2+2Bbde}\right)}{(ae-bd)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(b*x+a)**2/(e*x+d),x)
```

```
[Out] -(-A*b + B*a)/(a**2*b*e - a*b**2*d + x*(a*b**2*e - b**3*d)) - (-A
*e + B*d)*log(x + (-A*a*e**2 - A*b*d*e + B*a*d*e + B*b*d**2 - a**
3*e**3*(-A*e + B*d)/(a*e - b*d)**2 + 3*a**2*b*d*e**2*(-A*e + B*d)
/(a*e - b*d)**2 - 3*a*b**2*d**2*e*(-A*e + B*d)/(a*e - b*d)**2 + b
**3*d**3*(-A*e + B*d)/(a*e - b*d)**2)/(-2*A*b*e**2 + 2*B*b*d*e))/
(a*e - b*d)**2 + (-A*e + B*d)*log(x + (-A*a*e**2 - A*b*d*e + B*a*
d*e + B*b*d**2 + a**3*e**3*(-A*e + B*d)/(a*e - b*d)**2 - 3*a**2*b
*d*e**2*(-A*e + B*d)/(a*e - b*d)**2 + 3*a*b**2*d**2*e*(-A*e + B*d
)/(a*e - b*d)**2 - b**3*d**3*(-A*e + B*d)/(a*e - b*d)**2)/(-2*A*b
```

```
*e**2 + 2*B*b*d*e))/(a*e - b*d)**2
```

GIAC/XCAS [A] time = 0.238036, size = 143, normalized size = 1.74

$$-\frac{(Bbd-Abe)\ln\left(\left|-\frac{bd}{bx+a}+\frac{ae}{bx+a}-e\right|\right)}{b^3d^2-2\,ab^2de+a^2be^2}+\frac{\frac{Ba}{bx+a}-\frac{Ab}{bx+a}}{b^2d-abe}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^2*(e*x + d)),x, algorithm="giac")
```

```
[Out] -(B*b*d - A*b*e)*ln(abs(-b*d/(b*x + a) + a*e/(b*x + a) - e))/(b^3
*d^2 - 2*a*b^2*d*e + a^2*b*e^2) + (B*a/(b*x + a) - A*b/(b*x + a))
/(b^2*d - a*b*e)
```

3.1112 $\int \frac{A+Bx}{(a+bx)^2(d+ex)^2}\,dx$

Optimal. Leaf size=117

$$-\frac{Ab-aB}{(a+bx)(bd-ae)^2}+\frac{Bd-Ae}{(d+ex)(bd-ae)^2}+\frac{\log(a+bx)(aBe-2Abe+bBd)}{(bd-ae)^3}-\frac{\log(d+ex)(aBe-2Abe+bBd)}{(bd-ae)^3}$$

```
[Out] -((A*b - a*B)/((b*d - a*e)^2*(a + b*x))) + (B*d - A*e)/((b*d - a*
e)^2*(d + e*x)) + ((b*B*d - 2*A*b*e + a*B*e)*Log[a + b*x])/(b*d -
 a*e)^3 - ((b*B*d - 2*A*b*e + a*B*e)*Log[d + e*x])/(b*d - a*e)^3
```

Rubi [A] time = 0.220394, antiderivative size = 117, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{Ab-aB}{(a+bx)(bd-ae)^2}+\frac{Bd-Ae}{(d+ex)(bd-ae)^2}+\frac{\log(a+bx)(aBe-2Abe+bBd)}{(bd-ae)^3}-\frac{\log(d+ex)(aBe-2Abe+bBd)}{(bd-ae)^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/((a + b*x)^2*(d + e*x)^2),x]
```

```
[Out] -((A*b - a*B)/((b*d - a*e)^2*(a + b*x))) + (B*d - A*e)/((b*d - a*
e)^2*(d + e*x)) + ((b*B*d - 2*A*b*e + a*B*e)*Log[a + b*x])/(b*d -
 a*e)^3 - ((b*B*d - 2*A*b*e + a*B*e)*Log[d + e*x])/(b*d - a*e)^3
```

Rubi in Sympy [A] time = 35.1237, size = 104, normalized size = 0.89

$$\frac{(2Abe-Bae-Bbd)\log{(a+bx)}}{(ae-bd)^3}-\frac{(2Abe-Bae-Bbd)\log{(d+ex)}}{(ae-bd)^3}-\frac{Ae-Bd}{(d+ex)(ae-bd)^2}-\frac{Ab-Ba}{(a+bx)(ae-bd)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(b*x+a)**2/(e*x+d)**2,x)
```

```
[Out] (2*A*b*e - B*a*e - B*b*d)*log(a + b*x)/(a*e - b*d)**3 - (2*A*b*e
- B*a*e - B*b*d)*log(d + e*x)/(a*e - b*d)**3 - (A*e - B*d)/((d +
e*x)*(a*e - b*d)**2) - (A*b - B*a)/((a + b*x)*(a*e - b*d)**2)
```

Mathematica [A] time = 0.181542, size = 103, normalized size = 0.88

$$\frac{\frac{(aB-Ab)(bd-ae)}{a+bx}+\frac{(bd-ae)(Bd-Ae)}{d+ex}+\log(a+bx)(aBe-2Abe+bBd)-\log(d+ex)(aBe-2Abe+bBd)}{(bd-ae)^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/((a + b*x)^2*(d + e*x)^2),x]
```

```
[Out] (((-(A*b) + a*B)*(b*d - a*e))/(a + b*x) + ((b*d - a*e)*(B*d - A*e
))/(d + e*x) + (b*B*d - 2*A*b*e + a*B*e)*Log[a + b*x] - (b*B*d -
2*A*b*e + a*B*e)*Log[d + e*x])/(b*d - a*e)^3
```

Maple [A] time = 0.022, size = 208, normalized size = 1.8

$$-\frac{Ae}{(ae-bd)^{2}(ex+d)}+\frac{Bd}{(ae-bd)^{2}(ex+d)}-2\frac{\ln(ex+d)Abe}{(ae-bd)^{3}}+\frac{\ln(ex+d)Bae}{(ae-bd)^{3}}+\frac{\ln(ex+d)Bbd}{(ae-bd)^{3}}+2\frac{\ln(bx+a)Abe}{(ae-bd)^{3}}-\frac{\ln(bx+a)Bae}{(ae-bd)^{3}}-\frac{\ln(bx+a)Bbd}{(ae-bd)^{3}}-\frac{Ab}{(ae-bd)^{2}(bx+a)}+\frac{Ba}{(ae-bd)^{2}(bx+a)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(b*x+a)^2/(e*x+d)^2,x)
```

```
[Out] -1/(a*e-b*d)^2/(e*x+d)*A*e+1/(a*e-b*d)^2/(e*x+d)*B*d-2/(a*e-b*d)^
3*ln(e*x+d)*A*b*e+1/(a*e-b*d)^3*ln(e*x+d)*B*a*e+1/(a*e-b*d)^3*ln(
e*x+d)*B*b*d+2/(a*e-b*d)^3*ln(b*x+a)*A*b*e-1/(a*e-b*d)^3*ln(b*x+a
)*B*a*e-1/(a*e-b*d)^3*ln(b*x+a)*B*b*d-1/(a*e-b*d)^2/(b*x+a)*A*b+1
/(a*e-b*d)^2/(b*x+a)*B*a
```

Maxima [A] time = 1.36077, size = 346, normalized size = 2.96

$$\frac{(Bbd+(Ba-2\,Ab)e)\log(bx+a)}{b^3d^3-3\,ab^2d^2e+3\,a^2bde^2-a^3e^3}-\frac{(Bbd+(Ba-2\,Ab)e)\log(ex+d)}{b^3d^3-3\,ab^2d^2e+3\,a^2bde^2-a^3e^3}-\frac{Aae-(2\,Ba-Ab)d-(Bbd+(Ba-2\,Ab)e)x}{ab^2d^3-2\,a^2bd^2e+a^3de^2+(b^3d^2e-2\,ab^2de^2+a^2be^3)x^2+(b^3d^3-ab^2d^2e-a^2bde^2+a^3e^3)x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^2*(e*x + d)^2),x, algorithm="maxima")
```

```
[Out] (B*b*d + (B*a - 2*A*b)*e)*log(b*x + a)/(b^3*d^3 - 3*a*b^2*d^2*e +
 3*a^2*b*d*e^2 - a^3*e^3) - (B*b*d + (B*a - 2*A*b)*e)*log(e*x + d
)/(b^3*d^3 - 3*a*b^2*d^2*e + 3*a^2*b*d*e^2 - a^3*e^3) - (A*a*e -
(2*B*a - A*b)*d - (B*b*d + (B*a - 2*A*b)*e)*x)/(a*b^2*d^3 - 2*a^2
*b*d^2*e + a^3*d*e^2 + (b^3*d^2*e - 2*a*b^2*d*e^2 + a^2*b*e^3)*x^
2 + (b^3*d^3 - a*b^2*d^2*e - a^2*b*d*e^2 + a^3*e^3)*x)
```

Fricas [A] time = 0.216946, size = 535, normalized size = 4.57

$$-\frac{2\,Ba^2de-Aa^2e^2-\left(2\,Bab-Ab^2\right)d^2-\left(Bb^2d^2-2\,Ab^2de-\left(Ba^2-2\,Aab\right)e^2\right)x-\left(Babd^2+\left(Ba^2-2\,Aab\right)de+\left(Bb^2de+\left(\right.\right.\right.}{ab^3d^4-3\,a^2b^2d^3e}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^2*(e*x + d)^2),x, algorithm="fricas")
```

```
[Out] -(2*B*a^2*d*e - A*a^2*e^2 - (2*B*a*b - A*b^2)*d^2 - (B*b^2*d^2 -
2*A*b^2*d*e - (B*a^2 - 2*A*a*b)*e^2)*x - (B*a*b*d^2 + (B*a^2 - 2*
A*a*b)*d*e + (B*b^2*d*e + (B*a*b - 2*A*b^2)*e^2)*x^2 + (B*b^2*d^2
 + 2*(B*a*b - A*b^2)*d*e + (B*a^2 - 2*A*a*b)*e^2)*x)*log(b*x + a)
 + (B*a*b*d^2 + (B*a^2 - 2*A*a*b)*d*e + (B*b^2*d*e + (B*a*b - 2*A
*b^2)*e^2)*x^2 + (B*b^2*d^2 + 2*(B*a*b - A*b^2)*d*e + (B*a^2 - 2*
A*a*b)*e^2)*x)*log(e*x + d))/(a*b^3*d^4 - 3*a^2*b^2*d^3*e + 3*a^3
*b*d^2*e^2 - a^4*d*e^3 + (b^4*d^3*e - 3*a*b^3*d^2*e^2 + 3*a^2*b^2
*d*e^3 - a^3*b*e^4)*x^2 + (b^4*d^4 - 2*a*b^3*d^3*e + 2*a^3*b*d*e^
3 - a^4*e^4)*x)
```

Sympy [A] time = 8.65383, size = 706, normalized size = 6.03

$$\frac{-Aae - Abd + 2Bad + x(-2Abe + Bae + Bbd)}{a^3de^2 - 2a^2bd^2e + ab^2d^3 + x^2(a^2be^3 - 2ab^2de^2 + b^3d^2e) + x(a^3e^3 - a^2bde^2 - ab^2d^2e + b^3d^3)} + \frac{(-2Abe + Bae + Bbd)\log\left(x + \frac{-2Aabe^2 - 2Ab^2de + Ba^2e^2 + 2Babde + Bb^2d^2 - \frac{a^4e^4(-2Abe+Bae+Bbd)}{(ae-bd)^3} + \frac{4a^3bde^3(-2Abe+Bae+Bbd)}{(ae-bd)^3} - \frac{6a^2b^2d^2e^2(-2Abe+Bae}{(ae-bd)^3}}{-4Ab^2e^2+2Babe^2+2Bb^2de}\right.}{(ae-bd)^3} - \frac{(-2Abe + Bae + Bbd)\log\left(x + \frac{-2Aabe^2 - 2Ab^2de + Ba^2e^2 + 2Babde + Bb^2d^2 + \frac{a^4e^4(-2Abe+Bae+Bbd)}{(ae-bd)^3} - \frac{4a^3bde^3(-2Abe+Bae+Bbd)}{(ae-bd)^3} + \frac{6a^2b^2d^2e^2(-2Abe+Ba}{(ae-bd)^3}}{-4Ab^2e^2+2Babe^2+2Bb^2de}\right.}{(ae-bd)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(b*x+a)**2/(e*x+d)**2,x)
```

```
[Out] (-A*a*e - A*b*d + 2*B*a*d + x*(-2*A*b*e + B*a*e + B*b*d))/(a**3*d
*e**2 - 2*a**2*b*d**2*e + a*b**2*d**3 + x**2*(a**2*b*e**3 - 2*a*b
**2*d*e**2 + b**3*d**2*e) + x*(a**3*e**3 - a**2*b*d*e**2 - a*b**2
*d**2*e + b**3*d**3)) + (-2*A*b*e + B*a*e + B*b*d)*log(x + (-2*A*
a*b*e**2 - 2*A*b**2*d*e + B*a**2*e**2 + 2*B*a*b*d*e + B*b**2*d**2
 - a**4*e**4*(-2*A*b*e + B*a*e + B*b*d)/(a*e - b*d)**3 + 4*a**3*b
*d*e**3*(-2*A*b*e + B*a*e + B*b*d)/(a*e - b*d)**3 - 6*a**2*b**2*d
**2*e**2*(-2*A*b*e + B*a*e + B*b*d)/(a*e - b*d)**3 + 4*a*b**3*d**
3*e*(-2*A*b*e + B*a*e + B*b*d)/(a*e - b*d)**3 - b**4*d**4*(-2*A*b
*e + B*a*e + B*b*d)/(a*e - b*d)**3)/(-4*A*b**2*e**2 + 2*B*a*b*e**
2 + 2*B*b**2*d*e))/(a*e - b*d)**3 - (-2*A*b*e + B*a*e + B*b*d)*lo
g(x + (-2*A*a*b*e**2 - 2*A*b**2*d*e + B*a**2*e**2 + 2*B*a*b*d*e +
 B*b**2*d**2 + a**4*e**4*(-2*A*b*e + B*a*e + B*b*d)/(a*e - b*d)**
3 - 4*a**3*b*d*e**3*(-2*A*b*e + B*a*e + B*b*d)/(a*e - b*d)**3 + 6
*a**2*b**2*d**2*e**2*(-2*A*b*e + B*a*e + B*b*d)/(a*e - b*d)**3 -
4*a*b**3*d**3*e*(-2*A*b*e + B*a*e + B*b*d)/(a*e - b*d)**3 + b**4*
d**4*(-2*A*b*e + B*a*e + B*b*d)/(a*e - b*d)**3)/(-4*A*b**2*e**2 +
 2*B*a*b*e**2 + 2*B*b**2*d*e))/(a*e - b*d)**3
```

GIAC/XCAS [A] time = 0.232131, size = 273, normalized size = 2.33

$$-\frac{(Bb^2d + Babe - 2\,Ab^2e)\ln\left(\left|-\frac{bd}{bx+a} + \frac{ae}{bx+a} - e\right|\right)}{b^4d^3 - 3\,ab^3d^2e + 3\,a^2b^2de^2 - a^3be^3} + \frac{\frac{Bab^2}{bx+a} - \frac{Ab^3}{bx+a}}{b^4d^2 - 2\,ab^3de + a^2b^2e^2} - \frac{Bbde - Abe^2}{(bd-ae)^3\left(\frac{bd}{bx+a} - \frac{ae}{bx+a} + e\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^2*(e*x + d)^2),x, algorithm="giac")
```

```
[Out] -(B*b^2*d + B*a*b*e - 2*A*b^2*e)*ln(abs(-b*d/(b*x + a) + a*e/(b*x
 + a) - e))/(b^4*d^3 - 3*a*b^3*d^2*e + 3*a^2*b^2*d*e^2 - a^3*b*e^
3) + (B*a*b^2/(b*x + a) - A*b^3/(b*x + a))/(b^4*d^2 - 2*a*b^3*d*e
 + a^2*b^2*e^2) - (B*b*d*e - A*b*e^2)/((b*d - a*e)^3*(b*d/(b*x +
a) - a*e/(b*x + a) + e))
```

3.1113 $\int \frac{A+Bx}{(a+bx)^2(d+ex)^3}\,dx$

Optimal. Leaf size=157

$$-\frac{b(Ab-aB)}{(a+bx)(bd-ae)^3}+\frac{aBe-2Abe+bBd}{(d+ex)(bd-ae)^3}+\frac{Bd-Ae}{2(d+ex)^2(bd-ae)^2}+\frac{b\log(a+bx)(2aBe-3Abe+bBd)}{(bd-ae)^4}-\frac{b\log(d+ex)(2aBe-3Abe+bBd)}{(bd-ae)^4}$$

```
[Out] -((b*(A*b - a*B))/((b*d - a*e)^3*(a + b*x))) + (B*d - A*e)/(2*(b*
d - a*e)^2*(d + e*x)^2) + (b*B*d - 2*A*b*e + a*B*e)/((b*d - a*e)^
3*(d + e*x)) + (b*(b*B*d - 3*A*b*e + 2*a*B*e)*Log[a + b*x])/(b*d
- a*e)^4 - (b*(b*B*d - 3*A*b*e + 2*a*B*e)*Log[d + e*x])/(b*d - a*
e)^4
```

Rubi [A] time = 0.333449, antiderivative size = 157, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{b(Ab-aB)}{(a+bx)(bd-ae)^3}+\frac{aBe-2Abe+bBd}{(d+ex)(bd-ae)^3}+\frac{Bd-Ae}{2(d+ex)^2(bd-ae)^2}+\frac{b\log(a+bx)(2aBe-3Abe+bBd)}{(bd-ae)^4}-\frac{b\log(d+ex)(2aBe-3Abe+bBd)}{(bd-ae)^4}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/((a + b*x)^2*(d + e*x)^3),x]
```

```
[Out] -((b*(A*b - a*B))/((b*d - a*e)^3*(a + b*x))) + (B*d - A*e)/(2*(b*
d - a*e)^2*(d + e*x)^2) + (b*B*d - 2*A*b*e + a*B*e)/((b*d - a*e)^
3*(d + e*x)) + (b*(b*B*d - 3*A*b*e + 2*a*B*e)*Log[a + b*x])/(b*d
- a*e)^4 - (b*(b*B*d - 3*A*b*e + 2*a*B*e)*Log[d + e*x])/(b*d - a*
e)^4
```

Rubi in Sympy [A] time = 57.6403, size = 146, normalized size = 0.93

$$-\frac{b\,(3Abe-2Bae-Bbd)\log{(a+bx)}}{(ae-bd)^4}+\frac{b\,(3Abe-2Bae-Bbd)\log{(d+ex)}}{(ae-bd)^4}+\frac{b\,(Ab-Ba)}{(a+bx)\,(ae-bd)^3}+\frac{2Abe-Bae-Bbd}{(d+ex)\,(ae-bd)^3}-\frac{Ae-Bd}{2\,(d+ex)^2\,(ae-bd)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(b*x+a)**2/(e*x+d)**3,x)
```

```
[Out] -b*(3*A*b*e - 2*B*a*e - B*b*d)*log(a + b*x)/(a*e - b*d)**4 + b*(3
*A*b*e - 2*B*a*e - B*b*d)*log(d + e*x)/(a*e - b*d)**4 + b*(A*b -
B*a)/((a + b*x)*(a*e - b*d)**3) + (2*A*b*e - B*a*e - B*b*d)/((d +
 e*x)*(a*e - b*d)**3) - (A*e - B*d)/(2*(d + e*x)**2*(a*e - b*d)**
2)
```

Mathematica [A] time = 0.169474, size = 146, normalized size = 0.93

$$\frac{\frac{(bd-ae)^2(Bd-Ae)}{(d+ex)^2}-\frac{2b(Ab-aB)(bd-ae)}{a+bx}+\frac{2(bd-ae)(aBe-2Abe+bBd)}{d+ex}+2b\log(a+bx)(2aBe-3Abe+bBd)-2b\log(d+ex)(2aBe-3}{2(bd-ae)^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/((a + b*x)^2*(d + e*x)^3),x]
```

```
[Out] ((-2*b*(A*b - a*B)*(b*d - a*e))/(a + b*x) + ((b*d - a*e)^2*(B*d -
 A*e))/(d + e*x)^2 + (2*(b*d - a*e)*(b*B*d - 2*A*b*e + a*B*e))/(d
 + e*x) + 2*b*(b*B*d - 3*A*b*e + 2*a*B*e)*Log[a + b*x] - 2*b*(b*B
*d - 3*A*b*e + 2*a*B*e)*Log[d + e*x])/(2*(b*d - a*e)^4)
```

Maple [A] time = 0.022, size = 289, normalized size = 1.8

$$-\frac{Ae}{2\,(ae-bd)^2\,(ex+d)^2}+\frac{Bd}{2\,(ae-bd)^2\,(ex+d)^2}+3\,\frac{b^2\ln(ex+d)\,Ae}{(ae-bd)^4}-2\,\frac{b\ln(ex+d)\,Bae}{(ae-bd)^4}-\frac{b^2\ln(ex+d)\,Bd}{(ae-bd)^4}+2\,\frac{Abe}{(ae-bd)^3\,(ex+d)}-\frac{Bae}{(ae-bd)^3\,(ex+d)}-\frac{Bbd}{(ae-bd)^3\,(ex+d)}-3\,\frac{b^2\ln(bx+a)\,Ae}{(ae-bd)^4}+2\,\frac{b\ln(bx+a)\,Bae}{(ae-bd)^4}+\frac{b^2\ln(bx+a)\,Bd}{(ae-bd)^4}+\frac{b^2A}{(ae-bd)^3\,(bx+a)}-\frac{Bba}{(ae-bd)^3\,(bx+a)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(b*x+a)^2/(e*x+d)^3,x)
```

```
[Out] -1/2/(a*e-b*d)^2/(e*x+d)^2*A*e+1/2/(a*e-b*d)^2/(e*x+d)^2*B*d+3*b^
2/(a*e-b*d)^4*ln(e*x+d)*A*e-2*b/(a*e-b*d)^4*ln(e*x+d)*B*a*e-b^2/(
a*e-b*d)^4*ln(e*x+d)*B*d+2/(a*e-b*d)^3/(e*x+d)*A*b*e-1/(a*e-b*d)^
3/(e*x+d)*B*a*e-1/(a*e-b*d)^3/(e*x+d)*B*b*d-3*b^2/(a*e-b*d)^4*ln(
b*x+a)*A*e+2*b/(a*e-b*d)^4*ln(b*x+a)*B*a*e+b^2/(a*e-b*d)^4*ln(b*x
+a)*B*d+b^2/(a*e-b*d)^3/(b*x+a)*A-b/(a*e-b*d)^3/(b*x+a)*B*a
```

Maxima [A] time = 1.3946, size = 647, normalized size = 4.12

$$\frac{\left(Bb^2d+\left(2\,Bab-3\,Ab^2\right)e\right)\log(bx+a)}{b^4d^4-4\,ab^3d^3e+6\,a^2b^2d^2e^2-4\,a^3bde^3+a^4e^4}-\frac{\left(Bb^2d+\left(2\,Bab-3\,Ab^2\right)e\right)\log(ex+d)}{b^4d^4-4\,ab^3d^3e+6\,a^2b^2d^2e^2-4\,a^3bde^3+a^4e^4}+\frac{Aa^2e^2+\left(5\,Bab-2\,Ab^2\right)d^2+\left(Ba^2-5\,Aab\right)de+2\left(Bb^2de+\left(2\,Bab-3\,Ab^2\right)e^2\right)x^2+\left(3\,Bb^2\cdots\right.}{2\left(ab^3d^5-3\,a^2b^2d^4e+3\,a^3bd^3e^2-a^4d^2e^3+\left(b^4d^3e^2-3\,ab^3d^2e^3+3\,a^2b^2de^4-a^3be^5\right)x^3+\left(2\,b^4d^4e-5\,ab^3d^3e^2+3\,a^2b^2d^2\cdots\right.\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^2*(e*x + d)^3),x, algorithm="maxima")
```

```
[Out] (B*b^2*d + (2*B*a*b - 3*A*b^2)*e)*log(b*x + a)/(b^4*d^4 - 4*a*b^3
*d^3*e + 6*a^2*b^2*d^2*e^2 - 4*a^3*b*d*e^3 + a^4*e^4) - (B*b^2*d
+ (2*B*a*b - 3*A*b^2)*e)*log(e*x + d)/(b^4*d^4 - 4*a*b^3*d^3*e +
6*a^2*b^2*d^2*e^2 - 4*a^3*b*d*e^3 + a^4*e^4) + 1/2*(A*a^2*e^2 + (
5*B*a*b - 2*A*b^2)*d^2 + (B*a^2 - 5*A*a*b)*d*e + 2*(B*b^2*d*e + (
2*B*a*b - 3*A*b^2)*e^2)*x^2 + (3*B*b^2*d^2 + (7*B*a*b - 9*A*b^2)*
d*e + (2*B*a^2 - 3*A*a*b)*e^2)*x)/(a*b^3*d^5 - 3*a^2*b^2*d^4*e +
3*a^3*b*d^3*e^2 - a^4*d^2*e^3 + (b^4*d^3*e^2 - 3*a*b^3*d^2*e^3 +
3*a^2*b^2*d*e^4 - a^3*b*e^5)*x^3 + (2*b^4*d^4*e - 5*a*b^3*d^3*e^2
 + 3*a^2*b^2*d^2*e^3 + a^3*b*d*e^4 - a^4*e^5)*x^2 + (b^4*d^5 - a*
b^3*d^4*e - 3*a^2*b^2*d^3*e^2 + 5*a^3*b*d^2*e^3 - 2*a^4*d*e^4)*x)
```

Fricas [A] time = 0.244846, size = 1081, normalized size = 6.89

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^2*(e*x + d)^3),x, algorithm="fricas")
```

```
[Out] -1/2*(A*a^3*e^3 - (5*B*a*b^2 - 2*A*b^3)*d^3 + (4*B*a^2*b + 3*A*a*
b^2)*d^2*e + (B*a^3 - 6*A*a^2*b)*d*e^2 - 2*(B*b^3*d^2*e + (B*a*b^
2 - 3*A*b^3)*d*e^2 - (2*B*a^2*b - 3*A*a*b^2)*e^3)*x^2 - (3*B*b^3*
d^3 + (4*B*a*b^2 - 9*A*b^3)*d^2*e - (5*B*a^2*b - 6*A*a*b^2)*d*e^2
 - (2*B*a^3 - 3*A*a^2*b)*e^3)*x - 2*(B*a*b^2*d^3 + (2*B*a^2*b - 3
*A*a*b^2)*d^2*e + (B*b^3*d*e^2 + (2*B*a*b^2 - 3*A*b^3)*e^3)*x^3 +
 (2*B*b^3*d^2*e + (5*B*a*b^2 - 6*A*b^3)*d*e^2 + (2*B*a^2*b - 3*A*
a*b^2)*e^3)*x^2 + (B*b^3*d^3 + (4*B*a*b^2 - 3*A*b^3)*d^2*e + 2*(2
*B*a^2*b - 3*A*a*b^2)*d*e^2)*x)*log(b*x + a) + 2*(B*a*b^2*d^3 + (
2*B*a^2*b - 3*A*a*b^2)*d^2*e + (B*b^3*d*e^2 + (2*B*a*b^2 - 3*A*b^
3)*e^3)*x^3 + (2*B*b^3*d^2*e + (5*B*a*b^2 - 6*A*b^3)*d*e^2 + (2*B
*a^2*b - 3*A*a*b^2)*e^3)*x^2 + (B*b^3*d^3 + (4*B*a*b^2 - 3*A*b^3)
*d^2*e + 2*(2*B*a^2*b - 3*A*a*b^2)*d*e^2)*x)*log(e*x + d))/(a*b^4
*d^6 - 4*a^2*b^3*d^5*e + 6*a^3*b^2*d^4*e^2 - 4*a^4*b*d^3*e^3 + a^
5*d^2*e^4 + (b^5*d^4*e^2 - 4*a*b^4*d^3*e^3 + 6*a^2*b^3*d^2*e^4 -
4*a^3*b^2*d*e^5 + a^4*b*e^6)*x^3 + (2*b^5*d^5*e - 7*a*b^4*d^4*e^2
 + 8*a^2*b^3*d^3*e^3 - 2*a^3*b^2*d^2*e^4 - 2*a^4*b*d*e^5 + a^5*e^
6)*x^2 + (b^5*d^6 - 2*a*b^4*d^5*e - 2*a^2*b^3*d^4*e^2 + 8*a^3*b^2
*d^3*e^3 - 7*a^4*b*d^2*e^4 + 2*a^5*d*e^5)*x)
```

Sympy [A] time = 13.7414, size = 1066, normalized size = 6.79

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(b*x+a)**2/(e*x+d)**3,x)
```

```
[Out] -b*(-3*A*b*e + 2*B*a*e + B*b*d)*log(x + (-3*A*a*b**2*e**2 - 3*A*b
**3*d*e + 2*B*a**2*b*e**2 + 3*B*a*b**2*d*e + B*b**3*d**2 - a**5*b
*e**5*(-3*A*b*e + 2*B*a*e + B*b*d)/(a*e - b*d)**4 + 5*a**4*b**2*d
*e**4*(-3*A*b*e + 2*B*a*e + B*b*d)/(a*e - b*d)**4 - 10*a**3*b**3*
d**2*e**3*(-3*A*b*e + 2*B*a*e + B*b*d)/(a*e - b*d)**4 + 10*a**2*b
**4*d**3*e**2*(-3*A*b*e + 2*B*a*e + B*b*d)/(a*e - b*d)**4 - 5*a*b
**5*d**4*e*(-3*A*b*e + 2*B*a*e + B*b*d)/(a*e - b*d)**4 + b**6*d**
5*(-3*A*b*e + 2*B*a*e + B*b*d)/(a*e - b*d)**4)/(-6*A*b**3*e**2 +
4*B*a*b**2*e**2 + 2*B*b**3*d*e))/(a*e - b*d)**4 + b*(-3*A*b*e + 2
*B*a*e + B*b*d)*log(x + (-3*A*a*b**2*e**2 - 3*A*b**3*d*e + 2*B*a*
*2*b*e**2 + 3*B*a*b**2*d*e + B*b**3*d**2 + a**5*b*e**5*(-3*A*b*e
+ 2*B*a*e + B*b*d)/(a*e - b*d)**4 - 5*a**4*b**2*d*e**4*(-3*A*b*e
+ 2*B*a*e + B*b*d)/(a*e - b*d)**4 + 10*a**3*b**3*d**2*e**3*(-3*A*
b*e + 2*B*a*e + B*b*d)/(a*e - b*d)**4 - 10*a**2*b**4*d**3*e**2*(-
3*A*b*e + 2*B*a*e + B*b*d)/(a*e - b*d)**4 + 5*a*b**5*d**4*e*(-3*A
*b*e + 2*B*a*e + B*b*d)/(a*e - b*d)**4 - b**6*d**5*(-3*A*b*e + 2*
B*a*e + B*b*d)/(a*e - b*d)**4)/(-6*A*b**3*e**2 + 4*B*a*b**2*e**2
+ 2*B*b**3*d*e))/(a*e - b*d)**4 - (A*a**2*e**2 - 5*A*a*b*d*e - 2*
A*b**2*d**2 + B*a**2*d*e + 5*B*a*b*d**2 + x**2*(-6*A*b**2*e**2 +
4*B*a*b*e**2 + 2*B*b**2*d*e) + x*(-3*A*a*b*e**2 - 9*A*b**2*d*e +
2*B*a**2*e**2 + 7*B*a*b*d*e + 3*B*b**2*d**2))/(2*a**4*d**2*e**3 -
 6*a**3*b*d**3*e**2 + 6*a**2*b**2*d**4*e - 2*a*b**3*d**5 + x**3*(
2*a**3*b*e**5 - 6*a**2*b**2*d*e**4 + 6*a*b**3*d**2*e**3 - 2*b**4*
d**3*e**2) + x**2*(2*a**4*e**5 - 2*a**3*b*d*e**4 - 6*a**2*b**2*d*
*2*e**3 + 10*a*b**3*d**3*e**2 - 4*b**4*d**4*e) + x*(4*a**4*d*e**4
 - 10*a**3*b*d**2*e**3 + 6*a**2*b**2*d**3*e**2 + 2*a*b**3*d**4*e
- 2*b**4*d**5))
```

GIAC/XCAS [A] time = 0.239668, size = 413, normalized size = 2.63

$$-\frac{\left(Bb^{3}d+2\,Bab^{2}e-3\,Ab^{3}e\right)\ln\left(\left|-\frac{bd}{bx+a}+\frac{ae}{bx+a}-e\right|\right)}{b^{5}d^{4}-4\,ab^{4}d^{3}e+6\,a^{2}b^{3}d^{2}e^{2}-4\,a^{3}b^{2}de^{3}+a^{4}be^{4}}+\frac{\frac{Bab^{4}}{bx+a}-\frac{Ab^{5}}{bx+a}}{b^{6}d^{3}-3\,ab^{5}d^{2}e+3\,a^{2}b^{4}de^{2}-a^{3}b^{3}e^{3}}-\frac{3\,Bb^{2}de^{2}+2\,Babe^{3}-5\,Ab^{2}e^{3}+\frac{2\,\left(2\,Bb^{4}d^{2}e-Bab^{3}de^{2}-3\,Ab^{4}de^{2}-Ba^{2}b^{2}e^{3}+3\,Aab^{3}e^{3}\right)}{(bx+a)b}}{2\,(bd-ae)^{4}\left(\frac{bd}{bx+a}-\frac{ae}{bx+a}+e\right)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^2*(e*x + d)^3),x, algorithm="giac")
```

```
[Out] -(B*b^3*d + 2*B*a*b^2*e - 3*A*b^3*e)*ln(abs(-b*d/(b*x + a) + a*e/
(b*x + a) - e))/(b^5*d^4 - 4*a*b^4*d^3*e + 6*a^2*b^3*d^2*e^2 - 4*
a^3*b^2*d*e^3 + a^4*b*e^4) + (B*a*b^4/(b*x + a) - A*b^5/(b*x + a)
)/(b^6*d^3 - 3*a*b^5*d^2*e + 3*a^2*b^4*d*e^2 - a^3*b^3*e^3) - 1/2
*(3*B*b^2*d*e^2 + 2*B*a*b*e^3 - 5*A*b^2*e^3 + 2*(2*B*b^4*d^2*e -
B*a*b^3*d*e^2 - 3*A*b^4*d*e^2 - B*a^2*b^2*e^3 + 3*A*a*b^3*e^3)/((
b*x + a)*b))/((b*d - a*e)^4*(b*d/(b*x + a) - a*e/(b*x + a) + e)^2
)
```

3.1114 $\int \frac{A+Bx}{(a+bx)^2(d+ex)^4}\,dx$

Optimal. Leaf size=200

$$-\frac{b^2(Ab-aB)}{(a+bx)(bd-ae)^4}+\frac{b^2\log(a+bx)(3aBe-4Abe+bBd)}{(bd-ae)^5}-\frac{b^2\log(d+ex)(3aBe-4Abe+bBd)}{(bd-ae)^5}+\frac{b(2aBe-3Abe+bBd)}{(d+ex)(bd-ae)^4}+\frac{aBe-2Abe+bBd}{2(d+ex)^2(bd-ae)^3}+\frac{Bd-Ae}{3(d+ex)^3(bd-ae)^2}$$

```
[Out] -((b^2*(A*b - a*B))/((b*d - a*e)^4*(a + b*x))) + (B*d - A*e)/(3*(
b*d - a*e)^2*(d + e*x)^3) + (b*B*d - 2*A*b*e + a*B*e)/(2*(b*d - a
*e)^3*(d + e*x)^2) + (b*(b*B*d - 3*A*b*e + 2*a*B*e))/((b*d - a*e)
^4*(d + e*x)) + (b^2*(b*B*d - 4*A*b*e + 3*a*B*e)*Log[a + b*x])/(b
*d - a*e)^5 - (b^2*(b*B*d - 4*A*b*e + 3*a*B*e)*Log[d + e*x])/(b*d
 - a*e)^5
```

Rubi [A] time = 0.467711, antiderivative size = 200, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{b^2(Ab-aB)}{(a+bx)(bd-ae)^4}+\frac{b^2\log(a+bx)(3aBe-4Abe+bBd)}{(bd-ae)^5}-\frac{b^2\log(d+ex)(3aBe-4Abe+bBd)}{(bd-ae)^5}+\frac{b(2aBe-3Abe+bBd)}{(d+ex)(bd-ae)^4}+\frac{aBe-2Abe+bBd}{2(d+ex)^2(bd-ae)^3}+\frac{Bd-Ae}{3(d+ex)^3(bd-ae)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/((a + b*x)^2*(d + e*x)^4),x]
```

```
[Out] -((b^2*(A*b - a*B))/((b*d - a*e)^4*(a + b*x))) + (B*d - A*e)/(3*(
b*d - a*e)^2*(d + e*x)^3) + (b*B*d - 2*A*b*e + a*B*e)/(2*(b*d - a
*e)^3*(d + e*x)^2) + (b*(b*B*d - 3*A*b*e + 2*a*B*e))/((b*d - a*e)
^4*(d + e*x)) + (b^2*(b*B*d - 4*A*b*e + 3*a*B*e)*Log[a + b*x])/(b
*d - a*e)^5 - (b^2*(b*B*d - 4*A*b*e + 3*a*B*e)*Log[d + e*x])/(b*d
 - a*e)^5
```

Rubi in Sympy [A] time = 105.173, size = 189, normalized size = 0.94

$$\frac{b^2\left(4Abe-3Bae-Bbd\right)\log\left(a+bx\right)}{\left(ae-bd\right)^5}-\frac{b^2\left(4Abe-3Bae-Bbd\right)\log\left(d+ex\right)}{\left(ae-bd\right)^5}-\frac{b^2\left(Ab-Ba\right)}{\left(a+bx\right)\left(ae-bd\right)^4}-\frac{b\left(3Abe-2Bae-Bbd\right)}{\left(d+ex\right)\left(ae-bd\right)^4}+\frac{2Abe-Bae-Bbd}{2\left(d+ex\right)^2\left(ae-bd\right)^3}-\frac{Ae-Bd}{3\left(d+ex\right)^3\left(ae-bd\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(b*x+a)**2/(e*x+d)**4,x)
```

```
[Out] b**2*(4*A*b*e - 3*B*a*e - B*b*d)*log(a + b*x)/(a*e - b*d)**5 - b*
*2*(4*A*b*e - 3*B*a*e - B*b*d)*log(d + e*x)/(a*e - b*d)**5 - b**2
*(A*b - B*a)/((a + b*x)*(a*e - b*d)**4) - b*(3*A*b*e - 2*B*a*e -
B*b*d)/((d + e*x)*(a*e - b*d)**4) + (2*A*b*e - B*a*e - B*b*d)/(2*
(d + e*x)**2*(a*e - b*d)**3) - (A*e - B*d)/(3*(d + e*x)**3*(a*e -
 b*d)**2)
```

Mathematica [A] time = 0.244681, size = 188, normalized size = 0.94

$$\frac{-\frac{6b^2(Ab-aB)(bd-ae)}{a+bx}+6b^2\log(a+bx)(3aBe-4Abe+bBd)-6b^2\log(d+ex)(3aBe-4Abe+bBd)+\frac{2(bd-ae)^3(Bd-Ae)}{(d+ex)^3}+\frac{3(bd-a}{}}{6(bd-ae)^5}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/((a + b*x)^2*(d + e*x)^4),x]
```

```
[Out] ((-6*b^2*(A*b - a*B)*(b*d - a*e))/(a + b*x) + (2*(b*d - a*e)^3*(B
*d - A*e))/(d + e*x)^3 + (3*(b*d - a*e)^2*(b*B*d - 2*A*b*e + a*B*
e))/(d + e*x)^2 + (6*b*(b*d - a*e)*(b*B*d - 3*A*b*e + 2*a*B*e))/(
d + e*x) + 6*b^2*(b*B*d - 4*A*b*e + 3*a*B*e)*Log[a + b*x] - 6*b^2
*(b*B*d - 4*A*b*e + 3*a*B*e)*Log[d + e*x])/(6*(b*d - a*e)^5)
```

Maple [A] time = 0.024, size = 364, normalized size = 1.8

$$-\frac{Ae}{3(ae-bd)^2(ex+d)^3}+\frac{Bd}{3(ae-bd)^2(ex+d)^3}-3\frac{b^2Ae}{(ae-bd)^4(ex+d)}+2\frac{Bbae}{(ae-bd)^4(ex+d)}+\frac{b^2Bd}{(ae-bd)^4(ex+d)}+\frac{Abe}{(ae-bd)^3(ex+d)^2}-\frac{Bae}{2(ae-bd)^3(ex+d)^2}-\frac{Bbd}{2(ae-bd)^3(ex+d)^2}-4\frac{b^3\ln(ex+d)Ae}{(ae-bd)^5}+3\frac{b^2\ln(ex+d)Bae}{(ae-bd)^5}+\frac{b^3\ln(ex+d)Bd}{(ae-bd)^5}+4\frac{b^3\ln(bx+a)Ae}{(ae-bd)^5}-3\frac{b^2\ln(bx+a)Bae}{(ae-bd)^5}-\frac{b^3\ln(bx+a)Bd}{(ae-bd)^5}-\frac{b^3A}{(ae-bd)^4(bx+a)}+\frac{Bab^2}{(ae-bd)^4(bx+a)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(b*x+a)^2/(e*x+d)^4,x)
```

```
[Out] -1/3/(a*e-b*d)^2/(e*x+d)^3*A*e+1/3/(a*e-b*d)^2/(e*x+d)^3*B*d-3*b^
2/(a*e-b*d)^4/(e*x+d)*A*e+2*b/(a*e-b*d)^4/(e*x+d)*B*a*e+b^2/(a*e-
b*d)^4/(e*x+d)*B*d+1/(a*e-b*d)^3/(e*x+d)^2*A*b*e-1/2/(a*e-b*d)^3/
(e*x+d)^2*B*a*e-1/2/(a*e-b*d)^3/(e*x+d)^2*B*b*d-4*b^3/(a*e-b*d)^5
*ln(e*x+d)*A*e+3*b^2/(a*e-b*d)^5*ln(e*x+d)*B*a*e+b^3/(a*e-b*d)^5*
ln(e*x+d)*B*d+4*b^3/(a*e-b*d)^5*ln(b*x+a)*A*e-3*b^2/(a*e-b*d)^5*l
n(b*x+a)*B*a*e-b^3/(a*e-b*d)^5*ln(b*x+a)*B*d-b^3/(a*e-b*d)^4/(b*x
+a)*A+b^2/(a*e-b*d)^4/(b*x+a)*B*a
```

Maxima [A] time = 1.42145, size = 1027, normalized size = 5.14

$$\frac{\left(Bb^3d+\left(3\,Bab^2-4\,Ab^3\right)e\right)\log(bx+a)}{b^5d^5-5\,ab^4d^4e+10\,a^2b^3d^3e^2-10\,a^3b^2d^2e^3+5\,a^4bde^4-a^5e^5}-\frac{\left(Bb^3d+\left(3\,Bab^2-4\,Ab^3\right)e\right)\log(ex+d)}{b^5d^5-5\,ab^4d^4e+10\,a^2b^3d^3e^2-10\,a^3b^2d^2e^3+5\,a^4bde^4-a^5e^5}-\frac{2\,Aa^3e^3-\left(17\,Bab^2-6\,Ab^3\right)d^3-2\left(4\,Ba^2b-13\,Aab^2\right)d^2e+\left(Ba^3-10\,Aa^2b\right)de^2-6\,(Bb^3de^2}{6\,(ab^4d^7-4\,a^2b^3d^6e+6\,a^3b^2d^5e^2-4\,a^4bd^4e^3+a^5d^3e^4+(b^5d^4e^3-4\,ab^4d^3e^4+6\,a^2b^3d^2e^5-4\,a^3b^2de^6+a^4be^7)x^4+(3\,b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^2*(e*x + d)^4),x, algorithm="maxima")
```

```
[Out] (B*b^3*d + (3*B*a*b^2 - 4*A*b^3)*e)*log(b*x + a)/(b^5*d^5 - 5*a*b
^4*d^4*e + 10*a^2*b^3*d^3*e^2 - 10*a^3*b^2*d^2*e^3 + 5*a^4*b*d*e^
4 - a^5*e^5) - (B*b^3*d + (3*B*a*b^2 - 4*A*b^3)*e)*log(e*x + d)/(
b^5*d^5 - 5*a*b^4*d^4*e + 10*a^2*b^3*d^3*e^2 - 10*a^3*b^2*d^2*e^3
 + 5*a^4*b*d*e^4 - a^5*e^5) - 1/6*(2*A*a^3*e^3 - (17*B*a*b^2 - 6*
A*b^3)*d^3 - 2*(4*B*a^2*b - 13*A*a*b^2)*d^2*e + (B*a^3 - 10*A*a^2
*b)*d*e^2 - 6*(B*b^3*d*e^2 + (3*B*a*b^2 - 4*A*b^3)*e^3)*x^3 - 3*(
5*B*b^3*d^2*e + 4*(4*B*a*b^2 - 5*A*b^3)*d*e^2 + (3*B*a^2*b - 4*A*
a*b^2)*e^3)*x^2 - (11*B*b^3*d^3 + (41*B*a*b^2 - 44*A*b^3)*d^2*e +
 (23*B*a^2*b - 32*A*a*b^2)*d*e^2 - (3*B*a^3 - 4*A*a^2*b)*e^3)*x)/
(a*b^4*d^7 - 4*a^2*b^3*d^6*e + 6*a^3*b^2*d^5*e^2 - 4*a^4*b*d^4*e^
3 + a^5*d^3*e^4 + (b^5*d^4*e^3 - 4*a*b^4*d^3*e^4 + 6*a^2*b^3*d^2*
e^5 - 4*a^3*b^2*d*e^6 + a^4*b*e^7)*x^4 + (3*b^5*d^5*e^2 - 11*a*b^
4*d^4*e^3 + 14*a^2*b^3*d^3*e^4 - 6*a^3*b^2*d^2*e^5 - a^4*b*d*e^6
```

```
+ a^5*e^7)*x^3 + 3*(b^5*d^6*e - 3*a*b^4*d^5*e^2 + 2*a^2*b^3*d^4*e
^3 + 2*a^3*b^2*d^3*e^4 - 3*a^4*b*d^2*e^5 + a^5*d*e^6)*x^2 + (b^5*
d^7 - a*b^4*d^6*e - 6*a^2*b^3*d^5*e^2 + 14*a^3*b^2*d^4*e^3 - 11*a
^4*b*d^3*e^4 + 3*a^5*d^2*e^5)*x)
```

Fricas [A] time = 0.235141, size = 1646, normalized size = 8.23

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/((b*x + a)^2*(e*x + d)^4),x, algorithm="fricas")
```

```
[Out] 1/6*(2*A*a^4*e^4 + (17*B*a*b^3 - 6*A*b^4)*d^4 - (9*B*a^2*b^2 + 20
*A*a*b^3)*d^3*e - 9*(B*a^3*b - 4*A*a^2*b^2)*d^2*e^2 + (B*a^4 - 12
*A*a^3*b)*d*e^3 + 6*(B*b^4*d^2*e^2 + 2*(B*a*b^3 - 2*A*b^4)*d*e^3
- (3*B*a^2*b^2 - 4*A*a*b^3)*e^4)*x^3 + 3*(5*B*b^4*d^3*e + (11*B*a
*b^3 - 20*A*b^4)*d^2*e^2 - (13*B*a^2*b^2 - 16*A*a*b^3)*d*e^3 - (3
*B*a^3*b - 4*A*a^2*b^2)*e^4)*x^2 + (11*B*b^4*d^4 + 2*(15*B*a*b^3
- 22*A*b^4)*d^3*e - 6*(3*B*a^2*b^2 - 2*A*a*b^3)*d^2*e^2 - 2*(13*B
*a^3*b - 18*A*a^2*b^2)*d*e^3 + (3*B*a^4 - 4*A*a^3*b)*e^4)*x + 6*(
B*a*b^3*d^4 + (3*B*a^2*b^2 - 4*A*a*b^3)*d^3*e + (B*b^4*d*e^3 + (3
*B*a*b^3 - 4*A*b^4)*e^4)*x^4 + (3*B*b^4*d^2*e^2 + 2*(5*B*a*b^3 -
6*A*b^4)*d*e^3 + (3*B*a^2*b^2 - 4*A*a*b^3)*e^4)*x^3 + 3*(B*b^4*d^
3*e + 4*(B*a*b^3 - A*b^4)*d^2*e^2 + (3*B*a^2*b^2 - 4*A*a*b^3)*d*e
^3)*x^2 + (B*b^4*d^4 + 2*(3*B*a*b^3 - 2*A*b^4)*d^3*e + 3*(3*B*a^2
*b^2 - 4*A*a*b^3)*d^2*e^2)*x)*log(b*x + a) - 6*(B*a*b^3*d^4 + (3*
B*a^2*b^2 - 4*A*a*b^3)*d^3*e + (B*b^4*d*e^3 + (3*B*a*b^3 - 4*A*b^
4)*e^4)*x^4 + (3*B*b^4*d^2*e^2 + 2*(5*B*a*b^3 - 6*A*b^4)*d*e^3 +
(3*B*a^2*b^2 - 4*A*a*b^3)*e^4)*x^3 + 3*(B*b^4*d^3*e + 4*(B*a*b^3
- A*b^4)*d^2*e^2 + (3*B*a^2*b^2 - 4*A*a*b^3)*d*e^3)*x^2 + (B*b^4*
d^4 + 2*(3*B*a*b^3 - 2*A*b^4)*d^3*e + 3*(3*B*a^2*b^2 - 4*A*a*b^3)
*d^2*e^2)*x)*log(e*x + d))/(a*b^5*d^8 - 5*a^2*b^4*d^7*e + 10*a^3*
b^3*d^6*e^2 - 10*a^4*b^2*d^5*e^3 + 5*a^5*b*d^4*e^4 - a^6*d^3*e^5
+ (b^6*d^5*e^3 - 5*a*b^5*d^4*e^4 + 10*a^2*b^4*d^3*e^5 - 10*a^3*b^
3*d^2*e^6 + 5*a^4*b^2*d*e^7 - a^5*b*e^8)*x^4 + (3*b^6*d^6*e^2 - 1
4*a*b^5*d^5*e^3 + 25*a^2*b^4*d^4*e^4 - 20*a^3*b^3*d^3*e^5 + 5*a^4
*b^2*d^2*e^6 + 2*a^5*b*d*e^7 - a^6*e^8)*x^3 + 3*(b^6*d^7*e - 4*a*
b^5*d^6*e^2 + 5*a^2*b^4*d^5*e^3 - 5*a^4*b^2*d^3*e^5 + 4*a^5*b*d^2
*e^6 - a^6*d*e^7)*x^2 + (b^6*d^8 - 2*a*b^5*d^7*e - 5*a^2*b^4*d^6*
e^2 + 20*a^3*b^3*d^5*e^3 - 25*a^4*b^2*d^4*e^4 + 14*a^5*b*d^3*e^5
- 3*a^6*d^2*e^6)*x)
```

Sympy [A] time = 21.8248, size = 1445, normalized size = 7.22

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x+A)/(b*x+a)**2/(e*x+d)**4,x)
```

```
[Out] b**2*(-4*A*b*e + 3*B*a*e + B*b*d)*log(x + (-4*A*a*b**3*e**2 - 4*A
*b**4*d*e + 3*B*a**2*b**2*e**2 + 4*B*a*b**3*d*e + B*b**4*d**2 - a
**6*b**2*e**6*(-4*A*b*e + 3*B*a*e + B*b*d)/(a*e - b*d)**5 + 6*a**
5*b**3*d*e**5*(-4*A*b*e + 3*B*a*e + B*b*d)/(a*e - b*d)**5 - 15*a*
*4*b**4*d**2*e**4*(-4*A*b*e + 3*B*a*e + B*b*d)/(a*e - b*d)**5 + 2
0*a**3*b**5*d**3*e**3*(-4*A*b*e + 3*B*a*e + B*b*d)/(a*e - b*d)**5
 - 15*a**2*b**6*d**4*e**2*(-4*A*b*e + 3*B*a*e + B*b*d)/(a*e - b*d
)**5 + 6*a*b**7*d**5*e*(-4*A*b*e + 3*B*a*e + B*b*d)/(a*e - b*d)**
5 - b**8*d**6*(-4*A*b*e + 3*B*a*e + B*b*d)/(a*e - b*d)**5)/(-8*A*
b**4*e**2 + 6*B*a*b**3*e**2 + 2*B*b**4*d*e))/(a*e - b*d)**5 - b**
2*(-4*A*b*e + 3*B*a*e + B*b*d)*log(x + (-4*A*a*b**3*e**2 - 4*A*b*
*4*d*e + 3*B*a**2*b**2*e**2 + 4*B*a*b**3*d*e + B*b**4*d**2 + a**6
*b**2*e**6*(-4*A*b*e + 3*B*a*e + B*b*d)/(a*e - b*d)**5 - 6*a**5*b
**3*d*e**5*(-4*A*b*e + 3*B*a*e + B*b*d)/(a*e - b*d)**5 + 15*a**4*
```

```
b**4*d**2*e**4*(-4*A*b*e + 3*B*a*e + B*b*d)/(a*e - b*d)**5 - 20*a
**3*b**5*d**3*e**3*(-4*A*b*e + 3*B*a*e + B*b*d)/(a*e - b*d)**5 +
15*a**2*b**6*d**4*e**2*(-4*A*b*e + 3*B*a*e + B*b*d)/(a*e - b*d)**
5 - 6*a*b**7*d**5*e*(-4*A*b*e + 3*B*a*e + B*b*d)/(a*e - b*d)**5 +
 b**8*d**6*(-4*A*b*e + 3*B*a*e + B*b*d)/(a*e - b*d)**5)/(-8*A*b**
4*e**2 + 6*B*a*b**3*e**2 + 2*B*b**4*d*e))/(a*e - b*d)**5 + (-2*A*
a**3*e**3 + 10*A*a**2*b*d*e**2 - 26*A*a*b**2*d**2*e - 6*A*b**3*d*
*3 - B*a**3*d*e**2 + 8*B*a**2*b*d**2*e + 17*B*a*b**2*d**3 + x**3*
(-24*A*b**3*e**3 + 18*B*a*b**2*e**3 + 6*B*b**3*d*e**2) + x**2*(-1
2*A*a*b**2*e**3 - 60*A*b**3*d*e**2 + 9*B*a**2*b*e**3 + 48*B*a*b**
2*d*e**2 + 15*B*b**3*d**2*e) + x*(4*A*a**2*b*e**3 - 32*A*a*b**2*d
*e**2 - 44*A*b**3*d**2*e - 3*B*a**3*e**3 + 23*B*a**2*b*d*e**2 + 4
1*B*a*b**2*d**2*e + 11*B*b**3*d**3))/(6*a**5*d**3*e**4 - 24*a**4*
b*d**4*e**3 + 36*a**3*b**2*d**5*e**2 - 24*a**2*b**3*d**6*e + 6*a*
b**4*d**7 + x**4*(6*a**4*b*e**7 - 24*a**3*b**2*d*e**6 + 36*a**2*b
**3*d**2*e**5 - 24*a*b**4*d**3*e**4 + 6*b**5*d**4*e**3) + x**3*(6
*a**5*e**7 - 6*a**4*b*d*e**6 - 36*a**3*b**2*d**2*e**5 + 84*a**2*b
**3*d**3*e**4 - 66*a*b**4*d**4*e**3 + 18*b**5*d**5*e**2) + x**2*(
18*a**5*d*e**6 - 54*a**4*b*d**2*e**5 + 36*a**3*b**2*d**3*e**4 + 3
6*a**2*b**3*d**4*e**3 - 54*a*b**4*d**5*e**2 + 18*b**5*d**6*e) + x
*(18*a**5*d**2*e**5 - 66*a**4*b*d**3*e**4 + 84*a**3*b**2*d**4*e**
3 - 36*a**2*b**3*d**5*e**2 - 6*a*b**4*d**6*e + 6*b**5*d**7))
```

GIAC/XCAS [A] time = 0.240843, size = 571, normalized size = 2.86

$$-\frac{\left(Bb^{4}d+3\,Bab^{3}e-4\,Ab^{4}e\right)\ln\left(\left|-\frac{bd}{bx+a}+\frac{ae}{bx+a}-e\right|\right)}{b^{6}d^{5}-5\,ab^{5}d^{4}e+10\,a^{2}b^{4}d^{3}e^{2}-10\,a^{3}b^{3}d^{2}e^{3}+5\,a^{4}b^{2}de^{4}-a^{5}be^{5}}+\frac{\frac{Bab^{6}}{bx+a}-\frac{Ab^{7}}{bx+a}}{b^{8}d^{4}-4\,ab^{7}d^{3}e+6\,a^{2}b^{6}d^{2}e^{2}-4\,a^{3}b^{5}de^{3}+a^{4}b^{4}e^{4}}-\frac{11\,Bb^{3}de^{3}+15\,Bab^{2}e^{4}-26\,Ab^{3}e^{4}+\frac{3\left(9\,Bb^{5}d^{2}e^{2}+2\,Bab^{4}de^{3}-20\,Ab^{5}de^{3}-11\,Ba^{2}b^{3}e^{4}+20\,Aab^{4}e^{4}\right)}{(bx+a)b}+\frac{18\left(Bb^{7}d^{3}e-Bab^{6}d^{2}e^{2}-2\,Ab^{7}d^{2}e^{2}-Ba^{2}b\right.}{(bx+a}}{6\,(bd-ae)^{5}\left(\frac{bd}{bx+a}-\frac{ae}{bx+a}+e\right)^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^2*(e*x + d)^4),x, algorithm="giac")
```

```
[Out] -(B*b^4*d + 3*B*a*b^3*e - 4*A*b^4*e)*ln(abs(-b*d/(b*x + a) + a*e/
(b*x + a) - e))/(b^6*d^5 - 5*a*b^5*d^4*e + 10*a^2*b^4*d^3*e^2 - 1
0*a^3*b^3*d^2*e^3 + 5*a^4*b^2*d*e^4 - a^5*b*e^5) + (B*a*b^6/(b*x
+ a) - A*b^7/(b*x + a))/(b^8*d^4 - 4*a*b^7*d^3*e + 6*a^2*b^6*d^2*
e^2 - 4*a^3*b^5*d*e^3 + a^4*b^4*e^4) - 1/6*(11*B*b^3*d*e^3 + 15*B
*a*b^2*e^4 - 26*A*b^3*e^4 + 3*(9*B*b^5*d^2*e^2 + 2*B*a*b^4*d*e^3
- 20*A*b^5*d*e^3 - 11*B*a^2*b^3*e^4 + 20*A*a*b^4*e^4)/((b*x + a)*
b) + 18*(B*b^7*d^3*e - B*a*b^6*d^2*e^2 - 2*A*b^7*d^2*e^2 - B*a^2*
b^5*d*e^3 + 4*A*a*b^6*d*e^3 + B*a^3*b^4*e^4 - 2*A*a^2*b^5*e^4)/((
b*x + a)^2*b^2))/((b*d - a*e)^5*(b*d/(b*x + a) - a*e/(b*x + a) +
e)^3)
```

3.1115 $\int \frac{A+Bx}{(a+bx)^2(d+ex)^5} dx$

Optimal. Leaf size=239

$$-\frac{b^3(Ab-aB)}{(a+bx)(bd-ae)^5}+\frac{b^3\log(a+bx)(4aBe-5Abe+bBd)}{(bd-ae)^6}-\frac{b^3\log(d+ex)(4aBe-5Abe+bBd)}{(bd-ae)^6}+\frac{b^2(3aBe-4Abe+bBd)}{(d+ex)(bd-ae)^5}+\frac{b(2aBe-3Abe+bBd)}{2(d+ex)^2(bd-ae)^4}+\frac{aBe-2Abe+bBd}{3(d+ex)^3(bd-ae)^3}+\frac{Bd-Ae}{4(d+ex)^4(bd-ae)^2}$$

```
[Out] -((b^3*(A*b - a*B))/((b*d - a*e)^5*(a + b*x))) + (B*d - A*e)/(4*(
b*d - a*e)^2*(d + e*x)^4) + (b*B*d - 2*A*b*e + a*B*e)/(3*(b*d - a
*e)^3*(d + e*x)^3) + (b*(b*B*d - 3*A*b*e + 2*a*B*e))/(2*(b*d - a*
e)^4*(d + e*x)^2) + (b^2*(b*B*d - 4*A*b*e + 3*a*B*e))/((b*d - a*e
)^5*(d + e*x)) + (b^3*(b*B*d - 5*A*b*e + 4*a*B*e)*Log[a + b*x])/(
b*d - a*e)^6 - (b^3*(b*B*d - 5*A*b*e + 4*a*B*e)*Log[d + e*x])/(b*
d - a*e)^6
```

Rubi [A] time = 0.626265, antiderivative size = 239, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{b^3(Ab-aB)}{(a+bx)(bd-ae)^5}+\frac{b^3\log(a+bx)(4aBe-5Abe+bBd)}{(bd-ae)^6}-\frac{b^3\log(d+ex)(4aBe-5Abe+bBd)}{(bd-ae)^6}+\frac{b^2(3aBe-4Abe+bBd)}{(d+ex)(bd-ae)^5}+\frac{b(2aBe-3Abe+bBd)}{2(d+ex)^2(bd-ae)^4}+\frac{aBe-2Abe+bBd}{3(d+ex)^3(bd-ae)^3}+\frac{Bd-Ae}{4(d+ex)^4(bd-ae)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/((a + b*x)^2*(d + e*x)^5),x]
```

```
[Out] -((b^3*(A*b - a*B))/((b*d - a*e)^5*(a + b*x))) + (B*d - A*e)/(4*(
b*d - a*e)^2*(d + e*x)^4) + (b*B*d - 2*A*b*e + a*B*e)/(3*(b*d - a
*e)^3*(d + e*x)^3) + (b*(b*B*d - 3*A*b*e + 2*a*B*e))/(2*(b*d - a*
e)^4*(d + e*x)^2) + (b^2*(b*B*d - 4*A*b*e + 3*a*B*e))/((b*d - a*e
)^5*(d + e*x)) + (b^3*(b*B*d - 5*A*b*e + 4*a*B*e)*Log[a + b*x])/(
b*d - a*e)^6 - (b^3*(b*B*d - 5*A*b*e + 4*a*B*e)*Log[d + e*x])/(b*
d - a*e)^6
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(b*x+a)**2/(e*x+d)**5,x)
```

```
[Out] Timed out
```

Mathematica [A] time = 0.308992, size = 225, normalized size = 0.94

$$\frac{-\frac{12b^3(Ab-aB)(bd-ae)}{a+bx}+12b^3\log(a+bx)(4aBe-5Abe+bBd)-12b^3\log(d+ex)(4aBe-5Abe+bBd)+\frac{12b^2(bd-ae)(3aBe-4Abe\cdots}{d+ex}}{12(bd-ae)^6}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/((a + b*x)^2*(d + e*x)^5),x]
```

```
[Out] ((-12*b^3*(A*b - a*B)*(b*d - a*e))/(a + b*x) + (3*(b*d - a*e)^4*(
B*d - A*e))/(d + e*x)^4 + (4*(b*d - a*e)^3*(b*B*d - 2*A*b*e + a*B
*e))/(d + e*x)^3 + (6*b*(b*d - a*e)^2*(b*B*d - 3*A*b*e + 2*a*B*e)
)/(d + e*x)^2 + (12*b^2*(b*d - a*e)*(b*B*d - 4*A*b*e + 3*a*B*e))/
(d + e*x) + 12*b^3*(b*B*d - 5*A*b*e + 4*a*B*e)*Log[a + b*x] - 12*
b^3*(b*B*d - 5*A*b*e + 4*a*B*e)*Log[d + e*x])/(12*(b*d - a*e)^6)
```

Maple [A] time = 0.029, size = 438, normalized size = 1.8

$$-\frac{Ae}{4\,(ae-bd)^2\,(ex+d)^4}+\frac{Bd}{4\,(ae-bd)^2\,(ex+d)^4}-\frac{3\,b^2Ae}{2\,(ae-bd)^4\,(ex+d)^2}+\frac{Bbae}{(ae-bd)^4\,(ex+d)^2}+\frac{b^2Bd}{2\,(ae-bd)^4\,(ex+d)^2}+5\,\frac{b^4\ln(ex+d)\,Ae}{(ae-bd)^6}-4\,\frac{b^3\ln(ex+d)\,Bae}{(ae-bd)^6}-\frac{b^4\ln(ex+d)\,Bd}{(ae-bd)^6}+\frac{2\,Abe}{3\,(ae-bd)^3\,(ex+d)^3}-\frac{Bae}{3\,(ae-bd)^3\,(ex+d)^3}-\frac{Bbd}{3\,(ae-bd)^3\,(ex+d)^3}+4\,\frac{b^3Ae}{(ae-bd)^5\,(ex+d)}-3\,\frac{b^2Bae}{(ae-bd)^5\,(ex+d)}-\frac{b^3Bd}{(ae-bd)^5\,(ex+d)}-5\,\frac{b^4\ln(bx+a)\,Ae}{(ae-bd)^6}+4\,\frac{b^3\ln(bx+a)\,Bae}{(ae-bd)^6}+\frac{b^4\ln(bx+a)\,Bd}{(ae-bd)^6}+\frac{b^4A}{(ae-bd)^5\,(bx+a)}-\frac{Bab^3}{(ae-bd)^5\,(bx+a)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(b*x+a)^2/(e*x+d)^5,x)
```

```
[Out] -1/4/(a*e-b*d)^2/(e*x+d)^4*A*e+1/4/(a*e-b*d)^2/(e*x+d)^4*B*d-3/2*
b^2/(a*e-b*d)^4/(e*x+d)^2*A*e+b/(a*e-b*d)^4/(e*x+d)^2*B*a*e+1/2*b
^2/(a*e-b*d)^4/(e*x+d)^2*B*d+5*b^4/(a*e-b*d)^6*ln(e*x+d)*A*e-4*b^
3/(a*e-b*d)^6*ln(e*x+d)*B*a*e-b^4/(a*e-b*d)^6*ln(e*x+d)*B*d+2/3/(
a*e-b*d)^3/(e*x+d)^3*A*b*e-1/3/(a*e-b*d)^3/(e*x+d)^3*B*a*e-1/3/(a
*e-b*d)^3/(e*x+d)^3*B*b*d+4*b^3/(a*e-b*d)^5/(e*x+d)*A*e-3*b^2/(a*
e-b*d)^5/(e*x+d)*B*a*e-b^3/(a*e-b*d)^5/(e*x+d)*B*d-5*b^4/(a*e-b*d
)^6*ln(b*x+a)*A*e+4*b^3/(a*e-b*d)^6*ln(b*x+a)*B*a*e+b^4/(a*e-b*d)
^6*ln(b*x+a)*B*d+b^4/(a*e-b*d)^5/(b*x+a)*A-b^3/(a*e-b*d)^5/(b*x+a
)*B*a
```

Maxima [A] time = 1.46333, size = 1472, normalized size = 6.16

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^2*(e*x + d)^5),x, algorithm="maxima")
```

```
[Out] (B*b^4*d + (4*B*a*b^3 - 5*A*b^4)*e)*log(b*x + a)/(b^6*d^6 - 6*a*b
^5*d^5*e + 15*a^2*b^4*d^4*e^2 - 20*a^3*b^3*d^3*e^3 + 15*a^4*b^2*d
^2*e^4 - 6*a^5*b*d*e^5 + a^6*e^6) - (B*b^4*d + (4*B*a*b^3 - 5*A*b
^4)*e)*log(e*x + d)/(b^6*d^6 - 6*a*b^5*d^5*e + 15*a^2*b^4*d^4*e^2
 - 20*a^3*b^3*d^3*e^3 + 15*a^4*b^2*d^2*e^4 - 6*a^5*b*d*e^5 + a^6*
e^6) + 1/12*(3*A*a^4*e^4 + (37*B*a*b^3 - 12*A*b^4)*d^4 + (29*B*a^
2*b^2 - 77*A*a*b^3)*d^3*e - (7*B*a^3*b - 43*A*a^2*b^2)*d^2*e^2 +
(B*a^4 - 17*A*a^3*b)*d*e^3 + 12*(B*b^4*d*e^3 + (4*B*a*b^3 - 5*A*b
^4)*e^4)*x^4 + 6*(7*B*b^4*d^2*e^2 + (29*B*a*b^3 - 35*A*b^4)*d*e^3
 + (4*B*a^2*b^2 - 5*A*a*b^3)*e^4)*x^3 + 2*(26*B*b^4*d^3*e + 5*(23
*B*a*b^3 - 26*A*b^4)*d^2*e^2 + (43*B*a^2*b^2 - 55*A*a*b^3)*d*e^3
- (4*B*a^3*b - 5*A*a^2*b^2)*e^4)*x^2 + (25*B*b^4*d^4 + (129*B*a*b
^3 - 125*A*b^4)*d^3*e + (109*B*a^2*b^2 - 145*A*a*b^3)*d^2*e^2 - (
27*B*a^3*b - 35*A*a^2*b^2)*d*e^3 + (4*B*a^4 - 5*A*a^3*b)*e^4)*x)/
(a*b^5*d^9 - 5*a^2*b^4*d^8*e + 10*a^3*b^3*d^7*e^2 - 10*a^4*b^2*d^
6*e^3 + 5*a^5*b*d^5*e^4 - a^6*d^4*e^5 + (b^6*d^5*e^4 - 5*a*b^5*d^
4*e^5 + 10*a^2*b^4*d^3*e^6 - 10*a^3*b^3*d^2*e^7 + 5*a^4*b^2*d*e^8
 - a^5*b*e^9)*x^5 + (4*b^6*d^6*e^3 - 19*a*b^5*d^5*e^4 + 35*a^2*b^
4*d^4*e^5 - 30*a^3*b^3*d^3*e^6 + 10*a^4*b^2*d^2*e^7 + a^5*b*d*e^8
 - a^6*e^9)*x^4 + 2*(3*b^6*d^7*e^2 - 13*a*b^5*d^6*e^3 + 20*a^2*b^
```

```
4*d^5*e^4 - 10*a^3*b^3*d^4*e^5 - 5*a^4*b^2*d^3*e^6 + 7*a^5*b*d^2*
e^7 - 2*a^6*d*e^8)*x^3 + 2*(2*b^6*d^8*e - 7*a*b^5*d^7*e^2 + 5*a^2
*b^4*d^6*e^3 + 10*a^3*b^3*d^5*e^4 - 20*a^4*b^2*d^4*e^5 + 13*a^5*b
*d^3*e^6 - 3*a^6*d^2*e^7)*x^2 + (b^6*d^9 - a*b^5*d^8*e - 10*a^2*b
^4*d^7*e^2 + 30*a^3*b^3*d^6*e^3 - 35*a^4*b^2*d^5*e^4 + 19*a^5*b*d
^4*e^5 - 4*a^6*d^3*e^6)*x)
```

Fricas [A] time = 0.249473, size = 2298, normalized size = 9.62

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/((b*x + a)^2*(e*x + d)^5),x, algorithm="fricas")
```

```
[Out] -1/12*(3*A*a^5*e^5 - (37*B*a*b^4 - 12*A*b^5)*d^5 + (8*B*a^2*b^3 +
 65*A*a*b^4)*d^4*e + 12*(3*B*a^3*b^2 - 10*A*a^2*b^3)*d^3*e^2 - 4*
(2*B*a^4*b - 15*A*a^3*b^2)*d^2*e^3 + (B*a^5 - 20*A*a^4*b)*d*e^4 -
 12*(B*b^5*d^2*e^3 + (3*B*a*b^4 - 5*A*b^5)*d*e^4 - (4*B*a^2*b^3 -
 5*A*a*b^4)*e^5)*x^4 - 6*(7*B*b^5*d^3*e^2 + (22*B*a*b^4 - 35*A*b^
5)*d^2*e^3 - 5*(5*B*a^2*b^3 - 6*A*a*b^4)*d*e^4 - (4*B*a^3*b^2 - 5
*A*a^2*b^3)*e^5)*x^3 - 2*(26*B*b^5*d^4*e + (89*B*a*b^4 - 130*A*b^
5)*d^3*e^2 - 3*(24*B*a^2*b^3 - 25*A*a*b^4)*d^2*e^3 - (47*B*a^3*b^
2 - 60*A*a^2*b^3)*d*e^4 + (4*B*a^4*b - 5*A*a^3*b^2)*e^5)*x^2 - (2
5*B*b^5*d^5 + (104*B*a*b^4 - 125*A*b^5)*d^4*e - 20*(B*a^2*b^3 + A
*a*b^4)*d^3*e^2 - 4*(34*B*a^3*b^2 - 45*A*a^2*b^3)*d^2*e^3 + (31*B
*a^4*b - 40*A*a^3*b^2)*d*e^4 - (4*B*a^5 - 5*A*a^4*b)*e^5)*x - 12*
(B*a*b^4*d^5 + (4*B*a^2*b^3 - 5*A*a*b^4)*d^4*e + (B*b^5*d*e^4 + (
4*B*a*b^4 - 5*A*b^5)*e^5)*x^5 + (4*B*b^5*d^2*e^3 + (17*B*a*b^4 -
20*A*b^5)*d*e^4 + (4*B*a^2*b^3 - 5*A*a*b^4)*e^5)*x^4 + 2*(3*B*b^5
*d^3*e^2 + (14*B*a*b^4 - 15*A*b^5)*d^2*e^3 + 2*(4*B*a^2*b^3 - 5*A
*a*b^4)*d*e^4)*x^3 + 2*(2*B*b^5*d^4*e + (11*B*a*b^4 - 10*A*b^5)*d
^3*e^2 + 3*(4*B*a^2*b^3 - 5*A*a*b^4)*d^2*e^3)*x^2 + (B*b^5*d^5 +
(8*B*a*b^4 - 5*A*b^5)*d^4*e + 4*(4*B*a^2*b^3 - 5*A*a*b^4)*d^3*e^2
)*x)*log(b*x + a) + 12*(B*a*b^4*d^5 + (4*B*a^2*b^3 - 5*A*a*b^4)*d
^4*e + (B*b^5*d*e^4 + (4*B*a*b^4 - 5*A*b^5)*e^5)*x^5 + (4*B*b^5*d
^2*e^3 + (17*B*a*b^4 - 20*A*b^5)*d*e^4 + (4*B*a^2*b^3 - 5*A*a*b^4
)*e^5)*x^4 + 2*(3*B*b^5*d^3*e^2 + (14*B*a*b^4 - 15*A*b^5)*d^2*e^3
 + 2*(4*B*a^2*b^3 - 5*A*a*b^4)*d*e^4)*x^3 + 2*(2*B*b^5*d^4*e + (1
1*B*a*b^4 - 10*A*b^5)*d^3*e^2 + 3*(4*B*a^2*b^3 - 5*A*a*b^4)*d^2*e
^3)*x^2 + (B*b^5*d^5 + (8*B*a*b^4 - 5*A*b^5)*d^4*e + 4*(4*B*a^2*b
^3 - 5*A*a*b^4)*d^3*e^2)*x)*log(e*x + d))/(a*b^6*d^10 - 6*a^2*b^5
*d^9*e + 15*a^3*b^4*d^8*e^2 - 20*a^4*b^3*d^7*e^3 + 15*a^5*b^2*d^6
*e^4 - 6*a^6*b*d^5*e^5 + a^7*d^4*e^6 + (b^7*d^6*e^4 - 6*a*b^6*d^5
*e^5 + 15*a^2*b^5*d^4*e^6 - 20*a^3*b^4*d^3*e^7 + 15*a^4*b^3*d^2*e
^8 - 6*a^5*b^2*d*e^9 + a^6*b*e^10)*x^5 + (4*b^7*d^7*e^3 - 23*a*b^
6*d^6*e^4 + 54*a^2*b^5*d^5*e^5 - 65*a^3*b^4*d^4*e^6 + 40*a^4*b^3*
d^3*e^7 - 9*a^5*b^2*d^2*e^8 - 2*a^6*b*d*e^9 + a^7*e^10)*x^4 + 2*(
3*b^7*d^8*e^2 - 16*a*b^6*d^7*e^3 + 33*a^2*b^5*d^6*e^4 - 30*a^3*b^
4*d^5*e^5 + 5*a^4*b^3*d^4*e^6 + 12*a^5*b^2*d^3*e^7 - 9*a^6*b*d^2*
e^8 + 2*a^7*d*e^9)*x^3 + 2*(2*b^7*d^9*e - 9*a*b^6*d^8*e^2 + 12*a^
2*b^5*d^7*e^3 + 5*a^3*b^4*d^6*e^4 - 30*a^4*b^3*d^5*e^5 + 33*a^5*b
^2*d^4*e^6 - 16*a^6*b*d^3*e^7 + 3*a^7*d^2*e^8)*x^2 + (b^7*d^10 -
2*a*b^6*d^9*e - 9*a^2*b^5*d^8*e^2 + 40*a^3*b^4*d^7*e^3 - 65*a^4*b
^3*d^6*e^4 + 54*a^5*b^2*d^5*e^5 - 23*a^6*b*d^4*e^6 + 4*a^7*d^3*e^
7)*x)
```

Sympy [A] time = 33.4686, size = 1877, normalized size = 7.85

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x+A)/(b*x+a)**2/(e*x+d)**5,x)
```

```
[Out] -b**3*(-5*A*b*e + 4*B*a*e + B*b*d)*log(x + (-5*A*a*b**4*e**2 - 5*
A*b**5*d*e + 4*B*a**2*b**3*e**2 + 5*B*a*b**4*d*e + B*b**5*d**2 -
a**7*b**3*e**7*(-5*A*b*e + 4*B*a*e + B*b*d)/(a*e - b*d)**6 + 7*a*
*6*b**4*d*e**6*(-5*A*b*e + 4*B*a*e + B*b*d)/(a*e - b*d)**6 - 21*a
**5*b**5*d**2*e**5*(-5*A*b*e + 4*B*a*e + B*b*d)/(a*e - b*d)**6 +
35*a**4*b**6*d**3*e**4*(-5*A*b*e + 4*B*a*e + B*b*d)/(a*e - b*d)**
6 - 35*a**3*b**7*d**4*e**3*(-5*A*b*e + 4*B*a*e + B*b*d)/(a*e - b*
d)**6 + 21*a**2*b**8*d**5*e**2*(-5*A*b*e + 4*B*a*e + B*b*d)/(a*e
- b*d)**6 - 7*a*b**9*d**6*e*(-5*A*b*e + 4*B*a*e + B*b*d)/(a*e - b
*d)**6 + b**10*d**7*(-5*A*b*e + 4*B*a*e + B*b*d)/(a*e - b*d)**6)/
(-10*A*b**5*e**2 + 8*B*a*b**4*e**2 + 2*B*b**5*d*e))/(a*e - b*d)**
6 + b**3*(-5*A*b*e + 4*B*a*e + B*b*d)*log(x + (-5*A*a*b**4*e**2 -
 5*A*b**5*d*e + 4*B*a**2*b**3*e**2 + 5*B*a*b**4*d*e + B*b**5*d**2
 + a**7*b**3*e**7*(-5*A*b*e + 4*B*a*e + B*b*d)/(a*e - b*d)**6 - 7
*a**6*b**4*d*e**6*(-5*A*b*e + 4*B*a*e + B*b*d)/(a*e - b*d)**6 + 2
1*a**5*b**5*d**2*e**5*(-5*A*b*e + 4*B*a*e + B*b*d)/(a*e - b*d)**6
 - 35*a**4*b**6*d**3*e**4*(-5*A*b*e + 4*B*a*e + B*b*d)/(a*e - b*d
)**6 + 35*a**3*b**7*d**4*e**3*(-5*A*b*e + 4*B*a*e + B*b*d)/(a*e -
 b*d)**6 - 21*a**2*b**8*d**5*e**2*(-5*A*b*e + 4*B*a*e + B*b*d)/(a
*e - b*d)**6 + 7*a*b**9*d**6*e*(-5*A*b*e + 4*B*a*e + B*b*d)/(a*e
- b*d)**6 - b**10*d**7*(-5*A*b*e + 4*B*a*e + B*b*d)/(a*e - b*d)**
6)/(-10*A*b**5*e**2 + 8*B*a*b**4*e**2 + 2*B*b**5*d*e))/(a*e - b*d
)**6 - (3*A*a**4*e**4 - 17*A*a**3*b*d*e**3 + 43*A*a**2*b**2*d**2*
e**2 - 77*A*a*b**3*d**3*e - 12*A*b**4*d**4 + B*a**4*d*e**3 - 7*B*
a**3*b*d**2*e**2 + 29*B*a**2*b**2*d**3*e + 37*B*a*b**3*d**4 + x**
4*(-60*A*b**4*e**4 + 48*B*a*b**3*e**4 + 12*B*b**4*d*e**3) + x**3*
(-30*A*a*b**3*e**4 - 210*A*b**4*d*e**3 + 24*B*a**2*b**2*e**4 + 17
4*B*a*b**3*d*e**3 + 42*B*b**4*d**2*e**2) + x**2*(10*A*a**2*b**2*e
**4 - 110*A*a*b**3*d*e**3 - 260*A*b**4*d**2*e**2 - 8*B*a**3*b*e**
4 + 86*B*a**2*b**2*d*e**3 + 230*B*a*b**3*d**2*e**2 + 52*B*b**4*d*
*3*e) + x*(-5*A*a**3*b*e**4 + 35*A*a**2*b**2*d*e**3 - 145*A*a*b**
3*d**2*e**2 - 125*A*b**4*d**3*e + 4*B*a**4*e**4 - 27*B*a**3*b*d*e
**3 + 109*B*a**2*b**2*d**2*e**2 + 129*B*a*b**3*d**3*e + 25*B*b**4
*d**4))/(12*a**6*d**4*e**5 - 60*a**5*b*d**5*e**4 + 120*a**4*b**2*
d**6*e**3 - 120*a**3*b**3*d**7*e**2 + 60*a**2*b**4*d**8*e - 12*a*
b**5*d**9 + x**5*(12*a**5*b*e**9 - 60*a**4*b**2*d*e**8 + 120*a**3
*b**3*d**2*e**7 - 120*a**2*b**4*d**3*e**6 + 60*a*b**5*d**4*e**5 -
 12*b**6*d**5*e**4) + x**4*(12*a**6*e**9 - 12*a**5*b*d*e**8 - 120
*a**4*b**2*d**2*e**7 + 360*a**3*b**3*d**3*e**6 - 420*a**2*b**4*d*
*4*e**5 + 228*a*b**5*d**5*e**4 - 48*b**6*d**6*e**3) + x**3*(48*a*
*6*d*e**8 - 168*a**5*b*d**2*e**7 + 120*a**4*b**2*d**3*e**6 + 240*
a**3*b**3*d**4*e**5 - 480*a**2*b**4*d**5*e**4 + 312*a*b**5*d**6*e
**3 - 72*b**6*d**7*e**2) + x**2*(72*a**6*d**2*e**7 - 312*a**5*b*d
**3*e**6 + 480*a**4*b**2*d**4*e**5 - 240*a**3*b**3*d**5*e**4 - 12
0*a**2*b**4*d**6*e**3 + 168*a*b**5*d**7*e**2 - 48*b**6*d**8*e) +
x*(48*a**6*d**3*e**6 - 228*a**5*b*d**4*e**5 + 420*a**4*b**2*d**5*
e**4 - 360*a**3*b**3*d**6*e**3 + 120*a**2*b**4*d**7*e**2 + 12*a*b
**5*d**8*e - 12*b**6*d**9))
```

GIAC/XCAS [A] time = 0.248432, size = 770, normalized size = 3.22

$$-\frac{\left(Bb^5d + 4\,Bab^4e - 5\,Ab^5e\right)\ln\left(\left|-\frac{bd}{bx+a} + \frac{ae}{bx+a} - e\right|\right)}{b^7d^6 - 6\,ab^6d^5e + 15\,a^2b^5d^4e^2 - 20\,a^3b^4d^3e^3 + 15\,a^4b^3d^2e^4 - 6\,a^5b^2de^5 + a^6be^6} + \frac{\frac{Bab^8}{bx+a} - \frac{Ab^9}{bx+a}}{b^{10}d^5 - 5\,ab^9d^4e + 10\,a^2b^8d^3e^2 - 10\,a^3b^7d^2e^3 + 5\,a^4b^6de^4 - a^5b^5e^5} - \frac{25\,Bb^4de^4 + 52\,Bab^3e^5 - 77\,Ab^4e^5 + \frac{4\left(22\,Bb^6d^2e^3+21\,Bab^5de^4-65\,Ab^6de^4-43\,Ba^2b^4e^5+65\,Aab^5e^5\right)}{(bx+a)b} + \frac{12\left(9\,Bb^8d^3e^2-2\,Bab^7d^2e^3-25\,Ab^8d^2e^3 \cdots\right.}{\cdots}}{12\,(bd \cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^2*(e*x + d)^5),x, algorithm="giac")
```

```
[Out] -(B*b^5*d + 4*B*a*b^4*e - 5*A*b^5*e)*ln(abs(-b*d/(b*x + a) + a*e/
(b*x + a) - e))/(b^7*d^6 - 6*a*b^6*d^5*e + 15*a^2*b^5*d^4*e^2 - 2
0*a^3*b^4*d^3*e^3 + 15*a^4*b^3*d^2*e^4 - 6*a^5*b^2*d*e^5 + a^6*b*
e^6) + (B*a*b^8/(b*x + a) - A*b^9/(b*x + a))/(b^10*d^5 - 5*a*b^9*
d^4*e + 10*a^2*b^8*d^3*e^2 - 10*a^3*b^7*d^2*e^3 + 5*a^4*b^6*d*e^4
```

```
 - a^5*b^5*e^5) - 1/12*(25*B*b^4*d*e^4 + 52*B*a*b^3*e^5 - 77*A*b^
4*e^5 + 4*(22*B*b^6*d^2*e^3 + 21*B*a*b^5*d*e^4 - 65*A*b^6*d*e^4 -
 43*B*a^2*b^4*e^5 + 65*A*a*b^5*e^5)/((b*x + a)*b) + 12*(9*B*b^8*d
^3*e^2 - 2*B*a*b^7*d^2*e^3 - 25*A*b^8*d^2*e^3 - 23*B*a^2*b^6*d*e^
4 + 50*A*a*b^7*d*e^4 + 16*B*a^3*b^5*e^5 - 25*A*a^2*b^6*e^5)/((b*x
 + a)^2*b^2) + 24*(2*B*b^10*d^4*e - 3*B*a*b^9*d^3*e^2 - 5*A*b^10*
d^3*e^2 - 3*B*a^2*b^8*d^2*e^3 + 15*A*a*b^9*d^2*e^3 + 7*B*a^3*b^7*
d*e^4 - 15*A*a^2*b^8*d*e^4 - 3*B*a^4*b^6*e^5 + 5*A*a^3*b^7*e^5)/(
(b*x + a)^3*b^3))/((b*d - a*e)^6*(b*d/(b*x + a) - a*e/(b*x + a) +
 e)^4)
```

3.1116 $\int \frac{(A+Bx)(d+ex)^5}{(a+bx)^3} dx$

Optimal. Leaf size=230

$$\frac{e^4(a+bx)^3(-6aBe+Abe+5bBd)}{3b^7}+\frac{5e^3(a+bx)^2(bd-ae)(-3aBe+Abe+2bBd)}{2b^7}-\frac{(bd-ae)^4(-6aBe+5Abe+bBd)}{b^7(a+bx)}-\frac{(Ab-aB)(bd-ae)^5}{2b^7(a+bx)^2}+\frac{5e(bd-ae)^3\log(a+bx)(-3aBe+2Abe+bBd)}{b^7}+\frac{10e^2x(bd-ae)^2(-2aBe+Abe+bBd)}{b^6}+\frac{Be^5(a+bx)^4}{4b^7}$$

```
[Out] (10*e^2*(b*d - a*e)^2*(b*B*d + A*b*e - 2*a*B*e)*x)/b^6 - ((A*b -
a*B)*(b*d - a*e)^5)/(2*b^7*(a + b*x)^2) - ((b*d - a*e)^4*(b*B*d +
 5*A*b*e - 6*a*B*e))/(b^7*(a + b*x)) + (5*e^3*(b*d - a*e)*(2*b*B*
d + A*b*e - 3*a*B*e)*(a + b*x)^2)/(2*b^7) + (e^4*(5*b*B*d + A*b*e
 - 6*a*B*e)*(a + b*x)^3)/(3*b^7) + (B*e^5*(a + b*x)^4)/(4*b^7) +
(5*e*(b*d - a*e)^3*(b*B*d + 2*A*b*e - 3*a*B*e)*Log[a + b*x])/b^7
```

Rubi [A] time = 0.739837, antiderivative size = 230, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$\frac{e^4(a+bx)^3(-6aBe+Abe+5bBd)}{3b^7}+\frac{5e^3(a+bx)^2(bd-ae)(-3aBe+Abe+2bBd)}{2b^7}-\frac{(bd-ae)^4(-6aBe+5Abe+bBd)}{b^7(a+bx)}-\frac{(Ab-aB)(bd-ae)^5}{2b^7(a+bx)^2}+\frac{5e(bd-ae)^3\log(a+bx)(-3aBe+2Abe+bBd)}{b^7}+\frac{10e^2x(bd-ae)^2(-2aBe+Abe+bBd)}{b^6}+\frac{Be^5(a+bx)^4}{4b^7}$$

Antiderivative was successfully verified.

```
[In]  Int[((A + B*x)*(d + e*x)^5)/(a + b*x)^3,x]
```

```
[Out] (10*e^2*(b*d - a*e)^2*(b*B*d + A*b*e - 2*a*B*e)*x)/b^6 - ((A*b -
a*B)*(b*d - a*e)^5)/(2*b^7*(a + b*x)^2) - ((b*d - a*e)^4*(b*B*d +
 5*A*b*e - 6*a*B*e))/(b^7*(a + b*x)) + (5*e^3*(b*d - a*e)*(2*b*B*
d + A*b*e - 3*a*B*e)*(a + b*x)^2)/(2*b^7) + (e^4*(5*b*B*d + A*b*e
 - 6*a*B*e)*(a + b*x)^3)/(3*b^7) + (B*e^5*(a + b*x)^4)/(4*b^7) +
(5*e*(b*d - a*e)^3*(b*B*d + 2*A*b*e - 3*a*B*e)*Log[a + b*x])/b^7
```

Rubi in Sympy [A] time = 92.9921, size = 231, normalized size = 1.

$$\frac{Be^5\left(a+bx\right)^4}{4b^7}+\frac{10e^2x\left(ae-bd\right)^2\left(Abe-2Bae+Bbd\right)}{b^6}+\frac{e^4\left(a+bx\right)^3\left(Abe-6Bae+5Bbd\right)}{3b^7}-\frac{5e^3\left(a+bx\right)^2\left(ae-bd\right)\left(Abe-3Bae+2Bbd\right)}{2b^7}-\frac{5e\left(ae-bd\right)^3\left(2Abe-3Bae+Bbd\right)\log\left(a+bx\right)}{b^7}-\frac{\left(ae-bd\right)^4\left(5Abe-6Bae+Bbd\right)}{b^7\left(a+bx\right)}+\frac{\left(Ab-Ba\right)\left(ae-bd\right)^5}{2b^7\left(a+bx\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(e*x+d)**5/(b*x+a)**3,x)
```

```
[Out] B*e**5*(a + b*x)**4/(4*b**7) + 10*e**2*x*(a*e - b*d)**2*(A*b*e -
2*B*a*e + B*b*d)/b**6 + e**4*(a + b*x)**3*(A*b*e - 6*B*a*e + 5*B*
b*d)/(3*b**7) - 5*e**3*(a + b*x)**2*(a*e - b*d)*(A*b*e - 3*B*a*e
```

```
+ 2*B*b*d)/(2*b**7) - 5*e*(a*e - b*d)**3*(2*A*b*e - 3*B*a*e + B*b
*d)*log(a + b*x)/b**7 - (a*e - b*d)**4*(5*A*b*e - 6*B*a*e + B*b*d
)/(b**7*(a + b*x)) + (A*b - B*a)*(a*e - b*d)**5/(2*b**7*(a + b*x)
**2)
```

Mathematica [A] time = 0.259735, size = 254, normalized size = 1.1

$$\frac{6b^2e^3x^2\left(6a^2Be^2-3abe(Ae+5Bd)+5b^2d(Ae+2Bd)\right)+12be^2x\left(-10a^3Be^3+6a^2be^2(Ae+5Bd)-15ab^2de(Ae+2Bd)+10b\cdots\right.}{\cdots}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((A + B*x)*(d + e*x)^5)/(a + b*x)^3,x]
```

```
[Out] (12*b*e^2*(-10*a^3*B*e^3 + 10*b^3*d^2*(B*d + A*e) - 15*a*b^2*d*e*
(2*B*d + A*e) + 6*a^2*b*e^2*(5*B*d + A*e))*x + 6*b^2*e^3*(6*a^2*B
*e^2 + 5*b^2*d*(2*B*d + A*e) - 3*a*b*e*(5*B*d + A*e))*x^2 + 4*b^3
*e^4*(5*b*B*d + A*b*e - 3*a*B*e)*x^3 + 3*b^4*B*e^5*x^4 - (6*(A*b
- a*B)*(b*d - a*e)^5)/(a + b*x)^2 - (12*(b*d - a*e)^4*(b*B*d + 5*
A*b*e - 6*a*B*e))/(a + b*x) + 60*e*(b*d - a*e)^3*(b*B*d + 2*A*b*e
 - 3*a*B*e)*Log[a + b*x])/(12*b^7)
```

Maple [B] time = 0.022, size = 833, normalized size = 3.6

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(e*x+d)^5/(b*x+a)^3,x)
```

```
[Out] 10/b^3/(b*x+a)*B*a*d^4*e-5/2/b^5/(b*x+a)^2*A*a^4*d*e^4+5/b^4/(b*x
+a)^2*A*a^3*d^2*e^3-5/b^3/(b*x+a)^2*A*a^2*d^3*e^2+5/2/b^2/(b*x+a)
^2*A*a*d^4*e+5/2/b^6/(b*x+a)^2*B*a^5*d*e^4-5/b^5/(b*x+a)^2*B*a^4*
d^2*e^3+5/b^4/(b*x+a)^2*B*a^3*d^3*e^2-5/2/b^3/(b*x+a)^2*B*a^2*d^4
*e-1/b^2/(b*x+a)*B*d^5-1/2/b/(b*x+a)^2*A*d^5+1/4*e^5/b^3*B*x^4+1/
3*e^5/b^3*A*x^3+1/2/b^6/(b*x+a)^2*A*a^5*e^5-1/2/b^7/(b*x+a)^2*B*a
^6*e^5+1/2/b^2/(b*x+a)^2*B*a*d^5-3/2*e^5/b^4*A*x^2*a+5/2*e^4/b^3*
A*x^2*d+3*e^5/b^5*B*x^2*a^2+5*e^3/b^3*B*x^2*d^2+6*e^5/b^5*A*a^2*x
-e^5/b^4*B*x^3*a+5/3*e^4/b^3*B*x^3*d+10*e^3/b^3*A*d^2*x-10*e^5/b^
6*B*a^3*x+10*e^2/b^3*B*d^3*x-10/b^6*e^5*ln(b*x+a)*A*a^3+10/b^3*e^
2*ln(b*x+a)*A*d^3+15/b^7*e^5*ln(b*x+a)*B*a^4+5/b^3*e*ln(b*x+a)*B*
d^4-5/b^6/(b*x+a)*A*a^4*e^5-5/b^2/(b*x+a)*A*d^4*e+6/b^7/(b*x+a)*B
*a^5*e^5-15/2*e^4/b^4*B*x^2*a*d-15*e^4/b^4*A*a*d*x+30*e^4/b^5*B*a
^2*d*x-30*e^3/b^4*B*a*d^2*x+30/b^5*e^4*ln(b*x+a)*A*a^2*d-30/b^4*e
^3*ln(b*x+a)*A*a*d^2-50/b^6*e^4*ln(b*x+a)*B*a^3*d+60/b^5*e^3*ln(b
*x+a)*B*a^2*d^2-30/b^4*e^2*ln(b*x+a)*B*a*d^3+20/b^5/(b*x+a)*A*a^3
*d*e^4-30/b^4/(b*x+a)*A*a^2*d^2*e^3+20/b^3/(b*x+a)*A*a*d^3*e^2-25
/b^6/(b*x+a)*B*a^4*d*e^4+40/b^5/(b*x+a)*B*a^3*d^2*e^3-30/b^4/(b*x
+a)*B*a^2*d^3*e^2
```

Maxima [A] time = 1.38444, size = 799, normalized size = 3.47

$$-\frac{\left(Bab^5+Ab^6\right)d^5-5\left(3\,Ba^2b^4-Aab^5\right)d^4e+10\left(5\,Ba^3b^3-3\,Aa^2b^4\right)d^3e^2-10\left(7\,Ba^4b^2-5\,Aa^3b^3\right)d^2e^3+5\left(9\,Ba^5b-7\,Aa^4\cdots\right.}{\cdots}+\frac{3\,Bb^3e^5x^4+4\left(5\,Bb^3de^4-\left(3\,Bab^2-Ab^3\right)e^5\right)x^3+6\left(10\,Bb^3d^2e^3-5\left(3\,Bab^2-Ab^3\right)de^4+3\left(2\,Ba^2b-Aab^2\right)e^5\right)x^2+12\left(1\cdots\right.}{12\,b^6}+\frac{5\left(Bb^4d^4e-2\left(3\,Bab^3-Ab^4\right)d^3e^2+6\left(2\,Ba^2b^2-Aab^3\right)d^2e^3-2\left(5\,Ba^3b-3\,Aa^2b^2\right)de^4+\left(3\,Ba^4-2\,Aa^3b\right)e^5\right)\log\left(bx+a\cdots\right)}{b^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^5/(b*x + a)^3,x, algorithm="maxima")
```

```
[Out] -1/2*((B*a*b^5 + A*b^6)*d^5 - 5*(3*B*a^2*b^4 - A*a*b^5)*d^4*e + 1
0*(5*B*a^3*b^3 - 3*A*a^2*b^4)*d^3*e^2 - 10*(7*B*a^4*b^2 - 5*A*a^3
*b^3)*d^2*e^3 + 5*(9*B*a^5*b - 7*A*a^4*b^2)*d*e^4 - (11*B*a^6 - 9
*A*a^5*b)*e^5 + 2*(B*b^6*d^5 - 5*(2*B*a*b^5 - A*b^6)*d^4*e + 10*(
3*B*a^2*b^4 - 2*A*a*b^5)*d^3*e^2 - 10*(4*B*a^3*b^3 - 3*A*a^2*b^4)
*d^2*e^3 + 5*(5*B*a^4*b^2 - 4*A*a^3*b^3)*d*e^4 - (6*B*a^5*b - 5*A
*a^4*b^2)*e^5)*x)/(b^9*x^2 + 2*a*b^8*x + a^2*b^7) + 1/12*(3*B*b^3
*e^5*x^4 + 4*(5*B*b^3*d*e^4 - (3*B*a*b^2 - A*b^3)*e^5)*x^3 + 6*(1
0*B*b^3*d^2*e^3 - 5*(3*B*a*b^2 - A*b^3)*d*e^4 + 3*(2*B*a^2*b - A*
a*b^2)*e^5)*x^2 + 12*(10*B*b^3*d^3*e^2 - 10*(3*B*a*b^2 - A*b^3)*d
^2*e^3 + 15*(2*B*a^2*b - A*a*b^2)*d*e^4 - 2*(5*B*a^3 - 3*A*a^2*b)
*e^5)*x)/b^6 + 5*(B*b^4*d^4*e - 2*(3*B*a*b^3 - A*b^4)*d^3*e^2 + 6
*(2*B*a^2*b^2 - A*a*b^3)*d^2*e^3 - 2*(5*B*a^3*b - 3*A*a^2*b^2)*d*
e^4 + (3*B*a^4 - 2*A*a^3*b)*e^5)*log(b*x + a)/b^7
```

Fricas [A] time = 0.218078, size = 1231, normalized size = 5.35

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^5/(b*x + a)^3,x, algorithm="fricas")
```

```
[Out] 1/12*(3*B*b^6*e^5*x^6 - 6*(B*a*b^5 + A*b^6)*d^5 + 30*(3*B*a^2*b^4
 - A*a*b^5)*d^4*e - 60*(5*B*a^3*b^3 - 3*A*a^2*b^4)*d^3*e^2 + 60*(
7*B*a^4*b^2 - 5*A*a^3*b^3)*d^2*e^3 - 30*(9*B*a^5*b - 7*A*a^4*b^2)
*d*e^4 + 6*(11*B*a^6 - 9*A*a^5*b)*e^5 + 2*(10*B*b^6*d*e^4 - (3*B*
a*b^5 - 2*A*b^6)*e^5)*x^5 + 5*(12*B*b^6*d^2*e^3 - 2*(5*B*a*b^5 -
3*A*b^6)*d*e^4 + (3*B*a^2*b^4 - 2*A*a*b^5)*e^5)*x^4 + 20*(6*B*b^6
*d^3*e^2 - 6*(2*B*a*b^5 - A*b^6)*d^2*e^3 + 2*(5*B*a^2*b^4 - 3*A*a
*b^5)*d*e^4 - (3*B*a^3*b^3 - 2*A*a^2*b^4)*e^5)*x^3 + 6*(40*B*a*b^
5*d^3*e^2 - 10*(11*B*a^2*b^4 - 4*A*a*b^5)*d^2*e^3 + 5*(21*B*a^3*b
^3 - 11*A*a^2*b^4)*d*e^4 - (34*B*a^4*b^2 - 21*A*a^3*b^3)*e^5)*x^2
 - 12*(B*b^6*d^5 - 5*(2*B*a*b^5 - A*b^6)*d^4*e + 20*(B*a^2*b^4 -
A*a*b^5)*d^3*e^2 - 10*(B*a^3*b^3 - 2*A*a^2*b^4)*d^2*e^3 - 5*(B*a^
4*b^2 + A*a^3*b^3)*d*e^4 + (4*B*a^5*b - A*a^4*b^2)*e^5)*x + 60*(B
*a^2*b^4*d^4*e - 2*(3*B*a^3*b^3 - A*a^2*b^4)*d^3*e^2 + 6*(2*B*a^4
*b^2 - A*a^3*b^3)*d^2*e^3 - 2*(5*B*a^5*b - 3*A*a^4*b^2)*d*e^4 + (
3*B*a^6 - 2*A*a^5*b)*e^5 + (B*b^6*d^4*e - 2*(3*B*a*b^5 - A*b^6)*d
^3*e^2 + 6*(2*B*a^2*b^4 - A*a*b^5)*d^2*e^3 - 2*(5*B*a^3*b^3 - 3*A
*a^2*b^4)*d*e^4 + (3*B*a^4*b^2 - 2*A*a^3*b^3)*e^5)*x^2 + 2*(B*a*b
^5*d^4*e - 2*(3*B*a^2*b^4 - A*a*b^5)*d^3*e^2 + 6*(2*B*a^3*b^3 - A
*a^2*b^4)*d^2*e^3 - 2*(5*B*a^4*b^2 - 3*A*a^3*b^3)*d*e^4 + (3*B*a^
5*b - 2*A*a^4*b^2)*e^5)*x)*log(b*x + a))/(b^9*x^2 + 2*a*b^8*x + a
^2*b^7)
```

Sympy [A] time = 45.0004, size = 602, normalized size = 2.62

$$\frac{Be^5x^4}{4b^3} + \frac{-9Aa^5be^5 + 35Aa^4b^2de^4 - 50Aa^3b^3d^2e^3 + 30Aa^2b^4d^3e^2 - 5Aab^5d^4e - Ab^6d^5 + 11Ba^6e^5 - 45Ba^5bde^4 + 70Ba^4b^2d^2e^3 - 50}{} - \frac{x^3\left(-Abe^5 + 3Bae^5 - 5Bbde^4\right)}{3b^4} + \frac{x^2\left(-3Aabe^5 + 5Ab^2de^4 + 6Ba^2e^5 - 15Babde^4 + 10Bb^2d^2e^3\right)}{2b^5} - \frac{x\left(-6Aa^2be^5 + 15Aab^2de^4 - 10Ab^3d^2e^3 + 10Ba^3e^5 - 30Ba^2bde^4 + 30Bab^2d^2e^3 - 10Bb^3d^3e^2\right)}{b^6} + \frac{5e\left(ae - bd\right)^3\left(-2Abe + 3Bae - Bbd\right)\log\left(a + bx\right)}{b^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(e*x+d)**5/(b*x+a)**3,x)
```

```
[Out] B*e**5*x**4/(4*b**3) + (-9*A*a**5*b*e**5 + 35*A*a**4*b**2*d*e**4
- 50*A*a**3*b**3*d**2*e**3 + 30*A*a**2*b**4*d**3*e**2 - 5*A*a*b**
5*d**4*e - A*b**6*d**5 + 11*B*a**6*e**5 - 45*B*a**5*b*d*e**4 + 70
*B*a**4*b**2*d**2*e**3 - 50*B*a**3*b**3*d**3*e**2 + 15*B*a**2*b**
4*d**4*e - B*a*b**5*d**5 + x*(-10*A*a**4*b**2*e**5 + 40*A*a**3*b*
*3*d*e**4 - 60*A*a**2*b**4*d**2*e**3 + 40*A*a*b**5*d**3*e**2 - 10
*A*b**6*d**4*e + 12*B*a**5*b*e**5 - 50*B*a**4*b**2*d*e**4 + 80*B*
a**3*b**3*d**2*e**3 - 60*B*a**2*b**4*d**3*e**2 + 20*B*a*b**5*d**4
*e - 2*B*b**6*d**5))/(2*a**2*b**7 + 4*a*b**8*x + 2*b**9*x**2) - x
**3*(-A*b*e**5 + 3*B*a*e**5 - 5*B*b*d*e**4)/(3*b**4) + x**2*(-3*A
*a*b*e**5 + 5*A*b**2*d*e**4 + 6*B*a**2*e**5 - 15*B*a*b*d*e**4 + 1
0*B*b**2*d**2*e**3)/(2*b**5) - x*(-6*A*a**2*b*e**5 + 15*A*a*b**2*
d*e**4 - 10*A*b**3*d**2*e**3 + 10*B*a**3*e**5 - 30*B*a**2*b*d*e**
4 + 30*B*a*b**2*d**2*e**3 - 10*B*b**3*d**3*e**2)/b**6 + 5*e*(a*e
- b*d)**3*(-2*A*b*e + 3*B*a*e - B*b*d)*log(a + b*x)/b**7
```

GIAC/XCAS [A] time = 0.229095, size = 807, normalized size = 3.51

$$\frac{5\left(Bb^4d^4e - 6\,Bab^3d^3e^2 + 2\,Ab^4d^3e^2 + 12\,Ba^2b^2d^2e^3 - 6\,Aab^3d^2e^3 - 10\,Ba^3bde^4 + 6\,Aa^2b^2de^4 + 3\,Ba^4e^5 - 2\,Aa^3be^5\right)\ln\left(|bx\right.}{b^7}$$
$$-\frac{Bab^5d^5 + Ab^6d^5 - 15\,Ba^2b^4d^4e + 5\,Aab^5d^4e + 50\,Ba^3b^3d^3e^2 - 30\,Aa^2b^4d^3e^2 - 70\,Ba^4b^2d^2e^3 + 50\,Aa^3b^3d^2e^3 + 45\,Ba^5bde^4}{}$$
$$+\frac{3\,Bb^9x^4e^5 + 20\,Bb^9dx^3e^4 + 60\,Bb^9d^2x^2e^3 + 120\,Bb^9d^3xe^2 - 12\,Bab^8x^3e^5 + 4\,Ab^9x^3e^5 - 90\,Bab^8dx^2e^4 + 30\,Ab^9dx^2e^4 - 360}{12}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^5/(b*x + a)^3,x, algorithm="giac")
```

```
[Out] 5*(B*b^4*d^4*e - 6*B*a*b^3*d^3*e^2 + 2*A*b^4*d^3*e^2 + 12*B*a^2*b
^2*d^2*e^3 - 6*A*a*b^3*d^2*e^3 - 10*B*a^3*b*d*e^4 + 6*A*a^2*b^2*d
*e^4 + 3*B*a^4*e^5 - 2*A*a^3*b*e^5)*ln(abs(b*x + a))/b^7 - 1/2*(B
*a*b^5*d^5 + A*b^6*d^5 - 15*B*a^2*b^4*d^4*e + 5*A*a*b^5*d^4*e + 5
0*B*a^3*b^3*d^3*e^2 - 30*A*a^2*b^4*d^3*e^2 - 70*B*a^4*b^2*d^2*e^3
 + 50*A*a^3*b^3*d^2*e^3 + 45*B*a^5*b*d*e^4 - 35*A*a^4*b^2*d*e^4 -
 11*B*a^6*e^5 + 9*A*a^5*b*e^5 + 2*(B*b^6*d^5 - 10*B*a*b^5*d^4*e +
 5*A*b^6*d^4*e + 30*B*a^2*b^4*d^3*e^2 - 20*A*a*b^5*d^3*e^2 - 40*B
*a^3*b^3*d^2*e^3 + 30*A*a^2*b^4*d^2*e^3 + 25*B*a^4*b^2*d*e^4 - 20
*A*a^3*b^3*d*e^4 - 6*B*a^5*b*e^5 + 5*A*a^4*b^2*e^5)*x)/((b*x + a)
^2*b^7) + 1/12*(3*B*b^9*x^4*e^5 + 20*B*b^9*d*x^3*e^4 + 60*B*b^9*d
^2*x^2*e^3 + 120*B*b^9*d^3*x*e^2 - 12*B*a*b^8*x^3*e^5 + 4*A*b^9*x
^3*e^5 - 90*B*a*b^8*d*x^2*e^4 + 30*A*b^9*d*x^2*e^4 - 360*B*a*b^8*
d^2*x*e^3 + 120*A*b^9*d^2*x*e^3 + 36*B*a^2*b^7*x^2*e^5 - 18*A*a*b
^8*x^2*e^5 + 360*B*a^2*b^7*d*x*e^4 - 180*A*a*b^8*d*x*e^4 - 120*B*
a^3*b^6*x*e^5 + 72*A*a^2*b^7*x*e^5)/b^12
```

3.1117 $\int \frac{(A+Bx)(d+ex)^4}{(a+bx)^3} dx$

Optimal. Leaf size=191

$$\frac{e^3(a+bx)^2(-5aBe+Abe+4bBd)}{2b^6}-\frac{(bd-ae)^3(-5aBe+4Abe+bBd)}{b^6(a+bx)}-\frac{(Ab-aB)(bd-ae)^4}{2b^6(a+bx)^2}+\frac{2e(bd-ae)^2\log(a+bx)(-5aBe+3Abe+2bBd)}{b^6}+\frac{2e^2x(bd-ae)(-5aBe+2Abe+3bBd)}{b^5}+\frac{Be^4(a+bx)^3}{3b^6}$$

```
[Out] (2*e^2*(b*d - a*e)*(3*b*B*d + 2*A*b*e - 5*a*B*e)*x)/b^5 - ((A*b -
 a*B)*(b*d - a*e)^4)/(2*b^6*(a + b*x)^2) - ((b*d - a*e)^3*(b*B*d
+ 4*A*b*e - 5*a*B*e))/(b^6*(a + b*x)) + (e^3*(4*b*B*d + A*b*e - 5
*a*B*e)*(a + b*x)^2)/(2*b^6) + (B*e^4*(a + b*x)^3)/(3*b^6) + (2*e
*(b*d - a*e)^2*(2*b*B*d + 3*A*b*e - 5*a*B*e)*Log[a + b*x])/b^6
```

Rubi [A] time = 0.550536, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{e^3(a+bx)^2(-5aBe+Abe+4bBd)}{2b^6}-\frac{(bd-ae)^3(-5aBe+4Abe+bBd)}{b^6(a+bx)}-\frac{(Ab-aB)(bd-ae)^4}{2b^6(a+bx)^2}+\frac{2e(bd-ae)^2\log(a+bx)(-5aBe+3Abe+2bBd)}{b^6}+\frac{2e^2x(bd-ae)(-5aBe+2Abe+3bBd)}{b^5}+\frac{Be^4(a+bx)^3}{3b^6}$$

Antiderivative was successfully verified.

```
[In]  Int[((A + B*x)*(d + e*x)^4)/(a + b*x)^3,x]
```

```
[Out] (2*e^2*(b*d - a*e)*(3*b*B*d + 2*A*b*e - 5*a*B*e)*x)/b^5 - ((A*b -
 a*B)*(b*d - a*e)^4)/(2*b^6*(a + b*x)^2) - ((b*d - a*e)^3*(b*B*d
+ 4*A*b*e - 5*a*B*e))/(b^6*(a + b*x)) + (e^3*(4*b*B*d + A*b*e - 5
*a*B*e)*(a + b*x)^2)/(2*b^6) + (B*e^4*(a + b*x)^3)/(3*b^6) + (2*e
*(b*d - a*e)^2*(2*b*B*d + 3*A*b*e - 5*a*B*e)*Log[a + b*x])/b^6
```

Rubi in Sympy [A] time = 71.0256, size = 192, normalized size = 1.01

$$\frac{Be^4\left(a+bx\right)^3}{3b^6}-\frac{2e^2x\left(ae-bd\right)\left(2Abe-5Bae+3Bbd\right)}{b^5}+\frac{e^3\left(a+bx\right)^2\left(Abe-5Bae+4Bbd\right)}{2b^6}+\frac{2e\left(ae-bd\right)^2\left(3Abe-5Bae+2Bbd\right)\log\left(a+bx\right)}{b^6}+\frac{\left(ae-bd\right)^3\left(4Abe-5Bae+Bbd\right)}{b^6\left(a+bx\right)}-\frac{\left(Ab-Ba\right)\left(ae-bd\right)^4}{2b^6\left(a+bx\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(e*x+d)**4/(b*x+a)**3,x)
```

```
[Out] B*e**4*(a + b*x)**3/(3*b**6) - 2*e**2*x*(a*e - b*d)*(2*A*b*e - 5*
B*a*e + 3*B*b*d)/b**5 + e**3*(a + b*x)**2*(A*b*e - 5*B*a*e + 4*B*
b*d)/(2*b**6) + 2*e*(a*e - b*d)**2*(3*A*b*e - 5*B*a*e + 2*B*b*d)*
log(a + b*x)/b**6 + (a*e - b*d)**3*(4*A*b*e - 5*B*a*e + B*b*d)/(b
**6*(a + b*x)) - (A*b - B*a)*(a*e - b*d)**4/(2*b**6*(a + b*x)**2)
```

Mathematica [A] time = 0.190828, size = 187, normalized size = 0.98

$$\frac{6be^2x\left(6a^2Be^2-3abe(Ae+4Bd)+2b^2d(2Ae+3Bd)\right)+3b^2e^3x^2(-3aBe+Abe+4bBd)-\frac{6(bd-ae)^3(-5aBe+4Abe+bBd)}{a+bx}-\frac{3(Ab-a\ldots}{(a\ldots}}{6b^6}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((A + B*x)*(d + e*x)^4)/(a + b*x)^3,x]
```

```
[Out] (6*b*e^2*(6*a^2*B*e^2 - 3*a*b*e*(4*B*d + A*e) + 2*b^2*d*(3*B*d +
2*A*e))*x + 3*b^2*e^3*(4*b*B*d + A*b*e - 3*a*B*e)*x^2 + 2*b^3*B*e
^4*x^3 - (3*(A*b - a*B)*(b*d - a*e)^4)/(a + b*x)^2 - (6*(b*d - a*
e)^3*(b*B*d + 4*A*b*e - 5*a*B*e))/(a + b*x) + 12*e*(b*d - a*e)^2*
(2*b*B*d + 3*A*b*e - 5*a*B*e)*Log[a + b*x])/(6*b^6)
```

Maple [B] time = 0.018, size = 601, normalized size = 3.2

$$6\,{\frac{{e}^{2}B{d}^{2}x}{{b}^{3}}}+6\,{\frac{{e}^{4}\ln \left(bx+a \right) A{a}^{2}}{{b}^{5}}}+6\,{\frac{{e}^{2}\ln \left(bx+a \right) A{d}^{2}}{{b}^{3}}}-10\,{\frac{{e}^{4}\ln \left(bx+a \right) B{a}^{3}}{{b}^{6}}}+4\,{\frac{e\ln \left(bx+a \right) B{d}^{3}}{{b}^{3}}}+4\,{\frac{{a}^{3}A{e}^{4}}{ \left(bx+a \right) {b}^{5}}}-4\,{\frac{A{d}^{3}e}{ \left(bx+a \right) {b}^{2}}}-5\,{\frac{B{a}^{4}{e}^{4}}{ \left(bx+a \right) {b}^{6}}}-{\frac{A{a}^{4}{e}^{4}}{2\,{b}^{5} \left(bx+a \right) ^{2}}}+{\frac{B{a}^{5}{e}^{4}}{2\,{b}^{6} \left(bx+a \right) ^{2}}}+{\frac{Ba{d}^{4}}{2\,{b}^{2} \left(bx+a \right) ^{2}}}-{\frac{B{d}^{4}}{ \left(bx+a \right) {b}^{2}}}-{\frac{A{d}^{4}}{2\,b \left(bx+a \right) ^{2}}}+{\frac{B{e}^{4}{x}^{3}}{3\,{b}^{3}}}+{\frac{{e}^{4}A{x}^{2}}{2\,{b}^{3}}}-12\,{\frac{{e}^{3}\ln \left(bx+a \right) Aad}{{b}^{4}}}+24\,{\frac{{e}^{3}\ln \left(bx+a \right) B{a}^{2}d}{{b}^{5}}}-18\,{\frac{{e}^{2}\ln \left(bx+a \right) Ba{d}^{2}}{{b}^{4}}}-12\,{\frac{{a}^{2}Ad{e}^{3}}{ \left(bx+a \right) {b}^{4}}}+12\,{\frac{Aa{d}^{2}{e}^{2}}{ \left(bx+a \right) {b}^{3}}}+16\,{\frac{B{a}^{3}d{e}^{3}}{ \left(bx+a \right) {b}^{5}}}-18\,{\frac{B{a}^{2}{d}^{2}{e}^{2}}{ \left(bx+a \right) {b}^{4}}}+8\,{\frac{Ba{d}^{3}e}{ \left(bx+a \right) {b}^{3}}}+2\,{\frac{{a}^{3}Ad{e}^{3}}{{b}^{4} \left(bx+a \right) ^{2}}}-3\,{\frac{{a}^{2}A{d}^{2}{e}^{2}}{{b}^{3} \left(bx+a \right) ^{2}}}+2\,{\frac{Aa{d}^{3}e}{{b}^{2} \left(bx+a \right) ^{2}}}-2\,{\frac{B{a}^{4}d{e}^{3}}{{b}^{5} \left(bx+a \right) ^{2}}}+3\,{\frac{B{a}^{3}{d}^{2}{e}^{2}}{{b}^{4} \left(bx+a \right) ^{2}}}-2\,{\frac{B{a}^{2}{d}^{3}e}{{b}^{3} \left(bx+a \right) ^{2}}}-12\,{\frac{{e}^{3}Badx}{{b}^{4}}}+4\,{\frac{{e}^{3}Adx}{{b}^{3}}}+6\,{\frac{B{a}^{2}{e}^{4}x}{{b}^{5}}}-{\frac{3\,B{e}^{4}{x}^{2}a}{2\,{b}^{4}}}+2\,{\frac{{e}^{3}B{x}^{2}d}{{b}^{3}}}-3\,{\frac{{e}^{4}Aax}{{b}^{4}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(e*x+d)^4/(b*x+a)^3,x)
```

```
[Out] 6*e^2/b^3*B*d^2*x+6/b^5*e^4*ln(b*x+a)*A*a^2+6/b^3*e^2*ln(b*x+a)*A
*d^2-10/b^6*e^4*ln(b*x+a)*B*a^3+4/b^3*e*ln(b*x+a)*B*d^3+4/(b*x+a)
/b^5*A*a^3*e^4-4/(b*x+a)/b^2*A*d^3*e-5/(b*x+a)/b^6*B*a^4*e^4-1/2/
b^5/(b*x+a)^2*A*a^4*e^4+1/2/b^6/(b*x+a)^2*B*a^5*e^4+1/2/b^2/(b*x+
a)^2*B*a*d^4-1/(b*x+a)/b^2*B*d^4-1/2/b/(b*x+a)^2*A*d^4+1/3*e^4/b^
3*B*x^3+1/2*e^4/b^3*A*x^2-12/b^4*e^3*ln(b*x+a)*A*a*d+24/b^5*e^3*l
n(b*x+a)*B*a^2*d-18/b^4*e^2*ln(b*x+a)*B*a*d^2-12/(b*x+a)/b^4*A*a^
2*d*e^3+12/(b*x+a)/b^3*A*a*d^2*e^2+16/(b*x+a)/b^5*B*a^3*d*e^3-18/
(b*x+a)/b^4*B*a^2*d^2*e^2+8/(b*x+a)/b^3*B*a*d^3*e+2/b^4/(b*x+a)^2
*A*a^3*d*e^3-3/b^3/(b*x+a)^2*A*a^2*d^2*e^2+2/b^2/(b*x+a)^2*A*a*d^
3*e-2/b^5/(b*x+a)^2*B*a^4*d*e^3+3/b^4/(b*x+a)^2*B*a^3*d^2*e^2-2/b
^3/(b*x+a)^2*B*a^2*d^3*e-12*e^3/b^4*B*a*d*x+4*e^3/b^3*A*d*x+6*e^4
/b^5*B*a^2*x-3/2*e^4/b^4*B*x^2*a+2*e^3/b^3*B*x^2*d-3*e^4/b^4*A*a*
x
```

Maxima [A] time = 1.39499, size = 572, normalized size = 2.99

$$-\frac{\left(Bab^4+Ab^5\right)d^4-4\left(3\,Ba^2b^3-Aab^4\right)d^3e+6\left(5\,Ba^3b^2-3\,Aa^2b^3\right)d^2e^2-4\left(7\,Ba^4b-5\,Aa^3b^2\right)de^3+\left(9\,Ba^5-7\,Aa^4b\right)e^4+\ldots}{2\left(b^8x^2+2\,ab^7\ldots\right.}$$
$$+\frac{2\,Bb^2e^4x^3+3\left(4\,Bb^2de^3-\left(3\,Bab-Ab^2\right)e^4\right)x^2+6\left(6\,Bb^2d^2e^2-4\left(3\,Bab-Ab^2\right)de^3+3\left(2\,Ba^2-Aab\right)e^4\right)x}{6\,b^5}$$
$$+\frac{2\left(2\,Bb^3d^3e-3\left(3\,Bab^2-Ab^3\right)d^2e^2+6\left(2\,Ba^2b-Aab^2\right)de^3-\left(5\,Ba^3-3\,Aa^2b\right)e^4\right)\log\left(bx+a\right)}{b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^4/(b*x + a)^3,x, algorithm="maxima")
```

```
[Out] -1/2*((B*a*b^4 + A*b^5)*d^4 - 4*(3*B*a^2*b^3 - A*a*b^4)*d^3*e + 6
*(5*B*a^3*b^2 - 3*A*a^2*b^3)*d^2*e^2 - 4*(7*B*a^4*b - 5*A*a^3*b^2
)*d*e^3 + (9*B*a^5 - 7*A*a^4*b)*e^4 + 2*(B*b^5*d^4 - 4*(2*B*a*b^4
 - A*b^5)*d^3*e + 6*(3*B*a^2*b^3 - 2*A*a*b^4)*d^2*e^2 - 4*(4*B*a^
3*b^2 - 3*A*a^2*b^3)*d*e^3 + (5*B*a^4*b - 4*A*a^3*b^2)*e^4)*x)/(b
^8*x^2 + 2*a*b^7*x + a^2*b^6) + 1/6*(2*B*b^2*e^4*x^3 + 3*(4*B*b^2
*d*e^3 - (3*B*a*b - A*b^2)*e^4)*x^2 + 6*(6*B*b^2*d^2*e^2 - 4*(3*B
*a*b - A*b^2)*d*e^3 + 3*(2*B*a^2 - A*a*b)*e^4)*x)/b^5 + 2*(2*B*b^
3*d^3*e - 3*(3*B*a*b^2 - A*b^3)*d^2*e^2 + 6*(2*B*a^2*b - A*a*b^2)
*d*e^3 - (5*B*a^3 - 3*A*a^2*b)*e^4)*log(b*x + a)/b^6
```

Fricas [A] time = 0.216772, size = 902, normalized size = 4.72

$$\frac{2\,Bb^5e^4x^5 - 3\left(Bab^4 + Ab^5\right)d^4 + 12\left(3\,Ba^2b^3 - Aab^4\right)d^3e - 18\left(5\,Ba^3b^2 - 3\,Aa^2b^3\right)d^2e^2 + 12\left(7\,Ba^4b - 5\,Aa^3b^2\right)de^3 - 3\left(9\,B\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^4/(b*x + a)^3,x, algorithm="fricas")
```

```
[Out] 1/6*(2*B*b^5*e^4*x^5 - 3*(B*a*b^4 + A*b^5)*d^4 + 12*(3*B*a^2*b^3
- A*a*b^4)*d^3*e - 18*(5*B*a^3*b^2 - 3*A*a^2*b^3)*d^2*e^2 + 12*(7
*B*a^4*b - 5*A*a^3*b^2)*d*e^3 - 3*(9*B*a^5 - 7*A*a^4*b)*e^4 + (12
*B*b^5*d*e^3 - (5*B*a*b^4 - 3*A*b^5)*e^4)*x^4 + 4*(9*B*b^5*d^2*e^
2 - 6*(2*B*a*b^4 - A*b^5)*d*e^3 + (5*B*a^2*b^3 - 3*A*a*b^4)*e^4)*
x^3 + 3*(24*B*a*b^4*d^2*e^2 - 4*(11*B*a^2*b^3 - 4*A*a*b^4)*d*e^3
+ (21*B*a^3*b^2 - 11*A*a^2*b^3)*e^4)*x^2 - 6*(B*b^5*d^4 - 4*(2*B*
a*b^4 - A*b^5)*d^3*e + 12*(B*a^2*b^3 - A*a*b^4)*d^2*e^2 - 4*(B*a^
3*b^2 - 2*A*a^2*b^3)*d*e^3 - (B*a^4*b + A*a^3*b^2)*e^4)*x + 12*(2
*B*a^2*b^3*d^3*e - 3*(3*B*a^3*b^2 - A*a^2*b^3)*d^2*e^2 + 6*(2*B*a
^4*b - A*a^3*b^2)*d*e^3 - (5*B*a^5 - 3*A*a^4*b)*e^4 + (2*B*b^5*d^
3*e - 3*(3*B*a*b^4 - A*b^5)*d^2*e^2 + 6*(2*B*a^2*b^3 - A*a*b^4)*d
*e^3 - (5*B*a^3*b^2 - 3*A*a^2*b^3)*e^4)*x^2 + 2*(2*B*a*b^4*d^3*e
- 3*(3*B*a^2*b^3 - A*a*b^4)*d^2*e^2 + 6*(2*B*a^3*b^2 - A*a^2*b^3)
*d*e^3 - (5*B*a^4*b - 3*A*a^3*b^2)*e^4)*x)*log(b*x + a))/(b^8*x^2
 + 2*a*b^7*x + a^2*b^6)
```

Sympy [A] time = 31.9834, size = 435, normalized size = 2.28

$$\frac{Be^4x^3}{3b^3} - \frac{-7Aa^4be^4 + 20Aa^3b^2de^3 - 18Aa^2b^3d^2e^2 + 4Aab^4d^3e + Ab^5d^4 + 9Ba^5e^4 - 28Ba^4bde^3 + 30Ba^3b^2d^2e^2 - 12Ba^2b^3d^3e + Bab^4\cdots}{2a^2b^6 + 4\cdots} - \frac{x^2\left(-Abe^4 + 3Bae^4 - 4Bbde^3\right)}{2b^4} + \frac{x\left(-3Aabe^4 + 4Ab^2de^3 + 6Ba^2e^4 - 12Babde^3 + 6Bb^2d^2e^2\right)}{b^5} - \frac{2e\left(ae - bd\right)^2\left(-3Abe + 5Bae - 2Bbd\right)\log\left(a + bx\right)}{b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(e*x+d)**4/(b*x+a)**3,x)
```

```
[Out] B*e**4*x**3/(3*b**3) - (-7*A*a**4*b*e**4 + 20*A*a**3*b**2*d*e**3
- 18*A*a**2*b**3*d**2*e**2 + 4*A*a*b**4*d**3*e + A*b**5*d**4 + 9*
B*a**5*e**4 - 28*B*a**4*b*d*e**3 + 30*B*a**3*b**2*d**2*e**2 - 12*
B*a**2*b**3*d**3*e + B*a*b**4*d**4 + x*(-8*A*a**3*b**2*e**4 + 24*
A*a**2*b**3*d*e**3 - 24*A*a*b**4*d**2*e**2 + 8*A*b**5*d**3*e + 10
*B*a**4*b*e**4 - 32*B*a**3*b**2*d*e**3 + 36*B*a**2*b**3*d**2*e**2
 - 16*B*a*b**4*d**3*e + 2*B*b**5*d**4))/(2*a**2*b**6 + 4*a*b**7*x
 + 2*b**8*x**2) - x**2*(-A*b*e**4 + 3*B*a*e**4 - 4*B*b*d*e**3)/(2
*b**4) + x*(-3*A*a*b*e**4 + 4*A*b**2*d*e**3 + 6*B*a**2*e**4 - 12*
```

```
B*a*b*d*e**3 + 6*B*b**2*d**2*e**2)/b**5 - 2*e*(a*e - b*d)**2*(-3*
A*b*e + 5*B*a*e - 2*B*b*d)*log(a + b*x)/b**6
```

GIAC/XCAS [A] time = 0.229479, size = 567, normalized size = 2.97

$$\frac{2\left(2\,Bb^3d^3e-9\,Bab^2d^2e^2+3\,Ab^3d^2e^2+12\,Ba^2bde^3-6\,Aab^2de^3-5\,Ba^3e^4+3\,Aa^2be^4\right)\ln\left(|bx+a|\right)}{b^6}-\frac{Bab^4d^4+Ab^5d^4-12\,Ba^2b^3d^3e+4\,Aab^4d^3e+30\,Ba^3b^2d^2e^2-18\,Aa^2b^3d^2e^2-28\,Ba^4bde^3+20\,Aa^3b^2de^3+9\,Ba^5e^4-7\,Aa}{2\,(b}+\frac{2\,Bb^6x^3e^4+12\,Bb^6dx^2e^3+36\,Bb^6d^2xe^2-9\,Bab^5x^2e^4+3\,Ab^6x^2e^4-72\,Bab^5dxe^3+24\,Ab^6dxe^3+36\,Ba^2b^4xe^4-18\,Aab^5x}{6\,b^9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^4/(b*x + a)^3,x, algorithm="giac")
```

```
[Out] 2*(2*B*b^3*d^3*e - 9*B*a*b^2*d^2*e^2 + 3*A*b^3*d^2*e^2 + 12*B*a^2
*b*d*e^3 - 6*A*a*b^2*d*e^3 - 5*B*a^3*e^4 + 3*A*a^2*b*e^4)*ln(abs(
b*x + a))/b^6 - 1/2*(B*a*b^4*d^4 + A*b^5*d^4 - 12*B*a^2*b^3*d^3*e
 + 4*A*a*b^4*d^3*e + 30*B*a^3*b^2*d^2*e^2 - 18*A*a^2*b^3*d^2*e^2
- 28*B*a^4*b*d*e^3 + 20*A*a^3*b^2*d*e^3 + 9*B*a^5*e^4 - 7*A*a^4*b
*e^4 + 2*(B*b^5*d^4 - 8*B*a*b^4*d^3*e + 4*A*b^5*d^3*e + 18*B*a^2*
b^3*d^2*e^2 - 12*A*a*b^4*d^2*e^2 - 16*B*a^3*b^2*d*e^3 + 12*A*a^2*
b^3*d*e^3 + 5*B*a^4*b*e^4 - 4*A*a^3*b^2*e^4)*x)/((b*x + a)^2*b^6)
 + 1/6*(2*B*b^6*x^3*e^4 + 12*B*b^6*d*x^2*e^3 + 36*B*b^6*d^2*x*e^2
 - 9*B*a*b^5*x^2*e^4 + 3*A*b^6*x^2*e^4 - 72*B*a*b^5*d*x*e^3 + 24*
A*b^6*d*x*e^3 + 36*B*a^2*b^4*x*e^4 - 18*A*a*b^5*x*e^4)/b^9
```

3.1118 $\int \frac{(A+Bx)(d+ex)^3}{(a+bx)^3} dx$

Optimal. Leaf size=141

$$-\frac{(bd-ae)^2(-4aBe+3Abe+bBd)}{b^5(a+bx)}-\frac{(Ab-aB)(bd-ae)^3}{2b^5(a+bx)^2}+\frac{3e(bd-ae)\log(a+bx)(-2aBe+Abe+bBd)}{b^5}+\frac{e^2x(-3aBe+Abe+3bBd)}{b^4}+\frac{Be^3x^2}{2b^3}$$

```
[Out] (e^2*(3*b*B*d + A*b*e - 3*a*B*e)*x)/b^4 + (B*e^3*x^2)/(2*b^3) - (
(A*b - a*B)*(b*d - a*e)^3)/(2*b^5*(a + b*x)^2) - ((b*d - a*e)^2*(
b*B*d + 3*A*b*e - 4*a*B*e))/(b^5*(a + b*x)) + (3*e*(b*d - a*e)*(b
*B*d + A*b*e - 2*a*B*e)*Log[a + b*x])/b^5
```

Rubi [A] time = 0.337095, antiderivative size = 141, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{(bd-ae)^2(-4aBe+3Abe+bBd)}{b^5(a+bx)}-\frac{(Ab-aB)(bd-ae)^3}{2b^5(a+bx)^2}+\frac{3e(bd-ae)\log(a+bx)(-2aBe+Abe+bBd)}{b^5}+\frac{e^2x(-3aBe+Abe+3bBd)}{b^4}+\frac{Be^3x^2}{2b^3}$$

Antiderivative was successfully verified.

```
[In] Int[((A + B*x)*(d + e*x)^3)/(a + b*x)^3,x]
```

```
[Out] (e^2*(3*b*B*d + A*b*e - 3*a*B*e)*x)/b^4 + (B*e^3*x^2)/(2*b^3) - (
(A*b - a*B)*(b*d - a*e)^3)/(2*b^5*(a + b*x)^2) - ((b*d - a*e)^2*(
b*B*d + 3*A*b*e - 4*a*B*e))/(b^5*(a + b*x)) + (3*e*(b*d - a*e)*(b
*B*d + A*b*e - 2*a*B*e)*Log[a + b*x])/b^5
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{Be^3\int x\,dx}{b^3}+e^2\left(Abe-3Bae+3Bbd\right)\int\frac{1}{b^4}\,dx-\frac{3e\left(ae-bd\right)\left(Abe-2Bae+Bbd\right)\log\left(a+bx\right)}{b^5}-\frac{\left(ae-bd\right)^2\left(3Abe-4Bae+Bbd\right)}{b^5\left(a+bx\right)}+\frac{\left(Ab-Ba\right)\left(ae-bd\right)^3}{2b^5\left(a+bx\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((B*x+A)*(e*x+d)**3/(b*x+a)**3,x)
```

```
[Out] B*e**3*Integral(x, x)/b**3 + e**2*(A*b*e - 3*B*a*e + 3*B*b*d)*Int
egral(b**(-4), x) - 3*e*(a*e - b*d)*(A*b*e - 2*B*a*e + B*b*d)*log
(a + b*x)/b**5 - (a*e - b*d)**2*(3*A*b*e - 4*B*a*e + B*b*d)/(b**5
*(a + b*x)) + (A*b - B*a)*(a*e - b*d)**3/(2*b**5*(a + b*x)**2)
```

Mathematica [A] time = 0.244658, size = 245, normalized size = 1.74

$$-Ab\left(5a^3e^3+a^2be^2(4ex-9d)+ab^2e\left(3d^2-12dex-4e^2x^2\right)+b^3\left(d^3+6d^2ex-2e^3x^3\right)\right)+B\left(7a^4e^3+a^3be^2(2ex-15d)+a\right.$$

Antiderivative was successfully verified.

```
[In] Integrate[((A + B*x)*(d + e*x)^3)/(a + b*x)^3,x]
```

```
[Out] (-(A*b*(5*a^3*e^3 + a^2*b*e^2*(-9*d + 4*e*x) + a*b^2*e*(3*d^2 - 1
2*d*e*x - 4*e^2*x^2) + b^3*(d^3 + 6*d^2*e*x - 2*e^3*x^3))) + B*(7
*a^4*e^3 + a^3*b*e^2*(-15*d + 2*e*x) + a^2*b^2*e*(9*d^2 - 12*d*e*
x - 11*e^2*x^2) + b^4*x*(-2*d^3 + 6*d*e^2*x^2 + e^3*x^3) - a*b^3*
(d^3 - 12*d^2*e*x - 12*d*e^2*x^2 + 4*e^3*x^3)) + 6*e*(b*d - a*e)*
(b*B*d + A*b*e - 2*a*B*e)*(a + b*x)^2*Log[a + b*x])/(2*b^5*(a + b
*x)^2)
```

Maple [B] time = 0.016, size = 404, normalized size = 2.9

$$\frac{Be^3x^2}{2b^3}+\frac{e^3Ax}{b^3}-3\frac{Bae^3x}{b^4}+3\frac{e^2Bdx}{b^3}-3\frac{e^3\ln(bx+a)Aa}{b^4}+3\frac{e^2\ln(bx+a)Ad}{b^3}+6\frac{e^3\ln(bx+a)Ba^2}{b^5}-9\frac{e^2\ln(bx+a)Bad}{b^4}+3\frac{e\ln(bx+a)Bd^2}{b^3}-3\frac{Aa^2e^3}{b^4(bx+a)}+6\frac{aAde^2}{b^3(bx+a)}-3\frac{Ad^2e}{b^2(bx+a)}+4\frac{Ba^3e^3}{b^5(bx+a)}-9\frac{Ba^2de^2}{b^4(bx+a)}+6\frac{Bad^2e}{b^3(bx+a)}-\frac{Bd^3}{b^2(bx+a)}+\frac{a^3Ae^3}{2(bx+a)^2b^4}-\frac{3Aa^2de^2}{2(bx+a)^2b^3}+\frac{3aAd^2e}{2(bx+a)^2b^2}-\frac{Ad^3}{2(bx+a)^2b}-\frac{Ba^4e^3}{2(bx+a)^2b^5}+\frac{3Ba^3de^2}{2(bx+a)^2b^4}-\frac{3Ba^2d^2e}{2(bx+a)^2b^3}+\frac{Bad^3}{2(bx+a)^2b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(e*x+d)^3/(b*x+a)^3,x)
```

```
[Out] 1/2*B*e^3*x^2/b^3+e^3/b^3*A*x-3*e^3/b^4*B*a*x+3*e^2/b^3*B*d*x-3/b
^4*e^3*ln(b*x+a)*A*a+3/b^3*e^2*ln(b*x+a)*A*d+6/b^5*e^3*ln(b*x+a)*
B*a^2-9/b^4*e^2*ln(b*x+a)*B*a*d+3/b^3*e*ln(b*x+a)*B*d^2-3/b^4/(b*
x+a)*A*a^2*e^3+6/b^3/(b*x+a)*A*a*d*e^2-3/b^2/(b*x+a)*A*d^2*e+4/b^
5/(b*x+a)*B*a^3*e^3-9/b^4/(b*x+a)*B*a^2*d*e^2+6/b^3/(b*x+a)*B*a*d
^2*e-1/b^2/(b*x+a)*B*d^3+1/2/(b*x+a)^2/b^4*A*a^3*e^3-3/2/(b*x+a)^
2/b^3*A*a^2*d*e^2+3/2/(b*x+a)^2/b^2*A*a*d^2*e-1/2/(b*x+a)^2/b*A*d
^3-1/2/(b*x+a)^2/b^5*B*a^4*e^3+3/2/(b*x+a)^2/b^4*B*a^3*d*e^2-3/2/
(b*x+a)^2/b^3*B*a^2*d^2*e+1/2/(b*x+a)^2/b^2*B*a*d^3
```

Maxima [A] time = 1.37778, size = 381, normalized size = 2.7

$$-\frac{(Bab^3+Ab^4)d^3-3(3Ba^2b^2-Aab^3)d^2e+3(5Ba^3b-3Aa^2b^2)de^2-(7Ba^4-5Aa^3b)e^3+2(Bb^4d^3-3(2Bab^3-Ab^4)}{2(b^7x^2+2ab^6x+a^2b^5)}+\frac{Bbe^3x^2+2(3Bbde^2-(3Ba-Ab)e^3)x}{2b^4}+\frac{3(Bb^2d^2e-(3Bab-Ab^2)de^2+(2Ba^2-Aab)e^3)\log(bx+a)}{b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^3/(b*x + a)^3,x, algorithm="maxima")
```

```
[Out] -1/2*((B*a*b^3 + A*b^4)*d^3 - 3*(3*B*a^2*b^2 - A*a*b^3)*d^2*e + 3
*(5*B*a^3*b - 3*A*a^2*b^2)*d*e^2 - (7*B*a^4 - 5*A*a^3*b)*e^3 + 2*
(B*b^4*d^3 - 3*(2*B*a*b^3 - A*b^4)*d^2*e + 3*(3*B*a^2*b^2 - 2*A*a
*b^3)*d*e^2 - (4*B*a^3*b - 3*A*a^2*b^2)*e^3)*x)/(b^7*x^2 + 2*a*b^
6*x + a^2*b^5) + 1/2*(B*b*e^3*x^2 + 2*(3*B*b*d*e^2 - (3*B*a - A*b
)*e^3)*x)/b^4 + 3*(B*b^2*d^2*e - (3*B*a*b - A*b^2)*d*e^2 + (2*B*a
^2 - A*a*b)*e^3)*log(b*x + a)/b^5
```

Fricas [A] time = 0.217784, size = 597, normalized size = 4.23

$$\frac{Bb^4e^3x^4-(Bab^3+Ab^4)d^3+3(3Ba^2b^2-Aab^3)d^2e-3(5Ba^3b-3Aa^2b^2)de^2+(7Ba^4-5Aa^3b)e^3+2(3Bb^4de^2-(2Ba}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^3/(b*x + a)^3,x, algorithm="fricas")
```

```
[Out] 1/2*(B*b^4*e^3*x^4 - (B*a*b^3 + A*b^4)*d^3 + 3*(3*B*a^2*b^2 - A*a
*b^3)*d^2*e - 3*(5*B*a^3*b - 3*A*a^2*b^2)*d*e^2 + (7*B*a^4 - 5*A*
a^3*b)*e^3 + 2*(3*B*b^4*d*e^2 - (2*B*a*b^3 - A*b^4)*e^3)*x^3 + (1
2*B*a*b^3*d*e^2 - (11*B*a^2*b^2 - 4*A*a*b^3)*e^3)*x^2 - 2*(B*b^4*
d^3 - 3*(2*B*a*b^3 - A*b^4)*d^2*e + 6*(B*a^2*b^2 - A*a*b^3)*d*e^2
 - (B*a^3*b - 2*A*a^2*b^2)*e^3)*x + 6*(B*a^2*b^2*d^2*e - (3*B*a^3
*b - A*a^2*b^2)*d*e^2 + (2*B*a^4 - A*a^3*b)*e^3 + (B*b^4*d^2*e -
(3*B*a*b^3 - A*b^4)*d*e^2 + (2*B*a^2*b^2 - A*a*b^3)*e^3)*x^2 + 2*
(B*a*b^3*d^2*e - (3*B*a^2*b^2 - A*a*b^3)*d*e^2 + (2*B*a^3*b - A*a
^2*b^2)*e^3)*x)*log(b*x + a))/(b^7*x^2 + 2*a*b^6*x + a^2*b^5)
```

Sympy [A] time = 19.9014, size = 296, normalized size = 2.1

$$\frac{Be^3x^2}{2b^3} + \frac{-5Aa^3be^3 + 9Aa^2b^2de^2 - 3Aab^3d^2e - Ab^4d^3 + 7Ba^4e^3 - 15Ba^3bde^2 + 9Ba^2b^2d^2e - Bab^3d^3 + x\left(-6Aa^2b^2e^3 + 12Aab^3de^2 \cdots\right)}{2a^2b^5 + 4ab^6x + 2b^7x^2} - \frac{x\left(-Abe^3 + 3Bae^3 - 3Bbde^2\right)}{b^4} + \frac{3e\left(ae - bd\right)\left(-Abe + 2Bae - Bbd\right)\log\left(a + bx\right)}{b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(e*x+d)**3/(b*x+a)**3,x)
```

```
[Out] B*e**3*x**2/(2*b**3) + (-5*A*a**3*b*e**3 + 9*A*a**2*b**2*d*e**2 -
 3*A*a*b**3*d**2*e - A*b**4*d**3 + 7*B*a**4*e**3 - 15*B*a**3*b*d*
e**2 + 9*B*a**2*b**2*d**2*e - B*a*b**3*d**3 + x*(-6*A*a**2*b**2*e
**3 + 12*A*a*b**3*d*e**2 - 6*A*b**4*d**2*e + 8*B*a**3*b*e**3 - 18
*B*a**2*b**2*d*e**2 + 12*B*a*b**3*d**2*e - 2*B*b**4*d**3))/(2*a**
2*b**5 + 4*a*b**6*x + 2*b**7*x**2) - x*(-A*b*e**3 + 3*B*a*e**3 -
3*B*b*d*e**2)/b**4 + 3*e*(a*e - b*d)*(-A*b*e + 2*B*a*e - B*b*d)*l
og(a + b*x)/b**5
```

GIAC/XCAS [A] time = 0.231069, size = 367, normalized size = 2.6

$$\frac{3\left(Bb^2d^2e - 3\,Babde^2 + Ab^2de^2 + 2\,Ba^2e^3 - Aabe^3\right)\ln\left(|bx + a|\right)}{b^5} + \frac{Bb^3x^2e^3 + 6\,Bb^3dxe^2 - 6\,Bab^2xe^3 + 2\,Ab^3xe^3}{2\,b^6} - \frac{Bab^3d^3 + Ab^4d^3 - 9\,Ba^2b^2d^2e + 3\,Aab^3d^2e + 15\,Ba^3bde^2 - 9\,Aa^2b^2de^2 - 7\,Ba^4e^3 + 5\,Aa^3be^3 + 2\left(Bb^4d^3 - 6\,Bab^3d^2e + 3\,A \cdots\right)}{2\left(bx + a\right)^2b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^3/(b*x + a)^3,x, algorithm="giac")
```

```
[Out] 3*(B*b^2*d^2*e - 3*B*a*b*d*e^2 + A*b^2*d*e^2 + 2*B*a^2*e^3 - A*a*
b*e^3)*ln(abs(b*x + a))/b^5 + 1/2*(B*b^3*x^2*e^3 + 6*B*b^3*d*x*e^
2 - 6*B*a*b^2*x*e^3 + 2*A*b^3*x*e^3)/b^6 - 1/2*(B*a*b^3*d^3 + A*b
^4*d^3 - 9*B*a^2*b^2*d^2*e + 3*A*a*b^3*d^2*e + 15*B*a^3*b*d*e^2 -
 9*A*a^2*b^2*d*e^2 - 7*B*a^4*e^3 + 5*A*a^3*b*e^3 + 2*(B*b^4*d^3 -
 6*B*a*b^3*d^2*e + 3*A*b^4*d^2*e + 9*B*a^2*b^2*d*e^2 - 6*A*a*b^3*
d*e^2 - 4*B*a^3*b*e^3 + 3*A*a^2*b^2*e^3)*x)/((b*x + a)^2*b^5)
```

3.1119 $\int \frac{(A+Bx)(d+ex)^2}{(a+bx)^3}\,dx$

Optimal. Leaf size=103

$$-\frac{(bd-ae)(-3aBe+2Abe+bBd)}{b^4(a+bx)}-\frac{(Ab-aB)(bd-ae)^2}{2b^4(a+bx)^2}+\frac{e\log(a+bx)(-3aBe+Abe+2bBd)}{b^4}+\frac{Be^2x}{b^3}$$

```
[Out] (B*e^2*x)/b^3 - ((A*b - a*B)*(b*d - a*e)^2)/(2*b^4*(a + b*x)^2) -
 ((b*d - a*e)*(b*B*d + 2*A*b*e - 3*a*B*e))/(b^4*(a + b*x)) + (e*(
2*b*B*d + A*b*e - 3*a*B*e)*Log[a + b*x])/b^4
```

Rubi [A] time = 0.216599, antiderivative size = 103, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{(bd-ae)(-3aBe+2Abe+bBd)}{b^4(a+bx)}-\frac{(Ab-aB)(bd-ae)^2}{2b^4(a+bx)^2}+\frac{e\log(a+bx)(-3aBe+Abe+2bBd)}{b^4}+\frac{Be^2x}{b^3}$$

Antiderivative was successfully verified.

```
[In]  Int[((A + B*x)*(d + e*x)^2)/(a + b*x)^3,x]
```

```
[Out] (B*e^2*x)/b^3 - ((A*b - a*B)*(b*d - a*e)^2)/(2*b^4*(a + b*x)^2) -
 ((b*d - a*e)*(b*B*d + 2*A*b*e - 3*a*B*e))/(b^4*(a + b*x)) + (e*(
2*b*B*d + A*b*e - 3*a*B*e)*Log[a + b*x])/b^4
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{e^2\int B\,dx}{b^3}+\frac{e\,(Abe-3Bae+2Bbd)\log{(a+bx)}}{b^4}+\frac{(ae-bd)\,(2Abe-3Bae+Bbd)}{b^4\,(a+bx)}-\frac{(Ab-Ba)\,(ae-bd)^2}{2b^4\,(a+bx)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(e*x+d)**2/(b*x+a)**3,x)
```

```
[Out] e**2*Integral(B, x)/b**3 + e*(A*b*e - 3*B*a*e + 2*B*b*d)*log(a +
b*x)/b**4 + (a*e - b*d)*(2*A*b*e - 3*B*a*e + B*b*d)/(b**4*(a + b*
x)) - (A*b - B*a)*(a*e - b*d)**2/(2*b**4*(a + b*x)**2)
```

Mathematica [A] time = 0.125777, size = 140, normalized size = 1.36

$$\frac{B\left(-5a^3e^2+2a^2be(3d-2ex)+ab^2\left(-d^2+8dex+4e^2x^2\right)+2b^3x\left(e^2x^2-d^2\right)\right)+2e(a+bx)^2\log(a+bx)(-3aBe+Abe+2bl}{2b^4(a+bx)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((A + B*x)*(d + e*x)^2)/(a + b*x)^3,x]
```

```
[Out] (-(A*b*(b*d - a*e)*(3*a*e + b*(d + 4*e*x))) + B*(-5*a^3*e^2 + 2*a
^2*b*e*(3*d - 2*e*x) + 2*b^3*x*(-d^2 + e^2*x^2) + a*b^2*(-d^2 + 8
*d*e*x + 4*e^2*x^2)) + 2*e*(2*b*B*d + A*b*e - 3*a*B*e)*(a + b*x)^
2*Log[a + b*x])/(2*b^4*(a + b*x)^2)
```

Maple [B] time = 0.013, size = 242, normalized size = 2.4

$$\frac{Be^2x}{b^3}+\frac{e^2\ln(bx+a)A}{b^3}-3\frac{e^2\ln(bx+a)Ba}{b^4}+2\frac{e\ln(bx+a)Bd}{b^3}+2\frac{aAe^2}{b^3(bx+a)}-2\frac{Ade}{b^2(bx+a)}-3\frac{Ba^2e^2}{b^4(bx+a)}+4\frac{Bade}{b^3(bx+a)}-\frac{Bd^2}{b^2(bx+a)}-\frac{a^2Ae^2}{2b^3(bx+a)^2}+\frac{aAde}{b^2(bx+a)^2}-\frac{Ad^2}{2b(bx+a)^2}+\frac{Ba^3e^2}{2b^4(bx+a)^2}-\frac{Ba^2de}{b^3(bx+a)^2}+\frac{Bad^2}{2b^2(bx+a)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(e*x+d)^2/(b*x+a)^3,x)
```

```
[Out] B*e^2*x/b^3+1/b^3*e^2*ln(b*x+a)*A-3/b^4*e^2*ln(b*x+a)*B*a+2/b^3*e
*ln(b*x+a)*B*d+2/b^3/(b*x+a)*A*a*e^2-2/b^2/(b*x+a)*A*d*e-3/b^4/(b
*x+a)*B*a^2*e^2+4/b^3/(b*x+a)*B*a*d*e-1/b^2/(b*x+a)*B*d^2-1/2/b^3
/(b*x+a)^2*A*a^2*e^2+1/b^2/(b*x+a)^2*A*a*d*e-1/2/b/(b*x+a)^2*A*d^
2+1/2/b^4/(b*x+a)^2*B*a^3*e^2-1/b^3/(b*x+a)^2*B*a^2*d*e+1/2/b^2/(
b*x+a)^2*B*a*d^2
```

Maxima [A] time = 1.34876, size = 230, normalized size = 2.23

$$\frac{Be^2x}{b^3}-\frac{(Bab^2+Ab^3)d^2-2(3Ba^2b-Aab^2)de+(5Ba^3-3Aa^2b)e^2+2(Bb^3d^2-2(2Bab^2-Ab^3)de+(3Ba^2b-2Aab^2)e^2)x}{2(b^6x^2+2ab^5x+a^2b^4)}+\frac{(2Bbde-(3Ba-Ab)e^2)\log(bx+a)}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^2/(b*x + a)^3,x, algorithm="maxima")
```

```
[Out] B*e^2*x/b^3 - 1/2*((B*a*b^2 + A*b^3)*d^2 - 2*(3*B*a^2*b - A*a*b^2
)*d*e + (5*B*a^3 - 3*A*a^2*b)*e^2 + 2*(B*b^3*d^2 - 2*(2*B*a*b^2 -
 A*b^3)*d*e + (3*B*a^2*b - 2*A*a*b^2)*e^2)*x)/(b^6*x^2 + 2*a*b^5*
x + a^2*b^4) + (2*B*b*d*e - (3*B*a - A*b)*e^2)*log(b*x + a)/b^4
```

Fricas [A] time = 0.220396, size = 348, normalized size = 3.38

$$\frac{2Bb^3e^2x^3+4Bab^2e^2x^2-(Bab^2+Ab^3)d^2+2(3Ba^2b-Aab^2)de-(5Ba^3-3Aa^2b)e^2-2(Bb^3d^2-2(2Bab^2-Ab^3)de+}{2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^2/(b*x + a)^3,x, algorithm="fricas")
```

```
[Out] 1/2*(2*B*b^3*e^2*x^3 + 4*B*a*b^2*e^2*x^2 - (B*a*b^2 + A*b^3)*d^2
+ 2*(3*B*a^2*b - A*a*b^2)*d*e - (5*B*a^3 - 3*A*a^2*b)*e^2 - 2*(B*
b^3*d^2 - 2*(2*B*a*b^2 - A*b^3)*d*e + 2*(B*a^2*b - A*a*b^2)*e^2)*
x + 2*(2*B*a^2*b*d*e - (3*B*a^3 - A*a^2*b)*e^2 + (2*B*b^3*d*e - (
3*B*a*b^2 - A*b^3)*e^2)*x^2 + 2*(2*B*a*b^2*d*e - (3*B*a^2*b - A*a
*b^2)*e^2)*x)*log(b*x + a))/(b^6*x^2 + 2*a*b^5*x + a^2*b^4)
```

Sympy [A] time = 10.9451, size = 187, normalized size = 1.82

$$\frac{Be^2x}{b^3} - \frac{-3Aa^2be^2 + 2Aab^2de + Ab^3d^2 + 5Ba^3e^2 - 6Ba^2bde + Bab^2d^2 + x\left(-4Aab^2e^2 + 4Ab^3de + 6Ba^2be^2 - 8Bab^2de + 2Bb^3d^2\right)}{2a^2b^4 + 4ab^5x + 2b^6x^2} - \frac{e\left(-Abe + 3Bae - 2Bbd\right)\log\left(a + bx\right)}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(e*x+d)**2/(b*x+a)**3,x)
```

```
[Out] B*e**2*x/b**3 - (-3*A*a**2*b*e**2 + 2*A*a*b**2*d*e + A*b**3*d**2
+ 5*B*a**3*e**2 - 6*B*a**2*b*d*e + B*a*b**2*d**2 + x*(-4*A*a*b**2
*e**2 + 4*A*b**3*d*e + 6*B*a**2*b*e**2 - 8*B*a*b**2*d*e + 2*B*b**
3*d**2))/(2*a**2*b**4 + 4*a*b**5*x + 2*b**6*x**2) - e*(-A*b*e + 3
*B*a*e - 2*B*b*d)*log(a + b*x)/b**4
```

GIAC/XCAS [A] time = 0.223041, size = 209, normalized size = 2.03

$$\frac{Bxe^2}{b^3} + \frac{\left(2\,Bbde - 3\,Bae^2 + Abe^2\right)\ln\left(|bx + a|\right)}{b^4} - \frac{Bab^2d^2 + Ab^3d^2 - 6\,Ba^2bde + 2\,Aab^2de + 5\,Ba^3e^2 - 3\,Aa^2be^2 + 2\left(Bb^3d^2 - 4\,Bab^2de + 2\,Ab^3de + 3\,Ba^2be^2 - 2\,Aab^2e^2\right)x}{2\left(bx + a\right)^2b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^2/(b*x + a)^3,x, algorithm="giac")
```

```
[Out] B*x*e^2/b^3 + (2*B*b*d*e - 3*B*a*e^2 + A*b*e^2)*ln(abs(b*x + a))/
b^4 - 1/2*(B*a*b^2*d^2 + A*b^3*d^2 - 6*B*a^2*b*d*e + 2*A*a*b^2*d*
e + 5*B*a^3*e^2 - 3*A*a^2*b*e^2 + 2*(B*b^3*d^2 - 4*B*a*b^2*d*e +
2*A*b^3*d*e + 3*B*a^2*b*e^2 - 2*A*a*b^2*e^2)*x)/((b*x + a)^2*b^4)
```

3.1120 $\int \frac{(A+Bx)(d+ex)}{(a+bx)^3} dx$

Optimal. Leaf size=69

$$-\frac{(Ab-aB)(bd-ae)}{2b^3(a+bx)^2}-\frac{-2aBe+Abe+bBd}{b^3(a+bx)}+\frac{Be\log(a+bx)}{b^3}$$

```
[Out] -((A*b - a*B)*(b*d - a*e))/(2*b^3*(a + b*x)^2) - (b*B*d + A*b*e -
 2*a*B*e)/(b^3*(a + b*x)) + (B*e*Log[a + b*x])/b^3
```

Rubi [A] time = 0.127622, antiderivative size = 69, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{(Ab-aB)(bd-ae)}{2b^3(a+bx)^2}-\frac{-2aBe+Abe+bBd}{b^3(a+bx)}+\frac{Be\log(a+bx)}{b^3}$$

Antiderivative was successfully verified.

```
[In]  Int[((A + B*x)*(d + e*x))/(a + b*x)^3,x]
```

```
[Out] -((A*b - a*B)*(b*d - a*e))/(2*b^3*(a + b*x)^2) - (b*B*d + A*b*e -
 2*a*B*e)/(b^3*(a + b*x)) + (B*e*Log[a + b*x])/b^3
```

Rubi in Sympy [A] time = 19.163, size = 63, normalized size = 0.91

$$\frac{Be\log(a+bx)}{b^3}-\frac{Abe-2Bae+Bbd}{b^3(a+bx)}+\frac{(Ab-Ba)(ae-bd)}{2b^3(a+bx)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(e*x+d)/(b*x+a)**3,x)
```

```
[Out] B*e*log(a + b*x)/b**3 - (A*b*e - 2*B*a*e + B*b*d)/(b**3*(a + b*x)
) + (A*b - B*a)*(a*e - b*d)/(2*b**3*(a + b*x)**2)
```

Mathematica [A] time = 0.0532225, size = 75, normalized size = 1.09

$$\frac{B\left(3a^2e-abd+4abex-2b^2dx\right)-Ab(ae+bd+2bex)+2Be(a+bx)^2\log(a+bx)}{2b^3(a+bx)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((A + B*x)*(d + e*x))/(a + b*x)^3,x]
```

```
[Out] (-(A*b*(b*d + a*e + 2*b*e*x)) + B*(-(a*b*d) + 3*a^2*e - 2*b^2*d*x
 + 4*a*b*e*x) + 2*B*e*(a + b*x)^2*Log[a + b*x])/(2*b^3*(a + b*x)^
2)
```

Maple [A] time = 0.01, size = 118, normalized size = 1.7

$$\frac{Be\ln(bx+a)}{b^3}-\frac{Ae}{(bx+a)b^2}+2\frac{Bae}{(bx+a)b^3}-\frac{Bd}{(bx+a)b^2}+\frac{Aae}{2b^2(bx+a)^2}-\frac{Ad}{2b(bx+a)^2}-\frac{Ba^2e}{2b^3(bx+a)^2}+\frac{Bad}{2b^2(bx+a)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(e*x+d)/(b*x+a)^3,x)
```

```
[Out] B*e*ln(b*x+a)/b^3-1/(b*x+a)/b^2*A*e+2/(b*x+a)/b^3*B*a*e-1/(b*x+a)
/b^2*B*d+1/2/b^2/(b*x+a)^2*A*a*e-1/2/b/(b*x+a)^2*A*d-1/2/b^3/(b*x
+a)^2*B*a^2*e+1/2/b^2/(b*x+a)^2*B*a*d
```

Maxima [A] time = 1.34739, size = 124, normalized size = 1.8

$$-\frac{\left(Bab + Ab^2\right)d - \left(3\,Ba^2 - Aab\right)e + 2\,\left(Bb^2d - \left(2\,Bab - Ab^2\right)e\right)x}{2\,(b^5x^2 + 2\,ab^4x + a^2b^3)} + \frac{Be\log\left(bx + a\right)}{b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)/(b*x + a)^3,x, algorithm="maxima")
```

```
[Out] -1/2*((B*a*b + A*b^2)*d - (3*B*a^2 - A*a*b)*e + 2*(B*b^2*d - (2*B
*a*b - A*b^2)*e)*x)/(b^5*x^2 + 2*a*b^4*x + a^2*b^3) + B*e*log(b*x
 + a)/b^3
```

Fricas [A] time = 0.215834, size = 149, normalized size = 2.16

$$-\frac{\left(Bab + Ab^2\right)d - \left(3\,Ba^2 - Aab\right)e + 2\,\left(Bb^2d - \left(2\,Bab - Ab^2\right)e\right)x - 2\,\left(Bb^2ex^2 + 2\,Babex + Ba^2e\right)\log\left(bx + a\right)}{2\,(b^5x^2 + 2\,ab^4x + a^2b^3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)/(b*x + a)^3,x, algorithm="fricas")
```

```
[Out] -1/2*((B*a*b + A*b^2)*d - (3*B*a^2 - A*a*b)*e + 2*(B*b^2*d - (2*B
*a*b - A*b^2)*e)*x - 2*(B*b^2*e*x^2 + 2*B*a*b*e*x + B*a^2*e)*log(
b*x + a))/(b^5*x^2 + 2*a*b^4*x + a^2*b^3)
```

Sympy [A] time = 4.35124, size = 94, normalized size = 1.36

$$\frac{Be\log\left(a + bx\right)}{b^3} + \frac{-Aabe - Ab^2d + 3Ba^2e - Babd + x\left(-2Ab^2e + 4Babe - 2Bb^2d\right)}{2a^2b^3 + 4ab^4x + 2b^5x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(e*x+d)/(b*x+a)**3,x)
```

```
[Out] B*e*log(a + b*x)/b**3 + (-A*a*b*e - A*b**2*d + 3*B*a**2*e - B*a*b
*d + x*(-2*A*b**2*e + 4*B*a*b*e - 2*B*b**2*d))/(2*a**2*b**3 + 4*a
*b**4*x + 2*b**5*x**2)
```

GIAC/XCAS [A] time = 0.232129, size = 104, normalized size = 1.51

$$\frac{Be\ln\left(|bx + a|\right)}{b^3} - \frac{2\,(Bbd - 2\,Bae + Abe)x + \frac{Babd + Ab^2d - 3\,Ba^2e + Aabe}{b}}{2\,(bx + a)^2b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)/(b*x + a)^3,x, algorithm="giac")
```

```
[Out] B*e*ln(abs(b*x + a))/b^3 - 1/2*(2*(B*b*d - 2*B*a*e + A*b*e)*x + (
B*a*b*d + A*b^2*d - 3*B*a^2*e + A*a*b*e)/b)/((b*x + a)^2*b^2)
```

3.1121 $\int \frac{A+Bx}{(a+bx)^3} \, dx$

Optimal. Leaf size=28

$$-\frac{(A+Bx)^2}{2(a+bx)^2(Ab-aB)}$$

```
[Out] -(A + B*x)^2/(2*(A*b - a*B)*(a + b*x)^2)
```

Rubi [A] time = 0.0217736, antiderivative size = 28, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 13, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.077

$$-\frac{(A+Bx)^2}{2(a+bx)^2(Ab-aB)}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(a + b*x)^3,x]
```

```
[Out] -(A + B*x)^2/(2*(A*b - a*B)*(a + b*x)^2)
```

Rubi in Sympy [A] time = 3.38061, size = 22, normalized size = 0.79

$$-\frac{(A+Bx)^2}{2\,(a+bx)^2\,(Ab-Ba)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(b*x+a)**3,x)
```

```
[Out] -(A + B*x)**2/(2*(a + b*x)**2*(A*b - B*a))
```

Mathematica [A] time = 0.0148258, size = 26, normalized size = 0.93

$$-\frac{B(a+2bx)+Ab}{2b^2(a+bx)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(a + b*x)^3,x]
```

```
[Out] -(A*b + B*(a + 2*b*x))/(2*b^2*(a + b*x)^2)
```

Maple [A] time = 0., size = 35, normalized size = 1.3

$$-\frac{B}{(bx+a)\,b^2}-\frac{Ab-Ba}{2\,b^2\,(bx+a)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(b*x+a)^3,x)
```

```
[Out] -B/(b*x+a)/b^2-1/2*(A*b-B*a)/b^2/(b*x+a)^2
```

Maxima [A] time = 1.35635, size = 51, normalized size = 1.82

$$-\frac{2\,Bbx + Ba + Ab}{2\,(b^4x^2 + 2\,ab^3x + a^2b^2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(b*x + a)^3,x, algorithm="maxima")
```

```
[Out] -1/2*(2*B*b*x + B*a + A*b)/(b^4*x^2 + 2*a*b^3*x + a^2*b^2)
```

Fricas [A] time = 0.206434, size = 51, normalized size = 1.82

$$-\frac{2\,Bbx + Ba + Ab}{2\,(b^4x^2 + 2\,ab^3x + a^2b^2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(b*x + a)^3,x, algorithm="fricas")
```

```
[Out] -1/2*(2*B*b*x + B*a + A*b)/(b^4*x^2 + 2*a*b^3*x + a^2*b^2)
```

Sympy [A] time = 1.80414, size = 39, normalized size = 1.39

$$-\frac{Ab + Ba + 2Bbx}{2a^2b^2 + 4ab^3x + 2b^4x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(b*x+a)**3,x)
```

```
[Out] -(A*b + B*a + 2*B*b*x)/(2*a**2*b**2 + 4*a*b**3*x + 2*b**4*x**2)
```

GIAC/XCAS [A] time = 0.216384, size = 32, normalized size = 1.14

$$-\frac{2\,Bbx + Ba + Ab}{2\,(bx + a)^2b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(b*x + a)^3,x, algorithm="giac")
```

```
[Out] -1/2*(2*B*b*x + B*a + A*b)/((b*x + a)^2*b^2)
```

3.1122 $\int \frac{A+Bx}{(a+bx)^3(d+ex)}\,dx$

Optimal. Leaf size=113

$$-\frac{Ab-aB}{2b(a+bx)^2(bd-ae)}-\frac{Bd-Ae}{(a+bx)(bd-ae)^2}-\frac{e\log(a+bx)(Bd-Ae)}{(bd-ae)^3}+\frac{e(Bd-Ae)\log(d+ex)}{(bd-ae)^3}$$

```
[Out] -(A*b - a*B)/(2*b*(b*d - a*e)*(a + b*x)^2) - (B*d - A*e)/((b*d -
a*e)^2*(a + b*x)) - (e*(B*d - A*e)*Log[a + b*x])/(b*d - a*e)^3 +
(e*(B*d - A*e)*Log[d + e*x])/(b*d - a*e)^3
```

Rubi [A] time = 0.201936, antiderivative size = 113, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{Ab-aB}{2b(a+bx)^2(bd-ae)}-\frac{Bd-Ae}{(a+bx)(bd-ae)^2}-\frac{e\log(a+bx)(Bd-Ae)}{(bd-ae)^3}+\frac{e(Bd-Ae)\log(d+ex)}{(bd-ae)^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/((a + b*x)^3*(d + e*x)),x]
```

```
[Out] -(A*b - a*B)/(2*b*(b*d - a*e)*(a + b*x)^2) - (B*d - A*e)/((b*d -
a*e)^2*(a + b*x)) - (e*(B*d - A*e)*Log[a + b*x])/(b*d - a*e)^3 +
(e*(B*d - A*e)*Log[d + e*x])/(b*d - a*e)^3
```

Rubi in Sympy [A] time = 29.7402, size = 90, normalized size = 0.8

$$-\frac{e\left(Ae-Bd\right)\log\left(a+bx\right)}{\left(ae-bd\right)^3}+\frac{e\left(Ae-Bd\right)\log\left(d+ex\right)}{\left(ae-bd\right)^3}+\frac{Ae-Bd}{\left(a+bx\right)\left(ae-bd\right)^2}+\frac{Ab-Ba}{2b\left(a+bx\right)^2\left(ae-bd\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(b*x+a)**3/(e*x+d),x)
```

```
[Out] -e*(A*e - B*d)*log(a + b*x)/(a*e - b*d)**3 + e*(A*e - B*d)*log(d
+ e*x)/(a*e - b*d)**3 + (A*e - B*d)/((a + b*x)*(a*e - b*d)**2) +
(A*b - B*a)/(2*b*(a + b*x)**2*(a*e - b*d))
```

Mathematica [A] time = 0.111014, size = 103, normalized size = 0.91

$$\frac{\frac{(aB-Ab)(bd-ae)^2}{b(a+bx)^2}+\frac{2(bd-ae)(Ae-Bd)}{a+bx}+2e\log(a+bx)(Ae-Bd)+2e(Bd-Ae)\log(d+ex)}{2(bd-ae)^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/((a + b*x)^3*(d + e*x)),x]
```

```
[Out] (((-(A*b) + a*B)*(b*d - a*e)^2)/(b*(a + b*x)^2) + (2*(b*d - a*e)*
(-(B*d) + A*e))/(a + b*x) + 2*e*(-(B*d) + A*e)*Log[a + b*x] + 2*e
*(B*d - A*e)*Log[d + e*x])/(2*(b*d - a*e)^3)
```

Maple [A] time = 0.016, size = 171, normalized size = 1.5

$$\frac{e^2\ln\left(ex+d\right)A}{\left(ae-bd\right)^3}-\frac{e\ln\left(ex+d\right)Bd}{\left(ae-bd\right)^3}+\frac{A}{\left(2\,ae-2\,bd\right)\left(bx+a\right)^2}-\frac{Ba}{\left(2\,ae-2\,bd\right)b\left(bx+a\right)^2}+\frac{Ae}{\left(ae-bd\right)^2\left(bx+a\right)}-\frac{Bd}{\left(ae-bd\right)^2\left(bx+a\right)}-\frac{e^2\ln\left(bx+a\right)A}{\left(ae-bd\right)^3}+\frac{e\ln\left(bx+a\right)Bd}{\left(ae-bd\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((B*x+A)/(b*x+a)^3/(e*x+d),x)
```

```
[Out] e^2/(a*e-b*d)^3*ln(e*x+d)*A-e/(a*e-b*d)^3*ln(e*x+d)*B*d+1/2/(a*e-
b*d)/(b*x+a)^2*A-1/2/(a*e-b*d)/b/(b*x+a)^2*B*a+1/(a*e-b*d)^2/(b*x
+a)*A*e-1/(a*e-b*d)^2/(b*x+a)*B*d-e^2/(a*e-b*d)^3*ln(b*x+a)*A+e/(
a*e-b*d)^3*ln(b*x+a)*B*d
```

Maxima [A]   time = 1.34555, size = 340, normalized size = 3.01

$$-\frac{\left(Bde - Ae^{2}\right)\log\left(bx + a\right)}{b^{3}d^{3} - 3\,ab^{2}d^{2}e + 3\,a^{2}bde^{2} - a^{3}e^{3}} + \frac{\left(Bde - Ae^{2}\right)\log\left(ex + d\right)}{b^{3}d^{3} - 3\,ab^{2}d^{2}e + 3\,a^{2}bde^{2} - a^{3}e^{3}} - \frac{\left(Bab + Ab^{2}\right)d + \left(Ba^{2} - 3\,Aab\right)e + 2\left(Bb^{2}d - Ab^{2}e\right)x}{2\left(a^{2}b^{3}d^{2} - 2\,a^{3}b^{2}de + a^{4}be^{2} + (b^{5}d^{2} - 2\,ab^{4}de + a^{2}b^{3}e^{2})x^{2} + 2\,(ab^{4}d^{2} - 2\,a^{2}b^{3}de + a^{3}b^{2}e^{2})x\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)/((b*x + a)^3*(e*x + d)),x, algorithm="maxima")
```

```
[Out] -(B*d*e - A*e^2)*log(b*x + a)/(b^3*d^3 - 3*a*b^2*d^2*e + 3*a^2*b*
d*e^2 - a^3*e^3) + (B*d*e - A*e^2)*log(e*x + d)/(b^3*d^3 - 3*a*b^
2*d^2*e + 3*a^2*b*d*e^2 - a^3*e^3) - 1/2*((B*a*b + A*b^2)*d + (B*
a^2 - 3*A*a*b)*e + 2*(B*b^2*d - A*b^2*e)*x)/(a^2*b^3*d^2 - 2*a^3*
b^2*d*e + a^4*b*e^2 + (b^5*d^2 - 2*a*b^4*d*e + a^2*b^3*e^2)*x^2 +
 2*(a*b^4*d^2 - 2*a^2*b^3*d*e + a^3*b^2*e^2)*x)
```

Fricas [A]   time = 0.227024, size = 487, normalized size = 4.31

$$\frac{4\,Aab^{2}de - \left(Bab^{2} + Ab^{3}\right)d^{2} + \left(Ba^{3} - 3\,Aa^{2}b\right)e^{2} - 2\left(Bb^{3}d^{2} + Aab^{2}e^{2} - \left(Bab^{2} + Ab^{3}\right)de\right)x - 2\left(Ba^{2}bde - Aa^{2}be^{2} + \left(Bb^{3}de\right.\right.}{2\,(a^{2}b^{4}d^{3} - 3\,a^{3}b^{3}d^{2}e + 3\,a^{4}b^{2}de^{2} - a^{5}be^{3} + (b^{6}d^{3} - 3\,ab^{5}d^{2}e}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)/((b*x + a)^3*(e*x + d)),x, algorithm="fricas")
```

```
[Out] 1/2*(4*A*a*b^2*d*e - (B*a*b^2 + A*b^3)*d^2 + (B*a^3 - 3*A*a^2*b)*
e^2 - 2*(B*b^3*d^2 + A*a*b^2*e^2 - (B*a*b^2 + A*b^3)*d*e)*x - 2*(
B*a^2*b*d*e - A*a^2*b*e^2 + (B*b^3*d*e - A*b^3*e^2)*x^2 + 2*(B*a*
b^2*d*e - A*a*b^2*e^2)*x)*log(b*x + a) + 2*(B*a^2*b*d*e - A*a^2*b
*e^2 + (B*b^3*d*e - A*b^3*e^2)*x^2 + 2*(B*a*b^2*d*e - A*a*b^2*e^2
)*x)*log(e*x + d))/(a^2*b^4*d^3 - 3*a^3*b^3*d^2*e + 3*a^4*b^2*d*e
^2 - a^5*b*e^3 + (b^6*d^3 - 3*a*b^5*d^2*e + 3*a^2*b^4*d*e^2 - a^3
*b^3*e^3)*x^2 + 2*(a*b^5*d^3 - 3*a^2*b^4*d^2*e + 3*a^3*b^3*d*e^2
- a^4*b^2*e^3)*x)
```

Sympy [A]   time = 8.19897, size = 558, normalized size = 4.94

$$-\frac{e\left(-Ae + Bd\right)\log\left(x + \frac{-Aae^{3} - Abde^{2} + Bade^{2} + Bbd^{2}e - \frac{a^{4}e^{5}(-Ae+Bd)}{(ae-bd)^{3}} + \frac{4a^{3}bde^{4}(-Ae+Bd)}{(ae-bd)^{3}} - \frac{6a^{2}b^{2}d^{2}e^{3}(-Ae+Bd)}{(ae-bd)^{3}} + \frac{4ab^{3}d^{3}e^{2}(-Ae+Bd)}{(ae-bd)^{3}} - \frac{b^{4}d^{4}e(-Ae+Bd)}{(ae-bd)^{3}}}{-2Abe^{3} + 2Bbde^{2}}\right)}{\left(ae - bd\right)^{3}} + \frac{e\left(-Ae + Bd\right)\log\left(x + \frac{-Aae^{3} - Abde^{2} + Bade^{2} + Bbd^{2}e + \frac{a^{4}e^{5}(-Ae+Bd)}{(ae-bd)^{3}} - \frac{4a^{3}bde^{4}(-Ae+Bd)}{(ae-bd)^{3}} + \frac{6a^{2}b^{2}d^{2}e^{3}(-Ae+Bd)}{(ae-bd)^{3}} - \frac{4ab^{3}d^{3}e^{2}(-Ae+Bd)}{(ae-bd)^{3}} + \frac{b^{4}d^{4}e(-Ae+Bd)}{(ae-bd)^{3}}}{-2Abe^{3} + 2Bbde^{2}}\right)}{\left(ae - bd\right)^{3}} - \frac{-3Aabe + Ab^{2}d + Ba^{2}e + Babd + x\left(-2Ab^{2}e + 2Bb^{2}d\right)}{2a^{4}be^{2} - 4a^{3}b^{2}de + 2a^{2}b^{3}d^{2} + x^{2}\left(2a^{2}b^{3}e^{2} - 4ab^{4}de + 2b^{5}d^{2}\right) + x\left(4a^{3}b^{2}e^{2} - 8a^{2}b^{3}de + 4ab^{4}d^{2}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(b*x+a)**3/(e*x+d),x)
```

```
[Out] -e*(-A*e + B*d)*log(x + (-A*a*e**3 - A*b*d*e**2 + B*a*d*e**2 + B*
b*d**2*e - a**4*e**5*(-A*e + B*d)/(a*e - b*d)**3 + 4*a**3*b*d*e**
4*(-A*e + B*d)/(a*e - b*d)**3 - 6*a**2*b**2*d**2*e**3*(-A*e + B*d
)/(a*e - b*d)**3 + 4*a*b**3*d**3*e**2*(-A*e + B*d)/(a*e - b*d)**3
 - b**4*d**4*e*(-A*e + B*d)/(a*e - b*d)**3)/(-2*A*b*e**3 + 2*B*b*
d*e**2))/(a*e - b*d)**3 + e*(-A*e + B*d)*log(x + (-A*a*e**3 - A*b
*d*e**2 + B*a*d*e**2 + B*b*d**2*e + a**4*e**5*(-A*e + B*d)/(a*e -
 b*d)**3 - 4*a**3*b*d*e**4*(-A*e + B*d)/(a*e - b*d)**3 + 6*a**2*b
**2*d**2*e**3*(-A*e + B*d)/(a*e - b*d)**3 - 4*a*b**3*d**3*e**2*(-
A*e + B*d)/(a*e - b*d)**3 + b**4*d**4*e*(-A*e + B*d)/(a*e - b*d)*
*3)/(-2*A*b*e**3 + 2*B*b*d*e**2))/(a*e - b*d)**3 - (-3*A*a*b*e +
A*b**2*d + B*a**2*e + B*a*b*d + x*(-2*A*b**2*e + 2*B*b**2*d))/(2*
a**4*b*e**2 - 4*a**3*b**2*d*e + 2*a**2*b**3*d**2 + x**2*(2*a**2*b
**3*e**2 - 4*a*b**4*d*e + 2*b**5*d**2) + x*(4*a**3*b**2*e**2 - 8*
a**2*b**3*d*e + 4*a*b**4*d**2))
```

GIAC/XCAS [A] time = 0.230339, size = 309, normalized size = 2.73

$$-\frac{\left(Bbde - Abe^2\right)\ln\left(|bx + a|\right)}{b^4d^3 - 3\,ab^3d^2e + 3\,a^2b^2de^2 - a^3be^3} + \frac{\left(Bde^2 - Ae^3\right)\ln\left(|xe + d|\right)}{b^3d^3e - 3\,ab^2d^2e^2 + 3\,a^2bde^3 - a^3e^4} - \frac{Bab^2d^2 + Ab^3d^2 - 4\,Aab^2de - Ba^3e^2 + 3\,Aa^2be^2 + 2\left(Bb^3d^2 - Bab^2de - Ab^3de + Aab^2e^2\right)x}{2\,(bd - ae)^3(bx + a)^2b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^3*(e*x + d)),x, algorithm="giac")
```

```
[Out] -(B*b*d*e - A*b*e^2)*ln(abs(b*x + a))/(b^4*d^3 - 3*a*b^3*d^2*e +
3*a^2*b^2*d*e^2 - a^3*b*e^3) + (B*d*e^2 - A*e^3)*ln(abs(x*e + d))
/(b^3*d^3*e - 3*a*b^2*d^2*e^2 + 3*a^2*b*d*e^3 - a^3*e^4) - 1/2*(B
*a*b^2*d^2 + A*b^3*d^2 - 4*A*a*b^2*d*e - B*a^3*e^2 + 3*A*a^2*b*e^
2 + 2*(B*b^3*d^2 - B*a*b^2*d*e - A*b^3*d*e + A*a*b^2*e^2)*x)/((b*
d - a*e)^3*(b*x + a)^2*b)
```

3.1123 $\int \frac{A+Bx}{(a+bx)^3(d+ex)^2}\,dx$

Optimal. Leaf size=158

$$-\frac{Ab-aB}{2(a+bx)^2(bd-ae)^2}-\frac{aBe-2Abe+bBd}{(a+bx)(bd-ae)^3}-\frac{e(Bd-Ae)}{(d+ex)(bd-ae)^3}-\frac{e\log(a+bx)(aBe-3Abe+2bBd)}{(bd-ae)^4}+\frac{e\log(d+ex)(aBe-3Abe+2bBd)}{(bd-ae)^4}$$

```
[Out] -(A*b - a*B)/(2*(b*d - a*e)^2*(a + b*x)^2) - (b*B*d - 2*A*b*e + a
*B*e)/((b*d - a*e)^3*(a + b*x)) - (e*(B*d - A*e))/((b*d - a*e)^3*
(d + e*x)) - (e*(2*b*B*d - 3*A*b*e + a*B*e)*Log[a + b*x])/(b*d -
a*e)^4 + (e*(2*b*B*d - 3*A*b*e + a*B*e)*Log[d + e*x])/(b*d - a*e)
^4
```

Rubi [A] time = 0.343769, antiderivative size = 158, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{Ab-aB}{2(a+bx)^2(bd-ae)^2}-\frac{aBe-2Abe+bBd}{(a+bx)(bd-ae)^3}-\frac{e(Bd-Ae)}{(d+ex)(bd-ae)^3}-\frac{e\log(a+bx)(aBe-3Abe+2bBd)}{(bd-ae)^4}+\frac{e\log(d+ex)(aBe-3Abe+2bBd)}{(bd-ae)^4}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/((a + b*x)^3*(d + e*x)^2),x]
```

```
[Out] -(A*b - a*B)/(2*(b*d - a*e)^2*(a + b*x)^2) - (b*B*d - 2*A*b*e + a
*B*e)/((b*d - a*e)^3*(a + b*x)) - (e*(B*d - A*e))/((b*d - a*e)^3*
(d + e*x)) - (e*(2*b*B*d - 3*A*b*e + a*B*e)*Log[a + b*x])/(b*d -
a*e)^4 + (e*(2*b*B*d - 3*A*b*e + a*B*e)*Log[d + e*x])/(b*d - a*e)
^4
```

Rubi in Sympy [A] time = 58.8292, size = 146, normalized size = 0.92

$$\frac{e\left(3Abe-Bae-2Bbd\right)\log\left(a+bx\right)}{\left(ae-bd\right)^4}-\frac{e\left(3Abe-Bae-2Bbd\right)\log\left(d+ex\right)}{\left(ae-bd\right)^4}-\frac{e\left(Ae-Bd\right)}{\left(d+ex\right)\left(ae-bd\right)^3}-\frac{2Abe-Bae-Bbd}{\left(a+bx\right)\left(ae-bd\right)^3}-\frac{Ab-Ba}{2\left(a+bx\right)^2\left(ae-bd\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(b*x+a)**3/(e*x+d)**2,x)
```

```
[Out] e*(3*A*b*e - B*a*e - 2*B*b*d)*log(a + b*x)/(a*e - b*d)**4 - e*(3*
A*b*e - B*a*e - 2*B*b*d)*log(d + e*x)/(a*e - b*d)**4 - e*(A*e - B
*d)/((d + e*x)*(a*e - b*d)**3) - (2*A*b*e - B*a*e - B*b*d)/((a +
b*x)*(a*e - b*d)**3) - (A*b - B*a)/(2*(a + b*x)**2*(a*e - b*d)**2
)
```

Mathematica [A] time = 0.167255, size = 146, normalized size = 0.92

$$\frac{\frac{(aB-Ab)(bd-ae)^2}{(a+bx)^2}-\frac{2(bd-ae)(aBe-2Abe+bBd)}{a+bx}+\frac{2e(bd-ae)(Ae-Bd)}{d+ex}-2e\log(a+bx)(aBe-3Abe+2bBd)+2e\log(d+ex)(aBe-3A}{2(bd-ae)^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/((a + b*x)^3*(d + e*x)^2),x]
```

```
[Out] (((-(A*b) + a*B)*(b*d - a*e)^2)/(a + b*x)^2 - (2*(b*d - a*e)*(b*B
*d - 2*A*b*e + a*B*e))/(a + b*x) + (2*e*(b*d - a*e)*(-(B*d) + A*e
))/(d + e*x) - 2*e*(2*b*B*d - 3*A*b*e + a*B*e)*Log[a + b*x] + 2*e
*(2*b*B*d - 3*A*b*e + a*B*e)*Log[d + e*x])/(2*(b*d - a*e)^4)
```

Maple [A] time = 0.022, size = 287, normalized size = 1.8

$$-\frac{e^2A}{(ae-bd)^3(ex+d)}+\frac{eBd}{(ae-bd)^3(ex+d)}-3\frac{e^2\ln(ex+d)Ab}{(ae-bd)^4}+\frac{e^2\ln(ex+d)Ba}{(ae-bd)^4}+2\frac{e\ln(ex+d)Bbd}{(ae-bd)^4}-2\frac{Abe}{(ae-bd)^3(bx+a)}+\frac{Bae}{(ae-bd)^3(bx+a)}+\frac{Bbd}{(ae-bd)^3(bx+a)}-\frac{Ab}{2(ae-bd)^2(bx+a)^2}+\frac{Ba}{2(ae-bd)^2(bx+a)^2}+3\frac{e^2\ln(bx+a)Ab}{(ae-bd)^4}-\frac{e^2\ln(bx+a)Ba}{(ae-bd)^4}-2\frac{e\ln(bx+a)Bbd}{(ae-bd)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(b*x+a)^3/(e*x+d)^2,x)
```

```
[Out] -e^2/(a*e-b*d)^3/(e*x+d)*A+e/(a*e-b*d)^3/(e*x+d)*B*d-3*e^2/(a*e-b
*d)^4*ln(e*x+d)*A*b+e^2/(a*e-b*d)^4*ln(e*x+d)*B*a+2*e/(a*e-b*d)^4
*ln(e*x+d)*B*b*d-2/(a*e-b*d)^3/(b*x+a)*A*b*e+1/(a*e-b*d)^3/(b*x+a
)*B*a*e+1/(a*e-b*d)^3/(b*x+a)*B*b*d-1/2/(a*e-b*d)^2/(b*x+a)^2*A*b
+1/2/(a*e-b*d)^2/(b*x+a)^2*B*a+3*e^2/(a*e-b*d)^4*ln(b*x+a)*A*b-e^
2/(a*e-b*d)^4*ln(b*x+a)*B*a-2*e/(a*e-b*d)^4*ln(b*x+a)*B*b*d
```

Maxima [A] time = 1.36977, size = 644, normalized size = 4.08

$$-\frac{\left(2\,Bbde+(Ba-3\,Ab)e^2\right)\log(bx+a)}{b^4d^4-4\,ab^3d^3e+6\,a^2b^2d^2e^2-4\,a^3bde^3+a^4e^4}+\frac{\left(2\,Bbde+(Ba-3\,Ab)e^2\right)\log(ex+d)}{b^4d^4-4\,ab^3d^3e+6\,a^2b^2d^2e^2-4\,a^3bde^3+a^4e^4}+\frac{2\,Aa^2e^2-\left(Bab+Ab^2\right)d^2-5\left(Ba^2-Aab\right)de-2\left(2\,Bb^2de+\left(Bab-3\,Ab^2\right)e^2\right)x^2-\left(2\,Bb^2c\cdots\right.}{2\,(a^2b^3d^4-3\,a^3b^2d^3e+3\,a^4bd^2e^2-a^5de^3+(b^5d^3e-3\,ab^4d^2e^2+3\,a^2b^3de^3-a^3b^2e^4)x^3+(b^5d^4-ab^4d^3e-3\,a^2b^3d^2e^2+5\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^3*(e*x + d)^2),x, algorithm="maxima")
```

```
[Out] -(2*B*b*d*e + (B*a - 3*A*b)*e^2)*log(b*x + a)/(b^4*d^4 - 4*a*b^3*
d^3*e + 6*a^2*b^2*d^2*e^2 - 4*a^3*b*d*e^3 + a^4*e^4) + (2*B*b*d*e
 + (B*a - 3*A*b)*e^2)*log(e*x + d)/(b^4*d^4 - 4*a*b^3*d^3*e + 6*a
^2*b^2*d^2*e^2 - 4*a^3*b*d*e^3 + a^4*e^4) + 1/2*(2*A*a^2*e^2 - (B
*a*b + A*b^2)*d^2 - 5*(B*a^2 - A*a*b)*d*e - 2*(2*B*b^2*d*e + (B*a
*b - 3*A*b^2)*e^2)*x^2 - (2*B*b^2*d^2 + (7*B*a*b - 3*A*b^2)*d*e +
 3*(B*a^2 - 3*A*a*b)*e^2)*x)/(a^2*b^3*d^4 - 3*a^3*b^2*d^3*e + 3*a
^4*b*d^2*e^2 - a^5*d*e^3 + (b^5*d^3*e - 3*a*b^4*d^2*e^2 + 3*a^2*b
^3*d*e^3 - a^3*b^2*e^4)*x^3 + (b^5*d^4 - a*b^4*d^3*e - 3*a^2*b^3*
d^2*e^2 + 5*a^3*b^2*d*e^3 - 2*a^4*b*e^4)*x^2 + (2*a*b^4*d^4 - 5*a
^2*b^3*d^3*e + 3*a^3*b^2*d^2*e^2 + a^4*b*d*e^3 - a^5*e^4)*x)
```

Fricas [A] time = 0.23087, size = 1084, normalized size = 6.86

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^3*(e*x + d)^2),x, algorithm="fricas")
```

```
[Out] -1/2*(2*A*a^3*e^3 + (B*a*b^2 + A*b^3)*d^3 + 2*(2*B*a^2*b - 3*A*a*
b^2)*d^2*e - (5*B*a^3 - 3*A*a^2*b)*d*e^2 + 2*(2*B*b^3*d^2*e - (B*
a*b^2 + 3*A*b^3)*d*e^2 - (B*a^2*b - 3*A*a*b^2)*e^3)*x^2 + (2*B*b^
3*d^3 + (5*B*a*b^2 - 3*A*b^3)*d^2*e - 2*(2*B*a^2*b + 3*A*a*b^2)*d
*e^2 - 3*(B*a^3 - 3*A*a^2*b)*e^3)*x + 2*(2*B*a^2*b*d^2*e + (B*a^3
 - 3*A*a^2*b)*d*e^2 + (2*B*b^3*d*e^2 + (B*a*b^2 - 3*A*b^3)*e^3)*x
^3 + (2*B*b^3*d^2*e + (5*B*a*b^2 - 3*A*b^3)*d*e^2 + 2*(B*a^2*b -
3*A*a*b^2)*e^3)*x^2 + (4*B*a*b^2*d^2*e + 2*(2*B*a^2*b - 3*A*a*b^2
)*d*e^2 + (B*a^3 - 3*A*a^2*b)*e^3)*x)*log(b*x + a) - 2*(2*B*a^2*b
*d^2*e + (B*a^3 - 3*A*a^2*b)*d*e^2 + (2*B*b^3*d*e^2 + (B*a*b^2 -
3*A*b^3)*e^3)*x^3 + (2*B*b^3*d^2*e + (5*B*a*b^2 - 3*A*b^3)*d*e^2
+ 2*(B*a^2*b - 3*A*a*b^2)*e^3)*x^2 + (4*B*a*b^2*d^2*e + 2*(2*B*a^
2*b - 3*A*a*b^2)*d*e^2 + (B*a^3 - 3*A*a^2*b)*e^3)*x)*log(e*x + d)
)/(a^2*b^4*d^5 - 4*a^3*b^3*d^4*e + 6*a^4*b^2*d^3*e^2 - 4*a^5*b*d^
2*e^3 + a^6*d*e^4 + (b^6*d^4*e - 4*a*b^5*d^3*e^2 + 6*a^2*b^4*d^2*
e^3 - 4*a^3*b^3*d*e^4 + a^4*b^2*e^5)*x^3 + (b^6*d^5 - 2*a*b^5*d^4
*e - 2*a^2*b^4*d^3*e^2 + 8*a^3*b^3*d^2*e^3 - 7*a^4*b^2*d*e^4 + 2*
a^5*b*e^5)*x^2 + (2*a*b^5*d^5 - 7*a^2*b^4*d^4*e + 8*a^3*b^3*d^3*e
^2 - 2*a^4*b^2*d^2*e^3 - 2*a^5*b*d*e^4 + a^6*e^5)*x)
```

Sympy [A] time = 14.1017, size = 1066, normalized size = 6.75

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(b*x+a)**3/(e*x+d)**2,x)
```

```
[Out] e*(-3*A*b*e + B*a*e + 2*B*b*d)*log(x + (-3*A*a*b*e**3 - 3*A*b**2*
d*e**2 + B*a**2*e**3 + 3*B*a*b*d*e**2 + 2*B*b**2*d**2*e - a**5*e*
*6*(-3*A*b*e + B*a*e + 2*B*b*d)/(a*e - b*d)**4 + 5*a**4*b*d*e**5*
(-3*A*b*e + B*a*e + 2*B*b*d)/(a*e - b*d)**4 - 10*a**3*b**2*d**2*e
**4*(-3*A*b*e + B*a*e + 2*B*b*d)/(a*e - b*d)**4 + 10*a**2*b**3*d*
*3*e**3*(-3*A*b*e + B*a*e + 2*B*b*d)/(a*e - b*d)**4 - 5*a*b**4*d*
*4*e**2*(-3*A*b*e + B*a*e + 2*B*b*d)/(a*e - b*d)**4 + b**5*d**5*e
*(-3*A*b*e + B*a*e + 2*B*b*d)/(a*e - b*d)**4)/(-6*A*b**2*e**3 + 2
*B*a*b*e**3 + 4*B*b**2*d*e**2))/(a*e - b*d)**4 - e*(-3*A*b*e + B*
a*e + 2*B*b*d)*log(x + (-3*A*a*b*e**3 - 3*A*b**2*d*e**2 + B*a**2*
e**3 + 3*B*a*b*d*e**2 + 2*B*b**2*d**2*e + a**5*e**6*(-3*A*b*e + B
*a*e + 2*B*b*d)/(a*e - b*d)**4 - 5*a**4*b*d*e**5*(-3*A*b*e + B*a*
e + 2*B*b*d)/(a*e - b*d)**4 + 10*a**3*b**2*d**2*e**4*(-3*A*b*e +
B*a*e + 2*B*b*d)/(a*e - b*d)**4 - 10*a**2*b**3*d**3*e**3*(-3*A*b*
e + B*a*e + 2*B*b*d)/(a*e - b*d)**4 + 5*a*b**4*d**4*e**2*(-3*A*b*
e + B*a*e + 2*B*b*d)/(a*e - b*d)**4 - b**5*d**5*e*(-3*A*b*e + B*a
*e + 2*B*b*d)/(a*e - b*d)**4)/(-6*A*b**2*e**3 + 2*B*a*b*e**3 + 4*
B*b**2*d*e**2))/(a*e - b*d)**4 + (-2*A*a**2*e**2 - 5*A*a*b*d*e +
A*b**2*d**2 + 5*B*a**2*d*e + B*a*b*d**2 + x**2*(-6*A*b**2*e**2 +
2*B*a*b*e**2 + 4*B*b**2*d*e) + x*(-9*A*a*b*e**2 - 3*A*b**2*d*e +
3*B*a**2*e**2 + 7*B*a*b*d*e + 2*B*b**2*d**2))/(2*a**5*d*e**3 - 6*
a**4*b*d**2*e**2 + 6*a**3*b**2*d**3*e - 2*a**2*b**3*d**4 + x**3*(
2*a**3*b**2*e**4 - 6*a**2*b**3*d*e**3 + 6*a*b**4*d**2*e**2 - 2*b*
*5*d**3*e) + x**2*(4*a**4*b*e**4 - 10*a**3*b**2*d*e**3 + 6*a**2*b
**3*d**2*e**2 + 2*a*b**4*d**3*e - 2*b**5*d**4) + x*(2*a**5*e**4 -
 2*a**4*b*d*e**3 - 6*a**3*b**2*d**2*e**2 + 10*a**2*b**3*d**3*e -
4*a*b**4*d**4))
```

GIAC/XCAS [A] time = 0.233786, size = 402, normalized size = 2.54

$$-\frac{\left(2\,Bbde^{2}+Bae^{3}-3\,Abe^{3}\right)\ln\left(\left|-b+\frac{bd}{xe+d}-\frac{ae}{xe+d}\right|\right)}{b^{4}d^{4}e-4\,ab^{3}d^{3}e^{2}+6\,a^{2}b^{2}d^{2}e^{3}-4\,a^{3}bde^{4}+a^{4}e^{5}}-\frac{\frac{Bde^{4}}{xe+d}-\frac{Ae^{5}}{xe+d}}{b^{3}d^{3}e^{3}-3\,ab^{2}d^{2}e^{4}+3\,a^{2}bde^{5}-a^{3}e^{6}}-\frac{2\,Bb^{3}de+3\,Bab^{2}e^{2}-5\,Ab^{3}e^{2}-\frac{2\left(Bb^{3}d^{2}e^{2}+Bab^{2}de^{3}-3\,Ab^{3}de^{3}-2\,Ba^{2}be^{4}+3\,Aab^{2}e^{4}\right)e^{(-1)}}{xe+d}}{2\,(bd-ae)^{4}\left(b-\frac{bd}{xe+d}+\frac{ae}{xe+d}\right)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^3*(e*x + d)^2),x, algorithm="giac")
```

```
[Out] -(2*B*b*d*e^2 + B*a*e^3 - 3*A*b*e^3)*ln(abs(-b + b*d/(x*e + d) -
a*e/(x*e + d)))/(b^4*d^4*e - 4*a*b^3*d^3*e^2 + 6*a^2*b^2*d^2*e^3
- 4*a^3*b*d*e^4 + a^4*e^5) - (B*d*e^4/(x*e + d) - A*e^5/(x*e + d)
)/(b^3*d^3*e^3 - 3*a*b^2*d^2*e^4 + 3*a^2*b*d*e^5 - a^3*e^6) - 1/2
*(2*B*b^3*d*e + 3*B*a*b^2*e^2 - 5*A*b^3*e^2 - 2*(B*b^3*d^2*e^2 +
B*a*b^2*d*e^3 - 3*A*b^3*d*e^3 - 2*B*a^2*b*e^4 + 3*A*a*b^2*e^4)*e^
(-1)/(x*e + d))/((b*d - a*e)^4*(b - b*d/(x*e + d) + a*e/(x*e + d)
)^2)
```

3.1124 $\int \frac{A+Bx}{(a+bx)^3(d+ex)^3} dx$

Optimal. Leaf size=199

$$-\frac{b(Ab-aB)}{2(a+bx)^2(bd-ae)^3}-\frac{b(2aBe-3Abe+bBd)}{(a+bx)(bd-ae)^4}-\frac{e(aBe-3Abe+2bBd)}{(d+ex)(bd-ae)^4}-\frac{e(Bd-Ae)}{2(d+ex)^2(bd-ae)^3}-\frac{3be\log(a+bx)(aBe-2Abe+bBd)}{(bd-ae)^5}+\frac{3be\log(d+ex)(aBe-2Abe+bBd)}{(bd-ae)^5}$$

```
[Out] -(b*(A*b - a*B))/(2*(b*d - a*e)^3*(a + b*x)^2) - (b*(b*B*d - 3*A*
b*e + 2*a*B*e))/((b*d - a*e)^4*(a + b*x)) - (e*(B*d - A*e))/(2*(b
*d - a*e)^3*(d + e*x)^2) - (e*(2*b*B*d - 3*A*b*e + a*B*e))/((b*d
- a*e)^4*(d + e*x)) - (3*b*e*(b*B*d - 2*A*b*e + a*B*e)*Log[a + b*
x])/(b*d - a*e)^5 + (3*b*e*(b*B*d - 2*A*b*e + a*B*e)*Log[d + e*x]
)/(b*d - a*e)^5
```

Rubi [A] time = 0.491061, antiderivative size = 199, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{b(Ab-aB)}{2(a+bx)^2(bd-ae)^3}-\frac{b(2aBe-3Abe+bBd)}{(a+bx)(bd-ae)^4}-\frac{e(aBe-3Abe+2bBd)}{(d+ex)(bd-ae)^4}-\frac{e(Bd-Ae)}{2(d+ex)^2(bd-ae)^3}-\frac{3be\log(a+bx)(aBe-2Abe+bBd)}{(bd-ae)^5}+\frac{3be\log(d+ex)(aBe-2Abe+bBd)}{(bd-ae)^5}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/((a + b*x)^3*(d + e*x)^3),x]
```

```
[Out] -(b*(A*b - a*B))/(2*(b*d - a*e)^3*(a + b*x)^2) - (b*(b*B*d - 3*A*
b*e + 2*a*B*e))/((b*d - a*e)^4*(a + b*x)) - (e*(B*d - A*e))/(2*(b
*d - a*e)^3*(d + e*x)^2) - (e*(2*b*B*d - 3*A*b*e + a*B*e))/((b*d
- a*e)^4*(d + e*x)) - (3*b*e*(b*B*d - 2*A*b*e + a*B*e)*Log[a + b*
x])/(b*d - a*e)^5 + (3*b*e*(b*B*d - 2*A*b*e + a*B*e)*Log[d + e*x]
)/(b*d - a*e)^5
```

Rubi in Sympy [A] time = 116.923, size = 192, normalized size = 0.96

$$-\frac{3be\left(2Abe-Bae-Bbd\right)\log\left(a+bx\right)}{\left(ae-bd\right)^5}+\frac{3be\left(2Abe-Bae-Bbd\right)\log\left(d+ex\right)}{\left(ae-bd\right)^5}+\frac{b\left(3Abe-2Bae-Bbd\right)}{\left(a+bx\right)\left(ae-bd\right)^4}+\frac{b\left(Ab-Ba\right)}{2\left(a+bx\right)^2\left(ae-bd\right)^3}+\frac{e\left(3Abe-Bae-2Bbd\right)}{\left(d+ex\right)\left(ae-bd\right)^4}-\frac{e\left(Ae-Bd\right)}{2\left(d+ex\right)^2\left(ae-bd\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(b*x+a)**3/(e*x+d)**3,x)
```

```
[Out] -3*b*e*(2*A*b*e - B*a*e - B*b*d)*log(a + b*x)/(a*e - b*d)**5 + 3*
b*e*(2*A*b*e - B*a*e - B*b*d)*log(d + e*x)/(a*e - b*d)**5 + b*(3*
A*b*e - 2*B*a*e - B*b*d)/((a + b*x)*(a*e - b*d)**4) + b*(A*b - B*
a)/(2*(a + b*x)**2*(a*e - b*d)**3) + e*(3*A*b*e - B*a*e - 2*B*b*d
)/((d + e*x)*(a*e - b*d)**4) - e*(A*e - B*d)/(2*(d + e*x)**2*(a*e
 - b*d)**3)
```

Mathematica [A] time = 0.251137, size = 185, normalized size = 0.93

$$\frac{-\frac{b(Ab-aB)(bd-ae)^2}{(a+bx)^2}+\frac{e(bd-ae)^2(Ae-Bd)}{(d+ex)^2}-\frac{2b(bd-ae)(2aBe-3Abe+bBd)}{a+bx}+\frac{2e(bd-ae)(-aBe+3Abe-2bBd)}{d+ex}-6be\log(a+bx)(aBe-2Abe}{2(bd-ae)^5}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/((a + b*x)^3*(d + e*x)^3),x]
```

```
[Out] (-((b*(A*b - a*B)*(b*d - a*e)^2)/(a + b*x)^2) - (2*b*(b*d - a*e)*
(b*B*d - 3*A*b*e + 2*a*B*e))/(a + b*x) + (e*(b*d - a*e)^2*(-(B*d)
 + A*e))/(d + e*x)^2 + (2*e*(b*d - a*e)*(-2*b*B*d + 3*A*b*e - a*B
*e))/(d + e*x) - 6*b*e*(b*B*d - 2*A*b*e + a*B*e)*Log[a + b*x] + 6
*b*e*(b*B*d - 2*A*b*e + a*B*e)*Log[d + e*x])/(2*(b*d - a*e)^5)
```

Maple [A] time = 0.024, size = 380, normalized size = 1.9

$$-\frac{e^2A}{2\,(ae-bd)^3\,(ex+d)^2}+\frac{eBd}{2\,(ae-bd)^3\,(ex+d)^2}+3\,\frac{e^2Ab}{(ae-bd)^4\,(ex+d)}-\frac{e^2Ba}{(ae-bd)^4\,(ex+d)}-2\,\frac{bBde}{(ae-bd)^4\,(ex+d)}+6\,\frac{b^2e^2\ln(ex+d)\,A}{(ae-bd)^5}-3\,\frac{e^2b\ln(ex+d)\,Ba}{(ae-bd)^5}-3\,\frac{eb^2\ln(ex+d)\,Bd}{(ae-bd)^5}+3\,\frac{b^2Ae}{(ae-bd)^4\,(bx+a)}-2\,\frac{Bbae}{(ae-bd)^4\,(bx+a)}-\frac{b^2Bd}{(ae-bd)^4\,(bx+a)}+\frac{b^2A}{2\,(ae-bd)^3\,(bx+a)^2}-\frac{Bba}{2\,(ae-bd)^3\,(bx+a)^2}-6\,\frac{b^2e^2\ln(bx+a)\,A}{(ae-bd)^5}+3\,\frac{e^2b\ln(bx+a)\,Ba}{(ae-bd)^5}+3\,\frac{eb^2\ln(bx+a)\,Bd}{(ae-bd)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(b*x+a)^3/(e*x+d)^3,x)
```

```
[Out] -1/2*e^2/(a*e-b*d)^3/(e*x+d)^2*A+1/2*e/(a*e-b*d)^3/(e*x+d)^2*B*d+
3*e^2/(a*e-b*d)^4/(e*x+d)*A*b-e^2/(a*e-b*d)^4/(e*x+d)*B*a-2*e/(a*
e-b*d)^4/(e*x+d)*B*b*d+6*e^2*b^2/(a*e-b*d)^5*ln(e*x+d)*A-3*e^2*b/
(a*e-b*d)^5*ln(e*x+d)*B*a-3*e*b^2/(a*e-b*d)^5*ln(e*x+d)*B*d+3*b^2
/(a*e-b*d)^4/(b*x+a)*A*e-2*b/(a*e-b*d)^4/(b*x+a)*B*a*e-b^2/(a*e-b
*d)^4/(b*x+a)*B*d+1/2*b^2/(a*e-b*d)^3/(b*x+a)^2*A-1/2*b/(a*e-b*d)
^3/(b*x+a)^2*B*a-6*e^2*b^2/(a*e-b*d)^5*ln(b*x+a)*A+3*e^2*b/(a*e-b
*d)^5*ln(b*x+a)*B*a+3*e*b^2/(a*e-b*d)^5*ln(b*x+a)*B*d
```

Maxima [A] time = 1.40423, size = 1006, normalized size = 5.06

$$-\frac{3\,\left(Bb^2de+\left(Bab-2\,Ab^2\right)e^2\right)\log\left(bx+a\right)}{b^5d^5-5\,ab^4d^4e+10\,a^2b^3d^3e^2-10\,a^3b^2d^2e^3+5\,a^4bde^4-a^5e^5}+\frac{3\,\left(Bb^2de+\left(Bab-2\,Ab^2\right)e^2\right)\log\left(ex+d\right)}{b^5d^5-5\,ab^4d^4e+10\,a^2b^3d^3e^2-10\,a^3b^2d^2e^3+5\,a^4bde^4-a^5e^5}-\frac{Aa^3e^3+\left(Bab^2+Ab^3\right)d^3+\left(10\,Ba^2b-7\,Aab^2\right)d^2e+\left(Ba^3-7\,Aa^2b\right)de^2+6\,\left(Bb^3de^2+\right.}{2\,(a^2b^4d^6-4\,a^3b^3d^5e+6\,a^4b^2d^4e^2-4\,a^5bd^3e^3+a^6d^2e^4+(b^6d^4e^2-4\,ab^5d^3e^3+6\,a^2b^4d^2e^4-4\,a^3b^3de^5+a^4b^2e^6)x^4+2\,(b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^3*(e*x + d)^3),x, algorithm="maxima")
```

```
[Out] -3*(B*b^2*d*e + (B*a*b - 2*A*b^2)*e^2)*log(b*x + a)/(b^5*d^5 - 5*
a*b^4*d^4*e + 10*a^2*b^3*d^3*e^2 - 10*a^3*b^2*d^2*e^3 + 5*a^4*b*d
*e^4 - a^5*e^5) + 3*(B*b^2*d*e + (B*a*b - 2*A*b^2)*e^2)*log(e*x +
 d)/(b^5*d^5 - 5*a*b^4*d^4*e + 10*a^2*b^3*d^3*e^2 - 10*a^3*b^2*d^
2*e^3 + 5*a^4*b*d*e^4 - a^5*e^5) - 1/2*(A*a^3*e^3 + (B*a*b^2 + A*
b^3)*d^3 + (10*B*a^2*b - 7*A*a*b^2)*d^2*e + (B*a^3 - 7*A*a^2*b)*d
*e^2 + 6*(B*b^3*d*e^2 + (B*a*b^2 - 2*A*b^3)*e^3)*x^3 + 9*(B*b^3*d
^2*e + 2*(B*a*b^2 - A*b^3)*d*e^2 + (B*a^2*b - 2*A*a*b^2)*e^3)*x^2
 + 2*(B*b^3*d^3 + 2*(4*B*a*b^2 - A*b^3)*d^2*e + 2*(4*B*a^2*b - 7*
A*a*b^2)*d*e^2 + (B*a^3 - 2*A*a^2*b)*e^3)*x)/(a^2*b^4*d^6 - 4*a^3
*b^3*d^5*e + 6*a^4*b^2*d^4*e^2 - 4*a^5*b*d^3*e^3 + a^6*d^2*e^4 +
(b^6*d^4*e^2 - 4*a*b^5*d^3*e^3 + 6*a^2*b^4*d^2*e^4 - 4*a^3*b^3*d*
e^5 + a^4*b^2*e^6)*x^4 + 2*(b^6*d^5*e - 3*a*b^5*d^4*e^2 + 2*a^2*b
^4*d^3*e^3 + 2*a^3*b^3*d^2*e^4 - 3*a^4*b^2*d*e^5 + a^5*b*e^6)*x^3
```

```
 + (b^6*d^6 - 9*a^2*b^4*d^4*e^2 + 16*a^3*b^3*d^3*e^3 - 9*a^4*b^2*
d^2*e^4 + a^6*e^6)*x^2 + 2*(a*b^5*d^6 - 3*a^2*b^4*d^5*e + 2*a^3*b
^3*d^4*e^2 + 2*a^4*b^2*d^3*e^3 - 3*a^5*b*d^2*e^4 + a^6*d*e^5)*x)
```

Fricas [A] time = 0.236162, size = 1640, normalized size = 8.24

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^3*(e*x + d)^3),x, algorithm="fricas")
```

```
[Out] 1/2*(9*B*a^3*b*d^2*e^2 + A*a^4*e^4 - (B*a*b^3 + A*b^4)*d^4 - (9*B
*a^2*b^2 - 8*A*a*b^3)*d^3*e + (B*a^4 - 8*A*a^3*b)*d*e^3 - 6*(B*b^
4*d^2*e^2 - 2*A*b^4*d*e^3 - (B*a^2*b^2 - 2*A*a*b^3)*e^4)*x^3 - 9*
(B*b^4*d^3*e - B*a^2*b^2*d*e^3 + (B*a*b^3 - 2*A*b^4)*d^2*e^2 - (B
*a^3*b - 2*A*a^2*b^2)*e^4)*x^2 - 2*(B*b^4*d^4 - 12*A*a*b^3*d^2*e^
2 + (7*B*a*b^3 - 2*A*b^4)*d^3*e - (7*B*a^3*b - 12*A*a^2*b^2)*d*e^
3 - (B*a^4 - 2*A*a^3*b)*e^4)*x - 6*(B*a^2*b^2*d^3*e + (B*a^3*b -
2*A*a^2*b^2)*d^2*e^2 + (B*b^4*d*e^3 + (B*a*b^3 - 2*A*b^4)*e^4)*x^
4 + 2*(B*b^4*d^2*e^2 + 2*(B*a*b^3 - A*b^4)*d*e^3 + (B*a^2*b^2 - 2
*A*a*b^3)*e^4)*x^3 + (B*b^4*d^3*e + (5*B*a*b^3 - 2*A*b^4)*d^2*e^2
 + (5*B*a^2*b^2 - 8*A*a*b^3)*d*e^3 + (B*a^3*b - 2*A*a^2*b^2)*e^4)
*x^2 + 2*(B*a*b^3*d^3*e + 2*(B*a^2*b^2 - A*a*b^3)*d^2*e^2 + (B*a^
3*b - 2*A*a^2*b^2)*d*e^3)*x)*log(b*x + a) + 6*(B*a^2*b^2*d^3*e +
(B*a^3*b - 2*A*a^2*b^2)*d^2*e^2 + (B*b^4*d*e^3 + (B*a*b^3 - 2*A*b
^4)*e^4)*x^4 + 2*(B*b^4*d^2*e^2 + 2*(B*a*b^3 - A*b^4)*d*e^3 + (B*
a^2*b^2 - 2*A*a*b^3)*e^4)*x^3 + (B*b^4*d^3*e + (5*B*a*b^3 - 2*A*b
^4)*d^2*e^2 + (5*B*a^2*b^2 - 8*A*a*b^3)*d*e^3 + (B*a^3*b - 2*A*a^
2*b^2)*e^4)*x^2 + 2*(B*a*b^3*d^3*e + 2*(B*a^2*b^2 - A*a*b^3)*d^2*
e^2 + (B*a^3*b - 2*A*a^2*b^2)*d*e^3)*x)*log(e*x + d))/(a^2*b^5*d^
7 - 5*a^3*b^4*d^6*e + 10*a^4*b^3*d^5*e^2 - 10*a^5*b^2*d^4*e^3 + 5
*a^6*b*d^3*e^4 - a^7*d^2*e^5 + (b^7*d^5*e^2 - 5*a*b^6*d^4*e^3 + 1
0*a^2*b^5*d^3*e^4 - 10*a^3*b^4*d^2*e^5 + 5*a^4*b^3*d*e^6 - a^5*b^
2*e^7)*x^4 + 2*(b^7*d^6*e - 4*a*b^6*d^5*e^2 + 5*a^2*b^5*d^4*e^3 -
 5*a^4*b^3*d^2*e^5 + 4*a^5*b^2*d*e^6 - a^6*b*e^7)*x^3 + (b^7*d^7
- a*b^6*d^6*e - 9*a^2*b^5*d^5*e^2 + 25*a^3*b^4*d^4*e^3 - 25*a^4*b
^3*d^3*e^4 + 9*a^5*b^2*d^2*e^5 + a^6*b*d*e^6 - a^7*e^7)*x^2 + 2*(
a*b^6*d^7 - 4*a^2*b^5*d^6*e + 5*a^3*b^4*d^5*e^2 - 5*a^5*b^2*d^3*e
^4 + 4*a^6*b*d^2*e^5 - a^7*d*e^6)*x)
```

Sympy [A] time = 30.2583, size = 1431, normalized size = 7.19

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(b*x+a)**3/(e*x+d)**3,x)
```

```
[Out] -3*b*e*(-2*A*b*e + B*a*e + B*b*d)*log(x + (-6*A*a*b**2*e**3 - 6*A
*b**3*d*e**2 + 3*B*a**2*b*e**3 + 6*B*a*b**2*d*e**2 + 3*B*b**3*d**
2*e - 3*a**6*b*e**7*(-2*A*b*e + B*a*e + B*b*d)/(a*e - b*d)**5 + 1
8*a**5*b**2*d*e**6*(-2*A*b*e + B*a*e + B*b*d)/(a*e - b*d)**5 - 45
*a**4*b**3*d**2*e**5*(-2*A*b*e + B*a*e + B*b*d)/(a*e - b*d)**5 +
60*a**3*b**4*d**3*e**4*(-2*A*b*e + B*a*e + B*b*d)/(a*e - b*d)**5
- 45*a**2*b**5*d**4*e**3*(-2*A*b*e + B*a*e + B*b*d)/(a*e - b*d)**
5 + 18*a*b**6*d**5*e**2*(-2*A*b*e + B*a*e + B*b*d)/(a*e - b*d)**5
 - 3*b**7*d**6*e*(-2*A*b*e + B*a*e + B*b*d)/(a*e - b*d)**5)/(-12*
A*b**3*e**3 + 6*B*a*b**2*e**3 + 6*B*b**3*d*e**2))/(a*e - b*d)**5
+ 3*b*e*(-2*A*b*e + B*a*e + B*b*d)*log(x + (-6*A*a*b**2*e**3 - 6*
A*b**3*d*e**2 + 3*B*a**2*b*e**3 + 6*B*a*b**2*d*e**2 + 3*B*b**3*d*
*2*e + 3*a**6*b*e**7*(-2*A*b*e + B*a*e + B*b*d)/(a*e - b*d)**5 -
18*a**5*b**2*d*e**6*(-2*A*b*e + B*a*e + B*b*d)/(a*e - b*d)**5 + 4
5*a**4*b**3*d**2*e**5*(-2*A*b*e + B*a*e + B*b*d)/(a*e - b*d)**5 -
 60*a**3*b**4*d**3*e**4*(-2*A*b*e + B*a*e + B*b*d)/(a*e - b*d)**5
```

```
 + 45*a**2*b**5*d**4*e**3*(-2*A*b*e + B*a*e + B*b*d)/(a*e - b*d)*
*5 - 18*a*b**6*d**5*e**2*(-2*A*b*e + B*a*e + B*b*d)/(a*e - b*d)**
5 + 3*b**7*d**6*e*(-2*A*b*e + B*a*e + B*b*d)/(a*e - b*d)**5)/(-12
*A*b**3*e**3 + 6*B*a*b**2*e**3 + 6*B*b**3*d*e**2))/(a*e - b*d)**5
 - (A*a**3*e**3 - 7*A*a**2*b*d*e**2 - 7*A*a*b**2*d**2*e + A*b**3*
d**3 + B*a**3*d*e**2 + 10*B*a**2*b*d**2*e + B*a*b**2*d**3 + x**3*
(-12*A*b**3*e**3 + 6*B*a*b**2*e**3 + 6*B*b**3*d*e**2) + x**2*(-18
*A*a*b**2*e**3 - 18*A*b**3*d*e**2 + 9*B*a**2*b*e**3 + 18*B*a*b**2
*d*e**2 + 9*B*b**3*d**2*e) + x*(-4*A*a**2*b*e**3 - 28*A*a*b**2*d*
e**2 - 4*A*b**3*d**2*e + 2*B*a**3*e**3 + 16*B*a**2*b*d*e**2 + 16*
B*a*b**2*d**2*e + 2*B*b**3*d**3))/(2*a**6*d**2*e**4 - 8*a**5*b*d*
*3*e**3 + 12*a**4*b**2*d**4*e**2 - 8*a**3*b**3*d**5*e + 2*a**2*b*
*4*d**6 + x**4*(2*a**4*b**2*e**6 - 8*a**3*b**3*d*e**5 + 12*a**2*b
**4*d**2*e**4 - 8*a*b**5*d**3*e**3 + 2*b**6*d**4*e**2) + x**3*(4*
a**5*b*e**6 - 12*a**4*b**2*d*e**5 + 8*a**3*b**3*d**2*e**4 + 8*a**
2*b**4*d**3*e**3 - 12*a*b**5*d**4*e**2 + 4*b**6*d**5*e) + x**2*(2
*a**6*e**6 - 18*a**4*b**2*d**2*e**4 + 32*a**3*b**3*d**3*e**3 - 18
*a**2*b**4*d**4*e**2 + 2*b**6*d**6) + x*(4*a**6*d*e**5 - 12*a**5*
b*d**2*e**4 + 8*a**4*b**2*d**3*e**3 + 8*a**3*b**3*d**4*e**2 - 12*
a**2*b**4*d**5*e + 4*a*b**5*d**6))
```

GIAC/XCAS [A] time = 0.256223, size = 617, normalized size = 3.1

$$-\frac{3\left(Bb^2de + Babe^2 - 2Ab^2e^2\right)\ln\left(\frac{|2bxe+bd+ae-|bd-ae||}{|2bxe+bd+ae+|bd-ae||}\right)}{(b^4d^4 - 4ab^3d^3e + 6a^2b^2d^2e^2 - 4a^3bde^3 + a^4e^4)|bd-ae|} - \frac{6Bb^3dx^3e^2 + 9Bb^3d^2x^2e + 2Bb^3d^3x + 6Bab^2x^3e^3 - 12Ab^3x^3e^3 + 18Bab^2dx^2e^2 - 18Ab^3dx^2e^2 + 16Bab^2d^2xe - 4Ab^3d^2}{2(b^4d^4 - 4ab^3d^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^3*(e*x + d)^3),x, algorithm="giac")
```

```
[Out] -3*(B*b^2*d*e + B*a*b*e^2 - 2*A*b^2*e^2)*ln(abs(2*b*x*e + b*d + a
*e - abs(b*d - a*e))/abs(2*b*x*e + b*d + a*e + abs(b*d - a*e)))/(
(b^4*d^4 - 4*a*b^3*d^3*e + 6*a^2*b^2*d^2*e^2 - 4*a^3*b*d*e^3 + a^
4*e^4)*abs(b*d - a*e)) - 1/2*(6*B*b^3*d*x^3*e^2 + 9*B*b^3*d^2*x^2
*e + 2*B*b^3*d^3*x + 6*B*a*b^2*x^3*e^3 - 12*A*b^3*x^3*e^3 + 18*B*
a*b^2*d*x^2*e^2 - 18*A*b^3*d*x^2*e^2 + 16*B*a*b^2*d^2*x*e - 4*A*b
^3*d^2*x*e + B*a*b^2*d^3 + A*b^3*d^3 + 9*B*a^2*b*x^2*e^3 - 18*A*a
*b^2*x^2*e^3 + 16*B*a^2*b*d*x*e^2 - 28*A*a*b^2*d*x*e^2 + 10*B*a^2
*b*d^2*e - 7*A*a*b^2*d^2*e + 2*B*a^3*x*e^3 - 4*A*a^2*b*x*e^3 + B*
a^3*d*e^2 - 7*A*a^2*b*d*e^2 + A*a^3*e^3)/((b^4*d^4 - 4*a*b^3*d^3*
e + 6*a^2*b^2*d^2*e^2 - 4*a^3*b*d*e^3 + a^4*e^4)*(b*x^2*e + b*d*x
 + a*x*e + a*d)^2)
```

3.1125 $\int \frac{A+Bx}{(a+bx)^3(d+ex)^4}\,dx$

Optimal. Leaf size=248

$$-\frac{b^2(3aBe-4Abe+bBd)}{(a+bx)(bd-ae)^5}-\frac{b^2(Ab-aB)}{2(a+bx)^2(bd-ae)^4}-\frac{2b^2e\log(a+bx)(3aBe-5Abe+2bBd)}{(bd-ae)^6}+\frac{2b^2e\log(d+ex)(3aBe-5Abe+2bBd)}{(bd-ae)^6}-\frac{3be(aBe-2Abe+bBd)}{(d+ex)(bd-ae)^5}-\frac{e(aBe-3Abe+2bBd)}{2(d+ex)^2(bd-ae)^4}-\frac{e(Bd-Ae)}{3(d+ex)^3(bd-ae)^3}$$

```
[Out] -(b^2*(A*b - a*B))/(2*(b*d - a*e)^4*(a + b*x)^2) - (b^2*(b*B*d -
4*A*b*e + 3*a*B*e))/((b*d - a*e)^5*(a + b*x)) - (e*(B*d - A*e))/(
3*(b*d - a*e)^3*(d + e*x)^3) - (e*(2*b*B*d - 3*A*b*e + a*B*e))/(2
*(b*d - a*e)^4*(d + e*x)^2) - (3*b*e*(b*B*d - 2*A*b*e + a*B*e))/(
(b*d - a*e)^5*(d + e*x)) - (2*b^2*e*(2*b*B*d - 5*A*b*e + 3*a*B*e)
*Log[a + b*x])/(b*d - a*e)^6 + (2*b^2*e*(2*b*B*d - 5*A*b*e + 3*a*
B*e)*Log[d + e*x])/(b*d - a*e)^6
```

Rubi [A] time = 0.68346, antiderivative size = 248, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{b^2(3aBe-4Abe+bBd)}{(a+bx)(bd-ae)^5}-\frac{b^2(Ab-aB)}{2(a+bx)^2(bd-ae)^4}-\frac{2b^2e\log(a+bx)(3aBe-5Abe+2bBd)}{(bd-ae)^6}+\frac{2b^2e\log(d+ex)(3aBe-5Abe+2bBd)}{(bd-ae)^6}-\frac{3be(aBe-2Abe+bBd)}{(d+ex)(bd-ae)^5}-\frac{e(aBe-3Abe+2bBd)}{2(d+ex)^2(bd-ae)^4}-\frac{e(Bd-Ae)}{3(d+ex)^3(bd-ae)^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/((a + b*x)^3*(d + e*x)^4),x]
```

```
[Out] -(b^2*(A*b - a*B))/(2*(b*d - a*e)^4*(a + b*x)^2) - (b^2*(b*B*d -
4*A*b*e + 3*a*B*e))/((b*d - a*e)^5*(a + b*x)) - (e*(B*d - A*e))/(
3*(b*d - a*e)^3*(d + e*x)^3) - (e*(2*b*B*d - 3*A*b*e + a*B*e))/(2
*(b*d - a*e)^4*(d + e*x)^2) - (3*b*e*(b*B*d - 2*A*b*e + a*B*e))/(
(b*d - a*e)^5*(d + e*x)) - (2*b^2*e*(2*b*B*d - 5*A*b*e + 3*a*B*e)
*Log[a + b*x])/(b*d - a*e)^6 + (2*b^2*e*(2*b*B*d - 5*A*b*e + 3*a*
B*e)*Log[d + e*x])/(b*d - a*e)^6
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(b*x+a)**3/(e*x+d)**4,x)
```

```
[Out] Timed out
```

Mathematica [A] time = 0.329521, size = 233, normalized size = 0.94

$$\frac{-\frac{3b^2(Ab-aB)(bd-ae)^2}{(a+bx)^2}-\frac{6b^2(bd-ae)(3aBe-4Abe+bBd)}{a+bx}+12b^2e\log(a+bx)(-3aBe+5Abe-2bBd)+12b^2e\log(d+ex)(3aBe-5Al}{6(bd-ae)^6}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/((a + b*x)^3*(d + e*x)^4),x]
```

```
[Out] ((-3*b^2*(A*b - a*B)*(b*d - a*e)^2)/(a + b*x)^2 - (6*b^2*(b*d - a
*e)*(b*B*d - 4*A*b*e + 3*a*B*e))/(a + b*x) + (2*e*(b*d - a*e)^3*(
-(B*d) + A*e))/(d + e*x)^3 + (3*e*(b*d - a*e)^2*(-2*b*B*d + 3*A*b
*e - a*B*e))/(d + e*x)^2 + (18*b*e*(-(b*d) + a*e)*(b*B*d - 2*A*b*
e + a*B*e))/(d + e*x) + 12*b^2*e*(-2*b*B*d + 5*A*b*e - 3*a*B*e)*L
og[a + b*x] + 12*b^2*e*(2*b*B*d - 5*A*b*e + 3*a*B*e)*Log[d + e*x]
)/(6*(b*d - a*e)^6)
```

Maple [A] time = 0.028, size = 463, normalized size = 1.9

$$-\frac{e^2A}{3\,(ae-bd)^3\,(ex+d)^3}+\frac{eBd}{3\,(ae-bd)^3\,(ex+d)^3}+\frac{3\,e^2Ab}{2\,(ae-bd)^4\,(ex+d)^2}-\frac{e^2Ba}{2\,(ae-bd)^4\,(ex+d)^2}-\frac{bBde}{(ae-bd)^4\,(ex+d)^2}-6\,\frac{e^2b^2A}{(ae-bd)^5\,(ex+d)}+3\,\frac{e^2bBa}{(ae-bd)^5\,(ex+d)}+3\,\frac{b^2Bde}{(ae-bd)^5\,(ex+d)}-10\,\frac{e^2b^3\ln(ex+d)\,A}{(ae-bd)^6}+6\,\frac{e^2b^2\ln(ex+d)\,Ba}{(ae-bd)^6}+4\,\frac{b^3e\ln(ex+d)\,Bd}{(ae-bd)^6}-4\,\frac{b^3Ae}{(ae-bd)^5\,(bx+a)}+3\,\frac{Bab^2e}{(ae-bd)^5\,(bx+a)}+\frac{b^3Bd}{(ae-bd)^5\,(bx+a)}-\frac{b^3A}{2\,(ae-bd)^4\,(bx+a)^2}+\frac{Bab^2}{2\,(ae-bd)^4\,(bx+a)^2}+10\,\frac{e^2b^3\ln(bx+a)\,A}{(ae-bd)^6}-6\,\frac{e^2b^2\ln(bx+a)\,Ba}{(ae-bd)^6}-4\,\frac{b^3e\ln(bx+a)\,Bd}{(ae-bd)^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(b*x+a)^3/(e*x+d)^4,x)
```

```
[Out] -1/3*e^2/(a*e-b*d)^3/(e*x+d)^3*A+1/3*e/(a*e-b*d)^3/(e*x+d)^3*B*d+
3/2*e^2/(a*e-b*d)^4/(e*x+d)^2*A*b-1/2*e^2/(a*e-b*d)^4/(e*x+d)^2*B
*a-e/(a*e-b*d)^4/(e*x+d)^2*B*b*d-6*e^2*b^2/(a*e-b*d)^5/(e*x+d)*A+
3*e^2*b/(a*e-b*d)^5/(e*x+d)*B*a+3*e*b^2/(a*e-b*d)^5/(e*x+d)*B*d-1
0*e^2*b^3/(a*e-b*d)^6*ln(e*x+d)*A+6*e^2*b^2/(a*e-b*d)^6*ln(e*x+d)
*B*a+4*e*b^3/(a*e-b*d)^6*ln(e*x+d)*B*d-4*b^3/(a*e-b*d)^5/(b*x+a)*
A*e+3*b^2/(a*e-b*d)^5/(b*x+a)*B*a*e+b^3/(a*e-b*d)^5/(b*x+a)*B*d-1
/2*b^3/(a*e-b*d)^4/(b*x+a)^2*A+1/2*b^2/(a*e-b*d)^4/(b*x+a)^2*B*a+
10*e^2*b^3/(a*e-b*d)^6*ln(b*x+a)*A-6*e^2*b^2/(a*e-b*d)^6*ln(b*x+a
)*B*a-4*e*b^3/(a*e-b*d)^6*ln(b*x+a)*B*d
```

Maxima [A] time = 1.45464, size = 1520, normalized size = 6.13

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^3*(e*x + d)^4),x, algorithm="maxima")
```

```
[Out] -2*(2*B*b^3*d*e + (3*B*a*b^2 - 5*A*b^3)*e^2)*log(b*x + a)/(b^6*d^
6 - 6*a*b^5*d^5*e + 15*a^2*b^4*d^4*e^2 - 20*a^3*b^3*d^3*e^3 + 15*
a^4*b^2*d^2*e^4 - 6*a^5*b*d*e^5 + a^6*e^6) + 2*(2*B*b^3*d*e + (3*
B*a*b^2 - 5*A*b^3)*e^2)*log(e*x + d)/(b^6*d^6 - 6*a*b^5*d^5*e + 1
5*a^2*b^4*d^4*e^2 - 20*a^3*b^3*d^3*e^3 + 15*a^4*b^2*d^2*e^4 - 6*a
^5*b*d*e^5 + a^6*e^6) + 1/6*(2*A*a^4*e^4 - 3*(B*a*b^3 + A*b^4)*d^
4 - (47*B*a^2*b^2 - 27*A*a*b^3)*d^3*e - (11*B*a^3*b - 47*A*a^2*b^
2)*d^2*e^2 + (B*a^4 - 13*A*a^3*b)*d*e^3 - 12*(2*B*b^4*d*e^3 + (3*
B*a*b^3 - 5*A*b^4)*e^4)*x^4 - 6*(10*B*b^4*d^2*e^2 + (21*B*a*b^3 -
 25*A*b^4)*d*e^3 + 3*(3*B*a^2*b^2 - 5*A*a*b^3)*e^4)*x^3 - 2*(22*B
*b^4*d^3*e + (79*B*a*b^3 - 55*A*b^4)*d^2*e^2 + (73*B*a^2*b^2 - 11
5*A*a*b^3)*d*e^3 + 2*(3*B*a^3*b - 5*A*a^2*b^2)*e^4)*x^2 - (6*B*b^
4*d^4 + (79*B*a*b^3 - 15*A*b^4)*d^3*e + (127*B*a^2*b^2 - 175*A*a*
b^3)*d^2*e^2 + (31*B*a^3*b - 55*A*a^2*b^2)*d*e^3 - (3*B*a^4 - 5*A
*a^3*b)*e^4)*x)/(a^2*b^5*d^8 - 5*a^3*b^4*d^7*e + 10*a^4*b^3*d^6*e
^2 - 10*a^5*b^2*d^5*e^3 + 5*a^6*b*d^4*e^4 - a^7*d^3*e^5 + (b^7*d^
```

```
5*e^3 - 5*a*b^6*d^4*e^4 + 10*a^2*b^5*d^3*e^5 - 10*a^3*b^4*d^2*e^6
 + 5*a^4*b^3*d*e^7 - a^5*b^2*e^8)*x^5 + (3*b^7*d^6*e^2 - 13*a*b^6
*d^5*e^3 + 20*a^2*b^5*d^4*e^4 - 10*a^3*b^4*d^3*e^5 - 5*a^4*b^3*d^
2*e^6 + 7*a^5*b^2*d*e^7 - 2*a^6*b*e^8)*x^4 + (3*b^7*d^7*e - 9*a*b
^6*d^6*e^2 + a^2*b^5*d^5*e^3 + 25*a^3*b^4*d^4*e^4 - 35*a^4*b^3*d^
3*e^5 + 17*a^5*b^2*d^2*e^6 - a^6*b*d*e^7 - a^7*e^8)*x^3 + (b^7*d^
8 + a*b^6*d^7*e - 17*a^2*b^5*d^6*e^2 + 35*a^3*b^4*d^5*e^3 - 25*a^
4*b^3*d^4*e^4 - a^5*b^2*d^3*e^5 + 9*a^6*b*d^2*e^6 - 3*a^7*d*e^7)*
x^2 + (2*a*b^6*d^8 - 7*a^2*b^5*d^7*e + 5*a^3*b^4*d^6*e^2 + 10*a^4
*b^3*d^5*e^3 - 20*a^5*b^2*d^4*e^4 + 13*a^6*b*d^3*e^5 - 3*a^7*d^2*
e^6)*x)
```

Fricas [A] time = 0.2514, size = 2491, normalized size = 10.04

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/((b*x + a)^3*(e*x + d)^4),x, algorithm="fricas")
```

```
[Out] -1/6*(2*A*a^5*e^5 + 3*(B*a*b^4 + A*b^5)*d^5 + 2*(22*B*a^2*b^3 - 1
5*A*a*b^4)*d^4*e - 4*(9*B*a^3*b^2 + 5*A*a^2*b^3)*d^3*e^2 - 12*(B*
a^4*b - 5*A*a^3*b^2)*d^2*e^3 + (B*a^5 - 15*A*a^4*b)*d*e^4 + 12*(2
*B*b^5*d^2*e^3 + (B*a*b^4 - 5*A*b^5)*d*e^4 - (3*B*a^2*b^3 - 5*A*a
*b^4)*e^5)*x^4 + 6*(10*B*b^5*d^3*e^2 + (11*B*a*b^4 - 25*A*b^5)*d^
2*e^3 - 2*(6*B*a^2*b^3 - 5*A*a*b^4)*d*e^4 - 3*(3*B*a^3*b^2 - 5*A*
a^2*b^3)*e^5)*x^3 + 2*(22*B*b^5*d^4*e + (57*B*a*b^4 - 55*A*b^5)*d
^3*e^2 - 6*(B*a^2*b^3 + 10*A*a*b^4)*d^2*e^3 - (67*B*a^3*b^2 - 105
*A*a^2*b^3)*d*e^4 - 2*(3*B*a^4*b - 5*A*a^3*b^2)*e^5)*x^2 + (6*B*b
^5*d^5 + (73*B*a*b^4 - 15*A*b^5)*d^4*e + 16*(3*B*a^2*b^3 - 10*A*a
*b^4)*d^3*e^2 - 24*(4*B*a^3*b^2 - 5*A*a^2*b^3)*d^2*e^3 - 2*(17*B*
a^4*b - 30*A*a^3*b^2)*d*e^4 + (3*B*a^5 - 5*A*a^4*b)*e^5)*x + 12*(
2*B*a^2*b^3*d^4*e + (3*B*a^3*b^2 - 5*A*a^2*b^3)*d^3*e^2 + (2*B*b^
5*d*e^4 + (3*B*a*b^4 - 5*A*b^5)*e^5)*x^5 + (6*B*b^5*d^2*e^3 + (13
*B*a*b^4 - 15*A*b^5)*d*e^4 + 2*(3*B*a^2*b^3 - 5*A*a*b^4)*e^5)*x^4
 + (6*B*b^5*d^3*e^2 + 3*(7*B*a*b^4 - 5*A*b^5)*d^2*e^3 + 10*(2*B*a
^2*b^3 - 3*A*a*b^4)*d*e^4 + (3*B*a^3*b^2 - 5*A*a^2*b^3)*e^5)*x^3
+ (2*B*b^5*d^4*e + 5*(3*B*a*b^4 - A*b^5)*d^3*e^2 + 6*(4*B*a^2*b^3
 - 5*A*a*b^4)*d^2*e^3 + 3*(3*B*a^3*b^2 - 5*A*a^2*b^3)*d*e^4)*x^2
+ (4*B*a*b^4*d^4*e + 2*(6*B*a^2*b^3 - 5*A*a*b^4)*d^3*e^2 + 3*(3*B
*a^3*b^2 - 5*A*a^2*b^3)*d^2*e^3)*x)*log(b*x + a) - 12*(2*B*a^2*b^
3*d^4*e + (3*B*a^3*b^2 - 5*A*a^2*b^3)*d^3*e^2 + (2*B*b^5*d*e^4 +
(3*B*a*b^4 - 5*A*b^5)*e^5)*x^5 + (6*B*b^5*d^2*e^3 + (13*B*a*b^4 -
 15*A*b^5)*d*e^4 + 2*(3*B*a^2*b^3 - 5*A*a*b^4)*e^5)*x^4 + (6*B*b^
5*d^3*e^2 + 3*(7*B*a*b^4 - 5*A*b^5)*d^2*e^3 + 10*(2*B*a^2*b^3 - 3
*A*a*b^4)*d*e^4 + (3*B*a^3*b^2 - 5*A*a^2*b^3)*e^5)*x^3 + (2*B*b^5
*d^4*e + 5*(3*B*a*b^4 - A*b^5)*d^3*e^2 + 6*(4*B*a^2*b^3 - 5*A*a*b
^4)*d^2*e^3 + 3*(3*B*a^3*b^2 - 5*A*a^2*b^3)*d*e^4)*x^2 + (4*B*a*b
^4*d^4*e + 2*(6*B*a^2*b^3 - 5*A*a*b^4)*d^3*e^2 + 3*(3*B*a^3*b^2 -
 5*A*a^2*b^3)*d^2*e^3)*x)*log(e*x + d))/(a^2*b^6*d^9 - 6*a^3*b^5*
d^8*e + 15*a^4*b^4*d^7*e^2 - 20*a^5*b^3*d^6*e^3 + 15*a^6*b^2*d^5*
e^4 - 6*a^7*b*d^4*e^5 + a^8*d^3*e^6 + (b^8*d^6*e^3 - 6*a*b^7*d^5*
e^4 + 15*a^2*b^6*d^4*e^5 - 20*a^3*b^5*d^3*e^6 + 15*a^4*b^4*d^2*e^
7 - 6*a^5*b^3*d*e^8 + a^6*b^2*e^9)*x^5 + (3*b^8*d^7*e^2 - 16*a*b^
7*d^6*e^3 + 33*a^2*b^6*d^5*e^4 - 30*a^3*b^5*d^4*e^5 + 5*a^4*b^4*d
^3*e^6 + 12*a^5*b^3*d^2*e^7 - 9*a^6*b^2*d*e^8 + 2*a^7*b*e^9)*x^4
+ (3*b^8*d^8*e - 12*a*b^7*d^7*e^2 + 10*a^2*b^6*d^6*e^3 + 24*a^3*b
^5*d^5*e^4 - 60*a^4*b^4*d^4*e^5 + 52*a^5*b^3*d^3*e^6 - 18*a^6*b^2
*d^2*e^7 + a^8*e^9)*x^3 + (b^8*d^9 - 18*a^2*b^6*d^7*e^2 + 52*a^3*
b^5*d^6*e^3 - 60*a^4*b^4*d^5*e^4 + 24*a^5*b^3*d^4*e^5 + 10*a^6*b^
2*d^3*e^6 - 12*a^7*b*d^2*e^7 + 3*a^8*d*e^8)*x^2 + (2*a*b^7*d^9 -
9*a^2*b^6*d^8*e + 12*a^3*b^5*d^7*e^2 + 5*a^4*b^4*d^6*e^3 - 30*a^5
*b^3*d^5*e^4 + 33*a^6*b^2*d^4*e^5 - 16*a^7*b*d^3*e^6 + 3*a^8*d^2*
e^7)*x)
```

Sympy [A] time = 34.3356, size = 1975, normalized size = 7.96

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(b*x+a)**3/(e*x+d)**4,x)
```

```
[Out] 2*b**2*e*(-5*A*b*e + 3*B*a*e + 2*B*b*d)*log(x + (-10*A*a*b**3*e**
3 - 10*A*b**4*d*e**2 + 6*B*a**2*b**2*e**3 + 10*B*a*b**3*d*e**2 +
4*B*b**4*d**2*e - 2*a**7*b**2*e**8*(-5*A*b*e + 3*B*a*e + 2*B*b*d)
/(a*e - b*d)**6 + 14*a**6*b**3*d*e**7*(-5*A*b*e + 3*B*a*e + 2*B*b
*d)/(a*e - b*d)**6 - 42*a**5*b**4*d**2*e**6*(-5*A*b*e + 3*B*a*e +
 2*B*b*d)/(a*e - b*d)**6 + 70*a**4*b**5*d**3*e**5*(-5*A*b*e + 3*B
*a*e + 2*B*b*d)/(a*e - b*d)**6 - 70*a**3*b**6*d**4*e**4*(-5*A*b*e
 + 3*B*a*e + 2*B*b*d)/(a*e - b*d)**6 + 42*a**2*b**7*d**5*e**3*(-5
*A*b*e + 3*B*a*e + 2*B*b*d)/(a*e - b*d)**6 - 14*a*b**8*d**6*e**2*
(-5*A*b*e + 3*B*a*e + 2*B*b*d)/(a*e - b*d)**6 + 2*b**9*d**7*e*(-5
*A*b*e + 3*B*a*e + 2*B*b*d)/(a*e - b*d)**6)/(-20*A*b**4*e**3 + 12
*B*a*b**3*e**3 + 8*B*b**4*d*e**2))/(a*e - b*d)**6 - 2*b**2*e*(-5*
A*b*e + 3*B*a*e + 2*B*b*d)*log(x + (-10*A*a*b**3*e**3 - 10*A*b**4
*d*e**2 + 6*B*a**2*b**2*e**3 + 10*B*a*b**3*d*e**2 + 4*B*b**4*d**2
*e + 2*a**7*b**2*e**8*(-5*A*b*e + 3*B*a*e + 2*B*b*d)/(a*e - b*d)*
*6 - 14*a**6*b**3*d*e**7*(-5*A*b*e + 3*B*a*e + 2*B*b*d)/(a*e - b*
d)**6 + 42*a**5*b**4*d**2*e**6*(-5*A*b*e + 3*B*a*e + 2*B*b*d)/(a*
e - b*d)**6 - 70*a**4*b**5*d**3*e**5*(-5*A*b*e + 3*B*a*e + 2*B*b*
d)/(a*e - b*d)**6 + 70*a**3*b**6*d**4*e**4*(-5*A*b*e + 3*B*a*e +
2*B*b*d)/(a*e - b*d)**6 - 42*a**2*b**7*d**5*e**3*(-5*A*b*e + 3*B*
a*e + 2*B*b*d)/(a*e - b*d)**6 + 14*a*b**8*d**6*e**2*(-5*A*b*e + 3
*B*a*e + 2*B*b*d)/(a*e - b*d)**6 - 2*b**9*d**7*e*(-5*A*b*e + 3*B*
a*e + 2*B*b*d)/(a*e - b*d)**6)/(-20*A*b**4*e**3 + 12*B*a*b**3*e**
3 + 8*B*b**4*d*e**2))/(a*e - b*d)**6 + (-2*A*a**4*e**4 + 13*A*a**
3*b*d*e**3 - 47*A*a**2*b**2*d**2*e**2 - 27*A*a*b**3*d**3*e + 3*A*
b**4*d**4 - B*a**4*d*e**3 + 11*B*a**3*b*d**2*e**2 + 47*B*a**2*b**
2*d**3*e + 3*B*a*b**3*d**4 + x**4*(-60*A*b**4*e**4 + 36*B*a*b**3*
e**4 + 24*B*b**4*d*e**3) + x**3*(-90*A*a*b**3*e**4 - 150*A*b**4*d
*e**3 + 54*B*a**2*b**2*e**4 + 126*B*a*b**3*d*e**3 + 60*B*b**4*d**
2*e**2) + x**2*(-20*A*a**2*b**2*e**4 - 230*A*a*b**3*d*e**3 - 110*
A*b**4*d**2*e**2 + 12*B*a**3*b*e**4 + 146*B*a**2*b**2*d*e**3 + 15
8*B*a*b**3*d**2*e**2 + 44*B*b**4*d**3*e) + x*(5*A*a**3*b*e**4 - 5
5*A*a**2*b**2*d*e**3 - 175*A*a*b**3*d**2*e**2 - 15*A*b**4*d**3*e
- 3*B*a**4*e**4 + 31*B*a**3*b*d*e**3 + 127*B*a**2*b**2*d**2*e**2
+ 79*B*a*b**3*d**3*e + 6*B*b**4*d**4))/(6*a**7*d**3*e**5 - 30*a**
6*b*d**4*e**4 + 60*a**5*b**2*d**5*e**3 - 60*a**4*b**3*d**6*e**2 +
 30*a**3*b**4*d**7*e - 6*a**2*b**5*d**8 + x**5*(6*a**5*b**2*e**8
- 30*a**4*b**3*d*e**7 + 60*a**3*b**4*d**2*e**6 - 60*a**2*b**5*d**
3*e**5 + 30*a*b**6*d**4*e**4 - 6*b**7*d**5*e**3) + x**4*(12*a**6*
b*e**8 - 42*a**5*b**2*d*e**7 + 30*a**4*b**3*d**2*e**6 + 60*a**3*b
**4*d**3*e**5 - 120*a**2*b**5*d**4*e**4 + 78*a*b**6*d**5*e**3 - 1
8*b**7*d**6*e**2) + x**3*(6*a**7*e**8 + 6*a**6*b*d*e**7 - 102*a**
5*b**2*d**2*e**6 + 210*a**4*b**3*d**3*e**5 - 150*a**3*b**4*d**4*e
**4 - 6*a**2*b**5*d**5*e**3 + 54*a*b**6*d**6*e**2 - 18*b**7*d**7*
e) + x**2*(18*a**7*d*e**7 - 54*a**6*b*d**2*e**6 + 6*a**5*b**2*d**
3*e**5 + 150*a**4*b**3*d**4*e**4 - 210*a**3*b**4*d**5*e**3 + 102*
a**2*b**5*d**6*e**2 - 6*a*b**6*d**7*e - 6*b**7*d**8) + x*(18*a**7
*d**2*e**6 - 78*a**6*b*d**3*e**5 + 120*a**5*b**2*d**4*e**4 - 60*a
**4*b**3*d**5*e**3 - 30*a**3*b**4*d**6*e**2 + 42*a**2*b**5*d**7*e
 - 12*a*b**6*d**8))
```

GIAC/XCAS [A] time = 0.238267, size = 1026, normalized size = 4.14

$$-\frac{2\left(2Bb^4de+3Bab^3e^2-5Ab^4e^2\right)\ln\left(|bx+a|\right)}{b^7d^6-6ab^6d^5e+15a^2b^5d^4e^2-20a^3b^4d^3e^3+15a^4b^3d^2e^4-6a^5b^2de^5+a^6be^6}+\frac{2\left(2Bb^3de^2+3Bab^2e^3-5Ab^3e^3\right)\ln\left(|xe+d|\right)}{b^6d^6e-6ab^5d^5e^2+15a^2b^4d^4e^3-20a^3b^3d^3e^4+15a^4b^2d^2e^5-6a^5bde^6+a^6e^7}-\frac{3Bab^4d^5+3Ab^5d^5+44Ba^2b^3d^4e-30Aab^4d^4e-36Ba^3b^2d^3e^2-20Aa^2b^3d^3e^2-12Ba^4bd^2e^3+60Aa^3b^2d^2e^3+Ba^5de^4}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^3*(e*x + d)^4),x, algorithm="giac")
```

```
[Out] -2*(2*B*b^4*d*e + 3*B*a*b^3*e^2 - 5*A*b^4*e^2)*ln(abs(b*x + a))/(
b^7*d^6 - 6*a*b^6*d^5*e + 15*a^2*b^5*d^4*e^2 - 20*a^3*b^4*d^3*e^3
 + 15*a^4*b^3*d^2*e^4 - 6*a^5*b^2*d*e^5 + a^6*b*e^6) + 2*(2*B*b^3
*d*e^2 + 3*B*a*b^2*e^3 - 5*A*b^3*e^3)*ln(abs(x*e + d))/(b^6*d^6*e
 - 6*a*b^5*d^5*e^2 + 15*a^2*b^4*d^4*e^3 - 20*a^3*b^3*d^3*e^4 + 15
*a^4*b^2*d^2*e^5 - 6*a^5*b*d*e^6 + a^6*e^7) - 1/6*(3*B*a*b^4*d^5
+ 3*A*b^5*d^5 + 44*B*a^2*b^3*d^4*e - 30*A*a*b^4*d^4*e - 36*B*a^3*
b^2*d^3*e^2 - 20*A*a^2*b^3*d^3*e^2 - 12*B*a^4*b*d^2*e^3 + 60*A*a^
3*b^2*d^2*e^3 + B*a^5*d*e^4 - 15*A*a^4*b*d*e^4 + 2*A*a^5*e^5 + 12
*(2*B*b^5*d^2*e^3 + B*a*b^4*d*e^4 - 5*A*b^5*d*e^4 - 3*B*a^2*b^3*e
^5 + 5*A*a*b^4*e^5)*x^4 + 6*(10*B*b^5*d^3*e^2 + 11*B*a*b^4*d^2*e^
3 - 25*A*b^5*d^2*e^3 - 12*B*a^2*b^3*d*e^4 + 10*A*a*b^4*d*e^4 - 9*
B*a^3*b^2*e^5 + 15*A*a^2*b^3*e^5)*x^3 + 2*(22*B*b^5*d^4*e + 57*B*
a*b^4*d^3*e^2 - 55*A*b^5*d^3*e^2 - 6*B*a^2*b^3*d^2*e^3 - 60*A*a*b
^4*d^2*e^3 - 67*B*a^3*b^2*d*e^4 + 105*A*a^2*b^3*d*e^4 - 6*B*a^4*b
*e^5 + 10*A*a^3*b^2*e^5)*x^2 + (6*B*b^5*d^5 + 73*B*a*b^4*d^4*e -
15*A*b^5*d^4*e + 48*B*a^2*b^3*d^3*e^2 - 160*A*a*b^4*d^3*e^2 - 96*
B*a^3*b^2*d^2*e^3 + 120*A*a^2*b^3*d^2*e^3 - 34*B*a^4*b*d*e^4 + 60
*A*a^3*b^2*d*e^4 + 3*B*a^5*e^5 - 5*A*a^4*b*e^5)*x)/((b*d - a*e)^6
*(b*x + a)^2*(x*e + d)^3)
```

3.1126 $\int (1-2x)(2+3x)^8(3+5x)\,dx$

Optimal. Leaf size=34

$$-\frac{10}{297}(3x+2)^{11}+\frac{37}{270}(3x+2)^{10}-\frac{7}{243}(3x+2)^9$$

```
[Out] (-7*(2 + 3*x)^9)/243 + (37*(2 + 3*x)^10)/270 - (10*(2 + 3*x)^11)/
297
```

Rubi [A] time = 0.0623976, antiderivative size = 34, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{10}{297}(3x+2)^{11}+\frac{37}{270}(3x+2)^{10}-\frac{7}{243}(3x+2)^9$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)*(2 + 3*x)^8*(3 + 5*x),x]
```

```
[Out] (-7*(2 + 3*x)^9)/243 + (37*(2 + 3*x)^10)/270 - (10*(2 + 3*x)^11)/
297
```

Rubi in Sympy [A] time = 10.2435, size = 29, normalized size = 0.85

$$-\frac{10(3x+2)^{11}}{297}+\frac{37(3x+2)^{10}}{270}-\frac{7(3x+2)^9}{243}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(2+3*x)**8*(3+5*x),x)
```

```
[Out] -10*(3*x + 2)**11/297 + 37*(3*x + 2)**10/270 - 7*(3*x + 2)**9/243
```

Mathematica [A] time = 0.00372492, size = 62, normalized size = 1.82

$$-\frac{65610x^{11}}{11}-\frac{356481x^{10}}{10}-92421x^9-133164x^8-110160x^7-41328x^6+\frac{62496x^5}{5}+24576x^4+\frac{42752x^3}{3}+4480x^2+768x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)*(2 + 3*x)^8*(3 + 5*x),x]
```

```
[Out] 768*x + 4480*x^2 + (42752*x^3)/3 + 24576*x^4 + (62496*x^5)/5 - 41
328*x^6 - 110160*x^7 - 133164*x^8 - 92421*x^9 - (356481*x^10)/10
- (65610*x^11)/11
```

Maple [A] time = 0.001, size = 55, normalized size = 1.6

$$-\frac{65610\,x^{11}}{11}-\frac{356481\,x^{10}}{10}-92421\,x^9-133164\,x^8-110160\,x^7-41328\,x^6+\frac{62496\,x^5}{5}+24576\,x^4+\frac{42752\,x^3}{3}+4480\,x^2+768\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(2+3*x)^8*(3+5*x),x)
```

```
[Out] -65610/11*x^11-356481/10*x^10-92421*x^9-133164*x^8-110160*x^7-413
28*x^6+62496/5*x^5+24576*x^4+42752/3*x^3+4480*x^2+768*x
```

Maxima [A] time = 1.33192, size = 73, normalized size = 2.15

$$-\frac{65610}{11}\,x^{11}-\frac{356481}{10}\,x^{10}-92421\,x^{9}-133164\,x^{8}-110160\,x^{7}-41328\,x^{6}+\frac{62496}{5}\,x^{5}+24576\,x^{4}+\frac{42752}{3}\,x^{3}+4480\,x^{2}+768\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^8*(2*x - 1),x, algorithm="maxima")
```

```
[Out] -65610/11*x^11 - 356481/10*x^10 - 92421*x^9 - 133164*x^8 - 110160
*x^7 - 41328*x^6 + 62496/5*x^5 + 24576*x^4 + 42752/3*x^3 + 4480*x
^2 + 768*x
```

Fricas [A] time = 0.181232, size = 1, normalized size = 0.03

$$-\frac{65610}{11}x^{11}-\frac{356481}{10}x^{10}-92421x^{9}-133164x^{8}-110160x^{7}-41328x^{6}+\frac{62496}{5}x^{5}+24576x^{4}+\frac{42752}{3}x^{3}+4480x^{2}+768x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^8*(2*x - 1),x, algorithm="fricas")
```

```
[Out] -65610/11*x^11 - 356481/10*x^10 - 92421*x^9 - 133164*x^8 - 110160
*x^7 - 41328*x^6 + 62496/5*x^5 + 24576*x^4 + 42752/3*x^3 + 4480*x
^2 + 768*x
```

Sympy [A] time = 0.10408, size = 60, normalized size = 1.76

$$-\frac{65610x^{11}}{11}-\frac{356481x^{10}}{10}-92421x^{9}-133164x^{8}-110160x^{7}-41328x^{6}+\frac{62496x^{5}}{5}+24576x^{4}+\frac{42752x^{3}}{3}+4480x^{2}+768x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)**8*(3+5*x),x)
```

```
[Out] -65610*x**11/11 - 356481*x**10/10 - 92421*x**9 - 133164*x**8 - 11
0160*x**7 - 41328*x**6 + 62496*x**5/5 + 24576*x**4 + 42752*x**3/3
 + 4480*x**2 + 768*x
```

GIAC/XCAS [A] time = 0.229213, size = 73, normalized size = 2.15

$$-\frac{65610}{11}\,x^{11}-\frac{356481}{10}\,x^{10}-92421\,x^{9}-133164\,x^{8}-110160\,x^{7}-41328\,x^{6}+\frac{62496}{5}\,x^{5}+24576\,x^{4}+\frac{42752}{3}\,x^{3}+4480\,x^{2}+768\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^8*(2*x - 1),x, algorithm="giac")
```

```
[Out] -65610/11*x^11 - 356481/10*x^10 - 92421*x^9 - 133164*x^8 - 110160
*x^7 - 41328*x^6 + 62496/5*x^5 + 24576*x^4 + 42752/3*x^3 + 4480*x
^2 + 768*x
```

3.1127 $\int (1-2x)(2+3x)^7(3+5x)\,dx$

Optimal. Leaf size=34

$$-\frac{1}{27}(3x+2)^{10}+\frac{37}{243}(3x+2)^9-\frac{7}{216}(3x+2)^8$$

```
[Out] (-7*(2 + 3*x)^8)/216 + (37*(2 + 3*x)^9)/243 - (2 + 3*x)^10/27
```

Rubi [A] time = 0.063133, antiderivative size = 34, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{1}{27}(3x+2)^{10}+\frac{37}{243}(3x+2)^9-\frac{7}{216}(3x+2)^8$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)*(2 + 3*x)^7*(3 + 5*x),x]
```

```
[Out] (-7*(2 + 3*x)^8)/216 + (37*(2 + 3*x)^9)/243 - (2 + 3*x)^10/27
```

Rubi in Sympy [A] time = 9.56443, size = 27, normalized size = 0.79

$$-\frac{(3x+2)^{10}}{27}+\frac{37(3x+2)^9}{243}-\frac{7(3x+2)^8}{216}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)*(2+3*x)**7*(3+5*x),x)
```

```
[Out] -(3*x + 2)**10/27 + 37*(3*x + 2)**9/243 - 7*(3*x + 2)**8/216
```

Mathematica [A] time = 0.00292368, size = 53, normalized size = 1.56

$$-2187x^{10}-11583x^9-\frac{207765x^8}{8}-30942x^7-18774x^6-1512x^5+6468x^4+\frac{15520x^3}{3}+1952x^2+384x$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)*(2 + 3*x)^7*(3 + 5*x),x]
```

```
[Out] 384*x + 1952*x^2 + (15520*x^3)/3 + 6468*x^4 - 1512*x^5 - 18774*x^
6 - 30942*x^7 - (207765*x^8)/8 - 11583*x^9 - 2187*x^10
```

Maple [A] time = 0.002, size = 50, normalized size = 1.5

$$-2187\,x^{10}-11583\,x^9-\frac{207765\,x^8}{8}-30942\,x^7-18774\,x^6-1512\,x^5+6468\,x^4+\frac{15520\,x^3}{3}+1952\,x^2+384\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((1-2*x)*(2+3*x)^7*(3+5*x),x)
```

```
[Out] -2187*x^10-11583*x^9-207765/8*x^8-30942*x^7-18774*x^6-1512*x^5+64
68*x^4+15520/3*x^3+1952*x^2+384*x
```

Maxima [A] time = 1.32898, size = 66, normalized size = 1.94

$$-2187\,x^{10} - 11583\,x^9 - \frac{207765}{8}\,x^8 - 30942\,x^7 - 18774\,x^6 - 1512\,x^5 + 6468\,x^4 + \frac{15520}{3}\,x^3 + 1952\,x^2 + 384\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^7*(2*x - 1),x, algorithm="maxima")
```

```
[Out] -2187*x^10 - 11583*x^9 - 207765/8*x^8 - 30942*x^7 - 18774*x^6 - 1
512*x^5 + 6468*x^4 + 15520/3*x^3 + 1952*x^2 + 384*x
```

Fricas [A] time = 0.182515, size = 1, normalized size = 0.03

$$-2187x^{10} - 11583x^9 - \frac{207765}{8}x^8 - 30942x^7 - 18774x^6 - 1512x^5 + 6468x^4 + \frac{15520}{3}x^3 + 1952x^2 + 384x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^7*(2*x - 1),x, algorithm="fricas")
```

```
[Out] -2187*x^10 - 11583*x^9 - 207765/8*x^8 - 30942*x^7 - 18774*x^6 - 1
512*x^5 + 6468*x^4 + 15520/3*x^3 + 1952*x^2 + 384*x
```

Sympy [A] time = 0.099542, size = 51, normalized size = 1.5

$$-2187x^{10} - 11583x^9 - \frac{207765x^8}{8} - 30942x^7 - 18774x^6 - 1512x^5 + 6468x^4 + \frac{15520x^3}{3} + 1952x^2 + 384x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)**7*(3+5*x),x)
```

```
[Out] -2187*x**10 - 11583*x**9 - 207765*x**8/8 - 30942*x**7 - 18774*x**
6 - 1512*x**5 + 6468*x**4 + 15520*x**3/3 + 1952*x**2 + 384*x
```

GIAC/XCAS [A] time = 0.222854, size = 66, normalized size = 1.94

$$-2187\,x^{10} - 11583\,x^9 - \frac{207765}{8}\,x^8 - 30942\,x^7 - 18774\,x^6 - 1512\,x^5 + 6468\,x^4 + \frac{15520}{3}\,x^3 + 1952\,x^2 + 384\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^7*(2*x - 1),x, algorithm="giac")
```

```
[Out] -2187*x^10 - 11583*x^9 - 207765/8*x^8 - 30942*x^7 - 18774*x^6 - 1
512*x^5 + 6468*x^4 + 15520/3*x^3 + 1952*x^2 + 384*x
```

3.1128 $\int (1-2x)(2+3x)^6(3+5x)\,dx$

Optimal. Leaf size=34

$$-\frac{10}{243}(3x+2)^9+\frac{37}{216}(3x+2)^8-\frac{1}{27}(3x+2)^7$$

```
[Out] -(2 + 3*x)^7/27 + (37*(2 + 3*x)^8)/216 - (10*(2 + 3*x)^9)/243
```

Rubi [A] time = 0.0593568, antiderivative size = 34, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{10}{243}(3x+2)^9+\frac{37}{216}(3x+2)^8-\frac{1}{27}(3x+2)^7$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)*(2 + 3*x)^6*(3 + 5*x),x]
```

```
[Out] -(2 + 3*x)^7/27 + (37*(2 + 3*x)^8)/216 - (10*(2 + 3*x)^9)/243
```

Rubi in Sympy [A] time = 8.87429, size = 27, normalized size = 0.79

$$-\frac{10(3x+2)^9}{243}+\frac{37(3x+2)^8}{216}-\frac{(3x+2)^7}{27}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(2+3*x)**6*(3+5*x),x)
```

```
[Out] -10*(3*x + 2)**9/243 + 37*(3*x + 2)**8/216 - (3*x + 2)**7/27
```

Mathematica [A] time = 0.00332494, size = 48, normalized size = 1.41

$$-810x^9-\frac{29889x^8}{8}-7047x^7-6552x^6-2268x^5+1260x^4+\frac{5264x^3}{3}+832x^2+192x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)*(2 + 3*x)^6*(3 + 5*x),x]
```

```
[Out] 192*x + 832*x^2 + (5264*x^3)/3 + 1260*x^4 - 2268*x^5 - 6552*x^6 -
 7047*x^7 - (29889*x^8)/8 - 810*x^9
```

Maple [A] time = 0.001, size = 45, normalized size = 1.3

$$-810\,x^9-\frac{29889\,x^8}{8}-7047\,x^7-6552\,x^6-2268\,x^5+1260\,x^4+\frac{5264\,x^3}{3}+832\,x^2+192\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(2+3*x)^6*(3+5*x),x)
```

```
[Out] -810*x^9-29889/8*x^8-7047*x^7-6552*x^6-2268*x^5+1260*x^4+5264/3*x
^3+832*x^2+192*x
```

Maxima [A] time = 1.33723, size = 59, normalized size = 1.74

$$-810\,x^9 - \frac{29889}{8}\,x^8 - 7047\,x^7 - 6552\,x^6 - 2268\,x^5 + 1260\,x^4 + \frac{5264}{3}\,x^3 + 832\,x^2 + 192\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^6*(2*x - 1),x, algorithm="maxima")
```

```
[Out] -810*x^9 - 29889/8*x^8 - 7047*x^7 - 6552*x^6 - 2268*x^5 + 1260*x^
4 + 5264/3*x^3 + 832*x^2 + 192*x
```

Fricas [A] time = 0.181758, size = 1, normalized size = 0.03

$$-810x^9 - \frac{29889}{8}x^8 - 7047x^7 - 6552x^6 - 2268x^5 + 1260x^4 + \frac{5264}{3}x^3 + 832x^2 + 192x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^6*(2*x - 1),x, algorithm="fricas")
```

```
[Out] -810*x^9 - 29889/8*x^8 - 7047*x^7 - 6552*x^6 - 2268*x^5 + 1260*x^
4 + 5264/3*x^3 + 832*x^2 + 192*x
```

Sympy [A] time = 0.09381, size = 46, normalized size = 1.35

$$-810x^9 - \frac{29889x^8}{8} - 7047x^7 - 6552x^6 - 2268x^5 + 1260x^4 + \frac{5264x^3}{3} + 832x^2 + 192x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)**6*(3+5*x),x)
```

```
[Out] -810*x**9 - 29889*x**8/8 - 7047*x**7 - 6552*x**6 - 2268*x**5 + 12
60*x**4 + 5264*x**3/3 + 832*x**2 + 192*x
```

GIAC/XCAS [A] time = 0.210433, size = 59, normalized size = 1.74

$$-810\,x^9 - \frac{29889}{8}\,x^8 - 7047\,x^7 - 6552\,x^6 - 2268\,x^5 + 1260\,x^4 + \frac{5264}{3}\,x^3 + 832\,x^2 + 192\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^6*(2*x - 1),x, algorithm="giac")
```

```
[Out] -810*x^9 - 29889/8*x^8 - 7047*x^7 - 6552*x^6 - 2268*x^5 + 1260*x^
4 + 5264/3*x^3 + 832*x^2 + 192*x
```

3.1129 $\int (1-2x)(2+3x)^5(3+5x)\,dx$

Optimal. Leaf size=34

$$-\frac{5}{108}(3x+2)^8+\frac{37}{189}(3x+2)^7-\frac{7}{162}(3x+2)^6$$

```
[Out] (-7*(2 + 3*x)^6)/162 + (37*(2 + 3*x)^7)/189 - (5*(2 + 3*x)^8)/108
```

Rubi [A] time = 0.0561433, antiderivative size = 34, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.056$

$$-\frac{5}{108}(3x+2)^8+\frac{37}{189}(3x+2)^7-\frac{7}{162}(3x+2)^6$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)*(2 + 3*x)^5*(3 + 5*x),x]

[Out] (-7*(2 + 3*x)^6)/162 + (37*(2 + 3*x)^7)/189 - (5*(2 + 3*x)^8)/108
```

Rubi in Sympy [A] time = 8.27254, size = 29, normalized size = 0.85

$$-\frac{5(3x+2)^8}{108}+\frac{37(3x+2)^7}{189}-\frac{7(3x+2)^6}{162}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)*(2+3*x)**5*(3+5*x),x)

[Out] -5*(3*x + 2)**8/108 + 37*(3*x + 2)**7/189 - 7*(3*x + 2)**6/162
```

Mathematica [A] time = 0.00314831, size = 47, normalized size = 1.38

$$-\frac{1215x^8}{4}-\frac{8343x^7}{7}-\frac{3627x^6}{2}-1170x^5+30x^4+\frac{1600x^3}{3}+344x^2+96x$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)*(2 + 3*x)^5*(3 + 5*x),x]

[Out] 96*x + 344*x^2 + (1600*x^3)/3 + 30*x^4 - 1170*x^5 - (3627*x^6)/2
- (8343*x^7)/7 - (1215*x^8)/4
```

Maple [A] time = 0.003, size = 40, normalized size = 1.2

$$-\frac{1215\,x^8}{4}-\frac{8343\,x^7}{7}-\frac{3627\,x^6}{2}-1170\,x^5+30\,x^4+\frac{1600\,x^3}{3}+344\,x^2+96\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((1-2*x)*(2+3*x)^5*(3+5*x),x)

[Out] -1215/4*x^8-8343/7*x^7-3627/2*x^6-1170*x^5+30*x^4+1600/3*x^3+344*
x^2+96*x
```

Maxima [A] time = 1.32222, size = 53, normalized size = 1.56

$$-\frac{1215}{4}\,x^{8}-\frac{8343}{7}\,x^{7}-\frac{3627}{2}\,x^{6}-1170\,x^{5}+30\,x^{4}+\frac{1600}{3}\,x^{3}+344\,x^{2}+96\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^5*(2*x - 1),x, algorithm="maxima")
```

```
[Out] -1215/4*x^8 - 8343/7*x^7 - 3627/2*x^6 - 1170*x^5 + 30*x^4 + 1600/
3*x^3 + 344*x^2 + 96*x
```

Fricas [A] time = 0.190539, size = 1, normalized size = 0.03

$$-\frac{1215}{4}x^{8}-\frac{8343}{7}x^{7}-\frac{3627}{2}x^{6}-1170x^{5}+30x^{4}+\frac{1600}{3}x^{3}+344x^{2}+96x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^5*(2*x - 1),x, algorithm="fricas")
```

```
[Out] -1215/4*x^8 - 8343/7*x^7 - 3627/2*x^6 - 1170*x^5 + 30*x^4 + 1600/
3*x^3 + 344*x^2 + 96*x
```

Sympy [A] time = 0.088878, size = 44, normalized size = 1.29

$$-\frac{1215x^{8}}{4}-\frac{8343x^{7}}{7}-\frac{3627x^{6}}{2}-1170x^{5}+30x^{4}+\frac{1600x^{3}}{3}+344x^{2}+96x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)**5*(3+5*x),x)
```

```
[Out] -1215*x**8/4 - 8343*x**7/7 - 3627*x**6/2 - 1170*x**5 + 30*x**4 +
1600*x**3/3 + 344*x**2 + 96*x
```

GIAC/XCAS [A] time = 0.216593, size = 53, normalized size = 1.56

$$-\frac{1215}{4}\,x^{8}-\frac{8343}{7}\,x^{7}-\frac{3627}{2}\,x^{6}-1170\,x^{5}+30\,x^{4}+\frac{1600}{3}\,x^{3}+344\,x^{2}+96\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^5*(2*x - 1),x, algorithm="giac")
```

```
[Out] -1215/4*x^8 - 8343/7*x^7 - 3627/2*x^6 - 1170*x^5 + 30*x^4 + 1600/
3*x^3 + 344*x^2 + 96*x
```

3.1130 $\int (1-2x)(2+3x)^4(3+5x)\,dx$

Optimal. Leaf size=34

$$-\frac{10}{189}(3x+2)^7+\frac{37}{162}(3x+2)^6-\frac{7}{135}(3x+2)^5$$

```
[Out] (-7*(2 + 3*x)^5)/135 + (37*(2 + 3*x)^6)/162 - (10*(2 + 3*x)^7)/18
9
```

Rubi [A] time = 0.0506898, antiderivative size = 34, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{10}{189}(3x+2)^7+\frac{37}{162}(3x+2)^6-\frac{7}{135}(3x+2)^5$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)*(2 + 3*x)^4*(3 + 5*x),x]
```

```
[Out] (-7*(2 + 3*x)^5)/135 + (37*(2 + 3*x)^6)/162 - (10*(2 + 3*x)^7)/18
9
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{810x^7}{7}-\frac{747x^6}{2}-\frac{2133x^5}{5}-132x^4+\frac{392x^3}{3}+48x+272\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(2+3*x)**4*(3+5*x),x)
```

```
[Out] -810*x**7/7 - 747*x**6/2 - 2133*x**5/5 - 132*x**4 + 392*x**3/3 +
48*x + 272*Integral(x, x)
```

Mathematica [A] time = 0.00184182, size = 42, normalized size = 1.24

$$-\frac{810x^7}{7}-\frac{747x^6}{2}-\frac{2133x^5}{5}-132x^4+\frac{392x^3}{3}+136x^2+48x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)*(2 + 3*x)^4*(3 + 5*x),x]
```

```
[Out] 48*x + 136*x^2 + (392*x^3)/3 - 132*x^4 - (2133*x^5)/5 - (747*x^6)
/2 - (810*x^7)/7
```

Maple [A] time = 0.003, size = 35, normalized size = 1.

$$-\frac{810\,x^7}{7}-\frac{747\,x^6}{2}-\frac{2133\,x^5}{5}-132\,x^4+\frac{392\,x^3}{3}+136\,x^2+48\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(2+3*x)^4*(3+5*x),x)
```

```
[Out] -810/7*x^7-747/2*x^6-2133/5*x^5-132*x^4+392/3*x^3+136*x^2+48*x
```

Maxima [A] time = 1.32825, size = 46, normalized size = 1.35

$$-\frac{810}{7}x^7-\frac{747}{2}x^6-\frac{2133}{5}x^5-132x^4+\frac{392}{3}x^3+136x^2+48x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^4*(2*x - 1),x, algorithm="maxima")
```

```
[Out] -810/7*x^7 - 747/2*x^6 - 2133/5*x^5 - 132*x^4 + 392/3*x^3 + 136*x
^2 + 48*x
```

Fricas [A] time = 0.189449, size = 1, normalized size = 0.03

$$-\frac{810}{7}x^7-\frac{747}{2}x^6-\frac{2133}{5}x^5-132x^4+\frac{392}{3}x^3+136x^2+48x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^4*(2*x - 1),x, algorithm="fricas")
```

```
[Out] -810/7*x^7 - 747/2*x^6 - 2133/5*x^5 - 132*x^4 + 392/3*x^3 + 136*x
^2 + 48*x
```

Sympy [A] time = 0.087149, size = 39, normalized size = 1.15

$$-\frac{810x^7}{7}-\frac{747x^6}{2}-\frac{2133x^5}{5}-132x^4+\frac{392x^3}{3}+136x^2+48x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)**4*(3+5*x),x)
```

```
[Out] -810*x**7/7 - 747*x**6/2 - 2133*x**5/5 - 132*x**4 + 392*x**3/3 +
136*x**2 + 48*x
```

GIAC/XCAS [A] time = 0.218004, size = 46, normalized size = 1.35

$$-\frac{810}{7}x^7-\frac{747}{2}x^6-\frac{2133}{5}x^5-132x^4+\frac{392}{3}x^3+136x^2+48x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^4*(2*x - 1),x, algorithm="giac")
```

```
[Out] -810/7*x^7 - 747/2*x^6 - 2133/5*x^5 - 132*x^4 + 392/3*x^3 + 136*x
^2 + 48*x
```

3.1131 $\int (1-2x)(2+3x)^3(3+5x)\,dx$

Optimal. Leaf size=34

$$-\frac{5}{81}(3x+2)^6+\frac{37}{135}(3x+2)^5-\frac{7}{108}(3x+2)^4$$

```
[Out] (-7*(2 + 3*x)^4)/108 + (37*(2 + 3*x)^5)/135 - (5*(2 + 3*x)^6)/81
```

Rubi [A] time = 0.0486022, antiderivative size = 34, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{5}{81}(3x+2)^6+\frac{37}{135}(3x+2)^5-\frac{7}{108}(3x+2)^4$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)*(2 + 3*x)^3*(3 + 5*x),x]
```

```
[Out] (-7*(2 + 3*x)^4)/108 + (37*(2 + 3*x)^5)/135 - (5*(2 + 3*x)^6)/81
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-45x^6-\frac{567x^5}{5}-\frac{333x^4}{4}+\frac{46x^3}{3}+24x+100\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(2+3*x)**3*(3+5*x),x)
```

```
[Out] -45*x**6 - 567*x**5/5 - 333*x**4/4 + 46*x**3/3 + 24*x + 100*Integ
ral(x, x)
```

Mathematica [A] time = 0.00162519, size = 35, normalized size = 1.03

$$-45x^6-\frac{567x^5}{5}-\frac{333x^4}{4}+\frac{46x^3}{3}+50x^2+24x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)*(2 + 3*x)^3*(3 + 5*x),x]
```

```
[Out] 24*x + 50*x^2 + (46*x^3)/3 - (333*x^4)/4 - (567*x^5)/5 - 45*x^6
```

Maple [A] time = 0.002, size = 30, normalized size = 0.9

$$-45\,x^6-\frac{567\,x^5}{5}-\frac{333\,x^4}{4}+\frac{46\,x^3}{3}+50\,x^2+24\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(2+3*x)^3*(3+5*x),x)
```

```
[Out] -45*x^6-567/5*x^5-333/4*x^4+46/3*x^3+50*x^2+24*x
```

Maxima [A] time = 1.36431, size = 39, normalized size = 1.15

$$-45\,x^6-\frac{567}{5}\,x^5-\frac{333}{4}\,x^4+\frac{46}{3}\,x^3+50\,x^2+24\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^3*(2*x - 1),x, algorithm="maxima")

[Out] -45*x^6 - 567/5*x^5 - 333/4*x^4 + 46/3*x^3 + 50*x^2 + 24*x
```

Fricas [A] time = 0.188103, size = 1, normalized size = 0.03

$$-45x^6-\frac{567}{5}x^5-\frac{333}{4}x^4+\frac{46}{3}x^3+50x^2+24x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^3*(2*x - 1),x, algorithm="fricas")

[Out] -45*x^6 - 567/5*x^5 - 333/4*x^4 + 46/3*x^3 + 50*x^2 + 24*x
```

Sympy [A] time = 0.073325, size = 32, normalized size = 0.94

$$-45x^6-\frac{567x^5}{5}-\frac{333x^4}{4}+\frac{46x^3}{3}+50x^2+24x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)**3*(3+5*x),x)

[Out] -45*x**6 - 567*x**5/5 - 333*x**4/4 + 46*x**3/3 + 50*x**2 + 24*x
```

GIAC/XCAS [A] time = 0.217818, size = 39, normalized size = 1.15

$$-45\,x^6-\frac{567}{5}\,x^5-\frac{333}{4}\,x^4+\frac{46}{3}\,x^3+50\,x^2+24\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^3*(2*x - 1),x, algorithm="giac")

[Out] -45*x^6 - 567/5*x^5 - 333/4*x^4 + 46/3*x^3 + 50*x^2 + 24*x
```

3.1132 $\int (1-2x)(2+3x)^2(3+5x)\,dx$

Optimal. Leaf size=34

$$-\frac{2}{27}(3x+2)^5+\frac{37}{108}(3x+2)^4-\frac{7}{81}(3x+2)^3$$

```
[Out] (-7*(2 + 3*x)^3)/81 + (37*(2 + 3*x)^4)/108 - (2*(2 + 3*x)^5)/27
```

Rubi [A] time = 0.044589, antiderivative size = 34, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{2}{27}(3x+2)^5+\frac{37}{108}(3x+2)^4-\frac{7}{81}(3x+2)^3$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)*(2 + 3*x)^2*(3 + 5*x),x]
```

```
[Out] (-7*(2 + 3*x)^3)/81 + (37*(2 + 3*x)^4)/108 - (2*(2 + 3*x)^5)/27
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-18x^5-\frac{129x^4}{4}-\frac{25x^3}{3}+12x+32\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(2+3*x)**2*(3+5*x),x)
```

```
[Out] -18*x**5 - 129*x**4/4 - 25*x**3/3 + 12*x + 32*Integral(x, x)
```

Mathematica [A] time = 0.00138809, size = 28, normalized size = 0.82

$$-18x^5-\frac{129x^4}{4}-\frac{25x^3}{3}+16x^2+12x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)*(2 + 3*x)^2*(3 + 5*x),x]
```

```
[Out] 12*x + 16*x^2 - (25*x^3)/3 - (129*x^4)/4 - 18*x^5
```

Maple [A] time = 0.001, size = 25, normalized size = 0.7

$$-18\,x^5-\frac{129\,x^4}{4}-\frac{25\,x^3}{3}+16\,x^2+12\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(2+3*x)^2*(3+5*x),x)
```

```
[Out] -18*x^5-129/4*x^4-25/3*x^3+16*x^2+12*x
```

Maxima [A] time = 1.35232, size = 32, normalized size = 0.94

$$-18\,x^{5} - \frac{129}{4}\,x^{4} - \frac{25}{3}\,x^{3} + 16\,x^{2} + 12\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^2*(2*x - 1),x, algorithm="maxima")
```

```
[Out] -18*x^5 - 129/4*x^4 - 25/3*x^3 + 16*x^2 + 12*x
```

Fricas [A] time = 0.186526, size = 1, normalized size = 0.03

$$-18x^{5} - \frac{129}{4}x^{4} - \frac{25}{3}x^{3} + 16x^{2} + 12x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^2*(2*x - 1),x, algorithm="fricas")
```

```
[Out] -18*x^5 - 129/4*x^4 - 25/3*x^3 + 16*x^2 + 12*x
```

Sympy [A] time = 0.075215, size = 26, normalized size = 0.76

$$-18x^{5} - \frac{129x^{4}}{4} - \frac{25x^{3}}{3} + 16x^{2} + 12x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)**2*(3+5*x),x)
```

```
[Out] -18*x**5 - 129*x**4/4 - 25*x**3/3 + 16*x**2 + 12*x
```

GIAC/XCAS [A] time = 0.234392, size = 32, normalized size = 0.94

$$-18\,x^{5} - \frac{129}{4}\,x^{4} - \frac{25}{3}\,x^{3} + 16\,x^{2} + 12\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^2*(2*x - 1),x, algorithm="giac")
```

```
[Out] -18*x^5 - 129/4*x^4 - 25/3*x^3 + 16*x^2 + 12*x
```

3.1133 $\int (1-2x)(2+3x)(3+5x)\,dx$

Optimal. Leaf size=25

$$-\frac{15x^4}{2}-\frac{23x^3}{3}+\frac{7x^2}{2}+6x$$

```
[Out] 6*x + (7*x^2)/2 - (23*x^3)/3 - (15*x^4)/2
```

Rubi [A] time = 0.0293821, antiderivative size = 25, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.062

$$-\frac{15x^4}{2}-\frac{23x^3}{3}+\frac{7x^2}{2}+6x$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)*(2 + 3*x)*(3 + 5*x),x]
```

```
[Out] 6*x + (7*x^2)/2 - (23*x^3)/3 - (15*x^4)/2
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{15x^4}{2}-\frac{23x^3}{3}+6x+7\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)*(2+3*x)*(3+5*x),x)
```

```
[Out] -15*x**4/2 - 23*x**3/3 + 6*x + 7*Integral(x, x)
```

Mathematica [A] time = 0.00173303, size = 25, normalized size = 1.

$$-\frac{15x^4}{2}-\frac{23x^3}{3}+\frac{7x^2}{2}+6x$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)*(2 + 3*x)*(3 + 5*x),x]
```

```
[Out] 6*x + (7*x^2)/2 - (23*x^3)/3 - (15*x^4)/2
```

Maple [A] time = 0.001, size = 20, normalized size = 0.8

$$6\,x+\frac{7\,x^2}{2}-\frac{23\,x^3}{3}-\frac{15\,x^4}{2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((1-2*x)*(2+3*x)*(3+5*x),x)
```

```
[Out] 6*x+7/2*x^2-23/3*x^3-15/2*x^4
```

Maxima [A] time = 1.31914, size = 26, normalized size = 1.04

$$-\frac{15}{2}\,x^4-\frac{23}{3}\,x^3+\frac{7}{2}\,x^2+6\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)*(2*x - 1),x, algorithm="maxima")

[Out] -15/2*x^4 - 23/3*x^3 + 7/2*x^2 + 6*x
```

Fricas [A] time = 0.181969, size = 1, normalized size = 0.04

$$-\frac{15}{2}x^4-\frac{23}{3}x^3+\frac{7}{2}x^2+6x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)*(2*x - 1),x, algorithm="fricas")

[Out] -15/2*x^4 - 23/3*x^3 + 7/2*x^2 + 6*x
```

Sympy [A] time = 0.069099, size = 22, normalized size = 0.88

$$-\frac{15x^4}{2}-\frac{23x^3}{3}+\frac{7x^2}{2}+6x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)*(3+5*x),x)

[Out] -15*x**4/2 - 23*x**3/3 + 7*x**2/2 + 6*x
```

GIAC/XCAS [A] time = 0.232469, size = 26, normalized size = 1.04

$$-\frac{15}{2}\,x^4-\frac{23}{3}\,x^3+\frac{7}{2}\,x^2+6\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)*(2*x - 1),x, algorithm="giac")

[Out] -15/2*x^4 - 23/3*x^3 + 7/2*x^2 + 6*x
```

3.1134 $\int (1-2x)(3+5x)\,dx$

Optimal. Leaf size=18

$$-\frac{10x^3}{3}-\frac{x^2}{2}+3x$$

```
[Out] 3*x - x^2/2 - (10*x^3)/3
```

Rubi [A] time = 0.0166218, antiderivative size = 18, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 11, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.091

$$-\frac{10x^3}{3}-\frac{x^2}{2}+3x$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)*(3 + 5*x),x]

[Out] 3*x - x^2/2 - (10*x^3)/3
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{10x^3}{3}+3x-\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(3+5*x),x)

[Out] -10*x**3/3 + 3*x - Integral(x, x)
```

Mathematica [A] time = 0.00122489, size = 18, normalized size = 1.

$$-\frac{10x^3}{3}-\frac{x^2}{2}+3x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)*(3 + 5*x),x]

[Out] 3*x - x^2/2 - (10*x^3)/3
```

Maple [A] time = 0.002, size = 15, normalized size = 0.8

$$3\,x-\frac{x^2}{2}-\frac{10\,x^3}{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(3+5*x),x)

[Out] 3*x-1/2*x^2-10/3*x^3
```

Maxima [A] time = 1.84457, size = 19, normalized size = 1.06

$$-\frac{10}{3}\,x^3 - \frac{1}{2}\,x^2 + 3\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1),x, algorithm="maxima")
```

```
[Out] -10/3*x^3 - 1/2*x^2 + 3*x
```

Fricas [A] time = 0.181323, size = 1, normalized size = 0.06

$$-\frac{10}{3}x^3 - \frac{1}{2}x^2 + 3x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1),x, algorithm="fricas")
```

```
[Out] -10/3*x^3 - 1/2*x^2 + 3*x
```

Sympy [A] time = 0.058662, size = 14, normalized size = 0.78

$$-\frac{10x^3}{3} - \frac{x^2}{2} + 3x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(3+5*x),x)
```

```
[Out] -10*x**3/3 - x**2/2 + 3*x
```

GIAC/XCAS [A] time = 0.231775, size = 19, normalized size = 1.06

$$-\frac{10}{3}\,x^3 - \frac{1}{2}\,x^2 + 3\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1),x, algorithm="giac")
```

```
[Out] -10/3*x^3 - 1/2*x^2 + 3*x
```

3.1135 $\int \frac{(1-2x)(3+5x)}{2+3x}\,dx$

Optimal. Leaf size=23

$$-\frac{5x^2}{3}+\frac{17x}{9}-\frac{7}{27}\log(3x+2)$$

```
[Out] (17*x)/9 - (5*x^2)/3 - (7*Log[2 + 3*x])/27
```

Rubi [A] time = 0.0271515, antiderivative size = 23, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{5x^2}{3}+\frac{17x}{9}-\frac{7}{27}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)*(3 + 5*x))/(2 + 3*x),x]
```

```
[Out] (17*x)/9 - (5*x^2)/3 - (7*Log[2 + 3*x])/27
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{7\log(3x+2)}{27}+\int\frac{17}{9}\,dx-\frac{10\int x\,dx}{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(3+5*x)/(2+3*x),x)
```

```
[Out] -7*log(3*x + 2)/27 + Integral(17/9, x) - 10*Integral(x, x)/3
```

Mathematica [A] time = 0.00852083, size = 22, normalized size = 0.96

$$\frac{1}{27}\left(-45x^2+51x-7\log(3x+2)+54\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)*(3 + 5*x))/(2 + 3*x),x]
```

```
[Out] (54 + 51*x - 45*x^2 - 7*Log[2 + 3*x])/27
```

Maple [A] time = 0.003, size = 18, normalized size = 0.8

$$\frac{17x}{9}-\frac{5x^2}{3}-\frac{7\ln(2+3x)}{27}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(3+5*x)/(2+3*x),x)
```

```
[Out] 17/9*x-5/3*x^2-7/27*ln(2+3*x)
```

Maxima [A] time = 1.37136, size = 23, normalized size = 1.

$$-\frac{5}{3}\,x^2+\frac{17}{9}\,x-\frac{7}{27}\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1)/(3*x + 2),x, algorithm="maxima")
```

```
[Out] -5/3*x^2 + 17/9*x - 7/27*log(3*x + 2)
```

Fricas [A] time = 0.212368, size = 23, normalized size = 1.

$$-\frac{5}{3}\,x^2+\frac{17}{9}\,x-\frac{7}{27}\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1)/(3*x + 2),x, algorithm="fricas")
```

```
[Out] -5/3*x^2 + 17/9*x - 7/27*log(3*x + 2)
```

Sympy [A] time = 0.135219, size = 20, normalized size = 0.87

$$-\frac{5x^2}{3}+\frac{17x}{9}-\frac{7\log\left(3x+2\right)}{27}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(3+5*x)/(2+3*x),x)
```

```
[Out] -5*x**2/3 + 17*x/9 - 7*log(3*x + 2)/27
```

GIAC/XCAS [A] time = 0.242385, size = 24, normalized size = 1.04

$$-\frac{5}{3}\,x^2+\frac{17}{9}\,x-\frac{7}{27}\,\ln\left(\left|3\,x+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1)/(3*x + 2),x, algorithm="giac")
```

```
[Out] -5/3*x^2 + 17/9*x - 7/27*ln(abs(3*x + 2))
```

3.1136 $\int \frac{(1-2x)(3+5x)}{(2+3x)^2} dx$

Optimal. Leaf size=27

$$-\frac{10x}{9}+\frac{7}{27(3x+2)}+\frac{37}{27}\log(3x+2)$$

```
[Out] (-10*x)/9 + 7/(27*(2 + 3*x)) + (37*Log[2 + 3*x])/27
```

Rubi [A] time = 0.0356055, antiderivative size = 27, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{10x}{9}+\frac{7}{27(3x+2)}+\frac{37}{27}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)*(3 + 5*x))/(2 + 3*x)^2,x]
```

```
[Out] (-10*x)/9 + 7/(27*(2 + 3*x)) + (37*Log[2 + 3*x])/27
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{37\log(3x+2)}{27}+\int\left(-\frac{10}{9}\right)dx+\frac{7}{27(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)*(3+5*x)/(2+3*x)**2,x)
```

```
[Out] 37*log(3*x + 2)/27 + Integral(-10/9, x) + 7/(27*(3*x + 2))
```

Mathematica [A] time = 0.0166986, size = 26, normalized size = 0.96

$$\frac{1}{27}\left(-30x+\frac{7}{3x+2}+37\log(3x+2)-20\right)$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)*(3 + 5*x))/(2 + 3*x)^2,x]
```

```
[Out] (-20 - 30*x + 7/(2 + 3*x) + 37*Log[2 + 3*x])/27
```

Maple [A] time = 0.009, size = 22, normalized size = 0.8

$$-\frac{10x}{9}+\frac{7}{54+81x}+\frac{37\ln(2+3x)}{27}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((1-2*x)*(3+5*x)/(2+3*x)^2,x)
```

```
[Out] -10/9*x+7/27/(2+3*x)+37/27*ln(2+3*x)
```

Maxima [A] time = 1.34248, size = 28, normalized size = 1.04

$$-\frac{10}{9}\,x+\frac{7}{27\,(3\,x+2)}+\frac{37}{27}\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1)/(3*x + 2)^2,x, algorithm="maxima")

[Out] -10/9*x + 7/27/(3*x + 2) + 37/27*log(3*x + 2)
```

Fricas [A] time = 0.212003, size = 43, normalized size = 1.59

$$-\frac{90\,x^2-37\,(3\,x+2)\log\left(3\,x+2\right)+60\,x-7}{27\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1)/(3*x + 2)^2,x, algorithm="fricas")

[Out] -1/27*(90*x^2 - 37*(3*x + 2)*log(3*x + 2) + 60*x - 7)/(3*x + 2)
```

Sympy [A] time = 0.212192, size = 20, normalized size = 0.74

$$-\frac{10x}{9}+\frac{37\log\left(3x+2\right)}{27}+\frac{7}{81x+54}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(3+5*x)/(2+3*x)**2,x)

[Out] -10*x/9 + 37*log(3*x + 2)/27 + 7/(81*x + 54)
```

GIAC/XCAS [A] time = 0.215001, size = 43, normalized size = 1.59

$$-\frac{10}{9}\,x+\frac{7}{27\,(3\,x+2)}-\frac{37}{27}\ln\left(\frac{|3\,x+2|}{3\,(3\,x+2)^2}\right)-\frac{20}{27}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1)/(3*x + 2)^2,x, algorithm="giac")

[Out] -10/9*x + 7/27/(3*x + 2) - 37/27*ln(1/3*abs(3*x + 2)/(3*x + 2)^2)
 - 20/27
```

3.1137 $\int \frac{(1-2x)(3+5x)}{(2+3x)^3} dx$

Optimal. Leaf size=33

$$-\frac{37}{27(3x+2)}+\frac{7}{54(3x+2)^2}-\frac{10}{27}\log(3x+2)$$

```
[Out] 7/(54*(2 + 3*x)^2) - 37/(27*(2 + 3*x)) - (10*Log[2 + 3*x])/27
```

Rubi [A] time = 0.035082, antiderivative size = 33, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.056$

$$-\frac{37}{27(3x+2)}+\frac{7}{54(3x+2)^2}-\frac{10}{27}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)*(3 + 5*x))/(2 + 3*x)^3,x]

[Out] 7/(54*(2 + 3*x)^2) - 37/(27*(2 + 3*x)) - (10*Log[2 + 3*x])/27
```

Rubi in Sympy [A] time = 6.14524, size = 26, normalized size = 0.79

$$-\frac{10\log(3x+2)}{27}-\frac{37}{27(3x+2)}+\frac{7}{54(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(3+5*x)/(2+3*x)**3,x)

[Out] -10*log(3*x + 2)/27 - 37/(27*(3*x + 2)) + 7/(54*(3*x + 2)**2)
```

Mathematica [A] time = 0.0154645, size = 27, normalized size = 0.82

$$\frac{1}{54}\left(-\frac{3(74x+47)}{(3x+2)^2}-20\log(3x+2)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)*(3 + 5*x))/(2 + 3*x)^3,x]

[Out] ((-3*(47 + 74*x))/(2 + 3*x)^2 - 20*Log[2 + 3*x])/54
```

Maple [A] time = 0.01, size = 28, normalized size = 0.9

$$\frac{7}{54(2+3x)^2}-\frac{37}{54+81x}-\frac{10\ln(2+3x)}{27}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(3+5*x)/(2+3*x)^3,x)

[Out] 7/54/(2+3*x)^2-37/27/(2+3*x)-10/27*ln(2+3*x)
```

Maxima [A] time = 1.34524, size = 38, normalized size = 1.15

$$-\frac{74\,x+47}{18\,(9\,x^2+12\,x+4)}-\frac{10}{27}\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1)/(3*x + 2)^3,x, algorithm="maxima")
```

```
[Out] -1/18*(74*x + 47)/(9*x^2 + 12*x + 4) - 10/27*log(3*x + 2)
```

Fricas [A] time = 0.218053, size = 50, normalized size = 1.52

$$-\frac{20\,\left(9\,x^2+12\,x+4\right)\,\log\left(3\,x+2\right)+222\,x+141}{54\,(9\,x^2+12\,x+4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1)/(3*x + 2)^3,x, algorithm="fricas")
```

```
[Out] -1/54*(20*(9*x^2 + 12*x + 4)*log(3*x + 2) + 222*x + 141)/(9*x^2 +
 12*x + 4)
```

Sympy [A] time = 0.236063, size = 26, normalized size = 0.79

$$-\frac{74x+47}{162x^2+216x+72}-\frac{10\log\left(3x+2\right)}{27}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(3+5*x)/(2+3*x)**3,x)
```

```
[Out] -(74*x + 47)/(162*x**2 + 216*x + 72) - 10*log(3*x + 2)/27
```

GIAC/XCAS [A] time = 0.233777, size = 32, normalized size = 0.97

$$-\frac{74\,x+47}{18\,(3\,x+2)^2}-\frac{10}{27}\,\ln\left(|3\,x+2|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1)/(3*x + 2)^3,x, algorithm="giac")
```

```
[Out] -1/18*(74*x + 47)/(3*x + 2)^2 - 10/27*ln(abs(3*x + 2))
```

3.1138 $\int \frac{(1-2x)(3+5x)}{(2+3x)^4} dx$

Optimal. Leaf size=34

$$\frac{10}{27(3x+2)} - \frac{37}{54(3x+2)^2} + \frac{7}{81(3x+2)^3}$$

```
[Out] 7/(81*(2 + 3*x)^3) - 37/(54*(2 + 3*x)^2) + 10/(27*(2 + 3*x))
```

Rubi [A] time = 0.0363603, antiderivative size = 34, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.056$

$$\frac{10}{27(3x+2)} - \frac{37}{54(3x+2)^2} + \frac{7}{81(3x+2)^3}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)*(3 + 5*x))/(2 + 3*x)^4,x]

[Out] 7/(81*(2 + 3*x)^3) - 37/(54*(2 + 3*x)^2) + 10/(27*(2 + 3*x))
```

Rubi in Sympy [A] time = 6.3819, size = 26, normalized size = 0.76

$$\frac{10}{27\,(3x+2)} - \frac{37}{54\,(3x+2)^2} + \frac{7}{81\,(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(3+5*x)/(2+3*x)**4,x)

[Out] 10/(27*(3*x + 2)) - 37/(54*(3*x + 2)**2) + 7/(81*(3*x + 2)**3)
```

Mathematica [A] time = 0.00966605, size = 21, normalized size = 0.62

$$\frac{540x^2 + 387x + 32}{162(3x+2)^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)*(3 + 5*x))/(2 + 3*x)^4,x]

[Out] (32 + 387*x + 540*x^2)/(162*(2 + 3*x)^3)
```

Maple [A] time = 0.007, size = 29, normalized size = 0.9

$$\frac{7}{81\,(2+3\,x)^3} - \frac{37}{54\,(2+3\,x)^2} + \frac{10}{54+81\,x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(3+5*x)/(2+3*x)^4,x)

[Out] 7/81/(2+3*x)^3-37/54/(2+3*x)^2+10/27/(2+3*x)
```

Maxima [A] time = 1.34572, size = 39, normalized size = 1.15

$$\frac{540\,x^2+387\,x+32}{162\,(27\,x^3+54\,x^2+36\,x+8)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1)/(3*x + 2)^4,x, algorithm="maxima")

[Out] 1/162*(540*x^2 + 387*x + 32)/(27*x^3 + 54*x^2 + 36*x + 8)
```

Fricas [A] time = 0.207158, size = 39, normalized size = 1.15

$$\frac{540\,x^2+387\,x+32}{162\,(27\,x^3+54\,x^2+36\,x+8)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1)/(3*x + 2)^4,x, algorithm="fricas")

[Out] 1/162*(540*x^2 + 387*x + 32)/(27*x^3 + 54*x^2 + 36*x + 8)
```

Sympy [A] time = 0.271835, size = 24, normalized size = 0.71

$$\frac{540x^2+387x+32}{4374x^3+8748x^2+5832x+1296}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(3+5*x)/(2+3*x)**4,x)

[Out] (540*x**2 + 387*x + 32)/(4374*x**3 + 8748*x**2 + 5832*x + 1296)
```

GIAC/XCAS [A] time = 0.219918, size = 26, normalized size = 0.76

$$\frac{540\,x^2+387\,x+32}{162\,(3\,x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1)/(3*x + 2)^4,x, algorithm="giac")

[Out] 1/162*(540*x^2 + 387*x + 32)/(3*x + 2)^3
```

3.1139 $\int \frac{(1-2x)(3+5x)}{(2+3x)^5} dx$

Optimal. Leaf size=34

$$\frac{5}{27(3x+2)^2} - \frac{37}{81(3x+2)^3} + \frac{7}{108(3x+2)^4}$$

```
[Out] 7/(108*(2 + 3*x)^4) - 37/(81*(2 + 3*x)^3) + 5/(27*(2 + 3*x)^2)
```

Rubi [A] time = 0.0376457, antiderivative size = 34, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.056$

$$\frac{5}{27(3x+2)^2} - \frac{37}{81(3x+2)^3} + \frac{7}{108(3x+2)^4}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)*(3 + 5*x))/(2 + 3*x)^5,x]
```

```
[Out] 7/(108*(2 + 3*x)^4) - 37/(81*(2 + 3*x)^3) + 5/(27*(2 + 3*x)^2)
```

Rubi in Sympy [A] time = 6.44165, size = 29, normalized size = 0.85

$$\frac{5}{27(3x+2)^2} - \frac{37}{81(3x+2)^3} + \frac{7}{108(3x+2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(3+5*x)/(2+3*x)**5,x)
```

```
[Out] 5/(27*(3*x + 2)**2) - 37/(81*(3*x + 2)**3) + 7/(108*(3*x + 2)**4)
```

Mathematica [A] time = 0.00852275, size = 21, normalized size = 0.62

$$\frac{540x^2 + 276x - 35}{324(3x+2)^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)*(3 + 5*x))/(2 + 3*x)^5,x]
```

```
[Out] (-35 + 276*x + 540*x^2)/(324*(2 + 3*x)^4)
```

Maple [A] time = 0.007, size = 29, normalized size = 0.9

$$\frac{7}{108(2+3x)^4} - \frac{37}{81(2+3x)^3} + \frac{5}{27(2+3x)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(3+5*x)/(2+3*x)^5,x)
```

```
[Out] 7/108/(2+3*x)^4-37/81/(2+3*x)^3+5/27/(2+3*x)^2
```

Maxima [A] time = 1.35063, size = 46, normalized size = 1.35

$$\frac{540\,x^2 + 276\,x - 35}{324\,(81\,x^4 + 216\,x^3 + 216\,x^2 + 96\,x + 16)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1)/(3*x + 2)^5,x, algorithm="maxima")
```

```
[Out] 1/324*(540*x^2 + 276*x - 35)/(81*x^4 + 216*x^3 + 216*x^2 + 96*x +
 16)
```

Fricas [A] time = 0.201709, size = 46, normalized size = 1.35

$$\frac{540\,x^2 + 276\,x - 35}{324\,(81\,x^4 + 216\,x^3 + 216\,x^2 + 96\,x + 16)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1)/(3*x + 2)^5,x, algorithm="fricas")
```

```
[Out] 1/324*(540*x^2 + 276*x - 35)/(81*x^4 + 216*x^3 + 216*x^2 + 96*x +
 16)
```

Sympy [A] time = 0.301087, size = 29, normalized size = 0.85

$$\frac{540x^2 + 276x - 35}{26244x^4 + 69984x^3 + 69984x^2 + 31104x + 5184}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(3+5*x)/(2+3*x)**5,x)
```

```
[Out] (540*x**2 + 276*x - 35)/(26244*x**4 + 69984*x**3 + 69984*x**2 + 3
1104*x + 5184)
```

GIAC/XCAS [A] time = 0.21031, size = 38, normalized size = 1.12

$$\frac{5}{27\,(3\,x + 2)^2} - \frac{37}{81\,(3\,x + 2)^3} + \frac{7}{108\,(3\,x + 2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1)/(3*x + 2)^5,x, algorithm="giac")
```

```
[Out] 5/27/(3*x + 2)^2 - 37/81/(3*x + 2)^3 + 7/108/(3*x + 2)^4
```

3.1140 $\int \frac{(1-2x)(3+5x)}{(2+3x)^6} dx$

Optimal. Leaf size=34

$$\frac{10}{81(3x+2)^3} - \frac{37}{108(3x+2)^4} + \frac{7}{135(3x+2)^5}$$

```
[Out] 7/(135*(2 + 3*x)^5) - 37/(108*(2 + 3*x)^4) + 10/(81*(2 + 3*x)^3)
```

Rubi [A] time = 0.037511, antiderivative size = 34, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.056$

$$\frac{10}{81(3x+2)^3} - \frac{37}{108(3x+2)^4} + \frac{7}{135(3x+2)^5}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)*(3 + 5*x))/(2 + 3*x)^6,x]
```

```
[Out] 7/(135*(2 + 3*x)^5) - 37/(108*(2 + 3*x)^4) + 10/(81*(2 + 3*x)^3)
```

Rubi in Sympy [A] time = 6.49375, size = 29, normalized size = 0.85

$$\frac{10}{81\,(3x+2)^3} - \frac{37}{108\,(3x+2)^4} + \frac{7}{135\,(3x+2)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(3+5*x)/(2+3*x)**6,x)
```

```
[Out] 10/(81*(3*x + 2)**3) - 37/(108*(3*x + 2)**4) + 7/(135*(3*x + 2)**
5)
```

Mathematica [A] time = 0.00985068, size = 21, normalized size = 0.62

$$\frac{1800x^2+735x-226}{1620(3x+2)^5}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)*(3 + 5*x))/(2 + 3*x)^6,x]
```

```
[Out] (-226 + 735*x + 1800*x^2)/(1620*(2 + 3*x)^5)
```

Maple [A] time = 0.007, size = 29, normalized size = 0.9

$$\frac{7}{135\,(2+3\,x)^5} - \frac{37}{108\,(2+3\,x)^4} + \frac{10}{81\,(2+3\,x)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(3+5*x)/(2+3*x)^6,x)
```

```
[Out] 7/135/(2+3*x)^5-37/108/(2+3*x)^4+10/81/(2+3*x)^3
```

Maxima [A] time = 1.33311, size = 53, normalized size = 1.56

$$\frac{1800\,x^2+735\,x-226}{1620\,(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240\,x+32)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1)/(3*x + 2)^6,x, algorithm="maxima")
```

```
[Out] 1/1620*(1800*x^2 + 735*x - 226)/(243*x^5 + 810*x^4 + 1080*x^3 + 7
20*x^2 + 240*x + 32)
```

Fricas [A] time = 0.206423, size = 53, normalized size = 1.56

$$\frac{1800\,x^2+735\,x-226}{1620\,(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240\,x+32)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1)/(3*x + 2)^6,x, algorithm="fricas")
```

```
[Out] 1/1620*(1800*x^2 + 735*x - 226)/(243*x^5 + 810*x^4 + 1080*x^3 + 7
20*x^2 + 240*x + 32)
```

Sympy [A] time = 0.342035, size = 34, normalized size = 1.

$$\frac{1800x^2+735x-226}{393660x^5+1312200x^4+1749600x^3+1166400x^2+388800x+51840}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(3+5*x)/(2+3*x)**6,x)
```

```
[Out] (1800*x**2 + 735*x - 226)/(393660*x**5 + 1312200*x**4 + 1749600*x
**3 + 1166400*x**2 + 388800*x + 51840)
```

GIAC/XCAS [A] time = 0.212411, size = 26, normalized size = 0.76

$$\frac{1800\,x^2+735\,x-226}{1620\,(3\,x+2)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1)/(3*x + 2)^6,x, algorithm="giac")
```

```
[Out] 1/1620*(1800*x^2 + 735*x - 226)/(3*x + 2)^5
```

3.1141 $\int (1-2x)(2+3x)^8(3+5x)^2\,dx$

Optimal. Leaf size=45

$$-\frac{25}{486}(3x+2)^{12}+\frac{65}{297}(3x+2)^{11}-\frac{4}{45}(3x+2)^{10}+\frac{7}{729}(3x+2)^9$$

```
[Out] (7*(2 + 3*x)^9)/729 - (4*(2 + 3*x)^10)/45 + (65*(2 + 3*x)^11)/297
 - (25*(2 + 3*x)^12)/486
```

Rubi [A] time = 0.0885457, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{25}{486}(3x+2)^{12}+\frac{65}{297}(3x+2)^{11}-\frac{4}{45}(3x+2)^{10}+\frac{7}{729}(3x+2)^9$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)*(2 + 3*x)^8*(3 + 5*x)^2,x]
```

```
[Out] (7*(2 + 3*x)^9)/729 - (4*(2 + 3*x)^10)/45 + (65*(2 + 3*x)^11)/297
 - (25*(2 + 3*x)^12)/486
```

Rubi in Sympy [A] time = 12.3004, size = 39, normalized size = 0.87

$$-\frac{25\,(3x+2)^{12}}{486}+\frac{65\,(3x+2)^{11}}{297}-\frac{4\,(3x+2)^{10}}{45}+\frac{7\,(3x+2)^9}{729}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(2+3*x)**8*(3+5*x)**2,x)
```

```
[Out] -25*(3*x + 2)**12/486 + 65*(3*x + 2)**11/297 - 4*(3*x + 2)**10/45
 + 7*(3*x + 2)**9/729
```

Mathematica [A] time = 0.00356973, size = 69, normalized size = 1.53

$$-\frac{54675x^{12}}{2}-\frac{1979235x^{11}}{11}-\frac{2614194x^{10}}{5}-869103x^9-881442x^8-507600x^7-71904x^6+\frac{679008x^5}{5}+127168x^4+\frac{173056x^3}{3}+15360x^2+2304x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)*(2 + 3*x)^8*(3 + 5*x)^2,x]
```

```
[Out] 2304*x + 15360*x^2 + (173056*x^3)/3 + 127168*x^4 + (679008*x^5)/5
 - 71904*x^6 - 507600*x^7 - 881442*x^8 - 869103*x^9 - (2614194*x^
10)/5 - (1979235*x^11)/11 - (54675*x^12)/2
```

Maple [A] time = 0.003, size = 60, normalized size = 1.3

$$-\frac{54675\,x^{12}}{2}-\frac{1979235\,x^{11}}{11}-\frac{2614194\,x^{10}}{5}-869103\,x^9-881442\,x^8-507600\,x^7-71904\,x^6+\frac{679008\,x^5}{5}+127168\,x^4+\frac{173056\,x^3}{3}+15360\,x^2+2304\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(2+3*x)^8*(3+5*x)^2,x)
```

```
[Out] -54675/2*x^12-1979235/11*x^11-2614194/5*x^10-869103*x^9-881442*x^
8-507600*x^7-71904*x^6+679008/5*x^5+127168*x^4+173056/3*x^3+15360
*x^2+2304*x
```

Maxima [A] time = 1.3433, size = 80, normalized size = 1.78

$$-\frac{54675}{2}\,x^{12}-\frac{1979235}{11}\,x^{11}-\frac{2614194}{5}\,x^{10}-869103\,x^9-881442\,x^8-507600\,x^7-71904\,x^6+\frac{679008}{5}\,x^5+127168\,x^4+\frac{173056}{3}\,x^3+15360\,x^2+2304\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^8*(2*x - 1),x, algorithm="maxima")
```

```
[Out] -54675/2*x^12 - 1979235/11*x^11 - 2614194/5*x^10 - 869103*x^9 - 8
81442*x^8 - 507600*x^7 - 71904*x^6 + 679008/5*x^5 + 127168*x^4 +
173056/3*x^3 + 15360*x^2 + 2304*x
```

Fricas [A] time = 0.186324, size = 1, normalized size = 0.02

$$-\frac{54675}{2}x^{12}-\frac{1979235}{11}x^{11}-\frac{2614194}{5}x^{10}-869103x^9-881442x^8-507600x^7-71904x^6+\frac{679008}{5}x^5+127168x^4+\frac{173056}{3}x^3+15360x^2+2304x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^8*(2*x - 1),x, algorithm="fricas")
```

```
[Out] -54675/2*x^12 - 1979235/11*x^11 - 2614194/5*x^10 - 869103*x^9 - 8
81442*x^8 - 507600*x^7 - 71904*x^6 + 679008/5*x^5 + 127168*x^4 +
173056/3*x^3 + 15360*x^2 + 2304*x
```

Sympy [A] time = 0.128677, size = 66, normalized size = 1.47

$$-\frac{54675x^{12}}{2}-\frac{1979235x^{11}}{11}-\frac{2614194x^{10}}{5}-869103x^9-881442x^8-507600x^7-71904x^6+\frac{679008x^5}{5}+127168x^4+\frac{173056x^3}{3}+15360x^2+2304x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)**8*(3+5*x)**2,x)
```

```
[Out] -54675*x**12/2 - 1979235*x**11/11 - 2614194*x**10/5 - 869103*x**9
 - 881442*x**8 - 507600*x**7 - 71904*x**6 + 679008*x**5/5 + 12716
8*x**4 + 173056*x**3/3 + 15360*x**2 + 2304*x
```

GIAC/XCAS [A] time = 0.209611, size = 80, normalized size = 1.78

$$-\frac{54675}{2}\,x^{12}-\frac{1979235}{11}\,x^{11}-\frac{2614194}{5}\,x^{10}-869103\,x^9-881442\,x^8-507600\,x^7-71904\,x^6+\frac{679008}{5}\,x^5+127168\,x^4+\frac{173056}{3}\,x^3+15360\,x^2+2304\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^8*(2*x - 1),x, algorithm="giac")
```

```
[Out] -54675/2*x^12 - 1979235/11*x^11 - 2614194/5*x^10 - 869103*x^9 - 8
81442*x^8 - 507600*x^7 - 71904*x^6 + 679008/5*x^5 + 127168*x^4 +
173056/3*x^3 + 15360*x^2 + 2304*x
```

3.1142 $\int (1-2x)(2+3x)^7(3+5x)^2\,dx$

Optimal. Leaf size=45

$$-\frac{50}{891}(3x+2)^{11}+\frac{13}{54}(3x+2)^{10}-\frac{8}{81}(3x+2)^9+\frac{7}{648}(3x+2)^8$$

```
[Out] (7*(2 + 3*x)^8)/648 - (8*(2 + 3*x)^9)/81 + (13*(2 + 3*x)^10)/54 -
 (50*(2 + 3*x)^11)/891
```

Rubi [A] time = 0.0810706, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{50}{891}(3x+2)^{11}+\frac{13}{54}(3x+2)^{10}-\frac{8}{81}(3x+2)^9+\frac{7}{648}(3x+2)^8$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)*(2 + 3*x)^7*(3 + 5*x)^2,x]
```

```
[Out] (7*(2 + 3*x)^8)/648 - (8*(2 + 3*x)^9)/81 + (13*(2 + 3*x)^10)/54 -
 (50*(2 + 3*x)^11)/891
```

Rubi in Sympy [A] time = 11.5677, size = 39, normalized size = 0.87

$$-\frac{50(3x+2)^{11}}{891}+\frac{13(3x+2)^{10}}{54}-\frac{8(3x+2)^9}{81}+\frac{7(3x+2)^8}{648}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)*(2+3*x)**7*(3+5*x)**2,x)
```

```
[Out] -50*(3*x + 2)**11/891 + 13*(3*x + 2)**10/54 - 8*(3*x + 2)**9/81 +
 7*(3*x + 2)**8/648
```

Mathematica [A] time = 0.0034107, size = 62, normalized size = 1.38

$$-\frac{109350x^{11}}{11}-\frac{117369x^{10}}{2}-150174x^9-\frac{1706265x^8}{8}-173286x^7-62622x^6+21336x^5+38804x^4+\frac{66080x^3}{3}+6816x^2+1152x$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)*(2 + 3*x)^7*(3 + 5*x)^2,x]
```

```
[Out] 1152*x + 6816*x^2 + (66080*x^3)/3 + 38804*x^4 + 21336*x^5 - 62622
*x^6 - 173286*x^7 - (1706265*x^8)/8 - 150174*x^9 - (117369*x^10)/
2 - (109350*x^11)/11
```

Maple [A] time = 0.002, size = 55, normalized size = 1.2

$$-\frac{109350\,x^{11}}{11}-\frac{117369\,x^{10}}{2}-150174\,x^9-\frac{1706265\,x^8}{8}-173286\,x^7-62622\,x^6+21336\,x^5+38804\,x^4+\frac{66080\,x^3}{3}+6816\,x^2+1152\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(2+3*x)^7*(3+5*x)^2,x)
```

```
[Out] -109350/11*x^11-117369/2*x^10-150174*x^9-1706265/8*x^8-173286*x^7
-62622*x^6+21336*x^5+38804*x^4+66080/3*x^3+6816*x^2+1152*x
```

Maxima [A] time = 1.34086, size = 73, normalized size = 1.62

$$-\frac{109350}{11}\,x^{11}-\frac{117369}{2}\,x^{10}-150174\,x^{9}-\frac{1706265}{8}\,x^{8}-173286\,x^{7}-62622\,x^{6}+21336\,x^{5}+38804\,x^{4}+\frac{66080}{3}\,x^{3}+6816\,x^{2}+1152\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^7*(2*x - 1),x, algorithm="maxima")
```

```
[Out] -109350/11*x^11 - 117369/2*x^10 - 150174*x^9 - 1706265/8*x^8 - 17
3286*x^7 - 62622*x^6 + 21336*x^5 + 38804*x^4 + 66080/3*x^3 + 6816
*x^2 + 1152*x
```

Fricas [A] time = 0.186066, size = 1, normalized size = 0.02

$$-\frac{109350}{11}x^{11}-\frac{117369}{2}x^{10}-150174x^{9}-\frac{1706265}{8}x^{8}-173286x^{7}-62622x^{6}+21336x^{5}+38804x^{4}+\frac{66080}{3}x^{3}+6816x^{2}+1152x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^7*(2*x - 1),x, algorithm="fricas")
```

```
[Out] -109350/11*x^11 - 117369/2*x^10 - 150174*x^9 - 1706265/8*x^8 - 17
3286*x^7 - 62622*x^6 + 21336*x^5 + 38804*x^4 + 66080/3*x^3 + 6816
*x^2 + 1152*x
```

Sympy [A] time = 0.118712, size = 60, normalized size = 1.33

$$-\frac{109350x^{11}}{11}-\frac{117369x^{10}}{2}-150174x^{9}-\frac{1706265x^{8}}{8}-173286x^{7}-62622x^{6}+21336x^{5}+38804x^{4}+\frac{66080x^{3}}{3}+6816x^{2}+1152x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)**7*(3+5*x)**2,x)
```

```
[Out] -109350*x**11/11 - 117369*x**10/2 - 150174*x**9 - 1706265*x**8/8
- 173286*x**7 - 62622*x**6 + 21336*x**5 + 38804*x**4 + 66080*x**3
/3 + 6816*x**2 + 1152*x
```

GIAC/XCAS [A] time = 0.212549, size = 73, normalized size = 1.62

$$-\frac{109350}{11}\,x^{11}-\frac{117369}{2}\,x^{10}-150174\,x^{9}-\frac{1706265}{8}\,x^{8}-173286\,x^{7}-62622\,x^{6}+21336\,x^{5}+38804\,x^{4}+\frac{66080}{3}\,x^{3}+6816\,x^{2}+1152\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^7*(2*x - 1),x, algorithm="giac")
```

```
[Out] -109350/11*x^11 - 117369/2*x^10 - 150174*x^9 - 1706265/8*x^8 - 17
3286*x^7 - 62622*x^6 + 21336*x^5 + 38804*x^4 + 66080/3*x^3 + 6816
*x^2 + 1152*x
```

3.1143 $\int (1-2x)(2+3x)^6(3+5x)^2\,dx$

Optimal. Leaf size=45

$$-\frac{5}{81}(3x+2)^{10}+\frac{65}{243}(3x+2)^9-\frac{1}{9}(3x+2)^8+\frac{1}{81}(3x+2)^7$$

```
[Out] (2 + 3*x)^7/81 - (2 + 3*x)^8/9 + (65*(2 + 3*x)^9)/243 - (5*(2 + 3
*x)^10)/81
```

Rubi [A] time = 0.0776823, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{5}{81}(3x+2)^{10}+\frac{65}{243}(3x+2)^9-\frac{1}{9}(3x+2)^8+\frac{1}{81}(3x+2)^7$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)*(2 + 3*x)^6*(3 + 5*x)^2,x]
```

```
[Out] (2 + 3*x)^7/81 - (2 + 3*x)^8/9 + (65*(2 + 3*x)^9)/243 - (5*(2 + 3
*x)^10)/81
```

Rubi in Sympy [A] time = 10.8991, size = 36, normalized size = 0.8

$$-\frac{5(3x+2)^{10}}{81}+\frac{65(3x+2)^9}{243}-\frac{(3x+2)^8}{9}+\frac{(3x+2)^7}{81}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(2+3*x)**6*(3+5*x)**2,x)
```

```
[Out] -5*(3*x + 2)**10/81 + 65*(3*x + 2)**9/243 - (3*x + 2)**8/9 + (3*x
 + 2)**7/81
```

Mathematica [A] time = 0.00301712, size = 51, normalized size = 1.13

$$-3645x^{10}-19035x^9-42039x^8-49221x^7-29106x^6-1764x^5+10360x^4+\frac{24112x^3}{3}+2976x^2+576x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)*(2 + 3*x)^6*(3 + 5*x)^2,x]
```

```
[Out] 576*x + 2976*x^2 + (24112*x^3)/3 + 10360*x^4 - 1764*x^5 - 29106*x
^6 - 49221*x^7 - 42039*x^8 - 19035*x^9 - 3645*x^10
```

Maple [A] time = 0.003, size = 50, normalized size = 1.1

$$-3645\,x^{10}-19035\,x^9-42039\,x^8-49221\,x^7-29106\,x^6-1764\,x^5+10360\,x^4+\frac{24112\,x^3}{3}+2976\,x^2+576\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(2+3*x)^6*(3+5*x)^2,x)
```

```
[Out] -3645*x^10-19035*x^9-42039*x^8-49221*x^7-29106*x^6-1764*x^5+10360
*x^4+24112/3*x^3+2976*x^2+576*x
```

Maxima [A] time = 1.34851, size = 66, normalized size = 1.47

$$-3645\,x^{10} - 19035\,x^{9} - 42039\,x^{8} - 49221\,x^{7} - 29106\,x^{6} - 1764\,x^{5} + 10360\,x^{4} + \frac{24112}{3}\,x^{3} + 2976\,x^{2} + 576\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^6*(2*x - 1),x, algorithm="maxima")
```

```
[Out] -3645*x^10 - 19035*x^9 - 42039*x^8 - 49221*x^7 - 29106*x^6 - 1764
*x^5 + 10360*x^4 + 24112/3*x^3 + 2976*x^2 + 576*x
```

Fricas [A] time = 0.18564, size = 1, normalized size = 0.02

$$-3645x^{10} - 19035x^{9} - 42039x^{8} - 49221x^{7} - 29106x^{6} - 1764x^{5} + 10360x^{4} + \frac{24112}{3}x^{3} + 2976x^{2} + 576x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^6*(2*x - 1),x, algorithm="fricas")
```

```
[Out] -3645*x^10 - 19035*x^9 - 42039*x^8 - 49221*x^7 - 29106*x^6 - 1764
*x^5 + 10360*x^4 + 24112/3*x^3 + 2976*x^2 + 576*x
```

Sympy [A] time = 0.105273, size = 49, normalized size = 1.09

$$-3645x^{10} - 19035x^{9} - 42039x^{8} - 49221x^{7} - 29106x^{6} - 1764x^{5} + 10360x^{4} + \frac{24112x^{3}}{3} + 2976x^{2} + 576x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)**6*(3+5*x)**2,x)
```

```
[Out] -3645*x**10 - 19035*x**9 - 42039*x**8 - 49221*x**7 - 29106*x**6 -
 1764*x**5 + 10360*x**4 + 24112*x**3/3 + 2976*x**2 + 576*x
```

GIAC/XCAS [A] time = 0.211449, size = 66, normalized size = 1.47

$$-3645\,x^{10} - 19035\,x^{9} - 42039\,x^{8} - 49221\,x^{7} - 29106\,x^{6} - 1764\,x^{5} + 10360\,x^{4} + \frac{24112}{3}\,x^{3} + 2976\,x^{2} + 576\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^6*(2*x - 1),x, algorithm="giac")
```

```
[Out] -3645*x^10 - 19035*x^9 - 42039*x^8 - 49221*x^7 - 29106*x^6 - 1764
*x^5 + 10360*x^4 + 24112/3*x^3 + 2976*x^2 + 576*x
```

3.1144 $\int (1-2x)(2+3x)^5(3+5x)^2\,dx$

Optimal. Leaf size=45

$$-\frac{50}{729}(3x+2)^9+\frac{65}{216}(3x+2)^8-\frac{8}{63}(3x+2)^7+\frac{7}{486}(3x+2)^6$$

```
[Out] (7*(2 + 3*x)^6)/486 - (8*(2 + 3*x)^7)/63 + (65*(2 + 3*x)^8)/216 -
 (50*(2 + 3*x)^9)/729
```

Rubi [A] time = 0.0715466, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{50}{729}(3x+2)^9+\frac{65}{216}(3x+2)^8-\frac{8}{63}(3x+2)^7+\frac{7}{486}(3x+2)^6$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)*(2 + 3*x)^5*(3 + 5*x)^2,x]
```

```
[Out] (7*(2 + 3*x)^6)/486 - (8*(2 + 3*x)^7)/63 + (65*(2 + 3*x)^8)/216 -
 (50*(2 + 3*x)^9)/729
```

Rubi in Sympy [A] time = 10.3294, size = 39, normalized size = 0.87

$$-\frac{50(3x+2)^9}{729}+\frac{65(3x+2)^8}{216}-\frac{8(3x+2)^7}{63}+\frac{7(3x+2)^6}{486}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)*(2+3*x)**5*(3+5*x)**2,x)
```

```
[Out] -50*(3*x + 2)**9/729 + 65*(3*x + 2)**8/216 - 8*(3*x + 2)**7/63 +
7*(3*x + 2)**6/486
```

Mathematica [A] time = 0.0030904, size = 52, normalized size = 1.16

$$-1350x^9-\frac{49005x^8}{8}-\frac{79434x^7}{7}-\frac{20631x^6}{2}-3390x^5+2090x^4+\frac{8240x^3}{3}+1272x^2+288x$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)*(2 + 3*x)^5*(3 + 5*x)^2,x]
```

```
[Out] 288*x + 1272*x^2 + (8240*x^3)/3 + 2090*x^4 - 3390*x^5 - (20631*x^
6)/2 - (79434*x^7)/7 - (49005*x^8)/8 - 1350*x^9
```

Maple [A] time = 0.003, size = 45, normalized size = 1.

$$-1350\,x^9-\frac{49005\,x^8}{8}-\frac{79434\,x^7}{7}-\frac{20631\,x^6}{2}-3390\,x^5+2090\,x^4+\frac{8240\,x^3}{3}+1272\,x^2+288\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((1-2*x)*(2+3*x)^5*(3+5*x)^2,x)
```

```
[Out] -1350*x^9-49005/8*x^8-79434/7*x^7-20631/2*x^6-3390*x^5+2090*x^4+8
240/3*x^3+1272*x^2+288*x
```

Maxima [A] time = 1.34281, size = 59, normalized size = 1.31

$$-1350\,x^9-\frac{49005}{8}\,x^8-\frac{79434}{7}\,x^7-\frac{20631}{2}\,x^6-3390\,x^5+2090\,x^4+\frac{8240}{3}\,x^3+1272\,x^2+288\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^2*(3*x + 2)^5*(2*x - 1),x, algorithm="maxima")
```

```
[Out] -1350*x^9 - 49005/8*x^8 - 79434/7*x^7 - 20631/2*x^6 - 3390*x^5 +
2090*x^4 + 8240/3*x^3 + 1272*x^2 + 288*x
```

Fricas [A] time = 0.175518, size = 1, normalized size = 0.02

$$-1350x^9-\frac{49005}{8}x^8-\frac{79434}{7}x^7-\frac{20631}{2}x^6-3390x^5+2090x^4+\frac{8240}{3}x^3+1272x^2+288x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^2*(3*x + 2)^5*(2*x - 1),x, algorithm="fricas")
```

```
[Out] -1350*x^9 - 49005/8*x^8 - 79434/7*x^7 - 20631/2*x^6 - 3390*x^5 +
2090*x^4 + 8240/3*x^3 + 1272*x^2 + 288*x
```

Sympy [A] time = 0.099531, size = 49, normalized size = 1.09

$$-1350x^9-\frac{49005x^8}{8}-\frac{79434x^7}{7}-\frac{20631x^6}{2}-3390x^5+2090x^4+\frac{8240x^3}{3}+1272x^2+288x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)*(2+3*x)**5*(3+5*x)**2,x)
```

```
[Out] -1350*x**9 - 49005*x**8/8 - 79434*x**7/7 - 20631*x**6/2 - 3390*x*
*5 + 2090*x**4 + 8240*x**3/3 + 1272*x**2 + 288*x
```

GIAC/XCAS [A] time = 0.204876, size = 59, normalized size = 1.31

$$-1350\,x^9-\frac{49005}{8}\,x^8-\frac{79434}{7}\,x^7-\frac{20631}{2}\,x^6-3390\,x^5+2090\,x^4+\frac{8240}{3}\,x^3+1272\,x^2+288\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^2*(3*x + 2)^5*(2*x - 1),x, algorithm="giac")
```

```
[Out] -1350*x^9 - 49005/8*x^8 - 79434/7*x^7 - 20631/2*x^6 - 3390*x^5 +
2090*x^4 + 8240/3*x^3 + 1272*x^2 + 288*x
```

3.1145 $\int (1-2x)(2+3x)^4(3+5x)^2\,dx$

Optimal. Leaf size=45

$$-\frac{25}{324}(3x+2)^8+\frac{65}{189}(3x+2)^7-\frac{4}{27}(3x+2)^6+\frac{7}{405}(3x+2)^5$$

```
[Out] (7*(2 + 3*x)^5)/405 - (4*(2 + 3*x)^6)/27 + (65*(2 + 3*x)^7)/189 -
 (25*(2 + 3*x)^8)/324
```

Rubi [A] time = 0.0714621, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{25}{324}(3x+2)^8+\frac{65}{189}(3x+2)^7-\frac{4}{27}(3x+2)^6+\frac{7}{405}(3x+2)^5$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)*(2 + 3*x)^4*(3 + 5*x)^2,x]
```

```
[Out] (7*(2 + 3*x)^5)/405 - (4*(2 + 3*x)^6)/27 + (65*(2 + 3*x)^7)/189 -
 (25*(2 + 3*x)^8)/324
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{2025x^8}{4}-\frac{13635x^7}{7}-2898x^6-\frac{9039x^5}{5}+94x^4+\frac{2536x^3}{3}+144x+1056\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(2+3*x)**4*(3+5*x)**2,x)
```

```
[Out] -2025*x**8/4 - 13635*x**7/7 - 2898*x**6 - 9039*x**5/5 + 94*x**4 +
 2536*x**3/3 + 144*x + 1056*Integral(x, x)
```

Mathematica [A] time = 0.0022274, size = 47, normalized size = 1.04

$$-\frac{2025x^8}{4}-\frac{13635x^7}{7}-2898x^6-\frac{9039x^5}{5}+94x^4+\frac{2536x^3}{3}+528x^2+144x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)*(2 + 3*x)^4*(3 + 5*x)^2,x]
```

```
[Out] 144*x + 528*x^2 + (2536*x^3)/3 + 94*x^4 - (9039*x^5)/5 - 2898*x^6
 - (13635*x^7)/7 - (2025*x^8)/4
```

Maple [A] time = 0.001, size = 40, normalized size = 0.9

$$-\frac{2025\,x^8}{4}-\frac{13635\,x^7}{7}-2898\,x^6-\frac{9039\,x^5}{5}+94\,x^4+\frac{2536\,x^3}{3}+528\,x^2+144\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(2+3*x)^4*(3+5*x)^2,x)
```

```
[Out] -2025/4*x^8-13635/7*x^7-2898*x^6-9039/5*x^5+94*x^4+2536/3*x^3+528
*x^2+144*x
```

Maxima [A] time = 1.34189, size = 53, normalized size = 1.18

$$-\frac{2025}{4}\,x^8-\frac{13635}{7}\,x^7-2898\,x^6-\frac{9039}{5}\,x^5+94\,x^4+\frac{2536}{3}\,x^3+528\,x^2+144\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^4*(2*x - 1),x, algorithm="maxima")
```

```
[Out] -2025/4*x^8 - 13635/7*x^7 - 2898*x^6 - 9039/5*x^5 + 94*x^4 + 2536
/3*x^3 + 528*x^2 + 144*x
```

Fricas [A] time = 0.176433, size = 1, normalized size = 0.02

$$-\frac{2025}{4}x^8-\frac{13635}{7}x^7-2898x^6-\frac{9039}{5}x^5+94x^4+\frac{2536}{3}x^3+528x^2+144x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^4*(2*x - 1),x, algorithm="fricas")
```

```
[Out] -2025/4*x^8 - 13635/7*x^7 - 2898*x^6 - 9039/5*x^5 + 94*x^4 + 2536
/3*x^3 + 528*x^2 + 144*x
```

Sympy [A] time = 0.108173, size = 44, normalized size = 0.98

$$-\frac{2025x^8}{4}-\frac{13635x^7}{7}-2898x^6-\frac{9039x^5}{5}+94x^4+\frac{2536x^3}{3}+528x^2+144x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)**4*(3+5*x)**2,x)
```

```
[Out] -2025*x**8/4 - 13635*x**7/7 - 2898*x**6 - 9039*x**5/5 + 94*x**4 +
 2536*x**3/3 + 528*x**2 + 144*x
```

GIAC/XCAS [A] time = 0.209189, size = 53, normalized size = 1.18

$$-\frac{2025}{4}\,x^8-\frac{13635}{7}\,x^7-2898\,x^6-\frac{9039}{5}\,x^5+94\,x^4+\frac{2536}{3}\,x^3+528\,x^2+144\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^4*(2*x - 1),x, algorithm="giac")
```

```
[Out] -2025/4*x^8 - 13635/7*x^7 - 2898*x^6 - 9039/5*x^5 + 94*x^4 + 2536
/3*x^3 + 528*x^2 + 144*x
```

3.1146 $\int (1-2x)(2+3x)^3(3+5x)^2\,dx$

Optimal. Leaf size=45

$$-\frac{50}{567}(3x+2)^7+\frac{65}{162}(3x+2)^6-\frac{8}{45}(3x+2)^5+\frac{7}{324}(3x+2)^4$$

```
[Out] (7*(2 + 3*x)^4)/324 - (8*(2 + 3*x)^5)/45 + (65*(2 + 3*x)^6)/162 -
 (50*(2 + 3*x)^7)/567
```

Rubi [A] time = 0.0642145, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{50}{567}(3x+2)^7+\frac{65}{162}(3x+2)^6-\frac{8}{45}(3x+2)^5+\frac{7}{324}(3x+2)^4$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)*(2 + 3*x)^3*(3 + 5*x)^2,x]
```

```
[Out] (7*(2 + 3*x)^4)/324 - (8*(2 + 3*x)^5)/45 + (65*(2 + 3*x)^6)/162 -
 (50*(2 + 3*x)^7)/567
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{1350x^7}{7}-\frac{1215x^6}{2}-\frac{3366x^5}{5}-\frac{769x^4}{4}+\frac{638x^3}{3}+72x+420\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(2+3*x)**3*(3+5*x)**2,x)
```

```
[Out] -1350*x**7/7 - 1215*x**6/2 - 3366*x**5/5 - 769*x**4/4 + 638*x**3/
3 + 72*x + 420*Integral(x, x)
```

Mathematica [A] time = 0.00160407, size = 44, normalized size = 0.98

$$-\frac{1350x^7}{7}-\frac{1215x^6}{2}-\frac{3366x^5}{5}-\frac{769x^4}{4}+\frac{638x^3}{3}+210x^2+72x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)*(2 + 3*x)^3*(3 + 5*x)^2,x]
```

```
[Out] 72*x + 210*x^2 + (638*x^3)/3 - (769*x^4)/4 - (3366*x^5)/5 - (1215
*x^6)/2 - (1350*x^7)/7
```

Maple [A] time = 0.001, size = 35, normalized size = 0.8

$$-\frac{1350\,x^7}{7}-\frac{1215\,x^6}{2}-\frac{3366\,x^5}{5}-\frac{769\,x^4}{4}+\frac{638\,x^3}{3}+210\,x^2+72\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(2+3*x)^3*(3+5*x)^2,x)
```

```
[Out] -1350/7*x^7-1215/2*x^6-3366/5*x^5-769/4*x^4+638/3*x^3+210*x^2+72*
x
```

Maxima [A] time = 1.34734, size = 46, normalized size = 1.02

$$-\frac{1350}{7}\,x^7-\frac{1215}{2}\,x^6-\frac{3366}{5}\,x^5-\frac{769}{4}\,x^4+\frac{638}{3}\,x^3+210\,x^2+72\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^3*(2*x - 1),x, algorithm="maxima")
```

```
[Out] -1350/7*x^7 - 1215/2*x^6 - 3366/5*x^5 - 769/4*x^4 + 638/3*x^3 + 2
10*x^2 + 72*x
```

Fricas [A] time = 0.18112, size = 1, normalized size = 0.02

$$-\frac{1350}{7}x^7-\frac{1215}{2}x^6-\frac{3366}{5}x^5-\frac{769}{4}x^4+\frac{638}{3}x^3+210x^2+72x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^3*(2*x - 1),x, algorithm="fricas")
```

```
[Out] -1350/7*x^7 - 1215/2*x^6 - 3366/5*x^5 - 769/4*x^4 + 638/3*x^3 + 2
10*x^2 + 72*x
```

Sympy [A] time = 0.087396, size = 41, normalized size = 0.91

$$-\frac{1350x^7}{7}-\frac{1215x^6}{2}-\frac{3366x^5}{5}-\frac{769x^4}{4}+\frac{638x^3}{3}+210x^2+72x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)**3*(3+5*x)**2,x)
```

```
[Out] -1350*x**7/7 - 1215*x**6/2 - 3366*x**5/5 - 769*x**4/4 + 638*x**3/
3 + 210*x**2 + 72*x
```

GIAC/XCAS [A] time = 0.207986, size = 46, normalized size = 1.02

$$-\frac{1350}{7}\,x^7-\frac{1215}{2}\,x^6-\frac{3366}{5}\,x^5-\frac{769}{4}\,x^4+\frac{638}{3}\,x^3+210\,x^2+72\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^3*(2*x - 1),x, algorithm="giac")
```

```
[Out] -1350/7*x^7 - 1215/2*x^6 - 3366/5*x^5 - 769/4*x^4 + 638/3*x^3 + 2
10*x^2 + 72*x
```

3.1147 $\int (1-2x)(2+3x)^2(3+5x)^2\,dx$

Optimal. Leaf size=45

$$-\frac{25}{243}(3x+2)^6+\frac{13}{27}(3x+2)^5-\frac{2}{9}(3x+2)^4+\frac{7}{243}(3x+2)^3$$

```
[Out] (7*(2 + 3*x)^3)/243 - (2*(2 + 3*x)^4)/9 + (13*(2 + 3*x)^5)/27 - (
25*(2 + 3*x)^6)/243
```

Rubi [A] time = 0.0629512, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{25}{243}(3x+2)^6+\frac{13}{27}(3x+2)^5-\frac{2}{9}(3x+2)^4+\frac{7}{243}(3x+2)^3$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)*(2 + 3*x)^2*(3 + 5*x)^2,x]
```

```
[Out] (7*(2 + 3*x)^3)/243 - (2*(2 + 3*x)^4)/9 + (13*(2 + 3*x)^5)/27 - (
25*(2 + 3*x)^6)/243
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-75x^6-183x^5-128x^4+\frac{85x^3}{3}+36x+156\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(2+3*x)**2*(3+5*x)**2,x)
```

```
[Out] -75*x**6 - 183*x**5 - 128*x**4 + 85*x**3/3 + 36*x + 156*Integral(
x, x)
```

Mathematica [A] time = 0.00171575, size = 31, normalized size = 0.69

$$-75x^6-183x^5-128x^4+\frac{85x^3}{3}+78x^2+36x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)*(2 + 3*x)^2*(3 + 5*x)^2,x]
```

```
[Out] 36*x + 78*x^2 + (85*x^3)/3 - 128*x^4 - 183*x^5 - 75*x^6
```

Maple [A] time = 0.003, size = 30, normalized size = 0.7

$$-75\,x^6-183\,x^5-128\,x^4+\frac{85\,x^3}{3}+78\,x^2+36\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(2+3*x)^2*(3+5*x)^2,x)
```

```
[Out] -75*x^6-183*x^5-128*x^4+85/3*x^3+78*x^2+36*x
```

Maxima [A] time = 1.34303, size = 39, normalized size = 0.87

$$-75\,x^6 - 183\,x^5 - 128\,x^4 + \frac{85}{3}\,x^3 + 78\,x^2 + 36\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^2*(2*x - 1),x, algorithm="maxima")

[Out] -75*x^6 - 183*x^5 - 128*x^4 + 85/3*x^3 + 78*x^2 + 36*x
```

Fricas [A] time = 0.187212, size = 1, normalized size = 0.02

$$-75x^6 - 183x^5 - 128x^4 + \frac{85}{3}x^3 + 78x^2 + 36x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^2*(2*x - 1),x, algorithm="fricas")

[Out] -75*x^6 - 183*x^5 - 128*x^4 + 85/3*x^3 + 78*x^2 + 36*x
```

Sympy [A] time = 0.080129, size = 29, normalized size = 0.64

$$-75x^6 - 183x^5 - 128x^4 + \frac{85x^3}{3} + 78x^2 + 36x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)**2*(3+5*x)**2,x)

[Out] -75*x**6 - 183*x**5 - 128*x**4 + 85*x**3/3 + 78*x**2 + 36*x
```

GIAC/XCAS [A] time = 0.205801, size = 39, normalized size = 0.87

$$-75\,x^6 - 183\,x^5 - 128\,x^4 + \frac{85}{3}\,x^3 + 78\,x^2 + 36\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^2*(2*x - 1),x, algorithm="giac")

[Out] -75*x^6 - 183*x^5 - 128*x^4 + 85/3*x^3 + 78*x^2 + 36*x
```

3.1148 $\int (1-2x)(2+3x)(3+5x)^2\,dx$

Optimal. Leaf size=34

$$-\frac{6}{625}(5x+3)^5+\frac{31}{500}(5x+3)^4+\frac{11}{375}(5x+3)^3$$

```
[Out] (11*(3 + 5*x)^3)/375 + (31*(3 + 5*x)^4)/500 - (6*(3 + 5*x)^5)/625
```

Rubi [A] time = 0.0453745, antiderivative size = 34, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{6}{625}(5x+3)^5+\frac{31}{500}(5x+3)^4+\frac{11}{375}(5x+3)^3$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)*(2 + 3*x)*(3 + 5*x)^2,x]
```

```
[Out] (11*(3 + 5*x)^3)/375 + (31*(3 + 5*x)^4)/500 - (6*(3 + 5*x)^5)/625
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-30x^5-\frac{205x^4}{4}-\frac{34x^3}{3}+18x+51\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(2+3*x)*(3+5*x)**2,x)
```

```
[Out] -30*x**5 - 205*x**4/4 - 34*x**3/3 + 18*x + 51*Integral(x, x)
```

Mathematica [A] time = 0.00115994, size = 30, normalized size = 0.88

$$-30x^5-\frac{205x^4}{4}-\frac{34x^3}{3}+\frac{51x^2}{2}+18x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)*(2 + 3*x)*(3 + 5*x)^2,x]
```

```
[Out] 18*x + (51*x^2)/2 - (34*x^3)/3 - (205*x^4)/4 - 30*x^5
```

Maple [A] time = 0.001, size = 25, normalized size = 0.7

$$-30\,x^5-\frac{205\,x^4}{4}-\frac{34\,x^3}{3}+\frac{51\,x^2}{2}+18\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(2+3*x)*(3+5*x)^2,x)
```

```
[Out] -30*x^5-205/4*x^4-34/3*x^3+51/2*x^2+18*x
```

Maxima [A] time = 1.34727, size = 32, normalized size = 0.94

$$-30\,x^5 - \frac{205}{4}\,x^4 - \frac{34}{3}\,x^3 + \frac{51}{2}\,x^2 + 18\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)*(2*x - 1),x, algorithm="maxima")

[Out] -30*x^5 - 205/4*x^4 - 34/3*x^3 + 51/2*x^2 + 18*x
```

Fricas [A] time = 0.183548, size = 1, normalized size = 0.03

$$-30x^5 - \frac{205}{4}x^4 - \frac{34}{3}x^3 + \frac{51}{2}x^2 + 18x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)*(2*x - 1),x, algorithm="fricas")

[Out] -30*x^5 - 205/4*x^4 - 34/3*x^3 + 51/2*x^2 + 18*x
```

Sympy [A] time = 0.066773, size = 27, normalized size = 0.79

$$-30x^5 - \frac{205x^4}{4} - \frac{34x^3}{3} + \frac{51x^2}{2} + 18x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)*(3+5*x)**2,x)

[Out] -30*x**5 - 205*x**4/4 - 34*x**3/3 + 51*x**2/2 + 18*x
```

GIAC/XCAS [A] time = 0.206903, size = 32, normalized size = 0.94

$$-30\,x^5 - \frac{205}{4}\,x^4 - \frac{34}{3}\,x^3 + \frac{51}{2}\,x^2 + 18\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)*(2*x - 1),x, algorithm="giac")

[Out] -30*x^5 - 205/4*x^4 - 34/3*x^3 + 51/2*x^2 + 18*x
```

3.1149 $\int (1-2x)(3+5x)^2 \, dx$

Optimal. Leaf size=23

$$\frac{11}{75}(5x+3)^3 - \frac{1}{50}(5x+3)^4$$

```
[Out] (11*(3 + 5*x)^3)/75 - (3 + 5*x)^4/50
```

Rubi [A] time = 0.0243657, antiderivative size = 23, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 13, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.077

$$\frac{11}{75}(5x+3)^3 - \frac{1}{50}(5x+3)^4$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)*(3 + 5*x)^2,x]
```

```
[Out] (11*(3 + 5*x)^3)/75 - (3 + 5*x)^4/50
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{25x^4}{2} - \frac{35x^3}{3} + 9x + 12\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(3+5*x)**2,x)
```

```
[Out] -25*x**4/2 - 35*x**3/3 + 9*x + 12*Integral(x, x)
```

Mathematica [A] time = 0.00109018, size = 23, normalized size = 1.

$$-\frac{25x^4}{2} - \frac{35x^3}{3} + 6x^2 + 9x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)*(3 + 5*x)^2,x]
```

```
[Out] 9*x + 6*x^2 - (35*x^3)/3 - (25*x^4)/2
```

Maple [A] time = 0.001, size = 20, normalized size = 0.9

$$-\frac{25\,x^4}{2} - \frac{35\,x^3}{3} + 6\,x^2 + 9\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(3+5*x)^2,x)
```

```
[Out] -25/2*x^4-35/3*x^3+6*x^2+9*x
```

Maxima [A] time = 1.3502, size = 26, normalized size = 1.13

$$-\frac{25}{2}\,x^4 - \frac{35}{3}\,x^3 + 6\,x^2 + 9\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(2*x - 1),x, algorithm="maxima")

[Out] -25/2*x^4 - 35/3*x^3 + 6*x^2 + 9*x
```

Fricas [A] time = 0.181636, size = 1, normalized size = 0.04

$$-\frac{25}{2}x^4 - \frac{35}{3}x^3 + 6x^2 + 9x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(2*x - 1),x, algorithm="fricas")

[Out] -25/2*x^4 - 35/3*x^3 + 6*x^2 + 9*x
```

Sympy [A] time = 0.074889, size = 20, normalized size = 0.87

$$-\frac{25x^4}{2} - \frac{35x^3}{3} + 6x^2 + 9x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(3+5*x)**2,x)

[Out] -25*x**4/2 - 35*x**3/3 + 6*x**2 + 9*x
```

GIAC/XCAS [A] time = 0.209147, size = 26, normalized size = 1.13

$$-\frac{25}{2}\,x^4 - \frac{35}{3}\,x^3 + 6\,x^2 + 9\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(2*x - 1),x, algorithm="giac")

[Out] -25/2*x^4 - 35/3*x^3 + 6*x^2 + 9*x
```

3.1150 $\int \frac{(1-2x)(3+5x)^2}{2+3x}\,dx$

Optimal. Leaf size=30

$$-\frac{50x^3}{9}-\frac{5x^2}{18}+\frac{118x}{27}+\frac{7}{81}\log(3x+2)$$

```
[Out] (118*x)/27 - (5*x^2)/18 - (50*x^3)/9 + (7*Log[2 + 3*x])/81
```

Rubi [A] time = 0.0338296, antiderivative size = 30, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{50x^3}{9}-\frac{5x^2}{18}+\frac{118x}{27}+\frac{7}{81}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)*(3 + 5*x)^2)/(2 + 3*x),x]
```

```
[Out] (118*x)/27 - (5*x^2)/18 - (50*x^3)/9 + (7*Log[2 + 3*x])/81
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{50x^3}{9}+\frac{7\log(3x+2)}{81}+\int\frac{118}{27}\,dx-\frac{5\int x\,dx}{9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(3+5*x)**2/(2+3*x),x)
```

```
[Out] -50*x**3/9 + 7*log(3*x + 2)/81 + Integral(118/27, x) - 5*Integral
(x, x)/9
```

Mathematica [A] time = 0.0151938, size = 27, normalized size = 0.9

$$\frac{1}{486}\left(-2700x^3-135x^2+2124x+42\log(3x+2)+676\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)*(3 + 5*x)^2)/(2 + 3*x),x]
```

```
[Out] (676 + 2124*x - 135*x^2 - 2700*x^3 + 42*Log[2 + 3*x])/486
```

Maple [A] time = 0.004, size = 23, normalized size = 0.8

$$\frac{118\,x}{27}-\frac{5\,x^2}{18}-\frac{50\,x^3}{9}+\frac{7\,\ln(2+3\,x)}{81}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(3+5*x)^2/(2+3*x),x)
```

```
[Out] 118/27*x-5/18*x^2-50/9*x^3+7/81*ln(2+3*x)
```

Maxima [A] time = 1.34627, size = 30, normalized size = 1.

$$-\frac{50}{9}\,x^{3}-\frac{5}{18}\,x^{2}+\frac{118}{27}\,x+\frac{7}{81}\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(2*x - 1)/(3*x + 2),x, algorithm="maxima")
```

```
[Out] -50/9*x^3 - 5/18*x^2 + 118/27*x + 7/81*log(3*x + 2)
```

Fricas [A] time = 0.20923, size = 30, normalized size = 1.

$$-\frac{50}{9}\,x^{3}-\frac{5}{18}\,x^{2}+\frac{118}{27}\,x+\frac{7}{81}\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(2*x - 1)/(3*x + 2),x, algorithm="fricas")
```

```
[Out] -50/9*x^3 - 5/18*x^2 + 118/27*x + 7/81*log(3*x + 2)
```

Sympy [A] time = 0.170057, size = 27, normalized size = 0.9

$$-\frac{50x^{3}}{9}-\frac{5x^{2}}{18}+\frac{118x}{27}+\frac{7\log\left(3x+2\right)}{81}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(3+5*x)**2/(2+3*x),x)
```

```
[Out] -50*x**3/9 - 5*x**2/18 + 118*x/27 + 7*log(3*x + 2)/81
```

GIAC/XCAS [A] time = 0.209964, size = 31, normalized size = 1.03

$$-\frac{50}{9}\,x^{3}-\frac{5}{18}\,x^{2}+\frac{118}{27}\,x+\frac{7}{81}\,\ln\left(\left|3\,x+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(2*x - 1)/(3*x + 2),x, algorithm="giac")
```

```
[Out] -50/9*x^3 - 5/18*x^2 + 118/27*x + 7/81*ln(abs(3*x + 2))
```

3.1151 $\int \frac{(1-2x)(3+5x)^2}{(2+3x)^2} dx$

Optimal. Leaf size=34

$$-\frac{25x^2}{9} + \frac{95x}{27} - \frac{7}{81(3x+2)} - \frac{8}{9}\log(3x+2)$$

```
[Out] (95*x)/27 - (25*x^2)/9 - 7/(81*(2 + 3*x)) - (8*Log[2 + 3*x])/9
```

Rubi [A] time = 0.0453784, antiderivative size = 34, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{25x^2}{9} + \frac{95x}{27} - \frac{7}{81(3x+2)} - \frac{8}{9}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)*(3 + 5*x)^2)/(2 + 3*x)^2,x]
```

```
[Out] (95*x)/27 - (25*x^2)/9 - 7/(81*(2 + 3*x)) - (8*Log[2 + 3*x])/9
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{8\log(3x+2)}{9} + \int \frac{95}{27}\,dx - \frac{50\int x\,dx}{9} - \frac{7}{81(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)*(3+5*x)**2/(2+3*x)**2,x)
```

```
[Out] -8*log(3*x + 2)/9 + Integral(95/27, x) - 50*Integral(x, x)/9 - 7/
(81*(3*x + 2))
```

Mathematica [A] time = 0.0167949, size = 36, normalized size = 1.06

$$\frac{-225x^3 + 135x^2 + 480x - 24(3x+2)\log(3x+2) + 191}{81x+54}$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)*(3 + 5*x)^2)/(2 + 3*x)^2,x]
```

```
[Out] (191 + 480*x + 135*x^2 - 225*x^3 - 24*(2 + 3*x)*Log[2 + 3*x])/(54
 + 81*x)
```

Maple [A] time = 0.009, size = 27, normalized size = 0.8

$$\frac{95\,x}{27} - \frac{25\,x^2}{9} - \frac{7}{162+243\,x} - \frac{8\,\ln(2+3\,x)}{9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((1-2*x)*(3+5*x)^2/(2+3*x)^2,x)
```

```
[Out] 95/27*x-25/9*x^2-7/81/(2+3*x)-8/9*ln(2+3*x)
```

Maxima [A] time = 1.34565, size = 35, normalized size = 1.03

$$-\frac{25}{9}x^2+\frac{95}{27}x-\frac{7}{81(3x+2)}-\frac{8}{9}\log(3x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(2*x - 1)/(3*x + 2)^2,x, algorithm="maxima")
```

```
[Out] -25/9*x^2 + 95/27*x - 7/81/(3*x + 2) - 8/9*log(3*x + 2)
```

Fricas [A] time = 0.22001, size = 50, normalized size = 1.47

$$-\frac{675x^3-405x^2+72(3x+2)\log(3x+2)-570x+7}{81(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(2*x - 1)/(3*x + 2)^2,x, algorithm="fricas")
```

```
[Out] -1/81*(675*x^3 - 405*x^2 + 72*(3*x + 2)*log(3*x + 2) - 570*x + 7)
/(3*x + 2)
```

Sympy [A] time = 0.21019, size = 27, normalized size = 0.79

$$-\frac{25x^2}{9}+\frac{95x}{27}-\frac{8\log(3x+2)}{9}-\frac{7}{243x+162}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(3+5*x)**2/(2+3*x)**2,x)
```

```
[Out] -25*x**2/9 + 95*x/27 - 8*log(3*x + 2)/9 - 7/(243*x + 162)
```

GIAC/XCAS [A] time = 0.218489, size = 65, normalized size = 1.91

$$\frac{5}{81}(3x+2)^2\left(\frac{39}{3x+2}-5\right)-\frac{7}{81(3x+2)}+\frac{8}{9}\ln\left(\frac{|3x+2|}{3(3x+2)^2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(2*x - 1)/(3*x + 2)^2,x, algorithm="giac")
```

```
[Out] 5/81*(3*x + 2)^2*(39/(3*x + 2) - 5) - 7/81/(3*x + 2) + 8/9*ln(1/3
*abs(3*x + 2)/(3*x + 2)^2)
```

3.1152 $\int \frac{(1-2x)(3+5x)^2}{(2+3x)^3} dx$

Optimal. Leaf size=38

$$-\frac{50x}{27}+\frac{8}{9(3x+2)}-\frac{7}{162(3x+2)^2}+\frac{65}{27}\log(3x+2)$$

```
[Out] (-50*x)/27 - 7/(162*(2 + 3*x)^2) + 8/(9*(2 + 3*x)) + (65*Log[2 +
3*x])/27
```

Rubi [A] time = 0.0472973, antiderivative size = 38, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{50x}{27}+\frac{8}{9(3x+2)}-\frac{7}{162(3x+2)^2}+\frac{65}{27}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)*(3 + 5*x)^2)/(2 + 3*x)^3,x]
```

```
[Out] (-50*x)/27 - 7/(162*(2 + 3*x)^2) + 8/(9*(2 + 3*x)) + (65*Log[2 +
3*x])/27
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{65\log(3x+2)}{27}+\int\left(-\frac{50}{27}\right)dx+\frac{8}{9(3x+2)}-\frac{7}{162(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(3+5*x)**2/(2+3*x)**3,x)
```

```
[Out] 65*log(3*x + 2)/27 + Integral(-50/27, x) + 8/(9*(3*x + 2)) - 7/(1
62*(3*x + 2)**2)
```

Mathematica [A] time = 0.0399809, size = 35, normalized size = 0.92

$$\frac{1}{162}\left(-\frac{3\left(600x^2+656x+173\right)}{(3x+2)^2}-300x+390\log(3x+2)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)*(3 + 5*x)^2)/(2 + 3*x)^3,x]
```

```
[Out] (-300*x - (3*(173 + 656*x + 600*x^2))/(2 + 3*x)^2 + 390*Log[2 + 3
*x])/162
```

Maple [A] time = 0.01, size = 31, normalized size = 0.8

$$-\frac{50x}{27}-\frac{7}{162(2+3x)^2}+\frac{8}{18+27x}+\frac{65\ln(2+3x)}{27}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(3+5*x)^2/(2+3*x)^3,x)

[Out] -50/27*x-7/162/(2+3*x)^2+8/9/(2+3*x)+65/27*ln(2+3*x)
```

Maxima [A] time = 1.35073, size = 42, normalized size = 1.11

$$-\frac{50}{27}x + \frac{432x + 281}{162(9x^2 + 12x + 4)} + \frac{65}{27}\log(3x + 2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(2*x - 1)/(3*x + 2)^3,x, algorithm="maxima")

[Out] -50/27*x + 1/162*(432*x + 281)/(9*x^2 + 12*x + 4) + 65/27*log(3*x
 + 2)
```

Fricas [A] time = 0.215496, size = 63, normalized size = 1.66

$$-\frac{2700x^3 + 3600x^2 - 390\left(9x^2 + 12x + 4\right)\log(3x + 2) + 768x - 281}{162(9x^2 + 12x + 4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(2*x - 1)/(3*x + 2)^3,x, algorithm="fricas")

[Out] -1/162*(2700*x^3 + 3600*x^2 - 390*(9*x^2 + 12*x + 4)*log(3*x + 2)
 + 768*x - 281)/(9*x^2 + 12*x + 4)
```

Sympy [A] time = 0.276518, size = 29, normalized size = 0.76

$$-\frac{50x}{27} + \frac{432x + 281}{1458x^2 + 1944x + 648} + \frac{65\log(3x + 2)}{27}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(3+5*x)**2/(2+3*x)**3,x)

[Out] -50*x/27 + (432*x + 281)/(1458*x**2 + 1944*x + 648) + 65*log(3*x
+ 2)/27
```

GIAC/XCAS [A] time = 0.209357, size = 36, normalized size = 0.95

$$-\frac{50}{27}x + \frac{432x + 281}{162(3x + 2)^2} + \frac{65}{27}\ln(|3x + 2|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(2*x - 1)/(3*x + 2)^3,x, algorithm="giac")

[Out] -50/27*x + 1/162*(432*x + 281)/(3*x + 2)^2 + 65/27*ln(abs(3*x + 2
))
```

3.1153 $\int \frac{(1-2x)(3+5x)^2}{(2+3x)^4}\,dx$

Optimal. Leaf size=44

$$-\frac{65}{27(3x+2)}+\frac{4}{9(3x+2)^2}-\frac{7}{243(3x+2)^3}-\frac{50}{81}\log(3x+2)$$

```
[Out] -7/(243*(2 + 3*x)^3) + 4/(9*(2 + 3*x)^2) - 65/(27*(2 + 3*x)) - (5
0*Log[2 + 3*x])/81
```

Rubi [A] time = 0.0463851, antiderivative size = 44, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{65}{27(3x+2)}+\frac{4}{9(3x+2)^2}-\frac{7}{243(3x+2)^3}-\frac{50}{81}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)*(3 + 5*x)^2)/(2 + 3*x)^4,x]
```

```
[Out] -7/(243*(2 + 3*x)^3) + 4/(9*(2 + 3*x)^2) - 65/(27*(2 + 3*x)) - (5
0*Log[2 + 3*x])/81
```

Rubi in Sympy [A] time = 7.69859, size = 36, normalized size = 0.82

$$-\frac{50\log(3x+2)}{81}-\frac{65}{27(3x+2)}+\frac{4}{9(3x+2)^2}-\frac{7}{243(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(3+5*x)**2/(2+3*x)**4,x)
```

```
[Out] -50*log(3*x + 2)/81 - 65/(27*(3*x + 2)) + 4/(9*(3*x + 2)**2) - 7/
(243*(3*x + 2)**3)
```

Mathematica [A] time = 0.0229441, size = 36, normalized size = 0.82

$$-\frac{5265x^2+6696x+150(3x+2)^3\log(3x+2)+2131}{243(3x+2)^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)*(3 + 5*x)^2)/(2 + 3*x)^4,x]
```

```
[Out] -(2131 + 6696*x + 5265*x^2 + 150*(2 + 3*x)^3*Log[2 + 3*x])/(243*(
2 + 3*x)^3)
```

Maple [A] time = 0.009, size = 37, normalized size = 0.8

$$-\frac{7}{243\,(2+3\,x)^3}+\frac{4}{9\,(2+3\,x)^2}-\frac{65}{54+81\,x}-\frac{50\,\ln(2+3\,x)}{81}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(3+5*x)^2/(2+3*x)^4,x)
```

```
[Out] -7/243/(2+3*x)^3+4/9/(2+3*x)^2-65/27/(2+3*x)-50/81*ln(2+3*x)
```

Maxima [A] time = 1.34705, size = 51, normalized size = 1.16

$$-\frac{5265\,x^{2}+6696\,x+2131}{243\,(27\,x^{3}+54\,x^{2}+36\,x+8)}-\frac{50}{81}\,\log(3\,x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(2*x - 1)/(3*x + 2)^4,x, algorithm="maxima")
```

```
[Out] -1/243*(5265*x^2 + 6696*x + 2131)/(27*x^3 + 54*x^2 + 36*x + 8) -
50/81*log(3*x + 2)
```

Fricas [A] time = 0.214283, size = 70, normalized size = 1.59

$$-\frac{5265\,x^{2}+150\,\left(27\,x^{3}+54\,x^{2}+36\,x+8\right)\,\log(3\,x+2)+6696\,x+2131}{243\,(27\,x^{3}+54\,x^{2}+36\,x+8)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(2*x - 1)/(3*x + 2)^4,x, algorithm="fricas")
```

```
[Out] -1/243*(5265*x^2 + 150*(27*x^3 + 54*x^2 + 36*x + 8)*log(3*x + 2)
+ 6696*x + 2131)/(27*x^3 + 54*x^2 + 36*x + 8)
```

Sympy [A] time = 0.319789, size = 36, normalized size = 0.82

$$-\frac{5265x^{2}+6696x+2131}{6561x^{3}+13122x^{2}+8748x+1944}-\frac{50\log(3x+2)}{81}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(3+5*x)**2/(2+3*x)**4,x)
```

```
[Out] -(5265*x**2 + 6696*x + 2131)/(6561*x**3 + 13122*x**2 + 8748*x + 1
944) - 50*log(3*x + 2)/81
```

GIAC/XCAS [A] time = 0.209858, size = 39, normalized size = 0.89

$$-\frac{5265\,x^{2}+6696\,x+2131}{243\,(3\,x+2)^{3}}-\frac{50}{81}\,\ln(|3\,x+2|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(2*x - 1)/(3*x + 2)^4,x, algorithm="giac")
```

```
[Out] -1/243*(5265*x^2 + 6696*x + 2131)/(3*x + 2)^3 - 50/81*ln(abs(3*x
+ 2))
```

3.1154 $\int \frac{(1-2x)(3+5x)^2}{(2+3x)^5} dx$

Optimal. Leaf size=37

$$\frac{3(5x+3)^3}{4(3x+2)^3}+\frac{7(5x+3)^3}{12(3x+2)^4}$$

```
[Out] (7*(3 + 5*x)^3)/(12*(2 + 3*x)^4) + (3*(3 + 5*x)^3)/(4*(2 + 3*x)^3
)
```

Rubi [A] time = 0.0352916, antiderivative size = 37, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.1

$$\frac{3(5x+3)^3}{4(3x+2)^3}+\frac{7(5x+3)^3}{12(3x+2)^4}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)*(3 + 5*x)^2)/(2 + 3*x)^5,x]
```

```
[Out] (7*(3 + 5*x)^3)/(12*(2 + 3*x)^4) + (3*(3 + 5*x)^3)/(4*(2 + 3*x)^3
)
```

Rubi in Sympy [A] time = 5.42282, size = 32, normalized size = 0.86

$$\frac{3(5x+3)^3}{4(3x+2)^3}+\frac{7(5x+3)^3}{12(3x+2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(3+5*x)**2/(2+3*x)**5,x)
```

```
[Out] 3*(5*x + 3)**3/(4*(3*x + 2)**3) + 7*(5*x + 3)**3/(12*(3*x + 2)**4
)
```

Mathematica [A] time = 0.0150034, size = 26, normalized size = 0.7

$$\frac{600x^3+810x^2+312x+25}{36(3x+2)^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)*(3 + 5*x)^2)/(2 + 3*x)^5,x]
```

```
[Out] (25 + 312*x + 810*x^2 + 600*x^3)/(36*(2 + 3*x)^4)
```

Maple [A] time = 0.008, size = 38, normalized size = 1.

$$\frac{50}{162+243x}+\frac{8}{27(2+3x)^3}-\frac{7}{324(2+3x)^4}-\frac{65}{54(2+3x)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(3+5*x)^2/(2+3*x)^5,x)
```

```
[Out] 50/81/(2+3*x)+8/27/(2+3*x)^3-7/324/(2+3*x)^4-65/54/(2+3*x)^2
```

Maxima [A] time = 1.35013, size = 53, normalized size = 1.43

$$\frac{600\,x^3+810\,x^2+312\,x+25}{36\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(2*x - 1)/(3*x + 2)^5,x, algorithm="maxima")
```

```
[Out] 1/36*(600*x^3 + 810*x^2 + 312*x + 25)/(81*x^4 + 216*x^3 + 216*x^2
 + 96*x + 16)
```

Fricas [A] time = 0.208966, size = 53, normalized size = 1.43

$$\frac{600\,x^3+810\,x^2+312\,x+25}{36\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(2*x - 1)/(3*x + 2)^5,x, algorithm="fricas")
```

```
[Out] 1/36*(600*x^3 + 810*x^2 + 312*x + 25)/(81*x^4 + 216*x^3 + 216*x^2
 + 96*x + 16)
```

Sympy [A] time = 0.330186, size = 34, normalized size = 0.92

$$\frac{600x^3+810x^2+312x+25}{2916x^4+7776x^3+7776x^2+3456x+576}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(3+5*x)**2/(2+3*x)**5,x)
```

```
[Out] (600*x**3 + 810*x**2 + 312*x + 25)/(2916*x**4 + 7776*x**3 + 7776*
x**2 + 3456*x + 576)
```

GIAC/XCAS [A] time = 0.210853, size = 50, normalized size = 1.35

$$\frac{50}{81\,(3\,x+2)}-\frac{65}{54\,(3\,x+2)^2}+\frac{8}{27\,(3\,x+2)^3}-\frac{7}{324\,(3\,x+2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(2*x - 1)/(3*x + 2)^5,x, algorithm="giac")
```

```
[Out] 50/81/(3*x + 2) - 65/54/(3*x + 2)^2 + 8/27/(3*x + 2)^3 - 7/324/(3
*x + 2)^4
```

3.1155 $\int \frac{(1-2x)(3+5x)^2}{(2+3x)^6}\,dx$

Optimal. Leaf size=45

$$\frac{25}{81(3x+2)^2}-\frac{65}{81(3x+2)^3}+\frac{2}{9(3x+2)^4}-\frac{7}{405(3x+2)^5}$$

```
[Out] -7/(405*(2 + 3*x)^5) + 2/(9*(2 + 3*x)^4) - 65/(81*(2 + 3*x)^3) +
25/(81*(2 + 3*x)^2)
```

Rubi [A] time = 0.0510638, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{25}{81(3x+2)^2}-\frac{65}{81(3x+2)^3}+\frac{2}{9(3x+2)^4}-\frac{7}{405(3x+2)^5}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)*(3 + 5*x)^2)/(2 + 3*x)^6,x]
```

```
[Out] -7/(405*(2 + 3*x)^5) + 2/(9*(2 + 3*x)^4) - 65/(81*(2 + 3*x)^3) +
25/(81*(2 + 3*x)^2)
```

Rubi in Sympy [A] time = 8.1492, size = 39, normalized size = 0.87

$$\frac{25}{81\left(3x+2\right)^{2}}-\frac{65}{81\left(3x+2\right)^{3}}+\frac{2}{9\left(3x+2\right)^{4}}-\frac{7}{405\left(3x+2\right)^{5}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(3+5*x)**2/(2+3*x)**6,x)
```

```
[Out] 25/(81*(3*x + 2)**2) - 65/(81*(3*x + 2)**3) + 2/(9*(3*x + 2)**4)
- 7/(405*(3*x + 2)**5)
```

Mathematica [A] time = 0.0146415, size = 26, normalized size = 0.58

$$\frac{3375x^3+3825x^2+870x-127}{405(3x+2)^5}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)*(3 + 5*x)^2)/(2 + 3*x)^6,x]
```

```
[Out] (-127 + 870*x + 3825*x^2 + 3375*x^3)/(405*(2 + 3*x)^5)
```

Maple [A] time = 0.009, size = 38, normalized size = 0.8

$$-\frac{7}{405\,\left(2+3\,x\right)^{5}}+\frac{2}{9\,\left(2+3\,x\right)^{4}}-\frac{65}{81\,\left(2+3\,x\right)^{3}}+\frac{25}{81\,\left(2+3\,x\right)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(3+5*x)^2/(2+3*x)^6,x)
```

```
[Out] -7/405/(2+3*x)^5+2/9/(2+3*x)^4-65/81/(2+3*x)^3+25/81/(2+3*x)^2
```

Maxima [A] time = 1.36609, size = 59, normalized size = 1.31

$$\frac{3375\,x^3 + 3825\,x^2 + 870\,x - 127}{405\,(243\,x^5 + 810\,x^4 + 1080\,x^3 + 720\,x^2 + 240\,x + 32)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(2*x - 1)/(3*x + 2)^6,x, algorithm="maxima")
```

```
[Out] 1/405*(3375*x^3 + 3825*x^2 + 870*x - 127)/(243*x^5 + 810*x^4 + 10
80*x^3 + 720*x^2 + 240*x + 32)
```

Fricas [A] time = 0.220526, size = 59, normalized size = 1.31

$$\frac{3375\,x^3 + 3825\,x^2 + 870\,x - 127}{405\,(243\,x^5 + 810\,x^4 + 1080\,x^3 + 720\,x^2 + 240\,x + 32)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(2*x - 1)/(3*x + 2)^6,x, algorithm="fricas")
```

```
[Out] 1/405*(3375*x^3 + 3825*x^2 + 870*x - 127)/(243*x^5 + 810*x^4 + 10
80*x^3 + 720*x^2 + 240*x + 32)
```

Sympy [A] time = 0.379965, size = 39, normalized size = 0.87

$$\frac{3375x^3 + 3825x^2 + 870x - 127}{98415x^5 + 328050x^4 + 437400x^3 + 291600x^2 + 97200x + 12960}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(3+5*x)**2/(2+3*x)**6,x)
```

```
[Out] (3375*x**3 + 3825*x**2 + 870*x - 127)/(98415*x**5 + 328050*x**4 +
 437400*x**3 + 291600*x**2 + 97200*x + 12960)
```

GIAC/XCAS [A] time = 0.209218, size = 32, normalized size = 0.71

$$\frac{3375\,x^3 + 3825\,x^2 + 870\,x - 127}{405\,(3\,x + 2)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(2*x - 1)/(3*x + 2)^6,x, algorithm="giac")
```

```
[Out] 1/405*(3375*x^3 + 3825*x^2 + 870*x - 127)/(3*x + 2)^5
```

3.1156 $\int \frac{(1-2x)(3+5x)^2}{(2+3x)^7}\,dx$

Optimal. Leaf size=45

$$\frac{50}{243(3x+2)^3}-\frac{65}{108(3x+2)^4}+\frac{8}{45(3x+2)^5}-\frac{7}{486(3x+2)^6}$$

```
[Out] -7/(486*(2 + 3*x)^6) + 8/(45*(2 + 3*x)^5) - 65/(108*(2 + 3*x)^4)
+ 50/(243*(2 + 3*x)^3)
```

Rubi [A] time = 0.0513176, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{50}{243(3x+2)^3}-\frac{65}{108(3x+2)^4}+\frac{8}{45(3x+2)^5}-\frac{7}{486(3x+2)^6}$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)*(3 + 5*x)^2)/(2 + 3*x)^7,x]
```

```
[Out] -7/(486*(2 + 3*x)^6) + 8/(45*(2 + 3*x)^5) - 65/(108*(2 + 3*x)^4)
+ 50/(243*(2 + 3*x)^3)
```

Rubi in Sympy [A] time = 8.19392, size = 39, normalized size = 0.87

$$\frac{50}{243\,(3x+2)^3}-\frac{65}{108\,(3x+2)^4}+\frac{8}{45\,(3x+2)^5}-\frac{7}{486\,(3x+2)^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)*(3+5*x)**2/(2+3*x)**7,x)
```

```
[Out] 50/(243*(3*x + 2)**3) - 65/(108*(3*x + 2)**4) + 8/(45*(3*x + 2)**
5) - 7/(486*(3*x + 2)**6)
```

Mathematica [A] time = 0.0144668, size = 26, normalized size = 0.58

$$\frac{27000x^3+27675x^2+3492x-2042}{4860(3x+2)^6}$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)*(3 + 5*x)^2)/(2 + 3*x)^7,x]
```

```
[Out] (-2042 + 3492*x + 27675*x^2 + 27000*x^3)/(4860*(2 + 3*x)^6)
```

Maple [A] time = 0.007, size = 38, normalized size = 0.8

$$-\frac{7}{486\,(2+3\,x)^6}+\frac{8}{45\,(2+3\,x)^5}-\frac{65}{108\,(2+3\,x)^4}+\frac{50}{243\,(2+3\,x)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((1-2*x)*(3+5*x)^2/(2+3*x)^7,x)
```

```
[Out] -7/486/(2+3*x)^6+8/45/(2+3*x)^5-65/108/(2+3*x)^4+50/243/(2+3*x)^3
```

Maxima [A] time = 1.34259, size = 66, normalized size = 1.47

$$\frac{27000\,x^3 + 27675\,x^2 + 3492\,x - 2042}{4860\,(729\,x^6 + 2916\,x^5 + 4860\,x^4 + 4320\,x^3 + 2160\,x^2 + 576\,x + 64)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(2*x - 1)/(3*x + 2)^7,x, algorithm="maxima")
```

```
[Out] 1/4860*(27000*x^3 + 27675*x^2 + 3492*x - 2042)/(729*x^6 + 2916*x^
5 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64)
```

Fricas [A] time = 0.211004, size = 66, normalized size = 1.47

$$\frac{27000\,x^3 + 27675\,x^2 + 3492\,x - 2042}{4860\,(729\,x^6 + 2916\,x^5 + 4860\,x^4 + 4320\,x^3 + 2160\,x^2 + 576\,x + 64)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(2*x - 1)/(3*x + 2)^7,x, algorithm="fricas")
```

```
[Out] 1/4860*(27000*x^3 + 27675*x^2 + 3492*x - 2042)/(729*x^6 + 2916*x^
5 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64)
```

Sympy [A] time = 0.404824, size = 44, normalized size = 0.98

$$\frac{27000x^3 + 27675x^2 + 3492x - 2042}{3542940x^6 + 14171760x^5 + 23619600x^4 + 20995200x^3 + 10497600x^2 + 2799360x + 311040}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(3+5*x)**2/(2+3*x)**7,x)
```

```
[Out] (27000*x**3 + 27675*x**2 + 3492*x - 2042)/(3542940*x**6 + 1417176
0*x**5 + 23619600*x**4 + 20995200*x**3 + 10497600*x**2 + 2799360*
x + 311040)
```

GIAC/XCAS [A] time = 0.207346, size = 32, normalized size = 0.71

$$\frac{27000\,x^3 + 27675\,x^2 + 3492\,x - 2042}{4860\,(3\,x + 2)^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(2*x - 1)/(3*x + 2)^7,x, algorithm="giac")
```

```
[Out] 1/4860*(27000*x^3 + 27675*x^2 + 3492*x - 2042)/(3*x + 2)^6
```

3.1157 $\int \frac{(1-2x)(3+5x)^2}{(2+3x)^8} \, dx$

Optimal. Leaf size=45

$$\frac{25}{162(3x+2)^4}-\frac{13}{27(3x+2)^5}+\frac{4}{27(3x+2)^6}-\frac{1}{81(3x+2)^7}$$

```
[Out] -1/(81*(2 + 3*x)^7) + 4/(27*(2 + 3*x)^6) - 13/(27*(2 + 3*x)^5) +
25/(162*(2 + 3*x)^4)
```

Rubi [A] time = 0.0506092, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{25}{162(3x+2)^4}-\frac{13}{27(3x+2)^5}+\frac{4}{27(3x+2)^6}-\frac{1}{81(3x+2)^7}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)*(3 + 5*x)^2)/(2 + 3*x)^8,x]
```

```
[Out] -1/(81*(2 + 3*x)^7) + 4/(27*(2 + 3*x)^6) - 13/(27*(2 + 3*x)^5) +
25/(162*(2 + 3*x)^4)
```

Rubi in Sympy [A] time = 8.31563, size = 39, normalized size = 0.87

$$\frac{25}{162\left(3x+2\right)^{4}}-\frac{13}{27\left(3x+2\right)^{5}}+\frac{4}{27\left(3x+2\right)^{6}}-\frac{1}{81\left(3x+2\right)^{7}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(3+5*x)**2/(2+3*x)**8,x)
```

```
[Out] 25/(162*(3*x + 2)**4) - 13/(27*(3*x + 2)**5) + 4/(27*(3*x + 2)**6
) - 1/(81*(3*x + 2)**7)
```

Mathematica [A] time = 0.0138981, size = 26, normalized size = 0.58

$$\frac{225x^3+216x^2+12x-22}{54(3x+2)^7}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)*(3 + 5*x)^2)/(2 + 3*x)^8,x]
```

```
[Out] (-22 + 12*x + 216*x^2 + 225*x^3)/(54*(2 + 3*x)^7)
```

Maple [A] time = 0.007, size = 38, normalized size = 0.8

$$-\frac{1}{81\,(2+3\,x)^{7}}+\frac{4}{27\,(2+3\,x)^{6}}-\frac{13}{27\,(2+3\,x)^{5}}+\frac{25}{162\,(2+3\,x)^{4}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(3+5*x)^2/(2+3*x)^8,x)
```

```
[Out] -1/81/(2+3*x)^7+4/27/(2+3*x)^6-13/27/(2+3*x)^5+25/162/(2+3*x)^4
```

Maxima [A] time = 1.34298, size = 73, normalized size = 1.62

$$\frac{225 x^3 + 216 x^2 + 12 x - 22}{54 (2187 x^7 + 10206 x^6 + 20412 x^5 + 22680 x^4 + 15120 x^3 + 6048 x^2 + 1344 x + 128)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(2*x - 1)/(3*x + 2)^8,x, algorithm="maxima")
```

```
[Out] 1/54*(225*x^3 + 216*x^2 + 12*x - 22)/(2187*x^7 + 10206*x^6 + 2041
2*x^5 + 22680*x^4 + 15120*x^3 + 6048*x^2 + 1344*x + 128)
```

Fricas [A] time = 0.205392, size = 73, normalized size = 1.62

$$\frac{225 x^3 + 216 x^2 + 12 x - 22}{54 (2187 x^7 + 10206 x^6 + 20412 x^5 + 22680 x^4 + 15120 x^3 + 6048 x^2 + 1344 x + 128)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(2*x - 1)/(3*x + 2)^8,x, algorithm="fricas")
```

```
[Out] 1/54*(225*x^3 + 216*x^2 + 12*x - 22)/(2187*x^7 + 10206*x^6 + 2041
2*x^5 + 22680*x^4 + 15120*x^3 + 6048*x^2 + 1344*x + 128)
```

Sympy [A] time = 0.443811, size = 49, normalized size = 1.09

$$\frac{225x^3 + 216x^2 + 12x - 22}{118098x^7 + 551124x^6 + 1102248x^5 + 1224720x^4 + 816480x^3 + 326592x^2 + 72576x + 6912}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(3+5*x)**2/(2+3*x)**8,x)
```

```
[Out] (225*x**3 + 216*x**2 + 12*x - 22)/(118098*x**7 + 551124*x**6 + 11
02248*x**5 + 1224720*x**4 + 816480*x**3 + 326592*x**2 + 72576*x +
 6912)
```

GIAC/XCAS [A] time = 0.210531, size = 32, normalized size = 0.71

$$\frac{225 x^3 + 216 x^2 + 12 x - 22}{54 (3 x + 2)^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(2*x - 1)/(3*x + 2)^8,x, algorithm="giac")
```

```
[Out] 1/54*(225*x^3 + 216*x^2 + 12*x - 22)/(3*x + 2)^7
```

3.1158 $\int (1-2x)(2+3x)^8(3+5x)^3\,dx$

Optimal. Leaf size=56

$$-\frac{250(3x+2)^{13}}{3159}+\frac{1025(3x+2)^{12}}{2916}-\frac{185}{891}(3x+2)^{11}+\frac{107(3x+2)^{10}}{2430}-\frac{7(3x+2)^9}{2187}$$

```
[Out] (-7*(2 + 3*x)^9)/2187 + (107*(2 + 3*x)^10)/2430 - (185*(2 + 3*x)^
11)/891 + (1025*(2 + 3*x)^12)/2916 - (250*(2 + 3*x)^13)/3159
```

Rubi [A] time = 0.0927637, antiderivative size = 56, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{250(3x+2)^{13}}{3159}+\frac{1025(3x+2)^{12}}{2916}-\frac{185}{891}(3x+2)^{11}+\frac{107(3x+2)^{10}}{2430}-\frac{7(3x+2)^9}{2187}$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)*(2 + 3*x)^8*(3 + 5*x)^3,x]
```

```
[Out] (-7*(2 + 3*x)^9)/2187 + (107*(2 + 3*x)^10)/2430 - (185*(2 + 3*x)^
11)/891 + (1025*(2 + 3*x)^12)/2916 - (250*(2 + 3*x)^13)/3159
```

Rubi in Sympy [A] time = 14.0084, size = 49, normalized size = 0.88

$$-\frac{250\,(3x+2)^{13}}{3159}+\frac{1025\,(3x+2)^{12}}{2916}-\frac{185\,(3x+2)^{11}}{891}+\frac{107\,(3x+2)^{10}}{2430}-\frac{7\,(3x+2)^9}{2187}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)*(2+3*x)**8*(3+5*x)**3,x)
```

```
[Out] -250*(3*x + 2)**13/3159 + 1025*(3*x + 2)**12/2916 - 185*(3*x + 2)
**11/891 + 107*(3*x + 2)**10/2430 - 7*(3*x + 2)**9/2187
```

Mathematica [A] time = 0.00358125, size = 74, normalized size = 1.32

$$-\frac{1640250x^{13}}{13}-\frac{3626775x^{12}}{4}-\frac{32079645x^{11}}{11}-\frac{54794799x^{10}}{10}-6524829x^9-4865076x^8-1830960x^7+350128x^6+\frac{4580384x^5}{5}+597824x^4+224256x^3+51840x^2+6912x$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)*(2 + 3*x)^8*(3 + 5*x)^3,x]
```

```
[Out] 6912*x + 51840*x^2 + 224256*x^3 + 597824*x^4 + (4580384*x^5)/5 +
350128*x^6 - 1830960*x^7 - 4865076*x^8 - 6524829*x^9 - (54794799*
x^10)/10 - (32079645*x^11)/11 - (3626775*x^12)/4 - (1640250*x^13)
/13
```

Maple [A] time = 0.003, size = 65, normalized size = 1.2

$$-\frac{1640250\,x^{13}}{13}-\frac{3626775\,x^{12}}{4}-\frac{32079645\,x^{11}}{11}-\frac{54794799\,x^{10}}{10}-6524829\,x^9-4865076\,x^8-1830960\,x^7+350128\,x^6+\frac{4580384\,x^5}{5}+597824\,x^4+224256\,x^3+51840\,x^2+6912\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(2+3*x)^8*(3+5*x)^3,x)
```

```
[Out] -1640250/13*x^13-3626775/4*x^12-32079645/11*x^11-54794799/10*x^10
-6524829*x^9-4865076*x^8-1830960*x^7+350128*x^6+4580384/5*x^5+597
824*x^4+224256*x^3+51840*x^2+6912*x
```

Maxima [A] time = 1.34306, size = 86, normalized size = 1.54

$$-\frac{1640250}{13}\,x^{13}-\frac{3626775}{4}\,x^{12}-\frac{32079645}{11}\,x^{11}-\frac{54794799}{10}\,x^{10}-6524829\,x^{9}-4865076\,x^{8}-1830960\,x^{7}+350128\,x^{6}+\frac{4580384}{5}\,x^{5}+597824\,x^{4}+224256\,x^{3}+51840\,x^{2}+6912\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^8*(2*x - 1),x, algorithm="maxima")
```

```
[Out] -1640250/13*x^13 - 3626775/4*x^12 - 32079645/11*x^11 - 54794799/1
0*x^10 - 6524829*x^9 - 4865076*x^8 - 1830960*x^7 + 350128*x^6 + 4
580384/5*x^5 + 597824*x^4 + 224256*x^3 + 51840*x^2 + 6912*x
```

Fricas [A] time = 0.186057, size = 1, normalized size = 0.02

$$-\frac{1640250}{13}x^{13}-\frac{3626775}{4}x^{12}-\frac{32079645}{11}x^{11}-\frac{54794799}{10}x^{10}-6524829x^{9}-4865076x^{8}-1830960x^{7}+350128x^{6}+\frac{4580384}{5}x^{5}+597824x^{4}+224256x^{3}+51840x^{2}+6912x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^8*(2*x - 1),x, algorithm="fricas")
```

```
[Out] -1640250/13*x^13 - 3626775/4*x^12 - 32079645/11*x^11 - 54794799/1
0*x^10 - 6524829*x^9 - 4865076*x^8 - 1830960*x^7 + 350128*x^6 + 4
580384/5*x^5 + 597824*x^4 + 224256*x^3 + 51840*x^2 + 6912*x
```

Sympy [A] time = 0.120772, size = 71, normalized size = 1.27

$$-\frac{1640250x^{13}}{13}-\frac{3626775x^{12}}{4}-\frac{32079645x^{11}}{11}-\frac{54794799x^{10}}{10}-6524829x^{9}-4865076x^{8}-1830960x^{7}+350128x^{6}+\frac{4580384x^{5}}{5}+597824x^{4}+224256x^{3}+51840x^{2}+6912x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)**8*(3+5*x)**3,x)
```

```
[Out] -1640250*x**13/13 - 3626775*x**12/4 - 32079645*x**11/11 - 5479479
9*x**10/10 - 6524829*x**9 - 4865076*x**8 - 1830960*x**7 + 350128*
x**6 + 4580384*x**5/5 + 597824*x**4 + 224256*x**3 + 51840*x**2 +
6912*x
```

GIAC/XCAS [A] time = 0.206994, size = 86, normalized size = 1.54

$$-\frac{1640250}{13}\,x^{13}-\frac{3626775}{4}\,x^{12}-\frac{32079645}{11}\,x^{11}-\frac{54794799}{10}\,x^{10}-6524829\,x^{9}-4865076\,x^{8}-1830960\,x^{7}+350128\,x^{6}+\frac{4580384}{5}\,x^{5}+597824\,x^{4}+224256\,x^{3}+51840\,x^{2}+6912\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^8*(2*x - 1),x, algorithm="giac")
```

```
[Out] -1640250/13*x^13 - 3626775/4*x^12 - 32079645/11*x^11 - 54794799/1
0*x^10 - 6524829*x^9 - 4865076*x^8 - 1830960*x^7 + 350128*x^6 + 4
580384/5*x^5 + 597824*x^4 + 224256*x^3 + 51840*x^2 + 6912*x
```

3.1159 $\int (1-2x)(2+3x)^7(3+5x)^3\,dx$

Optimal. Leaf size=56

$$-\frac{125(3x+2)^{12}}{1458}+\frac{1025(3x+2)^{11}}{2673}-\frac{37}{162}(3x+2)^{10}+\frac{107(3x+2)^9}{2187}-\frac{7(3x+2)^8}{1944}$$

```
[Out] (-7*(2 + 3*x)^8)/1944 + (107*(2 + 3*x)^9)/2187 - (37*(2 + 3*x)^10
)/162 + (1025*(2 + 3*x)^11)/2673 - (125*(2 + 3*x)^12)/1458
```

Rubi [A] time = 0.0901101, antiderivative size = 56, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{125(3x+2)^{12}}{1458}+\frac{1025(3x+2)^{11}}{2673}-\frac{37}{162}(3x+2)^{10}+\frac{107(3x+2)^9}{2187}-\frac{7(3x+2)^8}{1944}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)*(2 + 3*x)^7*(3 + 5*x)^3,x]
```

```
[Out] (-7*(2 + 3*x)^8)/1944 + (107*(2 + 3*x)^9)/2187 - (37*(2 + 3*x)^10
)/162 + (1025*(2 + 3*x)^11)/2673 - (125*(2 + 3*x)^12)/1458
```

Rubi in Sympy [A] time = 13.2293, size = 49, normalized size = 0.88

$$-\frac{125\,(3x+2)^{12}}{1458}+\frac{1025\,(3x+2)^{11}}{2673}-\frac{37\,(3x+2)^{10}}{162}+\frac{107\,(3x+2)^9}{2187}-\frac{7\,(3x+2)^8}{1944}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(2+3*x)**7*(3+5*x)**3,x)
```

```
[Out] -125*(3*x + 2)**12/1458 + 1025*(3*x + 2)**11/2673 - 37*(3*x + 2)*
*10/162 + 107*(3*x + 2)**9/2187 - 7*(3*x + 2)**8/1944
```

Mathematica [A] time = 0.00333838, size = 67, normalized size = 1.2

$$-\frac{91125x^{12}}{2}-\frac{3262275x^{11}}{11}-\frac{1703673x^{10}}{2}-1398447x^9-\frac{11183805x^8}{8}-788238x^7-98966x^6+219224x^5+199012x^4+88800x^3+23328x^2+3456x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)*(2 + 3*x)^7*(3 + 5*x)^3,x]
```

```
[Out] 3456*x + 23328*x^2 + 88800*x^3 + 199012*x^4 + 219224*x^5 - 98966*
x^6 - 788238*x^7 - (11183805*x^8)/8 - 1398447*x^9 - (1703673*x^10
)/2 - (3262275*x^11)/11 - (91125*x^12)/2
```

Maple [A] time = 0.002, size = 60, normalized size = 1.1

$$-\frac{91125\,x^{12}}{2}-\frac{3262275\,x^{11}}{11}-\frac{1703673\,x^{10}}{2}-1398447\,x^9-\frac{11183805\,x^8}{8}-788238\,x^7-98966\,x^6+219224\,x^5+199012\,x^4+88800\,x^3+23328\,x^2+3456\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(2+3*x)^7*(3+5*x)^3,x)
```

```
[Out] -91125/2*x^12-3262275/11*x^11-1703673/2*x^10-1398447*x^9-11183805
/8*x^8-788238*x^7-98966*x^6+219224*x^5+199012*x^4+88800*x^3+23328
*x^2+3456*x
```

Maxima [A] time = 1.35338, size = 80, normalized size = 1.43

$$-\frac{91125}{2}\,x^{12}-\frac{3262275}{11}\,x^{11}-\frac{1703673}{2}\,x^{10}-1398447\,x^9-\frac{11183805}{8}\,x^8 -788238\,x^7-98966\,x^6+219224\,x^5+199012\,x^4+88800\,x^3+23328\,x^2+3456\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^7*(2*x - 1),x, algorithm="maxima")
```

```
[Out] -91125/2*x^12 - 3262275/11*x^11 - 1703673/2*x^10 - 1398447*x^9 -
11183805/8*x^8 - 788238*x^7 - 98966*x^6 + 219224*x^5 + 199012*x^4
 + 88800*x^3 + 23328*x^2 + 3456*x
```

Fricas [A] time = 0.17848, size = 1, normalized size = 0.02

$$-\frac{91125}{2}x^{12}-\frac{3262275}{11}x^{11}-\frac{1703673}{2}x^{10}-1398447x^9-\frac{11183805}{8}x^8 -788238x^7-98966x^6+219224x^5+199012x^4+88800x^3+23328x^2+3456x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^7*(2*x - 1),x, algorithm="fricas")
```

```
[Out] -91125/2*x^12 - 3262275/11*x^11 - 1703673/2*x^10 - 1398447*x^9 -
11183805/8*x^8 - 788238*x^7 - 98966*x^6 + 219224*x^5 + 199012*x^4
 + 88800*x^3 + 23328*x^2 + 3456*x
```

Sympy [A] time = 0.120187, size = 65, normalized size = 1.16

$$-\frac{91125x^{12}}{2}-\frac{3262275x^{11}}{11}-\frac{1703673x^{10}}{2}-1398447x^9-\frac{11183805x^8}{8} -788238x^7-98966x^6+219224x^5+199012x^4+88800x^3+23328x^2+3456x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)**7*(3+5*x)**3,x)
```

```
[Out] -91125*x**12/2 - 3262275*x**11/11 - 1703673*x**10/2 - 1398447*x**
9 - 11183805*x**8/8 - 788238*x**7 - 98966*x**6 + 219224*x**5 + 19
9012*x**4 + 88800*x**3 + 23328*x**2 + 3456*x
```

GIAC/XCAS [A] time = 0.204623, size = 80, normalized size = 1.43

$$-\frac{91125}{2}\,x^{12}-\frac{3262275}{11}\,x^{11}-\frac{1703673}{2}\,x^{10}-1398447\,x^9-\frac{11183805}{8}\,x^8 -788238\,x^7-98966\,x^6+219224\,x^5+199012\,x^4+88800\,x^3+23328\,x^2+3456\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^7*(2*x - 1),x, algorithm="giac")
```

```
[Out] -91125/2*x^12 - 3262275/11*x^11 - 1703673/2*x^10 - 1398447*x^9 -
11183805/8*x^8 - 788238*x^7 - 98966*x^6 + 219224*x^5 + 199012*x^4
 + 88800*x^3 + 23328*x^2 + 3456*x
```

3.1160 $\int (1-2x)(2+3x)^6(3+5x)^3\,dx$

Optimal. Leaf size=56

$$-\frac{250(3x+2)^{11}}{2673}+\frac{205}{486}(3x+2)^{10}-\frac{185}{729}(3x+2)^9+\frac{107(3x+2)^8}{1944}-\frac{1}{243}(3x+2)^7$$

```
[Out] -(2 + 3*x)^7/243 + (107*(2 + 3*x)^8)/1944 - (185*(2 + 3*x)^9)/729
 + (205*(2 + 3*x)^10)/486 - (250*(2 + 3*x)^11)/2673
```

Rubi [A] time = 0.0804876, antiderivative size = 56, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{250(3x+2)^{11}}{2673}+\frac{205}{486}(3x+2)^{10}-\frac{185}{729}(3x+2)^9+\frac{107(3x+2)^8}{1944}-\frac{1}{243}(3x+2)^7$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)*(2 + 3*x)^6*(3 + 5*x)^3,x]
```

```
[Out] -(2 + 3*x)^7/243 + (107*(2 + 3*x)^8)/1944 - (185*(2 + 3*x)^9)/729
 + (205*(2 + 3*x)^10)/486 - (250*(2 + 3*x)^11)/2673
```

Rubi in Sympy [A] time = 12.4394, size = 48, normalized size = 0.86

$$-\frac{250\,(3x+2)^{11}}{2673}+\frac{205\,(3x+2)^{10}}{486}-\frac{185\,(3x+2)^9}{729}+\frac{107\,(3x+2)^8}{1944}-\frac{(3x+2)^7}{243}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(2+3*x)**6*(3+5*x)**3,x)
```

```
[Out] -250*(3*x + 2)**11/2673 + 205*(3*x + 2)**10/486 - 185*(3*x + 2)**
9/729 + 107*(3*x + 2)**8/1944 - (3*x + 2)**7/243
```

Mathematica [A] time = 0.00331502, size = 60, normalized size = 1.07

$$-\frac{182250x^{11}}{11}-\frac{193185x^{10}}{2}-243945x^9-\frac{2731671x^8}{8}-272403x^7-94668x^6+36148x^5+61220x^4+34032x^3+10368x^2+1728x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)*(2 + 3*x)^6*(3 + 5*x)^3,x]
```

```
[Out] 1728*x + 10368*x^2 + 34032*x^3 + 61220*x^4 + 36148*x^5 - 94668*x^
6 - 272403*x^7 - (2731671*x^8)/8 - 243945*x^9 - (193185*x^10)/2 -
 (182250*x^11)/11
```

Maple [A] time = 0.001, size = 55, normalized size = 1.

$$-\frac{182250\,x^{11}}{11}-\frac{193185\,x^{10}}{2}-243945\,x^9-\frac{2731671\,x^8}{8}-272403\,x^7-94668\,x^6+36148\,x^5+61220\,x^4+34032\,x^3+10368\,x^2+1728\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(2+3*x)^6*(3+5*x)^3,x)
```

```
[Out] -182250/11*x^11-193185/2*x^10-243945*x^9-2731671/8*x^8-272403*x^7
-94668*x^6+36148*x^5+61220*x^4+34032*x^3+10368*x^2+1728*x
```

Maxima [A] time = 1.34918, size = 73, normalized size = 1.3

$$-\frac{182250}{11}\,x^{11} - \frac{193185}{2}\,x^{10} - 243945\,x^{9} - \frac{2731671}{8}\,x^{8} - 272403\,x^{7} - 94668\,x^{6} + 36148\,x^{5} + 61220\,x^{4} + 34032\,x^{3} + 10368\,x^{2} + 1728\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^6*(2*x - 1),x, algorithm="maxima")
```

```
[Out] -182250/11*x^11 - 193185/2*x^10 - 243945*x^9 - 2731671/8*x^8 - 27
2403*x^7 - 94668*x^6 + 36148*x^5 + 61220*x^4 + 34032*x^3 + 10368*
x^2 + 1728*x
```

Fricas [A] time = 0.177257, size = 1, normalized size = 0.02

$$-\frac{182250}{11}x^{11} - \frac{193185}{2}x^{10} - 243945x^{9} - \frac{2731671}{8}x^{8} - 272403x^{7} - 94668x^{6} + 36148x^{5} + 61220x^{4} + 34032x^{3} + 10368x^{2} + 1728x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^6*(2*x - 1),x, algorithm="fricas")
```

```
[Out] -182250/11*x^11 - 193185/2*x^10 - 243945*x^9 - 2731671/8*x^8 - 27
2403*x^7 - 94668*x^6 + 36148*x^5 + 61220*x^4 + 34032*x^3 + 10368*
x^2 + 1728*x
```

Sympy [A] time = 0.111113, size = 58, normalized size = 1.04

$$-\frac{182250x^{11}}{11} - \frac{193185x^{10}}{2} - 243945x^{9} - \frac{2731671x^{8}}{8} - 272403x^{7} - 94668x^{6} + 36148x^{5} + 61220x^{4} + 34032x^{3} + 10368x^{2} + 1728x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)**6*(3+5*x)**3,x)
```

```
[Out] -182250*x**11/11 - 193185*x**10/2 - 243945*x**9 - 2731671*x**8/8
- 272403*x**7 - 94668*x**6 + 36148*x**5 + 61220*x**4 + 34032*x**3
 + 10368*x**2 + 1728*x
```

GIAC/XCAS [A] time = 0.20793, size = 73, normalized size = 1.3

$$-\frac{182250}{11}\,x^{11} - \frac{193185}{2}\,x^{10} - 243945\,x^{9} - \frac{2731671}{8}\,x^{8} - 272403\,x^{7} - 94668\,x^{6} + 36148\,x^{5} + 61220\,x^{4} + 34032\,x^{3} + 10368\,x^{2} + 1728\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^6*(2*x - 1),x, algorithm="giac")
```

```
[Out] -182250/11*x^11 - 193185/2*x^10 - 243945*x^9 - 2731671/8*x^8 - 27
2403*x^7 - 94668*x^6 + 36148*x^5 + 61220*x^4 + 34032*x^3 + 10368*
x^2 + 1728*x
```

3.1161 $\int (1-2x)(2+3x)^5(3+5x)^3\,dx$

Optimal. Leaf size=56

$$-\frac{25}{243}(3x+2)^{10}+\frac{1025(3x+2)^9}{2187}-\frac{185}{648}(3x+2)^8+\frac{107(3x+2)^7}{1701}-\frac{7(3x+2)^6}{1458}$$

```
[Out] (-7*(2 + 3*x)^6)/1458 + (107*(2 + 3*x)^7)/1701 - (185*(2 + 3*x)^8
)/648 + (1025*(2 + 3*x)^9)/2187 - (25*(2 + 3*x)^10)/243
```

Rubi [A] time = 0.0815454, antiderivative size = 56, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}=0.05$

$$-\frac{25}{243}(3x+2)^{10}+\frac{1025(3x+2)^9}{2187}-\frac{185}{648}(3x+2)^8+\frac{107(3x+2)^7}{1701}-\frac{7(3x+2)^6}{1458}$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)*(2 + 3*x)^5*(3 + 5*x)^3,x]
```

```
[Out] (-7*(2 + 3*x)^6)/1458 + (107*(2 + 3*x)^7)/1701 - (185*(2 + 3*x)^8
)/648 + (1025*(2 + 3*x)^9)/2187 - (25*(2 + 3*x)^10)/243
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-6075x^{10}-31275x^9-\frac{544185x^8}{8}-\frac{547767x^7}{7}-\frac{90143x^6}{2}-1810x^5+16570x^4+12480x^3+864x+9072\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)*(2+3*x)**5*(3+5*x)**3,x)
```

```
[Out] -6075*x**10 - 31275*x**9 - 544185*x**8/8 - 547767*x**7/7 - 90143*
x**6/2 - 1810*x**5 + 16570*x**4 + 12480*x**3 + 864*x + 9072*Integ
ral(x, x)
```

Mathematica [A] time = 0.00302704, size = 55, normalized size = 0.98

$$-6075x^{10}-31275x^9-\frac{544185x^8}{8}-\frac{547767x^7}{7}-\frac{90143x^6}{2}-1810x^5+16570x^4+12480x^3+4536x^2+864x$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)*(2 + 3*x)^5*(3 + 5*x)^3,x]
```

```
[Out] 864*x + 4536*x^2 + 12480*x^3 + 16570*x^4 - 1810*x^5 - (90143*x^6)
/2 - (547767*x^7)/7 - (544185*x^8)/8 - 31275*x^9 - 6075*x^10
```

Maple [A] time = 0.002, size = 50, normalized size = 0.9

$$-6075\,x^{10}-31275\,x^9-\frac{544185\,x^8}{8}-\frac{547767\,x^7}{7}-\frac{90143\,x^6}{2}-1810\,x^5+16570\,x^4+12480\,x^3+4536\,x^2+864\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(2+3*x)^5*(3+5*x)^3,x)
```

```
[Out] -6075*x^10-31275*x^9-544185/8*x^8-547767/7*x^7-90143/2*x^6-1810*x
^5+16570*x^4+12480*x^3+4536*x^2+864*x
```

Maxima [A] time = 1.34777, size = 66, normalized size = 1.18

$$-6075\,x^{10}-31275\,x^{9}-\frac{544185}{8}\,x^{8}-\frac{547767}{7}\,x^{7}-\frac{90143}{2}\,x^{6}-1810\,x^{5}+16570\,x^{4}+12480\,x^{3}+4536\,x^{2}+864\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^5*(2*x - 1),x, algorithm="maxima")
```

```
[Out] -6075*x^10 - 31275*x^9 - 544185/8*x^8 - 547767/7*x^7 - 90143/2*x^
6 - 1810*x^5 + 16570*x^4 + 12480*x^3 + 4536*x^2 + 864*x
```

Fricas [A] time = 0.181873, size = 1, normalized size = 0.02

$$-6075x^{10}-31275x^{9}-\frac{544185}{8}x^{8}-\frac{547767}{7}x^{7}-\frac{90143}{2}x^{6}-1810x^{5}+16570x^{4}+12480x^{3}+4536x^{2}+864x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^5*(2*x - 1),x, algorithm="fricas")
```

```
[Out] -6075*x^10 - 31275*x^9 - 544185/8*x^8 - 547767/7*x^7 - 90143/2*x^
6 - 1810*x^5 + 16570*x^4 + 12480*x^3 + 4536*x^2 + 864*x
```

Sympy [A] time = 0.104689, size = 53, normalized size = 0.95

$$-6075x^{10}-31275x^{9}-\frac{544185x^{8}}{8}-\frac{547767x^{7}}{7}-\frac{90143x^{6}}{2}-1810x^{5}+16570x^{4}+12480x^{3}+4536x^{2}+864x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)**5*(3+5*x)**3,x)
```

```
[Out] -6075*x**10 - 31275*x**9 - 544185*x**8/8 - 547767*x**7/7 - 90143*
x**6/2 - 1810*x**5 + 16570*x**4 + 12480*x**3 + 4536*x**2 + 864*x
```

GIAC/XCAS [A] time = 0.207967, size = 66, normalized size = 1.18

$$-6075\,x^{10}-31275\,x^{9}-\frac{544185}{8}\,x^{8}-\frac{547767}{7}\,x^{7}-\frac{90143}{2}\,x^{6}-1810\,x^{5}+16570\,x^{4}+12480\,x^{3}+4536\,x^{2}+864\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^5*(2*x - 1),x, algorithm="giac")
```

```
[Out] -6075*x^10 - 31275*x^9 - 544185/8*x^8 - 547767/7*x^7 - 90143/2*x^
6 - 1810*x^5 + 16570*x^4 + 12480*x^3 + 4536*x^2 + 864*x
```

3.1162 $\int (1-2x)(2+3x)^4(3+5x)^3\,dx$

Optimal. Leaf size=56

$$-\frac{250(3x+2)^9}{2187}+\frac{1025(3x+2)^8}{1944}-\frac{185}{567}(3x+2)^7+\frac{107(3x+2)^6}{1458}-\frac{7(3x+2)^5}{1215}$$

```
[Out] (-7*(2 + 3*x)^5)/1215 + (107*(2 + 3*x)^6)/1458 - (185*(2 + 3*x)^7
)/567 + (1025*(2 + 3*x)^8)/1944 - (250*(2 + 3*x)^9)/2187
```

Rubi [A] time = 0.07451, antiderivative size = 56, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{250(3x+2)^9}{2187}+\frac{1025(3x+2)^8}{1944}-\frac{185}{567}(3x+2)^7+\frac{107(3x+2)^6}{1458}-\frac{7(3x+2)^5}{1215}$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)*(2 + 3*x)^4*(3 + 5*x)^3,x]
```

```
[Out] (-7*(2 + 3*x)^5)/1215 + (107*(2 + 3*x)^6)/1458 - (185*(2 + 3*x)^7
)/567 + (1025*(2 + 3*x)^8)/1944 - (250*(2 + 3*x)^9)/2187
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-2250x^9-\frac{80325x^8}{8}-\frac{127845x^7}{7}-\frac{32453x^6}{2}-\frac{25237x^5}{5}+3452x^4+4296x^3+432x+3888\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)*(2+3*x)**4*(3+5*x)**3,x)
```

```
[Out] -2250*x**9 - 80325*x**8/8 - 127845*x**7/7 - 32453*x**6/2 - 25237*
x**5/5 + 3452*x**4 + 4296*x**3 + 432*x + 3888*Integral(x, x)
```

Mathematica [A] time = 0.00295856, size = 52, normalized size = 0.93

$$-2250x^9-\frac{80325x^8}{8}-\frac{127845x^7}{7}-\frac{32453x^6}{2}-\frac{25237x^5}{5}+3452x^4+4296x^3+1944x^2+432x$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)*(2 + 3*x)^4*(3 + 5*x)^3,x]
```

```
[Out] 432*x + 1944*x^2 + 4296*x^3 + 3452*x^4 - (25237*x^5)/5 - (32453*x
^6)/2 - (127845*x^7)/7 - (80325*x^8)/8 - 2250*x^9
```

Maple [A] time = 0.003, size = 45, normalized size = 0.8

$$-2250\,x^9-\frac{80325\,x^8}{8}-\frac{127845\,x^7}{7}-\frac{32453\,x^6}{2}-\frac{25237\,x^5}{5}+3452\,x^4+4296\,x^3+1944\,x^2+432\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(2+3*x)^4*(3+5*x)^3,x)
```

```
[Out] -2250*x^9-80325/8*x^8-127845/7*x^7-32453/2*x^6-25237/5*x^5+3452*x
^4+4296*x^3+1944*x^2+432*x
```

Maxima [A] time = 1.3651, size = 59, normalized size = 1.05

$$-2250\,x^9 - \frac{80325}{8}\,x^8 - \frac{127845}{7}\,x^7 - \frac{32453}{2}\,x^6 - \frac{25237}{5}\,x^5 + 3452\,x^4 + 4296\,x^3 + 1944\,x^2 + 432\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^4*(2*x - 1),x, algorithm="maxima")
```

```
[Out] -2250*x^9 - 80325/8*x^8 - 127845/7*x^7 - 32453/2*x^6 - 25237/5*x^
5 + 3452*x^4 + 4296*x^3 + 1944*x^2 + 432*x
```

Fricas [A] time = 0.185002, size = 1, normalized size = 0.02

$$-2250x^9 - \frac{80325}{8}x^8 - \frac{127845}{7}x^7 - \frac{32453}{2}x^6 - \frac{25237}{5}x^5 + 3452x^4 + 4296x^3 + 1944x^2 + 432x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^4*(2*x - 1),x, algorithm="fricas")
```

```
[Out] -2250*x^9 - 80325/8*x^8 - 127845/7*x^7 - 32453/2*x^6 - 25237/5*x^
5 + 3452*x^4 + 4296*x^3 + 1944*x^2 + 432*x
```

Sympy [A] time = 0.099559, size = 49, normalized size = 0.88

$$-2250x^9 - \frac{80325x^8}{8} - \frac{127845x^7}{7} - \frac{32453x^6}{2} - \frac{25237x^5}{5} + 3452x^4 + 4296x^3 + 1944x^2 + 432x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)**4*(3+5*x)**3,x)
```

```
[Out] -2250*x**9 - 80325*x**8/8 - 127845*x**7/7 - 32453*x**6/2 - 25237*
x**5/5 + 3452*x**4 + 4296*x**3 + 1944*x**2 + 432*x
```

GIAC/XCAS [A] time = 0.210131, size = 59, normalized size = 1.05

$$-2250\,x^9 - \frac{80325}{8}\,x^8 - \frac{127845}{7}\,x^7 - \frac{32453}{2}\,x^6 - \frac{25237}{5}\,x^5 + 3452\,x^4 + 4296\,x^3 + 1944\,x^2 + 432\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^4*(2*x - 1),x, algorithm="giac")
```

```
[Out] -2250*x^9 - 80325/8*x^8 - 127845/7*x^7 - 32453/2*x^6 - 25237/5*x^
5 + 3452*x^4 + 4296*x^3 + 1944*x^2 + 432*x
```

3.1163 $\int (1-2x)(2+3x)^3(3+5x)^3\,dx$

Optimal. Leaf size=56

$$-\frac{125}{972}(3x+2)^8+\frac{1025(3x+2)^7}{1701}-\frac{185}{486}(3x+2)^6+\frac{107(3x+2)^5}{1215}-\frac{7}{972}(3x+2)^4$$

```
[Out] (-7*(2 + 3*x)^4)/972 + (107*(2 + 3*x)^5)/1215 - (185*(2 + 3*x)^6)
/486 + (1025*(2 + 3*x)^7)/1701 - (125*(2 + 3*x)^8)/972
```

Rubi [A] time = 0.0727846, antiderivative size = 56, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{125}{972}(3x+2)^8+\frac{1025(3x+2)^7}{1701}-\frac{185}{486}(3x+2)^6+\frac{107(3x+2)^5}{1215}-\frac{7}{972}(3x+2)^4$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)*(2 + 3*x)^3*(3 + 5*x)^3,x]
```

```
[Out] (-7*(2 + 3*x)^4)/972 + (107*(2 + 3*x)^5)/1215 - (185*(2 + 3*x)^6)
/486 + (1025*(2 + 3*x)^7)/1701 - (125*(2 + 3*x)^8)/972
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{3375x^8}{4}-\frac{22275x^7}{7}-\frac{9255x^6}{2}-\frac{13943x^5}{5}+\frac{883x^4}{4}+1338x^3+216x+1620\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(2+3*x)**3*(3+5*x)**3,x)
```

```
[Out] -3375*x**8/4 - 22275*x**7/7 - 9255*x**6/2 - 13943*x**5/5 + 883*x*
*4/4 + 1338*x**3 + 216*x + 1620*Integral(x, x)
```

Mathematica [A] time = 0.00218068, size = 49, normalized size = 0.88

$$-\frac{3375x^8}{4}-\frac{22275x^7}{7}-\frac{9255x^6}{2}-\frac{13943x^5}{5}+\frac{883x^4}{4}+1338x^3+810x^2+216x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)*(2 + 3*x)^3*(3 + 5*x)^3,x]
```

```
[Out] 216*x + 810*x^2 + 1338*x^3 + (883*x^4)/4 - (13943*x^5)/5 - (9255*
x^6)/2 - (22275*x^7)/7 - (3375*x^8)/4
```

Maple [A] time = 0., size = 40, normalized size = 0.7

$$-\frac{3375\,x^8}{4}-\frac{22275\,x^7}{7}-\frac{9255\,x^6}{2}-\frac{13943\,x^5}{5}+\frac{883\,x^4}{4}+1338\,x^3+810\,x^2+216\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(2+3*x)^3*(3+5*x)^3,x)
```

```
[Out] -3375/4*x^8-22275/7*x^7-9255/2*x^6-13943/5*x^5+883/4*x^4+1338*x^3
+810*x^2+216*x
```

Maxima [A] time = 1.33718, size = 53, normalized size = 0.95

$$-\frac{3375}{4}\,x^8-\frac{22275}{7}\,x^7-\frac{9255}{2}\,x^6-\frac{13943}{5}\,x^5+\frac{883}{4}\,x^4+1338\,x^3+810\,x^2+216\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^3*(2*x - 1),x, algorithm="maxima")
```

```
[Out] -3375/4*x^8 - 22275/7*x^7 - 9255/2*x^6 - 13943/5*x^5 + 883/4*x^4
+ 1338*x^3 + 810*x^2 + 216*x
```

Fricas [A] time = 0.184701, size = 1, normalized size = 0.02

$$-\frac{3375}{4}x^8-\frac{22275}{7}x^7-\frac{9255}{2}x^6-\frac{13943}{5}x^5+\frac{883}{4}x^4+1338x^3+810x^2+216x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^3*(2*x - 1),x, algorithm="fricas")
```

```
[Out] -3375/4*x^8 - 22275/7*x^7 - 9255/2*x^6 - 13943/5*x^5 + 883/4*x^4
+ 1338*x^3 + 810*x^2 + 216*x
```

Sympy [A] time = 0.096722, size = 46, normalized size = 0.82

$$-\frac{3375x^8}{4}-\frac{22275x^7}{7}-\frac{9255x^6}{2}-\frac{13943x^5}{5}+\frac{883x^4}{4}+1338x^3+810x^2+216x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)**3*(3+5*x)**3,x)
```

```
[Out] -3375*x**8/4 - 22275*x**7/7 - 9255*x**6/2 - 13943*x**5/5 + 883*x*
*4/4 + 1338*x**3 + 810*x**2 + 216*x
```

GIAC/XCAS [A] time = 0.205967, size = 53, normalized size = 0.95

$$-\frac{3375}{4}\,x^8-\frac{22275}{7}\,x^7-\frac{9255}{2}\,x^6-\frac{13943}{5}\,x^5+\frac{883}{4}\,x^4+1338\,x^3+810\,x^2+216\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^3*(2*x - 1),x, algorithm="giac")
```

```
[Out] -3375/4*x^8 - 22275/7*x^7 - 9255/2*x^6 - 13943/5*x^5 + 883/4*x^4
+ 1338*x^3 + 810*x^2 + 216*x
```

3.1164 $\int (1-2x)(2+3x)^2(3+5x)^3\,dx$

Optimal. Leaf size=45

$$-\frac{18(5x+3)^7}{4375}+\frac{29(5x+3)^6}{1250}+\frac{64(5x+3)^5}{3125}+\frac{11(5x+3)^4}{2500}$$

```
[Out] (11*(3 + 5*x)^4)/2500 + (64*(3 + 5*x)^5)/3125 + (29*(3 + 5*x)^6)/
1250 - (18*(3 + 5*x)^7)/4375
```

Rubi [A] time = 0.0631541, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{18(5x+3)^7}{4375}+\frac{29(5x+3)^6}{1250}+\frac{64(5x+3)^5}{3125}+\frac{11(5x+3)^4}{2500}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)*(2 + 3*x)^2*(3 + 5*x)^3,x]
```

```
[Out] (11*(3 + 5*x)^4)/2500 + (64*(3 + 5*x)^5)/3125 + (29*(3 + 5*x)^6)/
1250 - (18*(3 + 5*x)^7)/4375
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{2250x^7}{7}-\frac{1975x^6}{2}-1061x^5-\frac{1111x^4}{4}+345x^3+108x+648\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(2+3*x)**2*(3+5*x)**3,x)
```

```
[Out] -2250*x**7/7 - 1975*x**6/2 - 1061*x**5 - 1111*x**4/4 + 345*x**3 +
 108*x + 648*Integral(x, x)
```

Mathematica [A] time = 0.00163991, size = 40, normalized size = 0.89

$$-\frac{2250x^7}{7}-\frac{1975x^6}{2}-1061x^5-\frac{1111x^4}{4}+345x^3+324x^2+108x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)*(2 + 3*x)^2*(3 + 5*x)^3,x]
```

```
[Out] 108*x + 324*x^2 + 345*x^3 - (1111*x^4)/4 - 1061*x^5 - (1975*x^6)/
2 - (2250*x^7)/7
```

Maple [A] time = 0.003, size = 35, normalized size = 0.8

$$-\frac{2250\,x^7}{7}-\frac{1975\,x^6}{2}-1061\,x^5-\frac{1111\,x^4}{4}+345\,x^3+324\,x^2+108\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(2+3*x)^2*(3+5*x)^3,x)
```

```
[Out] -2250/7*x^7-1975/2*x^6-1061*x^5-1111/4*x^4+345*x^3+324*x^2+108*x
```

Maxima [A] time = 1.34896, size = 46, normalized size = 1.02

$$-\frac{2250}{7}\,x^{7}-\frac{1975}{2}\,x^{6}-1061\,x^{5}-\frac{1111}{4}\,x^{4}+345\,x^{3}+324\,x^{2}+108\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^2*(2*x - 1),x, algorithm="maxima")
```

```
[Out] -2250/7*x^7 - 1975/2*x^6 - 1061*x^5 - 1111/4*x^4 + 345*x^3 + 324*
x^2 + 108*x
```

Fricas [A] time = 0.187085, size = 1, normalized size = 0.02

$$-\frac{2250}{7}x^{7}-\frac{1975}{2}x^{6}-1061x^{5}-\frac{1111}{4}x^{4}+345x^{3}+324x^{2}+108x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^2*(2*x - 1),x, algorithm="fricas")
```

```
[Out] -2250/7*x^7 - 1975/2*x^6 - 1061*x^5 - 1111/4*x^4 + 345*x^3 + 324*
x^2 + 108*x
```

Sympy [A] time = 0.084344, size = 37, normalized size = 0.82

$$-\frac{2250x^{7}}{7}-\frac{1975x^{6}}{2}-1061x^{5}-\frac{1111x^{4}}{4}+345x^{3}+324x^{2}+108x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)**2*(3+5*x)**3,x)
```

```
[Out] -2250*x**7/7 - 1975*x**6/2 - 1061*x**5 - 1111*x**4/4 + 345*x**3 +
 324*x**2 + 108*x
```

GIAC/XCAS [A] time = 0.208869, size = 46, normalized size = 1.02

$$-\frac{2250}{7}\,x^{7}-\frac{1975}{2}\,x^{6}-1061\,x^{5}-\frac{1111}{4}\,x^{4}+345\,x^{3}+324\,x^{2}+108\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^2*(2*x - 1),x, algorithm="giac")
```

```
[Out] -2250/7*x^7 - 1975/2*x^6 - 1061*x^5 - 1111/4*x^4 + 345*x^3 + 324*
x^2 + 108*x
```

3.1165 $\int(1-2x)(2+3x)(3+5x)^3\,dx$

Optimal. Leaf size=34

$$-\frac{1}{125}(5x+3)^6+\frac{31}{625}(5x+3)^5+\frac{11}{500}(5x+3)^4$$

```
[Out] (11*(3 + 5*x)^4)/500 + (31*(3 + 5*x)^5)/625 - (3 + 5*x)^6/125
```

Rubi [A] time = 0.0485321, antiderivative size = 34, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{1}{125}(5x+3)^6+\frac{31}{625}(5x+3)^5+\frac{11}{500}(5x+3)^4$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)*(2 + 3*x)*(3 + 5*x)^3,x]

[Out] (11*(3 + 5*x)^4)/500 + (31*(3 + 5*x)^5)/625 - (3 + 5*x)^6/125
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-125x^6-295x^5-\frac{785x^4}{4}+51x^3+54x+243\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(2+3*x)*(3+5*x)**3,x)

[Out] -125*x**6 - 295*x**5 - 785*x**4/4 + 51*x**3 + 54*x + 243*Integral
(x, x)
```

Mathematica [A] time = 0.00130457, size = 33, normalized size = 0.97

$$-125x^6-295x^5-\frac{785x^4}{4}+51x^3+\frac{243x^2}{2}+54x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)*(2 + 3*x)*(3 + 5*x)^3,x]

[Out] 54*x + (243*x^2)/2 + 51*x^3 - (785*x^4)/4 - 295*x^5 - 125*x^6
```

Maple [A] time = 0.001, size = 30, normalized size = 0.9

$$-125\,x^6-295\,x^5-\frac{785\,x^4}{4}+51\,x^3+\frac{243\,x^2}{2}+54\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(2+3*x)*(3+5*x)^3,x)

[Out] -125*x^6-295*x^5-785/4*x^4+51*x^3+243/2*x^2+54*x
```

Maxima [A] time = 1.32939, size = 39, normalized size = 1.15

$$-125\,x^{6} - 295\,x^{5} - \frac{785}{4}\,x^{4} + 51\,x^{3} + \frac{243}{2}\,x^{2} + 54\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)*(2*x - 1),x, algorithm="maxima")

[Out] -125*x^6 - 295*x^5 - 785/4*x^4 + 51*x^3 + 243/2*x^2 + 54*x
```

Fricas [A] time = 0.186001, size = 1, normalized size = 0.03

$$-125x^{6} - 295x^{5} - \frac{785}{4}x^{4} + 51x^{3} + \frac{243}{2}x^{2} + 54x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)*(2*x - 1),x, algorithm="fricas")

[Out] -125*x^6 - 295*x^5 - 785/4*x^4 + 51*x^3 + 243/2*x^2 + 54*x
```

Sympy [A] time = 0.08207, size = 31, normalized size = 0.91

$$-125x^{6} - 295x^{5} - \frac{785x^{4}}{4} + 51x^{3} + \frac{243x^{2}}{2} + 54x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)*(3+5*x)**3,x)

[Out] -125*x**6 - 295*x**5 - 785*x**4/4 + 51*x**3 + 243*x**2/2 + 54*x
```

GIAC/XCAS [A] time = 0.206557, size = 39, normalized size = 1.15

$$-125\,x^{6} - 295\,x^{5} - \frac{785}{4}\,x^{4} + 51\,x^{3} + \frac{243}{2}\,x^{2} + 54\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)*(2*x - 1),x, algorithm="giac")

[Out] -125*x^6 - 295*x^5 - 785/4*x^4 + 51*x^3 + 243/2*x^2 + 54*x
```

3.1166 $\int (1-2x)(3+5x)^3\,dx$

Optimal. Leaf size=23

$$\frac{11}{100}(5x+3)^4-\frac{2}{125}(5x+3)^5$$

```
[Out] (11*(3 + 5*x)^4)/100 - (2*(3 + 5*x)^5)/125
```

Rubi [A] time = 0.0190751, antiderivative size = 23, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 13, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.077

$$\frac{11}{100}(5x+3)^4-\frac{2}{125}(5x+3)^5$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)*(3 + 5*x)^3,x]
```

```
[Out] (11*(3 + 5*x)^4)/100 - (2*(3 + 5*x)^5)/125
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-50x^5-\frac{325x^4}{4}-15x^3+27x+81\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(3+5*x)**3,x)
```

```
[Out] -50*x**5 - 325*x**4/4 - 15*x**3 + 27*x + 81*Integral(x, x)
```

Mathematica [A] time = 0.00108122, size = 28, normalized size = 1.22

$$-50x^5-\frac{325x^4}{4}-15x^3+\frac{81x^2}{2}+27x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)*(3 + 5*x)^3,x]
```

```
[Out] 27*x + (81*x^2)/2 - 15*x^3 - (325*x^4)/4 - 50*x^5
```

Maple [A] time = 0.002, size = 25, normalized size = 1.1

$$-50\,x^5-\frac{325\,x^4}{4}-15\,x^3+\frac{81\,x^2}{2}+27\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(3+5*x)^3,x)
```

```
[Out] -50*x^5-325/4*x^4-15*x^3+81/2*x^2+27*x
```

Maxima [A] time = 1.33659, size = 32, normalized size = 1.39

$$-50\,x^5 - \frac{325}{4}\,x^4 - 15\,x^3 + \frac{81}{2}\,x^2 + 27\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1),x, algorithm="maxima")

[Out] -50*x^5 - 325/4*x^4 - 15*x^3 + 81/2*x^2 + 27*x
```

Fricas [A] time = 0.181778, size = 1, normalized size = 0.04

$$-50x^5 - \frac{325}{4}x^4 - 15x^3 + \frac{81}{2}x^2 + 27x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1),x, algorithm="fricas")

[Out] -50*x^5 - 325/4*x^4 - 15*x^3 + 81/2*x^2 + 27*x
```

Sympy [A] time = 0.075128, size = 26, normalized size = 1.13

$$-50x^5 - \frac{325x^4}{4} - 15x^3 + \frac{81x^2}{2} + 27x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(3+5*x)**3,x)

[Out] -50*x**5 - 325*x**4/4 - 15*x**3 + 81*x**2/2 + 27*x
```

GIAC/XCAS [A] time = 0.208966, size = 32, normalized size = 1.39

$$-50\,x^5 - \frac{325}{4}\,x^4 - 15\,x^3 + \frac{81}{2}\,x^2 + 27\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1),x, algorithm="giac")

[Out] -50*x^5 - 325/4*x^4 - 15*x^3 + 81/2*x^2 + 27*x
```

3.1167 $\int \frac{(1-2x)(3+5x)^3}{2+3x}\,dx$

Optimal. Leaf size=37

$$-\frac{125x^4}{6}-\frac{475x^3}{27}+\frac{545x^2}{54}+\frac{1097x}{81}-\frac{7}{243}\log(3x+2)$$

```
[Out] (1097*x)/81 + (545*x^2)/54 - (475*x^3)/27 - (125*x^4)/6 - (7*Log[
2 + 3*x])/243
```

Rubi [A] time = 0.0354103, antiderivative size = 37, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{125x^4}{6}-\frac{475x^3}{27}+\frac{545x^2}{54}+\frac{1097x}{81}-\frac{7}{243}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)*(3 + 5*x)^3)/(2 + 3*x),x]
```

```
[Out] (1097*x)/81 + (545*x^2)/54 - (475*x^3)/27 - (125*x^4)/6 - (7*Log[
2 + 3*x])/243
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{125x^4}{6}-\frac{475x^3}{27}-\frac{7\log(3x+2)}{243}+\int\frac{1097}{81}\,dx+\frac{545\int x\,dx}{27}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(3+5*x)**3/(2+3*x),x)
```

```
[Out] -125*x**4/6 - 475*x**3/27 - 7*log(3*x + 2)/243 + Integral(1097/81
, x) + 545*Integral(x, x)/27
```

Mathematica [A] time = 0.0178861, size = 32, normalized size = 0.86

$$\frac{-30375x^4-25650x^3+14715x^2+19746x-42\log(3x+2)+5024}{1458}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)*(3 + 5*x)^3)/(2 + 3*x),x]
```

```
[Out] (5024 + 19746*x + 14715*x^2 - 25650*x^3 - 30375*x^4 - 42*Log[2 +
3*x])/1458
```

Maple [A] time = 0.005, size = 28, normalized size = 0.8

$$\frac{1097\,x}{81}+\frac{545\,x^2}{54}-\frac{475\,x^3}{27}-\frac{125\,x^4}{6}-\frac{7\,\ln(2+3\,x)}{243}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(3+5*x)^3/(2+3*x),x)
```

```
[Out] 1097/81*x+545/54*x^2-475/27*x^3-125/6*x^4-7/243*ln(2+3*x)
```

Maxima [A] time = 1.32649, size = 36, normalized size = 0.97

$$-\frac{125}{6}x^4 - \frac{475}{27}x^3 + \frac{545}{54}x^2 + \frac{1097}{81}x - \frac{7}{243}\log(3x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)/(3*x + 2),x, algorithm="maxima")
```

```
[Out] -125/6*x^4 - 475/27*x^3 + 545/54*x^2 + 1097/81*x - 7/243*log(3*x
+ 2)
```

Fricas [A] time = 0.211039, size = 36, normalized size = 0.97

$$-\frac{125}{6}x^4 - \frac{475}{27}x^3 + \frac{545}{54}x^2 + \frac{1097}{81}x - \frac{7}{243}\log(3x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)/(3*x + 2),x, algorithm="fricas")
```

```
[Out] -125/6*x^4 - 475/27*x^3 + 545/54*x^2 + 1097/81*x - 7/243*log(3*x
+ 2)
```

Sympy [A] time = 0.166831, size = 34, normalized size = 0.92

$$-\frac{125x^4}{6} - \frac{475x^3}{27} + \frac{545x^2}{54} + \frac{1097x}{81} - \frac{7\log(3x+2)}{243}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(3+5*x)**3/(2+3*x),x)
```

```
[Out] -125*x**4/6 - 475*x**3/27 + 545*x**2/54 + 1097*x/81 - 7*log(3*x +
 2)/243
```

GIAC/XCAS [A] time = 0.207973, size = 38, normalized size = 1.03

$$-\frac{125}{6}x^4 - \frac{475}{27}x^3 + \frac{545}{54}x^2 + \frac{1097}{81}x - \frac{7}{243}\ln(|3x+2|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)/(3*x + 2),x, algorithm="giac")
```

```
[Out] -125/6*x^4 - 475/27*x^3 + 545/54*x^2 + 1097/81*x - 7/243*ln(abs(3
*x + 2))
```

3.1168 $\int \frac{(1-2x)(3+5x)^3}{(2+3x)^2}\,dx$

Optimal. Leaf size=41

$$-\frac{250x^3}{27}+\frac{25x^2}{54}+\frac{55x}{9}+\frac{7}{243(3x+2)}+\frac{107}{243}\log(3x+2)$$

```
[Out] (55*x)/9 + (25*x^2)/54 - (250*x^3)/27 + 7/(243*(2 + 3*x)) + (107*
Log[2 + 3*x])/243
```

Rubi [A] time = 0.0504428, antiderivative size = 41, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{250x^3}{27}+\frac{25x^2}{54}+\frac{55x}{9}+\frac{7}{243(3x+2)}+\frac{107}{243}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)*(3 + 5*x)^3)/(2 + 3*x)^2,x]
```

```
[Out] (55*x)/9 + (25*x^2)/54 - (250*x^3)/27 + 7/(243*(2 + 3*x)) + (107*
Log[2 + 3*x])/243
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{250x^3}{27}+\frac{107\log(3x+2)}{243}+\int\frac{55}{9}\,dx+\frac{25\int x\,dx}{27}+\frac{7}{243\,(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)*(3+5*x)**3/(2+3*x)**2,x)
```

```
[Out] -250*x**3/27 + 107*log(3*x + 2)/243 + Integral(55/9, x) + 25*Inte
gral(x, x)/27 + 7/(243*(3*x + 2))
```

Mathematica [A] time = 0.0174042, size = 44, normalized size = 1.07

$$\frac{-40500x^4-24975x^3+28080x^2+22740x+642(3x+2)\log(3x+2)+3322}{1458(3x+2)}$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)*(3 + 5*x)^3)/(2 + 3*x)^2,x]
```

```
[Out] (3322 + 22740*x + 28080*x^2 - 24975*x^3 - 40500*x^4 + 642*(2 + 3*
x)*Log[2 + 3*x])/(1458*(2 + 3*x))
```

Maple [A] time = 0.009, size = 32, normalized size = 0.8

$$\frac{55\,x}{9}+\frac{25\,x^2}{54}-\frac{250\,x^3}{27}+\frac{7}{486+729\,x}+\frac{107\,\ln(2+3\,x)}{243}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(3+5*x)^3/(2+3*x)^2,x)
```

```
[Out] 55/9*x+25/54*x^2-250/27*x^3+7/243/(2+3*x)+107/243*ln(2+3*x)
```

Maxima [A] time = 1.332, size = 42, normalized size = 1.02

$$-\frac{250}{27}\,x^3+\frac{25}{54}\,x^2+\frac{55}{9}\,x+\frac{7}{243\,(3\,x+2)}+\frac{107}{243}\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)/(3*x + 2)^2,x, algorithm="maxima")
```

```
[Out] -250/27*x^3 + 25/54*x^2 + 55/9*x + 7/243/(3*x + 2) + 107/243*log(
3*x + 2)
```

Fricas [A] time = 0.223499, size = 57, normalized size = 1.39

$$-\frac{13500\,x^4+8325\,x^3-9360\,x^2-214\,(3\,x+2)\log\left(3\,x+2\right)-5940\,x-14}{486\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)/(3*x + 2)^2,x, algorithm="fricas")
```

```
[Out] -1/486*(13500*x^4 + 8325*x^3 - 9360*x^2 - 214*(3*x + 2)*log(3*x +
 2) - 5940*x - 14)/(3*x + 2)
```

Sympy [A] time = 0.211819, size = 34, normalized size = 0.83

$$-\frac{250x^3}{27}+\frac{25x^2}{54}+\frac{55x}{9}+\frac{107\log\left(3x+2\right)}{243}+\frac{7}{729x+486}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(3+5*x)**3/(2+3*x)**2,x)
```

```
[Out] -250*x**3/27 + 25*x**2/54 + 55*x/9 + 107*log(3*x + 2)/243 + 7/(72
9*x + 486)
```

GIAC/XCAS [A] time = 0.210169, size = 77, normalized size = 1.88

$$\frac{5}{1458}\,(3\,x+2)^3\left(\frac{615}{3\,x+2}-\frac{666}{(3\,x+2)^2}-100\right)+\frac{7}{243\,(3\,x+2)}-\frac{107}{243}\ln\left(\frac{|3\,x+2|}{3\,(3\,x+2)^2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)/(3*x + 2)^2,x, algorithm="giac")
```

```
[Out] 5/1458*(3*x + 2)^3*(615/(3*x + 2) - 666/(3*x + 2)^2 - 100) + 7/24
3/(3*x + 2) - 107/243*ln(1/3*abs(3*x + 2)/(3*x + 2)^2)
```

3.1169 $\int \frac{(1-2x)(3+5x)^3}{(2+3x)^3}\,dx$

Optimal. Leaf size=45

$$-\frac{125x^2}{27}+\frac{175x}{27}-\frac{107}{243(3x+2)}+\frac{7}{486(3x+2)^2}-\frac{185}{81}\log(3x+2)$$

```
[Out] (175*x)/27 - (125*x^2)/27 + 7/(486*(2 + 3*x)^2) - 107/(243*(2 + 3
*x)) - (185*Log[2 + 3*x])/81
```

Rubi [A] time = 0.0573576, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{125x^2}{27}+\frac{175x}{27}-\frac{107}{243(3x+2)}+\frac{7}{486(3x+2)^2}-\frac{185}{81}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)*(3 + 5*x)^3)/(2 + 3*x)^3,x]
```

```
[Out] (175*x)/27 - (125*x^2)/27 + 7/(486*(2 + 3*x)^2) - 107/(243*(2 + 3
*x)) - (185*Log[2 + 3*x])/81
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{185\log(3x+2)}{81}+\int\frac{175}{27}\,dx-\frac{250\int x\,dx}{27}-\frac{107}{243\,(3x+2)}+\frac{7}{486\,(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(3+5*x)**3/(2+3*x)**3,x)
```

```
[Out] -185*log(3*x + 2)/81 + Integral(175/27, x) - 250*Integral(x, x)/2
7 - 107/(243*(3*x + 2)) + 7/(486*(3*x + 2)**2)
```

Mathematica [A] time = 0.0195324, size = 46, normalized size = 1.02

$$\frac{-6750x^4+450x^3+18900x^2+16386x-370(3x+2)^2\log(3x+2)+3993}{162(3x+2)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)*(3 + 5*x)^3)/(2 + 3*x)^3,x]
```

```
[Out] (3993 + 16386*x + 18900*x^2 + 450*x^3 - 6750*x^4 - 370*(2 + 3*x)^
2*Log[2 + 3*x])/(162*(2 + 3*x)^2)
```

Maple [A] time = 0.01, size = 36, normalized size = 0.8

$$\frac{175\,x}{27}-\frac{125\,x^2}{27}+\frac{7}{486\,(2+3\,x)^2}-\frac{107}{486+729\,x}-\frac{185\,\ln(2+3\,x)}{81}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(3+5*x)^3/(2+3*x)^3,x)
```

```
[Out] 175/27*x-125/27*x^2+7/486/(2+3*x)^2-107/243/(2+3*x)-185/81*ln(2+3
*x)
```

Maxima [A] time = 1.34401, size = 49, normalized size = 1.09

$$-\frac{125}{27}\,x^2+\frac{175}{27}\,x-\frac{642\,x+421}{486\,(9\,x^2+12\,x+4)}-\frac{185}{81}\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)/(3*x + 2)^3,x, algorithm="maxima")
```

```
[Out] -125/27*x^2 + 175/27*x - 1/486*(642*x + 421)/(9*x^2 + 12*x + 4) -
 185/81*log(3*x + 2)
```

Fricas [A] time = 0.217323, size = 70, normalized size = 1.56

$$-\frac{20250\,x^4-1350\,x^3-28800\,x^2+1110\,\left(9\,x^2+12\,x+4\right)\,\log\left(3\,x+2\right)-11958\,x+421}{486\,(9\,x^2+12\,x+4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)/(3*x + 2)^3,x, algorithm="fricas")
```

```
[Out] -1/486*(20250*x^4 - 1350*x^3 - 28800*x^2 + 1110*(9*x^2 + 12*x + 4
)*log(3*x + 2) - 11958*x + 421)/(9*x^2 + 12*x + 4)
```

Sympy [A] time = 0.273801, size = 36, normalized size = 0.8

$$-\frac{125x^2}{27}+\frac{175x}{27}-\frac{642x+421}{4374x^2+5832x+1944}-\frac{185\log\left(3x+2\right)}{81}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(3+5*x)**3/(2+3*x)**3,x)
```

```
[Out] -125*x**2/27 + 175*x/27 - (642*x + 421)/(4374*x**2 + 5832*x + 194
4) - 185*log(3*x + 2)/81
```

GIAC/XCAS [A] time = 0.21225, size = 43, normalized size = 0.96

$$-\frac{125}{27}\,x^2+\frac{175}{27}\,x-\frac{642\,x+421}{486\,(3\,x+2)^2}-\frac{185}{81}\,\ln\left(|3\,x+2|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)/(3*x + 2)^3,x, algorithm="giac")
```

```
[Out] -125/27*x^2 + 175/27*x - 1/486*(642*x + 421)/(3*x + 2)^2 - 185/81
*ln(abs(3*x + 2))
```

3.1170 $\int \frac{(1-2x)(3+5x)^3}{(2+3x)^4}\,dx$

Optimal. Leaf size=49

$$-\frac{250x}{81}+\frac{185}{81(3x+2)}-\frac{107}{486(3x+2)^2}+\frac{7}{729(3x+2)^3}+\frac{1025}{243}\log(3x+2)$$

```
[Out] (-250*x)/81 + 7/(729*(2 + 3*x)^3) - 107/(486*(2 + 3*x)^2) + 185/(
81*(2 + 3*x)) + (1025*Log[2 + 3*x])/243
```

Rubi [A] time = 0.0567237, antiderivative size = 49, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{250x}{81}+\frac{185}{81(3x+2)}-\frac{107}{486(3x+2)^2}+\frac{7}{729(3x+2)^3}+\frac{1025}{243}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)*(3 + 5*x)^3)/(2 + 3*x)^4,x]
```

```
[Out] (-250*x)/81 + 7/(729*(2 + 3*x)^3) - 107/(486*(2 + 3*x)^2) + 185/(
81*(2 + 3*x)) + (1025*Log[2 + 3*x])/243
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{1025\log(3x+2)}{243}+\int\left(-\frac{250}{81}\right)dx+\frac{185}{81(3x+2)}-\frac{107}{486(3x+2)^2}+\frac{7}{729(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(3+5*x)**3/(2+3*x)**4,x)
```

```
[Out] 1025*log(3*x + 2)/243 + Integral(-250/81, x) + 185/(81*(3*x + 2))
 - 107/(486*(3*x + 2)**2) + 7/(729*(3*x + 2)**3)
```

Mathematica [A] time = 0.030672, size = 47, normalized size = 0.96

$$\frac{-1500(3x+2)+\frac{3330}{3x+2}-\frac{321}{(3x+2)^2}+\frac{14}{(3x+2)^3}+6150\log(3x+2)}{1458}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)*(3 + 5*x)^3)/(2 + 3*x)^4,x]
```

```
[Out] (14/(2 + 3*x)^3 - 321/(2 + 3*x)^2 + 3330/(2 + 3*x) - 1500*(2 + 3*
x) + 6150*Log[2 + 3*x])/1458
```

Maple [A] time = 0.008, size = 40, normalized size = 0.8

$$-\frac{250\,x}{81}+\frac{7}{729\,(2+3\,x)^3}-\frac{107}{486\,(2+3\,x)^2}+\frac{185}{162+243\,x}+\frac{1025\,\ln(2+3\,x)}{243}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(3+5*x)^3/(2+3*x)^4,x)
```

```
[Out] -250/81*x+7/729/(2+3*x)^3-107/486/(2+3*x)^2+185/81/(2+3*x)+1025/2
43*ln(2+3*x)
```

Maxima [A] time = 1.3379, size = 55, normalized size = 1.12

$$-\frac{250}{81}\,x+\frac{29970\,x^2+38997\,x+12692}{1458\,(27\,x^3+54\,x^2+36\,x+8)}+\frac{1025}{243}\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)/(3*x + 2)^4,x, algorithm="maxima")
```

```
[Out] -250/81*x + 1/1458*(29970*x^2 + 38997*x + 12692)/(27*x^3 + 54*x^2
 + 36*x + 8) + 1025/243*log(3*x + 2)
```

Fricas [A] time = 0.212145, size = 84, normalized size = 1.71

$$-\frac{121500\,x^4+243000\,x^3+132030\,x^2-6150\,\left(27\,x^3+54\,x^2+36\,x+8\right)\,\log\left(3\,x+2\right)-2997\,x-12692}{1458\,(27\,x^3+54\,x^2+36\,x+8)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)/(3*x + 2)^4,x, algorithm="fricas")
```

```
[Out] -1/1458*(121500*x^4 + 243000*x^3 + 132030*x^2 - 6150*(27*x^3 + 54
*x^2 + 36*x + 8)*log(3*x + 2) - 2997*x - 12692)/(27*x^3 + 54*x^2
+ 36*x + 8)
```

Sympy [A] time = 0.316763, size = 39, normalized size = 0.8

$$-\frac{250x}{81}+\frac{29970x^2+38997x+12692}{39366x^3+78732x^2+52488x+11664}+\frac{1025\log\left(3x+2\right)}{243}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(3+5*x)**3/(2+3*x)**4,x)
```

```
[Out] -250*x/81 + (29970*x**2 + 38997*x + 12692)/(39366*x**3 + 78732*x*
*2 + 52488*x + 11664) + 1025*log(3*x + 2)/243
```

GIAC/XCAS [A] time = 0.213336, size = 43, normalized size = 0.88

$$-\frac{250}{81}\,x+\frac{29970\,x^2+38997\,x+12692}{1458\,(3\,x+2)^3}+\frac{1025}{243}\,\ln\left(|3\,x+2|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)/(3*x + 2)^4,x, algorithm="giac")
```

```
[Out] -250/81*x + 1/1458*(29970*x^2 + 38997*x + 12692)/(3*x + 2)^3 + 10
25/243*ln(abs(3*x + 2))
```

3.1171 $\int \frac{(1-2x)(3+5x)^3}{(2+3x)^5} dx$

Optimal. Leaf size=55

$$-\frac{1025}{243(3x+2)}+\frac{185}{162(3x+2)^2}-\frac{107}{729(3x+2)^3}+\frac{7}{972(3x+2)^4}-\frac{250}{243}\log(3x+2)$$

```
[Out] 7/(972*(2 + 3*x)^4) - 107/(729*(2 + 3*x)^3) + 185/(162*(2 + 3*x)^
2) - 1025/(243*(2 + 3*x)) - (250*Log[2 + 3*x])/243
```

Rubi [A] time = 0.0533988, antiderivative size = 55, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{1025}{243(3x+2)}+\frac{185}{162(3x+2)^2}-\frac{107}{729(3x+2)^3}+\frac{7}{972(3x+2)^4}-\frac{250}{243}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)*(3 + 5*x)^3)/(2 + 3*x)^5,x]
```

```
[Out] 7/(972*(2 + 3*x)^4) - 107/(729*(2 + 3*x)^3) + 185/(162*(2 + 3*x)^
2) - 1025/(243*(2 + 3*x)) - (250*Log[2 + 3*x])/243
```

Rubi in Sympy [A] time = 8.93337, size = 46, normalized size = 0.84

$$-\frac{250\log(3x+2)}{243}-\frac{1025}{243(3x+2)}+\frac{185}{162(3x+2)^2}-\frac{107}{729(3x+2)^3}+\frac{7}{972(3x+2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(3+5*x)**3/(2+3*x)**5,x)
```

```
[Out] -250*log(3*x + 2)/243 - 1025/(243*(3*x + 2)) + 185/(162*(3*x + 2)
**2) - 107/(729*(3*x + 2)**3) + 7/(972*(3*x + 2)**4)
```

Mathematica [A] time = 0.0229911, size = 41, normalized size = 0.75

$$-\frac{332100x^3+634230x^2+404124x+3000(3x+2)^4\log(3x+2)+85915}{2916(3x+2)^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)*(3 + 5*x)^3)/(2 + 3*x)^5,x]
```

```
[Out] -(85915 + 404124*x + 634230*x^2 + 332100*x^3 + 3000*(2 + 3*x)^4*L
og[2 + 3*x])/(2916*(2 + 3*x)^4)
```

Maple [A] time = 0.01, size = 46, normalized size = 0.8

$$\frac{7}{972(2+3x)^4}-\frac{107}{729(2+3x)^3}+\frac{185}{162(2+3x)^2}-\frac{1025}{486+729x}-\frac{250\ln(2+3x)}{243}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(3+5*x)^3/(2+3*x)^5,x)
```

```
[Out] 7/972/(2+3*x)^4-107/729/(2+3*x)^3+185/162/(2+3*x)^2-1025/243/(2+3
*x)-250/243*ln(2+3*x)
```

Maxima [A] time = 1.33662, size = 65, normalized size = 1.18

$$-\frac{332100\,x^3 + 634230\,x^2 + 404124\,x + 85915}{2916\,(81\,x^4 + 216\,x^3 + 216\,x^2 + 96\,x + 16)} - \frac{250}{243}\,\log\left(3\,x + 2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)/(3*x + 2)^5,x, algorithm="maxima")
```

```
[Out] -1/2916*(332100*x^3 + 634230*x^2 + 404124*x + 85915)/(81*x^4 + 21
6*x^3 + 216*x^2 + 96*x + 16) - 250/243*log(3*x + 2)
```

Fricas [A] time = 0.213437, size = 90, normalized size = 1.64

$$-\frac{332100\,x^3 + 634230\,x^2 + 3000\,\left(81\,x^4 + 216\,x^3 + 216\,x^2 + 96\,x + 16\right)\log\left(3\,x + 2\right) + 404124\,x + 85915}{2916\,(81\,x^4 + 216\,x^3 + 216\,x^2 + 96\,x + 16)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)/(3*x + 2)^5,x, algorithm="fricas")
```

```
[Out] -1/2916*(332100*x^3 + 634230*x^2 + 3000*(81*x^4 + 216*x^3 + 216*x
^2 + 96*x + 16)*log(3*x + 2) + 404124*x + 85915)/(81*x^4 + 216*x^
3 + 216*x^2 + 96*x + 16)
```

Sympy [A] time = 0.364507, size = 46, normalized size = 0.84

$$-\frac{332100x^3 + 634230x^2 + 404124x + 85915}{236196x^4 + 629856x^3 + 629856x^2 + 279936x + 46656} - \frac{250\log\left(3x + 2\right)}{243}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(3+5*x)**3/(2+3*x)**5,x)
```

```
[Out] -(332100*x**3 + 634230*x**2 + 404124*x + 85915)/(236196*x**4 + 62
9856*x**3 + 629856*x**2 + 279936*x + 46656) - 250*log(3*x + 2)/24
3
```

GIAC/XCAS [A] time = 0.207533, size = 74, normalized size = 1.35

$$-\frac{1025}{243\,(3\,x + 2)} + \frac{185}{162\,(3\,x + 2)^2} - \frac{107}{729\,(3\,x + 2)^3} + \frac{7}{972\,(3\,x + 2)^4} + \frac{250}{243}\,\ln\left(\frac{|3\,x + 2|}{3\,(3\,x + 2)^2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)/(3*x + 2)^5,x, algorithm="giac")
```

```
[Out] -1025/243/(3*x + 2) + 185/162/(3*x + 2)^2 - 107/729/(3*x + 2)^3 +
 7/972/(3*x + 2)^4 + 250/243*ln(1/3*abs(3*x + 2)/(3*x + 2)^2)
```

3.1172 $\int \frac{(1-2x)(3+5x)^3}{(2+3x)^6} dx$

Optimal. Leaf size=37

$$\frac{5(5x+3)^4}{12(3x+2)^4}+\frac{7(5x+3)^4}{15(3x+2)^5}$$

```
[Out] (7*(3 + 5*x)^4)/(15*(2 + 3*x)^5) + (5*(3 + 5*x)^4)/(12*(2 + 3*x)^
4)
```

Rubi [A] time = 0.036063, antiderivative size = 37, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.1$

$$\frac{5(5x+3)^4}{12(3x+2)^4}+\frac{7(5x+3)^4}{15(3x+2)^5}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)*(3 + 5*x)^3)/(2 + 3*x)^6,x]
```

```
[Out] (7*(3 + 5*x)^4)/(15*(2 + 3*x)^5) + (5*(3 + 5*x)^4)/(12*(2 + 3*x)^
4)
```

Rubi in Sympy [A] time = 5.35374, size = 32, normalized size = 0.86

$$\frac{5\,(5x+3)^4}{12\,(3x+2)^4}+\frac{7\,(5x+3)^4}{15\,(3x+2)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(3+5*x)**3/(2+3*x)**6,x)
```

```
[Out] 5*(5*x + 3)**4/(12*(3*x + 2)**4) + 7*(5*x + 3)**4/(15*(3*x + 2)**
5)
```

Mathematica [A] time = 0.0157371, size = 31, normalized size = 0.84

$$\frac{405000x^4+803250x^3+559800x^2+153795x+11758}{4860(3x+2)^5}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)*(3 + 5*x)^3)/(2 + 3*x)^6,x]
```

```
[Out] (11758 + 153795*x + 559800*x^2 + 803250*x^3 + 405000*x^4)/(4860*(
2 + 3*x)^5)
```

Maple [A] time = 0.009, size = 47, normalized size = 1.3

$$\frac{7}{1215\,(2+3\,x)^5}+\frac{250}{486+729\,x}+\frac{185}{243\,(2+3\,x)^3}-\frac{107}{972\,(2+3\,x)^4}-\frac{1025}{486\,(2+3\,x)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(3+5*x)^3/(2+3*x)^6,x)
```

```
[Out] 7/1215/(2+3*x)^5+250/243/(2+3*x)+185/243/(2+3*x)^3-107/972/(2+3*x
)^4-1025/486/(2+3*x)^2
```

Maxima [A] time = 1.35347, size = 66, normalized size = 1.78

$$\frac{405000\,x^4+803250\,x^3+559800\,x^2+153795\,x+11758}{4860\,(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240\,x+32)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)/(3*x + 2)^6,x, algorithm="maxima")
```

```
[Out] 1/4860*(405000*x^4 + 803250*x^3 + 559800*x^2 + 153795*x + 11758)/
(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)
```

Fricas [A] time = 0.208874, size = 66, normalized size = 1.78

$$\frac{405000\,x^4+803250\,x^3+559800\,x^2+153795\,x+11758}{4860\,(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240\,x+32)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)/(3*x + 2)^6,x, algorithm="fricas")
```

```
[Out] 1/4860*(405000*x^4 + 803250*x^3 + 559800*x^2 + 153795*x + 11758)/
(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)
```

Sympy [A] time = 0.412406, size = 44, normalized size = 1.19

$$\frac{405000x^4+803250x^3+559800x^2+153795x+11758}{1180980x^5+3936600x^4+5248800x^3+3499200x^2+1166400x+155520}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(3+5*x)**3/(2+3*x)**6,x)
```

```
[Out] (405000*x**4 + 803250*x**3 + 559800*x**2 + 153795*x + 11758)/(118
0980*x**5 + 3936600*x**4 + 5248800*x**3 + 3499200*x**2 + 1166400*
x + 155520)
```

GIAC/XCAS [A] time = 0.208729, size = 39, normalized size = 1.05

$$\frac{405000\,x^4+803250\,x^3+559800\,x^2+153795\,x+11758}{4860\,(3\,x+2)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)/(3*x + 2)^6,x, algorithm="giac")
```

```
[Out] 1/4860*(405000*x^4 + 803250*x^3 + 559800*x^2 + 153795*x + 11758)/
(3*x + 2)^5
```

3.1173 $\int \frac{(1-2x)(3+5x)^3}{(2+3x)^7} dx$

Optimal. Leaf size=55

$$\frac{29(5x+3)^4}{36(3x+2)^4}+\frac{29(5x+3)^4}{45(3x+2)^5}+\frac{7(5x+3)^4}{18(3x+2)^6}$$

```
[Out] (7*(3 + 5*x)^4)/(18*(2 + 3*x)^6) + (29*(3 + 5*x)^4)/(45*(2 + 3*x)
^5) + (29*(3 + 5*x)^4)/(36*(2 + 3*x)^4)
```

Rubi [A] time = 0.0506789, antiderivative size = 55, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.15$

$$\frac{29(5x+3)^4}{36(3x+2)^4}+\frac{29(5x+3)^4}{45(3x+2)^5}+\frac{7(5x+3)^4}{18(3x+2)^6}$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)*(3 + 5*x)^3)/(2 + 3*x)^7,x]
```

```
[Out] (7*(3 + 5*x)^4)/(18*(2 + 3*x)^6) + (29*(3 + 5*x)^4)/(45*(2 + 3*x)
^5) + (29*(3 + 5*x)^4)/(36*(2 + 3*x)^4)
```

Rubi in Sympy [A] time = 7.00212, size = 49, normalized size = 0.89

$$\frac{29\,(5x+3)^4}{36\,(3x+2)^4}+\frac{29\,(5x+3)^4}{45\,(3x+2)^5}+\frac{7\,(5x+3)^4}{18\,(3x+2)^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)*(3+5*x)**3/(2+3*x)**7,x)
```

```
[Out] 29*(5*x + 3)**4/(36*(3*x + 2)**4) + 29*(5*x + 3)**4/(45*(3*x + 2)
**5) + 7*(5*x + 3)**4/(18*(3*x + 2)**6)
```

Mathematica [A] time = 0.0155989, size = 31, normalized size = 0.56

$$\frac{607500x^4+1066500x^3+587925x^2+78048x-13198}{14580(3x+2)^6}$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)*(3 + 5*x)^3)/(2 + 3*x)^7,x]
```

```
[Out] (-13198 + 78048*x + 587925*x^2 + 1066500*x^3 + 607500*x^4)/(14580
*(2 + 3*x)^6)
```

Maple [A] time = 0.007, size = 47, normalized size = 0.9

$$-\frac{107}{1215\,(2+3\,x)^5}-\frac{1025}{729\,(2+3\,x)^3}+\frac{185}{324\,(2+3\,x)^4}+\frac{125}{243\,(2+3\,x)^2}+\frac{7}{1458\,(2+3\,x)^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(3+5*x)^3/(2+3*x)^7,x)
```

```
[Out] -107/1215/(2+3*x)^5-1025/729/(2+3*x)^3+185/324/(2+3*x)^4+125/243/
(2+3*x)^2+7/1458/(2+3*x)^6
```

Maxima [A] time = 1.33113, size = 73, normalized size = 1.33

$$\frac{607500\,x^4 + 1066500\,x^3 + 587925\,x^2 + 78048\,x - 13198}{14580\,(729\,x^6 + 2916\,x^5 + 4860\,x^4 + 4320\,x^3 + 2160\,x^2 + 576\,x + 64)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)/(3*x + 2)^7,x, algorithm="maxima")
```

```
[Out] 1/14580*(607500*x^4 + 1066500*x^3 + 587925*x^2 + 78048*x - 13198)
/(729*x^6 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 6
4)
```

Fricas [A] time = 0.211373, size = 73, normalized size = 1.33

$$\frac{607500\,x^4 + 1066500\,x^3 + 587925\,x^2 + 78048\,x - 13198}{14580\,(729\,x^6 + 2916\,x^5 + 4860\,x^4 + 4320\,x^3 + 2160\,x^2 + 576\,x + 64)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)/(3*x + 2)^7,x, algorithm="fricas")
```

```
[Out] 1/14580*(607500*x^4 + 1066500*x^3 + 587925*x^2 + 78048*x - 13198)
/(729*x^6 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 6
4)
```

Sympy [A] time = 0.430724, size = 49, normalized size = 0.89

$$\frac{607500x^4 + 1066500x^3 + 587925x^2 + 78048x - 13198}{10628820x^6 + 42515280x^5 + 70858800x^4 + 62985600x^3 + 31492800x^2 + 8398080x + 933120}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(3+5*x)**3/(2+3*x)**7,x)
```

```
[Out] (607500*x**4 + 1066500*x**3 + 587925*x**2 + 78048*x - 13198)/(106
28820*x**6 + 42515280*x**5 + 70858800*x**4 + 62985600*x**3 + 3149
2800*x**2 + 8398080*x + 933120)
```

GIAC/XCAS [A] time = 0.206324, size = 39, normalized size = 0.71

$$\frac{607500\,x^4 + 1066500\,x^3 + 587925\,x^2 + 78048\,x - 13198}{14580\,(3\,x + 2)^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)/(3*x + 2)^7,x, algorithm="giac")
```

```
[Out] 1/14580*(607500*x^4 + 1066500*x^3 + 587925*x^2 + 78048*x - 13198)
/(3*x + 2)^6
```

3.1174 $\int \frac{(1-2x)(3+5x)^3}{(2+3x)^8} dx$

Optimal. Leaf size=56

$$\frac{250}{729(3x+2)^3}-\frac{1025}{972(3x+2)^4}+\frac{37}{81(3x+2)^5}-\frac{107}{1458(3x+2)^6}+\frac{1}{243(3x+2)^7}$$

```
[Out] 1/(243*(2 + 3*x)^7) - 107/(1458*(2 + 3*x)^6) + 37/(81*(2 + 3*x)^5
) - 1025/(972*(2 + 3*x)^4) + 250/(729*(2 + 3*x)^3)
```

Rubi [A] time = 0.0583572, antiderivative size = 56, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{250}{729(3x+2)^3}-\frac{1025}{972(3x+2)^4}+\frac{37}{81(3x+2)^5}-\frac{107}{1458(3x+2)^6}+\frac{1}{243(3x+2)^7}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)*(3 + 5*x)^3)/(2 + 3*x)^8,x]
```

```
[Out] 1/(243*(2 + 3*x)^7) - 107/(1458*(2 + 3*x)^6) + 37/(81*(2 + 3*x)^5
) - 1025/(972*(2 + 3*x)^4) + 250/(729*(2 + 3*x)^3)
```

Rubi in Sympy [A] time = 9.63617, size = 49, normalized size = 0.88

$$\frac{250}{729\,(3x+2)^3}-\frac{1025}{972\,(3x+2)^4}+\frac{37}{81\,(3x+2)^5}-\frac{107}{1458\,(3x+2)^6}+\frac{1}{243\,(3x+2)^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(3+5*x)**3/(2+3*x)**8,x)
```

```
[Out] 250/(729*(3*x + 2)**3) - 1025/(972*(3*x + 2)**4) + 37/(81*(3*x +
2)**5) - 107/(1458*(3*x + 2)**6) + 1/(243*(3*x + 2)**7)
```

Mathematica [A] time = 0.01498, size = 31, normalized size = 0.55

$$\frac{81000x^4+132975x^3+61938x^2+642x-3688}{2916(3x+2)^7}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)*(3 + 5*x)^3)/(2 + 3*x)^8,x]
```

```
[Out] (-3688 + 642*x + 61938*x^2 + 132975*x^3 + 81000*x^4)/(2916*(2 + 3
*x)^7)
```

Maple [A] time = 0.009, size = 47, normalized size = 0.8

$$\frac{1}{243\,(2+3\,x)^7}-\frac{107}{1458\,(2+3\,x)^6}+\frac{37}{81\,(2+3\,x)^5}-\frac{1025}{972\,(2+3\,x)^4}+\frac{250}{729\,(2+3\,x)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(3+5*x)^3/(2+3*x)^8,x)
```

```
[Out] 1/243/(2+3*x)^7-107/1458/(2+3*x)^6+37/81/(2+3*x)^5-1025/972/(2+3*
x)^4+250/729/(2+3*x)^3
```

Maxima [A] time = 1.33748, size = 80, normalized size = 1.43

$$\frac{81000\,x^4+132975\,x^3+61938\,x^2+642\,x-3688}{2916\,(2187\,x^7+10206\,x^6+20412\,x^5+22680\,x^4+15120\,x^3+6048\,x^2+1344\,x+128)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)/(3*x + 2)^8,x, algorithm="maxima")
```

```
[Out] 1/2916*(81000*x^4 + 132975*x^3 + 61938*x^2 + 642*x - 3688)/(2187*
x^7 + 10206*x^6 + 20412*x^5 + 22680*x^4 + 15120*x^3 + 6048*x^2 +
1344*x + 128)
```

Fricas [A] time = 0.203039, size = 80, normalized size = 1.43

$$\frac{81000\,x^4+132975\,x^3+61938\,x^2+642\,x-3688}{2916\,(2187\,x^7+10206\,x^6+20412\,x^5+22680\,x^4+15120\,x^3+6048\,x^2+1344\,x+128)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)/(3*x + 2)^8,x, algorithm="fricas")
```

```
[Out] 1/2916*(81000*x^4 + 132975*x^3 + 61938*x^2 + 642*x - 3688)/(2187*
x^7 + 10206*x^6 + 20412*x^5 + 22680*x^4 + 15120*x^3 + 6048*x^2 +
1344*x + 128)
```

Sympy [A] time = 0.487225, size = 54, normalized size = 0.96

$$\frac{81000x^4+132975x^3+61938x^2+642x-3688}{6377292x^7+29760696x^6+59521392x^5+66134880x^4+44089920x^3+17635968x^2+3919104x+373248}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(3+5*x)**3/(2+3*x)**8,x)
```

```
[Out] (81000*x**4 + 132975*x**3 + 61938*x**2 + 642*x - 3688)/(6377292*x
**7 + 29760696*x**6 + 59521392*x**5 + 66134880*x**4 + 44089920*x*
*3 + 17635968*x**2 + 3919104*x + 373248)
```

GIAC/XCAS [A] time = 0.209008, size = 39, normalized size = 0.7

$$\frac{81000\,x^4+132975\,x^3+61938\,x^2+642\,x-3688}{2916\,(3\,x+2)^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)/(3*x + 2)^8,x, algorithm="giac")
```

```
[Out] 1/2916*(81000*x^4 + 132975*x^3 + 61938*x^2 + 642*x - 3688)/(3*x +
 2)^7
```

3.1175 $\int (5-2x)^6(2+3x)^3(-16+33x)\,dx$

Optimal. Leaf size=18

$$-\frac{1}{2}(5-2x)^7(3x+2)^4$$

```
[Out] -((5 - 2*x)^7*(2 + 3*x)^4)/2
```

Rubi [A] time = 0.0195954, antiderivative size = 18, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{1}{2}(5-2x)^7(3x+2)^4$$

Antiderivative was successfully verified.

```
[In] Int[(5 - 2*x)^6*(2 + 3*x)^3*(-16 + 33*x),x]
```

```
[Out] -((5 - 2*x)^7*(2 + 3*x)^4)/2
```

Rubi in Sympy [A] time = 4.39097, size = 15, normalized size = 0.83

$$-\frac{(-2x+5)^7\,(3x+2)^4}{2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((5-2*x)**6*(2+3*x)**3*(-16+33*x),x)
```

```
[Out] -(-2*x + 5)**7*(3*x + 2)**4/2
```

Mathematica [B] time = 0.00451496, size = 56, normalized size = 3.11

$$5184x^{11}-76896x^{10}+452304x^9-1256376x^8+1235404x^7+1497230x^6-3816225x^5-\frac{98125x^4}{2}+3987500x^3-37500x^2-2000000x$$

Antiderivative was successfully verified.

```
[In] Integrate[(5 - 2*x)^6*(2 + 3*x)^3*(-16 + 33*x),x]
```

```
[Out] -2000000*x - 37500*x^2 + 3987500*x^3 - (98125*x^4)/2 - 3816225*x^
5 + 1497230*x^6 + 1235404*x^7 - 1256376*x^8 + 452304*x^9 - 76896*
x^10 + 5184*x^11
```

Maple [B] time = 0.001, size = 55, normalized size = 3.1

$$5184\,x^{11}-76896\,x^{10}+452304\,x^9-1256376\,x^8+1235404\,x^7+1497230\,x^6-3816225\,x^5-\frac{98125\,x^4}{2}+3987500\,x^3-37500\,x^2-2000000\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((5-2*x)^6*(2+3*x)^3*(-16+33*x),x)
```

```
[Out] 5184*x^11-76896*x^10+452304*x^9-1256376*x^8+1235404*x^7+1497230*x
^6-3816225*x^5-98125/2*x^4+3987500*x^3-37500*x^2-2000000*x
```

Maxima [A] time = 1.33495, size = 73, normalized size = 4.06

$$5184\,x^{11}-76896\,x^{10}+452304\,x^{9}-1256376\,x^{8}+1235404\,x^{7}+1497230\,x^{6}-3816225\,x^{5}-\frac{98125}{2}\,x^{4}+3987500\,x^{3}-37500\,x^{2}-2000000\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((33*x - 16)*(3*x + 2)^3*(2*x - 5)^6,x, algorithm="maxima")
```

```
[Out] 5184*x^11 - 76896*x^10 + 452304*x^9 - 1256376*x^8 + 1235404*x^7 +
 1497230*x^6 - 3816225*x^5 - 98125/2*x^4 + 3987500*x^3 - 37500*x^
2 - 2000000*x
```

Fricas [A] time = 0.175967, size = 1, normalized size = 0.06

$$5184x^{11}-76896x^{10}+452304x^{9}-1256376x^{8}+1235404x^{7}+1497230x^{6}-3816225x^{5}-\frac{98125}{2}x^{4}+3987500x^{3}-37500x^{2}-2000000x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((33*x - 16)*(3*x + 2)^3*(2*x - 5)^6,x, algorithm="fricas")
```

```
[Out] 5184*x^11 - 76896*x^10 + 452304*x^9 - 1256376*x^8 + 1235404*x^7 +
 1497230*x^6 - 3816225*x^5 - 98125/2*x^4 + 3987500*x^3 - 37500*x^
2 - 2000000*x
```

Sympy [A] time = 0.11255, size = 54, normalized size = 3.

$$5184x^{11}-76896x^{10}+452304x^{9}-1256376x^{8}+1235404x^{7}+1497230x^{6}-3816225x^{5}-\frac{98125x^{4}}{2}+3987500x^{3}-37500x^{2}-2000000x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5-2*x)**6*(2+3*x)**3*(-16+33*x),x)
```

```
[Out] 5184*x**11 - 76896*x**10 + 452304*x**9 - 1256376*x**8 + 1235404*x
**7 + 1497230*x**6 - 3816225*x**5 - 98125*x**4/2 + 3987500*x**3 -
 37500*x**2 - 2000000*x
```

GIAC/XCAS [A] time = 0.207397, size = 73, normalized size = 4.06

$$5184\,x^{11}-76896\,x^{10}+452304\,x^{9}-1256376\,x^{8}+1235404\,x^{7}+1497230\,x^{6}-3816225\,x^{5}-\frac{98125}{2}\,x^{4}+3987500\,x^{3}-37500\,x^{2}-2000000\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((33*x - 16)*(3*x + 2)^3*(2*x - 5)^6,x, algorithm="giac")
```

```
[Out] 5184*x^11 - 76896*x^10 + 452304*x^9 - 1256376*x^8 + 1235404*x^7 +
 1497230*x^6 - 3816225*x^5 - 98125/2*x^4 + 3987500*x^3 - 37500*x^
2 - 2000000*x
```

3.1176 $\int \frac{(1-2x)(2+3x)^6}{3+5x}\,dx$

Optimal. Leaf size=58

$$-\frac{1458x^7}{35}-\frac{7047x^6}{50}-\frac{106677x^5}{625}-\frac{152469x^4}{2500}+\frac{152469x^3}{3125}+\frac{1777779x^2}{31250}+\frac{1666663x}{78125}+\frac{11\log(5x+3)}{390625}$$

```
[Out] (1666663*x)/78125 + (1777779*x^2)/31250 + (152469*x^3)/3125 - (15
2469*x^4)/2500 - (106677*x^5)/625 - (7047*x^6)/50 - (1458*x^7)/35
 + (11*Log[3 + 5*x])/390625
```

Rubi [A] time = 0.0505343, antiderivative size = 58, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{1458x^7}{35}-\frac{7047x^6}{50}-\frac{106677x^5}{625}-\frac{152469x^4}{2500}+\frac{152469x^3}{3125}+\frac{1777779x^2}{31250}+\frac{1666663x}{78125}+\frac{11\log(5x+3)}{390625}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)*(2 + 3*x)^6)/(3 + 5*x),x]
```

```
[Out] (1666663*x)/78125 + (1777779*x^2)/31250 + (152469*x^3)/3125 - (15
2469*x^4)/2500 - (106677*x^5)/625 - (7047*x^6)/50 - (1458*x^7)/35
 + (11*Log[3 + 5*x])/390625
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{1458x^7}{35}-\frac{7047x^6}{50}-\frac{106677x^5}{625}-\frac{152469x^4}{2500}+\frac{152469x^3}{3125}+\frac{11\log(5x+3)}{390625}+\int\frac{1666663}{78125}\,dx+\frac{1777779\int x\,dx}{15625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(2+3*x)**6/(3+5*x),x)
```

```
[Out] -1458*x**7/35 - 7047*x**6/50 - 106677*x**5/625 - 152469*x**4/2500
 + 152469*x**3/3125 + 11*log(5*x + 3)/390625 + Integral(1666663/7
8125, x) + 1777779*Integral(x, x)/15625
```

Mathematica [A] time = 0.0253446, size = 47, normalized size = 0.81

$$\frac{-2278125000x^7-7707656250x^6-9334237500x^5-3335259375x^4+2668207500x^3+3111113250x^2+1166664100x+154}{54687500}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)*(2 + 3*x)^6)/(3 + 5*x),x]
```

```
[Out] (158585307 + 1166664100*x + 3111113250*x^2 + 2668207500*x^3 - 333
5259375*x^4 - 9334237500*x^5 - 7707656250*x^6 - 2278125000*x^7 +
1540*Log[3 + 5*x])/54687500
```

Maple [A] time = 0.006, size = 43, normalized size = 0.7

$$\frac{1666663\,x}{78125}+\frac{1777779\,x^2}{31250}+\frac{152469\,x^3}{3125}-\frac{152469\,x^4}{2500}-\frac{106677\,x^5}{625}-\frac{7047\,x^6}{50}-\frac{1458\,x^7}{35}+\frac{11\,\ln(3+5\,x)}{390625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(2+3*x)^6/(3+5*x),x)
```

```
[Out] 1666663/78125*x+1777779/31250*x^2+152469/3125*x^3-152469/2500*x^4
-106677/625*x^5-7047/50*x^6-1458/35*x^7+11/390625*ln(3+5*x)
```

Maxima [A] time = 1.35307, size = 57, normalized size = 0.98

$$-\frac{1458}{35}x^7-\frac{7047}{50}x^6-\frac{106677}{625}x^5-\frac{152469}{2500}x^4+\frac{152469}{3125}x^3+\frac{1777779}{31250}x^2+\frac{1666663}{78125}x+\frac{11}{390625}\log(5x+3)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^6*(2*x - 1)/(5*x + 3),x, algorithm="maxima")
```

```
[Out] -1458/35*x^7 - 7047/50*x^6 - 106677/625*x^5 - 152469/2500*x^4 + 1
52469/3125*x^3 + 1777779/31250*x^2 + 1666663/78125*x + 11/390625*
log(5*x + 3)
```

Fricas [A] time = 0.212154, size = 57, normalized size = 0.98

$$-\frac{1458}{35}x^7-\frac{7047}{50}x^6-\frac{106677}{625}x^5-\frac{152469}{2500}x^4+\frac{152469}{3125}x^3+\frac{1777779}{31250}x^2+\frac{1666663}{78125}x+\frac{11}{390625}\log(5x+3)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^6*(2*x - 1)/(5*x + 3),x, algorithm="fricas")
```

```
[Out] -1458/35*x^7 - 7047/50*x^6 - 106677/625*x^5 - 152469/2500*x^4 + 1
52469/3125*x^3 + 1777779/31250*x^2 + 1666663/78125*x + 11/390625*
log(5*x + 3)
```

Sympy [A] time = 0.206142, size = 54, normalized size = 0.93

$$-\frac{1458x^7}{35}-\frac{7047x^6}{50}-\frac{106677x^5}{625}-\frac{152469x^4}{2500}+\frac{152469x^3}{3125}+\frac{1777779x^2}{31250}+\frac{1666663x}{78125}+\frac{11\log(5x+3)}{390625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)**6/(3+5*x),x)
```

```
[Out] -1458*x**7/35 - 7047*x**6/50 - 106677*x**5/625 - 152469*x**4/2500
 + 152469*x**3/3125 + 1777779*x**2/31250 + 1666663*x/78125 + 11*l
og(5*x + 3)/390625
```

GIAC/XCAS [A] time = 0.206683, size = 58, normalized size = 1.

$$-\frac{1458}{35}x^7-\frac{7047}{50}x^6-\frac{106677}{625}x^5-\frac{152469}{2500}x^4+\frac{152469}{3125}x^3+\frac{1777779}{31250}x^2+\frac{1666663}{78125}x+\frac{11}{390625}\ln(|5x+3|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^6*(2*x - 1)/(5*x + 3),x, algorithm="giac")
```

```
[Out] -1458/35*x^7 - 7047/50*x^6 - 106677/625*x^5 - 152469/2500*x^4 + 1
52469/3125*x^3 + 1777779/31250*x^2 + 1666663/78125*x + 11/390625*
ln(abs(5*x + 3))
```

3.1177 $\int \frac{(1-2x)(2+3x)^5}{3+5x}\,dx$

Optimal. Leaf size=51

$$-\frac{81x^6}{5}-\frac{5427x^5}{125}-\frac{17469x^4}{500}+\frac{2469x^3}{625}+\frac{127779x^2}{6250}+\frac{166663x}{15625}+\frac{11\log(5x+3)}{78125}$$

```
[Out] (166663*x)/15625 + (127779*x^2)/6250 + (2469*x^3)/625 - (17469*x^
4)/500 - (5427*x^5)/125 - (81*x^6)/5 + (11*Log[3 + 5*x])/78125
```

Rubi [A] time = 0.0466561, antiderivative size = 51, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{81x^6}{5}-\frac{5427x^5}{125}-\frac{17469x^4}{500}+\frac{2469x^3}{625}+\frac{127779x^2}{6250}+\frac{166663x}{15625}+\frac{11\log(5x+3)}{78125}$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)*(2 + 3*x)^5)/(3 + 5*x),x]
```

```
[Out] (166663*x)/15625 + (127779*x^2)/6250 + (2469*x^3)/625 - (17469*x^
4)/500 - (5427*x^5)/125 - (81*x^6)/5 + (11*Log[3 + 5*x])/78125
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{81x^6}{5}-\frac{5427x^5}{125}-\frac{17469x^4}{500}+\frac{2469x^3}{625}+\frac{11\log(5x+3)}{78125}+\int\frac{166663}{15625}\,dx+\frac{127779\int x\,dx}{3125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)*(2+3*x)**5/(3+5*x),x)
```

```
[Out] -81*x**6/5 - 5427*x**5/125 - 17469*x**4/500 + 2469*x**3/625 + 11*
log(5*x + 3)/78125 + Integral(166663/15625, x) + 127779*Integral(
x, x)/3125
```

Mathematica [A] time = 0.0201832, size = 42, normalized size = 0.82

$$\frac{-25312500x^6-67837500x^5-54590625x^4+6172500x^3+31944750x^2+16666300x+220\log(5x+3)+2813811}{1562500}$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)*(2 + 3*x)^5)/(3 + 5*x),x]
```

```
[Out] (2813811 + 16666300*x + 31944750*x^2 + 6172500*x^3 - 54590625*x^4
 - 67837500*x^5 - 25312500*x^6 + 220*Log[3 + 5*x])/1562500
```

Maple [A] time = 0.004, size = 38, normalized size = 0.8

$$\frac{166663\,x}{15625}+\frac{127779\,x^2}{6250}+\frac{2469\,x^3}{625}-\frac{17469\,x^4}{500}-\frac{5427\,x^5}{125}-\frac{81\,x^6}{5}+\frac{11\,\ln(3+5\,x)}{78125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(2+3*x)^5/(3+5*x),x)
```

```
[Out] 166663/15625*x+127779/6250*x^2+2469/625*x^3-17469/500*x^4-5427/12
5*x^5-81/5*x^6+11/78125*ln(3+5*x)
```

Maxima [A] time = 1.32368, size = 50, normalized size = 0.98

$$-\frac{81}{5}x^6-\frac{5427}{125}x^5-\frac{17469}{500}x^4+\frac{2469}{625}x^3+\frac{127779}{6250}x^2+\frac{166663}{15625}x+\frac{11}{78125}\log\left(5x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^5*(2*x - 1)/(5*x + 3),x, algorithm="maxima")
```

```
[Out] -81/5*x^6 - 5427/125*x^5 - 17469/500*x^4 + 2469/625*x^3 + 127779/
6250*x^2 + 166663/15625*x + 11/78125*log(5*x + 3)
```

Fricas [A] time = 0.215198, size = 50, normalized size = 0.98

$$-\frac{81}{5}x^6-\frac{5427}{125}x^5-\frac{17469}{500}x^4+\frac{2469}{625}x^3+\frac{127779}{6250}x^2+\frac{166663}{15625}x+\frac{11}{78125}\log\left(5x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^5*(2*x - 1)/(5*x + 3),x, algorithm="fricas")
```

```
[Out] -81/5*x^6 - 5427/125*x^5 - 17469/500*x^4 + 2469/625*x^3 + 127779/
6250*x^2 + 166663/15625*x + 11/78125*log(5*x + 3)
```

Sympy [A] time = 0.18775, size = 48, normalized size = 0.94

$$-\frac{81x^6}{5}-\frac{5427x^5}{125}-\frac{17469x^4}{500}+\frac{2469x^3}{625}+\frac{127779x^2}{6250}+\frac{166663x}{15625}+\frac{11\log\left(5x+3\right)}{78125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)**5/(3+5*x),x)
```

```
[Out] -81*x**6/5 - 5427*x**5/125 - 17469*x**4/500 + 2469*x**3/625 + 127
779*x**2/6250 + 166663*x/15625 + 11*log(5*x + 3)/78125
```

GIAC/XCAS [A] time = 0.208612, size = 51, normalized size = 1.

$$-\frac{81}{5}x^6-\frac{5427}{125}x^5-\frac{17469}{500}x^4+\frac{2469}{625}x^3+\frac{127779}{6250}x^2+\frac{166663}{15625}x+\frac{11}{78125}\ln\left(|5x+3|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^5*(2*x - 1)/(5*x + 3),x, algorithm="giac")
```

```
[Out] -81/5*x^6 - 5427/125*x^5 - 17469/500*x^4 + 2469/625*x^3 + 127779/
6250*x^2 + 166663/15625*x + 11/78125*ln(abs(5*x + 3))
```

3.1178 $\int \frac{(1-2x)(2+3x)^4}{3+5x}\,dx$

Optimal. Leaf size=44

$$-\frac{162x^5}{25}-\frac{1269x^4}{100}-\frac{531x^3}{125}+\frac{7779x^2}{1250}+\frac{16663x}{3125}+\frac{11\log(5x+3)}{15625}$$

```
[Out] (16663*x)/3125 + (7779*x^2)/1250 - (531*x^3)/125 - (1269*x^4)/100
 - (162*x^5)/25 + (11*Log[3 + 5*x])/15625
```

Rubi [A] time = 0.0422934, antiderivative size = 44, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{162x^5}{25}-\frac{1269x^4}{100}-\frac{531x^3}{125}+\frac{7779x^2}{1250}+\frac{16663x}{3125}+\frac{11\log(5x+3)}{15625}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)*(2 + 3*x)^4)/(3 + 5*x),x]
```

```
[Out] (16663*x)/3125 + (7779*x^2)/1250 - (531*x^3)/125 - (1269*x^4)/100
 - (162*x^5)/25 + (11*Log[3 + 5*x])/15625
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{162x^5}{25}-\frac{1269x^4}{100}-\frac{531x^3}{125}+\frac{11\log(5x+3)}{15625}+\int\frac{16663}{3125}\,dx+\frac{7779\int x\,dx}{625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(2+3*x)**4/(3+5*x),x)
```

```
[Out] -162*x**5/25 - 1269*x**4/100 - 531*x**3/125 + 11*log(5*x + 3)/156
25 + Integral(16663/3125, x) + 7779*Integral(x, x)/625
```

Mathematica [A] time = 0.0218414, size = 37, normalized size = 0.84

$$\frac{-2025000x^5-3965625x^4-1327500x^3+1944750x^2+1666300x+220\log(5x+3)+369411}{312500}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)*(2 + 3*x)^4)/(3 + 5*x),x]
```

```
[Out] (369411 + 1666300*x + 1944750*x^2 - 1327500*x^3 - 3965625*x^4 - 2
025000*x^5 + 220*Log[3 + 5*x])/312500
```

Maple [A] time = 0.004, size = 33, normalized size = 0.8

$$\frac{16663\,x}{3125}+\frac{7779\,x^2}{1250}-\frac{531\,x^3}{125}-\frac{1269\,x^4}{100}-\frac{162\,x^5}{25}+\frac{11\,\ln(3+5\,x)}{15625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(2+3*x)^4/(3+5*x),x)
```

```
[Out] 16663/3125*x+7779/1250*x^2-531/125*x^3-1269/100*x^4-162/25*x^5+11
/15625*ln(3+5*x)
```

Maxima [A] time = 1.32388, size = 43, normalized size = 0.98

$$-\frac{162}{25}\,x^5-\frac{1269}{100}\,x^4-\frac{531}{125}\,x^3+\frac{7779}{1250}\,x^2+\frac{16663}{3125}\,x+\frac{11}{15625}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^4*(2*x - 1)/(5*x + 3),x, algorithm="maxima")
```

```
[Out] -162/25*x^5 - 1269/100*x^4 - 531/125*x^3 + 7779/1250*x^2 + 16663/
3125*x + 11/15625*log(5*x + 3)
```

Fricas [A] time = 0.203325, size = 43, normalized size = 0.98

$$-\frac{162}{25}\,x^5-\frac{1269}{100}\,x^4-\frac{531}{125}\,x^3+\frac{7779}{1250}\,x^2+\frac{16663}{3125}\,x+\frac{11}{15625}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^4*(2*x - 1)/(5*x + 3),x, algorithm="fricas")
```

```
[Out] -162/25*x^5 - 1269/100*x^4 - 531/125*x^3 + 7779/1250*x^2 + 16663/
3125*x + 11/15625*log(5*x + 3)
```

Sympy [A] time = 0.174901, size = 41, normalized size = 0.93

$$-\frac{162x^5}{25}-\frac{1269x^4}{100}-\frac{531x^3}{125}+\frac{7779x^2}{1250}+\frac{16663x}{3125}+\frac{11\log\left(5x+3\right)}{15625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)**4/(3+5*x),x)
```

```
[Out] -162*x**5/25 - 1269*x**4/100 - 531*x**3/125 + 7779*x**2/1250 + 16
663*x/3125 + 11*log(5*x + 3)/15625
```

GIAC/XCAS [A] time = 0.207603, size = 45, normalized size = 1.02

$$-\frac{162}{25}\,x^5-\frac{1269}{100}\,x^4-\frac{531}{125}\,x^3+\frac{7779}{1250}\,x^2+\frac{16663}{3125}\,x+\frac{11}{15625}\,\ln\left(|5\,x+3|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^4*(2*x - 1)/(5*x + 3),x, algorithm="giac")
```

```
[Out] -162/25*x^5 - 1269/100*x^4 - 531/125*x^3 + 7779/1250*x^2 + 16663/
3125*x + 11/15625*ln(abs(5*x + 3))
```

3.1179 $\int \frac{(1-2x)(2+3x)^3}{3+5x}\,dx$

Optimal. Leaf size=37

$$-\frac{27x^4}{10}-\frac{81x^3}{25}+\frac{279x^2}{250}+\frac{1663x}{625}+\frac{11\log(5x+3)}{3125}$$

```
[Out] (1663*x)/625 + (279*x^2)/250 - (81*x^3)/25 - (27*x^4)/10 + (11*Lo
g[3 + 5*x])/3125
```

Rubi [A] time = 0.0355911, antiderivative size = 37, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{27x^4}{10}-\frac{81x^3}{25}+\frac{279x^2}{250}+\frac{1663x}{625}+\frac{11\log(5x+3)}{3125}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)*(2 + 3*x)^3)/(3 + 5*x),x]
```

```
[Out] (1663*x)/625 + (279*x^2)/250 - (81*x^3)/25 - (27*x^4)/10 + (11*Lo
g[3 + 5*x])/3125
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{27x^4}{10}-\frac{81x^3}{25}+\frac{11\log(5x+3)}{3125}+\int\frac{1663}{625}\,dx+\frac{279\int x\,dx}{125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(2+3*x)**3/(3+5*x),x)
```

```
[Out] -27*x**4/10 - 81*x**3/25 + 11*log(5*x + 3)/3125 + Integral(1663/6
25, x) + 279*Integral(x, x)/125
```

Mathematica [A] time = 0.0203394, size = 35, normalized size = 0.95

$$\frac{5\left(-3375x^4-4050x^3+1395x^2+3326x+1056\right)+22\log(5x+3)}{6250}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)*(2 + 3*x)^3)/(3 + 5*x),x]
```

```
[Out] (5*(1056 + 3326*x + 1395*x^2 - 4050*x^3 - 3375*x^4) + 22*Log[3 +
5*x])/6250
```

Maple [A] time = 0.003, size = 28, normalized size = 0.8

$$\frac{1663\,x}{625}+\frac{279\,x^2}{250}-\frac{81\,x^3}{25}-\frac{27\,x^4}{10}+\frac{11\,\ln(3+5\,x)}{3125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(2+3*x)^3/(3+5*x),x)
```

```
[Out] 1663/625*x+279/250*x^2-81/25*x^3-27/10*x^4+11/3125*ln(3+5*x)
```

Maxima [A] time = 1.33776, size = 36, normalized size = 0.97

$$-\frac{27}{10}\,x^4-\frac{81}{25}\,x^3+\frac{279}{250}\,x^2+\frac{1663}{625}\,x+\frac{11}{3125}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^3*(2*x - 1)/(5*x + 3),x, algorithm="maxima")
```

```
[Out] -27/10*x^4 - 81/25*x^3 + 279/250*x^2 + 1663/625*x + 11/3125*log(5
*x + 3)
```

Fricas [A] time = 0.212134, size = 36, normalized size = 0.97

$$-\frac{27}{10}\,x^4-\frac{81}{25}\,x^3+\frac{279}{250}\,x^2+\frac{1663}{625}\,x+\frac{11}{3125}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^3*(2*x - 1)/(5*x + 3),x, algorithm="fricas")
```

```
[Out] -27/10*x^4 - 81/25*x^3 + 279/250*x^2 + 1663/625*x + 11/3125*log(5
*x + 3)
```

Sympy [A] time = 0.166952, size = 34, normalized size = 0.92

$$-\frac{27x^4}{10}-\frac{81x^3}{25}+\frac{279x^2}{250}+\frac{1663x}{625}+\frac{11\log\left(5x+3\right)}{3125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)**3/(3+5*x),x)
```

```
[Out] -27*x**4/10 - 81*x**3/25 + 279*x**2/250 + 1663*x/625 + 11*log(5*x
 + 3)/3125
```

GIAC/XCAS [A] time = 0.204626, size = 38, normalized size = 1.03

$$-\frac{27}{10}\,x^4-\frac{81}{25}\,x^3+\frac{279}{250}\,x^2+\frac{1663}{625}\,x+\frac{11}{3125}\,\ln\left(|5\,x+3|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^3*(2*x - 1)/(5*x + 3),x, algorithm="giac")
```

```
[Out] -27/10*x^4 - 81/25*x^3 + 279/250*x^2 + 1663/625*x + 11/3125*ln(ab
s(5*x + 3))
```

3.1180 $\int \frac{(1-2x)(2+3x)^2}{3+5x}\,dx$

Optimal. Leaf size=30

$$-\frac{6x^3}{5}-\frac{21x^2}{50}+\frac{163x}{125}+\frac{11}{625}\log(5x+3)$$

```
[Out] (163*x)/125 - (21*x^2)/50 - (6*x^3)/5 + (11*Log[3 + 5*x])/625
```

Rubi [A] time = 0.0328335, antiderivative size = 30, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{6x^3}{5}-\frac{21x^2}{50}+\frac{163x}{125}+\frac{11}{625}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)*(2 + 3*x)^2)/(3 + 5*x),x]
```

```
[Out] (163*x)/125 - (21*x^2)/50 - (6*x^3)/5 + (11*Log[3 + 5*x])/625
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{6x^3}{5}+\frac{11\log(5x+3)}{625}+\int\frac{163}{125}\,dx-\frac{21\int x\,dx}{25}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(2+3*x)**2/(3+5*x),x)
```

```
[Out] -6*x**3/5 + 11*log(5*x + 3)/625 + Integral(163/125, x) - 21*Integ
ral(x, x)/25
```

Mathematica [A] time = 0.0151029, size = 27, normalized size = 0.9

$$\frac{-1500x^3-525x^2+1630x+22\log(5x+3)+843}{1250}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)*(2 + 3*x)^2)/(3 + 5*x),x]
```

```
[Out] (843 + 1630*x - 525*x^2 - 1500*x^3 + 22*Log[3 + 5*x])/1250
```

Maple [A] time = 0.002, size = 23, normalized size = 0.8

$$\frac{163\,x}{125}-\frac{21\,x^2}{50}-\frac{6\,x^3}{5}+\frac{11\,\ln(3+5\,x)}{625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(2+3*x)^2/(3+5*x),x)
```

```
[Out] 163/125*x-21/50*x^2-6/5*x^3+11/625*ln(3+5*x)
```

Maxima [A] time = 1.32394, size = 30, normalized size = 1.

$$-\frac{6}{5}x^3 - \frac{21}{50}x^2 + \frac{163}{125}x + \frac{11}{625}\log(5x+3)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^2*(2*x - 1)/(5*x + 3),x, algorithm="maxima")
```

```
[Out] -6/5*x^3 - 21/50*x^2 + 163/125*x + 11/625*log(5*x + 3)
```

Fricas [A] time = 0.214234, size = 30, normalized size = 1.

$$-\frac{6}{5}x^3 - \frac{21}{50}x^2 + \frac{163}{125}x + \frac{11}{625}\log(5x+3)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^2*(2*x - 1)/(5*x + 3),x, algorithm="fricas")
```

```
[Out] -6/5*x^3 - 21/50*x^2 + 163/125*x + 11/625*log(5*x + 3)
```

Sympy [A] time = 0.154887, size = 27, normalized size = 0.9

$$-\frac{6x^3}{5} - \frac{21x^2}{50} + \frac{163x}{125} + \frac{11\log(5x+3)}{625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)**2/(3+5*x),x)
```

```
[Out] -6*x**3/5 - 21*x**2/50 + 163*x/125 + 11*log(5*x + 3)/625
```

GIAC/XCAS [A] time = 0.210792, size = 31, normalized size = 1.03

$$-\frac{6}{5}x^3 - \frac{21}{50}x^2 + \frac{163}{125}x + \frac{11}{625}\ln(|5x+3|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^2*(2*x - 1)/(5*x + 3),x, algorithm="giac")
```

```
[Out] -6/5*x^3 - 21/50*x^2 + 163/125*x + 11/625*ln(abs(5*x + 3))
```

3.1181 $\int \frac{(1-2x)(2+3x)}{3+5x}\,dx$

Optimal. Leaf size=23

$$-\frac{3x^2}{5}+\frac{13x}{25}+\frac{11}{125}\log(5x+3)$$

```
[Out] (13*x)/25 - (3*x^2)/5 + (11*Log[3 + 5*x])/125
```

Rubi [A] time = 0.0256482, antiderivative size = 23, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{3x^2}{5}+\frac{13x}{25}+\frac{11}{125}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)*(2 + 3*x))/(3 + 5*x),x]

[Out] (13*x)/25 - (3*x^2)/5 + (11*Log[3 + 5*x])/125
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{11\log(5x+3)}{125}+\int\frac{13}{25}\,dx-\frac{6\int x\,dx}{5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)*(2+3*x)/(3+5*x),x)

[Out] 11*log(5*x + 3)/125 + Integral(13/25, x) - 6*Integral(x, x)/5
```

Mathematica [A] time = 0.00815381, size = 22, normalized size = 0.96

$$\frac{1}{125}\left(-75x^2+65x+11\log(5x+3)+66\right)$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)*(2 + 3*x))/(3 + 5*x),x]

[Out] (66 + 65*x - 75*x^2 + 11*Log[3 + 5*x])/125
```

Maple [A] time = 0.003, size = 18, normalized size = 0.8

$$\frac{13\,x}{25}-\frac{3\,x^2}{5}+\frac{11\,\ln(3+5\,x)}{125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((1-2*x)*(2+3*x)/(3+5*x),x)

[Out] 13/25*x-3/5*x^2+11/125*ln(3+5*x)
```

Maxima [A] time = 1.35025, size = 23, normalized size = 1.

$$-\frac{3}{5}x^2 + \frac{13}{25}x + \frac{11}{125}\log(5x+3)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)*(2*x - 1)/(5*x + 3),x, algorithm="maxima")

[Out] -3/5*x^2 + 13/25*x + 11/125*log(5*x + 3)
```

Fricas [A] time = 0.206377, size = 23, normalized size = 1.

$$-\frac{3}{5}x^2 + \frac{13}{25}x + \frac{11}{125}\log(5x+3)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)*(2*x - 1)/(5*x + 3),x, algorithm="fricas")

[Out] -3/5*x^2 + 13/25*x + 11/125*log(5*x + 3)
```

Sympy [A] time = 0.139884, size = 20, normalized size = 0.87

$$-\frac{3x^2}{5} + \frac{13x}{25} + \frac{11\log(5x+3)}{125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)/(3+5*x),x)

[Out] -3*x**2/5 + 13*x/25 + 11*log(5*x + 3)/125
```

GIAC/XCAS [A] time = 0.211257, size = 24, normalized size = 1.04

$$-\frac{3}{5}x^2 + \frac{13}{25}x + \frac{11}{125}\ln(|5x+3|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)*(2*x - 1)/(5*x + 3),x, algorithm="giac")

[Out] -3/5*x^2 + 13/25*x + 11/125*ln(abs(5*x + 3))
```

3.1182 $\int \frac{1-2x}{3+5x}\,dx$

Optimal. Leaf size=16

$$\frac{11}{25}\log(5x+3)-\frac{2x}{5}$$

```
[Out] (-2*x)/5 + (11*Log[3 + 5*x])/25
```

Rubi [A] time = 0.0181853, antiderivative size = 16, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 13, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.077

$$\frac{11}{25}\log(5x+3)-\frac{2x}{5}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)/(3 + 5*x),x]
```

```
[Out] (-2*x)/5 + (11*Log[3 + 5*x])/25
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{11\log(5x+3)}{25}+\int\left(-\frac{2}{5}\right)\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)/(3+5*x),x)
```

```
[Out] 11*log(5*x + 3)/25 + Integral(-2/5, x)
```

Mathematica [A] time = 0.00411722, size = 17, normalized size = 1.06

$$\frac{1}{25}(-10x+11\log(5x+3)-6)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)/(3 + 5*x),x]
```

```
[Out] (-6 - 10*x + 11*Log[3 + 5*x])/25
```

Maple [A] time = 0.004, size = 13, normalized size = 0.8

$$-\frac{2x}{5}+\frac{11\ln(3+5x)}{25}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)/(3+5*x),x)
```

```
[Out] -2/5*x+11/25*ln(3+5*x)
```

Maxima [A] time = 1.34267, size = 16, normalized size = 1.

$$-\frac{2}{5}x + \frac{11}{25}\log(5x + 3)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/(5*x + 3),x, algorithm="maxima")
```

```
[Out] -2/5*x + 11/25*log(5*x + 3)
```

Fricas [A] time = 0.210205, size = 16, normalized size = 1.

$$-\frac{2}{5}x + \frac{11}{25}\log(5x + 3)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/(5*x + 3),x, algorithm="fricas")
```

```
[Out] -2/5*x + 11/25*log(5*x + 3)
```

Sympy [A] time = 0.115815, size = 14, normalized size = 0.88

$$-\frac{2x}{5} + \frac{11\log(5x + 3)}{25}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)/(3+5*x),x)
```

```
[Out] -2*x/5 + 11*log(5*x + 3)/25
```

GIAC/XCAS [A] time = 0.209821, size = 18, normalized size = 1.12

$$-\frac{2}{5}x + \frac{11}{25}\ln(|5x + 3|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/(5*x + 3),x, algorithm="giac")
```

```
[Out] -2/5*x + 11/25*ln(abs(5*x + 3))
```

3.1183 $\int \frac{1-2x}{(2+3x)(3+5x)}\, dx$

Optimal. Leaf size=21

$$\frac{11}{5}\log(5x+3)-\frac{7}{3}\log(3x+2)$$

```
[Out] (-7*Log[2 + 3*x])/3 + (11*Log[3 + 5*x])/5
```

Rubi [A] time = 0.0289911, antiderivative size = 21, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{11}{5}\log(5x+3)-\frac{7}{3}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)/((2 + 3*x)*(3 + 5*x)),x]

[Out] (-7*Log[2 + 3*x])/3 + (11*Log[3 + 5*x])/5
```

Rubi in Sympy [A] time = 4.76688, size = 19, normalized size = 0.9

$$-\frac{7\log(3x+2)}{3}+\frac{11\log(5x+3)}{5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)/(2+3*x)/(3+5*x),x)

[Out] -7*log(3*x + 2)/3 + 11*log(5*x + 3)/5
```

Mathematica [A] time = 0.00861362, size = 21, normalized size = 1.

$$\frac{11}{5}\log(5x+3)-\frac{7}{3}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)/((2 + 3*x)*(3 + 5*x)),x]

[Out] (-7*Log[2 + 3*x])/3 + (11*Log[3 + 5*x])/5
```

Maple [A] time = 0.007, size = 18, normalized size = 0.9

$$-\frac{7\ln(2+3x)}{3}+\frac{11\ln(3+5x)}{5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)/(2+3*x)/(3+5*x),x)

[Out] -7/3*ln(2+3*x)+11/5*ln(3+5*x)
```

Maxima [A] time = 1.3437, size = 23, normalized size = 1.1

$$\frac{11}{5}\,\log\left(5\,x+3\right)-\frac{7}{3}\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/((5*x + 3)*(3*x + 2)),x, algorithm="maxima")
```

```
[Out] 11/5*log(5*x + 3) - 7/3*log(3*x + 2)
```

Fricas [A] time = 0.223582, size = 23, normalized size = 1.1

$$\frac{11}{5}\,\log\left(5\,x+3\right)-\frac{7}{3}\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/((5*x + 3)*(3*x + 2)),x, algorithm="fricas")
```

```
[Out] 11/5*log(5*x + 3) - 7/3*log(3*x + 2)
```

Sympy [A] time = 0.218622, size = 19, normalized size = 0.9

$$\frac{11\log\left(x+\frac{3}{5}\right)}{5}-\frac{7\log\left(x+\frac{2}{3}\right)}{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)/(2+3*x)/(3+5*x),x)
```

```
[Out] 11*log(x + 3/5)/5 - 7*log(x + 2/3)/3
```

GIAC/XCAS [A] time = 0.206424, size = 26, normalized size = 1.24

$$\frac{11}{5}\,\ln\left(|5\,x+3|\right)-\frac{7}{3}\,\ln\left(|3\,x+2|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/((5*x + 3)*(3*x + 2)),x, algorithm="giac")
```

```
[Out] 11/5*ln(abs(5*x + 3)) - 7/3*ln(abs(3*x + 2))
```

3.1184 $\int \frac{1-2x}{(2+3x)^2(3+5x)}\,dx$

Optimal. Leaf size=28

$$\frac{7}{3(3x+2)} - 11\log(3x+2) + 11\log(5x+3)$$

```
[Out] 7/(3*(2 + 3*x)) - 11*Log[2 + 3*x] + 11*Log[3 + 5*x]
```

Rubi [A] time = 0.0374857, antiderivative size = 28, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$\frac{7}{3(3x+2)} - 11\log(3x+2) + 11\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)/((2 + 3*x)^2*(3 + 5*x)),x]

[Out] 7/(3*(2 + 3*x)) - 11*Log[2 + 3*x] + 11*Log[3 + 5*x]
```

Rubi in Sympy [A] time = 5.6612, size = 22, normalized size = 0.79

$$-11\log(3x+2) + 11\log(5x+3) + \frac{7}{3(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)/(2+3*x)**2/(3+5*x),x)

[Out] -11*log(3*x + 2) + 11*log(5*x + 3) + 7/(3*(3*x + 2))
```

Mathematica [A] time = 0.0237171, size = 38, normalized size = 1.36

$$\frac{-33(3x+2)\log(3x+2) + 33(3x+2)\log(-3(5x+3)) + 7}{9x+6}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)/((2 + 3*x)^2*(3 + 5*x)),x]

[Out] (7 - 33*(2 + 3*x)*Log[2 + 3*x] + 33*(2 + 3*x)*Log[-3*(3 + 5*x)])/
(6 + 9*x)
```

Maple [A] time = 0.01, size = 27, normalized size = 1.

$$\frac{7}{6+9x} - 11\ln(2+3x) + 11\ln(3+5x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)/(2+3*x)^2/(3+5*x),x)

[Out] 7/3/(2+3*x)-11*ln(2+3*x)+11*ln(3+5*x)
```

Maxima [A] time = 1.34823, size = 35, normalized size = 1.25

$$\frac{7}{3\,(3\,x+2)} + 11\,\log\left(5\,x+3\right) - 11\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/((5*x + 3)*(3*x + 2)^2),x, algorithm="maxima")
```

```
[Out] 7/3/(3*x + 2) + 11*log(5*x + 3) - 11*log(3*x + 2)
```

Fricas [A] time = 0.208691, size = 50, normalized size = 1.79

$$\frac{33\,(3\,x+2)\log\left(5\,x+3\right) - 33\,(3\,x+2)\log\left(3\,x+2\right) + 7}{3\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/((5*x + 3)*(3*x + 2)^2),x, algorithm="fricas")
```

```
[Out] 1/3*(33*(3*x + 2)*log(5*x + 3) - 33*(3*x + 2)*log(3*x + 2) + 7)/(
3*x + 2)
```

Sympy [A] time = 0.252923, size = 22, normalized size = 0.79

$$11\log\left(x+\frac{3}{5}\right) - 11\log\left(x+\frac{2}{3}\right) + \frac{7}{9x+6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)/(2+3*x)**2/(3+5*x),x)
```

```
[Out] 11*log(x + 3/5) - 11*log(x + 2/3) + 7/(9*x + 6)
```

GIAC/XCAS [A] time = 0.212533, size = 34, normalized size = 1.21

$$\frac{7}{3\,(3\,x+2)} + 11\ln\left(\left|-\frac{1}{3\,x+2} + 5\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/((5*x + 3)*(3*x + 2)^2),x, algorithm="giac")
```

```
[Out] 7/3/(3*x + 2) + 11*ln(abs(-1/(3*x + 2) + 5))
```

3.1185 $\int \frac{1-2x}{(2+3x)^3(3+5x)}\,dx$

Optimal. Leaf size=37

$$\frac{11}{3x+2}+\frac{7}{6(3x+2)^2}-55\log(3x+2)+55\log(5x+3)$$

```
[Out] 7/(6*(2 + 3*x)^2) + 11/(2 + 3*x) - 55*Log[2 + 3*x] + 55*Log[3 + 5
*x]
```

Rubi [A] time = 0.0443608, antiderivative size = 37, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{11}{3x+2}+\frac{7}{6(3x+2)^2}-55\log(3x+2)+55\log(5x+3)$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)/((2 + 3*x)^3*(3 + 5*x)),x]
```

```
[Out] 7/(6*(2 + 3*x)^2) + 11/(2 + 3*x) - 55*Log[2 + 3*x] + 55*Log[3 + 5
*x]
```

Rubi in Sympy [A] time = 6.68312, size = 32, normalized size = 0.86

$$-55\log(3x+2)+55\log(5x+3)+\frac{11}{3x+2}+\frac{7}{6(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)/(2+3*x)**3/(3+5*x),x)
```

```
[Out] -55*log(3*x + 2) + 55*log(5*x + 3) + 11/(3*x + 2) + 7/(6*(3*x + 2
)**2)
```

Mathematica [A] time = 0.0523764, size = 35, normalized size = 0.95

$$\frac{198x+139}{6(3x+2)^2}-55\log(3x+2)+55\log(-3(5x+3))$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)/((2 + 3*x)^3*(3 + 5*x)),x]
```

```
[Out] (139 + 198*x)/(6*(2 + 3*x)^2) - 55*Log[2 + 3*x] + 55*Log[-3*(3 +
5*x)]
```

Maple [A] time = 0.01, size = 36, normalized size = 1.

$$\frac{7}{6\,(2+3\,x)^2}+11\,(2+3\,x)^{-1}-55\,\ln(2+3\,x)+55\,\ln(3+5\,x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)/(2+3*x)^3/(3+5*x),x)
```

```
[Out] 7/6/(2+3*x)^2+11/(2+3*x)-55*ln(2+3*x)+55*ln(3+5*x)
```

Maxima [A] time = 1.34826, size = 49, normalized size = 1.32

$$\frac{198\,x+139}{6\,(9\,x^2+12\,x+4)}+55\,\log\left(5\,x+3\right)-55\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/((5*x + 3)*(3*x + 2)^3),x, algorithm="maxima")
```

```
[Out] 1/6*(198*x + 139)/(9*x^2 + 12*x + 4) + 55*log(5*x + 3) - 55*log(3
*x + 2)
```

Fricas [A] time = 0.215653, size = 74, normalized size = 2.

$$\frac{330\,\left(9\,x^2+12\,x+4\right)\,\log\left(5\,x+3\right)-330\,\left(9\,x^2+12\,x+4\right)\,\log\left(3\,x+2\right)+198\,x+139}{6\,(9\,x^2+12\,x+4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/((5*x + 3)*(3*x + 2)^3),x, algorithm="fricas")
```

```
[Out] 1/6*(330*(9*x^2 + 12*x + 4)*log(5*x + 3) - 330*(9*x^2 + 12*x + 4)
*log(3*x + 2) + 198*x + 139)/(9*x^2 + 12*x + 4)
```

Sympy [A] time = 0.305841, size = 31, normalized size = 0.84

$$\frac{198x+139}{54x^2+72x+24}+55\log\left(x+\frac{3}{5}\right)-55\log\left(x+\frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)/(2+3*x)**3/(3+5*x),x)
```

```
[Out] (198*x + 139)/(54*x**2 + 72*x + 24) + 55*log(x + 3/5) - 55*log(x
+ 2/3)
```

GIAC/XCAS [A] time = 0.212718, size = 45, normalized size = 1.22

$$\frac{198\,x+139}{6\,(3\,x+2)^2}+55\ln\left(|5\,x+3|\right)-55\ln\left(|3\,x+2|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/((5*x + 3)*(3*x + 2)^3),x, algorithm="giac")
```

```
[Out] 1/6*(198*x + 139)/(3*x + 2)^2 + 55*ln(abs(5*x + 3)) - 55*ln(abs(3
*x + 2))
```

3.1186 $\int \frac{1-2x}{(2+3x)^4(3+5x)} dx$

Optimal. Leaf size=48

$$\frac{55}{3x+2}+\frac{11}{2(3x+2)^2}+\frac{7}{9(3x+2)^3}-275\log(3x+2)+275\log(5x+3)$$

```
[Out] 7/(9*(2 + 3*x)^3) + 11/(2*(2 + 3*x)^2) + 55/(2 + 3*x) - 275*Log[2
 + 3*x] + 275*Log[3 + 5*x]
```

Rubi [A] time = 0.0494828, antiderivative size = 48, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{55}{3x+2}+\frac{11}{2(3x+2)^2}+\frac{7}{9(3x+2)^3}-275\log(3x+2)+275\log(5x+3)$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)/((2 + 3*x)^4*(3 + 5*x)),x]
```

```
[Out] 7/(9*(2 + 3*x)^3) + 11/(2*(2 + 3*x)^2) + 55/(2 + 3*x) - 275*Log[2
 + 3*x] + 275*Log[3 + 5*x]
```

Rubi in Sympy [A] time = 7.69586, size = 42, normalized size = 0.88

$$-275\log\left(3x+2\right)+275\log\left(5x+3\right)+\frac{55}{3x+2}+\frac{11}{2\left(3x+2\right)^2}+\frac{7}{9\left(3x+2\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)/(2+3*x)**4/(3+5*x),x)
```

```
[Out] -275*log(3*x + 2) + 275*log(5*x + 3) + 55/(3*x + 2) + 11/(2*(3*x
+ 2)**2) + 7/(9*(3*x + 2)**3)
```

Mathematica [A] time = 0.0405569, size = 40, normalized size = 0.83

$$\frac{8910x^2+12177x+4172}{18(3x+2)^3}-275\log(3x+2)+275\log(-3(5x+3))$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)/((2 + 3*x)^4*(3 + 5*x)),x]
```

```
[Out] (4172 + 12177*x + 8910*x^2)/(18*(2 + 3*x)^3) - 275*Log[2 + 3*x] +
 275*Log[-3*(3 + 5*x)]
```

Maple [A] time = 0.013, size = 45, normalized size = 0.9

$$\frac{7}{9\left(2+3x\right)^3}+\frac{11}{2\left(2+3x\right)^2}+55\left(2+3x\right)^{-1}-275\ln\left(2+3x\right)+275\ln\left(3+5x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)/(2+3*x)^4/(3+5*x),x)
```

```
[Out] 7/9/(2+3*x)^3+11/2/(2+3*x)^2+55/(2+3*x)-275*ln(2+3*x)+275*ln(3+5*
x)
```

Maxima [A] time = 1.34666, size = 62, normalized size = 1.29

$$\frac{8910\,x^2+12177\,x+4172}{18\,(27\,x^3+54\,x^2+36\,x+8)}+275\,\log(5\,x+3)-275\,\log(3\,x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/((5*x + 3)*(3*x + 2)^4),x, algorithm="maxima")
```

```
[Out] 1/18*(8910*x^2 + 12177*x + 4172)/(27*x^3 + 54*x^2 + 36*x + 8) + 2
75*log(5*x + 3) - 275*log(3*x + 2)
```

Fricas [A] time = 0.20973, size = 101, normalized size = 2.1

$$\frac{8910\,x^2+4950\,\left(27\,x^3+54\,x^2+36\,x+8\right)\,\log(5\,x+3)-4950\,\left(27\,x^3+54\,x^2+36\,x+8\right)\,\log(3\,x+2)+12177\,x+4172}{18\,(27\,x^3+54\,x^2+36\,x+8)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/((5*x + 3)*(3*x + 2)^4),x, algorithm="fricas")
```

```
[Out] 1/18*(8910*x^2 + 4950*(27*x^3 + 54*x^2 + 36*x + 8)*log(5*x + 3) -
 4950*(27*x^3 + 54*x^2 + 36*x + 8)*log(3*x + 2) + 12177*x + 4172)
/(27*x^3 + 54*x^2 + 36*x + 8)
```

Sympy [A] time = 0.361858, size = 41, normalized size = 0.85

$$\frac{8910x^2+12177x+4172}{486x^3+972x^2+648x+144}+275\log\left(x+\frac{3}{5}\right)-275\log\left(x+\frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)/(2+3*x)**4/(3+5*x),x)
```

```
[Out] (8910*x**2 + 12177*x + 4172)/(486*x**3 + 972*x**2 + 648*x + 144)
+ 275*log(x + 3/5) - 275*log(x + 2/3)
```

GIAC/XCAS [A] time = 0.207678, size = 51, normalized size = 1.06

$$\frac{8910\,x^2+12177\,x+4172}{18\,(3\,x+2)^3}+275\ln(|5\,x+3|)-275\ln(|3\,x+2|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/((5*x + 3)*(3*x + 2)^4),x, algorithm="giac")
```

```
[Out] 1/18*(8910*x^2 + 12177*x + 4172)/(3*x + 2)^3 + 275*ln(abs(5*x + 3
)) - 275*ln(abs(3*x + 2))
```

3.1187 $\int \frac{1-2x}{(2+3x)^5(3+5x)}\,dx$

Optimal. Leaf size=59

$$\frac{275}{3x+2}+\frac{55}{2(3x+2)^2}+\frac{11}{3(3x+2)^3}+\frac{7}{12(3x+2)^4}-1375\log(3x+2)+1375\log(5x+3)$$

```
[Out] 7/(12*(2 + 3*x)^4) + 11/(3*(2 + 3*x)^3) + 55/(2*(2 + 3*x)^2) + 27
5/(2 + 3*x) - 1375*Log[2 + 3*x] + 1375*Log[3 + 5*x]
```

Rubi [A] time = 0.0595044, antiderivative size = 59, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{275}{3x+2}+\frac{55}{2(3x+2)^2}+\frac{11}{3(3x+2)^3}+\frac{7}{12(3x+2)^4}-1375\log(3x+2)+1375\log(5x+3)$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)/((2 + 3*x)^5*(3 + 5*x)),x]
```

```
[Out] 7/(12*(2 + 3*x)^4) + 11/(3*(2 + 3*x)^3) + 55/(2*(2 + 3*x)^2) + 27
5/(2 + 3*x) - 1375*Log[2 + 3*x] + 1375*Log[3 + 5*x]
```

Rubi in Sympy [A] time = 8.86327, size = 53, normalized size = 0.9

$$-1375\log(3x+2)+1375\log(5x+3)+\frac{275}{3x+2}+\frac{55}{2(3x+2)^2}+\frac{11}{3(3x+2)^3}+\frac{7}{12(3x+2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)/(2+3*x)**5/(3+5*x),x)
```

```
[Out] -1375*log(3*x + 2) + 1375*log(5*x + 3) + 275/(3*x + 2) + 55/(2*(3
*x + 2)**2) + 11/(3*(3*x + 2)**3) + 7/(12*(3*x + 2)**4)
```

Mathematica [A] time = 0.0461543, size = 45, normalized size = 0.76

$$\frac{89100x^3+181170x^2+122892x+27815}{12(3x+2)^4}-1375\log(3x+2)+1375\log(-3(5x+3))$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)/((2 + 3*x)^5*(3 + 5*x)),x]
```

```
[Out] (27815 + 122892*x + 181170*x^2 + 89100*x^3)/(12*(2 + 3*x)^4) - 13
75*Log[2 + 3*x] + 1375*Log[-3*(3 + 5*x)]
```

Maple [A] time = 0.013, size = 54, normalized size = 0.9

$$\frac{7}{12\,(2+3\,x)^4}+\frac{11}{3\,(2+3\,x)^3}+\frac{55}{2\,(2+3\,x)^2}+275\,(2+3\,x)^{-1}-1375\,\ln(2+3\,x)+1375\,\ln(3+5\,x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)/(2+3*x)^5/(3+5*x),x)
```

```
[Out] 7/12/(2+3*x)^4+11/3/(2+3*x)^3+55/2/(2+3*x)^2+275/(2+3*x)-1375*ln(
2+3*x)+1375*ln(3+5*x)
```

Maxima [A] time = 1.34795, size = 76, normalized size = 1.29

$$\frac{89100\,x^3+181170\,x^2+122892\,x+27815}{12\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}+1375\,\log(5\,x+3)-1375\,\log(3\,x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/((5*x + 3)*(3*x + 2)^5),x, algorithm="maxima")
```

```
[Out] 1/12*(89100*x^3 + 181170*x^2 + 122892*x + 27815)/(81*x^4 + 216*x^
3 + 216*x^2 + 96*x + 16) + 1375*log(5*x + 3) - 1375*log(3*x + 2)
```

Fricas [A] time = 0.220015, size = 128, normalized size = 2.17

$$\frac{89100\,x^3+181170\,x^2+16500\,\left(81\,x^4+216\,x^3+216\,x^2+96\,x+16\right)\log(5\,x+3)-16500\,\left(81\,x^4+216\,x^3+216\,x^2+96\,x+1\right.}{12\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/((5*x + 3)*(3*x + 2)^5),x, algorithm="fricas")
```

```
[Out] 1/12*(89100*x^3 + 181170*x^2 + 16500*(81*x^4 + 216*x^3 + 216*x^2
+ 96*x + 16)*log(5*x + 3) - 16500*(81*x^4 + 216*x^3 + 216*x^2 + 9
6*x + 16)*log(3*x + 2) + 122892*x + 27815)/(81*x^4 + 216*x^3 + 21
6*x^2 + 96*x + 16)
```

Sympy [A] time = 0.423334, size = 51, normalized size = 0.86

$$\frac{89100x^3+181170x^2+122892x+27815}{972x^4+2592x^3+2592x^2+1152x+192}+1375\log\left(x+\frac{3}{5}\right)-1375\log\left(x+\frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)/(2+3*x)**5/(3+5*x),x)
```

```
[Out] (89100*x**3 + 181170*x**2 + 122892*x + 27815)/(972*x**4 + 2592*x*
*3 + 2592*x**2 + 1152*x + 192) + 1375*log(x + 3/5) - 1375*log(x +
 2/3)
```

GIAC/XCAS [A] time = 0.214103, size = 70, normalized size = 1.19

$$\frac{275}{3\,x+2}+\frac{55}{2\,(3\,x+2)^2}+\frac{11}{3\,(3\,x+2)^3}+\frac{7}{12\,(3\,x+2)^4}+1375\ln\left(\left|-\frac{1}{3\,x+2}+5\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/((5*x + 3)*(3*x + 2)^5),x, algorithm="giac")
```

```
[Out] 275/(3*x + 2) + 55/2/(3*x + 2)^2 + 11/3/(3*x + 2)^3 + 7/12/(3*x +
 2)^4 + 1375*ln(abs(-1/(3*x + 2) + 5))
```

3.1188 $\int \frac{1-2x}{(2+3x)^6(3+5x)}\,dx$

Optimal. Leaf size=70

$$\frac{1375}{3x+2}+\frac{275}{2(3x+2)^2}+\frac{55}{3(3x+2)^3}+\frac{11}{4(3x+2)^4}+\frac{7}{15(3x+2)^5}-6875\log(3x+2)+6875\log(5x+3)$$

```
[Out] 7/(15*(2 + 3*x)^5) + 11/(4*(2 + 3*x)^4) + 55/(3*(2 + 3*x)^3) + 27
5/(2*(2 + 3*x)^2) + 1375/(2 + 3*x) - 6875*Log[2 + 3*x] + 6875*Log
[3 + 5*x]
```

Rubi [A] time = 0.0674979, antiderivative size = 70, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{1375}{3x+2}+\frac{275}{2(3x+2)^2}+\frac{55}{3(3x+2)^3}+\frac{11}{4(3x+2)^4}+\frac{7}{15(3x+2)^5}-6875\log(3x+2)+6875\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)/((2 + 3*x)^6*(3 + 5*x)),x]
```

```
[Out] 7/(15*(2 + 3*x)^5) + 11/(4*(2 + 3*x)^4) + 55/(3*(2 + 3*x)^3) + 27
5/(2*(2 + 3*x)^2) + 1375/(2 + 3*x) - 6875*Log[2 + 3*x] + 6875*Log
[3 + 5*x]
```

Rubi in Sympy [A] time = 9.97079, size = 63, normalized size = 0.9

$$-6875\log(3x+2)+6875\log(5x+3)+\frac{1375}{3x+2}+\frac{275}{2(3x+2)^2}+\frac{55}{3(3x+2)^3}+\frac{11}{4(3x+2)^4}+\frac{7}{15(3x+2)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)/(2+3*x)**6/(3+5*x),x)
```

```
[Out] -6875*log(3*x + 2) + 6875*log(5*x + 3) + 1375/(3*x + 2) + 275/(2*
(3*x + 2)**2) + 55/(3*(3*x + 2)**3) + 11/(4*(3*x + 2)**4) + 7/(15
*(3*x + 2)**5)
```

Mathematica [A] time = 0.0505967, size = 50, normalized size = 0.71

$$\frac{2227500x^4+6014250x^3+6091800x^2+2743565x+463586}{20(3x+2)^5}-6875\log(3x+2)+6875\log(-3(5x+3))$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)/((2 + 3*x)^6*(3 + 5*x)),x]
```

```
[Out] (463586 + 2743565*x + 6091800*x^2 + 6014250*x^3 + 2227500*x^4)/(2
0*(2 + 3*x)^5) - 6875*Log[2 + 3*x] + 6875*Log[-3*(3 + 5*x)]
```

Maple [A] time = 0.013, size = 63, normalized size = 0.9

$$\frac{7}{15\,(2+3\,x)^5}+\frac{11}{4\,(2+3\,x)^4}+\frac{55}{3\,(2+3\,x)^3}+\frac{275}{2\,(2+3\,x)^2}+1375\,(2+3\,x)^{-1}-6875\,\ln(2+3\,x)+6875\,\ln(3+5\,x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)/(2+3*x)^6/(3+5*x),x)
```

```
[Out] 7/15/(2+3*x)^5+11/4/(2+3*x)^4+55/3/(2+3*x)^3+275/2/(2+3*x)^2+1375
/(2+3*x)-6875*ln(2+3*x)+6875*ln(3+5*x)
```

Maxima [A] time = 1.35073, size = 89, normalized size = 1.27

$$\frac{2227500\,x^4 + 6014250\,x^3 + 6091800\,x^2 + 2743565\,x + 463586}{20\,(243\,x^5 + 810\,x^4 + 1080\,x^3 + 720\,x^2 + 240\,x + 32)} + 6875\,\log\left(5\,x + 3\right) - 6875\,\log\left(3\,x + 2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/((5*x + 3)*(3*x + 2)^6),x, algorithm="maxima")
```

```
[Out] 1/20*(2227500*x^4 + 6014250*x^3 + 6091800*x^2 + 2743565*x + 46358
6)/(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32) + 6875*l
og(5*x + 3) - 6875*log(3*x + 2)
```

Fricas [A] time = 0.211704, size = 155, normalized size = 2.21

$$\frac{2227500\,x^4 + 6014250\,x^3 + 6091800\,x^2 + 137500\,\left(243\,x^5 + 810\,x^4 + 1080\,x^3 + 720\,x^2 + 240\,x + 32\right)\,\log\left(5\,x + 3\right) - 137500\,(2}{20\,(243\,x^5 + 810\,x^4 + 1080\,x^3 + 720\,x^2 + 240\,x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/((5*x + 3)*(3*x + 2)^6),x, algorithm="fricas")
```

```
[Out] 1/20*(2227500*x^4 + 6014250*x^3 + 6091800*x^2 + 137500*(243*x^5 +
 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)*log(5*x + 3) - 137500
*(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)*log(3*x +
2) + 2743565*x + 463586)/(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2
+ 240*x + 32)
```

Sympy [A] time = 0.460215, size = 61, normalized size = 0.87

$$\frac{2227500x^4 + 6014250x^3 + 6091800x^2 + 2743565x + 463586}{4860x^5 + 16200x^4 + 21600x^3 + 14400x^2 + 4800x + 640} + 6875\log\left(x + \frac{3}{5}\right) - 6875\log\left(x + \frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)/(2+3*x)**6/(3+5*x),x)
```

```
[Out] (2227500*x**4 + 6014250*x**3 + 6091800*x**2 + 2743565*x + 463586)
/(4860*x**5 + 16200*x**4 + 21600*x**3 + 14400*x**2 + 4800*x + 640
) + 6875*log(x + 3/5) - 6875*log(x + 2/3)
```

GIAC/XCAS [A] time = 0.206477, size = 65, normalized size = 0.93

$$\frac{2227500\,x^4 + 6014250\,x^3 + 6091800\,x^2 + 2743565\,x + 463586}{20\,(3\,x + 2)^5} + 6875\ln\left(|5\,x + 3|\right) - 6875\ln\left(|3\,x + 2|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/((5*x + 3)*(3*x + 2)^6),x, algorithm="giac")
```

```
[Out] 1/20*(2227500*x^4 + 6014250*x^3 + 6091800*x^2 + 2743565*x + 46358
6)/(3*x + 2)^5 + 6875*ln(abs(5*x + 3)) - 6875*ln(abs(3*x + 2))
```

3.1189 $\int \frac{1-2x}{(2+3x)^7(3+5x)}\,dx$

Optimal. Leaf size=81

$$\frac{6875}{3x+2}+\frac{1375}{2(3x+2)^2}+\frac{275}{3(3x+2)^3}+\frac{55}{4(3x+2)^4}+\frac{11}{5(3x+2)^5}+\frac{7}{18(3x+2)^6}-34375\log(3x+2)+34375\log(5x+3)$$

```
[Out] 7/(18*(2 + 3*x)^6) + 11/(5*(2 + 3*x)^5) + 55/(4*(2 + 3*x)^4) + 27
5/(3*(2 + 3*x)^3) + 1375/(2*(2 + 3*x)^2) + 6875/(2 + 3*x) - 34375
*Log[2 + 3*x] + 34375*Log[3 + 5*x]
```

Rubi [A] time = 0.0746975, antiderivative size = 81, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{6875}{3x+2}+\frac{1375}{2(3x+2)^2}+\frac{275}{3(3x+2)^3}+\frac{55}{4(3x+2)^4}+\frac{11}{5(3x+2)^5}+\frac{7}{18(3x+2)^6}-34375\log(3x+2)+34375\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)/((2 + 3*x)^7*(3 + 5*x)),x]
```

```
[Out] 7/(18*(2 + 3*x)^6) + 11/(5*(2 + 3*x)^5) + 55/(4*(2 + 3*x)^4) + 27
5/(3*(2 + 3*x)^3) + 1375/(2*(2 + 3*x)^2) + 6875/(2 + 3*x) - 34375
*Log[2 + 3*x] + 34375*Log[3 + 5*x]
```

Rubi in Sympy [A] time = 11.1584, size = 73, normalized size = 0.9

$$-34375\log(3x+2)+34375\log(5x+3)+\frac{6875}{3x+2}+\frac{1375}{2(3x+2)^2}+\frac{275}{3(3x+2)^3}+\frac{55}{4(3x+2)^4}+\frac{11}{5(3x+2)^5}+\frac{7}{18(3x+2)^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)/(2+3*x)**7/(3+5*x),x)
```

```
[Out] -34375*log(3*x + 2) + 34375*log(5*x + 3) + 6875/(3*x + 2) + 1375/
(2*(3*x + 2)**2) + 275/(3*(3*x + 2)**3) + 55/(4*(3*x + 2)**4) + 1
1/(5*(3*x + 2)**5) + 7/(18*(3*x + 2)**6)
```

Mathematica [A] time = 0.0744008, size = 75, normalized size = 0.93

$$\frac{1237500(3x+2)^5+123750(3x+2)^4+16500(3x+2)^3+2475(3x+2)^2+396(3x+2)+70}{180(3x+2)^6}-34375\log(3x+2)+34375\log(-3(5x+3))$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)/((2 + 3*x)^7*(3 + 5*x)),x]
```

```
[Out] (70 + 396*(2 + 3*x) + 2475*(2 + 3*x)^2 + 16500*(2 + 3*x)^3 + 1237
50*(2 + 3*x)^4 + 1237500*(2 + 3*x)^5)/(180*(2 + 3*x)^6) - 34375*L
```

```
og[2 + 3*x] + 34375*Log[-3*(3 + 5*x)]
```

Maple [A] time = 0.012, size = 72, normalized size = 0.9

$$\frac{7}{18\,(2+3\,x)^{6}}+\frac{11}{5\,(2+3\,x)^{5}}+\frac{55}{4\,(2+3\,x)^{4}}+\frac{275}{3\,(2+3\,x)^{3}}+\frac{1375}{2\,(2+3\,x)^{2}}+6875\,(2+3\,x)^{-1}-34375\,\ln(2+3\,x)+34375\,\ln(3+5\,x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)/(2+3*x)^7/(3+5*x),x)
```

```
[Out] 7/18/(2+3*x)^6+11/5/(2+3*x)^5+55/4/(2+3*x)^4+275/3/(2+3*x)^3+1375
/2/(2+3*x)^2+6875/(2+3*x)-34375*ln(2+3*x)+34375*ln(3+5*x)
```

Maxima [A] time = 1.35008, size = 103, normalized size = 1.27

$$\frac{300712500\,x^{5}+1012398750\,x^{4}+1363675500\,x^{3}+918643275\,x^{2}+309504888\,x+41722762}{180\,(729\,x^{6}+2916\,x^{5}+4860\,x^{4}+4320\,x^{3}+2160\,x^{2}+576\,x+64)}+34375\,\log(5\,x+3)-34375\,\log(3\,x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/((5*x + 3)*(3*x + 2)^7),x, algorithm="maxima")
```

```
[Out] 1/180*(300712500*x^5 + 1012398750*x^4 + 1363675500*x^3 + 91864327
5*x^2 + 309504888*x + 41722762)/(729*x^6 + 2916*x^5 + 4860*x^4 +
4320*x^3 + 2160*x^2 + 576*x + 64) + 34375*log(5*x + 3) - 34375*lo
g(3*x + 2)
```

Fricas [A] time = 0.208175, size = 182, normalized size = 2.25

$$\frac{300712500\,x^{5}+1012398750\,x^{4}+1363675500\,x^{3}+918643275\,x^{2}+6187500\,\left(729\,x^{6}+2916\,x^{5}+4860\,x^{4}+4320\,x^{3}+2160\,x^{2}\right.}{180\,(729\,x^{6}+2916\,x^{5}+4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/((5*x + 3)*(3*x + 2)^7),x, algorithm="fricas")
```

```
[Out] 1/180*(300712500*x^5 + 1012398750*x^4 + 1363675500*x^3 + 91864327
5*x^2 + 6187500*(729*x^6 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 2160*
x^2 + 576*x + 64)*log(5*x + 3) - 6187500*(729*x^6 + 2916*x^5 + 48
60*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64)*log(3*x + 2) + 3095048
88*x + 41722762)/(729*x^6 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 2160
*x^2 + 576*x + 64)
```

Sympy [A] time = 0.505178, size = 71, normalized size = 0.88

$$\frac{300712500x^{5}+1012398750x^{4}+1363675500x^{3}+918643275x^{2}+309504888x+41722762}{131220x^{6}+524880x^{5}+874800x^{4}+777600x^{3}+388800x^{2}+103680x+11520}+34375\log\left(x+\frac{3}{5}\right)-34375\log\left(x+\frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)/(2+3*x)**7/(3+5*x),x)
```

```
[Out] (300712500*x**5 + 1012398750*x**4 + 1363675500*x**3 + 918643275*x
**2 + 309504888*x + 41722762)/(131220*x**6 + 524880*x**5 + 874800
*x**4 + 777600*x**3 + 388800*x**2 + 103680*x + 11520) + 34375*log
(x + 3/5) - 34375*log(x + 2/3)
```

GIAC/XCAS [A]   time = 0.211074, size = 72, normalized size = 0.89

$$\frac{300712500\,x^5 + 1012398750\,x^4 + 1363675500\,x^3 + 918643275\,x^2 + 309504888\,x + 41722762}{180\,(3\,x + 2)^6} + 34375\ln\left(|5\,x + 3|\right) - 34375\ln\left(|3\,x + 2|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/((5*x + 3)*(3*x + 2)^7),x, algorithm="giac")
```

```
[Out] 1/180*(300712500*x^5 + 1012398750*x^4 + 1363675500*x^3 + 91864327
5*x^2 + 309504888*x + 41722762)/(3*x + 2)^6 + 34375*ln(abs(5*x +
3)) - 34375*ln(abs(3*x + 2))
```

3.1190 $\int \frac{(1-2x)(2+3x)^7}{(3+5x)^2}\,dx$

Optimal. Leaf size=69

$$-\frac{4374x^7}{175}-\frac{21627x^6}{250}-\frac{336798x^5}{3125}-\frac{513783x^4}{12500}+\frac{92592x^3}{3125}+\frac{5740767x^2}{156250}+\frac{5555478x}{390625}-\frac{11}{1953125(5x+3)}+\frac{229\log(5x+3)}{1953125}$$

```
[Out] (5555478*x)/390625 + (5740767*x^2)/156250 + (92592*x^3)/3125 - (5
13783*x^4)/12500 - (336798*x^5)/3125 - (21627*x^6)/250 - (4374*x^
7)/175 - 11/(1953125*(3 + 5*x)) + (229*Log[3 + 5*x])/1953125
```

Rubi [A] time = 0.0783194, antiderivative size = 69, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{4374x^7}{175}-\frac{21627x^6}{250}-\frac{336798x^5}{3125}-\frac{513783x^4}{12500}+\frac{92592x^3}{3125}+\frac{5740767x^2}{156250}+\frac{5555478x}{390625}-\frac{11}{1953125(5x+3)}+\frac{229\log(5x+3)}{1953125}$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)*(2 + 3*x)^7)/(3 + 5*x)^2,x]
```

```
[Out] (5555478*x)/390625 + (5740767*x^2)/156250 + (92592*x^3)/3125 - (5
13783*x^4)/12500 - (336798*x^5)/3125 - (21627*x^6)/250 - (4374*x^
7)/175 - 11/(1953125*(3 + 5*x)) + (229*Log[3 + 5*x])/1953125
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{4374x^7}{175}-\frac{21627x^6}{250}-\frac{336798x^5}{3125}-\frac{513783x^4}{12500}+\frac{92592x^3}{3125}+\frac{229\log{(5x+3)}}{1953125}+\int\frac{5555478}{390625}\,dx+\frac{5740767\int x\,dx}{78125}-\frac{11}{1953125\,(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)*(2+3*x)**7/(3+5*x)**2,x)
```

```
[Out] -4374*x**7/175 - 21627*x**6/250 - 336798*x**5/3125 - 513783*x**4/
12500 + 92592*x**3/3125 + 229*log(5*x + 3)/1953125 + Integral(555
5478/390625, x) + 5740767*Integral(x, x)/78125 - 11/(1953125*(5*x
 + 3))
```

Mathematica [A] time = 0.0597866, size = 85, normalized size = 1.23

$$\frac{-1875000(3x+2)^7+6781250(3x+2)^6+3360000(3x+2)^5+1273125(3x+2)^4+455000(3x+2)^3+171150(3x+2)^2+82320}{164062500}$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)*(2 + 3*x)^7)/(3 + 5*x)^2,x]
```

```
[Out] (82320*(2 + 3*x) + 171150*(2 + 3*x)^2 + 455000*(2 + 3*x)^3 + 1273
125*(2 + 3*x)^4 + 3360000*(2 + 3*x)^5 + 6781250*(2 + 3*x)^6 - 187
```

```
5000*(2 + 3*x)^7 - 924/(3 + 5*x) + 19236*Log[-3*(3 + 5*x)])/16406
2500
```

Maple [A] time = 0.01, size = 52, normalized size = 0.8

$$\frac{5555478\,x}{390625}+\frac{5740767\,x^{2}}{156250}+\frac{92592\,x^{3}}{3125}-\frac{513783\,x^{4}}{12500}-\frac{336798\,x^{5}}{3125}-\frac{21627\,x^{6}}{250}-\frac{4374\,x^{7}}{175}-\frac{11}{5859375+9765625\,x}+\frac{229\,\ln\left(3+5\,x\right)}{1953125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(2+3*x)^7/(3+5*x)^2,x)
```

```
[Out] 5555478/390625*x+5740767/156250*x^2+92592/3125*x^3-513783/12500*x
^4-336798/3125*x^5-21627/250*x^6-4374/175*x^7-11/1953125/(3+5*x)+
229/1953125*ln(3+5*x)
```

Maxima [A] time = 1.3388, size = 69, normalized size = 1.

$$-\frac{4374}{175}\,x^{7}-\frac{21627}{250}\,x^{6}-\frac{336798}{3125}\,x^{5}-\frac{513783}{12500}\,x^{4}+\frac{92592}{3125}\,x^{3}+\frac{5740767}{156250}\,x^{2}+\frac{5555478}{390625}\,x-\frac{11}{1953125\,(5\,x+3)}+\frac{229}{1953125}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^7*(2*x - 1)/(5*x + 3)^2,x, algorithm="maxima")
```

```
[Out] -4374/175*x^7 - 21627/250*x^6 - 336798/3125*x^5 - 513783/12500*x^
4 + 92592/3125*x^3 + 5740767/156250*x^2 + 5555478/390625*x - 11/1
953125/(5*x + 3) + 229/1953125*log(5*x + 3)
```

Fricas [A] time = 0.210104, size = 84, normalized size = 1.22

$$-\frac{6834375000\,x^{8}+27755156250\,x^{7}+43662543750\,x^{6}+28920898125\,x^{5}-1358398125\,x^{4}-14907422250\,x^{3}-9916639950\,}{54687500\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^7*(2*x - 1)/(5*x + 3)^2,x, algorithm="fricas")
```

```
[Out] -1/54687500*(6834375000*x^8 + 27755156250*x^7 + 43662543750*x^6 +
 28920898125*x^5 - 1358398125*x^4 - 14907422250*x^3 - 9916639950*
x^2 - 6412*(5*x + 3)*log(5*x + 3) - 2333300760*x + 308)/(5*x + 3)
```

Sympy [A] time = 0.245303, size = 61, normalized size = 0.88

$$-\frac{4374x^{7}}{175}-\frac{21627x^{6}}{250}-\frac{336798x^{5}}{3125}-\frac{513783x^{4}}{12500}+\frac{92592x^{3}}{3125}+\frac{5740767x^{2}}{156250}+\frac{5555478x}{390625}+\frac{229\log\left(5x+3\right)}{1953125}-\frac{11}{9765625x+5859375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)**7/(3+5*x)**2,x)
```

```
[Out] -4374*x**7/175 - 21627*x**6/250 - 336798*x**5/3125 - 513783*x**4/
12500 + 92592*x**3/3125 + 5740767*x**2/156250 + 5555478*x/390625
+ 229*log(5*x + 3)/1953125 - 11/(9765625*x + 5859375)
```

GIAC/XCAS [A] time = 0.21031, size = 126, normalized size = 1.83

$$\frac{3}{273437500}\,(5\,x+3)^{7}\left(\frac{107730}{5\,x+3}+\frac{428652}{(5\,x+3)^{2}}+\frac{588735}{(5\,x+3)^{3}}+\frac{455700}{(5\,x+3)^{4}}+\frac{233730}{(5\,x+3)^{5}}+\frac{95060}{(5\,x+3)^{6}}-29160\right)-\frac{11}{1953125\,(5\,x+3)}-\frac{229}{1953125}\ln\left(\frac{|5\,x+3|}{5\,(5\,x+3)^{2}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^7*(2*x - 1)/(5*x + 3)^2,x, algorithm="giac")
```

```
[Out] 3/273437500*(5*x + 3)^7*(107730/(5*x + 3) + 428652/(5*x + 3)^2 +
588735/(5*x + 3)^3 + 455700/(5*x + 3)^4 + 233730/(5*x + 3)^5 + 95
060/(5*x + 3)^6 - 29160) - 11/1953125/(5*x + 3) - 229/1953125*ln(
1/5*abs(5*x + 3)/(5*x + 3)^2)
```

3.1191 $\int \frac{(1-2x)(2+3x)^6}{(3+5x)^2}\,dx$

Optimal. Leaf size=62

$$-\frac{243x^6}{25}-\frac{16767x^5}{625}-\frac{14094x^4}{625}+\frac{5553x^3}{3125}+\frac{40743x^2}{3125}+\frac{555489x}{78125}-\frac{11}{390625(5x+3)}+\frac{196\log(5x+3)}{390625}$$

```
[Out] (555489*x)/78125 + (40743*x^2)/3125 + (5553*x^3)/3125 - (14094*x^
4)/625 - (16767*x^5)/625 - (243*x^6)/25 - 11/(390625*(3 + 5*x)) +
 (196*Log[3 + 5*x])/390625
```

Rubi [A] time = 0.0710625, antiderivative size = 62, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{243x^6}{25}-\frac{16767x^5}{625}-\frac{14094x^4}{625}+\frac{5553x^3}{3125}+\frac{40743x^2}{3125}+\frac{555489x}{78125}-\frac{11}{390625(5x+3)}+\frac{196\log(5x+3)}{390625}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)*(2 + 3*x)^6)/(3 + 5*x)^2,x]
```

```
[Out] (555489*x)/78125 + (40743*x^2)/3125 + (5553*x^3)/3125 - (14094*x^
4)/625 - (16767*x^5)/625 - (243*x^6)/25 - 11/(390625*(3 + 5*x)) +
 (196*Log[3 + 5*x])/390625
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{243x^6}{25}-\frac{16767x^5}{625}-\frac{14094x^4}{625}+\frac{5553x^3}{3125}+\frac{196\log(5x+3)}{390625}+\int\frac{555489}{78125}\,dx+\frac{81486\int x\,dx}{3125}-\frac{11}{390625(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(2+3*x)**6/(3+5*x)**2,x)
```

```
[Out] -243*x**6/25 - 16767*x**5/625 - 14094*x**4/625 + 5553*x**3/3125 +
 196*log(5*x + 3)/390625 + Integral(555489/78125, x) + 81486*Inte
gral(x, x)/3125 - 11/(390625*(5*x + 3))
```

Mathematica [A] time = 0.0304685, size = 59, normalized size = 0.95

$$\frac{-94921875x^7-318937500x^6-377409375x^5-114778125x^4+137733750x^3+145829250x^2+53832870x+980(5x+3)\log}{1953125(5x+3)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)*(2 + 3*x)^6)/(3 + 5*x)^2,x]
```

```
[Out] (7302662 + 53832870*x + 145829250*x^2 + 137733750*x^3 - 114778125
*x^4 - 377409375*x^5 - 318937500*x^6 - 94921875*x^7 + 980*(3 + 5*
x)*Log[3 + 5*x])/(1953125*(3 + 5*x))
```

Maple [A] time = 0.01, size = 47, normalized size = 0.8

$$\frac{555489\,x}{78125}+\frac{40743\,x^2}{3125}+\frac{5553\,x^3}{3125}-\frac{14094\,x^4}{625}-\frac{16767\,x^5}{625}-\frac{243\,x^6}{25}-\frac{11}{1171875+1953125\,x}+\frac{196\,\ln(3+5\,x)}{390625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(2+3*x)^6/(3+5*x)^2,x)
```

```
[Out] 555489/78125*x+40743/3125*x^2+5553/3125*x^3-14094/625*x^4-16767/6
25*x^5-243/25*x^6-11/390625/(3+5*x)+196/390625*ln(3+5*x)
```

Maxima [A] time = 1.34612, size = 62, normalized size = 1.

$$-\frac{243}{25}\,x^{6}-\frac{16767}{625}\,x^{5}-\frac{14094}{625}\,x^{4}+\frac{5553}{3125}\,x^{3}+\frac{40743}{3125}\,x^{2}+\frac{555489}{78125}\,x-\frac{11}{390625\,(5\,x+3)}+\frac{196}{390625}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^6*(2*x - 1)/(5*x + 3)^2,x, algorithm="maxima")
```

```
[Out] -243/25*x^6 - 16767/625*x^5 - 14094/625*x^4 + 5553/3125*x^3 + 407
43/3125*x^2 + 555489/78125*x - 11/390625/(5*x + 3) + 196/390625*l
og(5*x + 3)
```

Fricas [A] time = 0.208032, size = 77, normalized size = 1.24

$$-\frac{18984375\,x^{7}+63787500\,x^{6}+75481875\,x^{5}+22955625\,x^{4}-27546750\,x^{3}-29165850\,x^{2}-196\,(5\,x+3)\log\left(5\,x+3\right)-8332}{390625\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^6*(2*x - 1)/(5*x + 3)^2,x, algorithm="fricas")
```

```
[Out] -1/390625*(18984375*x^7 + 63787500*x^6 + 75481875*x^5 + 22955625*
x^4 - 27546750*x^3 - 29165850*x^2 - 196*(5*x + 3)*log(5*x + 3) -
8332335*x + 11)/(5*x + 3)
```

Sympy [A] time = 0.240778, size = 54, normalized size = 0.87

$$-\frac{243x^{6}}{25}-\frac{16767x^{5}}{625}-\frac{14094x^{4}}{625}+\frac{5553x^{3}}{3125}+\frac{40743x^{2}}{3125}+\frac{555489x}{78125}+\frac{196\log\left(5x+3\right)}{390625}-\frac{11}{1953125x+1171875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)**6/(3+5*x)**2,x)
```

```
[Out] -243*x**6/25 - 16767*x**5/625 - 14094*x**4/625 + 5553*x**3/3125 +
 40743*x**2/3125 + 555489*x/78125 + 196*log(5*x + 3)/390625 - 11/
(1953125*x + 1171875)
```

GIAC/XCAS [A] time = 0.212408, size = 113, normalized size = 1.82

$$\frac{9}{1953125}\,(5\,x+3)^{6}\left(\frac{567}{5\,x+3}+\frac{1890}{(5\,x+3)^{2}}+\frac{2275}{(5\,x+3)^{3}}+\frac{1575}{(5\,x+3)^{4}}+\frac{805}{(5\,x+3)^{5}}-135\right)$$
$$-\frac{11}{390625\,(5\,x+3)}-\frac{196}{390625}\ln\left(\frac{|5\,x+3|}{5\,(5\,x+3)^{2}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^6*(2*x - 1)/(5*x + 3)^2,x, algorithm="giac")
```

```
[Out] 9/1953125*(5*x + 3)^6*(567/(5*x + 3) + 1890/(5*x + 3)^2 + 2275/(5
*x + 3)^3 + 1575/(5*x + 3)^4 + 805/(5*x + 3)^5 - 135) - 11/390625
/(5*x + 3) - 196/390625*ln(1/5*abs(5*x + 3)/(5*x + 3)^2)
```

3.1192 $\int \frac{(1-2x)(2+3x)^5}{(3+5x)^2} dx$

Optimal. Leaf size=55

$$-\frac{486x^5}{125}-\frac{3969x^4}{500}-\frac{1854x^3}{625}+\frac{24093x^2}{6250}+\frac{444x}{125}-\frac{11}{78125(5x+3)}+\frac{163\log(5x+3)}{78125}$$

```
[Out] (444*x)/125 + (24093*x^2)/6250 - (1854*x^3)/625 - (3969*x^4)/500
- (486*x^5)/125 - 11/(78125*(3 + 5*x)) + (163*Log[3 + 5*x])/78125
```

Rubi [A] time = 0.0636453, antiderivative size = 55, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{486x^5}{125}-\frac{3969x^4}{500}-\frac{1854x^3}{625}+\frac{24093x^2}{6250}+\frac{444x}{125}-\frac{11}{78125(5x+3)}+\frac{163\log(5x+3)}{78125}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)*(2 + 3*x)^5)/(3 + 5*x)^2,x]
```

```
[Out] (444*x)/125 + (24093*x^2)/6250 - (1854*x^3)/625 - (3969*x^4)/500
- (486*x^5)/125 - 11/(78125*(3 + 5*x)) + (163*Log[3 + 5*x])/78125
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{486x^5}{125}-\frac{3969x^4}{500}-\frac{1854x^3}{625}+\frac{163\log(5x+3)}{78125}+\int\frac{444}{125}\,dx+\frac{24093\int x\,dx}{3125}-\frac{11}{78125(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(2+3*x)**5/(3+5*x)**2,x)
```

```
[Out] -486*x**5/125 - 3969*x**4/500 - 1854*x**3/625 + 163*log(5*x + 3)/
78125 + Integral(444/125, x) + 24093*Integral(x, x)/3125 - 11/(78
125*(5*x + 3))
```

Mathematica [A] time = 0.0308553, size = 48, normalized size = 0.87

$$\frac{-3645000x^5-7441875x^4-2781000x^3+3613950x^2+3330000x-\frac{132}{5x+3}+1956\log(-3(5x+3))+779800}{937500}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)*(2 + 3*x)^5)/(3 + 5*x)^2,x]
```

```
[Out] (779800 + 3330000*x + 3613950*x^2 - 2781000*x^3 - 7441875*x^4 - 3
645000*x^5 - 132/(3 + 5*x) + 1956*Log[-3*(3 + 5*x)])/937500
```

Maple [A] time = 0.009, size = 42, normalized size = 0.8

$$\frac{444x}{125}+\frac{24093x^2}{6250}-\frac{1854x^3}{625}-\frac{3969x^4}{500}-\frac{486x^5}{125}-\frac{11}{234375+390625x}+\frac{163\ln(3+5x)}{78125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(2+3*x)^5/(3+5*x)^2,x)
```

```
[Out] 444/125*x+24093/6250*x^2-1854/625*x^3-3969/500*x^4-486/125*x^5-11
/78125/(3+5*x)+163/78125*ln(3+5*x)
```

Maxima [A] time = 1.34593, size = 55, normalized size = 1.

$$-\frac{486}{125}x^5-\frac{3969}{500}x^4-\frac{1854}{625}x^3+\frac{24093}{6250}x^2+\frac{444}{125}x-\frac{11}{78125\,(5\,x+3)}+\frac{163}{78125}\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^5*(2*x - 1)/(5*x + 3)^2,x, algorithm="maxima")
```

```
[Out] -486/125*x^5 - 3969/500*x^4 - 1854/625*x^3 + 24093/6250*x^2 + 444
/125*x - 11/78125/(5*x + 3) + 163/78125*log(5*x + 3)
```

Fricas [A] time = 0.207363, size = 70, normalized size = 1.27

$$-\frac{6075000\,x^6+16048125\,x^5+12076875\,x^4-3242250\,x^3-9163950\,x^2-652\,(5\,x+3)\log\left(5\,x+3\right)-3330000\,x+44}{312500\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^5*(2*x - 1)/(5*x + 3)^2,x, algorithm="fricas")
```

```
[Out] -1/312500*(6075000*x^6 + 16048125*x^5 + 12076875*x^4 - 3242250*x^
3 - 9163950*x^2 - 652*(5*x + 3)*log(5*x + 3) - 3330000*x + 44)/(5
*x + 3)
```

Sympy [A] time = 0.23521, size = 48, normalized size = 0.87

$$-\frac{486x^5}{125}-\frac{3969x^4}{500}-\frac{1854x^3}{625}+\frac{24093x^2}{6250}+\frac{444x}{125}+\frac{163\log\left(5x+3\right)}{78125}-\frac{11}{390625x+234375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)**5/(3+5*x)**2,x)
```

```
[Out] -486*x**5/125 - 3969*x**4/500 - 1854*x**3/625 + 24093*x**2/6250 +
 444*x/125 + 163*log(5*x + 3)/78125 - 11/(390625*x + 234375)
```

GIAC/XCAS [A] time = 0.210981, size = 101, normalized size = 1.84

$$\frac{3}{1562500}\,(5\,x+3)^5\left(\frac{3105}{5\,x+3}+\frac{8700}{(5\,x+3)^2}+\frac{9300}{(5\,x+3)^3}+\frac{6400}{(5\,x+3)^4}-648\right)-\frac{11}{78125\,(5\,x+3)}-\frac{163}{78125}\ln\left(\frac{|5\,x+3|}{5\,(5\,x+3)^2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^5*(2*x - 1)/(5*x + 3)^2,x, algorithm="giac")
```

```
[Out] 3/1562500*(5*x + 3)^5*(3105/(5*x + 3) + 8700/(5*x + 3)^2 + 9300/(
5*x + 3)^3 + 6400/(5*x + 3)^4 - 648) - 11/78125/(5*x + 3) - 163/7
8125*ln(1/5*abs(5*x + 3)/(5*x + 3)^2)
```

3.1193 $\int \frac{(1-2x)(2+3x)^4}{(3+5x)^2} dx$

Optimal. Leaf size=48

$$-\frac{81x^4}{50}-\frac{261x^3}{125}+\frac{378x^2}{625}+\frac{5511x}{3125}-\frac{11}{15625(5x+3)}+\frac{26\log(5x+3)}{3125}$$

```
[Out] (5511*x)/3125 + (378*x^2)/625 - (261*x^3)/125 - (81*x^4)/50 - 11/
(15625*(3 + 5*x)) + (26*Log[3 + 5*x])/3125
```

Rubi [A] time = 0.0591258, antiderivative size = 48, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{81x^4}{50}-\frac{261x^3}{125}+\frac{378x^2}{625}+\frac{5511x}{3125}-\frac{11}{15625(5x+3)}+\frac{26\log(5x+3)}{3125}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)*(2 + 3*x)^4)/(3 + 5*x)^2,x]
```

```
[Out] (5511*x)/3125 + (378*x^2)/625 - (261*x^3)/125 - (81*x^4)/50 - 11/
(15625*(3 + 5*x)) + (26*Log[3 + 5*x])/3125
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{81x^4}{50}-\frac{261x^3}{125}+\frac{26\log(5x+3)}{3125}+\int\frac{5511}{3125}\,dx+\frac{756\int x\,dx}{625}-\frac{11}{15625\,(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(2+3*x)**4/(3+5*x)**2,x)
```

```
[Out] -81*x**4/50 - 261*x**3/125 + 26*log(5*x + 3)/3125 + Integral(5511
/3125, x) + 756*Integral(x, x)/625 - 11/(15625*(5*x + 3))
```

Mathematica [A] time = 0.0272926, size = 49, normalized size = 1.02

$$\frac{-50625x^5-95625x^4-20250x^3+66450x^2+51795x+52(5x+3)\log(5x+3)+11233}{6250(5x+3)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)*(2 + 3*x)^4)/(3 + 5*x)^2,x]
```

```
[Out] (11233 + 51795*x + 66450*x^2 - 20250*x^3 - 95625*x^4 - 50625*x^5
+ 52*(3 + 5*x)*Log[3 + 5*x])/(6250*(3 + 5*x))
```

Maple [A] time = 0.009, size = 37, normalized size = 0.8

$$\frac{5511\,x}{3125}+\frac{378\,x^2}{625}-\frac{261\,x^3}{125}-\frac{81\,x^4}{50}-\frac{11}{46875+78125\,x}+\frac{26\,\ln(3+5\,x)}{3125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(2+3*x)^4/(3+5*x)^2,x)
```

```
[Out] 5511/3125*x+378/625*x^2-261/125*x^3-81/50*x^4-11/15625/(3+5*x)+26
/3125*ln(3+5*x)
```

Maxima [A] time = 1.34341, size = 49, normalized size = 1.02

$$-\frac{81}{50}\,x^4-\frac{261}{125}\,x^3+\frac{378}{625}\,x^2+\frac{5511}{3125}\,x-\frac{11}{15625\,(5\,x+3)}+\frac{26}{3125}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^4*(2*x - 1)/(5*x + 3)^2,x, algorithm="maxima")
```

```
[Out] -81/50*x^4 - 261/125*x^3 + 378/625*x^2 + 5511/3125*x - 11/15625/(
5*x + 3) + 26/3125*log(5*x + 3)
```

Fricas [A] time = 0.213603, size = 63, normalized size = 1.31

$$-\frac{253125\,x^5+478125\,x^4+101250\,x^3-332250\,x^2-260\,(5\,x+3)\log\left(5\,x+3\right)-165330\,x+22}{31250\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^4*(2*x - 1)/(5*x + 3)^2,x, algorithm="fricas")
```

```
[Out] -1/31250*(253125*x^5 + 478125*x^4 + 101250*x^3 - 332250*x^2 - 260
*(5*x + 3)*log(5*x + 3) - 165330*x + 22)/(5*x + 3)
```

Sympy [A] time = 0.224754, size = 41, normalized size = 0.85

$$-\frac{81x^4}{50}-\frac{261x^3}{125}+\frac{378x^2}{625}+\frac{5511x}{3125}+\frac{26\log\left(5x+3\right)}{3125}-\frac{11}{78125x+46875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)**4/(3+5*x)**2,x)
```

```
[Out] -81*x**4/50 - 261*x**3/125 + 378*x**2/625 + 5511*x/3125 + 26*log(
5*x + 3)/3125 - 11/(78125*x + 46875)
```

GIAC/XCAS [A] time = 0.212437, size = 89, normalized size = 1.85

$$\frac{3}{31250}\,(5\,x+3)^4\left(\frac{150}{5\,x+3}+\frac{360}{(5\,x+3)^2}+\frac{380}{(5\,x+3)^3}-27\right)-\frac{11}{15625\,(5\,x+3)}-\frac{26}{3125}\ln\left(\frac{|5\,x+3|}{5\,(5\,x+3)^2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^4*(2*x - 1)/(5*x + 3)^2,x, algorithm="giac")
```

```
[Out] 3/31250*(5*x + 3)^4*(150/(5*x + 3) + 360/(5*x + 3)^2 + 380/(5*x +
 3)^3 - 27) - 11/15625/(5*x + 3) - 26/3125*ln(1/5*abs(5*x + 3)/(5
*x + 3)^2)
```

3.1194 $\int \frac{(1-2x)(2+3x)^3}{(3+5x)^2} \, dx$

Optimal. Leaf size=41

$$-\frac{18x^3}{25}-\frac{81x^2}{250}+\frac{522x}{625}-\frac{11}{3125(5x+3)}+\frac{97\log(5x+3)}{3125}$$

```
[Out] (522*x)/625 - (81*x^2)/250 - (18*x^3)/25 - 11/(3125*(3 + 5*x)) +
(97*Log[3 + 5*x])/3125
```

Rubi [A] time = 0.051875, antiderivative size = 41, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{18x^3}{25}-\frac{81x^2}{250}+\frac{522x}{625}-\frac{11}{3125(5x+3)}+\frac{97\log(5x+3)}{3125}$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)*(2 + 3*x)^3)/(3 + 5*x)^2,x]
```

```
[Out] (522*x)/625 - (81*x^2)/250 - (18*x^3)/25 - 11/(3125*(3 + 5*x)) +
(97*Log[3 + 5*x])/3125
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{18x^3}{25}+\frac{97\log(5x+3)}{3125}+\int\frac{522}{625}\,dx-\frac{81\int x\,dx}{125}-\frac{11}{3125(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)*(2+3*x)**3/(3+5*x)**2,x)
```

```
[Out] -18*x**3/25 + 97*log(5*x + 3)/3125 + Integral(522/625, x) - 81*In
tegral(x, x)/125 - 11/(3125*(5*x + 3))
```

Mathematica [A] time = 0.0205554, size = 46, normalized size = 1.12

$$\frac{-67500x^4-70875x^3+60075x^2+92680x+582(5x+3)\log(-3(5x+3))+27354}{18750(5x+3)}$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)*(2 + 3*x)^3)/(3 + 5*x)^2,x]
```

```
[Out] (27354 + 92680*x + 60075*x^2 - 70875*x^3 - 67500*x^4 + 582*(3 + 5
*x)*Log[-3*(3 + 5*x)])/(18750*(3 + 5*x))
```

Maple [A] time = 0.01, size = 32, normalized size = 0.8

$$\frac{522\,x}{625}-\frac{81\,x^2}{250}-\frac{18\,x^3}{25}-\frac{11}{9375+15625\,x}+\frac{97\,\ln(3+5\,x)}{3125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(2+3*x)^3/(3+5*x)^2,x)
```

```
[Out] 522/625*x-81/250*x^2-18/25*x^3-11/3125/(3+5*x)+97/3125*ln(3+5*x)
```

Maxima [A] time = 1.34039, size = 42, normalized size = 1.02

$$-\frac{18}{25}\,x^{3}-\frac{81}{250}\,x^{2}+\frac{522}{625}\,x-\frac{11}{3125\,(5\,x+3)}+\frac{97}{3125}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^3*(2*x - 1)/(5*x + 3)^2,x, algorithm="maxima")
```

```
[Out] -18/25*x^3 - 81/250*x^2 + 522/625*x - 11/3125/(5*x + 3) + 97/3125
*log(5*x + 3)
```

Fricas [A] time = 0.212872, size = 57, normalized size = 1.39

$$-\frac{22500\,x^{4}+23625\,x^{3}-20025\,x^{2}-194\,(5\,x+3)\log\left(5\,x+3\right)-15660\,x+22}{6250\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^3*(2*x - 1)/(5*x + 3)^2,x, algorithm="fricas")
```

```
[Out] -1/6250*(22500*x^4 + 23625*x^3 - 20025*x^2 - 194*(5*x + 3)*log(5*
x + 3) - 15660*x + 22)/(5*x + 3)
```

Sympy [A] time = 0.211155, size = 34, normalized size = 0.83

$$-\frac{18x^{3}}{25}-\frac{81x^{2}}{250}+\frac{522x}{625}+\frac{97\log\left(5x+3\right)}{3125}-\frac{11}{15625x+9375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)**3/(3+5*x)**2,x)
```

```
[Out] -18*x**3/25 - 81*x**2/250 + 522*x/625 + 97*log(5*x + 3)/3125 - 11
/(15625*x + 9375)
```

GIAC/XCAS [A] time = 0.210027, size = 77, normalized size = 1.88

$$\frac{9}{6250}\,(5\,x+3)^{3}\left(\frac{27}{5\,x+3}+\frac{62}{(5\,x+3)^{2}}-4\right)-\frac{11}{3125\,(5\,x+3)}-\frac{97}{3125}\,\ln\left(\frac{|5\,x+3|}{5\,(5\,x+3)^{2}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^3*(2*x - 1)/(5*x + 3)^2,x, algorithm="giac")
```

```
[Out] 9/6250*(5*x + 3)^3*(27/(5*x + 3) + 62/(5*x + 3)^2 - 4) - 11/3125/
(5*x + 3) - 97/3125*ln(1/5*abs(5*x + 3)/(5*x + 3)^2)
```

3.1195 $\int \frac{(1-2x)(2+3x)^2}{(3+5x)^2}\,dx$

Optimal. Leaf size=34

$$-\frac{9x^2}{25}+\frac{33x}{125}-\frac{11}{625(5x+3)}+\frac{64}{625}\log(5x+3)$$

```
[Out] (33*x)/125 - (9*x^2)/25 - 11/(625*(3 + 5*x)) + (64*Log[3 + 5*x])/
625
```

Rubi [A] time = 0.0448879, antiderivative size = 34, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{9x^2}{25}+\frac{33x}{125}-\frac{11}{625(5x+3)}+\frac{64}{625}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)*(2 + 3*x)^2)/(3 + 5*x)^2,x]

[Out] (33*x)/125 - (9*x^2)/25 - 11/(625*(3 + 5*x)) + (64*Log[3 + 5*x])/
625
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{64\log(5x+3)}{625}+\int \frac{33}{125}\,dx-\frac{18\int x\,dx}{25}-\frac{11}{625(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(2+3*x)**2/(3+5*x)**2,x)

[Out] 64*log(5*x + 3)/625 + Integral(33/125, x) - 18*Integral(x, x)/25
- 11/(625*(5*x + 3))
```

Mathematica [A] time = 0.0201884, size = 41, normalized size = 1.21

$$\frac{-1125x^3+150x^2+1545x+64(5x+3)\log(-3(5x+3))+619}{625(5x+3)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)*(2 + 3*x)^2)/(3 + 5*x)^2,x]

[Out] (619 + 1545*x + 150*x^2 - 1125*x^3 + 64*(3 + 5*x)*Log[-3*(3 + 5*x
)])/(625*(3 + 5*x))
```

Maple [A] time = 0.01, size = 27, normalized size = 0.8

$$\frac{33x}{125}-\frac{9x^2}{25}-\frac{11}{1875+3125x}+\frac{64\ln(3+5x)}{625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(2+3*x)^2/(3+5*x)^2,x)
```

```
[Out] 33/125*x-9/25*x^2-11/625/(3+5*x)+64/625*ln(3+5*x)
```

Maxima [A] time = 1.34209, size = 35, normalized size = 1.03

$$-\frac{9}{25}\,x^2+\frac{33}{125}\,x-\frac{11}{625\,(5\,x+3)}+\frac{64}{625}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^2*(2*x - 1)/(5*x + 3)^2,x, algorithm="maxima")
```

```
[Out] -9/25*x^2 + 33/125*x - 11/625/(5*x + 3) + 64/625*log(5*x + 3)
```

Fricas [A] time = 0.218293, size = 50, normalized size = 1.47

$$-\frac{1125\,x^3-150\,x^2-64\,(5\,x+3)\log\left(5\,x+3\right)-495\,x+11}{625\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^2*(2*x - 1)/(5*x + 3)^2,x, algorithm="fricas")
```

```
[Out] -1/625*(1125*x^3 - 150*x^2 - 64*(5*x + 3)*log(5*x + 3) - 495*x +
11)/(5*x + 3)
```

Sympy [A] time = 0.199334, size = 27, normalized size = 0.79

$$-\frac{9x^2}{25}+\frac{33x}{125}+\frac{64\log\left(5x+3\right)}{625}-\frac{11}{3125x+1875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)**2/(3+5*x)**2,x)
```

```
[Out] -9*x**2/25 + 33*x/125 + 64*log(5*x + 3)/625 - 11/(3125*x + 1875)
```

GIAC/XCAS [A] time = 0.212051, size = 65, normalized size = 1.91

$$\frac{3}{625}\,(5\,x+3)^2\left(\frac{29}{5\,x+3}-3\right)-\frac{11}{625\,(5\,x+3)}-\frac{64}{625}\,\ln\left(\frac{|5\,x+3|}{5\,(5\,x+3)^2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^2*(2*x - 1)/(5*x + 3)^2,x, algorithm="giac")
```

```
[Out] 3/625*(5*x + 3)^2*(29/(5*x + 3) - 3) - 11/625/(5*x + 3) - 64/625*
ln(1/5*abs(5*x + 3)/(5*x + 3)^2)
```

3.1196 $\int \frac{(1-2x)(2+3x)}{(3+5x)^2}\,dx$

Optimal. Leaf size=27

$$-\frac{6x}{25}-\frac{11}{125(5x+3)}+\frac{31}{125}\log(5x+3)$$

```
[Out] (-6*x)/25 - 11/(125*(3 + 5*x)) + (31*Log[3 + 5*x])/125
```

Rubi [A] time = 0.0330552, antiderivative size = 27, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{6x}{25}-\frac{11}{125(5x+3)}+\frac{31}{125}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)*(2 + 3*x))/(3 + 5*x)^2,x]

[Out] (-6*x)/25 - 11/(125*(3 + 5*x)) + (31*Log[3 + 5*x])/125
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{31\log(5x+3)}{125}+\int\left(-\frac{6}{25}\right)dx-\frac{11}{125(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(2+3*x)/(3+5*x)**2,x)

[Out] 31*log(5*x + 3)/125 + Integral(-6/25, x) - 11/(125*(5*x + 3))
```

Mathematica [A] time = 0.0171671, size = 26, normalized size = 0.96

$$\frac{1}{125}\left(-30x-\frac{11}{5x+3}+31\log(5x+3)-18\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)*(2 + 3*x))/(3 + 5*x)^2,x]

[Out] (-18 - 30*x - 11/(3 + 5*x) + 31*Log[3 + 5*x])/125
```

Maple [A] time = 0.01, size = 22, normalized size = 0.8

$$-\frac{6x}{25}-\frac{11}{375+625x}+\frac{31\ln(3+5x)}{125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(2+3*x)/(3+5*x)^2,x)

[Out] -6/25*x-11/125/(3+5*x)+31/125*ln(3+5*x)
```

Maxima [A] time = 1.3431, size = 28, normalized size = 1.04

$$-\frac{6}{25}\,x - \frac{11}{125\,(5\,x+3)} + \frac{31}{125}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)*(2*x - 1)/(5*x + 3)^2,x, algorithm="maxima")
```

```
[Out] -6/25*x - 11/125/(5*x + 3) + 31/125*log(5*x + 3)
```

Fricas [A] time = 0.213126, size = 43, normalized size = 1.59

$$-\frac{150\,x^2 - 31\,(5\,x+3)\log\left(5\,x+3\right) + 90\,x + 11}{125\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)*(2*x - 1)/(5*x + 3)^2,x, algorithm="fricas")
```

```
[Out] -1/125*(150*x^2 - 31*(5*x + 3)*log(5*x + 3) + 90*x + 11)/(5*x + 3
)
```

Sympy [A] time = 0.188679, size = 20, normalized size = 0.74

$$-\frac{6x}{25} + \frac{31\log\left(5x+3\right)}{125} - \frac{11}{625x+375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)/(3+5*x)**2,x)
```

```
[Out] -6*x/25 + 31*log(5*x + 3)/125 - 11/(625*x + 375)
```

GIAC/XCAS [A] time = 0.211597, size = 43, normalized size = 1.59

$$-\frac{6}{25}\,x - \frac{11}{125\,(5\,x+3)} - \frac{31}{125}\,\ln\left(\frac{|5\,x+3|}{5\,(5\,x+3)^2}\right) - \frac{18}{125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)*(2*x - 1)/(5*x + 3)^2,x, algorithm="giac")
```

```
[Out] -6/25*x - 11/125/(5*x + 3) - 31/125*ln(1/5*abs(5*x + 3)/(5*x + 3)
^2) - 18/125
```

3.1197 $\int \frac{1-2x}{(3+5x)^2} dx$

Optimal. Leaf size=22

$$-\frac{11}{25(5x+3)}-\frac{2}{25}\log(5x+3)$$

```
[Out] -11/(25*(3 + 5*x)) - (2*Log[3 + 5*x])/25
```

Rubi [A] time = 0.0209195, antiderivative size = 22, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 13, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.077

$$-\frac{11}{25(5x+3)}-\frac{2}{25}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)/(3 + 5*x)^2,x]

[Out] -11/(25*(3 + 5*x)) - (2*Log[3 + 5*x])/25
```

Rubi in Sympy [A] time = 3.98075, size = 17, normalized size = 0.77

$$-\frac{2\log{(5x+3)}}{25}-\frac{11}{25\,(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)/(3+5*x)**2,x)

[Out] -2*log(5*x + 3)/25 - 11/(25*(5*x + 3))
```

Mathematica [A] time = 0.00664381, size = 22, normalized size = 1.

$$-\frac{11}{25(5x+3)}-\frac{2}{25}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)/(3 + 5*x)^2,x]

[Out] -11/(25*(3 + 5*x)) - (2*Log[3 + 5*x])/25
```

Maple [A] time = 0.007, size = 19, normalized size = 0.9

$$-\frac{11}{75+125\,x}-\frac{2\,\ln\left(3+5\,x\right)}{25}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)/(3+5*x)^2,x)

[Out] -11/25/(3+5*x)-2/25*ln(3+5*x)
```

Maxima [A] time = 1.34224, size = 24, normalized size = 1.09

$$-\frac{11}{25\,(5\,x+3)}-\frac{2}{25}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/(5*x + 3)^2,x, algorithm="maxima")

[Out] -11/25/(5*x + 3) - 2/25*log(5*x + 3)
```

Fricas [A] time = 0.213323, size = 32, normalized size = 1.45

$$-\frac{2\,(5\,x+3)\log\left(5\,x+3\right)+11}{25\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/(5*x + 3)^2,x, algorithm="fricas")

[Out] -1/25*(2*(5*x + 3)*log(5*x + 3) + 11)/(5*x + 3)
```

Sympy [A] time = 0.162658, size = 17, normalized size = 0.77

$$-\frac{2\log\left(5x+3\right)}{25}-\frac{11}{125x+75}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)/(3+5*x)**2,x)

[Out] -2*log(5*x + 3)/25 - 11/(125*x + 75)
```

GIAC/XCAS [A] time = 0.209502, size = 38, normalized size = 1.73

$$-\frac{11}{25\,(5\,x+3)}+\frac{2}{25}\,\ln\left(\frac{|5\,x+3|}{5\,(5\,x+3)^2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/(5*x + 3)^2,x, algorithm="giac")

[Out] -11/25/(5*x + 3) + 2/25*ln(1/5*abs(5*x + 3)/(5*x + 3)^2)
```

3.1198 $\int \frac{1-2x}{(2+3x)(3+5x)^2} \, dx$

Optimal. Leaf size=28

$$-\frac{11}{5(5x+3)}+7\log(3x+2)-7\log(5x+3)$$

```
[Out] -11/(5*(3 + 5*x)) + 7*Log[2 + 3*x] - 7*Log[3 + 5*x]
```

Rubi [A] time = 0.0365849, antiderivative size = 28, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{11}{5(5x+3)}+7\log(3x+2)-7\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)/((2 + 3*x)*(3 + 5*x)^2),x]

[Out] -11/(5*(3 + 5*x)) + 7*Log[2 + 3*x] - 7*Log[3 + 5*x]
```

Rubi in Sympy [A] time = 5.71136, size = 22, normalized size = 0.79

$$7\log(3x+2)-7\log(5x+3)-\frac{11}{5(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)/(2+3*x)/(3+5*x)**2,x)

[Out] 7*log(3*x + 2) - 7*log(5*x + 3) - 11/(5*(5*x + 3))
```

Mathematica [A] time = 0.0233044, size = 30, normalized size = 1.07

$$-\frac{11}{5(5x+3)}+7\log(5(3x+2))-7\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)/((2 + 3*x)*(3 + 5*x)^2),x]

[Out] -11/(5*(3 + 5*x)) + 7*Log[5*(2 + 3*x)] - 7*Log[3 + 5*x]
```

Maple [A] time = 0.01, size = 27, normalized size = 1.

$$-\frac{11}{15+25x}+7\ln(2+3x)-7\ln(3+5x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)/(2+3*x)/(3+5*x)^2,x)

[Out] -11/5/(3+5*x)+7*ln(2+3*x)-7*ln(3+5*x)
```

Maxima [A] time = 1.34007, size = 35, normalized size = 1.25

$$-\frac{11}{5\,(5\,x+3)}-7\,\log\left(5\,x+3\right)+7\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/((5*x + 3)^2*(3*x + 2)),x, algorithm="maxima")
```

```
[Out] -11/5/(5*x + 3) - 7*log(5*x + 3) + 7*log(3*x + 2)
```

Fricas [A] time = 0.209595, size = 50, normalized size = 1.79

$$-\frac{35\,(5\,x+3)\log\left(5\,x+3\right)-35\,(5\,x+3)\log\left(3\,x+2\right)+11}{5\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/((5*x + 3)^2*(3*x + 2)),x, algorithm="fricas")
```

```
[Out] -1/5*(35*(5*x + 3)*log(5*x + 3) - 35*(5*x + 3)*log(3*x + 2) + 11)
/(5*x + 3)
```

Sympy [A] time = 0.240026, size = 22, normalized size = 0.79

$$-7\log\left(x+\frac{3}{5}\right)+7\log\left(x+\frac{2}{3}\right)-\frac{11}{25x+15}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)/(2+3*x)/(3+5*x)**2,x)
```

```
[Out] -7*log(x + 3/5) + 7*log(x + 2/3) - 11/(25*x + 15)
```

GIAC/XCAS [A] time = 0.207719, size = 34, normalized size = 1.21

$$-\frac{11}{5\,(5\,x+3)}+7\ln\left(\left|-\frac{1}{5\,x+3}-3\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/((5*x + 3)^2*(3*x + 2)),x, algorithm="giac")
```

```
[Out] -11/5/(5*x + 3) + 7*ln(abs(-1/(5*x + 3) - 3))
```

3.1199 $\int \frac{1-2x}{(2+3x)^2(3+5x)^2}\,dx$

Optimal. Leaf size=35

$$-\frac{7}{3x+2}-\frac{11}{5x+3}+68\log(3x+2)-68\log(5x+3)$$

```
[Out] -7/(2 + 3*x) - 11/(3 + 5*x) + 68*Log[2 + 3*x] - 68*Log[3 + 5*x]
```

Rubi [A] time = 0.0454565, antiderivative size = 35, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{7}{3x+2}-\frac{11}{5x+3}+68\log(3x+2)-68\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)/((2 + 3*x)^2*(3 + 5*x)^2),x]
```

```
[Out] -7/(2 + 3*x) - 11/(3 + 5*x) + 68*Log[2 + 3*x] - 68*Log[3 + 5*x]
```

Rubi in Sympy [A] time = 6.71396, size = 29, normalized size = 0.83

$$68\log(3x+2)-68\log(5x+3)-\frac{11}{5x+3}-\frac{7}{3x+2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)/(2+3*x)**2/(3+5*x)**2,x)
```

```
[Out] 68*log(3*x + 2) - 68*log(5*x + 3) - 11/(5*x + 3) - 7/(3*x + 2)
```

Mathematica [A] time = 0.0265759, size = 37, normalized size = 1.06

$$-\frac{7}{3x+2}-\frac{11}{5x+3}+68\log(3x+2)-68\log(-3(5x+3))$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)/((2 + 3*x)^2*(3 + 5*x)^2),x]
```

```
[Out] -7/(2 + 3*x) - 11/(3 + 5*x) + 68*Log[2 + 3*x] - 68*Log[-3*(3 + 5*
x)]
```

Maple [A] time = 0.013, size = 36, normalized size = 1.

$$-7\,(2+3\,x)^{-1}-11\,(3+5\,x)^{-1}+68\,\ln(2+3\,x)-68\,\ln(3+5\,x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)/(2+3*x)^2/(3+5*x)^2,x)
```

```
[Out] -7/(2+3*x)-11/(3+5*x)+68*ln(2+3*x)-68*ln(3+5*x)
```

Maxima [A] time = 1.34904, size = 49, normalized size = 1.4

$$-\frac{68\,x+43}{15\,x^2+19\,x+6}-68\,\log\left(5\,x+3\right)+68\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)/((5*x + 3)^2*(3*x + 2)^2),x, algorithm="maxima")
```

```
[Out] -(68*x + 43)/(15*x^2 + 19*x + 6) - 68*log(5*x + 3) + 68*log(3*x +
 2)
```

Fricas [A] time = 0.205446, size = 74, normalized size = 2.11

$$-\frac{68\,\left(15\,x^2+19\,x+6\right)\,\log\left(5\,x+3\right)-68\,\left(15\,x^2+19\,x+6\right)\,\log\left(3\,x+2\right)+68\,x+43}{15\,x^2+19\,x+6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)/((5*x + 3)^2*(3*x + 2)^2),x, algorithm="fricas")
```

```
[Out] -(68*(15*x^2 + 19*x + 6)*log(5*x + 3) - 68*(15*x^2 + 19*x + 6)*lo
g(3*x + 2) + 68*x + 43)/(15*x^2 + 19*x + 6)
```

Sympy [A] time = 0.296226, size = 31, normalized size = 0.89

$$-\frac{68x+43}{15x^2+19x+6}-68\log\left(x+\frac{3}{5}\right)+68\log\left(x+\frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)/(2+3*x)**2/(3+5*x)**2,x)
```

```
[Out] -(68*x + 43)/(15*x**2 + 19*x + 6) - 68*log(x + 3/5) + 68*log(x +
2/3)
```

GIAC/XCAS [A] time = 0.208734, size = 51, normalized size = 1.46

$$-\frac{11}{5\,x+3}+\frac{105}{\frac{1}{5\,x+3}+3}+68\,\ln\left(\left|-\frac{1}{5\,x+3}-3\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/((5*x + 3)^2*(3*x + 2)^2),x, algorithm="giac")
```

```
[Out] -11/(5*x + 3) + 105/(1/(5*x + 3) + 3) + 68*ln(abs(-1/(5*x + 3) -
3))
```

3.1200 $\int \frac{1-2x}{(2+3x)^3(3+5x)^2} dx$

Optimal. Leaf size=46

$$-\frac{68}{3x+2}-\frac{55}{5x+3}-\frac{7}{2(3x+2)^2}+505\log(3x+2)-505\log(5x+3)$$

```
[Out] -7/(2*(2 + 3*x)^2) - 68/(2 + 3*x) - 55/(3 + 5*x) + 505*Log[2 + 3*
x] - 505*Log[3 + 5*x]
```

Rubi [A] time = 0.0541578, antiderivative size = 46, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{68}{3x+2}-\frac{55}{5x+3}-\frac{7}{2(3x+2)^2}+505\log(3x+2)-505\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)/((2 + 3*x)^3*(3 + 5*x)^2),x]
```

```
[Out] -7/(2*(2 + 3*x)^2) - 68/(2 + 3*x) - 55/(3 + 5*x) + 505*Log[2 + 3*
x] - 505*Log[3 + 5*x]
```

Rubi in Sympy [A] time = 7.8068, size = 39, normalized size = 0.85

$$505\log(3x+2)-505\log(5x+3)-\frac{55}{5x+3}-\frac{68}{3x+2}-\frac{7}{2(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)/(2+3*x)**3/(3+5*x)**2,x)
```

```
[Out] 505*log(3*x + 2) - 505*log(5*x + 3) - 55/(5*x + 3) - 68/(3*x + 2)
 - 7/(2*(3*x + 2)**2)
```

Mathematica [A] time = 0.0297802, size = 48, normalized size = 1.04

$$-\frac{68}{3x+2}-\frac{55}{5x+3}-\frac{7}{2(3x+2)^2}+505\log(3x+2)-505\log(-3(5x+3))$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)/((2 + 3*x)^3*(3 + 5*x)^2),x]
```

```
[Out] -7/(2*(2 + 3*x)^2) - 68/(2 + 3*x) - 55/(3 + 5*x) + 505*Log[2 + 3*
x] - 505*Log[-3*(3 + 5*x)]
```

Maple [A] time = 0.015, size = 45, normalized size = 1.

$$-\frac{7}{2(2+3x)^2}-68(2+3x)^{-1}-55(3+5x)^{-1}+505\ln(2+3x)-505\ln(3+5x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)/(2+3*x)^3/(3+5*x)^2,x)
```

```
[Out] -7/2/(2+3*x)^2-68/(2+3*x)-55/(3+5*x)+505*ln(2+3*x)-505*ln(3+5*x)
```

Maxima [A] time = 1.33486, size = 62, normalized size = 1.35

$$-\frac{3030\,x^2+3939\,x+1277}{2\,(45\,x^3+87\,x^2+56\,x+12)}-505\,\log\left(5\,x+3\right)+505\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)/((5*x + 3)^2*(3*x + 2)^3),x, algorithm="maxima")
```

```
[Out] -1/2*(3030*x^2 + 3939*x + 1277)/(45*x^3 + 87*x^2 + 56*x + 12) - 5
05*log(5*x + 3) + 505*log(3*x + 2)
```

Fricas [A] time = 0.215961, size = 101, normalized size = 2.2

$$-\frac{3030\,x^2+1010\,\left(45\,x^3+87\,x^2+56\,x+12\right)\,\log\left(5\,x+3\right)-1010\,\left(45\,x^3+87\,x^2+56\,x+12\right)\,\log\left(3\,x+2\right)+3939\,x+1277}{2\,(45\,x^3+87\,x^2+56\,x+12)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)/((5*x + 3)^2*(3*x + 2)^3),x, algorithm="fricas")
```

```
[Out] -1/2*(3030*x^2 + 1010*(45*x^3 + 87*x^2 + 56*x + 12)*log(5*x + 3)
- 1010*(45*x^3 + 87*x^2 + 56*x + 12)*log(3*x + 2) + 3939*x + 1277
)/(45*x^3 + 87*x^2 + 56*x + 12)
```

Sympy [A] time = 0.372132, size = 41, normalized size = 0.89

$$-\frac{3030x^2+3939x+1277}{90x^3+174x^2+112x+24}-505\log\left(x+\frac{3}{5}\right)+505\log\left(x+\frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)/(2+3*x)**3/(3+5*x)**2,x)
```

```
[Out] -(3030*x**2 + 3939*x + 1277)/(90*x**3 + 174*x**2 + 112*x + 24) -
505*log(x + 3/5) + 505*log(x + 2/3)
```

GIAC/XCAS [A] time = 0.209455, size = 66, normalized size = 1.43

$$-\frac{55}{5\,x+3}+\frac{15\,\left(\frac{206}{5\,x+3}+513\right)}{2\,\left(\frac{1}{5\,x+3}+3\right)^2}+505\,\ln\left(\left|-\frac{1}{5\,x+3}-3\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/((5*x + 3)^2*(3*x + 2)^3),x, algorithm="giac")
```

```
[Out] -55/(5*x + 3) + 15/2*(206/(5*x + 3) + 513)/(1/(5*x + 3) + 3)^2 +
505*ln(abs(-1/(5*x + 3) - 3))
```

3.1201 $\int \frac{1-2x}{(2+3x)^4(3+5x)^2} dx$

Optimal. Leaf size=55

$$-\frac{505}{3x+2}-\frac{275}{5x+3}-\frac{34}{(3x+2)^2}-\frac{7}{3(3x+2)^3}+3350\log(3x+2)-3350\log(5x+3)$$

```
[Out] -7/(3*(2 + 3*x)^3) - 34/(2 + 3*x)^2 - 505/(2 + 3*x) - 275/(3 + 5*
x) + 3350*Log[2 + 3*x] - 3350*Log[3 + 5*x]
```

Rubi [A] time = 0.0644043, antiderivative size = 55, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{505}{3x+2}-\frac{275}{5x+3}-\frac{34}{(3x+2)^2}-\frac{7}{3(3x+2)^3}+3350\log(3x+2)-3350\log(5x+3)$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)/((2 + 3*x)^4*(3 + 5*x)^2),x]
```

```
[Out] -7/(3*(2 + 3*x)^3) - 34/(2 + 3*x)^2 - 505/(2 + 3*x) - 275/(3 + 5*
x) + 3350*Log[2 + 3*x] - 3350*Log[3 + 5*x]
```

Rubi in Sympy [A] time = 9.0296, size = 48, normalized size = 0.87

$$3350\log(3x+2)-3350\log(5x+3)-\frac{275}{5x+3}-\frac{505}{3x+2}-\frac{34}{(3x+2)^2}-\frac{7}{3(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)/(2+3*x)**4/(3+5*x)**2,x)
```

```
[Out] 3350*log(3*x + 2) - 3350*log(5*x + 3) - 275/(5*x + 3) - 505/(3*x
+ 2) - 34/(3*x + 2)**2 - 7/(3*(3*x + 2)**3)
```

Mathematica [A] time = 0.0317826, size = 57, normalized size = 1.04

$$-\frac{505}{3x+2}-\frac{275}{5x+3}-\frac{34}{(3x+2)^2}-\frac{7}{3(3x+2)^3}+3350\log(3x+2)-3350\log(-3(5x+3))$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)/((2 + 3*x)^4*(3 + 5*x)^2),x]
```

```
[Out] -7/(3*(2 + 3*x)^3) - 34/(2 + 3*x)^2 - 505/(2 + 3*x) - 275/(3 + 5*
x) + 3350*Log[2 + 3*x] - 3350*Log[-3*(3 + 5*x)]
```

Maple [A] time = 0.016, size = 54, normalized size = 1.

$$-\frac{7}{3(2+3x)^3}-34(2+3x)^{-2}-505(2+3x)^{-1}-275(3+5x)^{-1}+3350\ln(2+3x)-3350\ln(3+5x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)/(2+3*x)^4/(3+5*x)^2,x)
```

```
[Out] -7/3/(2+3*x)^3-34/(2+3*x)^2-505/(2+3*x)-275/(3+5*x)+3350*ln(2+3*x
)-3350*ln(3+5*x)
```

Maxima [A] time = 1.34009, size = 76, normalized size = 1.38

$$-\frac{90450\,x^3+177885\,x^2+116513\,x+25413}{3\,(135\,x^4+351\,x^3+342\,x^2+148\,x+24)}-3350\,\log(5\,x+3)+3350\,\log(3\,x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)/((5*x + 3)^2*(3*x + 2)^4),x, algorithm="maxima")
```

```
[Out] -1/3*(90450*x^3 + 177885*x^2 + 116513*x + 25413)/(135*x^4 + 351*x
^3 + 342*x^2 + 148*x + 24) - 3350*log(5*x + 3) + 3350*log(3*x + 2
)
```

Fricas [A] time = 0.233625, size = 128, normalized size = 2.33

$$-\frac{90450\,x^3+177885\,x^2+10050\,\left(135\,x^4+351\,x^3+342\,x^2+148\,x+24\right)\log(5\,x+3)-10050\,\left(135\,x^4+351\,x^3+342\,x^2+14\right.}{3\,(135\,x^4+351\,x^3+342\,x^2+148\,x+24)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)/((5*x + 3)^2*(3*x + 2)^4),x, algorithm="fricas")
```

```
[Out] -1/3*(90450*x^3 + 177885*x^2 + 10050*(135*x^4 + 351*x^3 + 342*x^2
 + 148*x + 24)*log(5*x + 3) - 10050*(135*x^4 + 351*x^3 + 342*x^2
+ 148*x + 24)*log(3*x + 2) + 116513*x + 25413)/(135*x^4 + 351*x^3
 + 342*x^2 + 148*x + 24)
```

Sympy [A] time = 0.418224, size = 51, normalized size = 0.93

$$-\frac{90450x^3+177885x^2+116513x+25413}{405x^4+1053x^3+1026x^2+444x+72}-3350\log\left(x+\frac{3}{5}\right)+3350\log\left(x+\frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)/(2+3*x)**4/(3+5*x)**2,x)
```

```
[Out] -(90450*x**3 + 177885*x**2 + 116513*x + 25413)/(405*x**4 + 1053*x
**3 + 1026*x**2 + 444*x + 72) - 3350*log(x + 3/5) + 3350*log(x +
2/3)
```

GIAC/XCAS [A] time = 0.207674, size = 78, normalized size = 1.42

$$-\frac{275}{5\,x+3}+\frac{225\left(\frac{339}{5\,x+3}+\frac{68}{(5\,x+3)^2}+440\right)}{\left(\frac{1}{5\,x+3}+3\right)^3}+3350\ln\left(\left|-\frac{1}{5\,x+3}-3\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/((5*x + 3)^2*(3*x + 2)^4),x, algorithm="giac")
```

```
[Out] -275/(5*x + 3) + 225*(339/(5*x + 3) + 68/(5*x + 3)^2 + 440)/(1/(5
*x + 3) + 3)^3 + 3350*ln(abs(-1/(5*x + 3) - 3))
```

3.1202 $\int \frac{1-2x}{(2+3x)^5(3+5x)^2} dx$

Optimal. Leaf size=68

$$-\frac{3350}{3x+2}-\frac{1375}{5x+3}-\frac{505}{2(3x+2)^2}-\frac{68}{3(3x+2)^3}-\frac{7}{4(3x+2)^4}+20875\log(3x+2)-20875\log(5x+3)$$

```
[Out] -7/(4*(2 + 3*x)^4) - 68/(3*(2 + 3*x)^3) - 505/(2*(2 + 3*x)^2) - 3
350/(2 + 3*x) - 1375/(3 + 5*x) + 20875*Log[2 + 3*x] - 20875*Log[3
 + 5*x]
```

Rubi [A] time = 0.0760897, antiderivative size = 68, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{3350}{3x+2}-\frac{1375}{5x+3}-\frac{505}{2(3x+2)^2}-\frac{68}{3(3x+2)^3}-\frac{7}{4(3x+2)^4}+20875\log(3x+2)-20875\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)/((2 + 3*x)^5*(3 + 5*x)^2),x]
```

```
[Out] -7/(4*(2 + 3*x)^4) - 68/(3*(2 + 3*x)^3) - 505/(2*(2 + 3*x)^2) - 3
350/(2 + 3*x) - 1375/(3 + 5*x) + 20875*Log[2 + 3*x] - 20875*Log[3
 + 5*x]
```

Rubi in Sympy [A] time = 10.3125, size = 60, normalized size = 0.88

$$20875\log(3x+2)-20875\log(5x+3)-\frac{1375}{5x+3}-\frac{3350}{3x+2}-\frac{505}{2(3x+2)^2}-\frac{68}{3(3x+2)^3}-\frac{7}{4(3x+2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)/(2+3*x)**5/(3+5*x)**2,x)
```

```
[Out] 20875*log(3*x + 2) - 20875*log(5*x + 3) - 1375/(5*x + 3) - 3350/(
3*x + 2) - 505/(2*(3*x + 2)**2) - 68/(3*(3*x + 2)**3) - 7/(4*(3*x
 + 2)**4)
```

Mathematica [A] time = 0.0401422, size = 70, normalized size = 1.03

$$-\frac{3350}{3x+2}-\frac{1375}{5x+3}-\frac{505}{2(3x+2)^2}-\frac{68}{3(3x+2)^3}-\frac{7}{4(3x+2)^4}+20875\log(3x+2)-20875\log(-3(5x+3))$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)/((2 + 3*x)^5*(3 + 5*x)^2),x]
```

```
[Out] -7/(4*(2 + 3*x)^4) - 68/(3*(2 + 3*x)^3) - 505/(2*(2 + 3*x)^2) - 3
350/(2 + 3*x) - 1375/(3 + 5*x) + 20875*Log[2 + 3*x] - 20875*Log[-
3*(3 + 5*x)]
```

Maple [A] time = 0.014, size = 63, normalized size = 0.9

$$-\frac{7}{4(2+3x)^4}-\frac{68}{3(2+3x)^3}-\frac{505}{2(2+3x)^2}-3350(2+3x)^{-1}-1375(3+5x)^{-1}+20875\ln(2+3x)-20875\ln(3+5x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)/(2+3*x)^5/(3+5*x)^2,x)
```

```
[Out] -7/4/(2+3*x)^4-68/3/(2+3*x)^3-505/2/(2+3*x)^2-3350/(2+3*x)-1375/(
3+5*x)+20875*ln(2+3*x)-20875*ln(3+5*x)
```

Maxima [A] time = 1.34578, size = 89, normalized size = 1.31

$$-\frac{6763500\,x^4+17810550\,x^3+17580090\,x^2+7708553\,x+1266855}{12\,(405\,x^5+1323\,x^4+1728\,x^3+1128\,x^2+368\,x+48)}-20875\,\log(5\,x+3)+20875\,\log(3\,x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)/((5*x + 3)^2*(3*x + 2)^5),x, algorithm="maxima")
```

```
[Out] -1/12*(6763500*x^4 + 17810550*x^3 + 17580090*x^2 + 7708553*x + 12
66855)/(405*x^5 + 1323*x^4 + 1728*x^3 + 1128*x^2 + 368*x + 48) -
20875*log(5*x + 3) + 20875*log(3*x + 2)
```

Fricas [A] time = 0.228914, size = 155, normalized size = 2.28

$$-\frac{6763500\,x^4+17810550\,x^3+17580090\,x^2+250500\,(405\,x^5+1323\,x^4+1728\,x^3+1128\,x^2+368\,x+48)\log(5\,x+3)-250}{12\,(405\,x^5+1323\,x^4+1728\,x^3+1128\,x^2+}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)/((5*x + 3)^2*(3*x + 2)^5),x, algorithm="fricas")
```

```
[Out] -1/12*(6763500*x^4 + 17810550*x^3 + 17580090*x^2 + 250500*(405*x^
5 + 1323*x^4 + 1728*x^3 + 1128*x^2 + 368*x + 48)*log(5*x + 3) - 2
50500*(405*x^5 + 1323*x^4 + 1728*x^3 + 1128*x^2 + 368*x + 48)*log
(3*x + 2) + 7708553*x + 1266855)/(405*x^5 + 1323*x^4 + 1728*x^3 +
 1128*x^2 + 368*x + 48)
```

Sympy [A] time = 0.461483, size = 61, normalized size = 0.9

$$-\frac{6763500x^4+17810550x^3+17580090x^2+7708553x+1266855}{4860x^5+15876x^4+20736x^3+13536x^2+4416x+576}-20875\log\left(x+\frac{3}{5}\right)+20875\log\left(x+\frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)/(2+3*x)**5/(3+5*x)**2,x)
```

```
[Out] -(6763500*x**4 + 17810550*x**3 + 17580090*x**2 + 7708553*x + 1266
855)/(4860*x**5 + 15876*x**4 + 20736*x**3 + 13536*x**2 + 4416*x +
 576) - 20875*log(x + 3/5) + 20875*log(x + 2/3)
```

GIAC/XCAS [A] time = 0.211701, size = 90, normalized size = 1.32

$$-\frac{1375}{5\,x+3}+\frac{375\left(\frac{26268}{5\,x+3}+\frac{10116}{(5\,x+3)^2}+\frac{1352}{(5\,x+3)^3}+23319\right)}{4\left(\frac{1}{5\,x+3}+3\right)^4}+20875\ln\left(\left|-\frac{1}{5\,x+3}-3\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/((5*x + 3)^2*(3*x + 2)^5),x, algorithm="giac")
```

```
[Out] -1375/(5*x + 3) + 375/4*(26268/(5*x + 3) + 10116/(5*x + 3)^2 + 13
52/(5*x + 3)^3 + 23319)/(1/(5*x + 3) + 3)^4 + 20875*ln(abs(-1/(5*
x + 3) - 3))
```

3.1203 $\int \frac{1-2x}{(2+3x)^6(3+5x)^2}\,dx$

Optimal. Leaf size=75

$$-\frac{20875}{3x+2}-\frac{6875}{5x+3}-\frac{1675}{(3x+2)^2}-\frac{505}{3(3x+2)^3}-\frac{17}{(3x+2)^4}-\frac{7}{5(3x+2)^5}+125000\log(3x+2)-125000\log(5x+3)$$

```
[Out] -7/(5*(2 + 3*x)^5) - 17/(2 + 3*x)^4 - 505/(3*(2 + 3*x)^3) - 1675/
(2 + 3*x)^2 - 20875/(2 + 3*x) - 6875/(3 + 5*x) + 125000*Log[2 + 3
*x] - 125000*Log[3 + 5*x]
```

Rubi [A] time = 0.0917497, antiderivative size = 75, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{20875}{3x+2}-\frac{6875}{5x+3}-\frac{1675}{(3x+2)^2}-\frac{505}{3(3x+2)^3}-\frac{17}{(3x+2)^4}-\frac{7}{5(3x+2)^5}+125000\log(3x+2)-125000\log(5x+3)$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)/((2 + 3*x)^6*(3 + 5*x)^2),x]
```

```
[Out] -7/(5*(2 + 3*x)^5) - 17/(2 + 3*x)^4 - 505/(3*(2 + 3*x)^3) - 1675/
(2 + 3*x)^2 - 20875/(2 + 3*x) - 6875/(3 + 5*x) + 125000*Log[2 + 3
*x] - 125000*Log[3 + 5*x]
```

Rubi in Sympy [A] time = 11.5606, size = 66, normalized size = 0.88

$$125000\log(3x+2)-125000\log(5x+3)-\frac{6875}{5x+3}-\frac{20875}{3x+2}-\frac{1675}{(3x+2)^2}-\frac{505}{3(3x+2)^3}-\frac{17}{(3x+2)^4}-\frac{7}{5(3x+2)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)/(2+3*x)**6/(3+5*x)**2,x)
```

```
[Out] 125000*log(3*x + 2) - 125000*log(5*x + 3) - 6875/(5*x + 3) - 2087
5/(3*x + 2) - 1675/(3*x + 2)**2 - 505/(3*(3*x + 2)**3) - 17/(3*x
+ 2)**4 - 7/(5*(3*x + 2)**5)
```

Mathematica [A] time = 0.0461879, size = 77, normalized size = 1.03

$$-\frac{20875}{3x+2}-\frac{6875}{5x+3}-\frac{1675}{(3x+2)^2}-\frac{505}{3(3x+2)^3}-\frac{17}{(3x+2)^4}-\frac{7}{5(3x+2)^5}+125000\log(3x+2)-125000\log(-3(5x+3))$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)/((2 + 3*x)^6*(3 + 5*x)^2),x]
```

```
[Out] -7/(5*(2 + 3*x)^5) - 17/(2 + 3*x)^4 - 505/(3*(2 + 3*x)^3) - 1675/
(2 + 3*x)^2 - 20875/(2 + 3*x) - 6875/(3 + 5*x) + 125000*Log[2 + 3
```

```
*x] - 125000*Log[-3*(3 + 5*x)]
```

Maple [A] time = 0.014, size = 72, normalized size = 1.

$$-\frac{7}{5\left(2+3x\right)^{5}}-17\left(2+3x\right)^{-4}-\frac{505}{3\left(2+3x\right)^{3}}-1675\left(2+3x\right)^{-2}-20875\left(2+3x\right)^{-1}-6875\left(3+5x\right)^{-1}+125000\ln\left(2+3x\right)-125000\ln\left(3+5x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((1-2*x)/(2+3*x)^6/(3+5*x)^2,x)
```

```
[Out] -7/5/(2+3*x)^5-17/(2+3*x)^4-505/3/(2+3*x)^3-1675/(2+3*x)^2-20875/
(2+3*x)-6875/(3+5*x)+125000*ln(2+3*x)-125000*ln(3+5*x)
```

Maxima [A] time = 1.34715, size = 103, normalized size = 1.37

$$-\frac{151875000\,x^{5}+501187500\,x^{4}+661387500\,x^{3}+436271250\,x^{2}+143844850\,x+18964893}{15\left(1215\,x^{6}+4779\,x^{5}+7830\,x^{4}+6840\,x^{3}+3360\,x^{2}+880\,x+96\right)}-125000\log\left(5\,x+3\right)+125000\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)/((5*x + 3)^2*(3*x + 2)^6),x, algorithm="maxima")
```

```
[Out] -1/15*(151875000*x^5 + 501187500*x^4 + 661387500*x^3 + 436271250*
x^2 + 143844850*x + 18964893)/(1215*x^6 + 4779*x^5 + 7830*x^4 + 6
840*x^3 + 3360*x^2 + 880*x + 96) - 125000*log(5*x + 3) + 125000*l
og(3*x + 2)
```

Fricas [A] time = 0.23439, size = 182, normalized size = 2.43

$$-\frac{151875000\,x^{5}+501187500\,x^{4}+661387500\,x^{3}+436271250\,x^{2}+1875000\left(1215\,x^{6}+4779\,x^{5}+7830\,x^{4}+6840\,x^{3}+3360\,x^{2}\right.}{15\left(1215\,x^{6}+4779\,x^{5}+\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)/((5*x + 3)^2*(3*x + 2)^6),x, algorithm="fricas")
```

```
[Out] -1/15*(151875000*x^5 + 501187500*x^4 + 661387500*x^3 + 436271250*
x^2 + 1875000*(1215*x^6 + 4779*x^5 + 7830*x^4 + 6840*x^3 + 3360*x
^2 + 880*x + 96)*log(5*x + 3) - 1875000*(1215*x^6 + 4779*x^5 + 78
30*x^4 + 6840*x^3 + 3360*x^2 + 880*x + 96)*log(3*x + 2) + 1438448
50*x + 18964893)/(1215*x^6 + 4779*x^5 + 7830*x^4 + 6840*x^3 + 336
0*x^2 + 880*x + 96)
```

Sympy [A] time = 0.52971, size = 71, normalized size = 0.95

$$-\frac{151875000x^{5}+501187500x^{4}+661387500x^{3}+436271250x^{2}+143844850x+18964893}{18225x^{6}+71685x^{5}+117450x^{4}+102600x^{3}+50400x^{2}+13200x+1440}-125000\log\left(x+\frac{3}{5}\right)+125000\log\left(x+\frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)/(2+3*x)**6/(3+5*x)**2,x)
```

```
[Out] -(151875000*x**5 + 501187500*x**4 + 661387500*x**3 + 436271250*x*
*2 + 143844850*x + 18964893)/(18225*x**6 + 71685*x**5 + 117450*x*
*4 + 102600*x**3 + 50400*x**2 + 13200*x + 1440) - 125000*log(x +
3/5) + 125000*log(x + 2/3)
```

GIAC/XCAS [A] time = 0.209032, size = 103, normalized size = 1.37

$$-\frac{6875}{5\,x+3}+\frac{1875\,\left(\frac{34866}{5\,x+3}+\frac{19635}{(5\,x+3)^{2}}+\frac{5040}{(5\,x+3)^{3}}+\frac{505}{(5\,x+3)^{4}}+23625\right)}{\left(\frac{1}{5\,x+3}+3\right)^{5}}+125000\ln\left(\left|-\frac{1}{5\,x+3}-3\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/((5*x + 3)^2*(3*x + 2)^6),x, algorithm="giac")
```

```
[Out] -6875/(5*x + 3) + 1875*(34866/(5*x + 3) + 19635/(5*x + 3)^2 + 504
0/(5*x + 3)^3 + 505/(5*x + 3)^4 + 23625)/(1/(5*x + 3) + 3)^5 + 12
5000*ln(abs(-1/(5*x + 3) - 3))
```

3.1204 $\int \frac{1-2x}{(2+3x)^7(3+5x)^2}\,dx$

Optimal. Leaf size=90

$$-\frac{125000}{3x+2}-\frac{34375}{5x+3}-\frac{20875}{2(3x+2)^2}-\frac{3350}{3(3x+2)^3}-\frac{505}{4(3x+2)^4}-\frac{68}{5(3x+2)^5}-\frac{7}{6(3x+2)^6}+728125\log(3x+2)-728125\log(5x+3)$$

```
[Out] -7/(6*(2 + 3*x)^6) - 68/(5*(2 + 3*x)^5) - 505/(4*(2 + 3*x)^4) - 3
350/(3*(2 + 3*x)^3) - 20875/(2*(2 + 3*x)^2) - 125000/(2 + 3*x) -
34375/(3 + 5*x) + 728125*Log[2 + 3*x] - 728125*Log[3 + 5*x]
```

Rubi [A] time = 0.103923, antiderivative size = 90, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{125000}{3x+2}-\frac{34375}{5x+3}-\frac{20875}{2(3x+2)^2}-\frac{3350}{3(3x+2)^3}-\frac{505}{4(3x+2)^4}-\frac{68}{5(3x+2)^5}-\frac{7}{6(3x+2)^6}+728125\log(3x+2)-728125\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)/((2 + 3*x)^7*(3 + 5*x)^2),x]
```

```
[Out] -7/(6*(2 + 3*x)^6) - 68/(5*(2 + 3*x)^5) - 505/(4*(2 + 3*x)^4) - 3
350/(3*(2 + 3*x)^3) - 20875/(2*(2 + 3*x)^2) - 125000/(2 + 3*x) -
34375/(3 + 5*x) + 728125*Log[2 + 3*x] - 728125*Log[3 + 5*x]
```

Rubi in Sympy [A] time = 12.9228, size = 80, normalized size = 0.89

$$728125\log(3x+2)-728125\log(5x+3)-\frac{34375}{5x+3}-\frac{125000}{3x+2}-\frac{20875}{2(3x+2)^2}-\frac{3350}{3(3x+2)^3}-\frac{505}{4(3x+2)^4}-\frac{68}{5(3x+2)^5}-\frac{7}{6(3x+2)^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)/(2+3*x)**7/(3+5*x)**2,x)
```

```
[Out] 728125*log(3*x + 2) - 728125*log(5*x + 3) - 34375/(5*x + 3) - 125
000/(3*x + 2) - 20875/(2*(3*x + 2)**2) - 3350/(3*(3*x + 2)**3) -
505/(4*(3*x + 2)**4) - 68/(5*(3*x + 2)**5) - 7/(6*(3*x + 2)**6)
```

Mathematica [A] time = 0.0518958, size = 92, normalized size = 1.02

$$-\frac{125000}{3x+2}-\frac{34375}{5x+3}-\frac{20875}{2(3x+2)^2}-\frac{3350}{3(3x+2)^3}-\frac{505}{4(3x+2)^4}-\frac{68}{5(3x+2)^5}-\frac{7}{6(3x+2)^6}+728125\log(3x+2)-728125\log(-3(5x+3))$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)/((2 + 3*x)^7*(3 + 5*x)^2),x]
```

```
[Out] -7/(6*(2 + 3*x)^6) - 68/(5*(2 + 3*x)^5) - 505/(4*(2 + 3*x)^4) - 3
350/(3*(2 + 3*x)^3) - 20875/(2*(2 + 3*x)^2) - 125000/(2 + 3*x) -
```

```
34375/(3 + 5*x) + 728125*Log[2 + 3*x] - 728125*Log[-3*(3 + 5*x)]
```

Maple [A] time = 0.015, size = 81, normalized size = 0.9

$$-\frac{7}{6\,(2+3\,x)^{6}}-\frac{68}{5\,(2+3\,x)^{5}}-\frac{505}{4\,(2+3\,x)^{4}}-\frac{3350}{3\,(2+3\,x)^{3}}-\frac{20875}{2\,(2+3\,x)^{2}}-125000\,(2+3\,x)^{-1}-34375\,(3+5\,x)^{-1}+728125\,\ln(2+3\,x)-728125\,\ln(3+5\,x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)/(2+3*x)^7/(3+5*x)^2,x)
```

```
[Out] -7/6/(2+3*x)^6-68/5/(2+3*x)^5-505/4/(2+3*x)^4-3350/3/(2+3*x)^3-20
875/2/(2+3*x)^2-125000/(2+3*x)-34375/(3+5*x)+728125*ln(2+3*x)-728
125*ln(3+5*x)
```

Maxima [A] time = 1.35494, size = 116, normalized size = 1.29

$$-\frac{3538687500\,x^{6}+14036793750\,x^{5}+23195441250\,x^{4}+20438672625\,x^{3}+10128331755\,x^{2}+2676272018\,x+294588002}{20\,(3645\,x^{7}+16767\,x^{6}+33048\,x^{5}+36180\,x^{4}+23760\,x^{3}+9360\,x^{2}+2048\,x+192)}-728125\,\log(5\,x+3)+728125\,\log(3\,x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/((5*x + 3)^2*(3*x + 2)^7),x, algorithm="maxima")
```

```
[Out] -1/20*(3538687500*x^6 + 14036793750*x^5 + 23195441250*x^4 + 20438
672625*x^3 + 10128331755*x^2 + 2676272018*x + 294588002)/(3645*x^
7 + 16767*x^6 + 33048*x^5 + 36180*x^4 + 23760*x^3 + 9360*x^2 + 20
48*x + 192) - 728125*log(5*x + 3) + 728125*log(3*x + 2)
```

Fricas [A] time = 0.211865, size = 209, normalized size = 2.32

$$-\frac{3538687500\,x^{6}+14036793750\,x^{5}+23195441250\,x^{4}+20438672625\,x^{3}+10128331755\,x^{2}+14562500\,\left(3645\,x^{7}+16767\,x^{6}\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/((5*x + 3)^2*(3*x + 2)^7),x, algorithm="fricas")
```

```
[Out] -1/20*(3538687500*x^6 + 14036793750*x^5 + 23195441250*x^4 + 20438
672625*x^3 + 10128331755*x^2 + 14562500*(3645*x^7 + 16767*x^6 + 3
3048*x^5 + 36180*x^4 + 23760*x^3 + 9360*x^2 + 2048*x + 192)*log(5
*x + 3) - 14562500*(3645*x^7 + 16767*x^6 + 33048*x^5 + 36180*x^4
+ 23760*x^3 + 9360*x^2 + 2048*x + 192)*log(3*x + 2) + 2676272018*
x + 294588002)/(3645*x^7 + 16767*x^6 + 33048*x^5 + 36180*x^4 + 23
760*x^3 + 9360*x^2 + 2048*x + 192)
```

Sympy [A] time = 0.579995, size = 82, normalized size = 0.91

$$-\frac{3538687500x^{6}+14036793750x^{5}+23195441250x^{4}+20438672625x^{3}+10128331755x^{2}+2676272018x+294588002}{72900x^{7}+335340x^{6}+660960x^{5}+723600x^{4}+475200x^{3}+187200x^{2}+40960x+3840}-728125\log\left(x+\frac{3}{5}\right)+728125\log\left(x+\frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)/(2+3*x)**7/(3+5*x)**2,x)
```

```
[Out] -(3538687500*x**6 + 14036793750*x**5 + 23195441250*x**4 + 2043867
2625*x**3 + 10128331755*x**2 + 2676272018*x + 294588002)/(72900*x
**7 + 335340*x**6 + 660960*x**5 + 723600*x**4 + 475200*x**3 + 187
200*x**2 + 40960*x + 3840) - 728125*log(x + 3/5) + 728125*log(x +
 2/3)
```

GIAC/XCAS [A] time = 0.211906, size = 115, normalized size = 1.28

$$-\frac{34375}{5\,x+3}+\frac{5625\,\left(\frac{1100034}{5\,x+3}+\frac{811665}{(5\,x+3)^{2}}+\frac{304700}{(5\,x+3)^{3}}+\frac{58650}{(5\,x+3)^{4}}+\frac{4700}{(5\,x+3)^{5}}+604017\right)}{4\,\left(\frac{1}{5\,x+3}+3\right)^{6}}+728125\,\ln\left(\left|-\frac{1}{5\,x+3}-3\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/((5*x + 3)^2*(3*x + 2)^7),x, algorithm="giac")
```

```
[Out] -34375/(5*x + 3) + 5625/4*(1100034/(5*x + 3) + 811665/(5*x + 3)^2
 + 304700/(5*x + 3)^3 + 58650/(5*x + 3)^4 + 4700/(5*x + 3)^5 + 60
4017)/(1/(5*x + 3) + 3)^6 + 728125*ln(abs(-1/(5*x + 3) - 3))
```

3.1205 $\int \frac{(1-2x)(2+3x)^7}{(3+5x)^3} dx$

Optimal. Leaf size=73

$$-\frac{729x^6}{125} - \frac{51759x^5}{3125} - \frac{181521x^4}{12500} + \frac{2052x^3}{3125} + \frac{129654x^2}{15625} + \frac{1851147x}{390625} - \frac{229}{1953125(5x+3)} - \frac{11}{3906250(5x+3)^2} + \frac{2037\log(5x+3)}{1953125}$$

```
[Out] (1851147*x)/390625 + (129654*x^2)/15625 + (2052*x^3)/3125 - (1815
21*x^4)/12500 - (51759*x^5)/3125 - (729*x^6)/125 - 11/(3906250*(3
 + 5*x)^2) - 229/(1953125*(3 + 5*x)) + (2037*Log[3 + 5*x])/195312
5
```

Rubi [A] time = 0.0862981, antiderivative size = 73, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{729x^6}{125} - \frac{51759x^5}{3125} - \frac{181521x^4}{12500} + \frac{2052x^3}{3125} + \frac{129654x^2}{15625} + \frac{1851147x}{390625} - \frac{229}{1953125(5x+3)} - \frac{11}{3906250(5x+3)^2} + \frac{2037\log(5x+3)}{1953125}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)*(2 + 3*x)^7)/(3 + 5*x)^3,x]
```

```
[Out] (1851147*x)/390625 + (129654*x^2)/15625 + (2052*x^3)/3125 - (1815
21*x^4)/12500 - (51759*x^5)/3125 - (729*x^6)/125 - 11/(3906250*(3
 + 5*x)^2) - 229/(1953125*(3 + 5*x)) + (2037*Log[3 + 5*x])/195312
5
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{729x^6}{125} - \frac{51759x^5}{3125} - \frac{181521x^4}{12500} + \frac{2052x^3}{3125} + \frac{2037\log(5x+3)}{1953125} + \int \frac{1851147}{390625}\,dx + \frac{259308\int x\,dx}{15625} - \frac{229}{1953125(5x+3)} - \frac{11}{3906250(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(2+3*x)**7/(3+5*x)**3,x)
```

```
[Out] -729*x**6/125 - 51759*x**5/3125 - 181521*x**4/12500 + 2052*x**3/3
125 + 2037*log(5*x + 3)/1953125 + Integral(1851147/390625, x) + 2
59308*Integral(x, x)/15625 - 229/(1953125*(5*x + 3)) - 11/(390625
0*(5*x + 3)**2)
```

Mathematica [A] time = 0.0379337, size = 64, normalized size = 0.88

$$\frac{8148\log(-3(5x+3)) - \frac{5(227812500x^8+920362500x^7+1425650625x^6+887969250x^5-150703875x^4-583310700x^3-372626040x^2-107200136x-12167374)}{(5x+3)^2}}{7812500}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)*(2 + 3*x)^7)/(3 + 5*x)^3,x]
```

```
[Out] ((-5*(-12167374 - 107200136*x - 372626040*x^2 - 583310700*x^3 - 1
50703875*x^4 + 887969250*x^5 + 1425650625*x^6 + 920362500*x^7 + 2
27812500*x^8))/(3 + 5*x)^2 + 8148*Log[-3*(3 + 5*x)])/7812500
```

Maple [A] time = 0.01, size = 56, normalized size = 0.8

$$\frac{1851147\,x}{390625}+\frac{129654\,x^2}{15625}+\frac{2052\,x^3}{3125}-\frac{181521\,x^4}{12500}-\frac{51759\,x^5}{3125}-\frac{729\,x^6}{125}-\frac{11}{3906250\,(3+5\,x)^2}-\frac{229}{5859375+9765625\,x}+\frac{2037\,\ln(3+5\,x)}{1953125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(2+3*x)^7/(3+5*x)^3,x)
```

```
[Out] 1851147/390625*x+129654/15625*x^2+2052/3125*x^3-181521/12500*x^4-
51759/3125*x^5-729/125*x^6-11/3906250/(3+5*x)^2-229/1953125/(3+5*
x)+2037/1953125*ln(3+5*x)
```

Maxima [A] time = 1.34261, size = 76, normalized size = 1.04

$$-\frac{729}{125}\,x^6-\frac{51759}{3125}\,x^5-\frac{181521}{12500}\,x^4+\frac{2052}{3125}\,x^3+\frac{129654}{15625}\,x^2+\frac{1851147}{390625}\,x-\frac{458\,x+277}{781250\,(25\,x^2+30\,x+9)}+\frac{2037}{1953125}\,\log(5\,x+3)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^7*(2*x - 1)/(5*x + 3)^3,x, algorithm="maxima")
```

```
[Out] -729/125*x^6 - 51759/3125*x^5 - 181521/12500*x^4 + 2052/3125*x^3
+ 129654/15625*x^2 + 1851147/390625*x - 1/781250*(458*x + 277)/(2
5*x^2 + 30*x + 9) + 2037/1953125*log(5*x + 3)
```

Fricas [A] time = 0.212504, size = 97, normalized size = 1.33

$$-\frac{1139062500\,x^8+4601812500\,x^7+7128253125\,x^6+4439846250\,x^5-753519375\,x^4-2916553500\,x^3-1694131200\,x^2-8}{7812500\,(25\,x^2+30\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^7*(2*x - 1)/(5*x + 3)^3,x, algorithm="fricas")
```

```
[Out] -1/7812500*(1139062500*x^8 + 4601812500*x^7 + 7128253125*x^6 + 44
39846250*x^5 - 753519375*x^4 - 2916553500*x^3 - 1694131200*x^2 -
8148*(25*x^2 + 30*x + 9)*log(5*x + 3) - 333201880*x + 2770)/(25*x
^2 + 30*x + 9)
```

Sympy [A] time = 0.30555, size = 63, normalized size = 0.86

$$-\frac{729x^6}{125}-\frac{51759x^5}{3125}-\frac{181521x^4}{12500}+\frac{2052x^3}{3125}+\frac{129654x^2}{15625}+\frac{1851147x}{390625}-\frac{458x+277}{19531250x^2+23437500x+7031250}+\frac{2037\log(5x+3)}{1953125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)**7/(3+5*x)**3,x)
```

```
[Out] -729*x**6/125 - 51759*x**5/3125 - 181521*x**4/12500 + 2052*x**3/3
125 + 129654*x**2/15625 + 1851147*x/390625 - (458*x + 277)/(19531
250*x**2 + 23437500*x + 7031250) + 2037*log(5*x + 3)/1953125
```

GIAC/XCAS [A] time = 0.206884, size = 70, normalized size = 0.96

$$-\frac{729}{125}\,x^{6}-\frac{51759}{3125}\,x^{5}-\frac{181521}{12500}\,x^{4}+\frac{2052}{3125}\,x^{3}+\frac{129654}{15625}\,x^{2}+\frac{1851147}{390625}\,x-\frac{458\,x+277}{781250\,(5\,x+3)^{2}}+\frac{2037}{1953125}\ln\left(|5\,x+3|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^7*(2*x - 1)/(5*x + 3)^3,x, algorithm="giac")
```

```
[Out] -729/125*x^6 - 51759/3125*x^5 - 181521/12500*x^4 + 2052/3125*x^3
+ 129654/15625*x^2 + 1851147/390625*x - 1/781250*(458*x + 277)/(5
*x + 3)^2 + 2037/1953125*ln(abs(5*x + 3))
```

3.1206 $\int \frac{(1-2x)(2+3x)^6}{(3+5x)^3} dx$

Optimal. Leaf size=66

$$-\frac{1458x^5}{625}-\frac{12393x^4}{2500}-\frac{6399x^3}{3125}+\frac{297x^2}{125}+\frac{36936x}{15625}-\frac{196}{390625(5x+3)}-\frac{11}{781250(5x+3)^2}+\frac{1449\log(5x+3)}{390625}$$

```
[Out] (36936*x)/15625 + (297*x^2)/125 - (6399*x^3)/3125 - (12393*x^4)/2
500 - (1458*x^5)/625 - 11/(781250*(3 + 5*x)^2) - 196/(390625*(3 +
 5*x)) + (1449*Log[3 + 5*x])/390625
```

Rubi [A] time = 0.0756913, antiderivative size = 66, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{1458x^5}{625}-\frac{12393x^4}{2500}-\frac{6399x^3}{3125}+\frac{297x^2}{125}+\frac{36936x}{15625}-\frac{196}{390625(5x+3)}-\frac{11}{781250(5x+3)^2}+\frac{1449\log(5x+3)}{390625}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)*(2 + 3*x)^6)/(3 + 5*x)^3,x]
```

```
[Out] (36936*x)/15625 + (297*x^2)/125 - (6399*x^3)/3125 - (12393*x^4)/2
500 - (1458*x^5)/625 - 11/(781250*(3 + 5*x)^2) - 196/(390625*(3 +
 5*x)) + (1449*Log[3 + 5*x])/390625
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{1458x^5}{625}-\frac{12393x^4}{2500}-\frac{6399x^3}{3125}+\frac{1449\log(5x+3)}{390625}+\int\frac{36936}{15625}\,dx+\frac{594\int x\,dx}{125}-\frac{196}{390625(5x+3)}-\frac{11}{781250(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(2+3*x)**6/(3+5*x)**3,x)
```

```
[Out] -1458*x**5/625 - 12393*x**4/2500 - 6399*x**3/3125 + 1449*log(5*x
+ 3)/390625 + Integral(36936/15625, x) + 594*Integral(x, x)/125 -
 196/(390625*(5*x + 3)) - 11/(781250*(5*x + 3)**2)
```

Mathematica [A] time = 0.0330126, size = 61, normalized size = 0.92

$$\frac{-455625000x^7-1514953125x^6-1725806250x^5-364415625x^4+874597500x^3+834723225x^2+302537270x+28980(5x}{7812500(5x+3)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)*(2 + 3*x)^6)/(3 + 5*x)^3,x]
```

```
[Out] (40891591 + 302537270*x + 834723225*x^2 + 874597500*x^3 - 3644156
25*x^4 - 1725806250*x^5 - 1514953125*x^6 - 455625000*x^7 + 28980*
(3 + 5*x)^2*Log[3 + 5*x])/(7812500*(3 + 5*x)^2)
```

Maple [A] time = 0.01, size = 51, normalized size = 0.8

$$\frac{36936\,x}{15625}+\frac{297\,x^{2}}{125}-\frac{6399\,x^{3}}{3125}-\frac{12393\,x^{4}}{2500}-\frac{1458\,x^{5}}{625}-\frac{11}{781250\,(3+5\,x)^{2}}-\frac{196}{1171875+1953125\,x}+\frac{1449\,\ln(3+5\,x)}{390625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(2+3*x)^6/(3+5*x)^3,x)
```

```
[Out] 36936/15625*x+297/125*x^2-6399/3125*x^3-12393/2500*x^4-1458/625*x
^5-11/781250/(3+5*x)^2-196/390625/(3+5*x)+1449/390625*ln(3+5*x)
```

Maxima [A] time = 1.34556, size = 69, normalized size = 1.05

$$-\frac{1458}{625}\,x^{5}-\frac{12393}{2500}\,x^{4}-\frac{6399}{3125}\,x^{3}+\frac{297}{125}\,x^{2}+\frac{36936}{15625}\,x-\frac{1960\,x+1187}{781250\,(25\,x^{2}+30\,x+9)}+\frac{1449}{390625}\log(5\,x+3)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^6*(2*x - 1)/(5*x + 3)^3,x, algorithm="maxima")
```

```
[Out] -1458/625*x^5 - 12393/2500*x^4 - 6399/3125*x^3 + 297/125*x^2 + 36
936/15625*x - 1/781250*(1960*x + 1187)/(25*x^2 + 30*x + 9) + 1449
/390625*log(5*x + 3)
```

Fricas [A] time = 0.232456, size = 90, normalized size = 1.36

$$-\frac{91125000\,x^{7}+302990625\,x^{6}+345161250\,x^{5}+72883125\,x^{4}-174919500\,x^{3}-144220500\,x^{2}-5796\left(25\,x^{2}+30\,x+9\right)\log}{1562500\,(25\,x^{2}+30\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^6*(2*x - 1)/(5*x + 3)^3,x, algorithm="fricas")
```

```
[Out] -1/1562500*(91125000*x^7 + 302990625*x^6 + 345161250*x^5 + 728831
25*x^4 - 174919500*x^3 - 144220500*x^2 - 5796*(25*x^2 + 30*x + 9)
*log(5*x + 3) - 33238480*x + 2374)/(25*x^2 + 30*x + 9)
```

Sympy [A] time = 0.297254, size = 56, normalized size = 0.85

$$-\frac{1458x^{5}}{625}-\frac{12393x^{4}}{2500}-\frac{6399x^{3}}{3125}+\frac{297x^{2}}{125}+\frac{36936x}{15625}-\frac{1960x+1187}{19531250x^{2}+23437500x+7031250}+\frac{1449\log(5x+3)}{390625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)**6/(3+5*x)**3,x)
```

```
[Out] -1458*x**5/625 - 12393*x**4/2500 - 6399*x**3/3125 + 297*x**2/125
+ 36936*x/15625 - (1960*x + 1187)/(19531250*x**2 + 23437500*x + 7
031250) + 1449*log(5*x + 3)/390625
```

GIAC/XCAS [A] time = 0.211406, size = 63, normalized size = 0.95

$$-\frac{1458}{625}\,x^{5}-\frac{12393}{2500}\,x^{4}-\frac{6399}{3125}\,x^{3}+\frac{297}{125}\,x^{2}+\frac{36936}{15625}\,x-\frac{1960\,x+1187}{781250\,(5\,x+3)^{2}}+\frac{1449}{390625}\ln(|5\,x+3|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^6*(2*x - 1)/(5*x + 3)^3,x, algorithm="giac")
```

```
[Out] -1458/625*x^5 - 12393/2500*x^4 - 6399/3125*x^3 + 297/125*x^2 + 36
936/15625*x - 1/781250*(1960*x + 1187)/(5*x + 3)^2 + 1449/390625*
ln(abs(5*x + 3))
```

3.1207 $\int \frac{(1-2x)(2+3x)^5}{(3+5x)^3}\,dx$

Optimal. Leaf size=59

$$-\frac{243x^4}{250}-\frac{837x^3}{625}+\frac{1971x^2}{6250}+\frac{3636x}{3125}-\frac{163}{78125(5x+3)}-\frac{11}{156250(5x+3)^2}+\frac{192\log(5x+3)}{15625}$$

```
[Out] (3636*x)/3125 + (1971*x^2)/6250 - (837*x^3)/625 - (243*x^4)/250 -
 11/(156250*(3 + 5*x)^2) - 163/(78125*(3 + 5*x)) + (192*Log[3 + 5
*x])/15625
```

Rubi [A] time = 0.0708468, antiderivative size = 59, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{243x^4}{250}-\frac{837x^3}{625}+\frac{1971x^2}{6250}+\frac{3636x}{3125}-\frac{163}{78125(5x+3)}-\frac{11}{156250(5x+3)^2}+\frac{192\log(5x+3)}{15625}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)*(2 + 3*x)^5)/(3 + 5*x)^3,x]
```

```
[Out] (3636*x)/3125 + (1971*x^2)/6250 - (837*x^3)/625 - (243*x^4)/250 -
 11/(156250*(3 + 5*x)^2) - 163/(78125*(3 + 5*x)) + (192*Log[3 + 5
*x])/15625
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{243x^4}{250}-\frac{837x^3}{625}+\frac{192\log(5x+3)}{15625}+\int\frac{3636}{3125}\,dx+\frac{1971\int x\,dx}{3125}-\frac{163}{78125(5x+3)}-\frac{11}{156250(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(2+3*x)**5/(3+5*x)**3,x)
```

```
[Out] -243*x**4/250 - 837*x**3/625 + 192*log(5*x + 3)/15625 + Integral(
3636/3125, x) + 1971*Integral(x, x)/3125 - 163/(78125*(5*x + 3))
- 11/(156250*(5*x + 3)**2)
```

Mathematica [A] time = 0.026948, size = 58, normalized size = 0.98

$$\frac{-3796875x^6-9787500x^5-6412500x^4+4140000x^3+7579975x^2+3653570x+1920(5x+3)^2\log(-3(5x+3))+604711}{156250(5x+3)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)*(2 + 3*x)^5)/(3 + 5*x)^3,x]
```

```
[Out] (604711 + 3653570*x + 7579975*x^2 + 4140000*x^3 - 6412500*x^4 - 9
787500*x^5 - 3796875*x^6 + 1920*(3 + 5*x)^2*Log[-3*(3 + 5*x)])/(1
56250*(3 + 5*x)^2)
```

Maple [A] time = 0.01, size = 46, normalized size = 0.8

$$\frac{3636\,x}{3125}+\frac{1971\,x^2}{6250}-\frac{837\,x^3}{625}-\frac{243\,x^4}{250}-\frac{11}{156250\,(3+5\,x)^2}-\frac{163}{234375+390625\,x}+\frac{192\,\ln(3+5\,x)}{15625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(2+3*x)^5/(3+5*x)^3,x)
```

```
[Out] 3636/3125*x+1971/6250*x^2-837/625*x^3-243/250*x^4-11/156250/(3+5*
x)^2-163/78125/(3+5*x)+192/15625*ln(3+5*x)
```

Maxima [A] time = 1.35196, size = 62, normalized size = 1.05

$$-\frac{243}{250}\,x^4-\frac{837}{625}\,x^3+\frac{1971}{6250}\,x^2+\frac{3636}{3125}\,x-\frac{1630\,x+989}{156250\,(25\,x^2+30\,x+9)}+\frac{192}{15625}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^5*(2*x - 1)/(5*x + 3)^3,x, algorithm="maxima")
```

```
[Out] -243/250*x^4 - 837/625*x^3 + 1971/6250*x^2 + 3636/3125*x - 1/1562
50*(1630*x + 989)/(25*x^2 + 30*x + 9) + 192/15625*log(5*x + 3)
```

Fricas [A] time = 0.227126, size = 84, normalized size = 1.42

$$-\frac{3796875\,x^6+9787500\,x^5+6412500\,x^4-4140000\,x^3-5897475\,x^2-1920\left(25\,x^2+30\,x+9\right)\log\left(5\,x+3\right)-1634570\,x+9}{156250\,(25\,x^2+30\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^5*(2*x - 1)/(5*x + 3)^3,x, algorithm="fricas")
```

```
[Out] -1/156250*(3796875*x^6 + 9787500*x^5 + 6412500*x^4 - 4140000*x^3
- 5897475*x^2 - 1920*(25*x^2 + 30*x + 9)*log(5*x + 3) - 1634570*x
 + 989)/(25*x^2 + 30*x + 9)
```

Sympy [A] time = 0.285152, size = 49, normalized size = 0.83

$$-\frac{243x^4}{250}-\frac{837x^3}{625}+\frac{1971x^2}{6250}+\frac{3636x}{3125}-\frac{1630x+989}{3906250x^2+4687500x+1406250}+\frac{192\log\left(5x+3\right)}{15625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)**5/(3+5*x)**3,x)
```

```
[Out] -243*x**4/250 - 837*x**3/625 + 1971*x**2/6250 + 3636*x/3125 - (16
30*x + 989)/(3906250*x**2 + 4687500*x + 1406250) + 192*log(5*x +
3)/15625
```

GIAC/XCAS [A] time = 0.206999, size = 57, normalized size = 0.97

$$-\frac{243}{250}\,x^4-\frac{837}{625}\,x^3+\frac{1971}{6250}\,x^2+\frac{3636}{3125}\,x-\frac{1630\,x+989}{156250\,(5\,x+3)^2}+\frac{192}{15625}\,\ln\left(|5\,x+3|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^5*(2*x - 1)/(5*x + 3)^3,x, algorithm="giac")
```

```
[Out] -243/250*x^4 - 837/625*x^3 + 1971/6250*x^2 + 3636/3125*x - 1/1562
50*(1630*x + 989)/(5*x + 3)^2 + 192/15625*ln(abs(5*x + 3))
```

3.1208 $\int \frac{(1-2x)(2+3x)^4}{(3+5x)^3} dx$

Optimal. Leaf size=52

$$-\frac{54x^3}{125}-\frac{297x^2}{1250}+\frac{1647x}{3125}-\frac{26}{3125(5x+3)}-\frac{11}{31250(5x+3)^2}+\frac{114\log(5x+3)}{3125}$$

```
[Out] (1647*x)/3125 - (297*x^2)/1250 - (54*x^3)/125 - 11/(31250*(3 + 5*
x)^2) - 26/(3125*(3 + 5*x)) + (114*Log[3 + 5*x])/3125
```

Rubi [A] time = 0.0615155, antiderivative size = 52, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{54x^3}{125}-\frac{297x^2}{1250}+\frac{1647x}{3125}-\frac{26}{3125(5x+3)}-\frac{11}{31250(5x+3)^2}+\frac{114\log(5x+3)}{3125}$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)*(2 + 3*x)^4)/(3 + 5*x)^3,x]
```

```
[Out] (1647*x)/3125 - (297*x^2)/1250 - (54*x^3)/125 - 11/(31250*(3 + 5*
x)^2) - 26/(3125*(3 + 5*x)) + (114*Log[3 + 5*x])/3125
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{54x^3}{125}+\frac{114\log(5x+3)}{3125}+\int\frac{1647}{3125}dx-\frac{297\int x\,dx}{625}-\frac{26}{3125(5x+3)}-\frac{11}{31250(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)*(2+3*x)**4/(3+5*x)**3,x)
```

```
[Out] -54*x**3/125 + 114*log(5*x + 3)/3125 + Integral(1647/3125, x) - 2
97*Integral(x, x)/625 - 26/(3125*(5*x + 3)) - 11/(31250*(5*x + 3)
**2)
```

Mathematica [A] time = 0.0293316, size = 51, normalized size = 0.98

$$\frac{-67500x^5-118125x^4+13500x^3+133650x^2+87220x+228(5x+3)^2\log(5x+3)+17192}{6250(5x+3)^2}$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)*(2 + 3*x)^4)/(3 + 5*x)^3,x]
```

```
[Out] (17192 + 87220*x + 133650*x^2 + 13500*x^3 - 118125*x^4 - 67500*x^
5 + 228*(3 + 5*x)^2*Log[3 + 5*x])/(6250*(3 + 5*x)^2)
```

Maple [A] time = 0.01, size = 41, normalized size = 0.8

$$\frac{1647x}{3125}-\frac{297x^2}{1250}-\frac{54x^3}{125}-\frac{11}{31250(3+5x)^2}-\frac{26}{9375+15625x}+\frac{114\ln(3+5x)}{3125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(2+3*x)^4/(3+5*x)^3,x)
```

```
[Out] 1647/3125*x-297/1250*x^2-54/125*x^3-11/31250/(3+5*x)^2-26/3125/(3
+5*x)+114/3125*ln(3+5*x)
```

Maxima [A] time = 1.35377, size = 55, normalized size = 1.06

$$-\frac{54}{125}\,x^3 - \frac{297}{1250}\,x^2 + \frac{1647}{3125}\,x - \frac{1300\,x + 791}{31250\,(25\,x^2 + 30\,x + 9)} + \frac{114}{3125}\,\log\left(5\,x + 3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^4*(2*x - 1)/(5*x + 3)^3,x, algorithm="maxima")
```

```
[Out] -54/125*x^3 - 297/1250*x^2 + 1647/3125*x - 1/31250*(1300*x + 791)
/(25*x^2 + 30*x + 9) + 114/3125*log(5*x + 3)
```

Fricas [A] time = 0.2341, size = 77, normalized size = 1.48

$$-\frac{337500\,x^5 + 590625\,x^4 - 67500\,x^3 - 427275\,x^2 - 1140\,\left(25\,x^2 + 30\,x + 9\right)\,\log\left(5\,x + 3\right) - 146930\,x + 791}{31250\,(25\,x^2 + 30\,x + 9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^4*(2*x - 1)/(5*x + 3)^3,x, algorithm="fricas")
```

```
[Out] -1/31250*(337500*x^5 + 590625*x^4 - 67500*x^3 - 427275*x^2 - 1140
*(25*x^2 + 30*x + 9)*log(5*x + 3) - 146930*x + 791)/(25*x^2 + 30*
x + 9)
```

Sympy [A] time = 0.277824, size = 42, normalized size = 0.81

$$-\frac{54x^3}{125} - \frac{297x^2}{1250} + \frac{1647x}{3125} - \frac{1300x + 791}{781250x^2 + 937500x + 281250} + \frac{114\log\left(5x + 3\right)}{3125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)**4/(3+5*x)**3,x)
```

```
[Out] -54*x**3/125 - 297*x**2/1250 + 1647*x/3125 - (1300*x + 791)/(7812
50*x**2 + 937500*x + 281250) + 114*log(5*x + 3)/3125
```

GIAC/XCAS [A] time = 0.211187, size = 50, normalized size = 0.96

$$-\frac{54}{125}\,x^3 - \frac{297}{1250}\,x^2 + \frac{1647}{3125}\,x - \frac{1300\,x + 791}{31250\,(5\,x + 3)^2} + \frac{114}{3125}\,\ln\left(|5\,x + 3|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^4*(2*x - 1)/(5*x + 3)^3,x, algorithm="giac")
```

```
[Out] -54/125*x^3 - 297/1250*x^2 + 1647/3125*x - 1/31250*(1300*x + 791)
/(5*x + 3)^2 + 114/3125*ln(abs(5*x + 3))
```

3.1209 $\int \frac{(1-2x)(2+3x)^3}{(3+5x)^3}\,dx$

Optimal. Leaf size=45

$$-\frac{27x^2}{125}+\frac{81x}{625}-\frac{97}{3125(5x+3)}-\frac{11}{6250(5x+3)^2}+\frac{279\log(5x+3)}{3125}$$

```
[Out] (81*x)/625 - (27*x^2)/125 - 11/(6250*(3 + 5*x)^2) - 97/(3125*(3 +
 5*x)) + (279*Log[3 + 5*x])/3125
```

Rubi [A] time = 0.0549708, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{27x^2}{125}+\frac{81x}{625}-\frac{97}{3125(5x+3)}-\frac{11}{6250(5x+3)^2}+\frac{279\log(5x+3)}{3125}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)*(2 + 3*x)^3)/(3 + 5*x)^3,x]
```

```
[Out] (81*x)/625 - (27*x^2)/125 - 11/(6250*(3 + 5*x)^2) - 97/(3125*(3 +
 5*x)) + (279*Log[3 + 5*x])/3125
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{279\log(5x+3)}{3125}+\int\frac{81}{625}\,dx-\frac{54\int x\,dx}{125}-\frac{97}{3125(5x+3)}-\frac{11}{6250(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(2+3*x)**3/(3+5*x)**3,x)
```

```
[Out] 279*log(5*x + 3)/3125 + Integral(81/625, x) - 54*Integral(x, x)/1
25 - 97/(3125*(5*x + 3)) - 11/(6250*(5*x + 3)**2)
```

Mathematica [A] time = 0.02146, size = 48, normalized size = 1.07

$$\frac{-33750x^4-20250x^3+40650x^2+40520x+558(5x+3)^2\log(-3(5x+3))+9667}{6250(5x+3)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)*(2 + 3*x)^3)/(3 + 5*x)^3,x]
```

```
[Out] (9667 + 40520*x + 40650*x^2 - 20250*x^3 - 33750*x^4 + 558*(3 + 5*
x)^2*Log[-3*(3 + 5*x)])/(6250*(3 + 5*x)^2)
```

Maple [A] time = 0.01, size = 36, normalized size = 0.8

$$\frac{81x}{625}-\frac{27x^2}{125}-\frac{11}{6250(3+5x)^2}-\frac{97}{9375+15625x}+\frac{279\ln(3+5x)}{3125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((1-2*x)*(2+3*x)^3/(3+5*x)^3,x)
```

```
[Out] 81/625*x-27/125*x^2-11/6250/(3+5*x)^2-97/3125/(3+5*x)+279/3125*ln
(3+5*x)
```

Maxima [A] time = 1.35294, size = 49, normalized size = 1.09

$$-\frac{27}{125}\,x^2+\frac{81}{625}\,x-\frac{970\,x+593}{6250\,(25\,x^2+30\,x+9)}+\frac{279}{3125}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(-(3*x + 2)^3*(2*x - 1)/(5*x + 3)^3,x, algorithm="maxima")
```

```
[Out] -27/125*x^2 + 81/625*x - 1/6250*(970*x + 593)/(25*x^2 + 30*x + 9)
 + 279/3125*log(5*x + 3)
```

Fricas [A] time = 0.224635, size = 70, normalized size = 1.56

$$-\frac{33750\,x^4+20250\,x^3-12150\,x^2-558\left(25\,x^2+30\,x+9\right)\log\left(5\,x+3\right)-6320\,x+593}{6250\,(25\,x^2+30\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(-(3*x + 2)^3*(2*x - 1)/(5*x + 3)^3,x, algorithm="fricas")
```

```
[Out] -1/6250*(33750*x^4 + 20250*x^3 - 12150*x^2 - 558*(25*x^2 + 30*x +
 9)*log(5*x + 3) - 6320*x + 593)/(25*x^2 + 30*x + 9)
```

Sympy [A] time = 0.276765, size = 36, normalized size = 0.8

$$-\frac{27x^2}{125}+\frac{81x}{625}-\frac{970x+593}{156250x^2+187500x+56250}+\frac{279\log\left(5x+3\right)}{3125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((1-2*x)*(2+3*x)**3/(3+5*x)**3,x)
```

```
[Out] -27*x**2/125 + 81*x/625 - (970*x + 593)/(156250*x**2 + 187500*x +
 56250) + 279*log(5*x + 3)/3125
```

GIAC/XCAS [A] time = 0.208499, size = 43, normalized size = 0.96

$$-\frac{27}{125}\,x^2+\frac{81}{625}\,x-\frac{970\,x+593}{6250\,(5\,x+3)^2}+\frac{279}{3125}\,\ln\left(|5\,x+3|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(-(3*x + 2)^3*(2*x - 1)/(5*x + 3)^3,x, algorithm="giac")
```

```
[Out] -27/125*x^2 + 81/625*x - 1/6250*(970*x + 593)/(5*x + 3)^2 + 279/3
125*ln(abs(5*x + 3))
```

3.1210 $\int \frac{(1-2x)(2+3x)^2}{(3+5x)^3} \, dx$

Optimal. Leaf size=38

$$-\frac{18x}{125} - \frac{64}{625(5x+3)} - \frac{11}{1250(5x+3)^2} + \frac{87}{625}\log(5x+3)$$

```
[Out] (-18*x)/125 - 11/(1250*(3 + 5*x)^2) - 64/(625*(3 + 5*x)) + (87*Lo
g[3 + 5*x])/625
```

Rubi [A] time = 0.0472724, antiderivative size = 38, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{18x}{125} - \frac{64}{625(5x+3)} - \frac{11}{1250(5x+3)^2} + \frac{87}{625}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)*(2 + 3*x)^2)/(3 + 5*x)^3,x]
```

```
[Out] (-18*x)/125 - 11/(1250*(3 + 5*x)^2) - 64/(625*(3 + 5*x)) + (87*Lo
g[3 + 5*x])/625
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{87\log(5x+3)}{625} + \int \left(-\frac{18}{125}\right) dx - \frac{64}{625(5x+3)} - \frac{11}{1250(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(2+3*x)**2/(3+5*x)**3,x)
```

```
[Out] 87*log(5*x + 3)/625 + Integral(-18/125, x) - 64/(625*(5*x + 3)) -
 11/(1250*(5*x + 3)**2)
```

Mathematica [A] time = 0.0276094, size = 39, normalized size = 1.03

$$\frac{87}{625}\log(-3(5x+3)) - \frac{900x^3 + 1680x^2 + 1172x + 295}{250(5x+3)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)*(2 + 3*x)^2)/(3 + 5*x)^3,x]
```

```
[Out] -(295 + 1172*x + 1680*x^2 + 900*x^3)/(250*(3 + 5*x)^2) + (87*Log[
-3*(3 + 5*x)])/625
```

Maple [A] time = 0.008, size = 31, normalized size = 0.8

$$-\frac{18x}{125} - \frac{11}{1250(3+5x)^2} - \frac{64}{1875+3125x} + \frac{87\ln(3+5x)}{625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(2+3*x)^2/(3+5*x)^3,x)
```

```
[Out] -18/125*x-11/1250/(3+5*x)^2-64/625/(3+5*x)+87/625*ln(3+5*x)
```

Maxima [A] time = 1.40266, size = 42, normalized size = 1.11

$$-\frac{18}{125}\,x-\frac{128\,x+79}{250\,(25\,x^2+30\,x+9)}+\frac{87}{625}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^2*(2*x - 1)/(5*x + 3)^3,x, algorithm="maxima")
```

```
[Out] -18/125*x - 1/250*(128*x + 79)/(25*x^2 + 30*x + 9) + 87/625*log(5
*x + 3)
```

Fricas [A] time = 0.220602, size = 63, normalized size = 1.66

$$-\frac{4500\,x^3+5400\,x^2-174\,\left(25\,x^2+30\,x+9\right)\log\left(5\,x+3\right)+2260\,x+395}{1250\,(25\,x^2+30\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^2*(2*x - 1)/(5*x + 3)^3,x, algorithm="fricas")
```

```
[Out] -1/1250*(4500*x^3 + 5400*x^2 - 174*(25*x^2 + 30*x + 9)*log(5*x +
3) + 2260*x + 395)/(25*x^2 + 30*x + 9)
```

Sympy [A] time = 0.266315, size = 29, normalized size = 0.76

$$-\frac{18x}{125}-\frac{128x+79}{6250x^2+7500x+2250}+\frac{87\log\left(5x+3\right)}{625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)**2/(3+5*x)**3,x)
```

```
[Out] -18*x/125 - (128*x + 79)/(6250*x**2 + 7500*x + 2250) + 87*log(5*x
 + 3)/625
```

GIAC/XCAS [A] time = 0.212871, size = 36, normalized size = 0.95

$$-\frac{18}{125}\,x-\frac{128\,x+79}{250\,(5\,x+3)^2}+\frac{87}{625}\,\ln\left(|5\,x+3|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^2*(2*x - 1)/(5*x + 3)^3,x, algorithm="giac")
```

```
[Out] -18/125*x - 1/250*(128*x + 79)/(5*x + 3)^2 + 87/625*ln(abs(5*x +
3))
```

3.1211 $\int \frac{(1-2x)(2+3x)}{(3+5x)^3} dx$

Optimal. Leaf size=33

$$-\frac{31}{125(5x+3)}-\frac{11}{250(5x+3)^2}-\frac{6}{125}\log(5x+3)$$

```
[Out] -11/(250*(3 + 5*x)^2) - 31/(125*(3 + 5*x)) - (6*Log[3 + 5*x])/125
```

Rubi [A] time = 0.0350468, antiderivative size = 33, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{31}{125(5x+3)}-\frac{11}{250(5x+3)^2}-\frac{6}{125}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)*(2 + 3*x))/(3 + 5*x)^3,x]

[Out] -11/(250*(3 + 5*x)^2) - 31/(125*(3 + 5*x)) - (6*Log[3 + 5*x])/125
```

Rubi in Sympy [A] time = 6.10584, size = 27, normalized size = 0.82

$$-\frac{6\log(5x+3)}{125}-\frac{31}{125(5x+3)}-\frac{11}{250(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(2+3*x)/(3+5*x)**3,x)

[Out] -6*log(5*x + 3)/125 - 31/(125*(5*x + 3)) - 11/(250*(5*x + 3)**2)
```

Mathematica [A] time = 0.0123171, size = 33, normalized size = 1.

$$-\frac{31}{125(5x+3)}-\frac{11}{250(5x+3)^2}-\frac{6}{125}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)*(2 + 3*x))/(3 + 5*x)^3,x]

[Out] -11/(250*(3 + 5*x)^2) - 31/(125*(3 + 5*x)) - (6*Log[3 + 5*x])/125
```

Maple [A] time = 0.008, size = 28, normalized size = 0.9

$$-\frac{11}{250(3+5x)^2}-\frac{31}{375+625x}-\frac{6\ln(3+5x)}{125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(2+3*x)/(3+5*x)^3,x)

[Out] -11/250/(3+5*x)^2-31/125/(3+5*x)-6/125*ln(3+5*x)
```

Maxima [A] time = 1.35184, size = 38, normalized size = 1.15

$$-\frac{310\,x+197}{250\,(25\,x^2+30\,x+9)}-\frac{6}{125}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)*(2*x - 1)/(5*x + 3)^3,x, algorithm="maxima")
```

```
[Out] -1/250*(310*x + 197)/(25*x^2 + 30*x + 9) - 6/125*log(5*x + 3)
```

Fricas [A] time = 0.226339, size = 50, normalized size = 1.52

$$-\frac{12\,\left(25\,x^2+30\,x+9\right)\,\log\left(5\,x+3\right)+310\,x+197}{250\,(25\,x^2+30\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)*(2*x - 1)/(5*x + 3)^3,x, algorithm="fricas")
```

```
[Out] -1/250*(12*(25*x^2 + 30*x + 9)*log(5*x + 3) + 310*x + 197)/(25*x^
2 + 30*x + 9)
```

Sympy [A] time = 0.243395, size = 26, normalized size = 0.79

$$-\frac{310x+197}{6250x^2+7500x+2250}-\frac{6\log\left(5x+3\right)}{125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)/(3+5*x)**3,x)
```

```
[Out] -(310*x + 197)/(6250*x**2 + 7500*x + 2250) - 6*log(5*x + 3)/125
```

GIAC/XCAS [A] time = 0.207319, size = 32, normalized size = 0.97

$$-\frac{310\,x+197}{250\,(5\,x+3)^2}-\frac{6}{125}\,\ln\left(|5\,x+3|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)*(2*x - 1)/(5*x + 3)^3,x, algorithm="giac")
```

```
[Out] -1/250*(310*x + 197)/(5*x + 3)^2 - 6/125*ln(abs(5*x + 3))
```

3.1212 $\int \frac{1-2x}{(3+5x)^3} dx$

Optimal. Leaf size=18

$$-\frac{(1-2x)^2}{22(5x+3)^2}$$

```
[Out] -(1 - 2*x)^2/(22*(3 + 5*x)^2)
```

Rubi [A] time = 0.0104842, antiderivative size = 18, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 13, $\frac{\text{number of rules}}{\text{integrand size}} = 0.077$

$$-\frac{(1-2x)^2}{22(5x+3)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)/(3 + 5*x)^3,x]

[Out] -(1 - 2*x)^2/(22*(3 + 5*x)^2)
```

Rubi in Sympy [A] time = 2.48084, size = 15, normalized size = 0.83

$$-\frac{(-2x+1)^2}{22(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)/(3+5*x)**3,x)

[Out] -(-2*x + 1)**2/(22*(5*x + 3)**2)
```

Mathematica [A] time = 0.00424329, size = 16, normalized size = 0.89

$$\frac{20x+1}{50(5x+3)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)/(3 + 5*x)^3,x]

[Out] (1 + 20*x)/(50*(3 + 5*x)^2)
```

Maple [A] time = 0.007, size = 20, normalized size = 1.1

$$-\frac{11}{50(3+5x)^2}+\frac{2}{75+125x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)/(3+5*x)^3,x)

[Out] -11/50/(3+5*x)^2+2/25/(3+5*x)
```

Maxima [A] time = 1.35034, size = 26, normalized size = 1.44

$$\frac{20\,x+1}{50\,(25\,x^2+30\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/(5*x + 3)^3,x, algorithm="maxima")

[Out] 1/50*(20*x + 1)/(25*x^2 + 30*x + 9)
```

Fricas [A] time = 0.22509, size = 26, normalized size = 1.44

$$\frac{20\,x+1}{50\,(25\,x^2+30\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/(5*x + 3)^3,x, algorithm="fricas")

[Out] 1/50*(20*x + 1)/(25*x^2 + 30*x + 9)
```

Sympy [A] time = 0.200825, size = 14, normalized size = 0.78

$$\frac{20x+1}{1250x^2+1500x+450}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)/(3+5*x)**3,x)

[Out] (20*x + 1)/(1250*x**2 + 1500*x + 450)
```

GIAC/XCAS [A] time = 0.207788, size = 19, normalized size = 1.06

$$\frac{20\,x+1}{50\,(5\,x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/(5*x + 3)^3,x, algorithm="giac")

[Out] 1/50*(20*x + 1)/(5*x + 3)^2
```

3.1213 $\int \frac{1-2x}{(2+3x)(3+5x)^3} dx$

Optimal. Leaf size=37

$$\frac{7}{5x+3} - \frac{11}{10(5x+3)^2} - 21\log(3x+2) + 21\log(5x+3)$$

```
[Out] -11/(10*(3 + 5*x)^2) + 7/(3 + 5*x) - 21*Log[2 + 3*x] + 21*Log[3 +
 5*x]
```

Rubi [A] time = 0.044964, antiderivative size = 37, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$\frac{7}{5x+3} - \frac{11}{10(5x+3)^2} - 21\log(3x+2) + 21\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)/((2 + 3*x)*(3 + 5*x)^3),x]
```

```
[Out] -11/(10*(3 + 5*x)^2) + 7/(3 + 5*x) - 21*Log[2 + 3*x] + 21*Log[3 +
 5*x]
```

Rubi in Sympy [A] time = 6.80705, size = 32, normalized size = 0.86

$$-21\log(3x+2) + 21\log(5x+3) + \frac{7}{5x+3} - \frac{11}{10(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)/(2+3*x)/(3+5*x)**3,x)
```

```
[Out] -21*log(3*x + 2) + 21*log(5*x + 3) + 7/(5*x + 3) - 11/(10*(5*x +
3)**2)
```

Mathematica [A] time = 0.0214494, size = 48, normalized size = 1.3

$$\frac{350x - 210(5x+3)^2\log(5(3x+2)) + 210(5x+3)^2\log(5x+3) + 199}{10(5x+3)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)/((2 + 3*x)*(3 + 5*x)^3),x]
```

```
[Out] (199 + 350*x - 210*(3 + 5*x)^2*Log[5*(2 + 3*x)] + 210*(3 + 5*x)^2
*Log[3 + 5*x])/(10*(3 + 5*x)^2)
```

Maple [A] time = 0.012, size = 36, normalized size = 1.

$$-\frac{11}{10(3+5x)^2} + 7(3+5x)^{-1} - 21\ln(2+3x) + 21\ln(3+5x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)/(2+3*x)/(3+5*x)^3,x)
```

```
[Out] -11/10/(3+5*x)^2+7/(3+5*x)-21*ln(2+3*x)+21*ln(3+5*x)
```

Maxima [A] time = 1.38461, size = 49, normalized size = 1.32

$$\frac{350\,x+199}{10\,(25\,x^2+30\,x+9)}+21\,\log(5\,x+3)-21\,\log(3\,x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/((5*x + 3)^3*(3*x + 2)),x, algorithm="maxima")
```

```
[Out] 1/10*(350*x + 199)/(25*x^2 + 30*x + 9) + 21*log(5*x + 3) - 21*log
(3*x + 2)
```

Fricas [A] time = 0.219873, size = 74, normalized size = 2.

$$\frac{210\,\left(25\,x^2+30\,x+9\right)\,\log(5\,x+3)-210\,\left(25\,x^2+30\,x+9\right)\,\log(3\,x+2)+350\,x+199}{10\,(25\,x^2+30\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/((5*x + 3)^3*(3*x + 2)),x, algorithm="fricas")
```

```
[Out] 1/10*(210*(25*x^2 + 30*x + 9)*log(5*x + 3) - 210*(25*x^2 + 30*x +
 9)*log(3*x + 2) + 350*x + 199)/(25*x^2 + 30*x + 9)
```

Sympy [A] time = 0.306998, size = 31, normalized size = 0.84

$$\frac{350x+199}{250x^2+300x+90}+21\log\left(x+\frac{3}{5}\right)-21\log\left(x+\frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)/(2+3*x)/(3+5*x)**3,x)
```

```
[Out] (350*x + 199)/(250*x**2 + 300*x + 90) + 21*log(x + 3/5) - 21*log(
x + 2/3)
```

GIAC/XCAS [A] time = 0.206365, size = 45, normalized size = 1.22

$$\frac{350\,x+199}{10\,(5\,x+3)^2}+21\ln(|5\,x+3|)-21\ln(|3\,x+2|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/((5*x + 3)^3*(3*x + 2)),x, algorithm="giac")
```

```
[Out] 1/10*(350*x + 199)/(5*x + 3)^2 + 21*ln(abs(5*x + 3)) - 21*ln(abs(
3*x + 2))
```

3.1214 $\int \frac{1-2x}{(2+3x)^2(3+5x)^3}\,dx$

Optimal. Leaf size=46

$$\frac{21}{3x+2}+\frac{68}{5x+3}-\frac{11}{2(5x+3)^2}-309\log(3x+2)+309\log(5x+3)$$

```
[Out] 21/(2 + 3*x) - 11/(2*(3 + 5*x)^2) + 68/(3 + 5*x) - 309*Log[2 + 3*
x] + 309*Log[3 + 5*x]
```

Rubi [A] time = 0.0546662, antiderivative size = 46, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{21}{3x+2}+\frac{68}{5x+3}-\frac{11}{2(5x+3)^2}-309\log(3x+2)+309\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)/((2 + 3*x)^2*(3 + 5*x)^3),x]
```

```
[Out] 21/(2 + 3*x) - 11/(2*(3 + 5*x)^2) + 68/(3 + 5*x) - 309*Log[2 + 3*
x] + 309*Log[3 + 5*x]
```

Rubi in Sympy [A] time = 7.93288, size = 39, normalized size = 0.85

$$-309\log\left(3x+2\right)+309\log\left(5x+3\right)+\frac{68}{5x+3}-\frac{11}{2\left(5x+3\right)^2}+\frac{21}{3x+2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)/(2+3*x)**2/(3+5*x)**3,x)
```

```
[Out] -309*log(3*x + 2) + 309*log(5*x + 3) + 68/(5*x + 3) - 11/(2*(5*x
+ 3)**2) + 21/(3*x + 2)
```

Mathematica [A] time = 0.0298167, size = 48, normalized size = 1.04

$$\frac{21}{3x+2}+\frac{68}{5x+3}-\frac{11}{2(5x+3)^2}-309\log(3x+2)+309\log(-3(5x+3))$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)/((2 + 3*x)^2*(3 + 5*x)^3),x]
```

```
[Out] 21/(2 + 3*x) - 11/(2*(3 + 5*x)^2) + 68/(3 + 5*x) - 309*Log[2 + 3*
x] + 309*Log[-3*(3 + 5*x)]
```

Maple [A] time = 0.014, size = 45, normalized size = 1.

$$21\,\left(2+3\,x\right)^{-1}-\frac{11}{2\,\left(3+5\,x\right)^{2}}+68\,\left(3+5\,x\right)^{-1}-309\,\ln\left(2+3\,x\right)+309\,\ln\left(3+5\,x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)/(2+3*x)^2/(3+5*x)^3,x)
```

```
[Out] 21/(2+3*x)-11/2/(3+5*x)^2+68/(3+5*x)-309*ln(2+3*x)+309*ln(3+5*x)
```

Maxima [A] time = 1.32709, size = 62, normalized size = 1.35

$$\frac{3090\,x^2+3811\,x+1172}{2\,(75\,x^3+140\,x^2+87\,x+18)}+309\,\log(5\,x+3)-309\,\log(3\,x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)/((5*x + 3)^3*(3*x + 2)^2),x, algorithm="maxima")
```

```
[Out] 1/2*(3090*x^2 + 3811*x + 1172)/(75*x^3 + 140*x^2 + 87*x + 18) + 3
09*log(5*x + 3) - 309*log(3*x + 2)
```

Fricas [A] time = 0.210728, size = 101, normalized size = 2.2

$$\frac{3090\,x^2+618\,\left(75\,x^3+140\,x^2+87\,x+18\right)\log(5\,x+3)-618\,\left(75\,x^3+140\,x^2+87\,x+18\right)\log(3\,x+2)+3811\,x+1172}{2\,(75\,x^3+140\,x^2+87\,x+18)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)/((5*x + 3)^3*(3*x + 2)^2),x, algorithm="fricas")
```

```
[Out] 1/2*(3090*x^2 + 618*(75*x^3 + 140*x^2 + 87*x + 18)*log(5*x + 3) -
 618*(75*x^3 + 140*x^2 + 87*x + 18)*log(3*x + 2) + 3811*x + 1172)
/(75*x^3 + 140*x^2 + 87*x + 18)
```

Sympy [A] time = 0.356907, size = 41, normalized size = 0.89

$$\frac{3090x^2+3811x+1172}{150x^3+280x^2+174x+36}+309\log\left(x+\frac{3}{5}\right)-309\log\left(x+\frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)/(2+3*x)**2/(3+5*x)**3,x)
```

```
[Out] (3090*x**2 + 3811*x + 1172)/(150*x**3 + 280*x**2 + 174*x + 36) +
309*log(x + 3/5) - 309*log(x + 2/3)
```

GIAC/XCAS [A] time = 0.209807, size = 66, normalized size = 1.43

$$\frac{21}{3\,x+2}-\frac{15\,\left(\frac{202}{3\,x+2}-845\right)}{2\,\left(\frac{1}{3\,x+2}-5\right)^2}+309\,\ln\left(\left|-\frac{1}{3\,x+2}+5\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/((5*x + 3)^3*(3*x + 2)^2),x, algorithm="giac")
```

```
[Out] 21/(3*x + 2) - 15/2*(202/(3*x + 2) - 845)/(1/(3*x + 2) - 5)^2 + 3
09*ln(abs(-1/(3*x + 2) + 5))
```

3.1215 $\int \frac{1-2x}{(2+3x)^3(3+5x)^3}\,dx$

Optimal. Leaf size=57

$$\frac{309}{3x+2}+\frac{505}{5x+3}+\frac{21}{2(3x+2)^2}-\frac{55}{2(5x+3)^2}-3060\log(3x+2)+3060\log(5x+3)$$

```
[Out] 21/(2*(2 + 3*x)^2) + 309/(2 + 3*x) - 55/(2*(3 + 5*x)^2) + 505/(3
+ 5*x) - 3060*Log[2 + 3*x] + 3060*Log[3 + 5*x]
```

Rubi [A] time = 0.0655604, antiderivative size = 57, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{309}{3x+2}+\frac{505}{5x+3}+\frac{21}{2(3x+2)^2}-\frac{55}{2(5x+3)^2}-3060\log(3x+2)+3060\log(5x+3)$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)/((2 + 3*x)^3*(3 + 5*x)^3),x]
```

```
[Out] 21/(2*(2 + 3*x)^2) + 309/(2 + 3*x) - 55/(2*(3 + 5*x)^2) + 505/(3
+ 5*x) - 3060*Log[2 + 3*x] + 3060*Log[3 + 5*x]
```

Rubi in Sympy [A] time = 9.2646, size = 49, normalized size = 0.86

$$-3060\log(3x+2)+3060\log(5x+3)+\frac{505}{5x+3}-\frac{55}{2(5x+3)^2}+\frac{309}{3x+2}+\frac{21}{2(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)/(2+3*x)**3/(3+5*x)**3,x)
```

```
[Out] -3060*log(3*x + 2) + 3060*log(5*x + 3) + 505/(5*x + 3) - 55/(2*(5
*x + 3)**2) + 309/(3*x + 2) + 21/(2*(3*x + 2)**2)
```

Mathematica [A] time = 0.0512738, size = 59, normalized size = 1.04

$$\frac{309}{3x+2}+\frac{505}{5x+3}+\frac{21}{2(3x+2)^2}-\frac{55}{2(5x+3)^2}-3060\log(3x+2)+3060\log(-3(5x+3))$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)/((2 + 3*x)^3*(3 + 5*x)^3),x]
```

```
[Out] 21/(2*(2 + 3*x)^2) + 309/(2 + 3*x) - 55/(2*(3 + 5*x)^2) + 505/(3
+ 5*x) - 3060*Log[2 + 3*x] + 3060*Log[-3*(3 + 5*x)]
```

Maple [A] time = 0.014, size = 54, normalized size = 1.

$$\frac{21}{2\,(2+3\,x)^2}+309\,(2+3\,x)^{-1}-\frac{55}{2\,(3+5\,x)^2}+505\,(3+5\,x)^{-1}-3060\,\ln(2+3\,x)+3060\,\ln(3+5\,x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)/(2+3*x)^3/(3+5*x)^3,x)
```

```
[Out] 21/2/(2+3*x)^2+309/(2+3*x)-55/2/(3+5*x)^2+505/(3+5*x)-3060*ln(2+3
*x)+3060*ln(3+5*x)
```

Maxima [A] time = 1.32922, size = 76, normalized size = 1.33

$$\frac{91800\,x^3 + 174420\,x^2 + 110296\,x + 23213}{2\,(225\,x^4 + 570\,x^3 + 541\,x^2 + 228\,x + 36)} + 3060\,\log\left(5\,x + 3\right) - 3060\,\log\left(3\,x + 2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)/((5*x + 3)^3*(3*x + 2)^3),x, algorithm="maxima")
```

```
[Out] 1/2*(91800*x^3 + 174420*x^2 + 110296*x + 23213)/(225*x^4 + 570*x^
3 + 541*x^2 + 228*x + 36) + 3060*log(5*x + 3) - 3060*log(3*x + 2)
```

Fricas [A] time = 0.215857, size = 128, normalized size = 2.25

$$\frac{91800\,x^3 + 174420\,x^2 + 6120\,\left(225\,x^4 + 570\,x^3 + 541\,x^2 + 228\,x + 36\right)\,\log\left(5\,x + 3\right) - 6120\,\left(225\,x^4 + 570\,x^3 + 541\,x^2 + 228\,x + \right.}{2\,(225\,x^4 + 570\,x^3 + 541\,x^2 + 228\,x + 36)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)/((5*x + 3)^3*(3*x + 2)^3),x, algorithm="fricas")
```

```
[Out] 1/2*(91800*x^3 + 174420*x^2 + 6120*(225*x^4 + 570*x^3 + 541*x^2 +
 228*x + 36)*log(5*x + 3) - 6120*(225*x^4 + 570*x^3 + 541*x^2 + 2
28*x + 36)*log(3*x + 2) + 110296*x + 23213)/(225*x^4 + 570*x^3 +
541*x^2 + 228*x + 36)
```

Sympy [A] time = 0.424787, size = 51, normalized size = 0.89

$$\frac{91800x^3 + 174420x^2 + 110296x + 23213}{450x^4 + 1140x^3 + 1082x^2 + 456x + 72} + 3060\log\left(x + \frac{3}{5}\right) - 3060\log\left(x + \frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)/(2+3*x)**3/(3+5*x)**3,x)
```

```
[Out] (91800*x**3 + 174420*x**2 + 110296*x + 23213)/(450*x**4 + 1140*x*
*3 + 1082*x**2 + 456*x + 72) + 3060*log(x + 3/5) - 3060*log(x + 2
/3)
```

GIAC/XCAS [A] time = 0.20616, size = 65, normalized size = 1.14

$$\frac{91800\,x^3 + 174420\,x^2 + 110296\,x + 23213}{2\,(15\,x^2 + 19\,x + 6)^2} + 3060\,\ln\left(|5\,x + 3|\right) - 3060\,\ln\left(|3\,x + 2|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/((5*x + 3)^3*(3*x + 2)^3),x, algorithm="giac")
```

```
[Out] 1/2*(91800*x^3 + 174420*x^2 + 110296*x + 23213)/(15*x^2 + 19*x +
6)^2 + 3060*ln(abs(5*x + 3)) - 3060*ln(abs(3*x + 2))
```

3.1216 $\int \frac{1-2x}{(2+3x)^4(3+5x)^3}\,dx$

Optimal. Leaf size=66

$$\frac{3060}{3x+2}+\frac{3350}{5x+3}+\frac{309}{2(3x+2)^2}-\frac{275}{2(5x+3)^2}+\frac{7}{(3x+2)^3}-25350\log(3x+2)+25350\log(5x+3)$$

```
[Out] 7/(2 + 3*x)^3 + 309/(2*(2 + 3*x)^2) + 3060/(2 + 3*x) - 275/(2*(3
+ 5*x)^2) + 3350/(3 + 5*x) - 25350*Log[2 + 3*x] + 25350*Log[3 + 5
*x]
```

Rubi [A] time = 0.0828465, antiderivative size = 66, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{3060}{3x+2}+\frac{3350}{5x+3}+\frac{309}{2(3x+2)^2}-\frac{275}{2(5x+3)^2}+\frac{7}{(3x+2)^3}-25350\log(3x+2)+25350\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)/((2 + 3*x)^4*(3 + 5*x)^3),x]
```

```
[Out] 7/(2 + 3*x)^3 + 309/(2*(2 + 3*x)^2) + 3060/(2 + 3*x) - 275/(2*(3
+ 5*x)^2) + 3350/(3 + 5*x) - 25350*Log[2 + 3*x] + 25350*Log[3 + 5
*x]
```

Rubi in Sympy [A] time = 10.4762, size = 58, normalized size = 0.88

$$-25350\log(3x+2)+25350\log(5x+3)+\frac{3350}{5x+3}-\frac{275}{2(5x+3)^2}+\frac{3060}{3x+2}+\frac{309}{2(3x+2)^2}+\frac{7}{(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)/(2+3*x)**4/(3+5*x)**3,x)
```

```
[Out] -25350*log(3*x + 2) + 25350*log(5*x + 3) + 3350/(5*x + 3) - 275/(
2*(5*x + 3)**2) + 3060/(3*x + 2) + 309/(2*(3*x + 2)**2) + 7/(3*x
+ 2)**3
```

Mathematica [A] time = 0.0394197, size = 68, normalized size = 1.03

$$\frac{3060}{3x+2}+\frac{3350}{5x+3}+\frac{309}{2(3x+2)^2}-\frac{275}{2(5x+3)^2}+\frac{7}{(3x+2)^3}-25350\log(3x+2)+25350\log(-3(5x+3))$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)/((2 + 3*x)^4*(3 + 5*x)^3),x]
```

```
[Out] 7/(2 + 3*x)^3 + 309/(2*(2 + 3*x)^2) + 3060/(2 + 3*x) - 275/(2*(3
+ 5*x)^2) + 3350/(3 + 5*x) - 25350*Log[2 + 3*x] + 25350*Log[-3*(3
 + 5*x)]
```

Maple [A] time = 0.014, size = 63, normalized size = 1.

$$7\,(2+3\,x)^{-3}+\frac{309}{2\,(2+3\,x)^2}+3060\,(2+3\,x)^{-1}-\frac{275}{2\,(3+5\,x)^2}+3350\,(3+5\,x)^{-1}-25350\,\ln(2+3\,x)+25350\,\ln(3+5\,x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)/(2+3*x)^4/(3+5*x)^3,x)
```

```
[Out] 7/(2+3*x)^3+309/2/(2+3*x)^2+3060/(2+3*x)-275/2/(3+5*x)^2+3350/(3+
5*x)-25350*ln(2+3*x)+25350*ln(3+5*x)
```

Maxima [A] time = 1.35261, size = 89, normalized size = 1.35

$$\frac{2281500\,x^4+5855850\,x^3+5631080\,x^2+2404363\,x+384608}{2\,(675\,x^5+2160\,x^4+2763\,x^3+1766\,x^2+564\,x+72)}+25350\,\log\left(5\,x+3\right)-25350\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)/((5*x + 3)^3*(3*x + 2)^4),x, algorithm="maxima")
```

```
[Out] 1/2*(2281500*x^4 + 5855850*x^3 + 5631080*x^2 + 2404363*x + 384608
)/(675*x^5 + 2160*x^4 + 2763*x^3 + 1766*x^2 + 564*x + 72) + 25350
*log(5*x + 3) - 25350*log(3*x + 2)
```

Fricas [A] time = 0.208182, size = 155, normalized size = 2.35

$$\frac{2281500\,x^4+5855850\,x^3+5631080\,x^2+50700\left(675\,x^5+2160\,x^4+2763\,x^3+1766\,x^2+564\,x+72\right)\log\left(5\,x+3\right)-50700\,(6}{2\,(675\,x^5+2160\,x^4+2763\,x^3+1766\,x^2+564}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)/((5*x + 3)^3*(3*x + 2)^4),x, algorithm="fricas")
```

```
[Out] 1/2*(2281500*x^4 + 5855850*x^3 + 5631080*x^2 + 50700*(675*x^5 + 2
160*x^4 + 2763*x^3 + 1766*x^2 + 564*x + 72)*log(5*x + 3) - 50700*
(675*x^5 + 2160*x^4 + 2763*x^3 + 1766*x^2 + 564*x + 72)*log(3*x +
 2) + 2404363*x + 384608)/(675*x^5 + 2160*x^4 + 2763*x^3 + 1766*x
^2 + 564*x + 72)
```

Sympy [A] time = 0.480324, size = 61, normalized size = 0.92

$$\frac{2281500x^4+5855850x^3+5631080x^2+2404363x+384608}{1350x^5+4320x^4+5526x^3+3532x^2+1128x+144}+25350\log\left(x+\frac{3}{5}\right)-25350\log\left(x+\frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)/(2+3*x)**4/(3+5*x)**3,x)
```

```
[Out] (2281500*x**4 + 5855850*x**3 + 5631080*x**2 + 2404363*x + 384608)
/(1350*x**5 + 4320*x**4 + 5526*x**3 + 3532*x**2 + 1128*x + 144) +
 25350*log(x + 3/5) - 25350*log(x + 2/3)
```

GIAC/XCAS [A] time = 0.211961, size = 74, normalized size = 1.12

$$\frac{2281500\,x^4+5855850\,x^3+5631080\,x^2+2404363\,x+384608}{2\,(5\,x+3)^2(3\,x+2)^3}+25350\ln\left(|5\,x+3|\right)-25350\ln\left(|3\,x+2|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/((5*x + 3)^3*(3*x + 2)^4),x, algorithm="giac")
```

```
[Out] 1/2*(2281500*x^4 + 5855850*x^3 + 5631080*x^2 + 2404363*x + 384608
)/((5*x + 3)^2*(3*x + 2)^3) + 25350*ln(abs(5*x + 3)) - 25350*ln(a
bs(3*x + 2))
```

3.1217 $\int \frac{1-2x}{(2+3x)^5(3+5x)^3}\,dx$

Optimal. Leaf size=75

$$\frac{25350}{3x+2}+\frac{20875}{5x+3}+\frac{1530}{(3x+2)^2}-\frac{1375}{2(5x+3)^2}+\frac{103}{(3x+2)^3}+\frac{21}{4(3x+2)^4}-189375\log(3x+2)+189375\log(5x+3)$$

```
[Out] 21/(4*(2 + 3*x)^4) + 103/(2 + 3*x)^3 + 1530/(2 + 3*x)^2 + 25350/(
2 + 3*x) - 1375/(2*(3 + 5*x)^2) + 20875/(3 + 5*x) - 189375*Log[2
+ 3*x] + 189375*Log[3 + 5*x]
```

Rubi [A] time = 0.090272, antiderivative size = 75, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$\frac{25350}{3x+2}+\frac{20875}{5x+3}+\frac{1530}{(3x+2)^2}-\frac{1375}{2(5x+3)^2}+\frac{103}{(3x+2)^3}+\frac{21}{4(3x+2)^4}-189375\log(3x+2)+189375\log(5x+3)$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)/((2 + 3*x)^5*(3 + 5*x)^3),x]
```

```
[Out] 21/(4*(2 + 3*x)^4) + 103/(2 + 3*x)^3 + 1530/(2 + 3*x)^2 + 25350/(
2 + 3*x) - 1375/(2*(3 + 5*x)^2) + 20875/(3 + 5*x) - 189375*Log[2
+ 3*x] + 189375*Log[3 + 5*x]
```

Rubi in Sympy [A] time = 11.9063, size = 66, normalized size = 0.88

$$-189375\log(3x+2)+189375\log(5x+3)+\frac{20875}{5x+3}-\frac{1375}{2(5x+3)^2}+\frac{25350}{3x+2}+\frac{1530}{(3x+2)^2}+\frac{103}{(3x+2)^3}+\frac{21}{4(3x+2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)/(2+3*x)**5/(3+5*x)**3,x)
```

```
[Out] -189375*log(3*x + 2) + 189375*log(5*x + 3) + 20875/(5*x + 3) - 13
75/(2*(5*x + 3)**2) + 25350/(3*x + 2) + 1530/(3*x + 2)**2 + 103/(
3*x + 2)**3 + 21/(4*(3*x + 2)**4)
```

Mathematica [A] time = 0.0464948, size = 77, normalized size = 1.03

$$\frac{25350}{3x+2}+\frac{20875}{5x+3}+\frac{1530}{(3x+2)^2}-\frac{1375}{2(5x+3)^2}+\frac{103}{(3x+2)^3}+\frac{21}{4(3x+2)^4}-189375\log(3x+2)+189375\log(-3(5x+3))$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)/((2 + 3*x)^5*(3 + 5*x)^3),x]
```

```
[Out] 21/(4*(2 + 3*x)^4) + 103/(2 + 3*x)^3 + 1530/(2 + 3*x)^2 + 25350/(
2 + 3*x) - 1375/(2*(3 + 5*x)^2) + 20875/(3 + 5*x) - 189375*Log[2
+ 3*x] + 189375*Log[-3*(3 + 5*x)]
```

Maple [A] time = 0.013, size = 72, normalized size = 1.

$$\frac{21}{4\,(2+3\,x)^4}+103\,(2+3\,x)^{-3}+1530\,(2+3\,x)^{-2}+25350\,(2+3\,x)^{-1}-\frac{1375}{2\,(3+5\,x)^2}+20875\,(3+5\,x)^{-1}-189375\,\ln(2+3\,x)+189375\,\ln(3+5\,x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)/(2+3*x)^5/(3+5*x)^3,x)
```

```
[Out] 21/4/(2+3*x)^4+103/(2+3*x)^3+1530/(2+3*x)^2+25350/(2+3*x)-1375/2/
(3+5*x)^2+20875/(3+5*x)-189375*ln(2+3*x)+189375*ln(3+5*x)
```

Maxima [A] time = 1.35277, size = 103, normalized size = 1.37

$$\frac{102262500\,x^5+330648750\,x^4+427381500\,x^3+276035525\,x^2+89085434\,x+11492725}{4\,(2025\,x^6+7830\,x^5+12609\,x^4+10824\,x^3+5224\,x^2+1344\,x+144)}+189375\,\log(5\,x+3)-189375\,\log(3\,x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)/((5*x + 3)^3*(3*x + 2)^5),x, algorithm="maxima")
```

```
[Out] 1/4*(102262500*x^5 + 330648750*x^4 + 427381500*x^3 + 276035525*x^
2 + 89085434*x + 11492725)/(2025*x^6 + 7830*x^5 + 12609*x^4 + 108
24*x^3 + 5224*x^2 + 1344*x + 144) + 189375*log(5*x + 3) - 189375*
log(3*x + 2)
```

Fricas [A] time = 0.20749, size = 182, normalized size = 2.43

$$\frac{102262500\,x^5+330648750\,x^4+427381500\,x^3+276035525\,x^2+757500\,\left(2025\,x^6+7830\,x^5+12609\,x^4+10824\,x^3+5224\,x^2\right.}{4\,(2025\,x^6+7830\,x^5+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)/((5*x + 3)^3*(3*x + 2)^5),x, algorithm="fricas")
```

```
[Out] 1/4*(102262500*x^5 + 330648750*x^4 + 427381500*x^3 + 276035525*x^
2 + 757500*(2025*x^6 + 7830*x^5 + 12609*x^4 + 10824*x^3 + 5224*x^
2 + 1344*x + 144)*log(5*x + 3) - 757500*(2025*x^6 + 7830*x^5 + 12
609*x^4 + 10824*x^3 + 5224*x^2 + 1344*x + 144)*log(3*x + 2) + 890
85434*x + 11492725)/(2025*x^6 + 7830*x^5 + 12609*x^4 + 10824*x^3
+ 5224*x^2 + 1344*x + 144)
```

Sympy [A] time = 0.537415, size = 71, normalized size = 0.95

$$\frac{102262500x^5+330648750x^4+427381500x^3+276035525x^2+89085434x+11492725}{8100x^6+31320x^5+50436x^4+43296x^3+20896x^2+5376x+576}+189375\log\left(x+\frac{3}{5}\right)-189375\log\left(x+\frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)/(2+3*x)**5/(3+5*x)**3,x)
```

```
[Out] (102262500*x**5 + 330648750*x**4 + 427381500*x**3 + 276035525*x**
2 + 89085434*x + 11492725)/(8100*x**6 + 31320*x**5 + 50436*x**4 +
 43296*x**3 + 20896*x**2 + 5376*x + 576) + 189375*log(x + 3/5) -
189375*log(x + 2/3)
```

GIAC/XCAS [A] time = 0.208989, size = 103, normalized size = 1.37

$$\frac{25350}{3x+2} - \frac{9375\left(\frac{80}{3x+2} - 367\right)}{2\left(\frac{1}{3x+2} - 5\right)^2} + \frac{1530}{(3x+2)^2} + \frac{103}{(3x+2)^3} + \frac{21}{4(3x+2)^4} + 189375\ln\left(\left|-\frac{1}{3x+2} + 5\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/((5*x + 3)^3*(3*x + 2)^5),x, algorithm="giac")
```

```
[Out] 25350/(3*x + 2) - 9375/2*(80/(3*x + 2) - 367)/(1/(3*x + 2) - 5)^2
 + 1530/(3*x + 2)^2 + 103/(3*x + 2)^3 + 21/4/(3*x + 2)^4 + 189375
*ln(abs(-1/(3*x + 2) + 5))
```

3.1218 $\int \frac{1-2x}{(2+3x)^6(3+5x)^3}\,dx$

Optimal. Leaf size=86

$$\frac{189375}{3x+2}+\frac{125000}{5x+3}+\frac{12675}{(3x+2)^2}-\frac{6875}{2(5x+3)^2}+\frac{1020}{(3x+2)^3}+\frac{309}{4(3x+2)^4}+\frac{21}{5(3x+2)^5}-1321875\log(3x+2)+1321875\log(5x+3)$$

```
[Out] 21/(5*(2 + 3*x)^5) + 309/(4*(2 + 3*x)^4) + 1020/(2 + 3*x)^3 + 126
75/(2 + 3*x)^2 + 189375/(2 + 3*x) - 6875/(2*(3 + 5*x)^2) + 125000
/(3 + 5*x) - 1321875*Log[2 + 3*x] + 1321875*Log[3 + 5*x]
```

Rubi [A] time = 0.105477, antiderivative size = 86, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$\frac{189375}{3x+2}+\frac{125000}{5x+3}+\frac{12675}{(3x+2)^2}-\frac{6875}{2(5x+3)^2}+\frac{1020}{(3x+2)^3}+\frac{309}{4(3x+2)^4}+\frac{21}{5(3x+2)^5}-1321875\log(3x+2)+1321875\log(5x+3)$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)/((2 + 3*x)^6*(3 + 5*x)^3),x]
```

```
[Out] 21/(5*(2 + 3*x)^5) + 309/(4*(2 + 3*x)^4) + 1020/(2 + 3*x)^3 + 126
75/(2 + 3*x)^2 + 189375/(2 + 3*x) - 6875/(2*(3 + 5*x)^2) + 125000
/(3 + 5*x) - 1321875*Log[2 + 3*x] + 1321875*Log[3 + 5*x]
```

Rubi in Sympy [A] time = 13.3165, size = 76, normalized size = 0.88

$$-1321875\log(3x+2)+1321875\log(5x+3)+\frac{125000}{5x+3}-\frac{6875}{2(5x+3)^2}+\frac{189375}{3x+2}+\frac{12675}{(3x+2)^2}+\frac{1020}{(3x+2)^3}+\frac{309}{4(3x+2)^4}+\frac{21}{5(3x+2)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)/(2+3*x)**6/(3+5*x)**3,x)
```

```
[Out] -1321875*log(3*x + 2) + 1321875*log(5*x + 3) + 125000/(5*x + 3) -
 6875/(2*(5*x + 3)**2) + 189375/(3*x + 2) + 12675/(3*x + 2)**2 +
1020/(3*x + 2)**3 + 309/(4*(3*x + 2)**4) + 21/(5*(3*x + 2)**5)
```

Mathematica [A] time = 0.0519051, size = 88, normalized size = 1.02

$$\frac{189375}{3x+2}+\frac{125000}{5x+3}+\frac{12675}{(3x+2)^2}-\frac{6875}{2(5x+3)^2}+\frac{1020}{(3x+2)^3}+\frac{309}{4(3x+2)^4}+\frac{21}{5(3x+2)^5}-1321875\log(3x+2)+1321875\log(-3(5x+3))$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)/((2 + 3*x)^6*(3 + 5*x)^3),x]
```

```
[Out] 21/(5*(2 + 3*x)^5) + 309/(4*(2 + 3*x)^4) + 1020/(2 + 3*x)^3 + 126
75/(2 + 3*x)^2 + 189375/(2 + 3*x) - 6875/(2*(3 + 5*x)^2) + 125000
```

```
/(3 + 5*x) - 1321875*Log[2 + 3*x] + 1321875*Log[-3*(3 + 5*x)]
```

Maple [A] time = 0.015, size = 81, normalized size = 0.9

$$\frac{21}{5\,(2+3\,x)^5}+\frac{309}{4\,(2+3\,x)^4}+1020\,(2+3\,x)^{-3}+12675\,(2+3\,x)^{-2}+189375\,(2+3\,x)^{-1}-\frac{6875}{2\,(3+5\,x)^2}+125000\,(3+5\,x)^{-1}-1321875\,\ln(2+3\,x)+1321875\,\ln(3+5\,x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)/(2+3*x)^6/(3+5*x)^3,x)
```

```
[Out] 21/5/(2+3*x)^5+309/4/(2+3*x)^4+1020/(2+3*x)^3+12675/(2+3*x)^2+189
375/(2+3*x)-6875/2/(3+5*x)^2+125000/(3+5*x)-1321875*ln(2+3*x)+132
1875*ln(3+5*x)
```

Maxima [A] time = 1.32751, size = 116, normalized size = 1.35

$$\frac{10707187500\,x^6+41758031250\,x^5+67828050000\,x^4+58733814375\,x^3+28595335800\,x^2+7421662135\,x+802214966}{20\,(6075\,x^7+27540\,x^6+53487\,x^5+57690\,x^4+37320\,x^3+14480\,x^2+3120\,x+288)}+1321875\,\log(5\,x+3)-1321875\,\log(3\,x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/((5*x + 3)^3*(3*x + 2)^6),x, algorithm="maxima")
```

```
[Out] 1/20*(10707187500*x^6 + 41758031250*x^5 + 67828050000*x^4 + 58733
814375*x^3 + 28595335800*x^2 + 7421662135*x + 802214966)/(6075*x^
7 + 27540*x^6 + 53487*x^5 + 57690*x^4 + 37320*x^3 + 14480*x^2 + 3
120*x + 288) + 1321875*log(5*x + 3) - 1321875*log(3*x + 2)
```

Fricas [A] time = 0.210943, size = 209, normalized size = 2.43

$$\frac{10707187500\,x^6+41758031250\,x^5+67828050000\,x^4+58733814375\,x^3+28595335800\,x^2+26437500\,\left(6075\,x^7+27540\,x^6\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/((5*x + 3)^3*(3*x + 2)^6),x, algorithm="fricas")
```

```
[Out] 1/20*(10707187500*x^6 + 41758031250*x^5 + 67828050000*x^4 + 58733
814375*x^3 + 28595335800*x^2 + 26437500*(6075*x^7 + 27540*x^6 + 5
3487*x^5 + 57690*x^4 + 37320*x^3 + 14480*x^2 + 3120*x + 288)*log(
5*x + 3) - 26437500*(6075*x^7 + 27540*x^6 + 53487*x^5 + 57690*x^4
 + 37320*x^3 + 14480*x^2 + 3120*x + 288)*log(3*x + 2) + 742166213
5*x + 802214966)/(6075*x^7 + 27540*x^6 + 53487*x^5 + 57690*x^4 +
37320*x^3 + 14480*x^2 + 3120*x + 288)
```

Sympy [A] time = 0.607091, size = 82, normalized size = 0.95

$$\frac{10707187500x^6+41758031250x^5+67828050000x^4+58733814375x^3+28595335800x^2+7421662135x+802214966}{121500x^7+550800x^6+1069740x^5+1153800x^4+746400x^3+289600x^2+62400x+5760}+1321875\log\left(x+\frac{3}{5}\right)-1321875\log\left(x+\frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)/(2+3*x)**6/(3+5*x)**3,x)
```

```
[Out] (10707187500*x**6 + 41758031250*x**5 + 67828050000*x**4 + 5873381
4375*x**3 + 28595335800*x**2 + 7421662135*x + 802214966)/(121500*
x**7 + 550800*x**6 + 1069740*x**5 + 1153800*x**4 + 746400*x**3 +
289600*x**2 + 62400*x + 5760) + 1321875*log(x + 3/5) - 1321875*lo
g(x + 2/3)
```

GIAC/XCAS [A] time = 0.207164, size = 88, normalized size = 1.02

$$\frac{10707187500\,x^6 + 41758031250\,x^5 + 67828050000\,x^4 + 58733814375\,x^3 + 28595335800\,x^2 + 7421662135\,x + 802214966}{20\,(5\,x+3)^2(3\,x+2)^5} + 1321875\ln\left(|5\,x+3|\right) - 1321875\ln\left(|3\,x+2|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)/((5*x + 3)^3*(3*x + 2)^6),x, algorithm="giac")
```

```
[Out] 1/20*(10707187500*x^6 + 41758031250*x^5 + 67828050000*x^4 + 58733
814375*x^3 + 28595335800*x^2 + 7421662135*x + 802214966)/((5*x +
3)^2*(3*x + 2)^5) + 1321875*ln(abs(5*x + 3)) - 1321875*ln(abs(3*x
 + 2))
```

3.1219 $\int (1-2x)^2(2+3x)^8(3+5x)\,dx$

Optimal. Leaf size=45

$$\frac{5}{243}(3x+2)^{12}-\frac{16}{99}(3x+2)^{11}+\frac{91}{270}(3x+2)^{10}-\frac{49}{729}(3x+2)^9$$

```
[Out] (-49*(2 + 3*x)^9)/729 + (91*(2 + 3*x)^10)/270 - (16*(2 + 3*x)^11)
/99 + (5*(2 + 3*x)^12)/243
```

Rubi [A] time = 0.0858559, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{5}{243}(3x+2)^{12}-\frac{16}{99}(3x+2)^{11}+\frac{91}{270}(3x+2)^{10}-\frac{49}{729}(3x+2)^9$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^2*(2 + 3*x)^8*(3 + 5*x),x]
```

```
[Out] (-49*(2 + 3*x)^9)/729 + (91*(2 + 3*x)^10)/270 - (16*(2 + 3*x)^11)
/99 + (5*(2 + 3*x)^12)/243
```

Rubi in Sympy [A] time = 12.1375, size = 39, normalized size = 0.87

$$\frac{5\,(3x+2)^{12}}{243}-\frac{16\,(3x+2)^{11}}{99}+\frac{91\,(3x+2)^{10}}{270}-\frac{49\,(3x+2)^9}{729}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**2*(2+3*x)**8*(3+5*x),x)
```

```
[Out] 5*(3*x + 2)**12/243 - 16*(3*x + 2)**11/99 + 91*(3*x + 2)**10/270
- 49*(3*x + 2)**9/729
```

Mathematica [A] time = 0.0042225, size = 67, normalized size = 1.49

$$10935x^{12}+\frac{647352x^{11}}{11}+\frac{1307097x^{10}}{10}+144315x^9+59616x^8-39312x^7-62160x^6-\frac{134112x^5}{5}+3200x^4+\frac{24832x^3}{3}+3712x^2+768x$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)^2*(2 + 3*x)^8*(3 + 5*x),x]
```

```
[Out] 768*x + 3712*x^2 + (24832*x^3)/3 + 3200*x^4 - (134112*x^5)/5 - 62
160*x^6 - 39312*x^7 + 59616*x^8 + 144315*x^9 + (1307097*x^10)/10
+ (647352*x^11)/11 + 10935*x^12
```

Maple [A] time = 0.001, size = 60, normalized size = 1.3

$$10935\,x^{12}+\frac{647352\,x^{11}}{11}+\frac{1307097\,x^{10}}{10}+144315\,x^9+59616\,x^8-39312\,x^7-62160\,x^6-\frac{134112\,x^5}{5}+3200\,x^4+\frac{24832\,x^3}{3}+3712\,x^2+768\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((1-2*x)^2*(2+3*x)^8*(3+5*x),x)
```

```
[Out] 10935*x^12+647352/11*x^11+1307097/10*x^10+144315*x^9+59616*x^8-39
312*x^7-62160*x^6-134112/5*x^5+3200*x^4+24832/3*x^3+3712*x^2+768*
x
```

Maxima [A]   time = 1.32532, size = 80, normalized size = 1.78

$$10935\,x^{12} + \frac{647352}{11}\,x^{11} + \frac{1307097}{10}\,x^{10} + 144315\,x^{9} + 59616\,x^{8} - 39312\,x^{7} - 62160\,x^{6} - \frac{134112}{5}\,x^{5} + 3200\,x^{4} + \frac{24832}{3}\,x^{3} + 3712\,x^{2} + 768\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((5*x + 3)*(3*x + 2)^8*(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 10935*x^12 + 647352/11*x^11 + 1307097/10*x^10 + 144315*x^9 + 5961
6*x^8 - 39312*x^7 - 62160*x^6 - 134112/5*x^5 + 3200*x^4 + 24832/3
*x^3 + 3712*x^2 + 768*x
```

Fricas [A]   time = 0.191651, size = 1, normalized size = 0.02

$$10935x^{12} + \frac{647352}{11}x^{11} + \frac{1307097}{10}x^{10} + 144315x^{9} + 59616x^{8} - 39312x^{7} - 62160x^{6} - \frac{134112}{5}x^{5} + 3200x^{4} + \frac{24832}{3}x^{3} + 3712x^{2} + 768x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((5*x + 3)*(3*x + 2)^8*(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 10935*x^12 + 647352/11*x^11 + 1307097/10*x^10 + 144315*x^9 + 5961
6*x^8 - 39312*x^7 - 62160*x^6 - 134112/5*x^5 + 3200*x^4 + 24832/3
*x^3 + 3712*x^2 + 768*x
```

Sympy [A]   time = 0.116835, size = 65, normalized size = 1.44

$$10935x^{12} + \frac{647352x^{11}}{11} + \frac{1307097x^{10}}{10} + 144315x^{9} + 59616x^{8} - 39312x^{7} - 62160x^{6} - \frac{134112x^{5}}{5} + 3200x^{4} + \frac{24832x^{3}}{3} + 3712x^{2} + 768x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((1-2*x)**2*(2+3*x)**8*(3+5*x),x)
```

```
[Out] 10935*x**12 + 647352*x**11/11 + 1307097*x**10/10 + 144315*x**9 +
59616*x**8 - 39312*x**7 - 62160*x**6 - 134112*x**5/5 + 3200*x**4
+ 24832*x**3/3 + 3712*x**2 + 768*x
```

GIAC/XCAS [A]   time = 0.203871, size = 80, normalized size = 1.78

$$10935\,x^{12} + \frac{647352}{11}\,x^{11} + \frac{1307097}{10}\,x^{10} + 144315\,x^{9} + 59616\,x^{8} - 39312\,x^{7} - 62160\,x^{6} - \frac{134112}{5}\,x^{5} + 3200\,x^{4} + \frac{24832}{3}\,x^{3} + 3712\,x^{2} + 768\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^8*(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 10935*x^12 + 647352/11*x^11 + 1307097/10*x^10 + 144315*x^9 + 5961
6*x^8 - 39312*x^7 - 62160*x^6 - 134112/5*x^5 + 3200*x^4 + 24832/3
*x^3 + 3712*x^2 + 768*x
```

3.1220 $\int (1-2x)^2(2+3x)^7(3+5x)\,dx$

Optimal. Leaf size=45

$$\frac{20}{891}(3x+2)^{11}-\frac{8}{45}(3x+2)^{10}+\frac{91}{243}(3x+2)^9-\frac{49}{648}(3x+2)^8$$

```
[Out] (-49*(2 + 3*x)^8)/648 + (91*(2 + 3*x)^9)/243 - (8*(2 + 3*x)^10)/4
5 + (20*(2 + 3*x)^11)/891
```

Rubi [A] time = 0.0811739, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$\frac{20}{891}(3x+2)^{11}-\frac{8}{45}(3x+2)^{10}+\frac{91}{243}(3x+2)^9-\frac{49}{648}(3x+2)^8$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^2*(2 + 3*x)^7*(3 + 5*x),x]
```

```
[Out] (-49*(2 + 3*x)^8)/648 + (91*(2 + 3*x)^9)/243 - (8*(2 + 3*x)^10)/4
5 + (20*(2 + 3*x)^11)/891
```

Rubi in Sympy [A] time = 11.4616, size = 39, normalized size = 0.87

$$\frac{20\,(3x+2)^{11}}{891}-\frac{8\,(3x+2)^{10}}{45}+\frac{91\,(3x+2)^9}{243}-\frac{49\,(3x+2)^8}{648}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(2+3*x)**7*(3+5*x),x)
```

```
[Out] 20*(3*x + 2)**11/891 - 8*(3*x + 2)**10/45 + 91*(3*x + 2)**9/243 -
 49*(3*x + 2)**8/648
```

Mathematica [A] time = 0.00346702, size = 64, normalized size = 1.42

$$\frac{43740x^{11}}{11}+\frac{93312x^{10}}{5}+34587x^9+\frac{225423x^8}{8}+1242x^7-16254x^6-\frac{59304x^5}{5}-1292x^4+\frac{7712x^3}{3}+1568x^2+384x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^2*(2 + 3*x)^7*(3 + 5*x),x]
```

```
[Out] 384*x + 1568*x^2 + (7712*x^3)/3 - 1292*x^4 - (59304*x^5)/5 - 1625
4*x^6 + 1242*x^7 + (225423*x^8)/8 + 34587*x^9 + (93312*x^10)/5 +
(43740*x^11)/11
```

Maple [A] time = 0.002, size = 55, normalized size = 1.2

$$\frac{43740\,x^{11}}{11}+\frac{93312\,x^{10}}{5}+34587\,x^9+\frac{225423\,x^8}{8}+1242\,x^7-16254\,x^6-\frac{59304\,x^5}{5}-1292\,x^4+\frac{7712\,x^3}{3}+1568\,x^2+384\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(2+3*x)^7*(3+5*x),x)
```

```
[Out] 43740/11*x^11+93312/5*x^10+34587*x^9+225423/8*x^8+1242*x^7-16254*
x^6-59304/5*x^5-1292*x^4+7712/3*x^3+1568*x^2+384*x
```

Maxima [A] time = 1.34082, size = 73, normalized size = 1.62

$$\frac{43740}{11}\,x^{11} + \frac{93312}{5}\,x^{10} + 34587\,x^9 + \frac{225423}{8}\,x^8 + 1242\,x^7 - 16254\,x^6 - \frac{59304}{5}\,x^5 - 1292\,x^4 + \frac{7712}{3}\,x^3 + 1568\,x^2 + 384\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^7*(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 43740/11*x^11 + 93312/5*x^10 + 34587*x^9 + 225423/8*x^8 + 1242*x^
7 - 16254*x^6 - 59304/5*x^5 - 1292*x^4 + 7712/3*x^3 + 1568*x^2 +
384*x
```

Fricas [A] time = 0.183767, size = 1, normalized size = 0.02

$$\frac{43740}{11}x^{11} + \frac{93312}{5}x^{10} + 34587x^9 + \frac{225423}{8}x^8 + 1242x^7 - 16254x^6 - \frac{59304}{5}x^5 - 1292x^4 + \frac{7712}{3}x^3 + 1568x^2 + 384x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^7*(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 43740/11*x^11 + 93312/5*x^10 + 34587*x^9 + 225423/8*x^8 + 1242*x^
7 - 16254*x^6 - 59304/5*x^5 - 1292*x^4 + 7712/3*x^3 + 1568*x^2 +
384*x
```

Sympy [A] time = 0.110728, size = 61, normalized size = 1.36

$$\frac{43740x^{11}}{11} + \frac{93312x^{10}}{5} + 34587x^9 + \frac{225423x^8}{8} + 1242x^7 - 16254x^6 - \frac{59304x^5}{5} - 1292x^4 + \frac{7712x^3}{3} + 1568x^2 + 384x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(2+3*x)**7*(3+5*x),x)
```

```
[Out] 43740*x**11/11 + 93312*x**10/5 + 34587*x**9 + 225423*x**8/8 + 124
2*x**7 - 16254*x**6 - 59304*x**5/5 - 1292*x**4 + 7712*x**3/3 + 15
68*x**2 + 384*x
```

GIAC/XCAS [A] time = 0.207467, size = 73, normalized size = 1.62

$$\frac{43740}{11}\,x^{11} + \frac{93312}{5}\,x^{10} + 34587\,x^9 + \frac{225423}{8}\,x^8 + 1242\,x^7 - 16254\,x^6 - \frac{59304}{5}\,x^5 - 1292\,x^4 + \frac{7712}{3}\,x^3 + 1568\,x^2 + 384\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^7*(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 43740/11*x^11 + 93312/5*x^10 + 34587*x^9 + 225423/8*x^8 + 1242*x^
7 - 16254*x^6 - 59304/5*x^5 - 1292*x^4 + 7712/3*x^3 + 1568*x^2 +
384*x
```

3.1221 $\int (1-2x)^2(2+3x)^6(3+5x)\,dx$

Optimal. Leaf size=45

$$\frac{2}{81}(3x+2)^{10}-\frac{16}{81}(3x+2)^9+\frac{91}{216}(3x+2)^8-\frac{7}{81}(3x+2)^7$$

```
[Out] (-7*(2 + 3*x)^7)/81 + (91*(2 + 3*x)^8)/216 - (16*(2 + 3*x)^9)/81
+ (2*(2 + 3*x)^10)/81
```

Rubi [A] time = 0.0788134, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{2}{81}(3x+2)^{10}-\frac{16}{81}(3x+2)^9+\frac{91}{216}(3x+2)^8-\frac{7}{81}(3x+2)^7$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^2*(2 + 3*x)^6*(3 + 5*x),x]
```

```
[Out] (-7*(2 + 3*x)^7)/81 + (91*(2 + 3*x)^8)/216 - (16*(2 + 3*x)^9)/81
+ (2*(2 + 3*x)^10)/81
```

Rubi in Sympy [A] time = 10.7444, size = 39, normalized size = 0.87

$$\frac{2(3x+2)^{10}}{81}-\frac{16(3x+2)^9}{81}+\frac{91(3x+2)^8}{216}-\frac{7(3x+2)^7}{81}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**2*(2+3*x)**6*(3+5*x),x)
```

```
[Out] 2*(3*x + 2)**10/81 - 16*(3*x + 2)**9/81 + 91*(3*x + 2)**8/216 - 7
*(3*x + 2)**7/81
```

Mathematica [A] time = 0.00313935, size = 53, normalized size = 1.18

$$1458x^{10}+5832x^9+\frac{68769x^8}{8}+4185x^7-2772x^6-4284x^5-1372x^4+\frac{1936x^3}{3}+640x^2+192x$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)^2*(2 + 3*x)^6*(3 + 5*x),x]
```

```
[Out] 192*x + 640*x^2 + (1936*x^3)/3 - 1372*x^4 - 4284*x^5 - 2772*x^6 +
 4185*x^7 + (68769*x^8)/8 + 5832*x^9 + 1458*x^10
```

Maple [A] time = 0.001, size = 50, normalized size = 1.1

$$1458\,x^{10}+5832\,x^9+\frac{68769\,x^8}{8}+4185\,x^7-2772\,x^6-4284\,x^5-1372\,x^4+\frac{1936\,x^3}{3}+640\,x^2+192\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((1-2*x)^2*(2+3*x)^6*(3+5*x),x)
```

```
[Out] 1458*x^10+5832*x^9+68769/8*x^8+4185*x^7-2772*x^6-4284*x^5-1372*x^
4+1936/3*x^3+640*x^2+192*x
```

Maxima [A] time = 1.34286, size = 66, normalized size = 1.47

$$1458\,x^{10} + 5832\,x^{9} + \frac{68769}{8}\,x^{8} + 4185\,x^{7} - 2772\,x^{6} - 4284\,x^{5} - 1372\,x^{4} + \frac{1936}{3}\,x^{3} + 640\,x^{2} + 192\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^6*(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 1458*x^10 + 5832*x^9 + 68769/8*x^8 + 4185*x^7 - 2772*x^6 - 4284*x
^5 - 1372*x^4 + 1936/3*x^3 + 640*x^2 + 192*x
```

Fricas [A] time = 0.183838, size = 1, normalized size = 0.02

$$1458x^{10} + 5832x^{9} + \frac{68769}{8}x^{8} + 4185x^{7} - 2772x^{6} - 4284x^{5} - 1372x^{4} + \frac{1936}{3}x^{3} + 640x^{2} + 192x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^6*(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 1458*x^10 + 5832*x^9 + 68769/8*x^8 + 4185*x^7 - 2772*x^6 - 4284*x
^5 - 1372*x^4 + 1936/3*x^3 + 640*x^2 + 192*x
```

Sympy [A] time = 0.097719, size = 51, normalized size = 1.13

$$1458x^{10} + 5832x^{9} + \frac{68769x^{8}}{8} + 4185x^{7} - 2772x^{6} - 4284x^{5} - 1372x^{4} + \frac{1936x^{3}}{3} + 640x^{2} + 192x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(2+3*x)**6*(3+5*x),x)
```

```
[Out] 1458*x**10 + 5832*x**9 + 68769*x**8/8 + 4185*x**7 - 2772*x**6 - 4
284*x**5 - 1372*x**4 + 1936*x**3/3 + 640*x**2 + 192*x
```

GIAC/XCAS [A] time = 0.202319, size = 66, normalized size = 1.47

$$1458\,x^{10} + 5832\,x^{9} + \frac{68769}{8}\,x^{8} + 4185\,x^{7} - 2772\,x^{6} - 4284\,x^{5} - 1372\,x^{4} + \frac{1936}{3}\,x^{3} + 640\,x^{2} + 192\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^6*(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 1458*x^10 + 5832*x^9 + 68769/8*x^8 + 4185*x^7 - 2772*x^6 - 4284*x
^5 - 1372*x^4 + 1936/3*x^3 + 640*x^2 + 192*x
```

3.1222 $\int (1-2x)^2(2+3x)^5(3+5x)\,dx$

Optimal. Leaf size=45

$$\frac{20}{729}(3x+2)^9-\frac{2}{9}(3x+2)^8+\frac{13}{27}(3x+2)^7-\frac{49}{486}(3x+2)^6$$

```
[Out] (-49*(2 + 3*x)^6)/486 + (13*(2 + 3*x)^7)/27 - (2*(2 + 3*x)^8)/9 +
 (20*(2 + 3*x)^9)/729
```

Rubi [A] time = 0.0741714, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{20}{729}(3x+2)^9-\frac{2}{9}(3x+2)^8+\frac{13}{27}(3x+2)^7-\frac{49}{486}(3x+2)^6$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^2*(2 + 3*x)^5*(3 + 5*x),x]
```

```
[Out] (-49*(2 + 3*x)^6)/486 + (13*(2 + 3*x)^7)/27 - (2*(2 + 3*x)^8)/9 +
 (20*(2 + 3*x)^9)/729
```

Rubi in Sympy [A] time = 10.109, size = 39, normalized size = 0.87

$$\frac{20\,(3x+2)^9}{729}-\frac{2\,(3x+2)^8}{9}+\frac{13\,(3x+2)^7}{27}-\frac{49\,(3x+2)^6}{486}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(2+3*x)**5*(3+5*x),x)
```

```
[Out] 20*(3*x + 2)**9/729 - 2*(3*x + 2)**8/9 + 13*(3*x + 2)**7/27 - 49*
(3*x + 2)**6/486
```

Mathematica [A] time = 0.003076, size = 48, normalized size = 1.07

$$540x^9+1782x^8+1917x^7+\frac{273x^6}{2}-1218x^5-770x^4+\frac{224x^3}{3}+248x^2+96x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^2*(2 + 3*x)^5*(3 + 5*x),x]
```

```
[Out] 96*x + 248*x^2 + (224*x^3)/3 - 770*x^4 - 1218*x^5 + (273*x^6)/2 +
 1917*x^7 + 1782*x^8 + 540*x^9
```

Maple [A] time = 0.001, size = 45, normalized size = 1.

$$540\,x^9+1782\,x^8+1917\,x^7+\frac{273\,x^6}{2}-1218\,x^5-770\,x^4+\frac{224\,x^3}{3}+248\,x^2+96\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(2+3*x)^5*(3+5*x),x)
```

```
[Out] 540*x^9+1782*x^8+1917*x^7+273/2*x^6-1218*x^5-770*x^4+224/3*x^3+24
8*x^2+96*x
```

Maxima [A] time = 1.34146, size = 59, normalized size = 1.31

$$540\,x^9+1782\,x^8+1917\,x^7+\frac{273}{2}\,x^6-1218\,x^5-770\,x^4+\frac{224}{3}\,x^3+248\,x^2+96\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^5*(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 540*x^9 + 1782*x^8 + 1917*x^7 + 273/2*x^6 - 1218*x^5 - 770*x^4 +
224/3*x^3 + 248*x^2 + 96*x
```

Fricas [A] time = 0.182299, size = 1, normalized size = 0.02

$$540x^9+1782x^8+1917x^7+\frac{273}{2}x^6-1218x^5-770x^4+\frac{224}{3}x^3+248x^2+96x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^5*(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 540*x^9 + 1782*x^8 + 1917*x^7 + 273/2*x^6 - 1218*x^5 - 770*x^4 +
224/3*x^3 + 248*x^2 + 96*x
```

Sympy [A] time = 0.107352, size = 46, normalized size = 1.02

$$540x^9+1782x^8+1917x^7+\frac{273x^6}{2}-1218x^5-770x^4+\frac{224x^3}{3}+248x^2+96x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(2+3*x)**5*(3+5*x),x)
```

```
[Out] 540*x**9 + 1782*x**8 + 1917*x**7 + 273*x**6/2 - 1218*x**5 - 770*x
**4 + 224*x**3/3 + 248*x**2 + 96*x
```

GIAC/XCAS [A] time = 0.205053, size = 59, normalized size = 1.31

$$540\,x^9+1782\,x^8+1917\,x^7+\frac{273}{2}\,x^6-1218\,x^5-770\,x^4+\frac{224}{3}\,x^3+248\,x^2+96\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^5*(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 540*x^9 + 1782*x^8 + 1917*x^7 + 273/2*x^6 - 1218*x^5 - 770*x^4 +
224/3*x^3 + 248*x^2 + 96*x
```

3.1223 $\int (1-2x)^2(2+3x)^4(3+5x)\,dx$

Optimal. Leaf size=45

$$\frac{5}{162}(3x+2)^8-\frac{16}{63}(3x+2)^7+\frac{91}{162}(3x+2)^6-\frac{49}{405}(3x+2)^5$$

```
[Out] (-49*(2 + 3*x)^5)/405 + (91*(2 + 3*x)^6)/162 - (16*(2 + 3*x)^7)/6
3 + (5*(2 + 3*x)^8)/162
```

Rubi [A] time = 0.0699732, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{5}{162}(3x+2)^8-\frac{16}{63}(3x+2)^7+\frac{91}{162}(3x+2)^6-\frac{49}{405}(3x+2)^5$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^2*(2 + 3*x)^4*(3 + 5*x),x]
```

```
[Out] (-49*(2 + 3*x)^5)/405 + (91*(2 + 3*x)^6)/162 - (16*(2 + 3*x)^7)/6
3 + (5*(2 + 3*x)^8)/162
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{405x^8}{2}+\frac{3672x^7}{7}+\frac{675x^6}{2}-\frac{1077x^5}{5}-328x^4-\frac{152x^3}{3}+48x+176\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(2+3*x)**4*(3+5*x),x)
```

```
[Out] 405*x**8/2 + 3672*x**7/7 + 675*x**6/2 - 1077*x**5/5 - 328*x**4 -
152*x**3/3 + 48*x + 176*Integral(x, x)
```

Mathematica [A] time = 0.00195638, size = 49, normalized size = 1.09

$$\frac{405x^8}{2}+\frac{3672x^7}{7}+\frac{675x^6}{2}-\frac{1077x^5}{5}-328x^4-\frac{152x^3}{3}+88x^2+48x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^2*(2 + 3*x)^4*(3 + 5*x),x]
```

```
[Out] 48*x + 88*x^2 - (152*x^3)/3 - 328*x^4 - (1077*x^5)/5 + (675*x^6)/
2 + (3672*x^7)/7 + (405*x^8)/2
```

Maple [A] time = 0.002, size = 40, normalized size = 0.9

$$\frac{405\,x^8}{2}+\frac{3672\,x^7}{7}+\frac{675\,x^6}{2}-\frac{1077\,x^5}{5}-328\,x^4-\frac{152\,x^3}{3}+88\,x^2+48\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(2+3*x)^4*(3+5*x),x)
```

```
[Out] 405/2*x^8+3672/7*x^7+675/2*x^6-1077/5*x^5-328*x^4-152/3*x^3+88*x^
2+48*x
```

Maxima [A] time = 1.32633, size = 53, normalized size = 1.18

$$\frac{405}{2}\,x^8+\frac{3672}{7}\,x^7+\frac{675}{2}\,x^6-\frac{1077}{5}\,x^5-328\,x^4-\frac{152}{3}\,x^3+88\,x^2+48\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^4*(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 405/2*x^8 + 3672/7*x^7 + 675/2*x^6 - 1077/5*x^5 - 328*x^4 - 152/3
*x^3 + 88*x^2 + 48*x
```

Fricas [A] time = 0.183507, size = 1, normalized size = 0.02

$$\frac{405}{2}x^8+\frac{3672}{7}x^7+\frac{675}{2}x^6-\frac{1077}{5}x^5-328x^4-\frac{152}{3}x^3+88x^2+48x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^4*(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 405/2*x^8 + 3672/7*x^7 + 675/2*x^6 - 1077/5*x^5 - 328*x^4 - 152/3
*x^3 + 88*x^2 + 48*x
```

Sympy [A] time = 0.092082, size = 46, normalized size = 1.02

$$\frac{405x^8}{2}+\frac{3672x^7}{7}+\frac{675x^6}{2}-\frac{1077x^5}{5}-328x^4-\frac{152x^3}{3}+88x^2+48x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(2+3*x)**4*(3+5*x),x)
```

```
[Out] 405*x**8/2 + 3672*x**7/7 + 675*x**6/2 - 1077*x**5/5 - 328*x**4 -
152*x**3/3 + 88*x**2 + 48*x
```

GIAC/XCAS [A] time = 0.205131, size = 53, normalized size = 1.18

$$\frac{405}{2}\,x^8+\frac{3672}{7}\,x^7+\frac{675}{2}\,x^6-\frac{1077}{5}\,x^5-328\,x^4-\frac{152}{3}\,x^3+88\,x^2+48\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^4*(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 405/2*x^8 + 3672/7*x^7 + 675/2*x^6 - 1077/5*x^5 - 328*x^4 - 152/3
*x^3 + 88*x^2 + 48*x
```

3.1224 $\int (1-2x)^2(2+3x)^3(3+5x)\,dx$

Optimal. Leaf size=45

$$\frac{20}{567}(3x+2)^7-\frac{8}{27}(3x+2)^6+\frac{91}{135}(3x+2)^5-\frac{49}{324}(3x+2)^4$$

```
[Out] (-49*(2 + 3*x)^4)/324 + (91*(2 + 3*x)^5)/135 - (8*(2 + 3*x)^6)/27
 + (20*(2 + 3*x)^7)/567
```

Rubi [A] time = 0.0650513, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$\frac{20}{567}(3x+2)^7-\frac{8}{27}(3x+2)^6+\frac{91}{135}(3x+2)^5-\frac{49}{324}(3x+2)^4$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^2*(2 + 3*x)^3*(3 + 5*x),x]
```

```
[Out] (-49*(2 + 3*x)^4)/324 + (91*(2 + 3*x)^5)/135 - (8*(2 + 3*x)^6)/27
 + (20*(2 + 3*x)^7)/567
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{540x^7}{7}+144x^6+\frac{99x^5}{5}-\frac{425x^4}{4}-\frac{154x^3}{3}+24x+52\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(2+3*x)**3*(3+5*x),x)
```

```
[Out] 540*x**7/7 + 144*x**6 + 99*x**5/5 - 425*x**4/4 - 154*x**3/3 + 24*
x + 52*Integral(x, x)
```

Mathematica [A] time = 0.00176407, size = 42, normalized size = 0.93

$$\frac{540x^7}{7}+144x^6+\frac{99x^5}{5}-\frac{425x^4}{4}-\frac{154x^3}{3}+26x^2+24x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^2*(2 + 3*x)^3*(3 + 5*x),x]
```

```
[Out] 24*x + 26*x^2 - (154*x^3)/3 - (425*x^4)/4 + (99*x^5)/5 + 144*x^6
+ (540*x^7)/7
```

Maple [A] time = 0.001, size = 35, normalized size = 0.8

$$\frac{540\,x^7}{7}+144\,x^6+\frac{99\,x^5}{5}-\frac{425\,x^4}{4}-\frac{154\,x^3}{3}+26\,x^2+24\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(2+3*x)^3*(3+5*x),x)
```

```
[Out] 540/7*x^7+144*x^6+99/5*x^5-425/4*x^4-154/3*x^3+26*x^2+24*x
```

Maxima [A] time = 1.3452, size = 46, normalized size = 1.02

$$\frac{540}{7}\,x^7+144\,x^6+\frac{99}{5}\,x^5-\frac{425}{4}\,x^4-\frac{154}{3}\,x^3+26\,x^2+24\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^3*(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 540/7*x^7 + 144*x^6 + 99/5*x^5 - 425/4*x^4 - 154/3*x^3 + 26*x^2 +
 24*x
```

Fricas [A] time = 0.182489, size = 1, normalized size = 0.02

$$\frac{540}{7}x^7+144x^6+\frac{99}{5}x^5-\frac{425}{4}x^4-\frac{154}{3}x^3+26x^2+24x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^3*(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 540/7*x^7 + 144*x^6 + 99/5*x^5 - 425/4*x^4 - 154/3*x^3 + 26*x^2 +
 24*x
```

Sympy [A] time = 0.082697, size = 39, normalized size = 0.87

$$\frac{540x^7}{7}+144x^6+\frac{99x^5}{5}-\frac{425x^4}{4}-\frac{154x^3}{3}+26x^2+24x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(2+3*x)**3*(3+5*x),x)
```

```
[Out] 540*x**7/7 + 144*x**6 + 99*x**5/5 - 425*x**4/4 - 154*x**3/3 + 26*
x**2 + 24*x
```

GIAC/XCAS [A] time = 0.204147, size = 46, normalized size = 1.02

$$\frac{540}{7}\,x^7+144\,x^6+\frac{99}{5}\,x^5-\frac{425}{4}\,x^4-\frac{154}{3}\,x^3+26\,x^2+24\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^3*(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 540/7*x^7 + 144*x^6 + 99/5*x^5 - 425/4*x^4 - 154/3*x^3 + 26*x^2 +
 24*x
```

3.1225 $\int (1-2x)^2(2+3x)^2(3+5x)\,dx$

Optimal. Leaf size=45

$$\frac{15}{32}(1-2x)^6-\frac{309}{80}(1-2x)^5+\frac{707}{64}(1-2x)^4-\frac{539}{48}(1-2x)^3$$

```
[Out] (-539*(1 - 2*x)^3)/48 + (707*(1 - 2*x)^4)/64 - (309*(1 - 2*x)^5)/
80 + (15*(1 - 2*x)^6)/32
```

Rubi [A] time = 0.0612956, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$\frac{15}{32}(1-2x)^6-\frac{309}{80}(1-2x)^5+\frac{707}{64}(1-2x)^4-\frac{539}{48}(1-2x)^3$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^2*(2 + 3*x)^2*(3 + 5*x),x]
```

```
[Out] (-539*(1 - 2*x)^3)/48 + (707*(1 - 2*x)^4)/64 - (309*(1 - 2*x)^5)/
80 + (15*(1 - 2*x)^6)/32
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$30x^6+\frac{168x^5}{5}-\frac{79x^4}{4}-\frac{89x^3}{3}+12x+8\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(2+3*x)**2*(3+5*x),x)
```

```
[Out] 30*x**6 + 168*x**5/5 - 79*x**4/4 - 89*x**3/3 + 12*x + 8*Integral(
x, x)
```

Mathematica [A] time = 0.00246835, size = 35, normalized size = 0.78

$$30x^6+\frac{168x^5}{5}-\frac{79x^4}{4}-\frac{89x^3}{3}+4x^2+12x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^2*(2 + 3*x)^2*(3 + 5*x),x]
```

```
[Out] 12*x + 4*x^2 - (89*x^3)/3 - (79*x^4)/4 + (168*x^5)/5 + 30*x^6
```

Maple [A] time = 0., size = 30, normalized size = 0.7

$$30\,x^6+\frac{168\,x^5}{5}-\frac{79\,x^4}{4}-\frac{89\,x^3}{3}+4\,x^2+12\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(2+3*x)^2*(3+5*x),x)
```

```
[Out] 30*x^6+168/5*x^5-79/4*x^4-89/3*x^3+4*x^2+12*x
```

Maxima [A] time = 1.34495, size = 39, normalized size = 0.87

$$30\,x^6+\frac{168}{5}\,x^5-\frac{79}{4}\,x^4-\frac{89}{3}\,x^3+4\,x^2+12\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^2*(2*x - 1)^2,x, algorithm="maxima")

[Out] 30*x^6 + 168/5*x^5 - 79/4*x^4 - 89/3*x^3 + 4*x^2 + 12*x
```

Fricas [A] time = 0.18647, size = 1, normalized size = 0.02

$$30x^6+\frac{168}{5}x^5-\frac{79}{4}x^4-\frac{89}{3}x^3+4x^2+12x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^2*(2*x - 1)^2,x, algorithm="fricas")

[Out] 30*x^6 + 168/5*x^5 - 79/4*x^4 - 89/3*x^3 + 4*x^2 + 12*x
```

Sympy [A] time = 0.079627, size = 32, normalized size = 0.71

$$30x^6+\frac{168x^5}{5}-\frac{79x^4}{4}-\frac{89x^3}{3}+4x^2+12x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(2+3*x)**2*(3+5*x),x)

[Out] 30*x**6 + 168*x**5/5 - 79*x**4/4 - 89*x**3/3 + 4*x**2 + 12*x
```

GIAC/XCAS [A] time = 0.205156, size = 39, normalized size = 0.87

$$30\,x^6+\frac{168}{5}\,x^5-\frac{79}{4}\,x^4-\frac{89}{3}\,x^3+4\,x^2+12\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^2*(2*x - 1)^2,x, algorithm="giac")

[Out] 30*x^6 + 168/5*x^5 - 79/4*x^4 - 89/3*x^3 + 4*x^2 + 12*x
```

3.1226 $\int (1-2x)^2(2+3x)(3+5x)\,dx$

Optimal. Leaf size=34

$$-\frac{3}{8}(1-2x)^5+\frac{17}{8}(1-2x)^4-\frac{77}{24}(1-2x)^3$$

```
[Out] (-77*(1 - 2*x)^3)/24 + (17*(1 - 2*x)^4)/8 - (3*(1 - 2*x)^5)/8
```

Rubi [A] time = 0.0463489, antiderivative size = 34, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{3}{8}(1-2x)^5+\frac{17}{8}(1-2x)^4-\frac{77}{24}(1-2x)^3$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^2*(2 + 3*x)*(3 + 5*x),x]

[Out] (-77*(1 - 2*x)^3)/24 + (17*(1 - 2*x)^4)/8 - (3*(1 - 2*x)^5)/8
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$12x^5+4x^4-\frac{37x^3}{3}+6x-5\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(2+3*x)*(3+5*x),x)

[Out] 12*x**5 + 4*x**4 - 37*x**3/3 + 6*x - 5*Integral(x, x)
```

Mathematica [A] time = 0.00136345, size = 28, normalized size = 0.82

$$12x^5+4x^4-\frac{37x^3}{3}-\frac{5x^2}{2}+6x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^2*(2 + 3*x)*(3 + 5*x),x]

[Out] 6*x - (5*x^2)/2 - (37*x^3)/3 + 4*x^4 + 12*x^5
```

Maple [A] time = 0.003, size = 25, normalized size = 0.7

$$12\,x^5+4\,x^4-\frac{37\,x^3}{3}-\frac{5\,x^2}{2}+6\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(2+3*x)*(3+5*x),x)

[Out] 12*x^5+4*x^4-37/3*x^3-5/2*x^2+6*x
```

Maxima [A] time = 1.32101, size = 32, normalized size = 0.94

$$12 x^5 + 4 x^4 - \frac{37}{3} x^3 - \frac{5}{2} x^2 + 6 x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)*(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 12*x^5 + 4*x^4 - 37/3*x^3 - 5/2*x^2 + 6*x
```

Fricas [A] time = 0.195971, size = 1, normalized size = 0.03

$$12x^5 + 4x^4 - \frac{37}{3}x^3 - \frac{5}{2}x^2 + 6x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)*(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 12*x^5 + 4*x^4 - 37/3*x^3 - 5/2*x^2 + 6*x
```

Sympy [A] time = 0.070317, size = 26, normalized size = 0.76

$$12x^5 + 4x^4 - \frac{37x^3}{3} - \frac{5x^2}{2} + 6x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(2+3*x)*(3+5*x),x)
```

```
[Out] 12*x**5 + 4*x**4 - 37*x**3/3 - 5*x**2/2 + 6*x
```

GIAC/XCAS [A] time = 0.205351, size = 32, normalized size = 0.94

$$12 x^5 + 4 x^4 - \frac{37}{3} x^3 - \frac{5}{2} x^2 + 6 x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)*(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 12*x^5 + 4*x^4 - 37/3*x^3 - 5/2*x^2 + 6*x
```

3.1227 $\int (1-2x)^2(3+5x)\,dx$

Optimal. Leaf size=23

$$\frac{5}{16}(1-2x)^4-\frac{11}{12}(1-2x)^3$$

```
[Out] (-11*(1 - 2*x)^3)/12 + (5*(1 - 2*x)^4)/16
```

Rubi [A] time = 0.0235108, antiderivative size = 23, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 13, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.077

$$\frac{5}{16}(1-2x)^4-\frac{11}{12}(1-2x)^3$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^2*(3 + 5*x),x]
```

```
[Out] (-11*(1 - 2*x)^3)/12 + (5*(1 - 2*x)^4)/16
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$5x^4-\frac{8x^3}{3}+3x-7\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(3+5*x),x)
```

```
[Out] 5*x**4 - 8*x**3/3 + 3*x - 7*Integral(x, x)
```

Mathematica [A] time = 0.000998347, size = 23, normalized size = 1.

$$5x^4-\frac{8x^3}{3}-\frac{7x^2}{2}+3x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^2*(3 + 5*x),x]
```

```
[Out] 3*x - (7*x^2)/2 - (8*x^3)/3 + 5*x^4
```

Maple [A] time = 0., size = 20, normalized size = 0.9

$$5x^4-\frac{8x^3}{3}-\frac{7x^2}{2}+3x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(3+5*x),x)
```

```
[Out] 5*x^4-8/3*x^3-7/2*x^2+3*x
```

Maxima [A] time = 1.34723, size = 26, normalized size = 1.13

$$5x^4 - \frac{8}{3}x^3 - \frac{7}{2}x^2 + 3x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 5*x^4 - 8/3*x^3 - 7/2*x^2 + 3*x
```

Fricas [A] time = 0.18896, size = 1, normalized size = 0.04

$$5x^4 - \frac{8}{3}x^3 - \frac{7}{2}x^2 + 3x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 5*x^4 - 8/3*x^3 - 7/2*x^2 + 3*x
```

Sympy [A] time = 0.06642, size = 20, normalized size = 0.87

$$5x^4 - \frac{8x^3}{3} - \frac{7x^2}{2} + 3x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(3+5*x),x)
```

```
[Out] 5*x**4 - 8*x**3/3 - 7*x**2/2 + 3*x
```

GIAC/XCAS [A] time = 0.205354, size = 26, normalized size = 1.13

$$5x^4 - \frac{8}{3}x^3 - \frac{7}{2}x^2 + 3x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 5*x^4 - 8/3*x^3 - 7/2*x^2 + 3*x
```

3.1228 $\int \frac{(1-2x)^2(3+5x)}{2+3x} \, dx$

Optimal. Leaf size=30

$$\frac{20x^3}{9} - \frac{32x^2}{9} + \frac{65x}{27} - \frac{49}{81}\log(3x+2)$$

```
[Out] (65*x)/27 - (32*x^2)/9 + (20*x^3)/9 - (49*Log[2 + 3*x])/81
```

Rubi [A] time = 0.0318255, antiderivative size = 30, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$\frac{20x^3}{9} - \frac{32x^2}{9} + \frac{65x}{27} - \frac{49}{81}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)^2*(3 + 5*x))/(2 + 3*x),x]
```

```
[Out] (65*x)/27 - (32*x^2)/9 + (20*x^3)/9 - (49*Log[2 + 3*x])/81
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{20x^3}{9} - \frac{49\log(3x+2)}{81} + \int \frac{65}{27}\, dx - \frac{64\int x\, dx}{9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**2*(3+5*x)/(2+3*x),x)
```

```
[Out] 20*x**3/9 - 49*log(3*x + 2)/81 + Integral(65/27, x) - 64*Integral
(x, x)/9
```

Mathematica [A] time = 0.0149019, size = 27, normalized size = 0.9

$$\frac{1}{243}\left(540x^3 - 864x^2 + 585x - 147\log(3x+2) + 934\right)$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)^2*(3 + 5*x))/(2 + 3*x),x]
```

```
[Out] (934 + 585*x - 864*x^2 + 540*x^3 - 147*Log[2 + 3*x])/243
```

Maple [A] time = 0.003, size = 23, normalized size = 0.8

$$\frac{65\,x}{27} - \frac{32\,x^2}{9} + \frac{20\,x^3}{9} - \frac{49\,\ln(2+3\,x)}{81}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((1-2*x)^2*(3+5*x)/(2+3*x),x)
```

```
[Out] 65/27*x-32/9*x^2+20/9*x^3-49/81*ln(2+3*x)
```

Maxima [A] time = 1.34465, size = 30, normalized size = 1.

$$\frac{20}{9}x^3 - \frac{32}{9}x^2 + \frac{65}{27}x - \frac{49}{81}\log(3x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(2*x - 1)^2/(3*x + 2),x, algorithm="maxima")
```

```
[Out] 20/9*x^3 - 32/9*x^2 + 65/27*x - 49/81*log(3*x + 2)
```

Fricas [A] time = 0.211904, size = 30, normalized size = 1.

$$\frac{20}{9}x^3 - \frac{32}{9}x^2 + \frac{65}{27}x - \frac{49}{81}\log(3x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(2*x - 1)^2/(3*x + 2),x, algorithm="fricas")
```

```
[Out] 20/9*x^3 - 32/9*x^2 + 65/27*x - 49/81*log(3*x + 2)
```

Sympy [A] time = 0.154835, size = 27, normalized size = 0.9

$$\frac{20x^3}{9} - \frac{32x^2}{9} + \frac{65x}{27} - \frac{49\log(3x+2)}{81}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(3+5*x)/(2+3*x),x)
```

```
[Out] 20*x**3/9 - 32*x**2/9 + 65*x/27 - 49*log(3*x + 2)/81
```

GIAC/XCAS [A] time = 0.205062, size = 31, normalized size = 1.03

$$\frac{20}{9}x^3 - \frac{32}{9}x^2 + \frac{65}{27}x - \frac{49}{81}\ln(|3x+2|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(2*x - 1)^2/(3*x + 2),x, algorithm="giac")
```

```
[Out] 20/9*x^3 - 32/9*x^2 + 65/27*x - 49/81*ln(abs(3*x + 2))
```

3.1229 $\int \frac{(1-2x)^2(3+5x)}{(2+3x)^2} dx$

Optimal. Leaf size=34

$$\frac{10x^2}{9} - \frac{104x}{27} + \frac{49}{81(3x+2)} + \frac{91}{27}\log(3x+2)$$

```
[Out] (-104*x)/27 + (10*x^2)/9 + 49/(81*(2 + 3*x)) + (91*Log[2 + 3*x])/
27
```

Rubi [A] time = 0.0439829, antiderivative size = 34, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$\frac{10x^2}{9} - \frac{104x}{27} + \frac{49}{81(3x+2)} + \frac{91}{27}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^2*(3 + 5*x))/(2 + 3*x)^2,x]
```

```
[Out] (-104*x)/27 + (10*x^2)/9 + 49/(81*(2 + 3*x)) + (91*Log[2 + 3*x])/
27
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{91\log(3x+2)}{27} + \int \left(-\frac{104}{27}\right) dx + \frac{20\int x\,dx}{9} + \frac{49}{81(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(3+5*x)/(2+3*x)**2,x)
```

```
[Out] 91*log(3*x + 2)/27 + Integral(-104/27, x) + 20*Integral(x, x)/9 +
 49/(81*(3*x + 2))
```

Mathematica [A] time = 0.0187308, size = 39, normalized size = 1.15

$$\frac{540x^3 - 1512x^2 - 447x + 546(3x+2)\log(6x+4) + 632}{162(3x+2)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^2*(3 + 5*x))/(2 + 3*x)^2,x]
```

```
[Out] (632 - 447*x - 1512*x^2 + 540*x^3 + 546*(2 + 3*x)*Log[4 + 6*x])/(
162*(2 + 3*x))
```

Maple [A] time = 0.009, size = 27, normalized size = 0.8

$$-\frac{104\,x}{27} + \frac{10\,x^2}{9} + \frac{49}{162+243\,x} + \frac{91\,\ln(2+3\,x)}{27}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(3+5*x)/(2+3*x)^2,x)

[Out] -104/27*x+10/9*x^2+49/81/(2+3*x)+91/27*ln(2+3*x)
```

Maxima [A] time = 1.34506, size = 35, normalized size = 1.03

$$\frac{10}{9}\,x^2 - \frac{104}{27}\,x + \frac{49}{81\,(3\,x+2)} + \frac{91}{27}\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(2*x - 1)^2/(3*x + 2)^2,x, algorithm="maxima")

[Out] 10/9*x^2 - 104/27*x + 49/81/(3*x + 2) + 91/27*log(3*x + 2)
```

Fricas [A] time = 0.224534, size = 50, normalized size = 1.47

$$\frac{270\,x^3 - 756\,x^2 + 273\,(3\,x+2)\log\left(3\,x+2\right) - 624\,x + 49}{81\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(2*x - 1)^2/(3*x + 2)^2,x, algorithm="fricas")

[Out] 1/81*(270*x^3 - 756*x^2 + 273*(3*x + 2)*log(3*x + 2) - 624*x + 49
)/(3*x + 2)
```

Sympy [A] time = 0.20732, size = 27, normalized size = 0.79

$$\frac{10x^2}{9} - \frac{104x}{27} + \frac{91\log\left(3x+2\right)}{27} + \frac{49}{243x+162}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(3+5*x)/(2+3*x)**2,x)

[Out] 10*x**2/9 - 104*x/27 + 91*log(3*x + 2)/27 + 49/(243*x + 162)
```

GIAC/XCAS [A] time = 0.211585, size = 65, normalized size = 1.91

$$-\frac{2}{81}\,(3\,x+2)^2\left(\frac{72}{3\,x+2} - 5\right) + \frac{49}{81\,(3\,x+2)} - \frac{91}{27}\,\ln\left(\frac{|3\,x+2|}{3\,(3\,x+2)^2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(2*x - 1)^2/(3*x + 2)^2,x, algorithm="giac")

[Out] -2/81*(3*x + 2)^2*(72/(3*x + 2) - 5) + 49/81/(3*x + 2) - 91/27*ln
(1/3*abs(3*x + 2)/(3*x + 2)^2)
```

3.1230 $\int \frac{(1-2x)^2(3+5x)}{(2+3x)^3} dx$

Optimal. Leaf size=38

$$\frac{20x}{27} - \frac{91}{27(3x+2)} + \frac{49}{162(3x+2)^2} - \frac{16}{9}\log(3x+2)$$

```
[Out] (20*x)/27 + 49/(162*(2 + 3*x)^2) - 91/(27*(2 + 3*x)) - (16*Log[2
+ 3*x])/9
```

Rubi [A] time = 0.046529, antiderivative size = 38, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$\frac{20x}{27} - \frac{91}{27(3x+2)} + \frac{49}{162(3x+2)^2} - \frac{16}{9}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)^2*(3 + 5*x))/(2 + 3*x)^3,x]
```

```
[Out] (20*x)/27 + 49/(162*(2 + 3*x)^2) - 91/(27*(2 + 3*x)) - (16*Log[2
+ 3*x])/9
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{16\log(3x+2)}{9} + \int \frac{20}{27}\,dx - \frac{91}{27(3x+2)} + \frac{49}{162(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**2*(3+5*x)/(2+3*x)**3,x)
```

```
[Out] -16*log(3*x + 2)/9 + Integral(20/27, x) - 91/(27*(3*x + 2)) + 49/
(162*(3*x + 2)**2)
```

Mathematica [A] time = 0.0205816, size = 41, normalized size = 1.08

$$\frac{1080x^3 + 900x^2 - 1878x - 288(3x+2)^2\log(6x+4) - 1283}{162(3x+2)^2}$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)^2*(3 + 5*x))/(2 + 3*x)^3,x]
```

```
[Out] (-1283 - 1878*x + 900*x^2 + 1080*x^3 - 288*(2 + 3*x)^2*Log[4 + 6*
x])/(162*(2 + 3*x)^2)
```

Maple [A] time = 0.012, size = 31, normalized size = 0.8

$$\frac{20x}{27} + \frac{49}{162(2+3x)^2} - \frac{91}{54+81x} - \frac{16\ln(2+3x)}{9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(3+5*x)/(2+3*x)^3,x)
```

```
[Out] 20/27*x+49/162/(2+3*x)^2-91/27/(2+3*x)-16/9*ln(2+3*x)
```

Maxima [A] time = 1.34441, size = 42, normalized size = 1.11

$$\frac{20}{27}\,x - \frac{7\,(234\,x + 149)}{162\,(9\,x^2 + 12\,x + 4)} - \frac{16}{9}\,\log(3\,x + 2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(2*x - 1)^2/(3*x + 2)^3,x, algorithm="maxima")
```

```
[Out] 20/27*x - 7/162*(234*x + 149)/(9*x^2 + 12*x + 4) - 16/9*log(3*x +
 2)
```

Fricas [A] time = 0.214781, size = 63, normalized size = 1.66

$$\frac{1080\,x^3 + 1440\,x^2 - 288\,\left(9\,x^2 + 12\,x + 4\right)\log(3\,x + 2) - 1158\,x - 1043}{162\,(9\,x^2 + 12\,x + 4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(2*x - 1)^2/(3*x + 2)^3,x, algorithm="fricas")
```

```
[Out] 1/162*(1080*x^3 + 1440*x^2 - 288*(9*x^2 + 12*x + 4)*log(3*x + 2)
- 1158*x - 1043)/(9*x^2 + 12*x + 4)
```

Sympy [A] time = 0.271722, size = 29, normalized size = 0.76

$$\frac{20x}{27} - \frac{1638x + 1043}{1458x^2 + 1944x + 648} - \frac{16\log(3x + 2)}{9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(3+5*x)/(2+3*x)**3,x)
```

```
[Out] 20*x/27 - (1638*x + 1043)/(1458*x**2 + 1944*x + 648) - 16*log(3*x
 + 2)/9
```

GIAC/XCAS [A] time = 0.20786, size = 36, normalized size = 0.95

$$\frac{20}{27}\,x - \frac{7\,(234\,x + 149)}{162\,(3\,x + 2)^2} - \frac{16}{9}\,\ln(|3\,x + 2|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(2*x - 1)^2/(3*x + 2)^3,x, algorithm="giac")
```

```
[Out] 20/27*x - 7/162*(234*x + 149)/(3*x + 2)^2 - 16/9*ln(abs(3*x + 2))
```

3.1231 $\int \frac{(1-2x)^2(3+5x)}{(2+3x)^4}\,dx$

Optimal. Leaf size=44

$$\frac{16}{9(3x+2)}-\frac{91}{54(3x+2)^2}+\frac{49}{243(3x+2)^3}+\frac{20}{81}\log(3x+2)$$

```
[Out] 49/(243*(2 + 3*x)^3) - 91/(54*(2 + 3*x)^2) + 16/(9*(2 + 3*x)) + (
20*Log[2 + 3*x])/81
```

Rubi [A] time = 0.0453486, antiderivative size = 44, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{16}{9(3x+2)}-\frac{91}{54(3x+2)^2}+\frac{49}{243(3x+2)^3}+\frac{20}{81}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^2*(3 + 5*x))/(2 + 3*x)^4,x]
```

```
[Out] 49/(243*(2 + 3*x)^3) - 91/(54*(2 + 3*x)^2) + 16/(9*(2 + 3*x)) + (
20*Log[2 + 3*x])/81
```

Rubi in Sympy [A] time = 7.64278, size = 36, normalized size = 0.82

$$\frac{20\log(3x+2)}{81}+\frac{16}{9(3x+2)}-\frac{91}{54(3x+2)^2}+\frac{49}{243(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(3+5*x)/(2+3*x)**4,x)
```

```
[Out] 20*log(3*x + 2)/81 + 16/(9*(3*x + 2)) - 91/(54*(3*x + 2)**2) + 49
/(243*(3*x + 2)**3)
```

Mathematica [A] time = 0.0230535, size = 36, normalized size = 0.82

$$\frac{7776x^2+7911x+120(3x+2)^3\log(3x+2)+1916}{486(3x+2)^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^2*(3 + 5*x))/(2 + 3*x)^4,x]
```

```
[Out] (1916 + 7911*x + 7776*x^2 + 120*(2 + 3*x)^3*Log[2 + 3*x])/(486*(2
 + 3*x)^3)
```

Maple [A] time = 0.009, size = 37, normalized size = 0.8

$$\frac{49}{243\,(2+3\,x)^3}-\frac{91}{54\,(2+3\,x)^2}+\frac{16}{18+27\,x}+\frac{20\,\ln(2+3\,x)}{81}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(3+5*x)/(2+3*x)^4,x)
```

```
[Out] 49/243/(2+3*x)^3-91/54/(2+3*x)^2+16/9/(2+3*x)+20/81*ln(2+3*x)
```

Maxima [A] time = 1.34288, size = 51, normalized size = 1.16

$$\frac{7776\,x^2+7911\,x+1916}{486\,(27\,x^3+54\,x^2+36\,x+8)}+\frac{20}{81}\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(2*x - 1)^2/(3*x + 2)^4,x, algorithm="maxima")
```

```
[Out] 1/486*(7776*x^2 + 7911*x + 1916)/(27*x^3 + 54*x^2 + 36*x + 8) + 2
0/81*log(3*x + 2)
```

Fricas [A] time = 0.214561, size = 70, normalized size = 1.59

$$\frac{7776\,x^2+120\,\left(27\,x^3+54\,x^2+36\,x+8\right)\,\log\left(3\,x+2\right)+7911\,x+1916}{486\,(27\,x^3+54\,x^2+36\,x+8)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(2*x - 1)^2/(3*x + 2)^4,x, algorithm="fricas")
```

```
[Out] 1/486*(7776*x^2 + 120*(27*x^3 + 54*x^2 + 36*x + 8)*log(3*x + 2) +
 7911*x + 1916)/(27*x^3 + 54*x^2 + 36*x + 8)
```

Sympy [A] time = 0.307259, size = 34, normalized size = 0.77

$$\frac{7776x^2+7911x+1916}{13122x^3+26244x^2+17496x+3888}+\frac{20\log\left(3x+2\right)}{81}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(3+5*x)/(2+3*x)**4,x)
```

```
[Out] (7776*x**2 + 7911*x + 1916)/(13122*x**3 + 26244*x**2 + 17496*x +
3888) + 20*log(3*x + 2)/81
```

GIAC/XCAS [A] time = 0.207762, size = 39, normalized size = 0.89

$$\frac{7776\,x^2+7911\,x+1916}{486\,(3\,x+2)^3}+\frac{20}{81}\,\ln\left(|3\,x+2|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(2*x - 1)^2/(3*x + 2)^4,x, algorithm="giac")
```

```
[Out] 1/486*(7776*x^2 + 7911*x + 1916)/(3*x + 2)^3 + 20/81*ln(abs(3*x +
 2))
```

3.1232 $\int \frac{(1-2x)^2(3+5x)}{(2+3x)^5}\,dx$

Optimal. Leaf size=37

$$\frac{(1-2x)^3}{84(3x+2)^4}-\frac{23(1-2x)^3}{294(3x+2)^3}$$

```
[Out] (1 - 2*x)^3/(84*(2 + 3*x)^4) - (23*(1 - 2*x)^3)/(294*(2 + 3*x)^3)
```

Rubi [A] time = 0.0360346, antiderivative size = 37, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.1

$$\frac{(1-2x)^3}{84(3x+2)^4}-\frac{23(1-2x)^3}{294(3x+2)^3}$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)^2*(3 + 5*x))/(2 + 3*x)^5,x]
```

```
[Out] (1 - 2*x)^3/(84*(2 + 3*x)^4) - (23*(1 - 2*x)^3)/(294*(2 + 3*x)^3)
```

Rubi in Sympy [A] time = 5.27634, size = 31, normalized size = 0.84

$$-\frac{23\left(-2x+1\right)^3}{294\left(3x+2\right)^3}+\frac{\left(-2x+1\right)^3}{84\left(3x+2\right)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**2*(3+5*x)/(2+3*x)**5,x)
```

```
[Out] -23*(-2*x + 1)**3/(294*(3*x + 2)**3) + (-2*x + 1)**3/(84*(3*x + 2
)**4)
```

Mathematica [A] time = 0.017424, size = 26, normalized size = 0.7

$$-\frac{2160x^3+1728x^2+516x+167}{324(3x+2)^4}$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)^2*(3 + 5*x))/(2 + 3*x)^5,x]
```

```
[Out] -(167 + 516*x + 1728*x^2 + 2160*x^3)/(324*(2 + 3*x)^4)
```

Maple [A] time = 0.008, size = 38, normalized size = 1.

$$-\frac{20}{162+243\,x}-\frac{91}{81\,\left(2+3\,x\right)^{3}}+\frac{49}{324\,\left(2+3\,x\right)^{4}}+\frac{8}{9\,\left(2+3\,x\right)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((1-2*x)^2*(3+5*x)/(2+3*x)^5,x)
```

```
[Out] -20/81/(2+3*x)-91/81/(2+3*x)^3+49/324/(2+3*x)^4+8/9/(2+3*x)^2
```

Maxima [A] time = 1.35789, size = 53, normalized size = 1.43

$$-\frac{2160\,x^3 + 1728\,x^2 + 516\,x + 167}{324\,(81\,x^4 + 216\,x^3 + 216\,x^2 + 96\,x + 16)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(2*x - 1)^2/(3*x + 2)^5,x, algorithm="maxima")
```

```
[Out] -1/324*(2160*x^3 + 1728*x^2 + 516*x + 167)/(81*x^4 + 216*x^3 + 21
6*x^2 + 96*x + 16)
```

Fricas [A] time = 0.209842, size = 53, normalized size = 1.43

$$-\frac{2160\,x^3 + 1728\,x^2 + 516\,x + 167}{324\,(81\,x^4 + 216\,x^3 + 216\,x^2 + 96\,x + 16)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(2*x - 1)^2/(3*x + 2)^5,x, algorithm="fricas")
```

```
[Out] -1/324*(2160*x^3 + 1728*x^2 + 516*x + 167)/(81*x^4 + 216*x^3 + 21
6*x^2 + 96*x + 16)
```

Sympy [A] time = 0.343918, size = 36, normalized size = 0.97

$$-\frac{2160x^3 + 1728x^2 + 516x + 167}{26244x^4 + 69984x^3 + 69984x^2 + 31104x + 5184}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(3+5*x)/(2+3*x)**5,x)
```

```
[Out] -(2160*x**3 + 1728*x**2 + 516*x + 167)/(26244*x**4 + 69984*x**3 +
 69984*x**2 + 31104*x + 5184)
```

GIAC/XCAS [A] time = 0.206653, size = 50, normalized size = 1.35

$$-\frac{20}{81\,(3\,x + 2)} + \frac{8}{9\,(3\,x + 2)^2} - \frac{91}{81\,(3\,x + 2)^3} + \frac{49}{324\,(3\,x + 2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(2*x - 1)^2/(3*x + 2)^5,x, algorithm="giac")
```

```
[Out] -20/81/(3*x + 2) + 8/9/(3*x + 2)^2 - 91/81/(3*x + 2)^3 + 49/324/(
3*x + 2)^4
```

3.1233 $\int \frac{(1-2x)^2(3+5x)}{(2+3x)^6}\,dx$

Optimal. Leaf size=45

$$-\frac{10}{81(3x+2)^2}+\frac{16}{27(3x+2)^3}-\frac{91}{108(3x+2)^4}+\frac{49}{405(3x+2)^5}$$

```
[Out] 49/(405*(2 + 3*x)^5) - 91/(108*(2 + 3*x)^4) + 16/(27*(2 + 3*x)^3)
 - 10/(81*(2 + 3*x)^2)
```

Rubi [A] time = 0.0502313, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{10}{81(3x+2)^2}+\frac{16}{27(3x+2)^3}-\frac{91}{108(3x+2)^4}+\frac{49}{405(3x+2)^5}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^2*(3 + 5*x))/(2 + 3*x)^6,x]
```

```
[Out] 49/(405*(2 + 3*x)^5) - 91/(108*(2 + 3*x)^4) + 16/(27*(2 + 3*x)^3)
 - 10/(81*(2 + 3*x)^2)
```

Rubi in Sympy [A] time = 8.11236, size = 39, normalized size = 0.87

$$-\frac{10}{81\,(3x+2)^2}+\frac{16}{27\,(3x+2)^3}-\frac{91}{108\,(3x+2)^4}+\frac{49}{405\,(3x+2)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(3+5*x)/(2+3*x)**6,x)
```

```
[Out] -10/(81*(3*x + 2)**2) + 16/(27*(3*x + 2)**3) - 91/(108*(3*x + 2)*
*4) + 49/(405*(3*x + 2)**5)
```

Mathematica [A] time = 0.0178947, size = 26, normalized size = 0.58

$$-\frac{1800x^3+720x^2-75x+98}{540(3x+2)^5}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^2*(3 + 5*x))/(2 + 3*x)^6,x]
```

```
[Out] -(98 - 75*x + 720*x^2 + 1800*x^3)/(540*(2 + 3*x)^5)
```

Maple [A] time = 0.009, size = 38, normalized size = 0.8

$$\frac{49}{405\,(2+3\,x)^5}-\frac{91}{108\,(2+3\,x)^4}+\frac{16}{27\,(2+3\,x)^3}-\frac{10}{81\,(2+3\,x)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(3+5*x)/(2+3*x)^6,x)
```

```
[Out] 49/405/(2+3*x)^5-91/108/(2+3*x)^4+16/27/(2+3*x)^3-10/81/(2+3*x)^2
```

Maxima [A] time = 1.34741, size = 59, normalized size = 1.31

$$-\frac{1800\,x^3+720\,x^2-75\,x+98}{540\,(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240\,x+32)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(2*x - 1)^2/(3*x + 2)^6,x, algorithm="maxima")
```

```
[Out] -1/540*(1800*x^3 + 720*x^2 - 75*x + 98)/(243*x^5 + 810*x^4 + 1080
*x^3 + 720*x^2 + 240*x + 32)
```

Fricas [A] time = 0.19445, size = 59, normalized size = 1.31

$$-\frac{1800\,x^3+720\,x^2-75\,x+98}{540\,(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240\,x+32)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(2*x - 1)^2/(3*x + 2)^6,x, algorithm="fricas")
```

```
[Out] -1/540*(1800*x^3 + 720*x^2 - 75*x + 98)/(243*x^5 + 810*x^4 + 1080
*x^3 + 720*x^2 + 240*x + 32)
```

Sympy [A] time = 0.373676, size = 41, normalized size = 0.91

$$-\frac{1800x^3+720x^2-75x+98}{131220x^5+437400x^4+583200x^3+388800x^2+129600x+17280}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(3+5*x)/(2+3*x)**6,x)
```

```
[Out] -(1800*x**3 + 720*x**2 - 75*x + 98)/(131220*x**5 + 437400*x**4 +
583200*x**3 + 388800*x**2 + 129600*x + 17280)
```

GIAC/XCAS [A] time = 0.207269, size = 32, normalized size = 0.71

$$-\frac{1800\,x^3+720\,x^2-75\,x+98}{540\,(3\,x+2)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(2*x - 1)^2/(3*x + 2)^6,x, algorithm="giac")
```

```
[Out] -1/540*(1800*x^3 + 720*x^2 - 75*x + 98)/(3*x + 2)^5
```

3.1234 $\int \frac{(1-2x)^2(3+5x)}{(2+3x)^7}\,dx$

Optimal. Leaf size=45

$$-\frac{20}{243(3x+2)^3}+\frac{4}{9(3x+2)^4}-\frac{91}{135(3x+2)^5}+\frac{49}{486(3x+2)^6}$$

```
[Out] 49/(486*(2 + 3*x)^6) - 91/(135*(2 + 3*x)^5) + 4/(9*(2 + 3*x)^4) -
 20/(243*(2 + 3*x)^3)
```

Rubi [A] time = 0.0480717, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{20}{243(3x+2)^3}+\frac{4}{9(3x+2)^4}-\frac{91}{135(3x+2)^5}+\frac{49}{486(3x+2)^6}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^2*(3 + 5*x))/(2 + 3*x)^7,x]
```

```
[Out] 49/(486*(2 + 3*x)^6) - 91/(135*(2 + 3*x)^5) + 4/(9*(2 + 3*x)^4) -
 20/(243*(2 + 3*x)^3)
```

Rubi in Sympy [A] time = 8.17168, size = 39, normalized size = 0.87

$$-\frac{20}{243\,(3x+2)^3}+\frac{4}{9\,(3x+2)^4}-\frac{91}{135\,(3x+2)^5}+\frac{49}{486\,(3x+2)^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(3+5*x)/(2+3*x)**7,x)
```

```
[Out] -20/(243*(3*x + 2)**3) + 4/(9*(3*x + 2)**4) - 91/(135*(3*x + 2)**
5) + 49/(486*(3*x + 2)**6)
```

Mathematica [A] time = 0.0173274, size = 26, normalized size = 0.58

$$-\frac{5400x^3+1080x^2-846x+311}{2430(3x+2)^6}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^2*(3 + 5*x))/(2 + 3*x)^7,x]
```

```
[Out] -(311 - 846*x + 1080*x^2 + 5400*x^3)/(2430*(2 + 3*x)^6)
```

Maple [A] time = 0.008, size = 38, normalized size = 0.8

$$\frac{49}{486\,(2+3\,x)^6}-\frac{91}{135\,(2+3\,x)^5}+\frac{4}{9\,(2+3\,x)^4}-\frac{20}{243\,(2+3\,x)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(3+5*x)/(2+3*x)^7,x)
```

```
[Out] 49/486/(2+3*x)^6-91/135/(2+3*x)^5+4/9/(2+3*x)^4-20/243/(2+3*x)^3
```

Maxima [A] time = 1.35069, size = 66, normalized size = 1.47

$$-\frac{5400\,x^3+1080\,x^2-846\,x+311}{2430\,(729\,x^6+2916\,x^5+4860\,x^4+4320\,x^3+2160\,x^2+576\,x+64)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(2*x - 1)^2/(3*x + 2)^7,x, algorithm="maxima")
```

```
[Out] -1/2430*(5400*x^3 + 1080*x^2 - 846*x + 311)/(729*x^6 + 2916*x^5 +
 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64)
```

Fricas [A] time = 0.198218, size = 66, normalized size = 1.47

$$-\frac{5400\,x^3+1080\,x^2-846\,x+311}{2430\,(729\,x^6+2916\,x^5+4860\,x^4+4320\,x^3+2160\,x^2+576\,x+64)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(2*x - 1)^2/(3*x + 2)^7,x, algorithm="fricas")
```

```
[Out] -1/2430*(5400*x^3 + 1080*x^2 - 846*x + 311)/(729*x^6 + 2916*x^5 +
 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64)
```

Sympy [A] time = 0.419933, size = 46, normalized size = 1.02

$$-\frac{5400x^3+1080x^2-846x+311}{1771470x^6+7085880x^5+11809800x^4+10497600x^3+5248800x^2+1399680x+155520}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(3+5*x)/(2+3*x)**7,x)
```

```
[Out] -(5400*x**3 + 1080*x**2 - 846*x + 311)/(1771470*x**6 + 7085880*x*
*5 + 11809800*x**4 + 10497600*x**3 + 5248800*x**2 + 1399680*x + 1
55520)
```

GIAC/XCAS [A] time = 0.206, size = 32, normalized size = 0.71

$$-\frac{5400\,x^3+1080\,x^2-846\,x+311}{2430\,(3\,x+2)^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(2*x - 1)^2/(3*x + 2)^7,x, algorithm="giac")
```

```
[Out] -1/2430*(5400*x^3 + 1080*x^2 - 846*x + 311)/(3*x + 2)^6
```

3.1235 $\int \frac{(1-2x)^2(3+5x)}{(2+3x)^8} dx$

Optimal. Leaf size=45

$$-\frac{5}{81(3x+2)^4}+\frac{16}{45(3x+2)^5}-\frac{91}{162(3x+2)^6}+\frac{7}{81(3x+2)^7}$$

```
[Out] 7/(81*(2 + 3*x)^7) - 91/(162*(2 + 3*x)^6) + 16/(45*(2 + 3*x)^5) -
 5/(81*(2 + 3*x)^4)
```

Rubi [A] time = 0.0508431, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{5}{81(3x+2)^4}+\frac{16}{45(3x+2)^5}-\frac{91}{162(3x+2)^6}+\frac{7}{81(3x+2)^7}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^2*(3 + 5*x))/(2 + 3*x)^8,x]
```

```
[Out] 7/(81*(2 + 3*x)^7) - 91/(162*(2 + 3*x)^6) + 16/(45*(2 + 3*x)^5) -
 5/(81*(2 + 3*x)^4)
```

Rubi in Sympy [A] time = 8.24041, size = 39, normalized size = 0.87

$$-\frac{5}{81(3x+2)^4}+\frac{16}{45(3x+2)^5}-\frac{91}{162(3x+2)^6}+\frac{7}{81(3x+2)^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(3+5*x)/(2+3*x)**8,x)
```

```
[Out] -5/(81*(3*x + 2)**4) + 16/(45*(3*x + 2)**5) - 91/(162*(3*x + 2)**
6) + 7/(81*(3*x + 2)**7)
```

Mathematica [A] time = 0.0176707, size = 26, normalized size = 0.58

$$-\frac{1350x^3+108x^2-291x+88}{810(3x+2)^7}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^2*(3 + 5*x))/(2 + 3*x)^8,x]
```

```
[Out] -(88 - 291*x + 108*x^2 + 1350*x^3)/(810*(2 + 3*x)^7)
```

Maple [A] time = 0.009, size = 38, normalized size = 0.8

$$\frac{7}{81(2+3x)^7}-\frac{91}{162(2+3x)^6}+\frac{16}{45(2+3x)^5}-\frac{5}{81(2+3x)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(3+5*x)/(2+3*x)^8,x)
```

```
[Out] 7/81/(2+3*x)^7-91/162/(2+3*x)^6+16/45/(2+3*x)^5-5/81/(2+3*x)^4
```

Maxima [A] time = 1.35002, size = 73, normalized size = 1.62

$$-\frac{1350\,x^3+108\,x^2-291\,x+88}{810\,(2187\,x^7+10206\,x^6+20412\,x^5+22680\,x^4+15120\,x^3+6048\,x^2+1344\,x+128)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(2*x - 1)^2/(3*x + 2)^8,x, algorithm="maxima")
```

```
[Out] -1/810*(1350*x^3 + 108*x^2 - 291*x + 88)/(2187*x^7 + 10206*x^6 +
20412*x^5 + 22680*x^4 + 15120*x^3 + 6048*x^2 + 1344*x + 128)
```

Fricas [A] time = 0.202764, size = 73, normalized size = 1.62

$$-\frac{1350\,x^3+108\,x^2-291\,x+88}{810\,(2187\,x^7+10206\,x^6+20412\,x^5+22680\,x^4+15120\,x^3+6048\,x^2+1344\,x+128)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(2*x - 1)^2/(3*x + 2)^8,x, algorithm="fricas")
```

```
[Out] -1/810*(1350*x^3 + 108*x^2 - 291*x + 88)/(2187*x^7 + 10206*x^6 +
20412*x^5 + 22680*x^4 + 15120*x^3 + 6048*x^2 + 1344*x + 128)
```

Sympy [A] time = 0.450358, size = 51, normalized size = 1.13

$$-\frac{1350x^3+108x^2-291x+88}{1771470x^7+8266860x^6+16533720x^5+18370800x^4+12247200x^3+4898880x^2+1088640x+103680}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(3+5*x)/(2+3*x)**8,x)
```

```
[Out] -(1350*x**3 + 108*x**2 - 291*x + 88)/(1771470*x**7 + 8266860*x**6
 + 16533720*x**5 + 18370800*x**4 + 12247200*x**3 + 4898880*x**2 +
 1088640*x + 103680)
```

GIAC/XCAS [A] time = 0.207325, size = 32, normalized size = 0.71

$$-\frac{1350\,x^3+108\,x^2-291\,x+88}{810\,(3\,x+2)^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(2*x - 1)^2/(3*x + 2)^8,x, algorithm="giac")
```

```
[Out] -1/810*(1350*x^3 + 108*x^2 - 291*x + 88)/(3*x + 2)^7
```

3.1236 $\int (1-2x)^2(2+3x)^8(3+5x)^2\,dx$

Optimal. Leaf size=56

$$\frac{100(3x+2)^{13}}{3159}-\frac{185}{729}(3x+2)^{12}+\frac{503}{891}(3x+2)^{11}-\frac{259(3x+2)^{10}}{1215}+\frac{49(3x+2)^9}{2187}$$

```
[Out] (49*(2 + 3*x)^9)/2187 - (259*(2 + 3*x)^10)/1215 + (503*(2 + 3*x)^
11)/891 - (185*(2 + 3*x)^12)/729 + (100*(2 + 3*x)^13)/3159
```

Rubi [A] time = 0.106599, antiderivative size = 56, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{100(3x+2)^{13}}{3159}-\frac{185}{729}(3x+2)^{12}+\frac{503}{891}(3x+2)^{11}-\frac{259(3x+2)^{10}}{1215}+\frac{49(3x+2)^9}{2187}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^2*(2 + 3*x)^8*(3 + 5*x)^2,x]
```

```
[Out] (49*(2 + 3*x)^9)/2187 - (259*(2 + 3*x)^10)/1215 + (503*(2 + 3*x)^
11)/891 - (185*(2 + 3*x)^12)/729 + (100*(2 + 3*x)^13)/3159
```

Rubi in Sympy [A] time = 14.3761, size = 49, normalized size = 0.88

$$\frac{100\,(3x+2)^{13}}{3159}-\frac{185\,(3x+2)^{12}}{729}+\frac{503\,(3x+2)^{11}}{891}-\frac{259\,(3x+2)^{10}}{1215}+\frac{49\,(3x+2)^9}{2187}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(2+3*x)**8*(3+5*x)**2,x)
```

```
[Out] 100*(3*x + 2)**13/3159 - 185*(3*x + 2)**12/729 + 503*(3*x + 2)**1
1/891 - 259*(3*x + 2)**10/1215 + 49*(3*x + 2)**9/2187
```

Mathematica [A] time = 0.00439145, size = 74, normalized size = 1.32

$$\frac{656100x^{13}}{13}+302535x^{12}+\frac{8477541x^{11}}{11}+\frac{5207733x^{10}}{5}+697905x^9+6858x^8-384336x^7-298240x^6-\frac{338336x^5}{5}+40640x^4+\frac{111616x^3}{3}+13056x^2+2304x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^2*(2 + 3*x)^8*(3 + 5*x)^2,x]
```

```
[Out] 2304*x + 13056*x^2 + (111616*x^3)/3 + 40640*x^4 - (338336*x^5)/5
- 298240*x^6 - 384336*x^7 + 6858*x^8 + 697905*x^9 + (5207733*x^10
)/5 + (8477541*x^11)/11 + 302535*x^12 + (656100*x^13)/13
```

Maple [A] time = 0.001, size = 65, normalized size = 1.2

$$\frac{656100\,x^{13}}{13}+302535\,x^{12}+\frac{8477541\,x^{11}}{11}+\frac{5207733\,x^{10}}{5}+697905\,x^9+6858\,x^8-384336\,x^7-298240\,x^6-\frac{338336\,x^5}{5}+40640\,x^4+\frac{111616\,x^3}{3}+13056\,x^2+2304\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(2+3*x)^8*(3+5*x)^2,x)
```

```
[Out] 656100/13*x^13+302535*x^12+8477541/11*x^11+5207733/5*x^10+697905*
x^9+6858*x^8-384336*x^7-298240*x^6-338336/5*x^5+40640*x^4+111616/
3*x^3+13056*x^2+2304*x
```

Maxima [A] time = 1.34588, size = 86, normalized size = 1.54

$$\frac{656100}{13}\,x^{13} + 302535\,x^{12} + \frac{8477541}{11}\,x^{11} + \frac{5207733}{5}\,x^{10} + 697905\,x^{9} + 6858\,x^{8} - 384336\,x^{7} - 298240\,x^{6} - \frac{338336}{5}\,x^{5} + 40640\,x^{4} + \frac{111616}{3}\,x^{3} + 13056\,x^{2} + 2304\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^8*(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 656100/13*x^13 + 302535*x^12 + 8477541/11*x^11 + 5207733/5*x^10 +
 697905*x^9 + 6858*x^8 - 384336*x^7 - 298240*x^6 - 338336/5*x^5 +
 40640*x^4 + 111616/3*x^3 + 13056*x^2 + 2304*x
```

Fricas [A] time = 0.188017, size = 1, normalized size = 0.02

$$\frac{656100}{13}x^{13} + 302535x^{12} + \frac{8477541}{11}x^{11} + \frac{5207733}{5}x^{10} + 697905x^{9} + 6858x^{8} - 384336x^{7} - 298240x^{6} - \frac{338336}{5}x^{5} + 40640x^{4} + \frac{111616}{3}x^{3} + 13056x^{2} + 2304x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^8*(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 656100/13*x^13 + 302535*x^12 + 8477541/11*x^11 + 5207733/5*x^10 +
 697905*x^9 + 6858*x^8 - 384336*x^7 - 298240*x^6 - 338336/5*x^5 +
 40640*x^4 + 111616/3*x^3 + 13056*x^2 + 2304*x
```

Sympy [A] time = 0.122172, size = 71, normalized size = 1.27

$$\frac{656100x^{13}}{13} + 302535x^{12} + \frac{8477541x^{11}}{11} + \frac{5207733x^{10}}{5} + 697905x^{9} + 6858x^{8} - 384336x^{7} - 298240x^{6} - \frac{338336x^{5}}{5} + 40640x^{4} + \frac{111616x^{3}}{3} + 13056x^{2} + 2304x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(2+3*x)**8*(3+5*x)**2,x)
```

```
[Out] 656100*x**13/13 + 302535*x**12 + 8477541*x**11/11 + 5207733*x**10
/5 + 697905*x**9 + 6858*x**8 - 384336*x**7 - 298240*x**6 - 338336
*x**5/5 + 40640*x**4 + 111616*x**3/3 + 13056*x**2 + 2304*x
```

GIAC/XCAS [A] time = 0.206322, size = 86, normalized size = 1.54

$$\frac{656100}{13}\,x^{13} + 302535\,x^{12} + \frac{8477541}{11}\,x^{11} + \frac{5207733}{5}\,x^{10} + 697905\,x^{9} + 6858\,x^{8} - 384336\,x^{7} - 298240\,x^{6} - \frac{338336}{5}\,x^{5} + 40640\,x^{4} + \frac{111616}{3}\,x^{3} + 13056\,x^{2} + 2304\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^8*(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 656100/13*x^13 + 302535*x^12 + 8477541/11*x^11 + 5207733/5*x^10 +
 697905*x^9 + 6858*x^8 - 384336*x^7 - 298240*x^6 - 338336/5*x^5 +
 40640*x^4 + 111616/3*x^3 + 13056*x^2 + 2304*x
```

3.1237 $\int (1-2x)^2(2+3x)^7(3+5x)^2\,dx$

Optimal. Leaf size=56

$$\frac{25}{729}(3x+2)^{12}-\frac{740(3x+2)^{11}}{2673}+\frac{503}{810}(3x+2)^{10}-\frac{518(3x+2)^9}{2187}+\frac{49(3x+2)^8}{1944}$$

```
[Out] (49*(2 + 3*x)^8)/1944 - (518*(2 + 3*x)^9)/2187 + (503*(2 + 3*x)^1
0)/810 - (740*(2 + 3*x)^11)/2673 + (25*(2 + 3*x)^12)/729
```

Rubi [A] time = 0.106137, antiderivative size = 56, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{25}{729}(3x+2)^{12}-\frac{740(3x+2)^{11}}{2673}+\frac{503}{810}(3x+2)^{10}-\frac{518(3x+2)^9}{2187}+\frac{49(3x+2)^8}{1944}$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^2*(2 + 3*x)^7*(3 + 5*x)^2,x]
```

```
[Out] (49*(2 + 3*x)^8)/1944 - (518*(2 + 3*x)^9)/2187 + (503*(2 + 3*x)^1
0)/810 - (740*(2 + 3*x)^11)/2673 + (25*(2 + 3*x)^12)/729
```

Rubi in Sympy [A] time = 13.6179, size = 49, normalized size = 0.88

$$\frac{25\,(3x+2)^{12}}{729}-\frac{740\,(3x+2)^{11}}{2673}+\frac{503\,(3x+2)^{10}}{810}-\frac{518\,(3x+2)^9}{2187}+\frac{49\,(3x+2)^8}{1944}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**2*(2+3*x)**7*(3+5*x)**2,x)
```

```
[Out] 25*(3*x + 2)**12/729 - 740*(3*x + 2)**11/2673 + 503*(3*x + 2)**10
/810 - 518*(3*x + 2)**9/2187 + 49*(3*x + 2)**8/1944
```

Mathematica [A] time = 0.00350701, size = 69, normalized size = 1.23

$$18225x^{12}+\frac{1064340x^{11}}{11}+\frac{2116287x^{10}}{10}+228996x^9+\frac{719739x^8}{8}-65934x^7-98182x^6-\frac{203752x^5}{5}+5764x^4+\frac{38816x^3}{3}+5664x^2+1152x$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)^2*(2 + 3*x)^7*(3 + 5*x)^2,x]
```

```
[Out] 1152*x + 5664*x^2 + (38816*x^3)/3 + 5764*x^4 - (203752*x^5)/5 - 9
8182*x^6 - 65934*x^7 + (719739*x^8)/8 + 228996*x^9 + (2116287*x^1
0)/10 + (1064340*x^11)/11 + 18225*x^12
```

Maple [A] time = 0.001, size = 60, normalized size = 1.1

$$18225\,x^{12}+\frac{1064340\,x^{11}}{11}+\frac{2116287\,x^{10}}{10}+228996\,x^9+\frac{719739\,x^8}{8}-65934\,x^7-98182\,x^6-\frac{203752\,x^5}{5}+5764\,x^4+\frac{38816\,x^3}{3}+5664\,x^2+1152\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(2+3*x)^7*(3+5*x)^2,x)
```

```
[Out] 18225*x^12+1064340/11*x^11+2116287/10*x^10+228996*x^9+719739/8*x^
8-65934*x^7-98182*x^6-203752/5*x^5+5764*x^4+38816/3*x^3+5664*x^2+
1152*x
```

Maxima [A] time = 1.34683, size = 80, normalized size = 1.43

$$18225\,x^{12}+\frac{1064340}{11}\,x^{11}+\frac{2116287}{10}\,x^{10}+228996\,x^{9}+\frac{719739}{8}\,x^{8}-65934\,x^{7}-98182\,x^{6}-\frac{203752}{5}\,x^{5}+5764\,x^{4}+\frac{38816}{3}\,x^{3}+5664\,x^{2}+1152\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^7*(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 18225*x^12 + 1064340/11*x^11 + 2116287/10*x^10 + 228996*x^9 + 719
739/8*x^8 - 65934*x^7 - 98182*x^6 - 203752/5*x^5 + 5764*x^4 + 388
16/3*x^3 + 5664*x^2 + 1152*x
```

Fricas [A] time = 0.182902, size = 1, normalized size = 0.02

$$18225x^{12}+\frac{1064340}{11}x^{11}+\frac{2116287}{10}x^{10}+228996x^{9}+\frac{719739}{8}x^{8}-65934x^{7}-98182x^{6}-\frac{203752}{5}x^{5}+5764x^{4}+\frac{38816}{3}x^{3}+5664x^{2}+1152x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^7*(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 18225*x^12 + 1064340/11*x^11 + 2116287/10*x^10 + 228996*x^9 + 719
739/8*x^8 - 65934*x^7 - 98182*x^6 - 203752/5*x^5 + 5764*x^4 + 388
16/3*x^3 + 5664*x^2 + 1152*x
```

Sympy [A] time = 0.120827, size = 66, normalized size = 1.18

$$18225x^{12}+\frac{1064340x^{11}}{11}+\frac{2116287x^{10}}{10}+228996x^{9}+\frac{719739x^{8}}{8}-65934x^{7}-98182x^{6}-\frac{203752x^{5}}{5}+5764x^{4}+\frac{38816x^{3}}{3}+5664x^{2}+1152x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(2+3*x)**7*(3+5*x)**2,x)
```

```
[Out] 18225*x**12 + 1064340*x**11/11 + 2116287*x**10/10 + 228996*x**9 +
 719739*x**8/8 - 65934*x**7 - 98182*x**6 - 203752*x**5/5 + 5764*x
**4 + 38816*x**3/3 + 5664*x**2 + 1152*x
```

GIAC/XCAS [A] time = 0.209483, size = 80, normalized size = 1.43

$$18225\,x^{12}+\frac{1064340}{11}\,x^{11}+\frac{2116287}{10}\,x^{10}+228996\,x^{9}+\frac{719739}{8}\,x^{8}-65934\,x^{7}-98182\,x^{6}-\frac{203752}{5}\,x^{5}+5764\,x^{4}+\frac{38816}{3}\,x^{3}+5664\,x^{2}+1152\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^7*(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 18225*x^12 + 1064340/11*x^11 + 2116287/10*x^10 + 228996*x^9 + 719
739/8*x^8 - 65934*x^7 - 98182*x^6 - 203752/5*x^5 + 5764*x^4 + 388
16/3*x^3 + 5664*x^2 + 1152*x
```

3.1238 $\int (1-2x)^2(2+3x)^6(3+5x)^2\,dx$

Optimal. Leaf size=56

$$\frac{100(3x+2)^{11}}{2673}-\frac{74}{243}(3x+2)^{10}+\frac{503}{729}(3x+2)^9-\frac{259}{972}(3x+2)^8+\frac{7}{243}(3x+2)^7$$

```
[Out] (7*(2 + 3*x)^7)/243 - (259*(2 + 3*x)^8)/972 + (503*(2 + 3*x)^9)/7
29 - (74*(2 + 3*x)^10)/243 + (100*(2 + 3*x)^11)/2673
```

Rubi [A] time = 0.0956314, antiderivative size = 56, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{100(3x+2)^{11}}{2673}-\frac{74}{243}(3x+2)^{10}+\frac{503}{729}(3x+2)^9-\frac{259}{972}(3x+2)^8+\frac{7}{243}(3x+2)^7$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^2*(2 + 3*x)^6*(3 + 5*x)^2,x]
```

```
[Out] (7*(2 + 3*x)^7)/243 - (259*(2 + 3*x)^8)/972 + (503*(2 + 3*x)^9)/7
29 - (74*(2 + 3*x)^10)/243 + (100*(2 + 3*x)^11)/2673
```

Rubi in Sympy [A] time = 12.9946, size = 49, normalized size = 0.88

$$\frac{100\,(3x+2)^{11}}{2673}-\frac{74\,(3x+2)^{10}}{243}+\frac{503\,(3x+2)^9}{729}-\frac{259\,(3x+2)^8}{972}+\frac{7\,(3x+2)^7}{243}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**2*(2+3*x)**6*(3+5*x)**2,x)
```

```
[Out] 100*(3*x + 2)**11/2673 - 74*(3*x + 2)**10/243 + 503*(3*x + 2)**9/
729 - 259*(3*x + 2)**8/972 + 7*(3*x + 2)**7/243
```

Mathematica [A] time = 0.00335502, size = 60, normalized size = 1.07

$$\frac{72900x^{11}}{11}+30618x^{10}+55701x^9+\frac{176391x^8}{4}+675x^7-26166x^6-18340x^5-1696x^4+\frac{12208x^3}{3}+2400x^2+576x$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)^2*(2 + 3*x)^6*(3 + 5*x)^2,x]
```

```
[Out] 576*x + 2400*x^2 + (12208*x^3)/3 - 1696*x^4 - 18340*x^5 - 26166*x
^6 + 675*x^7 + (176391*x^8)/4 + 55701*x^9 + 30618*x^10 + (72900*x
^11)/11
```

Maple [A] time = 0.001, size = 55, normalized size = 1.

$$\frac{72900\,x^{11}}{11}+30618\,x^{10}+55701\,x^9+\frac{176391\,x^8}{4}+675\,x^7-26166\,x^6-18340\,x^5-1696\,x^4+\frac{12208\,x^3}{3}+2400\,x^2+576\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(2+3*x)^6*(3+5*x)^2,x)
```

```
[Out] 72900/11*x^11+30618*x^10+55701*x^9+176391/4*x^8+675*x^7-26166*x^6
-18340*x^5-1696*x^4+12208/3*x^3+2400*x^2+576*x
```

Maxima [A] time = 1.34653, size = 73, normalized size = 1.3

$$\frac{72900}{11}\,x^{11} + 30618\,x^{10} + 55701\,x^{9} + \frac{176391}{4}\,x^{8} + 675\,x^{7} - 26166\,x^{6} - 18340\,x^{5} - 1696\,x^{4} + \frac{12208}{3}\,x^{3} + 2400\,x^{2} + 576\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^6*(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 72900/11*x^11 + 30618*x^10 + 55701*x^9 + 176391/4*x^8 + 675*x^7 -
 26166*x^6 - 18340*x^5 - 1696*x^4 + 12208/3*x^3 + 2400*x^2 + 576*
x
```

Fricas [A] time = 0.185378, size = 1, normalized size = 0.02

$$\frac{72900}{11}x^{11} + 30618x^{10} + 55701x^{9} + \frac{176391}{4}x^{8} + 675x^{7} - 26166x^{6} - 18340x^{5} - 1696x^{4} + \frac{12208}{3}x^{3} + 2400x^{2} + 576x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^6*(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 72900/11*x^11 + 30618*x^10 + 55701*x^9 + 176391/4*x^8 + 675*x^7 -
 26166*x^6 - 18340*x^5 - 1696*x^4 + 12208/3*x^3 + 2400*x^2 + 576*
x
```

Sympy [A] time = 0.111637, size = 58, normalized size = 1.04

$$\frac{72900x^{11}}{11} + 30618x^{10} + 55701x^{9} + \frac{176391x^{8}}{4} + 675x^{7} - 26166x^{6} - 18340x^{5} - 1696x^{4} + \frac{12208x^{3}}{3} + 2400x^{2} + 576x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(2+3*x)**6*(3+5*x)**2,x)
```

```
[Out] 72900*x**11/11 + 30618*x**10 + 55701*x**9 + 176391*x**8/4 + 675*x
**7 - 26166*x**6 - 18340*x**5 - 1696*x**4 + 12208*x**3/3 + 2400*x
**2 + 576*x
```

GIAC/XCAS [A] time = 0.203257, size = 73, normalized size = 1.3

$$\frac{72900}{11}\,x^{11} + 30618\,x^{10} + 55701\,x^{9} + \frac{176391}{4}\,x^{8} + 675\,x^{7} - 26166\,x^{6} - 18340\,x^{5} - 1696\,x^{4} + \frac{12208}{3}\,x^{3} + 2400\,x^{2} + 576\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^6*(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 72900/11*x^11 + 30618*x^10 + 55701*x^9 + 176391/4*x^8 + 675*x^7 -
 26166*x^6 - 18340*x^5 - 1696*x^4 + 12208/3*x^3 + 2400*x^2 + 576*
x
```

3.1239 $\int (1-2x)^2(2+3x)^5(3+5x)^2\,dx$

Optimal. Leaf size=56

$$\frac{10}{243}(3x+2)^{10}-\frac{740(3x+2)^9}{2187}+\frac{503}{648}(3x+2)^8-\frac{74}{243}(3x+2)^7+\frac{49(3x+2)^6}{1458}$$

```
[Out] (49*(2 + 3*x)^6)/1458 - (74*(2 + 3*x)^7)/243 + (503*(2 + 3*x)^8)/
648 - (740*(2 + 3*x)^9)/2187 + (10*(2 + 3*x)^10)/243
```

Rubi [A] time = 0.0947406, antiderivative size = 56, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{10}{243}(3x+2)^{10}-\frac{740(3x+2)^9}{2187}+\frac{503}{648}(3x+2)^8-\frac{74}{243}(3x+2)^7+\frac{49(3x+2)^6}{1458}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^2*(2 + 3*x)^5*(3 + 5*x)^2,x]
```

```
[Out] (49*(2 + 3*x)^6)/1458 - (74*(2 + 3*x)^7)/243 + (503*(2 + 3*x)^8)/
648 - (740*(2 + 3*x)^9)/2187 + (10*(2 + 3*x)^10)/243
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$2430x^{10}+9540x^9+\frac{109863x^8}{8}+6336x^7-\frac{9331x^6}{2}-6734x^5-2030x^4+\frac{3152x^3}{3}+288x+1968\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(2+3*x)**5*(3+5*x)**2,x)
```

```
[Out] 2430*x**10 + 9540*x**9 + 109863*x**8/8 + 6336*x**7 - 9331*x**6/2
- 6734*x**5 - 2030*x**4 + 3152*x**3/3 + 288*x + 1968*Integral(x,
x)
```

Mathematica [A] time = 0.00353453, size = 55, normalized size = 0.98

$$2430x^{10}+9540x^9+\frac{109863x^8}{8}+6336x^7-\frac{9331x^6}{2}-6734x^5-2030x^4+\frac{3152x^3}{3}+984x^2+288x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^2*(2 + 3*x)^5*(3 + 5*x)^2,x]
```

```
[Out] 288*x + 984*x^2 + (3152*x^3)/3 - 2030*x^4 - 6734*x^5 - (9331*x^6)
/2 + 6336*x^7 + (109863*x^8)/8 + 9540*x^9 + 2430*x^10
```

Maple [A] time = 0.001, size = 50, normalized size = 0.9

$$2430\,x^{10}+9540\,x^9+\frac{109863\,x^8}{8}+6336\,x^7-\frac{9331\,x^6}{2}-6734\,x^5-2030\,x^4+\frac{3152\,x^3}{3}+984\,x^2+288\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(2+3*x)^5*(3+5*x)^2,x)
```

```
[Out] 2430*x^10+9540*x^9+109863/8*x^8+6336*x^7-9331/2*x^6-6734*x^5-2030
*x^4+3152/3*x^3+984*x^2+288*x
```

Maxima [A] time = 1.34176, size = 66, normalized size = 1.18

$$2430\,x^{10}+9540\,x^{9}+\frac{109863}{8}\,x^{8}+6336\,x^{7}-\frac{9331}{2}\,x^{6}-6734\,x^{5}-2030\,x^{4}+\frac{3152}{3}\,x^{3}+984\,x^{2}+288\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^5*(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 2430*x^10 + 9540*x^9 + 109863/8*x^8 + 6336*x^7 - 9331/2*x^6 - 673
4*x^5 - 2030*x^4 + 3152/3*x^3 + 984*x^2 + 288*x
```

Fricas [A] time = 0.18873, size = 1, normalized size = 0.02

$$2430x^{10}+9540x^{9}+\frac{109863}{8}x^{8}+6336x^{7}-\frac{9331}{2}x^{6}-6734x^{5}-2030x^{4}+\frac{3152}{3}x^{3}+984x^{2}+288x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^5*(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 2430*x^10 + 9540*x^9 + 109863/8*x^8 + 6336*x^7 - 9331/2*x^6 - 673
4*x^5 - 2030*x^4 + 3152/3*x^3 + 984*x^2 + 288*x
```

Sympy [A] time = 0.107269, size = 53, normalized size = 0.95

$$2430x^{10}+9540x^{9}+\frac{109863x^{8}}{8}+6336x^{7}-\frac{9331x^{6}}{2}-6734x^{5}-2030x^{4}+\frac{3152x^{3}}{3}+984x^{2}+288x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(2+3*x)**5*(3+5*x)**2,x)
```

```
[Out] 2430*x**10 + 9540*x**9 + 109863*x**8/8 + 6336*x**7 - 9331*x**6/2
- 6734*x**5 - 2030*x**4 + 3152*x**3/3 + 984*x**2 + 288*x
```

GIAC/XCAS [A] time = 0.205254, size = 66, normalized size = 1.18

$$2430\,x^{10}+9540\,x^{9}+\frac{109863}{8}\,x^{8}+6336\,x^{7}-\frac{9331}{2}\,x^{6}-6734\,x^{5}-2030\,x^{4}+\frac{3152}{3}\,x^{3}+984\,x^{2}+288\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^5*(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 2430*x^10 + 9540*x^9 + 109863/8*x^8 + 6336*x^7 - 9331/2*x^6 - 673
4*x^5 - 2030*x^4 + 3152/3*x^3 + 984*x^2 + 288*x
```

3.1240 $\int (1-2x)^2(2+3x)^4(3+5x)^2\,dx$

Optimal. Leaf size=56

$$\frac{100(3x+2)^9}{2187}-\frac{185}{486}(3x+2)^8+\frac{503}{567}(3x+2)^7-\frac{259}{729}(3x+2)^6+\frac{49(3x+2)^5}{1215}$$

```
[Out] (49*(2 + 3*x)^5)/1215 - (259*(2 + 3*x)^6)/729 + (503*(2 + 3*x)^7)
/567 - (185*(2 + 3*x)^8)/486 + (100*(2 + 3*x)^9)/2187
```

Rubi [A] time = 0.0876613, antiderivative size = 56, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$\frac{100(3x+2)^9}{2187}-\frac{185}{486}(3x+2)^8+\frac{503}{567}(3x+2)^7-\frac{259}{729}(3x+2)^6+\frac{49(3x+2)^5}{1215}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^2*(2 + 3*x)^4*(3 + 5*x)^2,x]
```

```
[Out] (49*(2 + 3*x)^5)/1215 - (259*(2 + 3*x)^6)/729 + (503*(2 + 3*x)^7)
/567 - (185*(2 + 3*x)^8)/486 + (100*(2 + 3*x)^9)/2187
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$900x^9+\frac{5805x^8}{2}+\frac{21141x^7}{7}+115x^6-\frac{9791x^5}{5}-1174x^4+\frac{424x^3}{3}+144x+768\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(2+3*x)**4*(3+5*x)**2,x)
```

```
[Out] 900*x**9 + 5805*x**8/2 + 21141*x**7/7 + 115*x**6 - 9791*x**5/5 -
1174*x**4 + 424*x**3/3 + 144*x + 768*Integral(x, x)
```

Mathematica [A] time = 0.0030456, size = 52, normalized size = 0.93

$$900x^9+\frac{5805x^8}{2}+\frac{21141x^7}{7}+115x^6-\frac{9791x^5}{5}-1174x^4+\frac{424x^3}{3}+384x^2+144x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^2*(2 + 3*x)^4*(3 + 5*x)^2,x]
```

```
[Out] 144*x + 384*x^2 + (424*x^3)/3 - 1174*x^4 - (9791*x^5)/5 + 115*x^6
 + (21141*x^7)/7 + (5805*x^8)/2 + 900*x^9
```

Maple [A] time = 0., size = 45, normalized size = 0.8

$$900\,x^9+\frac{5805\,x^8}{2}+\frac{21141\,x^7}{7}+115\,x^6-\frac{9791\,x^5}{5}-1174\,x^4+\frac{424\,x^3}{3}+384\,x^2+144\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(2+3*x)^4*(3+5*x)^2,x)
```

```
[Out] 900*x^9+5805/2*x^8+21141/7*x^7+115*x^6-9791/5*x^5-1174*x^4+424/3*
x^3+384*x^2+144*x
```

Maxima [A] time = 1.34828, size = 59, normalized size = 1.05

$$900\,x^9+\frac{5805}{2}\,x^8+\frac{21141}{7}\,x^7+115\,x^6-\frac{9791}{5}\,x^5-1174\,x^4+\frac{424}{3}\,x^3+384\,x^2+144\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^4*(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 900*x^9 + 5805/2*x^8 + 21141/7*x^7 + 115*x^6 - 9791/5*x^5 - 1174*
x^4 + 424/3*x^3 + 384*x^2 + 144*x
```

Fricas [A] time = 0.181961, size = 1, normalized size = 0.02

$$900x^9+\frac{5805}{2}x^8+\frac{21141}{7}x^7+115x^6-\frac{9791}{5}x^5-1174x^4+\frac{424}{3}x^3+384x^2+144x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^4*(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 900*x^9 + 5805/2*x^8 + 21141/7*x^7 + 115*x^6 - 9791/5*x^5 - 1174*
x^4 + 424/3*x^3 + 384*x^2 + 144*x
```

Sympy [A] time = 0.102483, size = 49, normalized size = 0.88

$$900x^9+\frac{5805x^8}{2}+\frac{21141x^7}{7}+115x^6-\frac{9791x^5}{5}-1174x^4+\frac{424x^3}{3}+384x^2+144x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(2+3*x)**4*(3+5*x)**2,x)
```

```
[Out] 900*x**9 + 5805*x**8/2 + 21141*x**7/7 + 115*x**6 - 9791*x**5/5 -
1174*x**4 + 424*x**3/3 + 384*x**2 + 144*x
```

GIAC/XCAS [A] time = 0.207567, size = 59, normalized size = 1.05

$$900\,x^9+\frac{5805}{2}\,x^8+\frac{21141}{7}\,x^7+115\,x^6-\frac{9791}{5}\,x^5-1174\,x^4+\frac{424}{3}\,x^3+384\,x^2+144\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^4*(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 900*x^9 + 5805/2*x^8 + 21141/7*x^7 + 115*x^6 - 9791/5*x^5 - 1174*
x^4 + 424/3*x^3 + 384*x^2 + 144*x
```

3.1241 $\int (1-2x)^2(2+3x)^3(3+5x)^2\,dx$

Optimal. Leaf size=56

$$\frac{25}{486}(3x+2)^8-\frac{740(3x+2)^7}{1701}+\frac{503}{486}(3x+2)^6-\frac{518(3x+2)^5}{1215}+\frac{49}{972}(3x+2)^4$$

```
[Out] (49*(2 + 3*x)^4)/972 - (518*(2 + 3*x)^5)/1215 + (503*(2 + 3*x)^6)
/486 - (740*(2 + 3*x)^7)/1701 + (25*(2 + 3*x)^8)/486
```

Rubi [A] time = 0.0865532, antiderivative size = 56, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{25}{486}(3x+2)^8-\frac{740(3x+2)^7}{1701}+\frac{503}{486}(3x+2)^6-\frac{518(3x+2)^5}{1215}+\frac{49}{972}(3x+2)^4$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^2*(2 + 3*x)^3*(3 + 5*x)^2,x]
```

```
[Out] (49*(2 + 3*x)^4)/972 - (518*(2 + 3*x)^5)/1215 + (503*(2 + 3*x)^6)
/486 - (740*(2 + 3*x)^7)/1701 + (25*(2 + 3*x)^8)/486
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{675x^8}{2}+\frac{5940x^7}{7}+\frac{1029x^6}{2}-\frac{1828x^5}{5}-\frac{2045x^4}{4}-\frac{202x^3}{3}+72x+276\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(2+3*x)**3*(3+5*x)**2,x)
```

```
[Out] 675*x**8/2 + 5940*x**7/7 + 1029*x**6/2 - 1828*x**5/5 - 2045*x**4/
4 - 202*x**3/3 + 72*x + 276*Integral(x, x)
```

Mathematica [A] time = 0.00293264, size = 51, normalized size = 0.91

$$\frac{675x^8}{2}+\frac{5940x^7}{7}+\frac{1029x^6}{2}-\frac{1828x^5}{5}-\frac{2045x^4}{4}-\frac{202x^3}{3}+138x^2+72x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^2*(2 + 3*x)^3*(3 + 5*x)^2,x]
```

```
[Out] 72*x + 138*x^2 - (202*x^3)/3 - (2045*x^4)/4 - (1828*x^5)/5 + (102
9*x^6)/2 + (5940*x^7)/7 + (675*x^8)/2
```

Maple [A] time = 0., size = 40, normalized size = 0.7

$$\frac{675\,x^8}{2}+\frac{5940\,x^7}{7}+\frac{1029\,x^6}{2}-\frac{1828\,x^5}{5}-\frac{2045\,x^4}{4}-\frac{202\,x^3}{3}+138\,x^2+72\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(2+3*x)^3*(3+5*x)^2,x)
```

```
[Out] 675/2*x^8+5940/7*x^7+1029/2*x^6-1828/5*x^5-2045/4*x^4-202/3*x^3+1
38*x^2+72*x
```

Maxima [A] time = 1.35345, size = 53, normalized size = 0.95

$$\frac{675}{2}\,x^8+\frac{5940}{7}\,x^7+\frac{1029}{2}\,x^6-\frac{1828}{5}\,x^5-\frac{2045}{4}\,x^4-\frac{202}{3}\,x^3+138\,x^2+72\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^3*(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 675/2*x^8 + 5940/7*x^7 + 1029/2*x^6 - 1828/5*x^5 - 2045/4*x^4 - 2
02/3*x^3 + 138*x^2 + 72*x
```

Fricas [A] time = 0.191284, size = 1, normalized size = 0.02

$$\frac{675}{2}x^8+\frac{5940}{7}x^7+\frac{1029}{2}x^6-\frac{1828}{5}x^5-\frac{2045}{4}x^4-\frac{202}{3}x^3+138x^2+72x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^3*(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 675/2*x^8 + 5940/7*x^7 + 1029/2*x^6 - 1828/5*x^5 - 2045/4*x^4 - 2
02/3*x^3 + 138*x^2 + 72*x
```

Sympy [A] time = 0.093048, size = 48, normalized size = 0.86

$$\frac{675x^8}{2}+\frac{5940x^7}{7}+\frac{1029x^6}{2}-\frac{1828x^5}{5}-\frac{2045x^4}{4}-\frac{202x^3}{3}+138x^2+72x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(2+3*x)**3*(3+5*x)**2,x)
```

```
[Out] 675*x**8/2 + 5940*x**7/7 + 1029*x**6/2 - 1828*x**5/5 - 2045*x**4/
4 - 202*x**3/3 + 138*x**2 + 72*x
```

GIAC/XCAS [A] time = 0.212212, size = 53, normalized size = 0.95

$$\frac{675}{2}\,x^8+\frac{5940}{7}\,x^7+\frac{1029}{2}\,x^6-\frac{1828}{5}\,x^5-\frac{2045}{4}\,x^4-\frac{202}{3}\,x^3+138\,x^2+72\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^3*(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 675/2*x^8 + 5940/7*x^7 + 1029/2*x^6 - 1828/5*x^5 - 2045/4*x^4 - 2
02/3*x^3 + 138*x^2 + 72*x
```

3.1242 $\int (1-2x)^2(2+3x)^2(3+5x)^2\,dx$

Optimal. Leaf size=56

$$-\frac{225}{224}(1-2x)^7+\frac{85}{8}(1-2x)^6-\frac{3467}{80}(1-2x)^5+\frac{1309}{16}(1-2x)^4-\frac{5929}{96}(1-2x)^3$$

```
[Out] (-5929*(1 - 2*x)^3)/96 + (1309*(1 - 2*x)^4)/16 - (3467*(1 - 2*x)^
5)/80 + (85*(1 - 2*x)^6)/8 - (225*(1 - 2*x)^7)/224
```

Rubi [A] time = 0.0781907, antiderivative size = 56, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$-\frac{225}{224}(1-2x)^7+\frac{85}{8}(1-2x)^6-\frac{3467}{80}(1-2x)^5+\frac{1309}{16}(1-2x)^4-\frac{5929}{96}(1-2x)^3$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^2*(2 + 3*x)^2*(3 + 5*x)^2,x]
```

```
[Out] (-5929*(1 - 2*x)^3)/96 + (1309*(1 - 2*x)^4)/16 - (3467*(1 - 2*x)^
5)/80 + (85*(1 - 2*x)^6)/8 - (225*(1 - 2*x)^7)/224
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{900x^7}{7}+230x^6+\frac{109x^5}{5}-\frac{341x^4}{2}-\frac{227x^3}{3}+36x+84\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(2+3*x)**2*(3+5*x)**2,x)
```

```
[Out] 900*x**7/7 + 230*x**6 + 109*x**5/5 - 341*x**4/2 - 227*x**3/3 + 36
*x + 84*Integral(x, x)
```

Mathematica [A] time = 0.00242195, size = 42, normalized size = 0.75

$$\frac{900x^7}{7}+230x^6+\frac{109x^5}{5}-\frac{341x^4}{2}-\frac{227x^3}{3}+42x^2+36x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^2*(2 + 3*x)^2*(3 + 5*x)^2,x]
```

```
[Out] 36*x + 42*x^2 - (227*x^3)/3 - (341*x^4)/2 + (109*x^5)/5 + 230*x^6
 + (900*x^7)/7
```

Maple [A] time = 0.001, size = 35, normalized size = 0.6

$$\frac{900\,x^7}{7}+230\,x^6+\frac{109\,x^5}{5}-\frac{341\,x^4}{2}-\frac{227\,x^3}{3}+42\,x^2+36\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(2+3*x)^2*(3+5*x)^2,x)
```

```
[Out] 900/7*x^7+230*x^6+109/5*x^5-341/2*x^4-227/3*x^3+42*x^2+36*x
```

Maxima [A] time = 1.33924, size = 46, normalized size = 0.82

$$\frac{900}{7}\,x^7 + 230\,x^6 + \frac{109}{5}\,x^5 - \frac{341}{2}\,x^4 - \frac{227}{3}\,x^3 + 42\,x^2 + 36\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(3*x + 2)^2*(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 900/7*x^7 + 230*x^6 + 109/5*x^5 - 341/2*x^4 - 227/3*x^3 + 42*x^2
+ 36*x
```

Fricas [A] time = 0.190918, size = 1, normalized size = 0.02

$$\frac{900}{7}x^7 + 230x^6 + \frac{109}{5}x^5 - \frac{341}{2}x^4 - \frac{227}{3}x^3 + 42x^2 + 36x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(3*x + 2)^2*(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 900/7*x^7 + 230*x^6 + 109/5*x^5 - 341/2*x^4 - 227/3*x^3 + 42*x^2
+ 36*x
```

Sympy [A] time = 0.083823, size = 39, normalized size = 0.7

$$\frac{900x^7}{7} + 230x^6 + \frac{109x^5}{5} - \frac{341x^4}{2} - \frac{227x^3}{3} + 42x^2 + 36x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**2*(2+3*x)**2*(3+5*x)**2,x)
```

```
[Out] 900*x**7/7 + 230*x**6 + 109*x**5/5 - 341*x**4/2 - 227*x**3/3 + 42
*x**2 + 36*x
```

GIAC/XCAS [A] time = 0.205965, size = 46, normalized size = 0.82

$$\frac{900}{7}\,x^7 + 230\,x^6 + \frac{109}{5}\,x^5 - \frac{341}{2}\,x^4 - \frac{227}{3}\,x^3 + 42\,x^2 + 36\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(3*x + 2)^2*(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 900/7*x^7 + 230*x^6 + 109/5*x^5 - 341/2*x^4 - 227/3*x^3 + 42*x^2
+ 36*x
```

3.1243 $\int (1-2x)^2(2+3x)(3+5x)^2\,dx$

Optimal. Leaf size=45

$$\frac{25}{32}(1-2x)^6-\frac{101}{16}(1-2x)^5+\frac{1133}{64}(1-2x)^4-\frac{847}{48}(1-2x)^3$$

```
[Out] (-847*(1 - 2*x)^3)/48 + (1133*(1 - 2*x)^4)/64 - (101*(1 - 2*x)^5)
/16 + (25*(1 - 2*x)^6)/32
```

Rubi [A] time = 0.0599488, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{25}{32}(1-2x)^6-\frac{101}{16}(1-2x)^5+\frac{1133}{64}(1-2x)^4-\frac{847}{48}(1-2x)^3$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^2*(2 + 3*x)*(3 + 5*x)^2,x]
```

```
[Out] (-847*(1 - 2*x)^3)/48 + (1133*(1 - 2*x)^4)/64 - (101*(1 - 2*x)^5)
/16 + (25*(1 - 2*x)^6)/32
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$50x^6+52x^5-\frac{137x^4}{4}-\frac{136x^3}{3}+18x+15\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(2+3*x)*(3+5*x)**2,x)
```

```
[Out] 50*x**6 + 52*x**5 - 137*x**4/4 - 136*x**3/3 + 18*x + 15*Integral(
x, x)
```

Mathematica [A] time = 0.00140921, size = 35, normalized size = 0.78

$$50x^6+52x^5-\frac{137x^4}{4}-\frac{136x^3}{3}+\frac{15x^2}{2}+18x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^2*(2 + 3*x)*(3 + 5*x)^2,x]
```

```
[Out] 18*x + (15*x^2)/2 - (136*x^3)/3 - (137*x^4)/4 + 52*x^5 + 50*x^6
```

Maple [A] time = 0.002, size = 30, normalized size = 0.7

$$50\,x^6+52\,x^5-\frac{137\,x^4}{4}-\frac{136\,x^3}{3}+\frac{15\,x^2}{2}+18\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(2+3*x)*(3+5*x)^2,x)
```

```
[Out] 50*x^6+52*x^5-137/4*x^4-136/3*x^3+15/2*x^2+18*x
```

Maxima [A] time = 1.34131, size = 39, normalized size = 0.87

$$50\,x^{6}+52\,x^{5}-\frac{137}{4}\,x^{4}-\frac{136}{3}\,x^{3}+\frac{15}{2}\,x^{2}+18\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)*(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 50*x^6 + 52*x^5 - 137/4*x^4 - 136/3*x^3 + 15/2*x^2 + 18*x
```

Fricas [A] time = 0.18583, size = 1, normalized size = 0.02

$$50x^{6}+52x^{5}-\frac{137}{4}x^{4}-\frac{136}{3}x^{3}+\frac{15}{2}x^{2}+18x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)*(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 50*x^6 + 52*x^5 - 137/4*x^4 - 136/3*x^3 + 15/2*x^2 + 18*x
```

Sympy [A] time = 0.079979, size = 32, normalized size = 0.71

$$50x^{6}+52x^{5}-\frac{137x^{4}}{4}-\frac{136x^{3}}{3}+\frac{15x^{2}}{2}+18x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(2+3*x)*(3+5*x)**2,x)
```

```
[Out] 50*x**6 + 52*x**5 - 137*x**4/4 - 136*x**3/3 + 15*x**2/2 + 18*x
```

GIAC/XCAS [A] time = 0.211987, size = 39, normalized size = 0.87

$$50\,x^{6}+52\,x^{5}-\frac{137}{4}\,x^{4}-\frac{136}{3}\,x^{3}+\frac{15}{2}\,x^{2}+18\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)*(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 50*x^6 + 52*x^5 - 137/4*x^4 - 136/3*x^3 + 15/2*x^2 + 18*x
```

3.1244 $\int (1-2x)^2(3+5x)^2\,dx$

Optimal. Leaf size=34

$$-\frac{5}{8}(1-2x)^5+\frac{55}{16}(1-2x)^4-\frac{121}{24}(1-2x)^3$$

```
[Out] (-121*(1 - 2*x)^3)/24 + (55*(1 - 2*x)^4)/16 - (5*(1 - 2*x)^5)/8
```

Rubi [A] time = 0.0331755, antiderivative size = 34, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.067

$$-\frac{5}{8}(1-2x)^5+\frac{55}{16}(1-2x)^4-\frac{121}{24}(1-2x)^3$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^2*(3 + 5*x)^2,x]
```

```
[Out] (-121*(1 - 2*x)^3)/24 + (55*(1 - 2*x)^4)/16 - (5*(1 - 2*x)^5)/8
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$20x^5+5x^4-\frac{59x^3}{3}+9x-6\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(3+5*x)**2,x)
```

```
[Out] 20*x**5 + 5*x**4 - 59*x**3/3 + 9*x - 6*Integral(x, x)
```

Mathematica [A] time = 0.00114522, size = 26, normalized size = 0.76

$$20x^5+5x^4-\frac{59x^3}{3}-3x^2+9x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^2*(3 + 5*x)^2,x]
```

```
[Out] 9*x - 3*x^2 - (59*x^3)/3 + 5*x^4 + 20*x^5
```

Maple [A] time = 0.002, size = 25, normalized size = 0.7

$$20\,x^5+5\,x^4-\frac{59\,x^3}{3}-3\,x^2+9\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(3+5*x)^2,x)
```

```
[Out] 20*x^5+5*x^4-59/3*x^3-3*x^2+9*x
```

Maxima [A] time = 1.34856, size = 32, normalized size = 0.94

$$20\,x^{5} + 5\,x^{4} - \frac{59}{3}\,x^{3} - 3\,x^{2} + 9\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 20*x^5 + 5*x^4 - 59/3*x^3 - 3*x^2 + 9*x
```

Fricas [A] time = 0.18651, size = 1, normalized size = 0.03

$$20x^{5} + 5x^{4} - \frac{59}{3}x^{3} - 3x^{2} + 9x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 20*x^5 + 5*x^4 - 59/3*x^3 - 3*x^2 + 9*x
```

Sympy [A] time = 0.074949, size = 24, normalized size = 0.71

$$20x^{5} + 5x^{4} - \frac{59x^{3}}{3} - 3x^{2} + 9x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(3+5*x)**2,x)
```

```
[Out] 20*x**5 + 5*x**4 - 59*x**3/3 - 3*x**2 + 9*x
```

GIAC/XCAS [A] time = 0.211842, size = 32, normalized size = 0.94

$$20\,x^{5} + 5\,x^{4} - \frac{59}{3}\,x^{3} - 3\,x^{2} + 9\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 20*x^5 + 5*x^4 - 59/3*x^3 - 3*x^2 + 9*x
```

3.1245 $\int \frac{(1-2x)^2(3+5x)^2}{2+3x} dx$

Optimal. Leaf size=37

$$\frac{25x^4}{3} - \frac{140x^3}{27} - \frac{251x^2}{54} + \frac{340x}{81} + \frac{49}{243}\log(3x+2)$$

```
[Out] (340*x)/81 - (251*x^2)/54 - (140*x^3)/27 + (25*x^4)/3 + (49*Log[2
 + 3*x])/243
```

Rubi [A] time = 0.0431187, antiderivative size = 37, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$\frac{25x^4}{3} - \frac{140x^3}{27} - \frac{251x^2}{54} + \frac{340x}{81} + \frac{49}{243}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)^2*(3 + 5*x)^2)/(2 + 3*x),x]
```

```
[Out] (340*x)/81 - (251*x^2)/54 - (140*x^3)/27 + (25*x^4)/3 + (49*Log[2
 + 3*x])/243
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{25x^4}{3} - \frac{140x^3}{27} + \frac{49\log(3x+2)}{243} + \int \frac{340}{81} dx - \frac{251\int x\,dx}{27}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**2*(3+5*x)**2/(2+3*x),x)
```

```
[Out] 25*x**4/3 - 140*x**3/27 + 49*log(3*x + 2)/243 + Integral(340/81,
x) - 251*Integral(x, x)/27
```

Mathematica [A] time = 0.0147106, size = 32, normalized size = 0.86

$$\frac{12150x^4 - 7560x^3 - 6777x^2 + 6120x + 294\log(3x+2) + 2452}{1458}$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)^2*(3 + 5*x)^2)/(2 + 3*x),x]
```

```
[Out] (2452 + 6120*x - 6777*x^2 - 7560*x^3 + 12150*x^4 + 294*Log[2 + 3*
x])/1458
```

Maple [A] time = 0.003, size = 28, normalized size = 0.8

$$\frac{340\,x}{81} - \frac{251\,x^2}{54} - \frac{140\,x^3}{27} + \frac{25\,x^4}{3} + \frac{49\,\ln(2+3\,x)}{243}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(3+5*x)^2/(2+3*x),x)
```

```
[Out] 340/81*x-251/54*x^2-140/27*x^3+25/3*x^4+49/243*ln(2+3*x)
```

Maxima [A] time = 1.34611, size = 36, normalized size = 0.97

$$\frac{25}{3}\,x^4 - \frac{140}{27}\,x^3 - \frac{251}{54}\,x^2 + \frac{340}{81}\,x + \frac{49}{243}\,\log\left(3\,x + 2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(2*x - 1)^2/(3*x + 2),x, algorithm="maxima")
```

```
[Out] 25/3*x^4 - 140/27*x^3 - 251/54*x^2 + 340/81*x + 49/243*log(3*x +
2)
```

Fricas [A] time = 0.208676, size = 36, normalized size = 0.97

$$\frac{25}{3}\,x^4 - \frac{140}{27}\,x^3 - \frac{251}{54}\,x^2 + \frac{340}{81}\,x + \frac{49}{243}\,\log\left(3\,x + 2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(2*x - 1)^2/(3*x + 2),x, algorithm="fricas")
```

```
[Out] 25/3*x^4 - 140/27*x^3 - 251/54*x^2 + 340/81*x + 49/243*log(3*x +
2)
```

Sympy [A] time = 0.163289, size = 34, normalized size = 0.92

$$\frac{25x^4}{3} - \frac{140x^3}{27} - \frac{251x^2}{54} + \frac{340x}{81} + \frac{49\log\left(3x + 2\right)}{243}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(3+5*x)**2/(2+3*x),x)
```

```
[Out] 25*x**4/3 - 140*x**3/27 - 251*x**2/54 + 340*x/81 + 49*log(3*x + 2
)/243
```

GIAC/XCAS [A] time = 0.209413, size = 38, normalized size = 1.03

$$\frac{25}{3}\,x^4 - \frac{140}{27}\,x^3 - \frac{251}{54}\,x^2 + \frac{340}{81}\,x + \frac{49}{243}\,\ln\left(|3\,x + 2|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(2*x - 1)^2/(3*x + 2),x, algorithm="giac")
```

```
[Out] 25/3*x^4 - 140/27*x^3 - 251/54*x^2 + 340/81*x + 49/243*ln(abs(3*x
 + 2))
```

3.1246 $\int \frac{(1-2x)^2(3+5x)^2}{(2+3x)^2}\,dx$

Optimal. Leaf size=41

$$\frac{100x^3}{27}-\frac{170x^2}{27}+\frac{143x}{27}-\frac{49}{243(3x+2)}-\frac{518}{243}\log(3x+2)$$

```
[Out] (143*x)/27 - (170*x^2)/27 + (100*x^3)/27 - 49/(243*(2 + 3*x)) - (
518*Log[2 + 3*x])/243
```

Rubi [A] time = 0.0546099, antiderivative size = 41, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{100x^3}{27}-\frac{170x^2}{27}+\frac{143x}{27}-\frac{49}{243(3x+2)}-\frac{518}{243}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^2*(3 + 5*x)^2)/(2 + 3*x)^2,x]
```

```
[Out] (143*x)/27 - (170*x^2)/27 + (100*x^3)/27 - 49/(243*(2 + 3*x)) - (
518*Log[2 + 3*x])/243
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{100x^3}{27}-\frac{518\log(3x+2)}{243}+\int\frac{143}{27}\,dx-\frac{340\int x\,dx}{27}-\frac{49}{243\,(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(3+5*x)**2/(2+3*x)**2,x)
```

```
[Out] 100*x**3/27 - 518*log(3*x + 2)/243 + Integral(143/27, x) - 340*In
tegral(x, x)/27 - 49/(243*(3*x + 2))
```

Mathematica [A] time = 0.0215717, size = 44, normalized size = 1.07

$$\frac{8100x^4-8370x^3+2403x^2+23964x-1554(3x+2)\log(3x+2)+10681}{729(3x+2)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^2*(3 + 5*x)^2)/(2 + 3*x)^2,x]
```

```
[Out] (10681 + 23964*x + 2403*x^2 - 8370*x^3 + 8100*x^4 - 1554*(2 + 3*x
)*Log[2 + 3*x])/(729*(2 + 3*x))
```

Maple [A] time = 0.009, size = 32, normalized size = 0.8

$$\frac{143\,x}{27}-\frac{170\,x^2}{27}+\frac{100\,x^3}{27}-\frac{49}{486+729\,x}-\frac{518\,\ln(2+3\,x)}{243}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(3+5*x)^2/(2+3*x)^2,x)
```

```
[Out] 143/27*x-170/27*x^2+100/27*x^3-49/243/(2+3*x)-518/243*ln(2+3*x)
```

Maxima [A] time = 1.33766, size = 42, normalized size = 1.02

$$\frac{100}{27}\,x^3-\frac{170}{27}\,x^2+\frac{143}{27}\,x-\frac{49}{243\,(3\,x+2)}-\frac{518}{243}\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(2*x - 1)^2/(3*x + 2)^2,x, algorithm="maxima")
```

```
[Out] 100/27*x^3 - 170/27*x^2 + 143/27*x - 49/243/(3*x + 2) - 518/243*l
og(3*x + 2)
```

Fricas [A] time = 0.208307, size = 57, normalized size = 1.39

$$\frac{2700\,x^4-2790\,x^3+801\,x^2-518\,(3\,x+2)\log\left(3\,x+2\right)+2574\,x-49}{243\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(2*x - 1)^2/(3*x + 2)^2,x, algorithm="fricas")
```

```
[Out] 1/243*(2700*x^4 - 2790*x^3 + 801*x^2 - 518*(3*x + 2)*log(3*x + 2)
 + 2574*x - 49)/(3*x + 2)
```

Sympy [A] time = 0.224097, size = 34, normalized size = 0.83

$$\frac{100x^3}{27}-\frac{170x^2}{27}+\frac{143x}{27}-\frac{518\log\left(3x+2\right)}{243}-\frac{49}{729x+486}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(3+5*x)**2/(2+3*x)**2,x)
```

```
[Out] 100*x**3/27 - 170*x**2/27 + 143*x/27 - 518*log(3*x + 2)/243 - 49/
(729*x + 486)
```

GIAC/XCAS [A] time = 0.208574, size = 77, normalized size = 1.88

$$-\frac{1}{729}\,(3\,x+2)^3\left(\frac{1110}{3\,x+2}-\frac{4527}{(3\,x+2)^2}-100\right)-\frac{49}{243\,(3\,x+2)}+\frac{518}{243}\,\ln\left(\frac{|3\,x+2|}{3\,(3\,x+2)^2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(2*x - 1)^2/(3*x + 2)^2,x, algorithm="giac")
```

```
[Out] -1/729*(3*x + 2)^3*(1110/(3*x + 2) - 4527/(3*x + 2)^2 - 100) - 49
/243/(3*x + 2) + 518/243*ln(1/3*abs(3*x + 2)/(3*x + 2)^2)
```

3.1247 $\int \frac{(1-2x)^2(3+5x)^2}{(2+3x)^3} dx$

Optimal. Leaf size=45

$$\frac{50x^2}{27} - \frac{20x}{3} + \frac{518}{243(3x+2)} - \frac{49}{486(3x+2)^2} + \frac{503}{81}\log(3x+2)$$

```
[Out] (-20*x)/3 + (50*x^2)/27 - 49/(486*(2 + 3*x)^2) + 518/(243*(2 + 3*
x)) + (503*Log[2 + 3*x])/81
```

Rubi [A] time = 0.0592964, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$\frac{50x^2}{27} - \frac{20x}{3} + \frac{518}{243(3x+2)} - \frac{49}{486(3x+2)^2} + \frac{503}{81}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)^2*(3 + 5*x)^2)/(2 + 3*x)^3,x]
```

```
[Out] (-20*x)/3 + (50*x^2)/27 - 49/(486*(2 + 3*x)^2) + 518/(243*(2 + 3*
x)) + (503*Log[2 + 3*x])/81
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{503\log(3x+2)}{81} + \int \left(-\frac{20}{3}\right) dx + \frac{100\int x\,dx}{27} + \frac{518}{243(3x+2)} - \frac{49}{486(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**2*(3+5*x)**2/(2+3*x)**3,x)
```

```
[Out] 503*log(3*x + 2)/81 + Integral(-20/3, x) + 100*Integral(x, x)/27
+ 518/(243*(3*x + 2)) - 49/(486*(3*x + 2)**2)
```

Mathematica [A] time = 0.0288199, size = 42, normalized size = 0.93

$$\frac{503}{81}\log(3x+2) - \frac{-900x^4 + 2040x^3 + 6480x^2 + 4508x + 913}{54(3x+2)^2}$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)^2*(3 + 5*x)^2)/(2 + 3*x)^3,x]
```

```
[Out] -(913 + 4508*x + 6480*x^2 + 2040*x^3 - 900*x^4)/(54*(2 + 3*x)^2)
+ (503*Log[2 + 3*x])/81
```

Maple [A] time = 0.01, size = 36, normalized size = 0.8

$$-\frac{20x}{3} + \frac{50x^2}{27} - \frac{49}{486(2+3x)^2} + \frac{518}{486+729x} + \frac{503\ln(2+3x)}{81}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(3+5*x)^2/(2+3*x)^3,x)
```

```
[Out] -20/3*x+50/27*x^2-49/486/(2+3*x)^2+518/243/(2+3*x)+503/81*ln(2+3*
x)
```

Maxima [A] time = 1.34842, size = 49, normalized size = 1.09

$$\frac{50}{27}\,x^2-\frac{20}{3}\,x+\frac{7\,(444\,x+289)}{486\,(9\,x^2+12\,x+4)}+\frac{503}{81}\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(2*x - 1)^2/(3*x + 2)^3,x, algorithm="maxima")
```

```
[Out] 50/27*x^2 - 20/3*x + 7/486*(444*x + 289)/(9*x^2 + 12*x + 4) + 503
/81*log(3*x + 2)
```

Fricas [A] time = 0.210664, size = 70, normalized size = 1.56

$$\frac{8100\,x^4-18360\,x^3-35280\,x^2+3018\,\left(9\,x^2+12\,x+4\right)\,\log\left(3\,x+2\right)-9852\,x+2023}{486\,(9\,x^2+12\,x+4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(2*x - 1)^2/(3*x + 2)^3,x, algorithm="fricas")
```

```
[Out] 1/486*(8100*x^4 - 18360*x^3 - 35280*x^2 + 3018*(9*x^2 + 12*x + 4)
*log(3*x + 2) - 9852*x + 2023)/(9*x^2 + 12*x + 4)
```

Sympy [A] time = 0.269141, size = 36, normalized size = 0.8

$$\frac{50x^2}{27}-\frac{20x}{3}+\frac{3108x+2023}{4374x^2+5832x+1944}+\frac{503\log\left(3x+2\right)}{81}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(3+5*x)**2/(2+3*x)**3,x)
```

```
[Out] 50*x**2/27 - 20*x/3 + (3108*x + 2023)/(4374*x**2 + 5832*x + 1944)
 + 503*log(3*x + 2)/81
```

GIAC/XCAS [A] time = 0.219235, size = 43, normalized size = 0.96

$$\frac{50}{27}\,x^2-\frac{20}{3}\,x+\frac{7\,(444\,x+289)}{486\,(3\,x+2)^2}+\frac{503}{81}\,\ln\left(|3\,x+2|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(2*x - 1)^2/(3*x + 2)^3,x, algorithm="giac")
```

```
[Out] 50/27*x^2 - 20/3*x + 7/486*(444*x + 289)/(3*x + 2)^2 + 503/81*ln(
abs(3*x + 2))
```

3.1248 $\int \frac{(1-2x)^2(3+5x)^2}{(2+3x)^4} \, dx$

Optimal. Leaf size=49

$$\frac{100x}{81} - \frac{503}{81(3x+2)} + \frac{259}{243(3x+2)^2} - \frac{49}{729(3x+2)^3} - \frac{740}{243}\log(3x+2)$$

```
[Out] (100*x)/81 - 49/(729*(2 + 3*x)^3) + 259/(243*(2 + 3*x)^2) - 503/(
81*(2 + 3*x)) - (740*Log[2 + 3*x])/243
```

Rubi [A] time = 0.0586023, antiderivative size = 49, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{100x}{81} - \frac{503}{81(3x+2)} + \frac{259}{243(3x+2)^2} - \frac{49}{729(3x+2)^3} - \frac{740}{243}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^2*(3 + 5*x)^2)/(2 + 3*x)^4,x]
```

```
[Out] (100*x)/81 - 49/(729*(2 + 3*x)^3) + 259/(243*(2 + 3*x)^2) - 503/(
81*(2 + 3*x)) - (740*Log[2 + 3*x])/243
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{740\log(3x+2)}{243} + \int \frac{100}{81}\,dx - \frac{503}{81(3x+2)} + \frac{259}{243(3x+2)^2} - \frac{49}{729(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(3+5*x)**2/(2+3*x)**4,x)
```

```
[Out] -740*log(3*x + 2)/243 + Integral(100/81, x) - 503/(81*(3*x + 2))
+ 259/(243*(3*x + 2)**2) - 49/(729*(3*x + 2)**3)
```

Mathematica [A] time = 0.0261225, size = 46, normalized size = 0.94

$$\frac{24300x^4 + 64800x^3 + 24057x^2 - 23193x - 2220(3x+2)^3\log(3x+2) - 11803}{729(3x+2)^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^2*(3 + 5*x)^2)/(2 + 3*x)^4,x]
```

```
[Out] (-11803 - 23193*x + 24057*x^2 + 64800*x^3 + 24300*x^4 - 2220*(2 +
 3*x)^3*Log[2 + 3*x])/(729*(2 + 3*x)^3)
```

Maple [A] time = 0.01, size = 40, normalized size = 0.8

$$\frac{100\,x}{81} - \frac{49}{729\,(2+3\,x)^3} + \frac{259}{243\,(2+3\,x)^2} - \frac{503}{162+243\,x} - \frac{740\,\ln(2+3\,x)}{243}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(3+5*x)^2/(2+3*x)^4,x)
```

```
[Out] 100/81*x-49/729/(2+3*x)^3+259/243/(2+3*x)^2-503/81/(2+3*x)-740/24
3*ln(2+3*x)
```

Maxima [A] time = 1.34361, size = 55, normalized size = 1.12

$$\frac{100}{81}\,x - \frac{40743\,x^2 + 51993\,x + 16603}{729\,(27\,x^3 + 54\,x^2 + 36\,x + 8)} - \frac{740}{243}\,\log\left(3\,x + 2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(2*x - 1)^2/(3*x + 2)^4,x, algorithm="maxima")
```

```
[Out] 100/81*x - 1/729*(40743*x^2 + 51993*x + 16603)/(27*x^3 + 54*x^2 +
 36*x + 8) - 740/243*log(3*x + 2)
```

Fricas [A] time = 0.211844, size = 84, normalized size = 1.71

$$\frac{24300\,x^4 + 48600\,x^3 - 8343\,x^2 - 2220\,\left(27\,x^3 + 54\,x^2 + 36\,x + 8\right)\,\log\left(3\,x + 2\right) - 44793\,x - 16603}{729\,(27\,x^3 + 54\,x^2 + 36\,x + 8)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(2*x - 1)^2/(3*x + 2)^4,x, algorithm="fricas")
```

```
[Out] 1/729*(24300*x^4 + 48600*x^3 - 8343*x^2 - 2220*(27*x^3 + 54*x^2 +
 36*x + 8)*log(3*x + 2) - 44793*x - 16603)/(27*x^3 + 54*x^2 + 36*
x + 8)
```

Sympy [A] time = 0.331268, size = 39, normalized size = 0.8

$$\frac{100x}{81} - \frac{40743x^2 + 51993x + 16603}{19683x^3 + 39366x^2 + 26244x + 5832} - \frac{740\log\left(3x + 2\right)}{243}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(3+5*x)**2/(2+3*x)**4,x)
```

```
[Out] 100*x/81 - (40743*x**2 + 51993*x + 16603)/(19683*x**3 + 39366*x**
2 + 26244*x + 5832) - 740*log(3*x + 2)/243
```

GIAC/XCAS [A] time = 0.219611, size = 43, normalized size = 0.88

$$\frac{100}{81}\,x - \frac{40743\,x^2 + 51993\,x + 16603}{729\,(3\,x + 2)^3} - \frac{740}{243}\,\ln\left(|3\,x + 2|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(2*x - 1)^2/(3*x + 2)^4,x, algorithm="giac")
```

```
[Out] 100/81*x - 1/729*(40743*x^2 + 51993*x + 16603)/(3*x + 2)^3 - 740/
243*ln(abs(3*x + 2))
```

3.1249 $\int \frac{(1-2x)^2(3+5x)^2}{(2+3x)^5}\,dx$

Optimal. Leaf size=55

$$\frac{740}{243(3x+2)}-\frac{503}{162(3x+2)^2}+\frac{518}{729(3x+2)^3}-\frac{49}{972(3x+2)^4}+\frac{100}{243}\log(3x+2)$$

```
[Out] -49/(972*(2 + 3*x)^4) + 518/(729*(2 + 3*x)^3) - 503/(162*(2 + 3*x
)^2) + 740/(243*(2 + 3*x)) + (100*Log[2 + 3*x])/243
```

Rubi [A] time = 0.0556127, antiderivative size = 55, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{740}{243(3x+2)}-\frac{503}{162(3x+2)^2}+\frac{518}{729(3x+2)^3}-\frac{49}{972(3x+2)^4}+\frac{100}{243}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^2*(3 + 5*x)^2)/(2 + 3*x)^5,x]
```

```
[Out] -49/(972*(2 + 3*x)^4) + 518/(729*(2 + 3*x)^3) - 503/(162*(2 + 3*x
)^2) + 740/(243*(2 + 3*x)) + (100*Log[2 + 3*x])/243
```

Rubi in Sympy [A] time = 9.27585, size = 46, normalized size = 0.84

$$\frac{100\log(3x+2)}{243}+\frac{740}{243\,(3x+2)}-\frac{503}{162\,(3x+2)^2}+\frac{518}{729\,(3x+2)^3}-\frac{49}{972\,(3x+2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(3+5*x)**2/(2+3*x)**5,x)
```

```
[Out] 100*log(3*x + 2)/243 + 740/(243*(3*x + 2)) - 503/(162*(3*x + 2)**
2) + 518/(729*(3*x + 2)**3) - 49/(972*(3*x + 2)**4)
```

Mathematica [A] time = 0.0224023, size = 41, normalized size = 0.75

$$\frac{239760x^3+398034x^2+217248x+1200(3x+2)^4\log(3x+2)+38821}{2916(3x+2)^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^2*(3 + 5*x)^2)/(2 + 3*x)^5,x]
```

```
[Out] (38821 + 217248*x + 398034*x^2 + 239760*x^3 + 1200*(2 + 3*x)^4*Lo
g[2 + 3*x])/(2916*(2 + 3*x)^4)
```

Maple [A] time = 0.009, size = 46, normalized size = 0.8

$$-\frac{49}{972\,(2+3\,x)^4}+\frac{518}{729\,(2+3\,x)^3}-\frac{503}{162\,(2+3\,x)^2}+\frac{740}{486+729\,x}+\frac{100\,\ln(2+3\,x)}{243}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(3+5*x)^2/(2+3*x)^5,x)
```

```
[Out] -49/972/(2+3*x)^4+518/729/(2+3*x)^3-503/162/(2+3*x)^2+740/243/(2+
3*x)+100/243*ln(2+3*x)
```

Maxima [A] time = 1.33718, size = 65, normalized size = 1.18

$$\frac{239760\,x^3+398034\,x^2+217248\,x+38821}{2916\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}+\frac{100}{243}\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(2*x - 1)^2/(3*x + 2)^5,x, algorithm="maxima")
```

```
[Out] 1/2916*(239760*x^3 + 398034*x^2 + 217248*x + 38821)/(81*x^4 + 216
*x^3 + 216*x^2 + 96*x + 16) + 100/243*log(3*x + 2)
```

Fricas [A] time = 0.218813, size = 90, normalized size = 1.64

$$\frac{239760\,x^3+398034\,x^2+1200\left(81\,x^4+216\,x^3+216\,x^2+96\,x+16\right)\log\left(3\,x+2\right)+217248\,x+38821}{2916\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(2*x - 1)^2/(3*x + 2)^5,x, algorithm="fricas")
```

```
[Out] 1/2916*(239760*x^3 + 398034*x^2 + 1200*(81*x^4 + 216*x^3 + 216*x^
2 + 96*x + 16)*log(3*x + 2) + 217248*x + 38821)/(81*x^4 + 216*x^3
 + 216*x^2 + 96*x + 16)
```

Sympy [A] time = 0.382947, size = 44, normalized size = 0.8

$$\frac{239760x^3+398034x^2+217248x+38821}{236196x^4+629856x^3+629856x^2+279936x+46656}+\frac{100\log\left(3x+2\right)}{243}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(3+5*x)**2/(2+3*x)**5,x)
```

```
[Out] (239760*x**3 + 398034*x**2 + 217248*x + 38821)/(236196*x**4 + 629
856*x**3 + 629856*x**2 + 279936*x + 46656) + 100*log(3*x + 2)/243
```

GIAC/XCAS [A] time = 0.209017, size = 74, normalized size = 1.35

$$\frac{740}{243\,(3\,x+2)}-\frac{503}{162\,(3\,x+2)^2}+\frac{518}{729\,(3\,x+2)^3}-\frac{49}{972\,(3\,x+2)^4}-\frac{100}{243}\ln\left(\frac{|3\,x+2|}{3\,(3\,x+2)^2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(2*x - 1)^2/(3*x + 2)^5,x, algorithm="giac")
```

```
[Out] 740/243/(3*x + 2) - 503/162/(3*x + 2)^2 + 518/729/(3*x + 2)^3 - 4
9/972/(3*x + 2)^4 - 100/243*ln(1/3*abs(3*x + 2)/(3*x + 2)^2)
```

3.1250 $\int \frac{(1-2x)^2(3+5x)^2}{(2+3x)^6}\,dx$

Optimal. Leaf size=56

$$-\frac{100}{243(3x+2)}+\frac{370}{243(3x+2)^2}-\frac{503}{243(3x+2)^3}+\frac{259}{486(3x+2)^4}-\frac{49}{1215(3x+2)^5}$$

```
[Out] -49/(1215*(2 + 3*x)^5) + 259/(486*(2 + 3*x)^4) - 503/(243*(2 + 3*
x)^3) + 370/(243*(2 + 3*x)^2) - 100/(243*(2 + 3*x))
```

Rubi [A] time = 0.0608076, antiderivative size = 56, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$-\frac{100}{243(3x+2)}+\frac{370}{243(3x+2)^2}-\frac{503}{243(3x+2)^3}+\frac{259}{486(3x+2)^4}-\frac{49}{1215(3x+2)^5}$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)^2*(3 + 5*x)^2)/(2 + 3*x)^6,x]
```

```
[Out] -49/(1215*(2 + 3*x)^5) + 259/(486*(2 + 3*x)^4) - 503/(243*(2 + 3*
x)^3) + 370/(243*(2 + 3*x)^2) - 100/(243*(2 + 3*x))
```

Rubi in Sympy [A] time = 9.97743, size = 46, normalized size = 0.82

$$-\frac{100}{243\,(3x+2)}+\frac{370}{243\,(3x+2)^2}-\frac{503}{243\,(3x+2)^3}+\frac{259}{486\,(3x+2)^4}-\frac{49}{1215\,(3x+2)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**2*(3+5*x)**2/(2+3*x)**6,x)
```

```
[Out] -100/(243*(3*x + 2)) + 370/(243*(3*x + 2)**2) - 503/(243*(3*x + 2
)**3) + 259/(486*(3*x + 2)**4) - 49/(1215*(3*x + 2)**5)
```

Mathematica [A] time = 0.0228266, size = 31, normalized size = 0.55

$$-\frac{81000x^4+116100x^3+61470x^2+19275x+4028}{2430(3x+2)^5}$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)^2*(3 + 5*x)^2)/(2 + 3*x)^6,x]
```

```
[Out] -(4028 + 19275*x + 61470*x^2 + 116100*x^3 + 81000*x^4)/(2430*(2 +
 3*x)^5)
```

Maple [A] time = 0.007, size = 47, normalized size = 0.8

$$-\frac{49}{1215\,(2+3\,x)^5}+\frac{259}{486\,(2+3\,x)^4}-\frac{503}{243\,(2+3\,x)^3}+\frac{370}{243\,(2+3\,x)^2}-\frac{100}{486+729\,x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(3+5*x)^2/(2+3*x)^6,x)
```

```
[Out] -49/1215/(2+3*x)^5+259/486/(2+3*x)^4-503/243/(2+3*x)^3+370/243/(2
+3*x)^2-100/243/(2+3*x)
```

Maxima [A] time = 1.34946, size = 66, normalized size = 1.18

$$-\frac{81000\,x^4 + 116100\,x^3 + 61470\,x^2 + 19275\,x + 4028}{2430\,(243\,x^5 + 810\,x^4 + 1080\,x^3 + 720\,x^2 + 240\,x + 32)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(2*x - 1)^2/(3*x + 2)^6,x, algorithm="maxima")
```

```
[Out] -1/2430*(81000*x^4 + 116100*x^3 + 61470*x^2 + 19275*x + 4028)/(24
3*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)
```

Fricas [A] time = 0.202367, size = 66, normalized size = 1.18

$$-\frac{81000\,x^4 + 116100\,x^3 + 61470\,x^2 + 19275\,x + 4028}{2430\,(243\,x^5 + 810\,x^4 + 1080\,x^3 + 720\,x^2 + 240\,x + 32)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(2*x - 1)^2/(3*x + 2)^6,x, algorithm="fricas")
```

```
[Out] -1/2430*(81000*x^4 + 116100*x^3 + 61470*x^2 + 19275*x + 4028)/(24
3*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)
```

Sympy [A] time = 0.394616, size = 46, normalized size = 0.82

$$-\frac{81000x^4 + 116100x^3 + 61470x^2 + 19275x + 4028}{590490x^5 + 1968300x^4 + 2624400x^3 + 1749600x^2 + 583200x + 77760}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(3+5*x)**2/(2+3*x)**6,x)
```

```
[Out] -(81000*x**4 + 116100*x**3 + 61470*x**2 + 19275*x + 4028)/(590490
*x**5 + 1968300*x**4 + 2624400*x**3 + 1749600*x**2 + 583200*x + 7
7760)
```

GIAC/XCAS [A] time = 0.206555, size = 39, normalized size = 0.7

$$-\frac{81000\,x^4 + 116100\,x^3 + 61470\,x^2 + 19275\,x + 4028}{2430\,(3\,x + 2)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(2*x - 1)^2/(3*x + 2)^6,x, algorithm="giac")
```

```
[Out] -1/2430*(81000*x^4 + 116100*x^3 + 61470*x^2 + 19275*x + 4028)/(3*
x + 2)^5
```

3.1251 $\int \frac{(1-2x)^2(3+5x)^2}{(2+3x)^7}\,dx$

Optimal. Leaf size=56

$$-\frac{50}{243(3x+2)^2}+\frac{740}{729(3x+2)^3}-\frac{503}{324(3x+2)^4}+\frac{518}{1215(3x+2)^5}-\frac{49}{1458(3x+2)^6}$$

```
[Out] -49/(1458*(2 + 3*x)^6) + 518/(1215*(2 + 3*x)^5) - 503/(324*(2 + 3
*x)^4) + 740/(729*(2 + 3*x)^3) - 50/(243*(2 + 3*x)^2)
```

Rubi [A] time = 0.0617007, antiderivative size = 56, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{50}{243(3x+2)^2}+\frac{740}{729(3x+2)^3}-\frac{503}{324(3x+2)^4}+\frac{518}{1215(3x+2)^5}-\frac{49}{1458(3x+2)^6}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^2*(3 + 5*x)^2)/(2 + 3*x)^7,x]
```

```
[Out] -49/(1458*(2 + 3*x)^6) + 518/(1215*(2 + 3*x)^5) - 503/(324*(2 + 3
*x)^4) + 740/(729*(2 + 3*x)^3) - 50/(243*(2 + 3*x)^2)
```

Rubi in Sympy [A] time = 10.0223, size = 49, normalized size = 0.88

$$-\frac{50}{243\,(3x+2)^2}+\frac{740}{729\,(3x+2)^3}-\frac{503}{324\,(3x+2)^4}+\frac{518}{1215\,(3x+2)^5}-\frac{49}{1458\,(3x+2)^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(3+5*x)**2/(2+3*x)**7,x)
```

```
[Out] -50/(243*(3*x + 2)**2) + 740/(729*(3*x + 2)**3) - 503/(324*(3*x +
 2)**4) + 518/(1215*(3*x + 2)**5) - 49/(1458*(3*x + 2)**6)
```

Mathematica [A] time = 0.0183248, size = 31, normalized size = 0.55

$$-\frac{243000x^4+248400x^3+52515x^2+8172x+8198}{14580(3x+2)^6}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^2*(3 + 5*x)^2)/(2 + 3*x)^7,x]
```

```
[Out] -(8198 + 8172*x + 52515*x^2 + 248400*x^3 + 243000*x^4)/(14580*(2
+ 3*x)^6)
```

Maple [A] time = 0.009, size = 47, normalized size = 0.8

$$-\frac{49}{1458\,(2+3\,x)^6}+\frac{518}{1215\,(2+3\,x)^5}-\frac{503}{324\,(2+3\,x)^4}+\frac{740}{729\,(2+3\,x)^3}-\frac{50}{243\,(2+3\,x)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(3+5*x)^2/(2+3*x)^7,x)
```

```
[Out] -49/1458/(2+3*x)^6+518/1215/(2+3*x)^5-503/324/(2+3*x)^4+740/729/(
2+3*x)^3-50/243/(2+3*x)^2
```

Maxima [A] time = 1.3425, size = 73, normalized size = 1.3

$$-\frac{243000\,x^4+248400\,x^3+52515\,x^2+8172\,x+8198}{14580\,(729\,x^6+2916\,x^5+4860\,x^4+4320\,x^3+2160\,x^2+576\,x+64)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(2*x - 1)^2/(3*x + 2)^7,x, algorithm="maxima")
```

```
[Out] -1/14580*(243000*x^4 + 248400*x^3 + 52515*x^2 + 8172*x + 8198)/(7
29*x^6 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64)
```

Fricas [A] time = 0.210337, size = 73, normalized size = 1.3

$$-\frac{243000\,x^4+248400\,x^3+52515\,x^2+8172\,x+8198}{14580\,(729\,x^6+2916\,x^5+4860\,x^4+4320\,x^3+2160\,x^2+576\,x+64)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(2*x - 1)^2/(3*x + 2)^7,x, algorithm="fricas")
```

```
[Out] -1/14580*(243000*x^4 + 248400*x^3 + 52515*x^2 + 8172*x + 8198)/(7
29*x^6 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64)
```

Sympy [A] time = 0.433167, size = 51, normalized size = 0.91

$$-\frac{243000x^4+248400x^3+52515x^2+8172x+8198}{10628820x^6+42515280x^5+70858800x^4+62985600x^3+31492800x^2+8398080x+933120}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(3+5*x)**2/(2+3*x)**7,x)
```

```
[Out] -(243000*x**4 + 248400*x**3 + 52515*x**2 + 8172*x + 8198)/(106288
20*x**6 + 42515280*x**5 + 70858800*x**4 + 62985600*x**3 + 3149280
0*x**2 + 8398080*x + 933120)
```

GIAC/XCAS [A] time = 0.210138, size = 39, normalized size = 0.7

$$-\frac{243000\,x^4+248400\,x^3+52515\,x^2+8172\,x+8198}{14580\,(3\,x+2)^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(2*x - 1)^2/(3*x + 2)^7,x, algorithm="giac")
```

```
[Out] -1/14580*(243000*x^4 + 248400*x^3 + 52515*x^2 + 8172*x + 8198)/(3
*x + 2)^6
```

3.1252 $\int \frac{(1-2x)^2(3+5x)^2}{(2+3x)^8} dx$

Optimal. Leaf size=56

$$-\frac{100}{729(3x+2)^3}+\frac{185}{243(3x+2)^4}-\frac{503}{405(3x+2)^5}+\frac{259}{729(3x+2)^6}-\frac{7}{243(3x+2)^7}$$

```
[Out] -7/(243*(2 + 3*x)^7) + 259/(729*(2 + 3*x)^6) - 503/(405*(2 + 3*x)
^5) + 185/(243*(2 + 3*x)^4) - 100/(729*(2 + 3*x)^3)
```

Rubi [A] time = 0.061958, antiderivative size = 56, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{100}{729(3x+2)^3}+\frac{185}{243(3x+2)^4}-\frac{503}{405(3x+2)^5}+\frac{259}{729(3x+2)^6}-\frac{7}{243(3x+2)^7}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^2*(3 + 5*x)^2)/(2 + 3*x)^8,x]
```

```
[Out] -7/(243*(2 + 3*x)^7) + 259/(729*(2 + 3*x)^6) - 503/(405*(2 + 3*x)
^5) + 185/(243*(2 + 3*x)^4) - 100/(729*(2 + 3*x)^3)
```

Rubi in Sympy [A] time = 10.1682, size = 49, normalized size = 0.88

$$-\frac{100}{729\left(3x+2\right)^{3}}+\frac{185}{243\left(3x+2\right)^{4}}-\frac{503}{405\left(3x+2\right)^{5}}+\frac{259}{729\left(3x+2\right)^{6}}-\frac{7}{243\left(3x+2\right)^{7}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(3+5*x)**2/(2+3*x)**8,x)
```

```
[Out] -100/(729*(3*x + 2)**3) + 185/(243*(3*x + 2)**4) - 503/(405*(3*x
+ 2)**5) + 259/(729*(3*x + 2)**6) - 7/(243*(3*x + 2)**7)
```

Mathematica [A] time = 0.0206623, size = 31, normalized size = 0.55

$$\frac{-40500x^4-33075x^3+1107x^2+1461x-1423}{3645(3x+2)^7}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^2*(3 + 5*x)^2)/(2 + 3*x)^8,x]
```

```
[Out] (-1423 + 1461*x + 1107*x^2 - 33075*x^3 - 40500*x^4)/(3645*(2 + 3*
x)^7)
```

Maple [A] time = 0.007, size = 47, normalized size = 0.8

$$-\frac{7}{243\,(2+3\,x)^{7}}+\frac{259}{729\,(2+3\,x)^{6}}-\frac{503}{405\,(2+3\,x)^{5}}+\frac{185}{243\,(2+3\,x)^{4}}-\frac{100}{729\,(2+3\,x)^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(3+5*x)^2/(2+3*x)^8,x)
```

```
[Out] -7/243/(2+3*x)^7+259/729/(2+3*x)^6-503/405/(2+3*x)^5+185/243/(2+3
*x)^4-100/729/(2+3*x)^3
```

Maxima [A] time = 1.3508, size = 80, normalized size = 1.43

$$-\frac{40500\,x^4+33075\,x^3-1107\,x^2-1461\,x+1423}{3645\,(2187\,x^7+10206\,x^6+20412\,x^5+22680\,x^4+15120\,x^3+6048\,x^2+1344\,x+128)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(2*x - 1)^2/(3*x + 2)^8,x, algorithm="maxima")
```

```
[Out] -1/3645*(40500*x^4 + 33075*x^3 - 1107*x^2 - 1461*x + 1423)/(2187*
x^7 + 10206*x^6 + 20412*x^5 + 22680*x^4 + 15120*x^3 + 6048*x^2 +
1344*x + 128)
```

Fricas [A] time = 0.198245, size = 80, normalized size = 1.43

$$-\frac{40500\,x^4+33075\,x^3-1107\,x^2-1461\,x+1423}{3645\,(2187\,x^7+10206\,x^6+20412\,x^5+22680\,x^4+15120\,x^3+6048\,x^2+1344\,x+128)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(2*x - 1)^2/(3*x + 2)^8,x, algorithm="fricas")
```

```
[Out] -1/3645*(40500*x^4 + 33075*x^3 - 1107*x^2 - 1461*x + 1423)/(2187*
x^7 + 10206*x^6 + 20412*x^5 + 22680*x^4 + 15120*x^3 + 6048*x^2 +
1344*x + 128)
```

Sympy [A] time = 0.486955, size = 56, normalized size = 1.

$$-\frac{40500x^4+33075x^3-1107x^2-1461x+1423}{7971615x^7+37200870x^6+74401740x^5+82668600x^4+55112400x^3+22044960x^2+4898880x+466560}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(3+5*x)**2/(2+3*x)**8,x)
```

```
[Out] -(40500*x**4 + 33075*x**3 - 1107*x**2 - 1461*x + 1423)/(7971615*x
**7 + 37200870*x**6 + 74401740*x**5 + 82668600*x**4 + 55112400*x*
*3 + 22044960*x**2 + 4898880*x + 466560)
```

GIAC/XCAS [A] time = 0.206224, size = 39, normalized size = 0.7

$$-\frac{40500\,x^4+33075\,x^3-1107\,x^2-1461\,x+1423}{3645\,(3\,x+2)^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(2*x - 1)^2/(3*x + 2)^8,x, algorithm="giac")
```

```
[Out] -1/3645*(40500*x^4 + 33075*x^3 - 1107*x^2 - 1461*x + 1423)/(3*x +
 2)^7
```

3.1253 $\int (1-2x)^2(2+3x)^{10}(3+5x)^3\,dx$

Optimal. Leaf size=67

$$\frac{125(3x+2)^{16}}{2916}-\frac{760(3x+2)^{15}}{2187}+\frac{8285(3x+2)^{14}}{10206}-\frac{4099(3x+2)^{13}}{9477}+\frac{763(3x+2)^{12}}{8748}-\frac{49(3x+2)^{11}}{8019}$$

```
[Out] (-49*(2 + 3*x)^11)/8019 + (763*(2 + 3*x)^12)/8748 - (4099*(2 + 3*
x)^13)/9477 + (8285*(2 + 3*x)^14)/10206 - (760*(2 + 3*x)^15)/2187
 + (125*(2 + 3*x)^16)/2916
```

Rubi [A] time = 0.132019, antiderivative size = 67, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{125(3x+2)^{16}}{2916}-\frac{760(3x+2)^{15}}{2187}+\frac{8285(3x+2)^{14}}{10206}-\frac{4099(3x+2)^{13}}{9477}+\frac{763(3x+2)^{12}}{8748}-\frac{49(3x+2)^{11}}{8019}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^2*(2 + 3*x)^10*(3 + 5*x)^3,x]
```

```
[Out] (-49*(2 + 3*x)^11)/8019 + (763*(2 + 3*x)^12)/8748 - (4099*(2 + 3*
x)^13)/9477 + (8285*(2 + 3*x)^14)/10206 - (760*(2 + 3*x)^15)/2187
 + (125*(2 + 3*x)^16)/2916
```

Rubi in Sympy [A] time = 18.2327, size = 60, normalized size = 0.9

$$\frac{125\,(3x+2)^{16}}{2916}-\frac{760\,(3x+2)^{15}}{2187}+\frac{8285\,(3x+2)^{14}}{10206}-\frac{4099\,(3x+2)^{13}}{9477}+\frac{763\,(3x+2)^{12}}{8748}-\frac{49\,(3x+2)^{11}}{8019}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(2+3*x)**10*(3+5*x)**3,x)
```

```
[Out] 125*(3*x + 2)**16/2916 - 760*(3*x + 2)**15/2187 + 8285*(3*x + 2)*
*14/10206 - 4099*(3*x + 2)**13/9477 + 763*(3*x + 2)**12/8748 - 49
*(3*x + 2)**11/8019
```

Mathematica [A] time = 0.00545795, size = 93, normalized size = 1.39

$$\frac{7381125x^{16}}{4}+14696640x^{15}+\frac{734077485x^{14}}{14}+\frac{1417418757x^{13}}{13}+\frac{569034801x^{12}}{4}+\frac{1233925083x^{11}}{11}+36043704x^{10}-26237700x^9-40113468x^8-\frac{154612896x^7}{7}-\frac{10627328x^6}{3}+3185792x^5+2644160x^4+1000704x^3+221184x^2+27648x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^2*(2 + 3*x)^10*(3 + 5*x)^3,x]
```

```
[Out] 27648*x + 221184*x^2 + 1000704*x^3 + 2644160*x^4 + 3185792*x^5 -
(10627328*x^6)/3 - (154612896*x^7)/7 - 40113468*x^8 - 26237700*x^
9 + 36043704*x^10 + (1233925083*x^11)/11 + (569034801*x^12)/4 + (
1417418757*x^13)/13 + (734077485*x^14)/14 + 14696640*x^15 + (7381
125*x^16)/4
```

Maple [A] time = 0.003, size = 80, normalized size = 1.2

$$\frac{7381125\,x^{16}}{4}+14696640\,x^{15}+\frac{734077485\,x^{14}}{14}+\frac{1417418757\,x^{13}}{13}+\frac{569034801\,x^{12}}{4}+\frac{1233925083\,x^{11}}{11}+36043704\,x^{10}-26237700\,x^{9}-40113468\,x^{8}-\frac{154612896\,x^{7}}{7}-\frac{10627328\,x^{6}}{3}+3185792\,x^{5}+2644160\,x^{4}+1000704\,x^{3}+221184\,x^{2}+27648\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(2+3*x)^10*(3+5*x)^3,x)
```

```
[Out] 7381125/4*x^16+14696640*x^15+734077485/14*x^14+1417418757/13*x^13
+569034801/4*x^12+1233925083/11*x^11+36043704*x^10-26237700*x^9-4
0113468*x^8-154612896/7*x^7-10627328/3*x^6+3185792*x^5+2644160*x^
4+1000704*x^3+221184*x^2+27648*x
```

Maxima [A] time = 1.3576, size = 107, normalized size = 1.6

$$\frac{7381125}{4}\,x^{16}+14696640\,x^{15}+\frac{734077485}{14}\,x^{14}+\frac{1417418757}{13}\,x^{13}+\frac{569034801}{4}\,x^{12}+\frac{1233925083}{11}\,x^{11}+36043704\,x^{10}-26237700\,x^{9}-40113468\,x^{8}-\frac{154612896}{7}\,x^{7}-\frac{10627328}{3}\,x^{6}+3185792\,x^{5}+2644160\,x^{4}+1000704\,x^{3}+221184\,x^{2}+27648\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^10*(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 7381125/4*x^16 + 14696640*x^15 + 734077485/14*x^14 + 1417418757/1
3*x^13 + 569034801/4*x^12 + 1233925083/11*x^11 + 36043704*x^10 -
26237700*x^9 - 40113468*x^8 - 154612896/7*x^7 - 10627328/3*x^6 +
3185792*x^5 + 2644160*x^4 + 1000704*x^3 + 221184*x^2 + 27648*x
```

Fricas [A] time = 0.173927, size = 1, normalized size = 0.01

$$\frac{7381125}{4}x^{16}+14696640x^{15}+\frac{734077485}{14}x^{14}+\frac{1417418757}{13}x^{13}+\frac{569034801}{4}x^{12}+\frac{1233925083}{11}x^{11}+36043704x^{10}-26237700x^{9}-40113468x^{8}-\frac{154612896}{7}x^{7}-\frac{10627328}{3}x^{6}+3185792x^{5}+2644160x^{4}+1000704x^{3}+221184x^{2}+27648x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^10*(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 7381125/4*x^16 + 14696640*x^15 + 734077485/14*x^14 + 1417418757/1
3*x^13 + 569034801/4*x^12 + 1233925083/11*x^11 + 36043704*x^10 -
26237700*x^9 - 40113468*x^8 - 154612896/7*x^7 - 10627328/3*x^6 +
3185792*x^5 + 2644160*x^4 + 1000704*x^3 + 221184*x^2 + 27648*x
```

Sympy [A] time = 0.146713, size = 90, normalized size = 1.34

$$\frac{7381125x^{16}}{4} + 14696640x^{15} + \frac{734077485x^{14}}{14} + \frac{1417418757x^{13}}{13} + \frac{569034801x^{12}}{4} + \frac{1233925083x^{11}}{11} + 36043704x^{10} - 26237700x^9 - 40113468x^8 - \frac{154612896x^7}{7} - \frac{10627328x^6}{3} + 3185792x^5 + 2644160x^4 + 1000704x^3 + 221184x^2 + 27648x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(2+3*x)**10*(3+5*x)**3,x)
```

```
[Out] 7381125*x**16/4 + 14696640*x**15 + 734077485*x**14/14 + 141741875
7*x**13/13 + 569034801*x**12/4 + 1233925083*x**11/11 + 36043704*x
**10 - 26237700*x**9 - 40113468*x**8 - 154612896*x**7/7 - 1062732
8*x**6/3 + 3185792*x**5 + 2644160*x**4 + 1000704*x**3 + 221184*x*
*2 + 27648*x
```

GIAC/XCAS [A] time = 0.221629, size = 107, normalized size = 1.6

$$\frac{7381125}{4}\,x^{16} + 14696640\,x^{15} + \frac{734077485}{14}\,x^{14} + \frac{1417418757}{13}\,x^{13} + \frac{569034801}{4}\,x^{12} + \frac{1233925083}{11}\,x^{11} + 36043704\,x^{10} - 26237700\,x^9 - 40113468\,x^8 - \frac{154612896}{7}\,x^7 - \frac{10627328}{3}\,x^6 + 3185792\,x^5 + 2644160\,x^4 + 1000704\,x^3 + 221184\,x^2 + 27648\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^10*(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 7381125/4*x^16 + 14696640*x^15 + 734077485/14*x^14 + 1417418757/1
3*x^13 + 569034801/4*x^12 + 1233925083/11*x^11 + 36043704*x^10 -
26237700*x^9 - 40113468*x^8 - 154612896/7*x^7 - 10627328/3*x^6 +
3185792*x^5 + 2644160*x^4 + 1000704*x^3 + 221184*x^2 + 27648*x
```

3.1254 $\int (1-2x)^2(2+3x)^9(3+5x)^3\,dx$

Optimal. Leaf size=67

$$\frac{100(3x+2)^{15}}{2187}-\frac{1900(3x+2)^{14}}{5103}+\frac{8285(3x+2)^{13}}{9477}-\frac{4099(3x+2)^{12}}{8748}+\frac{763(3x+2)^{11}}{8019}-\frac{49(3x+2)^{10}}{7290}$$

```
[Out] (-49*(2 + 3*x)^10)/7290 + (763*(2 + 3*x)^11)/8019 - (4099*(2 + 3*
x)^12)/8748 + (8285*(2 + 3*x)^13)/9477 - (1900*(2 + 3*x)^14)/5103
 + (100*(2 + 3*x)^15)/2187
```

Rubi [A] time = 0.128812, antiderivative size = 67, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{100(3x+2)^{15}}{2187}-\frac{1900(3x+2)^{14}}{5103}+\frac{8285(3x+2)^{13}}{9477}-\frac{4099(3x+2)^{12}}{8748}+\frac{763(3x+2)^{11}}{8019}-\frac{49(3x+2)^{10}}{7290}$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^2*(2 + 3*x)^9*(3 + 5*x)^3,x]
```

```
[Out] (-49*(2 + 3*x)^10)/7290 + (763*(2 + 3*x)^11)/8019 - (4099*(2 + 3*
x)^12)/8748 + (8285*(2 + 3*x)^13)/9477 - (1900*(2 + 3*x)^14)/5103
 + (100*(2 + 3*x)^15)/2187
```

Rubi in Sympy [A] time = 17.1875, size = 60, normalized size = 0.9

$$\frac{100\,(3x+2)^{15}}{2187}-\frac{1900\,(3x+2)^{14}}{5103}+\frac{8285\,(3x+2)^{13}}{9477}-\frac{4099\,(3x+2)^{12}}{8748}+\frac{763\,(3x+2)^{11}}{8019}-\frac{49\,(3x+2)^{10}}{7290}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**2*(2+3*x)**9*(3+5*x)**3,x)
```

```
[Out] 100*(3*x + 2)**15/2187 - 1900*(3*x + 2)**14/5103 + 8285*(3*x + 2)
**13/9477 - 4099*(3*x + 2)**12/8748 + 763*(3*x + 2)**11/8019 - 49
*(3*x + 2)**10/7290
```

Mathematica [A] time = 0.00430057, size = 90, normalized size = 1.34

$$656100x^{15}+\frac{33461100x^{14}}{7}+\frac{200077695x^{13}}{13}+\frac{113029263x^{12}}{4}+\frac{342976275x^{11}}{11}+\frac{182657511x^{10}}{10}-180666x^9-9703638x^8-\frac{55216512x^7}{7}-\frac{7363312x^6}{3}+\frac{2732864x^5}{5}+871936x^4+400128x^3+100224x^2+13824x$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)^2*(2 + 3*x)^9*(3 + 5*x)^3,x]
```

```
[Out] 13824*x + 100224*x^2 + 400128*x^3 + 871936*x^4 + (2732864*x^5)/5
- (7363312*x^6)/3 - (55216512*x^7)/7 - 9703638*x^8 - 180666*x^9 +
 (182657511*x^10)/10 + (342976275*x^11)/11 + (113029263*x^12)/4 +
 (200077695*x^13)/13 + (33461100*x^14)/7 + 656100*x^15
```

Maple [A] time = 0.003, size = 75, normalized size = 1.1

$$656100\,x^{15}+\frac{33461100\,x^{14}}{7}+\frac{200077695\,x^{13}}{13}+\frac{113029263\,x^{12}}{4}+\frac{342976275\,x^{11}}{11}+\frac{182657511\,x^{10}}{10}-180666\,x^{9}-9703638\,x^{8}-\frac{55216512\,x^{7}}{7}-\frac{7363312\,x^{6}}{3}+\frac{2732864\,x^{5}}{5}+871936\,x^{4}+400128\,x^{3}+100224\,x^{2}+13824\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(2+3*x)^9*(3+5*x)^3,x)
```

```
[Out] 656100*x^15+33461100/7*x^14+200077695/13*x^13+113029263/4*x^12+34
2976275/11*x^11+182657511/10*x^10-180666*x^9-9703638*x^8-55216512
/7*x^7-7363312/3*x^6+2732864/5*x^5+871936*x^4+400128*x^3+100224*x
^2+13824*x
```

Maxima [A] time = 1.34482, size = 100, normalized size = 1.49

$$656100\,x^{15}+\frac{33461100}{7}\,x^{14}+\frac{200077695}{13}\,x^{13}+\frac{113029263}{4}\,x^{12}+\frac{342976275}{11}\,x^{11}+\frac{182657511}{10}\,x^{10}-180666\,x^{9}-9703638\,x^{8}-\frac{55216512}{7}\,x^{7}-\frac{7363312}{3}\,x^{6}+\frac{2732864}{5}\,x^{5}+871936\,x^{4}+400128\,x^{3}+100224\,x^{2}+13824\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^9*(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 656100*x^15 + 33461100/7*x^14 + 200077695/13*x^13 + 113029263/4*x
^12 + 342976275/11*x^11 + 182657511/10*x^10 - 180666*x^9 - 970363
8*x^8 - 55216512/7*x^7 - 7363312/3*x^6 + 2732864/5*x^5 + 871936*x
^4 + 400128*x^3 + 100224*x^2 + 13824*x
```

Fricas [A] time = 0.176337, size = 1, normalized size = 0.01

$$656100x^{15}+\frac{33461100}{7}x^{14}+\frac{200077695}{13}x^{13}+\frac{113029263}{4}x^{12}+\frac{342976275}{11}x^{11}+\frac{182657511}{10}x^{10}-180666x^{9}-9703638x^{8}-\frac{55216512}{7}x^{7}-\frac{7363312}{3}x^{6}+\frac{2732864}{5}x^{5}+871936x^{4}+400128x^{3}+100224x^{2}+13824x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^9*(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 656100*x^15 + 33461100/7*x^14 + 200077695/13*x^13 + 113029263/4*x
^12 + 342976275/11*x^11 + 182657511/10*x^10 - 180666*x^9 - 970363
8*x^8 - 55216512/7*x^7 - 7363312/3*x^6 + 2732864/5*x^5 + 871936*x
^4 + 400128*x^3 + 100224*x^2 + 13824*x
```

Sympy [A] time = 0.138031, size = 87, normalized size = 1.3

$$656100x^{15}+\frac{33461100x^{14}}{7}+\frac{200077695x^{13}}{13}+\frac{113029263x^{12}}{4}+\frac{342976275x^{11}}{11}+\frac{182657511x^{10}}{10}-180666x^{9}-9703638x^{8}-\frac{55216512x^{7}}{7}-\frac{7363312x^{6}}{3}+\frac{2732864x^{5}}{5}+871936x^{4}+400128x^{3}+100224x^{2}+13824x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(2+3*x)**9*(3+5*x)**3,x)
```

```
[Out] 656100*x**15 + 33461100*x**14/7 + 200077695*x**13/13 + 113029263*
x**12/4 + 342976275*x**11/11 + 182657511*x**10/10 - 180666*x**9 -
 9703638*x**8 - 55216512*x**7/7 - 7363312*x**6/3 + 2732864*x**5/5
 + 871936*x**4 + 400128*x**3 + 100224*x**2 + 13824*x
```

GIAC/XCAS [A] time = 0.222732, size = 100, normalized size = 1.49

$$656100\,x^{15} + \frac{33461100}{7}\,x^{14} + \frac{200077695}{13}\,x^{13} + \frac{113029263}{4}\,x^{12} + \frac{342976275}{11}\,x^{11} + \frac{182657511}{10}\,x^{10} - 180666\,x^{9} - 9703638\,x^{8} - \frac{55216512}{7}\,x^{7} - \frac{7363312}{3}\,x^{6} + \frac{2732864}{5}\,x^{5} + 871936\,x^{4} + 400128\,x^{3} + 100224\,x^{2} + 13824\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^9*(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 656100*x^15 + 33461100/7*x^14 + 200077695/13*x^13 + 113029263/4*x
^12 + 342976275/11*x^11 + 182657511/10*x^10 - 180666*x^9 - 970363
8*x^8 - 55216512/7*x^7 - 7363312/3*x^6 + 2732864/5*x^5 + 871936*x
^4 + 400128*x^3 + 100224*x^2 + 13824*x
```

3.1255 $\int (1-2x)^2(2+3x)^8(3+5x)^3\,dx$

Optimal. Leaf size=67

$$\frac{250(3x+2)^{14}}{5103}-\frac{3800(3x+2)^{13}}{9477}+\frac{8285(3x+2)^{12}}{8748}-\frac{4099(3x+2)^{11}}{8019}+\frac{763(3x+2)^{10}}{7290}-\frac{49(3x+2)^9}{6561}$$

```
[Out] (-49*(2 + 3*x)^9)/6561 + (763*(2 + 3*x)^10)/7290 - (4099*(2 + 3*x
)^11)/8019 + (8285*(2 + 3*x)^12)/8748 - (3800*(2 + 3*x)^13)/9477
+ (250*(2 + 3*x)^14)/5103
```

Rubi [A] time = 0.120907, antiderivative size = 67, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{250(3x+2)^{14}}{5103}-\frac{3800(3x+2)^{13}}{9477}+\frac{8285(3x+2)^{12}}{8748}-\frac{4099(3x+2)^{11}}{8019}+\frac{763(3x+2)^{10}}{7290}-\frac{49(3x+2)^9}{6561}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^2*(2 + 3*x)^8*(3 + 5*x)^3,x]
```

```
[Out] (-49*(2 + 3*x)^9)/6561 + (763*(2 + 3*x)^10)/7290 - (4099*(2 + 3*x
)^11)/8019 + (8285*(2 + 3*x)^12)/8748 - (3800*(2 + 3*x)^13)/9477
+ (250*(2 + 3*x)^14)/5103
```

Rubi in Sympy [A] time = 16.1902, size = 60, normalized size = 0.9

$$\frac{250\,(3x+2)^{14}}{5103}-\frac{3800\,(3x+2)^{13}}{9477}+\frac{8285\,(3x+2)^{12}}{8748}-\frac{4099\,(3x+2)^{11}}{8019}+\frac{763\,(3x+2)^{10}}{7290}-\frac{49\,(3x+2)^9}{6561}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(2+3*x)**8*(3+5*x)**3,x)
```

```
[Out] 250*(3*x + 2)**14/5103 - 3800*(3*x + 2)**13/9477 + 8285*(3*x + 2)
**12/8748 - 4099*(3*x + 2)**11/8019 + 763*(3*x + 2)**10/7290 - 49
*(3*x + 2)**9/6561
```

Mathematica [A] time = 0.00406026, size = 85, normalized size = 1.27

$$\frac{1640250x^{14}}{7}+\frac{20120400x^{13}}{13}+\frac{17759655x^{12}}{4}+\frac{77509953x^{11}}{11}+\frac{62652123x^{10}}{10}+2124195x^9-1660896x^8-\frac{17018256x^7}{7}-\frac{3530000x^6}{3}-\frac{202208x^5}{5}+261440x^4+155136x^3+44928x^2+6912x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^2*(2 + 3*x)^8*(3 + 5*x)^3,x]
```

```
[Out] 6912*x + 44928*x^2 + 155136*x^3 + 261440*x^4 - (202208*x^5)/5 - (
3530000*x^6)/3 - (17018256*x^7)/7 - 1660896*x^8 + 2124195*x^9 + (
62652123*x^10)/10 + (77509953*x^11)/11 + (17759655*x^12)/4 + (201
20400*x^13)/13 + (1640250*x^14)/7
```

Maple [A] time = 0.002, size = 70, normalized size = 1.

$$\frac{1640250\,x^{14}}{7}+\frac{20120400\,x^{13}}{13}+\frac{17759655\,x^{12}}{4}+\frac{77509953\,x^{11}}{11}+\frac{62652123\,x^{10}}{10}+2124195\,x^{9}-1660896\,x^{8}-\frac{17018256\,x^{7}}{7}-\frac{3530000\,x^{6}}{3}-\frac{202208\,x^{5}}{5}+261440\,x^{4}+155136\,x^{3}+44928\,x^{2}+6912\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(2+3*x)^8*(3+5*x)^3,x)
```

```
[Out] 1640250/7*x^14+20120400/13*x^13+17759655/4*x^12+77509953/11*x^11+
62652123/10*x^10+2124195*x^9-1660896*x^8-17018256/7*x^7-3530000/3
*x^6-202208/5*x^5+261440*x^4+155136*x^3+44928*x^2+6912*x
```

Maxima [A] time = 1.36236, size = 93, normalized size = 1.39

$$\frac{1640250}{7}\,x^{14}+\frac{20120400}{13}\,x^{13}+\frac{17759655}{4}\,x^{12}+\frac{77509953}{11}\,x^{11}+\frac{62652123}{10}\,x^{10}+2124195\,x^{9}-1660896\,x^{8}-\frac{17018256}{7}\,x^{7}-\frac{3530000}{3}\,x^{6}-\frac{202208}{5}\,x^{5}+261440\,x^{4}+155136\,x^{3}+44928\,x^{2}+6912\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^8*(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 1640250/7*x^14 + 20120400/13*x^13 + 17759655/4*x^12 + 77509953/11
*x^11 + 62652123/10*x^10 + 2124195*x^9 - 1660896*x^8 - 17018256/7
*x^7 - 3530000/3*x^6 - 202208/5*x^5 + 261440*x^4 + 155136*x^3 + 4
4928*x^2 + 6912*x
```

Fricas [A] time = 0.183327, size = 1, normalized size = 0.01

$$\frac{1640250}{7}x^{14}+\frac{20120400}{13}x^{13}+\frac{17759655}{4}x^{12}+\frac{77509953}{11}x^{11}+\frac{62652123}{10}x^{10}+2124195x^{9}-1660896x^{8}-\frac{17018256}{7}x^{7}-\frac{3530000}{3}x^{6}-\frac{202208}{5}x^{5}+261440x^{4}+155136x^{3}+44928x^{2}+6912x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^8*(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 1640250/7*x^14 + 20120400/13*x^13 + 17759655/4*x^12 + 77509953/11
*x^11 + 62652123/10*x^10 + 2124195*x^9 - 1660896*x^8 - 17018256/7
*x^7 - 3530000/3*x^6 - 202208/5*x^5 + 261440*x^4 + 155136*x^3 + 4
4928*x^2 + 6912*x
```

Sympy [A] time = 0.135834, size = 82, normalized size = 1.22

$$\frac{1640250x^{14}}{7}+\frac{20120400x^{13}}{13}+\frac{17759655x^{12}}{4}+\frac{77509953x^{11}}{11}+\frac{62652123x^{10}}{10}+2124195x^{9}-1660896x^{8}-\frac{17018256x^{7}}{7}-\frac{3530000x^{6}}{3}-\frac{202208x^{5}}{5}+261440x^{4}+155136x^{3}+44928x^{2}+6912x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(2+3*x)**8*(3+5*x)**3,x)
```

```
[Out] 1640250*x**14/7 + 20120400*x**13/13 + 17759655*x**12/4 + 77509953
*x**11/11 + 62652123*x**10/10 + 2124195*x**9 - 1660896*x**8 - 170
18256*x**7/7 - 3530000*x**6/3 - 202208*x**5/5 + 261440*x**4 + 155
136*x**3 + 44928*x**2 + 6912*x
```

GIAC/XCAS [A] time = 0.21852, size = 93, normalized size = 1.39

$$\frac{1640250}{7}x^{14} + \frac{20120400}{13}x^{13} + \frac{17759655}{4}x^{12} + \frac{77509953}{11}x^{11} + \frac{62652123}{10}x^{10} + 2124195\,x^9 - 1660896\,x^8 - \frac{17018256}{7}x^7 - \frac{3530000}{3}x^6 - \frac{202208}{5}x^5 + 261440\,x^4 + 155136\,x^3 + 44928\,x^2 + 6912\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^8*(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 1640250/7*x^14 + 20120400/13*x^13 + 17759655/4*x^12 + 77509953/11
*x^11 + 62652123/10*x^10 + 2124195*x^9 - 1660896*x^8 - 17018256/7
*x^7 - 3530000/3*x^6 - 202208/5*x^5 + 261440*x^4 + 155136*x^3 + 4
4928*x^2 + 6912*x
```

3.1256 $\int (1-2x)^2(2+3x)^7(3+5x)^3\,dx$

Optimal. Leaf size=67

$$\frac{500(3x+2)^{13}}{9477}-\frac{950(3x+2)^{12}}{2187}+\frac{8285(3x+2)^{11}}{8019}-\frac{4099(3x+2)^{10}}{7290}+\frac{763(3x+2)^9}{6561}-\frac{49(3x+2)^8}{5832}$$

```
[Out] (-49*(2 + 3*x)^8)/5832 + (763*(2 + 3*x)^9)/6561 - (4099*(2 + 3*x)
^10)/7290 + (8285*(2 + 3*x)^11)/8019 - (950*(2 + 3*x)^12)/2187 +
(500*(2 + 3*x)^13)/9477
```

Rubi [A] time = 0.109716, antiderivative size = 67, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$\frac{500(3x+2)^{13}}{9477}-\frac{950(3x+2)^{12}}{2187}+\frac{8285(3x+2)^{11}}{8019}-\frac{4099(3x+2)^{10}}{7290}+\frac{763(3x+2)^9}{6561}-\frac{49(3x+2)^8}{5832}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^2*(2 + 3*x)^7*(3 + 5*x)^3,x]
```

```
[Out] (-49*(2 + 3*x)^8)/5832 + (763*(2 + 3*x)^9)/6561 - (4099*(2 + 3*x)
^10)/7290 + (8285*(2 + 3*x)^11)/8019 - (950*(2 + 3*x)^12)/2187 +
(500*(2 + 3*x)^13)/9477
```

Rubi in Sympy [A] time = 15.3594, size = 60, normalized size = 0.9

$$\frac{500\,(3x+2)^{13}}{9477}-\frac{950\,(3x+2)^{12}}{2187}+\frac{8285\,(3x+2)^{11}}{8019}-\frac{4099\,(3x+2)^{10}}{7290}+\frac{763\,(3x+2)^9}{6561}-\frac{49\,(3x+2)^8}{5832}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(2+3*x)**7*(3+5*x)**3,x)
```

```
[Out] 500*(3*x + 2)**13/9477 - 950*(3*x + 2)**12/2187 + 8285*(3*x + 2)*
*11/8019 - 4099*(3*x + 2)**10/7290 + 763*(3*x + 2)**9/6561 - 49*(
3*x + 2)**8/5832
```

Mathematica [A] time = 0.00392139, size = 76, normalized size = 1.13

$$\frac{1093500x^{13}}{13}+498150x^{12}+\frac{13774455x^{11}}{11}+\frac{16653681x^{10}}{10}+1086843x^9-\frac{148473x^8}{8}-618582x^7-\frac{1393018x^6}{3}-\frac{495976x^5}{5}+65812x^4+57696x^3+19872x^2+3456x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^2*(2 + 3*x)^7*(3 + 5*x)^3,x]
```

```
[Out] 3456*x + 19872*x^2 + 57696*x^3 + 65812*x^4 - (495976*x^5)/5 - (13
93018*x^6)/3 - 618582*x^7 - (148473*x^8)/8 + 1086843*x^9 + (16653
681*x^10)/10 + (13774455*x^11)/11 + 498150*x^12 + (1093500*x^13)/
13
```

Maple [A] time = 0.003, size = 65, normalized size = 1.

$$\frac{1093500 x^{13}}{13}+498150 x^{12}+\frac{13774455 x^{11}}{11}+\frac{16653681 x^{10}}{10}+1086843 x^{9}-\frac{148473 x^{8}}{8}-618582 x^{7}-\frac{1393018 x^{6}}{3}-\frac{495976 x^{5}}{5}+65812 x^{4}+57696 x^{3}+19872 x^{2}+3456 x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(2+3*x)^7*(3+5*x)^3,x)
```

```
[Out] 1093500/13*x^13+498150*x^12+13774455/11*x^11+16653681/10*x^10+108
6843*x^9-148473/8*x^8-618582*x^7-1393018/3*x^6-495976/5*x^5+65812
*x^4+57696*x^3+19872*x^2+3456*x
```

Maxima [A] time = 1.33277, size = 86, normalized size = 1.28

$$\frac{1093500}{13} x^{13}+498150 x^{12}+\frac{13774455}{11} x^{11}+\frac{16653681}{10} x^{10}+1086843 x^{9}-\frac{148473}{8} x^{8}-618582 x^{7}-\frac{1393018}{3} x^{6}-\frac{495976}{5} x^{5}+65812 x^{4}+57696 x^{3}+19872 x^{2}+3456 x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^7*(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 1093500/13*x^13 + 498150*x^12 + 13774455/11*x^11 + 16653681/10*x^
10 + 1086843*x^9 - 148473/8*x^8 - 618582*x^7 - 1393018/3*x^6 - 49
5976/5*x^5 + 65812*x^4 + 57696*x^3 + 19872*x^2 + 3456*x
```

Fricas [A] time = 0.181853, size = 1, normalized size = 0.01

$$\frac{1093500}{13} x^{13}+498150x^{12}+\frac{13774455}{11} x^{11}+\frac{16653681}{10} x^{10}+1086843x^{9}-\frac{148473}{8} x^{8}-618582x^{7}-\frac{1393018}{3} x^{6}-\frac{495976}{5} x^{5}+65812x^{4}+57696x^{3}+19872x^{2}+3456x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^7*(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 1093500/13*x^13 + 498150*x^12 + 13774455/11*x^11 + 16653681/10*x^
10 + 1086843*x^9 - 148473/8*x^8 - 618582*x^7 - 1393018/3*x^6 - 49
5976/5*x^5 + 65812*x^4 + 57696*x^3 + 19872*x^2 + 3456*x
```

Sympy [A] time = 0.128481, size = 73, normalized size = 1.09

$$\frac{1093500x^{13}}{13}+498150x^{12}+\frac{13774455x^{11}}{11}+\frac{16653681x^{10}}{10}+1086843x^{9}-\frac{148473x^{8}}{8}-618582x^{7}-\frac{1393018x^{6}}{3}-\frac{495976x^{5}}{5}+65812x^{4}+57696x^{3}+19872x^{2}+3456x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(2+3*x)**7*(3+5*x)**3,x)
```

```
[Out] 1093500*x**13/13 + 498150*x**12 + 13774455*x**11/11 + 16653681*x*
*10/10 + 1086843*x**9 - 148473*x**8/8 - 618582*x**7 - 1393018*x**
```

```
6/3 - 495976*x**5/5 + 65812*x**4 + 57696*x**3 + 19872*x**2 + 3456
*x
```

GIAC/XCAS [A] time = 0.221915, size = 86, normalized size = 1.28

$$\frac{1093500}{13}\,x^{13} + 498150\,x^{12} + \frac{13774455}{11}\,x^{11} + \frac{16653681}{10}\,x^{10} + 1086843\,x^{9} - \frac{148473}{8}\,x^{8} - 618582\,x^{7} - \frac{1393018}{3}\,x^{6} - \frac{495976}{5}\,x^{5} + 65812\,x^{4} + 57696\,x^{3} + 19872\,x^{2} + 3456\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^7*(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 1093500/13*x^13 + 498150*x^12 + 13774455/11*x^11 + 16653681/10*x^
10 + 1086843*x^9 - 148473/8*x^8 - 618582*x^7 - 1393018/3*x^6 - 49
5976/5*x^5 + 65812*x^4 + 57696*x^3 + 19872*x^2 + 3456*x
```

3.1257 $\int (1-2x)^2(2+3x)^6(3+5x)^3\,dx$

Optimal. Leaf size=67

$$\frac{125(3x+2)^{12}}{2187}-\frac{3800(3x+2)^{11}}{8019}+\frac{1657(3x+2)^{10}}{1458}-\frac{4099(3x+2)^9}{6561}+\frac{763(3x+2)^8}{5832}-\frac{7}{729}(3x+2)^7$$

```
[Out] (-7*(2 + 3*x)^7)/729 + (763*(2 + 3*x)^8)/5832 - (4099*(2 + 3*x)^9
)/6561 + (1657*(2 + 3*x)^10)/1458 - (3800*(2 + 3*x)^11)/8019 + (1
25*(2 + 3*x)^12)/2187
```

Rubi [A] time = 0.109494, antiderivative size = 67, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{125(3x+2)^{12}}{2187}-\frac{3800(3x+2)^{11}}{8019}+\frac{1657(3x+2)^{10}}{1458}-\frac{4099(3x+2)^9}{6561}+\frac{763(3x+2)^8}{5832}-\frac{7}{729}(3x+2)^7$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^2*(2 + 3*x)^6*(3 + 5*x)^3,x]
```

```
[Out] (-7*(2 + 3*x)^7)/729 + (763*(2 + 3*x)^8)/5832 - (4099*(2 + 3*x)^9
)/6561 + (1657*(2 + 3*x)^10)/1458 - (3800*(2 + 3*x)^11)/8019 + (1
25*(2 + 3*x)^12)/2187
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$30375x^{12}+\frac{1749600x^{11}}{11}+\frac{685017x^{10}}{2}+363093x^9+\frac{1081971x^8}{8}-110115x^7-\frac{464744x^6}{3}-61804x^5+10172x^4+20208x^3+1728x+17280\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(2+3*x)**6*(3+5*x)**3,x)
```

```
[Out] 30375*x**12 + 1749600*x**11/11 + 685017*x**10/2 + 363093*x**9 + 1
081971*x**8/8 - 110115*x**7 - 464744*x**6/3 - 61804*x**5 + 10172*
x**4 + 20208*x**3 + 1728*x + 17280*Integral(x, x)
```

Mathematica [A] time = 0.00379052, size = 67, normalized size = 1.

$$30375x^{12}+\frac{1749600x^{11}}{11}+\frac{685017x^{10}}{2}+363093x^9+\frac{1081971x^8}{8}-110115x^7-\frac{464744x^6}{3}-61804x^5+10172x^4+20208x^3+8640x^2+1728x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^2*(2 + 3*x)^6*(3 + 5*x)^3,x]
```

```
[Out] 1728*x + 8640*x^2 + 20208*x^3 + 10172*x^4 - 61804*x^5 - (464744*x
^6)/3 - 110115*x^7 + (1081971*x^8)/8 + 363093*x^9 + (685017*x^10)
/2 + (1749600*x^11)/11 + 30375*x^12
```

Maple [A] time = 0.002, size = 60, normalized size = 0.9

$$30375\,x^{12}+\frac{1749600\,x^{11}}{11}+\frac{685017\,x^{10}}{2}+363093\,x^{9}+\frac{1081971\,x^{8}}{8}-110115\,x^{7}-\frac{464744\,x^{6}}{3}-61804\,x^{5}+10172\,x^{4}+20208\,x^{3}+8640\,x^{2}+1728\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(2+3*x)^6*(3+5*x)^3,x)
```

```
[Out] 30375*x^12+1749600/11*x^11+685017/2*x^10+363093*x^9+1081971/8*x^8
-110115*x^7-464744/3*x^6-61804*x^5+10172*x^4+20208*x^3+8640*x^2+1
728*x
```

Maxima [A] time = 1.33543, size = 80, normalized size = 1.19

$$30375\,x^{12}+\frac{1749600}{11}\,x^{11}+\frac{685017}{2}\,x^{10}+363093\,x^{9}+\frac{1081971}{8}\,x^{8}-110115\,x^{7}-\frac{464744}{3}\,x^{6}-61804\,x^{5}+10172\,x^{4}+20208\,x^{3}+8640\,x^{2}+1728\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^6*(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 30375*x^12 + 1749600/11*x^11 + 685017/2*x^10 + 363093*x^9 + 10819
71/8*x^8 - 110115*x^7 - 464744/3*x^6 - 61804*x^5 + 10172*x^4 + 20
208*x^3 + 8640*x^2 + 1728*x
```

Fricas [A] time = 0.185111, size = 1, normalized size = 0.01

$$30375x^{12}+\frac{1749600}{11}x^{11}+\frac{685017}{2}x^{10}+363093x^{9}+\frac{1081971}{8}x^{8}-110115x^{7}-\frac{464744}{3}x^{6}-61804x^{5}+10172x^{4}+20208x^{3}+8640x^{2}+1728x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^6*(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 30375*x^12 + 1749600/11*x^11 + 685017/2*x^10 + 363093*x^9 + 10819
71/8*x^8 - 110115*x^7 - 464744/3*x^6 - 61804*x^5 + 10172*x^4 + 20
208*x^3 + 8640*x^2 + 1728*x
```

Sympy [A] time = 0.118335, size = 65, normalized size = 0.97

$$30375x^{12}+\frac{1749600x^{11}}{11}+\frac{685017x^{10}}{2}+363093x^{9}+\frac{1081971x^{8}}{8}-110115x^{7}-\frac{464744x^{6}}{3}-61804x^{5}+10172x^{4}+20208x^{3}+8640x^{2}+1728x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(2+3*x)**6*(3+5*x)**3,x)
```

```
[Out] 30375*x**12 + 1749600*x**11/11 + 685017*x**10/2 + 363093*x**9 + 1
081971*x**8/8 - 110115*x**7 - 464744*x**6/3 - 61804*x**5 + 10172*
```

```
x**4 + 20208*x**3 + 8640*x**2 + 1728*x
```

GIAC/XCAS [A] time = 0.224188, size = 80, normalized size = 1.19

$$30375\,x^{12} + \frac{1749600}{11}\,x^{11} + \frac{685017}{2}\,x^{10} + 363093\,x^9 + \frac{1081971}{8}\,x^8 - 110115\,x^7 - \frac{464744}{3}\,x^6 - 61804\,x^5 + 10172\,x^4 + 20208\,x^3 + 8640\,x^2 + 1728\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^6*(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 30375*x^12 + 1749600/11*x^11 + 685017/2*x^10 + 363093*x^9 + 10819
71/8*x^8 - 110115*x^7 - 464744/3*x^6 - 61804*x^5 + 10172*x^4 + 20
208*x^3 + 8640*x^2 + 1728*x
```

3.1258 $\int (1-2x)^2(2+3x)^5(3+5x)^3\,dx$

Optimal. Leaf size=67

$$\frac{500(3x+2)^{11}}{8019}-\frac{380}{729}(3x+2)^{10}+\frac{8285(3x+2)^9}{6561}-\frac{4099(3x+2)^8}{5832}+\frac{109}{729}(3x+2)^7-\frac{49(3x+2)^6}{4374}$$

```
[Out] (-49*(2 + 3*x)^6)/4374 + (109*(2 + 3*x)^7)/729 - (4099*(2 + 3*x)^
8)/5832 + (8285*(2 + 3*x)^9)/6561 - (380*(2 + 3*x)^10)/729 + (500
*(2 + 3*x)^11)/8019
```

Rubi [A] time = 0.100915, antiderivative size = 67, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{500(3x+2)^{11}}{8019}-\frac{380}{729}(3x+2)^{10}+\frac{8285(3x+2)^9}{6561}-\frac{4099(3x+2)^8}{5832}+\frac{109}{729}(3x+2)^7-\frac{49(3x+2)^6}{4374}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^2*(2 + 3*x)^5*(3 + 5*x)^3,x]
```

```
[Out] (-49*(2 + 3*x)^6)/4374 + (109*(2 + 3*x)^7)/729 - (4099*(2 + 3*x)^
8)/5832 + (8285*(2 + 3*x)^9)/6561 - (380*(2 + 3*x)^10)/729 + (500
*(2 + 3*x)^11)/8019
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{121500x^{11}}{11}+50220x^{10}+89655x^9+\frac{551349x^8}{8}-987x^7-\frac{252329x^6}{6}-28322x^5-2150x^4+6432x^3+864x+7344\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(2+3*x)**5*(3+5*x)**3,x)
```

```
[Out] 121500*x**11/11 + 50220*x**10 + 89655*x**9 + 551349*x**8/8 - 987*
x**7 - 252329*x**6/6 - 28322*x**5 - 2150*x**4 + 6432*x**3 + 864*x
 + 7344*Integral(x, x)
```

Mathematica [A] time = 0.00401323, size = 60, normalized size = 0.9

$$\frac{121500x^{11}}{11}+50220x^{10}+89655x^9+\frac{551349x^8}{8}-987x^7-\frac{252329x^6}{6}-28322x^5-2150x^4+6432x^3+3672x^2+864x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^2*(2 + 3*x)^5*(3 + 5*x)^3,x]
```

```
[Out] 864*x + 3672*x^2 + 6432*x^3 - 2150*x^4 - 28322*x^5 - (252329*x^6)
/6 - 987*x^7 + (551349*x^8)/8 + 89655*x^9 + 50220*x^10 + (121500*
x^11)/11
```

Maple [A] time = 0.003, size = 55, normalized size = 0.8

$$\frac{121500\,x^{11}}{11}+50220\,x^{10}+89655\,x^{9}+\frac{551349\,x^{8}}{8}-987\,x^{7}-\frac{252329\,x^{6}}{6}-28322\,x^{5}-2150\,x^{4}+6432\,x^{3}+3672\,x^{2}+864\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(2+3*x)^5*(3+5*x)^3,x)
```

```
[Out] 121500/11*x^11+50220*x^10+89655*x^9+551349/8*x^8-987*x^7-252329/6
*x^6-28322*x^5-2150*x^4+6432*x^3+3672*x^2+864*x
```

Maxima [A] time = 1.34708, size = 73, normalized size = 1.09

$$\frac{121500}{11}\,x^{11}+50220\,x^{10}+89655\,x^{9}+\frac{551349}{8}\,x^{8}-987\,x^{7}-\frac{252329}{6}\,x^{6}-28322\,x^{5}-2150\,x^{4}+6432\,x^{3}+3672\,x^{2}+864\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^5*(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 121500/11*x^11 + 50220*x^10 + 89655*x^9 + 551349/8*x^8 - 987*x^7
- 252329/6*x^6 - 28322*x^5 - 2150*x^4 + 6432*x^3 + 3672*x^2 + 864
*x
```

Fricas [A] time = 0.180019, size = 1, normalized size = 0.01

$$\frac{121500}{11}x^{11}+50220x^{10}+89655x^{9}+\frac{551349}{8}x^{8}-987x^{7}-\frac{252329}{6}x^{6}-28322x^{5}-2150x^{4}+6432x^{3}+3672x^{2}+864x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^5*(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 121500/11*x^11 + 50220*x^10 + 89655*x^9 + 551349/8*x^8 - 987*x^7
- 252329/6*x^6 - 28322*x^5 - 2150*x^4 + 6432*x^3 + 3672*x^2 + 864
*x
```

Sympy [A] time = 0.118182, size = 58, normalized size = 0.87

$$\frac{121500x^{11}}{11}+50220x^{10}+89655x^{9}+\frac{551349x^{8}}{8}-987x^{7}-\frac{252329x^{6}}{6}-28322x^{5}-2150x^{4}+6432x^{3}+3672x^{2}+864x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(2+3*x)**5*(3+5*x)**3,x)
```

```
[Out] 121500*x**11/11 + 50220*x**10 + 89655*x**9 + 551349*x**8/8 - 987*
x**7 - 252329*x**6/6 - 28322*x**5 - 2150*x**4 + 6432*x**3 + 3672*
```

```
x**2 + 864*x
```

GIAC/XCAS [A] time = 0.218336, size = 73, normalized size = 1.09

$$\frac{121500}{11}\,x^{11} + 50220\,x^{10} + 89655\,x^{9} + \frac{551349}{8}\,x^{8} - 987\,x^{7} - \frac{252329}{6}\,x^{6} - 28322\,x^{5} - 2150\,x^{4} + 6432\,x^{3} + 3672\,x^{2} + 864\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^5*(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 121500/11*x^11 + 50220*x^10 + 89655*x^9 + 551349/8*x^8 - 987*x^7
- 252329/6*x^6 - 28322*x^5 - 2150*x^4 + 6432*x^3 + 3672*x^2 + 864
*x
```

3.1259 $\int (1-2x)^2(2+3x)^4(3+5x)^3\,dx$

Optimal. Leaf size=67

$$\frac{50}{729}(3x+2)^{10}-\frac{3800(3x+2)^9}{6561}+\frac{8285(3x+2)^8}{5832}-\frac{4099(3x+2)^7}{5103}+\frac{763(3x+2)^6}{4374}-\frac{49(3x+2)^5}{3645}$$

```
[Out] (-49*(2 + 3*x)^5)/3645 + (763*(2 + 3*x)^6)/4374 - (4099*(2 + 3*x)
^7)/5103 + (8285*(2 + 3*x)^8)/5832 - (3800*(2 + 3*x)^9)/6561 + (5
0*(2 + 3*x)^10)/729
```

Rubi [A] time = 0.098772, antiderivative size = 67, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{50}{729}(3x+2)^{10}-\frac{3800(3x+2)^9}{6561}+\frac{8285(3x+2)^8}{5832}-\frac{4099(3x+2)^7}{5103}+\frac{763(3x+2)^6}{4374}-\frac{49(3x+2)^5}{3645}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^2*(2 + 3*x)^4*(3 + 5*x)^3,x]
```

```
[Out] (-49*(2 + 3*x)^5)/3645 + (763*(2 + 3*x)^6)/4374 - (4099*(2 + 3*x)
^7)/5103 + (8285*(2 + 3*x)^8)/5832 - (3800*(2 + 3*x)^9)/6561 + (5
0*(2 + 3*x)^10)/729
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$4050x^{10}+15600x^9+\frac{175365x^8}{8}+\frac{66873x^7}{7}-\frac{46885x^6}{6}-\frac{52853x^5}{5}-2992x^4+1704x^3+432x+3024\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(2+3*x)**4*(3+5*x)**3,x)
```

```
[Out] 4050*x**10 + 15600*x**9 + 175365*x**8/8 + 66873*x**7/7 - 46885*x*
*6/6 - 52853*x**5/5 - 2992*x**4 + 1704*x**3 + 432*x + 3024*Integr
al(x, x)
```

Mathematica [A] time = 0.00430665, size = 57, normalized size = 0.85

$$4050x^{10}+15600x^9+\frac{175365x^8}{8}+\frac{66873x^7}{7}-\frac{46885x^6}{6}-\frac{52853x^5}{5}-2992x^4+1704x^3+1512x^2+432x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^2*(2 + 3*x)^4*(3 + 5*x)^3,x]
```

```
[Out] 432*x + 1512*x^2 + 1704*x^3 - 2992*x^4 - (52853*x^5)/5 - (46885*x
^6)/6 + (66873*x^7)/7 + (175365*x^8)/8 + 15600*x^9 + 4050*x^10
```

Maple [A] time = 0.001, size = 50, normalized size = 0.8

$$4050\,x^{10}+15600\,x^9+\frac{175365\,x^8}{8}+\frac{66873\,x^7}{7}-\frac{46885\,x^6}{6}-\frac{52853\,x^5}{5}-2992\,x^4+1704\,x^3+1512\,x^2+432\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((1-2*x)^2*(2+3*x)^4*(3+5*x)^3,x)
```

```
[Out] 4050*x^10+15600*x^9+175365/8*x^8+66873/7*x^7-46885/6*x^6-52853/5*
x^5-2992*x^4+1704*x^3+1512*x^2+432*x
```

Maxima [A] time = 1.34397, size = 66, normalized size = 0.99

$$4050\,x^{10} + 15600\,x^9 + \frac{175365}{8}\,x^8 + \frac{66873}{7}\,x^7 - \frac{46885}{6}\,x^6 - \frac{52853}{5}\,x^5 - 2992\,x^4 + 1704\,x^3 + 1512\,x^2 + 432\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^4*(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 4050*x^10 + 15600*x^9 + 175365/8*x^8 + 66873/7*x^7 - 46885/6*x^6
- 52853/5*x^5 - 2992*x^4 + 1704*x^3 + 1512*x^2 + 432*x
```

Fricas [A] time = 0.179436, size = 1, normalized size = 0.01

$$4050x^{10} + 15600x^9 + \frac{175365}{8}x^8 + \frac{66873}{7}x^7 - \frac{46885}{6}x^6 - \frac{52853}{5}x^5 - 2992x^4 + 1704x^3 + 1512x^2 + 432x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^4*(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 4050*x^10 + 15600*x^9 + 175365/8*x^8 + 66873/7*x^7 - 46885/6*x^6
- 52853/5*x^5 - 2992*x^4 + 1704*x^3 + 1512*x^2 + 432*x
```

Sympy [A] time = 0.111172, size = 54, normalized size = 0.81

$$4050x^{10} + 15600x^9 + \frac{175365x^8}{8} + \frac{66873x^7}{7} - \frac{46885x^6}{6} - \frac{52853x^5}{5} - 2992x^4 + 1704x^3 + 1512x^2 + 432x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((1-2*x)**2*(2+3*x)**4*(3+5*x)**3,x)
```

```
[Out] 4050*x**10 + 15600*x**9 + 175365*x**8/8 + 66873*x**7/7 - 46885*x*
*6/6 - 52853*x**5/5 - 2992*x**4 + 1704*x**3 + 1512*x**2 + 432*x
```

GIAC/XCAS [A] time = 0.230111, size = 66, normalized size = 0.99

$$4050\,x^{10} + 15600\,x^9 + \frac{175365}{8}\,x^8 + \frac{66873}{7}\,x^7 - \frac{46885}{6}\,x^6 - \frac{52853}{5}\,x^5 - 2992\,x^4 + 1704\,x^3 + 1512\,x^2 + 432\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^4*(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 4050*x^10 + 15600*x^9 + 175365/8*x^8 + 66873/7*x^7 - 46885/6*x^6
- 52853/5*x^5 - 2992*x^4 + 1704*x^3 + 1512*x^2 + 432*x
```

3.1260 $\int (1-2x)^2(2+3x)^3(3+5x)^3\,dx$

Optimal. Leaf size=67

$$\frac{500(3x+2)^9}{6561}-\frac{475}{729}(3x+2)^8+\frac{8285(3x+2)^7}{5103}-\frac{4099(3x+2)^6}{4374}+\frac{763(3x+2)^5}{3645}-\frac{49(3x+2)^4}{2916}$$

```
[Out] (-49*(2 + 3*x)^4)/2916 + (763*(2 + 3*x)^5)/3645 - (4099*(2 + 3*x)
^6)/4374 + (8285*(2 + 3*x)^7)/5103 - (475*(2 + 3*x)^8)/729 + (500
*(2 + 3*x)^9)/6561
```

Rubi [A] time = 0.0956704, antiderivative size = 67, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$\frac{500(3x+2)^9}{6561}-\frac{475}{729}(3x+2)^8+\frac{8285(3x+2)^7}{5103}-\frac{4099(3x+2)^6}{4374}+\frac{763(3x+2)^5}{3645}-\frac{49(3x+2)^4}{2916}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^2*(2 + 3*x)^3*(3 + 5*x)^3,x]
```

```
[Out] (-49*(2 + 3*x)^4)/2916 + (763*(2 + 3*x)^5)/3645 - (4099*(2 + 3*x)
^6)/4374 + (8285*(2 + 3*x)^7)/5103 - (475*(2 + 3*x)^8)/729 + (500
*(2 + 3*x)^9)/6561
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$1500x^9+4725x^8+\frac{33255x^7}{7}+\frac{121x^6}{6}-\frac{15709x^5}{5}-\frac{7145x^4}{4}+258x^3+216x+1188\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(2+3*x)**3*(3+5*x)**3,x)
```

```
[Out] 1500*x**9 + 4725*x**8 + 33255*x**7/7 + 121*x**6/6 - 15709*x**5/5
- 7145*x**4/4 + 258*x**3 + 216*x + 1188*Integral(x, x)
```

Mathematica [A] time = 0.0040721, size = 52, normalized size = 0.78

$$1500x^9+4725x^8+\frac{33255x^7}{7}+\frac{121x^6}{6}-\frac{15709x^5}{5}-\frac{7145x^4}{4}+258x^3+594x^2+216x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^2*(2 + 3*x)^3*(3 + 5*x)^3,x]
```

```
[Out] 216*x + 594*x^2 + 258*x^3 - (7145*x^4)/4 - (15709*x^5)/5 + (121*x
^6)/6 + (33255*x^7)/7 + 4725*x^8 + 1500*x^9
```

Maple [A] time = 0.003, size = 45, normalized size = 0.7

$$1500\,x^9+4725\,x^8+\frac{33255\,x^7}{7}+\frac{121\,x^6}{6}-\frac{15709\,x^5}{5}-\frac{7145\,x^4}{4}+258\,x^3+594\,x^2+216\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(2+3*x)^3*(3+5*x)^3,x)
```

```
[Out] 1500*x^9+4725*x^8+33255/7*x^7+121/6*x^6-15709/5*x^5-7145/4*x^4+25
8*x^3+594*x^2+216*x
```

Maxima [A] time = 1.35002, size = 59, normalized size = 0.88

$$1500\,x^9 + 4725\,x^8 + \frac{33255}{7}\,x^7 + \frac{121}{6}\,x^6 - \frac{15709}{5}\,x^5 - \frac{7145}{4}\,x^4 + 258\,x^3 + 594\,x^2 + 216\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^3*(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 1500*x^9 + 4725*x^8 + 33255/7*x^7 + 121/6*x^6 - 15709/5*x^5 - 714
5/4*x^4 + 258*x^3 + 594*x^2 + 216*x
```

Fricas [A] time = 0.177569, size = 1, normalized size = 0.01

$$1500x^9 + 4725x^8 + \frac{33255}{7}x^7 + \frac{121}{6}x^6 - \frac{15709}{5}x^5 - \frac{7145}{4}x^4 + 258x^3 + 594x^2 + 216x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^3*(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 1500*x^9 + 4725*x^8 + 33255/7*x^7 + 121/6*x^6 - 15709/5*x^5 - 714
5/4*x^4 + 258*x^3 + 594*x^2 + 216*x
```

Sympy [A] time = 0.105592, size = 49, normalized size = 0.73

$$1500x^9 + 4725x^8 + \frac{33255x^7}{7} + \frac{121x^6}{6} - \frac{15709x^5}{5} - \frac{7145x^4}{4} + 258x^3 + 594x^2 + 216x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(2+3*x)**3*(3+5*x)**3,x)
```

```
[Out] 1500*x**9 + 4725*x**8 + 33255*x**7/7 + 121*x**6/6 - 15709*x**5/5
- 7145*x**4/4 + 258*x**3 + 594*x**2 + 216*x
```

GIAC/XCAS [A] time = 0.220386, size = 59, normalized size = 0.88

$$1500\,x^9 + 4725\,x^8 + \frac{33255}{7}\,x^7 + \frac{121}{6}\,x^6 - \frac{15709}{5}\,x^5 - \frac{7145}{4}\,x^4 + 258\,x^3 + 594\,x^2 + 216\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^3*(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 1500*x^9 + 4725*x^8 + 33255/7*x^7 + 121/6*x^6 - 15709/5*x^5 - 714
5/4*x^4 + 258*x^3 + 594*x^2 + 216*x
```

3.1261 $\int (1-2x)^2(2+3x)^2(3+5x)^3\,dx$

Optimal. Leaf size=56

$$\frac{9(5x+3)^8}{6250}-\frac{372(5x+3)^7}{21875}+\frac{829(5x+3)^6}{18750}+\frac{682(5x+3)^5}{15625}+\frac{121(5x+3)^4}{12500}$$

```
[Out] (121*(3 + 5*x)^4)/12500 + (682*(3 + 5*x)^5)/15625 + (829*(3 + 5*x
)^6)/18750 - (372*(3 + 5*x)^7)/21875 + (9*(3 + 5*x)^8)/6250
```

Rubi [A] time = 0.0838589, antiderivative size = 56, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$\frac{9(5x+3)^8}{6250}-\frac{372(5x+3)^7}{21875}+\frac{829(5x+3)^6}{18750}+\frac{682(5x+3)^5}{15625}+\frac{121(5x+3)^4}{12500}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^2*(2 + 3*x)^2*(3 + 5*x)^3,x]
```

```
[Out] (121*(3 + 5*x)^4)/12500 + (682*(3 + 5*x)^5)/15625 + (829*(3 + 5*x
)^6)/18750 - (372*(3 + 5*x)^7)/21875 + (9*(3 + 5*x)^8)/6250
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{1125x^8}{2}+\frac{9600x^7}{7}+\frac{4685x^6}{6}-\frac{3083x^5}{5}-\frac{3181x^4}{4}-87x^3+108x+432\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(2+3*x)**2*(3+5*x)**3,x)
```

```
[Out] 1125*x**8/2 + 9600*x**7/7 + 4685*x**6/6 - 3083*x**5/5 - 3181*x**4
/4 - 87*x**3 + 108*x + 432*Integral(x, x)
```

Mathematica [A] time = 0.00396843, size = 49, normalized size = 0.88

$$\frac{1125x^8}{2}+\frac{9600x^7}{7}+\frac{4685x^6}{6}-\frac{3083x^5}{5}-\frac{3181x^4}{4}-87x^3+216x^2+108x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^2*(2 + 3*x)^2*(3 + 5*x)^3,x]
```

```
[Out] 108*x + 216*x^2 - 87*x^3 - (3181*x^4)/4 - (3083*x^5)/5 + (4685*x^
6)/6 + (9600*x^7)/7 + (1125*x^8)/2
```

Maple [A] time = 0.002, size = 40, normalized size = 0.7

$$\frac{1125\,x^8}{2}+\frac{9600\,x^7}{7}+\frac{4685\,x^6}{6}-\frac{3083\,x^5}{5}-\frac{3181\,x^4}{4}-87\,x^3+216\,x^2+108\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(2+3*x)^2*(3+5*x)^3,x)
```

```
[Out] 1125/2*x^8+9600/7*x^7+4685/6*x^6-3083/5*x^5-3181/4*x^4-87*x^3+216
*x^2+108*x
```

Maxima [A] time = 1.32801, size = 53, normalized size = 0.95

$$\frac{1125}{2}x^8 + \frac{9600}{7}x^7 + \frac{4685}{6}x^6 - \frac{3083}{5}x^5 - \frac{3181}{4}x^4 - 87x^3 + 216x^2 + 108x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^2*(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 1125/2*x^8 + 9600/7*x^7 + 4685/6*x^6 - 3083/5*x^5 - 3181/4*x^4 -
87*x^3 + 216*x^2 + 108*x
```

Fricas [A] time = 0.186641, size = 1, normalized size = 0.02

$$\frac{1125}{2}x^8 + \frac{9600}{7}x^7 + \frac{4685}{6}x^6 - \frac{3083}{5}x^5 - \frac{3181}{4}x^4 - 87x^3 + 216x^2 + 108x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^2*(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 1125/2*x^8 + 9600/7*x^7 + 4685/6*x^6 - 3083/5*x^5 - 3181/4*x^4 -
87*x^3 + 216*x^2 + 108*x
```

Sympy [A] time = 0.095328, size = 46, normalized size = 0.82

$$\frac{1125x^8}{2} + \frac{9600x^7}{7} + \frac{4685x^6}{6} - \frac{3083x^5}{5} - \frac{3181x^4}{4} - 87x^3 + 216x^2 + 108x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(2+3*x)**2*(3+5*x)**3,x)
```

```
[Out] 1125*x**8/2 + 9600*x**7/7 + 4685*x**6/6 - 3083*x**5/5 - 3181*x**4
/4 - 87*x**3 + 216*x**2 + 108*x
```

GIAC/XCAS [A] time = 0.212383, size = 53, normalized size = 0.95

$$\frac{1125}{2}x^8 + \frac{9600}{7}x^7 + \frac{4685}{6}x^6 - \frac{3083}{5}x^5 - \frac{3181}{4}x^4 - 87x^3 + 216x^2 + 108x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^2*(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 1125/2*x^8 + 9600/7*x^7 + 4685/6*x^6 - 3083/5*x^5 - 3181/4*x^4 -
87*x^3 + 216*x^2 + 108*x
```

3.1262 $\int (1-2x)^2(2+3x)(3+5x)^3\,dx$

Optimal. Leaf size=45

$$\frac{12(5x+3)^7}{4375}-\frac{64(5x+3)^6}{1875}+\frac{319(5x+3)^5}{3125}+\frac{121(5x+3)^4}{2500}$$

```
[Out] (121*(3 + 5*x)^4)/2500 + (319*(3 + 5*x)^5)/3125 - (64*(3 + 5*x)^6
)/1875 + (12*(3 + 5*x)^7)/4375
```

Rubi [A] time = 0.0635102, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$\frac{12(5x+3)^7}{4375}-\frac{64(5x+3)^6}{1875}+\frac{319(5x+3)^5}{3125}+\frac{121(5x+3)^4}{2500}$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^2*(2 + 3*x)*(3 + 5*x)^3,x]
```

```
[Out] (121*(3 + 5*x)^4)/2500 + (319*(3 + 5*x)^5)/3125 - (64*(3 + 5*x)^6
)/1875 + (12*(3 + 5*x)^7)/4375
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{1500x^7}{7}+\frac{1100x^6}{3}+19x^5-\frac{1091x^4}{4}-111x^3+54x+135\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**2*(2+3*x)*(3+5*x)**3,x)
```

```
[Out] 1500*x**7/7 + 1100*x**6/3 + 19*x**5 - 1091*x**4/4 - 111*x**3 + 54
*x + 135*Integral(x, x)
```

Mathematica [A] time = 0.00167479, size = 42, normalized size = 0.93

$$\frac{1500x^7}{7}+\frac{1100x^6}{3}+19x^5-\frac{1091x^4}{4}-111x^3+\frac{135x^2}{2}+54x$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)^2*(2 + 3*x)*(3 + 5*x)^3,x]
```

```
[Out] 54*x + (135*x^2)/2 - 111*x^3 - (1091*x^4)/4 + 19*x^5 + (1100*x^6)
/3 + (1500*x^7)/7
```

Maple [A] time = 0.003, size = 35, normalized size = 0.8

$$\frac{1500\,x^7}{7}+\frac{1100\,x^6}{3}+19\,x^5-\frac{1091\,x^4}{4}-111\,x^3+\frac{135\,x^2}{2}+54\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(2+3*x)*(3+5*x)^3,x)
```

```
[Out] 1500/7*x^7+1100/3*x^6+19*x^5-1091/4*x^4-111*x^3+135/2*x^2+54*x
```

Maxima [A] time = 1.34272, size = 46, normalized size = 1.02

$$\frac{1500}{7}\,x^7+\frac{1100}{3}\,x^6+19\,x^5-\frac{1091}{4}\,x^4-111\,x^3+\frac{135}{2}\,x^2+54\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)*(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 1500/7*x^7 + 1100/3*x^6 + 19*x^5 - 1091/4*x^4 - 111*x^3 + 135/2*x
^2 + 54*x
```

Fricas [A] time = 0.192873, size = 1, normalized size = 0.02

$$\frac{1500}{7}x^7+\frac{1100}{3}x^6+19x^5-\frac{1091}{4}x^4-111x^3+\frac{135}{2}x^2+54x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)*(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 1500/7*x^7 + 1100/3*x^6 + 19*x^5 - 1091/4*x^4 - 111*x^3 + 135/2*x
^2 + 54*x
```

Sympy [A] time = 0.083081, size = 39, normalized size = 0.87

$$\frac{1500x^7}{7}+\frac{1100x^6}{3}+19x^5-\frac{1091x^4}{4}-111x^3+\frac{135x^2}{2}+54x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(2+3*x)*(3+5*x)**3,x)
```

```
[Out] 1500*x**7/7 + 1100*x**6/3 + 19*x**5 - 1091*x**4/4 - 111*x**3 + 13
5*x**2/2 + 54*x
```

GIAC/XCAS [A] time = 0.232447, size = 46, normalized size = 1.02

$$\frac{1500}{7}\,x^7+\frac{1100}{3}\,x^6+19\,x^5-\frac{1091}{4}\,x^4-111\,x^3+\frac{135}{2}\,x^2+54\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)*(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 1500/7*x^7 + 1100/3*x^6 + 19*x^5 - 1091/4*x^4 - 111*x^3 + 135/2*x
^2 + 54*x
```

3.1263 $\int (1-2x)^2(3+5x)^3 \, dx$

Optimal. Leaf size=34

$$\frac{2}{375}(5x+3)^6 - \frac{44}{625}(5x+3)^5 + \frac{121}{500}(5x+3)^4$$

```
[Out] (121*(3 + 5*x)^4)/500 - (44*(3 + 5*x)^5)/625 + (2*(3 + 5*x)^6)/37
5
```

Rubi [A] time = 0.0368185, antiderivative size = 34, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}} = 0.067$

$$\frac{2}{375}(5x+3)^6 - \frac{44}{625}(5x+3)^5 + \frac{121}{500}(5x+3)^4$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^2*(3 + 5*x)^3,x]
```

```
[Out] (121*(3 + 5*x)^4)/500 - (44*(3 + 5*x)^5)/625 + (2*(3 + 5*x)^6)/37
5
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{250x^6}{3} + 80x^5 - \frac{235x^4}{4} - 69x^3 + 27x + 27\int x \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**2*(3+5*x)**3,x)
```

```
[Out] 250*x**6/3 + 80*x**5 - 235*x**4/4 - 69*x**3 + 27*x + 27*Integral(
x, x)
```

Mathematica [A] time = 0.00132313, size = 35, normalized size = 1.03

$$\frac{250x^6}{3} + 80x^5 - \frac{235x^4}{4} - 69x^3 + \frac{27x^2}{2} + 27x$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)^2*(3 + 5*x)^3,x]
```

```
[Out] 27*x + (27*x^2)/2 - 69*x^3 - (235*x^4)/4 + 80*x^5 + (250*x^6)/3
```

Maple [A] time = 0.003, size = 30, normalized size = 0.9

$$\frac{250\,x^6}{3} + 80\,x^5 - \frac{235\,x^4}{4} - 69\,x^3 + \frac{27\,x^2}{2} + 27\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((1-2*x)^2*(3+5*x)^3,x)
```

```
[Out] 250/3*x^6+80*x^5-235/4*x^4-69*x^3+27/2*x^2+27*x
```

Maxima [A] time = 1.33278, size = 39, normalized size = 1.15

$$\frac{250}{3}\,x^6 + 80\,x^5 - \frac{235}{4}\,x^4 - 69\,x^3 + \frac{27}{2}\,x^2 + 27\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(2*x - 1)^2,x, algorithm="maxima")

[Out] 250/3*x^6 + 80*x^5 - 235/4*x^4 - 69*x^3 + 27/2*x^2 + 27*x
```

Fricas [A] time = 0.187849, size = 1, normalized size = 0.03

$$\frac{250}{3}x^6 + 80x^5 - \frac{235}{4}x^4 - 69x^3 + \frac{27}{2}x^2 + 27x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(2*x - 1)^2,x, algorithm="fricas")

[Out] 250/3*x^6 + 80*x^5 - 235/4*x^4 - 69*x^3 + 27/2*x^2 + 27*x
```

Sympy [A] time = 0.084692, size = 32, normalized size = 0.94

$$\frac{250x^6}{3} + 80x^5 - \frac{235x^4}{4} - 69x^3 + \frac{27x^2}{2} + 27x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(3+5*x)**3,x)

[Out] 250*x**6/3 + 80*x**5 - 235*x**4/4 - 69*x**3 + 27*x**2/2 + 27*x
```

GIAC/XCAS [A] time = 0.224801, size = 39, normalized size = 1.15

$$\frac{250}{3}\,x^6 + 80\,x^5 - \frac{235}{4}\,x^4 - 69\,x^3 + \frac{27}{2}\,x^2 + 27\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(2*x - 1)^2,x, algorithm="giac")

[Out] 250/3*x^6 + 80*x^5 - 235/4*x^4 - 69*x^3 + 27/2*x^2 + 27*x
```

3.1264 $\int \frac{(1-2x)^2(3+5x)^3}{2+3x} dx$

Optimal. Leaf size=44

$$\frac{100x^5}{3}+\frac{50x^4}{9}-\frac{2515x^3}{81}-\frac{559x^2}{162}+\frac{3305x}{243}-\frac{49}{729}\log(3x+2)$$

```
[Out] (3305*x)/243 - (559*x^2)/162 - (2515*x^3)/81 + (50*x^4)/9 + (100*
x^5)/3 - (49*Log[2 + 3*x])/729
```

Rubi [A] time = 0.048391, antiderivative size = 44, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{100x^5}{3}+\frac{50x^4}{9}-\frac{2515x^3}{81}-\frac{559x^2}{162}+\frac{3305x}{243}-\frac{49}{729}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)^2*(3 + 5*x)^3)/(2 + 3*x),x]
```

```
[Out] (3305*x)/243 - (559*x^2)/162 - (2515*x^3)/81 + (50*x^4)/9 + (100*
x^5)/3 - (49*Log[2 + 3*x])/729
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{100x^5}{3}+\frac{50x^4}{9}-\frac{2515x^3}{81}-\frac{49\log(3x+2)}{729}+\int\frac{3305}{243}\,dx-\frac{559\int x\,dx}{81}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**2*(3+5*x)**3/(2+3*x),x)
```

```
[Out] 100*x**5/3 + 50*x**4/9 - 2515*x**3/81 - 49*log(3*x + 2)/729 + Int
egral(3305/243, x) - 559*Integral(x, x)/81
```

Mathematica [A] time = 0.0179187, size = 37, normalized size = 0.84

$$\frac{145800x^5+24300x^4-135810x^3-15093x^2+59490x-294\log(3x+2)+20528}{4374}$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)^2*(3 + 5*x)^3)/(2 + 3*x),x]
```

```
[Out] (20528 + 59490*x - 15093*x^2 - 135810*x^3 + 24300*x^4 + 145800*x^
5 - 294*Log[2 + 3*x])/4374
```

Maple [A] time = 0.004, size = 33, normalized size = 0.8

$$\frac{3305\,x}{243}-\frac{559\,x^2}{162}-\frac{2515\,x^3}{81}+\frac{50\,x^4}{9}+\frac{100\,x^5}{3}-\frac{49\,\ln(2+3\,x)}{729}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(3+5*x)^3/(2+3*x),x)
```

```
[Out] 3305/243*x-559/162*x^2-2515/81*x^3+50/9*x^4+100/3*x^5-49/729*ln(2
+3*x)
```

Maxima [A] time = 1.33425, size = 43, normalized size = 0.98

$$\frac{100}{3}x^5 + \frac{50}{9}x^4 - \frac{2515}{81}x^3 - \frac{559}{162}x^2 + \frac{3305}{243}x - \frac{49}{729}\log(3x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(2*x - 1)^2/(3*x + 2),x, algorithm="maxima")
```

```
[Out] 100/3*x^5 + 50/9*x^4 - 2515/81*x^3 - 559/162*x^2 + 3305/243*x - 4
9/729*log(3*x + 2)
```

Fricas [A] time = 0.207935, size = 43, normalized size = 0.98

$$\frac{100}{3}x^5 + \frac{50}{9}x^4 - \frac{2515}{81}x^3 - \frac{559}{162}x^2 + \frac{3305}{243}x - \frac{49}{729}\log(3x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(2*x - 1)^2/(3*x + 2),x, algorithm="fricas")
```

```
[Out] 100/3*x^5 + 50/9*x^4 - 2515/81*x^3 - 559/162*x^2 + 3305/243*x - 4
9/729*log(3*x + 2)
```

Sympy [A] time = 0.176873, size = 41, normalized size = 0.93

$$\frac{100x^5}{3} + \frac{50x^4}{9} - \frac{2515x^3}{81} - \frac{559x^2}{162} + \frac{3305x}{243} - \frac{49\log(3x+2)}{729}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(3+5*x)**3/(2+3*x),x)
```

```
[Out] 100*x**5/3 + 50*x**4/9 - 2515*x**3/81 - 559*x**2/162 + 3305*x/243
 - 49*log(3*x + 2)/729
```

GIAC/XCAS [A] time = 0.222979, size = 45, normalized size = 1.02

$$\frac{100}{3}x^5 + \frac{50}{9}x^4 - \frac{2515}{81}x^3 - \frac{559}{162}x^2 + \frac{3305}{243}x - \frac{49}{729}\ln(|3x+2|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(2*x - 1)^2/(3*x + 2),x, algorithm="giac")
```

```
[Out] 100/3*x^5 + 50/9*x^4 - 2515/81*x^3 - 559/162*x^2 + 3305/243*x - 4
9/729*ln(abs(3*x + 2))
```

3.1265 $\int \frac{(1-2x)^2(3+5x)^3}{(2+3x)^2} dx$

Optimal. Leaf size=48

$$\frac{125x^4}{9} - \frac{800x^3}{81} - \frac{305x^2}{54} + \frac{1271x}{243} + \frac{49}{729(3x+2)} + \frac{763}{729}\log(3x+2)$$

```
[Out] (1271*x)/243 - (305*x^2)/54 - (800*x^3)/81 + (125*x^4)/9 + 49/(72
9*(2 + 3*x)) + (763*Log[2 + 3*x])/729
```

Rubi [A] time = 0.0625944, antiderivative size = 48, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$\frac{125x^4}{9} - \frac{800x^3}{81} - \frac{305x^2}{54} + \frac{1271x}{243} + \frac{49}{729(3x+2)} + \frac{763}{729}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)^2*(3 + 5*x)^3)/(2 + 3*x)^2,x]
```

```
[Out] (1271*x)/243 - (305*x^2)/54 - (800*x^3)/81 + (125*x^4)/9 + 49/(72
9*(2 + 3*x)) + (763*Log[2 + 3*x])/729
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{125x^4}{9} - \frac{800x^3}{81} + \frac{763\log(3x+2)}{729} + \int \frac{1271}{243}\,dx - \frac{305\int x\,dx}{27} + \frac{49}{729\,(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**2*(3+5*x)**3/(2+3*x)**2,x)
```

```
[Out] 125*x**4/9 - 800*x**3/81 + 763*log(3*x + 2)/729 + Integral(1271/2
43, x) - 305*Integral(x, x)/27 + 49/(729*(3*x + 2))
```

Mathematica [A] time = 0.0504092, size = 49, normalized size = 1.02

$$\frac{182250x^5 - 8100x^4 - 160515x^3 + 19224x^2 + 50052x + 4578(3x+2)\log(30x+20) + 3158}{4374(3x+2)}$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)^2*(3 + 5*x)^3)/(2 + 3*x)^2,x]
```

```
[Out] (3158 + 50052*x + 19224*x^2 - 160515*x^3 - 8100*x^4 + 182250*x^5
+ 4578*(2 + 3*x)*Log[20 + 30*x])/(4374*(2 + 3*x))
```

Maple [A] time = 0.008, size = 37, normalized size = 0.8

$$\frac{1271\,x}{243} - \frac{305\,x^2}{54} - \frac{800\,x^3}{81} + \frac{125\,x^4}{9} + \frac{49}{1458+2187\,x} + \frac{763\,\ln(2+3\,x)}{729}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(3+5*x)^3/(2+3*x)^2,x)
```

```
[Out] 1271/243*x-305/54*x^2-800/81*x^3+125/9*x^4+49/729/(2+3*x)+763/729
*ln(2+3*x)
```

Maxima [A] time = 1.33021, size = 49, normalized size = 1.02

$$\frac{125}{9}\,x^4 - \frac{800}{81}\,x^3 - \frac{305}{54}\,x^2 + \frac{1271}{243}\,x + \frac{49}{729\,(3\,x+2)} + \frac{763}{729}\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(2*x - 1)^2/(3*x + 2)^2,x, algorithm="maxima")
```

```
[Out] 125/9*x^4 - 800/81*x^3 - 305/54*x^2 + 1271/243*x + 49/729/(3*x +
2) + 763/729*log(3*x + 2)
```

Fricas [A] time = 0.205803, size = 63, normalized size = 1.31

$$\frac{60750\,x^5 - 2700\,x^4 - 53505\,x^3 + 6408\,x^2 + 1526\,(3\,x+2)\log\left(3\,x+2\right) + 15252\,x + 98}{1458\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(2*x - 1)^2/(3*x + 2)^2,x, algorithm="fricas")
```

```
[Out] 1/1458*(60750*x^5 - 2700*x^4 - 53505*x^3 + 6408*x^2 + 1526*(3*x +
 2)*log(3*x + 2) + 15252*x + 98)/(3*x + 2)
```

Sympy [A] time = 0.214886, size = 41, normalized size = 0.85

$$\frac{125x^4}{9} - \frac{800x^3}{81} - \frac{305x^2}{54} + \frac{1271x}{243} + \frac{763\log\left(3x+2\right)}{729} + \frac{49}{2187x+1458}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(3+5*x)**3/(2+3*x)**2,x)
```

```
[Out] 125*x**4/9 - 800*x**3/81 - 305*x**2/54 + 1271*x/243 + 763*log(3*x
 + 2)/729 + 49/(2187*x + 1458)
```

GIAC/XCAS [A] time = 0.220763, size = 89, normalized size = 1.85

$$-\frac{1}{4374}\,(3\,x+2)^4\left(\frac{7600}{3\,x+2} - \frac{24855}{(3\,x+2)^2} + \frac{24594}{(3\,x+2)^3} - 750\right) + \frac{49}{729\,(3\,x+2)} - \frac{763}{729}\ln\left(\frac{|3\,x+2|}{3\,(3\,x+2)^2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(2*x - 1)^2/(3*x + 2)^2,x, algorithm="giac")
```

```
[Out] -1/4374*(3*x + 2)^4*(7600/(3*x + 2) - 24855/(3*x + 2)^2 + 24594/(
3*x + 2)^3 - 750) + 49/729/(3*x + 2) - 763/729*ln(1/3*abs(3*x + 2
)/(3*x + 2)^2)
```

3.1266 $\int \frac{(1-2x)^2(3+5x)^3}{(2+3x)^3} dx$

Optimal. Leaf size=52

$$\frac{500x^3}{81} - \frac{100x^2}{9} + \frac{895x}{81} - \frac{763}{729(3x+2)} + \frac{49}{1458(3x+2)^2} - \frac{4099}{729}\log(3x+2)$$

```
[Out] (895*x)/81 - (100*x^2)/9 + (500*x^3)/81 + 49/(1458*(2 + 3*x)^2) -
 763/(729*(2 + 3*x)) - (4099*Log[2 + 3*x])/729
```

Rubi [A] time = 0.0667625, antiderivative size = 52, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$\frac{500x^3}{81} - \frac{100x^2}{9} + \frac{895x}{81} - \frac{763}{729(3x+2)} + \frac{49}{1458(3x+2)^2} - \frac{4099}{729}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)^2*(3 + 5*x)^3)/(2 + 3*x)^3,x]
```

```
[Out] (895*x)/81 - (100*x^2)/9 + (500*x^3)/81 + 49/(1458*(2 + 3*x)^2) -
 763/(729*(2 + 3*x)) - (4099*Log[2 + 3*x])/729
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{500x^3}{81} - \frac{4099\log(3x+2)}{729} + \int \frac{895}{81}\,dx - \frac{200\int x\,dx}{9} - \frac{763}{729(3x+2)} + \frac{49}{1458(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**2*(3+5*x)**3/(2+3*x)**3,x)
```

```
[Out] 500*x**3/81 - 4099*log(3*x + 2)/729 + Integral(895/81, x) - 200*I
ntegral(x, x)/9 - 763/(729*(3*x + 2)) + 49/(1458*(3*x + 2)**2)
```

Mathematica [A] time = 0.0509186, size = 51, normalized size = 0.98

$$\frac{243000x^5 - 113400x^4 - 40230x^3 + 941940x^2 + 921426x - 24594(3x+2)^2\log(30x+20) + 238271}{4374(3x+2)^2}$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)^2*(3 + 5*x)^3)/(2 + 3*x)^3,x]
```

```
[Out] (238271 + 921426*x + 941940*x^2 - 40230*x^3 - 113400*x^4 + 243000
*x^5 - 24594*(2 + 3*x)^2*Log[20 + 30*x])/(4374*(2 + 3*x)^2)
```

Maple [A] time = 0.009, size = 41, normalized size = 0.8

$$\frac{895\,x}{81} - \frac{100\,x^2}{9} + \frac{500\,x^3}{81} + \frac{49}{1458\,(2+3\,x)^2} - \frac{763}{1458+2187\,x} - \frac{4099\,\ln(2+3\,x)}{729}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(3+5*x)^3/(2+3*x)^3,x)
```

```
[Out] 895/81*x-100/9*x^2+500/81*x^3+49/1458/(2+3*x)^2-763/729/(2+3*x)-4
099/729*ln(2+3*x)
```

Maxima [A] time = 1.35488, size = 55, normalized size = 1.06

$$\frac{500}{81}\,x^3-\frac{100}{9}\,x^2+\frac{895}{81}\,x-\frac{7\,(218\,x+143)}{486\,(9\,x^2+12\,x+4)}-\frac{4099}{729}\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(2*x - 1)^2/(3*x + 2)^3,x, algorithm="maxima")
```

```
[Out] 500/81*x^3 - 100/9*x^2 + 895/81*x - 7/486*(218*x + 143)/(9*x^2 +
12*x + 4) - 4099/729*log(3*x + 2)
```

Fricas [A] time = 0.20655, size = 77, normalized size = 1.48

$$\frac{81000\,x^5-37800\,x^4-13410\,x^3+128520\,x^2-8198\,\left(9\,x^2+12\,x+4\right)\log\left(3\,x+2\right)+59862\,x-3003}{1458\,(9\,x^2+12\,x+4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(2*x - 1)^2/(3*x + 2)^3,x, algorithm="fricas")
```

```
[Out] 1/1458*(81000*x^5 - 37800*x^4 - 13410*x^3 + 128520*x^2 - 8198*(9*
x^2 + 12*x + 4)*log(3*x + 2) + 59862*x - 3003)/(9*x^2 + 12*x + 4)
```

Sympy [A] time = 0.287112, size = 42, normalized size = 0.81

$$\frac{500x^3}{81}-\frac{100x^2}{9}+\frac{895x}{81}-\frac{1526x+1001}{4374x^2+5832x+1944}-\frac{4099\log\left(3x+2\right)}{729}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(3+5*x)**3/(2+3*x)**3,x)
```

```
[Out] 500*x**3/81 - 100*x**2/9 + 895*x/81 - (1526*x + 1001)/(4374*x**2
+ 5832*x + 1944) - 4099*log(3*x + 2)/729
```

GIAC/XCAS [A] time = 0.213517, size = 50, normalized size = 0.96

$$\frac{500}{81}\,x^3-\frac{100}{9}\,x^2+\frac{895}{81}\,x-\frac{7\,(218\,x+143)}{486\,(3\,x+2)^2}-\frac{4099}{729}\,\ln\left(|3\,x+2|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(2*x - 1)^2/(3*x + 2)^3,x, algorithm="giac")
```

```
[Out] 500/81*x^3 - 100/9*x^2 + 895/81*x - 7/486*(218*x + 143)/(3*x + 2)
^2 - 4099/729*ln(abs(3*x + 2))
```

3.1267 $\int \frac{(1-2x)^2(3+5x)^3}{(2+3x)^4} dx$

Optimal. Leaf size=56

$$\frac{250x^2}{81} - \frac{2800x}{243} + \frac{4099}{729(3x+2)} - \frac{763}{1458(3x+2)^2} + \frac{49}{2187(3x+2)^3} + \frac{8285}{729}\log(3x+2)$$

```
[Out] (-2800*x)/243 + (250*x^2)/81 + 49/(2187*(2 + 3*x)^3) - 763/(1458*
(2 + 3*x)^2) + 4099/(729*(2 + 3*x)) + (8285*Log[2 + 3*x])/729
```

Rubi [A] time = 0.0684908, antiderivative size = 56, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$\frac{250x^2}{81} - \frac{2800x}{243} + \frac{4099}{729(3x+2)} - \frac{763}{1458(3x+2)^2} + \frac{49}{2187(3x+2)^3} + \frac{8285}{729}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^2*(3 + 5*x)^3)/(2 + 3*x)^4,x]
```

```
[Out] (-2800*x)/243 + (250*x^2)/81 + 49/(2187*(2 + 3*x)^3) - 763/(1458*
(2 + 3*x)^2) + 4099/(729*(2 + 3*x)) + (8285*Log[2 + 3*x])/729
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{8285\log(3x+2)}{729} + \int \left(-\frac{2800}{243}\right) dx + \frac{500\int x\,dx}{81} + \frac{4099}{729(3x+2)} - \frac{763}{1458(3x+2)^2} + \frac{49}{2187(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(3+5*x)**3/(2+3*x)**4,x)
```

```
[Out] 8285*log(3*x + 2)/729 + Integral(-2800/243, x) + 500*Integral(x,
x)/81 + 4099/(729*(3*x + 2)) - 763/(1458*(3*x + 2)**2) + 49/(2187
*(3*x + 2)**3)
```

Mathematica [A] time = 0.053793, size = 51, normalized size = 0.91

$$-\frac{-364500x^5 + 631800x^4 + 3304800x^3 + 3623454x^2 + 1540539x - 49710(3x+2)^3\log(30x+20) + 222904}{4374(3x+2)^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^2*(3 + 5*x)^3)/(2 + 3*x)^4,x]
```

```
[Out] -(222904 + 1540539*x + 3623454*x^2 + 3304800*x^3 + 631800*x^4 - 3
64500*x^5 - 49710*(2 + 3*x)^3*Log[20 + 30*x])/(4374*(2 + 3*x)^3)
```

Maple [A] time = 0.01, size = 45, normalized size = 0.8

$$-\frac{2800\,x}{243} + \frac{250\,x^2}{81} + \frac{49}{2187\,(2+3\,x)^3} - \frac{763}{1458\,(2+3\,x)^2} + \frac{4099}{1458+2187\,x} + \frac{8285\,\ln(2+3\,x)}{729}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(3+5*x)^3/(2+3*x)^4,x)
```

```
[Out] -2800/243*x+250/81*x^2+49/2187/(2+3*x)^3-763/1458/(2+3*x)^2+4099/
729/(2+3*x)+8285/729*ln(2+3*x)
```

Maxima [A] time = 1.32741, size = 62, normalized size = 1.11

$$\frac{250}{81}\,x^2 - \frac{2800}{243}\,x + \frac{221346\,x^2 + 288261\,x + 93896}{4374\,(27\,x^3 + 54\,x^2 + 36\,x + 8)} + \frac{8285}{729}\,\log(3\,x + 2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(2*x - 1)^2/(3*x + 2)^4,x, algorithm="maxima")
```

```
[Out] 250/81*x^2 - 2800/243*x + 1/4374*(221346*x^2 + 288261*x + 93896)/
(27*x^3 + 54*x^2 + 36*x + 8) + 8285/729*log(3*x + 2)
```

Fricas [A] time = 0.214217, size = 90, normalized size = 1.61

$$\frac{364500\,x^5 - 631800\,x^4 - 2235600\,x^3 - 1485054\,x^2 + 49710\,\left(27\,x^3 + 54\,x^2 + 36\,x + 8\right)\log(3\,x + 2) - 114939\,x + 93896}{4374\,(27\,x^3 + 54\,x^2 + 36\,x + 8)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(2*x - 1)^2/(3*x + 2)^4,x, algorithm="fricas")
```

```
[Out] 1/4374*(364500*x^5 - 631800*x^4 - 2235600*x^3 - 1485054*x^2 + 497
10*(27*x^3 + 54*x^2 + 36*x + 8)*log(3*x + 2) - 114939*x + 93896)/
(27*x^3 + 54*x^2 + 36*x + 8)
```

Sympy [A] time = 0.340691, size = 46, normalized size = 0.82

$$\frac{250x^2}{81} - \frac{2800x}{243} + \frac{221346x^2 + 288261x + 93896}{118098x^3 + 236196x^2 + 157464x + 34992} + \frac{8285\log(3x + 2)}{729}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(3+5*x)**3/(2+3*x)**4,x)
```

```
[Out] 250*x**2/81 - 2800*x/243 + (221346*x**2 + 288261*x + 93896)/(1180
98*x**3 + 236196*x**2 + 157464*x + 34992) + 8285*log(3*x + 2)/729
```

GIAC/XCAS [A] time = 0.220863, size = 50, normalized size = 0.89

$$\frac{250}{81}\,x^2 - \frac{2800}{243}\,x + \frac{221346\,x^2 + 288261\,x + 93896}{4374\,(3\,x + 2)^3} + \frac{8285}{729}\ln(|3\,x + 2|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(2*x - 1)^2/(3*x + 2)^4,x, algorithm="giac")
```

```
[Out] 250/81*x^2 - 2800/243*x + 1/4374*(221346*x^2 + 288261*x + 93896)/
(3*x + 2)^3 + 8285/729*ln(abs(3*x + 2))
```

3.1268 $\int \frac{(1-2x)^2(3+5x)^3}{(2+3x)^5}\,dx$

Optimal. Leaf size=60

$$\frac{500x}{243}-\frac{8285}{729(3x+2)}+\frac{4099}{1458(3x+2)^2}-\frac{763}{2187(3x+2)^3}+\frac{49}{2916(3x+2)^4}-\frac{3800}{729}\log(3x+2)$$

```
[Out] (500*x)/243 + 49/(2916*(2 + 3*x)^4) - 763/(2187*(2 + 3*x)^3) + 40
99/(1458*(2 + 3*x)^2) - 8285/(729*(2 + 3*x)) - (3800*Log[2 + 3*x]
)/729
```

Rubi [A] time = 0.071009, antiderivative size = 60, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{500x}{243}-\frac{8285}{729(3x+2)}+\frac{4099}{1458(3x+2)^2}-\frac{763}{2187(3x+2)^3}+\frac{49}{2916(3x+2)^4}-\frac{3800}{729}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^2*(3 + 5*x)^3)/(2 + 3*x)^5,x]
```

```
[Out] (500*x)/243 + 49/(2916*(2 + 3*x)^4) - 763/(2187*(2 + 3*x)^3) + 40
99/(1458*(2 + 3*x)^2) - 8285/(729*(2 + 3*x)) - (3800*Log[2 + 3*x]
)/729
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{3800\log(3x+2)}{729}+\int\frac{500}{243}\,dx-\frac{8285}{729(3x+2)}+\frac{4099}{1458(3x+2)^2}-\frac{763}{2187(3x+2)^3}+\frac{49}{2916(3x+2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(3+5*x)**3/(2+3*x)**5,x)
```

```
[Out] -3800*log(3*x + 2)/729 + Integral(500/243, x) - 8285/(729*(3*x +
2)) + 4099/(1458*(3*x + 2)**2) - 763/(2187*(3*x + 2)**3) + 49/(29
16*(3*x + 2)**4)
```

Mathematica [A] time = 0.0541261, size = 51, normalized size = 0.85

$$\frac{1458000x^5+4860000x^4+3795660x^3-827334x^2-1853148x-45600(3x+2)^4\log(30x+20)-510941}{8748(3x+2)^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^2*(3 + 5*x)^3)/(2 + 3*x)^5,x]
```

```
[Out] (-510941 - 1853148*x - 827334*x^2 + 3795660*x^3 + 4860000*x^4 + 1
458000*x^5 - 45600*(2 + 3*x)^4*Log[20 + 30*x])/(8748*(2 + 3*x)^4)
```

Maple [A] time = 0.01, size = 49, normalized size = 0.8

$$\frac{500\,x}{243}+\frac{49}{2916\,(2+3\,x)^4}-\frac{763}{2187\,(2+3\,x)^3}+\frac{4099}{1458\,(2+3\,x)^2}-\frac{8285}{1458+2187\,x}-\frac{3800\,\ln(2+3\,x)}{729}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(3+5*x)^3/(2+3*x)^5,x)
```

```
[Out] 500/243*x+49/2916/(2+3*x)^4-763/2187/(2+3*x)^3+4099/1458/(2+3*x)^
2-8285/729/(2+3*x)-3800/729*ln(2+3*x)
```

Maxima [A] time = 1.32572, size = 69, normalized size = 1.15

$$\frac{500}{243}\,x - \frac{2684340\,x^3 + 5147334\,x^2 + 3293148\,x + 702941}{8748\,(81\,x^4 + 216\,x^3 + 216\,x^2 + 96\,x + 16)} - \frac{3800}{729}\,\log\left(3\,x + 2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(2*x - 1)^2/(3*x + 2)^5,x, algorithm="maxima")
```

```
[Out] 500/243*x - 1/8748*(2684340*x^3 + 5147334*x^2 + 3293148*x + 70294
1)/(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16) - 3800/729*log(3*x +
2)
```

Fricas [A] time = 0.202303, size = 104, normalized size = 1.73

$$\frac{1458000\,x^5 + 3888000\,x^4 + 1203660\,x^3 - 3419334\,x^2 - 45600\,\left(81\,x^4 + 216\,x^3 + 216\,x^2 + 96\,x + 16\right)\,\log\left(3\,x + 2\right) - 3005148\,x}{8748\,(81\,x^4 + 216\,x^3 + 216\,x^2 + 96\,x + 16)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(2*x - 1)^2/(3*x + 2)^5,x, algorithm="fricas")
```

```
[Out] 1/8748*(1458000*x^5 + 3888000*x^4 + 1203660*x^3 - 3419334*x^2 - 4
5600*(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16)*log(3*x + 2) - 3005
148*x - 702941)/(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16)
```

Sympy [A] time = 0.381012, size = 49, normalized size = 0.82

$$\frac{500x}{243} - \frac{2684340x^3 + 5147334x^2 + 3293148x + 702941}{708588x^4 + 1889568x^3 + 1889568x^2 + 839808x + 139968} - \frac{3800\log\left(3x + 2\right)}{729}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(3+5*x)**3/(2+3*x)**5,x)
```

```
[Out] 500*x/243 - (2684340*x**3 + 5147334*x**2 + 3293148*x + 702941)/(7
08588*x**4 + 1889568*x**3 + 1889568*x**2 + 839808*x + 139968) - 3
800*log(3*x + 2)/729
```

GIAC/XCAS [A] time = 0.218672, size = 80, normalized size = 1.33

$$\frac{500}{243}\,x - \frac{8285}{729\,(3\,x + 2)} + \frac{4099}{1458\,(3\,x + 2)^2} - \frac{763}{2187\,(3\,x + 2)^3} + \frac{49}{2916\,(3\,x + 2)^4} + \frac{3800}{729}\ln\left(\frac{|3\,x + 2|}{3\,(3\,x + 2)^2}\right) + \frac{1000}{729}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(2*x - 1)^2/(3*x + 2)^5,x, algorithm="giac")
```

```
[Out] 500/243*x - 8285/729/(3*x + 2) + 4099/1458/(3*x + 2)^2 - 763/2187
/(3*x + 2)^3 + 49/2916/(3*x + 2)^4 + 3800/729*ln(1/3*abs(3*x + 2)
/(3*x + 2)^2) + 1000/729
```

3.1269 $\int \frac{(1-2x)^2(3+5x)^3}{(2+3x)^6}\,dx$

Optimal. Leaf size=66

$$\frac{3800}{729(3x+2)}-\frac{8285}{1458(3x+2)^2}+\frac{4099}{2187(3x+2)^3}-\frac{763}{2916(3x+2)^4}+\frac{49}{3645(3x+2)^5}+\frac{500}{729}\log(3x+2)$$

```
[Out] 49/(3645*(2 + 3*x)^5) - 763/(2916*(2 + 3*x)^4) + 4099/(2187*(2 +
3*x)^3) - 8285/(1458*(2 + 3*x)^2) + 3800/(729*(2 + 3*x)) + (500*L
og[2 + 3*x])/729
```

Rubi [A] time = 0.0637013, antiderivative size = 66, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{3800}{729(3x+2)}-\frac{8285}{1458(3x+2)^2}+\frac{4099}{2187(3x+2)^3}-\frac{763}{2916(3x+2)^4}+\frac{49}{3645(3x+2)^5}+\frac{500}{729}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^2*(3 + 5*x)^3)/(2 + 3*x)^6,x]
```

```
[Out] 49/(3645*(2 + 3*x)^5) - 763/(2916*(2 + 3*x)^4) + 4099/(2187*(2 +
3*x)^3) - 8285/(1458*(2 + 3*x)^2) + 3800/(729*(2 + 3*x)) + (500*L
og[2 + 3*x])/729
```

Rubi in Sympy [A] time = 10.6348, size = 56, normalized size = 0.85

$$\frac{500\log(3x+2)}{729}+\frac{3800}{729(3x+2)}-\frac{8285}{1458(3x+2)^2}+\frac{4099}{2187(3x+2)^3}-\frac{763}{2916(3x+2)^4}+\frac{49}{3645(3x+2)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(3+5*x)**3/(2+3*x)**6,x)
```

```
[Out] 500*log(3*x + 2)/729 + 3800/(729*(3*x + 2)) - 8285/(1458*(3*x + 2
)**2) + 4099/(2187*(3*x + 2)**3) - 763/(2916*(3*x + 2)**4) + 49/(
3645*(3*x + 2)**5)
```

Mathematica [A] time = 0.0530599, size = 46, normalized size = 0.7

$$\frac{18468000x^4+42537150x^3+36564120x^2+13889625x+30000(3x+2)^5\log(30x+20)+1965218}{43740(3x+2)^5}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^2*(3 + 5*x)^3)/(2 + 3*x)^6,x]
```

```
[Out] (1965218 + 13889625*x + 36564120*x^2 + 42537150*x^3 + 18468000*x^
4 + 30000*(2 + 3*x)^5*Log[20 + 30*x])/(43740*(2 + 3*x)^5)
```

Maple [A] time = 0.01, size = 55, normalized size = 0.8

$$\frac{49}{3645\,(2+3\,x)^5}-\frac{763}{2916\,(2+3\,x)^4}+\frac{4099}{2187\,(2+3\,x)^3}-\frac{8285}{1458\,(2+3\,x)^2}+\frac{3800}{1458+2187\,x}+\frac{500\,\ln(2+3\,x)}{729}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(3+5*x)^3/(2+3*x)^6,x)
```

```
[Out] 49/3645/(2+3*x)^5-763/2916/(2+3*x)^4+4099/2187/(2+3*x)^3-8285/145
8/(2+3*x)^2+3800/729/(2+3*x)+500/729*ln(2+3*x)
```

Maxima [A] time = 1.32288, size = 78, normalized size = 1.18

$$\frac{18468000\,x^4+42537150\,x^3+36564120\,x^2+13889625\,x+1965218}{43740\,(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240\,x+32)}+\frac{500}{729}\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(2*x - 1)^2/(3*x + 2)^6,x, algorithm="maxima")
```

```
[Out] 1/43740*(18468000*x^4 + 42537150*x^3 + 36564120*x^2 + 13889625*x
+ 1965218)/(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)
+ 500/729*log(3*x + 2)
```

Fricas [A] time = 0.21926, size = 111, normalized size = 1.68

$$\frac{18468000\,x^4+42537150\,x^3+36564120\,x^2+30000\,\left(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240\,x+32\right)\log\left(3\,x+2\right)+1388962}{43740\,(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240\,x+32)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(2*x - 1)^2/(3*x + 2)^6,x, algorithm="fricas")
```

```
[Out] 1/43740*(18468000*x^4 + 42537150*x^3 + 36564120*x^2 + 30000*(243*
x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)*log(3*x + 2) + 1
3889625*x + 1965218)/(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 24
0*x + 32)
```

Sympy [A] time = 0.433378, size = 54, normalized size = 0.82

$$\frac{18468000x^4+42537150x^3+36564120x^2+13889625x+1965218}{10628820x^5+35429400x^4+47239200x^3+31492800x^2+10497600x+1399680}+\frac{500\log\left(3x+2\right)}{729}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(3+5*x)**3/(2+3*x)**6,x)
```

```
[Out] (18468000*x**4 + 42537150*x**3 + 36564120*x**2 + 13889625*x + 196
5218)/(10628820*x**5 + 35429400*x**4 + 47239200*x**3 + 31492800*x
**2 + 10497600*x + 1399680) + 500*log(3*x + 2)/729
```

GIAC/XCAS [A] time = 0.219183, size = 53, normalized size = 0.8

$$\frac{18468000\,x^4+42537150\,x^3+36564120\,x^2+13889625\,x+1965218}{43740\,(3\,x+2)^5}+\frac{500}{729}\,\ln\left(|3\,x+2|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(2*x - 1)^2/(3*x + 2)^6,x, algorithm="giac")
```

```
[Out] 1/43740*(18468000*x^4 + 42537150*x^3 + 36564120*x^2 + 13889625*x
+ 1965218)/(3*x + 2)^5 + 500/729*ln(abs(3*x + 2))
```

3.1270 $\int \frac{(1-2x)^2(3+5x)^3}{(2+3x)^7}\,dx$

Optimal. Leaf size=67

$$-\frac{500}{729(3x+2)}+\frac{1900}{729(3x+2)^2}-\frac{8285}{2187(3x+2)^3}+\frac{4099}{2916(3x+2)^4}-\frac{763}{3645(3x+2)^5}+\frac{49}{4374(3x+2)^6}$$

```
[Out] 49/(4374*(2 + 3*x)^6) - 763/(3645*(2 + 3*x)^5) + 4099/(2916*(2 +
3*x)^4) - 8285/(2187*(2 + 3*x)^3) + 1900/(729*(2 + 3*x)^2) - 500/
(729*(2 + 3*x))
```

Rubi [A] time = 0.068741, antiderivative size = 67, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{500}{729(3x+2)}+\frac{1900}{729(3x+2)^2}-\frac{8285}{2187(3x+2)^3}+\frac{4099}{2916(3x+2)^4}-\frac{763}{3645(3x+2)^5}+\frac{49}{4374(3x+2)^6}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^2*(3 + 5*x)^3)/(2 + 3*x)^7,x]
```

```
[Out] 49/(4374*(2 + 3*x)^6) - 763/(3645*(2 + 3*x)^5) + 4099/(2916*(2 +
3*x)^4) - 8285/(2187*(2 + 3*x)^3) + 1900/(729*(2 + 3*x)^2) - 500/
(729*(2 + 3*x))
```

Rubi in Sympy [A] time = 11.4704, size = 56, normalized size = 0.84

$$-\frac{500}{729\,(3x+2)}+\frac{1900}{729\,(3x+2)^2}-\frac{8285}{2187\,(3x+2)^3}+\frac{4099}{2916\,(3x+2)^4}-\frac{763}{3645\,(3x+2)^5}+\frac{49}{4374\,(3x+2)^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(3+5*x)**3/(2+3*x)**7,x)
```

```
[Out] -500/(729*(3*x + 2)) + 1900/(729*(3*x + 2)**2) - 8285/(2187*(3*x
+ 2)**3) + 4099/(2916*(3*x + 2)**4) - 763/(3645*(3*x + 2)**5) + 4
9/(4374*(3*x + 2)**6)
```

Mathematica [A] time = 0.0433932, size = 36, normalized size = 0.54

$$-\frac{7290000x^5+15066000x^4+12249900x^3+5370435x^2+1510848x+233482}{43740(3x+2)^6}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^2*(3 + 5*x)^3)/(2 + 3*x)^7,x]
```

```
[Out] -(233482 + 1510848*x + 5370435*x^2 + 12249900*x^3 + 15066000*x^4
+ 7290000*x^5)/(43740*(2 + 3*x)^6)
```

Maple [A] time = 0.009, size = 56, normalized size = 0.8

$$\frac{49}{4374\,(2+3\,x)^6}-\frac{763}{3645\,(2+3\,x)^5}+\frac{4099}{2916\,(2+3\,x)^4}-\frac{8285}{2187\,(2+3\,x)^3}+\frac{1900}{729\,(2+3\,x)^2}-\frac{500}{1458+2187\,x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(3+5*x)^3/(2+3*x)^7,x)
```

```
[Out] 49/4374/(2+3*x)^6-763/3645/(2+3*x)^5+4099/2916/(2+3*x)^4-8285/218
7/(2+3*x)^3+1900/729/(2+3*x)^2-500/729/(2+3*x)
```

Maxima [A] time = 1.35184, size = 80, normalized size = 1.19

$$-\frac{7290000\,x^5 + 15066000\,x^4 + 12249900\,x^3 + 5370435\,x^2 + 1510848\,x + 233482}{43740\,(729\,x^6 + 2916\,x^5 + 4860\,x^4 + 4320\,x^3 + 2160\,x^2 + 576\,x + 64)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(2*x - 1)^2/(3*x + 2)^7,x, algorithm="maxima")
```

```
[Out] -1/43740*(7290000*x^5 + 15066000*x^4 + 12249900*x^3 + 5370435*x^2
 + 1510848*x + 233482)/(729*x^6 + 2916*x^5 + 4860*x^4 + 4320*x^3
+ 2160*x^2 + 576*x + 64)
```

Fricas [A] time = 0.198869, size = 80, normalized size = 1.19

$$-\frac{7290000\,x^5 + 15066000\,x^4 + 12249900\,x^3 + 5370435\,x^2 + 1510848\,x + 233482}{43740\,(729\,x^6 + 2916\,x^5 + 4860\,x^4 + 4320\,x^3 + 2160\,x^2 + 576\,x + 64)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(2*x - 1)^2/(3*x + 2)^7,x, algorithm="fricas")
```

```
[Out] -1/43740*(7290000*x^5 + 15066000*x^4 + 12249900*x^3 + 5370435*x^2
 + 1510848*x + 233482)/(729*x^6 + 2916*x^5 + 4860*x^4 + 4320*x^3
+ 2160*x^2 + 576*x + 64)
```

Sympy [A] time = 0.459681, size = 56, normalized size = 0.84

$$-\frac{7290000x^5 + 15066000x^4 + 12249900x^3 + 5370435x^2 + 1510848x + 233482}{31886460x^6 + 127545840x^5 + 212576400x^4 + 188956800x^3 + 94478400x^2 + 25194240x + 2799360}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(3+5*x)**3/(2+3*x)**7,x)
```

```
[Out] -(7290000*x**5 + 15066000*x**4 + 12249900*x**3 + 5370435*x**2 + 1
510848*x + 233482)/(31886460*x**6 + 127545840*x**5 + 212576400*x*
*4 + 188956800*x**3 + 94478400*x**2 + 25194240*x + 2799360)
```

GIAC/XCAS [A] time = 0.211114, size = 46, normalized size = 0.69

$$-\frac{7290000\,x^5 + 15066000\,x^4 + 12249900\,x^3 + 5370435\,x^2 + 1510848\,x + 233482}{43740\,(3\,x + 2)^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(2*x - 1)^2/(3*x + 2)^7,x, algorithm="giac")
```

```
[Out] -1/43740*(7290000*x^5 + 15066000*x^4 + 12249900*x^3 + 5370435*x^2
 + 1510848*x + 233482)/(3*x + 2)^6
```

3.1271 $\int \frac{(1-2x)^2(3+5x)^3}{(2+3x)^8} dx$

Optimal. Leaf size=67

$$-\frac{250}{729(3x+2)^2}+\frac{3800}{2187(3x+2)^3}-\frac{8285}{2916(3x+2)^4}+\frac{4099}{3645(3x+2)^5}-\frac{763}{4374(3x+2)^6}+\frac{7}{729(3x+2)^7}$$

```
[Out] 7/(729*(2 + 3*x)^7) - 763/(4374*(2 + 3*x)^6) + 4099/(3645*(2 + 3*
x)^5) - 8285/(2916*(2 + 3*x)^4) + 3800/(2187*(2 + 3*x)^3) - 250/(
729*(2 + 3*x)^2)
```

Rubi [A] time = 0.0697278, antiderivative size = 67, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{250}{729(3x+2)^2}+\frac{3800}{2187(3x+2)^3}-\frac{8285}{2916(3x+2)^4}+\frac{4099}{3645(3x+2)^5}-\frac{763}{4374(3x+2)^6}+\frac{7}{729(3x+2)^7}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^2*(3 + 5*x)^3)/(2 + 3*x)^8,x]
```

```
[Out] 7/(729*(2 + 3*x)^7) - 763/(4374*(2 + 3*x)^6) + 4099/(3645*(2 + 3*
x)^5) - 8285/(2916*(2 + 3*x)^4) + 3800/(2187*(2 + 3*x)^3) - 250/(
729*(2 + 3*x)^2)
```

Rubi in Sympy [A] time = 11.6803, size = 60, normalized size = 0.9

$$-\frac{250}{729\,(3x+2)^2}+\frac{3800}{2187\,(3x+2)^3}-\frac{8285}{2916\,(3x+2)^4}+\frac{4099}{3645\,(3x+2)^5}-\frac{763}{4374\,(3x+2)^6}+\frac{7}{729\,(3x+2)^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(3+5*x)**3/(2+3*x)**8,x)
```

```
[Out] -250/(729*(3*x + 2)**2) + 3800/(2187*(3*x + 2)**3) - 8285/(2916*(
3*x + 2)**4) + 4099/(3645*(3*x + 2)**5) - 763/(4374*(3*x + 2)**6)
 + 7/(729*(3*x + 2)**7)
```

Mathematica [A] time = 0.0420432, size = 36, normalized size = 0.54

$$-\frac{3645000x^5+5994000x^4+3139425x^3+652158x^2+210534x+76288}{43740(3x+2)^7}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^2*(3 + 5*x)^3)/(2 + 3*x)^8,x]
```

```
[Out] -(76288 + 210534*x + 652158*x^2 + 3139425*x^3 + 5994000*x^4 + 364
5000*x^5)/(43740*(2 + 3*x)^7)
```

Maple [A] time = 0.01, size = 56, normalized size = 0.8

$$\frac{7}{729\,(2+3\,x)^7}-\frac{763}{4374\,(2+3\,x)^6}+\frac{4099}{3645\,(2+3\,x)^5}-\frac{8285}{2916\,(2+3\,x)^4}+\frac{3800}{2187\,(2+3\,x)^3}-\frac{250}{729\,(2+3\,x)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(3+5*x)^3/(2+3*x)^8,x)
```

```
[Out] 7/729/(2+3*x)^7-763/4374/(2+3*x)^6+4099/3645/(2+3*x)^5-8285/2916/
(2+3*x)^4+3800/2187/(2+3*x)^3-250/729/(2+3*x)^2
```

Maxima [A] time = 1.35663, size = 86, normalized size = 1.28

$$-\frac{3645000\,x^5+5994000\,x^4+3139425\,x^3+652158\,x^2+210534\,x+76288}{43740\,(2187\,x^7+10206\,x^6+20412\,x^5+22680\,x^4+15120\,x^3+6048\,x^2+1344\,x+128)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(2*x - 1)^2/(3*x + 2)^8,x, algorithm="maxima")
```

```
[Out] -1/43740*(3645000*x^5 + 5994000*x^4 + 3139425*x^3 + 652158*x^2 +
210534*x + 76288)/(2187*x^7 + 10206*x^6 + 20412*x^5 + 22680*x^4 +
 15120*x^3 + 6048*x^2 + 1344*x + 128)
```

Fricas [A] time = 0.204617, size = 86, normalized size = 1.28

$$-\frac{3645000\,x^5+5994000\,x^4+3139425\,x^3+652158\,x^2+210534\,x+76288}{43740\,(2187\,x^7+10206\,x^6+20412\,x^5+22680\,x^4+15120\,x^3+6048\,x^2+1344\,x+128)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(2*x - 1)^2/(3*x + 2)^8,x, algorithm="fricas")
```

```
[Out] -1/43740*(3645000*x^5 + 5994000*x^4 + 3139425*x^3 + 652158*x^2 +
210534*x + 76288)/(2187*x^7 + 10206*x^6 + 20412*x^5 + 22680*x^4 +
 15120*x^3 + 6048*x^2 + 1344*x + 128)
```

Sympy [A] time = 0.506495, size = 61, normalized size = 0.91

$$-\frac{3645000x^5+5994000x^4+3139425x^3+652158x^2+210534x+76288}{95659380x^7+446410440x^6+892820880x^5+992023200x^4+661348800x^3+264539520x^2+58786560x+5598720}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(3+5*x)**3/(2+3*x)**8,x)
```

```
[Out] -(3645000*x**5 + 5994000*x**4 + 3139425*x**3 + 652158*x**2 + 2105
34*x + 76288)/(95659380*x**7 + 446410440*x**6 + 892820880*x**5 +
992023200*x**4 + 661348800*x**3 + 264539520*x**2 + 58786560*x + 5
598720)
```

GIAC/XCAS [A] time = 0.220611, size = 46, normalized size = 0.69

$$-\frac{3645000\,x^5+5994000\,x^4+3139425\,x^3+652158\,x^2+210534\,x+76288}{43740\,(3\,x+2)^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(2*x - 1)^2/(3*x + 2)^8,x, algorithm="giac")
```

```
[Out] -1/43740*(3645000*x^5 + 5994000*x^4 + 3139425*x^3 + 652158*x^2 +
210534*x + 76288)/(3*x + 2)^7
```

3.1272 $\int \frac{(1-2x)^2(2+3x)^7}{3+5x}\,dx$

Optimal. Leaf size=72

$$\frac{972x^9}{5}+\frac{16767x^8}{25}+\frac{672867x^7}{875}+\frac{130383x^6}{1250}-\frac{7315947x^5}{15625}-\frac{20577159x^4}{62500}+\frac{1327159x^3}{78125}+\frac{80555569x^2}{781250}+\frac{83333293x}{1953125}+\frac{121\log(5x+3)}{9765625}$$

```
[Out] (83333293*x)/1953125 + (80555569*x^2)/781250 + (1327159*x^3)/7812
5 - (20577159*x^4)/62500 - (7315947*x^5)/15625 + (130383*x^6)/125
0 + (672867*x^7)/875 + (16767*x^8)/25 + (972*x^9)/5 + (121*Log[3
+ 5*x])/9765625
```

Rubi [A] time = 0.0719527, antiderivative size = 72, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{972x^9}{5}+\frac{16767x^8}{25}+\frac{672867x^7}{875}+\frac{130383x^6}{1250}-\frac{7315947x^5}{15625}-\frac{20577159x^4}{62500}+\frac{1327159x^3}{78125}+\frac{80555569x^2}{781250}+\frac{83333293x}{1953125}+\frac{121\log(5x+3)}{9765625}$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)^2*(2 + 3*x)^7)/(3 + 5*x),x]
```

```
[Out] (83333293*x)/1953125 + (80555569*x^2)/781250 + (1327159*x^3)/7812
5 - (20577159*x^4)/62500 - (7315947*x^5)/15625 + (130383*x^6)/125
0 + (672867*x^7)/875 + (16767*x^8)/25 + (972*x^9)/5 + (121*Log[3
+ 5*x])/9765625
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{972x^9}{5}+\frac{16767x^8}{25}+\frac{672867x^7}{875}+\frac{130383x^6}{1250}-\frac{7315947x^5}{15625}-\frac{20577159x^4}{62500}+\frac{1327159x^3}{78125}+\frac{121\log(5x+3)}{9765625}+\int\frac{83333293}{1953125}\,dx+\frac{80555569\int x\,dx}{390625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**2*(2+3*x)**7/(3+5*x),x)
```

```
[Out] 972*x**9/5 + 16767*x**8/25 + 672867*x**7/875 + 130383*x**6/1250 -
 7315947*x**5/15625 - 20577159*x**4/62500 + 1327159*x**3/78125 +
121*log(5*x + 3)/9765625 + Integral(83333293/1953125, x) + 805555
69*Integral(x, x)/390625
```

Mathematica [A] time = 0.0237869, size = 57, normalized size = 0.79

$$\frac{265781250000x^9+916945312500x^8+1051354687500x^7+142606406250x^6-640145362500x^5-450125353125x^4+23225\ldots}{1367187500}$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)^2*(2 + 3*x)^7)/(3 + 5*x),x]
```

```
[Out] (7880238537 + 58333305100*x + 140972245750*x^2 + 23225282500*x^3
- 450125353125*x^4 - 640145362500*x^5 + 142606406250*x^6 + 105135
```

```
4687500*x^7 + 916945312500*x^8 + 265781250000*x^9 + 16940*Log[3 +
 5*x])/1367187500
```

Maple [A] time = 0.006, size = 53, normalized size = 0.7

$$\frac{83333293\,x}{1953125}+\frac{80555569\,x^{2}}{781250}+\frac{1327159\,x^{3}}{78125}-\frac{20577159\,x^{4}}{62500}-\frac{7315947\,x^{5}}{15625}+\frac{130383\,x^{6}}{1250}+\frac{672867\,x^{7}}{875}+\frac{16767\,x^{8}}{25}+\frac{972\,x^{9}}{5}+\frac{121\,\ln\left(3+5\,x\right)}{9765625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(2+3*x)^7/(3+5*x),x)
```

```
[Out] 83333293/1953125*x+80555569/781250*x^2+1327159/78125*x^3-20577159
/62500*x^4-7315947/15625*x^5+130383/1250*x^6+672867/875*x^7+16767
/25*x^8+972/5*x^9+121/9765625*ln(3+5*x)
```

Maxima [A] time = 1.32422, size = 70, normalized size = 0.97

$$\frac{972}{5}\,x^{9}+\frac{16767}{25}\,x^{8}+\frac{672867}{875}\,x^{7}+\frac{130383}{1250}\,x^{6}-\frac{7315947}{15625}\,x^{5}-\frac{20577159}{62500}\,x^{4}+\frac{1327159}{78125}\,x^{3}+\frac{80555569}{781250}\,x^{2}+\frac{83333293}{1953125}\,x+\frac{121}{9765625}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^7*(2*x - 1)^2/(5*x + 3),x, algorithm="maxima")
```

```
[Out] 972/5*x^9 + 16767/25*x^8 + 672867/875*x^7 + 130383/1250*x^6 - 731
5947/15625*x^5 - 20577159/62500*x^4 + 1327159/78125*x^3 + 8055556
9/781250*x^2 + 83333293/1953125*x + 121/9765625*log(5*x + 3)
```

Fricas [A] time = 0.213978, size = 70, normalized size = 0.97

$$\frac{972}{5}\,x^{9}+\frac{16767}{25}\,x^{8}+\frac{672867}{875}\,x^{7}+\frac{130383}{1250}\,x^{6}-\frac{7315947}{15625}\,x^{5}-\frac{20577159}{62500}\,x^{4}+\frac{1327159}{78125}\,x^{3}+\frac{80555569}{781250}\,x^{2}+\frac{83333293}{1953125}\,x+\frac{121}{9765625}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^7*(2*x - 1)^2/(5*x + 3),x, algorithm="fricas")
```

```
[Out] 972/5*x^9 + 16767/25*x^8 + 672867/875*x^7 + 130383/1250*x^6 - 731
5947/15625*x^5 - 20577159/62500*x^4 + 1327159/78125*x^3 + 8055556
9/781250*x^2 + 83333293/1953125*x + 121/9765625*log(5*x + 3)
```

Sympy [A] time = 0.207555, size = 68, normalized size = 0.94

$$\frac{972x^{9}}{5}+\frac{16767x^{8}}{25}+\frac{672867x^{7}}{875}+\frac{130383x^{6}}{1250}-\frac{7315947x^{5}}{15625}-\frac{20577159x^{4}}{62500}+\frac{1327159x^{3}}{78125}+\frac{80555569x^{2}}{781250}+\frac{83333293x}{1953125}+\frac{121\log\left(5x+3\right)}{9765625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(2+3*x)**7/(3+5*x),x)
```

```
[Out] 972*x**9/5 + 16767*x**8/25 + 672867*x**7/875 + 130383*x**6/1250 -
 7315947*x**5/15625 - 20577159*x**4/62500 + 1327159*x**3/78125 +
80555569*x**2/781250 + 83333293*x/1953125 + 121*log(5*x + 3)/9765
625
```

GIAC/XCAS [A] time = 0.217317, size = 72, normalized size = 1.

$$\frac{972}{5}x^9 + \frac{16767}{25}x^8 + \frac{672867}{875}x^7 + \frac{130383}{1250}x^6 - \frac{7315947}{15625}x^5 - \frac{20577159}{62500}x^4 + \frac{1327159}{78125}x^3 + \frac{80555569}{781250}x^2 + \frac{83333293}{1953125}x + \frac{121}{9765625}\ln(|5x+3|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^7*(2*x - 1)^2/(5*x + 3),x, algorithm="giac")
```

```
[Out] 972/5*x^9 + 16767/25*x^8 + 672867/875*x^7 + 130383/1250*x^6 - 731
5947/15625*x^5 - 20577159/62500*x^4 + 1327159/78125*x^3 + 8055556
9/781250*x^2 + 83333293/1953125*x + 121/9765625*ln(abs(5*x + 3))
```

3.1273 $\int \frac{(1-2x)^2(2+3x)^6}{3+5x}\,dx$

Optimal. Leaf size=65

$$\frac{729x^8}{10}+\frac{34992x^7}{175}+\frac{35883x^6}{250}-\frac{228447x^5}{3125}-\frac{1677159x^4}{12500}-\frac{422841x^3}{15625}+\frac{5555569x^2}{156250}+\frac{8333293x}{390625}+\frac{121\log(5x+3)}{1953125}$$

```
[Out] (8333293*x)/390625 + (5555569*x^2)/156250 - (422841*x^3)/15625 -
(1677159*x^4)/12500 - (228447*x^5)/3125 + (35883*x^6)/250 + (3499
2*x^7)/175 + (729*x^8)/10 + (121*Log[3 + 5*x])/1953125
```

Rubi [A] time = 0.0665661, antiderivative size = 65, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{729x^8}{10}+\frac{34992x^7}{175}+\frac{35883x^6}{250}-\frac{228447x^5}{3125}-\frac{1677159x^4}{12500}-\frac{422841x^3}{15625}+\frac{5555569x^2}{156250}+\frac{8333293x}{390625}+\frac{121\log(5x+3)}{1953125}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^2*(2 + 3*x)^6)/(3 + 5*x),x]
```

```
[Out] (8333293*x)/390625 + (5555569*x^2)/156250 - (422841*x^3)/15625 -
(1677159*x^4)/12500 - (228447*x^5)/3125 + (35883*x^6)/250 + (3499
2*x^7)/175 + (729*x^8)/10 + (121*Log[3 + 5*x])/1953125
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{729x^8}{10}+\frac{34992x^7}{175}+\frac{35883x^6}{250}-\frac{228447x^5}{3125}-\frac{1677159x^4}{12500}-\frac{422841x^3}{15625}+\frac{121\log(5x+3)}{1953125}+\int\frac{8333293}{390625}\,dx+\frac{5555569\int x\,dx}{78125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(2+3*x)**6/(3+5*x),x)
```

```
[Out] 729*x**8/10 + 34992*x**7/175 + 35883*x**6/250 - 228447*x**5/3125
- 1677159*x**4/12500 - 422841*x**3/15625 + 121*log(5*x + 3)/19531
25 + Integral(8333293/390625, x) + 5555569*Integral(x, x)/78125
```

Mathematica [A] time = 0.0216053, size = 52, normalized size = 0.8

$$\frac{19933593750x^8+54675000000x^7+39247031250x^6-19989112500x^5-36687853125x^4-7399717500x^3+9722245750x^2+}{273437500}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^2*(2 + 3*x)^6)/(3 + 5*x),x]
```

```
[Out] (966660747 + 5833305100*x + 9722245750*x^2 - 7399717500*x^3 - 366
87853125*x^4 - 19989112500*x^5 + 39247031250*x^6 + 54675000000*x^
7 + 19933593750*x^8 + 16940*Log[3 + 5*x])/273437500
```

Maple [A] time = 0.004, size = 48, normalized size = 0.7

$$\frac{8333293\,x}{390625}+\frac{5555569\,x^{2}}{156250}-\frac{422841\,x^{3}}{15625}-\frac{1677159\,x^{4}}{12500}-\frac{228447\,x^{5}}{3125}+\frac{35883\,x^{6}}{250}+\frac{34992\,x^{7}}{175}+\frac{729\,x^{8}}{10}+\frac{121\,\ln\left(3+5\,x\right)}{1953125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(2+3*x)^6/(3+5*x),x)
```

```
[Out] 8333293/390625*x+5555569/156250*x^2-422841/15625*x^3-1677159/1250
0*x^4-228447/3125*x^5+35883/250*x^6+34992/175*x^7+729/10*x^8+121/
1953125*ln(3+5*x)
```

Maxima [A] time = 1.34876, size = 63, normalized size = 0.97

$$\frac{729}{10}\,x^{8}+\frac{34992}{175}\,x^{7}+\frac{35883}{250}\,x^{6}-\frac{228447}{3125}\,x^{5}-\frac{1677159}{12500}\,x^{4}-\frac{422841}{15625}\,x^{3}+\frac{5555569}{156250}\,x^{2}+\frac{8333293}{390625}\,x+\frac{121}{1953125}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^6*(2*x - 1)^2/(5*x + 3),x, algorithm="maxima")
```

```
[Out] 729/10*x^8 + 34992/175*x^7 + 35883/250*x^6 - 228447/3125*x^5 - 16
77159/12500*x^4 - 422841/15625*x^3 + 5555569/156250*x^2 + 8333293
/390625*x + 121/1953125*log(5*x + 3)
```

Fricas [A] time = 0.221291, size = 63, normalized size = 0.97

$$\frac{729}{10}\,x^{8}+\frac{34992}{175}\,x^{7}+\frac{35883}{250}\,x^{6}-\frac{228447}{3125}\,x^{5}-\frac{1677159}{12500}\,x^{4}-\frac{422841}{15625}\,x^{3}+\frac{5555569}{156250}\,x^{2}+\frac{8333293}{390625}\,x+\frac{121}{1953125}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^6*(2*x - 1)^2/(5*x + 3),x, algorithm="fricas")
```

```
[Out] 729/10*x^8 + 34992/175*x^7 + 35883/250*x^6 - 228447/3125*x^5 - 16
77159/12500*x^4 - 422841/15625*x^3 + 5555569/156250*x^2 + 8333293
/390625*x + 121/1953125*log(5*x + 3)
```

Sympy [A] time = 0.20155, size = 61, normalized size = 0.94

$$\frac{729x^{8}}{10}+\frac{34992x^{7}}{175}+\frac{35883x^{6}}{250}-\frac{228447x^{5}}{3125}-\frac{1677159x^{4}}{12500}-\frac{422841x^{3}}{15625}+\frac{5555569x^{2}}{156250}+\frac{8333293x}{390625}+\frac{121\log\left(5x+3\right)}{1953125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(2+3*x)**6/(3+5*x),x)
```

```
[Out] 729*x**8/10 + 34992*x**7/175 + 35883*x**6/250 - 228447*x**5/3125
- 1677159*x**4/12500 - 422841*x**3/15625 + 5555569*x**2/156250 +
8333293*x/390625 + 121*log(5*x + 3)/1953125
```

GIAC/XCAS [A] time = 0.225198, size = 65, normalized size = 1.

$$\frac{729}{10}\,x^{8}+\frac{34992}{175}\,x^{7}+\frac{35883}{250}\,x^{6}-\frac{228447}{3125}\,x^{5}-\frac{1677159}{12500}\,x^{4}-\frac{422841}{15625}\,x^{3}+\frac{5555569}{156250}\,x^{2}+\frac{8333293}{390625}\,x+\frac{121}{1953125}\ln\left(|5\,x+3|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^6*(2*x - 1)^2/(5*x + 3),x, algorithm="giac")
```

```
[Out] 729/10*x^8 + 34992/175*x^7 + 35883/250*x^6 - 228447/3125*x^5 - 16
77159/12500*x^4 - 422841/15625*x^3 + 5555569/156250*x^2 + 8333293
/390625*x + 121/1953125*ln(abs(5*x + 3))
```

3.1274 $\int \frac{(1-2x)^2(2+3x)^5}{3+5x} dx$

Optimal. Leaf size=58

$$\frac{972x^7}{35}+\frac{1404x^6}{25}+\frac{7803x^5}{625}-\frac{102159x^4}{2500}-\frac{72841x^3}{3125}+\frac{305569x^2}{31250}+\frac{833293x}{78125}+\frac{121\log(5x+3)}{390625}$$

```
[Out] (833293*x)/78125 + (305569*x^2)/31250 - (72841*x^3)/3125 - (10215
9*x^4)/2500 + (7803*x^5)/625 + (1404*x^6)/25 + (972*x^7)/35 + (12
1*Log[3 + 5*x])/390625
```

Rubi [A] time = 0.0604301, antiderivative size = 58, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$\frac{972x^7}{35}+\frac{1404x^6}{25}+\frac{7803x^5}{625}-\frac{102159x^4}{2500}-\frac{72841x^3}{3125}+\frac{305569x^2}{31250}+\frac{833293x}{78125}+\frac{121\log(5x+3)}{390625}$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)^2*(2 + 3*x)^5)/(3 + 5*x),x]
```

```
[Out] (833293*x)/78125 + (305569*x^2)/31250 - (72841*x^3)/3125 - (10215
9*x^4)/2500 + (7803*x^5)/625 + (1404*x^6)/25 + (972*x^7)/35 + (12
1*Log[3 + 5*x])/390625
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{972x^7}{35}+\frac{1404x^6}{25}+\frac{7803x^5}{625}-\frac{102159x^4}{2500}-\frac{72841x^3}{3125}+\frac{121\log(5x+3)}{390625}+\int\frac{833293}{78125}\,dx+\frac{305569\int x\,dx}{15625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**2*(2+3*x)**5/(3+5*x),x)
```

```
[Out] 972*x**7/35 + 1404*x**6/25 + 7803*x**5/625 - 102159*x**4/2500 - 7
2841*x**3/3125 + 121*log(5*x + 3)/390625 + Integral(833293/78125,
 x) + 305569*Integral(x, x)/15625
```

Mathematica [A] time = 0.0202197, size = 47, normalized size = 0.81

$$\frac{1518750000x^7+3071250000x^6+682762500x^5-2234728125x^4-1274717500x^3+534745750x^2+583305100x+16940\log}{54687500}$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)^2*(2 + 3*x)^5)/(3 + 5*x),x]
```

```
[Out] (124071027 + 583305100*x + 534745750*x^2 - 1274717500*x^3 - 22347
28125*x^4 + 682762500*x^5 + 3071250000*x^6 + 1518750000*x^7 + 169
40*Log[3 + 5*x])/54687500
```

Maple [A] time = 0.003, size = 43, normalized size = 0.7

$$\frac{833293\,x}{78125}+\frac{305569\,x^2}{31250}-\frac{72841\,x^3}{3125}-\frac{102159\,x^4}{2500}+\frac{7803\,x^5}{625}+\frac{1404\,x^6}{25}+\frac{972\,x^7}{35}+\frac{121\,\ln(3+5\,x)}{390625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(2+3*x)^5/(3+5*x),x)
```

```
[Out] 833293/78125*x+305569/31250*x^2-72841/3125*x^3-102159/2500*x^4+78
03/625*x^5+1404/25*x^6+972/35*x^7+121/390625*ln(3+5*x)
```

Maxima [A] time = 1.34982, size = 57, normalized size = 0.98

$$\frac{972}{35}x^7 + \frac{1404}{25}x^6 + \frac{7803}{625}x^5 - \frac{102159}{2500}x^4 - \frac{72841}{3125}x^3 + \frac{305569}{31250}x^2 + \frac{833293}{78125}x + \frac{121}{390625}\log(5x+3)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5*(2*x - 1)^2/(5*x + 3),x, algorithm="maxima")
```

```
[Out] 972/35*x^7 + 1404/25*x^6 + 7803/625*x^5 - 102159/2500*x^4 - 72841
/3125*x^3 + 305569/31250*x^2 + 833293/78125*x + 121/390625*log(5*
x + 3)
```

Fricas [A] time = 0.209561, size = 57, normalized size = 0.98

$$\frac{972}{35}x^7 + \frac{1404}{25}x^6 + \frac{7803}{625}x^5 - \frac{102159}{2500}x^4 - \frac{72841}{3125}x^3 + \frac{305569}{31250}x^2 + \frac{833293}{78125}x + \frac{121}{390625}\log(5x+3)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5*(2*x - 1)^2/(5*x + 3),x, algorithm="fricas")
```

```
[Out] 972/35*x^7 + 1404/25*x^6 + 7803/625*x^5 - 102159/2500*x^4 - 72841
/3125*x^3 + 305569/31250*x^2 + 833293/78125*x + 121/390625*log(5*
x + 3)
```

Sympy [A] time = 0.200965, size = 54, normalized size = 0.93

$$\frac{972x^7}{35} + \frac{1404x^6}{25} + \frac{7803x^5}{625} - \frac{102159x^4}{2500} - \frac{72841x^3}{3125} + \frac{305569x^2}{31250} + \frac{833293x}{78125} + \frac{121\log(5x+3)}{390625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(2+3*x)**5/(3+5*x),x)
```

```
[Out] 972*x**7/35 + 1404*x**6/25 + 7803*x**5/625 - 102159*x**4/2500 - 7
2841*x**3/3125 + 305569*x**2/31250 + 833293*x/78125 + 121*log(5*x
 + 3)/390625
```

GIAC/XCAS [A] time = 0.215691, size = 58, normalized size = 1.

$$\frac{972}{35}x^7 + \frac{1404}{25}x^6 + \frac{7803}{625}x^5 - \frac{102159}{2500}x^4 - \frac{72841}{3125}x^3 + \frac{305569}{31250}x^2 + \frac{833293}{78125}x + \frac{121}{390625}\ln(|5x+3|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5*(2*x - 1)^2/(5*x + 3),x, algorithm="giac")
```

```
[Out] 972/35*x^7 + 1404/25*x^6 + 7803/625*x^5 - 102159/2500*x^4 - 72841
/3125*x^3 + 305569/31250*x^2 + 833293/78125*x + 121/390625*ln(abs
(5*x + 3))
```

3.1275 $\int \frac{(1-2x)^2(2+3x)^4}{3+5x}\,dx$

Optimal. Leaf size=51

$$\frac{54x^6}{5}+\frac{1728x^5}{125}-\frac{3159x^4}{500}-\frac{7841x^3}{625}+\frac{5569x^2}{6250}+\frac{83293x}{15625}+\frac{121\log(5x+3)}{78125}$$

```
[Out] (83293*x)/15625 + (5569*x^2)/6250 - (7841*x^3)/625 - (3159*x^4)/5
00 + (1728*x^5)/125 + (54*x^6)/5 + (121*Log[3 + 5*x])/78125
```

Rubi [A] time = 0.0531409, antiderivative size = 51, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{54x^6}{5}+\frac{1728x^5}{125}-\frac{3159x^4}{500}-\frac{7841x^3}{625}+\frac{5569x^2}{6250}+\frac{83293x}{15625}+\frac{121\log(5x+3)}{78125}$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)^2*(2 + 3*x)^4)/(3 + 5*x),x]
```

```
[Out] (83293*x)/15625 + (5569*x^2)/6250 - (7841*x^3)/625 - (3159*x^4)/5
00 + (1728*x^5)/125 + (54*x^6)/5 + (121*Log[3 + 5*x])/78125
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{54x^6}{5}+\frac{1728x^5}{125}-\frac{3159x^4}{500}-\frac{7841x^3}{625}+\frac{121\log(5x+3)}{78125}+\int\frac{83293}{15625}\,dx+\frac{5569\int x\,dx}{3125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**2*(2+3*x)**4/(3+5*x),x)
```

```
[Out] 54*x**6/5 + 1728*x**5/125 - 3159*x**4/500 - 7841*x**3/625 + 121*l
og(5*x + 3)/78125 + Integral(83293/15625, x) + 5569*Integral(x, x
)/3125
```

Mathematica [A] time = 0.0195017, size = 42, normalized size = 0.82

$$\frac{16875000x^6+21600000x^5-9871875x^4-19602500x^3+1392250x^2+8329300x+2420\log(5x+3)+2433921}{1562500}$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)^2*(2 + 3*x)^4)/(3 + 5*x),x]
```

```
[Out] (2433921 + 8329300*x + 1392250*x^2 - 19602500*x^3 - 9871875*x^4 +
 21600000*x^5 + 16875000*x^6 + 2420*Log[3 + 5*x])/1562500
```

Maple [A] time = 0.004, size = 38, normalized size = 0.8

$$\frac{83293\,x}{15625}+\frac{5569\,x^2}{6250}-\frac{7841\,x^3}{625}-\frac{3159\,x^4}{500}+\frac{1728\,x^5}{125}+\frac{54\,x^6}{5}+\frac{121\,\ln(3+5\,x)}{78125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(2+3*x)^4/(3+5*x),x)
```

```
[Out] 83293/15625*x+5569/6250*x^2-7841/625*x^3-3159/500*x^4+1728/125*x^
5+54/5*x^6+121/78125*ln(3+5*x)
```

Maxima [A] time = 1.34143, size = 50, normalized size = 0.98

$$\frac{54}{5}x^6 + \frac{1728}{125}x^5 - \frac{3159}{500}x^4 - \frac{7841}{625}x^3 + \frac{5569}{6250}x^2 + \frac{83293}{15625}x + \frac{121}{78125}\log(5x+3)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4*(2*x - 1)^2/(5*x + 3),x, algorithm="maxima")
```

```
[Out] 54/5*x^6 + 1728/125*x^5 - 3159/500*x^4 - 7841/625*x^3 + 5569/6250
*x^2 + 83293/15625*x + 121/78125*log(5*x + 3)
```

Fricas [A] time = 0.212106, size = 50, normalized size = 0.98

$$\frac{54}{5}x^6 + \frac{1728}{125}x^5 - \frac{3159}{500}x^4 - \frac{7841}{625}x^3 + \frac{5569}{6250}x^2 + \frac{83293}{15625}x + \frac{121}{78125}\log(5x+3)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4*(2*x - 1)^2/(5*x + 3),x, algorithm="fricas")
```

```
[Out] 54/5*x^6 + 1728/125*x^5 - 3159/500*x^4 - 7841/625*x^3 + 5569/6250
*x^2 + 83293/15625*x + 121/78125*log(5*x + 3)
```

Sympy [A] time = 0.184655, size = 48, normalized size = 0.94

$$\frac{54x^6}{5} + \frac{1728x^5}{125} - \frac{3159x^4}{500} - \frac{7841x^3}{625} + \frac{5569x^2}{6250} + \frac{83293x}{15625} + \frac{121\log(5x+3)}{78125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(2+3*x)**4/(3+5*x),x)
```

```
[Out] 54*x**6/5 + 1728*x**5/125 - 3159*x**4/500 - 7841*x**3/625 + 5569*
x**2/6250 + 83293*x/15625 + 121*log(5*x + 3)/78125
```

GIAC/XCAS [A] time = 0.209535, size = 51, normalized size = 1.

$$\frac{54}{5}x^6 + \frac{1728}{125}x^5 - \frac{3159}{500}x^4 - \frac{7841}{625}x^3 + \frac{5569}{6250}x^2 + \frac{83293}{15625}x + \frac{121}{78125}\ln(|5x+3|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4*(2*x - 1)^2/(5*x + 3),x, algorithm="giac")
```

```
[Out] 54/5*x^6 + 1728/125*x^5 - 3159/500*x^4 - 7841/625*x^3 + 5569/6250
*x^2 + 83293/15625*x + 121/78125*ln(abs(5*x + 3))
```

3.1276 $\int \frac{(1-2x)^2(2+3x)^3}{3+5x}\,dx$

Optimal. Leaf size=44

$$\frac{108x^5}{25}+\frac{54x^4}{25}-\frac{591x^3}{125}-\frac{1931x^2}{1250}+\frac{8293x}{3125}+\frac{121\log(5x+3)}{15625}$$

```
[Out] (8293*x)/3125 - (1931*x^2)/1250 - (591*x^3)/125 + (54*x^4)/25 + (
108*x^5)/25 + (121*Log[3 + 5*x])/15625
```

Rubi [A] time = 0.0487104, antiderivative size = 44, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{108x^5}{25}+\frac{54x^4}{25}-\frac{591x^3}{125}-\frac{1931x^2}{1250}+\frac{8293x}{3125}+\frac{121\log(5x+3)}{15625}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^2*(2 + 3*x)^3)/(3 + 5*x),x]
```

```
[Out] (8293*x)/3125 - (1931*x^2)/1250 - (591*x^3)/125 + (54*x^4)/25 + (
108*x^5)/25 + (121*Log[3 + 5*x])/15625
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{108x^5}{25}+\frac{54x^4}{25}-\frac{591x^3}{125}+\frac{121\log(5x+3)}{15625}+\int\frac{8293}{3125}\,dx-\frac{1931\int x\,dx}{625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(2+3*x)**3/(3+5*x),x)
```

```
[Out] 108*x**5/25 + 54*x**4/25 - 591*x**3/125 + 121*log(5*x + 3)/15625
+ Integral(8293/3125, x) - 1931*Integral(x, x)/625
```

Mathematica [A] time = 0.018231, size = 37, normalized size = 0.84

$$\frac{675000x^5+337500x^4-738750x^3-241375x^2+414650x+1210\log(5x+3)+184863}{156250}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^2*(2 + 3*x)^3)/(3 + 5*x),x]
```

```
[Out] (184863 + 414650*x - 241375*x^2 - 738750*x^3 + 337500*x^4 + 67500
0*x^5 + 1210*Log[3 + 5*x])/156250
```

Maple [A] time = 0.004, size = 33, normalized size = 0.8

$$\frac{8293\,x}{3125}-\frac{1931\,x^2}{1250}-\frac{591\,x^3}{125}+\frac{54\,x^4}{25}+\frac{108\,x^5}{25}+\frac{121\,\ln(3+5\,x)}{15625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(2+3*x)^3/(3+5*x),x)
```

```
[Out] 8293/3125*x-1931/1250*x^2-591/125*x^3+54/25*x^4+108/25*x^5+121/15
625*ln(3+5*x)
```

Maxima [A] time = 1.34573, size = 43, normalized size = 0.98

$$\frac{108}{25}\,x^5+\frac{54}{25}\,x^4-\frac{591}{125}\,x^3-\frac{1931}{1250}\,x^2+\frac{8293}{3125}\,x+\frac{121}{15625}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*(2*x - 1)^2/(5*x + 3),x, algorithm="maxima")
```

```
[Out] 108/25*x^5 + 54/25*x^4 - 591/125*x^3 - 1931/1250*x^2 + 8293/3125*
x + 121/15625*log(5*x + 3)
```

Fricas [A] time = 0.217639, size = 43, normalized size = 0.98

$$\frac{108}{25}\,x^5+\frac{54}{25}\,x^4-\frac{591}{125}\,x^3-\frac{1931}{1250}\,x^2+\frac{8293}{3125}\,x+\frac{121}{15625}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*(2*x - 1)^2/(5*x + 3),x, algorithm="fricas")
```

```
[Out] 108/25*x^5 + 54/25*x^4 - 591/125*x^3 - 1931/1250*x^2 + 8293/3125*
x + 121/15625*log(5*x + 3)
```

Sympy [A] time = 0.171865, size = 41, normalized size = 0.93

$$\frac{108x^5}{25}+\frac{54x^4}{25}-\frac{591x^3}{125}-\frac{1931x^2}{1250}+\frac{8293x}{3125}+\frac{121\log\left(5x+3\right)}{15625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(2+3*x)**3/(3+5*x),x)
```

```
[Out] 108*x**5/25 + 54*x**4/25 - 591*x**3/125 - 1931*x**2/1250 + 8293*x
/3125 + 121*log(5*x + 3)/15625
```

GIAC/XCAS [A] time = 0.208369, size = 45, normalized size = 1.02

$$\frac{108}{25}\,x^5+\frac{54}{25}\,x^4-\frac{591}{125}\,x^3-\frac{1931}{1250}\,x^2+\frac{8293}{3125}\,x+\frac{121}{15625}\,\ln\left(|5\,x+3|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*(2*x - 1)^2/(5*x + 3),x, algorithm="giac")
```

```
[Out] 108/25*x^5 + 54/25*x^4 - 591/125*x^3 - 1931/1250*x^2 + 8293/3125*
x + 121/15625*ln(abs(5*x + 3))
```

3.1277 $\int \frac{(1-2x)^2(2+3x)^2}{3+5x} \, dx$

Optimal. Leaf size=37

$$\frac{9x^4}{5}-\frac{16x^3}{25}-\frac{431x^2}{250}+\frac{793x}{625}+\frac{121\log(5x+3)}{3125}$$

```
[Out] (793*x)/625 - (431*x^2)/250 - (16*x^3)/25 + (9*x^4)/5 + (121*Log[
3 + 5*x])/3125
```

Rubi [A] time = 0.0423977, antiderivative size = 37, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{9x^4}{5}-\frac{16x^3}{25}-\frac{431x^2}{250}+\frac{793x}{625}+\frac{121\log(5x+3)}{3125}$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)^2*(2 + 3*x)^2)/(3 + 5*x),x]
```

```
[Out] (793*x)/625 - (431*x^2)/250 - (16*x^3)/25 + (9*x^4)/5 + (121*Log[
3 + 5*x])/3125
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{9x^4}{5}-\frac{16x^3}{25}+\frac{121\log(5x+3)}{3125}+\int \frac{793}{625}\,dx-\frac{431\int x\,dx}{125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**2*(2+3*x)**2/(3+5*x),x)
```

```
[Out] 9*x**4/5 - 16*x**3/25 + 121*log(5*x + 3)/3125 + Integral(793/625,
 x) - 431*Integral(x, x)/125
```

Mathematica [A] time = 0.0176346, size = 35, normalized size = 0.95

$$\frac{5\left(2250x^4-800x^3-2155x^2+1586x+1263\right)+242\log(5x+3)}{6250}$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)^2*(2 + 3*x)^2)/(3 + 5*x),x]
```

```
[Out] (5*(1263 + 1586*x - 2155*x^2 - 800*x^3 + 2250*x^4) + 242*Log[3 +
5*x])/6250
```

Maple [A] time = 0.003, size = 28, normalized size = 0.8

$$\frac{793\,x}{625}-\frac{431\,x^2}{250}-\frac{16\,x^3}{25}+\frac{9\,x^4}{5}+\frac{121\,\ln(3+5\,x)}{3125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((1-2*x)^2*(2+3*x)^2/(3+5*x),x)
```

```
[Out] 793/625*x-431/250*x^2-16/25*x^3+9/5*x^4+121/3125*ln(3+5*x)
```

Maxima [A] time = 1.34357, size = 36, normalized size = 0.97

$$\frac{9}{5}\,x^4-\frac{16}{25}\,x^3-\frac{431}{250}\,x^2+\frac{793}{625}\,x+\frac{121}{3125}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*(2*x - 1)^2/(5*x + 3),x, algorithm="maxima")
```

```
[Out] 9/5*x^4 - 16/25*x^3 - 431/250*x^2 + 793/625*x + 121/3125*log(5*x
+ 3)
```

Fricas [A] time = 0.210641, size = 36, normalized size = 0.97

$$\frac{9}{5}\,x^4-\frac{16}{25}\,x^3-\frac{431}{250}\,x^2+\frac{793}{625}\,x+\frac{121}{3125}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*(2*x - 1)^2/(5*x + 3),x, algorithm="fricas")
```

```
[Out] 9/5*x^4 - 16/25*x^3 - 431/250*x^2 + 793/625*x + 121/3125*log(5*x
+ 3)
```

Sympy [A] time = 0.160911, size = 34, normalized size = 0.92

$$\frac{9x^4}{5}-\frac{16x^3}{25}-\frac{431x^2}{250}+\frac{793x}{625}+\frac{121\log\left(5x+3\right)}{3125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(2+3*x)**2/(3+5*x),x)
```

```
[Out] 9*x**4/5 - 16*x**3/25 - 431*x**2/250 + 793*x/625 + 121*log(5*x +
3)/3125
```

GIAC/XCAS [A] time = 0.207374, size = 38, normalized size = 1.03

$$\frac{9}{5}\,x^4-\frac{16}{25}\,x^3-\frac{431}{250}\,x^2+\frac{793}{625}\,x+\frac{121}{3125}\,\ln\left(|5\,x+3|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*(2*x - 1)^2/(5*x + 3),x, algorithm="giac")
```

```
[Out] 9/5*x^4 - 16/25*x^3 - 431/250*x^2 + 793/625*x + 121/3125*ln(abs(5
*x + 3))
```

3.1278 $\int \frac{(1-2x)^2(2+3x)}{3+5x}\,dx$

Optimal. Leaf size=30

$$\frac{4x^3}{5}-\frac{28x^2}{25}+\frac{43x}{125}+\frac{121}{625}\log(5x+3)$$

```
[Out] (43*x)/125 - (28*x^2)/25 + (4*x^3)/5 + (121*Log[3 + 5*x])/625
```

Rubi [A] time = 0.0312799, antiderivative size = 30, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{4x^3}{5}-\frac{28x^2}{25}+\frac{43x}{125}+\frac{121}{625}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^2*(2 + 3*x))/(3 + 5*x),x]
```

```
[Out] (43*x)/125 - (28*x^2)/25 + (4*x^3)/5 + (121*Log[3 + 5*x])/625
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{4x^3}{5}+\frac{121\log(5x+3)}{625}+\int\frac{43}{125}\,dx-\frac{56\int x\,dx}{25}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(2+3*x)/(3+5*x),x)
```

```
[Out] 4*x**3/5 + 121*log(5*x + 3)/625 + Integral(43/125, x) - 56*Integr
al(x, x)/25
```

Mathematica [A] time = 0.0157787, size = 27, normalized size = 0.9

$$\frac{1}{625}\left(500x^3-700x^2+215x+121\log(5x+3)+489\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^2*(2 + 3*x))/(3 + 5*x),x]
```

```
[Out] (489 + 215*x - 700*x^2 + 500*x^3 + 121*Log[3 + 5*x])/625
```

Maple [A] time = 0.005, size = 23, normalized size = 0.8

$$\frac{43\,x}{125}-\frac{28\,x^2}{25}+\frac{4\,x^3}{5}+\frac{121\,\ln(3+5\,x)}{625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(2+3*x)/(3+5*x),x)
```

```
[Out] 43/125*x-28/25*x^2+4/5*x^3+121/625*ln(3+5*x)
```

Maxima [A] time = 1.35114, size = 30, normalized size = 1.

$$\frac{4}{5}\,x^{3} - \frac{28}{25}\,x^{2} + \frac{43}{125}\,x + \frac{121}{625}\,\log\left(5\,x + 3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)*(2*x - 1)^2/(5*x + 3),x, algorithm="maxima")

[Out] 4/5*x^3 - 28/25*x^2 + 43/125*x + 121/625*log(5*x + 3)
```

Fricas [A] time = 0.212832, size = 30, normalized size = 1.

$$\frac{4}{5}\,x^{3} - \frac{28}{25}\,x^{2} + \frac{43}{125}\,x + \frac{121}{625}\,\log\left(5\,x + 3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)*(2*x - 1)^2/(5*x + 3),x, algorithm="fricas")

[Out] 4/5*x^3 - 28/25*x^2 + 43/125*x + 121/625*log(5*x + 3)
```

Sympy [A] time = 0.151231, size = 27, normalized size = 0.9

$$\frac{4x^{3}}{5} - \frac{28x^{2}}{25} + \frac{43x}{125} + \frac{121\log\left(5x + 3\right)}{625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(2+3*x)/(3+5*x),x)

[Out] 4*x**3/5 - 28*x**2/25 + 43*x/125 + 121*log(5*x + 3)/625
```

GIAC/XCAS [A] time = 0.20628, size = 31, normalized size = 1.03

$$\frac{4}{5}\,x^{3} - \frac{28}{25}\,x^{2} + \frac{43}{125}\,x + \frac{121}{625}\,\ln\left(|5\,x + 3|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)*(2*x - 1)^2/(5*x + 3),x, algorithm="giac")

[Out] 4/5*x^3 - 28/25*x^2 + 43/125*x + 121/625*ln(abs(5*x + 3))
```

3.1279 $\int \frac{(1-2x)^2}{3+5x} \, dx$

Optimal. Leaf size=23

$$\frac{2x^2}{5} - \frac{32x}{25} + \frac{121}{125} \log(5x+3)$$

```
[Out] (-32*x)/25 + (2*x^2)/5 + (121*Log[3 + 5*x])/125
```

Rubi [A] time = 0.0217076, antiderivative size = 23, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}} = 0.067$

$$\frac{2x^2}{5} - \frac{32x}{25} + \frac{121}{125} \log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^2/(3 + 5*x),x]

[Out] (-32*x)/25 + (2*x^2)/5 + (121*Log[3 + 5*x])/125
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{121 \log(5x+3)}{125} + \int \left(-\frac{32}{25}\right) dx + \frac{4 \int x \, dx}{5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2/(3+5*x),x)

[Out] 121*log(5*x + 3)/125 + Integral(-32/25, x) + 4*Integral(x, x)/5
```

Mathematica [A] time = 0.00856435, size = 22, normalized size = 0.96

$$\frac{1}{125} \left(50x^2 - 160x + 121 \log(5x+3) - 114\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^2/(3 + 5*x),x]

[Out] (-114 - 160*x + 50*x^2 + 121*Log[3 + 5*x])/125
```

Maple [A] time = 0.003, size = 18, normalized size = 0.8

$$-\frac{32x}{25} + \frac{2x^2}{5} + \frac{121 \ln(3+5x)}{125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2/(3+5*x),x)

[Out] -32/25*x+2/5*x^2+121/125*ln(3+5*x)
```

Maxima [A] time = 1.35199, size = 23, normalized size = 1.

$$\frac{2}{5}\,x^2 - \frac{32}{25}\,x + \frac{121}{125}\,\log\left(5\,x + 3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/(5*x + 3),x, algorithm="maxima")
```

```
[Out] 2/5*x^2 - 32/25*x + 121/125*log(5*x + 3)
```

Fricas [A] time = 0.209169, size = 23, normalized size = 1.

$$\frac{2}{5}\,x^2 - \frac{32}{25}\,x + \frac{121}{125}\,\log\left(5\,x + 3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/(5*x + 3),x, algorithm="fricas")
```

```
[Out] 2/5*x^2 - 32/25*x + 121/125*log(5*x + 3)
```

Sympy [A] time = 0.131266, size = 20, normalized size = 0.87

$$\frac{2x^2}{5} - \frac{32x}{25} + \frac{121\log\left(5x + 3\right)}{125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2/(3+5*x),x)
```

```
[Out] 2*x**2/5 - 32*x/25 + 121*log(5*x + 3)/125
```

GIAC/XCAS [A] time = 0.212493, size = 24, normalized size = 1.04

$$\frac{2}{5}\,x^2 - \frac{32}{25}\,x + \frac{121}{125}\,\ln\left(|5\,x + 3|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/(5*x + 3),x, algorithm="giac")
```

```
[Out] 2/5*x^2 - 32/25*x + 121/125*ln(abs(5*x + 3))
```

3.1280 $\int \frac{(1-2x)^2}{(2+3x)(3+5x)}\,dx$

Optimal. Leaf size=26

$$\frac{4x}{15} - \frac{49}{9}\log(3x+2) + \frac{121}{25}\log(5x+3)$$

```
[Out] (4*x)/15 - (49*Log[2 + 3*x])/9 + (121*Log[3 + 5*x])/25
```

Rubi [A] time = 0.0379807, antiderivative size = 26, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$\frac{4x}{15} - \frac{49}{9}\log(3x+2) + \frac{121}{25}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^2/((2 + 3*x)*(3 + 5*x)),x]

[Out] (4*x)/15 - (49*Log[2 + 3*x])/9 + (121*Log[3 + 5*x])/25
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{49\log(3x+2)}{9} + \frac{121\log(5x+3)}{25} + \int \frac{4}{15}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2/(2+3*x)/(3+5*x),x)

[Out] -49*log(3*x + 2)/9 + 121*log(5*x + 3)/25 + Integral(4/15, x)
```

Mathematica [A] time = 0.016283, size = 27, normalized size = 1.04

$$\frac{1}{225}(60x - 1225\log(3x+2) + 1089\log(-3(5x+3)) + 40)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^2/((2 + 3*x)*(3 + 5*x)),x]

[Out] (40 + 60*x - 1225*Log[2 + 3*x] + 1089*Log[-3*(3 + 5*x)])/225
```

Maple [A] time = 0.009, size = 21, normalized size = 0.8

$$\frac{4x}{15} - \frac{49\ln(2+3x)}{9} + \frac{121\ln(3+5x)}{25}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2/(2+3*x)/(3+5*x),x)

[Out] 4/15*x-49/9*ln(2+3*x)+121/25*ln(3+5*x)
```

Maxima [A] time = 1.34716, size = 27, normalized size = 1.04

$$\frac{4}{15}\,x+\frac{121}{25}\,\log\left(5\,x+3\right)-\frac{49}{9}\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)*(3*x + 2)),x, algorithm="maxima")
```

```
[Out] 4/15*x + 121/25*log(5*x + 3) - 49/9*log(3*x + 2)
```

Fricas [A] time = 0.20753, size = 27, normalized size = 1.04

$$\frac{4}{15}\,x+\frac{121}{25}\,\log\left(5\,x+3\right)-\frac{49}{9}\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)*(3*x + 2)),x, algorithm="fricas")
```

```
[Out] 4/15*x + 121/25*log(5*x + 3) - 49/9*log(3*x + 2)
```

Sympy [A] time = 0.24982, size = 24, normalized size = 0.92

$$\frac{4x}{15}+\frac{121\log\left(x+\frac{3}{5}\right)}{25}-\frac{49\log\left(x+\frac{2}{3}\right)}{9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2/(2+3*x)/(3+5*x),x)
```

```
[Out] 4*x/15 + 121*log(x + 3/5)/25 - 49*log(x + 2/3)/9
```

GIAC/XCAS [A] time = 0.209862, size = 30, normalized size = 1.15

$$\frac{4}{15}\,x+\frac{121}{25}\,\ln\left(|5\,x+3|\right)-\frac{49}{9}\,\ln\left(|3\,x+2|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)*(3*x + 2)),x, algorithm="giac")
```

```
[Out] 4/15*x + 121/25*ln(abs(5*x + 3)) - 49/9*ln(abs(3*x + 2))
```

3.1281 $\int \frac{(1-2x)^2}{(2+3x)^2(3+5x)}\,dx$

Optimal. Leaf size=32

$$\frac{49}{9(3x+2)}-\frac{217}{9}\log(3x+2)+\frac{121}{5}\log(5x+3)$$

```
[Out] 49/(9*(2 + 3*x)) - (217*Log[2 + 3*x])/9 + (121*Log[3 + 5*x])/5
```

Rubi [A] time = 0.0406583, antiderivative size = 32, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{49}{9(3x+2)}-\frac{217}{9}\log(3x+2)+\frac{121}{5}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^2/((2 + 3*x)^2*(3 + 5*x)),x]
```

```
[Out] 49/(9*(2 + 3*x)) - (217*Log[2 + 3*x])/9 + (121*Log[3 + 5*x])/5
```

Rubi in Sympy [A] time = 6.27354, size = 26, normalized size = 0.81

$$-\frac{217\log{(3x+2)}}{9}+\frac{121\log{(5x+3)}}{5}+\frac{49}{9\,(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2/(2+3*x)**2/(3+5*x),x)
```

```
[Out] -217*log(3*x + 2)/9 + 121*log(5*x + 3)/5 + 49/(9*(3*x + 2))
```

Mathematica [A] time = 0.0294602, size = 32, normalized size = 1.

$$\frac{49}{27x+18}-\frac{217}{9}\log(5(3x+2))+\frac{121}{5}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^2/((2 + 3*x)^2*(3 + 5*x)),x]
```

```
[Out] 49/(18 + 27*x) - (217*Log[5*(2 + 3*x)])/9 + (121*Log[3 + 5*x])/5
```

Maple [A] time = 0.012, size = 27, normalized size = 0.8

$$\frac{49}{18+27\,x}-\frac{217\,\ln(2+3\,x)}{9}+\frac{121\,\ln(3+5\,x)}{5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2/(2+3*x)^2/(3+5*x),x)
```

```
[Out] 49/9/(2+3*x)-217/9*ln(2+3*x)+121/5*ln(3+5*x)
```

Maxima [A] time = 1.34787, size = 35, normalized size = 1.09

$$\frac{49}{9\,(3\,x+2)}+\frac{121}{5}\,\log\left(5\,x+3\right)-\frac{217}{9}\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)*(3*x + 2)^2),x, algorithm="maxima")
```

```
[Out] 49/9/(3*x + 2) + 121/5*log(5*x + 3) - 217/9*log(3*x + 2)
```

Fricas [A] time = 0.217544, size = 50, normalized size = 1.56

$$\frac{1089\,(3\,x+2)\log\left(5\,x+3\right)-1085\,(3\,x+2)\log\left(3\,x+2\right)+245}{45\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)*(3*x + 2)^2),x, algorithm="fricas")
```

```
[Out] 1/45*(1089*(3*x + 2)*log(5*x + 3) - 1085*(3*x + 2)*log(3*x + 2) +
 245)/(3*x + 2)
```

Sympy [A] time = 0.314535, size = 26, normalized size = 0.81

$$\frac{121\log\left(x+\frac{3}{5}\right)}{5}-\frac{217\log\left(x+\frac{2}{3}\right)}{9}+\frac{49}{27x+18}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2/(2+3*x)**2/(3+5*x),x)
```

```
[Out] 121*log(x + 3/5)/5 - 217*log(x + 2/3)/9 + 49/(27*x + 18)
```

GIAC/XCAS [A] time = 0.223951, size = 58, normalized size = 1.81

$$\frac{49}{9\,(3\,x+2)}-\frac{4}{45}\ln\left(\frac{|3\,x+2|}{3\,(3\,x+2)^2}\right)+\frac{121}{5}\ln\left(\left|-\frac{1}{3\,x+2}+5\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)*(3*x + 2)^2),x, algorithm="giac")
```

```
[Out] 49/9/(3*x + 2) - 4/45*ln(1/3*abs(3*x + 2)/(3*x + 2)^2) + 121/5*ln
(abs(-1/(3*x + 2) + 5))
```

3.1282 $\int \frac{(1-2x)^2}{(2+3x)^3(3+5x)}\,dx$

Optimal. Leaf size=39

$$\frac{217}{9(3x+2)}+\frac{49}{18(3x+2)^2}-121\log(3x+2)+121\log(5x+3)$$

```
[Out] 49/(18*(2 + 3*x)^2) + 217/(9*(2 + 3*x)) - 121*Log[2 + 3*x] + 121*
Log[3 + 5*x]
```

Rubi [A] time = 0.0487158, antiderivative size = 39, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{217}{9(3x+2)}+\frac{49}{18(3x+2)^2}-121\log(3x+2)+121\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^2/((2 + 3*x)^3*(3 + 5*x)),x]
```

```
[Out] 49/(18*(2 + 3*x)^2) + 217/(9*(2 + 3*x)) - 121*Log[2 + 3*x] + 121*
Log[3 + 5*x]
```

Rubi in Sympy [A] time = 7.31661, size = 32, normalized size = 0.82

$$-121\log(3x+2)+121\log(5x+3)+\frac{217}{9(3x+2)}+\frac{49}{18(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2/(2+3*x)**3/(3+5*x),x)
```

```
[Out] -121*log(3*x + 2) + 121*log(5*x + 3) + 217/(9*(3*x + 2)) + 49/(18
*(3*x + 2)**2)
```

Mathematica [A] time = 0.027363, size = 48, normalized size = 1.23

$$\frac{1302x-2178(3x+2)^2\log(5(3x+2))+2178(3x+2)^2\log(5x+3)+917}{18(3x+2)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^2/((2 + 3*x)^3*(3 + 5*x)),x]
```

```
[Out] (917 + 1302*x - 2178*(2 + 3*x)^2*Log[5*(2 + 3*x)] + 2178*(2 + 3*x
)^2*Log[3 + 5*x])/(18*(2 + 3*x)^2)
```

Maple [A] time = 0.011, size = 36, normalized size = 0.9

$$\frac{49}{18\,(2+3\,x)^2}+\frac{217}{18+27\,x}-121\,\ln(2+3\,x)+121\,\ln(3+5\,x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2/(2+3*x)^3/(3+5*x),x)
```

```
[Out] 49/18/(2+3*x)^2+217/9/(2+3*x)-121*ln(2+3*x)+121*ln(3+5*x)
```

Maxima [A] time = 1.34989, size = 49, normalized size = 1.26

$$\frac{7\,(186\,x+131)}{18\,(9\,x^2+12\,x+4)}+121\,\log\,(5\,x+3)-121\,\log\,(3\,x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)*(3*x + 2)^3),x, algorithm="maxima")
```

```
[Out] 7/18*(186*x + 131)/(9*x^2 + 12*x + 4) + 121*log(5*x + 3) - 121*lo
g(3*x + 2)
```

Fricas [A] time = 0.219863, size = 74, normalized size = 1.9

$$\frac{2178\,\left(9\,x^2+12\,x+4\right)\,\log\,(5\,x+3)-2178\,\left(9\,x^2+12\,x+4\right)\,\log\,(3\,x+2)+1302\,x+917}{18\,(9\,x^2+12\,x+4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)*(3*x + 2)^3),x, algorithm="fricas")
```

```
[Out] 1/18*(2178*(9*x^2 + 12*x + 4)*log(5*x + 3) - 2178*(9*x^2 + 12*x +
 4)*log(3*x + 2) + 1302*x + 917)/(9*x^2 + 12*x + 4)
```

Sympy [A] time = 0.345516, size = 31, normalized size = 0.79

$$\frac{1302x+917}{162x^2+216x+72}+121\log\left(x+\frac{3}{5}\right)-121\log\left(x+\frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2/(2+3*x)**3/(3+5*x),x)
```

```
[Out] (1302*x + 917)/(162*x**2 + 216*x + 72) + 121*log(x + 3/5) - 121*l
og(x + 2/3)
```

GIAC/XCAS [A] time = 0.220449, size = 45, normalized size = 1.15

$$\frac{7\,(186\,x+131)}{18\,(3\,x+2)^2}+121\ln\left(|5\,x+3|\right)-121\ln\left(|3\,x+2|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)*(3*x + 2)^3),x, algorithm="giac")
```

```
[Out] 7/18*(186*x + 131)/(3*x + 2)^2 + 121*ln(abs(5*x + 3)) - 121*ln(ab
s(3*x + 2))
```

3.1283 $\int \frac{(1-2x)^2}{(2+3x)^4(3+5x)}\,dx$

Optimal. Leaf size=48

$$\frac{121}{3x+2}+\frac{217}{18(3x+2)^2}+\frac{49}{27(3x+2)^3}-605\log(3x+2)+605\log(5x+3)$$

```
[Out] 49/(27*(2 + 3*x)^3) + 217/(18*(2 + 3*x)^2) + 121/(2 + 3*x) - 605*
Log[2 + 3*x] + 605*Log[3 + 5*x]
```

Rubi [A] time = 0.0552137, antiderivative size = 48, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{121}{3x+2}+\frac{217}{18(3x+2)^2}+\frac{49}{27(3x+2)^3}-605\log(3x+2)+605\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^2/((2 + 3*x)^4*(3 + 5*x)),x]
```

```
[Out] 49/(27*(2 + 3*x)^3) + 217/(18*(2 + 3*x)^2) + 121/(2 + 3*x) - 605*
Log[2 + 3*x] + 605*Log[3 + 5*x]
```

Rubi in Sympy [A] time = 8.32102, size = 42, normalized size = 0.88

$$-605\log(3x+2)+605\log(5x+3)+\frac{121}{3x+2}+\frac{217}{18(3x+2)^2}+\frac{49}{27(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2/(2+3*x)**4/(3+5*x),x)
```

```
[Out] -605*log(3*x + 2) + 605*log(5*x + 3) + 121/(3*x + 2) + 217/(18*(3
*x + 2)**2) + 49/(27*(3*x + 2)**3)
```

Mathematica [A] time = 0.0439673, size = 40, normalized size = 0.83

$$\frac{58806x^2+80361x+27536}{54(3x+2)^3}-605\log(5(3x+2))+605\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^2/((2 + 3*x)^4*(3 + 5*x)),x]
```

```
[Out] (27536 + 80361*x + 58806*x^2)/(54*(2 + 3*x)^3) - 605*Log[5*(2 + 3
*x)] + 605*Log[3 + 5*x]
```

Maple [A] time = 0.01, size = 45, normalized size = 0.9

$$\frac{49}{27\,(2+3\,x)^3}+\frac{217}{18\,(2+3\,x)^2}+121\,(2+3\,x)^{-1}-605\,\ln(2+3\,x)+605\,\ln(3+5\,x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2/(2+3*x)^4/(3+5*x),x)
```

```
[Out] 49/27/(2+3*x)^3+217/18/(2+3*x)^2+121/(2+3*x)-605*ln(2+3*x)+605*ln
(3+5*x)
```

Maxima [A] time = 1.34481, size = 62, normalized size = 1.29

$$\frac{58806\,x^2+80361\,x+27536}{54\,(27\,x^3+54\,x^2+36\,x+8)}+605\,\log\left(5\,x+3\right)-605\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)*(3*x + 2)^4),x, algorithm="maxima")
```

```
[Out] 1/54*(58806*x^2 + 80361*x + 27536)/(27*x^3 + 54*x^2 + 36*x + 8) +
 605*log(5*x + 3) - 605*log(3*x + 2)
```

Fricas [A] time = 0.212192, size = 101, normalized size = 2.1

$$\frac{58806\,x^2+32670\,\left(27\,x^3+54\,x^2+36\,x+8\right)\log\left(5\,x+3\right)-32670\,\left(27\,x^3+54\,x^2+36\,x+8\right)\log\left(3\,x+2\right)+80361\,x+27536}{54\,(27\,x^3+54\,x^2+36\,x+8)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)*(3*x + 2)^4),x, algorithm="fricas")
```

```
[Out] 1/54*(58806*x^2 + 32670*(27*x^3 + 54*x^2 + 36*x + 8)*log(5*x + 3)
 - 32670*(27*x^3 + 54*x^2 + 36*x + 8)*log(3*x + 2) + 80361*x + 27
536)/(27*x^3 + 54*x^2 + 36*x + 8)
```

Sympy [A] time = 0.376095, size = 41, normalized size = 0.85

$$\frac{58806x^2+80361x+27536}{1458x^3+2916x^2+1944x+432}+605\log\left(x+\frac{3}{5}\right)-605\log\left(x+\frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2/(2+3*x)**4/(3+5*x),x)
```

```
[Out] (58806*x**2 + 80361*x + 27536)/(1458*x**3 + 2916*x**2 + 1944*x +
432) + 605*log(x + 3/5) - 605*log(x + 2/3)
```

GIAC/XCAS [A] time = 0.235742, size = 51, normalized size = 1.06

$$\frac{58806\,x^2+80361\,x+27536}{54\,(3\,x+2)^3}+605\ln\left(|5\,x+3|\right)-605\ln\left(|3\,x+2|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)*(3*x + 2)^4),x, algorithm="giac")
```

```
[Out] 1/54*(58806*x^2 + 80361*x + 27536)/(3*x + 2)^3 + 605*ln(abs(5*x +
 3)) - 605*ln(abs(3*x + 2))
```

3.1284 $\int \frac{(1-2x)^2}{(2+3x)^5(3+5x)} dx$

Optimal. Leaf size=59

$$\frac{605}{3x+2}+\frac{121}{2(3x+2)^2}+\frac{217}{27(3x+2)^3}+\frac{49}{36(3x+2)^4}-3025\log(3x+2)+3025\log(5x+3)$$

```
[Out] 49/(36*(2 + 3*x)^4) + 217/(27*(2 + 3*x)^3) + 121/(2*(2 + 3*x)^2)
+ 605/(2 + 3*x) - 3025*Log[2 + 3*x] + 3025*Log[3 + 5*x]
```

Rubi [A] time = 0.065368, antiderivative size = 59, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$\frac{605}{3x+2}+\frac{121}{2(3x+2)^2}+\frac{217}{27(3x+2)^3}+\frac{49}{36(3x+2)^4}-3025\log(3x+2)+3025\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^2/((2 + 3*x)^5*(3 + 5*x)),x]
```

```
[Out] 49/(36*(2 + 3*x)^4) + 217/(27*(2 + 3*x)^3) + 121/(2*(2 + 3*x)^2)
+ 605/(2 + 3*x) - 3025*Log[2 + 3*x] + 3025*Log[3 + 5*x]
```

Rubi in Sympy [A] time = 9.4302, size = 53, normalized size = 0.9

$$-3025\log(3x+2)+3025\log(5x+3)+\frac{605}{3x+2}+\frac{121}{2(3x+2)^2}+\frac{217}{27(3x+2)^3}+\frac{49}{36(3x+2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2/(2+3*x)**5/(3+5*x),x)
```

```
[Out] -3025*log(3*x + 2) + 3025*log(5*x + 3) + 605/(3*x + 2) + 121/(2*(
3*x + 2)**2) + 217/(27*(3*x + 2)**3) + 49/(36*(3*x + 2)**4)
```

Mathematica [A] time = 0.046331, size = 45, normalized size = 0.76

$$\frac{1764180x^3+3587166x^2+2433252x+550739}{108(3x+2)^4}-3025\log(5(3x+2))+3025\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^2/((2 + 3*x)^5*(3 + 5*x)),x]
```

```
[Out] (550739 + 2433252*x + 3587166*x^2 + 1764180*x^3)/(108*(2 + 3*x)^4
) - 3025*Log[5*(2 + 3*x)] + 3025*Log[3 + 5*x]
```

Maple [A] time = 0.011, size = 54, normalized size = 0.9

$$\frac{49}{36(2+3x)^4}+\frac{217}{27(2+3x)^3}+\frac{121}{2(2+3x)^2}+605(2+3x)^{-1}-3025\ln(2+3x)+3025\ln(3+5x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2/(2+3*x)^5/(3+5*x),x)
```

```
[Out] 49/36/(2+3*x)^4+217/27/(2+3*x)^3+121/2/(2+3*x)^2+605/(2+3*x)-3025
*ln(2+3*x)+3025*ln(3+5*x)
```

Maxima [A]   time = 1.34368, size = 76, normalized size = 1.29

$$\frac{1764180\,x^3 + 3587166\,x^2 + 2433252\,x + 550739}{108\,(81\,x^4 + 216\,x^3 + 216\,x^2 + 96\,x + 16)} + 3025\,\log\left(5\,x + 3\right) - 3025\,\log\left(3\,x + 2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)*(3*x + 2)^5),x, algorithm="maxima")
```

```
[Out] 1/108*(1764180*x^3 + 3587166*x^2 + 2433252*x + 550739)/(81*x^4 +
216*x^3 + 216*x^2 + 96*x + 16) + 3025*log(5*x + 3) - 3025*log(3*x
 + 2)
```

Fricas [A]   time = 0.216934, size = 128, normalized size = 2.17

$$\frac{1764180\,x^3 + 3587166\,x^2 + 326700\,\left(81\,x^4 + 216\,x^3 + 216\,x^2 + 96\,x + 16\right)\log\left(5\,x + 3\right) - 326700\,\left(81\,x^4 + 216\,x^3 + 216\,x^2 + 96\right.}{108\,(81\,x^4 + 216\,x^3 + 216\,x^2 + 96\,x + 16)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)*(3*x + 2)^5),x, algorithm="fricas")
```

```
[Out] 1/108*(1764180*x^3 + 3587166*x^2 + 326700*(81*x^4 + 216*x^3 + 216
*x^2 + 96*x + 16)*log(5*x + 3) - 326700*(81*x^4 + 216*x^3 + 216*x
^2 + 96*x + 16)*log(3*x + 2) + 2433252*x + 550739)/(81*x^4 + 216*
x^3 + 216*x^2 + 96*x + 16)
```

Sympy [A]   time = 0.498383, size = 51, normalized size = 0.86

$$\frac{1764180x^3 + 3587166x^2 + 2433252x + 550739}{8748x^4 + 23328x^3 + 23328x^2 + 10368x + 1728} + 3025\log\left(x + \frac{3}{5}\right) - 3025\log\left(x + \frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2/(2+3*x)**5/(3+5*x),x)
```

```
[Out] (1764180*x**3 + 3587166*x**2 + 2433252*x + 550739)/(8748*x**4 + 2
3328*x**3 + 23328*x**2 + 10368*x + 1728) + 3025*log(x + 3/5) - 30
25*log(x + 2/3)
```

GIAC/XCAS [A]   time = 0.213831, size = 70, normalized size = 1.19

$$\frac{605}{3\,x + 2} + \frac{121}{2\,(3\,x + 2)^2} + \frac{217}{27\,(3\,x + 2)^3} + \frac{49}{36\,(3\,x + 2)^4} + 3025\ln\left(\left|-\frac{1}{3\,x + 2} + 5\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)*(3*x + 2)^5),x, algorithm="giac")
```

```
[Out] 605/(3*x + 2) + 121/2/(3*x + 2)^2 + 217/27/(3*x + 2)^3 + 49/36/(3
*x + 2)^4 + 3025*ln(abs(-1/(3*x + 2) + 5))
```

3.1285 $\int \frac{(1-2x)^2}{(2+3x)^6(3+5x)}\,dx$

Optimal. Leaf size=70

$$\frac{3025}{3x+2}+\frac{605}{2(3x+2)^2}+\frac{121}{3(3x+2)^3}+\frac{217}{36(3x+2)^4}+\frac{49}{45(3x+2)^5}-15125\log(3x+2)+15125\log(5x+3)$$

```
[Out] 49/(45*(2 + 3*x)^5) + 217/(36*(2 + 3*x)^4) + 121/(3*(2 + 3*x)^3)
+ 605/(2*(2 + 3*x)^2) + 3025/(2 + 3*x) - 15125*Log[2 + 3*x] + 151
25*Log[3 + 5*x]
```

Rubi [A] time = 0.0766862, antiderivative size = 70, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{3025}{3x+2}+\frac{605}{2(3x+2)^2}+\frac{121}{3(3x+2)^3}+\frac{217}{36(3x+2)^4}+\frac{49}{45(3x+2)^5}-15125\log(3x+2)+15125\log(5x+3)$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^2/((2 + 3*x)^6*(3 + 5*x)),x]
```

```
[Out] 49/(45*(2 + 3*x)^5) + 217/(36*(2 + 3*x)^4) + 121/(3*(2 + 3*x)^3)
+ 605/(2*(2 + 3*x)^2) + 3025/(2 + 3*x) - 15125*Log[2 + 3*x] + 151
25*Log[3 + 5*x]
```

Rubi in Sympy [A] time = 10.6234, size = 63, normalized size = 0.9

$$-15125\log(3x+2)+15125\log(5x+3)+\frac{3025}{3x+2}+\frac{605}{2(3x+2)^2}+\frac{121}{3(3x+2)^3}+\frac{217}{36(3x+2)^4}+\frac{49}{45(3x+2)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**2/(2+3*x)**6/(3+5*x),x)
```

```
[Out] -15125*log(3*x + 2) + 15125*log(5*x + 3) + 3025/(3*x + 2) + 605/(
2*(3*x + 2)**2) + 121/(3*(3*x + 2)**3) + 217/(36*(3*x + 2)**4) +
49/(45*(3*x + 2)**5)
```

Mathematica [A] time = 0.0555852, size = 57, normalized size = 0.81

$$\frac{44104500x^4+119082150x^3+120617640x^2+54322575x+2722500(3x+2)^5\log(5x+3)+9179006}{180(3x+2)^5}-15125\log(5(3x+2))$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)^2/((2 + 3*x)^6*(3 + 5*x)),x]
```

```
[Out] -15125*Log[5*(2 + 3*x)] + (9179006 + 54322575*x + 120617640*x^2 +
 119082150*x^3 + 44104500*x^4 + 2722500*(2 + 3*x)^5*Log[3 + 5*x])
/(180*(2 + 3*x)^5)
```

Maple [A] time = 0.013, size = 63, normalized size = 0.9

$$\frac{49}{45(2+3x)^5}+\frac{217}{36(2+3x)^4}+\frac{121}{3(2+3x)^3}+\frac{605}{2(2+3x)^2}+3025(2+3x)^{-1}-15125\ln(2+3x)+15125\ln(3+5x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2/(2+3*x)^6/(3+5*x),x)
```

```
[Out] 49/45/(2+3*x)^5+217/36/(2+3*x)^4+121/3/(2+3*x)^3+605/2/(2+3*x)^2+
3025/(2+3*x)-15125*ln(2+3*x)+15125*ln(3+5*x)
```

Maxima [A] time = 1.35163, size = 89, normalized size = 1.27

$$\frac{44104500\,x^4 + 119082150\,x^3 + 120617640\,x^2 + 54322575\,x + 9179006}{180\,(243\,x^5 + 810\,x^4 + 1080\,x^3 + 720\,x^2 + 240\,x + 32)} + 15125\,\log(5\,x + 3) - 15125\,\log(3\,x + 2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)*(3*x + 2)^6),x, algorithm="maxima")
```

```
[Out] 1/180*(44104500*x^4 + 119082150*x^3 + 120617640*x^2 + 54322575*x
+ 9179006)/(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)
+ 15125*log(5*x + 3) - 15125*log(3*x + 2)
```

Fricas [A] time = 0.215423, size = 155, normalized size = 2.21

$$\frac{44104500\,x^4 + 119082150\,x^3 + 120617640\,x^2 + 2722500\left(243\,x^5 + 810\,x^4 + 1080\,x^3 + 720\,x^2 + 240\,x + 32\right)\log(5\,x + 3) - 272}{180\,(243\,x^5 + 810\,x^4 + 1080\,x^3 + 720\,x^2 +}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)*(3*x + 2)^6),x, algorithm="fricas")
```

```
[Out] 1/180*(44104500*x^4 + 119082150*x^3 + 120617640*x^2 + 2722500*(24
3*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)*log(5*x + 3) -
 2722500*(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)*lo
g(3*x + 2) + 54322575*x + 9179006)/(243*x^5 + 810*x^4 + 1080*x^3
+ 720*x^2 + 240*x + 32)
```

Sympy [A] time = 0.50036, size = 61, normalized size = 0.87

$$\frac{44104500x^4 + 119082150x^3 + 120617640x^2 + 54322575x + 9179006}{43740x^5 + 145800x^4 + 194400x^3 + 129600x^2 + 43200x + 5760} + 15125\log\left(x + \frac{3}{5}\right) - 15125\log\left(x + \frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2/(2+3*x)**6/(3+5*x),x)
```

```
[Out] (44104500*x**4 + 119082150*x**3 + 120617640*x**2 + 54322575*x + 9
179006)/(43740*x**5 + 145800*x**4 + 194400*x**3 + 129600*x**2 + 4
3200*x + 5760) + 15125*log(x + 3/5) - 15125*log(x + 2/3)
```

GIAC/XCAS [A] time = 0.20873, size = 65, normalized size = 0.93

$$\frac{44104500\,x^4 + 119082150\,x^3 + 120617640\,x^2 + 54322575\,x + 9179006}{180\,(3\,x + 2)^5} + 15125\,\ln(|5\,x + 3|) - 15125\,\ln(|3\,x + 2|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)*(3*x + 2)^6),x, algorithm="giac")
```

```
[Out] 1/180*(44104500*x^4 + 119082150*x^3 + 120617640*x^2 + 54322575*x
+ 9179006)/(3*x + 2)^5 + 15125*ln(abs(5*x + 3)) - 15125*ln(abs(3*
x + 2))
```

3.1286 $\int \frac{(1-2x)^2}{(2+3x)^7(3+5x)}\,dx$

Optimal. Leaf size=81

$$\frac{15125}{3x+2}+\frac{3025}{2(3x+2)^2}+\frac{605}{3(3x+2)^3}+\frac{121}{4(3x+2)^4}+\frac{217}{45(3x+2)^5}+\frac{49}{54(3x+2)^6}-75625\log(3x+2)+75625\log(5x+3)$$

```
[Out] 49/(54*(2 + 3*x)^6) + 217/(45*(2 + 3*x)^5) + 121/(4*(2 + 3*x)^4)
+ 605/(3*(2 + 3*x)^3) + 3025/(2*(2 + 3*x)^2) + 15125/(2 + 3*x) -
75625*Log[2 + 3*x] + 75625*Log[3 + 5*x]
```

Rubi [A] time = 0.0847155, antiderivative size = 81, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$\frac{15125}{3x+2}+\frac{3025}{2(3x+2)^2}+\frac{605}{3(3x+2)^3}+\frac{121}{4(3x+2)^4}+\frac{217}{45(3x+2)^5}+\frac{49}{54(3x+2)^6}-75625\log(3x+2)+75625\log(5x+3)$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^2/((2 + 3*x)^7*(3 + 5*x)),x]
```

```
[Out] 49/(54*(2 + 3*x)^6) + 217/(45*(2 + 3*x)^5) + 121/(4*(2 + 3*x)^4)
+ 605/(3*(2 + 3*x)^3) + 3025/(2*(2 + 3*x)^2) + 15125/(2 + 3*x) -
75625*Log[2 + 3*x] + 75625*Log[3 + 5*x]
```

Rubi in Sympy [A] time = 11.8319, size = 73, normalized size = 0.9

$$-75625\log(3x+2)+75625\log(5x+3)+\frac{15125}{3x+2}+\frac{3025}{2(3x+2)^2}+\frac{605}{3(3x+2)^3}+\frac{121}{4(3x+2)^4}+\frac{217}{45(3x+2)^5}+\frac{49}{54(3x+2)^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**2/(2+3*x)**7/(3+5*x),x)
```

```
[Out] -75625*log(3*x + 2) + 75625*log(5*x + 3) + 15125/(3*x + 2) + 3025
/(2*(3*x + 2)**2) + 605/(3*(3*x + 2)**3) + 121/(4*(3*x + 2)**4) +
 217/(45*(3*x + 2)**5) + 49/(54*(3*x + 2)**6)
```

Mathematica [A] time = 0.0818632, size = 55, normalized size = 0.68

$$\frac{1984702500x^5+6681831750x^4+9000258300x^3+6063045615x^2+2042732232x+275370238}{540(3x+2)^6}-75625\log(5(3x+2))+75625\log(5x+3)$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)^2/((2 + 3*x)^7*(3 + 5*x)),x]
```

```
[Out] (275370238 + 2042732232*x + 6063045615*x^2 + 9000258300*x^3 + 668
1831750*x^4 + 1984702500*x^5)/(540*(2 + 3*x)^6) - 75625*Log[5*(2
```

```
+ 3*x)] + 75625*Log[3 + 5*x]
```

Maple [A] time = 0.012, size = 72, normalized size = 0.9

$$\frac{49}{54\,(2+3\,x)^{6}}+\frac{217}{45\,(2+3\,x)^{5}}+\frac{121}{4\,(2+3\,x)^{4}}+\frac{605}{3\,(2+3\,x)^{3}}+\frac{3025}{2\,(2+3\,x)^{2}}+15125\,(2+3\,x)^{-1}-75625\,\ln(2+3\,x)+75625\,\ln(3+5\,x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2/(2+3*x)^7/(3+5*x),x)
```

```
[Out] 49/54/(2+3*x)^6+217/45/(2+3*x)^5+121/4/(2+3*x)^4+605/3/(2+3*x)^3+
3025/2/(2+3*x)^2+15125/(2+3*x)-75625*ln(2+3*x)+75625*ln(3+5*x)
```

Maxima [A] time = 1.34481, size = 103, normalized size = 1.27

$$\frac{1984702500\,x^{5}+6681831750\,x^{4}+9000258300\,x^{3}+6063045615\,x^{2}+2042732232\,x+275370238}{540\,(729\,x^{6}+2916\,x^{5}+4860\,x^{4}+4320\,x^{3}+2160\,x^{2}+576\,x+64)}+75625\,\log(5\,x+3)-75625\,\log(3\,x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)*(3*x + 2)^7),x, algorithm="maxima")
```

```
[Out] 1/540*(1984702500*x^5 + 6681831750*x^4 + 9000258300*x^3 + 6063045
615*x^2 + 2042732232*x + 275370238)/(729*x^6 + 2916*x^5 + 4860*x^
4 + 4320*x^3 + 2160*x^2 + 576*x + 64) + 75625*log(5*x + 3) - 7562
5*log(3*x + 2)
```

Fricas [A] time = 0.210665, size = 182, normalized size = 2.25

$$\frac{1984702500\,x^{5}+6681831750\,x^{4}+9000258300\,x^{3}+6063045615\,x^{2}+40837500\,(729\,x^{6}+2916\,x^{5}+4860\,x^{4}+4320\,x^{3}+216}{540\,(729\,x^{6}+2916\,x^{5}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)*(3*x + 2)^7),x, algorithm="fricas")
```

```
[Out] 1/540*(1984702500*x^5 + 6681831750*x^4 + 9000258300*x^3 + 6063045
615*x^2 + 40837500*(729*x^6 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 21
60*x^2 + 576*x + 64)*log(5*x + 3) - 40837500*(729*x^6 + 2916*x^5
+ 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64)*log(3*x + 2) + 204
2732232*x + 275370238)/(729*x^6 + 2916*x^5 + 4860*x^4 + 4320*x^3
+ 2160*x^2 + 576*x + 64)
```

Sympy [A] time = 0.561912, size = 71, normalized size = 0.88

$$\frac{1984702500x^{5}+6681831750x^{4}+9000258300x^{3}+6063045615x^{2}+2042732232x+275370238}{393660x^{6}+1574640x^{5}+2624400x^{4}+2332800x^{3}+1166400x^{2}+311040x+34560}+75625\log\left(x+\frac{3}{5}\right)-75625\log\left(x+\frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2/(2+3*x)**7/(3+5*x),x)
```

```
[Out] (1984702500*x**5 + 6681831750*x**4 + 9000258300*x**3 + 6063045615
*x**2 + 2042732232*x + 275370238)/(393660*x**6 + 1574640*x**5 + 2
624400*x**4 + 2332800*x**3 + 1166400*x**2 + 311040*x + 34560) + 7
5625*log(x + 3/5) - 75625*log(x + 2/3)
```

GIAC/XCAS [A] time = 0.20672, size = 72, normalized size = 0.89

$$\frac{1984702500\,x^5 + 6681831750\,x^4 + 9000258300\,x^3 + 6063045615\,x^2 + 2042732232\,x + 275370238}{540\,(3\,x+2)^6} + 75625\ln\left(|5\,x+3|\right) - 75625\ln\left(|3\,x+2|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)*(3*x + 2)^7),x, algorithm="giac")
```

```
[Out] 1/540*(1984702500*x^5 + 6681831750*x^4 + 9000258300*x^3 + 6063045
615*x^2 + 2042732232*x + 275370238)/(3*x + 2)^6 + 75625*ln(abs(5*
x + 3)) - 75625*ln(abs(3*x + 2))
```

3.1287 $\int \frac{(1-2x)^2}{(2+3x)^8(3+5x)}\,dx$

Optimal. Leaf size=92

$$\frac{75625}{3x+2}+\frac{15125}{2(3x+2)^2}+\frac{3025}{3(3x+2)^3}+\frac{605}{4(3x+2)^4}+\frac{121}{5(3x+2)^5}+\frac{217}{54(3x+2)^6}+\frac{7}{9(3x+2)^7}-378125\log(3x+2)+378125\log(5x+3)$$

```
[Out] 7/(9*(2 + 3*x)^7) + 217/(54*(2 + 3*x)^6) + 121/(5*(2 + 3*x)^5) +
605/(4*(2 + 3*x)^4) + 3025/(3*(2 + 3*x)^3) + 15125/(2*(2 + 3*x)^2
) + 75625/(2 + 3*x) - 378125*Log[2 + 3*x] + 378125*Log[3 + 5*x]
```

Rubi [A] time = 0.0922425, antiderivative size = 92, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{75625}{3x+2}+\frac{15125}{2(3x+2)^2}+\frac{3025}{3(3x+2)^3}+\frac{605}{4(3x+2)^4}+\frac{121}{5(3x+2)^5}+\frac{217}{54(3x+2)^6}+\frac{7}{9(3x+2)^7}-378125\log(3x+2)+378125\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^2/((2 + 3*x)^8*(3 + 5*x)),x]
```

```
[Out] 7/(9*(2 + 3*x)^7) + 217/(54*(2 + 3*x)^6) + 121/(5*(2 + 3*x)^5) +
605/(4*(2 + 3*x)^4) + 3025/(3*(2 + 3*x)^3) + 15125/(2*(2 + 3*x)^2
) + 75625/(2 + 3*x) - 378125*Log[2 + 3*x] + 378125*Log[3 + 5*x]
```

Rubi in Sympy [A] time = 13.0541, size = 83, normalized size = 0.9

$$-378125\log(3x+2)+378125\log(5x+3)+\frac{75625}{3x+2}+\frac{15125}{2(3x+2)^2}+\frac{3025}{3(3x+2)^3}+\frac{605}{4(3x+2)^4}+\frac{121}{5(3x+2)^5}+\frac{217}{54(3x+2)^6}+\frac{7}{9(3x+2)^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2/(2+3*x)**8/(3+5*x),x)
```

```
[Out] -378125*log(3*x + 2) + 378125*log(5*x + 3) + 75625/(3*x + 2) + 15
125/(2*(3*x + 2)**2) + 3025/(3*(3*x + 2)**3) + 605/(4*(3*x + 2)**
4) + 121/(5*(3*x + 2)**5) + 217/(54*(3*x + 2)**6) + 7/(9*(3*x + 2
)**7)
```

Mathematica [A] time = 0.107101, size = 84, normalized size = 0.91

$$\frac{40837500(3x+2)^6+4083750(3x+2)^5+544500(3x+2)^4+81675(3x+2)^3+13068(3x+2)^2+2170(3x+2)+420}{540(3x+2)^7}-378125\log(5(3x+2))+378125\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^2/((2 + 3*x)^8*(3 + 5*x)),x]
```

```
[Out] (420 + 2170*(2 + 3*x) + 13068*(2 + 3*x)^2 + 81675*(2 + 3*x)^3 + 5
44500*(2 + 3*x)^4 + 4083750*(2 + 3*x)^5 + 40837500*(2 + 3*x)^6)/(
```

```
540*(2 + 3*x)^7) - 378125*Log[5*(2 + 3*x)] + 378125*Log[3 + 5*x]
```

Maple [A] time = 0.018, size = 81, normalized size = 0.9

$$\frac{7}{9\,(2+3\,x)^{7}}+\frac{217}{54\,(2+3\,x)^{6}}+\frac{121}{5\,(2+3\,x)^{5}}+\frac{605}{4\,(2+3\,x)^{4}}+\frac{3025}{3\,(2+3\,x)^{3}}+\frac{15125}{2\,(2+3\,x)^{2}}+75625\,(2+3\,x)^{-1}-378125\,\ln(2+3\,x)+378125\,\ln(3+5\,x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2/(2+3*x)^8/(3+5*x),x)
```

```
[Out] 7/9/(2+3*x)^7+217/54/(2+3*x)^6+121/5/(2+3*x)^5+605/4/(2+3*x)^4+30
25/3/(2+3*x)^3+15125/2/(2+3*x)^2+75625/(2+3*x)-378125*ln(2+3*x)+3
78125*ln(3+5*x)
```

Maxima [A] time = 1.3528, size = 116, normalized size = 1.26

$$\frac{29770537500\,x^{6}+120074501250\,x^{5}+201822192000\,x^{4}+180948267225\,x^{3}+91271440062\,x^{2}+24557875626\,x+27537024}{540\,(2187\,x^{7}+10206\,x^{6}+20412\,x^{5}+22680\,x^{4}+15120\,x^{3}+6048\,x^{2}+1344\,x+128)}+378125\,\log(5\,x+3)-378125\,\log(3\,x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)*(3*x + 2)^8),x, algorithm="maxima")
```

```
[Out] 1/540*(29770537500*x^6 + 120074501250*x^5 + 201822192000*x^4 + 18
0948267225*x^3 + 91271440062*x^2 + 24557875626*x + 2753702432)/(2
187*x^7 + 10206*x^6 + 20412*x^5 + 22680*x^4 + 15120*x^3 + 6048*x^
2 + 1344*x + 128) + 378125*log(5*x + 3) - 378125*log(3*x + 2)
```

Fricas [A] time = 0.201523, size = 209, normalized size = 2.27

$$\frac{29770537500\,x^{6}+120074501250\,x^{5}+201822192000\,x^{4}+180948267225\,x^{3}+91271440062\,x^{2}+204187500\,\big(2187\,x^{7}+1020}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)*(3*x + 2)^8),x, algorithm="fricas")
```

```
[Out] 1/540*(29770537500*x^6 + 120074501250*x^5 + 201822192000*x^4 + 18
0948267225*x^3 + 91271440062*x^2 + 204187500*(2187*x^7 + 10206*x^
6 + 20412*x^5 + 22680*x^4 + 15120*x^3 + 6048*x^2 + 1344*x + 128)*
log(5*x + 3) - 204187500*(2187*x^7 + 10206*x^6 + 20412*x^5 + 2268
0*x^4 + 15120*x^3 + 6048*x^2 + 1344*x + 128)*log(3*x + 2) + 24557
875626*x + 2753702432)/(2187*x^7 + 10206*x^6 + 20412*x^5 + 22680*
x^4 + 15120*x^3 + 6048*x^2 + 1344*x + 128)
```

Sympy [A] time = 0.604274, size = 82, normalized size = 0.89

$$\frac{29770537500x^{6}+120074501250x^{5}+201822192000x^{4}+180948267225x^{3}+91271440062x^{2}+24557875626x+2753702432}{1180980x^{7}+5511240x^{6}+11022480x^{5}+12247200x^{4}+8164800x^{3}+3265920x^{2}+725760x+69120}+378125\log\left(x+\frac{3}{5}\right)-378125\log\left(x+\frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2/(2+3*x)**8/(3+5*x),x)
```

```
[Out] (29770537500*x**6 + 120074501250*x**5 + 201822192000*x**4 + 18094
8267225*x**3 + 91271440062*x**2 + 24557875626*x + 2753702432)/(11
80980*x**7 + 5511240*x**6 + 11022480*x**5 + 12247200*x**4 + 81648
00*x**3 + 3265920*x**2 + 725760*x + 69120) + 378125*log(x + 3/5)
- 378125*log(x + 2/3)
```

GIAC/XCAS [A] time = 0.207199, size = 78, normalized size = 0.85

$$\frac{29770537500\,x^{6} + 120074501250\,x^{5} + 201822192000\,x^{4} + 180948267225\,x^{3} + 91271440062\,x^{2} + 24557875626\,x + 2753702432}{540\,{\left(3\,x + 2\right)}^{7}} + 378125\,\ln\left({\left|5\,x + 3\right|}\right) - 378125\,\ln\left({\left|3\,x + 2\right|}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)*(3*x + 2)^8),x, algorithm="giac")
```

```
[Out] 1/540*(29770537500*x^6 + 120074501250*x^5 + 201822192000*x^4 + 18
0948267225*x^3 + 91271440062*x^2 + 24557875626*x + 2753702432)/(3
*x + 2)^7 + 378125*ln(abs(5*x + 3)) - 378125*ln(abs(3*x + 2))
```

3.1288 $\int \frac{(1-2x)^2(2+3x)^7}{(3+5x)^2}\,dx$

Optimal. Leaf size=76

$$\frac{2187x^8}{50}+\frac{107892x^7}{875}+\frac{116397x^6}{1250}-\frac{656424x^5}{15625}-\frac{213867x^4}{2500}-\frac{1512378x^3}{78125}+\frac{17592879x^2}{781250}+\frac{27776932x}{1953125}-\frac{121}{9765625(5x+3)}+\frac{2497\log(5x+3)}{9765625}$$

```
[Out] (27776932*x)/1953125 + (17592879*x^2)/781250 - (1512378*x^3)/7812
5 - (213867*x^4)/2500 - (656424*x^5)/15625 + (116397*x^6)/1250 +
(107892*x^7)/875 + (2187*x^8)/50 - 121/(9765625*(3 + 5*x)) + (249
7*Log[3 + 5*x])/9765625
```

Rubi [A] time = 0.0941556, antiderivative size = 76, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{2187x^8}{50}+\frac{107892x^7}{875}+\frac{116397x^6}{1250}-\frac{656424x^5}{15625}-\frac{213867x^4}{2500}-\frac{1512378x^3}{78125}+\frac{17592879x^2}{781250}+\frac{27776932x}{1953125}-\frac{121}{9765625(5x+3)}+\frac{2497\log(5x+3)}{9765625}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^2*(2 + 3*x)^7)/(3 + 5*x)^2,x]
```

```
[Out] (27776932*x)/1953125 + (17592879*x^2)/781250 - (1512378*x^3)/7812
5 - (213867*x^4)/2500 - (656424*x^5)/15625 + (116397*x^6)/1250 +
(107892*x^7)/875 + (2187*x^8)/50 - 121/(9765625*(3 + 5*x)) + (249
7*Log[3 + 5*x])/9765625
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{2187x^8}{50}+\frac{107892x^7}{875}+\frac{116397x^6}{1250}-\frac{656424x^5}{15625}-\frac{213867x^4}{2500}-\frac{1512378x^3}{78125}+\frac{2497\log(5x+3)}{9765625}+\int\frac{27776932}{1953125}\,dx+\frac{17592879\int x\,dx}{390625}-\frac{121}{9765625(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(2+3*x)**7/(3+5*x)**2,x)
```

```
[Out] 2187*x**8/50 + 107892*x**7/875 + 116397*x**6/1250 - 656424*x**5/1
5625 - 213867*x**4/2500 - 1512378*x**3/78125 + 2497*log(5*x + 3)/
9765625 + Integral(27776932/1953125, x) + 17592879*Integral(x, x)
/390625 - 121/(9765625*(5*x + 3))
```

Mathematica [A] time = 0.0477959, size = 69, normalized size = 0.91

$$\frac{299003906250x^9+1022308593750x^8+1142289843750x^7+94742156250x^6-757103878125x^5-483208621875x^4+74537}{1367187500(5x+3)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^2*(2 + 3*x)^7)/(3 + 5*x)^2,x]
```

```
[Out] (9997654777 + 74994343395*x + 189581876750*x^2 + 74537846250*x^3
- 483208621875*x^4 - 757103878125*x^5 + 94742156250*x^6 + 1142289
843750*x^7 + 1022308593750*x^8 + 299003906250*x^9 + 349580*(3 + 5
*x)*Log[3 + 5*x])/(1367187500*(3 + 5*x))
```

Maple [A] time = 0.011, size = 57, normalized size = 0.8

$$\frac{27776932\,x}{1953125}+\frac{17592879\,x^{2}}{781250}-\frac{1512378\,x^{3}}{78125}-\frac{213867\,x^{4}}{2500}-\frac{656424\,x^{5}}{15625}+\frac{116397\,x^{6}}{1250}+\frac{107892\,x^{7}}{875}+\frac{2187\,x^{8}}{50}-\frac{121}{29296875+48828125\,x}+\frac{2497\,\ln\left(3+5\,x\right)}{9765625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(2+3*x)^7/(3+5*x)^2,x)
```

```
[Out] 27776932/1953125*x+17592879/781250*x^2-1512378/78125*x^3-213867/2
500*x^4-656424/15625*x^5+116397/1250*x^6+107892/875*x^7+2187/50*x
^8-121/9765625/(3+5*x)+2497/9765625*ln(3+5*x)
```

Maxima [A] time = 1.34317, size = 76, normalized size = 1.

$$\frac{2187}{50}\,x^{8}+\frac{107892}{875}\,x^{7}+\frac{116397}{1250}\,x^{6}-\frac{656424}{15625}\,x^{5}-\frac{213867}{2500}\,x^{4}-\frac{1512378}{78125}\,x^{3}+\frac{17592879}{781250}\,x^{2}+\frac{27776932}{1953125}\,x-\frac{121}{9765625\,(5\,x+3)}+\frac{2497}{9765625}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^7*(2*x - 1)^2/(5*x + 3)^2,x, algorithm="maxima")
```

```
[Out] 2187/50*x^8 + 107892/875*x^7 + 116397/1250*x^6 - 656424/15625*x^5
 - 213867/2500*x^4 - 1512378/78125*x^3 + 17592879/781250*x^2 + 27
776932/1953125*x - 121/9765625/(5*x + 3) + 2497/9765625*log(5*x +
 3)
```

Fricas [A] time = 0.208497, size = 90, normalized size = 1.18

$$\frac{59800781250\,x^{9}+204461718750\,x^{8}+228457968750\,x^{7}+18948431250\,x^{6}-151420775625\,x^{5}-96641724375\,x^{4}+1490756}{273437500\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^7*(2*x - 1)^2/(5*x + 3)^2,x, algorithm="fricas")
```

```
[Out] 1/273437500*(59800781250*x^9 + 204461718750*x^8 + 228457968750*x^
7 + 18948431250*x^6 - 151420775625*x^5 - 96641724375*x^4 + 149075
69250*x^3 + 37916375350*x^2 + 69916*(5*x + 3)*log(5*x + 3) + 1166
6311440*x - 3388)/(5*x + 3)
```

Sympy [A] time = 0.256349, size = 68, normalized size = 0.89

$$\frac{2187x^{8}}{50}+\frac{107892x^{7}}{875}+\frac{116397x^{6}}{1250}-\frac{656424x^{5}}{15625}-\frac{213867x^{4}}{2500}-\frac{1512378x^{3}}{78125}+\frac{17592879x^{2}}{781250}+\frac{27776932x}{1953125}+\frac{2497\log{(5x+3)}}{9765625}-\frac{121}{48828125x+29296875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(2+3*x)**7/(3+5*x)**2,x)
```

```
[Out] 2187*x**8/50 + 107892*x**7/875 + 116397*x**6/1250 - 656424*x**5/1
5625 - 213867*x**4/2500 - 1512378*x**3/78125 + 17592879*x**2/7812
50 + 27776932*x/1953125 + 2497*log(5*x + 3)/9765625 - 121/(488281
25*x + 29296875)
```

GIAC/XCAS [A] time = 0.209882, size = 138, normalized size = 1.82

$$-\frac{1}{1367187500}(5x+3)^8\left(\frac{1516320}{5x+3}-\frac{1411830}{(5x+3)^2}-\frac{11319588}{(5x+3)^3}-\frac{17377605}{(5x+3)^4}-\frac{14103180}{(5x+3)^5}-\frac{7427910}{(5x+3)^6}-\frac{3072860}{(5x+3)^7}-153090\right)-\frac{121}{9765625(5x+3)}-\frac{2497}{9765625}\ln\left(\frac{|5x+3|}{5(5x+3)^2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^7*(2*x - 1)^2/(5*x + 3)^2,x, algorithm="giac")
```

```
[Out] -1/1367187500*(5*x + 3)^8*(1516320/(5*x + 3) - 1411830/(5*x + 3)^
2 - 11319588/(5*x + 3)^3 - 17377605/(5*x + 3)^4 - 14103180/(5*x +
 3)^5 - 7427910/(5*x + 3)^6 - 3072860/(5*x + 3)^7 - 153090) - 121
/9765625/(5*x + 3) - 2497/9765625*ln(1/5*abs(5*x + 3)/(5*x + 3)^2
)
```

3.1289 $\int \frac{(1-2x)^2(2+3x)^6}{(3+5x)^2}\,dx$

Optimal. Leaf size=69

$$\frac{2916x^7}{175}+\frac{4374x^6}{125}+\frac{28917x^5}{3125}-\frac{157599x^4}{6250}-\frac{48771x^3}{3125}+\frac{463086x^2}{78125}+\frac{2777053x}{390625}-\frac{121}{1953125(5x+3)}+\frac{2134\log(5x+3)}{1953125}$$

```
[Out] (2777053*x)/390625 + (463086*x^2)/78125 - (48771*x^3)/3125 - (157
599*x^4)/6250 + (28917*x^5)/3125 + (4374*x^6)/125 + (2916*x^7)/17
5 - 121/(1953125*(3 + 5*x)) + (2134*Log[3 + 5*x])/1953125
```

Rubi [A] time = 0.0818827, antiderivative size = 69, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{2916x^7}{175}+\frac{4374x^6}{125}+\frac{28917x^5}{3125}-\frac{157599x^4}{6250}-\frac{48771x^3}{3125}+\frac{463086x^2}{78125}+\frac{2777053x}{390625}-\frac{121}{1953125(5x+3)}+\frac{2134\log(5x+3)}{1953125}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^2*(2 + 3*x)^6)/(3 + 5*x)^2,x]
```

```
[Out] (2777053*x)/390625 + (463086*x^2)/78125 - (48771*x^3)/3125 - (157
599*x^4)/6250 + (28917*x^5)/3125 + (4374*x^6)/125 + (2916*x^7)/17
5 - 121/(1953125*(3 + 5*x)) + (2134*Log[3 + 5*x])/1953125
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{2916x^7}{175}+\frac{4374x^6}{125}+\frac{28917x^5}{3125}-\frac{157599x^4}{6250}-\frac{48771x^3}{3125}+\frac{2134\log(5x+3)}{1953125}+\int\frac{2777053}{390625}\,dx+\frac{926172\int x\,dx}{78125}-\frac{121}{1953125(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(2+3*x)**6/(3+5*x)**2,x)
```

```
[Out] 2916*x**7/175 + 4374*x**6/125 + 28917*x**5/3125 - 157599*x**4/625
0 - 48771*x**3/3125 + 2134*log(5*x + 3)/1953125 + Integral(277705
3/390625, x) + 926172*Integral(x, x)/78125 - 121/(1953125*(5*x +
3))
```

Mathematica [A] time = 0.0553587, size = 66, normalized size = 0.96

$$\frac{11390625000x^8+30754687500x^7+20677781250x^6-13442034375x^5-21011090625x^4-2349191250x^3+7291044250x^2+}{136718750(5x+3)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^2*(2 + 3*x)^6)/(3 + 5*x)^2,x]
```

```
[Out] (648854027 + 3997343145*x + 7291044250*x^2 - 2349191250*x^3 - 210
11090625*x^4 - 13442034375*x^5 + 20677781250*x^6 + 30754687500*x^
```

```
7 + 11390625000*x^8 + 149380*(3 + 5*x)*Log[6*(3 + 5*x)])/(1367187
50*(3 + 5*x))
```

Maple [A] time = 0.01, size = 52, normalized size = 0.8

$$\frac{2777053\,x}{390625}+\frac{463086\,x^{2}}{78125}-\frac{48771\,x^{3}}{3125}-\frac{157599\,x^{4}}{6250}+\frac{28917\,x^{5}}{3125}+\frac{4374\,x^{6}}{125}+\frac{2916\,x^{7}}{175}-\frac{121}{5859375+9765625\,x}+\frac{2134\,\ln\left(3+5\,x\right)}{1953125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(2+3*x)^6/(3+5*x)^2,x)
```

```
[Out] 2777053/390625*x+463086/78125*x^2-48771/3125*x^3-157599/6250*x^4+
28917/3125*x^5+4374/125*x^6+2916/175*x^7-121/1953125/(3+5*x)+2134
/1953125*ln(3+5*x)
```

Maxima [A] time = 1.34238, size = 69, normalized size = 1.

$$\frac{2916}{175}\,x^{7}+\frac{4374}{125}\,x^{6}+\frac{28917}{3125}\,x^{5}-\frac{157599}{6250}\,x^{4}-\frac{48771}{3125}\,x^{3}+\frac{463086}{78125}\,x^{2}+\frac{2777053}{390625}\,x-\frac{121}{1953125\,(5\,x+3)}+\frac{2134}{1953125}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^6*(2*x - 1)^2/(5*x + 3)^2,x, algorithm="maxima")
```

```
[Out] 2916/175*x^7 + 4374/125*x^6 + 28917/3125*x^5 - 157599/6250*x^4 -
48771/3125*x^3 + 463086/78125*x^2 + 2777053/390625*x - 121/195312
5/(5*x + 3) + 2134/1953125*log(5*x + 3)
```

Fricas [A] time = 0.216816, size = 84, normalized size = 1.22

$$\frac{2278125000\,x^{8}+6150937500\,x^{7}+4135556250\,x^{6}-2688406875\,x^{5}-4202218125\,x^{4}-469838250\,x^{3}+1458208850\,x^{2}+298}{27343750\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^6*(2*x - 1)^2/(5*x + 3)^2,x, algorithm="fricas")
```

```
[Out] 1/27343750*(2278125000*x^8 + 6150937500*x^7 + 4135556250*x^6 - 26
88406875*x^5 - 4202218125*x^4 - 469838250*x^3 + 1458208850*x^2 +
29876*(5*x + 3)*log(5*x + 3) + 583181130*x - 1694)/(5*x + 3)
```

Sympy [A] time = 0.252785, size = 61, normalized size = 0.88

$$\frac{2916x^{7}}{175}+\frac{4374x^{6}}{125}+\frac{28917x^{5}}{3125}-\frac{157599x^{4}}{6250}-\frac{48771x^{3}}{3125}+\frac{463086x^{2}}{78125}+\frac{2777053x}{390625}+\frac{2134\log\left(5x+3\right)}{1953125}-\frac{121}{9765625x+5859375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(2+3*x)**6/(3+5*x)**2,x)
```

```
[Out] 2916*x**7/175 + 4374*x**6/125 + 28917*x**5/3125 - 157599*x**4/625
0 - 48771*x**3/3125 + 463086*x**2/78125 + 2777053*x/390625 + 2134
*log(5*x + 3)/1953125 - 121/(9765625*x + 5859375)
```

GIAC/XCAS [A] time = 0.208191, size = 126, normalized size = 1.83

$$-\frac{1}{136718750}(5x+3)^7\left(\frac{306180}{5x+3}-\frac{404838}{(5x+3)^2}-\frac{2189565}{(5x+3)^3}-\frac{2888550}{(5x+3)^4}-\frac{2081520}{(5x+3)^5}-\frac{1088290}{(5x+3)^6}-29160\right)$$
$$-\frac{121}{1953125(5x+3)}-\frac{2134}{1953125}\ln\left(\frac{|5x+3|}{5(5x+3)^2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^6*(2*x - 1)^2/(5*x + 3)^2,x, algorithm="giac")
```

```
[Out] -1/136718750*(5*x + 3)^7*(306180/(5*x + 3) - 404838/(5*x + 3)^2 -
 2189565/(5*x + 3)^3 - 2888550/(5*x + 3)^4 - 2081520/(5*x + 3)^5
- 1088290/(5*x + 3)^6 - 29160) - 121/1953125/(5*x + 3) - 2134/195
3125*ln(1/5*abs(5*x + 3)/(5*x + 3)^2)
```

3.1290 $\int \frac{(1-2x)^2(2+3x)^5}{(3+5x)^2}\,dx$

Optimal. Leaf size=62

$$\frac{162x^6}{25}+\frac{5508x^5}{625}-\frac{8721x^4}{2500}-\frac{25332x^3}{3125}+\frac{1893x^2}{6250}+\frac{277174x}{78125}-\frac{121}{390625(5x+3)}+\frac{1771\log(5x+3)}{390625}$$

```
[Out] (277174*x)/78125 + (1893*x^2)/6250 - (25332*x^3)/3125 - (8721*x^4
)/2500 + (5508*x^5)/625 + (162*x^6)/25 - 121/(390625*(3 + 5*x)) +
 (1771*Log[3 + 5*x])/390625
```

Rubi [A] time = 0.0773274, antiderivative size = 62, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{162x^6}{25}+\frac{5508x^5}{625}-\frac{8721x^4}{2500}-\frac{25332x^3}{3125}+\frac{1893x^2}{6250}+\frac{277174x}{78125}-\frac{121}{390625(5x+3)}+\frac{1771\log(5x+3)}{390625}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^2*(2 + 3*x)^5)/(3 + 5*x)^2,x]
```

```
[Out] (277174*x)/78125 + (1893*x^2)/6250 - (25332*x^3)/3125 - (8721*x^4
)/2500 + (5508*x^5)/625 + (162*x^6)/25 - 121/(390625*(3 + 5*x)) +
 (1771*Log[3 + 5*x])/390625
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{162x^6}{25}+\frac{5508x^5}{625}-\frac{8721x^4}{2500}-\frac{25332x^3}{3125}+\frac{1771\log(5x+3)}{390625}+\int\frac{277174}{78125}\,dx+\frac{1893\int x\,dx}{3125}-\frac{121}{390625\,(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(2+3*x)**5/(3+5*x)**2,x)
```

```
[Out] 162*x**6/25 + 5508*x**5/625 - 8721*x**4/2500 - 25332*x**3/3125 +
1771*log(5*x + 3)/390625 + Integral(277174/78125, x) + 1893*Integ
ral(x, x)/3125 - 121/(390625*(5*x + 3))
```

Mathematica [A] time = 0.0525054, size = 61, normalized size = 0.98

$$\frac{253125000x^7+496125000x^6+70284375x^5-398409375x^4-178158750x^3+145685750x^2+126267855x+35420(5x+3)\,\mathrm{lo}}{7812500(5x+3)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^2*(2 + 3*x)^5)/(3 + 5*x)^2,x]
```

```
[Out] (25866973 + 126267855*x + 145685750*x^2 - 178158750*x^3 - 3984093
75*x^4 + 70284375*x^5 + 496125000*x^6 + 253125000*x^7 + 35420*(3
+ 5*x)*Log[6*(3 + 5*x)])/(7812500*(3 + 5*x))
```

Maple [A] time = 0.01, size = 47, normalized size = 0.8

$$\frac{277174\,x}{78125}+\frac{1893\,x^2}{6250}-\frac{25332\,x^3}{3125}-\frac{8721\,x^4}{2500}+\frac{5508\,x^5}{625}+\frac{162\,x^6}{25}-\frac{121}{1171875+1953125\,x}+\frac{1771\,\ln(3+5\,x)}{390625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(2+3*x)^5/(3+5*x)^2,x)
```

```
[Out] 277174/78125*x+1893/6250*x^2-25332/3125*x^3-8721/2500*x^4+5508/62
5*x^5+162/25*x^6-121/390625/(3+5*x)+1771/390625*ln(3+5*x)
```

Maxima [A] time = 1.34968, size = 62, normalized size = 1.

$$\frac{162}{25}x^6 + \frac{5508}{625}x^5 - \frac{8721}{2500}x^4 - \frac{25332}{3125}x^3 + \frac{1893}{6250}x^2 + \frac{277174}{78125}x - \frac{121}{390625(5x+3)} + \frac{1771}{390625}\log(5x+3)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5*(2*x - 1)^2/(5*x + 3)^2,x, algorithm="maxima")
```

```
[Out] 162/25*x^6 + 5508/625*x^5 - 8721/2500*x^4 - 25332/3125*x^3 + 1893
/6250*x^2 + 277174/78125*x - 121/390625/(5*x + 3) + 1771/390625*l
og(5*x + 3)
```

Fricas [A] time = 0.218206, size = 77, normalized size = 1.24

$$\frac{50625000x^7 + 99225000x^6 + 14056875x^5 - 79681875x^4 - 35631750x^3 + 29137150x^2 + 7084(5x+3)\log(5x+3) + 1663}{1562500(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5*(2*x - 1)^2/(5*x + 3)^2,x, algorithm="fricas")
```

```
[Out] 1/1562500*(50625000*x^7 + 99225000*x^6 + 14056875*x^5 - 79681875*
x^4 - 35631750*x^3 + 29137150*x^2 + 7084*(5*x + 3)*log(5*x + 3) +
 16630440*x - 484)/(5*x + 3)
```

Sympy [A] time = 0.243963, size = 54, normalized size = 0.87

$$\frac{162x^6}{25} + \frac{5508x^5}{625} - \frac{8721x^4}{2500} - \frac{25332x^3}{3125} + \frac{1893x^2}{6250} + \frac{277174x}{78125} + \frac{1771\log(5x+3)}{390625} - \frac{121}{1953125x + 1171875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(2+3*x)**5/(3+5*x)**2,x)
```

```
[Out] 162*x**6/25 + 5508*x**5/625 - 8721*x**4/2500 - 25332*x**3/3125 +
1893*x**2/6250 + 277174*x/78125 + 1771*log(5*x + 3)/390625 - 121/
(1953125*x + 1171875)
```

GIAC/XCAS [A] time = 0.210017, size = 113, normalized size = 1.82

$$-\frac{1}{7812500}(5x+3)^6\left(\frac{36288}{5x+3} - \frac{63315}{(5x+3)^2} - \frac{249900}{(5x+3)^3} - \frac{287700}{(5x+3)^4} - \frac{204680}{(5x+3)^5} - 3240\right) - \frac{121}{390625(5x+3)} - \frac{1771}{390625}\ln\left(\frac{|5x+3|}{5(5x+3)^2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5*(2*x - 1)^2/(5*x + 3)^2,x, algorithm="giac")
```

```
[Out] -1/7812500*(5*x + 3)^6*(36288/(5*x + 3) - 63315/(5*x + 3)^2 - 249
900/(5*x + 3)^3 - 287700/(5*x + 3)^4 - 204680/(5*x + 3)^5 - 3240)
 - 121/390625/(5*x + 3) - 1771/390625*ln(1/5*abs(5*x + 3)/(5*x +
3)^2)
```

3.1291 $\int \frac{(1-2x)^2(2+3x)^4}{(3+5x)^2}\,dx$

Optimal. Leaf size=55

$$\frac{324x^5}{125}+\frac{189x^4}{125}-\frac{1809x^3}{625}-\frac{3621x^2}{3125}+\frac{5459x}{3125}-\frac{121}{78125(5x+3)}+\frac{1408\log(5x+3)}{78125}$$

```
[Out] (5459*x)/3125 - (3621*x^2)/3125 - (1809*x^3)/625 + (189*x^4)/125
+ (324*x^5)/125 - 121/(78125*(3 + 5*x)) + (1408*Log[3 + 5*x])/781
25
```

Rubi [A] time = 0.0687483, antiderivative size = 55, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{324x^5}{125}+\frac{189x^4}{125}-\frac{1809x^3}{625}-\frac{3621x^2}{3125}+\frac{5459x}{3125}-\frac{121}{78125(5x+3)}+\frac{1408\log(5x+3)}{78125}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^2*(2 + 3*x)^4)/(3 + 5*x)^2,x]
```

```
[Out] (5459*x)/3125 - (3621*x^2)/3125 - (1809*x^3)/625 + (189*x^4)/125
+ (324*x^5)/125 - 121/(78125*(3 + 5*x)) + (1408*Log[3 + 5*x])/781
25
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{324x^5}{125}+\frac{189x^4}{125}-\frac{1809x^3}{625}+\frac{1408\log(5x+3)}{78125}+\int\frac{5459}{3125}\,dx-\frac{7242\int x\,dx}{3125}-\frac{121}{78125\,(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(2+3*x)**4/(3+5*x)**2,x)
```

```
[Out] 324*x**5/125 + 189*x**4/125 - 1809*x**3/625 + 1408*log(5*x + 3)/7
8125 + Integral(5459/3125, x) - 7242*Integral(x, x)/3125 - 121/(7
8125*(5*x + 3))
```

Mathematica [A] time = 0.0510274, size = 56, normalized size = 1.02

$$\frac{5062500x^6+5990625x^5-3881250x^4-5655000x^3+2054000x^2+3698835x+7040(5x+3)\log(6(5x+3))+990421}{390625(5x+3)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^2*(2 + 3*x)^4)/(3 + 5*x)^2,x]
```

```
[Out] (990421 + 3698835*x + 2054000*x^2 - 5655000*x^3 - 3881250*x^4 + 5
990625*x^5 + 5062500*x^6 + 7040*(3 + 5*x)*Log[6*(3 + 5*x)])/(3906
25*(3 + 5*x))
```

Maple [A] time = 0.008, size = 42, normalized size = 0.8

$$\frac{5459\,x}{3125}-\frac{3621\,x^2}{3125}-\frac{1809\,x^3}{625}+\frac{189\,x^4}{125}+\frac{324\,x^5}{125}-\frac{121}{234375+390625\,x}+\frac{1408\,\ln(3+5\,x)}{78125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(2+3*x)^4/(3+5*x)^2,x)
```

```
[Out] 5459/3125*x-3621/3125*x^2-1809/625*x^3+189/125*x^4+324/125*x^5-12
1/78125/(3+5*x)+1408/78125*ln(3+5*x)
```

Maxima [A] time = 1.34091, size = 55, normalized size = 1.

$$\frac{324}{125}\,x^5+\frac{189}{125}\,x^4-\frac{1809}{625}\,x^3-\frac{3621}{3125}\,x^2+\frac{5459}{3125}\,x-\frac{121}{78125\,(5\,x+3)}+\frac{1408}{78125}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4*(2*x - 1)^2/(5*x + 3)^2,x, algorithm="maxima")
```

```
[Out] 324/125*x^5 + 189/125*x^4 - 1809/625*x^3 - 3621/3125*x^2 + 5459/3
125*x - 121/78125/(5*x + 3) + 1408/78125*log(5*x + 3)
```

Fricas [A] time = 0.216817, size = 70, normalized size = 1.27

$$\frac{1012500\,x^6+1198125\,x^5-776250\,x^4-1131000\,x^3+410800\,x^2+1408\,(5\,x+3)\log\left(5\,x+3\right)+409425\,x-121}{78125\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4*(2*x - 1)^2/(5*x + 3)^2,x, algorithm="fricas")
```

```
[Out] 1/78125*(1012500*x^6 + 1198125*x^5 - 776250*x^4 - 1131000*x^3 + 4
10800*x^2 + 1408*(5*x + 3)*log(5*x + 3) + 409425*x - 121)/(5*x +
3)
```

Sympy [A] time = 0.248456, size = 48, normalized size = 0.87

$$\frac{324x^5}{125}+\frac{189x^4}{125}-\frac{1809x^3}{625}-\frac{3621x^2}{3125}+\frac{5459x}{3125}+\frac{1408\log\left(5x+3\right)}{78125}-\frac{121}{390625x+234375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(2+3*x)**4/(3+5*x)**2,x)
```

```
[Out] 324*x**5/125 + 189*x**4/125 - 1809*x**3/625 - 3621*x**2/3125 + 54
59*x/3125 + 1408*log(5*x + 3)/78125 - 121/(390625*x + 234375)
```

GIAC/XCAS [A] time = 0.212559, size = 101, normalized size = 1.84

$$-\frac{1}{390625}\,(5\,x+3)^5\left(\frac{3915}{5\,x+3}-\frac{8775}{(5\,x+3)^2}-\frac{26850}{(5\,x+3)^3}-\frac{30050}{(5\,x+3)^4}-324\right)-\frac{121}{78125\,(5\,x+3)}-\frac{1408}{78125}\ln\left(\frac{|5\,x+3|}{5\,(5\,x+3)^2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4*(2*x - 1)^2/(5*x + 3)^2,x, algorithm="giac")
```

```
[Out] -1/390625*(5*x + 3)^5*(3915/(5*x + 3) - 8775/(5*x + 3)^2 - 26850/
(5*x + 3)^3 - 30050/(5*x + 3)^4 - 324) - 121/78125/(5*x + 3) - 14
08/78125*ln(1/5*abs(5*x + 3)/(5*x + 3)^2)
```

3.1292 $\int \frac{(1-2x)^2(2+3x)^3}{(3+5x)^2} dx$

Optimal. Leaf size=48

$$\frac{27x^4}{25} - \frac{36x^3}{125} - \frac{1449x^2}{1250} + \frac{2416x}{3125} - \frac{121}{15625(5x+3)} + \frac{209\log(5x+3)}{3125}$$

```
[Out] (2416*x)/3125 - (1449*x^2)/1250 - (36*x^3)/125 + (27*x^4)/25 - 12
1/(15625*(3 + 5*x)) + (209*Log[3 + 5*x])/3125
```

Rubi [A] time = 0.0624316, antiderivative size = 48, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{27x^4}{25} - \frac{36x^3}{125} - \frac{1449x^2}{1250} + \frac{2416x}{3125} - \frac{121}{15625(5x+3)} + \frac{209\log(5x+3)}{3125}$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)^2*(2 + 3*x)^3)/(3 + 5*x)^2,x]
```

```
[Out] (2416*x)/3125 - (1449*x^2)/1250 - (36*x^3)/125 + (27*x^4)/25 - 12
1/(15625*(3 + 5*x)) + (209*Log[3 + 5*x])/3125
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{27x^4}{25} - \frac{36x^3}{125} + \frac{209\log(5x+3)}{3125} + \int \frac{2416}{3125} dx - \frac{1449\int x\,dx}{625} - \frac{121}{15625(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**2*(2+3*x)**3/(3+5*x)**2,x)
```

```
[Out] 27*x**4/25 - 36*x**3/125 + 209*log(5*x + 3)/3125 + Integral(2416/
3125, x) - 1449*Integral(x, x)/625 - 121/(15625*(5*x + 3))
```

Mathematica [A] time = 0.0478346, size = 51, normalized size = 1.06

$$\frac{33750x^5 + 11250x^4 - 41625x^3 + 2425x^2 + 35715x + 418(5x+3)\log(6(5x+3)) + 12683}{6250(5x+3)}$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)^2*(2 + 3*x)^3)/(3 + 5*x)^2,x]
```

```
[Out] (12683 + 35715*x + 2425*x^2 - 41625*x^3 + 11250*x^4 + 33750*x^5 +
 418*(3 + 5*x)*Log[6*(3 + 5*x)])/(6250*(3 + 5*x))
```

Maple [A] time = 0.01, size = 37, normalized size = 0.8

$$\frac{2416\,x}{3125} - \frac{1449\,x^2}{1250} - \frac{36\,x^3}{125} + \frac{27\,x^4}{25} - \frac{121}{46875 + 78125\,x} + \frac{209\,\ln(3+5\,x)}{3125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(2+3*x)^3/(3+5*x)^2,x)
```

```
[Out] 2416/3125*x-1449/1250*x^2-36/125*x^3+27/25*x^4-121/15625/(3+5*x)+
209/3125*ln(3+5*x)
```

Maxima [A] time = 1.34313, size = 49, normalized size = 1.02

$$\frac{27}{25}\,x^{4}-\frac{36}{125}\,x^{3}-\frac{1449}{1250}\,x^{2}+\frac{2416}{3125}\,x-\frac{121}{15625\,(5\,x+3)}+\frac{209}{3125}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*(2*x - 1)^2/(5*x + 3)^2,x, algorithm="maxima")
```

```
[Out] 27/25*x^4 - 36/125*x^3 - 1449/1250*x^2 + 2416/3125*x - 121/15625/
(5*x + 3) + 209/3125*log(5*x + 3)
```

Fricas [A] time = 0.21045, size = 63, normalized size = 1.31

$$\frac{168750\,x^{5}+56250\,x^{4}-208125\,x^{3}+12125\,x^{2}+2090\,(5\,x+3)\log\left(5\,x+3\right)+72480\,x-242}{31250\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*(2*x - 1)^2/(5*x + 3)^2,x, algorithm="fricas")
```

```
[Out] 1/31250*(168750*x^5 + 56250*x^4 - 208125*x^3 + 12125*x^2 + 2090*(
5*x + 3)*log(5*x + 3) + 72480*x - 242)/(5*x + 3)
```

Sympy [A] time = 0.255273, size = 41, normalized size = 0.85

$$\frac{27x^{4}}{25}-\frac{36x^{3}}{125}-\frac{1449x^{2}}{1250}+\frac{2416x}{3125}+\frac{209\log{(5x+3)}}{3125}-\frac{121}{78125x+46875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(2+3*x)**3/(3+5*x)**2,x)
```

```
[Out] 27*x**4/25 - 36*x**3/125 - 1449*x**2/1250 + 2416*x/3125 + 209*log
(5*x + 3)/3125 - 121/(78125*x + 46875)
```

GIAC/XCAS [A] time = 0.210185, size = 89, normalized size = 1.85

$$-\frac{1}{31250}\,(5\,x+3)^{4}\left(\frac{720}{5\,x+3}-\frac{2115}{(5\,x+3)^{2}}-\frac{5750}{(5\,x+3)^{3}}-54\right)-\frac{121}{15625\,(5\,x+3)}-\frac{209}{3125}\,\ln\left(\frac{|5\,x+3|}{5\,(5\,x+3)^{2}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*(2*x - 1)^2/(5*x + 3)^2,x, algorithm="giac")
```

```
[Out] -1/31250*(5*x + 3)^4*(720/(5*x + 3) - 2115/(5*x + 3)^2 - 5750/(5*
x + 3)^3 - 54) - 121/15625/(5*x + 3) - 209/3125*ln(1/5*abs(5*x +
3)/(5*x + 3)^2)
```

3.1293 $\int \frac{(1-2x)^2(2+3x)^2}{(3+5x)^2} dx$

Optimal. Leaf size=41

$$\frac{12x^3}{25}-\frac{78x^2}{125}+\frac{37x}{625}-\frac{121}{3125(5x+3)}+\frac{682\log(5x+3)}{3125}$$

```
[Out] (37*x)/625 - (78*x^2)/125 + (12*x^3)/25 - 121/(3125*(3 + 5*x)) +
(682*Log[3 + 5*x])/3125
```

Rubi [A] time = 0.0552889, antiderivative size = 41, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{12x^3}{25}-\frac{78x^2}{125}+\frac{37x}{625}-\frac{121}{3125(5x+3)}+\frac{682\log(5x+3)}{3125}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^2*(2 + 3*x)^2)/(3 + 5*x)^2,x]
```

```
[Out] (37*x)/625 - (78*x^2)/125 + (12*x^3)/25 - 121/(3125*(3 + 5*x)) +
(682*Log[3 + 5*x])/3125
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{12x^3}{25}+\frac{682\log(5x+3)}{3125}+\int\frac{37}{625}\,dx-\frac{156\int x\,dx}{125}-\frac{121}{3125(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(2+3*x)**2/(3+5*x)**2,x)
```

```
[Out] 12*x**3/25 + 682*log(5*x + 3)/3125 + Integral(37/625, x) - 156*In
tegral(x, x)/125 - 121/(3125*(5*x + 3))
```

Mathematica [A] time = 0.0287486, size = 42, normalized size = 1.02

$$\frac{\frac{5(1500x^4-1050x^3-985x^2+1248x+658)}{5x+3}+682\log(5x+3)}{3125}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^2*(2 + 3*x)^2)/(3 + 5*x)^2,x]
```

```
[Out] ((5*(658 + 1248*x - 985*x^2 - 1050*x^3 + 1500*x^4))/(3 + 5*x) + 6
82*Log[3 + 5*x])/3125
```

Maple [A] time = 0.01, size = 32, normalized size = 0.8

$$\frac{37\,x}{625}-\frac{78\,x^2}{125}+\frac{12\,x^3}{25}-\frac{121}{9375+15625\,x}+\frac{682\,\ln(3+5\,x)}{3125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(2+3*x)^2/(3+5*x)^2,x)
```

```
[Out] 37/625*x-78/125*x^2+12/25*x^3-121/3125/(3+5*x)+682/3125*ln(3+5*x)
```

Maxima [A] time = 1.34555, size = 42, normalized size = 1.02

$$\frac{12}{25}\,x^3-\frac{78}{125}\,x^2+\frac{37}{625}\,x-\frac{121}{3125\,(5\,x+3)}+\frac{682}{3125}\,\log(5\,x+3)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*(2*x - 1)^2/(5*x + 3)^2,x, algorithm="maxima")
```

```
[Out] 12/25*x^3 - 78/125*x^2 + 37/625*x - 121/3125/(5*x + 3) + 682/3125
*log(5*x + 3)
```

Fricas [A] time = 0.211835, size = 57, normalized size = 1.39

$$\frac{7500\,x^4-5250\,x^3-4925\,x^2+682\,(5\,x+3)\log(5\,x+3)+555\,x-121}{3125\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*(2*x - 1)^2/(5*x + 3)^2,x, algorithm="fricas")
```

```
[Out] 1/3125*(7500*x^4 - 5250*x^3 - 4925*x^2 + 682*(5*x + 3)*log(5*x +
3) + 555*x - 121)/(5*x + 3)
```

Sympy [A] time = 0.234765, size = 34, normalized size = 0.83

$$\frac{12x^3}{25}-\frac{78x^2}{125}+\frac{37x}{625}+\frac{682\log(5x+3)}{3125}-\frac{121}{15625x+9375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(2+3*x)**2/(3+5*x)**2,x)
```

```
[Out] 12*x**3/25 - 78*x**2/125 + 37*x/625 + 682*log(5*x + 3)/3125 - 121
/(15625*x + 9375)
```

GIAC/XCAS [A] time = 0.21003, size = 77, normalized size = 1.88

$$-\frac{1}{3125}\,(5\,x+3)^3\left(\frac{186}{5\,x+3}-\frac{829}{(5\,x+3)^2}-12\right)-\frac{121}{3125\,(5\,x+3)}-\frac{682}{3125}\ln\left(\frac{|5\,x+3|}{5\,(5\,x+3)^2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*(2*x - 1)^2/(5*x + 3)^2,x, algorithm="giac")
```

```
[Out] -1/3125*(5*x + 3)^3*(186/(5*x + 3) - 829/(5*x + 3)^2 - 12) - 121/
3125/(5*x + 3) - 682/3125*ln(1/5*abs(5*x + 3)/(5*x + 3)^2)
```

3.1294 $\int \frac{(1-2x)^2(2+3x)}{(3+5x)^2}\,dx$

Optimal. Leaf size=34

$$\frac{6x^2}{25} - \frac{92x}{125} - \frac{121}{625(5x+3)} + \frac{319}{625}\log(5x+3)$$

```
[Out] (-92*x)/125 + (6*x^2)/25 - 121/(625*(3 + 5*x)) + (319*Log[3 + 5*x
])/625
```

Rubi [A] time = 0.0434111, antiderivative size = 34, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$\frac{6x^2}{25} - \frac{92x}{125} - \frac{121}{625(5x+3)} + \frac{319}{625}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)^2*(2 + 3*x))/(3 + 5*x)^2,x]
```

```
[Out] (-92*x)/125 + (6*x^2)/25 - 121/(625*(3 + 5*x)) + (319*Log[3 + 5*x
])/625
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{319\log(5x+3)}{625} + \int\left(-\frac{92}{125}\right)dx + \frac{12\int x\,dx}{25} - \frac{121}{625(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**2*(2+3*x)/(3+5*x)**2,x)
```

```
[Out] 319*log(5*x + 3)/625 + Integral(-92/125, x) + 12*Integral(x, x)/2
5 - 121/(625*(5*x + 3))
```

Mathematica [A] time = 0.0194799, size = 39, normalized size = 1.15

$$\frac{1500x^3 - 3700x^2 - 835x + 638(5x+3)\log(10x+6) + 913}{1250(5x+3)}$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)^2*(2 + 3*x))/(3 + 5*x)^2,x]
```

```
[Out] (913 - 835*x - 3700*x^2 + 1500*x^3 + 638*(3 + 5*x)*Log[6 + 10*x])
/(1250*(3 + 5*x))
```

Maple [A] time = 0.008, size = 27, normalized size = 0.8

$$-\frac{92x}{125} + \frac{6x^2}{25} - \frac{121}{1875+3125x} + \frac{319\ln(3+5x)}{625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(2+3*x)/(3+5*x)^2,x)
```

```
[Out] -92/125*x+6/25*x^2-121/625/(3+5*x)+319/625*ln(3+5*x)
```

Maxima [A] time = 1.34636, size = 35, normalized size = 1.03

$$\frac{6}{25}\,x^2 - \frac{92}{125}\,x - \frac{121}{625\,(5\,x+3)} + \frac{319}{625}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)*(2*x - 1)^2/(5*x + 3)^2,x, algorithm="maxima")
```

```
[Out] 6/25*x^2 - 92/125*x - 121/625/(5*x + 3) + 319/625*log(5*x + 3)
```

Fricas [A] time = 0.212755, size = 50, normalized size = 1.47

$$\frac{750\,x^3 - 1850\,x^2 + 319\,(5\,x+3)\log\left(5\,x+3\right) - 1380\,x - 121}{625\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)*(2*x - 1)^2/(5*x + 3)^2,x, algorithm="fricas")
```

```
[Out] 1/625*(750*x^3 - 1850*x^2 + 319*(5*x + 3)*log(5*x + 3) - 1380*x -
 121)/(5*x + 3)
```

Sympy [A] time = 0.207373, size = 27, normalized size = 0.79

$$\frac{6x^2}{25} - \frac{92x}{125} + \frac{319\log\left(5x+3\right)}{625} - \frac{121}{3125x+1875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(2+3*x)/(3+5*x)**2,x)
```

```
[Out] 6*x**2/25 - 92*x/125 + 319*log(5*x + 3)/625 - 121/(3125*x + 1875)
```

GIAC/XCAS [A] time = 0.211116, size = 65, normalized size = 1.91

$$-\frac{2}{625}\,(5\,x+3)^2\left(\frac{64}{5\,x+3} - 3\right) - \frac{121}{625\,(5\,x+3)} - \frac{319}{625}\,\ln\left(\frac{|5\,x+3|}{5\,(5\,x+3)^2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)*(2*x - 1)^2/(5*x + 3)^2,x, algorithm="giac")
```

```
[Out] -2/625*(5*x + 3)^2*(64/(5*x + 3) - 3) - 121/625/(5*x + 3) - 319/6
25*ln(1/5*abs(5*x + 3)/(5*x + 3)^2)
```

3.1295 $\int \frac{(1-2x)^2}{(3+5x)^2} dx$

Optimal. Leaf size=27

$$\frac{4x}{25} - \frac{121}{125(5x+3)} - \frac{44}{125}\log(5x+3)$$

```
[Out] (4*x)/25 - 121/(125*(3 + 5*x)) - (44*Log[3 + 5*x])/125
```

Rubi [A] time = 0.0257625, antiderivative size = 27, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}} = 0.067$

$$\frac{4x}{25} - \frac{121}{125(5x+3)} - \frac{44}{125}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^2/(3 + 5*x)^2,x]
```

```
[Out] (4*x)/25 - 121/(125*(3 + 5*x)) - (44*Log[3 + 5*x])/125
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{44\log(5x+3)}{125} + \int \frac{4}{25}\, dx - \frac{121}{125(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2/(3+5*x)**2,x)
```

```
[Out] -44*log(5*x + 3)/125 + Integral(4/25, x) - 121/(125*(5*x + 3))
```

Mathematica [A] time = 0.0161537, size = 34, normalized size = 1.26

$$\frac{100x^2 + 10x - 44(5x+3)\log(10x+6) - 151}{125(5x+3)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^2/(3 + 5*x)^2,x]
```

```
[Out] (-151 + 10*x + 100*x^2 - 44*(3 + 5*x)*Log[6 + 10*x])/(125*(3 + 5*
x))
```

Maple [A] time = 0.007, size = 22, normalized size = 0.8

$$\frac{4x}{25} - \frac{121}{375+625x} - \frac{44\ln(3+5x)}{125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2/(3+5*x)^2,x)
```

```
[Out] 4/25*x-121/125/(3+5*x)-44/125*ln(3+5*x)
```

Maxima [A] time = 1.33502, size = 28, normalized size = 1.04

$$\frac{4}{25}\,x - \frac{121}{125\,(5\,x+3)} - \frac{44}{125}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2*x - 1)^2/(5*x + 3)^2,x, algorithm="maxima")
```

```
[Out] 4/25*x - 121/125/(5*x + 3) - 44/125*log(5*x + 3)
```

Fricas [A] time = 0.206866, size = 43, normalized size = 1.59

$$\frac{100\,x^2 - 44\,(5\,x+3)\log\left(5\,x+3\right) + 60\,x - 121}{125\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2*x - 1)^2/(5*x + 3)^2,x, algorithm="fricas")
```

```
[Out] 1/125*(100*x^2 - 44*(5*x + 3)*log(5*x + 3) + 60*x - 121)/(5*x + 3
)
```

Sympy [A] time = 0.186128, size = 20, normalized size = 0.74

$$\frac{4x}{25} - \frac{44\log\left(5x+3\right)}{125} - \frac{121}{625x+375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**2/(3+5*x)**2,x)
```

```
[Out] 4*x/25 - 44*log(5*x + 3)/125 - 121/(625*x + 375)
```

GIAC/XCAS [A] time = 0.233796, size = 43, normalized size = 1.59

$$\frac{4}{25}\,x - \frac{121}{125\,(5\,x+3)} + \frac{44}{125}\,\ln\left(\frac{|5\,x+3|}{5\,(5\,x+3)^2}\right) + \frac{12}{125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2*x - 1)^2/(5*x + 3)^2,x, algorithm="giac")
```

```
[Out] 4/25*x - 121/125/(5*x + 3) + 44/125*ln(1/5*abs(5*x + 3)/(5*x + 3)
^2) + 12/125
```

3.1296 $\int \frac{(1-2x)^2}{(2+3x)(3+5x)^2}\,dx$

Optimal. Leaf size=32

$$-\frac{121}{25(5x+3)}+\frac{49}{3}\log(3x+2)-\frac{407}{25}\log(5x+3)$$

```
[Out] -121/(25*(3 + 5*x)) + (49*Log[2 + 3*x])/3 - (407*Log[3 + 5*x])/25
```

Rubi [A] time = 0.0412167, antiderivative size = 32, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{121}{25(5x+3)}+\frac{49}{3}\log(3x+2)-\frac{407}{25}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^2/((2 + 3*x)*(3 + 5*x)^2),x]

[Out] -121/(25*(3 + 5*x)) + (49*Log[2 + 3*x])/3 - (407*Log[3 + 5*x])/25
```

Rubi in Sympy [A] time = 6.29667, size = 26, normalized size = 0.81

$$\frac{49\log\left(3x+2\right)}{3}-\frac{407\log\left(5x+3\right)}{25}-\frac{121}{25\left(5x+3\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2/(2+3*x)/(3+5*x)**2,x)

[Out] 49*log(3*x + 2)/3 - 407*log(5*x + 3)/25 - 121/(25*(5*x + 3))
```

Mathematica [A] time = 0.0330354, size = 32, normalized size = 1.

$$-\frac{121}{125x+75}+\frac{49}{3}\log(3x+2)-\frac{407}{25}\log(-3(5x+3))$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^2/((2 + 3*x)*(3 + 5*x)^2),x]

[Out] -121/(75 + 125*x) + (49*Log[2 + 3*x])/3 - (407*Log[-3*(3 + 5*x)])
/25
```

Maple [A] time = 0.01, size = 27, normalized size = 0.8

$$-\frac{121}{75+125\,x}+\frac{49\,\ln\left(2+3\,x\right)}{3}-\frac{407\,\ln\left(3+5\,x\right)}{25}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2/(2+3*x)/(3+5*x)^2,x)

[Out] -121/25/(3+5*x)+49/3*ln(2+3*x)-407/25*ln(3+5*x)
```

Maxima [A] time = 1.34939, size = 35, normalized size = 1.09

$$-\frac{121}{25\,(5\,x+3)}-\frac{407}{25}\,\log\left(5\,x+3\right)+\frac{49}{3}\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2*x - 1)^2/((5*x + 3)^2*(3*x + 2)),x, algorithm="maxima")
```

```
[Out] -121/25/(5*x + 3) - 407/25*log(5*x + 3) + 49/3*log(3*x + 2)
```

Fricas [A] time = 0.211267, size = 50, normalized size = 1.56

$$-\frac{1221\,(5\,x+3)\log\left(5\,x+3\right)-1225\,(5\,x+3)\log\left(3\,x+2\right)+363}{75\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2*x - 1)^2/((5*x + 3)^2*(3*x + 2)),x, algorithm="fricas")
```

```
[Out] -1/75*(1221*(5*x + 3)*log(5*x + 3) - 1225*(5*x + 3)*log(3*x + 2)
+ 363)/(5*x + 3)
```

Sympy [A] time = 0.323972, size = 26, normalized size = 0.81

$$-\frac{407\log\left(x+\frac{3}{5}\right)}{25}+\frac{49\log\left(x+\frac{2}{3}\right)}{3}-\frac{121}{125x+75}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**2/(2+3*x)/(3+5*x)**2,x)
```

```
[Out] -407*log(x + 3/5)/25 + 49*log(x + 2/3)/3 - 121/(125*x + 75)
```

GIAC/XCAS [A] time = 0.212047, size = 58, normalized size = 1.81

$$-\frac{121}{25\,(5\,x+3)}-\frac{4}{75}\ln\left(\frac{|5\,x+3|}{5\,(5\,x+3)^2}\right)+\frac{49}{3}\ln\left(\left|-\frac{1}{5\,x+3}-3\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2*x - 1)^2/((5*x + 3)^2*(3*x + 2)),x, algorithm="giac")
```

```
[Out] -121/25/(5*x + 3) - 4/75*ln(1/5*abs(5*x + 3)/(5*x + 3)^2) + 49/3*
ln(abs(-1/(5*x + 3) - 3))
```

3.1297 $\int \frac{(1-2x)^2}{(2+3x)^2(3+5x)^2} dx$

Optimal. Leaf size=39

$$-\frac{49}{3(3x+2)}-\frac{121}{5(5x+3)}+154\log(3x+2)-154\log(5x+3)$$

```
[Out] -49/(3*(2 + 3*x)) - 121/(5*(3 + 5*x)) + 154*Log[2 + 3*x] - 154*Lo
g[3 + 5*x]
```

Rubi [A] time = 0.050773, antiderivative size = 39, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$-\frac{49}{3(3x+2)}-\frac{121}{5(5x+3)}+154\log(3x+2)-154\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^2/((2 + 3*x)^2*(3 + 5*x)^2),x]
```

```
[Out] -49/(3*(2 + 3*x)) - 121/(5*(3 + 5*x)) + 154*Log[2 + 3*x] - 154*Lo
g[3 + 5*x]
```

Rubi in Sympy [A] time = 7.23411, size = 29, normalized size = 0.74

$$154\log(3x+2)-154\log(5x+3)-\frac{121}{5(5x+3)}-\frac{49}{3(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2/(2+3*x)**2/(3+5*x)**2,x)
```

```
[Out] 154*log(3*x + 2) - 154*log(5*x + 3) - 121/(5*(5*x + 3)) - 49/(3*(
3*x + 2))
```

Mathematica [A] time = 0.051059, size = 61, normalized size = 1.56

$$-\frac{-2310\left(15x^2+19x+6\right)\log(5(3x+2))+2310\left(15x^2+19x+6\right)\log(5x+3)+2314x+1461}{15(3x+2)(5x+3)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^2/((2 + 3*x)^2*(3 + 5*x)^2),x]
```

```
[Out] -(1461 + 2314*x - 2310*(6 + 19*x + 15*x^2)*Log[5*(2 + 3*x)] + 231
0*(6 + 19*x + 15*x^2)*Log[3 + 5*x])/(15*(2 + 3*x)*(3 + 5*x))
```

Maple [A] time = 0.013, size = 36, normalized size = 0.9

$$-\frac{49}{6+9x}-\frac{121}{15+25x}+154\ln(2+3x)-154\ln(3+5x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2/(2+3*x)^2/(3+5*x)^2,x)
```

```
[Out] -49/3/(2+3*x)-121/5/(3+5*x)+154*ln(2+3*x)-154*ln(3+5*x)
```

Maxima [A] time = 1.34584, size = 49, normalized size = 1.26

$$-\frac{2314\,x + 1461}{15\,(15\,x^2 + 19\,x + 6)} - 154\,\log(5\,x + 3) + 154\,\log(3\,x + 2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)^2*(3*x + 2)^2),x, algorithm="maxima")
```

```
[Out] -1/15*(2314*x + 1461)/(15*x^2 + 19*x + 6) - 154*log(5*x + 3) + 15
4*log(3*x + 2)
```

Fricas [A] time = 0.213942, size = 74, normalized size = 1.9

$$-\frac{2310\,(15\,x^2 + 19\,x + 6)\,\log(5\,x + 3) - 2310\,(15\,x^2 + 19\,x + 6)\,\log(3\,x + 2) + 2314\,x + 1461}{15\,(15\,x^2 + 19\,x + 6)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)^2*(3*x + 2)^2),x, algorithm="fricas")
```

```
[Out] -1/15*(2310*(15*x^2 + 19*x + 6)*log(5*x + 3) - 2310*(15*x^2 + 19*
x + 6)*log(3*x + 2) + 2314*x + 1461)/(15*x^2 + 19*x + 6)
```

Sympy [A] time = 0.330654, size = 31, normalized size = 0.79

$$-\frac{2314x + 1461}{225x^2 + 285x + 90} - 154\log\left(x + \frac{3}{5}\right) + 154\log\left(x + \frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2/(2+3*x)**2/(3+5*x)**2,x)
```

```
[Out] -(2314*x + 1461)/(225*x**2 + 285*x + 90) - 154*log(x + 3/5) + 154
*log(x + 2/3)
```

GIAC/XCAS [A] time = 0.212463, size = 51, normalized size = 1.31

$$-\frac{121}{5\,(5\,x + 3)} + \frac{245}{\frac{1}{5\,x+3} + 3} + 154\ln\left(\left|-\frac{1}{5\,x + 3} - 3\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)^2*(3*x + 2)^2),x, algorithm="giac")
```

```
[Out] -121/5/(5*x + 3) + 245/(1/(5*x + 3) + 3) + 154*ln(abs(-1/(5*x + 3
) - 3))
```

3.1298 $\int \frac{(1-2x)^2}{(2+3x)^3(3+5x)^2} \, dx$

Optimal. Leaf size=46

$$-\frac{154}{3x+2}-\frac{121}{5x+3}-\frac{49}{6(3x+2)^2}+1133\log(3x+2)-1133\log(5x+3)$$

```
[Out] -49/(6*(2 + 3*x)^2) - 154/(2 + 3*x) - 121/(3 + 5*x) + 1133*Log[2
+ 3*x] - 1133*Log[3 + 5*x]
```

Rubi [A] time = 0.0584667, antiderivative size = 46, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$-\frac{154}{3x+2}-\frac{121}{5x+3}-\frac{49}{6(3x+2)^2}+1133\log(3x+2)-1133\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^2/((2 + 3*x)^3*(3 + 5*x)^2),x]
```

```
[Out] -49/(6*(2 + 3*x)^2) - 154/(2 + 3*x) - 121/(3 + 5*x) + 1133*Log[2
+ 3*x] - 1133*Log[3 + 5*x]
```

Rubi in Sympy [A] time = 8.4603, size = 39, normalized size = 0.85

$$1133\log(3x+2)-1133\log(5x+3)-\frac{121}{5x+3}-\frac{154}{3x+2}-\frac{49}{6(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2/(2+3*x)**3/(3+5*x)**2,x)
```

```
[Out] 1133*log(3*x + 2) - 1133*log(5*x + 3) - 121/(5*x + 3) - 154/(3*x
+ 2) - 49/(6*(3*x + 2)**2)
```

Mathematica [A] time = 0.0443423, size = 48, normalized size = 1.04

$$-\frac{154}{3x+2}-\frac{121}{5x+3}-\frac{49}{6(3x+2)^2}+1133\log(5(3x+2))-1133\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^2/((2 + 3*x)^3*(3 + 5*x)^2),x]
```

```
[Out] -49/(6*(2 + 3*x)^2) - 154/(2 + 3*x) - 121/(3 + 5*x) + 1133*Log[5*
(2 + 3*x)] - 1133*Log[3 + 5*x]
```

Maple [A] time = 0.013, size = 45, normalized size = 1.

$$-\frac{49}{6(2+3x)^2}-154(2+3x)^{-1}-121(3+5x)^{-1}+1133\ln(2+3x)-1133\ln(3+5x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2/(2+3*x)^3/(3+5*x)^2,x)
```

```
[Out] -49/6/(2+3*x)^2-154/(2+3*x)-121/(3+5*x)+1133*ln(2+3*x)-1133*ln(3+
5*x)
```

Maxima [A] time = 1.34401, size = 62, normalized size = 1.35

$$-\frac{20394\,x^2+26513\,x+8595}{6\,(45\,x^3+87\,x^2+56\,x+12)}-1133\,\log\left(5\,x+3\right)+1133\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2*x - 1)^2/((5*x + 3)^2*(3*x + 2)^3),x, algorithm="maxima")
```

```
[Out] -1/6*(20394*x^2 + 26513*x + 8595)/(45*x^3 + 87*x^2 + 56*x + 12) -
 1133*log(5*x + 3) + 1133*log(3*x + 2)
```

Fricas [A] time = 0.214423, size = 101, normalized size = 2.2

$$-\frac{20394\,x^2+6798\,\left(45\,x^3+87\,x^2+56\,x+12\right)\,\log\left(5\,x+3\right)-6798\,\left(45\,x^3+87\,x^2+56\,x+12\right)\,\log\left(3\,x+2\right)+26513\,x+8595}{6\,(45\,x^3+87\,x^2+56\,x+12)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2*x - 1)^2/((5*x + 3)^2*(3*x + 2)^3),x, algorithm="fricas")
```

```
[Out] -1/6*(20394*x^2 + 6798*(45*x^3 + 87*x^2 + 56*x + 12)*log(5*x + 3)
 - 6798*(45*x^3 + 87*x^2 + 56*x + 12)*log(3*x + 2) + 26513*x + 85
95)/(45*x^3 + 87*x^2 + 56*x + 12)
```

Sympy [A] time = 0.445857, size = 41, normalized size = 0.89

$$-\frac{20394x^2+26513x+8595}{270x^3+522x^2+336x+72}-1133\log\left(x+\frac{3}{5}\right)+1133\log\left(x+\frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2/(2+3*x)**3/(3+5*x)**2,x)
```

```
[Out] -(20394*x**2 + 26513*x + 8595)/(270*x**3 + 522*x**2 + 336*x + 72)
 - 1133*log(x + 3/5) + 1133*log(x + 2/3)
```

GIAC/XCAS [A] time = 0.214179, size = 66, normalized size = 1.43

$$-\frac{121}{5\,x+3}+\frac{35\,\left(\frac{202}{5\,x+3}+501\right)}{2\,\left(\frac{1}{5\,x+3}+3\right)^2}+1133\,\ln\left(\left|-\frac{1}{5\,x+3}-3\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2*x - 1)^2/((5*x + 3)^2*(3*x + 2)^3),x, algorithm="giac")
```

```
[Out] -121/(5*x + 3) + 35/2*(202/(5*x + 3) + 501)/(1/(5*x + 3) + 3)^2 +
 1133*ln(abs(-1/(5*x + 3) - 3))
```

3.1299 $\int \frac{(1-2x)^2}{(2+3x)^4(3+5x)^2}\,dx$

Optimal. Leaf size=55

$$-\frac{1133}{3x+2}-\frac{605}{5x+3}-\frac{77}{(3x+2)^2}-\frac{49}{9(3x+2)^3}+7480\log(3x+2)-7480\log(5x+3)$$

```
[Out] -49/(9*(2 + 3*x)^3) - 77/(2 + 3*x)^2 - 1133/(2 + 3*x) - 605/(3 +
5*x) + 7480*Log[2 + 3*x] - 7480*Log[3 + 5*x]
```

Rubi [A] time = 0.068893, antiderivative size = 55, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{1133}{3x+2}-\frac{605}{5x+3}-\frac{77}{(3x+2)^2}-\frac{49}{9(3x+2)^3}+7480\log(3x+2)-7480\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^2/((2 + 3*x)^4*(3 + 5*x)^2),x]
```

```
[Out] -49/(9*(2 + 3*x)^3) - 77/(2 + 3*x)^2 - 1133/(2 + 3*x) - 605/(3 +
5*x) + 7480*Log[2 + 3*x] - 7480*Log[3 + 5*x]
```

Rubi in Sympy [A] time = 9.90074, size = 48, normalized size = 0.87

$$7480\log(3x+2)-7480\log(5x+3)-\frac{605}{5x+3}-\frac{1133}{3x+2}-\frac{77}{(3x+2)^2}-\frac{49}{9(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2/(2+3*x)**4/(3+5*x)**2,x)
```

```
[Out] 7480*log(3*x + 2) - 7480*log(5*x + 3) - 605/(5*x + 3) - 1133/(3*x
 + 2) - 77/(3*x + 2)**2 - 49/(9*(3*x + 2)**3)
```

Mathematica [A] time = 0.0507503, size = 57, normalized size = 1.04

$$-\frac{1133}{3x+2}-\frac{605}{5x+3}-\frac{77}{(3x+2)^2}-\frac{49}{9(3x+2)^3}+7480\log(5(3x+2))-7480\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^2/((2 + 3*x)^4*(3 + 5*x)^2),x]
```

```
[Out] -49/(9*(2 + 3*x)^3) - 77/(2 + 3*x)^2 - 1133/(2 + 3*x) - 605/(3 +
5*x) + 7480*Log[5*(2 + 3*x)] - 7480*Log[3 + 5*x]
```

Maple [A] time = 0.014, size = 54, normalized size = 1.

$$-\frac{49}{9\,(2+3\,x)^3}-77\,(2+3\,x)^{-2}-1133\,(2+3\,x)^{-1}-605\,(3+5\,x)^{-1}+7480\,\ln(2+3\,x)-7480\,\ln(3+5\,x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2/(2+3*x)^4/(3+5*x)^2,x)
```

```
[Out] -49/9/(2+3*x)^3-77/(2+3*x)^2-1133/(2+3*x)-605/(3+5*x)+7480*ln(2+3
*x)-7480*ln(3+5*x)
```

Maxima [A] time = 1.35143, size = 76, normalized size = 1.38

$$-\frac{605880\,x^3 + 1191564\,x^2 + 780464\,x + 170229}{9\,(135\,x^4 + 351\,x^3 + 342\,x^2 + 148\,x + 24)} - 7480\,\log(5\,x + 3) + 7480\,\log(3\,x + 2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2*x - 1)^2/((5*x + 3)^2*(3*x + 2)^4),x, algorithm="maxima")
```

```
[Out] -1/9*(605880*x^3 + 1191564*x^2 + 780464*x + 170229)/(135*x^4 + 35
1*x^3 + 342*x^2 + 148*x + 24) - 7480*log(5*x + 3) + 7480*log(3*x
+ 2)
```

Fricas [A] time = 0.226807, size = 128, normalized size = 2.33

$$-\frac{605880\,x^3 + 1191564\,x^2 + 67320\,\left(135\,x^4 + 351\,x^3 + 342\,x^2 + 148\,x + 24\right)\log(5\,x + 3) - 67320\,\left(135\,x^4 + 351\,x^3 + 342\,x^2 + \cdots\right.}{9\,(135\,x^4 + 351\,x^3 + 342\,x^2 + 148\,x + 24)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2*x - 1)^2/((5*x + 3)^2*(3*x + 2)^4),x, algorithm="fricas")
```

```
[Out] -1/9*(605880*x^3 + 1191564*x^2 + 67320*(135*x^4 + 351*x^3 + 342*x
^2 + 148*x + 24)*log(5*x + 3) - 67320*(135*x^4 + 351*x^3 + 342*x^
2 + 148*x + 24)*log(3*x + 2) + 780464*x + 170229)/(135*x^4 + 351*
x^3 + 342*x^2 + 148*x + 24)
```

Sympy [A] time = 0.476535, size = 51, normalized size = 0.93

$$-\frac{605880x^3 + 1191564x^2 + 780464x + 170229}{1215x^4 + 3159x^3 + 3078x^2 + 1332x + 216} - 7480\log\left(x + \frac{3}{5}\right) + 7480\log\left(x + \frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2/(2+3*x)**4/(3+5*x)**2,x)
```

```
[Out] -(605880*x**3 + 1191564*x**2 + 780464*x + 170229)/(1215*x**4 + 31
59*x**3 + 3078*x**2 + 1332*x + 216) - 7480*log(x + 3/5) + 7480*lo
g(x + 2/3)
```

GIAC/XCAS [A] time = 0.210777, size = 78, normalized size = 1.42

$$-\frac{605}{5\,x + 3} + \frac{5\left(\frac{34464}{5\,x+3} + \frac{6934}{(5\,x+3)^2} + 44661\right)}{\left(\frac{1}{5\,x+3} + 3\right)^3} + 7480\ln\left(\left|-\frac{1}{5\,x + 3} - 3\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2*x - 1)^2/((5*x + 3)^2*(3*x + 2)^4),x, algorithm="giac")
```

```
[Out] -605/(5*x + 3) + 5*(34464/(5*x + 3) + 6934/(5*x + 3)^2 + 44661)/(
1/(5*x + 3) + 3)^3 + 7480*ln(abs(-1/(5*x + 3) - 3))
```

3.1300 $\int \frac{(1-2x)^2}{(2+3x)^5(3+5x)^2} \, dx$

Optimal. Leaf size=68

$$-\frac{7480}{3x+2}-\frac{3025}{5x+3}-\frac{1133}{2(3x+2)^2}-\frac{154}{3(3x+2)^3}-\frac{49}{12(3x+2)^4}+46475\log(3x+2)-46475\log(5x+3)$$

```
[Out] -49/(12*(2 + 3*x)^4) - 154/(3*(2 + 3*x)^3) - 1133/(2*(2 + 3*x)^2)
 - 7480/(2 + 3*x) - 3025/(3 + 5*x) + 46475*Log[2 + 3*x] - 46475*L
og[3 + 5*x]
```

Rubi [A] time = 0.0770442, antiderivative size = 68, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{7480}{3x+2}-\frac{3025}{5x+3}-\frac{1133}{2(3x+2)^2}-\frac{154}{3(3x+2)^3}-\frac{49}{12(3x+2)^4}+46475\log(3x+2)-46475\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^2/((2 + 3*x)^5*(3 + 5*x)^2),x]
```

```
[Out] -49/(12*(2 + 3*x)^4) - 154/(3*(2 + 3*x)^3) - 1133/(2*(2 + 3*x)^2)
 - 7480/(2 + 3*x) - 3025/(3 + 5*x) + 46475*Log[2 + 3*x] - 46475*L
og[3 + 5*x]
```

Rubi in Sympy [A] time = 10.6703, size = 60, normalized size = 0.88

$$46475\log(3x+2)-46475\log(5x+3)-\frac{3025}{5x+3}-\frac{7480}{3x+2}-\frac{1133}{2(3x+2)^2}-\frac{154}{3(3x+2)^3}-\frac{49}{12(3x+2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2/(2+3*x)**5/(3+5*x)**2,x)
```

```
[Out] 46475*log(3*x + 2) - 46475*log(5*x + 3) - 3025/(5*x + 3) - 7480/(
3*x + 2) - 1133/(2*(3*x + 2)**2) - 154/(3*(3*x + 2)**3) - 49/(12*
(3*x + 2)**4)
```

Mathematica [A] time = 0.141951, size = 57, normalized size = 0.84

$$-\frac{5019300x^4+13217490x^3+13046462x^2+5720639x+940153}{4(3x+2)^4(5x+3)}+46475\log(5(3x+2))-46475\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^2/((2 + 3*x)^5*(3 + 5*x)^2),x]
```

```
[Out] -(940153 + 5720639*x + 13046462*x^2 + 13217490*x^3 + 5019300*x^4)
/(4*(2 + 3*x)^4*(3 + 5*x)) + 46475*Log[5*(2 + 3*x)] - 46475*Log[3
 + 5*x]
```

Maple [A] time = 0.014, size = 63, normalized size = 0.9

$$-\frac{49}{12(2+3x)^4}-\frac{154}{3(2+3x)^3}-\frac{1133}{2(2+3x)^2}-7480(2+3x)^{-1}$$
$$-3025(3+5x)^{-1}+46475\ln(2+3x)-46475\ln(3+5x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2/(2+3*x)^5/(3+5*x)^2,x)
```

```
[Out] -49/12/(2+3*x)^4-154/3/(2+3*x)^3-1133/2/(2+3*x)^2-7480/(2+3*x)-30
25/(3+5*x)+46475*ln(2+3*x)-46475*ln(3+5*x)
```

Maxima [A] time = 1.3617, size = 89, normalized size = 1.31

$$-\frac{5019300\,x^4+13217490\,x^3+13046462\,x^2+5720639\,x+940153}{4\,(405\,x^5+1323\,x^4+1728\,x^3+1128\,x^2+368\,x+48)}-46475\,\log(5\,x+3)+46475\,\log(3\,x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2*x - 1)^2/((5*x + 3)^2*(3*x + 2)^5),x, algorithm="maxima")
```

```
[Out] -1/4*(5019300*x^4 + 13217490*x^3 + 13046462*x^2 + 5720639*x + 940
153)/(405*x^5 + 1323*x^4 + 1728*x^3 + 1128*x^2 + 368*x + 48) - 46
475*log(5*x + 3) + 46475*log(3*x + 2)
```

Fricas [A] time = 0.224213, size = 155, normalized size = 2.28

$$-\frac{5019300\,x^4+13217490\,x^3+13046462\,x^2+185900\,(405\,x^5+1323\,x^4+1728\,x^3+1128\,x^2+368\,x+48)\log(5\,x+3)-185}{4\,(405\,x^5+1323\,x^4+1728\,x^3+1128\,x^2+}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2*x - 1)^2/((5*x + 3)^2*(3*x + 2)^5),x, algorithm="fricas")
```

```
[Out] -1/4*(5019300*x^4 + 13217490*x^3 + 13046462*x^2 + 185900*(405*x^5
 + 1323*x^4 + 1728*x^3 + 1128*x^2 + 368*x + 48)*log(5*x + 3) - 18
5900*(405*x^5 + 1323*x^4 + 1728*x^3 + 1128*x^2 + 368*x + 48)*log(
3*x + 2) + 5720639*x + 940153)/(405*x^5 + 1323*x^4 + 1728*x^3 + 1
128*x^2 + 368*x + 48)
```

Sympy [A] time = 0.517044, size = 61, normalized size = 0.9

$$-\frac{5019300x^4+13217490x^3+13046462x^2+5720639x+940153}{1620x^5+5292x^4+6912x^3+4512x^2+1472x+192}-46475\log\left(x+\frac{3}{5}\right)+46475\log\left(x+\frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2/(2+3*x)**5/(3+5*x)**2,x)
```

```
[Out] -(5019300*x**4 + 13217490*x**3 + 13046462*x**2 + 5720639*x + 9401
53)/(1620*x**5 + 5292*x**4 + 6912*x**3 + 4512*x**2 + 1472*x + 192
) - 46475*log(x + 3/5) + 46475*log(x + 2/3)
```

GIAC/XCAS [A] time = 0.212554, size = 90, normalized size = 1.32

$$-\frac{3025}{5\,x+3}+\frac{25\left(\frac{884412}{5\,x+3}+\frac{341028}{(5\,x+3)^2}+\frac{45688}{(5\,x+3)^3}+784485\right)}{4\left(\frac{1}{5\,x+3}+3\right)^4}+46475\ln\left(\left|-\frac{1}{5\,x+3}-3\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)^2*(3*x + 2)^5),x, algorithm="giac")
```

```
[Out] -3025/(5*x + 3) + 25/4*(884412/(5*x + 3) + 341028/(5*x + 3)^2 + 4
5688/(5*x + 3)^3 + 784485)/(1/(5*x + 3) + 3)^4 + 46475*ln(abs(-1/
(5*x + 3) - 3))
```

3.1301 $\int \frac{(1-2x)^2}{(2+3x)^6(3+5x)^2}\,dx$

Optimal. Leaf size=77

$$-\frac{46475}{3x+2}-\frac{15125}{5x+3}-\frac{3740}{(3x+2)^2}-\frac{1133}{3(3x+2)^3}-\frac{77}{2(3x+2)^4}-\frac{49}{15(3x+2)^5}+277750\log(3x+2)-277750\log(5x+3)$$

```
[Out] -49/(15*(2 + 3*x)^5) - 77/(2*(2 + 3*x)^4) - 1133/(3*(2 + 3*x)^3)
- 3740/(2 + 3*x)^2 - 46475/(2 + 3*x) - 15125/(3 + 5*x) + 277750*L
og[2 + 3*x] - 277750*Log[3 + 5*x]
```

Rubi [A] time = 0.091709, antiderivative size = 77, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{46475}{3x+2}-\frac{15125}{5x+3}-\frac{3740}{(3x+2)^2}-\frac{1133}{3(3x+2)^3}-\frac{77}{2(3x+2)^4}-\frac{49}{15(3x+2)^5}+277750\log(3x+2)-277750\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^2/((2 + 3*x)^6*(3 + 5*x)^2),x]
```

```
[Out] -49/(15*(2 + 3*x)^5) - 77/(2*(2 + 3*x)^4) - 1133/(3*(2 + 3*x)^3)
- 3740/(2 + 3*x)^2 - 46475/(2 + 3*x) - 15125/(3 + 5*x) + 277750*L
og[2 + 3*x] - 277750*Log[3 + 5*x]
```

Rubi in Sympy [A] time = 11.9653, size = 68, normalized size = 0.88

$$277750\log(3x+2)-277750\log(5x+3)-\frac{15125}{5x+3}-\frac{46475}{3x+2}-\frac{3740}{(3x+2)^2}-\frac{1133}{3(3x+2)^3}-\frac{77}{2(3x+2)^4}-\frac{49}{15(3x+2)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2/(2+3*x)**6/(3+5*x)**2,x)
```

```
[Out] 277750*log(3*x + 2) - 277750*log(5*x + 3) - 15125/(5*x + 3) - 464
75/(3*x + 2) - 3740/(3*x + 2)**2 - 1133/(3*(3*x + 2)**3) - 77/(2*
(3*x + 2)**4) - 49/(15*(3*x + 2)**5)
```

Mathematica [A] time = 0.110534, size = 62, normalized size = 0.81

$$-\frac{674932500x^5+2227277250x^4+2939206050x^3+1938789435x^2+639246515x+84279984}{30(3x+2)^5(5x+3)}+277750\log(5(3x+2))-277750\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^2/((2 + 3*x)^6*(3 + 5*x)^2),x]
```

```
[Out] -(84279984 + 639246515*x + 1938789435*x^2 + 2939206050*x^3 + 2227
277250*x^4 + 674932500*x^5)/(30*(2 + 3*x)^5*(3 + 5*x)) + 277750*L
```

```
og[5*(2 + 3*x)] - 277750*Log[3 + 5*x]
```

Maple [A] time = 0.015, size = 72, normalized size = 0.9

$$-\frac{49}{15\,(2+3\,x)^5}-\frac{77}{2\,(2+3\,x)^4}-\frac{1133}{3\,(2+3\,x)^3}-3740\,(2+3\,x)^{-2}-46475\,(2+3\,x)^{-1}-15125\,(3+5\,x)^{-1}+277750\,\ln(2+3\,x)-277750\,\ln(3+5\,x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((1-2*x)^2/(2+3*x)^6/(3+5*x)^2,x)
```

```
[Out] -49/15/(2+3*x)^5-77/2/(2+3*x)^4-1133/3/(2+3*x)^3-3740/(2+3*x)^2-4
6475/(2+3*x)-15125/(3+5*x)+277750*ln(2+3*x)-277750*ln(3+5*x)
```

Maxima [A] time = 1.33315, size = 103, normalized size = 1.34

$$-\frac{674932500\,x^5+2227277250\,x^4+2939206050\,x^3+1938789435\,x^2+639246515\,x+84279984}{30\,(1215\,x^6+4779\,x^5+7830\,x^4+6840\,x^3+3360\,x^2+880\,x+96)}-277750\,\log(5\,x+3)+277750\,\log(3\,x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2*x - 1)^2/((5*x + 3)^2*(3*x + 2)^6),x, algorithm="maxima")
```

```
[Out] -1/30*(674932500*x^5 + 2227277250*x^4 + 2939206050*x^3 + 19387894
35*x^2 + 639246515*x + 84279984)/(1215*x^6 + 4779*x^5 + 7830*x^4
+ 6840*x^3 + 3360*x^2 + 880*x + 96) - 277750*log(5*x + 3) + 27775
0*log(3*x + 2)
```

Fricas [A] time = 0.216175, size = 182, normalized size = 2.36

$$-\frac{674932500\,x^5+2227277250\,x^4+2939206050\,x^3+1938789435\,x^2+8332500\,\left(1215\,x^6+4779\,x^5+7830\,x^4+6840\,x^3+336\right.}{30\,(1215\,x^6+4779\,x^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2*x - 1)^2/((5*x + 3)^2*(3*x + 2)^6),x, algorithm="fricas")
```

```
[Out] -1/30*(674932500*x^5 + 2227277250*x^4 + 2939206050*x^3 + 19387894
35*x^2 + 8332500*(1215*x^6 + 4779*x^5 + 7830*x^4 + 6840*x^3 + 336
0*x^2 + 880*x + 96)*log(5*x + 3) - 8332500*(1215*x^6 + 4779*x^5 +
 7830*x^4 + 6840*x^3 + 3360*x^2 + 880*x + 96)*log(3*x + 2) + 6392
46515*x + 84279984)/(1215*x^6 + 4779*x^5 + 7830*x^4 + 6840*x^3 +
3360*x^2 + 880*x + 96)
```

Sympy [A] time = 0.545146, size = 71, normalized size = 0.92

$$-\frac{674932500x^5+2227277250x^4+2939206050x^3+1938789435x^2+639246515x+84279984}{36450x^6+143370x^5+234900x^4+205200x^3+100800x^2+26400x+2880}-277750\log\left(x+\frac{3}{5}\right)+277750\log\left(x+\frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2/(2+3*x)**6/(3+5*x)**2,x)
```

```
[Out] -(674932500*x**5 + 2227277250*x**4 + 2939206050*x**3 + 1938789435
*x**2 + 639246515*x + 84279984)/(36450*x**6 + 143370*x**5 + 23490
0*x**4 + 205200*x**3 + 100800*x**2 + 26400*x + 2880) - 277750*log
(x + 3/5) + 277750*log(x + 2/3)
```

GIAC/XCAS [A] time = 0.21424, size = 103, normalized size = 1.34

$$-\frac{15125}{5\,x+3}+\frac{125\,\left(\frac{2338497}{5\,x+3}+\frac{1317834}{(5\,x+3)^{2}}+\frac{338628}{(5\,x+3)^{3}}+\frac{33998}{(5\,x+3)^{4}}+1583793\right)}{2\,\left(\frac{1}{5\,x+3}+3\right)^{5}}+277750\ln\left(\left|-\frac{1}{5\,x+3}-3\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)^2*(3*x + 2)^6),x, algorithm="giac")
```

```
[Out] -15125/(5*x + 3) + 125/2*(2338497/(5*x + 3) + 1317834/(5*x + 3)^2
 + 338628/(5*x + 3)^3 + 33998/(5*x + 3)^4 + 1583793)/(1/(5*x + 3)
 + 3)^5 + 277750*ln(abs(-1/(5*x + 3) - 3))
```

3.1302 $\int \frac{(1-2x)^2}{(2+3x)^7(3+5x)^2}\,dx$

Optimal. Leaf size=90

$$-\frac{277750}{3x+2}-\frac{75625}{5x+3}-\frac{46475}{2(3x+2)^2}-\frac{7480}{3(3x+2)^3}-\frac{1133}{4(3x+2)^4}-\frac{154}{5(3x+2)^5}-\frac{49}{18(3x+2)^6}+1615625\log(3x+2)-1615625\log(5x+3)$$

```
[Out] -49/(18*(2 + 3*x)^6) - 154/(5*(2 + 3*x)^5) - 1133/(4*(2 + 3*x)^4)
 - 7480/(3*(2 + 3*x)^3) - 46475/(2*(2 + 3*x)^2) - 277750/(2 + 3*x
) - 75625/(3 + 5*x) + 1615625*Log[2 + 3*x] - 1615625*Log[3 + 5*x]
```

Rubi [A] time = 0.10182, antiderivative size = 90, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{277750}{3x+2}-\frac{75625}{5x+3}-\frac{46475}{2(3x+2)^2}-\frac{7480}{3(3x+2)^3}-\frac{1133}{4(3x+2)^4}-\frac{154}{5(3x+2)^5}-\frac{49}{18(3x+2)^6}+1615625\log(3x+2)-1615625\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^2/((2 + 3*x)^7*(3 + 5*x)^2),x]
```

```
[Out] -49/(18*(2 + 3*x)^6) - 154/(5*(2 + 3*x)^5) - 1133/(4*(2 + 3*x)^4)
 - 7480/(3*(2 + 3*x)^3) - 46475/(2*(2 + 3*x)^2) - 277750/(2 + 3*x
) - 75625/(3 + 5*x) + 1615625*Log[2 + 3*x] - 1615625*Log[3 + 5*x]
```

Rubi in Sympy [A] time = 13.3493, size = 80, normalized size = 0.89

$$1615625\log(3x+2)-1615625\log(5x+3)-\frac{75625}{5x+3}-\frac{277750}{3x+2}-\frac{46475}{2(3x+2)^2}-\frac{7480}{3(3x+2)^3}-\frac{1133}{4(3x+2)^4}-\frac{154}{5(3x+2)^5}-\frac{49}{18(3x+2)^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2/(2+3*x)**7/(3+5*x)**2,x)
```

```
[Out] 1615625*log(3*x + 2) - 1615625*log(5*x + 3) - 75625/(5*x + 3) - 2
77750/(3*x + 2) - 46475/(2*(3*x + 2)**2) - 7480/(3*(3*x + 2)**3)
- 1133/(4*(3*x + 2)**4) - 154/(5*(3*x + 2)**5) - 49/(18*(3*x + 2)
**6)
```

Mathematica [A] time = 0.158242, size = 92, normalized size = 1.02

$$-\frac{277750}{3x+2}-\frac{75625}{5x+3}-\frac{46475}{2(3x+2)^2}-\frac{7480}{3(3x+2)^3}-\frac{1133}{4(3x+2)^4}-\frac{154}{5(3x+2)^5}-\frac{49}{18(3x+2)^6}+1615625\log(5(3x+2))-1615625\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^2/((2 + 3*x)^7*(3 + 5*x)^2),x]
```

```
[Out] -49/(18*(2 + 3*x)^6) - 154/(5*(2 + 3*x)^5) - 1133/(4*(2 + 3*x)^4)
 - 7480/(3*(2 + 3*x)^3) - 46475/(2*(2 + 3*x)^2) - 277750/(2 + 3*x
```

```
) - 75625/(3 + 5*x) + 1615625*Log[5*(2 + 3*x)] - 1615625*Log[3 +
5*x]
```

Maple [A] time = 0.017, size = 81, normalized size = 0.9

$$-\frac{49}{18\,(2+3\,x)^{6}}-\frac{154}{5\,(2+3\,x)^{5}}-\frac{1133}{4\,(2+3\,x)^{4}}-\frac{7480}{3\,(2+3\,x)^{3}}-\frac{46475}{2\,(2+3\,x)^{2}}-277750\,(2+3\,x)^{-1}-75625\,(3+5\,x)^{-1}+1615625\,\ln(2+3\,x)-1615625\,\ln(3+5\,x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2/(2+3*x)^7/(3+5*x)^2,x)
```

```
[Out] -49/18/(2+3*x)^6-154/5/(2+3*x)^5-1133/4/(2+3*x)^4-7480/3/(2+3*x)^
3-46475/2/(2+3*x)^2-277750/(2+3*x)-75625/(3+5*x)+1615625*ln(2+3*x
)-1615625*ln(3+5*x)
```

Maxima [A] time = 1.32981, size = 116, normalized size = 1.29

$$-\frac{70667437500\,x^{6}+280314168750\,x^{5}+463211966250\,x^{4}+408159415125\,x^{3}+202262350455\,x^{2}+53445037346\,x+588290}{180\,(3645\,x^{7}+16767\,x^{6}+33048\,x^{5}+36180\,x^{4}+23760\,x^{3}+9360\,x^{2}+2048\,x+192)}-1615625\,\log(5\,x+3)+1615625\,\log(3\,x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)^2*(3*x + 2)^7),x, algorithm="maxima")
```

```
[Out] -1/180*(70667437500*x^6 + 280314168750*x^5 + 463211966250*x^4 + 4
08159415125*x^3 + 202262350455*x^2 + 53445037346*x + 5882909754)/
(3645*x^7 + 16767*x^6 + 33048*x^5 + 36180*x^4 + 23760*x^3 + 9360*
x^2 + 2048*x + 192) - 1615625*log(5*x + 3) + 1615625*log(3*x + 2)
```

Fricas [A] time = 0.217344, size = 209, normalized size = 2.32

$$-\frac{70667437500\,x^{6}+280314168750\,x^{5}+463211966250\,x^{4}+408159415125\,x^{3}+202262350455\,x^{2}+290812500\,\big(3645\,x^{7}+16}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)^2*(3*x + 2)^7),x, algorithm="fricas")
```

```
[Out] -1/180*(70667437500*x^6 + 280314168750*x^5 + 463211966250*x^4 + 4
08159415125*x^3 + 202262350455*x^2 + 290812500*(3645*x^7 + 16767*
x^6 + 33048*x^5 + 36180*x^4 + 23760*x^3 + 9360*x^2 + 2048*x + 192
)*log(5*x + 3) - 290812500*(3645*x^7 + 16767*x^6 + 33048*x^5 + 36
180*x^4 + 23760*x^3 + 9360*x^2 + 2048*x + 192)*log(3*x + 2) + 534
45037346*x + 5882909754)/(3645*x^7 + 16767*x^6 + 33048*x^5 + 3618
0*x^4 + 23760*x^3 + 9360*x^2 + 2048*x + 192)
```

Sympy [A] time = 0.607487, size = 82, normalized size = 0.91

$$-\frac{70667437500x^{6}+280314168750x^{5}+463211966250x^{4}+408159415125x^{3}+202262350455x^{2}+53445037346x+58829097}{656100x^{7}+3018060x^{6}+5948640x^{5}+6512400x^{4}+4276800x^{3}+1684800x^{2}+368640x+34560}-1615625\log\left(x+\frac{3}{5}\right)+1615625\log\left(x+\frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2/(2+3*x)**7/(3+5*x)**2,x)
```

```
[Out] -(70667437500*x**6 + 280314168750*x**5 + 463211966250*x**4 + 4081
59415125*x**3 + 202262350455*x**2 + 53445037346*x + 5882909754)/(
656100*x**7 + 3018060*x**6 + 5948640*x**5 + 6512400*x**4 + 427680
0*x**3 + 1684800*x**2 + 368640*x + 34560) - 1615625*log(x + 3/5)
+ 1615625*log(x + 2/3)
```

GIAC/XCAS [A] time = 0.213298, size = 115, normalized size = 1.28

$$-\frac{75625}{5\,x+3}+\frac{625\,\left(\frac{22074930}{5\,x+3}+\frac{16294797}{(5\,x+3)^{2}}+\frac{6120660}{(5\,x+3)^{3}}+\frac{1179210}{(5\,x+3)^{4}}+\frac{94660}{(5\,x+3)^{5}}+12117357\right)}{4\,\left(\frac{1}{5\,x+3}+3\right)^{6}}+1615625\,\ln\left(\left|-\frac{1}{5\,x+3}-3\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)^2*(3*x + 2)^7),x, algorithm="giac")
```

```
[Out] -75625/(5*x + 3) + 625/4*(22074930/(5*x + 3) + 16294797/(5*x + 3)
^2 + 6120660/(5*x + 3)^3 + 1179210/(5*x + 3)^4 + 94660/(5*x + 3)^
5 + 12117357)/(1/(5*x + 3) + 3)^6 + 1615625*ln(abs(-1/(5*x + 3) -
 3))
```

3.1303 $\int \frac{(1-2x)^2}{(2+3x)^8(3+5x)^2}\,dx$

Optimal. Leaf size=97

$$-\frac{1615625}{3x+2}-\frac{378125}{5x+3}-\frac{138875}{(3x+2)^2}-\frac{46475}{3(3x+2)^3}-\frac{1870}{(3x+2)^4}-\frac{1133}{5(3x+2)^5}-\frac{77}{3(3x+2)^6}-\frac{7}{3(3x+2)^7}+9212500\log(3x+2)-9212500\log(5x+3)$$

```
[Out] -7/(3*(2 + 3*x)^7) - 77/(3*(2 + 3*x)^6) - 1133/(5*(2 + 3*x)^5) -
1870/(2 + 3*x)^4 - 46475/(3*(2 + 3*x)^3) - 138875/(2 + 3*x)^2 - 1
615625/(2 + 3*x) - 378125/(3 + 5*x) + 9212500*Log[2 + 3*x] - 9212
500*Log[3 + 5*x]
```

Rubi [A] time = 0.116788, antiderivative size = 97, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{1615625}{3x+2}-\frac{378125}{5x+3}-\frac{138875}{(3x+2)^2}-\frac{46475}{3(3x+2)^3}-\frac{1870}{(3x+2)^4}-\frac{1133}{5(3x+2)^5}-\frac{77}{3(3x+2)^6}-\frac{7}{3(3x+2)^7}+9212500\log(3x+2)-9212500\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^2/((2 + 3*x)^8*(3 + 5*x)^2),x]
```

```
[Out] -7/(3*(2 + 3*x)^7) - 77/(3*(2 + 3*x)^6) - 1133/(5*(2 + 3*x)^5) -
1870/(2 + 3*x)^4 - 46475/(3*(2 + 3*x)^3) - 138875/(2 + 3*x)^2 - 1
615625/(2 + 3*x) - 378125/(3 + 5*x) + 9212500*Log[2 + 3*x] - 9212
500*Log[3 + 5*x]
```

Rubi in Sympy [A] time = 14.864, size = 87, normalized size = 0.9

$$9212500\log(3x+2)-9212500\log(5x+3)-\frac{378125}{5x+3}-\frac{1615625}{3x+2}-\frac{138875}{(3x+2)^2}-\frac{46475}{3(3x+2)^3}-\frac{1870}{(3x+2)^4}-\frac{1133}{5(3x+2)^5}-\frac{77}{3(3x+2)^6}-\frac{7}{3(3x+2)^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2/(2+3*x)**8/(3+5*x)**2,x)
```

```
[Out] 9212500*log(3*x + 2) - 9212500*log(5*x + 3) - 378125/(5*x + 3) -
1615625/(3*x + 2) - 138875/(3*x + 2)**2 - 46475/(3*(3*x + 2)**3)
- 1870/(3*x + 2)**4 - 1133/(5*(3*x + 2)**5) - 77/(3*(3*x + 2)**6)
 - 7/(3*(3*x + 2)**7)
```

Mathematica [A] time = 0.117371, size = 99, normalized size = 1.02

$$-\frac{1615625}{3x+2}-\frac{378125}{5x+3}-\frac{138875}{(3x+2)^2}-\frac{46475}{3(3x+2)^3}-\frac{1870}{(3x+2)^4}-\frac{1133}{5(3x+2)^5}-\frac{77}{3(3x+2)^6}-\frac{7}{3(3x+2)^7}+9212500\log(5(3x+2))-9212500\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^2/((2 + 3*x)^8*(3 + 5*x)^2),x]
```

```
[Out] -7/(3*(2 + 3*x)^7) - 77/(3*(2 + 3*x)^6) - 1133/(5*(2 + 3*x)^5) -
1870/(2 + 3*x)^4 - 46475/(3*(2 + 3*x)^3) - 138875/(2 + 3*x)^2 - 1
615625/(2 + 3*x) - 378125/(3 + 5*x) + 9212500*Log[5*(2 + 3*x)] -
9212500*Log[3 + 5*x]
```

Maple [A] time = 0.016, size = 90, normalized size = 0.9

$$-\frac{7}{3\,(2+3\,x)^{7}}-\frac{77}{3\,(2+3\,x)^{6}}-\frac{1133}{5\,(2+3\,x)^{5}}-1870\,(2+3\,x)^{-4}-\frac{46475}{3\,(2+3\,x)^{3}}-138875\,(2+3\,x)^{-2}$$
$$-1615625\,(2+3\,x)^{-1}-378125\,(3+5\,x)^{-1}+9212500\,\ln(2+3\,x)-9212500\,\ln(3+5\,x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2/(2+3*x)^8/(3+5*x)^2,x)
```

```
[Out] -7/3/(2+3*x)^7-77/3/(2+3*x)^6-1133/5/(2+3*x)^5-1870/(2+3*x)^4-464
75/3/(2+3*x)^3-138875/(2+3*x)^2-1615625/(2+3*x)-378125/(3+5*x)+92
12500*ln(2+3*x)-9212500*ln(3+5*x)
```

Maxima [A] time = 1.35436, size = 130, normalized size = 1.34

$$-\frac{100738687500\,x^{7}+466755918750\,x^{6}+926721303750\,x^{5}+1022059900125\,x^{4}+676227617505\,x^{3}+268408563588\,x^{2}+59}{15\,(10935\,x^{8}+57591\,x^{7}+132678\,x^{6}+174636\,x^{5}+143640\,x^{4}+75600\,x^{3}+24864\,x^{2}+4672\,x+38}$$
$$-9212500\,\log(5\,x+3)+9212500\,\log(3\,x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)^2*(3*x + 2)^8),x, algorithm="maxima")
```

```
[Out] -1/15*(100738687500*x^7 + 466755918750*x^6 + 926721303750*x^5 + 1
022059900125*x^4 + 676227617505*x^3 + 268408563588*x^2 + 59178013
234*x + 5590850403)/(10935*x^8 + 57591*x^7 + 132678*x^6 + 174636*
x^5 + 143640*x^4 + 75600*x^3 + 24864*x^2 + 4672*x + 384) - 921250
0*log(5*x + 3) + 9212500*log(3*x + 2)
```

Fricas [A] time = 0.2243, size = 236, normalized size = 2.43

$$-\frac{100738687500\,x^{7}+466755918750\,x^{6}+926721303750\,x^{5}+1022059900125\,x^{4}+676227617505\,x^{3}+268408563588\,x^{2}+13}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)^2*(3*x + 2)^8),x, algorithm="fricas")
```

```
[Out] -1/15*(100738687500*x^7 + 466755918750*x^6 + 926721303750*x^5 + 1
022059900125*x^4 + 676227617505*x^3 + 268408563588*x^2 + 13818750
0*(10935*x^8 + 57591*x^7 + 132678*x^6 + 174636*x^5 + 143640*x^4 +
 75600*x^3 + 24864*x^2 + 4672*x + 384)*log(5*x + 3) - 138187500*(
10935*x^8 + 57591*x^7 + 132678*x^6 + 174636*x^5 + 143640*x^4 + 75
600*x^3 + 24864*x^2 + 4672*x + 384)*log(3*x + 2) + 59178013234*x
+ 5590850403)/(10935*x^8 + 57591*x^7 + 132678*x^6 + 174636*x^5 +
143640*x^4 + 75600*x^3 + 24864*x^2 + 4672*x + 384)
```

Sympy [A] time = 0.686424, size = 92, normalized size = 0.95

$$-\frac{100738687500x^7 + 466755918750x^6 + 926721303750x^5 + 1022059900125x^4 + 676227617505x^3 + 268408563588x^2 + 5917}{164025x^8 + 863865x^7 + 1990170x^6 + 2619540x^5 + 2154600x^4 + 1134000x^3 + 372960x^2 + 70080x + 57}$$
$$- 9212500\log\left(x + \frac{3}{5}\right) + 9212500\log\left(x + \frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2/(2+3*x)**8/(3+5*x)**2,x)
```

```
[Out] -(100738687500*x**7 + 466755918750*x**6 + 926721303750*x**5 + 102
2059900125*x**4 + 676227617505*x**3 + 268408563588*x**2 + 5917801
3234*x + 5590850403)/(164025*x**8 + 863865*x**7 + 1990170*x**6 +
2619540*x**5 + 2154600*x**4 + 1134000*x**3 + 372960*x**2 + 70080*
x + 5760) - 9212500*log(x + 3/5) + 9212500*log(x + 2/3)
```

GIAC/XCAS [A] time = 0.211843, size = 127, normalized size = 1.31

$$-\frac{378125}{5\,x+3} + \frac{625\left(\frac{120779019}{5\,x+3} + \frac{110006829}{(5\,x+3)^2} + \frac{54129465}{(5\,x+3)^3} + \frac{15246900}{(5\,x+3)^4} + \frac{2349450}{(5\,x+3)^5} + \frac{157100}{(5\,x+3)^6} + 55800576\right)}{\left(\frac{1}{5\,x+3} + 3\right)^7}$$
$$+ 9212500\ln\left(\left|-\frac{1}{5\,x+3} - 3\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)^2*(3*x + 2)^8),x, algorithm="giac")
```

```
[Out] -378125/(5*x + 3) + 625*(120779019/(5*x + 3) + 110006829/(5*x + 3
)^2 + 54129465/(5*x + 3)^3 + 15246900/(5*x + 3)^4 + 2349450/(5*x
+ 3)^5 + 157100/(5*x + 3)^6 + 55800576)/(1/(5*x + 3) + 3)^7 + 921
2500*ln(abs(-1/(5*x + 3) - 3))
```

3.1304 $\int \frac{(1-2x)^2(2+3x)^8}{(3+5x)^3} dx$

Optimal. Leaf size=87

$$\frac{6561x^8}{250}+\frac{332424x^7}{4375}+\frac{376407x^6}{6250}-\frac{74601x^5}{3125}-\frac{1700919x^4}{31250}-\frac{5350194x^3}{390625}+\frac{55559043x^2}{3906250}+\frac{92582457x}{9765625}-\frac{572}{9765625(5x+3)}-\frac{121}{97656250(5x+3)^2}+\frac{5888\log(5x+3)}{9765625}$$

```
[Out] (92582457*x)/9765625 + (55559043*x^2)/3906250 - (5350194*x^3)/390
625 - (1700919*x^4)/31250 - (74601*x^5)/3125 + (376407*x^6)/6250
+ (332424*x^7)/4375 + (6561*x^8)/250 - 121/(97656250*(3 + 5*x)^2)
 - 572/(9765625*(3 + 5*x)) + (5888*Log[3 + 5*x])/9765625
```

Rubi [A] time = 0.109918, antiderivative size = 87, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{6561x^8}{250}+\frac{332424x^7}{4375}+\frac{376407x^6}{6250}-\frac{74601x^5}{3125}-\frac{1700919x^4}{31250}-\frac{5350194x^3}{390625}+\frac{55559043x^2}{3906250}+\frac{92582457x}{9765625}-\frac{572}{9765625(5x+3)}-\frac{121}{97656250(5x+3)^2}+\frac{5888\log(5x+3)}{9765625}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^2*(2 + 3*x)^8)/(3 + 5*x)^3,x]
```

```
[Out] (92582457*x)/9765625 + (55559043*x^2)/3906250 - (5350194*x^3)/390
625 - (1700919*x^4)/31250 - (74601*x^5)/3125 + (376407*x^6)/6250
+ (332424*x^7)/4375 + (6561*x^8)/250 - 121/(97656250*(3 + 5*x)^2)
 - 572/(9765625*(3 + 5*x)) + (5888*Log[3 + 5*x])/9765625
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{6561x^8}{250}+\frac{332424x^7}{4375}+\frac{376407x^6}{6250}-\frac{74601x^5}{3125}-\frac{1700919x^4}{31250}-\frac{5350194x^3}{390625}+\frac{5888\log(5x+3)}{9765625}+\int\frac{92582457}{9765625}dx+\frac{55559043\int x\,dx}{1953125}-\frac{572}{9765625(5x+3)}-\frac{121}{97656250(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(2+3*x)**8/(3+5*x)**3,x)
```

```
[Out] 6561*x**8/250 + 332424*x**7/4375 + 376407*x**6/6250 - 74601*x**5/
3125 - 1700919*x**4/31250 - 5350194*x**3/390625 + 5888*log(5*x +
3)/9765625 + Integral(92582457/9765625, x) + 55559043*Integral(x,
 x)/1953125 - 572/(9765625*(5*x + 3)) - 121/(97656250*(5*x + 3)**
2)
```

Mathematica [A] time = 0.050061, size = 76, normalized size = 0.87

$$\frac{448505859375x^{10}+1836738281250x^9+2748937500000x^8+1294582500000x^7-1049233500000x^6-1497169800000x^5-}{683593750(5}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^2*(2 + 3*x)^8)/(3 + 5*x)^3,x]
```

```
[Out] (10358007077 + 92853841190*x + 310701230325*x^2 + 369438720000*x^
3 - 372682800000*x^4 - 1497169800000*x^5 - 1049233500000*x^6 + 12
94582500000*x^7 + 2748937500000*x^8 + 1836738281250*x^9 + 4485058
59375*x^10 + 412160*(3 + 5*x)^2*Log[3 + 5*x])/(683593750*(3 + 5*x
)^2)
```

Maple [A] time = 0.01, size = 66, normalized size = 0.8

$$\frac{92582457\,x}{9765625}+\frac{55559043\,x^{2}}{3906250}-\frac{5350194\,x^{3}}{390625}-\frac{1700919\,x^{4}}{31250}-\frac{74601\,x^{5}}{3125}+\frac{376407\,x^{6}}{6250}+\frac{332424\,x^{7}}{4375}+\frac{6561\,x^{8}}{250}-\frac{121}{97656250\,\left(3+5\,x\right)^{2}}-\frac{572}{29296875+48828125\,x}+\frac{5888\,\ln\left(3+5\,x\right)}{9765625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(2+3*x)^8/(3+5*x)^3,x)
```

```
[Out] 92582457/9765625*x+55559043/3906250*x^2-5350194/390625*x^3-170091
9/31250*x^4-74601/3125*x^5+376407/6250*x^6+332424/4375*x^7+6561/2
50*x^8-121/97656250/(3+5*x)^2-572/9765625/(3+5*x)+5888/9765625*ln
(3+5*x)
```

Maxima [A] time = 1.3497, size = 89, normalized size = 1.02

$$\frac{6561}{250}\,x^{8}+\frac{332424}{4375}\,x^{7}+\frac{376407}{6250}\,x^{6}-\frac{74601}{3125}\,x^{5}-\frac{1700919}{31250}\,x^{4}-\frac{5350194}{390625}\,x^{3}+\frac{55559043}{3906250}\,x^{2}+\frac{92582457}{9765625}\,x-\frac{11\,\left(2600\,x+1571\right)}{97656250\,\left(25\,x^{2}+30\,x+9\right)}+\frac{5888}{9765625}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^8*(2*x - 1)^2/(5*x + 3)^3,x, algorithm="maxima")
```

```
[Out] 6561/250*x^8 + 332424/4375*x^7 + 376407/6250*x^6 - 74601/3125*x^5
 - 1700919/31250*x^4 - 5350194/390625*x^3 + 55559043/3906250*x^2
+ 92582457/9765625*x - 11/97656250*(2600*x + 1571)/(25*x^2 + 30*x
 + 9) + 5888/9765625*log(5*x + 3)
```

Fricas [A] time = 0.216043, size = 111, normalized size = 1.28

$$\frac{448505859375\,x^{10}+1836738281250\,x^{9}+2748937500000\,x^{8}+1294582500000\,x^{7}-1049233500000\,x^{6}-1497169800000\,x^{5}}{683593750\,(2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^8*(2*x - 1)^2/(5*x + 3)^3,x, algorithm="fricas")
```

```
[Out] 1/683593750*(448505859375*x^10 + 1836738281250*x^9 + 274893750000
0*x^8 + 1294582500000*x^7 - 1049233500000*x^6 - 1497169800000*x^5
 - 372682800000*x^4 + 369438720000*x^3 + 281928652425*x^2 + 41216
0*(25*x^2 + 30*x + 9)*log(5*x + 3) + 58326747710*x - 120967)/(25*
x^2 + 30*x + 9)
```

Sympy [A] time = 0.328392, size = 76, normalized size = 0.87

$$\frac{6561x^{8}}{250}+\frac{332424x^{7}}{4375}+\frac{376407x^{6}}{6250}-\frac{74601x^{5}}{3125}-\frac{1700919x^{4}}{31250}-\frac{5350194x^{3}}{390625}+\frac{55559043x^{2}}{3906250}+\frac{92582457x}{9765625}-\frac{28600x+17281}{2441406250x^{2}+2929687500x+878906250}+\frac{5888\log\left(5x+3\right)}{9765625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(2+3*x)**8/(3+5*x)**3,x)
```

```
[Out] 6561*x**8/250 + 332424*x**7/4375 + 376407*x**6/6250 - 74601*x**5/
3125 - 1700919*x**4/31250 - 5350194*x**3/390625 + 55559043*x**2/3
906250 + 92582457*x/9765625 - (28600*x + 17281)/(2441406250*x**2
+ 2929687500*x + 878906250) + 5888*log(5*x + 3)/9765625
```

GIAC/XCAS [A] time = 0.207126, size = 84, normalized size = 0.97

$$\frac{6561}{250}x^8 + \frac{332424}{4375}x^7 + \frac{376407}{6250}x^6 - \frac{74601}{3125}x^5 - \frac{1700919}{31250}x^4 - \frac{5350194}{390625}x^3 + \frac{55559043}{3906250}x^2 + \frac{92582457}{9765625}x - \frac{11\,(2600\,x + 1571)}{97656250\,(5\,x + 3)^2} + \frac{5888}{9765625}\ln\left(|5\,x + 3|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^8*(2*x - 1)^2/(5*x + 3)^3,x, algorithm="giac")
```

```
[Out] 6561/250*x^8 + 332424/4375*x^7 + 376407/6250*x^6 - 74601/3125*x^5
 - 1700919/31250*x^4 - 5350194/390625*x^3 + 55559043/3906250*x^2
+ 92582457/9765625*x - 11/97656250*(2600*x + 1571)/(5*x + 3)^2 +
5888/9765625*ln(abs(5*x + 3))
```

3.1305 $\int \frac{(1-2x)^2(2+3x)^7}{(3+5x)^3}\,dx$

Optimal. Leaf size=80

$$\frac{8748x^7}{875}+\frac{13608x^6}{625}+\frac{104247x^5}{15625}-\frac{193833x^4}{12500}-\frac{162612x^3}{15625}+\frac{1390203x^2}{390625}+\frac{9251661x}{1953125}-\frac{2497}{9765625(5x+3)}-\frac{121}{19531250(5x+3)^2}+\frac{21949\log(5x+3)}{9765625}$$

```
[Out] (9251661*x)/1953125 + (1390203*x^2)/390625 - (162612*x^3)/15625 -
 (193833*x^4)/12500 + (104247*x^5)/15625 + (13608*x^6)/625 + (874
8*x^7)/875 - 121/(19531250*(3 + 5*x)^2) - 2497/(9765625*(3 + 5*x)
) + (21949*Log[3 + 5*x])/9765625
```

Rubi [A] time = 0.100992, antiderivative size = 80, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{8748x^7}{875}+\frac{13608x^6}{625}+\frac{104247x^5}{15625}-\frac{193833x^4}{12500}-\frac{162612x^3}{15625}+\frac{1390203x^2}{390625}+\frac{9251661x}{1953125}-\frac{2497}{9765625(5x+3)}-\frac{121}{19531250(5x+3)^2}+\frac{21949\log(5x+3)}{9765625}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^2*(2 + 3*x)^7)/(3 + 5*x)^3,x]
```

```
[Out] (9251661*x)/1953125 + (1390203*x^2)/390625 - (162612*x^3)/15625 -
 (193833*x^4)/12500 + (104247*x^5)/15625 + (13608*x^6)/625 + (874
8*x^7)/875 - 121/(19531250*(3 + 5*x)^2) - 2497/(9765625*(3 + 5*x)
) + (21949*Log[3 + 5*x])/9765625
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{8748x^7}{875}+\frac{13608x^6}{625}+\frac{104247x^5}{15625}-\frac{193833x^4}{12500}-\frac{162612x^3}{15625}+\frac{21949\log(5x+3)}{9765625}+\int\frac{9251661}{1953125}\,dx+\frac{2780406\int x\,dx}{390625}-\frac{2497}{9765625(5x+3)}-\frac{121}{19531250(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(2+3*x)**7/(3+5*x)**3,x)
```

```
[Out] 8748*x**7/875 + 13608*x**6/625 + 104247*x**5/15625 - 193833*x**4/
12500 - 162612*x**3/15625 + 21949*log(5*x + 3)/9765625 + Integral
(9251661/1953125, x) + 2780406*Integral(x, x)/390625 - 2497/(9765
625*(5*x + 3)) - 121/(19531250*(5*x + 3)**2)
```

Mathematica [A] time = 0.0485485, size = 71, normalized size = 0.89

$$\frac{341718750000x^9+1154250000000x^8+1244084062500x^7+11543765625x^6-909633768750x^5-496018096875x^4+17981}{1367187500(5x+3)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^2*(2 + 3*x)^7)/(3 + 5*x)^3,x]
```

```
[Out] (13601177777 + 103624499690*x + 275860261575*x^2 + 179818432500*x
^3 - 496018096875*x^4 - 909633768750*x^5 + 11543765625*x^6 + 1244
084062500*x^7 + 1154250000000*x^8 + 341718750000*x^9 + 3072860*(3
 + 5*x)^2*Log[3 + 5*x])/(1367187500*(3 + 5*x)^2)
```

Maple [A] time = 0.01, size = 61, normalized size = 0.8

$$\frac{9251661\,x}{1953125}+\frac{1390203\,x^2}{390625}-\frac{162612\,x^3}{15625}-\frac{193833\,x^4}{12500}+\frac{104247\,x^5}{15625}+\frac{13608\,x^6}{625}+\frac{8748\,x^7}{875}-\frac{121}{19531250\,(3+5\,x)^2}-\frac{2497}{29296875+48828125\,x}+\frac{21949\,\ln(3+5\,x)}{9765625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(2+3*x)^7/(3+5*x)^3,x)
```

```
[Out] 9251661/1953125*x+1390203/390625*x^2-162612/15625*x^3-193833/1250
0*x^4+104247/15625*x^5+13608/625*x^6+8748/875*x^7-121/19531250/(3
+5*x)^2-2497/9765625/(3+5*x)+21949/9765625*ln(3+5*x)
```

Maxima [A] time = 1.34173, size = 82, normalized size = 1.02

$$\frac{8748}{875}\,x^7+\frac{13608}{625}\,x^6+\frac{104247}{15625}\,x^5-\frac{193833}{12500}\,x^4-\frac{162612}{15625}\,x^3+\frac{1390203}{390625}\,x^2+\frac{9251661}{1953125}\,x-\frac{11\,(2270\,x+1373)}{19531250\,(25\,x^2+30\,x+9)}+\frac{21949}{9765625}\,\log(5\,x+3)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^7*(2*x - 1)^2/(5*x + 3)^3,x, algorithm="maxima")
```

```
[Out] 8748/875*x^7 + 13608/625*x^6 + 104247/15625*x^5 - 193833/12500*x^
4 - 162612/15625*x^3 + 1390203/390625*x^2 + 9251661/1953125*x - 1
1/19531250*(2270*x + 1373)/(25*x^2 + 30*x + 9) + 21949/9765625*lo
g(5*x + 3)
```

Fricas [A] time = 0.207016, size = 104, normalized size = 1.3

$$\frac{68343750000\,x^9+230850000000\,x^8+248816812500\,x^7+2308753125\,x^6-181926753750\,x^5-99203619375\,x^4+35963686}{273437500\,(25\,x^2+30\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^7*(2*x - 1)^2/(5*x + 3)^3,x, algorithm="fricas")
```

```
[Out] 1/273437500*(68343750000*x^9 + 230850000000*x^8 + 248816812500*x^
7 + 2308753125*x^6 - 181926753750*x^5 - 99203619375*x^4 + 3596368
6500*x^3 + 47615255100*x^2 + 614572*(25*x^2 + 30*x + 9)*log(5*x +
 3) + 11656743280*x - 211442)/(25*x^2 + 30*x + 9)
```

Sympy [A] time = 0.327399, size = 70, normalized size = 0.88

$$\frac{8748x^7}{875}+\frac{13608x^6}{625}+\frac{104247x^5}{15625}-\frac{193833x^4}{12500}-\frac{162612x^3}{15625}+\frac{1390203x^2}{390625}+\frac{9251661x}{1953125}-\frac{24970x+15103}{488281250x^2+585937500x+175781250}+\frac{21949\log(5x+3)}{9765625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(2+3*x)**7/(3+5*x)**3,x)
```

```
[Out] 8748*x**7/875 + 13608*x**6/625 + 104247*x**5/15625 - 193833*x**4/
12500 - 162612*x**3/15625 + 1390203*x**2/390625 + 9251661*x/19531
25 - (24970*x + 15103)/(488281250*x**2 + 585937500*x + 175781250)
 + 21949*log(5*x + 3)/9765625
```

GIAC/XCAS [A] time = 0.220063, size = 77, normalized size = 0.96

$$\frac{8748}{875}\,x^7+\frac{13608}{625}\,x^6+\frac{104247}{15625}\,x^5-\frac{193833}{12500}\,x^4-\frac{162612}{15625}\,x^3+\frac{1390203}{390625}\,x^2+\frac{9251661}{1953125}\,x-\frac{11\,(2270\,x+1373)}{19531250\,(5\,x+3)^2}+\frac{21949}{9765625}\,\ln\left(|5\,x+3|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^7*(2*x - 1)^2/(5*x + 3)^3,x, algorithm="giac")
```

```
[Out] 8748/875*x^7 + 13608/625*x^6 + 104247/15625*x^5 - 193833/12500*x^
4 - 162612/15625*x^3 + 1390203/390625*x^2 + 9251661/1953125*x - 1
1/19531250*(2270*x + 1373)/(5*x + 3)^2 + 21949/9765625*ln(abs(5*x
 + 3))
```

3.1306 $\int \frac{(1-2x)^2(2+3x)^6}{(3+5x)^3}\,dx$

Optimal. Leaf size=73

$$\frac{486x^6}{125}+\frac{17496x^5}{3125}-\frac{23571x^4}{12500}-\frac{16299x^3}{3125}+\frac{189x^2}{15625}+\frac{920502x}{390625}-\frac{2134}{1953125(5x+3)}-\frac{121}{3906250(5x+3)^2}+\frac{15547\log(5x+3)}{1953125}$$

```
[Out] (920502*x)/390625 + (189*x^2)/15625 - (16299*x^3)/3125 - (23571*x
^4)/12500 + (17496*x^5)/3125 + (486*x^6)/125 - 121/(3906250*(3 +
5*x)^2) - 2134/(1953125*(3 + 5*x)) + (15547*Log[3 + 5*x])/1953125
```

Rubi [A] time = 0.0927439, antiderivative size = 73, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{486x^6}{125}+\frac{17496x^5}{3125}-\frac{23571x^4}{12500}-\frac{16299x^3}{3125}+\frac{189x^2}{15625}+\frac{920502x}{390625}-\frac{2134}{1953125(5x+3)}-\frac{121}{3906250(5x+3)^2}+\frac{15547\log(5x+3)}{1953125}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^2*(2 + 3*x)^6)/(3 + 5*x)^3,x]
```

```
[Out] (920502*x)/390625 + (189*x^2)/15625 - (16299*x^3)/3125 - (23571*x
^4)/12500 + (17496*x^5)/3125 + (486*x^6)/125 - 121/(3906250*(3 +
5*x)^2) - 2134/(1953125*(3 + 5*x)) + (15547*Log[3 + 5*x])/1953125
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{486x^6}{125}+\frac{17496x^5}{3125}-\frac{23571x^4}{12500}-\frac{16299x^3}{3125}+\frac{15547\log(5x+3)}{1953125}+\int\frac{920502}{390625}\,dx+\frac{378\int x\,dx}{15625}-\frac{2134}{1953125\,(5x+3)}-\frac{121}{3906250\,(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(2+3*x)**6/(3+5*x)**3,x)
```

```
[Out] 486*x**6/125 + 17496*x**5/3125 - 23571*x**4/12500 - 16299*x**3/31
25 + 15547*log(5*x + 3)/1953125 + Integral(920502/390625, x) + 37
8*Integral(x, x)/15625 - 2134/(1953125*(5*x + 3)) - 121/(3906250*
(5*x + 3)**2)
```

Mathematica [A] time = 0.0568735, size = 68, normalized size = 0.93

$$\frac{3796875000x^8+10023750000x^7+6086390625x^6-5334918750x^5-6763246875x^4+481792500x^3+3528738675x^2+1743}{39062500(5x+3)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^2*(2 + 3*x)^6)/(3 + 5*x)^3,x]
```

```
[Out] (274543613 + 1743814610*x + 3528738675*x^2 + 481792500*x^3 - 6763
246875*x^4 - 5334918750*x^5 + 6086390625*x^6 + 10023750000*x^7 +
```

```
3796875000*x^8 + 310940*(3 + 5*x)^2*Log[6*(3 + 5*x)])/(39062500*(
3 + 5*x)^2)
```

Maple [A] time = 0.01, size = 56, normalized size = 0.8

$$\frac{920502\,x}{390625}+\frac{189\,x^{2}}{15625}-\frac{16299\,x^{3}}{3125}-\frac{23571\,x^{4}}{12500}+\frac{17496\,x^{5}}{3125}+\frac{486\,x^{6}}{125}-\frac{121}{3906250\,\left(3+5\,x\right)^{2}}-\frac{2134}{5859375+9765625\,x}+\frac{15547\,\ln\left(3+5\,x\right)}{1953125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(2+3*x)^6/(3+5*x)^3,x)
```

```
[Out] 920502/390625*x+189/15625*x^2-16299/3125*x^3-23571/12500*x^4+1749
6/3125*x^5+486/125*x^6-121/3906250/(3+5*x)^2-2134/1953125/(3+5*x)
+15547/1953125*ln(3+5*x)
```

Maxima [A] time = 1.37413, size = 76, normalized size = 1.04

$$\frac{486}{125}\,x^{6}+\frac{17496}{3125}\,x^{5}-\frac{23571}{12500}\,x^{4}-\frac{16299}{3125}\,x^{3}+\frac{189}{15625}\,x^{2}+\frac{920502}{390625}\,x-\frac{11\,\left(388\,x+235\right)}{781250\,\left(25\,x^{2}+30\,x+9\right)}+\frac{15547}{1953125}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^6*(2*x - 1)^2/(5*x + 3)^3,x, algorithm="maxima")
```

```
[Out] 486/125*x^6 + 17496/3125*x^5 - 23571/12500*x^4 - 16299/3125*x^3 +
 189/15625*x^2 + 920502/390625*x - 11/781250*(388*x + 235)/(25*x^
2 + 30*x + 9) + 15547/1953125*log(5*x + 3)
```

Fricas [A] time = 0.212287, size = 97, normalized size = 1.33

$$\frac{759375000\,x^{8}+2004750000\,x^{7}+1217278125\,x^{6}-1066983750\,x^{5}-1352649375\,x^{4}+96358500\,x^{3}+553151700\,x^{2}+62188\,\left(\cdots\right.}{7812500\,\left(25\,x^{2}+30\,x+9\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^6*(2*x - 1)^2/(5*x + 3)^3,x, algorithm="fricas")
```

```
[Out] 1/7812500*(759375000*x^8 + 2004750000*x^7 + 1217278125*x^6 - 1066
983750*x^5 - 1352649375*x^4 + 96358500*x^3 + 553151700*x^2 + 6218
8*(25*x^2 + 30*x + 9)*log(5*x + 3) + 165647680*x - 25850)/(25*x^2
 + 30*x + 9)
```

Sympy [A] time = 0.311398, size = 63, normalized size = 0.86

$$\frac{486x^{6}}{125}+\frac{17496x^{5}}{3125}-\frac{23571x^{4}}{12500}-\frac{16299x^{3}}{3125}+\frac{189x^{2}}{15625}+\frac{920502x}{390625}-\frac{4268x+2585}{19531250x^{2}+23437500x+7031250}+\frac{15547\log\left(5x+3\right)}{1953125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(2+3*x)**6/(3+5*x)**3,x)
```

```
[Out] 486*x**6/125 + 17496*x**5/3125 - 23571*x**4/12500 - 16299*x**3/31
25 + 189*x**2/15625 + 920502*x/390625 - (4268*x + 2585)/(19531250
*x**2 + 23437500*x + 7031250) + 15547*log(5*x + 3)/1953125
```

GIAC/XCAS [A] time = 0.216858, size = 70, normalized size = 0.96

$$\frac{486}{125}\,x^{6}+\frac{17496}{3125}\,x^{5}-\frac{23571}{12500}\,x^{4}-\frac{16299}{3125}\,x^{3}+\frac{189}{15625}\,x^{2}+\frac{920502}{390625}\,x-\frac{11\,(388\,x+235)}{781250\,(5\,x+3)^{2}}+\frac{15547}{1953125}\,\ln\left(|5\,x+3|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^6*(2*x - 1)^2/(5*x + 3)^3,x, algorithm="giac")
```

```
[Out] 486/125*x^6 + 17496/3125*x^5 - 23571/12500*x^4 - 16299/3125*x^3 +
 189/15625*x^2 + 920502/390625*x - 11/781250*(388*x + 235)/(5*x +
 3)^2 + 15547/1953125*ln(abs(5*x + 3))
```

3.1307 $\int \frac{(1-2x)^2(2+3x)^5}{(3+5x)^3}\,dx$

Optimal. Leaf size=66

$$\frac{972x^5}{625}+\frac{648x^4}{625}-\frac{5499x^3}{3125}-\frac{5301x^2}{6250}+\frac{17796x}{15625}-\frac{1771}{390625(5x+3)}-\frac{121}{781250(5x+3)^2}+\frac{10234\log(5x+3)}{390625}$$

```
[Out] (17796*x)/15625 - (5301*x^2)/6250 - (5499*x^3)/3125 + (648*x^4)/6
25 + (972*x^5)/625 - 121/(781250*(3 + 5*x)^2) - 1771/(390625*(3 +
 5*x)) + (10234*Log[3 + 5*x])/390625
```

Rubi [A] time = 0.0827338, antiderivative size = 66, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{972x^5}{625}+\frac{648x^4}{625}-\frac{5499x^3}{3125}-\frac{5301x^2}{6250}+\frac{17796x}{15625}-\frac{1771}{390625(5x+3)}-\frac{121}{781250(5x+3)^2}+\frac{10234\log(5x+3)}{390625}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^2*(2 + 3*x)^5)/(3 + 5*x)^3,x]
```

```
[Out] (17796*x)/15625 - (5301*x^2)/6250 - (5499*x^3)/3125 + (648*x^4)/6
25 + (972*x^5)/625 - 121/(781250*(3 + 5*x)^2) - 1771/(390625*(3 +
 5*x)) + (10234*Log[3 + 5*x])/390625
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{972x^5}{625}+\frac{648x^4}{625}-\frac{5499x^3}{3125}+\frac{10234\log(5x+3)}{390625}+\int\frac{17796}{15625}\,dx-\frac{5301\int x\,dx}{3125}-\frac{1771}{390625(5x+3)}-\frac{121}{781250(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(2+3*x)**5/(3+5*x)**3,x)
```

```
[Out] 972*x**5/625 + 648*x**4/625 - 5499*x**3/3125 + 10234*log(5*x + 3)
/390625 + Integral(17796/15625, x) - 5301*Integral(x, x)/3125 - 1
771/(390625*(5*x + 3)) - 121/(781250*(5*x + 3)**2)
```

Mathematica [A] time = 0.0557577, size = 63, normalized size = 0.95

$$\frac{151875000x^7+283500000x^6+4331250x^5-252590625x^4-50032500x^3+161774550x^2+109699660x+102340(5x+3)^2\log}{3906250(5x+3)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^2*(2 + 3*x)^5)/(3 + 5*x)^3,x]
```

```
[Out] (20870428 + 109699660*x + 161774550*x^2 - 50032500*x^3 - 25259062
5*x^4 + 4331250*x^5 + 283500000*x^6 + 151875000*x^7 + 102340*(3 +
 5*x)^2*Log[6*(3 + 5*x)])/(3906250*(3 + 5*x)^2)
```

Maple [A] time = 0.011, size = 51, normalized size = 0.8

$$\frac{17796 x}{15625}-\frac{5301 x^{2}}{6250}-\frac{5499 x^{3}}{3125}+\frac{648 x^{4}}{625}+\frac{972 x^{5}}{625}-\frac{121}{781250 \left(3+5 x\right)^{2}}-\frac{1771}{1171875+1953125 x}+\frac{10234 \ln \left(3+5 x\right)}{390625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(2+3*x)^5/(3+5*x)^3,x)
```

```
[Out] 17796/15625*x-5301/6250*x^2-5499/3125*x^3+648/625*x^4+972/625*x^5
-121/781250/(3+5*x)^2-1771/390625/(3+5*x)+10234/390625*ln(3+5*x)
```

Maxima [A] time = 1.32221, size = 69, normalized size = 1.05

$$\frac{972}{625}\, x^{5}+\frac{648}{625}\, x^{4}-\frac{5499}{3125}\, x^{3}-\frac{5301}{6250}\, x^{2}+\frac{17796}{15625}\, x-\frac{11 \left(1610 x+977\right)}{781250 \left(25 x^{2}+30 x+9\right)}+\frac{10234}{390625}\, \log \left(5 x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5*(2*x - 1)^2/(5*x + 3)^3,x, algorithm="maxima")
```

```
[Out] 972/625*x^5 + 648/625*x^4 - 5499/3125*x^3 - 5301/6250*x^2 + 17796
/15625*x - 11/781250*(1610*x + 977)/(25*x^2 + 30*x + 9) + 10234/3
90625*log(5*x + 3)
```

Fricas [A] time = 0.205595, size = 90, normalized size = 1.36

$$\frac{30375000 x^{7}+56700000 x^{6}+866250 x^{5}-50518125 x^{4}-10006500 x^{3}+20730375 x^{2}+20468 \left(25 x^{2}+30 x+9\right) \log \left(5 x+3\right.}{781250 \left(25 x^{2}+30 x+9\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5*(2*x - 1)^2/(5*x + 3)^3,x, algorithm="fricas")
```

```
[Out] 1/781250*(30375000*x^7 + 56700000*x^6 + 866250*x^5 - 50518125*x^4
 - 10006500*x^3 + 20730375*x^2 + 20468*(25*x^2 + 30*x + 9)*log(5*
x + 3) + 7990490*x - 10747)/(25*x^2 + 30*x + 9)
```

Sympy [A] time = 0.309937, size = 56, normalized size = 0.85

$$\frac{972x^{5}}{625}+\frac{648x^{4}}{625}-\frac{5499x^{3}}{3125}-\frac{5301x^{2}}{6250}+\frac{17796x}{15625}-\frac{17710x+10747}{19531250x^{2}+23437500x+7031250}+\frac{10234\log \left(5x+3\right)}{390625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(2+3*x)**5/(3+5*x)**3,x)
```

```
[Out] 972*x**5/625 + 648*x**4/625 - 5499*x**3/3125 - 5301*x**2/6250 + 1
7796*x/15625 - (17710*x + 10747)/(19531250*x**2 + 23437500*x + 70
31250) + 10234*log(5*x + 3)/390625
```

GIAC/XCAS [A] time = 0.206552, size = 63, normalized size = 0.95

$$\frac{972}{625}\, x^{5}+\frac{648}{625}\, x^{4}-\frac{5499}{3125}\, x^{3}-\frac{5301}{6250}\, x^{2}+\frac{17796}{15625}\, x-\frac{11 \left(1610 x+977\right)}{781250 \left(5 x+3\right)^{2}}+\frac{10234}{390625}\, \ln \left(\left|5 x+3\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5*(2*x - 1)^2/(5*x + 3)^3,x, algorithm="giac")
```

```
[Out] 972/625*x^5 + 648/625*x^4 - 5499/3125*x^3 - 5301/6250*x^2 + 17796
/15625*x - 11/781250*(1610*x + 977)/(5*x + 3)^2 + 10234/390625*ln
(abs(5*x + 3))
```

3.1308 $\int \frac{(1-2x)^2(2+3x)^4}{(3+5x)^3}\,dx$

Optimal. Leaf size=59

$$\frac{81x^4}{125}-\frac{72x^3}{625}-\frac{4779x^2}{6250}+\frac{1419x}{3125}-\frac{1408}{78125(5x+3)}-\frac{121}{156250(5x+3)^2}+\frac{1202\log(5x+3)}{15625}$$

```
[Out] (1419*x)/3125 - (4779*x^2)/6250 - (72*x^3)/625 + (81*x^4)/125 - 1
21/(156250*(3 + 5*x)^2) - 1408/(78125*(3 + 5*x)) + (1202*Log[3 +
5*x])/15625
```

Rubi [A] time = 0.0745244, antiderivative size = 59, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$\frac{81x^4}{125}-\frac{72x^3}{625}-\frac{4779x^2}{6250}+\frac{1419x}{3125}-\frac{1408}{78125(5x+3)}-\frac{121}{156250(5x+3)^2}+\frac{1202\log(5x+3)}{15625}$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)^2*(2 + 3*x)^4)/(3 + 5*x)^3,x]
```

```
[Out] (1419*x)/3125 - (4779*x^2)/6250 - (72*x^3)/625 + (81*x^4)/125 - 1
21/(156250*(3 + 5*x)^2) - 1408/(78125*(3 + 5*x)) + (1202*Log[3 +
5*x])/15625
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{81x^4}{125}-\frac{72x^3}{625}+\frac{1202\log(5x+3)}{15625}+\int\frac{1419}{3125}\,dx-\frac{4779\int x\,dx}{3125}-\frac{1408}{78125\,(5x+3)}-\frac{121}{156250\,(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**2*(2+3*x)**4/(3+5*x)**3,x)
```

```
[Out] 81*x**4/125 - 72*x**3/625 + 1202*log(5*x + 3)/15625 + Integral(14
19/3125, x) - 4779*Integral(x, x)/3125 - 1408/(78125*(5*x + 3)) -
 121/(156250*(5*x + 3)**2)
```

Mathematica [A] time = 0.0521019, size = 58, normalized size = 0.98

$$\frac{506250x^6+517500x^5-523125x^4-394500x^3+553500x^2+536320x+2404(5x+3)^2\log(6(5x+3))+121714}{31250(5x+3)^2}$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)^2*(2 + 3*x)^4)/(3 + 5*x)^3,x]
```

```
[Out] (121714 + 536320*x + 553500*x^2 - 394500*x^3 - 523125*x^4 + 51750
0*x^5 + 506250*x^6 + 2404*(3 + 5*x)^2*Log[6*(3 + 5*x)])/(31250*(3
 + 5*x)^2)
```

Maple [A] time = 0.009, size = 46, normalized size = 0.8

$$\frac{1419\,x}{3125}-\frac{4779\,x^2}{6250}-\frac{72\,x^3}{625}+\frac{81\,x^4}{125}-\frac{121}{156250\,(3+5\,x)^2}-\frac{1408}{234375+390625\,x}+\frac{1202\,\ln(3+5\,x)}{15625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(2+3*x)^4/(3+5*x)^3,x)
```

```
[Out] 1419/3125*x-4779/6250*x^2-72/625*x^3+81/125*x^4-121/156250/(3+5*x
)^2-1408/78125/(3+5*x)+1202/15625*ln(3+5*x)
```

Maxima [A] time = 1.34793, size = 62, normalized size = 1.05

$$\frac{81}{125}\,x^4-\frac{72}{625}\,x^3-\frac{4779}{6250}\,x^2+\frac{1419}{3125}\,x-\frac{11\,(1280\,x+779)}{156250\,(25\,x^2+30\,x+9)}+\frac{1202}{15625}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4*(2*x - 1)^2/(5*x + 3)^3,x, algorithm="maxima")
```

```
[Out] 81/125*x^4 - 72/625*x^3 - 4779/6250*x^2 + 1419/3125*x - 11/156250
*(1280*x + 779)/(25*x^2 + 30*x + 9) + 1202/15625*log(5*x + 3)
```

Fricas [A] time = 0.218208, size = 84, normalized size = 1.42

$$\frac{2531250\,x^6+2587500\,x^5-2615625\,x^4-1972500\,x^3+1053225\,x^2+12020\left(25\,x^2+30\,x+9\right)\log\left(5\,x+3\right)+624470\,x-856}{156250\,(25\,x^2+30\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4*(2*x - 1)^2/(5*x + 3)^3,x, algorithm="fricas")
```

```
[Out] 1/156250*(2531250*x^6 + 2587500*x^5 - 2615625*x^4 - 1972500*x^3 +
 1053225*x^2 + 12020*(25*x^2 + 30*x + 9)*log(5*x + 3) + 624470*x
- 8569)/(25*x^2 + 30*x + 9)
```

Sympy [A] time = 0.29909, size = 49, normalized size = 0.83

$$\frac{81x^4}{125}-\frac{72x^3}{625}-\frac{4779x^2}{6250}+\frac{1419x}{3125}-\frac{14080x+8569}{3906250x^2+4687500x+1406250}+\frac{1202\log\left(5x+3\right)}{15625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(2+3*x)**4/(3+5*x)**3,x)
```

```
[Out] 81*x**4/125 - 72*x**3/625 - 4779*x**2/6250 + 1419*x/3125 - (14080
*x + 8569)/(3906250*x**2 + 4687500*x + 1406250) + 1202*log(5*x +
3)/15625
```

GIAC/XCAS [A] time = 0.216228, size = 57, normalized size = 0.97

$$\frac{81}{125}\,x^4-\frac{72}{625}\,x^3-\frac{4779}{6250}\,x^2+\frac{1419}{3125}\,x-\frac{11\,(1280\,x+779)}{156250\,(5\,x+3)^2}+\frac{1202}{15625}\,\ln\left(|5\,x+3|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4*(2*x - 1)^2/(5*x + 3)^3,x, algorithm="giac")
```

```
[Out] 81/125*x^4 - 72/625*x^3 - 4779/6250*x^2 + 1419/3125*x - 11/156250
*(1280*x + 779)/(5*x + 3)^2 + 1202/15625*ln(abs(5*x + 3))
```

3.1309 $\int \frac{(1-2x)^2(2+3x)^3}{(3+5x)^3} dx$

Optimal. Leaf size=52

$$\frac{36x^3}{125} - \frac{216x^2}{625} - \frac{153x}{3125} - \frac{209}{3125(5x+3)} - \frac{121}{31250(5x+3)^2} + \frac{23}{125}\log(5x+3)$$

```
[Out] (-153*x)/3125 - (216*x^2)/625 + (36*x^3)/125 - 121/(31250*(3 + 5*
x)^2) - 209/(3125*(3 + 5*x)) + (23*Log[3 + 5*x])/125
```

Rubi [A] time = 0.067935, antiderivative size = 52, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$\frac{36x^3}{125} - \frac{216x^2}{625} - \frac{153x}{3125} - \frac{209}{3125(5x+3)} - \frac{121}{31250(5x+3)^2} + \frac{23}{125}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^2*(2 + 3*x)^3)/(3 + 5*x)^3,x]
```

```
[Out] (-153*x)/3125 - (216*x^2)/625 + (36*x^3)/125 - 121/(31250*(3 + 5*
x)^2) - 209/(3125*(3 + 5*x)) + (23*Log[3 + 5*x])/125
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{36x^3}{125} + \frac{23\log(5x+3)}{125} + \int \left(-\frac{153}{3125}\right) dx - \frac{432\int x\,dx}{625} - \frac{209}{3125(5x+3)} - \frac{121}{31250(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(2+3*x)**3/(3+5*x)**3,x)
```

```
[Out] 36*x**3/125 + 23*log(5*x + 3)/125 + Integral(-153/3125, x) - 432*
Integral(x, x)/625 - 209/(3125*(5*x + 3)) - 121/(31250*(5*x + 3)*
*2)
```

Mathematica [A] time = 0.0515377, size = 48, normalized size = 0.92

$$\frac{45000x^5 - 56250x^3 - 4050x^2 + 24640x + 1150(5x+3)^2\log(6(5x+3)) + 7567}{6250(5x+3)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^2*(2 + 3*x)^3)/(3 + 5*x)^3,x]
```

```
[Out] (7567 + 24640*x - 4050*x^2 - 56250*x^3 + 45000*x^5 + 1150*(3 + 5*
x)^2*Log[6*(3 + 5*x)])/(6250*(3 + 5*x)^2)
```

Maple [A] time = 0.01, size = 41, normalized size = 0.8

$$-\frac{153\,x}{3125} - \frac{216\,x^2}{625} + \frac{36\,x^3}{125} - \frac{121}{31250\,(3+5\,x)^2} - \frac{209}{9375+15625\,x} + \frac{23\,\ln(3+5\,x)}{125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(2+3*x)^3/(3+5*x)^3,x)
```

```
[Out] -153/3125*x-216/625*x^2+36/125*x^3-121/31250/(3+5*x)^2-209/3125/(
3+5*x)+23/125*ln(3+5*x)
```

Maxima [A] time = 1.33153, size = 55, normalized size = 1.06

$$\frac{36}{125}\,x^3-\frac{216}{625}\,x^2-\frac{153}{3125}\,x-\frac{11\,(950\,x+581)}{31250\,(25\,x^2+30\,x+9)}+\frac{23}{125}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*(2*x - 1)^2/(5*x + 3)^3,x, algorithm="maxima")
```

```
[Out] 36/125*x^3 - 216/625*x^2 - 153/3125*x - 11/31250*(950*x + 581)/(2
5*x^2 + 30*x + 9) + 23/125*log(5*x + 3)
```

Fricas [A] time = 0.217841, size = 70, normalized size = 1.35

$$\frac{225000\,x^5-281250\,x^3-143100\,x^2+5750\,\left(25\,x^2+30\,x+9\right)\,\log\left(5\,x+3\right)-24220\,x-6391}{31250\,(25\,x^2+30\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*(2*x - 1)^2/(5*x + 3)^3,x, algorithm="fricas")
```

```
[Out] 1/31250*(225000*x^5 - 281250*x^3 - 143100*x^2 + 5750*(25*x^2 + 30
*x + 9)*log(5*x + 3) - 24220*x - 6391)/(25*x^2 + 30*x + 9)
```

Sympy [A] time = 0.276127, size = 42, normalized size = 0.81

$$\frac{36x^3}{125}-\frac{216x^2}{625}-\frac{153x}{3125}-\frac{10450x+6391}{781250x^2+937500x+281250}+\frac{23\log\left(5x+3\right)}{125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(2+3*x)**3/(3+5*x)**3,x)
```

```
[Out] 36*x**3/125 - 216*x**2/625 - 153*x/3125 - (10450*x + 6391)/(78125
0*x**2 + 937500*x + 281250) + 23*log(5*x + 3)/125
```

GIAC/XCAS [A] time = 0.212945, size = 50, normalized size = 0.96

$$\frac{36}{125}\,x^3-\frac{216}{625}\,x^2-\frac{153}{3125}\,x-\frac{11\,(950\,x+581)}{31250\,(5\,x+3)^2}+\frac{23}{125}\,\ln\left(|5\,x+3|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*(2*x - 1)^2/(5*x + 3)^3,x, algorithm="giac")
```

```
[Out] 36/125*x^3 - 216/625*x^2 - 153/3125*x - 11/31250*(950*x + 581)/(5
*x + 3)^2 + 23/125*ln(abs(5*x + 3))
```

3.1310 $\int \frac{(1-2x)^2(2+3x)^2}{(3+5x)^3} dx$

Optimal. Leaf size=45

$$\frac{18x^2}{125} - \frac{264x}{625} - \frac{682}{3125(5x+3)} - \frac{121}{6250(5x+3)^2} + \frac{829\log(5x+3)}{3125}$$

```
[Out] (-264*x)/625 + (18*x^2)/125 - 121/(6250*(3 + 5*x)^2) - 682/(3125*
(3 + 5*x)) + (829*Log[3 + 5*x])/3125
```

Rubi [A] time = 0.0595818, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$\frac{18x^2}{125} - \frac{264x}{625} - \frac{682}{3125(5x+3)} - \frac{121}{6250(5x+3)^2} + \frac{829\log(5x+3)}{3125}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^2*(2 + 3*x)^2)/(3 + 5*x)^3,x]
```

```
[Out] (-264*x)/625 + (18*x^2)/125 - 121/(6250*(3 + 5*x)^2) - 682/(3125*
(3 + 5*x)) + (829*Log[3 + 5*x])/3125
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{829\log(5x+3)}{3125} + \int \left(-\frac{264}{625}\right) dx + \frac{36\int x\,dx}{125} - \frac{682}{3125(5x+3)} - \frac{121}{6250(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(2+3*x)**2/(3+5*x)**3,x)
```

```
[Out] 829*log(5*x + 3)/3125 + Integral(-264/625, x) + 36*Integral(x, x)
/125 - 682/(3125*(5*x + 3)) - 121/(6250*(5*x + 3)**2)
```

Mathematica [A] time = 0.0261237, size = 42, normalized size = 0.93

$$\frac{\frac{5(4500x^4-7800x^3-23760x^2-17564x-4277)}{(5x+3)^2} + 1658\log(5x+3)}{6250}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^2*(2 + 3*x)^2)/(3 + 5*x)^3,x]
```

```
[Out] ((5*(-4277 - 17564*x - 23760*x^2 - 7800*x^3 + 4500*x^4))/(3 + 5*x
)^2 + 1658*Log[3 + 5*x])/6250
```

Maple [A] time = 0.01, size = 36, normalized size = 0.8

$$-\frac{264\,x}{625} + \frac{18\,x^2}{125} - \frac{121}{6250\,(3+5\,x)^2} - \frac{682}{9375+15625\,x} + \frac{829\,\ln(3+5\,x)}{3125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(2+3*x)^2/(3+5*x)^3,x)
```

```
[Out] -264/625*x+18/125*x^2-121/6250/(3+5*x)^2-682/3125/(3+5*x)+829/312
5*ln(3+5*x)
```

Maxima [A] time = 1.34631, size = 49, normalized size = 1.09

$$\frac{18}{125}x^2 - \frac{264}{625}x - \frac{11\,(620\,x + 383)}{6250\,(25\,x^2 + 30\,x + 9)} + \frac{829}{3125}\log\left(5\,x + 3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*(2*x - 1)^2/(5*x + 3)^3,x, algorithm="maxima")
```

```
[Out] 18/125*x^2 - 264/625*x - 11/6250*(620*x + 383)/(25*x^2 + 30*x + 9
) + 829/3125*log(5*x + 3)
```

Fricas [A] time = 0.203854, size = 70, normalized size = 1.56

$$\frac{22500\,x^4 - 39000\,x^3 - 71100\,x^2 + 1658\left(25\,x^2 + 30\,x + 9\right)\log\left(5\,x + 3\right) - 30580\,x - 4213}{6250\,(25\,x^2 + 30\,x + 9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*(2*x - 1)^2/(5*x + 3)^3,x, algorithm="fricas")
```

```
[Out] 1/6250*(22500*x^4 - 39000*x^3 - 71100*x^2 + 1658*(25*x^2 + 30*x +
 9)*log(5*x + 3) - 30580*x - 4213)/(25*x^2 + 30*x + 9)
```

Sympy [A] time = 0.281039, size = 36, normalized size = 0.8

$$\frac{18x^2}{125} - \frac{264x}{625} - \frac{6820x + 4213}{156250x^2 + 187500x + 56250} + \frac{829\log\left(5x + 3\right)}{3125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(2+3*x)**2/(3+5*x)**3,x)
```

```
[Out] 18*x**2/125 - 264*x/625 - (6820*x + 4213)/(156250*x**2 + 187500*x
 + 56250) + 829*log(5*x + 3)/3125
```

GIAC/XCAS [A] time = 0.216305, size = 43, normalized size = 0.96

$$\frac{18}{125}x^2 - \frac{264}{625}x - \frac{11\,(620\,x + 383)}{6250\,(5\,x + 3)^2} + \frac{829}{3125}\ln\left(|5\,x + 3|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*(2*x - 1)^2/(5*x + 3)^3,x, algorithm="giac")
```

```
[Out] 18/125*x^2 - 264/625*x - 11/6250*(620*x + 383)/(5*x + 3)^2 + 829/
3125*ln(abs(5*x + 3))
```

3.1311 $\int \frac{(1-2x)^2(2+3x)}{(3+5x)^3}\,dx$

Optimal. Leaf size=38

$$\frac{12x}{125}-\frac{319}{625(5x+3)}-\frac{121}{1250(5x+3)^2}-\frac{128}{625}\log(5x+3)$$

```
[Out] (12*x)/125 - 121/(1250*(3 + 5*x)^2) - 319/(625*(3 + 5*x)) - (128*
Log[3 + 5*x])/625
```

Rubi [A] time = 0.0466938, antiderivative size = 38, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{12x}{125}-\frac{319}{625(5x+3)}-\frac{121}{1250(5x+3)^2}-\frac{128}{625}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^2*(2 + 3*x))/(3 + 5*x)^3,x]
```

```
[Out] (12*x)/125 - 121/(1250*(3 + 5*x)^2) - 319/(625*(3 + 5*x)) - (128*
Log[3 + 5*x])/625
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{128\log(5x+3)}{625}+\int\frac{12}{125}\,dx-\frac{319}{625(5x+3)}-\frac{121}{1250(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2*(2+3*x)/(3+5*x)**3,x)
```

```
[Out] -128*log(5*x + 3)/625 + Integral(12/125, x) - 319/(625*(5*x + 3))
 - 121/(1250*(5*x + 3)**2)
```

Mathematica [A] time = 0.0267467, size = 37, normalized size = 0.97

$$\frac{\frac{5(600x^3+420x^2-782x-515)}{(5x+3)^2}-256\log(10x+6)}{1250}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^2*(2 + 3*x))/(3 + 5*x)^3,x]
```

```
[Out] ((5*(-515 - 782*x + 420*x^2 + 600*x^3))/(3 + 5*x)^2 - 256*Log[6 +
 10*x])/1250
```

Maple [A] time = 0.009, size = 31, normalized size = 0.8

$$\frac{12x}{125}-\frac{121}{1250(3+5x)^2}-\frac{319}{1875+3125x}-\frac{128\ln(3+5x)}{625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2*(2+3*x)/(3+5*x)^3,x)

[Out] 12/125*x-121/1250/(3+5*x)^2-319/625/(3+5*x)-128/625*ln(3+5*x)
```

Maxima [A] time = 1.35592, size = 42, normalized size = 1.11

$$\frac{12}{125}\,x-\frac{11\,(58\,x+37)}{250\,(25\,x^2+30\,x+9)}-\frac{128}{625}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)*(2*x - 1)^2/(5*x + 3)^3,x, algorithm="maxima")

[Out] 12/125*x - 11/250*(58*x + 37)/(25*x^2 + 30*x + 9) - 128/625*log(5
*x + 3)
```

Fricas [A] time = 0.207649, size = 63, normalized size = 1.66

$$\frac{3000\,x^3+3600\,x^2-256\,\left(25\,x^2+30\,x+9\right)\,\log\left(5\,x+3\right)-2110\,x-2035}{1250\,(25\,x^2+30\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)*(2*x - 1)^2/(5*x + 3)^3,x, algorithm="fricas")

[Out] 1/1250*(3000*x^3 + 3600*x^2 - 256*(25*x^2 + 30*x + 9)*log(5*x + 3
) - 2110*x - 2035)/(25*x^2 + 30*x + 9)
```

Sympy [A] time = 0.265727, size = 29, normalized size = 0.76

$$\frac{12x}{125}-\frac{638x+407}{6250x^2+7500x+2250}-\frac{128\log\left(5x+3\right)}{625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2*(2+3*x)/(3+5*x)**3,x)

[Out] 12*x/125 - (638*x + 407)/(6250*x**2 + 7500*x + 2250) - 128*log(5*
x + 3)/625
```

GIAC/XCAS [A] time = 0.205795, size = 36, normalized size = 0.95

$$\frac{12}{125}\,x-\frac{11\,(58\,x+37)}{250\,(5\,x+3)^2}-\frac{128}{625}\,\ln\left(|5\,x+3|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)*(2*x - 1)^2/(5*x + 3)^3,x, algorithm="giac")

[Out] 12/125*x - 11/250*(58*x + 37)/(5*x + 3)^2 - 128/625*ln(abs(5*x +
3))
```

3.1312 $\int \frac{(1-2x)^2}{(3+5x)^3} dx$

Optimal. Leaf size=33

$$\frac{44}{125(5x+3)} - \frac{121}{250(5x+3)^2} + \frac{4}{125}\log(5x+3)$$

```
[Out] -121/(250*(3 + 5*x)^2) + 44/(125*(3 + 5*x)) + (4*Log[3 + 5*x])/12
5
```

Rubi [A] time = 0.0298787, antiderivative size = 33, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}} = 0.067$

$$\frac{44}{125(5x+3)} - \frac{121}{250(5x+3)^2} + \frac{4}{125}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^2/(3 + 5*x)^3,x]
```

```
[Out] -121/(250*(3 + 5*x)^2) + 44/(125*(3 + 5*x)) + (4*Log[3 + 5*x])/12
5
```

Rubi in Sympy [A] time = 5.34847, size = 26, normalized size = 0.79

$$\frac{4\log(5x+3)}{125} + \frac{44}{125(5x+3)} - \frac{121}{250(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**2/(3+5*x)**3,x)
```

```
[Out] 4*log(5*x + 3)/125 + 44/(125*(5*x + 3)) - 121/(250*(5*x + 3)**2)
```

Mathematica [A] time = 0.017457, size = 31, normalized size = 0.94

$$\frac{440x + 8(5x+3)^2\log(10x+6) + 143}{250(5x+3)^2}$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)^2/(3 + 5*x)^3,x]
```

```
[Out] (143 + 440*x + 8*(3 + 5*x)^2*Log[6 + 10*x])/(250*(3 + 5*x)^2)
```

Maple [A] time = 0.008, size = 28, normalized size = 0.9

$$-\frac{121}{250\,(3+5\,x)^2} + \frac{44}{375+625\,x} + \frac{4\,\ln(3+5\,x)}{125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((1-2*x)^2/(3+5*x)^3,x)
```

```
[Out] -121/250/(3+5*x)^2+44/125/(3+5*x)+4/125*ln(3+5*x)
```

Maxima [A] time = 1.32894, size = 38, normalized size = 1.15

$$\frac{11\,(40\,x+13)}{250\,(25\,x^2+30\,x+9)}+\frac{4}{125}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/(5*x + 3)^3,x, algorithm="maxima")
```

```
[Out] 11/250*(40*x + 13)/(25*x^2 + 30*x + 9) + 4/125*log(5*x + 3)
```

Fricas [A] time = 0.212307, size = 50, normalized size = 1.52

$$\frac{8\left(25\,x^2+30\,x+9\right)\log\left(5\,x+3\right)+440\,x+143}{250\,(25\,x^2+30\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/(5*x + 3)^3,x, algorithm="fricas")
```

```
[Out] 1/250*(8*(25*x^2 + 30*x + 9)*log(5*x + 3) + 440*x + 143)/(25*x^2
+ 30*x + 9)
```

Sympy [A] time = 0.247232, size = 24, normalized size = 0.73

$$\frac{440x+143}{6250x^2+7500x+2250}+\frac{4\log\left(5x+3\right)}{125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2/(3+5*x)**3,x)
```

```
[Out] (440*x + 143)/(6250*x**2 + 7500*x + 2250) + 4*log(5*x + 3)/125
```

GIAC/XCAS [A] time = 0.205767, size = 32, normalized size = 0.97

$$\frac{11\,(40\,x+13)}{250\,(5\,x+3)^2}+\frac{4}{125}\,\ln\left(|5\,x+3|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/(5*x + 3)^3,x, algorithm="giac")
```

```
[Out] 11/250*(40*x + 13)/(5*x + 3)^2 + 4/125*ln(abs(5*x + 3))
```

3.1313 $\int \frac{(1-2x)^2}{(2+3x)(3+5x)^3} \, dx$

Optimal. Leaf size=39

$$\frac{407}{25(5x+3)} - \frac{121}{50(5x+3)^2} - 49\log(3x+2) + 49\log(5x+3)$$

```
[Out] -121/(50*(3 + 5*x)^2) + 407/(25*(3 + 5*x)) - 49*Log[2 + 3*x] + 49
*Log[3 + 5*x]
```

Rubi [A] time = 0.0497769, antiderivative size = 39, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$\frac{407}{25(5x+3)} - \frac{121}{50(5x+3)^2} - 49\log(3x+2) + 49\log(5x+3)$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^2/((2 + 3*x)*(3 + 5*x)^3),x]
```

```
[Out] -121/(50*(3 + 5*x)^2) + 407/(25*(3 + 5*x)) - 49*Log[2 + 3*x] + 49
*Log[3 + 5*x]
```

Rubi in Sympy [A] time = 7.33747, size = 32, normalized size = 0.82

$$-49\log(3x+2) + 49\log(5x+3) + \frac{407}{25(5x+3)} - \frac{121}{50(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**2/(2+3*x)/(3+5*x)**3,x)
```

```
[Out] -49*log(3*x + 2) + 49*log(5*x + 3) + 407/(25*(5*x + 3)) - 121/(50
*(5*x + 3)**2)
```

Mathematica [A] time = 0.0316882, size = 48, normalized size = 1.23

$$\frac{4070x - 2450(5x+3)^2\log(3x+2) + 2450(5x+3)^2\log(-3(5x+3)) + 2321}{50(5x+3)^2}$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)^2/((2 + 3*x)*(3 + 5*x)^3),x]
```

```
[Out] (2321 + 4070*x - 2450*(3 + 5*x)^2*Log[2 + 3*x] + 2450*(3 + 5*x)^2
*Log[-3*(3 + 5*x)])/(50*(3 + 5*x)^2)
```

Maple [A] time = 0.013, size = 36, normalized size = 0.9

$$-\frac{121}{50(3+5x)^2} + \frac{407}{75+125x} - 49\ln(2+3x) + 49\ln(3+5x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2/(2+3*x)/(3+5*x)^3,x)
```

```
[Out] -121/50/(3+5*x)^2+407/25/(3+5*x)-49*ln(2+3*x)+49*ln(3+5*x)
```

Maxima [A] time = 1.33957, size = 49, normalized size = 1.26

$$\frac{11\,(370\,x+211)}{50\,(25\,x^2+30\,x+9)}+49\,\log(5\,x+3)-49\,\log(3\,x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)^3*(3*x + 2)),x, algorithm="maxima")
```

```
[Out] 11/50*(370*x + 211)/(25*x^2 + 30*x + 9) + 49*log(5*x + 3) - 49*lo
g(3*x + 2)
```

Fricas [A] time = 0.213683, size = 74, normalized size = 1.9

$$\frac{2450\left(25\,x^2+30\,x+9\right)\log(5\,x+3)-2450\left(25\,x^2+30\,x+9\right)\log(3\,x+2)+4070\,x+2321}{50\,(25\,x^2+30\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)^3*(3*x + 2)),x, algorithm="fricas")
```

```
[Out] 1/50*(2450*(25*x^2 + 30*x + 9)*log(5*x + 3) - 2450*(25*x^2 + 30*x
 + 9)*log(3*x + 2) + 4070*x + 2321)/(25*x^2 + 30*x + 9)
```

Sympy [A] time = 0.360707, size = 31, normalized size = 0.79

$$\frac{4070x+2321}{1250x^2+1500x+450}+49\log\left(x+\frac{3}{5}\right)-49\log\left(x+\frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2/(2+3*x)/(3+5*x)**3,x)
```

```
[Out] (4070*x + 2321)/(1250*x**2 + 1500*x + 450) + 49*log(x + 3/5) - 49
*log(x + 2/3)
```

GIAC/XCAS [A] time = 0.208774, size = 45, normalized size = 1.15

$$\frac{11\,(370\,x+211)}{50\,(5\,x+3)^2}+49\ln(|5\,x+3|)-49\ln(|3\,x+2|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)^3*(3*x + 2)),x, algorithm="giac")
```

```
[Out] 11/50*(370*x + 211)/(5*x + 3)^2 + 49*ln(abs(5*x + 3)) - 49*ln(abs
(3*x + 2))
```

3.1314 $\int \frac{(1-2x)^2}{(2+3x)^2(3+5x)^3}\,dx$

Optimal. Leaf size=46

$$\frac{49}{3x+2}+\frac{154}{5x+3}-\frac{121}{10(5x+3)^2}-707\log(3x+2)+707\log(5x+3)$$

```
[Out] 49/(2 + 3*x) - 121/(10*(3 + 5*x)^2) + 154/(3 + 5*x) - 707*Log[2 +
 3*x] + 707*Log[3 + 5*x]
```

Rubi [A] time = 0.0593245, antiderivative size = 46, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{49}{3x+2}+\frac{154}{5x+3}-\frac{121}{10(5x+3)^2}-707\log(3x+2)+707\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^2/((2 + 3*x)^2*(3 + 5*x)^3),x]
```

```
[Out] 49/(2 + 3*x) - 121/(10*(3 + 5*x)^2) + 154/(3 + 5*x) - 707*Log[2 +
 3*x] + 707*Log[3 + 5*x]
```

Rubi in Sympy [A] time = 8.43101, size = 39, normalized size = 0.85

$$-707\log(3x+2)+707\log(5x+3)+\frac{154}{5x+3}-\frac{121}{10(5x+3)^2}+\frac{49}{3x+2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2/(2+3*x)**2/(3+5*x)**3,x)
```

```
[Out] -707*log(3*x + 2) + 707*log(5*x + 3) + 154/(5*x + 3) - 121/(10*(5
*x + 3)**2) + 49/(3*x + 2)
```

Mathematica [A] time = 0.0428313, size = 48, normalized size = 1.04

$$\frac{49}{3x+2}+\frac{154}{5x+3}-\frac{121}{10(5x+3)^2}-707\log(5(3x+2))+707\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^2/((2 + 3*x)^2*(3 + 5*x)^3),x]
```

```
[Out] 49/(2 + 3*x) - 121/(10*(3 + 5*x)^2) + 154/(3 + 5*x) - 707*Log[5*(
2 + 3*x)] + 707*Log[3 + 5*x]
```

Maple [A] time = 0.014, size = 45, normalized size = 1.

$$49\,(2+3\,x)^{-1}-\frac{121}{10\,(3+5\,x)^2}+154\,(3+5\,x)^{-1}-707\,\ln(2+3\,x)+707\,\ln(3+5\,x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2/(2+3*x)^2/(3+5*x)^3,x)
```

```
[Out] 49/(2+3*x)-121/10/(3+5*x)^2+154/(3+5*x)-707*ln(2+3*x)+707*ln(3+5*
x)
```

Maxima [A] time = 1.33123, size = 62, normalized size = 1.35

$$\frac{35350\,x^2+43597\,x+13408}{10\,(75\,x^3+140\,x^2+87\,x+18)}+707\,\log\left(5\,x+3\right)-707\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2*x - 1)^2/((5*x + 3)^3*(3*x + 2)^2),x, algorithm="maxima")
```

```
[Out] 1/10*(35350*x^2 + 43597*x + 13408)/(75*x^3 + 140*x^2 + 87*x + 18)
 + 707*log(5*x + 3) - 707*log(3*x + 2)
```

Fricas [A] time = 0.210618, size = 101, normalized size = 2.2

$$\frac{35350\,x^2+7070\,\left(75\,x^3+140\,x^2+87\,x+18\right)\log\left(5\,x+3\right)-7070\,\left(75\,x^3+140\,x^2+87\,x+18\right)\log\left(3\,x+2\right)+43597\,x+13408}{10\,(75\,x^3+140\,x^2+87\,x+18)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2*x - 1)^2/((5*x + 3)^3*(3*x + 2)^2),x, algorithm="fricas")
```

```
[Out] 1/10*(35350*x^2 + 7070*(75*x^3 + 140*x^2 + 87*x + 18)*log(5*x + 3
) - 7070*(75*x^3 + 140*x^2 + 87*x + 18)*log(3*x + 2) + 43597*x +
13408)/(75*x^3 + 140*x^2 + 87*x + 18)
```

Sympy [A] time = 0.384152, size = 41, normalized size = 0.89

$$\frac{35350x^2+43597x+13408}{750x^3+1400x^2+870x+180}+707\log\left(x+\frac{3}{5}\right)-707\log\left(x+\frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2/(2+3*x)**2/(3+5*x)**3,x)
```

```
[Out] (35350*x**2 + 43597*x + 13408)/(750*x**3 + 1400*x**2 + 870*x + 18
0) + 707*log(x + 3/5) - 707*log(x + 2/3)
```

GIAC/XCAS [A] time = 0.212975, size = 66, normalized size = 1.43

$$\frac{49}{3\,x+2}-\frac{33\,\left(\frac{206}{3\,x+2}-865\right)}{2\,\left(\frac{1}{3\,x+2}-5\right)^2}+707\,\ln\left(\left|-\frac{1}{3\,x+2}+5\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2*x - 1)^2/((5*x + 3)^3*(3*x + 2)^2),x, algorithm="giac")
```

```
[Out] 49/(3*x + 2) - 33/2*(206/(3*x + 2) - 865)/(1/(3*x + 2) - 5)^2 + 7
07*ln(abs(-1/(3*x + 2) + 5))
```

3.1315 $\int \frac{(1-2x)^2}{(2+3x)^3(3+5x)^3} dx$

Optimal. Leaf size=57

$$\frac{707}{3x+2}+\frac{1133}{5x+3}+\frac{49}{2(3x+2)^2}-\frac{121}{2(5x+3)^2}-6934\log(3x+2)+6934\log(5x+3)$$

```
[Out] 49/(2*(2 + 3*x)^2) + 707/(2 + 3*x) - 121/(2*(3 + 5*x)^2) + 1133/(
3 + 5*x) - 6934*Log[2 + 3*x] + 6934*Log[3 + 5*x]
```

Rubi [A] time = 0.0698209, antiderivative size = 57, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{707}{3x+2}+\frac{1133}{5x+3}+\frac{49}{2(3x+2)^2}-\frac{121}{2(5x+3)^2}-6934\log(3x+2)+6934\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^2/((2 + 3*x)^3*(3 + 5*x)^3),x]
```

```
[Out] 49/(2*(2 + 3*x)^2) + 707/(2 + 3*x) - 121/(2*(3 + 5*x)^2) + 1133/(
3 + 5*x) - 6934*Log[2 + 3*x] + 6934*Log[3 + 5*x]
```

Rubi in Sympy [A] time = 9.69918, size = 49, normalized size = 0.86

$$-6934\log(3x+2)+6934\log(5x+3)+\frac{1133}{5x+3}-\frac{121}{2(5x+3)^2}+\frac{707}{3x+2}+\frac{49}{2(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2/(2+3*x)**3/(3+5*x)**3,x)
```

```
[Out] -6934*log(3*x + 2) + 6934*log(5*x + 3) + 1133/(5*x + 3) - 121/(2*
(5*x + 3)**2) + 707/(3*x + 2) + 49/(2*(3*x + 2)**2)
```

Mathematica [A] time = 0.0440476, size = 59, normalized size = 1.04

$$\frac{707}{3x+2}+\frac{1133}{5x+3}+\frac{49}{2(3x+2)^2}-\frac{121}{2(5x+3)^2}-6934\log(5(3x+2))+6934\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^2/((2 + 3*x)^3*(3 + 5*x)^3),x]
```

```
[Out] 49/(2*(2 + 3*x)^2) + 707/(2 + 3*x) - 121/(2*(3 + 5*x)^2) + 1133/(
3 + 5*x) - 6934*Log[5*(2 + 3*x)] + 6934*Log[3 + 5*x]
```

Maple [A] time = 0.014, size = 54, normalized size = 1.

$$\frac{49}{2(2+3x)^2}+707(2+3x)^{-1}-\frac{121}{2(3+5x)^2}+1133(3+5x)^{-1}-6934\ln(2+3x)+6934\ln(3+5x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2/(2+3*x)^3/(3+5*x)^3,x)
```

```
[Out] 49/2/(2+3*x)^2+707/(2+3*x)-121/2/(3+5*x)^2+1133/(3+5*x)-6934*ln(2
+3*x)+6934*ln(3+5*x)
```

Maxima [A] time = 1.32555, size = 76, normalized size = 1.33

$$\frac{208020\,x^{3} + 395238\,x^{2} + 249932\,x + 52601}{2\,(225\,x^{4} + 570\,x^{3} + 541\,x^{2} + 228\,x + 36)} + 6934\,\log\left(5\,x + 3\right) - 6934\,\log\left(3\,x + 2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)^3*(3*x + 2)^3),x, algorithm="maxima")
```

```
[Out] 1/2*(208020*x^3 + 395238*x^2 + 249932*x + 52601)/(225*x^4 + 570*x
^3 + 541*x^2 + 228*x + 36) + 6934*log(5*x + 3) - 6934*log(3*x + 2
)
```

Fricas [A] time = 0.215693, size = 128, normalized size = 2.25

$$\frac{208020\,x^{3} + 395238\,x^{2} + 13868\,\left(225\,x^{4} + 570\,x^{3} + 541\,x^{2} + 228\,x + 36\right)\log\left(5\,x + 3\right) - 13868\,\left(225\,x^{4} + 570\,x^{3} + 541\,x^{2} + 228\right.}{2\,(225\,x^{4} + 570\,x^{3} + 541\,x^{2} + 228\,x + 36)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)^3*(3*x + 2)^3),x, algorithm="fricas")
```

```
[Out] 1/2*(208020*x^3 + 395238*x^2 + 13868*(225*x^4 + 570*x^3 + 541*x^2
 + 228*x + 36)*log(5*x + 3) - 13868*(225*x^4 + 570*x^3 + 541*x^2
+ 228*x + 36)*log(3*x + 2) + 249932*x + 52601)/(225*x^4 + 570*x^3
 + 541*x^2 + 228*x + 36)
```

Sympy [A] time = 0.437243, size = 51, normalized size = 0.89

$$\frac{208020x^{3} + 395238x^{2} + 249932x + 52601}{450x^{4} + 1140x^{3} + 1082x^{2} + 456x + 72} + 6934\log\left(x + \frac{3}{5}\right) - 6934\log\left(x + \frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2/(2+3*x)**3/(3+5*x)**3,x)
```

```
[Out] (208020*x**3 + 395238*x**2 + 249932*x + 52601)/(450*x**4 + 1140*x
**3 + 1082*x**2 + 456*x + 72) + 6934*log(x + 3/5) - 6934*log(x +
2/3)
```

GIAC/XCAS [A] time = 0.208783, size = 65, normalized size = 1.14

$$\frac{208020\,x^{3} + 395238\,x^{2} + 249932\,x + 52601}{2\,(15\,x^{2} + 19\,x + 6)^{2}} + 6934\ln\left(|5\,x + 3|\right) - 6934\ln\left(|3\,x + 2|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)^3*(3*x + 2)^3),x, algorithm="giac")
```

```
[Out] 1/2*(208020*x^3 + 395238*x^2 + 249932*x + 52601)/(15*x^2 + 19*x +
 6)^2 + 6934*ln(abs(5*x + 3)) - 6934*ln(abs(3*x + 2))
```

3.1316 $\int \frac{(1-2x)^2}{(2+3x)^4(3+5x)^3}\,dx$

Optimal. Leaf size=68

$$\frac{6934}{3x+2}+\frac{7480}{5x+3}+\frac{707}{2(3x+2)^2}-\frac{605}{2(5x+3)^2}+\frac{49}{3(3x+2)^3}-57110\log(3x+2)+57110\log(5x+3)$$

```
[Out] 49/(3*(2 + 3*x)^3) + 707/(2*(2 + 3*x)^2) + 6934/(2 + 3*x) - 605/(
2*(3 + 5*x)^2) + 7480/(3 + 5*x) - 57110*Log[2 + 3*x] + 57110*Log[
3 + 5*x]
```

Rubi [A] time = 0.0839258, antiderivative size = 68, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{6934}{3x+2}+\frac{7480}{5x+3}+\frac{707}{2(3x+2)^2}-\frac{605}{2(5x+3)^2}+\frac{49}{3(3x+2)^3}-57110\log(3x+2)+57110\log(5x+3)$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^2/((2 + 3*x)^4*(3 + 5*x)^3),x]
```

```
[Out] 49/(3*(2 + 3*x)^3) + 707/(2*(2 + 3*x)^2) + 6934/(2 + 3*x) - 605/(
2*(3 + 5*x)^2) + 7480/(3 + 5*x) - 57110*Log[2 + 3*x] + 57110*Log[
3 + 5*x]
```

Rubi in Sympy [A] time = 10.8955, size = 60, normalized size = 0.88

$$-57110\log(3x+2)+57110\log(5x+3)+\frac{7480}{5x+3}-\frac{605}{2(5x+3)^2}+\frac{6934}{3x+2}+\frac{707}{2(3x+2)^2}+\frac{49}{3(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**2/(2+3*x)**4/(3+5*x)**3,x)
```

```
[Out] -57110*log(3*x + 2) + 57110*log(5*x + 3) + 7480/(5*x + 3) - 605/(
2*(5*x + 3)**2) + 6934/(3*x + 2) + 707/(2*(3*x + 2)**2) + 49/(3*(
3*x + 2)**3)
```

Mathematica [A] time = 0.0783331, size = 70, normalized size = 1.03

$$\frac{6934}{3x+2}+\frac{7480}{5x+3}+\frac{707}{2(3x+2)^2}-\frac{605}{2(5x+3)^2}+\frac{49}{3(3x+2)^3}-57110\log(5(3x+2))+57110\log(5x+3)$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)^2/((2 + 3*x)^4*(3 + 5*x)^3),x]
```

```
[Out] 49/(3*(2 + 3*x)^3) + 707/(2*(2 + 3*x)^2) + 6934/(2 + 3*x) - 605/(
2*(3 + 5*x)^2) + 7480/(3 + 5*x) - 57110*Log[5*(2 + 3*x)] + 57110*
Log[3 + 5*x]
```

Maple [A] time = 0.014, size = 63, normalized size = 0.9

$$\frac{49}{3\,(2+3\,x)^3}+\frac{707}{2\,(2+3\,x)^2}+6934\,(2+3\,x)^{-1}-\frac{605}{2\,(3+5\,x)^2}+7480\,(3+5\,x)^{-1}-57110\,\ln(2+3\,x)+57110\,\ln(3+5\,x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2/(2+3*x)^4/(3+5*x)^3,x)
```

```
[Out] 49/3/(2+3*x)^3+707/2/(2+3*x)^2+6934/(2+3*x)-605/2/(3+5*x)^2+7480/
(3+5*x)-57110*ln(2+3*x)+57110*ln(3+5*x)
```

Maxima [A] time = 1.32786, size = 89, normalized size = 1.31

$$\frac{15419700\,x^4 + 39577230\,x^3 + 38058104\,x^2 + 16250079\,x + 2599404}{6\,(675\,x^5 + 2160\,x^4 + 2763\,x^3 + 1766\,x^2 + 564\,x + 72)} + 57110\,\log(5\,x+3) - 57110\,\log(3\,x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)^3*(3*x + 2)^4),x, algorithm="maxima")
```

```
[Out] 1/6*(15419700*x^4 + 39577230*x^3 + 38058104*x^2 + 16250079*x + 25
99404)/(675*x^5 + 2160*x^4 + 2763*x^3 + 1766*x^2 + 564*x + 72) +
57110*log(5*x + 3) - 57110*log(3*x + 2)
```

Fricas [A] time = 0.217762, size = 155, normalized size = 2.28

$$\frac{15419700\,x^4 + 39577230\,x^3 + 38058104\,x^2 + 342660\,(675\,x^5 + 2160\,x^4 + 2763\,x^3 + 1766\,x^2 + 564\,x + 72)\,\log(5\,x + 3) - 342\cdots}{6\,(675\,x^5 + 2160\,x^4 + 2763\,x^3 + 1766\,x^2 + \cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)^3*(3*x + 2)^4),x, algorithm="fricas")
```

```
[Out] 1/6*(15419700*x^4 + 39577230*x^3 + 38058104*x^2 + 342660*(675*x^5
 + 2160*x^4 + 2763*x^3 + 1766*x^2 + 564*x + 72)*log(5*x + 3) - 34
2660*(675*x^5 + 2160*x^4 + 2763*x^3 + 1766*x^2 + 564*x + 72)*log(
3*x + 2) + 16250079*x + 2599404)/(675*x^5 + 2160*x^4 + 2763*x^3 +
 1766*x^2 + 564*x + 72)
```

Sympy [A] time = 0.490149, size = 61, normalized size = 0.9

$$\frac{15419700x^4 + 39577230x^3 + 38058104x^2 + 16250079x + 2599404}{4050x^5 + 12960x^4 + 16578x^3 + 10596x^2 + 3384x + 432} + 57110\log\left(x + \frac{3}{5}\right) - 57110\log\left(x + \frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2/(2+3*x)**4/(3+5*x)**3,x)
```

```
[Out] (15419700*x**4 + 39577230*x**3 + 38058104*x**2 + 16250079*x + 259
9404)/(4050*x**5 + 12960*x**4 + 16578*x**3 + 10596*x**2 + 3384*x
+ 432) + 57110*log(x + 3/5) - 57110*log(x + 2/3)
```

GIAC/XCAS [A] time = 0.207062, size = 74, normalized size = 1.09

$$\frac{15419700\,x^4 + 39577230\,x^3 + 38058104\,x^2 + 16250079\,x + 2599404}{6\,(5\,x + 3)^2(3\,x + 2)^3} + 57110\ln(|5\,x + 3|) - 57110\ln(|3\,x + 2|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)^3*(3*x + 2)^4),x, algorithm="giac")
```

```
[Out] 1/6*(15419700*x^4 + 39577230*x^3 + 38058104*x^2 + 16250079*x + 25
99404)/((5*x + 3)^2*(3*x + 2)^3) + 57110*ln(abs(5*x + 3)) - 57110
*ln(abs(3*x + 2))
```

3.1317 $\int \frac{(1-2x)^2}{(2+3x)^5(3+5x)^3}\,dx$

Optimal. Leaf size=77

$$\frac{57110}{3x+2}+\frac{46475}{5x+3}+\frac{3467}{(3x+2)^2}-\frac{3025}{2(5x+3)^2}+\frac{707}{3(3x+2)^3}+\frac{49}{4(3x+2)^4}-424975\log(3x+2)+424975\log(5x+3)$$

```
[Out] 49/(4*(2 + 3*x)^4) + 707/(3*(2 + 3*x)^3) + 3467/(2 + 3*x)^2 + 571
10/(2 + 3*x) - 3025/(2*(3 + 5*x)^2) + 46475/(3 + 5*x) - 424975*Lo
g[2 + 3*x] + 424975*Log[3 + 5*x]
```

Rubi [A] time = 0.0942683, antiderivative size = 77, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{57110}{3x+2}+\frac{46475}{5x+3}+\frac{3467}{(3x+2)^2}-\frac{3025}{2(5x+3)^2}+\frac{707}{3(3x+2)^3}+\frac{49}{4(3x+2)^4}-424975\log(3x+2)+424975\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^2/((2 + 3*x)^5*(3 + 5*x)^3),x]
```

```
[Out] 49/(4*(2 + 3*x)^4) + 707/(3*(2 + 3*x)^3) + 3467/(2 + 3*x)^2 + 571
10/(2 + 3*x) - 3025/(2*(3 + 5*x)^2) + 46475/(3 + 5*x) - 424975*Lo
g[2 + 3*x] + 424975*Log[3 + 5*x]
```

Rubi in Sympy [A] time = 12.2796, size = 68, normalized size = 0.88

$$-424975\log(3x+2)+424975\log(5x+3)+\frac{46475}{5x+3}-\frac{3025}{2(5x+3)^2}+\frac{57110}{3x+2}+\frac{3467}{(3x+2)^2}+\frac{707}{3(3x+2)^3}+\frac{49}{4(3x+2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2/(2+3*x)**5/(3+5*x)**3,x)
```

```
[Out] -424975*log(3*x + 2) + 424975*log(5*x + 3) + 46475/(5*x + 3) - 30
25/(2*(5*x + 3)**2) + 57110/(3*x + 2) + 3467/(3*x + 2)**2 + 707/(
3*(3*x + 2)**3) + 49/(4*(3*x + 2)**4)
```

Mathematica [A] time = 0.0934325, size = 79, normalized size = 1.03

$$\frac{57110}{3x+2}+\frac{46475}{5x+3}+\frac{3467}{(3x+2)^2}-\frac{3025}{2(5x+3)^2}+\frac{707}{3(3x+2)^3}+\frac{49}{4(3x+2)^4}-424975\log(5(3x+2))+424975\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^2/((2 + 3*x)^5*(3 + 5*x)^3),x]
```

```
[Out] 49/(4*(2 + 3*x)^4) + 707/(3*(2 + 3*x)^3) + 3467/(2 + 3*x)^2 + 571
10/(2 + 3*x) - 3025/(2*(3 + 5*x)^2) + 46475/(3 + 5*x) - 424975*Lo
g[5*(2 + 3*x)] + 424975*Log[3 + 5*x]
```

Maple [A] time = 0.016, size = 72, normalized size = 0.9

$$\frac{49}{4\left(2+3x\right)^{4}}+\frac{707}{3\left(2+3x\right)^{3}}+3467\left(2+3x\right)^{-2}+57110\left(2+3x\right)^{-1}-\frac{3025}{2\left(3+5x\right)^{2}}+46475\left(3+5x\right)^{-1}-424975\ln\left(2+3x\right)+424975\ln\left(3+5x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2/(2+3*x)^5/(3+5*x)^3,x)
```

```
[Out] 49/4/(2+3*x)^4+707/3/(2+3*x)^3+3467/(2+3*x)^2+57110/(2+3*x)-3025/
2/(3+5*x)^2+46475/(3+5*x)-424975*ln(2+3*x)+424975*ln(3+5*x)
```

Maxima [A] time = 1.33381, size = 103, normalized size = 1.34

$$\frac{688459500\,x^{5}+2226019050\,x^{4}+2877250740\,x^{3}+1858347679\,x^{2}+599747838\,x+77372211}{12\left(2025\,x^{6}+7830\,x^{5}+12609\,x^{4}+10824\,x^{3}+5224\,x^{2}+1344\,x+144\right)}+424975\log\left(5\,x+3\right)-424975\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)^3*(3*x + 2)^5),x, algorithm="maxima")
```

```
[Out] 1/12*(688459500*x^5 + 2226019050*x^4 + 2877250740*x^3 + 185834767
9*x^2 + 599747838*x + 77372211)/(2025*x^6 + 7830*x^5 + 12609*x^4
+ 10824*x^3 + 5224*x^2 + 1344*x + 144) + 424975*log(5*x + 3) - 42
4975*log(3*x + 2)
```

Fricas [A] time = 0.211828, size = 182, normalized size = 2.36

$$\frac{688459500\,x^{5}+2226019050\,x^{4}+2877250740\,x^{3}+1858347679\,x^{2}+5099700\left(2025\,x^{6}+7830\,x^{5}+12609\,x^{4}+10824\,x^{3}+52\right.}{12\left(2025\,x^{6}+7830\,x\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)^3*(3*x + 2)^5),x, algorithm="fricas")
```

```
[Out] 1/12*(688459500*x^5 + 2226019050*x^4 + 2877250740*x^3 + 185834767
9*x^2 + 5099700*(2025*x^6 + 7830*x^5 + 12609*x^4 + 10824*x^3 + 52
24*x^2 + 1344*x + 144)*log(5*x + 3) - 5099700*(2025*x^6 + 7830*x^
5 + 12609*x^4 + 10824*x^3 + 5224*x^2 + 1344*x + 144)*log(3*x + 2)
 + 599747838*x + 77372211)/(2025*x^6 + 7830*x^5 + 12609*x^4 + 108
24*x^3 + 5224*x^2 + 1344*x + 144)
```

Sympy [A] time = 0.559986, size = 71, normalized size = 0.92

$$\frac{688459500x^{5}+2226019050x^{4}+2877250740x^{3}+1858347679x^{2}+599747838x+77372211}{24300x^{6}+93960x^{5}+151308x^{4}+129888x^{3}+62688x^{2}+16128x+1728}+424975\log\left(x+\frac{3}{5}\right)-424975\log\left(x+\frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2/(2+3*x)**5/(3+5*x)**3,x)
```

```
[Out] (688459500*x**5 + 2226019050*x**4 + 2877250740*x**3 + 1858347679*
x**2 + 599747838*x + 77372211)/(24300*x**6 + 93960*x**5 + 151308*
x**4 + 129888*x**3 + 62688*x**2 + 16128*x + 1728) + 424975*log(x
+ 3/5) - 424975*log(x + 2/3)
```

GIAC/XCAS [A] time = 0.208376, size = 103, normalized size = 1.34

$$\frac{57110}{3\,x+2}-\frac{4125\left(\frac{404}{3\,x+2}-1855\right)}{2\left(\frac{1}{3\,x+2}-5\right)^{2}}+\frac{3467}{(3\,x+2)^{2}}+\frac{707}{3\,(3\,x+2)^{3}}+\frac{49}{4\,(3\,x+2)^{4}}+424975\ln\left(\left|-\frac{1}{3\,x+2}+5\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)^3*(3*x + 2)^5),x, algorithm="giac")
```

```
[Out] 57110/(3*x + 2) - 4125/2*(404/(3*x + 2) - 1855)/(1/(3*x + 2) - 5)
^2 + 3467/(3*x + 2)^2 + 707/3/(3*x + 2)^3 + 49/4/(3*x + 2)^4 + 42
4975*ln(abs(-1/(3*x + 2) + 5))
```

3.1318 $\int \frac{(1-2x)^2}{(2+3x)^6(3+5x)^3} dx$

Optimal. Leaf size=88

$$\frac{424975}{3x+2}+\frac{277750}{5x+3}+\frac{28555}{(3x+2)^2}-\frac{15125}{2(5x+3)^2}+\frac{6934}{3(3x+2)^3}+\frac{707}{4(3x+2)^4}+\frac{49}{5(3x+2)^5}-2958125\log(3x+2)+2958125\log(5x+3)$$

```
[Out] 49/(5*(2 + 3*x)^5) + 707/(4*(2 + 3*x)^4) + 6934/(3*(2 + 3*x)^3) +
 28555/(2 + 3*x)^2 + 424975/(2 + 3*x) - 15125/(2*(3 + 5*x)^2) + 2
77750/(3 + 5*x) - 2958125*Log[2 + 3*x] + 2958125*Log[3 + 5*x]
```

Rubi [A] time = 0.11011, antiderivative size = 88, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$\frac{424975}{3x+2}+\frac{277750}{5x+3}+\frac{28555}{(3x+2)^2}-\frac{15125}{2(5x+3)^2}+\frac{6934}{3(3x+2)^3}+\frac{707}{4(3x+2)^4}+\frac{49}{5(3x+2)^5}-2958125\log(3x+2)+2958125\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^2/((2 + 3*x)^6*(3 + 5*x)^3),x]
```

```
[Out] 49/(5*(2 + 3*x)^5) + 707/(4*(2 + 3*x)^4) + 6934/(3*(2 + 3*x)^3) +
 28555/(2 + 3*x)^2 + 424975/(2 + 3*x) - 15125/(2*(3 + 5*x)^2) + 2
77750/(3 + 5*x) - 2958125*Log[2 + 3*x] + 2958125*Log[3 + 5*x]
```

Rubi in Sympy [A] time = 13.8014, size = 78, normalized size = 0.89

$$-2958125\log(3x+2)+2958125\log(5x+3)+\frac{277750}{5x+3}-\frac{15125}{2(5x+3)^2}+\frac{424975}{3x+2}+\frac{28555}{(3x+2)^2}+\frac{6934}{3(3x+2)^3}+\frac{707}{4(3x+2)^4}+\frac{49}{5(3x+2)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2/(2+3*x)**6/(3+5*x)**3,x)
```

```
[Out] -2958125*log(3*x + 2) + 2958125*log(5*x + 3) + 277750/(5*x + 3) -
 15125/(2*(5*x + 3)**2) + 424975/(3*x + 2) + 28555/(3*x + 2)**2 +
 6934/(3*(3*x + 2)**3) + 707/(4*(3*x + 2)**4) + 49/(5*(3*x + 2)**
5)
```

Mathematica [A] time = 0.106172, size = 90, normalized size = 1.02

$$\frac{424975}{3x+2}+\frac{277750}{5x+3}+\frac{28555}{(3x+2)^2}-\frac{15125}{2(5x+3)^2}+\frac{6934}{3(3x+2)^3}+\frac{707}{4(3x+2)^4}+\frac{49}{5(3x+2)^5}-2958125\log(5(3x+2))+2958125\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^2/((2 + 3*x)^6*(3 + 5*x)^3),x]
```

```
[Out] 49/(5*(2 + 3*x)^5) + 707/(4*(2 + 3*x)^4) + 6934/(3*(2 + 3*x)^3) +
 28555/(2 + 3*x)^2 + 424975/(2 + 3*x) - 15125/(2*(3 + 5*x)^2) + 2
77750/(3 + 5*x) - 2958125*Log[5*(2 + 3*x)] + 2958125*Log[3 + 5*x]
```

Maple [A] time = 0.016, size = 81, normalized size = 0.9

$$\frac{49}{5\,(2+3\,x)^5}+\frac{707}{4\,(2+3\,x)^4}+\frac{6934}{3\,(2+3\,x)^3}+28555\,(2+3\,x)^{-2}+424975\,(2+3\,x)^{-1}-\frac{15125}{2\,(3+5\,x)^2}+277750\,(3+5\,x)^{-1}-2958125\,\ln(2+3\,x)+2958125\,\ln(3+5\,x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((1-2*x)^2/(2+3*x)^6/(3+5*x)^3,x)
```

```
[Out] 49/5/(2+3*x)^5+707/4/(2+3*x)^4+6934/3/(2+3*x)^3+28555/(2+3*x)^2+4
24975/(2+3*x)-15125/2/(3+5*x)^2+277750/(3+5*x)-2958125*ln(2+3*x)+
2958125*ln(3+5*x)
```

Maxima [A] time = 1.47891, size = 116, normalized size = 1.32

$$\frac{71882437500\,x^6+280341506250\,x^5+455361930000\,x^4+394308004875\,x^3+191974077080\,x^2+49825144515\,x+53856502}{60\,(6075\,x^7+27540\,x^6+53487\,x^5+57690\,x^4+37320\,x^3+14480\,x^2+3120\,x+288)}+2958125\,\log(5\,x+3)-2958125\,\log(3\,x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2*x - 1)^2/((5*x + 3)^3*(3*x + 2)^6),x, algorithm="maxima")
```

```
[Out] 1/60*(71882437500*x^6 + 280341506250*x^5 + 455361930000*x^4 + 394
308004875*x^3 + 191974077080*x^2 + 49825144515*x + 5385650262)/(6
075*x^7 + 27540*x^6 + 53487*x^5 + 57690*x^4 + 37320*x^3 + 14480*x
^2 + 3120*x + 288) + 2958125*log(5*x + 3) - 2958125*log(3*x + 2)
```

Fricas [A] time = 0.20974, size = 209, normalized size = 2.38

$$\frac{71882437500\,x^6+280341506250\,x^5+455361930000\,x^4+394308004875\,x^3+191974077080\,x^2+177487500\,\left(6075\,x^7+275\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2*x - 1)^2/((5*x + 3)^3*(3*x + 2)^6),x, algorithm="fricas")
```

```
[Out] 1/60*(71882437500*x^6 + 280341506250*x^5 + 455361930000*x^4 + 394
308004875*x^3 + 191974077080*x^2 + 177487500*(6075*x^7 + 27540*x^
6 + 53487*x^5 + 57690*x^4 + 37320*x^3 + 14480*x^2 + 3120*x + 288)
*log(5*x + 3) - 177487500*(6075*x^7 + 27540*x^6 + 53487*x^5 + 576
90*x^4 + 37320*x^3 + 14480*x^2 + 3120*x + 288)*log(3*x + 2) + 498
25144515*x + 5385650262)/(6075*x^7 + 27540*x^6 + 53487*x^5 + 5769
0*x^4 + 37320*x^3 + 14480*x^2 + 3120*x + 288)
```

Sympy [A] time = 0.594023, size = 82, normalized size = 0.93

$$\frac{71882437500x^6+280341506250x^5+455361930000x^4+394308004875x^3+191974077080x^2+49825144515x+538565026}{364500x^7+1652400x^6+3209220x^5+3461400x^4+2239200x^3+868800x^2+187200x+17280}+2958125\log\left(x+\frac{3}{5}\right)-2958125\log\left(x+\frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2/(2+3*x)**6/(3+5*x)**3,x)
```

```
[Out] (71882437500*x**6 + 280341506250*x**5 + 455361930000*x**4 + 39430
8004875*x**3 + 191974077080*x**2 + 49825144515*x + 5385650262)/(3
64500*x**7 + 1652400*x**6 + 3209220*x**5 + 3461400*x**4 + 2239200
*x**3 + 868800*x**2 + 187200*x + 17280) + 2958125*log(x + 3/5) -
2958125*log(x + 2/3)
```

GIAC/XCAS [A] time = 0.208012, size = 88, normalized size = 1.

$$\frac{71882437500\,x^6 + 280341506250\,x^5 + 455361930000\,x^4 + 394308004875\,x^3 + 191974077080\,x^2 + 49825144515\,x + 5385650}{60\,(5\,x+3)^2(3\,x+2)^5} + 2958125\ln\left(|5\,x+3|\right) - 2958125\ln\left(|3\,x+2|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)^3*(3*x + 2)^6),x, algorithm="giac")
```

```
[Out] 1/60*(71882437500*x^6 + 280341506250*x^5 + 455361930000*x^4 + 394
308004875*x^3 + 191974077080*x^2 + 49825144515*x + 5385650262)/((
5*x + 3)^2*(3*x + 2)^5) + 2958125*ln(abs(5*x + 3)) - 2958125*ln(a
bs(3*x + 2))
```

3.1319 $\int \frac{(1-2x)^2}{(2+3x)^7(3+5x)^3}\,dx$

Optimal. Leaf size=101

$$\frac{2958125}{3x+2}+\frac{1615625}{5x+3}+\frac{424975}{2(3x+2)^2}-\frac{75625}{2(5x+3)^2}+\frac{57110}{3(3x+2)^3}+\frac{3467}{2(3x+2)^4}+\frac{707}{5(3x+2)^5}+\frac{49}{6(3x+2)^6}-19637500\log(3x+2)+19637500\log(5x+3)$$

```
[Out] 49/(6*(2 + 3*x)^6) + 707/(5*(2 + 3*x)^5) + 3467/(2*(2 + 3*x)^4) +
 57110/(3*(2 + 3*x)^3) + 424975/(2*(2 + 3*x)^2) + 2958125/(2 + 3*
x) - 75625/(2*(3 + 5*x)^2) + 1615625/(3 + 5*x) - 19637500*Log[2 +
 3*x] + 19637500*Log[3 + 5*x]
```

Rubi [A] time = 0.123635, antiderivative size = 101, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{2958125}{3x+2}+\frac{1615625}{5x+3}+\frac{424975}{2(3x+2)^2}-\frac{75625}{2(5x+3)^2}+\frac{57110}{3(3x+2)^3}+\frac{3467}{2(3x+2)^4}+\frac{707}{5(3x+2)^5}+\frac{49}{6(3x+2)^6}-19637500\log(3x+2)+19637500\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^2/((2 + 3*x)^7*(3 + 5*x)^3),x]
```

```
[Out] 49/(6*(2 + 3*x)^6) + 707/(5*(2 + 3*x)^5) + 3467/(2*(2 + 3*x)^4) +
 57110/(3*(2 + 3*x)^3) + 424975/(2*(2 + 3*x)^2) + 2958125/(2 + 3*
x) - 75625/(2*(3 + 5*x)^2) + 1615625/(3 + 5*x) - 19637500*Log[2 +
 3*x] + 19637500*Log[3 + 5*x]
```

Rubi in Sympy [A] time = 15.2602, size = 90, normalized size = 0.89

$$-19637500\log(3x+2)+19637500\log(5x+3)+\frac{1615625}{5x+3}-\frac{75625}{2(5x+3)^2}+\frac{2958125}{3x+2}+\frac{424975}{2(3x+2)^2}+\frac{57110}{3(3x+2)^3}+\frac{3467}{2(3x+2)^4}+\frac{707}{5(3x+2)^5}+\frac{49}{6(3x+2)^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2/(2+3*x)**7/(3+5*x)**3,x)
```

```
[Out] -19637500*log(3*x + 2) + 19637500*log(5*x + 3) + 1615625/(5*x + 3
) - 75625/(2*(5*x + 3)**2) + 2958125/(3*x + 2) + 424975/(2*(3*x +
 2)**2) + 57110/(3*(3*x + 2)**3) + 3467/(2*(3*x + 2)**4) + 707/(5
*(3*x + 2)**5) + 49/(6*(3*x + 2)**6)
```

Mathematica [A] time = 0.119727, size = 103, normalized size = 1.02

$$\frac{2958125}{3x+2}+\frac{1615625}{5x+3}+\frac{424975}{2(3x+2)^2}-\frac{75625}{2(5x+3)^2}+\frac{57110}{3(3x+2)^3}+\frac{3467}{2(3x+2)^4}+\frac{707}{5(3x+2)^5}+\frac{49}{6(3x+2)^6}-19637500\log(5(3x+2))+19637500\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^2/((2 + 3*x)^7*(3 + 5*x)^3),x]
```

```
[Out] 49/(6*(2 + 3*x)^6) + 707/(5*(2 + 3*x)^5) + 3467/(2*(2 + 3*x)^4) +
 57110/(3*(2 + 3*x)^3) + 424975/(2*(2 + 3*x)^2) + 2958125/(2 + 3*
x) - 75625/(2*(3 + 5*x)^2) + 1615625/(3 + 5*x) - 19637500*Log[5*(
2 + 3*x)] + 19637500*Log[3 + 5*x]
```

Maple [A] time = 0.016, size = 90, normalized size = 0.9

$$\frac{49}{6\,(2+3\,x)^{6}}+\frac{707}{5\,(2+3\,x)^{5}}+\frac{3467}{2\,(2+3\,x)^{4}}+\frac{57110}{3\,(2+3\,x)^{3}}+\frac{424975}{2\,(2+3\,x)^{2}}+2958125\,(2+3\,x)^{-1}-\frac{75625}{2\,(3+5\,x)^{2}}+1615625\,(3+5\,x)^{-1}-19637500\,\ln(2+3\,x)+19637500\,\ln(3+5\,x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2/(2+3*x)^7/(3+5*x)^3,x)
```

```
[Out] 49/6/(2+3*x)^6+707/5/(2+3*x)^5+3467/2/(2+3*x)^4+57110/3/(2+3*x)^3
+424975/2/(2+3*x)^2+2958125/(2+3*x)-75625/2/(3+5*x)^2+1615625/(3+
5*x)-19637500*ln(2+3*x)+19637500*ln(3+5*x)
```

Maxima [A] time = 1.35253, size = 130, normalized size = 1.29

$$\frac{238595625000\,x^{7}+1089586687500\,x^{6}+2131807725000\,x^{5}+2316445391250\,x^{4}+1509746867100\,x^{3}+590188362770\,x^{2}+1}{10\,(18225\,x^{8}+94770\,x^{7}+215541\,x^{6}+280044\,x^{5}+227340\,x^{4}+118080\,x^{3}+38320\,x^{2}+7104\,x+}+19637500\,\log(5\,x+3)-19637500\,\log(3\,x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)^3*(3*x + 2)^7),x, algorithm="maxima")
```

```
[Out] 1/10*(238595625000*x^7 + 1089586687500*x^6 + 2131807725000*x^5 +
2316445391250*x^4 + 1509746867100*x^3 + 590188362770*x^2 + 128130
976648*x + 11917538647)/(18225*x^8 + 94770*x^7 + 215541*x^6 + 280
044*x^5 + 227340*x^4 + 118080*x^3 + 38320*x^2 + 7104*x + 576) + 1
9637500*log(5*x + 3) - 19637500*log(3*x + 2)
```

Fricas [A] time = 0.212672, size = 236, normalized size = 2.34

$$\frac{238595625000\,x^{7}+1089586687500\,x^{6}+2131807725000\,x^{5}+2316445391250\,x^{4}+1509746867100\,x^{3}+590188362770\,x^{2}+1}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)^3*(3*x + 2)^7),x, algorithm="fricas")
```

```
[Out] 1/10*(238595625000*x^7 + 1089586687500*x^6 + 2131807725000*x^5 +
2316445391250*x^4 + 1509746867100*x^3 + 590188362770*x^2 + 196375
000*(18225*x^8 + 94770*x^7 + 215541*x^6 + 280044*x^5 + 227340*x^4
 + 118080*x^3 + 38320*x^2 + 7104*x + 576)*log(5*x + 3) - 19637500
0*(18225*x^8 + 94770*x^7 + 215541*x^6 + 280044*x^5 + 227340*x^4 +
 118080*x^3 + 38320*x^2 + 7104*x + 576)*log(3*x + 2) + 1281309766
48*x + 11917538647)/(18225*x^8 + 94770*x^7 + 215541*x^6 + 280044*
x^5 + 227340*x^4 + 118080*x^3 + 38320*x^2 + 7104*x + 576)
```

Sympy [A] time = 0.666344, size = 92, normalized size = 0.91

$$\frac{238595625000x^7 + 1089586687500x^6 + 2131807725000x^5 + 2316445391250x^4 + 1509746867100x^3 + 590188362770x^2 + 128\ldots}{182250x^8 + 947700x^7 + 2155410x^6 + 2800440x^5 + 2273400x^4 + 1180800x^3 + 383200x^2 + 71040x + \ldots}$$
$$+ 19637500 \log\left(x + \frac{3}{5}\right) - 19637500 \log\left(x + \frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2/(2+3*x)**7/(3+5*x)**3,x)
```

```
[Out] (238595625000*x**7 + 1089586687500*x**6 + 2131807725000*x**5 + 23
16445391250*x**4 + 1509746867100*x**3 + 590188362770*x**2 + 12813
0976648*x + 11917538647)/(182250*x**8 + 947700*x**7 + 2155410*x**
6 + 2800440*x**5 + 2273400*x**4 + 1180800*x**3 + 383200*x**2 + 71
040*x + 5760) + 19637500*log(x + 3/5) - 19637500*log(x + 2/3)
```

GIAC/XCAS [A] time = 0.20617, size = 95, normalized size = 0.94

$$\frac{238595625000\,x^7 + 1089586687500\,x^6 + 2131807725000\,x^5 + 2316445391250\,x^4 + 1509746867100\,x^3 + 590188362770\,x^2 + \ldots}{10\,(5\,x + 3)^2(3\,x + 2)^6}$$
$$+ 19637500 \ln(|5\,x + 3|) - 19637500 \ln(|3\,x + 2|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)^3*(3*x + 2)^7),x, algorithm="giac")
```

```
[Out] 1/10*(238595625000*x^7 + 1089586687500*x^6 + 2131807725000*x^5 +
2316445391250*x^4 + 1509746867100*x^3 + 590188362770*x^2 + 128130
976648*x + 11917538647)/((5*x + 3)^2*(3*x + 2)^6) + 19637500*ln(a
bs(5*x + 3)) - 19637500*ln(abs(3*x + 2))
```

3.1320 $\int \frac{(1-2x)^2}{(2+3x)^8(3+5x)^3}\,dx$

Optimal. Leaf size=110

$$\frac{19637500}{3x+2}+\frac{9212500}{5x+3}+\frac{2958125}{2(3x+2)^2}-\frac{378125}{2(5x+3)^2}+\frac{424975}{3(3x+2)^3}+\frac{28555}{2(3x+2)^4}+\frac{6934}{5(3x+2)^5}+\frac{707}{6(3x+2)^6}+\frac{7}{(3x+2)^7}-125825000\log(3x+2)+125825000\log(5x+3)$$

```
[Out] 7/(2 + 3*x)^7 + 707/(6*(2 + 3*x)^6) + 6934/(5*(2 + 3*x)^5) + 2855
5/(2*(2 + 3*x)^4) + 424975/(3*(2 + 3*x)^3) + 2958125/(2*(2 + 3*x)
^2) + 19637500/(2 + 3*x) - 378125/(2*(3 + 5*x)^2) + 9212500/(3 +
5*x) - 125825000*Log[2 + 3*x] + 125825000*Log[3 + 5*x]
```

Rubi [A] time = 0.139917, antiderivative size = 110, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{19637500}{3x+2}+\frac{9212500}{5x+3}+\frac{2958125}{2(3x+2)^2}-\frac{378125}{2(5x+3)^2}+\frac{424975}{3(3x+2)^3}+\frac{28555}{2(3x+2)^4}+\frac{6934}{5(3x+2)^5}+\frac{707}{6(3x+2)^6}+\frac{7}{(3x+2)^7}-125825000\log(3x+2)+125825000\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^2/((2 + 3*x)^8*(3 + 5*x)^3),x]
```

```
[Out] 7/(2 + 3*x)^7 + 707/(6*(2 + 3*x)^6) + 6934/(5*(2 + 3*x)^5) + 2855
5/(2*(2 + 3*x)^4) + 424975/(3*(2 + 3*x)^3) + 2958125/(2*(2 + 3*x)
^2) + 19637500/(2 + 3*x) - 378125/(2*(3 + 5*x)^2) + 9212500/(3 +
5*x) - 125825000*Log[2 + 3*x] + 125825000*Log[3 + 5*x]
```

Rubi in Sympy [A] time = 17.0111, size = 99, normalized size = 0.9

$$-125825000\log(3x+2)+125825000\log(5x+3)+\frac{9212500}{5x+3}-\frac{378125}{2(5x+3)^2}+\frac{19637500}{3x+2}+\frac{2958125}{2(3x+2)^2}+\frac{424975}{3(3x+2)^3}+\frac{28555}{2(3x+2)^4}+\frac{6934}{5(3x+2)^5}+\frac{707}{6(3x+2)^6}+\frac{7}{(3x+2)^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**2/(2+3*x)**8/(3+5*x)**3,x)
```

```
[Out] -125825000*log(3*x + 2) + 125825000*log(5*x + 3) + 9212500/(5*x +
 3) - 378125/(2*(5*x + 3)**2) + 19637500/(3*x + 2) + 2958125/(2*(
3*x + 2)**2) + 424975/(3*(3*x + 2)**3) + 28555/(2*(3*x + 2)**4) +
 6934/(5*(3*x + 2)**5) + 707/(6*(3*x + 2)**6) + 7/(3*x + 2)**7
```

Mathematica [A] time = 0.136849, size = 112, normalized size = 1.02

$$\frac{19637500}{3x+2}+\frac{9212500}{5x+3}+\frac{2958125}{2(3x+2)^2}-\frac{378125}{2(5x+3)^2}+\frac{424975}{3(3x+2)^3}+\frac{28555}{2(3x+2)^4}+\frac{6934}{5(3x+2)^5}+\frac{707}{6(3x+2)^6}+\frac{7}{(3x+2)^7}-125825000\log(5(3x+2))+125825000\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^2/((2 + 3*x)^8*(3 + 5*x)^3),x]
```

```
[Out] 7/(2 + 3*x)^7 + 707/(6*(2 + 3*x)^6) + 6934/(5*(2 + 3*x)^5) + 2855
5/(2*(2 + 3*x)^4) + 424975/(3*(2 + 3*x)^3) + 2958125/(2*(2 + 3*x)
^2) + 19637500/(2 + 3*x) - 378125/(2*(3 + 5*x)^2) + 9212500/(3 +
5*x) - 125825000*Log[5*(2 + 3*x)] + 125825000*Log[3 + 5*x]
```

Maple [A] time = 0.016, size = 99, normalized size = 0.9

$$7 (2 + 3 x)^{-7} + \frac{707}{6 (2 + 3 x)^{6}} + \frac{6934}{5 (2 + 3 x)^{5}} + \frac{28555}{2 (2 + 3 x)^{4}} + \frac{424975}{3 (2 + 3 x)^{3}} + \frac{2958125}{2 (2 + 3 x)^{2}} + 19637500 (2 + 3 x)^{-1} - \frac{378125}{2 (3 + 5 x)^{2}} + 9212500 (3 + 5 x)^{-1} - 125825000 \ln(2 + 3 x) + 125825000 \ln(3 + 5 x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^2/(2+3*x)^8/(3+5*x)^3,x)
```

```
[Out] 7/(2+3*x)^7+707/6/(2+3*x)^6+6934/5/(2+3*x)^5+28555/2/(2+3*x)^4+42
4975/3/(2+3*x)^3+2958125/2/(2+3*x)^2+19637500/(2+3*x)-378125/2/(3
+5*x)^2+9212500/(3+5*x)-125825000*ln(2+3*x)+125825000*ln(3+5*x)
```

Maxima [A] time = 1.35492, size = 143, normalized size = 1.3

$$\frac{4586321250000 x^{8} + 24001747875000 x^{7} + 54940731300000 x^{6} + 71845684942500 x^{5} + 58705292494800 x^{4} + 306917454534}{10 (54675 x^{9} + 320760 x^{8} + 836163 x^{7} + 1271214 x^{6} + 1242108 x^{5} + 808920 x^{4} + 351120 x^{3}} + 125825000 \log(5 x + 3) - 125825000 \log(3 x + 2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)^3*(3*x + 2)^8),x, algorithm="maxima")
```

```
[Out] 1/10*(4586321250000*x^8 + 24001747875000*x^7 + 54940731300000*x^6
 + 71845684942500*x^5 + 58705292494800*x^4 + 30691745453460*x^3 +
 10026079791288*x^2 + 1871049429619*x + 152720488888)/(54675*x^9
+ 320760*x^8 + 836163*x^7 + 1271214*x^6 + 1242108*x^5 + 808920*x^
4 + 351120*x^3 + 97952*x^2 + 15936*x + 1152) + 125825000*log(5*x
+ 3) - 125825000*log(3*x + 2)
```

Fricas [A] time = 0.205285, size = 263, normalized size = 2.39

$$\frac{4586321250000 x^{8} + 24001747875000 x^{7} + 54940731300000 x^{6} + 71845684942500 x^{5} + 58705292494800 x^{4} + 306917454534}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)^3*(3*x + 2)^8),x, algorithm="fricas")
```

```
[Out] 1/10*(4586321250000*x^8 + 24001747875000*x^7 + 54940731300000*x^6
 + 71845684942500*x^5 + 58705292494800*x^4 + 30691745453460*x^3 +
 10026079791288*x^2 + 1258250000*(54675*x^9 + 320760*x^8 + 836163
*x^7 + 1271214*x^6 + 1242108*x^5 + 808920*x^4 + 351120*x^3 + 9795
2*x^2 + 15936*x + 1152)*log(5*x + 3) - 1258250000*(54675*x^9 + 32
0760*x^8 + 836163*x^7 + 1271214*x^6 + 1242108*x^5 + 808920*x^4 +
351120*x^3 + 97952*x^2 + 15936*x + 1152)*log(3*x + 2) + 187104942
9619*x + 152720488888)/(54675*x^9 + 320760*x^8 + 836163*x^7 + 127
1214*x^6 + 1242108*x^5 + 808920*x^4 + 351120*x^3 + 97952*x^2 + 15
936*x + 1152)
```

Sympy [A] time = 0.739834, size = 102, normalized size = 0.93

$$\frac{4586321250000x^8 + 24001747875000x^7 + 54940731300000x^6 + 71845684942500x^5 + 58705292494800x^4 + 30691745453460}{546750x^9 + 3207600x^8 + 8361630x^7 + 12712140x^6 + 12421080x^5 + 8089200x^4 + 3511200x^3 +}$$
$$+ 125825000 \log\left(x + \frac{3}{5}\right) - 125825000 \log\left(x + \frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**2/(2+3*x)**8/(3+5*x)**3,x)
```

```
[Out] (4586321250000*x**8 + 24001747875000*x**7 + 54940731300000*x**6 +
 71845684942500*x**5 + 58705292494800*x**4 + 30691745453460*x**3
+ 10026079791288*x**2 + 1871049429619*x + 152720488888)/(546750*x
**9 + 3207600*x**8 + 8361630*x**7 + 12712140*x**6 + 12421080*x**5
 + 8089200*x**4 + 3511200*x**3 + 979520*x**2 + 159360*x + 11520)
+ 125825000*log(x + 3/5) - 125825000*log(x + 2/3)
```

GIAC/XCAS [A] time = 0.207188, size = 101, normalized size = 0.92

$$\frac{4586321250000\,x^8 + 24001747875000\,x^7 + 54940731300000\,x^6 + 71845684942500\,x^5 + 58705292494800\,x^4 + 306917454534}{10\,(5\,x+3)^2(3\,x+2)^7}$$
$$+ 125825000 \ln(|5\,x+3|) - 125825000 \ln(|3\,x+2|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2*x - 1)^2/((5*x + 3)^3*(3*x + 2)^8),x, algorithm="giac")
```

```
[Out] 1/10*(4586321250000*x^8 + 24001747875000*x^7 + 54940731300000*x^6
 + 71845684942500*x^5 + 58705292494800*x^4 + 30691745453460*x^3 +
 10026079791288*x^2 + 1871049429619*x + 152720488888)/((5*x + 3)^
2*(3*x + 2)^7) + 125825000*ln(abs(5*x + 3)) - 125825000*ln(abs(3*
x + 2))
```

3.1321 $\int (1-2x)^3(2+3x)^8(3+5x)\,dx$

Optimal. Leaf size=56

$$-\frac{40(3x+2)^{13}}{3159}+\frac{107}{729}(3x+2)^{12}-\frac{518}{891}(3x+2)^{11}+\frac{2009(3x+2)^{10}}{2430}-\frac{343(3x+2)^9}{2187}$$

```
[Out] (-343*(2 + 3*x)^9)/2187 + (2009*(2 + 3*x)^10)/2430 - (518*(2 + 3*
x)^11)/891 + (107*(2 + 3*x)^12)/729 - (40*(2 + 3*x)^13)/3159
```

Rubi [A] time = 0.0927663, antiderivative size = 56, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{40(3x+2)^{13}}{3159}+\frac{107}{729}(3x+2)^{12}-\frac{518}{891}(3x+2)^{11}+\frac{2009(3x+2)^{10}}{2430}-\frac{343(3x+2)^9}{2187}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^3*(2 + 3*x)^8*(3 + 5*x),x]
```

```
[Out] (-343*(2 + 3*x)^9)/2187 + (2009*(2 + 3*x)^10)/2430 - (518*(2 + 3*
x)^11)/891 + (107*(2 + 3*x)^12)/729 - (40*(2 + 3*x)^13)/3159
```

Rubi in Sympy [A] time = 14.0881, size = 49, normalized size = 0.88

$$-\frac{40\,(3x+2)^{13}}{3159}+\frac{107\,(3x+2)^{12}}{729}-\frac{518\,(3x+2)^{11}}{891}+\frac{2009\,(3x+2)^{10}}{2430}-\frac{343\,(3x+2)^9}{2187}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3*(2+3*x)**8*(3+5*x),x)
```

```
[Out] -40*(3*x + 2)**13/3159 + 107*(3*x + 2)**12/729 - 518*(3*x + 2)**1
1/891 + 2009*(3*x + 2)**10/2430 - 343*(3*x + 2)**9/2187
```

Mathematica [A] time = 0.00455112, size = 72, normalized size = 1.29

$$-\frac{262440x^{13}}{13}-96957x^{12}-\frac{1966842x^{11}}{11}-\frac{1290573x^{10}}{10}+38331x^9+128412x^8+67248x^7-17456x^6-\frac{159712x^5}{5}-9216x^4+3328x^3+2944x^2+768x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^3*(2 + 3*x)^8*(3 + 5*x),x]
```

```
[Out] 768*x + 2944*x^2 + 3328*x^3 - 9216*x^4 - (159712*x^5)/5 - 17456*x
^6 + 67248*x^7 + 128412*x^8 + 38331*x^9 - (1290573*x^10)/10 - (19
66842*x^11)/11 - 96957*x^12 - (262440*x^13)/13
```

Maple [A] time = 0.001, size = 65, normalized size = 1.2

$$-\frac{262440\,x^{13}}{13}-96957\,x^{12}-\frac{1966842\,x^{11}}{11}-\frac{1290573\,x^{10}}{10}+38331\,x^9+128412\,x^8+67248\,x^7-17456\,x^6-\frac{159712\,x^5}{5}-9216\,x^4+3328\,x^3+2944\,x^2+768\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(2+3*x)^8*(3+5*x),x)
```

```
[Out] -262440/13*x^13-96957*x^12-1966842/11*x^11-1290573/10*x^10+38331*
x^9+128412*x^8+67248*x^7-17456*x^6-159712/5*x^5-9216*x^4+3328*x^3
+2944*x^2+768*x
```

Maxima [A] time = 1.33903, size = 86, normalized size = 1.54

$$-\frac{262440}{13}\,x^{13} - 96957\,x^{12} - \frac{1966842}{11}\,x^{11} - \frac{1290573}{10}\,x^{10} + 38331\,x^{9} + 128412\,x^{8} + 67248\,x^{7} - 17456\,x^{6} - \frac{159712}{5}\,x^{5} - 9216\,x^{4} + 3328\,x^{3} + 2944\,x^{2} + 768\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^8*(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] -262440/13*x^13 - 96957*x^12 - 1966842/11*x^11 - 1290573/10*x^10
+ 38331*x^9 + 128412*x^8 + 67248*x^7 - 17456*x^6 - 159712/5*x^5 -
 9216*x^4 + 3328*x^3 + 2944*x^2 + 768*x
```

Fricas [A] time = 0.177623, size = 1, normalized size = 0.02

$$-\frac{262440}{13}x^{13} - 96957x^{12} - \frac{1966842}{11}x^{11} - \frac{1290573}{10}x^{10} + 38331x^{9} + 128412x^{8} + 67248x^{7} - 17456x^{6} - \frac{159712}{5}x^{5} - 9216x^{4} + 3328x^{3} + 2944x^{2} + 768x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^8*(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -262440/13*x^13 - 96957*x^12 - 1966842/11*x^11 - 1290573/10*x^10
+ 38331*x^9 + 128412*x^8 + 67248*x^7 - 17456*x^6 - 159712/5*x^5 -
 9216*x^4 + 3328*x^3 + 2944*x^2 + 768*x
```

Sympy [A] time = 0.121556, size = 70, normalized size = 1.25

$$-\frac{262440x^{13}}{13} - 96957x^{12} - \frac{1966842x^{11}}{11} - \frac{1290573x^{10}}{10} + 38331x^{9} + 128412x^{8} + 67248x^{7} - 17456x^{6} - \frac{159712x^{5}}{5} - 9216x^{4} + 3328x^{3} + 2944x^{2} + 768x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(2+3*x)**8*(3+5*x),x)
```

```
[Out] -262440*x**13/13 - 96957*x**12 - 1966842*x**11/11 - 1290573*x**10
/10 + 38331*x**9 + 128412*x**8 + 67248*x**7 - 17456*x**6 - 159712
*x**5/5 - 9216*x**4 + 3328*x**3 + 2944*x**2 + 768*x
```

GIAC/XCAS [A] time = 0.203941, size = 86, normalized size = 1.54

$$-\frac{262440}{13}\,x^{13} - 96957\,x^{12} - \frac{1966842}{11}\,x^{11} - \frac{1290573}{10}\,x^{10} + 38331\,x^{9} + 128412\,x^{8} + 67248\,x^{7} - 17456\,x^{6} - \frac{159712}{5}\,x^{5} - 9216\,x^{4} + 3328\,x^{3} + 2944\,x^{2} + 768\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^8*(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] -262440/13*x^13 - 96957*x^12 - 1966842/11*x^11 - 1290573/10*x^10
+ 38331*x^9 + 128412*x^8 + 67248*x^7 - 17456*x^6 - 159712/5*x^5 -
 9216*x^4 + 3328*x^3 + 2944*x^2 + 768*x
```

3.1322 $\int (1-2x)^3(2+3x)^7(3+5x)\,dx$

Optimal. Leaf size=56

$$-\frac{10}{729}(3x+2)^{12}+\frac{428(3x+2)^{11}}{2673}-\frac{259}{405}(3x+2)^{10}+\frac{2009(3x+2)^9}{2187}-\frac{343(3x+2)^8}{1944}$$

```
[Out] (-343*(2 + 3*x)^8)/1944 + (2009*(2 + 3*x)^9)/2187 - (259*(2 + 3*x
)^10)/405 + (428*(2 + 3*x)^11)/2673 - (10*(2 + 3*x)^12)/729
```

Rubi [A] time = 0.091518, antiderivative size = 56, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{10}{729}(3x+2)^{12}+\frac{428(3x+2)^{11}}{2673}-\frac{259}{405}(3x+2)^{10}+\frac{2009(3x+2)^9}{2187}-\frac{343(3x+2)^8}{1944}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^3*(2 + 3*x)^7*(3 + 5*x),x]
```

```
[Out] (-343*(2 + 3*x)^8)/1944 + (2009*(2 + 3*x)^9)/2187 - (259*(2 + 3*x
)^10)/405 + (428*(2 + 3*x)^11)/2673 - (10*(2 + 3*x)^12)/729
```

Rubi in Sympy [A] time = 13.2014, size = 49, normalized size = 0.88

$$-\frac{10(3x+2)^{12}}{729}+\frac{428(3x+2)^{11}}{2673}-\frac{259(3x+2)^{10}}{405}+\frac{2009(3x+2)^9}{2187}-\frac{343(3x+2)^8}{1944}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3*(2+3*x)**7*(3+5*x),x)
```

```
[Out] -10*(3*x + 2)**12/729 + 428*(3*x + 2)**11/2673 - 259*(3*x + 2)**1
0/405 + 2009*(3*x + 2)**9/2187 - 343*(3*x + 2)**8/1944
```

Mathematica [A] time = 0.00343694, size = 67, normalized size = 1.2

$$-7290x^{12}-\frac{329508x^{11}}{11}-\frac{217971x^{10}}{5}-15507x^9+\frac{208035x^8}{8}+29106x^7+3514x^6-\frac{48968x^5}{5}-5148x^4+480x^3+1184x^2+384x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^3*(2 + 3*x)^7*(3 + 5*x),x]
```

```
[Out] 384*x + 1184*x^2 + 480*x^3 - 5148*x^4 - (48968*x^5)/5 + 3514*x^6
+ 29106*x^7 + (208035*x^8)/8 - 15507*x^9 - (217971*x^10)/5 - (329
508*x^11)/11 - 7290*x^12
```

Maple [A] time = 0.002, size = 60, normalized size = 1.1

$$-7290\,x^{12}-\frac{329508\,x^{11}}{11}-\frac{217971\,x^{10}}{5}-15507\,x^9+\frac{208035\,x^8}{8}+29106\,x^7+3514\,x^6-\frac{48968\,x^5}{5}-5148\,x^4+480\,x^3+1184\,x^2+384\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((1-2*x)^3*(2+3*x)^7*(3+5*x),x)
```

```
[Out] -7290*x^12-329508/11*x^11-217971/5*x^10-15507*x^9+208035/8*x^8+29
106*x^7+3514*x^6-48968/5*x^5-5148*x^4+480*x^3+1184*x^2+384*x
```

Maxima [A] time = 1.33903, size = 80, normalized size = 1.43

$$-7290\,x^{12}-\frac{329508}{11}\,x^{11}-\frac{217971}{5}\,x^{10}-15507\,x^{9}+\frac{208035}{8}\,x^{8}+29106\,x^{7}+3514\,x^{6}-\frac{48968}{5}\,x^{5}-5148\,x^{4}+480\,x^{3}+1184\,x^{2}+384\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^7*(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] -7290*x^12 - 329508/11*x^11 - 217971/5*x^10 - 15507*x^9 + 208035/
8*x^8 + 29106*x^7 + 3514*x^6 - 48968/5*x^5 - 5148*x^4 + 480*x^3 +
 1184*x^2 + 384*x
```

Fricas [A] time = 0.186946, size = 1, normalized size = 0.02

$$-7290x^{12}-\frac{329508}{11}x^{11}-\frac{217971}{5}x^{10}-15507x^{9}+\frac{208035}{8}x^{8}+29106x^{7}+3514x^{6}-\frac{48968}{5}x^{5}-5148x^{4}+480x^{3}+1184x^{2}+384x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^7*(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -7290*x^12 - 329508/11*x^11 - 217971/5*x^10 - 15507*x^9 + 208035/
8*x^8 + 29106*x^7 + 3514*x^6 - 48968/5*x^5 - 5148*x^4 + 480*x^3 +
 1184*x^2 + 384*x
```

Sympy [A] time = 0.124132, size = 65, normalized size = 1.16

$$-7290x^{12}-\frac{329508x^{11}}{11}-\frac{217971x^{10}}{5}-15507x^{9}+\frac{208035x^{8}}{8}+29106x^{7}+3514x^{6}-\frac{48968x^{5}}{5}-5148x^{4}+480x^{3}+1184x^{2}+384x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((1-2*x)**3*(2+3*x)**7*(3+5*x),x)
```

```
[Out] -7290*x**12 - 329508*x**11/11 - 217971*x**10/5 - 15507*x**9 + 208
035*x**8/8 + 29106*x**7 + 3514*x**6 - 48968*x**5/5 - 5148*x**4 +
480*x**3 + 1184*x**2 + 384*x
```

GIAC/XCAS [A] time = 0.21262, size = 80, normalized size = 1.43

$$-7290\,x^{12}-\frac{329508}{11}\,x^{11}-\frac{217971}{5}\,x^{10}-15507\,x^{9}+\frac{208035}{8}\,x^{8}+29106\,x^{7}+3514\,x^{6}-\frac{48968}{5}\,x^{5}-5148\,x^{4}+480\,x^{3}+1184\,x^{2}+384\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^7*(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] -7290*x^12 - 329508/11*x^11 - 217971/5*x^10 - 15507*x^9 + 208035/
8*x^8 + 29106*x^7 + 3514*x^6 - 48968/5*x^5 - 5148*x^4 + 480*x^3 +
 1184*x^2 + 384*x
```

3.1323 $\int (1-2x)^3(2+3x)^6(3+5x)\,dx$

Optimal. Leaf size=56

$$-\frac{40(3x+2)^{11}}{2673}+\frac{214(3x+2)^{10}}{1215}-\frac{518}{729}(3x+2)^9+\frac{2009(3x+2)^8}{1944}-\frac{49}{243}(3x+2)^7$$

```
[Out] (-49*(2 + 3*x)^7)/243 + (2009*(2 + 3*x)^8)/1944 - (518*(2 + 3*x)^
9)/729 + (214*(2 + 3*x)^10)/1215 - (40*(2 + 3*x)^11)/2673
```

Rubi [A] time = 0.0824372, antiderivative size = 56, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{40(3x+2)^{11}}{2673}+\frac{214(3x+2)^{10}}{1215}-\frac{518}{729}(3x+2)^9+\frac{2009(3x+2)^8}{1944}-\frac{49}{243}(3x+2)^7$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^3*(2 + 3*x)^6*(3 + 5*x),x]
```

```
[Out] (-49*(2 + 3*x)^7)/243 + (2009*(2 + 3*x)^8)/1944 - (518*(2 + 3*x)^
9)/729 + (214*(2 + 3*x)^10)/1215 - (40*(2 + 3*x)^11)/2673
```

Rubi in Sympy [A] time = 12.4183, size = 49, normalized size = 0.88

$$-\frac{40\,(3x+2)^{11}}{2673}+\frac{214\,(3x+2)^{10}}{1215}-\frac{518\,(3x+2)^9}{729}+\frac{2009\,(3x+2)^8}{1944}-\frac{49\,(3x+2)^7}{243}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3*(2+3*x)**6*(3+5*x),x)
```

```
[Out] -40*(3*x + 2)**11/2673 + 214*(3*x + 2)**10/1215 - 518*(3*x + 2)**
9/729 + 2009*(3*x + 2)**8/1944 - 49*(3*x + 2)**7/243
```

Mathematica [A] time = 0.00326255, size = 62, normalized size = 1.11

$$-\frac{29160x^{11}}{11}-\frac{45198x^{10}}{5}-9450x^9+\frac{10179x^8}{8}+8937x^7+4368x^6-\frac{10444x^5}{5}-2340x^4-208x^3+448x^2+192x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^3*(2 + 3*x)^6*(3 + 5*x),x]
```

```
[Out] 192*x + 448*x^2 - 208*x^3 - 2340*x^4 - (10444*x^5)/5 + 4368*x^6 +
 8937*x^7 + (10179*x^8)/8 - 9450*x^9 - (45198*x^10)/5 - (29160*x^
11)/11
```

Maple [A] time = 0.002, size = 55, normalized size = 1.

$$-\frac{29160\,x^{11}}{11}-\frac{45198\,x^{10}}{5}-9450\,x^9+\frac{10179\,x^8}{8}+8937\,x^7+4368\,x^6-\frac{10444\,x^5}{5}-2340\,x^4-208\,x^3+448\,x^2+192\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(2+3*x)^6*(3+5*x),x)
```

```
[Out] -29160/11*x^11-45198/5*x^10-9450*x^9+10179/8*x^8+8937*x^7+4368*x^
6-10444/5*x^5-2340*x^4-208*x^3+448*x^2+192*x
```

Maxima [A] time = 1.34235, size = 73, normalized size = 1.3

$$-\frac{29160}{11}\,x^{11}-\frac{45198}{5}\,x^{10}-9450\,x^{9}+\frac{10179}{8}\,x^{8}+8937\,x^{7}+4368\,x^{6}-\frac{10444}{5}\,x^{5}-2340\,x^{4}-208\,x^{3}+448\,x^{2}+192\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^6*(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] -29160/11*x^11 - 45198/5*x^10 - 9450*x^9 + 10179/8*x^8 + 8937*x^7
 + 4368*x^6 - 10444/5*x^5 - 2340*x^4 - 208*x^3 + 448*x^2 + 192*x
```

Fricas [A] time = 0.182368, size = 1, normalized size = 0.02

$$-\frac{29160}{11}x^{11}-\frac{45198}{5}x^{10}-9450x^{9}+\frac{10179}{8}x^{8}+8937x^{7}+4368x^{6}-\frac{10444}{5}x^{5}-2340x^{4}-208x^{3}+448x^{2}+192x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^6*(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -29160/11*x^11 - 45198/5*x^10 - 9450*x^9 + 10179/8*x^8 + 8937*x^7
 + 4368*x^6 - 10444/5*x^5 - 2340*x^4 - 208*x^3 + 448*x^2 + 192*x
```

Sympy [A] time = 0.112011, size = 60, normalized size = 1.07

$$-\frac{29160x^{11}}{11}-\frac{45198x^{10}}{5}-9450x^{9}+\frac{10179x^{8}}{8}+8937x^{7}+4368x^{6}-\frac{10444x^{5}}{5}-2340x^{4}-208x^{3}+448x^{2}+192x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(2+3*x)**6*(3+5*x),x)
```

```
[Out] -29160*x**11/11 - 45198*x**10/5 - 9450*x**9 + 10179*x**8/8 + 8937
*x**7 + 4368*x**6 - 10444*x**5/5 - 2340*x**4 - 208*x**3 + 448*x**
2 + 192*x
```

GIAC/XCAS [A] time = 0.205531, size = 73, normalized size = 1.3

$$-\frac{29160}{11}\,x^{11}-\frac{45198}{5}\,x^{10}-9450\,x^{9}+\frac{10179}{8}\,x^{8}+8937\,x^{7}+4368\,x^{6}-\frac{10444}{5}\,x^{5}-2340\,x^{4}-208\,x^{3}+448\,x^{2}+192\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^6*(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] -29160/11*x^11 - 45198/5*x^10 - 9450*x^9 + 10179/8*x^8 + 8937*x^7
 + 4368*x^6 - 10444/5*x^5 - 2340*x^4 - 208*x^3 + 448*x^2 + 192*x
```

3.1324 $\int (1-2x)^3(2+3x)^5(3+5x)\,dx$

Optimal. Leaf size=56

$$-\frac{4}{243}(3x+2)^{10}+\frac{428(3x+2)^9}{2187}-\frac{259}{324}(3x+2)^8+\frac{287}{243}(3x+2)^7-\frac{343(3x+2)^6}{1458}$$

```
[Out] (-343*(2 + 3*x)^6)/1458 + (287*(2 + 3*x)^7)/243 - (259*(2 + 3*x)^
8)/324 + (428*(2 + 3*x)^9)/2187 - (4*(2 + 3*x)^10)/243
```

Rubi [A] time = 0.0855785, antiderivative size = 56, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{4}{243}(3x+2)^{10}+\frac{428(3x+2)^9}{2187}-\frac{259}{324}(3x+2)^8+\frac{287}{243}(3x+2)^7-\frac{343(3x+2)^6}{1458}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^3*(2 + 3*x)^5*(3 + 5*x),x]
```

```
[Out] (-343*(2 + 3*x)^6)/1458 + (287*(2 + 3*x)^7)/243 - (259*(2 + 3*x)^
8)/324 + (428*(2 + 3*x)^9)/2187 - (4*(2 + 3*x)^10)/243
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-972x^{10}-2628x^9-\frac{6291x^8}{4}+1683x^7+\frac{4333x^6}{2}+14x^5-882x^4-256x^3+96x+304\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3*(2+3*x)**5*(3+5*x),x)
```

```
[Out] -972*x**10 - 2628*x**9 - 6291*x**8/4 + 1683*x**7 + 4333*x**6/2 +
14*x**5 - 882*x**4 - 256*x**3 + 96*x + 304*Integral(x, x)
```

Mathematica [A] time = 0.00335886, size = 53, normalized size = 0.95

$$-972x^{10}-2628x^9-\frac{6291x^8}{4}+1683x^7+\frac{4333x^6}{2}+14x^5-882x^4-256x^3+152x^2+96x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^3*(2 + 3*x)^5*(3 + 5*x),x]
```

```
[Out] 96*x + 152*x^2 - 256*x^3 - 882*x^4 + 14*x^5 + (4333*x^6)/2 + 1683
*x^7 - (6291*x^8)/4 - 2628*x^9 - 972*x^10
```

Maple [A] time = 0.001, size = 50, normalized size = 0.9

$$-972\,x^{10}-2628\,x^9-\frac{6291\,x^8}{4}+1683\,x^7+\frac{4333\,x^6}{2}+14\,x^5-882\,x^4-256\,x^3+152\,x^2+96\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(2+3*x)^5*(3+5*x),x)
```

```
[Out] -972*x^10-2628*x^9-6291/4*x^8+1683*x^7+4333/2*x^6+14*x^5-882*x^4-
256*x^3+152*x^2+96*x
```

Maxima [A] time = 1.3571, size = 66, normalized size = 1.18

$$-972\,x^{10}-2628\,x^{9}-\frac{6291}{4}\,x^{8}+1683\,x^{7}+\frac{4333}{2}\,x^{6}+14\,x^{5}-882\,x^{4}-256\,x^{3}+152\,x^{2}+96\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^5*(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] -972*x^10 - 2628*x^9 - 6291/4*x^8 + 1683*x^7 + 4333/2*x^6 + 14*x^
5 - 882*x^4 - 256*x^3 + 152*x^2 + 96*x
```

Fricas [A] time = 0.189122, size = 1, normalized size = 0.02

$$-972x^{10}-2628x^{9}-\frac{6291}{4}x^{8}+1683x^{7}+\frac{4333}{2}x^{6}+14x^{5}-882x^{4}-256x^{3}+152x^{2}+96x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^5*(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -972*x^10 - 2628*x^9 - 6291/4*x^8 + 1683*x^7 + 4333/2*x^6 + 14*x^
5 - 882*x^4 - 256*x^3 + 152*x^2 + 96*x
```

Sympy [A] time = 0.104762, size = 51, normalized size = 0.91

$$-972x^{10}-2628x^{9}-\frac{6291x^{8}}{4}+1683x^{7}+\frac{4333x^{6}}{2}+14x^{5}-882x^{4}-256x^{3}+152x^{2}+96x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(2+3*x)**5*(3+5*x),x)
```

```
[Out] -972*x**10 - 2628*x**9 - 6291*x**8/4 + 1683*x**7 + 4333*x**6/2 +
14*x**5 - 882*x**4 - 256*x**3 + 152*x**2 + 96*x
```

GIAC/XCAS [A] time = 0.210904, size = 66, normalized size = 1.18

$$-972\,x^{10}-2628\,x^{9}-\frac{6291}{4}\,x^{8}+1683\,x^{7}+\frac{4333}{2}\,x^{6}+14\,x^{5}-882\,x^{4}-256\,x^{3}+152\,x^{2}+96\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^5*(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] -972*x^10 - 2628*x^9 - 6291/4*x^8 + 1683*x^7 + 4333/2*x^6 + 14*x^
5 - 882*x^4 - 256*x^3 + 152*x^2 + 96*x
```

3.1325 $\int (1-2x)^3(2+3x)^4(3+5x)\,dx$

Optimal. Leaf size=56

$$-\frac{40(3x+2)^9}{2187}+\frac{107}{486}(3x+2)^8-\frac{74}{81}(3x+2)^7+\frac{2009(3x+2)^6}{1458}-\frac{343(3x+2)^5}{1215}$$

```
[Out] (-343*(2 + 3*x)^5)/1215 + (2009*(2 + 3*x)^6)/1458 - (74*(2 + 3*x)
^7)/81 + (107*(2 + 3*x)^8)/486 - (40*(2 + 3*x)^9)/2187
```

Rubi [A] time = 0.0748405, antiderivative size = 56, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{40(3x+2)^9}{2187}+\frac{107}{486}(3x+2)^8-\frac{74}{81}(3x+2)^7+\frac{2009(3x+2)^6}{1458}-\frac{343(3x+2)^5}{1215}$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^3*(2 + 3*x)^4*(3 + 5*x),x]
```

```
[Out] (-343*(2 + 3*x)^5)/1215 + (2009*(2 + 3*x)^6)/1458 - (74*(2 + 3*x)
^7)/81 + (107*(2 + 3*x)^8)/486 - (40*(2 + 3*x)^9)/2187
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-360x^9-\frac{1431x^8}{2}-54x^7+\frac{1393x^6}{2}+\frac{1547x^5}{5}-252x^4-168x^3+48x+80\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**3*(2+3*x)**4*(3+5*x),x)
```

```
[Out] -360*x**9 - 1431*x**8/2 - 54*x**7 + 1393*x**6/2 + 1547*x**5/5 - 2
52*x**4 - 168*x**3 + 48*x + 80*Integral(x, x)
```

Mathematica [A] time = 0.00330318, size = 50, normalized size = 0.89

$$-360x^9-\frac{1431x^8}{2}-54x^7+\frac{1393x^6}{2}+\frac{1547x^5}{5}-252x^4-168x^3+40x^2+48x$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)^3*(2 + 3*x)^4*(3 + 5*x),x]
```

```
[Out] 48*x + 40*x^2 - 168*x^3 - 252*x^4 + (1547*x^5)/5 + (1393*x^6)/2 -
 54*x^7 - (1431*x^8)/2 - 360*x^9
```

Maple [A] time = 0.002, size = 45, normalized size = 0.8

$$-360\,x^9-\frac{1431\,x^8}{2}-54\,x^7+\frac{1393\,x^6}{2}+\frac{1547\,x^5}{5}-252\,x^4-168\,x^3+40\,x^2+48\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(2+3*x)^4*(3+5*x),x)
```

```
[Out] -360*x^9-1431/2*x^8-54*x^7+1393/2*x^6+1547/5*x^5-252*x^4-168*x^3+
40*x^2+48*x
```

Maxima [A] time = 1.34056, size = 59, normalized size = 1.05

$$-360\,x^9 - \frac{1431}{2}\,x^8 - 54\,x^7 + \frac{1393}{2}\,x^6 + \frac{1547}{5}\,x^5 - 252\,x^4 - 168\,x^3 + 40\,x^2 + 48\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^4*(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] -360*x^9 - 1431/2*x^8 - 54*x^7 + 1393/2*x^6 + 1547/5*x^5 - 252*x^
4 - 168*x^3 + 40*x^2 + 48*x
```

Fricas [A] time = 0.179965, size = 1, normalized size = 0.02

$$-360x^9 - \frac{1431}{2}x^8 - 54x^7 + \frac{1393}{2}x^6 + \frac{1547}{5}x^5 - 252x^4 - 168x^3 + 40x^2 + 48x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^4*(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -360*x^9 - 1431/2*x^8 - 54*x^7 + 1393/2*x^6 + 1547/5*x^5 - 252*x^
4 - 168*x^3 + 40*x^2 + 48*x
```

Sympy [A] time = 0.097086, size = 48, normalized size = 0.86

$$-360x^9 - \frac{1431x^8}{2} - 54x^7 + \frac{1393x^6}{2} + \frac{1547x^5}{5} - 252x^4 - 168x^3 + 40x^2 + 48x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(2+3*x)**4*(3+5*x),x)
```

```
[Out] -360*x**9 - 1431*x**8/2 - 54*x**7 + 1393*x**6/2 + 1547*x**5/5 - 2
52*x**4 - 168*x**3 + 40*x**2 + 48*x
```

GIAC/XCAS [A] time = 0.20373, size = 59, normalized size = 1.05

$$-360\,x^9 - \frac{1431}{2}\,x^8 - 54\,x^7 + \frac{1393}{2}\,x^6 + \frac{1547}{5}\,x^5 - 252\,x^4 - 168\,x^3 + 40\,x^2 + 48\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^4*(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] -360*x^9 - 1431/2*x^8 - 54*x^7 + 1393/2*x^6 + 1547/5*x^5 - 252*x^
4 - 168*x^3 + 40*x^2 + 48*x
```

3.1326 $\int (1-2x)^3(2+3x)^3(3+5x)\,dx$

Optimal. Leaf size=56

$$-\frac{135}{256}(1-2x)^8+\frac{621}{112}(1-2x)^7-\frac{357}{16}(1-2x)^6+\frac{3283}{80}(1-2x)^5-\frac{3773}{128}(1-2x)^4$$

```
[Out] (-3773*(1 - 2*x)^4)/128 + (3283*(1 - 2*x)^5)/80 - (357*(1 - 2*x)^
6)/16 + (621*(1 - 2*x)^7)/112 - (135*(1 - 2*x)^8)/256
```

Rubi [A] time = 0.0724064, antiderivative size = 56, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{135}{256}(1-2x)^8+\frac{621}{112}(1-2x)^7-\frac{357}{16}(1-2x)^6+\frac{3283}{80}(1-2x)^5-\frac{3773}{128}(1-2x)^4$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^3*(2 + 3*x)^3*(3 + 5*x),x]
```

```
[Out] (-3773*(1 - 2*x)^4)/128 + (3283*(1 - 2*x)^5)/80 - (357*(1 - 2*x)^
6)/16 + (621*(1 - 2*x)^7)/112 - (135*(1 - 2*x)^8)/256
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-135x^8-\frac{1188x^7}{7}+111x^6+\frac{949x^5}{5}-\frac{117x^4}{4}-86x^3+24x+4\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3*(2+3*x)**3*(3+5*x),x)
```

```
[Out] -135*x**8 - 1188*x**7/7 + 111*x**6 + 949*x**5/5 - 117*x**4/4 - 86
*x**3 + 24*x + 4*Integral(x, x)
```

Mathematica [A] time = 0.0022562, size = 45, normalized size = 0.8

$$-135x^8-\frac{1188x^7}{7}+111x^6+\frac{949x^5}{5}-\frac{117x^4}{4}-86x^3+2x^2+24x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^3*(2 + 3*x)^3*(3 + 5*x),x]
```

```
[Out] 24*x + 2*x^2 - 86*x^3 - (117*x^4)/4 + (949*x^5)/5 + 111*x^6 - (11
88*x^7)/7 - 135*x^8
```

Maple [A] time = 0., size = 40, normalized size = 0.7

$$-135\,x^8-\frac{1188\,x^7}{7}+111\,x^6+\frac{949\,x^5}{5}-\frac{117\,x^4}{4}-86\,x^3+2\,x^2+24\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(2+3*x)^3*(3+5*x),x)
```

```
[Out] -135*x^8-1188/7*x^7+111*x^6+949/5*x^5-117/4*x^4-86*x^3+2*x^2+24*x
```

Maxima [A] time = 1.34806, size = 53, normalized size = 0.95

$$-135\,x^8 - \frac{1188}{7}\,x^7 + 111\,x^6 + \frac{949}{5}\,x^5 - \frac{117}{4}\,x^4 - 86\,x^3 + 2\,x^2 + 24\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^3*(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] -135*x^8 - 1188/7*x^7 + 111*x^6 + 949/5*x^5 - 117/4*x^4 - 86*x^3
+ 2*x^2 + 24*x
```

Fricas [A] time = 0.186375, size = 1, normalized size = 0.02

$$-135x^8 - \frac{1188}{7}x^7 + 111x^6 + \frac{949}{5}x^5 - \frac{117}{4}x^4 - 86x^3 + 2x^2 + 24x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^3*(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -135*x^8 - 1188/7*x^7 + 111*x^6 + 949/5*x^5 - 117/4*x^4 - 86*x^3
+ 2*x^2 + 24*x
```

Sympy [A] time = 0.097196, size = 42, normalized size = 0.75

$$-135x^8 - \frac{1188x^7}{7} + 111x^6 + \frac{949x^5}{5} - \frac{117x^4}{4} - 86x^3 + 2x^2 + 24x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(2+3*x)**3*(3+5*x),x)
```

```
[Out] -135*x**8 - 1188*x**7/7 + 111*x**6 + 949*x**5/5 - 117*x**4/4 - 86
*x**3 + 2*x**2 + 24*x
```

GIAC/XCAS [A] time = 0.207941, size = 53, normalized size = 0.95

$$-135\,x^8 - \frac{1188}{7}\,x^7 + 111\,x^6 + \frac{949}{5}\,x^5 - \frac{117}{4}\,x^4 - 86\,x^3 + 2\,x^2 + 24\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^3*(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] -135*x^8 - 1188/7*x^7 + 111*x^6 + 949/5*x^5 - 117/4*x^4 - 86*x^3
+ 2*x^2 + 24*x
```

3.1327 $\int (1-2x)^3(2+3x)^2(3+5x)\,dx$

Optimal. Leaf size=45

$$\frac{45}{112}(1-2x)^7-\frac{103}{32}(1-2x)^6+\frac{707}{80}(1-2x)^5-\frac{539}{64}(1-2x)^4$$

```
[Out] (-539*(1 - 2*x)^4)/64 + (707*(1 - 2*x)^5)/80 - (103*(1 - 2*x)^6)/
32 + (45*(1 - 2*x)^7)/112
```

Rubi [A] time = 0.0629023, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$\frac{45}{112}(1-2x)^7-\frac{103}{32}(1-2x)^6+\frac{707}{80}(1-2x)^5-\frac{539}{64}(1-2x)^4$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^3*(2 + 3*x)^2*(3 + 5*x),x]
```

```
[Out] (-539*(1 - 2*x)^4)/64 + (707*(1 - 2*x)^5)/80 - (103*(1 - 2*x)^6)/
32 + (45*(1 - 2*x)^7)/112
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{360x^7}{7}-26x^6+\frac{326x^5}{5}+\frac{99x^4}{4}-35x^3+12x-16\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3*(2+3*x)**2*(3+5*x),x)
```

```
[Out] -360*x**7/7 - 26*x**6 + 326*x**5/5 + 99*x**4/4 - 35*x**3 + 12*x -
 16*Integral(x, x)
```

Mathematica [A] time = 0.00188534, size = 40, normalized size = 0.89

$$-\frac{360x^7}{7}-26x^6+\frac{326x^5}{5}+\frac{99x^4}{4}-35x^3-8x^2+12x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^3*(2 + 3*x)^2*(3 + 5*x),x]
```

```
[Out] 12*x - 8*x^2 - 35*x^3 + (99*x^4)/4 + (326*x^5)/5 - 26*x^6 - (360*
x^7)/7
```

Maple [A] time = 0.002, size = 35, normalized size = 0.8

$$-\frac{360\,x^7}{7}-26\,x^6+\frac{326\,x^5}{5}+\frac{99\,x^4}{4}-35\,x^3-8\,x^2+12\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(2+3*x)^2*(3+5*x),x)
```

```
[Out] -360/7*x^7-26*x^6+326/5*x^5+99/4*x^4-35*x^3-8*x^2+12*x
```

Maxima [A] time = 1.33941, size = 46, normalized size = 1.02

$$-\frac{360}{7}\,x^7 - 26\,x^6 + \frac{326}{5}\,x^5 + \frac{99}{4}\,x^4 - 35\,x^3 - 8\,x^2 + 12\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^2*(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] -360/7*x^7 - 26*x^6 + 326/5*x^5 + 99/4*x^4 - 35*x^3 - 8*x^2 + 12*
x
```

Fricas [A] time = 0.184522, size = 1, normalized size = 0.02

$$-\frac{360}{7}x^7 - 26x^6 + \frac{326}{5}x^5 + \frac{99}{4}x^4 - 35x^3 - 8x^2 + 12x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^2*(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -360/7*x^7 - 26*x^6 + 326/5*x^5 + 99/4*x^4 - 35*x^3 - 8*x^2 + 12*
x
```

Sympy [A] time = 0.084587, size = 37, normalized size = 0.82

$$-\frac{360x^7}{7} - 26x^6 + \frac{326x^5}{5} + \frac{99x^4}{4} - 35x^3 - 8x^2 + 12x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(2+3*x)**2*(3+5*x),x)
```

```
[Out] -360*x**7/7 - 26*x**6 + 326*x**5/5 + 99*x**4/4 - 35*x**3 - 8*x**2
 + 12*x
```

GIAC/XCAS [A] time = 0.207672, size = 46, normalized size = 1.02

$$-\frac{360}{7}\,x^7 - 26\,x^6 + \frac{326}{5}\,x^5 + \frac{99}{4}\,x^4 - 35\,x^3 - 8\,x^2 + 12\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^2*(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] -360/7*x^7 - 26*x^6 + 326/5*x^5 + 99/4*x^4 - 35*x^3 - 8*x^2 + 12*
x
```

3.1328 $\int (1-2x)^3(2+3x)(3+5x)\,dx$

Optimal. Leaf size=34

$$-\frac{5}{16}(1-2x)^6+\frac{17}{10}(1-2x)^5-\frac{77}{32}(1-2x)^4$$

```
[Out] (-77*(1 - 2*x)^4)/32 + (17*(1 - 2*x)^5)/10 - (5*(1 - 2*x)^6)/16
```

Rubi [A] time = 0.0469735, antiderivative size = 34, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{5}{16}(1-2x)^6+\frac{17}{10}(1-2x)^5-\frac{77}{32}(1-2x)^4$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^3*(2 + 3*x)*(3 + 5*x),x]
```

```
[Out] (-77*(1 - 2*x)^4)/32 + (17*(1 - 2*x)^5)/10 - (5*(1 - 2*x)^6)/16
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-20x^6+\frac{28x^5}{5}+\frac{45x^4}{2}-9x^3+6x-17\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**3*(2+3*x)*(3+5*x),x)
```

```
[Out] -20*x**6 + 28*x**5/5 + 45*x**4/2 - 9*x**3 + 6*x - 17*Integral(x,
x)
```

Mathematica [A] time = 0.00128505, size = 35, normalized size = 1.03

$$-20x^6+\frac{28x^5}{5}+\frac{45x^4}{2}-9x^3-\frac{17x^2}{2}+6x$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)^3*(2 + 3*x)*(3 + 5*x),x]
```

```
[Out] 6*x - (17*x^2)/2 - 9*x^3 + (45*x^4)/2 + (28*x^5)/5 - 20*x^6
```

Maple [A] time = 0., size = 30, normalized size = 0.9

$$-20\,x^6+\frac{28\,x^5}{5}+\frac{45\,x^4}{2}-9\,x^3-\frac{17\,x^2}{2}+6\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((1-2*x)^3*(2+3*x)*(3+5*x),x)
```

```
[Out] -20*x^6+28/5*x^5+45/2*x^4-9*x^3-17/2*x^2+6*x
```

Maxima [A] time = 1.3485, size = 39, normalized size = 1.15

$$-20\,x^6+\frac{28}{5}\,x^5+\frac{45}{2}\,x^4-9\,x^3-\frac{17}{2}\,x^2+6\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)*(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] -20*x^6 + 28/5*x^5 + 45/2*x^4 - 9*x^3 - 17/2*x^2 + 6*x
```

Fricas [A] time = 0.186382, size = 1, normalized size = 0.03

$$-20x^6+\frac{28}{5}x^5+\frac{45}{2}x^4-9x^3-\frac{17}{2}x^2+6x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)*(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -20*x^6 + 28/5*x^5 + 45/2*x^4 - 9*x^3 - 17/2*x^2 + 6*x
```

Sympy [A] time = 0.078336, size = 32, normalized size = 0.94

$$-20x^6+\frac{28x^5}{5}+\frac{45x^4}{2}-9x^3-\frac{17x^2}{2}+6x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(2+3*x)*(3+5*x),x)
```

```
[Out] -20*x**6 + 28*x**5/5 + 45*x**4/2 - 9*x**3 - 17*x**2/2 + 6*x
```

GIAC/XCAS [A] time = 0.208441, size = 39, normalized size = 1.15

$$-20\,x^6+\frac{28}{5}\,x^5+\frac{45}{2}\,x^4-9\,x^3-\frac{17}{2}\,x^2+6\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)*(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] -20*x^6 + 28/5*x^5 + 45/2*x^4 - 9*x^3 - 17/2*x^2 + 6*x
```

3.1329 $\int (1-2x)^3(3+5x)\,dx$

Optimal. Leaf size=23

$$\frac{1}{4}(1-2x)^5-\frac{11}{16}(1-2x)^4$$

```
[Out] (-11*(1 - 2*x)^4)/16 + (1 - 2*x)^5/4
```

Rubi [A] time = 0.0203887, antiderivative size = 23, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 13, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.077

$$\frac{1}{4}(1-2x)^5-\frac{11}{16}(1-2x)^4$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^3*(3 + 5*x),x]
```

```
[Out] (-11*(1 - 2*x)^4)/16 + (1 - 2*x)^5/4
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-8x^5+9x^4+2x^3+3x-13\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**3*(3+5*x),x)
```

```
[Out] -8*x**5 + 9*x**4 + 2*x**3 + 3*x - 13*Integral(x, x)
```

Mathematica [A] time = 0.0014588, size = 26, normalized size = 1.13

$$-8x^5+9x^4+2x^3-\frac{13x^2}{2}+3x$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)^3*(3 + 5*x),x]
```

```
[Out] 3*x - (13*x^2)/2 + 2*x^3 + 9*x^4 - 8*x^5
```

Maple [A] time = 0.001, size = 25, normalized size = 1.1

$$-8\,x^5+9\,x^4+2\,x^3-\frac{13\,x^2}{2}+3\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((1-2*x)^3*(3+5*x),x)
```

```
[Out] -8*x^5+9*x^4+2*x^3-13/2*x^2+3*x
```

Maxima [A] time = 1.34143, size = 32, normalized size = 1.39

$$-8\,x^5+9\,x^4+2\,x^3-\frac{13}{2}\,x^2+3\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] -8*x^5 + 9*x^4 + 2*x^3 - 13/2*x^2 + 3*x
```

Fricas [A] time = 0.183383, size = 1, normalized size = 0.04

$$-8x^5+9x^4+2x^3-\frac{13}{2}x^2+3x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -8*x^5 + 9*x^4 + 2*x^3 - 13/2*x^2 + 3*x
```

Sympy [A] time = 0.076498, size = 24, normalized size = 1.04

$$-8x^5+9x^4+2x^3-\frac{13x^2}{2}+3x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(3+5*x),x)
```

```
[Out] -8*x**5 + 9*x**4 + 2*x**3 - 13*x**2/2 + 3*x
```

GIAC/XCAS [A] time = 0.207287, size = 32, normalized size = 1.39

$$-8\,x^5+9\,x^4+2\,x^3-\frac{13}{2}\,x^2+3\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] -8*x^5 + 9*x^4 + 2*x^3 - 13/2*x^2 + 3*x
```

3.1330 $\int \frac{(1-2x)^3(3+5x)}{2+3x} dx$

Optimal. Leaf size=37

$$-\frac{10x^4}{3}+\frac{188x^3}{27}-\frac{161x^2}{27}+\frac{293x}{81}-\frac{343}{243}\log(3x+2)$$

```
[Out] (293*x)/81 - (161*x^2)/27 + (188*x^3)/27 - (10*x^4)/3 - (343*Log[
2 + 3*x])/243
```

Rubi [A] time = 0.0347559, antiderivative size = 37, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{10x^4}{3}+\frac{188x^3}{27}-\frac{161x^2}{27}+\frac{293x}{81}-\frac{343}{243}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)^3*(3 + 5*x))/(2 + 3*x),x]
```

```
[Out] (293*x)/81 - (161*x^2)/27 + (188*x^3)/27 - (10*x^4)/3 - (343*Log[
2 + 3*x])/243
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{10x^4}{3}+\frac{188x^3}{27}-\frac{343\log(3x+2)}{243}+\int\frac{293}{81}\,dx-\frac{322\int x\,dx}{27}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**3*(3+5*x)/(2+3*x),x)
```

```
[Out] -10*x**4/3 + 188*x**3/27 - 343*log(3*x + 2)/243 + Integral(293/81
, x) - 322*Integral(x, x)/27
```

Mathematica [A] time = 0.0192441, size = 32, normalized size = 0.86

$$\frac{1}{729}\left(-2430x^4+5076x^3-4347x^2+2637x-1029\log(3x+2)+5674\right)$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)^3*(3 + 5*x))/(2 + 3*x),x]
```

```
[Out] (5674 + 2637*x - 4347*x^2 + 5076*x^3 - 2430*x^4 - 1029*Log[2 + 3*
x])/729
```

Maple [A] time = 0.003, size = 28, normalized size = 0.8

$$\frac{293\,x}{81}-\frac{161\,x^2}{27}+\frac{188\,x^3}{27}-\frac{10\,x^4}{3}-\frac{343\,\ln(2+3\,x)}{243}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(3+5*x)/(2+3*x),x)
```

```
[Out] 293/81*x-161/27*x^2+188/27*x^3-10/3*x^4-343/243*ln(2+3*x)
```

Maxima [A] time = 1.3403, size = 36, normalized size = 0.97

$$-\frac{10}{3}\,x^4+\frac{188}{27}\,x^3-\frac{161}{27}\,x^2+\frac{293}{81}\,x-\frac{343}{243}\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1)^3/(3*x + 2),x, algorithm="maxima")
```

```
[Out] -10/3*x^4 + 188/27*x^3 - 161/27*x^2 + 293/81*x - 343/243*log(3*x
+ 2)
```

Fricas [A] time = 0.217396, size = 36, normalized size = 0.97

$$-\frac{10}{3}\,x^4+\frac{188}{27}\,x^3-\frac{161}{27}\,x^2+\frac{293}{81}\,x-\frac{343}{243}\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1)^3/(3*x + 2),x, algorithm="fricas")
```

```
[Out] -10/3*x^4 + 188/27*x^3 - 161/27*x^2 + 293/81*x - 343/243*log(3*x
+ 2)
```

Sympy [A] time = 0.175261, size = 34, normalized size = 0.92

$$-\frac{10x^4}{3}+\frac{188x^3}{27}-\frac{161x^2}{27}+\frac{293x}{81}-\frac{343\log\left(3x+2\right)}{243}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(3+5*x)/(2+3*x),x)
```

```
[Out] -10*x**4/3 + 188*x**3/27 - 161*x**2/27 + 293*x/81 - 343*log(3*x +
 2)/243
```

GIAC/XCAS [A] time = 0.211317, size = 38, normalized size = 1.03

$$-\frac{10}{3}\,x^4+\frac{188}{27}\,x^3-\frac{161}{27}\,x^2+\frac{293}{81}\,x-\frac{343}{243}\,\ln\left(|3\,x+2|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1)^3/(3*x + 2),x, algorithm="giac")
```

```
[Out] -10/3*x^4 + 188/27*x^3 - 161/27*x^2 + 293/81*x - 343/243*ln(abs(3
*x + 2))
```

3.1331 $\int \frac{(1-2x)^3(3+5x)}{(2+3x)^2} dx$

Optimal. Leaf size=41

$$-\frac{40x^3}{27}+\frac{134x^2}{27}-\frac{286x}{27}+\frac{343}{243(3x+2)}+\frac{2009}{243}\log(3x+2)$$

```
[Out] (-286*x)/27 + (134*x^2)/27 - (40*x^3)/27 + 343/(243*(2 + 3*x)) +
(2009*Log[2 + 3*x])/243
```

Rubi [A] time = 0.0479219, antiderivative size = 41, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{40x^3}{27}+\frac{134x^2}{27}-\frac{286x}{27}+\frac{343}{243(3x+2)}+\frac{2009}{243}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^3*(3 + 5*x))/(2 + 3*x)^2,x]
```

```
[Out] (-286*x)/27 + (134*x^2)/27 - (40*x^3)/27 + 343/(243*(2 + 3*x)) +
(2009*Log[2 + 3*x])/243
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{40x^3}{27}+\frac{2009\log(3x+2)}{243}+\int\left(-\frac{286}{27}\right)dx+\frac{268\int x\,dx}{27}+\frac{343}{243(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3*(3+5*x)/(2+3*x)**2,x)
```

```
[Out] -40*x**3/27 + 2009*log(3*x + 2)/243 + Integral(-286/27, x) + 268*
Integral(x, x)/27 + 343/(243*(3*x + 2))
```

Mathematica [A] time = 0.0202488, size = 44, normalized size = 1.07

$$\frac{-2160x^4+5796x^3-10620x^2-4113x+4018(3x+2)\log(6x+4)+4808}{486(3x+2)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^3*(3 + 5*x))/(2 + 3*x)^2,x]
```

```
[Out] (4808 - 4113*x - 10620*x^2 + 5796*x^3 - 2160*x^4 + 4018*(2 + 3*x)
*Log[4 + 6*x])/(486*(2 + 3*x))
```

Maple [A] time = 0.009, size = 32, normalized size = 0.8

$$-\frac{286\,x}{27}+\frac{134\,x^2}{27}-\frac{40\,x^3}{27}+\frac{343}{486+729\,x}+\frac{2009\,\ln(2+3\,x)}{243}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(3+5*x)/(2+3*x)^2,x)
```

```
[Out] -286/27*x+134/27*x^2-40/27*x^3+343/243/(2+3*x)+2009/243*ln(2+3*x)
```

Maxima [A] time = 1.34088, size = 42, normalized size = 1.02

$$-\frac{40}{27}\,x^3+\frac{134}{27}\,x^2-\frac{286}{27}\,x+\frac{343}{243\,(3\,x+2)}+\frac{2009}{243}\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1)^3/(3*x + 2)^2,x, algorithm="maxima")
```

```
[Out] -40/27*x^3 + 134/27*x^2 - 286/27*x + 343/243/(3*x + 2) + 2009/243
*log(3*x + 2)
```

Fricas [A] time = 0.212816, size = 57, normalized size = 1.39

$$-\frac{1080\,x^4-2898\,x^3+5310\,x^2-2009\,(3\,x+2)\log\left(3\,x+2\right)+5148\,x-343}{243\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1)^3/(3*x + 2)^2,x, algorithm="fricas")
```

```
[Out] -1/243*(1080*x^4 - 2898*x^3 + 5310*x^2 - 2009*(3*x + 2)*log(3*x +
 2) + 5148*x - 343)/(3*x + 2)
```

Sympy [A] time = 0.213899, size = 34, normalized size = 0.83

$$-\frac{40x^3}{27}+\frac{134x^2}{27}-\frac{286x}{27}+\frac{2009\log\left(3x+2\right)}{243}+\frac{343}{729x+486}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(3+5*x)/(2+3*x)**2,x)
```

```
[Out] -40*x**3/27 + 134*x**2/27 - 286*x/27 + 2009*log(3*x + 2)/243 + 34
3/(729*x + 486)
```

GIAC/XCAS [A] time = 0.206878, size = 77, normalized size = 1.88

$$\frac{2}{729}\,(3\,x+2)^3\left(\frac{321}{3\,x+2}-\frac{2331}{(3\,x+2)^2}-20\right)+\frac{343}{243\,(3\,x+2)}-\frac{2009}{243}\ln\left(\frac{|3\,x+2|}{3\,(3\,x+2)^2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1)^3/(3*x + 2)^2,x, algorithm="giac")
```

```
[Out] 2/729*(3*x + 2)^3*(321/(3*x + 2) - 2331/(3*x + 2)^2 - 20) + 343/2
43/(3*x + 2) - 2009/243*ln(1/3*abs(3*x + 2)/(3*x + 2)^2)
```

3.1332 $\int \frac{(1-2x)^3(3+5x)}{(2+3x)^3} dx$

Optimal. Leaf size=45

$$-\frac{20x^2}{27}+\frac{116x}{27}-\frac{2009}{243(3x+2)}+\frac{343}{486(3x+2)^2}-\frac{518}{81}\log(3x+2)$$

```
[Out] (116*x)/27 - (20*x^2)/27 + 343/(486*(2 + 3*x)^2) - 2009/(243*(2 +
 3*x)) - (518*Log[2 + 3*x])/81
```

Rubi [A] time = 0.054711, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{20x^2}{27}+\frac{116x}{27}-\frac{2009}{243(3x+2)}+\frac{343}{486(3x+2)^2}-\frac{518}{81}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)^3*(3 + 5*x))/(2 + 3*x)^3,x]
```

```
[Out] (116*x)/27 - (20*x^2)/27 + 343/(486*(2 + 3*x)^2) - 2009/(243*(2 +
 3*x)) - (518*Log[2 + 3*x])/81
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{518\log(3x+2)}{81}+\int\frac{116}{27}\,dx-\frac{40\int x\,dx}{27}-\frac{2009}{243(3x+2)}+\frac{343}{486(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**3*(3+5*x)/(2+3*x)**3,x)
```

```
[Out] -518*log(3*x + 2)/81 + Integral(116/27, x) - 40*Integral(x, x)/27
 - 2009/(243*(3*x + 2)) + 343/(486*(3*x + 2)**2)
```

Mathematica [A] time = 0.0304589, size = 46, normalized size = 1.02

$$-\frac{3240x^4-14472x^3-15030x^2+15150x+3108(3x+2)^2\log(6x+4)+11509}{486(3x+2)^2}$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)^3*(3 + 5*x))/(2 + 3*x)^3,x]
```

```
[Out] -(11509 + 15150*x - 15030*x^2 - 14472*x^3 + 3240*x^4 + 3108*(2 +
3*x)^2*Log[4 + 6*x])/(486*(2 + 3*x)^2)
```

Maple [A] time = 0.01, size = 36, normalized size = 0.8

$$\frac{116\,x}{27}-\frac{20\,x^2}{27}+\frac{343}{486\,(2+3\,x)^2}-\frac{2009}{486+729\,x}-\frac{518\,\ln(2+3\,x)}{81}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(3+5*x)/(2+3*x)^3,x)
```

```
[Out] 116/27*x-20/27*x^2+343/486/(2+3*x)^2-2009/243/(2+3*x)-518/81*ln(2
+3*x)
```

Maxima [A] time = 1.34837, size = 49, normalized size = 1.09

$$-\frac{20}{27}\,x^2+\frac{116}{27}\,x-\frac{49\,(246\,x+157)}{486\,(9\,x^2+12\,x+4)}-\frac{518}{81}\,\log(3\,x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1)^3/(3*x + 2)^3,x, algorithm="maxima")
```

```
[Out] -20/27*x^2 + 116/27*x - 49/486*(246*x + 157)/(9*x^2 + 12*x + 4) -
 518/81*log(3*x + 2)
```

Fricas [A] time = 0.216058, size = 70, normalized size = 1.56

$$-\frac{3240\,x^4-14472\,x^3-23616\,x^2+3108\,\left(9\,x^2+12\,x+4\right)\,\log(3\,x+2)+3702\,x+7693}{486\,(9\,x^2+12\,x+4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1)^3/(3*x + 2)^3,x, algorithm="fricas")
```

```
[Out] -1/486*(3240*x^4 - 14472*x^3 - 23616*x^2 + 3108*(9*x^2 + 12*x + 4
)*log(3*x + 2) + 3702*x + 7693)/(9*x^2 + 12*x + 4)
```

Sympy [A] time = 0.269699, size = 36, normalized size = 0.8

$$-\frac{20x^2}{27}+\frac{116x}{27}-\frac{12054x+7693}{4374x^2+5832x+1944}-\frac{518\log(3x+2)}{81}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(3+5*x)/(2+3*x)**3,x)
```

```
[Out] -20*x**2/27 + 116*x/27 - (12054*x + 7693)/(4374*x**2 + 5832*x + 1
944) - 518*log(3*x + 2)/81
```

GIAC/XCAS [A] time = 0.209486, size = 43, normalized size = 0.96

$$-\frac{20}{27}\,x^2+\frac{116}{27}\,x-\frac{49\,(246\,x+157)}{486\,(3\,x+2)^2}-\frac{518}{81}\,\ln(|3\,x+2|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1)^3/(3*x + 2)^3,x, algorithm="giac")
```

```
[Out] -20/27*x^2 + 116/27*x - 49/486*(246*x + 157)/(3*x + 2)^2 - 518/81
*ln(abs(3*x + 2))
```

3.1333 $\int \frac{(1-2x)^3(3+5x)}{(2+3x)^4} \, dx$

Optimal. Leaf size=49

$$-\frac{40x}{81}+\frac{518}{81(3x+2)}-\frac{2009}{486(3x+2)^2}+\frac{343}{729(3x+2)^3}+\frac{428}{243}\log(3x+2)$$

```
[Out] (-40*x)/81 + 343/(729*(2 + 3*x)^3) - 2009/(486*(2 + 3*x)^2) + 518
/(81*(2 + 3*x)) + (428*Log[2 + 3*x])/243
```

Rubi [A] time = 0.0541731, antiderivative size = 49, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{40x}{81}+\frac{518}{81(3x+2)}-\frac{2009}{486(3x+2)^2}+\frac{343}{729(3x+2)^3}+\frac{428}{243}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^3*(3 + 5*x))/(2 + 3*x)^4,x]
```

```
[Out] (-40*x)/81 + 343/(729*(2 + 3*x)^3) - 2009/(486*(2 + 3*x)^2) + 518
/(81*(2 + 3*x)) + (428*Log[2 + 3*x])/243
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{428\log(3x+2)}{243}+\int\left(-\frac{40}{81}\right)dx+\frac{518}{81(3x+2)}-\frac{2009}{486(3x+2)^2}+\frac{343}{729(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3*(3+5*x)/(2+3*x)**4,x)
```

```
[Out] 428*log(3*x + 2)/243 + Integral(-40/81, x) + 518/(81*(3*x + 2)) -
 2009/(486*(3*x + 2)**2) + 343/(729*(3*x + 2)**3)
```

Mathematica [A] time = 0.0255186, size = 46, normalized size = 0.94

$$\frac{-19440x^4-51840x^3+32076x^2+70767x+2568(3x+2)^3\log(3x+2)+22088}{1458(3x+2)^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^3*(3 + 5*x))/(2 + 3*x)^4,x]
```

```
[Out] (22088 + 70767*x + 32076*x^2 - 51840*x^3 - 19440*x^4 + 2568*(2 +
3*x)^3*Log[2 + 3*x])/(1458*(2 + 3*x)^3)
```

Maple [A] time = 0.01, size = 40, normalized size = 0.8

$$-\frac{40x}{81}+\frac{343}{729(2+3x)^3}-\frac{2009}{486(2+3x)^2}+\frac{518}{162+243x}+\frac{428\ln(2+3x)}{243}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(3+5*x)/(2+3*x)^4,x)
```

```
[Out] -40/81*x+343/729/(2+3*x)^3-2009/486/(2+3*x)^2+518/81/(2+3*x)+428/
243*ln(2+3*x)
```

Maxima [A] time = 1.34785, size = 55, normalized size = 1.12

$$-\frac{40}{81}\,x+\frac{7\,\left(11988\,x^{2}+13401\,x+3704\right)}{1458\,\left(27\,x^{3}+54\,x^{2}+36\,x+8\right)}+\frac{428}{243}\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1)^3/(3*x + 2)^4,x, algorithm="maxima")
```

```
[Out] -40/81*x + 7/1458*(11988*x^2 + 13401*x + 3704)/(27*x^3 + 54*x^2 +
 36*x + 8) + 428/243*log(3*x + 2)
```

Fricas [A] time = 0.210349, size = 84, normalized size = 1.71

$$-\frac{19440\,x^{4}+38880\,x^{3}-57996\,x^{2}-2568\,\left(27\,x^{3}+54\,x^{2}+36\,x+8\right)\,\log\left(3\,x+2\right)-88047\,x-25928}{1458\,\left(27\,x^{3}+54\,x^{2}+36\,x+8\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1)^3/(3*x + 2)^4,x, algorithm="fricas")
```

```
[Out] -1/1458*(19440*x^4 + 38880*x^3 - 57996*x^2 - 2568*(27*x^3 + 54*x^
2 + 36*x + 8)*log(3*x + 2) - 88047*x - 25928)/(27*x^3 + 54*x^2 +
36*x + 8)
```

Sympy [A] time = 0.320873, size = 39, normalized size = 0.8

$$-\frac{40x}{81}+\frac{83916x^{2}+93807x+25928}{39366x^{3}+78732x^{2}+52488x+11664}+\frac{428\log\left(3x+2\right)}{243}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(3+5*x)/(2+3*x)**4,x)
```

```
[Out] -40*x/81 + (83916*x**2 + 93807*x + 25928)/(39366*x**3 + 78732*x**
2 + 52488*x + 11664) + 428*log(3*x + 2)/243
```

GIAC/XCAS [A] time = 0.20569, size = 43, normalized size = 0.88

$$-\frac{40}{81}\,x+\frac{7\,\left(11988\,x^{2}+13401\,x+3704\right)}{1458\,\left(3\,x+2\right)^{3}}+\frac{428}{243}\,\ln\left(\left|3\,x+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1)^3/(3*x + 2)^4,x, algorithm="giac")
```

```
[Out] -40/81*x + 7/1458*(11988*x^2 + 13401*x + 3704)/(3*x + 2)^3 + 428/
243*ln(abs(3*x + 2))
```

3.1334 $\int \frac{(1-2x)^3(3+5x)}{(2+3x)^5}\,dx$

Optimal. Leaf size=55

$$-\frac{428}{243(3x+2)}+\frac{259}{81(3x+2)^2}-\frac{2009}{729(3x+2)^3}+\frac{343}{972(3x+2)^4}-\frac{40}{243}\log(3x+2)$$

```
[Out] 343/(972*(2 + 3*x)^4) - 2009/(729*(2 + 3*x)^3) + 259/(81*(2 + 3*x
)^2) - 428/(243*(2 + 3*x)) - (40*Log[2 + 3*x])/243
```

Rubi [A] time = 0.0531095, antiderivative size = 55, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{428}{243(3x+2)}+\frac{259}{81(3x+2)^2}-\frac{2009}{729(3x+2)^3}+\frac{343}{972(3x+2)^4}-\frac{40}{243}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)^3*(3 + 5*x))/(2 + 3*x)^5,x]
```

```
[Out] 343/(972*(2 + 3*x)^4) - 2009/(729*(2 + 3*x)^3) + 259/(81*(2 + 3*x
)^2) - 428/(243*(2 + 3*x)) - (40*Log[2 + 3*x])/243
```

Rubi in Sympy [A] time = 8.82551, size = 46, normalized size = 0.84

$$-\frac{40\log(3x+2)}{243}-\frac{428}{243(3x+2)}+\frac{259}{81(3x+2)^2}-\frac{2009}{729(3x+2)^3}+\frac{343}{972(3x+2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**3*(3+5*x)/(2+3*x)**5,x)
```

```
[Out] -40*log(3*x + 2)/243 - 428/(243*(3*x + 2)) + 259/(81*(3*x + 2)**2
) - 2009/(729*(3*x + 2)**3) + 343/(972*(3*x + 2)**4)
```

Mathematica [A] time = 0.0256246, size = 41, normalized size = 0.75

$$-\frac{138672x^3+193428x^2+97116x+480(3x+2)^4\log(6x+4)+18835}{2916(3x+2)^4}$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)^3*(3 + 5*x))/(2 + 3*x)^5,x]
```

```
[Out] -(18835 + 97116*x + 193428*x^2 + 138672*x^3 + 480*(2 + 3*x)^4*Log
[4 + 6*x])/(2916*(2 + 3*x)^4)
```

Maple [A] time = 0.01, size = 46, normalized size = 0.8

$$\frac{343}{972\,(2+3\,x)^4}-\frac{2009}{729\,(2+3\,x)^3}+\frac{259}{81\,(2+3\,x)^2}-\frac{428}{486+729\,x}-\frac{40\,\ln(2+3\,x)}{243}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(3+5*x)/(2+3*x)^5,x)
```

```
[Out] 343/972/(2+3*x)^4-2009/729/(2+3*x)^3+259/81/(2+3*x)^2-428/243/(2+
3*x)-40/243*ln(2+3*x)
```

Maxima [A] time = 1.34772, size = 65, normalized size = 1.18

$$-\frac{138672\,x^3+193428\,x^2+97116\,x+18835}{2916\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}-\frac{40}{243}\,\log(3\,x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1)^3/(3*x + 2)^5,x, algorithm="maxima")
```

```
[Out] -1/2916*(138672*x^3 + 193428*x^2 + 97116*x + 18835)/(81*x^4 + 216
*x^3 + 216*x^2 + 96*x + 16) - 40/243*log(3*x + 2)
```

Fricas [A] time = 0.214389, size = 90, normalized size = 1.64

$$-\frac{138672\,x^3+193428\,x^2+480\,\left(81\,x^4+216\,x^3+216\,x^2+96\,x+16\right)\log(3\,x+2)+97116\,x+18835}{2916\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1)^3/(3*x + 2)^5,x, algorithm="fricas")
```

```
[Out] -1/2916*(138672*x^3 + 193428*x^2 + 480*(81*x^4 + 216*x^3 + 216*x^
2 + 96*x + 16)*log(3*x + 2) + 97116*x + 18835)/(81*x^4 + 216*x^3
+ 216*x^2 + 96*x + 16)
```

Sympy [A] time = 0.373495, size = 46, normalized size = 0.84

$$-\frac{138672x^3+193428x^2+97116x+18835}{236196x^4+629856x^3+629856x^2+279936x+46656}-\frac{40\log(3x+2)}{243}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(3+5*x)/(2+3*x)**5,x)
```

```
[Out] -(138672*x**3 + 193428*x**2 + 97116*x + 18835)/(236196*x**4 + 629
856*x**3 + 629856*x**2 + 279936*x + 46656) - 40*log(3*x + 2)/243
```

GIAC/XCAS [A] time = 0.216805, size = 74, normalized size = 1.35

$$-\frac{428}{243\,(3\,x+2)}+\frac{259}{81\,(3\,x+2)^2}-\frac{2009}{729\,(3\,x+2)^3}+\frac{343}{972\,(3\,x+2)^4}+\frac{40}{243}\ln\left(\frac{|3\,x+2|}{3\,(3\,x+2)^2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1)^3/(3*x + 2)^5,x, algorithm="giac")
```

```
[Out] -428/243/(3*x + 2) + 259/81/(3*x + 2)^2 - 2009/729/(3*x + 2)^3 +
343/972/(3*x + 2)^4 + 40/243*ln(1/3*abs(3*x + 2)/(3*x + 2)^2)
```

3.1335 $\int \frac{(1-2x)^3(3+5x)}{(2+3x)^6}\,dx$

Optimal. Leaf size=37

$$\frac{(1-2x)^4}{105(3x+2)^5}-\frac{173(1-2x)^4}{2940(3x+2)^4}$$

```
[Out] (1 - 2*x)^4/(105*(2 + 3*x)^5) - (173*(1 - 2*x)^4)/(2940*(2 + 3*x)
^4)
```

Rubi [A] time = 0.0368793, antiderivative size = 37, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.1

$$\frac{(1-2x)^4}{105(3x+2)^5}-\frac{173(1-2x)^4}{2940(3x+2)^4}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^3*(3 + 5*x))/(2 + 3*x)^6,x]
```

```
[Out] (1 - 2*x)^4/(105*(2 + 3*x)^5) - (173*(1 - 2*x)^4)/(2940*(2 + 3*x)
^4)
```

Rubi in Sympy [A] time = 5.29486, size = 31, normalized size = 0.84

$$-\frac{173\left(-2x+1\right)^4}{2940\left(3x+2\right)^4}+\frac{\left(-2x+1\right)^4}{105\left(3x+2\right)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3*(3+5*x)/(2+3*x)**6,x)
```

```
[Out] -173*(-2*x + 1)**4/(2940*(3*x + 2)**4) + (-2*x + 1)**4/(105*(3*x
+ 2)**5)
```

Mathematica [A] time = 0.0183453, size = 31, normalized size = 0.84

$$\frac{64800x^4+57240x^3+34920x^2+16905x+1282}{4860(3x+2)^5}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^3*(3 + 5*x))/(2 + 3*x)^6,x]
```

```
[Out] (1282 + 16905*x + 34920*x^2 + 57240*x^3 + 64800*x^4)/(4860*(2 + 3
*x)^5)
```

Maple [A] time = 0.008, size = 47, normalized size = 1.3

$$\frac{343}{1215\,\left(2+3\,x\right)^5}+\frac{40}{486+729\,x}+\frac{518}{243\,\left(2+3\,x\right)^3}-\frac{2009}{972\,\left(2+3\,x\right)^4}-\frac{214}{243\,\left(2+3\,x\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(3+5*x)/(2+3*x)^6,x)
```

```
[Out] 343/1215/(2+3*x)^5+40/243/(2+3*x)+518/243/(2+3*x)^3-2009/972/(2+3
*x)^4-214/243/(2+3*x)^2
```

Maxima [A] time = 1.35065, size = 66, normalized size = 1.78

$$\frac{64800\,x^4 + 57240\,x^3 + 34920\,x^2 + 16905\,x + 1282}{4860\,(243\,x^5 + 810\,x^4 + 1080\,x^3 + 720\,x^2 + 240\,x + 32)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1)^3/(3*x + 2)^6,x, algorithm="maxima")
```

```
[Out] 1/4860*(64800*x^4 + 57240*x^3 + 34920*x^2 + 16905*x + 1282)/(243*
x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)
```

Fricas [A] time = 0.21043, size = 66, normalized size = 1.78

$$\frac{64800\,x^4 + 57240\,x^3 + 34920\,x^2 + 16905\,x + 1282}{4860\,(243\,x^5 + 810\,x^4 + 1080\,x^3 + 720\,x^2 + 240\,x + 32)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1)^3/(3*x + 2)^6,x, algorithm="fricas")
```

```
[Out] 1/4860*(64800*x^4 + 57240*x^3 + 34920*x^2 + 16905*x + 1282)/(243*
x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)
```

Sympy [A] time = 0.387362, size = 44, normalized size = 1.19

$$\frac{64800x^4 + 57240x^3 + 34920x^2 + 16905x + 1282}{1180980x^5 + 3936600x^4 + 5248800x^3 + 3499200x^2 + 1166400x + 155520}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(3+5*x)/(2+3*x)**6,x)
```

```
[Out] (64800*x**4 + 57240*x**3 + 34920*x**2 + 16905*x + 1282)/(1180980*
x**5 + 3936600*x**4 + 5248800*x**3 + 3499200*x**2 + 1166400*x + 1
55520)
```

GIAC/XCAS [A] time = 0.211088, size = 39, normalized size = 1.05

$$\frac{64800\,x^4 + 57240\,x^3 + 34920\,x^2 + 16905\,x + 1282}{4860\,(3\,x + 2)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1)^3/(3*x + 2)^6,x, algorithm="giac")
```

```
[Out] 1/4860*(64800*x^4 + 57240*x^3 + 34920*x^2 + 16905*x + 1282)/(3*x
+ 2)^5
```

3.1336 $\int \frac{(1-2x)^3(3+5x)}{(2+3x)^7}\,dx$

Optimal. Leaf size=55

$$-\frac{103(1-2x)^4}{30870(3x+2)^4}-\frac{103(1-2x)^4}{2205(3x+2)^5}+\frac{(1-2x)^4}{126(3x+2)^6}$$

```
[Out] (1 - 2*x)^4/(126*(2 + 3*x)^6) - (103*(1 - 2*x)^4)/(2205*(2 + 3*x)
^5) - (103*(1 - 2*x)^4)/(30870*(2 + 3*x)^4)
```

Rubi [A] time = 0.0511621, antiderivative size = 55, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.15

$$-\frac{103(1-2x)^4}{30870(3x+2)^4}-\frac{103(1-2x)^4}{2205(3x+2)^5}+\frac{(1-2x)^4}{126(3x+2)^6}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^3*(3 + 5*x))/(2 + 3*x)^7,x]
```

```
[Out] (1 - 2*x)^4/(126*(2 + 3*x)^6) - (103*(1 - 2*x)^4)/(2205*(2 + 3*x)
^5) - (103*(1 - 2*x)^4)/(30870*(2 + 3*x)^4)
```

Rubi in Sympy [A] time = 6.90601, size = 48, normalized size = 0.87

$$-\frac{103\,(-2x+1)^4}{30870\,(3x+2)^4}-\frac{103\,(-2x+1)^4}{2205\,(3x+2)^5}+\frac{(-2x+1)^4}{126\,(3x+2)^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3*(3+5*x)/(2+3*x)**7,x)
```

```
[Out] -103*(-2*x + 1)**4/(30870*(3*x + 2)**4) - 103*(-2*x + 1)**4/(2205
*(3*x + 2)**5) + (-2*x + 1)**4/(126*(3*x + 2)**6)
```

Mathematica [A] time = 0.0166663, size = 31, normalized size = 0.56

$$\frac{48600x^4+14040x^3+3375x^2+7218x-413}{7290(3x+2)^6}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^3*(3 + 5*x))/(2 + 3*x)^7,x]
```

```
[Out] (-413 + 7218*x + 3375*x^2 + 14040*x^3 + 48600*x^4)/(7290*(2 + 3*x
)^6)
```

Maple [A] time = 0.009, size = 47, normalized size = 0.9

$$-\frac{2009}{1215\,(2+3\,x)^5}-\frac{428}{729\,(2+3\,x)^3}+\frac{259}{162\,(2+3\,x)^4}+\frac{20}{243\,(2+3\,x)^2}+\frac{343}{1458\,(2+3\,x)^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(3+5*x)/(2+3*x)^7,x)
```

```
[Out] -2009/1215/(2+3*x)^5-428/729/(2+3*x)^3+259/162/(2+3*x)^4+20/243/(
2+3*x)^2+343/1458/(2+3*x)^6
```

Maxima [A] time = 1.34553, size = 73, normalized size = 1.33

$$\frac{48600\,x^4 + 14040\,x^3 + 3375\,x^2 + 7218\,x - 413}{7290\,(729\,x^6 + 2916\,x^5 + 4860\,x^4 + 4320\,x^3 + 2160\,x^2 + 576\,x + 64)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1)^3/(3*x + 2)^7,x, algorithm="maxima")
```

```
[Out] 1/7290*(48600*x^4 + 14040*x^3 + 3375*x^2 + 7218*x - 413)/(729*x^6
 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64)
```

Fricas [A] time = 0.20242, size = 73, normalized size = 1.33

$$\frac{48600\,x^4 + 14040\,x^3 + 3375\,x^2 + 7218\,x - 413}{7290\,(729\,x^6 + 2916\,x^5 + 4860\,x^4 + 4320\,x^3 + 2160\,x^2 + 576\,x + 64)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1)^3/(3*x + 2)^7,x, algorithm="fricas")
```

```
[Out] 1/7290*(48600*x^4 + 14040*x^3 + 3375*x^2 + 7218*x - 413)/(729*x^6
 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64)
```

Sympy [A] time = 0.42432, size = 49, normalized size = 0.89

$$\frac{48600x^4 + 14040x^3 + 3375x^2 + 7218x - 413}{5314410x^6 + 21257640x^5 + 35429400x^4 + 31492800x^3 + 15746400x^2 + 4199040x + 466560}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(3+5*x)/(2+3*x)**7,x)
```

```
[Out] (48600*x**4 + 14040*x**3 + 3375*x**2 + 7218*x - 413)/(5314410*x**
6 + 21257640*x**5 + 35429400*x**4 + 31492800*x**3 + 15746400*x**2
 + 4199040*x + 466560)
```

GIAC/XCAS [A] time = 0.209535, size = 39, normalized size = 0.71

$$\frac{48600\,x^4 + 14040\,x^3 + 3375\,x^2 + 7218\,x - 413}{7290\,(3\,x + 2)^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1)^3/(3*x + 2)^7,x, algorithm="giac")
```

```
[Out] 1/7290*(48600*x^4 + 14040*x^3 + 3375*x^2 + 7218*x - 413)/(3*x + 2
)^6
```

3.1337 $\int \frac{(1-2x)^3(3+5x)}{(2+3x)^8} dx$

Optimal. Leaf size=56

$$\frac{40}{729(3x+2)^3}-\frac{107}{243(3x+2)^4}+\frac{518}{405(3x+2)^5}-\frac{2009}{1458(3x+2)^6}+\frac{49}{243(3x+2)^7}$$

```
[Out] 49/(243*(2 + 3*x)^7) - 2009/(1458*(2 + 3*x)^6) + 518/(405*(2 + 3*
x)^5) - 107/(243*(2 + 3*x)^4) + 40/(729*(2 + 3*x)^3)
```

Rubi [A] time = 0.0589569, antiderivative size = 56, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{40}{729(3x+2)^3}-\frac{107}{243(3x+2)^4}+\frac{518}{405(3x+2)^5}-\frac{2009}{1458(3x+2)^6}+\frac{49}{243(3x+2)^7}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^3*(3 + 5*x))/(2 + 3*x)^8,x]
```

```
[Out] 49/(243*(2 + 3*x)^7) - 2009/(1458*(2 + 3*x)^6) + 518/(405*(2 + 3*
x)^5) - 107/(243*(2 + 3*x)^4) + 40/(729*(2 + 3*x)^3)
```

Rubi in Sympy [A] time = 9.66135, size = 49, normalized size = 0.88

$$\frac{40}{729\,(3x+2)^3}-\frac{107}{243\,(3x+2)^4}+\frac{518}{405\,(3x+2)^5}-\frac{2009}{1458\,(3x+2)^6}+\frac{49}{243\,(3x+2)^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3*(3+5*x)/(2+3*x)**8,x)
```

```
[Out] 40/(729*(3*x + 2)**3) - 107/(243*(3*x + 2)**4) + 518/(405*(3*x +
2)**5) - 2009/(1458*(3*x + 2)**6) + 49/(243*(3*x + 2)**7)
```

Mathematica [A] time = 0.0180323, size = 31, normalized size = 0.55

$$\frac{32400x^4-270x^3-3024x^2+4593x-604}{7290(3x+2)^7}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^3*(3 + 5*x))/(2 + 3*x)^8,x]
```

```
[Out] (-604 + 4593*x - 3024*x^2 - 270*x^3 + 32400*x^4)/(7290*(2 + 3*x)^
7)
```

Maple [A] time = 0.01, size = 47, normalized size = 0.8

$$\frac{49}{243\,(2+3\,x)^7}-\frac{2009}{1458\,(2+3\,x)^6}+\frac{518}{405\,(2+3\,x)^5}-\frac{107}{243\,(2+3\,x)^4}+\frac{40}{729\,(2+3\,x)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(3+5*x)/(2+3*x)^8,x)
```

```
[Out] 49/243/(2+3*x)^7-2009/1458/(2+3*x)^6+518/405/(2+3*x)^5-107/243/(2
+3*x)^4+40/729/(2+3*x)^3
```

Maxima [A] time = 1.34744, size = 80, normalized size = 1.43

$$\frac{32400\,x^4 - 270\,x^3 - 3024\,x^2 + 4593\,x - 604}{7290\,(2187\,x^7 + 10206\,x^6 + 20412\,x^5 + 22680\,x^4 + 15120\,x^3 + 6048\,x^2 + 1344\,x + 128)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1)^3/(3*x + 2)^8,x, algorithm="maxima")
```

```
[Out] 1/7290*(32400*x^4 - 270*x^3 - 3024*x^2 + 4593*x - 604)/(2187*x^7
+ 10206*x^6 + 20412*x^5 + 22680*x^4 + 15120*x^3 + 6048*x^2 + 1344
*x + 128)
```

Fricas [A] time = 0.219667, size = 80, normalized size = 1.43

$$\frac{32400\,x^4 - 270\,x^3 - 3024\,x^2 + 4593\,x - 604}{7290\,(2187\,x^7 + 10206\,x^6 + 20412\,x^5 + 22680\,x^4 + 15120\,x^3 + 6048\,x^2 + 1344\,x + 128)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1)^3/(3*x + 2)^8,x, algorithm="fricas")
```

```
[Out] 1/7290*(32400*x^4 - 270*x^3 - 3024*x^2 + 4593*x - 604)/(2187*x^7
+ 10206*x^6 + 20412*x^5 + 22680*x^4 + 15120*x^3 + 6048*x^2 + 1344
*x + 128)
```

Sympy [A] time = 0.471707, size = 54, normalized size = 0.96

$$\frac{32400x^4 - 270x^3 - 3024x^2 + 4593x - 604}{15943230x^7 + 74401740x^6 + 148803480x^5 + 165337200x^4 + 110224800x^3 + 44089920x^2 + 9797760x + 933120}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(3+5*x)/(2+3*x)**8,x)
```

```
[Out] (32400*x**4 - 270*x**3 - 3024*x**2 + 4593*x - 604)/(15943230*x**7
 + 74401740*x**6 + 148803480*x**5 + 165337200*x**4 + 110224800*x*
*3 + 44089920*x**2 + 9797760*x + 933120)
```

GIAC/XCAS [A] time = 0.203325, size = 39, normalized size = 0.7

$$\frac{32400\,x^4 - 270\,x^3 - 3024\,x^2 + 4593\,x - 604}{7290\,(3\,x + 2)^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(2*x - 1)^3/(3*x + 2)^8,x, algorithm="giac")
```

```
[Out] 1/7290*(32400*x^4 - 270*x^3 - 3024*x^2 + 4593*x - 604)/(3*x + 2)^
7
```

3.1338 $\int (1-2x)^3(2+3x)^8(3+5x)^2\,dx$

Optimal. Leaf size=67

$$-\frac{100(3x+2)^{14}}{5103}+\frac{2180(3x+2)^{13}}{9477}-\frac{4099(3x+2)^{12}}{4374}+\frac{11599(3x+2)^{11}}{8019}-\frac{1862(3x+2)^{10}}{3645}+\frac{343(3x+2)^9}{6561}$$

```
[Out] (343*(2 + 3*x)^9)/6561 - (1862*(2 + 3*x)^10)/3645 + (11599*(2 + 3
*x)^11)/8019 - (4099*(2 + 3*x)^12)/4374 + (2180*(2 + 3*x)^13)/947
7 - (100*(2 + 3*x)^14)/5103
```

Rubi [A] time = 0.121516, antiderivative size = 67, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$-\frac{100(3x+2)^{14}}{5103}+\frac{2180(3x+2)^{13}}{9477}-\frac{4099(3x+2)^{12}}{4374}+\frac{11599(3x+2)^{11}}{8019}-\frac{1862(3x+2)^{10}}{3645}+\frac{343(3x+2)^9}{6561}$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^3*(2 + 3*x)^8*(3 + 5*x)^2,x]
```

```
[Out] (343*(2 + 3*x)^9)/6561 - (1862*(2 + 3*x)^10)/3645 + (11599*(2 + 3
*x)^11)/8019 - (4099*(2 + 3*x)^12)/4374 + (2180*(2 + 3*x)^13)/947
7 - (100*(2 + 3*x)^14)/5103
```

Rubi in Sympy [A] time = 16.3235, size = 60, normalized size = 0.9

$$-\frac{100\,(3x+2)^{14}}{5103}+\frac{2180\,(3x+2)^{13}}{9477}-\frac{4099\,(3x+2)^{12}}{4374}+\frac{11599\,(3x+2)^{11}}{8019}-\frac{1862\,(3x+2)^{10}}{3645}+\frac{343\,(3x+2)^9}{6561}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**3*(2+3*x)**8*(3+5*x)**2,x)
```

```
[Out] -100*(3*x + 2)**14/5103 + 2180*(3*x + 2)**13/9477 - 4099*(3*x + 2
)**12/4374 + 11599*(3*x + 2)**11/8019 - 1862*(3*x + 2)**10/3645 +
 343*(3*x + 2)**9/6561
```

Mathematica [A] time = 0.00431241, size = 87, normalized size = 1.3

$$-\frac{656100x^{14}}{7}-\frac{6604740x^{13}}{13}-\frac{2220777x^{12}}{2}-\frac{12353391x^{11}}{11}-\frac{1073412x^{10}}{5}+685713x^9+679446x^8+\frac{888528x^7}{7}-\frac{556384x^6}{3}-\frac{663456x^5}{5}-15168x^4+\frac{59392x^3}{3}+10752x^2+2304x$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)^3*(2 + 3*x)^8*(3 + 5*x)^2,x]
```

```
[Out] 2304*x + 10752*x^2 + (59392*x^3)/3 - 15168*x^4 - (663456*x^5)/5 -
 (556384*x^6)/3 + (888528*x^7)/7 + 679446*x^8 + 685713*x^9 - (107
3412*x^10)/5 - (12353391*x^11)/11 - (2220777*x^12)/2 - (6604740*x
^13)/13 - (656100*x^14)/7
```

Maple [A] time = 0.003, size = 70, normalized size = 1.

$$-\frac{656100 x^{14}}{7}-\frac{6604740 x^{13}}{13}-\frac{2220777 x^{12}}{2}-\frac{12353391 x^{11}}{11}-\frac{1073412 x^{10}}{5}+685713 x^{9}+679446 x^{8}+\frac{888528 x^{7}}{7}-\frac{556384 x^{6}}{3}-\frac{663456 x^{5}}{5}-15168 x^{4}+\frac{59392 x^{3}}{3}+10752 x^{2}+2304 x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(2+3*x)^8*(3+5*x)^2,x)
```

```
[Out] -656100/7*x^14-6604740/13*x^13-2220777/2*x^12-12353391/11*x^11-10
73412/5*x^10+685713*x^9+679446*x^8+888528/7*x^7-556384/3*x^6-6634
56/5*x^5-15168*x^4+59392/3*x^3+10752*x^2+2304*x
```

Maxima [A] time = 1.35646, size = 93, normalized size = 1.39

$$-\frac{656100}{7} x^{14}-\frac{6604740}{13} x^{13}-\frac{2220777}{2} x^{12}-\frac{12353391}{11} x^{11}-\frac{1073412}{5} x^{10}+685713 x^{9}+679446 x^{8}+\frac{888528}{7} x^{7}-\frac{556384}{3} x^{6}-\frac{663456}{5} x^{5}-15168 x^{4}+\frac{59392}{3} x^{3}+10752 x^{2}+2304 x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^8*(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] -656100/7*x^14 - 6604740/13*x^13 - 2220777/2*x^12 - 12353391/11*x
^11 - 1073412/5*x^10 + 685713*x^9 + 679446*x^8 + 888528/7*x^7 - 5
56384/3*x^6 - 663456/5*x^5 - 15168*x^4 + 59392/3*x^3 + 10752*x^2
+ 2304*x
```

Fricas [A] time = 0.19522, size = 1, normalized size = 0.01

$$-\frac{656100}{7} x^{14}-\frac{6604740}{13} x^{13}-\frac{2220777}{2} x^{12}-\frac{12353391}{11} x^{11}-\frac{1073412}{5} x^{10}+685713 x^{9}+679446 x^{8}+\frac{888528}{7} x^{7}-\frac{556384}{3} x^{6}-\frac{663456}{5} x^{5}-15168 x^{4}+\frac{59392}{3} x^{3}+10752 x^{2}+2304 x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^8*(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -656100/7*x^14 - 6604740/13*x^13 - 2220777/2*x^12 - 12353391/11*x
^11 - 1073412/5*x^10 + 685713*x^9 + 679446*x^8 + 888528/7*x^7 - 5
56384/3*x^6 - 663456/5*x^5 - 15168*x^4 + 59392/3*x^3 + 10752*x^2
+ 2304*x
```

Sympy [A] time = 0.137896, size = 83, normalized size = 1.24

$$-\frac{656100x^{14}}{7}-\frac{6604740x^{13}}{13}-\frac{2220777x^{12}}{2}-\frac{12353391x^{11}}{11}-\frac{1073412x^{10}}{5}+685713x^{9}+679446x^{8}+\frac{888528x^{7}}{7}-\frac{556384x^{6}}{3}-\frac{663456x^{5}}{5}-15168x^{4}+\frac{59392x^{3}}{3}+10752x^{2}+2304x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(2+3*x)**8*(3+5*x)**2,x)
```

```
[Out] -656100*x**14/7 - 6604740*x**13/13 - 2220777*x**12/2 - 12353391*x
**11/11 - 1073412*x**10/5 + 685713*x**9 + 679446*x**8 + 888528*x*
*7/7 - 556384*x**6/3 - 663456*x**5/5 - 15168*x**4 + 59392*x**3/3
+ 10752*x**2 + 2304*x
```

GIAC/XCAS [A] time = 0.208837, size = 93, normalized size = 1.39

$$-\frac{656100}{7}\,x^{14}-\frac{6604740}{13}\,x^{13}-\frac{2220777}{2}\,x^{12}-\frac{12353391}{11}\,x^{11}-\frac{1073412}{5}\,x^{10}+685713\,x^{9}+679446\,x^{8}+\frac{888528}{7}\,x^{7}-\frac{556384}{3}\,x^{6}-\frac{663456}{5}\,x^{5}-15168\,x^{4}+\frac{59392}{3}\,x^{3}+10752\,x^{2}+2304\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^8*(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] -656100/7*x^14 - 6604740/13*x^13 - 2220777/2*x^12 - 12353391/11*x
^11 - 1073412/5*x^10 + 685713*x^9 + 679446*x^8 + 888528/7*x^7 - 5
56384/3*x^6 - 663456/5*x^5 - 15168*x^4 + 59392/3*x^3 + 10752*x^2
+ 2304*x
```

3.1339 $\int (1-2x)^3(2+3x)^7(3+5x)^2\,dx$

Optimal. Leaf size=67

$$-\frac{200(3x+2)^{13}}{9477}+\frac{545(3x+2)^{12}}{2187}-\frac{8198(3x+2)^{11}}{8019}+\frac{11599(3x+2)^{10}}{7290}-\frac{3724(3x+2)^9}{6561}+\frac{343(3x+2)^8}{5832}$$

```
[Out] (343*(2 + 3*x)^8)/5832 - (3724*(2 + 3*x)^9)/6561 + (11599*(2 + 3*
x)^10)/7290 - (8198*(2 + 3*x)^11)/8019 + (545*(2 + 3*x)^12)/2187
- (200*(2 + 3*x)^13)/9477
```

Rubi [A] time = 0.109149, antiderivative size = 67, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$-\frac{200(3x+2)^{13}}{9477}+\frac{545(3x+2)^{12}}{2187}-\frac{8198(3x+2)^{11}}{8019}+\frac{11599(3x+2)^{10}}{7290}-\frac{3724(3x+2)^9}{6561}+\frac{343(3x+2)^8}{5832}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^3*(2 + 3*x)^7*(3 + 5*x)^2,x]
```

```
[Out] (343*(2 + 3*x)^8)/5832 - (3724*(2 + 3*x)^9)/6561 + (11599*(2 + 3*
x)^10)/7290 - (8198*(2 + 3*x)^11)/8019 + (545*(2 + 3*x)^12)/2187
- (200*(2 + 3*x)^13)/9477
```

Rubi in Sympy [A] time = 15.5245, size = 60, normalized size = 0.9

$$-\frac{200\,(3x+2)^{13}}{9477}+\frac{545\,(3x+2)^{12}}{2187}-\frac{8198\,(3x+2)^{11}}{8019}+\frac{11599\,(3x+2)^{10}}{7290}-\frac{3724\,(3x+2)^9}{6561}+\frac{343\,(3x+2)^8}{5832}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3*(2+3*x)**7*(3+5*x)**2,x)
```

```
[Out] -200*(3*x + 2)**13/9477 + 545*(3*x + 2)**12/2187 - 8198*(3*x + 2)
**11/8019 + 11599*(3*x + 2)**10/7290 - 3724*(3*x + 2)**9/6561 + 3
43*(3*x + 2)**8/5832
```

Mathematica [A] time = 0.00402635, size = 78, normalized size = 1.16

$$-\frac{437400x^{13}}{13}-159165x^{12}-\frac{3168234x^{11}}{11}-\frac{2005641x^{10}}{10}+69054x^9+\frac{1642815x^8}{8}+102378x^7-\frac{90794x^6}{3}-\frac{249864x^5}{5}-13644x^4+\frac{16160x^3}{3}+4512x^2+1152x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^3*(2 + 3*x)^7*(3 + 5*x)^2,x]
```

```
[Out] 1152*x + 4512*x^2 + (16160*x^3)/3 - 13644*x^4 - (249864*x^5)/5 -
(90794*x^6)/3 + 102378*x^7 + (1642815*x^8)/8 + 69054*x^9 - (20056
41*x^10)/10 - (3168234*x^11)/11 - 159165*x^12 - (437400*x^13)/13
```

Maple [A] time = 0.003, size = 65, normalized size = 1.

$$-\frac{437400\,x^{13}}{13}-159165\,x^{12}-\frac{3168234\,x^{11}}{11}-\frac{2005641\,x^{10}}{10}+69054\,x^{9}+\frac{1642815\,x^{8}}{8}+102378\,x^{7}-\frac{90794\,x^{6}}{3}-\frac{249864\,x^{5}}{5}-13644\,x^{4}+\frac{16160\,x^{3}}{3}+4512\,x^{2}+1152\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(2+3*x)^7*(3+5*x)^2,x)
```

```
[Out] -437400/13*x^13-159165*x^12-3168234/11*x^11-2005641/10*x^10+69054
*x^9+1642815/8*x^8+102378*x^7-90794/3*x^6-249864/5*x^5-13644*x^4+
16160/3*x^3+4512*x^2+1152*x
```

Maxima [A] time = 1.3391, size = 86, normalized size = 1.28

$$-\frac{437400}{13}\,x^{13}-159165\,x^{12}-\frac{3168234}{11}\,x^{11}-\frac{2005641}{10}\,x^{10}+69054\,x^{9}+\frac{1642815}{8}\,x^{8}+102378\,x^{7}-\frac{90794}{3}\,x^{6}-\frac{249864}{5}\,x^{5}-13644\,x^{4}+\frac{16160}{3}\,x^{3}+4512\,x^{2}+1152\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^7*(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] -437400/13*x^13 - 159165*x^12 - 3168234/11*x^11 - 2005641/10*x^10
 + 69054*x^9 + 1642815/8*x^8 + 102378*x^7 - 90794/3*x^6 - 249864/
5*x^5 - 13644*x^4 + 16160/3*x^3 + 4512*x^2 + 1152*x
```

Fricas [A] time = 0.188974, size = 1, normalized size = 0.01

$$-\frac{437400}{13}x^{13}-159165x^{12}-\frac{3168234}{11}x^{11}-\frac{2005641}{10}x^{10}+69054x^{9}+\frac{1642815}{8}x^{8}+102378x^{7}-\frac{90794}{3}x^{6}-\frac{249864}{5}x^{5}-13644x^{4}+\frac{16160}{3}x^{3}+4512x^{2}+1152x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^7*(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -437400/13*x^13 - 159165*x^12 - 3168234/11*x^11 - 2005641/10*x^10
 + 69054*x^9 + 1642815/8*x^8 + 102378*x^7 - 90794/3*x^6 - 249864/
5*x^5 - 13644*x^4 + 16160/3*x^3 + 4512*x^2 + 1152*x
```

Sympy [A] time = 0.122211, size = 75, normalized size = 1.12

$$-\frac{437400x^{13}}{13}-159165x^{12}-\frac{3168234x^{11}}{11}-\frac{2005641x^{10}}{10}+69054x^{9}+\frac{1642815x^{8}}{8}+102378x^{7}-\frac{90794x^{6}}{3}-\frac{249864x^{5}}{5}-13644x^{4}+\frac{16160x^{3}}{3}+4512x^{2}+1152x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(2+3*x)**7*(3+5*x)**2,x)
```

```
[Out] -437400*x**13/13 - 159165*x**12 - 3168234*x**11/11 - 2005641*x**1
0/10 + 69054*x**9 + 1642815*x**8/8 + 102378*x**7 - 90794*x**6/3 -
```

```
249864*x**5/5 - 13644*x**4 + 16160*x**3/3 + 4512*x**2 + 1152*x
```

GIAC/XCAS [A] time = 0.204378, size = 86, normalized size = 1.28

$$-\frac{437400}{13}x^{13}-159165x^{12}-\frac{3168234}{11}x^{11}-\frac{2005641}{10}x^{10}+69054x^{9}+\frac{1642815}{8}x^{8}+102378x^{7}-\frac{90794}{3}x^{6}-\frac{249864}{5}x^{5}-13644x^{4}+\frac{16160}{3}x^{3}+4512x^{2}+1152x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^7*(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] -437400/13*x^13 - 159165*x^12 - 3168234/11*x^11 - 2005641/10*x^10
 + 69054*x^9 + 1642815/8*x^8 + 102378*x^7 - 90794/3*x^6 - 249864/
5*x^5 - 13644*x^4 + 16160/3*x^3 + 4512*x^2 + 1152*x
```

3.1340 $\int (1-2x)^3(2+3x)^6(3+5x)^2\,dx$

Optimal. Leaf size=67

$$-\frac{50(3x+2)^{12}}{2187}+\frac{2180(3x+2)^{11}}{8019}-\frac{4099(3x+2)^{10}}{3645}+\frac{11599(3x+2)^9}{6561}-\frac{931(3x+2)^8}{1458}+\frac{49}{729}(3x+2)^7$$

```
[Out] (49*(2 + 3*x)^7)/729 - (931*(2 + 3*x)^8)/1458 + (11599*(2 + 3*x)^
9)/6561 - (4099*(2 + 3*x)^10)/3645 + (2180*(2 + 3*x)^11)/8019 - (
50*(2 + 3*x)^12)/2187
```

Rubi [A] time = 0.111393, antiderivative size = 67, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{50(3x+2)^{12}}{2187}+\frac{2180(3x+2)^{11}}{8019}-\frac{4099(3x+2)^{10}}{3645}+\frac{11599(3x+2)^9}{6561}-\frac{931(3x+2)^8}{1458}+\frac{49}{729}(3x+2)^7$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^3*(2 + 3*x)^6*(3 + 5*x)^2,x]
```

```
[Out] (49*(2 + 3*x)^7)/729 - (931*(2 + 3*x)^8)/1458 + (11599*(2 + 3*x)^
9)/6561 - (4099*(2 + 3*x)^10)/3645 + (2180*(2 + 3*x)^11)/8019 - (
50*(2 + 3*x)^12)/2187
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-12150x^{12}-\frac{539460x^{11}}{11}-\frac{348219x^{10}}{5}-22695x^9+\frac{85833x^8}{2}+45531x^7+\frac{13202x^6}{3}-\frac{78132x^5}{5}-7800x^4+\frac{2608x^3}{3}+576x+3648\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**3*(2+3*x)**6*(3+5*x)**2,x)
```

```
[Out] -12150*x**12 - 539460*x**11/11 - 348219*x**10/5 - 22695*x**9 + 85
833*x**8/2 + 45531*x**7 + 13202*x**6/3 - 78132*x**5/5 - 7800*x**4
 + 2608*x**3/3 + 576*x + 3648*Integral(x, x)
```

Mathematica [A] time = 0.00379852, size = 71, normalized size = 1.06

$$-12150x^{12}-\frac{539460x^{11}}{11}-\frac{348219x^{10}}{5}-22695x^9+\frac{85833x^8}{2}+45531x^7+\frac{13202x^6}{3}-\frac{78132x^5}{5}-7800x^4+\frac{2608x^3}{3}+1824x^2+576x$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)^3*(2 + 3*x)^6*(3 + 5*x)^2,x]
```

```
[Out] 576*x + 1824*x^2 + (2608*x^3)/3 - 7800*x^4 - (78132*x^5)/5 + (132
02*x^6)/3 + 45531*x^7 + (85833*x^8)/2 - 22695*x^9 - (348219*x^10)
/5 - (539460*x^11)/11 - 12150*x^12
```

Maple [A] time = 0.001, size = 60, normalized size = 0.9

$$-12150\,x^{12}-\frac{539460\,x^{11}}{11}-\frac{348219\,x^{10}}{5}-22695\,x^{9}+\frac{85833\,x^{8}}{2}+45531\,x^{7}+\frac{13202\,x^{6}}{3}-\frac{78132\,x^{5}}{5}-7800\,x^{4}+\frac{2608\,x^{3}}{3}+1824\,x^{2}+576\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(2+3*x)^6*(3+5*x)^2,x)
```

```
[Out] -12150*x^12-539460/11*x^11-348219/5*x^10-22695*x^9+85833/2*x^8+45
531*x^7+13202/3*x^6-78132/5*x^5-7800*x^4+2608/3*x^3+1824*x^2+576*
x
```

Maxima [A] time = 1.34996, size = 80, normalized size = 1.19

$$-12150\,x^{12}-\frac{539460}{11}\,x^{11}-\frac{348219}{5}\,x^{10}-22695\,x^{9}+\frac{85833}{2}\,x^{8}+45531\,x^{7}+\frac{13202}{3}\,x^{6}-\frac{78132}{5}\,x^{5}-7800\,x^{4}+\frac{2608}{3}\,x^{3}+1824\,x^{2}+576\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^6*(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] -12150*x^12 - 539460/11*x^11 - 348219/5*x^10 - 22695*x^9 + 85833/
2*x^8 + 45531*x^7 + 13202/3*x^6 - 78132/5*x^5 - 7800*x^4 + 2608/3
*x^3 + 1824*x^2 + 576*x
```

Fricas [A] time = 0.184758, size = 1, normalized size = 0.01

$$-12150x^{12}-\frac{539460}{11}x^{11}-\frac{348219}{5}x^{10}-22695x^{9}+\frac{85833}{2}x^{8}+45531x^{7}+\frac{13202}{3}x^{6}-\frac{78132}{5}x^{5}-7800x^{4}+\frac{2608}{3}x^{3}+1824x^{2}+576x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^6*(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -12150*x^12 - 539460/11*x^11 - 348219/5*x^10 - 22695*x^9 + 85833/
2*x^8 + 45531*x^7 + 13202/3*x^6 - 78132/5*x^5 - 7800*x^4 + 2608/3
*x^3 + 1824*x^2 + 576*x
```

Sympy [A] time = 0.11623, size = 68, normalized size = 1.01

$$-12150x^{12}-\frac{539460x^{11}}{11}-\frac{348219x^{10}}{5}-22695x^{9}+\frac{85833x^{8}}{2}+45531x^{7}+\frac{13202x^{6}}{3}-\frac{78132x^{5}}{5}-7800x^{4}+\frac{2608x^{3}}{3}+1824x^{2}+576x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(2+3*x)**6*(3+5*x)**2,x)
```

```
[Out] -12150*x**12 - 539460*x**11/11 - 348219*x**10/5 - 22695*x**9 + 85
833*x**8/2 + 45531*x**7 + 13202*x**6/3 - 78132*x**5/5 - 7800*x**4
```

```
+ 2608*x**3/3 + 1824*x**2 + 576*x
```

GIAC/XCAS [A] time = 0.212751, size = 80, normalized size = 1.19

$$-12150\,x^{12} - \frac{539460}{11}\,x^{11} - \frac{348219}{5}\,x^{10} - 22695\,x^{9} + \frac{85833}{2}\,x^{8} + 45531\,x^{7} + \frac{13202}{3}\,x^{6} - \frac{78132}{5}\,x^{5} - 7800\,x^{4} + \frac{2608}{3}\,x^{3} + 1824\,x^{2} + 576\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^6*(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] -12150*x^12 - 539460/11*x^11 - 348219/5*x^10 - 22695*x^9 + 85833/
2*x^8 + 45531*x^7 + 13202/3*x^6 - 78132/5*x^5 - 7800*x^4 + 2608/3
*x^3 + 1824*x^2 + 576*x
```

3.1341 $\int (1-2x)^3(2+3x)^5(3+5x)^2\,dx$

Optimal. Leaf size=67

$$-\frac{200(3x+2)^{11}}{8019}+\frac{218}{729}(3x+2)^{10}-\frac{8198(3x+2)^9}{6561}+\frac{11599(3x+2)^8}{5832}-\frac{532}{729}(3x+2)^7+\frac{343(3x+2)^6}{4374}$$

```
[Out] (343*(2 + 3*x)^6)/4374 - (532*(2 + 3*x)^7)/729 + (11599*(2 + 3*x)
^8)/5832 - (8198*(2 + 3*x)^9)/6561 + (218*(2 + 3*x)^10)/729 - (20
0*(2 + 3*x)^11)/8019
```

Rubi [A] time = 0.0977817, antiderivative size = 67, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$-\frac{200(3x+2)^{11}}{8019}+\frac{218}{729}(3x+2)^{10}-\frac{8198(3x+2)^9}{6561}+\frac{11599(3x+2)^8}{5832}-\frac{532}{729}(3x+2)^7+\frac{343(3x+2)^6}{4374}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^3*(2 + 3*x)^5*(3 + 5*x)^2,x]
```

```
[Out] (343*(2 + 3*x)^6)/4374 - (532*(2 + 3*x)^7)/729 + (11599*(2 + 3*x)
^8)/5832 - (8198*(2 + 3*x)^9)/6561 + (218*(2 + 3*x)^10)/729 - (20
0*(2 + 3*x)^11)/8019
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{48600x^{11}}{11}-14742x^{10}-14874x^9+\frac{21159x^8}{8}+14334x^7+\frac{39347x^6}{6}-3486x^5-3606x^4-\frac{784x^3}{3}+288x+1392\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3*(2+3*x)**5*(3+5*x)**2,x)
```

```
[Out] -48600*x**11/11 - 14742*x**10 - 14874*x**9 + 21159*x**8/8 + 14334
*x**7 + 39347*x**6/6 - 3486*x**5 - 3606*x**4 - 784*x**3/3 + 288*x
 + 1392*Integral(x, x)
```

Mathematica [A] time = 0.00358317, size = 62, normalized size = 0.93

$$-\frac{48600x^{11}}{11}-14742x^{10}-14874x^9+\frac{21159x^8}{8}+14334x^7+\frac{39347x^6}{6}-3486x^5-3606x^4-\frac{784x^3}{3}+696x^2+288x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^3*(2 + 3*x)^5*(3 + 5*x)^2,x]
```

```
[Out] 288*x + 696*x^2 - (784*x^3)/3 - 3606*x^4 - 3486*x^5 + (39347*x^6)
/6 + 14334*x^7 + (21159*x^8)/8 - 14874*x^9 - 14742*x^10 - (48600*
x^11)/11
```

Maple [A] time = 0.001, size = 55, normalized size = 0.8

$$-\frac{48600 x^{11}}{11}-14742 x^{10}-14874 x^{9}+\frac{21159 x^{8}}{8}+14334 x^{7}+\frac{39347 x^{6}}{6}-3486 x^{5}-3606 x^{4}-\frac{784 x^{3}}{3}+696 x^{2}+288 x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(2+3*x)^5*(3+5*x)^2,x)
```

```
[Out] -48600/11*x^11-14742*x^10-14874*x^9+21159/8*x^8+14334*x^7+39347/6
*x^6-3486*x^5-3606*x^4-784/3*x^3+696*x^2+288*x
```

Maxima [A] time = 1.34385, size = 73, normalized size = 1.09

$$-\frac{48600}{11} x^{11}-14742 x^{10}-14874 x^{9}+\frac{21159}{8} x^{8}+14334 x^{7}+\frac{39347}{6} x^{6}-3486 x^{5}-3606 x^{4}-\frac{784}{3} x^{3}+696 x^{2}+288 x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^5*(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] -48600/11*x^11 - 14742*x^10 - 14874*x^9 + 21159/8*x^8 + 14334*x^7
 + 39347/6*x^6 - 3486*x^5 - 3606*x^4 - 784/3*x^3 + 696*x^2 + 288*
x
```

Fricas [A] time = 0.189541, size = 1, normalized size = 0.01

$$-\frac{48600}{11}x^{11}-14742x^{10}-14874x^{9}+\frac{21159}{8}x^{8}+14334x^{7}+\frac{39347}{6}x^{6}-3486x^{5}-3606x^{4}-\frac{784}{3}x^{3}+696x^{2}+288x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^5*(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -48600/11*x^11 - 14742*x^10 - 14874*x^9 + 21159/8*x^8 + 14334*x^7
 + 39347/6*x^6 - 3486*x^5 - 3606*x^4 - 784/3*x^3 + 696*x^2 + 288*
x
```

Sympy [A] time = 0.119214, size = 60, normalized size = 0.9

$$-\frac{48600x^{11}}{11}-14742x^{10}-14874x^{9}+\frac{21159x^{8}}{8}+14334x^{7}+\frac{39347x^{6}}{6}-3486x^{5}-3606x^{4}-\frac{784x^{3}}{3}+696x^{2}+288x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(2+3*x)**5*(3+5*x)**2,x)
```

```
[Out] -48600*x**11/11 - 14742*x**10 - 14874*x**9 + 21159*x**8/8 + 14334
*x**7 + 39347*x**6/6 - 3486*x**5 - 3606*x**4 - 784*x**3/3 + 696*x
```

```
**2 + 288*x
```

GIAC/XCAS [A] time = 0.211735, size = 73, normalized size = 1.09

$$-\frac{48600}{11}\,x^{11} - 14742\,x^{10} - 14874\,x^{9} + \frac{21159}{8}\,x^{8} + 14334\,x^{7} + \frac{39347}{6}\,x^{6} - 3486\,x^{5} - 3606\,x^{4} - \frac{784}{3}\,x^{3} + 696\,x^{2} + 288\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^5*(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] -48600/11*x^11 - 14742*x^10 - 14874*x^9 + 21159/8*x^8 + 14334*x^7
 + 39347/6*x^6 - 3486*x^5 - 3606*x^4 - 784/3*x^3 + 696*x^2 + 288*
x
```

3.1342 $\int (1-2x)^3(2+3x)^4(3+5x)^2\,dx$

Optimal. Leaf size=67

$$-\frac{20}{729}(3x+2)^{10}+\frac{2180(3x+2)^9}{6561}-\frac{4099(3x+2)^8}{2916}+\frac{1657}{729}(3x+2)^7-\frac{1862(3x+2)^6}{2187}+\frac{343(3x+2)^5}{3645}$$

```
[Out] (343*(2 + 3*x)^5)/3645 - (1862*(2 + 3*x)^6)/2187 + (1657*(2 + 3*x
)^7)/729 - (4099*(2 + 3*x)^8)/2916 + (2180*(2 + 3*x)^9)/6561 - (2
0*(2 + 3*x)^10)/729
```

Rubi [A] time = 0.0984815, antiderivative size = 67, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$-\frac{20}{729}(3x+2)^{10}+\frac{2180(3x+2)^9}{6561}-\frac{4099(3x+2)^8}{2916}+\frac{1657}{729}(3x+2)^7-\frac{1862(3x+2)^6}{2187}+\frac{343(3x+2)^5}{3645}$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^3*(2 + 3*x)^4*(3 + 5*x)^2,x]
```

```
[Out] (343*(2 + 3*x)^5)/3645 - (1862*(2 + 3*x)^6)/2187 + (1657*(2 + 3*x
)^7)/729 - (4099*(2 + 3*x)^8)/2916 + (2180*(2 + 3*x)^9)/6561 - (2
0*(2 + 3*x)^10)/729
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-1620x^{10}-4260x^9-\frac{9531x^8}{4}+2823x^7+\frac{10136x^6}{3}-\frac{399x^5}{5}-1386x^4-\frac{1112x^3}{3}+144x+480\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**3*(2+3*x)**4*(3+5*x)**2,x)
```

```
[Out] -1620*x**10 - 4260*x**9 - 9531*x**8/4 + 2823*x**7 + 10136*x**6/3
- 399*x**5/5 - 1386*x**4 - 1112*x**3/3 + 144*x + 480*Integral(x,
x)
```

Mathematica [A] time = 0.00392011, size = 57, normalized size = 0.85

$$-1620x^{10}-4260x^9-\frac{9531x^8}{4}+2823x^7+\frac{10136x^6}{3}-\frac{399x^5}{5}-1386x^4-\frac{1112x^3}{3}+240x^2+144x$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)^3*(2 + 3*x)^4*(3 + 5*x)^2,x]
```

```
[Out] 144*x + 240*x^2 - (1112*x^3)/3 - 1386*x^4 - (399*x^5)/5 + (10136*
x^6)/3 + 2823*x^7 - (9531*x^8)/4 - 4260*x^9 - 1620*x^10
```

Maple [A] time = 0.002, size = 50, normalized size = 0.8

$$-1620\,x^{10}-4260\,x^9-\frac{9531\,x^8}{4}+2823\,x^7+\frac{10136\,x^6}{3}-\frac{399\,x^5}{5}-1386\,x^4-\frac{1112\,x^3}{3}+240\,x^2+144\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(2+3*x)^4*(3+5*x)^2,x)
```

```
[Out] -1620*x^10-4260*x^9-9531/4*x^8+2823*x^7+10136/3*x^6-399/5*x^5-138
6*x^4-1112/3*x^3+240*x^2+144*x
```

Maxima [A] time = 1.34118, size = 66, normalized size = 0.99

$$-1620\,x^{10}-4260\,x^{9}-\frac{9531}{4}\,x^{8}+2823\,x^{7}+\frac{10136}{3}\,x^{6}-\frac{399}{5}\,x^{5}-1386\,x^{4}-\frac{1112}{3}\,x^{3}+240\,x^{2}+144\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^4*(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] -1620*x^10 - 4260*x^9 - 9531/4*x^8 + 2823*x^7 + 10136/3*x^6 - 399
/5*x^5 - 1386*x^4 - 1112/3*x^3 + 240*x^2 + 144*x
```

Fricas [A] time = 0.182674, size = 1, normalized size = 0.01

$$-1620x^{10}-4260x^{9}-\frac{9531}{4}x^{8}+2823x^{7}+\frac{10136}{3}x^{6}-\frac{399}{5}x^{5}-1386x^{4}-\frac{1112}{3}x^{3}+240x^{2}+144x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^4*(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -1620*x^10 - 4260*x^9 - 9531/4*x^8 + 2823*x^7 + 10136/3*x^6 - 399
/5*x^5 - 1386*x^4 - 1112/3*x^3 + 240*x^2 + 144*x
```

Sympy [A] time = 0.104483, size = 54, normalized size = 0.81

$$-1620x^{10}-4260x^{9}-\frac{9531x^{8}}{4}+2823x^{7}+\frac{10136x^{6}}{3}-\frac{399x^{5}}{5}-1386x^{4}-\frac{1112x^{3}}{3}+240x^{2}+144x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(2+3*x)**4*(3+5*x)**2,x)
```

```
[Out] -1620*x**10 - 4260*x**9 - 9531*x**8/4 + 2823*x**7 + 10136*x**6/3
- 399*x**5/5 - 1386*x**4 - 1112*x**3/3 + 240*x**2 + 144*x
```

GIAC/XCAS [A] time = 0.216633, size = 66, normalized size = 0.99

$$-1620\,x^{10}-4260\,x^{9}-\frac{9531}{4}\,x^{8}+2823\,x^{7}+\frac{10136}{3}\,x^{6}-\frac{399}{5}\,x^{5}-1386\,x^{4}-\frac{1112}{3}\,x^{3}+240\,x^{2}+144\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^4*(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] -1620*x^10 - 4260*x^9 - 9531/4*x^8 + 2823*x^7 + 10136/3*x^6 - 399
/5*x^5 - 1386*x^4 - 1112/3*x^3 + 240*x^2 + 144*x
```

3.1343 $\int (1-2x)^3(2+3x)^3(3+5x)^2\,dx$

Optimal. Leaf size=67

$$\frac{75}{64}(1-2x)^9-\frac{7695}{512}(1-2x)^8+\frac{17541}{224}(1-2x)^7-\frac{39977}{192}(1-2x)^6+\frac{91091}{320}(1-2x)^5-\frac{41503}{256}(1-2x)^4$$

```
[Out] (-41503*(1 - 2*x)^4)/256 + (91091*(1 - 2*x)^5)/320 - (39977*(1 -
2*x)^6)/192 + (17541*(1 - 2*x)^7)/224 - (7695*(1 - 2*x)^8)/512 +
(75*(1 - 2*x)^9)/64
```

Rubi [A] time = 0.0930933, antiderivative size = 67, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{75}{64}(1-2x)^9-\frac{7695}{512}(1-2x)^8+\frac{17541}{224}(1-2x)^7-\frac{39977}{192}(1-2x)^6+\frac{91091}{320}(1-2x)^5-\frac{41503}{256}(1-2x)^4$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^3*(2 + 3*x)^3*(3 + 5*x)^2,x]
```

```
[Out] (-41503*(1 - 2*x)^4)/256 + (91091*(1 - 2*x)^5)/320 - (39977*(1 -
2*x)^6)/192 + (17541*(1 - 2*x)^7)/224 - (7695*(1 - 2*x)^8)/512 +
(75*(1 - 2*x)^9)/64
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-600x^9-\frac{2295x^8}{2}-\frac{234x^7}{7}+\frac{6743x^6}{6}+\frac{2262x^5}{5}-\frac{1641x^4}{4}-\frac{754x^3}{3}+72x+132\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3*(2+3*x)**3*(3+5*x)**2,x)
```

```
[Out] -600*x**9 - 2295*x**8/2 - 234*x**7/7 + 6743*x**6/6 + 2262*x**5/5
- 1641*x**4/4 - 754*x**3/3 + 72*x + 132*Integral(x, x)
```

Mathematica [A] time = 0.00415018, size = 56, normalized size = 0.84

$$-600x^9-\frac{2295x^8}{2}-\frac{234x^7}{7}+\frac{6743x^6}{6}+\frac{2262x^5}{5}-\frac{1641x^4}{4}-\frac{754x^3}{3}+66x^2+72x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^3*(2 + 3*x)^3*(3 + 5*x)^2,x]
```

```
[Out] 72*x + 66*x^2 - (754*x^3)/3 - (1641*x^4)/4 + (2262*x^5)/5 + (6743
*x^6)/6 - (234*x^7)/7 - (2295*x^8)/2 - 600*x^9
```

Maple [A] time = 0., size = 45, normalized size = 0.7

$$-600\,x^9-\frac{2295\,x^8}{2}-\frac{234\,x^7}{7}+\frac{6743\,x^6}{6}+\frac{2262\,x^5}{5}-\frac{1641\,x^4}{4}-\frac{754\,x^3}{3}+66\,x^2+72\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(2+3*x)^3*(3+5*x)^2,x)
```

```
[Out] -600*x^9-2295/2*x^8-234/7*x^7+6743/6*x^6+2262/5*x^5-1641/4*x^4-75
4/3*x^3+66*x^2+72*x
```

Maxima [A] time = 1.34611, size = 59, normalized size = 0.88

$$-600\,x^9 - \frac{2295}{2}\,x^8 - \frac{234}{7}\,x^7 + \frac{6743}{6}\,x^6 + \frac{2262}{5}\,x^5 - \frac{1641}{4}\,x^4 - \frac{754}{3}\,x^3 + 66\,x^2 + 72\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^3*(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] -600*x^9 - 2295/2*x^8 - 234/7*x^7 + 6743/6*x^6 + 2262/5*x^5 - 164
1/4*x^4 - 754/3*x^3 + 66*x^2 + 72*x
```

Fricas [A] time = 0.184615, size = 1, normalized size = 0.01

$$-600x^9 - \frac{2295}{2}x^8 - \frac{234}{7}x^7 + \frac{6743}{6}x^6 + \frac{2262}{5}x^5 - \frac{1641}{4}x^4 - \frac{754}{3}x^3 + 66x^2 + 72x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^3*(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -600*x^9 - 2295/2*x^8 - 234/7*x^7 + 6743/6*x^6 + 2262/5*x^5 - 164
1/4*x^4 - 754/3*x^3 + 66*x^2 + 72*x
```

Sympy [A] time = 0.100571, size = 53, normalized size = 0.79

$$-600x^9 - \frac{2295x^8}{2} - \frac{234x^7}{7} + \frac{6743x^6}{6} + \frac{2262x^5}{5} - \frac{1641x^4}{4} - \frac{754x^3}{3} + 66x^2 + 72x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(2+3*x)**3*(3+5*x)**2,x)
```

```
[Out] -600*x**9 - 2295*x**8/2 - 234*x**7/7 + 6743*x**6/6 + 2262*x**5/5
- 1641*x**4/4 - 754*x**3/3 + 66*x**2 + 72*x
```

GIAC/XCAS [A] time = 0.207004, size = 59, normalized size = 0.88

$$-600\,x^9 - \frac{2295}{2}\,x^8 - \frac{234}{7}\,x^7 + \frac{6743}{6}\,x^6 + \frac{2262}{5}\,x^5 - \frac{1641}{4}\,x^4 - \frac{754}{3}\,x^3 + 66\,x^2 + 72\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^3*(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] -600*x^9 - 2295/2*x^8 - 234/7*x^7 + 6743/6*x^6 + 2262/5*x^5 - 164
1/4*x^4 - 754/3*x^3 + 66*x^2 + 72*x
```

3.1344 $\int (1-2x)^3(2+3x)^2(3+5x)^2\,dx$

Optimal. Leaf size=56

$$-\frac{225}{256}(1-2x)^8+\frac{255}{28}(1-2x)^7-\frac{3467}{96}(1-2x)^6+\frac{1309}{20}(1-2x)^5-\frac{5929}{128}(1-2x)^4$$

```
[Out] (-5929*(1 - 2*x)^4)/128 + (1309*(1 - 2*x)^5)/20 - (3467*(1 - 2*x)
^6)/96 + (255*(1 - 2*x)^7)/28 - (225*(1 - 2*x)^8)/256
```

Rubi [A] time = 0.0851913, antiderivative size = 56, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$-\frac{225}{256}(1-2x)^8+\frac{255}{28}(1-2x)^7-\frac{3467}{96}(1-2x)^6+\frac{1309}{20}(1-2x)^5-\frac{5929}{128}(1-2x)^4$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^3*(2 + 3*x)^2*(3 + 5*x)^2,x]
```

```
[Out] (-5929*(1 - 2*x)^4)/128 + (1309*(1 - 2*x)^5)/20 - (3467*(1 - 2*x)
^6)/96 + (255*(1 - 2*x)^7)/28 - (225*(1 - 2*x)^8)/256
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-225x^8-\frac{1860x^7}{7}+\frac{581x^6}{3}+\frac{1473x^5}{5}-57x^4-\frac{395x^3}{3}+36x+12\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**3*(2+3*x)**2*(3+5*x)**2,x)
```

```
[Out] -225*x**8 - 1860*x**7/7 + 581*x**6/3 + 1473*x**5/5 - 57*x**4 - 39
5*x**3/3 + 36*x + 12*Integral(x, x)
```

Mathematica [A] time = 0.00229076, size = 47, normalized size = 0.84

$$-225x^8-\frac{1860x^7}{7}+\frac{581x^6}{3}+\frac{1473x^5}{5}-57x^4-\frac{395x^3}{3}+6x^2+36x$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)^3*(2 + 3*x)^2*(3 + 5*x)^2,x]
```

```
[Out] 36*x + 6*x^2 - (395*x^3)/3 - 57*x^4 + (1473*x^5)/5 + (581*x^6)/3
- (1860*x^7)/7 - 225*x^8
```

Maple [A] time = 0.003, size = 40, normalized size = 0.7

$$-225\,x^8-\frac{1860\,x^7}{7}+\frac{581\,x^6}{3}+\frac{1473\,x^5}{5}-57\,x^4-\frac{395\,x^3}{3}+6\,x^2+36\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((1-2*x)^3*(2+3*x)^2*(3+5*x)^2,x)
```

```
[Out] -225*x^8-1860/7*x^7+581/3*x^6+1473/5*x^5-57*x^4-395/3*x^3+6*x^2+3
6*x
```

Maxima [A] time = 1.35201, size = 53, normalized size = 0.95

$$-225\,x^8 - \frac{1860}{7}\,x^7 + \frac{581}{3}\,x^6 + \frac{1473}{5}\,x^5 - 57\,x^4 - \frac{395}{3}\,x^3 + 6\,x^2 + 36\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^2*(3*x + 2)^2*(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] -225*x^8 - 1860/7*x^7 + 581/3*x^6 + 1473/5*x^5 - 57*x^4 - 395/3*x
^3 + 6*x^2 + 36*x
```

Fricas [A] time = 0.182544, size = 1, normalized size = 0.02

$$-225x^8 - \frac{1860}{7}x^7 + \frac{581}{3}x^6 + \frac{1473}{5}x^5 - 57x^4 - \frac{395}{3}x^3 + 6x^2 + 36x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^2*(3*x + 2)^2*(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -225*x^8 - 1860/7*x^7 + 581/3*x^6 + 1473/5*x^5 - 57*x^4 - 395/3*x
^3 + 6*x^2 + 36*x
```

Sympy [A] time = 0.088951, size = 44, normalized size = 0.79

$$-225x^8 - \frac{1860x^7}{7} + \frac{581x^6}{3} + \frac{1473x^5}{5} - 57x^4 - \frac{395x^3}{3} + 6x^2 + 36x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(2+3*x)**2*(3+5*x)**2,x)
```

```
[Out] -225*x**8 - 1860*x**7/7 + 581*x**6/3 + 1473*x**5/5 - 57*x**4 - 39
5*x**3/3 + 6*x**2 + 36*x
```

GIAC/XCAS [A] time = 0.204676, size = 53, normalized size = 0.95

$$-225\,x^8 - \frac{1860}{7}\,x^7 + \frac{581}{3}\,x^6 + \frac{1473}{5}\,x^5 - 57\,x^4 - \frac{395}{3}\,x^3 + 6\,x^2 + 36\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^2*(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] -225*x^8 - 1860/7*x^7 + 581/3*x^6 + 1473/5*x^5 - 57*x^4 - 395/3*x
^3 + 6*x^2 + 36*x
```

3.1345 $\int (1-2x)^3(2+3x)(3+5x)^2\,dx$

Optimal. Leaf size=45

$$\frac{75}{112}(1-2x)^7-\frac{505}{96}(1-2x)^6+\frac{1133}{80}(1-2x)^5-\frac{847}{64}(1-2x)^4$$

```
[Out] (-847*(1 - 2*x)^4)/64 + (1133*(1 - 2*x)^5)/80 - (505*(1 - 2*x)^6)
/96 + (75*(1 - 2*x)^7)/112
```

Rubi [A] time = 0.0624844, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{75}{112}(1-2x)^7-\frac{505}{96}(1-2x)^6+\frac{1133}{80}(1-2x)^5-\frac{847}{64}(1-2x)^4$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^3*(2 + 3*x)*(3 + 5*x)^2,x]
```

```
[Out] (-847*(1 - 2*x)^4)/64 + (1133*(1 - 2*x)^5)/80 - (505*(1 - 2*x)^6)
/96 + (75*(1 - 2*x)^7)/112
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{600x^7}{7}-\frac{110x^6}{3}+\frac{534x^5}{5}+\frac{135x^4}{4}-\frac{166x^3}{3}+18x-21\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**3*(2+3*x)*(3+5*x)**2,x)
```

```
[Out] -600*x**7/7 - 110*x**6/3 + 534*x**5/5 + 135*x**4/4 - 166*x**3/3 +
 18*x - 21*Integral(x, x)
```

Mathematica [A] time = 0.00144568, size = 46, normalized size = 1.02

$$-\frac{600x^7}{7}-\frac{110x^6}{3}+\frac{534x^5}{5}+\frac{135x^4}{4}-\frac{166x^3}{3}-\frac{21x^2}{2}+18x$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)^3*(2 + 3*x)*(3 + 5*x)^2,x]
```

```
[Out] 18*x - (21*x^2)/2 - (166*x^3)/3 + (135*x^4)/4 + (534*x^5)/5 - (11
0*x^6)/3 - (600*x^7)/7
```

Maple [A] time = 0.001, size = 35, normalized size = 0.8

$$-\frac{600\,x^7}{7}-\frac{110\,x^6}{3}+\frac{534\,x^5}{5}+\frac{135\,x^4}{4}-\frac{166\,x^3}{3}-\frac{21\,x^2}{2}+18\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((1-2*x)^3*(2+3*x)*(3+5*x)^2,x)
```

```
[Out] -600/7*x^7-110/3*x^6+534/5*x^5+135/4*x^4-166/3*x^3-21/2*x^2+18*x
```

Maxima [A] time = 1.35265, size = 46, normalized size = 1.02

$$-\frac{600}{7}\,x^7-\frac{110}{3}\,x^6+\frac{534}{5}\,x^5+\frac{135}{4}\,x^4-\frac{166}{3}\,x^3-\frac{21}{2}\,x^2+18\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)*(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] -600/7*x^7 - 110/3*x^6 + 534/5*x^5 + 135/4*x^4 - 166/3*x^3 - 21/2
*x^2 + 18*x
```

Fricas [A] time = 0.184152, size = 1, normalized size = 0.02

$$-\frac{600}{7}x^7-\frac{110}{3}x^6+\frac{534}{5}x^5+\frac{135}{4}x^4-\frac{166}{3}x^3-\frac{21}{2}x^2+18x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)*(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -600/7*x^7 - 110/3*x^6 + 534/5*x^5 + 135/4*x^4 - 166/3*x^3 - 21/2
*x^2 + 18*x
```

Sympy [A] time = 0.088277, size = 42, normalized size = 0.93

$$-\frac{600x^7}{7}-\frac{110x^6}{3}+\frac{534x^5}{5}+\frac{135x^4}{4}-\frac{166x^3}{3}-\frac{21x^2}{2}+18x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(2+3*x)*(3+5*x)**2,x)
```

```
[Out] -600*x**7/7 - 110*x**6/3 + 534*x**5/5 + 135*x**4/4 - 166*x**3/3 -
 21*x**2/2 + 18*x
```

GIAC/XCAS [A] time = 0.204293, size = 46, normalized size = 1.02

$$-\frac{600}{7}\,x^7-\frac{110}{3}\,x^6+\frac{534}{5}\,x^5+\frac{135}{4}\,x^4-\frac{166}{3}\,x^3-\frac{21}{2}\,x^2+18\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)*(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] -600/7*x^7 - 110/3*x^6 + 534/5*x^5 + 135/4*x^4 - 166/3*x^3 - 21/2
*x^2 + 18*x
```

3.1346 $\int (1-2x)^3(3+5x)^2\,dx$

Optimal. Leaf size=34

$$-\frac{25}{48}(1-2x)^6+\frac{11}{4}(1-2x)^5-\frac{121}{32}(1-2x)^4$$

```
[Out] (-121*(1 - 2*x)^4)/32 + (11*(1 - 2*x)^5)/4 - (25*(1 - 2*x)^6)/48
```

Rubi [A] time = 0.0354103, antiderivative size = 34, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.067

$$-\frac{25}{48}(1-2x)^6+\frac{11}{4}(1-2x)^5-\frac{121}{32}(1-2x)^4$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^3*(3 + 5*x)^2,x]
```

```
[Out] (-121*(1 - 2*x)^4)/32 + (11*(1 - 2*x)^5)/4 - (25*(1 - 2*x)^6)/48
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{100x^6}{3}+12x^5+\frac{69x^4}{2}-\frac{47x^3}{3}+9x-24\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3*(3+5*x)**2,x)
```

```
[Out] -100*x**6/3 + 12*x**5 + 69*x**4/2 - 47*x**3/3 + 9*x - 24*Integral
(x, x)
```

Mathematica [A] time = 0.00143992, size = 35, normalized size = 1.03

$$-\frac{100x^6}{3}+12x^5+\frac{69x^4}{2}-\frac{47x^3}{3}-12x^2+9x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^3*(3 + 5*x)^2,x]
```

```
[Out] 9*x - 12*x^2 - (47*x^3)/3 + (69*x^4)/2 + 12*x^5 - (100*x^6)/3
```

Maple [A] time = 0.002, size = 30, normalized size = 0.9

$$-\frac{100\,x^6}{3}+12\,x^5+\frac{69\,x^4}{2}-\frac{47\,x^3}{3}-12\,x^2+9\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(3+5*x)^2,x)
```

```
[Out] -100/3*x^6+12*x^5+69/2*x^4-47/3*x^3-12*x^2+9*x
```

Maxima [A] time = 1.34003, size = 39, normalized size = 1.15

$$-\frac{100}{3}\,x^{6}+12\,x^{5}+\frac{69}{2}\,x^{4}-\frac{47}{3}\,x^{3}-12\,x^{2}+9\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] -100/3*x^6 + 12*x^5 + 69/2*x^4 - 47/3*x^3 - 12*x^2 + 9*x
```

Fricas [A] time = 0.18356, size = 1, normalized size = 0.03

$$-\frac{100}{3}x^{6}+12x^{5}+\frac{69}{2}x^{4}-\frac{47}{3}x^{3}-12x^{2}+9x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -100/3*x^6 + 12*x^5 + 69/2*x^4 - 47/3*x^3 - 12*x^2 + 9*x
```

Sympy [A] time = 0.094382, size = 32, normalized size = 0.94

$$-\frac{100x^{6}}{3}+12x^{5}+\frac{69x^{4}}{2}-\frac{47x^{3}}{3}-12x^{2}+9x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(3+5*x)**2,x)
```

```
[Out] -100*x**6/3 + 12*x**5 + 69*x**4/2 - 47*x**3/3 - 12*x**2 + 9*x
```

GIAC/XCAS [A] time = 0.208674, size = 39, normalized size = 1.15

$$-\frac{100}{3}\,x^{6}+12\,x^{5}+\frac{69}{2}\,x^{4}-\frac{47}{3}\,x^{3}-12\,x^{2}+9\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] -100/3*x^6 + 12*x^5 + 69/2*x^4 - 47/3*x^3 - 12*x^2 + 9*x
```

3.1347 $\int \frac{(1-2x)^3(3+5x)^2}{2+3x} dx$

Optimal. Leaf size=44

$$-\frac{40x^5}{3}+\frac{145x^4}{9}+\frac{82x^3}{81}-\frac{1433x^2}{162}+\frac{922x}{243}+\frac{343}{729}\log(3x+2)$$

```
[Out] (922*x)/243 - (1433*x^2)/162 + (82*x^3)/81 + (145*x^4)/9 - (40*x^
5)/3 + (343*Log[2 + 3*x])/729
```

Rubi [A] time = 0.0470103, antiderivative size = 44, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{40x^5}{3}+\frac{145x^4}{9}+\frac{82x^3}{81}-\frac{1433x^2}{162}+\frac{922x}{243}+\frac{343}{729}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^3*(3 + 5*x)^2)/(2 + 3*x),x]
```

```
[Out] (922*x)/243 - (1433*x^2)/162 + (82*x^3)/81 + (145*x^4)/9 - (40*x^
5)/3 + (343*Log[2 + 3*x])/729
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{40x^5}{3}+\frac{145x^4}{9}+\frac{82x^3}{81}+\frac{343\log(3x+2)}{729}+\int\frac{922}{243}\,dx-\frac{1433\int x\,dx}{81}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3*(3+5*x)**2/(2+3*x),x)
```

```
[Out] -40*x**5/3 + 145*x**4/9 + 82*x**3/81 + 343*log(3*x + 2)/729 + Int
egral(922/243, x) - 1433*Integral(x, x)/81
```

Mathematica [A] time = 0.0185504, size = 37, normalized size = 0.84

$$\frac{-58320x^5+70470x^4+4428x^3-38691x^2+16596x+2058\log(3x+2)+7972}{4374}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^3*(3 + 5*x)^2)/(2 + 3*x),x]
```

```
[Out] (7972 + 16596*x - 38691*x^2 + 4428*x^3 + 70470*x^4 - 58320*x^5 +
2058*Log[2 + 3*x])/4374
```

Maple [A] time = 0.004, size = 33, normalized size = 0.8

$$\frac{922\,x}{243}-\frac{1433\,x^2}{162}+\frac{82\,x^3}{81}+\frac{145\,x^4}{9}-\frac{40\,x^5}{3}+\frac{343\,\ln(2+3\,x)}{729}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(3+5*x)^2/(2+3*x),x)
```

```
[Out] 922/243*x-1433/162*x^2+82/81*x^3+145/9*x^4-40/3*x^5+343/729*ln(2+
3*x)
```

Maxima [A] time = 1.37053, size = 43, normalized size = 0.98

$$-\frac{40}{3}\,x^5+\frac{145}{9}\,x^4+\frac{82}{81}\,x^3-\frac{1433}{162}\,x^2+\frac{922}{243}\,x+\frac{343}{729}\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(2*x - 1)^3/(3*x + 2),x, algorithm="maxima")
```

```
[Out] -40/3*x^5 + 145/9*x^4 + 82/81*x^3 - 1433/162*x^2 + 922/243*x + 34
3/729*log(3*x + 2)
```

Fricas [A] time = 0.208725, size = 43, normalized size = 0.98

$$-\frac{40}{3}\,x^5+\frac{145}{9}\,x^4+\frac{82}{81}\,x^3-\frac{1433}{162}\,x^2+\frac{922}{243}\,x+\frac{343}{729}\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(2*x - 1)^3/(3*x + 2),x, algorithm="fricas")
```

```
[Out] -40/3*x^5 + 145/9*x^4 + 82/81*x^3 - 1433/162*x^2 + 922/243*x + 34
3/729*log(3*x + 2)
```

Sympy [A] time = 0.184083, size = 41, normalized size = 0.93

$$-\frac{40x^5}{3}+\frac{145x^4}{9}+\frac{82x^3}{81}-\frac{1433x^2}{162}+\frac{922x}{243}+\frac{343\log\left(3x+2\right)}{729}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(3+5*x)**2/(2+3*x),x)
```

```
[Out] -40*x**5/3 + 145*x**4/9 + 82*x**3/81 - 1433*x**2/162 + 922*x/243
+ 343*log(3*x + 2)/729
```

GIAC/XCAS [A] time = 0.205903, size = 45, normalized size = 1.02

$$-\frac{40}{3}\,x^5+\frac{145}{9}\,x^4+\frac{82}{81}\,x^3-\frac{1433}{162}\,x^2+\frac{922}{243}\,x+\frac{343}{729}\,\ln\left(|3\,x+2|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(2*x - 1)^3/(3*x + 2),x, algorithm="giac")
```

```
[Out] -40/3*x^5 + 145/9*x^4 + 82/81*x^3 - 1433/162*x^2 + 922/243*x + 34
3/729*ln(abs(3*x + 2))
```

3.1348 $\int \frac{(1-2x)^3(3+5x)^2}{(2+3x)^2} dx$

Optimal. Leaf size=48

$$-\frac{50x^4}{9}+\frac{980x^3}{81}-\frac{313x^2}{27}+\frac{2323x}{243}-\frac{343}{729(3x+2)}-\frac{3724}{729}\log(3x+2)$$

```
[Out] (2323*x)/243 - (313*x^2)/27 + (980*x^3)/81 - (50*x^4)/9 - 343/(72
9*(2 + 3*x)) - (3724*Log[2 + 3*x])/729
```

Rubi [A] time = 0.0625068, antiderivative size = 48, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{50x^4}{9}+\frac{980x^3}{81}-\frac{313x^2}{27}+\frac{2323x}{243}-\frac{343}{729(3x+2)}-\frac{3724}{729}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^3*(3 + 5*x)^2)/(2 + 3*x)^2,x]
```

```
[Out] (2323*x)/243 - (313*x^2)/27 + (980*x^3)/81 - (50*x^4)/9 - 343/(72
9*(2 + 3*x)) - (3724*Log[2 + 3*x])/729
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{50x^4}{9}+\frac{980x^3}{81}-\frac{3724\log(3x+2)}{729}+\int\frac{2323}{243}dx-\frac{626\int x\,dx}{27}-\frac{343}{729(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3*(3+5*x)**2/(2+3*x)**2,x)
```

```
[Out] -50*x**4/9 + 980*x**3/81 - 3724*log(3*x + 2)/729 + Integral(2323/
243, x) - 626*Integral(x, x)/27 - 343/(729*(3*x + 2))
```

Mathematica [A] time = 0.0487891, size = 49, normalized size = 1.02

$$\frac{-36450x^5+55080x^4-23139x^3+12015x^2+148152x-11172(3x+2)\log(30x+20)+69863}{2187(3x+2)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^3*(3 + 5*x)^2)/(2 + 3*x)^2,x]
```

```
[Out] (69863 + 148152*x + 12015*x^2 - 23139*x^3 + 55080*x^4 - 36450*x^5
 - 11172*(2 + 3*x)*Log[20 + 30*x])/(2187*(2 + 3*x))
```

Maple [A] time = 0.009, size = 37, normalized size = 0.8

$$\frac{2323\,x}{243}-\frac{313\,x^2}{27}+\frac{980\,x^3}{81}-\frac{50\,x^4}{9}-\frac{343}{1458+2187\,x}-\frac{3724\,\ln(2+3\,x)}{729}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(3+5*x)^2/(2+3*x)^2,x)
```

```
[Out] 2323/243*x-313/27*x^2+980/81*x^3-50/9*x^4-343/729/(2+3*x)-3724/72
9*ln(2+3*x)
```

Maxima [A] time = 1.33544, size = 49, normalized size = 1.02

$$-\frac{50}{9}x^4+\frac{980}{81}x^3-\frac{313}{27}x^2+\frac{2323}{243}x-\frac{343}{729\,(3\,x+2)}-\frac{3724}{729}\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^2*(2*x - 1)^3/(3*x + 2)^2,x, algorithm="maxima")
```

```
[Out] -50/9*x^4 + 980/81*x^3 - 313/27*x^2 + 2323/243*x - 343/729/(3*x +
 2) - 3724/729*log(3*x + 2)
```

Fricas [A] time = 0.209077, size = 63, normalized size = 1.31

$$-\frac{12150\,x^5-18360\,x^4+7713\,x^3-4005\,x^2+3724\,(3\,x+2)\log\left(3\,x+2\right)-13938\,x+343}{729\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^2*(2*x - 1)^3/(3*x + 2)^2,x, algorithm="fricas")
```

```
[Out] -1/729*(12150*x^5 - 18360*x^4 + 7713*x^3 - 4005*x^2 + 3724*(3*x +
 2)*log(3*x + 2) - 13938*x + 343)/(3*x + 2)
```

Sympy [A] time = 0.246106, size = 41, normalized size = 0.85

$$-\frac{50x^4}{9}+\frac{980x^3}{81}-\frac{313x^2}{27}+\frac{2323x}{243}-\frac{3724\log\left(3x+2\right)}{729}-\frac{343}{2187x+1458}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(3+5*x)**2/(2+3*x)**2,x)
```

```
[Out] -50*x**4/9 + 980*x**3/81 - 313*x**2/27 + 2323*x/243 - 3724*log(3*
x + 2)/729 - 343/(2187*x + 1458)
```

GIAC/XCAS [A] time = 0.212702, size = 89, normalized size = 1.85

$$\frac{1}{2187}\,(3\,x+2)^4\left(\frac{2180}{3\,x+2}-\frac{12297}{(3\,x+2)^2}+\frac{34797}{(3\,x+2)^3}-150\right)-\frac{343}{729\,(3\,x+2)}+\frac{3724}{729}\ln\left(\frac{|3\,x+2|}{3\,(3\,x+2)^2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(2*x - 1)^3/(3*x + 2)^2,x, algorithm="giac")
```

```
[Out] 1/2187*(3*x + 2)^4*(2180/(3*x + 2) - 12297/(3*x + 2)^2 + 34797/(3
*x + 2)^3 - 150) - 343/729/(3*x + 2) + 3724/729*ln(1/3*abs(3*x +
2)/(3*x + 2)^2)
```

3.1349 $\int \frac{(1-2x)^3(3+5x)^2}{(2+3x)^3} dx$

Optimal. Leaf size=52

$$-\frac{200x^3}{81}+\frac{230x^2}{27}-\frac{1546x}{81}+\frac{3724}{729(3x+2)}-\frac{343}{1458(3x+2)^2}+\frac{11599}{729}\log(3x+2)$$

```
[Out] (-1546*x)/81 + (230*x^2)/27 - (200*x^3)/81 - 343/(1458*(2 + 3*x)^
2) + 3724/(729*(2 + 3*x)) + (11599*Log[2 + 3*x])/729
```

Rubi [A] time = 0.0646062, antiderivative size = 52, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{200x^3}{81}+\frac{230x^2}{27}-\frac{1546x}{81}+\frac{3724}{729(3x+2)}-\frac{343}{1458(3x+2)^2}+\frac{11599}{729}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^3*(3 + 5*x)^2)/(2 + 3*x)^3,x]
```

```
[Out] (-1546*x)/81 + (230*x^2)/27 - (200*x^3)/81 - 343/(1458*(2 + 3*x)^
2) + 3724/(729*(2 + 3*x)) + (11599*Log[2 + 3*x])/729
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{200x^3}{81}+\frac{11599\log(3x+2)}{729}+\int\left(-\frac{1546}{81}\right)dx+\frac{460\int x\,dx}{27}+\frac{3724}{729(3x+2)}-\frac{343}{1458(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3*(3+5*x)**2/(2+3*x)**3,x)
```

```
[Out] -200*x**3/81 + 11599*log(3*x + 2)/729 + Integral(-1546/81, x) + 4
60*Integral(x, x)/27 + 3724/(729*(3*x + 2)) - 343/(1458*(3*x + 2)
**2)
```

Mathematica [A] time = 0.0529053, size = 51, normalized size = 0.98

$$-\frac{97200x^5-205740x^4+347436x^3+1531512x^2+1171896x-69594(3x+2)^2\log(30x+20)+258005}{4374(3x+2)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^3*(3 + 5*x)^2)/(2 + 3*x)^3,x]
```

```
[Out] -(258005 + 1171896*x + 1531512*x^2 + 347436*x^3 - 205740*x^4 + 97
200*x^5 - 69594*(2 + 3*x)^2*Log[20 + 30*x])/(4374*(2 + 3*x)^2)
```

Maple [A] time = 0.01, size = 41, normalized size = 0.8

$$-\frac{1546\,x}{81}+\frac{230\,x^2}{27}-\frac{200\,x^3}{81}-\frac{343}{1458\,(2+3\,x)^2}+\frac{3724}{1458+2187\,x}+\frac{11599\,\ln(2+3\,x)}{729}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(3+5*x)^2/(2+3*x)^3,x)
```

```
[Out] -1546/81*x+230/27*x^2-200/81*x^3-343/1458/(2+3*x)^2+3724/729/(2+3
*x)+11599/729*ln(2+3*x)
```

Maxima [A] time = 1.34561, size = 55, normalized size = 1.06

$$-\frac{200}{81}\,x^3+\frac{230}{27}\,x^2-\frac{1546}{81}\,x+\frac{49\,(152\,x+99)}{486\,(9\,x^2+12\,x+4)}+\frac{11599}{729}\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(2*x - 1)^3/(3*x + 2)^3,x, algorithm="maxima")
```

```
[Out] -200/81*x^3 + 230/27*x^2 - 1546/81*x + 49/486*(152*x + 99)/(9*x^2
 + 12*x + 4) + 11599/729*log(3*x + 2)
```

Fricas [A] time = 0.209218, size = 77, normalized size = 1.48

$$-\frac{32400\,x^5-68580\,x^4+115812\,x^3+284256\,x^2-23198\,\left(9\,x^2+12\,x+4\right)\log\left(3\,x+2\right)+88968\,x-14553}{1458\,(9\,x^2+12\,x+4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(2*x - 1)^3/(3*x + 2)^3,x, algorithm="fricas")
```

```
[Out] -1/1458*(32400*x^5 - 68580*x^4 + 115812*x^3 + 284256*x^2 - 23198*
(9*x^2 + 12*x + 4)*log(3*x + 2) + 88968*x - 14553)/(9*x^2 + 12*x
+ 4)
```

Sympy [A] time = 0.296302, size = 42, normalized size = 0.81

$$-\frac{200x^3}{81}+\frac{230x^2}{27}-\frac{1546x}{81}+\frac{7448x+4851}{4374x^2+5832x+1944}+\frac{11599\log\left(3x+2\right)}{729}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(3+5*x)**2/(2+3*x)**3,x)
```

```
[Out] -200*x**3/81 + 230*x**2/27 - 1546*x/81 + (7448*x + 4851)/(4374*x*
*2 + 5832*x + 1944) + 11599*log(3*x + 2)/729
```

GIAC/XCAS [A] time = 0.208718, size = 50, normalized size = 0.96

$$-\frac{200}{81}\,x^3+\frac{230}{27}\,x^2-\frac{1546}{81}\,x+\frac{49\,(152\,x+99)}{486\,(3\,x+2)^2}+\frac{11599}{729}\,\ln\left(|3\,x+2|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(2*x - 1)^3/(3*x + 2)^3,x, algorithm="giac")
```

```
[Out] -200/81*x^3 + 230/27*x^2 - 1546/81*x + 49/486*(152*x + 99)/(3*x +
 2)^2 + 11599/729*ln(abs(3*x + 2))
```

3.1350 $\int \frac{(1-2x)^3(3+5x)^2}{(2+3x)^4}\,dx$

Optimal. Leaf size=56

$$-\frac{100x^2}{81}+\frac{1780x}{243}-\frac{11599}{729(3x+2)}+\frac{1862}{729(3x+2)^2}-\frac{343}{2187(3x+2)^3}-\frac{8198}{729}\log(3x+2)$$

```
[Out] (1780*x)/243 - (100*x^2)/81 - 343/(2187*(2 + 3*x)^3) + 1862/(729*
(2 + 3*x)^2) - 11599/(729*(2 + 3*x)) - (8198*Log[2 + 3*x])/729
```

Rubi [A] time = 0.0690735, antiderivative size = 56, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{100x^2}{81}+\frac{1780x}{243}-\frac{11599}{729(3x+2)}+\frac{1862}{729(3x+2)^2}-\frac{343}{2187(3x+2)^3}-\frac{8198}{729}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)^3*(3 + 5*x)^2)/(2 + 3*x)^4,x]
```

```
[Out] (1780*x)/243 - (100*x^2)/81 - 343/(2187*(2 + 3*x)^3) + 1862/(729*
(2 + 3*x)^2) - 11599/(729*(2 + 3*x)) - (8198*Log[2 + 3*x])/729
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{8198\log(3x+2)}{729}+\int\frac{1780}{243}\,dx-\frac{200\int x\,dx}{81}-\frac{11599}{729(3x+2)}+\frac{1862}{729(3x+2)^2}-\frac{343}{2187(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**3*(3+5*x)**2/(2+3*x)**4,x)
```

```
[Out] -8198*log(3*x + 2)/729 + Integral(1780/243, x) - 200*Integral(x,
x)/81 - 11599/(729*(3*x + 2)) + 1862/(729*(3*x + 2)**2) - 343/(21
87*(3*x + 2)**3)
```

Mathematica [A] time = 0.0503391, size = 51, normalized size = 0.91

$$\frac{-72900x^5+286740x^4+1088640x^3+883467x^2+155034x-24594(3x+2)^3\log(30x+20)-33319}{2187(3x+2)^3}$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)^3*(3 + 5*x)^2)/(2 + 3*x)^4,x]
```

```
[Out] (-33319 + 155034*x + 883467*x^2 + 1088640*x^3 + 286740*x^4 - 7290
0*x^5 - 24594*(2 + 3*x)^3*Log[20 + 30*x])/(2187*(2 + 3*x)^3)
```

Maple [A] time = 0.01, size = 45, normalized size = 0.8

$$\frac{1780\,x}{243}-\frac{100\,x^2}{81}-\frac{343}{2187\,(2+3\,x)^3}+\frac{1862}{729\,(2+3\,x)^2}-\frac{11599}{1458+2187\,x}-\frac{8198\,\ln(2+3\,x)}{729}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(3+5*x)^2/(2+3*x)^4,x)
```

```
[Out] 1780/243*x-100/81*x^2-343/2187/(2+3*x)^3+1862/729/(2+3*x)^2-11599
/729/(2+3*x)-8198/729*ln(2+3*x)
```

Maxima [A] time = 1.33521, size = 62, normalized size = 1.11

$$-\frac{100}{81}\,x^2+\frac{1780}{243}\,x-\frac{7\left(44739\,x^2+57258\,x+18337\right)}{2187\,(27\,x^3+54\,x^2+36\,x+8)}-\frac{8198}{729}\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^2*(2*x - 1)^3/(3*x + 2)^4,x, algorithm="maxima")
```

```
[Out] -100/81*x^2 + 1780/243*x - 7/2187*(44739*x^2 + 57258*x + 18337)/(
27*x^3 + 54*x^2 + 36*x + 8) - 8198/729*log(3*x + 2)
```

Fricas [A] time = 0.213804, size = 90, normalized size = 1.61

$$-\frac{72900\,x^5-286740\,x^4-767880\,x^3-241947\,x^2+24594\left(27\,x^3+54\,x^2+36\,x+8\right)\log\left(3\,x+2\right)+272646\,x+128359}{2187\,(27\,x^3+54\,x^2+36\,x+8)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^2*(2*x - 1)^3/(3*x + 2)^4,x, algorithm="fricas")
```

```
[Out] -1/2187*(72900*x^5 - 286740*x^4 - 767880*x^3 - 241947*x^2 + 24594
*(27*x^3 + 54*x^2 + 36*x + 8)*log(3*x + 2) + 272646*x + 128359)/(
27*x^3 + 54*x^2 + 36*x + 8)
```

Sympy [A] time = 0.345904, size = 46, normalized size = 0.82

$$-\frac{100x^2}{81}+\frac{1780x}{243}-\frac{313173x^2+400806x+128359}{59049x^3+118098x^2+78732x+17496}-\frac{8198\log\left(3x+2\right)}{729}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(3+5*x)**2/(2+3*x)**4,x)
```

```
[Out] -100*x**2/81 + 1780*x/243 - (313173*x**2 + 400806*x + 128359)/(59
049*x**3 + 118098*x**2 + 78732*x + 17496) - 8198*log(3*x + 2)/729
```

GIAC/XCAS [A] time = 0.212167, size = 50, normalized size = 0.89

$$-\frac{100}{81}\,x^2+\frac{1780}{243}\,x-\frac{7\left(44739\,x^2+57258\,x+18337\right)}{2187\,(3\,x+2)^3}-\frac{8198}{729}\,\ln\left(|3\,x+2|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(2*x - 1)^3/(3*x + 2)^4,x, algorithm="giac")
```

```
[Out] -100/81*x^2 + 1780/243*x - 7/2187*(44739*x^2 + 57258*x + 18337)/(
3*x + 2)^3 - 8198/729*ln(abs(3*x + 2))
```

3.1351 $\int \frac{(1-2x)^3(3+5x)^2}{(2+3x)^5} dx$

Optimal. Leaf size=60

$$-\frac{200x}{243}+\frac{8198}{729(3x+2)}-\frac{11599}{1458(3x+2)^2}+\frac{3724}{2187(3x+2)^3}-\frac{343}{2916(3x+2)^4}+\frac{2180}{729}\log(3x+2)$$

```
[Out] (-200*x)/243 - 343/(2916*(2 + 3*x)^4) + 3724/(2187*(2 + 3*x)^3) -
 11599/(1458*(2 + 3*x)^2) + 8198/(729*(2 + 3*x)) + (2180*Log[2 +
3*x])/729
```

Rubi [A] time = 0.0678348, antiderivative size = 60, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{200x}{243}+\frac{8198}{729(3x+2)}-\frac{11599}{1458(3x+2)^2}+\frac{3724}{2187(3x+2)^3}-\frac{343}{2916(3x+2)^4}+\frac{2180}{729}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^3*(3 + 5*x)^2)/(2 + 3*x)^5,x]
```

```
[Out] (-200*x)/243 - 343/(2916*(2 + 3*x)^4) + 3724/(2187*(2 + 3*x)^3) -
 11599/(1458*(2 + 3*x)^2) + 8198/(729*(2 + 3*x)) + (2180*Log[2 +
3*x])/729
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{2180\log(3x+2)}{729}+\int\left(-\frac{200}{243}\right)dx+\frac{8198}{729(3x+2)}-\frac{11599}{1458(3x+2)^2}+\frac{3724}{2187(3x+2)^3}-\frac{343}{2916(3x+2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3*(3+5*x)**2/(2+3*x)**5,x)
```

```
[Out] 2180*log(3*x + 2)/729 + Integral(-200/243, x) + 8198/(729*(3*x +
2)) - 11599/(1458*(3*x + 2)**2) + 3724/(2187*(3*x + 2)**3) - 343/
(2916*(3*x + 2)**4)
```

Mathematica [A] time = 0.0537143, size = 51, normalized size = 0.85

$$\frac{-583200x^5-1944000x^4+64152x^3+2957958x^2+2175096x+26160(3x+2)^4\log(30x+20)+460595}{8748(3x+2)^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^3*(3 + 5*x)^2)/(2 + 3*x)^5,x]
```

```
[Out] (460595 + 2175096*x + 2957958*x^2 + 64152*x^3 - 1944000*x^4 - 583
200*x^5 + 26160*(2 + 3*x)^4*Log[20 + 30*x])/(8748*(2 + 3*x)^4)
```

Maple [A] time = 0.01, size = 49, normalized size = 0.8

$$-\frac{200x}{243}-\frac{343}{2916(2+3x)^4}+\frac{3724}{2187(2+3x)^3}-\frac{11599}{1458(2+3x)^2}+\frac{8198}{1458+2187x}+\frac{2180\ln(2+3x)}{729}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((1-2*x)^3*(3+5*x)^2/(2+3*x)^5,x)
```

```
[Out] -200/243*x-343/2916/(2+3*x)^4+3724/2187/(2+3*x)^3-11599/1458/(2+3
*x)^2+8198/729/(2+3*x)+2180/729*ln(2+3*x)
```

Maxima [A] time = 1.34219, size = 69, normalized size = 1.15

$$-\frac{200}{243}\,x+\frac{2656152\,x^3+4685958\,x^2+2751096\,x+537395}{8748\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}+\frac{2180}{729}\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(2*x - 1)^3/(3*x + 2)^5,x, algorithm="maxima")
```

```
[Out] -200/243*x + 1/8748*(2656152*x^3 + 4685958*x^2 + 2751096*x + 5373
95)/(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16) + 2180/729*log(3*x +
 2)
```

Fricas [A] time = 0.213393, size = 104, normalized size = 1.73

$$-\frac{583200\,x^5+1555200\,x^4-1100952\,x^3-3994758\,x^2-26160\left(81\,x^4+216\,x^3+216\,x^2+96\,x+16\right)\log\left(3\,x+2\right)-2635896\,\ldots}{8748\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(2*x - 1)^3/(3*x + 2)^5,x, algorithm="fricas")
```

```
[Out] -1/8748*(583200*x^5 + 1555200*x^4 - 1100952*x^3 - 3994758*x^2 - 2
6160*(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16)*log(3*x + 2) - 2635
896*x - 537395)/(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16)
```

Sympy [A] time = 0.387308, size = 49, normalized size = 0.82

$$-\frac{200x}{243}+\frac{2656152x^3+4685958x^2+2751096x+537395}{708588x^4+1889568x^3+1889568x^2+839808x+139968}+\frac{2180\log\left(3x+2\right)}{729}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((1-2*x)**3*(3+5*x)**2/(2+3*x)**5,x)
```

```
[Out] -200*x/243 + (2656152*x**3 + 4685958*x**2 + 2751096*x + 537395)/(
708588*x**4 + 1889568*x**3 + 1889568*x**2 + 839808*x + 139968) +
2180*log(3*x + 2)/729
```

GIAC/XCAS [A] time = 0.221619, size = 80, normalized size = 1.33

$$-\frac{200}{243}\,x+\frac{8198}{729\,(3\,x+2)}-\frac{11599}{1458\,(3\,x+2)^2}+\frac{3724}{2187\,(3\,x+2)^3}-\frac{343}{2916\,(3\,x+2)^4}-\frac{2180}{729}\,\ln\left(\frac{|3\,x+2|}{3\,(3\,x+2)^2}\right)-\frac{400}{729}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(2*x - 1)^3/(3*x + 2)^5,x, algorithm="giac")
```

```
[Out] -200/243*x + 8198/729/(3*x + 2) - 11599/1458/(3*x + 2)^2 + 3724/2
187/(3*x + 2)^3 - 343/2916/(3*x + 2)^4 - 2180/729*ln(1/3*abs(3*x
+ 2)/(3*x + 2)^2) - 400/729
```

3.1352 $\int \frac{(1-2x)^3(3+5x)^2}{(2+3x)^6}\,dx$

Optimal. Leaf size=66

$$-\frac{2180}{729(3x+2)}+\frac{4099}{729(3x+2)^2}-\frac{11599}{2187(3x+2)^3}+\frac{931}{729(3x+2)^4}-\frac{343}{3645(3x+2)^5}-\frac{200}{729}\log(3x+2)$$

```
[Out] -343/(3645*(2 + 3*x)^5) + 931/(729*(2 + 3*x)^4) - 11599/(2187*(2
+ 3*x)^3) + 4099/(729*(2 + 3*x)^2) - 2180/(729*(2 + 3*x)) - (200*
Log[2 + 3*x])/729
```

Rubi [A] time = 0.0635281, antiderivative size = 66, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{2180}{729(3x+2)}+\frac{4099}{729(3x+2)^2}-\frac{11599}{2187(3x+2)^3}+\frac{931}{729(3x+2)^4}-\frac{343}{3645(3x+2)^5}-\frac{200}{729}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^3*(3 + 5*x)^2)/(2 + 3*x)^6,x]
```

```
[Out] -343/(3645*(2 + 3*x)^5) + 931/(729*(2 + 3*x)^4) - 11599/(2187*(2
+ 3*x)^3) + 4099/(729*(2 + 3*x)^2) - 2180/(729*(2 + 3*x)) - (200*
Log[2 + 3*x])/729
```

Rubi in Sympy [A] time = 10.5352, size = 56, normalized size = 0.85

$$-\frac{200\log(3x+2)}{729}-\frac{2180}{729(3x+2)}+\frac{4099}{729(3x+2)^2}-\frac{11599}{2187(3x+2)^3}+\frac{931}{729(3x+2)^4}-\frac{343}{3645(3x+2)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3*(3+5*x)**2/(2+3*x)**6,x)
```

```
[Out] -200*log(3*x + 2)/729 - 2180/(729*(3*x + 2)) + 4099/(729*(3*x + 2
)**2) - 11599/(2187*(3*x + 2)**3) + 931/(729*(3*x + 2)**4) - 343/
(3645*(3*x + 2)**5)
```

Mathematica [A] time = 0.0560005, size = 46, normalized size = 0.7

$$-\frac{2648700x^4+5403105x^3+4264965x^2+1579785x+3000(3x+2)^5\log(30x+20)+236399}{10935(3x+2)^5}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^3*(3 + 5*x)^2)/(2 + 3*x)^6,x]
```

```
[Out] -(236399 + 1579785*x + 4264965*x^2 + 5403105*x^3 + 2648700*x^4 +
3000*(2 + 3*x)^5*Log[20 + 30*x])/(10935*(2 + 3*x)^5)
```

Maple [A] time = 0.012, size = 55, normalized size = 0.8

$$-\frac{343}{3645\,(2+3\,x)^5}+\frac{931}{729\,(2+3\,x)^4}-\frac{11599}{2187\,(2+3\,x)^3}+\frac{4099}{729\,(2+3\,x)^2}-\frac{2180}{1458+2187\,x}-\frac{200\,\ln(2+3\,x)}{729}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(3+5*x)^2/(2+3*x)^6,x)
```

```
[Out] -343/3645/(2+3*x)^5+931/729/(2+3*x)^4-11599/2187/(2+3*x)^3+4099/7
29/(2+3*x)^2-2180/729/(2+3*x)-200/729*ln(2+3*x)
```

Maxima [A] time = 1.33377, size = 78, normalized size = 1.18

$$-\frac{2648700\,x^4+5403105\,x^3+4264965\,x^2+1579785\,x+236399}{10935\,(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240\,x+32)}-\frac{200}{729}\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^2*(2*x - 1)^3/(3*x + 2)^6,x, algorithm="maxima")
```

```
[Out] -1/10935*(2648700*x^4 + 5403105*x^3 + 4264965*x^2 + 1579785*x + 2
36399)/(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32) - 20
0/729*log(3*x + 2)
```

Fricas [A] time = 0.213722, size = 111, normalized size = 1.68

$$-\frac{2648700\,x^4+5403105\,x^3+4264965\,x^2+3000\left(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240\,x+32\right)\log\left(3\,x+2\right)+1579785\,x}{10935\,(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240\,x+32)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^2*(2*x - 1)^3/(3*x + 2)^6,x, algorithm="fricas")
```

```
[Out] -1/10935*(2648700*x^4 + 5403105*x^3 + 4264965*x^2 + 3000*(243*x^5
 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)*log(3*x + 2) + 1579
785*x + 236399)/(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x +
 32)
```

Sympy [A] time = 0.427891, size = 56, normalized size = 0.85

$$-\frac{2648700x^4+5403105x^3+4264965x^2+1579785x+236399}{2657205x^5+8857350x^4+11809800x^3+7873200x^2+2624400x+349920}-\frac{200\log\left(3x+2\right)}{729}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(3+5*x)**2/(2+3*x)**6,x)
```

```
[Out] -(2648700*x**4 + 5403105*x**3 + 4264965*x**2 + 1579785*x + 236399
)/(2657205*x**5 + 8857350*x**4 + 11809800*x**3 + 7873200*x**2 + 2
624400*x + 349920) - 200*log(3*x + 2)/729
```

GIAC/XCAS [A] time = 0.20718, size = 53, normalized size = 0.8

$$-\frac{2648700\,x^4+5403105\,x^3+4264965\,x^2+1579785\,x+236399}{10935\,(3\,x+2)^5}-\frac{200}{729}\ln\left(|3\,x+2|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(2*x - 1)^3/(3*x + 2)^6,x, algorithm="giac")
```

```
[Out] -1/10935*(2648700*x^4 + 5403105*x^3 + 4264965*x^2 + 1579785*x + 2
36399)/(3*x + 2)^5 - 200/729*ln(abs(3*x + 2))
```

3.1353 $\int \frac{(1-2x)^3(3+5x)^2}{(2+3x)^7}\,dx$

Optimal. Leaf size=67

$$\frac{200}{729(3x+2)}-\frac{1090}{729(3x+2)^2}+\frac{8198}{2187(3x+2)^3}-\frac{11599}{2916(3x+2)^4}+\frac{3724}{3645(3x+2)^5}-\frac{343}{4374(3x+2)^6}$$

```
[Out] -343/(4374*(2 + 3*x)^6) + 3724/(3645*(2 + 3*x)^5) - 11599/(2916*(
2 + 3*x)^4) + 8198/(2187*(2 + 3*x)^3) - 1090/(729*(2 + 3*x)^2) +
200/(729*(2 + 3*x))
```

Rubi [A] time = 0.0675321, antiderivative size = 67, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{200}{729(3x+2)}-\frac{1090}{729(3x+2)^2}+\frac{8198}{2187(3x+2)^3}-\frac{11599}{2916(3x+2)^4}+\frac{3724}{3645(3x+2)^5}-\frac{343}{4374(3x+2)^6}$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)^3*(3 + 5*x)^2)/(2 + 3*x)^7,x]
```

```
[Out] -343/(4374*(2 + 3*x)^6) + 3724/(3645*(2 + 3*x)^5) - 11599/(2916*(
2 + 3*x)^4) + 8198/(2187*(2 + 3*x)^3) - 1090/(729*(2 + 3*x)^2) +
200/(729*(2 + 3*x))
```

Rubi in Sympy [A] time = 11.451, size = 56, normalized size = 0.84

$$\frac{200}{729\,(3x+2)}-\frac{1090}{729\,(3x+2)^2}+\frac{8198}{2187\,(3x+2)^3}-\frac{11599}{2916\,(3x+2)^4}+\frac{3724}{3645\,(3x+2)^5}-\frac{343}{4374\,(3x+2)^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**3*(3+5*x)**2/(2+3*x)**7,x)
```

```
[Out] 200/(729*(3*x + 2)) - 1090/(729*(3*x + 2)**2) + 8198/(2187*(3*x +
 2)**3) - 11599/(2916*(3*x + 2)**4) + 3724/(3645*(3*x + 2)**5) -
343/(4374*(3*x + 2)**6)
```

Mathematica [A] time = 0.0412273, size = 36, normalized size = 0.54

$$\frac{2916000x^5+4422600x^4+3260520x^3+1801575x^2+550404x+39286}{43740(3x+2)^6}$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)^3*(3 + 5*x)^2)/(2 + 3*x)^7,x]
```

```
[Out] (39286 + 550404*x + 1801575*x^2 + 3260520*x^3 + 4422600*x^4 + 291
6000*x^5)/(43740*(2 + 3*x)^6)
```

Maple [A] time = 0.008, size = 56, normalized size = 0.8

$$-\frac{343}{4374\,(2+3\,x)^6}+\frac{3724}{3645\,(2+3\,x)^5}-\frac{11599}{2916\,(2+3\,x)^4}+\frac{8198}{2187\,(2+3\,x)^3}-\frac{1090}{729\,(2+3\,x)^2}+\frac{200}{1458+2187\,x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(3+5*x)^2/(2+3*x)^7,x)
```

```
[Out] -343/4374/(2+3*x)^6+3724/3645/(2+3*x)^5-11599/2916/(2+3*x)^4+8198
/2187/(2+3*x)^3-1090/729/(2+3*x)^2+200/729/(2+3*x)
```

Maxima [A] time = 1.37153, size = 80, normalized size = 1.19

$$\frac{2916000\,x^5+4422600\,x^4+3260520\,x^3+1801575\,x^2+550404\,x+39286}{43740\,(729\,x^6+2916\,x^5+4860\,x^4+4320\,x^3+2160\,x^2+576\,x+64)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^2*(2*x - 1)^3/(3*x + 2)^7,x, algorithm="maxima")
```

```
[Out] 1/43740*(2916000*x^5 + 4422600*x^4 + 3260520*x^3 + 1801575*x^2 +
550404*x + 39286)/(729*x^6 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 216
0*x^2 + 576*x + 64)
```

Fricas [A] time = 0.204375, size = 80, normalized size = 1.19

$$\frac{2916000\,x^5+4422600\,x^4+3260520\,x^3+1801575\,x^2+550404\,x+39286}{43740\,(729\,x^6+2916\,x^5+4860\,x^4+4320\,x^3+2160\,x^2+576\,x+64)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^2*(2*x - 1)^3/(3*x + 2)^7,x, algorithm="fricas")
```

```
[Out] 1/43740*(2916000*x^5 + 4422600*x^4 + 3260520*x^3 + 1801575*x^2 +
550404*x + 39286)/(729*x^6 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 216
0*x^2 + 576*x + 64)
```

Sympy [A] time = 0.466572, size = 54, normalized size = 0.81

$$\frac{2916000x^5+4422600x^4+3260520x^3+1801575x^2+550404x+39286}{31886460x^6+127545840x^5+212576400x^4+188956800x^3+94478400x^2+25194240x+2799360}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(3+5*x)**2/(2+3*x)**7,x)
```

```
[Out] (2916000*x**5 + 4422600*x**4 + 3260520*x**3 + 1801575*x**2 + 5504
04*x + 39286)/(31886460*x**6 + 127545840*x**5 + 212576400*x**4 +
188956800*x**3 + 94478400*x**2 + 25194240*x + 2799360)
```

GIAC/XCAS [A] time = 0.210133, size = 46, normalized size = 0.69

$$\frac{2916000\,x^5+4422600\,x^4+3260520\,x^3+1801575\,x^2+550404\,x+39286}{43740\,(3\,x+2)^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(2*x - 1)^3/(3*x + 2)^7,x, algorithm="giac")
```

```
[Out] 1/43740*(2916000*x^5 + 4422600*x^4 + 3260520*x^3 + 1801575*x^2 +
550404*x + 39286)/(3*x + 2)^6
```

3.1354 $\int \frac{(1-2x)^3(3+5x)^2}{(2+3x)^8}\,dx$

Optimal. Leaf size=67

$$\frac{100}{729(3x+2)^2}-\frac{2180}{2187(3x+2)^3}+\frac{4099}{1458(3x+2)^4}-\frac{11599}{3645(3x+2)^5}+\frac{1862}{2187(3x+2)^6}-\frac{49}{729(3x+2)^7}$$

```
[Out] -49/(729*(2 + 3*x)^7) + 1862/(2187*(2 + 3*x)^6) - 11599/(3645*(2
+ 3*x)^5) + 4099/(1458*(2 + 3*x)^4) - 2180/(2187*(2 + 3*x)^3) + 1
00/(729*(2 + 3*x)^2)
```

Rubi [A] time = 0.0716052, antiderivative size = 67, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{100}{729(3x+2)^2}-\frac{2180}{2187(3x+2)^3}+\frac{4099}{1458(3x+2)^4}-\frac{11599}{3645(3x+2)^5}+\frac{1862}{2187(3x+2)^6}-\frac{49}{729(3x+2)^7}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^3*(3 + 5*x)^2)/(2 + 3*x)^8,x]
```

```
[Out] -49/(729*(2 + 3*x)^7) + 1862/(2187*(2 + 3*x)^6) - 11599/(3645*(2
+ 3*x)^5) + 4099/(1458*(2 + 3*x)^4) - 2180/(2187*(2 + 3*x)^3) + 1
00/(729*(2 + 3*x)^2)
```

Rubi in Sympy [A] time = 11.5506, size = 60, normalized size = 0.9

$$\frac{100}{729\,(3x+2)^2}-\frac{2180}{2187\,(3x+2)^3}+\frac{4099}{1458\,(3x+2)^4}-\frac{11599}{3645\,(3x+2)^5}+\frac{1862}{2187\,(3x+2)^6}-\frac{49}{729\,(3x+2)^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3*(3+5*x)**2/(2+3*x)**8,x)
```

```
[Out] 100/(729*(3*x + 2)**2) - 2180/(2187*(3*x + 2)**3) + 4099/(1458*(3
*x + 2)**4) - 11599/(3645*(3*x + 2)**5) + 1862/(2187*(3*x + 2)**6
) - 49/(729*(3*x + 2)**7)
```

Mathematica [A] time = 0.0412548, size = 36, normalized size = 0.54

$$\frac{729000x^5+664200x^4+191295x^3+145044x^2+61392x-3526}{21870(3x+2)^7}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^3*(3 + 5*x)^2)/(2 + 3*x)^8,x]
```

```
[Out] (-3526 + 61392*x + 145044*x^2 + 191295*x^3 + 664200*x^4 + 729000*
x^5)/(21870*(2 + 3*x)^7)
```

Maple [A] time = 0.01, size = 56, normalized size = 0.8

$$-\frac{49}{729\,(2+3\,x)^7}+\frac{1862}{2187\,(2+3\,x)^6}-\frac{11599}{3645\,(2+3\,x)^5}+\frac{4099}{1458\,(2+3\,x)^4}-\frac{2180}{2187\,(2+3\,x)^3}+\frac{100}{729\,(2+3\,x)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(3+5*x)^2/(2+3*x)^8,x)
```

```
[Out] -49/729/(2+3*x)^7+1862/2187/(2+3*x)^6-11599/3645/(2+3*x)^5+4099/1
458/(2+3*x)^4-2180/2187/(2+3*x)^3+100/729/(2+3*x)^2
```

Maxima [A] time = 1.34967, size = 86, normalized size = 1.28

$$\frac{729000\,x^5+664200\,x^4+191295\,x^3+145044\,x^2+61392\,x-3526}{21870\,(2187\,x^7+10206\,x^6+20412\,x^5+22680\,x^4+15120\,x^3+6048\,x^2+1344\,x+128)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^2*(2*x - 1)^3/(3*x + 2)^8,x, algorithm="maxima")
```

```
[Out] 1/21870*(729000*x^5 + 664200*x^4 + 191295*x^3 + 145044*x^2 + 6139
2*x - 3526)/(2187*x^7 + 10206*x^6 + 20412*x^5 + 22680*x^4 + 15120
*x^3 + 6048*x^2 + 1344*x + 128)
```

Fricas [A] time = 0.19475, size = 86, normalized size = 1.28

$$\frac{729000\,x^5+664200\,x^4+191295\,x^3+145044\,x^2+61392\,x-3526}{21870\,(2187\,x^7+10206\,x^6+20412\,x^5+22680\,x^4+15120\,x^3+6048\,x^2+1344\,x+128)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^2*(2*x - 1)^3/(3*x + 2)^8,x, algorithm="fricas")
```

```
[Out] 1/21870*(729000*x^5 + 664200*x^4 + 191295*x^3 + 145044*x^2 + 6139
2*x - 3526)/(2187*x^7 + 10206*x^6 + 20412*x^5 + 22680*x^4 + 15120
*x^3 + 6048*x^2 + 1344*x + 128)
```

Sympy [A] time = 0.526282, size = 60, normalized size = 0.9

$$\frac{729000x^5+664200x^4+191295x^3+145044x^2+61392x-3526}{47829690x^7+223205220x^6+446410440x^5+496011600x^4+330674400x^3+132269760x^2+29393280x+2799360}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(3+5*x)**2/(2+3*x)**8,x)
```

```
[Out] (729000*x**5 + 664200*x**4 + 191295*x**3 + 145044*x**2 + 61392*x
- 3526)/(47829690*x**7 + 223205220*x**6 + 446410440*x**5 + 496011
600*x**4 + 330674400*x**3 + 132269760*x**2 + 29393280*x + 2799360
)
```

GIAC/XCAS [A] time = 0.210854, size = 46, normalized size = 0.69

$$\frac{729000\,x^5+664200\,x^4+191295\,x^3+145044\,x^2+61392\,x-3526}{21870\,(3\,x+2)^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(2*x - 1)^3/(3*x + 2)^8,x, algorithm="giac")
```

```
[Out] 1/21870*(729000*x^5 + 664200*x^4 + 191295*x^3 + 145044*x^2 + 6139
2*x - 3526)/(3*x + 2)^7
```

3.1355 $\int (1-2x)^3(2+3x)^7(3+5x)^3\,dx$

Optimal. Leaf size=78

$$-\frac{500(3x+2)^{14}}{15309}+\frac{3700(3x+2)^{13}}{9477}-\frac{7195(3x+2)^{12}}{4374}+\frac{66193(3x+2)^{11}}{24057}-\frac{10073(3x+2)^{10}}{7290}+\frac{1813(3x+2)^9}{6561}-\frac{343(3x+2)^8}{17496}$$

```
[Out] (-343*(2 + 3*x)^8)/17496 + (1813*(2 + 3*x)^9)/6561 - (10073*(2 +
3*x)^10)/7290 + (66193*(2 + 3*x)^11)/24057 - (7195*(2 + 3*x)^12)/
4374 + (3700*(2 + 3*x)^13)/9477 - (500*(2 + 3*x)^14)/15309
```

Rubi [A] time = 0.131144, antiderivative size = 78, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$-\frac{500(3x+2)^{14}}{15309}+\frac{3700(3x+2)^{13}}{9477}-\frac{7195(3x+2)^{12}}{4374}+\frac{66193(3x+2)^{11}}{24057}-\frac{10073(3x+2)^{10}}{7290}+\frac{1813(3x+2)^9}{6561}-\frac{343(3x+2)^8}{17496}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^3*(2 + 3*x)^7*(3 + 5*x)^3,x]
```

```
[Out] (-343*(2 + 3*x)^8)/17496 + (1813*(2 + 3*x)^9)/6561 - (10073*(2 +
3*x)^10)/7290 + (66193*(2 + 3*x)^11)/24057 - (7195*(2 + 3*x)^12)/
4374 + (3700*(2 + 3*x)^13)/9477 - (500*(2 + 3*x)^14)/15309
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{1093500x^{14}}{7}-\frac{10862100x^{13}}{13}-\frac{3595185x^{12}}{2}-\frac{19532907x^{11}}{11}-\frac{2909493x^{10}}{10}+1119837x^9+\frac{8511675x^8}{8}+\frac{1241998x^7}{7}-299014x^6-\frac{1022472x^5}{5}-20732x^4+31200x^3+3456x+32832\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3*(2+3*x)**7*(3+5*x)**3,x)
```

```
[Out] -1093500*x**14/7 - 10862100*x**13/13 - 3595185*x**12/2 - 19532907
*x**11/11 - 2909493*x**10/10 + 1119837*x**9 + 8511675*x**8/8 + 12
41998*x**7/7 - 299014*x**6 - 1022472*x**5/5 - 20732*x**4 + 31200*
x**3 + 3456*x + 32832*Integral(x, x)
```

Mathematica [A] time = 0.00484678, size = 85, normalized size = 1.09

$$-\frac{1093500x^{14}}{7}-\frac{10862100x^{13}}{13}-\frac{3595185x^{12}}{2}-\frac{19532907x^{11}}{11}-\frac{2909493x^{10}}{10}+1119837x^9+\frac{8511675x^8}{8}+\frac{1241998x^7}{7}-299014x^6-\frac{1022472x^5}{5}-20732x^4+31200x^3+16416x^2+3456x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^3*(2 + 3*x)^7*(3 + 5*x)^3,x]
```

```
[Out] 3456*x + 16416*x^2 + 31200*x^3 - 20732*x^4 - (1022472*x^5)/5 - 29
9014*x^6 + (1241998*x^7)/7 + (8511675*x^8)/8 + 1119837*x^9 - (290
```

```
9493*x^10)/10 - (19532907*x^11)/11 - (3595185*x^12)/2 - (10862100
*x^13)/13 - (1093500*x^14)/7
```

Maple [A] time = 0.003, size = 70, normalized size = 0.9

$$-\frac{1093500\,x^{14}}{7}-\frac{10862100\,x^{13}}{13}-\frac{3595185\,x^{12}}{2}-\frac{19532907\,x^{11}}{11}-\frac{2909493\,x^{10}}{10}+1119837\,x^{9}+\frac{8511675\,x^{8}}{8}+\frac{1241998\,x^{7}}{7}-299014\,x^{6}-\frac{1022472\,x^{5}}{5}-20732\,x^{4}+31200\,x^{3}+16416\,x^{2}+3456\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((1-2*x)^3*(2+3*x)^7*(3+5*x)^3,x)
```

```
[Out] -1093500/7*x^14-10862100/13*x^13-3595185/2*x^12-19532907/11*x^11-
2909493/10*x^10+1119837*x^9+8511675/8*x^8+1241998/7*x^7-299014*x^
6-1022472/5*x^5-20732*x^4+31200*x^3+16416*x^2+3456*x
```

Maxima [A] time = 1.35016, size = 93, normalized size = 1.19

$$-\frac{1093500}{7}\,x^{14}-\frac{10862100}{13}\,x^{13}-\frac{3595185}{2}\,x^{12}-\frac{19532907}{11}\,x^{11}-\frac{2909493}{10}\,x^{10}+1119837\,x^{9}+\frac{8511675}{8}\,x^{8}+\frac{1241998}{7}\,x^{7}-299014\,x^{6}-\frac{1022472}{5}\,x^{5}-20732\,x^{4}+31200\,x^{3}+16416\,x^{2}+3456\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^3*(3*x + 2)^7*(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] -1093500/7*x^14 - 10862100/13*x^13 - 3595185/2*x^12 - 19532907/11
*x^11 - 2909493/10*x^10 + 1119837*x^9 + 8511675/8*x^8 + 1241998/7
*x^7 - 299014*x^6 - 1022472/5*x^5 - 20732*x^4 + 31200*x^3 + 16416
*x^2 + 3456*x
```

Fricas [A] time = 0.178961, size = 1, normalized size = 0.01

$$-\frac{1093500}{7}x^{14}-\frac{10862100}{13}x^{13}-\frac{3595185}{2}x^{12}-\frac{19532907}{11}x^{11}-\frac{2909493}{10}x^{10}+1119837x^{9}+\frac{8511675}{8}x^{8}+\frac{1241998}{7}x^{7}-299014x^{6}-\frac{1022472}{5}x^{5}-20732x^{4}+31200x^{3}+16416x^{2}+3456x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^3*(3*x + 2)^7*(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -1093500/7*x^14 - 10862100/13*x^13 - 3595185/2*x^12 - 19532907/11
*x^11 - 2909493/10*x^10 + 1119837*x^9 + 8511675/8*x^8 + 1241998/7
*x^7 - 299014*x^6 - 1022472/5*x^5 - 20732*x^4 + 31200*x^3 + 16416
*x^2 + 3456*x
```

Sympy [A] time = 0.131499, size = 82, normalized size = 1.05

$$-\frac{1093500x^{14}}{7}-\frac{10862100x^{13}}{13}-\frac{3595185x^{12}}{2}-\frac{19532907x^{11}}{11}-\frac{2909493x^{10}}{10}+1119837x^{9}+\frac{8511675x^{8}}{8}+\frac{1241998x^{7}}{7}-299014x^{6}-\frac{1022472x^{5}}{5}-20732x^{4}+31200x^{3}+16416x^{2}+3456x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(2+3*x)**7*(3+5*x)**3,x)
```

```
[Out] -1093500*x**14/7 - 10862100*x**13/13 - 3595185*x**12/2 - 19532907
*x**11/11 - 2909493*x**10/10 + 1119837*x**9 + 8511675*x**8/8 + 12
41998*x**7/7 - 299014*x**6 - 1022472*x**5/5 - 20732*x**4 + 31200*
x**3 + 16416*x**2 + 3456*x
```

GIAC/XCAS [A] time = 0.210019, size = 93, normalized size = 1.19

$$-\frac{1093500}{7}x^{14}-\frac{10862100}{13}x^{13}-\frac{3595185}{2}x^{12}-\frac{19532907}{11}x^{11}-\frac{2909493}{10}x^{10}+1119837x^{9}+\frac{8511675}{8}x^{8}+\frac{1241998}{7}x^{7}-299014x^{6}-\frac{1022472}{5}x^{5}-20732x^{4}+31200x^{3}+16416x^{2}+3456x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^7*(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] -1093500/7*x^14 - 10862100/13*x^13 - 3595185/2*x^12 - 19532907/11
*x^11 - 2909493/10*x^10 + 1119837*x^9 + 8511675/8*x^8 + 1241998/7
*x^7 - 299014*x^6 - 1022472/5*x^5 - 20732*x^4 + 31200*x^3 + 16416
*x^2 + 3456*x
```

3.1356 $\int (1-2x)^3(2+3x)^6(3+5x)^3\,dx$

Optimal. Leaf size=78

$$-\frac{1000(3x+2)^{13}}{28431}+\frac{925(3x+2)^{12}}{2187}-\frac{14390(3x+2)^{11}}{8019}+\frac{66193(3x+2)^{10}}{21870}-\frac{10073(3x+2)^9}{6561}+\frac{1813(3x+2)^8}{5832}-\frac{49(3x+2)^7}{2187}$$

```
[Out] (-49*(2 + 3*x)^7)/2187 + (1813*(2 + 3*x)^8)/5832 - (10073*(2 + 3*
x)^9)/6561 + (66193*(2 + 3*x)^10)/21870 - (14390*(2 + 3*x)^11)/80
19 + (925*(2 + 3*x)^12)/2187 - (1000*(2 + 3*x)^13)/28431
```

Rubi [A] time = 0.111583, antiderivative size = 78, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{1000(3x+2)^{13}}{28431}+\frac{925(3x+2)^{12}}{2187}-\frac{14390(3x+2)^{11}}{8019}+\frac{66193(3x+2)^{10}}{21870}-\frac{10073(3x+2)^9}{6561}+\frac{1813(3x+2)^8}{5832}-\frac{49(3x+2)^7}{2187}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^3*(2 + 3*x)^6*(3 + 5*x)^3,x]
```


```
[Out] (-49*(2 + 3*x)^7)/2187 + (1813*(2 + 3*x)^8)/5832 - (10073*(2 + 3*
x)^9)/6561 + (66193*(2 + 3*x)^10)/21870 - (14390*(2 + 3*x)^11)/80
19 + (925*(2 + 3*x)^12)/2187 - (1000*(2 + 3*x)^13)/28431
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{729000x^{13}}{13}-261225x^{12}-\frac{5100570x^{11}}{11}-\frac{3110589x^{10}}{10}+122655x^9+\frac{2623581x^8}{8}+155453x^7-51908x^6-\frac{390396x^5}{5}-20140x^4+8688x^3+1728x+13824\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3*(2+3*x)**6*(3+5*x)**3,x)
```

```
[Out] -729000*x**13/13 - 261225*x**12 - 5100570*x**11/11 - 3110589*x**1
0/10 + 122655*x**9 + 2623581*x**8/8 + 155453*x**7 - 51908*x**6 -
390396*x**5/5 - 20140*x**4 + 8688*x**3 + 1728*x + 13824*Integral(
x, x)
```

Mathematica [A] time = 0.00389163, size = 74, normalized size = 0.95

$$-\frac{729000x^{13}}{13}-261225x^{12}-\frac{5100570x^{11}}{11}-\frac{3110589x^{10}}{10}+122655x^9+\frac{2623581x^8}{8}+155453x^7-51908x^6-\frac{390396x^5}{5}-20140x^4+8688x^3+6912x^2+1728x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^3*(2 + 3*x)^6*(3 + 5*x)^3,x]
```

```
[Out] 1728*x + 6912*x^2 + 8688*x^3 - 20140*x^4 - (390396*x^5)/5 - 51908
*x^6 + 155453*x^7 + (2623581*x^8)/8 + 122655*x^9 - (3110589*x^10)
```

```
/10 - (5100570*x^11)/11 - 261225*x^12 - (729000*x^13)/13
```

Maple [A] time = 0.003, size = 65, normalized size = 0.8

$$-\frac{729000\,x^{13}}{13}-261225\,x^{12}-\frac{5100570\,x^{11}}{11}-\frac{3110589\,x^{10}}{10}+122655\,x^{9}+\frac{2623581\,x^{8}}{8}+155453\,x^{7}-51908\,x^{6}-\frac{390396\,x^{5}}{5}-20140\,x^{4}+8688\,x^{3}+6912\,x^{2}+1728\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(2+3*x)^6*(3+5*x)^3,x)
```

```
[Out] -729000/13*x^13-261225*x^12-5100570/11*x^11-3110589/10*x^10+12265
5*x^9+2623581/8*x^8+155453*x^7-51908*x^6-390396/5*x^5-20140*x^4+8
688*x^3+6912*x^2+1728*x
```

Maxima [A] time = 1.33907, size = 86, normalized size = 1.1

$$-\frac{729000}{13}\,x^{13}-261225\,x^{12}-\frac{5100570}{11}\,x^{11}-\frac{3110589}{10}\,x^{10}+122655\,x^{9}+\frac{2623581}{8}\,x^{8}+155453\,x^{7}-51908\,x^{6}-\frac{390396}{5}\,x^{5}-20140\,x^{4}+8688\,x^{3}+6912\,x^{2}+1728\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^6*(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] -729000/13*x^13 - 261225*x^12 - 5100570/11*x^11 - 3110589/10*x^10
 + 122655*x^9 + 2623581/8*x^8 + 155453*x^7 - 51908*x^6 - 390396/5
*x^5 - 20140*x^4 + 8688*x^3 + 6912*x^2 + 1728*x
```

Fricas [A] time = 0.190955, size = 1, normalized size = 0.01

$$-\frac{729000}{13}x^{13}-261225x^{12}-\frac{5100570}{11}x^{11}-\frac{3110589}{10}x^{10}+122655x^{9}+\frac{2623581}{8}x^{8}+155453x^{7}-51908x^{6}-\frac{390396}{5}x^{5}-20140x^{4}+8688x^{3}+6912x^{2}+1728x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^6*(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -729000/13*x^13 - 261225*x^12 - 5100570/11*x^11 - 3110589/10*x^10
 + 122655*x^9 + 2623581/8*x^8 + 155453*x^7 - 51908*x^6 - 390396/5
*x^5 - 20140*x^4 + 8688*x^3 + 6912*x^2 + 1728*x
```

Sympy [A] time = 0.134367, size = 71, normalized size = 0.91

$$-\frac{729000x^{13}}{13}-261225x^{12}-\frac{5100570x^{11}}{11}-\frac{3110589x^{10}}{10}+122655x^{9}+\frac{2623581x^{8}}{8}+155453x^{7}-51908x^{6}-\frac{390396x^{5}}{5}-20140x^{4}+8688x^{3}+6912x^{2}+1728x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(2+3*x)**6*(3+5*x)**3,x)
```

```
[Out] -729000*x**13/13 - 261225*x**12 - 5100570*x**11/11 - 3110589*x**1
0/10 + 122655*x**9 + 2623581*x**8/8 + 155453*x**7 - 51908*x**6 -
390396*x**5/5 - 20140*x**4 + 8688*x**3 + 6912*x**2 + 1728*x
```

GIAC/XCAS [A] time = 0.216322, size = 86, normalized size = 1.1

$$-\frac{729000}{13}\,x^{13} - 261225\,x^{12} - \frac{5100570}{11}\,x^{11} - \frac{3110589}{10}\,x^{10} + 122655\,x^{9} + \frac{2623581}{8}\,x^{8} + 155453\,x^{7} - 51908\,x^{6} - \frac{390396}{5}\,x^{5} - 20140\,x^{4} + 8688\,x^{3} + 6912\,x^{2} + 1728\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^6*(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] -729000/13*x^13 - 261225*x^12 - 5100570/11*x^11 - 3110589/10*x^10
 + 122655*x^9 + 2623581/8*x^8 + 155453*x^7 - 51908*x^6 - 390396/5
*x^5 - 20140*x^4 + 8688*x^3 + 6912*x^2 + 1728*x
```

3.1357 $\int (1-2x)^3(2+3x)^5(3+5x)^3\,dx$

Optimal. Leaf size=78

$$-\frac{250(3x+2)^{12}}{6561}+\frac{3700(3x+2)^{11}}{8019}-\frac{1439}{729}(3x+2)^{10}+\frac{66193(3x+2)^9}{19683}-\frac{10073(3x+2)^8}{5832}+\frac{259}{729}(3x+2)^7-\frac{343(3x+2)^6}{13122}$$

```
[Out] (-343*(2 + 3*x)^6)/13122 + (259*(2 + 3*x)^7)/729 - (10073*(2 + 3*
x)^8)/5832 + (66193*(2 + 3*x)^9)/19683 - (1439*(2 + 3*x)^10)/729
+ (3700*(2 + 3*x)^11)/8019 - (250*(2 + 3*x)^12)/6561
```

Rubi [A] time = 0.113466, antiderivative size = 78, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{250(3x+2)^{12}}{6561}+\frac{3700(3x+2)^{11}}{8019}-\frac{1439}{729}(3x+2)^{10}+\frac{66193(3x+2)^9}{19683}-\frac{10073(3x+2)^8}{5832}+\frac{259}{729}(3x+2)^7-\frac{343(3x+2)^6}{13122}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^3*(2 + 3*x)^5*(3 + 5*x)^3,x]
```

```
[Out] (-343*(2 + 3*x)^6)/13122 + (259*(2 + 3*x)^7)/729 - (10073*(2 + 3*
x)^8)/5832 + (66193*(2 + 3*x)^9)/19683 - (1439*(2 + 3*x)^10)/729
+ (3700*(2 + 3*x)^11)/8019 - (250*(2 + 3*x)^12)/6561
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-20250x^{12}-\frac{882900x^{11}}{11}-111159x^{10}-32867x^9+\frac{565167x^8}{8}+71107x^7+\frac{10297x^6}{2}-24882x^5-11798x^4+1536x^3+864x+5616\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3*(2+3*x)**5*(3+5*x)**3,x)
```

```
[Out] -20250*x**12 - 882900*x**11/11 - 111159*x**10 - 32867*x**9 + 5651
67*x**8/8 + 71107*x**7 + 10297*x**6/2 - 24882*x**5 - 11798*x**4 +
 1536*x**3 + 864*x + 5616*Integral(x, x)
```

Mathematica [A] time = 0.00410826, size = 65, normalized size = 0.83

$$-20250x^{12}-\frac{882900x^{11}}{11}-111159x^{10}-32867x^9+\frac{565167x^8}{8}+71107x^7+\frac{10297x^6}{2}-24882x^5-11798x^4+1536x^3+2808x^2+864x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^3*(2 + 3*x)^5*(3 + 5*x)^3,x]
```

```
[Out] 864*x + 2808*x^2 + 1536*x^3 - 11798*x^4 - 24882*x^5 + (10297*x^6)
/2 + 71107*x^7 + (565167*x^8)/8 - 32867*x^9 - 111159*x^10 - (8829
```

```
00*x^11)/11 - 20250*x^12
```

Maple [A] time = 0.003, size = 60, normalized size = 0.8

$$-20250\,x^{12}-\frac{882900\,x^{11}}{11}-111159\,x^{10}-32867\,x^{9}+\frac{565167\,x^{8}}{8}+71107\,x^{7}+\frac{10297\,x^{6}}{2}-24882\,x^{5}-11798\,x^{4}+1536\,x^{3}+2808\,x^{2}+864\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(2+3*x)^5*(3+5*x)^3,x)
```

```
[Out] -20250*x^12-882900/11*x^11-111159*x^10-32867*x^9+565167/8*x^8+711
07*x^7+10297/2*x^6-24882*x^5-11798*x^4+1536*x^3+2808*x^2+864*x
```

Maxima [A] time = 1.34458, size = 80, normalized size = 1.03

$$-20250\,x^{12}-\frac{882900}{11}\,x^{11}-111159\,x^{10}-32867\,x^{9}+\frac{565167}{8}\,x^{8}+71107\,x^{7}+\frac{10297}{2}\,x^{6}-24882\,x^{5}-11798\,x^{4}+1536\,x^{3}+2808\,x^{2}+864\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^5*(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] -20250*x^12 - 882900/11*x^11 - 111159*x^10 - 32867*x^9 + 565167/8
*x^8 + 71107*x^7 + 10297/2*x^6 - 24882*x^5 - 11798*x^4 + 1536*x^3
 + 2808*x^2 + 864*x
```

Fricas [A] time = 0.181945, size = 1, normalized size = 0.01

$$-20250x^{12}-\frac{882900}{11}x^{11}-111159x^{10}-32867x^{9}+\frac{565167}{8}x^{8}+71107x^{7}+\frac{10297}{2}x^{6}-24882x^{5}-11798x^{4}+1536x^{3}+2808x^{2}+864x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^5*(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -20250*x^12 - 882900/11*x^11 - 111159*x^10 - 32867*x^9 + 565167/8
*x^8 + 71107*x^7 + 10297/2*x^6 - 24882*x^5 - 11798*x^4 + 1536*x^3
 + 2808*x^2 + 864*x
```

Sympy [A] time = 0.117523, size = 63, normalized size = 0.81

$$-20250x^{12}-\frac{882900x^{11}}{11}-111159x^{10}-32867x^{9}+\frac{565167x^{8}}{8}+71107x^{7}+\frac{10297x^{6}}{2}-24882x^{5}-11798x^{4}+1536x^{3}+2808x^{2}+864x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(2+3*x)**5*(3+5*x)**3,x)
```

```
[Out] -20250*x**12 - 882900*x**11/11 - 111159*x**10 - 32867*x**9 + 5651
67*x**8/8 + 71107*x**7 + 10297*x**6/2 - 24882*x**5 - 11798*x**4 +
 1536*x**3 + 2808*x**2 + 864*x
```

GIAC/XCAS [A] time = 0.218856, size = 80, normalized size = 1.03

$$-20250\,x^{12} - \frac{882900}{11}\,x^{11} - 111159\,x^{10} - 32867\,x^{9} + \frac{565167}{8}\,x^{8} + 71107\,x^{7} + \frac{10297}{2}\,x^{6} - 24882\,x^{5} - 11798\,x^{4} + 1536\,x^{3} + 2808\,x^{2} + 864\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^5*(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] -20250*x^12 - 882900/11*x^11 - 111159*x^10 - 32867*x^9 + 565167/8
*x^8 + 71107*x^7 + 10297/2*x^6 - 24882*x^5 - 11798*x^4 + 1536*x^3
 + 2808*x^2 + 864*x
```

3.1358 $\int (1-2x)^3(2+3x)^4(3+5x)^3\,dx$

Optimal. Leaf size=78

$$-\frac{1000(3x+2)^{11}}{24057}+\frac{370}{729}(3x+2)^{10}-\frac{14390(3x+2)^9}{6561}+\frac{66193(3x+2)^8}{17496}-\frac{1439}{729}(3x+2)^7+\frac{1813(3x+2)^6}{4374}-\frac{343(3x+2)^5}{10935}$$

```
[Out] (-343*(2 + 3*x)^5)/10935 + (1813*(2 + 3*x)^6)/4374 - (1439*(2 + 3
*x)^7)/729 + (66193*(2 + 3*x)^8)/17496 - (14390*(2 + 3*x)^9)/6561
 + (370*(2 + 3*x)^10)/729 - (1000*(2 + 3*x)^11)/24057
```

Rubi [A] time = 0.106548, antiderivative size = 78, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{1000(3x+2)^{11}}{24057}+\frac{370}{729}(3x+2)^{10}-\frac{14390(3x+2)^9}{6561}+\frac{66193(3x+2)^8}{17496}-\frac{1439}{729}(3x+2)^7+\frac{1813(3x+2)^6}{4374}-\frac{343(3x+2)^5}{10935}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^3*(2 + 3*x)^4*(3 + 5*x)^3,x]
```

```
[Out] (-343*(2 + 3*x)^5)/10935 + (1813*(2 + 3*x)^6)/4374 - (1439*(2 + 3
*x)^7)/729 + (66193*(2 + 3*x)^8)/17496 - (14390*(2 + 3*x)^9)/6561
 + (370*(2 + 3*x)^10)/729 - (1000*(2 + 3*x)^11)/24057
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{81000x^{11}}{11}-24030x^{10}-23370x^9+\frac{41619x^8}{8}+22949x^7+\frac{19607x^6}{2}-\frac{28917x^5}{5}-5548x^4-312x^3+432x+2160\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3*(2+3*x)**4*(3+5*x)**3,x)
```

```
[Out] -81000*x**11/11 - 24030*x**10 - 23370*x**9 + 41619*x**8/8 + 22949
*x**7 + 19607*x**6/2 - 28917*x**5/5 - 5548*x**4 - 312*x**3 + 432*
x + 2160*Integral(x, x)
```

Mathematica [A] time = 0.00425865, size = 62, normalized size = 0.79

$$-\frac{81000x^{11}}{11}-24030x^{10}-23370x^9+\frac{41619x^8}{8}+22949x^7+\frac{19607x^6}{2}-\frac{28917x^5}{5}-5548x^4-312x^3+1080x^2+432x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^3*(2 + 3*x)^4*(3 + 5*x)^3,x]
```

```
[Out] 432*x + 1080*x^2 - 312*x^3 - 5548*x^4 - (28917*x^5)/5 + (19607*x^
6)/2 + 22949*x^7 + (41619*x^8)/8 - 23370*x^9 - 24030*x^10 - (8100
```

```
0*x^11)/11
```

Maple [A] time = 0.001, size = 55, normalized size = 0.7

$$-\frac{81000\,x^{11}}{11}-24030\,x^{10}-23370\,x^{9}+\frac{41619\,x^{8}}{8}+22949\,x^{7}+\frac{19607\,x^{6}}{2}-\frac{28917\,x^{5}}{5}-5548\,x^{4}-312\,x^{3}+1080\,x^{2}+432\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(2+3*x)^4*(3+5*x)^3,x)
```

```
[Out] -81000/11*x^11-24030*x^10-23370*x^9+41619/8*x^8+22949*x^7+19607/2
*x^6-28917/5*x^5-5548*x^4-312*x^3+1080*x^2+432*x
```

Maxima [A] time = 1.34334, size = 73, normalized size = 0.94

$$-\frac{81000}{11}\,x^{11}-24030\,x^{10}-23370\,x^{9}+\frac{41619}{8}\,x^{8}+22949\,x^{7}+\frac{19607}{2}\,x^{6}-\frac{28917}{5}\,x^{5}-5548\,x^{4}-312\,x^{3}+1080\,x^{2}+432\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^4*(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] -81000/11*x^11 - 24030*x^10 - 23370*x^9 + 41619/8*x^8 + 22949*x^7
 + 19607/2*x^6 - 28917/5*x^5 - 5548*x^4 - 312*x^3 + 1080*x^2 + 43
2*x
```

Fricas [A] time = 0.180595, size = 1, normalized size = 0.01

$$-\frac{81000}{11}x^{11}-24030x^{10}-23370x^{9}+\frac{41619}{8}x^{8}+22949x^{7}+\frac{19607}{2}x^{6}-\frac{28917}{5}x^{5}-5548x^{4}-312x^{3}+1080x^{2}+432x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^4*(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -81000/11*x^11 - 24030*x^10 - 23370*x^9 + 41619/8*x^8 + 22949*x^7
 + 19607/2*x^6 - 28917/5*x^5 - 5548*x^4 - 312*x^3 + 1080*x^2 + 43
2*x
```

Sympy [A] time = 0.125126, size = 60, normalized size = 0.77

$$-\frac{81000x^{11}}{11}-24030x^{10}-23370x^{9}+\frac{41619x^{8}}{8}+22949x^{7}+\frac{19607x^{6}}{2}-\frac{28917x^{5}}{5}-5548x^{4}-312x^{3}+1080x^{2}+432x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(2+3*x)**4*(3+5*x)**3,x)
```

```
[Out] -81000*x**11/11 - 24030*x**10 - 23370*x**9 + 41619*x**8/8 + 22949
*x**7 + 19607*x**6/2 - 28917*x**5/5 - 5548*x**4 - 312*x**3 + 1080
*x**2 + 432*x
```

GIAC/XCAS [A] time = 0.209335, size = 73, normalized size = 0.94

$$-\frac{81000}{11}\,x^{11} - 24030\,x^{10} - 23370\,x^{9} + \frac{41619}{8}\,x^{8} + 22949\,x^{7} + \frac{19607}{2}\,x^{6} - \frac{28917}{5}\,x^{5} - 5548\,x^{4} - 312\,x^{3} + 1080\,x^{2} + 432\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^4*(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] -81000/11*x^11 - 24030*x^10 - 23370*x^9 + 41619/8*x^8 + 22949*x^7
 + 19607/2*x^6 - 28917/5*x^5 - 5548*x^4 - 312*x^3 + 1080*x^2 + 43
2*x
```

3.1359 $\int (1-2x)^3(2+3x)^3(3+5x)^3\,dx$

Optimal. Leaf size=78

$$-\frac{675}{256}(1-2x)^{10}+\frac{1275}{32}(1-2x)^9-\frac{260055(1-2x)^8}{1024}+\frac{98209}{112}(1-2x)^7-\frac{444983}{256}(1-2x)^6+\frac{302379}{160}(1-2x)^5-\frac{456533}{512}(1-2x)^4$$

```
[Out] (-456533*(1 - 2*x)^4)/512 + (302379*(1 - 2*x)^5)/160 - (444983*(1
 - 2*x)^6)/256 + (98209*(1 - 2*x)^7)/112 - (260055*(1 - 2*x)^8)/1
024 + (1275*(1 - 2*x)^9)/32 - (675*(1 - 2*x)^10)/256
```

Rubi [A] time = 0.101081, antiderivative size = 78, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{675}{256}(1-2x)^{10}+\frac{1275}{32}(1-2x)^9-\frac{260055(1-2x)^8}{1024}+\frac{98209}{112}(1-2x)^7-\frac{444983}{256}(1-2x)^6+\frac{302379}{160}(1-2x)^5-\frac{456533}{512}(1-2x)^4$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^3*(2 + 3*x)^3*(3 + 5*x)^3,x]
```

```
[Out] (-456533*(1 - 2*x)^4)/512 + (302379*(1 - 2*x)^5)/160 - (444983*(1
 - 2*x)^6)/256 + (98209*(1 - 2*x)^7)/112 - (260055*(1 - 2*x)^8)/1
024 + (1275*(1 - 2*x)^9)/32 - (675*(1 - 2*x)^10)/256
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-2700x^{10}-6900x^9-\frac{14355x^8}{4}+\frac{33013x^7}{7}+\frac{10513x^6}{2}-\frac{1419x^5}{5}-\frac{8693x^4}{4}-534x^3+216x+756\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3*(2+3*x)**3*(3+5*x)**3,x)
```

```
[Out] -2700*x**10 - 6900*x**9 - 14355*x**8/4 + 33013*x**7/7 + 10513*x**
6/2 - 1419*x**5/5 - 8693*x**4/4 - 534*x**3 + 216*x + 756*Integral
(x, x)
```

Mathematica [A] time = 0.00416874, size = 59, normalized size = 0.76

$$-2700x^{10}-6900x^9-\frac{14355x^8}{4}+\frac{33013x^7}{7}+\frac{10513x^6}{2}-\frac{1419x^5}{5}-\frac{8693x^4}{4}-534x^3+378x^2+216x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^3*(2 + 3*x)^3*(3 + 5*x)^3,x]
```

```
[Out] 216*x + 378*x^2 - 534*x^3 - (8693*x^4)/4 - (1419*x^5)/5 + (10513*
x^6)/2 + (33013*x^7)/7 - (14355*x^8)/4 - 6900*x^9 - 2700*x^10
```

Maple [A] time = 0.001, size = 50, normalized size = 0.6

$$-2700\,x^{10}-6900\,x^9-\frac{14355\,x^8}{4}+\frac{33013\,x^7}{7}+\frac{10513\,x^6}{2}-\frac{1419\,x^5}{5}-\frac{8693\,x^4}{4}-534\,x^3+378\,x^2+216\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((1-2*x)^3*(2+3*x)^3*(3+5*x)^3,x)
```

```
[Out] -2700*x^10-6900*x^9-14355/4*x^8+33013/7*x^7+10513/2*x^6-1419/5*x^
5-8693/4*x^4-534*x^3+378*x^2+216*x
```

Maxima [A] time = 1.35066, size = 66, normalized size = 0.85

$$-2700\,x^{10}-6900\,x^{9}-\frac{14355}{4}\,x^{8}+\frac{33013}{7}\,x^{7}+\frac{10513}{2}\,x^{6}-\frac{1419}{5}\,x^{5}-\frac{8693}{4}\,x^{4}-534\,x^{3}+378\,x^{2}+216\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^3*(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] -2700*x^10 - 6900*x^9 - 14355/4*x^8 + 33013/7*x^7 + 10513/2*x^6 -
 1419/5*x^5 - 8693/4*x^4 - 534*x^3 + 378*x^2 + 216*x
```

Fricas [A] time = 0.179252, size = 1, normalized size = 0.01

$$-2700x^{10}-6900x^{9}-\frac{14355}{4}x^{8}+\frac{33013}{7}x^{7}+\frac{10513}{2}x^{6}-\frac{1419}{5}x^{5}-\frac{8693}{4}x^{4}-534x^{3}+378x^{2}+216x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^3*(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -2700*x^10 - 6900*x^9 - 14355/4*x^8 + 33013/7*x^7 + 10513/2*x^6 -
 1419/5*x^5 - 8693/4*x^4 - 534*x^3 + 378*x^2 + 216*x
```

Sympy [A] time = 0.109877, size = 56, normalized size = 0.72

$$-2700x^{10}-6900x^{9}-\frac{14355x^{8}}{4}+\frac{33013x^{7}}{7}+\frac{10513x^{6}}{2}-\frac{1419x^{5}}{5}-\frac{8693x^{4}}{4}-534x^{3}+378x^{2}+216x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((1-2*x)**3*(2+3*x)**3*(3+5*x)**3,x)
```

```
[Out] -2700*x**10 - 6900*x**9 - 14355*x**8/4 + 33013*x**7/7 + 10513*x**
6/2 - 1419*x**5/5 - 8693*x**4/4 - 534*x**3 + 378*x**2 + 216*x
```

GIAC/XCAS [A] time = 0.220359, size = 66, normalized size = 0.85

$$-2700\,x^{10}-6900\,x^{9}-\frac{14355}{4}\,x^{8}+\frac{33013}{7}\,x^{7}+\frac{10513}{2}\,x^{6}-\frac{1419}{5}\,x^{5}-\frac{8693}{4}\,x^{4}-534\,x^{3}+378\,x^{2}+216\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^3*(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] -2700*x^10 - 6900*x^9 - 14355/4*x^8 + 33013/7*x^7 + 10513/2*x^6 -
 1419/5*x^5 - 8693/4*x^4 - 534*x^3 + 378*x^2 + 216*x
```

3.1360 $\int (1-2x)^3(2+3x)^2(3+5x)^3\,dx$

Optimal. Leaf size=67

$$\frac{125}{64}(1-2x)^9-\frac{12675}{512}(1-2x)^8+\frac{28555}{224}(1-2x)^7-\frac{21439}{64}(1-2x)^6+\frac{144837}{320}(1-2x)^5-\frac{65219}{256}(1-2x)^4$$

```
[Out] (-65219*(1 - 2*x)^4)/256 + (144837*(1 - 2*x)^5)/320 - (21439*(1 -
 2*x)^6)/64 + (28555*(1 - 2*x)^7)/224 - (12675*(1 - 2*x)^8)/512 +
 (125*(1 - 2*x)^9)/64
```

Rubi [A] time = 0.0946286, antiderivative size = 67, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{125}{64}(1-2x)^9-\frac{12675}{512}(1-2x)^8+\frac{28555}{224}(1-2x)^7-\frac{21439}{64}(1-2x)^6+\frac{144837}{320}(1-2x)^5-\frac{65219}{256}(1-2x)^4$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^3*(2 + 3*x)^2*(3 + 5*x)^3,x]
```

```
[Out] (-65219*(1 - 2*x)^4)/256 + (144837*(1 - 2*x)^5)/320 - (21439*(1 -
 2*x)^6)/64 + (28555*(1 - 2*x)^7)/224 - (12675*(1 - 2*x)^8)/512 +
 (125*(1 - 2*x)^9)/64
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-1000x^9-\frac{3675x^8}{2}+\frac{230x^7}{7}+\frac{3617x^6}{2}+\frac{3279x^5}{5}-\frac{2659x^4}{4}-375x^3+108x+216\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**3*(2+3*x)**2*(3+5*x)**3,x)
```

```
[Out] -1000*x**9 - 3675*x**8/2 + 230*x**7/7 + 3617*x**6/2 + 3279*x**5/5
 - 2659*x**4/4 - 375*x**3 + 108*x + 216*Integral(x, x)
```

Mathematica [A] time = 0.00370956, size = 54, normalized size = 0.81

$$-1000x^9-\frac{3675x^8}{2}+\frac{230x^7}{7}+\frac{3617x^6}{2}+\frac{3279x^5}{5}-\frac{2659x^4}{4}-375x^3+108x^2+108x$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)^3*(2 + 3*x)^2*(3 + 5*x)^3,x]
```

```
[Out] 108*x + 108*x^2 - 375*x^3 - (2659*x^4)/4 + (3279*x^5)/5 + (3617*x
^6)/2 + (230*x^7)/7 - (3675*x^8)/2 - 1000*x^9
```

Maple [A] time = 0.002, size = 45, normalized size = 0.7

$$-1000\,x^9-\frac{3675\,x^8}{2}+\frac{230\,x^7}{7}+\frac{3617\,x^6}{2}+\frac{3279\,x^5}{5}-\frac{2659\,x^4}{4}-375\,x^3+108\,x^2+108\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(2+3*x)^2*(3+5*x)^3,x)
```

```
[Out] -1000*x^9-3675/2*x^8+230/7*x^7+3617/2*x^6+3279/5*x^5-2659/4*x^4-3
75*x^3+108*x^2+108*x
```

Maxima [A] time = 1.39608, size = 59, normalized size = 0.88

$$-1000\,x^9-\frac{3675}{2}\,x^8+\frac{230}{7}\,x^7+\frac{3617}{2}\,x^6+\frac{3279}{5}\,x^5-\frac{2659}{4}\,x^4-375\,x^3+108\,x^2+108\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^3*(3*x + 2)^2*(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] -1000*x^9 - 3675/2*x^8 + 230/7*x^7 + 3617/2*x^6 + 3279/5*x^5 - 26
59/4*x^4 - 375*x^3 + 108*x^2 + 108*x
```

Fricas [A] time = 0.178146, size = 1, normalized size = 0.01

$$-1000x^9-\frac{3675}{2}x^8+\frac{230}{7}x^7+\frac{3617}{2}x^6+\frac{3279}{5}x^5-\frac{2659}{4}x^4-375x^3+108x^2+108x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^3*(3*x + 2)^2*(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -1000*x^9 - 3675/2*x^8 + 230/7*x^7 + 3617/2*x^6 + 3279/5*x^5 - 26
59/4*x^4 - 375*x^3 + 108*x^2 + 108*x
```

Sympy [A] time = 0.096941, size = 51, normalized size = 0.76

$$-1000x^9-\frac{3675x^8}{2}+\frac{230x^7}{7}+\frac{3617x^6}{2}+\frac{3279x^5}{5}-\frac{2659x^4}{4}-375x^3+108x^2+108x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(2+3*x)**2*(3+5*x)**3,x)
```

```
[Out] -1000*x**9 - 3675*x**8/2 + 230*x**7/7 + 3617*x**6/2 + 3279*x**5/5
 - 2659*x**4/4 - 375*x**3 + 108*x**2 + 108*x
```

GIAC/XCAS [A] time = 0.213984, size = 59, normalized size = 0.88

$$-1000\,x^9-\frac{3675}{2}\,x^8+\frac{230}{7}\,x^7+\frac{3617}{2}\,x^6+\frac{3279}{5}\,x^5-\frac{2659}{4}\,x^4-375\,x^3+108\,x^2+108\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^2*(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] -1000*x^9 - 3675/2*x^8 + 230/7*x^7 + 3617/2*x^6 + 3279/5*x^5 - 26
59/4*x^4 - 375*x^3 + 108*x^2 + 108*x
```

3.1361 $\int (1-2x)^3(2+3x)(3+5x)^3\,dx$

Optimal. Leaf size=56

$$-\frac{375}{256}(1-2x)^8+\frac{1675}{112}(1-2x)^7-\frac{935}{16}(1-2x)^6+\frac{8349}{80}(1-2x)^5-\frac{9317}{128}(1-2x)^4$$

```
[Out] (-9317*(1 - 2*x)^4)/128 + (8349*(1 - 2*x)^5)/80 - (935*(1 - 2*x)^
6)/16 + (1675*(1 - 2*x)^7)/112 - (375*(1 - 2*x)^8)/256
```

Rubi [A] time = 0.0719335, antiderivative size = 56, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{375}{256}(1-2x)^8+\frac{1675}{112}(1-2x)^7-\frac{935}{16}(1-2x)^6+\frac{8349}{80}(1-2x)^5-\frac{9317}{128}(1-2x)^4$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^3*(2 + 3*x)*(3 + 5*x)^3,x]
```

```
[Out] (-9317*(1 - 2*x)^4)/128 + (8349*(1 - 2*x)^5)/80 - (935*(1 - 2*x)^
6)/16 + (1675*(1 - 2*x)^7)/112 - (375*(1 - 2*x)^8)/256
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-375x^8-\frac{2900x^7}{7}+335x^6+\frac{2277x^5}{5}-\frac{425x^4}{4}-201x^3+54x+27\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3*(2+3*x)*(3+5*x)**3,x)
```

```
[Out] -375*x**8 - 2900*x**7/7 + 335*x**6 + 2277*x**5/5 - 425*x**4/4 - 2
01*x**3 + 54*x + 27*Integral(x, x)
```

Mathematica [A] time = 0.00161015, size = 47, normalized size = 0.84

$$-375x^8-\frac{2900x^7}{7}+335x^6+\frac{2277x^5}{5}-\frac{425x^4}{4}-201x^3+\frac{27x^2}{2}+54x$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^3*(2 + 3*x)*(3 + 5*x)^3,x]
```

```
[Out] 54*x + (27*x^2)/2 - 201*x^3 - (425*x^4)/4 + (2277*x^5)/5 + 335*x^
6 - (2900*x^7)/7 - 375*x^8
```

Maple [A] time = 0.002, size = 40, normalized size = 0.7

$$-375\,x^8-\frac{2900\,x^7}{7}+335\,x^6+\frac{2277\,x^5}{5}-\frac{425\,x^4}{4}-201\,x^3+\frac{27\,x^2}{2}+54\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(2+3*x)*(3+5*x)^3,x)
```

```
[Out] -375*x^8-2900/7*x^7+335*x^6+2277/5*x^5-425/4*x^4-201*x^3+27/2*x^2
+54*x
```

Maxima [A] time = 1.37146, size = 53, normalized size = 0.95

$$-375\,x^{8}-\frac{2900}{7}\,x^{7}+335\,x^{6}+\frac{2277}{5}\,x^{5}-\frac{425}{4}\,x^{4}-201\,x^{3}+\frac{27}{2}\,x^{2}+54\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)*(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] -375*x^8 - 2900/7*x^7 + 335*x^6 + 2277/5*x^5 - 425/4*x^4 - 201*x^
3 + 27/2*x^2 + 54*x
```

Fricas [A] time = 0.177677, size = 1, normalized size = 0.02

$$-375x^{8}-\frac{2900}{7}x^{7}+335x^{6}+\frac{2277}{5}x^{5}-\frac{425}{4}x^{4}-201x^{3}+\frac{27}{2}x^{2}+54x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)*(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -375*x^8 - 2900/7*x^7 + 335*x^6 + 2277/5*x^5 - 425/4*x^4 - 201*x^
3 + 27/2*x^2 + 54*x
```

Sympy [A] time = 0.088389, size = 44, normalized size = 0.79

$$-375x^{8}-\frac{2900x^{7}}{7}+335x^{6}+\frac{2277x^{5}}{5}-\frac{425x^{4}}{4}-201x^{3}+\frac{27x^{2}}{2}+54x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(2+3*x)*(3+5*x)**3,x)
```

```
[Out] -375*x**8 - 2900*x**7/7 + 335*x**6 + 2277*x**5/5 - 425*x**4/4 - 2
01*x**3 + 27*x**2/2 + 54*x
```

GIAC/XCAS [A] time = 0.206301, size = 53, normalized size = 0.95

$$-375\,x^{8}-\frac{2900}{7}\,x^{7}+335\,x^{6}+\frac{2277}{5}\,x^{5}-\frac{425}{4}\,x^{4}-201\,x^{3}+\frac{27}{2}\,x^{2}+54\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)*(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] -375*x^8 - 2900/7*x^7 + 335*x^6 + 2277/5*x^5 - 425/4*x^4 - 201*x^
3 + 27/2*x^2 + 54*x
```

3.1362 $\int (1-2x)^3(3+5x)^3\,dx$

Optimal. Leaf size=45

$$\frac{125}{112}(1-2x)^7-\frac{275}{32}(1-2x)^6+\frac{363}{16}(1-2x)^5-\frac{1331}{64}(1-2x)^4$$

```
[Out] (-1331*(1 - 2*x)^4)/64 + (363*(1 - 2*x)^5)/16 - (275*(1 - 2*x)^6)
/32 + (125*(1 - 2*x)^7)/112
```

Rubi [A] time = 0.041744, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.067

$$\frac{125}{112}(1-2x)^7-\frac{275}{32}(1-2x)^6+\frac{363}{16}(1-2x)^5-\frac{1331}{64}(1-2x)^4$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^3*(3 + 5*x)^3,x]
```

```
[Out] (-1331*(1 - 2*x)^4)/64 + (363*(1 - 2*x)^5)/16 - (275*(1 - 2*x)^6)
/32 + (125*(1 - 2*x)^7)/112
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{1000x^7}{7}-50x^6+174x^5+\frac{179x^4}{4}-87x^3+27x-27\int x\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**3*(3+5*x)**3,x)
```

```
[Out] -1000*x**7/7 - 50*x**6 + 174*x**5 + 179*x**4/4 - 87*x**3 + 27*x -
 27*Integral(x, x)
```

Mathematica [A] time = 0.00223668, size = 40, normalized size = 0.89

$$-\frac{1000x^7}{7}-50x^6+174x^5+\frac{179x^4}{4}-87x^3-\frac{27x^2}{2}+27x$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)^3*(3 + 5*x)^3,x]
```

```
[Out] 27*x - (27*x^2)/2 - 87*x^3 + (179*x^4)/4 + 174*x^5 - 50*x^6 - (10
00*x^7)/7
```

Maple [A] time = 0.001, size = 35, normalized size = 0.8

$$-\frac{1000\,x^7}{7}-50\,x^6+174\,x^5+\frac{179\,x^4}{4}-87\,x^3-\frac{27\,x^2}{2}+27\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((1-2*x)^3*(3+5*x)^3,x)
```

```
[Out] -1000/7*x^7-50*x^6+174*x^5+179/4*x^4-87*x^3-27/2*x^2+27*x
```

Maxima [A] time = 1.32751, size = 46, normalized size = 1.02

$$-\frac{1000}{7}\,x^{7}-50\,x^{6}+174\,x^{5}+\frac{179}{4}\,x^{4}-87\,x^{3}-\frac{27}{2}\,x^{2}+27\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] -1000/7*x^7 - 50*x^6 + 174*x^5 + 179/4*x^4 - 87*x^3 - 27/2*x^2 +
27*x
```

Fricas [A] time = 0.187169, size = 1, normalized size = 0.02

$$-\frac{1000}{7}x^{7}-50x^{6}+174x^{5}+\frac{179}{4}x^{4}-87x^{3}-\frac{27}{2}x^{2}+27x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -1000/7*x^7 - 50*x^6 + 174*x^5 + 179/4*x^4 - 87*x^3 - 27/2*x^2 +
27*x
```

Sympy [A] time = 0.083538, size = 37, normalized size = 0.82

$$-\frac{1000x^{7}}{7}-50x^{6}+174x^{5}+\frac{179x^{4}}{4}-87x^{3}-\frac{27x^{2}}{2}+27x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(3+5*x)**3,x)
```

```
[Out] -1000*x**7/7 - 50*x**6 + 174*x**5 + 179*x**4/4 - 87*x**3 - 27*x**
2/2 + 27*x
```

GIAC/XCAS [A] time = 0.20857, size = 46, normalized size = 1.02

$$-\frac{1000}{7}\,x^{7}-50\,x^{6}+174\,x^{5}+\frac{179}{4}\,x^{4}-87\,x^{3}-\frac{27}{2}\,x^{2}+27\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] -1000/7*x^7 - 50*x^6 + 174*x^5 + 179/4*x^4 - 87*x^3 - 27/2*x^2 +
27*x
```

3.1363 $\int \frac{(1-2x)^3(3+5x)^3}{2+3x}\,dx$

Optimal. Leaf size=51

$$-\frac{500x^6}{9}+\frac{220x^5}{9}+\frac{2815x^4}{54}-\frac{6427x^3}{243}-\frac{8287x^2}{486}+\frac{10013x}{729}-\frac{343\log(3x+2)}{2187}$$

```
[Out] (10013*x)/729 - (8287*x^2)/486 - (6427*x^3)/243 + (2815*x^4)/54 +
 (220*x^5)/9 - (500*x^6)/9 - (343*Log[2 + 3*x])/2187
```

Rubi [A] time = 0.0533533, antiderivative size = 51, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{500x^6}{9}+\frac{220x^5}{9}+\frac{2815x^4}{54}-\frac{6427x^3}{243}-\frac{8287x^2}{486}+\frac{10013x}{729}-\frac{343\log(3x+2)}{2187}$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)^3*(3 + 5*x)^3)/(2 + 3*x),x]
```

```
[Out] (10013*x)/729 - (8287*x^2)/486 - (6427*x^3)/243 + (2815*x^4)/54 +
 (220*x^5)/9 - (500*x^6)/9 - (343*Log[2 + 3*x])/2187
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{500x^6}{9}+\frac{220x^5}{9}+\frac{2815x^4}{54}-\frac{6427x^3}{243}-\frac{343\log(3x+2)}{2187}+\int\frac{10013}{729}\,dx-\frac{8287\int x\,dx}{243}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**3*(3+5*x)**3/(2+3*x),x)
```

```
[Out] -500*x**6/9 + 220*x**5/9 + 2815*x**4/54 - 6427*x**3/243 - 343*log
(3*x + 2)/2187 + Integral(10013/729, x) - 8287*Integral(x, x)/243
```

Mathematica [A] time = 0.0194009, size = 42, normalized size = 0.82

$$\frac{-243000x^6+106920x^5+228015x^4-115686x^3-74583x^2+60078x-686\log(3x+2)+29296}{4374}$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)^3*(3 + 5*x)^3)/(2 + 3*x),x]
```

```
[Out] (29296 + 60078*x - 74583*x^2 - 115686*x^3 + 228015*x^4 + 106920*x
^5 - 243000*x^6 - 686*Log[2 + 3*x])/4374
```

Maple [A] time = 0.004, size = 38, normalized size = 0.8

$$\frac{10013\,x}{729}-\frac{8287\,x^2}{486}-\frac{6427\,x^3}{243}+\frac{2815\,x^4}{54}+\frac{220\,x^5}{9}-\frac{500\,x^6}{9}-\frac{343\,\ln(2+3\,x)}{2187}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(3+5*x)^3/(2+3*x),x)
```

```
[Out] 10013/729*x-8287/486*x^2-6427/243*x^3+2815/54*x^4+220/9*x^5-500/9
*x^6-343/2187*ln(2+3*x)
```

Maxima [A] time = 1.33265, size = 50, normalized size = 0.98

$$-\frac{500}{9}\,x^{6}+\frac{220}{9}\,x^{5}+\frac{2815}{54}\,x^{4}-\frac{6427}{243}\,x^{3}-\frac{8287}{486}\,x^{2}+\frac{10013}{729}\,x-\frac{343}{2187}\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)^3/(3*x + 2),x, algorithm="maxima")
```

```
[Out] -500/9*x^6 + 220/9*x^5 + 2815/54*x^4 - 6427/243*x^3 - 8287/486*x^
2 + 10013/729*x - 343/2187*log(3*x + 2)
```

Fricas [A] time = 0.203455, size = 50, normalized size = 0.98

$$-\frac{500}{9}\,x^{6}+\frac{220}{9}\,x^{5}+\frac{2815}{54}\,x^{4}-\frac{6427}{243}\,x^{3}-\frac{8287}{486}\,x^{2}+\frac{10013}{729}\,x-\frac{343}{2187}\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)^3/(3*x + 2),x, algorithm="fricas")
```

```
[Out] -500/9*x^6 + 220/9*x^5 + 2815/54*x^4 - 6427/243*x^3 - 8287/486*x^
2 + 10013/729*x - 343/2187*log(3*x + 2)
```

Sympy [A] time = 0.180223, size = 48, normalized size = 0.94

$$-\frac{500x^{6}}{9}+\frac{220x^{5}}{9}+\frac{2815x^{4}}{54}-\frac{6427x^{3}}{243}-\frac{8287x^{2}}{486}+\frac{10013x}{729}-\frac{343\log\left(3x+2\right)}{2187}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(3+5*x)**3/(2+3*x),x)
```

```
[Out] -500*x**6/9 + 220*x**5/9 + 2815*x**4/54 - 6427*x**3/243 - 8287*x*
*2/486 + 10013*x/729 - 343*log(3*x + 2)/2187
```

GIAC/XCAS [A] time = 0.210992, size = 51, normalized size = 1.

$$-\frac{500}{9}\,x^{6}+\frac{220}{9}\,x^{5}+\frac{2815}{54}\,x^{4}-\frac{6427}{243}\,x^{3}-\frac{8287}{486}\,x^{2}+\frac{10013}{729}\,x-\frac{343}{2187}\,\ln\left(|3\,x+2|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)^3/(3*x + 2),x, algorithm="giac")
```

```
[Out] -500/9*x^6 + 220/9*x^5 + 2815/54*x^4 - 6427/243*x^3 - 8287/486*x^
2 + 10013/729*x - 343/2187*ln(abs(3*x + 2))
```

3.1364 $\int \frac{(1-2x)^3(3+5x)^3}{(2+3x)^2}\,dx$

Optimal. Leaf size=55

$$-\frac{200x^5}{9}+\frac{775x^4}{27}-\frac{190x^3}{81}-\frac{5287x^2}{486}+\frac{2287x}{729}+\frac{343}{2187(3x+2)}+\frac{1813}{729}\log(3x+2)$$

```
[Out] (2287*x)/729 - (5287*x^2)/486 - (190*x^3)/81 + (775*x^4)/27 - (20
0*x^5)/9 + 343/(2187*(2 + 3*x)) + (1813*Log[2 + 3*x])/729
```

Rubi [A] time = 0.068325, antiderivative size = 55, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{200x^5}{9}+\frac{775x^4}{27}-\frac{190x^3}{81}-\frac{5287x^2}{486}+\frac{2287x}{729}+\frac{343}{2187(3x+2)}+\frac{1813}{729}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^3*(3 + 5*x)^3)/(2 + 3*x)^2,x]
```

```
[Out] (2287*x)/729 - (5287*x^2)/486 - (190*x^3)/81 + (775*x^4)/27 - (20
0*x^5)/9 + 343/(2187*(2 + 3*x)) + (1813*Log[2 + 3*x])/729
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{200x^5}{9}+\frac{775x^4}{27}-\frac{190x^3}{81}+\frac{1813\log(3x+2)}{729}+\int\frac{2287}{729}\,dx-\frac{5287\int x\,dx}{243}+\frac{343}{2187(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3*(3+5*x)**3/(2+3*x)**2,x)
```

```
[Out] -200*x**5/9 + 775*x**4/27 - 190*x**3/81 + 1813*log(3*x + 2)/729 +
 Integral(2287/729, x) - 5287*Integral(x, x)/243 + 343/(2187*(3*x
 + 2))
```

Mathematica [A] time = 0.0220024, size = 54, normalized size = 0.98

$$-\frac{291600x^6-182250x^5-220320x^4+163269x^3+54000x^2+3588x-10878(3x+2)\log(3x+2)+20002}{4374(3x+2)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^3*(3 + 5*x)^3)/(2 + 3*x)^2,x]
```

```
[Out] -(20002 + 3588*x + 54000*x^2 + 163269*x^3 - 220320*x^4 - 182250*x
^5 + 291600*x^6 - 10878*(2 + 3*x)*Log[2 + 3*x])/(4374*(2 + 3*x))
```

Maple [A] time = 0.01, size = 42, normalized size = 0.8

$$\frac{2287\,x}{729}-\frac{5287\,x^2}{486}-\frac{190\,x^3}{81}+\frac{775\,x^4}{27}-\frac{200\,x^5}{9}+\frac{343}{4374+6561\,x}+\frac{1813\,\ln(2+3\,x)}{729}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(3+5*x)^3/(2+3*x)^2,x)
```

```
[Out] 2287/729*x-5287/486*x^2-190/81*x^3+775/27*x^4-200/9*x^5+343/2187/
(2+3*x)+1813/729*ln(2+3*x)
```

Maxima [A] time = 1.34231, size = 55, normalized size = 1.

$$-\frac{200}{9}\,x^5+\frac{775}{27}\,x^4-\frac{190}{81}\,x^3-\frac{5287}{486}\,x^2+\frac{2287}{729}\,x+\frac{343}{2187\,(3\,x+2)}+\frac{1813}{729}\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)^3/(3*x + 2)^2,x, algorithm="maxima")
```

```
[Out] -200/9*x^5 + 775/27*x^4 - 190/81*x^3 - 5287/486*x^2 + 2287/729*x
+ 343/2187/(3*x + 2) + 1813/729*log(3*x + 2)
```

Fricas [A] time = 0.201602, size = 70, normalized size = 1.27

$$-\frac{291600\,x^6-182250\,x^5-220320\,x^4+163269\,x^3+54000\,x^2-10878\,(3\,x+2)\log\left(3\,x+2\right)-27444\,x-686}{4374\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)^3/(3*x + 2)^2,x, algorithm="fricas")
```

```
[Out] -1/4374*(291600*x^6 - 182250*x^5 - 220320*x^4 + 163269*x^3 + 5400
0*x^2 - 10878*(3*x + 2)*log(3*x + 2) - 27444*x - 686)/(3*x + 2)
```

Sympy [A] time = 0.235945, size = 48, normalized size = 0.87

$$-\frac{200x^5}{9}+\frac{775x^4}{27}-\frac{190x^3}{81}-\frac{5287x^2}{486}+\frac{2287x}{729}+\frac{1813\log\left(3x+2\right)}{729}+\frac{343}{6561x+4374}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(3+5*x)**3/(2+3*x)**2,x)
```

```
[Out] -200*x**5/9 + 775*x**4/27 - 190*x**3/81 - 5287*x**2/486 + 2287*x/
729 + 1813*log(3*x + 2)/729 + 343/(6561*x + 4374)
```

GIAC/XCAS [A] time = 0.210245, size = 101, normalized size = 1.84

$$\frac{1}{4374}\,(3\,x+2)^5\left(\frac{5550}{3\,x+2}-\frac{28780}{(3\,x+2)^2}+\frac{66193}{(3\,x+2)^3}-\frac{60438}{(3\,x+2)^4}-400\right)+\frac{343}{2187\,(3\,x+2)}-\frac{1813}{729}\,\ln\left(\frac{|3\,x+2|}{3\,(3\,x+2)^2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)^3/(3*x + 2)^2,x, algorithm="giac")
```

```
[Out] 1/4374*(3*x + 2)^5*(5550/(3*x + 2) - 28780/(3*x + 2)^2 + 66193/(3
*x + 2)^3 - 60438/(3*x + 2)^4 - 400) + 343/2187/(3*x + 2) - 1813/
729*ln(1/3*abs(3*x + 2)/(3*x + 2)^2)
```

3.1365 $\int \frac{(1-2x)^3(3+5x)^3}{(2+3x)^3}\,dx$

Optimal. Leaf size=59

$$-\frac{250x^4}{27}+\frac{1700x^3}{81}-\frac{1795x^2}{81}+\frac{16253x}{729}-\frac{1813}{729(3x+2)}+\frac{343}{4374(3x+2)^2}-\frac{10073}{729}\log(3x+2)$$

```
[Out] (16253*x)/729 - (1795*x^2)/81 + (1700*x^3)/81 - (250*x^4)/27 + 34
3/(4374*(2 + 3*x)^2) - 1813/(729*(2 + 3*x)) - (10073*Log[2 + 3*x]
)/729
```

Rubi [A] time = 0.0718368, antiderivative size = 59, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{250x^4}{27}+\frac{1700x^3}{81}-\frac{1795x^2}{81}+\frac{16253x}{729}-\frac{1813}{729(3x+2)}+\frac{343}{4374(3x+2)^2}-\frac{10073}{729}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^3*(3 + 5*x)^3)/(2 + 3*x)^3,x]
```

```
[Out] (16253*x)/729 - (1795*x^2)/81 + (1700*x^3)/81 - (250*x^4)/27 + 34
3/(4374*(2 + 3*x)^2) - 1813/(729*(2 + 3*x)) - (10073*Log[2 + 3*x]
)/729
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{250x^4}{27}+\frac{1700x^3}{81}-\frac{10073\log(3x+2)}{729}+\int\frac{16253}{729}\,dx-\frac{3590\int x\,dx}{81}-\frac{1813}{729(3x+2)}+\frac{343}{4374(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3*(3+5*x)**3/(2+3*x)**3,x)
```

```
[Out] -250*x**4/27 + 1700*x**3/81 - 10073*log(3*x + 2)/729 + Integral(1
6253/729, x) - 3590*Integral(x, x)/81 - 1813/(729*(3*x + 2)) + 34
3/(4374*(3*x + 2)**2)
```

Mathematica [A] time = 0.0301094, size = 56, normalized size = 0.95

$$\frac{-364500x^6+340200x^5+67230x^4+81702x^3+2072124x^2+2076942x-60438(3x+2)^2\log(3x+2)+551755}{4374(3x+2)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^3*(3 + 5*x)^3)/(2 + 3*x)^3,x]
```

```
[Out] (551755 + 2076942*x + 2072124*x^2 + 81702*x^3 + 67230*x^4 + 34020
0*x^5 - 364500*x^6 - 60438*(2 + 3*x)^2*Log[2 + 3*x])/(4374*(2 + 3
*x)^2)
```

Maple [A] time = 0.01, size = 46, normalized size = 0.8

$$\frac{16253\,x}{729}-\frac{1795\,x^2}{81}+\frac{1700\,x^3}{81}-\frac{250\,x^4}{27}+\frac{343}{4374\,(2+3\,x)^2}-\frac{1813}{1458+2187\,x}-\frac{10073\,\ln(2+3\,x)}{729}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(3+5*x)^3/(2+3*x)^3,x)
```

```
[Out] 16253/729*x-1795/81*x^2+1700/81*x^3-250/27*x^4+343/4374/(2+3*x)^2
-1813/729/(2+3*x)-10073/729*ln(2+3*x)
```

Maxima [A] time = 1.35175, size = 62, normalized size = 1.05

$$-\frac{250}{27}\,x^4+\frac{1700}{81}\,x^3-\frac{1795}{81}\,x^2+\frac{16253}{729}\,x-\frac{49\,(666\,x+437)}{4374\,(9\,x^2+12\,x+4)}-\frac{10073}{729}\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^3*(2*x - 1)^3/(3*x + 2)^3,x, algorithm="maxima")
```

```
[Out] -250/27*x^4 + 1700/81*x^3 - 1795/81*x^2 + 16253/729*x - 49/4374*(
666*x + 437)/(9*x^2 + 12*x + 4) - 10073/729*log(3*x + 2)
```

Fricas [A] time = 0.211218, size = 84, normalized size = 1.42

$$-\frac{364500\,x^6-340200\,x^5-67230\,x^4-81702\,x^3-782496\,x^2+60438\,\left(9\,x^2+12\,x+4\right)\log\left(3\,x+2\right)-357438\,x+21413}{4374\,(9\,x^2+12\,x+4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^3*(2*x - 1)^3/(3*x + 2)^3,x, algorithm="fricas")
```

```
[Out] -1/4374*(364500*x^6 - 340200*x^5 - 67230*x^4 - 81702*x^3 - 782496
*x^2 + 60438*(9*x^2 + 12*x + 4)*log(3*x + 2) - 357438*x + 21413)/
(9*x^2 + 12*x + 4)
```

Sympy [A] time = 0.298521, size = 49, normalized size = 0.83

$$-\frac{250x^4}{27}+\frac{1700x^3}{81}-\frac{1795x^2}{81}+\frac{16253x}{729}-\frac{32634x+21413}{39366x^2+52488x+17496}-\frac{10073\log\left(3x+2\right)}{729}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(3+5*x)**3/(2+3*x)**3,x)
```

```
[Out] -250*x**4/27 + 1700*x**3/81 - 1795*x**2/81 + 16253*x/729 - (32634
*x + 21413)/(39366*x**2 + 52488*x + 17496) - 10073*log(3*x + 2)/7
29
```

GIAC/XCAS [A] time = 0.20931, size = 57, normalized size = 0.97

$$-\frac{250}{27}\,x^4+\frac{1700}{81}\,x^3-\frac{1795}{81}\,x^2+\frac{16253}{729}\,x-\frac{49\,(666\,x+437)}{4374\,(3\,x+2)^2}-\frac{10073}{729}\,\ln\left(|3\,x+2|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)^3/(3*x + 2)^3,x, algorithm="giac")
```

```
[Out] -250/27*x^4 + 1700/81*x^3 - 1795/81*x^2 + 16253/729*x - 49/4374*(
666*x + 437)/(3*x + 2)^2 - 10073/729*ln(abs(3*x + 2))
```

3.1366 $\int \frac{(1-2x)^3(3+5x)^3}{(2+3x)^4} \, dx$

Optimal. Leaf size=63

$$-\frac{1000x^3}{243}+\frac{3550x^2}{243}-\frac{24970x}{729}+\frac{10073}{729(3x+2)}-\frac{1813}{1458(3x+2)^2}+\frac{343}{6561(3x+2)^3}+\frac{66193\log(3x+2)}{2187}$$

```
[Out] (-24970*x)/729 + (3550*x^2)/243 - (1000*x^3)/243 + 343/(6561*(2 +
 3*x)^3) - 1813/(1458*(2 + 3*x)^2) + 10073/(729*(2 + 3*x)) + (661
93*Log[2 + 3*x])/2187
```

Rubi [A] time = 0.0766874, antiderivative size = 63, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{1000x^3}{243}+\frac{3550x^2}{243}-\frac{24970x}{729}+\frac{10073}{729(3x+2)}-\frac{1813}{1458(3x+2)^2}+\frac{343}{6561(3x+2)^3}+\frac{66193\log(3x+2)}{2187}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^3*(3 + 5*x)^3)/(2 + 3*x)^4,x]
```

```
[Out] (-24970*x)/729 + (3550*x^2)/243 - (1000*x^3)/243 + 343/(6561*(2 +
 3*x)^3) - 1813/(1458*(2 + 3*x)^2) + 10073/(729*(2 + 3*x)) + (661
93*Log[2 + 3*x])/2187
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{1000x^3}{243}+\frac{66193\log(3x+2)}{2187}+\int\left(-\frac{24970}{729}\right)dx+\frac{7100\int x\,dx}{243}+\frac{10073}{729(3x+2)}-\frac{1813}{1458(3x+2)^2}+\frac{343}{6561(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3*(3+5*x)**3/(2+3*x)**4,x)
```

```
[Out] -1000*x**3/243 + 66193*log(3*x + 2)/2187 + Integral(-24970/729, x
) + 7100*Integral(x, x)/243 + 10073/(729*(3*x + 2)) - 1813/(1458*
(3*x + 2)**2) + 343/(6561*(3*x + 2)**3)
```

Mathematica [A] time = 0.0302608, size = 52, normalized size = 0.83

$$\frac{132386\log(3x+2)-\frac{3(162000x^6-251100x^5+414180x^4+3180480x^3+3851166x^2+1766567x+279268)}{(3x+2)^3}}{4374}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^3*(3 + 5*x)^3)/(2 + 3*x)^4,x]
```

```
[Out] ((-3*(279268 + 1766567*x + 3851166*x^2 + 3180480*x^3 + 414180*x^4
 - 251100*x^5 + 162000*x^6))/(2 + 3*x)^3 + 132386*Log[2 + 3*x])/4
374
```

Maple [A] time = 0.01, size = 50, normalized size = 0.8

$$-\frac{24970\,x}{729}+\frac{3550\,x^{2}}{243}-\frac{1000\,x^{3}}{243}+\frac{343}{6561\,\left(2+3\,x\right)^{3}}-\frac{1813}{1458\,\left(2+3\,x\right)^{2}}+\frac{10073}{1458+2187\,x}+\frac{66193\,\ln\left(2+3\,x\right)}{2187}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(3+5*x)^3/(2+3*x)^4,x)
```

```
[Out] -24970/729*x+3550/243*x^2-1000/243*x^3+343/6561/(2+3*x)^3-1813/14
58/(2+3*x)^2+10073/729/(2+3*x)+66193/2187*ln(2+3*x)
```

Maxima [A] time = 1.34662, size = 69, normalized size = 1.1

$$-\frac{1000}{243}\,x^{3}+\frac{3550}{243}\,x^{2}-\frac{24970}{729}\,x+\frac{7\,\left(233118\,x^{2}+303831\,x+99044\right)}{13122\,\left(27\,x^{3}+54\,x^{2}+36\,x+8\right)}+\frac{66193}{2187}\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)^3/(3*x + 2)^4,x, algorithm="maxima")
```

```
[Out] -1000/243*x^3 + 3550/243*x^2 - 24970/729*x + 7/13122*(233118*x^2
+ 303831*x + 99044)/(27*x^3 + 54*x^2 + 36*x + 8) + 66193/2187*log
(3*x + 2)
```

Fricas [A] time = 0.223234, size = 97, normalized size = 1.54

$$-\frac{1458000\,x^{6}-2259900\,x^{5}+3727620\,x^{4}+17801640\,x^{3}+13015134\,x^{2}-397158\,\left(27\,x^{3}+54\,x^{2}+36\,x+8\right)\,\log\left(3\,x+2\right)+14}{13122\,\left(27\,x^{3}+54\,x^{2}+36\,x+8\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)^3/(3*x + 2)^4,x, algorithm="fricas")
```

```
[Out] -1/13122*(1458000*x^6 - 2259900*x^5 + 3727620*x^4 + 17801640*x^3
+ 13015134*x^2 - 397158*(27*x^3 + 54*x^2 + 36*x + 8)*log(3*x + 2)
 + 1468863*x - 693308)/(27*x^3 + 54*x^2 + 36*x + 8)
```

Sympy [A] time = 0.341002, size = 53, normalized size = 0.84

$$-\frac{1000x^{3}}{243}+\frac{3550x^{2}}{243}-\frac{24970x}{729}+\frac{1631826x^{2}+2126817x+693308}{354294x^{3}+708588x^{2}+472392x+104976}+\frac{66193\log\left(3x+2\right)}{2187}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(3+5*x)**3/(2+3*x)**4,x)
```

```
[Out] -1000*x**3/243 + 3550*x**2/243 - 24970*x/729 + (1631826*x**2 + 21
26817*x + 693308)/(354294*x**3 + 708588*x**2 + 472392*x + 104976)
 + 66193*log(3*x + 2)/2187
```

GIAC/XCAS [A] time = 0.206513, size = 57, normalized size = 0.9

$$-\frac{1000}{243}\,x^{3}+\frac{3550}{243}\,x^{2}-\frac{24970}{729}\,x+\frac{7\,\left(233118\,x^{2}+303831\,x+99044\right)}{13122\,\left(3\,x+2\right)^{3}}+\frac{66193}{2187}\,\ln\left(\left|3\,x+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)^3/(3*x + 2)^4,x, algorithm="giac")
```

```
[Out] -1000/243*x^3 + 3550/243*x^2 - 24970/729*x + 7/13122*(233118*x^2
+ 303831*x + 99044)/(3*x + 2)^3 + 66193/2187*ln(abs(3*x + 2))
```

3.1367 $\int \frac{(1-2x)^3(3+5x)^3}{(2+3x)^5}\,dx$

Optimal. Leaf size=67

$$-\frac{500x^2}{243}+\frac{9100x}{729}-\frac{66193}{2187(3x+2)}+\frac{10073}{1458(3x+2)^2}-\frac{1813}{2187(3x+2)^3}+\frac{343}{8748(3x+2)^4}-\frac{14390}{729}\log(3x+2)$$

```
[Out] (9100*x)/729 - (500*x^2)/243 + 343/(8748*(2 + 3*x)^4) - 1813/(218
7*(2 + 3*x)^3) + 10073/(1458*(2 + 3*x)^2) - 66193/(2187*(2 + 3*x)
) - (14390*Log[2 + 3*x])/729
```

Rubi [A] time = 0.0812738, antiderivative size = 67, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{500x^2}{243}+\frac{9100x}{729}-\frac{66193}{2187(3x+2)}+\frac{10073}{1458(3x+2)^2}-\frac{1813}{2187(3x+2)^3}+\frac{343}{8748(3x+2)^4}-\frac{14390}{729}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^3*(3 + 5*x)^3)/(2 + 3*x)^5,x]
```

```
[Out] (9100*x)/729 - (500*x^2)/243 + 343/(8748*(2 + 3*x)^4) - 1813/(218
7*(2 + 3*x)^3) + 10073/(1458*(2 + 3*x)^2) - 66193/(2187*(2 + 3*x)
) - (14390*Log[2 + 3*x])/729
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{14390\log(3x+2)}{729}+\int\frac{9100}{729}\,dx-\frac{1000\int x\,dx}{243}-\frac{66193}{2187(3x+2)}+\frac{10073}{1458(3x+2)^2}-\frac{1813}{2187(3x+2)^3}+\frac{343}{8748(3x+2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3*(3+5*x)**3/(2+3*x)**5,x)
```

```
[Out] -14390*log(3*x + 2)/729 + Integral(9100/729, x) - 1000*Integral(x
, x)/243 - 66193/(2187*(3*x + 2)) + 10073/(1458*(3*x + 2)**2) - 1
813/(2187*(3*x + 2)**3) + 343/(8748*(3*x + 2)**4)
```

Mathematica [A] time = 0.0344561, size = 56, normalized size = 0.84

$$\frac{-1458000x^6+4957200x^5+26244000x^4+32163156x^3+13894254x^2+675708x-172680(3x+2)^4\log(3x+2)-597785}{8748(3x+2)^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^3*(3 + 5*x)^3)/(2 + 3*x)^5,x]
```

```
[Out] (-597785 + 675708*x + 13894254*x^2 + 32163156*x^3 + 26244000*x^4
+ 4957200*x^5 - 1458000*x^6 - 172680*(2 + 3*x)^4*Log[2 + 3*x])/(8
748*(2 + 3*x)^4)
```

Maple [A] time = 0.012, size = 54, normalized size = 0.8

$$\frac{9100\,x}{729}-\frac{500\,x^{2}}{243}+\frac{343}{8748\,\left(2+3\,x\right)^{4}}-\frac{1813}{2187\,\left(2+3\,x\right)^{3}}+\frac{10073}{1458\,\left(2+3\,x\right)^{2}}-\frac{66193}{4374+6561\,x}-\frac{14390\,\ln\left(2+3\,x\right)}{729}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(3+5*x)^3/(2+3*x)^5,x)
```

```
[Out] 9100/729*x-500/243*x^2+343/8748/(2+3*x)^4-1813/2187/(2+3*x)^3+100
73/1458/(2+3*x)^2-66193/2187/(2+3*x)-14390/729*ln(2+3*x)
```

Maxima [A] time = 1.34897, size = 76, normalized size = 1.13

$$-\frac{500}{243}\,x^{2}+\frac{9100}{729}\,x-\frac{2382948\,x^{3}+4584582\,x^{2}+2942764\,x+630195}{2916\,\left(81\,x^{4}+216\,x^{3}+216\,x^{2}+96\,x+16\right)}-\frac{14390}{729}\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)^3/(3*x + 2)^5,x, algorithm="maxima")
```

```
[Out] -500/243*x^2 + 9100/729*x - 1/2916*(2382948*x^3 + 4584582*x^2 + 2
942764*x + 630195)/(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16) - 143
90/729*log(3*x + 2)
```

Fricas [A] time = 0.22046, size = 111, normalized size = 1.66

$$-\frac{486000\,x^{6}-1652400\,x^{5}-6566400\,x^{4}-4903452\,x^{3}+1186182\,x^{2}+57560\,\left(81\,x^{4}+216\,x^{3}+216\,x^{2}+96\,x+16\right)\,\log\left(3\,x+\right.}{2916\,\left(81\,x^{4}+216\,x^{3}+216\,x^{2}+96\,x+16\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)^3/(3*x + 2)^5,x, algorithm="fricas")
```

```
[Out] -1/2916*(486000*x^6 - 1652400*x^5 - 6566400*x^4 - 4903452*x^3 + 1
186182*x^2 + 57560*(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16)*log(3
*x + 2) + 2360364*x + 630195)/(81*x^4 + 216*x^3 + 216*x^2 + 96*x
+ 16)
```

Sympy [A] time = 0.398208, size = 56, normalized size = 0.84

$$-\frac{500x^{2}}{243}+\frac{9100x}{729}-\frac{2382948x^{3}+4584582x^{2}+2942764x+630195}{236196x^{4}+629856x^{3}+629856x^{2}+279936x+46656}-\frac{14390\log\left(3x+2\right)}{729}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(3+5*x)**3/(2+3*x)**5,x)
```

```
[Out] -500*x**2/243 + 9100*x/729 - (2382948*x**3 + 4584582*x**2 + 29427
64*x + 630195)/(236196*x**4 + 629856*x**3 + 629856*x**2 + 279936*
x + 46656) - 14390*log(3*x + 2)/729
```

GIAC/XCAS [A] time = 0.210537, size = 101, normalized size = 1.51

$$\frac{100}{2187}\,(3\,x+2)^2\left(\frac{111}{3\,x+2}-5\right)-\frac{66193}{2187\,(3\,x+2)}+\frac{10073}{1458\,(3\,x+2)^2}-\frac{1813}{2187\,(3\,x+2)^3}+\frac{343}{8748\,(3\,x+2)^4}+\frac{14390}{729}\ln\left(\frac{|3\,x+2|}{3\,(3\,x+2)^2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)^3/(3*x + 2)^5,x, algorithm="giac")
```

```
[Out] 100/2187*(3*x + 2)^2*(111/(3*x + 2) - 5) - 66193/2187/(3*x + 2) +
 10073/1458/(3*x + 2)^2 - 1813/2187/(3*x + 2)^3 + 343/8748/(3*x +
 2)^4 + 14390/729*ln(1/3*abs(3*x + 2)/(3*x + 2)^2)
```

3.1368 $\int \frac{(1-2x)^3(3+5x)^3}{(2+3x)^6}\,dx$

Optimal. Leaf size=71

$$-\frac{1000x}{729}+\frac{14390}{729(3x+2)}-\frac{66193}{4374(3x+2)^2}+\frac{10073}{2187(3x+2)^3}-\frac{1813}{2916(3x+2)^4}+\frac{343}{10935(3x+2)^5}+\frac{3700}{729}\log(3x+2)$$

```
[Out] (-1000*x)/729 + 343/(10935*(2 + 3*x)^5) - 1813/(2916*(2 + 3*x)^4)
 + 10073/(2187*(2 + 3*x)^3) - 66193/(4374*(2 + 3*x)^2) + 14390/(7
29*(2 + 3*x)) + (3700*Log[2 + 3*x])/729
```

Rubi [A] time = 0.0805253, antiderivative size = 71, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$-\frac{1000x}{729}+\frac{14390}{729(3x+2)}-\frac{66193}{4374(3x+2)^2}+\frac{10073}{2187(3x+2)^3}-\frac{1813}{2916(3x+2)^4}+\frac{343}{10935(3x+2)^5}+\frac{3700}{729}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)^3*(3 + 5*x)^3)/(2 + 3*x)^6,x]
```

```
[Out] (-1000*x)/729 + 343/(10935*(2 + 3*x)^5) - 1813/(2916*(2 + 3*x)^4)
 + 10073/(2187*(2 + 3*x)^3) - 66193/(4374*(2 + 3*x)^2) + 14390/(7
29*(2 + 3*x)) + (3700*Log[2 + 3*x])/729
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{3700\log{(3x+2)}}{729}+\int\left(-\frac{1000}{729}\right)dx+\frac{14390}{729\,(3x+2)}-\frac{66193}{4374\,(3x+2)^2}+\frac{10073}{2187\,(3x+2)^3}-\frac{1813}{2916\,(3x+2)^4}+\frac{343}{10935\,(3x+2)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**3*(3+5*x)**3/(2+3*x)**6,x)
```

```
[Out] 3700*log(3*x + 2)/729 + Integral(-1000/729, x) + 14390/(729*(3*x
+ 2)) - 66193/(4374*(3*x + 2)**2) + 10073/(2187*(3*x + 2)**3) - 1
813/(2916*(3*x + 2)**4) + 343/(10935*(3*x + 2)**5)
```

Mathematica [A] time = 0.0350394, size = 56, normalized size = 0.79

$$\frac{-14580000x^6-58320000x^5-27264600x^4+82222290x^3+109363320x^2+49872855x+222000(3x+2)^5\log(3x+2)+7991}{43740(3x+2)^5}$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)^3*(3 + 5*x)^3)/(2 + 3*x)^6,x]
```

```
[Out] (7991782 + 49872855*x + 109363320*x^2 + 82222290*x^3 - 27264600*x
^4 - 58320000*x^5 - 14580000*x^6 + 222000*(2 + 3*x)^5*Log[2 + 3*x
])/(43740*(2 + 3*x)^5)
```

Maple [A] time = 0.012, size = 58, normalized size = 0.8

$$-\frac{1000\,x}{729}+\frac{343}{10935\,\left(2+3\,x\right)^{5}}-\frac{1813}{2916\,\left(2+3\,x\right)^{4}}+\frac{10073}{2187\,\left(2+3\,x\right)^{3}}-\frac{66193}{4374\,\left(2+3\,x\right)^{2}}+\frac{14390}{1458+2187\,x}+\frac{3700\,\ln\left(2+3\,x\right)}{729}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(3+5*x)^3/(2+3*x)^6,x)
```

```
[Out] -1000/729*x+343/10935/(2+3*x)^5-1813/2916/(2+3*x)^4+10073/2187/(2
+3*x)^3-66193/4374/(2+3*x)^2+14390/729/(2+3*x)+3700/729*ln(2+3*x)
```

Maxima [A] time = 1.34435, size = 82, normalized size = 1.15

$$-\frac{1000}{729}\,x+\frac{23311800\,x^{4}+56207430\,x^{3}+50854440\,x^{2}+20464285\,x+3090594}{14580\,\left(243\,x^{5}+810\,x^{4}+1080\,x^{3}+720\,x^{2}+240\,x+32\right)}+\frac{3700}{729}\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)^3/(3*x + 2)^6,x, algorithm="maxima")
```

```
[Out] -1000/729*x + 1/14580*(23311800*x^4 + 56207430*x^3 + 50854440*x^2
 + 20464285*x + 3090594)/(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2
+ 240*x + 32) + 3700/729*log(3*x + 2)
```

Fricas [A] time = 0.215409, size = 124, normalized size = 1.75

$$-\frac{4860000\,x^{6}+16200000\,x^{5}-1711800\,x^{4}-41807430\,x^{3}-46054440\,x^{2}-74000\,\left(243\,x^{5}+810\,x^{4}+1080\,x^{3}+720\,x^{2}+240\right.}{14580\,\left(243\,x^{5}+810\,x^{4}+1080\,x^{3}+720\,x^{2}+240\,x+32\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)^3/(3*x + 2)^6,x, algorithm="fricas")
```

```
[Out] -1/14580*(4860000*x^6 + 16200000*x^5 - 1711800*x^4 - 41807430*x^3
 - 46054440*x^2 - 74000*(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 +
 240*x + 32)*log(3*x + 2) - 19824285*x - 3090594)/(243*x^5 + 810*
x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)
```

Sympy [A] time = 0.462737, size = 60, normalized size = 0.85

$$-\frac{1000x}{729}+\frac{23311800x^{4}+56207430x^{3}+50854440x^{2}+20464285x+3090594}{3542940x^{5}+11809800x^{4}+15746400x^{3}+10497600x^{2}+3499200x+466560}+\frac{3700\log\left(3x+2\right)}{729}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(3+5*x)**3/(2+3*x)**6,x)
```

```
[Out] -1000*x/729 + (23311800*x**4 + 56207430*x**3 + 50854440*x**2 + 20
464285*x + 3090594)/(3542940*x**5 + 11809800*x**4 + 15746400*x**3
 + 10497600*x**2 + 3499200*x + 466560) + 3700*log(3*x + 2)/729
```

GIAC/XCAS [A] time = 0.210268, size = 57, normalized size = 0.8

$$-\frac{1000}{729}\,x+\frac{23311800\,x^{4}+56207430\,x^{3}+50854440\,x^{2}+20464285\,x+3090594}{14580\,(3\,x+2)^{5}}+\frac{3700}{729}\,\ln\left(|3\,x+2|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)^3/(3*x + 2)^6,x, algorithm="giac")
```

```
[Out] -1000/729*x + 1/14580*(23311800*x^4 + 56207430*x^3 + 50854440*x^2
 + 20464285*x + 3090594)/(3*x + 2)^5 + 3700/729*ln(abs(3*x + 2))
```

3.1369 $\int \frac{(1-2x)^3(3+5x)^3}{(2+3x)^7}\,dx$

Optimal. Leaf size=77

$$-\frac{3700}{729(3x+2)}+\frac{7195}{729(3x+2)^2}-\frac{66193}{6561(3x+2)^3}+\frac{10073}{2916(3x+2)^4}-\frac{1813}{3645(3x+2)^5}+\frac{343}{13122(3x+2)^6}-\frac{1000\log(3x+2)}{2187}$$

```
[Out] 343/(13122*(2 + 3*x)^6) - 1813/(3645*(2 + 3*x)^5) + 10073/(2916*(
2 + 3*x)^4) - 66193/(6561*(2 + 3*x)^3) + 7195/(729*(2 + 3*x)^2) -
 3700/(729*(2 + 3*x)) - (1000*Log[2 + 3*x])/2187
```

Rubi [A] time = 0.0772228, antiderivative size = 77, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$-\frac{3700}{729(3x+2)}+\frac{7195}{729(3x+2)^2}-\frac{66193}{6561(3x+2)^3}+\frac{10073}{2916(3x+2)^4}-\frac{1813}{3645(3x+2)^5}+\frac{343}{13122(3x+2)^6}-\frac{1000\log(3x+2)}{2187}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^3*(3 + 5*x)^3)/(2 + 3*x)^7,x]
```

```
[Out] 343/(13122*(2 + 3*x)^6) - 1813/(3645*(2 + 3*x)^5) + 10073/(2916*(
2 + 3*x)^4) - 66193/(6561*(2 + 3*x)^3) + 7195/(729*(2 + 3*x)^2) -
 3700/(729*(2 + 3*x)) - (1000*Log[2 + 3*x])/2187
```

Rubi in Sympy [A] time = 11.8866, size = 66, normalized size = 0.86

$$-\frac{1000\log(3x+2)}{2187}-\frac{3700}{729(3x+2)}+\frac{7195}{729(3x+2)^2}-\frac{66193}{6561(3x+2)^3}+\frac{10073}{2916(3x+2)^4}-\frac{1813}{3645(3x+2)^5}+\frac{343}{13122(3x+2)^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3*(3+5*x)**3/(2+3*x)**7,x)
```

```
[Out] -1000*log(3*x + 2)/2187 - 3700/(729*(3*x + 2)) + 7195/(729*(3*x +
 2)**2) - 66193/(6561*(3*x + 2)**3) + 10073/(2916*(3*x + 2)**4) -
 1813/(3645*(3*x + 2)**5) + 343/(13122*(3*x + 2)**6)
```

Mathematica [A] time = 0.0257266, size = 51, normalized size = 0.66

$$-\frac{53946000x^5+144852300x^4+158427540x^3+89062425x^2+25975248x+20000(3x+2)^6\log(3x+2)+3165082}{43740(3x+2)^6}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^3*(3 + 5*x)^3)/(2 + 3*x)^7,x]
```

```
[Out] -(3165082 + 25975248*x + 89062425*x^2 + 158427540*x^3 + 144852300
*x^4 + 53946000*x^5 + 20000*(2 + 3*x)^6*Log[2 + 3*x])/(43740*(2 +
 3*x)^6)
```

Maple [A] time = 0.009, size = 64, normalized size = 0.8

$$\frac{343}{13122\,(2+3\,x)^{6}}-\frac{1813}{3645\,(2+3\,x)^{5}}+\frac{10073}{2916\,(2+3\,x)^{4}}-\frac{66193}{6561\,(2+3\,x)^{3}}+\frac{7195}{729\,(2+3\,x)^{2}}-\frac{3700}{1458+2187\,x}-\frac{1000\,\ln(2+3\,x)}{2187}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(3+5*x)^3/(2+3*x)^7,x)
```

```
[Out] 343/13122/(2+3*x)^6-1813/3645/(2+3*x)^5+10073/2916/(2+3*x)^4-6619
3/6561/(2+3*x)^3+7195/729/(2+3*x)^2-3700/729/(2+3*x)-1000/2187*ln
(2+3*x)
```

Maxima [A] time = 1.33824, size = 92, normalized size = 1.19

$$-\frac{53946000\,x^{5}+144852300\,x^{4}+158427540\,x^{3}+89062425\,x^{2}+25975248\,x+3165082}{43740\,(729\,x^{6}+2916\,x^{5}+4860\,x^{4}+4320\,x^{3}+2160\,x^{2}+576\,x+64)}-\frac{1000}{2187}\,\log(3\,x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)^3/(3*x + 2)^7,x, algorithm="maxima")
```

```
[Out] -1/43740*(53946000*x^5 + 144852300*x^4 + 158427540*x^3 + 89062425
*x^2 + 25975248*x + 3165082)/(729*x^6 + 2916*x^5 + 4860*x^4 + 432
0*x^3 + 2160*x^2 + 576*x + 64) - 1000/2187*log(3*x + 2)
```

Fricas [A] time = 0.213022, size = 131, normalized size = 1.7

$$-\frac{53946000\,x^{5}+144852300\,x^{4}+158427540\,x^{3}+89062425\,x^{2}+20000\,(729\,x^{6}+2916\,x^{5}+4860\,x^{4}+4320\,x^{3}+2160\,x^{2}+57}{43740\,(729\,x^{6}+2916\,x^{5}+4860\,x^{4}+4320\,x^{3}+2160\,x^{2}+576\,x+64)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)^3/(3*x + 2)^7,x, algorithm="fricas")
```

```
[Out] -1/43740*(53946000*x^5 + 144852300*x^4 + 158427540*x^3 + 89062425
*x^2 + 20000*(729*x^6 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 2160*x^2
 + 576*x + 64)*log(3*x + 2) + 25975248*x + 3165082)/(729*x^6 + 29
16*x^5 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64)
```

Sympy [A] time = 0.476527, size = 66, normalized size = 0.86

$$-\frac{53946000x^{5}+144852300x^{4}+158427540x^{3}+89062425x^{2}+25975248x+3165082}{31886460x^{6}+127545840x^{5}+212576400x^{4}+188956800x^{3}+94478400x^{2}+25194240x+2799360}-\frac{1000\log(3x+2)}{2187}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(3+5*x)**3/(2+3*x)**7,x)
```

```
[Out] -(53946000*x**5 + 144852300*x**4 + 158427540*x**3 + 89062425*x**2
 + 25975248*x + 3165082)/(31886460*x**6 + 127545840*x**5 + 212576
```

```
400*x**4 + 188956800*x**3 + 94478400*x**2 + 25194240*x + 2799360)
 - 1000*log(3*x + 2)/2187
```

GIAC/XCAS [A] time = 0.2056, size = 59, normalized size = 0.77

$$-\frac{53946000\,x^{5}+144852300\,x^{4}+158427540\,x^{3}+89062425\,x^{2}+25975248\,x+3165082}{43740\,(3\,x+2)^{6}}-\frac{1000}{2187}\,\ln\left(|3\,x+2|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)^3/(3*x + 2)^7,x, algorithm="giac")
```

```
[Out] -1/43740*(53946000*x^5 + 144852300*x^4 + 158427540*x^3 + 89062425
*x^2 + 25975248*x + 3165082)/(3*x + 2)^6 - 1000/2187*ln(abs(3*x +
 2))
```

3.1370 $\int \frac{(1-2x)^3(3+5x)^3}{(2+3x)^8} dx$

Optimal. Leaf size=78

$$\frac{1000}{2187(3x+2)}-\frac{1850}{729(3x+2)^2}+\frac{14390}{2187(3x+2)^3}-\frac{66193}{8748(3x+2)^4}+\frac{10073}{3645(3x+2)^5}-\frac{1813}{4374(3x+2)^6}+\frac{49}{2187(3x+2)^7}$$

```
[Out] 49/(2187*(2 + 3*x)^7) - 1813/(4374*(2 + 3*x)^6) + 10073/(3645*(2
+ 3*x)^5) - 66193/(8748*(2 + 3*x)^4) + 14390/(2187*(2 + 3*x)^3) -
 1850/(729*(2 + 3*x)^2) + 1000/(2187*(2 + 3*x))
```

Rubi [A] time = 0.0819502, antiderivative size = 78, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{1000}{2187(3x+2)}-\frac{1850}{729(3x+2)^2}+\frac{14390}{2187(3x+2)^3}-\frac{66193}{8748(3x+2)^4}+\frac{10073}{3645(3x+2)^5}-\frac{1813}{4374(3x+2)^6}+\frac{49}{2187(3x+2)^7}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^3*(3 + 5*x)^3)/(2 + 3*x)^8,x]
```

```
[Out] 49/(2187*(2 + 3*x)^7) - 1813/(4374*(2 + 3*x)^6) + 10073/(3645*(2
+ 3*x)^5) - 66193/(8748*(2 + 3*x)^4) + 14390/(2187*(2 + 3*x)^3) -
 1850/(729*(2 + 3*x)^2) + 1000/(2187*(2 + 3*x))
```

Rubi in Sympy [A] time = 13.207, size = 66, normalized size = 0.85

$$\frac{1000}{2187\left(3x+2\right)}-\frac{1850}{729\left(3x+2\right)^{2}}+\frac{14390}{2187\left(3x+2\right)^{3}}-\frac{66193}{8748\left(3x+2\right)^{4}}+\frac{10073}{3645\left(3x+2\right)^{5}}-\frac{1813}{4374\left(3x+2\right)^{6}}+\frac{49}{2187\left(3x+2\right)^{7}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3*(3+5*x)**3/(2+3*x)**8,x)
```

```
[Out] 1000/(2187*(3*x + 2)) - 1850/(729*(3*x + 2)**2) + 14390/(2187*(3*
x + 2)**3) - 66193/(8748*(3*x + 2)**4) + 10073/(3645*(3*x + 2)**5
) - 1813/(4374*(3*x + 2)**6) + 49/(2187*(3*x + 2)**7)
```

Mathematica [A] time = 0.0215397, size = 41, normalized size = 0.53

$$\frac{14580000x^6+31347000x^5+30601800x^4+19748745x^3+8660574x^2+1990182x+133304}{43740(3x+2)^7}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^3*(3 + 5*x)^3)/(2 + 3*x)^8,x]
```

```
[Out] (133304 + 1990182*x + 8660574*x^2 + 19748745*x^3 + 30601800*x^4 +
 31347000*x^5 + 14580000*x^6)/(43740*(2 + 3*x)^7)
```

Maple [A] time = 0.008, size = 65, normalized size = 0.8

$$\frac{49}{2187\left(2+3x\right)^{7}}-\frac{1813}{4374\left(2+3x\right)^{6}}+\frac{10073}{3645\left(2+3x\right)^{5}}-\frac{66193}{8748\left(2+3x\right)^{4}}+\frac{14390}{2187\left(2+3x\right)^{3}}-\frac{1850}{729\left(2+3x\right)^{2}}+\frac{1000}{4374+6561x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(3+5*x)^3/(2+3*x)^8,x)
```

```
[Out] 49/2187/(2+3*x)^7-1813/4374/(2+3*x)^6+10073/3645/(2+3*x)^5-66193/
8748/(2+3*x)^4+14390/2187/(2+3*x)^3-1850/729/(2+3*x)^2+1000/2187/
(2+3*x)
```

Maxima [A] time = 1.3491, size = 93, normalized size = 1.19

$$\frac{14580000\,x^{6}+31347000\,x^{5}+30601800\,x^{4}+19748745\,x^{3}+8660574\,x^{2}+1990182\,x+133304}{43740\,(2187\,x^{7}+10206\,x^{6}+20412\,x^{5}+22680\,x^{4}+15120\,x^{3}+6048\,x^{2}+1344\,x+128)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)^3/(3*x + 2)^8,x, algorithm="maxima")
```

```
[Out] 1/43740*(14580000*x^6 + 31347000*x^5 + 30601800*x^4 + 19748745*x^
3 + 8660574*x^2 + 1990182*x + 133304)/(2187*x^7 + 10206*x^6 + 204
12*x^5 + 22680*x^4 + 15120*x^3 + 6048*x^2 + 1344*x + 128)
```

Fricas [A] time = 0.205223, size = 93, normalized size = 1.19

$$\frac{14580000\,x^{6}+31347000\,x^{5}+30601800\,x^{4}+19748745\,x^{3}+8660574\,x^{2}+1990182\,x+133304}{43740\,(2187\,x^{7}+10206\,x^{6}+20412\,x^{5}+22680\,x^{4}+15120\,x^{3}+6048\,x^{2}+1344\,x+128)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)^3/(3*x + 2)^8,x, algorithm="fricas")
```

```
[Out] 1/43740*(14580000*x^6 + 31347000*x^5 + 30601800*x^4 + 19748745*x^
3 + 8660574*x^2 + 1990182*x + 133304)/(2187*x^7 + 10206*x^6 + 204
12*x^5 + 22680*x^4 + 15120*x^3 + 6048*x^2 + 1344*x + 128)
```

Sympy [A] time = 0.511404, size = 65, normalized size = 0.83

$$\frac{14580000x^{6}+31347000x^{5}+30601800x^{4}+19748745x^{3}+8660574x^{2}+1990182x+133304}{95659380x^{7}+446410440x^{6}+892820880x^{5}+992023200x^{4}+661348800x^{3}+264539520x^{2}+58786560x+5598720}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(3+5*x)**3/(2+3*x)**8,x)
```

```
[Out] (14580000*x**6 + 31347000*x**5 + 30601800*x**4 + 19748745*x**3 +
8660574*x**2 + 1990182*x + 133304)/(95659380*x**7 + 446410440*x**
6 + 892820880*x**5 + 992023200*x**4 + 661348800*x**3 + 264539520*
x**2 + 58786560*x + 5598720)
```

GIAC/XCAS [A] time = 0.213977, size = 53, normalized size = 0.68

$$\frac{14580000\,x^{6}+31347000\,x^{5}+30601800\,x^{4}+19748745\,x^{3}+8660574\,x^{2}+1990182\,x+133304}{43740\,(3\,x+2)^{7}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(2*x - 1)^3/(3*x + 2)^8,x, algorithm="giac")
```

```
[Out] 1/43740*(14580000*x^6 + 31347000*x^5 + 30601800*x^4 + 19748745*x^
3 + 8660574*x^2 + 1990182*x + 133304)/(3*x + 2)^7
```

3.1371 $\int \frac{(1-2x)^3(2+3x)^6}{3+5x}\,dx$

Optimal. Leaf size=72

$$-\frac{648x^9}{5}-\frac{13851x^8}{50}-\frac{40338x^7}{875}+\frac{331713x^6}{1250}+\frac{2212083x^5}{15625}-\frac{5848749x^4}{62500}-\frac{17453753x^3}{234375}+\frac{11111259x^2}{781250}+\frac{41666223x}{1953125}+\frac{1331\log(5x+3)}{9765625}$$

```
[Out] (41666223*x)/1953125 + (11111259*x^2)/781250 - (17453753*x^3)/234
375 - (5848749*x^4)/62500 + (2212083*x^5)/15625 + (331713*x^6)/12
50 - (40338*x^7)/875 - (13851*x^8)/50 - (648*x^9)/5 + (1331*Log[3
 + 5*x])/9765625
```

Rubi [A] time = 0.0719971, antiderivative size = 72, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{648x^9}{5}-\frac{13851x^8}{50}-\frac{40338x^7}{875}+\frac{331713x^6}{1250}+\frac{2212083x^5}{15625}-\frac{5848749x^4}{62500}-\frac{17453753x^3}{234375}+\frac{11111259x^2}{781250}+\frac{41666223x}{1953125}+\frac{1331\log(5x+3)}{9765625}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^3*(2 + 3*x)^6)/(3 + 5*x),x]
```

```
[Out] (41666223*x)/1953125 + (11111259*x^2)/781250 - (17453753*x^3)/234
375 - (5848749*x^4)/62500 + (2212083*x^5)/15625 + (331713*x^6)/12
50 - (40338*x^7)/875 - (13851*x^8)/50 - (648*x^9)/5 + (1331*Log[3
 + 5*x])/9765625
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{648x^9}{5}-\frac{13851x^8}{50}-\frac{40338x^7}{875}+\frac{331713x^6}{1250}+\frac{2212083x^5}{15625}-\frac{5848749x^4}{62500}-\frac{17453753x^3}{234375}+\frac{1331\log(5x+3)}{9765625}+\int\frac{41666223}{1953125}\,dx+\frac{11111259\int x\,dx}{390625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3*(2+3*x)**6/(3+5*x),x)
```

```
[Out] -648*x**9/5 - 13851*x**8/50 - 40338*x**7/875 + 331713*x**6/1250 +
 2212083*x**5/15625 - 5848749*x**4/62500 - 17453753*x**3/234375 +
 1331*log(5*x + 3)/9765625 + Integral(41666223/1953125, x) + 1111
1259*Integral(x, x)/390625
```

Mathematica [A] time = 0.0250332, size = 57, normalized size = 0.79

$$\frac{-531562500000x^9-1136214843750x^8-189084375000x^7+1088433281250x^6+580671787500x^5-383824153125x^4-305}{4101562500}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^3*(2 + 3*x)^6)/(3 + 5*x),x]
```

```
[Out] (18072649071 + 87499068300*x + 58334109750*x^2 - 305440677500*x^3
 - 383824153125*x^4 + 580671787500*x^5 + 1088433281250*x^6 - 1890
```

```
84375000*x^7 - 1136214843750*x^8 - 531562500000*x^9 + 559020*Log[
3 + 5*x])/4101562500
```

Maple [A] time = 0.006, size = 53, normalized size = 0.7

$$\frac{41666223\,x}{1953125}+\frac{11111259\,x^{2}}{781250}-\frac{17453753\,x^{3}}{234375}-\frac{5848749\,x^{4}}{62500}+\frac{2212083\,x^{5}}{15625}+\frac{331713\,x^{6}}{1250}-\frac{40338\,x^{7}}{875}-\frac{13851\,x^{8}}{50}-\frac{648\,x^{9}}{5}+\frac{1331\,\ln\left(3+5\,x\right)}{9765625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(2+3*x)^6/(3+5*x),x)
```

```
[Out] 41666223/1953125*x+11111259/781250*x^2-17453753/234375*x^3-584874
9/62500*x^4+2212083/15625*x^5+331713/1250*x^6-40338/875*x^7-13851
/50*x^8-648/5*x^9+1331/9765625*ln(3+5*x)
```

Maxima [A] time = 1.34294, size = 70, normalized size = 0.97

$$-\frac{648}{5}\,x^{9}-\frac{13851}{50}\,x^{8}-\frac{40338}{875}\,x^{7}+\frac{331713}{1250}\,x^{6}+\frac{2212083}{15625}\,x^{5}-\frac{5848749}{62500}\,x^{4}-\frac{17453753}{234375}\,x^{3}+\frac{11111259}{781250}\,x^{2}+\frac{41666223}{1953125}\,x+\frac{1331}{9765625}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^6*(2*x - 1)^3/(5*x + 3),x, algorithm="maxima")
```

```
[Out] -648/5*x^9 - 13851/50*x^8 - 40338/875*x^7 + 331713/1250*x^6 + 221
2083/15625*x^5 - 5848749/62500*x^4 - 17453753/234375*x^3 + 111112
59/781250*x^2 + 41666223/1953125*x + 1331/9765625*log(5*x + 3)
```

Fricas [A] time = 0.213211, size = 70, normalized size = 0.97

$$-\frac{648}{5}\,x^{9}-\frac{13851}{50}\,x^{8}-\frac{40338}{875}\,x^{7}+\frac{331713}{1250}\,x^{6}+\frac{2212083}{15625}\,x^{5}-\frac{5848749}{62500}\,x^{4}-\frac{17453753}{234375}\,x^{3}+\frac{11111259}{781250}\,x^{2}+\frac{41666223}{1953125}\,x+\frac{1331}{9765625}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^6*(2*x - 1)^3/(5*x + 3),x, algorithm="fricas")
```

```
[Out] -648/5*x^9 - 13851/50*x^8 - 40338/875*x^7 + 331713/1250*x^6 + 221
2083/15625*x^5 - 5848749/62500*x^4 - 17453753/234375*x^3 + 111112
59/781250*x^2 + 41666223/1953125*x + 1331/9765625*log(5*x + 3)
```

Sympy [A] time = 0.211925, size = 68, normalized size = 0.94

$$-\frac{648x^{9}}{5}-\frac{13851x^{8}}{50}-\frac{40338x^{7}}{875}+\frac{331713x^{6}}{1250}+\frac{2212083x^{5}}{15625}-\frac{5848749x^{4}}{62500}-\frac{17453753x^{3}}{234375}+\frac{11111259x^{2}}{781250}+\frac{41666223x}{1953125}+\frac{1331\log\left(5x+3\right)}{9765625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(2+3*x)**6/(3+5*x),x)
```

```
[Out] -648*x**9/5 - 13851*x**8/50 - 40338*x**7/875 + 331713*x**6/1250 +
 2212083*x**5/15625 - 5848749*x**4/62500 - 17453753*x**3/234375 +
 11111259*x**2/781250 + 41666223*x/1953125 + 1331*log(5*x + 3)/97
65625
```

GIAC/XCAS [A] time = 0.21059, size = 72, normalized size = 1.

$$-\frac{648}{5}\,x^{9}-\frac{13851}{50}\,x^{8}-\frac{40338}{875}\,x^{7}+\frac{331713}{1250}\,x^{6}+\frac{2212083}{15625}\,x^{5}-\frac{5848749}{62500}\,x^{4}-\frac{17453753}{234375}\,x^{3}+\frac{11111259}{781250}\,x^{2}+\frac{41666223}{1953125}\,x+\frac{1331}{9765625}\,\ln\left(|5\,x+3|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^6*(2*x - 1)^3/(5*x + 3),x, algorithm="giac")
```

```
[Out] -648/5*x^9 - 13851/50*x^8 - 40338/875*x^7 + 331713/1250*x^6 + 221
2083/15625*x^5 - 5848749/62500*x^4 - 17453753/234375*x^3 + 111112
59/781250*x^2 + 41666223/1953125*x + 1331/9765625*ln(abs(5*x + 3)
)
```

3.1372 $\int \frac{(1-2x)^3(2+3x)^5}{3+5x} \, dx$

Optimal. Leaf size=65

$$-\frac{243x^8}{5}-\frac{11988x^7}{175}+\frac{4419x^6}{125}+\frac{243333x^5}{3125}-\frac{73749x^4}{12500}-\frac{1703753x^3}{46875}-\frac{138741x^2}{156250}+\frac{4166223x}{390625}+\frac{1331\log(5x+3)}{1953125}$$

```
[Out] (4166223*x)/390625 - (138741*x^2)/156250 - (1703753*x^3)/46875 -
(73749*x^4)/12500 + (243333*x^5)/3125 + (4419*x^6)/125 - (11988*x
^7)/175 - (243*x^8)/5 + (1331*Log[3 + 5*x])/1953125
```

Rubi [A] time = 0.0654855, antiderivative size = 65, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$-\frac{243x^8}{5}-\frac{11988x^7}{175}+\frac{4419x^6}{125}+\frac{243333x^5}{3125}-\frac{73749x^4}{12500}-\frac{1703753x^3}{46875}-\frac{138741x^2}{156250}+\frac{4166223x}{390625}+\frac{1331\log(5x+3)}{1953125}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^3*(2 + 3*x)^5)/(3 + 5*x),x]
```

```
[Out] (4166223*x)/390625 - (138741*x^2)/156250 - (1703753*x^3)/46875 -
(73749*x^4)/12500 + (243333*x^5)/3125 + (4419*x^6)/125 - (11988*x
^7)/175 - (243*x^8)/5 + (1331*Log[3 + 5*x])/1953125
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{243x^8}{5}-\frac{11988x^7}{175}+\frac{4419x^6}{125}+\frac{243333x^5}{3125}-\frac{73749x^4}{12500}-\frac{1703753x^3}{46875}+\frac{1331\log(5x+3)}{1953125}+\int\frac{4166223}{390625}\,dx-\frac{138741\int x\,dx}{78125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3*(2+3*x)**5/(3+5*x),x)
```

```
[Out] -243*x**8/5 - 11988*x**7/175 + 4419*x**6/125 + 243333*x**5/3125 -
 73749*x**4/12500 - 1703753*x**3/46875 + 1331*log(5*x + 3)/195312
5 + Integral(4166223/390625, x) - 138741*Integral(x, x)/78125
```

Mathematica [A] time = 0.021379, size = 52, normalized size = 0.8

$$\frac{-39867187500x^8-56193750000x^7+28999687500x^6+63874912500x^5-4839778125x^4-29815677500x^3-728390250x^2}{820312500}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^3*(2 + 3*x)^5)/(3 + 5*x),x]
```

```
[Out] (2409164451 + 8749068300*x - 728390250*x^2 - 29815677500*x^3 - 48
39778125*x^4 + 63874912500*x^5 + 28999687500*x^6 - 56193750000*x^
7 - 39867187500*x^8 + 559020*Log[3 + 5*x])/820312500
```

Maple [A] time = 0.003, size = 48, normalized size = 0.7

$$\frac{4166223\,x}{390625}-\frac{138741\,x^{2}}{156250}-\frac{1703753\,x^{3}}{46875}-\frac{73749\,x^{4}}{12500}+\frac{243333\,x^{5}}{3125}+\frac{4419\,x^{6}}{125}-\frac{11988\,x^{7}}{175}-\frac{243\,x^{8}}{5}+\frac{1331\,\ln\left(3+5\,x\right)}{1953125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(2+3*x)^5/(3+5*x),x)
```

```
[Out] 4166223/390625*x-138741/156250*x^2-1703753/46875*x^3-73749/12500*
x^4+243333/3125*x^5+4419/125*x^6-11988/175*x^7-243/5*x^8+1331/195
3125*ln(3+5*x)
```

Maxima [A] time = 1.34331, size = 63, normalized size = 0.97

$$-\frac{243}{5}\,x^{8}-\frac{11988}{175}\,x^{7}+\frac{4419}{125}\,x^{6}+\frac{243333}{3125}\,x^{5}-\frac{73749}{12500}\,x^{4}-\frac{1703753}{46875}\,x^{3}-\frac{138741}{156250}\,x^{2}+\frac{4166223}{390625}\,x+\frac{1331}{1953125}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^5*(2*x - 1)^3/(5*x + 3),x, algorithm="maxima")
```

```
[Out] -243/5*x^8 - 11988/175*x^7 + 4419/125*x^6 + 243333/3125*x^5 - 737
49/12500*x^4 - 1703753/46875*x^3 - 138741/156250*x^2 + 4166223/39
0625*x + 1331/1953125*log(5*x + 3)
```

Fricas [A] time = 0.201237, size = 63, normalized size = 0.97

$$-\frac{243}{5}\,x^{8}-\frac{11988}{175}\,x^{7}+\frac{4419}{125}\,x^{6}+\frac{243333}{3125}\,x^{5}-\frac{73749}{12500}\,x^{4}-\frac{1703753}{46875}\,x^{3}-\frac{138741}{156250}\,x^{2}+\frac{4166223}{390625}\,x+\frac{1331}{1953125}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^5*(2*x - 1)^3/(5*x + 3),x, algorithm="fricas")
```

```
[Out] -243/5*x^8 - 11988/175*x^7 + 4419/125*x^6 + 243333/3125*x^5 - 737
49/12500*x^4 - 1703753/46875*x^3 - 138741/156250*x^2 + 4166223/39
0625*x + 1331/1953125*log(5*x + 3)
```

Sympy [A] time = 0.208643, size = 61, normalized size = 0.94

$$-\frac{243x^{8}}{5}-\frac{11988x^{7}}{175}+\frac{4419x^{6}}{125}+\frac{243333x^{5}}{3125}-\frac{73749x^{4}}{12500}-\frac{1703753x^{3}}{46875}-\frac{138741x^{2}}{156250}+\frac{4166223x}{390625}+\frac{1331\log\left(5x+3\right)}{1953125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(2+3*x)**5/(3+5*x),x)
```

```
[Out] -243*x**8/5 - 11988*x**7/175 + 4419*x**6/125 + 243333*x**5/3125 -
 73749*x**4/12500 - 1703753*x**3/46875 - 138741*x**2/156250 + 416
6223*x/390625 + 1331*log(5*x + 3)/1953125
```

GIAC/XCAS [A] time = 0.213512, size = 65, normalized size = 1.

$$-\frac{243}{5}x^8 - \frac{11988}{175}x^7 + \frac{4419}{125}x^6 + \frac{243333}{3125}x^5 - \frac{73749}{12500}x^4 - \frac{1703753}{46875}x^3 - \frac{138741}{156250}x^2 + \frac{4166223}{390625}x + \frac{1331}{1953125}\ln\left(|5x+3|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^5*(2*x - 1)^3/(5*x + 3),x, algorithm="giac")
```

```
[Out] -243/5*x^8 - 11988/175*x^7 + 4419/125*x^6 + 243333/3125*x^5 - 737
49/12500*x^4 - 1703753/46875*x^3 - 138741/156250*x^2 + 4166223/39
0625*x + 1331/1953125*ln(abs(5*x + 3))
```

3.1373 $\int \frac{(1-2x)^3(2+3x)^4}{3+5x} \, dx$

Optimal. Leaf size=58

$$-\frac{648x^7}{35}-\frac{306x^6}{25}+\frac{14958x^5}{625}+\frac{31251x^4}{2500}-\frac{128753x^3}{9375}-\frac{138741x^2}{31250}+\frac{416223x}{78125}+\frac{1331\log(5x+3)}{390625}$$

```
[Out] (416223*x)/78125 - (138741*x^2)/31250 - (128753*x^3)/9375 + (3125
1*x^4)/2500 + (14958*x^5)/625 - (306*x^6)/25 - (648*x^7)/35 + (13
31*Log[3 + 5*x])/390625
```

Rubi [A] time = 0.0575317, antiderivative size = 58, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{648x^7}{35}-\frac{306x^6}{25}+\frac{14958x^5}{625}+\frac{31251x^4}{2500}-\frac{128753x^3}{9375}-\frac{138741x^2}{31250}+\frac{416223x}{78125}+\frac{1331\log(5x+3)}{390625}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^3*(2 + 3*x)^4)/(3 + 5*x),x]
```

```
[Out] (416223*x)/78125 - (138741*x^2)/31250 - (128753*x^3)/9375 + (3125
1*x^4)/2500 + (14958*x^5)/625 - (306*x^6)/25 - (648*x^7)/35 + (13
31*Log[3 + 5*x])/390625
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{648x^7}{35}-\frac{306x^6}{25}+\frac{14958x^5}{625}+\frac{31251x^4}{2500}-\frac{128753x^3}{9375}+\frac{1331\log(5x+3)}{390625}+\int\frac{416223}{78125}\,dx-\frac{138741\int x\,dx}{15625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3*(2+3*x)**4/(3+5*x),x)
```

```
[Out] -648*x**7/35 - 306*x**6/25 + 14958*x**5/625 + 31251*x**4/2500 - 1
28753*x**3/9375 + 1331*log(5*x + 3)/390625 + Integral(416223/7812
5, x) - 138741*Integral(x, x)/15625
```

Mathematica [A] time = 0.0204725, size = 47, normalized size = 0.81

$$\frac{-3037500000x^7-2008125000x^6+3926475000x^5+2050846875x^4-2253177500x^3-728390250x^2+874068300x+55902}{164062500}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^3*(2 + 3*x)^4)/(3 + 5*x),x]
```

```
[Out] (348168591 + 874068300*x - 728390250*x^2 - 2253177500*x^3 + 20508
46875*x^4 + 3926475000*x^5 - 2008125000*x^6 - 3037500000*x^7 + 55
9020*Log[3 + 5*x])/164062500
```

Maple [A] time = 0.004, size = 43, normalized size = 0.7

$$\frac{416223\,x}{78125}-\frac{138741\,x^2}{31250}-\frac{128753\,x^3}{9375}+\frac{31251\,x^4}{2500}+\frac{14958\,x^5}{625}-\frac{306\,x^6}{25}-\frac{648\,x^7}{35}+\frac{1331\,\ln(3+5\,x)}{390625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(2+3*x)^4/(3+5*x),x)
```

```
[Out] 416223/78125*x-138741/31250*x^2-128753/9375*x^3+31251/2500*x^4+14
958/625*x^5-306/25*x^6-648/35*x^7+1331/390625*ln(3+5*x)
```

Maxima [A] time = 1.35096, size = 57, normalized size = 0.98

$$-\frac{648}{35}\,x^{7}-\frac{306}{25}\,x^{6}+\frac{14958}{625}\,x^{5}+\frac{31251}{2500}\,x^{4}-\frac{128753}{9375}\,x^{3}-\frac{138741}{31250}\,x^{2}+\frac{416223}{78125}\,x+\frac{1331}{390625}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^4*(2*x - 1)^3/(5*x + 3),x, algorithm="maxima")
```

```
[Out] -648/35*x^7 - 306/25*x^6 + 14958/625*x^5 + 31251/2500*x^4 - 12875
3/9375*x^3 - 138741/31250*x^2 + 416223/78125*x + 1331/390625*log(
5*x + 3)
```

Fricas [A] time = 0.226779, size = 57, normalized size = 0.98

$$-\frac{648}{35}\,x^{7}-\frac{306}{25}\,x^{6}+\frac{14958}{625}\,x^{5}+\frac{31251}{2500}\,x^{4}-\frac{128753}{9375}\,x^{3}-\frac{138741}{31250}\,x^{2}+\frac{416223}{78125}\,x+\frac{1331}{390625}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^4*(2*x - 1)^3/(5*x + 3),x, algorithm="fricas")
```

```
[Out] -648/35*x^7 - 306/25*x^6 + 14958/625*x^5 + 31251/2500*x^4 - 12875
3/9375*x^3 - 138741/31250*x^2 + 416223/78125*x + 1331/390625*log(
5*x + 3)
```

Sympy [A] time = 0.193535, size = 54, normalized size = 0.93

$$-\frac{648x^{7}}{35}-\frac{306x^{6}}{25}+\frac{14958x^{5}}{625}+\frac{31251x^{4}}{2500}-\frac{128753x^{3}}{9375}-\frac{138741x^{2}}{31250}+\frac{416223x}{78125}+\frac{1331\log\left(5x+3\right)}{390625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(2+3*x)**4/(3+5*x),x)
```

```
[Out] -648*x**7/35 - 306*x**6/25 + 14958*x**5/625 + 31251*x**4/2500 - 1
28753*x**3/9375 - 138741*x**2/31250 + 416223*x/78125 + 1331*log(5
*x + 3)/390625
```

GIAC/XCAS [A] time = 0.211569, size = 58, normalized size = 1.

$$-\frac{648}{35}\,x^{7}-\frac{306}{25}\,x^{6}+\frac{14958}{625}\,x^{5}+\frac{31251}{2500}\,x^{4}-\frac{128753}{9375}\,x^{3}-\frac{138741}{31250}\,x^{2}+\frac{416223}{78125}\,x+\frac{1331}{390625}\,\ln\left(|5\,x+3|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^4*(2*x - 1)^3/(5*x + 3),x, algorithm="giac")
```

```
[Out] -648/35*x^7 - 306/25*x^6 + 14958/625*x^5 + 31251/2500*x^4 - 12875
3/9375*x^3 - 138741/31250*x^2 + 416223/78125*x + 1331/390625*ln(a
bs(5*x + 3))
```

3.1374 $\int \frac{(1-2x)^3(2+3x)^3}{3+5x}\,dx$

Optimal. Leaf size=51

$$-\frac{36x^6}{5}+\frac{108x^5}{125}+\frac{2313x^4}{250}-\frac{5003x^3}{1875}-\frac{26241x^2}{6250}+\frac{41223x}{15625}+\frac{1331\log(5x+3)}{78125}$$

```
[Out] (41223*x)/15625 - (26241*x^2)/6250 - (5003*x^3)/1875 + (2313*x^4)
/250 + (108*x^5)/125 - (36*x^6)/5 + (1331*Log[3 + 5*x])/78125
```

Rubi [A] time = 0.0568837, antiderivative size = 51, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{36x^6}{5}+\frac{108x^5}{125}+\frac{2313x^4}{250}-\frac{5003x^3}{1875}-\frac{26241x^2}{6250}+\frac{41223x}{15625}+\frac{1331\log(5x+3)}{78125}$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)^3*(2 + 3*x)^3)/(3 + 5*x),x]
```

```
[Out] (41223*x)/15625 - (26241*x^2)/6250 - (5003*x^3)/1875 + (2313*x^4)
/250 + (108*x^5)/125 - (36*x^6)/5 + (1331*Log[3 + 5*x])/78125
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{36x^6}{5}+\frac{108x^5}{125}+\frac{2313x^4}{250}-\frac{5003x^3}{1875}+\frac{1331\log(5x+3)}{78125}+\int\frac{41223}{15625}\,dx-\frac{26241\int x\,dx}{3125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**3*(2+3*x)**3/(3+5*x),x)
```

```
[Out] -36*x**6/5 + 108*x**5/125 + 2313*x**4/250 - 5003*x**3/1875 + 1331
*log(5*x + 3)/78125 + Integral(41223/15625, x) - 26241*Integral(x
, x)/3125
```

Mathematica [A] time = 0.0191532, size = 42, normalized size = 0.82

$$\frac{-16875000x^6+2025000x^5+21684375x^4-6253750x^3-9840375x^2+6183450x+39930\log(5x+3)+4036284}{2343750}$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)^3*(2 + 3*x)^3)/(3 + 5*x),x]
```

```
[Out] (4036284 + 6183450*x - 9840375*x^2 - 6253750*x^3 + 21684375*x^4 +
 2025000*x^5 - 16875000*x^6 + 39930*Log[3 + 5*x])/2343750
```

Maple [A] time = 0.004, size = 38, normalized size = 0.8

$$\frac{41223\,x}{15625}-\frac{26241\,x^2}{6250}-\frac{5003\,x^3}{1875}+\frac{2313\,x^4}{250}+\frac{108\,x^5}{125}-\frac{36\,x^6}{5}+\frac{1331\,\ln(3+5\,x)}{78125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(2+3*x)^3/(3+5*x),x)
```

```
[Out] 41223/15625*x-26241/6250*x^2-5003/1875*x^3+2313/250*x^4+108/125*x
^5-36/5*x^6+1331/78125*ln(3+5*x)
```

Maxima [A] time = 1.3497, size = 50, normalized size = 0.98

$$-\frac{36}{5}\,x^{6}+\frac{108}{125}\,x^{5}+\frac{2313}{250}\,x^{4}-\frac{5003}{1875}\,x^{3}-\frac{26241}{6250}\,x^{2}+\frac{41223}{15625}\,x+\frac{1331}{78125}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^3*(2*x - 1)^3/(5*x + 3),x, algorithm="maxima")
```

```
[Out] -36/5*x^6 + 108/125*x^5 + 2313/250*x^4 - 5003/1875*x^3 - 26241/62
50*x^2 + 41223/15625*x + 1331/78125*log(5*x + 3)
```

Fricas [A] time = 0.219454, size = 50, normalized size = 0.98

$$-\frac{36}{5}\,x^{6}+\frac{108}{125}\,x^{5}+\frac{2313}{250}\,x^{4}-\frac{5003}{1875}\,x^{3}-\frac{26241}{6250}\,x^{2}+\frac{41223}{15625}\,x+\frac{1331}{78125}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^3*(2*x - 1)^3/(5*x + 3),x, algorithm="fricas")
```

```
[Out] -36/5*x^6 + 108/125*x^5 + 2313/250*x^4 - 5003/1875*x^3 - 26241/62
50*x^2 + 41223/15625*x + 1331/78125*log(5*x + 3)
```

Sympy [A] time = 0.187383, size = 48, normalized size = 0.94

$$-\frac{36x^{6}}{5}+\frac{108x^{5}}{125}+\frac{2313x^{4}}{250}-\frac{5003x^{3}}{1875}-\frac{26241x^{2}}{6250}+\frac{41223x}{15625}+\frac{1331\log\left(5x+3\right)}{78125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(2+3*x)**3/(3+5*x),x)
```

```
[Out] -36*x**6/5 + 108*x**5/125 + 2313*x**4/250 - 5003*x**3/1875 - 2624
1*x**2/6250 + 41223*x/15625 + 1331*log(5*x + 3)/78125
```

GIAC/XCAS [A] time = 0.206822, size = 51, normalized size = 1.

$$-\frac{36}{5}\,x^{6}+\frac{108}{125}\,x^{5}+\frac{2313}{250}\,x^{4}-\frac{5003}{1875}\,x^{3}-\frac{26241}{6250}\,x^{2}+\frac{41223}{15625}\,x+\frac{1331}{78125}\,\ln\left(\left|5\,x+3\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^3*(2*x - 1)^3/(5*x + 3),x, algorithm="giac")
```

```
[Out] -36/5*x^6 + 108/125*x^5 + 2313/250*x^4 - 5003/1875*x^3 - 26241/62
50*x^2 + 41223/15625*x + 1331/78125*ln(abs(5*x + 3))
```

3.1375 $\int \frac{(1-2x)^3(2+3x)^2}{3+5x}\,dx$

Optimal. Leaf size=44

$$-\frac{72x^5}{25}+\frac{69x^4}{25}+\frac{622x^3}{375}-\frac{3741x^2}{1250}+\frac{3723x}{3125}+\frac{1331\log(5x+3)}{15625}$$

```
[Out] (3723*x)/3125 - (3741*x^2)/1250 + (622*x^3)/375 + (69*x^4)/25 - (
72*x^5)/25 + (1331*Log[3 + 5*x])/15625
```

Rubi [A] time = 0.0470215, antiderivative size = 44, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{72x^5}{25}+\frac{69x^4}{25}+\frac{622x^3}{375}-\frac{3741x^2}{1250}+\frac{3723x}{3125}+\frac{1331\log(5x+3)}{15625}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^3*(2 + 3*x)^2)/(3 + 5*x),x]
```

```
[Out] (3723*x)/3125 - (3741*x^2)/1250 + (622*x^3)/375 + (69*x^4)/25 - (
72*x^5)/25 + (1331*Log[3 + 5*x])/15625
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{72x^5}{25}+\frac{69x^4}{25}+\frac{622x^3}{375}+\frac{1331\log(5x+3)}{15625}+\int\frac{3723}{3125}\,dx-\frac{3741\int x\,dx}{625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3*(2+3*x)**2/(3+5*x),x)
```

```
[Out] -72*x**5/25 + 69*x**4/25 + 622*x**3/375 + 1331*log(5*x + 3)/15625
 + Integral(3723/3125, x) - 3741*Integral(x, x)/625
```

Mathematica [A] time = 0.0188953, size = 37, normalized size = 0.84

$$\frac{-1350000x^5+1293750x^4+777500x^3-1402875x^2+558450x+39930\log(5x+3)+735399}{468750}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^3*(2 + 3*x)^2)/(3 + 5*x),x]
```

```
[Out] (735399 + 558450*x - 1402875*x^2 + 777500*x^3 + 1293750*x^4 - 135
0000*x^5 + 39930*Log[3 + 5*x])/468750
```

Maple [A] time = 0.003, size = 33, normalized size = 0.8

$$\frac{3723\,x}{3125}-\frac{3741\,x^2}{1250}+\frac{622\,x^3}{375}+\frac{69\,x^4}{25}-\frac{72\,x^5}{25}+\frac{1331\,\ln(3+5\,x)}{15625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(2+3*x)^2/(3+5*x),x)
```

```
[Out] 3723/3125*x-3741/1250*x^2+622/375*x^3+69/25*x^4-72/25*x^5+1331/15
625*ln(3+5*x)
```

Maxima [A] time = 1.34339, size = 43, normalized size = 0.98

$$-\frac{72}{25}\,x^{5}+\frac{69}{25}\,x^{4}+\frac{622}{375}\,x^{3}-\frac{3741}{1250}\,x^{2}+\frac{3723}{3125}\,x+\frac{1331}{15625}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^2*(2*x - 1)^3/(5*x + 3),x, algorithm="maxima")
```

```
[Out] -72/25*x^5 + 69/25*x^4 + 622/375*x^3 - 3741/1250*x^2 + 3723/3125*
x + 1331/15625*log(5*x + 3)
```

Fricas [A] time = 0.205085, size = 43, normalized size = 0.98

$$-\frac{72}{25}\,x^{5}+\frac{69}{25}\,x^{4}+\frac{622}{375}\,x^{3}-\frac{3741}{1250}\,x^{2}+\frac{3723}{3125}\,x+\frac{1331}{15625}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^2*(2*x - 1)^3/(5*x + 3),x, algorithm="fricas")
```

```
[Out] -72/25*x^5 + 69/25*x^4 + 622/375*x^3 - 3741/1250*x^2 + 3723/3125*
x + 1331/15625*log(5*x + 3)
```

Sympy [A] time = 0.199147, size = 41, normalized size = 0.93

$$-\frac{72x^{5}}{25}+\frac{69x^{4}}{25}+\frac{622x^{3}}{375}-\frac{3741x^{2}}{1250}+\frac{3723x}{3125}+\frac{1331\log\left(5x+3\right)}{15625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(2+3*x)**2/(3+5*x),x)
```

```
[Out] -72*x**5/25 + 69*x**4/25 + 622*x**3/375 - 3741*x**2/1250 + 3723*x
/3125 + 1331*log(5*x + 3)/15625
```

GIAC/XCAS [A] time = 0.212685, size = 45, normalized size = 1.02

$$-\frac{72}{25}\,x^{5}+\frac{69}{25}\,x^{4}+\frac{622}{375}\,x^{3}-\frac{3741}{1250}\,x^{2}+\frac{3723}{3125}\,x+\frac{1331}{15625}\,\ln\left(|5\,x+3|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^2*(2*x - 1)^3/(5*x + 3),x, algorithm="giac")
```

```
[Out] -72/25*x^5 + 69/25*x^4 + 622/375*x^3 - 3741/1250*x^2 + 3723/3125*
x + 1331/15625*ln(abs(5*x + 3))
```

3.1376 $\int \frac{(1-2x)^3(2+3x)}{3+5x} dx$

Optimal. Leaf size=37

$$-\frac{6x^4}{5}+\frac{172x^3}{75}-\frac{183x^2}{125}-\frac{27x}{625}+\frac{1331\log(5x+3)}{3125}$$

```
[Out] (-27*x)/625 - (183*x^2)/125 + (172*x^3)/75 - (6*x^4)/5 + (1331*Lo
g[3 + 5*x])/3125
```

Rubi [A] time = 0.0363987, antiderivative size = 37, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{6x^4}{5}+\frac{172x^3}{75}-\frac{183x^2}{125}-\frac{27x}{625}+\frac{1331\log(5x+3)}{3125}$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)^3*(2 + 3*x))/(3 + 5*x),x]
```

```
[Out] (-27*x)/625 - (183*x^2)/125 + (172*x^3)/75 - (6*x^4)/5 + (1331*Lo
g[3 + 5*x])/3125
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{6x^4}{5}+\frac{172x^3}{75}+\frac{1331\log(5x+3)}{3125}+\int\left(-\frac{27}{625}\right)dx-\frac{366\int x\,dx}{125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**3*(2+3*x)/(3+5*x),x)
```

```
[Out] -6*x**4/5 + 172*x**3/75 + 1331*log(5*x + 3)/3125 + Integral(-27/6
25, x) - 366*Integral(x, x)/125
```

Mathematica [A] time = 0.0208827, size = 35, normalized size = 0.95

$$\frac{3993\log(5x+3)-5\left(2250x^4-4300x^3+2745x^2+81x-2160\right)}{9375}$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)^3*(2 + 3*x))/(3 + 5*x),x]
```

```
[Out] (-5*(-2160 + 81*x + 2745*x^2 - 4300*x^3 + 2250*x^4) + 3993*Log[3
+ 5*x])/9375
```

Maple [A] time = 0.004, size = 28, normalized size = 0.8

$$-\frac{27x}{625}-\frac{183x^2}{125}+\frac{172x^3}{75}-\frac{6x^4}{5}+\frac{1331\ln(3+5x)}{3125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(2+3*x)/(3+5*x),x)

[Out] -27/625*x-183/125*x^2+172/75*x^3-6/5*x^4+1331/3125*ln(3+5*x)
```

Maxima [A] time = 1.34476, size = 36, normalized size = 0.97

$$-\frac{6}{5}\,x^4 + \frac{172}{75}\,x^3 - \frac{183}{125}\,x^2 - \frac{27}{625}\,x + \frac{1331}{3125}\,\log\left(5\,x + 3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)*(2*x - 1)^3/(5*x + 3),x, algorithm="maxima")

[Out] -6/5*x^4 + 172/75*x^3 - 183/125*x^2 - 27/625*x + 1331/3125*log(5*
x + 3)
```

Fricas [A] time = 0.215387, size = 36, normalized size = 0.97

$$-\frac{6}{5}\,x^4 + \frac{172}{75}\,x^3 - \frac{183}{125}\,x^2 - \frac{27}{625}\,x + \frac{1331}{3125}\,\log\left(5\,x + 3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)*(2*x - 1)^3/(5*x + 3),x, algorithm="fricas")

[Out] -6/5*x^4 + 172/75*x^3 - 183/125*x^2 - 27/625*x + 1331/3125*log(5*
x + 3)
```

Sympy [A] time = 0.165411, size = 34, normalized size = 0.92

$$-\frac{6x^4}{5} + \frac{172x^3}{75} - \frac{183x^2}{125} - \frac{27x}{625} + \frac{1331\log\left(5x + 3\right)}{3125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(2+3*x)/(3+5*x),x)

[Out] -6*x**4/5 + 172*x**3/75 - 183*x**2/125 - 27*x/625 + 1331*log(5*x
+ 3)/3125
```

GIAC/XCAS [A] time = 0.207691, size = 38, normalized size = 1.03

$$-\frac{6}{5}\,x^4 + \frac{172}{75}\,x^3 - \frac{183}{125}\,x^2 - \frac{27}{625}\,x + \frac{1331}{3125}\,\ln\left(|5\,x + 3|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)*(2*x - 1)^3/(5*x + 3),x, algorithm="giac")

[Out] -6/5*x^4 + 172/75*x^3 - 183/125*x^2 - 27/625*x + 1331/3125*ln(abs
(5*x + 3))
```

3.1377 $\int \frac{(1-2x)^3}{3+5x} \, dx$

Optimal. Leaf size=30

$$-\frac{8x^3}{15}+\frac{42x^2}{25}-\frac{402x}{125}+\frac{1331}{625}\log(5x+3)$$

```
[Out] (-402*x)/125 + (42*x^2)/25 - (8*x^3)/15 + (1331*Log[3 + 5*x])/625
```

Rubi [A] time = 0.0254921, antiderivative size = 30, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.067

$$-\frac{8x^3}{15}+\frac{42x^2}{25}-\frac{402x}{125}+\frac{1331}{625}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^3/(3 + 5*x),x]
```

```
[Out] (-402*x)/125 + (42*x^2)/25 - (8*x^3)/15 + (1331*Log[3 + 5*x])/625
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{8x^3}{15}+\frac{1331\log(5x+3)}{625}+\int\left(-\frac{402}{125}\right)dx+\frac{84\int x\,dx}{25}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3/(3+5*x),x)
```

```
[Out] -8*x**3/15 + 1331*log(5*x + 3)/625 + Integral(-402/125, x) + 84*I
ntegral(x, x)/25
```

Mathematica [A] time = 0.0111754, size = 27, normalized size = 0.9

$$\frac{-1000x^3+3150x^2-6030x+3993\log(5x+3)-4968}{1875}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^3/(3 + 5*x),x]
```

```
[Out] (-4968 - 6030*x + 3150*x^2 - 1000*x^3 + 3993*Log[3 + 5*x])/1875
```

Maple [A] time = 0.005, size = 23, normalized size = 0.8

$$-\frac{402\,x}{125}+\frac{42\,x^2}{25}-\frac{8\,x^3}{15}+\frac{1331\,\ln(3+5\,x)}{625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3/(3+5*x),x)
```

```
[Out] -402/125*x+42/25*x^2-8/15*x^3+1331/625*ln(3+5*x)
```

Maxima [A] time = 1.33983, size = 30, normalized size = 1.

$$-\frac{8}{15}\,x^3+\frac{42}{25}\,x^2-\frac{402}{125}\,x+\frac{1331}{625}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)^3/(5*x + 3),x, algorithm="maxima")
```

```
[Out] -8/15*x^3 + 42/25*x^2 - 402/125*x + 1331/625*log(5*x + 3)
```

Fricas [A] time = 0.206493, size = 30, normalized size = 1.

$$-\frac{8}{15}\,x^3+\frac{42}{25}\,x^2-\frac{402}{125}\,x+\frac{1331}{625}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)^3/(5*x + 3),x, algorithm="fricas")
```

```
[Out] -8/15*x^3 + 42/25*x^2 - 402/125*x + 1331/625*log(5*x + 3)
```

Sympy [A] time = 0.148593, size = 27, normalized size = 0.9

$$-\frac{8x^3}{15}+\frac{42x^2}{25}-\frac{402x}{125}+\frac{1331\log\left(5x+3\right)}{625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3/(3+5*x),x)
```

```
[Out] -8*x**3/15 + 42*x**2/25 - 402*x/125 + 1331*log(5*x + 3)/625
```

GIAC/XCAS [A] time = 0.213909, size = 31, normalized size = 1.03

$$-\frac{8}{15}\,x^3+\frac{42}{25}\,x^2-\frac{402}{125}\,x+\frac{1331}{625}\,\ln\left(|5\,x+3|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)^3/(5*x + 3),x, algorithm="giac")
```

```
[Out] -8/15*x^3 + 42/25*x^2 - 402/125*x + 1331/625*ln(abs(5*x + 3))
```

3.1378 $\int \frac{(1-2x)^3}{(2+3x)(3+5x)} dx$

Optimal. Leaf size=33

$$-\frac{4x^2}{15}+\frac{332x}{225}-\frac{343}{27}\log(3x+2)+\frac{1331}{125}\log(5x+3)$$

```
[Out] (332*x)/225 - (4*x^2)/15 - (343*Log[2 + 3*x])/27 + (1331*Log[3 +
5*x])/125
```

Rubi [A] time = 0.0429702, antiderivative size = 33, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{4x^2}{15}+\frac{332x}{225}-\frac{343}{27}\log(3x+2)+\frac{1331}{125}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^3/((2 + 3*x)*(3 + 5*x)),x]
```

```
[Out] (332*x)/225 - (4*x^2)/15 - (343*Log[2 + 3*x])/27 + (1331*Log[3 +
5*x])/125
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{343\log(3x+2)}{27}+\frac{1331\log(5x+3)}{125}+\int\frac{332}{225}\,dx-\frac{8\int x\,dx}{15}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**3/(2+3*x)/(3+5*x),x)
```

```
[Out] -343*log(3*x + 2)/27 + 1331*log(5*x + 3)/125 + Integral(332/225,
x) - 8*Integral(x, x)/15
```

Mathematica [A] time = 0.0220859, size = 35, normalized size = 1.06

$$\frac{60\left(-15x^2+83x+62\right)-42875\log(3x+2)+35937\log(-3(5x+3))}{3375}$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)^3/((2 + 3*x)*(3 + 5*x)),x]
```

```
[Out] (60*(62 + 83*x - 15*x^2) - 42875*Log[2 + 3*x] + 35937*Log[-3*(3 +
 5*x)])/3375
```

Maple [A] time = 0.008, size = 26, normalized size = 0.8

$$\frac{332\,x}{225}-\frac{4\,x^2}{15}-\frac{343\,\ln(2+3\,x)}{27}+\frac{1331\,\ln(3+5\,x)}{125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3/(2+3*x)/(3+5*x),x)
```

```
[Out] 332/225*x-4/15*x^2-343/27*ln(2+3*x)+1331/125*ln(3+5*x)
```

Maxima [A] time = 1.34454, size = 34, normalized size = 1.03

$$-\frac{4}{15}x^2+\frac{332}{225}x+\frac{1331}{125}\log(5x+3)-\frac{343}{27}\log(3x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)^3/((5*x + 3)*(3*x + 2)),x, algorithm="maxima")
```

```
[Out] -4/15*x^2 + 332/225*x + 1331/125*log(5*x + 3) - 343/27*log(3*x +
2)
```

Fricas [A] time = 0.208974, size = 34, normalized size = 1.03

$$-\frac{4}{15}x^2+\frac{332}{225}x+\frac{1331}{125}\log(5x+3)-\frac{343}{27}\log(3x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)^3/((5*x + 3)*(3*x + 2)),x, algorithm="fricas")
```

```
[Out] -4/15*x^2 + 332/225*x + 1331/125*log(5*x + 3) - 343/27*log(3*x +
2)
```

Sympy [A] time = 0.269938, size = 31, normalized size = 0.94

$$-\frac{4x^2}{15}+\frac{332x}{225}+\frac{1331\log\left(x+\frac{3}{5}\right)}{125}-\frac{343\log\left(x+\frac{2}{3}\right)}{27}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3/(2+3*x)/(3+5*x),x)
```

```
[Out] -4*x**2/15 + 332*x/225 + 1331*log(x + 3/5)/125 - 343*log(x + 2/3)
/27
```

GIAC/XCAS [A] time = 0.212261, size = 36, normalized size = 1.09

$$-\frac{4}{15}x^2+\frac{332}{225}x+\frac{1331}{125}\ln(|5x+3|)-\frac{343}{27}\ln(|3x+2|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)^3/((5*x + 3)*(3*x + 2)),x, algorithm="giac")
```

```
[Out] -4/15*x^2 + 332/225*x + 1331/125*ln(abs(5*x + 3)) - 343/27*ln(abs
(3*x + 2))
```

3.1379 $\int \frac{(1-2x)^3}{(2+3x)^2(3+5x)}\,dx$

Optimal. Leaf size=37

$$-\frac{8x}{45}+\frac{343}{27(3x+2)}-\frac{1421}{27}\log(3x+2)+\frac{1331}{25}\log(5x+3)$$

```
[Out] (-8*x)/45 + 343/(27*(2 + 3*x)) - (1421*Log[2 + 3*x])/27 + (1331*L
og[3 + 5*x])/25
```

Rubi [A] time = 0.0458875, antiderivative size = 37, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{8x}{45}+\frac{343}{27(3x+2)}-\frac{1421}{27}\log(3x+2)+\frac{1331}{25}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^3/((2 + 3*x)^2*(3 + 5*x)),x]
```

```
[Out] (-8*x)/45 + 343/(27*(2 + 3*x)) - (1421*Log[2 + 3*x])/27 + (1331*L
og[3 + 5*x])/25
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{1421\log(3x+2)}{27}+\frac{1331\log(5x+3)}{25}+\int\left(-\frac{8}{45}\right)dx+\frac{343}{27(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3/(2+3*x)**2/(3+5*x),x)
```

```
[Out] -1421*log(3*x + 2)/27 + 1331*log(5*x + 3)/25 + Integral(-8/45, x)
 + 343/(27*(3*x + 2))
```

Mathematica [A] time = 0.035138, size = 36, normalized size = 0.97

$$\frac{1}{675}\left(-120x+\frac{8575}{3x+2}-35525\log(5(3x+2))+35937\log(5x+3)-72\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^3/((2 + 3*x)^2*(3 + 5*x)),x]
```

```
[Out] (-72 - 120*x + 8575/(2 + 3*x) - 35525*Log[5*(2 + 3*x)] + 35937*Lo
g[3 + 5*x])/675
```

Maple [A] time = 0.011, size = 30, normalized size = 0.8

$$-\frac{8x}{45}+\frac{343}{54+81x}-\frac{1421\ln(2+3x)}{27}+\frac{1331\ln(3+5x)}{25}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3/(2+3*x)^2/(3+5*x),x)

[Out] -8/45*x+343/27/(2+3*x)-1421/27*ln(2+3*x)+1331/25*ln(3+5*x)
```

Maxima [A] time = 1.3418, size = 39, normalized size = 1.05

$$-\frac{8}{45}\,x+\frac{343}{27\,(3\,x+2)}+\frac{1331}{25}\,\log\left(5\,x+3\right)-\frac{1421}{27}\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)^3/((5*x + 3)*(3*x + 2)^2),x, algorithm="maxima")

[Out] -8/45*x + 343/27/(3*x + 2) + 1331/25*log(5*x + 3) - 1421/27*log(3
*x + 2)
```

Fricas [A] time = 0.213701, size = 61, normalized size = 1.65

$$-\frac{360\,x^2-35937\,(3\,x+2)\log\left(5\,x+3\right)+35525\,(3\,x+2)\log\left(3\,x+2\right)+240\,x-8575}{675\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)^3/((5*x + 3)*(3*x + 2)^2),x, algorithm="fricas")

[Out] -1/675*(360*x^2 - 35937*(3*x + 2)*log(5*x + 3) + 35525*(3*x + 2)*
log(3*x + 2) + 240*x - 8575)/(3*x + 2)
```

Sympy [A] time = 0.358191, size = 31, normalized size = 0.84

$$-\frac{8x}{45}+\frac{1331\log\left(x+\frac{3}{5}\right)}{25}-\frac{1421\log\left(x+\frac{2}{3}\right)}{27}+\frac{343}{81x+54}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3/(2+3*x)**2/(3+5*x),x)

[Out] -8*x/45 + 1331*log(x + 3/5)/25 - 1421*log(x + 2/3)/27 + 343/(81*x
 + 54)
```

GIAC/XCAS [A] time = 0.214472, size = 63, normalized size = 1.7

$$-\frac{8}{45}\,x+\frac{343}{27\,(3\,x+2)}-\frac{412}{675}\ln\left(\frac{|3\,x+2|}{3\,(3\,x+2)^2}\right)+\frac{1331}{25}\ln\left(\left|-\frac{1}{3\,x+2}+5\right|\right)-\frac{16}{135}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)^3/((5*x + 3)*(3*x + 2)^2),x, algorithm="giac")

[Out] -8/45*x + 343/27/(3*x + 2) - 412/675*ln(1/3*abs(3*x + 2)/(3*x + 2
)^2) + 1331/25*ln(abs(-1/(3*x + 2) + 5)) - 16/135
```

3.1380 $\int \frac{(1-2x)^3}{(2+3x)^3(3+5x)}\,dx$

Optimal. Leaf size=43

$$\frac{1421}{27(3x+2)}+\frac{343}{54(3x+2)^2}-\frac{7189}{27}\log(3x+2)+\frac{1331}{5}\log(5x+3)$$

```
[Out] 343/(54*(2 + 3*x)^2) + 1421/(27*(2 + 3*x)) - (7189*Log[2 + 3*x])/
27 + (1331*Log[3 + 5*x])/5
```

Rubi [A] time = 0.0508837, antiderivative size = 43, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$\frac{1421}{27(3x+2)}+\frac{343}{54(3x+2)^2}-\frac{7189}{27}\log(3x+2)+\frac{1331}{5}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^3/((2 + 3*x)^3*(3 + 5*x)),x]
```

```
[Out] 343/(54*(2 + 3*x)^2) + 1421/(27*(2 + 3*x)) - (7189*Log[2 + 3*x])/
27 + (1331*Log[3 + 5*x])/5
```

Rubi in Sympy [A] time = 7.3634, size = 36, normalized size = 0.84

$$-\frac{7189\log(3x+2)}{27}+\frac{1331\log(5x+3)}{5}+\frac{1421}{27(3x+2)}+\frac{343}{54(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3/(2+3*x)**3/(3+5*x),x)
```

```
[Out] -7189*log(3*x + 2)/27 + 1331*log(5*x + 3)/5 + 1421/(27*(3*x + 2))
 + 343/(54*(3*x + 2)**2)
```

Mathematica [A] time = 0.0410823, size = 39, normalized size = 0.91

$$\frac{49(58x+41)}{18(3x+2)^2}-\frac{7189}{27}\log(5(3x+2))+\frac{1331}{5}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^3/((2 + 3*x)^3*(3 + 5*x)),x]
```

```
[Out] (49*(41 + 58*x))/(18*(2 + 3*x)^2) - (7189*Log[5*(2 + 3*x)])/27 +
(1331*Log[3 + 5*x])/5
```

Maple [A] time = 0.011, size = 36, normalized size = 0.8

$$\frac{343}{54\,(2+3\,x)^2}+\frac{1421}{54+81\,x}-\frac{7189\,\ln(2+3\,x)}{27}+\frac{1331\,\ln(3+5\,x)}{5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3/(2+3*x)^3/(3+5*x),x)
```

```
[Out] 343/54/(2+3*x)^2+1421/27/(2+3*x)-7189/27*ln(2+3*x)+1331/5*ln(3+5*
x)
```

Maxima [A] time = 1.35044, size = 49, normalized size = 1.14

$$\frac{49\,(58\,x+41)}{18\,(9\,x^2+12\,x+4)}+\frac{1331}{5}\,\log\left(5\,x+3\right)-\frac{7189}{27}\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)^3/((5*x + 3)*(3*x + 2)^3),x, algorithm="maxima")
```

```
[Out] 49/18*(58*x + 41)/(9*x^2 + 12*x + 4) + 1331/5*log(5*x + 3) - 7189
/27*log(3*x + 2)
```

Fricas [A] time = 0.236078, size = 74, normalized size = 1.72

$$\frac{71874\,\left(9\,x^2+12\,x+4\right)\,\log\left(5\,x+3\right)-71890\,\left(9\,x^2+12\,x+4\right)\,\log\left(3\,x+2\right)+42630\,x+30135}{270\,(9\,x^2+12\,x+4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)^3/((5*x + 3)*(3*x + 2)^3),x, algorithm="fricas")
```

```
[Out] 1/270*(71874*(9*x^2 + 12*x + 4)*log(5*x + 3) - 71890*(9*x^2 + 12*
x + 4)*log(3*x + 2) + 42630*x + 30135)/(9*x^2 + 12*x + 4)
```

Sympy [A] time = 0.388644, size = 34, normalized size = 0.79

$$\frac{2842x+2009}{162x^2+216x+72}+\frac{1331\log\left(x+\frac{3}{5}\right)}{5}-\frac{7189\log\left(x+\frac{2}{3}\right)}{27}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3/(2+3*x)**3/(3+5*x),x)
```

```
[Out] (2842*x + 2009)/(162*x**2 + 216*x + 72) + 1331*log(x + 3/5)/5 - 7
189*log(x + 2/3)/27
```

GIAC/XCAS [A] time = 0.209856, size = 45, normalized size = 1.05

$$\frac{49\,(58\,x+41)}{18\,(3\,x+2)^2}+\frac{1331}{5}\,\ln\left(|5\,x+3|\right)-\frac{7189}{27}\,\ln\left(|3\,x+2|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)^3/((5*x + 3)*(3*x + 2)^3),x, algorithm="giac")
```

```
[Out] 49/18*(58*x + 41)/(3*x + 2)^2 + 1331/5*ln(abs(5*x + 3)) - 7189/27
*ln(abs(3*x + 2))
```

3.1381 $\int \frac{(1-2x)^3}{(2+3x)^4(3+5x)}\,dx$

Optimal. Leaf size=50

$$\frac{7189}{27(3x+2)}+\frac{1421}{54(3x+2)^2}+\frac{343}{81(3x+2)^3}-1331\log(3x+2)+1331\log(5x+3)$$

```
[Out] 343/(81*(2 + 3*x)^3) + 1421/(54*(2 + 3*x)^2) + 7189/(27*(2 + 3*x)
) - 1331*Log[2 + 3*x] + 1331*Log[3 + 5*x]
```

Rubi [A] time = 0.0566312, antiderivative size = 50, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{7189}{27(3x+2)}+\frac{1421}{54(3x+2)^2}+\frac{343}{81(3x+2)^3}-1331\log(3x+2)+1331\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^3/((2 + 3*x)^4*(3 + 5*x)),x]
```

```
[Out] 343/(81*(2 + 3*x)^3) + 1421/(54*(2 + 3*x)^2) + 7189/(27*(2 + 3*x)
) - 1331*Log[2 + 3*x] + 1331*Log[3 + 5*x]
```

Rubi in Sympy [A] time = 8.42503, size = 42, normalized size = 0.84

$$-1331\log(3x+2)+1331\log(5x+3)+\frac{7189}{27(3x+2)}+\frac{1421}{54(3x+2)^2}+\frac{343}{81(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3/(2+3*x)**4/(3+5*x),x)
```

```
[Out] -1331*log(3*x + 2) + 1331*log(5*x + 3) + 7189/(27*(3*x + 2)) + 14
21/(54*(3*x + 2)**2) + 343/(81*(3*x + 2)**3)
```

Mathematica [A] time = 0.0450027, size = 40, normalized size = 0.8

$$\frac{7\left(55458x^2+75771x+25964\right)}{162(3x+2)^3}-1331\log(5(3x+2))+1331\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^3/((2 + 3*x)^4*(3 + 5*x)),x]
```

```
[Out] (7*(25964 + 75771*x + 55458*x^2))/(162*(2 + 3*x)^3) - 1331*Log[5*
(2 + 3*x)] + 1331*Log[3 + 5*x]
```

Maple [A] time = 0.011, size = 45, normalized size = 0.9

$$\frac{343}{81\,(2+3\,x)^3}+\frac{1421}{54\,(2+3\,x)^2}+\frac{7189}{54+81\,x}-1331\,\ln(2+3\,x)+1331\,\ln(3+5\,x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3/(2+3*x)^4/(3+5*x),x)
```

```
[Out] 343/81/(2+3*x)^3+1421/54/(2+3*x)^2+7189/27/(2+3*x)-1331*ln(2+3*x)
+1331*ln(3+5*x)
```

Maxima [A] time = 1.34679, size = 62, normalized size = 1.24

$$\frac{7\,\left(55458\,x^2+75771\,x+25964\right)}{162\,\left(27\,x^3+54\,x^2+36\,x+8\right)}+1331\,\log\left(5\,x+3\right)-1331\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)^3/((5*x + 3)*(3*x + 2)^4),x, algorithm="maxima")
```

```
[Out] 7/162*(55458*x^2 + 75771*x + 25964)/(27*x^3 + 54*x^2 + 36*x + 8)
+ 1331*log(5*x + 3) - 1331*log(3*x + 2)
```

Fricas [A] time = 0.21747, size = 101, normalized size = 2.02

$$\frac{388206\,x^2+215622\,\left(27\,x^3+54\,x^2+36\,x+8\right)\,\log\left(5\,x+3\right)-215622\,\left(27\,x^3+54\,x^2+36\,x+8\right)\,\log\left(3\,x+2\right)+530397\,x+18}{162\,\left(27\,x^3+54\,x^2+36\,x+8\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)^3/((5*x + 3)*(3*x + 2)^4),x, algorithm="fricas")
```

```
[Out] 1/162*(388206*x^2 + 215622*(27*x^3 + 54*x^2 + 36*x + 8)*log(5*x +
 3) - 215622*(27*x^3 + 54*x^2 + 36*x + 8)*log(3*x + 2) + 530397*x
 + 181748)/(27*x^3 + 54*x^2 + 36*x + 8)
```

Sympy [A] time = 0.42678, size = 41, normalized size = 0.82

$$\frac{388206x^2+530397x+181748}{4374x^3+8748x^2+5832x+1296}+1331\log\left(x+\frac{3}{5}\right)-1331\log\left(x+\frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3/(2+3*x)**4/(3+5*x),x)
```

```
[Out] (388206*x**2 + 530397*x + 181748)/(4374*x**3 + 8748*x**2 + 5832*x
 + 1296) + 1331*log(x + 3/5) - 1331*log(x + 2/3)
```

GIAC/XCAS [A] time = 0.212659, size = 51, normalized size = 1.02

$$\frac{7\,\left(55458\,x^2+75771\,x+25964\right)}{162\,\left(3\,x+2\right)^3}+1331\,\ln\left(\left|5\,x+3\right|\right)-1331\,\ln\left(\left|3\,x+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)^3/((5*x + 3)*(3*x + 2)^4),x, algorithm="giac")
```

```
[Out] 7/162*(55458*x^2 + 75771*x + 25964)/(3*x + 2)^3 + 1331*ln(abs(5*x
 + 3)) - 1331*ln(abs(3*x + 2))
```

3.1382 $\int \frac{(1-2x)^3}{(2+3x)^5(3+5x)}\,dx$

Optimal. Leaf size=59

$$\frac{1331}{3x+2}+\frac{7189}{54(3x+2)^2}+\frac{1421}{81(3x+2)^3}+\frac{343}{108(3x+2)^4}-6655\log(3x+2)+6655\log(5x+3)$$

```
[Out] 343/(108*(2 + 3*x)^4) + 1421/(81*(2 + 3*x)^3) + 7189/(54*(2 + 3*x
)^2) + 1331/(2 + 3*x) - 6655*Log[2 + 3*x] + 6655*Log[3 + 5*x]
```

Rubi [A] time = 0.0645662, antiderivative size = 59, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{1331}{3x+2}+\frac{7189}{54(3x+2)^2}+\frac{1421}{81(3x+2)^3}+\frac{343}{108(3x+2)^4}-6655\log(3x+2)+6655\log(5x+3)$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^3/((2 + 3*x)^5*(3 + 5*x)),x]
```

```
[Out] 343/(108*(2 + 3*x)^4) + 1421/(81*(2 + 3*x)^3) + 7189/(54*(2 + 3*x
)^2) + 1331/(2 + 3*x) - 6655*Log[2 + 3*x] + 6655*Log[3 + 5*x]
```

Rubi in Sympy [A] time = 9.40213, size = 53, normalized size = 0.9

$$-6655\log(3x+2)+6655\log(5x+3)+\frac{1331}{3x+2}+\frac{7189}{54(3x+2)^2}+\frac{1421}{81(3x+2)^3}+\frac{343}{108(3x+2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**3/(2+3*x)**5/(3+5*x),x)
```

```
[Out] -6655*log(3*x + 2) + 6655*log(5*x + 3) + 1331/(3*x + 2) + 7189/(5
4*(3*x + 2)**2) + 1421/(81*(3*x + 2)**3) + 343/(108*(3*x + 2)**4)
```

Mathematica [A] time = 0.0483789, size = 45, normalized size = 0.76

$$\frac{11643588x^3+23675382x^2+16059444x+3634885}{324(3x+2)^4}-6655\log(5(3x+2))+6655\log(5x+3)$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)^3/((2 + 3*x)^5*(3 + 5*x)),x]
```

```
[Out] (3634885 + 16059444*x + 23675382*x^2 + 11643588*x^3)/(324*(2 + 3*
x)^4) - 6655*Log[5*(2 + 3*x)] + 6655*Log[3 + 5*x]
```

Maple [A] time = 0.013, size = 54, normalized size = 0.9

$$\frac{343}{108\,(2+3\,x)^4}+\frac{1421}{81\,(2+3\,x)^3}+\frac{7189}{54\,(2+3\,x)^2}+1331\,(2+3\,x)^{-1}-6655\,\ln(2+3\,x)+6655\,\ln(3+5\,x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3/(2+3*x)^5/(3+5*x),x)
```

```
[Out] 343/108/(2+3*x)^4+1421/81/(2+3*x)^3+7189/54/(2+3*x)^2+1331/(2+3*x
)-6655*ln(2+3*x)+6655*ln(3+5*x)
```

Maxima [A] time = 1.3472, size = 76, normalized size = 1.29

$$\frac{11643588\,x^3+23675382\,x^2+16059444\,x+3634885}{324\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}+6655\,\log(5\,x+3)-6655\,\log(3\,x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)^3/((5*x + 3)*(3*x + 2)^5),x, algorithm="maxima")
```

```
[Out] 1/324*(11643588*x^3 + 23675382*x^2 + 16059444*x + 3634885)/(81*x^
4 + 216*x^3 + 216*x^2 + 96*x + 16) + 6655*log(5*x + 3) - 6655*log
(3*x + 2)
```

Fricas [A] time = 0.215106, size = 128, normalized size = 2.17

$$\frac{11643588\,x^3+23675382\,x^2+2156220\,\left(81\,x^4+216\,x^3+216\,x^2+96\,x+16\right)\log(5\,x+3)-2156220\,\left(81\,x^4+216\,x^3+216\,x^2\right.}{324\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)^3/((5*x + 3)*(3*x + 2)^5),x, algorithm="fricas")
```

```
[Out] 1/324*(11643588*x^3 + 23675382*x^2 + 2156220*(81*x^4 + 216*x^3 +
216*x^2 + 96*x + 16)*log(5*x + 3) - 2156220*(81*x^4 + 216*x^3 + 2
16*x^2 + 96*x + 16)*log(3*x + 2) + 16059444*x + 3634885)/(81*x^4
+ 216*x^3 + 216*x^2 + 96*x + 16)
```

Sympy [A] time = 0.44264, size = 51, normalized size = 0.86

$$\frac{11643588x^3+23675382x^2+16059444x+3634885}{26244x^4+69984x^3+69984x^2+31104x+5184}+6655\log\left(x+\frac{3}{5}\right)-6655\log\left(x+\frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3/(2+3*x)**5/(3+5*x),x)
```

```
[Out] (11643588*x**3 + 23675382*x**2 + 16059444*x + 3634885)/(26244*x**
4 + 69984*x**3 + 69984*x**2 + 31104*x + 5184) + 6655*log(x + 3/5)
 - 6655*log(x + 2/3)
```

GIAC/XCAS [A] time = 0.217765, size = 70, normalized size = 1.19

$$\frac{1331}{3\,x+2}+\frac{7189}{54\,(3\,x+2)^2}+\frac{1421}{81\,(3\,x+2)^3}+\frac{343}{108\,(3\,x+2)^4}+6655\ln\left(\left|-\frac{1}{3\,x+2}+5\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)^3/((5*x + 3)*(3*x + 2)^5),x, algorithm="giac")
```

```
[Out] 1331/(3*x + 2) + 7189/54/(3*x + 2)^2 + 1421/81/(3*x + 2)^3 + 343/
108/(3*x + 2)^4 + 6655*ln(abs(-1/(3*x + 2) + 5))
```

3.1383 $\int \frac{(1-2x)^3}{(2+3x)^6(3+5x)}\,dx$

Optimal. Leaf size=70

$$\frac{6655}{3x+2}+\frac{1331}{2(3x+2)^2}+\frac{7189}{81(3x+2)^3}+\frac{1421}{108(3x+2)^4}+\frac{343}{135(3x+2)^5}-33275\log(3x+2)+33275\log(5x+3)$$

```
[Out] 343/(135*(2 + 3*x)^5) + 1421/(108*(2 + 3*x)^4) + 7189/(81*(2 + 3*
x)^3) + 1331/(2*(2 + 3*x)^2) + 6655/(2 + 3*x) - 33275*Log[2 + 3*x
] + 33275*Log[3 + 5*x]
```

Rubi [A] time = 0.0717523, antiderivative size = 70, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{6655}{3x+2}+\frac{1331}{2(3x+2)^2}+\frac{7189}{81(3x+2)^3}+\frac{1421}{108(3x+2)^4}+\frac{343}{135(3x+2)^5}-33275\log(3x+2)+33275\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^3/((2 + 3*x)^6*(3 + 5*x)),x]
```

```
[Out] 343/(135*(2 + 3*x)^5) + 1421/(108*(2 + 3*x)^4) + 7189/(81*(2 + 3*
x)^3) + 1331/(2*(2 + 3*x)^2) + 6655/(2 + 3*x) - 33275*Log[2 + 3*x
] + 33275*Log[3 + 5*x]
```

Rubi in Sympy [A] time = 5.25739, size = 63, normalized size = 0.9

$$-33275\log(3x+2)+33275\log(5x+3)+\frac{6655}{3x+2}+\frac{1331}{2(3x+2)^2}+\frac{7189}{81(3x+2)^3}+\frac{1421}{108(3x+2)^4}+\frac{343}{135(3x+2)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3/(2+3*x)**6/(3+5*x),x)
```

```
[Out] -33275*log(3*x + 2) + 33275*log(5*x + 3) + 6655/(3*x + 2) + 1331/
(2*(3*x + 2)**2) + 7189/(81*(3*x + 2)**3) + 1421/(108*(3*x + 2)**
4) + 343/(135*(3*x + 2)**5)
```

Mathematica [A] time = 0.0687973, size = 50, normalized size = 0.71

$$\frac{873269100x^4+2357826570x^3+2388229560x^2+1075586865x+181744346}{1620(3x+2)^5}-33275\log(5(3x+2))+33275\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^3/((2 + 3*x)^6*(3 + 5*x)),x]
```

```
[Out] (181744346 + 1075586865*x + 2388229560*x^2 + 2357826570*x^3 + 873
269100*x^4)/(1620*(2 + 3*x)^5) - 33275*Log[5*(2 + 3*x)] + 33275*L
og[3 + 5*x]
```

Maple [A] time = 0.013, size = 63, normalized size = 0.9

$$\frac{343}{135(2+3x)^5}+\frac{1421}{108(2+3x)^4}+\frac{7189}{81(2+3x)^3}+\frac{1331}{2(2+3x)^2}+6655(2+3x)^{-1}-33275\ln(2+3x)+33275\ln(3+5x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3/(2+3*x)^6/(3+5*x),x)
```

```
[Out] 343/135/(2+3*x)^5+1421/108/(2+3*x)^4+7189/81/(2+3*x)^3+1331/2/(2+
3*x)^2+6655/(2+3*x)-33275*ln(2+3*x)+33275*ln(3+5*x)
```

Maxima [A] time = 1.34989, size = 89, normalized size = 1.27

$$\frac{873269100\,x^4 + 2357826570\,x^3 + 2388229560\,x^2 + 1075586865\,x + 181744346}{1620\,(243\,x^5 + 810\,x^4 + 1080\,x^3 + 720\,x^2 + 240\,x + 32)} + 33275\,\log(5\,x + 3) - 33275\,\log(3\,x + 2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)^3/((5*x + 3)*(3*x + 2)^6),x, algorithm="maxima")
```

```
[Out] 1/1620*(873269100*x^4 + 2357826570*x^3 + 2388229560*x^2 + 1075586
865*x + 181744346)/(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*
x + 32) + 33275*log(5*x + 3) - 33275*log(3*x + 2)
```

Fricas [A] time = 0.227566, size = 155, normalized size = 2.21

$$\frac{873269100\,x^4 + 2357826570\,x^3 + 2388229560\,x^2 + 53905500\,\left(243\,x^5 + 810\,x^4 + 1080\,x^3 + 720\,x^2 + 240\,x + 32\right)\,\log(5\,x + 3)}{1620\,(243\,x^5 + 810\,x^4 + 1080\,x^3 + 720}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)^3/((5*x + 3)*(3*x + 2)^6),x, algorithm="fricas")
```

```
[Out] 1/1620*(873269100*x^4 + 2357826570*x^3 + 2388229560*x^2 + 5390550
0*(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)*log(5*x +
 3) - 53905500*(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x +
32)*log(3*x + 2) + 1075586865*x + 181744346)/(243*x^5 + 810*x^4 +
 1080*x^3 + 720*x^2 + 240*x + 32)
```

Sympy [A] time = 0.496176, size = 61, normalized size = 0.87

$$\frac{873269100x^4 + 2357826570x^3 + 2388229560x^2 + 1075586865x + 181744346}{393660x^5 + 1312200x^4 + 1749600x^3 + 1166400x^2 + 388800x + 51840} + 33275\log\left(x + \frac{3}{5}\right) - 33275\log\left(x + \frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3/(2+3*x)**6/(3+5*x),x)
```

```
[Out] (873269100*x**4 + 2357826570*x**3 + 2388229560*x**2 + 1075586865*
x + 181744346)/(393660*x**5 + 1312200*x**4 + 1749600*x**3 + 11664
00*x**2 + 388800*x + 51840) + 33275*log(x + 3/5) - 33275*log(x +
2/3)
```

GIAC/XCAS [A] time = 0.214883, size = 65, normalized size = 0.93

$$\frac{873269100\,x^4 + 2357826570\,x^3 + 2388229560\,x^2 + 1075586865\,x + 181744346}{1620\,(3\,x + 2)^5} + 33275\,\ln(|5\,x + 3|) - 33275\,\ln(|3\,x + 2|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)^3/((5*x + 3)*(3*x + 2)^6),x, algorithm="giac")
```

```
[Out] 1/1620*(873269100*x^4 + 2357826570*x^3 + 2388229560*x^2 + 1075586
865*x + 181744346)/(3*x + 2)^5 + 33275*ln(abs(5*x + 3)) - 33275*l
n(abs(3*x + 2))
```

3.1384 $\int \frac{(1-2x)^3}{(2+3x)^7(3+5x)}\,dx$

Optimal. Leaf size=81

$$\frac{33275}{3x+2}+\frac{6655}{2(3x+2)^2}+\frac{1331}{3(3x+2)^3}+\frac{7189}{108(3x+2)^4}+\frac{1421}{135(3x+2)^5}+\frac{343}{162(3x+2)^6}-166375\log(3x+2)+166375\log(5x+3)$$

```
[Out] 343/(162*(2 + 3*x)^6) + 1421/(135*(2 + 3*x)^5) + 7189/(108*(2 + 3
*x)^4) + 1331/(3*(2 + 3*x)^3) + 6655/(2*(2 + 3*x)^2) + 33275/(2 +
 3*x) - 166375*Log[2 + 3*x] + 166375*Log[3 + 5*x]
```

Rubi [A] time = 0.0822472, antiderivative size = 81, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{33275}{3x+2}+\frac{6655}{2(3x+2)^2}+\frac{1331}{3(3x+2)^3}+\frac{7189}{108(3x+2)^4}+\frac{1421}{135(3x+2)^5}+\frac{343}{162(3x+2)^6}-166375\log(3x+2)+166375\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^3/((2 + 3*x)^7*(3 + 5*x)),x]
```

```
[Out] 343/(162*(2 + 3*x)^6) + 1421/(135*(2 + 3*x)^5) + 7189/(108*(2 + 3
*x)^4) + 1331/(3*(2 + 3*x)^3) + 6655/(2*(2 + 3*x)^2) + 33275/(2 +
 3*x) - 166375*Log[2 + 3*x] + 166375*Log[3 + 5*x]
```

Rubi in Sympy [A] time = 5.85921, size = 73, normalized size = 0.9

$$-166375\log(3x+2)+166375\log(5x+3)+\frac{33275}{3x+2}+\frac{6655}{2(3x+2)^2}+\frac{1331}{3(3x+2)^3}+\frac{7189}{108(3x+2)^4}+\frac{1421}{135(3x+2)^5}+\frac{343}{162(3x+2)^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3/(2+3*x)**7/(3+5*x),x)
```

```
[Out] -166375*log(3*x + 2) + 166375*log(5*x + 3) + 33275/(3*x + 2) + 66
55/(2*(3*x + 2)**2) + 1331/(3*(3*x + 2)**3) + 7189/(108*(3*x + 2)
**4) + 1421/(135*(3*x + 2)**5) + 343/(162*(3*x + 2)**6)
```

Mathematica [A] time = 0.0995768, size = 75, normalized size = 0.93

$$\frac{53905500(3x+2)^5+5390550(3x+2)^4+718740(3x+2)^3+107835(3x+2)^2+17052(3x+2)+3430}{1620(3x+2)^6}-166375\log(5(3x+2))+166375\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^3/((2 + 3*x)^7*(3 + 5*x)),x]
```

```
[Out] (3430 + 17052*(2 + 3*x) + 107835*(2 + 3*x)^2 + 718740*(2 + 3*x)^3
 + 5390550*(2 + 3*x)^4 + 53905500*(2 + 3*x)^5)/(1620*(2 + 3*x)^6)
```

```
- 166375*Log[5*(2 + 3*x)] + 166375*Log[3 + 5*x]
```

Maple [A] time = 0.013, size = 72, normalized size = 0.9

$$\frac{343}{162\,(2+3\,x)^{6}}+\frac{1421}{135\,(2+3\,x)^{5}}+\frac{7189}{108\,(2+3\,x)^{4}}+\frac{1331}{3\,(2+3\,x)^{3}}+\frac{6655}{2\,(2+3\,x)^{2}}+33275\,(2+3\,x)^{-1}-166375\,\ln(2+3\,x)+166375\,\ln(3+5\,x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((1-2*x)^3/(2+3*x)^7/(3+5*x),x)
```

```
[Out] 343/162/(2+3*x)^6+1421/135/(2+3*x)^5+7189/108/(2+3*x)^4+1331/3/(2
+3*x)^3+6655/2/(2+3*x)^2+33275/(2+3*x)-166375*ln(2+3*x)+166375*ln
(3+5*x)
```

Maxima [A] time = 1.35109, size = 103, normalized size = 1.27

$$\frac{13099036500\,x^{5}+44100089550\,x^{4}+59401704780\,x^{3}+40016101275\,x^{2}+13482032616\,x+1817443594}{1620\,(729\,x^{6}+2916\,x^{5}+4860\,x^{4}+4320\,x^{3}+2160\,x^{2}+576\,x+64)}+166375\,\log(5\,x+3)-166375\,\log(3\,x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)^3/((5*x + 3)*(3*x + 2)^7),x, algorithm="maxima")
```

```
[Out] 1/1620*(13099036500*x^5 + 44100089550*x^4 + 59401704780*x^3 + 400
16101275*x^2 + 13482032616*x + 1817443594)/(729*x^6 + 2916*x^5 +
4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64) + 166375*log(5*x + 3
) - 166375*log(3*x + 2)
```

Fricas [A] time = 0.225327, size = 182, normalized size = 2.25

$$\frac{13099036500\,x^{5}+44100089550\,x^{4}+59401704780\,x^{3}+40016101275\,x^{2}+269527500\,\left(729\,x^{6}+2916\,x^{5}+4860\,x^{4}+4320\,x^{3}\right.}{1620\,(729\,x^{6}+29}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)^3/((5*x + 3)*(3*x + 2)^7),x, algorithm="fricas")
```

```
[Out] 1/1620*(13099036500*x^5 + 44100089550*x^4 + 59401704780*x^3 + 400
16101275*x^2 + 269527500*(729*x^6 + 2916*x^5 + 4860*x^4 + 4320*x^
3 + 2160*x^2 + 576*x + 64)*log(5*x + 3) - 269527500*(729*x^6 + 29
16*x^5 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64)*log(3*x + 2
) + 13482032616*x + 1817443594)/(729*x^6 + 2916*x^5 + 4860*x^4 +
4320*x^3 + 2160*x^2 + 576*x + 64)
```

Sympy [A] time = 0.542251, size = 71, normalized size = 0.88

$$\frac{13099036500x^{5}+44100089550x^{4}+59401704780x^{3}+40016101275x^{2}+13482032616x+1817443594}{1180980x^{6}+4723920x^{5}+7873200x^{4}+6998400x^{3}+3499200x^{2}+933120x+103680}+166375\log\left(x+\frac{3}{5}\right)-166375\log\left(x+\frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3/(2+3*x)**7/(3+5*x),x)
```

```
[Out] (13099036500*x**5 + 44100089550*x**4 + 59401704780*x**3 + 4001610
1275*x**2 + 13482032616*x + 1817443594)/(1180980*x**6 + 4723920*x
**5 + 7873200*x**4 + 6998400*x**3 + 3499200*x**2 + 933120*x + 103
680) + 166375*log(x + 3/5) - 166375*log(x + 2/3)
```

GIAC/XCAS [A] time = 0.206148, size = 72, normalized size = 0.89

$$\frac{13099036500\,x^5 + 44100089550\,x^4 + 59401704780\,x^3 + 40016101275\,x^2 + 13482032616\,x + 1817443594}{1620\,(3\,x + 2)^6} + 166375\ln\left(|5\,x + 3|\right) - 166375\ln\left(|3\,x + 2|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)^3/((5*x + 3)*(3*x + 2)^7),x, algorithm="giac")
```

```
[Out] 1/1620*(13099036500*x^5 + 44100089550*x^4 + 59401704780*x^3 + 400
16101275*x^2 + 13482032616*x + 1817443594)/(3*x + 2)^6 + 166375*l
n(abs(5*x + 3)) - 166375*ln(abs(3*x + 2))
```

3.1385 $\int \frac{(1-2x)^3}{(2+3x)^8(3+5x)} dx$

Optimal. Leaf size=92

$$\frac{166375}{3x+2}+\frac{33275}{2(3x+2)^2}+\frac{6655}{3(3x+2)^3}+\frac{1331}{4(3x+2)^4}+\frac{7189}{135(3x+2)^5}+\frac{1421}{162(3x+2)^6}+\frac{49}{27(3x+2)^7}-831875\log(3x+2)+831875\log(5x+3)$$

```
[Out] 49/(27*(2 + 3*x)^7) + 1421/(162*(2 + 3*x)^6) + 7189/(135*(2 + 3*x
)^5) + 1331/(4*(2 + 3*x)^4) + 6655/(3*(2 + 3*x)^3) + 33275/(2*(2
+ 3*x)^2) + 166375/(2 + 3*x) - 831875*Log[2 + 3*x] + 831875*Log[3
 + 5*x]
```

Rubi [A] time = 0.091703, antiderivative size = 92, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{166375}{3x+2}+\frac{33275}{2(3x+2)^2}+\frac{6655}{3(3x+2)^3}+\frac{1331}{4(3x+2)^4}+\frac{7189}{135(3x+2)^5}+\frac{1421}{162(3x+2)^6}+\frac{49}{27(3x+2)^7}-831875\log(3x+2)+831875\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^3/((2 + 3*x)^8*(3 + 5*x)),x]
```

```
[Out] 49/(27*(2 + 3*x)^7) + 1421/(162*(2 + 3*x)^6) + 7189/(135*(2 + 3*x
)^5) + 1331/(4*(2 + 3*x)^4) + 6655/(3*(2 + 3*x)^3) + 33275/(2*(2
+ 3*x)^2) + 166375/(2 + 3*x) - 831875*Log[2 + 3*x] + 831875*Log[3
 + 5*x]
```

Rubi in Sympy [A] time = 6.49426, size = 83, normalized size = 0.9

$$-831875\log(3x+2)+831875\log(5x+3)+\frac{166375}{3x+2}+\frac{33275}{2(3x+2)^2}+\frac{6655}{3(3x+2)^3}+\frac{1331}{4(3x+2)^4}+\frac{7189}{135(3x+2)^5}+\frac{1421}{162(3x+2)^6}+\frac{49}{27(3x+2)^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3/(2+3*x)**8/(3+5*x),x)
```

```
[Out] -831875*log(3*x + 2) + 831875*log(5*x + 3) + 166375/(3*x + 2) + 3
3275/(2*(3*x + 2)**2) + 6655/(3*(3*x + 2)**3) + 1331/(4*(3*x + 2)
**4) + 7189/(135*(3*x + 2)**5) + 1421/(162*(3*x + 2)**6) + 49/(27
*(3*x + 2)**7)
```

Mathematica [A] time = 0.110612, size = 84, normalized size = 0.91

$$\frac{269527500(3x+2)^6+26952750(3x+2)^5+3593700(3x+2)^4+539055(3x+2)^3+86268(3x+2)^2+14210(3x+2)+2940}{1620(3x+2)^7}-831875\log(5(3x+2))+831875\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^3/((2 + 3*x)^8*(3 + 5*x)),x]
```

```
[Out] (2940 + 14210*(2 + 3*x) + 86268*(2 + 3*x)^2 + 539055*(2 + 3*x)^3
+ 3593700*(2 + 3*x)^4 + 26952750*(2 + 3*x)^5 + 269527500*(2 + 3*x
)^6)/(1620*(2 + 3*x)^7) - 831875*Log[5*(2 + 3*x)] + 831875*Log[3
+ 5*x]
```

Maple [A] time = 0.015, size = 81, normalized size = 0.9

$$\frac{49}{27\,(2+3\,x)^{7}}+\frac{1421}{162\,(2+3\,x)^{6}}+\frac{7189}{135\,(2+3\,x)^{5}}+\frac{1331}{4\,(2+3\,x)^{4}}+\frac{6655}{3\,(2+3\,x)^{3}}+\frac{33275}{2\,(2+3\,x)^{2}}+166375\,(2+3\,x)^{-1}-831875\,\ln(2+3\,x)+831875\,\ln(3+5\,x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3/(2+3*x)^8/(3+5*x),x)
```

```
[Out] 49/27/(2+3*x)^7+1421/162/(2+3*x)^6+7189/135/(2+3*x)^5+1331/4/(2+3
*x)^4+6655/3/(2+3*x)^3+33275/2/(2+3*x)^2+166375/(2+3*x)-831875*ln
(2+3*x)+831875*ln(3+5*x)
```

Maxima [A] time = 1.34951, size = 116, normalized size = 1.26

$$\frac{196485547500\,x^{6}+792491708250\,x^{5}+1332026467200\,x^{4}+1194258563685\,x^{3}+602391504582\,x^{2}+162081979026\,x+181\ldots}{1620\,(2187\,x^{7}+10206\,x^{6}+20412\,x^{5}+22680\,x^{4}+15120\,x^{3}+6048\,x^{2}+1344\,x+128)}+831875\,\log(5\,x+3)-831875\,\log(3\,x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)^3/((5*x + 3)*(3*x + 2)^8),x, algorithm="maxima")
```

```
[Out] 1/1620*(196485547500*x^6 + 792491708250*x^5 + 1332026467200*x^4 +
 1194258563685*x^3 + 602391504582*x^2 + 162081979026*x + 18174436
072)/(2187*x^7 + 10206*x^6 + 20412*x^5 + 22680*x^4 + 15120*x^3 +
6048*x^2 + 1344*x + 128) + 831875*log(5*x + 3) - 831875*log(3*x +
 2)
```

Fricas [A] time = 0.219927, size = 209, normalized size = 2.27

$$\frac{196485547500\,x^{6}+792491708250\,x^{5}+1332026467200\,x^{4}+1194258563685\,x^{3}+602391504582\,x^{2}+1347637500\,\left(2187\,x^{7}+\ldots\right.}{\ldots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)^3/((5*x + 3)*(3*x + 2)^8),x, algorithm="fricas")
```

```
[Out] 1/1620*(196485547500*x^6 + 792491708250*x^5 + 1332026467200*x^4 +
 1194258563685*x^3 + 602391504582*x^2 + 1347637500*(2187*x^7 + 10
206*x^6 + 20412*x^5 + 22680*x^4 + 15120*x^3 + 6048*x^2 + 1344*x +
 128)*log(5*x + 3) - 1347637500*(2187*x^7 + 10206*x^6 + 20412*x^5
 + 22680*x^4 + 15120*x^3 + 6048*x^2 + 1344*x + 128)*log(3*x + 2)
+ 162081979026*x + 18174436072)/(2187*x^7 + 10206*x^6 + 20412*x^5
 + 22680*x^4 + 15120*x^3 + 6048*x^2 + 1344*x + 128)
```

Sympy [A] time = 0.609661, size = 82, normalized size = 0.89

$$\frac{196485547500x^{6}+792491708250x^{5}+1332026467200x^{4}+1194258563685x^{3}+602391504582x^{2}+162081979026x+18174\ldots}{3542940x^{7}+16533720x^{6}+33067440x^{5}+36741600x^{4}+24494400x^{3}+9797760x^{2}+2177280x+207360}+831875\log\left(x+\frac{3}{5}\right)-831875\log\left(x+\frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3/(2+3*x)**8/(3+5*x),x)
```

```
[Out] (196485547500*x**6 + 792491708250*x**5 + 1332026467200*x**4 + 119
4258563685*x**3 + 602391504582*x**2 + 162081979026*x + 1817443607
2)/(3542940*x**7 + 16533720*x**6 + 33067440*x**5 + 36741600*x**4
+ 24494400*x**3 + 9797760*x**2 + 2177280*x + 207360) + 831875*log
(x + 3/5) - 831875*log(x + 2/3)
```

GIAC/XCAS [A] time = 0.2124, size = 78, normalized size = 0.85

$$\frac{196485547500\,x^6 + 792491708250\,x^5 + 1332026467200\,x^4 + 1194258563685\,x^3 + 602391504582\,x^2 + 162081979026\,x + 181}{1620\,(3\,x + 2)^7}$$
$$+\,831875\ln(|5\,x + 3|) - 831875\ln(|3\,x + 2|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)^3/((5*x + 3)*(3*x + 2)^8),x, algorithm="giac")
```

```
[Out] 1/1620*(196485547500*x^6 + 792491708250*x^5 + 1332026467200*x^4 +
 1194258563685*x^3 + 602391504582*x^2 + 162081979026*x + 18174436
072)/(3*x + 2)^7 + 831875*ln(abs(5*x + 3)) - 831875*ln(abs(3*x +
2))
```

3.1386 $\int \frac{(1-2x)^3(2+3x)^6}{(3+5x)^2}\,dx$

Optimal. Leaf size=76

$$-\frac{729x^8}{25}-\frac{37908x^7}{875}+\frac{12231x^6}{625}+\frac{774981x^5}{15625}-\frac{5643x^4}{3125}-\frac{1836723x^3}{78125}-\frac{461623x^2}{390625}+\frac{13880997x}{1953125}-\frac{1331}{9765625(5x+3)}+\frac{23232\log(5x+3)}{9765625}$$

```
[Out] (13880997*x)/1953125 - (461623*x^2)/390625 - (1836723*x^3)/78125
- (5643*x^4)/3125 + (774981*x^5)/15625 + (12231*x^6)/625 - (37908
*x^7)/875 - (729*x^8)/25 - 1331/(9765625*(3 + 5*x)) + (23232*Log[
3 + 5*x])/9765625
```

Rubi [A] time = 0.0900883, antiderivative size = 76, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{729x^8}{25}-\frac{37908x^7}{875}+\frac{12231x^6}{625}+\frac{774981x^5}{15625}-\frac{5643x^4}{3125}-\frac{1836723x^3}{78125}-\frac{461623x^2}{390625}+\frac{13880997x}{1953125}-\frac{1331}{9765625(5x+3)}+\frac{23232\log(5x+3)}{9765625}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^3*(2 + 3*x)^6)/(3 + 5*x)^2,x]
```

```
[Out] (13880997*x)/1953125 - (461623*x^2)/390625 - (1836723*x^3)/78125
- (5643*x^4)/3125 + (774981*x^5)/15625 + (12231*x^6)/625 - (37908
*x^7)/875 - (729*x^8)/25 - 1331/(9765625*(3 + 5*x)) + (23232*Log[
3 + 5*x])/9765625
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{729x^8}{25}-\frac{37908x^7}{875}+\frac{12231x^6}{625}+\frac{774981x^5}{15625}-\frac{5643x^4}{3125}-\frac{1836723x^3}{78125}+\frac{23232\log(5x+3)}{9765625}+\int\frac{13880997}{1953125}\,dx-\frac{923246\int x\,dx}{390625}-\frac{1331}{9765625(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3*(2+3*x)**6/(3+5*x)**2,x)
```

```
[Out] -729*x**8/25 - 37908*x**7/875 + 12231*x**6/625 + 774981*x**5/1562
5 - 5643*x**4/3125 - 1836723*x**3/78125 + 23232*log(5*x + 3)/9765
625 + Integral(13880997/1953125, x) - 923246*Integral(x, x)/39062
5 - 1331/(9765625*(5*x + 3))
```

Mathematica [A] time = 0.0588497, size = 71, normalized size = 0.93

$$\frac{-49833984375x^9-103939453125x^8-10979296875x^7+104830031250x^6+47772112500x^5-42029925000x^4-26126590\ldots}{341796875(5x+3)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^3*(2 + 3*x)^6)/(3 + 5*x)^2,x]
```

```
[Out] (2118706028 + 10818777780*x + 10934112000*x^2 - 26126590000*x^3 -
 42029925000*x^4 + 47772112500*x^5 + 104830031250*x^6 - 109792968
75*x^7 - 103939453125*x^8 - 49833984375*x^9 + 813120*(3 + 5*x)*Lo
g[6*(3 + 5*x)])/(341796875*(3 + 5*x))
```

Maple [A] time = 0.01, size = 57, normalized size = 0.8

$$\frac{13880997\,x}{1953125}-\frac{461623\,x^{2}}{390625}-\frac{1836723\,x^{3}}{78125}-\frac{5643\,x^{4}}{3125}+\frac{774981\,x^{5}}{15625}+\frac{12231\,x^{6}}{625}-\frac{37908\,x^{7}}{875}-\frac{729\,x^{8}}{25}-\frac{1331}{29296875+48828125\,x}+\frac{23232\,\ln(3+5\,x)}{9765625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(2+3*x)^6/(3+5*x)^2,x)
```

```
[Out] 13880997/1953125*x-461623/390625*x^2-1836723/78125*x^3-5643/3125*
x^4+774981/15625*x^5+12231/625*x^6-37908/875*x^7-729/25*x^8-1331/
9765625/(3+5*x)+23232/9765625*ln(3+5*x)
```

Maxima [A] time = 1.34581, size = 76, normalized size = 1.

$$-\frac{729}{25}\,x^{8}-\frac{37908}{875}\,x^{7}+\frac{12231}{625}\,x^{6}+\frac{774981}{15625}\,x^{5}-\frac{5643}{3125}\,x^{4}-\frac{1836723}{78125}\,x^{3}-\frac{461623}{390625}\,x^{2}+\frac{13880997}{1953125}\,x-\frac{1331}{9765625\,(5\,x+3)}+\frac{23232}{9765625}\,\log(5\,x+3)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^6*(2*x - 1)^3/(5*x + 3)^2,x, algorithm="maxima")
```

```
[Out] -729/25*x^8 - 37908/875*x^7 + 12231/625*x^6 + 774981/15625*x^5 -
5643/3125*x^4 - 1836723/78125*x^3 - 461623/390625*x^2 + 13880997/
1953125*x - 1331/9765625/(5*x + 3) + 23232/9765625*log(5*x + 3)
```

Fricas [A] time = 0.210856, size = 90, normalized size = 1.18

$$-\frac{9966796875\,x^{9}+20787890625\,x^{8}+2195859375\,x^{7}-20966006250\,x^{6}-9554422500\,x^{5}+8405985000\,x^{4}+5225318000\,x^{3}}{68359375\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^6*(2*x - 1)^3/(5*x + 3)^2,x, algorithm="fricas")
```

```
[Out] -1/68359375*(9966796875*x^9 + 20787890625*x^8 + 2195859375*x^7 -
20966006250*x^6 - 9554422500*x^5 + 8405985000*x^4 + 5225318000*x^
3 - 2186822400*x^2 - 162624*(5*x + 3)*log(5*x + 3) - 1457504685*x
 + 9317)/(5*x + 3)
```

Sympy [A] time = 0.26183, size = 68, normalized size = 0.89

$$-\frac{729x^{8}}{25}-\frac{37908x^{7}}{875}+\frac{12231x^{6}}{625}+\frac{774981x^{5}}{15625}-\frac{5643x^{4}}{3125}-\frac{1836723x^{3}}{78125}-\frac{461623x^{2}}{390625}+\frac{13880997x}{1953125}+\frac{23232\log(5x+3)}{9765625}-\frac{1331}{48828125x+29296875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(2+3*x)**6/(3+5*x)**2,x)
```

```
[Out] -729*x**8/25 - 37908*x**7/875 + 12231*x**6/625 + 774981*x**5/1562
5 - 5643*x**4/3125 - 1836723*x**3/78125 - 461623*x**2/390625 + 13
880997*x/1953125 + 23232*log(5*x + 3)/9765625 - 1331/(48828125*x
+ 29296875)
```

GIAC/XCAS [A] time = 0.211438, size = 138, normalized size = 1.82

$$\frac{1}{341796875}(5x+3)^8\left(\frac{422820}{5x+3}-\frac{2021355}{(5x+3)^2}+\frac{474957}{(5x+3)^3}+\frac{9876195}{(5x+3)^4}+\frac{14499345}{(5x+3)^5}+\frac{10904215}{(5x+3)^6}+\frac{5836215}{(5x+3)^7}-25515\right)-\frac{1331}{9765625(5x+3)}-\frac{23232}{9765625}\ln\left(\frac{|5x+3|}{5(5x+3)^2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^6*(2*x - 1)^3/(5*x + 3)^2,x, algorithm="giac")
```

```
[Out] 1/341796875*(5*x + 3)^8*(422820/(5*x + 3) - 2021355/(5*x + 3)^2 +
 474957/(5*x + 3)^3 + 9876195/(5*x + 3)^4 + 14499345/(5*x + 3)^5
+ 10904215/(5*x + 3)^6 + 5836215/(5*x + 3)^7 - 25515) - 1331/9765
625/(5*x + 3) - 23232/9765625*ln(1/5*abs(5*x + 3)/(5*x + 3)^2)
```

3.1387 $\int \frac{(1-2x)^3(2+3x)^5}{(3+5x)^2} \, dx$

Optimal. Leaf size=69

$$-\frac{1944x^7}{175}-\frac{1026x^6}{125}+\frac{44982x^5}{3125}+\frac{108387x^4}{12500}-\frac{26594x^3}{3125}-\frac{507023x^2}{156250}+\frac{1382328x}{390625}-\frac{1331}{1953125(5x+3)}+\frac{19239\log(5x+3)}{1953125}$$

```
[Out] (1382328*x)/390625 - (507023*x^2)/156250 - (26594*x^3)/3125 + (10
8387*x^4)/12500 + (44982*x^5)/3125 - (1026*x^6)/125 - (1944*x^7)/
175 - 1331/(1953125*(3 + 5*x)) + (19239*Log[3 + 5*x])/1953125
```

Rubi [A] time = 0.0819064, antiderivative size = 69, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{1944x^7}{175}-\frac{1026x^6}{125}+\frac{44982x^5}{3125}+\frac{108387x^4}{12500}-\frac{26594x^3}{3125}-\frac{507023x^2}{156250}+\frac{1382328x}{390625}-\frac{1331}{1953125(5x+3)}+\frac{19239\log(5x+3)}{1953125}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^3*(2 + 3*x)^5)/(3 + 5*x)^2,x]
```

```
[Out] (1382328*x)/390625 - (507023*x^2)/156250 - (26594*x^3)/3125 + (10
8387*x^4)/12500 + (44982*x^5)/3125 - (1026*x^6)/125 - (1944*x^7)/
175 - 1331/(1953125*(3 + 5*x)) + (19239*Log[3 + 5*x])/1953125
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{1944x^7}{175}-\frac{1026x^6}{125}+\frac{44982x^5}{3125}+\frac{108387x^4}{12500}-\frac{26594x^3}{3125}+\frac{19239\log(5x+3)}{1953125}+\int\frac{1382328}{390625}\,dx-\frac{507023\int x\,dx}{78125}-\frac{1331}{1953125(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3*(2+3*x)**5/(3+5*x)**2,x)
```

```
[Out] -1944*x**7/175 - 1026*x**6/125 + 44982*x**5/3125 + 108387*x**4/12
500 - 26594*x**3/3125 + 19239*log(5*x + 3)/1953125 + Integral(138
2328/390625, x) - 507023*Integral(x, x)/78125 - 1331/(1953125*(5*
x + 3))
```

Mathematica [A] time = 0.0537386, size = 66, normalized size = 0.96

$$\frac{-15187500000x^8-20334375000x^7+12946500000x^6+23662603125x^5-4521978125x^4-11417376250x^3+2176277250x^2}{273437500(5x+3)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^3*(2 + 3*x)^5)/(3 + 5*x)^2,x]
```

```
[Out] (1247330759 + 4982083965*x + 2176277250*x^2 - 11417376250*x^3 - 4
521978125*x^4 + 23662603125*x^5 + 12946500000*x^6 - 20334375000*x
```

```
^7 - 15187500000*x^8 + 2693460*(3 + 5*x)*Log[6*(3 + 5*x)])/(27343
7500*(3 + 5*x))
```

Maple [A] time = 0.01, size = 52, normalized size = 0.8

$$\frac{1382328\,x}{390625}-\frac{507023\,x^{2}}{156250}-\frac{26594\,x^{3}}{3125}+\frac{108387\,x^{4}}{12500}+\frac{44982\,x^{5}}{3125}-\frac{1026\,x^{6}}{125}-\frac{1944\,x^{7}}{175}-\frac{1331}{5859375+9765625\,x}+\frac{19239\,\ln\left(3+5\,x\right)}{1953125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(2+3*x)^5/(3+5*x)^2,x)
```

```
[Out] 1382328/390625*x-507023/156250*x^2-26594/3125*x^3+108387/12500*x^
4+44982/3125*x^5-1026/125*x^6-1944/175*x^7-1331/1953125/(3+5*x)+1
9239/1953125*ln(3+5*x)
```

Maxima [A] time = 1.34499, size = 69, normalized size = 1.

$$-\frac{1944}{175}\,x^{7}-\frac{1026}{125}\,x^{6}+\frac{44982}{3125}\,x^{5}+\frac{108387}{12500}\,x^{4}-\frac{26594}{3125}\,x^{3}-\frac{507023}{156250}\,x^{2}+\frac{1382328}{390625}\,x-\frac{1331}{1953125\,(5\,x+3)}+\frac{19239}{1953125}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^5*(2*x - 1)^3/(5*x + 3)^2,x, algorithm="maxima")
```

```
[Out] -1944/175*x^7 - 1026/125*x^6 + 44982/3125*x^5 + 108387/12500*x^4
- 26594/3125*x^3 - 507023/156250*x^2 + 1382328/390625*x - 1331/19
53125/(5*x + 3) + 19239/1953125*log(5*x + 3)
```

Fricas [A] time = 0.215975, size = 84, normalized size = 1.22

$$-\frac{3037500000\,x^{8}+4066875000\,x^{7}-2589300000\,x^{6}-4732520625\,x^{5}+904395625\,x^{4}+2283475250\,x^{3}-435255450\,x^{2}-53}{54687500\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^5*(2*x - 1)^3/(5*x + 3)^2,x, algorithm="fricas")
```

```
[Out] -1/54687500*(3037500000*x^8 + 4066875000*x^7 - 2589300000*x^6 - 4
732520625*x^5 + 904395625*x^4 + 2283475250*x^3 - 435255450*x^2 -
538692*(5*x + 3)*log(5*x + 3) - 580577760*x + 37268)/(5*x + 3)
```

Sympy [A] time = 0.248824, size = 61, normalized size = 0.88

$$-\frac{1944x^{7}}{175}-\frac{1026x^{6}}{125}+\frac{44982x^{5}}{3125}+\frac{108387x^{4}}{12500}-\frac{26594x^{3}}{3125}-\frac{507023x^{2}}{156250}+\frac{1382328x}{390625}+\frac{19239\log\left(5x+3\right)}{1953125}-\frac{1331}{9765625x+5859375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(2+3*x)**5/(3+5*x)**2,x)
```

```
[Out] -1944*x**7/175 - 1026*x**6/125 + 44982*x**5/3125 + 108387*x**4/12
500 - 26594*x**3/3125 - 507023*x**2/156250 + 1382328*x/390625 + 1
9239*log(5*x + 3)/1953125 - 1331/(9765625*x + 5859375)
```

GIAC/XCAS [A] time = 0.214816, size = 126, normalized size = 1.83

$$\frac{1}{273437500}(5x+3)^7\left(\frac{672840}{5x+3}-\frac{3503304}{(5x+3)^2}+\frac{2251305}{(5x+3)^3}+\frac{16557100}{(5x+3)^4}+\frac{20720140}{(5x+3)^5}+\frac{15264480}{(5x+3)^6}-38880\right)-\frac{1331}{1953125(5x+3)}-\frac{19239}{1953125}\ln\left(\frac{|5x+3|}{5(5x+3)^2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^5*(2*x - 1)^3/(5*x + 3)^2,x, algorithm="giac")
```

```
[Out] 1/273437500*(5*x + 3)^7*(672840/(5*x + 3) - 3503304/(5*x + 3)^2 +
 2251305/(5*x + 3)^3 + 16557100/(5*x + 3)^4 + 20720140/(5*x + 3)^
5 + 15264480/(5*x + 3)^6 - 38880) - 1331/1953125/(5*x + 3) - 1923
9/1953125*ln(1/5*abs(5*x + 3)/(5*x + 3)^2)
```

3.1388 $\int \frac{(1-2x)^3(2+3x)^4}{(3+5x)^2}\,dx$

Optimal. Leaf size=62

$$-\frac{108x^6}{25}+\frac{108x^5}{625}+\frac{7317x^4}{1250}-\frac{4217x^3}{3125}-\frac{1816x^2}{625}+\frac{133659x}{78125}-\frac{1331}{390625(5x+3)}+\frac{15246\log(5x+3)}{390625}$$

```
[Out] (133659*x)/78125 - (1816*x^2)/625 - (4217*x^3)/3125 + (7317*x^4)/
1250 + (108*x^5)/625 - (108*x^6)/25 - 1331/(390625*(3 + 5*x)) + (
15246*Log[3 + 5*x])/390625
```

Rubi [A] time = 0.0773722, antiderivative size = 62, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{108x^6}{25}+\frac{108x^5}{625}+\frac{7317x^4}{1250}-\frac{4217x^3}{3125}-\frac{1816x^2}{625}+\frac{133659x}{78125}-\frac{1331}{390625(5x+3)}+\frac{15246\log(5x+3)}{390625}$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)^3*(2 + 3*x)^4)/(3 + 5*x)^2,x]
```

```
[Out] (133659*x)/78125 - (1816*x^2)/625 - (4217*x^3)/3125 + (7317*x^4)/
1250 + (108*x^5)/625 - (108*x^6)/25 - 1331/(390625*(3 + 5*x)) + (
15246*Log[3 + 5*x])/390625
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{108x^6}{25}+\frac{108x^5}{625}+\frac{7317x^4}{1250}-\frac{4217x^3}{3125}+\frac{15246\log(5x+3)}{390625}+\int\frac{133659}{78125}\,dx-\frac{3632\int x\,dx}{625}-\frac{1331}{390625(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**3*(2+3*x)**4/(3+5*x)**2,x)
```

```
[Out] -108*x**6/25 + 108*x**5/625 + 7317*x**4/1250 - 4217*x**3/3125 + 1
5246*log(5*x + 3)/390625 + Integral(133659/78125, x) - 3632*Integ
ral(x, x)/625 - 1331/(390625*(5*x + 3))
```

Mathematica [A] time = 0.0522782, size = 61, normalized size = 0.98

$$\frac{-84375000x^7-47250000x^6+116353125x^5+42240625x^4-72563750x^3-635250x^2+44216865x+152460(5x+3)\log(6(5}{3906250(5x+3)}$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)^3*(2 + 3*x)^4)/(3 + 5*x)^2,x]
```

```
[Out] (14487499 + 44216865*x - 635250*x^2 - 72563750*x^3 + 42240625*x^4
 + 116353125*x^5 - 47250000*x^6 - 84375000*x^7 + 152460*(3 + 5*x)
*Log[6*(3 + 5*x)])/(3906250*(3 + 5*x))
```

Maple [A] time = 0.01, size = 47, normalized size = 0.8

$$\frac{133659\,x}{78125}-\frac{1816\,x^2}{625}-\frac{4217\,x^3}{3125}+\frac{7317\,x^4}{1250}+\frac{108\,x^5}{625}-\frac{108\,x^6}{25}-\frac{1331}{1171875+1953125\,x}+\frac{15246\,\ln(3+5\,x)}{390625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(2+3*x)^4/(3+5*x)^2,x)
```

```
[Out] 133659/78125*x-1816/625*x^2-4217/3125*x^3+7317/1250*x^4+108/625*x
^5-108/25*x^6-1331/390625/(3+5*x)+15246/390625*ln(3+5*x)
```

Maxima [A] time = 1.33771, size = 62, normalized size = 1.

$$-\frac{108}{25}\,x^6+\frac{108}{625}\,x^5+\frac{7317}{1250}\,x^4-\frac{4217}{3125}\,x^3-\frac{1816}{625}\,x^2+\frac{133659}{78125}\,x-\frac{1331}{390625\,(5\,x+3)}+\frac{15246}{390625}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^4*(2*x - 1)^3/(5*x + 3)^2,x, algorithm="maxima")
```

```
[Out] -108/25*x^6 + 108/625*x^5 + 7317/1250*x^4 - 4217/3125*x^3 - 1816/
625*x^2 + 133659/78125*x - 1331/390625/(5*x + 3) + 15246/390625*l
og(5*x + 3)
```

Fricas [A] time = 0.213105, size = 77, normalized size = 1.24

$$-\frac{16875000\,x^7+9450000\,x^6-23270625\,x^5-8448125\,x^4+14512750\,x^3+127050\,x^2-30492\,(5\,x+3)\log\left(5\,x+3\right)-400977}{781250\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^4*(2*x - 1)^3/(5*x + 3)^2,x, algorithm="fricas")
```

```
[Out] -1/781250*(16875000*x^7 + 9450000*x^6 - 23270625*x^5 - 8448125*x^
4 + 14512750*x^3 + 127050*x^2 - 30492*(5*x + 3)*log(5*x + 3) - 40
09770*x + 2662)/(5*x + 3)
```

Sympy [A] time = 0.2421, size = 54, normalized size = 0.87

$$-\frac{108x^6}{25}+\frac{108x^5}{625}+\frac{7317x^4}{1250}-\frac{4217x^3}{3125}-\frac{1816x^2}{625}+\frac{133659x}{78125}+\frac{15246\log\left(5x+3\right)}{390625}-\frac{1331}{1953125x+1171875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(2+3*x)**4/(3+5*x)**2,x)
```

```
[Out] -108*x**6/25 + 108*x**5/625 + 7317*x**4/1250 - 4217*x**3/3125 - 1
816*x**2/625 + 133659*x/78125 + 15246*log(5*x + 3)/390625 - 1331/
(1953125*x + 1171875)
```

GIAC/XCAS [A] time = 0.207856, size = 113, normalized size = 1.82

$$\frac{1}{3906250}\,(5\,x+3)^6\left(\frac{19656}{5\,x+3}-\frac{112455}{(5\,x+3)^2}+\frac{121450}{(5\,x+3)^3}+\frac{530600}{(5\,x+3)^4}+\frac{632940}{(5\,x+3)^5}-1080\right)$$
$$-\frac{1331}{390625\,(5\,x+3)}-\frac{15246}{390625}\,\ln\left(\frac{|5\,x+3|}{5\,(5\,x+3)^2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^4*(2*x - 1)^3/(5*x + 3)^2,x, algorithm="giac")
```

```
[Out] 1/3906250*(5*x + 3)^6*(19656/(5*x + 3) - 112455/(5*x + 3)^2 + 121
450/(5*x + 3)^3 + 530600/(5*x + 3)^4 + 632940/(5*x + 3)^5 - 1080)
 - 1331/390625/(5*x + 3) - 15246/390625*ln(1/5*abs(5*x + 3)/(5*x
+ 3)^2)
```

3.1389 $\int \frac{(1-2x)^3(2+3x)^3}{(3+5x)^2}\,dx$

Optimal. Leaf size=55

$$-\frac{216x^5}{125}+\frac{189x^4}{125}+\frac{786x^3}{625}-\frac{12077x^2}{6250}+\frac{1998x}{3125}-\frac{1331}{78125(5x+3)}+\frac{11253\log(5x+3)}{78125}$$

```
[Out] (1998*x)/3125 - (12077*x^2)/6250 + (786*x^3)/625 + (189*x^4)/125
- (216*x^5)/125 - 1331/(78125*(3 + 5*x)) + (11253*Log[3 + 5*x])/7
8125
```

Rubi [A] time = 0.0683973, antiderivative size = 55, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{216x^5}{125}+\frac{189x^4}{125}+\frac{786x^3}{625}-\frac{12077x^2}{6250}+\frac{1998x}{3125}-\frac{1331}{78125(5x+3)}+\frac{11253\log(5x+3)}{78125}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^3*(2 + 3*x)^3)/(3 + 5*x)^2,x]
```

```
[Out] (1998*x)/3125 - (12077*x^2)/6250 + (786*x^3)/625 + (189*x^4)/125
- (216*x^5)/125 - 1331/(78125*(3 + 5*x)) + (11253*Log[3 + 5*x])/7
8125
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{216x^5}{125}+\frac{189x^4}{125}+\frac{786x^3}{625}+\frac{11253\log(5x+3)}{78125}+\int\frac{1998}{3125}\,dx-\frac{12077\int x\,dx}{3125}-\frac{1331}{78125\,(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3*(2+3*x)**3/(3+5*x)**2,x)
```

```
[Out] -216*x**5/125 + 189*x**4/125 + 786*x**3/625 + 11253*log(5*x + 3)/
78125 + Integral(1998/3125, x) - 12077*Integral(x, x)/3125 - 1331
/(78125*(5*x + 3))
```

Mathematica [A] time = 0.0271406, size = 54, normalized size = 0.98

$$\frac{-6750000x^6+1856250x^5+8456250x^4-4600625x^3-2031375x^2+5485095x+112530(5x+3)\log(5x+3)+2378647}{781250(5x+3)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^3*(2 + 3*x)^3)/(3 + 5*x)^2,x]
```

```
[Out] (2378647 + 5485095*x - 2031375*x^2 - 4600625*x^3 + 8456250*x^4 +
1856250*x^5 - 6750000*x^6 + 112530*(3 + 5*x)*Log[3 + 5*x])/(78125
0*(3 + 5*x))
```

Maple [A] time = 0.009, size = 42, normalized size = 0.8

$$\frac{1998\,x}{3125}-\frac{12077\,x^2}{6250}+\frac{786\,x^3}{625}+\frac{189\,x^4}{125}-\frac{216\,x^5}{125}-\frac{1331}{234375+390625\,x}+\frac{11253\,\ln(3+5\,x)}{78125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((1-2*x)^3*(2+3*x)^3/(3+5*x)^2,x)
```

```
[Out] 1998/3125*x-12077/6250*x^2+786/625*x^3+189/125*x^4-216/125*x^5-13
31/78125/(3+5*x)+11253/78125*ln(3+5*x)
```

Maxima [A] time = 1.34093, size = 55, normalized size = 1.

$$-\frac{216}{125}x^5+\frac{189}{125}x^4+\frac{786}{625}x^3-\frac{12077}{6250}x^2+\frac{1998}{3125}x-\frac{1331}{78125(5x+3)}+\frac{11253}{78125}\log(5x+3)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^3*(2*x - 1)^3/(5*x + 3)^2,x, algorithm="maxima")
```

```
[Out] -216/125*x^5 + 189/125*x^4 + 786/625*x^3 - 12077/6250*x^2 + 1998/
3125*x - 1331/78125/(5*x + 3) + 11253/78125*log(5*x + 3)
```

Fricas [A] time = 0.206245, size = 70, normalized size = 1.27

$$-\frac{1350000x^6-371250x^5-1691250x^4+920125x^3+406275x^2-22506(5x+3)\log(5x+3)-299700x+2662}{156250(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^3*(2*x - 1)^3/(5*x + 3)^2,x, algorithm="fricas")
```

```
[Out] -1/156250*(1350000*x^6 - 371250*x^5 - 1691250*x^4 + 920125*x^3 +
406275*x^2 - 22506*(5*x + 3)*log(5*x + 3) - 299700*x + 2662)/(5*x
 + 3)
```

Sympy [A] time = 0.225708, size = 48, normalized size = 0.87

$$-\frac{216x^5}{125}+\frac{189x^4}{125}+\frac{786x^3}{625}-\frac{12077x^2}{6250}+\frac{1998x}{3125}+\frac{11253\log(5x+3)}{78125}-\frac{1331}{390625x+234375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((1-2*x)**3*(2+3*x)**3/(3+5*x)**2,x)
```

```
[Out] -216*x**5/125 + 189*x**4/125 + 786*x**3/625 - 12077*x**2/6250 + 1
998*x/3125 + 11253*log(5*x + 3)/78125 - 1331/(390625*x + 234375)
```

GIAC/XCAS [A] time = 0.211665, size = 101, normalized size = 1.84

$$\frac{1}{781250}(5x+3)^5\left(\frac{8370}{5x+3}-\frac{53700}{(5x+3)^2}+\frac{87575}{(5x+3)^3}+\frac{295350}{(5x+3)^4}-432\right)-\frac{1331}{78125(5x+3)}-\frac{11253}{78125}\ln\left(\frac{|5x+3|}{5(5x+3)^2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(-(3*x + 2)^3*(2*x - 1)^3/(5*x + 3)^2,x, algorithm="giac")
```

```
[Out] 1/781250*(5*x + 3)^5*(8370/(5*x + 3) - 53700/(5*x + 3)^2 + 87575/
(5*x + 3)^3 + 295350/(5*x + 3)^4 - 432) - 1331/78125/(5*x + 3) -
11253/78125*ln(1/5*abs(5*x + 3)/(5*x + 3)^2)
```

3.1390 $\int \frac{(1-2x)^3(2+3x)^2}{(3+5x)^2} dx$

Optimal. Leaf size=48

$$-\frac{18x^4}{25}+\frac{164x^3}{125}-\frac{427x^2}{625}-\frac{1179x}{3125}-\frac{1331}{15625(5x+3)}+\frac{1452\log(5x+3)}{3125}$$

```
[Out] (-1179*x)/3125 - (427*x^2)/625 + (164*x^3)/125 - (18*x^4)/25 - 13
31/(15625*(3 + 5*x)) + (1452*Log[3 + 5*x])/3125
```

Rubi [A] time = 0.061814, antiderivative size = 48, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$-\frac{18x^4}{25}+\frac{164x^3}{125}-\frac{427x^2}{625}-\frac{1179x}{3125}-\frac{1331}{15625(5x+3)}+\frac{1452\log(5x+3)}{3125}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^3*(2 + 3*x)^2)/(3 + 5*x)^2,x]
```

```
[Out] (-1179*x)/3125 - (427*x^2)/625 + (164*x^3)/125 - (18*x^4)/25 - 13
31/(15625*(3 + 5*x)) + (1452*Log[3 + 5*x])/3125
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{18x^4}{25}+\frac{164x^3}{125}+\frac{1452\log(5x+3)}{3125}+\int\left(-\frac{1179}{3125}\right)dx-\frac{854\int x\,dx}{625}-\frac{1331}{15625(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3*(2+3*x)**2/(3+5*x)**2,x)
```

```
[Out] -18*x**4/25 + 164*x**3/125 + 1452*log(5*x + 3)/3125 + Integral(-1
179/3125, x) - 854*Integral(x, x)/625 - 1331/(15625*(5*x + 3))
```

Mathematica [A] time = 0.0478151, size = 51, normalized size = 1.06

$$\frac{-11250x^5+13750x^4+1625x^3-12300x^2+2655x+1452(5x+3)\log(6(5x+3))+3449}{3125(5x+3)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^3*(2 + 3*x)^2)/(3 + 5*x)^2,x]
```

```
[Out] (3449 + 2655*x - 12300*x^2 + 1625*x^3 + 13750*x^4 - 11250*x^5 + 1
452*(3 + 5*x)*Log[6*(3 + 5*x)])/(3125*(3 + 5*x))
```

Maple [A] time = 0.01, size = 37, normalized size = 0.8

$$-\frac{1179\,x}{3125}-\frac{427\,x^2}{625}+\frac{164\,x^3}{125}-\frac{18\,x^4}{25}-\frac{1331}{46875+78125\,x}+\frac{1452\,\ln(3+5\,x)}{3125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(2+3*x)^2/(3+5*x)^2,x)
```

```
[Out] -1179/3125*x-427/625*x^2+164/125*x^3-18/25*x^4-1331/15625/(3+5*x)
+1452/3125*ln(3+5*x)
```

Maxima [A] time = 1.34877, size = 49, normalized size = 1.02

$$-\frac{18}{25}\,x^4+\frac{164}{125}\,x^3-\frac{427}{625}\,x^2-\frac{1179}{3125}\,x-\frac{1331}{15625\,(5\,x+3)}+\frac{1452}{3125}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^2*(2*x - 1)^3/(5*x + 3)^2,x, algorithm="maxima")
```

```
[Out] -18/25*x^4 + 164/125*x^3 - 427/625*x^2 - 1179/3125*x - 1331/15625
/(5*x + 3) + 1452/3125*log(5*x + 3)
```

Fricas [A] time = 0.203815, size = 63, normalized size = 1.31

$$-\frac{56250\,x^5-68750\,x^4-8125\,x^3+61500\,x^2-7260\,(5\,x+3)\log\left(5\,x+3\right)+17685\,x+1331}{15625\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^2*(2*x - 1)^3/(5*x + 3)^2,x, algorithm="fricas")
```

```
[Out] -1/15625*(56250*x^5 - 68750*x^4 - 8125*x^3 + 61500*x^2 - 7260*(5*
x + 3)*log(5*x + 3) + 17685*x + 1331)/(5*x + 3)
```

Sympy [A] time = 0.238297, size = 41, normalized size = 0.85

$$-\frac{18x^4}{25}+\frac{164x^3}{125}-\frac{427x^2}{625}-\frac{1179x}{3125}+\frac{1452\log\left(5x+3\right)}{3125}-\frac{1331}{78125x+46875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(2+3*x)**2/(3+5*x)**2,x)
```

```
[Out] -18*x**4/25 + 164*x**3/125 - 427*x**2/625 - 1179*x/3125 + 1452*lo
g(5*x + 3)/3125 - 1331/(78125*x + 46875)
```

GIAC/XCAS [A] time = 0.210351, size = 89, normalized size = 1.85

$$\frac{1}{15625}\,(5\,x+3)^4\left(\frac{380}{5\,x+3}-\frac{2875}{(5\,x+3)^2}+\frac{7755}{(5\,x+3)^3}-18\right)-\frac{1331}{15625\,(5\,x+3)}-\frac{1452}{3125}\ln\left(\frac{|5\,x+3|}{5\,(5\,x+3)^2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^2*(2*x - 1)^3/(5*x + 3)^2,x, algorithm="giac")
```

```
[Out] 1/15625*(5*x + 3)^4*(380/(5*x + 3) - 2875/(5*x + 3)^2 + 7755/(5*x
 + 3)^3 - 18) - 1331/15625/(5*x + 3) - 1452/3125*ln(1/5*abs(5*x +
 3)/(5*x + 3)^2)
```

3.1391 $\int \frac{(1-2x)^3(2+3x)}{(3+5x)^2}\,dx$

Optimal. Leaf size=41

$$-\frac{8x^3}{25}+\frac{122x^2}{125}-\frac{1098x}{625}-\frac{1331}{3125(5x+3)}+\frac{3267\log(5x+3)}{3125}$$

```
[Out] (-1098*x)/625 + (122*x^2)/125 - (8*x^3)/25 - 1331/(3125*(3 + 5*x)
) + (3267*Log[3 + 5*x])/3125
```

Rubi [A] time = 0.0504898, antiderivative size = 41, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{8x^3}{25}+\frac{122x^2}{125}-\frac{1098x}{625}-\frac{1331}{3125(5x+3)}+\frac{3267\log(5x+3)}{3125}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^3*(2 + 3*x))/(3 + 5*x)^2,x]
```

```
[Out] (-1098*x)/625 + (122*x^2)/125 - (8*x^3)/25 - 1331/(3125*(3 + 5*x)
) + (3267*Log[3 + 5*x])/3125
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{8x^3}{25}+\frac{3267\log(5x+3)}{3125}+\int\left(-\frac{1098}{625}\right)dx+\frac{244\int x\,dx}{125}-\frac{1331}{3125(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3*(2+3*x)/(3+5*x)**2,x)
```

```
[Out] -8*x**3/25 + 3267*log(5*x + 3)/3125 + Integral(-1098/625, x) + 24
4*Integral(x, x)/125 - 1331/(3125*(5*x + 3))
```

Mathematica [A] time = 0.0223774, size = 44, normalized size = 1.07

$$\frac{-10000x^4+24500x^3-36600x^2-11865x+6534(5x+3)\log(10x+6)+9983}{6250(5x+3)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^3*(2 + 3*x))/(3 + 5*x)^2,x]
```

```
[Out] (9983 - 11865*x - 36600*x^2 + 24500*x^3 - 10000*x^4 + 6534*(3 + 5
*x)*Log[6 + 10*x])/(6250*(3 + 5*x))
```

Maple [A] time = 0.01, size = 32, normalized size = 0.8

$$-\frac{1098\,x}{625}+\frac{122\,x^2}{125}-\frac{8\,x^3}{25}-\frac{1331}{9375+15625\,x}+\frac{3267\,\ln(3+5\,x)}{3125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(2+3*x)/(3+5*x)^2,x)
```

```
[Out] -1098/625*x+122/125*x^2-8/25*x^3-1331/3125/(3+5*x)+3267/3125*ln(3
+5*x)
```

Maxima [A] time = 1.34764, size = 42, normalized size = 1.02

$$-\frac{8}{25}\,x^3+\frac{122}{125}\,x^2-\frac{1098}{625}\,x-\frac{1331}{3125\,(5\,x+3)}+\frac{3267}{3125}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)*(2*x - 1)^3/(5*x + 3)^2,x, algorithm="maxima")
```

```
[Out] -8/25*x^3 + 122/125*x^2 - 1098/625*x - 1331/3125/(5*x + 3) + 3267
/3125*log(5*x + 3)
```

Fricas [A] time = 0.211148, size = 57, normalized size = 1.39

$$-\frac{5000\,x^4-12250\,x^3+18300\,x^2-3267\,(5\,x+3)\log\left(5\,x+3\right)+16470\,x+1331}{3125\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)*(2*x - 1)^3/(5*x + 3)^2,x, algorithm="fricas")
```

```
[Out] -1/3125*(5000*x^4 - 12250*x^3 + 18300*x^2 - 3267*(5*x + 3)*log(5*
x + 3) + 16470*x + 1331)/(5*x + 3)
```

Sympy [A] time = 0.223389, size = 34, normalized size = 0.83

$$-\frac{8x^3}{25}+\frac{122x^2}{125}-\frac{1098x}{625}+\frac{3267\log\left(5x+3\right)}{3125}-\frac{1331}{15625x+9375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(2+3*x)/(3+5*x)**2,x)
```

```
[Out] -8*x**3/25 + 122*x**2/125 - 1098*x/625 + 3267*log(5*x + 3)/3125 -
 1331/(15625*x + 9375)
```

GIAC/XCAS [A] time = 0.208265, size = 77, normalized size = 1.88

$$\frac{2}{3125}\,(5\,x+3)^3\left(\frac{97}{5\,x+3}-\frac{1023}{(5\,x+3)^2}-4\right)-\frac{1331}{3125\,(5\,x+3)}-\frac{3267}{3125}\,\ln\left(\frac{|5\,x+3|}{5\,(5\,x+3)^2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)*(2*x - 1)^3/(5*x + 3)^2,x, algorithm="giac")
```

```
[Out] 2/3125*(5*x + 3)^3*(97/(5*x + 3) - 1023/(5*x + 3)^2 - 4) - 1331/3
125/(5*x + 3) - 3267/3125*ln(1/5*abs(5*x + 3)/(5*x + 3)^2)
```

3.1392 $\int \frac{(1-2x)^3}{(3+5x)^2} \, dx$

Optimal. Leaf size=34

$$-\frac{4x^2}{25}+\frac{108x}{125}-\frac{1331}{625(5x+3)}-\frac{726}{625}\log(5x+3)$$

```
[Out] (108*x)/125 - (4*x^2)/25 - 1331/(625*(3 + 5*x)) - (726*Log[3 + 5*
x])/625
```

Rubi [A] time = 0.0339422, antiderivative size = 34, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.067

$$-\frac{4x^2}{25}+\frac{108x}{125}-\frac{1331}{625(5x+3)}-\frac{726}{625}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^3/(3 + 5*x)^2,x]
```

```
[Out] (108*x)/125 - (4*x^2)/25 - 1331/(625*(3 + 5*x)) - (726*Log[3 + 5*
x])/625
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{726\log(5x+3)}{625}+\int \frac{108}{125}\,dx-\frac{8\int x\,dx}{25}-\frac{1331}{625(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3/(3+5*x)**2,x)
```

```
[Out] -726*log(5*x + 3)/625 + Integral(108/125, x) - 8*Integral(x, x)/2
5 - 1331/(625*(5*x + 3))
```

Mathematica [A] time = 0.0151125, size = 39, normalized size = 1.15

$$\frac{-500x^3+2400x^2+395x-726(5x+3)\log(10x+6)-2066}{625(5x+3)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^3/(3 + 5*x)^2,x]
```

```
[Out] (-2066 + 395*x + 2400*x^2 - 500*x^3 - 726*(3 + 5*x)*Log[6 + 10*x]
)/(625*(3 + 5*x))
```

Maple [A] time = 0.009, size = 27, normalized size = 0.8

$$\frac{108\,x}{125}-\frac{4\,x^2}{25}-\frac{1331}{1875+3125\,x}-\frac{726\,\ln(3+5\,x)}{625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3/(3+5*x)^2,x)
```

```
[Out] 108/125*x-4/25*x^2-1331/625/(3+5*x)-726/625*ln(3+5*x)
```

Maxima [A] time = 1.32109, size = 35, normalized size = 1.03

$$-\frac{4}{25}\,x^2+\frac{108}{125}\,x-\frac{1331}{625\,(5\,x+3)}-\frac{726}{625}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)^3/(5*x + 3)^2,x, algorithm="maxima")
```

```
[Out] -4/25*x^2 + 108/125*x - 1331/625/(5*x + 3) - 726/625*log(5*x + 3)
```

Fricas [A] time = 0.207889, size = 50, normalized size = 1.47

$$-\frac{500\,x^3-2400\,x^2+726\,(5\,x+3)\log\left(5\,x+3\right)-1620\,x+1331}{625\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)^3/(5*x + 3)^2,x, algorithm="fricas")
```

```
[Out] -1/625*(500*x^3 - 2400*x^2 + 726*(5*x + 3)*log(5*x + 3) - 1620*x
+ 1331)/(5*x + 3)
```

Sympy [A] time = 0.196129, size = 27, normalized size = 0.79

$$-\frac{4x^2}{25}+\frac{108x}{125}-\frac{726\log\left(5x+3\right)}{625}-\frac{1331}{3125x+1875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3/(3+5*x)**2,x)
```

```
[Out] -4*x**2/25 + 108*x/125 - 726*log(5*x + 3)/625 - 1331/(3125*x + 18
75)
```

GIAC/XCAS [A] time = 0.208853, size = 65, normalized size = 1.91

$$\frac{4}{625}\,(5\,x+3)^2\left(\frac{33}{5\,x+3}-1\right)-\frac{1331}{625\,(5\,x+3)}+\frac{726}{625}\ln\left(\frac{|5\,x+3|}{5\,(5\,x+3)^2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)^3/(5*x + 3)^2,x, algorithm="giac")
```

```
[Out] 4/625*(5*x + 3)^2*(33/(5*x + 3) - 1) - 1331/625/(5*x + 3) + 726/6
25*ln(1/5*abs(5*x + 3)/(5*x + 3)^2)
```

3.1393 $\int \frac{(1-2x)^3}{(2+3x)(3+5x)^2} dx$

Optimal. Leaf size=37

$$-\frac{8x}{75}-\frac{1331}{125(5x+3)}+\frac{343}{9}\log(3x+2)-\frac{4719}{125}\log(5x+3)$$

```
[Out] (-8*x)/75 - 1331/(125*(3 + 5*x)) + (343*Log[2 + 3*x])/9 - (4719*L
og[3 + 5*x])/125
```

Rubi [A] time = 0.0464686, antiderivative size = 37, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{8x}{75}-\frac{1331}{125(5x+3)}+\frac{343}{9}\log(3x+2)-\frac{4719}{125}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^3/((2 + 3*x)*(3 + 5*x)^2),x]
```

```
[Out] (-8*x)/75 - 1331/(125*(3 + 5*x)) + (343*Log[2 + 3*x])/9 - (4719*L
og[3 + 5*x])/125
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{343\log(3x+2)}{9}-\frac{4719\log(5x+3)}{125}+\int\left(-\frac{8}{75}\right)dx-\frac{1331}{125(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3/(2+3*x)/(3+5*x)**2,x)
```

```
[Out] 343*log(3*x + 2)/9 - 4719*log(5*x + 3)/125 + Integral(-8/75, x) -
 1331/(125*(5*x + 3))
```

Mathematica [A] time = 0.0358256, size = 36, normalized size = 0.97

$$\frac{-120x-\frac{11979}{5x+3}+42875\log(3x+2)-42471\log(-3(5x+3))-80}{1125}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^3/((2 + 3*x)*(3 + 5*x)^2),x]
```

```
[Out] (-80 - 120*x - 11979/(3 + 5*x) + 42875*Log[2 + 3*x] - 42471*Log[-
3*(3 + 5*x)])/1125
```

Maple [A] time = 0.011, size = 30, normalized size = 0.8

$$-\frac{8x}{75}-\frac{1331}{375+625x}+\frac{343\ln(2+3x)}{9}-\frac{4719\ln(3+5x)}{125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3/(2+3*x)/(3+5*x)^2,x)

[Out] -8/75*x-1331/125/(3+5*x)+343/9*ln(2+3*x)-4719/125*ln(3+5*x)
```

Maxima [A] time = 1.32058, size = 39, normalized size = 1.05

$$-\frac{8}{75}\,x-\frac{1331}{125\,(5\,x+3)}-\frac{4719}{125}\,\log\left(5\,x+3\right)+\frac{343}{9}\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)^3/((5*x + 3)^2*(3*x + 2)),x, algorithm="maxima")

[Out] -8/75*x - 1331/125/(5*x + 3) - 4719/125*log(5*x + 3) + 343/9*log(
3*x + 2)
```

Fricas [A] time = 0.208845, size = 61, normalized size = 1.65

$$-\frac{600\,x^2+42471\,(5\,x+3)\log\left(5\,x+3\right)-42875\,(5\,x+3)\log\left(3\,x+2\right)+360\,x+11979}{1125\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)^3/((5*x + 3)^2*(3*x + 2)),x, algorithm="fricas")

[Out] -1/1125*(600*x^2 + 42471*(5*x + 3)*log(5*x + 3) - 42875*(5*x + 3)
*log(3*x + 2) + 360*x + 11979)/(5*x + 3)
```

Sympy [A] time = 0.334, size = 31, normalized size = 0.84

$$-\frac{8x}{75}-\frac{4719\log\left(x+\frac{3}{5}\right)}{125}+\frac{343\log\left(x+\frac{2}{3}\right)}{9}-\frac{1331}{625x+375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3/(2+3*x)/(3+5*x)**2,x)

[Out] -8*x/75 - 4719*log(x + 3/5)/125 + 343*log(x + 2/3)/9 - 1331/(625*
x + 375)
```

GIAC/XCAS [A] time = 0.217821, size = 63, normalized size = 1.7

$$-\frac{8}{75}\,x-\frac{1331}{125\,(5\,x+3)}-\frac{404}{1125}\,\ln\left(\frac{|5\,x+3|}{5\,(5\,x+3)^2}\right)+\frac{343}{9}\,\ln\left(\left|-\frac{1}{5\,x+3}-3\right|\right)-\frac{8}{125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)^3/((5*x + 3)^2*(3*x + 2)),x, algorithm="giac")

[Out] -8/75*x - 1331/125/(5*x + 3) - 404/1125*ln(1/5*abs(5*x + 3)/(5*x
+ 3)^2) + 343/9*ln(abs(-1/(5*x + 3) - 3)) - 8/125
```

3.1394 $\int \frac{(1-2x)^3}{(2+3x)^2(3+5x)^2}\,dx$

Optimal. Leaf size=43

$$-\frac{343}{9(3x+2)}-\frac{1331}{25(5x+3)}+\frac{3136}{9}\log(3x+2)-\frac{8712}{25}\log(5x+3)$$

```
[Out] -343/(9*(2 + 3*x)) - 1331/(25*(3 + 5*x)) + (3136*Log[2 + 3*x])/9
- (8712*Log[3 + 5*x])/25
```

Rubi [A] time = 0.0497177, antiderivative size = 43, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{343}{9(3x+2)}-\frac{1331}{25(5x+3)}+\frac{3136}{9}\log(3x+2)-\frac{8712}{25}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^3/((2 + 3*x)^2*(3 + 5*x)^2),x]
```

```
[Out] -343/(9*(2 + 3*x)) - 1331/(25*(3 + 5*x)) + (3136*Log[2 + 3*x])/9
- (8712*Log[3 + 5*x])/25
```

Rubi in Sympy [A] time = 3.59895, size = 32, normalized size = 0.74

$$\frac{3136\log(3x+2)}{9}-\frac{8712\log(5x+3)}{25}-\frac{1331}{25(5x+3)}-\frac{343}{9(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3/(2+3*x)**2/(3+5*x)**2,x)
```

```
[Out] 3136*log(3*x + 2)/9 - 8712*log(5*x + 3)/25 - 1331/(25*(5*x + 3))
- 343/(9*(3*x + 2))
```

Mathematica [A] time = 0.0452626, size = 61, normalized size = 1.42

$$-\frac{-78400\left(15x^2+19x+6\right)\log(5(3x+2))+78408\left(15x^2+19x+6\right)\log(5x+3)+78812x+49683}{225(3x+2)(5x+3)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^3/((2 + 3*x)^2*(3 + 5*x)^2),x]
```

```
[Out] -(49683 + 78812*x - 78400*(6 + 19*x + 15*x^2)*Log[5*(2 + 3*x)] +
78408*(6 + 19*x + 15*x^2)*Log[3 + 5*x])/(225*(2 + 3*x)*(3 + 5*x))
```

Maple [A] time = 0.015, size = 36, normalized size = 0.8

$$-\frac{343}{18+27x}-\frac{1331}{75+125x}+\frac{3136\ln(2+3x)}{9}-\frac{8712\ln(3+5x)}{25}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3/(2+3*x)^2/(3+5*x)^2,x)

[Out] -343/9/(2+3*x)-1331/25/(3+5*x)+3136/9*ln(2+3*x)-8712/25*ln(3+5*x)
```

Maxima [A] time = 1.32563, size = 49, normalized size = 1.14

$$-\frac{78812\,x+49683}{225\,(15\,x^2+19\,x+6)}-\frac{8712}{25}\,\log(5\,x+3)+\frac{3136}{9}\,\log(3\,x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)^3/((5*x + 3)^2*(3*x + 2)^2),x, algorithm="maxima")

[Out] -1/225*(78812*x + 49683)/(15*x^2 + 19*x + 6) - 8712/25*log(5*x +
3) + 3136/9*log(3*x + 2)
```

Fricas [A] time = 0.219204, size = 74, normalized size = 1.72

$$-\frac{78408\left(15\,x^2+19\,x+6\right)\log(5\,x+3)-78400\left(15\,x^2+19\,x+6\right)\log(3\,x+2)+78812\,x+49683}{225\,(15\,x^2+19\,x+6)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)^3/((5*x + 3)^2*(3*x + 2)^2),x, algorithm="fricas")

[Out] -1/225*(78408*(15*x^2 + 19*x + 6)*log(5*x + 3) - 78400*(15*x^2 +
19*x + 6)*log(3*x + 2) + 78812*x + 49683)/(15*x^2 + 19*x + 6)
```

Sympy [A] time = 0.380732, size = 34, normalized size = 0.79

$$-\frac{78812x+49683}{3375x^2+4275x+1350}-\frac{8712\log\left(x+\frac{3}{5}\right)}{25}+\frac{3136\log\left(x+\frac{2}{3}\right)}{9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3/(2+3*x)**2/(3+5*x)**2,x)

[Out] -(78812*x + 49683)/(3375*x**2 + 4275*x + 1350) - 8712*log(x + 3/5
)/25 + 3136*log(x + 2/3)/9
```

GIAC/XCAS [A] time = 0.218148, size = 76, normalized size = 1.77

$$-\frac{1331}{25\,(5\,x+3)}+\frac{1715}{3\left(\frac{1}{5\,x+3}+3\right)}+\frac{8}{225}\ln\left(\frac{|5\,x+3|}{5\,(5\,x+3)^2}\right)+\frac{3136}{9}\ln\left(\left|-\frac{1}{5\,x+3}-3\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)^3/((5*x + 3)^2*(3*x + 2)^2),x, algorithm="giac")

[Out] -1331/25/(5*x + 3) + 1715/3/(1/(5*x + 3) + 3) + 8/225*ln(1/5*abs(
5*x + 3)/(5*x + 3)^2) + 3136/9*ln(abs(-1/(5*x + 3) - 3))
```

3.1395 $\int \frac{(1-2x)^3}{(2+3x)^3(3+5x)^2} dx$

Optimal. Leaf size=50

$$-\frac{3136}{9(3x+2)}-\frac{1331}{5(5x+3)}-\frac{343}{18(3x+2)^2}+2541\log(3x+2)-2541\log(5x+3)$$

```
[Out] -343/(18*(2 + 3*x)^2) - 3136/(9*(2 + 3*x)) - 1331/(5*(3 + 5*x)) +
 2541*Log[2 + 3*x] - 2541*Log[3 + 5*x]
```

Rubi [A] time = 0.0603171, antiderivative size = 50, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{3136}{9(3x+2)}-\frac{1331}{5(5x+3)}-\frac{343}{18(3x+2)^2}+2541\log(3x+2)-2541\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^3/((2 + 3*x)^3*(3 + 5*x)^2),x]
```

```
[Out] -343/(18*(2 + 3*x)^2) - 3136/(9*(2 + 3*x)) - 1331/(5*(3 + 5*x)) +
 2541*Log[2 + 3*x] - 2541*Log[3 + 5*x]
```

Rubi in Sympy [A] time = 4.12107, size = 39, normalized size = 0.78

$$2541\log(3x+2)-2541\log(5x+3)-\frac{1331}{5(5x+3)}-\frac{3136}{9(3x+2)}-\frac{343}{18(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3/(2+3*x)**3/(3+5*x)**2,x)
```

```
[Out] 2541*log(3*x + 2) - 2541*log(5*x + 3) - 1331/(5*(5*x + 3)) - 3136
/(9*(3*x + 2)) - 343/(18*(3*x + 2)**2)
```

Mathematica [A] time = 0.0573003, size = 47, normalized size = 0.94

$$-\frac{686022x^2+891911x+289137}{90(3x+2)^2(5x+3)}+2541\log(5(3x+2))-2541\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^3/((2 + 3*x)^3*(3 + 5*x)^2),x]
```

```
[Out] -(289137 + 891911*x + 686022*x^2)/(90*(2 + 3*x)^2*(3 + 5*x)) + 25
41*Log[5*(2 + 3*x)] - 2541*Log[3 + 5*x]
```

Maple [A] time = 0.015, size = 45, normalized size = 0.9

$$-\frac{343}{18(2+3x)^2}-\frac{3136}{18+27x}-\frac{1331}{15+25x}+2541\ln(2+3x)-2541\ln(3+5x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3/(2+3*x)^3/(3+5*x)^2,x)
```

```
[Out] -343/18/(2+3*x)^2-3136/9/(2+3*x)-1331/5/(3+5*x)+2541*ln(2+3*x)-25
41*ln(3+5*x)
```

Maxima [A] time = 1.37466, size = 62, normalized size = 1.24

$$-\frac{686022\,x^2+891911\,x+289137}{90\,(45\,x^3+87\,x^2+56\,x+12)}-2541\,\log(5\,x+3)+2541\,\log(3\,x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)^3/((5*x + 3)^2*(3*x + 2)^3),x, algorithm="maxima")
```

```
[Out] -1/90*(686022*x^2 + 891911*x + 289137)/(45*x^3 + 87*x^2 + 56*x +
12) - 2541*log(5*x + 3) + 2541*log(3*x + 2)
```

Fricas [A] time = 0.214523, size = 101, normalized size = 2.02

$$-\frac{686022\,x^2+228690\left(45\,x^3+87\,x^2+56\,x+12\right)\log(5\,x+3)-228690\left(45\,x^3+87\,x^2+56\,x+12\right)\log(3\,x+2)+891911\,x+}{90\,(45\,x^3+87\,x^2+56\,x+12)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)^3/((5*x + 3)^2*(3*x + 2)^3),x, algorithm="fricas")
```

```
[Out] -1/90*(686022*x^2 + 228690*(45*x^3 + 87*x^2 + 56*x + 12)*log(5*x
+ 3) - 228690*(45*x^3 + 87*x^2 + 56*x + 12)*log(3*x + 2) + 891911
*x + 289137)/(45*x^3 + 87*x^2 + 56*x + 12)
```

Sympy [A] time = 0.407665, size = 41, normalized size = 0.82

$$-\frac{686022x^2+891911x+289137}{4050x^3+7830x^2+5040x+1080}-2541\log\left(x+\frac{3}{5}\right)+2541\log\left(x+\frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3/(2+3*x)**3/(3+5*x)**2,x)
```

```
[Out] -(686022*x**2 + 891911*x + 289137)/(4050*x**3 + 7830*x**2 + 5040*
x + 1080) - 2541*log(x + 3/5) + 2541*log(x + 2/3)
```

GIAC/XCAS [A] time = 0.210821, size = 66, normalized size = 1.32

$$-\frac{1331}{5\,(5\,x+3)}+\frac{245\left(\frac{66}{5\,x+3}+163\right)}{2\left(\frac{1}{5\,x+3}+3\right)^2}+2541\ln\left(\left|-\frac{1}{5\,x+3}-3\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)^3/((5*x + 3)^2*(3*x + 2)^3),x, algorithm="giac")
```

```
[Out] -1331/5/(5*x + 3) + 245/2*(66/(5*x + 3) + 163)/(1/(5*x + 3) + 3)^
2 + 2541*ln(abs(-1/(5*x + 3) - 3))
```

3.1396 $\int \frac{(1-2x)^3}{(2+3x)^4(3+5x)^2} dx$

Optimal. Leaf size=57

$$-\frac{2541}{3x+2}-\frac{1331}{5x+3}-\frac{1568}{9(3x+2)^2}-\frac{343}{27(3x+2)^3}+16698\log(3x+2)-16698\log(5x+3)$$

```
[Out] -343/(27*(2 + 3*x)^3) - 1568/(9*(2 + 3*x)^2) - 2541/(2 + 3*x) - 1
331/(3 + 5*x) + 16698*Log[2 + 3*x] - 16698*Log[3 + 5*x]
```

Rubi [A] time = 0.0691518, antiderivative size = 57, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$-\frac{2541}{3x+2}-\frac{1331}{5x+3}-\frac{1568}{9(3x+2)^2}-\frac{343}{27(3x+2)^3}+16698\log(3x+2)-16698\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^3/((2 + 3*x)^4*(3 + 5*x)^2),x]
```

```
[Out] -343/(27*(2 + 3*x)^3) - 1568/(9*(2 + 3*x)^2) - 2541/(2 + 3*x) - 1
331/(3 + 5*x) + 16698*Log[2 + 3*x] - 16698*Log[3 + 5*x]
```

Rubi in Sympy [A] time = 4.68658, size = 49, normalized size = 0.86

$$16698\log(3x+2)-16698\log(5x+3)-\frac{1331}{5x+3}-\frac{2541}{3x+2}-\frac{1568}{9(3x+2)^2}-\frac{343}{27(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3/(2+3*x)**4/(3+5*x)**2,x)
```

```
[Out] 16698*log(3*x + 2) - 16698*log(5*x + 3) - 1331/(5*x + 3) - 2541/(
3*x + 2) - 1568/(9*(3*x + 2)**2) - 343/(27*(3*x + 2)**3)
```

Mathematica [A] time = 0.0471501, size = 59, normalized size = 1.04

$$-\frac{2541}{3x+2}-\frac{1331}{5x+3}-\frac{1568}{9(3x+2)^2}-\frac{343}{27(3x+2)^3}+16698\log(5(3x+2))-16698\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^3/((2 + 3*x)^4*(3 + 5*x)^2),x]
```

```
[Out] -343/(27*(2 + 3*x)^3) - 1568/(9*(2 + 3*x)^2) - 2541/(2 + 3*x) - 1
331/(3 + 5*x) + 16698*Log[5*(2 + 3*x)] - 16698*Log[3 + 5*x]
```

Maple [A] time = 0.014, size = 54, normalized size = 1.

$$-\frac{343}{27(2+3x)^3}-\frac{1568}{9(2+3x)^2}-2541(2+3x)^{-1}-1331(3+5x)^{-1}+16698\ln(2+3x)-16698\ln(3+5x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3/(2+3*x)^4/(3+5*x)^2,x)
```

```
[Out] -343/27/(2+3*x)^3-1568/9/(2+3*x)^2-2541/(2+3*x)-1331/(3+5*x)+1669
8*ln(2+3*x)-16698*ln(3+5*x)
```

Maxima [A] time = 1.3337, size = 76, normalized size = 1.33

$$-\frac{4057614\,x^{3}+7979967\,x^{2}+5226815\,x+1140033}{27\,(135\,x^{4}+351\,x^{3}+342\,x^{2}+148\,x+24)}-16698\,\log\left(5\,x+3\right)+16698\,\log\left(3\,x+2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)^3/((5*x + 3)^2*(3*x + 2)^4),x, algorithm="maxima")
```

```
[Out] -1/27*(4057614*x^3 + 7979967*x^2 + 5226815*x + 1140033)/(135*x^4
+ 351*x^3 + 342*x^2 + 148*x + 24) - 16698*log(5*x + 3) + 16698*lo
g(3*x + 2)
```

Fricas [A] time = 0.231965, size = 128, normalized size = 2.25

$$-\frac{4057614\,x^{3}+7979967\,x^{2}+450846\,\left(135\,x^{4}+351\,x^{3}+342\,x^{2}+148\,x+24\right)\log\left(5\,x+3\right)-450846\,\left(135\,x^{4}+351\,x^{3}+342\,x^{2}\right.}{27\,(135\,x^{4}+351\,x^{3}+342\,x^{2}+148\,x+24)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)^3/((5*x + 3)^2*(3*x + 2)^4),x, algorithm="fricas")
```

```
[Out] -1/27*(4057614*x^3 + 7979967*x^2 + 450846*(135*x^4 + 351*x^3 + 34
2*x^2 + 148*x + 24)*log(5*x + 3) - 450846*(135*x^4 + 351*x^3 + 34
2*x^2 + 148*x + 24)*log(3*x + 2) + 5226815*x + 1140033)/(135*x^4
+ 351*x^3 + 342*x^2 + 148*x + 24)
```

Sympy [A] time = 0.473458, size = 51, normalized size = 0.89

$$-\frac{4057614x^{3}+7979967x^{2}+5226815x+1140033}{3645x^{4}+9477x^{3}+9234x^{2}+3996x+648}-16698\log\left(x+\frac{3}{5}\right)+16698\log\left(x+\frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3/(2+3*x)**4/(3+5*x)**2,x)
```

```
[Out] -(4057614*x**3 + 7979967*x**2 + 5226815*x + 1140033)/(3645*x**4 +
 9477*x**3 + 9234*x**2 + 3996*x + 648) - 16698*log(x + 3/5) + 166
98*log(x + 2/3)
```

GIAC/XCAS [A] time = 0.213169, size = 78, normalized size = 1.37

$$-\frac{1331}{5\,x+3}+\frac{35\,\left(\frac{11119}{5\,x+3}+\frac{2244}{(5\,x+3)^{2}}+14386\right)}{\left(\frac{1}{5\,x+3}+3\right)^{3}}+16698\,\ln\left(\left|-\frac{1}{5\,x+3}-3\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)^3/((5*x + 3)^2*(3*x + 2)^4),x, algorithm="giac")
```

```
[Out] -1331/(5*x + 3) + 35*(11119/(5*x + 3) + 2244/(5*x + 3)^2 + 14386)
/(1/(5*x + 3) + 3)^3 + 16698*ln(abs(-1/(5*x + 3) - 3))
```

3.1397 $\int \frac{(1-2x)^3}{(2+3x)^5(3+5x)^2}\,dx$

Optimal. Leaf size=68

$$-\frac{16698}{3x+2}-\frac{6655}{5x+3}-\frac{2541}{2(3x+2)^2}-\frac{3136}{27(3x+2)^3}-\frac{343}{36(3x+2)^4}+103455\log(3x+2)-103455\log(5x+3)$$

```
[Out] -343/(36*(2 + 3*x)^4) - 3136/(27*(2 + 3*x)^3) - 2541/(2*(2 + 3*x)
^2) - 16698/(2 + 3*x) - 6655/(3 + 5*x) + 103455*Log[2 + 3*x] - 10
3455*Log[3 + 5*x]
```

Rubi [A] time = 0.0798527, antiderivative size = 68, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{16698}{3x+2}-\frac{6655}{5x+3}-\frac{2541}{2(3x+2)^2}-\frac{3136}{27(3x+2)^3}-\frac{343}{36(3x+2)^4}+103455\log(3x+2)-103455\log(5x+3)$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^3/((2 + 3*x)^5*(3 + 5*x)^2),x]
```

```
[Out] -343/(36*(2 + 3*x)^4) - 3136/(27*(2 + 3*x)^3) - 2541/(2*(2 + 3*x)
^2) - 16698/(2 + 3*x) - 6655/(3 + 5*x) + 103455*Log[2 + 3*x] - 10
3455*Log[3 + 5*x]
```

Rubi in Sympy [A] time = 5.30968, size = 60, normalized size = 0.88

$$103455\log(3x+2)-103455\log(5x+3)-\frac{6655}{5x+3}-\frac{16698}{3x+2}-\frac{2541}{2(3x+2)^2}-\frac{3136}{27(3x+2)^3}-\frac{343}{36(3x+2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**3/(2+3*x)**5/(3+5*x)**2,x)
```

```
[Out] 103455*log(3*x + 2) - 103455*log(5*x + 3) - 6655/(5*x + 3) - 1669
8/(3*x + 2) - 2541/(2*(3*x + 2)**2) - 3136/(27*(3*x + 2)**3) - 34
3/(36*(3*x + 2)**4)
```

Mathematica [A] time = 0.053169, size = 70, normalized size = 1.03

$$-\frac{16698}{3x+2}-\frac{6655}{5x+3}-\frac{2541}{2(3x+2)^2}-\frac{3136}{27(3x+2)^3}-\frac{343}{36(3x+2)^4}+103455\log(5(3x+2))-103455\log(5x+3)$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)^3/((2 + 3*x)^5*(3 + 5*x)^2),x]
```

```
[Out] -343/(36*(2 + 3*x)^4) - 3136/(27*(2 + 3*x)^3) - 2541/(2*(2 + 3*x)
^2) - 16698/(2 + 3*x) - 6655/(3 + 5*x) + 103455*Log[5*(2 + 3*x)]
- 103455*Log[3 + 5*x]
```

Maple [A] time = 0.016, size = 63, normalized size = 0.9

$$-\frac{343}{36\,(2+3\,x)^4}-\frac{3136}{27\,(2+3\,x)^3}-\frac{2541}{2\,(2+3\,x)^2}-16698\,(2+3\,x)^{-1}$$
$$-6655\,(3+5\,x)^{-1}+103455\,\ln(2+3\,x)-103455\,\ln(3+5\,x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3/(2+3*x)^5/(3+5*x)^2,x)
```

```
[Out] -343/36/(2+3*x)^4-3136/27/(2+3*x)^3-2541/2/(2+3*x)^2-16698/(2+3*x
)-6655/(3+5*x)+103455*ln(2+3*x)-103455*ln(3+5*x)
```

Maxima [A] time = 1.34131, size = 89, normalized size = 1.31

$$-\frac{301674780\,x^4+794410254\,x^3+784130946\,x^2+343827337\,x+56505975}{108\,(405\,x^5+1323\,x^4+1728\,x^3+1128\,x^2+368\,x+48)} - 103455\,\log(5\,x+3)+103455\,\log(3\,x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)^3/((5*x + 3)^2*(3*x + 2)^5),x, algorithm="maxima")
```

```
[Out] -1/108*(301674780*x^4 + 794410254*x^3 + 784130946*x^2 + 343827337
*x + 56505975)/(405*x^5 + 1323*x^4 + 1728*x^3 + 1128*x^2 + 368*x
+ 48) - 103455*log(5*x + 3) + 103455*log(3*x + 2)
```

Fricas [A] time = 0.220083, size = 155, normalized size = 2.28

$$-\frac{301674780\,x^4+794410254\,x^3+784130946\,x^2+11173140\,(405\,x^5+1323\,x^4+1728\,x^3+1128\,x^2+368\,x+48)\,\log(5\,x+3}{108\,(405\,x^5+1323\,x^4+1728\,x^3+11}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)^3/((5*x + 3)^2*(3*x + 2)^5),x, algorithm="fricas")
```

```
[Out] -1/108*(301674780*x^4 + 794410254*x^3 + 784130946*x^2 + 11173140*
(405*x^5 + 1323*x^4 + 1728*x^3 + 1128*x^2 + 368*x + 48)*log(5*x +
 3) - 11173140*(405*x^5 + 1323*x^4 + 1728*x^3 + 1128*x^2 + 368*x
+ 48)*log(3*x + 2) + 343827337*x + 56505975)/(405*x^5 + 1323*x^4
+ 1728*x^3 + 1128*x^2 + 368*x + 48)
```

Sympy [A] time = 0.509351, size = 61, normalized size = 0.9

$$-\frac{301674780x^4+794410254x^3+784130946x^2+343827337x+56505975}{43740x^5+142884x^4+186624x^3+121824x^2+39744x+5184} - 103455\log\left(x+\frac{3}{5}\right)+103455\log\left(x+\frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3/(2+3*x)**5/(3+5*x)**2,x)
```

```
[Out] -(301674780*x**4 + 794410254*x**3 + 784130946*x**2 + 343827337*x
+ 56505975)/(43740*x**5 + 142884*x**4 + 186624*x**3 + 121824*x**2
 + 39744*x + 5184) - 103455*log(x + 3/5) + 103455*log(x + 2/3)
```

GIAC/XCAS [A] time = 0.208187, size = 90, normalized size = 1.32

$$-\frac{6655}{5\,x+3}+\frac{5\left(\frac{9923332}{5\,x+3}+\frac{3831284}{(5\,x+3)^2}+\frac{514536}{(5\,x+3)^3}+8795037\right)}{4\left(\frac{1}{5\,x+3}+3\right)^4}+103455\ln\left(\left|-\frac{1}{5\,x+3}-3\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)^3/((5*x + 3)^2*(3*x + 2)^5),x, algorithm="giac")
```

```
[Out] -6655/(5*x + 3) + 5/4*(9923332/(5*x + 3) + 3831284/(5*x + 3)^2 +
514536/(5*x + 3)^3 + 8795037)/(1/(5*x + 3) + 3)^4 + 103455*ln(abs
(-1/(5*x + 3) - 3))
```

3.1398 $\int \frac{(1-2x)^3}{(2+3x)^6(3+5x)^2} \, dx$

Optimal. Leaf size=75

$$-\frac{103455}{3x+2}-\frac{33275}{5x+3}-\frac{8349}{(3x+2)^2}-\frac{847}{(3x+2)^3}-\frac{784}{9(3x+2)^4}-\frac{343}{45(3x+2)^5}+617100\log(3x+2)-617100\log(5x+3)$$

```
[Out] -343/(45*(2 + 3*x)^5) - 784/(9*(2 + 3*x)^4) - 847/(2 + 3*x)^3 - 8
349/(2 + 3*x)^2 - 103455/(2 + 3*x) - 33275/(3 + 5*x) + 617100*Log
[2 + 3*x] - 617100*Log[3 + 5*x]
```

Rubi [A] time = 0.093444, antiderivative size = 75, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$-\frac{103455}{3x+2}-\frac{33275}{5x+3}-\frac{8349}{(3x+2)^2}-\frac{847}{(3x+2)^3}-\frac{784}{9(3x+2)^4}-\frac{343}{45(3x+2)^5}+617100\log(3x+2)-617100\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^3/((2 + 3*x)^6*(3 + 5*x)^2),x]
```

```
[Out] -343/(45*(2 + 3*x)^5) - 784/(9*(2 + 3*x)^4) - 847/(2 + 3*x)^3 - 8
349/(2 + 3*x)^2 - 103455/(2 + 3*x) - 33275/(3 + 5*x) + 617100*Log
[2 + 3*x] - 617100*Log[3 + 5*x]
```

Rubi in Sympy [A] time = 5.92648, size = 66, normalized size = 0.88

$$617100\log(3x+2)-617100\log(5x+3)-\frac{33275}{5x+3}-\frac{103455}{3x+2}-\frac{8349}{(3x+2)^2}-\frac{847}{(3x+2)^3}-\frac{784}{9(3x+2)^4}-\frac{343}{45(3x+2)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3/(2+3*x)**6/(3+5*x)**2,x)
```

```
[Out] 617100*log(3*x + 2) - 617100*log(5*x + 3) - 33275/(5*x + 3) - 103
455/(3*x + 2) - 8349/(3*x + 2)**2 - 847/(3*x + 2)**3 - 784/(9*(3*
x + 2)**4) - 343/(45*(3*x + 2)**5)
```

Mathematica [A] time = 0.0994562, size = 62, normalized size = 0.83

$$-\frac{2249329500x^5+7422787350x^4+9795413430x^3+6461351715x^2+2130399775x+280877649}{45(3x+2)^5(5x+3)}+617100\log(5(3x+2))-617100\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^3/((2 + 3*x)^6*(3 + 5*x)^2),x]
```

```
[Out] -(280877649 + 2130399775*x + 6461351715*x^2 + 9795413430*x^3 + 74
22787350*x^4 + 2249329500*x^5)/(45*(2 + 3*x)^5*(3 + 5*x)) + 61710
```

```
0*Log[5*(2 + 3*x)] - 617100*Log[3 + 5*x]
```

Maple [A] time = 0.016, size = 72, normalized size = 1.

$$-\frac{343}{45\,(2+3\,x)^{5}}-\frac{784}{9\,(2+3\,x)^{4}}-847\,(2+3\,x)^{-3}-8349\,(2+3\,x)^{-2}-103455\,(2+3\,x)^{-1}-33275\,(3+5\,x)^{-1}+617100\,\ln(2+3\,x)-617100\,\ln(3+5\,x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3/(2+3*x)^6/(3+5*x)^2,x)
```

```
[Out] -343/45/(2+3*x)^5-784/9/(2+3*x)^4-847/(2+3*x)^3-8349/(2+3*x)^2-10
3455/(2+3*x)-33275/(3+5*x)+617100*ln(2+3*x)-617100*ln(3+5*x)
```

Maxima [A] time = 1.36055, size = 103, normalized size = 1.37

$$-\frac{2249329500\,x^{5}+7422787350\,x^{4}+9795413430\,x^{3}+6461351715\,x^{2}+2130399775\,x+280877649}{45\,(1215\,x^{6}+4779\,x^{5}+7830\,x^{4}+6840\,x^{3}+3360\,x^{2}+880\,x+96)}-617100\,\log(5\,x+3)+617100\,\log(3\,x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)^3/((5*x + 3)^2*(3*x + 2)^6),x, algorithm="maxima")
```

```
[Out] -1/45*(2249329500*x^5 + 7422787350*x^4 + 9795413430*x^3 + 6461351
715*x^2 + 2130399775*x + 280877649)/(1215*x^6 + 4779*x^5 + 7830*x
^4 + 6840*x^3 + 3360*x^2 + 880*x + 96) - 617100*log(5*x + 3) + 61
7100*log(3*x + 2)
```

Fricas [A] time = 0.207945, size = 182, normalized size = 2.43

$$-\frac{2249329500\,x^{5}+7422787350\,x^{4}+9795413430\,x^{3}+6461351715\,x^{2}+27769500\,\left(1215\,x^{6}+4779\,x^{5}+7830\,x^{4}+6840\,x^{3}+3\cdots\right.}{45\,(1215\,x^{6}+4779\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)^3/((5*x + 3)^2*(3*x + 2)^6),x, algorithm="fricas")
```

```
[Out] -1/45*(2249329500*x^5 + 7422787350*x^4 + 9795413430*x^3 + 6461351
715*x^2 + 27769500*(1215*x^6 + 4779*x^5 + 7830*x^4 + 6840*x^3 + 3
360*x^2 + 880*x + 96)*log(5*x + 3) - 27769500*(1215*x^6 + 4779*x^
5 + 7830*x^4 + 6840*x^3 + 3360*x^2 + 880*x + 96)*log(3*x + 2) + 2
130399775*x + 280877649)/(1215*x^6 + 4779*x^5 + 7830*x^4 + 6840*x
^3 + 3360*x^2 + 880*x + 96)
```

Sympy [A] time = 0.585638, size = 71, normalized size = 0.95

$$-\frac{2249329500x^{5}+7422787350x^{4}+9795413430x^{3}+6461351715x^{2}+2130399775x+280877649}{54675x^{6}+215055x^{5}+352350x^{4}+307800x^{3}+151200x^{2}+39600x+4320}-617100\log\left(x+\frac{3}{5}\right)+617100\log\left(x+\frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3/(2+3*x)**6/(3+5*x)**2,x)
```

```
[Out] -(2249329500*x**5 + 7422787350*x**4 + 9795413430*x**3 + 646135171
5*x**2 + 2130399775*x + 280877649)/(54675*x**6 + 215055*x**5 + 35
2350*x**4 + 307800*x**3 + 151200*x**2 + 39600*x + 4320) - 617100*
log(x + 3/5) + 617100*log(x + 2/3)
```

GIAC/XCAS [A] time = 0.211882, size = 103, normalized size = 1.37

$$-\frac{33275}{5x+3}+\frac{25\left(\frac{13068279}{5x+3}+\frac{7369449}{(5x+3)^2}+\frac{1895648}{(5x+3)^3}+\frac{190707}{(5x+3)^4}+8846550\right)}{\left(\frac{1}{5x+3}+3\right)^5}+617100\ln\left(\left|-\frac{1}{5x+3}-3\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)^3/((5*x + 3)^2*(3*x + 2)^6),x, algorithm="giac")
```

```
[Out] -33275/(5*x + 3) + 25*(13068279/(5*x + 3) + 7369449/(5*x + 3)^2 +
 1895648/(5*x + 3)^3 + 190707/(5*x + 3)^4 + 8846550)/(1/(5*x + 3)
 + 3)^5 + 617100*ln(abs(-1/(5*x + 3) - 3))
```

3.1399 $\int \frac{(1-2x)^3}{(2+3x)^7(3+5x)^2}\,dx$

Optimal. Leaf size=88

$$-\frac{617100}{3x+2}-\frac{166375}{5x+3}-\frac{103455}{2(3x+2)^2}-\frac{5566}{(3x+2)^3}-\frac{2541}{4(3x+2)^4}-\frac{3136}{45(3x+2)^5}-\frac{343}{54(3x+2)^6}+3584625\log(3x+2)-3584625\log(5x+3)$$

```
[Out] -343/(54*(2 + 3*x)^6) - 3136/(45*(2 + 3*x)^5) - 2541/(4*(2 + 3*x)
^4) - 5566/(2 + 3*x)^3 - 103455/(2*(2 + 3*x)^2) - 617100/(2 + 3*x
) - 166375/(3 + 5*x) + 3584625*Log[2 + 3*x] - 3584625*Log[3 + 5*x
]
```

Rubi [A] time = 0.104875, antiderivative size = 88, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{617100}{3x+2}-\frac{166375}{5x+3}-\frac{103455}{2(3x+2)^2}-\frac{5566}{(3x+2)^3}-\frac{2541}{4(3x+2)^4}-\frac{3136}{45(3x+2)^5}-\frac{343}{54(3x+2)^6}+3584625\log(3x+2)-3584625\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^3/((2 + 3*x)^7*(3 + 5*x)^2),x]
```

```
[Out] -343/(54*(2 + 3*x)^6) - 3136/(45*(2 + 3*x)^5) - 2541/(4*(2 + 3*x)
^4) - 5566/(2 + 3*x)^3 - 103455/(2*(2 + 3*x)^2) - 617100/(2 + 3*x
) - 166375/(3 + 5*x) + 3584625*Log[2 + 3*x] - 3584625*Log[3 + 5*x
]
```

Rubi in Sympy [A] time = 6.65018, size = 78, normalized size = 0.89

$$3584625\log(3x+2)-3584625\log(5x+3)-\frac{166375}{5x+3}-\frac{617100}{3x+2}-\frac{103455}{2(3x+2)^2}-\frac{5566}{(3x+2)^3}-\frac{2541}{4(3x+2)^4}-\frac{3136}{45(3x+2)^5}-\frac{343}{54(3x+2)^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3/(2+3*x)**7/(3+5*x)**2,x)
```

```
[Out] 3584625*log(3*x + 2) - 3584625*log(5*x + 3) - 166375/(5*x + 3) -
617100/(3*x + 2) - 103455/(2*(3*x + 2)**2) - 5566/(3*x + 2)**3 -
2541/(4*(3*x + 2)**4) - 3136/(45*(3*x + 2)**5) - 343/(54*(3*x + 2
)**6)
```

Mathematica [A] time = 0.148519, size = 90, normalized size = 1.02

$$-\frac{617100}{3x+2}-\frac{166375}{5x+3}-\frac{103455}{2(3x+2)^2}-\frac{5566}{(3x+2)^3}-\frac{2541}{4(3x+2)^4}-\frac{3136}{45(3x+2)^5}-\frac{343}{54(3x+2)^6}+3584625\log(5(3x+2))-3584625\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^3/((2 + 3*x)^7*(3 + 5*x)^2),x]
```

```
[Out] -343/(54*(2 + 3*x)^6) - 3136/(45*(2 + 3*x)^5) - 2541/(4*(2 + 3*x)
^4) - 5566/(2 + 3*x)^3 - 103455/(2*(2 + 3*x)^2) - 617100/(2 + 3*x
) - 166375/(3 + 5*x) + 3584625*Log[5*(2 + 3*x)] - 3584625*Log[3 +
 5*x]
```

Maple [A] time = 0.016, size = 81, normalized size = 0.9

$$-\frac{343}{54\,(2+3\,x)^6}-\frac{3136}{45\,(2+3\,x)^5}-\frac{2541}{4\,(2+3\,x)^4}-5566\,(2+3\,x)^{-3}-\frac{103455}{2\,(2+3\,x)^2}-617100\,(2+3\,x)^{-1}-166375\,(3+5\,x)^{-1}+3584625\,\ln(2+3\,x)-3584625\,\ln(3+5\,x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3/(2+3*x)^7/(3+5*x)^2,x)
```

```
[Out] -343/54/(2+3*x)^6-3136/45/(2+3*x)^5-2541/4/(2+3*x)^4-5566/(2+3*x)
^3-103455/2/(2+3*x)^2-617100/(2+3*x)-166375/(3+5*x)+3584625*ln(2+
3*x)-3584625*ln(3+5*x)
```

Maxima [A] time = 1.33509, size = 116, normalized size = 1.32

$$-\frac{470374492500\,x^6+1865818820250\,x^5+3083217691950\,x^4+2716778541015\,x^3+1346292632205\,x^2+355739265638\,x+}{540\,(3645\,x^7+16767\,x^6+33048\,x^5+36180\,x^4+23760\,x^3+9360\,x^2+2048\,x+192)}-3584625\,\log(5\,x+3)+3584625\,\log(3\,x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)^3/((5*x + 3)^2*(3*x + 2)^7),x, algorithm="maxima")
```

```
[Out] -1/540*(470374492500*x^6 + 1865818820250*x^5 + 3083217691950*x^4
+ 2716778541015*x^3 + 1346292632205*x^2 + 355739265638*x + 391576
48662)/(3645*x^7 + 16767*x^6 + 33048*x^5 + 36180*x^4 + 23760*x^3
+ 9360*x^2 + 2048*x + 192) - 3584625*log(5*x + 3) + 3584625*log(3
*x + 2)
```

Fricas [A] time = 0.206966, size = 209, normalized size = 2.38

$$-\frac{470374492500\,x^6+1865818820250\,x^5+3083217691950\,x^4+2716778541015\,x^3+1346292632205\,x^2+1935697500\,(3645}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)^3/((5*x + 3)^2*(3*x + 2)^7),x, algorithm="fricas")
```

```
[Out] -1/540*(470374492500*x^6 + 1865818820250*x^5 + 3083217691950*x^4
+ 2716778541015*x^3 + 1346292632205*x^2 + 1935697500*(3645*x^7 +
16767*x^6 + 33048*x^5 + 36180*x^4 + 23760*x^3 + 9360*x^2 + 2048*x
 + 192)*log(5*x + 3) - 1935697500*(3645*x^7 + 16767*x^6 + 33048*x
^5 + 36180*x^4 + 23760*x^3 + 9360*x^2 + 2048*x + 192)*log(3*x + 2
) + 355739265638*x + 39157648662)/(3645*x^7 + 16767*x^6 + 33048*x
^5 + 36180*x^4 + 23760*x^3 + 9360*x^2 + 2048*x + 192)
```

Sympy [A] time = 0.623236, size = 82, normalized size = 0.93

$$-\frac{470374492500x^6+1865818820250x^5+3083217691950x^4+2716778541015x^3+1346292632205x^2+355739265638x+39}{1968300x^7+9054180x^6+17845920x^5+19537200x^4+12830400x^3+5054400x^2+1105920x+103680}-3584625\log\left(x+\frac{3}{5}\right)+3584625\log\left(x+\frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3/(2+3*x)**7/(3+5*x)**2,x)
```

```
[Out] -(470374492500*x**6 + 1865818820250*x**5 + 3083217691950*x**4 + 2
716778541015*x**3 + 1346292632205*x**2 + 355739265638*x + 3915764
8662)/(1968300*x**7 + 9054180*x**6 + 17845920*x**5 + 19537200*x**
4 + 12830400*x**3 + 5054400*x**2 + 1105920*x + 103680) - 3584625*
log(x + 3/5) + 3584625*log(x + 2/3)
```

GIAC/XCAS [A] time = 0.20826, size = 115, normalized size = 1.31

$$-\frac{166375}{5x+3}+\frac{125\left(\frac{246075138}{5x+3}+\frac{181716633}{(5x+3)^2}+\frac{68296076}{(5x+3)^3}+\frac{13169954}{(5x+3)^4}+\frac{1059036}{(5x+3)^5}+135033993\right)}{4\left(\frac{1}{5x+3}+3\right)^6}+3584625\ln\left(\left|-\frac{1}{5x+3}-3\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)^3/((5*x + 3)^2*(3*x + 2)^7),x, algorithm="giac")
```

```
[Out] -166375/(5*x + 3) + 125/4*(246075138/(5*x + 3) + 181716633/(5*x +
 3)^2 + 68296076/(5*x + 3)^3 + 13169954/(5*x + 3)^4 + 1059036/(5*
x + 3)^5 + 135033993)/(1/(5*x + 3) + 3)^6 + 3584625*ln(abs(-1/(5*
x + 3) - 3))
```

3.1400 $\int \frac{(1-2x)^3}{(2+3x)^8(3+5x)^2}\,dx$

Optimal. Leaf size=97

$$-\frac{3584625}{3x+2}-\frac{831875}{5x+3}-\frac{308550}{(3x+2)^2}-\frac{34485}{(3x+2)^3}-\frac{8349}{2(3x+2)^4}-\frac{2541}{5(3x+2)^5}-\frac{1568}{27(3x+2)^6}-\frac{49}{9(3x+2)^7}+20418750\log(3x+2)-20418750\log(5x+3)$$

```
[Out] -49/(9*(2 + 3*x)^7) - 1568/(27*(2 + 3*x)^6) - 2541/(5*(2 + 3*x)^5
) - 8349/(2*(2 + 3*x)^4) - 34485/(2 + 3*x)^3 - 308550/(2 + 3*x)^2
 - 3584625/(2 + 3*x) - 831875/(3 + 5*x) + 20418750*Log[2 + 3*x] -
 20418750*Log[3 + 5*x]
```

Rubi [A] time = 0.118892, antiderivative size = 97, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{3584625}{3x+2}-\frac{831875}{5x+3}-\frac{308550}{(3x+2)^2}-\frac{34485}{(3x+2)^3}-\frac{8349}{2(3x+2)^4}-\frac{2541}{5(3x+2)^5}-\frac{1568}{27(3x+2)^6}-\frac{49}{9(3x+2)^7}+20418750\log(3x+2)-20418750\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^3/((2 + 3*x)^8*(3 + 5*x)^2),x]
```

```
[Out] -49/(9*(2 + 3*x)^7) - 1568/(27*(2 + 3*x)^6) - 2541/(5*(2 + 3*x)^5
) - 8349/(2*(2 + 3*x)^4) - 34485/(2 + 3*x)^3 - 308550/(2 + 3*x)^2
 - 3584625/(2 + 3*x) - 831875/(3 + 5*x) + 20418750*Log[2 + 3*x] -
 20418750*Log[3 + 5*x]
```

Rubi in Sympy [A] time = 7.34438, size = 87, normalized size = 0.9

$$20418750\log(3x+2)-20418750\log(5x+3)-\frac{831875}{5x+3}-\frac{3584625}{3x+2}-\frac{308550}{(3x+2)^2}-\frac{34485}{(3x+2)^3}-\frac{8349}{2(3x+2)^4}-\frac{2541}{5(3x+2)^5}-\frac{1568}{27(3x+2)^6}-\frac{49}{9(3x+2)^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3/(2+3*x)**8/(3+5*x)**2,x)
```

```
[Out] 20418750*log(3*x + 2) - 20418750*log(5*x + 3) - 831875/(5*x + 3)
- 3584625/(3*x + 2) - 308550/(3*x + 2)**2 - 34485/(3*x + 2)**3 -
8349/(2*(3*x + 2)**4) - 2541/(5*(3*x + 2)**5) - 1568/(27*(3*x + 2
)**6) - 49/(9*(3*x + 2)**7)
```

Mathematica [A] time = 0.165366, size = 99, normalized size = 1.02

$$-\frac{3584625}{3x+2}-\frac{831875}{5x+3}-\frac{308550}{(3x+2)^2}-\frac{34485}{(3x+2)^3}-\frac{8349}{2(3x+2)^4}-\frac{2541}{5(3x+2)^5}-\frac{1568}{27(3x+2)^6}-\frac{49}{9(3x+2)^7}+20418750\log(5(3x+2))-20418750\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^3/((2 + 3*x)^8*(3 + 5*x)^2),x]
```

```
[Out] -49/(9*(2 + 3*x)^7) - 1568/(27*(2 + 3*x)^6) - 2541/(5*(2 + 3*x)^5
) - 8349/(2*(2 + 3*x)^4) - 34485/(2 + 3*x)^3 - 308550/(2 + 3*x)^2
 - 3584625/(2 + 3*x) - 831875/(3 + 5*x) + 20418750*Log[5*(2 + 3*x
)] - 20418750*Log[3 + 5*x]
```

Maple [A] time = 0.016, size = 90, normalized size = 0.9

$$-\frac{49}{9\,(2+3\,x)^{7}}-\frac{1568}{27\,(2+3\,x)^{6}}-\frac{2541}{5\,(2+3\,x)^{5}}-\frac{8349}{2\,(2+3\,x)^{4}}-34485\,(2+3\,x)^{-3}-308550\,(2+3\,x)^{-2}$$
$$-3584625\,(2+3\,x)^{-1}-831875\,(3+5\,x)^{-1}+20418750\,\ln(2+3\,x)-20418750\,\ln(3+5\,x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3/(2+3*x)^8/(3+5*x)^2,x)
```

```
[Out] -49/9/(2+3*x)^7-1568/27/(2+3*x)^6-2541/5/(2+3*x)^5-8349/2/(2+3*x)
^4-34485/(2+3*x)^3-308550/(2+3*x)^2-3584625/(2+3*x)-831875/(3+5*x
)+20418750*ln(2+3*x)-20418750*ln(3+5*x)
```

Maxima [A] time = 1.36808, size = 130, normalized size = 1.34

$$-\frac{4019022562500\,x^{7}+18621471206250\,x^{6}+36972030521250\,x^{5}+40775613627375\,x^{4}+26978454053595\,x^{3}+10708299857}{270\,(10935\,x^{8}+57591\,x^{7}+132678\,x^{6}+174636\,x^{5}+143640\,x^{4}+75600\,x^{3}+24864\,x^{2}+46}$$
$$-20418750\,\log(5\,x+3)+20418750\,\log(3\,x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)^3/((5*x + 3)^2*(3*x + 2)^8),x, algorithm="maxima")
```

```
[Out] -1/270*(4019022562500*x^7 + 18621471206250*x^6 + 36972030521250*x
^5 + 40775613627375*x^4 + 26978454053595*x^3 + 10708299857748*x^2
 + 2360937751874*x + 223049897418)/(10935*x^8 + 57591*x^7 + 13267
8*x^6 + 174636*x^5 + 143640*x^4 + 75600*x^3 + 24864*x^2 + 4672*x
+ 384) - 20418750*log(5*x + 3) + 20418750*log(3*x + 2)
```

Fricas [A] time = 0.215811, size = 236, normalized size = 2.43

$$-\frac{4019022562500\,x^{7}+18621471206250\,x^{6}+36972030521250\,x^{5}+40775613627375\,x^{4}+26978454053595\,x^{3}+10708299857}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)^3/((5*x + 3)^2*(3*x + 2)^8),x, algorithm="fricas")
```

```
[Out] -1/270*(4019022562500*x^7 + 18621471206250*x^6 + 36972030521250*x
^5 + 40775613627375*x^4 + 26978454053595*x^3 + 10708299857748*x^2
 + 5513062500*(10935*x^8 + 57591*x^7 + 132678*x^6 + 174636*x^5 +
143640*x^4 + 75600*x^3 + 24864*x^2 + 4672*x + 384)*log(5*x + 3) -
 5513062500*(10935*x^8 + 57591*x^7 + 132678*x^6 + 174636*x^5 + 14
3640*x^4 + 75600*x^3 + 24864*x^2 + 4672*x + 384)*log(3*x + 2) + 2
360937751874*x + 223049897418)/(10935*x^8 + 57591*x^7 + 132678*x^
6 + 174636*x^5 + 143640*x^4 + 75600*x^3 + 24864*x^2 + 4672*x + 38
4)
```

Sympy [A] time = 0.715254, size = 92, normalized size = 0.95

$$-\frac{4019022562500x^7 + 18621471206250x^6 + 36972030521250x^5 + 40775613627375x^4 + 26978454053595x^3 + 107082998577}{2952450x^8 + 15549570x^7 + 35823060x^6 + 47151720x^5 + 38782800x^4 + 20412000x^3 + 6713280x^2 + 1}$$
$$- 20418750\log\left(x + \frac{3}{5}\right) + 20418750\log\left(x + \frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3/(2+3*x)**8/(3+5*x)**2,x)
```

```
[Out] -(4019022562500*x**7 + 18621471206250*x**6 + 36972030521250*x**5
+ 40775613627375*x**4 + 26978454053595*x**3 + 10708299857748*x**2
 + 2360937751874*x + 223049897418)/(2952450*x**8 + 15549570*x**7
+ 35823060*x**6 + 47151720*x**5 + 38782800*x**4 + 20412000*x**3 +
 6713280*x**2 + 1261440*x + 103680) - 20418750*log(x + 3/5) + 204
18750*log(x + 2/3)
```

GIAC/XCAS [A] time = 0.219803, size = 127, normalized size = 1.31

$$-\frac{831875}{5\,x+3} + \frac{625\left(\frac{537521373}{5\,x+3} + \frac{489712095}{(5\,x+3)^2} + \frac{241051911}{(5\,x+3)^3} + \frac{67932770}{(5\,x+3)^4} + \frac{10476370}{(5\,x+3)^5} + \frac{701580}{(5\,x+3)^6} + 248285331\right)}{2\left(\frac{1}{5\,x+3} + 3\right)^7}$$
$$+ 20418750\ln\left(\left|-\frac{1}{5\,x+3} - 3\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)^3/((5*x + 3)^2*(3*x + 2)^8),x, algorithm="giac")
```

```
[Out] -831875/(5*x + 3) + 625/2*(537521373/(5*x + 3) + 489712095/(5*x +
 3)^2 + 241051911/(5*x + 3)^3 + 67932770/(5*x + 3)^4 + 10476370/(
5*x + 3)^5 + 701580/(5*x + 3)^6 + 248285331)/(1/(5*x + 3) + 3)^7
+ 20418750*ln(abs(-1/(5*x + 3) - 3))
```

3.1401 $\int \frac{(1-2x)^3(2+3x)^7}{(3+5x)^3} \, dx$

Optimal. Leaf size=87

$$-\frac{2187x^8}{125}-\frac{119556x^7}{4375}+\frac{33291x^6}{3125}+\frac{491913x^5}{15625}+\frac{6507x^4}{62500}-\frac{5918904x^3}{390625}-\frac{2300646x^2}{1953125}+\frac{46214407x}{9765625}-\frac{1089}{1953125(5x+3)}-\frac{1331}{97656250(5x+3)^2}+\frac{47289\log(5x+3)}{9765625}$$

```
[Out] (46214407*x)/9765625 - (2300646*x^2)/1953125 - (5918904*x^3)/3906
25 + (6507*x^4)/62500 + (491913*x^5)/15625 + (33291*x^6)/3125 - (
119556*x^7)/4375 - (2187*x^8)/125 - 1331/(97656250*(3 + 5*x)^2) -
 1089/(1953125*(3 + 5*x)) + (47289*Log[3 + 5*x])/9765625
```

Rubi [A] time = 0.107691, antiderivative size = 87, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$-\frac{2187x^8}{125}-\frac{119556x^7}{4375}+\frac{33291x^6}{3125}+\frac{491913x^5}{15625}+\frac{6507x^4}{62500}-\frac{5918904x^3}{390625}-\frac{2300646x^2}{1953125}+\frac{46214407x}{9765625}-\frac{1089}{1953125(5x+3)}-\frac{1331}{97656250(5x+3)^2}+\frac{47289\log(5x+3)}{9765625}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^3*(2 + 3*x)^7)/(3 + 5*x)^3,x]
```

```
[Out] (46214407*x)/9765625 - (2300646*x^2)/1953125 - (5918904*x^3)/3906
25 + (6507*x^4)/62500 + (491913*x^5)/15625 + (33291*x^6)/3125 - (
119556*x^7)/4375 - (2187*x^8)/125 - 1331/(97656250*(3 + 5*x)^2) -
 1089/(1953125*(3 + 5*x)) + (47289*Log[3 + 5*x])/9765625
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{2187x^8}{125}-\frac{119556x^7}{4375}+\frac{33291x^6}{3125}+\frac{491913x^5}{15625}+\frac{6507x^4}{62500}-\frac{5918904x^3}{390625}+\frac{47289\log(5x+3)}{9765625}+\int \frac{46214407}{9765625}\, dx-\frac{4601292\int x\, dx}{1953125}-\frac{1089}{1953125(5x+3)}-\frac{1331}{97656250(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3*(2+3*x)**7/(3+5*x)**3,x)
```

```
[Out] -2187*x**8/125 - 119556*x**7/4375 + 33291*x**6/3125 + 491913*x**5
/15625 + 6507*x**4/62500 - 5918904*x**3/390625 + 47289*log(5*x +
3)/9765625 + Integral(46214407/9765625, x) - 4601292*Integral(x,
x)/1953125 - 1089/(1953125*(5*x + 3)) - 1331/(97656250*(5*x + 3)*
*2)
```

Mathematica [A] time = 0.0562047, size = 76, normalized size = 0.87

$$\frac{-598007812500x^{10}-1651640625000x^9-972000000000x^8+1176752812500x^7+1425913453125x^6-126252393750x^5-6}{1367187500(}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^3*(2 + 3*x)^7)/(3 + 5*x)^3,x]
```

```
[Out] (17925405377 + 117985377690*x + 229405636575*x^2 - 73008617500*x^
3 - 660465159375*x^4 - 126252393750*x^5 + 1425913453125*x^6 + 117
6752812500*x^7 - 972000000000*x^8 - 1651640625000*x^9 - 598007812
500*x^10 + 6620460*(3 + 5*x)^2*Log[3 + 5*x])/(1367187500*(3 + 5*x
)^2)
```

Maple [A] time = 0.01, size = 66, normalized size = 0.8

$$\frac{46214407\,x}{9765625}-\frac{2300646\,x^{2}}{1953125}-\frac{5918904\,x^{3}}{390625}+\frac{6507\,x^{4}}{62500}+\frac{491913\,x^{5}}{15625}+\frac{33291\,x^{6}}{3125}-\frac{119556\,x^{7}}{4375}-\frac{2187\,x^{8}}{125}-\frac{1331}{97656250\,(3+5\,x)^{2}}-\frac{1089}{5859375+9765625\,x}+\frac{47289\,\ln(3+5\,x)}{9765625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(2+3*x)^7/(3+5*x)^3,x)
```

```
[Out] 46214407/9765625*x-2300646/1953125*x^2-5918904/390625*x^3+6507/62
500*x^4+491913/15625*x^5+33291/3125*x^6-119556/4375*x^7-2187/125*
x^8-1331/97656250/(3+5*x)^2-1089/1953125/(3+5*x)+47289/9765625*ln
(3+5*x)
```

Maxima [A] time = 1.31996, size = 89, normalized size = 1.02

$$-\frac{2187}{125}\,x^{8}-\frac{119556}{4375}\,x^{7}+\frac{33291}{3125}\,x^{6}+\frac{491913}{15625}\,x^{5}+\frac{6507}{62500}\,x^{4}-\frac{5918904}{390625}\,x^{3}-\frac{2300646}{1953125}\,x^{2}+\frac{46214407}{9765625}\,x-\frac{121\,(2250\,x+1361)}{97656250\,(25\,x^{2}+30\,x+9)}+\frac{47289}{9765625}\,\log(5\,x+3)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^7*(2*x - 1)^3/(5*x + 3)^3,x, algorithm="maxima")
```

```
[Out] -2187/125*x^8 - 119556/4375*x^7 + 33291/3125*x^6 + 491913/15625*x
^5 + 6507/62500*x^4 - 5918904/390625*x^3 - 2300646/1953125*x^2 +
46214407/9765625*x - 121/97656250*(2250*x + 1361)/(25*x^2 + 30*x
+ 9) + 47289/9765625*log(5*x + 3)
```

Fricas [A] time = 0.21114, size = 111, normalized size = 1.28

$$-\frac{598007812500\,x^{10}+1651640625000\,x^{9}+972000000000\,x^{8}-1176752812500\,x^{7}-1425913453125\,x^{6}+126252393750\,x^{5}+}{1367187500}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^7*(2*x - 1)^3/(5*x + 3)^3,x, algorithm="fricas")
```

```
[Out] -1/1367187500*(598007812500*x^10 + 1651640625000*x^9 + 9720000000
00*x^8 - 1176752812500*x^7 - 1425913453125*x^6 + 126252393750*x^5
 + 660465159375*x^4 + 73008617500*x^3 - 179606439600*x^2 - 662046
0*(25*x^2 + 30*x + 9)*log(5*x + 3) - 58226341320*x + 2305534)/(25
*x^2 + 30*x + 9)
```

Sympy [A] time = 0.333801, size = 76, normalized size = 0.87

$$-\frac{2187x^{8}}{125}-\frac{119556x^{7}}{4375}+\frac{33291x^{6}}{3125}+\frac{491913x^{5}}{15625}+\frac{6507x^{4}}{62500}-\frac{5918904x^{3}}{390625}-\frac{2300646x^{2}}{1953125}+\frac{46214407x}{9765625}-\frac{272250x+164681}{2441406250x^{2}+2929687500x+878906250}+\frac{47289\log(5x+3)}{9765625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(2+3*x)**7/(3+5*x)**3,x)
```

```
[Out] -2187*x**8/125 - 119556*x**7/4375 + 33291*x**6/3125 + 491913*x**5
/15625 + 6507*x**4/62500 - 5918904*x**3/390625 - 2300646*x**2/195
3125 + 46214407*x/9765625 - (272250*x + 164681)/(2441406250*x**2
+ 2929687500*x + 878906250) + 47289*log(5*x + 3)/9765625
```

GIAC/XCAS [A] time = 0.210904, size = 84, normalized size = 0.97

$$-\frac{2187}{125}x^{8}-\frac{119556}{4375}x^{7}+\frac{33291}{3125}x^{6}+\frac{491913}{15625}x^{5}+\frac{6507}{62500}x^{4}-\frac{5918904}{390625}x^{3}-\frac{2300646}{1953125}x^{2}+\frac{46214407}{9765625}x-\frac{121\,(2250\,x+1361)}{97656250\,(5\,x+3)^{2}}+\frac{47289}{9765625}\ln\left(|5\,x+3|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^7*(2*x - 1)^3/(5*x + 3)^3,x, algorithm="giac")
```

```
[Out] -2187/125*x^8 - 119556/4375*x^7 + 33291/3125*x^6 + 491913/15625*x
^5 + 6507/62500*x^4 - 5918904/390625*x^3 - 2300646/1953125*x^2 +
46214407/9765625*x - 121/97656250*(2250*x + 1361)/(5*x + 3)^2 + 4
7289/9765625*ln(abs(5*x + 3))
```

3.1402 $\int \frac{(1-2x)^3(2+3x)^6}{(3+5x)^3}\,dx$

Optimal. Leaf size=80

$$-\frac{5832x^7}{875}-\frac{3402x^6}{625}+\frac{134622x^5}{15625}+\frac{74223x^4}{12500}-\frac{81747x^3}{15625}-\frac{915777x^2}{390625}+\frac{4571416x}{1953125}-\frac{23232}{9765625(5x+3)}-\frac{1331}{19531250(5x+3)^2}+\frac{166749\log(5x+3)}{9765625}$$

```
[Out] (4571416*x)/1953125 - (915777*x^2)/390625 - (81747*x^3)/15625 + (
74223*x^4)/12500 + (134622*x^5)/15625 - (3402*x^6)/625 - (5832*x^
7)/875 - 1331/(19531250*(3 + 5*x)^2) - 23232/(9765625*(3 + 5*x))
+ (166749*Log[3 + 5*x])/9765625
```

Rubi [A] time = 0.099468, antiderivative size = 80, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{5832x^7}{875}-\frac{3402x^6}{625}+\frac{134622x^5}{15625}+\frac{74223x^4}{12500}-\frac{81747x^3}{15625}-\frac{915777x^2}{390625}+\frac{4571416x}{1953125}-\frac{23232}{9765625(5x+3)}-\frac{1331}{19531250(5x+3)^2}+\frac{166749\log(5x+3)}{9765625}$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)^3*(2 + 3*x)^6)/(3 + 5*x)^3,x]
```

```
[Out] (4571416*x)/1953125 - (915777*x^2)/390625 - (81747*x^3)/15625 + (
74223*x^4)/12500 + (134622*x^5)/15625 - (3402*x^6)/625 - (5832*x^
7)/875 - 1331/(19531250*(3 + 5*x)^2) - 23232/(9765625*(3 + 5*x))
+ (166749*Log[3 + 5*x])/9765625
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{5832x^7}{875}-\frac{3402x^6}{625}+\frac{134622x^5}{15625}+\frac{74223x^4}{12500}-\frac{81747x^3}{15625}+\frac{166749\log(5x+3)}{9765625}+\int\frac{4571416}{1953125}\,dx-\frac{1831554\int x\,dx}{390625}-\frac{23232}{9765625(5x+3)}-\frac{1331}{19531250(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**3*(2+3*x)**6/(3+5*x)**3,x)
```

```
[Out] -5832*x**7/875 - 3402*x**6/625 + 134622*x**5/15625 + 74223*x**4/1
2500 - 81747*x**3/15625 + 166749*log(5*x + 3)/9765625 + Integral(
4571416/1953125, x) - 1831554*Integral(x, x)/390625 - 23232/(9765
625*(5*x + 3)) - 1331/(19531250*(5*x + 3)**2)
```

Mathematica [A] time = 0.0683202, size = 73, normalized size = 0.91

$$\frac{-227812500000x^9-459421875000x^8-10783125000x^7+489359390625x^6+170737481250x^5-221653096875x^4-805325}{1367187500(5x+3)^2}$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)^3*(2 + 3*x)^6)/(3 + 5*x)^3,x]
```

```
[Out] (13353609877 + 73328526690*x + 104273484075*x^2 - 80532567500*x^3
 - 221653096875*x^4 + 170737481250*x^5 + 489359390625*x^6 - 10783
125000*x^7 - 459421875000*x^8 - 227812500000*x^9 + 23344860*(3 +
5*x)^2*Log[6*(3 + 5*x)])/(1367187500*(3 + 5*x)^2)
```

Maple [A] time = 0.01, size = 61, normalized size = 0.8

$$\frac{4571416\,x}{1953125}-\frac{915777\,x^{2}}{390625}-\frac{81747\,x^{3}}{15625}+\frac{74223\,x^{4}}{12500}+\frac{134622\,x^{5}}{15625}-\frac{3402\,x^{6}}{625}-\frac{5832\,x^{7}}{875}-\frac{1331}{19531250\,\left(3+5\,x\right)^{2}}-\frac{23232}{29296875+48828125\,x}+\frac{166749\,\ln\left(3+5\,x\right)}{9765625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(2+3*x)^6/(3+5*x)^3,x)
```

```
[Out] 4571416/1953125*x-915777/390625*x^2-81747/15625*x^3+74223/12500*x
^4+134622/15625*x^5-3402/625*x^6-5832/875*x^7-1331/19531250/(3+5*
x)^2-23232/9765625/(3+5*x)+166749/9765625*ln(3+5*x)
```

Maxima [A] time = 1.33623, size = 82, normalized size = 1.02

$$-\frac{5832}{875}\,x^{7}-\frac{3402}{625}\,x^{6}+\frac{134622}{15625}\,x^{5}+\frac{74223}{12500}\,x^{4}-\frac{81747}{15625}\,x^{3}-\frac{915777}{390625}\,x^{2}+\frac{4571416}{1953125}\,x-\frac{121\,\left(1920\,x+1163\right)}{19531250\,\left(25\,x^{2}+30\,x+9\right)}+\frac{166749}{9765625}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^6*(2*x - 1)^3/(5*x + 3)^3,x, algorithm="maxima")
```

```
[Out] -5832/875*x^7 - 3402/625*x^6 + 134622/15625*x^5 + 74223/12500*x^4
 - 81747/15625*x^3 - 915777/390625*x^2 + 4571416/1953125*x - 121/
19531250*(1920*x + 1163)/(25*x^2 + 30*x + 9) + 166749/9765625*log
(5*x + 3)
```

Fricas [A] time = 0.209342, size = 104, normalized size = 1.3

$$-\frac{45562500000\,x^{9}+91884375000\,x^{8}+2156625000\,x^{7}-97871878125\,x^{6}-34147496250\,x^{5}+44330619375\,x^{4}+1610651350}{273437500\,\left(25\,x^{2}+30\,x+9\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^6*(2*x - 1)^3/(5*x + 3)^3,x, algorithm="fricas")
```

```
[Out] -1/273437500*(45562500000*x^9 + 91884375000*x^8 + 2156625000*x^7
- 97871878125*x^6 - 34147496250*x^5 + 44330619375*x^4 + 161065135
00*x^3 - 13430552100*x^2 - 4668972*(25*x^2 + 30*x + 9)*log(5*x +
3) - 5756731680*x + 1970122)/(25*x^2 + 30*x + 9)
```

Sympy [A] time = 0.318593, size = 70, normalized size = 0.88

$$-\frac{5832x^{7}}{875}-\frac{3402x^{6}}{625}+\frac{134622x^{5}}{15625}+\frac{74223x^{4}}{12500}-\frac{81747x^{3}}{15625}-\frac{915777x^{2}}{390625}+\frac{4571416x}{1953125}-\frac{232320x+140723}{488281250x^{2}+585937500x+175781250}+\frac{166749\log\left(5x+3\right)}{9765625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(2+3*x)**6/(3+5*x)**3,x)
```

```
[Out] -5832*x**7/875 - 3402*x**6/625 + 134622*x**5/15625 + 74223*x**4/1
2500 - 81747*x**3/15625 - 915777*x**2/390625 + 4571416*x/1953125
- (232320*x + 140723)/(488281250*x**2 + 585937500*x + 175781250)
+ 166749*log(5*x + 3)/9765625
```

GIAC/XCAS [A]   time = 0.211752, size = 77, normalized size = 0.96

$$-\frac{5832}{875}\,x^{7}-\frac{3402}{625}\,x^{6}+\frac{134622}{15625}\,x^{5}+\frac{74223}{12500}\,x^{4}-\frac{81747}{15625}\,x^{3}-\frac{915777}{390625}\,x^{2}+\frac{4571416}{1953125}\,x-\frac{121\,(1920\,x+1163)}{19531250\,(5\,x+3)^{2}}+\frac{166749}{9765625}\,\ln\left(|5\,x+3|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^6*(2*x - 1)^3/(5*x + 3)^3,x, algorithm="giac")
```

```
[Out] -5832/875*x^7 - 3402/625*x^6 + 134622/15625*x^5 + 74223/12500*x^4
 - 81747/15625*x^3 - 915777/390625*x^2 + 4571416/1953125*x - 121/
19531250*(1920*x + 1163)/(5*x + 3)^2 + 166749/9765625*ln(abs(5*x
+ 3))
```

3.1403 $\int \frac{(1-2x)^3(2+3x)^5}{(3+5x)^3} dx$

Optimal. Leaf size=73

$$-\frac{324x^6}{125}-\frac{324x^5}{3125}+\frac{22977x^4}{6250}-\frac{393x^3}{625}-\frac{62097x^2}{31250}+\frac{424432x}{390625}-\frac{19239}{1953125(5x+3)}-\frac{1331}{3906250(5x+3)^2}+\frac{109032\log(5x+3)}{1953125}$$

```
[Out] (424432*x)/390625 - (62097*x^2)/31250 - (393*x^3)/625 + (22977*x^
4)/6250 - (324*x^5)/3125 - (324*x^6)/125 - 1331/(3906250*(3 + 5*x
)^2) - 19239/(1953125*(3 + 5*x)) + (109032*Log[3 + 5*x])/1953125
```

Rubi [A] time = 0.0902944, antiderivative size = 73, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{324x^6}{125}-\frac{324x^5}{3125}+\frac{22977x^4}{6250}-\frac{393x^3}{625}-\frac{62097x^2}{31250}+\frac{424432x}{390625}-\frac{19239}{1953125(5x+3)}-\frac{1331}{3906250(5x+3)^2}+\frac{109032\log(5x+3)}{1953125}$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)^3*(2 + 3*x)^5)/(3 + 5*x)^3,x]
```

```
[Out] (424432*x)/390625 - (62097*x^2)/31250 - (393*x^3)/625 + (22977*x^
4)/6250 - (324*x^5)/3125 - (324*x^6)/125 - 1331/(3906250*(3 + 5*x
)^2) - 19239/(1953125*(3 + 5*x)) + (109032*Log[3 + 5*x])/1953125
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{324x^6}{125}-\frac{324x^5}{3125}+\frac{22977x^4}{6250}-\frac{393x^3}{625}+\frac{109032\log(5x+3)}{1953125}+\int\frac{424432}{390625}\,dx-\frac{62097\int x\,dx}{15625}-\frac{19239}{1953125(5x+3)}-\frac{1331}{3906250(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**3*(2+3*x)**5/(3+5*x)**3,x)
```

```
[Out] -324*x**6/125 - 324*x**5/3125 + 22977*x**4/6250 - 393*x**3/625 +
109032*log(5*x + 3)/1953125 + Integral(424432/390625, x) - 62097*
Integral(x, x)/15625 - 19239/(1953125*(5*x + 3)) - 1331/(3906250*
(5*x + 3)**2)
```

Mathematica [A] time = 0.0583319, size = 68, normalized size = 0.93

$$\frac{-1265625000x^8-1569375000x^7+1278703125x^6+1828837500x^5-692475000x^4-744310000x^3+711123525x^2+698557}{19531250(5x+3)^2}$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)^3*(2 + 3*x)^5)/(3 + 5*x)^3,x]
```

```
[Out] (151973789 + 698557830*x + 711123525*x^2 - 744310000*x^3 - 692475
000*x^4 + 1828837500*x^5 + 1278703125*x^6 - 1569375000*x^7 - 1265
```

```
625000*x^8 + 1090320*(3 + 5*x)^2*Log[6*(3 + 5*x)])/(19531250*(3 +
 5*x)^2)
```

Maple [A] time = 0.01, size = 56, normalized size = 0.8

$$\frac{424432x}{390625} - \frac{62097x^2}{31250} - \frac{393x^3}{625} + \frac{22977x^4}{6250} - \frac{324x^5}{3125} - \frac{324x^6}{125} - \frac{1331}{3906250\,(3+5x)^2} - \frac{19239}{5859375 + 9765625x} + \frac{109032\,\ln(3+5x)}{1953125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(2+3*x)^5/(3+5*x)^3,x)
```

```
[Out] 424432/390625*x-62097/31250*x^2-393/625*x^3+22977/6250*x^4-324/31
25*x^5-324/125*x^6-1331/3906250/(3+5*x)^2-19239/1953125/(3+5*x)+1
09032/1953125*ln(3+5*x)
```

Maxima [A] time = 1.3289, size = 76, normalized size = 1.04

$$-\frac{324}{125}x^6 - \frac{324}{3125}x^5 + \frac{22977}{6250}x^4 - \frac{393}{625}x^3 - \frac{62097}{31250}x^2 + \frac{424432}{390625}x - \frac{121\,(318x+193)}{781250\,(25x^2+30x+9)} + \frac{109032}{1953125}\log(5x+3)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^5*(2*x - 1)^3/(5*x + 3)^3,x, algorithm="maxima")
```

```
[Out] -324/125*x^6 - 324/3125*x^5 + 22977/6250*x^4 - 393/625*x^3 - 6209
7/31250*x^2 + 424432/390625*x - 121/781250*(318*x + 193)/(25*x^2
+ 30*x + 9) + 109032/1953125*log(5*x + 3)
```

Fricas [A] time = 0.211732, size = 97, normalized size = 1.33

$$-\frac{253125000x^8 + 313875000x^7 - 255740625x^6 - 365767500x^5 + 138495000x^4 + 148862000x^3 - 57470475x^2 - 218064\,(2}{3906250\,(25x^2+30x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^5*(2*x - 1)^3/(5*x + 3)^3,x, algorithm="fricas")
```

```
[Out] -1/3906250*(253125000*x^8 + 313875000*x^7 - 255740625*x^6 - 36576
7500*x^5 + 138495000*x^4 + 148862000*x^3 - 57470475*x^2 - 218064*
(25*x^2 + 30*x + 9)*log(5*x + 3) - 38006490*x + 116765)/(25*x^2 +
 30*x + 9)
```

Sympy [A] time = 0.313781, size = 63, normalized size = 0.86

$$-\frac{324x^6}{125} - \frac{324x^5}{3125} + \frac{22977x^4}{6250} - \frac{393x^3}{625} - \frac{62097x^2}{31250} + \frac{424432x}{390625} - \frac{38478x + 23353}{19531250x^2 + 23437500x + 7031250} + \frac{109032\log(5x+3)}{1953125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(2+3*x)**5/(3+5*x)**3,x)
```

```
[Out] -324*x**6/125 - 324*x**5/3125 + 22977*x**4/6250 - 393*x**3/625 -
62097*x**2/31250 + 424432*x/390625 - (38478*x + 23353)/(19531250*
x**2 + 23437500*x + 7031250) + 109032*log(5*x + 3)/1953125
```

GIAC/XCAS [A] time = 0.209003, size = 70, normalized size = 0.96

$$-\frac{324}{125}x^6-\frac{324}{3125}x^5+\frac{22977}{6250}x^4-\frac{393}{625}x^3-\frac{62097}{31250}x^2+\frac{424432}{390625}x-\frac{121\,(318\,x+193)}{781250\,(5\,x+3)^2}+\frac{109032}{1953125}\ln\left(|5\,x+3|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^5*(2*x - 1)^3/(5*x + 3)^3,x, algorithm="giac")
```

```
[Out] -324/125*x^6 - 324/3125*x^5 + 22977/6250*x^4 - 393/625*x^3 - 6209
7/31250*x^2 + 424432/390625*x - 121/781250*(318*x + 193)/(5*x + 3
)^2 + 109032/1953125*ln(abs(5*x + 3))
```

3.1404 $\int \frac{(1-2x)^3(2+3x)^4}{(3+5x)^3}\,dx$

Optimal. Leaf size=66

$$-\frac{648x^5}{625}+\frac{513x^4}{625}+\frac{2826x^3}{3125}-\frac{7617x^2}{6250}+\frac{4691x}{15625}-\frac{15246}{390625(5x+3)}-\frac{1331}{781250(5x+3)^2}+\frac{63294\log(5x+3)}{390625}$$

```
[Out] (4691*x)/15625 - (7617*x^2)/6250 + (2826*x^3)/3125 + (513*x^4)/62
5 - (648*x^5)/625 - 1331/(781250*(3 + 5*x)^2) - 15246/(390625*(3
+ 5*x)) + (63294*Log[3 + 5*x])/390625
```

Rubi [A] time = 0.0804466, antiderivative size = 66, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$-\frac{648x^5}{625}+\frac{513x^4}{625}+\frac{2826x^3}{3125}-\frac{7617x^2}{6250}+\frac{4691x}{15625}-\frac{15246}{390625(5x+3)}-\frac{1331}{781250(5x+3)^2}+\frac{63294\log(5x+3)}{390625}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^3*(2 + 3*x)^4)/(3 + 5*x)^3,x]
```

```
[Out] (4691*x)/15625 - (7617*x^2)/6250 + (2826*x^3)/3125 + (513*x^4)/62
5 - (648*x^5)/625 - 1331/(781250*(3 + 5*x)^2) - 15246/(390625*(3
+ 5*x)) + (63294*Log[3 + 5*x])/390625
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{648x^5}{625}+\frac{513x^4}{625}+\frac{2826x^3}{3125}+\frac{63294\log(5x+3)}{390625}+\int\frac{4691}{15625}\,dx-\frac{7617\int x\,dx}{3125}-\frac{15246}{390625(5x+3)}-\frac{1331}{781250(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3*(2+3*x)**4/(3+5*x)**3,x)
```

```
[Out] -648*x**5/625 + 513*x**4/625 + 2826*x**3/3125 + 63294*log(5*x + 3
)/390625 + Integral(4691/15625, x) - 7617*Integral(x, x)/3125 - 1
5246/(390625*(5*x + 3)) - 1331/(781250*(5*x + 3)**2)
```

Mathematica [A] time = 0.054782, size = 63, normalized size = 0.95

$$\frac{-101250000x^7-41343750x^6+148050000x^5+15815625x^4-81707500x^3+53587800x^2+83293560x+632940(5x+3)^2\log}{3906250(5x+3)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^3*(2 + 3*x)^4)/(3 + 5*x)^3,x]
```

```
[Out] (21586298 + 83293560*x + 53587800*x^2 - 81707500*x^3 + 15815625*x
^4 + 148050000*x^5 - 41343750*x^6 - 101250000*x^7 + 632940*(3 + 5
*x)^2*Log[6*(3 + 5*x)])/(3906250*(3 + 5*x)^2)
```

Maple [A] time = 0.008, size = 51, normalized size = 0.8

$$\frac{4691 x}{15625}-\frac{7617 x^{2}}{6250}+\frac{2826 x^{3}}{3125}+\frac{513 x^{4}}{625}-\frac{648 x^{5}}{625}-\frac{1331}{781250 \left(3+5 x\right)^{2}}-\frac{15246}{1171875+1953125 x}+\frac{63294 \ln \left(3+5 x\right)}{390625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(2+3*x)^4/(3+5*x)^3,x)
```

```
[Out] 4691/15625*x-7617/6250*x^2+2826/3125*x^3+513/625*x^4-648/625*x^5-
1331/781250/(3+5*x)^2-15246/390625/(3+5*x)+63294/390625*ln(3+5*x)
```

Maxima [A] time = 1.36457, size = 69, normalized size = 1.05

$$-\frac{648}{625} x^{5}+\frac{513}{625} x^{4}+\frac{2826}{3125} x^{3}-\frac{7617}{6250} x^{2}+\frac{4691}{15625} x-\frac{121 \left(1260 x+767\right)}{781250 \left(25 x^{2}+30 x+9\right)}+\frac{63294}{390625} \log \left(5 x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^4*(2*x - 1)^3/(5*x + 3)^3,x, algorithm="maxima")
```

```
[Out] -648/625*x^5 + 513/625*x^4 + 2826/3125*x^3 - 7617/6250*x^2 + 4691
/15625*x - 121/781250*(1260*x + 767)/(25*x^2 + 30*x + 9) + 63294/
390625*log(5*x + 3)
```

Fricas [A] time = 0.207412, size = 90, normalized size = 1.36

$$-\frac{20250000 x^{7}+8268750 x^{6}-29610000 x^{5}-3163125 x^{4}+16341500 x^{3}+1532625 x^{2}-126588 \left(25 x^{2}+30 x+9\right) \log \left(5 x+\right.}{781250 \left(25 x^{2}+30 x+9\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^4*(2*x - 1)^3/(5*x + 3)^3,x, algorithm="fricas")
```

```
[Out] -1/781250*(20250000*x^7 + 8268750*x^6 - 29610000*x^5 - 3163125*x^
4 + 16341500*x^3 + 1532625*x^2 - 126588*(25*x^2 + 30*x + 9)*log(5
*x + 3) - 1958490*x + 92807)/(25*x^2 + 30*x + 9)
```

Sympy [A] time = 0.302394, size = 56, normalized size = 0.85

$$-\frac{648x^{5}}{625}+\frac{513x^{4}}{625}+\frac{2826x^{3}}{3125}-\frac{7617x^{2}}{6250}+\frac{4691x}{15625}-\frac{152460x+92807}{19531250x^{2}+23437500x+7031250}+\frac{63294 \log \left(5x+3\right)}{390625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(2+3*x)**4/(3+5*x)**3,x)
```

```
[Out] -648*x**5/625 + 513*x**4/625 + 2826*x**3/3125 - 7617*x**2/6250 +
4691*x/15625 - (152460*x + 92807)/(19531250*x**2 + 23437500*x + 7
031250) + 63294*log(5*x + 3)/390625
```

GIAC/XCAS [A] time = 0.209062, size = 63, normalized size = 0.95

$$-\frac{648}{625} x^{5}+\frac{513}{625} x^{4}+\frac{2826}{3125} x^{3}-\frac{7617}{6250} x^{2}+\frac{4691}{15625} x-\frac{121 \left(1260 x+767\right)}{781250 \left(5 x+3\right)^{2}}+\frac{63294}{390625} \ln \left(\left|5 x+3\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^4*(2*x - 1)^3/(5*x + 3)^3,x, algorithm="giac")
```

```
[Out] -648/625*x^5 + 513/625*x^4 + 2826/3125*x^3 - 7617/6250*x^2 + 4691
/15625*x - 121/781250*(1260*x + 767)/(5*x + 3)^2 + 63294/390625*l
n(abs(5*x + 3))
```

3.1405 $\int \frac{(1-2x)^3(2+3x)^3}{(3+5x)^3} \, dx$

Optimal. Leaf size=59

$$-\frac{54x^4}{125}+\frac{468x^3}{625}-\frac{927x^2}{3125}-\frac{1303x}{3125}-\frac{11253}{78125(5x+3)}-\frac{1331}{156250(5x+3)^2}+\frac{5907\log(5x+3)}{15625}$$

```
[Out] (-1303*x)/3125 - (927*x^2)/3125 + (468*x^3)/625 - (54*x^4)/125 -
1331/(156250*(3 + 5*x)^2) - 11253/(78125*(3 + 5*x)) + (5907*Log[3
 + 5*x])/15625
```

Rubi [A] time = 0.0738364, antiderivative size = 59, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{54x^4}{125}+\frac{468x^3}{625}-\frac{927x^2}{3125}-\frac{1303x}{3125}-\frac{11253}{78125(5x+3)}-\frac{1331}{156250(5x+3)^2}+\frac{5907\log(5x+3)}{15625}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^3*(2 + 3*x)^3)/(3 + 5*x)^3,x]
```

```
[Out] (-1303*x)/3125 - (927*x^2)/3125 + (468*x^3)/625 - (54*x^4)/125 -
1331/(156250*(3 + 5*x)^2) - 11253/(78125*(3 + 5*x)) + (5907*Log[3
 + 5*x])/15625
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{54x^4}{125}+\frac{468x^3}{625}+\frac{5907\log(5x+3)}{15625}+\int\left(-\frac{1303}{3125}\right)dx-\frac{1854\int x\,dx}{3125}-\frac{11253}{78125\,(5x+3)}-\frac{1331}{156250\,(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3*(2+3*x)**3/(3+5*x)**3,x)
```

```
[Out] -54*x**4/125 + 468*x**3/625 + 5907*log(5*x + 3)/15625 + Integral(
-1303/3125, x) - 1854*Integral(x, x)/3125 - 11253/(78125*(5*x + 3
)) - 1331/(156250*(5*x + 3)**2)
```

Mathematica [A] time = 0.0276171, size = 56, normalized size = 0.95

$$-\frac{337500x^6-180000x^5-348750x^4+393250x^3+416250x^2+70080x-11814(5x+3)^2\log(5x+3)-7139}{31250(5x+3)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^3*(2 + 3*x)^3)/(3 + 5*x)^3,x]
```

```
[Out] -(-7139 + 70080*x + 416250*x^2 + 393250*x^3 - 348750*x^4 - 180000
*x^5 + 337500*x^6 - 11814*(3 + 5*x)^2*Log[3 + 5*x])/(31250*(3 + 5
*x)^2)
```

Maple [A] time = 0.011, size = 46, normalized size = 0.8

$$-\frac{1303\,x}{3125}-\frac{927\,x^2}{3125}+\frac{468\,x^3}{625}-\frac{54\,x^4}{125}-\frac{1331}{156250\,(3+5\,x)^2}-\frac{11253}{234375+390625\,x}+\frac{5907\,\ln(3+5\,x)}{15625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((1-2*x)^3*(2+3*x)^3/(3+5*x)^3,x)
```

```
[Out] -1303/3125*x-927/3125*x^2+468/625*x^3-54/125*x^4-1331/156250/(3+5
*x)^2-11253/78125/(3+5*x)+5907/15625*ln(3+5*x)
```

Maxima [A] time = 1.37217, size = 62, normalized size = 1.05

$$-\frac{54}{125}\,x^4+\frac{468}{625}\,x^3-\frac{927}{3125}\,x^2-\frac{1303}{3125}\,x-\frac{121\,(930\,x+569)}{156250\,(25\,x^2+30\,x+9)}+\frac{5907}{15625}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^3*(2*x - 1)^3/(5*x + 3)^3,x, algorithm="maxima")
```

```
[Out] -54/125*x^4 + 468/625*x^3 - 927/3125*x^2 - 1303/3125*x - 121/1562
50*(930*x + 569)/(25*x^2 + 30*x + 9) + 5907/15625*log(5*x + 3)
```

Fricas [A] time = 0.212813, size = 84, normalized size = 1.42

$$-\frac{1687500\,x^6-900000\,x^5-1743750\,x^4+1966250\,x^3+2371650\,x^2-59070\,\left(25\,x^2+30\,x+9\right)\,\log\left(5\,x+3\right)+698880\,x+688}{156250\,(25\,x^2+30\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^3*(2*x - 1)^3/(5*x + 3)^3,x, algorithm="fricas")
```

```
[Out] -1/156250*(1687500*x^6 - 900000*x^5 - 1743750*x^4 + 1966250*x^3 +
 2371650*x^2 - 59070*(25*x^2 + 30*x + 9)*log(5*x + 3) + 698880*x
+ 68849)/(25*x^2 + 30*x + 9)
```

Sympy [A] time = 0.308935, size = 49, normalized size = 0.83

$$-\frac{54x^4}{125}+\frac{468x^3}{625}-\frac{927x^2}{3125}-\frac{1303x}{3125}-\frac{112530x+68849}{3906250x^2+4687500x+1406250}+\frac{5907\log\left(5x+3\right)}{15625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((1-2*x)**3*(2+3*x)**3/(3+5*x)**3,x)
```

```
[Out] -54*x**4/125 + 468*x**3/625 - 927*x**2/3125 - 1303*x/3125 - (1125
30*x + 68849)/(3906250*x**2 + 4687500*x + 1406250) + 5907*log(5*x
 + 3)/15625
```

GIAC/XCAS [A] time = 0.209072, size = 57, normalized size = 0.97

$$-\frac{54}{125}\,x^4+\frac{468}{625}\,x^3-\frac{927}{3125}\,x^2-\frac{1303}{3125}\,x-\frac{121\,(930\,x+569)}{156250\,(5\,x+3)^2}+\frac{5907}{15625}\,\ln\left(|5\,x+3|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^3*(2*x - 1)^3/(5*x + 3)^3,x, algorithm="giac")
```

```
[Out] -54/125*x^4 + 468/625*x^3 - 927/3125*x^2 - 1303/3125*x - 121/1562
50*(930*x + 569)/(5*x + 3)^2 + 5907/15625*ln(abs(5*x + 3))
```

3.1406 $\int \frac{(1-2x)^3(2+3x)^2}{(3+5x)^3} dx$

Optimal. Leaf size=52

$$-\frac{24x^3}{125}+\frac{354x^2}{625}-\frac{2978x}{3125}-\frac{1452}{3125(5x+3)}-\frac{1331}{31250(5x+3)^2}+\frac{1551\log(5x+3)}{3125}$$

```
[Out] (-2978*x)/3125 + (354*x^2)/625 - (24*x^3)/125 - 1331/(31250*(3 +
5*x)^2) - 1452/(3125*(3 + 5*x)) + (1551*Log[3 + 5*x])/3125
```

Rubi [A] time = 0.0670528, antiderivative size = 52, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{24x^3}{125}+\frac{354x^2}{625}-\frac{2978x}{3125}-\frac{1452}{3125(5x+3)}-\frac{1331}{31250(5x+3)^2}+\frac{1551\log(5x+3)}{3125}$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)^3*(2 + 3*x)^2)/(3 + 5*x)^3,x]
```

```
[Out] (-2978*x)/3125 + (354*x^2)/625 - (24*x^3)/125 - 1331/(31250*(3 +
5*x)^2) - 1452/(3125*(3 + 5*x)) + (1551*Log[3 + 5*x])/3125
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{24x^3}{125}+\frac{1551\log(5x+3)}{3125}+\int\left(-\frac{2978}{3125}\right)dx+\frac{708\int x\,dx}{625}-\frac{1452}{3125(5x+3)}-\frac{1331}{31250(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**3*(2+3*x)**2/(3+5*x)**3,x)
```

```
[Out] -24*x**3/125 + 1551*log(5*x + 3)/3125 + Integral(-2978/3125, x) +
 708*Integral(x, x)/625 - 1452/(3125*(5*x + 3)) - 1331/(31250*(5*
x + 3)**2)
```

Mathematica [A] time = 0.0545024, size = 53, normalized size = 1.02

$$-\frac{30000x^5-52500x^4+53500x^3+274500x^2+221340x-3102(5x+3)^2\log(6(5x+3))+54943}{6250(5x+3)^2}$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)^3*(2 + 3*x)^2)/(3 + 5*x)^3,x]
```

```
[Out] -(54943 + 221340*x + 274500*x^2 + 53500*x^3 - 52500*x^4 + 30000*x
^5 - 3102*(3 + 5*x)^2*Log[6*(3 + 5*x)])/(6250*(3 + 5*x)^2)
```

Maple [A] time = 0.009, size = 41, normalized size = 0.8

$$-\frac{2978\,x}{3125}+\frac{354\,x^2}{625}-\frac{24\,x^3}{125}-\frac{1331}{31250\,(3+5\,x)^2}-\frac{1452}{9375+15625\,x}+\frac{1551\,\ln(3+5\,x)}{3125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(2+3*x)^2/(3+5*x)^3,x)
```

```
[Out] -2978/3125*x+354/625*x^2-24/125*x^3-1331/31250/(3+5*x)^2-1452/312
5/(3+5*x)+1551/3125*ln(3+5*x)
```

Maxima [A] time = 1.33027, size = 55, normalized size = 1.06

$$-\frac{24}{125}\,x^3+\frac{354}{625}\,x^2-\frac{2978}{3125}\,x-\frac{121\,(600\,x+371)}{31250\,(25\,x^2+30\,x+9)}+\frac{1551}{3125}\,\log\left(5\,x+3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^2*(2*x - 1)^3/(5*x + 3)^3,x, algorithm="maxima")
```

```
[Out] -24/125*x^3 + 354/625*x^2 - 2978/3125*x - 121/31250*(600*x + 371)
/(25*x^2 + 30*x + 9) + 1551/3125*log(5*x + 3)
```

Fricas [A] time = 0.208151, size = 77, normalized size = 1.48

$$-\frac{150000\,x^5-262500\,x^4+267500\,x^3+734100\,x^2-15510\,\left(25\,x^2+30\,x+9\right)\log\left(5\,x+3\right)+340620\,x+44891}{31250\,(25\,x^2+30\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^2*(2*x - 1)^3/(5*x + 3)^3,x, algorithm="fricas")
```

```
[Out] -1/31250*(150000*x^5 - 262500*x^4 + 267500*x^3 + 734100*x^2 - 155
10*(25*x^2 + 30*x + 9)*log(5*x + 3) + 340620*x + 44891)/(25*x^2 +
 30*x + 9)
```

Sympy [A] time = 0.292125, size = 42, normalized size = 0.81

$$-\frac{24x^3}{125}+\frac{354x^2}{625}-\frac{2978x}{3125}-\frac{72600x+44891}{781250x^2+937500x+281250}+\frac{1551\log\left(5x+3\right)}{3125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(2+3*x)**2/(3+5*x)**3,x)
```

```
[Out] -24*x**3/125 + 354*x**2/625 - 2978*x/3125 - (72600*x + 44891)/(78
1250*x**2 + 937500*x + 281250) + 1551*log(5*x + 3)/3125
```

GIAC/XCAS [A] time = 0.206301, size = 50, normalized size = 0.96

$$-\frac{24}{125}\,x^3+\frac{354}{625}\,x^2-\frac{2978}{3125}\,x-\frac{121\,(600\,x+371)}{31250\,(5\,x+3)^2}+\frac{1551}{3125}\,\ln\left(|5\,x+3|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^2*(2*x - 1)^3/(5*x + 3)^3,x, algorithm="giac")
```

```
[Out] -24/125*x^3 + 354/625*x^2 - 2978/3125*x - 121/31250*(600*x + 371)
/(5*x + 3)^2 + 1551/3125*ln(abs(5*x + 3))
```

3.1407 $\int \frac{(1-2x)^3(2+3x)}{(3+5x)^3} dx$

Optimal. Leaf size=45

$$-\frac{12x^2}{125}+\frac{316x}{625}-\frac{3267}{3125(5x+3)}-\frac{1331}{6250(5x+3)^2}-\frac{2046\log(5x+3)}{3125}$$

```
[Out] (316*x)/625 - (12*x^2)/125 - 1331/(6250*(3 + 5*x)^2) - 3267/(3125
*(3 + 5*x)) - (2046*Log[3 + 5*x])/3125
```

Rubi [A] time = 0.0547491, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{12x^2}{125}+\frac{316x}{625}-\frac{3267}{3125(5x+3)}-\frac{1331}{6250(5x+3)^2}-\frac{2046\log(5x+3)}{3125}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^3*(2 + 3*x))/(3 + 5*x)^3,x]
```

```
[Out] (316*x)/625 - (12*x^2)/125 - 1331/(6250*(3 + 5*x)^2) - 3267/(3125
*(3 + 5*x)) - (2046*Log[3 + 5*x])/3125
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{2046\log(5x+3)}{3125}+\int \frac{316}{625}\,dx-\frac{24\int x\,dx}{125}-\frac{3267}{3125\,(5x+3)}-\frac{1331}{6250\,(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3*(2+3*x)/(3+5*x)**3,x)
```

```
[Out] -2046*log(5*x + 3)/3125 + Integral(316/625, x) - 24*Integral(x, x
)/125 - 3267/(3125*(5*x + 3)) - 1331/(6250*(5*x + 3)**2)
```

Mathematica [A] time = 0.0277076, size = 46, normalized size = 1.02

$$-\frac{15000x^4-61000x^3-53650x^2+47130x+4092(5x+3)^2\log(10x+6)+33803}{6250(5x+3)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^3*(2 + 3*x))/(3 + 5*x)^3,x]
```

```
[Out] -(33803 + 47130*x - 53650*x^2 - 61000*x^3 + 15000*x^4 + 4092*(3 +
 5*x)^2*Log[6 + 10*x])/(6250*(3 + 5*x)^2)
```

Maple [A] time = 0.01, size = 36, normalized size = 0.8

$$\frac{316\,x}{625}-\frac{12\,x^2}{125}-\frac{1331}{6250\,(3+5\,x)^2}-\frac{3267}{9375+15625\,x}-\frac{2046\,\ln(3+5\,x)}{3125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3*(2+3*x)/(3+5*x)^3,x)
```

```
[Out] 316/625*x-12/125*x^2-1331/6250/(3+5*x)^2-3267/3125/(3+5*x)-2046/3
125*ln(3+5*x)
```

Maxima [A] time = 1.32993, size = 49, normalized size = 1.09

$$-\frac{12}{125}\,x^2+\frac{316}{625}\,x-\frac{121\,(270\,x+173)}{6250\,(25\,x^2+30\,x+9)}-\frac{2046}{3125}\,\log(5\,x+3)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)*(2*x - 1)^3/(5*x + 3)^3,x, algorithm="maxima")
```

```
[Out] -12/125*x^2 + 316/625*x - 121/6250*(270*x + 173)/(25*x^2 + 30*x +
 9) - 2046/3125*log(5*x + 3)
```

Fricas [A] time = 0.208864, size = 70, normalized size = 1.56

$$-\frac{15000\,x^4-61000\,x^3-89400\,x^2+4092\,\left(25\,x^2+30\,x+9\right)\,\log(5\,x+3)+4230\,x+20933}{6250\,(25\,x^2+30\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)*(2*x - 1)^3/(5*x + 3)^3,x, algorithm="fricas")
```

```
[Out] -1/6250*(15000*x^4 - 61000*x^3 - 89400*x^2 + 4092*(25*x^2 + 30*x
+ 9)*log(5*x + 3) + 4230*x + 20933)/(25*x^2 + 30*x + 9)
```

Sympy [A] time = 0.269583, size = 36, normalized size = 0.8

$$-\frac{12x^2}{125}+\frac{316x}{625}-\frac{32670x+20933}{156250x^2+187500x+56250}-\frac{2046\log(5x+3)}{3125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3*(2+3*x)/(3+5*x)**3,x)
```

```
[Out] -12*x**2/125 + 316*x/625 - (32670*x + 20933)/(156250*x**2 + 18750
0*x + 56250) - 2046*log(5*x + 3)/3125
```

GIAC/XCAS [A] time = 0.208803, size = 43, normalized size = 0.96

$$-\frac{12}{125}\,x^2+\frac{316}{625}\,x-\frac{121\,(270\,x+173)}{6250\,(5\,x+3)^2}-\frac{2046}{3125}\,\ln(|5\,x+3|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)*(2*x - 1)^3/(5*x + 3)^3,x, algorithm="giac")
```

```
[Out] -12/125*x^2 + 316/625*x - 121/6250*(270*x + 173)/(5*x + 3)^2 - 20
46/3125*ln(abs(5*x + 3))
```

3.1408 $\int \frac{(1-2x)^3}{(3+5x)^3} dx$

Optimal. Leaf size=38

$$-\frac{8x}{125}+\frac{726}{625(5x+3)}-\frac{1331}{1250(5x+3)^2}+\frac{132}{625}\log(5x+3)$$

```
[Out] (-8*x)/125 - 1331/(1250*(3 + 5*x)^2) + 726/(625*(3 + 5*x)) + (132
*Log[3 + 5*x])/625
```

Rubi [A] time = 0.0359261, antiderivative size = 38, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.067

$$-\frac{8x}{125}+\frac{726}{625(5x+3)}-\frac{1331}{1250(5x+3)^2}+\frac{132}{625}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^3/(3 + 5*x)^3,x]
```

```
[Out] (-8*x)/125 - 1331/(1250*(3 + 5*x)^2) + 726/(625*(3 + 5*x)) + (132
*Log[3 + 5*x])/625
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{132\log(5x+3)}{625}+\int\left(-\frac{8}{125}\right)dx+\frac{726}{625(5x+3)}-\frac{1331}{1250(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3/(3+5*x)**3,x)
```

```
[Out] 132*log(5*x + 3)/625 + Integral(-8/125, x) + 726/(625*(5*x + 3))
 - 1331/(1250*(5*x + 3)**2)
```

Mathematica [A] time = 0.026445, size = 37, normalized size = 0.97

$$\frac{\frac{5(-400x^3-280x^2+1548x+677)}{(5x+3)^2}+264\log(10x+6)}{1250}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^3/(3 + 5*x)^3,x]
```

```
[Out] ((5*(677 + 1548*x - 280*x^2 - 400*x^3))/(3 + 5*x)^2 + 264*Log[6 +
 10*x])/1250
```

Maple [A] time = 0.009, size = 31, normalized size = 0.8

$$-\frac{8x}{125}-\frac{1331}{1250(3+5x)^2}+\frac{726}{1875+3125x}+\frac{132\ln(3+5x)}{625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3/(3+5*x)^3,x)
```

```
[Out] -8/125*x-1331/1250/(3+5*x)^2+726/625/(3+5*x)+132/625*ln(3+5*x)
```

Maxima [A] time = 1.34521, size = 42, normalized size = 1.11

$$-\frac{8}{125}\,x + \frac{121\,(12\,x + 5)}{250\,(25\,x^2 + 30\,x + 9)} + \frac{132}{625}\,\log\left(5\,x + 3\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)^3/(5*x + 3)^3,x, algorithm="maxima")
```

```
[Out] -8/125*x + 121/250*(12*x + 5)/(25*x^2 + 30*x + 9) + 132/625*log(5
*x + 3)
```

Fricas [A] time = 0.221115, size = 63, normalized size = 1.66

$$-\frac{2000\,x^3 + 2400\,x^2 - 264\,\left(25\,x^2 + 30\,x + 9\right)\log\left(5\,x + 3\right) - 6540\,x - 3025}{1250\,(25\,x^2 + 30\,x + 9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)^3/(5*x + 3)^3,x, algorithm="fricas")
```

```
[Out] -1/1250*(2000*x^3 + 2400*x^2 - 264*(25*x^2 + 30*x + 9)*log(5*x +
3) - 6540*x - 3025)/(25*x^2 + 30*x + 9)
```

Sympy [A] time = 0.245763, size = 29, normalized size = 0.76

$$-\frac{8x}{125} + \frac{1452x + 605}{6250x^2 + 7500x + 2250} + \frac{132\log\left(5x + 3\right)}{625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3/(3+5*x)**3,x)
```

```
[Out] -8*x/125 + (1452*x + 605)/(6250*x**2 + 7500*x + 2250) + 132*log(5
*x + 3)/625
```

GIAC/XCAS [A] time = 0.20854, size = 36, normalized size = 0.95

$$-\frac{8}{125}\,x + \frac{121\,(12\,x + 5)}{250\,(5\,x + 3)^2} + \frac{132}{625}\,\ln\left(|5\,x + 3|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)^3/(5*x + 3)^3,x, algorithm="giac")
```

```
[Out] -8/125*x + 121/250*(12*x + 5)/(5*x + 3)^2 + 132/625*ln(abs(5*x +
3))
```

3.1409 $\int \frac{(1-2x)^3}{(2+3x)(3+5x)^3} dx$

Optimal. Leaf size=43

$$\frac{4719}{125(5x+3)}-\frac{1331}{250(5x+3)^2}-\frac{343}{3}\log(3x+2)+\frac{14289}{125}\log(5x+3)$$

```
[Out] -1331/(250*(3 + 5*x)^2) + 4719/(125*(3 + 5*x)) - (343*Log[2 + 3*x
])/3 + (14289*Log[3 + 5*x])/125
```

Rubi [A] time = 0.0496146, antiderivative size = 43, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{4719}{125(5x+3)}-\frac{1331}{250(5x+3)^2}-\frac{343}{3}\log(3x+2)+\frac{14289}{125}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^3/((2 + 3*x)*(3 + 5*x)^3),x]
```

```
[Out] -1331/(250*(3 + 5*x)^2) + 4719/(125*(3 + 5*x)) - (343*Log[2 + 3*x
])/3 + (14289*Log[3 + 5*x])/125
```

Rubi in Sympy [A] time = 7.42212, size = 36, normalized size = 0.84

$$-\frac{343\log(3x+2)}{3}+\frac{14289\log(5x+3)}{125}+\frac{4719}{125(5x+3)}-\frac{1331}{250(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**3/(2+3*x)/(3+5*x)**3,x)
```

```
[Out] -343*log(3*x + 2)/3 + 14289*log(5*x + 3)/125 + 4719/(125*(5*x + 3
)) - 1331/(250*(5*x + 3)**2)
```

Mathematica [A] time = 0.0394622, size = 44, normalized size = 1.02

$$\frac{11\left(4290x+2598(5x+3)^2\log(-3(5x+3))+2453\right)}{250(5x+3)^2}-\frac{343}{3}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)^3/((2 + 3*x)*(3 + 5*x)^3),x]
```

```
[Out] (-343*Log[2 + 3*x])/3 + (11*(2453 + 4290*x + 2598*(3 + 5*x)^2*Log
[-3*(3 + 5*x)]))/(250*(3 + 5*x)^2)
```

Maple [A] time = 0.012, size = 36, normalized size = 0.8

$$-\frac{1331}{250(3+5x)^2}+\frac{4719}{375+625x}-\frac{343\ln(2+3x)}{3}+\frac{14289\ln(3+5x)}{125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3/(2+3*x)/(3+5*x)^3,x)
```

```
[Out] -1331/250/(3+5*x)^2+4719/125/(3+5*x)-343/3*ln(2+3*x)+14289/125*ln
(3+5*x)
```

Maxima [A] time = 1.42455, size = 49, normalized size = 1.14

$$\frac{121\,(390\,x+223)}{250\,(25\,x^2+30\,x+9)}+\frac{14289}{125}\,\log(5\,x+3)-\frac{343}{3}\,\log(3\,x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)^3/((5*x + 3)^3*(3*x + 2)),x, algorithm="maxima")
```

```
[Out] 121/250*(390*x + 223)/(25*x^2 + 30*x + 9) + 14289/125*log(5*x + 3
) - 343/3*log(3*x + 2)
```

Fricas [A] time = 0.22425, size = 74, normalized size = 1.72

$$\frac{85734\,(25\,x^2+30\,x+9)\,\log(5\,x+3)-85750\,(25\,x^2+30\,x+9)\,\log(3\,x+2)+141570\,x+80949}{750\,(25\,x^2+30\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)^3/((5*x + 3)^3*(3*x + 2)),x, algorithm="fricas")
```

```
[Out] 1/750*(85734*(25*x^2 + 30*x + 9)*log(5*x + 3) - 85750*(25*x^2 + 3
0*x + 9)*log(3*x + 2) + 141570*x + 80949)/(25*x^2 + 30*x + 9)
```

Sympy [A] time = 0.38457, size = 34, normalized size = 0.79

$$\frac{47190x+26983}{6250x^2+7500x+2250}+\frac{14289\log\left(x+\frac{3}{5}\right)}{125}-\frac{343\log\left(x+\frac{2}{3}\right)}{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3/(2+3*x)/(3+5*x)**3,x)
```

```
[Out] (47190*x + 26983)/(6250*x**2 + 7500*x + 2250) + 14289*log(x + 3/5
)/125 - 343*log(x + 2/3)/3
```

GIAC/XCAS [A] time = 0.210784, size = 45, normalized size = 1.05

$$\frac{121\,(390\,x+223)}{250\,(5\,x+3)^2}+\frac{14289}{125}\,\ln(|5\,x+3|)-\frac{343}{3}\,\ln(|3\,x+2|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)^3/((5*x + 3)^3*(3*x + 2)),x, algorithm="giac")
```

```
[Out] 121/250*(390*x + 223)/(5*x + 3)^2 + 14289/125*ln(abs(5*x + 3)) -
343/3*ln(abs(3*x + 2))
```

3.1410 $\int \frac{(1-2x)^3}{(2+3x)^2(3+5x)^3} dx$

Optimal. Leaf size=50

$$\frac{343}{3(3x+2)}+\frac{8712}{25(5x+3)}-\frac{1331}{50(5x+3)^2}-1617\log(3x+2)+1617\log(5x+3)$$

```
[Out] 343/(3*(2 + 3*x)) - 1331/(50*(3 + 5*x)^2) + 8712/(25*(3 + 5*x)) -
 1617*Log[2 + 3*x] + 1617*Log[3 + 5*x]
```

Rubi [A] time = 0.0622917, antiderivative size = 50, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{343}{3(3x+2)}+\frac{8712}{25(5x+3)}-\frac{1331}{50(5x+3)^2}-1617\log(3x+2)+1617\log(5x+3)$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^3/((2 + 3*x)^2*(3 + 5*x)^3),x]
```

```
[Out] 343/(3*(2 + 3*x)) - 1331/(50*(3 + 5*x)^2) + 8712/(25*(3 + 5*x)) -
 1617*Log[2 + 3*x] + 1617*Log[3 + 5*x]
```

Rubi in Sympy [A] time = 8.48222, size = 39, normalized size = 0.78

$$-1617\log(3x+2)+1617\log(5x+3)+\frac{8712}{25(5x+3)}-\frac{1331}{50(5x+3)^2}+\frac{343}{3(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**3/(2+3*x)**2/(3+5*x)**3,x)
```

```
[Out] -1617*log(3*x + 2) + 1617*log(5*x + 3) + 8712/(25*(5*x + 3)) - 13
31/(50*(5*x + 3)**2) + 343/(3*(3*x + 2))
```

Mathematica [A] time = 0.0457259, size = 48, normalized size = 0.96

$$\frac{343}{9x+6}+\frac{8712}{125x+75}-\frac{1331}{50(5x+3)^2}-1617\log(5(3x+2))+1617\log(5x+3)$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)^3/((2 + 3*x)^2*(3 + 5*x)^3),x]
```

```
[Out] -1331/(50*(3 + 5*x)^2) + 343/(6 + 9*x) + 8712/(75 + 125*x) - 1617
*Log[5*(2 + 3*x)] + 1617*Log[3 + 5*x]
```

Maple [A] time = 0.014, size = 45, normalized size = 0.9

$$\frac{343}{6+9x}-\frac{1331}{50(3+5x)^2}+\frac{8712}{75+125x}-1617\ln(2+3x)+1617\ln(3+5x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3/(2+3*x)^2/(3+5*x)^3,x)
```

```
[Out] 343/3/(2+3*x)-1331/50/(3+5*x)^2+8712/25/(3+5*x)-1617*ln(2+3*x)+16
17*ln(3+5*x)
```

Maxima [A] time = 1.34726, size = 62, normalized size = 1.24

$$\frac{1212830\,x^2+1495689\,x+459996}{150\,(75\,x^3+140\,x^2+87\,x+18)}+1617\,\log(5\,x+3)-1617\,\log(3\,x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)^3/((5*x + 3)^3*(3*x + 2)^2),x, algorithm="maxima")
```

```
[Out] 1/150*(1212830*x^2 + 1495689*x + 459996)/(75*x^3 + 140*x^2 + 87*x
 + 18) + 1617*log(5*x + 3) - 1617*log(3*x + 2)
```

Fricas [A] time = 0.227255, size = 101, normalized size = 2.02

$$\frac{1212830\,x^2+242550\left(75\,x^3+140\,x^2+87\,x+18\right)\log(5\,x+3)-242550\left(75\,x^3+140\,x^2+87\,x+18\right)\log(3\,x+2)+1495689}{150\,(75\,x^3+140\,x^2+87\,x+18)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)^3/((5*x + 3)^3*(3*x + 2)^2),x, algorithm="fricas")
```

```
[Out] 1/150*(1212830*x^2 + 242550*(75*x^3 + 140*x^2 + 87*x + 18)*log(5*
x + 3) - 242550*(75*x^3 + 140*x^2 + 87*x + 18)*log(3*x + 2) + 149
5689*x + 459996)/(75*x^3 + 140*x^2 + 87*x + 18)
```

Sympy [A] time = 0.395553, size = 41, normalized size = 0.82

$$\frac{1212830x^2+1495689x+459996}{11250x^3+21000x^2+13050x+2700}+1617\log\left(x+\frac{3}{5}\right)-1617\log\left(x+\frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3/(2+3*x)**2/(3+5*x)**3,x)
```

```
[Out] (1212830*x**2 + 1495689*x + 459996)/(11250*x**3 + 21000*x**2 + 13
050*x + 2700) + 1617*log(x + 3/5) - 1617*log(x + 2/3)
```

GIAC/XCAS [A] time = 0.21715, size = 66, normalized size = 1.32

$$\frac{343}{3\,(3\,x+2)}-\frac{1089\left(\frac{14}{3\,x+2}-59\right)}{2\left(\frac{1}{3\,x+2}-5\right)^2}+1617\ln\left(\left|-\frac{1}{3\,x+2}+5\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)^3/((5*x + 3)^3*(3*x + 2)^2),x, algorithm="giac")
```

```
[Out] 343/3/(3*x + 2) - 1089/2*(14/(3*x + 2) - 59)/(1/(3*x + 2) - 5)^2
+ 1617*ln(abs(-1/(3*x + 2) + 5))
```

3.1411 $\int \frac{(1-2x)^3}{(2+3x)^3(3+5x)^3} \, dx$

Optimal. Leaf size=57

$$\frac{1617}{3x+2}+\frac{2541}{5x+3}+\frac{343}{6(3x+2)^2}-\frac{1331}{10(5x+3)^2}-15708\log(3x+2)+15708\log(5x+3)$$

```
[Out] 343/(6*(2 + 3*x)^2) + 1617/(2 + 3*x) - 1331/(10*(3 + 5*x)^2) + 25
41/(3 + 5*x) - 15708*Log[2 + 3*x] + 15708*Log[3 + 5*x]
```

Rubi [A] time = 0.0710593, antiderivative size = 57, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{1617}{3x+2}+\frac{2541}{5x+3}+\frac{343}{6(3x+2)^2}-\frac{1331}{10(5x+3)^2}-15708\log(3x+2)+15708\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^3/((2 + 3*x)^3*(3 + 5*x)^3),x]
```

```
[Out] 343/(6*(2 + 3*x)^2) + 1617/(2 + 3*x) - 1331/(10*(3 + 5*x)^2) + 25
41/(3 + 5*x) - 15708*Log[2 + 3*x] + 15708*Log[3 + 5*x]
```

Rubi in Sympy [A] time = 9.73438, size = 49, normalized size = 0.86

$$-15708\log(3x+2)+15708\log(5x+3)+\frac{2541}{5x+3}-\frac{1331}{10(5x+3)^2}+\frac{1617}{3x+2}+\frac{343}{6(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3/(2+3*x)**3/(3+5*x)**3,x)
```

```
[Out] -15708*log(3*x + 2) + 15708*log(5*x + 3) + 2541/(5*x + 3) - 1331/
(10*(5*x + 3)**2) + 1617/(3*x + 2) + 343/(6*(3*x + 2)**2)
```

Mathematica [A] time = 0.0537175, size = 59, normalized size = 1.04

$$\frac{1617}{3x+2}+\frac{2541}{5x+3}+\frac{343}{6(3x+2)^2}-\frac{1331}{10(5x+3)^2}-15708\log(5(3x+2))+15708\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^3/((2 + 3*x)^3*(3 + 5*x)^3),x]
```

```
[Out] 343/(6*(2 + 3*x)^2) + 1617/(2 + 3*x) - 1331/(10*(3 + 5*x)^2) + 25
41/(3 + 5*x) - 15708*Log[5*(2 + 3*x)] + 15708*Log[3 + 5*x]
```

Maple [A] time = 0.015, size = 54, normalized size = 1.

$$\frac{343}{6\,(2+3\,x)^2}+1617\,(2+3\,x)^{-1}-\frac{1331}{10\,(3+5\,x)^2}+2541\,(3+5\,x)^{-1}-15708\,\ln(2+3\,x)+15708\,\ln(3+5\,x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3/(2+3*x)^3/(3+5*x)^3,x)
```

```
[Out] 343/6/(2+3*x)^2+1617/(2+3*x)-1331/10/(3+5*x)^2+2541/(3+5*x)-15708
*ln(2+3*x)+15708*ln(3+5*x)
```

Maxima [A] time = 1.34599, size = 76, normalized size = 1.33

$$\frac{7068600\,x^3+13430348\,x^2+8492784\,x+1787403}{30\,(225\,x^4+570\,x^3+541\,x^2+228\,x+36)}+15708\,\log(5\,x+3)-15708\,\log(3\,x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)^3/((5*x + 3)^3*(3*x + 2)^3),x, algorithm="maxima")
```

```
[Out] 1/30*(7068600*x^3 + 13430348*x^2 + 8492784*x + 1787403)/(225*x^4
+ 570*x^3 + 541*x^2 + 228*x + 36) + 15708*log(5*x + 3) - 15708*lo
g(3*x + 2)
```

Fricas [A] time = 0.217737, size = 128, normalized size = 2.25

$$\frac{7068600\,x^3+13430348\,x^2+471240\,\left(225\,x^4+570\,x^3+541\,x^2+228\,x+36\right)\log(5\,x+3)-471240\,\left(225\,x^4+570\,x^3+541\,x^2\right.}{30\,(225\,x^4+570\,x^3+541\,x^2+228\,x+36)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)^3/((5*x + 3)^3*(3*x + 2)^3),x, algorithm="fricas")
```

```
[Out] 1/30*(7068600*x^3 + 13430348*x^2 + 471240*(225*x^4 + 570*x^3 + 54
1*x^2 + 228*x + 36)*log(5*x + 3) - 471240*(225*x^4 + 570*x^3 + 54
1*x^2 + 228*x + 36)*log(3*x + 2) + 8492784*x + 1787403)/(225*x^4
+ 570*x^3 + 541*x^2 + 228*x + 36)
```

Sympy [A] time = 0.435857, size = 51, normalized size = 0.89

$$\frac{7068600x^3+13430348x^2+8492784x+1787403}{6750x^4+17100x^3+16230x^2+6840x+1080}+15708\log\left(x+\frac{3}{5}\right)-15708\log\left(x+\frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3/(2+3*x)**3/(3+5*x)**3,x)
```

```
[Out] (7068600*x**3 + 13430348*x**2 + 8492784*x + 1787403)/(6750*x**4 +
 17100*x**3 + 16230*x**2 + 6840*x + 1080) + 15708*log(x + 3/5) -
15708*log(x + 2/3)
```

GIAC/XCAS [A] time = 0.214559, size = 65, normalized size = 1.14

$$\frac{7068600\,x^3+13430348\,x^2+8492784\,x+1787403}{30\,(15\,x^2+19\,x+6)^2}+15708\ln(|5\,x+3|)-15708\ln(|3\,x+2|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)^3/((5*x + 3)^3*(3*x + 2)^3),x, algorithm="giac")
```

```
[Out] 1/30*(7068600*x^3 + 13430348*x^2 + 8492784*x + 1787403)/(15*x^2 +
 19*x + 6)^2 + 15708*ln(abs(5*x + 3)) - 15708*ln(abs(3*x + 2))
```

3.1412 $\int \frac{(1-2x)^3}{(2+3x)^4(3+5x)^3}\,dx$

Optimal. Leaf size=68

$$\frac{15708}{3x+2}+\frac{16698}{5x+3}+\frac{1617}{2(3x+2)^2}-\frac{1331}{2(5x+3)^2}+\frac{343}{9(3x+2)^3}-128634\log(3x+2)+128634\log(5x+3)$$

```
[Out] 343/(9*(2 + 3*x)^3) + 1617/(2*(2 + 3*x)^2) + 15708/(2 + 3*x) - 13
31/(2*(3 + 5*x)^2) + 16698/(3 + 5*x) - 128634*Log[2 + 3*x] + 1286
34*Log[3 + 5*x]
```

Rubi [A] time = 0.081604, antiderivative size = 68, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{15708}{3x+2}+\frac{16698}{5x+3}+\frac{1617}{2(3x+2)^2}-\frac{1331}{2(5x+3)^2}+\frac{343}{9(3x+2)^3}-128634\log(3x+2)+128634\log(5x+3)$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^3/((2 + 3*x)^4*(3 + 5*x)^3),x]
```

```
[Out] 343/(9*(2 + 3*x)^3) + 1617/(2*(2 + 3*x)^2) + 15708/(2 + 3*x) - 13
31/(2*(3 + 5*x)^2) + 16698/(3 + 5*x) - 128634*Log[2 + 3*x] + 1286
34*Log[3 + 5*x]
```

Rubi in Sympy [A] time = 10.9805, size = 60, normalized size = 0.88

$$-128634\log(3x+2)+128634\log(5x+3)+\frac{16698}{5x+3}-\frac{1331}{2(5x+3)^2}+\frac{15708}{3x+2}+\frac{1617}{2(3x+2)^2}+\frac{343}{9(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**3/(2+3*x)**4/(3+5*x)**3,x)
```

```
[Out] -128634*log(3*x + 2) + 128634*log(5*x + 3) + 16698/(5*x + 3) - 13
31/(2*(5*x + 3)**2) + 15708/(3*x + 2) + 1617/(2*(3*x + 2)**2) + 3
43/(9*(3*x + 2)**3)
```

Mathematica [A] time = 0.0534768, size = 70, normalized size = 1.03

$$\frac{15708}{3x+2}+\frac{16698}{5x+3}+\frac{1617}{2(3x+2)^2}-\frac{1331}{2(5x+3)^2}+\frac{343}{9(3x+2)^3}-128634\log(5(3x+2))+128634\log(5x+3)$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)^3/((2 + 3*x)^4*(3 + 5*x)^3),x]
```

```
[Out] 343/(9*(2 + 3*x)^3) + 1617/(2*(2 + 3*x)^2) + 15708/(2 + 3*x) - 13
31/(2*(3 + 5*x)^2) + 16698/(3 + 5*x) - 128634*Log[5*(2 + 3*x)] +
128634*Log[3 + 5*x]
```

Maple [A] time = 0.014, size = 63, normalized size = 0.9

$$\frac{343}{9\,(2+3\,x)^3}+\frac{1617}{2\,(2+3\,x)^2}+15708\,(2+3\,x)^{-1}-\frac{1331}{2\,(3+5\,x)^2}+16698\,(3+5\,x)^{-1}-128634\,\ln(2+3\,x)+128634\,\ln(3+5\,x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3/(2+3*x)^4/(3+5*x)^3,x)
```

```
[Out] 343/9/(2+3*x)^3+1617/2/(2+3*x)^2+15708/(2+3*x)-1331/2/(3+5*x)^2+1
6698/(3+5*x)-128634*ln(2+3*x)+128634*ln(3+5*x)
```

Maxima [A] time = 1.34442, size = 89, normalized size = 1.31

$$\frac{104193540\,x^4+267430086\,x^3+257165096\,x^2+109804551\,x+17564616}{18\,(675\,x^5+2160\,x^4+2763\,x^3+1766\,x^2+564\,x+72)}+128634\,\log(5\,x+3)-128634\,\log(3\,x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)^3/((5*x + 3)^3*(3*x + 2)^4),x, algorithm="maxima")
```

```
[Out] 1/18*(104193540*x^4 + 267430086*x^3 + 257165096*x^2 + 109804551*x
 + 17564616)/(675*x^5 + 2160*x^4 + 2763*x^3 + 1766*x^2 + 564*x +
72) + 128634*log(5*x + 3) - 128634*log(3*x + 2)
```

Fricas [A] time = 0.21593, size = 155, normalized size = 2.28

$$\frac{104193540\,x^4+267430086\,x^3+257165096\,x^2+2315412\,(675\,x^5+2160\,x^4+2763\,x^3+1766\,x^2+564\,x+72)\,\log(5\,x+3)-}{18\,(675\,x^5+2160\,x^4+2763\,x^3+1766}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)^3/((5*x + 3)^3*(3*x + 2)^4),x, algorithm="fricas")
```

```
[Out] 1/18*(104193540*x^4 + 267430086*x^3 + 257165096*x^2 + 2315412*(67
5*x^5 + 2160*x^4 + 2763*x^3 + 1766*x^2 + 564*x + 72)*log(5*x + 3)
 - 2315412*(675*x^5 + 2160*x^4 + 2763*x^3 + 1766*x^2 + 564*x + 72
)*log(3*x + 2) + 109804551*x + 17564616)/(675*x^5 + 2160*x^4 + 27
63*x^3 + 1766*x^2 + 564*x + 72)
```

Sympy [A] time = 0.534217, size = 61, normalized size = 0.9

$$\frac{104193540x^4+267430086x^3+257165096x^2+109804551x+17564616}{12150x^5+38880x^4+49734x^3+31788x^2+10152x+1296}+128634\log\left(x+\frac{3}{5}\right)-128634\log\left(x+\frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3/(2+3*x)**4/(3+5*x)**3,x)
```

```
[Out] (104193540*x**4 + 267430086*x**3 + 257165096*x**2 + 109804551*x +
 17564616)/(12150*x**5 + 38880*x**4 + 49734*x**3 + 31788*x**2 + 1
0152*x + 1296) + 128634*log(x + 3/5) - 128634*log(x + 2/3)
```

GIAC/XCAS [A] time = 0.213404, size = 74, normalized size = 1.09

$$\frac{104193540\,x^4+267430086\,x^3+257165096\,x^2+109804551\,x+17564616}{18\,(5\,x+3)^2(3\,x+2)^3}+128634\ln(|5\,x+3|)-128634\ln(|3\,x+2|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)^3/((5*x + 3)^3*(3*x + 2)^4),x, algorithm="giac")
```

```
[Out] 1/18*(104193540*x^4 + 267430086*x^3 + 257165096*x^2 + 109804551*x
 + 17564616)/((5*x + 3)^2*(3*x + 2)^3) + 128634*ln(abs(5*x + 3))
- 128634*ln(abs(3*x + 2))
```

3.1413 $\int \frac{(1-2x)^3}{(2+3x)^5(3+5x)^3}\,dx$

Optimal. Leaf size=75

$$\frac{128634}{3x+2}+\frac{103455}{5x+3}+\frac{7854}{(3x+2)^2}-\frac{6655}{2(5x+3)^2}+\frac{539}{(3x+2)^3}+\frac{343}{12(3x+2)^4}-953535\log(3x+2)+953535\log(5x+3)$$

```
[Out] 343/(12*(2 + 3*x)^4) + 539/(2 + 3*x)^3 + 7854/(2 + 3*x)^2 + 12863
4/(2 + 3*x) - 6655/(2*(3 + 5*x)^2) + 103455/(3 + 5*x) - 953535*Lo
g[2 + 3*x] + 953535*Log[3 + 5*x]
```

Rubi [A] time = 0.0936315, antiderivative size = 75, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{128634}{3x+2}+\frac{103455}{5x+3}+\frac{7854}{(3x+2)^2}-\frac{6655}{2(5x+3)^2}+\frac{539}{(3x+2)^3}+\frac{343}{12(3x+2)^4}-953535\log(3x+2)+953535\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^3/((2 + 3*x)^5*(3 + 5*x)^3),x]
```

```
[Out] 343/(12*(2 + 3*x)^4) + 539/(2 + 3*x)^3 + 7854/(2 + 3*x)^2 + 12863
4/(2 + 3*x) - 6655/(2*(3 + 5*x)^2) + 103455/(3 + 5*x) - 953535*Lo
g[2 + 3*x] + 953535*Log[3 + 5*x]
```

Rubi in Sympy [A] time = 12.4196, size = 66, normalized size = 0.88

$$-953535\log(3x+2)+953535\log(5x+3)+\frac{103455}{5x+3}-\frac{6655}{2(5x+3)^2}+\frac{128634}{3x+2}+\frac{7854}{(3x+2)^2}+\frac{539}{(3x+2)^3}+\frac{343}{12(3x+2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3/(2+3*x)**5/(3+5*x)**3,x)
```

```
[Out] -953535*log(3*x + 2) + 953535*log(5*x + 3) + 103455/(5*x + 3) - 6
655/(2*(5*x + 3)**2) + 128634/(3*x + 2) + 7854/(3*x + 2)**2 + 539
/(3*x + 2)**3 + 343/(12*(3*x + 2)**4)
```

Mathematica [A] time = 0.0593479, size = 77, normalized size = 1.03

$$\frac{128634}{3x+2}+\frac{103455}{5x+3}+\frac{7854}{(3x+2)^2}-\frac{6655}{2(5x+3)^2}+\frac{539}{(3x+2)^3}+\frac{343}{12(3x+2)^4}-953535\log(5(3x+2))+953535\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^3/((2 + 3*x)^5*(3 + 5*x)^3),x]
```

```
[Out] 343/(12*(2 + 3*x)^4) + 539/(2 + 3*x)^3 + 7854/(2 + 3*x)^2 + 12863
4/(2 + 3*x) - 6655/(2*(3 + 5*x)^2) + 103455/(3 + 5*x) - 953535*Lo
```

```
g[5*(2 + 3*x)] + 953535*Log[3 + 5*x]
```

Maple [A] time = 0.014, size = 72, normalized size = 1.

$$\frac{343}{12\ (2+3\,x)^{4}}+539\ (2+3\,x)^{-3}+7854\ (2+3\,x)^{-2}+128634\ (2+3\,x)^{-1}-\frac{6655}{2\ (3+5\,x)^{2}}+103455\ (3+5\,x)^{-1}-953535\ \ln(2+3\,x)+953535\ \ln(3+5\,x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3/(2+3*x)^5/(3+5*x)^3,x)
```

```
[Out] 343/12/(2+3*x)^4+539/(2+3*x)^3+7854/(2+3*x)^2+128634/(2+3*x)-6655
/2/(3+5*x)^2+103455/(3+5*x)-953535*ln(2+3*x)+953535*ln(3+5*x)
```

Maxima [A] time = 1.34471, size = 103, normalized size = 1.37

$$\frac{1544726700\,x^{5}+4994616330\,x^{4}+6455813364\,x^{3}+4169655991\,x^{2}+1345680462\,x+173603415}{12\,(2025\,x^{6}+7830\,x^{5}+12609\,x^{4}+10824\,x^{3}+5224\,x^{2}+1344\,x+144)}+953535\ \log(5\,x+3)-953535\ \log(3\,x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)^3/((5*x + 3)^3*(3*x + 2)^5),x, algorithm="maxima")
```

```
[Out] 1/12*(1544726700*x^5 + 4994616330*x^4 + 6455813364*x^3 + 41696559
91*x^2 + 1345680462*x + 173603415)/(2025*x^6 + 7830*x^5 + 12609*x
^4 + 10824*x^3 + 5224*x^2 + 1344*x + 144) + 953535*log(5*x + 3) -
 953535*log(3*x + 2)
```

Fricas [A] time = 0.204576, size = 182, normalized size = 2.43

$$\frac{1544726700\,x^{5}+4994616330\,x^{4}+6455813364\,x^{3}+4169655991\,x^{2}+11442420\,\left(2025\,x^{6}+7830\,x^{5}+12609\,x^{4}+10824\,x^{3}+\cdots\right.}{12\,(2025\,x^{6}+783\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)^3/((5*x + 3)^3*(3*x + 2)^5),x, algorithm="fricas")
```

```
[Out] 1/12*(1544726700*x^5 + 4994616330*x^4 + 6455813364*x^3 + 41696559
91*x^2 + 11442420*(2025*x^6 + 7830*x^5 + 12609*x^4 + 10824*x^3 +
5224*x^2 + 1344*x + 144)*log(5*x + 3) - 11442420*(2025*x^6 + 7830
*x^5 + 12609*x^4 + 10824*x^3 + 5224*x^2 + 1344*x + 144)*log(3*x +
 2) + 1345680462*x + 173603415)/(2025*x^6 + 7830*x^5 + 12609*x^4
+ 10824*x^3 + 5224*x^2 + 1344*x + 144)
```

Sympy [A] time = 0.571914, size = 71, normalized size = 0.95

$$\frac{1544726700x^{5}+4994616330x^{4}+6455813364x^{3}+4169655991x^{2}+1345680462x+173603415}{24300x^{6}+93960x^{5}+151308x^{4}+129888x^{3}+62688x^{2}+16128x+1728}+953535\log\left(x+\frac{3}{5}\right)-953535\log\left(x+\frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3/(2+3*x)**5/(3+5*x)**3,x)
```

```
[Out] (1544726700*x**5 + 4994616330*x**4 + 6455813364*x**3 + 4169655991
*x**2 + 1345680462*x + 173603415)/(24300*x**6 + 93960*x**5 + 1513
08*x**4 + 129888*x**3 + 62688*x**2 + 16128*x + 1728) + 953535*log
(x + 3/5) - 953535*log(x + 2/3)
```

GIAC/XCAS [A] time = 0.215578, size = 103, normalized size = 1.37

$$\frac{128634}{3\,x+2}-\frac{27225\,\left(\frac{136}{3\,x+2}-625\right)}{2\,\left(\frac{1}{3\,x+2}-5\right)^{2}}+\frac{7854}{(3\,x+2)^{2}}+\frac{539}{(3\,x+2)^{3}}+\frac{343}{12\,(3\,x+2)^{4}}+953535\ln\left(\left|-\frac{1}{3\,x+2}+5\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)^3/((5*x + 3)^3*(3*x + 2)^5),x, algorithm="giac")
```

```
[Out] 128634/(3*x + 2) - 27225/2*(136/(3*x + 2) - 625)/(1/(3*x + 2) - 5
)^2 + 7854/(3*x + 2)^2 + 539/(3*x + 2)^3 + 343/12/(3*x + 2)^4 + 9
53535*ln(abs(-1/(3*x + 2) + 5))
```

3.1414 $\int \frac{(1-2x)^3}{(2+3x)^6(3+5x)^3} dx$

Optimal. Leaf size=86

$$\frac{953535}{3x+2}+\frac{617100}{5x+3}+\frac{64317}{(3x+2)^2}-\frac{33275}{2(5x+3)^2}+\frac{5236}{(3x+2)^3}+\frac{1617}{4(3x+2)^4}+\frac{343}{15(3x+2)^5}-6618975\log(3x+2)+6618975\log(5x+3)$$

```
[Out] 343/(15*(2 + 3*x)^5) + 1617/(4*(2 + 3*x)^4) + 5236/(2 + 3*x)^3 +
64317/(2 + 3*x)^2 + 953535/(2 + 3*x) - 33275/(2*(3 + 5*x)^2) + 61
7100/(3 + 5*x) - 6618975*Log[2 + 3*x] + 6618975*Log[3 + 5*x]
```

Rubi [A] time = 0.108345, antiderivative size = 86, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{953535}{3x+2}+\frac{617100}{5x+3}+\frac{64317}{(3x+2)^2}-\frac{33275}{2(5x+3)^2}+\frac{5236}{(3x+2)^3}+\frac{1617}{4(3x+2)^4}+\frac{343}{15(3x+2)^5}-6618975\log(3x+2)+6618975\log(5x+3)$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^3/((2 + 3*x)^6*(3 + 5*x)^3),x]
```

```
[Out] 343/(15*(2 + 3*x)^5) + 1617/(4*(2 + 3*x)^4) + 5236/(2 + 3*x)^3 +
64317/(2 + 3*x)^2 + 953535/(2 + 3*x) - 33275/(2*(3 + 5*x)^2) + 61
7100/(3 + 5*x) - 6618975*Log[2 + 3*x] + 6618975*Log[3 + 5*x]
```

Rubi in Sympy [A] time = 13.8905, size = 76, normalized size = 0.88

$$-6618975\log(3x+2)+6618975\log(5x+3)+\frac{617100}{5x+3}-\frac{33275}{2(5x+3)^2}+\frac{953535}{3x+2}+\frac{64317}{(3x+2)^2}+\frac{5236}{(3x+2)^3}+\frac{1617}{4(3x+2)^4}+\frac{343}{15(3x+2)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**3/(2+3*x)**6/(3+5*x)**3,x)
```

```
[Out] -6618975*log(3*x + 2) + 6618975*log(5*x + 3) + 617100/(5*x + 3) -
 33275/(2*(5*x + 3)**2) + 953535/(3*x + 2) + 64317/(3*x + 2)**2 +
 5236/(3*x + 2)**3 + 1617/(4*(3*x + 2)**4) + 343/(15*(3*x + 2)**5
)
```

Mathematica [A] time = 0.113502, size = 88, normalized size = 1.02

$$\frac{953535}{3x+2}+\frac{617100}{5x+3}+\frac{64317}{(3x+2)^2}-\frac{33275}{2(5x+3)^2}+\frac{5236}{(3x+2)^3}+\frac{1617}{4(3x+2)^4}+\frac{343}{15(3x+2)^5}-6618975\log(5(3x+2))+6618975\log(5x+3)$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)^3/((2 + 3*x)^6*(3 + 5*x)^3),x]
```

```
[Out] 343/(15*(2 + 3*x)^5) + 1617/(4*(2 + 3*x)^4) + 5236/(2 + 3*x)^3 +
64317/(2 + 3*x)^2 + 953535/(2 + 3*x) - 33275/(2*(3 + 5*x)^2) + 61
7100/(3 + 5*x) - 6618975*Log[5*(2 + 3*x)] + 6618975*Log[3 + 5*x]
```

Maple [A] time = 0.015, size = 81, normalized size = 0.9

$$\frac{343}{15\,(2+3\,x)^{5}}+\frac{1617}{4\,(2+3\,x)^{4}}+5236\,(2+3\,x)^{-3}+64317\,(2+3\,x)^{-2}+953535\,(2+3\,x)^{-1}-\frac{33275}{2\,(3+5\,x)^{2}}+617100\,(3+5\,x)^{-1}-6618975\,\ln(2+3\,x)+6618975\,\ln(3+5\,x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((1-2*x)^3/(2+3*x)^6/(3+5*x)^3,x)
```

```
[Out] 343/15/(2+3*x)^5+1617/4/(2+3*x)^4+5236/(2+3*x)^3+64317/(2+3*x)^2+
953535/(2+3*x)-33275/2/(3+5*x)^2+617100/(3+5*x)-6618975*ln(2+3*x)
+6618975*ln(3+5*x)
```

Maxima [A] time = 1.354, size = 116, normalized size = 1.35

$$\frac{160841092500\,x^{6}+627280260750\,x^{5}+1018898535600\,x^{4}+882286862985\,x^{3}+429553050280\,x^{2}+111486629505\,x+1205(}{60\,(6075\,x^{7}+27540\,x^{6}+53487\,x^{5}+57690\,x^{4}+37320\,x^{3}+14480\,x^{2}+3120\,x+288)}+6618975\,\log(5\,x+3)-6618975\,\log(3\,x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)^3/((5*x + 3)^3*(3*x + 2)^6),x, algorithm="maxima")
```

```
[Out] 1/60*(160841092500*x^6 + 627280260750*x^5 + 1018898535600*x^4 + 8
82286862985*x^3 + 429553050280*x^2 + 111486629505*x + 12050702538
)/(6075*x^7 + 27540*x^6 + 53487*x^5 + 57690*x^4 + 37320*x^3 + 144
80*x^2 + 3120*x + 288) + 6618975*log(5*x + 3) - 6618975*log(3*x +
 2)
```

Fricas [A] time = 0.210286, size = 209, normalized size = 2.43

$$\frac{160841092500\,x^{6}+627280260750\,x^{5}+1018898535600\,x^{4}+882286862985\,x^{3}+429553050280\,x^{2}+397138500\,\left(6075\,x^{7}+27\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)^3/((5*x + 3)^3*(3*x + 2)^6),x, algorithm="fricas")
```

```
[Out] 1/60*(160841092500*x^6 + 627280260750*x^5 + 1018898535600*x^4 + 8
82286862985*x^3 + 429553050280*x^2 + 397138500*(6075*x^7 + 27540*
x^6 + 53487*x^5 + 57690*x^4 + 37320*x^3 + 14480*x^2 + 3120*x + 28
8)*log(5*x + 3) - 397138500*(6075*x^7 + 27540*x^6 + 53487*x^5 + 5
7690*x^4 + 37320*x^3 + 14480*x^2 + 3120*x + 288)*log(3*x + 2) + 1
11486629505*x + 12050702538)/(6075*x^7 + 27540*x^6 + 53487*x^5 +
57690*x^4 + 37320*x^3 + 14480*x^2 + 3120*x + 288)
```

Sympy [A] time = 0.646505, size = 82, normalized size = 0.95

$$\frac{160841092500x^{6}+627280260750x^{5}+1018898535600x^{4}+882286862985x^{3}+429553050280x^{2}+111486629505x+120507(}{364500x^{7}+1652400x^{6}+3209220x^{5}+3461400x^{4}+2239200x^{3}+868800x^{2}+187200x+17280}+6618975\log\left(x+\frac{3}{5}\right)-6618975\log\left(x+\frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3/(2+3*x)**6/(3+5*x)**3,x)
```

```
[Out] (160841092500*x**6 + 627280260750*x**5 + 1018898535600*x**4 + 882
286862985*x**3 + 429553050280*x**2 + 111486629505*x + 12050702538
)/(364500*x**7 + 1652400*x**6 + 3209220*x**5 + 3461400*x**4 + 223
9200*x**3 + 868800*x**2 + 187200*x + 17280) + 6618975*log(x + 3/5
) - 6618975*log(x + 2/3)
```

GIAC/XCAS [A] time = 0.207586, size = 88, normalized size = 1.02

$$\frac{160841092500\,x^6 + 627280260750\,x^5 + 1018898535600\,x^4 + 882286862985\,x^3 + 429553050280\,x^2 + 111486629505\,x + 1205}{60\,(5\,x+3)^2(3\,x+2)^5}$$

$+ 6618975\ln(|5\,x + 3|) - 6618975\ln(|3\,x + 2|)$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)^3/((5*x + 3)^3*(3*x + 2)^6),x, algorithm="giac")
```

```
[Out] 1/60*(160841092500*x^6 + 627280260750*x^5 + 1018898535600*x^4 + 8
82286862985*x^3 + 429553050280*x^2 + 111486629505*x + 12050702538
)/((5*x + 3)^2*(3*x + 2)^5) + 6618975*ln(abs(5*x + 3)) - 6618975*
ln(abs(3*x + 2))
```

3.1415 $\int \frac{(1-2x)^3}{(2+3x)^7(3+5x)^3} \, dx$

Optimal. Leaf size=97

$$\frac{6618975}{3x+2}+\frac{3584625}{5x+3}+\frac{953535}{2(3x+2)^2}-\frac{166375}{2(5x+3)^2}+\frac{42878}{(3x+2)^3}+\frac{3927}{(3x+2)^4}+\frac{1617}{5(3x+2)^5}+\frac{343}{18(3x+2)^6}-43848750\log(3x+2)+43848750\log(5x+3)$$

```
[Out] 343/(18*(2 + 3*x)^6) + 1617/(5*(2 + 3*x)^5) + 3927/(2 + 3*x)^4 +
42878/(2 + 3*x)^3 + 953535/(2*(2 + 3*x)^2) + 6618975/(2 + 3*x) -
166375/(2*(3 + 5*x)^2) + 3584625/(3 + 5*x) - 43848750*Log[2 + 3*x
] + 43848750*Log[3 + 5*x]
```

Rubi [A] time = 0.123985, antiderivative size = 97, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{6618975}{3x+2}+\frac{3584625}{5x+3}+\frac{953535}{2(3x+2)^2}-\frac{166375}{2(5x+3)^2}+\frac{42878}{(3x+2)^3}+\frac{3927}{(3x+2)^4}+\frac{1617}{5(3x+2)^5}+\frac{343}{18(3x+2)^6}-43848750\log(3x+2)+43848750\log(5x+3)$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^3/((2 + 3*x)^7*(3 + 5*x)^3),x]
```

```
[Out] 343/(18*(2 + 3*x)^6) + 1617/(5*(2 + 3*x)^5) + 3927/(2 + 3*x)^4 +
42878/(2 + 3*x)^3 + 953535/(2*(2 + 3*x)^2) + 6618975/(2 + 3*x) -
166375/(2*(3 + 5*x)^2) + 3584625/(3 + 5*x) - 43848750*Log[2 + 3*x
] + 43848750*Log[3 + 5*x]
```

Rubi in Sympy [A] time = 15.4558, size = 87, normalized size = 0.9

$$-43848750\log(3x+2)+43848750\log(5x+3)+\frac{3584625}{5x+3}-\frac{166375}{2(5x+3)^2}+\frac{6618975}{3x+2}+\frac{953535}{2(3x+2)^2}+\frac{42878}{(3x+2)^3}+\frac{3927}{(3x+2)^4}+\frac{1617}{5(3x+2)^5}+\frac{343}{18(3x+2)^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**3/(2+3*x)**7/(3+5*x)**3,x)
```

```
[Out] -43848750*log(3*x + 2) + 43848750*log(5*x + 3) + 3584625/(5*x + 3
) - 166375/(2*(5*x + 3)**2) + 6618975/(3*x + 2) + 953535/(2*(3*x
+ 2)**2) + 42878/(3*x + 2)**3 + 3927/(3*x + 2)**4 + 1617/(5*(3*x
+ 2)**5) + 343/(18*(3*x + 2)**6)
```

Mathematica [A] time = 0.172259, size = 99, normalized size = 1.02

$$\frac{6618975}{3x+2}+\frac{3584625}{5x+3}+\frac{953535}{2(3x+2)^2}-\frac{166375}{2(5x+3)^2}+\frac{42878}{(3x+2)^3}+\frac{3927}{(3x+2)^4}+\frac{1617}{5(3x+2)^5}+\frac{343}{18(3x+2)^6}-43848750\log(5(3x+2))+43848750\log(5x+3)$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)^3/((2 + 3*x)^7*(3 + 5*x)^3),x]
```

```
[Out] 343/(18*(2 + 3*x)^6) + 1617/(5*(2 + 3*x)^5) + 3927/(2 + 3*x)^4 +
42878/(2 + 3*x)^3 + 953535/(2*(2 + 3*x)^2) + 6618975/(2 + 3*x) -
166375/(2*(3 + 5*x)^2) + 3584625/(3 + 5*x) - 43848750*Log[5*(2 +
3*x)] + 43848750*Log[3 + 5*x]
```

Maple [A] time = 0.016, size = 90, normalized size = 0.9

$$\frac{343}{18\,(2+3\,x)^{6}}+\frac{1617}{5\,(2+3\,x)^{5}}+3927\,(2+3\,x)^{-4}+42878\,(2+3\,x)^{-3}+\frac{953535}{2\,(2+3\,x)^{2}}+6618975\,(2+3\,x)^{-1}-\frac{166375}{2\,(3+5\,x)^{2}}+3584625\,(3+5\,x)^{-1}-43848750\,\ln(2+3\,x)+43848750\,\ln(3+5\,x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3/(2+3*x)^7/(3+5*x)^3,x)
```

```
[Out] 343/18/(2+3*x)^6+1617/5/(2+3*x)^5+3927/(2+3*x)^4+42878/(2+3*x)^3+
953535/2/(2+3*x)^2+6618975/(2+3*x)-166375/2/(3+5*x)^2+3584625/(3+
5*x)-43848750*ln(2+3*x)+43848750*ln(3+5*x)
```

Maxima [A] time = 1.3591, size = 130, normalized size = 1.34

$$\frac{4794860812500\,x^{7}+21896531043750\,x^{6}+42841193422500\,x^{5}+46551705341625\,x^{4}+30340145968110\,x^{3}+118605320304}{90\,(18225\,x^{8}+94770\,x^{7}+215541\,x^{6}+280044\,x^{5}+227340\,x^{4}+118080\,x^{3}+38320\,x^{2}+710}$$
$$+43848750\,\log(5\,x+3)-43848750\,\log(3\,x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)^3/((5*x + 3)^3*(3*x + 2)^7),x, algorithm="maxima")
```

```
[Out] 1/90*(4794860812500*x^7 + 21896531043750*x^6 + 42841193422500*x^5
 + 46551705341625*x^4 + 30340145968110*x^3 + 11860532030465*x^2 +
 2574943269792*x + 239497011063)/(18225*x^8 + 94770*x^7 + 215541*
x^6 + 280044*x^5 + 227340*x^4 + 118080*x^3 + 38320*x^2 + 7104*x +
 576) + 43848750*log(5*x + 3) - 43848750*log(3*x + 2)
```

Fricas [A] time = 0.212674, size = 236, normalized size = 2.43

$$\frac{4794860812500\,x^{7}+21896531043750\,x^{6}+42841193422500\,x^{5}+46551705341625\,x^{4}+30340145968110\,x^{3}+118605320304}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)^3/((5*x + 3)^3*(3*x + 2)^7),x, algorithm="fricas")
```

```
[Out] 1/90*(4794860812500*x^7 + 21896531043750*x^6 + 42841193422500*x^5
 + 46551705341625*x^4 + 30340145968110*x^3 + 11860532030465*x^2 +
 3946387500*(18225*x^8 + 94770*x^7 + 215541*x^6 + 280044*x^5 + 22
7340*x^4 + 118080*x^3 + 38320*x^2 + 7104*x + 576)*log(5*x + 3) -
3946387500*(18225*x^8 + 94770*x^7 + 215541*x^6 + 280044*x^5 + 227
340*x^4 + 118080*x^3 + 38320*x^2 + 7104*x + 576)*log(3*x + 2) + 2
574943269792*x + 239497011063)/(18225*x^8 + 94770*x^7 + 215541*x^
6 + 280044*x^5 + 227340*x^4 + 118080*x^3 + 38320*x^2 + 7104*x + 5
76)
```

Sympy [A] time = 0.681235, size = 92, normalized size = 0.95

$$\frac{4794860812500x^7 + 21896531043750x^6 + 42841193422500x^5 + 46551705341625x^4 + 30340145968110x^3 + 11860532030465}{1640250x^8 + 8529300x^7 + 19398690x^6 + 25203960x^5 + 20460600x^4 + 10627200x^3 + 3448800x^2 + 63}$$
$$+ 43848750 \log\left(x + \frac{3}{5}\right) - 43848750 \log\left(x + \frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3/(2+3*x)**7/(3+5*x)**3,x)
```

```
[Out] (4794860812500*x**7 + 21896531043750*x**6 + 42841193422500*x**5 +
 46551705341625*x**4 + 30340145968110*x**3 + 11860532030465*x**2
+ 2574943269792*x + 239497011063)/(1640250*x**8 + 8529300*x**7 +
19398690*x**6 + 25203960*x**5 + 20460600*x**4 + 10627200*x**3 + 3
448800*x**2 + 639360*x + 51840) + 43848750*log(x + 3/5) - 4384875
0*log(x + 2/3)
```

GIAC/XCAS [A] time = 0.213181, size = 95, normalized size = 0.98

$$\frac{4794860812500\,x^7 + 21896531043750\,x^6 + 42841193422500\,x^5 + 46551705341625\,x^4 + 30340145968110\,x^3 + 118605320304}{90\,(5\,x + 3)^2(3\,x + 2)^6}$$
$$+ 43848750 \ln\left(|5\,x + 3|\right) - 43848750 \ln\left(|3\,x + 2|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)^3/((5*x + 3)^3*(3*x + 2)^7),x, algorithm="giac")
```

```
[Out] 1/90*(4794860812500*x^7 + 21896531043750*x^6 + 42841193422500*x^5
 + 46551705341625*x^4 + 30340145968110*x^3 + 11860532030465*x^2 +
 2574943269792*x + 239497011063)/((5*x + 3)^2*(3*x + 2)^6) + 4384
8750*ln(abs(5*x + 3)) - 43848750*ln(abs(3*x + 2))
```

3.1416 $\int \frac{(1-2x)^3}{(2+3x)^8(3+5x)^3}\,dx$

Optimal. Leaf size=110

$$\frac{43848750}{3x+2}+\frac{20418750}{5x+3}+\frac{6618975}{2(3x+2)^2}-\frac{831875}{2(5x+3)^2}+\frac{317845}{(3x+2)^3}+\frac{64317}{2(3x+2)^4}+\frac{15708}{5(3x+2)^5}+\frac{539}{2(3x+2)^6}+\frac{49}{3(3x+2)^7}-280500000\log(3x+2)+280500000\log(5x+3)$$

```
[Out] 49/(3*(2 + 3*x)^7) + 539/(2*(2 + 3*x)^6) + 15708/(5*(2 + 3*x)^5)
+ 64317/(2*(2 + 3*x)^4) + 317845/(2 + 3*x)^3 + 6618975/(2*(2 + 3*
x)^2) + 43848750/(2 + 3*x) - 831875/(2*(3 + 5*x)^2) + 20418750/(3
 + 5*x) - 280500000*Log[2 + 3*x] + 280500000*Log[3 + 5*x]
```

Rubi [A] time = 0.141336, antiderivative size = 110, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{43848750}{3x+2}+\frac{20418750}{5x+3}+\frac{6618975}{2(3x+2)^2}-\frac{831875}{2(5x+3)^2}+\frac{317845}{(3x+2)^3}+\frac{64317}{2(3x+2)^4}+\frac{15708}{5(3x+2)^5}+\frac{539}{2(3x+2)^6}+\frac{49}{3(3x+2)^7}-280500000\log(3x+2)+280500000\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^3/((2 + 3*x)^8*(3 + 5*x)^3),x]
```

```
[Out] 49/(3*(2 + 3*x)^7) + 539/(2*(2 + 3*x)^6) + 15708/(5*(2 + 3*x)^5)
+ 64317/(2*(2 + 3*x)^4) + 317845/(2 + 3*x)^3 + 6618975/(2*(2 + 3*
x)^2) + 43848750/(2 + 3*x) - 831875/(2*(3 + 5*x)^2) + 20418750/(3
 + 5*x) - 280500000*Log[2 + 3*x] + 280500000*Log[3 + 5*x]
```

Rubi in Sympy [A] time = 17.2317, size = 99, normalized size = 0.9

$$-280500000\log(3x+2)+280500000\log(5x+3)+\frac{20418750}{5x+3}-\frac{831875}{2(5x+3)^2}+\frac{43848750}{3x+2}+\frac{6618975}{2(3x+2)^2}+\frac{317845}{(3x+2)^3}+\frac{64317}{2(3x+2)^4}+\frac{15708}{5(3x+2)^5}+\frac{539}{2(3x+2)^6}+\frac{49}{3(3x+2)^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**3/(2+3*x)**8/(3+5*x)**3,x)
```

```
[Out] -280500000*log(3*x + 2) + 280500000*log(5*x + 3) + 20418750/(5*x
+ 3) - 831875/(2*(5*x + 3)**2) + 43848750/(3*x + 2) + 6618975/(2*
(3*x + 2)**2) + 317845/(3*x + 2)**3 + 64317/(2*(3*x + 2)**4) + 15
708/(5*(3*x + 2)**5) + 539/(2*(3*x + 2)**6) + 49/(3*(3*x + 2)**7)
```

Mathematica [A] time = 0.205873, size = 112, normalized size = 1.02

$$\frac{43848750}{3x+2}+\frac{20418750}{5x+3}+\frac{6618975}{2(3x+2)^2}-\frac{831875}{2(5x+3)^2}+\frac{317845}{(3x+2)^3}+\frac{64317}{2(3x+2)^4}+\frac{15708}{5(3x+2)^5}+\frac{539}{2(3x+2)^6}+\frac{49}{3(3x+2)^7}-280500000\log(5(3x+2))+280500000\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^3/((2 + 3*x)^8*(3 + 5*x)^3),x]
```

```
[Out] 49/(3*(2 + 3*x)^7) + 539/(2*(2 + 3*x)^6) + 15708/(5*(2 + 3*x)^5)
+ 64317/(2*(2 + 3*x)^4) + 317845/(2 + 3*x)^3 + 6618975/(2*(2 + 3*
x)^2) + 43848750/(2 + 3*x) - 831875/(2*(3 + 5*x)^2) + 20418750/(3
 + 5*x) - 280500000*Log[5*(2 + 3*x)] + 280500000*Log[3 + 5*x]
```

Maple [A] time = 0.016, size = 99, normalized size = 0.9

$$\frac{49}{3\,(2+3\,x)^7}+\frac{539}{2\,(2+3\,x)^6}+\frac{15708}{5\,(2+3\,x)^5}+\frac{64317}{2\,(2+3\,x)^4}+317845\,(2+3\,x)^{-3}+\frac{6618975}{2\,(2+3\,x)^2}+43848750\,(2+3\,x)^{-1}-\frac{831875}{2\,(3+5\,x)^2}+20418750\,(3+5\,x)^{-1}-280500000\,\ln(2+3\,x)+280500000\,\ln(3+5\,x)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^3/(2+3*x)^8/(3+5*x)^3,x)
```

```
[Out] 49/3/(2+3*x)^7+539/2/(2+3*x)^6+15708/5/(2+3*x)^5+64317/2/(2+3*x)^
4+317845/(2+3*x)^3+6618975/2/(2+3*x)^2+43848750/(2+3*x)-831875/2/
(3+5*x)^2+20418750/(3+5*x)-280500000*ln(2+3*x)+280500000*ln(3+5*x
)
```

Maxima [A] time = 1.34831, size = 143, normalized size = 1.3

$$\frac{30672675000000\,x^8+160520332500000\,x^7+367435926000000\,x^6+480493891350000\,x^5+392612784696000\,x^4+2052621}{30\,(54675\,x^9+320760\,x^8+836163\,x^7+1271214\,x^6+1242108\,x^5+808920\,x^4+3511}+280500000\,\log(5\,x+3)-280500000\,\log(3\,x+2)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)^3/((5*x + 3)^3*(3*x + 2)^8),x, algorithm="maxima")
```

```
[Out] 1/30*(30672675000000*x^8 + 160520332500000*x^7 + 367435926000000*
x^6 + 480493891350000*x^5 + 392612784696000*x^4 + 205262100529200
*x^3 + 67053019228048*x^2 + 12513316868859*x + 1021373267628)/(54
675*x^9 + 320760*x^8 + 836163*x^7 + 1271214*x^6 + 1242108*x^5 + 8
08920*x^4 + 351120*x^3 + 97952*x^2 + 15936*x + 1152) + 280500000*
log(5*x + 3) - 280500000*log(3*x + 2)
```

Fricas [A] time = 0.210544, size = 263, normalized size = 2.39

$$\frac{30672675000000\,x^8+160520332500000\,x^7+367435926000000\,x^6+480493891350000\,x^5+392612784696000\,x^4+2052621}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(2*x - 1)^3/((5*x + 3)^3*(3*x + 2)^8),x, algorithm="fricas")
```

```
[Out] 1/30*(30672675000000*x^8 + 160520332500000*x^7 + 367435926000000*
x^6 + 480493891350000*x^5 + 392612784696000*x^4 + 205262100529200
*x^3 + 67053019228048*x^2 + 8415000000*(54675*x^9 + 320760*x^8 +
836163*x^7 + 1271214*x^6 + 1242108*x^5 + 808920*x^4 + 351120*x^3
+ 97952*x^2 + 15936*x + 1152)*log(5*x + 3) - 8415000000*(54675*x^
9 + 320760*x^8 + 836163*x^7 + 1271214*x^6 + 1242108*x^5 + 808920*
x^4 + 351120*x^3 + 97952*x^2 + 15936*x + 1152)*log(3*x + 2) + 125
13316868859*x + 1021373267628)/(54675*x^9 + 320760*x^8 + 836163*x
^7 + 1271214*x^6 + 1242108*x^5 + 808920*x^4 + 351120*x^3 + 97952*
x^2 + 15936*x + 1152)
```

Sympy [A] time = 0.796429, size = 102, normalized size = 0.93

$$\frac{30672675000000x^8 + 160520332500000x^7 + 367435926000000x^6 + 480493891350000x^5 + 392612784696000x^4 + 205262100}{1640250x^9 + 9622800x^8 + 25084890x^7 + 38136420x^6 + 37263240x^5 + 24267600x^4 + 105336}$$
$$+ 280500000 \log\left(x + \frac{3}{5}\right) - 280500000 \log\left(x + \frac{2}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**3/(2+3*x)**8/(3+5*x)**3,x)
```

```
[Out] (30672675000000*x**8 + 160520332500000*x**7 + 367435926000000*x**
6 + 480493891350000*x**5 + 392612784696000*x**4 + 205262100529200
*x**3 + 67053019228048*x**2 + 12513316868859*x + 1021373267628)/(
1640250*x**9 + 9622800*x**8 + 25084890*x**7 + 38136420*x**6 + 372
63240*x**5 + 24267600*x**4 + 10533600*x**3 + 2938560*x**2 + 47808
0*x + 34560) + 280500000*log(x + 3/5) - 280500000*log(x + 2/3)
```

GIAC/XCAS [A] time = 0.210887, size = 101, normalized size = 0.92

$$\frac{30672675000000\,x^8 + 160520332500000\,x^7 + 367435926000000\,x^6 + 480493891350000\,x^5 + 392612784696000\,x^4 + 2052621}{30\,(5\,x + 3)^2(3\,x + 2)^7}$$
$$+ 280500000 \ln\left(|5\,x + 3|\right) - 280500000 \ln\left(|3\,x + 2|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(2*x - 1)^3/((5*x + 3)^3*(3*x + 2)^8),x, algorithm="giac")
```

```
[Out] 1/30*(30672675000000*x^8 + 160520332500000*x^7 + 367435926000000*
x^6 + 480493891350000*x^5 + 392612784696000*x^4 + 205262100529200
*x^3 + 67053019228048*x^2 + 12513316868859*x + 1021373267628)/((5
*x + 3)^2*(3*x + 2)^7) + 280500000*ln(abs(5*x + 3)) - 280500000*l
n(abs(3*x + 2))
```

3.1417 $\int \frac{(2+3x)^8(3+5x)}{1-2x} dx$

Optimal. Leaf size=72

$$-\frac{3645x^9}{2}-\frac{422091x^8}{32}-\frac{353565x^7}{8}-\frac{2929689x^6}{32}-\frac{21272139x^5}{160}-\frac{37722699x^4}{256}-\frac{17391129x^3}{128}-\frac{60332619x^2}{512}-\frac{63019595x}{512}-\frac{63412811\log(1-2x)}{1024}$$

```
[Out] (-63019595*x)/512 - (60332619*x^2)/512 - (17391129*x^3)/128 - (37
722699*x^4)/256 - (21272139*x^5)/160 - (2929689*x^6)/32 - (353565
*x^7)/8 - (422091*x^8)/32 - (3645*x^9)/2 - (63412811*Log[1 - 2*x]
)/1024
```

Rubi [A] time = 0.0629755, antiderivative size = 72, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{3645x^9}{2}-\frac{422091x^8}{32}-\frac{353565x^7}{8}-\frac{2929689x^6}{32}-\frac{21272139x^5}{160}-\frac{37722699x^4}{256}-\frac{17391129x^3}{128}-\frac{60332619x^2}{512}-\frac{63019595x}{512}-\frac{63412811\log(1-2x)}{1024}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^8*(3 + 5*x))/(1 - 2*x),x]
```


```
[Out] (-63019595*x)/512 - (60332619*x^2)/512 - (17391129*x^3)/128 - (37
722699*x^4)/256 - (21272139*x^5)/160 - (2929689*x^6)/32 - (353565
*x^7)/8 - (422091*x^8)/32 - (3645*x^9)/2 - (63412811*Log[1 - 2*x]
)/1024
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{3645x^9}{2}-\frac{422091x^8}{32}-\frac{353565x^7}{8}-\frac{2929689x^6}{32}-\frac{21272139x^5}{160}-\frac{37722699x^4}{256}-\frac{17391129x^3}{128}-\frac{63412811\log(-2x+1)}{1024}+\int\left(-\frac{63019595}{512}\right)dx-\frac{60332619\int x\,dx}{256}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**8*(3+5*x)/(1-2*x),x)
```

```
[Out] -3645*x**9/2 - 422091*x**8/32 - 353565*x**7/8 - 2929689*x**6/32 -
 21272139*x**5/160 - 37722699*x**4/256 - 17391129*x**3/128 - 6341
2811*log(-2*x + 1)/1024 + Integral(-63019595/512, x) - 60332619*I
ntegral(x, x)/256
```

Mathematica [A] time = 0.0262437, size = 57, normalized size = 0.79

$$\frac{-74649600x^9-540276480x^8-1810252800x^7-3750001920x^6-5445667584x^5-6035631840x^4-5565161280x^3-48266}{40960}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^8*(3 + 5*x))/(1 - 2*x),x]
```

```
[Out] (5045478077 - 5041567600*x - 4826609520*x^2 - 5565161280*x^3 - 60
35631840*x^4 - 5445667584*x^5 - 3750001920*x^6 - 1810252800*x^7 -
```

```
540276480*x^8 - 74649600*x^9 - 2536512440*Log[1 - 2*x])/40960
```

Maple [A] time = 0.006, size = 53, normalized size = 0.7

$$-\frac{3645\,x^{9}}{2}-\frac{422091\,x^{8}}{32}-\frac{353565\,x^{7}}{8}-\frac{2929689\,x^{6}}{32}-\frac{21272139\,x^{5}}{160}-\frac{37722699\,x^{4}}{256}-\frac{17391129\,x^{3}}{128}-\frac{60332619\,x^{2}}{512}-\frac{63019595\,x}{512}-\frac{63412811\,\ln\left(-1+2\,x\right)}{1024}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^8*(3+5*x)/(1-2*x),x)
```

```
[Out] -3645/2*x^9-422091/32*x^8-353565/8*x^7-2929689/32*x^6-21272139/16
0*x^5-37722699/256*x^4-17391129/128*x^3-60332619/512*x^2-63019595
/512*x-63412811/1024*ln(-1+2*x)
```

Maxima [A] time = 1.3442, size = 70, normalized size = 0.97

$$-\frac{3645}{2}\,x^{9}-\frac{422091}{32}\,x^{8}-\frac{353565}{8}\,x^{7}-\frac{2929689}{32}\,x^{6}-\frac{21272139}{160}\,x^{5}-\frac{37722699}{256}\,x^{4}-\frac{17391129}{128}\,x^{3}-\frac{60332619}{512}\,x^{2}-\frac{63019595}{512}\,x-\frac{63412811}{1024}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^8/(2*x - 1),x, algorithm="maxima")
```

```
[Out] -3645/2*x^9 - 422091/32*x^8 - 353565/8*x^7 - 2929689/32*x^6 - 212
72139/160*x^5 - 37722699/256*x^4 - 17391129/128*x^3 - 60332619/51
2*x^2 - 63019595/512*x - 63412811/1024*log(2*x - 1)
```

Fricas [A] time = 0.209103, size = 70, normalized size = 0.97

$$-\frac{3645}{2}\,x^{9}-\frac{422091}{32}\,x^{8}-\frac{353565}{8}\,x^{7}-\frac{2929689}{32}\,x^{6}-\frac{21272139}{160}\,x^{5}-\frac{37722699}{256}\,x^{4}-\frac{17391129}{128}\,x^{3}-\frac{60332619}{512}\,x^{2}-\frac{63019595}{512}\,x-\frac{63412811}{1024}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^8/(2*x - 1),x, algorithm="fricas")
```

```
[Out] -3645/2*x^9 - 422091/32*x^8 - 353565/8*x^7 - 2929689/32*x^6 - 212
72139/160*x^5 - 37722699/256*x^4 - 17391129/128*x^3 - 60332619/51
2*x^2 - 63019595/512*x - 63412811/1024*log(2*x - 1)
```

Sympy [A] time = 0.22569, size = 70, normalized size = 0.97

$$-\frac{3645x^{9}}{2}-\frac{422091x^{8}}{32}-\frac{353565x^{7}}{8}-\frac{2929689x^{6}}{32}-\frac{21272139x^{5}}{160}-\frac{37722699x^{4}}{256}-\frac{17391129x^{3}}{128}-\frac{60332619x^{2}}{512}-\frac{63019595x}{512}-\frac{63412811\log\left(2x-1\right)}{1024}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**8*(3+5*x)/(1-2*x),x)
```

```
[Out] -3645*x**9/2 - 422091*x**8/32 - 353565*x**7/8 - 2929689*x**6/32 -
 21272139*x**5/160 - 37722699*x**4/256 - 17391129*x**3/128 - 6033
2619*x**2/512 - 63019595*x/512 - 63412811*log(2*x - 1)/1024
```

GIAC/XCAS [A] time = 0.215019, size = 72, normalized size = 1.

$$-\frac{3645}{2}x^9 - \frac{422091}{32}x^8 - \frac{353565}{8}x^7 - \frac{2929689}{32}x^6 - \frac{21272139}{160}x^5 - \frac{37722699}{256}x^4 - \frac{17391129}{128}x^3 - \frac{60332619}{512}x^2 - \frac{63019595}{512}x - \frac{63412811}{1024}\ln\left(|2x - 1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^8/(2*x - 1),x, algorithm="giac")
```

```
[Out] -3645/2*x^9 - 422091/32*x^8 - 353565/8*x^7 - 2929689/32*x^6 - 212
72139/160*x^5 - 37722699/256*x^4 - 17391129/128*x^3 - 60332619/51
2*x^2 - 63019595/512*x - 63412811/1024*ln(abs(2*x - 1))
```

3.1418 $\int \frac{(2+3x)^7(3+5x)}{1-2x}\,dx$

Optimal. Leaf size=65

$$-\frac{10935x^8}{16}-\frac{126117x^7}{28}-\frac{218943x^6}{16}-\frac{2053917x^5}{80}-\frac{4352157x^4}{128}-\frac{2257119x^3}{64}-\frac{8362653x^2}{256}-\frac{8960669x}{256}-\frac{9058973}{512}\log(1-2x)$$

```
[Out] (-8960669*x)/256 - (8362653*x^2)/256 - (2257119*x^3)/64 - (435215
7*x^4)/128 - (2053917*x^5)/80 - (218943*x^6)/16 - (126117*x^7)/28
 - (10935*x^8)/16 - (9058973*Log[1 - 2*x])/512
```

Rubi [A] time = 0.0562652, antiderivative size = 65, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{10935x^8}{16}-\frac{126117x^7}{28}-\frac{218943x^6}{16}-\frac{2053917x^5}{80}-\frac{4352157x^4}{128}-\frac{2257119x^3}{64}-\frac{8362653x^2}{256}-\frac{8960669x}{256}-\frac{9058973}{512}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^7*(3 + 5*x))/(1 - 2*x),x]
```

```
[Out] (-8960669*x)/256 - (8362653*x^2)/256 - (2257119*x^3)/64 - (435215
7*x^4)/128 - (2053917*x^5)/80 - (218943*x^6)/16 - (126117*x^7)/28
 - (10935*x^8)/16 - (9058973*Log[1 - 2*x])/512
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{10935x^8}{16}-\frac{126117x^7}{28}-\frac{218943x^6}{16}-\frac{2053917x^5}{80}-\frac{4352157x^4}{128}-\frac{2257119x^3}{64}-\frac{9058973\log(-2x+1)}{512}+\int\left(-\frac{8960669}{256}\right)dx-\frac{8362653\int x\,dx}{128}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**7*(3+5*x)/(1-2*x),x)
```

```
[Out] -10935*x**8/16 - 126117*x**7/28 - 218943*x**6/16 - 2053917*x**5/8
0 - 4352157*x**4/128 - 2257119*x**3/64 - 9058973*log(-2*x + 1)/51
2 + Integral(-8960669/256, x) - 8362653*Integral(x, x)/128
```

Mathematica [A] time = 0.0225255, size = 52, normalized size = 0.8

$$\frac{-97977600x^8-645719040x^7-1961729280x^6-3680619264x^5-4874415840x^4-5055946560x^3-4683085680x^2-50179}{143360}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^7*(3 + 5*x))/(1 - 2*x),x]
```

```
[Out] (4767501827 - 5017974640*x - 4683085680*x^2 - 5055946560*x^3 - 48
74415840*x^4 - 3680619264*x^5 - 1961729280*x^6 - 645719040*x^7 -
97977600*x^8 - 2536512440*Log[1 - 2*x])/143360
```

Maple [A] time = 0.004, size = 48, normalized size = 0.7

$$-\frac{10935 x^8}{16}-\frac{126117 x^7}{28}-\frac{218943 x^6}{16}-\frac{2053917 x^5}{80}-\frac{4352157 x^4}{128}-\frac{2257119 x^3}{64}-\frac{8362653 x^2}{256}-\frac{8960669 x}{256}-\frac{9058973 \ln(-1+2x)}{512}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^7*(3+5*x)/(1-2*x),x)
```

```
[Out] -10935/16*x^8-126117/28*x^7-218943/16*x^6-2053917/80*x^5-4352157/
128*x^4-2257119/64*x^3-8362653/256*x^2-8960669/256*x-9058973/512*
ln(-1+2*x)
```

Maxima [A] time = 1.3544, size = 63, normalized size = 0.97

$$-\frac{10935}{16} x^8-\frac{126117}{28} x^7-\frac{218943}{16} x^6-\frac{2053917}{80} x^5-\frac{4352157}{128} x^4-\frac{2257119}{64} x^3-\frac{8362653}{256} x^2-\frac{8960669}{256} x-\frac{9058973}{512} \log(2x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^7/(2*x - 1),x, algorithm="maxima")
```

```
[Out] -10935/16*x^8 - 126117/28*x^7 - 218943/16*x^6 - 2053917/80*x^5 -
4352157/128*x^4 - 2257119/64*x^3 - 8362653/256*x^2 - 8960669/256*
x - 9058973/512*log(2*x - 1)
```

Fricas [A] time = 0.209807, size = 63, normalized size = 0.97

$$-\frac{10935}{16} x^8-\frac{126117}{28} x^7-\frac{218943}{16} x^6-\frac{2053917}{80} x^5-\frac{4352157}{128} x^4-\frac{2257119}{64} x^3-\frac{8362653}{256} x^2-\frac{8960669}{256} x-\frac{9058973}{512} \log(2x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^7/(2*x - 1),x, algorithm="fricas")
```

```
[Out] -10935/16*x^8 - 126117/28*x^7 - 218943/16*x^6 - 2053917/80*x^5 -
4352157/128*x^4 - 2257119/64*x^3 - 8362653/256*x^2 - 8960669/256*
x - 9058973/512*log(2*x - 1)
```

Sympy [A] time = 0.215587, size = 63, normalized size = 0.97

$$-\frac{10935x^8}{16}-\frac{126117x^7}{28}-\frac{218943x^6}{16}-\frac{2053917x^5}{80}-\frac{4352157x^4}{128}-\frac{2257119x^3}{64}-\frac{8362653x^2}{256}-\frac{8960669x}{256}-\frac{9058973 \log(2x-1)}{512}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**7*(3+5*x)/(1-2*x),x)
```

```
[Out] -10935*x**8/16 - 126117*x**7/28 - 218943*x**6/16 - 2053917*x**5/8
0 - 4352157*x**4/128 - 2257119*x**3/64 - 8362653*x**2/256 - 89606
69*x/256 - 9058973*log(2*x - 1)/512
```

GIAC/XCAS [A] time = 0.2151, size = 65, normalized size = 1.

$$-\frac{10935}{16}x^8-\frac{126117}{28}x^7-\frac{218943}{16}x^6-\frac{2053917}{80}x^5-\frac{4352157}{128}x^4-\frac{2257119}{64}x^3-\frac{8362653}{256}x^2-\frac{8960669}{256}x-\frac{9058973}{512}\ln(|2x-1|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^7/(2*x - 1),x, algorithm="giac")
```

```
[Out] -10935/16*x^8 - 126117/28*x^7 - 218943/16*x^6 - 2053917/80*x^5 -
4352157/128*x^4 - 2257119/64*x^3 - 8362653/256*x^2 - 8960669/256*
x - 9058973/512*ln(abs(2*x - 1))
```

3.1419 $\int \frac{(2+3x)^6(3+5x)}{1-2x}\,dx$

Optimal. Leaf size=58

$$-\frac{3645x^7}{14}-\frac{12393x^6}{8}-\frac{169371x^5}{40}-\frac{458811x^4}{64}-\frac{279657x^3}{32}-\frac{1138491x^2}{128}-\frac{1269563x}{128}-\frac{1294139}{256}\log(1-2x)$$

```
[Out] (-1269563*x)/128 - (1138491*x^2)/128 - (279657*x^3)/32 - (458811*
x^4)/64 - (169371*x^5)/40 - (12393*x^6)/8 - (3645*x^7)/14 - (1294
139*Log[1 - 2*x])/256
```

Rubi [A] time = 0.0504396, antiderivative size = 58, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{3645x^7}{14}-\frac{12393x^6}{8}-\frac{169371x^5}{40}-\frac{458811x^4}{64}-\frac{279657x^3}{32}-\frac{1138491x^2}{128}-\frac{1269563x}{128}-\frac{1294139}{256}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^6*(3 + 5*x))/(1 - 2*x),x]
```

```
[Out] (-1269563*x)/128 - (1138491*x^2)/128 - (279657*x^3)/32 - (458811*
x^4)/64 - (169371*x^5)/40 - (12393*x^6)/8 - (3645*x^7)/14 - (1294
139*Log[1 - 2*x])/256
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{3645x^7}{14}-\frac{12393x^6}{8}-\frac{169371x^5}{40}-\frac{458811x^4}{64}-\frac{279657x^3}{32}-\frac{1294139\log(-2x+1)}{256}+\int\left(-\frac{1269563}{128}\right)dx-\frac{1138491\int x\,dx}{64}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**6*(3+5*x)/(1-2*x),x)
```

```
[Out] -3645*x**7/14 - 12393*x**6/8 - 169371*x**5/40 - 458811*x**4/64 -
279657*x**3/32 - 1294139*log(-2*x + 1)/256 + Integral(-1269563/12
8, x) - 1138491*Integral(x, x)/64
```

Mathematica [A] time = 0.0236336, size = 47, normalized size = 0.81

$$\frac{-9331200x^7-55520640x^6-151756416x^5-256934160x^4-313215840x^3-318777480x^2-355477640x-181179460\log(}{35840}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^6*(3 + 5*x))/(1 - 2*x),x]
```

```
[Out] (318326353 - 355477640*x - 318777480*x^2 - 313215840*x^3 - 256934
160*x^4 - 151756416*x^5 - 55520640*x^6 - 9331200*x^7 - 181179460*
Log[1 - 2*x])/35840
```

Maple [A] time = 0.006, size = 43, normalized size = 0.7

$$-\frac{3645 x^{7}}{14}-\frac{12393 x^{6}}{8}-\frac{169371 x^{5}}{40}-\frac{458811 x^{4}}{64}-\frac{279657 x^{3}}{32}-\frac{1138491 x^{2}}{128}-\frac{1269563 x}{128}-\frac{1294139 \ln \left(-1+2 x\right)}{256}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^6*(3+5*x)/(1-2*x),x)
```

```
[Out] -3645/14*x^7-12393/8*x^6-169371/40*x^5-458811/64*x^4-279657/32*x^
3-1138491/128*x^2-1269563/128*x-1294139/256*ln(-1+2*x)
```

Maxima [A] time = 1.34351, size = 57, normalized size = 0.98

$$-\frac{3645}{14} x^{7}-\frac{12393}{8} x^{6}-\frac{169371}{40} x^{5}-\frac{458811}{64} x^{4}-\frac{279657}{32} x^{3}-\frac{1138491}{128} x^{2}-\frac{1269563}{128} x-\frac{1294139}{256} \log \left(2 x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^6/(2*x - 1),x, algorithm="maxima")
```

```
[Out] -3645/14*x^7 - 12393/8*x^6 - 169371/40*x^5 - 458811/64*x^4 - 2796
57/32*x^3 - 1138491/128*x^2 - 1269563/128*x - 1294139/256*log(2*x
 - 1)
```

Fricas [A] time = 0.208387, size = 57, normalized size = 0.98

$$-\frac{3645}{14} x^{7}-\frac{12393}{8} x^{6}-\frac{169371}{40} x^{5}-\frac{458811}{64} x^{4}-\frac{279657}{32} x^{3}-\frac{1138491}{128} x^{2}-\frac{1269563}{128} x-\frac{1294139}{256} \log \left(2 x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^6/(2*x - 1),x, algorithm="fricas")
```

```
[Out] -3645/14*x^7 - 12393/8*x^6 - 169371/40*x^5 - 458811/64*x^4 - 2796
57/32*x^3 - 1138491/128*x^2 - 1269563/128*x - 1294139/256*log(2*x
 - 1)
```

Sympy [A] time = 0.198737, size = 56, normalized size = 0.97

$$-\frac{3645x^{7}}{14}-\frac{12393x^{6}}{8}-\frac{169371x^{5}}{40}-\frac{458811x^{4}}{64}-\frac{279657x^{3}}{32}-\frac{1138491x^{2}}{128}-\frac{1269563x}{128}-\frac{1294139 \log \left(2x-1\right)}{256}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**6*(3+5*x)/(1-2*x),x)
```

```
[Out] -3645*x**7/14 - 12393*x**6/8 - 169371*x**5/40 - 458811*x**4/64 -
279657*x**3/32 - 1138491*x**2/128 - 1269563*x/128 - 1294139*log(2
*x - 1)/256
```

GIAC/XCAS [A] time = 0.209243, size = 58, normalized size = 1.

$$-\frac{3645}{14}\,x^7-\frac{12393}{8}\,x^6-\frac{169371}{40}\,x^5-\frac{458811}{64}\,x^4-\frac{279657}{32}\,x^3-\frac{1138491}{128}\,x^2-\frac{1269563}{128}\,x-\frac{1294139}{256}\,\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^6/(2*x - 1),x, algorithm="giac")
```

```
[Out] -3645/14*x^7 - 12393/8*x^6 - 169371/40*x^5 - 458811/64*x^4 - 2796
57/32*x^3 - 1138491/128*x^2 - 1269563/128*x - 1294139/256*ln(abs(
2*x - 1))
```

3.1420 $\int \frac{(2+3x)^5(3+5x)}{1-2x}\,dx$

Optimal. Leaf size=51

$$-\frac{405x^6}{4}-\frac{10773x^5}{20}-\frac{42093x^4}{32}-\frac{32271x^3}{16}-\frac{150573x^2}{64}-\frac{178733x}{64}-\frac{184877}{128}\log(1-2x)$$

```
[Out] (-178733*x)/64 - (150573*x^2)/64 - (32271*x^3)/16 - (42093*x^4)/3
2 - (10773*x^5)/20 - (405*x^6)/4 - (184877*Log[1 - 2*x])/128
```

Rubi [A] time = 0.0464583, antiderivative size = 51, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{405x^6}{4}-\frac{10773x^5}{20}-\frac{42093x^4}{32}-\frac{32271x^3}{16}-\frac{150573x^2}{64}-\frac{178733x}{64}-\frac{184877}{128}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^5*(3 + 5*x))/(1 - 2*x),x]
```

```
[Out] (-178733*x)/64 - (150573*x^2)/64 - (32271*x^3)/16 - (42093*x^4)/3
2 - (10773*x^5)/20 - (405*x^6)/4 - (184877*Log[1 - 2*x])/128
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{405x^6}{4}-\frac{10773x^5}{20}-\frac{42093x^4}{32}-\frac{32271x^3}{16}-\frac{184877\log(-2x+1)}{128}+\int\left(-\frac{178733}{64}\right)dx-\frac{150573\int x\,dx}{32}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**5*(3+5*x)/(1-2*x),x)
```

```
[Out] -405*x**6/4 - 10773*x**5/20 - 42093*x**4/32 - 32271*x**3/16 - 184
877*log(-2*x + 1)/128 + Integral(-178733/64, x) - 150573*Integral
(x, x)/32
```

Mathematica [A] time = 0.0206629, size = 42, normalized size = 0.82

$$\frac{-259200x^6-1378944x^5-3367440x^4-5163360x^3-6022920x^2-7149320x-3697540\log(1-2x)+5983417}{2560}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^5*(3 + 5*x))/(1 - 2*x),x]
```

```
[Out] (5983417 - 7149320*x - 6022920*x^2 - 5163360*x^3 - 3367440*x^4 -
1378944*x^5 - 259200*x^6 - 3697540*Log[1 - 2*x])/2560
```

Maple [A] time = 0.005, size = 38, normalized size = 0.8

$$-\frac{405\,x^6}{4}-\frac{10773\,x^5}{20}-\frac{42093\,x^4}{32}-\frac{32271\,x^3}{16}-\frac{150573\,x^2}{64}-\frac{178733\,x}{64}-\frac{184877\,\ln(-1+2\,x)}{128}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^5*(3+5*x)/(1-2*x),x)
```

```
[Out] -405/4*x^6-10773/20*x^5-42093/32*x^4-32271/16*x^3-150573/64*x^2-1
78733/64*x-184877/128*ln(-1+2*x)
```

Maxima [A] time = 1.3474, size = 50, normalized size = 0.98

$$-\frac{405}{4}\,x^{6}-\frac{10773}{20}\,x^{5}-\frac{42093}{32}\,x^{4}-\frac{32271}{16}\,x^{3}-\frac{150573}{64}\,x^{2}-\frac{178733}{64}\,x-\frac{184877}{128}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^5/(2*x - 1),x, algorithm="maxima")
```

```
[Out] -405/4*x^6 - 10773/20*x^5 - 42093/32*x^4 - 32271/16*x^3 - 150573/
64*x^2 - 178733/64*x - 184877/128*log(2*x - 1)
```

Fricas [A] time = 0.210154, size = 50, normalized size = 0.98

$$-\frac{405}{4}\,x^{6}-\frac{10773}{20}\,x^{5}-\frac{42093}{32}\,x^{4}-\frac{32271}{16}\,x^{3}-\frac{150573}{64}\,x^{2}-\frac{178733}{64}\,x-\frac{184877}{128}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^5/(2*x - 1),x, algorithm="fricas")
```

```
[Out] -405/4*x^6 - 10773/20*x^5 - 42093/32*x^4 - 32271/16*x^3 - 150573/
64*x^2 - 178733/64*x - 184877/128*log(2*x - 1)
```

Sympy [A] time = 0.190876, size = 49, normalized size = 0.96

$$-\frac{405x^{6}}{4}-\frac{10773x^{5}}{20}-\frac{42093x^{4}}{32}-\frac{32271x^{3}}{16}-\frac{150573x^{2}}{64}-\frac{178733x}{64}-\frac{184877\log\left(2x-1\right)}{128}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**5*(3+5*x)/(1-2*x),x)
```

```
[Out] -405*x**6/4 - 10773*x**5/20 - 42093*x**4/32 - 32271*x**3/16 - 150
573*x**2/64 - 178733*x/64 - 184877*log(2*x - 1)/128
```

GIAC/XCAS [A] time = 0.206457, size = 51, normalized size = 1.

$$-\frac{405}{4}\,x^{6}-\frac{10773}{20}\,x^{5}-\frac{42093}{32}\,x^{4}-\frac{32271}{16}\,x^{3}-\frac{150573}{64}\,x^{2}-\frac{178733}{64}\,x-\frac{184877}{128}\,\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^5/(2*x - 1),x, algorithm="giac")
```

```
[Out] -405/4*x^6 - 10773/20*x^5 - 42093/32*x^4 - 32271/16*x^3 - 150573/
64*x^2 - 178733/64*x - 184877/128*ln(abs(2*x - 1))
```

3.1421 $\int \frac{(2+3x)^4(3+5x)}{1-2x} dx$

Optimal. Leaf size=44

$$-\frac{81x^5}{2}-\frac{3051x^4}{16}-\frac{3321x^3}{8}-\frac{18987x^2}{32}-\frac{24875x}{32}-\frac{26411}{64}\log(1-2x)$$

```
[Out] (-24875*x)/32 - (18987*x^2)/32 - (3321*x^3)/8 - (3051*x^4)/16 - (
81*x^5)/2 - (26411*Log[1 - 2*x])/64
```

Rubi [A] time = 0.042241, antiderivative size = 44, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{81x^5}{2}-\frac{3051x^4}{16}-\frac{3321x^3}{8}-\frac{18987x^2}{32}-\frac{24875x}{32}-\frac{26411}{64}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^4*(3 + 5*x))/(1 - 2*x),x]
```

```
[Out] (-24875*x)/32 - (18987*x^2)/32 - (3321*x^3)/8 - (3051*x^4)/16 - (
81*x^5)/2 - (26411*Log[1 - 2*x])/64
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{81x^5}{2}-\frac{3051x^4}{16}-\frac{3321x^3}{8}-\frac{26411\log(-2x+1)}{64}+\int\left(-\frac{24875}{32}\right)dx-\frac{18987\int x\,dx}{16}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4*(3+5*x)/(1-2*x),x)
```

```
[Out] -81*x**5/2 - 3051*x**4/16 - 3321*x**3/8 - 26411*log(-2*x + 1)/64
+ Integral(-24875/32, x) - 18987*Integral(x, x)/16
```

Mathematica [A] time = 0.0215886, size = 37, normalized size = 0.84

$$\frac{1}{256}\left(-10368x^5-48816x^4-106272x^3-151896x^2-199000x-105644\log(1-2x)+154133\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^4*(3 + 5*x))/(1 - 2*x),x]
```

```
[Out] (154133 - 199000*x - 151896*x^2 - 106272*x^3 - 48816*x^4 - 10368*
x^5 - 105644*Log[1 - 2*x])/256
```

Maple [A] time = 0.003, size = 33, normalized size = 0.8

$$-\frac{81x^5}{2}-\frac{3051x^4}{16}-\frac{3321x^3}{8}-\frac{18987x^2}{32}-\frac{24875x}{32}-\frac{26411\ln(-1+2x)}{64}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4*(3+5*x)/(1-2*x),x)
```

```
[Out] -81/2*x^5-3051/16*x^4-3321/8*x^3-18987/32*x^2-24875/32*x-26411/64
*ln(-1+2*x)
```

Maxima [A] time = 1.34839, size = 43, normalized size = 0.98

$$-\frac{81}{2}\,x^5-\frac{3051}{16}\,x^4-\frac{3321}{8}\,x^3-\frac{18987}{32}\,x^2-\frac{24875}{32}\,x-\frac{26411}{64}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^4/(2*x - 1),x, algorithm="maxima")
```

```
[Out] -81/2*x^5 - 3051/16*x^4 - 3321/8*x^3 - 18987/32*x^2 - 24875/32*x
- 26411/64*log(2*x - 1)
```

Fricas [A] time = 0.208693, size = 43, normalized size = 0.98

$$-\frac{81}{2}\,x^5-\frac{3051}{16}\,x^4-\frac{3321}{8}\,x^3-\frac{18987}{32}\,x^2-\frac{24875}{32}\,x-\frac{26411}{64}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^4/(2*x - 1),x, algorithm="fricas")
```

```
[Out] -81/2*x^5 - 3051/16*x^4 - 3321/8*x^3 - 18987/32*x^2 - 24875/32*x
- 26411/64*log(2*x - 1)
```

Sympy [A] time = 0.182054, size = 42, normalized size = 0.95

$$-\frac{81x^5}{2}-\frac{3051x^4}{16}-\frac{3321x^3}{8}-\frac{18987x^2}{32}-\frac{24875x}{32}-\frac{26411\log\left(2x-1\right)}{64}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4*(3+5*x)/(1-2*x),x)
```

```
[Out] -81*x**5/2 - 3051*x**4/16 - 3321*x**3/8 - 18987*x**2/32 - 24875*x
/32 - 26411*log(2*x - 1)/64
```

GIAC/XCAS [A] time = 0.208205, size = 45, normalized size = 1.02

$$-\frac{81}{2}\,x^5-\frac{3051}{16}\,x^4-\frac{3321}{8}\,x^3-\frac{18987}{32}\,x^2-\frac{24875}{32}\,x-\frac{26411}{64}\,\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^4/(2*x - 1),x, algorithm="giac")
```

```
[Out] -81/2*x^5 - 3051/16*x^4 - 3321/8*x^3 - 18987/32*x^2 - 24875/32*x
- 26411/64*ln(abs(2*x - 1))
```

3.1422 $\int \frac{(2+3x)^3(3+5x)}{1-2x} \, dx$

Optimal. Leaf size=37

$$-\frac{135x^4}{8}-\frac{279x^3}{4}-\frac{2205x^2}{16}-\frac{3389x}{16}-\frac{3773}{32}\log(1-2x)$$

```
[Out] (-3389*x)/16 - (2205*x^2)/16 - (279*x^3)/4 - (135*x^4)/8 - (3773*
Log[1 - 2*x])/32
```

Rubi [A] time = 0.036184, antiderivative size = 37, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{135x^4}{8}-\frac{279x^3}{4}-\frac{2205x^2}{16}-\frac{3389x}{16}-\frac{3773}{32}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In] Int[((2 + 3*x)^3*(3 + 5*x))/(1 - 2*x),x]
```

```
[Out] (-3389*x)/16 - (2205*x^2)/16 - (279*x^3)/4 - (135*x^4)/8 - (3773*
Log[1 - 2*x])/32
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{135x^4}{8}-\frac{279x^3}{4}-\frac{3773\log(-2x+1)}{32}+\int\left(-\frac{3389}{16}\right)dx-\frac{2205\int x\,dx}{8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**3*(3+5*x)/(1-2*x),x)
```

```
[Out] -135*x**4/8 - 279*x**3/4 - 3773*log(-2*x + 1)/32 + Integral(-3389
/16, x) - 2205*Integral(x, x)/8
```

Mathematica [A] time = 0.0188, size = 32, normalized size = 0.86

$$\frac{1}{128}\left(-2160x^4-8928x^3-17640x^2-27112x-15092\log(1-2x)+19217\right)$$

Antiderivative was successfully verified.

```
[In] Integrate[((2 + 3*x)^3*(3 + 5*x))/(1 - 2*x),x]
```

```
[Out] (19217 - 27112*x - 17640*x^2 - 8928*x^3 - 2160*x^4 - 15092*Log[1
- 2*x])/128
```

Maple [A] time = 0.003, size = 28, normalized size = 0.8

$$-\frac{135\,x^4}{8}-\frac{279\,x^3}{4}-\frac{2205\,x^2}{16}-\frac{3389\,x}{16}-\frac{3773\,\ln(-1+2\,x)}{32}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3*(3+5*x)/(1-2*x),x)
```

```
[Out] -135/8*x^4-279/4*x^3-2205/16*x^2-3389/16*x-3773/32*ln(-1+2*x)
```

Maxima [A] time = 1.34537, size = 36, normalized size = 0.97

$$-\frac{135}{8}x^4-\frac{279}{4}x^3-\frac{2205}{16}x^2-\frac{3389}{16}x-\frac{3773}{32}\log(2x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^3/(2*x - 1),x, algorithm="maxima")
```

```
[Out] -135/8*x^4 - 279/4*x^3 - 2205/16*x^2 - 3389/16*x - 3773/32*log(2*
x - 1)
```

Fricas [A] time = 0.205266, size = 36, normalized size = 0.97

$$-\frac{135}{8}x^4-\frac{279}{4}x^3-\frac{2205}{16}x^2-\frac{3389}{16}x-\frac{3773}{32}\log(2x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^3/(2*x - 1),x, algorithm="fricas")
```

```
[Out] -135/8*x^4 - 279/4*x^3 - 2205/16*x^2 - 3389/16*x - 3773/32*log(2*
x - 1)
```

Sympy [A] time = 0.173694, size = 36, normalized size = 0.97

$$-\frac{135x^4}{8}-\frac{279x^3}{4}-\frac{2205x^2}{16}-\frac{3389x}{16}-\frac{3773\log(2x-1)}{32}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3*(3+5*x)/(1-2*x),x)
```

```
[Out] -135*x**4/8 - 279*x**3/4 - 2205*x**2/16 - 3389*x/16 - 3773*log(2*
x - 1)/32
```

GIAC/XCAS [A] time = 0.20951, size = 38, normalized size = 1.03

$$-\frac{135}{8}x^4-\frac{279}{4}x^3-\frac{2205}{16}x^2-\frac{3389}{16}x-\frac{3773}{32}\ln(|2x-1|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^3/(2*x - 1),x, algorithm="giac")
```

```
[Out] -135/8*x^4 - 279/4*x^3 - 2205/16*x^2 - 3389/16*x - 3773/32*ln(abs
(2*x - 1))
```

3.1423 $\int \frac{(2+3x)^2(3+5x)}{1-2x} \, dx$

Optimal. Leaf size=30

$$-\frac{15x^3}{2}-\frac{219x^2}{8}-\frac{443x}{8}-\frac{539}{16}\log(1-2x)$$

```
[Out] (-443*x)/8 - (219*x^2)/8 - (15*x^3)/2 - (539*Log[1 - 2*x])/16
```

Rubi [A] time = 0.0313721, antiderivative size = 30, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{15x^3}{2}-\frac{219x^2}{8}-\frac{443x}{8}-\frac{539}{16}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^2*(3 + 5*x))/(1 - 2*x),x]
```

```
[Out] (-443*x)/8 - (219*x^2)/8 - (15*x^3)/2 - (539*Log[1 - 2*x])/16
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{15x^3}{2}-\frac{539\log(-2x+1)}{16}+\int\left(-\frac{443}{8}\right)dx-\frac{219\int x\,dx}{4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2*(3+5*x)/(1-2*x),x)
```

```
[Out] -15*x**3/2 - 539*log(-2*x + 1)/16 + Integral(-443/8, x) - 219*Int
egral(x, x)/4
```

Mathematica [A] time = 0.0155329, size = 27, normalized size = 0.9

$$\frac{1}{32}\left(-240x^3-876x^2-1772x-1078\log(1-2x)+1135\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^2*(3 + 5*x))/(1 - 2*x),x]
```

```
[Out] (1135 - 1772*x - 876*x^2 - 240*x^3 - 1078*Log[1 - 2*x])/32
```

Maple [A] time = 0.005, size = 23, normalized size = 0.8

$$-\frac{15\,x^3}{2}-\frac{219\,x^2}{8}-\frac{443\,x}{8}-\frac{539\,\ln(-1+2\,x)}{16}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2*(3+5*x)/(1-2*x),x)
```

```
[Out] -15/2*x^3-219/8*x^2-443/8*x-539/16*ln(-1+2*x)
```

Maxima [A] time = 1.34886, size = 30, normalized size = 1.

$$-\frac{15}{2}x^3 - \frac{219}{8}x^2 - \frac{443}{8}x - \frac{539}{16}\log(2x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^2/(2*x - 1),x, algorithm="maxima")

[Out] -15/2*x^3 - 219/8*x^2 - 443/8*x - 539/16*log(2*x - 1)
```

Fricas [A] time = 0.207288, size = 30, normalized size = 1.

$$-\frac{15}{2}x^3 - \frac{219}{8}x^2 - \frac{443}{8}x - \frac{539}{16}\log(2x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^2/(2*x - 1),x, algorithm="fricas")

[Out] -15/2*x^3 - 219/8*x^2 - 443/8*x - 539/16*log(2*x - 1)
```

Sympy [A] time = 0.162866, size = 29, normalized size = 0.97

$$-\frac{15x^3}{2} - \frac{219x^2}{8} - \frac{443x}{8} - \frac{539\log(2x-1)}{16}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2*(3+5*x)/(1-2*x),x)

[Out] -15*x**3/2 - 219*x**2/8 - 443*x/8 - 539*log(2*x - 1)/16
```

GIAC/XCAS [A] time = 0.217479, size = 31, normalized size = 1.03

$$-\frac{15}{2}x^3 - \frac{219}{8}x^2 - \frac{443}{8}x - \frac{539}{16}\ln(|2x-1|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^2/(2*x - 1),x, algorithm="giac")

[Out] -15/2*x^3 - 219/8*x^2 - 443/8*x - 539/16*ln(abs(2*x - 1))
```

3.1424 $\int \frac{(2+3x)(3+5x)}{1-2x} \, dx$

Optimal. Leaf size=23

$$-\frac{15x^2}{4}-\frac{53x}{4}-\frac{77}{8}\log(1-2x)$$

```
[Out] (-53*x)/4 - (15*x^2)/4 - (77*Log[1 - 2*x])/8
```

Rubi [A] time = 0.0258681, antiderivative size = 23, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{15x^2}{4}-\frac{53x}{4}-\frac{77}{8}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In] Int[((2 + 3*x)*(3 + 5*x))/(1 - 2*x),x]

[Out] (-53*x)/4 - (15*x^2)/4 - (77*Log[1 - 2*x])/8
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{77\log(-2x+1)}{8}+\int\left(-\frac{53}{4}\right)dx-\frac{15\int x\,dx}{2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)*(3+5*x)/(1-2*x),x)

[Out] -77*log(-2*x + 1)/8 + Integral(-53/4, x) - 15*Integral(x, x)/2
```

Mathematica [A] time = 0.0074668, size = 22, normalized size = 0.96

$$\frac{1}{16}\left(-60x^2-212x-154\log(1-2x)+121\right)$$

Antiderivative was successfully verified.

```
[In] Integrate[((2 + 3*x)*(3 + 5*x))/(1 - 2*x),x]

[Out] (121 - 212*x - 60*x^2 - 154*Log[1 - 2*x])/16
```

Maple [A] time = 0.003, size = 18, normalized size = 0.8

$$-\frac{15x^2}{4}-\frac{53x}{4}-\frac{77\ln(-1+2x)}{8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((2+3*x)*(3+5*x)/(1-2*x),x)

[Out] -15/4*x^2-53/4*x-77/8*ln(-1+2*x)
```

Maxima [A] time = 1.34167, size = 23, normalized size = 1.

$$-\frac{15}{4}\,x^{2}-\frac{53}{4}\,x-\frac{77}{8}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)/(2*x - 1),x, algorithm="maxima")
```

```
[Out] -15/4*x^2 - 53/4*x - 77/8*log(2*x - 1)
```

Fricas [A] time = 0.20743, size = 23, normalized size = 1.

$$-\frac{15}{4}\,x^{2}-\frac{53}{4}\,x-\frac{77}{8}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)/(2*x - 1),x, algorithm="fricas")
```

```
[Out] -15/4*x^2 - 53/4*x - 77/8*log(2*x - 1)
```

Sympy [A] time = 0.175364, size = 22, normalized size = 0.96

$$-\frac{15x^{2}}{4}-\frac{53x}{4}-\frac{77\log\left(2x-1\right)}{8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)*(3+5*x)/(1-2*x),x)
```

```
[Out] -15*x**2/4 - 53*x/4 - 77*log(2*x - 1)/8
```

GIAC/XCAS [A] time = 0.218505, size = 24, normalized size = 1.04

$$-\frac{15}{4}\,x^{2}-\frac{53}{4}\,x-\frac{77}{8}\,\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)/(2*x - 1),x, algorithm="giac")
```

```
[Out] -15/4*x^2 - 53/4*x - 77/8*ln(abs(2*x - 1))
```

3.1425 $\int \frac{3+5x}{1-2x} \, dx$

Optimal. Leaf size=16

$$-\frac{5x}{2}-\frac{11}{4}\log(1-2x)$$

```
[Out] (-5*x)/2 - (11*Log[1 - 2*x])/4
```

Rubi [A] time = 0.0179558, antiderivative size = 16, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 13, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.077

$$-\frac{5x}{2}-\frac{11}{4}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)/(1 - 2*x),x]

[Out] (-5*x)/2 - (11*Log[1 - 2*x])/4
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{11\log(-2x+1)}{4}+\int\left(-\frac{5}{2}\right)dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)/(1-2*x),x)

[Out] -11*log(-2*x + 1)/4 + Integral(-5/2, x)
```

Mathematica [A] time = 0.00441257, size = 17, normalized size = 1.06

$$\frac{1}{4}(-10x-11\log(1-2x)+5)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)/(1 - 2*x),x]

[Out] (5 - 10*x - 11*Log[1 - 2*x])/4
```

Maple [A] time = 0.003, size = 13, normalized size = 0.8

$$-\frac{5x}{2}-\frac{11\ln(-1+2x)}{4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)/(1-2*x),x)

[Out] -5/2*x-11/4*ln(-1+2*x)
```

Maxima [A] time = 1.34362, size = 16, normalized size = 1.

$$-\frac{5}{2}x - \frac{11}{4}\log(2x - 1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)/(2*x - 1),x, algorithm="maxima")

[Out] -5/2*x - 11/4*log(2*x - 1)
```

Fricas [A] time = 0.212593, size = 16, normalized size = 1.

$$-\frac{5}{2}x - \frac{11}{4}\log(2x - 1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)/(2*x - 1),x, algorithm="fricas")

[Out] -5/2*x - 11/4*log(2*x - 1)
```

Sympy [A] time = 0.145218, size = 15, normalized size = 0.94

$$-\frac{5x}{2} - \frac{11\log(2x - 1)}{4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)/(1-2*x),x)

[Out] -5*x/2 - 11*log(2*x - 1)/4
```

GIAC/XCAS [A] time = 0.209935, size = 18, normalized size = 1.12

$$-\frac{5}{2}x - \frac{11}{4}\ln(|2x - 1|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)/(2*x - 1),x, algorithm="giac")

[Out] -5/2*x - 11/4*ln(abs(2*x - 1))
```

3.1426 $\int \frac{3+5x}{(1-2x)(2+3x)}\,dx$

Optimal. Leaf size=21

$$-\frac{11}{14}\log(1-2x)-\frac{1}{21}\log(3x+2)$$

```
[Out] (-11*Log[1 - 2*x])/14 - Log[2 + 3*x]/21
```

Rubi [A] time = 0.030089, antiderivative size = 21, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{11}{14}\log(1-2x)-\frac{1}{21}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)/((1 - 2*x)*(2 + 3*x)),x]
```

```
[Out] (-11*Log[1 - 2*x])/14 - Log[2 + 3*x]/21
```

Rubi in Sympy [A] time = 5.37104, size = 19, normalized size = 0.9

$$-\frac{11\log(-2x+1)}{14}-\frac{\log(3x+2)}{21}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)/(1-2*x)/(2+3*x),x)
```

```
[Out] -11*log(-2*x + 1)/14 - log(3*x + 2)/21
```

Mathematica [A] time = 0.00746328, size = 21, normalized size = 1.

$$-\frac{11}{14}\log(1-2x)-\frac{1}{21}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)/((1 - 2*x)*(2 + 3*x)),x]
```

```
[Out] (-11*Log[1 - 2*x])/14 - Log[2 + 3*x]/21
```

Maple [A] time = 0.007, size = 18, normalized size = 0.9

$$-\frac{\ln(2+3x)}{21}-\frac{11\ln(-1+2x)}{14}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)/(1-2*x)/(2+3*x),x)
```

```
[Out] -1/21*ln(2+3*x)-11/14*ln(-1+2*x)
```

Maxima [A] time = 1.34493, size = 23, normalized size = 1.1

$$-\frac{1}{21}\log(3x+2) - \frac{11}{14}\log(2x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)/((3*x + 2)*(2*x - 1)),x, algorithm="maxima")

[Out] -1/21*log(3*x + 2) - 11/14*log(2*x - 1)
```

Fricas [A] time = 0.216377, size = 23, normalized size = 1.1

$$-\frac{1}{21}\log(3x+2) - \frac{11}{14}\log(2x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)/((3*x + 2)*(2*x - 1)),x, algorithm="fricas")

[Out] -1/21*log(3*x + 2) - 11/14*log(2*x - 1)
```

Sympy [A] time = 0.228797, size = 19, normalized size = 0.9

$$-\frac{11\log\left(x-\frac{1}{2}\right)}{14} - \frac{\log\left(x+\frac{2}{3}\right)}{21}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)/(1-2*x)/(2+3*x),x)

[Out] -11*log(x - 1/2)/14 - log(x + 2/3)/21
```

GIAC/XCAS [A] time = 0.207204, size = 26, normalized size = 1.24

$$-\frac{1}{21}\ln(|3x+2|) - \frac{11}{14}\ln(|2x-1|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)/((3*x + 2)*(2*x - 1)),x, algorithm="giac")

[Out] -1/21*ln(abs(3*x + 2)) - 11/14*ln(abs(2*x - 1))
```

3.1427 $\int \frac{3+5x}{(1-2x)(2+3x)^2}\,dx$

Optimal. Leaf size=32

$$\frac{1}{21(3x+2)}-\frac{11}{49}\log(1-2x)+\frac{11}{49}\log(3x+2)$$

```
[Out] 1/(21*(2 + 3*x)) - (11*Log[1 - 2*x])/49 + (11*Log[2 + 3*x])/49
```

Rubi [A] time = 0.0409236, antiderivative size = 32, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{1}{21(3x+2)}-\frac{11}{49}\log(1-2x)+\frac{11}{49}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)/((1 - 2*x)*(2 + 3*x)^2),x]
```

```
[Out] 1/(21*(2 + 3*x)) - (11*Log[1 - 2*x])/49 + (11*Log[2 + 3*x])/49
```

Rubi in Sympy [A] time = 6.34361, size = 26, normalized size = 0.81

$$-\frac{11\log\left(-2x+1\right)}{49}+\frac{11\log\left(3x+2\right)}{49}+\frac{1}{21\left(3x+2\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)/(1-2*x)/(2+3*x)**2,x)
```

```
[Out] -11*log(-2*x + 1)/49 + 11*log(3*x + 2)/49 + 1/(21*(3*x + 2))
```

Mathematica [A] time = 0.0241222, size = 30, normalized size = 0.94

$$\frac{1}{147}\left(\frac{7}{3x+2}-33\log(3-6x)+33\log(3x+2)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)/((1 - 2*x)*(2 + 3*x)^2),x]
```

```
[Out] (7/(2 + 3*x) - 33*Log[3 - 6*x] + 33*Log[2 + 3*x])/147
```

Maple [A] time = 0.012, size = 27, normalized size = 0.8

$$\frac{1}{42+63\,x}+\frac{11\,\ln\left(2+3\,x\right)}{49}-\frac{11\,\ln\left(-1+2\,x\right)}{49}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)/(1-2*x)/(2+3*x)^2,x)
```

```
[Out] 1/21/(2+3*x)+11/49*ln(2+3*x)-11/49*ln(-1+2*x)
```

Maxima [A] time = 1.34336, size = 35, normalized size = 1.09

$$\frac{1}{21\,(3\,x+2)}+\frac{11}{49}\,\log\left(3\,x+2\right)-\frac{11}{49}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)/((3*x + 2)^2*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] 1/21/(3*x + 2) + 11/49*log(3*x + 2) - 11/49*log(2*x - 1)
```

Fricas [A] time = 0.211702, size = 50, normalized size = 1.56

$$\frac{33\,(3\,x+2)\log\left(3\,x+2\right)-33\,(3\,x+2)\log\left(2\,x-1\right)+7}{147\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)/((3*x + 2)^2*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] 1/147*(33*(3*x + 2)*log(3*x + 2) - 33*(3*x + 2)*log(2*x - 1) + 7)
/(3*x + 2)
```

Sympy [A] time = 0.285818, size = 26, normalized size = 0.81

$$-\frac{11\log\left(x-\frac{1}{2}\right)}{49}+\frac{11\log\left(x+\frac{2}{3}\right)}{49}+\frac{1}{63x+42}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)/(1-2*x)/(2+3*x)**2,x)
```

```
[Out] -11*log(x - 1/2)/49 + 11*log(x + 2/3)/49 + 1/(63*x + 42)
```

GIAC/XCAS [A] time = 0.21094, size = 34, normalized size = 1.06

$$\frac{1}{21\,(3\,x+2)}-\frac{11}{49}\,\ln\left(\left|-\frac{7}{3\,x+2}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)/((3*x + 2)^2*(2*x - 1)),x, algorithm="giac")
```

```
[Out] 1/21/(3*x + 2) - 11/49*ln(abs(-7/(3*x + 2) + 2))
```

3.1428 $\int \frac{3+5x}{(1-2x)(2+3x)^3}\,dx$

Optimal. Leaf size=43

$$-\frac{11}{49(3x+2)}+\frac{1}{42(3x+2)^2}-\frac{22}{343}\log(1-2x)+\frac{22}{343}\log(3x+2)$$

```
[Out] 1/(42*(2 + 3*x)^2) - 11/(49*(2 + 3*x)) - (22*Log[1 - 2*x])/343 +
(22*Log[2 + 3*x])/343
```

Rubi [A] time = 0.044414, antiderivative size = 43, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{11}{49(3x+2)}+\frac{1}{42(3x+2)^2}-\frac{22}{343}\log(1-2x)+\frac{22}{343}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)/((1 - 2*x)*(2 + 3*x)^3),x]
```

```
[Out] 1/(42*(2 + 3*x)^2) - 11/(49*(2 + 3*x)) - (22*Log[1 - 2*x])/343 +
(22*Log[2 + 3*x])/343
```

Rubi in Sympy [A] time = 7.37269, size = 36, normalized size = 0.84

$$-\frac{22\log(-2x+1)}{343}+\frac{22\log(3x+2)}{343}-\frac{11}{49(3x+2)}+\frac{1}{42(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)/(1-2*x)/(2+3*x)**3,x)
```

```
[Out] -22*log(-2*x + 1)/343 + 22*log(3*x + 2)/343 - 11/(49*(3*x + 2)) +
 1/(42*(3*x + 2)**2)
```

Mathematica [A] time = 0.0294692, size = 35, normalized size = 0.81

$$\frac{-\frac{7(198x+125)}{(3x+2)^2}-132\log(3-6x)+132\log(3x+2)}{2058}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)/((1 - 2*x)*(2 + 3*x)^3),x]
```

```
[Out] ((-7*(125 + 198*x))/(2 + 3*x)^2 - 132*Log[3 - 6*x] + 132*Log[2 +
3*x])/2058
```

Maple [A] time = 0.011, size = 36, normalized size = 0.8

$$\frac{1}{42\,(2+3\,x)^2}-\frac{11}{98+147\,x}+\frac{22\,\ln(2+3\,x)}{343}-\frac{22\,\ln(-1+2\,x)}{343}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)/(1-2*x)/(2+3*x)^3,x)
```

```
[Out] 1/42/(2+3*x)^2-11/49/(2+3*x)+22/343*ln(2+3*x)-22/343*ln(-1+2*x)
```

Maxima [A] time = 1.34715, size = 49, normalized size = 1.14

$$-\frac{198\,x+125}{294\,(9\,x^2+12\,x+4)}+\frac{22}{343}\,\log\left(3\,x+2\right)-\frac{22}{343}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)/((3*x + 2)^3*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -1/294*(198*x + 125)/(9*x^2 + 12*x + 4) + 22/343*log(3*x + 2) - 2
2/343*log(2*x - 1)
```

Fricas [A] time = 0.210519, size = 74, normalized size = 1.72

$$\frac{132\,\left(9\,x^2+12\,x+4\right)\,\log\left(3\,x+2\right)-132\,\left(9\,x^2+12\,x+4\right)\,\log\left(2\,x-1\right)-1386\,x-875}{2058\,(9\,x^2+12\,x+4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)/((3*x + 2)^3*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] 1/2058*(132*(9*x^2 + 12*x + 4)*log(3*x + 2) - 132*(9*x^2 + 12*x +
 4)*log(2*x - 1) - 1386*x - 875)/(9*x^2 + 12*x + 4)
```

Sympy [A] time = 0.338226, size = 34, normalized size = 0.79

$$-\frac{198x+125}{2646x^2+3528x+1176}-\frac{22\log\left(x-\frac{1}{2}\right)}{343}+\frac{22\log\left(x+\frac{2}{3}\right)}{343}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)/(1-2*x)/(2+3*x)**3,x)
```

```
[Out] -(198*x + 125)/(2646*x**2 + 3528*x + 1176) - 22*log(x - 1/2)/343
+ 22*log(x + 2/3)/343
```

GIAC/XCAS [A] time = 0.206726, size = 45, normalized size = 1.05

$$-\frac{198\,x+125}{294\,(3\,x+2)^2}+\frac{22}{343}\,\ln\left(|3\,x+2|\right)-\frac{22}{343}\,\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)/((3*x + 2)^3*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -1/294*(198*x + 125)/(3*x + 2)^2 + 22/343*ln(abs(3*x + 2)) - 22/3
43*ln(abs(2*x - 1))
```

3.1429 $\int \frac{3+5x}{(1-2x)(2+3x)^4} dx$

Optimal. Leaf size=54

$$-\frac{22}{343(3x+2)}-\frac{11}{98(3x+2)^2}+\frac{1}{63(3x+2)^3}-\frac{44\log(1-2x)}{2401}+\frac{44\log(3x+2)}{2401}$$

```
[Out] 1/(63*(2 + 3*x)^3) - 11/(98*(2 + 3*x)^2) - 22/(343*(2 + 3*x)) - (
44*Log[1 - 2*x])/2401 + (44*Log[2 + 3*x])/2401
```

Rubi [A] time = 0.0508309, antiderivative size = 54, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{22}{343(3x+2)}-\frac{11}{98(3x+2)^2}+\frac{1}{63(3x+2)^3}-\frac{44\log(1-2x)}{2401}+\frac{44\log(3x+2)}{2401}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)/((1 - 2*x)*(2 + 3*x)^4),x]
```

```
[Out] 1/(63*(2 + 3*x)^3) - 11/(98*(2 + 3*x)^2) - 22/(343*(2 + 3*x)) - (
44*Log[1 - 2*x])/2401 + (44*Log[2 + 3*x])/2401
```

Rubi in Sympy [A] time = 8.44748, size = 46, normalized size = 0.85

$$-\frac{44\log(-2x+1)}{2401}+\frac{44\log(3x+2)}{2401}-\frac{22}{343(3x+2)}-\frac{11}{98(3x+2)^2}+\frac{1}{63(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)/(1-2*x)/(2+3*x)**4,x)
```

```
[Out] -44*log(-2*x + 1)/2401 + 44*log(3*x + 2)/2401 - 22/(343*(3*x + 2)
) - 11/(98*(3*x + 2)**2) + 1/(63*(3*x + 2)**3)
```

Mathematica [A] time = 0.0356704, size = 40, normalized size = 0.74

$$\frac{-\frac{7(3564x^2+6831x+2872)}{(3x+2)^3}-792\log(3-6x)+792\log(3x+2)}{43218}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)/((1 - 2*x)*(2 + 3*x)^4),x]
```

```
[Out] ((-7*(2872 + 6831*x + 3564*x^2))/(2 + 3*x)^3 - 792*Log[3 - 6*x] +
 792*Log[2 + 3*x])/43218
```

Maple [A] time = 0.011, size = 45, normalized size = 0.8

$$\frac{1}{63(2+3x)^3}-\frac{11}{98(2+3x)^2}-\frac{22}{686+1029x}+\frac{44\ln(2+3x)}{2401}-\frac{44\ln(-1+2x)}{2401}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)/(1-2*x)/(2+3*x)^4,x)
```

```
[Out] 1/63/(2+3*x)^3-11/98/(2+3*x)^2-22/343/(2+3*x)+44/2401*ln(2+3*x)-4
4/2401*ln(-1+2*x)
```

Maxima [A] time = 1.35157, size = 62, normalized size = 1.15

$$-\frac{3564\,x^2+6831\,x+2872}{6174\,(27\,x^3+54\,x^2+36\,x+8)}+\frac{44}{2401}\,\log(3\,x+2)-\frac{44}{2401}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)/((3*x + 2)^4*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -1/6174*(3564*x^2 + 6831*x + 2872)/(27*x^3 + 54*x^2 + 36*x + 8) +
 44/2401*log(3*x + 2) - 44/2401*log(2*x - 1)
```

Fricas [A] time = 0.225705, size = 101, normalized size = 1.87

$$-\frac{24948\,x^2-792\,\left(27\,x^3+54\,x^2+36\,x+8\right)\,\log(3\,x+2)+792\,\left(27\,x^3+54\,x^2+36\,x+8\right)\,\log(2\,x-1)+47817\,x+20104}{43218\,(27\,x^3+54\,x^2+36\,x+8)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)/((3*x + 2)^4*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] -1/43218*(24948*x^2 - 792*(27*x^3 + 54*x^2 + 36*x + 8)*log(3*x +
2) + 792*(27*x^3 + 54*x^2 + 36*x + 8)*log(2*x - 1) + 47817*x + 20
104)/(27*x^3 + 54*x^2 + 36*x + 8)
```

Sympy [A] time = 0.388892, size = 44, normalized size = 0.81

$$-\frac{3564x^2+6831x+2872}{166698x^3+333396x^2+222264x+49392}-\frac{44\log\left(x-\frac{1}{2}\right)}{2401}+\frac{44\log\left(x+\frac{2}{3}\right)}{2401}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)/(1-2*x)/(2+3*x)**4,x)
```

```
[Out] -(3564*x**2 + 6831*x + 2872)/(166698*x**3 + 333396*x**2 + 222264*
x + 49392) - 44*log(x - 1/2)/2401 + 44*log(x + 2/3)/2401
```

GIAC/XCAS [A] time = 0.208378, size = 51, normalized size = 0.94

$$-\frac{3564\,x^2+6831\,x+2872}{6174\,(3\,x+2)^3}+\frac{44}{2401}\ln(|3\,x+2|)-\frac{44}{2401}\ln(|2\,x-1|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)/((3*x + 2)^4*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -1/6174*(3564*x^2 + 6831*x + 2872)/(3*x + 2)^3 + 44/2401*ln(abs(3
*x + 2)) - 44/2401*ln(abs(2*x - 1))
```

3.1430 $\int \frac{3+5x}{(1-2x)(2+3x)^5} dx$

Optimal. Leaf size=65

$$-\frac{44}{2401(3x+2)}-\frac{11}{343(3x+2)^2}-\frac{11}{147(3x+2)^3}+\frac{1}{84(3x+2)^4}-\frac{88\log(1-2x)}{16807}+\frac{88\log(3x+2)}{16807}$$

```
[Out] 1/(84*(2 + 3*x)^4) - 11/(147*(2 + 3*x)^3) - 11/(343*(2 + 3*x)^2)
- 44/(2401*(2 + 3*x)) - (88*Log[1 - 2*x])/16807 + (88*Log[2 + 3*x
])/16807
```

Rubi [A] time = 0.0621381, antiderivative size = 65, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{44}{2401(3x+2)}-\frac{11}{343(3x+2)^2}-\frac{11}{147(3x+2)^3}+\frac{1}{84(3x+2)^4}-\frac{88\log(1-2x)}{16807}+\frac{88\log(3x+2)}{16807}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)/((1 - 2*x)*(2 + 3*x)^5),x]
```

```
[Out] 1/(84*(2 + 3*x)^4) - 11/(147*(2 + 3*x)^3) - 11/(343*(2 + 3*x)^2)
- 44/(2401*(2 + 3*x)) - (88*Log[1 - 2*x])/16807 + (88*Log[2 + 3*x
])/16807
```

Rubi in Sympy [A] time = 9.58565, size = 56, normalized size = 0.86

$$-\frac{88\log(-2x+1)}{16807}+\frac{88\log(3x+2)}{16807}-\frac{44}{2401(3x+2)}-\frac{11}{343(3x+2)^2}-\frac{11}{147(3x+2)^3}+\frac{1}{84(3x+2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)/(1-2*x)/(2+3*x)**5,x)
```

```
[Out] -88*log(-2*x + 1)/16807 + 88*log(3*x + 2)/16807 - 44/(2401*(3*x +
 2)) - 11/(343*(3*x + 2)**2) - 11/(147*(3*x + 2)**3) + 1/(84*(3*x
 + 2)**4)
```

Mathematica [A] time = 0.0493011, size = 45, normalized size = 0.69

$$\frac{-\frac{7(4752x^3+12276x^2+12188x+3963)}{(3x+2)^4}-352\log(3-6x)+352\log(3x+2)}{67228}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)/((1 - 2*x)*(2 + 3*x)^5),x]
```

```
[Out] ((-7*(3963 + 12188*x + 12276*x^2 + 4752*x^3))/(2 + 3*x)^4 - 352*L
og[3 - 6*x] + 352*Log[2 + 3*x])/67228
```

Maple [A] time = 0.013, size = 54, normalized size = 0.8

$$\frac{1}{84\,(2+3\,x)^4}-\frac{11}{147\,(2+3\,x)^3}-\frac{11}{343\,(2+3\,x)^2}-\frac{44}{4802+7203\,x}+\frac{88\,\ln(2+3\,x)}{16807}-\frac{88\,\ln(-1+2\,x)}{16807}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)/(1-2*x)/(2+3*x)^5,x)
```

```
[Out] 1/84/(2+3*x)^4-11/147/(2+3*x)^3-11/343/(2+3*x)^2-44/2401/(2+3*x)+
88/16807*ln(2+3*x)-88/16807*ln(-1+2*x)
```

Maxima [A] time = 1.3443, size = 76, normalized size = 1.17

$$-\frac{4752\,x^3+12276\,x^2+12188\,x+3963}{9604\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}+\frac{88}{16807}\,\log\left(3\,x+2\right)-\frac{88}{16807}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)/((3*x + 2)^5*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -1/9604*(4752*x^3 + 12276*x^2 + 12188*x + 3963)/(81*x^4 + 216*x^3
 + 216*x^2 + 96*x + 16) + 88/16807*log(3*x + 2) - 88/16807*log(2*
x - 1)
```

Fricas [A] time = 0.231948, size = 128, normalized size = 1.97

$$-\frac{33264\,x^3+85932\,x^2-352\,\left(81\,x^4+216\,x^3+216\,x^2+96\,x+16\right)\log\left(3\,x+2\right)+352\,\left(81\,x^4+216\,x^3+216\,x^2+96\,x+16\right)\,\mathrm{lc}}{67228\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)/((3*x + 2)^5*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] -1/67228*(33264*x^3 + 85932*x^2 - 352*(81*x^4 + 216*x^3 + 216*x^2
 + 96*x + 16)*log(3*x + 2) + 352*(81*x^4 + 216*x^3 + 216*x^2 + 96
*x + 16)*log(2*x - 1) + 85316*x + 27741)/(81*x^4 + 216*x^3 + 216*
x^2 + 96*x + 16)
```

Sympy [A] time = 0.442806, size = 54, normalized size = 0.83

$$-\frac{4752x^3+12276x^2+12188x+3963}{777924x^4+2074464x^3+2074464x^2+921984x+153664}-\frac{88\log\left(x-\frac{1}{2}\right)}{16807}+\frac{88\log\left(x+\frac{2}{3}\right)}{16807}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)/(1-2*x)/(2+3*x)**5,x)
```

```
[Out] -(4752*x**3 + 12276*x**2 + 12188*x + 3963)/(777924*x**4 + 2074464
*x**3 + 2074464*x**2 + 921984*x + 153664) - 88*log(x - 1/2)/16807
 + 88*log(x + 2/3)/16807
```

GIAC/XCAS [A] time = 0.204543, size = 70, normalized size = 1.08

$$-\frac{44}{2401\,(3\,x+2)}-\frac{11}{343\,(3\,x+2)^2}-\frac{11}{147\,(3\,x+2)^3}+\frac{1}{84\,(3\,x+2)^4}-\frac{88}{16807}\,\ln\left(\left|-\frac{7}{3\,x+2}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)/((3*x + 2)^5*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -44/2401/(3*x + 2) - 11/343/(3*x + 2)^2 - 11/147/(3*x + 2)^3 + 1/
84/(3*x + 2)^4 - 88/16807*ln(abs(-7/(3*x + 2) + 2))
```

3.1431 $\int \frac{3+5x}{(1-2x)(2+3x)^6} dx$

Optimal. Leaf size=76

$$-\frac{88}{16807(3x+2)}-\frac{22}{2401(3x+2)^2}-\frac{22}{1029(3x+2)^3}-\frac{11}{196(3x+2)^4}+\frac{1}{105(3x+2)^5}-\frac{176\log(1-2x)}{117649}+\frac{176\log(3x+2)}{117649}$$

```
[Out] 1/(105*(2 + 3*x)^5) - 11/(196*(2 + 3*x)^4) - 22/(1029*(2 + 3*x)^3
) - 22/(2401*(2 + 3*x)^2) - 88/(16807*(2 + 3*x)) - (176*Log[1 - 2
*x])/117649 + (176*Log[2 + 3*x])/117649
```

Rubi [A] time = 0.0702305, antiderivative size = 76, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{88}{16807(3x+2)}-\frac{22}{2401(3x+2)^2}-\frac{22}{1029(3x+2)^3}-\frac{11}{196(3x+2)^4}+\frac{1}{105(3x+2)^5}-\frac{176\log(1-2x)}{117649}+\frac{176\log(3x+2)}{117649}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)/((1 - 2*x)*(2 + 3*x)^6),x]
```

```
[Out] 1/(105*(2 + 3*x)^5) - 11/(196*(2 + 3*x)^4) - 22/(1029*(2 + 3*x)^3
) - 22/(2401*(2 + 3*x)^2) - 88/(16807*(2 + 3*x)) - (176*Log[1 - 2
*x])/117649 + (176*Log[2 + 3*x])/117649
```

Rubi in Sympy [A] time = 10.8296, size = 66, normalized size = 0.87

$$-\frac{176\log(-2x+1)}{117649}+\frac{176\log(3x+2)}{117649}-\frac{88}{16807(3x+2)}-\frac{22}{2401(3x+2)^2}-\frac{22}{1029(3x+2)^3}-\frac{11}{196(3x+2)^4}+\frac{1}{105(3x+2)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)/(1-2*x)/(2+3*x)**6,x)
```

```
[Out] -176*log(-2*x + 1)/117649 + 176*log(3*x + 2)/117649 - 88/(16807*(
3*x + 2)) - 22/(2401*(3*x + 2)**2) - 22/(1029*(3*x + 2)**3) - 11/
(196*(3*x + 2)**4) + 1/(105*(3*x + 2)**5)
```

Mathematica [A] time = 0.0581297, size = 50, normalized size = 0.66

$$\frac{-\frac{7(427680x^4+1389960x^3+1833480x^2+1268025x+348226)}{(3x+2)^5}-10560\log(3-6x)+10560\log(3x+2)}{7058940}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)/((1 - 2*x)*(2 + 3*x)^6),x]
```

```
[Out] ((-7*(348226 + 1268025*x + 1833480*x^2 + 1389960*x^3 + 427680*x^4
))/(2 + 3*x)^5 - 10560*Log[3 - 6*x] + 10560*Log[2 + 3*x])/7058940
```

Maple [A] time = 0.013, size = 63, normalized size = 0.8

$$\frac{1}{105\,(2+3\,x)^{5}}-\frac{11}{196\,(2+3\,x)^{4}}-\frac{22}{1029\,(2+3\,x)^{3}}-\frac{22}{2401\,(2+3\,x)^{2}}-\frac{88}{33614+50421\,x}+\frac{176\,\ln(2+3\,x)}{117649}-\frac{176\,\ln(-1+2\,x)}{117649}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)/(1-2*x)/(2+3*x)^6,x)
```

```
[Out] 1/105/(2+3*x)^5-11/196/(2+3*x)^4-22/1029/(2+3*x)^3-22/2401/(2+3*x
)^2-88/16807/(2+3*x)+176/117649*ln(2+3*x)-176/117649*ln(-1+2*x)
```

Maxima [A] time = 1.33531, size = 89, normalized size = 1.17

$$-\frac{427680\,x^{4}+1389960\,x^{3}+1833480\,x^{2}+1268025\,x+348226}{1008420\,(243\,x^{5}+810\,x^{4}+1080\,x^{3}+720\,x^{2}+240\,x+32)}+\frac{176}{117649}\log(3\,x+2)-\frac{176}{117649}\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)/((3*x + 2)^6*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -1/1008420*(427680*x^4 + 1389960*x^3 + 1833480*x^2 + 1268025*x +
348226)/(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32) + 1
76/117649*log(3*x + 2) - 176/117649*log(2*x - 1)
```

Fricas [A] time = 0.224891, size = 155, normalized size = 2.04

$$-\frac{2993760\,x^{4}+9729720\,x^{3}+12834360\,x^{2}-10560\,(243\,x^{5}+810\,x^{4}+1080\,x^{3}+720\,x^{2}+240\,x+32)\log(3\,x+2)+10560\,(2}{7058940\,(243\,x^{5}+810\,x^{4}+1080\,x^{3}+720\,x^{2}+2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)/((3*x + 2)^6*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] -1/7058940*(2993760*x^4 + 9729720*x^3 + 12834360*x^2 - 10560*(243
*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)*log(3*x + 2) +
10560*(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)*log(2
*x - 1) + 8876175*x + 2437582)/(243*x^5 + 810*x^4 + 1080*x^3 + 72
0*x^2 + 240*x + 32)
```

Sympy [A] time = 0.486902, size = 65, normalized size = 0.86

$$-\frac{427680x^{4}+1389960x^{3}+1833480x^{2}+1268025x+348226}{245046060x^{5}+816820200x^{4}+1089093600x^{3}+726062400x^{2}+242020800x+32269440}-\frac{176\log\left(x-\frac{1}{2}\right)}{117649}+\frac{176\log\left(x+\frac{2}{3}\right)}{117649}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)/(1-2*x)/(2+3*x)**6,x)
```

```
[Out] -(427680*x**4 + 1389960*x**3 + 1833480*x**2 + 1268025*x + 348226)
/(245046060*x**5 + 816820200*x**4 + 1089093600*x**3 + 726062400*x
```

```
**2 + 242020800*x + 32269440) - 176*log(x - 1/2)/117649 + 176*log
(x + 2/3)/117649
```

GIAC/XCAS [A] time = 0.210746, size = 65, normalized size = 0.86

$$-\frac{427680\,x^{4}+1389960\,x^{3}+1833480\,x^{2}+1268025\,x+348226}{1008420\,(3\,x+2)^{5}}+\frac{176}{117649}\,\ln\left(|3\,x+2|\right)-\frac{176}{117649}\,\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)/((3*x + 2)^6*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -1/1008420*(427680*x^4 + 1389960*x^3 + 1833480*x^2 + 1268025*x +
348226)/(3*x + 2)^5 + 176/117649*ln(abs(3*x + 2)) - 176/117649*ln
(abs(2*x - 1))
```

3.1432 $\int \frac{3+5x}{(1-2x)(2+3x)^7}\,dx$

Optimal. Leaf size=87

$$-\frac{176}{117649(3x+2)}-\frac{44}{16807(3x+2)^2}-\frac{44}{7203(3x+2)^3}-\frac{11}{686(3x+2)^4}-\frac{11}{245(3x+2)^5}+\frac{1}{126(3x+2)^6}-\frac{352\log(1-2x)}{823543}+\frac{352\log(3x+2)}{823543}$$

```
[Out] 1/(126*(2 + 3*x)^6) - 11/(245*(2 + 3*x)^5) - 11/(686*(2 + 3*x)^4)
 - 44/(7203*(2 + 3*x)^3) - 44/(16807*(2 + 3*x)^2) - 176/(117649*(
2 + 3*x)) - (352*Log[1 - 2*x])/823543 + (352*Log[2 + 3*x])/823543
```

Rubi [A] time = 0.0778605, antiderivative size = 87, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{176}{117649(3x+2)}-\frac{44}{16807(3x+2)^2}-\frac{44}{7203(3x+2)^3}-\frac{11}{686(3x+2)^4}-\frac{11}{245(3x+2)^5}+\frac{1}{126(3x+2)^6}-\frac{352\log(1-2x)}{823543}+\frac{352\log(3x+2)}{823543}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)/((1 - 2*x)*(2 + 3*x)^7),x]
```

```
[Out] 1/(126*(2 + 3*x)^6) - 11/(245*(2 + 3*x)^5) - 11/(686*(2 + 3*x)^4)
 - 44/(7203*(2 + 3*x)^3) - 44/(16807*(2 + 3*x)^2) - 176/(117649*(
2 + 3*x)) - (352*Log[1 - 2*x])/823543 + (352*Log[2 + 3*x])/823543
```

Rubi in Sympy [A] time = 12.0908, size = 76, normalized size = 0.87

$$-\frac{352\log\left(-2x+1\right)}{823543}+\frac{352\log\left(3x+2\right)}{823543}-\frac{176}{117649\left(3x+2\right)}-\frac{44}{16807\left(3x+2\right)^2}-\frac{44}{7203\left(3x+2\right)^3}-\frac{11}{686\left(3x+2\right)^4}-\frac{11}{245\left(3x+2\right)^5}+\frac{1}{126\left(3x+2\right)^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)/(1-2*x)/(2+3*x)**7,x)
```

```
[Out] -352*log(-2*x + 1)/823543 + 352*log(3*x + 2)/823543 - 176/(117649
*(3*x + 2)) - 44/(16807*(3*x + 2)**2) - 44/(7203*(3*x + 2)**3) -
11/(686*(3*x + 2)**4) - 11/(245*(3*x + 2)**5) + 1/(126*(3*x + 2)*
*6)
```

Mathematica [A] time = 0.0620601, size = 55, normalized size = 0.63

$$\frac{-\frac{7(3849120x^5+15075720x^4+24841080x^3+22413105x^2+12254814x+3013741)}{(3x+2)^6}-31680\log(3-6x)+31680\log(3x+2)}{74118870}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)/((1 - 2*x)*(2 + 3*x)^7),x]
```

```
[Out] ((-7*(3013741 + 12254814*x + 22413105*x^2 + 24841080*x^3 + 150757
20*x^4 + 3849120*x^5))/(2 + 3*x)^6 - 31680*Log[3 - 6*x] + 31680*L
```

```
og[2 + 3*x])/74118870
```

Maple [A] time = 0.013, size = 72, normalized size = 0.8

$$\frac{1}{126\left(2+3x\right)^{6}}-\frac{11}{245\left(2+3x\right)^{5}}-\frac{11}{686\left(2+3x\right)^{4}}-\frac{44}{7203\left(2+3x\right)^{3}}-\frac{44}{16807\left(2+3x\right)^{2}}-\frac{176}{235298+352947x}+\frac{352\ln\left(2+3x\right)}{823543}-\frac{352\ln\left(-1+2x\right)}{823543}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)/(1-2*x)/(2+3*x)^7,x)
```

```
[Out] 1/126/(2+3*x)^6-11/245/(2+3*x)^5-11/686/(2+3*x)^4-44/7203/(2+3*x)
^3-44/16807/(2+3*x)^2-176/117649/(2+3*x)+352/823543*ln(2+3*x)-352
/823543*ln(-1+2*x)
```

Maxima [A] time = 1.3482, size = 103, normalized size = 1.18

$$-\frac{3849120\,x^{5}+15075720\,x^{4}+24841080\,x^{3}+22413105\,x^{2}+12254814\,x+3013741}{10588410\left(729\,x^{6}+2916\,x^{5}+4860\,x^{4}+4320\,x^{3}+2160\,x^{2}+576\,x+64\right)}+\frac{352}{823543}\log\left(3\,x+2\right)-\frac{352}{823543}\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)/((3*x + 2)^7*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -1/10588410*(3849120*x^5 + 15075720*x^4 + 24841080*x^3 + 22413105
*x^2 + 12254814*x + 3013741)/(729*x^6 + 2916*x^5 + 4860*x^4 + 432
0*x^3 + 2160*x^2 + 576*x + 64) + 352/823543*log(3*x + 2) - 352/82
3543*log(2*x - 1)
```

Fricas [A] time = 0.226731, size = 182, normalized size = 2.09

$$-\frac{26943840\,x^{5}+105530040\,x^{4}+173887560\,x^{3}+156891735\,x^{2}-31680\left(729\,x^{6}+2916\,x^{5}+4860\,x^{4}+4320\,x^{3}+2160\,x^{2}+5\right.}{74118870\left(729\,x^{6}+2916\,x^{5}+4\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)/((3*x + 2)^7*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] -1/74118870*(26943840*x^5 + 105530040*x^4 + 173887560*x^3 + 15689
1735*x^2 - 31680*(729*x^6 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 2160
*x^2 + 576*x + 64)*log(3*x + 2) + 31680*(729*x^6 + 2916*x^5 + 486
0*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64)*log(2*x - 1) + 85783698
*x + 21096187)/(729*x^6 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 2160*x
^2 + 576*x + 64)
```

Sympy [A] time = 0.544346, size = 75, normalized size = 0.86

$$-\frac{3849120x^{5}+15075720x^{4}+24841080x^{3}+22413105x^{2}+12254814x+3013741}{7718950890x^{6}+30875803560x^{5}+51459672600x^{4}+45741931200x^{3}+22870965600x^{2}+6098924160x+677658240}-\frac{352\log\left(x-\frac{1}{2}\right)}{823543}+\frac{352\log\left(x+\frac{2}{3}\right)}{823543}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)/(1-2*x)/(2+3*x)**7,x)
```

```
[Out] -(3849120*x**5 + 15075720*x**4 + 24841080*x**3 + 22413105*x**2 +
12254814*x + 3013741)/(7718950890*x**6 + 30875803560*x**5 + 51459
672600*x**4 + 45741931200*x**3 + 22870965600*x**2 + 6098924160*x
+ 677658240) - 352*log(x - 1/2)/823543 + 352*log(x + 2/3)/823543
```

GIAC/XCAS [A] time = 0.210993, size = 72, normalized size = 0.83

$$-\frac{3849120\,x^5 + 15075720\,x^4 + 24841080\,x^3 + 22413105\,x^2 + 12254814\,x + 3013741}{10588410\,(3\,x+2)^6} + \frac{352}{823543}\ln\left(|3\,x+2|\right) - \frac{352}{823543}\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)/((3*x + 2)^7*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -1/10588410*(3849120*x^5 + 15075720*x^4 + 24841080*x^3 + 22413105
*x^2 + 12254814*x + 3013741)/(3*x + 2)^6 + 352/823543*ln(abs(3*x
+ 2)) - 352/823543*ln(abs(2*x - 1))
```

3.1433 $\int \frac{3+5x}{(1-2x)(2+3x)^8} dx$

Optimal. Leaf size=98

$$-\frac{352}{823543(3x+2)}-\frac{88}{117649(3x+2)^2}-\frac{88}{50421(3x+2)^3}-\frac{11}{2401(3x+2)^4}-\frac{22}{1715(3x+2)^5}-\frac{11}{294(3x+2)^6}+\frac{1}{147(3x+2)^7}-\frac{704\log(1-2x)}{5764801}+\frac{704\log(3x+2)}{5764801}$$

```
[Out] 1/(147*(2 + 3*x)^7) - 11/(294*(2 + 3*x)^6) - 22/(1715*(2 + 3*x)^5
) - 11/(2401*(2 + 3*x)^4) - 88/(50421*(2 + 3*x)^3) - 88/(117649*(
2 + 3*x)^2) - 352/(823543*(2 + 3*x)) - (704*Log[1 - 2*x])/5764801
 + (704*Log[2 + 3*x])/5764801
```

Rubi [A] time = 0.0835661, antiderivative size = 98, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{352}{823543(3x+2)}-\frac{88}{117649(3x+2)^2}-\frac{88}{50421(3x+2)^3}-\frac{11}{2401(3x+2)^4}-\frac{22}{1715(3x+2)^5}-\frac{11}{294(3x+2)^6}+\frac{1}{147(3x+2)^7}-\frac{704\log(1-2x)}{5764801}+\frac{704\log(3x+2)}{5764801}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)/((1 - 2*x)*(2 + 3*x)^8),x]
```

```
[Out] 1/(147*(2 + 3*x)^7) - 11/(294*(2 + 3*x)^6) - 22/(1715*(2 + 3*x)^5
) - 11/(2401*(2 + 3*x)^4) - 88/(50421*(2 + 3*x)^3) - 88/(117649*(
2 + 3*x)^2) - 352/(823543*(2 + 3*x)) - (704*Log[1 - 2*x])/5764801
 + (704*Log[2 + 3*x])/5764801
```

Rubi in Sympy [A] time = 13.4227, size = 87, normalized size = 0.89

$$-\frac{704\log(-2x+1)}{5764801}+\frac{704\log(3x+2)}{5764801}-\frac{352}{823543(3x+2)}-\frac{88}{117649(3x+2)^2}-\frac{88}{50421(3x+2)^3}-\frac{11}{2401(3x+2)^4}-\frac{22}{1715(3x+2)^5}-\frac{11}{294(3x+2)^6}+\frac{1}{147(3x+2)^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)/(1-2*x)/(2+3*x)**8,x)
```

```
[Out] -704*log(-2*x + 1)/5764801 + 704*log(3*x + 2)/5764801 - 352/(8235
43*(3*x + 2)) - 88/(117649*(3*x + 2)**2) - 88/(50421*(3*x + 2)**3
) - 11/(2401*(3*x + 2)**4) - 22/(1715*(3*x + 2)**5) - 11/(294*(3*
x + 2)**6) + 1/(147*(3*x + 2)**7)
```

Mathematica [A] time = 0.0700923, size = 60, normalized size = 0.61

$$\frac{-\frac{7(7698240x^6+35283600x^5+69783120x^4+77947650x^3+54393768x^2+25308459x+5811068)}{(3x+2)^7}-21120\log(3-6x)+21120\log(3x+2)}{172944030}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)/((1 - 2*x)*(2 + 3*x)^8),x]
```

```
[Out] ((-7*(5811068 + 25308459*x + 54393768*x^2 + 77947650*x^3 + 697831
20*x^4 + 35283600*x^5 + 7698240*x^6))/(2 + 3*x)^7 - 21120*Log[3 -
 6*x] + 21120*Log[2 + 3*x])/172944030
```

Maple [A] time = 0.013, size = 81, normalized size = 0.8

$$\frac{1}{147\,(2+3\,x)^{7}}-\frac{11}{294\,(2+3\,x)^{6}}-\frac{22}{1715\,(2+3\,x)^{5}}-\frac{11}{2401\,(2+3\,x)^{4}}-\frac{88}{50421\,(2+3\,x)^{3}}-\frac{88}{117649\,(2+3\,x)^{2}}-\frac{352}{1647086+2470629\,x}+\frac{704\,\ln(2+3\,x)}{5764801}-\frac{704\,\ln(-1+2\,x)}{5764801}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)/(1-2*x)/(2+3*x)^8,x)
```

```
[Out] 1/147/(2+3*x)^7-11/294/(2+3*x)^6-22/1715/(2+3*x)^5-11/2401/(2+3*x
)^4-88/50421/(2+3*x)^3-88/117649/(2+3*x)^2-352/823543/(2+3*x)+704
/5764801*ln(2+3*x)-704/5764801*ln(-1+2*x)
```

Maxima [A] time = 1.35136, size = 116, normalized size = 1.18

$$-\frac{7698240\,x^{6}+35283600\,x^{5}+69783120\,x^{4}+77947650\,x^{3}+54393768\,x^{2}+25308459\,x+5811068}{24706290\,(2187\,x^{7}+10206\,x^{6}+20412\,x^{5}+22680\,x^{4}+15120\,x^{3}+6048\,x^{2}+1344\,x+128)}+\frac{704}{5764801}\,\log(3\,x+2)-\frac{704}{5764801}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)/((3*x + 2)^8*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -1/24706290*(7698240*x^6 + 35283600*x^5 + 69783120*x^4 + 77947650
*x^3 + 54393768*x^2 + 25308459*x + 5811068)/(2187*x^7 + 10206*x^6
 + 20412*x^5 + 22680*x^4 + 15120*x^3 + 6048*x^2 + 1344*x + 128) +
 704/5764801*log(3*x + 2) - 704/5764801*log(2*x - 1)
```

Fricas [A] time = 0.222198, size = 209, normalized size = 2.13

$$-\frac{53887680\,x^{6}+246985200\,x^{5}+488481840\,x^{4}+545633550\,x^{3}+380756376\,x^{2}-21120\,\big(2187\,x^{7}+10206\,x^{6}+20412\,x^{5}+22\ldots}{172944030\,(2\ldots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)/((3*x + 2)^8*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] -1/172944030*(53887680*x^6 + 246985200*x^5 + 488481840*x^4 + 5456
33550*x^3 + 380756376*x^2 - 21120*(2187*x^7 + 10206*x^6 + 20412*x
^5 + 22680*x^4 + 15120*x^3 + 6048*x^2 + 1344*x + 128)*log(3*x + 2
) + 21120*(2187*x^7 + 10206*x^6 + 20412*x^5 + 22680*x^4 + 15120*x
^3 + 6048*x^2 + 1344*x + 128)*log(2*x - 1) + 177159213*x + 406774
76)/(2187*x^7 + 10206*x^6 + 20412*x^5 + 22680*x^4 + 15120*x^3 + 6
048*x^2 + 1344*x + 128)
```

Sympy [A] time = 0.601125, size = 85, normalized size = 0.87

$$-\frac{7698240x^{6}+35283600x^{5}+69783120x^{4}+77947650x^{3}+54393768x^{2}+25308459x+5811068}{54032656230x^{7}+252152395740x^{6}+504304791480x^{5}+560338657200x^{4}+373559104800x^{3}+149423641920x^{2}+332052\ldots}-\frac{704\log\left(x-\frac{1}{2}\right)}{5764801}+\frac{704\log\left(x+\frac{2}{3}\right)}{5764801}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)/(1-2*x)/(2+3*x)**8,x)
```

```
[Out] -(7698240*x**6 + 35283600*x**5 + 69783120*x**4 + 77947650*x**3 +
54393768*x**2 + 25308459*x + 5811068)/(54032656230*x**7 + 2521523
95740*x**6 + 504304791480*x**5 + 560338657200*x**4 + 373559104800
*x**3 + 149423641920*x**2 + 33205253760*x + 3162405120) - 704*log
(x - 1/2)/5764801 + 704*log(x + 2/3)/5764801
```

GIAC/XCAS [A] time = 0.210729, size = 78, normalized size = 0.8

$$-\frac{7698240\,x^{6}+35283600\,x^{5}+69783120\,x^{4}+77947650\,x^{3}+54393768\,x^{2}+25308459\,x+5811068}{24706290\,(3\,x+2)^{7}}+\frac{704}{5764801}\,\ln\left(|3\,x+2|\right)-\frac{704}{5764801}\,\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)/((3*x + 2)^8*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -1/24706290*(7698240*x^6 + 35283600*x^5 + 69783120*x^4 + 77947650
*x^3 + 54393768*x^2 + 25308459*x + 5811068)/(3*x + 2)^7 + 704/576
4801*ln(abs(3*x + 2)) - 704/5764801*ln(abs(2*x - 1))
```

3.1434 $\int \frac{(2+3x)^8(3+5x)^2}{1-2x} \, dx$

Optimal. Leaf size=79

$$-\frac{32805x^{10}}{4}-\frac{256365x^9}{4}-\frac{14907321x^8}{64}-\frac{8399295x^7}{16}-\frac{53031699x^6}{64}-\frac{316246329x^5}{320}-\frac{487203129x^4}{512}-\frac{204901139x^3}{256}-\frac{677093689x^2}{1024}-\frac{695181625x}{1024}-\frac{697540921\log(1-2x)}{2048}$$

```
[Out] (-695181625*x)/1024 - (677093689*x^2)/1024 - (204901139*x^3)/256
- (487203129*x^4)/512 - (316246329*x^5)/320 - (53031699*x^6)/64 -
 (8399295*x^7)/16 - (14907321*x^8)/64 - (256365*x^9)/4 - (32805*x
^10)/4 - (697540921*Log[1 - 2*x])/2048
```

Rubi [A] time = 0.0774624, antiderivative size = 79, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{32805x^{10}}{4}-\frac{256365x^9}{4}-\frac{14907321x^8}{64}-\frac{8399295x^7}{16}-\frac{53031699x^6}{64}-\frac{316246329x^5}{320}-\frac{487203129x^4}{512}-\frac{204901139x^3}{256}-\frac{677093689x^2}{1024}-\frac{695181625x}{1024}-\frac{697540921\log(1-2x)}{2048}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^8*(3 + 5*x)^2)/(1 - 2*x),x]
```

```
[Out] (-695181625*x)/1024 - (677093689*x^2)/1024 - (204901139*x^3)/256
- (487203129*x^4)/512 - (316246329*x^5)/320 - (53031699*x^6)/64 -
 (8399295*x^7)/16 - (14907321*x^8)/64 - (256365*x^9)/4 - (32805*x
^10)/4 - (697540921*Log[1 - 2*x])/2048
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{32805x^{10}}{4}-\frac{256365x^9}{4}-\frac{14907321x^8}{64}-\frac{8399295x^7}{16}-\frac{53031699x^6}{64}-\frac{316246329x^5}{320}-\frac{487203129x^4}{512}-\frac{204901139x^3}{256}-\frac{697540921\log(-2x+1)}{2048}+\int\left(-\frac{695181625}{1024}\right)dx-\frac{677093689\int x\,dx}{512}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**8*(3+5*x)**2/(1-2*x),x)
```

```
[Out] -32805*x**10/4 - 256365*x**9/4 - 14907321*x**8/64 - 8399295*x**7/
16 - 53031699*x**6/64 - 316246329*x**5/320 - 487203129*x**4/512 -
 204901139*x**3/256 - 697540921*log(-2*x + 1)/2048 + Integral(-69
5181625/1024, x) - 677093689*Integral(x, x)/512
```

Mathematica [A] time = 0.0243641, size = 62, normalized size = 0.78

$$\frac{-671846400x^{10}-5250355200x^9-19081370880x^8-43004390400x^7-67880574720x^6-80959060224x^5-77952500640x^4}{81920}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^8*(3 + 5*x)^2)/(1 - 2*x),x]
```

```
[Out] (58429239347 - 55614530000*x - 54167495120*x^2 - 65568364480*x^3
- 77952500640*x^4 - 80959060224*x^5 - 67880574720*x^6 - 430043904
```

```
00*x^7 - 19081370880*x^8 - 5250355200*x^9 - 671846400*x^10 - 2790
1636840*Log[1 - 2*x])/81920
```

Maple [A] time = 0.004, size = 58, normalized size = 0.7

$$-\frac{32805\,x^{10}}{4}-\frac{256365\,x^{9}}{4}-\frac{14907321\,x^{8}}{64}-\frac{8399295\,x^{7}}{16}-\frac{53031699\,x^{6}}{64}-\frac{316246329\,x^{5}}{320}-\frac{487203129\,x^{4}}{512}-\frac{204901139\,x^{3}}{256}-\frac{677093689\,x^{2}}{1024}-\frac{695181625\,x}{1024}-\frac{697540921\,\ln\left(-1+2\,x\right)}{2048}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^8*(3+5*x)^2/(1-2*x),x)
```

```
[Out] -32805/4*x^10-256365/4*x^9-14907321/64*x^8-8399295/16*x^7-5303169
9/64*x^6-316246329/320*x^5-487203129/512*x^4-204901139/256*x^3-67
7093689/1024*x^2-695181625/1024*x-697540921/2048*ln(-1+2*x)
```

Maxima [A] time = 1.34173, size = 77, normalized size = 0.97

$$-\frac{32805}{4}\,x^{10}-\frac{256365}{4}\,x^{9}-\frac{14907321}{64}\,x^{8}-\frac{8399295}{16}\,x^{7}-\frac{53031699}{64}\,x^{6}-\frac{316246329}{320}\,x^{5}-\frac{487203129}{512}\,x^{4}-\frac{204901139}{256}\,x^{3}-\frac{677093689}{1024}\,x^{2}-\frac{695181625}{1024}\,x-\frac{697540921}{2048}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^8/(2*x - 1),x, algorithm="maxima")
```

```
[Out] -32805/4*x^10 - 256365/4*x^9 - 14907321/64*x^8 - 8399295/16*x^7 -
 53031699/64*x^6 - 316246329/320*x^5 - 487203129/512*x^4 - 204901
139/256*x^3 - 677093689/1024*x^2 - 695181625/1024*x - 697540921/2
048*log(2*x - 1)
```

Fricas [A] time = 0.220771, size = 77, normalized size = 0.97

$$-\frac{32805}{4}\,x^{10}-\frac{256365}{4}\,x^{9}-\frac{14907321}{64}\,x^{8}-\frac{8399295}{16}\,x^{7}-\frac{53031699}{64}\,x^{6}-\frac{316246329}{320}\,x^{5}-\frac{487203129}{512}\,x^{4}-\frac{204901139}{256}\,x^{3}-\frac{677093689}{1024}\,x^{2}-\frac{695181625}{1024}\,x-\frac{697540921}{2048}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^8/(2*x - 1),x, algorithm="fricas")
```

```
[Out] -32805/4*x^10 - 256365/4*x^9 - 14907321/64*x^8 - 8399295/16*x^7 -
 53031699/64*x^6 - 316246329/320*x^5 - 487203129/512*x^4 - 204901
139/256*x^3 - 677093689/1024*x^2 - 695181625/1024*x - 697540921/2
048*log(2*x - 1)
```

Sympy [A] time = 0.250122, size = 76, normalized size = 0.96

$$-\frac{32805x^{10}}{4}-\frac{256365x^{9}}{4}-\frac{14907321x^{8}}{64}-\frac{8399295x^{7}}{16}-\frac{53031699x^{6}}{64}-\frac{316246329x^{5}}{320}-\frac{487203129x^{4}}{512}-\frac{204901139x^{3}}{256}-\frac{677093689x^{2}}{1024}-\frac{695181625x}{1024}-\frac{697540921\log\left(2x-1\right)}{2048}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**8*(3+5*x)**2/(1-2*x),x)
```

```
[Out] -32805*x**10/4 - 256365*x**9/4 - 14907321*x**8/64 - 8399295*x**7/
16 - 53031699*x**6/64 - 316246329*x**5/320 - 487203129*x**4/512 -
 204901139*x**3/256 - 677093689*x**2/1024 - 695181625*x/1024 - 69
7540921*log(2*x - 1)/2048
```

GIAC/XCAS [A] time = 0.207131, size = 78, normalized size = 0.99

$$-\frac{32805}{4}x^{10}-\frac{256365}{4}x^{9}-\frac{14907321}{64}x^{8}-\frac{8399295}{16}x^{7}-\frac{53031699}{64}x^{6}-\frac{316246329}{320}x^{5}-\frac{487203129}{512}x^{4}-\frac{204901139}{256}x^{3}-\frac{677093689}{1024}x^{2}-\frac{695181625}{1024}x-\frac{697540921}{2048}\ln\left(|2x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^8/(2*x - 1),x, algorithm="giac")
```

```
[Out] -32805/4*x^10 - 256365/4*x^9 - 14907321/64*x^8 - 8399295/16*x^7 -
 53031699/64*x^6 - 316246329/320*x^5 - 487203129/512*x^4 - 204901
139/256*x^3 - 677093689/1024*x^2 - 695181625/1024*x - 697540921/2
048*ln(abs(2*x - 1))
```

3.1435 $\int \frac{(2+3x)^7(3+5x)^2}{1-2x} dx$

Optimal. Leaf size=72

$$-\frac{6075x^9}{2}-\frac{696195x^8}{32}-\frac{4040847x^7}{56}-\frac{4736853x^6}{32}-\frac{34084287x^5}{160}-\frac{59969727x^4}{256}-\frac{27480469x^3}{128}-\frac{94979263x^2}{512}-\frac{99058879x}{512}-\frac{99648703\log(1-2x)}{1024}$$

```
[Out] (-99058879*x)/512 - (94979263*x^2)/512 - (27480469*x^3)/128 - (59
969727*x^4)/256 - (34084287*x^5)/160 - (4736853*x^6)/32 - (404084
7*x^7)/56 - (696195*x^8)/32 - (6075*x^9)/2 - (99648703*Log[1 - 2*
x])/1024
```

Rubi [A] time = 0.0711837, antiderivative size = 72, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$-\frac{6075x^9}{2}-\frac{696195x^8}{32}-\frac{4040847x^7}{56}-\frac{4736853x^6}{32}-\frac{34084287x^5}{160}-\frac{59969727x^4}{256}-\frac{27480469x^3}{128}-\frac{94979263x^2}{512}-\frac{99058879x}{512}-\frac{99648703\log(1-2x)}{1024}$$

Antiderivative was successfully verified.

```
[In] Int[((2 + 3*x)^7*(3 + 5*x)^2)/(1 - 2*x),x]
```

```
[Out] (-99058879*x)/512 - (94979263*x^2)/512 - (27480469*x^3)/128 - (59
969727*x^4)/256 - (34084287*x^5)/160 - (4736853*x^6)/32 - (404084
7*x^7)/56 - (696195*x^8)/32 - (6075*x^9)/2 - (99648703*Log[1 - 2*
x])/1024
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{6075x^9}{2}-\frac{696195x^8}{32}-\frac{4040847x^7}{56}-\frac{4736853x^6}{32}-\frac{34084287x^5}{160}-\frac{59969727x^4}{256}-\frac{27480469x^3}{128}-\frac{99648703\log(-2x+1)}{1024}+\int\left(-\frac{99058879}{512}\right)dx-\frac{94979263\int x\,dx}{256}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**7*(3+5*x)**2/(1-2*x),x)
```

```
[Out] -6075*x**9/2 - 696195*x**8/32 - 4040847*x**7/56 - 4736853*x**6/32
 - 34084287*x**5/160 - 59969727*x**4/256 - 27480469*x**3/128 - 99
648703*log(-2*x + 1)/1024 + Integral(-99058879/512, x) - 94979263
*Integral(x, x)/256
```

Mathematica [A] time = 0.022713, size = 75, normalized size = 1.04

$$-\frac{6075x^9}{2}-\frac{696195x^8}{32}-\frac{4040847x^7}{56}-\frac{4736853x^6}{32}-\frac{34084287x^5}{160}-\frac{59969727x^4}{256}-\frac{27480469x^3}{128}-\frac{94979263x^2}{512}-\frac{99058879x}{512}-\frac{99648703\log(1-2x)}{1024}+\frac{55685576347}{286720}$$

Antiderivative was successfully verified.

```
[In] Integrate[((2 + 3*x)^7*(3 + 5*x)^2)/(1 - 2*x),x]
```

```
[Out] 55685576347/286720 - (99058879*x)/512 - (94979263*x^2)/512 - (274
80469*x^3)/128 - (59969727*x^4)/256 - (34084287*x^5)/160 - (47368
53*x^6)/32 - (4040847*x^7)/56 - (696195*x^8)/32 - (6075*x^9)/2 -
(99648703*Log[1 - 2*x])/1024
```

Maple [A] time = 0.005, size = 53, normalized size = 0.7

$$-\frac{6075 x^9}{2}-\frac{696195 x^8}{32}-\frac{4040847 x^7}{56}-\frac{4736853 x^6}{32}-\frac{34084287 x^5}{160}-\frac{59969727 x^4}{256}-\frac{27480469 x^3}{128}-\frac{94979263 x^2}{512}-\frac{99058879 x}{512}-\frac{99648703 \ln(-1+2x)}{1024}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((2+3*x)^7*(3+5*x)^2/(1-2*x),x)
```

```
[Out] -6075/2*x^9-696195/32*x^8-4040847/56*x^7-4736853/32*x^6-34084287/
160*x^5-59969727/256*x^4-27480469/128*x^3-94979263/512*x^2-990588
79/512*x-99648703/1024*ln(-1+2*x)
```

Maxima [A] time = 1.35077, size = 70, normalized size = 0.97

$$-\frac{6075}{2} x^9-\frac{696195}{32} x^8-\frac{4040847}{56} x^7-\frac{4736853}{32} x^6-\frac{34084287}{160} x^5-\frac{59969727}{256} x^4-\frac{27480469}{128} x^3-\frac{94979263}{512} x^2-\frac{99058879}{512} x-\frac{99648703}{1024} \log(2x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^2*(3*x + 2)^7/(2*x - 1),x, algorithm="maxima")
```

```
[Out] -6075/2*x^9 - 696195/32*x^8 - 4040847/56*x^7 - 4736853/32*x^6 - 3
4084287/160*x^5 - 59969727/256*x^4 - 27480469/128*x^3 - 94979263/
512*x^2 - 99058879/512*x - 99648703/1024*log(2*x - 1)
```

Fricas [A] time = 0.238293, size = 70, normalized size = 0.97

$$-\frac{6075}{2} x^9-\frac{696195}{32} x^8-\frac{4040847}{56} x^7-\frac{4736853}{32} x^6-\frac{34084287}{160} x^5-\frac{59969727}{256} x^4-\frac{27480469}{128} x^3-\frac{94979263}{512} x^2-\frac{99058879}{512} x-\frac{99648703}{1024} \log(2x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^2*(3*x + 2)^7/(2*x - 1),x, algorithm="fricas")
```

```
[Out] -6075/2*x^9 - 696195/32*x^8 - 4040847/56*x^7 - 4736853/32*x^6 - 3
4084287/160*x^5 - 59969727/256*x^4 - 27480469/128*x^3 - 94979263/
512*x^2 - 99058879/512*x - 99648703/1024*log(2*x - 1)
```

Sympy [A] time = 0.239222, size = 70, normalized size = 0.97

$$-\frac{6075x^9}{2}-\frac{696195x^8}{32}-\frac{4040847x^7}{56}-\frac{4736853x^6}{32}-\frac{34084287x^5}{160}-\frac{59969727x^4}{256}-\frac{27480469x^3}{128}-\frac{94979263x^2}{512}-\frac{99058879x}{512}-\frac{99648703 \log(2x-1)}{1024}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**7*(3+5*x)**2/(1-2*x),x)
```

```
[Out] -6075*x**9/2 - 696195*x**8/32 - 4040847*x**7/56 - 4736853*x**6/32
 - 34084287*x**5/160 - 59969727*x**4/256 - 27480469*x**3/128 - 94
979263*x**2/512 - 99058879*x/512 - 99648703*log(2*x - 1)/1024
```

GIAC/XCAS [A] time = 0.20953, size = 72, normalized size = 1.

$$-\frac{6075}{2}x^9-\frac{696195}{32}x^8-\frac{4040847}{56}x^7-\frac{4736853}{32}x^6-\frac{34084287}{160}x^5-\frac{59969727}{256}x^4-\frac{27480469}{128}x^3-\frac{94979263}{512}x^2-\frac{99058879}{512}x-\frac{99648703}{1024}\ln\left(|2x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^7/(2*x - 1),x, algorithm="giac")
```

```
[Out] -6075/2*x^9 - 696195/32*x^8 - 4040847/56*x^7 - 4736853/32*x^6 - 3
4084287/160*x^5 - 59969727/256*x^4 - 27480469/128*x^3 - 94979263/
512*x^2 - 99058879/512*x - 99648703/1024*ln(abs(2*x - 1))
```

3.1436 $\int \frac{(2+3x)^6(3+5x)^2}{1-2x}\,dx$

Optimal. Leaf size=65

$$-\frac{18225x^8}{16}-\frac{207765x^7}{28}-\frac{356643x^6}{16}-\frac{3310281x^5}{80}-\frac{6947721x^4}{128}-\frac{3575427x^3}{64}-\frac{13178761x^2}{256}-\frac{14088073x}{256}-\frac{14235529}{512}\log(1-2x)$$

```
[Out] (-14088073*x)/256 - (13178761*x^2)/256 - (3575427*x^3)/64 - (6947
721*x^4)/128 - (3310281*x^5)/80 - (356643*x^6)/16 - (207765*x^7)/
28 - (18225*x^8)/16 - (14235529*Log[1 - 2*x])/512
```

Rubi [A] time = 0.0655079, antiderivative size = 65, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$-\frac{18225x^8}{16}-\frac{207765x^7}{28}-\frac{356643x^6}{16}-\frac{3310281x^5}{80}-\frac{6947721x^4}{128}-\frac{3575427x^3}{64}-\frac{13178761x^2}{256}-\frac{14088073x}{256}-\frac{14235529}{512}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^6*(3 + 5*x)^2)/(1 - 2*x),x]
```

```
[Out] (-14088073*x)/256 - (13178761*x^2)/256 - (3575427*x^3)/64 - (6947
721*x^4)/128 - (3310281*x^5)/80 - (356643*x^6)/16 - (207765*x^7)/
28 - (18225*x^8)/16 - (14235529*Log[1 - 2*x])/512
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{18225x^8}{16}-\frac{207765x^7}{28}-\frac{356643x^6}{16}-\frac{3310281x^5}{80}-\frac{6947721x^4}{128}-\frac{3575427x^3}{64}-\frac{14235529\log(-2x+1)}{512}+\int\left(-\frac{14088073}{256}\right)dx-\frac{13178761\int x\,dx}{128}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**6*(3+5*x)**2/(1-2*x),x)
```

```
[Out] -18225*x**8/16 - 207765*x**7/28 - 356643*x**6/16 - 3310281*x**5/8
0 - 6947721*x**4/128 - 3575427*x**3/64 - 14235529*log(-2*x + 1)/5
12 + Integral(-14088073/256, x) - 13178761*Integral(x, x)/128
```

Mathematica [A] time = 0.0216014, size = 52, normalized size = 0.8

$$\frac{-163296000x^8-1063756800x^7-3195521280x^6-5932023552x^5-7781447520x^4-8008956480x^3-7380106160x^2-788}{143360}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^6*(3 + 5*x)^2)/(1 - 2*x),x]
```

```
[Out] (7521401241 - 7889320880*x - 7380106160*x^2 - 8008956480*x^3 - 77
81447520*x^4 - 5932023552*x^5 - 3195521280*x^6 - 1063756800*x^7 -
 163296000*x^8 - 3985948120*Log[1 - 2*x])/143360
```

Maple [A] time = 0.004, size = 48, normalized size = 0.7

$$-\frac{18225 x^{8}}{16}-\frac{207765 x^{7}}{28}-\frac{356643 x^{6}}{16}-\frac{3310281 x^{5}}{80}-\frac{6947721 x^{4}}{128}-\frac{3575427 x^{3}}{64}-\frac{13178761 x^{2}}{256}-\frac{14088073 x}{256}-\frac{14235529 \ln \left(-1+2 x\right)}{512}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^6*(3+5*x)^2/(1-2*x),x)
```

```
[Out] -18225/16*x^8-207765/28*x^7-356643/16*x^6-3310281/80*x^5-6947721/
128*x^4-3575427/64*x^3-13178761/256*x^2-14088073/256*x-14235529/5
12*ln(-1+2*x)
```

Maxima [A] time = 1.35591, size = 63, normalized size = 0.97

$$-\frac{18225}{16} x^{8}-\frac{207765}{28} x^{7}-\frac{356643}{16} x^{6}-\frac{3310281}{80} x^{5}-\frac{6947721}{128} x^{4}-\frac{3575427}{64} x^{3}-\frac{13178761}{256} x^{2}-\frac{14088073}{256} x-\frac{14235529}{512} \log \left(2 x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^6/(2*x - 1),x, algorithm="maxima")
```

```
[Out] -18225/16*x^8 - 207765/28*x^7 - 356643/16*x^6 - 3310281/80*x^5 -
6947721/128*x^4 - 3575427/64*x^3 - 13178761/256*x^2 - 14088073/25
6*x - 14235529/512*log(2*x - 1)
```

Fricas [A] time = 0.226752, size = 63, normalized size = 0.97

$$-\frac{18225}{16} x^{8}-\frac{207765}{28} x^{7}-\frac{356643}{16} x^{6}-\frac{3310281}{80} x^{5}-\frac{6947721}{128} x^{4}-\frac{3575427}{64} x^{3}-\frac{13178761}{256} x^{2}-\frac{14088073}{256} x-\frac{14235529}{512} \log \left(2 x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^6/(2*x - 1),x, algorithm="fricas")
```

```
[Out] -18225/16*x^8 - 207765/28*x^7 - 356643/16*x^6 - 3310281/80*x^5 -
6947721/128*x^4 - 3575427/64*x^3 - 13178761/256*x^2 - 14088073/25
6*x - 14235529/512*log(2*x - 1)
```

Sympy [A] time = 0.227874, size = 63, normalized size = 0.97

$$-\frac{18225x^{8}}{16}-\frac{207765x^{7}}{28}-\frac{356643x^{6}}{16}-\frac{3310281x^{5}}{80}-\frac{6947721x^{4}}{128}-\frac{3575427x^{3}}{64}-\frac{13178761x^{2}}{256}-\frac{14088073x}{256}-\frac{14235529 \log \left(2x-1\right)}{512}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**6*(3+5*x)**2/(1-2*x),x)
```

```
[Out] -18225*x**8/16 - 207765*x**7/28 - 356643*x**6/16 - 3310281*x**5/8
0 - 6947721*x**4/128 - 3575427*x**3/64 - 13178761*x**2/256 - 1408
8073*x/256 - 14235529*log(2*x - 1)/512
```

GIAC/XCAS [A] time = 0.20847, size = 65, normalized size = 1.

$$-\frac{18225}{16}x^8-\frac{207765}{28}x^7-\frac{356643}{16}x^6-\frac{3310281}{80}x^5-\frac{6947721}{128}x^4-\frac{3575427}{64}x^3-\frac{13178761}{256}x^2-\frac{14088073}{256}x-\frac{14235529}{512}\ln\left(|2x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^6/(2*x - 1),x, algorithm="giac")
```

```
[Out] -18225/16*x^8 - 207765/28*x^7 - 356643/16*x^6 - 3310281/80*x^5 -
6947721/128*x^4 - 3575427/64*x^3 - 13178761/256*x^2 - 14088073/25
6*x - 14235529/512*ln(abs(2*x - 1))
```

3.1437 $\int \frac{(2+3x)^5(3+5x)^2}{1-2x}\,dx$

Optimal. Leaf size=58

$$-\frac{6075x^7}{14}-\frac{20385x^6}{8}-\frac{275103x^5}{40}-\frac{736623x^4}{64}-\frac{444581x^3}{32}-\frac{1797103x^2}{128}-\frac{1996783x}{128}-\frac{2033647}{256}\log(1-2x)$$

```
[Out] (-1996783*x)/128 - (1797103*x^2)/128 - (444581*x^3)/32 - (736623*
x^4)/64 - (275103*x^5)/40 - (20385*x^6)/8 - (6075*x^7)/14 - (2033
647*Log[1 - 2*x])/256
```

Rubi [A] time = 0.0595719, antiderivative size = 58, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{6075x^7}{14}-\frac{20385x^6}{8}-\frac{275103x^5}{40}-\frac{736623x^4}{64}-\frac{444581x^3}{32}-\frac{1797103x^2}{128}-\frac{1996783x}{128}-\frac{2033647}{256}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In] Int[((2 + 3*x)^5*(3 + 5*x)^2)/(1 - 2*x),x]
```

```
[Out] (-1996783*x)/128 - (1797103*x^2)/128 - (444581*x^3)/32 - (736623*
x^4)/64 - (275103*x^5)/40 - (20385*x^6)/8 - (6075*x^7)/14 - (2033
647*Log[1 - 2*x])/256
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{6075x^7}{14}-\frac{20385x^6}{8}-\frac{275103x^5}{40}-\frac{736623x^4}{64}-\frac{444581x^3}{32}-\frac{2033647\log(-2x+1)}{256}+\int\left(-\frac{1996783}{128}\right)dx-\frac{1797103\int x\,dx}{64}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**5*(3+5*x)**2/(1-2*x),x)
```

```
[Out] -6075*x**7/14 - 20385*x**6/8 - 275103*x**5/40 - 736623*x**4/64 -
444581*x**3/32 - 2033647*log(-2*x + 1)/256 + Integral(-1996783/12
8, x) - 1797103*Integral(x, x)/64
```

Mathematica [A] time = 0.0207435, size = 47, normalized size = 0.81

$$\frac{-15552000x^7-91324800x^6-246492288x^5-412508880x^4-497930720x^3-503188840x^2-559099240x-284710580\log}{35840}$$

Antiderivative was successfully verified.

```
[In] Integrate[((2 + 3*x)^5*(3 + 5*x)^2)/(1 - 2*x),x]
```

```
[Out] (502621309 - 559099240*x - 503188840*x^2 - 497930720*x^3 - 412508
880*x^4 - 246492288*x^5 - 91324800*x^6 - 15552000*x^7 - 284710580
*Log[1 - 2*x])/35840
```

Maple [A] time = 0.004, size = 43, normalized size = 0.7

$$-\frac{6075 x^7}{14}-\frac{20385 x^6}{8}-\frac{275103 x^5}{40}-\frac{736623 x^4}{64}-\frac{444581 x^3}{32}-\frac{1797103 x^2}{128}-\frac{1996783 x}{128}-\frac{2033647 \ln(-1+2x)}{256}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^5*(3+5*x)^2/(1-2*x),x)
```

```
[Out] -6075/14*x^7-20385/8*x^6-275103/40*x^5-736623/64*x^4-444581/32*x^
3-1797103/128*x^2-1996783/128*x-2033647/256*ln(-1+2*x)
```

Maxima [A] time = 1.33275, size = 57, normalized size = 0.98

$$-\frac{6075}{14}x^7-\frac{20385}{8}x^6-\frac{275103}{40}x^5-\frac{736623}{64}x^4-\frac{444581}{32}x^3-\frac{1797103}{128}x^2-\frac{1996783}{128}x-\frac{2033647}{256}\log(2x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^5/(2*x - 1),x, algorithm="maxima")
```

```
[Out] -6075/14*x^7 - 20385/8*x^6 - 275103/40*x^5 - 736623/64*x^4 - 4445
81/32*x^3 - 1797103/128*x^2 - 1996783/128*x - 2033647/256*log(2*x
 - 1)
```

Fricas [A] time = 0.234946, size = 57, normalized size = 0.98

$$-\frac{6075}{14}x^7-\frac{20385}{8}x^6-\frac{275103}{40}x^5-\frac{736623}{64}x^4-\frac{444581}{32}x^3-\frac{1797103}{128}x^2-\frac{1996783}{128}x-\frac{2033647}{256}\log(2x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^5/(2*x - 1),x, algorithm="fricas")
```

```
[Out] -6075/14*x^7 - 20385/8*x^6 - 275103/40*x^5 - 736623/64*x^4 - 4445
81/32*x^3 - 1797103/128*x^2 - 1996783/128*x - 2033647/256*log(2*x
 - 1)
```

Sympy [A] time = 0.235938, size = 56, normalized size = 0.97

$$-\frac{6075x^7}{14}-\frac{20385x^6}{8}-\frac{275103x^5}{40}-\frac{736623x^4}{64}-\frac{444581x^3}{32}-\frac{1797103x^2}{128}-\frac{1996783x}{128}-\frac{2033647\log(2x-1)}{256}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**5*(3+5*x)**2/(1-2*x),x)
```

```
[Out] -6075*x**7/14 - 20385*x**6/8 - 275103*x**5/40 - 736623*x**4/64 -
444581*x**3/32 - 1797103*x**2/128 - 1996783*x/128 - 2033647*log(2
*x - 1)/256
```

GIAC/XCAS [A] time = 0.212865, size = 58, normalized size = 1.

$$-\frac{6075}{14}\,x^{7}-\frac{20385}{8}\,x^{6}-\frac{275103}{40}\,x^{5}-\frac{736623}{64}\,x^{4}-\frac{444581}{32}\,x^{3}-\frac{1797103}{128}\,x^{2}-\frac{1996783}{128}\,x-\frac{2033647}{256}\,\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^5/(2*x - 1),x, algorithm="giac")
```

```
[Out] -6075/14*x^7 - 20385/8*x^6 - 275103/40*x^5 - 736623/64*x^4 - 4445
81/32*x^3 - 1797103/128*x^2 - 1996783/128*x - 2033647/256*ln(abs(
2*x - 1))
```

3.1438 $\int \frac{(2+3x)^4(3+5x)^2}{1-2x}\,dx$

Optimal. Leaf size=51

$$-\frac{675x^6}{4}-\frac{3537x^5}{4}-\frac{68121x^4}{32}-\frac{51571x^3}{16}-\frac{238297x^2}{64}-\frac{281305x}{64}-\frac{290521}{128}\log(1-2x)$$

```
[Out] (-281305*x)/64 - (238297*x^2)/64 - (51571*x^3)/16 - (68121*x^4)/3
2 - (3537*x^5)/4 - (675*x^6)/4 - (290521*Log[1 - 2*x])/128
```

Rubi [A] time = 0.0549244, antiderivative size = 51, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{675x^6}{4}-\frac{3537x^5}{4}-\frac{68121x^4}{32}-\frac{51571x^3}{16}-\frac{238297x^2}{64}-\frac{281305x}{64}-\frac{290521}{128}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^4*(3 + 5*x)^2)/(1 - 2*x),x]
```

```
[Out] (-281305*x)/64 - (238297*x^2)/64 - (51571*x^3)/16 - (68121*x^4)/3
2 - (3537*x^5)/4 - (675*x^6)/4 - (290521*Log[1 - 2*x])/128
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{675x^6}{4}-\frac{3537x^5}{4}-\frac{68121x^4}{32}-\frac{51571x^3}{16}-\frac{290521\log(-2x+1)}{128}+\int\left(-\frac{281305}{64}\right)dx-\frac{238297\int x\,dx}{32}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4*(3+5*x)**2/(1-2*x),x)
```

```
[Out] -675*x**6/4 - 3537*x**5/4 - 68121*x**4/32 - 51571*x**3/16 - 29052
1*log(-2*x + 1)/128 + Integral(-281305/64, x) - 238297*Integral(x
, x)/32
```

Mathematica [A] time = 0.0192227, size = 42, normalized size = 0.82

$$\frac{1}{512}\left(-86400x^6-452736x^5-1089936x^4-1650272x^3-1906376x^2-2250440x-1162084\log(1-2x)+1891717\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^4*(3 + 5*x)^2)/(1 - 2*x),x]
```

```
[Out] (1891717 - 2250440*x - 1906376*x^2 - 1650272*x^3 - 1089936*x^4 -
452736*x^5 - 86400*x^6 - 1162084*Log[1 - 2*x])/512
```

Maple [A] time = 0.004, size = 38, normalized size = 0.8

$$-\frac{675\,x^6}{4}-\frac{3537\,x^5}{4}-\frac{68121\,x^4}{32}-\frac{51571\,x^3}{16}-\frac{238297\,x^2}{64}-\frac{281305\,x}{64}-\frac{290521\,\ln(-1+2\,x)}{128}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4*(3+5*x)^2/(1-2*x),x)
```

```
[Out] -675/4*x^6-3537/4*x^5-68121/32*x^4-51571/16*x^3-238297/64*x^2-281
305/64*x-290521/128*ln(-1+2*x)
```

Maxima [A] time = 1.32991, size = 50, normalized size = 0.98

$$-\frac{675}{4}\,x^6-\frac{3537}{4}\,x^5-\frac{68121}{32}\,x^4-\frac{51571}{16}\,x^3-\frac{238297}{64}\,x^2-\frac{281305}{64}\,x-\frac{290521}{128}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^4/(2*x - 1),x, algorithm="maxima")
```

```
[Out] -675/4*x^6 - 3537/4*x^5 - 68121/32*x^4 - 51571/16*x^3 - 238297/64
*x^2 - 281305/64*x - 290521/128*log(2*x - 1)
```

Fricas [A] time = 0.231933, size = 50, normalized size = 0.98

$$-\frac{675}{4}\,x^6-\frac{3537}{4}\,x^5-\frac{68121}{32}\,x^4-\frac{51571}{16}\,x^3-\frac{238297}{64}\,x^2-\frac{281305}{64}\,x-\frac{290521}{128}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^4/(2*x - 1),x, algorithm="fricas")
```

```
[Out] -675/4*x^6 - 3537/4*x^5 - 68121/32*x^4 - 51571/16*x^3 - 238297/64
*x^2 - 281305/64*x - 290521/128*log(2*x - 1)
```

Sympy [A] time = 0.200022, size = 49, normalized size = 0.96

$$-\frac{675x^6}{4}-\frac{3537x^5}{4}-\frac{68121x^4}{32}-\frac{51571x^3}{16}-\frac{238297x^2}{64}-\frac{281305x}{64}-\frac{290521\log\left(2x-1\right)}{128}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4*(3+5*x)**2/(1-2*x),x)
```

```
[Out] -675*x**6/4 - 3537*x**5/4 - 68121*x**4/32 - 51571*x**3/16 - 23829
7*x**2/64 - 281305*x/64 - 290521*log(2*x - 1)/128
```

GIAC/XCAS [A] time = 0.209137, size = 51, normalized size = 1.

$$-\frac{675}{4}\,x^6-\frac{3537}{4}\,x^5-\frac{68121}{32}\,x^4-\frac{51571}{16}\,x^3-\frac{238297}{64}\,x^2-\frac{281305}{64}\,x-\frac{290521}{128}\,\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^4/(2*x - 1),x, algorithm="giac")
```

```
[Out] -675/4*x^6 - 3537/4*x^5 - 68121/32*x^4 - 51571/16*x^3 - 238297/64
*x^2 - 281305/64*x - 290521/128*ln(abs(2*x - 1))
```

3.1439 $\int \frac{(2+3x)^3(3+5x)^2}{1-2x}\,dx$

Optimal. Leaf size=44

$$-\frac{135x^5}{2}-\frac{4995x^4}{16}-\frac{5349x^3}{8}-\frac{30175x^2}{32}-\frac{39199x}{32}-\frac{41503}{64}\log(1-2x)$$

```
[Out] (-39199*x)/32 - (30175*x^2)/32 - (5349*x^3)/8 - (4995*x^4)/16 - (
135*x^5)/2 - (41503*Log[1 - 2*x])/64
```

Rubi [A] time = 0.0488841, antiderivative size = 44, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{135x^5}{2}-\frac{4995x^4}{16}-\frac{5349x^3}{8}-\frac{30175x^2}{32}-\frac{39199x}{32}-\frac{41503}{64}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In] Int[((2 + 3*x)^3*(3 + 5*x)^2)/(1 - 2*x),x]
```

```
[Out] (-39199*x)/32 - (30175*x^2)/32 - (5349*x^3)/8 - (4995*x^4)/16 - (
135*x^5)/2 - (41503*Log[1 - 2*x])/64
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{135x^5}{2}-\frac{4995x^4}{16}-\frac{5349x^3}{8}-\frac{41503\log(-2x+1)}{64}+\int\left(-\frac{39199}{32}\right)dx-\frac{30175\int x\,dx}{16}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**3*(3+5*x)**2/(1-2*x),x)
```

```
[Out] -135*x**5/2 - 4995*x**4/16 - 5349*x**3/8 - 41503*log(-2*x + 1)/64
 + Integral(-39199/32, x) - 30175*Integral(x, x)/16
```

Mathematica [A] time = 0.0184982, size = 37, normalized size = 0.84

$$\frac{1}{256}\left(-17280x^5-79920x^4-171168x^3-241400x^2-313592x-166012\log(1-2x)+244077\right)$$

Antiderivative was successfully verified.

```
[In] Integrate[((2 + 3*x)^3*(3 + 5*x)^2)/(1 - 2*x),x]
```

```
[Out] (244077 - 313592*x - 241400*x^2 - 171168*x^3 - 79920*x^4 - 17280*
x^5 - 166012*Log[1 - 2*x])/256
```

Maple [A] time = 0.004, size = 33, normalized size = 0.8

$$-\frac{135\,x^5}{2}-\frac{4995\,x^4}{16}-\frac{5349\,x^3}{8}-\frac{30175\,x^2}{32}-\frac{39199\,x}{32}-\frac{41503\,\ln(-1+2\,x)}{64}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3*(3+5*x)^2/(1-2*x),x)
```

```
[Out] -135/2*x^5-4995/16*x^4-5349/8*x^3-30175/32*x^2-39199/32*x-41503/6
4*ln(-1+2*x)
```

Maxima [A] time = 1.33633, size = 43, normalized size = 0.98

$$-\frac{135}{2}x^5 - \frac{4995}{16}x^4 - \frac{5349}{8}x^3 - \frac{30175}{32}x^2 - \frac{39199}{32}x - \frac{41503}{64}\log(2x - 1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^3/(2*x - 1),x, algorithm="maxima")
```

```
[Out] -135/2*x^5 - 4995/16*x^4 - 5349/8*x^3 - 30175/32*x^2 - 39199/32*x
 - 41503/64*log(2*x - 1)
```

Fricas [A] time = 0.226785, size = 43, normalized size = 0.98

$$-\frac{135}{2}x^5 - \frac{4995}{16}x^4 - \frac{5349}{8}x^3 - \frac{30175}{32}x^2 - \frac{39199}{32}x - \frac{41503}{64}\log(2x - 1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^3/(2*x - 1),x, algorithm="fricas")
```

```
[Out] -135/2*x^5 - 4995/16*x^4 - 5349/8*x^3 - 30175/32*x^2 - 39199/32*x
 - 41503/64*log(2*x - 1)
```

Sympy [A] time = 0.199851, size = 42, normalized size = 0.95

$$-\frac{135x^5}{2} - \frac{4995x^4}{16} - \frac{5349x^3}{8} - \frac{30175x^2}{32} - \frac{39199x}{32} - \frac{41503\log(2x - 1)}{64}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3*(3+5*x)**2/(1-2*x),x)
```

```
[Out] -135*x**5/2 - 4995*x**4/16 - 5349*x**3/8 - 30175*x**2/32 - 39199*
x/32 - 41503*log(2*x - 1)/64
```

GIAC/XCAS [A] time = 0.211472, size = 45, normalized size = 1.02

$$-\frac{135}{2}x^5 - \frac{4995}{16}x^4 - \frac{5349}{8}x^3 - \frac{30175}{32}x^2 - \frac{39199}{32}x - \frac{41503}{64}\ln(|2x - 1|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^3/(2*x - 1),x, algorithm="giac")
```

```
[Out] -135/2*x^5 - 4995/16*x^4 - 5349/8*x^3 - 30175/32*x^2 - 39199/32*x
 - 41503/64*ln(abs(2*x - 1))
```

3.1440 $\int \frac{(2+3x)^2(3+5x)^2}{1-2x}\,dx$

Optimal. Leaf size=37

$$-\frac{225x^4}{8}-\frac{455x^3}{4}-\frac{3529x^2}{16}-\frac{5353x}{16}-\frac{5929}{32}\log(1-2x)$$

```
[Out] (-5353*x)/16 - (3529*x^2)/16 - (455*x^3)/4 - (225*x^4)/8 - (5929*
Log[1 - 2*x])/32
```

Rubi [A] time = 0.045332, antiderivative size = 37, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{225x^4}{8}-\frac{455x^3}{4}-\frac{3529x^2}{16}-\frac{5353x}{16}-\frac{5929}{32}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^2*(3 + 5*x)^2)/(1 - 2*x),x]
```

```
[Out] (-5353*x)/16 - (3529*x^2)/16 - (455*x^3)/4 - (225*x^4)/8 - (5929*
Log[1 - 2*x])/32
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{225x^4}{8}-\frac{455x^3}{4}-\frac{5929\log(-2x+1)}{32}+\int\left(-\frac{5353}{16}\right)dx-\frac{3529\int x\,dx}{8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2*(3+5*x)**2/(1-2*x),x)
```

```
[Out] -225*x**4/8 - 455*x**3/4 - 5929*log(-2*x + 1)/32 + Integral(-5353
/16, x) - 3529*Integral(x, x)/8
```

Mathematica [A] time = 0.0159502, size = 32, normalized size = 0.86

$$\frac{1}{128}\left(-3600x^4-14560x^3-28232x^2-42824x-23716\log(1-2x)+30515\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^2*(3 + 5*x)^2)/(1 - 2*x),x]
```

```
[Out] (30515 - 42824*x - 28232*x^2 - 14560*x^3 - 3600*x^4 - 23716*Log[1
 - 2*x])/128
```

Maple [A] time = 0.003, size = 28, normalized size = 0.8

$$-\frac{225x^4}{8}-\frac{455x^3}{4}-\frac{3529x^2}{16}-\frac{5353x}{16}-\frac{5929\ln(-1+2x)}{32}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2*(3+5*x)^2/(1-2*x),x)
```

```
[Out] -225/8*x^4-455/4*x^3-3529/16*x^2-5353/16*x-5929/32*ln(-1+2*x)
```

Maxima [A] time = 1.32634, size = 36, normalized size = 0.97

$$-\frac{225}{8}\,x^4-\frac{455}{4}\,x^3-\frac{3529}{16}\,x^2-\frac{5353}{16}\,x-\frac{5929}{32}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^2/(2*x - 1),x, algorithm="maxima")
```

```
[Out] -225/8*x^4 - 455/4*x^3 - 3529/16*x^2 - 5353/16*x - 5929/32*log(2*
x - 1)
```

Fricas [A] time = 0.227479, size = 36, normalized size = 0.97

$$-\frac{225}{8}\,x^4-\frac{455}{4}\,x^3-\frac{3529}{16}\,x^2-\frac{5353}{16}\,x-\frac{5929}{32}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^2/(2*x - 1),x, algorithm="fricas")
```

```
[Out] -225/8*x^4 - 455/4*x^3 - 3529/16*x^2 - 5353/16*x - 5929/32*log(2*
x - 1)
```

Sympy [A] time = 0.183634, size = 36, normalized size = 0.97

$$-\frac{225x^4}{8}-\frac{455x^3}{4}-\frac{3529x^2}{16}-\frac{5353x}{16}-\frac{5929\log\left(2x-1\right)}{32}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2*(3+5*x)**2/(1-2*x),x)
```

```
[Out] -225*x**4/8 - 455*x**3/4 - 3529*x**2/16 - 5353*x/16 - 5929*log(2*
x - 1)/32
```

GIAC/XCAS [A] time = 0.209397, size = 38, normalized size = 1.03

$$-\frac{225}{8}\,x^4-\frac{455}{4}\,x^3-\frac{3529}{16}\,x^2-\frac{5353}{16}\,x-\frac{5929}{32}\,\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^2/(2*x - 1),x, algorithm="giac")
```

```
[Out] -225/8*x^4 - 455/4*x^3 - 3529/16*x^2 - 5353/16*x - 5929/32*ln(abs
(2*x - 1))
```

3.1441 $\int \frac{(2+3x)(3+5x)^2}{1-2x} dx$

Optimal. Leaf size=30

$$-\frac{25x^3}{2}-\frac{355x^2}{8}-\frac{703x}{8}-\frac{847}{16}\log(1-2x)$$

```
[Out] (-703*x)/8 - (355*x^2)/8 - (25*x^3)/2 - (847*Log[1 - 2*x])/16
```

Rubi [A] time = 0.0327547, antiderivative size = 30, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{25x^3}{2}-\frac{355x^2}{8}-\frac{703x}{8}-\frac{847}{16}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)*(3 + 5*x)^2)/(1 - 2*x),x]
```

```
[Out] (-703*x)/8 - (355*x^2)/8 - (25*x^3)/2 - (847*Log[1 - 2*x])/16
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{25x^3}{2}-\frac{847\log(-2x+1)}{16}+\int\left(-\frac{703}{8}\right)dx-\frac{355\int x\,dx}{4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)*(3+5*x)**2/(1-2*x),x)
```

```
[Out] -25*x**3/2 - 847*log(-2*x + 1)/16 + Integral(-703/8, x) - 355*Int
egral(x, x)/4
```

Mathematica [A] time = 0.0156014, size = 27, normalized size = 0.9

$$\frac{1}{32}\left(-400x^3-1420x^2-2812x-1694\log(1-2x)+1811\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)*(3 + 5*x)^2)/(1 - 2*x),x]
```

```
[Out] (1811 - 2812*x - 1420*x^2 - 400*x^3 - 1694*Log[1 - 2*x])/32
```

Maple [A] time = 0.004, size = 23, normalized size = 0.8

$$-\frac{25\,x^3}{2}-\frac{355\,x^2}{8}-\frac{703\,x}{8}-\frac{847\,\ln(-1+2\,x)}{16}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)*(3+5*x)^2/(1-2*x),x)
```

```
[Out] -25/2*x^3-355/8*x^2-703/8*x-847/16*ln(-1+2*x)
```

Maxima [A] time = 1.32383, size = 30, normalized size = 1.

$$-\frac{25}{2}x^3-\frac{355}{8}x^2-\frac{703}{8}x-\frac{847}{16}\log\left(2x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)/(2*x - 1),x, algorithm="maxima")
```

```
[Out] -25/2*x^3 - 355/8*x^2 - 703/8*x - 847/16*log(2*x - 1)
```

Fricas [A] time = 0.218499, size = 30, normalized size = 1.

$$-\frac{25}{2}x^3-\frac{355}{8}x^2-\frac{703}{8}x-\frac{847}{16}\log\left(2x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)/(2*x - 1),x, algorithm="fricas")
```

```
[Out] -25/2*x^3 - 355/8*x^2 - 703/8*x - 847/16*log(2*x - 1)
```

Sympy [A] time = 0.166578, size = 29, normalized size = 0.97

$$-\frac{25x^3}{2}-\frac{355x^2}{8}-\frac{703x}{8}-\frac{847\log\left(2x-1\right)}{16}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)*(3+5*x)**2/(1-2*x),x)
```

```
[Out] -25*x**3/2 - 355*x**2/8 - 703*x/8 - 847*log(2*x - 1)/16
```

GIAC/XCAS [A] time = 0.206405, size = 31, normalized size = 1.03

$$-\frac{25}{2}x^3-\frac{355}{8}x^2-\frac{703}{8}x-\frac{847}{16}\ln\left(|2x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)/(2*x - 1),x, algorithm="giac")
```

```
[Out] -25/2*x^3 - 355/8*x^2 - 703/8*x - 847/16*ln(abs(2*x - 1))
```

3.1442 $\int \frac{(3+5x)^2}{1-2x} dx$

Optimal. Leaf size=23

$$-\frac{25x^2}{4} - \frac{85x}{4} - \frac{121}{8}\log(1-2x)$$

```
[Out] (-85*x)/4 - (25*x^2)/4 - (121*Log[1 - 2*x])/8
```

Rubi [A] time = 0.0220107, antiderivative size = 23, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}} = 0.067$

$$-\frac{25x^2}{4} - \frac{85x}{4} - \frac{121}{8}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In] Int[(3 + 5*x)^2/(1 - 2*x),x]
```

```
[Out] (-85*x)/4 - (25*x^2)/4 - (121*Log[1 - 2*x])/8
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{121\log(-2x+1)}{8} + \int \left(-\frac{85}{4}\right) dx - \frac{25\int x\, dx}{2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((3+5*x)**2/(1-2*x),x)
```

```
[Out] -121*log(-2*x + 1)/8 + Integral(-85/4, x) - 25*Integral(x, x)/2
```

Mathematica [A] time = 0.00956173, size = 25, normalized size = 1.09

$$\frac{1}{16}\left(-5\left(20x^2+68x-39\right) - 242\log(1-2x)\right)$$

Antiderivative was successfully verified.

```
[In] Integrate[(3 + 5*x)^2/(1 - 2*x),x]
```

```
[Out] (-5*(-39 + 68*x + 20*x^2) - 242*Log[1 - 2*x])/16
```

Maple [A] time = 0.003, size = 18, normalized size = 0.8

$$-\frac{25\,x^2}{4} - \frac{85\,x}{4} - \frac{121\,\ln(-1+2\,x)}{8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((3+5*x)^2/(1-2*x),x)
```

```
[Out] -25/4*x^2-85/4*x-121/8*ln(-1+2*x)
```

Maxima [A] time = 1.33354, size = 23, normalized size = 1.

$$-\frac{25}{4}\,x^2 - \frac{85}{4}\,x - \frac{121}{8}\,\log\left(2\,x - 1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2/(2*x - 1),x, algorithm="maxima")
```

```
[Out] -25/4*x^2 - 85/4*x - 121/8*log(2*x - 1)
```

Fricas [A] time = 0.216432, size = 23, normalized size = 1.

$$-\frac{25}{4}\,x^2 - \frac{85}{4}\,x - \frac{121}{8}\,\log\left(2\,x - 1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2/(2*x - 1),x, algorithm="fricas")
```

```
[Out] -25/4*x^2 - 85/4*x - 121/8*log(2*x - 1)
```

Sympy [A] time = 0.148875, size = 22, normalized size = 0.96

$$-\frac{25x^2}{4} - \frac{85x}{4} - \frac{121\log\left(2x - 1\right)}{8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2/(1-2*x),x)
```

```
[Out] -25*x**2/4 - 85*x/4 - 121*log(2*x - 1)/8
```

GIAC/XCAS [A] time = 0.206113, size = 24, normalized size = 1.04

$$-\frac{25}{4}\,x^2 - \frac{85}{4}\,x - \frac{121}{8}\,\ln\left(|2\,x - 1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2/(2*x - 1),x, algorithm="giac")
```

```
[Out] -25/4*x^2 - 85/4*x - 121/8*ln(abs(2*x - 1))
```

3.1443 $\int \frac{(3+5x)^2}{(1-2x)(2+3x)}\,dx$

Optimal. Leaf size=26

$$-\frac{25x}{6}-\frac{121}{28}\log(1-2x)+\frac{1}{63}\log(3x+2)$$

```
[Out] (-25*x)/6 - (121*Log[1 - 2*x])/28 + Log[2 + 3*x]/63
```

Rubi [A] time = 0.0386517, antiderivative size = 26, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{25x}{6}-\frac{121}{28}\log(1-2x)+\frac{1}{63}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In] Int[(3 + 5*x)^2/((1 - 2*x)*(2 + 3*x)),x]

[Out] (-25*x)/6 - (121*Log[1 - 2*x])/28 + Log[2 + 3*x]/63
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{121\log(-2x+1)}{28}+\frac{\log(3x+2)}{63}+\int\left(-\frac{25}{6}\right)dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((3+5*x)**2/(1-2*x)/(2+3*x),x)

[Out] -121*log(-2*x + 1)/28 + log(3*x + 2)/63 + Integral(-25/6, x)
```

Mathematica [A] time = 0.0225767, size = 32, normalized size = 1.23

$$-\frac{5}{6}(5x+3)-\frac{121}{28}\log(5-10x)+\frac{1}{63}\log(5(3x+2))$$

Antiderivative was successfully verified.

```
[In] Integrate[(3 + 5*x)^2/((1 - 2*x)*(2 + 3*x)),x]

[Out] (-5*(3 + 5*x))/6 - (121*Log[5 - 10*x])/28 + Log[5*(2 + 3*x)]/63
```

Maple [A] time = 0.009, size = 21, normalized size = 0.8

$$-\frac{25\,x}{6}+\frac{\ln(2+3\,x)}{63}-\frac{121\,\ln(-1+2\,x)}{28}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((3+5*x)^2/(1-2*x)/(2+3*x),x)

[Out] -25/6*x+1/63*ln(2+3*x)-121/28*ln(-1+2*x)
```

Maxima [A] time = 1.32829, size = 27, normalized size = 1.04

$$-\frac{25}{6}x + \frac{1}{63}\log\left(3x+2\right) - \frac{121}{28}\log\left(2x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2/((3*x + 2)*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -25/6*x + 1/63*log(3*x + 2) - 121/28*log(2*x - 1)
```

Fricas [A] time = 0.215581, size = 27, normalized size = 1.04

$$-\frac{25}{6}x + \frac{1}{63}\log\left(3x+2\right) - \frac{121}{28}\log\left(2x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2/((3*x + 2)*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] -25/6*x + 1/63*log(3*x + 2) - 121/28*log(2*x - 1)
```

Sympy [A] time = 0.269091, size = 22, normalized size = 0.85

$$-\frac{25x}{6} - \frac{121\log\left(x-\frac{1}{2}\right)}{28} + \frac{\log\left(x+\frac{2}{3}\right)}{63}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2/(1-2*x)/(2+3*x),x)
```

```
[Out] -25*x/6 - 121*log(x - 1/2)/28 + log(x + 2/3)/63
```

GIAC/XCAS [A] time = 0.206215, size = 30, normalized size = 1.15

$$-\frac{25}{6}x + \frac{1}{63}\ln\left(|3x+2|\right) - \frac{121}{28}\ln\left(|2x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2/((3*x + 2)*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -25/6*x + 1/63*ln(abs(3*x + 2)) - 121/28*ln(abs(2*x - 1))
```

3.1444 $\int \frac{(3+5x)^2}{(1-2x)(2+3x)^2} dx$

Optimal. Leaf size=32

$$-\frac{1}{63(3x+2)}-\frac{121}{98}\log(1-2x)-\frac{68}{441}\log(3x+2)$$

```
[Out] -1/(63*(2 + 3*x)) - (121*Log[1 - 2*x])/98 - (68*Log[2 + 3*x])/441
```

Rubi [A] time = 0.0431859, antiderivative size = 32, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{1}{63(3x+2)}-\frac{121}{98}\log(1-2x)-\frac{68}{441}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^2/((1 - 2*x)*(2 + 3*x)^2),x]
```

```
[Out] -1/(63*(2 + 3*x)) - (121*Log[1 - 2*x])/98 - (68*Log[2 + 3*x])/441
```

Rubi in Sympy [A] time = 6.83815, size = 27, normalized size = 0.84

$$-\frac{121\log(-2x+1)}{98}-\frac{68\log(3x+2)}{441}-\frac{1}{63(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**2/(1-2*x)/(2+3*x)**2,x)
```

```
[Out] -121*log(-2*x + 1)/98 - 68*log(3*x + 2)/441 - 1/(63*(3*x + 2))
```

Mathematica [A] time = 0.0329845, size = 30, normalized size = 0.94

$$\frac{1}{882}\left(-\frac{14}{3x+2}-1089\log(1-2x)-136\log(6x+4)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^2/((1 - 2*x)*(2 + 3*x)^2),x]
```

```
[Out] (-14/(2 + 3*x) - 1089*Log[1 - 2*x] - 136*Log[4 + 6*x])/882
```

Maple [A] time = 0.011, size = 27, normalized size = 0.8

$$-\frac{1}{126+189\,x}-\frac{68\,\ln(2+3\,x)}{441}-\frac{121\,\ln(-1+2\,x)}{98}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^2/(1-2*x)/(2+3*x)^2,x)
```

```
[Out] -1/63/(2+3*x)-68/441*ln(2+3*x)-121/98*ln(-1+2*x)
```

Maxima [A] time = 1.35008, size = 35, normalized size = 1.09

$$-\frac{1}{63\,(3\,x+2)}-\frac{68}{441}\,\log\left(3\,x+2\right)-\frac{121}{98}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^2/((3*x + 2)^2*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -1/63/(3*x + 2) - 68/441*log(3*x + 2) - 121/98*log(2*x - 1)
```

Fricas [A] time = 0.207197, size = 50, normalized size = 1.56

$$-\frac{136\,(3\,x+2)\log\left(3\,x+2\right)+1089\,(3\,x+2)\log\left(2\,x-1\right)+14}{882\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^2/((3*x + 2)^2*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] -1/882*(136*(3*x + 2)*log(3*x + 2) + 1089*(3*x + 2)*log(2*x - 1)
+ 14)/(3*x + 2)
```

Sympy [A] time = 0.341792, size = 27, normalized size = 0.84

$$-\frac{121\log\left(x-\frac{1}{2}\right)}{98}-\frac{68\log\left(x+\frac{2}{3}\right)}{441}-\frac{1}{189x+126}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2/(1-2*x)/(2+3*x)**2,x)
```

```
[Out] -121*log(x - 1/2)/98 - 68*log(x + 2/3)/441 - 1/(189*x + 126)
```

GIAC/XCAS [A] time = 0.208821, size = 58, normalized size = 1.81

$$-\frac{1}{63\,(3\,x+2)}+\frac{25}{18}\ln\left(\frac{|3\,x+2|}{3\,(3\,x+2)^2}\right)-\frac{121}{98}\ln\left(\left|-\frac{7}{3\,x+2}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2/((3*x + 2)^2*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -1/63/(3*x + 2) + 25/18*ln(1/3*abs(3*x + 2)/(3*x + 2)^2) - 121/98
*ln(abs(-7/(3*x + 2) + 2))
```

3.1445 $\int \frac{(3+5x)^2}{(1-2x)(2+3x)^3}\,dx$

Optimal. Leaf size=43

$$\frac{68}{441(3x+2)}-\frac{1}{126(3x+2)^2}-\frac{121}{343}\log(1-2x)+\frac{121}{343}\log(3x+2)$$

```
[Out] -1/(126*(2 + 3*x)^2) + 68/(441*(2 + 3*x)) - (121*Log[1 - 2*x])/34
3 + (121*Log[2 + 3*x])/343
```

Rubi [A] time = 0.0502732, antiderivative size = 43, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{68}{441(3x+2)}-\frac{1}{126(3x+2)^2}-\frac{121}{343}\log(1-2x)+\frac{121}{343}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In] Int[(3 + 5*x)^2/((1 - 2*x)*(2 + 3*x)^3),x]
```

```
[Out] -1/(126*(2 + 3*x)^2) + 68/(441*(2 + 3*x)) - (121*Log[1 - 2*x])/34
3 + (121*Log[2 + 3*x])/343
```

Rubi in Sympy [A] time = 7.89337, size = 36, normalized size = 0.84

$$-\frac{121\log(-2x+1)}{343}+\frac{121\log(3x+2)}{343}+\frac{68}{441(3x+2)}-\frac{1}{126(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((3+5*x)**2/(1-2*x)/(2+3*x)**3,x)
```

```
[Out] -121*log(-2*x + 1)/343 + 121*log(3*x + 2)/343 + 68/(441*(3*x + 2)
) - 1/(126*(3*x + 2)**2)
```

Mathematica [A] time = 0.0330904, size = 35, normalized size = 0.81

$$\frac{\frac{7(408x+265)}{(3x+2)^2}-2178\log(1-2x)+2178\log(6x+4)}{6174}$$

Antiderivative was successfully verified.

```
[In] Integrate[(3 + 5*x)^2/((1 - 2*x)*(2 + 3*x)^3),x]
```

```
[Out] ((7*(265 + 408*x))/(2 + 3*x)^2 - 2178*Log[1 - 2*x] + 2178*Log[4 +
 6*x])/6174
```

Maple [A] time = 0.012, size = 36, normalized size = 0.8

$$-\frac{1}{126(2+3x)^2}+\frac{68}{882+1323x}+\frac{121\ln(2+3x)}{343}-\frac{121\ln(-1+2x)}{343}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^2/(1-2*x)/(2+3*x)^3,x)
```

```
[Out] -1/126/(2+3*x)^2+68/441/(2+3*x)+121/343*ln(2+3*x)-121/343*ln(-1+2
*x)
```

Maxima [A] time = 1.34055, size = 49, normalized size = 1.14

$$\frac{408\,x+265}{882\,(9\,x^2+12\,x+4)}+\frac{121}{343}\,\log\left(3\,x+2\right)-\frac{121}{343}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2/((3*x + 2)^3*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] 1/882*(408*x + 265)/(9*x^2 + 12*x + 4) + 121/343*log(3*x + 2) - 1
21/343*log(2*x - 1)
```

Fricas [A] time = 0.20316, size = 74, normalized size = 1.72

$$\frac{2178\,\left(9\,x^2+12\,x+4\right)\,\log\left(3\,x+2\right)-2178\,\left(9\,x^2+12\,x+4\right)\,\log\left(2\,x-1\right)+2856\,x+1855}{6174\,(9\,x^2+12\,x+4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2/((3*x + 2)^3*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] 1/6174*(2178*(9*x^2 + 12*x + 4)*log(3*x + 2) - 2178*(9*x^2 + 12*x
 + 4)*log(2*x - 1) + 2856*x + 1855)/(9*x^2 + 12*x + 4)
```

Sympy [A] time = 0.380362, size = 34, normalized size = 0.79

$$\frac{408x+265}{7938x^2+10584x+3528}-\frac{121\log\left(x-\frac{1}{2}\right)}{343}+\frac{121\log\left(x+\frac{2}{3}\right)}{343}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2/(1-2*x)/(2+3*x)**3,x)
```

```
[Out] (408*x + 265)/(7938*x**2 + 10584*x + 3528) - 121*log(x - 1/2)/343
 + 121*log(x + 2/3)/343
```

GIAC/XCAS [A] time = 0.211206, size = 45, normalized size = 1.05

$$\frac{408\,x+265}{882\,(3\,x+2)^2}+\frac{121}{343}\,\ln\left(|3\,x+2|\right)-\frac{121}{343}\,\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2/((3*x + 2)^3*(2*x - 1)),x, algorithm="giac")
```

```
[Out] 1/882*(408*x + 265)/(3*x + 2)^2 + 121/343*ln(abs(3*x + 2)) - 121/
343*ln(abs(2*x - 1))
```

3.1446 $\int \frac{(3+5x)^2}{(1-2x)(2+3x)^4}\,dx$

Optimal. Leaf size=54

$$-\frac{121}{343(3x+2)}+\frac{34}{441(3x+2)^2}-\frac{1}{189(3x+2)^3}-\frac{242\log(1-2x)}{2401}+\frac{242\log(3x+2)}{2401}$$

```
[Out] -1/(189*(2 + 3*x)^3) + 34/(441*(2 + 3*x)^2) - 121/(343*(2 + 3*x))
 - (242*Log[1 - 2*x])/2401 + (242*Log[2 + 3*x])/2401
```

Rubi [A] time = 0.0570184, antiderivative size = 54, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{121}{343(3x+2)}+\frac{34}{441(3x+2)^2}-\frac{1}{189(3x+2)^3}-\frac{242\log(1-2x)}{2401}+\frac{242\log(3x+2)}{2401}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^2/((1 - 2*x)*(2 + 3*x)^4),x]
```

```
[Out] -1/(189*(2 + 3*x)^3) + 34/(441*(2 + 3*x)^2) - 121/(343*(2 + 3*x))
 - (242*Log[1 - 2*x])/2401 + (242*Log[2 + 3*x])/2401
```

Rubi in Sympy [A] time = 8.97691, size = 46, normalized size = 0.85

$$-\frac{242\log(-2x+1)}{2401}+\frac{242\log(3x+2)}{2401}-\frac{121}{343(3x+2)}+\frac{34}{441(3x+2)^2}-\frac{1}{189(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**2/(1-2*x)/(2+3*x)**4,x)
```

```
[Out] -242*log(-2*x + 1)/2401 + 242*log(3*x + 2)/2401 - 121/(343*(3*x +
 2)) + 34/(441*(3*x + 2)**2) - 1/(189*(3*x + 2)**3)
```

Mathematica [A] time = 0.0398254, size = 40, normalized size = 0.74

$$\frac{-\frac{7(29403x^2+37062x+11689)}{(3x+2)^3}-6534\log(1-2x)+6534\log(6x+4)}{64827}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^2/((1 - 2*x)*(2 + 3*x)^4),x]
```

```
[Out] ((-7*(11689 + 37062*x + 29403*x^2))/(2 + 3*x)^3 - 6534*Log[1 - 2*
x] + 6534*Log[4 + 6*x])/64827
```

Maple [A] time = 0.012, size = 45, normalized size = 0.8

$$-\frac{1}{189\,(2+3\,x)^3}+\frac{34}{441\,(2+3\,x)^2}-\frac{121}{686+1029\,x}+\frac{242\,\ln(2+3\,x)}{2401}-\frac{242\,\ln(-1+2\,x)}{2401}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^2/(1-2*x)/(2+3*x)^4,x)
```

```
[Out] -1/189/(2+3*x)^3+34/441/(2+3*x)^2-121/343/(2+3*x)+242/2401*ln(2+3
*x)-242/2401*ln(-1+2*x)
```

Maxima [A] time = 1.32609, size = 62, normalized size = 1.15

$$-\frac{29403\,x^2+37062\,x+11689}{9261\,(27\,x^3+54\,x^2+36\,x+8)}+\frac{242}{2401}\,\log(3\,x+2)-\frac{242}{2401}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^2/((3*x + 2)^4*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -1/9261*(29403*x^2 + 37062*x + 11689)/(27*x^3 + 54*x^2 + 36*x + 8
) + 242/2401*log(3*x + 2) - 242/2401*log(2*x - 1)
```

Fricas [A] time = 0.211679, size = 101, normalized size = 1.87

$$-\frac{205821\,x^2-6534\,\left(27\,x^3+54\,x^2+36\,x+8\right)\,\log(3\,x+2)+6534\,\left(27\,x^3+54\,x^2+36\,x+8\right)\,\log(2\,x-1)+259434\,x+81823}{64827\,(27\,x^3+54\,x^2+36\,x+8)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^2/((3*x + 2)^4*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] -1/64827*(205821*x^2 - 6534*(27*x^3 + 54*x^2 + 36*x + 8)*log(3*x
+ 2) + 6534*(27*x^3 + 54*x^2 + 36*x + 8)*log(2*x - 1) + 259434*x
+ 81823)/(27*x^3 + 54*x^2 + 36*x + 8)
```

Sympy [A] time = 0.426278, size = 44, normalized size = 0.81

$$-\frac{29403x^2+37062x+11689}{250047x^3+500094x^2+333396x+74088}-\frac{242\log\left(x-\frac{1}{2}\right)}{2401}+\frac{242\log\left(x+\frac{2}{3}\right)}{2401}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2/(1-2*x)/(2+3*x)**4,x)
```

```
[Out] -(29403*x**2 + 37062*x + 11689)/(250047*x**3 + 500094*x**2 + 3333
96*x + 74088) - 242*log(x - 1/2)/2401 + 242*log(x + 2/3)/2401
```

GIAC/XCAS [A] time = 0.208886, size = 51, normalized size = 0.94

$$-\frac{29403\,x^2+37062\,x+11689}{9261\,(3\,x+2)^3}+\frac{242}{2401}\,\ln(|3\,x+2|)-\frac{242}{2401}\,\ln(|2\,x-1|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2/((3*x + 2)^4*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -1/9261*(29403*x^2 + 37062*x + 11689)/(3*x + 2)^3 + 242/2401*ln(a
bs(3*x + 2)) - 242/2401*ln(abs(2*x - 1))
```

3.1447 $\int \frac{(3+5x)^2}{(1-2x)(2+3x)^5}\,dx$

Optimal. Leaf size=65

$$-\frac{242}{2401(3x+2)}-\frac{121}{686(3x+2)^2}+\frac{68}{1323(3x+2)^3}-\frac{1}{252(3x+2)^4}-\frac{484\log(1-2x)}{16807}+\frac{484\log(3x+2)}{16807}$$

```
[Out] -1/(252*(2 + 3*x)^4) + 68/(1323*(2 + 3*x)^3) - 121/(686*(2 + 3*x)
^2) - 242/(2401*(2 + 3*x)) - (484*Log[1 - 2*x])/16807 + (484*Log[
2 + 3*x])/16807
```

Rubi [A] time = 0.0664307, antiderivative size = 65, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{242}{2401(3x+2)}-\frac{121}{686(3x+2)^2}+\frac{68}{1323(3x+2)^3}-\frac{1}{252(3x+2)^4}-\frac{484\log(1-2x)}{16807}+\frac{484\log(3x+2)}{16807}$$

Antiderivative was successfully verified.

```
[In] Int[(3 + 5*x)^2/((1 - 2*x)*(2 + 3*x)^5),x]
```

```
[Out] -1/(252*(2 + 3*x)^4) + 68/(1323*(2 + 3*x)^3) - 121/(686*(2 + 3*x)
^2) - 242/(2401*(2 + 3*x)) - (484*Log[1 - 2*x])/16807 + (484*Log[
2 + 3*x])/16807
```

Rubi in Sympy [A] time = 10.2172, size = 56, normalized size = 0.86

$$-\frac{484\log\left(-2x+1\right)}{16807}+\frac{484\log\left(3x+2\right)}{16807}-\frac{242}{2401\left(3x+2\right)}-\frac{121}{686\left(3x+2\right)^2}+\frac{68}{1323\left(3x+2\right)^3}-\frac{1}{252\left(3x+2\right)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((3+5*x)**2/(1-2*x)/(2+3*x)**5,x)
```

```
[Out] -484*log(-2*x + 1)/16807 + 484*log(3*x + 2)/16807 - 242/(2401*(3*
x + 2)) - 121/(686*(3*x + 2)**2) + 68/(1323*(3*x + 2)**3) - 1/(25
2*(3*x + 2)**4)
```

Mathematica [A] time = 0.0487053, size = 47, normalized size = 0.72

$$\frac{2\left(-\frac{7\left(705672x^3+1822986x^2+1449768x+366413\right)}{8(3x+2)^4}-6534\log(1-2x)+6534\log(6x+4)\right)}{453789}$$

Antiderivative was successfully verified.

```
[In] Integrate[(3 + 5*x)^2/((1 - 2*x)*(2 + 3*x)^5),x]
```

```
[Out] (2*((-7*(366413 + 1449768*x + 1822986*x^2 + 705672*x^3))/(8*(2 +
3*x)^4) - 6534*Log[1 - 2*x] + 6534*Log[4 + 6*x]))/453789
```

Maple [A] time = 0.012, size = 54, normalized size = 0.8

$$-\frac{1}{252\ (2+3\,x)^4}+\frac{68}{1323\ (2+3\,x)^3}-\frac{121}{686\ (2+3\,x)^2}-\frac{242}{4802+7203\,x}+\frac{484\ \ln(2+3\,x)}{16807}-\frac{484\ \ln(-1+2\,x)}{16807}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((3+5*x)^2/(1-2*x)/(2+3*x)^5,x)
```

```
[Out] -1/252/(2+3*x)^4+68/1323/(2+3*x)^3-121/686/(2+3*x)^2-242/2401/(2+
3*x)+484/16807*ln(2+3*x)-484/16807*ln(-1+2*x)
```

Maxima [A] time = 1.33688, size = 76, normalized size = 1.17

$$-\frac{705672\,x^{3}+1822986\,x^{2}+1449768\,x+366413}{259308\,(81\,x^{4}+216\,x^{3}+216\,x^{2}+96\,x+16)}+\frac{484}{16807}\,\log\left(3\,x+2\right)-\frac{484}{16807}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^2/((3*x + 2)^5*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -1/259308*(705672*x^3 + 1822986*x^2 + 1449768*x + 366413)/(81*x^4
 + 216*x^3 + 216*x^2 + 96*x + 16) + 484/16807*log(3*x + 2) - 484/
16807*log(2*x - 1)
```

Fricas [A] time = 0.215767, size = 128, normalized size = 1.97

$$-\frac{4939704\,x^{3}+12760902\,x^{2}-52272\,\left(81\,x^{4}+216\,x^{3}+216\,x^{2}+96\,x+16\right)\log\left(3\,x+2\right)+52272\,\left(81\,x^{4}+216\,x^{3}+216\,x^{2}+9\right.}{1815156\,(81\,x^{4}+216\,x^{3}+216\,x^{2}+96\,x+16)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^2/((3*x + 2)^5*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] -1/1815156*(4939704*x^3 + 12760902*x^2 - 52272*(81*x^4 + 216*x^3
+ 216*x^2 + 96*x + 16)*log(3*x + 2) + 52272*(81*x^4 + 216*x^3 + 2
16*x^2 + 96*x + 16)*log(2*x - 1) + 10148376*x + 2564891)/(81*x^4
+ 216*x^3 + 216*x^2 + 96*x + 16)
```

Sympy [A] time = 0.474459, size = 54, normalized size = 0.83

$$-\frac{705672x^{3}+1822986x^{2}+1449768x+366413}{21003948x^{4}+56010528x^{3}+56010528x^{2}+24893568x+4148928}-\frac{484\log\left(x-\frac{1}{2}\right)}{16807}+\frac{484\log\left(x+\frac{2}{3}\right)}{16807}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((3+5*x)**2/(1-2*x)/(2+3*x)**5,x)
```

```
[Out] -(705672*x**3 + 1822986*x**2 + 1449768*x + 366413)/(21003948*x**4
 + 56010528*x**3 + 56010528*x**2 + 24893568*x + 4148928) - 484*lo
g(x - 1/2)/16807 + 484*log(x + 2/3)/16807
```

GIAC/XCAS [A] time = 0.212201, size = 70, normalized size = 1.08

$$-\frac{242}{2401\,(3\,x+2)}-\frac{121}{686\,(3\,x+2)^{2}}+\frac{68}{1323\,(3\,x+2)^{3}}-\frac{1}{252\,(3\,x+2)^{4}}-\frac{484}{16807}\ln\left(\left|-\frac{7}{3\,x+2}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2/((3*x + 2)^5*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -242/2401/(3*x + 2) - 121/686/(3*x + 2)^2 + 68/1323/(3*x + 2)^3 -
 1/252/(3*x + 2)^4 - 484/16807*ln(abs(-7/(3*x + 2) + 2))
```

3.1448 $\int \frac{(3+5x)^2}{(1-2x)(2+3x)^6}\,dx$

Optimal. Leaf size=76

$$-\frac{484}{16807(3x+2)}-\frac{121}{2401(3x+2)^2}-\frac{121}{1029(3x+2)^3}+\frac{17}{441(3x+2)^4}-\frac{1}{315(3x+2)^5}-\frac{968\log(1-2x)}{117649}+\frac{968\log(3x+2)}{117649}$$

```
[Out] -1/(315*(2 + 3*x)^5) + 17/(441*(2 + 3*x)^4) - 121/(1029*(2 + 3*x)
^3) - 121/(2401*(2 + 3*x)^2) - 484/(16807*(2 + 3*x)) - (968*Log[1
 - 2*x])/117649 + (968*Log[2 + 3*x])/117649
```

Rubi [A] time = 0.0769572, antiderivative size = 76, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{484}{16807(3x+2)}-\frac{121}{2401(3x+2)^2}-\frac{121}{1029(3x+2)^3}+\frac{17}{441(3x+2)^4}-\frac{1}{315(3x+2)^5}-\frac{968\log(1-2x)}{117649}+\frac{968\log(3x+2)}{117649}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^2/((1 - 2*x)*(2 + 3*x)^6),x]
```

```
[Out] -1/(315*(2 + 3*x)^5) + 17/(441*(2 + 3*x)^4) - 121/(1029*(2 + 3*x)
^3) - 121/(2401*(2 + 3*x)^2) - 484/(16807*(2 + 3*x)) - (968*Log[1
 - 2*x])/117649 + (968*Log[2 + 3*x])/117649
```

Rubi in Sympy [A] time = 11.4214, size = 66, normalized size = 0.87

$$-\frac{968\log\left(-2x+1\right)}{117649}+\frac{968\log\left(3x+2\right)}{117649}-\frac{484}{16807\left(3x+2\right)}-\frac{121}{2401\left(3x+2\right)^2}-\frac{121}{1029\left(3x+2\right)^3}+\frac{17}{441\left(3x+2\right)^4}-\frac{1}{315\left(3x+2\right)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**2/(1-2*x)/(2+3*x)**6,x)
```

```
[Out] -968*log(-2*x + 1)/117649 + 968*log(3*x + 2)/117649 - 484/(16807*
(3*x + 2)) - 121/(2401*(3*x + 2)**2) - 121/(1029*(3*x + 2)**3) +
17/(441*(3*x + 2)**4) - 1/(315*(3*x + 2)**5)
```

Mathematica [A] time = 0.0758398, size = 52, normalized size = 0.68

$$\frac{4\left(-\frac{7\left(1764180x^4+5733585x^3+7563105x^2+4442775x+953231\right)}{4(3x+2)^5}-10890\log(1-2x)+10890\log(6x+4)\right)}{5294205}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^2/((1 - 2*x)*(2 + 3*x)^6),x]
```

```
[Out] (4*((-7*(953231 + 4442775*x + 7563105*x^2 + 5733585*x^3 + 1764180
*x^4))/(4*(2 + 3*x)^5) - 10890*Log[1 - 2*x] + 10890*Log[4 + 6*x])
```

```
)/5294205
```

Maple [A] time = 0.013, size = 63, normalized size = 0.8

$$-\frac{1}{315\,(2+3\,x)^5}+\frac{17}{441\,(2+3\,x)^4}-\frac{121}{1029\,(2+3\,x)^3}-\frac{121}{2401\,(2+3\,x)^2}-\frac{484}{33614+50421\,x}+\frac{968\,\ln(2+3\,x)}{117649}-\frac{968\,\ln(-1+2\,x)}{117649}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^2/(1-2*x)/(2+3*x)^6,x)
```

```
[Out] -1/315/(2+3*x)^5+17/441/(2+3*x)^4-121/1029/(2+3*x)^3-121/2401/(2+
3*x)^2-484/16807/(2+3*x)+968/117649*ln(2+3*x)-968/117649*ln(-1+2*
x)
```

Maxima [A] time = 1.34183, size = 89, normalized size = 1.17

$$-\frac{1764180\,x^4+5733585\,x^3+7563105\,x^2+4442775\,x+953231}{756315\,(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240\,x+32)}+\frac{968}{117649}\,\log(3\,x+2)-\frac{968}{117649}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2/((3*x + 2)^6*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -1/756315*(1764180*x^4 + 5733585*x^3 + 7563105*x^2 + 4442775*x +
953231)/(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32) + 9
68/117649*log(3*x + 2) - 968/117649*log(2*x - 1)
```

Fricas [A] time = 0.214574, size = 155, normalized size = 2.04

$$-\frac{12349260\,x^4+40135095\,x^3+52941735\,x^2-43560\left(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240\,x+32\right)\log(3\,x+2)+43560}{5294205\,(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2/((3*x + 2)^6*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] -1/5294205*(12349260*x^4 + 40135095*x^3 + 52941735*x^2 - 43560*(2
43*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)*log(3*x + 2)
+ 43560*(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)*log
(2*x - 1) + 31099425*x + 6672617)/(243*x^5 + 810*x^4 + 1080*x^3 +
 720*x^2 + 240*x + 32)
```

Sympy [A] time = 0.529569, size = 65, normalized size = 0.86

$$-\frac{1764180x^4+5733585x^3+7563105x^2+4442775x+953231}{183784545x^5+612615150x^4+816820200x^3+544546800x^2+181515600x+24202080}-\frac{968\log\left(x-\frac{1}{2}\right)}{117649}+\frac{968\log\left(x+\frac{2}{3}\right)}{117649}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2/(1-2*x)/(2+3*x)**6,x)
```

```
[Out] -(1764180*x**4 + 5733585*x**3 + 7563105*x**2 + 4442775*x + 953231
)/(183784545*x**5 + 612615150*x**4 + 816820200*x**3 + 544546800*x
**2 + 181515600*x + 24202080) - 968*log(x - 1/2)/117649 + 968*log
(x + 2/3)/117649
```

GIAC/XCAS [A] time = 0.211624, size = 65, normalized size = 0.86

$$-\frac{1764180\,x^4+5733585\,x^3+7563105\,x^2+4442775\,x+953231}{756315\,(3\,x+2)^5}+\frac{968}{117649}\ln\left(|3\,x+2|\right)-\frac{968}{117649}\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2/((3*x + 2)^6*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -1/756315*(1764180*x^4 + 5733585*x^3 + 7563105*x^2 + 4442775*x +
953231)/(3*x + 2)^5 + 968/117649*ln(abs(3*x + 2)) - 968/117649*ln
(abs(2*x - 1))
```

3.1449 $\int \frac{(3+5x)^2}{(1-2x)(2+3x)^7}\,dx$

Optimal. Leaf size=87

$$-\frac{968}{117649(3x+2)}-\frac{242}{16807(3x+2)^2}-\frac{242}{7203(3x+2)^3}-\frac{121}{1372(3x+2)^4}+\frac{68}{2205(3x+2)^5}-\frac{1}{378(3x+2)^6}-\frac{1936\log(1-2x)}{823543}+\frac{1936\log(3x+2)}{823543}$$

```
[Out] -1/(378*(2 + 3*x)^6) + 68/(2205*(2 + 3*x)^5) - 121/(1372*(2 + 3*x
)^4) - 242/(7203*(2 + 3*x)^3) - 242/(16807*(2 + 3*x)^2) - 968/(11
7649*(2 + 3*x)) - (1936*Log[1 - 2*x])/823543 + (1936*Log[2 + 3*x]
)/823543
```

Rubi [A] time = 0.0863132, antiderivative size = 87, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{968}{117649(3x+2)}-\frac{242}{16807(3x+2)^2}-\frac{242}{7203(3x+2)^3}-\frac{121}{1372(3x+2)^4}+\frac{68}{2205(3x+2)^5}-\frac{1}{378(3x+2)^6}-\frac{1936\log(1-2x)}{823543}+\frac{1936\log(3x+2)}{823543}$$

Antiderivative was successfully verified.

```
[In] Int[(3 + 5*x)^2/((1 - 2*x)*(2 + 3*x)^7),x]
```

```
[Out] -1/(378*(2 + 3*x)^6) + 68/(2205*(2 + 3*x)^5) - 121/(1372*(2 + 3*x
)^4) - 242/(7203*(2 + 3*x)^3) - 242/(16807*(2 + 3*x)^2) - 968/(11
7649*(2 + 3*x)) - (1936*Log[1 - 2*x])/823543 + (1936*Log[2 + 3*x]
)/823543
```

Rubi in Sympy [A] time = 12.7063, size = 76, normalized size = 0.87

$$-\frac{1936\log(-2x+1)}{823543}+\frac{1936\log(3x+2)}{823543}-\frac{968}{117649(3x+2)}-\frac{242}{16807(3x+2)^2}-\frac{242}{7203(3x+2)^3}-\frac{121}{1372(3x+2)^4}+\frac{68}{2205(3x+2)^5}-\frac{1}{378(3x+2)^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((3+5*x)**2/(1-2*x)/(2+3*x)**7,x)
```

```
[Out] -1936*log(-2*x + 1)/823543 + 1936*log(3*x + 2)/823543 - 968/(1176
49*(3*x + 2)) - 242/(16807*(3*x + 2)**2) - 242/(7203*(3*x + 2)**3
) - 121/(1372*(3*x + 2)**4) + 68/(2205*(3*x + 2)**5) - 1/(378*(3*
x + 2)**6)
```

Mathematica [A] time = 0.0703947, size = 57, normalized size = 0.66

$$\frac{4\left(-\frac{7(127020960x^5+497498760x^4+819755640x^3+739632465x^2+351466812x+67099978)}{16(3x+2)^6}-65340\log(1-2x)+65340\log(6x+4)\right)}{111178305}$$

Antiderivative was successfully verified.

```
[In] Integrate[(3 + 5*x)^2/((1 - 2*x)*(2 + 3*x)^7),x]
```

```
[Out] (4*((-7*(67099978 + 351466812*x + 739632465*x^2 + 819755640*x^3 +
 497498760*x^4 + 127020960*x^5))/(16*(2 + 3*x)^6) - 65340*Log[1 -
 2*x] + 65340*Log[4 + 6*x]))/111178305
```

Maple [A] time = 0.011, size = 72, normalized size = 0.8

$$-\frac{1}{378\,(2+3\,x)^6}+\frac{68}{2205\,(2+3\,x)^5}-\frac{121}{1372\,(2+3\,x)^4}-\frac{242}{7203\,(2+3\,x)^3}-\frac{242}{16807\,(2+3\,x)^2}-\frac{968}{235298+352947\,x}+\frac{1936\,\ln(2+3\,x)}{823543}-\frac{1936\,\ln(-1+2\,x)}{823543}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((3+5*x)^2/(1-2*x)/(2+3*x)^7,x)
```

```
[Out] -1/378/(2+3*x)^6+68/2205/(2+3*x)^5-121/1372/(2+3*x)^4-242/7203/(2
+3*x)^3-242/16807/(2+3*x)^2-968/117649/(2+3*x)+1936/823543*ln(2+3
*x)-1936/823543*ln(-1+2*x)
```

Maxima [A] time = 1.33197, size = 103, normalized size = 1.18

$$-\frac{127020960\,x^5+497498760\,x^4+819755640\,x^3+739632465\,x^2+351466812\,x+67099978}{63530460\,(729\,x^6+2916\,x^5+4860\,x^4+4320\,x^3+2160\,x^2+576\,x+64)}+\frac{1936}{823543}\,\log(3\,x+2)-\frac{1936}{823543}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^2/((3*x + 2)^7*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -1/63530460*(127020960*x^5 + 497498760*x^4 + 819755640*x^3 + 7396
32465*x^2 + 351466812*x + 67099978)/(729*x^6 + 2916*x^5 + 4860*x^
4 + 4320*x^3 + 2160*x^2 + 576*x + 64) + 1936/823543*log(3*x + 2)
- 1936/823543*log(2*x - 1)
```

Fricas [A] time = 0.212478, size = 182, normalized size = 2.09

$$-\frac{889146720\,x^5+3482491320\,x^4+5738289480\,x^3+5177427255\,x^2-1045440\,(729\,x^6+2916\,x^5+4860\,x^4+4320\,x^3+2160}{444713220\,(729\,x^6+291}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^2/((3*x + 2)^7*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] -1/444713220*(889146720*x^5 + 3482491320*x^4 + 5738289480*x^3 + 5
177427255*x^2 - 1045440*(729*x^6 + 2916*x^5 + 4860*x^4 + 4320*x^3
 + 2160*x^2 + 576*x + 64)*log(3*x + 2) + 1045440*(729*x^6 + 2916*
x^5 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64)*log(2*x - 1) +
 2460267684*x + 469699846)/(729*x^6 + 2916*x^5 + 4860*x^4 + 4320*
x^3 + 2160*x^2 + 576*x + 64)
```

Sympy [A] time = 0.577871, size = 75, normalized size = 0.86

$$-\frac{127020960x^5+497498760x^4+819755640x^3+739632465x^2+351466812x+67099978}{46313705340x^6+185254821360x^5+308758035600x^4+274451587200x^3+137225793600x^2+36593544960x+40659494}-\frac{1936\log\left(x-\frac{1}{2}\right)}{823543}+\frac{1936\log\left(x+\frac{2}{3}\right)}{823543}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2/(1-2*x)/(2+3*x)**7,x)
```

```
[Out] -(127020960*x**5 + 497498760*x**4 + 819755640*x**3 + 739632465*x*
*2 + 351466812*x + 67099978)/(46313705340*x**6 + 185254821360*x**
5 + 308758035600*x**4 + 274451587200*x**3 + 137225793600*x**2 + 3
6593544960*x + 4065949440) - 1936*log(x - 1/2)/823543 + 1936*log(
x + 2/3)/823543
```

GIAC/XCAS [A] time = 0.214475, size = 72, normalized size = 0.83

$$-\frac{127020960\,x^5+497498760\,x^4+819755640\,x^3+739632465\,x^2+351466812\,x+67099978}{63530460\,(3\,x+2)^6}+\frac{1936}{823543}\,\ln\left(|3\,x+2|\right)-\frac{1936}{823543}\,\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2/((3*x + 2)^7*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -1/63530460*(127020960*x^5 + 497498760*x^4 + 819755640*x^3 + 7396
32465*x^2 + 351466812*x + 67099978)/(3*x + 2)^6 + 1936/823543*ln(
abs(3*x + 2)) - 1936/823543*ln(abs(2*x - 1))
```

3.1450 $\int \frac{(3+5x)^2}{(1-2x)(2+3x)^8} dx$

Optimal. Leaf size=98

$$-\frac{1936}{823543(3x+2)}-\frac{484}{117649(3x+2)^2}-\frac{484}{50421(3x+2)^3}-\frac{121}{4802(3x+2)^4}-\frac{121}{1715(3x+2)^5}+\frac{34}{1323(3x+2)^6}-\frac{1}{441(3x+2)^7}-\frac{3872\log(1-2x)}{5764801}+\frac{3872\log(3x+2)}{5764801}$$

```
[Out] -1/(441*(2 + 3*x)^7) + 34/(1323*(2 + 3*x)^6) - 121/(1715*(2 + 3*x
)^5) - 121/(4802*(2 + 3*x)^4) - 484/(50421*(2 + 3*x)^3) - 484/(11
7649*(2 + 3*x)^2) - 1936/(823543*(2 + 3*x)) - (3872*Log[1 - 2*x])
/5764801 + (3872*Log[2 + 3*x])/5764801
```

Rubi [A] time = 0.0940616, antiderivative size = 98, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{1936}{823543(3x+2)}-\frac{484}{117649(3x+2)^2}-\frac{484}{50421(3x+2)^3}-\frac{121}{4802(3x+2)^4}-\frac{121}{1715(3x+2)^5}+\frac{34}{1323(3x+2)^6}-\frac{1}{441(3x+2)^7}-\frac{3872\log(1-2x)}{5764801}+\frac{3872\log(3x+2)}{5764801}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^2/((1 - 2*x)*(2 + 3*x)^8),x]
```

```
[Out] -1/(441*(2 + 3*x)^7) + 34/(1323*(2 + 3*x)^6) - 121/(1715*(2 + 3*x
)^5) - 121/(4802*(2 + 3*x)^4) - 484/(50421*(2 + 3*x)^3) - 484/(11
7649*(2 + 3*x)^2) - 1936/(823543*(2 + 3*x)) - (3872*Log[1 - 2*x])
/5764801 + (3872*Log[2 + 3*x])/5764801
```

Rubi in Sympy [A] time = 14.2166, size = 87, normalized size = 0.89

$$-\frac{3872\log(-2x+1)}{5764801}+\frac{3872\log(3x+2)}{5764801}-\frac{1936}{823543(3x+2)}-\frac{484}{117649(3x+2)^2}-\frac{484}{50421(3x+2)^3}-\frac{121}{4802(3x+2)^4}-\frac{121}{1715(3x+2)^5}+\frac{34}{1323(3x+2)^6}-\frac{1}{441(3x+2)^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**2/(1-2*x)/(2+3*x)**8,x)
```

```
[Out] -3872*log(-2*x + 1)/5764801 + 3872*log(3*x + 2)/5764801 - 1936/(8
23543*(3*x + 2)) - 484/(117649*(3*x + 2)**2) - 484/(50421*(3*x +
2)**3) - 121/(4802*(3*x + 2)**4) - 121/(1715*(3*x + 2)**5) + 34/(
1323*(3*x + 2)**6) - 1/(441*(3*x + 2)**7)
```

Mathematica [A] time = 0.0795734, size = 62, normalized size = 0.63

$$\frac{8\left(-\frac{7(381062880x^6+1746538200x^5+3454264440x^4+3858408675x^3+2692491516x^2+1098354408x+193528666)}{16(3x+2)^7}-65340\log(1-2x)+65340\log(6x+4\right.}{778248135}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^2/((1 - 2*x)*(2 + 3*x)^8),x]
```

```
[Out] (8*((-7*(193528666 + 1098354408*x + 2692491516*x^2 + 3858408675*x
^3 + 3454264440*x^4 + 1746538200*x^5 + 381062880*x^6))/(16*(2 + 3
*x)^7) - 65340*Log[1 - 2*x] + 65340*Log[4 + 6*x]))/778248135
```

Maple [A] time = 0.014, size = 81, normalized size = 0.8

$$-\frac{1}{441\,(2+3\,x)^7}+\frac{34}{1323\,(2+3\,x)^6}-\frac{121}{1715\,(2+3\,x)^5}-\frac{121}{4802\,(2+3\,x)^4}-\frac{484}{50421\,(2+3\,x)^3}-\frac{484}{117649\,(2+3\,x)^2}-\frac{1936}{1647086+2470629\,x}+\frac{3872\,\ln(2+3\,x)}{5764801}-\frac{3872\,\ln(-1+2\,x)}{5764801}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((3+5*x)^2/(1-2*x)/(2+3*x)^8,x)
```

```
[Out] -1/441/(2+3*x)^7+34/1323/(2+3*x)^6-121/1715/(2+3*x)^5-121/4802/(2
+3*x)^4-484/50421/(2+3*x)^3-484/117649/(2+3*x)^2-1936/823543/(2+3
*x)+3872/5764801*ln(2+3*x)-3872/5764801*ln(-1+2*x)
```

Maxima [A] time = 1.33511, size = 116, normalized size = 1.18

$$-\frac{381062880\,x^6+1746538200\,x^5+3454264440\,x^4+3858408675\,x^3+2692491516\,x^2+1098354408\,x+193528666}{222356610\,(2187\,x^7+10206\,x^6+20412\,x^5+22680\,x^4+15120\,x^3+6048\,x^2+1344\,x+128)}+\frac{3872}{5764801}\,\log(3\,x+2)-\frac{3872}{5764801}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^2/((3*x + 2)^8*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -1/222356610*(381062880*x^6 + 1746538200*x^5 + 3454264440*x^4 + 3
858408675*x^3 + 2692491516*x^2 + 1098354408*x + 193528666)/(2187*
x^7 + 10206*x^6 + 20412*x^5 + 22680*x^4 + 15120*x^3 + 6048*x^2 +
1344*x + 128) + 3872/5764801*log(3*x + 2) - 3872/5764801*log(2*x
- 1)
```

Fricas [A] time = 0.217075, size = 209, normalized size = 2.13

$$-\frac{2667440160\,x^6+12225767400\,x^5+24179851080\,x^4+27008860725\,x^3+18847440612\,x^2-1045440\,\left(2187\,x^7+10206\,x^6+\right.}{155}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^2/((3*x + 2)^8*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] -1/1556496270*(2667440160*x^6 + 12225767400*x^5 + 24179851080*x^4
 + 27008860725*x^3 + 18847440612*x^2 - 1045440*(2187*x^7 + 10206*
x^6 + 20412*x^5 + 22680*x^4 + 15120*x^3 + 6048*x^2 + 1344*x + 128
)*log(3*x + 2) + 1045440*(2187*x^7 + 10206*x^6 + 20412*x^5 + 2268
0*x^4 + 15120*x^3 + 6048*x^2 + 1344*x + 128)*log(2*x - 1) + 76884
80856*x + 1354700662)/(2187*x^7 + 10206*x^6 + 20412*x^5 + 22680*x
^4 + 15120*x^3 + 6048*x^2 + 1344*x + 128)
```

Sympy [A] time = 0.643749, size = 85, normalized size = 0.87

$$-\frac{381062880x^6+1746538200x^5+3454264440x^4+3858408675x^3+2692491516x^2+1098354408x+1}{486293906070x^7+2269371561660x^6+4538743123320x^5+5043047914800x^4+3362031943200x^3+1344812777280x^2+2}-\frac{3872\log\left(x-\frac{1}{2}\right)}{5764801}+\frac{3872\log\left(x+\frac{2}{3}\right)}{5764801}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2/(1-2*x)/(2+3*x)**8,x)
```

```
[Out] -(381062880*x**6 + 1746538200*x**5 + 3454264440*x**4 + 3858408675
*x**3 + 2692491516*x**2 + 1098354408*x + 193528666)/(486293906070
*x**7 + 2269371561660*x**6 + 4538743123320*x**5 + 5043047914800*x
**4 + 3362031943200*x**3 + 1344812777280*x**2 + 298847283840*x +
28461646080) - 3872*log(x - 1/2)/5764801 + 3872*log(x + 2/3)/5764
801
```

GIAC/XCAS [A] time = 0.211434, size = 78, normalized size = 0.8

$$-\frac{381062880\,x^6+1746538200\,x^5+3454264440\,x^4+3858408675\,x^3+2692491516\,x^2+1098354408\,x+193528666}{222356610\,(3\,x+2)^7}+\frac{3872}{5764801}\ln\left(|3\,x+2|\right)-\frac{3872}{5764801}\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2/((3*x + 2)^8*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -1/222356610*(381062880*x^6 + 1746538200*x^5 + 3454264440*x^4 + 3
858408675*x^3 + 2692491516*x^2 + 1098354408*x + 193528666)/(3*x +
 2)^7 + 3872/5764801*ln(abs(3*x + 2)) - 3872/5764801*ln(abs(2*x -
 1))
```

3.1451 $\int \frac{(2+3x)^7(3+5x)^3}{1-2x}\,dx$

Optimal. Leaf size=79

$$-\frac{54675x^{10}}{4}-\frac{423225x^9}{4}-\frac{24381405x^8}{64}-\frac{95297877x^7}{112}-\frac{85228263x^6}{64}-\frac{504354357x^5}{320}-\frac{772025397x^4}{512}-\frac{969544757x^3}{768}-\frac{1065169973x^2}{1024}-\frac{1092596789x}{1024}-\frac{1096135733\log(1-2x)}{2048}$$

```
[Out] (-1092596789*x)/1024 - (1065169973*x^2)/1024 - (969544757*x^3)/76
8 - (772025397*x^4)/512 - (504354357*x^5)/320 - (85228263*x^6)/64
 - (95297877*x^7)/112 - (24381405*x^8)/64 - (423225*x^9)/4 - (546
75*x^10)/4 - (1096135733*Log[1 - 2*x])/2048
```

Rubi [A] time = 0.0787904, antiderivative size = 79, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{54675x^{10}}{4}-\frac{423225x^9}{4}-\frac{24381405x^8}{64}-\frac{95297877x^7}{112}-\frac{85228263x^6}{64}-\frac{504354357x^5}{320}-\frac{772025397x^4}{512}-\frac{969544757x^3}{768}-\frac{1065169973x^2}{1024}-\frac{1092596789x}{1024}-\frac{1096135733\log(1-2x)}{2048}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^7*(3 + 5*x)^3)/(1 - 2*x),x]
```

```
[Out] (-1092596789*x)/1024 - (1065169973*x^2)/1024 - (969544757*x^3)/76
8 - (772025397*x^4)/512 - (504354357*x^5)/320 - (85228263*x^6)/64
 - (95297877*x^7)/112 - (24381405*x^8)/64 - (423225*x^9)/4 - (546
75*x^10)/4 - (1096135733*Log[1 - 2*x])/2048
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{54675x^{10}}{4}-\frac{423225x^9}{4}-\frac{24381405x^8}{64}-\frac{95297877x^7}{112}-\frac{85228263x^6}{64}-\frac{504354357x^5}{320}-\frac{772025397x^4}{512}-\frac{969544757x^3}{768}-\frac{1096135733\log(-2x+1)}{2048}+\int\left(-\frac{1092596789}{1024}\right)dx-\frac{1065169973\int x\,dx}{512}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**7*(3+5*x)**3/(1-2*x),x)
```

```
[Out] -54675*x**10/4 - 423225*x**9/4 - 24381405*x**8/64 - 95297877*x**7
/112 - 85228263*x**6/64 - 504354357*x**5/320 - 772025397*x**4/512
 - 969544757*x**3/768 - 1096135733*log(-2*x + 1)/2048 + Integral(
-1092596789/1024, x) - 1065169973*Integral(x, x)/512
```

Mathematica [A] time = 0.0240051, size = 82, normalized size = 1.04

$$-\frac{54675x^{10}}{4}-\frac{423225x^9}{4}-\frac{24381405x^8}{64}-\frac{95297877x^7}{112}-\frac{85228263x^6}{64}-\frac{504354357x^5}{320}-\frac{772025397x^4}{512}-\frac{969544757x^3}{768}-\frac{1065169973x^2}{1024}-\frac{1092596789x}{1024}-\frac{1096135733\log(1-2x)}{2048}+\frac{1933652224451}{1720320}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^7*(3 + 5*x)^3)/(1 - 2*x),x]
```

```
[Out] 1933652224451/1720320 - (1092596789*x)/1024 - (1065169973*x^2)/10
24 - (969544757*x^3)/768 - (772025397*x^4)/512 - (504354357*x^5)/
320 - (85228263*x^6)/64 - (95297877*x^7)/112 - (24381405*x^8)/64
- (423225*x^9)/4 - (54675*x^10)/4 - (1096135733*Log[1 - 2*x])/204
8
```

Maple [A] time = 0.004, size = 58, normalized size = 0.7

$$-\frac{54675\,x^{10}}{4}-\frac{423225\,x^{9}}{4}-\frac{24381405\,x^{8}}{64}-\frac{95297877\,x^{7}}{112}-\frac{85228263\,x^{6}}{64}-\frac{504354357\,x^{5}}{320}-\frac{772025397\,x^{4}}{512}-\frac{969544757\,x^{3}}{768}-\frac{1065169973\,x^{2}}{1024}-\frac{1092596789\,x}{1024}-\frac{1096135733\,\ln\left(-1+2\,x\right)}{2048}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^7*(3+5*x)^3/(1-2*x),x)
```

```
[Out] -54675/4*x^10-423225/4*x^9-24381405/64*x^8-95297877/112*x^7-85228
263/64*x^6-504354357/320*x^5-772025397/512*x^4-969544757/768*x^3-
1065169973/1024*x^2-1092596789/1024*x-1096135733/2048*ln(-1+2*x)
```

Maxima [A] time = 1.33766, size = 77, normalized size = 0.97

$$-\frac{54675}{4}\,x^{10}-\frac{423225}{4}\,x^{9}-\frac{24381405}{64}\,x^{8}-\frac{95297877}{112}\,x^{7}-\frac{85228263}{64}\,x^{6}-\frac{504354357}{320}\,x^{5}-\frac{772025397}{512}\,x^{4}-\frac{969544757}{768}\,x^{3}-\frac{1065169973}{1024}\,x^{2}-\frac{1092596789}{1024}\,x-\frac{1096135733}{2048}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^7/(2*x - 1),x, algorithm="maxima")
```

```
[Out] -54675/4*x^10 - 423225/4*x^9 - 24381405/64*x^8 - 95297877/112*x^7
 - 85228263/64*x^6 - 504354357/320*x^5 - 772025397/512*x^4 - 9695
44757/768*x^3 - 1065169973/1024*x^2 - 1092596789/1024*x - 1096135
733/2048*log(2*x - 1)
```

Fricas [A] time = 0.221967, size = 77, normalized size = 0.97

$$-\frac{54675}{4}\,x^{10}-\frac{423225}{4}\,x^{9}-\frac{24381405}{64}\,x^{8}-\frac{95297877}{112}\,x^{7}-\frac{85228263}{64}\,x^{6}-\frac{504354357}{320}\,x^{5}-\frac{772025397}{512}\,x^{4}-\frac{969544757}{768}\,x^{3}-\frac{1065169973}{1024}\,x^{2}-\frac{1092596789}{1024}\,x-\frac{1096135733}{2048}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^7/(2*x - 1),x, algorithm="fricas")
```

```
[Out] -54675/4*x^10 - 423225/4*x^9 - 24381405/64*x^8 - 95297877/112*x^7
 - 85228263/64*x^6 - 504354357/320*x^5 - 772025397/512*x^4 - 9695
44757/768*x^3 - 1065169973/1024*x^2 - 1092596789/1024*x - 1096135
733/2048*log(2*x - 1)
```

Sympy [A] time = 0.248008, size = 76, normalized size = 0.96

$$-\frac{54675x^{10}}{4}-\frac{423225x^{9}}{4}-\frac{24381405x^{8}}{64}-\frac{95297877x^{7}}{112}-\frac{85228263x^{6}}{64}-\frac{504354357x^{5}}{320}-\frac{772025397x^{4}}{512}-\frac{969544757x^{3}}{768}-\frac{1065169973x^{2}}{1024}-\frac{1092596789x}{1024}-\frac{1096135733\log\left(2x-1\right)}{2048}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**7*(3+5*x)**3/(1-2*x),x)
```

```
[Out] -54675*x**10/4 - 423225*x**9/4 - 24381405*x**8/64 - 95297877*x**7
/112 - 85228263*x**6/64 - 504354357*x**5/320 - 772025397*x**4/512
 - 969544757*x**3/768 - 1065169973*x**2/1024 - 1092596789*x/1024
- 1096135733*log(2*x - 1)/2048
```

GIAC/XCAS [A] time = 0.21134, size = 78, normalized size = 0.99

$$-\frac{54675}{4}x^{10}-\frac{423225}{4}x^{9}-\frac{24381405}{64}x^{8}-\frac{95297877}{112}x^{7}-\frac{85228263}{64}x^{6}-\frac{504354357}{320}x^{5}-\frac{772025397}{512}x^{4}-\frac{969544757}{768}x^{3}-\frac{1065169973}{1024}x^{2}-\frac{1092596789}{1024}x-\frac{1096135733}{2048}\ln\left(|2x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^7/(2*x - 1),x, algorithm="giac")
```

```
[Out] -54675/4*x^10 - 423225/4*x^9 - 24381405/64*x^8 - 95297877/112*x^7
 - 85228263/64*x^6 - 504354357/320*x^5 - 772025397/512*x^4 - 9695
44757/768*x^3 - 1065169973/1024*x^2 - 1092596789/1024*x - 1096135
733/2048*ln(abs(2*x - 1))
```

3.1452 $\int \frac{(2+3x)^6(3+5x)^3}{1-2x}\,dx$

Optimal. Leaf size=72

$$-\frac{10125x^9}{2}-\frac{1148175x^8}{32}-\frac{6596235x^7}{56}-\frac{7656993x^6}{32}-\frac{54600291x^5}{160}-\frac{95317731x^4}{256}-\frac{130251491x^3}{384}-\frac{149512931x^2}{512}-\frac{155706083x}{512}-\frac{156590819\log(1-2x)}{1024}$$

```
[Out] (-155706083*x)/512 - (149512931*x^2)/512 - (130251491*x^3)/384 -
(95317731*x^4)/256 - (54600291*x^5)/160 - (7656993*x^6)/32 - (659
6235*x^7)/56 - (1148175*x^8)/32 - (10125*x^9)/2 - (156590819*Log[
1 - 2*x])/1024
```

Rubi [A] time = 0.0733638, antiderivative size = 72, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{10125x^9}{2}-\frac{1148175x^8}{32}-\frac{6596235x^7}{56}-\frac{7656993x^6}{32}-\frac{54600291x^5}{160}-\frac{95317731x^4}{256}-\frac{130251491x^3}{384}-\frac{149512931x^2}{512}-\frac{155706083x}{512}-\frac{156590819\log(1-2x)}{1024}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^6*(3 + 5*x)^3)/(1 - 2*x),x]
```

```
[Out] (-155706083*x)/512 - (149512931*x^2)/512 - (130251491*x^3)/384 -
(95317731*x^4)/256 - (54600291*x^5)/160 - (7656993*x^6)/32 - (659
6235*x^7)/56 - (1148175*x^8)/32 - (10125*x^9)/2 - (156590819*Log[
1 - 2*x])/1024
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{10125x^9}{2}-\frac{1148175x^8}{32}-\frac{6596235x^7}{56}-\frac{7656993x^6}{32}-\frac{54600291x^5}{160}-\frac{95317731x^4}{256}-\frac{130251491x^3}{384}-\frac{156590819\log(-2x+1)}{1024}+\int\left(-\frac{155706083}{512}\right)dx-\frac{149512931\int x\,dx}{256}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**6*(3+5*x)**3/(1-2*x),x)
```

```
[Out] -10125*x**9/2 - 1148175*x**8/32 - 6596235*x**7/56 - 7656993*x**6/
32 - 54600291*x**5/160 - 95317731*x**4/256 - 130251491*x**3/384 -
 156590819*log(-2*x + 1)/1024 + Integral(-155706083/512, x) - 149
512931*Integral(x, x)/256
```

Mathematica [A] time = 0.0220868, size = 75, normalized size = 1.04

$$-\frac{10125x^9}{2}-\frac{1148175x^8}{32}-\frac{6596235x^7}{56}-\frac{7656993x^6}{32}-\frac{54600291x^5}{160}-\frac{95317731x^4}{256}-\frac{130251491x^3}{384}-\frac{149512931x^2}{512}-\frac{155706083x}{512}-\frac{156590819\log(1-2x)}{1024}+\frac{263385079253}{860160}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^6*(3 + 5*x)^3)/(1 - 2*x),x]
```

```
[Out] 263385079253/860160 - (155706083*x)/512 - (149512931*x^2)/512 - (
130251491*x^3)/384 - (95317731*x^4)/256 - (54600291*x^5)/160 - (7
656993*x^6)/32 - (6596235*x^7)/56 - (1148175*x^8)/32 - (10125*x^9
)/2 - (156590819*Log[1 - 2*x])/1024
```

Maple [A] time = 0.004, size = 53, normalized size = 0.7

$$-\frac{10125\,x^{9}}{2}-\frac{1148175\,x^{8}}{32}-\frac{6596235\,x^{7}}{56}-\frac{7656993\,x^{6}}{32}-\frac{54600291\,x^{5}}{160}-\frac{95317731\,x^{4}}{256}-\frac{130251491\,x^{3}}{384}-\frac{149512931\,x^{2}}{512}-\frac{155706083\,x}{512}-\frac{156590819\,\ln\left(-1+2\,x\right)}{1024}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^6*(3+5*x)^3/(1-2*x),x)
```

```
[Out] -10125/2*x^9-1148175/32*x^8-6596235/56*x^7-7656993/32*x^6-5460029
1/160*x^5-95317731/256*x^4-130251491/384*x^3-149512931/512*x^2-15
5706083/512*x-156590819/1024*ln(-1+2*x)
```

Maxima [A] time = 1.33728, size = 70, normalized size = 0.97

$$-\frac{10125}{2}\,x^{9}-\frac{1148175}{32}\,x^{8}-\frac{6596235}{56}\,x^{7}-\frac{7656993}{32}\,x^{6}-\frac{54600291}{160}\,x^{5}-\frac{95317731}{256}\,x^{4}-\frac{130251491}{384}\,x^{3}-\frac{149512931}{512}\,x^{2}-\frac{155706083}{512}\,x-\frac{156590819}{1024}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^6/(2*x - 1),x, algorithm="maxima")
```

```
[Out] -10125/2*x^9 - 1148175/32*x^8 - 6596235/56*x^7 - 7656993/32*x^6 -
 54600291/160*x^5 - 95317731/256*x^4 - 130251491/384*x^3 - 149512
931/512*x^2 - 155706083/512*x - 156590819/1024*log(2*x - 1)
```

Fricas [A] time = 0.220106, size = 70, normalized size = 0.97

$$-\frac{10125}{2}\,x^{9}-\frac{1148175}{32}\,x^{8}-\frac{6596235}{56}\,x^{7}-\frac{7656993}{32}\,x^{6}-\frac{54600291}{160}\,x^{5}-\frac{95317731}{256}\,x^{4}-\frac{130251491}{384}\,x^{3}-\frac{149512931}{512}\,x^{2}-\frac{155706083}{512}\,x-\frac{156590819}{1024}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^6/(2*x - 1),x, algorithm="fricas")
```

```
[Out] -10125/2*x^9 - 1148175/32*x^8 - 6596235/56*x^7 - 7656993/32*x^6 -
 54600291/160*x^5 - 95317731/256*x^4 - 130251491/384*x^3 - 149512
931/512*x^2 - 155706083/512*x - 156590819/1024*log(2*x - 1)
```

Sympy [A] time = 0.243893, size = 70, normalized size = 0.97

$$-\frac{10125x^{9}}{2}-\frac{1148175x^{8}}{32}-\frac{6596235x^{7}}{56}-\frac{7656993x^{6}}{32}-\frac{54600291x^{5}}{160}-\frac{95317731x^{4}}{256}-\frac{130251491x^{3}}{384}-\frac{149512931x^{2}}{512}-\frac{155706083x}{512}-\frac{156590819\log\left(2x-1\right)}{1024}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**6*(3+5*x)**3/(1-2*x),x)
```

```
[Out] -10125*x**9/2 - 1148175*x**8/32 - 6596235*x**7/56 - 7656993*x**6/
32 - 54600291*x**5/160 - 95317731*x**4/256 - 130251491*x**3/384 -
 149512931*x**2/512 - 155706083*x/512 - 156590819*log(2*x - 1)/10
24
```

GIAC/XCAS [A] time = 0.208487, size = 72, normalized size = 1.

$$-\frac{10125}{2}x^9 - \frac{1148175}{32}x^8 - \frac{6596235}{56}x^7 - \frac{7656993}{32}x^6 - \frac{54600291}{160}x^5 - \frac{95317731}{256}x^4 - \frac{130251491}{384}x^3 - \frac{149512931}{512}x^2 - \frac{155706083}{512}x - \frac{156590819}{1024}\ln\left(|2x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^6/(2*x - 1),x, algorithm="giac")
```

```
[Out] -10125/2*x^9 - 1148175/32*x^8 - 6596235/56*x^7 - 7656993/32*x^6 -
 54600291/160*x^5 - 95317731/256*x^4 - 130251491/384*x^3 - 149512
931/512*x^2 - 155706083/512*x - 156590819/1024*ln(abs(2*x - 1))
```

3.1453 $\int \frac{(2+3x)^5(3+5x)^3}{1-2x} dx$

Optimal. Leaf size=65

$$-\frac{30375x^8}{16}-\frac{342225x^7}{28}-\frac{580815x^6}{16}-\frac{5333733x^5}{80}-\frac{11088453x^4}{128}-\frac{16987973x^3}{192}-\frac{20766533x^2}{256}-\frac{22148933x}{256}-\frac{22370117}{512}\log(1-2x)$$

```
[Out] (-22148933*x)/256 - (20766533*x^2)/256 - (16987973*x^3)/192 - (11
088453*x^4)/128 - (5333733*x^5)/80 - (580815*x^6)/16 - (342225*x^
7)/28 - (30375*x^8)/16 - (22370117*Log[1 - 2*x])/512
```

Rubi [A] time = 0.0676214, antiderivative size = 65, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{30375x^8}{16}-\frac{342225x^7}{28}-\frac{580815x^6}{16}-\frac{5333733x^5}{80}-\frac{11088453x^4}{128}-\frac{16987973x^3}{192}-\frac{20766533x^2}{256}-\frac{22148933x}{256}-\frac{22370117}{512}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In] Int[((2 + 3*x)^5*(3 + 5*x)^3)/(1 - 2*x),x]
```

```
[Out] (-22148933*x)/256 - (20766533*x^2)/256 - (16987973*x^3)/192 - (11
088453*x^4)/128 - (5333733*x^5)/80 - (580815*x^6)/16 - (342225*x^
7)/28 - (30375*x^8)/16 - (22370117*Log[1 - 2*x])/512
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{30375x^8}{16}-\frac{342225x^7}{28}-\frac{580815x^6}{16}-\frac{5333733x^5}{80}-\frac{11088453x^4}{128}-\frac{16987973x^3}{192}-\frac{22370117\log(-2x+1)}{512}+\int\left(-\frac{22148933}{256}\right)dx-\frac{20766533\int x\,dx}{128}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**5*(3+5*x)**3/(1-2*x),x)
```

```
[Out] -30375*x**8/16 - 342225*x**7/28 - 580815*x**6/16 - 5333733*x**5/8
0 - 11088453*x**4/128 - 16987973*x**3/192 - 22370117*log(-2*x + 1
)/512 + Integral(-22148933/256, x) - 20766533*Integral(x, x)/128
```

Mathematica [A] time = 0.0210101, size = 68, normalized size = 1.05

$$-\frac{30375x^8}{16}-\frac{342225x^7}{28}-\frac{580815x^6}{16}-\frac{5333733x^5}{80}-\frac{11088453x^4}{128}-\frac{16987973x^3}{192}-\frac{20766533x^2}{256}-\frac{22148933x}{256}-\frac{22370117}{512}\log(1-2x)+\frac{35596520969}{430080}$$

Antiderivative was successfully verified.

```
[In] Integrate[((2 + 3*x)^5*(3 + 5*x)^3)/(1 - 2*x),x]
```

```
[Out] 35596520969/430080 - (22148933*x)/256 - (20766533*x^2)/256 - (169
87973*x^3)/192 - (11088453*x^4)/128 - (5333733*x^5)/80 - (580815*
```

```
x^6)/16 - (342225*x^7)/28 - (30375*x^8)/16 - (22370117*Log[1 - 2*
x])/512
```

Maple [A] time = 0.004, size = 48, normalized size = 0.7

$$-\frac{30375 x^8}{16}-\frac{342225 x^7}{28}-\frac{580815 x^6}{16}-\frac{5333733 x^5}{80}-\frac{11088453 x^4}{128}-\frac{16987973 x^3}{192}-\frac{20766533 x^2}{256}-\frac{22148933 x}{256}-\frac{22370117 \ln(-1+2x)}{512}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^5*(3+5*x)^3/(1-2*x),x)
```

```
[Out] -30375/16*x^8-342225/28*x^7-580815/16*x^6-5333733/80*x^5-11088453
/128*x^4-16987973/192*x^3-20766533/256*x^2-22148933/256*x-2237011
7/512*ln(-1+2*x)
```

Maxima [A] time = 1.3435, size = 63, normalized size = 0.97

$$-\frac{30375}{16}x^8-\frac{342225}{28}x^7-\frac{580815}{16}x^6-\frac{5333733}{80}x^5-\frac{11088453}{128}x^4-\frac{16987973}{192}x^3-\frac{20766533}{256}x^2-\frac{22148933}{256}x-\frac{22370117}{512}\log(2x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^5/(2*x - 1),x, algorithm="maxima")
```

```
[Out] -30375/16*x^8 - 342225/28*x^7 - 580815/16*x^6 - 5333733/80*x^5 -
11088453/128*x^4 - 16987973/192*x^3 - 20766533/256*x^2 - 22148933
/256*x - 22370117/512*log(2*x - 1)
```

Fricas [A] time = 0.224039, size = 63, normalized size = 0.97

$$-\frac{30375}{16}x^8-\frac{342225}{28}x^7-\frac{580815}{16}x^6-\frac{5333733}{80}x^5-\frac{11088453}{128}x^4-\frac{16987973}{192}x^3-\frac{20766533}{256}x^2-\frac{22148933}{256}x-\frac{22370117}{512}\log(2x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^5/(2*x - 1),x, algorithm="fricas")
```

```
[Out] -30375/16*x^8 - 342225/28*x^7 - 580815/16*x^6 - 5333733/80*x^5 -
11088453/128*x^4 - 16987973/192*x^3 - 20766533/256*x^2 - 22148933
/256*x - 22370117/512*log(2*x - 1)
```

Sympy [A] time = 0.224922, size = 63, normalized size = 0.97

$$-\frac{30375x^8}{16}-\frac{342225x^7}{28}-\frac{580815x^6}{16}-\frac{5333733x^5}{80}-\frac{11088453x^4}{128}-\frac{16987973x^3}{192}-\frac{20766533x^2}{256}-\frac{22148933x}{256}-\frac{22370117\log(2x-1)}{512}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**5*(3+5*x)**3/(1-2*x),x)
```

```
[Out] -30375*x**8/16 - 342225*x**7/28 - 580815*x**6/16 - 5333733*x**5/8
0 - 11088453*x**4/128 - 16987973*x**3/192 - 20766533*x**2/256 - 2
2148933*x/256 - 22370117*log(2*x - 1)/512
```

GIAC/XCAS [A] time = 0.209537, size = 65, normalized size = 1.

$$-\frac{30375}{16}x^8 - \frac{342225}{28}x^7 - \frac{580815}{16}x^6 - \frac{5333733}{80}x^5 - \frac{11088453}{128}x^4 - \frac{16987973}{192}x^3 - \frac{20766533}{256}x^2 - \frac{22148933}{256}x - \frac{22370117}{512}\ln\left(|2x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^5/(2*x - 1),x, algorithm="giac")
```

```
[Out] -30375/16*x^8 - 342225/28*x^7 - 580815/16*x^6 - 5333733/80*x^5 -
11088453/128*x^4 - 16987973/192*x^3 - 20766533/256*x^2 - 22148933
/256*x - 22370117/512*ln(abs(2*x - 1))
```

3.1454 $\int \frac{(2+3x)^4(3+5x)^3}{1-2x}\,dx$

Optimal. Leaf size=58

$$-\frac{10125x^7}{14}-\frac{33525x^6}{8}-\frac{89343x^5}{8}-\frac{1182291x^4}{64}-\frac{2119763x^3}{96}-\frac{2836307x^2}{128}-\frac{3140435x}{128}-\frac{3195731}{256}\log(1-2x)$$

```
[Out] (-3140435*x)/128 - (2836307*x^2)/128 - (2119763*x^3)/96 - (118229
1*x^4)/64 - (89343*x^5)/8 - (33525*x^6)/8 - (10125*x^7)/14 - (319
5731*Log[1 - 2*x])/256
```

Rubi [A] time = 0.0605625, antiderivative size = 58, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{10125x^7}{14}-\frac{33525x^6}{8}-\frac{89343x^5}{8}-\frac{1182291x^4}{64}-\frac{2119763x^3}{96}-\frac{2836307x^2}{128}-\frac{3140435x}{128}-\frac{3195731}{256}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In] Int[((2 + 3*x)^4*(3 + 5*x)^3)/(1 - 2*x),x]
```

```
[Out] (-3140435*x)/128 - (2836307*x^2)/128 - (2119763*x^3)/96 - (118229
1*x^4)/64 - (89343*x^5)/8 - (33525*x^6)/8 - (10125*x^7)/14 - (319
5731*Log[1 - 2*x])/256
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{10125x^7}{14}-\frac{33525x^6}{8}-\frac{89343x^5}{8}-\frac{1182291x^4}{64}-\frac{2119763x^3}{96}-\frac{3195731\log(-2x+1)}{256}+\int\left(-\frac{3140435}{128}\right)dx-\frac{2836307\int x\,dx}{64}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**4*(3+5*x)**3/(1-2*x),x)
```

```
[Out] -10125*x**7/14 - 33525*x**6/8 - 89343*x**5/8 - 1182291*x**4/64 -
2119763*x**3/96 - 3195731*log(-2*x + 1)/256 + Integral(-3140435/1
28, x) - 2836307*Integral(x, x)/64
```

Mathematica [A] time = 0.0198261, size = 47, normalized size = 0.81

$$\frac{-15552000x^7-90115200x^6-240153984x^5-397249776x^4-474826912x^3-476499576x^2-527593080x-268441404\log}{21504}$$

Antiderivative was successfully verified.

```
[In] Integrate[((2 + 3*x)^4*(3 + 5*x)^3)/(1 - 2*x),x]
```

```
[Out] (476137271 - 527593080*x - 476499576*x^2 - 474826912*x^3 - 397249
776*x^4 - 240153984*x^5 - 90115200*x^6 - 15552000*x^7 - 268441404
*Log[1 - 2*x])/21504
```

Maple [A] time = 0.005, size = 43, normalized size = 0.7

$$-\frac{10125\,x^{7}}{14}-\frac{33525\,x^{6}}{8}-\frac{89343\,x^{5}}{8}-\frac{1182291\,x^{4}}{64}-\frac{2119763\,x^{3}}{96}-\frac{2836307\,x^{2}}{128}-\frac{3140435\,x}{128}-\frac{3195731\,\ln\left(-1+2\,x\right)}{256}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4*(3+5*x)^3/(1-2*x),x)
```

```
[Out] -10125/14*x^7-33525/8*x^6-89343/8*x^5-1182291/64*x^4-2119763/96*x
^3-2836307/128*x^2-3140435/128*x-3195731/256*ln(-1+2*x)
```

Maxima [A] time = 1.33349, size = 57, normalized size = 0.98

$$-\frac{10125}{14}\,x^{7}-\frac{33525}{8}\,x^{6}-\frac{89343}{8}\,x^{5}-\frac{1182291}{64}\,x^{4}-\frac{2119763}{96}\,x^{3}-\frac{2836307}{128}\,x^{2}-\frac{3140435}{128}\,x-\frac{3195731}{256}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^4/(2*x - 1),x, algorithm="maxima")
```

```
[Out] -10125/14*x^7 - 33525/8*x^6 - 89343/8*x^5 - 1182291/64*x^4 - 2119
763/96*x^3 - 2836307/128*x^2 - 3140435/128*x - 3195731/256*log(2*
x - 1)
```

Fricas [A] time = 0.206284, size = 57, normalized size = 0.98

$$-\frac{10125}{14}\,x^{7}-\frac{33525}{8}\,x^{6}-\frac{89343}{8}\,x^{5}-\frac{1182291}{64}\,x^{4}-\frac{2119763}{96}\,x^{3}-\frac{2836307}{128}\,x^{2}-\frac{3140435}{128}\,x-\frac{3195731}{256}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^4/(2*x - 1),x, algorithm="fricas")
```

```
[Out] -10125/14*x^7 - 33525/8*x^6 - 89343/8*x^5 - 1182291/64*x^4 - 2119
763/96*x^3 - 2836307/128*x^2 - 3140435/128*x - 3195731/256*log(2*
x - 1)
```

Sympy [A] time = 0.216181, size = 56, normalized size = 0.97

$$-\frac{10125x^{7}}{14}-\frac{33525x^{6}}{8}-\frac{89343x^{5}}{8}-\frac{1182291x^{4}}{64}-\frac{2119763x^{3}}{96}-\frac{2836307x^{2}}{128}-\frac{3140435x}{128}-\frac{3195731\log\left(2x-1\right)}{256}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4*(3+5*x)**3/(1-2*x),x)
```

```
[Out] -10125*x**7/14 - 33525*x**6/8 - 89343*x**5/8 - 1182291*x**4/64 -
2119763*x**3/96 - 2836307*x**2/128 - 3140435*x/128 - 3195731*log(
```

```
2*x - 1)/256
```

GIAC/XCAS [A] time = 0.211552, size = 58, normalized size = 1.

$$-\frac{10125}{14}x^7-\frac{33525}{8}x^6-\frac{89343}{8}x^5-\frac{1182291}{64}x^4-\frac{2119763}{96}x^3-\frac{2836307}{128}x^2-\frac{3140435}{128}x-\frac{3195731}{256}\ln\left(|2x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^4/(2*x - 1),x, algorithm="giac")
```

```
[Out] -10125/14*x^7 - 33525/8*x^6 - 89343/8*x^5 - 1182291/64*x^4 - 2119
763/96*x^3 - 2836307/128*x^2 - 3140435/128*x - 3195731/256*ln(abs
(2*x - 1))
```

3.1455 $\int \frac{(2+3x)^3(3+5x)^3}{1-2x}\,dx$

Optimal. Leaf size=51

$$-\frac{1125x^6}{4}-\frac{5805x^5}{4}-\frac{110205x^4}{32}-\frac{247157x^3}{48}-\frac{377045x^2}{64}-\frac{442709x}{64}-\frac{456533}{128}\log(1-2x)$$

```
[Out] (-442709*x)/64 - (377045*x^2)/64 - (247157*x^3)/48 - (110205*x^4)
/32 - (5805*x^5)/4 - (1125*x^6)/4 - (456533*Log[1 - 2*x])/128
```

Rubi [A] time = 0.0538503, antiderivative size = 51, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{1125x^6}{4}-\frac{5805x^5}{4}-\frac{110205x^4}{32}-\frac{247157x^3}{48}-\frac{377045x^2}{64}-\frac{442709x}{64}-\frac{456533}{128}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^3*(3 + 5*x)^3)/(1 - 2*x),x]
```

```
[Out] (-442709*x)/64 - (377045*x^2)/64 - (247157*x^3)/48 - (110205*x^4)
/32 - (5805*x^5)/4 - (1125*x^6)/4 - (456533*Log[1 - 2*x])/128
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{1125x^6}{4}-\frac{5805x^5}{4}-\frac{110205x^4}{32}-\frac{247157x^3}{48}-\frac{456533\log(-2x+1)}{128}+\int\left(-\frac{442709}{64}\right)dx-\frac{377045\int x\,dx}{32}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3*(3+5*x)**3/(1-2*x),x)
```

```
[Out] -1125*x**6/4 - 5805*x**5/4 - 110205*x**4/32 - 247157*x**3/48 - 45
6533*log(-2*x + 1)/128 + Integral(-442709/64, x) - 377045*Integra
l(x, x)/32
```

Mathematica [A] time = 0.0176746, size = 42, normalized size = 0.82

$$\frac{-432000x^6-2229120x^5-5289840x^4-7909024x^3-9049080x^2-10625016x-5478396\log(1-2x)+8970431}{1536}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^3*(3 + 5*x)^3)/(1 - 2*x),x]
```

```
[Out] (8970431 - 10625016*x - 9049080*x^2 - 7909024*x^3 - 5289840*x^4 -
 2229120*x^5 - 432000*x^6 - 5478396*Log[1 - 2*x])/1536
```

Maple [A] time = 0.003, size = 38, normalized size = 0.8

$$-\frac{1125x^6}{4}-\frac{5805x^5}{4}-\frac{110205x^4}{32}-\frac{247157x^3}{48}-\frac{377045x^2}{64}-\frac{442709x}{64}-\frac{456533\ln(-1+2x)}{128}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3*(3+5*x)^3/(1-2*x),x)
```

```
[Out] -1125/4*x^6-5805/4*x^5-110205/32*x^4-247157/48*x^3-377045/64*x^2-
442709/64*x-456533/128*ln(-1+2*x)
```

Maxima [A] time = 1.35741, size = 50, normalized size = 0.98

$$-\frac{1125}{4}x^6-\frac{5805}{4}x^5-\frac{110205}{32}x^4-\frac{247157}{48}x^3-\frac{377045}{64}x^2-\frac{442709}{64}x-\frac{456533}{128}\log(2x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^3/(2*x - 1),x, algorithm="maxima")
```

```
[Out] -1125/4*x^6 - 5805/4*x^5 - 110205/32*x^4 - 247157/48*x^3 - 377045
/64*x^2 - 442709/64*x - 456533/128*log(2*x - 1)
```

Fricas [A] time = 0.218901, size = 50, normalized size = 0.98

$$-\frac{1125}{4}x^6-\frac{5805}{4}x^5-\frac{110205}{32}x^4-\frac{247157}{48}x^3-\frac{377045}{64}x^2-\frac{442709}{64}x-\frac{456533}{128}\log(2x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^3/(2*x - 1),x, algorithm="fricas")
```

```
[Out] -1125/4*x^6 - 5805/4*x^5 - 110205/32*x^4 - 247157/48*x^3 - 377045
/64*x^2 - 442709/64*x - 456533/128*log(2*x - 1)
```

Sympy [A] time = 0.203464, size = 49, normalized size = 0.96

$$-\frac{1125x^6}{4}-\frac{5805x^5}{4}-\frac{110205x^4}{32}-\frac{247157x^3}{48}-\frac{377045x^2}{64}-\frac{442709x}{64}-\frac{456533\log(2x-1)}{128}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3*(3+5*x)**3/(1-2*x),x)
```

```
[Out] -1125*x**6/4 - 5805*x**5/4 - 110205*x**4/32 - 247157*x**3/48 - 37
7045*x**2/64 - 442709*x/64 - 456533*log(2*x - 1)/128
```

GIAC/XCAS [A] time = 0.208944, size = 51, normalized size = 1.

$$-\frac{1125}{4}x^6-\frac{5805}{4}x^5-\frac{110205}{32}x^4-\frac{247157}{48}x^3-\frac{377045}{64}x^2-\frac{442709}{64}x-\frac{456533}{128}\ln(|2x-1|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^3/(2*x - 1),x, algorithm="giac")
```

```
[Out] -1125/4*x^6 - 5805/4*x^5 - 110205/32*x^4 - 247157/48*x^3 - 377045
/64*x^2 - 442709/64*x - 456533/128*ln(abs(2*x - 1))
```

3.1456 $\int \frac{(2+3x)^2(3+5x)^3}{1-2x} dx$

Optimal. Leaf size=44

$$-\frac{225x^5}{2}-\frac{8175x^4}{16}-\frac{25835x^3}{24}-\frac{47939x^2}{32}-\frac{61763x}{32}-\frac{65219}{64}\log(1-2x)$$

```
[Out] (-61763*x)/32 - (47939*x^2)/32 - (25835*x^3)/24 - (8175*x^4)/16 -
 (225*x^5)/2 - (65219*Log[1 - 2*x])/64
```

Rubi [A] time = 0.0486217, antiderivative size = 44, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{225x^5}{2}-\frac{8175x^4}{16}-\frac{25835x^3}{24}-\frac{47939x^2}{32}-\frac{61763x}{32}-\frac{65219}{64}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^2*(3 + 5*x)^3)/(1 - 2*x),x]
```

```
[Out] (-61763*x)/32 - (47939*x^2)/32 - (25835*x^3)/24 - (8175*x^4)/16 -
 (225*x^5)/2 - (65219*Log[1 - 2*x])/64
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{225x^5}{2}-\frac{8175x^4}{16}-\frac{25835x^3}{24}-\frac{65219\log(-2x+1)}{64}+\int\left(-\frac{61763}{32}\right)dx-\frac{47939\int x\,dx}{16}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2*(3+5*x)**3/(1-2*x),x)
```

```
[Out] -225*x**5/2 - 8175*x**4/16 - 25835*x**3/24 - 65219*log(-2*x + 1)/
64 + Integral(-61763/32, x) - 47939*Integral(x, x)/16
```

Mathematica [A] time = 0.0181658, size = 37, normalized size = 0.84

$$\frac{1}{768}\left(-86400x^5-392400x^4-826720x^3-1150536x^2-1482312x-782628\log(1-2x)+1159355\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^2*(3 + 5*x)^3)/(1 - 2*x),x]
```

```
[Out] (1159355 - 1482312*x - 1150536*x^2 - 826720*x^3 - 392400*x^4 - 86
400*x^5 - 782628*Log[1 - 2*x])/768
```

Maple [A] time = 0.004, size = 33, normalized size = 0.8

$$-\frac{225\,x^5}{2}-\frac{8175\,x^4}{16}-\frac{25835\,x^3}{24}-\frac{47939\,x^2}{32}-\frac{61763\,x}{32}-\frac{65219\,\ln(-1+2\,x)}{64}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2*(3+5*x)^3/(1-2*x),x)
```

```
[Out] -225/2*x^5-8175/16*x^4-25835/24*x^3-47939/32*x^2-61763/32*x-65219
/64*ln(-1+2*x)
```

Maxima [A] time = 1.34479, size = 43, normalized size = 0.98

$$-\frac{225}{2}x^5 - \frac{8175}{16}x^4 - \frac{25835}{24}x^3 - \frac{47939}{32}x^2 - \frac{61763}{32}x - \frac{65219}{64}\log(2x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^2/(2*x - 1),x, algorithm="maxima")
```

```
[Out] -225/2*x^5 - 8175/16*x^4 - 25835/24*x^3 - 47939/32*x^2 - 61763/32
*x - 65219/64*log(2*x - 1)
```

Fricas [A] time = 0.208951, size = 43, normalized size = 0.98

$$-\frac{225}{2}x^5 - \frac{8175}{16}x^4 - \frac{25835}{24}x^3 - \frac{47939}{32}x^2 - \frac{61763}{32}x - \frac{65219}{64}\log(2x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^2/(2*x - 1),x, algorithm="fricas")
```

```
[Out] -225/2*x^5 - 8175/16*x^4 - 25835/24*x^3 - 47939/32*x^2 - 61763/32
*x - 65219/64*log(2*x - 1)
```

Sympy [A] time = 0.18622, size = 42, normalized size = 0.95

$$-\frac{225x^5}{2} - \frac{8175x^4}{16} - \frac{25835x^3}{24} - \frac{47939x^2}{32} - \frac{61763x}{32} - \frac{65219\log(2x-1)}{64}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2*(3+5*x)**3/(1-2*x),x)
```

```
[Out] -225*x**5/2 - 8175*x**4/16 - 25835*x**3/24 - 47939*x**2/32 - 6176
3*x/32 - 65219*log(2*x - 1)/64
```

GIAC/XCAS [A] time = 0.207726, size = 45, normalized size = 1.02

$$-\frac{225}{2}x^5 - \frac{8175}{16}x^4 - \frac{25835}{24}x^3 - \frac{47939}{32}x^2 - \frac{61763}{32}x - \frac{65219}{64}\ln(|2x-1|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^2/(2*x - 1),x, algorithm="giac")
```

```
[Out] -225/2*x^5 - 8175/16*x^4 - 25835/24*x^3 - 47939/32*x^2 - 61763/32
*x - 65219/64*ln(abs(2*x - 1))
```

3.1457 $\int \frac{(2+3x)(3+5x)^3}{1-2x}\,dx$

Optimal. Leaf size=37

$$-\frac{375x^4}{8}-\frac{2225x^3}{12}-\frac{5645x^2}{16}-\frac{8453x}{16}-\frac{9317}{32}\log(1-2x)$$

```
[Out] (-8453*x)/16 - (5645*x^2)/16 - (2225*x^3)/12 - (375*x^4)/8 - (931
7*Log[1 - 2*x])/32
```

Rubi [A] time = 0.0381535, antiderivative size = 37, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{375x^4}{8}-\frac{2225x^3}{12}-\frac{5645x^2}{16}-\frac{8453x}{16}-\frac{9317}{32}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)*(3 + 5*x)^3)/(1 - 2*x),x]
```

```
[Out] (-8453*x)/16 - (5645*x^2)/16 - (2225*x^3)/12 - (375*x^4)/8 - (931
7*Log[1 - 2*x])/32
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{375x^4}{8}-\frac{2225x^3}{12}-\frac{9317\log(-2x+1)}{32}+\int\left(-\frac{8453}{16}\right)dx-\frac{5645\int x\,dx}{8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)*(3+5*x)**3/(1-2*x),x)
```

```
[Out] -375*x**4/8 - 2225*x**3/12 - 9317*log(-2*x + 1)/32 + Integral(-84
53/16, x) - 5645*Integral(x, x)/8
```

Mathematica [A] time = 0.0178272, size = 32, normalized size = 0.86

$$\frac{1}{384}\left(-18000x^4-71200x^3-135480x^2-202872x-111804\log(1-2x)+145331\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)*(3 + 5*x)^3)/(1 - 2*x),x]
```

```
[Out] (145331 - 202872*x - 135480*x^2 - 71200*x^3 - 18000*x^4 - 111804*
Log[1 - 2*x])/384
```

Maple [A] time = 0.003, size = 28, normalized size = 0.8

$$-\frac{375\,x^4}{8}-\frac{2225\,x^3}{12}-\frac{5645\,x^2}{16}-\frac{8453\,x}{16}-\frac{9317\,\ln(-1+2\,x)}{32}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)*(3+5*x)^3/(1-2*x),x)
```

```
[Out] -375/8*x^4-2225/12*x^3-5645/16*x^2-8453/16*x-9317/32*ln(-1+2*x)
```

Maxima [A] time = 1.33568, size = 36, normalized size = 0.97

$$-\frac{375}{8}\,x^{4}-\frac{2225}{12}\,x^{3}-\frac{5645}{16}\,x^{2}-\frac{8453}{16}\,x-\frac{9317}{32}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)/(2*x - 1),x, algorithm="maxima")
```

```
[Out] -375/8*x^4 - 2225/12*x^3 - 5645/16*x^2 - 8453/16*x - 9317/32*log(
2*x - 1)
```

Fricas [A] time = 0.219966, size = 36, normalized size = 0.97

$$-\frac{375}{8}\,x^{4}-\frac{2225}{12}\,x^{3}-\frac{5645}{16}\,x^{2}-\frac{8453}{16}\,x-\frac{9317}{32}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)/(2*x - 1),x, algorithm="fricas")
```

```
[Out] -375/8*x^4 - 2225/12*x^3 - 5645/16*x^2 - 8453/16*x - 9317/32*log(
2*x - 1)
```

Sympy [A] time = 0.17394, size = 36, normalized size = 0.97

$$-\frac{375x^{4}}{8}-\frac{2225x^{3}}{12}-\frac{5645x^{2}}{16}-\frac{8453x}{16}-\frac{9317\log\left(2x-1\right)}{32}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)*(3+5*x)**3/(1-2*x),x)
```

```
[Out] -375*x**4/8 - 2225*x**3/12 - 5645*x**2/16 - 8453*x/16 - 9317*log(
2*x - 1)/32
```

GIAC/XCAS [A] time = 0.207994, size = 38, normalized size = 1.03

$$-\frac{375}{8}\,x^{4}-\frac{2225}{12}\,x^{3}-\frac{5645}{16}\,x^{2}-\frac{8453}{16}\,x-\frac{9317}{32}\,\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)/(2*x - 1),x, algorithm="giac")
```

```
[Out] -375/8*x^4 - 2225/12*x^3 - 5645/16*x^2 - 8453/16*x - 9317/32*ln(a
bs(2*x - 1))
```

3.1458 $\int \frac{(3+5x)^3}{1-2x} \, dx$

Optimal. Leaf size=30

$$-\frac{125x^3}{6}-\frac{575x^2}{8}-\frac{1115x}{8}-\frac{1331}{16}\log(1-2x)$$

```
[Out] (-1115*x)/8 - (575*x^2)/8 - (125*x^3)/6 - (1331*Log[1 - 2*x])/16
```

Rubi [A] time = 0.0277851, antiderivative size = 30, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.067

$$-\frac{125x^3}{6}-\frac{575x^2}{8}-\frac{1115x}{8}-\frac{1331}{16}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^3/(1 - 2*x),x]
```

```
[Out] (-1115*x)/8 - (575*x^2)/8 - (125*x^3)/6 - (1331*Log[1 - 2*x])/16
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{125x^3}{6}-\frac{1331\log(-2x+1)}{16}+\int\left(-\frac{1115}{8}\right)dx-\frac{575\int x\,dx}{4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**3/(1-2*x),x)
```

```
[Out] -125*x**3/6 - 1331*log(-2*x + 1)/16 + Integral(-1115/8, x) - 575*
Integral(x, x)/4
```

Mathematica [A] time = 0.0117379, size = 30, normalized size = 1.

$$\frac{1}{96}\left(-5\left(400x^3+1380x^2+2676x-1733\right)-7986\log(1-2x)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^3/(1 - 2*x),x]
```

```
[Out] (-5*(-1733 + 2676*x + 1380*x^2 + 400*x^3) - 7986*Log[1 - 2*x])/96
```

Maple [A] time = 0.003, size = 23, normalized size = 0.8

$$-\frac{125\,x^3}{6}-\frac{575\,x^2}{8}-\frac{1115\,x}{8}-\frac{1331\,\ln(-1+2\,x)}{16}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3/(1-2*x),x)
```

```
[Out] -125/6*x^3-575/8*x^2-1115/8*x-1331/16*ln(-1+2*x)
```

Maxima [A] time = 1.33837, size = 30, normalized size = 1.

$$-\frac{125}{6}\,x^3-\frac{575}{8}\,x^2-\frac{1115}{8}\,x-\frac{1331}{16}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3/(2*x - 1),x, algorithm="maxima")

[Out] -125/6*x^3 - 575/8*x^2 - 1115/8*x - 1331/16*log(2*x - 1)
```

Fricas [A] time = 0.211171, size = 30, normalized size = 1.

$$-\frac{125}{6}\,x^3-\frac{575}{8}\,x^2-\frac{1115}{8}\,x-\frac{1331}{16}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3/(2*x - 1),x, algorithm="fricas")

[Out] -125/6*x^3 - 575/8*x^2 - 1115/8*x - 1331/16*log(2*x - 1)
```

Sympy [A] time = 0.151274, size = 29, normalized size = 0.97

$$-\frac{125x^3}{6}-\frac{575x^2}{8}-\frac{1115x}{8}-\frac{1331\log\left(2x-1\right)}{16}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3/(1-2*x),x)

[Out] -125*x**3/6 - 575*x**2/8 - 1115*x/8 - 1331*log(2*x - 1)/16
```

GIAC/XCAS [A] time = 0.21021, size = 31, normalized size = 1.03

$$-\frac{125}{6}\,x^3-\frac{575}{8}\,x^2-\frac{1115}{8}\,x-\frac{1331}{16}\,\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3/(2*x - 1),x, algorithm="giac")

[Out] -125/6*x^3 - 575/8*x^2 - 1115/8*x - 1331/16*ln(abs(2*x - 1))
```

3.1459 $\int \frac{(3+5x)^3}{(1-2x)(2+3x)}\,dx$

Optimal. Leaf size=33

$$-\frac{125x^2}{12}-\frac{1225x}{36}-\frac{1331}{56}\log(1-2x)-\frac{1}{189}\log(3x+2)$$

```
[Out] (-1225*x)/36 - (125*x^2)/12 - (1331*Log[1 - 2*x])/56 - Log[2 + 3*
x]/189
```

Rubi [A] time = 0.0413524, antiderivative size = 33, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{125x^2}{12}-\frac{1225x}{36}-\frac{1331}{56}\log(1-2x)-\frac{1}{189}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^3/((1 - 2*x)*(2 + 3*x)),x]
```

```
[Out] (-1225*x)/36 - (125*x^2)/12 - (1331*Log[1 - 2*x])/56 - Log[2 + 3*
x]/189
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{1331\log(-2x+1)}{56}-\frac{\log(3x+2)}{189}+\int\left(-\frac{1225}{36}\right)dx-\frac{125\int x\,dx}{6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**3/(1-2*x)/(2+3*x),x)
```

```
[Out] -1331*log(-2*x + 1)/56 - log(3*x + 2)/189 + Integral(-1225/36, x)
 - 125*Integral(x, x)/6
```

Mathematica [A] time = 0.0259938, size = 35, normalized size = 1.06

$$\frac{-1050\left(15x^2+49x+24\right)-35937\log(5-10x)-8\log(5(3x+2))}{1512}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^3/((1 - 2*x)*(2 + 3*x)),x]
```

```
[Out] (-1050*(24 + 49*x + 15*x^2) - 35937*Log[5 - 10*x] - 8*Log[5*(2 +
3*x)])/1512
```

Maple [A] time = 0.009, size = 26, normalized size = 0.8

$$-\frac{125\,x^2}{12}-\frac{1225\,x}{36}-\frac{\ln(2+3\,x)}{189}-\frac{1331\,\ln(-1+2\,x)}{56}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3/(1-2*x)/(2+3*x),x)

[Out] -125/12*x^2-1225/36*x-1/189*ln(2+3*x)-1331/56*ln(-1+2*x)
```

Maxima [A] time = 1.34615, size = 34, normalized size = 1.03

$$-\frac{125}{12}\,x^2-\frac{1225}{36}\,x-\frac{1}{189}\,\log\left(3\,x+2\right)-\frac{1331}{56}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3/((3*x + 2)*(2*x - 1)),x, algorithm="maxima")

[Out] -125/12*x^2 - 1225/36*x - 1/189*log(3*x + 2) - 1331/56*log(2*x -
1)
```

Fricas [A] time = 0.218029, size = 34, normalized size = 1.03

$$-\frac{125}{12}\,x^2-\frac{1225}{36}\,x-\frac{1}{189}\,\log\left(3\,x+2\right)-\frac{1331}{56}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3/((3*x + 2)*(2*x - 1)),x, algorithm="fricas")

[Out] -125/12*x^2 - 1225/36*x - 1/189*log(3*x + 2) - 1331/56*log(2*x -
1)
```

Sympy [A] time = 0.28835, size = 31, normalized size = 0.94

$$-\frac{125x^2}{12}-\frac{1225x}{36}-\frac{1331\log\left(x-\frac{1}{2}\right)}{56}-\frac{\log\left(x+\frac{2}{3}\right)}{189}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3/(1-2*x)/(2+3*x),x)

[Out] -125*x**2/12 - 1225*x/36 - 1331*log(x - 1/2)/56 - log(x + 2/3)/18
9
```

GIAC/XCAS [A] time = 0.20986, size = 36, normalized size = 1.09

$$-\frac{125}{12}\,x^2-\frac{1225}{36}\,x-\frac{1}{189}\,\ln\left(|3\,x+2|\right)-\frac{1331}{56}\,\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3/((3*x + 2)*(2*x - 1)),x, algorithm="giac")

[Out] -125/12*x^2 - 1225/36*x - 1/189*ln(abs(3*x + 2)) - 1331/56*ln(abs
(2*x - 1))
```

3.1460 $\int \frac{(3+5x)^3}{(1-2x)(2+3x)^2}\,dx$

Optimal. Leaf size=37

$$-\frac{125x}{18}+\frac{1}{189(3x+2)}-\frac{1331}{196}\log(1-2x)+\frac{103\log(3x+2)}{1323}$$

```
[Out] (-125*x)/18 + 1/(189*(2 + 3*x)) - (1331*Log[1 - 2*x])/196 + (103*
Log[2 + 3*x])/1323
```

Rubi [A] time = 0.0483306, antiderivative size = 37, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{125x}{18}+\frac{1}{189(3x+2)}-\frac{1331}{196}\log(1-2x)+\frac{103\log(3x+2)}{1323}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^3/((1 - 2*x)*(2 + 3*x)^2),x]
```

```
[Out] (-125*x)/18 + 1/(189*(2 + 3*x)) - (1331*Log[1 - 2*x])/196 + (103*
Log[2 + 3*x])/1323
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{1331\log(-2x+1)}{196}+\frac{103\log(3x+2)}{1323}+\int\left(-\frac{125}{18}\right)dx+\frac{1}{189(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**3/(1-2*x)/(2+3*x)**2,x)
```

```
[Out] -1331*log(-2*x + 1)/196 + 103*log(3*x + 2)/1323 + Integral(-125/1
8, x) + 1/(189*(3*x + 2))
```

Mathematica [A] time = 0.0410602, size = 37, normalized size = 1.

$$\frac{18375(1-2x)+\frac{28}{3x+2}-35937\log(1-2x)+412\log(6x+4)}{5292}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^3/((1 - 2*x)*(2 + 3*x)^2),x]
```

```
[Out] (18375*(1 - 2*x) + 28/(2 + 3*x) - 35937*Log[1 - 2*x] + 412*Log[4
+ 6*x])/5292
```

Maple [A] time = 0.012, size = 30, normalized size = 0.8

$$-\frac{125x}{18}+\frac{1}{378+567x}+\frac{103\ln(2+3x)}{1323}-\frac{1331\ln(-1+2x)}{196}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3/(1-2*x)/(2+3*x)^2,x)
```

```
[Out] -125/18*x+1/189/(2+3*x)+103/1323*ln(2+3*x)-1331/196*ln(-1+2*x)
```

Maxima [A] time = 1.34372, size = 39, normalized size = 1.05

$$-\frac{125}{18}\,x+\frac{1}{189\,(3\,x+2)}+\frac{103}{1323}\,\log\left(3\,x+2\right)-\frac{1331}{196}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^3/((3*x + 2)^2*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -125/18*x + 1/189/(3*x + 2) + 103/1323*log(3*x + 2) - 1331/196*lo
g(2*x - 1)
```

Fricas [A] time = 0.219621, size = 61, normalized size = 1.65

$$-\frac{110250\,x^{2}-412\,(3\,x+2)\log\left(3\,x+2\right)+35937\,(3\,x+2)\log\left(2\,x-1\right)+73500\,x-28}{5292\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^3/((3*x + 2)^2*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] -1/5292*(110250*x^2 - 412*(3*x + 2)*log(3*x + 2) + 35937*(3*x + 2
)*log(2*x - 1) + 73500*x - 28)/(3*x + 2)
```

Sympy [A] time = 0.358238, size = 31, normalized size = 0.84

$$-\frac{125x}{18}-\frac{1331\log\left(x-\frac{1}{2}\right)}{196}+\frac{103\log\left(x+\frac{2}{3}\right)}{1323}+\frac{1}{567x+378}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3/(1-2*x)/(2+3*x)**2,x)
```

```
[Out] -125*x/18 - 1331*log(x - 1/2)/196 + 103*log(x + 2/3)/1323 + 1/(56
7*x + 378)
```

GIAC/XCAS [A] time = 0.207828, size = 63, normalized size = 1.7

$$-\frac{125}{18}\,x+\frac{1}{189\,(3\,x+2)}+\frac{725}{108}\,\ln\left(\frac{|3\,x+2|}{3\,(3\,x+2)^{2}}\right)-\frac{1331}{196}\,\ln\left(\left|-\frac{7}{3\,x+2}+2\right|\right)-\frac{125}{27}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3/((3*x + 2)^2*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -125/18*x + 1/189/(3*x + 2) + 725/108*ln(1/3*abs(3*x + 2)/(3*x +
2)^2) - 1331/196*ln(abs(-7/(3*x + 2) + 2)) - 125/27
```

3.1461 $\int \frac{(3+5x)^3}{(1-2x)(2+3x)^3}\,dx$

Optimal. Leaf size=43

$$-\frac{103}{1323(3x+2)}+\frac{1}{378(3x+2)^2}-\frac{1331}{686}\log(1-2x)-\frac{3469\log(3x+2)}{9261}$$

```
[Out] 1/(378*(2 + 3*x)^2) - 103/(1323*(2 + 3*x)) - (1331*Log[1 - 2*x])/
686 - (3469*Log[2 + 3*x])/9261
```

Rubi [A] time = 0.0495631, antiderivative size = 43, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{103}{1323(3x+2)}+\frac{1}{378(3x+2)^2}-\frac{1331}{686}\log(1-2x)-\frac{3469\log(3x+2)}{9261}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^3/((1 - 2*x)*(2 + 3*x)^3),x]
```

```
[Out] 1/(378*(2 + 3*x)^2) - 103/(1323*(2 + 3*x)) - (1331*Log[1 - 2*x])/
686 - (3469*Log[2 + 3*x])/9261
```

Rubi in Sympy [A] time = 7.90407, size = 36, normalized size = 0.84

$$-\frac{1331\log(-2x+1)}{686}-\frac{3469\log(3x+2)}{9261}-\frac{103}{1323(3x+2)}+\frac{1}{378(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**3/(1-2*x)/(2+3*x)**3,x)
```

```
[Out] -1331*log(-2*x + 1)/686 - 3469*log(3*x + 2)/9261 - 103/(1323*(3*x
 + 2)) + 1/(378*(3*x + 2)**2)
```

Mathematica [A] time = 0.0361536, size = 35, normalized size = 0.81

$$\frac{-\frac{21(206x+135)}{(3x+2)^2}-35937\log(1-2x)-6938\log(6x+4)}{18522}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^3/((1 - 2*x)*(2 + 3*x)^3),x]
```

```
[Out] ((-21*(135 + 206*x))/(2 + 3*x)^2 - 35937*Log[1 - 2*x] - 6938*Log[
4 + 6*x])/18522
```

Maple [A] time = 0.013, size = 36, normalized size = 0.8

$$\frac{1}{378\,(2+3\,x)^2}-\frac{103}{2646+3969\,x}-\frac{3469\,\ln(2+3\,x)}{9261}-\frac{1331\,\ln(-1+2\,x)}{686}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3/(1-2*x)/(2+3*x)^3,x)
```

```
[Out] 1/378/(2+3*x)^2-103/1323/(2+3*x)-3469/9261*ln(2+3*x)-1331/686*ln(
-1+2*x)
```

Maxima [A] time = 1.35005, size = 49, normalized size = 1.14

$$-\frac{206\,x+135}{882\,(9\,x^2+12\,x+4)}-\frac{3469}{9261}\,\log\left(3\,x+2\right)-\frac{1331}{686}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^3/((3*x + 2)^3*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -1/882*(206*x + 135)/(9*x^2 + 12*x + 4) - 3469/9261*log(3*x + 2)
 - 1331/686*log(2*x - 1)
```

Fricas [A] time = 0.215171, size = 74, normalized size = 1.72

$$-\frac{6938\left(9\,x^2+12\,x+4\right)\log\left(3\,x+2\right)+35937\left(9\,x^2+12\,x+4\right)\log\left(2\,x-1\right)+4326\,x+2835}{18522\,(9\,x^2+12\,x+4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^3/((3*x + 2)^3*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] -1/18522*(6938*(9*x^2 + 12*x + 4)*log(3*x + 2) + 35937*(9*x^2 + 1
2*x + 4)*log(2*x - 1) + 4326*x + 2835)/(9*x^2 + 12*x + 4)
```

Sympy [A] time = 0.423903, size = 36, normalized size = 0.84

$$-\frac{206x+135}{7938x^2+10584x+3528}-\frac{1331\log\left(x-\frac{1}{2}\right)}{686}-\frac{3469\log\left(x+\frac{2}{3}\right)}{9261}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3/(1-2*x)/(2+3*x)**3,x)
```

```
[Out] -(206*x + 135)/(7938*x**2 + 10584*x + 3528) - 1331*log(x - 1/2)/6
86 - 3469*log(x + 2/3)/9261
```

GIAC/XCAS [A] time = 0.209346, size = 45, normalized size = 1.05

$$-\frac{206\,x+135}{882\,(3\,x+2)^2}-\frac{3469}{9261}\,\ln\left(|3\,x+2|\right)-\frac{1331}{686}\,\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3/((3*x + 2)^3*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -1/882*(206*x + 135)/(3*x + 2)^2 - 3469/9261*ln(abs(3*x + 2)) - 1
331/686*ln(abs(2*x - 1))
```

3.1462 $\int \frac{(3+5x)^3}{(1-2x)(2+3x)^4} dx$

Optimal. Leaf size=54

$$\frac{3469}{9261(3x+2)} - \frac{103}{2646(3x+2)^2} + \frac{1}{567(3x+2)^3} - \frac{1331\log(1-2x)}{2401} + \frac{1331\log(3x+2)}{2401}$$

```
[Out] 1/(567*(2 + 3*x)^3) - 103/(2646*(2 + 3*x)^2) + 3469/(9261*(2 + 3*
x)) - (1331*Log[1 - 2*x])/2401 + (1331*Log[2 + 3*x])/2401
```

Rubi [A] time = 0.0590669, antiderivative size = 54, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{3469}{9261(3x+2)} - \frac{103}{2646(3x+2)^2} + \frac{1}{567(3x+2)^3} - \frac{1331\log(1-2x)}{2401} + \frac{1331\log(3x+2)}{2401}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^3/((1 - 2*x)*(2 + 3*x)^4),x]
```

```
[Out] 1/(567*(2 + 3*x)^3) - 103/(2646*(2 + 3*x)^2) + 3469/(9261*(2 + 3*
x)) - (1331*Log[1 - 2*x])/2401 + (1331*Log[2 + 3*x])/2401
```

Rubi in Sympy [A] time = 9.05399, size = 46, normalized size = 0.85

$$-\frac{1331\log(-2x+1)}{2401} + \frac{1331\log(3x+2)}{2401} + \frac{3469}{9261(3x+2)} - \frac{103}{2646(3x+2)^2} + \frac{1}{567(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**3/(1-2*x)/(2+3*x)**4,x)
```

```
[Out] -1331*log(-2*x + 1)/2401 + 1331*log(3*x + 2)/2401 + 3469/(9261*(3
*x + 2)) - 103/(2646*(3*x + 2)**2) + 1/(567*(3*x + 2)**3)
```

Mathematica [A] time = 0.0394475, size = 40, normalized size = 0.74

$$\frac{\frac{7(187326x^2+243279x+79028)}{(3x+2)^3} - 215622\log(1-2x) + 215622\log(6x+4)}{388962}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^3/((1 - 2*x)*(2 + 3*x)^4),x]
```

```
[Out] ((7*(79028 + 243279*x + 187326*x^2))/(2 + 3*x)^3 - 215622*Log[1 -
 2*x] + 215622*Log[4 + 6*x])/388962
```

Maple [A] time = 0.011, size = 45, normalized size = 0.8

$$\frac{1}{567(2+3x)^3} - \frac{103}{2646(2+3x)^2} + \frac{3469}{18522+27783x} + \frac{1331\ln(2+3x)}{2401} - \frac{1331\ln(-1+2x)}{2401}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3/(1-2*x)/(2+3*x)^4,x)
```

```
[Out] 1/567/(2+3*x)^3-103/2646/(2+3*x)^2+3469/9261/(2+3*x)+1331/2401*ln
(2+3*x)-1331/2401*ln(-1+2*x)
```

Maxima [A] time = 1.34286, size = 62, normalized size = 1.15

$$\frac{187326\,x^2 + 243279\,x + 79028}{55566\,(27\,x^3 + 54\,x^2 + 36\,x + 8)} + \frac{1331}{2401}\,\log\left(3\,x + 2\right) - \frac{1331}{2401}\,\log\left(2\,x - 1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^3/((3*x + 2)^4*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] 1/55566*(187326*x^2 + 243279*x + 79028)/(27*x^3 + 54*x^2 + 36*x +
 8) + 1331/2401*log(3*x + 2) - 1331/2401*log(2*x - 1)
```

Fricas [A] time = 0.217309, size = 101, normalized size = 1.87

$$\frac{1311282\,x^2 + 215622\,\left(27\,x^3 + 54\,x^2 + 36\,x + 8\right)\,\log\left(3\,x + 2\right) - 215622\,\left(27\,x^3 + 54\,x^2 + 36\,x + 8\right)\,\log\left(2\,x - 1\right) + 1702953\,x +}{388962\,(27\,x^3 + 54\,x^2 + 36\,x + 8)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^3/((3*x + 2)^4*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] 1/388962*(1311282*x^2 + 215622*(27*x^3 + 54*x^2 + 36*x + 8)*log(3
*x + 2) - 215622*(27*x^3 + 54*x^2 + 36*x + 8)*log(2*x - 1) + 1702
953*x + 553196)/(27*x^3 + 54*x^2 + 36*x + 8)
```

Sympy [A] time = 0.441047, size = 44, normalized size = 0.81

$$\frac{187326x^2 + 243279x + 79028}{1500282x^3 + 3000564x^2 + 2000376x + 444528} - \frac{1331\log\left(x - \frac{1}{2}\right)}{2401} + \frac{1331\log\left(x + \frac{2}{3}\right)}{2401}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3/(1-2*x)/(2+3*x)**4,x)
```

```
[Out] (187326*x**2 + 243279*x + 79028)/(1500282*x**3 + 3000564*x**2 + 2
000376*x + 444528) - 1331*log(x - 1/2)/2401 + 1331*log(x + 2/3)/2
401
```

GIAC/XCAS [A] time = 0.208717, size = 51, normalized size = 0.94

$$\frac{187326\,x^2 + 243279\,x + 79028}{55566\,(3\,x + 2)^3} + \frac{1331}{2401}\,\ln\left(|3\,x + 2|\right) - \frac{1331}{2401}\,\ln\left(|2\,x - 1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3/((3*x + 2)^4*(2*x - 1)),x, algorithm="giac")
```

```
[Out] 1/55566*(187326*x^2 + 243279*x + 79028)/(3*x + 2)^3 + 1331/2401*l
n(abs(3*x + 2)) - 1331/2401*ln(abs(2*x - 1))
```

3.1463 $\int \frac{(3+5x)^3}{(1-2x)(2+3x)^5}\,dx$

Optimal. Leaf size=65

$$-\frac{1331}{2401(3x+2)}+\frac{3469}{18522(3x+2)^2}-\frac{103}{3969(3x+2)^3}+\frac{1}{756(3x+2)^4}-\frac{2662\log(1-2x)}{16807}+\frac{2662\log(3x+2)}{16807}$$

```
[Out] 1/(756*(2 + 3*x)^4) - 103/(3969*(2 + 3*x)^3) + 3469/(18522*(2 + 3
*x)^2) - 1331/(2401*(2 + 3*x)) - (2662*Log[1 - 2*x])/16807 + (266
2*Log[2 + 3*x])/16807
```

Rubi [A] time = 0.0667264, antiderivative size = 65, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{1331}{2401(3x+2)}+\frac{3469}{18522(3x+2)^2}-\frac{103}{3969(3x+2)^3}+\frac{1}{756(3x+2)^4}-\frac{2662\log(1-2x)}{16807}+\frac{2662\log(3x+2)}{16807}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^3/((1 - 2*x)*(2 + 3*x)^5),x]
```

```
[Out] 1/(756*(2 + 3*x)^4) - 103/(3969*(2 + 3*x)^3) + 3469/(18522*(2 + 3
*x)^2) - 1331/(2401*(2 + 3*x)) - (2662*Log[1 - 2*x])/16807 + (266
2*Log[2 + 3*x])/16807
```

Rubi in Sympy [A] time = 10.2171, size = 56, normalized size = 0.86

$$-\frac{2662\log(-2x+1)}{16807}+\frac{2662\log(3x+2)}{16807}-\frac{1331}{2401\,(3x+2)}+\frac{3469}{18522\,(3x+2)^2}-\frac{103}{3969\,(3x+2)^3}+\frac{1}{756\,(3x+2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**3/(1-2*x)/(2+3*x)**5,x)
```

```
[Out] -2662*log(-2*x + 1)/16807 + 2662*log(3*x + 2)/16807 - 1331/(2401*
(3*x + 2)) + 3469/(18522*(3*x + 2)**2) - 103/(3969*(3*x + 2)**3)
+ 1/(756*(3*x + 2)**4)
```

Mathematica [A] time = 0.055118, size = 47, normalized size = 0.72

$$\frac{2\left(-\frac{7(11643588x^3+21975894x^2+13836972x+2906507)}{8(3x+2)^4}-107811\log(1-2x)+107811\log(6x+4)\right)}{1361367}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^3/((1 - 2*x)*(2 + 3*x)^5),x]
```

```
[Out] (2*((-7*(2906507 + 13836972*x + 21975894*x^2 + 11643588*x^3))/(8*
(2 + 3*x)^4) - 107811*Log[1 - 2*x] + 107811*Log[4 + 6*x]))/136136
7
```

Maple [A] time = 0.013, size = 54, normalized size = 0.8

$$\frac{1}{756\,(2+3\,x)^4}-\frac{103}{3969\,(2+3\,x)^3}+\frac{3469}{18522\,(2+3\,x)^2}-\frac{1331}{4802+7203\,x}+\frac{2662\,\ln(2+3\,x)}{16807}-\frac{2662\,\ln(-1+2\,x)}{16807}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3/(1-2*x)/(2+3*x)^5,x)
```

```
[Out] 1/756/(2+3*x)^4-103/3969/(2+3*x)^3+3469/18522/(2+3*x)^2-1331/2401
/(2+3*x)+2662/16807*ln(2+3*x)-2662/16807*ln(-1+2*x)
```

Maxima [A] time = 1.34419, size = 76, normalized size = 1.17

$$-\frac{11643588\,x^3+21975894\,x^2+13836972\,x+2906507}{777924\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}+\frac{2662}{16807}\,\log(3\,x+2)-\frac{2662}{16807}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^3/((3*x + 2)^5*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -1/777924*(11643588*x^3 + 21975894*x^2 + 13836972*x + 2906507)/(8
1*x^4 + 216*x^3 + 216*x^2 + 96*x + 16) + 2662/16807*log(3*x + 2)
- 2662/16807*log(2*x - 1)
```

Fricas [A] time = 0.213562, size = 128, normalized size = 1.97

$$-\frac{81505116\,x^3+153831258\,x^2-862488\,\left(81\,x^4+216\,x^3+216\,x^2+96\,x+16\right)\log(3\,x+2)+862488\,\left(81\,x^4+216\,x^3+216\,x^{2}\right.}{5445468\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^3/((3*x + 2)^5*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] -1/5445468*(81505116*x^3 + 153831258*x^2 - 862488*(81*x^4 + 216*x
^3 + 216*x^2 + 96*x + 16)*log(3*x + 2) + 862488*(81*x^4 + 216*x^3
 + 216*x^2 + 96*x + 16)*log(2*x - 1) + 96858804*x + 20345549)/(81
*x^4 + 216*x^3 + 216*x^2 + 96*x + 16)
```

Sympy [A] time = 0.475888, size = 54, normalized size = 0.83

$$-\frac{11643588x^3+21975894x^2+13836972x+2906507}{63011844x^4+168031584x^3+168031584x^2+74680704x+12446784}-\frac{2662\log\left(x-\frac{1}{2}\right)}{16807}+\frac{2662\log\left(x+\frac{2}{3}\right)}{16807}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3/(1-2*x)/(2+3*x)**5,x)
```

```
[Out] -(11643588*x**3 + 21975894*x**2 + 13836972*x + 2906507)/(63011844
*x**4 + 168031584*x**3 + 168031584*x**2 + 74680704*x + 12446784)
- 2662*log(x - 1/2)/16807 + 2662*log(x + 2/3)/16807
```

GIAC/XCAS [A] time = 0.212277, size = 70, normalized size = 1.08

$$-\frac{1331}{2401\,(3\,x+2)}+\frac{3469}{18522\,(3\,x+2)^2}-\frac{103}{3969\,(3\,x+2)^3}+\frac{1}{756\,(3\,x+2)^4}-\frac{2662}{16807}\ln\left(\left|-\frac{7}{3\,x+2}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3/((3*x + 2)^5*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -1331/2401/(3*x + 2) + 3469/18522/(3*x + 2)^2 - 103/3969/(3*x + 2
)^3 + 1/756/(3*x + 2)^4 - 2662/16807*ln(abs(-7/(3*x + 2) + 2))
```

3.1464 $\int \frac{(3+5x)^3}{(1-2x)(2+3x)^6}\,dx$

Optimal. Leaf size=76

$$-\frac{2662}{16807(3x+2)}-\frac{1331}{4802(3x+2)^2}+\frac{3469}{27783(3x+2)^3}-\frac{103}{5292(3x+2)^4}+\frac{1}{945(3x+2)^5}-\frac{5324\log(1-2x)}{117649}+\frac{5324\log(3x+2)}{117649}$$

```
[Out] 1/(945*(2 + 3*x)^5) - 103/(5292*(2 + 3*x)^4) + 3469/(27783*(2 + 3
*x)^3) - 1331/(4802*(2 + 3*x)^2) - 2662/(16807*(2 + 3*x)) - (5324
*Log[1 - 2*x])/117649 + (5324*Log[2 + 3*x])/117649
```

Rubi [A] time = 0.077369, antiderivative size = 76, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{2662}{16807(3x+2)}-\frac{1331}{4802(3x+2)^2}+\frac{3469}{27783(3x+2)^3}-\frac{103}{5292(3x+2)^4}+\frac{1}{945(3x+2)^5}-\frac{5324\log(1-2x)}{117649}+\frac{5324\log(3x+2)}{117649}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^3/((1 - 2*x)*(2 + 3*x)^6),x]
```

```
[Out] 1/(945*(2 + 3*x)^5) - 103/(5292*(2 + 3*x)^4) + 3469/(27783*(2 + 3
*x)^3) - 1331/(4802*(2 + 3*x)^2) - 2662/(16807*(2 + 3*x)) - (5324
*Log[1 - 2*x])/117649 + (5324*Log[2 + 3*x])/117649
```

Rubi in Sympy [A] time = 11.5101, size = 66, normalized size = 0.87

$$-\frac{5324\log\left(-2x+1\right)}{117649}+\frac{5324\log\left(3x+2\right)}{117649}-\frac{2662}{16807\left(3x+2\right)}-\frac{1331}{4802\left(3x+2\right)^2}+\frac{3469}{27783\left(3x+2\right)^3}-\frac{103}{5292\left(3x+2\right)^4}+\frac{1}{945\left(3x+2\right)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**3/(1-2*x)/(2+3*x)**6,x)
```

```
[Out] -5324*log(-2*x + 1)/117649 + 5324*log(3*x + 2)/117649 - 2662/(168
07*(3*x + 2)) - 1331/(4802*(3*x + 2)**2) + 3469/(27783*(3*x + 2)*
*3) - 103/(5292*(3*x + 2)**4) + 1/(945*(3*x + 2)**5)
```

Mathematica [A] time = 0.0742322, size = 52, normalized size = 0.68

$$\frac{2\left(-\frac{7(349307640x^4+1135249830x^3+1308416040x^2+646472325x+116805778)}{8(3x+2)^5}-1078110\log(1-2x)+1078110\log(6x+4)\right)}{47647845}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^3/((1 - 2*x)*(2 + 3*x)^6),x]
```

```
[Out] (2*((-7*(116805778 + 646472325*x + 1308416040*x^2 + 1135249830*x^
3 + 349307640*x^4))/(8*(2 + 3*x)^5) - 1078110*Log[1 - 2*x] + 1078
```

```
110*Log[4 + 6*x]))/47647845
```

Maple [A] time = 0.013, size = 63, normalized size = 0.8

$$\frac{1}{945\,(2+3\,x)^5}-\frac{103}{5292\,(2+3\,x)^4}+\frac{3469}{27783\,(2+3\,x)^3}-\frac{1331}{4802\,(2+3\,x)^2}-\frac{2662}{33614+50421\,x}+\frac{5324\,\ln(2+3\,x)}{117649}-\frac{5324\,\ln(-1+2\,x)}{117649}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3/(1-2*x)/(2+3*x)^6,x)
```

```
[Out] 1/945/(2+3*x)^5-103/5292/(2+3*x)^4+3469/27783/(2+3*x)^3-1331/4802
/(2+3*x)^2-2662/16807/(2+3*x)+5324/117649*ln(2+3*x)-5324/117649*l
n(-1+2*x)
```

Maxima [A] time = 1.35185, size = 89, normalized size = 1.17

$$-\frac{349307640\,x^4+1135249830\,x^3+1308416040\,x^2+646472325\,x+116805778}{27227340\,(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240\,x+32)}+\frac{5324}{117649}\,\log(3\,x+2)-\frac{5324}{117649}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3/((3*x + 2)^6*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -1/27227340*(349307640*x^4 + 1135249830*x^3 + 1308416040*x^2 + 64
6472325*x + 116805778)/(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 +
240*x + 32) + 5324/117649*log(3*x + 2) - 5324/117649*log(2*x - 1)
```

Fricas [A] time = 0.212477, size = 155, normalized size = 2.04

$$-\frac{2445153480\,x^4+7946748810\,x^3+9158912280\,x^2-8624880\,(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240\,x+32)\,\log(3\,x+2 \ldots}{190591380\,(243\,x^5+810\,x^4+1080\,x^3+\ldots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3/((3*x + 2)^6*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] -1/190591380*(2445153480*x^4 + 7946748810*x^3 + 9158912280*x^2 -
8624880*(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)*log
(3*x + 2) + 8624880*(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240
*x + 32)*log(2*x - 1) + 4525306275*x + 817640446)/(243*x^5 + 810*
x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)
```

Sympy [A] time = 0.542211, size = 65, normalized size = 0.86

$$-\frac{349307640x^4+1135249830x^3+1308416040x^2+646472325x+116805778}{6616243620x^5+22054145400x^4+29405527200x^3+19603684800x^2+6534561600x+871274880}-\frac{5324\log\left(x-\frac{1}{2}\right)}{117649}+\frac{5324\log\left(x+\frac{2}{3}\right)}{117649}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3/(1-2*x)/(2+3*x)**6,x)
```

```
[Out] -(349307640*x**4 + 1135249830*x**3 + 1308416040*x**2 + 646472325*
x + 116805778)/(6616243620*x**5 + 22054145400*x**4 + 29405527200*
x**3 + 19603684800*x**2 + 6534561600*x + 871274880) - 5324*log(x
- 1/2)/117649 + 5324*log(x + 2/3)/117649
```

GIAC/XCAS [A] time = 0.205374, size = 65, normalized size = 0.86

$$-\frac{349307640\,x^4+1135249830\,x^3+1308416040\,x^2+646472325\,x+116805778}{27227340\,(3\,x+2)^5}+\frac{5324}{117649}\ln\left(|3\,x+2|\right)-\frac{5324}{117649}\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3/((3*x + 2)^6*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -1/27227340*(349307640*x^4 + 1135249830*x^3 + 1308416040*x^2 + 64
6472325*x + 116805778)/(3*x + 2)^5 + 5324/117649*ln(abs(3*x + 2))
 - 5324/117649*ln(abs(2*x - 1))
```

3.1465 $\int \frac{(3+5x)^3}{(1-2x)(2+3x)^7} dx$

Optimal. Leaf size=87

$$-\frac{5324}{117649(3x+2)}-\frac{1331}{16807(3x+2)^2}-\frac{1331}{7203(3x+2)^3}+\frac{3469}{37044(3x+2)^4}-\frac{103}{6615(3x+2)^5}+\frac{1}{1134(3x+2)^6}-\frac{10648\log(1-2x)}{823543}+\frac{10648\log(3x+2)}{823543}$$

```
[Out] 1/(1134*(2 + 3*x)^6) - 103/(6615*(2 + 3*x)^5) + 3469/(37044*(2 +
3*x)^4) - 1331/(7203*(2 + 3*x)^3) - 1331/(16807*(2 + 3*x)^2) - 53
24/(117649*(2 + 3*x)) - (10648*Log[1 - 2*x])/823543 + (10648*Log[
2 + 3*x])/823543
```

Rubi [A] time = 0.0856457, antiderivative size = 87, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{5324}{117649(3x+2)}-\frac{1331}{16807(3x+2)^2}-\frac{1331}{7203(3x+2)^3}+\frac{3469}{37044(3x+2)^4}-\frac{103}{6615(3x+2)^5}+\frac{1}{1134(3x+2)^6}-\frac{10648\log(1-2x)}{823543}+\frac{10648\log(3x+2)}{823543}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^3/((1 - 2*x)*(2 + 3*x)^7),x]
```

```
[Out] 1/(1134*(2 + 3*x)^6) - 103/(6615*(2 + 3*x)^5) + 3469/(37044*(2 +
3*x)^4) - 1331/(7203*(2 + 3*x)^3) - 1331/(16807*(2 + 3*x)^2) - 53
24/(117649*(2 + 3*x)) - (10648*Log[1 - 2*x])/823543 + (10648*Log[
2 + 3*x])/823543
```

Rubi in Sympy [A] time = 12.8249, size = 76, normalized size = 0.87

$$-\frac{10648\log(-2x+1)}{823543}+\frac{10648\log(3x+2)}{823543}-\frac{5324}{117649(3x+2)}-\frac{1331}{16807(3x+2)^2}-\frac{1331}{7203(3x+2)^3}+\frac{3469}{37044(3x+2)^4}-\frac{103}{6615(3x+2)^5}+\frac{1}{1134(3x+2)^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**3/(1-2*x)/(2+3*x)**7,x)
```

```
[Out] -10648*log(-2*x + 1)/823543 + 10648*log(3*x + 2)/823543 - 5324/(1
17649*(3*x + 2)) - 1331/(16807*(3*x + 2)**2) - 1331/(7203*(3*x +
2)**3) + 3469/(37044*(3*x + 2)**4) - 103/(6615*(3*x + 2)**5) + 1/
(1134*(3*x + 2)**6)
```

Mathematica [A] time = 0.0722925, size = 57, normalized size = 0.66

$$\frac{4\left(-\frac{7(2095845840x^5+8208729540x^4+13525968060x^3+11211272235x^2+4581535248x+733614062)}{16(3x+2)^6}-1078110\log(1-2x)+1078110\log(6x+4)\right)}{333534915}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^3/((1 - 2*x)*(2 + 3*x)^7),x]
```

```
[Out] (4*((-7*(733614062 + 4581535248*x + 11211272235*x^2 + 13525968060
*x^3 + 8208729540*x^4 + 2095845840*x^5))/(16*(2 + 3*x)^6) - 10781
10*Log[1 - 2*x] + 1078110*Log[4 + 6*x]))/333534915
```

Maple [A] time = 0.013, size = 72, normalized size = 0.8

$$\frac{1}{1134 \, (2+3\,x)^{6}}-\frac{103}{6615 \, (2+3\,x)^{5}}+\frac{3469}{37044 \, (2+3\,x)^{4}}-\frac{1331}{7203 \, (2+3\,x)^{3}} -\frac{1331}{16807 \, (2+3\,x)^{2}}-\frac{5324}{235298+352947\,x}+\frac{10648 \, \ln (2+3\,x)}{823543}-\frac{10648 \, \ln (-1+2\,x)}{823543}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3/(1-2*x)/(2+3*x)^7,x)
```

```
[Out] 1/1134/(2+3*x)^6-103/6615/(2+3*x)^5+3469/37044/(2+3*x)^4-1331/720
3/(2+3*x)^3-1331/16807/(2+3*x)^2-5324/117649/(2+3*x)+10648/823543
*ln(2+3*x)-10648/823543*ln(-1+2*x)
```

Maxima [A] time = 1.35568, size = 103, normalized size = 1.18

$$-\frac{2095845840\,x^{5}+8208729540\,x^{4}+13525968060\,x^{3}+11211272235\,x^{2}+4581535248\,x+733614062}{190591380\,(729\,x^{6}+2916\,x^{5}+4860\,x^{4}+4320\,x^{3}+2160\,x^{2}+576\,x+64)} +\frac{10648}{823543}\,\log (3\,x+2)-\frac{10648}{823543}\,\log (2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3/((3*x + 2)^7*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -1/190591380*(2095845840*x^5 + 8208729540*x^4 + 13525968060*x^3 +
 11211272235*x^2 + 4581535248*x + 733614062)/(729*x^6 + 2916*x^5
+ 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64) + 10648/823543*log
(3*x + 2) - 10648/823543*log(2*x - 1)
```

Fricas [A] time = 0.214693, size = 182, normalized size = 2.09

$$-\frac{14670920880\,x^{5}+57461106780\,x^{4}+94681776420\,x^{3}+78478905645\,x^{2}-17249760\,\left(729\,x^{6}+2916\,x^{5}+4860\,x^{4}+4320\,x^{3}}{1334139660\,(729\,x^{6}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3/((3*x + 2)^7*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] -1/1334139660*(14670920880*x^5 + 57461106780*x^4 + 94681776420*x^
3 + 78478905645*x^2 - 17249760*(729*x^6 + 2916*x^5 + 4860*x^4 + 4
320*x^3 + 2160*x^2 + 576*x + 64)*log(3*x + 2) + 17249760*(729*x^6
 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64)*log(2*
x - 1) + 32070746736*x + 5135298434)/(729*x^6 + 2916*x^5 + 4860*x
^4 + 4320*x^3 + 2160*x^2 + 576*x + 64)
```

Sympy [A] time = 0.598006, size = 75, normalized size = 0.86

$$-\frac{2095845840x^{5}+8208729540x^{4}+13525968060x^{3}+11211272235x^{2}+4581535248x+733614062}{138941116020x^{6}+555764464080x^{5}+926274106800x^{4}+823354761600x^{3}+411677380800x^{2}+109780634880x+121978} -\frac{10648\log\left(x-\frac{1}{2}\right)}{823543}+\frac{10648\log\left(x+\frac{2}{3}\right)}{823543}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3/(1-2*x)/(2+3*x)**7,x)
```

```
[Out] -(2095845840*x**5 + 8208729540*x**4 + 13525968060*x**3 + 11211272
235*x**2 + 4581535248*x + 733614062)/(138941116020*x**6 + 5557644
64080*x**5 + 926274106800*x**4 + 823354761600*x**3 + 411677380800
*x**2 + 109780634880*x + 12197848320) - 10648*log(x - 1/2)/823543
 + 10648*log(x + 2/3)/823543
```

GIAC/XCAS [A] time = 0.211924, size = 72, normalized size = 0.83

$$-\frac{2095845840\,x^{5}+8208729540\,x^{4}+13525968060\,x^{3}+11211272235\,x^{2}+4581535248\,x+733614062}{190591380\,(3\,x+2)^{6}}+\frac{10648}{823543}\ln\left(|3\,x+2|\right)-\frac{10648}{823543}\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3/((3*x + 2)^7*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -1/190591380*(2095845840*x^5 + 8208729540*x^4 + 13525968060*x^3 +
 11211272235*x^2 + 4581535248*x + 733614062)/(3*x + 2)^6 + 10648/
823543*ln(abs(3*x + 2)) - 10648/823543*ln(abs(2*x - 1))
```

3.1466 $\int \frac{(3+5x)^3}{(1-2x)(2+3x)^8}\,dx$

Optimal. Leaf size=98

$$-\frac{10648}{823543(3x+2)}-\frac{2662}{117649(3x+2)^2}-\frac{2662}{50421(3x+2)^3}-\frac{1331}{9604(3x+2)^4}+\frac{3469}{46305(3x+2)^5}-\frac{103}{7938(3x+2)^6}+\frac{1}{1323(3x+2)^7}-\frac{21296\log(1-2x)}{5764801}+\frac{21296\log(3x+2)}{5764801}$$

```
[Out] 1/(1323*(2 + 3*x)^7) - 103/(7938*(2 + 3*x)^6) + 3469/(46305*(2 +
3*x)^5) - 1331/(9604*(2 + 3*x)^4) - 2662/(50421*(2 + 3*x)^3) - 26
62/(117649*(2 + 3*x)^2) - 10648/(823543*(2 + 3*x)) - (21296*Log[1
 - 2*x])/5764801 + (21296*Log[2 + 3*x])/5764801
```

Rubi [A] time = 0.0963738, antiderivative size = 98, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{10648}{823543(3x+2)}-\frac{2662}{117649(3x+2)^2}-\frac{2662}{50421(3x+2)^3}-\frac{1331}{9604(3x+2)^4}+\frac{3469}{46305(3x+2)^5}-\frac{103}{7938(3x+2)^6}+\frac{1}{1323(3x+2)^7}-\frac{21296\log(1-2x)}{5764801}+\frac{21296\log(3x+2)}{5764801}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^3/((1 - 2*x)*(2 + 3*x)^8),x]
```

```
[Out] 1/(1323*(2 + 3*x)^7) - 103/(7938*(2 + 3*x)^6) + 3469/(46305*(2 +
3*x)^5) - 1331/(9604*(2 + 3*x)^4) - 2662/(50421*(2 + 3*x)^3) - 26
62/(117649*(2 + 3*x)^2) - 10648/(823543*(2 + 3*x)) - (21296*Log[1
 - 2*x])/5764801 + (21296*Log[2 + 3*x])/5764801
```

Rubi in Sympy [A] time = 14.1837, size = 87, normalized size = 0.89

$$-\frac{21296\log(-2x+1)}{5764801}+\frac{21296\log(3x+2)}{5764801}-\frac{10648}{823543(3x+2)}-\frac{2662}{117649(3x+2)^2}-\frac{2662}{50421(3x+2)^3}-\frac{1331}{9604(3x+2)^4}+\frac{3469}{46305(3x+2)^5}-\frac{103}{7938(3x+2)^6}+\frac{1}{1323(3x+2)^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**3/(1-2*x)/(2+3*x)**8,x)
```

```
[Out] -21296*log(-2*x + 1)/5764801 + 21296*log(3*x + 2)/5764801 - 10648
/(823543*(3*x + 2)) - 2662/(117649*(3*x + 2)**2) - 2662/(50421*(3
*x + 2)**3) - 1331/(9604*(3*x + 2)**4) + 3469/(46305*(3*x + 2)**5
) - 103/(7938*(3*x + 2)**6) + 1/(1323*(3*x + 2)**7)
```

Mathematica [A] time = 0.0899703, size = 62, normalized size = 0.63

$$\frac{4\left(-\frac{7(12575075040x^6+57635760600x^5+113990726520x^4+127327486275x^3+83293304778x^2+29451465714x+4309941128)}{16(3x+2)^7}-2156220\log(1-2x)+2156\right.}{2334744405}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^3/((1 - 2*x)*(2 + 3*x)^8),x]
```

```
[Out] (4*((-7*(4309941128 + 29451465714*x + 83293304778*x^2 + 127327486
275*x^3 + 113990726520*x^4 + 57635760600*x^5 + 12575075040*x^6))/
(16*(2 + 3*x)^7) - 2156220*Log[1 - 2*x] + 2156220*Log[4 + 6*x]))/
2334744405
```

Maple [A] time = 0.013, size = 81, normalized size = 0.8

$$\frac{1}{1323\,(2+3\,x)^{7}}-\frac{103}{7938\,(2+3\,x)^{6}}+\frac{3469}{46305\,(2+3\,x)^{5}}-\frac{1331}{9604\,(2+3\,x)^{4}}-\frac{2662}{50421\,(2+3\,x)^{3}}-\frac{2662}{117649\,(2+3\,x)^{2}}-\frac{10648}{1647086+2470629\,x}+\frac{21296\,\ln(2+3\,x)}{5764801}-\frac{21296\,\ln(-1+2\,x)}{5764801}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((3+5*x)^3/(1-2*x)/(2+3*x)^8,x)
```

```
[Out] 1/1323/(2+3*x)^7-103/7938/(2+3*x)^6+3469/46305/(2+3*x)^5-1331/960
4/(2+3*x)^4-2662/50421/(2+3*x)^3-2662/117649/(2+3*x)^2-10648/8235
43/(2+3*x)+21296/5764801*ln(2+3*x)-21296/5764801*ln(-1+2*x)
```

Maxima [A] time = 1.3556, size = 116, normalized size = 1.18

$$-\frac{12575075040\,x^{6}+57635760600\,x^{5}+113990726520\,x^{4}+127327486275\,x^{3}+83293304778\,x^{2}+29451465714\,x+43099411}{1334139660\,(2187\,x^{7}+10206\,x^{6}+20412\,x^{5}+22680\,x^{4}+15120\,x^{3}+6048\,x^{2}+1344\,x+128)}+\frac{21296}{5764801}\,\log(3\,x+2)-\frac{21296}{5764801}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^3/((3*x + 2)^8*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -1/1334139660*(12575075040*x^6 + 57635760600*x^5 + 113990726520*x
^4 + 127327486275*x^3 + 83293304778*x^2 + 29451465714*x + 4309941
128)/(2187*x^7 + 10206*x^6 + 20412*x^5 + 22680*x^4 + 15120*x^3 +
6048*x^2 + 1344*x + 128) + 21296/5764801*log(3*x + 2) - 21296/576
4801*log(2*x - 1)
```

Fricas [A] time = 0.213773, size = 209, normalized size = 2.13

$$-\frac{88025525280\,x^{6}+403450324200\,x^{5}+797935085640\,x^{4}+891292403925\,x^{3}+583053133446\,x^{2}-34499520\,\left(2187\,x^{7}+102\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^3/((3*x + 2)^8*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] -1/9338977620*(88025525280*x^6 + 403450324200*x^5 + 797935085640*
x^4 + 891292403925*x^3 + 583053133446*x^2 - 34499520*(2187*x^7 +
10206*x^6 + 20412*x^5 + 22680*x^4 + 15120*x^3 + 6048*x^2 + 1344*x
 + 128)*log(3*x + 2) + 34499520*(2187*x^7 + 10206*x^6 + 20412*x^5
 + 22680*x^4 + 15120*x^3 + 6048*x^2 + 1344*x + 128)*log(2*x - 1)
+ 206160259998*x + 30169587896)/(2187*x^7 + 10206*x^6 + 20412*x^5
 + 22680*x^4 + 15120*x^3 + 6048*x^2 + 1344*x + 128)
```

Sympy [A] time = 0.639227, size = 85, normalized size = 0.87

$$-\frac{12575075040x^6 + 57635760600x^5 + 113990726520x^4 + 127327486275x^3 + 83293304778x^2 + 29451465}{2917763436420x^7 + 13616229369960x^6 + 27232458739920x^5 + 30258287488800x^4 + 20172191659200x^3 + 806887666368}$$
$$- \frac{21296 \log\left(x - \frac{1}{2}\right)}{5764801} + \frac{21296 \log\left(x + \frac{2}{3}\right)}{5764801}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3/(1-2*x)/(2+3*x)**8,x)
```

```
[Out] -(12575075040*x**6 + 57635760600*x**5 + 113990726520*x**4 + 12732
7486275*x**3 + 83293304778*x**2 + 29451465714*x + 4309941128)/(29
17763436420*x**7 + 13616229369960*x**6 + 27232458739920*x**5 + 30
258287488800*x**4 + 20172191659200*x**3 + 8068876663680*x**2 + 17
93083703040*x + 170769876480) - 21296*log(x - 1/2)/5764801 + 2129
6*log(x + 2/3)/5764801
```

GIAC/XCAS [A] time = 0.205144, size = 78, normalized size = 0.8

$$-\frac{12575075040\,x^6 + 57635760600\,x^5 + 113990726520\,x^4 + 127327486275\,x^3 + 83293304778\,x^2 + 29451465714\,x + 43099411}{1334139660\,(3\,x + 2)^7}$$
$$+ \frac{21296}{5764801} \ln\left(|3\,x + 2|\right) - \frac{21296}{5764801} \ln\left(|2\,x - 1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3/((3*x + 2)^8*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -1/1334139660*(12575075040*x^6 + 57635760600*x^5 + 113990726520*x
^4 + 127327486275*x^3 + 83293304778*x^2 + 29451465714*x + 4309941
128)/(3*x + 2)^7 + 21296/5764801*ln(abs(3*x + 2)) - 21296/5764801
*ln(abs(2*x - 1))
```

3.1467 $\int \frac{(a+bx)^3}{(c+dx)(e+fx)}\,dx$

Optimal. Leaf size=104

$$-\frac{b^2x(-3adf+bcf+bde)}{d^2f^2}-\frac{(bc-ad)^3\log(c+dx)}{d^3(de-cf)}+\frac{(be-af)^3\log(e+fx)}{f^3(de-cf)}+\frac{b^3x^2}{2df}$$

```
[Out] -((b^2*(b*d*e + b*c*f - 3*a*d*f)*x)/(d^2*f^2)) + (b^3*x^2)/(2*d*f
) - ((b*c - a*d)^3*Log[c + d*x])/(d^3*(d*e - c*f)) + ((b*e - a*f)
^3*Log[e + f*x])/(f^3*(d*e - c*f))
```

Rubi [A] time = 0.241618, antiderivative size = 104, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{b^2x(-3adf+bcf+bde)}{d^2f^2}-\frac{(bc-ad)^3\log(c+dx)}{d^3(de-cf)}+\frac{(be-af)^3\log(e+fx)}{f^3(de-cf)}+\frac{b^3x^2}{2df}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^3/((c + d*x)*(e + f*x)),x]
```

```
[Out] -((b^2*(b*d*e + b*c*f - 3*a*d*f)*x)/(d^2*f^2)) + (b^3*x^2)/(2*d*f
) - ((b*c - a*d)^3*Log[c + d*x])/(d^3*(d*e - c*f)) + ((b*e - a*f)
^3*Log[e + f*x])/(f^3*(d*e - c*f))
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{b^3\int x\,dx}{df}+\frac{(af-be)^3\log(e+fx)}{f^3(cf-de)}+\frac{(3adf-bcf-bde)\int b^2\,dx}{d^2f^2}-\frac{(ad-bc)^3\log(c+dx)}{d^3(cf-de)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**3/(d*x+c)/(f*x+e),x)
```

```
[Out] b**3*Integral(x, x)/(d*f) + (a*f - b*e)**3*log(e + f*x)/(f**3*(c*
f - d*e)) + (3*a*d*f - b*c*f - b*d*e)*Integral(b**2, x)/(d**2*f**
2) - (a*d - b*c)**3*log(c + d*x)/(d**3*(c*f - d*e))
```

Mathematica [A] time = 0.131686, size = 99, normalized size = 0.95

$$\frac{b^2dfx(de-cf)(6adf+b(-2cf-2de+dfx))-2f^3(bc-ad)^3\log(c+dx)+2d^3(be-af)^3\log(e+fx)}{2d^3f^3(de-cf)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^3/((c + d*x)*(e + f*x)),x]
```

```
[Out] (b^2*d*f*(d*e - c*f)*x*(6*a*d*f + b*(-2*d*e - 2*c*f + d*f*x)) - 2
*(b*c - a*d)^3*f^3*Log[c + d*x] + 2*d^3*(b*e - a*f)^3*Log[e + f*x
])/(2*d^3*f^3*(d*e - c*f))
```

Maple [B] time = 0.013, size = 257, normalized size = 2.5

$$\frac{b^3x^2}{2df}+3\frac{b^2ax}{df}-\frac{b^3cx}{d^2f}-\frac{b^3ex}{df^2}-\frac{\ln(dx+c)a^3}{cf-de}+3\frac{\ln(dx+c)a^2cb}{d(cf-de)}-3\frac{\ln(dx+c)ab^2c^2}{d^2(cf-de)}+\frac{\ln(dx+c)b^3c^3}{d^3(cf-de)}+\frac{\ln(fx+e)a^3}{cf-de}-3\frac{\ln(fx+e)a^2be}{f(cf-de)}+3\frac{\ln(fx+e)ab^2e^2}{f^2(cf-de)}-\frac{\ln(fx+e)b^3e^3}{f^3(cf-de)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3/(d*x+c)/(f*x+e),x)
```

```
[Out] 1/2*b^3*x^2/d/f+3*b^2/d/f*a*x-b^3/d^2/f*c*x-b^3/d/f^2*e*x-1/(c*f-
d*e)*ln(d*x+c)*a^3+3/d/(c*f-d*e)*ln(d*x+c)*a^2*c*b-3/d^2/(c*f-d*e
)*ln(d*x+c)*a*b^2*c^2+1/d^3/(c*f-d*e)*ln(d*x+c)*b^3*c^3+1/(c*f-d*
e)*ln(f*x+e)*a^3-3/f/(c*f-d*e)*ln(f*x+e)*a^2*b*e+3/f^2/(c*f-d*e)*
ln(f*x+e)*a*b^2*e^2-1/f^3/(c*f-d*e)*ln(f*x+e)*b^3*e^3
```

Maxima [A] time = 1.36075, size = 217, normalized size = 2.09

$$-\frac{\left(b^3c^3 - 3\,ab^2c^2d + 3\,a^2bcd^2 - a^3d^3\right)\log\left(dx + c\right)}{d^4e - cd^3f} + \frac{\left(b^3e^3 - 3\,ab^2e^2f + 3\,a^2bef^2 - a^3f^3\right)\log\left(fx + e\right)}{def^3 - cf^4} + \frac{b^3dfx^2 - 2\left(b^3de + \left(b^3c - 3\,ab^2d\right)f\right)x}{2\,d^2f^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^3/((d*x + c)*(f*x + e)),x, algorithm="maxima")
```

```
[Out] -(b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*log(d*x + c)
/(d^4*e - c*d^3*f) + (b^3*e^3 - 3*a*b^2*e^2*f + 3*a^2*b*e*f^2 - a
^3*f^3)*log(f*x + e)/(d*e*f^3 - c*f^4) + 1/2*(b^3*d*f*x^2 - 2*(b^
3*d*e + (b^3*c - 3*a*b^2*d)*f)*x)/(d^2*f^2)
```

Fricas [A] time = 0.336399, size = 279, normalized size = 2.68

$$-\frac{2\left(b^3c^3 - 3\,ab^2c^2d + 3\,a^2bcd^2 - a^3d^3\right)f^3\log\left(dx + c\right) - \left(b^3d^3ef^2 - b^3cd^2f^3\right)x^2 + 2\left(b^3d^3e^2f - 3\,ab^2d^3ef^2 - \left(b^3c^2d - 3\,a\right.\right.}{2\left(d^4ef^3 - cd^3f^4\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^3/((d*x + c)*(f*x + e)),x, algorithm="fricas")
```

```
[Out] -1/2*(2*(b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*f^3*l
og(d*x + c) - (b^3*d^3*e*f^2 - b^3*c*d^2*f^3)*x^2 + 2*(b^3*d^3*e^
2*f - 3*a*b^2*d^3*e*f^2 - (b^3*c^2*d - 3*a*b^2*c*d^2)*f^3)*x - 2*
(b^3*d^3*e^3 - 3*a*b^2*d^3*e^2*f + 3*a^2*b*d^3*e*f^2 - a^3*d^3*f^
3)*log(f*x + e))/(d^4*e*f^3 - c*d^3*f^4)
```

Sympy [A] time = 26.5688, size = 614, normalized size = 5.9

$$\frac{b^3x^2}{2df} + \frac{(af - be)^3\log\left(x + \frac{a^3cd^2f^3 + a^3d^3ef^2 - 6a^2bcd^2ef^2 + 3ab^2c^2def^2 + 3ab^2cd^2e^2f - b^3c^3ef^2 - b^3cd^2e^3 - \frac{c^2d^2f(af-be)^3}{cf-de} + \frac{2cd^3e(af-be)^3}{cf-de} - \frac{d^4e^2(af-be)^3}{f(cf-de)}}{2a^3d^3f^3 - 3a^2bcd^2f^3 - 3a^2bd^3ef^2 + 3ab^2c^2df^3 + 3ab^2d^3e^2f - b^3c^3f^3 - b^3d^3e^3}\right)}{f^3\left(cf - de\right)} + \frac{x\left(3ab^2df - b^3cf - b^3de\right)}{d^2f^2} - \frac{(ad - bc)^3\log\left(x + \frac{a^3cd^2f^3 + a^3d^3ef^2 - 6a^2bcd^2ef^2 + 3ab^2c^2def^2 + 3ab^2cd^2e^2f - b^3c^3ef^2 - b^3cd^2e^3 + \frac{c^2f^4(ad-bc)^3}{d(cf-de)} - \frac{2cef^3(ad-bc)^3}{cf-de} + \frac{de^2f^2(ad-bc)^3}{cf-de}}{2a^3d^3f^3 - 3a^2bcd^2f^3 - 3a^2bd^3ef^2 + 3ab^2c^2df^3 + 3ab^2d^3e^2f - b^3c^3f^3 - b^3d^3e^3}\right)}{d^3\left(cf - de\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**3/(d*x+c)/(f*x+e),x)
```

```
[Out] b**3*x**2/(2*d*f) + (a*f - b*e)**3*log(x + (a**3*c*d**2*f**3 + a*
*3*d**3*e*f**2 - 6*a**2*b*c*d**2*e*f**2 + 3*a*b**2*c**2*d*e*f**2
+ 3*a*b**2*c*d**2*e**2*f - b**3*c**3*e*f**2 - b**3*c*d**2*e**3 -
c**2*d**2*f*(a*f - b*e)**3/(c*f - d*e) + 2*c*d**3*e*(a*f - b*e)**
3/(c*f - d*e) - d**4*e**2*(a*f - b*e)**3/(f*(c*f - d*e)))/(2*a**3
*d**3*f**3 - 3*a**2*b*c*d**2*f**3 - 3*a**2*b*d**3*e*f**2 + 3*a*b*
*2*c**2*d*f**3 + 3*a*b**2*d**3*e**2*f - b**3*c**3*f**3 - b**3*d**
3*e**3))/(f**3*(c*f - d*e)) + x*(3*a*b**2*d*f - b**3*c*f - b**3*d
*e)/(d**2*f**2) - (a*d - b*c)**3*log(x + (a**3*c*d**2*f**3 + a**3
*d**3*e*f**2 - 6*a**2*b*c*d**2*e*f**2 + 3*a*b**2*c**2*d*e*f**2 +
3*a*b**2*c*d**2*e**2*f - b**3*c**3*e*f**2 - b**3*c*d**2*e**3 + c*
*2*f**4*(a*d - b*c)**3/(d*(c*f - d*e)) - 2*c*e*f**3*(a*d - b*c)**
3/(c*f - d*e) + d*e**2*f**2*(a*d - b*c)**3/(c*f - d*e))/(2*a**3*d
**3*f**3 - 3*a**2*b*c*d**2*f**3 - 3*a**2*b*d**3*e*f**2 + 3*a*b**2
*c**2*d*f**3 + 3*a*b**2*d**3*e**2*f - b**3*c**3*f**3 - b**3*d**3*
e**3))/(d**3*(c*f - d*e))
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^3/((d*x + c)*(f*x + e)),x, algorithm="giac")
```

```
[Out] Exception raised: NotImplementedError
```

3.1468 $\int \frac{(2+3x)^8}{(1-2x)(3+5x)}\,dx$

Optimal. Leaf size=68

$$-\frac{6561x^7}{70}-\frac{114453x^6}{200}-\frac{8018271x^5}{5000}-\frac{111146499x^4}{40000}-\frac{345533877x^3}{100000}-\frac{7136193339x^2}{2000000}-\frac{40089855591x}{10000000}-\frac{5764801\log(1-2x)}{2816}+\frac{\log(5x+3)}{4296875}$$

```
[Out] (-40089855591*x)/10000000 - (7136193339*x^2)/2000000 - (345533877
*x^3)/100000 - (111146499*x^4)/40000 - (8018271*x^5)/5000 - (1144
53*x^6)/200 - (6561*x^7)/70 - (5764801*Log[1 - 2*x])/2816 + Log[3
 + 5*x]/4296875
```

Rubi [A] time = 0.0698766, antiderivative size = 68, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{6561x^7}{70}-\frac{114453x^6}{200}-\frac{8018271x^5}{5000}-\frac{111146499x^4}{40000}-\frac{345533877x^3}{100000}-\frac{7136193339x^2}{2000000}-\frac{40089855591x}{10000000}-\frac{5764801\log(1-2x)}{2816}+\frac{\log(5x+3)}{4296875}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^8/((1 - 2*x)*(3 + 5*x)),x]
```

```
[Out] (-40089855591*x)/10000000 - (7136193339*x^2)/2000000 - (345533877
*x^3)/100000 - (111146499*x^4)/40000 - (8018271*x^5)/5000 - (1144
53*x^6)/200 - (6561*x^7)/70 - (5764801*Log[1 - 2*x])/2816 + Log[3
 + 5*x]/4296875
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{6561x^7}{70}-\frac{114453x^6}{200}-\frac{8018271x^5}{5000}-\frac{111146499x^4}{40000}-\frac{345533877x^3}{100000}-\frac{5764801\log(-2x+1)}{2816}+\frac{\log(5x+3)}{4296875}+\int\left(-\frac{40089855591}{10000000}\right)dx-\frac{7136193339\int x\,dx}{1000000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**8/(1-2*x)/(3+5*x),x)
```

```
[Out] -6561*x**7/70 - 114453*x**6/200 - 8018271*x**5/5000 - 111146499*x
**4/40000 - 345533877*x**3/100000 - 5764801*log(-2*x + 1)/2816 +
log(5*x + 3)/4296875 + Integral(-40089855591/10000000, x) - 71361
93339*Integral(x, x)/1000000
```

Mathematica [A] time = 0.0444869, size = 62, normalized size = 0.91

$$-\frac{3\left(2187000000x^7+13352850000x^6+37418598000x^5+64835457750x^4+80624571300x^3+83255588955x^2+9354299637\right.}{70000000}-\frac{5764801\log(3-6x)}{2816}+\frac{\log(-3(5x+3))}{4296875}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^8/((1 - 2*x)*(3 + 5*x)),x]
```

```
[Out] (-3*(40324556806 + 93542996379*x + 83255588955*x^2 + 80624571300*
x^3 + 64835457750*x^4 + 37418598000*x^5 + 13352850000*x^6 + 21870
00000*x^7))/70000000 - (5764801*Log[3 - 6*x])/2816 + Log[-3*(3 +
5*x)]/4296875
```

Maple [A] time = 0.01, size = 51, normalized size = 0.8

$$-\frac{6561\,x^7}{70}-\frac{114453\,x^6}{200}-\frac{8018271\,x^5}{5000}-\frac{111146499\,x^4}{40000}-\frac{345533877\,x^3}{100000}-\frac{7136193339\,x^2}{2000000}-\frac{40089855591\,x}{10000000}+\frac{\ln(3+5\,x)}{4296875}-\frac{5764801\,\ln(-1+2\,x)}{2816}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^8/(1-2*x)/(3+5*x),x)
```

```
[Out] -6561/70*x^7-114453/200*x^6-8018271/5000*x^5-111146499/40000*x^4-
345533877/100000*x^3-7136193339/2000000*x^2-40089855591/10000000*
x+1/4296875*ln(3+5*x)-5764801/2816*ln(-1+2*x)
```

Maxima [A] time = 1.35138, size = 68, normalized size = 1.

$$-\frac{6561}{70}\,x^7-\frac{114453}{200}\,x^6-\frac{8018271}{5000}\,x^5-\frac{111146499}{40000}\,x^4-\frac{345533877}{100000}\,x^3-\frac{7136193339}{2000000}\,x^2-\frac{40089855591}{10000000}\,x+\frac{1}{4296875}\,\log(5\,x+3)-\frac{5764801}{2816}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^8/((5*x + 3)*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -6561/70*x^7 - 114453/200*x^6 - 8018271/5000*x^5 - 111146499/4000
0*x^4 - 345533877/100000*x^3 - 7136193339/2000000*x^2 - 400898555
91/10000000*x + 1/4296875*log(5*x + 3) - 5764801/2816*log(2*x - 1
)
```

Fricas [A] time = 0.205753, size = 68, normalized size = 1.

$$-\frac{6561}{70}\,x^7-\frac{114453}{200}\,x^6-\frac{8018271}{5000}\,x^5-\frac{111146499}{40000}\,x^4-\frac{345533877}{100000}\,x^3-\frac{7136193339}{2000000}\,x^2-\frac{40089855591}{10000000}\,x+\frac{1}{4296875}\,\log(5\,x+3)-\frac{5764801}{2816}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^8/((5*x + 3)*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] -6561/70*x^7 - 114453/200*x^6 - 8018271/5000*x^5 - 111146499/4000
0*x^4 - 345533877/100000*x^3 - 7136193339/2000000*x^2 - 400898555
91/10000000*x + 1/4296875*log(5*x + 3) - 5764801/2816*log(2*x - 1
)
```

Sympy [A] time = 0.345597, size = 63, normalized size = 0.93

$$-\frac{6561x^7}{70}-\frac{114453x^6}{200}-\frac{8018271x^5}{5000}-\frac{111146499x^4}{40000}-\frac{345533877x^3}{100000}-\frac{7136193339x^2}{2000000}-\frac{40089855591x}{10000000}-\frac{5764801\log\left(x-\frac{1}{2}\right)}{2816}+\frac{\log\left(x+\frac{3}{5}\right)}{4296875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**8/(1-2*x)/(3+5*x),x)
```

```
[Out] -6561*x**7/70 - 114453*x**6/200 - 8018271*x**5/5000 - 111146499*x
**4/40000 - 345533877*x**3/100000 - 7136193339*x**2/2000000 - 400
89855591*x/10000000 - 5764801*log(x - 1/2)/2816 + log(x + 3/5)/42
96875
```

GIAC/XCAS [A] time = 0.203969, size = 70, normalized size = 1.03

$$-\frac{6561}{70}x^7 - \frac{114453}{200}x^6 - \frac{8018271}{5000}x^5 - \frac{111146499}{40000}x^4 - \frac{345533877}{100000}x^3 - \frac{7136193339}{2000000}x^2 - \frac{40089855591}{10000000}x + \frac{1}{4296875}\ln(|5x + 3|) - \frac{5764801}{2816}\ln(|2x - 1|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^8/((5*x + 3)*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -6561/70*x^7 - 114453/200*x^6 - 8018271/5000*x^5 - 111146499/4000
0*x^4 - 345533877/100000*x^3 - 7136193339/2000000*x^2 - 400898555
91/10000000*x + 1/4296875*ln(abs(5*x + 3)) - 5764801/2816*ln(abs(
2*x - 1))
```

3.1469 $\int \frac{(2+3x)^7}{(1-2x)(3+5x)}\,dx$

Optimal. Leaf size=61

$$-\frac{729x^6}{20}-\frac{99873x^5}{500}-\frac{2006937x^4}{4000}-\frac{7889751x^3}{10000}-\frac{187738857x^2}{200000}-\frac{1127138733x}{1000000}-\frac{823543\log(1-2x)}{1408}+\frac{\log(5x+3)}{859375}$$

```
[Out] (-1127138733*x)/1000000 - (187738857*x^2)/200000 - (7889751*x^3)/
10000 - (2006937*x^4)/4000 - (99873*x^5)/500 - (729*x^6)/20 - (82
3543*Log[1 - 2*x])/1408 + Log[3 + 5*x]/859375
```

Rubi [A] time = 0.0631333, antiderivative size = 61, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{729x^6}{20}-\frac{99873x^5}{500}-\frac{2006937x^4}{4000}-\frac{7889751x^3}{10000}-\frac{187738857x^2}{200000}-\frac{1127138733x}{1000000}-\frac{823543\log(1-2x)}{1408}+\frac{\log(5x+3)}{859375}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^7/((1 - 2*x)*(3 + 5*x)),x]
```

```
[Out] (-1127138733*x)/1000000 - (187738857*x^2)/200000 - (7889751*x^3)/
10000 - (2006937*x^4)/4000 - (99873*x^5)/500 - (729*x^6)/20 - (82
3543*Log[1 - 2*x])/1408 + Log[3 + 5*x]/859375
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{729x^6}{20}-\frac{99873x^5}{500}-\frac{2006937x^4}{4000}-\frac{7889751x^3}{10000}-\frac{823543\log(-2x+1)}{1408}+\frac{\log(5x+3)}{859375}+\int\left(-\frac{1127138733}{1000000}\right)dx-\frac{187738857\int x\,dx}{100000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**7/(1-2*x)/(3+5*x),x)
```

```
[Out] -729*x**6/20 - 99873*x**5/500 - 2006937*x**4/4000 - 7889751*x**3/
10000 - 823543*log(-2*x + 1)/1408 + log(5*x + 3)/859375 + Integra
l(-1127138733/1000000, x) - 187738857*Integral(x, x)/100000
```

Mathematica [A] time = 0.0427606, size = 58, normalized size = 0.95

$$\frac{64\log(-3(5x+3))-165\left(12150000x^6+66582000x^5+167244750x^4+262991700x^3+312898095x^2+375712911x+163998\right.}{55000000}-\frac{823543\log(3-6x)}{1408}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^7/((1 - 2*x)*(3 + 5*x)),x]
```

```
[Out] (-823543*Log[3 - 6*x])/1408 + (-165*(163998254 + 375712911*x + 31
2898095*x^2 + 262991700*x^3 + 167244750*x^4 + 66582000*x^5 + 1215
```

```
0000*x^6) + 64*Log[-3*(3 + 5*x)])/55000000
```

Maple [A] time = 0.01, size = 46, normalized size = 0.8

$$-\frac{729\,x^6}{20}-\frac{99873\,x^5}{500}-\frac{2006937\,x^4}{4000}-\frac{7889751\,x^3}{10000}-\frac{187738857\,x^2}{200000}-\frac{1127138733\,x}{1000000}+\frac{\ln(3+5\,x)}{859375}-\frac{823543\,\ln(-1+2\,x)}{1408}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^7/(1-2*x)/(3+5*x),x)
```

```
[Out] -729/20*x^6-99873/500*x^5-2006937/4000*x^4-7889751/10000*x^3-1877
38857/200000*x^2-1127138733/1000000*x+1/859375*ln(3+5*x)-823543/1
408*ln(-1+2*x)
```

Maxima [A] time = 1.3467, size = 61, normalized size = 1.

$$-\frac{729}{20}\,x^6-\frac{99873}{500}\,x^5-\frac{2006937}{4000}\,x^4-\frac{7889751}{10000}\,x^3-\frac{187738857}{200000}\,x^2-\frac{1127138733}{1000000}\,x+\frac{1}{859375}\,\log(5\,x+3)-\frac{823543}{1408}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^7/((5*x + 3)*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -729/20*x^6 - 99873/500*x^5 - 2006937/4000*x^4 - 7889751/10000*x^
3 - 187738857/200000*x^2 - 1127138733/1000000*x + 1/859375*log(5*
x + 3) - 823543/1408*log(2*x - 1)
```

Fricas [A] time = 0.206012, size = 61, normalized size = 1.

$$-\frac{729}{20}\,x^6-\frac{99873}{500}\,x^5-\frac{2006937}{4000}\,x^4-\frac{7889751}{10000}\,x^3-\frac{187738857}{200000}\,x^2-\frac{1127138733}{1000000}\,x+\frac{1}{859375}\,\log(5\,x+3)-\frac{823543}{1408}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^7/((5*x + 3)*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] -729/20*x^6 - 99873/500*x^5 - 2006937/4000*x^4 - 7889751/10000*x^
3 - 187738857/200000*x^2 - 1127138733/1000000*x + 1/859375*log(5*
x + 3) - 823543/1408*log(2*x - 1)
```

Sympy [A] time = 0.329534, size = 56, normalized size = 0.92

$$-\frac{729x^6}{20}-\frac{99873x^5}{500}-\frac{2006937x^4}{4000}-\frac{7889751x^3}{10000}-\frac{187738857x^2}{200000}-\frac{1127138733x}{1000000}-\frac{823543\log\left(x-\frac{1}{2}\right)}{1408}+\frac{\log\left(x+\frac{3}{5}\right)}{859375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**7/(1-2*x)/(3+5*x),x)
```

```
[Out] -729*x**6/20 - 99873*x**5/500 - 2006937*x**4/4000 - 7889751*x**3/
10000 - 187738857*x**2/200000 - 1127138733*x/1000000 - 823543*log
(x - 1/2)/1408 + log(x + 3/5)/859375
```

GIAC/XCAS [A] time = 0.210228, size = 63, normalized size = 1.03

$$-\frac{729}{20}x^6 - \frac{99873}{500}x^5 - \frac{2006937}{4000}x^4 - \frac{7889751}{10000}x^3 - \frac{187738857}{200000}x^2 - \frac{1127138733}{1000000}x + \frac{1}{859375}\ln(|5x+3|) - \frac{823543}{1408}\ln(|2x-1|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^7/((5*x + 3)*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -729/20*x^6 - 99873/500*x^5 - 2006937/4000*x^4 - 7889751/10000*x^
3 - 187738857/200000*x^2 - 1127138733/1000000*x + 1/859375*ln(abs
(5*x + 3)) - 823543/1408*ln(abs(2*x - 1))
```

3.1470 $\int \frac{(2+3x)^6}{(1-2x)(3+5x)}\,dx$

Optimal. Leaf size=54

$$-\frac{729x^5}{50}-\frac{28431x^4}{400}-\frac{159813x^3}{1000}-\frac{4693491x^2}{20000}-\frac{31289679x}{100000}-\frac{117649}{704}\log(1-2x)+\frac{\log(5x+3)}{171875}$$

```
[Out] (-31289679*x)/100000 - (4693491*x^2)/20000 - (159813*x^3)/1000 -
(28431*x^4)/400 - (729*x^5)/50 - (117649*Log[1 - 2*x])/704 + Log[
3 + 5*x]/171875
```

Rubi [A] time = 0.0581985, antiderivative size = 54, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{729x^5}{50}-\frac{28431x^4}{400}-\frac{159813x^3}{1000}-\frac{4693491x^2}{20000}-\frac{31289679x}{100000}-\frac{117649}{704}\log(1-2x)+\frac{\log(5x+3)}{171875}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^6/((1 - 2*x)*(3 + 5*x)),x]
```

```
[Out] (-31289679*x)/100000 - (4693491*x^2)/20000 - (159813*x^3)/1000 -
(28431*x^4)/400 - (729*x^5)/50 - (117649*Log[1 - 2*x])/704 + Log[
3 + 5*x]/171875
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{729x^5}{50}-\frac{28431x^4}{400}-\frac{159813x^3}{1000}-\frac{117649\log(-2x+1)}{704}+\frac{\log(5x+3)}{171875}+\int\left(-\frac{31289679}{100000}\right)dx-\frac{4693491\int x\,dx}{10000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**6/(1-2*x)/(3+5*x),x)
```

```
[Out] -729*x**5/50 - 28431*x**4/400 - 159813*x**3/1000 - 117649*log(-2*
x + 1)/704 + log(5*x + 3)/171875 + Integral(-31289679/100000, x)
- 4693491*Integral(x, x)/10000
```

Mathematica [A] time = 0.0313129, size = 50, normalized size = 0.93

$$\frac{-2970\left(54000x^5+263250x^4+591900x^3+869165x^2+1158877x+516778\right)-1838265625\log(3-6x)+64\log(-3(5x+3))}{11000000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^6/((1 - 2*x)*(3 + 5*x)),x]
```

```
[Out] (-2970*(516778 + 1158877*x + 869165*x^2 + 591900*x^3 + 263250*x^4
 + 54000*x^5) - 1838265625*Log[3 - 6*x] + 64*Log[-3*(3 + 5*x)])/1
1000000
```

Maple [A] time = 0.01, size = 41, normalized size = 0.8

$$-\frac{729\,x^5}{50}-\frac{28431\,x^4}{400}-\frac{159813\,x^3}{1000}-\frac{4693491\,x^2}{20000}-\frac{31289679\,x}{100000}+\frac{\ln(3+5\,x)}{171875}-\frac{117649\,\ln(-1+2\,x)}{704}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^6/(1-2*x)/(3+5*x),x)
```

```
[Out] -729/50*x^5-28431/400*x^4-159813/1000*x^3-4693491/20000*x^2-31289
679/100000*x+1/171875*ln(3+5*x)-117649/704*ln(-1+2*x)
```

Maxima [A] time = 1.35134, size = 54, normalized size = 1.

$$-\frac{729}{50}x^5-\frac{28431}{400}x^4-\frac{159813}{1000}x^3-\frac{4693491}{20000}x^2-\frac{31289679}{100000}x+\frac{1}{171875}\log(5x+3)-\frac{117649}{704}\log(2x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^6/((5*x + 3)*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -729/50*x^5 - 28431/400*x^4 - 159813/1000*x^3 - 4693491/20000*x^2
 - 31289679/100000*x + 1/171875*log(5*x + 3) - 117649/704*log(2*x
 - 1)
```

Fricas [A] time = 0.201405, size = 54, normalized size = 1.

$$-\frac{729}{50}x^5-\frac{28431}{400}x^4-\frac{159813}{1000}x^3-\frac{4693491}{20000}x^2-\frac{31289679}{100000}x+\frac{1}{171875}\log(5x+3)-\frac{117649}{704}\log(2x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^6/((5*x + 3)*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] -729/50*x^5 - 28431/400*x^4 - 159813/1000*x^3 - 4693491/20000*x^2
 - 31289679/100000*x + 1/171875*log(5*x + 3) - 117649/704*log(2*x
 - 1)
```

Sympy [A] time = 0.305221, size = 49, normalized size = 0.91

$$-\frac{729x^5}{50}-\frac{28431x^4}{400}-\frac{159813x^3}{1000}-\frac{4693491x^2}{20000}-\frac{31289679x}{100000}-\frac{117649\log\left(x-\frac{1}{2}\right)}{704}+\frac{\log\left(x+\frac{3}{5}\right)}{171875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**6/(1-2*x)/(3+5*x),x)
```

```
[Out] -729*x**5/50 - 28431*x**4/400 - 159813*x**3/1000 - 4693491*x**2/2
0000 - 31289679*x/100000 - 117649*log(x - 1/2)/704 + log(x + 3/5)
/171875
```

GIAC/XCAS [A] time = 0.211884, size = 57, normalized size = 1.06

$$-\frac{729}{50}x^5-\frac{28431}{400}x^4-\frac{159813}{1000}x^3-\frac{4693491}{20000}x^2-\frac{31289679}{100000}x+\frac{1}{171875}\ln(|5x+3|)-\frac{117649}{704}\ln(|2x-1|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^6/((5*x + 3)*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -729/50*x^5 - 28431/400*x^4 - 159813/1000*x^3 - 4693491/20000*x^2
 - 31289679/100000*x + 1/171875*ln(abs(5*x + 3)) - 117649/704*ln(
abs(2*x - 1))
```

3.1471 $\int \frac{(2+3x)^5}{(1-2x)(3+5x)}\,dx$

Optimal. Leaf size=47

$$-\frac{243x^4}{40}-\frac{2619x^3}{100}-\frac{107433x^2}{2000}-\frac{848277x}{10000}-\frac{16807}{352}\log(1-2x)+\frac{\log(5x+3)}{34375}$$

```
[Out] (-848277*x)/10000 - (107433*x^2)/2000 - (2619*x^3)/100 - (243*x^4
)/40 - (16807*Log[1 - 2*x])/352 + Log[3 + 5*x]/34375
```

Rubi [A] time = 0.0508987, antiderivative size = 47, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{243x^4}{40}-\frac{2619x^3}{100}-\frac{107433x^2}{2000}-\frac{848277x}{10000}-\frac{16807}{352}\log(1-2x)+\frac{\log(5x+3)}{34375}$$

Antiderivative was successfully verified.

```
[In] Int[(2 + 3*x)^5/((1 - 2*x)*(3 + 5*x)),x]
```

```
[Out] (-848277*x)/10000 - (107433*x^2)/2000 - (2619*x^3)/100 - (243*x^4
)/40 - (16807*Log[1 - 2*x])/352 + Log[3 + 5*x]/34375
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{243x^4}{40}-\frac{2619x^3}{100}-\frac{16807\log(-2x+1)}{352}+\frac{\log(5x+3)}{34375}+\int\left(-\frac{848277}{10000}\right)dx-\frac{107433\int x\,dx}{1000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**5/(1-2*x)/(3+5*x),x)
```

```
[Out] -243*x**4/40 - 2619*x**3/100 - 16807*log(-2*x + 1)/352 + log(5*x
+ 3)/34375 + Integral(-848277/10000, x) - 107433*Integral(x, x)/1
000
```

Mathematica [A] time = 0.025886, size = 45, normalized size = 0.96

$$\frac{-110\left(60750x^4+261900x^3+537165x^2+848277x+392378\right)-52521875\log(3-6x)+32\log(-3(5x+3))}{1100000}$$

Antiderivative was successfully verified.

```
[In] Integrate[(2 + 3*x)^5/((1 - 2*x)*(3 + 5*x)),x]
```

```
[Out] (-110*(392378 + 848277*x + 537165*x^2 + 261900*x^3 + 60750*x^4) -
 52521875*Log[3 - 6*x] + 32*Log[-3*(3 + 5*x)])/1100000
```

Maple [A] time = 0.008, size = 36, normalized size = 0.8

$$-\frac{243\,x^4}{40}-\frac{2619\,x^3}{100}-\frac{107433\,x^2}{2000}-\frac{848277\,x}{10000}+\frac{\ln(3+5\,x)}{34375}-\frac{16807\,\ln(-1+2\,x)}{352}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((2+3*x)^5/(1-2*x)/(3+5*x),x)
```

```
[Out] -243/40*x^4-2619/100*x^3-107433/2000*x^2-848277/10000*x+1/34375*l
n(3+5*x)-16807/352*ln(-1+2*x)
```

Maxima [A] time = 1.34975, size = 47, normalized size = 1.

$$-\frac{243}{40}\,x^4-\frac{2619}{100}\,x^3-\frac{107433}{2000}\,x^2-\frac{848277}{10000}\,x+\frac{1}{34375}\,\log\left(5\,x+3\right)-\frac{16807}{352}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(-(3*x + 2)^5/((5*x + 3)*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -243/40*x^4 - 2619/100*x^3 - 107433/2000*x^2 - 848277/10000*x + 1
/34375*log(5*x + 3) - 16807/352*log(2*x - 1)
```

Fricas [A] time = 0.229274, size = 47, normalized size = 1.

$$-\frac{243}{40}\,x^4-\frac{2619}{100}\,x^3-\frac{107433}{2000}\,x^2-\frac{848277}{10000}\,x+\frac{1}{34375}\,\log\left(5\,x+3\right)-\frac{16807}{352}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(-(3*x + 2)^5/((5*x + 3)*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] -243/40*x^4 - 2619/100*x^3 - 107433/2000*x^2 - 848277/10000*x + 1
/34375*log(5*x + 3) - 16807/352*log(2*x - 1)
```

Sympy [A] time = 0.299308, size = 42, normalized size = 0.89

$$-\frac{243x^4}{40}-\frac{2619x^3}{100}-\frac{107433x^2}{2000}-\frac{848277x}{10000}-\frac{16807\log\left(x-\frac{1}{2}\right)}{352}+\frac{\log\left(x+\frac{3}{5}\right)}{34375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((2+3*x)**5/(1-2*x)/(3+5*x),x)
```

```
[Out] -243*x**4/40 - 2619*x**3/100 - 107433*x**2/2000 - 848277*x/10000
- 16807*log(x - 1/2)/352 + log(x + 3/5)/34375
```

GIAC/XCAS [A] time = 0.216671, size = 50, normalized size = 1.06

$$-\frac{243}{40}\,x^4-\frac{2619}{100}\,x^3-\frac{107433}{2000}\,x^2-\frac{848277}{10000}\,x+\frac{1}{34375}\,\ln\left(|5\,x+3|\right)-\frac{16807}{352}\,\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(-(3*x + 2)^5/((5*x + 3)*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -243/40*x^4 - 2619/100*x^3 - 107433/2000*x^2 - 848277/10000*x + 1
/34375*ln(abs(5*x + 3)) - 16807/352*ln(abs(2*x - 1))
```

3.1472 $\int \frac{(2+3x)^4}{(1-2x)(3+5x)}\,dx$

Optimal. Leaf size=40

$$-\frac{27x^3}{10}-\frac{2079x^2}{200}-\frac{21951x}{1000}-\frac{2401}{176}\log(1-2x)+\frac{\log(5x+3)}{6875}$$

```
[Out] (-21951*x)/1000 - (2079*x^2)/200 - (27*x^3)/10 - (2401*Log[1 - 2*
x])/176 + Log[3 + 5*x]/6875
```

Rubi [A] time = 0.048319, antiderivative size = 40, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{27x^3}{10}-\frac{2079x^2}{200}-\frac{21951x}{1000}-\frac{2401}{176}\log(1-2x)+\frac{\log(5x+3)}{6875}$$

Antiderivative was successfully verified.

```
[In] Int[(2 + 3*x)^4/((1 - 2*x)*(3 + 5*x)),x]
```

```
[Out] (-21951*x)/1000 - (2079*x^2)/200 - (27*x^3)/10 - (2401*Log[1 - 2*
x])/176 + Log[3 + 5*x]/6875
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{27x^3}{10}-\frac{2401\log(-2x+1)}{176}+\frac{\log(5x+3)}{6875}+\int\left(-\frac{21951}{1000}\right)dx-\frac{2079\int x\,dx}{100}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**4/(1-2*x)/(3+5*x),x)
```

```
[Out] -27*x**3/10 - 2401*log(-2*x + 1)/176 + log(5*x + 3)/6875 + Integr
al(-21951/1000, x) - 2079*Integral(x, x)/100
```

Mathematica [A] time = 0.0336107, size = 43, normalized size = 1.08

$$\frac{8\log(-3(5x+3))-55\left(2700x^3+10395x^2+21951x+10814\right)}{55000}-\frac{2401}{176}\log(3-6x)$$

Antiderivative was successfully verified.

```
[In] Integrate[(2 + 3*x)^4/((1 - 2*x)*(3 + 5*x)),x]
```

```
[Out] (-2401*Log[3 - 6*x])/176 + (-55*(10814 + 21951*x + 10395*x^2 + 27
00*x^3) + 8*Log[-3*(3 + 5*x)])/55000
```

Maple [A] time = 0.008, size = 31, normalized size = 0.8

$$-\frac{27\,x^3}{10}-\frac{2079\,x^2}{200}-\frac{21951\,x}{1000}+\frac{\ln(3+5\,x)}{6875}-\frac{2401\,\ln(-1+2\,x)}{176}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4/(1-2*x)/(3+5*x),x)
```

```
[Out] -27/10*x^3-2079/200*x^2-21951/1000*x+1/6875*ln(3+5*x)-2401/176*ln
(-1+2*x)
```

Maxima [A] time = 1.34284, size = 41, normalized size = 1.02

$$-\frac{27}{10}x^3 - \frac{2079}{200}x^2 - \frac{21951}{1000}x + \frac{1}{6875}\log(5x+3) - \frac{2401}{176}\log(2x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^4/((5*x + 3)*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -27/10*x^3 - 2079/200*x^2 - 21951/1000*x + 1/6875*log(5*x + 3) -
2401/176*log(2*x - 1)
```

Fricas [A] time = 0.207644, size = 41, normalized size = 1.02

$$-\frac{27}{10}x^3 - \frac{2079}{200}x^2 - \frac{21951}{1000}x + \frac{1}{6875}\log(5x+3) - \frac{2401}{176}\log(2x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^4/((5*x + 3)*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] -27/10*x^3 - 2079/200*x^2 - 21951/1000*x + 1/6875*log(5*x + 3) -
2401/176*log(2*x - 1)
```

Sympy [A] time = 0.32157, size = 36, normalized size = 0.9

$$-\frac{27x^3}{10} - \frac{2079x^2}{200} - \frac{21951x}{1000} - \frac{2401\log\left(x-\frac{1}{2}\right)}{176} + \frac{\log\left(x+\frac{3}{5}\right)}{6875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4/(1-2*x)/(3+5*x),x)
```

```
[Out] -27*x**3/10 - 2079*x**2/200 - 21951*x/1000 - 2401*log(x - 1/2)/17
6 + log(x + 3/5)/6875
```

GIAC/XCAS [A] time = 0.20681, size = 43, normalized size = 1.08

$$-\frac{27}{10}x^3 - \frac{2079}{200}x^2 - \frac{21951}{1000}x + \frac{1}{6875}\ln(|5x+3|) - \frac{2401}{176}\ln(|2x-1|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^4/((5*x + 3)*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -27/10*x^3 - 2079/200*x^2 - 21951/1000*x + 1/6875*ln(abs(5*x + 3)
) - 2401/176*ln(abs(2*x - 1))
```

3.1473 $\int \frac{(2+3x)^3}{(1-2x)(3+5x)}\,dx$

Optimal. Leaf size=33

$$-\frac{27x^2}{20}-\frac{513x}{100}-\frac{343}{88}\log(1-2x)+\frac{\log(5x+3)}{1375}$$

```
[Out] (-513*x)/100 - (27*x^2)/20 - (343*Log[1 - 2*x])/88 + Log[3 + 5*x]
/1375
```

Rubi [A] time = 0.0424659, antiderivative size = 33, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{27x^2}{20}-\frac{513x}{100}-\frac{343}{88}\log(1-2x)+\frac{\log(5x+3)}{1375}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^3/((1 - 2*x)*(3 + 5*x)),x]
```

```
[Out] (-513*x)/100 - (27*x^2)/20 - (343*Log[1 - 2*x])/88 + Log[3 + 5*x]
/1375
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{343\log(-2x+1)}{88}+\frac{\log(5x+3)}{1375}+\int\left(-\frac{513}{100}\right)dx-\frac{27\int x\,dx}{10}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3/(1-2*x)/(3+5*x),x)
```

```
[Out] -343*log(-2*x + 1)/88 + log(5*x + 3)/1375 + Integral(-513/100, x)
 - 27*Integral(x, x)/10
```

Mathematica [A] time = 0.0236592, size = 35, normalized size = 1.06

$$\frac{-330\left(45x^2+171x+94\right)-42875\log(3-6x)+8\log(-3(5x+3))}{11000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^3/((1 - 2*x)*(3 + 5*x)),x]
```

```
[Out] (-330*(94 + 171*x + 45*x^2) - 42875*Log[3 - 6*x] + 8*Log[-3*(3 +
5*x)])/11000
```

Maple [A] time = 0.009, size = 26, normalized size = 0.8

$$-\frac{27\,x^2}{20}-\frac{513\,x}{100}+\frac{\ln(3+5\,x)}{1375}-\frac{343\,\ln(-1+2\,x)}{88}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3/(1-2*x)/(3+5*x),x)
```

```
[Out] -27/20*x^2-513/100*x+1/1375*ln(3+5*x)-343/88*ln(-1+2*x)
```

Maxima [A] time = 1.34263, size = 34, normalized size = 1.03

$$-\frac{27}{20}\,x^2-\frac{513}{100}\,x+\frac{1}{1375}\,\log\left(5\,x+3\right)-\frac{343}{88}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^3/((5*x + 3)*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -27/20*x^2 - 513/100*x + 1/1375*log(5*x + 3) - 343/88*log(2*x - 1
)
```

Fricas [A] time = 0.224664, size = 34, normalized size = 1.03

$$-\frac{27}{20}\,x^2-\frac{513}{100}\,x+\frac{1}{1375}\,\log\left(5\,x+3\right)-\frac{343}{88}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^3/((5*x + 3)*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] -27/20*x^2 - 513/100*x + 1/1375*log(5*x + 3) - 343/88*log(2*x - 1
)
```

Sympy [A] time = 0.286737, size = 29, normalized size = 0.88

$$-\frac{27x^2}{20}-\frac{513x}{100}-\frac{343\log\left(x-\frac{1}{2}\right)}{88}+\frac{\log\left(x+\frac{3}{5}\right)}{1375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3/(1-2*x)/(3+5*x),x)
```

```
[Out] -27*x**2/20 - 513*x/100 - 343*log(x - 1/2)/88 + log(x + 3/5)/1375
```

GIAC/XCAS [A] time = 0.216363, size = 36, normalized size = 1.09

$$-\frac{27}{20}\,x^2-\frac{513}{100}\,x+\frac{1}{1375}\,\ln\left(|5\,x+3|\right)-\frac{343}{88}\,\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^3/((5*x + 3)*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -27/20*x^2 - 513/100*x + 1/1375*ln(abs(5*x + 3)) - 343/88*ln(abs(
2*x - 1))
```

3.1474 $\int \frac{(2+3x)^2}{(1-2x)(3+5x)}\,dx$

Optimal. Leaf size=26

$$-\frac{9x}{10}-\frac{49}{44}\log(1-2x)+\frac{1}{275}\log(5x+3)$$

```
[Out] (-9*x)/10 - (49*Log[1 - 2*x])/44 + Log[3 + 5*x]/275
```

Rubi [A] time = 0.039115, antiderivative size = 26, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{9x}{10}-\frac{49}{44}\log(1-2x)+\frac{1}{275}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In] Int[(2 + 3*x)^2/((1 - 2*x)*(3 + 5*x)),x]
```

```
[Out] (-9*x)/10 - (49*Log[1 - 2*x])/44 + Log[3 + 5*x]/275
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{49\log(-2x+1)}{44}+\frac{\log(5x+3)}{275}+\int\left(-\frac{9}{10}\right)dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**2/(1-2*x)/(3+5*x),x)
```

```
[Out] -49*log(-2*x + 1)/44 + log(5*x + 3)/275 + Integral(-9/10, x)
```

Mathematica [A] time = 0.0191167, size = 31, normalized size = 1.19

$$-\frac{9x}{10}-\frac{49}{44}\log(3-6x)+\frac{1}{275}\log(-3(5x+3))-\frac{3}{5}$$

Antiderivative was successfully verified.

```
[In] Integrate[(2 + 3*x)^2/((1 - 2*x)*(3 + 5*x)),x]
```

```
[Out] -3/5 - (9*x)/10 - (49*Log[3 - 6*x])/44 + Log[-3*(3 + 5*x)]/275
```

Maple [A] time = 0.009, size = 21, normalized size = 0.8

$$-\frac{9x}{10}+\frac{\ln(3+5x)}{275}-\frac{49\ln(-1+2x)}{44}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((2+3*x)^2/(1-2*x)/(3+5*x),x)
```

```
[Out] -9/10*x+1/275*ln(3+5*x)-49/44*ln(-1+2*x)
```

Maxima [A] time = 1.35001, size = 27, normalized size = 1.04

$$-\frac{9}{10}\,x+\frac{1}{275}\,\log\left(5\,x+3\right)-\frac{49}{44}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^2/((5*x + 3)*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -9/10*x + 1/275*log(5*x + 3) - 49/44*log(2*x - 1)
```

Fricas [A] time = 0.210937, size = 27, normalized size = 1.04

$$-\frac{9}{10}\,x+\frac{1}{275}\,\log\left(5\,x+3\right)-\frac{49}{44}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^2/((5*x + 3)*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] -9/10*x + 1/275*log(5*x + 3) - 49/44*log(2*x - 1)
```

Sympy [A] time = 0.274041, size = 22, normalized size = 0.85

$$-\frac{9x}{10}-\frac{49\log\left(x-\frac{1}{2}\right)}{44}+\frac{\log\left(x+\frac{3}{5}\right)}{275}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2/(1-2*x)/(3+5*x),x)
```

```
[Out] -9*x/10 - 49*log(x - 1/2)/44 + log(x + 3/5)/275
```

GIAC/XCAS [A] time = 0.207343, size = 30, normalized size = 1.15

$$-\frac{9}{10}\,x+\frac{1}{275}\,\ln\left(|5\,x+3|\right)-\frac{49}{44}\,\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^2/((5*x + 3)*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -9/10*x + 1/275*ln(abs(5*x + 3)) - 49/44*ln(abs(2*x - 1))
```

3.1475 $\int \frac{2+3x}{(1-2x)(3+5x)}\,dx$

Optimal. Leaf size=21

$$\frac{1}{55}\log(5x+3)-\frac{7}{22}\log(1-2x)$$

```
[Out] (-7*Log[1 - 2*x])/22 + Log[3 + 5*x]/55
```

Rubi [A] time = 0.0301171, antiderivative size = 21, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{1}{55}\log(5x+3)-\frac{7}{22}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)/((1 - 2*x)*(3 + 5*x)),x]

[Out] (-7*Log[1 - 2*x])/22 + Log[3 + 5*x]/55
```

Rubi in Sympy [A] time = 5.29214, size = 17, normalized size = 0.81

$$-\frac{7\log(-2x+1)}{22}+\frac{\log(5x+3)}{55}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)/(1-2*x)/(3+5*x),x)

[Out] -7*log(-2*x + 1)/22 + log(5*x + 3)/55
```

Mathematica [A] time = 0.0066902, size = 21, normalized size = 1.

$$\frac{1}{55}\log(5x+3)-\frac{7}{22}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)/((1 - 2*x)*(3 + 5*x)),x]

[Out] (-7*Log[1 - 2*x])/22 + Log[3 + 5*x]/55
```

Maple [A] time = 0.008, size = 18, normalized size = 0.9

$$\frac{\ln(3+5x)}{55}-\frac{7\ln(-1+2x)}{22}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)/(1-2*x)/(3+5*x),x)

[Out] 1/55*ln(3+5*x)-7/22*ln(-1+2*x)
```

Maxima [A] time = 1.34146, size = 23, normalized size = 1.1

$$\frac{1}{55}\log\left(5x+3\right)-\frac{7}{22}\log\left(2x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)/((5*x + 3)*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] 1/55*log(5*x + 3) - 7/22*log(2*x - 1)
```

Fricas [A] time = 0.212682, size = 23, normalized size = 1.1

$$\frac{1}{55}\log\left(5x+3\right)-\frac{7}{22}\log\left(2x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)/((5*x + 3)*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] 1/55*log(5*x + 3) - 7/22*log(2*x - 1)
```

Sympy [A] time = 0.252636, size = 17, normalized size = 0.81

$$-\frac{7\log\left(x-\frac{1}{2}\right)}{22}+\frac{\log\left(x+\frac{3}{5}\right)}{55}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)/(1-2*x)/(3+5*x),x)
```

```
[Out] -7*log(x - 1/2)/22 + log(x + 3/5)/55
```

GIAC/XCAS [A] time = 0.209539, size = 26, normalized size = 1.24

$$\frac{1}{55}\ln\left(|5x+3|\right)-\frac{7}{22}\ln\left(|2x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)/((5*x + 3)*(2*x - 1)),x, algorithm="giac")
```

```
[Out] 1/55*ln(abs(5*x + 3)) - 7/22*ln(abs(2*x - 1))
```

3.1476 $\int \frac{1}{(1-2x)(3+5x)}\,dx$

Optimal. Leaf size=21

$$\frac{1}{11}\log(5x+3)-\frac{1}{11}\log(1-2x)$$

```
[Out] -Log[1 - 2*x]/11 + Log[3 + 5*x]/11
```

Rubi [A] time = 0.0150082, antiderivative size = 21, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 2, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.133

$$\frac{1}{11}\log(5x+3)-\frac{1}{11}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)*(3 + 5*x)),x]

[Out] -Log[1 - 2*x]/11 + Log[3 + 5*x]/11
```

Rubi in Sympy [A] time = 3.03505, size = 15, normalized size = 0.71

$$-\frac{\log(-2x+1)}{11}+\frac{\log(5x+3)}{11}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)/(3+5*x),x)

[Out] -log(-2*x + 1)/11 + log(5*x + 3)/11
```

Mathematica [A] time = 0.00558722, size = 21, normalized size = 1.

$$\frac{1}{11}\log(5x+3)-\frac{1}{11}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)*(3 + 5*x)),x]

[Out] -Log[1 - 2*x]/11 + Log[3 + 5*x]/11
```

Maple [A] time = 0.007, size = 18, normalized size = 0.9

$$\frac{\ln(3+5x)}{11}-\frac{\ln(-1+2x)}{11}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)/(3+5*x),x)

[Out] 1/11*ln(3+5*x)-1/11*ln(-1+2*x)
```

Maxima [A] time = 1.34193, size = 23, normalized size = 1.1

$$\frac{1}{11}\,\log\left(5\,x+3\right)-\frac{1}{11}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)*(2*x - 1)),x, algorithm="maxima")

[Out] 1/11*log(5*x + 3) - 1/11*log(2*x - 1)
```

Fricas [A] time = 0.214967, size = 23, normalized size = 1.1

$$\frac{1}{11}\,\log\left(5\,x+3\right)-\frac{1}{11}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)*(2*x - 1)),x, algorithm="fricas")

[Out] 1/11*log(5*x + 3) - 1/11*log(2*x - 1)
```

Sympy [A] time = 0.193946, size = 15, normalized size = 0.71

$$-\frac{\log\left(x-\frac{1}{2}\right)}{11}+\frac{\log\left(x+\frac{3}{5}\right)}{11}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)/(3+5*x),x)

[Out] -log(x - 1/2)/11 + log(x + 3/5)/11
```

GIAC/XCAS [A] time = 0.206799, size = 26, normalized size = 1.24

$$\frac{1}{11}\ln\left(|5\,x+3|\right)-\frac{1}{11}\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)*(2*x - 1)),x, algorithm="giac")

[Out] 1/11*ln(abs(5*x + 3)) - 1/11*ln(abs(2*x - 1))
```

3.1477 $\int \frac{1}{(1-2x)(2+3x)(3+5x)}\,dx$

Optimal. Leaf size=31

$$-\frac{2}{77}\log(1-2x)-\frac{3}{7}\log(3x+2)+\frac{5}{11}\log(5x+3)$$

```
[Out] (-2*Log[1 - 2*x])/77 - (3*Log[2 + 3*x])/7 + (5*Log[3 + 5*x])/11
```

Rubi [A] time = 0.0451922, antiderivative size = 31, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$-\frac{2}{77}\log(1-2x)-\frac{3}{7}\log(3x+2)+\frac{5}{11}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)*(2 + 3*x)*(3 + 5*x)),x]
```

```
[Out] (-2*Log[1 - 2*x])/77 - (3*Log[2 + 3*x])/7 + (5*Log[3 + 5*x])/11
```

Rubi in Sympy [A] time = 6.4793, size = 29, normalized size = 0.94

$$-\frac{2\log(-2x+1)}{77}-\frac{3\log(3x+2)}{7}+\frac{5\log(5x+3)}{11}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)/(2+3*x)/(3+5*x),x)
```

```
[Out] -2*log(-2*x + 1)/77 - 3*log(3*x + 2)/7 + 5*log(5*x + 3)/11
```

Mathematica [A] time = 0.0115671, size = 31, normalized size = 1.

$$-\frac{2}{77}\log(1-2x)-\frac{3}{7}\log(3x+2)+\frac{5}{11}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)*(2 + 3*x)*(3 + 5*x)),x]
```

```
[Out] (-2*Log[1 - 2*x])/77 - (3*Log[2 + 3*x])/7 + (5*Log[3 + 5*x])/11
```

Maple [A] time = 0.01, size = 26, normalized size = 0.8

$$\frac{5\ln(3+5x)}{11}-\frac{3\ln(2+3x)}{7}-\frac{2\ln(-1+2x)}{77}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)/(2+3*x)/(3+5*x),x)
```

```
[Out] 5/11*ln(3+5*x)-3/7*ln(2+3*x)-2/77*ln(-1+2*x)
```

Maxima [A] time = 1.33952, size = 34, normalized size = 1.1

$$\frac{5}{11}\log(5x+3) - \frac{3}{7}\log(3x+2) - \frac{2}{77}\log(2x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)*(3*x + 2)*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] 5/11*log(5*x + 3) - 3/7*log(3*x + 2) - 2/77*log(2*x - 1)
```

Fricas [A] time = 0.216573, size = 34, normalized size = 1.1

$$\frac{5}{11}\log(5x+3) - \frac{3}{7}\log(3x+2) - \frac{2}{77}\log(2x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)*(3*x + 2)*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] 5/11*log(5*x + 3) - 3/7*log(3*x + 2) - 2/77*log(2*x - 1)
```

Sympy [A] time = 0.308153, size = 29, normalized size = 0.94

$$-\frac{2\log\left(x-\frac{1}{2}\right)}{77} + \frac{5\log\left(x+\frac{3}{5}\right)}{11} - \frac{3\log\left(x+\frac{2}{3}\right)}{7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)/(2+3*x)/(3+5*x),x)
```

```
[Out] -2*log(x - 1/2)/77 + 5*log(x + 3/5)/11 - 3*log(x + 2/3)/7
```

GIAC/XCAS [A] time = 0.209065, size = 38, normalized size = 1.23

$$\frac{5}{11}\ln(|5x+3|) - \frac{3}{7}\ln(|3x+2|) - \frac{2}{77}\ln(|2x-1|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)*(3*x + 2)*(2*x - 1)),x, algorithm="giac")
```

```
[Out] 5/11*ln(abs(5*x + 3)) - 3/7*ln(abs(3*x + 2)) - 2/77*ln(abs(2*x -
1))
```

3.1478 $\int \frac{1}{(1-2x)(2+3x)^2(3+5x)}\,dx$

Optimal. Leaf size=42

$$\frac{3}{7(3x+2)}-\frac{4}{539}\log(1-2x)-\frac{111}{49}\log(3x+2)+\frac{25}{11}\log(5x+3)$$

```
[Out] 3/(7*(2 + 3*x)) - (4*Log[1 - 2*x])/539 - (111*Log[2 + 3*x])/49 +
(25*Log[3 + 5*x])/11
```

Rubi [A] time = 0.050652, antiderivative size = 42, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{3}{7(3x+2)}-\frac{4}{539}\log(1-2x)-\frac{111}{49}\log(3x+2)+\frac{25}{11}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In] Int[1/((1 - 2*x)*(2 + 3*x)^2*(3 + 5*x)),x]
```

```
[Out] 3/(7*(2 + 3*x)) - (4*Log[1 - 2*x])/539 - (111*Log[2 + 3*x])/49 +
(25*Log[3 + 5*x])/11
```

Rubi in Sympy [A] time = 7.49406, size = 36, normalized size = 0.86

$$-\frac{4\log(-2x+1)}{539}-\frac{111\log(3x+2)}{49}+\frac{25\log(5x+3)}{11}+\frac{3}{7(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(1/(1-2*x)/(2+3*x)**2/(3+5*x),x)
```

```
[Out] -4*log(-2*x + 1)/539 - 111*log(3*x + 2)/49 + 25*log(5*x + 3)/11 +
 3/(7*(3*x + 2))
```

Mathematica [A] time = 0.0328795, size = 38, normalized size = 0.9

$$\frac{1}{539}\left(\frac{231}{3x+2}-4\log(1-2x)-1221\log(6x+4)+1225\log(10x+6)\right)$$

Antiderivative was successfully verified.

```
[In] Integrate[1/((1 - 2*x)*(2 + 3*x)^2*(3 + 5*x)),x]
```

```
[Out] (231/(2 + 3*x) - 4*Log[1 - 2*x] - 1221*Log[4 + 6*x] + 1225*Log[6
+ 10*x])/539
```

Maple [A] time = 0.013, size = 35, normalized size = 0.8

$$\frac{25\ln(3+5x)}{11}+\frac{3}{14+21x}-\frac{111\ln(2+3x)}{49}-\frac{4\ln(-1+2x)}{539}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)/(2+3*x)^2/(3+5*x),x)
```

```
[Out] 25/11*ln(3+5*x)+3/7/(2+3*x)-111/49*ln(2+3*x)-4/539*ln(-1+2*x)
```

Maxima [A] time = 1.343, size = 46, normalized size = 1.1

$$\frac{3}{7\,(3\,x+2)}+\frac{25}{11}\,\log\left(5\,x+3\right)-\frac{111}{49}\,\log\left(3\,x+2\right)-\frac{4}{539}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)*(3*x + 2)^2*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] 3/7/(3*x + 2) + 25/11*log(5*x + 3) - 111/49*log(3*x + 2) - 4/539*
log(2*x - 1)
```

Fricas [A] time = 0.220606, size = 68, normalized size = 1.62

$$\frac{1225\,(3\,x+2)\log\left(5\,x+3\right)-1221\,(3\,x+2)\log\left(3\,x+2\right)-4\,(3\,x+2)\log\left(2\,x-1\right)+231}{539\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)*(3*x + 2)^2*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] 1/539*(1225*(3*x + 2)*log(5*x + 3) - 1221*(3*x + 2)*log(3*x + 2)
- 4*(3*x + 2)*log(2*x - 1) + 231)/(3*x + 2)
```

Sympy [A] time = 0.413513, size = 36, normalized size = 0.86

$$-\frac{4\log\left(x-\frac{1}{2}\right)}{539}+\frac{25\log\left(x+\frac{3}{5}\right)}{11}-\frac{111\log\left(x+\frac{2}{3}\right)}{49}+\frac{3}{21x+14}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)/(2+3*x)**2/(3+5*x),x)
```

```
[Out] -4*log(x - 1/2)/539 + 25*log(x + 3/5)/11 - 111*log(x + 2/3)/49 +
3/(21*x + 14)
```

GIAC/XCAS [A] time = 0.209265, size = 54, normalized size = 1.29

$$\frac{3}{7\,(3\,x+2)}+\frac{25}{11}\,\ln\left(\left|-\frac{1}{3\,x+2}+5\right|\right)-\frac{4}{539}\,\ln\left(\left|-\frac{7}{3\,x+2}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)*(3*x + 2)^2*(2*x - 1)),x, algorithm="giac")
```

```
[Out] 3/7/(3*x + 2) + 25/11*ln(abs(-1/(3*x + 2) + 5)) - 4/539*ln(abs(-7
/(3*x + 2) + 2))
```

3.1479 $\int \frac{1}{(1-2x)(2+3x)^3(3+5x)}\,dx$

Optimal. Leaf size=53

$$\frac{111}{49(3x+2)}+\frac{3}{14(3x+2)^2}-\frac{8\log(1-2x)}{3773}-\frac{3897}{343}\log(3x+2)+\frac{125}{11}\log(5x+3)$$

```
[Out] 3/(14*(2 + 3*x)^2) + 111/(49*(2 + 3*x)) - (8*Log[1 - 2*x])/3773 -
 (3897*Log[2 + 3*x])/343 + (125*Log[3 + 5*x])/11
```

Rubi [A] time = 0.0624703, antiderivative size = 53, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{111}{49(3x+2)}+\frac{3}{14(3x+2)^2}-\frac{8\log(1-2x)}{3773}-\frac{3897}{343}\log(3x+2)+\frac{125}{11}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)*(2 + 3*x)^3*(3 + 5*x)),x]
```

```
[Out] 3/(14*(2 + 3*x)^2) + 111/(49*(2 + 3*x)) - (8*Log[1 - 2*x])/3773 -
 (3897*Log[2 + 3*x])/343 + (125*Log[3 + 5*x])/11
```

Rubi in Sympy [A] time = 8.72003, size = 46, normalized size = 0.87

$$-\frac{8\log(-2x+1)}{3773}-\frac{3897\log(3x+2)}{343}+\frac{125\log(5x+3)}{11}+\frac{111}{49(3x+2)}+\frac{3}{14(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)/(2+3*x)**3/(3+5*x),x)
```

```
[Out] -8*log(-2*x + 1)/3773 - 3897*log(3*x + 2)/343 + 125*log(5*x + 3)/
11 + 111/(49*(3*x + 2)) + 3/(14*(3*x + 2)**2)
```

Mathematica [A] time = 0.0354109, size = 49, normalized size = 0.92

$$\frac{\frac{8547}{3x+2}+\frac{1617}{2(3x+2)^2}-8\log(1-2x)-42867\log(6x+4)+42875\log(10x+6)}{3773}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)*(2 + 3*x)^3*(3 + 5*x)),x]
```

```
[Out] (1617/(2*(2 + 3*x)^2) + 8547/(2 + 3*x) - 8*Log[1 - 2*x] - 42867*L
og[4 + 6*x] + 42875*Log[6 + 10*x])/3773
```

Maple [A] time = 0.013, size = 44, normalized size = 0.8

$$\frac{125\ln(3+5x)}{11}+\frac{3}{14(2+3x)^2}+\frac{111}{98+147x}-\frac{3897\ln(2+3x)}{343}-\frac{8\ln(-1+2x)}{3773}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)/(2+3*x)^3/(3+5*x),x)
```

```
[Out] 125/11*ln(3+5*x)+3/14/(2+3*x)^2+111/49/(2+3*x)-3897/343*ln(2+3*x)
-8/3773*ln(-1+2*x)
```

Maxima [A] time = 1.35418, size = 59, normalized size = 1.11

$$\frac{3\,(222\,x+155)}{98\,(9\,x^2+12\,x+4)}+\frac{125}{11}\,\log(5\,x+3)-\frac{3897}{343}\,\log(3\,x+2)-\frac{8}{3773}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-1/((5*x + 3)*(3*x + 2)^3*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] 3/98*(222*x + 155)/(9*x^2 + 12*x + 4) + 125/11*log(5*x + 3) - 389
7/343*log(3*x + 2) - 8/3773*log(2*x - 1)
```

Fricas [A] time = 0.217574, size = 99, normalized size = 1.87

$$\frac{85750\,\left(9\,x^2+12\,x+4\right)\,\log(5\,x+3)-85734\,\left(9\,x^2+12\,x+4\right)\,\log(3\,x+2)-16\,\left(9\,x^2+12\,x+4\right)\,\log(2\,x-1)+51282\,x+35}{7546\,(9\,x^2+12\,x+4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-1/((5*x + 3)*(3*x + 2)^3*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] 1/7546*(85750*(9*x^2 + 12*x + 4)*log(5*x + 3) - 85734*(9*x^2 + 12
*x + 4)*log(3*x + 2) - 16*(9*x^2 + 12*x + 4)*log(2*x - 1) + 51282
*x + 35805)/(9*x^2 + 12*x + 4)
```

Sympy [A] time = 0.487871, size = 44, normalized size = 0.83

$$\frac{666x+465}{882x^2+1176x+392}-\frac{8\log\left(x-\frac{1}{2}\right)}{3773}+\frac{125\log\left(x+\frac{3}{5}\right)}{11}-\frac{3897\log\left(x+\frac{2}{3}\right)}{343}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)/(2+3*x)**3/(3+5*x),x)
```

```
[Out] (666*x + 465)/(882*x**2 + 1176*x + 392) - 8*log(x - 1/2)/3773 + 1
25*log(x + 3/5)/11 - 3897*log(x + 2/3)/343
```

GIAC/XCAS [A] time = 0.213433, size = 57, normalized size = 1.08

$$\frac{3\,(222\,x+155)}{98\,(3\,x+2)^2}+\frac{125}{11}\ln(|5\,x+3|)-\frac{3897}{343}\ln(|3\,x+2|)-\frac{8}{3773}\ln(|2\,x-1|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)*(3*x + 2)^3*(2*x - 1)),x, algorithm="giac")
```

```
[Out] 3/98*(222*x + 155)/(3*x + 2)^2 + 125/11*ln(abs(5*x + 3)) - 3897/3
43*ln(abs(3*x + 2)) - 8/3773*ln(abs(2*x - 1))
```

3.1480 $\int \frac{1}{(1-2x)(2+3x)^4(3+5x)}\,dx$

Optimal. Leaf size=64

$$\frac{3897}{343(3x+2)}+\frac{111}{98(3x+2)^2}+\frac{1}{7(3x+2)^3}-\frac{16\log(1-2x)}{26411}-\frac{136419\log(3x+2)}{2401}+\frac{625}{11}\log(5x+3)$$

```
[Out] 1/(7*(2 + 3*x)^3) + 111/(98*(2 + 3*x)^2) + 3897/(343*(2 + 3*x)) -
 (16*Log[1 - 2*x])/26411 - (136419*Log[2 + 3*x])/2401 + (625*Log[
3 + 5*x])/11
```

Rubi [A] time = 0.0710004, antiderivative size = 64, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$\frac{3897}{343(3x+2)}+\frac{111}{98(3x+2)^2}+\frac{1}{7(3x+2)^3}-\frac{16\log(1-2x)}{26411}-\frac{136419\log(3x+2)}{2401}+\frac{625}{11}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)*(2 + 3*x)^4*(3 + 5*x)),x]
```

```
[Out] 1/(7*(2 + 3*x)^3) + 111/(98*(2 + 3*x)^2) + 3897/(343*(2 + 3*x)) -
 (16*Log[1 - 2*x])/26411 - (136419*Log[2 + 3*x])/2401 + (625*Log[
3 + 5*x])/11
```

Rubi in Sympy [A] time = 10.0042, size = 56, normalized size = 0.88

$$-\frac{16\log(-2x+1)}{26411}-\frac{136419\log(3x+2)}{2401}+\frac{625\log(5x+3)}{11}+\frac{3897}{343(3x+2)}+\frac{111}{98(3x+2)^2}+\frac{1}{7(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)/(2+3*x)**4/(3+5*x),x)
```

```
[Out] -16*log(-2*x + 1)/26411 - 136419*log(3*x + 2)/2401 + 625*log(5*x
+ 3)/11 + 3897/(343*(3*x + 2)) + 111/(98*(3*x + 2)**2) + 1/(7*(3*
x + 2)**3)
```

Mathematica [A] time = 0.0799657, size = 50, normalized size = 0.78

$$\frac{\frac{77(70146x^2+95859x+32828)}{2(3x+2)^3}-16\log(1-2x)-1500609\log(6x+4)+1500625\log(10x+6)}{26411}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)*(2 + 3*x)^4*(3 + 5*x)),x]
```

```
[Out] ((77*(32828 + 95859*x + 70146*x^2))/(2*(2 + 3*x)^3) - 16*Log[1 -
2*x] - 1500609*Log[4 + 6*x] + 1500625*Log[6 + 10*x])/26411
```

Maple [A] time = 0.014, size = 53, normalized size = 0.8

$$\frac{625\ln(3+5x)}{11}+\frac{1}{7(2+3x)^3}+\frac{111}{98(2+3x)^2}+\frac{3897}{686+1029x}-\frac{136419\ln(2+3x)}{2401}-\frac{16\ln(-1+2x)}{26411}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)/(2+3*x)^4/(3+5*x),x)
```

```
[Out] 625/11*ln(3+5*x)+1/7/(2+3*x)^3+111/98/(2+3*x)^2+3897/343/(2+3*x)-
136419/2401*ln(2+3*x)-16/26411*ln(-1+2*x)
```

Maxima [A] time = 1.34475, size = 73, normalized size = 1.14

$$\frac{70146\,x^2+95859\,x+32828}{686\,(27\,x^3+54\,x^2+36\,x+8)}+\frac{625}{11}\log(5\,x+3)-\frac{136419}{2401}\log(3\,x+2)-\frac{16}{26411}\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-1/((5*x + 3)*(3*x + 2)^4*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] 1/686*(70146*x^2 + 95859*x + 32828)/(27*x^3 + 54*x^2 + 36*x + 8)
+ 625/11*log(5*x + 3) - 136419/2401*log(3*x + 2) - 16/26411*log(2
*x - 1)
```

Fricas [A] time = 0.220139, size = 132, normalized size = 2.06

$$\frac{5401242\,x^2+3001250\left(27\,x^3+54\,x^2+36\,x+8\right)\log(5\,x+3)-3001218\left(27\,x^3+54\,x^2+36\,x+8\right)\log(3\,x+2)-32\left(27\,x^3+\right.}{52822\,(27\,x^3+54\,x^2+36\,x+8)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-1/((5*x + 3)*(3*x + 2)^4*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] 1/52822*(5401242*x^2 + 3001250*(27*x^3 + 54*x^2 + 36*x + 8)*log(5
*x + 3) - 3001218*(27*x^3 + 54*x^2 + 36*x + 8)*log(3*x + 2) - 32*
(27*x^3 + 54*x^2 + 36*x + 8)*log(2*x - 1) + 7381143*x + 2527756)/
(27*x^3 + 54*x^2 + 36*x + 8)
```

Sympy [A] time = 0.555386, size = 54, normalized size = 0.84

$$\frac{70146x^2+95859x+32828}{18522x^3+37044x^2+24696x+5488}-\frac{16\log\left(x-\frac{1}{2}\right)}{26411}+\frac{625\log\left(x+\frac{3}{5}\right)}{11}-\frac{136419\log\left(x+\frac{2}{3}\right)}{2401}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)/(2+3*x)**4/(3+5*x),x)
```

```
[Out] (70146*x**2 + 95859*x + 32828)/(18522*x**3 + 37044*x**2 + 24696*x
 + 5488) - 16*log(x - 1/2)/26411 + 625*log(x + 3/5)/11 - 136419*l
og(x + 2/3)/2401
```

GIAC/XCAS [A] time = 0.215064, size = 63, normalized size = 0.98

$$\frac{70146\,x^2+95859\,x+32828}{686\,(3\,x+2)^3}+\frac{625}{11}\ln(|5\,x+3|)-\frac{136419}{2401}\ln(|3\,x+2|)-\frac{16}{26411}\ln(|2\,x-1|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)*(3*x + 2)^4*(2*x - 1)),x, algorithm="giac")
```

```
[Out] 1/686*(70146*x^2 + 95859*x + 32828)/(3*x + 2)^3 + 625/11*ln(abs(5
*x + 3)) - 136419/2401*ln(abs(3*x + 2)) - 16/26411*ln(abs(2*x - 1
))
```

3.1481 $\int \frac{1}{(1-2x)(2+3x)^5(3+5x)}\,dx$

Optimal. Leaf size=75

$$\frac{136419}{2401(3x+2)}+\frac{3897}{686(3x+2)^2}+\frac{37}{49(3x+2)^3}+\frac{3}{28(3x+2)^4}-\frac{32\log(1-2x)}{184877}-\frac{4774713\log(3x+2)}{16807}+\frac{3125}{11}\log(5x+3)$$

```
[Out] 3/(28*(2 + 3*x)^4) + 37/(49*(2 + 3*x)^3) + 3897/(686*(2 + 3*x)^2)
 + 136419/(2401*(2 + 3*x)) - (32*Log[1 - 2*x])/184877 - (4774713*
Log[2 + 3*x])/16807 + (3125*Log[3 + 5*x])/11
```

Rubi [A] time = 0.0827294, antiderivative size = 75, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{136419}{2401(3x+2)}+\frac{3897}{686(3x+2)^2}+\frac{37}{49(3x+2)^3}+\frac{3}{28(3x+2)^4}-\frac{32\log(1-2x)}{184877}-\frac{4774713\log(3x+2)}{16807}+\frac{3125}{11}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In] Int[1/((1 - 2*x)*(2 + 3*x)^5*(3 + 5*x)),x]
```

```
[Out] 3/(28*(2 + 3*x)^4) + 37/(49*(2 + 3*x)^3) + 3897/(686*(2 + 3*x)^2)
 + 136419/(2401*(2 + 3*x)) - (32*Log[1 - 2*x])/184877 - (4774713*
Log[2 + 3*x])/16807 + (3125*Log[3 + 5*x])/11
```

Rubi in Sympy [A] time = 11.1908, size = 66, normalized size = 0.88

$$-\frac{32\log\left(-2x+1\right)}{184877}-\frac{4774713\log\left(3x+2\right)}{16807}+\frac{3125\log\left(5x+3\right)}{11}+\frac{136419}{2401\left(3x+2\right)}+\frac{3897}{686\left(3x+2\right)^{2}}+\frac{37}{49\left(3x+2\right)^{3}}+\frac{3}{28\left(3x+2\right)^{4}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(1/(1-2*x)/(2+3*x)**5/(3+5*x),x)
```

```
[Out] -32*log(-2*x + 1)/184877 - 4774713*log(3*x + 2)/16807 + 3125*log(
5*x + 3)/11 + 136419/(2401*(3*x + 2)) + 3897/(686*(3*x + 2)**2) +
 37/(49*(3*x + 2)**3) + 3/(28*(3*x + 2)**4)
```

Mathematica [A] time = 0.100834, size = 55, normalized size = 0.73

$$\frac{\frac{77\left(14733252x^3+29957526x^2+20320788x+4599173\right)}{4(3x+2)^4}-32\log(1-2x)-52521843\log(6x+4)+52521875\log(10x+6)}{184877}$$

Antiderivative was successfully verified.

```
[In] Integrate[1/((1 - 2*x)*(2 + 3*x)^5*(3 + 5*x)),x]
```

```
[Out] ((77*(4599173 + 20320788*x + 29957526*x^2 + 14733252*x^3))/(4*(2
+ 3*x)^4) - 32*Log[1 - 2*x] - 52521843*Log[4 + 6*x] + 52521875*Lo
g[6 + 10*x])/184877
```

Maple [A] time = 0.013, size = 62, normalized size = 0.8

$$\frac{3125\,\ln\left(3+5\,x\right)}{11}+\frac{3}{28\,\left(2+3\,x\right)^{4}}+\frac{37}{49\,\left(2+3\,x\right)^{3}}+\frac{3897}{686\,\left(2+3\,x\right)^{2}}+\frac{136419}{4802+7203\,x}-\frac{4774713\,\ln\left(2+3\,x\right)}{16807}-\frac{32\,\ln\left(-1+2\,x\right)}{184877}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)/(2+3*x)^5/(3+5*x),x)
```

```
[Out] 3125/11*ln(3+5*x)+3/28/(2+3*x)^4+37/49/(2+3*x)^3+3897/686/(2+3*x)
^2+136419/2401/(2+3*x)-4774713/16807*ln(2+3*x)-32/184877*ln(-1+2*
x)
```

Maxima [A] time = 1.36999, size = 86, normalized size = 1.15

$$\frac{14733252\,x^{3}+29957526\,x^{2}+20320788\,x+4599173}{9604\left(81\,x^{4}+216\,x^{3}+216\,x^{2}+96\,x+16\right)}+\frac{3125}{11}\,\log\left(5\,x+3\right)-\frac{4774713}{16807}\,\log\left(3\,x+2\right)-\frac{32}{184877}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)*(3*x + 2)^5*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] 1/9604*(14733252*x^3 + 29957526*x^2 + 20320788*x + 4599173)/(81*x
^4 + 216*x^3 + 216*x^2 + 96*x + 16) + 3125/11*log(5*x + 3) - 4774
713/16807*log(3*x + 2) - 32/184877*log(2*x - 1)
```

Fricas [A] time = 0.226582, size = 166, normalized size = 2.21

$$\frac{1134460404\,x^{3}+2306729502\,x^{2}+210087500\left(81\,x^{4}+216\,x^{3}+216\,x^{2}+96\,x+16\right)\log\left(5\,x+3\right)-210087372\left(81\,x^{4}+216\,x^{3}\right.}{739508\left(81\,x^{4}+216\,x^{3}\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)*(3*x + 2)^5*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] 1/739508*(1134460404*x^3 + 2306729502*x^2 + 210087500*(81*x^4 + 2
16*x^3 + 216*x^2 + 96*x + 16)*log(5*x + 3) - 210087372*(81*x^4 +
216*x^3 + 216*x^2 + 96*x + 16)*log(3*x + 2) - 128*(81*x^4 + 216*x
^3 + 216*x^2 + 96*x + 16)*log(2*x - 1) + 1564700676*x + 354136321
)/(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16)
```

Sympy [A] time = 0.614189, size = 65, normalized size = 0.87

$$\frac{14733252x^{3}+29957526x^{2}+20320788x+4599173}{777924x^{4}+2074464x^{3}+2074464x^{2}+921984x+153664}-\frac{32\log\left(x-\frac{1}{2}\right)}{184877}+\frac{3125\log\left(x+\frac{3}{5}\right)}{11}-\frac{4774713\log\left(x+\frac{2}{3}\right)}{16807}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)/(2+3*x)**5/(3+5*x),x)
```

```
[Out] (14733252*x**3 + 29957526*x**2 + 20320788*x + 4599173)/(777924*x*
*4 + 2074464*x**3 + 2074464*x**2 + 921984*x + 153664) - 32*log(x
- 1/2)/184877 + 3125*log(x + 3/5)/11 - 4774713*log(x + 2/3)/16807
```

GIAC/XCAS [A] time = 0.213445, size = 90, normalized size = 1.2

$$\frac{136419}{2401\,(3\,x+2)}+\frac{3897}{686\,(3\,x+2)^{2}}+\frac{37}{49\,(3\,x+2)^{3}}+\frac{3}{28\,(3\,x+2)^{4}}+\frac{3125}{11}\ln\left(\left|-\frac{1}{3\,x+2}+5\right|\right)-\frac{32}{184877}\ln\left(\left|-\frac{7}{3\,x+2}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)*(3*x + 2)^5*(2*x - 1)),x, algorithm="giac")
```

```
[Out] 136419/2401/(3*x + 2) + 3897/686/(3*x + 2)^2 + 37/49/(3*x + 2)^3
+ 3/28/(3*x + 2)^4 + 3125/11*ln(abs(-1/(3*x + 2) + 5)) - 32/18487
7*ln(abs(-7/(3*x + 2) + 2))
```

3.1482 $\int \frac{1}{(1-2x)(2+3x)^6(3+5x)}\,dx$

Optimal. Leaf size=86

$$\frac{4774713}{16807(3x+2)}+\frac{136419}{4802(3x+2)^2}+\frac{1299}{343(3x+2)^3}+\frac{111}{196(3x+2)^4}+\frac{3}{35(3x+2)^5}-\frac{64\log(1-2x)}{1294139}-\frac{167115051\log(3x+2)}{117649}+\frac{15625}{11}\log(5x+3)$$

```
[Out] 3/(35*(2 + 3*x)^5) + 111/(196*(2 + 3*x)^4) + 1299/(343*(2 + 3*x)^
3) + 136419/(4802*(2 + 3*x)^2) + 4774713/(16807*(2 + 3*x)) - (64*
Log[1 - 2*x])/1294139 - (167115051*Log[2 + 3*x])/117649 + (15625*
Log[3 + 5*x])/11
```

Rubi [A] time = 0.0916118, antiderivative size = 86, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{4774713}{16807(3x+2)}+\frac{136419}{4802(3x+2)^2}+\frac{1299}{343(3x+2)^3}+\frac{111}{196(3x+2)^4}+\frac{3}{35(3x+2)^5}-\frac{64\log(1-2x)}{1294139}-\frac{167115051\log(3x+2)}{117649}+\frac{15625}{11}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)*(2 + 3*x)^6*(3 + 5*x)),x]
```

```
[Out] 3/(35*(2 + 3*x)^5) + 111/(196*(2 + 3*x)^4) + 1299/(343*(2 + 3*x)^
3) + 136419/(4802*(2 + 3*x)^2) + 4774713/(16807*(2 + 3*x)) - (64*
Log[1 - 2*x])/1294139 - (167115051*Log[2 + 3*x])/117649 + (15625*
Log[3 + 5*x])/11
```

Rubi in Sympy [A] time = 12.461, size = 76, normalized size = 0.88

$$-\frac{64\log(-2x+1)}{1294139}-\frac{167115051\log(3x+2)}{117649}+\frac{15625\log(5x+3)}{11}+\frac{4774713}{16807(3x+2)}+\frac{136419}{4802(3x+2)^2}+\frac{1299}{343(3x+2)^3}+\frac{111}{196(3x+2)^4}+\frac{3}{35(3x+2)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)/(2+3*x)**6/(3+5*x),x)
```

```
[Out] -64*log(-2*x + 1)/1294139 - 167115051*log(3*x + 2)/117649 + 15625
*log(5*x + 3)/11 + 4774713/(16807*(3*x + 2)) + 136419/(4802*(3*x
+ 2)**2) + 1299/(343*(3*x + 2)**3) + 111/(196*(3*x + 2)**4) + 3/(
35*(3*x + 2)**5)
```

Mathematica [A] time = 0.111444, size = 60, normalized size = 0.7

$$\frac{\frac{2079(286482780x^4+773503410x^3+783477080x^2+352854525x+59622386)}{4(3x+2)^5}-320\log(1-2x)-9191327805\log(6x+4)+9191328125\log(10x}{6470695}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)*(2 + 3*x)^6*(3 + 5*x)),x]
```

```
[Out] ((2079*(59622386 + 352854525*x + 783477080*x^2 + 773503410*x^3 +
286482780*x^4))/(4*(2 + 3*x)^5) - 320*Log[1 - 2*x] - 9191327805*L
```

```
og[4 + 6*x] + 9191328125*Log[6 + 10*x])/6470695
```

Maple [A] time = 0.016, size = 71, normalized size = 0.8

$$\frac{15625 \ln (3+5 x)}{11}+\frac{3}{35 (2+3 x)^{5}}+\frac{111}{196 (2+3 x)^{4}}+\frac{1299}{343 (2+3 x)^{3}}+\frac{136419}{4802 (2+3 x)^{2}}+\frac{4774713}{33614+50421 x}-\frac{167115051 \ln (2+3 x)}{117649}-\frac{64 \ln (-1+2 x)}{1294139}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)/(2+3*x)^6/(3+5*x),x)
```

```
[Out] 15625/11*ln(3+5*x)+3/35/(2+3*x)^5+111/196/(2+3*x)^4+1299/343/(2+3
*x)^3+136419/4802/(2+3*x)^2+4774713/16807/(2+3*x)-167115051/11764
9*ln(2+3*x)-64/1294139*ln(-1+2*x)
```

Maxima [A] time = 1.34108, size = 100, normalized size = 1.16

$$\frac{27 \left(286482780 x^{4}+773503410 x^{3}+783477080 x^{2}+352854525 x+59622386\right)}{336140 (243 x^{5}+810 x^{4}+1080 x^{3}+720 x^{2}+240 x+32)}+\frac{15625}{11} \log (5 x+3)-\frac{167115051}{117649} \log (3 x+2)-\frac{64}{1294139} \log (2 x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)*(3*x + 2)^6*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] 27/336140*(286482780*x^4 + 773503410*x^3 + 783477080*x^2 + 352854
525*x + 59622386)/(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x
 + 32) + 15625/11*log(5*x + 3) - 167115051/117649*log(3*x + 2) -
64/1294139*log(2*x - 1)
```

Fricas [A] time = 0.224273, size = 200, normalized size = 2.33

$$595597699620 x^{4}+1608113589390 x^{3}+1628848849320 x^{2}+36765312500 \left(243 x^{5}+810 x^{4}+1080 x^{3}+720 x^{2}+240 x+32\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)*(3*x + 2)^6*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] 1/25882780*(595597699620*x^4 + 1608113589390*x^3 + 1628848849320*
x^2 + 36765312500*(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x
 + 32)*log(5*x + 3) - 36765311220*(243*x^5 + 810*x^4 + 1080*x^3 +
 720*x^2 + 240*x + 32)*log(3*x + 2) - 1280*(243*x^5 + 810*x^4 + 1
080*x^3 + 720*x^2 + 240*x + 32)*log(2*x - 1) + 733584557475*x + 1
23954940494)/(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32
)
```

Sympy [A] time = 0.680154, size = 75, normalized size = 0.87

$$\frac{7735035060x^{4}+20884592070x^{3}+21153881160x^{2}+9527072175x+1609804422}{81682020x^{5}+272273400x^{4}+363031200x^{3}+242020800x^{2}+80673600x+10756480}-\frac{64\log\left(x-\frac{1}{2}\right)}{1294139}+\frac{15625\log\left(x+\frac{3}{5}\right)}{11}-\frac{167115051\log\left(x+\frac{2}{3}\right)}{117649}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)/(2+3*x)**6/(3+5*x),x)
```

```
[Out] (7735035060*x**4 + 20884592070*x**3 + 21153881160*x**2 + 95270721
75*x + 1609804422)/(81682020*x**5 + 272273400*x**4 + 363031200*x*
*3 + 242020800*x**2 + 80673600*x + 10756480) - 64*log(x - 1/2)/12
94139 + 15625*log(x + 3/5)/11 - 167115051*log(x + 2/3)/117649
```

GIAC/XCAS [A] time = 0.208837, size = 77, normalized size = 0.9

$$\frac{27\left(286482780\,x^4+773503410\,x^3+783477080\,x^2+352854525\,x+59622386\right)}{336140\,(3\,x+2)^5}+\frac{15625}{11}\ln\left(|5\,x+3|\right)-\frac{167115051}{117649}\ln\left(|3\,x+2|\right)-\frac{64}{1294139}\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)*(3*x + 2)^6*(2*x - 1)),x, algorithm="giac")
```

```
[Out] 27/336140*(286482780*x^4 + 773503410*x^3 + 783477080*x^2 + 352854
525*x + 59622386)/(3*x + 2)^5 + 15625/11*ln(abs(5*x + 3)) - 16711
5051/117649*ln(abs(3*x + 2)) - 64/1294139*ln(abs(2*x - 1))
```

3.1483 $\int \frac{1}{(1-2x)(2+3x)^7(3+5x)}\,dx$

Optimal. Leaf size=97

$$\frac{167115051}{117649(3x+2)}+\frac{4774713}{33614(3x+2)^2}+\frac{45473}{2401(3x+2)^3}+\frac{3897}{1372(3x+2)^4}+\frac{111}{245(3x+2)^5}+\frac{1}{14(3x+2)^6}-\frac{128\log(1-2x)}{9058973}-\frac{5849026977\log(3x+2)}{823543}+\frac{78125}{11}\log(5x+3)$$

```
[Out] 1/(14*(2 + 3*x)^6) + 111/(245*(2 + 3*x)^5) + 3897/(1372*(2 + 3*x)
^4) + 45473/(2401*(2 + 3*x)^3) + 4774713/(33614*(2 + 3*x)^2) + 16
7115051/(117649*(2 + 3*x)) - (128*Log[1 - 2*x])/9058973 - (584902
6977*Log[2 + 3*x])/823543 + (78125*Log[3 + 5*x])/11
```

Rubi [A] time = 0.108296, antiderivative size = 97, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{167115051}{117649(3x+2)}+\frac{4774713}{33614(3x+2)^2}+\frac{45473}{2401(3x+2)^3}+\frac{3897}{1372(3x+2)^4}+\frac{111}{245(3x+2)^5}+\frac{1}{14(3x+2)^6}-\frac{128\log(1-2x)}{9058973}-\frac{5849026977\log(3x+2)}{823543}+\frac{78125}{11}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In] Int[1/((1 - 2*x)*(2 + 3*x)^7*(3 + 5*x)),x]
```

```
[Out] 1/(14*(2 + 3*x)^6) + 111/(245*(2 + 3*x)^5) + 3897/(1372*(2 + 3*x)
^4) + 45473/(2401*(2 + 3*x)^3) + 4774713/(33614*(2 + 3*x)^2) + 16
7115051/(117649*(2 + 3*x)) - (128*Log[1 - 2*x])/9058973 - (584902
6977*Log[2 + 3*x])/823543 + (78125*Log[3 + 5*x])/11
```

Rubi in Sympy [A] time = 13.872, size = 87, normalized size = 0.9

$$-\frac{128\log(-2x+1)}{9058973}-\frac{5849026977\log(3x+2)}{823543}+\frac{78125\log(5x+3)}{11}+\frac{167115051}{117649(3x+2)}+\frac{4774713}{33614(3x+2)^2}+\frac{45473}{2401(3x+2)^3}+\frac{3897}{1372(3x+2)^4}+\frac{111}{245(3x+2)^5}+\frac{1}{14(3x+2)^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(1/(1-2*x)/(2+3*x)**7/(3+5*x),x)
```

```
[Out] -128*log(-2*x + 1)/9058973 - 5849026977*log(3*x + 2)/823543 + 781
25*log(5*x + 3)/11 + 167115051/(117649*(3*x + 2)) + 4774713/(3361
4*(3*x + 2)**2) + 45473/(2401*(3*x + 2)**3) + 3897/(1372*(3*x + 2
)**4) + 111/(245*(3*x + 2)**5) + 1/(14*(3*x + 2)**6)
```

Mathematica [A] time = 0.0616591, size = 97, normalized size = 1.

$$\frac{167115051}{117649(3x+2)}+\frac{4774713}{33614(3x+2)^2}+\frac{45473}{2401(3x+2)^3}+\frac{3897}{1372(3x+2)^4}+\frac{111}{245(3x+2)^5}+\frac{1}{14(3x+2)^6}-\frac{128\log(1-2x)}{9058973}-\frac{5849026977\log(6x+4)}{823543}+\frac{78125}{11}\log(10x+6)$$

Antiderivative was successfully verified.

```
[In] Integrate[1/((1 - 2*x)*(2 + 3*x)^7*(3 + 5*x)),x]
```

```
[Out] 1/(14*(2 + 3*x)^6) + 111/(245*(2 + 3*x)^5) + 3897/(1372*(2 + 3*x)
^4) + 45473/(2401*(2 + 3*x)^3) + 4774713/(33614*(2 + 3*x)^2) + 16
7115051/(117649*(2 + 3*x)) - (128*Log[1 - 2*x])/9058973 - (584902
6977*Log[4 + 6*x])/823543 + (78125*Log[6 + 10*x])/11
```

Maple [A] time = 0.014, size = 80, normalized size = 0.8

$$\frac{78125\ \ln(3+5x)}{11}+\frac{1}{14\ (2+3x)^6}+\frac{111}{245\ (2+3x)^5}+\frac{3897}{1372\ (2+3x)^4}+\frac{45473}{2401\ (2+3x)^3}+\frac{4774713}{33614\ (2+3x)^2}+\frac{167115051}{235298+352947x}-\frac{5849026977\ \ln(2+3x)}{823543}-\frac{128\ \ln(-1+2x)}{9058973}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)/(2+3*x)^7/(3+5*x),x)
```

```
[Out] 78125/11*ln(3+5*x)+1/14/(2+3*x)^6+111/245/(2+3*x)^5+3897/1372/(2+
3*x)^4+45473/2401/(2+3*x)^3+4774713/33614/(2+3*x)^2+167115051/117
649/(2+3*x)-5849026977/823543*ln(2+3*x)-128/9058973*ln(-1+2*x)
```

Maxima [A] time = 1.35104, size = 113, normalized size = 1.16

$$\frac{3\left(270726382620x^5+911445482970x^4+1227693992580x^3+827038992105x^2+278642000664x+37562284366\right)}{2352980\left(729x^6+2916x^5+4860x^4+4320x^3+2160x^2+576x+64\right)}+\frac{78125}{11}\log(5x+3)-\frac{5849026977}{823543}\log(3x+2)-\frac{128}{9058973}\log(2x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)*(3*x + 2)^7*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] 3/2352980*(270726382620*x^5 + 911445482970*x^4 + 1227693992580*x^
3 + 827038992105*x^2 + 278642000664*x + 37562284366)/(729*x^6 + 2
916*x^5 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64) + 78125/11
*log(5*x + 3) - 5849026977/823543*log(3*x + 2) - 128/9058973*log(
2*x - 1)
```

Fricas [A] time = 0.222498, size = 234, normalized size = 2.41

$$62537794385220x^5+210543906566070x^4+283597312285980x^3+191046007176255x^2+1286785937500\left(729x^6+2916\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)*(3*x + 2)^7*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] 1/181179460*(62537794385220*x^5 + 210543906566070*x^4 + 283597312
285980*x^3 + 191046007176255*x^2 + 1286785937500*(729*x^6 + 2916*
x^5 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64)*log(5*x + 3) -
 1286785934940*(729*x^6 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 2160*x
^2 + 576*x + 64)*log(3*x + 2) - 2560*(729*x^6 + 2916*x^5 + 4860*x
^4 + 4320*x^3 + 2160*x^2 + 576*x + 64)*log(2*x - 1) + 64366302153
384*x + 8676887688546)/(729*x^6 + 2916*x^5 + 4860*x^4 + 4320*x^3
+ 2160*x^2 + 576*x + 64)
```

Sympy [A] time = 0.739567, size = 85, normalized size = 0.88

$$\frac{812179147860x^5 + 2734336448910x^4 + 3683081977740x^3 + 2481116976315x^2 + 835926001992x + 112686853098}{1715322420x^6 + 6861289680x^5 + 11435482800x^4 + 10164873600x^3 + 5082436800x^2 + 1355316480x + 150590720} - \frac{128\log\left(x - \frac{1}{2}\right)}{9058973} + \frac{78125\log\left(x + \frac{3}{5}\right)}{11} - \frac{5849026977\log\left(x + \frac{2}{3}\right)}{823543}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)/(2+3*x)**7/(3+5*x),x)
```

```
[Out] (812179147860*x**5 + 2734336448910*x**4 + 3683081977740*x**3 + 24
81116976315*x**2 + 835926001992*x + 112686853098)/(1715322420*x**
6 + 6861289680*x**5 + 11435482800*x**4 + 10164873600*x**3 + 50824
36800*x**2 + 1355316480*x + 150590720) - 128*log(x - 1/2)/9058973
 + 78125*log(x + 3/5)/11 - 5849026977*log(x + 2/3)/823543
```

GIAC/XCAS [A] time = 0.207437, size = 84, normalized size = 0.87

$$\frac{3\left(270726382620\,x^5 + 911445482970\,x^4 + 1227693992580\,x^3 + 827038992105\,x^2 + 278642000664\,x + 37562284366\right)}{2352980\,(3\,x + 2)^6} + \frac{78125}{11}\ln\left(|5\,x + 3|\right) - \frac{5849026977}{823543}\ln\left(|3\,x + 2|\right) - \frac{128}{9058973}\ln\left(|2\,x - 1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)*(3*x + 2)^7*(2*x - 1)),x, algorithm="giac")
```

```
[Out] 3/2352980*(270726382620*x^5 + 911445482970*x^4 + 1227693992580*x^
3 + 827038992105*x^2 + 278642000664*x + 37562284366)/(3*x + 2)^6
+ 78125/11*ln(abs(5*x + 3)) - 5849026977/823543*ln(abs(3*x + 2))
- 128/9058973*ln(abs(2*x - 1))
```

3.1484 $\int \frac{(2+3x)^8}{(1-2x)(3+5x)^2}\,dx$

Optimal. Leaf size=72

$$-\frac{2187x^6}{100}-\frac{303993x^5}{2500}-\frac{6194313x^4}{20000}-\frac{24660207x^3}{50000}-\frac{118543581x^2}{200000}-\frac{3579885909x}{5000000}-\frac{1}{4296875(5x+3)}-\frac{5764801\log(1-2x)}{15488}+\frac{266\log(5x+3)}{47265625}$$

```
[Out] (-3579885909*x)/5000000 - (118543581*x^2)/200000 - (24660207*x^3)
/50000 - (6194313*x^4)/20000 - (303993*x^5)/2500 - (2187*x^6)/100
 - 1/(4296875*(3 + 5*x)) - (5764801*Log[1 - 2*x])/15488 + (266*Lo
g[3 + 5*x])/47265625
```

Rubi [A] time = 0.0764919, antiderivative size = 72, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$-\frac{2187x^6}{100}-\frac{303993x^5}{2500}-\frac{6194313x^4}{20000}-\frac{24660207x^3}{50000}-\frac{118543581x^2}{200000}-\frac{3579885909x}{5000000}-\frac{1}{4296875(5x+3)}-\frac{5764801\log(1-2x)}{15488}+\frac{266\log(5x+3)}{47265625}$$

Antiderivative was successfully verified.

```
[In] Int[(2 + 3*x)^8/((1 - 2*x)*(3 + 5*x)^2),x]
```

```
[Out] (-3579885909*x)/5000000 - (118543581*x^2)/200000 - (24660207*x^3)
/50000 - (6194313*x^4)/20000 - (303993*x^5)/2500 - (2187*x^6)/100
 - 1/(4296875*(3 + 5*x)) - (5764801*Log[1 - 2*x])/15488 + (266*Lo
g[3 + 5*x])/47265625
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{2187x^6}{100}-\frac{303993x^5}{2500}-\frac{6194313x^4}{20000}-\frac{24660207x^3}{50000}-\frac{5764801\log(-2x+1)}{15488}+\frac{266\log(5x+3)}{47265625}+\int\left(-\frac{3579885909}{5000000}\right)dx-\frac{118543581\int x\,dx}{100000}-\frac{1}{4296875(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**8/(1-2*x)/(3+5*x)**2,x)
```

```
[Out] -2187*x**6/100 - 303993*x**5/2500 - 6194313*x**4/20000 - 24660207
*x**3/50000 - 5764801*log(-2*x + 1)/15488 + 266*log(5*x + 3)/4726
5625 + Integral(-3579885909/5000000, x) - 118543581*Integral(x, x
)/100000 - 1/(4296875*(5*x + 3))
```

Mathematica [A] time = 0.10676, size = 64, normalized size = 0.89

$$\frac{22\left(-6014250000x^6-33439230000x^5-85171803750x^4-135631138500x^3-162997423875x^2-196893724995x-\frac{64}{5x+3}-\right.}{6050000000}$$

Antiderivative was successfully verified.

```
[In] Integrate[(2 + 3*x)^8/((1 - 2*x)*(3 + 5*x)^2),x]
```

```
[Out] (22*(-86057647830 - 196893724995*x - 162997423875*x^2 - 135631138
500*x^3 - 85171803750*x^4 - 33439230000*x^5 - 6014250000*x^6 - 64
/(3 + 5*x)) - 2251875390625*Log[3 - 6*x] + 34048*Log[-3*(3 + 5*x)
])/6050000000
```

Maple [A] time = 0.013, size = 55, normalized size = 0.8

$$-\frac{2187\,x^6}{100}-\frac{303993\,x^5}{2500}-\frac{6194313\,x^4}{20000}-\frac{24660207\,x^3}{50000}-\frac{118543581\,x^2}{200000}-\frac{3579885909\,x}{5000000}-\frac{1}{12890625+21484375\,x}+\frac{266\,\ln(3+5\,x)}{47265625}-\frac{5764801\,\ln(-1+2\,x)}{15488}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^8/(1-2*x)/(3+5*x)^2,x)
```

```
[Out] -2187/100*x^6-303993/2500*x^5-6194313/20000*x^4-24660207/50000*x^
3-118543581/200000*x^2-3579885909/5000000*x-1/4296875/(3+5*x)+266
/47265625*ln(3+5*x)-5764801/15488*ln(-1+2*x)
```

Maxima [A] time = 1.35016, size = 73, normalized size = 1.01

$$-\frac{2187}{100}\,x^6-\frac{303993}{2500}\,x^5-\frac{6194313}{20000}\,x^4-\frac{24660207}{50000}\,x^3-\frac{118543581}{200000}\,x^2-\frac{3579885909}{5000000}\,x-\frac{1}{4296875\,(5\,x+3)}+\frac{266}{47265625}\,\log(5\,x+3)-\frac{5764801}{15488}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^8/((5*x + 3)^2*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -2187/100*x^6 - 303993/2500*x^5 - 6194313/20000*x^4 - 24660207/50
000*x^3 - 118543581/200000*x^2 - 3579885909/5000000*x - 1/4296875
/(5*x + 3) + 266/47265625*log(5*x + 3) - 5764801/15488*log(2*x -
1)
```

Fricas [A] time = 0.207316, size = 95, normalized size = 1.32

$$-\frac{661567500000\,x^7+4075255800000\,x^6+11575887592500\,x^5+20540764282500\,x^4+26881371767250\,x^3+3241613972520}{6050000000\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^8/((5*x + 3)^2*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] -1/6050000000*(661567500000*x^7 + 4075255800000*x^6 + 11575887592
500*x^5 + 20540764282500*x^4 + 26881371767250*x^3 + 3241613972520
0*x^2 - 34048*(5*x + 3)*log(5*x + 3) + 2251875390625*(5*x + 3)*lo
g(2*x - 1) + 12994985849670*x + 1408)/(5*x + 3)
```

Sympy [A] time = 0.401177, size = 65, normalized size = 0.9

$$-\frac{2187x^6}{100}-\frac{303993x^5}{2500}-\frac{6194313x^4}{20000}-\frac{24660207x^3}{50000}-\frac{118543581x^2}{200000}-\frac{3579885909x}{5000000}-\frac{5764801\log\left(x-\frac{1}{2}\right)}{15488}+\frac{266\log\left(x+\frac{3}{5}\right)}{47265625}-\frac{1}{21484375x+12890625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**8/(1-2*x)/(3+5*x)**2,x)
```

```
[Out] -2187*x**6/100 - 303993*x**5/2500 - 6194313*x**4/20000 - 24660207
*x**3/50000 - 118543581*x**2/200000 - 3579885909*x/5000000 - 5764
801*log(x - 1/2)/15488 + 266*log(x + 3/5)/47265625 - 1/(21484375*
x + 12890625)
```

GIAC/XCAS [A] time = 0.213121, size = 134, normalized size = 1.86

$$-\frac{27}{125000000}(5x+3)^6\left(\frac{63504}{5x+3}+\frac{466830}{(5x+3)^2}+\frac{3450300}{(5x+3)^3}+\frac{28481775}{(5x+3)^4}+\frac{313308485}{(5x+3)^5}+6480\right)$$
$$-\frac{1}{4296875(5x+3)}+\frac{18610540137}{50000000}\ln\left(\frac{|5x+3|}{5(5x+3)^2}\right)-\frac{5764801}{15488}\ln\left(\left|-\frac{11}{5x+3}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^8/((5*x + 3)^2*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -27/125000000*(5*x + 3)^6*(63504/(5*x + 3) + 466830/(5*x + 3)^2 +
 3450300/(5*x + 3)^3 + 28481775/(5*x + 3)^4 + 313308485/(5*x + 3)
^5 + 6480) - 1/4296875/(5*x + 3) + 18610540137/50000000*ln(1/5*ab
s(5*x + 3)/(5*x + 3)^2) - 5764801/15488*ln(abs(-11/(5*x + 3) + 2)
)
```

3.1485 $\int \frac{(2+3x)^7}{(1-2x)(3+5x)^2} dx$

Optimal. Leaf size=65

$$-\frac{2187x^5}{250}-\frac{86751x^4}{2000}-\frac{495477x^3}{5000}-\frac{14750667x^2}{100000}-\frac{19846971x}{100000}-\frac{1}{859375(5x+3)}-\frac{823543\log(1-2x)}{7744}+\frac{233\log(5x+3)}{9453125}$$

```
[Out] (-19846971*x)/100000 - (14750667*x^2)/100000 - (495477*x^3)/5000
- (86751*x^4)/2000 - (2187*x^5)/250 - 1/(859375*(3 + 5*x)) - (823
543*Log[1 - 2*x])/7744 + (233*Log[3 + 5*x])/9453125
```

Rubi [A] time = 0.0699518, antiderivative size = 65, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{2187x^5}{250}-\frac{86751x^4}{2000}-\frac{495477x^3}{5000}-\frac{14750667x^2}{100000}-\frac{19846971x}{100000}-\frac{1}{859375(5x+3)}-\frac{823543\log(1-2x)}{7744}+\frac{233\log(5x+3)}{9453125}$$

Antiderivative was successfully verified.

```
[In] Int[(2 + 3*x)^7/((1 - 2*x)*(3 + 5*x)^2),x]
```

```
[Out] (-19846971*x)/100000 - (14750667*x^2)/100000 - (495477*x^3)/5000
- (86751*x^4)/2000 - (2187*x^5)/250 - 1/(859375*(3 + 5*x)) - (823
543*Log[1 - 2*x])/7744 + (233*Log[3 + 5*x])/9453125
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{2187x^5}{250}-\frac{86751x^4}{2000}-\frac{495477x^3}{5000}-\frac{823543\log(-2x+1)}{7744}+\frac{233\log(5x+3)}{9453125}+\int\left(-\frac{19846971}{100000}\right)dx-\frac{14750667\int x\,dx}{50000}-\frac{1}{859375(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**7/(1-2*x)/(3+5*x)**2,x)
```

```
[Out] -2187*x**5/250 - 86751*x**4/2000 - 495477*x**3/5000 - 823543*log(
-2*x + 1)/7744 + 233*log(5*x + 3)/9453125 + Integral(-19846971/10
0000, x) - 14750667*Integral(x, x)/50000 - 1/(859375*(5*x + 3))
```

Mathematica [A] time = 0.0565352, size = 60, normalized size = 0.92

$$\frac{-\frac{11(9622800000x^6+53486730000x^5+137632770000x^4+227660301000x^3+315671083200x^2-35641061775x-99978641969)}{5x+3}-257357187500\log(1-2x)+}{2420000000}$$

Antiderivative was successfully verified.

```
[In] Integrate[(2 + 3*x)^7/((1 - 2*x)*(3 + 5*x)^2),x]
```

```
[Out] ((-11*(-99978641969 - 35641061775*x + 315671083200*x^2 + 22766030
1000*x^3 + 137632770000*x^4 + 53486730000*x^5 + 9622800000*x^6))/
(3 + 5*x) - 257357187500*Log[1 - 2*x] + 59648*Log[6 + 10*x])/2420
```

000000

Maple [A] time = 0.013, size = 50, normalized size = 0.8

$$-\frac{2187\,x^5}{250}-\frac{86751\,x^4}{2000}-\frac{495477\,x^3}{5000}-\frac{14750667\,x^2}{100000}-\frac{19846971\,x}{100000}-\frac{1}{2578125+4296875\,x}+\frac{233\,\ln\left(3+5\,x\right)}{9453125}-\frac{823543\,\ln\left(-1+2\,x\right)}{7744}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^7/(1-2*x)/(3+5*x)^2,x)
```

```
[Out] -2187/250*x^5-86751/2000*x^4-495477/5000*x^3-14750667/100000*x^2-
19846971/100000*x-1/859375/(3+5*x)+233/9453125*ln(3+5*x)-823543/7
744*ln(-1+2*x)
```

Maxima [A] time = 1.34016, size = 66, normalized size = 1.02

$$-\frac{2187}{250}\,x^5-\frac{86751}{2000}\,x^4-\frac{495477}{5000}\,x^3-\frac{14750667}{100000}\,x^2-\frac{19846971}{100000}\,x-\frac{1}{859375\,(5\,x+3)}+\frac{233}{9453125}\,\log\left(5\,x+3\right)-\frac{823543}{7744}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^7/((5*x + 3)^2*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -2187/250*x^5 - 86751/2000*x^4 - 495477/5000*x^3 - 14750667/10000
0*x^2 - 19846971/100000*x - 1/859375/(5*x + 3) + 233/9453125*log(
5*x + 3) - 823543/7744*log(2*x - 1)
```

Fricas [A] time = 0.214503, size = 88, normalized size = 1.35

$$-\frac{26462700000\,x^6+147088507500\,x^5+378490117500\,x^4+626065827750\,x^3+868095478800\,x^2-14912\,(5\,x+3)\log\left(5\,x+\right.}{605000000\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^7/((5*x + 3)^2*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] -1/605000000*(26462700000*x^6 + 147088507500*x^5 + 378490117500*x
^4 + 626065827750*x^3 + 868095478800*x^2 - 14912*(5*x + 3)*log(5*
x + 3) + 64339296875*(5*x + 3)*log(2*x - 1) + 360222523650*x + 70
4)/(5*x + 3)
```

Sympy [A] time = 0.38444, size = 58, normalized size = 0.89

$$-\frac{2187x^5}{250}-\frac{86751x^4}{2000}-\frac{495477x^3}{5000}-\frac{14750667x^2}{100000}-\frac{19846971x}{100000}-\frac{823543\log\left(x-\frac{1}{2}\right)}{7744}+\frac{233\log\left(x+\frac{3}{5}\right)}{9453125}-\frac{1}{4296875x+2578125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**7/(1-2*x)/(3+5*x)**2,x)
```

```
[Out] -2187*x**5/250 - 86751*x**4/2000 - 495477*x**3/5000 - 14750667*x*
*2/100000 - 19846971*x/100000 - 823543*log(x - 1/2)/7744 + 233*lo
g(x + 3/5)/9453125 - 1/(4296875*x + 2578125)
```

GIAC/XCAS [A] time = 0.216031, size = 122, normalized size = 1.88

$$-\frac{27}{12500000}(5x+3)^5\left(\frac{12690}{5x+3}+\frac{98100}{(5x+3)^2}+\frac{813525}{(5x+3)^3}+\frac{8951575}{(5x+3)^4}+1296\right)-\frac{1}{859375(5x+3)}+\frac{531729603}{5000000}\ln\left(\frac{|5x+3|}{5(5x+3)^2}\right)-\frac{823543}{7744}\ln\left(\left|-\frac{11}{5x+3}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^7/((5*x + 3)^2*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -27/12500000*(5*x + 3)^5*(12690/(5*x + 3) + 98100/(5*x + 3)^2 + 8
13525/(5*x + 3)^3 + 8951575/(5*x + 3)^4 + 1296) - 1/859375/(5*x +
 3) + 531729603/5000000*ln(1/5*abs(5*x + 3)/(5*x + 3)^2) - 823543
/7744*ln(abs(-11/(5*x + 3) + 2))
```

3.1486 $\int \frac{(2+3x)^6}{(1-2x)(3+5x)^2}\,dx$

Optimal. Leaf size=58

$$-\frac{729x^4}{200}-\frac{8019x^3}{500}-\frac{335097x^2}{10000}-\frac{2682909x}{50000}-\frac{1}{171875(5x+3)}-\frac{117649\log(1-2x)}{3872}+\frac{8\log(5x+3)}{75625}$$

```
[Out] (-2682909*x)/50000 - (335097*x^2)/10000 - (8019*x^3)/500 - (729*x
^4)/200 - 1/(171875*(3 + 5*x)) - (117649*Log[1 - 2*x])/3872 + (8*
Log[3 + 5*x])/75625
```

Rubi [A] time = 0.0633682, antiderivative size = 58, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{729x^4}{200}-\frac{8019x^3}{500}-\frac{335097x^2}{10000}-\frac{2682909x}{50000}-\frac{1}{171875(5x+3)}-\frac{117649\log(1-2x)}{3872}+\frac{8\log(5x+3)}{75625}$$

Antiderivative was successfully verified.

```
[In] Int[(2 + 3*x)^6/((1 - 2*x)*(3 + 5*x)^2),x]
```

```
[Out] (-2682909*x)/50000 - (335097*x^2)/10000 - (8019*x^3)/500 - (729*x
^4)/200 - 1/(171875*(3 + 5*x)) - (117649*Log[1 - 2*x])/3872 + (8*
Log[3 + 5*x])/75625
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{729x^4}{200}-\frac{8019x^3}{500}-\frac{117649\log(-2x+1)}{3872}+\frac{8\log(5x+3)}{75625}+\int\left(-\frac{2682909}{50000}\right)dx-\frac{335097\int x\,dx}{5000}-\frac{1}{171875(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**6/(1-2*x)/(3+5*x)**2,x)
```

```
[Out] -729*x**4/200 - 8019*x**3/500 - 117649*log(-2*x + 1)/3872 + 8*log
(5*x + 3)/75625 + Integral(-2682909/50000, x) - 335097*Integral(x
, x)/5000 - 1/(171875*(5*x + 3))
```

Mathematica [A] time = 0.0640142, size = 54, normalized size = 0.93

$$\frac{-80190000x^4-352836000x^3-737213400x^2-1180479960x-\frac{128}{5x+3}+823659705}{22000000}-\frac{117649\log(1-2x)}{3872}+\frac{8\log(10x+6)}{75625}$$

Antiderivative was successfully verified.

```
[In] Integrate[(2 + 3*x)^6/((1 - 2*x)*(3 + 5*x)^2),x]
```

```
[Out] (823659705 - 1180479960*x - 737213400*x^2 - 352836000*x^3 - 80190
000*x^4 - 128/(3 + 5*x))/22000000 - (117649*Log[1 - 2*x])/3872 +
(8*Log[6 + 10*x])/75625
```

Maple [A] time = 0.013, size = 45, normalized size = 0.8

$$-\frac{729\,x^{4}}{200}-\frac{8019\,x^{3}}{500}-\frac{335097\,x^{2}}{10000}-\frac{2682909\,x}{50000}-\frac{1}{515625+859375\,x}+\frac{8\,\ln\left(3+5\,x\right)}{75625}-\frac{117649\,\ln\left(-1+2\,x\right)}{3872}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^6/(1-2*x)/(3+5*x)^2,x)
```

```
[Out] -729/200*x^4-8019/500*x^3-335097/10000*x^2-2682909/50000*x-1/1718
75/(3+5*x)+8/75625*ln(3+5*x)-117649/3872*ln(-1+2*x)
```

Maxima [A] time = 1.35614, size = 59, normalized size = 1.02

$$-\frac{729}{200}\,x^{4}-\frac{8019}{500}\,x^{3}-\frac{335097}{10000}\,x^{2}-\frac{2682909}{50000}\,x-\frac{1}{171875\,(5\,x+3)}+\frac{8}{75625}\,\log\left(5\,x+3\right)-\frac{117649}{3872}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^6/((5*x + 3)^2*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -729/200*x^4 - 8019/500*x^3 - 335097/10000*x^2 - 2682909/50000*x
- 1/171875/(5*x + 3) + 8/75625*log(5*x + 3) - 117649/3872*log(2*x
 - 1)
```

Fricas [A] time = 0.210747, size = 81, normalized size = 1.4

$$-\frac{1102612500\,x^{5}+5513062500\,x^{4}+13047581250\,x^{3}+22313610000\,x^{2}-6400\,(5\,x+3)\log\left(5\,x+3\right)+1838265625\,(5\,x+3)\,\mathrm{l}}{60500000\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^6/((5*x + 3)^2*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] -1/60500000*(1102612500*x^5 + 5513062500*x^4 + 13047581250*x^3 +
22313610000*x^2 - 6400*(5*x + 3)*log(5*x + 3) + 1838265625*(5*x +
 3)*log(2*x - 1) + 9738959670*x + 352)/(5*x + 3)
```

Sympy [A] time = 0.373878, size = 51, normalized size = 0.88

$$-\frac{729x^{4}}{200}-\frac{8019x^{3}}{500}-\frac{335097x^{2}}{10000}-\frac{2682909x}{50000}-\frac{117649\log\left(x-\frac{1}{2}\right)}{3872}+\frac{8\log\left(x+\frac{3}{5}\right)}{75625}-\frac{1}{859375x+515625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**6/(1-2*x)/(3+5*x)**2,x)
```

```
[Out] -729*x**4/200 - 8019*x**3/500 - 335097*x**2/10000 - 2682909*x/500
00 - 117649*log(x - 1/2)/3872 + 8*log(x + 3/5)/75625 - 1/(859375*
x + 515625)
```

GIAC/XCAS [A] time = 0.206319, size = 109, normalized size = 1.88

$$-\frac{27}{250000}\,(5\,x+3)^{4}\left(\frac{540}{5\,x+3}+\frac{4635}{(5\,x+3)^{2}}+\frac{51145}{(5\,x+3)^{3}}+54\right)-\frac{1}{171875\,(5\,x+3)}+\frac{607689}{20000}\ln\left(\frac{|5\,x+3|}{5\,(5\,x+3)^{2}}\right)-\frac{117649}{3872}\ln\left(\left|-\frac{11}{5\,x+3}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^6/((5*x + 3)^2*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -27/250000*(5*x + 3)^4*(540/(5*x + 3) + 4635/(5*x + 3)^2 + 51145/
(5*x + 3)^3 + 54) - 1/171875/(5*x + 3) + 607689/20000*ln(1/5*abs(
5*x + 3)/(5*x + 3)^2) - 117649/3872*ln(abs(-11/(5*x + 3) + 2))
```

3.1487 $\int \frac{(2+3x)^5}{(1-2x)(3+5x)^2}\,dx$

Optimal. Leaf size=51

$$-\frac{81x^3}{50}-\frac{6399x^2}{1000}-\frac{69039x}{5000}-\frac{1}{34375(5x+3)}-\frac{16807\log(1-2x)}{1936}+\frac{167\log(5x+3)}{378125}$$

```
[Out] (-69039*x)/5000 - (6399*x^2)/1000 - (81*x^3)/50 - 1/(34375*(3 + 5
*x)) - (16807*Log[1 - 2*x])/1936 + (167*Log[3 + 5*x])/378125
```

Rubi [A] time = 0.0552156, antiderivative size = 51, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{81x^3}{50}-\frac{6399x^2}{1000}-\frac{69039x}{5000}-\frac{1}{34375(5x+3)}-\frac{16807\log(1-2x)}{1936}+\frac{167\log(5x+3)}{378125}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^5/((1 - 2*x)*(3 + 5*x)^2),x]
```

```
[Out] (-69039*x)/5000 - (6399*x^2)/1000 - (81*x^3)/50 - 1/(34375*(3 + 5
*x)) - (16807*Log[1 - 2*x])/1936 + (167*Log[3 + 5*x])/378125
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{81x^3}{50}-\frac{16807\log(-2x+1)}{1936}+\frac{167\log(5x+3)}{378125}+\int\left(-\frac{69039}{5000}\right)dx-\frac{6399\int x\,dx}{500}-\frac{1}{34375(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**5/(1-2*x)/(3+5*x)**2,x)
```

```
[Out] -81*x**3/50 - 16807*log(-2*x + 1)/1936 + 167*log(5*x + 3)/378125
+ Integral(-69039/5000, x) - 6399*Integral(x, x)/500 - 1/(34375*(
5*x + 3))
```

Mathematica [A] time = 0.038077, size = 50, normalized size = 0.98

$$-\frac{\frac{11(8910000x^4+40540500x^3+97059600x^2-2318085x-28730263)}{5x+3}-105043750\log(1-2x)+5344\log(10x+6)}{12100000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^5/((1 - 2*x)*(3 + 5*x)^2),x]
```

```
[Out] ((-11*(-28730263 - 2318085*x + 97059600*x^2 + 40540500*x^3 + 8910
000*x^4))/(3 + 5*x) - 105043750*Log[1 - 2*x] + 5344*Log[6 + 10*x]
)/12100000
```

Maple [A] time = 0.013, size = 40, normalized size = 0.8

$$-\frac{81\,x^3}{50}-\frac{6399\,x^2}{1000}-\frac{69039\,x}{5000}-\frac{1}{103125+171875\,x}+\frac{167\,\ln(3+5\,x)}{378125}-\frac{16807\,\ln(-1+2\,x)}{1936}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^5/(1-2*x)/(3+5*x)^2,x)
```

```
[Out] -81/50*x^3-6399/1000*x^2-69039/5000*x-1/34375/(3+5*x)+167/378125*
ln(3+5*x)-16807/1936*ln(-1+2*x)
```

Maxima [A] time = 1.32809, size = 53, normalized size = 1.04

$$-\frac{81}{50}\,x^{3}-\frac{6399}{1000}\,x^{2}-\frac{69039}{5000}\,x-\frac{1}{34375\,(5\,x+3)}+\frac{167}{378125}\,\log\left(5\,x+3\right)-\frac{16807}{1936}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^5/((5*x + 3)^2*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -81/50*x^3 - 6399/1000*x^2 - 69039/5000*x - 1/34375/(5*x + 3) + 1
67/378125*log(5*x + 3) - 16807/1936*log(2*x - 1)
```

Fricas [A] time = 0.219699, size = 74, normalized size = 1.45

$$-\frac{49005000\,x^{4}+222972750\,x^{3}+533827800\,x^{2}-2672\,(5\,x+3)\log\left(5\,x+3\right)+52521875\,(5\,x+3)\log\left(2\,x-1\right)+250611570\,x}{6050000\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^5/((5*x + 3)^2*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] -1/6050000*(49005000*x^4 + 222972750*x^3 + 533827800*x^2 - 2672*(
5*x + 3)*log(5*x + 3) + 52521875*(5*x + 3)*log(2*x - 1) + 2506115
70*x + 176)/(5*x + 3)
```

Sympy [A] time = 0.369072, size = 44, normalized size = 0.86

$$-\frac{81x^{3}}{50}-\frac{6399x^{2}}{1000}-\frac{69039x}{5000}-\frac{16807\log\left(x-\frac{1}{2}\right)}{1936}+\frac{167\log\left(x+\frac{3}{5}\right)}{378125}-\frac{1}{171875x+103125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**5/(1-2*x)/(3+5*x)**2,x)
```

```
[Out] -81*x**3/50 - 6399*x**2/1000 - 69039*x/5000 - 16807*log(x - 1/2)/
1936 + 167*log(x + 3/5)/378125 - 1/(171875*x + 103125)
```

GIAC/XCAS [A] time = 0.211934, size = 97, normalized size = 1.9

$$-\frac{27}{25000}\,(5\,x+3)^{3}\left(\frac{129}{5\,x+3}+\frac{1459}{(5\,x+3)^{2}}+12\right)-\frac{1}{34375\,(5\,x+3)}+\frac{434043}{50000}\,\ln\left(\frac{|5\,x+3|}{5\,(5\,x+3)^{2}}\right)-\frac{16807}{1936}\,\ln\left(\left|-\frac{11}{5\,x+3}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^5/((5*x + 3)^2*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -27/25000*(5*x + 3)^3*(129/(5*x + 3) + 1459/(5*x + 3)^2 + 12) - 1
/34375/(5*x + 3) + 434043/50000*ln(1/5*abs(5*x + 3)/(5*x + 3)^2)
- 16807/1936*ln(abs(-11/(5*x + 3) + 2))
```

3.1488 $\int \frac{(2+3x)^4}{(1-2x)(3+5x)^2}\,dx$

Optimal. Leaf size=44

$$-\frac{81x^2}{100}-\frac{1593x}{500}-\frac{1}{6875(5x+3)}-\frac{2401}{968}\log(1-2x)+\frac{134\log(5x+3)}{75625}$$

```
[Out] (-1593*x)/500 - (81*x^2)/100 - 1/(6875*(3 + 5*x)) - (2401*Log[1 -
 2*x])/968 + (134*Log[3 + 5*x])/75625
```

Rubi [A] time = 0.0511634, antiderivative size = 44, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{81x^2}{100}-\frac{1593x}{500}-\frac{1}{6875(5x+3)}-\frac{2401}{968}\log(1-2x)+\frac{134\log(5x+3)}{75625}$$

Antiderivative was successfully verified.

```
[In] Int[(2 + 3*x)^4/((1 - 2*x)*(3 + 5*x)^2),x]
```

```
[Out] (-1593*x)/500 - (81*x^2)/100 - 1/(6875*(3 + 5*x)) - (2401*Log[1 -
 2*x])/968 + (134*Log[3 + 5*x])/75625
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{2401\log(-2x+1)}{968}+\frac{134\log(5x+3)}{75625}+\int\left(-\frac{1593}{500}\right)dx-\frac{81\int x\,dx}{50}-\frac{1}{6875(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**4/(1-2*x)/(3+5*x)**2,x)
```

```
[Out] -2401*log(-2*x + 1)/968 + 134*log(5*x + 3)/75625 + Integral(-1593
/500, x) - 81*Integral(x, x)/50 - 1/(6875*(5*x + 3))
```

Mathematica [A] time = 0.0422189, size = 52, normalized size = 1.18

$$-\frac{81}{400}(1-2x)^2+\frac{999}{500}(1-2x)-\frac{1}{6875(5x+3)}-\frac{2401}{968}\log(1-2x)+\frac{134\log(10x+6)}{75625}$$

Antiderivative was successfully verified.

```
[In] Integrate[(2 + 3*x)^4/((1 - 2*x)*(3 + 5*x)^2),x]
```

```
[Out] (999*(1 - 2*x))/500 - (81*(1 - 2*x)^2)/400 - 1/(6875*(3 + 5*x)) -
 (2401*Log[1 - 2*x])/968 + (134*Log[6 + 10*x])/75625
```

Maple [A] time = 0.011, size = 35, normalized size = 0.8

$$-\frac{81x^2}{100}-\frac{1593x}{500}-\frac{1}{20625+34375x}+\frac{134\ln(3+5x)}{75625}-\frac{2401\ln(-1+2x)}{968}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4/(1-2*x)/(3+5*x)^2,x)
```

```
[Out] -81/100*x^2-1593/500*x-1/6875/(3+5*x)+134/75625*ln(3+5*x)-2401/96
8*ln(-1+2*x)
```

Maxima [A] time = 1.35532, size = 46, normalized size = 1.05

$$-\frac{81}{100}\,x^2-\frac{1593}{500}\,x-\frac{1}{6875\,(5\,x+3)}+\frac{134}{75625}\,\log\left(5\,x+3\right)-\frac{2401}{968}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^4/((5*x + 3)^2*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -81/100*x^2 - 1593/500*x - 1/6875/(5*x + 3) + 134/75625*log(5*x +
 3) - 2401/968*log(2*x - 1)
```

Fricas [A] time = 0.209155, size = 68, normalized size = 1.55

$$-\frac{2450250\,x^3+11107800\,x^2-1072\,(5\,x+3)\log\left(5\,x+3\right)+1500625\,(5\,x+3)\log\left(2\,x-1\right)+5782590\,x+88}{605000\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^4/((5*x + 3)^2*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] -1/605000*(2450250*x^3 + 11107800*x^2 - 1072*(5*x + 3)*log(5*x +
3) + 1500625*(5*x + 3)*log(2*x - 1) + 5782590*x + 88)/(5*x + 3)
```

Sympy [A] time = 0.356241, size = 37, normalized size = 0.84

$$-\frac{81x^2}{100}-\frac{1593x}{500}-\frac{2401\log\left(x-\frac{1}{2}\right)}{968}+\frac{134\log\left(x+\frac{3}{5}\right)}{75625}-\frac{1}{34375x+20625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4/(1-2*x)/(3+5*x)**2,x)
```

```
[Out] -81*x**2/100 - 1593*x/500 - 2401*log(x - 1/2)/968 + 134*log(x + 3
/5)/75625 - 1/(34375*x + 20625)
```

GIAC/XCAS [A] time = 0.207017, size = 85, normalized size = 1.93

$$-\frac{27}{2500}\,(5\,x+3)^2\left(\frac{41}{5\,x+3}+3\right)-\frac{1}{6875\,(5\,x+3)}+\frac{12393}{5000}\,\ln\left(\frac{|5\,x+3|}{5\,(5\,x+3)^2}\right)-\frac{2401}{968}\,\ln\left(\left|-\frac{11}{5\,x+3}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^4/((5*x + 3)^2*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -27/2500*(5*x + 3)^2*(41/(5*x + 3) + 3) - 1/6875/(5*x + 3) + 1239
3/5000*ln(1/5*abs(5*x + 3)/(5*x + 3)^2) - 2401/968*ln(abs(-11/(5*
x + 3) + 2))
```

3.1489 $\int \frac{(2+3x)^3}{(1-2x)(3+5x)^2}\,dx$

Optimal. Leaf size=37

$$-\frac{27x}{50}-\frac{1}{1375(5x+3)}-\frac{343}{484}\log(1-2x)+\frac{101\log(5x+3)}{15125}$$

```
[Out] (-27*x)/50 - 1/(1375*(3 + 5*x)) - (343*Log[1 - 2*x])/484 + (101*L
og[3 + 5*x])/15125
```

Rubi [A] time = 0.0463307, antiderivative size = 37, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{27x}{50}-\frac{1}{1375(5x+3)}-\frac{343}{484}\log(1-2x)+\frac{101\log(5x+3)}{15125}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^3/((1 - 2*x)*(3 + 5*x)^2),x]
```

```
[Out] (-27*x)/50 - 1/(1375*(3 + 5*x)) - (343*Log[1 - 2*x])/484 + (101*L
og[3 + 5*x])/15125
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{343\log(-2x+1)}{484}+\frac{101\log(5x+3)}{15125}+\int\left(-\frac{27}{50}\right)dx-\frac{1}{1375(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3/(1-2*x)/(3+5*x)**2,x)
```

```
[Out] -343*log(-2*x + 1)/484 + 101*log(5*x + 3)/15125 + Integral(-27/50
, x) - 1/(1375*(5*x + 3))
```

Mathematica [A] time = 0.0336872, size = 37, normalized size = 1.

$$\frac{16335(1-2x)-\frac{44}{5x+3}-42875\log(1-2x)+404\log(10x+6)}{60500}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^3/((1 - 2*x)*(3 + 5*x)^2),x]
```

```
[Out] (16335*(1 - 2*x) - 44/(3 + 5*x) - 42875*Log[1 - 2*x] + 404*Log[6
+ 10*x])/60500
```

Maple [A] time = 0.012, size = 30, normalized size = 0.8

$$-\frac{27x}{50}-\frac{1}{4125+6875x}+\frac{101\ln(3+5x)}{15125}-\frac{343\ln(-1+2x)}{484}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3/(1-2*x)/(3+5*x)^2,x)
```

```
[Out] -27/50*x-1/1375/(3+5*x)+101/15125*ln(3+5*x)-343/484*ln(-1+2*x)
```

Maxima [A] time = 1.33782, size = 39, normalized size = 1.05

$$-\frac{27}{50}\,x-\frac{1}{1375\,(5\,x+3)}+\frac{101}{15125}\,\log\left(5\,x+3\right)-\frac{343}{484}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^3/((5*x + 3)^2*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -27/50*x - 1/1375/(5*x + 3) + 101/15125*log(5*x + 3) - 343/484*lo
g(2*x - 1)
```

Fricas [A] time = 0.226414, size = 61, normalized size = 1.65

$$-\frac{163350\,x^2-404\,(5\,x+3)\log\left(5\,x+3\right)+42875\,(5\,x+3)\log\left(2\,x-1\right)+98010\,x+44}{60500\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^3/((5*x + 3)^2*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] -1/60500*(163350*x^2 - 404*(5*x + 3)*log(5*x + 3) + 42875*(5*x +
3)*log(2*x - 1) + 98010*x + 44)/(5*x + 3)
```

Sympy [A] time = 0.352373, size = 31, normalized size = 0.84

$$-\frac{27x}{50}-\frac{343\log\left(x-\frac{1}{2}\right)}{484}+\frac{101\log\left(x+\frac{3}{5}\right)}{15125}-\frac{1}{6875x+4125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3/(1-2*x)/(3+5*x)**2,x)
```

```
[Out] -27*x/50 - 343*log(x - 1/2)/484 + 101*log(x + 3/5)/15125 - 1/(687
5*x + 4125)
```

GIAC/XCAS [A] time = 0.21269, size = 63, normalized size = 1.7

$$-\frac{27}{50}\,x-\frac{1}{1375\,(5\,x+3)}+\frac{351}{500}\,\ln\left(\frac{|5\,x+3|}{5\,(5\,x+3)^2}\right)-\frac{343}{484}\,\ln\left(\left|-\frac{11}{5\,x+3}+2\right|\right)-\frac{81}{250}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^3/((5*x + 3)^2*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -27/50*x - 1/1375/(5*x + 3) + 351/500*ln(1/5*abs(5*x + 3)/(5*x +
3)^2) - 343/484*ln(abs(-11/(5*x + 3) + 2)) - 81/250
```

3.1490 $\int \frac{(2+3x)^2}{(1-2x)(3+5x)^2} dx$

Optimal. Leaf size=32

$$-\frac{1}{275(5x+3)}-\frac{49}{242}\log(1-2x)+\frac{68\log(5x+3)}{3025}$$

```
[Out] -1/(275*(3 + 5*x)) - (49*Log[1 - 2*x])/242 + (68*Log[3 + 5*x])/30
25
```

Rubi [A] time = 0.0421277, antiderivative size = 32, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{1}{275(5x+3)}-\frac{49}{242}\log(1-2x)+\frac{68\log(5x+3)}{3025}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^2/((1 - 2*x)*(3 + 5*x)^2),x]

[Out] -1/(275*(3 + 5*x)) - (49*Log[1 - 2*x])/242 + (68*Log[3 + 5*x])/30
25
```

Rubi in Sympy [A] time = 6.77279, size = 26, normalized size = 0.81

$$-\frac{49\log(-2x+1)}{242}+\frac{68\log(5x+3)}{3025}-\frac{1}{275(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2/(1-2*x)/(3+5*x)**2,x)

[Out] -49*log(-2*x + 1)/242 + 68*log(5*x + 3)/3025 - 1/(275*(5*x + 3))
```

Mathematica [A] time = 0.0272075, size = 30, normalized size = 0.94

$$\frac{-\frac{22}{5x+3}-1225\log(1-2x)+136\log(10x+6)}{6050}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^2/((1 - 2*x)*(3 + 5*x)^2),x]

[Out] (-22/(3 + 5*x) - 1225*Log[1 - 2*x] + 136*Log[6 + 10*x])/6050
```

Maple [A] time = 0.012, size = 27, normalized size = 0.8

$$-\frac{1}{825+1375x}+\frac{68\ln(3+5x)}{3025}-\frac{49\ln(-1+2x)}{242}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2/(1-2*x)/(3+5*x)^2,x)
```

```
[Out] -1/275/(3+5*x)+68/3025*ln(3+5*x)-49/242*ln(-1+2*x)
```

Maxima [A] time = 1.34165, size = 35, normalized size = 1.09

$$-\frac{1}{275\,(5\,x+3)}+\frac{68}{3025}\,\log\left(5\,x+3\right)-\frac{49}{242}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^2/((5*x + 3)^2*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -1/275/(5*x + 3) + 68/3025*log(5*x + 3) - 49/242*log(2*x - 1)
```

Fricas [A] time = 0.219386, size = 50, normalized size = 1.56

$$\frac{136\,(5\,x+3)\log\left(5\,x+3\right)-1225\,(5\,x+3)\log\left(2\,x-1\right)-22}{6050\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^2/((5*x + 3)^2*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] 1/6050*(136*(5*x + 3)*log(5*x + 3) - 1225*(5*x + 3)*log(2*x - 1)
- 22)/(5*x + 3)
```

Sympy [A] time = 0.334428, size = 26, normalized size = 0.81

$$-\frac{49\log\left(x-\frac{1}{2}\right)}{242}+\frac{68\log\left(x+\frac{3}{5}\right)}{3025}-\frac{1}{1375x+825}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2/(1-2*x)/(3+5*x)**2,x)
```

```
[Out] -49*log(x - 1/2)/242 + 68*log(x + 3/5)/3025 - 1/(1375*x + 825)
```

GIAC/XCAS [A] time = 0.208796, size = 58, normalized size = 1.81

$$-\frac{1}{275\,(5\,x+3)}+\frac{9}{50}\ln\left(\frac{|5\,x+3|}{5\,(5\,x+3)^2}\right)-\frac{49}{242}\ln\left(\left|-\frac{11}{5\,x+3}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^2/((5*x + 3)^2*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -1/275/(5*x + 3) + 9/50*ln(1/5*abs(5*x + 3)/(5*x + 3)^2) - 49/242
*ln(abs(-11/(5*x + 3) + 2))
```

3.1491 $\int \frac{2+3x}{(1-2x)(3+5x)^2}\,dx$

Optimal. Leaf size=32

$$-\frac{1}{55(5x+3)}-\frac{7}{121}\log(1-2x)+\frac{7}{121}\log(5x+3)$$

```
[Out] -1/(55*(3 + 5*x)) - (7*Log[1 - 2*x])/121 + (7*Log[3 + 5*x])/121
```

Rubi [A] time = 0.0394648, antiderivative size = 32, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{1}{55(5x+3)}-\frac{7}{121}\log(1-2x)+\frac{7}{121}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)/((1 - 2*x)*(3 + 5*x)^2),x]
```

```
[Out] -1/(55*(3 + 5*x)) - (7*Log[1 - 2*x])/121 + (7*Log[3 + 5*x])/121
```

Rubi in Sympy [A] time = 6.26449, size = 26, normalized size = 0.81

$$-\frac{7\log\left(-2x+1\right)}{121}+\frac{7\log\left(5x+3\right)}{121}-\frac{1}{55\left(5x+3\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)/(1-2*x)/(3+5*x)**2,x)
```

```
[Out] -7*log(-2*x + 1)/121 + 7*log(5*x + 3)/121 - 1/(55*(5*x + 3))
```

Mathematica [A] time = 0.0229537, size = 30, normalized size = 0.94

$$\frac{1}{605}\left(-\frac{11}{5x+3}-35\log(5-10x)+35\log(5x+3)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)/((1 - 2*x)*(3 + 5*x)^2),x]
```

```
[Out] (-11/(3 + 5*x) - 35*Log[5 - 10*x] + 35*Log[3 + 5*x])/605
```

Maple [A] time = 0.01, size = 27, normalized size = 0.8

$$-\frac{1}{165+275\,x}+\frac{7\,\ln\left(3+5\,x\right)}{121}-\frac{7\,\ln\left(-1+2\,x\right)}{121}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)/(1-2*x)/(3+5*x)^2,x)
```

```
[Out] -1/55/(3+5*x)+7/121*ln(3+5*x)-7/121*ln(-1+2*x)
```

Maxima [A] time = 1.34882, size = 35, normalized size = 1.09

$$-\frac{1}{55(5x+3)}+\frac{7}{121}\log(5x+3)-\frac{7}{121}\log(2x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)/((5*x + 3)^2*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -1/55/(5*x + 3) + 7/121*log(5*x + 3) - 7/121*log(2*x - 1)
```

Fricas [A] time = 0.211308, size = 50, normalized size = 1.56

$$\frac{35(5x+3)\log(5x+3)-35(5x+3)\log(2x-1)-11}{605(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)/((5*x + 3)^2*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] 1/605*(35*(5*x + 3)*log(5*x + 3) - 35*(5*x + 3)*log(2*x - 1) - 11
)/(5*x + 3)
```

Sympy [A] time = 0.269817, size = 26, normalized size = 0.81

$$-\frac{7\log\left(x-\frac{1}{2}\right)}{121}+\frac{7\log\left(x+\frac{3}{5}\right)}{121}-\frac{1}{275x+165}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)/(1-2*x)/(3+5*x)**2,x)
```

```
[Out] -7*log(x - 1/2)/121 + 7*log(x + 3/5)/121 - 1/(275*x + 165)
```

GIAC/XCAS [A] time = 0.207384, size = 34, normalized size = 1.06

$$-\frac{1}{55(5x+3)}-\frac{7}{121}\ln\left(\left|-\frac{11}{5x+3}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)/((5*x + 3)^2*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -1/55/(5*x + 3) - 7/121*ln(abs(-11/(5*x + 3) + 2))
```

3.1492 $\int \frac{1}{(1-2x)(3+5x)^2} \, dx$

Optimal. Leaf size=32

$$-\frac{1}{11(5x+3)}-\frac{2}{121}\log(1-2x)+\frac{2}{121}\log(5x+3)$$

```
[Out] -1/(11*(3 + 5*x)) - (2*Log[1 - 2*x])/121 + (2*Log[3 + 5*x])/121
```

Rubi [A] time = 0.0284919, antiderivative size = 32, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.067

$$-\frac{1}{11(5x+3)}-\frac{2}{121}\log(1-2x)+\frac{2}{121}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)*(3 + 5*x)^2),x]
```

```
[Out] -1/(11*(3 + 5*x)) - (2*Log[1 - 2*x])/121 + (2*Log[3 + 5*x])/121
```

Rubi in Sympy [A] time = 5.21249, size = 26, normalized size = 0.81

$$-\frac{2\log(-2x+1)}{121}+\frac{2\log(5x+3)}{121}-\frac{1}{11(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)/(3+5*x)**2,x)
```

```
[Out] -2*log(-2*x + 1)/121 + 2*log(5*x + 3)/121 - 1/(11*(5*x + 3))
```

Mathematica [A] time = 0.0160945, size = 30, normalized size = 0.94

$$\frac{1}{121}\left(-\frac{11}{5x+3}-2\log(5-10x)+2\log(5x+3)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)*(3 + 5*x)^2),x]
```

```
[Out] (-11/(3 + 5*x) - 2*Log[5 - 10*x] + 2*Log[3 + 5*x])/121
```

Maple [A] time = 0.01, size = 27, normalized size = 0.8

$$-\frac{1}{33+55\,x}+\frac{2\,\ln(3+5\,x)}{121}-\frac{2\,\ln(-1+2\,x)}{121}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)/(3+5*x)^2,x)
```

```
[Out] -1/11/(3+5*x)+2/121*ln(3+5*x)-2/121*ln(-1+2*x)
```

Maxima [A] time = 1.33029, size = 35, normalized size = 1.09

$$-\frac{1}{11\,(5\,x+3)}+\frac{2}{121}\,\log\left(5\,x+3\right)-\frac{2}{121}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^2*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -1/11/(5*x + 3) + 2/121*log(5*x + 3) - 2/121*log(2*x - 1)
```

Fricas [A] time = 0.214964, size = 50, normalized size = 1.56

$$\frac{2\,(5\,x+3)\log\left(5\,x+3\right)-2\,(5\,x+3)\log\left(2\,x-1\right)-11}{121\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^2*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] 1/121*(2*(5*x + 3)*log(5*x + 3) - 2*(5*x + 3)*log(2*x - 1) - 11)/
(5*x + 3)
```

Sympy [A] time = 0.262757, size = 26, normalized size = 0.81

$$-\frac{2\log\left(x-\frac{1}{2}\right)}{121}+\frac{2\log\left(x+\frac{3}{5}\right)}{121}-\frac{1}{55x+33}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)/(3+5*x)**2,x)
```

```
[Out] -2*log(x - 1/2)/121 + 2*log(x + 3/5)/121 - 1/(55*x + 33)
```

GIAC/XCAS [A] time = 0.206186, size = 34, normalized size = 1.06

$$-\frac{1}{11\,(5\,x+3)}-\frac{2}{121}\ln\left(\left|-\frac{11}{5\,x+3}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^2*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -1/11/(5*x + 3) - 2/121*ln(abs(-11/(5*x + 3) + 2))
```

3.1493 $\int \frac{1}{(1-2x)(2+3x)(3+5x)^2}\,dx$

Optimal. Leaf size=42

$$-\frac{5}{11(5x+3)}-\frac{4}{847}\log(1-2x)+\frac{9}{7}\log(3x+2)-\frac{155}{121}\log(5x+3)$$

```
[Out] -5/(11*(3 + 5*x)) - (4*Log[1 - 2*x])/847 + (9*Log[2 + 3*x])/7 - (
155*Log[3 + 5*x])/121
```

Rubi [A] time = 0.0513042, antiderivative size = 42, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{5}{11(5x+3)}-\frac{4}{847}\log(1-2x)+\frac{9}{7}\log(3x+2)-\frac{155}{121}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)*(2 + 3*x)*(3 + 5*x)^2),x]
```

```
[Out] -5/(11*(3 + 5*x)) - (4*Log[1 - 2*x])/847 + (9*Log[2 + 3*x])/7 - (
155*Log[3 + 5*x])/121
```

Rubi in Sympy [A] time = 7.5366, size = 36, normalized size = 0.86

$$-\frac{4\log(-2x+1)}{847}+\frac{9\log(3x+2)}{7}-\frac{155\log(5x+3)}{121}-\frac{5}{11(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)/(2+3*x)/(3+5*x)**2,x)
```

```
[Out] -4*log(-2*x + 1)/847 + 9*log(3*x + 2)/7 - 155*log(5*x + 3)/121 -
5/(11*(5*x + 3))
```

Mathematica [A] time = 0.0386971, size = 38, normalized size = 0.9

$$\frac{1}{847}\left(-\frac{385}{5x+3}-4\log(1-2x)+1089\log(6x+4)-1085\log(10x+6)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)*(2 + 3*x)*(3 + 5*x)^2),x]
```

```
[Out] (-385/(3 + 5*x) - 4*Log[1 - 2*x] + 1089*Log[4 + 6*x] - 1085*Log[6
 + 10*x])/847
```

Maple [A] time = 0.013, size = 35, normalized size = 0.8

$$-\frac{5}{33+55\,x}-\frac{155\,\ln(3+5\,x)}{121}+\frac{9\,\ln(2+3\,x)}{7}-\frac{4\,\ln(-1+2\,x)}{847}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int(1/(1-2*x)/(2+3*x)/(3+5*x)^2,x)
```

```
[Out] -5/11/(3+5*x)-155/121*ln(3+5*x)+9/7*ln(2+3*x)-4/847*ln(-1+2*x)
```

Maxima [A] time = 1.36169, size = 46, normalized size = 1.1

$$-\frac{5}{11\,(5\,x+3)}-\frac{155}{121}\,\log\left(5\,x+3\right)+\frac{9}{7}\,\log\left(3\,x+2\right)-\frac{4}{847}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^2*(3*x + 2)*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -5/11/(5*x + 3) - 155/121*log(5*x + 3) + 9/7*log(3*x + 2) - 4/847
*log(2*x - 1)
```

Fricas [A] time = 0.211142, size = 68, normalized size = 1.62

$$-\frac{1085\,(5\,x+3)\log\left(5\,x+3\right)-1089\,(5\,x+3)\log\left(3\,x+2\right)+4\,(5\,x+3)\log\left(2\,x-1\right)+385}{847\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^2*(3*x + 2)*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] -1/847*(1085*(5*x + 3)*log(5*x + 3) - 1089*(5*x + 3)*log(3*x + 2)
 + 4*(5*x + 3)*log(2*x - 1) + 385)/(5*x + 3)
```

Sympy [A] time = 0.404422, size = 36, normalized size = 0.86

$$-\frac{4\log\left(x-\frac{1}{2}\right)}{847}-\frac{155\log\left(x+\frac{3}{5}\right)}{121}+\frac{9\log\left(x+\frac{2}{3}\right)}{7}-\frac{5}{55x+33}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(1/(1-2*x)/(2+3*x)/(3+5*x)**2,x)
```

```
[Out] -4*log(x - 1/2)/847 - 155*log(x + 3/5)/121 + 9*log(x + 2/3)/7 - 5
/(55*x + 33)
```

GIAC/XCAS [A] time = 0.213059, size = 54, normalized size = 1.29

$$-\frac{5}{11\,(5\,x+3)}+\frac{9}{7}\ln\left(\left|-\frac{1}{5\,x+3}-3\right|\right)-\frac{4}{847}\ln\left(\left|-\frac{11}{5\,x+3}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^2*(3*x + 2)*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -5/11/(5*x + 3) + 9/7*ln(abs(-1/(5*x + 3) - 3)) - 4/847*ln(abs(-1
1/(5*x + 3) + 2))
```

3.1494 $\int \frac{1}{(1-2x)(2+3x)^2(3+5x)^2} dx$

Optimal. Leaf size=53

$$-\frac{9}{7(3x+2)}-\frac{25}{11(5x+3)}-\frac{8\log(1-2x)}{5929}+\frac{648}{49}\log(3x+2)-\frac{1600}{121}\log(5x+3)$$

```
[Out] -9/(7*(2 + 3*x)) - 25/(11*(3 + 5*x)) - (8*Log[1 - 2*x])/5929 + (6
48*Log[2 + 3*x])/49 - (1600*Log[3 + 5*x])/121
```

Rubi [A] time = 0.0633557, antiderivative size = 53, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{9}{7(3x+2)}-\frac{25}{11(5x+3)}-\frac{8\log(1-2x)}{5929}+\frac{648}{49}\log(3x+2)-\frac{1600}{121}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In] Int[1/((1 - 2*x)*(2 + 3*x)^2*(3 + 5*x)^2),x]
```

```
[Out] -9/(7*(2 + 3*x)) - 25/(11*(3 + 5*x)) - (8*Log[1 - 2*x])/5929 + (6
48*Log[2 + 3*x])/49 - (1600*Log[3 + 5*x])/121
```

Rubi in Sympy [A] time = 8.73333, size = 42, normalized size = 0.79

$$-\frac{8\log(-2x+1)}{5929}+\frac{648\log(3x+2)}{49}-\frac{1600\log(5x+3)}{121}-\frac{25}{11(5x+3)}-\frac{9}{7(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(1/(1-2*x)/(2+3*x)**2/(3+5*x)**2,x)
```

```
[Out] -8*log(-2*x + 1)/5929 + 648*log(3*x + 2)/49 - 1600*log(5*x + 3)/1
21 - 25/(11*(5*x + 3)) - 9/(7*(3*x + 2))
```

Mathematica [A] time = 0.0394897, size = 47, normalized size = 0.89

$$\frac{2\left(-\frac{7623}{6x+4}-\frac{13475}{10x+6}-4\log(1-2x)+39204\log(6x+4)-39200\log(10x+6)\right)}{5929}$$

Antiderivative was successfully verified.

```
[In] Integrate[1/((1 - 2*x)*(2 + 3*x)^2*(3 + 5*x)^2),x]
```

```
[Out] (2*(-7623/(4 + 6*x) - 13475/(6 + 10*x) - 4*Log[1 - 2*x] + 39204*L
og[4 + 6*x] - 39200*Log[6 + 10*x]))/5929
```

Maple [A] time = 0.016, size = 44, normalized size = 0.8

$$-\frac{25}{33+55x}-\frac{1600\ln(3+5x)}{121}-\frac{9}{14+21x}+\frac{648\ln(2+3x)}{49}-\frac{8\ln(-1+2x)}{5929}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)/(2+3*x)^2/(3+5*x)^2,x)
```

```
[Out] -25/11/(3+5*x)-1600/121*ln(3+5*x)-9/7/(2+3*x)+648/49*ln(2+3*x)-8/
5929*ln(-1+2*x)
```

Maxima [A] time = 1.35516, size = 59, normalized size = 1.11

$$-\frac{1020\,x+647}{77\,(15\,x^2+19\,x+6)}-\frac{1600}{121}\,\log(5\,x+3)+\frac{648}{49}\,\log(3\,x+2)-\frac{8}{5929}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-1/((5*x + 3)^2*(3*x + 2)^2*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -1/77*(1020*x + 647)/(15*x^2 + 19*x + 6) - 1600/121*log(5*x + 3)
+ 648/49*log(3*x + 2) - 8/5929*log(2*x - 1)
```

Fricas [A] time = 0.219123, size = 99, normalized size = 1.87

$$-\frac{78400\,(15\,x^2+19\,x+6)\,\log(5\,x+3)-78408\,(15\,x^2+19\,x+6)\,\log(3\,x+2)+8\,(15\,x^2+19\,x+6)\,\log(2\,x-1)+78540\,x}{5929\,(15\,x^2+19\,x+6)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-1/((5*x + 3)^2*(3*x + 2)^2*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] -1/5929*(78400*(15*x^2 + 19*x + 6)*log(5*x + 3) - 78408*(15*x^2 +
 19*x + 6)*log(3*x + 2) + 8*(15*x^2 + 19*x + 6)*log(2*x - 1) + 78
540*x + 49819)/(15*x^2 + 19*x + 6)
```

Sympy [A] time = 0.501347, size = 44, normalized size = 0.83

$$-\frac{1020x+647}{1155x^2+1463x+462}-\frac{8\log\left(x-\frac{1}{2}\right)}{5929}-\frac{1600\log\left(x+\frac{3}{5}\right)}{121}+\frac{648\log\left(x+\frac{2}{3}\right)}{49}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)/(2+3*x)**2/(3+5*x)**2,x)
```

```
[Out] -(1020*x + 647)/(1155*x**2 + 1463*x + 462) - 8*log(x - 1/2)/5929
- 1600*log(x + 3/5)/121 + 648*log(x + 2/3)/49
```

GIAC/XCAS [A] time = 0.219194, size = 72, normalized size = 1.36

$$-\frac{25}{11\,(5\,x+3)}+\frac{135}{7\left(\frac{1}{5\,x+3}+3\right)}+\frac{648}{49}\ln\left(\left|-\frac{1}{5\,x+3}-3\right|\right)-\frac{8}{5929}\ln\left(\left|-\frac{11}{5\,x+3}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-1/((5*x + 3)^2*(3*x + 2)^2*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -25/11/(5*x + 3) + 135/7/(1/(5*x + 3) + 3) + 648/49*ln(abs(-1/(5*
x + 3) - 3)) - 8/5929*ln(abs(-11/(5*x + 3) + 2))
```

3.1495 $\int \frac{1}{(1-2x)(2+3x)^3(3+5x)^2} dx$

Optimal. Leaf size=64

$$-\frac{648}{49(3x+2)}-\frac{125}{11(5x+3)}-\frac{9}{14(3x+2)^2}-\frac{16\log(1-2x)}{41503}+\frac{34371}{343}\log(3x+2)-\frac{12125}{121}\log(5x+3)$$

```
[Out] -9/(14*(2 + 3*x)^2) - 648/(49*(2 + 3*x)) - 125/(11*(3 + 5*x)) - (
16*Log[1 - 2*x])/41503 + (34371*Log[2 + 3*x])/343 - (12125*Log[3
+ 5*x])/121
```

Rubi [A] time = 0.0725955, antiderivative size = 64, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$-\frac{648}{49(3x+2)}-\frac{125}{11(5x+3)}-\frac{9}{14(3x+2)^2}-\frac{16\log(1-2x)}{41503}+\frac{34371}{343}\log(3x+2)-\frac{12125}{121}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)*(2 + 3*x)^3*(3 + 5*x)^2),x]
```

```
[Out] -9/(14*(2 + 3*x)^2) - 648/(49*(2 + 3*x)) - 125/(11*(3 + 5*x)) - (
16*Log[1 - 2*x])/41503 + (34371*Log[2 + 3*x])/343 - (12125*Log[3
+ 5*x])/121
```

Rubi in Sympy [A] time = 9.99033, size = 53, normalized size = 0.83

$$-\frac{16\log(-2x+1)}{41503}+\frac{34371\log(3x+2)}{343}-\frac{12125\log(5x+3)}{121}-\frac{125}{11(5x+3)}-\frac{648}{49(3x+2)}-\frac{9}{14(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)/(2+3*x)**3/(3+5*x)**2,x)
```

```
[Out] -16*log(-2*x + 1)/41503 + 34371*log(3*x + 2)/343 - 12125*log(5*x
+ 3)/121 - 125/(11*(5*x + 3)) - 648/(49*(3*x + 2)) - 9/(14*(3*x +
 2)**2)
```

Mathematica [A] time = 0.0401041, size = 60, normalized size = 0.94

$$-\frac{125}{55x+33}-\frac{648}{147x+98}-\frac{9}{14(3x+2)^2}-\frac{16\log(1-2x)}{41503}+\frac{34371}{343}\log(6x+4)-\frac{12125}{121}\log(10x+6)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)*(2 + 3*x)^3*(3 + 5*x)^2),x]
```

```
[Out] -9/(14*(2 + 3*x)^2) - 125/(33 + 55*x) - 648/(98 + 147*x) - (16*Lo
g[1 - 2*x])/41503 + (34371*Log[4 + 6*x])/343 - (12125*Log[6 + 10*
x])/121
```

Maple [A] time = 0.015, size = 53, normalized size = 0.8

$$-\frac{125}{33+55\,x}-\frac{12125\,\ln(3+5\,x)}{121}-\frac{9}{14\,(2+3\,x)^2}-\frac{648}{98+147\,x}+\frac{34371\,\ln(2+3\,x)}{343}-\frac{16\,\ln(-1+2\,x)}{41503}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)/(2+3*x)^3/(3+5*x)^2,x)
```

```
[Out] -125/11/(3+5*x)-12125/121*ln(3+5*x)-9/14/(2+3*x)^2-648/49/(2+3*x)
+34371/343*ln(2+3*x)-16/41503*ln(-1+2*x)
```

Maxima [A] time = 1.35373, size = 73, normalized size = 1.14

$$-\frac{324090\,x^{2}+421329\,x+136615}{1078\,(45\,x^{3}+87\,x^{2}+56\,x+12)}-\frac{12125}{121}\,\log\left(5\,x+3\right)+\frac{34371}{343}\,\log\left(3\,x+2\right)-\frac{16}{41503}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-1/((5*x + 3)^2*(3*x + 2)^3*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -1/1078*(324090*x^2 + 421329*x + 136615)/(45*x^3 + 87*x^2 + 56*x
+ 12) - 12125/121*log(5*x + 3) + 34371/343*log(3*x + 2) - 16/4150
3*log(2*x - 1)
```

Fricas [A] time = 0.217562, size = 132, normalized size = 2.06

$$-\frac{24954930\,x^{2}+8317750\,\left(45\,x^{3}+87\,x^{2}+56\,x+12\right)\log\left(5\,x+3\right)-8317782\,\left(45\,x^{3}+87\,x^{2}+56\,x+12\right)\log\left(3\,x+2\right)+32\,(45}{83006\,(45\,x^{3}+87\,x^{2}+56\,x+12)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-1/((5*x + 3)^2*(3*x + 2)^3*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] -1/83006*(24954930*x^2 + 8317750*(45*x^3 + 87*x^2 + 56*x + 12)*lo
g(5*x + 3) - 8317782*(45*x^3 + 87*x^2 + 56*x + 12)*log(3*x + 2) +
 32*(45*x^3 + 87*x^2 + 56*x + 12)*log(2*x - 1) + 32442333*x + 105
19355)/(45*x^3 + 87*x^2 + 56*x + 12)
```

Sympy [A] time = 0.561996, size = 54, normalized size = 0.84

$$-\frac{324090x^{2}+421329x+136615}{48510x^{3}+93786x^{2}+60368x+12936}-\frac{16\log\left(x-\frac{1}{2}\right)}{41503}-\frac{12125\log\left(x+\frac{3}{5}\right)}{121}+\frac{34371\log\left(x+\frac{2}{3}\right)}{343}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)/(2+3*x)**3/(3+5*x)**2,x)
```

```
[Out] -(324090*x**2 + 421329*x + 136615)/(48510*x**3 + 93786*x**2 + 603
68*x + 12936) - 16*log(x - 1/2)/41503 - 12125*log(x + 3/5)/121 +
34371*log(x + 2/3)/343
```

GIAC/XCAS [A] time = 0.212143, size = 86, normalized size = 1.34

$$-\frac{125}{11\,(5\,x+3)}+\frac{135\,\left(\frac{214}{5\,x+3}+537\right)}{98\,\left(\frac{1}{5\,x+3}+3\right)^{2}}+\frac{34371}{343}\,\ln\left(\left|-\frac{1}{5\,x+3}-3\right|\right)-\frac{16}{41503}\,\ln\left(\left|-\frac{11}{5\,x+3}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-1/((5*x + 3)^2*(3*x + 2)^3*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -125/11/(5*x + 3) + 135/98*(214/(5*x + 3) + 537)/(1/(5*x + 3) + 3
)^2 + 34371/343*ln(abs(-1/(5*x + 3) - 3)) - 16/41503*ln(abs(-11/(
5*x + 3) + 2))
```

3.1496 $\int \frac{1}{(1-2x)(2+3x)^4(3+5x)^2}\,dx$

Optimal. Leaf size=75

$$-\frac{34371}{343(3x+2)}-\frac{625}{11(5x+3)}-\frac{324}{49(3x+2)^2}-\frac{3}{7(3x+2)^3}-\frac{32\log(1-2x)}{290521}+\frac{1612242\log(3x+2)}{2401}-\frac{81250}{121}\log(5x+3)$$

```
[Out] -3/(7*(2 + 3*x)^3) - 324/(49*(2 + 3*x)^2) - 34371/(343*(2 + 3*x))
 - 625/(11*(3 + 5*x)) - (32*Log[1 - 2*x])/290521 + (1612242*Log[2
 + 3*x])/2401 - (81250*Log[3 + 5*x])/121
```

Rubi [A] time = 0.0834564, antiderivative size = 75, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{34371}{343(3x+2)}-\frac{625}{11(5x+3)}-\frac{324}{49(3x+2)^2}-\frac{3}{7(3x+2)^3}-\frac{32\log(1-2x)}{290521}+\frac{1612242\log(3x+2)}{2401}-\frac{81250}{121}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)*(2 + 3*x)^4*(3 + 5*x)^2),x]
```

```
[Out] -3/(7*(2 + 3*x)^3) - 324/(49*(2 + 3*x)^2) - 34371/(343*(2 + 3*x))
 - 625/(11*(3 + 5*x)) - (32*Log[1 - 2*x])/290521 + (1612242*Log[2
 + 3*x])/2401 - (81250*Log[3 + 5*x])/121
```

Rubi in Sympy [A] time = 11.3916, size = 63, normalized size = 0.84

$$-\frac{32\log\left(-2x+1\right)}{290521}+\frac{1612242\log\left(3x+2\right)}{2401}-\frac{81250\log\left(5x+3\right)}{121}-\frac{625}{11\left(5x+3\right)}-\frac{34371}{343\left(3x+2\right)}-\frac{324}{49\left(3x+2\right)^2}-\frac{3}{7\left(3x+2\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)/(2+3*x)**4/(3+5*x)**2,x)
```

```
[Out] -32*log(-2*x + 1)/290521 + 1612242*log(3*x + 2)/2401 - 81250*log(
5*x + 3)/121 - 625/(11*(5*x + 3)) - 34371/(343*(3*x + 2)) - 324/(
49*(3*x + 2)**2) - 3/(7*(3*x + 2)**3)
```

Mathematica [A] time = 0.127245, size = 62, normalized size = 0.83

$$\frac{2\left(-\frac{77\left(22801770x^3+44843517x^2+29372133x+6406511\right)}{2(3x+2)^3(5x+3)}-16\log(1-2x)+97540641\log(6x+4)-97540625\log(10x+6)\right)}{290521}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)*(2 + 3*x)^4*(3 + 5*x)^2),x]
```

```
[Out] (2*((-77*(6406511 + 29372133*x + 44843517*x^2 + 22801770*x^3))/(2
*(2 + 3*x)^3*(3 + 5*x)) - 16*Log[1 - 2*x] + 97540641*Log[4 + 6*x]
 - 97540625*Log[6 + 10*x]))/290521
```

Maple [A] time = 0.016, size = 62, normalized size = 0.8

$$-\frac{625}{33+55x}-\frac{81250\ln(3+5x)}{121}-\frac{3}{7(2+3x)^3}-\frac{324}{49(2+3x)^2}-\frac{34371}{686+1029x}+\frac{1612242\ln(2+3x)}{2401}-\frac{32\ln(-1+2x)}{290521}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)/(2+3*x)^4/(3+5*x)^2,x)
```

```
[Out] -625/11/(3+5*x)-81250/121*ln(3+5*x)-3/7/(2+3*x)^3-324/49/(2+3*x)^
2-34371/343/(2+3*x)+1612242/2401*ln(2+3*x)-32/290521*ln(-1+2*x)
```

Maxima [A] time = 1.34164, size = 86, normalized size = 1.15

$$-\frac{22801770x^3+44843517x^2+29372133x+6406511}{3773(135x^4+351x^3+342x^2+148x+24)}-\frac{81250}{121}\log(5x+3)+\frac{1612242}{2401}\log(3x+2)-\frac{32}{290521}\log(2x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^2*(3*x + 2)^4*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -1/3773*(22801770*x^3 + 44843517*x^2 + 29372133*x + 6406511)/(135
*x^4 + 351*x^3 + 342*x^2 + 148*x + 24) - 81250/121*log(5*x + 3) +
 1612242/2401*log(3*x + 2) - 32/290521*log(2*x - 1)
```

Fricas [A] time = 0.220991, size = 166, normalized size = 2.21

$$-\frac{1755736290x^3+3452950809x^2+195081250(135x^4+351x^3+342x^2+148x+24)\log(5x+3)-195081282(135x^4+\cdots}{290521(135x^4+35\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^2*(3*x + 2)^4*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] -1/290521*(1755736290*x^3 + 3452950809*x^2 + 195081250*(135*x^4 +
 351*x^3 + 342*x^2 + 148*x + 24)*log(5*x + 3) - 195081282*(135*x^
4 + 351*x^3 + 342*x^2 + 148*x + 24)*log(3*x + 2) + 32*(135*x^4 +
351*x^3 + 342*x^2 + 148*x + 24)*log(2*x - 1) + 2261654241*x + 493
301347)/(135*x^4 + 351*x^3 + 342*x^2 + 148*x + 24)
```

Sympy [A] time = 0.631599, size = 65, normalized size = 0.87

$$-\frac{22801770x^3+44843517x^2+29372133x+6406511}{509355x^4+1324323x^3+1290366x^2+558404x+90552}-\frac{32\log\left(x-\frac{1}{2}\right)}{290521}-\frac{81250\log\left(x+\frac{3}{5}\right)}{121}+\frac{1612242\log\left(x+\frac{2}{3}\right)}{2401}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)/(2+3*x)**4/(3+5*x)**2,x)
```

```
[Out] -(22801770*x**3 + 44843517*x**2 + 29372133*x + 6406511)/(509355*x
**4 + 1324323*x**3 + 1290366*x**2 + 558404*x + 90552) - 32*log(x
- 1/2)/290521 - 81250*log(x + 3/5)/121 + 1612242*log(x + 2/3)/240
1
```

GIAC/XCAS [A] time = 0.210252, size = 99, normalized size = 1.32

$$-\frac{625}{11\,(5\,x+3)}+\frac{135\,\left(\frac{37929}{5\,x+3}+\frac{7564}{(5\,x+3)^2}+49386\right)}{343\,\left(\frac{1}{5\,x+3}+3\right)^3}+\frac{1612242}{2401}\ln\left(\left|-\frac{1}{5\,x+3}-3\right|\right)-\frac{32}{290521}\ln\left(\left|-\frac{11}{5\,x+3}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-1/((5*x + 3)^2*(3*x + 2)^4*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -625/11/(5*x + 3) + 135/343*(37929/(5*x + 3) + 7564/(5*x + 3)^2 +
 49386)/(1/(5*x + 3) + 3)^3 + 1612242/2401*ln(abs(-1/(5*x + 3) -
3)) - 32/290521*ln(abs(-11/(5*x + 3) + 2))
```

3.1497 $\int \frac{1}{(1-2x)(2+3x)^5(3+5x)^2}\,dx$

Optimal. Leaf size=86

$$-\frac{1612242}{2401(3x+2)}-\frac{3125}{11(5x+3)}-\frac{34371}{686(3x+2)^2}-\frac{216}{49(3x+2)^3}-\frac{9}{28(3x+2)^4}-\frac{64\log(1-2x)}{2033647}+\frac{70752609\log(3x+2)}{16807}-\frac{509375}{121}\log(5x+3)$$

```
[Out] -9/(28*(2 + 3*x)^4) - 216/(49*(2 + 3*x)^3) - 34371/(686*(2 + 3*x)
^2) - 1612242/(2401*(2 + 3*x)) - 3125/(11*(3 + 5*x)) - (64*Log[1
- 2*x])/2033647 + (70752609*Log[2 + 3*x])/16807 - (509375*Log[3 +
 5*x])/121
```

Rubi [A] time = 0.0955364, antiderivative size = 86, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{1612242}{2401(3x+2)}-\frac{3125}{11(5x+3)}-\frac{34371}{686(3x+2)^2}-\frac{216}{49(3x+2)^3}-\frac{9}{28(3x+2)^4}-\frac{64\log(1-2x)}{2033647}+\frac{70752609\log(3x+2)}{16807}-\frac{509375}{121}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)*(2 + 3*x)^5*(3 + 5*x)^2),x]
```

```
[Out] -9/(28*(2 + 3*x)^4) - 216/(49*(2 + 3*x)^3) - 34371/(686*(2 + 3*x)
^2) - 1612242/(2401*(2 + 3*x)) - 3125/(11*(3 + 5*x)) - (64*Log[1
- 2*x])/2033647 + (70752609*Log[2 + 3*x])/16807 - (509375*Log[3 +
 5*x])/121
```

Rubi in Sympy [A] time = 12.7336, size = 73, normalized size = 0.85

$$-\frac{64\log(-2x+1)}{2033647}+\frac{70752609\log(3x+2)}{16807}-\frac{509375\log(5x+3)}{121}-\frac{3125}{11(5x+3)}-\frac{1612242}{2401(3x+2)}-\frac{34371}{686(3x+2)^2}-\frac{216}{49(3x+2)^3}-\frac{9}{28(3x+2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)/(2+3*x)**5/(3+5*x)**2,x)
```

```
[Out] -64*log(-2*x + 1)/2033647 + 70752609*log(3*x + 2)/16807 - 509375*
log(5*x + 3)/121 - 3125/(11*(5*x + 3)) - 1612242/(2401*(3*x + 2))
 - 34371/(686*(3*x + 2)**2) - 216/(49*(3*x + 2)**3) - 9/(28*(3*x
+ 2)**4)
```

Mathematica [A] time = 0.0559289, size = 84, normalized size = 0.98

$$-\frac{1612242}{2401(3x+2)}-\frac{3125}{55x+33}-\frac{34371}{686(3x+2)^2}-\frac{216}{49(3x+2)^3}-\frac{9}{28(3x+2)^4}-\frac{64\log(1-2x)}{2033647}+\frac{70752609\log(6x+4)}{16807}-\frac{509375}{121}\log(10x+6)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)*(2 + 3*x)^5*(3 + 5*x)^2),x]
```

```
[Out] -9/(28*(2 + 3*x)^4) - 216/(49*(2 + 3*x)^3) - 34371/(686*(2 + 3*x)
^2) - 1612242/(2401*(2 + 3*x)) - 3125/(33 + 55*x) - (64*Log[1 - 2
*x])/2033647 + (70752609*Log[4 + 6*x])/16807 - (509375*Log[6 + 10
*x])/121
```

Maple [A] time = 0.016, size = 71, normalized size = 0.8

$$-\frac{3125}{33+55x}-\frac{509375\ln(3+5x)}{121}-\frac{9}{28(2+3x)^4}-\frac{216}{49(2+3x)^3}-\frac{34371}{686(2+3x)^2}-\frac{1612242}{4802+7203x}+\frac{70752609\ln(2+3x)}{16807}-\frac{64\ln(-1+2x)}{2033647}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(1/(1-2*x)/(2+3*x)^5/(3+5*x)^2,x)
```

```
[Out] -3125/11/(3+5*x)-509375/121*ln(3+5*x)-9/28/(2+3*x)^4-216/49/(2+3*
x)^3-34371/686/(2+3*x)^2-1612242/2401/(2+3*x)+70752609/16807*ln(2
+3*x)-64/2033647*ln(-1+2*x)
```

Maxima [A] time = 1.32919, size = 100, normalized size = 1.16

$$-\frac{12007729980x^4+31620356478x^3+31211205714x^2+13685553417x+2249141207}{105644(405x^5+1323x^4+1728x^3+1128x^2+368x+48)}-\frac{509375}{121}\log(5x+3)+\frac{70752609}{16807}\log(3x+2)-\frac{64}{2033647}\log(2x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-1/((5*x + 3)^2*(3*x + 2)^5*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -1/105644*(12007729980*x^4 + 31620356478*x^3 + 31211205714*x^2 +
13685553417*x + 2249141207)/(405*x^5 + 1323*x^4 + 1728*x^3 + 1128
*x^2 + 368*x + 48) - 509375/121*log(5*x + 3) + 70752609/16807*log
(3*x + 2) - 64/2033647*log(2*x - 1)
```

Fricas [A] time = 0.217267, size = 200, normalized size = 2.33

$$-\frac{924595208460x^4+2434767448806x^3+2403262839978x^2+34244262500\left(405x^5+1323x^4+1728x^3+1128x^2+368x\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-1/((5*x + 3)^2*(3*x + 2)^5*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] -1/8134588*(924595208460*x^4 + 2434767448806*x^3 + 2403262839978*
x^2 + 34244262500*(405*x^5 + 1323*x^4 + 1728*x^3 + 1128*x^2 + 368
*x + 48)*log(5*x + 3) - 34244262756*(405*x^5 + 1323*x^4 + 1728*x^
3 + 1128*x^2 + 368*x + 48)*log(3*x + 2) + 256*(405*x^5 + 1323*x^4
 + 1728*x^3 + 1128*x^2 + 368*x + 48)*log(2*x - 1) + 1053787613109
*x + 173183872939)/(405*x^5 + 1323*x^4 + 1728*x^3 + 1128*x^2 + 36
8*x + 48)
```

Sympy [A] time = 0.686339, size = 75, normalized size = 0.87

$$-\frac{12007729980x^4+31620356478x^3+31211205714x^2+13685553417x+2249141207}{42785820x^5+139767012x^4+182552832x^3+119166432x^2+38876992x+5070912}-\frac{64\log\left(x-\frac{1}{2}\right)}{2033647}-\frac{509375\log\left(x+\frac{3}{5}\right)}{121}+\frac{70752609\log\left(x+\frac{2}{3}\right)}{16807}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)/(2+3*x)**5/(3+5*x)**2,x)
```

```
[Out] -(12007729980*x**4 + 31620356478*x**3 + 31211205714*x**2 + 136855
53417*x + 2249141207)/(42785820*x**5 + 139767012*x**4 + 182552832
*x**3 + 119166432*x**2 + 38876992*x + 5070912) - 64*log(x - 1/2)/
2033647 - 509375*log(x + 3/5)/121 + 70752609*log(x + 2/3)/16807
```

GIAC/XCAS [A] time = 0.213989, size = 111, normalized size = 1.29

$$-\frac{3125}{11\,(5\,x+3)}+\frac{135\,\left(\frac{34747884}{5\,x+3}+\frac{13347468}{(5\,x+3)^{2}}+\frac{1775512}{(5\,x+3)^{3}}+30897639\right)}{9604\,\left(\frac{1}{5\,x+3}+3\right)^{4}}+\frac{70752609}{16807}\ln\left(\left|-\frac{1}{5\,x+3}-3\right|\right)-\frac{64}{2033647}\ln\left(\left|-\frac{11}{5\,x+3}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-1/((5*x + 3)^2*(3*x + 2)^5*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -3125/11/(5*x + 3) + 135/9604*(34747884/(5*x + 3) + 13347468/(5*x
 + 3)^2 + 1775512/(5*x + 3)^3 + 30897639)/(1/(5*x + 3) + 3)^4 + 7
0752609/16807*ln(abs(-1/(5*x + 3) - 3)) - 64/2033647*ln(abs(-11/(
5*x + 3) + 2))
```

3.1498 $\int \frac{1}{(1-2x)(2+3x)^6(3+5x)^2}\,dx$

Optimal. Leaf size=97

$$-\frac{70752609}{16807(3x+2)}-\frac{15625}{11(5x+3)}-\frac{806121}{2401(3x+2)^2}-\frac{11457}{343(3x+2)^3}-\frac{162}{49(3x+2)^4}-\frac{9}{35(3x+2)^5}-\frac{128\log(1-2x)}{14235529}+\frac{2977686468\log(3x+2)}{117649}-\frac{3062500}{121}\log(5x+3)$$

```
[Out] -9/(35*(2 + 3*x)^5) - 162/(49*(2 + 3*x)^4) - 11457/(343*(2 + 3*x)
^3) - 806121/(2401*(2 + 3*x)^2) - 70752609/(16807*(2 + 3*x)) - 15
625/(11*(3 + 5*x)) - (128*Log[1 - 2*x])/14235529 + (2977686468*Lo
g[2 + 3*x])/117649 - (3062500*Log[3 + 5*x])/121
```

Rubi [A] time = 0.111075, antiderivative size = 97, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{70752609}{16807(3x+2)}-\frac{15625}{11(5x+3)}-\frac{806121}{2401(3x+2)^2}-\frac{11457}{343(3x+2)^3}-\frac{162}{49(3x+2)^4}-\frac{9}{35(3x+2)^5}-\frac{128\log(1-2x)}{14235529}+\frac{2977686468\log(3x+2)}{117649}-\frac{3062500}{121}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)*(2 + 3*x)^6*(3 + 5*x)^2),x]
```

```
[Out] -9/(35*(2 + 3*x)^5) - 162/(49*(2 + 3*x)^4) - 11457/(343*(2 + 3*x)
^3) - 806121/(2401*(2 + 3*x)^2) - 70752609/(16807*(2 + 3*x)) - 15
625/(11*(3 + 5*x)) - (128*Log[1 - 2*x])/14235529 + (2977686468*Lo
g[2 + 3*x])/117649 - (3062500*Log[3 + 5*x])/121
```

Rubi in Sympy [A] time = 14.1825, size = 83, normalized size = 0.86

$$-\frac{128\log(-2x+1)}{14235529}+\frac{2977686468\log(3x+2)}{117649}-\frac{3062500\log(5x+3)}{121}-\frac{15625}{11(5x+3)}-\frac{70752609}{16807(3x+2)}-\frac{806121}{2401(3x+2)^2}-\frac{11457}{343(3x+2)^3}-\frac{162}{49(3x+2)^4}-\frac{9}{35(3x+2)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)/(2+3*x)**6/(3+5*x)**2,x)
```

```
[Out] -128*log(-2*x + 1)/14235529 + 2977686468*log(3*x + 2)/117649 - 30
62500*log(5*x + 3)/121 - 15625/(11*(5*x + 3)) - 70752609/(16807*(
3*x + 2)) - 806121/(2401*(3*x + 2)**2) - 11457/(343*(3*x + 2)**3)
 - 162/(49*(3*x + 2)**4) - 9/(35*(3*x + 2)**5)
```

Mathematica [A] time = 0.0637496, size = 95, normalized size = 0.98

$$-\frac{70752609}{16807(3x+2)}-\frac{15625}{55x+33}-\frac{806121}{2401(3x+2)^2}-\frac{11457}{343(3x+2)^3}-\frac{162}{49(3x+2)^4}-\frac{9}{35(3x+2)^5}-\frac{128\log(1-2x)}{14235529}+\frac{2977686468\log(6x+4)}{117649}-\frac{3062500}{121}\log(10x+6)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)*(2 + 3*x)^6*(3 + 5*x)^2),x]
```

```
[Out] -9/(35*(2 + 3*x)^5) - 162/(49*(2 + 3*x)^4) - 11457/(343*(2 + 3*x)
^3) - 806121/(2401*(2 + 3*x)^2) - 70752609/(16807*(2 + 3*x)) - 15
625/(33 + 55*x) - (128*Log[1 - 2*x])/14235529 + (2977686468*Log[4
 + 6*x])/117649 - (3062500*Log[6 + 10*x])/121
```

Maple [A] time = 0.018, size = 80, normalized size = 0.8

$$-\frac{15625}{33+55\,x}-\frac{3062500\,\ln\left(3+5\,x\right)}{121}-\frac{9}{35\,\left(2+3\,x\right)^{5}}-\frac{162}{49\,\left(2+3\,x\right)^{4}}-\frac{11457}{343\,\left(2+3\,x\right)^{3}}-\frac{806121}{2401\,\left(2+3\,x\right)^{2}}-\frac{70752609}{33614+50421\,x}+\frac{2977686468\,\ln\left(2+3\,x\right)}{117649}-\frac{128\,\ln\left(-1+2\,x\right)}{14235529}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)/(2+3*x)^6/(3+5*x)^2,x)
```

```
[Out] -15625/11/(3+5*x)-3062500/121*ln(3+5*x)-9/35/(2+3*x)^5-162/49/(2+
3*x)^4-11457/343/(2+3*x)^3-806121/2401/(2+3*x)^2-70752609/16807/(
2+3*x)+2977686468/117649*ln(2+3*x)-128/14235529*ln(-1+2*x)
```

Maxima [A] time = 1.33121, size = 113, normalized size = 1.16

$$-\frac{1895084756100\,x^{5}+6253779701610\,x^{4}+8252743193370\,x^{3}+5443759671885\,x^{2}+1794885176145\,x+236642515057}{924385\,\left(1215\,x^{6}+4779\,x^{5}+7830\,x^{4}+6840\,x^{3}+3360\,x^{2}+880\,x+96\right)}-\frac{3062500}{121}\,\log\left(5\,x+3\right)+\frac{2977686468}{117649}\,\log\left(3\,x+2\right)-\frac{128}{14235529}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^2*(3*x + 2)^6*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -1/924385*(1895084756100*x^5 + 6253779701610*x^4 + 8252743193370*
x^3 + 5443759671885*x^2 + 1794885176145*x + 236642515057)/(1215*x
^6 + 4779*x^5 + 7830*x^4 + 6840*x^3 + 3360*x^2 + 880*x + 96) - 30
62500/121*log(5*x + 3) + 2977686468/117649*log(3*x + 2) - 128/142
35529*log(2*x - 1)
```

Fricas [A] time = 0.223359, size = 234, normalized size = 2.41

$$-\frac{145921526219700\,x^{5}+481541037023970\,x^{4}+635461225889490\,x^{3}+419169494735145\,x^{2}+1801500312500\,\left(1215\,x^{6}+4\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^2*(3*x + 2)^6*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] -1/71177645*(145921526219700*x^5 + 481541037023970*x^4 + 63546122
5889490*x^3 + 419169494735145*x^2 + 1801500312500*(1215*x^6 + 477
9*x^5 + 7830*x^4 + 6840*x^3 + 3360*x^2 + 880*x + 96)*log(5*x + 3)
 - 1801500313140*(1215*x^6 + 4779*x^5 + 7830*x^4 + 6840*x^3 + 336
0*x^2 + 880*x + 96)*log(3*x + 2) + 640*(1215*x^6 + 4779*x^5 + 783
0*x^4 + 6840*x^3 + 3360*x^2 + 880*x + 96)*log(2*x - 1) + 13820615
8563165*x + 18221473659389)/(1215*x^6 + 4779*x^5 + 7830*x^4 + 684
0*x^3 + 3360*x^2 + 880*x + 96)
```

Sympy [A] time = 0.767406, size = 85, normalized size = 0.88

$$-\frac{1895084756100x^5 + 6253779701610x^4 + 8252743193370x^3 + 5443759671885x^2 + 1794885176145x + 236642515057}{1123127775x^6 + 4417635915x^5 + 7237934550x^4 + 6322793400x^3 + 3105933600x^2 + 813458800x + 88740960} - \frac{128\log\left(x-\frac{1}{2}\right)}{14235529} - \frac{3062500\log\left(x+\frac{3}{5}\right)}{121} + \frac{2977686468\log\left(x+\frac{2}{3}\right)}{117649}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)/(2+3*x)**6/(3+5*x)**2,x)
```

```
[Out] -(1895084756100*x**5 + 6253779701610*x**4 + 8252743193370*x**3 +
5443759671885*x**2 + 1794885176145*x + 236642515057)/(1123127775*
x**6 + 4417635915*x**5 + 7237934550*x**4 + 6322793400*x**3 + 3105
933600*x**2 + 813458800*x + 88740960) - 128*log(x - 1/2)/14235529
 - 3062500*log(x + 3/5)/121 + 2977686468*log(x + 2/3)/117649
```

GIAC/XCAS [A] time = 0.212348, size = 123, normalized size = 1.27

$$-\frac{15625}{11(5x+3)} + \frac{135\left(\frac{1627470333}{5x+3} + \frac{915260769}{(5x+3)^2} + \frac{234430752}{(5x+3)^3} + \frac{23397131}{(5x+3)^4} + 1103836896\right)}{16807\left(\frac{1}{5x+3}+3\right)^5} + \frac{2977686468}{117649}\ln\left(\left|-\frac{1}{5x+3}-3\right|\right) - \frac{128}{14235529}\ln\left(\left|-\frac{11}{5x+3}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^2*(3*x + 2)^6*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -15625/11/(5*x + 3) + 135/16807*(1627470333/(5*x + 3) + 915260769
/(5*x + 3)^2 + 234430752/(5*x + 3)^3 + 23397131/(5*x + 3)^4 + 110
3836896)/(1/(5*x + 3) + 3)^5 + 2977686468/117649*ln(abs(-1/(5*x +
 3) - 3)) - 128/14235529*ln(abs(-11/(5*x + 3) + 2))
```

3.1499 $\int \frac{(2+3x)^8}{(1-2x)(3+5x)^3}\,dx$

Optimal. Leaf size=76

$$-\frac{6561x^5}{1250}-\frac{264627x^4}{10000}-\frac{1535517x^3}{25000}-\frac{9268263x^2}{100000}-\frac{62934003x}{500000}-\frac{266}{47265625(5x+3)}-\frac{1}{8593750(5x+3)^2}-\frac{5764801\log(1-2x)}{85184}+\frac{31024\log(5x+3)}{519921875}$$

```
[Out] (-62934003*x)/500000 - (9268263*x^2)/100000 - (1535517*x^3)/25000
 - (264627*x^4)/10000 - (6561*x^5)/1250 - 1/(8593750*(3 + 5*x)^2)
 - 266/(47265625*(3 + 5*x)) - (5764801*Log[1 - 2*x])/85184 + (310
24*Log[3 + 5*x])/519921875
```

Rubi [A] time = 0.0850748, antiderivative size = 76, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{6561x^5}{1250}-\frac{264627x^4}{10000}-\frac{1535517x^3}{25000}-\frac{9268263x^2}{100000}-\frac{62934003x}{500000}-\frac{266}{47265625(5x+3)}-\frac{1}{8593750(5x+3)^2}-\frac{5764801\log(1-2x)}{85184}+\frac{31024\log(5x+3)}{519921875}$$

Antiderivative was successfully verified.

```
[In] Int[(2 + 3*x)^8/((1 - 2*x)*(3 + 5*x)^3),x]
```

```
[Out] (-62934003*x)/500000 - (9268263*x^2)/100000 - (1535517*x^3)/25000
 - (264627*x^4)/10000 - (6561*x^5)/1250 - 1/(8593750*(3 + 5*x)^2)
 - 266/(47265625*(3 + 5*x)) - (5764801*Log[1 - 2*x])/85184 + (310
24*Log[3 + 5*x])/519921875
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{6561x^5}{1250}-\frac{264627x^4}{10000}-\frac{1535517x^3}{25000}-\frac{5764801\log(-2x+1)}{85184}+\frac{31024\log(5x+3)}{519921875}+\int\left(-\frac{62934003}{500000}\right)dx-\frac{9268263\int x\,dx}{50000}-\frac{266}{47265625(5x+3)}-\frac{1}{8593750(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**8/(1-2*x)/(3+5*x)**3,x)
```

```
[Out] -6561*x**5/1250 - 264627*x**4/10000 - 1535517*x**3/25000 - 576480
1*log(-2*x + 1)/85184 + 31024*log(5*x + 3)/519921875 + Integral(-
62934003/500000, x) - 9268263*Integral(x, x)/50000 - 266/(4726562
5*(5*x + 3)) - 1/(8593750*(5*x + 3)**2)
```

Mathematica [A] time = 0.164518, size = 68, normalized size = 0.89

$$\frac{22\Big(-7938810000x^5-40024833750x^4-92898778500x^3-140182477875x^2-190375359075x-\frac{8512}{5x+3}-\frac{176}{(5x+3)^2}-85278446}{33275000000}$$

Antiderivative was successfully verified.

```
[In] Integrate[(2 + 3*x)^8/((1 - 2*x)*(3 + 5*x)^3),x]
```

```
[Out] (22*(-85278446550 - 190375359075*x - 140182477875*x^2 - 928987785
00*x^3 - 40024833750*x^4 - 7938810000*x^5 - 176/(3 + 5*x)^2 - 851
2/(3 + 5*x)) - 2251875390625*Log[3 - 6*x] + 1985536*Log[-3*(3 + 5
*x)])/33275000000
```

Maple [A] time = 0.013, size = 59, normalized size = 0.8

$$-\frac{6561\,x^{5}}{1250}-\frac{264627\,x^{4}}{10000}-\frac{1535517\,x^{3}}{25000}-\frac{9268263\,x^{2}}{100000}-\frac{62934003\,x}{500000}-\frac{1}{8593750\,\left(3+5\,x\right)^{2}}-\frac{266}{141796875+236328125\,x}+\frac{31024\,\ln\left(3+5\,x\right)}{519921875}-\frac{5764801\,\ln\left(-1+2\,x\right)}{85184}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((2+3*x)^8/(1-2*x)/(3+5*x)^3,x)
```

```
[Out] -6561/1250*x^5-264627/10000*x^4-1535517/25000*x^3-9268263/100000*
x^2-62934003/500000*x-1/8593750/(3+5*x)^2-266/47265625/(3+5*x)+31
024/519921875*ln(3+5*x)-5764801/85184*ln(-1+2*x)
```

Maxima [A] time = 1.34674, size = 80, normalized size = 1.05

$$-\frac{6561}{1250}\,x^{5}-\frac{264627}{10000}\,x^{4}-\frac{1535517}{25000}\,x^{3}-\frac{9268263}{100000}\,x^{2}-\frac{62934003}{500000}\,x-\frac{2660\,x+1607}{94531250\,\left(25\,x^{2}+30\,x+9\right)}+\frac{31024}{519921875}\,\log\left(5\,x+3\right)-\frac{5764801}{85184}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^8/((5*x + 3)^3*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -6561/1250*x^5 - 264627/10000*x^4 - 1535517/25000*x^3 - 9268263/1
00000*x^2 - 62934003/500000*x - 1/94531250*(2660*x + 1607)/(25*x^
2 + 30*x + 9) + 31024/519921875*log(5*x + 3) - 5764801/85184*log(
2*x - 1)
```

Fricas [A] time = 0.215475, size = 115, normalized size = 1.51

$$-\frac{4366345500000\,x^{7}+27253273162500\,x^{6}+79082602830000\,x^{5}+146338473723750\,x^{4}+215620841031750\,x^{3}+153403867}{332750000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^8/((5*x + 3)^3*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] -1/33275000000*(4366345500000*x^7 + 27253273162500*x^6 + 79082602
830000*x^5 + 146338473723750*x^4 + 215620841031750*x^3 + 15340386
7608750*x^2 - 1985536*(25*x^2 + 30*x + 9)*log(5*x + 3) + 22518753
90625*(25*x^2 + 30*x + 9)*log(2*x - 1) + 37694322033170*x + 56566
4)/(25*x^2 + 30*x + 9)
```

Sympy [A] time = 0.473691, size = 66, normalized size = 0.87

$$-\frac{6561x^{5}}{1250}-\frac{264627x^{4}}{10000}-\frac{1535517x^{3}}{25000}-\frac{9268263x^{2}}{100000}-\frac{62934003x}{500000}-\frac{2660x+1607}{2363281250x^{2}+2835937500x+850781250}-\frac{5764801\log\left(x-\frac{1}{2}\right)}{85184}+\frac{31024\log\left(x+\frac{3}{5}\right)}{519921875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**8/(1-2*x)/(3+5*x)**3,x)
```

```
[Out] -6561*x**5/1250 - 264627*x**4/10000 - 1535517*x**3/25000 - 926826
3*x**2/100000 - 62934003*x/500000 - (2660*x + 1607)/(2363281250*x
**2 + 2835937500*x + 850781250) - 5764801*log(x - 1/2)/85184 + 31
024*log(x + 3/5)/519921875
```

GIAC/XCAS [A] time = 0.207375, size = 76, normalized size = 1.

$$-\frac{6561}{1250}x^5-\frac{264627}{10000}x^4-\frac{1535517}{25000}x^3-\frac{9268263}{100000}x^2-\frac{62934003}{500000}x-\frac{2660x+1607}{94531250(5x+3)^2}+\frac{31024}{519921875}\ln(|5x+3|)-\frac{5764801}{85184}\ln(|2x-1|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^8/((5*x + 3)^3*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -6561/1250*x^5 - 264627/10000*x^4 - 1535517/25000*x^3 - 9268263/1
00000*x^2 - 62934003/500000*x - 1/94531250*(2660*x + 1607)/(5*x +
 3)^2 + 31024/519921875*ln(abs(5*x + 3)) - 5764801/85184*ln(abs(2
*x - 1))
```

3.1500 $\int \frac{(2+3x)^7}{(1-2x)(3+5x)^3}\,dx$

Optimal. Leaf size=69

$$-\frac{2187x^4}{1000}-\frac{24543x^3}{2500}-\frac{1044657x^2}{50000}-\frac{339309x}{10000}-\frac{233}{9453125(5x+3)}-\frac{1}{1718750(5x+3)^2}-\frac{823543\log(1-2x)}{42592}+\frac{4667\log(5x+3)}{20796875}$$

```
[Out] (-339309*x)/10000 - (1044657*x^2)/50000 - (24543*x^3)/2500 - (218
7*x^4)/1000 - 1/(1718750*(3 + 5*x)^2) - 233/(9453125*(3 + 5*x)) -
 (823543*Log[1 - 2*x])/42592 + (4667*Log[3 + 5*x])/20796875
```

Rubi [A] time = 0.0767498, antiderivative size = 69, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{2187x^4}{1000}-\frac{24543x^3}{2500}-\frac{1044657x^2}{50000}-\frac{339309x}{10000}-\frac{233}{9453125(5x+3)}-\frac{1}{1718750(5x+3)^2}-\frac{823543\log(1-2x)}{42592}+\frac{4667\log(5x+3)}{20796875}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^7/((1 - 2*x)*(3 + 5*x)^3),x]
```

```
[Out] (-339309*x)/10000 - (1044657*x^2)/50000 - (24543*x^3)/2500 - (218
7*x^4)/1000 - 1/(1718750*(3 + 5*x)^2) - 233/(9453125*(3 + 5*x)) -
 (823543*Log[1 - 2*x])/42592 + (4667*Log[3 + 5*x])/20796875
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{2187x^4}{1000}-\frac{24543x^3}{2500}-\frac{823543\log(-2x+1)}{42592}+\frac{4667\log(5x+3)}{20796875}+\int\left(-\frac{339309}{10000}\right)dx-\frac{1044657\int x\,dx}{25000}-\frac{233}{9453125\,(5x+3)}-\frac{1}{1718750\,(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**7/(1-2*x)/(3+5*x)**3,x)
```

```
[Out] -2187*x**4/1000 - 24543*x**3/2500 - 823543*log(-2*x + 1)/42592 +
4667*log(5*x + 3)/20796875 + Integral(-339309/10000, x) - 1044657
*Integral(x, x)/25000 - 233/(9453125*(5*x + 3)) - 1/(1718750*(5*x
 + 3)**2)
```

Mathematica [A] time = 0.0596653, size = 60, normalized size = 0.87

$$\frac{-\frac{11(66156750000x^6+376358400000x^5+1012198275000x^4+1891740015000x^3+746752646475x^2-485450731630x-256487424349)}{(5x+3)^2}-257357187500\log(1-}{13310000000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^7/((1 - 2*x)*(3 + 5*x)^3),x]
```

```
[Out] ((-11*(-256487424349 - 485450731630*x + 746752646475*x^2 + 189174
0015000*x^3 + 1012198275000*x^4 + 376358400000*x^5 + 66156750000*
```

```
x^6))/(3 + 5*x)^2 - 257357187500*Log[1 - 2*x] + 2986880*Log[6 + 1
0*x])/13310000000
```

Maple [A] time = 0.013, size = 54, normalized size = 0.8

$$-\frac{2187\,x^4}{1000}-\frac{24543\,x^3}{2500}-\frac{1044657\,x^2}{50000}-\frac{339309\,x}{10000}-\frac{1}{1718750\,(3+5\,x)^2}-\frac{233}{28359375+47265625\,x}+\frac{4667\,\ln(3+5\,x)}{20796875}-\frac{823543\,\ln(-1+2\,x)}{42592}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^7/(1-2*x)/(3+5*x)^3,x)
```

```
[Out] -2187/1000*x^4-24543/2500*x^3-1044657/50000*x^2-339309/10000*x-1/
1718750/(3+5*x)^2-233/9453125/(3+5*x)+4667/20796875*ln(3+5*x)-823
543/42592*ln(-1+2*x)
```

Maxima [A] time = 1.33482, size = 73, normalized size = 1.06

$$-\frac{2187}{1000}\,x^4-\frac{24543}{2500}\,x^3-\frac{1044657}{50000}\,x^2-\frac{339309}{10000}\,x-\frac{2330\,x+1409}{18906250\,(25\,x^2+30\,x+9)}+\frac{4667}{20796875}\,\log(5\,x+3)-\frac{823543}{42592}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^7/((5*x + 3)^3*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -2187/1000*x^4 - 24543/2500*x^3 - 1044657/50000*x^2 - 339309/1000
0*x - 1/18906250*(2330*x + 1409)/(25*x^2 + 30*x + 9) + 4667/20796
875*log(5*x + 3) - 823543/42592*log(2*x - 1)
```

Fricas [A] time = 0.214724, size = 108, normalized size = 1.57

$$-\frac{181931062500\,x^6+1034985600000\,x^5+2783545256250\,x^4+5202285041250\,x^3+4012849402650\,x^2-746720\,(25\,x^2+30}{3327500000\,(25\,x^2+30\,x+}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^7/((5*x + 3)^3*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] -1/3327500000*(181931062500*x^6 + 1034985600000*x^5 + 27835452562
50*x^4 + 5202285041250*x^3 + 4012849402650*x^2 - 746720*(25*x^2 +
 30*x + 9)*log(5*x + 3) + 64339296875*(25*x^2 + 30*x + 9)*log(2*x
 - 1) + 1016146037830*x + 247984)/(25*x^2 + 30*x + 9)
```

Sympy [A] time = 0.458771, size = 60, normalized size = 0.87

$$-\frac{2187x^4}{1000}-\frac{24543x^3}{2500}-\frac{1044657x^2}{50000}-\frac{339309x}{10000}-\frac{2330x+1409}{472656250x^2+567187500x+170156250}-\frac{823543\log\left(x-\frac{1}{2}\right)}{42592}+\frac{4667\log\left(x+\frac{3}{5}\right)}{20796875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**7/(1-2*x)/(3+5*x)**3,x)
```

```
[Out] -2187*x**4/1000 - 24543*x**3/2500 - 1044657*x**2/50000 - 339309*x
/10000 - (2330*x + 1409)/(472656250*x**2 + 567187500*x + 17015625
0) - 823543*log(x - 1/2)/42592 + 4667*log(x + 3/5)/20796875
```

GIAC/XCAS [A] time = 0.210345, size = 69, normalized size = 1.

$$-\frac{2187}{1000}x^4-\frac{24543}{2500}x^3-\frac{1044657}{50000}x^2-\frac{339309}{10000}x-\frac{2330x+1409}{18906250(5x+3)^2}+\frac{4667}{20796875}\ln(|5x+3|)-\frac{823543}{42592}\ln(|2x-1|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^7/((5*x + 3)^3*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -2187/1000*x^4 - 24543/2500*x^3 - 1044657/50000*x^2 - 339309/1000
0*x - 1/18906250*(2330*x + 1409)/(5*x + 3)^2 + 4667/20796875*ln(a
bs(5*x + 3)) - 823543/42592*ln(abs(2*x - 1))
```

3.1501 $\int \frac{(2+3x)^6}{(1-2x)(3+5x)^3} dx$

Optimal. Leaf size=62

$$-\frac{243x^3}{250}-\frac{19683x^2}{5000}-\frac{216999x}{25000}-\frac{8}{75625(5x+3)}-\frac{1}{343750(5x+3)^2}-\frac{117649\log(1-2x)}{21296}+\frac{3347\log(5x+3)}{4159375}$$

```
[Out] (-216999*x)/25000 - (19683*x^2)/5000 - (243*x^3)/250 - 1/(343750*
(3 + 5*x)^2) - 8/(75625*(3 + 5*x)) - (117649*Log[1 - 2*x])/21296
+ (3347*Log[3 + 5*x])/4159375
```

Rubi [A] time = 0.0684709, antiderivative size = 62, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{243x^3}{250}-\frac{19683x^2}{5000}-\frac{216999x}{25000}-\frac{8}{75625(5x+3)}-\frac{1}{343750(5x+3)^2}-\frac{117649\log(1-2x)}{21296}+\frac{3347\log(5x+3)}{4159375}$$

Antiderivative was successfully verified.

```
[In] Int[(2 + 3*x)^6/((1 - 2*x)*(3 + 5*x)^3),x]
```

```
[Out] (-216999*x)/25000 - (19683*x^2)/5000 - (243*x^3)/250 - 1/(343750*
(3 + 5*x)^2) - 8/(75625*(3 + 5*x)) - (117649*Log[1 - 2*x])/21296
+ (3347*Log[3 + 5*x])/4159375
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{243x^3}{250}-\frac{117649\log(-2x+1)}{21296}+\frac{3347\log(5x+3)}{4159375}+\int\left(-\frac{216999}{25000}\right)dx-\frac{19683\int x\,dx}{2500}-\frac{8}{75625(5x+3)}-\frac{1}{343750(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**6/(1-2*x)/(3+5*x)**3,x)
```

```
[Out] -243*x**3/250 - 117649*log(-2*x + 1)/21296 + 3347*log(5*x + 3)/41
59375 + Integral(-216999/25000, x) - 19683*Integral(x, x)/2500 -
8/(75625*(5*x + 3)) - 1/(343750*(5*x + 3)**2)
```

Mathematica [A] time = 0.0968624, size = 56, normalized size = 0.9

$$\frac{11\left(-58806000x^3-238164300x^2-525137580x-\frac{6400}{5x+3}-\frac{176}{(5x+3)^2}+329460615\right)-3676531250\log(1-2x)+535520\log(10x}{665500000}$$

Antiderivative was successfully verified.

```
[In] Integrate[(2 + 3*x)^6/((1 - 2*x)*(3 + 5*x)^3),x]
```

```
[Out] (11*(329460615 - 525137580*x - 238164300*x^2 - 58806000*x^3 - 176
/(3 + 5*x)^2 - 6400/(3 + 5*x)) - 3676531250*Log[1 - 2*x] + 535520
*Log[6 + 10*x])/665500000
```

Maple [A] time = 0.013, size = 49, normalized size = 0.8

$$-\frac{243 x^{3}}{250}-\frac{19683 x^{2}}{5000}-\frac{216999 x}{25000}-\frac{1}{343750 \left(3+5 x\right)^{2}}-\frac{8}{226875+378125 x}+\frac{3347 \ln \left(3+5 x\right)}{4159375}-\frac{117649 \ln \left(-1+2 x\right)}{21296}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^6/(1-2*x)/(3+5*x)^3,x)
```

```
[Out] -243/250*x^3-19683/5000*x^2-216999/25000*x-1/343750/(3+5*x)^2-8/7
5625/(3+5*x)+3347/4159375*ln(3+5*x)-117649/21296*ln(-1+2*x)
```

Maxima [A] time = 1.33357, size = 66, normalized size = 1.06

$$-\frac{243}{250} x^{3}-\frac{19683}{5000} x^{2}-\frac{216999}{25000} x-\frac{2000 x+1211}{3781250 \left(25 x^{2}+30 x+9\right)}+\frac{3347}{4159375} \log \left(5 x+3\right)-\frac{117649}{21296} \log \left(2 x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^6/((5*x + 3)^3*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -243/250*x^3 - 19683/5000*x^2 - 216999/25000*x - 1/3781250*(2000*
x + 1211)/(25*x^2 + 30*x + 9) + 3347/4159375*log(5*x + 3) - 11764
9/21296*log(2*x - 1)
```

Fricas [A] time = 0.210641, size = 101, normalized size = 1.63

$$-\frac{8085825000 x^{5}+42450581250 x^{4}+114414423750 x^{3}+98436833550 x^{2}-267760 \left(25 x^{2}+30 x+9\right) \log \left(5 x+3\right)+183826}{332750000 \left(25 x^{2}+30 x+9\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^6/((5*x + 3)^3*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] -1/332750000*(8085825000*x^5 + 42450581250*x^4 + 114414423750*x^3
 + 98436833550*x^2 - 267760*(25*x^2 + 30*x + 9)*log(5*x + 3) + 18
38265625*(25*x^2 + 30*x + 9)*log(2*x - 1) + 25994486210*x + 10656
8)/(25*x^2 + 30*x + 9)
```

Sympy [A] time = 0.463771, size = 53, normalized size = 0.85

$$-\frac{243x^{3}}{250}-\frac{19683x^{2}}{5000}-\frac{216999x}{25000}-\frac{2000x+1211}{94531250x^{2}+113437500x+34031250}-\frac{117649 \log \left(x-\frac{1}{2}\right)}{21296}+\frac{3347 \log \left(x+\frac{3}{5}\right)}{4159375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**6/(1-2*x)/(3+5*x)**3,x)
```

```
[Out] -243*x**3/250 - 19683*x**2/5000 - 216999*x/25000 - (2000*x + 1211
)/(94531250*x**2 + 113437500*x + 34031250) - 117649*log(x - 1/2)/
21296 + 3347*log(x + 3/5)/4159375
```

GIAC/XCAS [A] time = 0.222311, size = 62, normalized size = 1.

$$-\frac{243}{250}\,x^{3}-\frac{19683}{5000}\,x^{2}-\frac{216999}{25000}\,x-\frac{2000\,x+1211}{3781250\,(5\,x+3)^{2}}+\frac{3347}{4159375}\ln\left(|5\,x+3|\right)-\frac{117649}{21296}\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^6/((5*x + 3)^3*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -243/250*x^3 - 19683/5000*x^2 - 216999/25000*x - 1/3781250*(2000*
x + 1211)/(5*x + 3)^2 + 3347/4159375*ln(abs(5*x + 3)) - 117649/21
296*ln(abs(2*x - 1))
```

3.1502 $\int \frac{(2+3x)^5}{(1-2x)(3+5x)^3}\,dx$

Optimal. Leaf size=55

$$-\frac{243x^2}{500}-\frac{4941x}{2500}-\frac{167}{378125(5x+3)}-\frac{1}{68750(5x+3)^2}-\frac{16807\log(1-2x)}{10648}+\frac{11224\log(5x+3)}{4159375}$$

```
[Out] (-4941*x)/2500 - (243*x^2)/500 - 1/(68750*(3 + 5*x)^2) - 167/(378
125*(3 + 5*x)) - (16807*Log[1 - 2*x])/10648 + (11224*Log[3 + 5*x]
)/4159375
```

Rubi [A] time = 0.0604598, antiderivative size = 55, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{243x^2}{500}-\frac{4941x}{2500}-\frac{167}{378125(5x+3)}-\frac{1}{68750(5x+3)^2}-\frac{16807\log(1-2x)}{10648}+\frac{11224\log(5x+3)}{4159375}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^5/((1 - 2*x)*(3 + 5*x)^3),x]
```

```
[Out] (-4941*x)/2500 - (243*x^2)/500 - 1/(68750*(3 + 5*x)^2) - 167/(378
125*(3 + 5*x)) - (16807*Log[1 - 2*x])/10648 + (11224*Log[3 + 5*x]
)/4159375
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{16807\log(-2x+1)}{10648}+\frac{11224\log(5x+3)}{4159375}+\int\left(-\frac{4941}{2500}\right)dx-\frac{243\int x\,dx}{250}-\frac{167}{378125(5x+3)}-\frac{1}{68750(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**5/(1-2*x)/(3+5*x)**3,x)
```

```
[Out] -16807*log(-2*x + 1)/10648 + 11224*log(5*x + 3)/4159375 + Integra
l(-4941/2500, x) - 243*Integral(x, x)/250 - 167/(378125*(5*x + 3)
) - 1/(68750*(5*x + 3)**2)
```

Mathematica [A] time = 0.0470839, size = 50, normalized size = 0.91

$$\frac{-\frac{11(73507500x^4+387139500x^3+217337175x^2-93782210x-60415061)}{(5x+3)^2}-105043750\log(1-2x)+179584\log(10x+6)}{66550000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^5/((1 - 2*x)*(3 + 5*x)^3),x]
```

```
[Out] ((-11*(-60415061 - 93782210*x + 217337175*x^2 + 387139500*x^3 + 7
3507500*x^4))/(3 + 5*x)^2 - 105043750*Log[1 - 2*x] + 179584*Log[6
 + 10*x])/66550000
```

Maple [A] time = 0.012, size = 44, normalized size = 0.8

$$-\frac{243\,x^2}{500}-\frac{4941\,x}{2500}-\frac{1}{68750\,(3+5\,x)^2}-\frac{167}{1134375+1890625\,x}+\frac{11224\,\ln(3+5\,x)}{4159375}-\frac{16807\,\ln(-1+2\,x)}{10648}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^5/(1-2*x)/(3+5*x)^3,x)
```

```
[Out] -243/500*x^2-4941/2500*x-1/68750/(3+5*x)^2-167/378125/(3+5*x)+112
24/4159375*ln(3+5*x)-16807/10648*ln(-1+2*x)
```

Maxima [A] time = 1.3491, size = 59, normalized size = 1.07

$$-\frac{243}{500}\,x^2-\frac{4941}{2500}\,x-\frac{1670\,x+1013}{756250\,(25\,x^2+30\,x+9)}+\frac{11224}{4159375}\,\log\left(5\,x+3\right)-\frac{16807}{10648}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^5/((5*x + 3)^3*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -243/500*x^2 - 4941/2500*x - 1/756250*(1670*x + 1013)/(25*x^2 + 3
0*x + 9) + 11224/4159375*log(5*x + 3) - 16807/10648*log(2*x - 1)
```

Fricas [A] time = 0.202412, size = 95, normalized size = 1.73

$$-\frac{404291250\,x^4+2129267250\,x^3+2118486150\,x^2-89792\,\left(25\,x^2+30\,x+9\right)\,\log\left(5\,x+3\right)+52521875\,\left(25\,x^2+30\,x+9\right)\,\log}{33275000\,(25\,x^2+30\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^5/((5*x + 3)^3*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] -1/33275000*(404291250*x^4 + 2129267250*x^3 + 2118486150*x^2 - 89
792*(25*x^2 + 30*x + 9)*log(5*x + 3) + 52521875*(25*x^2 + 30*x +
9)*log(2*x - 1) + 591955870*x + 44572)/(25*x^2 + 30*x + 9)
```

Sympy [A] time = 0.449332, size = 46, normalized size = 0.84

$$-\frac{243x^2}{500}-\frac{4941x}{2500}-\frac{1670x+1013}{18906250x^2+22687500x+6806250}-\frac{16807\log\left(x-\frac{1}{2}\right)}{10648}+\frac{11224\log\left(x+\frac{3}{5}\right)}{4159375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**5/(1-2*x)/(3+5*x)**3,x)
```

```
[Out] -243*x**2/500 - 4941*x/2500 - (1670*x + 1013)/(18906250*x**2 + 22
687500*x + 6806250) - 16807*log(x - 1/2)/10648 + 11224*log(x + 3/
5)/4159375
```

GIAC/XCAS [A] time = 0.215069, size = 55, normalized size = 1.

$$-\frac{243}{500}\,x^2-\frac{4941}{2500}\,x-\frac{1670\,x+1013}{756250\,(5\,x+3)^2}+\frac{11224}{4159375}\,\ln\left(|5\,x+3|\right)-\frac{16807}{10648}\,\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^5/((5*x + 3)^3*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -243/500*x^2 - 4941/2500*x - 1/756250*(1670*x + 1013)/(5*x + 3)^2
 + 11224/4159375*ln(abs(5*x + 3)) - 16807/10648*ln(abs(2*x - 1))
```

3.1503 $\int \frac{(2+3x)^4}{(1-2x)(3+5x)^3} dx$

Optimal. Leaf size=48

$$-\frac{81x}{250}-\frac{134}{75625(5x+3)}-\frac{1}{13750(5x+3)^2}-\frac{2401\log(1-2x)}{5324}+\frac{6802\log(5x+3)}{831875}$$

```
[Out] (-81*x)/250 - 1/(13750*(3 + 5*x)^2) - 134/(75625*(3 + 5*x)) - (24
01*Log[1 - 2*x])/5324 + (6802*Log[3 + 5*x])/831875
```

Rubi [A] time = 0.0536621, antiderivative size = 48, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{81x}{250}-\frac{134}{75625(5x+3)}-\frac{1}{13750(5x+3)^2}-\frac{2401\log(1-2x)}{5324}+\frac{6802\log(5x+3)}{831875}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^4/((1 - 2*x)*(3 + 5*x)^3),x]
```

```
[Out] (-81*x)/250 - 1/(13750*(3 + 5*x)^2) - 134/(75625*(3 + 5*x)) - (24
01*Log[1 - 2*x])/5324 + (6802*Log[3 + 5*x])/831875
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{2401\log(-2x+1)}{5324}+\frac{6802\log(5x+3)}{831875}+\int\left(-\frac{81}{250}\right)dx-\frac{134}{75625(5x+3)}-\frac{1}{13750(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4/(1-2*x)/(3+5*x)**3,x)
```

```
[Out] -2401*log(-2*x + 1)/5324 + 6802*log(5*x + 3)/831875 + Integral(-8
1/250, x) - 134/(75625*(5*x + 3)) - 1/(13750*(5*x + 3)**2)
```

Mathematica [A] time = 0.0450539, size = 45, normalized size = 0.94

$$\frac{-\frac{55(490050x^3+343035x^2-117076x-87883)}{(5x+3)^2}-1500625\log(1-2x)+27208\log(10x+6)}{3327500}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^4/((1 - 2*x)*(3 + 5*x)^3),x]
```

```
[Out] ((-55*(-87883 - 117076*x + 343035*x^2 + 490050*x^3))/(3 + 5*x)^2
- 1500625*Log[1 - 2*x] + 27208*Log[6 + 10*x])/3327500
```

Maple [A] time = 0.013, size = 39, normalized size = 0.8

$$-\frac{81x}{250}-\frac{1}{13750(3+5x)^2}-\frac{134}{226875+378125x}+\frac{6802\ln(3+5x)}{831875}-\frac{2401\ln(-1+2x)}{5324}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4/(1-2*x)/(3+5*x)^3,x)
```

```
[Out] -81/250*x-1/13750/(3+5*x)^2-134/75625/(3+5*x)+6802/831875*ln(3+5*
x)-2401/5324*ln(-1+2*x)
```

Maxima [A] time = 1.34323, size = 53, normalized size = 1.1

$$-\frac{81}{250}\,x-\frac{268\,x+163}{30250\,(25\,x^2+30\,x+9)}+\frac{6802}{831875}\,\log(5\,x+3)-\frac{2401}{5324}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^4/((5*x + 3)^3*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -81/250*x - 1/30250*(268*x + 163)/(25*x^2 + 30*x + 9) + 6802/8318
75*log(5*x + 3) - 2401/5324*log(2*x - 1)
```

Fricas [A] time = 0.215959, size = 88, normalized size = 1.83

$$-\frac{26952750\,x^3+32343300\,x^2-27208\,\left(25\,x^2+30\,x+9\right)\log(5\,x+3)+1500625\,\left(25\,x^2+30\,x+9\right)\log(2\,x-1)+9732470\,x}{3327500\,(25\,x^2+30\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^4/((5*x + 3)^3*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] -1/3327500*(26952750*x^3 + 32343300*x^2 - 27208*(25*x^2 + 30*x +
9)*log(5*x + 3) + 1500625*(25*x^2 + 30*x + 9)*log(2*x - 1) + 9732
470*x + 17930)/(25*x^2 + 30*x + 9)
```

Sympy [A] time = 0.451013, size = 39, normalized size = 0.81

$$-\frac{81x}{250}-\frac{268x+163}{756250x^2+907500x+272250}-\frac{2401\log\left(x-\frac{1}{2}\right)}{5324}+\frac{6802\log\left(x+\frac{3}{5}\right)}{831875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4/(1-2*x)/(3+5*x)**3,x)
```

```
[Out] -81*x/250 - (268*x + 163)/(756250*x**2 + 907500*x + 272250) - 240
1*log(x - 1/2)/5324 + 6802*log(x + 3/5)/831875
```

GIAC/XCAS [A] time = 0.217233, size = 49, normalized size = 1.02

$$-\frac{81}{250}\,x-\frac{268\,x+163}{30250\,(5\,x+3)^2}+\frac{6802}{831875}\,\ln(|5\,x+3|)-\frac{2401}{5324}\,\ln(|2\,x-1|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^4/((5*x + 3)^3*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -81/250*x - 1/30250*(268*x + 163)/(5*x + 3)^2 + 6802/831875*ln(ab
s(5*x + 3)) - 2401/5324*ln(abs(2*x - 1))
```

3.1504 $\int \frac{(2+3x)^3}{(1-2x)(3+5x)^3} dx$

Optimal. Leaf size=43

$$-\frac{101}{15125(5x+3)}-\frac{1}{2750(5x+3)^2}-\frac{343\log(1-2x)}{2662}+\frac{3469\log(5x+3)}{166375}$$

```
[Out] -1/(2750*(3 + 5*x)^2) - 101/(15125*(3 + 5*x)) - (343*Log[1 - 2*x]
)/2662 + (3469*Log[3 + 5*x])/166375
```

Rubi [A] time = 0.0535047, antiderivative size = 43, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$-\frac{101}{15125(5x+3)}-\frac{1}{2750(5x+3)^2}-\frac{343\log(1-2x)}{2662}+\frac{3469\log(5x+3)}{166375}$$

Antiderivative was successfully verified.

```
[In] Int[(2 + 3*x)^3/((1 - 2*x)*(3 + 5*x)^3),x]
```

```
[Out] -1/(2750*(3 + 5*x)^2) - 101/(15125*(3 + 5*x)) - (343*Log[1 - 2*x]
)/2662 + (3469*Log[3 + 5*x])/166375
```

Rubi in Sympy [A] time = 7.77685, size = 36, normalized size = 0.84

$$-\frac{343\log(-2x+1)}{2662}+\frac{3469\log(5x+3)}{166375}-\frac{101}{15125(5x+3)}-\frac{1}{2750(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**3/(1-2*x)/(3+5*x)**3,x)
```

```
[Out] -343*log(-2*x + 1)/2662 + 3469*log(5*x + 3)/166375 - 101/(15125*(
5*x + 3)) - 1/(2750*(5*x + 3)**2)
```

Mathematica [A] time = 0.0352682, size = 35, normalized size = 0.81

$$\frac{-\frac{11(1010x+617)}{(5x+3)^2}-42875\log(1-2x)+6938\log(10x+6)}{332750}$$

Antiderivative was successfully verified.

```
[In] Integrate[(2 + 3*x)^3/((1 - 2*x)*(3 + 5*x)^3),x]
```

```
[Out] ((-11*(617 + 1010*x))/(3 + 5*x)^2 - 42875*Log[1 - 2*x] + 6938*Log
[6 + 10*x])/332750
```

Maple [A] time = 0.011, size = 36, normalized size = 0.8

$$-\frac{1}{2750(3+5x)^2}-\frac{101}{45375+75625x}+\frac{3469\ln(3+5x)}{166375}-\frac{343\ln(-1+2x)}{2662}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3/(1-2*x)/(3+5*x)^3,x)
```

```
[Out] -1/2750/(3+5*x)^2-101/15125/(3+5*x)+3469/166375*ln(3+5*x)-343/266
2*ln(-1+2*x)
```

Maxima [A] time = 1.3436, size = 49, normalized size = 1.14

$$-\frac{1010\,x+617}{30250\,(25\,x^2+30\,x+9)}+\frac{3469}{166375}\,\log\left(5\,x+3\right)-\frac{343}{2662}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^3/((5*x + 3)^3*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -1/30250*(1010*x + 617)/(25*x^2 + 30*x + 9) + 3469/166375*log(5*x
 + 3) - 343/2662*log(2*x - 1)
```

Fricas [A] time = 0.224466, size = 74, normalized size = 1.72

$$\frac{6938\,\left(25\,x^2+30\,x+9\right)\,\log\left(5\,x+3\right)-42875\,\left(25\,x^2+30\,x+9\right)\,\log\left(2\,x-1\right)-11110\,x-6787}{332750\,(25\,x^2+30\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^3/((5*x + 3)^3*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] 1/332750*(6938*(25*x^2 + 30*x + 9)*log(5*x + 3) - 42875*(25*x^2 +
 30*x + 9)*log(2*x - 1) - 11110*x - 6787)/(25*x^2 + 30*x + 9)
```

Sympy [A] time = 0.414335, size = 34, normalized size = 0.79

$$-\frac{1010x+617}{756250x^2+907500x+272250}-\frac{343\log\left(x-\frac{1}{2}\right)}{2662}+\frac{3469\log\left(x+\frac{3}{5}\right)}{166375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3/(1-2*x)/(3+5*x)**3,x)
```

```
[Out] -(1010*x + 617)/(756250*x**2 + 907500*x + 272250) - 343*log(x - 1
/2)/2662 + 3469*log(x + 3/5)/166375
```

GIAC/XCAS [A] time = 0.210103, size = 45, normalized size = 1.05

$$-\frac{1010\,x+617}{30250\,(5\,x+3)^2}+\frac{3469}{166375}\,\ln\left(|5\,x+3|\right)-\frac{343}{2662}\,\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^3/((5*x + 3)^3*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -1/30250*(1010*x + 617)/(5*x + 3)^2 + 3469/166375*ln(abs(5*x + 3)
) - 343/2662*ln(abs(2*x - 1))
```

3.1505 $\int \frac{(2+3x)^2}{(1-2x)(3+5x)^3} dx$

Optimal. Leaf size=43

$$-\frac{68}{3025(5x+3)}-\frac{1}{550(5x+3)^2}-\frac{49\log(1-2x)}{1331}+\frac{49\log(5x+3)}{1331}$$

```
[Out] -1/(550*(3 + 5*x)^2) - 68/(3025*(3 + 5*x)) - (49*Log[1 - 2*x])/13
31 + (49*Log[3 + 5*x])/1331
```

Rubi [A] time = 0.0508923, antiderivative size = 43, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{68}{3025(5x+3)}-\frac{1}{550(5x+3)^2}-\frac{49\log(1-2x)}{1331}+\frac{49\log(5x+3)}{1331}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^2/((1 - 2*x)*(3 + 5*x)^3),x]
```

```
[Out] -1/(550*(3 + 5*x)^2) - 68/(3025*(3 + 5*x)) - (49*Log[1 - 2*x])/13
31 + (49*Log[3 + 5*x])/1331
```

Rubi in Sympy [A] time = 7.88864, size = 36, normalized size = 0.84

$$-\frac{49\log(-2x+1)}{1331}+\frac{49\log(5x+3)}{1331}-\frac{68}{3025(5x+3)}-\frac{1}{550(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2/(1-2*x)/(3+5*x)**3,x)
```

```
[Out] -49*log(-2*x + 1)/1331 + 49*log(5*x + 3)/1331 - 68/(3025*(5*x + 3
)) - 1/(550*(5*x + 3)**2)
```

Mathematica [A] time = 0.0332312, size = 35, normalized size = 0.81

$$\frac{-\frac{11(680x+419)}{(5x+3)^2}-2450\log(1-2x)+2450\log(10x+6)}{66550}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^2/((1 - 2*x)*(3 + 5*x)^3),x]
```

```
[Out] ((-11*(419 + 680*x))/(3 + 5*x)^2 - 2450*Log[1 - 2*x] + 2450*Log[6
 + 10*x])/66550
```

Maple [A] time = 0.012, size = 36, normalized size = 0.8

$$-\frac{1}{550\,(3+5\,x)^2}-\frac{68}{9075+15125\,x}+\frac{49\,\ln(3+5\,x)}{1331}-\frac{49\,\ln(-1+2\,x)}{1331}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2/(1-2*x)/(3+5*x)^3,x)
```

```
[Out] -1/550/(3+5*x)^2-68/3025/(3+5*x)+49/1331*ln(3+5*x)-49/1331*ln(-1+
2*x)
```

Maxima [A] time = 1.34701, size = 49, normalized size = 1.14

$$-\frac{680\,x+419}{6050\,(25\,x^2+30\,x+9)}+\frac{49}{1331}\,\log\left(5\,x+3\right)-\frac{49}{1331}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^2/((5*x + 3)^3*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -1/6050*(680*x + 419)/(25*x^2 + 30*x + 9) + 49/1331*log(5*x + 3)
- 49/1331*log(2*x - 1)
```

Fricas [A] time = 0.21775, size = 74, normalized size = 1.72

$$\frac{2450\left(25\,x^2+30\,x+9\right)\log\left(5\,x+3\right)-2450\left(25\,x^2+30\,x+9\right)\log\left(2\,x-1\right)-7480\,x-4609}{66550\,(25\,x^2+30\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^2/((5*x + 3)^3*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] 1/66550*(2450*(25*x^2 + 30*x + 9)*log(5*x + 3) - 2450*(25*x^2 + 3
0*x + 9)*log(2*x - 1) - 7480*x - 4609)/(25*x^2 + 30*x + 9)
```

Sympy [A] time = 0.37406, size = 34, normalized size = 0.79

$$-\frac{680x+419}{151250x^2+181500x+54450}-\frac{49\log\left(x-\frac{1}{2}\right)}{1331}+\frac{49\log\left(x+\frac{3}{5}\right)}{1331}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2/(1-2*x)/(3+5*x)**3,x)
```

```
[Out] -(680*x + 419)/(151250*x**2 + 181500*x + 54450) - 49*log(x - 1/2)
/1331 + 49*log(x + 3/5)/1331
```

GIAC/XCAS [A] time = 0.216626, size = 45, normalized size = 1.05

$$-\frac{680\,x+419}{6050\,(5\,x+3)^2}+\frac{49}{1331}\ln\left(|5\,x+3|\right)-\frac{49}{1331}\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^2/((5*x + 3)^3*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -1/6050*(680*x + 419)/(5*x + 3)^2 + 49/1331*ln(abs(5*x + 3)) - 49
/1331*ln(abs(2*x - 1))
```

3.1506 $\int \frac{2+3x}{(1-2x)(3+5x)^3}\,dx$

Optimal. Leaf size=43

$$-\frac{7}{121(5x+3)}-\frac{1}{110(5x+3)^2}-\frac{14\log(1-2x)}{1331}+\frac{14\log(5x+3)}{1331}$$

```
[Out] -1/(110*(3 + 5*x)^2) - 7/(121*(3 + 5*x)) - (14*Log[1 - 2*x])/1331
 + (14*Log[3 + 5*x])/1331
```

Rubi [A] time = 0.0437471, antiderivative size = 43, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{7}{121(5x+3)}-\frac{1}{110(5x+3)^2}-\frac{14\log(1-2x)}{1331}+\frac{14\log(5x+3)}{1331}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)/((1 - 2*x)*(3 + 5*x)^3),x]
```

```
[Out] -1/(110*(3 + 5*x)^2) - 7/(121*(3 + 5*x)) - (14*Log[1 - 2*x])/1331
 + (14*Log[3 + 5*x])/1331
```

Rubi in Sympy [A] time = 7.3005, size = 36, normalized size = 0.84

$$-\frac{14\log(-2x+1)}{1331}+\frac{14\log(5x+3)}{1331}-\frac{7}{121(5x+3)}-\frac{1}{110(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)/(1-2*x)/(3+5*x)**3,x)
```

```
[Out] -14*log(-2*x + 1)/1331 + 14*log(5*x + 3)/1331 - 7/(121*(5*x + 3))
 - 1/(110*(5*x + 3)**2)
```

Mathematica [A] time = 0.0294183, size = 35, normalized size = 0.81

$$\frac{-\frac{11(350x+221)}{(5x+3)^2}-140\log(5-10x)+140\log(5x+3)}{13310}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)/((1 - 2*x)*(3 + 5*x)^3),x]
```

```
[Out] ((-11*(221 + 350*x))/(3 + 5*x)^2 - 140*Log[5 - 10*x] + 140*Log[3
+ 5*x])/13310
```

Maple [A] time = 0.01, size = 36, normalized size = 0.8

$$-\frac{1}{110\,(3+5\,x)^2}-\frac{7}{363+605\,x}+\frac{14\,\ln(3+5\,x)}{1331}-\frac{14\,\ln(-1+2\,x)}{1331}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)/(1-2*x)/(3+5*x)^3,x)
```

```
[Out] -1/110/(3+5*x)^2-7/121/(3+5*x)+14/1331*ln(3+5*x)-14/1331*ln(-1+2*
x)
```

Maxima [A] time = 1.34092, size = 49, normalized size = 1.14

$$-\frac{350\,x+221}{1210\,(25\,x^2+30\,x+9)}+\frac{14}{1331}\,\log\,(5\,x+3)-\frac{14}{1331}\,\log\,(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)/((5*x + 3)^3*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -1/1210*(350*x + 221)/(25*x^2 + 30*x + 9) + 14/1331*log(5*x + 3)
- 14/1331*log(2*x - 1)
```

Fricas [A] time = 0.210773, size = 74, normalized size = 1.72

$$\frac{140\,\left(25\,x^2+30\,x+9\right)\,\log\,(5\,x+3)-140\,\left(25\,x^2+30\,x+9\right)\,\log\,(2\,x-1)-3850\,x-2431}{13310\,(25\,x^2+30\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)/((5*x + 3)^3*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] 1/13310*(140*(25*x^2 + 30*x + 9)*log(5*x + 3) - 140*(25*x^2 + 30*
x + 9)*log(2*x - 1) - 3850*x - 2431)/(25*x^2 + 30*x + 9)
```

Sympy [A] time = 0.335433, size = 34, normalized size = 0.79

$$-\frac{350x+221}{30250x^2+36300x+10890}-\frac{14\log\left(x-\frac{1}{2}\right)}{1331}+\frac{14\log\left(x+\frac{3}{5}\right)}{1331}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)/(1-2*x)/(3+5*x)**3,x)
```

```
[Out] -(350*x + 221)/(30250*x**2 + 36300*x + 10890) - 14*log(x - 1/2)/1
331 + 14*log(x + 3/5)/1331
```

GIAC/XCAS [A] time = 0.205512, size = 45, normalized size = 1.05

$$-\frac{350\,x+221}{1210\,(5\,x+3)^2}+\frac{14}{1331}\,\ln\,(|5\,x+3|)-\frac{14}{1331}\,\ln\,(|2\,x-1|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)/((5*x + 3)^3*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -1/1210*(350*x + 221)/(5*x + 3)^2 + 14/1331*ln(abs(5*x + 3)) - 14
/1331*ln(abs(2*x - 1))
```

3.1507 $\int \frac{1}{(1-2x)(3+5x)^3}\,dx$

Optimal. Leaf size=43

$$-\frac{2}{121(5x+3)}-\frac{1}{22(5x+3)^2}-\frac{4\log(1-2x)}{1331}+\frac{4\log(5x+3)}{1331}$$

```
[Out] -1/(22*(3 + 5*x)^2) - 2/(121*(3 + 5*x)) - (4*Log[1 - 2*x])/1331 +
 (4*Log[3 + 5*x])/1331
```

Rubi [A] time = 0.0355268, antiderivative size = 43, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}} = 0.067$

$$-\frac{2}{121(5x+3)}-\frac{1}{22(5x+3)^2}-\frac{4\log(1-2x)}{1331}+\frac{4\log(5x+3)}{1331}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)*(3 + 5*x)^3),x]
```

```
[Out] -1/(22*(3 + 5*x)^2) - 2/(121*(3 + 5*x)) - (4*Log[1 - 2*x])/1331 +
 (4*Log[3 + 5*x])/1331
```

Rubi in Sympy [A] time = 6.25436, size = 36, normalized size = 0.84

$$-\frac{4\log(-2x+1)}{1331}+\frac{4\log(5x+3)}{1331}-\frac{2}{121(5x+3)}-\frac{1}{22(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)/(3+5*x)**3,x)
```

```
[Out] -4*log(-2*x + 1)/1331 + 4*log(5*x + 3)/1331 - 2/(121*(5*x + 3)) -
 1/(22*(5*x + 3)**2)
```

Mathematica [A] time = 0.0263244, size = 35, normalized size = 0.81

$$\frac{-\frac{11(20x+23)}{(5x+3)^2}-8\log(5-10x)+8\log(5x+3)}{2662}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)*(3 + 5*x)^3),x]
```

```
[Out] ((-11*(23 + 20*x))/(3 + 5*x)^2 - 8*Log[5 - 10*x] + 8*Log[3 + 5*x]
)/2662
```

Maple [A] time = 0.01, size = 36, normalized size = 0.8

$$-\frac{1}{22\,(3+5\,x)^2}-\frac{2}{363+605\,x}+\frac{4\,\ln(3+5\,x)}{1331}-\frac{4\,\ln(-1+2\,x)}{1331}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)/(3+5*x)^3,x)
```

```
[Out] -1/22/(3+5*x)^2-2/121/(3+5*x)+4/1331*ln(3+5*x)-4/1331*ln(-1+2*x)
```

Maxima [A] time = 1.35113, size = 49, normalized size = 1.14

$$-\frac{20\,x+23}{242\,(25\,x^2+30\,x+9)}+\frac{4}{1331}\,\log\left(5\,x+3\right)-\frac{4}{1331}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^3*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -1/242*(20*x + 23)/(25*x^2 + 30*x + 9) + 4/1331*log(5*x + 3) - 4/
1331*log(2*x - 1)
```

Fricas [A] time = 0.209579, size = 74, normalized size = 1.72

$$\frac{8\left(25\,x^2+30\,x+9\right)\log\left(5\,x+3\right)-8\left(25\,x^2+30\,x+9\right)\log\left(2\,x-1\right)-220\,x-253}{2662\,(25\,x^2+30\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^3*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] 1/2662*(8*(25*x^2 + 30*x + 9)*log(5*x + 3) - 8*(25*x^2 + 30*x + 9
)*log(2*x - 1) - 220*x - 253)/(25*x^2 + 30*x + 9)
```

Sympy [A] time = 0.327713, size = 34, normalized size = 0.79

$$-\frac{20x+23}{6050x^2+7260x+2178}-\frac{4\log\left(x-\frac{1}{2}\right)}{1331}+\frac{4\log\left(x+\frac{3}{5}\right)}{1331}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)/(3+5*x)**3,x)
```

```
[Out] -(20*x + 23)/(6050*x**2 + 7260*x + 2178) - 4*log(x - 1/2)/1331 +
4*log(x + 3/5)/1331
```

GIAC/XCAS [A] time = 0.20706, size = 45, normalized size = 1.05

$$-\frac{20\,x+23}{242\,(5\,x+3)^2}+\frac{4}{1331}\ln\left(|5\,x+3|\right)-\frac{4}{1331}\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^3*(2*x - 1)),x, algorithm="giac")
```

```
[Out] -1/242*(20*x + 23)/(5*x + 3)^2 + 4/1331*ln(abs(5*x + 3)) - 4/1331
*ln(abs(2*x - 1))
```

3.1508 $\int \frac{1}{(1-2x)(2+3x)(3+5x)^3}\,dx$

Optimal. Leaf size=53

$$\frac{155}{121(5x+3)}-\frac{5}{22(5x+3)^2}-\frac{8\log(1-2x)}{9317}-\frac{27}{7}\log(3x+2)+\frac{5135\log(5x+3)}{1331}$$

```
[Out] -5/(22*(3 + 5*x)^2) + 155/(121*(3 + 5*x)) - (8*Log[1 - 2*x])/9317
 - (27*Log[2 + 3*x])/7 + (5135*Log[3 + 5*x])/1331
```

Rubi [A] time = 0.0609731, antiderivative size = 53, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{155}{121(5x+3)}-\frac{5}{22(5x+3)^2}-\frac{8\log(1-2x)}{9317}-\frac{27}{7}\log(3x+2)+\frac{5135\log(5x+3)}{1331}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)*(2 + 3*x)*(3 + 5*x)^3),x]
```

```
[Out] -5/(22*(3 + 5*x)^2) + 155/(121*(3 + 5*x)) - (8*Log[1 - 2*x])/9317
 - (27*Log[2 + 3*x])/7 + (5135*Log[3 + 5*x])/1331
```

Rubi in Sympy [A] time = 8.72743, size = 46, normalized size = 0.87

$$-\frac{8\log(-2x+1)}{9317}-\frac{27\log(3x+2)}{7}+\frac{5135\log(5x+3)}{1331}+\frac{155}{121(5x+3)}-\frac{5}{22(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)/(2+3*x)/(3+5*x)**3,x)
```

```
[Out] -8*log(-2*x + 1)/9317 - 27*log(3*x + 2)/7 + 5135*log(5*x + 3)/133
1 + 155/(121*(5*x + 3)) - 5/(22*(5*x + 3)**2)
```

Mathematica [A] time = 0.0614703, size = 43, normalized size = 0.81

$$\frac{\frac{1925(62x+35)}{(5x+3)^2}-16\log(1-2x)-71874\log(6x+4)+71890\log(10x+6)}{18634}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)*(2 + 3*x)*(3 + 5*x)^3),x]
```

```
[Out] ((1925*(35 + 62*x))/(3 + 5*x)^2 - 16*Log[1 - 2*x] - 71874*Log[4 +
 6*x] + 71890*Log[6 + 10*x])/18634
```

Maple [A] time = 0.013, size = 44, normalized size = 0.8

$$-\frac{5}{22(3+5x)^2}+\frac{155}{363+605x}+\frac{5135\ln(3+5x)}{1331}-\frac{27\ln(2+3x)}{7}-\frac{8\ln(-1+2x)}{9317}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)/(2+3*x)/(3+5*x)^3,x)
```

```
[Out] -5/22/(3+5*x)^2+155/121/(3+5*x)+5135/1331*ln(3+5*x)-27/7*ln(2+3*x
)-8/9317*ln(-1+2*x)
```

Maxima [A] time = 1.33652, size = 59, normalized size = 1.11

$$\frac{25\,(62\,x+35)}{242\,(25\,x^2+30\,x+9)}+\frac{5135}{1331}\,\log\left(5\,x+3\right)-\frac{27}{7}\,\log\left(3\,x+2\right)-\frac{8}{9317}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-1/((5*x + 3)^3*(3*x + 2)*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] 25/242*(62*x + 35)/(25*x^2 + 30*x + 9) + 5135/1331*log(5*x + 3) -
 27/7*log(3*x + 2) - 8/9317*log(2*x - 1)
```

Fricas [A] time = 0.211754, size = 99, normalized size = 1.87

$$\frac{71890\left(25\,x^2+30\,x+9\right)\log\left(5\,x+3\right)-71874\left(25\,x^2+30\,x+9\right)\log\left(3\,x+2\right)-16\left(25\,x^2+30\,x+9\right)\log\left(2\,x-1\right)+119350\,x}{18634\,(25\,x^2+30\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-1/((5*x + 3)^3*(3*x + 2)*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] 1/18634*(71890*(25*x^2 + 30*x + 9)*log(5*x + 3) - 71874*(25*x^2 +
 30*x + 9)*log(3*x + 2) - 16*(25*x^2 + 30*x + 9)*log(2*x - 1) + 1
19350*x + 67375)/(25*x^2 + 30*x + 9)
```

Sympy [A] time = 0.478021, size = 44, normalized size = 0.83

$$\frac{1550x+875}{6050x^2+7260x+2178}-\frac{8\log\left(x-\frac{1}{2}\right)}{9317}+\frac{5135\log\left(x+\frac{3}{5}\right)}{1331}-\frac{27\log\left(x+\frac{2}{3}\right)}{7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)/(2+3*x)/(3+5*x)**3,x)
```

```
[Out] (1550*x + 875)/(6050*x**2 + 7260*x + 2178) - 8*log(x - 1/2)/9317
+ 5135*log(x + 3/5)/1331 - 27*log(x + 2/3)/7
```

GIAC/XCAS [A] time = 0.21213, size = 57, normalized size = 1.08

$$\frac{25\,(62\,x+35)}{242\,(5\,x+3)^2}+\frac{5135}{1331}\ln\left(|5\,x+3|\right)-\frac{27}{7}\ln\left(|3\,x+2|\right)-\frac{8}{9317}\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^3*(3*x + 2)*(2*x - 1)),x, algorithm="giac")
```

```
[Out] 25/242*(62*x + 35)/(5*x + 3)^2 + 5135/1331*ln(abs(5*x + 3)) - 27/
7*ln(abs(3*x + 2)) - 8/9317*ln(abs(2*x - 1))
```

3.1509 $\int \frac{1}{(1-2x)(2+3x)^2(3+5x)^3}\,dx$

Optimal. Leaf size=64

$$\frac{27}{7(3x+2)}+\frac{1600}{121(5x+3)}-\frac{25}{22(5x+3)^2}-\frac{16\log(1-2x)}{65219}-\frac{2889}{49}\log(3x+2)+\frac{78475\log(5x+3)}{1331}$$

```
[Out] 27/(7*(2 + 3*x)) - 25/(22*(3 + 5*x)^2) + 1600/(121*(3 + 5*x)) - (
16*Log[1 - 2*x])/65219 - (2889*Log[2 + 3*x])/49 + (78475*Log[3 +
5*x])/1331
```

Rubi [A] time = 0.0744399, antiderivative size = 64, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{27}{7(3x+2)}+\frac{1600}{121(5x+3)}-\frac{25}{22(5x+3)^2}-\frac{16\log(1-2x)}{65219}-\frac{2889}{49}\log(3x+2)+\frac{78475\log(5x+3)}{1331}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)*(2 + 3*x)^2*(3 + 5*x)^3),x]
```

```
[Out] 27/(7*(2 + 3*x)) - 25/(22*(3 + 5*x)^2) + 1600/(121*(3 + 5*x)) - (
16*Log[1 - 2*x])/65219 - (2889*Log[2 + 3*x])/49 + (78475*Log[3 +
5*x])/1331
```

Rubi in Sympy [A] time = 10.0544, size = 53, normalized size = 0.83

$$-\frac{16\log\left(-2x+1\right)}{65219}-\frac{2889\log\left(3x+2\right)}{49}+\frac{78475\log\left(5x+3\right)}{1331}+\frac{1600}{121\left(5x+3\right)}-\frac{25}{22\left(5x+3\right)^2}+\frac{27}{7\left(3x+2\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)/(2+3*x)**2/(3+5*x)**3,x)
```

```
[Out] -16*log(-2*x + 1)/65219 - 2889*log(3*x + 2)/49 + 78475*log(5*x +
3)/1331 + 1600/(121*(5*x + 3)) - 25/(22*(5*x + 3)**2) + 27/(7*(3*
x + 2))
```

Mathematica [A] time = 0.0441305, size = 60, normalized size = 0.94

$$\frac{27}{21x+14}+\frac{1600}{605x+363}-\frac{25}{22(5x+3)^2}-\frac{16\log(1-2x)}{65219}-\frac{2889}{49}\log(6x+4)+\frac{78475\log(10x+6)}{1331}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)*(2 + 3*x)^2*(3 + 5*x)^3),x]
```

```
[Out] -25/(22*(3 + 5*x)^2) + 27/(14 + 21*x) + 1600/(363 + 605*x) - (16*
Log[1 - 2*x])/65219 - (2889*Log[4 + 6*x])/49 + (78475*Log[6 + 10*
x])/1331
```

Maple [A] time = 0.019, size = 53, normalized size = 0.8

$$-\frac{25}{22\left(3+5x\right)^2}+\frac{1600}{363+605x}+\frac{78475\ln\left(3+5x\right)}{1331}+\frac{27}{14+21x}-\frac{2889\ln\left(2+3x\right)}{49}-\frac{16\ln\left(-1+2x\right)}{65219}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)/(2+3*x)^2/(3+5*x)^3,x)
```

```
[Out] -25/22/(3+5*x)^2+1600/121/(3+5*x)+78475/1331*ln(3+5*x)+27/7/(2+3*
x)-2889/49*ln(2+3*x)-16/65219*ln(-1+2*x)
```

Maxima [A] time = 1.34343, size = 73, normalized size = 1.14

$$\frac{499350\,x^2+615845\,x+189356}{1694\,(75\,x^3+140\,x^2+87\,x+18)}+\frac{78475}{1331}\,\log(5\,x+3)-\frac{2889}{49}\,\log(3\,x+2)-\frac{16}{65219}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^3*(3*x + 2)^2*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] 1/1694*(499350*x^2 + 615845*x + 189356)/(75*x^3 + 140*x^2 + 87*x
+ 18) + 78475/1331*log(5*x + 3) - 2889/49*log(3*x + 2) - 16/65219
*log(2*x - 1)
```

Fricas [A] time = 0.214556, size = 132, normalized size = 2.06

$$\frac{38449950\,x^2+7690550\,\left(75\,x^3+140\,x^2+87\,x+18\right)\,\log(5\,x+3)-7690518\,\left(75\,x^3+140\,x^2+87\,x+18\right)\,\log(3\,x+2)-32\,(7}{130438\,(75\,x^3+140\,x^2+87\,x+18)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^3*(3*x + 2)^2*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] 1/130438*(38449950*x^2 + 7690550*(75*x^3 + 140*x^2 + 87*x + 18)*l
og(5*x + 3) - 7690518*(75*x^3 + 140*x^2 + 87*x + 18)*log(3*x + 2)
 - 32*(75*x^3 + 140*x^2 + 87*x + 18)*log(2*x - 1) + 47420065*x +
14580412)/(75*x^3 + 140*x^2 + 87*x + 18)
```

Sympy [A] time = 0.560976, size = 54, normalized size = 0.84

$$\frac{499350x^2+615845x+189356}{127050x^3+237160x^2+147378x+30492}-\frac{16\log\left(x-\frac{1}{2}\right)}{65219}+\frac{78475\log\left(x+\frac{3}{5}\right)}{1331}-\frac{2889\log\left(x+\frac{2}{3}\right)}{49}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)/(2+3*x)**2/(3+5*x)**3,x)
```

```
[Out] (499350*x**2 + 615845*x + 189356)/(127050*x**3 + 237160*x**2 + 14
7378*x + 30492) - 16*log(x - 1/2)/65219 + 78475*log(x + 3/5)/1331
 - 2889*log(x + 2/3)/49
```

GIAC/XCAS [A] time = 0.213267, size = 86, normalized size = 1.34

$$\frac{27}{7\,(3\,x+2)}-\frac{375\,\left(\frac{194}{3\,x+2}-805\right)}{242\,\left(\frac{1}{3\,x+2}-5\right)^2}+\frac{78475}{1331}\ln\left(\left|-\frac{1}{3\,x+2}+5\right|\right)-\frac{16}{65219}\ln\left(\left|-\frac{7}{3\,x+2}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^3*(3*x + 2)^2*(2*x - 1)),x, algorithm="giac")
```

```
[Out] 27/7/(3*x + 2) - 375/242*(194/(3*x + 2) - 805)/(1/(3*x + 2) - 5)^
2 + 78475/1331*ln(abs(-1/(3*x + 2) + 5)) - 16/65219*ln(abs(-7/(3*
x + 2) + 2))
```

3.1510 $\int \frac{1}{(1-2x)(2+3x)^3(3+5x)^3} dx$

Optimal. Leaf size=75

$$\frac{2889}{49(3x+2)}+\frac{12125}{121(5x+3)}+\frac{27}{14(3x+2)^2}-\frac{125}{22(5x+3)^2}-\frac{32\log(1-2x)}{456533}-\frac{204228}{343}\log(3x+2)+\frac{792500\log(5x+3)}{1331}$$

```
[Out] 27/(14*(2 + 3*x)^2) + 2889/(49*(2 + 3*x)) - 125/(22*(3 + 5*x)^2)
+ 12125/(121*(3 + 5*x)) - (32*Log[1 - 2*x])/456533 - (204228*Log[
2 + 3*x])/343 + (792500*Log[3 + 5*x])/1331
```

Rubi [A] time = 0.0856956, antiderivative size = 75, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{2889}{49(3x+2)}+\frac{12125}{121(5x+3)}+\frac{27}{14(3x+2)^2}-\frac{125}{22(5x+3)^2}-\frac{32\log(1-2x)}{456533}-\frac{204228}{343}\log(3x+2)+\frac{792500\log(5x+3)}{1331}$$

Antiderivative was successfully verified.

```
[In] Int[1/((1 - 2*x)*(2 + 3*x)^3*(3 + 5*x)^3),x]
```

```
[Out] 27/(14*(2 + 3*x)^2) + 2889/(49*(2 + 3*x)) - 125/(22*(3 + 5*x)^2)
+ 12125/(121*(3 + 5*x)) - (32*Log[1 - 2*x])/456533 - (204228*Log[
2 + 3*x])/343 + (792500*Log[3 + 5*x])/1331
```

Rubi in Sympy [A] time = 11.4499, size = 63, normalized size = 0.84

$$-\frac{32\log(-2x+1)}{456533}-\frac{204228\log(3x+2)}{343}+\frac{792500\log(5x+3)}{1331}+\frac{12125}{121(5x+3)}-\frac{125}{22(5x+3)^2}+\frac{2889}{49(3x+2)}+\frac{27}{14(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(1/(1-2*x)/(2+3*x)**3/(3+5*x)**3,x)
```

```
[Out] -32*log(-2*x + 1)/456533 - 204228*log(3*x + 2)/343 + 792500*log(5
*x + 3)/1331 + 12125/(121*(5*x + 3)) - 125/(22*(5*x + 3)**2) + 28
89/(49*(3*x + 2)) + 27/(14*(3*x + 2)**2)
```

Mathematica [A] time = 0.0472141, size = 71, normalized size = 0.95

$$\frac{2889}{147x+98}+\frac{12125}{605x+363}+\frac{27}{14(3x+2)^2}-\frac{125}{22(5x+3)^2}-\frac{32\log(1-2x)}{456533}-\frac{204228}{343}\log(6x+4)+\frac{792500\log(10x+6)}{1331}$$

Antiderivative was successfully verified.

```
[In] Integrate[1/((1 - 2*x)*(2 + 3*x)^3*(3 + 5*x)^3),x]
```

```
[Out] 27/(14*(2 + 3*x)^2) - 125/(22*(3 + 5*x)^2) + 2889/(98 + 147*x) +
12125/(363 + 605*x) - (32*Log[1 - 2*x])/456533 - (204228*Log[4 +
```

```
6*x])/343 + (792500*Log[6 + 10*x])/1331
```

Maple [A] time = 0.018, size = 62, normalized size = 0.8

$$-\frac{125}{22\,(3+5\,x)^{2}}+\frac{12125}{363+605\,x}+\frac{792500\,\ln(3+5\,x)}{1331}+\frac{27}{14\,(2+3\,x)^{2}}+\frac{2889}{98+147\,x}-\frac{204228\,\ln(2+3\,x)}{343}-\frac{32\,\ln(-1+2\,x)}{456533}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)/(2+3*x)^3/(3+5*x)^3,x)
```

```
[Out] -125/22/(3+5*x)^2+12125/121/(3+5*x)+792500/1331*ln(3+5*x)+27/14/(
2+3*x)^2+2889/49/(2+3*x)-204228/343*ln(2+3*x)-32/456533*ln(-1+2*x
)
```

Maxima [A] time = 1.34642, size = 86, normalized size = 1.15

$$\frac{105906600\,x^{3}+201222420\,x^{2}+127244576\,x+26779805}{11858\,(225\,x^{4}+570\,x^{3}+541\,x^{2}+228\,x+36)}+\frac{792500}{1331}\,\log(5\,x+3)-\frac{204228}{343}\,\log(3\,x+2)-\frac{32}{456533}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^3*(3*x + 2)^3*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] 1/11858*(105906600*x^3 + 201222420*x^2 + 127244576*x + 26779805)/
(225*x^4 + 570*x^3 + 541*x^2 + 228*x + 36) + 792500/1331*log(5*x
+ 3) - 204228/343*log(3*x + 2) - 32/456533*log(2*x - 1)
```

Fricas [A] time = 0.225066, size = 166, normalized size = 2.21

$$\frac{8154808200\,x^{3}+15494126340\,x^{2}+543655000\,\left(225\,x^{4}+570\,x^{3}+541\,x^{2}+228\,x+36\right)\log(5\,x+3)-543654936\,(225\,x^{4}+5}{913066\,(225\,x^{4}+570}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^3*(3*x + 2)^3*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] 1/913066*(8154808200*x^3 + 15494126340*x^2 + 543655000*(225*x^4 +
 570*x^3 + 541*x^2 + 228*x + 36)*log(5*x + 3) - 543654936*(225*x^
4 + 570*x^3 + 541*x^2 + 228*x + 36)*log(3*x + 2) - 64*(225*x^4 +
570*x^3 + 541*x^2 + 228*x + 36)*log(2*x - 1) + 9797832352*x + 206
2044985)/(225*x^4 + 570*x^3 + 541*x^2 + 228*x + 36)
```

Sympy [A] time = 0.649162, size = 65, normalized size = 0.87

$$\frac{105906600x^{3}+201222420x^{2}+127244576x+26779805}{2668050x^{4}+6759060x^{3}+6415178x^{2}+2703624x+426888}-\frac{32\log\left(x-\frac{1}{2}\right)}{456533}+\frac{792500\log\left(x+\frac{3}{5}\right)}{1331}-\frac{204228\log\left(x+\frac{2}{3}\right)}{343}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)/(2+3*x)**3/(3+5*x)**3,x)
```

```
[Out] (105906600*x**3 + 201222420*x**2 + 127244576*x + 26779805)/(26680
50*x**4 + 6759060*x**3 + 6415178*x**2 + 2703624*x + 426888) - 32*
log(x - 1/2)/456533 + 792500*log(x + 3/5)/1331 - 204228*log(x + 2
/3)/343
```

GIAC/XCAS [A] time = 0.210211, size = 80, normalized size = 1.07

$$\frac{105906600\,x^3 + 201222420\,x^2 + 127244576\,x + 26779805}{11858\,(5\,x+3)^2(3\,x+2)^2} + \frac{792500}{1331}\ln\left(|5\,x+3|\right) - \frac{204228}{343}\ln\left(|3\,x+2|\right) - \frac{32}{456533}\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^3*(3*x + 2)^3*(2*x - 1)),x, algorithm="giac")
```

```
[Out] 1/11858*(105906600*x^3 + 201222420*x^2 + 127244576*x + 26779805)/
((5*x + 3)^2*(3*x + 2)^2) + 792500/1331*ln(abs(5*x + 3)) - 204228
/343*ln(abs(3*x + 2)) - 32/456533*ln(abs(2*x - 1))
```

3.1511 $\int \frac{1}{(1-2x)(2+3x)^4(3+5x)^3}\,dx$

Optimal. Leaf size=86

$$\frac{204228}{343(3x+2)}+\frac{81250}{121(5x+3)}+\frac{2889}{98(3x+2)^2}-\frac{625}{22(5x+3)^2}+\frac{9}{7(3x+2)^3}-\frac{64\log(1-2x)}{3195731}-\frac{11984706\log(3x+2)}{2401}+\frac{6643750\log(5x+3)}{1331}$$

```
[Out] 9/(7*(2 + 3*x)^3) + 2889/(98*(2 + 3*x)^2) + 204228/(343*(2 + 3*x)
) - 625/(22*(3 + 5*x)^2) + 81250/(121*(3 + 5*x)) - (64*Log[1 - 2*
x])/3195731 - (11984706*Log[2 + 3*x])/2401 + (6643750*Log[3 + 5*x
])/1331
```

Rubi [A] time = 0.0981525, antiderivative size = 86, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{204228}{343(3x+2)}+\frac{81250}{121(5x+3)}+\frac{2889}{98(3x+2)^2}-\frac{625}{22(5x+3)^2}+\frac{9}{7(3x+2)^3}-\frac{64\log(1-2x)}{3195731}-\frac{11984706\log(3x+2)}{2401}+\frac{6643750\log(5x+3)}{1331}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)*(2 + 3*x)^4*(3 + 5*x)^3),x]
```

```
[Out] 9/(7*(2 + 3*x)^3) + 2889/(98*(2 + 3*x)^2) + 204228/(343*(2 + 3*x)
) - 625/(22*(3 + 5*x)^2) + 81250/(121*(3 + 5*x)) - (64*Log[1 - 2*
x])/3195731 - (11984706*Log[2 + 3*x])/2401 + (6643750*Log[3 + 5*x
])/1331
```

Rubi in Sympy [A] time = 12.9219, size = 73, normalized size = 0.85

$$-\frac{64\log(-2x+1)}{3195731}-\frac{11984706\log(3x+2)}{2401}+\frac{6643750\log(5x+3)}{1331}+\frac{81250}{121(5x+3)}-\frac{625}{22(5x+3)^2}+\frac{204228}{343(3x+2)}+\frac{2889}{98(3x+2)^2}+\frac{9}{7(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)/(2+3*x)**4/(3+5*x)**3,x)
```

```
[Out] -64*log(-2*x + 1)/3195731 - 11984706*log(3*x + 2)/2401 + 6643750*
log(5*x + 3)/1331 + 81250/(121*(5*x + 3)) - 625/(22*(5*x + 3)**2)
 + 204228/(343*(3*x + 2)) + 2889/(98*(3*x + 2)**2) + 9/(7*(3*x +
2)**3)
```

Mathematica [A] time = 0.0515576, size = 84, normalized size = 0.98

$$\frac{204228}{343(3x+2)}+\frac{81250}{605x+363}+\frac{2889}{98(3x+2)^2}-\frac{625}{22(5x+3)^2}+\frac{9}{7(3x+2)^3}-\frac{64\log(1-2x)}{3195731}-\frac{11984706\log(6x+4)}{2401}+\frac{6643750\log(10x+6)}{1331}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)*(2 + 3*x)^4*(3 + 5*x)^3),x]
```

```
[Out] 9/(7*(2 + 3*x)^3) + 2889/(98*(2 + 3*x)^2) + 204228/(343*(2 + 3*x)
) - 625/(22*(3 + 5*x)^2) + 81250/(363 + 605*x) - (64*Log[1 - 2*x]
)/3195731 - (11984706*Log[4 + 6*x])/2401 + (6643750*Log[6 + 10*x]
)/1331
```

Maple [A] time = 0.017, size = 71, normalized size = 0.8

$$-\frac{625}{22\,(3+5\,x)^2}+\frac{81250}{363+605\,x}+\frac{6643750\,\ln(3+5\,x)}{1331}+\frac{9}{7\,(2+3\,x)^3}+\frac{2889}{98\,(2+3\,x)^2}+\frac{204228}{686+1029\,x}-\frac{11984706\,\ln(2+3\,x)}{2401}-\frac{64\,\ln(-1+2\,x)}{3195731}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)/(2+3*x)^4/(3+5*x)^3,x)
```

```
[Out] -625/22/(3+5*x)^2+81250/121/(3+5*x)+6643750/1331*ln(3+5*x)+9/7/(2
+3*x)^3+2889/98/(2+3*x)^2+204228/343/(2+3*x)-11984706/2401*ln(2+3
*x)-64/3195731*ln(-1+2*x)
```

Maxima [A] time = 1.3409, size = 100, normalized size = 1.16

$$\frac{18644777100\,x^4+47854927170\,x^3+46018070136\,x^2+19648830809\,x+3143075528}{83006\,(675\,x^5+2160\,x^4+2763\,x^3+1766\,x^2+564\,x+72)}+\frac{6643750}{1331}\,\log(5\,x+3)-\frac{11984706}{2401}\,\log(3\,x+2)-\frac{64}{3195731}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^3*(3*x + 2)^4*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] 1/83006*(18644777100*x^4 + 47854927170*x^3 + 46018070136*x^2 + 19
648830809*x + 3143075528)/(675*x^5 + 2160*x^4 + 2763*x^3 + 1766*x
^2 + 564*x + 72) + 6643750/1331*log(5*x + 3) - 11984706/2401*log(
3*x + 2) - 64/3195731*log(2*x - 1)
```

Fricas [A] time = 0.223319, size = 200, normalized size = 2.33

$$\frac{1435647836700\,x^4+3684829392090\,x^3+3543391400472\,x^2+31903287500\,(675\,x^5+2160\,x^4+2763\,x^3+1766\,x^2+564\,x+}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^3*(3*x + 2)^4*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] 1/6391462*(1435647836700*x^4 + 3684829392090*x^3 + 3543391400472*
x^2 + 31903287500*(675*x^5 + 2160*x^4 + 2763*x^3 + 1766*x^2 + 564
*x + 72)*log(5*x + 3) - 31903287372*(675*x^5 + 2160*x^4 + 2763*x^
3 + 1766*x^2 + 564*x + 72)*log(3*x + 2) - 128*(675*x^5 + 2160*x^4
 + 2763*x^3 + 1766*x^2 + 564*x + 72)*log(2*x - 1) + 1512959972293
*x + 242016815656)/(675*x^5 + 2160*x^4 + 2763*x^3 + 1766*x^2 + 56
4*x + 72)
```

Sympy [A] time = 0.712048, size = 75, normalized size = 0.87

$$\frac{18644777100x^4+47854927170x^3+46018070136x^2+19648830809x+3143075528}{56029050x^5+179292960x^4+229345578x^3+146588596x^2+46815384x+5976432}-\frac{64\log\left(x-\frac{1}{2}\right)}{3195731}+\frac{6643750\log\left(x+\frac{3}{5}\right)}{1331}-\frac{11984706\log\left(x+\frac{2}{3}\right)}{2401}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)/(2+3*x)**4/(3+5*x)**3,x)
```

```
[Out] (18644777100*x**4 + 47854927170*x**3 + 46018070136*x**2 + 1964883
0809*x + 3143075528)/(56029050*x**5 + 179292960*x**4 + 229345578*
x**3 + 146588596*x**2 + 46815384*x + 5976432) - 64*log(x - 1/2)/3
195731 + 6643750*log(x + 3/5)/1331 - 11984706*log(x + 2/3)/2401
```

GIAC/XCAS [A] time = 0.208931, size = 86, normalized size = 1.

$$\frac{18644777100\,x^4 + 47854927170\,x^3 + 46018070136\,x^2 + 19648830809\,x + 3143075528}{83006\,(5\,x+3)^2(3\,x+2)^3} + \frac{6643750}{1331}\,\ln\left(|5\,x+3|\right) - \frac{11984706}{2401}\,\ln\left(|3\,x+2|\right) - \frac{64}{3195731}\,\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^3*(3*x + 2)^4*(2*x - 1)),x, algorithm="giac")
```

```
[Out] 1/83006*(18644777100*x^4 + 47854927170*x^3 + 46018070136*x^2 + 19
648830809*x + 3143075528)/((5*x + 3)^2*(3*x + 2)^3) + 6643750/133
1*ln(abs(5*x + 3)) - 11984706/2401*ln(abs(3*x + 2)) - 64/3195731*
ln(abs(2*x - 1))
```

3.1512 $\int \frac{1}{(1-2x)(2+3x)^5(3+5x)^3}\,dx$

Optimal. Leaf size=97

$$\frac{11984706}{2401(3x+2)}+\frac{509375}{121(5x+3)}+\frac{102114}{343(3x+2)^2}-\frac{3125}{22(5x+3)^2}+\frac{963}{49(3x+2)^3}+\frac{27}{28(3x+2)^4}-\frac{128\log(1-2x)}{22370117}-\frac{631722537\log(3x+2)}{16807}+\frac{50028125\log(5x+3)}{1331}$$

```
[Out] 27/(28*(2 + 3*x)^4) + 963/(49*(2 + 3*x)^3) + 102114/(343*(2 + 3*x
)^2) + 11984706/(2401*(2 + 3*x)) - 3125/(22*(3 + 5*x)^2) + 509375
/(121*(3 + 5*x)) - (128*Log[1 - 2*x])/22370117 - (631722537*Log[2
 + 3*x])/16807 + (50028125*Log[3 + 5*x])/1331
```

Rubi [A] time = 0.114472, antiderivative size = 97, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{11984706}{2401(3x+2)}+\frac{509375}{121(5x+3)}+\frac{102114}{343(3x+2)^2}-\frac{3125}{22(5x+3)^2}+\frac{963}{49(3x+2)^3}+\frac{27}{28(3x+2)^4}-\frac{128\log(1-2x)}{22370117}-\frac{631722537\log(3x+2)}{16807}+\frac{50028125\log(5x+3)}{1331}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)*(2 + 3*x)^5*(3 + 5*x)^3),x]
```

```
[Out] 27/(28*(2 + 3*x)^4) + 963/(49*(2 + 3*x)^3) + 102114/(343*(2 + 3*x
)^2) + 11984706/(2401*(2 + 3*x)) - 3125/(22*(3 + 5*x)^2) + 509375
/(121*(3 + 5*x)) - (128*Log[1 - 2*x])/22370117 - (631722537*Log[2
 + 3*x])/16807 + (50028125*Log[3 + 5*x])/1331
```

Rubi in Sympy [A] time = 14.4331, size = 83, normalized size = 0.86

$$-\frac{128\log\left(-2x+1\right)}{22370117}-\frac{631722537\log\left(3x+2\right)}{16807}+\frac{50028125\log\left(5x+3\right)}{1331}+\frac{509375}{121\left(5x+3\right)}-\frac{3125}{22\left(5x+3\right)^2}+\frac{11984706}{2401\left(3x+2\right)}+\frac{102114}{343\left(3x+2\right)^2}+\frac{963}{49\left(3x+2\right)^3}+\frac{27}{28\left(3x+2\right)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)/(2+3*x)**5/(3+5*x)**3,x)
```

```
[Out] -128*log(-2*x + 1)/22370117 - 631722537*log(3*x + 2)/16807 + 5002
8125*log(5*x + 3)/1331 + 509375/(121*(5*x + 3)) - 3125/(22*(5*x +
 3)**2) + 11984706/(2401*(3*x + 2)) + 102114/(343*(3*x + 2)**2) +
 963/(49*(3*x + 2)**3) + 27/(28*(3*x + 2)**4)
```

Mathematica [A] time = 0.0613491, size = 95, normalized size = 0.98

$$\frac{11984706}{2401(3x+2)}+\frac{509375}{605x+363}+\frac{102114}{343(3x+2)^2}-\frac{3125}{22(5x+3)^2}+\frac{963}{49(3x+2)^3}+\frac{27}{28(3x+2)^4}-\frac{128\log(1-2x)}{22370117}-\frac{631722537\log(6x+4)}{16807}+\frac{50028125\log(10x+6)}{1331}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)*(2 + 3*x)^5*(3 + 5*x)^3),x]
```

```
[Out] 27/(28*(2 + 3*x)^4) + 963/(49*(2 + 3*x)^3) + 102114/(343*(2 + 3*x
)^2) + 11984706/(2401*(2 + 3*x)) - 3125/(22*(3 + 5*x)^2) + 509375
/(363 + 605*x) - (128*Log[1 - 2*x])/22370117 - (631722537*Log[4 +
 6*x])/16807 + (50028125*Log[6 + 10*x])/1331
```

Maple [A] time = 0.017, size = 80, normalized size = 0.8

$$-\frac{3125}{22\,\left(3+5\,x\right)^{2}}+\frac{509375}{363+605\,x}+\frac{50028125\,\ln\left(3+5\,x\right)}{1331}+\frac{27}{28\,\left(2+3\,x\right)^{4}}+\frac{963}{49\,\left(2+3\,x\right)^{3}}+\frac{102114}{343\,\left(2+3\,x\right)^{2}}+\frac{11984706}{4802+7203\,x}-\frac{631722537\,\ln\left(2+3\,x\right)}{16807}-\frac{128\,\ln\left(-1+2\,x\right)}{22370117}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)/(2+3*x)^5/(3+5*x)^3,x)
```

```
[Out] -3125/22/(3+5*x)^2+509375/121/(3+5*x)+50028125/1331*ln(3+5*x)+27/
28/(2+3*x)^4+963/49/(2+3*x)^3+102114/343/(2+3*x)^2+11984706/2401/
(2+3*x)-631722537/16807*ln(2+3*x)-128/22370117*ln(-1+2*x)
```

Maxima [A] time = 1.34087, size = 113, normalized size = 1.16

$$\frac{5896678637700\,x^{5}+19065927586590\,x^{4}+24643748766492\,x^{3}+15916809968421\,x^{2}+5136860261578\,x+662695553413}{1162084\,\left(2025\,x^{6}+7830\,x^{5}+12609\,x^{4}+10824\,x^{3}+5224\,x^{2}+1344\,x+144\right)}+\frac{50028125}{1331}\,\log\left(5\,x+3\right)-\frac{631722537}{16807}\,\log\left(3\,x+2\right)-\frac{128}{22370117}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^3*(3*x + 2)^5*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] 1/1162084*(5896678637700*x^5 + 19065927586590*x^4 + 2464374876649
2*x^3 + 15916809968421*x^2 + 5136860261578*x + 662695553413)/(202
5*x^6 + 7830*x^5 + 12609*x^4 + 10824*x^3 + 5224*x^2 + 1344*x + 14
4) + 50028125/1331*log(5*x + 3) - 631722537/16807*log(3*x + 2) -
128/22370117*log(2*x - 1)
```

Fricas [A] time = 0.229201, size = 234, normalized size = 2.41

$$\frac{454044255102900\,x^{5}+1468076424167430\,x^{4}+1897568655019884\,x^{3}+1225594367568417\,x^{2}+3363290787500\,\left(2025\,x^{6}+\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^3*(3*x + 2)^5*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] 1/89480468*(454044255102900*x^5 + 1468076424167430*x^4 + 18975686
55019884*x^3 + 1225594367568417*x^2 + 3363290787500*(2025*x^6 + 7
830*x^5 + 12609*x^4 + 10824*x^3 + 5224*x^2 + 1344*x + 144)*log(5*
x + 3) - 3363290786988*(2025*x^6 + 7830*x^5 + 12609*x^4 + 10824*x
^3 + 5224*x^2 + 1344*x + 144)*log(3*x + 2) - 512*(2025*x^6 + 7830
*x^5 + 12609*x^4 + 10824*x^3 + 5224*x^2 + 1344*x + 144)*log(2*x -
 1) + 395538240141506*x + 51027557612801)/(2025*x^6 + 7830*x^5 +
12609*x^4 + 10824*x^3 + 5224*x^2 + 1344*x + 144)
```

Sympy [A] time = 0.760671, size = 85, normalized size = 0.88

$$\frac{5896678637700x^5 + 19065927586590x^4 + 24643748766492x^3 + 15916809968421x^2 + 5136860261578x + 662695553413}{2353220100x^6 + 9099117720x^5 + 14652717156x^4 + 12578397216x^3 + 6070726816x^2 + 1561840896x + 167340096} - \frac{128\log\left(x-\frac{1}{2}\right)}{22370117} + \frac{50028125\log\left(x+\frac{3}{5}\right)}{1331} - \frac{631722537\log\left(x+\frac{2}{3}\right)}{16807}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)/(2+3*x)**5/(3+5*x)**3,x)
```

```
[Out] (5896678637700*x**5 + 19065927586590*x**4 + 24643748766492*x**3 +
 15916809968421*x**2 + 5136860261578*x + 662695553413)/(235322010
0*x**6 + 9099117720*x**5 + 14652717156*x**4 + 12578397216*x**3 +
6070726816*x**2 + 1561840896*x + 167340096) - 128*log(x - 1/2)/22
370117 + 50028125*log(x + 3/5)/1331 - 631722537*log(x + 2/3)/1680
7
```

GIAC/XCAS [A] time = 0.211489, size = 123, normalized size = 1.27

$$\frac{11984706}{2401\,(3\,x+2)} - \frac{46875\left(\frac{392}{3\,x+2} - 1795\right)}{242\left(\frac{1}{3\,x+2} - 5\right)^2} + \frac{102114}{343\,(3\,x+2)^2} + \frac{963}{49\,(3\,x+2)^3} + \frac{27}{28\,(3\,x+2)^4} + \frac{50028125}{1331}\ln\left(\left|-\frac{1}{3\,x+2} + 5\right|\right) - \frac{128}{22370117}\ln\left(\left|-\frac{7}{3\,x+2} + 2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^3*(3*x + 2)^5*(2*x - 1)),x, algorithm="giac")
```

```
[Out] 11984706/2401/(3*x + 2) - 46875/242*(392/(3*x + 2) - 1795)/(1/(3*
x + 2) - 5)^2 + 102114/343/(3*x + 2)^2 + 963/49/(3*x + 2)^3 + 27/
28/(3*x + 2)^4 + 50028125/1331*ln(abs(-1/(3*x + 2) + 5)) - 128/22
370117*ln(abs(-7/(3*x + 2) + 2))
```

3.1513 $\int \frac{(c+dx)^4}{(a-bx)(a+bx)}\,dx$

Optimal. Leaf size=103

$$-\frac{d^2x\left(a^2d^2+6b^2c^2\right)}{b^4}-\frac{(ad+bc)^4\log(a-bx)}{2ab^5}+\frac{(bc-ad)^4\log(a+bx)}{2ab^5}-\frac{2cd^3x^2}{b^2}-\frac{d^4x^3}{3b^2}$$

```
[Out] -((d^2*(6*b^2*c^2 + a^2*d^2)*x)/b^4) - (2*c*d^3*x^2)/b^2 - (d^4*x
^3)/(3*b^2) - ((b*c + a*d)^4*Log[a - b*x])/(2*a*b^5) + ((b*c - a*
d)^4*Log[a + b*x])/(2*a*b^5)
```

Rubi [A] time = 0.203792, antiderivative size = 103, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 23, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.043

$$-\frac{d^2x\left(a^2d^2+6b^2c^2\right)}{b^4}-\frac{(ad+bc)^4\log(a-bx)}{2ab^5}+\frac{(bc-ad)^4\log(a+bx)}{2ab^5}-\frac{2cd^3x^2}{b^2}-\frac{d^4x^3}{3b^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^4/((a - b*x)*(a + b*x)),x]
```

```
[Out] -((d^2*(6*b^2*c^2 + a^2*d^2)*x)/b^4) - (2*c*d^3*x^2)/b^2 - (d^4*x
^3)/(3*b^2) - ((b*c + a*d)^4*Log[a - b*x])/(2*a*b^5) + ((b*c - a*
d)^4*Log[a + b*x])/(2*a*b^5)
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-d^2\left(a^2d^2+6b^2c^2\right)\int\frac{1}{b^4}\,dx-\frac{4cd^3\int x\,dx}{b^2}-\frac{d^4x^3}{3b^2}+\frac{(ad-bc)^4\log(a+bx)}{2ab^5}-\frac{(ad+bc)^4\log(a-bx)}{2ab^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**4/(-b*x+a)/(b*x+a),x)
```

```
[Out] -d**2*(a**2*d**2 + 6*b**2*c**2)*Integral(b**(-4), x) - 4*c*d**3*I
ntegral(x, x)/b**2 - d**4*x**3/(3*b**2) + (a*d - b*c)**4*log(a +
b*x)/(2*a*b**5) - (a*d + b*c)**4*log(a - b*x)/(2*a*b**5)
```

Mathematica [A] time = 0.0832778, size = 86, normalized size = 0.83

$$\frac{-2abd^2x\left(3a^2d^2+b^2\left(18c^2+6cdx+d^2x^2\right)\right)+3(bc-ad)^4\log(a+bx)-3(ad+bc)^4\log(a-bx)}{6ab^5}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^4/((a - b*x)*(a + b*x)),x]
```

```
[Out] (-2*a*b*d^2*x*(3*a^2*d^2 + b^2*(18*c^2 + 6*c*d*x + d^2*x^2)) - 3*
(b*c + a*d)^4*Log[a - b*x] + 3*(b*c - a*d)^4*Log[a + b*x])/(6*a*b
^5)
```

Maple [B] time = 0.01, size = 229, normalized size = 2.2

$$-\frac{d^4x^3}{3\,b^2}-2\,\frac{cd^3x^2}{b^2}-\frac{d^4a^2x}{b^4}-6\,\frac{d^2c^2x}{b^2}+\frac{a^3\ln(bx+a)\,d^4}{2\,b^5}-2\,\frac{a^2\ln(bx+a)\,cd^3}{b^4}+3\,\frac{a\ln(bx+a)\,c^2d^2}{b^3}-2\,\frac{\ln(bx+a)\,c^3d}{b^2}+\frac{\ln(bx+a)\,c^4}{2\,ab}-\frac{a^3\ln(bx-a)\,d^4}{2\,b^5}-2\,\frac{a^2\ln(bx-a)\,cd^3}{b^4}-3\,\frac{a\ln(bx-a)\,c^2d^2}{b^3}-2\,\frac{\ln(bx-a)\,c^3d}{b^2}-\frac{\ln(bx-a)\,c^4}{2\,ab}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^4/(-b*x+a)/(b*x+a),x)
```

```
[Out] -1/3*d^4*x^3/b^2-2*c*d^3*x^2/b^2-d^4/b^4*a^2*x-6*d^2/b^2*c^2*x+1/
2/b^5*a^3*ln(b*x+a)*d^4-2/b^4*a^2*ln(b*x+a)*c*d^3+3/b^3*a*ln(b*x+
a)*c^2*d^2-2/b^2*ln(b*x+a)*c^3*d+1/2/b/a*ln(b*x+a)*c^4-1/2/b^5*a^
3*ln(b*x-a)*d^4-2/b^4*a^2*ln(b*x-a)*c*d^3-3/b^3*a*ln(b*x-a)*c^2*d
^2-2/b^2*ln(b*x-a)*c^3*d-1/2/b/a*ln(b*x-a)*c^4
```

Maxima [A] time = 1.35344, size = 242, normalized size = 2.35

$$-\frac{b^2d^4x^3+6\,b^2cd^3x^2+3\left(6\,b^2c^2d^2+a^2d^4\right)x}{3\,b^4}+\frac{\left(b^4c^4-4\,ab^3c^3d+6\,a^2b^2c^2d^2-4\,a^3bcd^3+a^4d^4\right)\log(bx+a)}{2\,ab^5}-\frac{\left(b^4c^4+4\,ab^3c^3d+6\,a^2b^2c^2d^2+4\,a^3bcd^3+a^4d^4\right)\log(bx-a)}{2\,ab^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(d*x + c)^4/((b*x + a)*(b*x - a)),x, algorithm="maxima")
```

```
[Out] -1/3*(b^2*d^4*x^3 + 6*b^2*c*d^3*x^2 + 3*(6*b^2*c^2*d^2 + a^2*d^4)
*x)/b^4 + 1/2*(b^4*c^4 - 4*a*b^3*c^3*d + 6*a^2*b^2*c^2*d^2 - 4*a^
3*b*c*d^3 + a^4*d^4)*log(b*x + a)/(a*b^5) - 1/2*(b^4*c^4 + 4*a*b^
3*c^3*d + 6*a^2*b^2*c^2*d^2 + 4*a^3*b*c*d^3 + a^4*d^4)*log(b*x -
a)/(a*b^5)
```

Fricas [A] time = 0.220763, size = 235, normalized size = 2.28

$$-\frac{2\,ab^3d^4x^3+12\,ab^3cd^3x^2+6\left(6\,ab^3c^2d^2+a^3bd^4\right)x-3\left(b^4c^4-4\,ab^3c^3d+6\,a^2b^2c^2d^2-4\,a^3bcd^3+a^4d^4\right)\log(bx+a)+3\,(b\cdots}{6\,ab^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(d*x + c)^4/((b*x + a)*(b*x - a)),x, algorithm="fricas")
```

```
[Out] -1/6*(2*a*b^3*d^4*x^3 + 12*a*b^3*c*d^3*x^2 + 6*(6*a*b^3*c^2*d^2 +
 a^3*b*d^4)*x - 3*(b^4*c^4 - 4*a*b^3*c^3*d + 6*a^2*b^2*c^2*d^2 -
4*a^3*b*c*d^3 + a^4*d^4)*log(b*x + a) + 3*(b^4*c^4 + 4*a*b^3*c^3*
d + 6*a^2*b^2*c^2*d^2 + 4*a^3*b*c*d^3 + a^4*d^4)*log(b*x - a))/(a
*b^5)
```

Sympy [A] time = 5.07845, size = 214, normalized size = 2.08

$$-\frac{2cd^3x^2}{b^2}-\frac{d^4x^3}{3b^2}-\frac{x\left(a^2d^4+6b^2c^2d^2\right)}{b^4}+\frac{(ad-bc)^4\log\left(x+\frac{4a^4cd^3+4a^2b^2c^3d+\frac{a(ad-bc)^4}{b}}{a^4d^4+6a^2b^2c^2d^2+b^4c^4}\right)}{2ab^5}-\frac{(ad+bc)^4\log\left(x+\frac{4a^4cd^3+4a^2b^2c^3d-\frac{a(ad+bc)^4}{b}}{a^4d^4+6a^2b^2c^2d^2+b^4c^4}\right)}{2ab^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**4/(-b*x+a)/(b*x+a),x)
```

```
[Out] -2*c*d**3*x**2/b**2 - d**4*x**3/(3*b**2) - x*(a**2*d**4 + 6*b**2*
c**2*d**2)/b**4 + (a*d - b*c)**4*log(x + (4*a**4*c*d**3 + 4*a**2*
b**2*c**3*d + a*(a*d - b*c)**4/b)/(a**4*d**4 + 6*a**2*b**2*c**2*d
**2 + b**4*c**4))/(2*a*b**5) - (a*d + b*c)**4*log(x + (4*a**4*c*d
**3 + 4*a**2*b**2*c**3*d - a*(a*d + b*c)**4/b)/(a**4*d**4 + 6*a**
2*b**2*c**2*d**2 + b**4*c**4))/(2*a*b**5)
```

GIAC/XCAS [A] time = 0.207185, size = 247, normalized size = 2.4

$$\frac{\left(b^4c^4 - 4\,ab^3c^3d + 6\,a^2b^2c^2d^2 - 4\,a^3bcd^3 + a^4d^4\right)\ln\left(|bx + a|\right)}{2\,ab^5} - \frac{\left(b^4c^4 + 4\,ab^3c^3d + 6\,a^2b^2c^2d^2 + 4\,a^3bcd^3 + a^4d^4\right)\ln\left(|bx - a|\right)}{2\,ab^5} - \frac{b^4d^4x^3 + 6\,b^4cd^3x^2 + 18\,b^4c^2d^2x + 3\,a^2b^2d^4x}{3\,b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(d*x + c)^4/((b*x + a)*(b*x - a)),x, algorithm="giac")
```

```
[Out] 1/2*(b^4*c^4 - 4*a*b^3*c^3*d + 6*a^2*b^2*c^2*d^2 - 4*a^3*b*c*d^3
+ a^4*d^4)*ln(abs(b*x + a))/(a*b^5) - 1/2*(b^4*c^4 + 4*a*b^3*c^3*
d + 6*a^2*b^2*c^2*d^2 + 4*a^3*b*c*d^3 + a^4*d^4)*ln(abs(b*x - a))
/(a*b^5) - 1/3*(b^4*d^4*x^3 + 6*b^4*c*d^3*x^2 + 18*b^4*c^2*d^2*x
+ 3*a^2*b^2*d^4*x)/b^6
```

3.1514 $\int \frac{(c+dx)^3}{(a-bx)(a+bx)}\,dx$

Optimal. Leaf size=76

$$-\frac{(ad+bc)^3\log(a-bx)}{2ab^4}+\frac{(bc-ad)^3\log(a+bx)}{2ab^4}-\frac{3cd^2x}{b^2}-\frac{d^3x^2}{2b^2}$$

```
[Out] (-3*c*d^2*x)/b^2 - (d^3*x^2)/(2*b^2) - ((b*c + a*d)^3*Log[a - b*x
])/(2*a*b^4) + ((b*c - a*d)^3*Log[a + b*x])/(2*a*b^4)
```

Rubi [A] time = 0.131159, antiderivative size = 76, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 23, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.043

$$-\frac{(ad+bc)^3\log(a-bx)}{2ab^4}+\frac{(bc-ad)^3\log(a+bx)}{2ab^4}-\frac{3cd^2x}{b^2}-\frac{d^3x^2}{2b^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^3/((a - b*x)*(a + b*x)),x]
```

```
[Out] (-3*c*d^2*x)/b^2 - (d^3*x^2)/(2*b^2) - ((b*c + a*d)^3*Log[a - b*x
])/(2*a*b^4) + ((b*c - a*d)^3*Log[a + b*x])/(2*a*b^4)
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{3cd^2x}{b^2}-\frac{d^3\int x\,dx}{b^2}-\frac{(ad-bc)^3\log(a+bx)}{2ab^4}-\frac{(ad+bc)^3\log(a-bx)}{2ab^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**3/(-b*x+a)/(b*x+a),x)
```

```
[Out] -3*c*d**2*x/b**2 - d**3*Integral(x, x)/b**2 - (a*d - b*c)**3*log(
a + b*x)/(2*a*b**4) - (a*d + b*c)**3*log(a - b*x)/(2*a*b**4)
```

Mathematica [A] time = 0.0600925, size = 62, normalized size = 0.82

$$-\frac{ab^2d^2x(6c+dx)+(bc-ad)^3(-\log(a+bx))+(ad+bc)^3\log(a-bx)}{2ab^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^3/((a - b*x)*(a + b*x)),x]
```

```
[Out] -(a*b^2*d^2*x*(6*c + d*x) + (b*c + a*d)^3*Log[a - b*x] - (b*c - a
*d)^3*Log[a + b*x])/(2*a*b^4)
```

Maple [B] time = 0.01, size = 161, normalized size = 2.1

$$-\frac{d^3x^2}{2\,b^2}-3\,\frac{d^2xc}{b^2}-\frac{a^2\ln(bx+a)\,d^3}{2\,b^4}+\frac{3\,a\ln(bx+a)\,cd^2}{2\,b^3}-\frac{3\,\ln(bx+a)\,c^2d}{2\,b^2}+\frac{\ln(bx+a)\,c^3}{2\,ab}-\frac{a^2\ln(bx-a)\,d^3}{2\,b^4}-\frac{3\,a\ln(bx-a)\,cd^2}{2\,b^3}-\frac{3\,\ln(bx-a)\,c^2d}{2\,b^2}-\frac{\ln(bx-a)\,c^3}{2\,ab}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^3/(-b*x+a)/(b*x+a),x)
```

```
[Out] -1/2*d^3*x^2/b^2-3*d^2/b^2*x*c-1/2/b^4*a^2*ln(b*x+a)*d^3+3/2/b^3*
a*ln(b*x+a)*c*d^2-3/2/b^2*ln(b*x+a)*c^2*d+1/2/b/a*ln(b*x+a)*c^3-1
/2/b^4*a^2*ln(b*x-a)*d^3-3/2/b^3*a*ln(b*x-a)*c*d^2-3/2/b^2*ln(b*x
-a)*c^2*d-1/2/b/a*ln(b*x-a)*c^3
```

Maxima [A] time = 1.3467, size = 165, normalized size = 2.17

$$-\frac{d^3x^2+6\,cd^2x}{2\,b^2}+\frac{\left(b^3c^3-3\,ab^2c^2d+3\,a^2bcd^2-a^3d^3\right)\log\left(bx+a\right)}{2\,ab^4}-\frac{\left(b^3c^3+3\,ab^2c^2d+3\,a^2bcd^2+a^3d^3\right)\log\left(bx-a\right)}{2\,ab^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(d*x + c)^3/((b*x + a)*(b*x - a)),x, algorithm="maxima")
```

```
[Out] -1/2*(d^3*x^2 + 6*c*d^2*x)/b^2 + 1/2*(b^3*c^3 - 3*a*b^2*c^2*d + 3
*a^2*b*c*d^2 - a^3*d^3)*log(b*x + a)/(a*b^4) - 1/2*(b^3*c^3 + 3*a
*b^2*c^2*d + 3*a^2*b*c*d^2 + a^3*d^3)*log(b*x - a)/(a*b^4)
```

Fricas [A] time = 0.214129, size = 161, normalized size = 2.12

$$-\frac{ab^2d^3x^2+6\,ab^2cd^2x-\left(b^3c^3-3\,ab^2c^2d+3\,a^2bcd^2-a^3d^3\right)\log\left(bx+a\right)+\left(b^3c^3+3\,ab^2c^2d+3\,a^2bcd^2+a^3d^3\right)\log\left(bx-a\right)}{2\,ab^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(d*x + c)^3/((b*x + a)*(b*x - a)),x, algorithm="fricas")
```

```
[Out] -1/2*(a*b^2*d^3*x^2 + 6*a*b^2*c*d^2*x - (b^3*c^3 - 3*a*b^2*c^2*d
+ 3*a^2*b*c*d^2 - a^3*d^3)*log(b*x + a) + (b^3*c^3 + 3*a*b^2*c^2*
d + 3*a^2*b*c*d^2 + a^3*d^3)*log(b*x - a))/(a*b^4)
```

Sympy [A] time = 3.91617, size = 163, normalized size = 2.14

$$-\frac{3cd^2x}{b^2}-\frac{d^3x^2}{2b^2}-\frac{(ad-bc)^3\log\left(x+\frac{a^4d^3+3a^2b^2c^2d-a(ad-bc)^3}{3a^2b^2cd^2+b^4c^3}\right)}{2ab^4}-\frac{(ad+bc)^3\log\left(x+\frac{a^4d^3+3a^2b^2c^2d-a(ad+bc)^3}{3a^2b^2cd^2+b^4c^3}\right)}{2ab^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**3/(-b*x+a)/(b*x+a),x)
```

```
[Out] -3*c*d**2*x/b**2 - d**3*x**2/(2*b**2) - (a*d - b*c)**3*log(x + (a
**4*d**3 + 3*a**2*b**2*c**2*d - a*(a*d - b*c)**3)/(3*a**2*b**2*c*
d**2 + b**4*c**3))/(2*a*b**4) - (a*d + b*c)**3*log(x + (a**4*d**3
 + 3*a**2*b**2*c**2*d - a*(a*d + b*c)**3)/(3*a**2*b**2*c*d**2 + b
**4*c**3))/(2*a*b**4)
```

GIAC/XCAS [A] time = 0.207733, size = 176, normalized size = 2.32

$$-\frac{b^2d^3x^2+6\,b^2cd^2x}{2\,b^4}+\frac{\left(b^3c^3-3\,ab^2c^2d+3\,a^2bcd^2-a^3d^3\right)\ln\left(|bx+a|\right)}{2\,ab^4}-\frac{\left(b^3c^3+3\,ab^2c^2d+3\,a^2bcd^2+a^3d^3\right)\ln\left(|bx-a|\right)}{2\,ab^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(d*x + c)^3/((b*x + a)*(b*x - a)),x, algorithm="giac")
```

```
[Out] -1/2*(b^2*d^3*x^2 + 6*b^2*c*d^2*x)/b^4 + 1/2*(b^3*c^3 - 3*a*b^2*c
^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*ln(abs(b*x + a))/(a*b^4) - 1/2*(b
^3*c^3 + 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 + a^3*d^3)*ln(abs(b*x - a)
)/(a*b^4)
```

3.1515 $\int \frac{(c+dx)^2}{(a-bx)(a+bx)}\,dx$

Optimal. Leaf size=62

$$-\frac{(ad+bc)^2\log(a-bx)}{2ab^3}+\frac{(bc-ad)^2\log(a+bx)}{2ab^3}-\frac{d^2x}{b^2}$$

```
[Out] -((d^2*x)/b^2) - ((b*c + a*d)^2*Log[a - b*x])/(2*a*b^3) + ((b*c -
 a*d)^2*Log[a + b*x])/(2*a*b^3)
```

Rubi [A] time = 0.106919, antiderivative size = 62, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 23, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.043

$$-\frac{(ad+bc)^2\log(a-bx)}{2ab^3}+\frac{(bc-ad)^2\log(a+bx)}{2ab^3}-\frac{d^2x}{b^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^2/((a - b*x)*(a + b*x)),x]
```

```
[Out] -((d^2*x)/b^2) - ((b*c + a*d)^2*Log[a - b*x])/(2*a*b^3) + ((b*c -
 a*d)^2*Log[a + b*x])/(2*a*b^3)
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-d^2\int \frac{1}{b^2}\,dx+\frac{(ad-bc)^2\log(a+bx)}{2ab^3}-\frac{(ad+bc)^2\log(a-bx)}{2ab^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**2/(-b*x+a)/(b*x+a),x)
```

```
[Out] -d**2*Integral(b**(-2), x) + (a*d - b*c)**2*log(a + b*x)/(2*a*b**
3) - (a*d + b*c)**2*log(a - b*x)/(2*a*b**3)
```

Mathematica [A] time = 0.0431151, size = 54, normalized size = 0.87

$$\frac{-(ad+bc)^2\log(a-bx)+(bc-ad)^2\log(a+bx)-2abd^2x}{2ab^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^2/((a - b*x)*(a + b*x)),x]
```

```
[Out] (-2*a*b*d^2*x - (b*c + a*d)^2*Log[a - b*x] + (b*c - a*d)^2*Log[a
+ b*x])/(2*a*b^3)
```

Maple [A] time = 0.009, size = 107, normalized size = 1.7

$$-\frac{d^2x}{b^2}+\frac{a\ln(bx+a)\,d^2}{2\,b^3}-\frac{\ln(bx+a)\,cd}{b^2}+\frac{\ln(bx+a)\,c^2}{2\,ab}-\frac{a\ln(bx-a)\,d^2}{2\,b^3}-\frac{\ln(bx-a)\,cd}{b^2}-\frac{\ln(bx-a)\,c^2}{2\,ab}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^2/(-b*x+a)/(b*x+a),x)
```

```
[Out] -d^2*x/b^2+1/2/b^3*a*ln(b*x+a)*d^2-1/b^2*ln(b*x+a)*c*d+1/2/b/a*ln
(b*x+a)*c^2-1/2/b^3*a*ln(b*x-a)*d^2-1/b^2*ln(b*x-a)*c*d-1/2/b/a*l
n(b*x-a)*c^2
```

Maxima [A] time = 1.35469, size = 111, normalized size = 1.79

$$-\frac{d^2x}{b^2}+\frac{\left(b^2c^2-2\,abcd+a^2d^2\right)\log\left(bx+a\right)}{2\,ab^3}-\frac{\left(b^2c^2+2\,abcd+a^2d^2\right)\log\left(bx-a\right)}{2\,ab^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(d*x + c)^2/((b*x + a)*(b*x - a)),x, algorithm="maxima")
```

```
[Out] -d^2*x/b^2 + 1/2*(b^2*c^2 - 2*a*b*c*d + a^2*d^2)*log(b*x + a)/(a*
b^3) - 1/2*(b^2*c^2 + 2*a*b*c*d + a^2*d^2)*log(b*x - a)/(a*b^3)
```

Fricas [A] time = 0.215527, size = 103, normalized size = 1.66

$$-\frac{2\,abd^2x-\left(b^2c^2-2\,abcd+a^2d^2\right)\log\left(bx+a\right)+\left(b^2c^2+2\,abcd+a^2d^2\right)\log\left(bx-a\right)}{2\,ab^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(d*x + c)^2/((b*x + a)*(b*x - a)),x, algorithm="fricas")
```

```
[Out] -1/2*(2*a*b*d^2*x - (b^2*c^2 - 2*a*b*c*d + a^2*d^2)*log(b*x + a)
+ (b^2*c^2 + 2*a*b*c*d + a^2*d^2)*log(b*x - a))/(a*b^3)
```

Sympy [A] time = 2.71343, size = 112, normalized size = 1.81

$$-\frac{d^2x}{b^2}+\frac{(ad-bc)^2\log\left(x+\frac{2a^2cd+\frac{a(ad-bc)^2}{b}}{a^2d^2+b^2c^2}\right)}{2ab^3}-\frac{(ad+bc)^2\log\left(x+\frac{2a^2cd-\frac{a(ad+bc)^2}{b}}{a^2d^2+b^2c^2}\right)}{2ab^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**2/(-b*x+a)/(b*x+a),x)
```

```
[Out] -d**2*x/b**2 + (a*d - b*c)**2*log(x + (2*a**2*c*d + a*(a*d - b*c)
**2/b)/(a**2*d**2 + b**2*c**2))/(2*a*b**3) - (a*d + b*c)**2*log(x
 + (2*a**2*c*d - a*(a*d + b*c)**2/b)/(a**2*d**2 + b**2*c**2))/(2*
a*b**3)
```

GIAC/XCAS [A] time = 0.208208, size = 113, normalized size = 1.82

$$-\frac{d^2x}{b^2}+\frac{\left(b^2c^2-2\,abcd+a^2d^2\right)\ln\left(|bx+a|\right)}{2\,ab^3}-\frac{\left(b^2c^2+2\,abcd+a^2d^2\right)\ln\left(|bx-a|\right)}{2\,ab^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(d*x + c)^2/((b*x + a)*(b*x - a)),x, algorithm="giac")
```

```
[Out] -d^2*x/b^2 + 1/2*(b^2*c^2 - 2*a*b*c*d + a^2*d^2)*ln(abs(b*x + a))
/(a*b^3) - 1/2*(b^2*c^2 + 2*a*b*c*d + a^2*d^2)*ln(abs(b*x - a))/(
a*b^3)
```

3.1516 $\int \frac{c+dx}{(a-bx)(a+bx)}\,dx$

Optimal. Leaf size=49

$$\frac{(bc-ad)\log(a+bx)}{2ab^2}-\frac{(ad+bc)\log(a-bx)}{2ab^2}$$

```
[Out] -((b*c + a*d)*Log[a - b*x])/(2*a*b^2) + ((b*c - a*d)*Log[a + b*x]
)/(2*a*b^2)
```

Rubi [A] time = 0.0867903, antiderivative size = 49, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 21, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.048

$$\frac{(bc-ad)\log(a+bx)}{2ab^2}-\frac{(ad+bc)\log(a-bx)}{2ab^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)/((a - b*x)*(a + b*x)),x]
```

```
[Out] -((b*c + a*d)*Log[a - b*x])/(2*a*b^2) + ((b*c - a*d)*Log[a + b*x]
)/(2*a*b^2)
```

Rubi in Sympy [A] time = 10.263, size = 41, normalized size = 0.84

$$-\frac{(ad-bc)\log{(a+bx)}}{2ab^2}-\frac{(ad+bc)\log{(a-bx)}}{2ab^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)/(-b*x+a)/(b*x+a),x)
```

```
[Out] -(a*d - b*c)*log(a + b*x)/(2*a*b**2) - (a*d + b*c)*log(a - b*x)/(
2*a*b**2)
```

Mathematica [A] time = 0.0135458, size = 37, normalized size = 0.76

$$\frac{c\tanh^{-1}\left(\frac{bx}{a}\right)}{ab}-\frac{d\log\left(a^2-b^2x^2\right)}{2b^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)/((a - b*x)*(a + b*x)),x]
```

```
[Out] (c*ArcTanh[(b*x)/a])/(a*b) - (d*Log[a^2 - b^2*x^2])/(2*b^2)
```

Maple [A] time = 0.009, size = 60, normalized size = 1.2

$$-\frac{d\ln{(bx+a)}}{2\,b^2}+\frac{\ln{(bx+a)}\,c}{2\,ab}-\frac{\ln{(bx-a)}\,d}{2\,b^2}-\frac{\ln{(bx-a)}\,c}{2\,ab}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)/(-b*x+a)/(b*x+a),x)
```

```
[Out] -1/2*d/b^2*ln(b*x+a)+1/2/a/b*ln(b*x+a)*c-1/2/b^2*ln(b*x-a)*d-1/2/
a/b*ln(b*x-a)*c
```

Maxima [A] time = 1.34616, size = 62, normalized size = 1.27

$$\frac{(bc-ad)\log(bx+a)}{2\,ab^2}-\frac{(bc+ad)\log(bx-a)}{2\,ab^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(d*x + c)/((b*x + a)*(b*x - a)),x, algorithm="maxima")
```

```
[Out] 1/2*(b*c - a*d)*log(b*x + a)/(a*b^2) - 1/2*(b*c + a*d)*log(b*x -
a)/(a*b^2)
```

Fricas [A] time = 0.20685, size = 55, normalized size = 1.12

$$\frac{(bc-ad)\log(bx+a)-(bc+ad)\log(bx-a)}{2\,ab^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(d*x + c)/((b*x + a)*(b*x - a)),x, algorithm="fricas")
```

```
[Out] 1/2*((b*c - a*d)*log(b*x + a) - (b*c + a*d)*log(b*x - a))/(a*b^2)
```

Sympy [A] time = 0.912594, size = 71, normalized size = 1.45

$$-\frac{(ad-bc)\log\left(x+\frac{a^2d-a(ad-bc)}{b^2c}\right)}{2ab^2}-\frac{(ad+bc)\log\left(x+\frac{a^2d-a(ad+bc)}{b^2c}\right)}{2ab^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)/(-b*x+a)/(b*x+a),x)
```

```
[Out] -(a*d - b*c)*log(x + (a**2*d - a*(a*d - b*c))/(b**2*c))/(2*a*b**2
) - (a*d + b*c)*log(x + (a**2*d - a*(a*d + b*c))/(b**2*c))/(2*a*b
**2)
```

GIAC/XCAS [A] time = 0.207999, size = 65, normalized size = 1.33

$$\frac{(bc-ad)\ln(|bx+a|)}{2\,ab^2}-\frac{(bc+ad)\ln(|bx-a|)}{2\,ab^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(d*x + c)/((b*x + a)*(b*x - a)),x, algorithm="giac")
```

```
[Out] 1/2*(b*c - a*d)*ln(abs(b*x + a))/(a*b^2) - 1/2*(b*c + a*d)*ln(abs
(b*x - a))/(a*b^2)
```

3.1517 $\int \frac{1}{(a-bx)(a+bx)}\,dx$

Optimal. Leaf size=14

$$\frac{\tanh^{-1}\left(\frac{bx}{a}\right)}{ab}$$

```
[Out] ArcTanh[(b*x)/a]/(a*b)
```

Rubi [A] time = 0.0247027, antiderivative size = 14, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$\frac{\tanh^{-1}\left(\frac{bx}{a}\right)}{ab}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((a - b*x)*(a + b*x)),x]
```

```
[Out] ArcTanh[(b*x)/a]/(a*b)
```

Rubi in Sympy [A] time = 7.91132, size = 8, normalized size = 0.57

$$\frac{\operatorname{atanh}\left(\frac{bx}{a}\right)}{ab}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(-b*x+a)/(b*x+a),x)
```

```
[Out] atanh(b*x/a)/(a*b)
```

Mathematica [A] time = 0.00572706, size = 14, normalized size = 1.

$$\frac{\tanh^{-1}\left(\frac{bx}{a}\right)}{ab}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((a - b*x)*(a + b*x)),x]
```

```
[Out] ArcTanh[(b*x)/a]/(a*b)
```

Maple [B] time = 0.007, size = 32, normalized size = 2.3

$$\frac{\ln(bx+a)}{2\,ab}-\frac{\ln(bx-a)}{2\,ab}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(-b*x+a)/(b*x+a),x)
```

```
[Out] 1/2/b/a*ln(b*x+a)-1/2/b/a*ln(b*x-a)
```

Maxima [A] time = 1.34883, size = 42, normalized size = 3.

$$\frac{\log(bx+a)}{2\,ab} - \frac{\log(bx-a)}{2\,ab}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((b*x + a)*(b*x - a)),x, algorithm="maxima")

[Out] 1/2*log(b*x + a)/(a*b) - 1/2*log(b*x - a)/(a*b)
```

Fricas [A] time = 0.202832, size = 34, normalized size = 2.43

$$\frac{\log(bx+a) - \log(bx-a)}{2\,ab}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((b*x + a)*(b*x - a)),x, algorithm="fricas")

[Out] 1/2*(log(b*x + a) - log(b*x - a))/(a*b)
```

Sympy [A] time = 0.334351, size = 20, normalized size = 1.43

$$-\frac{\frac{\log\left(-\frac{a}{b}+x\right)}{2} - \frac{\log\left(\frac{a}{b}+x\right)}{2}}{ab}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(-b*x+a)/(b*x+a),x)

[Out] -(log(-a/b + x)/2 - log(a/b + x)/2)/(a*b)
```

GIAC/XCAS [A] time = 0.207592, size = 45, normalized size = 3.21

$$\frac{\ln(|bx+a|)}{2\,ab} - \frac{\ln(|bx-a|)}{2\,ab}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((b*x + a)*(b*x - a)),x, algorithm="giac")

[Out] 1/2*ln(abs(b*x + a))/(a*b) - 1/2*ln(abs(b*x - a))/(a*b)
```

3.1518 $\int \frac{1}{(a-bx)(a+bx)(c+dx)}\,dx$

Optimal. Leaf size=74

$$-\frac{d\log(c+dx)}{b^2c^2-a^2d^2}-\frac{\log(a-bx)}{2a(ad+bc)}+\frac{\log(a+bx)}{2a(bc-ad)}$$

```
[Out] -Log[a - b*x]/(2*a*(b*c + a*d)) + Log[a + b*x]/(2*a*(b*c - a*d))
- (d*Log[c + d*x])/(b^2*c^2 - a^2*d^2)
```

Rubi [A] time = 0.129186, antiderivative size = 74, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 23, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.043

$$-\frac{d\log(c+dx)}{b^2c^2-a^2d^2}-\frac{\log(a-bx)}{2a(ad+bc)}+\frac{\log(a+bx)}{2a(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((a - b*x)*(a + b*x)*(c + d*x)),x]
```

```
[Out] -Log[a - b*x]/(2*a*(b*c + a*d)) + Log[a + b*x]/(2*a*(b*c - a*d))
- (d*Log[c + d*x])/(b^2*c^2 - a^2*d^2)
```

Rubi in Sympy [A] time = 21.8556, size = 54, normalized size = 0.73

$$\frac{d\log(c+dx)}{a^2d^2-b^2c^2}-\frac{\log(a-bx)}{2a(ad+bc)}-\frac{\log(a+bx)}{2a(ad-bc)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(-b*x+a)/(b*x+a)/(d*x+c),x)
```

```
[Out] d*log(c + d*x)/(a**2*d**2 - b**2*c**2) - log(a - b*x)/(2*a*(a*d +
 b*c)) - log(a + b*x)/(2*a*(a*d - b*c))
```

Mathematica [A] time = 0.0541274, size = 68, normalized size = 0.92

$$\frac{(bc-ad)\log(a-bx)-(ad+bc)\log(a+bx)+2ad\log(c+dx)}{2a(ad-bc)(ad+bc)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((a - b*x)*(a + b*x)*(c + d*x)),x]
```

```
[Out] ((b*c - a*d)*Log[a - b*x] - (b*c + a*d)*Log[a + b*x] + 2*a*d*Log[
c + d*x])/(2*a*(-(b*c) + a*d)*(b*c + a*d))
```

Maple [A] time = 0.011, size = 72, normalized size = 1.

$$\frac{d\ln(dx+c)}{(ad+bc)(ad-bc)}-\frac{\ln(bx+a)}{2a(ad-bc)}-\frac{\ln(bx-a)}{2a(ad+bc)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(-b*x+a)/(b*x+a)/(d*x+c),x)
```

```
[Out] d/(a*d+b*c)/(a*d-b*c)*ln(d*x+c)-1/2/a/(a*d-b*c)*ln(b*x+a)-1/2/a/(
a*d+b*c)*ln(b*x-a)
```

Maxima [A] time = 1.34369, size = 96, normalized size = 1.3

$$-\frac{d\log\left(dx+c\right)}{b^2c^2-a^2d^2}+\frac{\log\left(bx+a\right)}{2\left(abc-a^2d\right)}-\frac{\log\left(bx-a\right)}{2\left(abc+a^2d\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((b*x + a)*(b*x - a)*(d*x + c)),x, algorithm="maxima")
```

```
[Out] -d*log(d*x + c)/(b^2*c^2 - a^2*d^2) + 1/2*log(b*x + a)/(a*b*c - a
^2*d) - 1/2*log(b*x - a)/(a*b*c + a^2*d)
```

Fricas [A] time = 0.239294, size = 86, normalized size = 1.16

$$-\frac{2\,ad\log\left(dx+c\right)-\left(bc+ad\right)\log\left(bx+a\right)+\left(bc-ad\right)\log\left(bx-a\right)}{2\left(ab^2c^2-a^3d^2\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((b*x + a)*(b*x - a)*(d*x + c)),x, algorithm="fricas")
```

```
[Out] -1/2*(2*a*d*log(d*x + c) - (b*c + a*d)*log(b*x + a) + (b*c - a*d)
*log(b*x - a))/(a*b^2*c^2 - a^3*d^2)
```

Sympy [A] time = 12.1517, size = 668, normalized size = 9.03

$$\frac{d\log\left(x+\frac{\frac{12a^8d^8}{(ad-bc)^2(ad+bc)^2}-\frac{20a^6b^2c^2d^6}{(ad-bc)^2(ad+bc)^2}-\frac{6a^6d^6}{(ad-bc)(ad+bc)}+\frac{4a^4b^4c^4d^4}{(ad-bc)^2(ad+bc)^2}+\frac{12a^4b^2c^2d^4}{(ad-bc)(ad+bc)}-6a^4d^4+\frac{4a^2b^6c^6d^2}{(ad-bc)^2(ad+bc)^2}-\frac{6a^2b^4c^4d^2}{(ad-bc)(ad+bc)}-a^2b^2c^2d^2-b^4c^4}{9a^2b^2cd^3-b^4c^3d}\right)}{\left(ad-bc\right)\left(ad+bc\right)}$$
$$-\frac{\log\left(x+\frac{\frac{3a^6d^6}{(ad+bc)^2}+\frac{3a^5d^5}{ad+bc}-\frac{5a^4b^2c^2d^4}{(ad+bc)^2}-6a^4d^4-\frac{6a^3b^2c^2d^3}{ad+bc}+\frac{a^2b^4c^4d^2}{(ad+bc)^2}-a^2b^2c^2d^2+\frac{3ab^4c^4d}{ad+bc}+\frac{b^6c^6}{(ad+bc)^2}-b^4c^4}{9a^2b^2cd^3-b^4c^3d}\right)}{2a\left(ad+bc\right)}$$
$$-\frac{\log\left(x+\frac{\frac{3a^6d^6}{(ad-bc)^2}+\frac{3a^5d^5}{ad-bc}-\frac{5a^4b^2c^2d^4}{(ad-bc)^2}-6a^4d^4-\frac{6a^3b^2c^2d^3}{ad-bc}+\frac{a^2b^4c^4d^2}{(ad-bc)^2}-a^2b^2c^2d^2+\frac{3ab^4c^4d}{ad-bc}+\frac{b^6c^6}{(ad-bc)^2}-b^4c^4}{9a^2b^2cd^3-b^4c^3d}\right)}{2a\left(ad-bc\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(-b*x+a)/(b*x+a)/(d*x+c),x)
```

```
[Out] d*log(x + (12*a**8*d**8/((a*d - b*c)**2*(a*d + b*c)**2) - 20*a**6
*b**2*c**2*d**6/((a*d - b*c)**2*(a*d + b*c)**2) - 6*a**6*d**6/((a
*d - b*c)*(a*d + b*c)) + 4*a**4*b**4*c**4*d**4/((a*d - b*c)**2*(a
*d + b*c)**2) + 12*a**4*b**2*c**2*d**4/((a*d - b*c)*(a*d + b*c))
- 6*a**4*d**4 + 4*a**2*b**6*c**6*d**2/((a*d - b*c)**2*(a*d + b*c)
**2) - 6*a**2*b**4*c**4*d**2/((a*d - b*c)*(a*d + b*c)) - a**2*b**
2*c**2*d**2 - b**4*c**4)/(9*a**2*b**2*c*d**3 - b**4*c**3*d))/((a*
d - b*c)*(a*d + b*c)) - log(x + (3*a**6*d**6/(a*d + b*c)**2 + 3*a
**5*d**5/(a*d + b*c) - 5*a**4*b**2*c**2*d**4/(a*d + b*c)**2 - 6*a
**4*d**4 - 6*a**3*b**2*c**2*d**3/(a*d + b*c) + a**2*b**4*c**4*d**
2/(a*d + b*c)**2 - a**2*b**2*c**2*d**2 + 3*a*b**4*c**4*d/(a*d + b
*c) + b**6*c**6/(a*d + b*c)**2 - b**4*c**4)/(9*a**2*b**2*c*d**3 -
 b**4*c**3*d))/(2*a*(a*d + b*c)) - log(x + (3*a**6*d**6/(a*d - b*
c)**2 + 3*a**5*d**5/(a*d - b*c) - 5*a**4*b**2*c**2*d**4/(a*d - b*
```

```
c)**2 - 6*a**4*d**4 - 6*a**3*b**2*c**2*d**3/(a*d - b*c) + a**2*b*
*4*c**4*d**2/(a*d - b*c)**2 - a**2*b**2*c**2*d**2 + 3*a*b**4*c**4
*d/(a*d - b*c) + b**6*c**6/(a*d - b*c)**2 - b**4*c**4)/(9*a**2*b*
*2*c*d**3 - b**4*c**3*d))/(2*a*(a*d - b*c))
```

GIAC/XCAS [A] time = 0.207777, size = 126, normalized size = 1.7

$$\frac{b^2\ln\left(|bx+a|\right)}{2\left(ab^3c-a^2b^2d\right)}-\frac{b^2\ln\left(|bx-a|\right)}{2\left(ab^3c+a^2b^2d\right)}-\frac{d^2\ln\left(|dx+c|\right)}{b^2c^2d-a^2d^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((b*x + a)*(b*x - a)*(d*x + c)),x, algorithm="giac")
```

```
[Out] 1/2*b^2*ln(abs(b*x + a))/(a*b^3*c - a^2*b^2*d) - 1/2*b^2*ln(abs(b
*x - a))/(a*b^3*c + a^2*b^2*d) - d^2*ln(abs(d*x + c))/(b^2*c^2*d
- a^2*d^3)
```

3.1519 $\int \frac{1}{(a-bx)(a+bx)(c+dx)^2}\,dx$

Optimal. Leaf size=107

$$\frac{d}{(c+dx)\left(b^2c^2-a^2d^2\right)}-\frac{2b^2cd\log(c+dx)}{\left(b^2c^2-a^2d^2\right)^2}-\frac{b\log(a-bx)}{2a(ad+bc)^2}+\frac{b\log(a+bx)}{2a(bc-ad)^2}$$

```
[Out] d/((b^2*c^2 - a^2*d^2)*(c + d*x)) - (b*Log[a - b*x])/(2*a*(b*c +
a*d)^2) + (b*Log[a + b*x])/(2*a*(b*c - a*d)^2) - (2*b^2*c*d*Log[c
 + d*x])/(b^2*c^2 - a^2*d^2)^2
```

Rubi [A] time = 0.191868, antiderivative size = 107, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 23, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.043

$$\frac{d}{(c+dx)\left(b^2c^2-a^2d^2\right)}-\frac{2b^2cd\log(c+dx)}{\left(b^2c^2-a^2d^2\right)^2}-\frac{b\log(a-bx)}{2a(ad+bc)^2}+\frac{b\log(a+bx)}{2a(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((a - b*x)*(a + b*x)*(c + d*x)^2),x]
```

```
[Out] d/((b^2*c^2 - a^2*d^2)*(c + d*x)) - (b*Log[a - b*x])/(2*a*(b*c +
a*d)^2) + (b*Log[a + b*x])/(2*a*(b*c - a*d)^2) - (2*b^2*c*d*Log[c
 + d*x])/(b^2*c^2 - a^2*d^2)^2
```

Rubi in Sympy [A] time = 48.9866, size = 90, normalized size = 0.84

$$-\frac{2b^2cd\log{(c+dx)}}{\left(a^2d^2-b^2c^2\right)^2}-\frac{d}{(c+dx)\left(a^2d^2-b^2c^2\right)}-\frac{b\log{(a-bx)}}{2a\,(ad+bc)^2}+\frac{b\log{(a+bx)}}{2a\,(ad-bc)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(-b*x+a)/(b*x+a)/(d*x+c)**2,x)
```

```
[Out] -2*b**2*c*d*log(c + d*x)/(a**2*d**2 - b**2*c**2)**2 - d/((c + d*x
)*(a**2*d**2 - b**2*c**2)) - b*log(a - b*x)/(2*a*(a*d + b*c)**2)
+ b*log(a + b*x)/(2*a*(a*d - b*c)**2)
```

Mathematica [A] time = 0.338671, size = 102, normalized size = 0.95

$$\frac{1}{2}\left(\frac{\frac{b\log(a+bx)}{a}-\frac{2d\left(a^2d^2+b^2\left(-c^2\right)+2b^2c(c+dx)\log(c+dx)\right)}{(c+dx)(ad+bc)^2}}{(bc-ad)^2}-\frac{b\log(a-bx)}{a(ad+bc)^2}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((a - b*x)*(a + b*x)*(c + d*x)^2),x]
```

```
[Out] (-((b*Log[a - b*x])/(a*(b*c + a*d)^2)) + ((b*Log[a + b*x])/a - (2
*d*(-(b^2*c^2) + a^2*d^2 + 2*b^2*c*(c + d*x)*Log[c + d*x]))/((b*c
 + a*d)^2*(c + d*x)))/(b*c - a*d)^2)/2
```

Maple [A] time = 0.029, size = 108, normalized size = 1.

$$-\frac{d}{(ad+bc)\,(ad-bc)\,(dx+c)}-2\,\frac{b^2dc\ln{(dx+c)}}{(ad+bc)^2\,(ad-bc)^2}+\frac{b\ln{(bx+a)}}{2\,a\,(ad-bc)^2}-\frac{b\ln{(bx-a)}}{2\,a\,(ad+bc)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(-b*x+a)/(b*x+a)/(d*x+c)^2,x)
```

```
[Out] -d/(a*d+b*c)/(a*d-b*c)/(d*x+c)-2*d*b^2*c/(a*d+b*c)^2/(a*d-b*c)^2*
ln(d*x+c)+1/2/a*b/(a*d-b*c)^2*ln(b*x+a)-1/2/a*b/(a*d+b*c)^2*ln(b*
x-a)
```

Maxima [A] time = 1.35573, size = 212, normalized size = 1.98

$$-\frac{2\,b^2cd\log\left(dx+c\right)}{b^4c^4-2\,a^2b^2c^2d^2+a^4d^4}+\frac{b\log\left(bx+a\right)}{2\,(ab^2c^2-2\,a^2bcd+a^3d^2)}-\frac{b\log\left(bx-a\right)}{2\,(ab^2c^2+2\,a^2bcd+a^3d^2)}+\frac{d}{b^2c^3-a^2cd^2+(b^2c^2d-a^2d^3)x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((b*x + a)*(b*x - a)*(d*x + c)^2),x, algorithm="maxima")
```

```
[Out] -2*b^2*c*d*log(d*x + c)/(b^4*c^4 - 2*a^2*b^2*c^2*d^2 + a^4*d^4) +
 1/2*b*log(b*x + a)/(a*b^2*c^2 - 2*a^2*b*c*d + a^3*d^2) - 1/2*b*l
og(b*x - a)/(a*b^2*c^2 + 2*a^2*b*c*d + a^3*d^2) + d/(b^2*c^3 - a^
2*c*d^2 + (b^2*c^2*d - a^2*d^3)*x)
```

Fricas [A] time = 0.712819, size = 329, normalized size = 3.07

$$\frac{2\,ab^2c^2d-2\,a^3d^3+\left(b^3c^3+2\,ab^2c^2d+a^2bcd^2+\left(b^3c^2d+2\,ab^2cd^2+a^2bd^3\right)x\right)\log\left(bx+a\right)-\left(b^3c^3-2\,ab^2c^2d+a^2bcd^2+(b\right.}{2\,(ab^4c^5-2\,a^3b^2c^3d^2+a^5cd^4+(ab^4c^4d-2\,a^3b^2c^2d^3+}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((b*x + a)*(b*x - a)*(d*x + c)^2),x, algorithm="fricas")
```

```
[Out] 1/2*(2*a*b^2*c^2*d - 2*a^3*d^3 + (b^3*c^3 + 2*a*b^2*c^2*d + a^2*b
*c*d^2 + (b^3*c^2*d + 2*a*b^2*c*d^2 + a^2*b*d^3)*x)*log(b*x + a)
- (b^3*c^3 - 2*a*b^2*c^2*d + a^2*b*c*d^2 + (b^3*c^2*d - 2*a*b^2*c
*d^2 + a^2*b*d^3)*x)*log(b*x - a) - 4*(a*b^2*c*d^2*x + a*b^2*c^2*
d)*log(d*x + c))/(a*b^4*c^5 - 2*a^3*b^2*c^3*d^2 + a^5*c*d^4 + (a*
b^4*c^4*d - 2*a^3*b^2*c^2*d^3 + a^5*d^5)*x)
```

Sympy [A] time = 59.6231, size = 1232, normalized size = 11.51

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(-b*x+a)/(b*x+a)/(d*x+c)**2,x)
```

```
[Out] -2*b**2*c*d*log(x + (-112*a**12*b**4*c**3*d**12/((a*d - b*c)**4*(
a*d + b*c)**4) + 432*a**10*b**6*c**5*d**10/((a*d - b*c)**4*(a*d +
 b*c)**4) - 4*a**10*b**2*c*d**10/((a*d - b*c)**2*(a*d + b*c)**2)
- 608*a**8*b**8*c**7*d**8/((a*d - b*c)**4*(a*d + b*c)**4) + 32*a*
*8*b**4*c**3*d**8/((a*d - b*c)**2*(a*d + b*c)**2) + 352*a**6*b**1
0*c**9*d**6/((a*d - b*c)**4*(a*d + b*c)**4) - 72*a**6*b**6*c**5*d
**6/((a*d - b*c)**2*(a*d + b*c)**2) + 5*a**6*b**2*c*d**6 - 48*a**
4*b**12*c**11*d**4/((a*d - b*c)**4*(a*d + b*c)**4) + 64*a**4*b**8
*c**7*d**4/((a*d - b*c)**2*(a*d + b*c)**2) + 55*a**4*b**4*c**3*d*
*4 - 16*a**2*b**14*c**13*d**2/((a*d - b*c)**4*(a*d + b*c)**4) - 2
0*a**2*b**10*c**9*d**2/((a*d - b*c)**2*(a*d + b*c)**2) + 3*a**2*b
```

```
**6*c**5*d**2 + b**8*c**7)/(a**6*b**2*d**7 - 33*a**4*b**4*c**2*d*
*5 - 33*a**2*b**6*c**4*d**3 + b**8*c**6*d))/((a*d - b*c)**2*(a*d
+ b*c)**2) - d/(a**2*c*d**2 - b**2*c**3 + x*(a**2*d**3 - b**2*c**
2*d)) - b*log(x + (-7*a**10*b**2*c*d**10/(a*d + b*c)**4 - a**9*b*
d**9/(a*d + b*c)**2 + 27*a**8*b**4*c**3*d**8/(a*d + b*c)**4 + 8*a
**7*b**3*c**2*d**7/(a*d + b*c)**2 - 38*a**6*b**6*c**5*d**6/(a*d +
 b*c)**4 + 5*a**6*b**2*c*d**6 - 18*a**5*b**5*c**4*d**5/(a*d + b*c
)**2 + 22*a**4*b**8*c**7*d**4/(a*d + b*c)**4 + 55*a**4*b**4*c**3*
d**4 + 16*a**3*b**7*c**6*d**3/(a*d + b*c)**2 - 3*a**2*b**10*c**9*
d**2/(a*d + b*c)**4 + 3*a**2*b**6*c**5*d**2 - 5*a*b**9*c**8*d/(a*
d + b*c)**2 - b**12*c**11/(a*d + b*c)**4 + b**8*c**7)/(a**6*b**2*
d**7 - 33*a**4*b**4*c**2*d**5 - 33*a**2*b**6*c**4*d**3 + b**8*c**
6*d))/(2*a*(a*d + b*c)**2) + b*log(x + (-7*a**10*b**2*c*d**10/(a*
d - b*c)**4 + a**9*b*d**9/(a*d - b*c)**2 + 27*a**8*b**4*c**3*d**8
/(a*d - b*c)**4 - 8*a**7*b**3*c**2*d**7/(a*d - b*c)**2 - 38*a**6*
b**6*c**5*d**6/(a*d - b*c)**4 + 5*a**6*b**2*c*d**6 + 18*a**5*b**5
*c**4*d**5/(a*d - b*c)**2 + 22*a**4*b**8*c**7*d**4/(a*d - b*c)**4
 + 55*a**4*b**4*c**3*d**4 - 16*a**3*b**7*c**6*d**3/(a*d - b*c)**2
 - 3*a**2*b**10*c**9*d**2/(a*d - b*c)**4 + 3*a**2*b**6*c**5*d**2
+ 5*a*b**9*c**8*d/(a*d - b*c)**2 - b**12*c**11/(a*d - b*c)**4 + b
**8*c**7)/(a**6*b**2*d**7 - 33*a**4*b**4*c**2*d**5 - 33*a**2*b**6
*c**4*d**3 + b**8*c**6*d))/(2*a*(a*d - b*c)**2)
```

GIAC/XCAS [A] time = 0.232711, size = 385, normalized size = 3.6

$$\frac{b^2 cd \ln\left(\left|b^2 - \frac{2\,b^2 c}{dx+c} + \frac{b^2 c^2}{(dx+c)^2} - \frac{a^2 d^2}{(dx+c)^2}\right|\right)}{b^4 c^4 - 2\,a^2 b^2 c^2 d^2 + a^4 d^4} + \frac{d^3}{(b^2 c^2 d^2 - a^2 d^4)(dx+c)} - \frac{\left(b^4 c^2 d^2 + a^2 b^2 d^4\right)\ln\left(\frac{\left|2\,b^2 cd - \frac{2\,b^2 c^2 d}{dx+c} + \frac{2\,a^2 d^3}{dx+c} - 2\,d^2 |a||b|\right|}{\left|2\,b^2 cd - \frac{2\,b^2 c^2 d}{dx+c} + \frac{2\,a^2 d^3}{dx+c} + 2\,d^2 |a||b|\right|}\right)}{2\,(b^4 c^4 - 2\,a^2 b^2 c^2 d^2 + a^4 d^4) d^2 |a||b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((b*x + a)*(b*x - a)*(d*x + c)^2),x, algorithm="giac")
```

```
[Out] b^2*c*d*ln(abs(b^2 - 2*b^2*c/(d*x + c) + b^2*c^2/(d*x + c)^2 - a^
2*d^2/(d*x + c)^2))/(b^4*c^4 - 2*a^2*b^2*c^2*d^2 + a^4*d^4) + d^3
/((b^2*c^2*d^2 - a^2*d^4)*(d*x + c)) - 1/2*(b^4*c^2*d^2 + a^2*b^2
*d^4)*ln(abs(2*b^2*c*d - 2*b^2*c^2*d/(d*x + c) + 2*a^2*d^3/(d*x +
 c) - 2*d^2*abs(a)*abs(b))/abs(2*b^2*c*d - 2*b^2*c^2*d/(d*x + c)
+ 2*a^2*d^3/(d*x + c) + 2*d^2*abs(a)*abs(b)))/((b^4*c^4 - 2*a^2*b
^2*c^2*d^2 + a^4*d^4)*d^2*abs(a)*abs(b))
```

3.1520 $\int \frac{1}{(a-bx)(a+bx)(c+dx)^3} dx$

Optimal. Leaf size=161

$$\frac{2b^2cd}{(c+dx)(b^2c^2-a^2d^2)^2}+\frac{d}{2(c+dx)^2(b^2c^2-a^2d^2)}-\frac{b^2d(a^2d^2+3b^2c^2)\log(c+dx)}{(b^2c^2-a^2d^2)^3}-\frac{b^2\log(a-bx)}{2a(ad+bc)^3}+\frac{b^2\log(a+bx)}{2a(bc-ad)^3}$$

```
[Out] d/(2*(b^2*c^2 - a^2*d^2)*(c + d*x)^2) + (2*b^2*c*d)/((b^2*c^2 - a
^2*d^2)^2*(c + d*x)) - (b^2*Log[a - b*x])/(2*a*(b*c + a*d)^3) + (
b^2*Log[a + b*x])/(2*a*(b*c - a*d)^3) - (b^2*d*(3*b^2*c^2 + a^2*d
^2)*Log[c + d*x])/(b^2*c^2 - a^2*d^2)^3
```

Rubi [A] time = 0.306157, antiderivative size = 161, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 23, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.043

$$\frac{2b^2cd}{(c+dx)(b^2c^2-a^2d^2)^2}+\frac{d}{2(c+dx)^2(b^2c^2-a^2d^2)}-\frac{b^2d(a^2d^2+3b^2c^2)\log(c+dx)}{(b^2c^2-a^2d^2)^3}-\frac{b^2\log(a-bx)}{2a(ad+bc)^3}+\frac{b^2\log(a+bx)}{2a(bc-ad)^3}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((a - b*x)*(a + b*x)*(c + d*x)^3),x]
```

```
[Out] d/(2*(b^2*c^2 - a^2*d^2)*(c + d*x)^2) + (2*b^2*c*d)/((b^2*c^2 - a
^2*d^2)^2*(c + d*x)) - (b^2*Log[a - b*x])/(2*a*(b*c + a*d)^3) + (
b^2*Log[a + b*x])/(2*a*(b*c - a*d)^3) - (b^2*d*(3*b^2*c^2 + a^2*d
^2)*Log[c + d*x])/(b^2*c^2 - a^2*d^2)^3
```

Rubi in Sympy [A] time = 69.1857, size = 143, normalized size = 0.89

$$\frac{2b^2cd}{(c+dx)(ad-bc)^2(ad+bc)^2}+\frac{b^2d\left(a^2d^2+3b^2c^2\right)\log(c+dx)}{(ad-bc)^3(ad+bc)^3}-\frac{d}{(c+dx)^2(2a^2d^2-2b^2c^2)}-\frac{b^2\log(a-bx)}{2a(ad+bc)^3}-\frac{b^2\log(a+bx)}{2a(ad-bc)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(-b*x+a)/(b*x+a)/(d*x+c)**3,x)
```

```
[Out] 2*b**2*c*d/((c + d*x)*(a*d - b*c)**2*(a*d + b*c)**2) + b**2*d*(a*
*2*d**2 + 3*b**2*c**2)*log(c + d*x)/((a*d - b*c)**3*(a*d + b*c)**
3) - d/((c + d*x)**2*(2*a**2*d**2 - 2*b**2*c**2)) - b**2*log(a -
b*x)/(2*a*(a*d + b*c)**3) - b**2*log(a + b*x)/(2*a*(a*d - b*c)**3
)
```

Mathematica [A] time = 0.526395, size = 147, normalized size = 0.91

$$\frac{1}{2}\left(\frac{d\left(\frac{(b^2c^2-a^2d^2)(b^2c(5c+4dx)-a^2d^2)}{(c+dx)^2}-2\left(a^2b^2d^2+3b^4c^2\right)\log(c+dx)\right)}{(b^2c^2-a^2d^2)^3}-\frac{b^2\log(a-bx)}{a(ad+bc)^3}-\frac{b^2\log(a+bx)}{a(ad-bc)^3}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((a - b*x)*(a + b*x)*(c + d*x)^3),x]
```

```
[Out] (-((b^2*Log[a - b*x])/(a*(b*c + a*d)^3)) - (b^2*Log[a + b*x])/(a*
(-(b*c) + a*d)^3) + (d*(((b^2*c^2 - a^2*d^2)*(-(a^2*d^2) + b^2*c*
(5*c + 4*d*x)))/(c + d*x)^2 - 2*(3*b^4*c^2 + a^2*b^2*d^2)*Log[c +
 d*x]))/(b^2*c^2 - a^2*d^2)^3)/2
```

Maple [A] time = 0.017, size = 182, normalized size = 1.1

$$-\frac{d}{(2\,ad+2\,bc)\,(ad-bc)\,(dx+c)^{2}}+\frac{d^{3}b^{2}\ln(dx+c)\,a^{2}}{(ad+bc)^{3}\,(ad-bc)^{3}}+3\,\frac{db^{4}\ln(dx+c)\,c^{2}}{(ad+bc)^{3}\,(ad-bc)^{3}}+2\,\frac{b^{2}dc}{(ad+bc)^{2}\,(ad-bc)^{2}\,(dx+c)}-\frac{b^{2}\ln(bx+a)}{2\,a\,(ad-bc)^{3}}-\frac{b^{2}\ln(bx-a)}{2\,a\,(ad+bc)^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(-b*x+a)/(b*x+a)/(d*x+c)^3,x)
```

```
[Out] -1/2*d/(a*d+b*c)/(a*d-b*c)/(d*x+c)^2+d^3*b^2/(a*d+b*c)^3/(a*d-b*c
)^3*ln(d*x+c)*a^2+3*d*b^4/(a*d+b*c)^3/(a*d-b*c)^3*ln(d*x+c)*c^2+2
*d*b^2*c/(a*d+b*c)^2/(a*d-b*c)^2/(d*x+c)-1/2/a*b^2/(a*d-b*c)^3*ln
(b*x+a)-1/2/a*b^2/(a*d+b*c)^3*ln(b*x-a)
```

Maxima [A] time = 1.38006, size = 424, normalized size = 2.63

$$\frac{b^{2}\log(bx+a)}{2\,(ab^{3}c^{3}-3\,a^{2}b^{2}c^{2}d+3\,a^{3}bcd^{2}-a^{4}d^{3})}-\frac{b^{2}\log(bx-a)}{2\,(ab^{3}c^{3}+3\,a^{2}b^{2}c^{2}d+3\,a^{3}bcd^{2}+a^{4}d^{3})}-\frac{\left(3\,b^{4}c^{2}d+a^{2}b^{2}d^{3}\right)\log(dx+c)}{b^{6}c^{6}-3\,a^{2}b^{4}c^{4}d^{2}+3\,a^{4}b^{2}c^{2}d^{4}-a^{6}d^{6}}+\frac{4\,b^{2}cd^{2}x+5\,b^{2}c^{2}d-a^{2}d^{3}}{2\,(b^{4}c^{6}-2\,a^{2}b^{2}c^{4}d^{2}+a^{4}c^{2}d^{4}+(b^{4}c^{4}d^{2}-2\,a^{2}b^{2}c^{2}d^{4}+a^{4}d^{6})x^{2}+2\,(b^{4}c^{5}d-2\,a^{2}b^{2}c^{3}d^{3}+a^{4}cd^{5})x)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((b*x + a)*(b*x - a)*(d*x + c)^3),x, algorithm="maxima")
```

```
[Out] 1/2*b^2*log(b*x + a)/(a*b^3*c^3 - 3*a^2*b^2*c^2*d + 3*a^3*b*c*d^2
 - a^4*d^3) - 1/2*b^2*log(b*x - a)/(a*b^3*c^3 + 3*a^2*b^2*c^2*d +
 3*a^3*b*c*d^2 + a^4*d^3) - (3*b^4*c^2*d + a^2*b^2*d^3)*log(d*x +
 c)/(b^6*c^6 - 3*a^2*b^4*c^4*d^2 + 3*a^4*b^2*c^2*d^4 - a^6*d^6) +
 1/2*(4*b^2*c*d^2*x + 5*b^2*c^2*d - a^2*d^3)/(b^4*c^6 - 2*a^2*b^2
*c^4*d^2 + a^4*c^2*d^4 + (b^4*c^4*d^2 - 2*a^2*b^2*c^2*d^4 + a^4*d
^6)*x^2 + 2*(b^4*c^5*d - 2*a^2*b^2*c^3*d^3 + a^4*c*d^5)*x)
```

Fricas [A] time = 4.90194, size = 817, normalized size = 5.07

$$5\,ab^{4}c^{4}d-6\,a^{3}b^{2}c^{2}d^{3}+a^{5}d^{5}+4\left(ab^{4}c^{3}d^{2}-a^{3}b^{2}cd^{4}\right)x+\left(b^{5}c^{5}+3\,ab^{4}c^{4}d+3\,a^{2}b^{3}c^{3}d^{2}+a^{3}b^{2}c^{2}d^{3}+\left(b^{5}c^{3}d^{2}+3\,ab^{4}c^{2}d^{3}+\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((b*x + a)*(b*x - a)*(d*x + c)^3),x, algorithm="fricas")
```

```
[Out] 1/2*(5*a*b^4*c^4*d - 6*a^3*b^2*c^2*d^3 + a^5*d^5 + 4*(a*b^4*c^3*d
^2 - a^3*b^2*c*d^4)*x + (b^5*c^5 + 3*a*b^4*c^4*d + 3*a^2*b^3*c^3*
d^2 + a^3*b^2*c^2*d^3 + (b^5*c^3*d^2 + 3*a*b^4*c^2*d^3 + 3*a^2*b^
3*c*d^4 + a^3*b^2*d^5)*x^2 + 2*(b^5*c^4*d + 3*a*b^4*c^3*d^2 + 3*a
```

```
^2*b^3*c^2*d^3 + a^3*b^2*c*d^4)*x)*log(b*x + a) - (b^5*c^5 - 3*a*
b^4*c^4*d + 3*a^2*b^3*c^3*d^2 - a^3*b^2*c^2*d^3 + (b^5*c^3*d^2 -
3*a*b^4*c^2*d^3 + 3*a^2*b^3*c*d^4 - a^3*b^2*d^5)*x^2 + 2*(b^5*c^4
*d - 3*a*b^4*c^3*d^2 + 3*a^2*b^3*c^2*d^3 - a^3*b^2*c*d^4)*x)*log(
b*x - a) - 2*(3*a*b^4*c^4*d + a^3*b^2*c^2*d^3 + (3*a*b^4*c^2*d^3
+ a^3*b^2*d^5)*x^2 + 2*(3*a*b^4*c^3*d^2 + a^3*b^2*c*d^4)*x)*log(d
*x + c))/(a*b^6*c^8 - 3*a^3*b^4*c^6*d^2 + 3*a^5*b^2*c^4*d^4 - a^7
*c^2*d^6 + (a*b^6*c^6*d^2 - 3*a^3*b^4*c^4*d^4 + 3*a^5*b^2*c^2*d^6
 - a^7*d^8)*x^2 + 2*(a*b^6*c^7*d - 3*a^3*b^4*c^5*d^3 + 3*a^5*b^2*
c^3*d^5 - a^7*c*d^7)*x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(-b*x+a)/(b*x+a)/(d*x+c)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.208908, size = 374, normalized size = 2.32

$$\frac{b^3\ln(|bx+a|)}{2\,(ab^4c^3-3\,a^2b^3c^2d+3\,a^3b^2cd^2-a^4bd^3)}-\frac{b^3\ln(|bx-a|)}{2\,(ab^4c^3+3\,a^2b^3c^2d+3\,a^3b^2cd^2+a^4bd^3)}-\frac{(3\,b^4c^2d^2+a^2b^2d^4)\ln(|dx+c|)}{b^6c^6d-3\,a^2b^4c^4d^3+3\,a^4b^2c^2d^5-a^6d^7}+\frac{5\,b^4c^4d-6\,a^2b^2c^2d^3+a^4d^5+4\,(b^4c^3d^2-a^2b^2cd^4)\,x}{2\,(bc+ad)^3(bc-ad)^3(dx+c)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((b*x + a)*(b*x - a)*(d*x + c)^3),x, algorithm="giac")
```

```
[Out] 1/2*b^3*ln(abs(b*x + a))/(a*b^4*c^3 - 3*a^2*b^3*c^2*d + 3*a^3*b^2
*c*d^2 - a^4*b*d^3) - 1/2*b^3*ln(abs(b*x - a))/(a*b^4*c^3 + 3*a^2
*b^3*c^2*d + 3*a^3*b^2*c*d^2 + a^4*b*d^3) - (3*b^4*c^2*d^2 + a^2*
b^2*d^4)*ln(abs(d*x + c))/(b^6*c^6*d - 3*a^2*b^4*c^4*d^3 + 3*a^4*
b^2*c^2*d^5 - a^6*d^7) + 1/2*(5*b^4*c^4*d - 6*a^2*b^2*c^2*d^3 + a
^4*d^5 + 4*(b^4*c^3*d^2 - a^2*b^2*c*d^4)*x)/((b*c + a*d)^3*(b*c -
 a*d)^3*(d*x + c)^2)
```

3.1521 $\int \frac{(2+3x)^8(3+5x)}{(1-2x)^2}\,dx$

Optimal. Leaf size=76

$$\frac{32805x^8}{32}+\frac{56862x^7}{7}+\frac{976617x^6}{32}+\frac{5859459x^5}{80}+\frac{32991057x^4}{256}+\frac{5892813x^3}{32}+\frac{122887143x^2}{512}+\frac{91609881x}{256}+\frac{63412811}{1024(1-2x)}+\frac{246239357\log(1-2x)}{1024}$$

```
[Out] 63412811/(1024*(1 - 2*x)) + (91609881*x)/256 + (122887143*x^2)/51
2 + (5892813*x^3)/32 + (32991057*x^4)/256 + (5859459*x^5)/80 + (9
76617*x^6)/32 + (56862*x^7)/7 + (32805*x^8)/32 + (246239357*Log[1
 - 2*x])/1024
```

Rubi [A] time = 0.0900259, antiderivative size = 76, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{32805x^8}{32}+\frac{56862x^7}{7}+\frac{976617x^6}{32}+\frac{5859459x^5}{80}+\frac{32991057x^4}{256}+\frac{5892813x^3}{32}+\frac{122887143x^2}{512}+\frac{91609881x}{256}+\frac{63412811}{1024(1-2x)}+\frac{246239357\log(1-2x)}{1024}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^8*(3 + 5*x))/(1 - 2*x)^2,x]
```

```
[Out] 63412811/(1024*(1 - 2*x)) + (91609881*x)/256 + (122887143*x^2)/51
2 + (5892813*x^3)/32 + (32991057*x^4)/256 + (5859459*x^5)/80 + (9
76617*x^6)/32 + (56862*x^7)/7 + (32805*x^8)/32 + (246239357*Log[1
 - 2*x])/1024
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{32805x^8}{32}+\frac{56862x^7}{7}+\frac{976617x^6}{32}+\frac{5859459x^5}{80}+\frac{32991057x^4}{256}+\frac{5892813x^3}{32}+\frac{246239357\log(-2x+1)}{1024}+\int\frac{91609881}{256}\,dx+\frac{122887143\int x\,dx}{256}+\frac{63412811}{1024(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**8*(3+5*x)/(1-2*x)**2,x)
```

```
[Out] 32805*x**8/32 + 56862*x**7/7 + 976617*x**6/32 + 5859459*x**5/80 +
 32991057*x**4/256 + 5892813*x**3/32 + 246239357*log(-2*x + 1)/10
24 + Integral(91609881/256, x) + 122887143*Integral(x, x)/256 + 6
3412811/(1024*(-2*x + 1))
```

Mathematica [A] time = 0.0269714, size = 69, normalized size = 0.91

$$\frac{587865600x^9+4364202240x^8+15171909120x^7+33250113792x^6+52899666624x^5+68649225120x^4+84833995680x^3+1}{286720(2x-1)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^8*(3 + 5*x))/(1 - 2*x)^2,x]
```

```
[Out] (60471800653 - 259057842186*x + 136389333360*x^2 + 84833995680*x^
3 + 68649225120*x^4 + 52899666624*x^5 + 33250113792*x^6 + 1517190
9120*x^7 + 4364202240*x^8 + 587865600*x^9 + 68947019960*(-1 + 2*x
)*Log[1 - 2*x])/(286720*(-1 + 2*x))
```

Maple [A] time = 0.01, size = 57, normalized size = 0.8

$$\frac{32805\,x^8}{32}+\frac{56862\,x^7}{7}+\frac{976617\,x^6}{32}+\frac{5859459\,x^5}{80}+\frac{32991057\,x^4}{256}+\frac{5892813\,x^3}{32}+\frac{122887143\,x^2}{512}+\frac{91609881\,x}{256}-\frac{63412811}{-1024+2048\,x}+\frac{246239357\,\ln(-1+2\,x)}{1024}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^8*(3+5*x)/(1-2*x)^2,x)
```

```
[Out] 32805/32*x^8+56862/7*x^7+976617/32*x^6+5859459/80*x^5+32991057/25
6*x^4+5892813/32*x^3+122887143/512*x^2+91609881/256*x-63412811/10
24/(-1+2*x)+246239357/1024*ln(-1+2*x)
```

Maxima [A] time = 1.34686, size = 76, normalized size = 1.

$$\frac{32805}{32}\,x^8+\frac{56862}{7}\,x^7+\frac{976617}{32}\,x^6+\frac{5859459}{80}\,x^5+\frac{32991057}{256}\,x^4+\frac{5892813}{32}\,x^3+\frac{122887143}{512}\,x^2+\frac{91609881}{256}\,x-\frac{63412811}{1024\,(2\,x-1)}+\frac{246239357}{1024}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^8/(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 32805/32*x^8 + 56862/7*x^7 + 976617/32*x^6 + 5859459/80*x^5 + 329
91057/256*x^4 + 5892813/32*x^3 + 122887143/512*x^2 + 91609881/256
*x - 63412811/1024/(2*x - 1) + 246239357/1024*log(2*x - 1)
```

Fricas [A] time = 0.214907, size = 90, normalized size = 1.18

$$\frac{73483200\,x^9+545525280\,x^8+1896488640\,x^7+4156264224\,x^6+6612458328\,x^5+8581153140\,x^4+10604249460\,x^3+1704}{35840\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^8/(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 1/35840*(73483200*x^9 + 545525280*x^8 + 1896488640*x^7 + 41562642
24*x^6 + 6612458328*x^5 + 8581153140*x^4 + 10604249460*x^3 + 1704
8666670*x^2 + 8618377495*(2*x - 1)*log(2*x - 1) - 12825383340*x -
 2219448385)/(2*x - 1)
```

Sympy [A] time = 0.25071, size = 68, normalized size = 0.89

$$\frac{32805x^8}{32}+\frac{56862x^7}{7}+\frac{976617x^6}{32}+\frac{5859459x^5}{80}+\frac{32991057x^4}{256}+\frac{5892813x^3}{32}+\frac{122887143x^2}{512}+\frac{91609881x}{256}+\frac{246239357\log(2x-1)}{1024}-\frac{63412811}{2048x-1024}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**8*(3+5*x)/(1-2*x)**2,x)
```

```
[Out] 32805*x**8/32 + 56862*x**7/7 + 976617*x**6/32 + 5859459*x**5/80 +
 32991057*x**4/256 + 5892813*x**3/32 + 122887143*x**2/512 + 91609
881*x/256 + 246239357*log(2*x - 1)/1024 - 63412811/(2048*x - 1024
)
```

GIAC/XCAS [A] time = 0.208937, size = 138, normalized size = 1.82

$$\frac{3}{286720}\left(2x-1\right)^{8}\left(\frac{9127080}{2x-1}+\frac{98748720}{\left(2x-1\right)^{2}}+\frac{641009376}{\left(2x-1\right)^{3}}+\frac{2786264460}{\left(2x-1\right)^{4}}+\frac{8611906800}{\left(2x-1\right)^{5}}+\frac{19962682320}{\left(2x-1\right)^{6}}+\frac{39661830880}{\left(2x-1\right)^{7}}+3827\right.$$
$$-\frac{63412811}{1024\left(2x-1\right)}-\frac{246239357}{1024}\ln\left(\frac{\left|2x-1\right|}{2\left(2x-1\right)^{2}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^8/(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 3/286720*(2*x - 1)^8*(9127080/(2*x - 1) + 98748720/(2*x - 1)^2 +
641009376/(2*x - 1)^3 + 2786264460/(2*x - 1)^4 + 8611906800/(2*x
- 1)^5 + 19962682320/(2*x - 1)^6 + 39661830880/(2*x - 1)^7 + 3827
25) - 63412811/1024/(2*x - 1) - 246239357/1024*ln(1/2*abs(2*x - 1
)/(2*x - 1)^2)
```

3.1522 $\int \frac{(2+3x)^7(3+5x)}{(1-2x)^2}\,dx$

Optimal. Leaf size=69

$$\frac{10935x^7}{28}+\frac{11421x^6}{4}+\frac{793881x^5}{80}+\frac{1423899x^4}{64}+\frac{2399985x^3}{64}+\frac{873207x^2}{16}+\frac{22333965x}{256}+\frac{9058973}{512(1-2x)}+\frac{15647317}{256}\log(1-2x)$$

```
[Out] 9058973/(512*(1 - 2*x)) + (22333965*x)/256 + (873207*x^2)/16 + (2
399985*x^3)/64 + (1423899*x^4)/64 + (793881*x^5)/80 + (11421*x^6)
/4 + (10935*x^7)/28 + (15647317*Log[1 - 2*x])/256
```

Rubi [A] time = 0.0838787, antiderivative size = 69, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{10935x^7}{28}+\frac{11421x^6}{4}+\frac{793881x^5}{80}+\frac{1423899x^4}{64}+\frac{2399985x^3}{64}+\frac{873207x^2}{16}+\frac{22333965x}{256}+\frac{9058973}{512(1-2x)}+\frac{15647317}{256}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^7*(3 + 5*x))/(1 - 2*x)^2,x]
```

```
[Out] 9058973/(512*(1 - 2*x)) + (22333965*x)/256 + (873207*x^2)/16 + (2
399985*x^3)/64 + (1423899*x^4)/64 + (793881*x^5)/80 + (11421*x^6)
/4 + (10935*x^7)/28 + (15647317*Log[1 - 2*x])/256
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{10935x^7}{28}+\frac{11421x^6}{4}+\frac{793881x^5}{80}+\frac{1423899x^4}{64}+\frac{2399985x^3}{64}+\frac{15647317\log(-2x+1)}{256}+\int\frac{22333965}{256}\,dx+\frac{873207\int x\,dx}{8}+\frac{9058973}{512(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**7*(3+5*x)/(1-2*x)**2,x)
```

```
[Out] 10935*x**7/28 + 11421*x**6/4 + 793881*x**5/80 + 1423899*x**4/64 +
 2399985*x**3/64 + 15647317*log(-2*x + 1)/256 + Integral(22333965
/256, x) + 873207*Integral(x, x)/8 + 9058973/(512*(-2*x + 1))
```

Mathematica [A] time = 0.0234829, size = 64, normalized size = 0.93

$$\frac{27993600x^8+190667520x^7+608985216x^6+1239108192x^5+1890599760x^4+2567975760x^3+4297526520x^2-76928181}{35840(2x-1)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^7*(3 + 5*x))/(1 - 2*x)^2,x]
```

```
[Out] (1648903399 - 7692818118*x + 4297526520*x^2 + 2567975760*x^3 + 18
90599760*x^4 + 1239108192*x^5 + 608985216*x^6 + 190667520*x^7 + 2
7993600*x^8 + 2190624380*(-1 + 2*x)*Log[1 - 2*x])/(35840*(-1 + 2*
```

```
x))
```

Maple [A] time = 0.01, size = 52, normalized size = 0.8

$$\frac{10935\,x^7}{28}+\frac{11421\,x^6}{4}+\frac{793881\,x^5}{80}+\frac{1423899\,x^4}{64}+\frac{2399985\,x^3}{64}+\frac{873207\,x^2}{16}+\frac{22333965\,x}{256}-\frac{9058973}{-512+1024\,x}+\frac{15647317\,\ln(-1+2\,x)}{256}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^7*(3+5*x)/(1-2*x)^2,x)
```

```
[Out] 10935/28*x^7+11421/4*x^6+793881/80*x^5+1423899/64*x^4+2399985/64*
x^3+873207/16*x^2+22333965/256*x-9058973/512/(-1+2*x)+15647317/25
6*ln(-1+2*x)
```

Maxima [A] time = 1.34976, size = 69, normalized size = 1.

$$\frac{10935}{28}\,x^7+\frac{11421}{4}\,x^6+\frac{793881}{80}\,x^5+\frac{1423899}{64}\,x^4+\frac{2399985}{64}\,x^3+\frac{873207}{16}\,x^2+\frac{22333965}{256}\,x-\frac{9058973}{512\,(2\,x-1)}+\frac{15647317}{256}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^7/(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 10935/28*x^7 + 11421/4*x^6 + 793881/80*x^5 + 1423899/64*x^4 + 239
9985/64*x^3 + 873207/16*x^2 + 22333965/256*x - 9058973/512/(2*x -
 1) + 15647317/256*log(2*x - 1)
```

Fricas [A] time = 0.210019, size = 84, normalized size = 1.22

$$\frac{13996800\,x^8+95333760\,x^7+304492608\,x^6+619554096\,x^5+945299880\,x^4+1283987880\,x^3+2148763260\,x^2+109531219}{17920\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^7/(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 1/17920*(13996800*x^8 + 95333760*x^7 + 304492608*x^6 + 619554096*
x^5 + 945299880*x^4 + 1283987880*x^3 + 2148763260*x^2 + 109531219
0*(2*x - 1)*log(2*x - 1) - 1563377550*x - 317064055)/(2*x - 1)
```

Sympy [A] time = 0.238767, size = 61, normalized size = 0.88

$$\frac{10935x^7}{28}+\frac{11421x^6}{4}+\frac{793881x^5}{80}+\frac{1423899x^4}{64}+\frac{2399985x^3}{64}+\frac{873207x^2}{16}+\frac{22333965x}{256}+\frac{15647317\log(2x-1)}{256}-\frac{9058973}{1024x-512}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**7*(3+5*x)/(1-2*x)**2,x)
```

```
[Out] 10935*x**7/28 + 11421*x**6/4 + 793881*x**5/80 + 1423899*x**4/64 +
 2399985*x**3/64 + 873207*x**2/16 + 22333965*x/256 + 15647317*log
(2*x - 1)/256 - 9058973/(1024*x - 512)
```

GIAC/XCAS [A] time = 0.208357, size = 126, normalized size = 1.83

$$\frac{3}{35840}\,(2\,x-1)^{7}\left(\frac{788130}{2\,x-1}+\frac{7668108}{(2\,x-1)^{2}}+\frac{44406495}{(2\,x-1)^{3}}+\frac{171431400}{(2\,x-1)^{4}}+\frac{476478450}{(2\,x-1)^{5}}+\frac{1103547620}{(2\,x-1)^{6}}+36450\right)-\frac{9058973}{512\,(2\,x-1)}-\frac{15647317}{256}\ln\left(\frac{|2\,x-1|}{2\,(2\,x-1)^{2}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^7/(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 3/35840*(2*x - 1)^7*(788130/(2*x - 1) + 7668108/(2*x - 1)^2 + 444
06495/(2*x - 1)^3 + 171431400/(2*x - 1)^4 + 476478450/(2*x - 1)^5
 + 1103547620/(2*x - 1)^6 + 36450) - 9058973/512/(2*x - 1) - 1564
7317/256*ln(1/2*abs(2*x - 1)/(2*x - 1)^2)
```

3.1523 $\int \frac{(2+3x)^6(3+5x)}{(1-2x)^2} dx$

Optimal. Leaf size=62

$$\frac{1215x^6}{8}+\frac{5103x^5}{5}+\frac{210195x^4}{64}+\frac{111501x^3}{16}+\frac{1507977x^2}{128}+\frac{661617x}{32}+\frac{1294139}{256(1-2x)}+\frac{3916031}{256}\log(1-2x)$$

```
[Out] 1294139/(256*(1 - 2*x)) + (661617*x)/32 + (1507977*x^2)/128 + (11
1501*x^3)/16 + (210195*x^4)/64 + (5103*x^5)/5 + (1215*x^6)/8 + (3
916031*Log[1 - 2*x])/256
```

Rubi [A] time = 0.0755691, antiderivative size = 62, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{1215x^6}{8}+\frac{5103x^5}{5}+\frac{210195x^4}{64}+\frac{111501x^3}{16}+\frac{1507977x^2}{128}+\frac{661617x}{32}+\frac{1294139}{256(1-2x)}+\frac{3916031}{256}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^6*(3 + 5*x))/(1 - 2*x)^2,x]
```

```
[Out] 1294139/(256*(1 - 2*x)) + (661617*x)/32 + (1507977*x^2)/128 + (11
1501*x^3)/16 + (210195*x^4)/64 + (5103*x^5)/5 + (1215*x^6)/8 + (3
916031*Log[1 - 2*x])/256
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{1215x^6}{8}+\frac{5103x^5}{5}+\frac{210195x^4}{64}+\frac{111501x^3}{16}+\frac{3916031\log(-2x+1)}{256}+\int\frac{661617}{32}dx+\frac{1507977\int x\,dx}{64}+\frac{1294139}{256(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**6*(3+5*x)/(1-2*x)**2,x)
```

```
[Out] 1215*x**6/8 + 5103*x**5/5 + 210195*x**4/64 + 111501*x**3/16 + 391
6031*log(-2*x + 1)/256 + Integral(661617/32, x) + 1507977*Integra
l(x, x)/64 + 1294139/(256*(-2*x + 1))
```

Mathematica [A] time = 0.0226708, size = 59, normalized size = 0.95

$$\frac{1555200x^7+9673344x^6+28405728x^5+54545040x^4+84957840x^3+151398360x^2-253249902x+78320620(2x-1)\log(1}{5120(2x-1)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^6*(3 + 5*x))/(1 - 2*x)^2,x]
```

```
[Out] (47812811 - 253249902*x + 151398360*x^2 + 84957840*x^3 + 54545040
*x^4 + 28405728*x^5 + 9673344*x^6 + 1555200*x^7 + 78320620*(-1 +
2*x)*Log[1 - 2*x])/(5120*(-1 + 2*x))
```

Maple [A] time = 0.011, size = 47, normalized size = 0.8

$$\frac{1215 x^{6}}{8}+\frac{5103 x^{5}}{5}+\frac{210195 x^{4}}{64}+\frac{111501 x^{3}}{16}+\frac{1507977 x^{2}}{128}+\frac{661617 x}{32}-\frac{1294139}{-256+512 x}+\frac{3916031 \ln \left(-1+2 x\right)}{256}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^6*(3+5*x)/(1-2*x)^2,x)
```

```
[Out] 1215/8*x^6+5103/5*x^5+210195/64*x^4+111501/16*x^3+1507977/128*x^2
+661617/32*x-1294139/256/(-1+2*x)+3916031/256*ln(-1+2*x)
```

Maxima [A] time = 1.33192, size = 62, normalized size = 1.

$$\frac{1215}{8} x^{6}+\frac{5103}{5} x^{5}+\frac{210195}{64} x^{4}+\frac{111501}{16} x^{3}+\frac{1507977}{128} x^{2}+\frac{661617}{32} x-\frac{1294139}{256 (2 x-1)}+\frac{3916031}{256} \log (2 x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^6/(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 1215/8*x^6 + 5103/5*x^5 + 210195/64*x^4 + 111501/16*x^3 + 1507977
/128*x^2 + 661617/32*x - 1294139/256/(2*x - 1) + 3916031/256*log(
2*x - 1)
```

Fricas [A] time = 0.205307, size = 77, normalized size = 1.24

$$\frac{388800 x^{7}+2418336 x^{6}+7101432 x^{5}+13636260 x^{4}+21239460 x^{3}+37849590 x^{2}+19580155 (2 x-1) \log (2 x-1)-2646}{1280 (2 x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^6/(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 1/1280*(388800*x^7 + 2418336*x^6 + 7101432*x^5 + 13636260*x^4 + 2
1239460*x^3 + 37849590*x^2 + 19580155*(2*x - 1)*log(2*x - 1) - 26
464680*x - 6470695)/(2*x - 1)
```

Sympy [A] time = 0.234184, size = 54, normalized size = 0.87

$$\frac{1215x^{6}}{8}+\frac{5103x^{5}}{5}+\frac{210195x^{4}}{64}+\frac{111501x^{3}}{16}+\frac{1507977x^{2}}{128}+\frac{661617x}{32}+\frac{3916031 \log (2x-1)}{256}-\frac{1294139}{512x-256}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**6*(3+5*x)/(1-2*x)**2,x)
```

```
[Out] 1215*x**6/8 + 5103*x**5/5 + 210195*x**4/64 + 111501*x**3/16 + 150
7977*x**2/128 + 661617*x/32 + 3916031*log(2*x - 1)/256 - 1294139/
(512*x - 256)
```

GIAC/XCAS [A] time = 0.208981, size = 113, normalized size = 1.82

$$\frac{9}{5120}\,(2\,x-1)^6\left(\frac{26244}{2\,x-1}+\frac{227745}{(2\,x-1)^2}+\frac{1171100}{(2\,x-1)^3}+\frac{4064550}{(2\,x-1)^4}+\frac{11284700}{(2\,x-1)^5}+1350\right)-\frac{1294139}{256\,(2\,x-1)}-\frac{3916031}{256}\ln\left(\frac{|2\,x-1|}{2\,(2\,x-1)^2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^6/(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 9/5120*(2*x - 1)^6*(26244/(2*x - 1) + 227745/(2*x - 1)^2 + 117110
0/(2*x - 1)^3 + 4064550/(2*x - 1)^4 + 11284700/(2*x - 1)^5 + 1350
) - 1294139/256/(2*x - 1) - 3916031/256*ln(1/2*abs(2*x - 1)/(2*x
- 1)^2)
```

3.1524 $\int \frac{(2+3x)^5(3+5x)}{(1-2x)^2} dx$

Optimal. Leaf size=55

$$\frac{243x^5}{4}+\frac{2997x^4}{8}+\frac{18027x^3}{16}+\frac{75447x^2}{32}+\frac{301467x}{64}+\frac{184877}{128(1-2x)}+\frac{60025}{16}\log(1-2x)$$

```
[Out] 184877/(128*(1 - 2*x)) + (301467*x)/64 + (75447*x^2)/32 + (18027*
x^3)/16 + (2997*x^4)/8 + (243*x^5)/4 + (60025*Log[1 - 2*x])/16
```

Rubi [A] time = 0.0670924, antiderivative size = 55, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{243x^5}{4}+\frac{2997x^4}{8}+\frac{18027x^3}{16}+\frac{75447x^2}{32}+\frac{301467x}{64}+\frac{184877}{128(1-2x)}+\frac{60025}{16}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^5*(3 + 5*x))/(1 - 2*x)^2,x]
```

```
[Out] 184877/(128*(1 - 2*x)) + (301467*x)/64 + (75447*x^2)/32 + (18027*
x^3)/16 + (2997*x^4)/8 + (243*x^5)/4 + (60025*Log[1 - 2*x])/16
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{243x^5}{4}+\frac{2997x^4}{8}+\frac{18027x^3}{16}+\frac{60025\log(-2x+1)}{16}+\int\frac{301467}{64}\,dx+\frac{75447\int x\,dx}{16}+\frac{184877}{128(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**5*(3+5*x)/(1-2*x)**2,x)
```

```
[Out] 243*x**5/4 + 2997*x**4/8 + 18027*x**3/16 + 60025*log(-2*x + 1)/16
 + Integral(301467/64, x) + 75447*Integral(x, x)/16 + 184877/(128
*(-2*x + 1))
```

Mathematica [A] time = 0.0212456, size = 51, normalized size = 0.93

$$\frac{1944x^6+11016x^5+30060x^4+57420x^3+113010x^2-174912x+60025(2x-1)\log(1-2x)+26663}{32x-16}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^5*(3 + 5*x))/(1 - 2*x)^2,x]
```

```
[Out] (26663 - 174912*x + 113010*x^2 + 57420*x^3 + 30060*x^4 + 11016*x^
5 + 1944*x^6 + 60025*(-1 + 2*x)*Log[1 - 2*x])/(-16 + 32*x)
```

Maple [A] time = 0.009, size = 42, normalized size = 0.8

$$\frac{243\,x^5}{4}+\frac{2997\,x^4}{8}+\frac{18027\,x^3}{16}+\frac{75447\,x^2}{32}+\frac{301467\,x}{64}-\frac{184877}{-128+256\,x}+\frac{60025\,\ln(-1+2\,x)}{16}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^5*(3+5*x)/(1-2*x)^2,x)
```

```
[Out] 243/4*x^5+2997/8*x^4+18027/16*x^3+75447/32*x^2+301467/64*x-184877
/128/(-1+2*x)+60025/16*ln(-1+2*x)
```

Maxima [A] time = 1.34234, size = 55, normalized size = 1.

$$\frac{243}{4}\,x^5+\frac{2997}{8}\,x^4+\frac{18027}{16}\,x^3+\frac{75447}{32}\,x^2+\frac{301467}{64}\,x-\frac{184877}{128\,(2\,x-1)}+\frac{60025}{16}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^5/(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 243/4*x^5 + 2997/8*x^4 + 18027/16*x^3 + 75447/32*x^2 + 301467/64*
x - 184877/128/(2*x - 1) + 60025/16*log(2*x - 1)
```

Fricas [A] time = 0.213424, size = 70, normalized size = 1.27

$$\frac{15552\,x^6+88128\,x^5+240480\,x^4+459360\,x^3+904080\,x^2+480200\,(2\,x-1)\log\left(2\,x-1\right)-602934\,x-184877}{128\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^5/(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 1/128*(15552*x^6 + 88128*x^5 + 240480*x^4 + 459360*x^3 + 904080*x
^2 + 480200*(2*x - 1)*log(2*x - 1) - 602934*x - 184877)/(2*x - 1)
```

Sympy [A] time = 0.228633, size = 48, normalized size = 0.87

$$\frac{243x^5}{4}+\frac{2997x^4}{8}+\frac{18027x^3}{16}+\frac{75447x^2}{32}+\frac{301467x}{64}+\frac{60025\log\left(2x-1\right)}{16}-\frac{184877}{256x-128}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**5*(3+5*x)/(1-2*x)**2,x)
```

```
[Out] 243*x**5/4 + 2997*x**4/8 + 18027*x**3/16 + 75447*x**2/32 + 301467
*x/64 + 60025*log(2*x - 1)/16 - 184877/(256*x - 128)
```

GIAC/XCAS [A] time = 0.207105, size = 101, normalized size = 1.84

$$\frac{3}{128}\,(2\,x-1)^5\left(\frac{1404}{2\,x-1}+\frac{10815}{(2\,x-1)^2}+\frac{49980}{(2\,x-1)^3}+\frac{173215}{(2\,x-1)^4}+81\right)-\frac{184877}{128\,(2\,x-1)}-\frac{60025}{16}\ln\left(\frac{|2\,x-1|}{2\,(2\,x-1)^2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^5/(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 3/128*(2*x - 1)^5*(1404/(2*x - 1) + 10815/(2*x - 1)^2 + 49980/(2*
x - 1)^3 + 173215/(2*x - 1)^4 + 81) - 184877/128/(2*x - 1) - 6002
5/16*ln(1/2*abs(2*x - 1)/(2*x - 1)^2)
```

3.1525 $\int \frac{(2+3x)^4(3+5x)}{(1-2x)^2} dx$

Optimal. Leaf size=46

$$\frac{405x^4}{16} + 144x^3 + \frac{13419x^2}{32} + \frac{16203x}{16} + \frac{26411}{64(1-2x)} + \frac{57281}{64}\log(1-2x)$$

```
[Out] 26411/(64*(1 - 2*x)) + (16203*x)/16 + (13419*x^2)/32 + 144*x^3 +
(405*x^4)/16 + (57281*Log[1 - 2*x])/64
```

Rubi [A] time = 0.0577086, antiderivative size = 46, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{405x^4}{16} + 144x^3 + \frac{13419x^2}{32} + \frac{16203x}{16} + \frac{26411}{64(1-2x)} + \frac{57281}{64}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^4*(3 + 5*x))/(1 - 2*x)^2,x]
```

```
[Out] 26411/(64*(1 - 2*x)) + (16203*x)/16 + (13419*x^2)/32 + 144*x^3 +
(405*x^4)/16 + (57281*Log[1 - 2*x])/64
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{405x^4}{16} + 144x^3 + \frac{57281\log(-2x+1)}{64} + \int \frac{16203}{16}\, dx + \frac{13419\int x\, dx}{16} + \frac{26411}{64(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4*(3+5*x)/(1-2*x)**2,x)
```

```
[Out] 405*x**4/16 + 144*x**3 + 57281*log(-2*x + 1)/64 + Integral(16203/
16, x) + 13419*Integral(x, x)/16 + 26411/(64*(-2*x + 1))
```

Mathematica [A] time = 0.0203852, size = 49, normalized size = 1.07

$$\frac{12960x^5 + 67248x^4 + 177840x^3 + 411144x^2 - 582198x + 229124(2x-1)\log(1-2x) + 55831}{256(2x-1)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^4*(3 + 5*x))/(1 - 2*x)^2,x]
```

```
[Out] (55831 - 582198*x + 411144*x^2 + 177840*x^3 + 67248*x^4 + 12960*x
^5 + 229124*(-1 + 2*x)*Log[1 - 2*x])/(256*(-1 + 2*x))
```

Maple [A] time = 0.01, size = 37, normalized size = 0.8

$$\frac{405\,x^4}{16} + 144\,x^3 + \frac{13419\,x^2}{32} + \frac{16203\,x}{16} - \frac{26411}{-64+128\,x} + \frac{57281\,\ln(-1+2\,x)}{64}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4*(3+5*x)/(1-2*x)^2,x)
```

```
[Out] 405/16*x^4+144*x^3+13419/32*x^2+16203/16*x-26411/64/(-1+2*x)+5728
1/64*ln(-1+2*x)
```

Maxima [A] time = 1.34671, size = 49, normalized size = 1.07

$$\frac{405}{16}\,x^4 + 144\,x^3 + \frac{13419}{32}\,x^2 + \frac{16203}{16}\,x - \frac{26411}{64\,(2\,x-1)} + \frac{57281}{64}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^4/(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 405/16*x^4 + 144*x^3 + 13419/32*x^2 + 16203/16*x - 26411/64/(2*x
- 1) + 57281/64*log(2*x - 1)
```

Fricas [A] time = 0.213467, size = 63, normalized size = 1.37

$$\frac{3240\,x^5 + 16812\,x^4 + 44460\,x^3 + 102786\,x^2 + 57281\,(2\,x-1)\log\left(2\,x-1\right) - 64812\,x - 26411}{64\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^4/(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 1/64*(3240*x^5 + 16812*x^4 + 44460*x^3 + 102786*x^2 + 57281*(2*x
- 1)*log(2*x - 1) - 64812*x - 26411)/(2*x - 1)
```

Sympy [A] time = 0.214509, size = 39, normalized size = 0.85

$$\frac{405x^4}{16} + 144x^3 + \frac{13419x^2}{32} + \frac{16203x}{16} + \frac{57281\log\left(2x-1\right)}{64} - \frac{26411}{128x-64}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4*(3+5*x)/(1-2*x)**2,x)
```

```
[Out] 405*x**4/16 + 144*x**3 + 13419*x**2/32 + 16203*x/16 + 57281*log(2
*x - 1)/64 - 26411/(128*x - 64)
```

GIAC/XCAS [A] time = 0.206863, size = 89, normalized size = 1.93

$$\frac{3}{256}\,(2\,x-1)^4\left(\frac{2076}{2\,x-1} + \frac{14364}{(2\,x-1)^2} + \frac{66248}{(2\,x-1)^3} + 135\right) - \frac{26411}{64\,(2\,x-1)} - \frac{57281}{64}\ln\left(\frac{|2\,x-1|}{2\,(2\,x-1)^2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^4/(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 3/256*(2*x - 1)^4*(2076/(2*x - 1) + 14364/(2*x - 1)^2 + 66248/(2*
x - 1)^3 + 135) - 26411/64/(2*x - 1) - 57281/64*ln(1/2*abs(2*x -
1)/(2*x - 1)^2)
```

3.1526 $\int \frac{(2+3x)^3(3+5x)}{(1-2x)^2} dx$

Optimal. Leaf size=41

$$\frac{45x^3}{4}+\frac{243x^2}{4}+\frac{3177x}{16}+\frac{3773}{32(1-2x)}+\frac{3283}{16}\log(1-2x)$$

```
[Out] 3773/(32*(1 - 2*x)) + (3177*x)/16 + (243*x^2)/4 + (45*x^3)/4 + (3
283*Log[1 - 2*x])/16
```

Rubi [A] time = 0.0525265, antiderivative size = 41, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{45x^3}{4}+\frac{243x^2}{4}+\frac{3177x}{16}+\frac{3773}{32(1-2x)}+\frac{3283}{16}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^3*(3 + 5*x))/(1 - 2*x)^2,x]
```

```
[Out] 3773/(32*(1 - 2*x)) + (3177*x)/16 + (243*x^2)/4 + (45*x^3)/4 + (3
283*Log[1 - 2*x])/16
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{45x^3}{4}+\frac{3283\log(-2x+1)}{16}+\int\frac{3177}{16}\,dx+\frac{243\int x\,dx}{2}+\frac{3773}{32(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3*(3+5*x)/(1-2*x)**2,x)
```

```
[Out] 45*x**3/4 + 3283*log(-2*x + 1)/16 + Integral(3177/16, x) + 243*In
tegral(x, x)/2 + 3773/(32*(-2*x + 1))
```

Mathematica [A] time = 0.0189443, size = 41, normalized size = 1.

$$\frac{720x^4+3528x^3+10764x^2-13770x+6566(2x-1)\log(1-2x)-65}{64x-32}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^3*(3 + 5*x))/(1 - 2*x)^2,x]
```

```
[Out] (-65 - 13770*x + 10764*x^2 + 3528*x^3 + 720*x^4 + 6566*(-1 + 2*x)
*Log[1 - 2*x])/(-32 + 64*x)
```

Maple [A] time = 0.009, size = 32, normalized size = 0.8

$$\frac{45x^3}{4}+\frac{243x^2}{4}+\frac{3177x}{16}-\frac{3773}{-32+64x}+\frac{3283\ln(-1+2x)}{16}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3*(3+5*x)/(1-2*x)^2,x)
```

```
[Out] 45/4*x^3+243/4*x^2+3177/16*x-3773/32/(-1+2*x)+3283/16*ln(-1+2*x)
```

Maxima [A] time = 1.34257, size = 42, normalized size = 1.02

$$\frac{45}{4}x^3 + \frac{243}{4}x^2 + \frac{3177}{16}x - \frac{3773}{32(2x-1)} + \frac{3283}{16}\log(2x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^3/(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 45/4*x^3 + 243/4*x^2 + 3177/16*x - 3773/32/(2*x - 1) + 3283/16*lo
g(2*x - 1)
```

Fricas [A] time = 0.210169, size = 57, normalized size = 1.39

$$\frac{720x^4 + 3528x^3 + 10764x^2 + 6566(2x-1)\log(2x-1) - 6354x - 3773}{32(2x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^3/(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 1/32*(720*x^4 + 3528*x^3 + 10764*x^2 + 6566*(2*x - 1)*log(2*x - 1
) - 6354*x - 3773)/(2*x - 1)
```

Sympy [A] time = 0.202236, size = 34, normalized size = 0.83

$$\frac{45x^3}{4} + \frac{243x^2}{4} + \frac{3177x}{16} + \frac{3283\log(2x-1)}{16} - \frac{3773}{64x-32}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3*(3+5*x)/(1-2*x)**2,x)
```

```
[Out] 45*x**3/4 + 243*x**2/4 + 3177*x/16 + 3283*log(2*x - 1)/16 - 3773/
(64*x - 32)
```

GIAC/XCAS [A] time = 0.207332, size = 77, normalized size = 1.88

$$\frac{9}{32}(2x-1)^3\left(\frac{69}{2x-1} + \frac{476}{(2x-1)^2} + 5\right) - \frac{3773}{32(2x-1)} - \frac{3283}{16}\ln\left(\frac{|2x-1|}{2(2x-1)^2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^3/(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 9/32*(2*x - 1)^3*(69/(2*x - 1) + 476/(2*x - 1)^2 + 5) - 3773/32/(
2*x - 1) - 3283/16*ln(1/2*abs(2*x - 1)/(2*x - 1)^2)
```

3.1527 $\int \frac{(2+3x)^2(3+5x)}{(1-2x)^2} dx$

Optimal. Leaf size=32

$$\frac{45x^2}{8} + 33x + \frac{539}{16(1-2x)} + \frac{707}{16}\log(1-2x)$$

```
[Out] 539/(16*(1 - 2*x)) + 33*x + (45*x^2)/8 + (707*Log[1 - 2*x])/16
```

Rubi [A] time = 0.0452811, antiderivative size = 32, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$\frac{45x^2}{8} + 33x + \frac{539}{16(1-2x)} + \frac{707}{16}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In] Int[((2 + 3*x)^2*(3 + 5*x))/(1 - 2*x)^2,x]
```

```
[Out] 539/(16*(1 - 2*x)) + 33*x + (45*x^2)/8 + (707*Log[1 - 2*x])/16
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$33x + \frac{707\log(-2x+1)}{16} + \frac{45\int x\,dx}{4} + \frac{539}{16(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**2*(3+5*x)/(1-2*x)**2,x)
```

```
[Out] 33*x + 707*log(-2*x + 1)/16 + 45*Integral(x, x)/4 + 539/(16*(-2*x
 + 1))
```

Mathematica [A] time = 0.0169281, size = 36, normalized size = 1.12

$$\frac{360x^3 + 1932x^2 - 2202x + 1414(2x-1)\log(1-2x) - 505}{64x - 32}$$

Antiderivative was successfully verified.

```
[In] Integrate[((2 + 3*x)^2*(3 + 5*x))/(1 - 2*x)^2,x]
```

```
[Out] (-505 - 2202*x + 1932*x^2 + 360*x^3 + 1414*(-1 + 2*x)*Log[1 - 2*x
])/(-32 + 64*x)
```

Maple [A] time = 0.01, size = 27, normalized size = 0.8

$$\frac{45\,x^2}{8} + 33\,x - \frac{539}{-16+32\,x} + \frac{707\,\ln(-1+2\,x)}{16}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((2+3*x)^2*(3+5*x)/(1-2*x)^2,x)
```

```
[Out] 45/8*x^2+33*x-539/16/(-1+2*x)+707/16*ln(-1+2*x)
```

Maxima [A] time = 1.34501, size = 35, normalized size = 1.09

$$\frac{45}{8}x^2 + 33x - \frac{539}{16(2x-1)} + \frac{707}{16}\log(2x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(3*x + 2)^2/(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 45/8*x^2 + 33*x - 539/16/(2*x - 1) + 707/16*log(2*x - 1)
```

Fricas [A] time = 0.205345, size = 50, normalized size = 1.56

$$\frac{180x^3 + 966x^2 + 707(2x-1)\log(2x-1) - 528x - 539}{16(2x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(3*x + 2)^2/(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 1/16*(180*x^3 + 966*x^2 + 707*(2*x - 1)*log(2*x - 1) - 528*x - 53
9)/(2*x - 1)
```

Sympy [A] time = 0.196417, size = 26, normalized size = 0.81

$$\frac{45x^2}{8} + 33x + \frac{707\log(2x-1)}{16} - \frac{539}{32x-16}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2+3*x)**2*(3+5*x)/(1-2*x)**2,x)
```

```
[Out] 45*x**2/8 + 33*x + 707*log(2*x - 1)/16 - 539/(32*x - 16)
```

GIAC/XCAS [A] time = 0.20693, size = 65, normalized size = 2.03

$$\frac{3}{32}(2x-1)^2\left(\frac{206}{2x-1} + 15\right) - \frac{539}{16(2x-1)} - \frac{707}{16}\ln\left(\frac{|2x-1|}{2(2x-1)^2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(3*x + 2)^2/(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 3/32*(2*x - 1)^2*(206/(2*x - 1) + 15) - 539/16/(2*x - 1) - 707/16
*ln(1/2*abs(2*x - 1)/(2*x - 1)^2)
```

3.1528 $\int \frac{(2+3x)(3+5x)}{(1-2x)^2} dx$

Optimal. Leaf size=27

$$\frac{15x}{4} + \frac{77}{8(1-2x)} + \frac{17}{2}\log(1-2x)$$

```
[Out] 77/(8*(1 - 2*x)) + (15*x)/4 + (17*Log[1 - 2*x])/2
```

Rubi [A] time = 0.0350932, antiderivative size = 27, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$\frac{15x}{4} + \frac{77}{8(1-2x)} + \frac{17}{2}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)*(3 + 5*x))/(1 - 2*x)^2,x]

[Out] 77/(8*(1 - 2*x)) + (15*x)/4 + (17*Log[1 - 2*x])/2
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{17\log(-2x+1)}{2} + \int \frac{15}{4}\, dx + \frac{77}{8(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)*(3+5*x)/(1-2*x)**2,x)

[Out] 17*log(-2*x + 1)/2 + Integral(15/4, x) + 77/(8*(-2*x + 1))
```

Mathematica [A] time = 0.0174186, size = 26, normalized size = 0.96

$$\frac{1}{8}\left(30x + \frac{77}{1-2x} + 68\log(1-2x) - 15\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)*(3 + 5*x))/(1 - 2*x)^2,x]

[Out] (-15 + 77/(1 - 2*x) + 30*x + 68*Log[1 - 2*x])/8
```

Maple [A] time = 0.008, size = 22, normalized size = 0.8

$$\frac{15\,x}{4} - \frac{77}{-8+16\,x} + \frac{17\,\ln(-1+2\,x)}{2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)*(3+5*x)/(1-2*x)^2,x)

[Out] 15/4*x-77/8/(-1+2*x)+17/2*ln(-1+2*x)
```

Maxima [A] time = 1.36657, size = 28, normalized size = 1.04

$$\frac{15}{4}\,x - \frac{77}{8\,(2\,x-1)} + \frac{17}{2}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)/(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 15/4*x - 77/8/(2*x - 1) + 17/2*log(2*x - 1)
```

Fricas [A] time = 0.199296, size = 43, normalized size = 1.59

$$\frac{60\,x^2 + 68\,(2\,x-1)\log\left(2\,x-1\right) - 30\,x - 77}{8\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)/(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 1/8*(60*x^2 + 68*(2*x - 1)*log(2*x - 1) - 30*x - 77)/(2*x - 1)
```

Sympy [A] time = 0.169078, size = 20, normalized size = 0.74

$$\frac{15x}{4} + \frac{17\log\left(2x-1\right)}{2} - \frac{77}{16x-8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)*(3+5*x)/(1-2*x)**2,x)
```

```
[Out] 15*x/4 + 17*log(2*x - 1)/2 - 77/(16*x - 8)
```

GIAC/XCAS [A] time = 0.207138, size = 43, normalized size = 1.59

$$\frac{15}{4}\,x - \frac{77}{8\,(2\,x-1)} - \frac{17}{2}\,\ln\left(\frac{|2\,x-1|}{2\,(2\,x-1)^2}\right) - \frac{15}{8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)/(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 15/4*x - 77/8/(2*x - 1) - 17/2*ln(1/2*abs(2*x - 1)/(2*x - 1)^2) -
 15/8
```

3.1529 $\int \frac{3+5x}{(1-2x)^2} \, dx$

Optimal. Leaf size=22

$$\frac{11}{4(1-2x)}+\frac{5}{4}\log(1-2x)$$

```
[Out] 11/(4*(1 - 2*x)) + (5*Log[1 - 2*x])/4
```

Rubi [A] time = 0.0214085, antiderivative size = 22, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 13, $\frac{\text{number of rules}}{\text{integrand size}} = 0.077$

$$\frac{11}{4(1-2x)}+\frac{5}{4}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)/(1 - 2*x)^2,x]

[Out] 11/(4*(1 - 2*x)) + (5*Log[1 - 2*x])/4
```

Rubi in Sympy [A] time = 4.52582, size = 15, normalized size = 0.68

$$\frac{5\log(-2x+1)}{4}+\frac{11}{4(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)/(1-2*x)**2,x)

[Out] 5*log(-2*x + 1)/4 + 11/(4*(-2*x + 1))
```

Mathematica [A] time = 0.0103047, size = 22, normalized size = 1.

$$\frac{11}{4(1-2x)}+\frac{5}{4}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)/(1 - 2*x)^2,x]

[Out] 11/(4*(1 - 2*x)) + (5*Log[1 - 2*x])/4
```

Maple [A] time = 0.009, size = 19, normalized size = 0.9

$$-\frac{11}{-4+8x}+\frac{5\ln(-1+2x)}{4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)/(1-2*x)^2,x)

[Out] -11/4/(-1+2*x)+5/4*ln(-1+2*x)
```

Maxima [A] time = 1.34161, size = 24, normalized size = 1.09

$$-\frac{11}{4\,(2\,x-1)}+\frac{5}{4}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/(2*x - 1)^2,x, algorithm="maxima")

[Out] -11/4/(2*x - 1) + 5/4*log(2*x - 1)
```

Fricas [A] time = 0.208107, size = 32, normalized size = 1.45

$$\frac{5\,(2\,x-1)\log\left(2\,x-1\right)-11}{4\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/(2*x - 1)^2,x, algorithm="fricas")

[Out] 1/4*(5*(2*x - 1)*log(2*x - 1) - 11)/(2*x - 1)
```

Sympy [A] time = 0.15906, size = 15, normalized size = 0.68

$$\frac{5\log\left(2x-1\right)}{4}-\frac{11}{8x-4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)/(1-2*x)**2,x)

[Out] 5*log(2*x - 1)/4 - 11/(8*x - 4)
```

GIAC/XCAS [A] time = 0.204957, size = 38, normalized size = 1.73

$$-\frac{11}{4\,(2\,x-1)}-\frac{5}{4}\ln\left(\frac{|2\,x-1|}{2\,(2\,x-1)^2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/(2*x - 1)^2,x, algorithm="giac")

[Out] -11/4/(2*x - 1) - 5/4*ln(1/2*abs(2*x - 1)/(2*x - 1)^2)
```

3.1530 $\int \frac{3+5x}{(1-2x)^2(2+3x)}\,dx$

Optimal. Leaf size=32

$$\frac{11}{14(1-2x)}+\frac{1}{49}\log(1-2x)-\frac{1}{49}\log(3x+2)$$

```
[Out] 11/(14*(1 - 2*x)) + Log[1 - 2*x]/49 - Log[2 + 3*x]/49
```

Rubi [A] time = 0.0384898, antiderivative size = 32, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{11}{14(1-2x)}+\frac{1}{49}\log(1-2x)-\frac{1}{49}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)/((1 - 2*x)^2*(2 + 3*x)),x]
```

```
[Out] 11/(14*(1 - 2*x)) + Log[1 - 2*x]/49 - Log[2 + 3*x]/49
```

Rubi in Sympy [A] time = 6.25683, size = 22, normalized size = 0.69

$$\frac{\log(-2x+1)}{49}-\frac{\log(3x+2)}{49}+\frac{11}{14(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)/(1-2*x)**2/(2+3*x),x)
```

```
[Out] log(-2*x + 1)/49 - log(3*x + 2)/49 + 11/(14*(-2*x + 1))
```

Mathematica [A] time = 0.0217012, size = 37, normalized size = 1.16

$$\frac{(4x-2)\log(1-2x)+(2-4x)\log(6x+4)-77}{98(2x-1)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)/((1 - 2*x)^2*(2 + 3*x)),x]
```

```
[Out] (-77 + (-2 + 4*x)*Log[1 - 2*x] + (2 - 4*x)*Log[4 + 6*x])/(98*(-1
+ 2*x))
```

Maple [A] time = 0.011, size = 27, normalized size = 0.8

$$-\frac{\ln(2+3x)}{49}-\frac{11}{-14+28x}+\frac{\ln(-1+2x)}{49}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)/(1-2*x)^2/(2+3*x),x)
```

```
[Out] -1/49*ln(2+3*x)-11/14/(-1+2*x)+1/49*ln(-1+2*x)
```

Maxima [A] time = 1.32604, size = 35, normalized size = 1.09

$$-\frac{11}{14\,(2\,x-1)}-\frac{1}{49}\,\log\left(3\,x+2\right)+\frac{1}{49}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/((3*x + 2)*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] -11/14/(2*x - 1) - 1/49*log(3*x + 2) + 1/49*log(2*x - 1)
```

Fricas [A] time = 0.214673, size = 50, normalized size = 1.56

$$-\frac{2\,(2\,x-1)\log\left(3\,x+2\right)-2\,(2\,x-1)\log\left(2\,x-1\right)+77}{98\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/((3*x + 2)*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] -1/98*(2*(2*x - 1)*log(3*x + 2) - 2*(2*x - 1)*log(2*x - 1) + 77)/
(2*x - 1)
```

Sympy [A] time = 0.231038, size = 22, normalized size = 0.69

$$\frac{\log\left(x-\frac{1}{2}\right)}{49}-\frac{\log\left(x+\frac{2}{3}\right)}{49}-\frac{11}{28x-14}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)/(1-2*x)**2/(2+3*x),x)
```

```
[Out] log(x - 1/2)/49 - log(x + 2/3)/49 - 11/(28*x - 14)
```

GIAC/XCAS [A] time = 0.20647, size = 34, normalized size = 1.06

$$-\frac{11}{14\,(2\,x-1)}-\frac{1}{49}\ln\left(\left|-\frac{7}{2\,x-1}-3\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/((3*x + 2)*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -11/14/(2*x - 1) - 1/49*ln(abs(-7/(2*x - 1) - 3))
```

3.1531 $\int \frac{3+5x}{(1-2x)^2(2+3x)^2}\,dx$

Optimal. Leaf size=43

$$\frac{11}{49(1-2x)}+\frac{1}{49(3x+2)}-\frac{31}{343}\log(1-2x)+\frac{31}{343}\log(3x+2)$$

```
[Out] 11/(49*(1 - 2*x)) + 1/(49*(2 + 3*x)) - (31*Log[1 - 2*x])/343 + (3
1*Log[2 + 3*x])/343
```

Rubi [A] time = 0.0490224, antiderivative size = 43, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{11}{49(1-2x)}+\frac{1}{49(3x+2)}-\frac{31}{343}\log(1-2x)+\frac{31}{343}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In] Int[(3 + 5*x)/((1 - 2*x)^2*(2 + 3*x)^2),x]
```

```
[Out] 11/(49*(1 - 2*x)) + 1/(49*(2 + 3*x)) - (31*Log[1 - 2*x])/343 + (3
1*Log[2 + 3*x])/343
```

Rubi in Sympy [A] time = 7.3241, size = 32, normalized size = 0.74

$$-\frac{31\log(-2x+1)}{343}+\frac{31\log(3x+2)}{343}+\frac{1}{49(3x+2)}+\frac{11}{49(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((3+5*x)/(1-2*x)**2/(2+3*x)**2,x)
```

```
[Out] -31*log(-2*x + 1)/343 + 31*log(3*x + 2)/343 + 1/(49*(3*x + 2)) +
11/(49*(-2*x + 1))
```

Mathematica [A] time = 0.0299533, size = 40, normalized size = 0.93

$$\frac{-31x-23}{49(6x^2+x-2)}-\frac{31}{343}\log(1-2x)+\frac{31}{343}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In] Integrate[(3 + 5*x)/((1 - 2*x)^2*(2 + 3*x)^2),x]
```

```
[Out] (-23 - 31*x)/(49*(-2 + x + 6*x^2)) - (31*Log[1 - 2*x])/343 + (31*
Log[2 + 3*x])/343
```

Maple [A] time = 0.013, size = 36, normalized size = 0.8

$$\frac{1}{98+147x}+\frac{31\ln(2+3x)}{343}-\frac{11}{-49+98x}-\frac{31\ln(-1+2x)}{343}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)/(1-2*x)^2/(2+3*x)^2,x)

[Out] 1/49/(2+3*x)+31/343*ln(2+3*x)-11/49/(-1+2*x)-31/343*ln(-1+2*x)
```

Maxima [A] time = 1.33243, size = 46, normalized size = 1.07

$$-\frac{31\,x+23}{49\,(6\,x^2+x-2)}+\frac{31}{343}\,\log(3\,x+2)-\frac{31}{343}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/((3*x + 2)^2*(2*x - 1)^2),x, algorithm="maxima")

[Out] -1/49*(31*x + 23)/(6*x^2 + x - 2) + 31/343*log(3*x + 2) - 31/343*
log(2*x - 1)
```

Fricas [A] time = 0.222081, size = 66, normalized size = 1.53

$$\frac{31\left(6\,x^2+x-2\right)\log(3\,x+2)-31\left(6\,x^2+x-2\right)\log(2\,x-1)-217\,x-161}{343\,(6\,x^2+x-2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/((3*x + 2)^2*(2*x - 1)^2),x, algorithm="fricas")

[Out] 1/343*(31*(6*x^2 + x - 2)*log(3*x + 2) - 31*(6*x^2 + x - 2)*log(2
*x - 1) - 217*x - 161)/(6*x^2 + x - 2)
```

Sympy [A] time = 0.297574, size = 34, normalized size = 0.79

$$-\frac{31x+23}{294x^2+49x-98}-\frac{31\log\left(x-\frac{1}{2}\right)}{343}+\frac{31\log\left(x+\frac{2}{3}\right)}{343}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)/(1-2*x)**2/(2+3*x)**2,x)

[Out] -(31*x + 23)/(294*x**2 + 49*x - 98) - 31*log(x - 1/2)/343 + 31*lo
g(x + 2/3)/343
```

GIAC/XCAS [A] time = 0.206455, size = 54, normalized size = 1.26

$$\frac{1}{49\,(3\,x+2)}+\frac{66}{343\left(\frac{7}{3\,x+2}-2\right)}-\frac{31}{343}\ln\left(\left|-\frac{7}{3\,x+2}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/((3*x + 2)^2*(2*x - 1)^2),x, algorithm="giac")

[Out] 1/49/(3*x + 2) + 66/343/(7/(3*x + 2) - 2) - 31/343*ln(abs(-7/(3*x
 + 2) + 2))
```

3.1532 $\int \frac{3+5x}{(1-2x)^2(2+3x)^3} dx$

Optimal. Leaf size=54

$$\frac{22}{343(1-2x)}-\frac{31}{343(3x+2)}+\frac{1}{98(3x+2)^2}-\frac{128\log(1-2x)}{2401}+\frac{128\log(3x+2)}{2401}$$

```
[Out] 22/(343*(1 - 2*x)) + 1/(98*(2 + 3*x)^2) - 31/(343*(2 + 3*x)) - (1
28*Log[1 - 2*x])/2401 + (128*Log[2 + 3*x])/2401
```

Rubi [A] time = 0.0571109, antiderivative size = 54, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{22}{343(1-2x)}-\frac{31}{343(3x+2)}+\frac{1}{98(3x+2)^2}-\frac{128\log(1-2x)}{2401}+\frac{128\log(3x+2)}{2401}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)/((1 - 2*x)^2*(2 + 3*x)^3),x]
```

```
[Out] 22/(343*(1 - 2*x)) + 1/(98*(2 + 3*x)^2) - 31/(343*(2 + 3*x)) - (1
28*Log[1 - 2*x])/2401 + (128*Log[2 + 3*x])/2401
```

Rubi in Sympy [A] time = 8.51392, size = 42, normalized size = 0.78

$$-\frac{128\log(-2x+1)}{2401}+\frac{128\log(3x+2)}{2401}-\frac{31}{343(3x+2)}+\frac{1}{98(3x+2)^2}+\frac{22}{343(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)/(1-2*x)**2/(2+3*x)**3,x)
```

```
[Out] -128*log(-2*x + 1)/2401 + 128*log(3*x + 2)/2401 - 31/(343*(3*x +
2)) + 1/(98*(3*x + 2)**2) + 22/(343*(-2*x + 1))
```

Mathematica [A] time = 0.0431718, size = 47, normalized size = 0.87

$$\frac{-\frac{7(768x^2+576x+59)}{(2x-1)(3x+2)^2}-256\log(1-2x)+256\log(6x+4)}{4802}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)/((1 - 2*x)^2*(2 + 3*x)^3),x]
```

```
[Out] ((-7*(59 + 576*x + 768*x^2))/((-1 + 2*x)*(2 + 3*x)^2) - 256*Log[1
 - 2*x] + 256*Log[4 + 6*x])/4802
```

Maple [A] time = 0.014, size = 45, normalized size = 0.8

$$\frac{1}{98\,(2+3\,x)^2}-\frac{31}{686+1029\,x}+\frac{128\,\ln(2+3\,x)}{2401}-\frac{22}{-343+686\,x}-\frac{128\,\ln(-1+2\,x)}{2401}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)/(1-2*x)^2/(2+3*x)^3,x)
```

```
[Out] 1/98/(2+3*x)^2-31/343/(2+3*x)+128/2401*ln(2+3*x)-22/343/(-1+2*x)-
128/2401*ln(-1+2*x)
```

Maxima [A] time = 1.32745, size = 62, normalized size = 1.15

$$-\frac{768\,x^2+576\,x+59}{686\,(18\,x^3+15\,x^2-4\,x-4)}+\frac{128}{2401}\,\log\left(3\,x+2\right)-\frac{128}{2401}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/((3*x + 2)^3*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] -1/686*(768*x^2 + 576*x + 59)/(18*x^3 + 15*x^2 - 4*x - 4) + 128/2
401*log(3*x + 2) - 128/2401*log(2*x - 1)
```

Fricas [A] time = 0.216017, size = 101, normalized size = 1.87

$$-\frac{5376\,x^2-256\,\left(18\,x^3+15\,x^2-4\,x-4\right)\log\left(3\,x+2\right)+256\,\left(18\,x^3+15\,x^2-4\,x-4\right)\log\left(2\,x-1\right)+4032\,x+413}{4802\,(18\,x^3+15\,x^2-4\,x-4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/((3*x + 2)^3*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] -1/4802*(5376*x^2 - 256*(18*x^3 + 15*x^2 - 4*x - 4)*log(3*x + 2)
+ 256*(18*x^3 + 15*x^2 - 4*x - 4)*log(2*x - 1) + 4032*x + 413)/(1
8*x^3 + 15*x^2 - 4*x - 4)
```

Sympy [A] time = 0.361631, size = 44, normalized size = 0.81

$$-\frac{768x^2+576x+59}{12348x^3+10290x^2-2744x-2744}-\frac{128\log\left(x-\frac{1}{2}\right)}{2401}+\frac{128\log\left(x+\frac{2}{3}\right)}{2401}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)/(1-2*x)**2/(2+3*x)**3,x)
```

```
[Out] -(768*x**2 + 576*x + 59)/(12348*x**3 + 10290*x**2 - 2744*x - 2744
) - 128*log(x - 1/2)/2401 + 128*log(x + 2/3)/2401
```

GIAC/XCAS [A] time = 0.208832, size = 69, normalized size = 1.28

$$-\frac{22}{343\,(2\,x-1)}+\frac{6\left(\frac{203}{2\,x-1}+90\right)}{2401\left(\frac{7}{2\,x-1}+3\right)^2}+\frac{128}{2401}\ln\left(\left|-\frac{7}{2\,x-1}-3\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/((3*x + 2)^3*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -22/343/(2*x - 1) + 6/2401*(203/(2*x - 1) + 90)/(7/(2*x - 1) + 3)
^2 + 128/2401*ln(abs(-7/(2*x - 1) - 3))
```

3.1533 $\int \frac{3+5x}{(1-2x)^2(2+3x)^4}\,dx$

Optimal. Leaf size=65

$$\frac{44}{2401(1-2x)}-\frac{128}{2401(3x+2)}-\frac{31}{686(3x+2)^2}+\frac{1}{147(3x+2)^3}-\frac{388\log(1-2x)}{16807}+\frac{388\log(3x+2)}{16807}$$

```
[Out] 44/(2401*(1 - 2*x)) + 1/(147*(2 + 3*x)^3) - 31/(686*(2 + 3*x)^2)
- 128/(2401*(2 + 3*x)) - (388*Log[1 - 2*x])/16807 + (388*Log[2 +
3*x])/16807
```

Rubi [A] time = 0.0707719, antiderivative size = 65, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{44}{2401(1-2x)}-\frac{128}{2401(3x+2)}-\frac{31}{686(3x+2)^2}+\frac{1}{147(3x+2)^3}-\frac{388\log(1-2x)}{16807}+\frac{388\log(3x+2)}{16807}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)/((1 - 2*x)^2*(2 + 3*x)^4),x]
```

```
[Out] 44/(2401*(1 - 2*x)) + 1/(147*(2 + 3*x)^3) - 31/(686*(2 + 3*x)^2)
- 128/(2401*(2 + 3*x)) - (388*Log[1 - 2*x])/16807 + (388*Log[2 +
3*x])/16807
```

Rubi in Sympy [A] time = 9.79685, size = 53, normalized size = 0.82

$$-\frac{388\log(-2x+1)}{16807}+\frac{388\log(3x+2)}{16807}-\frac{128}{2401(3x+2)}-\frac{31}{686(3x+2)^2}+\frac{1}{147(3x+2)^3}+\frac{44}{2401(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)/(1-2*x)**2/(2+3*x)**4,x)
```

```
[Out] -388*log(-2*x + 1)/16807 + 388*log(3*x + 2)/16807 - 128/(2401*(3*
x + 2)) - 31/(686*(3*x + 2)**2) + 1/(147*(3*x + 2)**3) + 44/(2401
*(-2*x + 1))
```

Mathematica [A] time = 0.0525716, size = 52, normalized size = 0.8

$$\frac{-\frac{7(20952x^3+29682x^2+6887x-2164)}{(2x-1)(3x+2)^3}-2328\log(3-6x)+2328\log(3x+2)}{100842}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)/((1 - 2*x)^2*(2 + 3*x)^4),x]
```

```
[Out] ((-7*(-2164 + 6887*x + 29682*x^2 + 20952*x^3))/((-1 + 2*x)*(2 + 3
*x)^3) - 2328*Log[3 - 6*x] + 2328*Log[2 + 3*x])/100842
```

Maple [A] time = 0.016, size = 54, normalized size = 0.8

$$\frac{1}{147(2+3x)^3}-\frac{31}{686(2+3x)^2}-\frac{128}{4802+7203x}+\frac{388\ln(2+3x)}{16807}-\frac{44}{-2401+4802x}-\frac{388\ln(-1+2x)}{16807}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)/(1-2*x)^2/(2+3*x)^4,x)
```

```
[Out] 1/147/(2+3*x)^3-31/686/(2+3*x)^2-128/2401/(2+3*x)+388/16807*ln(2+
3*x)-44/2401/(-1+2*x)-388/16807*ln(-1+2*x)
```

Maxima [A] time = 1.34258, size = 76, normalized size = 1.17

$$-\frac{20952\,x^3+29682\,x^2+6887\,x-2164}{14406\,(54\,x^4+81\,x^3+18\,x^2-20\,x-8)}+\frac{388}{16807}\,\log\left(3\,x+2\right)-\frac{388}{16807}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/((3*x + 2)^4*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] -1/14406*(20952*x^3 + 29682*x^2 + 6887*x - 2164)/(54*x^4 + 81*x^3
 + 18*x^2 - 20*x - 8) + 388/16807*log(3*x + 2) - 388/16807*log(2*
x - 1)
```

Fricas [A] time = 0.208982, size = 128, normalized size = 1.97

$$-\frac{146664\,x^3+207774\,x^2-2328\,\left(54\,x^4+81\,x^3+18\,x^2-20\,x-8\right)\log\left(3\,x+2\right)+2328\,\left(54\,x^4+81\,x^3+18\,x^2-20\,x-8\right)\log}{100842\,(54\,x^4+81\,x^3+18\,x^2-20\,x-8)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/((3*x + 2)^4*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] -1/100842*(146664*x^3 + 207774*x^2 - 2328*(54*x^4 + 81*x^3 + 18*x
^2 - 20*x - 8)*log(3*x + 2) + 2328*(54*x^4 + 81*x^3 + 18*x^2 - 20
*x - 8)*log(2*x - 1) + 48209*x - 15148)/(54*x^4 + 81*x^3 + 18*x^2
 - 20*x - 8)
```

Sympy [A] time = 0.407502, size = 54, normalized size = 0.83

$$-\frac{20952x^3+29682x^2+6887x-2164}{777924x^4+1166886x^3+259308x^2-288120x-115248}-\frac{388\log\left(x-\frac{1}{2}\right)}{16807}+\frac{388\log\left(x+\frac{2}{3}\right)}{16807}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)/(1-2*x)**2/(2+3*x)**4,x)
```

```
[Out] -(20952*x**3 + 29682*x**2 + 6887*x - 2164)/(777924*x**4 + 1166886
*x**3 + 259308*x**2 - 288120*x - 115248) - 388*log(x - 1/2)/16807
 + 388*log(x + 2/3)/16807
```

GIAC/XCAS [A] time = 0.206064, size = 81, normalized size = 1.25

$$-\frac{44}{2401\,(2\,x-1)}+\frac{18\,\left(\frac{2415}{2\,x-1}+\frac{3038}{(2\,x-1)^2}+473\right)}{16807\,\left(\frac{7}{2\,x-1}+3\right)^3}+\frac{388}{16807}\,\ln\left(\left|-\frac{7}{2\,x-1}-3\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/((3*x + 2)^4*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -44/2401/(2*x - 1) + 18/16807*(2415/(2*x - 1) + 3038/(2*x - 1)^2
+ 473)/(7/(2*x - 1) + 3)^3 + 388/16807*ln(abs(-7/(2*x - 1) - 3))
```

3.1534 $\int \frac{3+5x}{(1-2x)^2(2+3x)^5}\,dx$

Optimal. Leaf size=76

$$\frac{88}{16807(1-2x)}-\frac{388}{16807(3x+2)}-\frac{64}{2401(3x+2)^2}-\frac{31}{1029(3x+2)^3}+\frac{1}{196(3x+2)^4}-\frac{1040\log(1-2x)}{117649}+\frac{1040\log(3x+2)}{117649}$$

```
[Out] 88/(16807*(1 - 2*x)) + 1/(196*(2 + 3*x)^4) - 31/(1029*(2 + 3*x)^3
) - 64/(2401*(2 + 3*x)^2) - 388/(16807*(2 + 3*x)) - (1040*Log[1 -
 2*x])/117649 + (1040*Log[2 + 3*x])/117649
```

Rubi [A] time = 0.082252, antiderivative size = 76, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{88}{16807(1-2x)}-\frac{388}{16807(3x+2)}-\frac{64}{2401(3x+2)^2}-\frac{31}{1029(3x+2)^3}+\frac{1}{196(3x+2)^4}-\frac{1040\log(1-2x)}{117649}+\frac{1040\log(3x+2)}{117649}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)/((1 - 2*x)^2*(2 + 3*x)^5),x]
```

```
[Out] 88/(16807*(1 - 2*x)) + 1/(196*(2 + 3*x)^4) - 31/(1029*(2 + 3*x)^3
) - 64/(2401*(2 + 3*x)^2) - 388/(16807*(2 + 3*x)) - (1040*Log[1 -
 2*x])/117649 + (1040*Log[2 + 3*x])/117649
```

Rubi in Sympy [A] time = 11.0888, size = 63, normalized size = 0.83

$$-\frac{1040\log(-2x+1)}{117649}+\frac{1040\log(3x+2)}{117649}-\frac{388}{16807(3x+2)}-\frac{64}{2401(3x+2)^2}-\frac{31}{1029(3x+2)^3}+\frac{1}{196(3x+2)^4}+\frac{88}{16807(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)/(1-2*x)**2/(2+3*x)**5,x)
```

```
[Out] -1040*log(-2*x + 1)/117649 + 1040*log(3*x + 2)/117649 - 388/(1680
7*(3*x + 2)) - 64/(2401*(3*x + 2)**2) - 31/(1029*(3*x + 2)**3) +
1/(196*(3*x + 2)**4) + 88/(16807*(-2*x + 1))
```

Mathematica [A] time = 0.072161, size = 59, normalized size = 0.78

$$\frac{4\left(-\frac{7(336960x^4+702000x^3+429000x^2-9230x-52979)}{16(2x-1)(3x+2)^4}-780\log(1-2x)+780\log(6x+4)\right)}{352947}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)/((1 - 2*x)^2*(2 + 3*x)^5),x]
```

```
[Out] (4*((-7*(-52979 - 9230*x + 429000*x^2 + 702000*x^3 + 336960*x^4))
/(16*(-1 + 2*x)*(2 + 3*x)^4) - 780*Log[1 - 2*x] + 780*Log[4 + 6*x
]))/352947
```

Maple [A] time = 0.015, size = 63, normalized size = 0.8

$$\frac{1}{196\ (2+3\,x)^{4}}-\frac{31}{1029\ (2+3\,x)^{3}}-\frac{64}{2401\ (2+3\,x)^{2}}-\frac{388}{33614+50421\,x}+\frac{1040\ \ln(2+3\,x)}{117649}-\frac{88}{-16807+33614\,x}-\frac{1040\ \ln(-1+2\,x)}{117649}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)/(1-2*x)^2/(2+3*x)^5,x)
```

```
[Out] 1/196/(2+3*x)^4-31/1029/(2+3*x)^3-64/2401/(2+3*x)^2-388/16807/(2+
3*x)+1040/117649*ln(2+3*x)-88/16807/(-1+2*x)-1040/117649*ln(-1+2*
x)
```

Maxima [A] time = 1.33306, size = 89, normalized size = 1.17

$$-\frac{336960\,x^{4}+702000\,x^{3}+429000\,x^{2}-9230\,x-52979}{201684\,(162\,x^{5}+351\,x^{4}+216\,x^{3}-24\,x^{2}-64\,x-16)}+\frac{1040}{117649}\ \log(3\,x+2)-\frac{1040}{117649}\ \log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/((3*x + 2)^5*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] -1/201684*(336960*x^4 + 702000*x^3 + 429000*x^2 - 9230*x - 52979)
/(162*x^5 + 351*x^4 + 216*x^3 - 24*x^2 - 64*x - 16) + 1040/117649
*log(3*x + 2) - 1040/117649*log(2*x - 1)
```

Fricas [A] time = 0.207086, size = 155, normalized size = 2.04

$$-\frac{2358720\,x^{4}+4914000\,x^{3}+3003000\,x^{2}-12480\,\left(162\,x^{5}+351\,x^{4}+216\,x^{3}-24\,x^{2}-64\,x-16\right)\log(3\,x+2)+12480\,(162\,x}{1411788\,(162\,x^{5}+351\,x^{4}+216\,x^{3}-24\,x^{2}-64\,x-}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/((3*x + 2)^5*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] -1/1411788*(2358720*x^4 + 4914000*x^3 + 3003000*x^2 - 12480*(162*
x^5 + 351*x^4 + 216*x^3 - 24*x^2 - 64*x - 16)*log(3*x + 2) + 1248
0*(162*x^5 + 351*x^4 + 216*x^3 - 24*x^2 - 64*x - 16)*log(2*x - 1)
 - 64610*x - 370853)/(162*x^5 + 351*x^4 + 216*x^3 - 24*x^2 - 64*x
 - 16)
```

Sympy [A] time = 0.459027, size = 65, normalized size = 0.86

$$-\frac{336960x^{4}+702000x^{3}+429000x^{2}-9230x-52979}{32672808x^{5}+70791084x^{4}+43563744x^{3}-4840416x^{2}-12907776x-3226944}-\frac{1040\log\left(x-\frac{1}{2}\right)}{117649}+\frac{1040\log\left(x+\frac{2}{3}\right)}{117649}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)/(1-2*x)**2/(2+3*x)**5,x)
```

```
[Out] -(336960*x**4 + 702000*x**3 + 429000*x**2 - 9230*x - 52979)/(3267
2808*x**5 + 70791084*x**4 + 43563744*x**3 - 4840416*x**2 - 129077
```

```
76*x - 3226944) - 1040*log(x - 1/2)/117649 + 1040*log(x + 2/3)/11
7649
```

GIAC/XCAS [A] time = 0.217079, size = 90, normalized size = 1.18

$$-\frac{388}{16807\,(3\,x+2)}+\frac{528}{117649\,\left(\frac{7}{3\,x+2}-2\right)}-\frac{64}{2401\,(3\,x+2)^{2}}-\frac{31}{1029\,(3\,x+2)^{3}}+\frac{1}{196\,(3\,x+2)^{4}}-\frac{1040}{117649}\ln\left(\left|-\frac{7}{3\,x+2}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/((3*x + 2)^5*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -388/16807/(3*x + 2) + 528/117649/(7/(3*x + 2) - 2) - 64/2401/(3*
x + 2)^2 - 31/1029/(3*x + 2)^3 + 1/196/(3*x + 2)^4 - 1040/117649*
ln(abs(-7/(3*x + 2) + 2))
```

3.1535 $\int \frac{3+5x}{(1-2x)^2(2+3x)^6} \, dx$

Optimal. Leaf size=87

$$\frac{176}{117649(1-2x)}-\frac{1040}{117649(3x+2)}-\frac{194}{16807(3x+2)^2}-\frac{128}{7203(3x+2)^3}-\frac{31}{1372(3x+2)^4}+\frac{1}{245(3x+2)^5}-\frac{2608\log(1-2x)}{823543}+\frac{2608\log(3x+2)}{823543}$$

```
[Out] 176/(117649*(1 - 2*x)) + 1/(245*(2 + 3*x)^5) - 31/(1372*(2 + 3*x)
^4) - 128/(7203*(2 + 3*x)^3) - 194/(16807*(2 + 3*x)^2) - 1040/(11
7649*(2 + 3*x)) - (2608*Log[1 - 2*x])/823543 + (2608*Log[2 + 3*x]
)/823543
```

Rubi [A] time = 0.0956749, antiderivative size = 87, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{176}{117649(1-2x)}-\frac{1040}{117649(3x+2)}-\frac{194}{16807(3x+2)^2}-\frac{128}{7203(3x+2)^3}-\frac{31}{1372(3x+2)^4}+\frac{1}{245(3x+2)^5}-\frac{2608\log(1-2x)}{823543}+\frac{2608\log(3x+2)}{823543}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)/((1 - 2*x)^2*(2 + 3*x)^6),x]
```

```
[Out] 176/(117649*(1 - 2*x)) + 1/(245*(2 + 3*x)^5) - 31/(1372*(2 + 3*x)
^4) - 128/(7203*(2 + 3*x)^3) - 194/(16807*(2 + 3*x)^2) - 1040/(11
7649*(2 + 3*x)) - (2608*Log[1 - 2*x])/823543 + (2608*Log[2 + 3*x]
)/823543
```

Rubi in Sympy [A] time = 12.422, size = 73, normalized size = 0.84

$$-\frac{2608\log\left(-2x+1\right)}{823543}+\frac{2608\log\left(3x+2\right)}{823543}-\frac{1040}{117649\left(3x+2\right)}-\frac{194}{16807\left(3x+2\right)^2}-\frac{128}{7203\left(3x+2\right)^3}-\frac{31}{1372\left(3x+2\right)^4}+\frac{1}{245\left(3x+2\right)^5}+\frac{176}{117649\left(-2x+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)/(1-2*x)**2/(2+3*x)**6,x)
```

```
[Out] -2608*log(-2*x + 1)/823543 + 2608*log(3*x + 2)/823543 - 1040/(117
649*(3*x + 2)) - 194/(16807*(3*x + 2)**2) - 128/(7203*(3*x + 2)**
3) - 31/(1372*(3*x + 2)**4) + 1/(245*(3*x + 2)**5) + 176/(117649*
(-2*x + 1))
```

Mathematica [A] time = 0.0811167, size = 62, normalized size = 0.71

$$\frac{-\frac{7\left(12674880x^5+34855920x^4+33741000x^3+10410810x^2-3488689x-2104258\right)}{(2x-1)(3x+2)^5}-156480\log(3-6x)+156480\log(3x+2)}{49412580}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)/((1 - 2*x)^2*(2 + 3*x)^6),x]
```

```
[Out] ((-7*(-2104258 - 3488689*x + 10410810*x^2 + 33741000*x^3 + 348559
20*x^4 + 12674880*x^5))/((-1 + 2*x)*(2 + 3*x)^5) - 156480*Log[3 -
 6*x] + 156480*Log[2 + 3*x])/49412580
```

Maple [A] time = 0.014, size = 72, normalized size = 0.8

$$\frac{1}{245\,(2+3\,x)^{5}}-\frac{31}{1372\,(2+3\,x)^{4}}-\frac{128}{7203\,(2+3\,x)^{3}}-\frac{194}{16807\,(2+3\,x)^{2}}-\frac{1040}{235298+352947\,x}+\frac{2608\,\ln(2+3\,x)}{823543}-\frac{176}{-117649+235298\,x}-\frac{2608\,\ln(-1+2\,x)}{823543}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((3+5*x)/(1-2*x)^2/(2+3*x)^6,x)
```

```
[Out] 1/245/(2+3*x)^5-31/1372/(2+3*x)^4-128/7203/(2+3*x)^3-194/16807/(2
+3*x)^2-1040/117649/(2+3*x)+2608/823543*ln(2+3*x)-176/117649/(-1+
2*x)-2608/823543*ln(-1+2*x)
```

Maxima [A] time = 1.33509, size = 103, normalized size = 1.18

$$-\frac{12674880\,x^{5}+34855920\,x^{4}+33741000\,x^{3}+10410810\,x^{2}-3488689\,x-2104258}{7058940\,(486\,x^{6}+1377\,x^{5}+1350\,x^{4}+360\,x^{3}-240\,x^{2}-176\,x-32)}+\frac{2608}{823543}\,\log(3\,x+2)-\frac{2608}{823543}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)/((3*x + 2)^6*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] -1/7058940*(12674880*x^5 + 34855920*x^4 + 33741000*x^3 + 10410810
*x^2 - 3488689*x - 2104258)/(486*x^6 + 1377*x^5 + 1350*x^4 + 360*
x^3 - 240*x^2 - 176*x - 32) + 2608/823543*log(3*x + 2) - 2608/823
543*log(2*x - 1)
```

Fricas [A] time = 0.220427, size = 182, normalized size = 2.09

$$-\frac{88724160\,x^{5}+243991440\,x^{4}+236187000\,x^{3}+72875670\,x^{2}-156480\,\left(486\,x^{6}+1377\,x^{5}+1350\,x^{4}+360\,x^{3}-240\,x^{2}-176}{49412580\,(486\,x^{6}+1377\,x^{5}+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)/((3*x + 2)^6*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] -1/49412580*(88724160*x^5 + 243991440*x^4 + 236187000*x^3 + 72875
670*x^2 - 156480*(486*x^6 + 1377*x^5 + 1350*x^4 + 360*x^3 - 240*x
^2 - 176*x - 32)*log(3*x + 2) + 156480*(486*x^6 + 1377*x^5 + 1350
*x^4 + 360*x^3 - 240*x^2 - 176*x - 32)*log(2*x - 1) - 24420823*x
- 14729806)/(486*x^6 + 1377*x^5 + 1350*x^4 + 360*x^3 - 240*x^2 -
176*x - 32)
```

Sympy [A] time = 0.523759, size = 75, normalized size = 0.86

$$-\frac{12674880x^{5}+34855920x^{4}+33741000x^{3}+10410810x^{2}-3488689x-2104258}{3430644840x^{6}+9720160380x^{5}+9529569000x^{4}+2541218400x^{3}-1694145600x^{2}-1242373440x-225886080}-\frac{2608\log\left(x-\frac{1}{2}\right)}{823543}+\frac{2608\log\left(x+\frac{2}{3}\right)}{823543}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)/(1-2*x)**2/(2+3*x)**6,x)
```

```
[Out] -(12674880*x**5 + 34855920*x**4 + 33741000*x**3 + 10410810*x**2 -
 3488689*x - 2104258)/(3430644840*x**6 + 9720160380*x**5 + 952956
9000*x**4 + 2541218400*x**3 - 1694145600*x**2 - 1242373440*x - 22
5886080) - 2608*log(x - 1/2)/823543 + 2608*log(x + 2/3)/823543
```

GIAC/XCAS [A] time = 0.207714, size = 105, normalized size = 1.21

$$-\frac{176}{117649\,(2\,x-1)}+\frac{12\left(\frac{3424365}{2\,x-1}+\frac{13259400}{(2\,x-1)^{2}}+\frac{23152500}{(2\,x-1)^{3}}+\frac{15366400}{(2\,x-1)^{4}}+335637\right)}{4117715\left(\frac{7}{2\,x-1}+3\right)^{5}}+\frac{2608}{823543}\ln\left(\left|-\frac{7}{2\,x-1}-3\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/((3*x + 2)^6*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -176/117649/(2*x - 1) + 12/4117715*(3424365/(2*x - 1) + 13259400/
(2*x - 1)^2 + 23152500/(2*x - 1)^3 + 15366400/(2*x - 1)^4 + 33563
7)/(7/(2*x - 1) + 3)^5 + 2608/823543*ln(abs(-7/(2*x - 1) - 3))
```

3.1536 $\int \frac{3+5x}{(1-2x)^2(2+3x)^7}\,dx$

Optimal. Leaf size=98

$$\frac{352}{823543(1-2x)}-\frac{2608}{823543(3x+2)}-\frac{520}{117649(3x+2)^2}-\frac{388}{50421(3x+2)^3}-\frac{32}{2401(3x+2)^4}-\frac{31}{1715(3x+2)^5}+\frac{1}{294(3x+2)^6}-\frac{128\log(1-2x)}{117649}+\frac{128\log(3x+2)}{117649}$$

```
[Out] 352/(823543*(1 - 2*x)) + 1/(294*(2 + 3*x)^6) - 31/(1715*(2 + 3*x)
^5) - 32/(2401*(2 + 3*x)^4) - 388/(50421*(2 + 3*x)^3) - 520/(1176
49*(2 + 3*x)^2) - 2608/(823543*(2 + 3*x)) - (128*Log[1 - 2*x])/11
7649 + (128*Log[2 + 3*x])/117649
```

Rubi [A] time = 0.110494, antiderivative size = 98, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{352}{823543(1-2x)}-\frac{2608}{823543(3x+2)}-\frac{520}{117649(3x+2)^2}-\frac{388}{50421(3x+2)^3}-\frac{32}{2401(3x+2)^4}-\frac{31}{1715(3x+2)^5}+\frac{1}{294(3x+2)^6}-\frac{128\log(1-2x)}{117649}+\frac{128\log(3x+2)}{117649}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)/((1 - 2*x)^2*(2 + 3*x)^7),x]
```

```
[Out] 352/(823543*(1 - 2*x)) + 1/(294*(2 + 3*x)^6) - 31/(1715*(2 + 3*x)
^5) - 32/(2401*(2 + 3*x)^4) - 388/(50421*(2 + 3*x)^3) - 520/(1176
49*(2 + 3*x)^2) - 2608/(823543*(2 + 3*x)) - (128*Log[1 - 2*x])/11
7649 + (128*Log[2 + 3*x])/117649
```

Rubi in Sympy [A] time = 13.9562, size = 83, normalized size = 0.85

$$-\frac{128\log\left(-2x+1\right)}{117649}+\frac{128\log\left(3x+2\right)}{117649}-\frac{2608}{823543\left(3x+2\right)}-\frac{520}{117649\left(3x+2\right)^{2}}-\frac{388}{50421\left(3x+2\right)^{3}}-\frac{32}{2401\left(3x+2\right)^{4}}-\frac{31}{1715\left(3x+2\right)^{5}}+\frac{1}{294\left(3x+2\right)^{6}}+\frac{352}{823543\left(-2x+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)/(1-2*x)**2/(2+3*x)**7,x)
```

```
[Out] -128*log(-2*x + 1)/117649 + 128*log(3*x + 2)/117649 - 2608/(82354
3*(3*x + 2)) - 520/(117649*(3*x + 2)**2) - 388/(50421*(3*x + 2)**
3) - 32/(2401*(3*x + 2)**4) - 31/(1715*(3*x + 2)**5) + 1/(294*(3*
x + 2)**6) + 352/(823543*(-2*x + 1))
```

Mathematica [A] time = 0.06382, size = 67, normalized size = 0.68

$$\frac{-\frac{7\left(311040x^6+1062720x^5+1398240x^4+807480x^3+84708x^2-132772x-49131\right)}{(2x-1)(3x+2)^6}-1280\log(1-2x)+1280\log(6x+4)}{1176490}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)/((1 - 2*x)^2*(2 + 3*x)^7),x]
```

```
[Out] ((-7*(-49131 - 132772*x + 84708*x^2 + 807480*x^3 + 1398240*x^4 +
1062720*x^5 + 311040*x^6))/((-1 + 2*x)*(2 + 3*x)^6) - 1280*Log[1
- 2*x] + 1280*Log[4 + 6*x])/1176490
```

Maple [A] time = 0.018, size = 81, normalized size = 0.8

$$\frac{1}{294\ (2+3\,x)^{6}}-\frac{31}{1715\ (2+3\,x)^{5}}-\frac{32}{2401\ (2+3\,x)^{4}}-\frac{388}{50421\ (2+3\,x)^{3}}-\frac{520}{117649\ (2+3\,x)^{2}}-\frac{2608}{1647086+2470629\,x}+\frac{128\ \ln(2+3\,x)}{117649}-\frac{352}{-823543+1647086\,x}-\frac{128\ \ln(-1+2\,x)}{117649}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)/(1-2*x)^2/(2+3*x)^7,x)
```

```
[Out] 1/294/(2+3*x)^6-31/1715/(2+3*x)^5-32/2401/(2+3*x)^4-388/50421/(2+
3*x)^3-520/117649/(2+3*x)^2-2608/823543/(2+3*x)+128/117649*ln(2+3
*x)-352/823543/(-1+2*x)-128/117649*ln(-1+2*x)
```

Maxima [A] time = 1.34233, size = 109, normalized size = 1.11

$$-\frac{311040\,x^{6}+1062720\,x^{5}+1398240\,x^{4}+807480\,x^{3}+84708\,x^{2}-132772\,x-49131}{168070\,(1458\,x^{7}+5103\,x^{6}+6804\,x^{5}+3780\,x^{4}-1008\,x^{2}-448\,x-64)}+\frac{128}{117649}\ \log(3\,x+2)-\frac{128}{117649}\ \log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/((3*x + 2)^7*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] -1/168070*(311040*x^6 + 1062720*x^5 + 1398240*x^4 + 807480*x^3 +
84708*x^2 - 132772*x - 49131)/(1458*x^7 + 5103*x^6 + 6804*x^5 + 3
780*x^4 - 1008*x^2 - 448*x - 64) + 128/117649*log(3*x + 2) - 128/
117649*log(2*x - 1)
```

Fricas [A] time = 0.219996, size = 189, normalized size = 1.93

$$-\frac{2177280\,x^{6}+7439040\,x^{5}+9787680\,x^{4}+5652360\,x^{3}+592956\,x^{2}-1280\,\left(1458\,x^{7}+5103\,x^{6}+6804\,x^{5}+3780\,x^{4}-1008\,x^{2}\right.}{1176490\,(1458\,x^{7}+5103\,x^{6}+6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/((3*x + 2)^7*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] -1/1176490*(2177280*x^6 + 7439040*x^5 + 9787680*x^4 + 5652360*x^3
 + 592956*x^2 - 1280*(1458*x^7 + 5103*x^6 + 6804*x^5 + 3780*x^4 -
 1008*x^2 - 448*x - 64)*log(3*x + 2) + 1280*(1458*x^7 + 5103*x^6
+ 6804*x^5 + 3780*x^4 - 1008*x^2 - 448*x - 64)*log(2*x - 1) - 929
404*x - 343917)/(1458*x^7 + 5103*x^6 + 6804*x^5 + 3780*x^4 - 1008
*x^2 - 448*x - 64)
```

Sympy [A] time = 0.564433, size = 80, normalized size = 0.82

$$-\frac{311040x^{6}+1062720x^{5}+1398240x^{4}+807480x^{3}+84708x^{2}-132772x-49131}{245046060x^{7}+857661210x^{6}+1143548280x^{5}+635304600x^{4}-169414560x^{2}-75295360x-10756480}-\frac{128\log\left(x-\frac{1}{2}\right)}{117649}+\frac{128\log\left(x+\frac{2}{3}\right)}{117649}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)/(1-2*x)**2/(2+3*x)**7,x)
```

```
[Out] -(311040*x**6 + 1062720*x**5 + 1398240*x**4 + 807480*x**3 + 84708
*x**2 - 132772*x - 49131)/(245046060*x**7 + 857661210*x**6 + 1143
548280*x**5 + 635304600*x**4 - 169414560*x**2 - 75295360*x - 1075
6480) - 128*log(x - 1/2)/117649 + 128*log(x + 2/3)/117649
```

GIAC/XCAS [A] time = 0.212518, size = 117, normalized size = 1.19

$$-\frac{352}{823543\,(2\,x-1)}+\frac{288\left(\frac{1446039}{2\,x-1}+\frac{7393365}{(2\,x-1)^{2}}+\frac{19147975}{(2\,x-1)^{3}}+\frac{25210500}{(2\,x-1)^{4}}+\frac{13529635}{(2\,x-1)^{5}}+114291\right)}{28824005\left(\frac{7}{2\,x-1}+3\right)^{6}}+\frac{128}{117649}\ln\left(\left|-\frac{7}{2\,x-1}-3\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/((3*x + 2)^7*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -352/823543/(2*x - 1) + 288/28824005*(1446039/(2*x - 1) + 7393365
/(2*x - 1)^2 + 19147975/(2*x - 1)^3 + 25210500/(2*x - 1)^4 + 1352
9635/(2*x - 1)^5 + 114291)/(7/(2*x - 1) + 3)^6 + 128/117649*ln(ab
s(-7/(2*x - 1) - 3))
```

3.1537 $\int \frac{(2+3x)^8(3+5x)^2}{(1-2x)^2}\,dx$

Optimal. Leaf size=81

$$\frac{18225x^9}{4}+\frac{1235655x^8}{32}+\frac{17378631x^7}{112}+396738x^6+\frac{235268793x^5}{320}+\frac{275757561x^4}{256}+\frac{346239417x^3}{256}+\frac{413355417x^2}{256}+\frac{2330515357x}{1024}+\frac{697540921}{2048(1-2x)}+\frac{1512848491\log(1-2x)}{1024}$$

```
[Out] 697540921/(2048*(1 - 2*x)) + (2330515357*x)/1024 + (413355417*x^2
)/256 + (346239417*x^3)/256 + (275757561*x^4)/256 + (235268793*x^
5)/320 + 396738*x^6 + (17378631*x^7)/112 + (1235655*x^8)/32 + (18
225*x^9)/4 + (1512848491*Log[1 - 2*x])/1024
```

Rubi [A] time = 0.109027, antiderivative size = 81, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{18225x^9}{4}+\frac{1235655x^8}{32}+\frac{17378631x^7}{112}+396738x^6+\frac{235268793x^5}{320}+\frac{275757561x^4}{256}+\frac{346239417x^3}{256}+\frac{413355417x^2}{256}+\frac{2330515357x}{1024}+\frac{697540921}{2048(1-2x)}+\frac{1512848491\log(1-2x)}{1024}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^8*(3 + 5*x)^2)/(1 - 2*x)^2,x]
```

```
[Out] 697540921/(2048*(1 - 2*x)) + (2330515357*x)/1024 + (413355417*x^2
)/256 + (346239417*x^3)/256 + (275757561*x^4)/256 + (235268793*x^
5)/320 + 396738*x^6 + (17378631*x^7)/112 + (1235655*x^8)/32 + (18
225*x^9)/4 + (1512848491*Log[1 - 2*x])/1024
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{18225x^9}{4}+\frac{1235655x^8}{32}+\frac{17378631x^7}{112}+396738x^6+\frac{235268793x^5}{320}+\frac{275757561x^4}{256}+\frac{346239417x^3}{256}+\frac{1512848491\log(-2x+1)}{1024}+\int\frac{2330515357}{1024}\,dx+\frac{413355417\int x\,dx}{128}+\frac{697540921}{2048(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**8*(3+5*x)**2/(1-2*x)**2,x)
```

```
[Out] 18225*x**9/4 + 1235655*x**8/32 + 17378631*x**7/112 + 396738*x**6
+ 235268793*x**5/320 + 275757561*x**4/256 + 346239417*x**3/256 +
1512848491*log(-2*x + 1)/1024 + Integral(2330515357/1024, x) + 41
3355417*Integral(x, x)/128 + 697540921/(2048*(-2*x + 1))
```

Mathematica [A] time = 0.0384268, size = 74, normalized size = 0.91

$$\frac{2612736000x^{10}+20836569600x^9+77907121920x^8+183016143360x^7+307848957696x^6+406896098112x^5+4667278257}{286720(2x}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^8*(3 + 5*x)^2)/(1 - 2*x)^2,x]
```

```
[Out] (420890769939 - 1689637297718*x + 842130532880*x^2 + 538127987040
*x^3 + 466727825760*x^4 + 406896098112*x^5 + 307848957696*x^6 + 1
83016143360*x^7 + 77907121920*x^8 + 20836569600*x^9 + 2612736000*
x^10 + 423597577480*(-1 + 2*x)*Log[1 - 2*x])/(286720*(-1 + 2*x))
```

Maple [A] time = 0.01, size = 62, normalized size = 0.8

$$\frac{18225\,x^{9}}{4}+\frac{1235655\,x^{8}}{32}+\frac{17378631\,x^{7}}{112}+396738\,x^{6}+\frac{235268793\,x^{5}}{320}+\frac{275757561\,x^{4}}{256}+\frac{346239417\,x^{3}}{256}+\frac{413355417\,x^{2}}{256}+\frac{2330515357\,x}{1024}-\frac{697540921}{-2048+4096\,x}+\frac{1512848491\,\ln\left(-1+2\,x\right)}{1024}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^8*(3+5*x)^2/(1-2*x)^2,x)
```

```
[Out] 18225/4*x^9+1235655/32*x^8+17378631/112*x^7+396738*x^6+235268793/
320*x^5+275757561/256*x^4+346239417/256*x^3+413355417/256*x^2+233
0515357/1024*x-697540921/2048/(-1+2*x)+1512848491/1024*ln(-1+2*x)
```

Maxima [A] time = 1.32686, size = 82, normalized size = 1.01

$$\frac{18225}{4}\,x^{9}+\frac{1235655}{32}\,x^{8}+\frac{17378631}{112}\,x^{7}+396738\,x^{6}+\frac{235268793}{320}\,x^{5}+\frac{275757561}{256}\,x^{4}+\frac{346239417}{256}\,x^{3}+\frac{413355417}{256}\,x^{2}+\frac{2330515357}{1024}\,x-\frac{697540921}{2048\,(2\,x-1)}+\frac{1512848491}{1024}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^8/(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 18225/4*x^9 + 1235655/32*x^8 + 17378631/112*x^7 + 396738*x^6 + 23
5268793/320*x^5 + 275757561/256*x^4 + 346239417/256*x^3 + 4133554
17/256*x^2 + 2330515357/1024*x - 697540921/2048/(2*x - 1) + 15128
48491/1024*log(2*x - 1)
```

Fricas [A] time = 0.216128, size = 97, normalized size = 1.2

$$\frac{653184000\,x^{10}+5209142400\,x^{9}+19476780480\,x^{8}+45754035840\,x^{7}+76962239424\,x^{6}+101724024528\,x^{5}+116681956440}{71680\,(2\,x-}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^8/(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 1/71680*(653184000*x^10 + 5209142400*x^9 + 19476780480*x^8 + 4575
4035840*x^7 + 76962239424*x^6 + 101724024528*x^5 + 116681956440*x
^4 + 134531996760*x^3 + 210532633220*x^2 + 105899394370*(2*x - 1)
*log(2*x - 1) - 163136074990*x - 24413932235)/(2*x - 1)
```

Sympy [A] time = 0.271709, size = 73, normalized size = 0.9

$$\frac{18225x^{9}}{4}+\frac{1235655x^{8}}{32}+\frac{17378631x^{7}}{112}+396738x^{6}+\frac{235268793x^{5}}{320}+\frac{275757561x^{4}}{256}+\frac{346239417x^{3}}{256}+\frac{413355417x^{2}}{256}+\frac{2330515357x}{1024}+\frac{1512848491\log\left(2x-1\right)}{1024}-\frac{697540921}{4096x-2048}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**8*(3+5*x)**2/(1-2*x)**2,x)
```

```
[Out] 18225*x**9/4 + 1235655*x**8/32 + 17378631*x**7/112 + 396738*x**6
+ 235268793*x**5/320 + 275757561*x**4/256 + 346239417*x**3/256 +
413355417*x**2/256 + 2330515357*x/1024 + 1512848491*log(2*x - 1)/
1024 - 697540921/(4096*x - 2048)
```

GIAC/XCAS [A] time = 0.208438, size = 150, normalized size = 1.85

$$\frac{1}{286720}(2x-1)^9\Bigg(\frac{66211425}{2x-1}+\frac{785410020}{(2x-1)^2}+\frac{5635662480}{(2x-1)^3}+\frac{27294241464}{(2x-1)^4}+\frac{94415339340}{(2x-1)^5}+\frac{241909873800}{(2x-1)^6}+\frac{47811612408}{(2x-1)^7}$$
$$-\frac{697540921}{2048(2x-1)}-\frac{1512848491}{1024}\ln\left(\frac{|2x-1|}{2(2x-1)^2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^8/(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 1/286720*(2*x - 1)^9*(66211425/(2*x - 1) + 785410020/(2*x - 1)^2
+ 5635662480/(2*x - 1)^3 + 27294241464/(2*x - 1)^4 + 94415339340/
(2*x - 1)^5 + 241909873800/(2*x - 1)^6 + 478116124080/(2*x - 1)^7
 + 826787759420/(2*x - 1)^8 + 2551500) - 697540921/2048/(2*x - 1)
 - 1512848491/1024*ln(1/2*abs(2*x - 1)/(2*x - 1)^2)
```

3.1538 $\int \frac{(2+3x)^7(3+5x)^2}{(1-2x)^2}\,dx$

Optimal. Leaf size=76

$$\frac{54675x^8}{32}+\frac{375435x^7}{28}+\frac{1597239x^6}{32}+\frac{4750569x^5}{40}+\frac{53086563x^4}{256}+\frac{18842715x^3}{64}+\frac{195497697x^2}{512}+\frac{9077405x}{16}+\frac{99648703}{1024(1-2x)}+\frac{389535839\log(1-2x)}{1024}$$

```
[Out] 99648703/(1024*(1 - 2*x)) + (9077405*x)/16 + (195497697*x^2)/512
+ (18842715*x^3)/64 + (53086563*x^4)/256 + (4750569*x^5)/40 + (15
97239*x^6)/32 + (375435*x^7)/28 + (54675*x^8)/32 + (389535839*Log
[1 - 2*x])/1024
```

Rubi [A] time = 0.0945044, antiderivative size = 76, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{54675x^8}{32}+\frac{375435x^7}{28}+\frac{1597239x^6}{32}+\frac{4750569x^5}{40}+\frac{53086563x^4}{256}+\frac{18842715x^3}{64}+\frac{195497697x^2}{512}+\frac{9077405x}{16}+\frac{99648703}{1024(1-2x)}+\frac{389535839\log(1-2x)}{1024}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^7*(3 + 5*x)^2)/(1 - 2*x)^2,x]
```

```
[Out] 99648703/(1024*(1 - 2*x)) + (9077405*x)/16 + (195497697*x^2)/512
+ (18842715*x^3)/64 + (53086563*x^4)/256 + (4750569*x^5)/40 + (15
97239*x^6)/32 + (375435*x^7)/28 + (54675*x^8)/32 + (389535839*Log
[1 - 2*x])/1024
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{54675x^8}{32}+\frac{375435x^7}{28}+\frac{1597239x^6}{32}+\frac{4750569x^5}{40}+\frac{53086563x^4}{256}+\frac{18842715x^3}{64}+\frac{389535839\log(-2x+1)}{1024}+\int\frac{9077405}{16}\,dx+\frac{195497697\int x\,dx}{256}+\frac{99648703}{1024(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**7*(3+5*x)**2/(1-2*x)**2,x)
```

```
[Out] 54675*x**8/32 + 375435*x**7/28 + 1597239*x**6/32 + 4750569*x**5/4
0 + 53086563*x**4/256 + 18842715*x**3/64 + 389535839*log(-2*x + 1
)/1024 + Integral(9077405/16, x) + 195497697*Integral(x, x)/256 +
 99648703/(1024*(-2*x + 1))
```

Mathematica [A] time = 0.0285626, size = 69, normalized size = 0.91

$$\frac{979776000x^9+7199020800x^8+24778068480x^7+53792895744x^6+84861822528x^5+109373775840x^4+134542057440x^3}{286720(2x-1)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^7*(3 + 5*x)^2)/(1 - 2*x)^2,x]
```

```
[Out] (96389258691 - 411248888662*x + 215855484880*x^2 + 134542057440*x
^3 + 109373775840*x^4 + 84861822528*x^5 + 53792895744*x^6 + 24778
068480*x^7 + 7199020800*x^8 + 979776000*x^9 + 109070034920*(-1 +
2*x)*Log[1 - 2*x])/(286720*(-1 + 2*x))
```

Maple [A] time = 0.009, size = 57, normalized size = 0.8

$$\frac{54675\,x^8}{32}+\frac{375435\,x^7}{28}+\frac{1597239\,x^6}{32}+\frac{4750569\,x^5}{40}+\frac{53086563\,x^4}{256}+\frac{18842715\,x^3}{64}+\frac{195497697\,x^2}{512}+\frac{9077405\,x}{16}-\frac{99648703}{-1024+2048\,x}+\frac{389535839\,\ln\left(-1+2\,x\right)}{1024}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^7*(3+5*x)^2/(1-2*x)^2,x)
```

```
[Out] 54675/32*x^8+375435/28*x^7+1597239/32*x^6+4750569/40*x^5+53086563
/256*x^4+18842715/64*x^3+195497697/512*x^2+9077405/16*x-99648703/
1024/(-1+2*x)+389535839/1024*ln(-1+2*x)
```

Maxima [A] time = 1.34109, size = 76, normalized size = 1.

$$\frac{54675}{32}\,x^8+\frac{375435}{28}\,x^7+\frac{1597239}{32}\,x^6+\frac{4750569}{40}\,x^5+\frac{53086563}{256}\,x^4+\frac{18842715}{64}\,x^3+\frac{195497697}{512}\,x^2+\frac{9077405}{16}\,x-\frac{99648703}{1024\,(2\,x-1)}+\frac{389535839}{1024}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^7/(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 54675/32*x^8 + 375435/28*x^7 + 1597239/32*x^6 + 4750569/40*x^5 +
53086563/256*x^4 + 18842715/64*x^3 + 195497697/512*x^2 + 9077405/
16*x - 99648703/1024/(2*x - 1) + 389535839/1024*log(2*x - 1)
```

Fricas [A] time = 0.226057, size = 90, normalized size = 1.18

$$\frac{122472000\,x^9+899877600\,x^8+3097258560\,x^7+6724111968\,x^6+10607727816\,x^5+13671721980\,x^4+16817757180\,x^3+2}{35840\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^7/(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 1/35840*(122472000*x^9 + 899877600*x^8 + 3097258560*x^7 + 6724111
968*x^6 + 10607727816*x^5 + 13671721980*x^4 + 16817757180*x^3 + 2
6981935610*x^2 + 13633754365*(2*x - 1)*log(2*x - 1) - 20333387200
*x - 3487704605)/(2*x - 1)
```

Sympy [A] time = 0.262571, size = 68, normalized size = 0.89

$$\frac{54675x^8}{32}+\frac{375435x^7}{28}+\frac{1597239x^6}{32}+\frac{4750569x^5}{40}+\frac{53086563x^4}{256}+\frac{18842715x^3}{64}+\frac{195497697x^2}{512}+\frac{9077405x}{16}+\frac{389535839\log\left(2x-1\right)}{1024}-\frac{99648703}{2048x-1024}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**7*(3+5*x)**2/(1-2*x)**2,x)
```

```
[Out] 54675*x**8/32 + 375435*x**7/28 + 1597239*x**6/32 + 4750569*x**5/4
0 + 53086563*x**4/256 + 18842715*x**3/64 + 195497697*x**2/512 + 9
077405*x/16 + 389535839*log(2*x - 1)/1024 - 99648703/(2048*x - 10
24)
```

GIAC/XCAS [A] time = 0.21032, size = 138, normalized size = 1.82

$$\frac{1}{286720}\,(2\,x-1)^{8}\Bigg(\frac{45343800}{2\,x-1}+\frac{487438560}{(2\,x-1)^{2}}+\frac{3143702016}{(2\,x-1)^{3}}+\frac{13576070340}{(2\,x-1)^{4}}+\frac{41688082800}{(2\,x-1)^{5}}+\frac{96001584000}{(2\,x-1)^{6}}+\frac{189480773440}{(2\,x-1)^{7}}$$

$$-\frac{99648703}{1024\,(2\,x-1)}-\frac{389535839}{1024}\ln\left(\frac{|2\,x-1|}{2\,(2\,x-1)^{2}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^7/(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 1/286720*(2*x - 1)^8*(45343800/(2*x - 1) + 487438560/(2*x - 1)^2
+ 3143702016/(2*x - 1)^3 + 13576070340/(2*x - 1)^4 + 41688082800/
(2*x - 1)^5 + 96001584000/(2*x - 1)^6 + 189480773440/(2*x - 1)^7
+ 1913625) - 99648703/1024/(2*x - 1) - 389535839/1024*ln(1/2*abs(
2*x - 1)/(2*x - 1)^2)
```

3.1539 $\int \frac{(2+3x)^6(3+5x)^2}{(1-2x)^2}\,dx$

Optimal. Leaf size=69

$$\frac{18225x^7}{28}+\frac{37665x^6}{8}+\frac{1295919x^5}{80}+\frac{575775x^4}{16}+\frac{3851307x^3}{64}+\frac{11140101x^2}{128}+\frac{35458963x}{256}+\frac{14235529}{512(1-2x)}+\frac{12386759}{128}\log(1-2x)$$

```
[Out] 14235529/(512*(1 - 2*x)) + (35458963*x)/256 + (11140101*x^2)/128
+ (3851307*x^3)/64 + (575775*x^4)/16 + (1295919*x^5)/80 + (37665*
x^6)/8 + (18225*x^7)/28 + (12386759*Log[1 - 2*x])/128
```

Rubi [A] time = 0.0885588, antiderivative size = 69, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{18225x^7}{28}+\frac{37665x^6}{8}+\frac{1295919x^5}{80}+\frac{575775x^4}{16}+\frac{3851307x^3}{64}+\frac{11140101x^2}{128}+\frac{35458963x}{256}+\frac{14235529}{512(1-2x)}+\frac{12386759}{128}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In] Int[((2 + 3*x)^6*(3 + 5*x)^2)/(1 - 2*x)^2,x]
```

```
[Out] 14235529/(512*(1 - 2*x)) + (35458963*x)/256 + (11140101*x^2)/128
+ (3851307*x^3)/64 + (575775*x^4)/16 + (1295919*x^5)/80 + (37665*
x^6)/8 + (18225*x^7)/28 + (12386759*Log[1 - 2*x])/128
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{18225x^7}{28}+\frac{37665x^6}{8}+\frac{1295919x^5}{80}+\frac{575775x^4}{16}+\frac{3851307x^3}{64}+\frac{12386759\log(-2x+1)}{128}+\int\frac{35458963}{256}\,dx+\frac{11140101\int x\,dx}{64}+\frac{14235529}{512(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**6*(3+5*x)**2/(1-2*x)**2,x)
```

```
[Out] 18225*x**7/28 + 37665*x**6/8 + 1295919*x**5/80 + 575775*x**4/16 +
 3851307*x**3/64 + 12386759*log(-2*x + 1)/128 + Integral(35458963
/256, x) + 11140101*Integral(x, x)/64 + 14235529/(512*(-2*x + 1))
```

Mathematica [A] time = 0.033547, size = 64, normalized size = 0.93

$$\frac{23328000x^8+157075200x^7+496202112x^6+999450144x^5+1511863920x^4+2040862320x^3+3404640680x^2-6115223546}{17920(2x-1)}$$

Antiderivative was successfully verified.

```
[In] Integrate[((2 + 3*x)^6*(3 + 5*x)^2)/(1 - 2*x)^2,x]
```

```
[Out] (1318304553 - 6115223546*x + 3404640680*x^2 + 2040862320*x^3 + 15
11863920*x^4 + 999450144*x^5 + 496202112*x^6 + 157075200*x^7 + 23
328000*x^8 + 1734146260*(-1 + 2*x)*Log[1 - 2*x])/(17920*(-1 + 2*x
```

```
))
```

Maple [A] time = 0.01, size = 52, normalized size = 0.8

$$\frac{18225\,x^7}{28}+\frac{37665\,x^6}{8}+\frac{1295919\,x^5}{80}+\frac{575775\,x^4}{16}+\frac{3851307\,x^3}{64}+\frac{11140101\,x^2}{128}+\frac{35458963\,x}{256}-\frac{14235529}{-512+1024\,x}+\frac{12386759\ \ln(-1+2\,x)}{128}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^6*(3+5*x)^2/(1-2*x)^2,x)
```

```
[Out] 18225/28*x^7+37665/8*x^6+1295919/80*x^5+575775/16*x^4+3851307/64*
x^3+11140101/128*x^2+35458963/256*x-14235529/512/(-1+2*x)+1238675
9/128*ln(-1+2*x)
```

Maxima [A] time = 1.32793, size = 69, normalized size = 1.

$$\frac{18225}{28}\,x^7+\frac{37665}{8}\,x^6+\frac{1295919}{80}\,x^5+\frac{575775}{16}\,x^4+\frac{3851307}{64}\,x^3+\frac{11140101}{128}\,x^2+\frac{35458963}{256}\,x-\frac{14235529}{512\,(2\,x-1)}+\frac{12386759}{128}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^6/(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 18225/28*x^7 + 37665/8*x^6 + 1295919/80*x^5 + 575775/16*x^4 + 385
1307/64*x^3 + 11140101/128*x^2 + 35458963/256*x - 14235529/512/(2
*x - 1) + 12386759/128*log(2*x - 1)
```

Fricas [A] time = 0.224704, size = 84, normalized size = 1.22

$$\frac{23328000\,x^8+157075200\,x^7+496202112\,x^6+999450144\,x^5+1511863920\,x^4+2040862320\,x^3+3404640680\,x^2+1734146}{17920\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^6/(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 1/17920*(23328000*x^8 + 157075200*x^7 + 496202112*x^6 + 999450144
*x^5 + 1511863920*x^4 + 2040862320*x^3 + 3404640680*x^2 + 1734146
260*(2*x - 1)*log(2*x - 1) - 2482127410*x - 498243515)/(2*x - 1)
```

Sympy [A] time = 0.254365, size = 61, normalized size = 0.88

$$\frac{18225x^7}{28}+\frac{37665x^6}{8}+\frac{1295919x^5}{80}+\frac{575775x^4}{16}+\frac{3851307x^3}{64}+\frac{11140101x^2}{128}+\frac{35458963x}{256}+\frac{12386759\log(2x-1)}{128}-\frac{14235529}{1024x-512}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**6*(3+5*x)**2/(1-2*x)**2,x)
```

```
[Out] 18225*x**7/28 + 37665*x**6/8 + 1295919*x**5/80 + 575775*x**4/16 +
 3851307*x**3/64 + 11140101*x**2/128 + 35458963*x/256 + 12386759*
log(2*x - 1)/128 - 14235529/(1024*x - 512)
```

GIAC/XCAS [A] time = 0.210623, size = 126, normalized size = 1.83

$$\frac{1}{17920}\,(2\,x-1)^{7}\left(\frac{1956150}{2\,x-1}+\frac{18894708}{(2\,x-1)^{2}}+\frac{108624915}{(2\,x-1)^{3}}+\frac{416281950}{(2\,x-1)^{4}}+\frac{1148518350}{(2\,x-1)^{5}}+\frac{2640379700}{(2\,x-1)^{6}}+91125\right)-\frac{14235529}{512\,(2\,x-1)}-\frac{12386759}{128}\ln\left(\frac{|2\,x-1|}{2\,(2\,x-1)^{2}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^6/(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 1/17920*(2*x - 1)^7*(1956150/(2*x - 1) + 18894708/(2*x - 1)^2 + 1
08624915/(2*x - 1)^3 + 416281950/(2*x - 1)^4 + 1148518350/(2*x -
1)^5 + 2640379700/(2*x - 1)^6 + 91125) - 14235529/512/(2*x - 1) -
 12386759/128*ln(1/2*abs(2*x - 1)/(2*x - 1)^2)
```

3.1540 $\int \frac{(2+3x)^5(3+5x)^2}{(1-2x)^2} dx$

Optimal. Leaf size=62

$$\frac{2025x^6}{8}+\frac{6723x^5}{4}+\frac{342333x^4}{64}+\frac{89913x^3}{8}+\frac{2412699x^2}{128}+\frac{2104901x}{64}+\frac{2033647}{256(1-2x)}+\frac{6206585}{256}\log(1-2x)$$

```
[Out] 2033647/(256*(1 - 2*x)) + (2104901*x)/64 + (2412699*x^2)/128 + (8
9913*x^3)/8 + (342333*x^4)/64 + (6723*x^5)/4 + (2025*x^6)/8 + (62
06585*Log[1 - 2*x])/256
```

Rubi [A] time = 0.0802287, antiderivative size = 62, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{2025x^6}{8}+\frac{6723x^5}{4}+\frac{342333x^4}{64}+\frac{89913x^3}{8}+\frac{2412699x^2}{128}+\frac{2104901x}{64}+\frac{2033647}{256(1-2x)}+\frac{6206585}{256}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^5*(3 + 5*x)^2)/(1 - 2*x)^2,x]
```

```
[Out] 2033647/(256*(1 - 2*x)) + (2104901*x)/64 + (2412699*x^2)/128 + (8
9913*x^3)/8 + (342333*x^4)/64 + (6723*x^5)/4 + (2025*x^6)/8 + (62
06585*Log[1 - 2*x])/256
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{2025x^6}{8}+\frac{6723x^5}{4}+\frac{342333x^4}{64}+\frac{89913x^3}{8}+\frac{6206585\log(-2x+1)}{256}+\int\frac{2104901}{64}dx+\frac{2412699\int x\,dx}{64}+\frac{2033647}{256(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**5*(3+5*x)**2/(1-2*x)**2,x)
```

```
[Out] 2025*x**6/8 + 6723*x**5/4 + 342333*x**4/64 + 89913*x**3/8 + 62065
85*log(-2*x + 1)/256 + Integral(2104901/64, x) + 2412699*Integral
(x, x)/64 + 2033647/(256*(-2*x + 1))
```

Mathematica [A] time = 0.0268645, size = 59, normalized size = 0.95

$$\frac{518400x^7+3182976x^6+9233568x^5+17540400x^4+27094320x^3+48055240x^2-80685178x+24826340(2x-1)\log(1-2}{1024(2x-1)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^5*(3 + 5*x)^2)/(1 - 2*x)^2,x]
```

```
[Out] (15368793 - 80685178*x + 48055240*x^2 + 27094320*x^3 + 17540400*x
^4 + 9233568*x^5 + 3182976*x^6 + 518400*x^7 + 24826340*(-1 + 2*x)
*Log[1 - 2*x])/(1024*(-1 + 2*x))
```

Maple [A] time = 0.009, size = 47, normalized size = 0.8

$$\frac{2025 x^6}{8}+\frac{6723 x^5}{4}+\frac{342333 x^4}{64}+\frac{89913 x^3}{8}+\frac{2412699 x^2}{128}+\frac{2104901 x}{64}-\frac{2033647}{-256+512 x}+\frac{6206585 \ln(-1+2 x)}{256}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^5*(3+5*x)^2/(1-2*x)^2,x)
```

```
[Out] 2025/8*x^6+6723/4*x^5+342333/64*x^4+89913/8*x^3+2412699/128*x^2+2
104901/64*x-2033647/256/(-1+2*x)+6206585/256*ln(-1+2*x)
```

Maxima [A] time = 1.35311, size = 62, normalized size = 1.

$$\frac{2025}{8}x^6+\frac{6723}{4}x^5+\frac{342333}{64}x^4+\frac{89913}{8}x^3+\frac{2412699}{128}x^2+\frac{2104901}{64}x-\frac{2033647}{256(2x-1)}+\frac{6206585}{256}\log(2x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^5/(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 2025/8*x^6 + 6723/4*x^5 + 342333/64*x^4 + 89913/8*x^3 + 2412699/1
28*x^2 + 2104901/64*x - 2033647/256/(2*x - 1) + 6206585/256*log(2
*x - 1)
```

Fricas [A] time = 0.218673, size = 77, normalized size = 1.24

$$\frac{129600 x^7+795744 x^6+2308392 x^5+4385100 x^4+6773580 x^3+12013810 x^2+6206585(2x-1)\log(2x-1)-8419604 x}{256(2x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^5/(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 1/256*(129600*x^7 + 795744*x^6 + 2308392*x^5 + 4385100*x^4 + 6773
580*x^3 + 12013810*x^2 + 6206585*(2*x - 1)*log(2*x - 1) - 8419604
*x - 2033647)/(2*x - 1)
```

Sympy [A] time = 0.247278, size = 54, normalized size = 0.87

$$\frac{2025x^6}{8}+\frac{6723x^5}{4}+\frac{342333x^4}{64}+\frac{89913x^3}{8}+\frac{2412699x^2}{128}+\frac{2104901x}{64}+\frac{6206585\log(2x-1)}{256}-\frac{2033647}{512x-256}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**5*(3+5*x)**2/(1-2*x)**2,x)
```

```
[Out] 2025*x**6/8 + 6723*x**5/4 + 342333*x**4/64 + 89913*x**3/8 + 24126
99*x**2/128 + 2104901*x/64 + 6206585*log(2*x - 1)/256 - 2033647/(
512*x - 256)
```

GIAC/XCAS [A] time = 0.216083, size = 113, normalized size = 1.82

$$\frac{1}{1024}\,(2\,x-1)^{6}\left(\frac{78084}{2\,x-1}+\frac{672003}{(2\,x-1)^{2}}+\frac{3426780}{(2\,x-1)^{3}}+\frac{11793810}{(2\,x-1)^{4}}+\frac{32468380}{(2\,x-1)^{5}}+4050\right)-\frac{2033647}{256\,(2\,x-1)}-\frac{6206585}{256}\ln\left(\frac{|2\,x-1|}{2\,(2\,x-1)^{2}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^5/(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 1/1024*(2*x - 1)^6*(78084/(2*x - 1) + 672003/(2*x - 1)^2 + 342678
0/(2*x - 1)^3 + 11793810/(2*x - 1)^4 + 32468380/(2*x - 1)^5 + 405
0) - 2033647/256/(2*x - 1) - 6206585/256*ln(1/2*abs(2*x - 1)/(2*x
 - 1)^2)
```

3.1541 $\int \frac{(2+3x)^4(3+5x)^2}{(1-2x)^2}\,dx$

Optimal. Leaf size=55

$$\frac{405x^5}{4}+\frac{9855x^4}{16}+\frac{29277x^3}{16}+\frac{15159x^2}{4}+\frac{480841x}{64}+\frac{290521}{128(1-2x)}+\frac{381073}{64}\log(1-2x)$$

```
[Out] 290521/(128*(1 - 2*x)) + (480841*x)/64 + (15159*x^2)/4 + (29277*x
^3)/16 + (9855*x^4)/16 + (405*x^5)/4 + (381073*Log[1 - 2*x])/64
```

Rubi [A] time = 0.0723782, antiderivative size = 55, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{405x^5}{4}+\frac{9855x^4}{16}+\frac{29277x^3}{16}+\frac{15159x^2}{4}+\frac{480841x}{64}+\frac{290521}{128(1-2x)}+\frac{381073}{64}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^4*(3 + 5*x)^2)/(1 - 2*x)^2,x]
```

```
[Out] 290521/(128*(1 - 2*x)) + (480841*x)/64 + (15159*x^2)/4 + (29277*x
^3)/16 + (9855*x^4)/16 + (405*x^5)/4 + (381073*Log[1 - 2*x])/64
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{405x^5}{4}+\frac{9855x^4}{16}+\frac{29277x^3}{16}+\frac{381073\log(-2x+1)}{64}+\int\frac{480841}{64}\,dx+\frac{15159\int x\,dx}{2}+\frac{290521}{128(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4*(3+5*x)**2/(1-2*x)**2,x)
```

```
[Out] 405*x**5/4 + 9855*x**4/16 + 29277*x**3/16 + 381073*log(-2*x + 1)/
64 + Integral(480841/64, x) + 15159*Integral(x, x)/2 + 290521/(12
8*(-2*x + 1))
```

Mathematica [A] time = 0.0309692, size = 54, normalized size = 0.98

$$\frac{51840x^6+289440x^5+779184x^4+1471920x^3+2876552x^2-4470254x+1524292(2x-1)\log(1-2x)+692403}{256(2x-1)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^4*(3 + 5*x)^2)/(1 - 2*x)^2,x]
```

```
[Out] (692403 - 4470254*x + 2876552*x^2 + 1471920*x^3 + 779184*x^4 + 28
9440*x^5 + 51840*x^6 + 1524292*(-1 + 2*x)*Log[1 - 2*x])/(256*(-1
+ 2*x))
```

Maple [A] time = 0.011, size = 42, normalized size = 0.8

$$\frac{405\,x^5}{4}+\frac{9855\,x^4}{16}+\frac{29277\,x^3}{16}+\frac{15159\,x^2}{4}+\frac{480841\,x}{64}-\frac{290521}{-128+256\,x}+\frac{381073\,\ln(-1+2\,x)}{64}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4*(3+5*x)^2/(1-2*x)^2,x)
```

```
[Out] 405/4*x^5+9855/16*x^4+29277/16*x^3+15159/4*x^2+480841/64*x-290521
/128/(-1+2*x)+381073/64*ln(-1+2*x)
```

Maxima [A] time = 1.35844, size = 55, normalized size = 1.

$$\frac{405}{4}\,x^5+\frac{9855}{16}\,x^4+\frac{29277}{16}\,x^3+\frac{15159}{4}\,x^2+\frac{480841}{64}\,x-\frac{290521}{128\,(2\,x-1)}+\frac{381073}{64}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^4/(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 405/4*x^5 + 9855/16*x^4 + 29277/16*x^3 + 15159/4*x^2 + 480841/64*
x - 290521/128/(2*x - 1) + 381073/64*log(2*x - 1)
```

Fricas [A] time = 0.209972, size = 70, normalized size = 1.27

$$\frac{25920\,x^6+144720\,x^5+389592\,x^4+735960\,x^3+1438276\,x^2+762146\,(2\,x-1)\log\left(2\,x-1\right)-961682\,x-290521}{128\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^4/(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 1/128*(25920*x^6 + 144720*x^5 + 389592*x^4 + 735960*x^3 + 1438276
*x^2 + 762146*(2*x - 1)*log(2*x - 1) - 961682*x - 290521)/(2*x -
1)
```

Sympy [A] time = 0.230216, size = 48, normalized size = 0.87

$$\frac{405x^5}{4}+\frac{9855x^4}{16}+\frac{29277x^3}{16}+\frac{15159x^2}{4}+\frac{480841x}{64}+\frac{381073\log\left(2x-1\right)}{64}-\frac{290521}{256x-128}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4*(3+5*x)**2/(1-2*x)**2,x)
```

```
[Out] 405*x**5/4 + 9855*x**4/16 + 29277*x**3/16 + 15159*x**2/4 + 480841
*x/64 + 381073*log(2*x - 1)/64 - 290521/(256*x - 128)
```

GIAC/XCAS [A] time = 0.212503, size = 101, normalized size = 1.84

$$\frac{1}{256}\,(2\,x-1)^5\left(\frac{13905}{2\,x-1}+\frac{106074}{(2\,x-1)^2}+\frac{485436}{(2\,x-1)^3}+\frac{1665902}{(2\,x-1)^4}+810\right)-\frac{290521}{128\,(2\,x-1)}-\frac{381073}{64}\,\ln\left(\frac{|2\,x-1|}{2\,(2\,x-1)^2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^4/(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 1/256*(2*x - 1)^5*(13905/(2*x - 1) + 106074/(2*x - 1)^2 + 485436/
(2*x - 1)^3 + 1665902/(2*x - 1)^4 + 810) - 290521/128/(2*x - 1) -
 381073/64*ln(1/2*abs(2*x - 1)/(2*x - 1)^2)
```

3.1542 $\int \frac{(2+3x)^3(3+5x)^2}{(1-2x)^2}\,dx$

Optimal. Leaf size=48

$$\frac{675x^4}{16}+\frac{945x^3}{4}+\frac{21717x^2}{32}+\frac{12973x}{8}+\frac{41503}{64(1-2x)}+\frac{91091}{64}\log(1-2x)$$

```
[Out] 41503/(64*(1 - 2*x)) + (12973*x)/8 + (21717*x^2)/32 + (945*x^3)/4
 + (675*x^4)/16 + (91091*Log[1 - 2*x])/64
```

Rubi [A] time = 0.0641672, antiderivative size = 48, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{675x^4}{16}+\frac{945x^3}{4}+\frac{21717x^2}{32}+\frac{12973x}{8}+\frac{41503}{64(1-2x)}+\frac{91091}{64}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^3*(3 + 5*x)^2)/(1 - 2*x)^2,x]
```

```
[Out] 41503/(64*(1 - 2*x)) + (12973*x)/8 + (21717*x^2)/32 + (945*x^3)/4
 + (675*x^4)/16 + (91091*Log[1 - 2*x])/64
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{675x^4}{16}+\frac{945x^3}{4}+\frac{91091\log(-2x+1)}{64}+\int\frac{12973}{8}\,dx+\frac{21717\int x\,dx}{16}+\frac{41503}{64(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3*(3+5*x)**2/(1-2*x)**2,x)
```

```
[Out] 675*x**4/16 + 945*x**3/4 + 91091*log(-2*x + 1)/64 + Integral(1297
3/8, x) + 21717*Integral(x, x)/16 + 41503/(64*(-2*x + 1))
```

Mathematica [A] time = 0.023865, size = 49, normalized size = 1.02

$$\frac{21600x^5+110160x^4+286992x^3+656536x^2-933610x+364364(2x-1)\log(1-2x)+93225}{256(2x-1)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^3*(3 + 5*x)^2)/(1 - 2*x)^2,x]
```

```
[Out] (93225 - 933610*x + 656536*x^2 + 286992*x^3 + 110160*x^4 + 21600*
x^5 + 364364*(-1 + 2*x)*Log[1 - 2*x])/(256*(-1 + 2*x))
```

Maple [A] time = 0.009, size = 37, normalized size = 0.8

$$\frac{675\,x^4}{16}+\frac{945\,x^3}{4}+\frac{21717\,x^2}{32}+\frac{12973\,x}{8}-\frac{41503}{-64+128\,x}+\frac{91091\,\ln(-1+2\,x)}{64}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3*(3+5*x)^2/(1-2*x)^2,x)
```

```
[Out] 675/16*x^4+945/4*x^3+21717/32*x^2+12973/8*x-41503/64/(-1+2*x)+910
91/64*ln(-1+2*x)
```

Maxima [A] time = 1.33758, size = 49, normalized size = 1.02

$$\frac{675}{16}\,x^4+\frac{945}{4}\,x^3+\frac{21717}{32}\,x^2+\frac{12973}{8}\,x-\frac{41503}{64\,(2\,x-1)}+\frac{91091}{64}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^3/(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 675/16*x^4 + 945/4*x^3 + 21717/32*x^2 + 12973/8*x - 41503/64/(2*x
 - 1) + 91091/64*log(2*x - 1)
```

Fricas [A] time = 0.205551, size = 63, normalized size = 1.31

$$\frac{5400\,x^5+27540\,x^4+71748\,x^3+164134\,x^2+91091\,(2\,x-1)\log\left(2\,x-1\right)-103784\,x-41503}{64\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^3/(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 1/64*(5400*x^5 + 27540*x^4 + 71748*x^3 + 164134*x^2 + 91091*(2*x
- 1)*log(2*x - 1) - 103784*x - 41503)/(2*x - 1)
```

Sympy [A] time = 0.219413, size = 41, normalized size = 0.85

$$\frac{675x^4}{16}+\frac{945x^3}{4}+\frac{21717x^2}{32}+\frac{12973x}{8}+\frac{91091\log\left(2x-1\right)}{64}-\frac{41503}{128x-64}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3*(3+5*x)**2/(1-2*x)**2,x)
```

```
[Out] 675*x**4/16 + 945*x**3/4 + 21717*x**2/32 + 12973*x/8 + 91091*log(
2*x - 1)/64 - 41503/(128*x - 64)
```

GIAC/XCAS [A] time = 0.214989, size = 89, normalized size = 1.85

$$\frac{1}{256}\,(2\,x-1)^4\left(\frac{10260}{2\,x-1}+\frac{70164}{(2\,x-1)^2}+\frac{319816}{(2\,x-1)^3}+675\right)-\frac{41503}{64\,(2\,x-1)}-\frac{91091}{64}\,\ln\left(\frac{|2\,x-1|}{2\,(2\,x-1)^2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^3/(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 1/256*(2*x - 1)^4*(10260/(2*x - 1) + 70164/(2*x - 1)^2 + 319816/(
2*x - 1)^3 + 675) - 41503/64/(2*x - 1) - 91091/64*ln(1/2*abs(2*x
- 1)/(2*x - 1)^2)
```

3.1543 $\int \frac{(2+3x)^2(3+5x)^2}{(1-2x)^2}\,dx$

Optimal. Leaf size=41

$$\frac{75x^3}{4}+\frac{795x^2}{8}+\frac{5119x}{16}+\frac{5929}{32(1-2x)}+\frac{1309}{4}\log(1-2x)$$

```
[Out] 5929/(32*(1 - 2*x)) + (5119*x)/16 + (795*x^2)/8 + (75*x^3)/4 + (1
309*Log[1 - 2*x])/4
```

Rubi [A] time = 0.0604726, antiderivative size = 41, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{75x^3}{4}+\frac{795x^2}{8}+\frac{5119x}{16}+\frac{5929}{32(1-2x)}+\frac{1309}{4}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^2*(3 + 5*x)^2)/(1 - 2*x)^2,x]
```

```
[Out] 5929/(32*(1 - 2*x)) + (5119*x)/16 + (795*x^2)/8 + (75*x^3)/4 + (1
309*Log[1 - 2*x])/4
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{75x^3}{4}+\frac{1309\log(-2x+1)}{4}+\int\frac{5119}{16}\,dx+\frac{795\int x\,dx}{4}+\frac{5929}{32(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2*(3+5*x)**2/(1-2*x)**2,x)
```

```
[Out] 75*x**3/4 + 1309*log(-2*x + 1)/4 + Integral(5119/16, x) + 795*Int
egral(x, x)/4 + 5929/(32*(-2*x + 1))
```

Mathematica [A] time = 0.0243373, size = 41, normalized size = 1.

$$\frac{300x^4+1440x^3+4324x^2-5554x+2618(2x-1)\log(1-2x)+15}{16x-8}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^2*(3 + 5*x)^2)/(1 - 2*x)^2,x]
```

```
[Out] (15 - 5554*x + 4324*x^2 + 1440*x^3 + 300*x^4 + 2618*(-1 + 2*x)*Lo
g[1 - 2*x])/(-8 + 16*x)
```

Maple [A] time = 0.008, size = 32, normalized size = 0.8

$$\frac{75\,x^3}{4}+\frac{795\,x^2}{8}+\frac{5119\,x}{16}-\frac{5929}{-32+64\,x}+\frac{1309\,\ln(-1+2\,x)}{4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2*(3+5*x)^2/(1-2*x)^2,x)
```

```
[Out] 75/4*x^3+795/8*x^2+5119/16*x-5929/32/(-1+2*x)+1309/4*ln(-1+2*x)
```

Maxima [A] time = 1.35785, size = 42, normalized size = 1.02

$$\frac{75}{4}\,x^3 + \frac{795}{8}\,x^2 + \frac{5119}{16}\,x - \frac{5929}{32\,(2\,x-1)} + \frac{1309}{4}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^2/(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 75/4*x^3 + 795/8*x^2 + 5119/16*x - 5929/32/(2*x - 1) + 1309/4*log
(2*x - 1)
```

Fricas [A] time = 0.204143, size = 57, normalized size = 1.39

$$\frac{1200\,x^4 + 5760\,x^3 + 17296\,x^2 + 10472\,(2\,x-1)\log(2\,x-1) - 10238\,x - 5929}{32\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^2/(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 1/32*(1200*x^4 + 5760*x^3 + 17296*x^2 + 10472*(2*x - 1)*log(2*x -
 1) - 10238*x - 5929)/(2*x - 1)
```

Sympy [A] time = 0.202696, size = 34, normalized size = 0.83

$$\frac{75x^3}{4} + \frac{795x^2}{8} + \frac{5119x}{16} + \frac{1309\log(2x-1)}{4} - \frac{5929}{64x-32}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2*(3+5*x)**2/(1-2*x)**2,x)
```

```
[Out] 75*x**3/4 + 795*x**2/8 + 5119*x/16 + 1309*log(2*x - 1)/4 - 5929/(
64*x - 32)
```

GIAC/XCAS [A] time = 0.219024, size = 77, normalized size = 1.88

$$\frac{1}{32}\,(2\,x-1)^3\left(\frac{1020}{2\,x-1} + \frac{6934}{(2\,x-1)^2} + 75\right) - \frac{5929}{32\,(2\,x-1)} - \frac{1309}{4}\ln\left(\frac{|2\,x-1|}{2\,(2\,x-1)^2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^2/(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 1/32*(2*x - 1)^3*(1020/(2*x - 1) + 6934/(2*x - 1)^2 + 75) - 5929/
32/(2*x - 1) - 1309/4*ln(1/2*abs(2*x - 1)/(2*x - 1)^2)
```

3.1544 $\int \frac{(2+3x)(3+5x)^2}{(1-2x)^2} dx$

Optimal. Leaf size=34

$$\frac{75x^2}{8} + \frac{215x}{4} + \frac{847}{16(1-2x)} + \frac{1133}{16}\log(1-2x)$$

```
[Out] 847/(16*(1 - 2*x)) + (215*x)/4 + (75*x^2)/8 + (1133*Log[1 - 2*x])
/16
```

Rubi [A] time = 0.0457221, antiderivative size = 34, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$\frac{75x^2}{8} + \frac{215x}{4} + \frac{847}{16(1-2x)} + \frac{1133}{16}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In] Int[((2 + 3*x)*(3 + 5*x)^2)/(1 - 2*x)^2,x]
```

```
[Out] 847/(16*(1 - 2*x)) + (215*x)/4 + (75*x^2)/8 + (1133*Log[1 - 2*x])
/16
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{1133\log(-2x+1)}{16} + \int \frac{215}{4}\,dx + \frac{75\int x\,dx}{4} + \frac{847}{16(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)*(3+5*x)**2/(1-2*x)**2,x)
```

```
[Out] 1133*log(-2*x + 1)/16 + Integral(215/4, x) + 75*Integral(x, x)/4
+ 847/(16*(-2*x + 1))
```

Mathematica [A] time = 0.0170445, size = 36, normalized size = 1.06

$$\frac{600x^3 + 3140x^2 - 3590x + 2266(2x-1)\log(1-2x) - 759}{64x - 32}$$

Antiderivative was successfully verified.

```
[In] Integrate[((2 + 3*x)*(3 + 5*x)^2)/(1 - 2*x)^2,x]
```

```
[Out] (-759 - 3590*x + 3140*x^2 + 600*x^3 + 2266*(-1 + 2*x)*Log[1 - 2*x
])/(-32 + 64*x)
```

Maple [A] time = 0.008, size = 27, normalized size = 0.8

$$\frac{75\,x^2}{8} + \frac{215\,x}{4} - \frac{847}{-16+32\,x} + \frac{1133\,\ln(-1+2\,x)}{16}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)*(3+5*x)^2/(1-2*x)^2,x)

[Out] 75/8*x^2+215/4*x-847/16/(-1+2*x)+1133/16*ln(-1+2*x)
```

Maxima [A] time = 1.35574, size = 35, normalized size = 1.03

$$\frac{75}{8}x^2 + \frac{215}{4}x - \frac{847}{16(2x-1)} + \frac{1133}{16}\log(2x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)/(2*x - 1)^2,x, algorithm="maxima")

[Out] 75/8*x^2 + 215/4*x - 847/16/(2*x - 1) + 1133/16*log(2*x - 1)
```

Fricas [A] time = 0.199545, size = 50, normalized size = 1.47

$$\frac{300x^3 + 1570x^2 + 1133(2x-1)\log(2x-1) - 860x - 847}{16(2x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)/(2*x - 1)^2,x, algorithm="fricas")

[Out] 1/16*(300*x^3 + 1570*x^2 + 1133*(2*x - 1)*log(2*x - 1) - 860*x -
847)/(2*x - 1)
```

Sympy [A] time = 0.195006, size = 27, normalized size = 0.79

$$\frac{75x^2}{8} + \frac{215x}{4} + \frac{1133\log(2x-1)}{16} - \frac{847}{32x-16}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)*(3+5*x)**2/(1-2*x)**2,x)

[Out] 75*x**2/8 + 215*x/4 + 1133*log(2*x - 1)/16 - 847/(32*x - 16)
```

GIAC/XCAS [A] time = 0.220286, size = 65, normalized size = 1.91

$$\frac{5}{32}(2x-1)^2\left(\frac{202}{2x-1} + 15\right) - \frac{847}{16(2x-1)} - \frac{1133}{16}\ln\left(\frac{|2x-1|}{2(2x-1)^2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)/(2*x - 1)^2,x, algorithm="giac")

[Out] 5/32*(2*x - 1)^2*(202/(2*x - 1) + 15) - 847/16/(2*x - 1) - 1133/1
6*ln(1/2*abs(2*x - 1)/(2*x - 1)^2)
```

3.1545 $\int \frac{(3+5x)^2}{(1-2x)^2} \, dx$

Optimal. Leaf size=27

$$\frac{25x}{4} + \frac{121}{8(1-2x)} + \frac{55}{4}\log(1-2x)$$

```
[Out] 121/(8*(1 - 2*x)) + (25*x)/4 + (55*Log[1 - 2*x])/4
```

Rubi [A] time = 0.0285156, antiderivative size = 27, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}} = 0.067$

$$\frac{25x}{4} + \frac{121}{8(1-2x)} + \frac{55}{4}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^2/(1 - 2*x)^2,x]

[Out] 121/(8*(1 - 2*x)) + (25*x)/4 + (55*Log[1 - 2*x])/4
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{55\log(-2x+1)}{4} + \int \frac{25}{4}\,dx + \frac{121}{8(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**2/(1-2*x)**2,x)

[Out] 55*log(-2*x + 1)/4 + Integral(25/4, x) + 121/(8*(-2*x + 1))
```

Mathematica [A] time = 0.018832, size = 26, normalized size = 0.96

$$\frac{1}{8}\left(50x + \frac{121}{1-2x} + 110\log(1-2x) - 25\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^2/(1 - 2*x)^2,x]

[Out] (-25 + 121/(1 - 2*x) + 50*x + 110*Log[1 - 2*x])/8
```

Maple [A] time = 0.007, size = 22, normalized size = 0.8

$$\frac{25x}{4} - \frac{121}{-8+16x} + \frac{55\ln(-1+2x)}{4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^2/(1-2*x)^2,x)

[Out] 25/4*x-121/8/(-1+2*x)+55/4*ln(-1+2*x)
```

Maxima [A] time = 1.32071, size = 28, normalized size = 1.04

$$\frac{25}{4}\,x - \frac{121}{8\,(2\,x-1)} + \frac{55}{4}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2/(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 25/4*x - 121/8/(2*x - 1) + 55/4*log(2*x - 1)
```

Fricas [A] time = 0.200907, size = 43, normalized size = 1.59

$$\frac{100\,x^2 + 110\,(2\,x-1)\log\left(2\,x-1\right) - 50\,x - 121}{8\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2/(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 1/8*(100*x^2 + 110*(2*x - 1)*log(2*x - 1) - 50*x - 121)/(2*x - 1)
```

Sympy [A] time = 0.169492, size = 20, normalized size = 0.74

$$\frac{25x}{4} + \frac{55\log\left(2x-1\right)}{4} - \frac{121}{16x-8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2/(1-2*x)**2,x)
```

```
[Out] 25*x/4 + 55*log(2*x - 1)/4 - 121/(16*x - 8)
```

GIAC/XCAS [A] time = 0.209945, size = 43, normalized size = 1.59

$$\frac{25}{4}\,x - \frac{121}{8\,(2\,x-1)} - \frac{55}{4}\,\ln\left(\frac{|2\,x-1|}{2\,(2\,x-1)^2}\right) - \frac{25}{8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2/(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 25/4*x - 121/8/(2*x - 1) - 55/4*ln(1/2*abs(2*x - 1)/(2*x - 1)^2)
- 25/8
```

3.1546 $\int \frac{(3+5x)^2}{(1-2x)^2(2+3x)} dx$

Optimal. Leaf size=32

$$\frac{121}{28(1-2x)}+\frac{407}{196}\log(1-2x)+\frac{1}{147}\log(3x+2)$$

```
[Out] 121/(28*(1 - 2*x)) + (407*Log[1 - 2*x])/196 + Log[2 + 3*x]/147
```

Rubi [A] time = 0.0434601, antiderivative size = 32, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{121}{28(1-2x)}+\frac{407}{196}\log(1-2x)+\frac{1}{147}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In] Int[(3 + 5*x)^2/((1 - 2*x)^2*(2 + 3*x)),x]

[Out] 121/(28*(1 - 2*x)) + (407*Log[1 - 2*x])/196 + Log[2 + 3*x]/147
```

Rubi in Sympy [A] time = 6.68426, size = 24, normalized size = 0.75

$$\frac{407\log\left(-2x+1\right)}{196}+\frac{\log\left(3x+2\right)}{147}+\frac{121}{28\left(-2x+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((3+5*x)**2/(1-2*x)**2/(2+3*x),x)

[Out] 407*log(-2*x + 1)/196 + log(3*x + 2)/147 + 121/(28*(-2*x + 1))
```

Mathematica [A] time = 0.0249334, size = 40, normalized size = 1.25

$$-\frac{363}{28(2(3x+2)-7)}+\frac{1}{147}\log(3x+2)+\frac{407}{196}\log(7-2(3x+2))$$

Antiderivative was successfully verified.

```
[In] Integrate[(3 + 5*x)^2/((1 - 2*x)^2*(2 + 3*x)),x]

[Out] -363/(28*(-7 + 2*(2 + 3*x))) + Log[2 + 3*x]/147 + (407*Log[7 - 2*
(2 + 3*x)])/196
```

Maple [A] time = 0.01, size = 27, normalized size = 0.8

$$\frac{\ln\left(2+3\,x\right)}{147}-\frac{121}{-28+56\,x}+\frac{407\,\ln\left(-1+2\,x\right)}{196}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((3+5*x)^2/(1-2*x)^2/(2+3*x),x)

[Out] 1/147*ln(2+3*x)-121/28/(-1+2*x)+407/196*ln(-1+2*x)
```

Maxima [A] time = 1.33838, size = 35, normalized size = 1.09

$$-\frac{121}{28\,(2\,x-1)}+\frac{1}{147}\,\log\left(3\,x+2\right)+\frac{407}{196}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2/((3*x + 2)*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] -121/28/(2*x - 1) + 1/147*log(3*x + 2) + 407/196*log(2*x - 1)
```

Fricas [A] time = 0.210355, size = 50, normalized size = 1.56

$$\frac{4\,(2\,x-1)\log\left(3\,x+2\right)+1221\,(2\,x-1)\log\left(2\,x-1\right)-2541}{588\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2/((3*x + 2)*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] 1/588*(4*(2*x - 1)*log(3*x + 2) + 1221*(2*x - 1)*log(2*x - 1) - 2
541)/(2*x - 1)
```

Sympy [A] time = 0.309411, size = 24, normalized size = 0.75

$$\frac{407\log\left(x-\frac{1}{2}\right)}{196}+\frac{\log\left(x+\frac{2}{3}\right)}{147}-\frac{121}{56x-28}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2/(1-2*x)**2/(2+3*x),x)
```

```
[Out] 407*log(x - 1/2)/196 + log(x + 2/3)/147 - 121/(56*x - 28)
```

GIAC/XCAS [A] time = 0.207518, size = 58, normalized size = 1.81

$$-\frac{121}{28\,(2\,x-1)}-\frac{25}{12}\ln\left(\frac{|2\,x-1|}{2\,(2\,x-1)^2}\right)+\frac{1}{147}\ln\left(\left|-\frac{7}{2\,x-1}-3\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2/((3*x + 2)*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -121/28/(2*x - 1) - 25/12*ln(1/2*abs(2*x - 1)/(2*x - 1)^2) + 1/14
7*ln(abs(-7/(2*x - 1) - 3))
```

3.1547 $\int \frac{(3+5x)^2}{(1-2x)^2(2+3x)^2} dx$

Optimal. Leaf size=43

$$\frac{121}{98(1-2x)} - \frac{1}{147(3x+2)} + \frac{22}{343}\log(1-2x) - \frac{22}{343}\log(3x+2)$$

```
[Out] 121/(98*(1 - 2*x)) - 1/(147*(2 + 3*x)) + (22*Log[1 - 2*x])/343 -
(22*Log[2 + 3*x])/343
```

Rubi [A] time = 0.0521172, antiderivative size = 43, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$\frac{121}{98(1-2x)} - \frac{1}{147(3x+2)} + \frac{22}{343}\log(1-2x) - \frac{22}{343}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In] Int[(3 + 5*x)^2/((1 - 2*x)^2*(2 + 3*x)^2),x]
```

```
[Out] 121/(98*(1 - 2*x)) - 1/(147*(2 + 3*x)) + (22*Log[1 - 2*x])/343 -
(22*Log[2 + 3*x])/343
```

Rubi in Sympy [A] time = 7.79651, size = 32, normalized size = 0.74

$$\frac{22\log(-2x+1)}{343} - \frac{22\log(3x+2)}{343} - \frac{1}{147(3x+2)} + \frac{121}{98(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((3+5*x)**2/(1-2*x)**2/(2+3*x)**2,x)
```

```
[Out] 22*log(-2*x + 1)/343 - 22*log(3*x + 2)/343 - 1/(147*(3*x + 2)) +
121/(98*(-2*x + 1))
```

Mathematica [A] time = 0.0443986, size = 38, normalized size = 0.88

$$\frac{-\frac{7(1093x+724)}{6x^2+x-2} + 132\log(1-2x) - 132\log(3x+2)}{2058}$$

Antiderivative was successfully verified.

```
[In] Integrate[(3 + 5*x)^2/((1 - 2*x)^2*(2 + 3*x)^2),x]
```

```
[Out] ((-7*(724 + 1093*x))/(-2 + x + 6*x^2) + 132*Log[1 - 2*x] - 132*Lo
g[2 + 3*x])/2058
```

Maple [A] time = 0.013, size = 36, normalized size = 0.8

$$-\frac{1}{294+441x} - \frac{22\ln(2+3x)}{343} - \frac{121}{-98+196x} + \frac{22\ln(-1+2x)}{343}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^2/(1-2*x)^2/(2+3*x)^2,x)
```

```
[Out] -1/147/(2+3*x)-22/343*ln(2+3*x)-121/98/(-1+2*x)+22/343*ln(-1+2*x)
```

Maxima [A] time = 1.34805, size = 46, normalized size = 1.07

$$-\frac{1093\,x+724}{294\,(6\,x^2+x-2)}-\frac{22}{343}\,\log\left(3\,x+2\right)+\frac{22}{343}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2/((3*x + 2)^2*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] -1/294*(1093*x + 724)/(6*x^2 + x - 2) - 22/343*log(3*x + 2) + 22/
343*log(2*x - 1)
```

Fricas [A] time = 0.20941, size = 66, normalized size = 1.53

$$-\frac{132\left(6\,x^2+x-2\right)\,\log\left(3\,x+2\right)-132\left(6\,x^2+x-2\right)\,\log\left(2\,x-1\right)+7651\,x+5068}{2058\,(6\,x^2+x-2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2/((3*x + 2)^2*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] -1/2058*(132*(6*x^2 + x - 2)*log(3*x + 2) - 132*(6*x^2 + x - 2)*l
og(2*x - 1) + 7651*x + 5068)/(6*x^2 + x - 2)
```

Sympy [A] time = 0.322092, size = 34, normalized size = 0.79

$$-\frac{1093x+724}{1764x^2+294x-588}+\frac{22\log\left(x-\frac{1}{2}\right)}{343}-\frac{22\log\left(x+\frac{2}{3}\right)}{343}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2/(1-2*x)**2/(2+3*x)**2,x)
```

```
[Out] -(1093*x + 724)/(1764*x**2 + 294*x - 588) + 22*log(x - 1/2)/343 -
 22*log(x + 2/3)/343
```

GIAC/XCAS [A] time = 0.208808, size = 54, normalized size = 1.26

$$-\frac{1}{147\,(3\,x+2)}+\frac{363}{343\,\left(\frac{7}{3\,x+2}-2\right)}+\frac{22}{343}\,\ln\left(\left|-\frac{7}{3\,x+2}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2/((3*x + 2)^2*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -1/147/(3*x + 2) + 363/343/(7/(3*x + 2) - 2) + 22/343*ln(abs(-7/(
3*x + 2) + 2))
```

3.1548 $\int \frac{(3+5x)^2}{(1-2x)^2(2+3x)^3}\,dx$

Optimal. Leaf size=54

$$\frac{121}{343(1-2x)}+\frac{22}{343(3x+2)}-\frac{1}{294(3x+2)^2}-\frac{319\log(1-2x)}{2401}+\frac{319\log(3x+2)}{2401}$$

```
[Out] 121/(343*(1 - 2*x)) - 1/(294*(2 + 3*x)^2) + 22/(343*(2 + 3*x)) -
(319*Log[1 - 2*x])/2401 + (319*Log[2 + 3*x])/2401
```

Rubi [A] time = 0.0621826, antiderivative size = 54, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{121}{343(1-2x)}+\frac{22}{343(3x+2)}-\frac{1}{294(3x+2)^2}-\frac{319\log(1-2x)}{2401}+\frac{319\log(3x+2)}{2401}$$

Antiderivative was successfully verified.

```
[In] Int[(3 + 5*x)^2/((1 - 2*x)^2*(2 + 3*x)^3),x]
```

```
[Out] 121/(343*(1 - 2*x)) - 1/(294*(2 + 3*x)^2) + 22/(343*(2 + 3*x)) -
(319*Log[1 - 2*x])/2401 + (319*Log[2 + 3*x])/2401
```

Rubi in Sympy [A] time = 9.01395, size = 42, normalized size = 0.78

$$-\frac{319\log\left(-2x+1\right)}{2401}+\frac{319\log\left(3x+2\right)}{2401}+\frac{22}{343\left(3x+2\right)}-\frac{1}{294\left(3x+2\right)^2}+\frac{121}{343\left(-2x+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((3+5*x)**2/(1-2*x)**2/(2+3*x)**3,x)
```

```
[Out] -319*log(-2*x + 1)/2401 + 319*log(3*x + 2)/2401 + 22/(343*(3*x +
2)) - 1/(294*(3*x + 2)**2) + 121/(343*(-2*x + 1))
```

Mathematica [A] time = 0.045619, size = 47, normalized size = 0.87

$$\frac{-\frac{7(5742x^2+8594x+3161)}{(2x-1)(3x+2)^2}-1914\log(1-2x)+1914\log(6x+4)}{14406}$$

Antiderivative was successfully verified.

```
[In] Integrate[(3 + 5*x)^2/((1 - 2*x)^2*(2 + 3*x)^3),x]
```

```
[Out] ((-7*(3161 + 8594*x + 5742*x^2))/((-1 + 2*x)*(2 + 3*x)^2) - 1914*
Log[1 - 2*x] + 1914*Log[4 + 6*x])/14406
```

Maple [A] time = 0.014, size = 45, normalized size = 0.8

$$-\frac{1}{294\,(2+3\,x)^2}+\frac{22}{686+1029\,x}+\frac{319\,\ln(2+3\,x)}{2401}-\frac{121}{-343+686\,x}-\frac{319\,\ln(-1+2\,x)}{2401}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^2/(1-2*x)^2/(2+3*x)^3,x)
```

```
[Out] -1/294/(2+3*x)^2+22/343/(2+3*x)+319/2401*ln(2+3*x)-121/343/(-1+2*
x)-319/2401*ln(-1+2*x)
```

Maxima [A] time = 1.34467, size = 62, normalized size = 1.15

$$-\frac{5742\,x^2+8594\,x+3161}{2058\,(18\,x^3+15\,x^2-4\,x-4)}+\frac{319}{2401}\,\log\left(3\,x+2\right)-\frac{319}{2401}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2/((3*x + 2)^3*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] -1/2058*(5742*x^2 + 8594*x + 3161)/(18*x^3 + 15*x^2 - 4*x - 4) +
319/2401*log(3*x + 2) - 319/2401*log(2*x - 1)
```

Fricas [A] time = 0.232448, size = 101, normalized size = 1.87

$$-\frac{40194\,x^2-1914\,\left(18\,x^3+15\,x^2-4\,x-4\right)\,\log\left(3\,x+2\right)+1914\,\left(18\,x^3+15\,x^2-4\,x-4\right)\,\log\left(2\,x-1\right)+60158\,x+22127}{14406\,(18\,x^3+15\,x^2-4\,x-4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2/((3*x + 2)^3*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] -1/14406*(40194*x^2 - 1914*(18*x^3 + 15*x^2 - 4*x - 4)*log(3*x +
2) + 1914*(18*x^3 + 15*x^2 - 4*x - 4)*log(2*x - 1) + 60158*x + 22
127)/(18*x^3 + 15*x^2 - 4*x - 4)
```

Sympy [A] time = 0.377706, size = 44, normalized size = 0.81

$$-\frac{5742x^2+8594x+3161}{37044x^3+30870x^2-8232x-8232}-\frac{319\log\left(x-\frac{1}{2}\right)}{2401}+\frac{319\log\left(x+\frac{2}{3}\right)}{2401}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2/(1-2*x)**2/(2+3*x)**3,x)
```

```
[Out] -(5742*x**2 + 8594*x + 3161)/(37044*x**3 + 30870*x**2 - 8232*x -
8232) - 319*log(x - 1/2)/2401 + 319*log(x + 2/3)/2401
```

GIAC/XCAS [A] time = 0.205645, size = 69, normalized size = 1.28

$$-\frac{121}{343\,(2\,x-1)}-\frac{2\,\left(\frac{448}{2\,x-1}+195\right)}{2401\,\left(\frac{7}{2\,x-1}+3\right)^2}+\frac{319}{2401}\,\ln\left(\left|-\frac{7}{2\,x-1}-3\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2/((3*x + 2)^3*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -121/343/(2*x - 1) - 2/2401*(448/(2*x - 1) + 195)/(7/(2*x - 1) +
3)^2 + 319/2401*ln(abs(-7/(2*x - 1) - 3))
```

3.1549 $\int \frac{(3+5x)^2}{(1-2x)^2(2+3x)^4} dx$

Optimal. Leaf size=65

$$\frac{242}{2401(1-2x)}-\frac{319}{2401(3x+2)}+\frac{11}{343(3x+2)^2}-\frac{1}{441(3x+2)^3}-\frac{1364\log(1-2x)}{16807}+\frac{1364\log(3x+2)}{16807}$$

```
[Out] 242/(2401*(1 - 2*x)) - 1/(441*(2 + 3*x)^3) + 11/(343*(2 + 3*x)^2)
 - 319/(2401*(2 + 3*x)) - (1364*Log[1 - 2*x])/16807 + (1364*Log[2
 + 3*x])/16807
```

Rubi [A] time = 0.0732982, antiderivative size = 65, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{242}{2401(1-2x)}-\frac{319}{2401(3x+2)}+\frac{11}{343(3x+2)^2}-\frac{1}{441(3x+2)^3}-\frac{1364\log(1-2x)}{16807}+\frac{1364\log(3x+2)}{16807}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^2/((1 - 2*x)^2*(2 + 3*x)^4),x]
```

```
[Out] 242/(2401*(1 - 2*x)) - 1/(441*(2 + 3*x)^3) + 11/(343*(2 + 3*x)^2)
 - 319/(2401*(2 + 3*x)) - (1364*Log[1 - 2*x])/16807 + (1364*Log[2
 + 3*x])/16807
```

Rubi in Sympy [A] time = 10.2282, size = 53, normalized size = 0.82

$$-\frac{1364\log(-2x+1)}{16807}+\frac{1364\log(3x+2)}{16807}-\frac{319}{2401(3x+2)}+\frac{11}{343(3x+2)^2}-\frac{1}{441(3x+2)^3}+\frac{242}{2401(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**2/(1-2*x)**2/(2+3*x)**4,x)
```

```
[Out] -1364*log(-2*x + 1)/16807 + 1364*log(3*x + 2)/16807 - 319/(2401*(
3*x + 2)) + 11/(343*(3*x + 2)**2) - 1/(441*(3*x + 2)**3) + 242/(2
401*(-2*x + 1))
```

Mathematica [A] time = 0.0655597, size = 54, normalized size = 0.83

$$\frac{2\left(-\frac{7(110484x^3+156519x^2+66329x+7277)}{2(2x-1)(3x+2)^3}-6138\log(1-2x)+6138\log(6x+4)\right)}{151263}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^2/((1 - 2*x)^2*(2 + 3*x)^4),x]
```

```
[Out] (2*((-7*(7277 + 66329*x + 156519*x^2 + 110484*x^3))/(2*(-1 + 2*x)
*(2 + 3*x)^3) - 6138*Log[1 - 2*x] + 6138*Log[4 + 6*x]))/151263
```

Maple [A] time = 0.016, size = 54, normalized size = 0.8

$$-\frac{1}{441(2+3x)^3}+\frac{11}{343(2+3x)^2}-\frac{319}{4802+7203x}+\frac{1364\ln(2+3x)}{16807}-\frac{242}{-2401+4802x}-\frac{1364\ln(-1+2x)}{16807}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^2/(1-2*x)^2/(2+3*x)^4,x)
```

```
[Out] -1/441/(2+3*x)^3+11/343/(2+3*x)^2-319/2401/(2+3*x)+1364/16807*ln(
2+3*x)-242/2401/(-1+2*x)-1364/16807*ln(-1+2*x)
```

Maxima [A] time = 1.35311, size = 76, normalized size = 1.17

$$-\frac{110484\,x^{3}+156519\,x^{2}+66329\,x+7277}{21609\,(54\,x^{4}+81\,x^{3}+18\,x^{2}-20\,x-8)}+\frac{1364}{16807}\,\log\left(3\,x+2\right)-\frac{1364}{16807}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2/((3*x + 2)^4*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] -1/21609*(110484*x^3 + 156519*x^2 + 66329*x + 7277)/(54*x^4 + 81*
x^3 + 18*x^2 - 20*x - 8) + 1364/16807*log(3*x + 2) - 1364/16807*l
og(2*x - 1)
```

Fricas [A] time = 0.215891, size = 128, normalized size = 1.97

$$-\frac{773388\,x^{3}+1095633\,x^{2}-12276\,\left(54\,x^{4}+81\,x^{3}+18\,x^{2}-20\,x-8\right)\,\log\left(3\,x+2\right)+12276\,\left(54\,x^{4}+81\,x^{3}+18\,x^{2}-20\,x-8\right)}{151263\,(54\,x^{4}+81\,x^{3}+18\,x^{2}-20\,x-8)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2/((3*x + 2)^4*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] -1/151263*(773388*x^3 + 1095633*x^2 - 12276*(54*x^4 + 81*x^3 + 18
*x^2 - 20*x - 8)*log(3*x + 2) + 12276*(54*x^4 + 81*x^3 + 18*x^2 -
 20*x - 8)*log(2*x - 1) + 464303*x + 50939)/(54*x^4 + 81*x^3 + 18
*x^2 - 20*x - 8)
```

Sympy [A] time = 0.425063, size = 54, normalized size = 0.83

$$-\frac{110484x^{3}+156519x^{2}+66329x+7277}{1166886x^{4}+1750329x^{3}+388962x^{2}-432180x-172872}-\frac{1364\log\left(x-\frac{1}{2}\right)}{16807}+\frac{1364\log\left(x+\frac{2}{3}\right)}{16807}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2/(1-2*x)**2/(2+3*x)**4,x)
```

```
[Out] -(110484*x**3 + 156519*x**2 + 66329*x + 7277)/(1166886*x**4 + 175
0329*x**3 + 388962*x**2 - 432180*x - 172872) - 1364*log(x - 1/2)/
16807 + 1364*log(x + 2/3)/16807
```

GIAC/XCAS [A] time = 0.207444, size = 81, normalized size = 1.25

$$-\frac{242}{2401\,(2\,x-1)}+\frac{2\,\left(\frac{36120}{2\,x-1}+\frac{40621}{(2\,x-1)^{2}}+8031\right)}{16807\,\left(\frac{7}{2\,x-1}+3\right)^{3}}+\frac{1364}{16807}\ln\left(\left|-\frac{7}{2\,x-1}-3\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2/((3*x + 2)^4*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -242/2401/(2*x - 1) + 2/16807*(36120/(2*x - 1) + 40621/(2*x - 1)^
2 + 8031)/(7/(2*x - 1) + 3)^3 + 1364/16807*ln(abs(-7/(2*x - 1) -
3))
```

3.1550 $\int \frac{(3+5x)^2}{(1-2x)^2(2+3x)^5} dx$

Optimal. Leaf size=76

$$\frac{484}{16807(1-2x)}-\frac{1364}{16807(3x+2)}-\frac{319}{4802(3x+2)^2}+\frac{22}{1029(3x+2)^3}-\frac{1}{588(3x+2)^4}-\frac{4180\log(1-2x)}{117649}+\frac{4180\log(3x+2)}{117649}$$

```
[Out] 484/(16807*(1 - 2*x)) - 1/(588*(2 + 3*x)^4) + 22/(1029*(2 + 3*x)^
3) - 319/(4802*(2 + 3*x)^2) - 1364/(16807*(2 + 3*x)) - (4180*Log[
1 - 2*x])/117649 + (4180*Log[2 + 3*x])/117649
```

Rubi [A] time = 0.0867173, antiderivative size = 76, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$\frac{484}{16807(1-2x)}-\frac{1364}{16807(3x+2)}-\frac{319}{4802(3x+2)^2}+\frac{22}{1029(3x+2)^3}-\frac{1}{588(3x+2)^4}-\frac{4180\log(1-2x)}{117649}+\frac{4180\log(3x+2)}{117649}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^2/((1 - 2*x)^2*(2 + 3*x)^5),x]
```

```
[Out] 484/(16807*(1 - 2*x)) - 1/(588*(2 + 3*x)^4) + 22/(1029*(2 + 3*x)^
3) - 319/(4802*(2 + 3*x)^2) - 1364/(16807*(2 + 3*x)) - (4180*Log[
1 - 2*x])/117649 + (4180*Log[2 + 3*x])/117649
```

Rubi in Sympy [A] time = 11.4575, size = 63, normalized size = 0.83

$$-\frac{4180\log(-2x+1)}{117649}+\frac{4180\log(3x+2)}{117649}-\frac{1364}{16807(3x+2)}-\frac{319}{4802(3x+2)^2}+\frac{22}{1029(3x+2)^3}-\frac{1}{588(3x+2)^4}+\frac{484}{16807(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**2/(1-2*x)**2/(2+3*x)**5,x)
```

```
[Out] -4180*log(-2*x + 1)/117649 + 4180*log(3*x + 2)/117649 - 1364/(168
07*(3*x + 2)) - 319/(4802*(3*x + 2)**2) + 22/(1029*(3*x + 2)**3)
- 1/(588*(3*x + 2)**4) + 484/(16807*(-2*x + 1))
```

Mathematica [A] time = 0.0663776, size = 59, normalized size = 0.78

$$\frac{2\left(-\frac{7(1354320x^4+2821500x^3+1724250x^2+172990x-83327)}{8(2x-1)(3x+2)^4}-6270\log(1-2x)+6270\log(6x+4)\right)}{352947}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^2/((1 - 2*x)^2*(2 + 3*x)^5),x]
```

```
[Out] (2*((-7*(-83327 + 172990*x + 1724250*x^2 + 2821500*x^3 + 1354320*
x^4))/(8*(-1 + 2*x)*(2 + 3*x)^4) - 6270*Log[1 - 2*x] + 6270*Log[4
```

```
+ 6*x]))/352947
```

Maple [A] time = 0.018, size = 63, normalized size = 0.8

$$-\frac{1}{588\,(2+3\,x)^{4}}+\frac{22}{1029\,(2+3\,x)^{3}}-\frac{319}{4802\,(2+3\,x)^{2}}-\frac{1364}{33614+50421\,x}+\frac{4180\,\ln(2+3\,x)}{117649}-\frac{484}{-16807+33614\,x}-\frac{4180\,\ln(-1+2\,x)}{117649}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^2/(1-2*x)^2/(2+3*x)^5,x)
```

```
[Out] -1/588/(2+3*x)^4+22/1029/(2+3*x)^3-319/4802/(2+3*x)^2-1364/16807/
(2+3*x)+4180/117649*ln(2+3*x)-484/16807/(-1+2*x)-4180/117649*ln(-
1+2*x)
```

Maxima [A] time = 1.34363, size = 89, normalized size = 1.17

$$-\frac{1354320\,x^{4}+2821500\,x^{3}+1724250\,x^{2}+172990\,x-83327}{201684\,(162\,x^{5}+351\,x^{4}+216\,x^{3}-24\,x^{2}-64\,x-16)}+\frac{4180}{117649}\,\log(3\,x+2)-\frac{4180}{117649}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2/((3*x + 2)^5*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] -1/201684*(1354320*x^4 + 2821500*x^3 + 1724250*x^2 + 172990*x - 8
3327)/(162*x^5 + 351*x^4 + 216*x^3 - 24*x^2 - 64*x - 16) + 4180/1
17649*log(3*x + 2) - 4180/117649*log(2*x - 1)
```

Fricas [A] time = 0.225103, size = 155, normalized size = 2.04

$$-\frac{9480240\,x^{4}+19750500\,x^{3}+12069750\,x^{2}-50160\,\left(162\,x^{5}+351\,x^{4}+216\,x^{3}-24\,x^{2}-64\,x-16\right)\log(3\,x+2)+50160\,(16}{1411788\,(162\,x^{5}+351\,x^{4}+216\,x^{3}-24\,x^{2}-64\,x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2/((3*x + 2)^5*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] -1/1411788*(9480240*x^4 + 19750500*x^3 + 12069750*x^2 - 50160*(16
2*x^5 + 351*x^4 + 216*x^3 - 24*x^2 - 64*x - 16)*log(3*x + 2) + 50
160*(162*x^5 + 351*x^4 + 216*x^3 - 24*x^2 - 64*x - 16)*log(2*x -
1) + 1210930*x - 583289)/(162*x^5 + 351*x^4 + 216*x^3 - 24*x^2 -
64*x - 16)
```

Sympy [A] time = 0.481605, size = 65, normalized size = 0.86

$$-\frac{1354320x^{4}+2821500x^{3}+1724250x^{2}+172990x-83327}{32672808x^{5}+70791084x^{4}+43563744x^{3}-4840416x^{2}-12907776x-3226944}-\frac{4180\log\left(x-\frac{1}{2}\right)}{117649}+\frac{4180\log\left(x+\frac{2}{3}\right)}{117649}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2/(1-2*x)**2/(2+3*x)**5,x)
```

```
[Out] -(1354320*x**4 + 2821500*x**3 + 1724250*x**2 + 172990*x - 83327)/
(32672808*x**5 + 70791084*x**4 + 43563744*x**3 - 4840416*x**2 - 1
2907776*x - 3226944) - 4180*log(x - 1/2)/117649 + 4180*log(x + 2/
3)/117649
```

GIAC/XCAS [A] time = 0.206672, size = 90, normalized size = 1.18

$$-\frac{1364}{16807\,(3\,x+2)}+\frac{2904}{117649\,\left(\frac{7}{3\,x+2}-2\right)}-\frac{319}{4802\,(3\,x+2)^{2}}+\frac{22}{1029\,(3\,x+2)^{3}}-\frac{1}{588\,(3\,x+2)^{4}}-\frac{4180}{117649}\ln\left(\left|-\frac{7}{3\,x+2}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2/((3*x + 2)^5*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -1364/16807/(3*x + 2) + 2904/117649/(7/(3*x + 2) - 2) - 319/4802/
(3*x + 2)^2 + 22/1029/(3*x + 2)^3 - 1/588/(3*x + 2)^4 - 4180/1176
49*ln(abs(-7/(3*x + 2) + 2))
```

3.1551 $\int \frac{(3+5x)^2}{(1-2x)^2(2+3x)^6}\,dx$

Optimal. Leaf size=87

$$\frac{968}{117649(1-2x)}-\frac{4180}{117649(3x+2)}-\frac{682}{16807(3x+2)^2}-\frac{319}{7203(3x+2)^3}+\frac{11}{686(3x+2)^4}-\frac{1}{735(3x+2)^5}-\frac{11264\log(1-2x)}{823543}+\frac{11264\log(3x+2)}{823543}$$

```
[Out] 968/(117649*(1 - 2*x)) - 1/(735*(2 + 3*x)^5) + 11/(686*(2 + 3*x)^
4) - 319/(7203*(2 + 3*x)^3) - 682/(16807*(2 + 3*x)^2) - 4180/(117
649*(2 + 3*x)) - (11264*Log[1 - 2*x])/823543 + (11264*Log[2 + 3*x
])/823543
```

Rubi [A] time = 0.100476, antiderivative size = 87, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{968}{117649(1-2x)}-\frac{4180}{117649(3x+2)}-\frac{682}{16807(3x+2)^2}-\frac{319}{7203(3x+2)^3}+\frac{11}{686(3x+2)^4}-\frac{1}{735(3x+2)^5}-\frac{11264\log(1-2x)}{823543}+\frac{11264\log(3x+2)}{823543}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^2/((1 - 2*x)^2*(2 + 3*x)^6),x]
```

```
[Out] 968/(117649*(1 - 2*x)) - 1/(735*(2 + 3*x)^5) + 11/(686*(2 + 3*x)^
4) - 319/(7203*(2 + 3*x)^3) - 682/(16807*(2 + 3*x)^2) - 4180/(117
649*(2 + 3*x)) - (11264*Log[1 - 2*x])/823543 + (11264*Log[2 + 3*x
])/823543
```

Rubi in Sympy [A] time = 12.898, size = 73, normalized size = 0.84

$$-\frac{11264\log\left(-2x+1\right)}{823543}+\frac{11264\log\left(3x+2\right)}{823543}-\frac{4180}{117649\left(3x+2\right)}-\frac{682}{16807\left(3x+2\right)^{2}}-\frac{319}{7203\left(3x+2\right)^{3}}+\frac{11}{686\left(3x+2\right)^{4}}-\frac{1}{735\left(3x+2\right)^{5}}+\frac{968}{117649\left(-2x+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**2/(1-2*x)**2/(2+3*x)**6,x)
```

```
[Out] -11264*log(-2*x + 1)/823543 + 11264*log(3*x + 2)/823543 - 4180/(1
17649*(3*x + 2)) - 682/(16807*(3*x + 2)**2) - 319/(7203*(3*x + 2)
**3) + 11/(686*(3*x + 2)**4) - 1/(735*(3*x + 2)**5) + 968/(117649
*(-2*x + 1))
```

Mathematica [A] time = 0.0961415, size = 64, normalized size = 0.74

$$\frac{8\left(-\frac{21\left(9123840x^5+25090560x^4+24288000x^3+7494080x^2-1530877x-913244\right)}{16(2x-1)(3x+2)^5}-21120\log(1-2x)+21120\log(6x+4)\right)}{12353145}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^2/((1 - 2*x)^2*(2 + 3*x)^6),x]
```

```
[Out] (8*((-21*(-913244 - 1530877*x + 7494080*x^2 + 24288000*x^3 + 2509
0560*x^4 + 9123840*x^5))/(16*(-1 + 2*x)*(2 + 3*x)^5) - 21120*Log[
1 - 2*x] + 21120*Log[4 + 6*x]))/12353145
```

Maple [A] time = 0.016, size = 72, normalized size = 0.8

$$-\frac{1}{735\,(2+3\,x)^5}+\frac{11}{686\,(2+3\,x)^4}-\frac{319}{7203\,(2+3\,x)^3}-\frac{682}{16807\,(2+3\,x)^2}-\frac{4180}{235298+352947\,x}+\frac{11264\,\ln(2+3\,x)}{823543}-\frac{968}{-117649+235298\,x}-\frac{11264\,\ln(-1+2\,x)}{823543}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^2/(1-2*x)^2/(2+3*x)^6,x)
```

```
[Out] -1/735/(2+3*x)^5+11/686/(2+3*x)^4-319/7203/(2+3*x)^3-682/16807/(2
+3*x)^2-4180/117649/(2+3*x)+11264/823543*ln(2+3*x)-968/117649/(-1
+2*x)-11264/823543*ln(-1+2*x)
```

Maxima [A] time = 1.35773, size = 103, normalized size = 1.18

$$-\frac{9123840\,x^5+25090560\,x^4+24288000\,x^3+7494080\,x^2-1530877\,x-913244}{1176490\,(486\,x^6+1377\,x^5+1350\,x^4+360\,x^3-240\,x^2-176\,x-32)}+\frac{11264}{823543}\,\log(3\,x+2)-\frac{11264}{823543}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2/((3*x + 2)^6*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] -1/1176490*(9123840*x^5 + 25090560*x^4 + 24288000*x^3 + 7494080*x
^2 - 1530877*x - 913244)/(486*x^6 + 1377*x^5 + 1350*x^4 + 360*x^3
 - 240*x^2 - 176*x - 32) + 11264/823543*log(3*x + 2) - 11264/8235
43*log(2*x - 1)
```

Fricas [A] time = 0.222984, size = 182, normalized size = 2.09

$$-\frac{63866880\,x^5+175633920\,x^4+170016000\,x^3+52458560\,x^2-112640\,(486\,x^6+1377\,x^5+1350\,x^4+360\,x^3-240\,x^2-176}{8235430\,(486\,x^6+1377\,x^5+13}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2/((3*x + 2)^6*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] -1/8235430*(63866880*x^5 + 175633920*x^4 + 170016000*x^3 + 524585
60*x^2 - 112640*(486*x^6 + 1377*x^5 + 1350*x^4 + 360*x^3 - 240*x^
2 - 176*x - 32)*log(3*x + 2) + 112640*(486*x^6 + 1377*x^5 + 1350*
x^4 + 360*x^3 - 240*x^2 - 176*x - 32)*log(2*x - 1) - 10716139*x -
 6392708)/(486*x^6 + 1377*x^5 + 1350*x^4 + 360*x^3 - 240*x^2 - 17
6*x - 32)
```

Sympy [A] time = 0.535634, size = 75, normalized size = 0.86

$$-\frac{9123840x^5+25090560x^4+24288000x^3+7494080x^2-1530877x-913244}{571774140x^6+1620026730x^5+1588261500x^4+423536400x^3-282357600x^2-207062240x-37647680}-\frac{11264\log\left(x-\frac{1}{2}\right)}{823543}+\frac{11264\log\left(x+\frac{2}{3}\right)}{823543}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2/(1-2*x)**2/(2+3*x)**6,x)
```

```
[Out] -(9123840*x**5 + 25090560*x**4 + 24288000*x**3 + 7494080*x**2 - 1
530877*x - 913244)/(571774140*x**6 + 1620026730*x**5 + 1588261500
*x**4 + 423536400*x**3 - 282357600*x**2 - 207062240*x - 37647680)
 - 11264*log(x - 1/2)/823543 + 11264*log(x + 2/3)/823543
```

GIAC/XCAS [A] time = 0.21181, size = 105, normalized size = 1.21

$$-\frac{968}{117649\,(2\,x-1)}+\frac{8\,\left(\frac{18039105}{2\,x-1}+\frac{68101425}{(2\,x-1)^{2}}+\frac{114476250}{(2\,x-1)^{3}}+\frac{72150050}{(2\,x-1)^{4}}+1800144\right)}{4117715\,\left(\frac{7}{2\,x-1}+3\right)^{5}}+\frac{11264}{823543}\ln\left(\left|-\frac{7}{2\,x-1}-3\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2/((3*x + 2)^6*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -968/117649/(2*x - 1) + 8/4117715*(18039105/(2*x - 1) + 68101425/
(2*x - 1)^2 + 114476250/(2*x - 1)^3 + 72150050/(2*x - 1)^4 + 1800
144)/(7/(2*x - 1) + 3)^5 + 11264/823543*ln(abs(-7/(2*x - 1) - 3))
```

3.1552 $\int \frac{(3+5x)^2}{(1-2x)^2(2+3x)^7} dx$

Optimal. Leaf size=98

$$\frac{1936}{823543(1-2x)}-\frac{11264}{823543(3x+2)}-\frac{2090}{117649(3x+2)^2}-\frac{1364}{50421(3x+2)^3}-\frac{319}{9604(3x+2)^4}+\frac{22}{1715(3x+2)^5}-\frac{1}{882(3x+2)^6}-\frac{4048\log(1-2x)}{823543}+\frac{4048\log(3x+2)}{823543}$$

```
[Out] 1936/(823543*(1 - 2*x)) - 1/(882*(2 + 3*x)^6) + 22/(1715*(2 + 3*x
)^5) - 319/(9604*(2 + 3*x)^4) - 1364/(50421*(2 + 3*x)^3) - 2090/(
117649*(2 + 3*x)^2) - 11264/(823543*(2 + 3*x)) - (4048*Log[1 - 2*
x])/823543 + (4048*Log[2 + 3*x])/823543
```

Rubi [A] time = 0.113229, antiderivative size = 98, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$\frac{1936}{823543(1-2x)}-\frac{11264}{823543(3x+2)}-\frac{2090}{117649(3x+2)^2}-\frac{1364}{50421(3x+2)^3}-\frac{319}{9604(3x+2)^4}+\frac{22}{1715(3x+2)^5}-\frac{1}{882(3x+2)^6}-\frac{4048\log(1-2x)}{823543}+\frac{4048\log(3x+2)}{823543}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^2/((1 - 2*x)^2*(2 + 3*x)^7),x]
```

```
[Out] 1936/(823543*(1 - 2*x)) - 1/(882*(2 + 3*x)^6) + 22/(1715*(2 + 3*x
)^5) - 319/(9604*(2 + 3*x)^4) - 1364/(50421*(2 + 3*x)^3) - 2090/(
117649*(2 + 3*x)^2) - 11264/(823543*(2 + 3*x)) - (4048*Log[1 - 2*
x])/823543 + (4048*Log[2 + 3*x])/823543
```

Rubi in Sympy [A] time = 14.3543, size = 83, normalized size = 0.85

$$-\frac{4048\log(-2x+1)}{823543}+\frac{4048\log(3x+2)}{823543}-\frac{11264}{823543(3x+2)}-\frac{2090}{117649(3x+2)^2}-\frac{1364}{50421(3x+2)^3}-\frac{319}{9604(3x+2)^4}+\frac{22}{1715(3x+2)^5}-\frac{1}{882(3x+2)^6}+\frac{1936}{823543(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**2/(1-2*x)**2/(2+3*x)**7,x)
```

```
[Out] -4048*log(-2*x + 1)/823543 + 4048*log(3*x + 2)/823543 - 11264/(82
3543*(3*x + 2)) - 2090/(117649*(3*x + 2)**2) - 1364/(50421*(3*x +
 2)**3) - 319/(9604*(3*x + 2)**4) + 22/(1715*(3*x + 2)**5) - 1/(8
82*(3*x + 2)**6) + 1936/(823543*(-2*x + 1))
```

Mathematica [A] time = 0.101067, size = 69, normalized size = 0.7

$$\frac{4\left(-\frac{7(177059520x^6+604953360x^5+795948120x^4+459657990x^3+48220029x^2-60874336x-18979078)}{16(2x-1)(3x+2)^6}-45540\log(1-2x)+45540\log(6x+4)\right)}{37059435}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^2/((1 - 2*x)^2*(2 + 3*x)^7),x]
```

```
[Out] (4*((-7*(-18979078 - 60874336*x + 48220029*x^2 + 459657990*x^3 +
795948120*x^4 + 604953360*x^5 + 177059520*x^6))/(16*(-1 + 2*x)*(2
 + 3*x)^6) - 45540*Log[1 - 2*x] + 45540*Log[4 + 6*x]))/37059435
```

Maple [A] time = 0.017, size = 81, normalized size = 0.8

$$-\frac{1}{882\ (2+3\,x)^{6}}+\frac{22}{1715\ (2+3\,x)^{5}}-\frac{319}{9604\ (2+3\,x)^{4}}-\frac{1364}{50421\ (2+3\,x)^{3}}-\frac{2090}{117649\ (2+3\,x)^{2}}-\frac{11264}{1647086+2470629\,x}+\frac{4048\ \ln(2+3\,x)}{823543}-\frac{1936}{-823543+1647086\,x}-\frac{4048\ \ln(-1+2\,x)}{823543}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^2/(1-2*x)^2/(2+3*x)^7,x)
```

```
[Out] -1/882/(2+3*x)^6+22/1715/(2+3*x)^5-319/9604/(2+3*x)^4-1364/50421/
(2+3*x)^3-2090/117649/(2+3*x)^2-11264/823543/(2+3*x)+4048/823543*
ln(2+3*x)-1936/823543/(-1+2*x)-4048/823543*ln(-1+2*x)
```

Maxima [A] time = 1.34956, size = 109, normalized size = 1.11

$$-\frac{177059520\,x^{6}+604953360\,x^{5}+795948120\,x^{4}+459657990\,x^{3}+48220029\,x^{2}-60874336\,x-18979078}{21176820\,(1458\,x^{7}+5103\,x^{6}+6804\,x^{5}+3780\,x^{4}-1008\,x^{2}-448\,x-64)}+\frac{4048}{823543}\,\log(3\,x+2)-\frac{4048}{823543}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2/((3*x + 2)^7*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] -1/21176820*(177059520*x^6 + 604953360*x^5 + 795948120*x^4 + 4596
57990*x^3 + 48220029*x^2 - 60874336*x - 18979078)/(1458*x^7 + 510
3*x^6 + 6804*x^5 + 3780*x^4 - 1008*x^2 - 448*x - 64) + 4048/82354
3*log(3*x + 2) - 4048/823543*log(2*x - 1)
```

Fricas [A] time = 0.213387, size = 189, normalized size = 1.93

$$-\frac{1239416640\,x^{6}+4234673520\,x^{5}+5571636840\,x^{4}+3217605930\,x^{3}+337540203\,x^{2}-728640\,\left(1458\,x^{7}+5103\,x^{6}+6804\,x^{5}\right.}{148237740\,(1458}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2/((3*x + 2)^7*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] -1/148237740*(1239416640*x^6 + 4234673520*x^5 + 5571636840*x^4 +
3217605930*x^3 + 337540203*x^2 - 728640*(1458*x^7 + 5103*x^6 + 68
04*x^5 + 3780*x^4 - 1008*x^2 - 448*x - 64)*log(3*x + 2) + 728640*
(1458*x^7 + 5103*x^6 + 6804*x^5 + 3780*x^4 - 1008*x^2 - 448*x - 6
4)*log(2*x - 1) - 426120352*x - 132853546)/(1458*x^7 + 5103*x^6 +
 6804*x^5 + 3780*x^4 - 1008*x^2 - 448*x - 64)
```

Sympy [A] time = 0.584881, size = 80, normalized size = 0.82

$$-\frac{177059520x^{6}+604953360x^{5}+795948120x^{4}+459657990x^{3}+48220029x^{2}-60874336x-18979078}{30875803560x^{7}+108065312460x^{6}+144087083280x^{5}+80048379600x^{4}-21346234560x^{2}-9487215360x-1355316480}-\frac{4048\log\left(x-\frac{1}{2}\right)}{823543}+\frac{4048\log\left(x+\frac{2}{3}\right)}{823543}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2/(1-2*x)**2/(2+3*x)**7,x)
```

```
[Out] -(177059520*x**6 + 604953360*x**5 + 795948120*x**4 + 459657990*x*
*3 + 48220029*x**2 - 60874336*x - 18979078)/(30875803560*x**7 + 1
08065312460*x**6 + 144087083280*x**5 + 80048379600*x**4 - 2134623
4560*x**2 - 9487215360*x - 1355316480) - 4048*log(x - 1/2)/823543
 + 4048*log(x + 2/3)/823543
```

GIAC/XCAS [A] time = 0.207768, size = 117, normalized size = 1.19

$$-\frac{1936}{823543\,(2\,x-1)}+\frac{4\left(\frac{407084454}{2\,x-1}+\frac{2053765665}{(2\,x-1)^2}+\frac{5220014100}{(2\,x-1)^3}+\frac{6680782500}{(2\,x-1)^4}+\frac{3440056760}{(2\,x-1)^5}+32498901\right)}{28824005\left(\frac{7}{2\,x-1}+3\right)^6}+\frac{4048}{823543}\ln\left(\left|-\frac{7}{2\,x-1}-3\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2/((3*x + 2)^7*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -1936/823543/(2*x - 1) + 4/28824005*(407084454/(2*x - 1) + 205376
5665/(2*x - 1)^2 + 5220014100/(2*x - 1)^3 + 6680782500/(2*x - 1)^
4 + 3440056760/(2*x - 1)^5 + 32498901)/(7/(2*x - 1) + 3)^6 + 4048
/823543*ln(abs(-7/(2*x - 1) - 3))
```

3.1553 $\int \frac{(3+5x)^2}{(1-2x)^2(2+3x)^8}\,dx$

Optimal. Leaf size=109

$$\frac{3872}{5764801(1-2x)}-\frac{4048}{823543(3x+2)}-\frac{5632}{823543(3x+2)^2}-\frac{4180}{352947(3x+2)^3}-\frac{341}{16807(3x+2)^4}-\frac{319}{12005(3x+2)^5}+\frac{11}{1029(3x+2)^6}-\frac{1}{1029(3x+2)^7}-\frac{68288\log(1-2x)}{40353607}+\frac{68288\log(3x+2)}{40353607}$$

```
[Out] 3872/(5764801*(1 - 2*x)) - 1/(1029*(2 + 3*x)^7) + 11/(1029*(2 + 3
*x)^6) - 319/(12005*(2 + 3*x)^5) - 341/(16807*(2 + 3*x)^4) - 4180
/(352947*(2 + 3*x)^3) - 5632/(823543*(2 + 3*x)^2) - 4048/(823543*
(2 + 3*x)) - (68288*Log[1 - 2*x])/40353607 + (68288*Log[2 + 3*x])
/40353607
```

Rubi [A] time = 0.129654, antiderivative size = 109, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{3872}{5764801(1-2x)}-\frac{4048}{823543(3x+2)}-\frac{5632}{823543(3x+2)^2}-\frac{4180}{352947(3x+2)^3}-\frac{341}{16807(3x+2)^4}-\frac{319}{12005(3x+2)^5}+\frac{11}{1029(3x+2)^6}-\frac{1}{1029(3x+2)^7}-\frac{68288\log(1-2x)}{40353607}+\frac{68288\log(3x+2)}{40353607}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^2/((1 - 2*x)^2*(2 + 3*x)^8),x]
```

```
[Out] 3872/(5764801*(1 - 2*x)) - 1/(1029*(2 + 3*x)^7) + 11/(1029*(2 + 3
*x)^6) - 319/(12005*(2 + 3*x)^5) - 341/(16807*(2 + 3*x)^4) - 4180
/(352947*(2 + 3*x)^3) - 5632/(823543*(2 + 3*x)^2) - 4048/(823543*
(2 + 3*x)) - (68288*Log[1 - 2*x])/40353607 + (68288*Log[2 + 3*x])
/40353607
```

Rubi in Sympy [A] time = 15.872, size = 94, normalized size = 0.86

$$-\frac{68288\log(-2x+1)}{40353607}+\frac{68288\log(3x+2)}{40353607}-\frac{4048}{823543(3x+2)}-\frac{5632}{823543(3x+2)^2}-\frac{4180}{352947(3x+2)^3}-\frac{341}{16807(3x+2)^4}-\frac{319}{12005(3x+2)^5}+\frac{11}{1029(3x+2)^6}-\frac{1}{1029(3x+2)^7}+\frac{3872}{5764801(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**2/(1-2*x)**2/(2+3*x)**8,x)
```

```
[Out] -68288*log(-2*x + 1)/40353607 + 68288*log(3*x + 2)/40353607 - 404
8/(823543*(3*x + 2)) - 5632/(823543*(3*x + 2)**2) - 4180/(352947*
(3*x + 2)**3) - 341/(16807*(3*x + 2)**4) - 319/(12005*(3*x + 2)**
5) + 11/(1029*(3*x + 2)**6) - 1/(1029*(3*x + 2)**7) + 3872/(57648
01*(-2*x + 1))
```

Mathematica [A] time = 0.138897, size = 74, normalized size = 0.68

$$\frac{16\left(-\frac{7(746729280x^7+3049144560x^6+5057708040x^5+4176440730x^4+1495734471x^3-183177225x^2-327016403x-76539293)}{16(2x-1)(3x+2)^7}-64020\log(1-2x)+64020\right.}{605304105}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^2/((1 - 2*x)^2*(2 + 3*x)^8),x]
```

```
[Out] (16*((-7*(-76539293 - 327016403*x - 183177225*x^2 + 1495734471*x^
3 + 4176440730*x^4 + 5057708040*x^5 + 3049144560*x^6 + 746729280*
x^7))/(16*(-1 + 2*x)*(2 + 3*x)^7) - 64020*Log[1 - 2*x] + 64020*Lo
g[4 + 6*x]))/605304105
```

Maple [A] time = 0.017, size = 90, normalized size = 0.8

$$-\frac{1}{1029\ (2+3\,x)^{7}}+\frac{11}{1029\ (2+3\,x)^{6}}-\frac{319}{12005\ (2+3\,x)^{5}}-\frac{341}{16807\ (2+3\,x)^{4}}-\frac{4180}{352947\ (2+3\,x)^{3}}-\frac{5632}{823543\ (2+3\,x)^{2}}-\frac{4048}{1647086+2470629\,x}+\frac{68288\ \ln(2+3\,x)}{40353607}-\frac{3872}{-5764801+11529602\,x}-\frac{68288\ \ln(-1+2\,x)}{40353607}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^2/(1-2*x)^2/(2+3*x)^8,x)
```

```
[Out] -1/1029/(2+3*x)^7+11/1029/(2+3*x)^6-319/12005/(2+3*x)^5-341/16807
/(2+3*x)^4-4180/352947/(2+3*x)^3-5632/823543/(2+3*x)^2-4048/82354
3/(2+3*x)+68288/40353607*ln(2+3*x)-3872/5764801/(-1+2*x)-68288/40
353607*ln(-1+2*x)
```

Maxima [A] time = 1.35647, size = 130, normalized size = 1.19

$$-\frac{746729280\,x^{7}+3049144560\,x^{6}+5057708040\,x^{5}+4176440730\,x^{4}+1495734471\,x^{3}-183177225\,x^{2}-327016403\,x-7653}{86472015\,(4374\,x^{8}+18225\,x^{7}+30618\,x^{6}+24948\,x^{5}+7560\,x^{4}-3024\,x^{3}-3360\,x^{2}-1088\,x-128)}+\frac{68288}{40353607}\,\log(3\,x+2)-\frac{68288}{40353607}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2/((3*x + 2)^8*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] -1/86472015*(746729280*x^7 + 3049144560*x^6 + 5057708040*x^5 + 41
76440730*x^4 + 1495734471*x^3 - 183177225*x^2 - 327016403*x - 765
39293)/(4374*x^8 + 18225*x^7 + 30618*x^6 + 24948*x^5 + 7560*x^4 -
 3024*x^3 - 3360*x^2 - 1088*x - 128) + 68288/40353607*log(3*x + 2
) - 68288/40353607*log(2*x - 1)
```

Fricas [A] time = 0.236624, size = 236, normalized size = 2.17

$$-\frac{5227104960\,x^{7}+21344011920\,x^{6}+35403956280\,x^{5}+29235085110\,x^{4}+10470141297\,x^{3}-1282240575\,x^{2}-1024320\,(437}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2/((3*x + 2)^8*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] -1/605304105*(5227104960*x^7 + 21344011920*x^6 + 35403956280*x^5
+ 29235085110*x^4 + 10470141297*x^3 - 1282240575*x^2 - 1024320*(4
374*x^8 + 18225*x^7 + 30618*x^6 + 24948*x^5 + 7560*x^4 - 3024*x^3
 - 3360*x^2 - 1088*x - 128)*log(3*x + 2) + 1024320*(4374*x^8 + 18
225*x^7 + 30618*x^6 + 24948*x^5 + 7560*x^4 - 3024*x^3 - 3360*x^2
- 1088*x - 128)*log(2*x - 1) - 2289114821*x - 535775051)/(4374*x^
8 + 18225*x^7 + 30618*x^6 + 24948*x^5 + 7560*x^4 - 3024*x^3 - 336
```

```
0*x^2 - 1088*x - 128)
```

Sympy [A] time = 0.642721, size = 95, normalized size = 0.87

$$-\frac{746729280x^7 + 3049144560x^6 + 5057708040x^5 + 4176440730x^4 + 1495734471x^3 - 183177225x^2 -}{378228593610x^8 + 1575952473375x^7 + 2647600155270x^6 + 2157303830220x^5 + 653728433400x^4 - 261491373360x^3 - 29}$$
$$-\frac{68288\log\left(x-\frac{1}{2}\right)}{40353607}+\frac{68288\log\left(x+\frac{2}{3}\right)}{40353607}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2/(1-2*x)**2/(2+3*x)**8,x)
```

```
[Out] -(746729280*x**7 + 3049144560*x**6 + 5057708040*x**5 + 4176440730
*x**4 + 1495734471*x**3 - 183177225*x**2 - 327016403*x - 76539293
)/(378228593610*x**8 + 1575952473375*x**7 + 2647600155270*x**6 +
2157303830220*x**5 + 653728433400*x**4 - 261491373360*x**3 - 2905
45970400*x**2 - 94081552320*x - 11068417920) - 68288*log(x - 1/2)
/40353607 + 68288*log(x + 2/3)/40353607
```

GIAC/XCAS [A] time = 0.21226, size = 130, normalized size = 1.19

$$-\frac{3872}{5764801\,(2\,x-1)}+\frac{16\left(\frac{6995041011}{2\,x-1}+\frac{43950177747}{(2\,x-1)^2}+\frac{148454802405}{(2\,x-1)^3}+\frac{284722344900}{(2\,x-1)^4}+\frac{294251913900}{(2\,x-1)^5}+\frac{128036230210}{(2\,x-1)^6}+466999587\right)}{1412376245\left(\frac{7}{2\,x-1}+3\right)^7}+\frac{68288}{40353607}\ln\left(\left|-\frac{7}{2\,x-1}-3\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2/((3*x + 2)^8*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -3872/5764801/(2*x - 1) + 16/1412376245*(6995041011/(2*x - 1) + 4
3950177747/(2*x - 1)^2 + 148454802405/(2*x - 1)^3 + 284722344900/
(2*x - 1)^4 + 294251913900/(2*x - 1)^5 + 128036230210/(2*x - 1)^6
 + 466999587)/(7/(2*x - 1) + 3)^7 + 68288/40353607*ln(abs(-7/(2*x
 - 1) - 3))
```

3.1554 $\int \frac{(2+3x)^8(3+5x)^3}{(1-2x)^2}\,dx$

Optimal. Leaf size=90

$$\frac{164025x^{10}}{8}+\frac{370575x^9}{2}+\frac{101721015x^8}{128}+\frac{242570133x^7}{112}+\frac{544462047x^6}{128}+\frac{260574273x^5}{40}+\frac{8502681987x^4}{1024}+\frac{2416569641x^3}{256}+\frac{21573106793x^2}{2048}+\frac{7277894263x}{512}+\frac{7672950131}{4096(1-2x)}+\frac{36770371407\log(1-2x)}{4096}$$

```
[Out] 7672950131/(4096*(1 - 2*x)) + (7277894263*x)/512 + (21573106793*x
^2)/2048 + (2416569641*x^3)/256 + (8502681987*x^4)/1024 + (260574
273*x^5)/40 + (544462047*x^6)/128 + (242570133*x^7)/112 + (101721
015*x^8)/128 + (370575*x^9)/2 + (164025*x^10)/8 + (36770371407*Lo
g[1 - 2*x])/4096
```

Rubi [A] time = 0.116036, antiderivative size = 90, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$\frac{164025x^{10}}{8}+\frac{370575x^9}{2}+\frac{101721015x^8}{128}+\frac{242570133x^7}{112}+\frac{544462047x^6}{128}+\frac{260574273x^5}{40}+\frac{8502681987x^4}{1024}+\frac{2416569641x^3}{256}+\frac{21573106793x^2}{2048}+\frac{7277894263x}{512}+\frac{7672950131}{4096(1-2x)}+\frac{36770371407\log(1-2x)}{4096}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^8*(3 + 5*x)^3)/(1 - 2*x)^2,x]
```

```
[Out] 7672950131/(4096*(1 - 2*x)) + (7277894263*x)/512 + (21573106793*x
^2)/2048 + (2416569641*x^3)/256 + (8502681987*x^4)/1024 + (260574
273*x^5)/40 + (544462047*x^6)/128 + (242570133*x^7)/112 + (101721
015*x^8)/128 + (370575*x^9)/2 + (164025*x^10)/8 + (36770371407*Lo
g[1 - 2*x])/4096
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{164025x^{10}}{8}+\frac{370575x^9}{2}+\frac{101721015x^8}{128}+\frac{242570133x^7}{112}+\frac{544462047x^6}{128}+\frac{260574273x^5}{40}+\frac{8502681987x^4}{1024}+\frac{2416569641x^3}{256}+\frac{36770371407\log(-2x+1)}{4096}+\int\frac{7277894263}{512}\,dx+\frac{21573106793\int x\,dx}{1024}+\frac{7672950131}{4096(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**8*(3+5*x)**3/(1-2*x)**2,x)
```

```
[Out] 164025*x**10/8 + 370575*x**9/2 + 101721015*x**8/128 + 242570133*x
**7/112 + 544462047*x**6/128 + 260574273*x**5/40 + 8502681987*x**
4/1024 + 2416569641*x**3/256 + 36770371407*log(-2*x + 1)/4096 + I
ntegral(7277894263/512, x) + 21573106793*Integral(x, x)/1024 + 76
72950131/(4096*(-2*x + 1))
```

Mathematica [A] time = 0.0320927, size = 79, normalized size = 0.88

$$47029248000x^{11}+401490432000x^{10}+1610338060800x^9+4056416029440x^8+7272841720320x^7+10063991169792x^6+1$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^8*(3 + 5*x)^3)/(1 - 2*x)^2,x]
```

```
[Out] (11304620315803 - 43208575854086*x + 20524026494160*x^2 + 1333564
7616480*x^3 + 12129460157920*x^4 + 11574822095424*x^5 + 100639911
69792*x^6 + 7272841720320*x^7 + 4056416029440*x^8 + 1610338060800
*x^9 + 401490432000*x^10 + 47029248000*x^11 + 10295703993960*(-1
+ 2*x)*Log[1 - 2*x])/(1146880*(-1 + 2*x))
```

Maple [A] time = 0.012, size = 67, normalized size = 0.7

$$\frac{164025\,x^{10}}{8}+\frac{370575\,x^{9}}{2}+\frac{101721015\,x^{8}}{128}+\frac{242570133\,x^{7}}{112}+\frac{544462047\,x^{6}}{128}+\frac{260574273\,x^{5}}{40}+\frac{8502681987\,x^{4}}{1024}+\frac{2416569641\,x^{3}}{256}+\frac{21573106793\,x^{2}}{2048}+\frac{7277894263\,x}{512}-\frac{7672950131}{-4096+8192\,x}+\frac{36770371407\,\ln\left(-1+2\,x\right)}{4096}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^8*(3+5*x)^3/(1-2*x)^2,x)
```

```
[Out] 164025/8*x^10+370575/2*x^9+101721015/128*x^8+242570133/112*x^7+54
4462047/128*x^6+260574273/40*x^5+8502681987/1024*x^4+2416569641/2
56*x^3+21573106793/2048*x^2+7277894263/512*x-7672950131/4096/(-1+
2*x)+36770371407/4096*ln(-1+2*x)
```

Maxima [A] time = 1.34936, size = 89, normalized size = 0.99

$$\frac{164025}{8}\,x^{10}+\frac{370575}{2}\,x^{9}+\frac{101721015}{128}\,x^{8}+\frac{242570133}{112}\,x^{7}+\frac{544462047}{128}\,x^{6}+\frac{260574273}{40}\,x^{5}+\frac{8502681987}{1024}\,x^{4}+\frac{2416569641}{256}\,x^{3}+\frac{21573106793}{2048}\,x^{2}+\frac{7277894263}{512}\,x-\frac{7672950131}{4096\,(2\,x-1)}+\frac{36770371407}{4096}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^8/(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 164025/8*x^10 + 370575/2*x^9 + 101721015/128*x^8 + 242570133/112*
x^7 + 544462047/128*x^6 + 260574273/40*x^5 + 8502681987/1024*x^4
+ 2416569641/256*x^3 + 21573106793/2048*x^2 + 7277894263/512*x -
7672950131/4096/(2*x - 1) + 36770371407/4096*log(2*x - 1)
```

Fricas [A] time = 0.212495, size = 104, normalized size = 1.16

$$\frac{5878656000\,x^{11}+50186304000\,x^{10}+201292257600\,x^{9}+507052003680\,x^{8}+909105215040\,x^{7}+1257998896224\,x^{6}+14468}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^8/(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 1/143360*(5878656000*x^11 + 50186304000*x^10 + 201292257600*x^9 +
 507052003680*x^8 + 909105215040*x^7 + 1257998896224*x^6 + 144685
2761928*x^5 + 1516182519740*x^4 + 1666955952060*x^3 + 25655033117
70*x^2 + 1286962999245*(2*x - 1)*log(2*x - 1) - 2037810393640*x -
 268553254585)/(2*x - 1)
```

Sympy [A] time = 0.293069, size = 82, normalized size = 0.91

$$\frac{164025x^{10}}{8}+\frac{370575x^{9}}{2}+\frac{101721015x^{8}}{128}+\frac{242570133x^{7}}{112}+\frac{544462047x^{6}}{128}+\frac{260574273x^{5}}{40}+\frac{8502681987x^{4}}{1024}+\frac{2416569641x^{3}}{256}+\frac{21573106793x^{2}}{2048}+\frac{7277894263x}{512}+\frac{36770371407\log(2x-1)}{4096}-\frac{7672950131}{8192x-4096}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**8*(3+5*x)**3/(1-2*x)**2,x)
```

```
[Out] 164025*x**10/8 + 370575*x**9/2 + 101721015*x**8/128 + 242570133*x
**7/112 + 544462047*x**6/128 + 260574273*x**5/40 + 8502681987*x**
4/1024 + 2416569641*x**3/256 + 21573106793*x**2/2048 + 7277894263
*x/512 + 36770371407*log(2*x - 1)/4096 - 7672950131/(8192*x - 409
6)
```

GIAC/XCAS [A] time = 0.213203, size = 162, normalized size = 1.8

$$\frac{1}{1146880}(2x-1)^{10}\left(\frac{644679000}{2x-1}+\frac{8328989025}{(2x-1)^{2}}+\frac{65584698840}{(2x-1)^{3}}+\frac{351436586760}{(2x-1)^{4}}+\frac{1355796026928}{(2x-1)^{5}}+\frac{3891461518980}{(2x-1)^{6}}+ 85\right.$$
$$-\frac{7672950131}{4096(2x-1)}-\frac{36770371407}{4096}\ln\left(\frac{|2x-1|}{2(2x-1)^{2}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^8/(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 1/1146880*(2*x - 1)^10*(644679000/(2*x - 1) + 8328989025/(2*x - 1
)^2 + 65584698840/(2*x - 1)^3 + 351436586760/(2*x - 1)^4 + 135579
6026928/(2*x - 1)^5 + 3891461518980/(2*x - 1)^6 + 8509458050800/(
2*x - 1)^7 + 14652493526860/(2*x - 1)^8 + 22425306482040/(2*x - 1
)^9 + 22963500) - 7672950131/4096/(2*x - 1) - 36770371407/4096*ln
(1/2*abs(2*x - 1)/(2*x - 1)^2)
```

3.1555 $\int \frac{(2+3x)^7(3+5x)^3}{(1-2x)^2} dx$

Optimal. Leaf size=83

$$\frac{30375x^9}{4}+\frac{127575x^8}{2}+\frac{28463805x^7}{112}+\frac{20626947x^6}{32}+\frac{379446471x^5}{320}+\frac{220950207x^4}{128}+\frac{551942075x^3}{256}+\frac{1312685491x^2}{512}+\frac{3690540955x}{1024}+\frac{1096135733}{2048(1-2x)}+\frac{298946109}{128}\log(1-2x)$$

```
[Out] 1096135733/(2048*(1 - 2*x)) + (3690540955*x)/1024 + (1312685491*x
^2)/512 + (551942075*x^3)/256 + (220950207*x^4)/128 + (379446471*
x^5)/320 + (20626947*x^6)/32 + (28463805*x^7)/112 + (127575*x^8)/
2 + (30375*x^9)/4 + (298946109*Log[1 - 2*x])/128
```

Rubi [A] time = 0.108089, antiderivative size = 83, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{30375x^9}{4}+\frac{127575x^8}{2}+\frac{28463805x^7}{112}+\frac{20626947x^6}{32}+\frac{379446471x^5}{320}+\frac{220950207x^4}{128}+\frac{551942075x^3}{256}+\frac{1312685491x^2}{512}+\frac{3690540955x}{1024}+\frac{1096135733}{2048(1-2x)}+\frac{298946109}{128}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^7*(3 + 5*x)^3)/(1 - 2*x)^2,x]
```

```
[Out] 1096135733/(2048*(1 - 2*x)) + (3690540955*x)/1024 + (1312685491*x
^2)/512 + (551942075*x^3)/256 + (220950207*x^4)/128 + (379446471*
x^5)/320 + (20626947*x^6)/32 + (28463805*x^7)/112 + (127575*x^8)/
2 + (30375*x^9)/4 + (298946109*Log[1 - 2*x])/128
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{30375x^9}{4}+\frac{127575x^8}{2}+\frac{28463805x^7}{112}+\frac{20626947x^6}{32}+\frac{379446471x^5}{320}+\frac{220950207x^4}{128}+\frac{551942075x^3}{256}+\frac{298946109\log(-2x+1)}{128}+\int\frac{3690540955}{1024}dx+\frac{1312685491\int x\,dx}{256}+\frac{1096135733}{2048(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**7*(3+5*x)**3/(1-2*x)**2,x)
```

```
[Out] 30375*x**9/4 + 127575*x**8/2 + 28463805*x**7/112 + 20626947*x**6/
32 + 379446471*x**5/320 + 220950207*x**4/128 + 551942075*x**3/256
 + 298946109*log(-2*x + 1)/128 + Integral(3690540955/1024, x) + 1
312685491*Integral(x, x)/256 + 1096135733/(2048*(-2*x + 1))
```

Mathematica [A] time = 0.0294868, size = 74, normalized size = 0.89

$$\frac{1088640000x^{10}+8600256000x^9+31861382400x^8+74191887360x^7+123787657728x^6+162468222336x^5+185355446080}{71680(2x-}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^7*(3 + 5*x)^3)/(1 - 2*x)^2,x]
```

```
[Out] (167338715917 - 669744799994*x + 332899764960*x^2 + 213008156480*
x^3 + 185355446080*x^4 + 162468222336*x^5 + 123787657728*x^6 + 74
191887360*x^7 + 31861382400*x^8 + 8600256000*x^9 + 1088640000*x^1
0 + 167409821040*(-1 + 2*x)*Log[1 - 2*x])/(71680*(-1 + 2*x))
```

Maple [A] time = 0.01, size = 62, normalized size = 0.8

$$\frac{30375\,x^9}{4}+\frac{127575\,x^8}{2}+\frac{28463805\,x^7}{112}+\frac{20626947\,x^6}{32}+\frac{379446471\,x^5}{320}+\frac{220950207\,x^4}{128}+\frac{551942075\,x^3}{256}+\frac{1312685491\,x^2}{512}+\frac{3690540955\,x}{1024}-\frac{1096135733}{-2048+4096\,x}+\frac{298946109\,\ln\left(-1+2\,x\right)}{128}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^7*(3+5*x)^3/(1-2*x)^2,x)
```

```
[Out] 30375/4*x^9+127575/2*x^8+28463805/112*x^7+20626947/32*x^6+3794464
71/320*x^5+220950207/128*x^4+551942075/256*x^3+1312685491/512*x^2
+3690540955/1024*x-1096135733/2048/(-1+2*x)+298946109/128*ln(-1+2
*x)
```

Maxima [A] time = 1.34463, size = 82, normalized size = 0.99

$$\frac{30375}{4}\,x^9+\frac{127575}{2}\,x^8+\frac{28463805}{112}\,x^7+\frac{20626947}{32}\,x^6+\frac{379446471}{320}\,x^5+\frac{220950207}{128}\,x^4+\frac{551942075}{256}\,x^3+\frac{1312685491}{512}\,x^2+\frac{3690540955}{1024}\,x-\frac{1096135733}{2048\,(2\,x-1)}+\frac{298946109}{128}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^7/(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 30375/4*x^9 + 127575/2*x^8 + 28463805/112*x^7 + 20626947/32*x^6 +
 379446471/320*x^5 + 220950207/128*x^4 + 551942075/256*x^3 + 1312
685491/512*x^2 + 3690540955/1024*x - 1096135733/2048/(2*x - 1) +
298946109/128*log(2*x - 1)
```

Fricas [A] time = 0.208633, size = 97, normalized size = 1.17

$$\frac{1088640000\,x^{10}+8600256000\,x^9+31861382400\,x^8+74191887360\,x^7+123787657728\,x^6+162468222336\,x^5+1853554460}{71680\,(2\,x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^7/(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 1/71680*(1088640000*x^10 + 8600256000*x^9 + 31861382400*x^8 + 741
91887360*x^7 + 123787657728*x^6 + 162468222336*x^5 + 185355446080
*x^4 + 213008156480*x^3 + 332899764960*x^2 + 167409821040*(2*x -
1)*log(2*x - 1) - 258337866850*x - 38364750655)/(2*x - 1)
```

Sympy [A] time = 0.275709, size = 75, normalized size = 0.9

$$\frac{30375x^9}{4}+\frac{127575x^8}{2}+\frac{28463805x^7}{112}+\frac{20626947x^6}{32}+\frac{379446471x^5}{320}+\frac{220950207x^4}{128}+\frac{551942075x^3}{256}+\frac{1312685491x^2}{512}+\frac{3690540955x}{1024}+\frac{298946109\log\left(2x-1\right)}{128}-\frac{1096135733}{4096x-2048}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**7*(3+5*x)**3/(1-2*x)**2,x)
```

```
[Out] 30375*x**9/4 + 127575*x**8/2 + 28463805*x**7/112 + 20626947*x**6/
32 + 379446471*x**5/320 + 220950207*x**4/128 + 551942075*x**3/256
 + 1312685491*x**2/512 + 3690540955*x/1024 + 298946109*log(2*x -
1)/128 - 1096135733/(4096*x - 2048)
```

GIAC/XCAS [A] time = 0.214635, size = 150, normalized size = 1.81

$$\frac{1}{71680}\,(2\,x-1)^9\left(\frac{27428625}{2\,x-1}+\frac{323475525}{(2\,x-1)^2}+\frac{2307572820}{(2\,x-1)^3}+\frac{11110625442}{(2\,x-1)^4}+\frac{38208385530}{(2\,x-1)^5}+\frac{97321773850}{(2\,x-1)^6}+\frac{191214919700}{(2\,x-1)^7}\right.$$
$$-\frac{1096135733}{2048\,(2\,x-1)}-\frac{298946109}{128}\ln\left(\frac{|2\,x-1|}{2\,(2\,x-1)^2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^7/(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 1/71680*(2*x - 1)^9*(27428625/(2*x - 1) + 323475525/(2*x - 1)^2 +
 2307572820/(2*x - 1)^3 + 11110625442/(2*x - 1)^4 + 38208385530/(
2*x - 1)^5 + 97321773850/(2*x - 1)^6 + 191214919700/(2*x - 1)^7 +
 328704835305/(2*x - 1)^8 + 1063125) - 1096135733/2048/(2*x - 1)
- 298946109/128*ln(1/2*abs(2*x - 1)/(2*x - 1)^2)
```

3.1556 $\int \frac{(2+3x)^6(3+5x)^3}{(1-2x)^2}\,dx$

Optimal. Leaf size=76

$$\frac{91125x^8}{32}+\frac{309825x^7}{14}+\frac{2611845x^6}{32}+\frac{15403257x^5}{80}+\frac{85406805x^4}{256}+\frac{7530189x^3}{16}+\frac{310976027x^2}{512}+\frac{230244479x}{256}+\frac{156590819}{1024(1-2x)}+\frac{616195041\log(1-2x)}{1024}$$

```
[Out] 156590819/(1024*(1 - 2*x)) + (230244479*x)/256 + (310976027*x^2)/
512 + (7530189*x^3)/16 + (85406805*x^4)/256 + (15403257*x^5)/80 +
 (2611845*x^6)/32 + (309825*x^7)/14 + (91125*x^8)/32 + (616195041
*Log[1 - 2*x])/1024
```

Rubi [A] time = 0.0979158, antiderivative size = 76, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{91125x^8}{32}+\frac{309825x^7}{14}+\frac{2611845x^6}{32}+\frac{15403257x^5}{80}+\frac{85406805x^4}{256}+\frac{7530189x^3}{16}+\frac{310976027x^2}{512}+\frac{230244479x}{256}+\frac{156590819}{1024(1-2x)}+\frac{616195041\log(1-2x)}{1024}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^6*(3 + 5*x)^3)/(1 - 2*x)^2,x]
```

```
[Out] 156590819/(1024*(1 - 2*x)) + (230244479*x)/256 + (310976027*x^2)/
512 + (7530189*x^3)/16 + (85406805*x^4)/256 + (15403257*x^5)/80 +
 (2611845*x^6)/32 + (309825*x^7)/14 + (91125*x^8)/32 + (616195041
*Log[1 - 2*x])/1024
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{91125x^8}{32}+\frac{309825x^7}{14}+\frac{2611845x^6}{32}+\frac{15403257x^5}{80}+\frac{85406805x^4}{256}+\frac{7530189x^3}{16}+\frac{616195041\log(-2x+1)}{1024}+\int\frac{230244479}{256}\,dx+\frac{310976027\int x\,dx}{256}+\frac{156590819}{1024(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**6*(3+5*x)**3/(1-2*x)**2,x)
```

```
[Out] 91125*x**8/32 + 309825*x**7/14 + 2611845*x**6/32 + 15403257*x**5/
80 + 85406805*x**4/256 + 7530189*x**3/16 + 616195041*log(-2*x + 1
)/1024 + Integral(230244479/256, x) + 310976027*Integral(x, x)/25
6 + 156590819/(1024*(-2*x + 1))
```

Mathematica [A] time = 0.031862, size = 69, normalized size = 0.91

$$\frac{1632960000x^9+11873952000x^8+40459046400x^7+87008414976x^6+136105970112x^5+174226352160x^4+21335216336\ldots}{286720(2x-1)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^6*(3 + 5*x)^3)/(1 - 2*x)^2,x]
```

```
[Out] (153617806869 - 652800288858*x + 341601057840*x^2 + 213352163360*
x^3 + 174226352160*x^4 + 136105970112*x^5 + 87008414976*x^6 + 404
59046400*x^7 + 11873952000*x^8 + 1632960000*x^9 + 172534611480*(-
1 + 2*x)*Log[1 - 2*x])/(286720*(-1 + 2*x))
```

Maple [A] time = 0.01, size = 57, normalized size = 0.8

$$\frac{91125\,x^{8}}{32}+\frac{309825\,x^{7}}{14}+\frac{2611845\,x^{6}}{32}+\frac{15403257\,x^{5}}{80}+\frac{85406805\,x^{4}}{256}+\frac{7530189\,x^{3}}{16}+\frac{310976027\,x^{2}}{512}+\frac{230244479\,x}{256}-\frac{156590819}{-1024+2048\,x}+\frac{616195041\,\ln\left(-1+2\,x\right)}{1024}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^6*(3+5*x)^3/(1-2*x)^2,x)
```

```
[Out] 91125/32*x^8+309825/14*x^7+2611845/32*x^6+15403257/80*x^5+8540680
5/256*x^4+7530189/16*x^3+310976027/512*x^2+230244479/256*x-156590
819/1024/(-1+2*x)+616195041/1024*ln(-1+2*x)
```

Maxima [A] time = 1.34813, size = 76, normalized size = 1.

$$\frac{91125}{32}\,x^{8}+\frac{309825}{14}\,x^{7}+\frac{2611845}{32}\,x^{6}+\frac{15403257}{80}\,x^{5}+\frac{85406805}{256}\,x^{4}+\frac{7530189}{16}\,x^{3}+\frac{310976027}{512}\,x^{2}+\frac{230244479}{256}\,x-\frac{156590819}{1024\,(2\,x-1)}+\frac{616195041}{1024}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^6/(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 91125/32*x^8 + 309825/14*x^7 + 2611845/32*x^6 + 15403257/80*x^5 +
 85406805/256*x^4 + 7530189/16*x^3 + 310976027/512*x^2 + 23024447
9/256*x - 156590819/1024/(2*x - 1) + 616195041/1024*log(2*x - 1)
```

Fricas [A] time = 0.206397, size = 90, normalized size = 1.18

$$\frac{204120000\,x^{9}+1484244000\,x^{8}+5057380800\,x^{7}+10876051872\,x^{6}+17013246264\,x^{5}+21778294020\,x^{4}+26669020420\,x^{3}+}{35840\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^6/(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 1/35840*(204120000*x^9 + 1484244000*x^8 + 5057380800*x^7 + 108760
51872*x^6 + 17013246264*x^5 + 21778294020*x^4 + 26669020420*x^3 +
 42700132230*x^2 + 21566826435*(2*x - 1)*log(2*x - 1) - 322342270
60*x - 5480678665)/(2*x - 1)
```

Sympy [A] time = 0.258701, size = 68, normalized size = 0.89

$$\frac{91125x^{8}}{32}+\frac{309825x^{7}}{14}+\frac{2611845x^{6}}{32}+\frac{15403257x^{5}}{80}+\frac{85406805x^{4}}{256}+\frac{7530189x^{3}}{16}+\frac{310976027x^{2}}{512}+\frac{230244479x}{256}+\frac{616195041\log\left(2x-1\right)}{1024}-\frac{156590819}{2048x-1024}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**6*(3+5*x)**3/(1-2*x)**2,x)
```

```
[Out] 91125*x**8/32 + 309825*x**7/14 + 2611845*x**6/32 + 15403257*x**5/
80 + 85406805*x**4/256 + 7530189*x**3/16 + 310976027*x**2/512 + 2
30244479*x/256 + 616195041*log(2*x - 1)/1024 - 156590819/(2048*x
- 1024)
```

GIAC/XCAS [A] time = 0.215855, size = 138, normalized size = 1.82

$$\frac{1}{286720}\,(2\,x-1)^{8}\left(\frac{75087000}{2\,x-1}+\frac{801964800}{(2\,x-1)^{2}}+\frac{5138731584}{(2\,x-1)^{3}}+\frac{22047451020}{(2\,x-1)^{4}}+\frac{67259967600}{(2\,x-1)^{5}}+\frac{153877208800}{(2\,x-1)^{6}}+\frac{30171926400}{(2\,x-1)^{7}}\right.$$
$$-\frac{156590819}{1024\,(2\,x-1)}-\frac{616195041}{1024}\ln\left(\frac{|2\,x-1|}{2\,(2\,x-1)^{2}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^6/(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 1/286720*(2*x - 1)^8*(75087000/(2*x - 1) + 801964800/(2*x - 1)^2
+ 5138731584/(2*x - 1)^3 + 22047451020/(2*x - 1)^4 + 67259967600/
(2*x - 1)^5 + 153877208800/(2*x - 1)^6 + 301719264000/(2*x - 1)^7
 + 3189375) - 156590819/1024/(2*x - 1) - 616195041/1024*ln(1/2*ab
s(2*x - 1)/(2*x - 1)^2)
```

3.1557 $\int \frac{(2+3x)^5(3+5x)^3}{(1-2x)^2}\,dx$

Optimal. Leaf size=69

$$\frac{30375x^7}{28}+\frac{15525x^6}{2}+\frac{423009x^5}{16}+\frac{3724389x^4}{64}+\frac{6179077x^3}{64}+\frac{8881301x^2}{64}+\frac{56291737x}{256}+\frac{22370117}{512(1-2x)}+\frac{39220335}{256}\log(1-2x)$$

```
[Out] 22370117/(512*(1 - 2*x)) + (56291737*x)/256 + (8881301*x^2)/64 +
(6179077*x^3)/64 + (3724389*x^4)/64 + (423009*x^5)/16 + (15525*x^
6)/2 + (30375*x^7)/28 + (39220335*Log[1 - 2*x])/256
```

Rubi [A] time = 0.0896154, antiderivative size = 69, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{30375x^7}{28}+\frac{15525x^6}{2}+\frac{423009x^5}{16}+\frac{3724389x^4}{64}+\frac{6179077x^3}{64}+\frac{8881301x^2}{64}+\frac{56291737x}{256}+\frac{22370117}{512(1-2x)}+\frac{39220335}{256}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^5*(3 + 5*x)^3)/(1 - 2*x)^2,x]
```

```
[Out] 22370117/(512*(1 - 2*x)) + (56291737*x)/256 + (8881301*x^2)/64 +
(6179077*x^3)/64 + (3724389*x^4)/64 + (423009*x^5)/16 + (15525*x^
6)/2 + (30375*x^7)/28 + (39220335*Log[1 - 2*x])/256
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{30375x^7}{28}+\frac{15525x^6}{2}+\frac{423009x^5}{16}+\frac{3724389x^4}{64}+\frac{6179077x^3}{64}+\frac{39220335\log(-2x+1)}{256}+\int\frac{56291737}{256}\,dx+\frac{8881301\int x\,dx}{32}+\frac{22370117}{512(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**5*(3+5*x)**3/(1-2*x)**2,x)
```

```
[Out] 30375*x**7/28 + 15525*x**6/2 + 423009*x**5/16 + 3724389*x**4/64 +
 6179077*x**3/64 + 39220335*log(-2*x + 1)/256 + Integral(56291737
/256, x) + 8881301*Integral(x, x)/32 + 22370117/(512*(-2*x + 1))
```

Mathematica [A] time = 0.028737, size = 64, normalized size = 0.93

$$\frac{15552000x^8+103507200x^7+323374464x^6+644755104x^5+966981680x^4+1297354800x^3+2157631560x^2-3888550282}{7168(2x-1)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^5*(3 + 5*x)^3)/(1 - 2*x)^2,x]
```

```
[Out] (843009185 - 3888550282*x + 2157631560*x^2 + 1297354800*x^3 + 966
981680*x^4 + 644755104*x^5 + 323374464*x^6 + 103507200*x^7 + 1555
2000*x^8 + 1098169380*(-1 + 2*x)*Log[1 - 2*x])/(7168*(-1 + 2*x))
```

Maple [A] time = 0.01, size = 52, normalized size = 0.8

$$\frac{30375 x^7}{28}+\frac{15525 x^6}{2}+\frac{423009 x^5}{16}+\frac{3724389 x^4}{64}+\frac{6179077 x^3}{64}+\frac{8881301 x^2}{64}+\frac{56291737 x}{256}-\frac{22370117}{-512+1024 x}+\frac{39220335 \ln(-1+2 x)}{256}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^5*(3+5*x)^3/(1-2*x)^2,x)
```

```
[Out] 30375/28*x^7+15525/2*x^6+423009/16*x^5+3724389/64*x^4+6179077/64*
x^3+8881301/64*x^2+56291737/256*x-22370117/512/(-1+2*x)+39220335/
256*ln(-1+2*x)
```

Maxima [A] time = 1.34929, size = 69, normalized size = 1.

$$\frac{30375}{28} x^7+\frac{15525}{2} x^6+\frac{423009}{16} x^5+\frac{3724389}{64} x^4+\frac{6179077}{64} x^3+\frac{8881301}{64} x^2+\frac{56291737}{256} x-\frac{22370117}{512 (2 x-1)}+\frac{39220335}{256} \log(2 x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^5/(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 30375/28*x^7 + 15525/2*x^6 + 423009/16*x^5 + 3724389/64*x^4 + 617
9077/64*x^3 + 8881301/64*x^2 + 56291737/256*x - 22370117/512/(2*x
 - 1) + 39220335/256*log(2*x - 1)
```

Fricas [A] time = 0.208526, size = 84, normalized size = 1.22

$$\frac{7776000 x^8+51753600 x^7+161687232 x^6+322377552 x^5+483490840 x^4+648677400 x^3+1078815780 x^2+549084690 (2}{3584 (2 x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^5/(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 1/3584*(7776000*x^8 + 51753600*x^7 + 161687232*x^6 + 322377552*x^
5 + 483490840*x^4 + 648677400*x^3 + 1078815780*x^2 + 549084690*(2
*x - 1)*log(2*x - 1) - 788084318*x - 156590819)/(2*x - 1)
```

Sympy [A] time = 0.259246, size = 61, normalized size = 0.88

$$\frac{30375x^7}{28}+\frac{15525x^6}{2}+\frac{423009x^5}{16}+\frac{3724389x^4}{64}+\frac{6179077x^3}{64}+\frac{8881301x^2}{64}+\frac{56291737x}{256}+\frac{39220335 \log(2x-1)}{256}-\frac{22370117}{1024x-512}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**5*(3+5*x)**3/(1-2*x)**2,x)
```

```
[Out] 30375*x**7/28 + 15525*x**6/2 + 423009*x**5/16 + 3724389*x**4/64 +
 6179077*x**3/64 + 8881301*x**2/64 + 56291737*x/256 + 39220335*lo
```

```
g(2*x - 1)/256 - 22370117/(1024*x - 512)
```

GIAC/XCAS [A] time = 0.21674, size = 126, normalized size = 1.83

$$\frac{1}{7168}\,(2\,x-1)^{7}\left(\frac{1294650}{2\,x-1}+\frac{12414276}{(2\,x-1)^{2}}+\frac{70848603}{(2\,x-1)^{3}}+\frac{269525480}{(2\,x-1)^{4}}+\frac{738160010}{(2\,x-1)^{5}}+\frac{1684493580}{(2\,x-1)^{6}}+60750\right)-\frac{22370117}{512\,(2\,x-1)}-\frac{39220335}{256}\ln\left(\frac{|2\,x-1|}{2\,(2\,x-1)^{2}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^5/(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 1/7168*(2*x - 1)^7*(1294650/(2*x - 1) + 12414276/(2*x - 1)^2 + 70
848603/(2*x - 1)^3 + 269525480/(2*x - 1)^4 + 738160010/(2*x - 1)^
5 + 1684493580/(2*x - 1)^6 + 60750) - 22370117/512/(2*x - 1) - 39
220335/256*ln(1/2*abs(2*x - 1)/(2*x - 1)^2)
```

3.1558 $\int \frac{(2+3x)^4(3+5x)^3}{(1-2x)^2} \, dx$

Optimal. Leaf size=62

$$\frac{3375x^6}{8}+\frac{5535x^5}{2}+\frac{557415x^4}{64}+\frac{289951x^3}{16}+\frac{3859469x^2}{128}+\frac{209243x}{4}+\frac{3195731}{256(1-2x)}+\frac{9836211}{256}\log(1-2x)$$

```
[Out] 3195731/(256*(1 - 2*x)) + (209243*x)/4 + (3859469*x^2)/128 + (289
951*x^3)/16 + (557415*x^4)/64 + (5535*x^5)/2 + (3375*x^6)/8 + (98
36211*Log[1 - 2*x])/256
```

Rubi [A] time = 0.0809314, antiderivative size = 62, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{3375x^6}{8}+\frac{5535x^5}{2}+\frac{557415x^4}{64}+\frac{289951x^3}{16}+\frac{3859469x^2}{128}+\frac{209243x}{4}+\frac{3195731}{256(1-2x)}+\frac{9836211}{256}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In] Int[((2 + 3*x)^4*(3 + 5*x)^3)/(1 - 2*x)^2,x]
```

```
[Out] 3195731/(256*(1 - 2*x)) + (209243*x)/4 + (3859469*x^2)/128 + (289
951*x^3)/16 + (557415*x^4)/64 + (5535*x^5)/2 + (3375*x^6)/8 + (98
36211*Log[1 - 2*x])/256
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{3375x^6}{8}+\frac{5535x^5}{2}+\frac{557415x^4}{64}+\frac{289951x^3}{16}+\frac{9836211\log(-2x+1)}{256}+\int\frac{209243}{4}\,dx+\frac{3859469\int x\,dx}{64}+\frac{3195731}{256(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**4*(3+5*x)**3/(1-2*x)**2,x)
```

```
[Out] 3375*x**6/8 + 5535*x**5/2 + 557415*x**4/64 + 289951*x**3/16 + 983
6211*log(-2*x + 1)/256 + Integral(209243/4, x) + 3859469*Integral
(x, x)/64 + 3195731/(256*(-2*x + 1))
```

Mathematica [A] time = 0.0258965, size = 59, normalized size = 0.95

$$\frac{864000x^7+5235840x^6+15003360x^5+28195088x^4+43194640x^3+76256664x^2-128514958x+39344844(2x-1)\log(1-}{1024(2x-1)}$$

Antiderivative was successfully verified.

```
[In] Integrate[((2 + 3*x)^4*(3 + 5*x)^3)/(1 - 2*x)^2,x]
```

```
[Out] (24691451 - 128514958*x + 76256664*x^2 + 43194640*x^3 + 28195088*
x^4 + 15003360*x^5 + 5235840*x^6 + 864000*x^7 + 39344844*(-1 + 2*
x)*Log[1 - 2*x])/(1024*(-1 + 2*x))
```

Maple [A] time = 0.01, size = 47, normalized size = 0.8

$$\frac{3375\,x^{6}}{8}+\frac{5535\,x^{5}}{2}+\frac{557415\,x^{4}}{64}+\frac{289951\,x^{3}}{16}+\frac{3859469\,x^{2}}{128}+\frac{209243\,x}{4}-\frac{3195731}{-256+512\,x}+\frac{9836211\,\ln\left(-1+2\,x\right)}{256}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4*(3+5*x)^3/(1-2*x)^2,x)
```

```
[Out] 3375/8*x^6+5535/2*x^5+557415/64*x^4+289951/16*x^3+3859469/128*x^2
+209243/4*x-3195731/256/(-1+2*x)+9836211/256*ln(-1+2*x)
```

Maxima [A] time = 1.33995, size = 62, normalized size = 1.

$$\frac{3375}{8}\,x^{6}+\frac{5535}{2}\,x^{5}+\frac{557415}{64}\,x^{4}+\frac{289951}{16}\,x^{3}+\frac{3859469}{128}\,x^{2}+\frac{209243}{4}\,x-\frac{3195731}{256\,(2\,x-1)}+\frac{9836211}{256}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^4/(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 3375/8*x^6 + 5535/2*x^5 + 557415/64*x^4 + 289951/16*x^3 + 3859469
/128*x^2 + 209243/4*x - 3195731/256/(2*x - 1) + 9836211/256*log(2
*x - 1)
```

Fricas [A] time = 0.209967, size = 77, normalized size = 1.24

$$\frac{216000\,x^{7}+1308960\,x^{6}+3750840\,x^{5}+7048772\,x^{4}+10798660\,x^{3}+19064166\,x^{2}+9836211\,(2\,x-1)\log\left(2\,x-1\right)-133915}{256\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^4/(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 1/256*(216000*x^7 + 1308960*x^6 + 3750840*x^5 + 7048772*x^4 + 107
98660*x^3 + 19064166*x^2 + 9836211*(2*x - 1)*log(2*x - 1) - 13391
552*x - 3195731)/(2*x - 1)
```

Sympy [A] time = 0.24394, size = 54, normalized size = 0.87

$$\frac{3375x^{6}}{8}+\frac{5535x^{5}}{2}+\frac{557415x^{4}}{64}+\frac{289951x^{3}}{16}+\frac{3859469x^{2}}{128}+\frac{209243x}{4}+\frac{9836211\log\left(2x-1\right)}{256}-\frac{3195731}{512x-256}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4*(3+5*x)**3/(1-2*x)**2,x)
```

```
[Out] 3375*x**6/8 + 5535*x**5/2 + 557415*x**4/64 + 289951*x**3/16 + 385
9469*x**2/128 + 209243*x/4 + 9836211*log(2*x - 1)/256 - 3195731/(
512*x - 256)
```

GIAC/XCAS [A] time = 0.214006, size = 113, normalized size = 1.82

$$\frac{1}{1024}\,(2\,x-1)^6\left(\frac{129060}{2\,x-1}+\frac{1101465}{(2\,x-1)^2}+\frac{5569868}{(2\,x-1)^3}+\frac{19009102}{(2\,x-1)^4}+\frac{51892764}{(2\,x-1)^5}+6750\right)-\frac{3195731}{256\,(2\,x-1)}-\frac{9836211}{256}\ln\left(\frac{|2\,x-1|}{2\,(2\,x-1)^2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^4/(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 1/1024*(2*x - 1)^6*(129060/(2*x - 1) + 1101465/(2*x - 1)^2 + 5569
868/(2*x - 1)^3 + 19009102/(2*x - 1)^4 + 51892764/(2*x - 1)^5 + 6
750) - 3195731/256/(2*x - 1) - 9836211/256*ln(1/2*abs(2*x - 1)/(2
*x - 1)^2)
```

3.1559 $\int \frac{(2+3x)^3(3+5x)^3}{(1-2x)^2}\,dx$

Optimal. Leaf size=55

$$\frac{675x^5}{4}+\frac{2025x^4}{2}+\frac{47535x^3}{16}+\frac{194881x^2}{32}+\frac{766807x}{64}+\frac{456533}{128(1-2x)}+\frac{302379}{32}\log(1-2x)$$

```
[Out] 456533/(128*(1 - 2*x)) + (766807*x)/64 + (194881*x^2)/32 + (47535
*x^3)/16 + (2025*x^4)/2 + (675*x^5)/4 + (302379*Log[1 - 2*x])/32
```

Rubi [A] time = 0.0721014, antiderivative size = 55, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{675x^5}{4}+\frac{2025x^4}{2}+\frac{47535x^3}{16}+\frac{194881x^2}{32}+\frac{766807x}{64}+\frac{456533}{128(1-2x)}+\frac{302379}{32}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^3*(3 + 5*x)^3)/(1 - 2*x)^2,x]
```

```
[Out] 456533/(128*(1 - 2*x)) + (766807*x)/64 + (194881*x^2)/32 + (47535
*x^3)/16 + (2025*x^4)/2 + (675*x^5)/4 + (302379*Log[1 - 2*x])/32
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{675x^5}{4}+\frac{2025x^4}{2}+\frac{47535x^3}{16}+\frac{302379\log(-2x+1)}{32}+\int\frac{766807}{64}\,dx+\frac{194881\int x\,dx}{16}+\frac{456533}{128(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3*(3+5*x)**3/(1-2*x)**2,x)
```

```
[Out] 675*x**5/4 + 2025*x**4/2 + 47535*x**3/16 + 302379*log(-2*x + 1)/3
2 + Integral(766807/64, x) + 194881*Integral(x, x)/16 + 456533/(1
28*(-2*x + 1))
```

Mathematica [A] time = 0.0229457, size = 54, normalized size = 0.98

$$\frac{43200x^6+237600x^5+630960x^4+1178768x^3+2287704x^2-3569610x+1209516(2x-1)\log(1-2x)+561465}{128(2x-1)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^3*(3 + 5*x)^3)/(1 - 2*x)^2,x]
```

```
[Out] (561465 - 3569610*x + 2287704*x^2 + 1178768*x^3 + 630960*x^4 + 23
7600*x^5 + 43200*x^6 + 1209516*(-1 + 2*x)*Log[1 - 2*x])/(128*(-1
+ 2*x))
```

Maple [A] time = 0.008, size = 42, normalized size = 0.8

$$\frac{675\,x^5}{4}+\frac{2025\,x^4}{2}+\frac{47535\,x^3}{16}+\frac{194881\,x^2}{32}+\frac{766807\,x}{64}-\frac{456533}{-128+256\,x}+\frac{302379\,\ln(-1+2\,x)}{32}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3*(3+5*x)^3/(1-2*x)^2,x)
```

```
[Out] 675/4*x^5+2025/2*x^4+47535/16*x^3+194881/32*x^2+766807/64*x-45653
3/128/(-1+2*x)+302379/32*ln(-1+2*x)
```

Maxima [A] time = 1.34773, size = 55, normalized size = 1.

$$\frac{675}{4}\,x^5+\frac{2025}{2}\,x^4+\frac{47535}{16}\,x^3+\frac{194881}{32}\,x^2+\frac{766807}{64}\,x-\frac{456533}{128\,(2\,x-1)}+\frac{302379}{32}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^3/(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 675/4*x^5 + 2025/2*x^4 + 47535/16*x^3 + 194881/32*x^2 + 766807/64
*x - 456533/128/(2*x - 1) + 302379/32*log(2*x - 1)
```

Fricas [A] time = 0.203421, size = 70, normalized size = 1.27

$$\frac{43200\,x^6+237600\,x^5+630960\,x^4+1178768\,x^3+2287704\,x^2+1209516\,(2\,x-1)\log\left(2\,x-1\right)-1533614\,x-456533}{128\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^3/(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 1/128*(43200*x^6 + 237600*x^5 + 630960*x^4 + 1178768*x^3 + 228770
4*x^2 + 1209516*(2*x - 1)*log(2*x - 1) - 1533614*x - 456533)/(2*x
 - 1)
```

Sympy [A] time = 0.225566, size = 48, normalized size = 0.87

$$\frac{675x^5}{4}+\frac{2025x^4}{2}+\frac{47535x^3}{16}+\frac{194881x^2}{32}+\frac{766807x}{64}+\frac{302379\log\left(2x-1\right)}{32}-\frac{456533}{256x-128}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3*(3+5*x)**3/(1-2*x)**2,x)
```

```
[Out] 675*x**5/4 + 2025*x**4/2 + 47535*x**3/16 + 194881*x**2/32 + 76680
7*x/64 + 302379*log(2*x - 1)/32 - 456533/(256*x - 128)
```

GIAC/XCAS [A] time = 0.21229, size = 101, normalized size = 1.84

$$\frac{1}{128}\,(2\,x-1)^5\left(\frac{11475}{2\,x-1}+\frac{86685}{(2\,x-1)^2}+\frac{392836}{(2\,x-1)^3}+\frac{1334949}{(2\,x-1)^4}+675\right)-\frac{456533}{128\,(2\,x-1)}-\frac{302379}{32}\,\ln\left(\frac{|2\,x-1|}{2\,(2\,x-1)^2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^3/(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 1/128*(2*x - 1)^5*(11475/(2*x - 1) + 86685/(2*x - 1)^2 + 392836/(
2*x - 1)^3 + 1334949/(2*x - 1)^4 + 675) - 456533/128/(2*x - 1) -
302379/32*ln(1/2*abs(2*x - 1)/(2*x - 1)^2)
```

3.1560 $\int \frac{(2+3x)^2(3+5x)^3}{(1-2x)^2} \, dx$

Optimal. Leaf size=48

$$\frac{1125x^4}{16} + \frac{775x^3}{2} + \frac{35135x^2}{32} + \frac{41537x}{16} + \frac{65219}{64(1-2x)} + \frac{144837}{64}\log(1-2x)$$

```
[Out] 65219/(64*(1 - 2*x)) + (41537*x)/16 + (35135*x^2)/32 + (775*x^3)/
2 + (1125*x^4)/16 + (144837*Log[1 - 2*x])/64
```

Rubi [A] time = 0.0633051, antiderivative size = 48, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$\frac{1125x^4}{16} + \frac{775x^3}{2} + \frac{35135x^2}{32} + \frac{41537x}{16} + \frac{65219}{64(1-2x)} + \frac{144837}{64}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In] Int[((2 + 3*x)^2*(3 + 5*x)^3)/(1 - 2*x)^2,x]
```

```
[Out] 65219/(64*(1 - 2*x)) + (41537*x)/16 + (35135*x^2)/32 + (775*x^3)/
2 + (1125*x^4)/16 + (144837*Log[1 - 2*x])/64
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{1125x^4}{16} + \frac{775x^3}{2} + \frac{144837\log(-2x+1)}{64} + \int \frac{41537}{16}\,dx + \frac{35135\int x\,dx}{16} + \frac{65219}{64(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**2*(3+5*x)**3/(1-2*x)**2,x)
```

```
[Out] 1125*x**4/16 + 775*x**3/2 + 144837*log(-2*x + 1)/64 + Integral(41
537/16, x) + 35135*Integral(x, x)/16 + 65219/(64*(-2*x + 1))
```

Mathematica [A] time = 0.0235776, size = 49, normalized size = 1.02

$$\frac{36000x^5 + 180400x^4 + 462960x^3 + 1048104x^2 - 1496774x + 579348(2x-1)\log(1-2x) + 155215}{256(2x-1)}$$

Antiderivative was successfully verified.

```
[In] Integrate[((2 + 3*x)^2*(3 + 5*x)^3)/(1 - 2*x)^2,x]
```

```
[Out] (155215 - 1496774*x + 1048104*x^2 + 462960*x^3 + 180400*x^4 + 360
00*x^5 + 579348*(-1 + 2*x)*Log[1 - 2*x])/(256*(-1 + 2*x))
```

Maple [A] time = 0.008, size = 37, normalized size = 0.8

$$\frac{1125\,x^4}{16} + \frac{775\,x^3}{2} + \frac{35135\,x^2}{32} + \frac{41537\,x}{16} - \frac{65219}{-64+128\,x} + \frac{144837\,\ln(-1+2\,x)}{64}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2*(3+5*x)^3/(1-2*x)^2,x)
```

```
[Out] 1125/16*x^4+775/2*x^3+35135/32*x^2+41537/16*x-65219/64/(-1+2*x)+1
44837/64*ln(-1+2*x)
```

Maxima [A] time = 1.32934, size = 49, normalized size = 1.02

$$\frac{1125}{16}x^4+\frac{775}{2}x^3+\frac{35135}{32}x^2+\frac{41537}{16}x-\frac{65219}{64\,(2\,x-1)}+\frac{144837}{64}\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^2/(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 1125/16*x^4 + 775/2*x^3 + 35135/32*x^2 + 41537/16*x - 65219/64/(2
*x - 1) + 144837/64*log(2*x - 1)
```

Fricas [A] time = 0.20228, size = 63, normalized size = 1.31

$$\frac{9000\,x^5+45100\,x^4+115740\,x^3+262026\,x^2+144837\,(2\,x-1)\log\left(2\,x-1\right)-166148\,x-65219}{64\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^2/(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 1/64*(9000*x^5 + 45100*x^4 + 115740*x^3 + 262026*x^2 + 144837*(2*
x - 1)*log(2*x - 1) - 166148*x - 65219)/(2*x - 1)
```

Sympy [A] time = 0.211771, size = 41, normalized size = 0.85

$$\frac{1125x^4}{16}+\frac{775x^3}{2}+\frac{35135x^2}{32}+\frac{41537x}{16}+\frac{144837\log\left(2x-1\right)}{64}-\frac{65219}{128x-64}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2*(3+5*x)**3/(1-2*x)**2,x)
```

```
[Out] 1125*x**4/16 + 775*x**3/2 + 35135*x**2/32 + 41537*x/16 + 144837*l
og(2*x - 1)/64 - 65219/(128*x - 64)
```

GIAC/XCAS [A] time = 0.209922, size = 89, normalized size = 1.85

$$\frac{1}{256}\,(2\,x-1)^4\left(\frac{16900}{2\,x-1}+\frac{114220}{(2\,x-1)^2}+\frac{514536}{(2\,x-1)^3}+1125\right)-\frac{65219}{64\,(2\,x-1)}-\frac{144837}{64}\ln\left(\frac{|2\,x-1|}{2\,(2\,x-1)^2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^2/(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 1/256*(2*x - 1)^4*(16900/(2*x - 1) + 114220/(2*x - 1)^2 + 514536/
(2*x - 1)^3 + 1125) - 65219/64/(2*x - 1) - 144837/64*ln(1/2*abs(2
*x - 1)/(2*x - 1)^2)
```

3.1561 $\int \frac{(2+3x)(3+5x)^3}{(1-2x)^2} dx$

Optimal. Leaf size=41

$$\frac{125x^3}{4}+\frac{325x^2}{2}+\frac{8245x}{16}+\frac{9317}{32(1-2x)}+\frac{8349}{16}\log(1-2x)$$

```
[Out] 9317/(32*(1 - 2*x)) + (8245*x)/16 + (325*x^2)/2 + (125*x^3)/4 + (
8349*Log[1 - 2*x])/16
```

Rubi [A] time = 0.0528465, antiderivative size = 41, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{125x^3}{4}+\frac{325x^2}{2}+\frac{8245x}{16}+\frac{9317}{32(1-2x)}+\frac{8349}{16}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In] Int[((2 + 3*x)*(3 + 5*x)^3)/(1 - 2*x)^2,x]
```

```
[Out] 9317/(32*(1 - 2*x)) + (8245*x)/16 + (325*x^2)/2 + (125*x^3)/4 + (
8349*Log[1 - 2*x])/16
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{125x^3}{4}+\frac{8349\log(-2x+1)}{16}+\int\frac{8245}{16}\,dx+325\int x\,dx+\frac{9317}{32(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)*(3+5*x)**3/(1-2*x)**2,x)
```

```
[Out] 125*x**3/4 + 8349*log(-2*x + 1)/16 + Integral(8245/16, x) + 325*I
ntegral(x, x) + 9317/(32*(-2*x + 1))
```

Mathematica [A] time = 0.0181181, size = 41, normalized size = 1.

$$\frac{2000x^4+9400x^3+27780x^2-35830x+16698(2x-1)\log(1-2x)+353}{64x-32}$$

Antiderivative was successfully verified.

```
[In] Integrate[((2 + 3*x)*(3 + 5*x)^3)/(1 - 2*x)^2,x]
```

```
[Out] (353 - 35830*x + 27780*x^2 + 9400*x^3 + 2000*x^4 + 16698*(-1 + 2*
x)*Log[1 - 2*x])/(-32 + 64*x)
```

Maple [A] time = 0.009, size = 32, normalized size = 0.8

$$\frac{125\,x^3}{4}+\frac{325\,x^2}{2}+\frac{8245\,x}{16}-\frac{9317}{-32+64\,x}+\frac{8349\,\ln(-1+2\,x)}{16}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)*(3+5*x)^3/(1-2*x)^2,x)
```

```
[Out] 125/4*x^3+325/2*x^2+8245/16*x-9317/32/(-1+2*x)+8349/16*ln(-1+2*x)
```

Maxima [A] time = 1.34568, size = 42, normalized size = 1.02

$$\frac{125}{4}\,x^3+\frac{325}{2}\,x^2+\frac{8245}{16}\,x-\frac{9317}{32\,(2\,x-1)}+\frac{8349}{16}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)/(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 125/4*x^3 + 325/2*x^2 + 8245/16*x - 9317/32/(2*x - 1) + 8349/16*l
og(2*x - 1)
```

Fricas [A] time = 0.21134, size = 57, normalized size = 1.39

$$\frac{2000\,x^4+9400\,x^3+27780\,x^2+16698\,(2\,x-1)\log\left(2\,x-1\right)-16490\,x-9317}{32\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)/(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 1/32*(2000*x^4 + 9400*x^3 + 27780*x^2 + 16698*(2*x - 1)*log(2*x -
 1) - 16490*x - 9317)/(2*x - 1)
```

Sympy [A] time = 0.207933, size = 34, normalized size = 0.83

$$\frac{125x^3}{4}+\frac{325x^2}{2}+\frac{8245x}{16}+\frac{8349\log\left(2x-1\right)}{16}-\frac{9317}{64x-32}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)*(3+5*x)**3/(1-2*x)**2,x)
```

```
[Out] 125*x**3/4 + 325*x**2/2 + 8245*x/16 + 8349*log(2*x - 1)/16 - 9317
/(64*x - 32)
```

GIAC/XCAS [A] time = 0.20573, size = 77, normalized size = 1.88

$$\frac{5}{32}\,(2\,x-1)^3\left(\frac{335}{2\,x-1}+\frac{2244}{(2\,x-1)^2}+25\right)-\frac{9317}{32\,(2\,x-1)}-\frac{8349}{16}\,\ln\left(\frac{|2\,x-1|}{2\,(2\,x-1)^2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)/(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 5/32*(2*x - 1)^3*(335/(2*x - 1) + 2244/(2*x - 1)^2 + 25) - 9317/3
2/(2*x - 1) - 8349/16*ln(1/2*abs(2*x - 1)/(2*x - 1)^2)
```

3.1562 $\int \frac{(3+5x)^3}{(1-2x)^2}\,dx$

Optimal. Leaf size=34

$$\frac{125x^2}{8}+\frac{175x}{2}+\frac{1331}{16(1-2x)}+\frac{1815}{16}\log(1-2x)$$

```
[Out] 1331/(16*(1 - 2*x)) + (175*x)/2 + (125*x^2)/8 + (1815*Log[1 - 2*x
])/16
```

Rubi [A] time = 0.0329023, antiderivative size = 34, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.067

$$\frac{125x^2}{8}+\frac{175x}{2}+\frac{1331}{16(1-2x)}+\frac{1815}{16}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^3/(1 - 2*x)^2,x]
```

```
[Out] 1331/(16*(1 - 2*x)) + (175*x)/2 + (125*x^2)/8 + (1815*Log[1 - 2*x
])/16
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{1815\log(-2x+1)}{16}+\int\frac{175}{2}\,dx+\frac{125\int x\,dx}{4}+\frac{1331}{16(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**3/(1-2*x)**2,x)
```

```
[Out] 1815*log(-2*x + 1)/16 + Integral(175/2, x) + 125*Integral(x, x)/4
 + 1331/(16*(-2*x + 1))
```

Mathematica [A] time = 0.0124976, size = 36, normalized size = 1.06

$$\frac{1000x^3+5100x^2-5850x+3630(2x-1)\log(1-2x)-1137}{64x-32}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^3/(1 - 2*x)^2,x]
```

```
[Out] (-1137 - 5850*x + 5100*x^2 + 1000*x^3 + 3630*(-1 + 2*x)*Log[1 - 2
*x])/(-32 + 64*x)
```

Maple [A] time = 0.009, size = 27, normalized size = 0.8

$$\frac{125x^2}{8}+\frac{175x}{2}-\frac{1331}{-16+32x}+\frac{1815\ln(-1+2x)}{16}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3/(1-2*x)^2,x)
```

```
[Out] 125/8*x^2+175/2*x-1331/16/(-1+2*x)+1815/16*ln(-1+2*x)
```

Maxima [A] time = 1.34372, size = 35, normalized size = 1.03

$$\frac{125}{8}\,x^2+\frac{175}{2}\,x-\frac{1331}{16\,(2\,x-1)}+\frac{1815}{16}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/(2*x - 1)^2,x, algorithm="maxima")
```

```
[Out] 125/8*x^2 + 175/2*x - 1331/16/(2*x - 1) + 1815/16*log(2*x - 1)
```

Fricas [A] time = 0.214283, size = 50, normalized size = 1.47

$$\frac{500\,x^3+2550\,x^2+1815\,(2\,x-1)\log\left(2\,x-1\right)-1400\,x-1331}{16\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/(2*x - 1)^2,x, algorithm="fricas")
```

```
[Out] 1/16*(500*x^3 + 2550*x^2 + 1815*(2*x - 1)*log(2*x - 1) - 1400*x -
 1331)/(2*x - 1)
```

Sympy [A] time = 0.183773, size = 27, normalized size = 0.79

$$\frac{125x^2}{8}+\frac{175x}{2}+\frac{1815\log\left(2x-1\right)}{16}-\frac{1331}{32x-16}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3/(1-2*x)**2,x)
```

```
[Out] 125*x**2/8 + 175*x/2 + 1815*log(2*x - 1)/16 - 1331/(32*x - 16)
```

GIAC/XCAS [A] time = 0.207559, size = 65, normalized size = 1.91

$$\frac{25}{32}\,(2\,x-1)^2\left(\frac{66}{2\,x-1}+5\right)-\frac{1331}{16\,(2\,x-1)}-\frac{1815}{16}\,\ln\left(\frac{|2\,x-1|}{2\,(2\,x-1)^2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/(2*x - 1)^2,x, algorithm="giac")
```

```
[Out] 25/32*(2*x - 1)^2*(66/(2*x - 1) + 5) - 1331/16/(2*x - 1) - 1815/1
6*ln(1/2*abs(2*x - 1)/(2*x - 1)^2)
```

3.1563 $\int \frac{(3+5x)^3}{(1-2x)^2(2+3x)}\,dx$

Optimal. Leaf size=37

$$\frac{125x}{12}+\frac{1331}{56(1-2x)}+\frac{1089}{49}\log(1-2x)-\frac{1}{441}\log(3x+2)$$

```
[Out] 1331/(56*(1 - 2*x)) + (125*x)/12 + (1089*Log[1 - 2*x])/49 - Log[2
 + 3*x]/441
```

Rubi [A] time = 0.045395, antiderivative size = 37, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{125x}{12}+\frac{1331}{56(1-2x)}+\frac{1089}{49}\log(1-2x)-\frac{1}{441}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^3/((1 - 2*x)^2*(2 + 3*x)),x]
```

```
[Out] 1331/(56*(1 - 2*x)) + (125*x)/12 + (1089*Log[1 - 2*x])/49 - Log[2
 + 3*x]/441
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{1089\log(-2x+1)}{49}-\frac{\log(3x+2)}{441}+\int\frac{125}{12}\,dx+\frac{1331}{56(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**3/(1-2*x)**2/(2+3*x),x)
```

```
[Out] 1089*log(-2*x + 1)/49 - log(3*x + 2)/441 + Integral(125/12, x) +
1331/(56*(-2*x + 1))
```

Mathematica [A] time = 0.0401771, size = 37, normalized size = 1.

$$\frac{12250(3x+2)+\frac{83853}{1-2x}+78408\log(3-6x)-8\log(3x+2)}{3528}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^3/((1 - 2*x)^2*(2 + 3*x)),x]
```

```
[Out] (83853/(1 - 2*x) + 12250*(2 + 3*x) + 78408*Log[3 - 6*x] - 8*Log[2
 + 3*x])/3528
```

Maple [A] time = 0.011, size = 30, normalized size = 0.8

$$\frac{125\,x}{12}-\frac{\ln(2+3\,x)}{441}-\frac{1331}{-56+112\,x}+\frac{1089\,\ln(-1+2\,x)}{49}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3/(1-2*x)^2/(2+3*x),x)
```

```
[Out] 125/12*x-1/441*ln(2+3*x)-1331/56/(-1+2*x)+1089/49*ln(-1+2*x)
```

Maxima [A] time = 1.35868, size = 39, normalized size = 1.05

$$\frac{125}{12}\,x - \frac{1331}{56\,(2\,x-1)} - \frac{1}{441}\,\log\left(3\,x+2\right) + \frac{1089}{49}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] 125/12*x - 1331/56/(2*x - 1) - 1/441*log(3*x + 2) + 1089/49*log(2
*x - 1)
```

Fricas [A] time = 0.213624, size = 61, normalized size = 1.65

$$\frac{73500\,x^{2} - 8\,(2\,x-1)\log\left(3\,x+2\right) + 78408\,(2\,x-1)\log\left(2\,x-1\right) - 36750\,x - 83853}{3528\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] 1/3528*(73500*x^2 - 8*(2*x - 1)*log(3*x + 2) + 78408*(2*x - 1)*lo
g(2*x - 1) - 36750*x - 83853)/(2*x - 1)
```

Sympy [A] time = 0.317975, size = 29, normalized size = 0.78

$$\frac{125x}{12} + \frac{1089\log\left(x-\frac{1}{2}\right)}{49} - \frac{\log\left(x+\frac{2}{3}\right)}{441} - \frac{1331}{112x-56}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3/(1-2*x)**2/(2+3*x),x)
```

```
[Out] 125*x/12 + 1089*log(x - 1/2)/49 - log(x + 2/3)/441 - 1331/(112*x
- 56)
```

GIAC/XCAS [A] time = 0.205266, size = 63, normalized size = 1.7

$$\frac{125}{12}\,x - \frac{1331}{56\,(2\,x-1)} - \frac{200}{9}\ln\left(\frac{|2\,x-1|}{2\,(2\,x-1)^{2}}\right) - \frac{1}{441}\ln\left(\left|-\frac{7}{2\,x-1} - 3\right|\right) - \frac{125}{24}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] 125/12*x - 1331/56/(2*x - 1) - 200/9*ln(1/2*abs(2*x - 1)/(2*x - 1
)^2) - 1/441*ln(abs(-7/(2*x - 1) - 3)) - 125/24
```

3.1564 $\int \frac{(3+5x)^3}{(1-2x)^2(2+3x)^2}\,dx$

Optimal. Leaf size=43

$$\frac{1331}{196(1-2x)}+\frac{1}{441(3x+2)}+\frac{4719\log(1-2x)}{1372}+\frac{101\log(3x+2)}{3087}$$

```
[Out] 1331/(196*(1 - 2*x)) + 1/(441*(2 + 3*x)) + (4719*Log[1 - 2*x])/13
72 + (101*Log[2 + 3*x])/3087
```

Rubi [A] time = 0.0526586, antiderivative size = 43, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{1331}{196(1-2x)}+\frac{1}{441(3x+2)}+\frac{4719\log(1-2x)}{1372}+\frac{101\log(3x+2)}{3087}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^3/((1 - 2*x)^2*(2 + 3*x)^2),x]
```

```
[Out] 1331/(196*(1 - 2*x)) + 1/(441*(2 + 3*x)) + (4719*Log[1 - 2*x])/13
72 + (101*Log[2 + 3*x])/3087
```

Rubi in Sympy [A] time = 7.84451, size = 32, normalized size = 0.74

$$\frac{4719\log(-2x+1)}{1372}+\frac{101\log(3x+2)}{3087}+\frac{1}{441(3x+2)}+\frac{1331}{196(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**3/(1-2*x)**2/(2+3*x)**2,x)
```

```
[Out] 4719*log(-2*x + 1)/1372 + 101*log(3*x + 2)/3087 + 1/(441*(3*x + 2
)) + 1331/(196*(-2*x + 1))
```

Mathematica [A] time = 0.0388587, size = 40, normalized size = 0.93

$$\frac{-\frac{7(35929x+23962)}{6x^2+x-2}+42471\log(5-10x)+404\log(5(3x+2))}{12348}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^3/((1 - 2*x)^2*(2 + 3*x)^2),x]
```

```
[Out] ((-7*(23962 + 35929*x))/(-2 + x + 6*x^2) + 42471*Log[5 - 10*x] +
404*Log[5*(2 + 3*x)])/12348
```

Maple [A] time = 0.013, size = 36, normalized size = 0.8

$$\frac{1}{882+1323\,x}+\frac{101\,\ln(2+3\,x)}{3087}-\frac{1331}{-196+392\,x}+\frac{4719\,\ln(-1+2\,x)}{1372}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3/(1-2*x)^2/(2+3*x)^2,x)
```

```
[Out] 1/441/(2+3*x)+101/3087*ln(2+3*x)-1331/196/(-1+2*x)+4719/1372*ln(-
1+2*x)
```

Maxima [A] time = 1.34291, size = 46, normalized size = 1.07

$$-\frac{35929\,x+23962}{1764\,(6\,x^2+x-2)}+\frac{101}{3087}\,\log\left(3\,x+2\right)+\frac{4719}{1372}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)^2*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] -1/1764*(35929*x + 23962)/(6*x^2 + x - 2) + 101/3087*log(3*x + 2)
 + 4719/1372*log(2*x - 1)
```

Fricas [A] time = 0.210901, size = 66, normalized size = 1.53

$$\frac{404\left(6\,x^2+x-2\right)\log\left(3\,x+2\right)+42471\left(6\,x^2+x-2\right)\log\left(2\,x-1\right)-251503\,x-167734}{12348\,(6\,x^2+x-2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)^2*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] 1/12348*(404*(6*x^2 + x - 2)*log(3*x + 2) + 42471*(6*x^2 + x - 2)
*log(2*x - 1) - 251503*x - 167734)/(6*x^2 + x - 2)
```

Sympy [A] time = 0.389444, size = 34, normalized size = 0.79

$$-\frac{35929x+23962}{10584x^2+1764x-3528}+\frac{4719\log\left(x-\frac{1}{2}\right)}{1372}+\frac{101\log\left(x+\frac{2}{3}\right)}{3087}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3/(1-2*x)**2/(2+3*x)**2,x)
```

```
[Out] -(35929*x + 23962)/(10584*x**2 + 1764*x - 3528) + 4719*log(x - 1/
2)/1372 + 101*log(x + 2/3)/3087
```

GIAC/XCAS [A] time = 0.207927, size = 78, normalized size = 1.81

$$\frac{1}{441\,(3\,x+2)}+\frac{3993}{686\left(\frac{7}{3\,x+2}-2\right)}-\frac{125}{36}\ln\left(\frac{|3\,x+2|}{3\,(3\,x+2)^2}\right)+\frac{4719}{1372}\ln\left(\left|-\frac{7}{3\,x+2}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)^2*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] 1/441/(3*x + 2) + 3993/686/(7/(3*x + 2) - 2) - 125/36*ln(1/3*abs(
3*x + 2)/(3*x + 2)^2) + 4719/1372*ln(abs(-7/(3*x + 2) + 2))
```

3.1565 $\int \frac{(3+5x)^3}{(1-2x)^2(2+3x)^3} dx$

Optimal. Leaf size=54

$$\frac{1331}{686(1-2x)}-\frac{101}{3087(3x+2)}+\frac{1}{882(3x+2)^2}+\frac{363\log(1-2x)}{2401}-\frac{363\log(3x+2)}{2401}$$

```
[Out] 1331/(686*(1 - 2*x)) + 1/(882*(2 + 3*x)^2) - 101/(3087*(2 + 3*x))
 + (363*Log[1 - 2*x])/2401 - (363*Log[2 + 3*x])/2401
```

Rubi [A] time = 0.0639553, antiderivative size = 54, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{1331}{686(1-2x)}-\frac{101}{3087(3x+2)}+\frac{1}{882(3x+2)^2}+\frac{363\log(1-2x)}{2401}-\frac{363\log(3x+2)}{2401}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^3/((1 - 2*x)^2*(2 + 3*x)^3),x]
```

```
[Out] 1331/(686*(1 - 2*x)) + 1/(882*(2 + 3*x)^2) - 101/(3087*(2 + 3*x))
 + (363*Log[1 - 2*x])/2401 - (363*Log[2 + 3*x])/2401
```

Rubi in Sympy [A] time = 9.01275, size = 42, normalized size = 0.78

$$\frac{363\log(-2x+1)}{2401}-\frac{363\log(3x+2)}{2401}-\frac{101}{3087(3x+2)}+\frac{1}{882(3x+2)^2}+\frac{1331}{686(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**3/(1-2*x)**2/(2+3*x)**3,x)
```

```
[Out] 363*log(-2*x + 1)/2401 - 363*log(3*x + 2)/2401 - 101/(3087*(3*x +
 2)) + 1/(882*(3*x + 2)**2) + 1331/(686*(-2*x + 1))
```

Mathematica [A] time = 0.0521153, size = 48, normalized size = 0.89

$$\frac{\frac{83853}{1-2x}-\frac{1414}{3x+2}+\frac{49}{(3x+2)^2}+6534\log(1-2x)-6534\log(6x+4)}{43218}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^3/((1 - 2*x)^2*(2 + 3*x)^3),x]
```

```
[Out] (83853/(1 - 2*x) + 49/(2 + 3*x)^2 - 1414/(2 + 3*x) + 6534*Log[1 -
 2*x] - 6534*Log[4 + 6*x])/43218
```

Maple [A] time = 0.014, size = 45, normalized size = 0.8

$$\frac{1}{882(2+3x)^2}-\frac{101}{6174+9261x}-\frac{363\ln(2+3x)}{2401}-\frac{1331}{-686+1372x}+\frac{363\ln(-1+2x)}{2401}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3/(1-2*x)^2/(2+3*x)^3,x)
```

```
[Out] 1/882/(2+3*x)^2-101/3087/(2+3*x)-363/2401*ln(2+3*x)-1331/686/(-1+
2*x)+363/2401*ln(-1+2*x)
```

Maxima [A] time = 1.34473, size = 62, normalized size = 1.15

$$-\frac{109023\,x^2+143936\,x+47519}{6174\,(18\,x^3+15\,x^2-4\,x-4)}-\frac{363}{2401}\,\log\left(3\,x+2\right)+\frac{363}{2401}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3/((3*x + 2)^3*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] -1/6174*(109023*x^2 + 143936*x + 47519)/(18*x^3 + 15*x^2 - 4*x -
4) - 363/2401*log(3*x + 2) + 363/2401*log(2*x - 1)
```

Fricas [A] time = 0.208436, size = 101, normalized size = 1.87

$$-\frac{763161\,x^2+6534\,\left(18\,x^3+15\,x^2-4\,x-4\right)\,\log\left(3\,x+2\right)-6534\,\left(18\,x^3+15\,x^2-4\,x-4\right)\,\log\left(2\,x-1\right)+1007552\,x+33263}{43218\,(18\,x^3+15\,x^2-4\,x-4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3/((3*x + 2)^3*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] -1/43218*(763161*x^2 + 6534*(18*x^3 + 15*x^2 - 4*x - 4)*log(3*x +
 2) - 6534*(18*x^3 + 15*x^2 - 4*x - 4)*log(2*x - 1) + 1007552*x +
 332633)/(18*x^3 + 15*x^2 - 4*x - 4)
```

Sympy [A] time = 0.394536, size = 44, normalized size = 0.81

$$-\frac{109023x^2+143936x+47519}{111132x^3+92610x^2-24696x-24696}+\frac{363\log\left(x-\frac{1}{2}\right)}{2401}-\frac{363\log\left(x+\frac{2}{3}\right)}{2401}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3/(1-2*x)**2/(2+3*x)**3,x)
```

```
[Out] -(109023*x**2 + 143936*x + 47519)/(111132*x**3 + 92610*x**2 - 246
96*x - 24696) + 363*log(x - 1/2)/2401 - 363*log(x + 2/3)/2401
```

GIAC/XCAS [A] time = 0.207849, size = 69, normalized size = 1.28

$$-\frac{1331}{686\,(2\,x-1)}+\frac{2\,\left(\frac{231}{2\,x-1}+100\right)}{2401\,\left(\frac{7}{2\,x-1}+3\right)^2}-\frac{363}{2401}\,\ln\left(\left|-\frac{7}{2\,x-1}-3\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3/((3*x + 2)^3*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -1331/686/(2*x - 1) + 2/2401*(231/(2*x - 1) + 100)/(7/(2*x - 1) +
 3)^2 - 363/2401*ln(abs(-7/(2*x - 1) - 3))
```

3.1566 $\int \frac{(3+5x)^3}{(1-2x)^2(2+3x)^4}\,dx$

Optimal. Leaf size=65

$$\frac{1331}{2401(1-2x)}+\frac{363}{2401(3x+2)}-\frac{101}{6174(3x+2)^2}+\frac{1}{1323(3x+2)^3}-\frac{3267\log(1-2x)}{16807}+\frac{3267\log(3x+2)}{16807}$$

```
[Out] 1331/(2401*(1 - 2*x)) + 1/(1323*(2 + 3*x)^3) - 101/(6174*(2 + 3*x
)^2) + 363/(2401*(2 + 3*x)) - (3267*Log[1 - 2*x])/16807 + (3267*L
og[2 + 3*x])/16807
```

Rubi [A] time = 0.0734643, antiderivative size = 65, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{1331}{2401(1-2x)}+\frac{363}{2401(3x+2)}-\frac{101}{6174(3x+2)^2}+\frac{1}{1323(3x+2)^3}-\frac{3267\log(1-2x)}{16807}+\frac{3267\log(3x+2)}{16807}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^3/((1 - 2*x)^2*(2 + 3*x)^4),x]
```

```
[Out] 1331/(2401*(1 - 2*x)) + 1/(1323*(2 + 3*x)^3) - 101/(6174*(2 + 3*x
)^2) + 363/(2401*(2 + 3*x)) - (3267*Log[1 - 2*x])/16807 + (3267*L
og[2 + 3*x])/16807
```

Rubi in Sympy [A] time = 10.2391, size = 53, normalized size = 0.82

$$-\frac{3267\log(-2x+1)}{16807}+\frac{3267\log(3x+2)}{16807}+\frac{363}{2401(3x+2)}-\frac{101}{6174(3x+2)^2}+\frac{1}{1323(3x+2)^3}+\frac{1331}{2401(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**3/(1-2*x)**2/(2+3*x)**4,x)
```

```
[Out] -3267*log(-2*x + 1)/16807 + 3267*log(3*x + 2)/16807 + 363/(2401*(
3*x + 2)) - 101/(6174*(3*x + 2)**2) + 1/(1323*(3*x + 2)**3) + 133
1/(2401*(-2*x + 1))
```

Mathematica [A] time = 0.0682914, size = 62, normalized size = 0.95

$$\frac{\frac{7}{2}\left(\frac{19602}{3x+2}-\frac{2121}{(3x+2)^2}+\frac{98}{(3x+2)^3}+\frac{71874}{1-2x}\right)-88209\log(1-2x)+88209\log(6x+4)}{453789}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^3/((1 - 2*x)^2*(2 + 3*x)^4),x]
```

```
[Out] ((7*(71874/(1 - 2*x) + 98/(2 + 3*x)^3 - 2121/(2 + 3*x)^2 + 19602/
(2 + 3*x)))/2 - 88209*Log[1 - 2*x] + 88209*Log[4 + 6*x])/453789
```

Maple [A] time = 0.015, size = 54, normalized size = 0.8

$$\frac{1}{1323\,(2+3\,x)^3}-\frac{101}{6174\,(2+3\,x)^2}+\frac{363}{4802+7203\,x}+\frac{3267\,\ln(2+3\,x)}{16807}-\frac{1331}{-2401+4802\,x}-\frac{3267\,\ln(-1+2\,x)}{16807}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3/(1-2*x)^2/(2+3*x)^4,x)
```

```
[Out] 1/1323/(2+3*x)^3-101/6174/(2+3*x)^2+363/2401/(2+3*x)+3267/16807*l
n(2+3*x)-1331/2401/(-1+2*x)-3267/16807*ln(-1+2*x)
```

Maxima [A] time = 1.34891, size = 76, normalized size = 1.17

$$-\frac{1587762\,x^{3}+3599892\,x^{2}+2667797\,x+649256}{129654\,(54\,x^{4}+81\,x^{3}+18\,x^{2}-20\,x-8)}+\frac{3267}{16807}\,\log\left(3\,x+2\right)-\frac{3267}{16807}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3/((3*x + 2)^4*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] -1/129654*(1587762*x^3 + 3599892*x^2 + 2667797*x + 649256)/(54*x^
4 + 81*x^3 + 18*x^2 - 20*x - 8) + 3267/16807*log(3*x + 2) - 3267/
16807*log(2*x - 1)
```

Fricas [A] time = 0.214723, size = 128, normalized size = 1.97

$$-\frac{11114334\,x^{3}+25199244\,x^{2}-176418\,\left(54\,x^{4}+81\,x^{3}+18\,x^{2}-20\,x-8\right)\log\left(3\,x+2\right)+176418\,\left(54\,x^{4}+81\,x^{3}+18\,x^{2}-20\,x\right.}{907578\,(54\,x^{4}+81\,x^{3}+18\,x^{2}-20\,x-8)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3/((3*x + 2)^4*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] -1/907578*(11114334*x^3 + 25199244*x^2 - 176418*(54*x^4 + 81*x^3
+ 18*x^2 - 20*x - 8)*log(3*x + 2) + 176418*(54*x^4 + 81*x^3 + 18*
x^2 - 20*x - 8)*log(2*x - 1) + 18674579*x + 4544792)/(54*x^4 + 81
*x^3 + 18*x^2 - 20*x - 8)
```

Sympy [A] time = 0.448139, size = 54, normalized size = 0.83

$$-\frac{1587762x^{3}+3599892x^{2}+2667797x+649256}{7001316x^{4}+10501974x^{3}+2333772x^{2}-2593080x-1037232}-\frac{3267\log\left(x-\frac{1}{2}\right)}{16807}+\frac{3267\log\left(x+\frac{2}{3}\right)}{16807}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3/(1-2*x)**2/(2+3*x)**4,x)
```

```
[Out] -(1587762*x**3 + 3599892*x**2 + 2667797*x + 649256)/(7001316*x**4
 + 10501974*x**3 + 2333772*x**2 - 2593080*x - 1037232) - 3267*log
(x - 1/2)/16807 + 3267*log(x + 2/3)/16807
```

GIAC/XCAS [A] time = 0.20895, size = 81, normalized size = 1.25

$$-\frac{1331}{2401\,(2\,x-1)}-\frac{2\,\left(\frac{43645}{2\,x-1}+\frac{50127}{(2\,x-1)^{2}}+9502\right)}{16807\,\left(\frac{7}{2\,x-1}+3\right)^{3}}+\frac{3267}{16807}\,\ln\left(\left|-\frac{7}{2\,x-1}-3\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)^4*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -1331/2401/(2*x - 1) - 2/16807*(43645/(2*x - 1) + 50127/(2*x - 1)
^2 + 9502)/(7/(2*x - 1) + 3)^3 + 3267/16807*ln(abs(-7/(2*x - 1) -
 3))
```

3.1567 $\int \frac{(3+5x)^3}{(1-2x)^2(2+3x)^5} \, dx$

Optimal. Leaf size=76

$$\frac{2662}{16807(1-2x)}-\frac{3267}{16807(3x+2)}+\frac{363}{4802(3x+2)^2}-\frac{101}{9261(3x+2)^3}+\frac{1}{1764(3x+2)^4}-\frac{14520\log(1-2x)}{117649}+\frac{14520\log(3x+2)}{117649}$$

```
[Out] 2662/(16807*(1 - 2*x)) + 1/(1764*(2 + 3*x)^4) - 101/(9261*(2 + 3*
x)^3) + 363/(4802*(2 + 3*x)^2) - 3267/(16807*(2 + 3*x)) - (14520*
Log[1 - 2*x])/117649 + (14520*Log[2 + 3*x])/117649
```

Rubi [A] time = 0.0892964, antiderivative size = 76, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{2662}{16807(1-2x)}-\frac{3267}{16807(3x+2)}+\frac{363}{4802(3x+2)^2}-\frac{101}{9261(3x+2)^3}+\frac{1}{1764(3x+2)^4}-\frac{14520\log(1-2x)}{117649}+\frac{14520\log(3x+2)}{117649}$$

Antiderivative was successfully verified.

```
[In] Int[(3 + 5*x)^3/((1 - 2*x)^2*(2 + 3*x)^5),x]
```

```
[Out] 2662/(16807*(1 - 2*x)) + 1/(1764*(2 + 3*x)^4) - 101/(9261*(2 + 3*
x)^3) + 363/(4802*(2 + 3*x)^2) - 3267/(16807*(2 + 3*x)) - (14520*
Log[1 - 2*x])/117649 + (14520*Log[2 + 3*x])/117649
```

Rubi in Sympy [A] time = 11.532, size = 63, normalized size = 0.83

$$-\frac{14520\log(-2x+1)}{117649}+\frac{14520\log(3x+2)}{117649}-\frac{3267}{16807(3x+2)}+\frac{363}{4802(3x+2)^2}-\frac{101}{9261(3x+2)^3}+\frac{1}{1764(3x+2)^4}+\frac{2662}{16807(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((3+5*x)**3/(1-2*x)**2/(2+3*x)**5,x)
```

```
[Out] -14520*log(-2*x + 1)/117649 + 14520*log(3*x + 2)/117649 - 3267/(1
6807*(3*x + 2)) + 363/(4802*(3*x + 2)**2) - 101/(9261*(3*x + 2)**
3) + 1/(1764*(3*x + 2)**4) + 2662/(16807*(-2*x + 1))
```

Mathematica [A] time = 0.0790009, size = 59, normalized size = 0.78

$$\frac{2\left(-\frac{7(42340320x^4+88209000x^3+66510750x^2+21109490x+2287541)}{8(2x-1)(3x+2)^4}-196020\log(1-2x)+196020\log(6x+4)\right)}{3176523}$$

Antiderivative was successfully verified.

```
[In] Integrate[(3 + 5*x)^3/((1 - 2*x)^2*(2 + 3*x)^5),x]
```

```
[Out] (2*((-7*(2287541 + 21109490*x + 66510750*x^2 + 88209000*x^3 + 423
40320*x^4))/(8*(-1 + 2*x)*(2 + 3*x)^4) - 196020*Log[1 - 2*x] + 19
```

```
6020*Log[4 + 6*x]))/3176523
```

Maple [A] time = 0.015, size = 63, normalized size = 0.8

$$\frac{1}{1764 (2+3x)^4}-\frac{101}{9261 (2+3x)^3}+\frac{363}{4802 (2+3x)^2}-\frac{3267}{33614+50421x}+\frac{14520 \ln (2+3x)}{117649}-\frac{2662}{-16807+33614x}-\frac{14520 \ln (-1+2x)}{117649}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((3+5*x)^3/(1-2*x)^2/(2+3*x)^5,x)
```

```
[Out] 1/1764/(2+3*x)^4-101/9261/(2+3*x)^3+363/4802/(2+3*x)^2-3267/16807
/(2+3*x)+14520/117649*ln(2+3*x)-2662/16807/(-1+2*x)-14520/117649*
ln(-1+2*x)
```

Maxima [A] time = 1.34879, size = 89, normalized size = 1.17

$$-\frac{42340320 x^4+88209000 x^3+66510750 x^2+21109490 x+2287541}{1815156 (162 x^5+351 x^4+216 x^3-24 x^2-64 x-16)}+\frac{14520}{117649} \log (3x+2)-\frac{14520}{117649} \log (2x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3/((3*x + 2)^5*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] -1/1815156*(42340320*x^4 + 88209000*x^3 + 66510750*x^2 + 21109490
*x + 2287541)/(162*x^5 + 351*x^4 + 216*x^3 - 24*x^2 - 64*x - 16)
+ 14520/117649*log(3*x + 2) - 14520/117649*log(2*x - 1)
```

Fricas [A] time = 0.225263, size = 155, normalized size = 2.04

$$-\frac{296382240 x^4+617463000 x^3+465575250 x^2-1568160 \left(162 x^5+351 x^4+216 x^3-24 x^2-64 x-16\right) \log (3x+2)+156}{12706092 (162 x^5+351 x^4+216 x^3-24 x^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3/((3*x + 2)^5*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] -1/12706092*(296382240*x^4 + 617463000*x^3 + 465575250*x^2 - 1568
160*(162*x^5 + 351*x^4 + 216*x^3 - 24*x^2 - 64*x - 16)*log(3*x +
2) + 1568160*(162*x^5 + 351*x^4 + 216*x^3 - 24*x^2 - 64*x - 16)*l
og(2*x - 1) + 147766430*x + 16012787)/(162*x^5 + 351*x^4 + 216*x^
3 - 24*x^2 - 64*x - 16)
```

Sympy [A] time = 0.485349, size = 65, normalized size = 0.86

$$-\frac{42340320x^4+88209000x^3+66510750x^2+21109490x+2287541}{294055272x^5+637119756x^4+392073696x^3-43563744x^2-116169984x-29042496}-\frac{14520 \log \left(x-\frac{1}{2}\right)}{117649}+\frac{14520 \log \left(x+\frac{2}{3}\right)}{117649}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3/(1-2*x)**2/(2+3*x)**5,x)
```

```
[Out] -(42340320*x**4 + 88209000*x**3 + 66510750*x**2 + 21109490*x + 22
87541)/(294055272*x**5 + 637119756*x**4 + 392073696*x**3 - 435637
44*x**2 - 116169984*x - 29042496) - 14520*log(x - 1/2)/117649 + 1
4520*log(x + 2/3)/117649
```

GIAC/XCAS [A] time = 0.209252, size = 90, normalized size = 1.18

$$-\frac{3267}{16807\,(3\,x+2)}+\frac{15972}{117649\,\left(\frac{7}{3\,x+2}-2\right)}+\frac{363}{4802\,(3\,x+2)^{2}}-\frac{101}{9261\,(3\,x+2)^{3}}+\frac{1}{1764\,(3\,x+2)^{4}}-\frac{14520}{117649}\ln\left(\left|-\frac{7}{3\,x+2}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)^5*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -3267/16807/(3*x + 2) + 15972/117649/(7/(3*x + 2) - 2) + 363/4802
/(3*x + 2)^2 - 101/9261/(3*x + 2)^3 + 1/1764/(3*x + 2)^4 - 14520/
117649*ln(abs(-7/(3*x + 2) + 2))
```

3.1568 $\int \frac{(3+5x)^3}{(1-2x)^2(2+3x)^6}\,dx$

Optimal. Leaf size=87

$$\frac{5324}{117649(1-2x)}-\frac{14520}{117649(3x+2)}-\frac{3267}{33614(3x+2)^2}+\frac{121}{2401(3x+2)^3}-\frac{101}{12348(3x+2)^4}+\frac{1}{2205(3x+2)^5}-\frac{45012\log(1-2x)}{823543}+\frac{45012\log(3x+2)}{823543}$$

```
[Out] 5324/(117649*(1 - 2*x)) + 1/(2205*(2 + 3*x)^5) - 101/(12348*(2 +
3*x)^4) + 121/(2401*(2 + 3*x)^3) - 3267/(33614*(2 + 3*x)^2) - 145
20/(117649*(2 + 3*x)) - (45012*Log[1 - 2*x])/823543 + (45012*Log[
2 + 3*x])/823543
```

Rubi [A] time = 0.0984636, antiderivative size = 87, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{5324}{117649(1-2x)}-\frac{14520}{117649(3x+2)}-\frac{3267}{33614(3x+2)^2}+\frac{121}{2401(3x+2)^3}-\frac{101}{12348(3x+2)^4}+\frac{1}{2205(3x+2)^5}-\frac{45012\log(1-2x)}{823543}+\frac{45012\log(3x+2)}{823543}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^3/((1 - 2*x)^2*(2 + 3*x)^6),x]
```

```
[Out] 5324/(117649*(1 - 2*x)) + 1/(2205*(2 + 3*x)^5) - 101/(12348*(2 +
3*x)^4) + 121/(2401*(2 + 3*x)^3) - 3267/(33614*(2 + 3*x)^2) - 145
20/(117649*(2 + 3*x)) - (45012*Log[1 - 2*x])/823543 + (45012*Log[
2 + 3*x])/823543
```

Rubi in Sympy [A] time = 13.1567, size = 73, normalized size = 0.84

$$-\frac{45012\log(-2x+1)}{823543}+\frac{45012\log(3x+2)}{823543}-\frac{14520}{117649(3x+2)}-\frac{3267}{33614(3x+2)^2}+\frac{121}{2401(3x+2)^3}-\frac{101}{12348(3x+2)^4}+\frac{1}{2205(3x+2)^5}+\frac{5324}{117649(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**3/(1-2*x)**2/(2+3*x)**6,x)
```

```
[Out] -45012*log(-2*x + 1)/823543 + 45012*log(3*x + 2)/823543 - 14520/(
117649*(3*x + 2)) - 3267/(33614*(3*x + 2)**2) + 121/(2401*(3*x +
2)**3) - 101/(12348*(3*x + 2)**4) + 1/(2205*(3*x + 2)**5) + 5324/
(117649*(-2*x + 1))
```

Mathematica [A] time = 0.104069, size = 64, normalized size = 0.74

$$\frac{2\left(-\frac{7(656274960x^5+1804756140x^4+1747028250x^3+649342770x^2+25985087x-23684986)}{8(2x-1)(3x+2)^5}-1012770\log(1-2x)+1012770\log(6x+4)\right)}{37059435}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^3/((1 - 2*x)^2*(2 + 3*x)^6),x]
```

```
[Out] (2*((-7*(-23684986 + 25985087*x + 649342770*x^2 + 1747028250*x^3
+ 1804756140*x^4 + 656274960*x^5))/(8*(-1 + 2*x)*(2 + 3*x)^5) - 1
012770*Log[1 - 2*x] + 1012770*Log[4 + 6*x]))/37059435
```

Maple [A] time = 0.014, size = 72, normalized size = 0.8

$$\frac{1}{2205\,(2+3\,x)^{5}}-\frac{101}{12348\,(2+3\,x)^{4}}+\frac{121}{2401\,(2+3\,x)^{3}}-\frac{3267}{33614\,(2+3\,x)^{2}}-\frac{14520}{235298+352947\,x}+\frac{45012\,\ln(2+3\,x)}{823543}-\frac{5324}{-117649+235298\,x}-\frac{45012\,\ln(-1+2\,x)}{823543}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3/(1-2*x)^2/(2+3*x)^6,x)
```

```
[Out] 1/2205/(2+3*x)^5-101/12348/(2+3*x)^4+121/2401/(2+3*x)^3-3267/3361
4/(2+3*x)^2-14520/117649/(2+3*x)+45012/823543*ln(2+3*x)-5324/1176
49/(-1+2*x)-45012/823543*ln(-1+2*x)
```

Maxima [A] time = 1.34766, size = 103, normalized size = 1.18

$$-\frac{656274960\,x^{5}+1804756140\,x^{4}+1747028250\,x^{3}+649342770\,x^{2}+25985087\,x-23684986}{21176820\,(486\,x^{6}+1377\,x^{5}+1350\,x^{4}+360\,x^{3}-240\,x^{2}-176\,x-32)}+\frac{45012}{823543}\,\log(3\,x+2)-\frac{45012}{823543}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)^6*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] -1/21176820*(656274960*x^5 + 1804756140*x^4 + 1747028250*x^3 + 64
9342770*x^2 + 25985087*x - 23684986)/(486*x^6 + 1377*x^5 + 1350*x
^4 + 360*x^3 - 240*x^2 - 176*x - 32) + 45012/823543*log(3*x + 2)
- 45012/823543*log(2*x - 1)
```

Fricas [A] time = 0.213745, size = 182, normalized size = 2.09

$$-\frac{4593924720\,x^{5}+12633292980\,x^{4}+12229197750\,x^{3}+4545399390\,x^{2}-8102160\,(486\,x^{6}+1377\,x^{5}+1350\,x^{4}+360\,x^{3}-24}{148237740\,(486\,x^{6}+137}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)^6*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] -1/148237740*(4593924720*x^5 + 12633292980*x^4 + 12229197750*x^3
+ 4545399390*x^2 - 8102160*(486*x^6 + 1377*x^5 + 1350*x^4 + 360*x
^3 - 240*x^2 - 176*x - 32)*log(3*x + 2) + 8102160*(486*x^6 + 1377
*x^5 + 1350*x^4 + 360*x^3 - 240*x^2 - 176*x - 32)*log(2*x - 1) +
181895609*x - 165794902)/(486*x^6 + 1377*x^5 + 1350*x^4 + 360*x^3
 - 240*x^2 - 176*x - 32)
```

Sympy [A] time = 0.563481, size = 75, normalized size = 0.86

$$-\frac{656274960x^{5}+1804756140x^{4}+1747028250x^{3}+649342770x^{2}+25985087x-23684986}{10291934520x^{6}+29160481140x^{5}+28588707000x^{4}+7623655200x^{3}-5082436800x^{2}-3727120320x-677658240}-\frac{45012\log\left(x-\frac{1}{2}\right)}{823543}+\frac{45012\log\left(x+\frac{2}{3}\right)}{823543}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3/(1-2*x)**2/(2+3*x)**6,x)
```

```
[Out] -(656274960*x**5 + 1804756140*x**4 + 1747028250*x**3 + 649342770*
x**2 + 25985087*x - 23684986)/(10291934520*x**6 + 29160481140*x**
5 + 28588707000*x**4 + 7623655200*x**3 - 5082436800*x**2 - 372712
0320*x - 677658240) - 45012*log(x - 1/2)/823543 + 45012*log(x + 2
/3)/823543
```

GIAC/XCAS [A] time = 0.214147, size = 105, normalized size = 1.21

$$-\frac{5324}{117649\,(2\,x-1)}+\frac{2\left(\frac{204418935}{2\,x-1}+\frac{740244225}{(2\,x-1)^{2}}+\frac{1185622375}{(2\,x-1)^{3}}+\frac{709135350}{(2\,x-1)^{4}}+21049983\right)}{4117715\left(\frac{7}{2\,x-1}+3\right)^{5}}+\frac{45012}{823543}\ln\left(\left|-\frac{7}{2\,x-1}-3\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)^6*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -5324/117649/(2*x - 1) + 2/4117715*(204418935/(2*x - 1) + 7402442
25/(2*x - 1)^2 + 1185622375/(2*x - 1)^3 + 709135350/(2*x - 1)^4 +
 21049983)/(7/(2*x - 1) + 3)^5 + 45012/823543*ln(abs(-7/(2*x - 1)
 - 3))
```

3.1569 $\int \frac{(3+5x)^3}{(1-2x)^2(2+3x)^7} dx$

Optimal. Leaf size=98

$$\frac{10648}{823543(1-2x)}-\frac{45012}{823543(3x+2)}-\frac{7260}{117649(3x+2)^2}-\frac{1089}{16807(3x+2)^3}+\frac{363}{9604(3x+2)^4}-\frac{101}{15435(3x+2)^5}+\frac{1}{2646(3x+2)^6}-\frac{17424\log(1-2x)}{823543}+\frac{17424\log(3x+2)}{823543}$$

```
[Out] 10648/(823543*(1 - 2*x)) + 1/(2646*(2 + 3*x)^6) - 101/(15435*(2 +
 3*x)^5) + 363/(9604*(2 + 3*x)^4) - 1089/(16807*(2 + 3*x)^3) - 72
60/(117649*(2 + 3*x)^2) - 45012/(823543*(2 + 3*x)) - (17424*Log[1
 - 2*x])/823543 + (17424*Log[2 + 3*x])/823543
```

Rubi [A] time = 0.113582, antiderivative size = 98, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{10648}{823543(1-2x)}-\frac{45012}{823543(3x+2)}-\frac{7260}{117649(3x+2)^2}-\frac{1089}{16807(3x+2)^3}+\frac{363}{9604(3x+2)^4}-\frac{101}{15435(3x+2)^5}+\frac{1}{2646(3x+2)^6}-\frac{17424\log(1-2x)}{823543}+\frac{17424\log(3x+2)}{823543}$$

Antiderivative was successfully verified.

```
[In] Int[(3 + 5*x)^3/((1 - 2*x)^2*(2 + 3*x)^7),x]
```

```
[Out] 10648/(823543*(1 - 2*x)) + 1/(2646*(2 + 3*x)^6) - 101/(15435*(2 +
 3*x)^5) + 363/(9604*(2 + 3*x)^4) - 1089/(16807*(2 + 3*x)^3) - 72
60/(117649*(2 + 3*x)^2) - 45012/(823543*(2 + 3*x)) - (17424*Log[1
 - 2*x])/823543 + (17424*Log[2 + 3*x])/823543
```

Rubi in Sympy [A] time = 14.3773, size = 83, normalized size = 0.85

$$-\frac{17424\log(-2x+1)}{823543}+\frac{17424\log(3x+2)}{823543}-\frac{45012}{823543(3x+2)}-\frac{7260}{117649(3x+2)^2}-\frac{1089}{16807(3x+2)^3}+\frac{363}{9604(3x+2)^4}-\frac{101}{15435(3x+2)^5}+\frac{1}{2646(3x+2)^6}+\frac{10648}{823543(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((3+5*x)**3/(1-2*x)**2/(2+3*x)**7,x)
```

```
[Out] -17424*log(-2*x + 1)/823543 + 17424*log(3*x + 2)/823543 - 45012/(
823543*(3*x + 2)) - 7260/(117649*(3*x + 2)**2) - 1089/(16807*(3*x
 + 2)**3) + 363/(9604*(3*x + 2)**4) - 101/(15435*(3*x + 2)**5) +
1/(2646*(3*x + 2)**6) + 10648/(823543*(-2*x + 1))
```

Mathematica [A] time = 0.0973657, size = 69, normalized size = 0.7

$$\frac{4\left(-\frac{7(2286377280x^6+7811789040x^5+10278112680x^4+5935583610x^3+887377581x^2-461259404x-145404842)}{16(2x-1)(3x+2)^6}-588060\log(1-2x)+588060\log(6x\right.}{111178305}$$

Antiderivative was successfully verified.

```
[In] Integrate[(3 + 5*x)^3/((1 - 2*x)^2*(2 + 3*x)^7),x]
```

```
[Out] (4*((-7*(-145404842 - 461259404*x + 887377581*x^2 + 5935583610*x^
3 + 10278112680*x^4 + 7811789040*x^5 + 2286377280*x^6))/(16*(-1 +
 2*x)*(2 + 3*x)^6) - 588060*Log[1 - 2*x] + 588060*Log[4 + 6*x]))/
111178305
```

Maple [A] time = 0.015, size = 81, normalized size = 0.8

$$\frac{1}{2646\,(2+3\,x)^{6}}-\frac{101}{15435\,(2+3\,x)^{5}}+\frac{363}{9604\,(2+3\,x)^{4}}-\frac{1089}{16807\,(2+3\,x)^{3}}-\frac{7260}{117649\,(2+3\,x)^{2}}-\frac{45012}{1647086+2470629\,x}+\frac{17424\,\ln(2+3\,x)}{823543}-\frac{10648}{-823543+1647086\,x}-\frac{17424\,\ln(-1+2\,x)}{823543}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3/(1-2*x)^2/(2+3*x)^7,x)
```

```
[Out] 1/2646/(2+3*x)^6-101/15435/(2+3*x)^5+363/9604/(2+3*x)^4-1089/1680
7/(2+3*x)^3-7260/117649/(2+3*x)^2-45012/823543/(2+3*x)+17424/8235
43*ln(2+3*x)-10648/823543/(-1+2*x)-17424/823543*ln(-1+2*x)
```

Maxima [A] time = 1.3513, size = 109, normalized size = 1.11

$$-\frac{2286377280\,x^{6}+7811789040\,x^{5}+10278112680\,x^{4}+5935583610\,x^{3}+887377581\,x^{2}-461259404\,x-145404842}{63530460\,(1458\,x^{7}+5103\,x^{6}+6804\,x^{5}+3780\,x^{4}-1008\,x^{2}-448\,x-64)}+\frac{17424}{823543}\,\log(3\,x+2)-\frac{17424}{823543}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)^7*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] -1/63530460*(2286377280*x^6 + 7811789040*x^5 + 10278112680*x^4 +
5935583610*x^3 + 887377581*x^2 - 461259404*x - 145404842)/(1458*x
^7 + 5103*x^6 + 6804*x^5 + 3780*x^4 - 1008*x^2 - 448*x - 64) + 17
424/823543*log(3*x + 2) - 17424/823543*log(2*x - 1)
```

Fricas [A] time = 0.213005, size = 189, normalized size = 1.93

$$-\frac{16004640960\,x^{6}+54682523280\,x^{5}+71946788760\,x^{4}+41549085270\,x^{3}+6211643067\,x^{2}-9408960\left(1458\,x^{7}+5103\,x^{6}+\cdots\right.}{444713220}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)^7*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] -1/444713220*(16004640960*x^6 + 54682523280*x^5 + 71946788760*x^4
 + 41549085270*x^3 + 6211643067*x^2 - 9408960*(1458*x^7 + 5103*x^
6 + 6804*x^5 + 3780*x^4 - 1008*x^2 - 448*x - 64)*log(3*x + 2) + 9
408960*(1458*x^7 + 5103*x^6 + 6804*x^5 + 3780*x^4 - 1008*x^2 - 44
8*x - 64)*log(2*x - 1) - 3228815828*x - 1017833894)/(1458*x^7 + 5
103*x^6 + 6804*x^5 + 3780*x^4 - 1008*x^2 - 448*x - 64)
```

Sympy [A] time = 0.598134, size = 80, normalized size = 0.82

$$-\frac{2286377280x^{6}+7811789040x^{5}+10278112680x^{4}+5935583610x^{3}+887377581x^{2}-461259404x-145404842}{92627410680x^{7}+324195937380x^{6}+432261249840x^{5}+240145138800x^{4}-64038703680x^{2}-28461646080x-406594944\cdots}-\frac{17424\log\left(x-\frac{1}{2}\right)}{823543}+\frac{17424\log\left(x+\frac{2}{3}\right)}{823543}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3/(1-2*x)**2/(2+3*x)**7,x)
```

```
[Out] -(2286377280*x**6 + 7811789040*x**5 + 10278112680*x**4 + 59355836
10*x**3 + 887377581*x**2 - 461259404*x - 145404842)/(92627410680*
x**7 + 324195937380*x**6 + 432261249840*x**5 + 240145138800*x**4
- 64038703680*x**2 - 28461646080*x - 4065949440) - 17424*log(x -
1/2)/823543 + 17424*log(x + 2/3)/823543
```

GIAC/XCAS [A] time = 0.214582, size = 117, normalized size = 1.19

$$-\frac{10648}{823543\,(2\,x-1)}+\frac{4\left(\frac{1421066052}{2\,x-1}+\frac{7028898345}{(2\,x-1)^{2}}+\frac{17396565550}{(2\,x-1)^{3}}+\frac{21521363500}{(2\,x-1)^{4}}+\frac{10637822580}{(2\,x-1)^{5}}+115177113\right)}{28824005\left(\frac{7}{2\,x-1}+3\right)^{6}}+\frac{17424}{823543}\ln\left(\left|-\frac{7}{2\,x-1}-3\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)^7*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -10648/823543/(2*x - 1) + 4/28824005*(1421066052/(2*x - 1) + 7028
898345/(2*x - 1)^2 + 17396565550/(2*x - 1)^3 + 21521363500/(2*x -
 1)^4 + 10637822580/(2*x - 1)^5 + 115177113)/(7/(2*x - 1) + 3)^6
+ 17424/823543*ln(abs(-7/(2*x - 1) - 3))
```

3.1570 $\int \frac{(3+5x)^3}{(1-2x)^2(2+3x)^8}\,dx$

Optimal. Leaf size=109

$$\frac{21296}{5764801(1-2x)}-\frac{17424}{823543(3x+2)}-\frac{22506}{823543(3x+2)^2}-\frac{4840}{117649(3x+2)^3}-\frac{3267}{67228(3x+2)^4}+\frac{363}{12005(3x+2)^5}-\frac{101}{18522(3x+2)^6}+\frac{1}{3087(3x+2)^7}-\frac{307824\log(1-2x)}{40353607}+\frac{307824\log(3x+2)}{40353607}$$

```
[Out] 21296/(5764801*(1 - 2*x)) + 1/(3087*(2 + 3*x)^7) - 101/(18522*(2
+ 3*x)^6) + 363/(12005*(2 + 3*x)^5) - 3267/(67228*(2 + 3*x)^4) -
4840/(117649*(2 + 3*x)^3) - 22506/(823543*(2 + 3*x)^2) - 17424/(8
23543*(2 + 3*x)) - (307824*Log[1 - 2*x])/40353607 + (307824*Log[2
 + 3*x])/40353607
```

Rubi [A] time = 0.129361, antiderivative size = 109, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{21296}{5764801(1-2x)}-\frac{17424}{823543(3x+2)}-\frac{22506}{823543(3x+2)^2}-\frac{4840}{117649(3x+2)^3}-\frac{3267}{67228(3x+2)^4}+\frac{363}{12005(3x+2)^5}-\frac{101}{18522(3x+2)^6}+\frac{1}{3087(3x+2)^7}-\frac{307824\log(1-2x)}{40353607}+\frac{307824\log(3x+2)}{40353607}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^3/((1 - 2*x)^2*(2 + 3*x)^8),x]
```

```
[Out] 21296/(5764801*(1 - 2*x)) + 1/(3087*(2 + 3*x)^7) - 101/(18522*(2
+ 3*x)^6) + 363/(12005*(2 + 3*x)^5) - 3267/(67228*(2 + 3*x)^4) -
4840/(117649*(2 + 3*x)^3) - 22506/(823543*(2 + 3*x)^2) - 17424/(8
23543*(2 + 3*x)) - (307824*Log[1 - 2*x])/40353607 + (307824*Log[2
 + 3*x])/40353607
```

Rubi in Sympy [A] time = 15.9529, size = 94, normalized size = 0.86

$$-\frac{307824\log\left(-2x+1\right)}{40353607}+\frac{307824\log\left(3x+2\right)}{40353607}-\frac{17424}{823543\left(3x+2\right)}-\frac{22506}{823543\left(3x+2\right)^{2}}-\frac{4840}{117649\left(3x+2\right)^{3}}-\frac{3267}{67228\left(3x+2\right)^{4}}+\frac{363}{12005\left(3x+2\right)^{5}}-\frac{101}{18522\left(3x+2\right)^{6}}+\frac{1}{3087\left(3x+2\right)^{7}}+\frac{21296}{5764801\left(-2x+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**3/(1-2*x)**2/(2+3*x)**8,x)
```

```
[Out] -307824*log(-2*x + 1)/40353607 + 307824*log(3*x + 2)/40353607 - 1
7424/(823543*(3*x + 2)) - 22506/(823543*(3*x + 2)**2) - 4840/(117
649*(3*x + 2)**3) - 3267/(67228*(3*x + 2)**4) + 363/(12005*(3*x +
 2)**5) - 101/(18522*(3*x + 2)**6) + 1/(3087*(3*x + 2)**7) + 2129
6/(5764801*(-2*x + 1))
```

Mathematica [A] time = 0.108177, size = 74, normalized size = 0.68

$$\frac{4\left(-\frac{7(121177995840x^7+494810149680x^6+820756518120x^5+677745912690x^4+242725322763x^3-18916696050x^2-39853850134x-8381276704)}{16(2x-1)(3x+2)^7}-10389060\log\right.}{5447736945}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^3/((1 - 2*x)^2*(2 + 3*x)^8),x]
```

```
[Out] (4*((-7*(-8381276704 - 39853850134*x - 18916696050*x^2 + 24272532
2763*x^3 + 677745912690*x^4 + 820756518120*x^5 + 494810149680*x^6
 + 121177995840*x^7))/(16*(-1 + 2*x)*(2 + 3*x)^7) - 10389060*Log[
1 - 2*x] + 10389060*Log[4 + 6*x]))/5447736945
```

Maple [A] time = 0.017, size = 90, normalized size = 0.8

$$\frac{1}{3087\,(2+3\,x)^{7}}-\frac{101}{18522\,(2+3\,x)^{6}}+\frac{363}{12005\,(2+3\,x)^{5}}-\frac{3267}{67228\,(2+3\,x)^{4}}-\frac{4840}{117649\,(2+3\,x)^{3}}-\frac{22506}{823543\,(2+3\,x)^{2}}-\frac{17424}{1647086+2470629\,x}+\frac{307824\,\ln(2+3\,x)}{40353607}-\frac{21296}{-5764801+11529602\,x}-\frac{307824\,\ln(-1+2\,x)}{40353607}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3/(1-2*x)^2/(2+3*x)^8,x)
```

```
[Out] 1/3087/(2+3*x)^7-101/18522/(2+3*x)^6+363/12005/(2+3*x)^5-3267/672
28/(2+3*x)^4-4840/117649/(2+3*x)^3-22506/823543/(2+3*x)^2-17424/8
23543/(2+3*x)+307824/40353607*ln(2+3*x)-21296/5764801/(-1+2*x)-30
7824/40353607*ln(-1+2*x)
```

Maxima [A] time = 1.35125, size = 130, normalized size = 1.19

$$-\frac{121177995840\,x^{7}+494810149680\,x^{6}+820756518120\,x^{5}+677745912690\,x^{4}+242725322763\,x^{3}-18916696050\,x^{2}-3985}{3112992540\,(4374\,x^{8}+18225\,x^{7}+30618\,x^{6}+24948\,x^{5}+7560\,x^{4}-3024\,x^{3}-3360\,x^{2}-1088\,x-12}+\frac{307824}{40353607}\log(3\,x+2)-\frac{307824}{40353607}\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)^8*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] -1/3112992540*(121177995840*x^7 + 494810149680*x^6 + 820756518120
*x^5 + 677745912690*x^4 + 242725322763*x^3 - 18916696050*x^2 - 39
853850134*x - 8381276704)/(4374*x^8 + 18225*x^7 + 30618*x^6 + 249
48*x^5 + 7560*x^4 - 3024*x^3 - 3360*x^2 - 1088*x - 128) + 307824/
40353607*log(3*x + 2) - 307824/40353607*log(2*x - 1)
```

Fricas [A] time = 0.223785, size = 236, normalized size = 2.17

$$-\frac{848245970880\,x^{7}+3463671047760\,x^{6}+5745295626840\,x^{5}+4744221388830\,x^{4}+1699077259341\,x^{3}-132416872350\,x^{2}-}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)^8*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] -1/21790947780*(848245970880*x^7 + 3463671047760*x^6 + 5745295626
840*x^5 + 4744221388830*x^4 + 1699077259341*x^3 - 132416872350*x^
2 - 166224960*(4374*x^8 + 18225*x^7 + 30618*x^6 + 24948*x^5 + 756
0*x^4 - 3024*x^3 - 3360*x^2 - 1088*x - 128)*log(3*x + 2) + 166224
960*(4374*x^8 + 18225*x^7 + 30618*x^6 + 24948*x^5 + 7560*x^4 - 30
24*x^3 - 3360*x^2 - 1088*x - 128)*log(2*x - 1) - 278976950938*x -
 58668936928)/(4374*x^8 + 18225*x^7 + 30618*x^6 + 24948*x^5 + 756
```

```
0*x^4 - 3024*x^3 - 3360*x^2 - 1088*x - 128)
```

Sympy [A] time = 0.658428, size = 95, normalized size = 0.87

$$-\frac{121177995840x^7 + 494810149680x^6 + 820756518120x^5 + 677745912690x^4 + 242725322763x^3 - 1891}{13616229369960x^8 + 56734289041500x^7 + 95313605589720x^6 + 77662937887920x^5 + 23534223602400x^4 - 94136894409}$$
$$-\frac{307824\log\left(x-\frac{1}{2}\right)}{40353607}+\frac{307824\log\left(x+\frac{2}{3}\right)}{40353607}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3/(1-2*x)**2/(2+3*x)**8,x)
```

```
[Out] -(121177995840*x**7 + 494810149680*x**6 + 820756518120*x**5 + 677
745912690*x**4 + 242725322763*x**3 - 18916696050*x**2 - 398538501
34*x - 8381276704)/(13616229369960*x**8 + 56734289041500*x**7 + 9
5313605589720*x**6 + 77662937887920*x**5 + 23534223602400*x**4 -
9413689440960*x**3 - 10459654934400*x**2 - 3386935883520*x - 3984
63045120) - 307824*log(x - 1/2)/40353607 + 307824*log(x + 2/3)/40
353607
```

GIAC/XCAS [A] time = 0.214383, size = 130, normalized size = 1.19

$$-\frac{21296}{5764801\,(2\,x-1)}+\frac{4\left(\frac{108987508287}{2\,x-1}+\frac{677288963799}{(2\,x-1)^2}+\frac{2255033089785}{(2\,x-1)^3}+\frac{4241269979800}{(2\,x-1)^4}+\frac{4269658683500}{(2\,x-1)^5}+\frac{1795850807520}{(2\,x-1)^6}+7339564629\right)}{1412376245\left(\frac{7}{2\,x-1}+3\right)^7}+\frac{307824}{40353607}\ln\left(\left|-\frac{7}{2\,x-1}-3\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)^8*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -21296/5764801/(2*x - 1) + 4/1412376245*(108987508287/(2*x - 1) +
 677288963799/(2*x - 1)^2 + 2255033089785/(2*x - 1)^3 + 424126997
9800/(2*x - 1)^4 + 4269658683500/(2*x - 1)^5 + 1795850807520/(2*x
 - 1)^6 + 7339564629)/(7/(2*x - 1) + 3)^7 + 307824/40353607*ln(ab
s(-7/(2*x - 1) - 3))
```

3.1571 $\int \frac{(2+3x)^8}{(1-2x)^2(3+5x)}\,dx$

Optimal. Leaf size=72

$$\frac{2187x^6}{40}+\frac{94041x^5}{250}+\frac{9899091x^4}{8000}+\frac{26773659x^3}{10000}+\frac{1839811401x^2}{400000}+\frac{2041906293x}{250000}+\frac{5764801}{2816(1-2x)}+\frac{188591347\log(1-2x)}{30976}+\frac{\log(5x+3)}{9453125}$$

```
[Out] 5764801/(2816*(1 - 2*x)) + (2041906293*x)/250000 + (1839811401*x^
2)/400000 + (26773659*x^3)/10000 + (9899091*x^4)/8000 + (94041*x^
5)/250 + (2187*x^6)/40 + (188591347*Log[1 - 2*x])/30976 + Log[3 +
 5*x]/9453125
```

Rubi [A] time = 0.0808875, antiderivative size = 72, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{2187x^6}{40}+\frac{94041x^5}{250}+\frac{9899091x^4}{8000}+\frac{26773659x^3}{10000}+\frac{1839811401x^2}{400000}+\frac{2041906293x}{250000}+\frac{5764801}{2816(1-2x)}+\frac{188591347\log(1-2x)}{30976}+\frac{\log(5x+3)}{9453125}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^8/((1 - 2*x)^2*(3 + 5*x)),x]
```

```
[Out] 5764801/(2816*(1 - 2*x)) + (2041906293*x)/250000 + (1839811401*x^
2)/400000 + (26773659*x^3)/10000 + (9899091*x^4)/8000 + (94041*x^
5)/250 + (2187*x^6)/40 + (188591347*Log[1 - 2*x])/30976 + Log[3 +
 5*x]/9453125
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{2187x^6}{40}+\frac{94041x^5}{250}+\frac{9899091x^4}{8000}+\frac{26773659x^3}{10000}+\frac{188591347\log(-2x+1)}{30976}+\frac{\log(5x+3)}{9453125}+\int\frac{2041906293}{250000}\,dx+\frac{1839811401\int x\,dx}{200000}+\frac{5764801}{2816(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**8/(1-2*x)**2/(3+5*x),x)
```

```
[Out] 2187*x**6/40 + 94041*x**5/250 + 9899091*x**4/8000 + 26773659*x**3
/10000 + 188591347*log(-2*x + 1)/30976 + log(5*x + 3)/9453125 + I
ntegral(2041906293/250000, x) + 1839811401*Integral(x, x)/200000
+ 5764801/(2816*(-2*x + 1))
```

Mathematica [A] time = 0.11178, size = 66, normalized size = 0.92

$$\frac{109350000x^6+752328000x^5+2474772750x^4+5354731800x^3+9199057005x^2+16335250344x+\frac{90075015625}{22-44x}+7988912316}{2000000}+\frac{188591347\log(3-6x)}{30976}+\frac{\log(-3(5x+3))}{9453125}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^8/((1 - 2*x)^2*(3 + 5*x)),x]
```

```
[Out] (7988912316 + 90075015625/(22 - 44*x) + 16335250344*x + 919905700
5*x^2 + 5354731800*x^3 + 2474772750*x^4 + 752328000*x^5 + 1093500
00*x^6)/2000000 + (188591347*Log[3 - 6*x])/30976 + Log[-3*(3 + 5*
x)]/9453125
```

Maple [A] time = 0.013, size = 55, normalized size = 0.8

$$\frac{2187\,x^6}{40}+\frac{94041\,x^5}{250}+\frac{9899091\,x^4}{8000}+\frac{26773659\,x^3}{10000}+\frac{1839811401\,x^2}{400000}+\frac{2041906293\,x}{250000}+\frac{\ln(3+5\,x)}{9453125}-\frac{5764801}{-2816+5632\,x}+\frac{188591347\,\ln(-1+2\,x)}{30976}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^8/(1-2*x)^2/(3+5*x),x)
```

```
[Out] 2187/40*x^6+94041/250*x^5+9899091/8000*x^4+26773659/10000*x^3+183
9811401/400000*x^2+2041906293/250000*x+1/9453125*ln(3+5*x)-576480
1/2816/(-1+2*x)+188591347/30976*ln(-1+2*x)
```

Maxima [A] time = 1.34674, size = 73, normalized size = 1.01

$$\frac{2187}{40}\,x^6+\frac{94041}{250}\,x^5+\frac{9899091}{8000}\,x^4+\frac{26773659}{10000}\,x^3+\frac{1839811401}{400000}\,x^2+\frac{2041906293}{250000}\,x-\frac{5764801}{2816\,(2\,x-1)}+\frac{1}{9453125}\,\log(5\,x+3)+\frac{188591347}{30976}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^8/((5*x + 3)*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] 2187/40*x^6 + 94041/250*x^5 + 9899091/8000*x^4 + 26773659/10000*x
^3 + 1839811401/400000*x^2 + 2041906293/250000*x - 5764801/2816/(
2*x - 1) + 1/9453125*log(5*x + 3) + 188591347/30976*log(2*x - 1)
```

Fricas [A] time = 0.217911, size = 95, normalized size = 1.32

$$\frac{264627000000\,x^7+1688320260000\,x^6+5078633175000\,x^5+9963975928500\,x^4+15782492474100\,x^3+28400446856430\,x^2}{2420000000\,(2\,x-}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^8/((5*x + 3)*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] 1/2420000000*(264627000000*x^7 + 1688320260000*x^6 + 507863317500
0*x^5 + 9963975928500*x^4 + 15782492474100*x^3 + 28400446856430*x
^2 + 256*(2*x - 1)*log(5*x + 3) + 14733698984375*(2*x - 1)*log(2*
x - 1) - 19765652916240*x - 4954125859375)/(2*x - 1)
```

Sympy [A] time = 0.376997, size = 63, normalized size = 0.88

$$\frac{2187x^6}{40}+\frac{94041x^5}{250}+\frac{9899091x^4}{8000}+\frac{26773659x^3}{10000}+\frac{1839811401x^2}{400000}+\frac{2041906293x}{250000}+\frac{188591347\log\left(x-\frac{1}{2}\right)}{30976}+\frac{\log\left(x+\frac{3}{5}\right)}{9453125}-\frac{5764801}{5632x-2816}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**8/(1-2*x)**2/(3+5*x),x)
```

```
[Out] 2187*x**6/40 + 94041*x**5/250 + 9899091*x**4/8000 + 26773659*x**3
/10000 + 1839811401*x**2/400000 + 2041906293*x/250000 + 188591347
*log(x - 1/2)/30976 + log(x + 3/5)/9453125 - 5764801/(5632*x - 28
16)
```

GIAC/XCAS [A] time = 0.208276, size = 134, normalized size = 1.86

$$\frac{27}{16000000}(2x-1)^6\left(\frac{10003500}{2x-1}+\frac{88252875}{(2x-1)^2}+\frac{461424900}{(2x-1)^3}+\frac{1628610330}{(2x-1)^4}+\frac{4599014548}{(2x-1)^5}+506250\right)-\frac{5764801}{2816(2x-1)}-\frac{121766107311}{20000000}\ln\left(\frac{|2x-1|}{2(2x-1)^2}\right)+\frac{1}{9453125}\ln\left(\left|-\frac{11}{2x-1}-5\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^8/((5*x + 3)*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] 27/16000000*(2*x - 1)^6*(10003500/(2*x - 1) + 88252875/(2*x - 1)^
2 + 461424900/(2*x - 1)^3 + 1628610330/(2*x - 1)^4 + 4599014548/(
2*x - 1)^5 + 506250) - 5764801/2816/(2*x - 1) - 121766107311/2000
0000*ln(1/2*abs(2*x - 1)/(2*x - 1)^2) + 1/9453125*ln(abs(-11/(2*x
 - 1) - 5))
```

3.1572 $\int \frac{(2+3x)^7}{(1-2x)^2(3+5x)}\,dx$

Optimal. Leaf size=65

$$\frac{2187x^5}{100}+\frac{13851x^4}{100}+\frac{853659x^3}{2000}+\frac{18237069x^2}{20000}+\frac{370109547x}{200000}+\frac{823543}{1408(1-2x)}+\frac{5764801\log(1-2x)}{3872}+\frac{\log(5x+3)}{1890625}$$

```
[Out] 823543/(1408*(1 - 2*x)) + (370109547*x)/200000 + (18237069*x^2)/2
0000 + (853659*x^3)/2000 + (13851*x^4)/100 + (2187*x^5)/100 + (57
64801*Log[1 - 2*x])/3872 + Log[3 + 5*x]/1890625
```

Rubi [A] time = 0.0725296, antiderivative size = 65, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{2187x^5}{100}+\frac{13851x^4}{100}+\frac{853659x^3}{2000}+\frac{18237069x^2}{20000}+\frac{370109547x}{200000}+\frac{823543}{1408(1-2x)}+\frac{5764801\log(1-2x)}{3872}+\frac{\log(5x+3)}{1890625}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^7/((1 - 2*x)^2*(3 + 5*x)),x]
```

```
[Out] 823543/(1408*(1 - 2*x)) + (370109547*x)/200000 + (18237069*x^2)/2
0000 + (853659*x^3)/2000 + (13851*x^4)/100 + (2187*x^5)/100 + (57
64801*Log[1 - 2*x])/3872 + Log[3 + 5*x]/1890625
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{2187x^5}{100}+\frac{13851x^4}{100}+\frac{853659x^3}{2000}+\frac{5764801\log(-2x+1)}{3872}+\frac{\log(5x+3)}{1890625}+\int\frac{370109547}{200000}\,dx+\frac{18237069\int x\,dx}{10000}+\frac{823543}{1408(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**7/(1-2*x)**2/(3+5*x),x)
```

```
[Out] 2187*x**5/100 + 13851*x**4/100 + 853659*x**3/2000 + 5764801*log(-
2*x + 1)/3872 + log(5*x + 3)/1890625 + Integral(370109547/200000,
 x) + 18237069*Integral(x, x)/10000 + 823543/(1408*(-2*x + 1))
```

Mathematica [A] time = 0.0599178, size = 60, normalized size = 0.92

$$\frac{\frac{11(4811400000x^6+28066500000x^5+78666390000x^4+153656514000x^3+306816622200x^2-14798867886x-158719988357)}{2x-1}+1801500312500\log(5-10x)+}{1210000000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^7/((1 - 2*x)^2*(3 + 5*x)),x]
```

```
[Out] ((11*(-158719988357 - 14798867886*x + 306816622200*x^2 + 15365651
4000*x^3 + 78666390000*x^4 + 28066500000*x^5 + 4811400000*x^6))/(
-1 + 2*x) + 1801500312500*Log[5 - 10*x] + 640*Log[3 + 5*x])/12100
```

00000

Maple [A] time = 0.013, size = 50, normalized size = 0.8

$$\frac{2187\,x^{5}}{100}+\frac{13851\,x^{4}}{100}+\frac{853659\,x^{3}}{2000}+\frac{18237069\,x^{2}}{20000}+\frac{370109547\,x}{200000}+\frac{\ln\left(3+5\,x\right)}{1890625}-\frac{823543}{-1408+2816\,x}+\frac{5764801\,\ln\left(-1+2\,x\right)}{3872}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^7/(1-2*x)^2/(3+5*x),x)
```

```
[Out] 2187/100*x^5+13851/100*x^4+853659/2000*x^3+18237069/20000*x^2+370
109547/200000*x+1/1890625*ln(3+5*x)-823543/1408/(-1+2*x)+5764801/
3872*ln(-1+2*x)
```

Maxima [A] time = 1.34368, size = 66, normalized size = 1.02

$$\frac{2187}{100}\,x^{5}+\frac{13851}{100}\,x^{4}+\frac{853659}{2000}\,x^{3}+\frac{18237069}{20000}\,x^{2}+\frac{370109547}{200000}\,x-\frac{823543}{1408\,(2\,x-1)}+\frac{1}{1890625}\,\log\left(5\,x+3\right)+\frac{5764801}{3872}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^7/((5*x + 3)*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] 2187/100*x^5 + 13851/100*x^4 + 853659/2000*x^3 + 18237069/20000*x
^2 + 370109547/200000*x - 823543/1408/(2*x - 1) + 1/1890625*log(5
*x + 3) + 5764801/3872*log(2*x - 1)
```

Fricas [A] time = 0.214795, size = 88, normalized size = 1.35

$$\frac{10585080000\,x^{6}+61746300000\,x^{5}+173066058000\,x^{4}+338044330800\,x^{3}+674996568840\,x^{2}+128\,(2\,x-1)\log\left(5\,x+3\right)+}{242000000\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^7/((5*x + 3)*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] 1/242000000*(10585080000*x^6 + 61746300000*x^5 + 173066058000*x^4
 + 338044330800*x^3 + 674996568840*x^2 + 128*(2*x - 1)*log(5*x +
3) + 360300062500*(2*x - 1)*log(2*x - 1) - 447832551870*x - 14154
6453125)/(2*x - 1)
```

Sympy [A] time = 0.34288, size = 56, normalized size = 0.86

$$\frac{2187x^{5}}{100}+\frac{13851x^{4}}{100}+\frac{853659x^{3}}{2000}+\frac{18237069x^{2}}{20000}+\frac{370109547x}{200000}+\frac{5764801\log\left(x-\frac{1}{2}\right)}{3872}+\frac{\log\left(x+\frac{3}{5}\right)}{1890625}-\frac{823543}{2816x-1408}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**7/(1-2*x)**2/(3+5*x),x)
```

```
[Out] 2187*x**5/100 + 13851*x**4/100 + 853659*x**3/2000 + 18237069*x**2
/20000 + 370109547*x/200000 + 5764801*log(x - 1/2)/3872 + log(x +
 3/5)/1890625 - 823543/(2816*x - 1408)
```

GIAC/XCAS [A] time = 0.209476, size = 122, normalized size = 1.88

$$\frac{27}{400000}\,(2\,x-1)^{5}\left(\frac{178875}{2\,x-1}+\frac{1404675}{(2\,x-1)^{2}}+\frac{6619260}{(2\,x-1)^{3}}+\frac{23397131}{(2\,x-1)^{4}}+10125\right)-\frac{823543}{1408\,(2\,x-1)}-\frac{744421617}{500000}\ln\left(\frac{|2\,x-1|}{2\,(2\,x-1)^{2}}\right)+\frac{1}{1890625}\ln\left(\left|-\frac{11}{2\,x-1}-5\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^7/((5*x + 3)*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] 27/400000*(2*x - 1)^5*(178875/(2*x - 1) + 1404675/(2*x - 1)^2 + 6
619260/(2*x - 1)^3 + 23397131/(2*x - 1)^4 + 10125) - 823543/1408/
(2*x - 1) - 744421617/500000*ln(1/2*abs(2*x - 1)/(2*x - 1)^2) + 1
/1890625*ln(abs(-11/(2*x - 1) - 5))
```

3.1573 $\int \frac{(2+3x)^6}{(1-2x)^2(3+5x)}\,dx$

Optimal. Leaf size=58

$$\frac{729x^4}{80}+\frac{2673x^3}{50}+\frac{639819x^2}{4000}+\frac{3946293x}{10000}+\frac{117649}{704(1-2x)}+\frac{2739541\log(1-2x)}{7744}+\frac{\log(5x+3)}{378125}$$

```
[Out] 117649/(704*(1 - 2*x)) + (3946293*x)/10000 + (639819*x^2)/4000 +
(2673*x^3)/50 + (729*x^4)/80 + (2739541*Log[1 - 2*x])/7744 + Log[
3 + 5*x]/378125
```

Rubi [A] time = 0.0651338, antiderivative size = 58, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{729x^4}{80}+\frac{2673x^3}{50}+\frac{639819x^2}{4000}+\frac{3946293x}{10000}+\frac{117649}{704(1-2x)}+\frac{2739541\log(1-2x)}{7744}+\frac{\log(5x+3)}{378125}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^6/((1 - 2*x)^2*(3 + 5*x)),x]
```

```
[Out] 117649/(704*(1 - 2*x)) + (3946293*x)/10000 + (639819*x^2)/4000 +
(2673*x^3)/50 + (729*x^4)/80 + (2739541*Log[1 - 2*x])/7744 + Log[
3 + 5*x]/378125
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{729x^4}{80}+\frac{2673x^3}{50}+\frac{2739541\log(-2x+1)}{7744}+\frac{\log(5x+3)}{378125}+\int\frac{3946293}{10000}\,dx+\frac{639819\int x\,dx}{2000}+\frac{117649}{704(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**6/(1-2*x)**2/(3+5*x),x)
```

```
[Out] 729*x**4/80 + 2673*x**3/50 + 2739541*log(-2*x + 1)/7744 + log(5*x
 + 3)/378125 + Integral(3946293/10000, x) + 639819*Integral(x, x)
/2000 + 117649/(704*(-2*x + 1))
```

Mathematica [A] time = 0.0472154, size = 55, normalized size = 0.95

$$\frac{\frac{55(8019000x^5+43035300x^4+117237780x^3+276893694x^2-6823872x-156937135)}{2x-1}+8561065625\log(5-10x)+64\log(5x+3)}{24200000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^6/((1 - 2*x)^2*(3 + 5*x)),x]
```

```
[Out] ((55*(-156937135 - 6823872*x + 276893694*x^2 + 117237780*x^3 + 43
035300*x^4 + 8019000*x^5))/(-1 + 2*x) + 8561065625*Log[5 - 10*x]
+ 64*Log[3 + 5*x])/24200000
```

Maple [A] time = 0.012, size = 45, normalized size = 0.8

$$\frac{729\,x^4}{80}+\frac{2673\,x^3}{50}+\frac{639819\,x^2}{4000}+\frac{3946293\,x}{10000}+\frac{\ln(3+5\,x)}{378125}-\frac{117649}{-704+1408\,x}+\frac{2739541\,\ln(-1+2\,x)}{7744}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^6/(1-2*x)^2/(3+5*x),x)
```

```
[Out] 729/80*x^4+2673/50*x^3+639819/4000*x^2+3946293/10000*x+1/378125*l
n(3+5*x)-117649/704/(-1+2*x)+2739541/7744*ln(-1+2*x)
```

Maxima [A] time = 1.3483, size = 59, normalized size = 1.02

$$\frac{729}{80}\,x^4+\frac{2673}{50}\,x^3+\frac{639819}{4000}\,x^2+\frac{3946293}{10000}\,x-\frac{117649}{704\,(2\,x-1)}+\frac{1}{378125}\,\log(5\,x+3)+\frac{2739541}{7744}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^6/((5*x + 3)*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] 729/80*x^4 + 2673/50*x^3 + 639819/4000*x^2 + 3946293/10000*x - 11
7649/704/(2*x - 1) + 1/378125*log(5*x + 3) + 2739541/7744*log(2*x
 - 1)
```

Fricas [A] time = 0.220539, size = 81, normalized size = 1.4

$$\frac{441045000\,x^5+2366941500\,x^4+6448077900\,x^3+15229153170\,x^2+64\,(2\,x-1)\log(5\,x+3)+8561065625\,(2\,x-1)\log(2\,x}{24200000\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^6/((5*x + 3)*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] 1/24200000*(441045000*x^5 + 2366941500*x^4 + 6448077900*x^3 + 152
29153170*x^2 + 64*(2*x - 1)*log(5*x + 3) + 8561065625*(2*x - 1)*l
og(2*x - 1) - 9550029060*x - 4044184375)/(2*x - 1)
```

Sympy [A] time = 0.358135, size = 49, normalized size = 0.84

$$\frac{729x^4}{80}+\frac{2673x^3}{50}+\frac{639819x^2}{4000}+\frac{3946293x}{10000}+\frac{2739541\log\left(x-\frac{1}{2}\right)}{7744}+\frac{\log\left(x+\frac{3}{5}\right)}{378125}-\frac{117649}{1408x-704}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**6/(1-2*x)**2/(3+5*x),x)
```

```
[Out] 729*x**4/80 + 2673*x**3/50 + 639819*x**2/4000 + 3946293*x/10000 +
 2739541*log(x - 1/2)/7744 + log(x + 3/5)/378125 - 117649/(1408*x
 - 704)
```

GIAC/XCAS [A] time = 0.209978, size = 109, normalized size = 1.88

$$\frac{27}{160000}\,(2\,x-1)^4\left(\frac{53100}{2\,x-1}+\frac{376020}{(2\,x-1)^2}+\frac{1775512}{(2\,x-1)^3}+3375\right)-\frac{117649}{704\,(2\,x-1)}-\frac{70752609}{200000}\ln\left(\frac{|2\,x-1|}{2\,(2\,x-1)^2}\right)+\frac{1}{378125}\ln\left(\left|-\frac{11}{2\,x-1}-5\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^6/((5*x + 3)*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] 27/160000*(2*x - 1)^4*(53100/(2*x - 1) + 376020/(2*x - 1)^2 + 177
5512/(2*x - 1)^3 + 3375) - 117649/704/(2*x - 1) - 70752609/200000
*ln(1/2*abs(2*x - 1)/(2*x - 1)^2) + 1/378125*ln(abs(-11/(2*x - 1)
 - 5))
```

3.1574 $\int \frac{(2+3x)^5}{(1-2x)^2(3+5x)}\,dx$

Optimal. Leaf size=51

$$\frac{81x^3}{20}+\frac{567x^2}{25}+\frac{152793x}{2000}+\frac{16807}{352(1-2x)}+\frac{156065\log(1-2x)}{1936}+\frac{\log(5x+3)}{75625}$$

```
[Out] 16807/(352*(1 - 2*x)) + (152793*x)/2000 + (567*x^2)/25 + (81*x^3)
/20 + (156065*Log[1 - 2*x])/1936 + Log[3 + 5*x]/75625
```

Rubi [A] time = 0.057939, antiderivative size = 51, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{81x^3}{20}+\frac{567x^2}{25}+\frac{152793x}{2000}+\frac{16807}{352(1-2x)}+\frac{156065\log(1-2x)}{1936}+\frac{\log(5x+3)}{75625}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^5/((1 - 2*x)^2*(3 + 5*x)),x]
```

```
[Out] 16807/(352*(1 - 2*x)) + (152793*x)/2000 + (567*x^2)/25 + (81*x^3)
/20 + (156065*Log[1 - 2*x])/1936 + Log[3 + 5*x]/75625
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{81x^3}{20}+\frac{156065\log(-2x+1)}{1936}+\frac{\log(5x+3)}{75625}+\int\frac{152793}{2000}\,dx+\frac{1134\int x\,dx}{25}+\frac{16807}{352(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**5/(1-2*x)**2/(3+5*x),x)
```

```
[Out] 81*x**3/20 + 156065*log(-2*x + 1)/1936 + log(5*x + 3)/75625 + Int
egral(152793/2000, x) + 1134*Integral(x, x)/25 + 16807/(352*(-2*x
 + 1))
```

Mathematica [A] time = 0.0396734, size = 52, normalized size = 1.02

$$\frac{81x^3}{20}+\frac{567x^2}{25}+\frac{152793x}{2000}+\frac{16807}{352-704x}+\frac{156065\log(5-10x)}{1936}+\frac{\log(5x+3)}{75625}+\frac{385479}{10000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^5/((1 - 2*x)^2*(3 + 5*x)),x]
```

```
[Out] 385479/10000 + 16807/(352 - 704*x) + (152793*x)/2000 + (567*x^2)/
25 + (81*x^3)/20 + (156065*Log[5 - 10*x])/1936 + Log[3 + 5*x]/756
25
```

Maple [A] time = 0.012, size = 40, normalized size = 0.8

$$\frac{81\,x^3}{20}+\frac{567\,x^2}{25}+\frac{152793\,x}{2000}+\frac{\ln(3+5\,x)}{75625}-\frac{16807}{-352+704\,x}+\frac{156065\,\ln(-1+2\,x)}{1936}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^5/(1-2*x)^2/(3+5*x),x)
```

```
[Out] 81/20*x^3+567/25*x^2+152793/2000*x+1/75625*ln(3+5*x)-16807/352/(-
1+2*x)+156065/1936*ln(-1+2*x)
```

Maxima [A] time = 1.36359, size = 53, normalized size = 1.04

$$\frac{81}{20}\,x^3+\frac{567}{25}\,x^2+\frac{152793}{2000}\,x-\frac{16807}{352\,(2\,x-1)}+\frac{1}{75625}\,\log\left(5\,x+3\right)+\frac{156065}{1936}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/((5*x + 3)*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] 81/20*x^3 + 567/25*x^2 + 152793/2000*x - 16807/352/(2*x - 1) + 1/
75625*log(5*x + 3) + 156065/1936*log(2*x - 1)
```

Fricas [A] time = 0.212772, size = 74, normalized size = 1.45

$$\frac{19602000\,x^4+99970200\,x^3+314873460\,x^2+32\,(2\,x-1)\log\left(5\,x+3\right)+195081250\,(2\,x-1)\log\left(2\,x-1\right)-184879530\,x-1}{2420000\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/((5*x + 3)*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] 1/2420000*(19602000*x^4 + 99970200*x^3 + 314873460*x^2 + 32*(2*x
- 1)*log(5*x + 3) + 195081250*(2*x - 1)*log(2*x - 1) - 184879530*
x - 115548125)/(2*x - 1)
```

Sympy [A] time = 0.331591, size = 42, normalized size = 0.82

$$\frac{81x^3}{20}+\frac{567x^2}{25}+\frac{152793x}{2000}+\frac{156065\log\left(x-\frac{1}{2}\right)}{1936}+\frac{\log\left(x+\frac{3}{5}\right)}{75625}-\frac{16807}{704x-352}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**5/(1-2*x)**2/(3+5*x),x)
```

```
[Out] 81*x**3/20 + 567*x**2/25 + 152793*x/2000 + 156065*log(x - 1/2)/19
36 + log(x + 3/5)/75625 - 16807/(704*x - 352)
```

GIAC/XCAS [A] time = 0.212572, size = 97, normalized size = 1.9

$$\frac{27}{4000}\,(2\,x-1)^3\left(\frac{1065}{2\,x-1}+\frac{7564}{(2\,x-1)^2}+75\right)-\frac{16807}{352\,(2\,x-1)}-\frac{806121}{10000}\ln\left(\frac{|2\,x-1|}{2\,(2\,x-1)^2}\right)+\frac{1}{75625}\ln\left(\left|-\frac{11}{2\,x-1}-5\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/((5*x + 3)*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] 27/4000*(2*x - 1)^3*(1065/(2*x - 1) + 7564/(2*x - 1)^2 + 75) - 16
807/352/(2*x - 1) - 806121/10000*ln(1/2*abs(2*x - 1)/(2*x - 1)^2)
 + 1/75625*ln(abs(-11/(2*x - 1) - 5))
```

3.1575 $\int \frac{(2+3x)^4}{(1-2x)^2(3+5x)}\,dx$

Optimal. Leaf size=44

$$\frac{81x^2}{40}+\frac{621x}{50}+\frac{2401}{176(1-2x)}+\frac{33271\log(1-2x)}{1936}+\frac{\log(5x+3)}{15125}$$

```
[Out] 2401/(176*(1 - 2*x)) + (621*x)/50 + (81*x^2)/40 + (33271*Log[1 -
2*x])/1936 + Log[3 + 5*x]/15125
```

Rubi [A] time = 0.0512552, antiderivative size = 44, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{81x^2}{40}+\frac{621x}{50}+\frac{2401}{176(1-2x)}+\frac{33271\log(1-2x)}{1936}+\frac{\log(5x+3)}{15125}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^4/((1 - 2*x)^2*(3 + 5*x)),x]
```

```
[Out] 2401/(176*(1 - 2*x)) + (621*x)/50 + (81*x^2)/40 + (33271*Log[1 -
2*x])/1936 + Log[3 + 5*x]/15125
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{33271\log\left(-2x+1\right)}{1936}+\frac{\log\left(5x+3\right)}{15125}+\int\frac{621}{50}\,dx+\frac{81\int x\,dx}{20}+\frac{2401}{176\left(-2x+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4/(1-2*x)**2/(3+5*x),x)
```

```
[Out] 33271*log(-2*x + 1)/1936 + log(5*x + 3)/15125 + Integral(621/50,
x) + 81*Integral(x, x)/20 + 2401/(176*(-2*x + 1))
```

Mathematica [A] time = 0.0374559, size = 45, normalized size = 1.02

$$\frac{81x^2}{40}+\frac{621x}{50}+\frac{2401}{176-352x}+\frac{33271\log(5-10x)}{1936}+\frac{\log(5x+3)}{15125}+\frac{6723}{1000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^4/((1 - 2*x)^2*(3 + 5*x)),x]
```

```
[Out] 6723/1000 + 2401/(176 - 352*x) + (621*x)/50 + (81*x^2)/40 + (3327
1*Log[5 - 10*x])/1936 + Log[3 + 5*x]/15125
```

Maple [A] time = 0.011, size = 35, normalized size = 0.8

$$\frac{81\,x^2}{40}+\frac{621\,x}{50}+\frac{\ln(3+5\,x)}{15125}-\frac{2401}{-176+352\,x}+\frac{33271\,\ln(-1+2\,x)}{1936}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4/(1-2*x)^2/(3+5*x),x)
```

```
[Out] 81/40*x^2+621/50*x+1/15125*ln(3+5*x)-2401/176/(-1+2*x)+33271/1936
*ln(-1+2*x)
```

Maxima [A] time = 1.34457, size = 46, normalized size = 1.05

$$\frac{81}{40}\,x^{2}+\frac{621}{50}\,x-\frac{2401}{176\,(2\,x-1)}+\frac{1}{15125}\,\log\left(5\,x+3\right)+\frac{33271}{1936}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4/((5*x + 3)*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] 81/40*x^2 + 621/50*x - 2401/176/(2*x - 1) + 1/15125*log(5*x + 3)
+ 33271/1936*log(2*x - 1)
```

Fricas [A] time = 0.215956, size = 68, normalized size = 1.55

$$\frac{980100\,x^{3}+5521230\,x^{2}+16\,(2\,x-1)\log\left(5\,x+3\right)+4158875\,(2\,x-1)\log\left(2\,x-1\right)-3005640\,x-3301375}{242000\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4/((5*x + 3)*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] 1/242000*(980100*x^3 + 5521230*x^2 + 16*(2*x - 1)*log(5*x + 3) +
4158875*(2*x - 1)*log(2*x - 1) - 3005640*x - 3301375)/(2*x - 1)
```

Sympy [A] time = 0.323084, size = 36, normalized size = 0.82

$$\frac{81x^{2}}{40}+\frac{621x}{50}+\frac{33271\log\left(x-\frac{1}{2}\right)}{1936}+\frac{\log\left(x+\frac{3}{5}\right)}{15125}-\frac{2401}{352x-176}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4/(1-2*x)**2/(3+5*x),x)
```

```
[Out] 81*x**2/40 + 621*x/50 + 33271*log(x - 1/2)/1936 + log(x + 3/5)/15
125 - 2401/(352*x - 176)
```

GIAC/XCAS [A] time = 0.208222, size = 85, normalized size = 1.93

$$\frac{27}{800}\,(2\,x-1)^{2}\left(\frac{214}{2\,x-1}+15\right)-\frac{2401}{176\,(2\,x-1)}-\frac{34371}{2000}\ln\left(\frac{|2\,x-1|}{2\,(2\,x-1)^{2}}\right)+\frac{1}{15125}\ln\left(\left|-\frac{11}{2\,x-1}-5\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4/((5*x + 3)*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] 27/800*(2*x - 1)^2*(214/(2*x - 1) + 15) - 2401/176/(2*x - 1) - 34
371/2000*ln(1/2*abs(2*x - 1)/(2*x - 1)^2) + 1/15125*ln(abs(-11/(2
*x - 1) - 5))
```

3.1576 $\int \frac{(2+3x)^3}{(1-2x)^2(3+5x)}\,dx$

Optimal. Leaf size=37

$$\frac{27x}{20}+\frac{343}{88(1-2x)}+\frac{392}{121}\log(1-2x)+\frac{\log(5x+3)}{3025}$$

```
[Out] 343/(88*(1 - 2*x)) + (27*x)/20 + (392*Log[1 - 2*x])/121 + Log[3 +
 5*x]/3025
```

Rubi [A] time = 0.0455784, antiderivative size = 37, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{27x}{20}+\frac{343}{88(1-2x)}+\frac{392}{121}\log(1-2x)+\frac{\log(5x+3)}{3025}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^3/((1 - 2*x)^2*(3 + 5*x)),x]
```

```
[Out] 343/(88*(1 - 2*x)) + (27*x)/20 + (392*Log[1 - 2*x])/121 + Log[3 +
 5*x]/3025
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{392\log(-2x+1)}{121}+\frac{\log(5x+3)}{3025}+\int\frac{27}{20}\,dx+\frac{343}{88(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3/(1-2*x)**2/(3+5*x),x)
```

```
[Out] 392*log(-2*x + 1)/121 + log(5*x + 3)/3025 + Integral(27/20, x) +
343/(88*(-2*x + 1))
```

Mathematica [A] time = 0.0369814, size = 37, normalized size = 1.

$$\frac{6534(5x+3)+\frac{94325}{1-2x}+78400\log(5-10x)+8\log(5x+3)}{24200}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^3/((1 - 2*x)^2*(3 + 5*x)),x]
```

```
[Out] (94325/(1 - 2*x) + 6534*(3 + 5*x) + 78400*Log[5 - 10*x] + 8*Log[3
 + 5*x])/24200
```

Maple [A] time = 0.012, size = 30, normalized size = 0.8

$$\frac{27\,x}{20}+\frac{\ln(3+5\,x)}{3025}-\frac{343}{-88+176\,x}+\frac{392\,\ln(-1+2\,x)}{121}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3/(1-2*x)^2/(3+5*x),x)
```

```
[Out] 27/20*x+1/3025*ln(3+5*x)-343/88/(-1+2*x)+392/121*ln(-1+2*x)
```

Maxima [A] time = 1.34353, size = 39, normalized size = 1.05

$$\frac{27}{20}\,x - \frac{343}{88\,(2\,x-1)} + \frac{1}{3025}\,\log\left(5\,x+3\right) + \frac{392}{121}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3/((5*x + 3)*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] 27/20*x - 343/88/(2*x - 1) + 1/3025*log(5*x + 3) + 392/121*log(2*
x - 1)
```

Fricas [A] time = 0.21406, size = 61, normalized size = 1.65

$$\frac{65340\,x^2 + 8\,(2\,x-1)\log\left(5\,x+3\right) + 78400\,(2\,x-1)\log\left(2\,x-1\right) - 32670\,x - 94325}{24200\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3/((5*x + 3)*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] 1/24200*(65340*x^2 + 8*(2*x - 1)*log(5*x + 3) + 78400*(2*x - 1)*l
og(2*x - 1) - 32670*x - 94325)/(2*x - 1)
```

Sympy [A] time = 0.313586, size = 29, normalized size = 0.78

$$\frac{27x}{20} + \frac{392\log\left(x-\frac{1}{2}\right)}{121} + \frac{\log\left(x+\frac{3}{5}\right)}{3025} - \frac{343}{176x-88}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3/(1-2*x)**2/(3+5*x),x)
```

```
[Out] 27*x/20 + 392*log(x - 1/2)/121 + log(x + 3/5)/3025 - 343/(176*x -
 88)
```

GIAC/XCAS [A] time = 0.206926, size = 63, normalized size = 1.7

$$\frac{27}{20}\,x - \frac{343}{88\,(2\,x-1)} - \frac{81}{25}\ln\left(\frac{|2\,x-1|}{2\,(2\,x-1)^2}\right) + \frac{1}{3025}\ln\left(\left|-\frac{11}{2\,x-1} - 5\right|\right) - \frac{27}{40}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3/((5*x + 3)*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] 27/20*x - 343/88/(2*x - 1) - 81/25*ln(1/2*abs(2*x - 1)/(2*x - 1)^
2) + 1/3025*ln(abs(-11/(2*x - 1) - 5)) - 27/40
```

3.1577 $\int \frac{(2+3x)^2}{(1-2x)^2(3+5x)}\,dx$

Optimal. Leaf size=32

$$\frac{49}{44(1-2x)}+\frac{217}{484}\log(1-2x)+\frac{1}{605}\log(5x+3)$$

```
[Out] 49/(44*(1 - 2*x)) + (217*Log[1 - 2*x])/484 + Log[3 + 5*x]/605
```

Rubi [A] time = 0.0415348, antiderivative size = 32, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{49}{44(1-2x)}+\frac{217}{484}\log(1-2x)+\frac{1}{605}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^2/((1 - 2*x)^2*(3 + 5*x)),x]

[Out] 49/(44*(1 - 2*x)) + (217*Log[1 - 2*x])/484 + Log[3 + 5*x]/605
```

Rubi in Sympy [A] time = 6.73767, size = 24, normalized size = 0.75

$$\frac{217\log(-2x+1)}{484}+\frac{\log(5x+3)}{605}+\frac{49}{44(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2/(1-2*x)**2/(3+5*x),x)

[Out] 217*log(-2*x + 1)/484 + log(5*x + 3)/605 + 49/(44*(-2*x + 1))
```

Mathematica [A] time = 0.0233264, size = 40, normalized size = 1.25

$$-\frac{245}{44(2(5x+3)-11)}+\frac{1}{605}\log(5x+3)+\frac{217}{484}\log(11-2(5x+3))$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^2/((1 - 2*x)^2*(3 + 5*x)),x]

[Out] -245/(44*(-11 + 2*(3 + 5*x))) + Log[3 + 5*x]/605 + (217*Log[11 -
2*(3 + 5*x)])/484
```

Maple [A] time = 0.011, size = 27, normalized size = 0.8

$$\frac{\ln(3+5x)}{605}-\frac{49}{-44+88x}+\frac{217\ln(-1+2x)}{484}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2/(1-2*x)^2/(3+5*x),x)

[Out] 1/605*ln(3+5*x)-49/44/(-1+2*x)+217/484*ln(-1+2*x)
```

Maxima [A] time = 1.34118, size = 35, normalized size = 1.09

$$-\frac{49}{44\,(2\,x-1)}+\frac{1}{605}\,\log\left(5\,x+3\right)+\frac{217}{484}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2/((5*x + 3)*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] -49/44/(2*x - 1) + 1/605*log(5*x + 3) + 217/484*log(2*x - 1)
```

Fricas [A] time = 0.205392, size = 50, normalized size = 1.56

$$\frac{4\,(2\,x-1)\log\left(5\,x+3\right)+1085\,(2\,x-1)\log\left(2\,x-1\right)-2695}{2420\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2/((5*x + 3)*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] 1/2420*(4*(2*x - 1)*log(5*x + 3) + 1085*(2*x - 1)*log(2*x - 1) -
2695)/(2*x - 1)
```

Sympy [A] time = 0.307791, size = 24, normalized size = 0.75

$$\frac{217\log\left(x-\frac{1}{2}\right)}{484}+\frac{\log\left(x+\frac{3}{5}\right)}{605}-\frac{49}{88x-44}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2/(1-2*x)**2/(3+5*x),x)
```

```
[Out] 217*log(x - 1/2)/484 + log(x + 3/5)/605 - 49/(88*x - 44)
```

GIAC/XCAS [A] time = 0.210465, size = 58, normalized size = 1.81

$$-\frac{49}{44\,(2\,x-1)}-\frac{9}{20}\ln\left(\frac{|2\,x-1|}{2\,(2\,x-1)^2}\right)+\frac{1}{605}\ln\left(\left|-\frac{11}{2\,x-1}-5\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2/((5*x + 3)*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -49/44/(2*x - 1) - 9/20*ln(1/2*abs(2*x - 1)/(2*x - 1)^2) + 1/605*
ln(abs(-11/(2*x - 1) - 5))
```

3.1578 $\int \frac{2+3x}{(1-2x)^2(3+5x)}\,dx$

Optimal. Leaf size=32

$$\frac{7}{22(1-2x)}-\frac{1}{121}\log(1-2x)+\frac{1}{121}\log(5x+3)$$

```
[Out] 7/(22*(1 - 2*x)) - Log[1 - 2*x]/121 + Log[3 + 5*x]/121
```

Rubi [A] time = 0.0393525, antiderivative size = 32, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{7}{22(1-2x)}-\frac{1}{121}\log(1-2x)+\frac{1}{121}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In] Int[(2 + 3*x)/((1 - 2*x)^2*(3 + 5*x)),x]
```

```
[Out] 7/(22*(1 - 2*x)) - Log[1 - 2*x]/121 + Log[3 + 5*x]/121
```

Rubi in Sympy [A] time = 6.27508, size = 22, normalized size = 0.69

$$-\frac{\log(-2x+1)}{121}+\frac{\log(5x+3)}{121}+\frac{7}{22(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)/(1-2*x)**2/(3+5*x),x)
```

```
[Out] -log(-2*x + 1)/121 + log(5*x + 3)/121 + 7/(22*(-2*x + 1))
```

Mathematica [A] time = 0.0205567, size = 37, normalized size = 1.16

$$\frac{(2-4x)\log(1-2x)+(4x-2)\log(10x+6)-77}{242(2x-1)}$$

Antiderivative was successfully verified.

```
[In] Integrate[(2 + 3*x)/((1 - 2*x)^2*(3 + 5*x)),x]
```

```
[Out] (-77 + (2 - 4*x)*Log[1 - 2*x] + (-2 + 4*x)*Log[6 + 10*x])/(242*(-
1 + 2*x))
```

Maple [A] time = 0.01, size = 27, normalized size = 0.8

$$\frac{\ln(3+5x)}{121}-\frac{7}{-22+44x}-\frac{\ln(-1+2x)}{121}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((2+3*x)/(1-2*x)^2/(3+5*x),x)
```

```
[Out] 1/121*ln(3+5*x)-7/22/(-1+2*x)-1/121*ln(-1+2*x)
```

Maxima [A] time = 1.31746, size = 35, normalized size = 1.09

$$-\frac{7}{22\,(2\,x-1)}+\frac{1}{121}\,\log\left(5\,x+3\right)-\frac{1}{121}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)/((5*x + 3)*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] -7/22/(2*x - 1) + 1/121*log(5*x + 3) - 1/121*log(2*x - 1)
```

Fricas [A] time = 0.208951, size = 50, normalized size = 1.56

$$\frac{2\,(2\,x-1)\log\left(5\,x+3\right)-2\,(2\,x-1)\log\left(2\,x-1\right)-77}{242\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)/((5*x + 3)*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] 1/242*(2*(2*x - 1)*log(5*x + 3) - 2*(2*x - 1)*log(2*x - 1) - 77)/
(2*x - 1)
```

Sympy [A] time = 0.240886, size = 22, normalized size = 0.69

$$-\frac{\log\left(x-\frac{1}{2}\right)}{121}+\frac{\log\left(x+\frac{3}{5}\right)}{121}-\frac{7}{44x-22}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)/(1-2*x)**2/(3+5*x),x)
```

```
[Out] -log(x - 1/2)/121 + log(x + 3/5)/121 - 7/(44*x - 22)
```

GIAC/XCAS [A] time = 0.212111, size = 34, normalized size = 1.06

$$-\frac{7}{22\,(2\,x-1)}+\frac{1}{121}\ln\left(\left|-\frac{11}{2\,x-1}-5\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)/((5*x + 3)*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -7/22/(2*x - 1) + 1/121*ln(abs(-11/(2*x - 1) - 5))
```

3.1579 $\int \frac{1}{(1-2x)^2(3+5x)}\,dx$

Optimal. Leaf size=32

$$\frac{1}{11(1-2x)}-\frac{5}{121}\log(1-2x)+\frac{5}{121}\log(5x+3)$$

```
[Out] 1/(11*(1 - 2*x)) - (5*Log[1 - 2*x])/121 + (5*Log[3 + 5*x])/121
```

Rubi [A] time = 0.0291063, antiderivative size = 32, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.067

$$\frac{1}{11(1-2x)}-\frac{5}{121}\log(1-2x)+\frac{5}{121}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^2*(3 + 5*x)),x]
```

```
[Out] 1/(11*(1 - 2*x)) - (5*Log[1 - 2*x])/121 + (5*Log[3 + 5*x])/121
```

Rubi in Sympy [A] time = 5.23839, size = 26, normalized size = 0.81

$$-\frac{5\log\left(-2x+1\right)}{121}+\frac{5\log\left(5x+3\right)}{121}+\frac{1}{11\left(-2x+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**2/(3+5*x),x)
```

```
[Out] -5*log(-2*x + 1)/121 + 5*log(5*x + 3)/121 + 1/(11*(-2*x + 1))
```

Mathematica [A] time = 0.0154968, size = 38, normalized size = 1.19

$$\frac{(5-10x)\log(1-2x)+5(2x-1)\log(10x+6)-11}{121(2x-1)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^2*(3 + 5*x)),x]
```

```
[Out] (-11 + (5 - 10*x)*Log[1 - 2*x] + 5*(-1 + 2*x)*Log[6 + 10*x])/(121
*(-1 + 2*x))
```

Maple [A] time = 0.011, size = 27, normalized size = 0.8

$$\frac{5\ln\left(3+5x\right)}{121}-\frac{1}{-11+22x}-\frac{5\ln\left(-1+2x\right)}{121}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^2/(3+5*x),x)
```

```
[Out] 5/121*ln(3+5*x)-1/11/(-1+2*x)-5/121*ln(-1+2*x)
```

Maxima [A] time = 1.32244, size = 35, normalized size = 1.09

$$-\frac{1}{11\,(2\,x-1)}+\frac{5}{121}\,\log\left(5\,x+3\right)-\frac{5}{121}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] -1/11/(2*x - 1) + 5/121*log(5*x + 3) - 5/121*log(2*x - 1)
```

Fricas [A] time = 0.218131, size = 50, normalized size = 1.56

$$\frac{5\,(2\,x-1)\log\left(5\,x+3\right)-5\,(2\,x-1)\log\left(2\,x-1\right)-11}{121\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] 1/121*(5*(2*x - 1)*log(5*x + 3) - 5*(2*x - 1)*log(2*x - 1) - 11)/
(2*x - 1)
```

Sympy [A] time = 0.262597, size = 26, normalized size = 0.81

$$-\frac{5\log\left(x-\frac{1}{2}\right)}{121}+\frac{5\log\left(x+\frac{3}{5}\right)}{121}-\frac{1}{22x-11}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**2/(3+5*x),x)
```

```
[Out] -5*log(x - 1/2)/121 + 5*log(x + 3/5)/121 - 1/(22*x - 11)
```

GIAC/XCAS [A] time = 0.212463, size = 34, normalized size = 1.06

$$-\frac{1}{11\,(2\,x-1)}+\frac{5}{121}\,\ln\left(\left|-\frac{11}{2\,x-1}-5\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -1/11/(2*x - 1) + 5/121*ln(abs(-11/(2*x - 1) - 5))
```

3.1580 $\int \frac{1}{(1-2x)^2(2+3x)(3+5x)}\,dx$

Optimal. Leaf size=42

$$\frac{2}{77(1-2x)}-\frac{136\log(1-2x)}{5929}-\frac{9}{49}\log(3x+2)+\frac{25}{121}\log(5x+3)$$

```
[Out] 2/(77*(1 - 2*x)) - (136*Log[1 - 2*x])/5929 - (9*Log[2 + 3*x])/49
+ (25*Log[3 + 5*x])/121
```

Rubi [A] time = 0.050606, antiderivative size = 42, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{2}{77(1-2x)}-\frac{136\log(1-2x)}{5929}-\frac{9}{49}\log(3x+2)+\frac{25}{121}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^2*(2 + 3*x)*(3 + 5*x)),x]
```

```
[Out] 2/(77*(1 - 2*x)) - (136*Log[1 - 2*x])/5929 - (9*Log[2 + 3*x])/49
+ (25*Log[3 + 5*x])/121
```

Rubi in Sympy [A] time = 7.48448, size = 36, normalized size = 0.86

$$-\frac{136\log(-2x+1)}{5929}-\frac{9\log(3x+2)}{49}+\frac{25\log(5x+3)}{121}+\frac{2}{77(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**2/(2+3*x)/(3+5*x),x)
```

```
[Out] -136*log(-2*x + 1)/5929 - 9*log(3*x + 2)/49 + 25*log(5*x + 3)/121
 + 2/(77*(-2*x + 1))
```

Mathematica [A] time = 0.0498303, size = 40, normalized size = 0.95

$$\frac{\frac{154}{1-2x}-136\log(3-6x)-1089\log(3x+2)+1225\log(-3(5x+3))}{5929}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^2*(2 + 3*x)*(3 + 5*x)),x]
```

```
[Out] (154/(1 - 2*x) - 136*Log[3 - 6*x] - 1089*Log[2 + 3*x] + 1225*Log[
-3*(3 + 5*x)])/5929
```

Maple [A] time = 0.013, size = 35, normalized size = 0.8

$$\frac{25\ln(3+5x)}{121}-\frac{9\ln(2+3x)}{49}-\frac{2}{-77+154x}-\frac{136\ln(-1+2x)}{5929}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int(1/(1-2*x)^2/(2+3*x)/(3+5*x),x)
```

```
[Out] 25/121*ln(3+5*x)-9/49*ln(2+3*x)-2/77/(-1+2*x)-136/5929*ln(-1+2*x)
```

Maxima [A] time = 1.332, size = 46, normalized size = 1.1

$$-\frac{2}{77(2x-1)}+\frac{25}{121}\log(5x+3)-\frac{9}{49}\log(3x+2)-\frac{136}{5929}\log(2x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(1/((5*x + 3)*(3*x + 2)*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] -2/77/(2*x - 1) + 25/121*log(5*x + 3) - 9/49*log(3*x + 2) - 136/5
929*log(2*x - 1)
```

Fricas [A] time = 0.22913, size = 68, normalized size = 1.62

$$\frac{1225(2x-1)\log(5x+3)-1089(2x-1)\log(3x+2)-136(2x-1)\log(2x-1)-154}{5929(2x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(1/((5*x + 3)*(3*x + 2)*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] 1/5929*(1225*(2*x - 1)*log(5*x + 3) - 1089*(2*x - 1)*log(3*x + 2)
 - 136*(2*x - 1)*log(2*x - 1) - 154)/(2*x - 1)
```

Sympy [A] time = 0.400493, size = 36, normalized size = 0.86

$$-\frac{136\log\left(x-\frac{1}{2}\right)}{5929}+\frac{25\log\left(x+\frac{3}{5}\right)}{121}-\frac{9\log\left(x+\frac{2}{3}\right)}{49}-\frac{2}{154x-77}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(1/(1-2*x)**2/(2+3*x)/(3+5*x),x)
```

```
[Out] -136*log(x - 1/2)/5929 + 25*log(x + 3/5)/121 - 9*log(x + 2/3)/49
- 2/(154*x - 77)
```

GIAC/XCAS [A] time = 0.208974, size = 54, normalized size = 1.29

$$-\frac{2}{77(2x-1)}-\frac{9}{49}\ln\left(\left|-\frac{7}{2x-1}-3\right|\right)+\frac{25}{121}\ln\left(\left|-\frac{11}{2x-1}-5\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(1/((5*x + 3)*(3*x + 2)*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -2/77/(2*x - 1) - 9/49*ln(abs(-7/(2*x - 1) - 3)) + 25/121*ln(abs(
-11/(2*x - 1) - 5))
```

3.1581 $\int \frac{1}{(1-2x)^2(2+3x)^2(3+5x)}\,dx$

Optimal. Leaf size=53

$$\frac{4}{539(1-2x)}+\frac{9}{49(3x+2)}-\frac{404\log(1-2x)}{41503}-\frac{351}{343}\log(3x+2)+\frac{125}{121}\log(5x+3)$$

```
[Out] 4/(539*(1 - 2*x)) + 9/(49*(2 + 3*x)) - (404*Log[1 - 2*x])/41503 -
 (351*Log[2 + 3*x])/343 + (125*Log[3 + 5*x])/121
```

Rubi [A] time = 0.0633394, antiderivative size = 53, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$\frac{4}{539(1-2x)}+\frac{9}{49(3x+2)}-\frac{404\log(1-2x)}{41503}-\frac{351}{343}\log(3x+2)+\frac{125}{121}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^2*(2 + 3*x)^2*(3 + 5*x)),x]
```

```
[Out] 4/(539*(1 - 2*x)) + 9/(49*(2 + 3*x)) - (404*Log[1 - 2*x])/41503 -
 (351*Log[2 + 3*x])/343 + (125*Log[3 + 5*x])/121
```

Rubi in Sympy [A] time = 8.79973, size = 42, normalized size = 0.79

$$-\frac{404\log(-2x+1)}{41503}-\frac{351\log(3x+2)}{343}+\frac{125\log(5x+3)}{121}+\frac{9}{49(3x+2)}+\frac{4}{539(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**2/(2+3*x)**2/(3+5*x),x)
```

```
[Out] -404*log(-2*x + 1)/41503 - 351*log(3*x + 2)/343 + 125*log(5*x + 3
)/121 + 9/(49*(3*x + 2)) + 4/(539*(-2*x + 1))
```

Mathematica [A] time = 0.051235, size = 56, normalized size = 1.06

$$\frac{\frac{14322x}{6x^2+x-2}-\frac{8239}{6x^2+x-2}-404\log(5-10x)-42471\log(5(3x+2))+42875\log(5x+3)}{41503}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^2*(2 + 3*x)^2*(3 + 5*x)),x]
```

```
[Out] (-8239/(-2 + x + 6*x^2) + (14322*x)/(-2 + x + 6*x^2) - 404*Log[5
- 10*x] - 42471*Log[5*(2 + 3*x)] + 42875*Log[3 + 5*x])/41503
```

Maple [A] time = 0.016, size = 44, normalized size = 0.8

$$\frac{125\ln(3+5x)}{121}+\frac{9}{98+147x}-\frac{351\ln(2+3x)}{343}-\frac{4}{-539+1078x}-\frac{404\ln(-1+2x)}{41503}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^2/(2+3*x)^2/(3+5*x),x)
```

```
[Out] 125/121*ln(3+5*x)+9/49/(2+3*x)-351/343*ln(2+3*x)-4/539/(-1+2*x)-4
04/41503*ln(-1+2*x)
```

Maxima [A] time = 1.41584, size = 57, normalized size = 1.08

$$\frac{186\,x-107}{539\,(6\,x^2+x-2)}+\frac{125}{121}\,\log\left(5\,x+3\right)-\frac{351}{343}\,\log\left(3\,x+2\right)-\frac{404}{41503}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(3*x + 2)^2*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] 1/539*(186*x - 107)/(6*x^2 + x - 2) + 125/121*log(5*x + 3) - 351/
343*log(3*x + 2) - 404/41503*log(2*x - 1)
```

Fricas [A] time = 0.225073, size = 88, normalized size = 1.66

$$\frac{42875\,\left(6\,x^2+x-2\right)\,\log\left(5\,x+3\right)-42471\,\left(6\,x^2+x-2\right)\,\log\left(3\,x+2\right)-404\,\left(6\,x^2+x-2\right)\,\log\left(2\,x-1\right)+14322\,x-8239}{41503\,(6\,x^2+x-2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(3*x + 2)^2*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] 1/41503*(42875*(6*x^2 + x - 2)*log(5*x + 3) - 42471*(6*x^2 + x -
2)*log(3*x + 2) - 404*(6*x^2 + x - 2)*log(2*x - 1) + 14322*x - 82
39)/(6*x^2 + x - 2)
```

Sympy [A] time = 0.46624, size = 44, normalized size = 0.83

$$\frac{186x-107}{3234x^2+539x-1078}-\frac{404\log\left(x-\frac{1}{2}\right)}{41503}+\frac{125\log\left(x+\frac{3}{5}\right)}{121}-\frac{351\log\left(x+\frac{2}{3}\right)}{343}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**2/(2+3*x)**2/(3+5*x),x)
```

```
[Out] (186*x - 107)/(3234*x**2 + 539*x - 1078) - 404*log(x - 1/2)/41503
 + 125*log(x + 3/5)/121 - 351*log(x + 2/3)/343
```

GIAC/XCAS [A] time = 0.208071, size = 74, normalized size = 1.4

$$\frac{9}{49\,(3\,x+2)}+\frac{24}{3773\,\left(\frac{7}{3\,x+2}-2\right)}+\frac{125}{121}\,\ln\left(\left|-\frac{1}{3\,x+2}+5\right|\right)-\frac{404}{41503}\,\ln\left(\left|-\frac{7}{3\,x+2}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(3*x + 2)^2*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] 9/49/(3*x + 2) + 24/3773/(7/(3*x + 2) - 2) + 125/121*ln(abs(-1/(3
*x + 2) + 5)) - 404/41503*ln(abs(-7/(3*x + 2) + 2))
```

3.1582 $\int \frac{1}{(1-2x)^2(2+3x)^3(3+5x)}\,dx$

Optimal. Leaf size=64

$$\frac{8}{3773(1-2x)}+\frac{351}{343(3x+2)}+\frac{9}{98(3x+2)^2}-\frac{1072\log(1-2x)}{290521}-\frac{12393\log(3x+2)}{2401}+\frac{625}{121}\log(5x+3)$$

```
[Out] 8/(3773*(1 - 2*x)) + 9/(98*(2 + 3*x)^2) + 351/(343*(2 + 3*x)) - (
1072*Log[1 - 2*x])/290521 - (12393*Log[2 + 3*x])/2401 + (625*Log[
3 + 5*x])/121
```

Rubi [A] time = 0.0738582, antiderivative size = 64, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$\frac{8}{3773(1-2x)}+\frac{351}{343(3x+2)}+\frac{9}{98(3x+2)^2}-\frac{1072\log(1-2x)}{290521}-\frac{12393\log(3x+2)}{2401}+\frac{625}{121}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^2*(2 + 3*x)^3*(3 + 5*x)),x]
```

```
[Out] 8/(3773*(1 - 2*x)) + 9/(98*(2 + 3*x)^2) + 351/(343*(2 + 3*x)) - (
1072*Log[1 - 2*x])/290521 - (12393*Log[2 + 3*x])/2401 + (625*Log[
3 + 5*x])/121
```

Rubi in Sympy [A] time = 10.1114, size = 53, normalized size = 0.83

$$-\frac{1072\log(-2x+1)}{290521}-\frac{12393\log(3x+2)}{2401}+\frac{625\log(5x+3)}{121}+\frac{351}{343(3x+2)}+\frac{9}{98(3x+2)^2}+\frac{8}{3773(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**2/(2+3*x)**3/(3+5*x),x)
```

```
[Out] -1072*log(-2*x + 1)/290521 - 12393*log(3*x + 2)/2401 + 625*log(5*
x + 3)/121 + 351/(343*(3*x + 2)) + 9/(98*(3*x + 2)**2) + 8/(3773*
(-2*x + 1))
```

Mathematica [A] time = 0.0812309, size = 61, normalized size = 0.95

$$\frac{-2144\log(5-10x)-2999106\log(5(3x+2))+7\left(\frac{176}{1-2x}+\frac{84942}{3x+2}+\frac{7623}{(3x+2)^2}+428750\log(5x+3)\right)}{581042}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^2*(2 + 3*x)^3*(3 + 5*x)),x]
```

```
[Out] (-2144*Log[5 - 10*x] - 2999106*Log[5*(2 + 3*x)] + 7*(176/(1 - 2*x
) + 7623/(2 + 3*x)^2 + 84942/(2 + 3*x) + 428750*Log[3 + 5*x]))/58
1042
```

Maple [A] time = 0.017, size = 53, normalized size = 0.8

$$\frac{625\ln(3+5x)}{121}+\frac{9}{98(2+3x)^2}+\frac{351}{686+1029x}-\frac{12393\ln(2+3x)}{2401}-\frac{8}{-3773+7546x}-\frac{1072\ln(-1+2x)}{290521}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^2/(2+3*x)^3/(3+5*x),x)
```

```
[Out] 625/121*ln(3+5*x)+9/98/(2+3*x)^2+351/343/(2+3*x)-12393/2401*ln(2+
3*x)-8/3773/(-1+2*x)-1072/290521*ln(-1+2*x)
```

Maxima [A] time = 1.35941, size = 73, normalized size = 1.14

$$\frac{46188\,x^2 + 8916\,x - 16201}{7546\,(18\,x^3 + 15\,x^2 - 4\,x - 4)} + \frac{625}{121}\,\log\left(5\,x + 3\right) - \frac{12393}{2401}\,\log\left(3\,x + 2\right) - \frac{1072}{290521}\,\log\left(2\,x - 1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(3*x + 2)^3*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] 1/7546*(46188*x^2 + 8916*x - 16201)/(18*x^3 + 15*x^2 - 4*x - 4) +
 625/121*log(5*x + 3) - 12393/2401*log(3*x + 2) - 1072/290521*log
(2*x - 1)
```

Fricas [A] time = 0.218033, size = 132, normalized size = 2.06

$$\frac{3556476\,x^2 + 3001250\,\left(18\,x^3 + 15\,x^2 - 4\,x - 4\right)\,\log\left(5\,x + 3\right) - 2999106\,\left(18\,x^3 + 15\,x^2 - 4\,x - 4\right)\,\log\left(3\,x + 2\right) - 2144\,\left(18\,x^3\right.}{581042\,(18\,x^3 + 15\,x^2 - 4\,x - 4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(3*x + 2)^3*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] 1/581042*(3556476*x^2 + 3001250*(18*x^3 + 15*x^2 - 4*x - 4)*log(5
*x + 3) - 2999106*(18*x^3 + 15*x^2 - 4*x - 4)*log(3*x + 2) - 2144
*(18*x^3 + 15*x^2 - 4*x - 4)*log(2*x - 1) + 686532*x - 1247477)/(
18*x^3 + 15*x^2 - 4*x - 4)
```

Sympy [A] time = 0.531974, size = 54, normalized size = 0.84

$$\frac{46188x^2 + 8916x - 16201}{135828x^3 + 113190x^2 - 30184x - 30184} - \frac{1072\log\left(x - \frac{1}{2}\right)}{290521} + \frac{625\log\left(x + \frac{3}{5}\right)}{121} - \frac{12393\log\left(x + \frac{2}{3}\right)}{2401}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**2/(2+3*x)**3/(3+5*x),x)
```

```
[Out] (46188*x**2 + 8916*x - 16201)/(135828*x**3 + 113190*x**2 - 30184*
x - 30184) - 1072*log(x - 1/2)/290521 + 625*log(x + 3/5)/121 - 12
393*log(x + 2/3)/2401
```

GIAC/XCAS [A] time = 0.209883, size = 89, normalized size = 1.39

$$-\frac{8}{3773\,(2\,x - 1)} - \frac{54\,\left(\frac{287}{2\,x-1} + 120\right)}{2401\,\left(\frac{7}{2\,x-1} + 3\right)^2} - \frac{12393}{2401}\,\ln\left(\left|-\frac{7}{2\,x - 1} - 3\right|\right) + \frac{625}{121}\,\ln\left(\left|-\frac{11}{2\,x - 1} - 5\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(3*x + 2)^3*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -8/3773/(2*x - 1) - 54/2401*(287/(2*x - 1) + 120)/(7/(2*x - 1) +
3)^2 - 12393/2401*ln(abs(-7/(2*x - 1) - 3)) + 625/121*ln(abs(-11/
(2*x - 1) - 5))
```

3.1583 $\int \frac{1}{(1-2x)^2(2+3x)^4(3+5x)}\,dx$

Optimal. Leaf size=75

$$\frac{16}{26411(1-2x)}+\frac{12393}{2401(3x+2)}+\frac{351}{686(3x+2)^2}+\frac{3}{49(3x+2)^3}-\frac{2672\log(1-2x)}{2033647}-\frac{434043\log(3x+2)}{16807}+\frac{3125}{121}\log(5x+3)$$

```
[Out] 16/(26411*(1 - 2*x)) + 3/(49*(2 + 3*x)^3) + 351/(686*(2 + 3*x)^2)
 + 12393/(2401*(2 + 3*x)) - (2672*Log[1 - 2*x])/2033647 - (434043
*Log[2 + 3*x])/16807 + (3125*Log[3 + 5*x])/121
```

Rubi [A] time = 0.0888468, antiderivative size = 75, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{16}{26411(1-2x)}+\frac{12393}{2401(3x+2)}+\frac{351}{686(3x+2)^2}+\frac{3}{49(3x+2)^3}-\frac{2672\log(1-2x)}{2033647}-\frac{434043\log(3x+2)}{16807}+\frac{3125}{121}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In] Int[1/((1 - 2*x)^2*(2 + 3*x)^4*(3 + 5*x)),x]
```

```
[Out] 16/(26411*(1 - 2*x)) + 3/(49*(2 + 3*x)^3) + 351/(686*(2 + 3*x)^2)
 + 12393/(2401*(2 + 3*x)) - (2672*Log[1 - 2*x])/2033647 - (434043
*Log[2 + 3*x])/16807 + (3125*Log[3 + 5*x])/121
```

Rubi in Sympy [A] time = 11.4838, size = 63, normalized size = 0.84

$$-\frac{2672\log(-2x+1)}{2033647}-\frac{434043\log(3x+2)}{16807}+\frac{3125\log(5x+3)}{121}+\frac{12393}{2401(3x+2)}+\frac{351}{686(3x+2)^2}+\frac{3}{49(3x+2)^3}+\frac{16}{26411(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(1/(1-2*x)**2/(2+3*x)**4/(3+5*x),x)
```

```
[Out] -2672*log(-2*x + 1)/2033647 - 434043*log(3*x + 2)/16807 + 3125*lo
g(5*x + 3)/121 + 12393/(2401*(3*x + 2)) + 351/(686*(3*x + 2)**2)
+ 3/(49*(3*x + 2)**3) + 16/(26411*(-2*x + 1))
```

Mathematica [A] time = 0.0934475, size = 70, normalized size = 0.93

$$\frac{77\left(\frac{272646}{3x+2}+\frac{27027}{(3x+2)^2}+\frac{3234}{(3x+2)^3}+\frac{32}{1-2x}\right)-5344\log(5-10x)-105038406\log(5(3x+2))+105043750\log(5x+3)}{4067294}$$

Antiderivative was successfully verified.

```
[In] Integrate[1/((1 - 2*x)^2*(2 + 3*x)^4*(3 + 5*x)),x]
```

```
[Out] (77*(32/(1 - 2*x) + 3234/(2 + 3*x)^3 + 27027/(2 + 3*x)^2 + 272646
/(2 + 3*x)) - 5344*Log[5 - 10*x] - 105038406*Log[5*(2 + 3*x)] + 1
05043750*Log[3 + 5*x])/4067294
```

Maple [A] time = 0.017, size = 62, normalized size = 0.8

$$\frac{3125 \ln (3+5 x)}{121}+\frac{3}{49 (2+3 x)^{3}}+\frac{351}{686 (2+3 x)^{2}}+\frac{12393}{4802+7203 x} -\frac{434043 \ln (2+3 x)}{16807}-\frac{16}{-26411+52822 x}-\frac{2672 \ln (-1+2 x)}{2033647}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^2/(2+3*x)^4/(3+5*x),x)
```

```
[Out] 3125/121*ln(3+5*x)+3/49/(2+3*x)^3+351/686/(2+3*x)^2+12393/2401/(2
+3*x)-434043/16807*ln(2+3*x)-16/26411/(-1+2*x)-2672/2033647*ln(-1
+2*x)
```

Maxima [A] time = 1.35754, size = 86, normalized size = 1.15

$$\frac{4906764 x^{3}+4250124 x^{2}-1058241 x-1148128}{52822 (54 x^{4}+81 x^{3}+18 x^{2}-20 x-8)}+\frac{3125}{121} \log (5 x+3) -\frac{434043}{16807} \log (3 x+2)-\frac{2672}{2033647} \log (2 x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(3*x + 2)^4*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] 1/52822*(4906764*x^3 + 4250124*x^2 - 1058241*x - 1148128)/(54*x^4
 + 81*x^3 + 18*x^2 - 20*x - 8) + 3125/121*log(5*x + 3) - 434043/1
6807*log(3*x + 2) - 2672/2033647*log(2*x - 1)
```

Fricas [A] time = 0.216579, size = 166, normalized size = 2.21

$$\frac{377820828 x^{3}+327259548 x^{2}+105043750 \left(54 x^{4}+81 x^{3}+18 x^{2}-20 x-8\right) \log (5 x+3)-105038406 \left(54 x^{4}+81 x^{3}+18 x\right.}{4067294 (54 x^{4}+81 x^{3}+18 x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(3*x + 2)^4*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] 1/4067294*(377820828*x^3 + 327259548*x^2 + 105043750*(54*x^4 + 81
*x^3 + 18*x^2 - 20*x - 8)*log(5*x + 3) - 105038406*(54*x^4 + 81*x
^3 + 18*x^2 - 20*x - 8)*log(3*x + 2) - 5344*(54*x^4 + 81*x^3 + 18
*x^2 - 20*x - 8)*log(2*x - 1) - 81484557*x - 88405856)/(54*x^4 +
81*x^3 + 18*x^2 - 20*x - 8)
```

Sympy [A] time = 0.587477, size = 65, normalized size = 0.87

$$\frac{4906764x^{3}+4250124x^{2}-1058241x-1148128}{2852388x^{4}+4278582x^{3}+950796x^{2}-1056440x-422576} -\frac{2672 \log \left(x-\frac{1}{2}\right)}{2033647}+\frac{3125 \log \left(x+\frac{3}{5}\right)}{121}-\frac{434043 \log \left(x+\frac{2}{3}\right)}{16807}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**2/(2+3*x)**4/(3+5*x),x)
```

```
[Out] (4906764*x**3 + 4250124*x**2 - 1058241*x - 1148128)/(2852388*x**4
 + 4278582*x**3 + 950796*x**2 - 1056440*x - 422576) - 2672*log(x
- 1/2)/2033647 + 3125*log(x + 3/5)/121 - 434043*log(x + 2/3)/1680
7
```

GIAC/XCAS [A] time = 0.215436, size = 101, normalized size = 1.35

$$-\frac{16}{26411\,(2\,x-1)}-\frac{54\left(\frac{60375}{2\,x-1}+\frac{71491}{(2\,x-1)^{2}}+12756\right)}{16807\left(\frac{7}{2\,x-1}+3\right)^{3}}-\frac{434043}{16807}\ln\left(\left|-\frac{7}{2\,x-1}-3\right|\right)+\frac{3125}{121}\ln\left(\left|-\frac{11}{2\,x-1}-5\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)*(3*x + 2)^4*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -16/26411/(2*x - 1) - 54/16807*(60375/(2*x - 1) + 71491/(2*x - 1)
^2 + 12756)/(7/(2*x - 1) + 3)^3 - 434043/16807*ln(abs(-7/(2*x - 1
) - 3)) + 3125/121*ln(abs(-11/(2*x - 1) - 5))
```

3.1584 $\int \frac{1}{(1-2x)^2(2+3x)^5(3+5x)}\,dx$

Optimal. Leaf size=86

$$\frac{32}{184877(1-2x)}+\frac{434043}{16807(3x+2)}+\frac{12393}{4802(3x+2)^2}+\frac{117}{343(3x+2)^3}+\frac{9}{196(3x+2)^4}-\frac{6400\log(1-2x)}{14235529}-\frac{15192225\log(3x+2)}{117649}+\frac{15625}{121}\log(5x+3)$$

```
[Out] 32/(184877*(1 - 2*x)) + 9/(196*(2 + 3*x)^4) + 117/(343*(2 + 3*x)^
3) + 12393/(4802*(2 + 3*x)^2) + 434043/(16807*(2 + 3*x)) - (6400*
Log[1 - 2*x])/14235529 - (15192225*Log[2 + 3*x])/117649 + (15625*
Log[3 + 5*x])/121
```

Rubi [A] time = 0.0987832, antiderivative size = 86, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{32}{184877(1-2x)}+\frac{434043}{16807(3x+2)}+\frac{12393}{4802(3x+2)^2}+\frac{117}{343(3x+2)^3}+\frac{9}{196(3x+2)^4}-\frac{6400\log(1-2x)}{14235529}-\frac{15192225\log(3x+2)}{117649}+\frac{15625}{121}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^2*(2 + 3*x)^5*(3 + 5*x)),x]
```

```
[Out] 32/(184877*(1 - 2*x)) + 9/(196*(2 + 3*x)^4) + 117/(343*(2 + 3*x)^
3) + 12393/(4802*(2 + 3*x)^2) + 434043/(16807*(2 + 3*x)) - (6400*
Log[1 - 2*x])/14235529 - (15192225*Log[2 + 3*x])/117649 + (15625*
Log[3 + 5*x])/121
```

Rubi in Sympy [A] time = 12.7771, size = 73, normalized size = 0.85

$$-\frac{6400\log(-2x+1)}{14235529}-\frac{15192225\log(3x+2)}{117649}+\frac{15625\log(5x+3)}{121}+\frac{434043}{16807(3x+2)}+\frac{12393}{4802(3x+2)^2}+\frac{117}{343(3x+2)^3}+\frac{9}{196(3x+2)^4}+\frac{32}{184877(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**2/(2+3*x)**5/(3+5*x),x)
```

```
[Out] -6400*log(-2*x + 1)/14235529 - 15192225*log(3*x + 2)/117649 + 156
25*log(5*x + 3)/121 + 434043/(16807*(3*x + 2)) + 12393/(4802*(3*x
 + 2)**2) + 117/(343*(3*x + 2)**3) + 9/(196*(3*x + 2)**4) + 32/(1
84877*(-2*x + 1))
```

Mathematica [A] time = 0.190872, size = 81, normalized size = 0.94

$$\frac{5\left(\frac{77}{5}\left(\frac{19097892}{3x+2}+\frac{1908522}{(3x+2)^2}+\frac{252252}{(3x+2)^3}+\frac{33957}{(3x+2)^4}+\frac{128}{1-2x}\right)-5120\log(5-10x)-1470607380\log(5(3x+2))+1470612500\log(5x+$$
56942116

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^2*(2 + 3*x)^5*(3 + 5*x)),x]
```

```
[Out] (5*((77*(128/(1 - 2*x) + 33957/(2 + 3*x)^4 + 252252/(2 + 3*x)^3 +
 1908522/(2 + 3*x)^2 + 19097892/(2 + 3*x)))/5 - 5120*Log[5 - 10*x
] - 1470607380*Log[5*(2 + 3*x)] + 1470612500*Log[3 + 5*x]))/56942
116
```

Maple [A] time = 0.017, size = 71, normalized size = 0.8

$$\frac{15625\ \ln(3+5x)}{121}+\frac{9}{196\ (2+3x)^4}+\frac{117}{343\ (2+3x)^3}+\frac{12393}{4802\ (2+3x)^2}+\frac{434043}{33614+50421x}-\frac{15192225\ \ln(2+3x)}{117649}-\frac{32}{-184877+369754x}-\frac{6400\ \ln(-1+2x)}{14235529}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^2/(2+3*x)^5/(3+5*x),x)
```

```
[Out] 15625/121*ln(3+5*x)+9/196/(2+3*x)^4+117/343/(2+3*x)^3+12393/4802/
(2+3*x)^2+434043/16807/(2+3*x)-15192225/117649*ln(2+3*x)-32/18487
7/(-1+2*x)-6400/14235529*ln(-1+2*x)
```

Maxima [A] time = 1.33764, size = 100, normalized size = 1.16

$$\frac{1031275800\,x^4+1581255000\,x^3+373875750\,x^2-389284050\,x-160957733}{739508\,(162\,x^5+351\,x^4+216\,x^3-24\,x^2-64\,x-16)}+\frac{15625}{121}\log(5x+3)-\frac{15192225}{117649}\log(3x+2)-\frac{6400}{14235529}\log(2x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(3*x + 2)^5*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] 1/739508*(1031275800*x^4 + 1581255000*x^3 + 373875750*x^2 - 38928
4050*x - 160957733)/(162*x^5 + 351*x^4 + 216*x^3 - 24*x^2 - 64*x
- 16) + 15625/121*log(5*x + 3) - 15192225/117649*log(3*x + 2) - 6
400/14235529*log(2*x - 1)
```

Fricas [A] time = 0.222347, size = 200, normalized size = 2.33

$$\frac{79408236600\,x^4+121756635000\,x^3+28788432750\,x^2+7353062500\,\left(162\,x^5+351\,x^4+216\,x^3-24\,x^2-64\,x-16\right)\log(5x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(3*x + 2)^5*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] 1/56942116*(79408236600*x^4 + 121756635000*x^3 + 28788432750*x^2
+ 7353062500*(162*x^5 + 351*x^4 + 216*x^3 - 24*x^2 - 64*x - 16)*l
og(5*x + 3) - 7353036900*(162*x^5 + 351*x^4 + 216*x^3 - 24*x^2 -
64*x - 16)*log(3*x + 2) - 25600*(162*x^5 + 351*x^4 + 216*x^3 - 24
*x^2 - 64*x - 16)*log(2*x - 1) - 29974871850*x - 12393745441)/(16
2*x^5 + 351*x^4 + 216*x^3 - 24*x^2 - 64*x - 16)
```

Sympy [A] time = 0.666852, size = 75, normalized size = 0.87

$$\frac{1031275800x^4+1581255000x^3+373875750x^2-389284050x-160957733}{119800296x^5+259567308x^4+159733728x^3-17748192x^2-47328512x-11832128}-\frac{6400\log\left(x-\frac{1}{2}\right)}{14235529}+\frac{15625\log\left(x+\frac{3}{5}\right)}{121}-\frac{15192225\log\left(x+\frac{2}{3}\right)}{117649}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**2/(2+3*x)**5/(3+5*x),x)
```

```
[Out] (1031275800*x**4 + 1581255000*x**3 + 373875750*x**2 - 389284050*x
 - 160957733)/(119800296*x**5 + 259567308*x**4 + 159733728*x**3 -
 17748192*x**2 - 47328512*x - 11832128) - 6400*log(x - 1/2)/14235
529 + 15625*log(x + 3/5)/121 - 15192225*log(x + 2/3)/117649
```

GIAC/XCAS [A] time = 0.208981, size = 111, normalized size = 1.29

$$\frac{434043}{16807\,(3\,x+2)}+\frac{192}{1294139\,\left(\frac{7}{3\,x+2}-2\right)}+\frac{12393}{4802\,(3\,x+2)^{2}}+\frac{117}{343\,(3\,x+2)^{3}}+\frac{9}{196\,(3\,x+2)^{4}}+\frac{15625}{121}\ln\left(\left|-\frac{1}{3\,x+2}+5\right|\right)-\frac{6400}{14235529}\ln\left(\left|-\frac{7}{3\,x+2}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(3*x + 2)^5*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] 434043/16807/(3*x + 2) + 192/1294139/(7/(3*x + 2) - 2) + 12393/48
02/(3*x + 2)^2 + 117/343/(3*x + 2)^3 + 9/196/(3*x + 2)^4 + 15625/
121*ln(abs(-1/(3*x + 2) + 5)) - 6400/14235529*ln(abs(-7/(3*x + 2)
 + 2))
```

3.1585 $\int \frac{1}{(1-2x)^2(2+3x)^6(3+5x)}\,dx$

Optimal. Leaf size=97

$$\frac{64}{1294139(1-2x)}+\frac{15192225}{117649(3x+2)}+\frac{434043}{33614(3x+2)^2}+\frac{4131}{2401(3x+2)^3}+\frac{351}{1372(3x+2)^4}+\frac{9}{245(3x+2)^5}-\frac{14912\log(1-2x)}{99648703}-\frac{531729603\log(3x+2)}{823543}+\frac{78125}{121}\log(5x+3)$$

```
[Out] 64/(1294139*(1 - 2*x)) + 9/(245*(2 + 3*x)^5) + 351/(1372*(2 + 3*x
)^4) + 4131/(2401*(2 + 3*x)^3) + 434043/(33614*(2 + 3*x)^2) + 151
92225/(117649*(2 + 3*x)) - (14912*Log[1 - 2*x])/99648703 - (53172
9603*Log[2 + 3*x])/823543 + (78125*Log[3 + 5*x])/121
```

Rubi [A] time = 0.117298, antiderivative size = 97, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{64}{1294139(1-2x)}+\frac{15192225}{117649(3x+2)}+\frac{434043}{33614(3x+2)^2}+\frac{4131}{2401(3x+2)^3}+\frac{351}{1372(3x+2)^4}+\frac{9}{245(3x+2)^5}-\frac{14912\log(1-2x)}{99648703}-\frac{531729603\log(3x+2)}{823543}+\frac{78125}{121}\log(5x+3)$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^2*(2 + 3*x)^6*(3 + 5*x)),x]
```

```
[Out] 64/(1294139*(1 - 2*x)) + 9/(245*(2 + 3*x)^5) + 351/(1372*(2 + 3*x
)^4) + 4131/(2401*(2 + 3*x)^3) + 434043/(33614*(2 + 3*x)^2) + 151
92225/(117649*(2 + 3*x)) - (14912*Log[1 - 2*x])/99648703 - (53172
9603*Log[2 + 3*x])/823543 + (78125*Log[3 + 5*x])/121
```

Rubi in Sympy [A] time = 14.1807, size = 83, normalized size = 0.86

$$-\frac{14912\log(-2x+1)}{99648703}-\frac{531729603\log(3x+2)}{823543}+\frac{78125\log(5x+3)}{121}+\frac{15192225}{117649(3x+2)}+\frac{434043}{33614(3x+2)^2}+\frac{4131}{2401(3x+2)^3}+\frac{351}{1372(3x+2)^4}+\frac{9}{245(3x+2)^5}+\frac{64}{1294139(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**2/(2+3*x)**6/(3+5*x),x)
```

```
[Out] -14912*log(-2*x + 1)/99648703 - 531729603*log(3*x + 2)/823543 + 7
8125*log(5*x + 3)/121 + 15192225/(117649*(3*x + 2)) + 434043/(336
14*(3*x + 2)**2) + 4131/(2401*(3*x + 2)**3) + 351/(1372*(3*x + 2)
**4) + 9/(245*(3*x + 2)**5) + 64/(1294139*(-2*x + 1))
```

Mathematica [A] time = 0.0812837, size = 87, normalized size = 0.9

$$\frac{\frac{19712}{1-2x}+\frac{51471258300}{3x+2}+\frac{5146881894}{(3x+2)^2}+\frac{685795572}{(3x+2)^3}+\frac{101972871}{(3x+2)^4}+\frac{73211292}{5(3x+2)^5}-59648\log(5-10x)-257357127852\log(5(3x+2))+25735}{398594812}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^2*(2 + 3*x)^6*(3 + 5*x)),x]
```

```
[Out] (19712/(1 - 2*x) + 73211292/(5*(2 + 3*x)^5) + 101972871/(2 + 3*x)
^4 + 685795572/(2 + 3*x)^3 + 5146881894/(2 + 3*x)^2 + 51471258300
/(2 + 3*x) - 59648*Log[5 - 10*x] - 257357127852*Log[5*(2 + 3*x)]
+ 257357187500*Log[3 + 5*x])/398594812
```

Maple [A] time = 0.017, size = 80, normalized size = 0.8

$$\frac{78125\ln(3+5x)}{121}+\frac{9}{245(2+3x)^5}+\frac{351}{1372(2+3x)^4}+\frac{4131}{2401(2+3x)^3}+\frac{434043}{33614(2+3x)^2}+\frac{15192225}{235298+352947x}-\frac{531729603\ln(2+3x)}{823543}-\frac{64}{-1294139+2588278x}-\frac{14912\ln(-1+2x)}{99648703}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^2/(2+3*x)^6/(3+5*x),x)
```

```
[Out] 78125/121*ln(3+5*x)+9/245/(2+3*x)^5+351/1372/(2+3*x)^4+4131/2401/
(2+3*x)^3+434043/33614/(2+3*x)^2+15192225/117649/(2+3*x)-53172960
3/823543*ln(2+3*x)-64/1294139/(-1+2*x)-14912/99648703*ln(-1+2*x)
```

Maxima [A] time = 1.3496, size = 113, normalized size = 1.16

$$\frac{541450587960x^5+1191190085640x^4+749805990750x^3-73492321230x^2-220760702913x-56342700586}{25882780(486x^6+1377x^5+1350x^4+360x^3-240x^2-176x-32)}+\frac{78125}{121}\log(5x+3)-\frac{531729603}{823543}\log(3x+2)-\frac{14912}{99648703}\log(2x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(3*x + 2)^6*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] 1/25882780*(541450587960*x^5 + 1191190085640*x^4 + 749805990750*x
^3 - 73492321230*x^2 - 220760702913*x - 56342700586)/(486*x^6 + 1
377*x^5 + 1350*x^4 + 360*x^3 - 240*x^2 - 176*x - 32) + 78125/121*
log(5*x + 3) - 531729603/823543*log(3*x + 2) - 14912/99648703*log
(2*x - 1)
```

Fricas [A] time = 0.220605, size = 234, normalized size = 2.41

$$\frac{41691695272920x^5+91721636594280x^4+57735061287750x^3-5658908734710x^2+1286785937500\left(486x^6+1377x^5+\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(3*x + 2)^6*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] 1/1992974060*(41691695272920*x^5 + 91721636594280*x^4 + 577350612
87750*x^3 - 5658908734710*x^2 + 1286785937500*(486*x^6 + 1377*x^5
 + 1350*x^4 + 360*x^3 - 240*x^2 - 176*x - 32)*log(5*x + 3) - 1286
785639260*(486*x^6 + 1377*x^5 + 1350*x^4 + 360*x^3 - 240*x^2 - 17
6*x - 32)*log(3*x + 2) - 298240*(486*x^6 + 1377*x^5 + 1350*x^4 +
360*x^3 - 240*x^2 - 176*x - 32)*log(2*x - 1) - 16998574124301*x -
 4338387945122)/(486*x^6 + 1377*x^5 + 1350*x^4 + 360*x^3 - 240*x^
2 - 176*x - 32)
```

Sympy [A] time = 0.735281, size = 85, normalized size = 0.88

$$\frac{541450587960x^5 + 1191190085640x^4 + 749805990750x^3 - 73492321230x^2 - 220760702913x - 56342700586}{12579031080x^6 + 35640588060x^5 + 34941753000x^4 + 9317800800x^3 - 6211867200x^2 - 4555369280x - 828248960} - \frac{14912\log\left(x - \frac{1}{2}\right)}{99648703} + \frac{78125\log\left(x + \frac{3}{5}\right)}{121} - \frac{531729603\log\left(x + \frac{2}{3}\right)}{823543}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**2/(2+3*x)**6/(3+5*x),x)
```

```
[Out] (541450587960*x**5 + 1191190085640*x**4 + 749805990750*x**3 - 734
92321230*x**2 - 220760702913*x - 56342700586)/(12579031080*x**6 +
 35640588060*x**5 + 34941753000*x**4 + 9317800800*x**3 - 62118672
00*x**2 - 4555369280*x - 828248960) - 14912*log(x - 1/2)/99648703
 + 78125*log(x + 3/5)/121 - 531729603*log(x + 2/3)/823543
```

GIAC/XCAS [A] time = 0.211263, size = 126, normalized size = 1.3

$$-\frac{64}{1294139\,(2\,x-1)} - \frac{54\left(\frac{6617665845}{2\,x-1} + \frac{23331909825}{(2\,x-1)^2} + \frac{36565643625}{(2\,x-1)^3} + \frac{21492731575}{(2\,x-1)^4} + 703958526\right)}{4117715\left(\frac{7}{2\,x-1} + 3\right)^5} - \frac{531729603}{823543}\ln\left(\left|-\frac{7}{2\,x-1} - 3\right|\right) + \frac{78125}{121}\ln\left(\left|-\frac{11}{2\,x-1} - 5\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(3*x + 2)^6*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -64/1294139/(2*x - 1) - 54/4117715*(6617665845/(2*x - 1) + 233319
09825/(2*x - 1)^2 + 36565643625/(2*x - 1)^3 + 21492731575/(2*x -
1)^4 + 703958526)/(7/(2*x - 1) + 3)^5 - 531729603/823543*ln(abs(-
7/(2*x - 1) - 3)) + 78125/121*ln(abs(-11/(2*x - 1) - 5))
```

3.1586 $\int \frac{(2+3x)^8}{(1-2x)^2(3+5x)^2} \, dx$

Optimal. Leaf size=76

$$\frac{6561x^5}{500}+\frac{168399x^4}{2000}+\frac{2626101x^3}{10000}+\frac{14171517x^2}{25000}+\frac{231915717x}{200000}+\frac{5764801}{15488(1-2x)}-\frac{1}{9453125(5x+3)}+\frac{79883671\log(1-2x)}{85184}+\frac{268\log(5x+3)}{103984375}$$

```
[Out] 5764801/(15488*(1 - 2*x)) + (231915717*x)/200000 + (14171517*x^2)
/25000 + (2626101*x^3)/10000 + (168399*x^4)/2000 + (6561*x^5)/500
 - 1/(9453125*(3 + 5*x)) + (79883671*Log[1 - 2*x])/85184 + (268*L
og[3 + 5*x])/103984375
```

Rubi [A] time = 0.0902512, antiderivative size = 76, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{6561x^5}{500}+\frac{168399x^4}{2000}+\frac{2626101x^3}{10000}+\frac{14171517x^2}{25000}+\frac{231915717x}{200000}+\frac{5764801}{15488(1-2x)}-\frac{1}{9453125(5x+3)}+\frac{79883671\log(1-2x)}{85184}+\frac{268\log(5x+3)}{103984375}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^8/((1 - 2*x)^2*(3 + 5*x)^2),x]
```

```
[Out] 5764801/(15488*(1 - 2*x)) + (231915717*x)/200000 + (14171517*x^2)
/25000 + (2626101*x^3)/10000 + (168399*x^4)/2000 + (6561*x^5)/500
 - 1/(9453125*(3 + 5*x)) + (79883671*Log[1 - 2*x])/85184 + (268*L
og[3 + 5*x])/103984375
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{6561x^5}{500}+\frac{168399x^4}{2000}+\frac{2626101x^3}{10000}+\frac{79883671\log(-2x+1)}{85184}+\frac{268\log(5x+3)}{103984375}+\int\frac{231915717}{200000}\,dx+\frac{14171517\int x\,dx}{12500}-\frac{1}{9453125\,(5x+3)}+\frac{5764801}{15488\,(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**8/(1-2*x)**2/(3+5*x)**2,x)
```

```
[Out] 6561*x**5/500 + 168399*x**4/2000 + 2626101*x**3/10000 + 79883671*
log(-2*x + 1)/85184 + 268*log(5*x + 3)/103984375 + Integral(23191
5717/200000, x) + 14171517*Integral(x, x)/12500 - 1/(9453125*(5*x
 + 3)) + 5764801/(15488*(-2*x + 1))
```

Mathematica [A] time = 0.072135, size = 95, normalized size = 1.25

$$-\frac{2251875390881x+1351125234247}{1210000000\,(10x^2+x-3)}+\frac{27}{500}(3x+2)^5+\frac{999(3x+2)^4}{2000}+\frac{35703(3x+2)^3}{10000}+\frac{78921(3x+2)^2}{3125}+\frac{44471943(3x+2)}{200000}+\frac{79883671\log(3-6x)}{85184}+\frac{268\log(-3(5x+3))}{103984375}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^8/((1 - 2*x)^2*(3 + 5*x)^2),x]
```

```
[Out] (44471943*(2 + 3*x))/200000 + (78921*(2 + 3*x)^2)/3125 + (35703*(
2 + 3*x)^3)/10000 + (999*(2 + 3*x)^4)/2000 + (27*(2 + 3*x)^5)/500
 - (1351125234247 + 2251875390881*x)/(1210000000*(-3 + x + 10*x^2
)) + (79883671*Log[3 - 6*x])/85184 + (268*Log[-3*(3 + 5*x)])/1039
84375
```

Maple [A] time = 0.014, size = 59, normalized size = 0.8

$$\frac{6561\,x^5}{500}+\frac{168399\,x^4}{2000}+\frac{2626101\,x^3}{10000}+\frac{14171517\,x^2}{25000}+\frac{231915717\,x}{200000}-\frac{1}{28359375+47265625\,x}+\frac{268\,\ln(3+5\,x)}{103984375}-\frac{5764801}{-15488+30976\,x}+\frac{79883671\,\ln(-1+2\,x)}{85184}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^8/(1-2*x)^2/(3+5*x)^2,x)
```

```
[Out] 6561/500*x^5+168399/2000*x^4+2626101/10000*x^3+14171517/25000*x^2
+231915717/200000*x-1/9453125/(3+5*x)+268/103984375*ln(3+5*x)-576
4801/15488/(-1+2*x)+79883671/85184*ln(-1+2*x)
```

Maxima [A] time = 1.33321, size = 77, normalized size = 1.01

$$\frac{6561}{500}\,x^5+\frac{168399}{2000}\,x^4+\frac{2626101}{10000}\,x^3+\frac{14171517}{25000}\,x^2+\frac{231915717}{200000}\,x-\frac{2251875390881\,x+1351125234247}{1210000000\,(10\,x^2+x-3)}+\frac{268}{103984375}\,\log(5\,x+3)+\frac{79883671}{85184}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^8/((5*x + 3)^2*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] 6561/500*x^5 + 168399/2000*x^4 + 2626101/10000*x^3 + 14171517/250
00*x^2 + 231915717/200000*x - 1/1210000000*(2251875390881*x + 135
1125234247)/(10*x^2 + x - 3) + 268/103984375*log(5*x + 3) + 79883
671/85184*log(2*x - 1)
```

Fricas [A] time = 0.211009, size = 107, normalized size = 1.41

$$\frac{1746538200000\,x^7+11381607270000\,x^6+35550138195000\,x^5+75582410904000\,x^4+151398804021300\,x^3-72007559860}{133100000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^8/((5*x + 3)^2*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] 1/13310000000*(1746538200000*x^7 + 11381607270000*x^6 + 355501381
95000*x^5 + 75582410904000*x^4 + 151398804021300*x^3 - 7200755986
050*x^2 + 34304*(10*x^2 + x - 3)*log(5*x + 3) + 12481823593750*(1
0*x^2 + x - 3)*log(2*x - 1) - 71072602198741*x - 14862377576717)/
(10*x^2 + x - 3)
```

Sympy [A] time = 0.421417, size = 66, normalized size = 0.87

$$\frac{6561x^5}{500}+\frac{168399x^4}{2000}+\frac{2626101x^3}{10000}+\frac{14171517x^2}{25000}+\frac{231915717x}{200000}-\frac{2251875390881x+1351125234247}{12100000000x^2+1210000000x-3630000000}+\frac{79883671\log\left(x-\frac{1}{2}\right)}{85184}+\frac{268\log\left(x+\frac{3}{5}\right)}{103984375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**8/(1-2*x)**2/(3+5*x)**2,x)
```

```
[Out] 6561*x**5/500 + 168399*x**4/2000 + 2626101*x**3/10000 + 14171517*
x**2/25000 + 231915717*x/200000 - (2251875390881*x + 135112523424
7)/(12100000000*x**2 + 1210000000*x - 3630000000) + 79883671*log(
x - 1/2)/85184 + 268*log(x + 3/5)/103984375
```

GIAC/XCAS [A] time = 0.20915, size = 151, normalized size = 1.99

$$-\frac{(5x+3)^5\left(\frac{1618458732}{5x+3}+\frac{15560361630}{(5x+3)^2}+\frac{171888467850}{(5x+3)^3}+\frac{2836763461125}{(5x+3)^4}-\frac{31204564033975}{(5x+3)^5}+139723056\right)}{16637500000\left(\frac{11}{5x+3}-2\right)}-\frac{1}{9453125(5x+3)}-\frac{4688889417}{5000000}\ln\left(\frac{|5x+3|}{5(5x+3)^2}\right)+\frac{79883671}{85184}\ln\left(\left|-\frac{11}{5x+3}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^8/((5*x + 3)^2*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -1/16637500000*(5*x + 3)^5*(1618458732/(5*x + 3) + 15560361630/(5
*x + 3)^2 + 171888467850/(5*x + 3)^3 + 2836763461125/(5*x + 3)^4
- 31204564033975/(5*x + 3)^5 + 139723056)/(11/(5*x + 3) - 2) - 1/
9453125/(5*x + 3) - 4688889417/5000000*ln(1/5*abs(5*x + 3)/(5*x +
 3)^2) + 79883671/85184*ln(abs(-11/(5*x + 3) + 2))
```

3.1587 $\int \frac{(2+3x)^7}{(1-2x)^2(3+5x)^2} dx$

Optimal. Leaf size=69

$$\frac{2187x^4}{400}+\frac{16281x^3}{500}+\frac{1974861x^2}{20000}+\frac{6156243x}{25000}+\frac{823543}{7744(1-2x)}-\frac{1}{1890625(5x+3)}+\frac{18941489\log(1-2x)}{85184}+\frac{47\log(5x+3)}{4159375}$$

```
[Out] 823543/(7744*(1 - 2*x)) + (6156243*x)/25000 + (1974861*x^2)/20000
 + (16281*x^3)/500 + (2187*x^4)/400 - 1/(1890625*(3 + 5*x)) + (18
941489*Log[1 - 2*x])/85184 + (47*Log[3 + 5*x])/4159375
```

Rubi [A] time = 0.0797241, antiderivative size = 69, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{2187x^4}{400}+\frac{16281x^3}{500}+\frac{1974861x^2}{20000}+\frac{6156243x}{25000}+\frac{823543}{7744(1-2x)}-\frac{1}{1890625(5x+3)}+\frac{18941489\log(1-2x)}{85184}+\frac{47\log(5x+3)}{4159375}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^7/((1 - 2*x)^2*(3 + 5*x)^2),x]
```

```
[Out] 823543/(7744*(1 - 2*x)) + (6156243*x)/25000 + (1974861*x^2)/20000
 + (16281*x^3)/500 + (2187*x^4)/400 - 1/(1890625*(3 + 5*x)) + (18
941489*Log[1 - 2*x])/85184 + (47*Log[3 + 5*x])/4159375
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{2187x^4}{400}+\frac{16281x^3}{500}+\frac{18941489\log(-2x+1)}{85184}+\frac{47\log(5x+3)}{4159375}+\int\frac{6156243}{25000}dx+\frac{1974861\int x\,dx}{10000}-\frac{1}{1890625(5x+3)}+\frac{823543}{7744(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**7/(1-2*x)**2/(3+5*x)**2,x)
```

```
[Out] 2187*x**4/400 + 16281*x**3/500 + 18941489*log(-2*x + 1)/85184 + 4
7*log(5*x + 3)/4159375 + Integral(6156243/25000, x) + 1974861*Int
egral(x, x)/10000 - 1/(1890625*(5*x + 3)) + 823543/(7744*(-2*x +
1))
```

Mathematica [A] time = 0.0645156, size = 74, normalized size = 1.07

$$\frac{-\frac{11(64339297003x+38603578061)}{10x^2+x-3}+89842500(3x+2)^4+886446000(3x+2)^3+7128103950(3x+2)^2+67228064640(3x+2)+2959}{1331000000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^7/((1 - 2*x)^2*(3 + 5*x)^2),x]
```

```
[Out] (67228064640*(2 + 3*x) + 7128103950*(2 + 3*x)^2 + 886446000*(2 +
3*x)^3 + 89842500*(2 + 3*x)^4 - (11*(38603578061 + 64339297003*x)
```

```
)/(-3 + x + 10*x^2) + 295960765625*Log[3 - 6*x] + 15040*Log[-3*(3
 + 5*x)])/1331000000
```

Maple [A] time = 0.016, size = 54, normalized size = 0.8

$$\frac{2187\,x^4}{400}+\frac{16281\,x^3}{500}+\frac{1974861\,x^2}{20000}+\frac{6156243\,x}{25000}-\frac{1}{5671875+9453125\,x}+\frac{47\,\ln(3+5\,x)}{4159375}-\frac{823543}{-7744+15488\,x}+\frac{18941489\,\ln(-1+2\,x)}{85184}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^7/(1-2*x)^2/(3+5*x)^2,x)
```

```
[Out] 2187/400*x^4+16281/500*x^3+1974861/20000*x^2+6156243/25000*x-1/18
90625/(3+5*x)+47/4159375*ln(3+5*x)-823543/7744/(-1+2*x)+18941489/
85184*ln(-1+2*x)
```

Maxima [A] time = 1.32986, size = 70, normalized size = 1.01

$$\frac{2187}{400}\,x^4+\frac{16281}{500}\,x^3+\frac{1974861}{20000}\,x^2+\frac{6156243}{25000}\,x-\frac{64339297003\,x+38603578061}{121000000\,(10\,x^2+x-3)}+\frac{47}{4159375}\,\log(5\,x+3)+\frac{18941489}{85184}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^7/((5*x + 3)^2*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] 2187/400*x^4 + 16281/500*x^3 + 1974861/20000*x^2 + 6156243/25000*
x - 1/121000000*(64339297003*x + 38603578061)/(10*x^2 + x - 3) +
47/4159375*log(5*x + 3) + 18941489/85184*log(2*x - 1)
```

Fricas [A] time = 0.210918, size = 100, normalized size = 1.45

$$\frac{72772425000\,x^6+440677462500\,x^5+1335778290000\,x^4+3278990706750\,x^3-66522621330\,x^2+15040\,(10\,x^2+x-3)\,\log}{1331000000\,(10\,x^2+x-3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^7/((5*x + 3)^2*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] 1/1331000000*(72772425000*x^6 + 440677462500*x^5 + 1335778290000*
x^4 + 3278990706750*x^3 - 66522621330*x^2 + 15040*(10*x^2 + x - 3
)*log(5*x + 3) + 295960765625*(10*x^2 + x - 3)*log(2*x - 1) - 169
1007398993*x - 424639358671)/(10*x^2 + x - 3)
```

Sympy [A] time = 0.414258, size = 60, normalized size = 0.87

$$\frac{2187x^4}{400}+\frac{16281x^3}{500}+\frac{1974861x^2}{20000}+\frac{6156243x}{25000}-\frac{64339297003x+38603578061}{1210000000x^2+121000000x-363000000}+\frac{18941489\log\left(x-\frac{1}{2}\right)}{85184}+\frac{47\log\left(x+\frac{3}{5}\right)}{4159375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**7/(1-2*x)**2/(3+5*x)**2,x)
```

```
[Out] 2187*x**4/400 + 16281*x**3/500 + 1974861*x**2/20000 + 6156243*x/2
5000 - (64339297003*x + 38603578061)/(1210000000*x**2 + 121000000
*x - 363000000) + 18941489*log(x - 1/2)/85184 + 47*log(x + 3/5)/4
159375
```

GIAC/XCAS [A] time = 0.21207, size = 139, normalized size = 2.01

$$-\frac{(5\,x+3)^4\left(\frac{142957386}{5\,x+3}+\frac{1626867990}{(5\,x+3)^2}+\frac{26903695995}{(5\,x+3)^3}-\frac{295961527385}{(5\,x+3)^4}+11643588\right)}{665500000\left(\frac{11}{5\,x+3}-2\right)} - \frac{1}{1890625\,(5\,x+3)} - \frac{44471943}{200000}\ln\left(\frac{|5\,x+3|}{5\,(5\,x+3)^2}\right) + \frac{18941489}{85184}\ln\left(\left|-\frac{11}{5\,x+3}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^7/((5*x + 3)^2*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -1/665500000*(5*x + 3)^4*(142957386/(5*x + 3) + 1626867990/(5*x +
 3)^2 + 26903695995/(5*x + 3)^3 - 295961527385/(5*x + 3)^4 + 1164
3588)/(11/(5*x + 3) - 2) - 1/1890625/(5*x + 3) - 44471943/200000*
ln(1/5*abs(5*x + 3)/(5*x + 3)^2) + 18941489/85184*ln(abs(-11/(5*x
 + 3) + 2))
```

3.1588 $\int \frac{(2+3x)^6}{(1-2x)^2(3+5x)^2}\,dx$

Optimal. Leaf size=62

$$\frac{243x^3}{100}+\frac{13851x^2}{1000}+\frac{473607x}{10000}+\frac{117649}{3872(1-2x)}-\frac{1}{378125(5x+3)}+\frac{67228\log(1-2x)}{1331}+\frac{202\log(5x+3)}{4159375}$$

```
[Out] 117649/(3872*(1 - 2*x)) + (473607*x)/10000 + (13851*x^2)/1000 + (
243*x^3)/100 - 1/(378125*(3 + 5*x)) + (67228*Log[1 - 2*x])/1331 +
 (202*Log[3 + 5*x])/4159375
```

Rubi [A] time = 0.0719885, antiderivative size = 62, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{243x^3}{100}+\frac{13851x^2}{1000}+\frac{473607x}{10000}+\frac{117649}{3872(1-2x)}-\frac{1}{378125(5x+3)}+\frac{67228\log(1-2x)}{1331}+\frac{202\log(5x+3)}{4159375}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^6/((1 - 2*x)^2*(3 + 5*x)^2),x]
```

```
[Out] 117649/(3872*(1 - 2*x)) + (473607*x)/10000 + (13851*x^2)/1000 + (
243*x^3)/100 - 1/(378125*(3 + 5*x)) + (67228*Log[1 - 2*x])/1331 +
 (202*Log[3 + 5*x])/4159375
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{243x^3}{100}+\frac{67228\log(-2x+1)}{1331}+\frac{202\log(5x+3)}{4159375}+\int\frac{473607}{10000}\,dx+\frac{13851\int x\,dx}{500}-\frac{1}{378125\,(5x+3)}+\frac{117649}{3872\,(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**6/(1-2*x)**2/(3+5*x)**2,x)
```

```
[Out] 243*x**3/100 + 67228*log(-2*x + 1)/1331 + 202*log(5*x + 3)/415937
5 + Integral(473607/10000, x) + 13851*Integral(x, x)/500 - 1/(378
125*(5*x + 3)) + 117649/(3872*(-2*x + 1))
```

Mathematica [A] time = 0.0601078, size = 65, normalized size = 1.05

$$\frac{-\frac{11(1838265689x+1102959343)}{10x^2+x-3}+11979000(3x+2)^3+132966900(3x+2)^2+1425620790(3x+2)+6722800000\log(3-6x)+6464}{133100000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^6/((1 - 2*x)^2*(3 + 5*x)^2),x]
```

```
[Out] (1425620790*(2 + 3*x) + 132966900*(2 + 3*x)^2 + 11979000*(2 + 3*x
)^3 - (11*(1102959343 + 1838265689*x))/(-3 + x + 10*x^2) + 672280
0000*Log[3 - 6*x] + 6464*Log[-3*(3 + 5*x)])/133100000
```

Maple [A] time = 0.016, size = 49, normalized size = 0.8

$$\frac{243 x^{3}}{100}+\frac{13851 x^{2}}{1000}+\frac{473607 x}{10000}-\frac{1}{1134375+1890625 x}+\frac{202 \ln (3+5 x)}{4159375}-\frac{117649}{-3872+7744 x}+\frac{67228 \ln (-1+2 x)}{1331}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^6/(1-2*x)^2/(3+5*x)^2,x)
```

```
[Out] 243/100*x^3+13851/1000*x^2+473607/10000*x-1/378125/(3+5*x)+202/41
59375*ln(3+5*x)-117649/3872/(-1+2*x)+67228/1331*ln(-1+2*x)
```

Maxima [A] time = 1.33051, size = 63, normalized size = 1.02

$$\frac{243}{100} x^{3}+\frac{13851}{1000} x^{2}+\frac{473607}{10000} x-\frac{1838265689 x+1102959343}{12100000 (10 x^{2}+x-3)}+\frac{202}{4159375} \log (5 x+3)+\frac{67228}{1331} \log (2 x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^6/((5*x + 3)^2*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] 243/100*x^3 + 13851/1000*x^2 + 473607/10000*x - 1/12100000*(18382
65689*x + 1102959343)/(10*x^2 + x - 3) + 202/4159375*log(5*x + 3)
 + 67228/1331*log(2*x - 1)
```

Fricas [A] time = 0.221225, size = 93, normalized size = 1.5

$$\frac{3234330000 x^{5}+18759114000 x^{4}+63910360800 x^{3}+773004870 x^{2}+6464 \left(10 x^{2}+x-3\right) \log (5 x+3)+6722800000 \left(10 x\right.}{133100000 (10 x^{2}+x-3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^6/((5*x + 3)^2*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] 1/133100000*(3234330000*x^5 + 18759114000*x^4 + 63910360800*x^3 +
 773004870*x^2 + 6464*(10*x^2 + x - 3)*log(5*x + 3) + 6722800000*
(10*x^2 + x - 3)*log(2*x - 1) - 39132050089*x - 12132552773)/(10*
x^2 + x - 3)
```

Sympy [A] time = 0.407629, size = 53, normalized size = 0.85

$$\frac{243x^{3}}{100}+\frac{13851x^{2}}{1000}+\frac{473607x}{10000}-\frac{1838265689x+1102959343}{121000000x^{2}+12100000x-36300000}+\frac{67228 \log \left(x-\frac{1}{2}\right)}{1331}+\frac{202 \log \left(x+\frac{3}{5}\right)}{4159375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**6/(1-2*x)**2/(3+5*x)**2,x)
```

```
[Out] 243*x**3/100 + 13851*x**2/1000 + 473607*x/10000 - (1838265689*x +
 1102959343)/(121000000*x**2 + 12100000*x - 36300000) + 67228*log
(x - 1/2)/1331 + 202*log(x + 3/5)/4159375
```

GIAC/XCAS [A] time = 0.213211, size = 127, normalized size = 2.05

$$-\frac{(5x+3)^3\left(\frac{4528062}{5x+3}+\frac{76330188}{(5x+3)^2}-\frac{840384278}{(5x+3)^3}+323433\right)}{8318750\left(\frac{11}{5x+3}-2\right)}-\frac{1}{378125\,(5x+3)}-\frac{157842}{3125}\ln\left(\frac{|5x+3|}{5\,(5x+3)^2}\right)+\frac{67228}{1331}\ln\left(\left|-\frac{11}{5x+3}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^6/((5*x + 3)^2*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -1/8318750*(5*x + 3)^3*(4528062/(5*x + 3) + 76330188/(5*x + 3)^2
- 840384278/(5*x + 3)^3 + 323433)/(11/(5*x + 3) - 2) - 1/378125/(
5*x + 3) - 157842/3125*ln(1/5*abs(5*x + 3)/(5*x + 3)^2) + 67228/1
331*ln(abs(-11/(5*x + 3) + 2))
```

3.1589 $\int \frac{(2+3x)^5}{(1-2x)^2(3+5x)^2}\,dx$

Optimal. Leaf size=55

$$\frac{243x^2}{200}+\frac{3807x}{500}+\frac{16807}{1936(1-2x)}-\frac{1}{75625(5x+3)}+\frac{228095\log(1-2x)}{21296}+\frac{169\log(5x+3)}{831875}$$

```
[Out] 16807/(1936*(1 - 2*x)) + (3807*x)/500 + (243*x^2)/200 - 1/(75625*
(3 + 5*x)) + (228095*Log[1 - 2*x])/21296 + (169*Log[3 + 5*x])/831
875
```

Rubi [A] time = 0.0659693, antiderivative size = 55, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{243x^2}{200}+\frac{3807x}{500}+\frac{16807}{1936(1-2x)}-\frac{1}{75625(5x+3)}+\frac{228095\log(1-2x)}{21296}+\frac{169\log(5x+3)}{831875}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^5/((1 - 2*x)^2*(3 + 5*x)^2),x]
```

```
[Out] 16807/(1936*(1 - 2*x)) + (3807*x)/500 + (243*x^2)/200 - 1/(75625*
(3 + 5*x)) + (228095*Log[1 - 2*x])/21296 + (169*Log[3 + 5*x])/831
875
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{228095\log(-2x+1)}{21296}+\frac{169\log(5x+3)}{831875}+\int\frac{3807}{500}\,dx+\frac{243\int x\,dx}{100}-\frac{1}{75625(5x+3)}+\frac{16807}{1936(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**5/(1-2*x)**2/(3+5*x)**2,x)
```

```
[Out] 228095*log(-2*x + 1)/21296 + 169*log(5*x + 3)/831875 + Integral(3
807/500, x) + 243*Integral(x, x)/100 - 1/(75625*(5*x + 3)) + 1680
7/(1936*(-2*x + 1))
```

Mathematica [A] time = 0.0500594, size = 56, normalized size = 1.02

$$\frac{-\frac{11(52521907x+31513109)}{10x^2+x-3}+1796850(3x+2)^2+26593380(3x+2)+142559375\log(3-6x)+2704\log(-3(5x+3))}{13310000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^5/((1 - 2*x)^2*(3 + 5*x)^2),x]
```

```
[Out] (26593380*(2 + 3*x) + 1796850*(2 + 3*x)^2 - (11*(31513109 + 52521
907*x))/(-3 + x + 10*x^2) + 142559375*Log[3 - 6*x] + 2704*Log[-3*
(3 + 5*x)])/13310000
```

Maple [A] time = 0.015, size = 44, normalized size = 0.8

$$\frac{243\,x^2}{200}+\frac{3807\,x}{500}-\frac{1}{226875+378125\,x}+\frac{169\,\ln(3+5\,x)}{831875}-\frac{16807}{-1936+3872\,x}+\frac{228095\,\ln(-1+2\,x)}{21296}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^5/(1-2*x)^2/(3+5*x)^2,x)
```

```
[Out] 243/200*x^2+3807/500*x-1/75625/(3+5*x)+169/831875*ln(3+5*x)-16807
/1936/(-1+2*x)+228095/21296*ln(-1+2*x)
```

Maxima [A] time = 1.37529, size = 57, normalized size = 1.04

$$\frac{243}{200}\,x^2+\frac{3807}{500}\,x-\frac{52521907\,x+31513109}{1210000\,(10\,x^2+x-3)}+\frac{169}{831875}\,\log\left(5\,x+3\right)+\frac{228095}{21296}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^5/((5*x + 3)^2*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] 243/200*x^2 + 3807/500*x - 1/1210000*(52521907*x + 31513109)/(10*
x^2 + x - 3) + 169/831875*log(5*x + 3) + 228095/21296*log(2*x - 1
)
```

Fricas [A] time = 0.214042, size = 86, normalized size = 1.56

$$\frac{161716500\,x^4+1029595050\,x^3+52827390\,x^2+2704\,\left(10\,x^2+x-3\right)\,\log\left(5\,x+3\right)+142559375\,\left(10\,x^2+x-3\right)\,\log\left(2\,x-1\right)}{13310000\,(10\,x^2+x-3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^5/((5*x + 3)^2*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] 1/13310000*(161716500*x^4 + 1029595050*x^3 + 52827390*x^2 + 2704*
(10*x^2 + x - 3)*log(5*x + 3) + 142559375*(10*x^2 + x - 3)*log(2*
x - 1) - 881767997*x - 346644199)/(10*x^2 + x - 3)
```

Sympy [A] time = 0.398456, size = 46, normalized size = 0.84

$$\frac{243x^2}{200}+\frac{3807x}{500}-\frac{52521907x+31513109}{12100000x^2+1210000x-3630000}+\frac{228095\log\left(x-\frac{1}{2}\right)}{21296}+\frac{169\log\left(x+\frac{3}{5}\right)}{831875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**5/(1-2*x)**2/(3+5*x)**2,x)
```

```
[Out] 243*x**2/200 + 3807*x/500 - (52521907*x + 31513109)/(12100000*x**
2 + 1210000*x - 3630000) + 228095*log(x - 1/2)/21296 + 169*log(x
+ 3/5)/831875
```

GIAC/XCAS [A] time = 0.210546, size = 115, normalized size = 2.09

$$-\frac{(5\,x+3)^2\left(\frac{12829509}{5\,x+3}-\frac{142651871}{(5\,x+3)^2}+646866\right)}{6655000\left(\frac{11}{5\,x+3}-2\right)}-\frac{1}{75625\,(5\,x+3)}-\frac{107109}{10000}\,\ln\left(\frac{|5\,x+3|}{5\,(5\,x+3)^2}\right)+\frac{228095}{21296}\,\ln\left(\left|-\frac{11}{5\,x+3}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/((5*x + 3)^2*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -1/6655000*(5*x + 3)^2*(12829509/(5*x + 3) - 142651871/(5*x + 3)^
2 + 646866)/(11/(5*x + 3) - 2) - 1/75625/(5*x + 3) - 107109/10000
*ln(1/5*abs(5*x + 3)/(5*x + 3)^2) + 228095/21296*ln(abs(-11/(5*x
+ 3) + 2))
```

3.1590 $\int \frac{(2+3x)^4}{(1-2x)^2(3+5x)^2}\,dx$

Optimal. Leaf size=48

$$\frac{81x}{100}+\frac{2401}{968(1-2x)}-\frac{1}{15125(5x+3)}+\frac{10633\log(1-2x)}{5324}+\frac{136\log(5x+3)}{166375}$$

```
[Out] 2401/(968*(1 - 2*x)) + (81*x)/100 - 1/(15125*(3 + 5*x)) + (10633*
Log[1 - 2*x])/5324 + (136*Log[3 + 5*x])/166375
```

Rubi [A] time = 0.0568725, antiderivative size = 48, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{81x}{100}+\frac{2401}{968(1-2x)}-\frac{1}{15125(5x+3)}+\frac{10633\log(1-2x)}{5324}+\frac{136\log(5x+3)}{166375}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^4/((1 - 2*x)^2*(3 + 5*x)^2),x]
```

```
[Out] 2401/(968*(1 - 2*x)) + (81*x)/100 - 1/(15125*(3 + 5*x)) + (10633*
Log[1 - 2*x])/5324 + (136*Log[3 + 5*x])/166375
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{10633\log\left(-2x+1\right)}{5324}+\frac{136\log\left(5x+3\right)}{166375}+\int\frac{81}{100}\,dx-\frac{1}{15125\left(5x+3\right)}+\frac{2401}{968\left(-2x+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4/(1-2*x)**2/(3+5*x)**2,x)
```

```
[Out] 10633*log(-2*x + 1)/5324 + 136*log(5*x + 3)/166375 + Integral(81/
100, x) - 1/(15125*(5*x + 3)) + 2401/(968*(-2*x + 1))
```

Mathematica [A] time = 0.0564181, size = 47, normalized size = 0.98

$$\frac{-\frac{11(1500641x+900367)}{10x^2+x-3}+359370(3x+2)+2658250\log(3-6x)+1088\log(-3(5x+3))}{1331000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^4/((1 - 2*x)^2*(3 + 5*x)^2),x]
```

```
[Out] (359370*(2 + 3*x) - (11*(900367 + 1500641*x))/(-3 + x + 10*x^2) +
 2658250*Log[3 - 6*x] + 1088*Log[-3*(3 + 5*x)])/1331000
```

Maple [A] time = 0.014, size = 39, normalized size = 0.8

$$\frac{81\,x}{100}-\frac{1}{45375+75625\,x}+\frac{136\,\ln\left(3+5\,x\right)}{166375}-\frac{2401}{-968+1936\,x}+\frac{10633\,\ln\left(-1+2\,x\right)}{5324}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4/(1-2*x)^2/(3+5*x)^2,x)
```

```
[Out] 81/100*x-1/15125/(3+5*x)+136/166375*ln(3+5*x)-2401/968/(-1+2*x)+1
0633/5324*ln(-1+2*x)
```

Maxima [A] time = 1.35707, size = 50, normalized size = 1.04

$$\frac{81}{100}\,x - \frac{1500641\,x + 900367}{121000\,(10\,x^2 + x - 3)} + \frac{136}{166375}\,\log\left(5\,x + 3\right) + \frac{10633}{5324}\,\log\left(2\,x - 1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^4/((5*x + 3)^2*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] 81/100*x - 1/121000*(1500641*x + 900367)/(10*x^2 + x - 3) + 136/1
66375*log(5*x + 3) + 10633/5324*log(2*x - 1)
```

Fricas [A] time = 0.21401, size = 80, normalized size = 1.67

$$\frac{10781100\,x^3 + 1078110\,x^2 + 1088\left(10\,x^2 + x - 3\right)\log\left(5\,x + 3\right) + 2658250\left(10\,x^2 + x - 3\right)\log\left(2\,x - 1\right) - 19741381\,x - 99040}{1331000\,(10\,x^2 + x - 3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^4/((5*x + 3)^2*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] 1/1331000*(10781100*x^3 + 1078110*x^2 + 1088*(10*x^2 + x - 3)*log
(5*x + 3) + 2658250*(10*x^2 + x - 3)*log(2*x - 1) - 19741381*x -
9904037)/(10*x^2 + x - 3)
```

Sympy [A] time = 0.387603, size = 39, normalized size = 0.81

$$\frac{81x}{100} - \frac{1500641x + 900367}{1210000x^2 + 121000x - 363000} + \frac{10633\log\left(x - \frac{1}{2}\right)}{5324} + \frac{136\log\left(x + \frac{3}{5}\right)}{166375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4/(1-2*x)**2/(3+5*x)**2,x)
```

```
[Out] 81*x/100 - (1500641*x + 900367)/(1210000*x**2 + 121000*x - 363000
) + 10633*log(x - 1/2)/5324 + 136*log(x + 3/5)/166375
```

GIAC/XCAS [A] time = 0.206504, size = 100, normalized size = 2.08

$$\frac{(5\,x + 3)\left(\frac{1343273}{5\,x+3} - 107811\right)}{332750\left(\frac{11}{5\,x+3} - 2\right)} - \frac{1}{15125\,(5\,x + 3)} - \frac{999}{500}\ln\left(\frac{|5\,x + 3|}{5\,(5\,x + 3)^2}\right) + \frac{10633}{5324}\ln\left(\left|-\frac{11}{5\,x + 3} + 2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4/((5*x + 3)^2*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] 1/332750*(5*x + 3)*(1343273/(5*x + 3) - 107811)/(11/(5*x + 3) - 2
) - 1/15125/(5*x + 3) - 999/500*ln(1/5*abs(5*x + 3)/(5*x + 3)^2)
+ 10633/5324*ln(abs(-11/(5*x + 3) + 2))
```

3.1591 $\int \frac{(2+3x)^3}{(1-2x)^2(3+5x)^2}\,dx$

Optimal. Leaf size=43

$$\frac{343}{484(1-2x)}-\frac{1}{3025(5x+3)}+\frac{1421\log(1-2x)}{5324}+\frac{103\log(5x+3)}{33275}$$

```
[Out] 343/(484*(1 - 2*x)) - 1/(3025*(3 + 5*x)) + (1421*Log[1 - 2*x])/53
24 + (103*Log[3 + 5*x])/33275
```

Rubi [A] time = 0.0517025, antiderivative size = 43, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{343}{484(1-2x)}-\frac{1}{3025(5x+3)}+\frac{1421\log(1-2x)}{5324}+\frac{103\log(5x+3)}{33275}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^3/((1 - 2*x)^2*(3 + 5*x)^2),x]
```

```
[Out] 343/(484*(1 - 2*x)) - 1/(3025*(3 + 5*x)) + (1421*Log[1 - 2*x])/53
24 + (103*Log[3 + 5*x])/33275
```

Rubi in Sympy [A] time = 7.7456, size = 32, normalized size = 0.74

$$\frac{1421\log(-2x+1)}{5324}+\frac{103\log(5x+3)}{33275}-\frac{1}{3025(5x+3)}+\frac{343}{484(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3/(1-2*x)**2/(3+5*x)**2,x)
```

```
[Out] 1421*log(-2*x + 1)/5324 + 103*log(5*x + 3)/33275 - 1/(3025*(5*x +
 3)) + 343/(484*(-2*x + 1))
```

Mathematica [A] time = 0.035688, size = 40, normalized size = 0.93

$$\frac{-\frac{11(42883x+25721)}{10x^2+x-3}+35525\log(3-6x)+412\log(-3(5x+3))}{133100}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^3/((1 - 2*x)^2*(3 + 5*x)^2),x]
```

```
[Out] ((-11*(25721 + 42883*x))/(-3 + x + 10*x^2) + 35525*Log[3 - 6*x] +
 412*Log[-3*(3 + 5*x)])/133100
```

Maple [A] time = 0.014, size = 36, normalized size = 0.8

$$-\frac{1}{9075+15125x}+\frac{103\ln(3+5x)}{33275}-\frac{343}{-484+968x}+\frac{1421\ln(-1+2x)}{5324}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3/(1-2*x)^2/(3+5*x)^2,x)
```

```
[Out] -1/3025/(3+5*x)+103/33275*ln(3+5*x)-343/484/(-1+2*x)+1421/5324*ln
(-1+2*x)
```

Maxima [A] time = 1.31818, size = 46, normalized size = 1.07

$$-\frac{42883\,x+25721}{12100\,(10\,x^2+x-3)}+\frac{103}{33275}\,\log\left(5\,x+3\right)+\frac{1421}{5324}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3/((5*x + 3)^2*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] -1/12100*(42883*x + 25721)/(10*x^2 + x - 3) + 103/33275*log(5*x +
 3) + 1421/5324*log(2*x - 1)
```

Fricas [A] time = 0.204399, size = 66, normalized size = 1.53

$$\frac{412\,\left(10\,x^2+x-3\right)\,\log\left(5\,x+3\right)+35525\,\left(10\,x^2+x-3\right)\,\log\left(2\,x-1\right)-471713\,x-282931}{133100\,(10\,x^2+x-3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3/((5*x + 3)^2*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] 1/133100*(412*(10*x^2 + x - 3)*log(5*x + 3) + 35525*(10*x^2 + x -
 3)*log(2*x - 1) - 471713*x - 282931)/(10*x^2 + x - 3)
```

Sympy [A] time = 0.380029, size = 34, normalized size = 0.79

$$-\frac{42883x+25721}{121000x^2+12100x-36300}+\frac{1421\log\left(x-\frac{1}{2}\right)}{5324}+\frac{103\log\left(x+\frac{3}{5}\right)}{33275}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3/(1-2*x)**2/(3+5*x)**2,x)
```

```
[Out] -(42883*x + 25721)/(121000*x**2 + 12100*x - 36300) + 1421*log(x -
 1/2)/5324 + 103*log(x + 3/5)/33275
```

GIAC/XCAS [A] time = 0.208369, size = 78, normalized size = 1.81

$$-\frac{1}{3025\,(5\,x+3)}+\frac{1715}{2662\,\left(\frac{11}{5\,x+3}-2\right)}-\frac{27}{100}\ln\left(\frac{|5\,x+3|}{5\,(5\,x+3)^2}\right)+\frac{1421}{5324}\ln\left(\left|-\frac{11}{5\,x+3}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3/((5*x + 3)^2*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -1/3025/(5*x + 3) + 1715/2662/(11/(5*x + 3) - 2) - 27/100*ln(1/5*
abs(5*x + 3)/(5*x + 3)^2) + 1421/5324*ln(abs(-11/(5*x + 3) + 2))
```

3.1592 $\int \frac{(2+3x)^2}{(1-2x)^2(3+5x)^2} \, dx$

Optimal. Leaf size=43

$$\frac{49}{242(1-2x)}-\frac{1}{605(5x+3)}-\frac{14\log(1-2x)}{1331}+\frac{14\log(5x+3)}{1331}$$

```
[Out] 49/(242*(1 - 2*x)) - 1/(605*(3 + 5*x)) - (14*Log[1 - 2*x])/1331 +
 (14*Log[3 + 5*x])/1331
```

Rubi [A] time = 0.0533914, antiderivative size = 43, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{49}{242(1-2x)}-\frac{1}{605(5x+3)}-\frac{14\log(1-2x)}{1331}+\frac{14\log(5x+3)}{1331}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^2/((1 - 2*x)^2*(3 + 5*x)^2),x]
```

```
[Out] 49/(242*(1 - 2*x)) - 1/(605*(3 + 5*x)) - (14*Log[1 - 2*x])/1331 +
 (14*Log[3 + 5*x])/1331
```

Rubi in Sympy [A] time = 7.79605, size = 32, normalized size = 0.74

$$-\frac{14\log\left(-2x+1\right)}{1331}+\frac{14\log\left(5x+3\right)}{1331}-\frac{1}{605\left(5x+3\right)}+\frac{49}{242\left(-2x+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2/(1-2*x)**2/(3+5*x)**2,x)
```

```
[Out] -14*log(-2*x + 1)/1331 + 14*log(5*x + 3)/1331 - 1/(605*(5*x + 3))
 + 49/(242*(-2*x + 1))
```

Mathematica [A] time = 0.0421475, size = 38, normalized size = 0.88

$$\frac{-\frac{11(1229x+733)}{10x^2+x-3}+140\log(-5x-3)-140\log(1-2x)}{13310}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^2/((1 - 2*x)^2*(3 + 5*x)^2),x]
```

```
[Out] ((-11*(733 + 1229*x))/(-3 + x + 10*x^2) + 140*Log[-3 - 5*x] - 140
*Log[1 - 2*x])/13310
```

Maple [A] time = 0.013, size = 36, normalized size = 0.8

$$-\frac{1}{1815+3025\,x}+\frac{14\,\ln\left(3+5\,x\right)}{1331}-\frac{49}{-242+484\,x}-\frac{14\,\ln\left(-1+2\,x\right)}{1331}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2/(1-2*x)^2/(3+5*x)^2,x)
```

```
[Out] -1/605/(3+5*x)+14/1331*ln(3+5*x)-49/242/(-1+2*x)-14/1331*ln(-1+2*
x)
```

Maxima [A] time = 1.35548, size = 46, normalized size = 1.07

$$-\frac{1229\,x+733}{1210\,(10\,x^2+x-3)}+\frac{14}{1331}\,\log\left(5\,x+3\right)-\frac{14}{1331}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2/((5*x + 3)^2*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] -1/1210*(1229*x + 733)/(10*x^2 + x - 3) + 14/1331*log(5*x + 3) -
14/1331*log(2*x - 1)
```

Fricas [A] time = 0.204815, size = 66, normalized size = 1.53

$$\frac{140\,\left(10\,x^2+x-3\right)\,\log\left(5\,x+3\right)-140\,\left(10\,x^2+x-3\right)\,\log\left(2\,x-1\right)-13519\,x-8063}{13310\,(10\,x^2+x-3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2/((5*x + 3)^2*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] 1/13310*(140*(10*x^2 + x - 3)*log(5*x + 3) - 140*(10*x^2 + x - 3)
*log(2*x - 1) - 13519*x - 8063)/(10*x^2 + x - 3)
```

Sympy [A] time = 0.319484, size = 34, normalized size = 0.79

$$-\frac{1229x+733}{12100x^2+1210x-3630}-\frac{14\log\left(x-\frac{1}{2}\right)}{1331}+\frac{14\log\left(x+\frac{3}{5}\right)}{1331}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2/(1-2*x)**2/(3+5*x)**2,x)
```

```
[Out] -(1229*x + 733)/(12100*x**2 + 1210*x - 3630) - 14*log(x - 1/2)/13
31 + 14*log(x + 3/5)/1331
```

GIAC/XCAS [A] time = 0.205483, size = 54, normalized size = 1.26

$$-\frac{1}{605\,(5\,x+3)}+\frac{245}{1331\,\left(\frac{11}{5\,x+3}-2\right)}-\frac{14}{1331}\ln\left(\left|-\frac{11}{5\,x+3}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2/((5*x + 3)^2*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -1/605/(5*x + 3) + 245/1331/(11/(5*x + 3) - 2) - 14/1331*ln(abs(-
11/(5*x + 3) + 2))
```

3.1593 $\int \frac{2+3x}{(1-2x)^2(3+5x)^2}\,dx$

Optimal. Leaf size=43

$$\frac{7}{121(1-2x)}-\frac{1}{121(5x+3)}-\frac{37\log(1-2x)}{1331}+\frac{37\log(5x+3)}{1331}$$

```
[Out] 7/(121*(1 - 2*x)) - 1/(121*(3 + 5*x)) - (37*Log[1 - 2*x])/1331 +
(37*Log[3 + 5*x])/1331
```

Rubi [A] time = 0.0466695, antiderivative size = 43, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{7}{121(1-2x)}-\frac{1}{121(5x+3)}-\frac{37\log(1-2x)}{1331}+\frac{37\log(5x+3)}{1331}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)/((1 - 2*x)^2*(3 + 5*x)^2),x]
```

```
[Out] 7/(121*(1 - 2*x)) - 1/(121*(3 + 5*x)) - (37*Log[1 - 2*x])/1331 +
(37*Log[3 + 5*x])/1331
```

Rubi in Sympy [A] time = 7.3502, size = 32, normalized size = 0.74

$$-\frac{37\log(-2x+1)}{1331}+\frac{37\log(5x+3)}{1331}-\frac{1}{121(5x+3)}+\frac{7}{121(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)/(1-2*x)**2/(3+5*x)**2,x)
```

```
[Out] -37*log(-2*x + 1)/1331 + 37*log(5*x + 3)/1331 - 1/(121*(5*x + 3))
 + 7/(121*(-2*x + 1))
```

Mathematica [A] time = 0.0288538, size = 40, normalized size = 0.93

$$\frac{-37x-20}{121(10x^2+x-3)}-\frac{37\log(1-2x)}{1331}+\frac{37\log(5x+3)}{1331}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)/((1 - 2*x)^2*(3 + 5*x)^2),x]
```

```
[Out] (-20 - 37*x)/(121*(-3 + x + 10*x^2)) - (37*Log[1 - 2*x])/1331 + (
37*Log[3 + 5*x])/1331
```

Maple [A] time = 0.013, size = 36, normalized size = 0.8

$$-\frac{1}{363+605x}+\frac{37\ln(3+5x)}{1331}-\frac{7}{-121+242x}-\frac{37\ln(-1+2x)}{1331}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)/(1-2*x)^2/(3+5*x)^2,x)
```

```
[Out] -1/121/(3+5*x)+37/1331*ln(3+5*x)-7/121/(-1+2*x)-37/1331*ln(-1+2*x
)
```

Maxima [A] time = 1.3486, size = 46, normalized size = 1.07

$$-\frac{37\,x+20}{121\,(10\,x^2+x-3)}+\frac{37}{1331}\,\log\left(5\,x+3\right)-\frac{37}{1331}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)/((5*x + 3)^2*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] -1/121*(37*x + 20)/(10*x^2 + x - 3) + 37/1331*log(5*x + 3) - 37/1
331*log(2*x - 1)
```

Fricas [A] time = 0.204272, size = 66, normalized size = 1.53

$$\frac{37\left(10\,x^2+x-3\right)\log\left(5\,x+3\right)-37\left(10\,x^2+x-3\right)\log\left(2\,x-1\right)-407\,x-220}{1331\,(10\,x^2+x-3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)/((5*x + 3)^2*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] 1/1331*(37*(10*x^2 + x - 3)*log(5*x + 3) - 37*(10*x^2 + x - 3)*lo
g(2*x - 1) - 407*x - 220)/(10*x^2 + x - 3)
```

Sympy [A] time = 0.297972, size = 34, normalized size = 0.79

$$-\frac{37x+20}{1210x^2+121x-363}-\frac{37\log\left(x-\frac{1}{2}\right)}{1331}+\frac{37\log\left(x+\frac{3}{5}\right)}{1331}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)/(1-2*x)**2/(3+5*x)**2,x)
```

```
[Out] -(37*x + 20)/(1210*x**2 + 121*x - 363) - 37*log(x - 1/2)/1331 + 3
7*log(x + 3/5)/1331
```

GIAC/XCAS [A] time = 0.209757, size = 54, normalized size = 1.26

$$-\frac{1}{121\,(5\,x+3)}+\frac{70}{1331\left(\frac{11}{5\,x+3}-2\right)}-\frac{37}{1331}\ln\left(\left|-\frac{11}{5\,x+3}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)/((5*x + 3)^2*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -1/121/(5*x + 3) + 70/1331/(11/(5*x + 3) - 2) - 37/1331*ln(abs(-1
1/(5*x + 3) + 2))
```

3.1594 $\int \frac{1}{(1-2x)^2(3+5x)^2}\,dx$

Optimal. Leaf size=43

$$\frac{2}{121(1-2x)}-\frac{5}{121(5x+3)}-\frac{20\log(1-2x)}{1331}+\frac{20\log(5x+3)}{1331}$$

```
[Out] 2/(121*(1 - 2*x)) - 5/(121*(3 + 5*x)) - (20*Log[1 - 2*x])/1331 +
(20*Log[3 + 5*x])/1331
```

Rubi [A] time = 0.0398206, antiderivative size = 43, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.067

$$\frac{2}{121(1-2x)}-\frac{5}{121(5x+3)}-\frac{20\log(1-2x)}{1331}+\frac{20\log(5x+3)}{1331}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^2*(3 + 5*x)^2),x]
```

```
[Out] 2/(121*(1 - 2*x)) - 5/(121*(3 + 5*x)) - (20*Log[1 - 2*x])/1331 +
(20*Log[3 + 5*x])/1331
```

Rubi in Sympy [A] time = 6.2864, size = 32, normalized size = 0.74

$$-\frac{20\log(-2x+1)}{1331}+\frac{20\log(5x+3)}{1331}-\frac{5}{121(5x+3)}+\frac{2}{121(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**2/(3+5*x)**2,x)
```

```
[Out] -20*log(-2*x + 1)/1331 + 20*log(5*x + 3)/1331 - 5/(121*(5*x + 3))
 + 2/(121*(-2*x + 1))
```

Mathematica [A] time = 0.0245718, size = 40, normalized size = 0.93

$$\frac{-20x-1}{121(10x^2+x-3)}-\frac{20\log(1-2x)}{1331}+\frac{20\log(5x+3)}{1331}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^2*(3 + 5*x)^2),x]
```

```
[Out] (-1 - 20*x)/(121*(-3 + x + 10*x^2)) - (20*Log[1 - 2*x])/1331 + (2
0*Log[3 + 5*x])/1331
```

Maple [A] time = 0.013, size = 36, normalized size = 0.8

$$-\frac{5}{363+605x}+\frac{20\ln(3+5x)}{1331}-\frac{2}{-121+242x}-\frac{20\ln(-1+2x)}{1331}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^2/(3+5*x)^2,x)
```

```
[Out] -5/121/(3+5*x)+20/1331*ln(3+5*x)-2/121/(-1+2*x)-20/1331*ln(-1+2*x
)
```

Maxima [A] time = 1.34429, size = 46, normalized size = 1.07

$$-\frac{20\,x+1}{121\,(10\,x^2+x-3)}+\frac{20}{1331}\,\log\left(5\,x+3\right)-\frac{20}{1331}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^2*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] -1/121*(20*x + 1)/(10*x^2 + x - 3) + 20/1331*log(5*x + 3) - 20/13
31*log(2*x - 1)
```

Fricas [A] time = 0.200082, size = 66, normalized size = 1.53

$$\frac{20\,\left(10\,x^2+x-3\right)\,\log\left(5\,x+3\right)-20\,\left(10\,x^2+x-3\right)\,\log\left(2\,x-1\right)-220\,x-11}{1331\,(10\,x^2+x-3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^2*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] 1/1331*(20*(10*x^2 + x - 3)*log(5*x + 3) - 20*(10*x^2 + x - 3)*lo
g(2*x - 1) - 220*x - 11)/(10*x^2 + x - 3)
```

Sympy [A] time = 0.308496, size = 34, normalized size = 0.79

$$-\frac{20x+1}{1210x^2+121x-363}-\frac{20\log\left(x-\frac{1}{2}\right)}{1331}+\frac{20\log\left(x+\frac{3}{5}\right)}{1331}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**2/(3+5*x)**2,x)
```

```
[Out] -(20*x + 1)/(1210*x**2 + 121*x - 363) - 20*log(x - 1/2)/1331 + 20
*log(x + 3/5)/1331
```

GIAC/XCAS [A] time = 0.205632, size = 54, normalized size = 1.26

$$-\frac{5}{121\,(5\,x+3)}+\frac{20}{1331\,\left(\frac{11}{5\,x+3}-2\right)}-\frac{20}{1331}\ln\left(\left|-\frac{11}{5\,x+3}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^2*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -5/121/(5*x + 3) + 20/1331/(11/(5*x + 3) - 2) - 20/1331*ln(abs(-1
1/(5*x + 3) + 2))
```

3.1595 $\int \frac{1}{(1-2x)^2(2+3x)(3+5x)^2}\,dx$

Optimal. Leaf size=53

$$\frac{4}{847(1-2x)}-\frac{25}{121(5x+3)}-\frac{412\log(1-2x)}{65219}+\frac{27}{49}\log(3x+2)-\frac{725\log(5x+3)}{1331}$$

```
[Out] 4/(847*(1 - 2*x)) - 25/(121*(3 + 5*x)) - (412*Log[1 - 2*x])/65219
 + (27*Log[2 + 3*x])/49 - (725*Log[3 + 5*x])/1331
```

Rubi [A] time = 0.0623055, antiderivative size = 53, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{4}{847(1-2x)}-\frac{25}{121(5x+3)}-\frac{412\log(1-2x)}{65219}+\frac{27}{49}\log(3x+2)-\frac{725\log(5x+3)}{1331}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^2*(2 + 3*x)*(3 + 5*x)^2),x]
```

```
[Out] 4/(847*(1 - 2*x)) - 25/(121*(3 + 5*x)) - (412*Log[1 - 2*x])/65219
 + (27*Log[2 + 3*x])/49 - (725*Log[3 + 5*x])/1331
```

Rubi in Sympy [A] time = 8.79424, size = 42, normalized size = 0.79

$$-\frac{412\log(-2x+1)}{65219}+\frac{27\log(3x+2)}{49}-\frac{725\log(5x+3)}{1331}-\frac{25}{121(5x+3)}+\frac{4}{847(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**2/(2+3*x)/(3+5*x)**2,x)
```

```
[Out] -412*log(-2*x + 1)/65219 + 27*log(3*x + 2)/49 - 725*log(5*x + 3)/
1331 - 25/(121*(5*x + 3)) + 4/(847*(-2*x + 1))
```

Mathematica [A] time = 0.0574241, size = 48, normalized size = 0.91

$$\frac{-\frac{77(370x-163)}{10x^2+x-3}-412\log(3-6x)+35937\log(3x+2)-35525\log(-3(5x+3))}{65219}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^2*(2 + 3*x)*(3 + 5*x)^2),x]
```

```
[Out] ((-77*(-163 + 370*x))/(-3 + x + 10*x^2) - 412*Log[3 - 6*x] + 3593
7*Log[2 + 3*x] - 35525*Log[-3*(3 + 5*x)])/65219
```

Maple [A] time = 0.017, size = 44, normalized size = 0.8

$$-\frac{25}{363+605x}-\frac{725\ln(3+5x)}{1331}+\frac{27\ln(2+3x)}{49}-\frac{4}{-847+1694x}-\frac{412\ln(-1+2x)}{65219}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^2/(2+3*x)/(3+5*x)^2,x)
```

```
[Out] -25/121/(3+5*x)-725/1331*ln(3+5*x)+27/49*ln(2+3*x)-4/847/(-1+2*x)
-412/65219*ln(-1+2*x)
```

Maxima [A] time = 1.34895, size = 57, normalized size = 1.08

$$-\frac{370\,x-163}{847\,(10\,x^2+x-3)}-\frac{725}{1331}\,\log\left(5\,x+3\right)+\frac{27}{49}\,\log\left(3\,x+2\right)-\frac{412}{65219}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^2*(3*x + 2)*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] -1/847*(370*x - 163)/(10*x^2 + x - 3) - 725/1331*log(5*x + 3) + 2
7/49*log(3*x + 2) - 412/65219*log(2*x - 1)
```

Fricas [A] time = 0.219165, size = 88, normalized size = 1.66

$$-\frac{35525\left(10\,x^2+x-3\right)\log\left(5\,x+3\right)-35937\left(10\,x^2+x-3\right)\log\left(3\,x+2\right)+412\left(10\,x^2+x-3\right)\log\left(2\,x-1\right)+28490\,x-125}{65219\,(10\,x^2+x-3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^2*(3*x + 2)*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] -1/65219*(35525*(10*x^2 + x - 3)*log(5*x + 3) - 35937*(10*x^2 + x
 - 3)*log(3*x + 2) + 412*(10*x^2 + x - 3)*log(2*x - 1) + 28490*x
- 12551)/(10*x^2 + x - 3)
```

Sympy [A] time = 0.470787, size = 44, normalized size = 0.83

$$-\frac{370x-163}{8470x^2+847x-2541}-\frac{412\log\left(x-\frac{1}{2}\right)}{65219}-\frac{725\log\left(x+\frac{3}{5}\right)}{1331}+\frac{27\log\left(x+\frac{2}{3}\right)}{49}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**2/(2+3*x)/(3+5*x)**2,x)
```

```
[Out] -(370*x - 163)/(8470*x**2 + 847*x - 2541) - 412*log(x - 1/2)/6521
9 - 725*log(x + 3/5)/1331 + 27*log(x + 2/3)/49
```

GIAC/XCAS [A] time = 0.212083, size = 74, normalized size = 1.4

$$-\frac{25}{121\,(5\,x+3)}+\frac{40}{9317\left(\frac{11}{5\,x+3}-2\right)}+\frac{27}{49}\ln\left(\left|-\frac{1}{5\,x+3}-3\right|\right)-\frac{412}{65219}\ln\left(\left|-\frac{11}{5\,x+3}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^2*(3*x + 2)*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -25/121/(5*x + 3) + 40/9317/(11/(5*x + 3) - 2) + 27/49*ln(abs(-1/
(5*x + 3) - 3)) - 412/65219*ln(abs(-11/(5*x + 3) + 2))
```

3.1596 $\int \frac{1}{(1-2x)^2(2+3x)^2(3+5x)^2}\,dx$

Optimal. Leaf size=64

$$\frac{8}{5929(1-2x)}-\frac{27}{49(3x+2)}-\frac{125}{121(5x+3)}-\frac{1088\log(1-2x)}{456533}+\frac{1998}{343}\log(3x+2)-\frac{7750\log(5x+3)}{1331}$$

```
[Out] 8/(5929*(1 - 2*x)) - 27/(49*(2 + 3*x)) - 125/(121*(3 + 5*x)) - (1
088*Log[1 - 2*x])/456533 + (1998*Log[2 + 3*x])/343 - (7750*Log[3
+ 5*x])/1331
```

Rubi [A] time = 0.0742677, antiderivative size = 64, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{8}{5929(1-2x)}-\frac{27}{49(3x+2)}-\frac{125}{121(5x+3)}-\frac{1088\log(1-2x)}{456533}+\frac{1998}{343}\log(3x+2)-\frac{7750\log(5x+3)}{1331}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^2*(2 + 3*x)^2*(3 + 5*x)^2),x]
```

```
[Out] 8/(5929*(1 - 2*x)) - 27/(49*(2 + 3*x)) - 125/(121*(3 + 5*x)) - (1
088*Log[1 - 2*x])/456533 + (1998*Log[2 + 3*x])/343 - (7750*Log[3
+ 5*x])/1331
```

Rubi in Sympy [A] time = 10.0683, size = 49, normalized size = 0.77

$$-\frac{1088\log(-2x+1)}{456533}+\frac{1998\log(3x+2)}{343}-\frac{7750\log(5x+3)}{1331}-\frac{125}{121(5x+3)}-\frac{27}{49(3x+2)}+\frac{8}{5929(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**2/(2+3*x)**2/(3+5*x)**2,x)
```

```
[Out] -1088*log(-2*x + 1)/456533 + 1998*log(3*x + 2)/343 - 7750*log(5*x
 + 3)/1331 - 125/(121*(5*x + 3)) - 27/(49*(3*x + 2)) + 8/(5929*(-
2*x + 1))
```

Mathematica [A] time = 0.088955, size = 59, normalized size = 0.92

$$\frac{2\left(-544\log(1-2x)+1329669\log(6x+4)+7\left(\frac{44}{1-2x}-\frac{35937}{6x+4}-\frac{67375}{10x+6}-189875\log(10x+6)\right)\right)}{456533}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^2*(2 + 3*x)^2*(3 + 5*x)^2),x]
```

```
[Out] (2*(-544*Log[1 - 2*x] + 1329669*Log[4 + 6*x] + 7*(44/(1 - 2*x) -
35937/(4 + 6*x) - 67375/(6 + 10*x) - 189875*Log[6 + 10*x])))/4565
33
```

Maple [A] time = 0.019, size = 53, normalized size = 0.8

$$-\frac{125}{363+605\,x}-\frac{7750\,\ln(3+5\,x)}{1331}-\frac{27}{98+147\,x}+\frac{1998\,\ln(2+3\,x)}{343}-\frac{8}{-5929+11858\,x}-\frac{1088\,\ln(-1+2\,x)}{456533}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^2/(2+3*x)^2/(3+5*x)^2,x)
```

```
[Out] -125/121/(3+5*x)-7750/1331*ln(3+5*x)-27/49/(2+3*x)+1998/343*ln(2+
3*x)-8/5929/(-1+2*x)-1088/456533*ln(-1+2*x)
```

Maxima [A] time = 1.35209, size = 73, normalized size = 1.14

$$-\frac{69540 x^2 + 9544 x - 22003}{5929 \left(30 x^3 + 23 x^2 - 7 x - 6\right)} - \frac{7750}{1331} \log\left(5 x + 3\right) + \frac{1998}{343} \log\left(3 x + 2\right) - \frac{1088}{456533} \log\left(2 x - 1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^2*(3*x + 2)^2*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] -1/5929*(69540*x^2 + 9544*x - 22003)/(30*x^3 + 23*x^2 - 7*x - 6)
- 7750/1331*log(5*x + 3) + 1998/343*log(3*x + 2) - 1088/456533*lo
g(2*x - 1)
```

Fricas [A] time = 0.224926, size = 132, normalized size = 2.06

$$-\frac{5354580 x^2 + 2658250 \left(30 x^3 + 23 x^2 - 7 x - 6\right) \log\left(5 x + 3\right) - 2659338 \left(30 x^3 + 23 x^2 - 7 x - 6\right) \log\left(3 x + 2\right) + 1088 \left(30 x\right.}{456533 \left(30 x^3 + 23 x^2 - 7 x - 6\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^2*(3*x + 2)^2*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] -1/456533*(5354580*x^2 + 2658250*(30*x^3 + 23*x^2 - 7*x - 6)*log(
5*x + 3) - 2659338*(30*x^3 + 23*x^2 - 7*x - 6)*log(3*x + 2) + 108
8*(30*x^3 + 23*x^2 - 7*x - 6)*log(2*x - 1) + 734888*x - 1694231)/
(30*x^3 + 23*x^2 - 7*x - 6)
```

Sympy [A] time = 0.528304, size = 54, normalized size = 0.84

$$-\frac{69540x^2 + 9544x - 22003}{177870x^3 + 136367x^2 - 41503x - 35574} - \frac{1088 \log\left(x - \frac{1}{2}\right)}{456533} - \frac{7750 \log\left(x + \frac{3}{5}\right)}{1331} + \frac{1998 \log\left(x + \frac{2}{3}\right)}{343}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**2/(2+3*x)**2/(3+5*x)**2,x)
```

```
[Out] -(69540*x**2 + 9544*x - 22003)/(177870*x**3 + 136367*x**2 - 41503
*x - 35574) - 1088*log(x - 1/2)/456533 - 7750*log(x + 3/5)/1331 +
 1998*log(x + 2/3)/343
```

GIAC/XCAS [A] time = 0.208485, size = 104, normalized size = 1.62

$$-\frac{125}{121 \left(5 x + 3\right)} + \frac{5 \left(\frac{1185937}{5 x+3} - 215574\right)}{65219 \left(\frac{11}{5 x+3} - 2\right) \left(\frac{1}{5 x+3} + 3\right)} + \frac{1998}{343} \ln\left(\left|-\frac{1}{5 x + 3} - 3\right|\right) - \frac{1088}{456533} \ln\left(\left|-\frac{11}{5 x + 3} + 2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^2*(3*x + 2)^2*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -125/121/(5*x + 3) + 5/65219*(1185937/(5*x + 3) - 215574)/((11/(5
*x + 3) - 2)*(1/(5*x + 3) + 3)) + 1998/343*ln(abs(-1/(5*x + 3) -
3)) - 1088/456533*ln(abs(-11/(5*x + 3) + 2))
```

3.1597 $\int \frac{1}{(1-2x)^2(2+3x)^3(3+5x)^2}\,dx$

Optimal. Leaf size=75

$$\frac{16}{41503(1-2x)}-\frac{1998}{343(3x+2)}-\frac{625}{121(5x+3)}-\frac{27}{98(3x+2)^2}-\frac{2704\log(1-2x)}{3195731}+\frac{107109\log(3x+2)}{2401}-\frac{59375\log(5x+3)}{1331}$$

```
[Out] 16/(41503*(1 - 2*x)) - 27/(98*(2 + 3*x)^2) - 1998/(343*(2 + 3*x))
 - 625/(121*(3 + 5*x)) - (2704*Log[1 - 2*x])/3195731 + (107109*Lo
g[2 + 3*x])/2401 - (59375*Log[3 + 5*x])/1331
```

Rubi [A] time = 0.0861637, antiderivative size = 75, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{16}{41503(1-2x)}-\frac{1998}{343(3x+2)}-\frac{625}{121(5x+3)}-\frac{27}{98(3x+2)^2}-\frac{2704\log(1-2x)}{3195731}+\frac{107109\log(3x+2)}{2401}-\frac{59375\log(5x+3)}{1331}$$

Antiderivative was successfully verified.

```
[In] Int[1/((1 - 2*x)^2*(2 + 3*x)^3*(3 + 5*x)^2),x]
```

```
[Out] 16/(41503*(1 - 2*x)) - 27/(98*(2 + 3*x)^2) - 1998/(343*(2 + 3*x))
 - 625/(121*(3 + 5*x)) - (2704*Log[1 - 2*x])/3195731 + (107109*Lo
g[2 + 3*x])/2401 - (59375*Log[3 + 5*x])/1331
```

Rubi in Sympy [A] time = 11.4149, size = 60, normalized size = 0.8

$$-\frac{2704\log\left(-2x+1\right)}{3195731}+\frac{107109\log\left(3x+2\right)}{2401}-\frac{59375\log\left(5x+3\right)}{1331}-\frac{625}{121\left(5x+3\right)}-\frac{1998}{343\left(3x+2\right)}-\frac{27}{98\left(3x+2\right)^2}+\frac{16}{41503\left(-2x+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(1/(1-2*x)**2/(2+3*x)**3/(3+5*x)**2,x)
```

```
[Out] -2704*log(-2*x + 1)/3195731 + 107109*log(3*x + 2)/2401 - 59375*lo
g(5*x + 3)/1331 - 625/(121*(5*x + 3)) - 1998/(343*(3*x + 2)) - 27
/(98*(3*x + 2)**2) + 16/(41503*(-2*x + 1))
```

Mathematica [A] time = 0.122507, size = 65, normalized size = 0.87

$$\frac{-\frac{77(22224420x^3+17783592x^2-5074951x-4684319)}{(3x+2)^2(10x^2+x-3)}-5408\log(3-6x)+285124158\log(3x+2)-285118750\log(-3(5x+3))}{6391462}$$

Antiderivative was successfully verified.

```
[In] Integrate[1/((1 - 2*x)^2*(2 + 3*x)^3*(3 + 5*x)^2),x]
```

```
[Out] ((-77*(-4684319 - 5074951*x + 17783592*x^2 + 22224420*x^3))/((2 +
 3*x)^2*(-3 + x + 10*x^2)) - 5408*Log[3 - 6*x] + 285124158*Log[2
+ 3*x] - 285118750*Log[-3*(3 + 5*x)])/6391462
```

Maple [A] time = 0.018, size = 62, normalized size = 0.8

$$-\frac{625}{363+605\,x}-\frac{59375\,\ln\left(3+5\,x\right)}{1331}-\frac{27}{98\,\left(2+3\,x\right)^{2}}-\frac{1998}{686+1029\,x}+\frac{107109\,\ln\left(2+3\,x\right)}{2401}-\frac{16}{-41503+83006\,x}-\frac{2704\,\ln\left(-1+2\,x\right)}{3195731}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^2/(2+3*x)^3/(3+5*x)^2,x)
```

```
[Out] -625/121/(3+5*x)-59375/1331*ln(3+5*x)-27/98/(2+3*x)^2-1998/343/(2
+3*x)+107109/2401*ln(2+3*x)-16/41503/(-1+2*x)-2704/3195731*ln(-1+
2*x)
```

Maxima [A] time = 1.3532, size = 86, normalized size = 1.15

$$-\frac{22224420\,x^{3}+17783592\,x^{2}-5074951\,x-4684319}{83006\,\left(90\,x^{4}+129\,x^{3}+25\,x^{2}-32\,x-12\right)}-\frac{59375}{1331}\,\log\left(5\,x+3\right)+\frac{107109}{2401}\,\log\left(3\,x+2\right)-\frac{2704}{3195731}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^2*(3*x + 2)^3*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] -1/83006*(22224420*x^3 + 17783592*x^2 - 5074951*x - 4684319)/(90*
x^4 + 129*x^3 + 25*x^2 - 32*x - 12) - 59375/1331*log(5*x + 3) + 1
07109/2401*log(3*x + 2) - 2704/3195731*log(2*x - 1)
```

Fricas [A] time = 0.217419, size = 166, normalized size = 2.21

$$-\frac{1711280340\,x^{3}+1369336584\,x^{2}+285118750\,\left(90\,x^{4}+129\,x^{3}+25\,x^{2}-32\,x-12\right)\log\left(5\,x+3\right)-285124158\,\left(90\,x^{4}+129\,x\right.}{6391462\,\left(90\,x^{4}+129\,x\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^2*(3*x + 2)^3*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] -1/6391462*(1711280340*x^3 + 1369336584*x^2 + 285118750*(90*x^4 +
 129*x^3 + 25*x^2 - 32*x - 12)*log(5*x + 3) - 285124158*(90*x^4 +
 129*x^3 + 25*x^2 - 32*x - 12)*log(3*x + 2) + 5408*(90*x^4 + 129*
x^3 + 25*x^2 - 32*x - 12)*log(2*x - 1) - 390771227*x - 360692563)
/(90*x^4 + 129*x^3 + 25*x^2 - 32*x - 12)
```

Sympy [A] time = 0.602612, size = 65, normalized size = 0.87

$$-\frac{22224420x^{3}+17783592x^{2}-5074951x-4684319}{7470540x^{4}+10707774x^{3}+2075150x^{2}-2656192x-996072}-\frac{2704\log\left(x-\frac{1}{2}\right)}{3195731}-\frac{59375\log\left(x+\frac{3}{5}\right)}{1331}+\frac{107109\log\left(x+\frac{2}{3}\right)}{2401}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**2/(2+3*x)**3/(3+5*x)**2,x)
```

```
[Out] -(22224420*x**3 + 17783592*x**2 - 5074951*x - 4684319)/(7470540*x
**4 + 10707774*x**3 + 2075150*x**2 - 2656192*x - 996072) - 2704*l
og(x - 1/2)/3195731 - 59375*log(x + 3/5)/1331 + 107109*log(x + 2/
3)/2401
```

GIAC/XCAS [A] time = 0.211171, size = 116, normalized size = 1.55

$$-\frac{625}{121\,(5\,x+3)}+\frac{5\left(\frac{604065417}{5\,x+3}+\frac{258530842}{(5\,x+3)^{2}}-118375902\right)}{913066\left(\frac{11}{5\,x+3}-2\right)\left(\frac{1}{5\,x+3}+3\right)^{2}}+\frac{107109}{2401}\ln\left(\left|-\frac{1}{5\,x+3}-3\right|\right)-\frac{2704}{3195731}\ln\left(\left|-\frac{11}{5\,x+3}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^2*(3*x + 2)^3*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -625/121/(5*x + 3) + 5/913066*(604065417/(5*x + 3) + 258530842/(5
*x + 3)^2 - 118375902)/((11/(5*x + 3) - 2)*(1/(5*x + 3) + 3)^2) +
 107109/2401*ln(abs(-1/(5*x + 3) - 3)) - 2704/3195731*ln(abs(-11/
(5*x + 3) + 2))
```

3.1598 $\int \frac{1}{(1-2x)^2(2+3x)^4(3+5x)^2} \, dx$

Optimal. Leaf size=86

$$\frac{32}{290521(1-2x)}-\frac{107109}{2401(3x+2)}-\frac{3125}{121(5x+3)}-\frac{999}{343(3x+2)^2}-\frac{9}{49(3x+2)^3}-\frac{6464\log(1-2x)}{22370117}+\frac{5050944\log(3x+2)}{16807}-\frac{400000\log(5x+3)}{1331}$$

```
[Out] 32/(290521*(1 - 2*x)) - 9/(49*(2 + 3*x)^3) - 999/(343*(2 + 3*x)^2
) - 107109/(2401*(2 + 3*x)) - 3125/(121*(3 + 5*x)) - (6464*Log[1
- 2*x])/22370117 + (5050944*Log[2 + 3*x])/16807 - (400000*Log[3 +
 5*x])/1331
```

Rubi [A] time = 0.103999, antiderivative size = 86, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{32}{290521(1-2x)}-\frac{107109}{2401(3x+2)}-\frac{3125}{121(5x+3)}-\frac{999}{343(3x+2)^2}-\frac{9}{49(3x+2)^3}-\frac{6464\log(1-2x)}{22370117}+\frac{5050944\log(3x+2)}{16807}-\frac{400000\log(5x+3)}{1331}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^2*(2 + 3*x)^4*(3 + 5*x)^2),x]
```

```
[Out] 32/(290521*(1 - 2*x)) - 9/(49*(2 + 3*x)^3) - 999/(343*(2 + 3*x)^2
) - 107109/(2401*(2 + 3*x)) - 3125/(121*(3 + 5*x)) - (6464*Log[1
- 2*x])/22370117 + (5050944*Log[2 + 3*x])/16807 - (400000*Log[3 +
 5*x])/1331
```

Rubi in Sympy [A] time = 12.8044, size = 70, normalized size = 0.81

$$-\frac{6464\log(-2x+1)}{22370117}+\frac{5050944\log(3x+2)}{16807}-\frac{400000\log(5x+3)}{1331}-\frac{3125}{121(5x+3)}-\frac{107109}{2401(3x+2)}-\frac{999}{343(3x+2)^2}-\frac{9}{49(3x+2)^3}+\frac{32}{290521(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**2/(2+3*x)**4/(3+5*x)**2,x)
```

```
[Out] -6464*log(-2*x + 1)/22370117 + 5050944*log(3*x + 2)/16807 - 40000
0*log(5*x + 3)/1331 - 3125/(121*(5*x + 3)) - 107109/(2401*(3*x +
2)) - 999/(343*(3*x + 2)**2) - 9/(49*(3*x + 2)**3) + 32/(290521*(
-2*x + 1))
```

Mathematica [A] time = 0.145458, size = 70, normalized size = 0.81

$$\frac{-\frac{77(1571590080x^4+2305013328x^3+479067048x^2-570653522x-220783501)}{(3x+2)^3(10x^2+x-3)}-6464\log(3-6x)+6722806464\log(3x+2)-6722800000\log(-}{22370117}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^2*(2 + 3*x)^4*(3 + 5*x)^2),x]
```

```
[Out] ((-77*(-220783501 - 570653522*x + 479067048*x^2 + 2305013328*x^3
+ 1571590080*x^4))/((2 + 3*x)^3*(-3 + x + 10*x^2)) - 6464*Log[3 -
```

```
6*x] + 6722806464*Log[2 + 3*x] - 6722800000*Log[-3*(3 + 5*x)])/2
2370117
```

Maple [A] time = 0.02, size = 71, normalized size = 0.8

$$-\frac{3125}{363+605\,x}-\frac{400000\,\ln\left(3+5\,x\right)}{1331}-\frac{9}{49\,\left(2+3\,x\right)^{3}}-\frac{999}{343\,\left(2+3\,x\right)^{2}}-\frac{107109}{4802+7203\,x}+\frac{5050944\,\ln\left(2+3\,x\right)}{16807}-\frac{32}{-290521+581042\,x}-\frac{6464\,\ln\left(-1+2\,x\right)}{22370117}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(1/(1-2*x)^2/(2+3*x)^4/(3+5*x)^2,x)
```

```
[Out] -3125/121/(3+5*x)-400000/1331*ln(3+5*x)-9/49/(2+3*x)^3-999/343/(2
+3*x)^2-107109/2401/(2+3*x)+5050944/16807*ln(2+3*x)-32/290521/(-1
+2*x)-6464/22370117*ln(-1+2*x)
```

Maxima [A] time = 1.34419, size = 100, normalized size = 1.16

$$-\frac{1571590080\,x^{4}+2305013328\,x^{3}+479067048\,x^{2}-570653522\,x-220783501}{290521\,\left(270\,x^{5}+567\,x^{4}+333\,x^{3}-46\,x^{2}-100\,x-24\right)}-\frac{400000}{1331}\,\log\left(5\,x+3\right)+\frac{5050944}{16807}\,\log\left(3\,x+2\right)-\frac{6464}{22370117}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^2*(3*x + 2)^4*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] -1/290521*(1571590080*x^4 + 2305013328*x^3 + 479067048*x^2 - 5706
53522*x - 220783501)/(270*x^5 + 567*x^4 + 333*x^3 - 46*x^2 - 100*
x - 24) - 400000/1331*log(5*x + 3) + 5050944/16807*log(3*x + 2) -
 6464/22370117*log(2*x - 1)
```

Fricas [A] time = 0.217429, size = 200, normalized size = 2.33

$$-\frac{121012436160\,x^{4}+177486026256\,x^{3}+36888162696\,x^{2}+6722800000\,\left(270\,x^{5}+567\,x^{4}+333\,x^{3}-46\,x^{2}-100\,x-24\right)\log}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^2*(3*x + 2)^4*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] -1/22370117*(121012436160*x^4 + 177486026256*x^3 + 36888162696*x^
2 + 6722800000*(270*x^5 + 567*x^4 + 333*x^3 - 46*x^2 - 100*x - 24
)*log(5*x + 3) - 6722806464*(270*x^5 + 567*x^4 + 333*x^3 - 46*x^2
 - 100*x - 24)*log(3*x + 2) + 6464*(270*x^5 + 567*x^4 + 333*x^3 -
 46*x^2 - 100*x - 24)*log(2*x - 1) - 43940321194*x - 17000329577)
/(270*x^5 + 567*x^4 + 333*x^3 - 46*x^2 - 100*x - 24)
```

Sympy [A] time = 0.672036, size = 75, normalized size = 0.87

$$-\frac{1571590080x^{4}+2305013328x^{3}+479067048x^{2}-570653522x-220783501}{78440670x^{5}+164725407x^{4}+96743493x^{3}-13363966x^{2}-29052100x-6972504}-\frac{6464\log\left(x-\frac{1}{2}\right)}{22370117}-\frac{400000\log\left(x+\frac{3}{5}\right)}{1331}+\frac{5050944\log\left(x+\frac{2}{3}\right)}{16807}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**2/(2+3*x)**4/(3+5*x)**2,x)
```

```
[Out] -(1571590080*x**4 + 2305013328*x**3 + 479067048*x**2 - 570653522*
x - 220783501)/(78440670*x**5 + 164725407*x**4 + 96743493*x**3 -
13363966*x**2 - 29052100*x - 6972504) - 6464*log(x - 1/2)/2237011
7 - 400000*log(x + 3/5)/1331 + 5050944*log(x + 2/3)/16807
```

GIAC/XCAS [A] time = 0.210096, size = 128, normalized size = 1.49

$$-\frac{3125}{121\,(5\,x+3)}+\frac{5\left(\frac{52083388017}{5\,x+3}+\frac{44729490744}{(5\,x+3)^{2}}+\frac{9228837286}{(5\,x+3)^{3}}-11003835798\right)}{3195731\left(\frac{11}{5\,x+3}-2\right)\left(\frac{1}{5\,x+3}+3\right)^{3}}+\frac{5050944}{16807}\ln\left(\left|-\frac{1}{5\,x+3}-3\right|\right)-\frac{6464}{22370117}\ln\left(\left|-\frac{11}{5\,x+3}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^2*(3*x + 2)^4*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -3125/121/(5*x + 3) + 5/3195731*(52083388017/(5*x + 3) + 44729490
744/(5*x + 3)^2 + 9228837286/(5*x + 3)^3 - 11003835798)/((11/(5*x
 + 3) - 2)*(1/(5*x + 3) + 3)^3) + 5050944/16807*ln(abs(-1/(5*x +
3) - 3)) - 6464/22370117*ln(abs(-11/(5*x + 3) + 2))
```

3.1599 $\int \frac{1}{(1-2x)^2(2+3x)^5(3+5x)^2}\,dx$

Optimal. Leaf size=97

$$\frac{64}{2033647(1-2x)}-\frac{5050944}{16807(3x+2)}-\frac{15625}{121(5x+3)}-\frac{107109}{4802(3x+2)^2}-\frac{666}{343(3x+2)^3}-\frac{27}{196(3x+2)^4}-\frac{15040\log(1-2x)}{156590819}+\frac{222359715\log(3x+2)}{117649}-\frac{2515625\log(5x+3)}{1331}$$

```
[Out] 64/(2033647*(1 - 2*x)) - 27/(196*(2 + 3*x)^4) - 666/(343*(2 + 3*x
)^3) - 107109/(4802*(2 + 3*x)^2) - 5050944/(16807*(2 + 3*x)) - 15
625/(121*(3 + 5*x)) - (15040*Log[1 - 2*x])/156590819 + (222359715
*Log[2 + 3*x])/117649 - (2515625*Log[3 + 5*x])/1331
```

Rubi [A] time = 0.119111, antiderivative size = 97, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{64}{2033647(1-2x)}-\frac{5050944}{16807(3x+2)}-\frac{15625}{121(5x+3)}-\frac{107109}{4802(3x+2)^2}-\frac{666}{343(3x+2)^3}-\frac{27}{196(3x+2)^4}-\frac{15040\log(1-2x)}{156590819}+\frac{222359715\log(3x+2)}{117649}-\frac{2515625\log(5x+3)}{1331}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^2*(2 + 3*x)^5*(3 + 5*x)^2),x]
```

```
[Out] 64/(2033647*(1 - 2*x)) - 27/(196*(2 + 3*x)^4) - 666/(343*(2 + 3*x
)^3) - 107109/(4802*(2 + 3*x)^2) - 5050944/(16807*(2 + 3*x)) - 15
625/(121*(3 + 5*x)) - (15040*Log[1 - 2*x])/156590819 + (222359715
*Log[2 + 3*x])/117649 - (2515625*Log[3 + 5*x])/1331
```

Rubi in Sympy [A] time = 14.2273, size = 80, normalized size = 0.82

$$-\frac{15040\log(-2x+1)}{156590819}+\frac{222359715\log(3x+2)}{117649}-\frac{2515625\log(5x+3)}{1331}-\frac{15625}{121(5x+3)}-\frac{5050944}{16807(3x+2)}-\frac{107109}{4802(3x+2)^2}-\frac{666}{343(3x+2)^3}-\frac{27}{196(3x+2)^4}+\frac{64}{2033647(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**2/(2+3*x)**5/(3+5*x)**2,x)
```

```
[Out] -15040*log(-2*x + 1)/156590819 + 222359715*log(3*x + 2)/117649 -
2515625*log(5*x + 3)/1331 - 15625/(121*(5*x + 3)) - 5050944/(1680
7*(3*x + 2)) - 107109/(4802*(3*x + 2)**2) - 666/(343*(3*x + 2)**3
) - 27/(196*(3*x + 2)**4) + 64/(2033647*(-2*x + 1))
```

Mathematica [A] time = 0.162597, size = 75, normalized size = 0.77

$$\frac{-\frac{77(830228340600x^5+1771154199360x^4+1064845635750x^3-132753874800x^2-317609203475x-77754195847)}{(3x+2)^4(10x^2+x-3)}-60160\log(3-6x)+1183843122660\,\mathrm{l}}{626363276}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^2*(2 + 3*x)^5*(3 + 5*x)^2),x]
```

```
[Out] ((-77*(-77754195847 - 317609203475*x - 132753874800*x^2 + 1064845
635750*x^3 + 1771154199360*x^4 + 830228340600*x^5))/((2 + 3*x)^4*
(-3 + x + 10*x^2)) - 60160*Log[3 - 6*x] + 1183843122660*Log[2 + 3
*x] - 1183843062500*Log[-3*(3 + 5*x)])/626363276
```

Maple [A] time = 0.02, size = 80, normalized size = 0.8

$$-\frac{15625}{363+605\,x}-\frac{2515625\,\ln(3+5\,x)}{1331}-\frac{27}{196\,(2+3\,x)^4}-\frac{666}{343\,(2+3\,x)^3}-\frac{107109}{4802\,(2+3\,x)^2}-\frac{5050944}{33614+50421\,x}+\frac{222359715\,\ln(2+3\,x)}{117649}-\frac{64}{-2033647+4067294\,x}-\frac{15040\,\ln(-1+2\,x)}{156590819}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(1/(1-2*x)^2/(2+3*x)^5/(3+5*x)^2,x)
```

```
[Out] -15625/121/(3+5*x)-2515625/1331*ln(3+5*x)-27/196/(2+3*x)^4-666/34
3/(2+3*x)^3-107109/4802/(2+3*x)^2-5050944/16807/(2+3*x)+222359715
/117649*ln(2+3*x)-64/2033647/(-1+2*x)-15040/156590819*ln(-1+2*x)
```

Maxima [A] time = 1.34438, size = 113, normalized size = 1.16

$$-\frac{830228340600\,x^5+1771154199360\,x^4+1064845635750\,x^3-132753874800\,x^2-317609203475\,x-77754195847}{8134588\,(810\,x^6+2241\,x^5+2133\,x^4+528\,x^3-392\,x^2-272\,x-48)}-\frac{2515625}{1331}\log(5\,x+3)+\frac{222359715}{117649}\log(3\,x+2)-\frac{15040}{156590819}\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^2*(3*x + 2)^5*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] -1/8134588*(830228340600*x^5 + 1771154199360*x^4 + 1064845635750*
x^3 - 132753874800*x^2 - 317609203475*x - 77754195847)/(810*x^6 +
 2241*x^5 + 2133*x^4 + 528*x^3 - 392*x^2 - 272*x - 48) - 2515625/
1331*log(5*x + 3) + 222359715/117649*log(3*x + 2) - 15040/1565908
19*log(2*x - 1)
```

Fricas [A] time = 0.217106, size = 234, normalized size = 2.41

$$-\frac{63927582226200\,x^5+136378873350720\,x^4+81993113952750\,x^3-10222048359600\,x^2+1183843062500\,\left(810\,x^6+2241\,x\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^2*(3*x + 2)^5*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] -1/626363276*(63927582226200*x^5 + 136378873350720*x^4 + 81993113
952750*x^3 - 10222048359600*x^2 + 1183843062500*(810*x^6 + 2241*x
^5 + 2133*x^4 + 528*x^3 - 392*x^2 - 272*x - 48)*log(5*x + 3) - 11
83843122660*(810*x^6 + 2241*x^5 + 2133*x^4 + 528*x^3 - 392*x^2 -
272*x - 48)*log(3*x + 2) + 60160*(810*x^6 + 2241*x^5 + 2133*x^4 +
 528*x^3 - 392*x^2 - 272*x - 48)*log(2*x - 1) - 24455908667575*x
- 5987073080219)/(810*x^6 + 2241*x^5 + 2133*x^4 + 528*x^3 - 392*x
^2 - 272*x - 48)
```

Sympy [A] time = 0.752707, size = 85, normalized size = 0.88

$$-\frac{830228340600x^5+1771154199360x^4+1064845635750x^3-132753874800x^2-317609203475x-77754195847}{6589016280x^6+18229611708x^5+17351076204x^4+4295062464x^3-3188758496x^2-2212607936x-390460224}-\frac{15040\log\left(x-\frac{1}{2}\right)}{156590819}-\frac{2515625\log\left(x+\frac{3}{5}\right)}{1331}+\frac{222359715\log\left(x+\frac{2}{3}\right)}{117649}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**2/(2+3*x)**5/(3+5*x)**2,x)
```

```
[Out] -(830228340600*x**5 + 1771154199360*x**4 + 1064845635750*x**3 - 1
32753874800*x**2 - 317609203475*x - 77754195847)/(6589016280*x**6
 + 18229611708*x**5 + 17351076204*x**4 + 4295062464*x**3 - 318875
8496*x**2 - 2212607936*x - 390460224) - 15040*log(x - 1/2)/156590
819 - 2515625*log(x + 3/5)/1331 + 222359715*log(x + 2/3)/117649
```

GIAC/XCAS [A] time = 0.208272, size = 140, normalized size = 1.44

$$-\frac{15625}{121\,(5\,x+3)}+\frac{25\left(\frac{6062344264539}{5\,x+3}+\frac{7964082495612}{(5\,x+3)^2}+\frac{3205106234076}{(5\,x+3)^3}+\frac{435889532968}{(5\,x+3)^4}-1385260555122\right)}{89480468\left(\frac{11}{5\,x+3}-2\right)\left(\frac{1}{5\,x+3}+3\right)^4}+\frac{222359715}{117649}\ln\left(\left|-\frac{1}{5\,x+3}-3\right|\right)-\frac{15040}{156590819}\ln\left(\left|-\frac{11}{5\,x+3}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^2*(3*x + 2)^5*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -15625/121/(5*x + 3) + 25/89480468*(6062344264539/(5*x + 3) + 796
4082495612/(5*x + 3)^2 + 3205106234076/(5*x + 3)^3 + 435889532968
/(5*x + 3)^4 - 1385260555122)/((11/(5*x + 3) - 2)*(1/(5*x + 3) +
3)^4) + 222359715/117649*ln(abs(-1/(5*x + 3) - 3)) - 15040/156590
819*ln(abs(-11/(5*x + 3) + 2))
```

3.1600 $\int \frac{(2+3x)^8}{(1-2x)^2(3+5x)^3} \, dx$

Optimal. Leaf size=80

$$\frac{6561x^4}{2000}+\frac{12393x^3}{625}+\frac{6093711x^2}{100000}+\frac{7680987x}{50000}+\frac{5764801}{85184(1-2x)}-\frac{268}{103984375(5x+3)}-\frac{1}{18906250(5x+3)^2}+\frac{130943337\log(1-2x)}{937024}+\frac{6312\log(5x+3)}{228765625}$$

```
[Out] 5764801/(85184*(1 - 2*x)) + (7680987*x)/50000 + (6093711*x^2)/100
000 + (12393*x^3)/625 + (6561*x^4)/2000 - 1/(18906250*(3 + 5*x)^2
) - 268/(103984375*(3 + 5*x)) + (130943337*Log[1 - 2*x])/937024 +
 (6312*Log[3 + 5*x])/228765625
```

Rubi [A] time = 0.0972569, antiderivative size = 80, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{6561x^4}{2000}+\frac{12393x^3}{625}+\frac{6093711x^2}{100000}+\frac{7680987x}{50000}+\frac{5764801}{85184(1-2x)}-\frac{268}{103984375(5x+3)}-\frac{1}{18906250(5x+3)^2}+\frac{130943337\log(1-2x)}{937024}+\frac{6312\log(5x+3)}{228765625}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^8/((1 - 2*x)^2*(3 + 5*x)^3),x]
```


```
[Out] 5764801/(85184*(1 - 2*x)) + (7680987*x)/50000 + (6093711*x^2)/100
000 + (12393*x^3)/625 + (6561*x^4)/2000 - 1/(18906250*(3 + 5*x)^2
) - 268/(103984375*(3 + 5*x)) + (130943337*Log[1 - 2*x])/937024 +
 (6312*Log[3 + 5*x])/228765625
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{6561x^4}{2000}+\frac{12393x^3}{625}+\frac{130943337\log\left(-2x+1\right)}{937024}+\frac{6312\log\left(5x+3\right)}{228765625}+\int\frac{7680987}{50000}\,dx+\frac{6093711\int x\,dx}{50000}-\frac{268}{103984375\left(5x+3\right)}-\frac{1}{18906250\left(5x+3\right)^2}+\frac{5764801}{85184\left(-2x+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**8/(1-2*x)**2/(3+5*x)**3,x)
```

```
[Out] 6561*x**4/2000 + 12393*x**3/625 + 130943337*log(-2*x + 1)/937024
+ 6312*log(5*x + 3)/228765625 + Integral(7680987/50000, x) + 6093
711*Integral(x, x)/50000 - 268/(103984375*(5*x + 3)) - 1/(1890625
0*(5*x + 3)**2) + 5764801/(85184*(-2*x + 1))
```

Mathematica [A] time = 0.185819, size = 74, normalized size = 0.92

$$\frac{3\left(\frac{11}{3}\left(21831727500x^4+131960664000x^3+405536467050x^2+1022339369700x+\frac{450375078125}{1-2x}-\frac{17152}{5x+3}-\frac{352}{(5x+3)^2}+536108166\right.\right.}{73205000000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^8/((1 - 2*x)^2*(3 + 5*x)^3),x]
```

```
[Out] (3*((11*(536108166000 + 450375078125/(1 - 2*x) + 1022339369700*x
+ 405536467050*x^2 + 131960664000*x^3 + 21831727500*x^4 - 352/(3
+ 5*x)^2 - 17152/(3 + 5*x)))/3 + 3409982734375*Log[3 - 6*x] + 673
280*Log[-3*(3 + 5*x)]))/73205000000
```

Maple [A] time = 0.016, size = 63, normalized size = 0.8

$$\frac{6561 x^4}{2000}+\frac{12393 x^3}{625}+\frac{6093711 x^2}{100000}+\frac{7680987 x}{50000}-\frac{1}{18906250 (3+5 x)^2}-\frac{268}{311953125+519921875 x}+\frac{6312 \ln (3+5 x)}{228765625}-\frac{5764801}{-85184+170368 x}+\frac{130943337 \ln (-1+2 x)}{937024}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((2+3*x)^8/(1-2*x)^2/(3+5*x)^3,x)
```

```
[Out] 6561/2000*x^4+12393/625*x^3+6093711/100000*x^2+7680987/50000*x-1/
18906250/(3+5*x)^2-268/103984375/(3+5*x)+6312/228765625*ln(3+5*x)
-5764801/85184/(-1+2*x)+130943337/937024*ln(-1+2*x)
```

Maxima [A] time = 1.3487, size = 86, normalized size = 1.08

$$\frac{6561}{2000} x^4+\frac{12393}{625} x^3+\frac{6093711}{100000} x^2+\frac{7680987}{50000} x-\frac{11259377124645 x^2+13511252361606 x+4053375651317}{6655000000 (50 x^3+35 x^2-12 x-9)}+\frac{6312}{228765625} \log (5 x+3)+\frac{130943337}{937024} \log (2 x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^8/((5*x + 3)^3*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] 6561/2000*x^4 + 12393/625*x^3 + 6093711/100000*x^2 + 7680987/5000
0*x - 1/6655000000*(11259377124645*x^2 + 13511252361606*x + 40533
75651317)/(50*x^3 + 35*x^2 - 12*x - 9) + 6312/228765625*log(5*x +
 3) + 130943337/937024*log(2*x - 1)
```

Fricas [A] time = 0.223982, size = 135, normalized size = 1.69

$$12007450125000 x^7+80983580287500 x^6+270968124487500 x^5+698838044478750 x^4+327005737947900 x^3-29895005$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^8/((5*x + 3)^3*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] 1/73205000000*(12007450125000*x^7 + 80983580287500*x^6 + 27096812
4487500*x^5 + 698838044478750*x^4 + 327005737947900*x^3 - 2989500
55409445*x^2 + 2019840*(50*x^3 + 35*x^2 - 12*x - 9)*log(5*x + 3)
+ 10229948203125*(50*x^3 + 35*x^2 - 12*x - 9)*log(2*x - 1) - 2498
35373577966*x - 44587132164487)/(50*x^3 + 35*x^2 - 12*x - 9)
```

Sympy [A] time = 0.490636, size = 70, normalized size = 0.88

$$\frac{6561x^4}{2000} + \frac{12393x^3}{625} + \frac{6093711x^2}{100000} + \frac{7680987x}{50000} - \frac{11259377124645x^2 + 13511252361606x + 4053375651317}{332750000000x^3 + 232925000000x^2 - 79860000000x - 59895000000} + \frac{130943337\log\left(x - \frac{1}{2}\right)}{937024} + \frac{6312\log\left(x + \frac{3}{5}\right)}{228765625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**8/(1-2*x)**2/(3+5*x)**3,x)
```

```
[Out] 6561*x**4/2000 + 12393*x**3/625 + 6093711*x**2/100000 + 7680987*x
/50000 - (11259377124645*x**2 + 13511252361606*x + 4053375651317)
/(332750000000*x**3 + 232925000000*x**2 - 79860000000*x - 5989500
0000) + 130943337*log(x - 1/2)/937024 + 6312*log(x + 3/5)/2287656
25
```

GIAC/XCAS [A] time = 0.208206, size = 151, normalized size = 1.89

$$\frac{(2x-1)^4\left(\frac{1230096557250}{2x-1} + \frac{11539159570125}{(2x-1)^2} + \frac{69299175042900}{(2x-1)^3} + \frac{182728002843460}{(2x-1)^4} + \frac{163740919200408}{(2x-1)^5} + 60037250625\right)}{11712800000\left(\frac{11}{2x-1} + 5\right)^2} - \frac{5764801}{85184(2x-1)} - \frac{139743873}{1000000}\ln\left(\frac{|2x-1|}{2(2x-1)^2}\right) + \frac{6312}{228765625}\ln\left(\left|-\frac{11}{2x-1} - 5\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^8/((5*x + 3)^3*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] 1/11712800000*(2*x - 1)^4*(1230096557250/(2*x - 1) + 115391595701
25/(2*x - 1)^2 + 69299175042900/(2*x - 1)^3 + 182728002843460/(2*
x - 1)^4 + 163740919200408/(2*x - 1)^5 + 60037250625)/(11/(2*x -
1) + 5)^2 - 5764801/85184/(2*x - 1) - 139743873/1000000*ln(1/2*ab
s(2*x - 1)/(2*x - 1)^2) + 6312/228765625*ln(abs(-11/(2*x - 1) - 5
))
```

3.1601 $\int \frac{(2+3x)^7}{(1-2x)^2(3+5x)^3}\,dx$

Optimal. Leaf size=73

$$\frac{729x^3}{500}+\frac{21141x^2}{2500}+\frac{1467477x}{50000}+\frac{823543}{42592(1-2x)}-\frac{47}{4159375(5x+3)}-\frac{1}{3781250(5x+3)^2}+\frac{7411887\log(1-2x)}{234256}+\frac{4761\log(5x+3)}{45753125}$$

```
[Out] 823543/(42592*(1 - 2*x)) + (1467477*x)/50000 + (21141*x^2)/2500 +
 (729*x^3)/500 - 1/(3781250*(3 + 5*x)^2) - 47/(4159375*(3 + 5*x))
 + (7411887*Log[1 - 2*x])/234256 + (4761*Log[3 + 5*x])/45753125
```

Rubi [A] time = 0.0885079, antiderivative size = 73, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{729x^3}{500}+\frac{21141x^2}{2500}+\frac{1467477x}{50000}+\frac{823543}{42592(1-2x)}-\frac{47}{4159375(5x+3)}-\frac{1}{3781250(5x+3)^2}+\frac{7411887\log(1-2x)}{234256}+\frac{4761\log(5x+3)}{45753125}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^7/((1 - 2*x)^2*(3 + 5*x)^3),x]
```

```
[Out] 823543/(42592*(1 - 2*x)) + (1467477*x)/50000 + (21141*x^2)/2500 +
 (729*x^3)/500 - 1/(3781250*(3 + 5*x)^2) - 47/(4159375*(3 + 5*x))
 + (7411887*Log[1 - 2*x])/234256 + (4761*Log[3 + 5*x])/45753125
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{729x^3}{500}+\frac{7411887\log(-2x+1)}{234256}+\frac{4761\log(5x+3)}{45753125}+\int\frac{1467477}{50000}\,dx+\frac{21141\int x\,dx}{1250}-\frac{47}{4159375(5x+3)}-\frac{1}{3781250(5x+3)^2}+\frac{823543}{42592(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**7/(1-2*x)**2/(3+5*x)**3,x)
```

```
[Out] 729*x**3/500 + 7411887*log(-2*x + 1)/234256 + 4761*log(5*x + 3)/4
5753125 + Integral(1467477/50000, x) + 21141*Integral(x, x)/1250
- 47/(4159375*(5*x + 3)) - 1/(3781250*(5*x + 3)**2) + 823543/(425
92*(-2*x + 1))
```

Mathematica [A] time = 0.0733078, size = 67, normalized size = 0.92

$$\frac{\frac{11(48514950000x^6+315347175000x^5+1161933052500x^4+42644641050x^3-1002031406415x^2-426293494632x-14162188399)}{(2x-1)(5x+3)^2}+231621468750\log(1-2x)}{7320500000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^7/((1 - 2*x)^2*(3 + 5*x)^3),x]
```

```
[Out] ((11*(-14162188399 - 426293494632*x - 1002031406415*x^2 + 4264464
1050*x^3 + 1161933052500*x^4 + 315347175000*x^5 + 48514950000*x^6
```

```
))/((-1 + 2*x)*(3 + 5*x)^2) + 231621468750*Log[1 - 2*x] + 761760*
Log[6 + 10*x])/7320500000
```

Maple [A] time = 0.016, size = 58, normalized size = 0.8

$$\frac{729 x^3}{500}+\frac{21141 x^2}{2500}+\frac{1467477 x}{50000}-\frac{1}{3781250 \left(3+5 x\right)^2}-\frac{47}{12478125+20796875 x}+\frac{4761 \ln\left(3+5 x\right)}{45753125}-\frac{823543}{-42592+85184 x}+\frac{7411887 \ln\left(-1+2 x\right)}{234256}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^7/(1-2*x)^2/(3+5*x)^3,x)
```

```
[Out] 729/500*x^3+21141/2500*x^2+1467477/50000*x-1/3781250/(3+5*x)^2-47
/4159375/(3+5*x)+4761/45753125*ln(3+5*x)-823543/42592/(-1+2*x)+74
11887/234256*ln(-1+2*x)
```

Maxima [A] time = 1.34909, size = 80, normalized size = 1.1

$$\frac{729}{500} x^3+\frac{21141}{2500} x^2+\frac{1467477}{50000} x-\frac{321696559575 x^2+386035789122 x+115810711639}{665500000 \left(50 x^3+35 x^2-12 x-9\right)}+\frac{4761}{45753125} \log\left(5 x+3\right)+\frac{7411887}{234256} \log\left(2 x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^7/((5*x + 3)^3*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] 729/500*x^3 + 21141/2500*x^2 + 1467477/50000*x - 1/665500000*(321
696559575*x^2 + 386035789122*x + 115810711639)/(50*x^3 + 35*x^2 -
 12*x - 9) + 4761/45753125*log(5*x + 3) + 7411887/234256*log(2*x
- 1)
```

Fricas [A] time = 0.216498, size = 128, normalized size = 1.75

$$\frac{533664450000 x^6+3468818925000 x^5+12781263577500 x^4+6680945249550 x^3-6674047531965 x^2+761760 \left(50 x^3+35\right.}{7320500000 \left(50 x^3+\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^7/((5*x + 3)^3*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] 1/7320500000*(533664450000*x^6 + 3468818925000*x^5 + 127812635775
00*x^4 + 6680945249550*x^3 - 6674047531965*x^2 + 761760*(50*x^3 +
 35*x^2 - 12*x - 9)*log(5*x + 3) + 231621468750*(50*x^3 + 35*x^2
- 12*x - 9)*log(2*x - 1) - 6180073448472*x - 1273917828029)/(50*x
^3 + 35*x^2 - 12*x - 9)
```

Sympy [A] time = 0.494464, size = 63, normalized size = 0.86

$$\frac{729x^3}{500}+\frac{21141x^2}{2500}+\frac{1467477x}{50000}-\frac{321696559575x^2+386035789122x+115810711639}{33275000000x^3+23292500000x^2-7986000000x-5989500000}+\frac{7411887 \log\left(x-\frac{1}{2}\right)}{234256}+\frac{4761 \log\left(x+\frac{3}{5}\right)}{45753125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**7/(1-2*x)**2/(3+5*x)**3,x)
```

```
[Out] 729*x**3/500 + 21141*x**2/2500 + 1467477*x/50000 - (321696559575*
x**2 + 386035789122*x + 115810711639)/(33275000000*x**3 + 2329250
0000*x**2 - 7986000000*x - 5989500000) + 7411887*log(x - 1/2)/234
256 + 4761*log(x + 3/5)/45753125
```

GIAC/XCAS [A] time = 0.212098, size = 139, normalized size = 1.9

$$\frac{(2x-1)^3\left(\frac{25349061375}{2x-1}+\frac{234545525775}{(2x-1)^2}+\frac{720756547985}{(2x-1)^3}+\frac{689127341628}{(2x-1)^4}+1334161125\right)}{292820000\left(\frac{11}{2x-1}+5\right)^2}-\frac{823543}{42592\,(2x-1)}-\frac{1582011}{50000}\ln\left(\frac{|2x-1|}{2\,(2x-1)^2}\right)+\frac{4761}{45753125}\ln\left(\left|-\frac{11}{2x-1}-5\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^7/((5*x + 3)^3*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] 1/292820000*(2*x - 1)^3*(25349061375/(2*x - 1) + 234545525775/(2*
x - 1)^2 + 720756547985/(2*x - 1)^3 + 689127341628/(2*x - 1)^4 +
1334161125)/(11/(2*x - 1) + 5)^2 - 823543/42592/(2*x - 1) - 15820
11/50000*ln(1/2*abs(2*x - 1)/(2*x - 1)^2) + 4761/45753125*ln(abs(
-11/(2*x - 1) - 5))
```

3.1602 $\int \frac{(2+3x)^6}{(1-2x)^2(3+5x)^3} \, dx$

Optimal. Leaf size=66

$$\frac{729x^2}{1000}+\frac{2916x}{625}+\frac{117649}{21296(1-2x)}-\frac{202}{4159375(5x+3)}-\frac{1}{756250(5x+3)^2}+\frac{1563051\log(1-2x)}{234256}+\frac{17139\log(5x+3)}{45753125}$$

```
[Out] 117649/(21296*(1 - 2*x)) + (2916*x)/625 + (729*x^2)/1000 - 1/(756
250*(3 + 5*x)^2) - 202/(4159375*(3 + 5*x)) + (1563051*Log[1 - 2*x
])/234256 + (17139*Log[3 + 5*x])/45753125
```

Rubi [A] time = 0.0749327, antiderivative size = 66, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{729x^2}{1000}+\frac{2916x}{625}+\frac{117649}{21296(1-2x)}-\frac{202}{4159375(5x+3)}-\frac{1}{756250(5x+3)^2}+\frac{1563051\log(1-2x)}{234256}+\frac{17139\log(5x+3)}{45753125}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^6/((1 - 2*x)^2*(3 + 5*x)^3),x]
```

```
[Out] 117649/(21296*(1 - 2*x)) + (2916*x)/625 + (729*x^2)/1000 - 1/(756
250*(3 + 5*x)^2) - 202/(4159375*(3 + 5*x)) + (1563051*Log[1 - 2*x
])/234256 + (17139*Log[3 + 5*x])/45753125
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{1563051\log(-2x+1)}{234256}+\frac{17139\log(5x+3)}{45753125}+\int \frac{2916}{625}\,dx+\frac{729\int x\,dx}{500}-\frac{202}{4159375(5x+3)}-\frac{1}{756250(5x+3)^2}+\frac{117649}{21296(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**6/(1-2*x)**2/(3+5*x)**3,x)
```

```
[Out] 1563051*log(-2*x + 1)/234256 + 17139*log(5*x + 3)/45753125 + Inte
gral(2916/625, x) + 729*Integral(x, x)/500 - 202/(4159375*(5*x +
3)) - 1/(756250*(5*x + 3)**2) + 117649/(21296*(-2*x + 1))
```

Mathematica [A] time = 0.0861269, size = 60, normalized size = 0.91

$$\frac{11\left(97029900x^2+620991360x+\frac{735306250}{1-2x}-\frac{6464}{5x+3}-\frac{176}{(5x+3)^2}-334753155\right)+9769068750\log(1-2x)+548448\log(10x+6)}{1464100000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^6/((1 - 2*x)^2*(3 + 5*x)^3),x]
```

```
[Out] (11*(-334753155 + 735306250/(1 - 2*x) + 620991360*x + 97029900*x^
2 - 176/(3 + 5*x)^2 - 6464/(3 + 5*x)) + 9769068750*Log[1 - 2*x] +
```

```
548448*Log[6 + 10*x])/1464100000
```

Maple [A] time = 0.014, size = 53, normalized size = 0.8

$$\frac{729 x^{2}}{1000}+\frac{2916 x}{625}-\frac{1}{756250 \left(3+5 x\right)^{2}}-\frac{202}{12478125+20796875 x}+\frac{17139 \ln \left(3+5 x\right)}{45753125}-\frac{117649}{-21296+42592 x}+\frac{1563051 \ln \left(-1+2 x\right)}{234256}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^6/(1-2*x)^2/(3+5*x)^3,x)
```

```
[Out] 729/1000*x^2+2916/625*x-1/756250/(3+5*x)^2-202/4159375/(3+5*x)+17
139/45753125*ln(3+5*x)-117649/21296/(-1+2*x)+1563051/234256*ln(-1
+2*x)
```

Maxima [A] time = 1.3442, size = 73, normalized size = 1.11

$$\frac{729}{1000} x^{2}+\frac{2916}{625} x-\frac{9191360445 x^{2}+11029597158 x+3308868341}{66550000 \left(50 x^{3}+35 x^{2}-12 x-9\right)}+\frac{17139}{45753125} \log \left(5 x+3\right)+\frac{1563051}{234256} \log \left(2 x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^6/((5*x + 3)^3*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] 729/1000*x^2 + 2916/625*x - 1/66550000*(9191360445*x^2 + 11029597
158*x + 3308868341)/(50*x^3 + 35*x^2 - 12*x - 9) + 17139/45753125
*log(5*x + 3) + 1563051/234256*log(2*x - 1)
```

Fricas [A] time = 0.210386, size = 122, normalized size = 1.85

$$\frac{26683222500 x^{5}+189450879750 x^{4}+113136863400 x^{3}-146893374705 x^{2}+274224 \left(50 x^{3}+35 x^{2}-12 x-9\right) \log (5 x+3}{732050000 (50 x^{3}+35 x^{2}-12 x-9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^6/((5*x + 3)^3*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] 1/732050000*(26683222500*x^5 + 189450879750*x^4 + 113136863400*x^
3 - 146893374705*x^2 + 274224*(50*x^3 + 35*x^2 - 12*x - 9)*log(5*
x + 3) + 4884534375*(50*x^3 + 35*x^2 - 12*x - 9)*log(2*x - 1) - 1
52064641058*x - 36397551751)/(50*x^3 + 35*x^2 - 12*x - 9)
```

Sympy [A] time = 0.469936, size = 56, normalized size = 0.85

$$\frac{729x^{2}}{1000}+\frac{2916x}{625}-\frac{9191360445x^{2}+11029597158x+3308868341}{3327500000x^{3}+2329250000x^{2}-798600000x-598950000}+\frac{1563051 \log \left(x-\frac{1}{2}\right)}{234256}+\frac{17139 \log \left(x+\frac{3}{5}\right)}{45753125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**6/(1-2*x)**2/(3+5*x)**3,x)
```

```
[Out] 729*x**2/1000 + 2916*x/625 - (9191360445*x**2 + 11029597158*x + 3
308868341)/(3327500000*x**3 + 2329250000*x**2 - 798600000*x - 598
950000) + 1563051*log(x - 1/2)/234256 + 17139*log(x + 3/5)/457531
25
```

GIAC/XCAS [A] time = 0.208401, size = 127, normalized size = 1.92

$$\frac{(2x-1)^2\left(\frac{25615893600}{2x-1}+\frac{93337977265}{(2x-1)^2}+\frac{95568773322}{(2x-1)^3}+1334161125\right)}{292820000\left(\frac{11}{2x-1}+5\right)^2}-\frac{117649}{21296\,(2x-1)}-\frac{333639}{50000}\ln\left(\frac{|2x-1|}{2\,(2x-1)^2}\right)+\frac{17139}{45753125}\ln\left(\left|-\frac{11}{2x-1}-5\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^6/((5*x + 3)^3*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] 1/292820000*(2*x - 1)^2*(25615893600/(2*x - 1) + 93337977265/(2*x
 - 1)^2 + 95568773322/(2*x - 1)^3 + 1334161125)/(11/(2*x - 1) + 5
)^2 - 117649/21296/(2*x - 1) - 333639/50000*ln(1/2*abs(2*x - 1)/(
2*x - 1)^2) + 17139/45753125*ln(abs(-11/(2*x - 1) - 5))
```

3.1603 $\int \frac{(2+3x)^5}{(1-2x)^2(3+5x)^3} dx$

Optimal. Leaf size=59

$$\frac{243x}{500}+\frac{16807}{10648(1-2x)}-\frac{169}{831875(5x+3)}-\frac{1}{151250(5x+3)^2}+\frac{36015\log(1-2x)}{29282}+\frac{11562\log(5x+3)}{9150625}$$

```
[Out] 16807/(10648*(1 - 2*x)) + (243*x)/500 - 1/(151250*(3 + 5*x)^2) -
169/(831875*(3 + 5*x)) + (36015*Log[1 - 2*x])/29282 + (11562*Log[
3 + 5*x])/9150625
```

Rubi [A] time = 0.0689739, antiderivative size = 59, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$\frac{243x}{500}+\frac{16807}{10648(1-2x)}-\frac{169}{831875(5x+3)}-\frac{1}{151250(5x+3)^2}+\frac{36015\log(1-2x)}{29282}+\frac{11562\log(5x+3)}{9150625}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^5/((1 - 2*x)^2*(3 + 5*x)^3),x]
```

```
[Out] 16807/(10648*(1 - 2*x)) + (243*x)/500 - 1/(151250*(3 + 5*x)^2) -
169/(831875*(3 + 5*x)) + (36015*Log[1 - 2*x])/29282 + (11562*Log[
3 + 5*x])/9150625
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{36015\log(-2x+1)}{29282}+\frac{11562\log(5x+3)}{9150625}+\int\frac{243}{500}\,dx-\frac{169}{831875\,(5x+3)}-\frac{1}{151250\,(5x+3)^2}+\frac{16807}{10648\,(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**5/(1-2*x)**2/(3+5*x)**3,x)
```

```
[Out] 36015*log(-2*x + 1)/29282 + 11562*log(5*x + 3)/9150625 + Integral
(243/500, x) - 169/(831875*(5*x + 3)) - 1/(151250*(5*x + 3)**2) +
 16807/(10648*(-2*x + 1))
```

Mathematica [A] time = 0.0756651, size = 55, normalized size = 0.93

$$\frac{17788815(2x-1)+\frac{115548125}{1-2x}-\frac{14872}{5x+3}-\frac{484}{(5x+3)^2}+90037500\log(1-2x)+92496\log(10x+6)}{73205000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^5/((1 - 2*x)^2*(3 + 5*x)^3),x]
```

```
[Out] (115548125/(1 - 2*x) + 17788815*(-1 + 2*x) - 484/(3 + 5*x)^2 - 14
872/(3 + 5*x) + 90037500*Log[1 - 2*x] + 92496*Log[6 + 10*x])/7320
5000
```

Maple [A] time = 0.014, size = 48, normalized size = 0.8

$$\frac{243\,x}{500}-\frac{1}{151250\,(3+5\,x)^2}-\frac{169}{2495625+4159375\,x}+\frac{11562\,\ln(3+5\,x)}{9150625}-\frac{16807}{-10648+21296\,x}+\frac{36015\,\ln(-1+2\,x)}{29282}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^5/(1-2*x)^2/(3+5*x)^3,x)
```

```
[Out] 243/500*x-1/151250/(3+5*x)^2-169/831875/(3+5*x)+11562/9150625*ln(
3+5*x)-16807/10648/(-1+2*x)+36015/29282*ln(-1+2*x)
```

Maxima [A] time = 1.34962, size = 66, normalized size = 1.12

$$\frac{243}{500}\,x - \frac{52524579\,x^{2} + 63026538\,x + 18907055}{1331000\,(50\,x^{3} + 35\,x^{2} - 12\,x - 9)} + \frac{11562}{9150625}\,\log\left(5\,x + 3\right) + \frac{36015}{29282}\,\log\left(2\,x - 1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^5/((5*x + 3)^3*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] 243/500*x - 1/1331000*(52524579*x^2 + 63026538*x + 18907055)/(50*
x^3 + 35*x^2 - 12*x - 9) + 11562/9150625*log(5*x + 3) + 36015/292
82*log(2*x - 1)
```

Fricas [A] time = 0.214649, size = 115, normalized size = 1.95

$$\frac{1778881500\,x^{4} + 1245217050\,x^{3} - 3315783405\,x^{2} + 92496\,\left(50\,x^{3} + 35\,x^{2} - 12\,x - 9\right)\,\log\left(5\,x + 3\right) + 90037500\,\left(50\,x^{3} + 35\,x^{2}\right.}{73205000\,(50\,x^{3} + 35\,x^{2} - 12\,x - 9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^5/((5*x + 3)^3*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] 1/73205000*(1778881500*x^4 + 1245217050*x^3 - 3315783405*x^2 + 92
496*(50*x^3 + 35*x^2 - 12*x - 9)*log(5*x + 3) + 90037500*(50*x^3
+ 35*x^2 - 12*x - 9)*log(2*x - 1) - 3786658260*x - 1039888025)/(5
0*x^3 + 35*x^2 - 12*x - 9)
```

Sympy [A] time = 0.466219, size = 49, normalized size = 0.83

$$\frac{243x}{500} - \frac{52524579x^{2} + 63026538x + 18907055}{66550000x^{3} + 46585000x^{2} - 15972000x - 11979000} + \frac{36015\log\left(x - \frac{1}{2}\right)}{29282} + \frac{11562\log\left(x + \frac{3}{5}\right)}{9150625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**5/(1-2*x)**2/(3+5*x)**3,x)
```

```
[Out] 243*x/500 - (52524579*x**2 + 63026538*x + 18907055)/(66550000*x**
3 + 46585000*x**2 - 15972000*x - 11979000) + 36015*log(x - 1/2)/2
9282 + 11562*log(x + 3/5)/9150625
```

GIAC/XCAS [A] time = 0.210478, size = 112, normalized size = 1.9

$$\frac{(2\,x - 1)\left(\frac{391367530}{2\,x-1} + \frac{430519419}{(2\,x-1)^{2}} + 88944075\right)}{14641000\,\left(\frac{11}{2\,x-1} + 5\right)^{2}} - \frac{16807}{10648\,(2\,x - 1)} - \frac{1539}{1250}\,\ln\left(\frac{|2\,x - 1|}{2\,(2\,x - 1)^{2}}\right) + \frac{11562}{9150625}\,\ln\left(\left|-\frac{11}{2\,x - 1} - 5\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/((5*x + 3)^3*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] 1/14641000*(2*x - 1)*(391367530/(2*x - 1) + 430519419/(2*x - 1)^2
 + 88944075)/(11/(2*x - 1) + 5)^2 - 16807/10648/(2*x - 1) - 1539/
1250*ln(1/2*abs(2*x - 1)/(2*x - 1)^2) + 11562/9150625*ln(abs(-11/
(2*x - 1) - 5))
```

3.1604 $\int \frac{(2+3x)^4}{(1-2x)^2(3+5x)^3} \, dx$

Optimal. Leaf size=54

$$\frac{2401}{5324(1-2x)}-\frac{136}{166375(5x+3)}-\frac{1}{30250(5x+3)^2}+\frac{9261\log(1-2x)}{58564}+\frac{7074\log(5x+3)}{1830125}$$

```
[Out] 2401/(5324*(1 - 2*x)) - 1/(30250*(3 + 5*x)^2) - 136/(166375*(3 +
5*x)) + (9261*Log[1 - 2*x])/58564 + (7074*Log[3 + 5*x])/1830125
```

Rubi [A] time = 0.0616089, antiderivative size = 54, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$\frac{2401}{5324(1-2x)}-\frac{136}{166375(5x+3)}-\frac{1}{30250(5x+3)^2}+\frac{9261\log(1-2x)}{58564}+\frac{7074\log(5x+3)}{1830125}$$

Antiderivative was successfully verified.

```
[In] Int[(2 + 3*x)^4/((1 - 2*x)^2*(3 + 5*x)^3),x]
```

```
[Out] 2401/(5324*(1 - 2*x)) - 1/(30250*(3 + 5*x)^2) - 136/(166375*(3 +
5*x)) + (9261*Log[1 - 2*x])/58564 + (7074*Log[3 + 5*x])/1830125
```

Rubi in Sympy [A] time = 8.83618, size = 42, normalized size = 0.78

$$\frac{9261\log(-2x+1)}{58564}+\frac{7074\log(5x+3)}{1830125}-\frac{136}{166375(5x+3)}-\frac{1}{30250(5x+3)^2}+\frac{2401}{5324(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**4/(1-2*x)**2/(3+5*x)**3,x)
```

```
[Out] 9261*log(-2*x + 1)/58564 + 7074*log(5*x + 3)/1830125 - 136/(16637
5*(5*x + 3)) - 1/(30250*(5*x + 3)**2) + 2401/(5324*(-2*x + 1))
```

Mathematica [A] time = 0.0531213, size = 48, normalized size = 0.89

$$\frac{\frac{3301375}{1-2x}-\frac{5984}{5x+3}-\frac{242}{(5x+3)^2}+1157625\log(1-2x)+28296\log(10x+6)}{7320500}$$

Antiderivative was successfully verified.

```
[In] Integrate[(2 + 3*x)^4/((1 - 2*x)^2*(3 + 5*x)^3),x]
```

```
[Out] (3301375/(1 - 2*x) - 242/(3 + 5*x)^2 - 5984/(3 + 5*x) + 1157625*L
og[1 - 2*x] + 28296*Log[6 + 10*x])/7320500
```

Maple [A] time = 0.015, size = 45, normalized size = 0.8

$$-\frac{1}{30250\,(3+5\,x)^2}-\frac{136}{499125+831875\,x}+\frac{7074\,\ln(3+5\,x)}{1830125}-\frac{2401}{-5324+10648\,x}+\frac{9261\,\ln(-1+2\,x)}{58564}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4/(1-2*x)^2/(3+5*x)^3,x)
```

```
[Out] -1/30250/(3+5*x)^2-136/166375/(3+5*x)+7074/1830125*ln(3+5*x)-2401
/5324/(-1+2*x)+9261/58564*ln(-1+2*x)
```

Maxima [A] time = 1.34709, size = 62, normalized size = 1.15

$$-\frac{7508565\,x^2+9004338\,x+2699471}{665500\,(50\,x^3+35\,x^2-12\,x-9)}+\frac{7074}{1830125}\,\log(5\,x+3)+\frac{9261}{58564}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^4/((5*x + 3)^3*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] -1/665500*(7508565*x^2 + 9004338*x + 2699471)/(50*x^3 + 35*x^2 -
12*x - 9) + 7074/1830125*log(5*x + 3) + 9261/58564*log(2*x - 1)
```

Fricas [A] time = 0.220758, size = 101, normalized size = 1.87

$$-\frac{82594215\,x^2-28296\left(50\,x^3+35\,x^2-12\,x-9\right)\log(5\,x+3)-1157625\left(50\,x^3+35\,x^2-12\,x-9\right)\log(2\,x-1)+99047718}{7320500\,(50\,x^3+35\,x^2-12\,x-9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^4/((5*x + 3)^3*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] -1/7320500*(82594215*x^2 - 28296*(50*x^3 + 35*x^2 - 12*x - 9)*log
(5*x + 3) - 1157625*(50*x^3 + 35*x^2 - 12*x - 9)*log(2*x - 1) + 9
9047718*x + 29694181)/(50*x^3 + 35*x^2 - 12*x - 9)
```

Sympy [A] time = 0.451062, size = 44, normalized size = 0.81

$$-\frac{7508565x^2+9004338x+2699471}{33275000x^3+23292500x^2-7986000x-5989500}+\frac{9261\log\left(x-\frac{1}{2}\right)}{58564}+\frac{7074\log\left(x+\frac{3}{5}\right)}{1830125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4/(1-2*x)**2/(3+5*x)**3,x)
```

```
[Out] -(7508565*x**2 + 9004338*x + 2699471)/(33275000*x**3 + 23292500*x
**2 - 7986000*x - 5989500) + 9261*log(x - 1/2)/58564 + 7074*log(x
 + 3/5)/1830125
```

GIAC/XCAS [A] time = 0.208223, size = 93, normalized size = 1.72

$$-\frac{2401}{5324\,(2\,x-1)}+\frac{2\left(\frac{1518}{2\,x-1}+685\right)}{366025\left(\frac{11}{2\,x-1}+5\right)^2}-\frac{81}{500}\ln\left(\frac{|2\,x-1|}{2\,(2\,x-1)^2}\right)+\frac{7074}{1830125}\ln\left(\left|-\frac{11}{2\,x-1}-5\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^4/((5*x + 3)^3*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -2401/5324/(2*x - 1) + 2/366025*(1518/(2*x - 1) + 685)/(11/(2*x -
 1) + 5)^2 - 81/500*ln(1/2*abs(2*x - 1)/(2*x - 1)^2) + 7074/18301
25*ln(abs(-11/(2*x - 1) - 5))
```

3.1605 $\int \frac{(2+3x)^3}{(1-2x)^2(3+5x)^3}\,dx$

Optimal. Leaf size=54

$$\frac{343}{2662(1-2x)}-\frac{103}{33275(5x+3)}-\frac{1}{6050(5x+3)^2}-\frac{147\log(1-2x)}{14641}+\frac{147\log(5x+3)}{14641}$$

```
[Out] 343/(2662*(1 - 2*x)) - 1/(6050*(3 + 5*x)^2) - 103/(33275*(3 + 5*x
)) - (147*Log[1 - 2*x])/14641 + (147*Log[3 + 5*x])/14641
```

Rubi [A] time = 0.063548, antiderivative size = 54, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{343}{2662(1-2x)}-\frac{103}{33275(5x+3)}-\frac{1}{6050(5x+3)^2}-\frac{147\log(1-2x)}{14641}+\frac{147\log(5x+3)}{14641}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^3/((1 - 2*x)^2*(3 + 5*x)^3),x]
```

```
[Out] 343/(2662*(1 - 2*x)) - 1/(6050*(3 + 5*x)^2) - 103/(33275*(3 + 5*x
)) - (147*Log[1 - 2*x])/14641 + (147*Log[3 + 5*x])/14641
```

Rubi in Sympy [A] time = 8.9127, size = 42, normalized size = 0.78

$$-\frac{147\log(-2x+1)}{14641}+\frac{147\log(5x+3)}{14641}-\frac{103}{33275(5x+3)}-\frac{1}{6050(5x+3)^2}+\frac{343}{2662(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3/(1-2*x)**2/(3+5*x)**3,x)
```

```
[Out] -147*log(-2*x + 1)/14641 + 147*log(5*x + 3)/14641 - 103/(33275*(5
*x + 3)) - 1/(6050*(5*x + 3)**2) + 343/(2662*(-2*x + 1))
```

Mathematica [A] time = 0.0446536, size = 47, normalized size = 0.87

$$\frac{-\frac{11(216435x^2+257478x+76546)}{(2x-1)(5x+3)^2}-7350\log(1-2x)+7350\log(10x+6)}{732050}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^3/((1 - 2*x)^2*(3 + 5*x)^3),x]
```

```
[Out] ((-11*(76546 + 257478*x + 216435*x^2))/((-1 + 2*x)*(3 + 5*x)^2) -
 7350*Log[1 - 2*x] + 7350*Log[6 + 10*x])/732050
```

Maple [A] time = 0.015, size = 45, normalized size = 0.8

$$-\frac{1}{6050\,(3+5\,x)^2}-\frac{103}{99825+166375\,x}+\frac{147\,\ln(3+5\,x)}{14641}-\frac{343}{-2662+5324\,x}-\frac{147\,\ln(-1+2\,x)}{14641}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3/(1-2*x)^2/(3+5*x)^3,x)
```

```
[Out] -1/6050/(3+5*x)^2-103/33275/(3+5*x)+147/14641*ln(3+5*x)-343/2662/
(-1+2*x)-147/14641*ln(-1+2*x)
```

Maxima [A] time = 1.34805, size = 62, normalized size = 1.15

$$-\frac{216435\,x^2+257478\,x+76546}{66550\,(50\,x^3+35\,x^2-12\,x-9)}+\frac{147}{14641}\,\log\left(5\,x+3\right)-\frac{147}{14641}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^3/((5*x + 3)^3*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] -1/66550*(216435*x^2 + 257478*x + 76546)/(50*x^3 + 35*x^2 - 12*x
- 9) + 147/14641*log(5*x + 3) - 147/14641*log(2*x - 1)
```

Fricas [A] time = 0.218522, size = 101, normalized size = 1.87

$$-\frac{2380785\,x^2-7350\,\left(50\,x^3+35\,x^2-12\,x-9\right)\,\log\left(5\,x+3\right)+7350\,\left(50\,x^3+35\,x^2-12\,x-9\right)\,\log\left(2\,x-1\right)+2832258\,x+84}{732050\,(50\,x^3+35\,x^2-12\,x-9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^3/((5*x + 3)^3*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] -1/732050*(2380785*x^2 - 7350*(50*x^3 + 35*x^2 - 12*x - 9)*log(5*
x + 3) + 7350*(50*x^3 + 35*x^2 - 12*x - 9)*log(2*x - 1) + 2832258
*x + 842006)/(50*x^3 + 35*x^2 - 12*x - 9)
```

Sympy [A] time = 0.395238, size = 44, normalized size = 0.81

$$-\frac{216435x^2+257478x+76546}{3327500x^3+2329250x^2-798600x-598950}-\frac{147\log\left(x-\frac{1}{2}\right)}{14641}+\frac{147\log\left(x+\frac{3}{5}\right)}{14641}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3/(1-2*x)**2/(3+5*x)**3,x)
```

```
[Out] -(216435*x**2 + 257478*x + 76546)/(3327500*x**3 + 2329250*x**2 -
798600*x - 598950) - 147*log(x - 1/2)/14641 + 147*log(x + 3/5)/14
641
```

GIAC/XCAS [A] time = 0.207301, size = 69, normalized size = 1.28

$$-\frac{343}{2662\,(2\,x-1)}+\frac{2\,\left(\frac{231}{2\,x-1}+104\right)}{14641\,\left(\frac{11}{2\,x-1}+5\right)^2}+\frac{147}{14641}\,\ln\left(\left|-\frac{11}{2\,x-1}-5\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^3/((5*x + 3)^3*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -343/2662/(2*x - 1) + 2/14641*(231/(2*x - 1) + 104)/(11/(2*x - 1)
 + 5)^2 + 147/14641*ln(abs(-11/(2*x - 1) - 5))
```

3.1606 $\int \frac{(2+3x)^2}{(1-2x)^2(3+5x)^3}\,dx$

Optimal. Leaf size=54

$$\frac{49}{1331(1-2x)}-\frac{14}{1331(5x+3)}-\frac{1}{1210(5x+3)^2}-\frac{273\log(1-2x)}{14641}+\frac{273\log(5x+3)}{14641}$$

```
[Out] 49/(1331*(1 - 2*x)) - 1/(1210*(3 + 5*x)^2) - 14/(1331*(3 + 5*x))
- (273*Log[1 - 2*x])/14641 + (273*Log[3 + 5*x])/14641
```

Rubi [A] time = 0.0608409, antiderivative size = 54, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{49}{1331(1-2x)}-\frac{14}{1331(5x+3)}-\frac{1}{1210(5x+3)^2}-\frac{273\log(1-2x)}{14641}+\frac{273\log(5x+3)}{14641}$$

Antiderivative was successfully verified.

```
[In] Int[(2 + 3*x)^2/((1 - 2*x)^2*(3 + 5*x)^3),x]
```

```
[Out] 49/(1331*(1 - 2*x)) - 1/(1210*(3 + 5*x)^2) - 14/(1331*(3 + 5*x))
- (273*Log[1 - 2*x])/14641 + (273*Log[3 + 5*x])/14641
```

Rubi in Sympy [A] time = 8.89647, size = 42, normalized size = 0.78

$$-\frac{273\log(-2x+1)}{14641}+\frac{273\log(5x+3)}{14641}-\frac{14}{1331(5x+3)}-\frac{1}{1210(5x+3)^2}+\frac{49}{1331(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**2/(1-2*x)**2/(3+5*x)**3,x)
```

```
[Out] -273*log(-2*x + 1)/14641 + 273*log(5*x + 3)/14641 - 14/(1331*(5*x
 + 3)) - 1/(1210*(5*x + 3)**2) + 49/(1331*(-2*x + 1))
```

Mathematica [A] time = 0.0452094, size = 47, normalized size = 0.87

$$\frac{-\frac{11(13650x^2+14862x+3979)}{(2x-1)(5x+3)^2}-2730\log(1-2x)+2730\log(10x+6)}{146410}$$

Antiderivative was successfully verified.

```
[In] Integrate[(2 + 3*x)^2/((1 - 2*x)^2*(3 + 5*x)^3),x]
```

```
[Out] ((-11*(3979 + 14862*x + 13650*x^2))/((-1 + 2*x)*(3 + 5*x)^2) - 27
30*Log[1 - 2*x] + 2730*Log[6 + 10*x])/146410
```

Maple [A] time = 0.016, size = 45, normalized size = 0.8

$$-\frac{1}{1210\,(3+5\,x)^2}-\frac{14}{3993+6655\,x}+\frac{273\,\ln(3+5\,x)}{14641}-\frac{49}{-1331+2662\,x}-\frac{273\,\ln(-1+2\,x)}{14641}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2/(1-2*x)^2/(3+5*x)^3,x)
```

```
[Out] -1/1210/(3+5*x)^2-14/1331/(3+5*x)+273/14641*ln(3+5*x)-49/1331/(-1
+2*x)-273/14641*ln(-1+2*x)
```

Maxima [A] time = 1.34971, size = 62, normalized size = 1.15

$$-\frac{13650\,x^2+14862\,x+3979}{13310\,(50\,x^3+35\,x^2-12\,x-9)}+\frac{273}{14641}\,\log\left(5\,x+3\right)-\frac{273}{14641}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2/((5*x + 3)^3*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] -1/13310*(13650*x^2 + 14862*x + 3979)/(50*x^3 + 35*x^2 - 12*x - 9
) + 273/14641*log(5*x + 3) - 273/14641*log(2*x - 1)
```

Fricas [A] time = 0.205644, size = 101, normalized size = 1.87

$$-\frac{150150\,x^2-2730\,\left(50\,x^3+35\,x^2-12\,x-9\right)\,\log\left(5\,x+3\right)+2730\,\left(50\,x^3+35\,x^2-12\,x-9\right)\,\log\left(2\,x-1\right)+163482\,x+4376}{146410\,(50\,x^3+35\,x^2-12\,x-9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2/((5*x + 3)^3*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] -1/146410*(150150*x^2 - 2730*(50*x^3 + 35*x^2 - 12*x - 9)*log(5*x
 + 3) + 2730*(50*x^3 + 35*x^2 - 12*x - 9)*log(2*x - 1) + 163482*x
 + 43769)/(50*x^3 + 35*x^2 - 12*x - 9)
```

Sympy [A] time = 0.401378, size = 44, normalized size = 0.81

$$-\frac{13650x^2+14862x+3979}{665500x^3+465850x^2-159720x-119790}-\frac{273\log\left(x-\frac{1}{2}\right)}{14641}+\frac{273\log\left(x+\frac{3}{5}\right)}{14641}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2/(1-2*x)**2/(3+5*x)**3,x)
```

```
[Out] -(13650*x**2 + 14862*x + 3979)/(665500*x**3 + 465850*x**2 - 15972
0*x - 119790) - 273*log(x - 1/2)/14641 + 273*log(x + 3/5)/14641
```

GIAC/XCAS [A] time = 0.206149, size = 69, normalized size = 1.28

$$-\frac{49}{1331\,(2\,x-1)}+\frac{2\,\left(\frac{792}{2\,x-1}+355\right)}{14641\,\left(\frac{11}{2\,x-1}+5\right)^2}+\frac{273}{14641}\,\ln\left(\left|-\frac{11}{2\,x-1}-5\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2/((5*x + 3)^3*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -49/1331/(2*x - 1) + 2/14641*(792/(2*x - 1) + 355)/(11/(2*x - 1)
+ 5)^2 + 273/14641*ln(abs(-11/(2*x - 1) - 5))
```

3.1607 $\int \frac{2+3x}{(1-2x)^2(3+5x)^3}\,dx$

Optimal. Leaf size=54

$$\frac{14}{1331(1-2x)}-\frac{37}{1331(5x+3)}-\frac{1}{242(5x+3)^2}-\frac{144\log(1-2x)}{14641}+\frac{144\log(5x+3)}{14641}$$

```
[Out] 14/(1331*(1 - 2*x)) - 1/(242*(3 + 5*x)^2) - 37/(1331*(3 + 5*x)) -
 (144*Log[1 - 2*x])/14641 + (144*Log[3 + 5*x])/14641
```

Rubi [A] time = 0.0569679, antiderivative size = 54, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{14}{1331(1-2x)}-\frac{37}{1331(5x+3)}-\frac{1}{242(5x+3)^2}-\frac{144\log(1-2x)}{14641}+\frac{144\log(5x+3)}{14641}$$

Antiderivative was successfully verified.

```
[In] Int[(2 + 3*x)/((1 - 2*x)^2*(3 + 5*x)^3),x]
```

```
[Out] 14/(1331*(1 - 2*x)) - 1/(242*(3 + 5*x)^2) - 37/(1331*(3 + 5*x)) -
 (144*Log[1 - 2*x])/14641 + (144*Log[3 + 5*x])/14641
```

Rubi in Sympy [A] time = 8.4943, size = 42, normalized size = 0.78

$$-\frac{144\log\left(-2x+1\right)}{14641}+\frac{144\log\left(5x+3\right)}{14641}-\frac{37}{1331\left(5x+3\right)}-\frac{1}{242\left(5x+3\right)^2}+\frac{14}{1331\left(-2x+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)/(1-2*x)**2/(3+5*x)**3,x)
```

```
[Out] -144*log(-2*x + 1)/14641 + 144*log(5*x + 3)/14641 - 37/(1331*(5*x
 + 3)) - 1/(242*(5*x + 3)**2) + 14/(1331*(-2*x + 1))
```

Mathematica [A] time = 0.0402459, size = 47, normalized size = 0.87

$$\frac{-\frac{11\left(1440x^2+936x+19\right)}{(2x-1)(5x+3)^2}-288\log(1-2x)+288\log(10x+6)}{29282}$$

Antiderivative was successfully verified.

```
[In] Integrate[(2 + 3*x)/((1 - 2*x)^2*(3 + 5*x)^3),x]
```

```
[Out] ((-11*(19 + 936*x + 1440*x^2))/((-1 + 2*x)*(3 + 5*x)^2) - 288*Log
[1 - 2*x] + 288*Log[6 + 10*x])/29282
```

Maple [A] time = 0.014, size = 45, normalized size = 0.8

$$-\frac{1}{242\,\left(3+5\,x\right)^2}-\frac{37}{3993+6655\,x}+\frac{144\,\ln\left(3+5\,x\right)}{14641}-\frac{14}{-1331+2662\,x}-\frac{144\,\ln\left(-1+2\,x\right)}{14641}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)/(1-2*x)^2/(3+5*x)^3,x)
```

```
[Out] -1/242/(3+5*x)^2-37/1331/(3+5*x)+144/14641*ln(3+5*x)-14/1331/(-1+
2*x)-144/14641*ln(-1+2*x)
```

Maxima [A] time = 1.34548, size = 62, normalized size = 1.15

$$-\frac{1440\,x^2+936\,x+19}{2662\,(50\,x^3+35\,x^2-12\,x-9)}+\frac{144}{14641}\,\log\left(5\,x+3\right)-\frac{144}{14641}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)/((5*x + 3)^3*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] -1/2662*(1440*x^2 + 936*x + 19)/(50*x^3 + 35*x^2 - 12*x - 9) + 14
4/14641*log(5*x + 3) - 144/14641*log(2*x - 1)
```

Fricas [A] time = 0.216425, size = 101, normalized size = 1.87

$$-\frac{15840\,x^2-288\,\left(50\,x^3+35\,x^2-12\,x-9\right)\,\log\left(5\,x+3\right)+288\,\left(50\,x^3+35\,x^2-12\,x-9\right)\,\log\left(2\,x-1\right)+10296\,x+209}{29282\,(50\,x^3+35\,x^2-12\,x-9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)/((5*x + 3)^3*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] -1/29282*(15840*x^2 - 288*(50*x^3 + 35*x^2 - 12*x - 9)*log(5*x +
3) + 288*(50*x^3 + 35*x^2 - 12*x - 9)*log(2*x - 1) + 10296*x + 20
9)/(50*x^3 + 35*x^2 - 12*x - 9)
```

Sympy [A] time = 0.370189, size = 44, normalized size = 0.81

$$-\frac{1440x^2+936x+19}{133100x^3+93170x^2-31944x-23958}-\frac{144\log\left(x-\frac{1}{2}\right)}{14641}+\frac{144\log\left(x+\frac{3}{5}\right)}{14641}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)/(1-2*x)**2/(3+5*x)**3,x)
```

```
[Out] -(1440*x**2 + 936*x + 19)/(133100*x**3 + 93170*x**2 - 31944*x - 2
3958) - 144*log(x - 1/2)/14641 + 144*log(x + 3/5)/14641
```

GIAC/XCAS [A] time = 0.20531, size = 69, normalized size = 1.28

$$-\frac{14}{1331\,(2\,x-1)}+\frac{10\,\left(\frac{429}{2\,x-1}+190\right)}{14641\,\left(\frac{11}{2\,x-1}+5\right)^2}+\frac{144}{14641}\,\ln\left(\left|-\frac{11}{2\,x-1}-5\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)/((5*x + 3)^3*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -14/1331/(2*x - 1) + 10/14641*(429/(2*x - 1) + 190)/(11/(2*x - 1)
 + 5)^2 + 144/14641*ln(abs(-11/(2*x - 1) - 5))
```

3.1608 $\int \frac{1}{(1-2x)^2(3+5x)^3}\,dx$

Optimal. Leaf size=54

$$\frac{4}{1331(1-2x)}-\frac{20}{1331(5x+3)}-\frac{5}{242(5x+3)^2}-\frac{60\log(1-2x)}{14641}+\frac{60\log(5x+3)}{14641}$$

```
[Out] 4/(1331*(1 - 2*x)) - 5/(242*(3 + 5*x)^2) - 20/(1331*(3 + 5*x)) -
(60*Log[1 - 2*x])/14641 + (60*Log[3 + 5*x])/14641
```

Rubi [A] time = 0.0504274, antiderivative size = 54, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.067

$$\frac{4}{1331(1-2x)}-\frac{20}{1331(5x+3)}-\frac{5}{242(5x+3)^2}-\frac{60\log(1-2x)}{14641}+\frac{60\log(5x+3)}{14641}$$

Antiderivative was successfully verified.

```
[In] Int[1/((1 - 2*x)^2*(3 + 5*x)^3),x]
```

```
[Out] 4/(1331*(1 - 2*x)) - 5/(242*(3 + 5*x)^2) - 20/(1331*(3 + 5*x)) -
(60*Log[1 - 2*x])/14641 + (60*Log[3 + 5*x])/14641
```

Rubi in Sympy [A] time = 7.41507, size = 42, normalized size = 0.78

$$-\frac{60\log(-2x+1)}{14641}+\frac{60\log(5x+3)}{14641}-\frac{20}{1331(5x+3)}-\frac{5}{242(5x+3)^2}+\frac{4}{1331(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(1/(1-2*x)**2/(3+5*x)**3,x)
```

```
[Out] -60*log(-2*x + 1)/14641 + 60*log(5*x + 3)/14641 - 20/(1331*(5*x +
 3)) - 5/(242*(5*x + 3)**2) + 4/(1331*(-2*x + 1))
```

Mathematica [A] time = 0.036768, size = 47, normalized size = 0.87

$$\frac{-\frac{11(600x^2+390x-103)}{(2x-1)(5x+3)^2}-120\log(1-2x)+120\log(10x+6)}{29282}$$

Antiderivative was successfully verified.

```
[In] Integrate[1/((1 - 2*x)^2*(3 + 5*x)^3),x]
```

```
[Out] ((-11*(-103 + 390*x + 600*x^2))/((-1 + 2*x)*(3 + 5*x)^2) - 120*Lo
g[1 - 2*x] + 120*Log[6 + 10*x])/29282
```

Maple [A] time = 0.015, size = 45, normalized size = 0.8

$$-\frac{5}{242(3+5x)^2}-\frac{20}{3993+6655x}+\frac{60\ln(3+5x)}{14641}-\frac{4}{-1331+2662x}-\frac{60\ln(-1+2x)}{14641}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^2/(3+5*x)^3,x)
```

```
[Out] -5/242/(3+5*x)^2-20/1331/(3+5*x)+60/14641*ln(3+5*x)-4/1331/(-1+2*
x)-60/14641*ln(-1+2*x)
```

Maxima [A] time = 1.34884, size = 62, normalized size = 1.15

$$-\frac{600\,x^2+390\,x-103}{2662\,(50\,x^3+35\,x^2-12\,x-9)}+\frac{60}{14641}\,\log\left(5\,x+3\right)-\frac{60}{14641}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^3*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] -1/2662*(600*x^2 + 390*x - 103)/(50*x^3 + 35*x^2 - 12*x - 9) + 60
/14641*log(5*x + 3) - 60/14641*log(2*x - 1)
```

Fricas [A] time = 0.212463, size = 101, normalized size = 1.87

$$-\frac{6600\,x^2-120\,\left(50\,x^3+35\,x^2-12\,x-9\right)\,\log\left(5\,x+3\right)+120\,\left(50\,x^3+35\,x^2-12\,x-9\right)\,\log\left(2\,x-1\right)+4290\,x-1133}{29282\,(50\,x^3+35\,x^2-12\,x-9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^3*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] -1/29282*(6600*x^2 - 120*(50*x^3 + 35*x^2 - 12*x - 9)*log(5*x + 3
) + 120*(50*x^3 + 35*x^2 - 12*x - 9)*log(2*x - 1) + 4290*x - 1133
)/(50*x^3 + 35*x^2 - 12*x - 9)
```

Sympy [A] time = 0.39466, size = 44, normalized size = 0.81

$$-\frac{600x^2+390x-103}{133100x^3+93170x^2-31944x-23958}-\frac{60\log\left(x-\frac{1}{2}\right)}{14641}+\frac{60\log\left(x+\frac{3}{5}\right)}{14641}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**2/(3+5*x)**3,x)
```

```
[Out] -(600*x**2 + 390*x - 103)/(133100*x**3 + 93170*x**2 - 31944*x - 2
3958) - 60*log(x - 1/2)/14641 + 60*log(x + 3/5)/14641
```

GIAC/XCAS [A] time = 0.206835, size = 69, normalized size = 1.28

$$-\frac{4}{1331\,(2\,x-1)}+\frac{50\,\left(\frac{66}{2\,x-1}+25\right)}{14641\,\left(\frac{11}{2\,x-1}+5\right)^2}+\frac{60}{14641}\,\ln\left(\left|-\frac{11}{2\,x-1}-5\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^3*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -4/1331/(2*x - 1) + 50/14641*(66/(2*x - 1) + 25)/(11/(2*x - 1) +
5)^2 + 60/14641*ln(abs(-11/(2*x - 1) - 5))
```

3.1609 $\int \frac{1}{(1-2x)^2(2+3x)(3+5x)^3} dx$

Optimal. Leaf size=64

$$\frac{8}{9317(1-2x)}+\frac{725}{1331(5x+3)}-\frac{25}{242(5x+3)^2}-\frac{1104\log(1-2x)}{717409}-\frac{81}{49}\log(3x+2)+\frac{24225\log(5x+3)}{14641}$$

```
[Out] 8/(9317*(1 - 2*x)) - 25/(242*(3 + 5*x)^2) + 725/(1331*(3 + 5*x))
- (1104*Log[1 - 2*x])/717409 - (81*Log[2 + 3*x])/49 + (24225*Log[
3 + 5*x])/14641
```

Rubi [A] time = 0.0753131, antiderivative size = 64, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{8}{9317(1-2x)}+\frac{725}{1331(5x+3)}-\frac{25}{242(5x+3)^2}-\frac{1104\log(1-2x)}{717409}-\frac{81}{49}\log(3x+2)+\frac{24225\log(5x+3)}{14641}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^2*(2 + 3*x)*(3 + 5*x)^3),x]
```

```
[Out] 8/(9317*(1 - 2*x)) - 25/(242*(3 + 5*x)^2) + 725/(1331*(3 + 5*x))
- (1104*Log[1 - 2*x])/717409 - (81*Log[2 + 3*x])/49 + (24225*Log[
3 + 5*x])/14641
```

Rubi in Sympy [A] time = 10.0448, size = 53, normalized size = 0.83

$$-\frac{1104\log(-2x+1)}{717409}-\frac{81\log(3x+2)}{49}+\frac{24225\log(5x+3)}{14641}+\frac{725}{1331(5x+3)}-\frac{25}{242(5x+3)^2}+\frac{8}{9317(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**2/(2+3*x)/(3+5*x)**3,x)
```

```
[Out] -1104*log(-2*x + 1)/717409 - 81*log(3*x + 2)/49 + 24225*log(5*x +
 3)/14641 + 725/(1331*(5*x + 3)) - 25/(242*(5*x + 3)**2) + 8/(931
7*(-2*x + 1))
```

Mathematica [A] time = 0.052018, size = 60, normalized size = 0.94

$$\frac{3\left(\frac{1232}{3-6x}+\frac{781550}{15x+9}-\frac{148225}{3(5x+3)^2}-736\log(3-6x)-790614\log(3x+2)+791350\log(-3(5x+3))\right)}{1434818}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^2*(2 + 3*x)*(3 + 5*x)^3),x]
```

```
[Out] (3*(1232/(3 - 6*x) - 148225/(3*(3 + 5*x)^2) + 781550/(9 + 15*x) -
 736*Log[3 - 6*x] - 790614*Log[2 + 3*x] + 791350*Log[-3*(3 + 5*x)
]))/1434818
```

Maple [A] time = 0.017, size = 53, normalized size = 0.8

$$-\frac{25}{242\,(3+5\,x)^2}+\frac{725}{3993+6655\,x}+\frac{24225\,\ln(3+5\,x)}{14641}-\frac{81\,\ln(2+3\,x)}{49}-\frac{8}{-9317+18634\,x}-\frac{1104\,\ln(-1+2\,x)}{717409}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^2/(2+3*x)/(3+5*x)^3,x)
```

```
[Out] -25/242/(3+5*x)^2+725/1331/(3+5*x)+24225/14641*ln(3+5*x)-81/49*ln
(2+3*x)-8/9317/(-1+2*x)-1104/717409*ln(-1+2*x)
```

Maxima [A] time = 1.34697, size = 73, normalized size = 1.14

$$\frac{101100\,x^2+5820\,x-28669}{18634\,(50\,x^3+35\,x^2-12\,x-9)}+\frac{24225}{14641}\,\log(5\,x+3)-\frac{81}{49}\,\log(3\,x+2)-\frac{1104}{717409}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^3*(3*x + 2)*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] 1/18634*(101100*x^2 + 5820*x - 28669)/(50*x^3 + 35*x^2 - 12*x - 9
) + 24225/14641*log(5*x + 3) - 81/49*log(3*x + 2) - 1104/717409*l
og(2*x - 1)
```

Fricas [A] time = 0.216501, size = 132, normalized size = 2.06

$$\frac{7784700\,x^2+2374050\,\left(50\,x^3+35\,x^2-12\,x-9\right)\log(5\,x+3)-2371842\,\left(50\,x^3+35\,x^2-12\,x-9\right)\log(3\,x+2)-2208\,(50\,x}{1434818\,(50\,x^3+35\,x^2-12\,x-9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^3*(3*x + 2)*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] 1/1434818*(7784700*x^2 + 2374050*(50*x^3 + 35*x^2 - 12*x - 9)*log
(5*x + 3) - 2371842*(50*x^3 + 35*x^2 - 12*x - 9)*log(3*x + 2) - 2
208*(50*x^3 + 35*x^2 - 12*x - 9)*log(2*x - 1) + 448140*x - 220751
3)/(50*x^3 + 35*x^2 - 12*x - 9)
```

Sympy [A] time = 0.537373, size = 54, normalized size = 0.84

$$\frac{101100x^2+5820x-28669}{931700x^3+652190x^2-223608x-167706}-\frac{1104\log\left(x-\frac{1}{2}\right)}{717409}+\frac{24225\log\left(x+\frac{3}{5}\right)}{14641}-\frac{81\log\left(x+\frac{2}{3}\right)}{49}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**2/(2+3*x)/(3+5*x)**3,x)
```

```
[Out] (101100*x**2 + 5820*x - 28669)/(931700*x**3 + 652190*x**2 - 22360
8*x - 167706) - 1104*log(x - 1/2)/717409 + 24225*log(x + 3/5)/146
41 - 81*log(x + 2/3)/49
```

GIAC/XCAS [A] time = 0.210901, size = 89, normalized size = 1.39

$$-\frac{8}{9317\,(2\,x-1)}-\frac{250\left(\frac{297}{2\,x-1}+140\right)}{14641\left(\frac{11}{2\,x-1}+5\right)^2}-\frac{81}{49}\ln\left(\left|-\frac{7}{2\,x-1}-3\right|\right)+\frac{24225}{14641}\ln\left(\left|-\frac{11}{2\,x-1}-5\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^3*(3*x + 2)*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -8/9317/(2*x - 1) - 250/14641*(297/(2*x - 1) + 140)/(11/(2*x - 1)
 + 5)^2 - 81/49*ln(abs(-7/(2*x - 1) - 3)) + 24225/14641*ln(abs(-1
1/(2*x - 1) - 5))
```

3.1610 $\int \frac{1}{(1-2x)^2(2+3x)^2(3+5x)^3}\,dx$

Optimal. Leaf size=75

$$\frac{16}{65219(1-2x)}+\frac{81}{49(3x+2)}+\frac{7750}{1331(5x+3)}-\frac{125}{242(5x+3)^2}-\frac{2736\log(1-2x)}{5021863}-\frac{8829}{343}\log(3x+2)+\frac{376875\log(5x+3)}{14641}$$

```
[Out] 16/(65219*(1 - 2*x)) + 81/(49*(2 + 3*x)) - 125/(242*(3 + 5*x)^2)
+ 7750/(1331*(3 + 5*x)) - (2736*Log[1 - 2*x])/5021863 - (8829*Log
[2 + 3*x])/343 + (376875*Log[3 + 5*x])/14641
```

Rubi [A] time = 0.0872994, antiderivative size = 75, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{16}{65219(1-2x)}+\frac{81}{49(3x+2)}+\frac{7750}{1331(5x+3)}-\frac{125}{242(5x+3)^2}-\frac{2736\log(1-2x)}{5021863}-\frac{8829}{343}\log(3x+2)+\frac{376875\log(5x+3)}{14641}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^2*(2 + 3*x)^2*(3 + 5*x)^3),x]
```

```
[Out] 16/(65219*(1 - 2*x)) + 81/(49*(2 + 3*x)) - 125/(242*(3 + 5*x)^2)
+ 7750/(1331*(3 + 5*x)) - (2736*Log[1 - 2*x])/5021863 - (8829*Log
[2 + 3*x])/343 + (376875*Log[3 + 5*x])/14641
```

Rubi in Sympy [A] time = 11.4412, size = 60, normalized size = 0.8

$$-\frac{2736\log(-2x+1)}{5021863}-\frac{8829\log(3x+2)}{343}+\frac{376875\log(5x+3)}{14641}+\frac{7750}{1331(5x+3)}-\frac{125}{242(5x+3)^2}+\frac{81}{49(3x+2)}+\frac{16}{65219(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**2/(2+3*x)**2/(3+5*x)**3,x)
```

```
[Out] -2736*log(-2*x + 1)/5021863 - 8829*log(3*x + 2)/343 + 376875*log(
5*x + 3)/14641 + 7750/(1331*(5*x + 3)) - 125/(242*(5*x + 3)**2) +
 81/(49*(3*x + 2)) + 16/(65219*(-2*x + 1))
```

Mathematica [A] time = 0.108413, size = 65, normalized size = 0.87

$$\frac{\frac{77(33563700x^3+24606540x^2-7974123x-6363424)}{(5x+3)^2(6x^2+x-2)}-5472\log(5-10x)-258530778\log(5(3x+2))+258536250\log(5x+3)}{10043726}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^2*(2 + 3*x)^2*(3 + 5*x)^3),x]
```

```
[Out] ((77*(-6363424 - 7974123*x + 24606540*x^2 + 33563700*x^3))/((3 +
5*x)^2*(-2 + x + 6*x^2)) - 5472*Log[5 - 10*x] - 258530778*Log[5*(
2 + 3*x)] + 258536250*Log[3 + 5*x])/10043726
```

Maple [A] time = 0.019, size = 62, normalized size = 0.8

$$-\frac{125}{242\ (3+5\,x)^{2}}+\frac{7750}{3993+6655\,x}+\frac{376875\ \ln(3+5\,x)}{14641}+\frac{81}{98+147\,x}-\frac{8829\ \ln(2+3\,x)}{343}-\frac{16}{-65219+130438\,x}-\frac{2736\ \ln(-1+2\,x)}{5021863}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^2/(2+3*x)^2/(3+5*x)^3,x)
```

```
[Out] -125/242/(3+5*x)^2+7750/1331/(3+5*x)+376875/14641*ln(3+5*x)+81/49
/(2+3*x)-8829/343*ln(2+3*x)-16/65219/(-1+2*x)-2736/5021863*ln(-1+
2*x)
```

Maxima [A] time = 1.35071, size = 86, normalized size = 1.15

$$\frac{33563700\,x^{3}+24606540\,x^{2}-7974123\,x-6363424}{130438\,(150\,x^{4}+205\,x^{3}+34\,x^{2}-51\,x-18)}+\frac{376875}{14641}\,\log(5\,x+3)-\frac{8829}{343}\,\log(3\,x+2)-\frac{2736}{5021863}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^3*(3*x + 2)^2*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] 1/130438*(33563700*x^3 + 24606540*x^2 - 7974123*x - 6363424)/(150
*x^4 + 205*x^3 + 34*x^2 - 51*x - 18) + 376875/14641*log(5*x + 3)
- 8829/343*log(3*x + 2) - 2736/5021863*log(2*x - 1)
```

Fricas [A] time = 0.221142, size = 166, normalized size = 2.21

$$\frac{2584404900\,x^{3}+1894703580\,x^{2}+258536250\left(150\,x^{4}+205\,x^{3}+34\,x^{2}-51\,x-18\right)\log(5\,x+3)-258530778\left(150\,x^{4}+205\right.}{10043726\,(150\,x^{4}+205}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^3*(3*x + 2)^2*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] 1/10043726*(2584404900*x^3 + 1894703580*x^2 + 258536250*(150*x^4
+ 205*x^3 + 34*x^2 - 51*x - 18)*log(5*x + 3) - 258530778*(150*x^4
 + 205*x^3 + 34*x^2 - 51*x - 18)*log(3*x + 2) - 5472*(150*x^4 + 2
05*x^3 + 34*x^2 - 51*x - 18)*log(2*x - 1) - 614007471*x - 4899836
48)/(150*x^4 + 205*x^3 + 34*x^2 - 51*x - 18)
```

Sympy [A] time = 0.607219, size = 65, normalized size = 0.87

$$\frac{33563700x^{3}+24606540x^{2}-7974123x-6363424}{19565700x^{4}+26739790x^{3}+4434892x^{2}-6652338x-2347884}-\frac{2736\log\left(x-\frac{1}{2}\right)}{5021863}+\frac{376875\log\left(x+\frac{3}{5}\right)}{14641}-\frac{8829\log\left(x+\frac{2}{3}\right)}{343}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**2/(2+3*x)**2/(3+5*x)**3,x)
```

```
[Out] (33563700*x**3 + 24606540*x**2 - 7974123*x - 6363424)/(19565700*x
**4 + 26739790*x**3 + 4434892*x**2 - 6652338*x - 2347884) - 2736*
log(x - 1/2)/5021863 + 376875*log(x + 3/5)/14641 - 8829*log(x + 2
/3)/343
```

GIAC/XCAS [A] time = 0.206674, size = 116, normalized size = 1.55

$$\frac{81}{49\,(3\,x+2)}+\frac{27\,\left(\frac{139939165}{3\,x+2}-\frac{31679854}{(3\,x+2)^2}-37396350\right)}{913066\,\left(\frac{7}{3\,x+2}-2\right)\left(\frac{1}{3\,x+2}-5\right)^2}+\frac{376875}{14641}\ln\left(\left|-\frac{1}{3\,x+2}+5\right|\right)-\frac{2736}{5021863}\ln\left(\left|-\frac{7}{3\,x+2}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^3*(3*x + 2)^2*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] 81/49/(3*x + 2) + 27/913066*(139939165/(3*x + 2) - 31679854/(3*x
+ 2)^2 - 37396350)/((7/(3*x + 2) - 2)*(1/(3*x + 2) - 5)^2) + 3768
75/14641*ln(abs(-1/(3*x + 2) + 5)) - 2736/5021863*ln(abs(-7/(3*x
+ 2) + 2))
```

3.1611 $\int \frac{1}{(1-2x)^2(2+3x)^3(3+5x)^3}\,dx$

Optimal. Leaf size=86

$$\frac{32}{456533(1-2x)}+\frac{8829}{343(3x+2)}+\frac{59375}{1331(5x+3)}+\frac{81}{98(3x+2)^2}-\frac{625}{242(5x+3)^2}-\frac{6528\log(1-2x)}{35153041}-\frac{630342\log(3x+2)}{2401}+\frac{3843750\log(5x+3)}{14641}$$

```
[Out] 32/(456533*(1 - 2*x)) + 81/(98*(2 + 3*x)^2) + 8829/(343*(2 + 3*x)
) - 625/(242*(3 + 5*x)^2) + 59375/(1331*(3 + 5*x)) - (6528*Log[1
- 2*x])/35153041 - (630342*Log[2 + 3*x])/2401 + (3843750*Log[3 +
5*x])/14641
```

Rubi [A] time = 0.103539, antiderivative size = 86, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{32}{456533(1-2x)}+\frac{8829}{343(3x+2)}+\frac{59375}{1331(5x+3)}+\frac{81}{98(3x+2)^2}-\frac{625}{242(5x+3)^2}-\frac{6528\log(1-2x)}{35153041}-\frac{630342\log(3x+2)}{2401}+\frac{3843750\log(5x+3)}{14641}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^2*(2 + 3*x)^3*(3 + 5*x)^3),x]
```

```
[Out] 32/(456533*(1 - 2*x)) + 81/(98*(2 + 3*x)^2) + 8829/(343*(2 + 3*x)
) - 625/(242*(3 + 5*x)^2) + 59375/(1331*(3 + 5*x)) - (6528*Log[1
- 2*x])/35153041 - (630342*Log[2 + 3*x])/2401 + (3843750*Log[3 +
5*x])/14641
```

Rubi in Sympy [A] time = 12.9254, size = 70, normalized size = 0.81

$$-\frac{6528\log\left(-2x+1\right)}{35153041}-\frac{630342\log\left(3x+2\right)}{2401}+\frac{3843750\log\left(5x+3\right)}{14641}+\frac{59375}{1331\left(5x+3\right)}-\frac{625}{242\left(5x+3\right)^2}+\frac{8829}{343\left(3x+2\right)}+\frac{81}{98\left(3x+2\right)^2}+\frac{32}{456533\left(-2x+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**2/(2+3*x)**3/(3+5*x)**3,x)
```

```
[Out] -6528*log(-2*x + 1)/35153041 - 630342*log(3*x + 2)/2401 + 3843750
*log(5*x + 3)/14641 + 59375/(1331*(5*x + 3)) - 625/(242*(5*x + 3)
**2) + 8829/(343*(3*x + 2)) + 81/(98*(3*x + 2)**2) + 32/(456533*(
-2*x + 1))
```

Mathematica [A] time = 0.180864, size = 79, normalized size = 0.92

$$\frac{2\left(\frac{77}{4}\left(\frac{23502798}{3x+2}+\frac{40731250}{5x+3}+\frac{754677}{(3x+2)^2}-\frac{2358125}{(5x+3)^2}+\frac{64}{1-2x}\right)-3264\log(1-2x)-4614418611\log(6x+4)+4614421875\log(10x+6\right.}{35153041}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^2*(2 + 3*x)^3*(3 + 5*x)^3),x]
```

```
[Out] (2*((77*(64/(1 - 2*x) + 754677/(2 + 3*x)^2 + 23502798/(2 + 3*x) -
 2358125/(3 + 5*x)^2 + 40731250/(3 + 5*x)))/4 - 3264*Log[1 - 2*x]
 - 4614418611*Log[4 + 6*x] + 4614421875*Log[6 + 10*x]))/35153041
```

Maple [A] time = 0.021, size = 71, normalized size = 0.8

$$-\frac{625}{242\,(3+5\,x)^2}+\frac{59375}{3993+6655\,x}+\frac{3843750\,\ln(3+5\,x)}{14641}+\frac{81}{98\,(2+3\,x)^2}+\frac{8829}{686+1029\,x}-\frac{630342\,\ln(2+3\,x)}{2401}-\frac{32}{-456533+913066\,x}-\frac{6528\,\ln(-1+2\,x)}{35153041}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(1/(1-2*x)^2/(2+3*x)^3/(3+5*x)^3,x)
```

```
[Out] -625/242/(3+5*x)^2+59375/1331/(3+5*x)+3843750/14641*ln(3+5*x)+81/
98/(2+3*x)^2+8829/343/(2+3*x)-630342/2401*ln(2+3*x)-32/456533/(-1
+2*x)-6528/35153041*ln(-1+2*x)
```

Maxima [A] time = 1.35165, size = 100, normalized size = 1.16

$$\frac{7191217800\,x^4+10067655960\,x^3+1808383578\,x^2-2501680914\,x-909187261}{913066\,(450\,x^5+915\,x^4+512\,x^3-85\,x^2-156\,x-36)}+\frac{3843750}{14641}\log(5\,x+3)-\frac{630342}{2401}\log(3\,x+2)-\frac{6528}{35153041}\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^3*(3*x + 2)^3*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] 1/913066*(7191217800*x^4 + 10067655960*x^3 + 1808383578*x^2 - 250
1680914*x - 909187261)/(450*x^5 + 915*x^4 + 512*x^3 - 85*x^2 - 15
6*x - 36) + 3843750/14641*log(5*x + 3) - 630342/2401*log(3*x + 2)
 - 6528/35153041*log(2*x - 1)
```

Fricas [A] time = 0.221154, size = 200, normalized size = 2.33

$$\frac{553723770600\,x^4+775209508920\,x^3+139245535506\,x^2+18457687500\left(450\,x^5+915\,x^4+512\,x^3-85\,x^2-156\,x-36\right)\log}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^3*(3*x + 2)^3*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] 1/70306082*(553723770600*x^4 + 775209508920*x^3 + 139245535506*x^
2 + 18457687500*(450*x^5 + 915*x^4 + 512*x^3 - 85*x^2 - 156*x - 3
6)*log(5*x + 3) - 18457674444*(450*x^5 + 915*x^4 + 512*x^3 - 85*x
^2 - 156*x - 36)*log(3*x + 2) - 13056*(450*x^5 + 915*x^4 + 512*x^
3 - 85*x^2 - 156*x - 36)*log(2*x - 1) - 192629430378*x - 70007419
097)/(450*x^5 + 915*x^4 + 512*x^3 - 85*x^2 - 156*x - 36)
```

Sympy [A] time = 0.655068, size = 75, normalized size = 0.87

$$\frac{7191217800x^4+10067655960x^3+1808383578x^2-2501680914x-909187261}{410879700x^5+835455390x^4+467489792x^3-77610610x^2-142438296x-32870376}-\frac{6528\log\left(x-\frac{1}{2}\right)}{35153041}+\frac{3843750\log\left(x+\frac{3}{5}\right)}{14641}-\frac{630342\log\left(x+\frac{2}{3}\right)}{2401}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**2/(2+3*x)**3/(3+5*x)**3,x)
```

```
[Out] (7191217800*x**4 + 10067655960*x**3 + 1808383578*x**2 - 250168091
4*x - 909187261)/(410879700*x**5 + 835455390*x**4 + 467489792*x**
3 - 77610610*x**2 - 142438296*x - 32870376) - 6528*log(x - 1/2)/3
5153041 + 3843750*log(x + 3/5)/14641 - 630342*log(x + 2/3)/2401
```

GIAC/XCAS [A] time = 0.213745, size = 131, normalized size = 1.52

$$-\frac{32}{456533\,(2\,x-1)}-\frac{4\,\left(\frac{207724651275}{2\,x-1}+\frac{470659858850}{(2\,x-1)^{2}}+\frac{355299675423}{(2\,x-1)^{3}}+30544881750\right)}{35153041\,\left(\frac{11}{2\,x-1}+5\right)^{2}\left(\frac{7}{2\,x-1}+3\right)^{2}}-\frac{630342}{2401}\,\ln\left(\left|-\frac{7}{2\,x-1}-3\right|\right)+\frac{3843750}{14641}\,\ln\left(\left|-\frac{11}{2\,x-1}-5\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^3*(3*x + 2)^3*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -32/456533/(2*x - 1) - 4/35153041*(207724651275/(2*x - 1) + 47065
9858850/(2*x - 1)^2 + 355299675423/(2*x - 1)^3 + 30544881750)/((1
1/(2*x - 1) + 5)^2*(7/(2*x - 1) + 3)^2) - 630342/2401*ln(abs(-7/(
2*x - 1) - 3)) + 3843750/14641*ln(abs(-11/(2*x - 1) - 5))
```

3.1612 $\int \frac{1}{(1-2x)^2(2+3x)^4(3+5x)^3} \, dx$

Optimal. Leaf size=97

$$\frac{64}{3195731(1-2x)}+\frac{630342}{2401(3x+2)}+\frac{400000}{1331(5x+3)}+\frac{8829}{686(3x+2)^2}-\frac{3125}{242(5x+3)^2}+\frac{27}{49(3x+2)^3}-\frac{15168\log(1-2x)}{246071287}-\frac{37214802\log(3x+2)}{16807}+\frac{32418750\log(5x+3)}{14641}$$

```
[Out] 64/(3195731*(1 - 2*x)) + 27/(49*(2 + 3*x)^3) + 8829/(686*(2 + 3*x
)^2) + 630342/(2401*(2 + 3*x)) - 3125/(242*(3 + 5*x)^2) + 400000/
(1331*(3 + 5*x)) - (15168*Log[1 - 2*x])/246071287 - (37214802*Log
[2 + 3*x])/16807 + (32418750*Log[3 + 5*x])/14641
```

Rubi [A] time = 0.116967, antiderivative size = 97, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$\frac{64}{3195731(1-2x)}+\frac{630342}{2401(3x+2)}+\frac{400000}{1331(5x+3)}+\frac{8829}{686(3x+2)^2}-\frac{3125}{242(5x+3)^2}+\frac{27}{49(3x+2)^3}-\frac{15168\log(1-2x)}{246071287}-\frac{37214802\log(3x+2)}{16807}+\frac{32418750\log(5x+3)}{14641}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^2*(2 + 3*x)^4*(3 + 5*x)^3),x]
```

```
[Out] 64/(3195731*(1 - 2*x)) + 27/(49*(2 + 3*x)^3) + 8829/(686*(2 + 3*x
)^2) + 630342/(2401*(2 + 3*x)) - 3125/(242*(3 + 5*x)^2) + 400000/
(1331*(3 + 5*x)) - (15168*Log[1 - 2*x])/246071287 - (37214802*Log
[2 + 3*x])/16807 + (32418750*Log[3 + 5*x])/14641
```

Rubi in Sympy [A] time = 14.4917, size = 80, normalized size = 0.82

$$-\frac{15168\log(-2x+1)}{246071287}-\frac{37214802\log(3x+2)}{16807}+\frac{32418750\log(5x+3)}{14641}+\frac{400000}{1331(5x+3)}-\frac{3125}{242(5x+3)^2}+\frac{630342}{2401(3x+2)}+\frac{8829}{686(3x+2)^2}+\frac{27}{49(3x+2)^3}+\frac{64}{3195731(-2x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**2/(2+3*x)**4/(3+5*x)**3,x)
```

```
[Out] -15168*log(-2*x + 1)/246071287 - 37214802*log(3*x + 2)/16807 + 32
418750*log(5*x + 3)/14641 + 400000/(1331*(5*x + 3)) - 3125/(242*(
5*x + 3)**2) + 630342/(2401*(3*x + 2)) + 8829/(686*(3*x + 2)**2)
+ 27/(49*(3*x + 2)**3) + 64/(3195731*(-2*x + 1))
```

Mathematica [A] time = 0.176378, size = 88, normalized size = 0.91

$$\frac{2\left(\frac{77}{4}\left(\frac{1677970404}{3x+2}+\frac{1920800000}{5x+3}+\frac{82259793}{(3x+2)^2}-\frac{82534375}{(5x+3)^2}+\frac{3521826}{(3x+2)^3}+\frac{128}{1-2x}\right)-7584\log(1-2x)-272430958041\log(6x+4)+272430\right.}{246071287}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^2*(2 + 3*x)^4*(3 + 5*x)^3),x]
```

```
[Out] (2*((77*(128/(1 - 2*x) + 3521826/(2 + 3*x)^3 + 82259793/(2 + 3*x)
^2 + 1677970404/(2 + 3*x) - 82534375/(3 + 5*x)^2 + 1920800000/(3
+ 5*x)))/4 - 7584*Log[1 - 2*x] - 272430958041*Log[4 + 6*x] + 2724
30965625*Log[6 + 10*x]))/246071287
```

Maple [A] time = 0.021, size = 80, normalized size = 0.8

$$-\frac{3125}{242\,(3+5\,x)^{2}}+\frac{400000}{3993+6655\,x}+\frac{32418750\,\ln(3+5\,x)}{14641}+\frac{27}{49\,(2+3\,x)^{3}}+\frac{8829}{686\,(2+3\,x)^{2}}+\frac{630342}{4802+7203\,x}-\frac{37214802\,\ln(2+3\,x)}{16807}-\frac{64}{-3195731+6391462\,x}-\frac{15168\,\ln(-1+2\,x)}{246071287}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^2/(2+3*x)^4/(3+5*x)^3,x)
```

```
[Out] -3125/242/(3+5*x)^2+400000/1331/(3+5*x)+32418750/14641*ln(3+5*x)+
27/49/(2+3*x)^3+8829/686/(2+3*x)^2+630342/2401/(2+3*x)-37214802/1
6807*ln(2+3*x)-64/3195731/(-1+2*x)-15168/246071287*ln(-1+2*x)
```

Maxima [A] time = 1.34715, size = 113, normalized size = 1.16

$$\frac{1273702595400\,x^{5}+2632318355880\,x^{4}+1509100957674\,x^{3}-229550032266\,x^{2}-456430279071\,x-107358241468}{6391462\,(1350\,x^{6}+3645\,x^{5}+3366\,x^{4}+769\,x^{3}-638\,x^{2}-420\,x-72)}+\frac{32418750}{14641}\log(5\,x+3)-\frac{37214802}{16807}\log(3\,x+2)-\frac{15168}{246071287}\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^3*(3*x + 2)^4*(2*x - 1)^2),x, algorithm="maxima")
```

```
[Out] 1/6391462*(1273702595400*x^5 + 2632318355880*x^4 + 1509100957674*
x^3 - 229550032266*x^2 - 456430279071*x - 107358241468)/(1350*x^6
 + 3645*x^5 + 3366*x^4 + 769*x^3 - 638*x^2 - 420*x - 72) + 324187
50/14641*log(5*x + 3) - 37214802/16807*log(3*x + 2) - 15168/24607
1287*log(2*x - 1)
```

Fricas [A] time = 0.218093, size = 234, normalized size = 2.41

$$\frac{98075099845800\,x^{5}+202688513402760\,x^{4}+116200773740898\,x^{3}-17675352484482\,x^{2}+1089723862500\,\left(1350\,x^{6}+3645\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^3*(3*x + 2)^4*(2*x - 1)^2),x, algorithm="fricas")
```

```
[Out] 1/492142574*(98075099845800*x^5 + 202688513402760*x^4 + 116200773
740898*x^3 - 17675352484482*x^2 + 1089723862500*(1350*x^6 + 3645*
x^5 + 3366*x^4 + 769*x^3 - 638*x^2 - 420*x - 72)*log(5*x + 3) - 1
089723832164*(1350*x^6 + 3645*x^5 + 3366*x^4 + 769*x^3 - 638*x^2
- 420*x - 72)*log(3*x + 2) - 30336*(1350*x^6 + 3645*x^5 + 3366*x^
4 + 769*x^3 - 638*x^2 - 420*x - 72)*log(2*x - 1) - 35145131488467
*x - 8266584593036)/(1350*x^6 + 3645*x^5 + 3366*x^4 + 769*x^3 - 6
38*x^2 - 420*x - 72)
```

Sympy [A] time = 0.744115, size = 85, normalized size = 0.88

$$\frac{1273702595400x^5 + 2632318355880x^4 + 1509100957674x^3 - 229550032266x^2 - 456430279071x - 107358241468}{8628473700x^6 + 23296878990x^5 + 21513661092x^4 + 4915034278x^3 - 4077752756x^2 - 2684414040x - 460185264} - \frac{15168\log\left(x-\frac{1}{2}\right)}{246071287} + \frac{32418750\log\left(x+\frac{3}{5}\right)}{14641} - \frac{37214802\log\left(x+\frac{2}{3}\right)}{16807}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**2/(2+3*x)**4/(3+5*x)**3,x)
```

```
[Out] (1273702595400*x**5 + 2632318355880*x**4 + 1509100957674*x**3 - 2
29550032266*x**2 - 456430279071*x - 107358241468)/(8628473700*x**
6 + 23296878990*x**5 + 21513661092*x**4 + 4915034278*x**3 - 40777
52756*x**2 - 2684414040*x - 460185264) - 15168*log(x - 1/2)/24607
1287 + 32418750*log(x + 3/5)/14641 - 37214802*log(x + 2/3)/16807
```

GIAC/XCAS [A] time = 0.212556, size = 143, normalized size = 1.47

$$-\frac{64}{3195731\,(2\,x-1)} - \frac{4\left(\frac{49415890344165}{2\,x-1} + \frac{169212487575969}{(2\,x-1)^2} + \frac{257446971133345}{(2\,x-1)^3} + \frac{146840081089779}{(2\,x-1)^4} + 5410112162850\right)}{246071287\left(\frac{11}{2\,x-1}+5\right)^2\left(\frac{7}{2\,x-1}+3\right)^3} - \frac{37214802}{16807}\ln\left(\left|-\frac{7}{2\,x-1}-3\right|\right) + \frac{32418750}{14641}\ln\left(\left|-\frac{11}{2\,x-1}-5\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^3*(3*x + 2)^4*(2*x - 1)^2),x, algorithm="giac")
```

```
[Out] -64/3195731/(2*x - 1) - 4/246071287*(49415890344165/(2*x - 1) + 1
69212487575969/(2*x - 1)^2 + 257446971133345/(2*x - 1)^3 + 146840
081089779/(2*x - 1)^4 + 5410112162850)/((11/(2*x - 1) + 5)^2*(7/(
2*x - 1) + 3)^3) - 37214802/16807*ln(abs(-7/(2*x - 1) - 3)) + 324
18750/14641*ln(abs(-11/(2*x - 1) - 5))
```

3.1613 $\int \frac{(2+3x)^8(3+5x)}{(1-2x)^3} \, dx$

Optimal. Leaf size=80

$$-\frac{32805x^7}{56}-\frac{162567x^6}{32}-\frac{213597x^5}{10}-\frac{7568235x^4}{128}-\frac{16042509x^3}{128}-\frac{118841283x^2}{512}-\frac{120864213x}{256}-\frac{246239357}{1024(1-2x)}+\frac{63412811}{2048(1-2x)^2}-\frac{106237047}{256}\log(1-2x)$$

```
[Out] 63412811/(2048*(1 - 2*x)^2) - 246239357/(1024*(1 - 2*x)) - (12086
4213*x)/256 - (118841283*x^2)/512 - (16042509*x^3)/128 - (7568235
*x^4)/128 - (213597*x^5)/10 - (162567*x^6)/32 - (32805*x^7)/56 -
(106237047*Log[1 - 2*x])/256
```

Rubi [A] time = 0.100743, antiderivative size = 80, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{32805x^7}{56}-\frac{162567x^6}{32}-\frac{213597x^5}{10}-\frac{7568235x^4}{128}-\frac{16042509x^3}{128}-\frac{118841283x^2}{512}-\frac{120864213x}{256}-\frac{246239357}{1024(1-2x)}+\frac{63412811}{2048(1-2x)^2}-\frac{106237047}{256}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^8*(3 + 5*x))/(1 - 2*x)^3,x]
```

```
[Out] 63412811/(2048*(1 - 2*x)^2) - 246239357/(1024*(1 - 2*x)) - (12086
4213*x)/256 - (118841283*x^2)/512 - (16042509*x^3)/128 - (7568235
*x^4)/128 - (213597*x^5)/10 - (162567*x^6)/32 - (32805*x^7)/56 -
(106237047*Log[1 - 2*x])/256
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{32805x^7}{56}-\frac{162567x^6}{32}-\frac{213597x^5}{10}-\frac{7568235x^4}{128}-\frac{16042509x^3}{128}-\frac{106237047\log(-2x+1)}{256}+\int\left(-\frac{120864213}{256}\right)dx-\frac{118841283\int x\,dx}{256}-\frac{246239357}{1024(-2x+1)}+\frac{63412811}{2048(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**8*(3+5*x)/(1-2*x)**3,x)
```

```
[Out] -32805*x**7/56 - 162567*x**6/32 - 213597*x**5/10 - 7568235*x**4/1
28 - 16042509*x**3/128 - 106237047*log(-2*x + 1)/256 + Integral(-
120864213/256, x) - 118841283*Integral(x, x)/256 - 246239357/(102
4*(-2*x + 1)) + 63412811/(2048*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0350548, size = 71, normalized size = 0.89

$$-\frac{83980800x^9+644319360x^8+2354821632x^7+5596371648x^6+10256718528x^5+17427054960x^4+38900302560x^3-104}{35840(1-2x)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^8*(3 + 5*x))/(1 - 2*x)^3,x]
```

```
[Out] -(-3752427799 + 44728559236*x - 104409393876*x^2 + 38900302560*x^
3 + 17427054960*x^4 + 10256718528*x^5 + 5596371648*x^6 + 23548216
32*x^7 + 644319360*x^8 + 83980800*x^9 + 14873186580*(1 - 2*x)^2*L
og[1 - 2*x])/(35840*(1 - 2*x)^2)
```

Maple [A] time = 0.012, size = 61, normalized size = 0.8

$$-\frac{32805\,x^7}{56}-\frac{162567\,x^6}{32}-\frac{213597\,x^5}{10}-\frac{7568235\,x^4}{128}-\frac{16042509\,x^3}{128}-\frac{118841283\,x^2}{512}-\frac{120864213\,x}{256}+\frac{63412811}{2048\,(-1+2\,x)^2}+\frac{246239357}{-1024+2048\,x}-\frac{106237047\,\ln(-1+2\,x)}{256}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^8*(3+5*x)/(1-2*x)^3,x)
```

```
[Out] -32805/56*x^7-162567/32*x^6-213597/10*x^5-7568235/128*x^4-1604250
9/128*x^3-118841283/512*x^2-120864213/256*x+63412811/2048/(-1+2*x
)^2+246239357/1024/(-1+2*x)-106237047/256*ln(-1+2*x)
```

Maxima [A] time = 1.34523, size = 82, normalized size = 1.02

$$-\frac{32805}{56}\,x^7-\frac{162567}{32}\,x^6-\frac{213597}{10}\,x^5-\frac{7568235}{128}\,x^4-\frac{16042509}{128}\,x^3-\frac{118841283}{512}\,x^2-\frac{120864213}{256}\,x+\frac{823543\,(1196\,x-521)}{2048\,(4\,x^2-4\,x+1)}-\frac{106237047}{256}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^8/(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] -32805/56*x^7 - 162567/32*x^6 - 213597/10*x^5 - 7568235/128*x^4 -
 16042509/128*x^3 - 118841283/512*x^2 - 120864213/256*x + 823543/
2048*(1196*x - 521)/(4*x^2 - 4*x + 1) - 106237047/256*log(2*x - 1
)
```

Fricas [A] time = 0.2068, size = 104, normalized size = 1.3

$$-\frac{167961600\,x^9+1288638720\,x^8+4709643264\,x^7+11192743296\,x^6+20513437056\,x^5+34854109920\,x^4+77800605120\,x^3}{71680\,(4\,x^2-4\,x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^8/(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -1/71680*(167961600*x^9 + 1288638720*x^8 + 4709643264*x^7 + 11192
743296*x^6 + 20513437056*x^5 + 34854109920*x^4 + 77800605120*x^3
- 118730138940*x^2 + 29746373160*(4*x^2 - 4*x + 1)*log(2*x - 1) -
 631530340*x + 15017306605)/(4*x^2 - 4*x + 1)
```

Sympy [A] time = 0.331483, size = 70, normalized size = 0.88

$$-\frac{32805x^7}{56}-\frac{162567x^6}{32}-\frac{213597x^5}{10}-\frac{7568235x^4}{128}-\frac{16042509x^3}{128}-\frac{118841283x^2}{512}-\frac{120864213x}{256}+\frac{984957428x-429065903}{8192x^2-8192x+2048}-\frac{106237047\log(2x-1)}{256}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**8*(3+5*x)/(1-2*x)**3,x)
```

```
[Out] -32805*x**7/56 - 162567*x**6/32 - 213597*x**5/10 - 7568235*x**4/1
28 - 16042509*x**3/128 - 118841283*x**2/512 - 120864213*x/256 + (
984957428*x - 429065903)/(8192*x**2 - 8192*x + 2048) - 106237047*
log(2*x - 1)/256
```

GIAC/XCAS [A] time = 0.210714, size = 77, normalized size = 0.96

$$-\frac{32805}{56}x^7-\frac{162567}{32}x^6-\frac{213597}{10}x^5-\frac{7568235}{128}x^4-\frac{16042509}{128}x^3-\frac{118841283}{512}x^2-\frac{120864213}{256}x+\frac{823543\,(1196\,x-521)}{2048\,(2\,x-1)^2}-\frac{106237047}{256}\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^8/(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] -32805/56*x^7 - 162567/32*x^6 - 213597/10*x^5 - 7568235/128*x^4 -
 16042509/128*x^3 - 118841283/512*x^2 - 120864213/256*x + 823543/
2048*(1196*x - 521)/(2*x - 1)^2 - 106237047/256*ln(abs(2*x - 1))
```

3.1614 $\int \frac{(2+3x)^7(3+5x)}{(1-2x)^3} dx$

Optimal. Leaf size=73

$$-\frac{3645x^6}{16}-\frac{147987x^5}{80}-\frac{235467x^4}{32}-\frac{631611x^3}{32}-\frac{10989621x^2}{256}-\frac{24960933x}{256}-\frac{15647317}{256(1-2x)}+\frac{9058973}{1024(1-2x)^2}-\frac{23647449}{256}\log(1-2x)$$

```
[Out] 9058973/(1024*(1 - 2*x)^2) - 15647317/(256*(1 - 2*x)) - (24960933
*x)/256 - (10989621*x^2)/256 - (631611*x^3)/32 - (235467*x^4)/32
- (147987*x^5)/80 - (3645*x^6)/16 - (23647449*Log[1 - 2*x])/256
```

Rubi [A] time = 0.0909961, antiderivative size = 73, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{3645x^6}{16}-\frac{147987x^5}{80}-\frac{235467x^4}{32}-\frac{631611x^3}{32}-\frac{10989621x^2}{256}-\frac{24960933x}{256}-\frac{15647317}{256(1-2x)}+\frac{9058973}{1024(1-2x)^2}-\frac{23647449}{256}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^7*(3 + 5*x))/(1 - 2*x)^3,x]
```

```
[Out] 9058973/(1024*(1 - 2*x)^2) - 15647317/(256*(1 - 2*x)) - (24960933
*x)/256 - (10989621*x^2)/256 - (631611*x^3)/32 - (235467*x^4)/32
- (147987*x^5)/80 - (3645*x^6)/16 - (23647449*Log[1 - 2*x])/256
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{3645x^6}{16}-\frac{147987x^5}{80}-\frac{235467x^4}{32}-\frac{631611x^3}{32}-\frac{23647449\log(-2x+1)}{256}+\int\left(-\frac{24960933}{256}\right)dx-\frac{10989621\int x\,dx}{128}-\frac{15647317}{256(-2x+1)}+\frac{9058973}{1024(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**7*(3+5*x)/(1-2*x)**3,x)
```

```
[Out] -3645*x**6/16 - 147987*x**5/80 - 235467*x**4/32 - 631611*x**3/32
- 23647449*log(-2*x + 1)/256 + Integral(-24960933/256, x) - 10989
621*Integral(x, x)/128 - 15647317/(256*(-2*x + 1)) + 9058973/(102
4*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0333067, size = 66, normalized size = 0.9

$$-\frac{4665600x^8+33219072x^7+113980608x^6+263003328x^5+512613360x^4+1218762720x^3-3056516316x^2+1152760076x}{5120(1-2x)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^7*(3 + 5*x))/(1 - 2*x)^3,x]
```

```
[Out] -(-52207049 + 1152760076*x - 3056516316*x^2 + 1218762720*x^3 + 51
2613360*x^4 + 263003328*x^5 + 113980608*x^6 + 33219072*x^7 + 4665
```

```
600*x^8 + 472948980*(1 - 2*x)^2*Log[1 - 2*x])/(5120*(1 - 2*x)^2)
```

Maple [A] time = 0.01, size = 56, normalized size = 0.8

$$-\frac{3645\,x^{6}}{16}-\frac{147987\,x^{5}}{80}-\frac{235467\,x^{4}}{32}-\frac{631611\,x^{3}}{32}-\frac{10989621\,x^{2}}{256}-\frac{24960933\,x}{256}+\frac{9058973}{1024\,\left(-1+2\,x\right)^{2}}+\frac{15647317}{-256+512\,x}-\frac{23647449\,\ln\left(-1+2\,x\right)}{256}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^7*(3+5*x)/(1-2*x)^3,x)
```

```
[Out] -3645/16*x^6-147987/80*x^5-235467/32*x^4-631611/32*x^3-10989621/2
56*x^2-24960933/256*x+9058973/1024/(-1+2*x)^2+15647317/256/(-1+2*
x)-23647449/256*ln(-1+2*x)
```

Maxima [A] time = 1.34712, size = 76, normalized size = 1.04

$$-\frac{3645}{16}\,x^{6}-\frac{147987}{80}\,x^{5}-\frac{235467}{32}\,x^{4}-\frac{631611}{32}\,x^{3}-\frac{10989621}{256}\,x^{2}-\frac{24960933}{256}\,x+\frac{823543\,(152\,x-65)}{1024\,(4\,x^{2}-4\,x+1)}-\frac{23647449}{256}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^7/(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] -3645/16*x^6 - 147987/80*x^5 - 235467/32*x^4 - 631611/32*x^3 - 10
989621/256*x^2 - 24960933/256*x + 823543/1024*(152*x - 65)/(4*x^2
 - 4*x + 1) - 23647449/256*log(2*x - 1)
```

Fricas [A] time = 0.224345, size = 97, normalized size = 1.33

$$-\frac{4665600\,x^{8}+33219072\,x^{7}+113980608\,x^{6}+263003328\,x^{5}+512613360\,x^{4}+1218762720\,x^{3}-1777082220\,x^{2}+47294898}{5120\,(4\,x^{2}-4\,x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^7/(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -1/5120*(4665600*x^8 + 33219072*x^7 + 113980608*x^6 + 263003328*x
^5 + 512613360*x^4 + 1218762720*x^3 - 1777082220*x^2 + 472948980*
(4*x^2 - 4*x + 1)*log(2*x - 1) - 126674020*x + 267651475)/(4*x^2
- 4*x + 1)
```

Sympy [A] time = 0.32063, size = 63, normalized size = 0.86

$$-\frac{3645x^{6}}{16}-\frac{147987x^{5}}{80}-\frac{235467x^{4}}{32}-\frac{631611x^{3}}{32}-\frac{10989621x^{2}}{256}-\frac{24960933x}{256}+\frac{125178536x-53530295}{4096x^{2}-4096x+1024}-\frac{23647449\log\left(2x-1\right)}{256}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**7*(3+5*x)/(1-2*x)**3,x)
```

```
[Out] -3645*x**6/16 - 147987*x**5/80 - 235467*x**4/32 - 631611*x**3/32
- 10989621*x**2/256 - 24960933*x/256 + (125178536*x - 53530295)/(
4096*x**2 - 4096*x + 1024) - 23647449*log(2*x - 1)/256
```

GIAC/XCAS [A] time = 0.208227, size = 70, normalized size = 0.96

$$-\frac{3645}{16}x^6-\frac{147987}{80}x^5-\frac{235467}{32}x^4-\frac{631611}{32}x^3-\frac{10989621}{256}x^2-\frac{24960933}{256}x+\frac{823543\,(152\,x-65)}{1024\,(2\,x-1)^2}-\frac{23647449}{256}\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^7/(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] -3645/16*x^6 - 147987/80*x^5 - 235467/32*x^4 - 631611/32*x^3 - 10
989621/256*x^2 - 24960933/256*x + 823543/1024*(152*x - 65)/(2*x -
 1)^2 - 23647449/256*ln(abs(2*x - 1))
```

3.1615 $\int \frac{(2+3x)^6(3+5x)}{(1-2x)^3}\,dx$

Optimal. Leaf size=66

$$-\frac{729x^5}{8}-\frac{44469x^4}{64}-\frac{10611x^3}{4}-\frac{461835x^2}{64}-\frac{2431647x}{128}-\frac{3916031}{256(1-2x)}+\frac{1294139}{512(1-2x)^2}-\frac{5078115}{256}\log(1-2x)$$

```
[Out] 1294139/(512*(1 - 2*x)^2) - 3916031/(256*(1 - 2*x)) - (2431647*x)
/128 - (461835*x^2)/64 - (10611*x^3)/4 - (44469*x^4)/64 - (729*x^
5)/8 - (5078115*Log[1 - 2*x])/256
```

Rubi [A] time = 0.0823787, antiderivative size = 66, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{729x^5}{8}-\frac{44469x^4}{64}-\frac{10611x^3}{4}-\frac{461835x^2}{64}-\frac{2431647x}{128}-\frac{3916031}{256(1-2x)}+\frac{1294139}{512(1-2x)^2}-\frac{5078115}{256}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In] Int[((2 + 3*x)^6*(3 + 5*x))/(1 - 2*x)^3,x]
```

```
[Out] 1294139/(512*(1 - 2*x)^2) - 3916031/(256*(1 - 2*x)) - (2431647*x)
/128 - (461835*x^2)/64 - (10611*x^3)/4 - (44469*x^4)/64 - (729*x^
5)/8 - (5078115*Log[1 - 2*x])/256
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{729x^5}{8}-\frac{44469x^4}{64}-\frac{10611x^3}{4}-\frac{5078115\log(-2x+1)}{256}+\int\left(-\frac{2431647}{128}\right)dx-\frac{461835\int x\,dx}{32}-\frac{3916031}{256(-2x+1)}+\frac{1294139}{512(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**6*(3+5*x)/(1-2*x)**3,x)
```

```
[Out] -729*x**5/8 - 44469*x**4/64 - 10611*x**3/4 - 5078115*log(-2*x + 1
)/256 + Integral(-2431647/128, x) - 461835*Integral(x, x)/32 - 39
16031/(256*(-2*x + 1)) + 1294139/(512*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0284778, size = 61, normalized size = 0.92

$$-\frac{373248x^7+2472768x^6+8112960x^5+19403280x^4+50971680x^3-118266804x^2+35968388x+20312460(1-2x)^2\log(1}{1024(1-2x)^2}$$

Antiderivative was successfully verified.

```
[In] Integrate[((2 + 3*x)^6*(3 + 5*x))/(1 - 2*x)^3,x]
```

```
[Out] -(1114981 + 35968388*x - 118266804*x^2 + 50971680*x^3 + 19403280*
x^4 + 8112960*x^5 + 2472768*x^6 + 373248*x^7 + 20312460*(1 - 2*x)
^2*Log[1 - 2*x])/(1024*(1 - 2*x)^2)
```

Maple [A] time = 0.01, size = 51, normalized size = 0.8

$$-\frac{729\,x^5}{8}-\frac{44469\,x^4}{64}-\frac{10611\,x^3}{4}-\frac{461835\,x^2}{64}-\frac{2431647\,x}{128}+\frac{1294139}{512\,(-1+2\,x)^2}+\frac{3916031}{-256+512\,x}-\frac{5078115\,\ln(-1+2\,x)}{256}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^6*(3+5*x)/(1-2*x)^3,x)
```

```
[Out] -729/8*x^5-44469/64*x^4-10611/4*x^3-461835/64*x^2-2431647/128*x+1
294139/512/(-1+2*x)^2+3916031/256/(-1+2*x)-5078115/256*ln(-1+2*x)
```

Maxima [A] time = 1.35347, size = 69, normalized size = 1.05

$$-\frac{729}{8}\,x^5-\frac{44469}{64}\,x^4-\frac{10611}{4}\,x^3-\frac{461835}{64}\,x^2-\frac{2431647}{128}\,x+\frac{16807\,(932\,x-389)}{512\,(4\,x^2-4\,x+1)}-\frac{5078115}{256}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^6/(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] -729/8*x^5 - 44469/64*x^4 - 10611/4*x^3 - 461835/64*x^2 - 2431647
/128*x + 16807/512*(932*x - 389)/(4*x^2 - 4*x + 1) - 5078115/256*
log(2*x - 1)
```

Fricas [A] time = 0.213666, size = 90, normalized size = 1.36

$$-\frac{186624\,x^7+1236384\,x^6+4056480\,x^5+9701640\,x^4+25485840\,x^3-35211672\,x^2+10156230\,\left(4\,x^2-4\,x+1\right)\log(2\,x-1)}{512\,(4\,x^2-4\,x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^6/(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -1/512*(186624*x^7 + 1236384*x^6 + 4056480*x^5 + 9701640*x^4 + 25
485840*x^3 - 35211672*x^2 + 10156230*(4*x^2 - 4*x + 1)*log(2*x -
1) - 5937536*x + 6537923)/(4*x^2 - 4*x + 1)
```

Sympy [A] time = 0.313377, size = 56, normalized size = 0.85

$$-\frac{729x^5}{8}-\frac{44469x^4}{64}-\frac{10611x^3}{4}-\frac{461835x^2}{64}-\frac{2431647x}{128}+\frac{15664124x-6537923}{2048x^2-2048x+512}-\frac{5078115\log(2x-1)}{256}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**6*(3+5*x)/(1-2*x)**3,x)
```

```
[Out] -729*x**5/8 - 44469*x**4/64 - 10611*x**3/4 - 461835*x**2/64 - 243
1647*x/128 + (15664124*x - 6537923)/(2048*x**2 - 2048*x + 512) -
5078115*log(2*x - 1)/256
```

GIAC/XCAS [A] time = 0.207185, size = 63, normalized size = 0.95

$$-\frac{729}{8}\,x^5-\frac{44469}{64}\,x^4-\frac{10611}{4}\,x^3-\frac{461835}{64}\,x^2-\frac{2431647}{128}\,x+\frac{16807\,(932\,x-389)}{512\,(2\,x-1)^2}-\frac{5078115}{256}\,\ln(|2\,x-1|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^6/(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] -729/8*x^5 - 44469/64*x^4 - 10611/4*x^3 - 461835/64*x^2 - 2431647
/128*x + 16807/512*(932*x - 389)/(2*x - 1)^2 - 5078115/256*ln(abs
(2*x - 1))
```

3.1616 $\int \frac{(2+3x)^5(3+5x)}{(1-2x)^3}\,dx$

Optimal. Leaf size=59

$$-\frac{1215x^4}{32}-\frac{4401x^3}{16}-\frac{16821x^2}{16}-\frac{109089x}{32}-\frac{60025}{16(1-2x)}+\frac{184877}{256(1-2x)^2}-\frac{519645}{128}\log(1-2x)$$

```
[Out] 184877/(256*(1 - 2*x)^2) - 60025/(16*(1 - 2*x)) - (109089*x)/32 -
 (16821*x^2)/16 - (4401*x^3)/16 - (1215*x^4)/32 - (519645*Log[1 -
 2*x])/128
```

Rubi [A] time = 0.0741948, antiderivative size = 59, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{1215x^4}{32}-\frac{4401x^3}{16}-\frac{16821x^2}{16}-\frac{109089x}{32}-\frac{60025}{16(1-2x)}+\frac{184877}{256(1-2x)^2}-\frac{519645}{128}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^5*(3 + 5*x))/(1 - 2*x)^3,x]
```

```
[Out] 184877/(256*(1 - 2*x)^2) - 60025/(16*(1 - 2*x)) - (109089*x)/32 -
 (16821*x^2)/16 - (4401*x^3)/16 - (1215*x^4)/32 - (519645*Log[1 -
 2*x])/128
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{1215x^4}{32}-\frac{4401x^3}{16}-\frac{519645\log(-2x+1)}{128}+\int\left(-\frac{109089}{32}\right)dx-\frac{16821\int x\,dx}{8}-\frac{60025}{16(-2x+1)}+\frac{184877}{256(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**5*(3+5*x)/(1-2*x)**3,x)
```

```
[Out] -1215*x**4/32 - 4401*x**3/16 - 519645*log(-2*x + 1)/128 + Integra
l(-109089/32, x) - 16821*Integral(x, x)/8 - 60025/(16*(-2*x + 1))
 + 184877/(256*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0282951, size = 56, normalized size = 0.95

$$-\frac{77760x^6+485568x^5+1609200x^4+4969440x^3-10547820x^2+2008220x+2078580(1-2x)^2\log(1-2x)+524947}{512(1-2x)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^5*(3 + 5*x))/(1 - 2*x)^3,x]
```

```
[Out] -(524947 + 2008220*x - 10547820*x^2 + 4969440*x^3 + 1609200*x^4 +
 485568*x^5 + 77760*x^6 + 2078580*(1 - 2*x)^2*Log[1 - 2*x])/(512*
(1 - 2*x)^2)
```

Maple [A] time = 0.01, size = 46, normalized size = 0.8

$$-\frac{1215\,x^4}{32}-\frac{4401\,x^3}{16}-\frac{16821\,x^2}{16}-\frac{109089\,x}{32}+\frac{184877}{256\,\left(-1+2\,x\right)^2}+\frac{60025}{-16+32\,x}-\frac{519645\,\ln\left(-1+2\,x\right)}{128}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^5*(3+5*x)/(1-2*x)^3,x)
```

```
[Out] -1215/32*x^4-4401/16*x^3-16821/16*x^2-109089/32*x+184877/256/(-1+
2*x)^2+60025/16/(-1+2*x)-519645/128*ln(-1+2*x)
```

Maxima [A] time = 1.34429, size = 62, normalized size = 1.05

$$-\frac{1215}{32}\,x^4-\frac{4401}{16}\,x^3-\frac{16821}{16}\,x^2-\frac{109089}{32}\,x+\frac{2401\,(800\,x-323)}{256\,(4\,x^2-4\,x+1)}-\frac{519645}{128}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^5/(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] -1215/32*x^4 - 4401/16*x^3 - 16821/16*x^2 - 109089/32*x + 2401/25
6*(800*x - 323)/(4*x^2 - 4*x + 1) - 519645/128*log(2*x - 1)
```

Fricas [A] time = 0.219981, size = 84, normalized size = 1.42

$$-\frac{38880\,x^6+242784\,x^5+804600\,x^4+2484720\,x^3-3221712\,x^2+1039290\,\left(4\,x^2-4\,x+1\right)\log\left(2\,x-1\right)-1048088\,x+7755}{256\,(4\,x^2-4\,x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^5/(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -1/256*(38880*x^6 + 242784*x^5 + 804600*x^4 + 2484720*x^3 - 32217
12*x^2 + 1039290*(4*x^2 - 4*x + 1)*log(2*x - 1) - 1048088*x + 775
523)/(4*x^2 - 4*x + 1)
```

Sympy [A] time = 0.298809, size = 49, normalized size = 0.83

$$-\frac{1215x^4}{32}-\frac{4401x^3}{16}-\frac{16821x^2}{16}-\frac{109089x}{32}+\frac{1920800x-775523}{1024x^2-1024x+256}-\frac{519645\log\left(2x-1\right)}{128}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**5*(3+5*x)/(1-2*x)**3,x)
```

```
[Out] -1215*x**4/32 - 4401*x**3/16 - 16821*x**2/16 - 109089*x/32 + (192
0800*x - 775523)/(1024*x**2 - 1024*x + 256) - 519645*log(2*x - 1)
/128
```

GIAC/XCAS [A] time = 0.211941, size = 57, normalized size = 0.97

$$-\frac{1215}{32}\,x^4-\frac{4401}{16}\,x^3-\frac{16821}{16}\,x^2-\frac{109089}{32}\,x+\frac{2401\,(800\,x-323)}{256\,(2\,x-1)^2}-\frac{519645}{128}\,\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^5/(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] -1215/32*x^4 - 4401/16*x^3 - 16821/16*x^2 - 109089/32*x + 2401/25
6*(800*x - 323)/(2*x - 1)^2 - 519645/128*ln(abs(2*x - 1))
```

3.1617 $\int \frac{(2+3x)^4(3+5x)}{(1-2x)^3} dx$

Optimal. Leaf size=50

$$-\frac{135x^3}{8}-\frac{3861x^2}{32}-540x-\frac{57281}{64(1-2x)}+\frac{26411}{128(1-2x)^2}-\frac{24843}{32}\log(1-2x)$$

```
[Out] 26411/(128*(1 - 2*x)^2) - 57281/(64*(1 - 2*x)) - 540*x - (3861*x^
2)/32 - (135*x^3)/8 - (24843*Log[1 - 2*x])/32
```

Rubi [A] time = 0.066255, antiderivative size = 50, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{135x^3}{8}-\frac{3861x^2}{32}-540x-\frac{57281}{64(1-2x)}+\frac{26411}{128(1-2x)^2}-\frac{24843}{32}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^4*(3 + 5*x))/(1 - 2*x)^3,x]
```

```
[Out] 26411/(128*(1 - 2*x)^2) - 57281/(64*(1 - 2*x)) - 540*x - (3861*x^
2)/32 - (135*x^3)/8 - (24843*Log[1 - 2*x])/32
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{135x^3}{8}-540x-\frac{24843\log(-2x+1)}{32}-\frac{3861\int x\,dx}{16}-\frac{57281}{64(-2x+1)}+\frac{26411}{128(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4*(3+5*x)/(1-2*x)**3,x)
```

```
[Out] -135*x**3/8 - 540*x - 24843*log(-2*x + 1)/32 - 3861*Integral(x, x
)/16 - 57281/(64*(-2*x + 1)) + 26411/(128*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0262677, size = 51, normalized size = 1.02

$$-\frac{2160x^5+13284x^4+54216x^3-103950x^2-1310x+24843(1-2x)^2\log(1-2x)+12365}{32(1-2x)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^4*(3 + 5*x))/(1 - 2*x)^3,x]
```

```
[Out] -(12365 - 1310*x - 103950*x^2 + 54216*x^3 + 13284*x^4 + 2160*x^5
+ 24843*(1 - 2*x)^2*Log[1 - 2*x])/(32*(1 - 2*x)^2)
```

Maple [A] time = 0.008, size = 41, normalized size = 0.8

$$-\frac{135\,x^3}{8}-\frac{3861\,x^2}{32}-540\,x+\frac{26411}{128\,(-1+2\,x)^2}+\frac{57281}{-64+128\,x}-\frac{24843\,\ln(-1+2\,x)}{32}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4*(3+5*x)/(1-2*x)^3,x)
```

```
[Out] -135/8*x^3-3861/32*x^2-540*x+26411/128/(-1+2*x)^2+57281/64/(-1+2*
x)-24843/32*ln(-1+2*x)
```

Maxima [A] time = 1.35846, size = 55, normalized size = 1.1

$$-\frac{135}{8}\,x^3-\frac{3861}{32}\,x^2-540\,x+\frac{343\,(668\,x-257)}{128\,(4\,x^2-4\,x+1)}-\frac{24843}{32}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^4/(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] -135/8*x^3 - 3861/32*x^2 - 540*x + 343/128*(668*x - 257)/(4*x^2 -
 4*x + 1) - 24843/32*log(2*x - 1)
```

Fricas [A] time = 0.215037, size = 77, normalized size = 1.54

$$-\frac{8640\,x^5+53136\,x^4+216864\,x^3-261036\,x^2+99372\,\left(4\,x^2-4\,x+1\right)\,\log\left(2\,x-1\right)-160004\,x+88151}{128\,(4\,x^2-4\,x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^4/(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -1/128*(8640*x^5 + 53136*x^4 + 216864*x^3 - 261036*x^2 + 99372*(4
*x^2 - 4*x + 1)*log(2*x - 1) - 160004*x + 88151)/(4*x^2 - 4*x + 1
)
```

Sympy [A] time = 0.291857, size = 41, normalized size = 0.82

$$-\frac{135x^3}{8}-\frac{3861x^2}{32}-540x+\frac{229124x-88151}{512x^2-512x+128}-\frac{24843\log\left(2x-1\right)}{32}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4*(3+5*x)/(1-2*x)**3,x)
```

```
[Out] -135*x**3/8 - 3861*x**2/32 - 540*x + (229124*x - 88151)/(512*x**2
 - 512*x + 128) - 24843*log(2*x - 1)/32
```

GIAC/XCAS [A] time = 0.206118, size = 50, normalized size = 1.

$$-\frac{135}{8}\,x^3-\frac{3861}{32}\,x^2-540\,x+\frac{343\,(668\,x-257)}{128\,(2\,x-1)^2}-\frac{24843}{32}\,\ln\left(\left|2\,x-1\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^4/(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] -135/8*x^3 - 3861/32*x^2 - 540*x + 343/128*(668*x - 257)/(2*x - 1
)^2 - 24843/32*ln(abs(2*x - 1))
```

3.1618 $\int \frac{(2+3x)^3(3+5x)}{(1-2x)^3}\,dx$

Optimal. Leaf size=45

$$-\frac{135x^2}{16}-\frac{1107x}{16}-\frac{3283}{16(1-2x)}+\frac{3773}{64(1-2x)^2}-\frac{1071}{8}\log(1-2x)$$

```
[Out] 3773/(64*(1 - 2*x)^2) - 3283/(16*(1 - 2*x)) - (1107*x)/16 - (135*
x^2)/16 - (1071*Log[1 - 2*x])/8
```

Rubi [A] time = 0.0567579, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{135x^2}{16}-\frac{1107x}{16}-\frac{3283}{16(1-2x)}+\frac{3773}{64(1-2x)^2}-\frac{1071}{8}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^3*(3 + 5*x))/(1 - 2*x)^3,x]
```

```
[Out] 3773/(64*(1 - 2*x)^2) - 3283/(16*(1 - 2*x)) - (1107*x)/16 - (135*
x^2)/16 - (1071*Log[1 - 2*x])/8
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{1071\log(-2x+1)}{8}+\int\left(-\frac{1107}{16}\right)dx-\frac{135\int x\,dx}{8}-\frac{3283}{16(-2x+1)}+\frac{3773}{64(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3*(3+5*x)/(1-2*x)**3,x)
```

```
[Out] -1071*log(-2*x + 1)/8 + Integral(-1107/16, x) - 135*Integral(x, x
)/8 - 3283/(16*(-2*x + 1)) + 3773/(64*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0228375, size = 46, normalized size = 1.02

$$-\frac{1080x^4+7776x^3-13284x^2-6220x+4284(1-2x)^2\log(1-2x)+3505}{32(1-2x)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^3*(3 + 5*x))/(1 - 2*x)^3,x]
```

```
[Out] -(3505 - 6220*x - 13284*x^2 + 7776*x^3 + 1080*x^4 + 4284*(1 - 2*x
)^2*Log[1 - 2*x])/(32*(1 - 2*x)^2)
```

Maple [A] time = 0.008, size = 36, normalized size = 0.8

$$-\frac{135x^2}{16}-\frac{1107x}{16}+\frac{3773}{64(-1+2x)^2}+\frac{3283}{-16+32x}-\frac{1071\ln(-1+2x)}{8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3*(3+5*x)/(1-2*x)^3,x)
```

```
[Out] -135/16*x^2-1107/16*x+3773/64/(-1+2*x)^2+3283/16/(-1+2*x)-1071/8*
ln(-1+2*x)
```

Maxima [A] time = 1.35445, size = 49, normalized size = 1.09

$$-\frac{135}{16}x^2-\frac{1107}{16}x+\frac{49\,(536\,x-191)}{64\,(4\,x^2-4\,x+1)}-\frac{1071}{8}\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^3/(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] -135/16*x^2 - 1107/16*x + 49/64*(536*x - 191)/(4*x^2 - 4*x + 1) -
 1071/8*log(2*x - 1)
```

Fricas [A] time = 0.221313, size = 70, normalized size = 1.56

$$-\frac{2160\,x^4+15552\,x^3-17172\,x^2+8568\,\left(4\,x^2-4\,x+1\right)\log(2\,x-1)-21836\,x+9359}{64\,(4\,x^2-4\,x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^3/(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -1/64*(2160*x^4 + 15552*x^3 - 17172*x^2 + 8568*(4*x^2 - 4*x + 1)*
log(2*x - 1) - 21836*x + 9359)/(4*x^2 - 4*x + 1)
```

Sympy [A] time = 0.286364, size = 36, normalized size = 0.8

$$-\frac{135x^2}{16}-\frac{1107x}{16}+\frac{26264x-9359}{256x^2-256x+64}-\frac{1071\log(2x-1)}{8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3*(3+5*x)/(1-2*x)**3,x)
```

```
[Out] -135*x**2/16 - 1107*x/16 + (26264*x - 9359)/(256*x**2 - 256*x + 6
4) - 1071*log(2*x - 1)/8
```

GIAC/XCAS [A] time = 0.209055, size = 43, normalized size = 0.96

$$-\frac{135}{16}x^2-\frac{1107}{16}x+\frac{49\,(536\,x-191)}{64\,(2\,x-1)^2}-\frac{1071}{8}\ln(|2\,x-1|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^3/(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] -135/16*x^2 - 1107/16*x + 49/64*(536*x - 191)/(2*x - 1)^2 - 1071/
8*ln(abs(2*x - 1))
```

3.1619 $\int \frac{(2+3x)^2(3+5x)}{(1-2x)^3} dx$

Optimal. Leaf size=38

$$-\frac{45x}{8}-\frac{707}{16(1-2x)}+\frac{539}{32(1-2x)^2}-\frac{309}{16}\log(1-2x)$$

```
[Out] 539/(32*(1 - 2*x)^2) - 707/(16*(1 - 2*x)) - (45*x)/8 - (309*Log[1
 - 2*x])/16
```

Rubi [A] time = 0.0496505, antiderivative size = 38, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{45x}{8}-\frac{707}{16(1-2x)}+\frac{539}{32(1-2x)^2}-\frac{309}{16}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In] Int[((2 + 3*x)^2*(3 + 5*x))/(1 - 2*x)^3,x]
```

```
[Out] 539/(32*(1 - 2*x)^2) - 707/(16*(1 - 2*x)) - (45*x)/8 - (309*Log[1
 - 2*x])/16
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{309\log(-2x+1)}{16}+\int\left(-\frac{45}{8}\right)dx-\frac{707}{16(-2x+1)}+\frac{539}{32(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**2*(3+5*x)/(1-2*x)**3,x)
```

```
[Out] -309*log(-2*x + 1)/16 + Integral(-45/8, x) - 707/(16*(-2*x + 1))
+ 539/(32*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0376137, size = 34, normalized size = 0.89

$$\frac{1}{32}\left(\frac{360x^2+2468x-785}{(1-2x)^2}-180x-618\log(1-2x)\right)$$

Antiderivative was successfully verified.

```
[In] Integrate[((2 + 3*x)^2*(3 + 5*x))/(1 - 2*x)^3,x]
```

```
[Out] (-180*x + (-785 + 2468*x + 360*x^2)/(1 - 2*x)^2 - 618*Log[1 - 2*x
])/32
```

Maple [A] time = 0.01, size = 31, normalized size = 0.8

$$-\frac{45x}{8}+\frac{539}{32(-1+2x)^2}+\frac{707}{-16+32x}-\frac{309\ln(-1+2x)}{16}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2*(3+5*x)/(1-2*x)^3,x)
```

```
[Out] -45/8*x+539/32/(-1+2*x)^2+707/16/(-1+2*x)-309/16*ln(-1+2*x)
```

Maxima [A] time = 1.36422, size = 42, normalized size = 1.11

$$-\frac{45}{8}\,x+\frac{7\,(404\,x-125)}{32\,(4\,x^2-4\,x+1)}-\frac{309}{16}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^2/(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] -45/8*x + 7/32*(404*x - 125)/(4*x^2 - 4*x + 1) - 309/16*log(2*x -
 1)
```

Fricas [A] time = 0.216432, size = 63, normalized size = 1.66

$$-\frac{720\,x^3-720\,x^2+618\,\left(4\,x^2-4\,x+1\right)\,\log\left(2\,x-1\right)-2648\,x+875}{32\,(4\,x^2-4\,x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^2/(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -1/32*(720*x^3 - 720*x^2 + 618*(4*x^2 - 4*x + 1)*log(2*x - 1) - 2
648*x + 875)/(4*x^2 - 4*x + 1)
```

Sympy [A] time = 0.262768, size = 29, normalized size = 0.76

$$-\frac{45x}{8}+\frac{2828x-875}{128x^2-128x+32}-\frac{309\log\left(2x-1\right)}{16}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2*(3+5*x)/(1-2*x)**3,x)
```

```
[Out] -45*x/8 + (2828*x - 875)/(128*x**2 - 128*x + 32) - 309*log(2*x -
1)/16
```

GIAC/XCAS [A] time = 0.21656, size = 36, normalized size = 0.95

$$-\frac{45}{8}\,x+\frac{7\,(404\,x-125)}{32\,(2\,x-1)^2}-\frac{309}{16}\,\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)^2/(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] -45/8*x + 7/32*(404*x - 125)/(2*x - 1)^2 - 309/16*ln(abs(2*x - 1)
)
```

3.1620 $\int \frac{(2+3x)(3+5x)}{(1-2x)^3} dx$

Optimal. Leaf size=33

$$-\frac{17}{2(1-2x)}+\frac{77}{16(1-2x)^2}-\frac{15}{8}\log(1-2x)$$

```
[Out] 77/(16*(1 - 2*x)^2) - 17/(2*(1 - 2*x)) - (15*Log[1 - 2*x])/8
```

Rubi [A] time = 0.0357488, antiderivative size = 33, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{17}{2(1-2x)}+\frac{77}{16(1-2x)^2}-\frac{15}{8}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)*(3 + 5*x))/(1 - 2*x)^3,x]

[Out] 77/(16*(1 - 2*x)^2) - 17/(2*(1 - 2*x)) - (15*Log[1 - 2*x])/8
```

Rubi in Sympy [A] time = 6.66805, size = 26, normalized size = 0.79

$$-\frac{15\log(-2x+1)}{8}-\frac{17}{2(-2x+1)}+\frac{77}{16(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)*(3+5*x)/(1-2*x)**3,x)

[Out] -15*log(-2*x + 1)/8 - 17/(2*(-2*x + 1)) + 77/(16*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0113085, size = 33, normalized size = 1.

$$-\frac{17}{2(1-2x)}+\frac{77}{16(1-2x)^2}-\frac{15}{8}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)*(3 + 5*x))/(1 - 2*x)^3,x]

[Out] 77/(16*(1 - 2*x)^2) - 17/(2*(1 - 2*x)) - (15*Log[1 - 2*x])/8
```

Maple [A] time = 0.008, size = 28, normalized size = 0.9

$$\frac{77}{16(-1+2x)^2}+\frac{17}{-2+4x}-\frac{15\ln(-1+2x)}{8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)*(3+5*x)/(1-2*x)^3,x)

[Out] 77/16/(-1+2*x)^2+17/2/(-1+2*x)-15/8*ln(-1+2*x)
```

Maxima [A] time = 1.32232, size = 38, normalized size = 1.15

$$\frac{272\,x-59}{16\,\left(4\,x^2-4\,x+1\right)}-\frac{15}{8}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)/(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] 1/16*(272*x - 59)/(4*x^2 - 4*x + 1) - 15/8*log(2*x - 1)
```

Fricas [A] time = 0.206237, size = 50, normalized size = 1.52

$$-\frac{30\,\left(4\,x^2-4\,x+1\right)\,\log\left(2\,x-1\right)-272\,x+59}{16\,\left(4\,x^2-4\,x+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)/(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -1/16*(30*(4*x^2 - 4*x + 1)*log(2*x - 1) - 272*x + 59)/(4*x^2 - 4
*x + 1)
```

Sympy [A] time = 0.248833, size = 24, normalized size = 0.73

$$\frac{272x-59}{64x^2-64x+16}-\frac{15\log\left(2x-1\right)}{8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)*(3+5*x)/(1-2*x)**3,x)
```

```
[Out] (272*x - 59)/(64*x**2 - 64*x + 16) - 15*log(2*x - 1)/8
```

GIAC/XCAS [A] time = 0.211121, size = 32, normalized size = 0.97

$$\frac{272\,x-59}{16\,\left(2\,x-1\right)^2}-\frac{15}{8}\,\ln\left(\left|2\,x-1\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)*(3*x + 2)/(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] 1/16*(272*x - 59)/(2*x - 1)^2 - 15/8*ln(abs(2*x - 1))
```

3.1621 $\int \frac{3+5x}{(1-2x)^3}\,dx$

Optimal. Leaf size=18

$$\frac{(5x+3)^2}{22(1-2x)^2}$$

```
[Out] (3 + 5*x)^2/(22*(1 - 2*x)^2)
```

Rubi [A] time = 0.0110893, antiderivative size = 18, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 13, $\frac{\text{number of rules}}{\text{integrand size}} = 0.077$

$$\frac{(5x+3)^2}{22(1-2x)^2}$$

Antiderivative was successfully verified.

```
[In] Int[(3 + 5*x)/(1 - 2*x)^3,x]

[Out] (3 + 5*x)^2/(22*(1 - 2*x)^2)
```

Rubi in Sympy [A] time = 2.48369, size = 14, normalized size = 0.78

$$\frac{(5x+3)^2}{22\,(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((3+5*x)/(1-2*x)**3,x)

[Out] (5*x + 3)**2/(22*(-2*x + 1)**2)
```

Mathematica [A] time = 0.00599392, size = 16, normalized size = 0.89

$$\frac{20x+1}{8(1-2x)^2}$$

Antiderivative was successfully verified.

```
[In] Integrate[(3 + 5*x)/(1 - 2*x)^3,x]

[Out] (1 + 20*x)/(8*(1 - 2*x)^2)
```

Maple [A] time = 0.007, size = 20, normalized size = 1.1

$$\frac{11}{8\,(-1+2\,x)^2}+\frac{5}{-4+8\,x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((3+5*x)/(1-2*x)^3,x)

[Out] 11/8/(-1+2*x)^2+5/4/(-1+2*x)
```

Maxima [A] time = 1.33175, size = 26, normalized size = 1.44

$$\frac{20\,x+1}{8\,(4\,x^2-4\,x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)/(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] 1/8*(20*x + 1)/(4*x^2 - 4*x + 1)
```

Fricas [A] time = 0.205862, size = 26, normalized size = 1.44

$$\frac{20\,x+1}{8\,(4\,x^2-4\,x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)/(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] 1/8*(20*x + 1)/(4*x^2 - 4*x + 1)
```

Sympy [A] time = 0.213973, size = 14, normalized size = 0.78

$$\frac{20x+1}{32x^2-32x+8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)/(1-2*x)**3,x)
```

```
[Out] (20*x + 1)/(32*x**2 - 32*x + 8)
```

GIAC/XCAS [A] time = 0.201467, size = 19, normalized size = 1.06

$$\frac{20\,x+1}{8\,(2\,x-1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)/(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] 1/8*(20*x + 1)/(2*x - 1)^2
```

3.1622 $\int \frac{3+5x}{(1-2x)^3(2+3x)}\,dx$

Optimal. Leaf size=43

$$-\frac{1}{49(1-2x)}+\frac{11}{28(1-2x)^2}+\frac{3}{343}\log(1-2x)-\frac{3}{343}\log(3x+2)$$

```
[Out] 11/(28*(1 - 2*x)^2) - 1/(49*(1 - 2*x)) + (3*Log[1 - 2*x])/343 - (
3*Log[2 + 3*x])/343
```

Rubi [A] time = 0.0473223, antiderivative size = 43, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{1}{49(1-2x)}+\frac{11}{28(1-2x)^2}+\frac{3}{343}\log(1-2x)-\frac{3}{343}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In] Int[(3 + 5*x)/((1 - 2*x)^3*(2 + 3*x)),x]
```

```
[Out] 11/(28*(1 - 2*x)^2) - 1/(49*(1 - 2*x)) + (3*Log[1 - 2*x])/343 - (
3*Log[2 + 3*x])/343
```

Rubi in Sympy [A] time = 7.28612, size = 36, normalized size = 0.84

$$\frac{3\log(-2x+1)}{343}-\frac{3\log(3x+2)}{343}-\frac{1}{49(-2x+1)}+\frac{11}{28(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((3+5*x)/(1-2*x)**3/(2+3*x),x)
```

```
[Out] 3*log(-2*x + 1)/343 - 3*log(3*x + 2)/343 - 1/(49*(-2*x + 1)) + 11
/(28*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0308796, size = 35, normalized size = 0.81

$$\frac{\frac{7(8x+73)}{(1-2x)^2}+12\log(1-2x)-12\log(6x+4)}{1372}$$

Antiderivative was successfully verified.

```
[In] Integrate[(3 + 5*x)/((1 - 2*x)^3*(2 + 3*x)),x]
```

```
[Out] ((7*(73 + 8*x))/(1 - 2*x)^2 + 12*Log[1 - 2*x] - 12*Log[4 + 6*x])/
1372
```

Maple [A] time = 0.012, size = 36, normalized size = 0.8

$$-\frac{3\ln(2+3x)}{343}+\frac{11}{28(-1+2x)^2}+\frac{1}{-49+98x}+\frac{3\ln(-1+2x)}{343}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)/(1-2*x)^3/(2+3*x),x)
```

```
[Out] -3/343*ln(2+3*x)+11/28/(-1+2*x)^2+1/49/(-1+2*x)+3/343*ln(-1+2*x)
```

Maxima [A] time = 1.32276, size = 49, normalized size = 1.14

$$\frac{8\,x+73}{196\,(4\,x^2-4\,x+1)}-\frac{3}{343}\,\log\left(3\,x+2\right)+\frac{3}{343}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)/((3*x + 2)*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] 1/196*(8*x + 73)/(4*x^2 - 4*x + 1) - 3/343*log(3*x + 2) + 3/343*l
og(2*x - 1)
```

Fricas [A] time = 0.220092, size = 74, normalized size = 1.72

$$-\frac{12\,\left(4\,x^2-4\,x+1\right)\,\log\left(3\,x+2\right)-12\,\left(4\,x^2-4\,x+1\right)\,\log\left(2\,x-1\right)-56\,x-511}{1372\,(4\,x^2-4\,x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)/((3*x + 2)*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] -1/1372*(12*(4*x^2 - 4*x + 1)*log(3*x + 2) - 12*(4*x^2 - 4*x + 1)
*log(2*x - 1) - 56*x - 511)/(4*x^2 - 4*x + 1)
```

Sympy [A] time = 0.324202, size = 34, normalized size = 0.79

$$\frac{8x+73}{784x^2-784x+196}+\frac{3\log\left(x-\frac{1}{2}\right)}{343}-\frac{3\log\left(x+\frac{2}{3}\right)}{343}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)/(1-2*x)**3/(2+3*x),x)
```

```
[Out] (8*x + 73)/(784*x**2 - 784*x + 196) + 3*log(x - 1/2)/343 - 3*log(
x + 2/3)/343
```

GIAC/XCAS [A] time = 0.206342, size = 45, normalized size = 1.05

$$\frac{8\,x+73}{196\,(2\,x-1)^2}-\frac{3}{343}\,\ln\left(|3\,x+2|\right)+\frac{3}{343}\,\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)/((3*x + 2)*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] 1/196*(8*x + 73)/(2*x - 1)^2 - 3/343*ln(abs(3*x + 2)) + 3/343*ln(
abs(2*x - 1))
```

3.1623 $\int \frac{3+5x}{(1-2x)^3(2+3x)^2} \, dx$

Optimal. Leaf size=54

$$\frac{31}{343(1-2x)}+\frac{3}{343(3x+2)}+\frac{11}{98(1-2x)^2}-\frac{87\log(1-2x)}{2401}+\frac{87\log(3x+2)}{2401}$$

```
[Out] 11/(98*(1 - 2*x)^2) + 31/(343*(1 - 2*x)) + 3/(343*(2 + 3*x)) - (8
7*Log[1 - 2*x])/2401 + (87*Log[2 + 3*x])/2401
```

Rubi [A] time = 0.0590125, antiderivative size = 54, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{31}{343(1-2x)}+\frac{3}{343(3x+2)}+\frac{11}{98(1-2x)^2}-\frac{87\log(1-2x)}{2401}+\frac{87\log(3x+2)}{2401}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)/((1 - 2*x)^3*(2 + 3*x)^2),x]
```

```
[Out] 11/(98*(1 - 2*x)^2) + 31/(343*(1 - 2*x)) + 3/(343*(2 + 3*x)) - (8
7*Log[1 - 2*x])/2401 + (87*Log[2 + 3*x])/2401
```

Rubi in Sympy [A] time = 8.49885, size = 42, normalized size = 0.78

$$-\frac{87\log(-2x+1)}{2401}+\frac{87\log(3x+2)}{2401}+\frac{3}{343(3x+2)}+\frac{31}{343(-2x+1)}+\frac{11}{98(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)/(1-2*x)**3/(2+3*x)**2,x)
```

```
[Out] -87*log(-2*x + 1)/2401 + 87*log(3*x + 2)/2401 + 3/(343*(3*x + 2))
 + 31/(343*(-2*x + 1)) + 11/(98*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0593812, size = 47, normalized size = 0.87

$$\frac{\frac{7(-348x^2+145x+284)}{(1-2x)^2(3x+2)}-174\log(1-2x)+174\log(6x+4)}{4802}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)/((1 - 2*x)^3*(2 + 3*x)^2),x]
```

```
[Out] ((7*(284 + 145*x - 348*x^2))/((1 - 2*x)^2*(2 + 3*x)) - 174*Log[1
- 2*x] + 174*Log[4 + 6*x])/4802
```

Maple [A] time = 0.014, size = 45, normalized size = 0.8

$$\frac{3}{686+1029x}+\frac{87\ln(2+3x)}{2401}+\frac{11}{98(-1+2x)^2}-\frac{31}{-343+686x}-\frac{87\ln(-1+2x)}{2401}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)/(1-2*x)^3/(2+3*x)^2,x)
```

```
[Out] 3/343/(2+3*x)+87/2401*ln(2+3*x)+11/98/(-1+2*x)^2-31/343/(-1+2*x)-
87/2401*ln(-1+2*x)
```

Maxima [A] time = 1.32311, size = 62, normalized size = 1.15

$$-\frac{348\,x^2-145\,x-284}{686\,(12\,x^3-4\,x^2-5\,x+2)}+\frac{87}{2401}\,\log\left(3\,x+2\right)-\frac{87}{2401}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)/((3*x + 2)^2*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] -1/686*(348*x^2 - 145*x - 284)/(12*x^3 - 4*x^2 - 5*x + 2) + 87/24
01*log(3*x + 2) - 87/2401*log(2*x - 1)
```

Fricas [A] time = 0.208251, size = 101, normalized size = 1.87

$$-\frac{2436\,x^2-174\,\left(12\,x^3-4\,x^2-5\,x+2\right)\log\left(3\,x+2\right)+174\,\left(12\,x^3-4\,x^2-5\,x+2\right)\log\left(2\,x-1\right)-1015\,x-1988}{4802\,(12\,x^3-4\,x^2-5\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)/((3*x + 2)^2*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] -1/4802*(2436*x^2 - 174*(12*x^3 - 4*x^2 - 5*x + 2)*log(3*x + 2) +
 174*(12*x^3 - 4*x^2 - 5*x + 2)*log(2*x - 1) - 1015*x - 1988)/(12
*x^3 - 4*x^2 - 5*x + 2)
```

Sympy [A] time = 0.378826, size = 44, normalized size = 0.81

$$-\frac{348x^2-145x-284}{8232x^3-2744x^2-3430x+1372}-\frac{87\log\left(x-\frac{1}{2}\right)}{2401}+\frac{87\log\left(x+\frac{2}{3}\right)}{2401}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)/(1-2*x)**3/(2+3*x)**2,x)
```

```
[Out] -(348*x**2 - 145*x - 284)/(8232*x**3 - 2744*x**2 - 3430*x + 1372)
 - 87*log(x - 1/2)/2401 + 87*log(x + 2/3)/2401
```

GIAC/XCAS [A] time = 0.208253, size = 69, normalized size = 1.28

$$\frac{3}{343\,(3\,x+2)}+\frac{6\,\left(\frac{448}{3\,x+2}-95\right)}{2401\,\left(\frac{7}{3\,x+2}-2\right)^2}-\frac{87}{2401}\ln\left(\left|-\frac{7}{3\,x+2}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)/((3*x + 2)^2*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] 3/343/(3*x + 2) + 6/2401*(448/(3*x + 2) - 95)/(7/(3*x + 2) - 2)^2
 - 87/2401*ln(abs(-7/(3*x + 2) + 2))
```

3.1624 $\int \frac{3+5x}{(1-2x)^3(2+3x)^3}\,dx$

Optimal. Leaf size=65

$$\frac{128}{2401(1-2x)}-\frac{87}{2401(3x+2)}+\frac{11}{343(1-2x)^2}+\frac{3}{686(3x+2)^2}-\frac{558\log(1-2x)}{16807}+\frac{558\log(3x+2)}{16807}$$

```
[Out] 11/(343*(1 - 2*x)^2) + 128/(2401*(1 - 2*x)) + 3/(686*(2 + 3*x)^2)
 - 87/(2401*(2 + 3*x)) - (558*Log[1 - 2*x])/16807 + (558*Log[2 +
3*x])/16807
```

Rubi [A] time = 0.0683202, antiderivative size = 65, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{128}{2401(1-2x)}-\frac{87}{2401(3x+2)}+\frac{11}{343(1-2x)^2}+\frac{3}{686(3x+2)^2}-\frac{558\log(1-2x)}{16807}+\frac{558\log(3x+2)}{16807}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)/((1 - 2*x)^3*(2 + 3*x)^3),x]
```

```
[Out] 11/(343*(1 - 2*x)^2) + 128/(2401*(1 - 2*x)) + 3/(686*(2 + 3*x)^2)
 - 87/(2401*(2 + 3*x)) - (558*Log[1 - 2*x])/16807 + (558*Log[2 +
3*x])/16807
```

Rubi in Sympy [A] time = 9.8307, size = 53, normalized size = 0.82

$$-\frac{558\log(-2x+1)}{16807}+\frac{558\log(3x+2)}{16807}-\frac{87}{2401(3x+2)}+\frac{3}{686(3x+2)^2}+\frac{128}{2401(-2x+1)}+\frac{11}{343(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)/(1-2*x)**3/(2+3*x)**3,x)
```

```
[Out] -558*log(-2*x + 1)/16807 + 558*log(3*x + 2)/16807 - 87/(2401*(3*x
 + 2)) + 3/(686*(3*x + 2)**2) + 128/(2401*(-2*x + 1)) + 11/(343*(
-2*x + 1)**2)
```

Mathematica [A] time = 0.0446088, size = 48, normalized size = 0.74

$$\frac{\frac{7(-6696x^3-1674x^2+3658x+1313)}{(6x^2+x-2)^2}-1116\log(1-2x)+1116\log(3x+2)}{33614}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)/((1 - 2*x)^3*(2 + 3*x)^3),x]
```

```
[Out] ((7*(1313 + 3658*x - 1674*x^2 - 6696*x^3))/(-2 + x + 6*x^2)^2 - 1
116*Log[1 - 2*x] + 1116*Log[2 + 3*x])/33614
```

Maple [A] time = 0.014, size = 54, normalized size = 0.8

$$\frac{3}{686\,(2+3\,x)^2}-\frac{87}{4802+7203\,x}+\frac{558\,\ln(2+3\,x)}{16807}+\frac{11}{343\,(-1+2\,x)^2}-\frac{128}{-2401+4802\,x}-\frac{558\,\ln(-1+2\,x)}{16807}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)/(1-2*x)^3/(2+3*x)^3,x)
```

```
[Out] 3/686/(2+3*x)^2-87/2401/(2+3*x)+558/16807*ln(2+3*x)+11/343/(-1+2*
x)^2-128/2401/(-1+2*x)-558/16807*ln(-1+2*x)
```

Maxima [A] time = 1.34067, size = 76, normalized size = 1.17

$$-\frac{6696\,x^{3}+1674\,x^{2}-3658\,x-1313}{4802\,(36\,x^{4}+12\,x^{3}-23\,x^{2}-4\,x+4)}+\frac{558}{16807}\,\log\left(3\,x+2\right)-\frac{558}{16807}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)/((3*x + 2)^3*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] -1/4802*(6696*x^3 + 1674*x^2 - 3658*x - 1313)/(36*x^4 + 12*x^3 -
23*x^2 - 4*x + 4) + 558/16807*log(3*x + 2) - 558/16807*log(2*x -
1)
```

Fricas [A] time = 0.204938, size = 128, normalized size = 1.97

$$-\frac{46872\,x^{3}+11718\,x^{2}-1116\,\left(36\,x^{4}+12\,x^{3}-23\,x^{2}-4\,x+4\right)\log\left(3\,x+2\right)+1116\,\left(36\,x^{4}+12\,x^{3}-23\,x^{2}-4\,x+4\right)\log\left(2\,x\right.}{33614\,(36\,x^{4}+12\,x^{3}-23\,x^{2}-4\,x+4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)/((3*x + 2)^3*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] -1/33614*(46872*x^3 + 11718*x^2 - 1116*(36*x^4 + 12*x^3 - 23*x^2
- 4*x + 4)*log(3*x + 2) + 1116*(36*x^4 + 12*x^3 - 23*x^2 - 4*x +
4)*log(2*x - 1) - 25606*x - 9191)/(36*x^4 + 12*x^3 - 23*x^2 - 4*x
 + 4)
```

Sympy [A] time = 0.435352, size = 54, normalized size = 0.83

$$-\frac{6696x^{3}+1674x^{2}-3658x-1313}{172872x^{4}+57624x^{3}-110446x^{2}-19208x+19208}-\frac{558\log\left(x-\frac{1}{2}\right)}{16807}+\frac{558\log\left(x+\frac{2}{3}\right)}{16807}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)/(1-2*x)**3/(2+3*x)**3,x)
```

```
[Out] -(6696*x**3 + 1674*x**2 - 3658*x - 1313)/(172872*x**4 + 57624*x**
3 - 110446*x**2 - 19208*x + 19208) - 558*log(x - 1/2)/16807 + 558
*log(x + 2/3)/16807
```

GIAC/XCAS [A] time = 0.210616, size = 62, normalized size = 0.95

$$-\frac{6696\,x^{3}+1674\,x^{2}-3658\,x-1313}{4802\,(6\,x^{2}+x-2)^{2}}+\frac{558}{16807}\ln\left(|3\,x+2|\right)-\frac{558}{16807}\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)/((3*x + 2)^3*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] -1/4802*(6696*x^3 + 1674*x^2 - 3658*x - 1313)/(6*x^2 + x - 2)^2 +
 558/16807*ln(abs(3*x + 2)) - 558/16807*ln(abs(2*x - 1))
```

3.1625 $\int \frac{3+5x}{(1-2x)^3(2+3x)^4}\,dx$

Optimal. Leaf size=76

$$\frac{388}{16807(1-2x)}-\frac{558}{16807(3x+2)}+\frac{22}{2401(1-2x)^2}-\frac{87}{4802(3x+2)^2}+\frac{1}{343(3x+2)^3}-\frac{2280\log(1-2x)}{117649}+\frac{2280\log(3x+2)}{117649}$$

```
[Out] 22/(2401*(1 - 2*x)^2) + 388/(16807*(1 - 2*x)) + 1/(343*(2 + 3*x)^
3) - 87/(4802*(2 + 3*x)^2) - 558/(16807*(2 + 3*x)) - (2280*Log[1
- 2*x])/117649 + (2280*Log[2 + 3*x])/117649
```

Rubi [A] time = 0.0824247, antiderivative size = 76, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{388}{16807(1-2x)}-\frac{558}{16807(3x+2)}+\frac{22}{2401(1-2x)^2}-\frac{87}{4802(3x+2)^2}+\frac{1}{343(3x+2)^3}-\frac{2280\log(1-2x)}{117649}+\frac{2280\log(3x+2)}{117649}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)/((1 - 2*x)^3*(2 + 3*x)^4),x]
```

```
[Out] 22/(2401*(1 - 2*x)^2) + 388/(16807*(1 - 2*x)) + 1/(343*(2 + 3*x)^
3) - 87/(4802*(2 + 3*x)^2) - 558/(16807*(2 + 3*x)) - (2280*Log[1
- 2*x])/117649 + (2280*Log[2 + 3*x])/117649
```

Rubi in Sympy [A] time = 11.1818, size = 63, normalized size = 0.83

$$-\frac{2280\log(-2x+1)}{117649}+\frac{2280\log(3x+2)}{117649}-\frac{558}{16807(3x+2)}-\frac{87}{4802(3x+2)^2}+\frac{1}{343(3x+2)^3}+\frac{388}{16807(-2x+1)}+\frac{22}{2401(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)/(1-2*x)**3/(2+3*x)**4,x)
```

```
[Out] -2280*log(-2*x + 1)/117649 + 2280*log(3*x + 2)/117649 - 558/(1680
7*(3*x + 2)) - 87/(4802*(3*x + 2)**2) + 1/(343*(3*x + 2)**3) + 38
8/(16807*(-2*x + 1)) + 22/(2401*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0575851, size = 57, normalized size = 0.75

$$\frac{-\frac{7(82080x^4+75240x^3-31160x^2-33725x-3088)}{(1-2x)^2(3x+2)^3}-4560\log(3-6x)+4560\log(3x+2)}{235298}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)/((1 - 2*x)^3*(2 + 3*x)^4),x]
```

```
[Out] ((-7*(-3088 - 33725*x - 31160*x^2 + 75240*x^3 + 82080*x^4))/((1 -
 2*x)^2*(2 + 3*x)^3) - 4560*Log[3 - 6*x] + 4560*Log[2 + 3*x])/235
298
```

Maple [A] time = 0.015, size = 63, normalized size = 0.8

$$\frac{1}{343\,\left(2+3\,x\right)^{3}}-\frac{87}{4802\,\left(2+3\,x\right)^{2}}-\frac{558}{33614+50421\,x}+\frac{2280\,\ln\left(2+3\,x\right)}{117649}+\frac{22}{2401\,\left(-1+2\,x\right)^{2}}-\frac{388}{-16807+33614\,x}-\frac{2280\,\ln\left(-1+2\,x\right)}{117649}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)/(1-2*x)^3/(2+3*x)^4,x)
```

```
[Out] 1/343/(2+3*x)^3-87/4802/(2+3*x)^2-558/16807/(2+3*x)+2280/117649*l
n(2+3*x)+22/2401/(-1+2*x)^2-388/16807/(-1+2*x)-2280/117649*ln(-1+
2*x)
```

Maxima [A] time = 1.35141, size = 89, normalized size = 1.17

$$-\frac{82080\,x^{4}+75240\,x^{3}-31160\,x^{2}-33725\,x-3088}{33614\,\left(108\,x^{5}+108\,x^{4}-45\,x^{3}-58\,x^{2}+4\,x+8\right)}+\frac{2280}{117649}\,\log\left(3\,x+2\right)-\frac{2280}{117649}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)/((3*x + 2)^4*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] -1/33614*(82080*x^4 + 75240*x^3 - 31160*x^2 - 33725*x - 3088)/(10
8*x^5 + 108*x^4 - 45*x^3 - 58*x^2 + 4*x + 8) + 2280/117649*log(3*
x + 2) - 2280/117649*log(2*x - 1)
```

Fricas [A] time = 0.217054, size = 155, normalized size = 2.04

$$-\frac{574560\,x^{4}+526680\,x^{3}-218120\,x^{2}-4560\,\left(108\,x^{5}+108\,x^{4}-45\,x^{3}-58\,x^{2}+4\,x+8\right)\log\left(3\,x+2\right)+4560\,\left(108\,x^{5}+108\,x^{4}\right.}{235298\,\left(108\,x^{5}+108\,x^{4}-45\,x^{3}-58\,x^{2}+4\,x+8\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)/((3*x + 2)^4*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] -1/235298*(574560*x^4 + 526680*x^3 - 218120*x^2 - 4560*(108*x^5 +
 108*x^4 - 45*x^3 - 58*x^2 + 4*x + 8)*log(3*x + 2) + 4560*(108*x^
5 + 108*x^4 - 45*x^3 - 58*x^2 + 4*x + 8)*log(2*x - 1) - 236075*x
- 21616)/(108*x^5 + 108*x^4 - 45*x^3 - 58*x^2 + 4*x + 8)
```

Sympy [A] time = 0.479341, size = 65, normalized size = 0.86

$$-\frac{82080x^{4}+75240x^{3}-31160x^{2}-33725x-3088}{3630312x^{5}+3630312x^{4}-1512630x^{3}-1949612x^{2}+134456x+268912}-\frac{2280\log\left(x-\frac{1}{2}\right)}{117649}+\frac{2280\log\left(x+\frac{2}{3}\right)}{117649}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)/(1-2*x)**3/(2+3*x)**4,x)
```

```
[Out] -(82080*x**4 + 75240*x**3 - 31160*x**2 - 33725*x - 3088)/(3630312
*x**5 + 3630312*x**4 - 1512630*x**3 - 1949612*x**2 + 134456*x + 2
```

```
68912) - 2280*log(x - 1/2)/117649 + 2280*log(x + 2/3)/117649
```

GIAC/XCAS [A] time = 0.209794, size = 74, normalized size = 0.97

$$-\frac{82080\,x^{4}+75240\,x^{3}-31160\,x^{2}-33725\,x-3088}{33614\,(3\,x+2)^{3}(2\,x-1)^{2}}+\frac{2280}{117649}\ln\left(|3\,x+2|\right)-\frac{2280}{117649}\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)/((3*x + 2)^4*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] -1/33614*(82080*x^4 + 75240*x^3 - 31160*x^2 - 33725*x - 3088)/((3
*x + 2)^3*(2*x - 1)^2) + 2280/117649*ln(abs(3*x + 2)) - 2280/1176
49*ln(abs(2*x - 1))
```

3.1626 $\int \frac{3+5x}{(1-2x)^3(2+3x)^5} \, dx$

Optimal. Leaf size=87

$$\frac{1040}{117649(1-2x)}-\frac{2280}{117649(3x+2)}+\frac{44}{16807(1-2x)^2}-\frac{279}{16807(3x+2)^2}-\frac{29}{2401(3x+2)^3}+\frac{3}{1372(3x+2)^4}-\frac{7680\log(1-2x)}{823543}+\frac{7680\log(3x+2)}{823543}$$

```
[Out] 44/(16807*(1 - 2*x)^2) + 1040/(117649*(1 - 2*x)) + 3/(1372*(2 + 3
*x)^4) - 29/(2401*(2 + 3*x)^3) - 279/(16807*(2 + 3*x)^2) - 2280/(
117649*(2 + 3*x)) - (7680*Log[1 - 2*x])/823543 + (7680*Log[2 + 3*
x])/823543
```

Rubi [A] time = 0.0968173, antiderivative size = 87, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{1040}{117649(1-2x)}-\frac{2280}{117649(3x+2)}+\frac{44}{16807(1-2x)^2}-\frac{279}{16807(3x+2)^2}-\frac{29}{2401(3x+2)^3}+\frac{3}{1372(3x+2)^4}-\frac{7680\log(1-2x)}{823543}+\frac{7680\log(3x+2)}{823543}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)/((1 - 2*x)^3*(2 + 3*x)^5),x]
```

```
[Out] 44/(16807*(1 - 2*x)^2) + 1040/(117649*(1 - 2*x)) + 3/(1372*(2 + 3
*x)^4) - 29/(2401*(2 + 3*x)^3) - 279/(16807*(2 + 3*x)^2) - 2280/(
117649*(2 + 3*x)) - (7680*Log[1 - 2*x])/823543 + (7680*Log[2 + 3*
x])/823543
```

Rubi in Sympy [A] time = 12.5907, size = 73, normalized size = 0.84

$$-\frac{7680\log\left(-2x+1\right)}{823543}+\frac{7680\log\left(3x+2\right)}{823543}-\frac{2280}{117649\left(3x+2\right)}-\frac{279}{16807\left(3x+2\right)^2}-\frac{29}{2401\left(3x+2\right)^3}+\frac{3}{1372\left(3x+2\right)^4}+\frac{1040}{117649\left(-2x+1\right)}+\frac{44}{16807\left(-2x+1\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)/(1-2*x)**3/(2+3*x)**5,x)
```

```
[Out] -7680*log(-2*x + 1)/823543 + 7680*log(3*x + 2)/823543 - 2280/(117
649*(3*x + 2)) - 279/(16807*(3*x + 2)**2) - 29/(2401*(3*x + 2)**3
) + 3/(1372*(3*x + 2)**4) + 1040/(117649*(-2*x + 1)) + 44/(16807*
(-2*x + 1)**2)
```

Mathematica [A] time = 0.0913177, size = 64, normalized size = 0.74

$$\frac{4\left(-\frac{7(1658880x^5+2626560x^4+384000x^3-1101440x^2-403584x+28275)}{16(1-2x)^2(3x+2)^4}-1920\log(1-2x)+1920\log(6x+4)\right)}{823543}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)/((1 - 2*x)^3*(2 + 3*x)^5),x]
```

```
[Out] (4*((-7*(28275 - 403584*x - 1101440*x^2 + 384000*x^3 + 2626560*x^
4 + 1658880*x^5))/(16*(1 - 2*x)^2*(2 + 3*x)^4) - 1920*Log[1 - 2*x
] + 1920*Log[4 + 6*x]))/823543
```

Maple [A] time = 0.017, size = 72, normalized size = 0.8

$$\frac{3}{1372\ (2+3\,x)^{4}}-\frac{29}{2401\ (2+3\,x)^{3}}-\frac{279}{16807\ (2+3\,x)^{2}}-\frac{2280}{235298+352947\,x}+\frac{7680\ \ln(2+3\,x)}{823543}+\frac{44}{16807\ (-1+2\,x)^{2}}-\frac{1040}{-117649+235298\,x}-\frac{7680\ \ln(-1+2\,x)}{823543}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)/(1-2*x)^3/(2+3*x)^5,x)
```

```
[Out] 3/1372/(2+3*x)^4-29/2401/(2+3*x)^3-279/16807/(2+3*x)^2-2280/11764
9/(2+3*x)+7680/823543*ln(2+3*x)+44/16807/(-1+2*x)^2-1040/117649/(
-1+2*x)-7680/823543*ln(-1+2*x)
```

Maxima [A] time = 1.35338, size = 103, normalized size = 1.18

$$-\frac{1658880\,x^{5}+2626560\,x^{4}+384000\,x^{3}-1101440\,x^{2}-403584\,x+28275}{470596\,(324\,x^{6}+540\,x^{5}+81\,x^{4}-264\,x^{3}-104\,x^{2}+32\,x+16)}+\frac{7680}{823543}\ \log(3\,x+2)-\frac{7680}{823543}\ \log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)/((3*x + 2)^5*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] -1/470596*(1658880*x^5 + 2626560*x^4 + 384000*x^3 - 1101440*x^2 -
 403584*x + 28275)/(324*x^6 + 540*x^5 + 81*x^4 - 264*x^3 - 104*x^
2 + 32*x + 16) + 7680/823543*log(3*x + 2) - 7680/823543*log(2*x -
 1)
```

Fricas [A] time = 0.217427, size = 182, normalized size = 2.09

$$-\frac{11612160\,x^{5}+18385920\,x^{4}+2688000\,x^{3}-7710080\,x^{2}-30720\,(324\,x^{6}+540\,x^{5}+81\,x^{4}-264\,x^{3}-104\,x^{2}+32\,x+16)\ \mathrm{lo}}{3294172\,(324\,x^{6}+540\,x^{5}+81\,x^{4}-26}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)/((3*x + 2)^5*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] -1/3294172*(11612160*x^5 + 18385920*x^4 + 2688000*x^3 - 7710080*x
^2 - 30720*(324*x^6 + 540*x^5 + 81*x^4 - 264*x^3 - 104*x^2 + 32*x
 + 16)*log(3*x + 2) + 30720*(324*x^6 + 540*x^5 + 81*x^4 - 264*x^3
 - 104*x^2 + 32*x + 16)*log(2*x - 1) - 2825088*x + 197925)/(324*x
^6 + 540*x^5 + 81*x^4 - 264*x^3 - 104*x^2 + 32*x + 16)
```

Sympy [A] time = 0.545834, size = 75, normalized size = 0.86

$$-\frac{1658880x^{5}+2626560x^{4}+384000x^{3}-1101440x^{2}-403584x+28275}{152473104x^{6}+254121840x^{5}+38118276x^{4}-124237344x^{3}-48941984x^{2}+15059072x+7529536}-\frac{7680\log\left(x-\frac{1}{2}\right)}{823543}+\frac{7680\log\left(x+\frac{2}{3}\right)}{823543}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)/(1-2*x)**3/(2+3*x)**5,x)
```

```
[Out] -(1658880*x**5 + 2626560*x**4 + 384000*x**3 - 1101440*x**2 - 4035
84*x + 28275)/(152473104*x**6 + 254121840*x**5 + 38118276*x**4 -
124237344*x**3 - 48941984*x**2 + 15059072*x + 7529536) - 7680*log
(x - 1/2)/823543 + 7680*log(x + 2/3)/823543
```

GIAC/XCAS [A] time = 0.209523, size = 105, normalized size = 1.21

$$-\frac{2280}{117649\,(3\,x+2)}+\frac{48\,\left(\frac{1141}{3\,x+2}-293\right)}{823543\,\left(\frac{7}{3\,x+2}-2\right)^2}-\frac{279}{16807\,(3\,x+2)^2}-\frac{29}{2401\,(3\,x+2)^3}+\frac{3}{1372\,(3\,x+2)^4}-\frac{7680}{823543}\ln\left(\left|-\frac{7}{3\,x+2}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)/((3*x + 2)^5*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] -2280/117649/(3*x + 2) + 48/823543*(1141/(3*x + 2) - 293)/(7/(3*x
 + 2) - 2)^2 - 279/16807/(3*x + 2)^2 - 29/2401/(3*x + 2)^3 + 3/13
72/(3*x + 2)^4 - 7680/823543*ln(abs(-7/(3*x + 2) + 2))
```

3.1627 $\int \frac{3+5x}{(1-2x)^3(2+3x)^6} dx$

Optimal. Leaf size=98

$$\frac{2608}{823543(1-2x)}-\frac{7680}{823543(3x+2)}+\frac{88}{117649(1-2x)^2}-\frac{1140}{117649(3x+2)^2}-\frac{186}{16807(3x+2)^3}-\frac{87}{9604(3x+2)^4}+\frac{3}{1715(3x+2)^5}-\frac{3312\log(1-2x)}{823543}+\frac{3312\log(3x+2)}{823543}$$

```
[Out] 88/(117649*(1 - 2*x)^2) + 2608/(823543*(1 - 2*x)) + 3/(1715*(2 +
3*x)^5) - 87/(9604*(2 + 3*x)^4) - 186/(16807*(2 + 3*x)^3) - 1140/
(117649*(2 + 3*x)^2) - 7680/(823543*(2 + 3*x)) - (3312*Log[1 - 2*
x])/823543 + (3312*Log[2 + 3*x])/823543
```

Rubi [A] time = 0.113477, antiderivative size = 98, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{2608}{823543(1-2x)}-\frac{7680}{823543(3x+2)}+\frac{88}{117649(1-2x)^2}-\frac{1140}{117649(3x+2)^2}-\frac{186}{16807(3x+2)^3}-\frac{87}{9604(3x+2)^4}+\frac{3}{1715(3x+2)^5}-\frac{3312\log(1-2x)}{823543}+\frac{3312\log(3x+2)}{823543}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)/((1 - 2*x)^3*(2 + 3*x)^6),x]
```

```
[Out] 88/(117649*(1 - 2*x)^2) + 2608/(823543*(1 - 2*x)) + 3/(1715*(2 +
3*x)^5) - 87/(9604*(2 + 3*x)^4) - 186/(16807*(2 + 3*x)^3) - 1140/
(117649*(2 + 3*x)^2) - 7680/(823543*(2 + 3*x)) - (3312*Log[1 - 2*
x])/823543 + (3312*Log[2 + 3*x])/823543
```

Rubi in Sympy [A] time = 14.1627, size = 83, normalized size = 0.85

$$-\frac{3312\log\left(-2x+1\right)}{823543}+\frac{3312\log\left(3x+2\right)}{823543}-\frac{7680}{823543\left(3x+2\right)}-\frac{1140}{117649\left(3x+2\right)^2}-\frac{186}{16807\left(3x+2\right)^3}-\frac{87}{9604\left(3x+2\right)^4}+\frac{3}{1715\left(3x+2\right)^5}+\frac{2608}{823543\left(-2x+1\right)}+\frac{88}{117649\left(-2x+1\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)/(1-2*x)**3/(2+3*x)**6,x)
```

```
[Out] -3312*log(-2*x + 1)/823543 + 3312*log(3*x + 2)/823543 - 7680/(823
543*(3*x + 2)) - 1140/(117649*(3*x + 2)**2) - 186/(16807*(3*x + 2
)**3) - 87/(9604*(3*x + 2)**4) + 3/(1715*(3*x + 2)**5) + 2608/(82
3543*(-2*x + 1)) + 88/(117649*(-2*x + 1)**2)
```

Mathematica [A] time = 0.101523, size = 69, normalized size = 0.7

$$\frac{3\left(-\frac{7\left(10730880x^6+24144480x^5+13811040x^4-5468940x^3-7360644x^2-1134751x+381394\right)}{3(1-2x)^2(3x+2)^5}-22080\log(3-6x)+22080\log(3x+2)\right)}{16470860}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)/((1 - 2*x)^3*(2 + 3*x)^6),x]
```

```
[Out] (3*((-7*(381394 - 1134751*x - 7360644*x^2 - 5468940*x^3 + 1381104
0*x^4 + 24144480*x^5 + 10730880*x^6))/(3*(1 - 2*x)^2*(2 + 3*x)^5)
 - 22080*Log[3 - 6*x] + 22080*Log[2 + 3*x]))/16470860
```

Maple [A] time = 0.016, size = 81, normalized size = 0.8

$$\frac{3}{1715\,(2+3\,x)^{5}}-\frac{87}{9604\,(2+3\,x)^{4}}-\frac{186}{16807\,(2+3\,x)^{3}}-\frac{1140}{117649\,(2+3\,x)^{2}}-\frac{7680}{1647086+2470629\,x}+\frac{3312\,\ln(2+3\,x)}{823543}+\frac{88}{117649\,(-1+2\,x)^{2}}-\frac{2608}{-823543+1647086\,x}-\frac{3312\,\ln(-1+2\,x)}{823543}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)/(1-2*x)^3/(2+3*x)^6,x)
```

```
[Out] 3/1715/(2+3*x)^5-87/9604/(2+3*x)^4-186/16807/(2+3*x)^3-1140/11764
9/(2+3*x)^2-7680/823543/(2+3*x)+3312/823543*ln(2+3*x)+88/117649/(
-1+2*x)^2-2608/823543/(-1+2*x)-3312/823543*ln(-1+2*x)
```

Maxima [A] time = 1.33102, size = 116, normalized size = 1.18

$$-\frac{10730880\,x^{6}+24144480\,x^{5}+13811040\,x^{4}-5468940\,x^{3}-7360644\,x^{2}-1134751\,x+381394}{2352980\,(972\,x^{7}+2268\,x^{6}+1323\,x^{5}-630\,x^{4}-840\,x^{3}-112\,x^{2}+112\,x+32)}+\frac{3312}{823543}\,\log(3\,x+2)-\frac{3312}{823543}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)/((3*x + 2)^6*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] -1/2352980*(10730880*x^6 + 24144480*x^5 + 13811040*x^4 - 5468940*
x^3 - 7360644*x^2 - 1134751*x + 381394)/(972*x^7 + 2268*x^6 + 132
3*x^5 - 630*x^4 - 840*x^3 - 112*x^2 + 112*x + 32) + 3312/823543*l
og(3*x + 2) - 3312/823543*log(2*x - 1)
```

Fricas [A] time = 0.220861, size = 209, normalized size = 2.13

$$-\frac{75116160\,x^{6}+169011360\,x^{5}+96677280\,x^{4}-38282580\,x^{3}-51524508\,x^{2}-66240\,\left(972\,x^{7}+2268\,x^{6}+1323\,x^{5}-630\,x^{4}-\cdots\right.}{16470860\,(972\,x^{7}+22\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)/((3*x + 2)^6*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] -1/16470860*(75116160*x^6 + 169011360*x^5 + 96677280*x^4 - 382825
80*x^3 - 51524508*x^2 - 66240*(972*x^7 + 2268*x^6 + 1323*x^5 - 63
0*x^4 - 840*x^3 - 112*x^2 + 112*x + 32)*log(3*x + 2) + 66240*(972
*x^7 + 2268*x^6 + 1323*x^5 - 630*x^4 - 840*x^3 - 112*x^2 + 112*x
+ 32)*log(2*x - 1) - 7943257*x + 2669758)/(972*x^7 + 2268*x^6 + 1
323*x^5 - 630*x^4 - 840*x^3 - 112*x^2 + 112*x + 32)
```

Sympy [A] time = 0.596514, size = 85, normalized size = 0.87

$$-\frac{10730880x^{6}+24144480x^{5}+13811040x^{4}-5468940x^{3}-7360644x^{2}-1134751x+381394}{2287096560x^{7}+5336558640x^{6}+3112992540x^{5}-1482377400x^{4}-1976503200x^{3}-263533760x^{2}+263533760x+752953\cdots}-\frac{3312\log\left(x-\frac{1}{2}\right)}{823543}+\frac{3312\log\left(x+\frac{2}{3}\right)}{823543}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)/(1-2*x)**3/(2+3*x)**6,x)
```

```
[Out] -(10730880*x**6 + 24144480*x**5 + 13811040*x**4 - 5468940*x**3 -
7360644*x**2 - 1134751*x + 381394)/(2287096560*x**7 + 5336558640*
x**6 + 3112992540*x**5 - 1482377400*x**4 - 1976503200*x**3 - 2635
33760*x**2 + 263533760*x + 75295360) - 3312*log(x - 1/2)/823543 +
 3312*log(x + 2/3)/823543
```

GIAC/XCAS [A] time = 0.206237, size = 88, normalized size = 0.9

$$-\frac{10730880\,x^{6}+24144480\,x^{5}+13811040\,x^{4}-5468940\,x^{3}-7360644\,x^{2}-1134751\,x+381394}{2352980\,(3\,x+2)^{5}(2\,x-1)^{2}}+\frac{3312}{823543}\ln\left(|3\,x+2|\right)-\frac{3312}{823543}\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)/((3*x + 2)^6*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] -1/2352980*(10730880*x^6 + 24144480*x^5 + 13811040*x^4 - 5468940*
x^3 - 7360644*x^2 - 1134751*x + 381394)/((3*x + 2)^5*(2*x - 1)^2)
 + 3312/823543*ln(abs(3*x + 2)) - 3312/823543*ln(abs(2*x - 1))
```

3.1628 $\int \frac{(2+3x)^7(3+5x)^2}{(1-2x)^3}\,dx$

Optimal. Leaf size=80

$$-\frac{54675x^7}{56}-\frac{268515x^6}{32}-\frac{2798631x^5}{80}-\frac{12299769x^4}{128}-\frac{25895367x^3}{128}-\frac{190742391x^2}{512}-\frac{48280011x}{64}-\frac{389535839}{1024(1-2x)}+\frac{99648703}{2048(1-2x)^2}-\frac{84589631}{128}\log(1-2x)$$

```
[Out] 99648703/(2048*(1 - 2*x)^2) - 389535839/(1024*(1 - 2*x)) - (48280
011*x)/64 - (190742391*x^2)/512 - (25895367*x^3)/128 - (12299769*
x^4)/128 - (2798631*x^5)/80 - (268515*x^6)/32 - (54675*x^7)/56 -
(84589631*Log[1 - 2*x])/128
```

Rubi [A] time = 0.104701, antiderivative size = 80, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{54675x^7}{56}-\frac{268515x^6}{32}-\frac{2798631x^5}{80}-\frac{12299769x^4}{128}-\frac{25895367x^3}{128}-\frac{190742391x^2}{512}-\frac{48280011x}{64}-\frac{389535839}{1024(1-2x)}+\frac{99648703}{2048(1-2x)^2}-\frac{84589631}{128}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^7*(3 + 5*x)^2)/(1 - 2*x)^3,x]
```

```
[Out] 99648703/(2048*(1 - 2*x)^2) - 389535839/(1024*(1 - 2*x)) - (48280
011*x)/64 - (190742391*x^2)/512 - (25895367*x^3)/128 - (12299769*
x^4)/128 - (2798631*x^5)/80 - (268515*x^6)/32 - (54675*x^7)/56 -
(84589631*Log[1 - 2*x])/128
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{54675x^7}{56}-\frac{268515x^6}{32}-\frac{2798631x^5}{80}-\frac{12299769x^4}{128}-\frac{25895367x^3}{128}-\frac{84589631\log(-2x+1)}{128}+\int\left(-\frac{48280011}{64}\right)dx-\frac{190742391\int x\,dx}{256}-\frac{389535839}{1024(-2x+1)}+\frac{99648703}{2048(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**7*(3+5*x)**2/(1-2*x)**3,x)
```

```
[Out] -54675*x**7/56 - 268515*x**6/32 - 2798631*x**5/80 - 12299769*x**4
/128 - 25895367*x**3/128 - 84589631*log(-2*x + 1)/128 + Integral(
-48280011/64, x) - 190742391*Integral(x, x)/256 - 389535839/(1024
*(-2*x + 1)) + 99648703/(2048*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0381554, size = 71, normalized size = 0.89

$$-\frac{34992000x^9+265744800x^8+961797888x^7+2265332832x^6+4120214112x^5+6962248440x^4+15497514480x^3-417209}{8960(1-2x)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^7*(3 + 5*x)^2)/(1 - 2*x)^3,x]
```

```
[Out] -(-1533057471 + 17964456304*x - 41720946264*x^2 + 15497514480*x^3
 + 6962248440*x^4 + 4120214112*x^5 + 2265332832*x^6 + 961797888*x
^7 + 265744800*x^8 + 34992000*x^9 + 5921274170*(1 - 2*x)^2*Log[1
- 2*x])/(8960*(1 - 2*x)^2)
```

Maple [A] time = 0.01, size = 61, normalized size = 0.8

$$-\frac{54675\,x^7}{56}-\frac{268515\,x^6}{32}-\frac{2798631\,x^5}{80}-\frac{12299769\,x^4}{128}-\frac{25895367\,x^3}{128}-\frac{190742391\,x^2}{512}-\frac{48280011\,x}{64}+\frac{99648703}{2048\,(-1+2\,x)^2}+\frac{389535839}{-1024+2048\,x}-\frac{84589631\,\ln(-1+2\,x)}{128}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^7*(3+5*x)^2/(1-2*x)^3,x)
```

```
[Out] -54675/56*x^7-268515/32*x^6-2798631/80*x^5-12299769/128*x^4-25895
367/128*x^3-190742391/512*x^2-48280011/64*x+99648703/2048/(-1+2*x
)^2+389535839/1024/(-1+2*x)-84589631/128*ln(-1+2*x)
```

Maxima [A] time = 1.31968, size = 82, normalized size = 1.02

$$-\frac{54675}{56}\,x^7-\frac{268515}{32}\,x^6-\frac{2798631}{80}\,x^5-\frac{12299769}{128}\,x^4-\frac{25895367}{128}\,x^3-\frac{190742391}{512}\,x^2-\frac{48280011}{64}\,x+\frac{9058973\,(172\,x-75)}{2048\,(4\,x^2-4\,x+1)}-\frac{84589631}{128}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^7/(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] -54675/56*x^7 - 268515/32*x^6 - 2798631/80*x^5 - 12299769/128*x^4
 - 25895367/128*x^3 - 190742391/512*x^2 - 48280011/64*x + 9058973
/2048*(172*x - 75)/(4*x^2 - 4*x + 1) - 84589631/128*log(2*x - 1)
```

Fricas [A] time = 0.216246, size = 104, normalized size = 1.3

$$-\frac{279936000\,x^9+2125958400\,x^8+7694383104\,x^7+18122662656\,x^6+32961712896\,x^5+55697987520\,x^4+123980115840\,x}{71680\,(4\,x^2-4\,x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^7/(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -1/71680*(279936000*x^9 + 2125958400*x^8 + 7694383104*x^7 + 18122
662656*x^6 + 32961712896*x^5 + 55697987520*x^4 + 123980115840*x^3
 - 189590514540*x^2 + 47370193360*(4*x^2 - 4*x + 1)*log(2*x - 1)
- 461405140*x + 23779804125)/(4*x^2 - 4*x + 1)
```

Sympy [A] time = 0.35496, size = 70, normalized size = 0.88

$$-\frac{54675x^7}{56}-\frac{268515x^6}{32}-\frac{2798631x^5}{80}-\frac{12299769x^4}{128}-\frac{25895367x^3}{128}-\frac{190742391x^2}{512}-\frac{48280011x}{64}+\frac{1558143356x-679422975}{8192x^2-8192x+2048}-\frac{84589631\log(2x-1)}{128}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**7*(3+5*x)**2/(1-2*x)**3,x)
```

```
[Out] -54675*x**7/56 - 268515*x**6/32 - 2798631*x**5/80 - 12299769*x**4
/128 - 25895367*x**3/128 - 190742391*x**2/512 - 48280011*x/64 + (
1558143356*x - 679422975)/(8192*x**2 - 8192*x + 2048) - 84589631*
log(2*x - 1)/128
```

GIAC/XCAS [A] time = 0.208777, size = 77, normalized size = 0.96

$$-\frac{54675}{56}\,x^{7}-\frac{268515}{32}\,x^{6}-\frac{2798631}{80}\,x^{5}-\frac{12299769}{128}\,x^{4}-\frac{25895367}{128}\,x^{3}-\frac{190742391}{512}\,x^{2}-\frac{48280011}{64}\,x+\frac{9058973\,(172\,x-75)}{2048\,(2\,x-1)^{2}}-\frac{84589631}{128}\,\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^7/(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] -54675/56*x^7 - 268515/32*x^6 - 2798631/80*x^5 - 12299769/128*x^4
 - 25895367/128*x^3 - 190742391/512*x^2 - 48280011/64*x + 9058973
/2048*(172*x - 75)/(2*x - 1)^2 - 84589631/128*ln(abs(2*x - 1))
```

3.1629 $\int \frac{(2+3x)^6(3+5x)^2}{(1-2x)^3}\,dx$

Optimal. Leaf size=73

$$-\frac{6075x^6}{16}-\frac{48843x^5}{16}-\frac{770067x^4}{64}-\frac{1024389x^3}{32}-\frac{17700255x^2}{256}-\frac{39980457x}{256}-\frac{12386759}{128(1-2x)}+\frac{14235529}{1024(1-2x)^2}-\frac{18859855}{128}\log(1-2x)$$

```
[Out] 14235529/(1024*(1 - 2*x)^2) - 12386759/(128*(1 - 2*x)) - (3998045
7*x)/256 - (17700255*x^2)/256 - (1024389*x^3)/32 - (770067*x^4)/6
4 - (48843*x^5)/16 - (6075*x^6)/16 - (18859855*Log[1 - 2*x])/128
```

Rubi [A] time = 0.0972515, antiderivative size = 73, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$-\frac{6075x^6}{16}-\frac{48843x^5}{16}-\frac{770067x^4}{64}-\frac{1024389x^3}{32}-\frac{17700255x^2}{256}-\frac{39980457x}{256}-\frac{12386759}{128(1-2x)}+\frac{14235529}{1024(1-2x)^2}-\frac{18859855}{128}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^6*(3 + 5*x)^2)/(1 - 2*x)^3,x]
```

```
[Out] 14235529/(1024*(1 - 2*x)^2) - 12386759/(128*(1 - 2*x)) - (3998045
7*x)/256 - (17700255*x^2)/256 - (1024389*x^3)/32 - (770067*x^4)/6
4 - (48843*x^5)/16 - (6075*x^6)/16 - (18859855*Log[1 - 2*x])/128
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{6075x^6}{16}-\frac{48843x^5}{16}-\frac{770067x^4}{64}-\frac{1024389x^3}{32}-\frac{18859855\log(-2x+1)}{128}+\int\left(-\frac{39980457}{256}\right)dx-\frac{17700255\int x\,dx}{128}-\frac{12386759}{128(-2x+1)}+\frac{14235529}{1024(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**6*(3+5*x)**2/(1-2*x)**3,x)
```

```
[Out] -6075*x**6/16 - 48843*x**5/16 - 770067*x**4/64 - 1024389*x**3/32
- 18859855*log(-2*x + 1)/128 + Integral(-39980457/256, x) - 17700
255*Integral(x, x)/128 - 12386759/(128*(-2*x + 1)) + 14235529/(10
24*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0357469, size = 66, normalized size = 0.9

$$-\frac{777600x^8+5474304x^7+18584640x^6+42481728x^5+82201680x^4+194631840x^3-489708252x^2+186131948x+754394}{512(1-2x)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^6*(3 + 5*x)^2)/(1 - 2*x)^3,x]
```

```
[Out] -(-8887005 + 186131948*x - 489708252*x^2 + 194631840*x^3 + 822016
80*x^4 + 42481728*x^5 + 18584640*x^6 + 5474304*x^7 + 777600*x^8 +
```

```
75439420*(1 - 2*x)^2*Log[1 - 2*x])/(512*(1 - 2*x)^2)
```

Maple [A] time = 0.01, size = 56, normalized size = 0.8

$$-\frac{6075\,x^6}{16}-\frac{48843\,x^5}{16}-\frac{770067\,x^4}{64}-\frac{1024389\,x^3}{32}-\frac{17700255\,x^2}{256}-\frac{39980457\,x}{256}+\frac{14235529}{1024\,(-1+2\,x)^2}+\frac{12386759}{-128+256\,x}-\frac{18859855\,\ln(-1+2\,x)}{128}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^6*(3+5*x)^2/(1-2*x)^3,x)
```

```
[Out] -6075/16*x^6-48843/16*x^5-770067/64*x^4-1024389/32*x^3-17700255/2
56*x^2-39980457/256*x+14235529/1024/(-1+2*x)^2+12386759/128/(-1+2
*x)-18859855/128*ln(-1+2*x)
```

Maxima [A] time = 1.35908, size = 76, normalized size = 1.04

$$-\frac{6075}{16}\,x^6-\frac{48843}{16}\,x^5-\frac{770067}{64}\,x^4-\frac{1024389}{32}\,x^3-\frac{17700255}{256}\,x^2-\frac{39980457}{256}\,x+\frac{184877\,(1072\,x-459)}{1024\,(4\,x^2-4\,x+1)}-\frac{18859855}{128}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^6/(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] -6075/16*x^6 - 48843/16*x^5 - 770067/64*x^4 - 1024389/32*x^3 - 17
700255/256*x^2 - 39980457/256*x + 184877/1024*(1072*x - 459)/(4*x
^2 - 4*x + 1) - 18859855/128*log(2*x - 1)
```

Fricas [A] time = 0.209646, size = 97, normalized size = 1.33

$$-\frac{1555200\,x^8+10948608\,x^7+37169280\,x^6+84963456\,x^5+164403360\,x^4+389263680\,x^3-568886292\,x^2+150878840\,(4\,x}{1024\,(4\,x^2-4\,x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^6/(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -1/1024*(1555200*x^8 + 10948608*x^7 + 37169280*x^6 + 84963456*x^5
 + 164403360*x^4 + 389263680*x^3 - 568886292*x^2 + 150878840*(4*x
^2 - 4*x + 1)*log(2*x - 1) - 38266316*x + 84858543)/(4*x^2 - 4*x
+ 1)
```

Sympy [A] time = 0.328169, size = 63, normalized size = 0.86

$$-\frac{6075x^6}{16}-\frac{48843x^5}{16}-\frac{770067x^4}{64}-\frac{1024389x^3}{32}-\frac{17700255x^2}{256}-\frac{39980457x}{256}+\frac{198188144x-84858543}{4096x^2-4096x+1024}-\frac{18859855\log(2x-1)}{128}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**6*(3+5*x)**2/(1-2*x)**3,x)
```

```
[Out] -6075*x**6/16 - 48843*x**5/16 - 770067*x**4/64 - 1024389*x**3/32
- 17700255*x**2/256 - 39980457*x/256 + (198188144*x - 84858543)/(
4096*x**2 - 4096*x + 1024) - 18859855*log(2*x - 1)/128
```

GIAC/XCAS [A] time = 0.206613, size = 70, normalized size = 0.96

$$-\frac{6075}{16}\,x^{6}-\frac{48843}{16}\,x^{5}-\frac{770067}{64}\,x^{4}-\frac{1024389}{32}\,x^{3}-\frac{17700255}{256}\,x^{2}-\frac{39980457}{256}\,x+\frac{184877\,(1072\,x-459)}{1024\,(2\,x-1)^{2}}-\frac{18859855}{128}\,\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^6/(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] -6075/16*x^6 - 48843/16*x^5 - 770067/64*x^4 - 1024389/32*x^3 - 17
700255/256*x^2 - 39980457/256*x + 184877/1024*(1072*x - 459)/(2*x
 - 1)^2 - 18859855/128*ln(abs(2*x - 1))
```

3.1630 $\int \frac{(2+3x)^5(3+5x)^2}{(1-2x)^3}\,dx$

Optimal. Leaf size=66

$$-\frac{1215x^5}{8}-\frac{73305x^4}{64}-\frac{69273x^3}{16}-\frac{747297x^2}{64}-\frac{3907293x}{128}-\frac{6206585}{256(1-2x)}+\frac{2033647}{512(1-2x)^2}-\frac{8117095}{256}\log(1-2x)$$

```
[Out] 2033647/(512*(1 - 2*x)^2) - 6206585/(256*(1 - 2*x)) - (3907293*x)
/128 - (747297*x^2)/64 - (69273*x^3)/16 - (73305*x^4)/64 - (1215*
x^5)/8 - (8117095*Log[1 - 2*x])/256
```

Rubi [A] time = 0.0871131, antiderivative size = 66, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{1215x^5}{8}-\frac{73305x^4}{64}-\frac{69273x^3}{16}-\frac{747297x^2}{64}-\frac{3907293x}{128}-\frac{6206585}{256(1-2x)}+\frac{2033647}{512(1-2x)^2}-\frac{8117095}{256}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^5*(3 + 5*x)^2)/(1 - 2*x)^3,x]
```

```
[Out] 2033647/(512*(1 - 2*x)^2) - 6206585/(256*(1 - 2*x)) - (3907293*x)
/128 - (747297*x^2)/64 - (69273*x^3)/16 - (73305*x^4)/64 - (1215*
x^5)/8 - (8117095*Log[1 - 2*x])/256
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{1215x^5}{8}-\frac{73305x^4}{64}-\frac{69273x^3}{16}-\frac{8117095\log(-2x+1)}{256}+\int\left(-\frac{3907293}{128}\right)dx-\frac{747297\int x\,dx}{32}-\frac{6206585}{256(-2x+1)}+\frac{2033647}{512(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**5*(3+5*x)**2/(1-2*x)**3,x)
```

```
[Out] -1215*x**5/8 - 73305*x**4/64 - 69273*x**3/16 - 8117095*log(-2*x +
 1)/256 + Integral(-3907293/128, x) - 747297*Integral(x, x)/32 -
6206585/(256*(-2*x + 1)) + 2033647/(512*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0339067, size = 61, normalized size = 0.92

$$-\frac{622080x^7+4069440x^6+13197888x^5+31266000x^4+81639840x^3-190079460x^2+58608500x+32468380(1-2x)^2\log(1}{1024(1-2x)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^5*(3 + 5*x)^2)/(1 - 2*x)^3,x]
```

```
[Out] -(1508337 + 58608500*x - 190079460*x^2 + 81639840*x^3 + 31266000*
x^4 + 13197888*x^5 + 4069440*x^6 + 622080*x^7 + 32468380*(1 - 2*x
)^2*Log[1 - 2*x])/(1024*(1 - 2*x)^2)
```

Maple [A] time = 0.008, size = 51, normalized size = 0.8

$$-\frac{1215\,x^{5}}{8}-\frac{73305\,x^{4}}{64}-\frac{69273\,x^{3}}{16}-\frac{747297\,x^{2}}{64}-\frac{3907293\,x}{128}+\frac{2033647}{512\,\left(-1+2\,x\right)^{2}}+\frac{6206585}{-256+512\,x}-\frac{8117095\,\ln\left(-1+2\,x\right)}{256}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^5*(3+5*x)^2/(1-2*x)^3,x)
```

```
[Out] -1215/8*x^5-73305/64*x^4-69273/16*x^3-747297/64*x^2-3907293/128*x
+2033647/512/(-1+2*x)^2+6206585/256/(-1+2*x)-8117095/256*ln(-1+2*
x)
```

Maxima [A] time = 1.34897, size = 69, normalized size = 1.05

$$-\frac{1215}{8}\,x^{5}-\frac{73305}{64}\,x^{4}-\frac{69273}{16}\,x^{3}-\frac{747297}{64}\,x^{2}-\frac{3907293}{128}\,x+\frac{26411\,(940\,x-393)}{512\,(4\,x^{2}-4\,x+1)}-\frac{8117095}{256}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^2*(3*x + 2)^5/(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] -1215/8*x^5 - 73305/64*x^4 - 69273/16*x^3 - 747297/64*x^2 - 39072
93/128*x + 26411/512*(940*x - 393)/(4*x^2 - 4*x + 1) - 8117095/25
6*log(2*x - 1)
```

Fricas [A] time = 0.1995, size = 90, normalized size = 1.36

$$-\frac{311040\,x^{7}+2034720\,x^{6}+6598944\,x^{5}+15633000\,x^{4}+40819920\,x^{3}-56538312\,x^{2}+16234190\,\left(4\,x^{2}-4\,x+1\right)\,\log\left(2\,x-1\right.}{512\,(4\,x^{2}-4\,x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^2*(3*x + 2)^5/(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -1/512*(311040*x^7 + 2034720*x^6 + 6598944*x^5 + 15633000*x^4 + 4
0819920*x^3 - 56538312*x^2 + 16234190*(4*x^2 - 4*x + 1)*log(2*x -
 1) - 9197168*x + 10379523)/(4*x^2 - 4*x + 1)
```

Sympy [A] time = 0.323364, size = 56, normalized size = 0.85

$$-\frac{1215x^{5}}{8}-\frac{73305x^{4}}{64}-\frac{69273x^{3}}{16}-\frac{747297x^{2}}{64}-\frac{3907293x}{128}+\frac{24826340x-10379523}{2048x^{2}-2048x+512}-\frac{8117095\log\left(2x-1\right)}{256}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**5*(3+5*x)**2/(1-2*x)**3,x)
```

```
[Out] -1215*x**5/8 - 73305*x**4/64 - 69273*x**3/16 - 747297*x**2/64 - 3
907293*x/128 + (24826340*x - 10379523)/(2048*x**2 - 2048*x + 512)
 - 8117095*log(2*x - 1)/256
```

GIAC/XCAS [A] time = 0.20841, size = 63, normalized size = 0.95

$$-\frac{1215}{8}x^5-\frac{73305}{64}x^4-\frac{69273}{16}x^3-\frac{747297}{64}x^2-\frac{3907293}{128}x+\frac{26411(940x-393)}{512(2x-1)^2}-\frac{8117095}{256}\ln(|2x-1|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^5/(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] -1215/8*x^5 - 73305/64*x^4 - 69273/16*x^3 - 747297/64*x^2 - 39072
93/128*x + 26411/512*(940*x - 393)/(2*x - 1)^2 - 8117095/256*ln(a
bs(2*x - 1))
```

3.1631 $\int \frac{(2+3x)^4(3+5x)^2}{(1-2x)^3}\,dx$

Optimal. Leaf size=59

$$-\frac{2025x^4}{32}-\frac{7245x^3}{16}-\frac{54783x^2}{32}-\frac{176055x}{32}-\frac{381073}{64(1-2x)}+\frac{290521}{256(1-2x)^2}-\frac{832951}{128}\log(1-2x)$$

```
[Out] 290521/(256*(1 - 2*x)^2) - 381073/(64*(1 - 2*x)) - (176055*x)/32
- (54783*x^2)/32 - (7245*x^3)/16 - (2025*x^4)/32 - (832951*Log[1
- 2*x])/128
```

Rubi [A] time = 0.0796966, antiderivative size = 59, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{2025x^4}{32}-\frac{7245x^3}{16}-\frac{54783x^2}{32}-\frac{176055x}{32}-\frac{381073}{64(1-2x)}+\frac{290521}{256(1-2x)^2}-\frac{832951}{128}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In] Int[((2 + 3*x)^4*(3 + 5*x)^2)/(1 - 2*x)^3,x]
```

```
[Out] 290521/(256*(1 - 2*x)^2) - 381073/(64*(1 - 2*x)) - (176055*x)/32
- (54783*x^2)/32 - (7245*x^3)/16 - (2025*x^4)/32 - (832951*Log[1
- 2*x])/128
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{2025x^4}{32}-\frac{7245x^3}{16}-\frac{832951\log(-2x+1)}{128}+\int\left(-\frac{176055}{32}\right)dx-\frac{54783\int x\,dx}{16}-\frac{381073}{64(-2x+1)}+\frac{290521}{256(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**4*(3+5*x)**2/(1-2*x)**3,x)
```

```
[Out] -2025*x**4/32 - 7245*x**3/16 - 832951*log(-2*x + 1)/128 + Integra
l(-176055/32, x) - 54783*Integral(x, x)/16 - 381073/(64*(-2*x + 1
)) + 290521/(256*(-2*x + 1)**2)
```

Mathematica [A] time = 0.031495, size = 56, normalized size = 0.95

$$-\frac{129600x^6+797760x^5+2611152x^4+7993248x^3-17025300x^2+3354020x+3331804(1-2x)^2\log(1-2x)+808965}{512(1-2x)^2}$$

Antiderivative was successfully verified.

```
[In] Integrate[((2 + 3*x)^4*(3 + 5*x)^2)/(1 - 2*x)^3,x]
```

```
[Out] -(808965 + 3354020*x - 17025300*x^2 + 7993248*x^3 + 2611152*x^4 +
 797760*x^5 + 129600*x^6 + 3331804*(1 - 2*x)^2*Log[1 - 2*x])/(512
*(1 - 2*x)^2)
```

Maple [A] time = 0.008, size = 46, normalized size = 0.8

$$-\frac{2025\,x^{4}}{32}-\frac{7245\,x^{3}}{16}-\frac{54783\,x^{2}}{32}-\frac{176055\,x}{32}+\frac{290521}{256\,\left(-1+2\,x\right)^{2}}+\frac{381073}{-64+128\,x}-\frac{832951\,\ln\left(-1+2\,x\right)}{128}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4*(3+5*x)^2/(1-2*x)^3,x)
```

```
[Out] -2025/32*x^4-7245/16*x^3-54783/32*x^2-176055/32*x+290521/256/(-1+
2*x)^2+381073/64/(-1+2*x)-832951/128*ln(-1+2*x)
```

Maxima [A] time = 1.34236, size = 62, normalized size = 1.05

$$-\frac{2025}{32}\,x^{4}-\frac{7245}{16}\,x^{3}-\frac{54783}{32}\,x^{2}-\frac{176055}{32}\,x+\frac{3773\,\left(808\,x-327\right)}{256\,\left(4\,x^{2}-4\,x+1\right)}-\frac{832951}{128}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^4/(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] -2025/32*x^4 - 7245/16*x^3 - 54783/32*x^2 - 176055/32*x + 3773/25
6*(808*x - 327)/(4*x^2 - 4*x + 1) - 832951/128*log(2*x - 1)
```

Fricas [A] time = 0.212103, size = 84, normalized size = 1.42

$$-\frac{64800\,x^{6}+398880\,x^{5}+1305576\,x^{4}+3996624\,x^{3}-5195496\,x^{2}+1665902\,\left(4\,x^{2}-4\,x+1\right)\,\log\left(2\,x-1\right)-1640144\,x+1233}{256\,\left(4\,x^{2}-4\,x+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^4/(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -1/256*(64800*x^6 + 398880*x^5 + 1305576*x^4 + 3996624*x^3 - 5195
496*x^2 + 1665902*(4*x^2 - 4*x + 1)*log(2*x - 1) - 1640144*x + 12
33771)/(4*x^2 - 4*x + 1)
```

Sympy [A] time = 0.314095, size = 49, normalized size = 0.83

$$-\frac{2025x^{4}}{32}-\frac{7245x^{3}}{16}-\frac{54783x^{2}}{32}-\frac{176055x}{32}+\frac{3048584x-1233771}{1024x^{2}-1024x+256}-\frac{832951\log\left(2x-1\right)}{128}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4*(3+5*x)**2/(1-2*x)**3,x)
```

```
[Out] -2025*x**4/32 - 7245*x**3/16 - 54783*x**2/32 - 176055*x/32 + (304
8584*x - 1233771)/(1024*x**2 - 1024*x + 256) - 832951*log(2*x - 1
)/128
```

GIAC/XCAS [A] time = 0.206454, size = 57, normalized size = 0.97

$$-\frac{2025}{32}\,x^{4}-\frac{7245}{16}\,x^{3}-\frac{54783}{32}\,x^{2}-\frac{176055}{32}\,x+\frac{3773\,\left(808\,x-327\right)}{256\,\left(2\,x-1\right)^{2}}-\frac{832951}{128}\,\ln\left(\left|2\,x-1\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^4/(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] -2025/32*x^4 - 7245/16*x^3 - 54783/32*x^2 - 176055/32*x + 3773/25
6*(808*x - 327)/(2*x - 1)^2 - 832951/128*ln(abs(2*x - 1))
```

3.1632 $\int \frac{(2+3x)^3(3+5x)^2}{(1-2x)^3}\,dx$

Optimal. Leaf size=52

$$-\frac{225x^3}{8}-\frac{6345x^2}{32}-\frac{14031x}{16}-\frac{91091}{64(1-2x)}+\frac{41503}{128(1-2x)^2}-\frac{39977}{32}\log(1-2x)$$

```
[Out] 41503/(128*(1 - 2*x)^2) - 91091/(64*(1 - 2*x)) - (14031*x)/16 - (
6345*x^2)/32 - (225*x^3)/8 - (39977*Log[1 - 2*x])/32
```

Rubi [A] time = 0.0696069, antiderivative size = 52, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{225x^3}{8}-\frac{6345x^2}{32}-\frac{14031x}{16}-\frac{91091}{64(1-2x)}+\frac{41503}{128(1-2x)^2}-\frac{39977}{32}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^3*(3 + 5*x)^2)/(1 - 2*x)^3,x]
```

```
[Out] 41503/(128*(1 - 2*x)^2) - 91091/(64*(1 - 2*x)) - (14031*x)/16 - (
6345*x^2)/32 - (225*x^3)/8 - (39977*Log[1 - 2*x])/32
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{225x^3}{8}-\frac{39977\log(-2x+1)}{32}+\int\left(-\frac{14031}{16}\right)dx-\frac{6345\int x\,dx}{16}-\frac{91091}{64(-2x+1)}+\frac{41503}{128(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3*(3+5*x)**2/(1-2*x)**3,x)
```

```
[Out] -225*x**3/8 - 39977*log(-2*x + 1)/32 + Integral(-14031/16, x) - 6
345*Integral(x, x)/16 - 91091/(64*(-2*x + 1)) + 41503/(128*(-2*x
+ 1)**2)
```

Mathematica [A] time = 0.0316028, size = 47, normalized size = 0.9

$$\frac{1}{32}\left(-\frac{2\left(1800x^5+10890x^4+43884x^3-84411x^2-55x+9720\right)}{(1-2x)^2}-39977\log(1-2x)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^3*(3 + 5*x)^2)/(1 - 2*x)^3,x]
```

```
[Out] ((-2*(9720 - 55*x - 84411*x^2 + 43884*x^3 + 10890*x^4 + 1800*x^5)
)/(1 - 2*x)^2 - 39977*Log[1 - 2*x])/32
```

Maple [A] time = 0.01, size = 41, normalized size = 0.8

$$-\frac{225\,x^3}{8}-\frac{6345\,x^2}{32}-\frac{14031\,x}{16}+\frac{41503}{128\,(-1+2\,x)^2}+\frac{91091}{-64+128\,x}-\frac{39977\,\ln(-1+2\,x)}{32}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3*(3+5*x)^2/(1-2*x)^3,x)
```

```
[Out] -225/8*x^3-6345/32*x^2-14031/16*x+41503/128/(-1+2*x)^2+91091/64/(
-1+2*x)-39977/32*ln(-1+2*x)
```

Maxima [A] time = 1.36248, size = 55, normalized size = 1.06

$$-\frac{225}{8}\,x^3-\frac{6345}{32}\,x^2-\frac{14031}{16}\,x+\frac{539\,(676\,x-261)}{128\,(4\,x^2-4\,x+1)}-\frac{39977}{32}\,\log\,(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^2*(3*x + 2)^3/(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] -225/8*x^3 - 6345/32*x^2 - 14031/16*x + 539/128*(676*x - 261)/(4*
x^2 - 4*x + 1) - 39977/32*log(2*x - 1)
```

Fricas [A] time = 0.209763, size = 77, normalized size = 1.48

$$-\frac{14400\,x^5+87120\,x^4+351072\,x^3-423612\,x^2+159908\,\left(4\,x^2-4\,x+1\right)\,\log\,(2\,x-1)-252116\,x+140679}{128\,(4\,x^2-4\,x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^2*(3*x + 2)^3/(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -1/128*(14400*x^5 + 87120*x^4 + 351072*x^3 - 423612*x^2 + 159908*
(4*x^2 - 4*x + 1)*log(2*x - 1) - 252116*x + 140679)/(4*x^2 - 4*x
+ 1)
```

Sympy [A] time = 0.29878, size = 42, normalized size = 0.81

$$-\frac{225x^3}{8}-\frac{6345x^2}{32}-\frac{14031x}{16}+\frac{364364x-140679}{512x^2-512x+128}-\frac{39977\log\,(2x-1)}{32}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3*(3+5*x)**2/(1-2*x)**3,x)
```

```
[Out] -225*x**3/8 - 6345*x**2/32 - 14031*x/16 + (364364*x - 140679)/(51
2*x**2 - 512*x + 128) - 39977*log(2*x - 1)/32
```

GIAC/XCAS [A] time = 0.206924, size = 50, normalized size = 0.96

$$-\frac{225}{8}\,x^3-\frac{6345}{32}\,x^2-\frac{14031}{16}\,x+\frac{539\,(676\,x-261)}{128\,(2\,x-1)^2}-\frac{39977}{32}\,\ln\,(|2\,x-1|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^3/(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] -225/8*x^3 - 6345/32*x^2 - 14031/16*x + 539/128*(676*x - 261)/(2*
x - 1)^2 - 39977/32*ln(abs(2*x - 1))
```

3.1633 $\int \frac{(2+3x)^2(3+5x)^2}{(1-2x)^3} dx$

Optimal. Leaf size=45

$$-\frac{225x^2}{16}-\frac{1815x}{16}-\frac{1309}{4(1-2x)}+\frac{5929}{64(1-2x)^2}-\frac{3467}{16}\log(1-2x)$$

```
[Out] 5929/(64*(1 - 2*x)^2) - 1309/(4*(1 - 2*x)) - (1815*x)/16 - (225*x
^2)/16 - (3467*Log[1 - 2*x])/16
```

Rubi [A] time = 0.063922, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{225x^2}{16}-\frac{1815x}{16}-\frac{1309}{4(1-2x)}+\frac{5929}{64(1-2x)^2}-\frac{3467}{16}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In] Int[((2 + 3*x)^2*(3 + 5*x)^2)/(1 - 2*x)^3,x]
```

```
[Out] 5929/(64*(1 - 2*x)^2) - 1309/(4*(1 - 2*x)) - (1815*x)/16 - (225*x
^2)/16 - (3467*Log[1 - 2*x])/16
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{3467\log(-2x+1)}{16}+\int\left(-\frac{1815}{16}\right)dx-\frac{225\int x\,dx}{8}-\frac{1309}{4(-2x+1)}+\frac{5929}{64(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**2*(3+5*x)**2/(1-2*x)**3,x)
```

```
[Out] -3467*log(-2*x + 1)/16 + Integral(-1815/16, x) - 225*Integral(x,
x)/8 - 1309/(4*(-2*x + 1)) + 5929/(64*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0252441, size = 46, normalized size = 1.02

$$-\frac{900x^4+6360x^3-10890x^2-4802x+3467(1-2x)^2\log(1-2x)+2790}{16(1-2x)^2}$$

Antiderivative was successfully verified.

```
[In] Integrate[((2 + 3*x)^2*(3 + 5*x)^2)/(1 - 2*x)^3,x]
```

```
[Out] -(2790 - 4802*x - 10890*x^2 + 6360*x^3 + 900*x^4 + 3467*(1 - 2*x)
^2*Log[1 - 2*x])/(16*(1 - 2*x)^2)
```

Maple [A] time = 0.009, size = 36, normalized size = 0.8

$$-\frac{225\,x^2}{16}-\frac{1815\,x}{16}+\frac{5929}{64\,(-1+2\,x)^2}+\frac{1309}{-4+8\,x}-\frac{3467\,\ln(-1+2\,x)}{16}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2*(3+5*x)^2/(1-2*x)^3,x)
```

```
[Out] -225/16*x^2-1815/16*x+5929/64/(-1+2*x)^2+1309/4/(-1+2*x)-3467/16*
ln(-1+2*x)
```

Maxima [A] time = 1.33928, size = 49, normalized size = 1.09

$$-\frac{225}{16}\,x^2-\frac{1815}{16}\,x+\frac{77\,(544\,x-195)}{64\,(4\,x^2-4\,x+1)}-\frac{3467}{16}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^2*(3*x + 2)^2/(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] -225/16*x^2 - 1815/16*x + 77/64*(544*x - 195)/(4*x^2 - 4*x + 1) -
 3467/16*log(2*x - 1)
```

Fricas [A] time = 0.214159, size = 70, normalized size = 1.56

$$-\frac{3600\,x^4+25440\,x^3-28140\,x^2+13868\,\left(4\,x^2-4\,x+1\right)\log\left(2\,x-1\right)-34628\,x+15015}{64\,(4\,x^2-4\,x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^2*(3*x + 2)^2/(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -1/64*(3600*x^4 + 25440*x^3 - 28140*x^2 + 13868*(4*x^2 - 4*x + 1)
*log(2*x - 1) - 34628*x + 15015)/(4*x^2 - 4*x + 1)
```

Sympy [A] time = 0.285125, size = 36, normalized size = 0.8

$$-\frac{225x^2}{16}-\frac{1815x}{16}+\frac{41888x-15015}{256x^2-256x+64}-\frac{3467\log\left(2x-1\right)}{16}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2*(3+5*x)**2/(1-2*x)**3,x)
```

```
[Out] -225*x**2/16 - 1815*x/16 + (41888*x - 15015)/(256*x**2 - 256*x +
64) - 3467*log(2*x - 1)/16
```

GIAC/XCAS [A] time = 0.206495, size = 43, normalized size = 0.96

$$-\frac{225}{16}\,x^2-\frac{1815}{16}\,x+\frac{77\,(544\,x-195)}{64\,(2\,x-1)^2}-\frac{3467}{16}\,\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)^2/(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] -225/16*x^2 - 1815/16*x + 77/64*(544*x - 195)/(2*x - 1)^2 - 3467/
16*ln(abs(2*x - 1))
```

3.1634 $\int \frac{(2+3x)(3+5x)^2}{(1-2x)^3} dx$

Optimal. Leaf size=38

$$-\frac{75x}{8}-\frac{1133}{16(1-2x)}+\frac{847}{32(1-2x)^2}-\frac{505}{16}\log(1-2x)$$

```
[Out] 847/(32*(1 - 2*x)^2) - 1133/(16*(1 - 2*x)) - (75*x)/8 - (505*Log[
1 - 2*x])/16
```

Rubi [A] time = 0.0472503, antiderivative size = 38, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{75x}{8}-\frac{1133}{16(1-2x)}+\frac{847}{32(1-2x)^2}-\frac{505}{16}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)*(3 + 5*x)^2)/(1 - 2*x)^3,x]
```

```
[Out] 847/(32*(1 - 2*x)^2) - 1133/(16*(1 - 2*x)) - (75*x)/8 - (505*Log[
1 - 2*x])/16
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{505\log(-2x+1)}{16}+\int\left(-\frac{75}{8}\right)dx-\frac{1133}{16(-2x+1)}+\frac{847}{32(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)*(3+5*x)**2/(1-2*x)**3,x)
```

```
[Out] -505*log(-2*x + 1)/16 + Integral(-75/8, x) - 1133/(16*(-2*x + 1))
 + 847/(32*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0393525, size = 34, normalized size = 0.89

$$\frac{1}{32}\left(\frac{600x^2+3932x-1269}{(1-2x)^2}-300x-1010\log(1-2x)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)*(3 + 5*x)^2)/(1 - 2*x)^3,x]
```

```
[Out] (-300*x + (-1269 + 3932*x + 600*x^2)/(1 - 2*x)^2 - 1010*Log[1 - 2
*x])/32
```

Maple [A] time = 0.01, size = 31, normalized size = 0.8

$$-\frac{75x}{8}+\frac{847}{32(-1+2x)^2}+\frac{1133}{-16+32x}-\frac{505\ln(-1+2x)}{16}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)*(3+5*x)^2/(1-2*x)^3,x)
```

```
[Out] -75/8*x+847/32/(-1+2*x)^2+1133/16/(-1+2*x)-505/16*ln(-1+2*x)
```

Maxima [A] time = 1.35229, size = 42, normalized size = 1.11

$$-\frac{75}{8}\,x + \frac{11\,(412\,x - 129)}{32\,(4\,x^2 - 4\,x + 1)} - \frac{505}{16}\,\log\left(2\,x - 1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)/(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] -75/8*x + 11/32*(412*x - 129)/(4*x^2 - 4*x + 1) - 505/16*log(2*x
- 1)
```

Fricas [A] time = 0.207641, size = 63, normalized size = 1.66

$$-\frac{1200\,x^3 - 1200\,x^2 + 1010\,\left(4\,x^2 - 4\,x + 1\right)\log\left(2\,x - 1\right) - 4232\,x + 1419}{32\,(4\,x^2 - 4\,x + 1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)/(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -1/32*(1200*x^3 - 1200*x^2 + 1010*(4*x^2 - 4*x + 1)*log(2*x - 1)
- 4232*x + 1419)/(4*x^2 - 4*x + 1)
```

Sympy [A] time = 0.268915, size = 29, normalized size = 0.76

$$-\frac{75x}{8} + \frac{4532x - 1419}{128x^2 - 128x + 32} - \frac{505\log\left(2x - 1\right)}{16}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)*(3+5*x)**2/(1-2*x)**3,x)
```

```
[Out] -75*x/8 + (4532*x - 1419)/(128*x**2 - 128*x + 32) - 505*log(2*x -
 1)/16
```

GIAC/XCAS [A] time = 0.213115, size = 36, normalized size = 0.95

$$-\frac{75}{8}\,x + \frac{11\,(412\,x - 129)}{32\,(2\,x - 1)^2} - \frac{505}{16}\,\ln\left(|2\,x - 1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2*(3*x + 2)/(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] -75/8*x + 11/32*(412*x - 129)/(2*x - 1)^2 - 505/16*ln(abs(2*x - 1
))
```

3.1635 $\int \frac{(3+5x)^2}{(1-2x)^3} \, dx$

Optimal. Leaf size=33

$$-\frac{55}{4(1-2x)}+\frac{121}{16(1-2x)^2}-\frac{25}{8}\log(1-2x)$$

```
[Out] 121/(16*(1 - 2*x)^2) - 55/(4*(1 - 2*x)) - (25*Log[1 - 2*x])/8
```

Rubi [A] time = 0.0319977, antiderivative size = 33, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.067

$$-\frac{55}{4(1-2x)}+\frac{121}{16(1-2x)^2}-\frac{25}{8}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^2/(1 - 2*x)^3,x]

[Out] 121/(16*(1 - 2*x)^2) - 55/(4*(1 - 2*x)) - (25*Log[1 - 2*x])/8
```

Rubi in Sympy [A] time = 5.94066, size = 26, normalized size = 0.79

$$-\frac{25\log(-2x+1)}{8}-\frac{55}{4(-2x+1)}+\frac{121}{16(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**2/(1-2*x)**3,x)

[Out] -25*log(-2*x + 1)/8 - 55/(4*(-2*x + 1)) + 121/(16*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0130319, size = 33, normalized size = 1.

$$-\frac{55}{4(1-2x)}+\frac{121}{16(1-2x)^2}-\frac{25}{8}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^2/(1 - 2*x)^3,x]

[Out] 121/(16*(1 - 2*x)^2) - 55/(4*(1 - 2*x)) - (25*Log[1 - 2*x])/8
```

Maple [A] time = 0.008, size = 28, normalized size = 0.9

$$\frac{121}{16(-1+2x)^2}+\frac{55}{-4+8x}-\frac{25\ln(-1+2x)}{8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^2/(1-2*x)^3,x)

[Out] 121/16/(-1+2*x)^2+55/4/(-1+2*x)-25/8*ln(-1+2*x)
```

Maxima [A] time = 1.3362, size = 38, normalized size = 1.15

$$\frac{11\,(40\,x-9)}{16\,(4\,x^2-4\,x+1)}-\frac{25}{8}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2/(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] 11/16*(40*x - 9)/(4*x^2 - 4*x + 1) - 25/8*log(2*x - 1)
```

Fricas [A] time = 0.214608, size = 50, normalized size = 1.52

$$-\frac{50\,\left(4\,x^2-4\,x+1\right)\,\log\left(2\,x-1\right)-440\,x+99}{16\,(4\,x^2-4\,x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2/(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -1/16*(50*(4*x^2 - 4*x + 1)*log(2*x - 1) - 440*x + 99)/(4*x^2 - 4
*x + 1)
```

Sympy [A] time = 0.254179, size = 24, normalized size = 0.73

$$\frac{440x-99}{64x^2-64x+16}-\frac{25\log\left(2x-1\right)}{8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2/(1-2*x)**3,x)
```

```
[Out] (440*x - 99)/(64*x**2 - 64*x + 16) - 25*log(2*x - 1)/8
```

GIAC/XCAS [A] time = 0.208236, size = 32, normalized size = 0.97

$$\frac{11\,(40\,x-9)}{16\,(2\,x-1)^2}-\frac{25}{8}\,\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2/(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] 11/16*(40*x - 9)/(2*x - 1)^2 - 25/8*ln(abs(2*x - 1))
```

3.1636 $\int \frac{(3+5x)^2}{(1-2x)^3(2+3x)}\,dx$

Optimal. Leaf size=43

$$-\frac{407}{196(1-2x)}+\frac{121}{56(1-2x)^2}-\frac{1}{343}\log(1-2x)+\frac{1}{343}\log(3x+2)$$

```
[Out] 121/(56*(1 - 2*x)^2) - 407/(196*(1 - 2*x)) - Log[1 - 2*x]/343 + L
og[2 + 3*x]/343
```

Rubi [A] time = 0.0534525, antiderivative size = 43, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{407}{196(1-2x)}+\frac{121}{56(1-2x)^2}-\frac{1}{343}\log(1-2x)+\frac{1}{343}\log(3x+2)$$

Antiderivative was successfully verified.

```
[In] Int[(3 + 5*x)^2/((1 - 2*x)^3*(2 + 3*x)),x]
```

```
[Out] 121/(56*(1 - 2*x)^2) - 407/(196*(1 - 2*x)) - Log[1 - 2*x]/343 + L
og[2 + 3*x]/343
```

Rubi in Sympy [A] time = 7.81017, size = 32, normalized size = 0.74

$$-\frac{\log(-2x+1)}{343}+\frac{\log(3x+2)}{343}-\frac{407}{196(-2x+1)}+\frac{121}{56(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((3+5*x)**2/(1-2*x)**3/(2+3*x),x)
```

```
[Out] -log(-2*x + 1)/343 + log(3*x + 2)/343 - 407/(196*(-2*x + 1)) + 12
1/(56*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0372361, size = 35, normalized size = 0.81

$$\frac{\frac{77(148x+3)}{(1-2x)^2}-8\log(3-6x)+8\log(3x+2)}{2744}$$

Antiderivative was successfully verified.

```
[In] Integrate[(3 + 5*x)^2/((1 - 2*x)^3*(2 + 3*x)),x]
```

```
[Out] ((77*(3 + 148*x))/(1 - 2*x)^2 - 8*Log[3 - 6*x] + 8*Log[2 + 3*x])/
2744
```

Maple [A] time = 0.012, size = 36, normalized size = 0.8

$$\frac{\ln(2+3x)}{343}+\frac{121}{56(-1+2x)^2}+\frac{407}{-196+392x}-\frac{\ln(-1+2x)}{343}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^2/(1-2*x)^3/(2+3*x),x)
```

```
[Out] 1/343*ln(2+3*x)+121/56/(-1+2*x)^2+407/196/(-1+2*x)-1/343*ln(-1+2*
x)
```

Maxima [A] time = 1.34789, size = 49, normalized size = 1.14

$$\frac{11\,(148\,x+3)}{392\,(4\,x^2-4\,x+1)}+\frac{1}{343}\,\log\left(3\,x+2\right)-\frac{1}{343}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2/((3*x + 2)*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] 11/392*(148*x + 3)/(4*x^2 - 4*x + 1) + 1/343*log(3*x + 2) - 1/343
*log(2*x - 1)
```

Fricas [A] time = 0.211901, size = 74, normalized size = 1.72

$$\frac{8\,\left(4\,x^2-4\,x+1\right)\log\left(3\,x+2\right)-8\,\left(4\,x^2-4\,x+1\right)\log\left(2\,x-1\right)+11396\,x+231}{2744\,(4\,x^2-4\,x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2/((3*x + 2)*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] 1/2744*(8*(4*x^2 - 4*x + 1)*log(3*x + 2) - 8*(4*x^2 - 4*x + 1)*lo
g(2*x - 1) + 11396*x + 231)/(4*x^2 - 4*x + 1)
```

Sympy [A] time = 0.350383, size = 31, normalized size = 0.72

$$\frac{1628x+33}{1568x^2-1568x+392}-\frac{\log\left(x-\frac{1}{2}\right)}{343}+\frac{\log\left(x+\frac{2}{3}\right)}{343}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2/(1-2*x)**3/(2+3*x),x)
```

```
[Out] (1628*x + 33)/(1568*x**2 - 1568*x + 392) - log(x - 1/2)/343 + log
(x + 2/3)/343
```

GIAC/XCAS [A] time = 0.210125, size = 45, normalized size = 1.05

$$\frac{11\,(148\,x+3)}{392\,(2\,x-1)^2}+\frac{1}{343}\ln\left(|3\,x+2|\right)-\frac{1}{343}\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2/((3*x + 2)*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] 11/392*(148*x + 3)/(2*x - 1)^2 + 1/343*ln(abs(3*x + 2)) - 1/343*l
n(abs(2*x - 1))
```

3.1637 $\int \frac{(3+5x)^2}{(1-2x)^3(2+3x)^2}\,dx$

Optimal. Leaf size=54

$$-\frac{22}{343(1-2x)}-\frac{1}{343(3x+2)}+\frac{121}{196(1-2x)^2}+\frac{64\log(1-2x)}{2401}-\frac{64\log(3x+2)}{2401}$$

```
[Out] 121/(196*(1 - 2*x)^2) - 22/(343*(1 - 2*x)) - 1/(343*(2 + 3*x)) +
(64*Log[1 - 2*x])/2401 - (64*Log[2 + 3*x])/2401
```

Rubi [A] time = 0.0624469, antiderivative size = 54, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{22}{343(1-2x)}-\frac{1}{343(3x+2)}+\frac{121}{196(1-2x)^2}+\frac{64\log(1-2x)}{2401}-\frac{64\log(3x+2)}{2401}$$

Antiderivative was successfully verified.

```
[In] Int[(3 + 5*x)^2/((1 - 2*x)^3*(2 + 3*x)^2),x]
```

```
[Out] 121/(196*(1 - 2*x)^2) - 22/(343*(1 - 2*x)) - 1/(343*(2 + 3*x)) +
(64*Log[1 - 2*x])/2401 - (64*Log[2 + 3*x])/2401
```

Rubi in Sympy [A] time = 8.98724, size = 42, normalized size = 0.78

$$\frac{64\log(-2x+1)}{2401}-\frac{64\log(3x+2)}{2401}-\frac{1}{343(3x+2)}-\frac{22}{343(-2x+1)}+\frac{121}{196(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((3+5*x)**2/(1-2*x)**3/(2+3*x)**2,x)
```

```
[Out] 64*log(-2*x + 1)/2401 - 64*log(3*x + 2)/2401 - 1/(343*(3*x + 2))
- 22/(343*(-2*x + 1)) + 121/(196*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0589354, size = 47, normalized size = 0.87

$$\frac{\frac{7(512x^2+2645x+1514)}{(1-2x)^2(3x+2)}+256\log(1-2x)-256\log(6x+4)}{9604}$$

Antiderivative was successfully verified.

```
[In] Integrate[(3 + 5*x)^2/((1 - 2*x)^3*(2 + 3*x)^2),x]
```

```
[Out] ((7*(1514 + 2645*x + 512*x^2))/((1 - 2*x)^2*(2 + 3*x)) + 256*Log[
1 - 2*x] - 256*Log[4 + 6*x])/9604
```

Maple [A] time = 0.013, size = 45, normalized size = 0.8

$$-\frac{1}{686+1029\,x}-\frac{64\,\ln(2+3\,x)}{2401}+\frac{121}{196\,(-1+2\,x)^2}+\frac{22}{-343+686\,x}+\frac{64\,\ln(-1+2\,x)}{2401}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^2/(1-2*x)^3/(2+3*x)^2,x)
```

```
[Out] -1/343/(2+3*x)-64/2401*ln(2+3*x)+121/196/(-1+2*x)^2+22/343/(-1+2*
x)+64/2401*ln(-1+2*x)
```

Maxima [A] time = 1.32623, size = 62, normalized size = 1.15

$$\frac{512\,x^2+2645\,x+1514}{1372\,(12\,x^3-4\,x^2-5\,x+2)}-\frac{64}{2401}\,\log(3\,x+2)+\frac{64}{2401}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^2/((3*x + 2)^2*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] 1/1372*(512*x^2 + 2645*x + 1514)/(12*x^3 - 4*x^2 - 5*x + 2) - 64/
2401*log(3*x + 2) + 64/2401*log(2*x - 1)
```

Fricas [A] time = 0.222797, size = 101, normalized size = 1.87

$$\frac{3584\,x^2-256\,\left(12\,x^3-4\,x^2-5\,x+2\right)\,\log(3\,x+2)+256\,\left(12\,x^3-4\,x^2-5\,x+2\right)\,\log(2\,x-1)+18515\,x+10598}{9604\,(12\,x^3-4\,x^2-5\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^2/((3*x + 2)^2*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] 1/9604*(3584*x^2 - 256*(12*x^3 - 4*x^2 - 5*x + 2)*log(3*x + 2) +
256*(12*x^3 - 4*x^2 - 5*x + 2)*log(2*x - 1) + 18515*x + 10598)/(1
2*x^3 - 4*x^2 - 5*x + 2)
```

Sympy [A] time = 0.41949, size = 44, normalized size = 0.81

$$\frac{512x^2+2645x+1514}{16464x^3-5488x^2-6860x+2744}+\frac{64\log\left(x-\frac{1}{2}\right)}{2401}-\frac{64\log\left(x+\frac{2}{3}\right)}{2401}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2/(1-2*x)**3/(2+3*x)**2,x)
```

```
[Out] (512*x**2 + 2645*x + 1514)/(16464*x**3 - 5488*x**2 - 6860*x + 274
4) + 64*log(x - 1/2)/2401 - 64*log(x + 2/3)/2401
```

GIAC/XCAS [A] time = 0.210036, size = 69, normalized size = 1.28

$$-\frac{1}{343\,(3\,x+2)}+\frac{33\,\left(\frac{203}{3\,x+2}-25\right)}{2401\,\left(\frac{7}{3\,x+2}-2\right)^2}+\frac{64}{2401}\,\ln\left(\left|-\frac{7}{3\,x+2}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^2/((3*x + 2)^2*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] -1/343/(3*x + 2) + 33/2401*(203/(3*x + 2) - 25)/(7/(3*x + 2) - 2)
^2 + 64/2401*ln(abs(-7/(3*x + 2) + 2))
```

3.1638 $\int \frac{(3+5x)^2}{(1-2x)^3(2+3x)^3}\,dx$

Optimal. Leaf size=65

$$\frac{319}{2401(1-2x)}+\frac{64}{2401(3x+2)}+\frac{121}{686(1-2x)^2}-\frac{1}{686(3x+2)^2}-\frac{829\log(1-2x)}{16807}+\frac{829\log(3x+2)}{16807}$$

```
[Out] 121/(686*(1 - 2*x)^2) + 319/(2401*(1 - 2*x)) - 1/(686*(2 + 3*x)^2
) + 64/(2401*(2 + 3*x)) - (829*Log[1 - 2*x])/16807 + (829*Log[2 +
 3*x])/16807
```

Rubi [A] time = 0.0752056, antiderivative size = 65, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{319}{2401(1-2x)}+\frac{64}{2401(3x+2)}+\frac{121}{686(1-2x)^2}-\frac{1}{686(3x+2)^2}-\frac{829\log(1-2x)}{16807}+\frac{829\log(3x+2)}{16807}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^2/((1 - 2*x)^3*(2 + 3*x)^3),x]
```

```
[Out] 121/(686*(1 - 2*x)^2) + 319/(2401*(1 - 2*x)) - 1/(686*(2 + 3*x)^2
) + 64/(2401*(2 + 3*x)) - (829*Log[1 - 2*x])/16807 + (829*Log[2 +
 3*x])/16807
```

Rubi in Sympy [A] time = 10.2591, size = 53, normalized size = 0.82

$$-\frac{829\log(-2x+1)}{16807}+\frac{829\log(3x+2)}{16807}+\frac{64}{2401(3x+2)}-\frac{1}{686(3x+2)^2}+\frac{319}{2401(-2x+1)}+\frac{121}{686(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**2/(1-2*x)**3/(2+3*x)**3,x)
```

```
[Out] -829*log(-2*x + 1)/16807 + 829*log(3*x + 2)/16807 + 64/(2401*(3*x
 + 2)) - 1/(686*(3*x + 2)**2) + 319/(2401*(-2*x + 1)) + 121/(686*
(-2*x + 1)**2)
```

Mathematica [A] time = 0.0513176, size = 48, normalized size = 0.74

$$\frac{-\frac{7(9948x^3+2487x^2-12104x-6189)}{(6x^2+x-2)^2}-1658\log(1-2x)+1658\log(3x+2)}{33614}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^2/((1 - 2*x)^3*(2 + 3*x)^3),x]
```

```
[Out] ((-7*(-6189 - 12104*x + 2487*x^2 + 9948*x^3))/(-2 + x + 6*x^2)^2
- 1658*Log[1 - 2*x] + 1658*Log[2 + 3*x])/33614
```

Maple [A] time = 0.016, size = 54, normalized size = 0.8

$$-\frac{1}{686(2+3x)^2}+\frac{64}{4802+7203x}+\frac{829\ln(2+3x)}{16807}+\frac{121}{686(-1+2x)^2}-\frac{319}{-2401+4802x}-\frac{829\ln(-1+2x)}{16807}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^2/(1-2*x)^3/(2+3*x)^3,x)
```

```
[Out] -1/686/(2+3*x)^2+64/2401/(2+3*x)+829/16807*ln(2+3*x)+121/686/(-1+
2*x)^2-319/2401/(-1+2*x)-829/16807*ln(-1+2*x)
```

Maxima [A] time = 1.33987, size = 76, normalized size = 1.17

$$-\frac{9948\,x^{3}+2487\,x^{2}-12104\,x-6189}{4802\,(36\,x^{4}+12\,x^{3}-23\,x^{2}-4\,x+4)}+\frac{829}{16807}\,\log\left(3\,x+2\right)-\frac{829}{16807}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^2/((3*x + 2)^3*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] -1/4802*(9948*x^3 + 2487*x^2 - 12104*x - 6189)/(36*x^4 + 12*x^3 -
 23*x^2 - 4*x + 4) + 829/16807*log(3*x + 2) - 829/16807*log(2*x -
 1)
```

Fricas [A] time = 0.211189, size = 128, normalized size = 1.97

$$-\frac{69636\,x^{3}+17409\,x^{2}-1658\,\left(36\,x^{4}+12\,x^{3}-23\,x^{2}-4\,x+4\right)\,\log\left(3\,x+2\right)+1658\,\left(36\,x^{4}+12\,x^{3}-23\,x^{2}-4\,x+4\right)\,\log\left(2\,x\right.}{33614\,(36\,x^{4}+12\,x^{3}-23\,x^{2}-4\,x+4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^2/((3*x + 2)^3*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] -1/33614*(69636*x^3 + 17409*x^2 - 1658*(36*x^4 + 12*x^3 - 23*x^2
- 4*x + 4)*log(3*x + 2) + 1658*(36*x^4 + 12*x^3 - 23*x^2 - 4*x +
4)*log(2*x - 1) - 84728*x - 43323)/(36*x^4 + 12*x^3 - 23*x^2 - 4*
x + 4)
```

Sympy [A] time = 0.446493, size = 54, normalized size = 0.83

$$-\frac{9948x^{3}+2487x^{2}-12104x-6189}{172872x^{4}+57624x^{3}-110446x^{2}-19208x+19208}-\frac{829\log\left(x-\frac{1}{2}\right)}{16807}+\frac{829\log\left(x+\frac{2}{3}\right)}{16807}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2/(1-2*x)**3/(2+3*x)**3,x)
```

```
[Out] -(9948*x**3 + 2487*x**2 - 12104*x - 6189)/(172872*x**4 + 57624*x*
*3 - 110446*x**2 - 19208*x + 19208) - 829*log(x - 1/2)/16807 + 82
9*log(x + 2/3)/16807
```

GIAC/XCAS [A] time = 0.210005, size = 62, normalized size = 0.95

$$-\frac{9948\,x^{3}+2487\,x^{2}-12104\,x-6189}{4802\,(6\,x^{2}+x-2)^{2}}+\frac{829}{16807}\,\ln\left(|3\,x+2|\right)-\frac{829}{16807}\,\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^2/((3*x + 2)^3*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] -1/4802*(9948*x^3 + 2487*x^2 - 12104*x - 6189)/(6*x^2 + x - 2)^2
+ 829/16807*ln(abs(3*x + 2)) - 829/16807*ln(abs(2*x - 1))
```

3.1639 $\int \frac{(3+5x)^2}{(1-2x)^3(2+3x)^4}\,dx$

Optimal. Leaf size=76

$$\frac{1364}{16807(1-2x)}-\frac{829}{16807(3x+2)}+\frac{121}{2401(1-2x)^2}+\frac{32}{2401(3x+2)^2}-\frac{1}{1029(3x+2)^3}-\frac{5750\log(1-2x)}{117649}+\frac{5750\log(3x+2)}{117649}$$

```
[Out] 121/(2401*(1 - 2*x)^2) + 1364/(16807*(1 - 2*x)) - 1/(1029*(2 + 3*
x)^3) + 32/(2401*(2 + 3*x)^2) - 829/(16807*(2 + 3*x)) - (5750*Log
[1 - 2*x])/117649 + (5750*Log[2 + 3*x])/117649
```

Rubi [A] time = 0.0883854, antiderivative size = 76, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{1364}{16807(1-2x)}-\frac{829}{16807(3x+2)}+\frac{121}{2401(1-2x)^2}+\frac{32}{2401(3x+2)^2}-\frac{1}{1029(3x+2)^3}-\frac{5750\log(1-2x)}{117649}+\frac{5750\log(3x+2)}{117649}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^2/((1 - 2*x)^3*(2 + 3*x)^4),x]
```

```
[Out] 121/(2401*(1 - 2*x)^2) + 1364/(16807*(1 - 2*x)) - 1/(1029*(2 + 3*
x)^3) + 32/(2401*(2 + 3*x)^2) - 829/(16807*(2 + 3*x)) - (5750*Log
[1 - 2*x])/117649 + (5750*Log[2 + 3*x])/117649
```

Rubi in Sympy [A] time = 11.6297, size = 63, normalized size = 0.83

$$-\frac{5750\log(-2x+1)}{117649}+\frac{5750\log(3x+2)}{117649}-\frac{829}{16807(3x+2)}+\frac{32}{2401(3x+2)^2}-\frac{1}{1029(3x+2)^3}+\frac{1364}{16807(-2x+1)}+\frac{121}{2401(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**2/(1-2*x)**3/(2+3*x)**4,x)
```

```
[Out] -5750*log(-2*x + 1)/117649 + 5750*log(3*x + 2)/117649 - 829/(1680
7*(3*x + 2)) + 32/(2401*(3*x + 2)**2) - 1/(1029*(3*x + 2)**3) + 1
364/(16807*(-2*x + 1)) + 121/(2401*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0834343, size = 57, normalized size = 0.75

$$\frac{\frac{7(-310500x^4-284625x^3+117875x^2+180100x+44411)}{(1-2x)^2(3x+2)^3}-17250\log(1-2x)+17250\log(6x+4)}{352947}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^2/((1 - 2*x)^3*(2 + 3*x)^4),x]
```

```
[Out] ((7*(44411 + 180100*x + 117875*x^2 - 284625*x^3 - 310500*x^4))/((
1 - 2*x)^2*(2 + 3*x)^3) - 17250*Log[1 - 2*x] + 17250*Log[4 + 6*x]
)/352947
```

Maple [A] time = 0.016, size = 63, normalized size = 0.8

$$-\frac{1}{1029\,(2+3\,x)^3}+\frac{32}{2401\,(2+3\,x)^2}-\frac{829}{33614+50421\,x}+\frac{5750\,\ln(2+3\,x)}{117649}+\frac{121}{2401\,(-1+2\,x)^2}-\frac{1364}{-16807+33614\,x}-\frac{5750\,\ln(-1+2\,x)}{117649}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^2/(1-2*x)^3/(2+3*x)^4,x)
```

```
[Out] -1/1029/(2+3*x)^3+32/2401/(2+3*x)^2-829/16807/(2+3*x)+5750/117649
*ln(2+3*x)+121/2401/(-1+2*x)^2-1364/16807/(-1+2*x)-5750/117649*ln
(-1+2*x)
```

Maxima [A] time = 1.34133, size = 89, normalized size = 1.17

$$-\frac{310500\,x^4+284625\,x^3-117875\,x^2-180100\,x-44411}{50421\,(108\,x^5+108\,x^4-45\,x^3-58\,x^2+4\,x+8)}+\frac{5750}{117649}\,\log(3\,x+2)-\frac{5750}{117649}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2/((3*x + 2)^4*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] -1/50421*(310500*x^4 + 284625*x^3 - 117875*x^2 - 180100*x - 44411
)/(108*x^5 + 108*x^4 - 45*x^3 - 58*x^2 + 4*x + 8) + 5750/117649*l
og(3*x + 2) - 5750/117649*log(2*x - 1)
```

Fricas [A] time = 0.206913, size = 155, normalized size = 2.04

$$-\frac{2173500\,x^4+1992375\,x^3-825125\,x^2-17250\,\left(108\,x^5+108\,x^4-45\,x^3-58\,x^2+4\,x+8\right)\log(3\,x+2)+17250\,\left(108\,x^5+1\right.}{352947\,(108\,x^5+108\,x^4-45\,x^3-58\,x^2+4\,x+8)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2/((3*x + 2)^4*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] -1/352947*(2173500*x^4 + 1992375*x^3 - 825125*x^2 - 17250*(108*x^
5 + 108*x^4 - 45*x^3 - 58*x^2 + 4*x + 8)*log(3*x + 2) + 17250*(10
8*x^5 + 108*x^4 - 45*x^3 - 58*x^2 + 4*x + 8)*log(2*x - 1) - 12607
00*x - 310877)/(108*x^5 + 108*x^4 - 45*x^3 - 58*x^2 + 4*x + 8)
```

Sympy [A] time = 0.511389, size = 65, normalized size = 0.86

$$-\frac{310500x^4+284625x^3-117875x^2-180100x-44411}{5445468x^5+5445468x^4-2268945x^3-2924418x^2+201684x+403368}-\frac{5750\log\left(x-\frac{1}{2}\right)}{117649}+\frac{5750\log\left(x+\frac{2}{3}\right)}{117649}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2/(1-2*x)**3/(2+3*x)**4,x)
```

```
[Out] -(310500*x**4 + 284625*x**3 - 117875*x**2 - 180100*x - 44411)/(54
45468*x**5 + 5445468*x**4 - 2268945*x**3 - 2924418*x**2 + 201684*
```

```
x + 403368) - 5750*log(x - 1/2)/117649 + 5750*log(x + 2/3)/117649
```

GIAC/XCAS [A] time = 0.219416, size = 74, normalized size = 0.97

$$-\frac{310500\,x^{4}+284625\,x^{3}-117875\,x^{2}-180100\,x-44411}{50421\,(3\,x+2)^{3}(2\,x-1)^{2}}+\frac{5750}{117649}\,\ln\left(|3\,x+2|\right)-\frac{5750}{117649}\,\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^2/((3*x + 2)^4*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] -1/50421*(310500*x^4 + 284625*x^3 - 117875*x^2 - 180100*x - 44411
)/((3*x + 2)^3*(2*x - 1)^2) + 5750/117649*ln(abs(3*x + 2)) - 5750
/117649*ln(abs(2*x - 1))
```

3.1640 $\int \frac{(3+5x)^2}{(1-2x)^3(2+3x)^5}\,dx$

Optimal. Leaf size=87

$$\frac{4180}{117649(1-2x)}-\frac{5750}{117649(3x+2)}+\frac{242}{16807(1-2x)^2}-\frac{829}{33614(3x+2)^2}+\frac{64}{7203(3x+2)^3}-\frac{1}{1372(3x+2)^4}-\frac{24040\log(1-2x)}{823543}+\frac{24040\log(3x+2)}{823543}$$

```
[Out] 242/(16807*(1 - 2*x)^2) + 4180/(117649*(1 - 2*x)) - 1/(1372*(2 +
3*x)^4) + 64/(7203*(2 + 3*x)^3) - 829/(33614*(2 + 3*x)^2) - 5750/
(117649*(2 + 3*x)) - (24040*Log[1 - 2*x])/823543 + (24040*Log[2 +
 3*x])/823543
```

Rubi [A] time = 0.106, antiderivative size = 87, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{4180}{117649(1-2x)}-\frac{5750}{117649(3x+2)}+\frac{242}{16807(1-2x)^2}-\frac{829}{33614(3x+2)^2}+\frac{64}{7203(3x+2)^3}-\frac{1}{1372(3x+2)^4}-\frac{24040\log(1-2x)}{823543}+\frac{24040\log(3x+2)}{823543}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^2/((1 - 2*x)^3*(2 + 3*x)^5),x]
```

```
[Out] 242/(16807*(1 - 2*x)^2) + 4180/(117649*(1 - 2*x)) - 1/(1372*(2 +
3*x)^4) + 64/(7203*(2 + 3*x)^3) - 829/(33614*(2 + 3*x)^2) - 5750/
(117649*(2 + 3*x)) - (24040*Log[1 - 2*x])/823543 + (24040*Log[2 +
 3*x])/823543
```

Rubi in Sympy [A] time = 13.0776, size = 73, normalized size = 0.84

$$-\frac{24040\log(-2x+1)}{823543}+\frac{24040\log(3x+2)}{823543}-\frac{5750}{117649(3x+2)}-\frac{829}{33614(3x+2)^2}+\frac{64}{7203(3x+2)^3}-\frac{1}{1372(3x+2)^4}+\frac{4180}{117649(-2x+1)}+\frac{242}{16807(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**2/(1-2*x)**3/(2+3*x)**5,x)
```

```
[Out] -24040*log(-2*x + 1)/823543 + 24040*log(3*x + 2)/823543 - 5750/(1
17649*(3*x + 2)) - 829/(33614*(3*x + 2)**2) + 64/(7203*(3*x + 2)*
*3) - 1/(1372*(3*x + 2)**4) + 4180/(117649*(-2*x + 1)) + 242/(168
07*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0896026, size = 64, normalized size = 0.74

$$\frac{2\left(-\frac{7(15577920x^5+24665040x^4+3606000x^3-10343210x^2-4966396x-460595)}{8(1-2x)^2(3x+2)^4}-36060\log(1-2x)+36060\log(6x+4)\right)}{2470629}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^2/((1 - 2*x)^3*(2 + 3*x)^5),x]
```

```
[Out] (2*((-7*(-460595 - 4966396*x - 10343210*x^2 + 3606000*x^3 + 24665
040*x^4 + 15577920*x^5))/(8*(1 - 2*x)^2*(2 + 3*x)^4) - 36060*Log[
1 - 2*x] + 36060*Log[4 + 6*x]))/2470629
```

Maple [A] time = 0.02, size = 72, normalized size = 0.8

$$-\frac{1}{1372\,(2+3\,x)^4}+\frac{64}{7203\,(2+3\,x)^3}-\frac{829}{33614\,(2+3\,x)^2}-\frac{5750}{235298+352947\,x}+\frac{24040\,\ln(2+3\,x)}{823543}+\frac{242}{16807\,(-1+2\,x)^2}-\frac{4180}{-117649+235298\,x}-\frac{24040\,\ln(-1+2\,x)}{823543}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^2/(1-2*x)^3/(2+3*x)^5,x)
```

```
[Out] -1/1372/(2+3*x)^4+64/7203/(2+3*x)^3-829/33614/(2+3*x)^2-5750/1176
49/(2+3*x)+24040/823543*ln(2+3*x)+242/16807/(-1+2*x)^2-4180/11764
9/(-1+2*x)-24040/823543*ln(-1+2*x)
```

Maxima [A] time = 1.34976, size = 103, normalized size = 1.18

$$-\frac{15577920\,x^5+24665040\,x^4+3606000\,x^3-10343210\,x^2-4966396\,x-460595}{1411788\,(324\,x^6+540\,x^5+81\,x^4-264\,x^3-104\,x^2+32\,x+16)}+\frac{24040}{823543}\,\log(3\,x+2)-\frac{24040}{823543}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2/((3*x + 2)^5*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] -1/1411788*(15577920*x^5 + 24665040*x^4 + 3606000*x^3 - 10343210*
x^2 - 4966396*x - 460595)/(324*x^6 + 540*x^5 + 81*x^4 - 264*x^3 -
 104*x^2 + 32*x + 16) + 24040/823543*log(3*x + 2) - 24040/823543*
log(2*x - 1)
```

Fricas [A] time = 0.201864, size = 182, normalized size = 2.09

$$-\frac{109045440\,x^5+172655280\,x^4+25242000\,x^3-72402470\,x^2-288480\,\left(324\,x^6+540\,x^5+81\,x^4-264\,x^3-104\,x^2+32\,x+\right.}{9882516\,(324\,x^6+540\,x^5+81\,x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2/((3*x + 2)^5*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] -1/9882516*(109045440*x^5 + 172655280*x^4 + 25242000*x^3 - 724024
70*x^2 - 288480*(324*x^6 + 540*x^5 + 81*x^4 - 264*x^3 - 104*x^2 +
 32*x + 16)*log(3*x + 2) + 288480*(324*x^6 + 540*x^5 + 81*x^4 - 2
64*x^3 - 104*x^2 + 32*x + 16)*log(2*x - 1) - 34764772*x - 3224165
)/(324*x^6 + 540*x^5 + 81*x^4 - 264*x^3 - 104*x^2 + 32*x + 16)
```

Sympy [A] time = 0.576602, size = 75, normalized size = 0.86

$$-\frac{15577920x^5+24665040x^4+3606000x^3-10343210x^2-4966396x-460595}{457419312x^6+762365520x^5+114354828x^4-372712032x^3-146825952x^2+45177216x+22588608}-\frac{24040\log\left(x-\frac{1}{2}\right)}{823543}+\frac{24040\log\left(x+\frac{2}{3}\right)}{823543}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2/(1-2*x)**3/(2+3*x)**5,x)
```

```
[Out] -(15577920*x**5 + 24665040*x**4 + 3606000*x**3 - 10343210*x**2 -
4966396*x - 460595)/(457419312*x**6 + 762365520*x**5 + 114354828*
x**4 - 372712032*x**3 - 146825952*x**2 + 45177216*x + 22588608) -
 24040*log(x - 1/2)/823543 + 24040*log(x + 2/3)/823543
```

GIAC/XCAS [A] time = 0.213622, size = 105, normalized size = 1.21

$$-\frac{5750}{117649\,(3\,x+2)}+\frac{264\,\left(\frac{896}{3\,x+2}-223\right)}{823543\,\left(\frac{7}{3\,x+2}-2\right)^2}-\frac{829}{33614\,(3\,x+2)^2}+\frac{64}{7203\,(3\,x+2)^3}-\frac{1}{1372\,(3\,x+2)^4}-\frac{24040}{823543}\ln\left(\left|-\frac{7}{3\,x+2}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^2/((3*x + 2)^5*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] -5750/117649/(3*x + 2) + 264/823543*(896/(3*x + 2) - 223)/(7/(3*x
 + 2) - 2)^2 - 829/33614/(3*x + 2)^2 + 64/7203/(3*x + 2)^3 - 1/13
72/(3*x + 2)^4 - 24040/823543*ln(abs(-7/(3*x + 2) + 2))
```

3.1641 $\int \frac{(3+5x)^2}{(1-2x)^3(2+3x)^6}\,dx$

Optimal. Leaf size=98

$$\frac{11264}{823543(1-2x)}-\frac{24040}{823543(3x+2)}+\frac{484}{117649(1-2x)^2}-\frac{2875}{117649(3x+2)^2}-\frac{829}{50421(3x+2)^3}+\frac{16}{2401(3x+2)^4}-\frac{1}{1715(3x+2)^5}-\frac{11696\log(1-2x)}{823543}+\frac{11696\log(3x+2)}{823543}$$

```
[Out] 484/(117649*(1 - 2*x)^2) + 11264/(823543*(1 - 2*x)) - 1/(1715*(2
+ 3*x)^5) + 16/(2401*(2 + 3*x)^4) - 829/(50421*(2 + 3*x)^3) - 287
5/(117649*(2 + 3*x)^2) - 24040/(823543*(2 + 3*x)) - (11696*Log[1
- 2*x])/823543 + (11696*Log[2 + 3*x])/823543
```

Rubi [A] time = 0.12156, antiderivative size = 98, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{11264}{823543(1-2x)}-\frac{24040}{823543(3x+2)}+\frac{484}{117649(1-2x)^2}-\frac{2875}{117649(3x+2)^2}-\frac{829}{50421(3x+2)^3}+\frac{16}{2401(3x+2)^4}-\frac{1}{1715(3x+2)^5}-\frac{11696\log(1-2x)}{823543}+\frac{11696\log(3x+2)}{823543}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^2/((1 - 2*x)^3*(2 + 3*x)^6),x]
```

```
[Out] 484/(117649*(1 - 2*x)^2) + 11264/(823543*(1 - 2*x)) - 1/(1715*(2
+ 3*x)^5) + 16/(2401*(2 + 3*x)^4) - 829/(50421*(2 + 3*x)^3) - 287
5/(117649*(2 + 3*x)^2) - 24040/(823543*(2 + 3*x)) - (11696*Log[1
- 2*x])/823543 + (11696*Log[2 + 3*x])/823543
```

Rubi in Sympy [A] time = 14.5622, size = 83, normalized size = 0.85

$$-\frac{11696\log\left(-2x+1\right)}{823543}+\frac{11696\log\left(3x+2\right)}{823543}-\frac{24040}{823543\left(3x+2\right)}-\frac{2875}{117649\left(3x+2\right)^2}-\frac{829}{50421\left(3x+2\right)^3}+\frac{16}{2401\left(3x+2\right)^4}-\frac{1}{1715\left(3x+2\right)^5}+\frac{11264}{823543\left(-2x+1\right)}+\frac{484}{117649\left(-2x+1\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**2/(1-2*x)**3/(2+3*x)**6,x)
```

```
[Out] -11696*log(-2*x + 1)/823543 + 11696*log(3*x + 2)/823543 - 24040/(
823543*(3*x + 2)) - 2875/(117649*(3*x + 2)**2) - 829/(50421*(3*x
+ 2)**3) + 16/(2401*(3*x + 2)**4) - 1/(1715*(3*x + 2)**5) + 11264
/(823543*(-2*x + 1)) + 484/(117649*(-2*x + 1)**2)
```

Mathematica [A] time = 0.10286, size = 69, normalized size = 0.7

$$\frac{4\left(-\frac{7(28421280x^6+63947880x^5+36579240x^4-14484765x^3-19495039x^2-4230956x+258089)}{4(1-2x)^2(3x+2)^5}-43860\log(1-2x)+43860\log(6x+4)\right)}{12353145}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^2/((1 - 2*x)^3*(2 + 3*x)^6),x]
```

```
[Out] (4*((-7*(258089 - 4230956*x - 19495039*x^2 - 14484765*x^3 + 36579
240*x^4 + 63947880*x^5 + 28421280*x^6))/(4*(1 - 2*x)^2*(2 + 3*x)^
5) - 43860*Log[1 - 2*x] + 43860*Log[4 + 6*x]))/12353145
```

Maple [A] time = 0.016, size = 81, normalized size = 0.8

$$-\frac{1}{1715\,(2+3\,x)^{5}}+\frac{16}{2401\,(2+3\,x)^{4}}-\frac{829}{50421\,(2+3\,x)^{3}}-\frac{2875}{117649\,(2+3\,x)^{2}}-\frac{24040}{1647086+2470629\,x}+\frac{11696\,\ln(2+3\,x)}{823543}+\frac{484}{117649\,(-1+2\,x)^{2}}-\frac{11264}{-823543+1647086\,x}-\frac{11696\,\ln(-1+2\,x)}{823543}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^2/(1-2*x)^3/(2+3*x)^6,x)
```

```
[Out] -1/1715/(2+3*x)^5+16/2401/(2+3*x)^4-829/50421/(2+3*x)^3-2875/1176
49/(2+3*x)^2-24040/823543/(2+3*x)+11696/823543*ln(2+3*x)+484/1176
49/(-1+2*x)^2-11264/823543/(-1+2*x)-11696/823543*ln(-1+2*x)
```

Maxima [A] time = 1.39187, size = 116, normalized size = 1.18

$$-\frac{28421280\,x^{6}+63947880\,x^{5}+36579240\,x^{4}-14484765\,x^{3}-19495039\,x^{2}-4230956\,x+258089}{1764735\,(972\,x^{7}+2268\,x^{6}+1323\,x^{5}-630\,x^{4}-840\,x^{3}-112\,x^{2}+112\,x+32)}+\frac{11696}{823543}\,\log(3\,x+2)-\frac{11696}{823543}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2/((3*x + 2)^6*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] -1/1764735*(28421280*x^6 + 63947880*x^5 + 36579240*x^4 - 14484765
*x^3 - 19495039*x^2 - 4230956*x + 258089)/(972*x^7 + 2268*x^6 + 1
323*x^5 - 630*x^4 - 840*x^3 - 112*x^2 + 112*x + 32) + 11696/82354
3*log(3*x + 2) - 11696/823543*log(2*x - 1)
```

Fricas [A] time = 0.210201, size = 209, normalized size = 2.13

$$-\frac{198948960\,x^{6}+447635160\,x^{5}+256054680\,x^{4}-101393355\,x^{3}-136465273\,x^{2}-175440\,\left(972\,x^{7}+2268\,x^{6}+1323\,x^{5}-63\cdots\right.}{12353145\,(972\,x^{7}\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^2/((3*x + 2)^6*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] -1/12353145*(198948960*x^6 + 447635160*x^5 + 256054680*x^4 - 1013
93355*x^3 - 136465273*x^2 - 175440*(972*x^7 + 2268*x^6 + 1323*x^5
 - 630*x^4 - 840*x^3 - 112*x^2 + 112*x + 32)*log(3*x + 2) + 17544
0*(972*x^7 + 2268*x^6 + 1323*x^5 - 630*x^4 - 840*x^3 - 112*x^2 +
112*x + 32)*log(2*x - 1) - 29616692*x + 1806623)/(972*x^7 + 2268*
x^6 + 1323*x^5 - 630*x^4 - 840*x^3 - 112*x^2 + 112*x + 32)
```

Sympy [A] time = 0.623391, size = 85, normalized size = 0.87

$$-\frac{28421280x^{6}+63947880x^{5}+36579240x^{4}-14484765x^{3}-19495039x^{2}-4230956x+258089}{1715322420x^{7}+4002418980x^{6}+2334744405x^{5}-1111783050x^{4}-1482377400x^{3}-197650320x^{2}+197650320x+564715\cdots}-\frac{11696\log\left(x-\frac{1}{2}\right)}{823543}+\frac{11696\log\left(x+\frac{2}{3}\right)}{823543}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2/(1-2*x)**3/(2+3*x)**6,x)
```

```
[Out] -(28421280*x**6 + 63947880*x**5 + 36579240*x**4 - 14484765*x**3 -
 19495039*x**2 - 4230956*x + 258089)/(1715322420*x**7 + 400241898
0*x**6 + 2334744405*x**5 - 1111783050*x**4 - 1482377400*x**3 - 19
7650320*x**2 + 197650320*x + 56471520) - 11696*log(x - 1/2)/82354
3 + 11696*log(x + 2/3)/823543
```

GIAC/XCAS [A] time = 0.209075, size = 88, normalized size = 0.9

$$-\frac{28421280\,x^6+63947880\,x^5+36579240\,x^4-14484765\,x^3-19495039\,x^2-4230956\,x+258089}{1764735\,(3\,x+2)^5(2\,x-1)^2}+\frac{11696}{823543}\ln\left(|3\,x+2|\right)-\frac{11696}{823543}\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^2/((3*x + 2)^6*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] -1/1764735*(28421280*x^6 + 63947880*x^5 + 36579240*x^4 - 14484765
*x^3 - 19495039*x^2 - 4230956*x + 258089)/((3*x + 2)^5*(2*x - 1)^
2) + 11696/823543*ln(abs(3*x + 2)) - 11696/823543*ln(abs(2*x - 1)
)
```

3.1642 $\int \frac{(2+3x)^6(3+5x)^3}{(1-2x)^3}\,dx$

Optimal. Leaf size=80

$$-\frac{91125x^7}{56}-\frac{443475x^6}{32}-\frac{229149x^5}{4}-\frac{19986237x^4}{128}-\frac{41793093x^3}{128}-\frac{306103815x^2}{512}-\frac{308539921x}{256}-\frac{616195041}{1024(1-2x)}+\frac{156590819}{2048(1-2x)^2}-\frac{33674025}{32}\log(1-2x)$$

```
[Out] 156590819/(2048*(1 - 2*x)^2) - 616195041/(1024*(1 - 2*x)) - (3085
39921*x)/256 - (306103815*x^2)/512 - (41793093*x^3)/128 - (199862
37*x^4)/128 - (229149*x^5)/4 - (443475*x^6)/32 - (91125*x^7)/56 -
 (33674025*Log[1 - 2*x])/32
```

Rubi [A] time = 0.1037, antiderivative size = 80, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{91125x^7}{56}-\frac{443475x^6}{32}-\frac{229149x^5}{4}-\frac{19986237x^4}{128}-\frac{41793093x^3}{128}-\frac{306103815x^2}{512}-\frac{308539921x}{256}-\frac{616195041}{1024(1-2x)}+\frac{156590819}{2048(1-2x)^2}-\frac{33674025}{32}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^6*(3 + 5*x)^3)/(1 - 2*x)^3,x]
```

```
[Out] 156590819/(2048*(1 - 2*x)^2) - 616195041/(1024*(1 - 2*x)) - (3085
39921*x)/256 - (306103815*x^2)/512 - (41793093*x^3)/128 - (199862
37*x^4)/128 - (229149*x^5)/4 - (443475*x^6)/32 - (91125*x^7)/56 -
 (33674025*Log[1 - 2*x])/32
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{91125x^7}{56}-\frac{443475x^6}{32}-\frac{229149x^5}{4}-\frac{19986237x^4}{128}-\frac{41793093x^3}{128}-\frac{33674025\log(-2x+1)}{32}+\int\left(-\frac{308539921}{256}\right)dx-\frac{306103815\int x\,dx}{256}-\frac{616195041}{1024(-2x+1)}+\frac{156590819}{2048(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**6*(3+5*x)**3/(1-2*x)**3,x)
```

```
[Out] -91125*x**7/56 - 443475*x**6/32 - 229149*x**5/4 - 19986237*x**4/1
28 - 41793093*x**3/128 - 33674025*log(-2*x + 1)/32 + Integral(-30
8539921/256, x) - 306103815*Integral(x, x)/256 - 616195041/(1024*
(-2*x + 1)) + 156590819/(2048*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0415869, size = 71, normalized size = 0.89

$$-\frac{23328000x^9+175348800x^8+628425216x^7+1466857728x^6+2647685376x^5+4449695040x^4+9877535360x^3-2667131}{3584(1-2x)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^6*(3 + 5*x)^3)/(1 - 2*x)^3,x]
```

```
[Out] -(-1001301969 + 11541996324*x - 26671311588*x^2 + 9877535360*x^3
+ 4449695040*x^4 + 2647685376*x^5 + 1466857728*x^6 + 628425216*x^
7 + 175348800*x^8 + 23328000*x^9 + 3771490800*(1 - 2*x)^2*Log[1 -
 2*x])/(3584*(1 - 2*x)^2)
```

Maple [A] time = 0.011, size = 61, normalized size = 0.8

$$-\frac{91125\,x^7}{56}-\frac{443475\,x^6}{32}-\frac{229149\,x^5}{4}-\frac{19986237\,x^4}{128}-\frac{41793093\,x^3}{128}-\frac{306103815\,x^2}{512}-\frac{308539921\,x}{256}+\frac{156590819}{2048\,(-1+2\,x)^2}+\frac{616195041}{-1024+2048\,x}-\frac{33674025\,\ln(-1+2\,x)}{32}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^6*(3+5*x)^3/(1-2*x)^3,x)
```

```
[Out] -91125/56*x^7-443475/32*x^6-229149/4*x^5-19986237/128*x^4-4179309
3/128*x^3-306103815/512*x^2-308539921/256*x+156590819/2048/(-1+2*
x)^2+616195041/1024/(-1+2*x)-33674025/32*ln(-1+2*x)
```

Maxima [A] time = 1.34841, size = 82, normalized size = 1.02

$$-\frac{91125}{56}\,x^7-\frac{443475}{32}\,x^6-\frac{229149}{4}\,x^5-\frac{19986237}{128}\,x^4-\frac{41793093}{128}\,x^3-\frac{306103815}{512}\,x^2-\frac{308539921}{256}\,x+\frac{2033647\,(1212\,x-529)}{2048\,(4\,x^2-4\,x+1)}-\frac{33674025}{32}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^6/(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] -91125/56*x^7 - 443475/32*x^6 - 229149/4*x^5 - 19986237/128*x^4 -
 41793093/128*x^3 - 306103815/512*x^2 - 308539921/256*x + 2033647
/2048*(1212*x - 529)/(4*x^2 - 4*x + 1) - 33674025/32*log(2*x - 1)
```

Fricas [A] time = 0.205881, size = 104, normalized size = 1.3

$$-\frac{93312000\,x^9+701395200\,x^8+2513700864\,x^7+5867430912\,x^6+10590741504\,x^5+17798780160\,x^4+39510141440\,x^3-6}{14336\,(4\,x^2-4\,x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^6/(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -1/14336*(93312000*x^9 + 701395200*x^8 + 2513700864*x^7 + 5867430
912*x^6 + 10590741504*x^5 + 17798780160*x^4 + 39510141440*x^3 - 6
0542035484*x^2 + 15085963200*(4*x^2 - 4*x + 1)*log(2*x - 1) + 247
74428*x + 7530594841)/(4*x^2 - 4*x + 1)
```

Sympy [A] time = 0.350839, size = 70, normalized size = 0.88

$$-\frac{91125x^7}{56}-\frac{443475x^6}{32}-\frac{229149x^5}{4}-\frac{19986237x^4}{128}-\frac{41793093x^3}{128}-\frac{306103815x^2}{512}-\frac{308539921x}{256}+\frac{2464780164x-1075799263}{8192x^2-8192x+2048}-\frac{33674025\log(2x-1)}{32}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**6*(3+5*x)**3/(1-2*x)**3,x)
```

```
[Out] -91125*x**7/56 - 443475*x**6/32 - 229149*x**5/4 - 19986237*x**4/1
28 - 41793093*x**3/128 - 306103815*x**2/512 - 308539921*x/256 + (
2464780164*x - 1075799263)/(8192*x**2 - 8192*x + 2048) - 33674025
*log(2*x - 1)/32
```

GIAC/XCAS [A] time = 0.224172, size = 77, normalized size = 0.96

$$-\frac{91125}{56}\,x^{7}-\frac{443475}{32}\,x^{6}-\frac{229149}{4}\,x^{5}-\frac{19986237}{128}\,x^{4}-\frac{41793093}{128}\,x^{3}-\frac{306103815}{512}\,x^{2}-\frac{308539921}{256}\,x+\frac{2033647\,(1212\,x-529)}{2048\,(2\,x-1)^{2}}-\frac{33674025}{32}\,\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^6/(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] -91125/56*x^7 - 443475/32*x^6 - 229149/4*x^5 - 19986237/128*x^4 -
 41793093/128*x^3 - 306103815/512*x^2 - 308539921/256*x + 2033647
/2048*(1212*x - 529)/(2*x - 1)^2 - 33674025/32*ln(abs(2*x - 1))
```

3.1643 $\int \frac{(2+3x)^5(3+5x)^3}{(1-2x)^3}\,dx$

Optimal. Leaf size=73

$$-\frac{10125x^6}{16}-\frac{80595x^5}{16}-\frac{629505x^4}{32}-\frac{1661133x^3}{32}-\frac{28504029x^2}{256}-\frac{64029233x}{256}-\frac{39220335}{256(1-2x)}+\frac{22370117}{1024(1-2x)^2}-\frac{60160485}{256}\log(1-2x)$$

```
[Out] 22370117/(1024*(1 - 2*x)^2) - 39220335/(256*(1 - 2*x)) - (6402923
3*x)/256 - (28504029*x^2)/256 - (1661133*x^3)/32 - (629505*x^4)/3
2 - (80595*x^5)/16 - (10125*x^6)/16 - (60160485*Log[1 - 2*x])/256
```

Rubi [A] time = 0.0973171, antiderivative size = 73, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{10125x^6}{16}-\frac{80595x^5}{16}-\frac{629505x^4}{32}-\frac{1661133x^3}{32}-\frac{28504029x^2}{256}-\frac{64029233x}{256}-\frac{39220335}{256(1-2x)}+\frac{22370117}{1024(1-2x)^2}-\frac{60160485}{256}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^5*(3 + 5*x)^3)/(1 - 2*x)^3,x]
```

```
[Out] 22370117/(1024*(1 - 2*x)^2) - 39220335/(256*(1 - 2*x)) - (6402923
3*x)/256 - (28504029*x^2)/256 - (1661133*x^3)/32 - (629505*x^4)/3
2 - (80595*x^5)/16 - (10125*x^6)/16 - (60160485*Log[1 - 2*x])/256
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{10125x^6}{16}-\frac{80595x^5}{16}-\frac{629505x^4}{32}-\frac{1661133x^3}{32}-\frac{60160485\log(-2x+1)}{256}+\int\left(-\frac{64029233}{256}\right)dx-\frac{28504029\int x\,dx}{128}-\frac{39220335}{256(-2x+1)}+\frac{22370117}{1024(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**5*(3+5*x)**3/(1-2*x)**3,x)
```

```
[Out] -10125*x**6/16 - 80595*x**5/16 - 629505*x**4/32 - 1661133*x**3/32
 - 60160485*log(-2*x + 1)/256 + Integral(-64029233/256, x) - 2850
4029*Integral(x, x)/128 - 39220335/(256*(-2*x + 1)) + 22370117/(1
024*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0344391, size = 66, normalized size = 0.9

$$-\frac{2592000x^8+18040320x^7+60592320x^6+137206464x^5+263583600x^4+621559520x^3-1569001020x^2+600903660x+2}{1024(1-2x)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^5*(3 + 5*x)^3)/(1 - 2*x)^3,x]
```

```
[Out] -(-30126129 + 600903660*x - 1569001020*x^2 + 621559520*x^3 + 2635
83600*x^4 + 137206464*x^5 + 60592320*x^6 + 18040320*x^7 + 2592000
```

```
*x^8 + 240641940*(1 - 2*x)^2*Log[1 - 2*x])/(1024*(1 - 2*x)^2)
```

Maple [A] time = 0.01, size = 56, normalized size = 0.8

$$-\frac{10125\,x^{6}}{16}-\frac{80595\,x^{5}}{16}-\frac{629505\,x^{4}}{32}-\frac{1661133\,x^{3}}{32}-\frac{28504029\,x^{2}}{256}-\frac{64029233\,x}{256}+\frac{22370117}{1024\,(-1+2\,x)^{2}}+\frac{39220335}{-256+512\,x}-\frac{60160485\,\ln(-1+2\,x)}{256}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^5*(3+5*x)^3/(1-2*x)^3,x)
```

```
[Out] -10125/16*x^6-80595/16*x^5-629505/32*x^4-1661133/32*x^3-28504029/
256*x^2-64029233/256*x+22370117/1024/(-1+2*x)^2+39220335/256/(-1+
2*x)-60160485/256*ln(-1+2*x)
```

Maxima [A] time = 1.35468, size = 76, normalized size = 1.04

$$-\frac{10125}{16}\,x^{6}-\frac{80595}{16}\,x^{5}-\frac{629505}{32}\,x^{4}-\frac{1661133}{32}\,x^{3}-\frac{28504029}{256}\,x^{2}-\frac{64029233}{256}\,x+\frac{290521\,(1080\,x-463)}{1024\,(4\,x^{2}-4\,x+1)}-\frac{60160485}{256}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^5/(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] -10125/16*x^6 - 80595/16*x^5 - 629505/32*x^4 - 1661133/32*x^3 - 2
8504029/256*x^2 - 64029233/256*x + 290521/1024*(1080*x - 463)/(4*
x^2 - 4*x + 1) - 60160485/256*log(2*x - 1)
```

Fricas [A] time = 0.212877, size = 97, normalized size = 1.33

$$-\frac{2592000\,x^{8}+18040320\,x^{7}+60592320\,x^{6}+137206464\,x^{5}+263583600\,x^{4}+621559520\,x^{3}-910451612\,x^{2}+240641940\,\left(4\right.}{1024\,(4\,x^{2}-4\,x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^5/(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -1/1024*(2592000*x^8 + 18040320*x^7 + 60592320*x^6 + 137206464*x^
5 + 263583600*x^4 + 621559520*x^3 - 910451612*x^2 + 240641940*(4*
x^2 - 4*x + 1)*log(2*x - 1) - 57645748*x + 134511223)/(4*x^2 - 4*
x + 1)
```

Sympy [A] time = 0.341021, size = 63, normalized size = 0.86

$$-\frac{10125x^{6}}{16}-\frac{80595x^{5}}{16}-\frac{629505x^{4}}{32}-\frac{1661133x^{3}}{32}-\frac{28504029x^{2}}{256}-\frac{64029233x}{256}+\frac{313762680x-134511223}{4096x^{2}-4096x+1024}-\frac{60160485\log(2x-1)}{256}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**5*(3+5*x)**3/(1-2*x)**3,x)
```

```
[Out] -10125*x**6/16 - 80595*x**5/16 - 629505*x**4/32 - 1661133*x**3/32
 - 28504029*x**2/256 - 64029233*x/256 + (313762680*x - 134511223)
/(4096*x**2 - 4096*x + 1024) - 60160485*log(2*x - 1)/256
```

GIAC/XCAS [A] time = 0.207553, size = 70, normalized size = 0.96

$$-\frac{10125}{16}x^6-\frac{80595}{16}x^5-\frac{629505}{32}x^4-\frac{1661133}{32}x^3-\frac{28504029}{256}x^2-\frac{64029233}{256}x+\frac{290521\,(1080\,x-463)}{1024\,(2\,x-1)^2}-\frac{60160485}{256}\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^5/(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] -10125/16*x^6 - 80595/16*x^5 - 629505/32*x^4 - 1661133/32*x^3 - 2
8504029/256*x^2 - 64029233/256*x + 290521/1024*(1080*x - 463)/(2*
x - 1)^2 - 60160485/256*ln(abs(2*x - 1))
```

3.1644 $\int \frac{(2+3x)^4(3+5x)^3}{(1-2x)^3}\,dx$

Optimal. Leaf size=64

$$-\frac{2025x^5}{8}-\frac{120825x^4}{64}-7065x^3-\frac{1208973x^2}{64}-\frac{6277415x}{128}-\frac{9836211}{256(1-2x)}+\frac{3195731}{512(1-2x)^2}-\frac{12973191}{256}\log(1-2x)$$

```
[Out] 3195731/(512*(1 - 2*x)^2) - 9836211/(256*(1 - 2*x)) - (6277415*x)
/128 - (1208973*x^2)/64 - 7065*x^3 - (120825*x^4)/64 - (2025*x^5)
/8 - (12973191*Log[1 - 2*x])/256
```

Rubi [A] time = 0.0858783, antiderivative size = 64, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{2025x^5}{8}-\frac{120825x^4}{64}-7065x^3-\frac{1208973x^2}{64}-\frac{6277415x}{128}-\frac{9836211}{256(1-2x)}+\frac{3195731}{512(1-2x)^2}-\frac{12973191}{256}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In] Int[((2 + 3*x)^4*(3 + 5*x)^3)/(1 - 2*x)^3,x]
```

```
[Out] 3195731/(512*(1 - 2*x)^2) - 9836211/(256*(1 - 2*x)) - (6277415*x)
/128 - (1208973*x^2)/64 - 7065*x^3 - (120825*x^4)/64 - (2025*x^5)
/8 - (12973191*Log[1 - 2*x])/256
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{2025x^5}{8}-\frac{120825x^4}{64}-7065x^3-\frac{12973191\log(-2x+1)}{256}+\int\left(-\frac{6277415}{128}\right)dx-\frac{1208973\int x\,dx}{32}-\frac{9836211}{256(-2x+1)}+\frac{3195731}{512(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**4*(3+5*x)**3/(1-2*x)**3,x)
```

```
[Out] -2025*x**5/8 - 120825*x**4/64 - 7065*x**3 - 12973191*log(-2*x + 1
)/256 + Integral(-6277415/128, x) - 1208973*Integral(x, x)/32 - 9
836211/(256*(-2*x + 1)) + 3195731/(512*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0330872, size = 61, normalized size = 0.95

$$-\frac{1036800x^7+6696000x^6+21464640x^5+50369232x^4+130737568x^3-305448900x^2+95444820x+51892764(1-2x)^2\,\mathrm{lo}}{1024(1-2x)^2}$$

Antiderivative was successfully verified.

```
[In] Integrate[((2 + 3*x)^4*(3 + 5*x)^3)/(1 - 2*x)^3,x]
```

```
[Out] -(1974585 + 95444820*x - 305448900*x^2 + 130737568*x^3 + 50369232
*x^4 + 21464640*x^5 + 6696000*x^6 + 1036800*x^7 + 51892764*(1 - 2
*x)^2*Log[1 - 2*x])/(1024*(1 - 2*x)^2)
```

Maple [A] time = 0.011, size = 51, normalized size = 0.8

$$-\frac{2025\,x^{5}}{8}-\frac{120825\,x^{4}}{64}-7065\,x^{3}-\frac{1208973\,x^{2}}{64}-\frac{6277415\,x}{128}+\frac{3195731}{512\,\left(-1+2\,x\right)^{2}}+\frac{9836211}{-256+512\,x}-\frac{12973191\,\ln\left(-1+2\,x\right)}{256}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4*(3+5*x)^3/(1-2*x)^3,x)
```

```
[Out] -2025/8*x^5-120825/64*x^4-7065*x^3-1208973/64*x^2-6277415/128*x+3
195731/512/(-1+2*x)^2+9836211/256/(-1+2*x)-12973191/256*ln(-1+2*x
)
```

Maxima [A] time = 1.36325, size = 69, normalized size = 1.08

$$-\frac{2025}{8}\,x^{5}-\frac{120825}{64}\,x^{4}-7065\,x^{3}-\frac{1208973}{64}\,x^{2}-\frac{6277415}{128}\,x+\frac{41503\,(948\,x-397)}{512\,(4\,x^{2}-4\,x+1)}-\frac{12973191}{256}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^3*(3*x + 2)^4/(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] -2025/8*x^5 - 120825/64*x^4 - 7065*x^3 - 1208973/64*x^2 - 6277415
/128*x + 41503/512*(948*x - 397)/(4*x^2 - 4*x + 1) - 12973191/256
*log(2*x - 1)
```

Fricas [A] time = 0.211696, size = 90, normalized size = 1.41

$$-\frac{518400\,x^{7}+3348000\,x^{6}+10732320\,x^{5}+25184616\,x^{4}+65368784\,x^{3}-90766856\,x^{2}+25946382\left(4\,x^{2}-4\,x+1\right)\log\left(2\,x-\right.}{512\,(4\,x^{2}-4\,x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^3*(3*x + 2)^4/(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -1/512*(518400*x^7 + 3348000*x^6 + 10732320*x^5 + 25184616*x^4 +
65368784*x^3 - 90766856*x^2 + 25946382*(4*x^2 - 4*x + 1)*log(2*x
- 1) - 14235184*x + 16476691)/(4*x^2 - 4*x + 1)
```

Sympy [A] time = 0.331887, size = 54, normalized size = 0.84

$$-\frac{2025x^{5}}{8}-\frac{120825x^{4}}{64}-7065x^{3}-\frac{1208973x^{2}}{64}-\frac{6277415x}{128}+\frac{39344844x-16476691}{2048x^{2}-2048x+512}-\frac{12973191\log\left(2x-1\right)}{256}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4*(3+5*x)**3/(1-2*x)**3,x)
```

```
[Out] -2025*x**5/8 - 120825*x**4/64 - 7065*x**3 - 1208973*x**2/64 - 627
7415*x/128 + (39344844*x - 16476691)/(2048*x**2 - 2048*x + 512) -
 12973191*log(2*x - 1)/256
```

GIAC/XCAS [A] time = 0.208669, size = 63, normalized size = 0.98

$$-\frac{2025}{8}\,x^5-\frac{120825}{64}\,x^4-7065\,x^3-\frac{1208973}{64}\,x^2-\frac{6277415}{128}\,x+\frac{41503\,(948\,x-397)}{512\,(2\,x-1)^2}-\frac{12973191}{256}\,\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^4/(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] -2025/8*x^5 - 120825/64*x^4 - 7065*x^3 - 1208973/64*x^2 - 6277415
/128*x + 41503/512*(948*x - 397)/(2*x - 1)^2 - 12973191/256*ln(ab
s(2*x - 1))
```

3.1645 $\int \frac{(2+3x)^3(3+5x)^3}{(1-2x)^3}\,dx$

Optimal. Leaf size=59

$$-\frac{3375x^4}{32}-\frac{11925x^3}{16}-\frac{44595x^2}{16}-\frac{284071x}{32}-\frac{302379}{32(1-2x)}+\frac{456533}{256(1-2x)^2}-\frac{1334949}{128}\log(1-2x)$$

```
[Out] 456533/(256*(1 - 2*x)^2) - 302379/(32*(1 - 2*x)) - (284071*x)/32
- (44595*x^2)/16 - (11925*x^3)/16 - (3375*x^4)/32 - (1334949*Log[
1 - 2*x])/128
```

Rubi [A] time = 0.080662, antiderivative size = 59, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{3375x^4}{32}-\frac{11925x^3}{16}-\frac{44595x^2}{16}-\frac{284071x}{32}-\frac{302379}{32(1-2x)}+\frac{456533}{256(1-2x)^2}-\frac{1334949}{128}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^3*(3 + 5*x)^3)/(1 - 2*x)^3,x]
```

```
[Out] 456533/(256*(1 - 2*x)^2) - 302379/(32*(1 - 2*x)) - (284071*x)/32
- (44595*x^2)/16 - (11925*x^3)/16 - (3375*x^4)/32 - (1334949*Log[
1 - 2*x])/128
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{3375x^4}{32}-\frac{11925x^3}{16}-\frac{1334949\log(-2x+1)}{128}+\int\left(-\frac{284071}{32}\right)dx$$
$$-\frac{44595\int x\,dx}{8}-\frac{302379}{32(-2x+1)}+\frac{456533}{256(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3*(3+5*x)**3/(1-2*x)**3,x)
```

```
[Out] -3375*x**4/32 - 11925*x**3/16 - 1334949*log(-2*x + 1)/128 + Integ
ral(-284071/32, x) - 44595*Integral(x, x)/8 - 302379/(32*(-2*x +
1)) + 456533/(256*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0314607, size = 56, normalized size = 0.95

$$-\frac{216000x^6+1310400x^5+4235760x^4+12853984x^3-27475116x^2+5590620x+5339796(1-2x)^2\log(1-2x)+1244595}{512(1-2x)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^3*(3 + 5*x)^3)/(1 - 2*x)^3,x]
```

```
[Out] -(1244595 + 5590620*x - 27475116*x^2 + 12853984*x^3 + 4235760*x^4
 + 1310400*x^5 + 216000*x^6 + 5339796*(1 - 2*x)^2*Log[1 - 2*x])/(
512*(1 - 2*x)^2)
```

Maple [A] time = 0.01, size = 46, normalized size = 0.8

$$-\frac{3375\,x^4}{32}-\frac{11925\,x^3}{16}-\frac{44595\,x^2}{16}-\frac{284071\,x}{32}+\frac{456533}{256\,\left(-1+2\,x\right)^2}+\frac{302379}{-32+64\,x}-\frac{1334949\,\ln\left(-1+2\,x\right)}{128}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3*(3+5*x)^3/(1-2*x)^3,x)
```

```
[Out] -3375/32*x^4-11925/16*x^3-44595/16*x^2-284071/32*x+456533/256/(-1
+2*x)^2+302379/32/(-1+2*x)-1334949/128*ln(-1+2*x)
```

Maxima [A] time = 1.36474, size = 62, normalized size = 1.05

$$-\frac{3375}{32}\,x^4-\frac{11925}{16}\,x^3-\frac{44595}{16}\,x^2-\frac{284071}{32}\,x+\frac{5929\,(816\,x-331)}{256\,(4\,x^2-4\,x+1)}-\frac{1334949}{128}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^3/(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] -3375/32*x^4 - 11925/16*x^3 - 44595/16*x^2 - 284071/32*x + 5929/2
56*(816*x - 331)/(4*x^2 - 4*x + 1) - 1334949/128*log(2*x - 1)
```

Fricas [A] time = 0.211214, size = 84, normalized size = 1.42

$$-\frac{108000\,x^6+655200\,x^5+2117880\,x^4+6426992\,x^3-8376752\,x^2+2669898\,\left(4\,x^2-4\,x+1\right)\,\log\left(2\,x-1\right)-2565496\,x+19}{256\,(4\,x^2-4\,x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^3/(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -1/256*(108000*x^6 + 655200*x^5 + 2117880*x^4 + 6426992*x^3 - 837
6752*x^2 + 2669898*(4*x^2 - 4*x + 1)*log(2*x - 1) - 2565496*x + 1
962499)/(4*x^2 - 4*x + 1)
```

Sympy [A] time = 0.309506, size = 49, normalized size = 0.83

$$-\frac{3375x^4}{32}-\frac{11925x^3}{16}-\frac{44595x^2}{16}-\frac{284071x}{32}+\frac{4838064x-1962499}{1024x^2-1024x+256}-\frac{1334949\log\left(2x-1\right)}{128}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3*(3+5*x)**3/(1-2*x)**3,x)
```

```
[Out] -3375*x**4/32 - 11925*x**3/16 - 44595*x**2/16 - 284071*x/32 + (48
38064*x - 1962499)/(1024*x**2 - 1024*x + 256) - 1334949*log(2*x -
 1)/128
```

GIAC/XCAS [A] time = 0.212079, size = 57, normalized size = 0.97

$$-\frac{3375}{32}\,x^4-\frac{11925}{16}\,x^3-\frac{44595}{16}\,x^2-\frac{284071}{32}\,x+\frac{5929\,(816\,x-331)}{256\,(2\,x-1)^2}-\frac{1334949}{128}\,\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^3/(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] -3375/32*x^4 - 11925/16*x^3 - 44595/16*x^2 - 284071/32*x + 5929/2
56*(816*x - 331)/(2*x - 1)^2 - 1334949/128*ln(abs(2*x - 1))
```

3.1646 $\int \frac{(2+3x)^2(3+5x)^3}{(1-2x)^3} dx$

Optimal. Leaf size=52

$$-\frac{375x^3}{8}-\frac{10425x^2}{32}-\frac{5695x}{4}-\frac{144837}{64(1-2x)}+\frac{65219}{128(1-2x)^2}-\frac{64317}{32}\log(1-2x)$$

```
[Out] 65219/(128*(1 - 2*x)^2) - 144837/(64*(1 - 2*x)) - (5695*x)/4 - (1
0425*x^2)/32 - (375*x^3)/8 - (64317*Log[1 - 2*x])/32
```

Rubi [A] time = 0.0727549, antiderivative size = 52, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{375x^3}{8}-\frac{10425x^2}{32}-\frac{5695x}{4}-\frac{144837}{64(1-2x)}+\frac{65219}{128(1-2x)^2}-\frac{64317}{32}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^2*(3 + 5*x)^3)/(1 - 2*x)^3,x]
```

```
[Out] 65219/(128*(1 - 2*x)^2) - 144837/(64*(1 - 2*x)) - (5695*x)/4 - (1
0425*x^2)/32 - (375*x^3)/8 - (64317*Log[1 - 2*x])/32
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{375x^3}{8}-\frac{64317\log(-2x+1)}{32}+\int\left(-\frac{5695}{4}\right)dx-\frac{10425\int x\,dx}{16}-\frac{144837}{64(-2x+1)}+\frac{65219}{128(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2*(3+5*x)**3/(1-2*x)**3,x)
```

```
[Out] -375*x**3/8 - 64317*log(-2*x + 1)/32 + Integral(-5695/4, x) - 104
25*Integral(x, x)/16 - 144837/(64*(-2*x + 1)) + 65219/(128*(-2*x
+ 1)**2)
```

Mathematica [A] time = 0.0327042, size = 47, normalized size = 0.9

$$\frac{1}{32}\left(-\frac{2\left(3000x^5+17850x^4+71020x^3-137055x^2+1509x+15270\right)}{(1-2x)^2}-64317\log(1-2x)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^2*(3 + 5*x)^3)/(1 - 2*x)^3,x]
```

```
[Out] ((-2*(15270 + 1509*x - 137055*x^2 + 71020*x^3 + 17850*x^4 + 3000*
x^5))/(1 - 2*x)^2 - 64317*Log[1 - 2*x])/32
```

Maple [A] time = 0.01, size = 41, normalized size = 0.8

$$-\frac{375x^3}{8}-\frac{10425x^2}{32}-\frac{5695x}{4}+\frac{65219}{128(-1+2x)^2}+\frac{144837}{-64+128x}-\frac{64317\ln(-1+2x)}{32}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2*(3+5*x)^3/(1-2*x)^3,x)
```

```
[Out] -375/8*x^3-10425/32*x^2-5695/4*x+65219/128/(-1+2*x)^2+144837/64/(
-1+2*x)-64317/32*ln(-1+2*x)
```

Maxima [A] time = 1.3556, size = 55, normalized size = 1.06

$$-\frac{375}{8}x^3 - \frac{10425}{32}x^2 - \frac{5695}{4}x + \frac{847(684x - 265)}{128(4x^2 - 4x + 1)} - \frac{64317}{32}\log(2x - 1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^3*(3*x + 2)^2/(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] -375/8*x^3 - 10425/32*x^2 - 5695/4*x + 847/128*(684*x - 265)/(4*x
^2 - 4*x + 1) - 64317/32*log(2*x - 1)
```

Fricas [A] time = 0.214548, size = 77, normalized size = 1.48

$$-\frac{24000x^5 + 142800x^4 + 568160x^3 - 687260x^2 + 257268(4x^2 - 4x + 1)\log(2x - 1) - 397108x + 224455}{128(4x^2 - 4x + 1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^3*(3*x + 2)^2/(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -1/128*(24000*x^5 + 142800*x^4 + 568160*x^3 - 687260*x^2 + 257268
*(4*x^2 - 4*x + 1)*log(2*x - 1) - 397108*x + 224455)/(4*x^2 - 4*x
 + 1)
```

Sympy [A] time = 0.295771, size = 42, normalized size = 0.81

$$-\frac{375x^3}{8} - \frac{10425x^2}{32} - \frac{5695x}{4} + \frac{579348x - 224455}{512x^2 - 512x + 128} - \frac{64317\log(2x - 1)}{32}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2*(3+5*x)**3/(1-2*x)**3,x)
```

```
[Out] -375*x**3/8 - 10425*x**2/32 - 5695*x/4 + (579348*x - 224455)/(512
*x**2 - 512*x + 128) - 64317*log(2*x - 1)/32
```

GIAC/XCAS [A] time = 0.213739, size = 50, normalized size = 0.96

$$-\frac{375}{8}x^3 - \frac{10425}{32}x^2 - \frac{5695}{4}x + \frac{847(684x - 265)}{128(2x - 1)^2} - \frac{64317}{32}\ln(|2x - 1|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)^2/(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] -375/8*x^3 - 10425/32*x^2 - 5695/4*x + 847/128*(684*x - 265)/(2*x
 - 1)^2 - 64317/32*ln(abs(2*x - 1))
```

3.1647 $\int \frac{(2+3x)(3+5x)^3}{(1-2x)^3}\,dx$

Optimal. Leaf size=45

$$-\frac{375x^2}{16}-\frac{2975x}{16}-\frac{8349}{16(1-2x)}+\frac{9317}{64(1-2x)^2}-\frac{2805}{8}\log(1-2x)$$

```
[Out] 9317/(64*(1 - 2*x)^2) - 8349/(16*(1 - 2*x)) - (2975*x)/16 - (375*
x^2)/16 - (2805*Log[1 - 2*x])/8
```

Rubi [A] time = 0.0552636, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{375x^2}{16}-\frac{2975x}{16}-\frac{8349}{16(1-2x)}+\frac{9317}{64(1-2x)^2}-\frac{2805}{8}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)*(3 + 5*x)^3)/(1 - 2*x)^3,x]
```

```
[Out] 9317/(64*(1 - 2*x)^2) - 8349/(16*(1 - 2*x)) - (2975*x)/16 - (375*
x^2)/16 - (2805*Log[1 - 2*x])/8
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{2805\log(-2x+1)}{8}+\int\left(-\frac{2975}{16}\right)dx-\frac{375\int x\,dx}{8}-\frac{8349}{16(-2x+1)}+\frac{9317}{64(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)*(3+5*x)**3/(1-2*x)**3,x)
```

```
[Out] -2805*log(-2*x + 1)/8 + Integral(-2975/16, x) - 375*Integral(x, x
)/8 - 8349/(16*(-2*x + 1)) + 9317/(64*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0228029, size = 46, normalized size = 1.02

$$-\frac{3000x^4+20800x^3-35700x^2-14796x+11220(1-2x)^2\log(1-2x)+8877}{32(1-2x)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)*(3 + 5*x)^3)/(1 - 2*x)^3,x]
```

```
[Out] -(8877 - 14796*x - 35700*x^2 + 20800*x^3 + 3000*x^4 + 11220*(1 -
2*x)^2*Log[1 - 2*x])/(32*(1 - 2*x)^2)
```

Maple [A] time = 0.009, size = 36, normalized size = 0.8

$$-\frac{375\,x^2}{16}-\frac{2975\,x}{16}+\frac{9317}{64\,(-1+2\,x)^2}+\frac{8349}{-16+32\,x}-\frac{2805\,\ln(-1+2\,x)}{8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)*(3+5*x)^3/(1-2*x)^3,x)
```

```
[Out] -375/16*x^2-2975/16*x+9317/64/(-1+2*x)^2+8349/16/(-1+2*x)-2805/8*
ln(-1+2*x)
```

Maxima [A] time = 1.35469, size = 49, normalized size = 1.09

$$-\frac{375}{16}x^2-\frac{2975}{16}x+\frac{121\,(552\,x-199)}{64\,(4\,x^2-4\,x+1)}-\frac{2805}{8}\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)/(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] -375/16*x^2 - 2975/16*x + 121/64*(552*x - 199)/(4*x^2 - 4*x + 1)
- 2805/8*log(2*x - 1)
```

Fricas [A] time = 0.225577, size = 70, normalized size = 1.56

$$-\frac{6000\,x^4+41600\,x^3-46100\,x^2+22440\,\left(4\,x^2-4\,x+1\right)\log(2\,x-1)-54892\,x+24079}{64\,(4\,x^2-4\,x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)/(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -1/64*(6000*x^4 + 41600*x^3 - 46100*x^2 + 22440*(4*x^2 - 4*x + 1)
*log(2*x - 1) - 54892*x + 24079)/(4*x^2 - 4*x + 1)
```

Sympy [A] time = 0.277752, size = 36, normalized size = 0.8

$$-\frac{375x^2}{16}-\frac{2975x}{16}+\frac{66792x-24079}{256x^2-256x+64}-\frac{2805\log(2x-1)}{8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)*(3+5*x)**3/(1-2*x)**3,x)
```

```
[Out] -375*x**2/16 - 2975*x/16 + (66792*x - 24079)/(256*x**2 - 256*x +
64) - 2805*log(2*x - 1)/8
```

GIAC/XCAS [A] time = 0.209548, size = 43, normalized size = 0.96

$$-\frac{375}{16}x^2-\frac{2975}{16}x+\frac{121\,(552\,x-199)}{64\,(2\,x-1)^2}-\frac{2805}{8}\ln(|2\,x-1|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3*(3*x + 2)/(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] -375/16*x^2 - 2975/16*x + 121/64*(552*x - 199)/(2*x - 1)^2 - 2805
/8*ln(abs(2*x - 1))
```

3.1648 $\int \frac{(3+5x)^3}{(1-2x)^3}\,dx$

Optimal. Leaf size=38

$$-\frac{125x}{8}-\frac{1815}{16(1-2x)}+\frac{1331}{32(1-2x)^2}-\frac{825}{16}\log(1-2x)$$

```
[Out] 1331/(32*(1 - 2*x)^2) - 1815/(16*(1 - 2*x)) - (125*x)/8 - (825*Lo
g[1 - 2*x])/16
```

Rubi [A] time = 0.0365286, antiderivative size = 38, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.067

$$-\frac{125x}{8}-\frac{1815}{16(1-2x)}+\frac{1331}{32(1-2x)^2}-\frac{825}{16}\log(1-2x)$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^3/(1 - 2*x)^3,x]
```

```
[Out] 1331/(32*(1 - 2*x)^2) - 1815/(16*(1 - 2*x)) - (125*x)/8 - (825*Lo
g[1 - 2*x])/16
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{825\log(-2x+1)}{16}+\int\left(-\frac{125}{8}\right)dx-\frac{1815}{16(-2x+1)}+\frac{1331}{32(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**3/(1-2*x)**3,x)
```

```
[Out] -825*log(-2*x + 1)/16 + Integral(-125/8, x) - 1815/(16*(-2*x + 1)
) + 1331/(32*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0379039, size = 34, normalized size = 0.89

$$\frac{1}{32}\left(\frac{1000x^2+6260x-2049}{(1-2x)^2}-500x-1650\log(1-2x)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^3/(1 - 2*x)^3,x]
```

```
[Out] (-500*x + (-2049 + 6260*x + 1000*x^2)/(1 - 2*x)^2 - 1650*Log[1 -
2*x])/32
```

Maple [A] time = 0.01, size = 31, normalized size = 0.8

$$-\frac{125\,x}{8}+\frac{1331}{32\,(-1+2\,x)^2}+\frac{1815}{-16+32\,x}-\frac{825\,\ln(-1+2\,x)}{16}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3/(1-2*x)^3,x)
```

```
[Out] -125/8*x+1331/32/(-1+2*x)^2+1815/16/(-1+2*x)-825/16*ln(-1+2*x)
```

Maxima [A] time = 1.34355, size = 42, normalized size = 1.11

$$-\frac{125}{8}\,x+\frac{121\,(60\,x-19)}{32\,(4\,x^2-4\,x+1)}-\frac{825}{16}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3/(2*x - 1)^3,x, algorithm="maxima")
```

```
[Out] -125/8*x + 121/32*(60*x - 19)/(4*x^2 - 4*x + 1) - 825/16*log(2*x
- 1)
```

Fricas [A] time = 0.220185, size = 63, normalized size = 1.66

$$-\frac{2000\,x^3-2000\,x^2+1650\,\left(4\,x^2-4\,x+1\right)\,\log\left(2\,x-1\right)-6760\,x+2299}{32\,(4\,x^2-4\,x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3/(2*x - 1)^3,x, algorithm="fricas")
```

```
[Out] -1/32*(2000*x^3 - 2000*x^2 + 1650*(4*x^2 - 4*x + 1)*log(2*x - 1)
- 6760*x + 2299)/(4*x^2 - 4*x + 1)
```

Sympy [A] time = 0.253541, size = 29, normalized size = 0.76

$$-\frac{125x}{8}+\frac{7260x-2299}{128x^2-128x+32}-\frac{825\log\left(2x-1\right)}{16}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3/(1-2*x)**3,x)
```

```
[Out] -125*x/8 + (7260*x - 2299)/(128*x**2 - 128*x + 32) - 825*log(2*x
- 1)/16
```

GIAC/XCAS [A] time = 0.207899, size = 36, normalized size = 0.95

$$-\frac{125}{8}\,x+\frac{121\,(60\,x-19)}{32\,(2\,x-1)^2}-\frac{825}{16}\,\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3/(2*x - 1)^3,x, algorithm="giac")
```

```
[Out] -125/8*x + 121/32*(60*x - 19)/(2*x - 1)^2 - 825/16*ln(abs(2*x - 1
))
```

3.1649 $\int \frac{(3+5x)^3}{(1-2x)^3(2+3x)}\,dx$

Optimal. Leaf size=43

$$-\frac{1089}{49(1-2x)}+\frac{1331}{112(1-2x)^2}-\frac{14289\log(1-2x)}{2744}-\frac{\log(3x+2)}{1029}$$

```
[Out] 1331/(112*(1 - 2*x)^2) - 1089/(49*(1 - 2*x)) - (14289*Log[1 - 2*x
])/2744 - Log[2 + 3*x]/1029
```

Rubi [A] time = 0.0502588, antiderivative size = 43, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{1089}{49(1-2x)}+\frac{1331}{112(1-2x)^2}-\frac{14289\log(1-2x)}{2744}-\frac{\log(3x+2)}{1029}$$

Antiderivative was successfully verified.

```
[In] Int[(3 + 5*x)^3/((1 - 2*x)^3*(2 + 3*x)),x]
```

```
[Out] 1331/(112*(1 - 2*x)^2) - 1089/(49*(1 - 2*x)) - (14289*Log[1 - 2*x
])/2744 - Log[2 + 3*x]/1029
```

Rubi in Sympy [A] time = 7.79384, size = 34, normalized size = 0.79

$$-\frac{14289\log(-2x+1)}{2744}-\frac{\log(3x+2)}{1029}-\frac{1089}{49(-2x+1)}+\frac{1331}{112(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((3+5*x)**3/(1-2*x)**3/(2+3*x),x)
```

```
[Out] -14289*log(-2*x + 1)/2744 - log(3*x + 2)/1029 - 1089/(49*(-2*x +
1)) + 1331/(112*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0389243, size = 35, normalized size = 0.81

$$\frac{\frac{2541(288x-67)}{(1-2x)^2}-85734\log(3-6x)-16\log(3x+2)}{16464}$$

Antiderivative was successfully verified.

```
[In] Integrate[(3 + 5*x)^3/((1 - 2*x)^3*(2 + 3*x)),x]
```

```
[Out] ((2541*(-67 + 288*x))/(1 - 2*x)^2 - 85734*Log[3 - 6*x] - 16*Log[2
 + 3*x])/16464
```

Maple [A] time = 0.01, size = 36, normalized size = 0.8

$$-\frac{\ln(2+3x)}{1029}+\frac{1331}{112(-1+2x)^2}+\frac{1089}{-49+98x}-\frac{14289\ln(-1+2x)}{2744}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3/(1-2*x)^3/(2+3*x),x)
```

```
[Out] -1/1029*ln(2+3*x)+1331/112/(-1+2*x)^2+1089/49/(-1+2*x)-14289/2744
*ln(-1+2*x)
```

Maxima [A] time = 1.34674, size = 49, normalized size = 1.14

$$\frac{121\,(288\,x-67)}{784\,(4\,x^2-4\,x+1)}-\frac{1}{1029}\,\log\left(3\,x+2\right)-\frac{14289}{2744}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^3/((3*x + 2)*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] 121/784*(288*x - 67)/(4*x^2 - 4*x + 1) - 1/1029*log(3*x + 2) - 14
289/2744*log(2*x - 1)
```

Fricas [A] time = 0.219914, size = 74, normalized size = 1.72

$$-\frac{16\,\left(4\,x^2-4\,x+1\right)\,\log\left(3\,x+2\right)+85734\,\left(4\,x^2-4\,x+1\right)\,\log\left(2\,x-1\right)-731808\,x+170247}{16464\,(4\,x^2-4\,x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^3/((3*x + 2)*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] -1/16464*(16*(4*x^2 - 4*x + 1)*log(3*x + 2) + 85734*(4*x^2 - 4*x
+ 1)*log(2*x - 1) - 731808*x + 170247)/(4*x^2 - 4*x + 1)
```

Sympy [A] time = 0.423795, size = 32, normalized size = 0.74

$$\frac{34848x-8107}{3136x^2-3136x+784}-\frac{14289\log\left(x-\frac{1}{2}\right)}{2744}-\frac{\log\left(x+\frac{2}{3}\right)}{1029}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3/(1-2*x)**3/(2+3*x),x)
```

```
[Out] (34848*x - 8107)/(3136*x**2 - 3136*x + 784) - 14289*log(x - 1/2)/
2744 - log(x + 2/3)/1029
```

GIAC/XCAS [A] time = 0.21185, size = 45, normalized size = 1.05

$$\frac{121\,(288\,x-67)}{784\,(2\,x-1)^2}-\frac{1}{1029}\,\ln\left(|3\,x+2|\right)-\frac{14289}{2744}\,\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3/((3*x + 2)*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] 121/784*(288*x - 67)/(2*x - 1)^2 - 1/1029*ln(abs(3*x + 2)) - 1428
9/2744*ln(abs(2*x - 1))
```

3.1650 $\int \frac{(3+5x)^3}{(1-2x)^3(2+3x)^2} dx$

Optimal. Leaf size=54

$$-\frac{4719}{1372(1-2x)}+\frac{1}{1029(3x+2)}+\frac{1331}{392(1-2x)^2}-\frac{33\log(1-2x)}{2401}+\frac{33\log(3x+2)}{2401}$$

```
[Out] 1331/(392*(1 - 2*x)^2) - 4719/(1372*(1 - 2*x)) + 1/(1029*(2 + 3*x
)) - (33*Log[1 - 2*x])/2401 + (33*Log[2 + 3*x])/2401
```

Rubi [A] time = 0.0659779, antiderivative size = 54, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{4719}{1372(1-2x)}+\frac{1}{1029(3x+2)}+\frac{1331}{392(1-2x)^2}-\frac{33\log(1-2x)}{2401}+\frac{33\log(3x+2)}{2401}$$

Antiderivative was successfully verified.

```
[In] Int[(3 + 5*x)^3/((1 - 2*x)^3*(2 + 3*x)^2),x]
```

```
[Out] 1331/(392*(1 - 2*x)^2) - 4719/(1372*(1 - 2*x)) + 1/(1029*(2 + 3*x
)) - (33*Log[1 - 2*x])/2401 + (33*Log[2 + 3*x])/2401
```

Rubi in Sympy [A] time = 8.97568, size = 42, normalized size = 0.78

$$-\frac{33\log(-2x+1)}{2401}+\frac{33\log(3x+2)}{2401}+\frac{1}{1029(3x+2)}-\frac{4719}{1372(-2x+1)}+\frac{1331}{392(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((3+5*x)**3/(1-2*x)**3/(2+3*x)**2,x)
```

```
[Out] -33*log(-2*x + 1)/2401 + 33*log(3*x + 2)/2401 + 1/(1029*(3*x + 2)
) - 4719/(1372*(-2*x + 1)) + 1331/(392*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0588081, size = 47, normalized size = 0.87

$$\frac{\frac{7(169916x^2+112135x-718)}{(1-2x)^2(3x+2)}-792\log(1-2x)+792\log(6x+4)}{57624}$$

Antiderivative was successfully verified.

```
[In] Integrate[(3 + 5*x)^3/((1 - 2*x)^3*(2 + 3*x)^2),x]
```

```
[Out] ((7*(-718 + 112135*x + 169916*x^2))/((1 - 2*x)^2*(2 + 3*x)) - 792
*Log[1 - 2*x] + 792*Log[4 + 6*x])/57624
```

Maple [A] time = 0.014, size = 45, normalized size = 0.8

$$\frac{1}{2058+3087\,x}+\frac{33\,\ln(2+3\,x)}{2401}+\frac{1331}{392\,(-1+2\,x)^2}+\frac{4719}{-1372+2744\,x}-\frac{33\,\ln(-1+2\,x)}{2401}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3/(1-2*x)^3/(2+3*x)^2,x)
```

```
[Out] 1/1029/(2+3*x)+33/2401*ln(2+3*x)+1331/392/(-1+2*x)^2+4719/1372/(-
1+2*x)-33/2401*ln(-1+2*x)
```

Maxima [A] time = 1.34303, size = 62, normalized size = 1.15

$$\frac{169916\,x^2+112135\,x-718}{8232\,(12\,x^3-4\,x^2-5\,x+2)}+\frac{33}{2401}\,\log(3\,x+2)-\frac{33}{2401}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^3/((3*x + 2)^2*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] 1/8232*(169916*x^2 + 112135*x - 718)/(12*x^3 - 4*x^2 - 5*x + 2) +
 33/2401*log(3*x + 2) - 33/2401*log(2*x - 1)
```

Fricas [A] time = 0.226436, size = 101, normalized size = 1.87

$$\frac{1189412\,x^2+792\,\left(12\,x^3-4\,x^2-5\,x+2\right)\log(3\,x+2)-792\,\left(12\,x^3-4\,x^2-5\,x+2\right)\log(2\,x-1)+784945\,x-5026}{57624\,(12\,x^3-4\,x^2-5\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^3/((3*x + 2)^2*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] 1/57624*(1189412*x^2 + 792*(12*x^3 - 4*x^2 - 5*x + 2)*log(3*x + 2
) - 792*(12*x^3 - 4*x^2 - 5*x + 2)*log(2*x - 1) + 784945*x - 5026
)/(12*x^3 - 4*x^2 - 5*x + 2)
```

Sympy [A] time = 0.437043, size = 44, normalized size = 0.81

$$\frac{169916x^2+112135x-718}{98784x^3-32928x^2-41160x+16464}-\frac{33\log\left(x-\frac{1}{2}\right)}{2401}+\frac{33\log\left(x+\frac{2}{3}\right)}{2401}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3/(1-2*x)**3/(2+3*x)**2,x)
```

```
[Out] (169916*x**2 + 112135*x - 718)/(98784*x**3 - 32928*x**2 - 41160*x
 + 16464) - 33*log(x - 1/2)/2401 + 33*log(x + 2/3)/2401
```

GIAC/XCAS [A] time = 0.211492, size = 69, normalized size = 1.28

$$\frac{1}{1029\,(3\,x+2)}-\frac{1089\left(\frac{14}{3\,x+2}-15\right)}{4802\left(\frac{7}{3\,x+2}-2\right)^2}-\frac{33}{2401}\ln\left(\left|-\frac{7}{3\,x+2}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^3/((3*x + 2)^2*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] 1/1029/(3*x + 2) - 1089/4802*(14/(3*x + 2) - 15)/(7/(3*x + 2) - 2
)^2 - 33/2401*ln(abs(-7/(3*x + 2) + 2))
```

3.1651 $\int \frac{(3+5x)^3}{(1-2x)^3(2+3x)^3} dx$

Optimal. Leaf size=65

$$-\frac{363}{2401(1-2x)}-\frac{33}{2401(3x+2)}+\frac{1331}{1372(1-2x)^2}+\frac{1}{2058(3x+2)^2}+\frac{1023\log(1-2x)}{16807}-\frac{1023\log(3x+2)}{16807}$$

```
[Out] 1331/(1372*(1 - 2*x)^2) - 363/(2401*(1 - 2*x)) + 1/(2058*(2 + 3*x
)^2) - 33/(2401*(2 + 3*x)) + (1023*Log[1 - 2*x])/16807 - (1023*Lo
g[2 + 3*x])/16807
```

Rubi [A] time = 0.0738297, antiderivative size = 65, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{363}{2401(1-2x)}-\frac{33}{2401(3x+2)}+\frac{1331}{1372(1-2x)^2}+\frac{1}{2058(3x+2)^2}+\frac{1023\log(1-2x)}{16807}-\frac{1023\log(3x+2)}{16807}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^3/((1 - 2*x)^3*(2 + 3*x)^3),x]
```

```
[Out] 1331/(1372*(1 - 2*x)^2) - 363/(2401*(1 - 2*x)) + 1/(2058*(2 + 3*x
)^2) - 33/(2401*(2 + 3*x)) + (1023*Log[1 - 2*x])/16807 - (1023*Lo
g[2 + 3*x])/16807
```

Rubi in Sympy [A] time = 10.2325, size = 53, normalized size = 0.82

$$\frac{1023\log(-2x+1)}{16807}-\frac{1023\log(3x+2)}{16807}-\frac{33}{2401(3x+2)}+\frac{1}{2058(3x+2)^2}-\frac{363}{2401(-2x+1)}+\frac{1331}{1372(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**3/(1-2*x)**3/(2+3*x)**3,x)
```

```
[Out] 1023*log(-2*x + 1)/16807 - 1023*log(3*x + 2)/16807 - 33/(2401*(3*
x + 2)) + 1/(2058*(3*x + 2)**2) - 363/(2401*(-2*x + 1)) + 1331/(1
372*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0538208, size = 48, normalized size = 0.74

$$\frac{\frac{7(73656x^3+318539x^2+319912x+93602)}{(6x^2+x-2)^2}+12276\log(1-2x)-12276\log(3x+2)}{201684}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^3/((1 - 2*x)^3*(2 + 3*x)^3),x]
```

```
[Out] ((7*(93602 + 319912*x + 318539*x^2 + 73656*x^3))/(-2 + x + 6*x^2)
^2 + 12276*Log[1 - 2*x] - 12276*Log[2 + 3*x])/201684
```

Maple [A] time = 0.014, size = 54, normalized size = 0.8

$$\frac{1}{2058(2+3x)^2}-\frac{33}{4802+7203x}-\frac{1023\ln(2+3x)}{16807}+\frac{1331}{1372(-1+2x)^2}+\frac{363}{-2401+4802x}+\frac{1023\ln(-1+2x)}{16807}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3/(1-2*x)^3/(2+3*x)^3,x)
```

```
[Out] 1/2058/(2+3*x)^2-33/2401/(2+3*x)-1023/16807*ln(2+3*x)+1331/1372/(
-1+2*x)^2+363/2401/(-1+2*x)+1023/16807*ln(-1+2*x)
```

Maxima [A] time = 1.34883, size = 76, normalized size = 1.17

$$\frac{73656\,x^3+318539\,x^2+319912\,x+93602}{28812\,(36\,x^4+12\,x^3-23\,x^2-4\,x+4)}-\frac{1023}{16807}\,\log(3\,x+2)+\frac{1023}{16807}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^3/((3*x + 2)^3*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] 1/28812*(73656*x^3 + 318539*x^2 + 319912*x + 93602)/(36*x^4 + 12*
x^3 - 23*x^2 - 4*x + 4) - 1023/16807*log(3*x + 2) + 1023/16807*lo
g(2*x - 1)
```

Fricas [A] time = 0.224346, size = 128, normalized size = 1.97

$$\frac{515592\,x^3+2229773\,x^2-12276\,\left(36\,x^4+12\,x^3-23\,x^2-4\,x+4\right)\log(3\,x+2)+12276\,\left(36\,x^4+12\,x^3-23\,x^2-4\,x+4\right)\log}{201684\,(36\,x^4+12\,x^3-23\,x^2-4\,x+4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^3/((3*x + 2)^3*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] 1/201684*(515592*x^3 + 2229773*x^2 - 12276*(36*x^4 + 12*x^3 - 23*
x^2 - 4*x + 4)*log(3*x + 2) + 12276*(36*x^4 + 12*x^3 - 23*x^2 - 4
*x + 4)*log(2*x - 1) + 2239384*x + 655214)/(36*x^4 + 12*x^3 - 23*
x^2 - 4*x + 4)
```

Sympy [A] time = 0.471052, size = 54, normalized size = 0.83

$$\frac{73656x^3+318539x^2+319912x+93602}{1037232x^4+345744x^3-662676x^2-115248x+115248}+\frac{1023\log\left(x-\frac{1}{2}\right)}{16807}-\frac{1023\log\left(x+\frac{2}{3}\right)}{16807}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3/(1-2*x)**3/(2+3*x)**3,x)
```

```
[Out] (73656*x**3 + 318539*x**2 + 319912*x + 93602)/(1037232*x**4 + 345
744*x**3 - 662676*x**2 - 115248*x + 115248) + 1023*log(x - 1/2)/1
6807 - 1023*log(x + 2/3)/16807
```

GIAC/XCAS [A] time = 0.228173, size = 62, normalized size = 0.95

$$\frac{73656\,x^3+318539\,x^2+319912\,x+93602}{28812\,(6\,x^2+x-2)^2}-\frac{1023}{16807}\ln(|3\,x+2|)+\frac{1023}{16807}\ln(|2\,x-1|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^3/((3*x + 2)^3*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] 1/28812*(73656*x^3 + 318539*x^2 + 319912*x + 93602)/(6*x^2 + x -
2)^2 - 1023/16807*ln(abs(3*x + 2)) + 1023/16807*ln(abs(2*x - 1))
```

3.1652 $\int \frac{(3+5x)^3}{(1-2x)^3(2+3x)^4}\,dx$

Optimal. Leaf size=76

$$\frac{3267}{16807(1-2x)}+\frac{1023}{16807(3x+2)}+\frac{1331}{4802(1-2x)^2}-\frac{33}{4802(3x+2)^2}+\frac{1}{3087(3x+2)^3}-\frac{7755\log(1-2x)}{117649}+\frac{7755\log(3x+2)}{117649}$$

```
[Out] 1331/(4802*(1 - 2*x)^2) + 3267/(16807*(1 - 2*x)) + 1/(3087*(2 + 3
*x)^3) - 33/(4802*(2 + 3*x)^2) + 1023/(16807*(2 + 3*x)) - (7755*L
og[1 - 2*x])/117649 + (7755*Log[2 + 3*x])/117649
```

Rubi [A] time = 0.0869663, antiderivative size = 76, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{3267}{16807(1-2x)}+\frac{1023}{16807(3x+2)}+\frac{1331}{4802(1-2x)^2}-\frac{33}{4802(3x+2)^2}+\frac{1}{3087(3x+2)^3}-\frac{7755\log(1-2x)}{117649}+\frac{7755\log(3x+2)}{117649}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^3/((1 - 2*x)^3*(2 + 3*x)^4),x]
```

```
[Out] 1331/(4802*(1 - 2*x)^2) + 3267/(16807*(1 - 2*x)) + 1/(3087*(2 + 3
*x)^3) - 33/(4802*(2 + 3*x)^2) + 1023/(16807*(2 + 3*x)) - (7755*L
og[1 - 2*x])/117649 + (7755*Log[2 + 3*x])/117649
```

Rubi in Sympy [A] time = 11.6014, size = 63, normalized size = 0.83

$$-\frac{7755\log(-2x+1)}{117649}+\frac{7755\log(3x+2)}{117649}+\frac{1023}{16807(3x+2)}-\frac{33}{4802(3x+2)^2}+\frac{1}{3087(3x+2)^3}+\frac{3267}{16807(-2x+1)}+\frac{1331}{4802(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**3/(1-2*x)**3/(2+3*x)**4,x)
```

```
[Out] -7755*log(-2*x + 1)/117649 + 7755*log(3*x + 2)/117649 + 1023/(168
07*(3*x + 2)) - 33/(4802*(3*x + 2)**2) + 1/(3087*(3*x + 2)**3) +
3267/(16807*(-2*x + 1)) + 1331/(4802*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0898906, size = 57, normalized size = 0.75

$$\frac{\frac{7(-2512620x^4-2303235x^3+3054740x^2+4131175x+1210868)}{(1-2x)^2(3x+2)^3}-139590\log(1-2x)+139590\log(6x+4)}{2117682}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^3/((1 - 2*x)^3*(2 + 3*x)^4),x]
```

```
[Out] ((7*(1210868 + 4131175*x + 3054740*x^2 - 2303235*x^3 - 2512620*x^
4))/((1 - 2*x)^2*(2 + 3*x)^3) - 139590*Log[1 - 2*x] + 139590*Log[
4 + 6*x])/2117682
```

Maple [A] time = 0.015, size = 63, normalized size = 0.8

$$\frac{1}{3087\,(2+3\,x)^{3}}-\frac{33}{4802\,(2+3\,x)^{2}}+\frac{1023}{33614+50421\,x}+\frac{7755\,\ln(2+3\,x)}{117649}+\frac{1331}{4802\,(-1+2\,x)^{2}}-\frac{3267}{-16807+33614\,x}-\frac{7755\,\ln(-1+2\,x)}{117649}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3/(1-2*x)^3/(2+3*x)^4,x)
```

```
[Out] 1/3087/(2+3*x)^3-33/4802/(2+3*x)^2+1023/16807/(2+3*x)+7755/117649
*ln(2+3*x)+1331/4802/(-1+2*x)^2-3267/16807/(-1+2*x)-7755/117649*l
n(-1+2*x)
```

Maxima [A] time = 1.34516, size = 89, normalized size = 1.17

$$-\frac{2512620\,x^{4}+2303235\,x^{3}-3054740\,x^{2}-4131175\,x-1210868}{302526\,(108\,x^{5}+108\,x^{4}-45\,x^{3}-58\,x^{2}+4\,x+8)}+\frac{7755}{117649}\,\log(3\,x+2)-\frac{7755}{117649}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3/((3*x + 2)^4*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] -1/302526*(2512620*x^4 + 2303235*x^3 - 3054740*x^2 - 4131175*x -
1210868)/(108*x^5 + 108*x^4 - 45*x^3 - 58*x^2 + 4*x + 8) + 7755/1
17649*log(3*x + 2) - 7755/117649*log(2*x - 1)
```

Fricas [A] time = 0.215503, size = 155, normalized size = 2.04

$$-\frac{17588340\,x^{4}+16122645\,x^{3}-21383180\,x^{2}-139590\left(108\,x^{5}+108\,x^{4}-45\,x^{3}-58\,x^{2}+4\,x+8\right)\log(3\,x+2)+139590\,(10\ldots}{2117682\,(108\,x^{5}+108\,x^{4}-45\,x^{3}-58\,x^{2}+4\,x+\ldots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3/((3*x + 2)^4*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] -1/2117682*(17588340*x^4 + 16122645*x^3 - 21383180*x^2 - 139590*(
108*x^5 + 108*x^4 - 45*x^3 - 58*x^2 + 4*x + 8)*log(3*x + 2) + 139
590*(108*x^5 + 108*x^4 - 45*x^3 - 58*x^2 + 4*x + 8)*log(2*x - 1)
- 28918225*x - 8476076)/(108*x^5 + 108*x^4 - 45*x^3 - 58*x^2 + 4*
x + 8)
```

Sympy [A] time = 0.524671, size = 65, normalized size = 0.86

$$-\frac{2512620x^{4}+2303235x^{3}-3054740x^{2}-4131175x-1210868}{32672808x^{5}+32672808x^{4}-13613670x^{3}-17546508x^{2}+1210104x+2420208}-\frac{7755\log\left(x-\frac{1}{2}\right)}{117649}+\frac{7755\log\left(x+\frac{2}{3}\right)}{117649}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3/(1-2*x)**3/(2+3*x)**4,x)
```

```
[Out] -(2512620*x**4 + 2303235*x**3 - 3054740*x**2 - 4131175*x - 121086
8)/(32672808*x**5 + 32672808*x**4 - 13613670*x**3 - 17546508*x**2
 + 1210104*x + 2420208) - 7755*log(x - 1/2)/117649 + 7755*log(x +
 2/3)/117649
```

GIAC/XCAS [A] time = 0.209082, size = 74, normalized size = 0.97

$$-\frac{2512620\,x^4+2303235\,x^3-3054740\,x^2-4131175\,x-1210868}{302526\,(3\,x+2)^3(2\,x-1)^2}+\frac{7755}{117649}\,\ln\left(|3\,x+2|\right)-\frac{7755}{117649}\,\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^3/((3*x + 2)^4*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] -1/302526*(2512620*x^4 + 2303235*x^3 - 3054740*x^2 - 4131175*x -
1210868)/((3*x + 2)^3*(2*x - 1)^2) + 7755/117649*ln(abs(3*x + 2))
 - 7755/117649*ln(abs(2*x - 1))
```

3.1653 $\int \frac{(3+5x)^3}{(1-2x)^3(2+3x)^5}\,dx$

Optimal. Leaf size=87

$$\frac{14520}{117649(1-2x)}-\frac{7755}{117649(3x+2)}+\frac{1331}{16807(1-2x)^2}+\frac{1023}{33614(3x+2)^2}-\frac{11}{2401(3x+2)^3}+\frac{1}{4116(3x+2)^4}-\frac{59070\log(1-2x)}{823543}+\frac{59070\log(3x+2)}{823543}$$

```
[Out] 1331/(16807*(1 - 2*x)^2) + 14520/(117649*(1 - 2*x)) + 1/(4116*(2
+ 3*x)^4) - 11/(2401*(2 + 3*x)^3) + 1023/(33614*(2 + 3*x)^2) - 77
55/(117649*(2 + 3*x)) - (59070*Log[1 - 2*x])/823543 + (59070*Log[
2 + 3*x])/823543
```

Rubi [A] time = 0.10478, antiderivative size = 87, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{14520}{117649(1-2x)}-\frac{7755}{117649(3x+2)}+\frac{1331}{16807(1-2x)^2}+\frac{1023}{33614(3x+2)^2}-\frac{11}{2401(3x+2)^3}+\frac{1}{4116(3x+2)^4}-\frac{59070\log(1-2x)}{823543}+\frac{59070\log(3x+2)}{823543}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^3/((1 - 2*x)^3*(2 + 3*x)^5),x]
```

```
[Out] 1331/(16807*(1 - 2*x)^2) + 14520/(117649*(1 - 2*x)) + 1/(4116*(2
+ 3*x)^4) - 11/(2401*(2 + 3*x)^3) + 1023/(33614*(2 + 3*x)^2) - 77
55/(117649*(2 + 3*x)) - (59070*Log[1 - 2*x])/823543 + (59070*Log[
2 + 3*x])/823543
```

Rubi in Sympy [A] time = 13.0343, size = 73, normalized size = 0.84

$$-\frac{59070\log(-2x+1)}{823543}+\frac{59070\log(3x+2)}{823543}-\frac{7755}{117649(3x+2)}+\frac{1023}{33614(3x+2)^2}-\frac{11}{2401(3x+2)^3}+\frac{1}{4116(3x+2)^4}+\frac{14520}{117649(-2x+1)}+\frac{1331}{16807(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**3/(1-2*x)**3/(2+3*x)**5,x)
```

```
[Out] -59070*log(-2*x + 1)/823543 + 59070*log(3*x + 2)/823543 - 7755/(1
17649*(3*x + 2)) + 1023/(33614*(3*x + 2)**2) - 11/(2401*(3*x + 2)
**3) + 1/(4116*(3*x + 2)**4) + 14520/(117649*(-2*x + 1)) + 1331/(
16807*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0932203, size = 64, normalized size = 0.74

$$\frac{-\frac{7(38277360x^5+60605820x^4+8860500x^3-32767930x^2-21371408x-3991495)}{4(1-2x)^2(3x+2)^4}-177210\log(1-2x)+177210\log(6x+4)}{2470629}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^3/((1 - 2*x)^3*(2 + 3*x)^5),x]
```

```
[Out] ((-7*(-3991495 - 21371408*x - 32767930*x^2 + 8860500*x^3 + 606058
20*x^4 + 38277360*x^5))/(4*(1 - 2*x)^2*(2 + 3*x)^4) - 177210*Log[
1 - 2*x] + 177210*Log[4 + 6*x])/2470629
```

Maple [A] time = 0.016, size = 72, normalized size = 0.8

$$\frac{1}{4116\,(2+3\,x)^4}-\frac{11}{2401\,(2+3\,x)^3}+\frac{1023}{33614\,(2+3\,x)^2}-\frac{7755}{235298+352947\,x}+\frac{59070\,\ln(2+3\,x)}{823543}+\frac{1331}{16807\,(-1+2\,x)^2}-\frac{14520}{-117649+235298\,x}-\frac{59070\,\ln(-1+2\,x)}{823543}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3/(1-2*x)^3/(2+3*x)^5,x)
```

```
[Out] 1/4116/(2+3*x)^4-11/2401/(2+3*x)^3+1023/33614/(2+3*x)^2-7755/1176
49/(2+3*x)+59070/823543*ln(2+3*x)+1331/16807/(-1+2*x)^2-14520/117
649/(-1+2*x)-59070/823543*ln(-1+2*x)
```

Maxima [A] time = 1.35296, size = 103, normalized size = 1.18

$$-\frac{38277360\,x^5+60605820\,x^4+8860500\,x^3-32767930\,x^2-21371408\,x-3991495}{1411788\,(324\,x^6+540\,x^5+81\,x^4-264\,x^3-104\,x^2+32\,x+16)}+\frac{59070}{823543}\,\log(3\,x+2)-\frac{59070}{823543}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3/((3*x + 2)^5*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] -1/1411788*(38277360*x^5 + 60605820*x^4 + 8860500*x^3 - 32767930*
x^2 - 21371408*x - 3991495)/(324*x^6 + 540*x^5 + 81*x^4 - 264*x^3
 - 104*x^2 + 32*x + 16) + 59070/823543*log(3*x + 2) - 59070/82354
3*log(2*x - 1)
```

Fricas [A] time = 0.214253, size = 182, normalized size = 2.09

$$-\frac{267941520\,x^5+424240740\,x^4+62023500\,x^3-229375510\,x^2-708840\,\left(324\,x^6+540\,x^5+81\,x^4-264\,x^3-104\,x^2+32\,x+\right.}{9882516\,(324\,x^6+540\,x^5+81\,x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(5*x + 3)^3/((3*x + 2)^5*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] -1/9882516*(267941520*x^5 + 424240740*x^4 + 62023500*x^3 - 229375
510*x^2 - 708840*(324*x^6 + 540*x^5 + 81*x^4 - 264*x^3 - 104*x^2
+ 32*x + 16)*log(3*x + 2) + 708840*(324*x^6 + 540*x^5 + 81*x^4 -
264*x^3 - 104*x^2 + 32*x + 16)*log(2*x - 1) - 149599856*x - 27940
465)/(324*x^6 + 540*x^5 + 81*x^4 - 264*x^3 - 104*x^2 + 32*x + 16)
```

Sympy [A] time = 0.626715, size = 75, normalized size = 0.86

$$-\frac{38277360x^5+60605820x^4+8860500x^3-32767930x^2-21371408x-3991495}{457419312x^6+762365520x^5+114354828x^4-372712032x^3-146825952x^2+45177216x+22588608}-\frac{59070\log\left(x-\frac{1}{2}\right)}{823543}+\frac{59070\log\left(x+\frac{2}{3}\right)}{823543}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3/(1-2*x)**3/(2+3*x)**5,x)
```

```
[Out] -(38277360*x**5 + 60605820*x**4 + 8860500*x**3 - 32767930*x**2 -
21371408*x - 3991495)/(457419312*x**6 + 762365520*x**5 + 11435482
8*x**4 - 372712032*x**3 - 146825952*x**2 + 45177216*x + 22588608)
 - 59070*log(x - 1/2)/823543 + 59070*log(x + 2/3)/823543
```

GIAC/XCAS [A] time = 0.212454, size = 105, normalized size = 1.21

$$-\frac{7755}{117649\,(3\,x+2)}+\frac{4356\,\left(\frac{217}{3\,x+2}-51\right)}{823543\,\left(\frac{7}{3\,x+2}-2\right)^{2}}+\frac{1023}{33614\,(3\,x+2)^{2}}-\frac{11}{2401\,(3\,x+2)^{3}}+\frac{1}{4116\,(3\,x+2)^{4}}-\frac{59070}{823543}\ln\left(\left|-\frac{7}{3\,x+2}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(5*x + 3)^3/((3*x + 2)^5*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] -7755/117649/(3*x + 2) + 4356/823543*(217/(3*x + 2) - 51)/(7/(3*x
 + 2) - 2)^2 + 1023/33614/(3*x + 2)^2 - 11/2401/(3*x + 2)^3 + 1/4
116/(3*x + 2)^4 - 59070/823543*ln(abs(-7/(3*x + 2) + 2))
```

3.1654 $\int \frac{(2+3x)^8}{(1-2x)^3(3+5x)}\,dx$

Optimal. Leaf size=76

$$-\frac{6561x^5}{200}-\frac{408969x^4}{1600}-\frac{124416x^3}{125}-\frac{110180817x^2}{40000}-\frac{2941619571x}{400000}-\frac{188591347}{30976(1-2x)}+\frac{5764801}{5632(1-2x)^2}-\frac{2644396573\log(1-2x)}{340736}+\frac{\log(5x+3)}{20796875}$$

```
[Out] 5764801/(5632*(1 - 2*x)^2) - 188591347/(30976*(1 - 2*x)) - (29416
19571*x)/400000 - (110180817*x^2)/40000 - (124416*x^3)/125 - (408
969*x^4)/1600 - (6561*x^5)/200 - (2644396573*Log[1 - 2*x])/340736
 + Log[3 + 5*x]/20796875
```

Rubi [A] time = 0.0906294, antiderivative size = 76, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{6561x^5}{200}-\frac{408969x^4}{1600}-\frac{124416x^3}{125}-\frac{110180817x^2}{40000}-\frac{2941619571x}{400000}-\frac{188591347}{30976(1-2x)}+\frac{5764801}{5632(1-2x)^2}-\frac{2644396573\log(1-2x)}{340736}+\frac{\log(5x+3)}{20796875}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^8/((1 - 2*x)^3*(3 + 5*x)),x]
```

```
[Out] 5764801/(5632*(1 - 2*x)^2) - 188591347/(30976*(1 - 2*x)) - (29416
19571*x)/400000 - (110180817*x^2)/40000 - (124416*x^3)/125 - (408
969*x^4)/1600 - (6561*x^5)/200 - (2644396573*Log[1 - 2*x])/340736
 + Log[3 + 5*x]/20796875
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{6561x^5}{200}-\frac{408969x^4}{1600}-\frac{124416x^3}{125}-\frac{2644396573\log(-2x+1)}{340736}+\frac{\log(5x+3)}{20796875}+\int\left(-\frac{2941619571}{400000}\right)dx-\frac{110180817\int x\,dx}{20000}-\frac{188591347}{30976(-2x+1)}+\frac{5764801}{5632(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**8/(1-2*x)**3/(3+5*x),x)
```

```
[Out] -6561*x**5/200 - 408969*x**4/1600 - 124416*x**3/125 - 2644396573*
log(-2*x + 1)/340736 + log(5*x + 3)/20796875 + Integral(-29416195
71/400000, x) - 110180817*Integral(x, x)/20000 - 188591347/(30976
*(-2*x + 1)) + 5764801/(5632*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0768206, size = 98, normalized size = 1.29

$$-\frac{27}{200}(3x+2)^5-\frac{2889(3x+2)^4}{1600}-\frac{17019(3x+2)^3}{1000}-\frac{5992353(3x+2)^2}{40000}-\frac{631722537(3x+2)}{400000}+\frac{188591347}{30976(2x-1)}+\frac{5764801}{5632(1-2x)^2}-\frac{2644396573\log(3-6x)}{340736}+\frac{\log(-3(5x+3))}{20796875}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^8/((1 - 2*x)^3*(3 + 5*x)),x]
```

```
[Out] 5764801/(5632*(1 - 2*x)^2) + 188591347/(30976*(-1 + 2*x)) - (6317
22537*(2 + 3*x))/400000 - (5992353*(2 + 3*x)^2)/40000 - (17019*(2
 + 3*x)^3)/1000 - (2889*(2 + 3*x)^4)/1600 - (27*(2 + 3*x)^5)/200
- (2644396573*Log[3 - 6*x])/340736 + Log[-3*(3 + 5*x)]/20796875
```

Maple [A] time = 0.013, size = 59, normalized size = 0.8

$$-\frac{6561\,x^5}{200}-\frac{408969\,x^4}{1600}-\frac{124416\,x^3}{125}-\frac{110180817\,x^2}{40000}-\frac{2941619571\,x}{400000}+\frac{\ln(3+5\,x)}{20796875}+\frac{5764801}{5632\,(-1+2\,x)^2}+\frac{188591347}{-30976+61952\,x}-\frac{2644396573\,\ln(-1+2\,x)}{340736}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^8/(1-2*x)^3/(3+5*x),x)
```

```
[Out] -6561/200*x^5-408969/1600*x^4-124416/125*x^3-110180817/40000*x^2-
2941619571/400000*x+1/20796875*ln(3+5*x)+5764801/5632/(-1+2*x)^2+
188591347/30976/(-1+2*x)-2644396573/340736*ln(-1+2*x)
```

Maxima [A] time = 1.34522, size = 80, normalized size = 1.05

$$-\frac{6561}{200}\,x^5-\frac{408969}{1600}\,x^4-\frac{124416}{125}\,x^3-\frac{110180817}{40000}\,x^2-\frac{2941619571}{400000}\,x+\frac{823543\,(916\,x-381)}{61952\,(4\,x^2-4\,x+1)}+\frac{1}{20796875}\,\log(5\,x+3)-\frac{2644396573}{340736}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^8/((5*x + 3)*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] -6561/200*x^5 - 408969/1600*x^4 - 124416/125*x^3 - 110180817/4000
0*x^2 - 2941619571/400000*x + 823543/61952*(916*x - 381)/(4*x^2 -
 4*x + 1) + 1/20796875*log(5*x + 3) - 2644396573/340736*log(2*x -
 1)
```

Fricas [A] time = 0.21844, size = 115, normalized size = 1.51

$$-\frac{1397230560000\,x^7+9489524220000\,x^6+31855563036000\,x^5+77649212460600\,x^4+206501370522480\,x^3-28389351843}{10648000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^8/((5*x + 3)*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] -1/10648000000*(1397230560000*x^7 + 9489524220000*x^6 + 318555630
36000*x^5 + 77649212460600*x^4 + 206501370522480*x^3 - 2838935184
34680*x^2 - 512*(4*x^2 - 4*x + 1)*log(5*x + 3) + 82637392906250*(
4*x^2 - 4*x + 1)*log(2*x - 1) - 51350638082480*x + 53929198640625
)/(4*x^2 - 4*x + 1)
```

Sympy [A] time = 0.461692, size = 65, normalized size = 0.86

$$-\frac{6561x^5}{200}-\frac{408969x^4}{1600}-\frac{124416x^3}{125}-\frac{110180817x^2}{40000}-\frac{2941619571x}{400000}+\frac{754365388x-313769883}{247808x^2-247808x+61952}-\frac{2644396573\log\left(x-\frac{1}{2}\right)}{340736}+\frac{\log\left(x+\frac{3}{5}\right)}{20796875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**8/(1-2*x)**3/(3+5*x),x)
```

```
[Out] -6561*x**5/200 - 408969*x**4/1600 - 124416*x**3/125 - 110180817*x
**2/40000 - 2941619571*x/400000 + (754365388*x - 313769883)/(2478
08*x**2 - 247808*x + 61952) - 2644396573*log(x - 1/2)/340736 + lo
g(x + 3/5)/20796875
```

GIAC/XCAS [A] time = 0.216893, size = 76, normalized size = 1.

$$-\frac{6561}{200}\,x^5-\frac{408969}{1600}\,x^4-\frac{124416}{125}\,x^3-\frac{110180817}{40000}\,x^2-\frac{2941619571}{400000}\,x+\frac{823543\,(916\,x-381)}{61952\,(2\,x-1)^2}+\frac{1}{20796875}\ln\left(|5\,x+3|\right)-\frac{2644396573}{340736}\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^8/((5*x + 3)*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] -6561/200*x^5 - 408969/1600*x^4 - 124416/125*x^3 - 110180817/4000
0*x^2 - 2941619571/400000*x + 823543/61952*(916*x - 381)/(2*x - 1
)^2 + 1/20796875*ln(abs(5*x + 3)) - 2644396573/340736*ln(abs(2*x
- 1))
```

3.1655 $\int \frac{(2+3x)^7}{(1-2x)^3(3+5x)}\,dx$

Optimal. Leaf size=69

$$-\frac{2187x^4}{160}-\frac{40581x^3}{400}-\frac{792423x^2}{2000}-\frac{26161299x}{20000}-\frac{5764801}{3872(1-2x)}+\frac{823543}{2816(1-2x)^2}-\frac{269063263\log(1-2x)}{170368}+\frac{\log(5x+3)}{4159375}$$

```
[Out] 823543/(2816*(1 - 2*x)^2) - 5764801/(3872*(1 - 2*x)) - (26161299*
x)/20000 - (792423*x^2)/2000 - (40581*x^3)/400 - (2187*x^4)/160 -
 (269063263*Log[1 - 2*x])/170368 + Log[3 + 5*x]/4159375
```

Rubi [A] time = 0.0798665, antiderivative size = 69, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$-\frac{2187x^4}{160}-\frac{40581x^3}{400}-\frac{792423x^2}{2000}-\frac{26161299x}{20000}-\frac{5764801}{3872(1-2x)}+\frac{823543}{2816(1-2x)^2}-\frac{269063263\log(1-2x)}{170368}+\frac{\log(5x+3)}{4159375}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^7/((1 - 2*x)^3*(3 + 5*x)),x]
```

```
[Out] 823543/(2816*(1 - 2*x)^2) - 5764801/(3872*(1 - 2*x)) - (26161299*
x)/20000 - (792423*x^2)/2000 - (40581*x^3)/400 - (2187*x^4)/160 -
 (269063263*Log[1 - 2*x])/170368 + Log[3 + 5*x]/4159375
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{2187x^4}{160}-\frac{40581x^3}{400}-\frac{269063263\log(-2x+1)}{170368}+\frac{\log(5x+3)}{4159375}+\int\left(-\frac{26161299}{20000}\right)dx-\frac{792423\int x\,dx}{1000}-\frac{5764801}{3872(-2x+1)}+\frac{823543}{2816(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**7/(1-2*x)**3/(3+5*x),x)
```

```
[Out] -2187*x**4/160 - 40581*x**3/400 - 269063263*log(-2*x + 1)/170368
+ log(5*x + 3)/4159375 + Integral(-26161299/20000, x) - 792423*In
tegral(x, x)/1000 - 5764801/(3872*(-2*x + 1)) + 823543/(2816*(-2*
x + 1)**2)
```

Mathematica [A] time = 0.0708657, size = 60, normalized size = 0.87

$$\frac{-\frac{55(1058508000x^6+6797973600x^5+23090763960x^4+72578051568x^3-42333890544x^2-83615877112x+35985148011)}{(1-2x)^2}-1681645393750\log(5-10x)+2}{1064800000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^7/((1 - 2*x)^3*(3 + 5*x)),x]
```

```
[Out] ((-55*(35985148011 - 83615877112*x - 42333890544*x^2 + 7257805156
8*x^3 + 23090763960*x^4 + 6797973600*x^5 + 1058508000*x^6))/(1 -
```

```
2*x)^2 - 1681645393750*Log[5 - 10*x] + 256*Log[3 + 5*x])/10648000
00
```

Maple [A] time = 0.012, size = 54, normalized size = 0.8

$$-\frac{2187\,x^{4}}{160}-\frac{40581\,x^{3}}{400}-\frac{792423\,x^{2}}{2000}-\frac{26161299\,x}{20000}+\frac{\ln\left(3+5\,x\right)}{4159375}+\frac{823543}{2816\,\left(-1+2\,x\right)^{2}}+\frac{5764801}{-3872+7744\,x}-\frac{269063263\,\ln\left(-1+2\,x\right)}{170368}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^7/(1-2*x)^3/(3+5*x),x)
```

```
[Out] -2187/160*x^4-40581/400*x^3-792423/2000*x^2-26161299/20000*x+1/41
59375*ln(3+5*x)+823543/2816/(-1+2*x)^2+5764801/3872/(-1+2*x)-2690
63263/170368*ln(-1+2*x)
```

Maxima [A] time = 1.34683, size = 73, normalized size = 1.06

$$-\frac{2187}{160}\,x^{4}-\frac{40581}{400}\,x^{3}-\frac{792423}{2000}\,x^{2}-\frac{26161299}{20000}\,x+\frac{823543\,(112\,x-45)}{30976\,(4\,x^{2}-4\,x+1)}+\frac{1}{4159375}\,\log\left(5\,x+3\right)-\frac{269063263}{170368}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^7/((5*x + 3)*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] -2187/160*x^4 - 40581/400*x^3 - 792423/2000*x^2 - 26161299/20000*
x + 823543/30976*(112*x - 45)/(4*x^2 - 4*x + 1) + 1/4159375*log(5
*x + 3) - 269063263/170368*log(2*x - 1)
```

Fricas [A] time = 0.205306, size = 108, normalized size = 1.57

$$-\frac{58217940000\,x^{6}+373888548000\,x^{5}+1269992017800\,x^{4}+3991792836240\,x^{3}-5149424229840\,x^{2}-256\left(4\,x^{2}-4\,x+1\right)\,\mathrm{l}}{1064800000\,(4\,x^{2}-4\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^7/((5*x + 3)*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] -1/1064800000*(58217940000*x^6 + 373888548000*x^5 + 1269992017800
*x^4 + 3991792836240*x^3 - 5149424229840*x^2 - 256*(4*x^2 - 4*x +
 1)*log(5*x + 3) + 1681645393750*(4*x^2 - 4*x + 1)*log(2*x - 1) -
 1777812991240*x + 1273918078125)/(4*x^2 - 4*x + 1)
```

Sympy [A] time = 0.449158, size = 58, normalized size = 0.84

$$-\frac{2187x^{4}}{160}-\frac{40581x^{3}}{400}-\frac{792423x^{2}}{2000}-\frac{26161299x}{20000}+\frac{92236816x-37059435}{123904x^{2}-123904x+30976}-\frac{269063263\log\left(x-\frac{1}{2}\right)}{170368}+\frac{\log\left(x+\frac{3}{5}\right)}{4159375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**7/(1-2*x)**3/(3+5*x),x)
```

```
[Out] -2187*x**4/160 - 40581*x**3/400 - 792423*x**2/2000 - 26161299*x/2
0000 + (92236816*x - 37059435)/(123904*x**2 - 123904*x + 30976) -
 269063263*log(x - 1/2)/170368 + log(x + 3/5)/4159375
```

GIAC/XCAS [A] time = 0.214608, size = 69, normalized size = 1.

$$-\frac{2187}{160}\,x^4-\frac{40581}{400}\,x^3-\frac{792423}{2000}\,x^2-\frac{26161299}{20000}\,x+\frac{823543\,(112\,x-45)}{30976\,(2\,x-1)^2}+\frac{1}{4159375}\ln\left(|5\,x+3|\right)-\frac{269063263}{170368}\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^7/((5*x + 3)*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] -2187/160*x^4 - 40581/400*x^3 - 792423/2000*x^2 - 26161299/20000*
x + 823543/30976*(112*x - 45)/(2*x - 1)^2 + 1/4159375*ln(abs(5*x
+ 3)) - 269063263/170368*ln(abs(2*x - 1))
```

3.1656 $\int \frac{(2+3x)^6}{(1-2x)^3(3+5x)}\,dx$

Optimal. Leaf size=62

$$-\frac{243x^3}{40}-\frac{35721x^2}{800}-\frac{102303x}{500}-\frac{2739541}{7744(1-2x)}+\frac{117649}{1408(1-2x)^2}-\frac{12761315\log(1-2x)}{42592}+\frac{\log(5x+3)}{831875}$$

```
[Out] 117649/(1408*(1 - 2*x)^2) - 2739541/(7744*(1 - 2*x)) - (102303*x)
/500 - (35721*x^2)/800 - (243*x^3)/40 - (12761315*Log[1 - 2*x])/4
2592 + Log[3 + 5*x]/831875
```

Rubi [A] time = 0.0742473, antiderivative size = 62, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{243x^3}{40}-\frac{35721x^2}{800}-\frac{102303x}{500}-\frac{2739541}{7744(1-2x)}+\frac{117649}{1408(1-2x)^2}-\frac{12761315\log(1-2x)}{42592}+\frac{\log(5x+3)}{831875}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^6/((1 - 2*x)^3*(3 + 5*x)),x]
```

```
[Out] 117649/(1408*(1 - 2*x)^2) - 2739541/(7744*(1 - 2*x)) - (102303*x)
/500 - (35721*x^2)/800 - (243*x^3)/40 - (12761315*Log[1 - 2*x])/4
2592 + Log[3 + 5*x]/831875
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{243x^3}{40}-\frac{12761315\log(-2x+1)}{42592}+\frac{\log(5x+3)}{831875}+\int\left(-\frac{102303}{500}\right)dx-\frac{35721\int x\,dx}{400}-\frac{2739541}{7744(-2x+1)}+\frac{117649}{1408(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**6/(1-2*x)**3/(3+5*x),x)
```

```
[Out] -243*x**3/40 - 12761315*log(-2*x + 1)/42592 + log(5*x + 3)/831875
 + Integral(-102303/500, x) - 35721*Integral(x, x)/400 - 2739541/
(7744*(-2*x + 1)) + 117649/(1408*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0481654, size = 55, normalized size = 0.89

$$\frac{-\frac{11(235224000x^5+1493672400x^4+6252253920x^3-3308307948x^2-9050078692x+3661042443)}{(1-2x)^2}-31903287500\log(5-10x)+128\log(5x+3)}{106480000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^6/((1 - 2*x)^3*(3 + 5*x)),x]
```

```
[Out] ((-11*(3661042443 - 9050078692*x - 3308307948*x^2 + 6252253920*x^
3 + 1493672400*x^4 + 235224000*x^5))/(1 - 2*x)^2 - 31903287500*Lo
g[5 - 10*x] + 128*Log[3 + 5*x])/106480000
```

Maple [A] time = 0.013, size = 49, normalized size = 0.8

$$-\frac{243 x^3}{40}-\frac{35721 x^2}{800}-\frac{102303 x}{500}+\frac{\ln(3+5 x)}{831875}+\frac{117649}{1408 \left(-1+2 x\right)^2}+\frac{2739541}{-7744+15488 x}-\frac{12761315 \ln(-1+2 x)}{42592}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^6/(1-2*x)^3/(3+5*x),x)
```

```
[Out] -243/40*x^3-35721/800*x^2-102303/500*x+1/831875*ln(3+5*x)+117649/
1408/(-1+2*x)^2+2739541/7744/(-1+2*x)-12761315/42592*ln(-1+2*x)
```

Maxima [A] time = 1.36166, size = 66, normalized size = 1.06

$$-\frac{243}{40} x^3-\frac{35721}{800} x^2-\frac{102303}{500} x+\frac{16807 (652 x-249)}{15488 (4 x^2-4 x+1)}+\frac{1}{831875} \log(5 x+3)-\frac{12761315}{42592} \log(2 x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^6/((5*x + 3)*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] -243/40*x^3 - 35721/800*x^2 - 102303/500*x + 16807/15488*(652*x -
 249)/(4*x^2 - 4*x + 1) + 1/831875*log(5*x + 3) - 12761315/42592*
log(2*x - 1)
```

Fricas [A] time = 0.212429, size = 101, normalized size = 1.63

$$-\frac{2587464000 x^5+16430396400 x^4+68774793120 x^3-82391322420 x^2-128 \left(4 x^2-4 x+1\right) \log(5 x+3)+31903287500}{106480000 (4 x^2-4 x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^6/((5*x + 3)*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] -1/106480000*(2587464000*x^5 + 16430396400*x^4 + 68774793120*x^3
- 82391322420*x^2 - 128*(4*x^2 - 4*x + 1)*log(5*x + 3) + 31903287
500*(4*x^2 - 4*x + 1)*log(2*x - 1) - 53550930620*x + 28771483125)
/(4*x^2 - 4*x + 1)
```

Sympy [A] time = 0.439193, size = 51, normalized size = 0.82

$$-\frac{243x^3}{40}-\frac{35721x^2}{800}-\frac{102303x}{500}+\frac{10958164x-4184943}{61952x^2-61952x+15488}-\frac{12761315 \log\left(x-\frac{1}{2}\right)}{42592}+\frac{\log\left(x+\frac{3}{5}\right)}{831875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**6/(1-2*x)**3/(3+5*x),x)
```

```
[Out] -243*x**3/40 - 35721*x**2/800 - 102303*x/500 + (10958164*x - 4184
943)/(61952*x**2 - 61952*x + 15488) - 12761315*log(x - 1/2)/42592
 + log(x + 3/5)/831875
```

GIAC/XCAS [A] time = 0.209239, size = 62, normalized size = 1.

$$-\frac{243}{40}\,x^{3}-\frac{35721}{800}\,x^{2}-\frac{102303}{500}\,x+\frac{16807\,(652\,x-249)}{15488\,(2\,x-1)^{2}}+\frac{1}{831875}\ln\left(|5\,x+3|\right)-\frac{12761315}{42592}\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^6/((5*x + 3)*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] -243/40*x^3 - 35721/800*x^2 - 102303/500*x + 16807/15488*(652*x -
 249)/(2*x - 1)^2 + 1/831875*ln(abs(5*x + 3)) - 12761315/42592*ln
(abs(2*x - 1))
```

3.1657 $\int \frac{(2+3x)^5}{(1-2x)^3(3+5x)}\,dx$

Optimal. Leaf size=55

$$-\frac{243x^2}{80}-\frac{10287x}{400}-\frac{156065}{1936(1-2x)}+\frac{16807}{704(1-2x)^2}-\frac{543655\log(1-2x)}{10648}+\frac{\log(5x+3)}{166375}$$

```
[Out] 16807/(704*(1 - 2*x)^2) - 156065/(1936*(1 - 2*x)) - (10287*x)/400
 - (243*x^2)/80 - (543655*Log[1 - 2*x])/10648 + Log[3 + 5*x]/1663
75
```

Rubi [A] time = 0.0622242, antiderivative size = 55, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{243x^2}{80}-\frac{10287x}{400}-\frac{156065}{1936(1-2x)}+\frac{16807}{704(1-2x)^2}-\frac{543655\log(1-2x)}{10648}+\frac{\log(5x+3)}{166375}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^5/((1 - 2*x)^3*(3 + 5*x)),x]
```

```
[Out] 16807/(704*(1 - 2*x)^2) - 156065/(1936*(1 - 2*x)) - (10287*x)/400
 - (243*x^2)/80 - (543655*Log[1 - 2*x])/10648 + Log[3 + 5*x]/1663
75
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{543655\log(-2x+1)}{10648}+\frac{\log(5x+3)}{166375}+\int\left(-\frac{10287}{400}\right)dx-\frac{243\int x\,dx}{40}-\frac{156065}{1936(-2x+1)}+\frac{16807}{704(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**5/(1-2*x)**3/(3+5*x),x)
```

```
[Out] -543655*log(-2*x + 1)/10648 + log(5*x + 3)/166375 + Integral(-102
87/400, x) - 243*Integral(x, x)/40 - 156065/(1936*(-2*x + 1)) + 1
6807/(704*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0618047, size = 55, normalized size = 1.

$$\frac{-1293732(5x+3)^2-47005596(5x+3)+\frac{858357500}{2x-1}+\frac{254205875}{(1-2x)^2}-543655000\log(5-10x)+64\log(5x+3)}{10648000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^5/((1 - 2*x)^3*(3 + 5*x)),x]
```

```
[Out] (254205875/(1 - 2*x)^2 + 858357500/(-1 + 2*x) - 47005596*(3 + 5*x
) - 1293732*(3 + 5*x)^2 - 543655000*Log[5 - 10*x] + 64*Log[3 + 5*
x])/10648000
```

Maple [A] time = 0.013, size = 44, normalized size = 0.8

$$-\frac{243\,x^2}{80}-\frac{10287\,x}{400}+\frac{\ln(3+5\,x)}{166375}+\frac{16807}{704\,(-1+2\,x)^2}+\frac{156065}{-1936+3872\,x}-\frac{543655\,\ln(-1+2\,x)}{10648}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^5/(1-2*x)^3/(3+5*x),x)
```

```
[Out] -243/80*x^2-10287/400*x+1/166375*ln(3+5*x)+16807/704/(-1+2*x)^2+1
56065/1936/(-1+2*x)-543655/10648*ln(-1+2*x)
```

Maxima [A] time = 1.36063, size = 59, normalized size = 1.07

$$-\frac{243}{80}\,x^2-\frac{10287}{400}\,x+\frac{2401\,(520\,x-183)}{7744\,(4\,x^2-4\,x+1)}+\frac{1}{166375}\,\log(5\,x+3)-\frac{543655}{10648}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^5/((5*x + 3)*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] -243/80*x^2 - 10287/400*x + 2401/7744*(520*x - 183)/(4*x^2 - 4*x
+ 1) + 1/166375*log(5*x + 3) - 543655/10648*log(2*x - 1)
```

Fricas [A] time = 0.213962, size = 95, normalized size = 1.73

$$-\frac{129373200\,x^4+965986560\,x^3-1063016460\,x^2-64\,\left(4\,x^2-4\,x+1\right)\log(5\,x+3)+543655000\,\left(4\,x^2-4\,x+1\right)\log(2\,x-1)-1442875060\,x+604151625}{10648000\,(4\,x^2-4\,x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^5/((5*x + 3)*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] -1/10648000*(129373200*x^4 + 965986560*x^3 - 1063016460*x^2 - 64*
(4*x^2 - 4*x + 1)*log(5*x + 3) + 543655000*(4*x^2 - 4*x + 1)*log(
2*x - 1) - 1442875060*x + 604151625)/(4*x^2 - 4*x + 1)
```

Sympy [A] time = 0.435335, size = 44, normalized size = 0.8

$$-\frac{243x^2}{80}-\frac{10287x}{400}+\frac{1248520x-439383}{30976x^2-30976x+7744}-\frac{543655\log\left(x-\frac{1}{2}\right)}{10648}+\frac{\log\left(x+\frac{3}{5}\right)}{166375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**5/(1-2*x)**3/(3+5*x),x)
```

```
[Out] -243*x**2/80 - 10287*x/400 + (1248520*x - 439383)/(30976*x**2 - 3
0976*x + 7744) - 543655*log(x - 1/2)/10648 + log(x + 3/5)/166375
```

GIAC/XCAS [A] time = 0.210615, size = 55, normalized size = 1.

$$-\frac{243}{80}\,x^2-\frac{10287}{400}\,x+\frac{2401\,(520\,x-183)}{7744\,(2\,x-1)^2}+\frac{1}{166375}\,\ln(|5\,x+3|)-\frac{543655}{10648}\,\ln(|2\,x-1|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^5/((5*x + 3)*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] -243/80*x^2 - 10287/400*x + 2401/7744*(520*x - 183)/(2*x - 1)^2 +
 1/166375*ln(abs(5*x + 3)) - 543655/10648*ln(abs(2*x - 1))
```

3.1658 $\int \frac{(2+3x)^4}{(1-2x)^3(3+5x)}\,dx$

Optimal. Leaf size=48

$$-\frac{81x}{40}-\frac{33271}{1936(1-2x)}+\frac{2401}{352(1-2x)^2}-\frac{153811\log(1-2x)}{21296}+\frac{\log(5x+3)}{33275}$$

```
[Out] 2401/(352*(1 - 2*x)^2) - 33271/(1936*(1 - 2*x)) - (81*x)/40 - (15
3811*Log[1 - 2*x])/21296 + Log[3 + 5*x]/33275
```

Rubi [A] time = 0.0541766, antiderivative size = 48, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{81x}{40}-\frac{33271}{1936(1-2x)}+\frac{2401}{352(1-2x)^2}-\frac{153811\log(1-2x)}{21296}+\frac{\log(5x+3)}{33275}$$

Antiderivative was successfully verified.

```
[In] Int[(2 + 3*x)^4/((1 - 2*x)^3*(3 + 5*x)),x]
```

```
[Out] 2401/(352*(1 - 2*x)^2) - 33271/(1936*(1 - 2*x)) - (81*x)/40 - (15
3811*Log[1 - 2*x])/21296 + Log[3 + 5*x]/33275
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{153811\log(-2x+1)}{21296}+\frac{\log(5x+3)}{33275}+\int\left(-\frac{81}{40}\right)dx-\frac{33271}{1936(-2x+1)}+\frac{2401}{352(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**4/(1-2*x)**3/(3+5*x),x)
```

```
[Out] -153811*log(-2*x + 1)/21296 + log(5*x + 3)/33275 + Integral(-81/4
0, x) - 33271/(1936*(-2*x + 1)) + 2401/(352*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0525972, size = 46, normalized size = 0.96

$$\frac{-431244(5x+3)+\frac{18299050}{2x-1}+\frac{7263025}{(1-2x)^2}-7690550\log(5-10x)+32\log(5x+3)}{1064800}$$

Antiderivative was successfully verified.

```
[In] Integrate[(2 + 3*x)^4/((1 - 2*x)^3*(3 + 5*x)),x]
```

```
[Out] (7263025/(1 - 2*x)^2 + 18299050/(-1 + 2*x) - 431244*(3 + 5*x) - 7
690550*Log[5 - 10*x] + 32*Log[3 + 5*x])/1064800
```

Maple [A] time = 0.013, size = 39, normalized size = 0.8

$$-\frac{81\,x}{40}+\frac{\ln(3+5\,x)}{33275}+\frac{2401}{352\,(-1+2\,x)^2}+\frac{33271}{-1936+3872\,x}-\frac{153811\,\ln(-1+2\,x)}{21296}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4/(1-2*x)^3/(3+5*x),x)
```

```
[Out] -81/40*x+1/33275*ln(3+5*x)+2401/352/(-1+2*x)^2+33271/1936/(-1+2*x
)-153811/21296*ln(-1+2*x)
```

Maxima [A] time = 1.36043, size = 53, normalized size = 1.1

$$-\frac{81}{40}\,x+\frac{343\,(388\,x-117)}{3872\,(4\,x^2-4\,x+1)}+\frac{1}{33275}\,\log\left(5\,x+3\right)-\frac{153811}{21296}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^4/((5*x + 3)*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] -81/40*x + 343/3872*(388*x - 117)/(4*x^2 - 4*x + 1) + 1/33275*log
(5*x + 3) - 153811/21296*log(2*x - 1)
```

Fricas [A] time = 0.213893, size = 88, normalized size = 1.83

$$-\frac{8624880\,x^3-8624880\,x^2-32\,\left(4\,x^2-4\,x+1\right)\log\left(5\,x+3\right)+7690550\,\left(4\,x^2-4\,x+1\right)\log\left(2\,x-1\right)-34441880\,x+11036}{1064800\,(4\,x^2-4\,x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^4/((5*x + 3)*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] -1/1064800*(8624880*x^3 - 8624880*x^2 - 32*(4*x^2 - 4*x + 1)*log(
5*x + 3) + 7690550*(4*x^2 - 4*x + 1)*log(2*x - 1) - 34441880*x +
11036025)/(4*x^2 - 4*x + 1)
```

Sympy [A] time = 0.424484, size = 37, normalized size = 0.77

$$-\frac{81x}{40}+\frac{133084x-40131}{15488x^2-15488x+3872}-\frac{153811\log\left(x-\frac{1}{2}\right)}{21296}+\frac{\log\left(x+\frac{3}{5}\right)}{33275}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4/(1-2*x)**3/(3+5*x),x)
```

```
[Out] -81*x/40 + (133084*x - 40131)/(15488*x**2 - 15488*x + 3872) - 153
811*log(x - 1/2)/21296 + log(x + 3/5)/33275
```

GIAC/XCAS [A] time = 0.208386, size = 49, normalized size = 1.02

$$-\frac{81}{40}\,x+\frac{343\,(388\,x-117)}{3872\,(2\,x-1)^2}+\frac{1}{33275}\,\ln\left(|5\,x+3|\right)-\frac{153811}{21296}\,\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^4/((5*x + 3)*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] -81/40*x + 343/3872*(388*x - 117)/(2*x - 1)^2 + 1/33275*ln(abs(5*
x + 3)) - 153811/21296*ln(abs(2*x - 1))
```

3.1659 $\int \frac{(2+3x)^3}{(1-2x)^3(3+5x)}\,dx$

Optimal. Leaf size=43

$$-\frac{392}{121(1-2x)}+\frac{343}{176(1-2x)^2}-\frac{7189\log(1-2x)}{10648}+\frac{\log(5x+3)}{6655}$$

```
[Out] 343/(176*(1 - 2*x)^2) - 392/(121*(1 - 2*x)) - (7189*Log[1 - 2*x])
/10648 + Log[3 + 5*x]/6655
```

Rubi [A] time = 0.0502872, antiderivative size = 43, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{392}{121(1-2x)}+\frac{343}{176(1-2x)^2}-\frac{7189\log(1-2x)}{10648}+\frac{\log(5x+3)}{6655}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^3/((1 - 2*x)^3*(3 + 5*x)),x]
```

```
[Out] 343/(176*(1 - 2*x)^2) - 392/(121*(1 - 2*x)) - (7189*Log[1 - 2*x])
/10648 + Log[3 + 5*x]/6655
```

Rubi in Sympy [A] time = 7.81946, size = 34, normalized size = 0.79

$$-\frac{7189\log(-2x+1)}{10648}+\frac{\log(5x+3)}{6655}-\frac{392}{121(-2x+1)}+\frac{343}{176(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3/(1-2*x)**3/(3+5*x),x)
```

```
[Out] -7189*log(-2*x + 1)/10648 + log(5*x + 3)/6655 - 392/(121*(-2*x +
1)) + 343/(176*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0373977, size = 35, normalized size = 0.81

$$\frac{\frac{2695(256x-51)}{(1-2x)^2}-71890\log(5-10x)+16\log(5x+3)}{106480}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^3/((1 - 2*x)^3*(3 + 5*x)),x]
```

```
[Out] ((2695*(-51 + 256*x))/(1 - 2*x)^2 - 71890*Log[5 - 10*x] + 16*Log[
3 + 5*x])/106480
```

Maple [A] time = 0.013, size = 36, normalized size = 0.8

$$\frac{\ln(3+5x)}{6655}+\frac{343}{176(-1+2x)^2}+\frac{392}{-121+242x}-\frac{7189\ln(-1+2x)}{10648}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3/(1-2*x)^3/(3+5*x),x)
```

```
[Out] 1/6655*ln(3+5*x)+343/176/(-1+2*x)^2+392/121/(-1+2*x)-7189/10648*l
n(-1+2*x)
```

Maxima [A] time = 1.35367, size = 49, normalized size = 1.14

$$\frac{49\,(256\,x-51)}{1936\,(4\,x^2-4\,x+1)}+\frac{1}{6655}\,\log\left(5\,x+3\right)-\frac{7189}{10648}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^3/((5*x + 3)*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] 49/1936*(256*x - 51)/(4*x^2 - 4*x + 1) + 1/6655*log(5*x + 3) - 71
89/10648*log(2*x - 1)
```

Fricas [A] time = 0.223764, size = 74, normalized size = 1.72

$$\frac{16\,\left(4\,x^2-4\,x+1\right)\,\log\left(5\,x+3\right)-71890\,\left(4\,x^2-4\,x+1\right)\,\log\left(2\,x-1\right)+689920\,x-137445}{106480\,(4\,x^2-4\,x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^3/((5*x + 3)*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] 1/106480*(16*(4*x^2 - 4*x + 1)*log(5*x + 3) - 71890*(4*x^2 - 4*x
+ 1)*log(2*x - 1) + 689920*x - 137445)/(4*x^2 - 4*x + 1)
```

Sympy [A] time = 0.402242, size = 32, normalized size = 0.74

$$\frac{12544x-2499}{7744x^2-7744x+1936}-\frac{7189\log\left(x-\frac{1}{2}\right)}{10648}+\frac{\log\left(x+\frac{3}{5}\right)}{6655}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3/(1-2*x)**3/(3+5*x),x)
```

```
[Out] (12544*x - 2499)/(7744*x**2 - 7744*x + 1936) - 7189*log(x - 1/2)/
10648 + log(x + 3/5)/6655
```

GIAC/XCAS [A] time = 0.208246, size = 45, normalized size = 1.05

$$\frac{49\,(256\,x-51)}{1936\,(2\,x-1)^2}+\frac{1}{6655}\ln\left(|5\,x+3|\right)-\frac{7189}{10648}\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^3/((5*x + 3)*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] 49/1936*(256*x - 51)/(2*x - 1)^2 + 1/6655*ln(abs(5*x + 3)) - 7189
/10648*ln(abs(2*x - 1))
```

3.1660 $\int \frac{(2+3x)^2}{(1-2x)^3(3+5x)} \, dx$

Optimal. Leaf size=43

$$-\frac{217}{484(1-2x)}+\frac{49}{88(1-2x)^2}-\frac{\log(1-2x)}{1331}+\frac{\log(5x+3)}{1331}$$

```
[Out] 49/(88*(1 - 2*x)^2) - 217/(484*(1 - 2*x)) - Log[1 - 2*x]/1331 + L
og[3 + 5*x]/1331
```

Rubi [A] time = 0.0533031, antiderivative size = 43, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{217}{484(1-2x)}+\frac{49}{88(1-2x)^2}-\frac{\log(1-2x)}{1331}+\frac{\log(5x+3)}{1331}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^2/((1 - 2*x)^3*(3 + 5*x)),x]
```

```
[Out] 49/(88*(1 - 2*x)^2) - 217/(484*(1 - 2*x)) - Log[1 - 2*x]/1331 + L
og[3 + 5*x]/1331
```

Rubi in Sympy [A] time = 7.80552, size = 32, normalized size = 0.74

$$-\frac{\log(-2x+1)}{1331}+\frac{\log(5x+3)}{1331}-\frac{217}{484(-2x+1)}+\frac{49}{88(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2/(1-2*x)**3/(3+5*x),x)
```

```
[Out] -log(-2*x + 1)/1331 + log(5*x + 3)/1331 - 217/(484*(-2*x + 1)) +
49/(88*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0344692, size = 35, normalized size = 0.81

$$\frac{\frac{77(124x+15)}{(1-2x)^2}-8\log(5-10x)+8\log(5x+3)}{10648}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^2/((1 - 2*x)^3*(3 + 5*x)),x]
```

```
[Out] ((77*(15 + 124*x))/(1 - 2*x)^2 - 8*Log[5 - 10*x] + 8*Log[3 + 5*x]
)/10648
```

Maple [A] time = 0.011, size = 36, normalized size = 0.8

$$\frac{\ln(3+5x)}{1331}+\frac{49}{88(-1+2x)^2}+\frac{217}{-484+968x}-\frac{\ln(-1+2x)}{1331}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2/(1-2*x)^3/(3+5*x),x)
```

```
[Out] 1/1331*ln(3+5*x)+49/88/(-1+2*x)^2+217/484/(-1+2*x)-1/1331*ln(-1+2
*x)
```

Maxima [A] time = 1.35282, size = 49, normalized size = 1.14

$$\frac{7\,(124\,x+15)}{968\,(4\,x^2-4\,x+1)}+\frac{1}{1331}\,\log\left(5\,x+3\right)-\frac{1}{1331}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^2/((5*x + 3)*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] 7/968*(124*x + 15)/(4*x^2 - 4*x + 1) + 1/1331*log(5*x + 3) - 1/13
31*log(2*x - 1)
```

Fricas [A] time = 0.210507, size = 74, normalized size = 1.72

$$\frac{8\left(4\,x^2-4\,x+1\right)\log\left(5\,x+3\right)-8\left(4\,x^2-4\,x+1\right)\log\left(2\,x-1\right)+9548\,x+1155}{10648\,(4\,x^2-4\,x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^2/((5*x + 3)*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] 1/10648*(8*(4*x^2 - 4*x + 1)*log(5*x + 3) - 8*(4*x^2 - 4*x + 1)*l
og(2*x - 1) + 9548*x + 1155)/(4*x^2 - 4*x + 1)
```

Sympy [A] time = 0.34326, size = 31, normalized size = 0.72

$$\frac{868x+105}{3872x^2-3872x+968}-\frac{\log\left(x-\frac{1}{2}\right)}{1331}+\frac{\log\left(x+\frac{3}{5}\right)}{1331}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2/(1-2*x)**3/(3+5*x),x)
```

```
[Out] (868*x + 105)/(3872*x**2 - 3872*x + 968) - log(x - 1/2)/1331 + lo
g(x + 3/5)/1331
```

GIAC/XCAS [A] time = 0.224847, size = 45, normalized size = 1.05

$$\frac{7\,(124\,x+15)}{968\,(2\,x-1)^2}+\frac{1}{1331}\ln\left(|5\,x+3|\right)-\frac{1}{1331}\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^2/((5*x + 3)*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] 7/968*(124*x + 15)/(2*x - 1)^2 + 1/1331*ln(abs(5*x + 3)) - 1/1331
*ln(abs(2*x - 1))
```

3.1661 $\int \frac{2+3x}{(1-2x)^3(3+5x)}\,dx$

Optimal. Leaf size=43

$$\frac{1}{121(1-2x)}+\frac{7}{44(1-2x)^2}-\frac{5\log(1-2x)}{1331}+\frac{5\log(5x+3)}{1331}$$

```
[Out] 7/(44*(1 - 2*x)^2) + 1/(121*(1 - 2*x)) - (5*Log[1 - 2*x])/1331 +
(5*Log[3 + 5*x])/1331
```

Rubi [A] time = 0.0459588, antiderivative size = 43, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{1}{121(1-2x)}+\frac{7}{44(1-2x)^2}-\frac{5\log(1-2x)}{1331}+\frac{5\log(5x+3)}{1331}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)/((1 - 2*x)^3*(3 + 5*x)),x]
```

```
[Out] 7/(44*(1 - 2*x)^2) + 1/(121*(1 - 2*x)) - (5*Log[1 - 2*x])/1331 +
(5*Log[3 + 5*x])/1331
```

Rubi in Sympy [A] time = 7.34944, size = 36, normalized size = 0.84

$$-\frac{5\log(-2x+1)}{1331}+\frac{5\log(5x+3)}{1331}+\frac{1}{121(-2x+1)}+\frac{7}{44(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)/(1-2*x)**3/(3+5*x),x)
```

```
[Out] -5*log(-2*x + 1)/1331 + 5*log(5*x + 3)/1331 + 1/(121*(-2*x + 1))
+ 7/(44*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0257871, size = 46, normalized size = 1.07

$$\frac{-88x-20(1-2x)^2\log(1-2x)+20(1-2x)^2\log(10x+6)+891}{5324(1-2x)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)/((1 - 2*x)^3*(3 + 5*x)),x]
```

```
[Out] (891 - 88*x - 20*(1 - 2*x)^2*Log[1 - 2*x] + 20*(1 - 2*x)^2*Log[6
+ 10*x])/(5324*(1 - 2*x)^2)
```

Maple [A] time = 0.012, size = 36, normalized size = 0.8

$$\frac{5\ln(3+5x)}{1331}+\frac{7}{44(-1+2x)^2}-\frac{1}{-121+242x}-\frac{5\ln(-1+2x)}{1331}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)/(1-2*x)^3/(3+5*x),x)
```

```
[Out] 5/1331*ln(3+5*x)+7/44/(-1+2*x)^2-1/121/(-1+2*x)-5/1331*ln(-1+2*x)
```

Maxima [A] time = 1.35605, size = 49, normalized size = 1.14

$$-\frac{8\,x-81}{484\,(4\,x^2-4\,x+1)}+\frac{5}{1331}\,\log\left(5\,x+3\right)-\frac{5}{1331}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)/((5*x + 3)*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] -1/484*(8*x - 81)/(4*x^2 - 4*x + 1) + 5/1331*log(5*x + 3) - 5/133
1*log(2*x - 1)
```

Fricas [A] time = 0.213874, size = 74, normalized size = 1.72

$$\frac{20\left(4\,x^2-4\,x+1\right)\log\left(5\,x+3\right)-20\left(4\,x^2-4\,x+1\right)\log\left(2\,x-1\right)-88\,x+891}{5324\,(4\,x^2-4\,x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)/((5*x + 3)*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] 1/5324*(20*(4*x^2 - 4*x + 1)*log(5*x + 3) - 20*(4*x^2 - 4*x + 1)*
log(2*x - 1) - 88*x + 891)/(4*x^2 - 4*x + 1)
```

Sympy [A] time = 0.316571, size = 34, normalized size = 0.79

$$-\frac{8x-81}{1936x^2-1936x+484}-\frac{5\log\left(x-\frac{1}{2}\right)}{1331}+\frac{5\log\left(x+\frac{3}{5}\right)}{1331}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)/(1-2*x)**3/(3+5*x),x)
```

```
[Out] -(8*x - 81)/(1936*x**2 - 1936*x + 484) - 5*log(x - 1/2)/1331 + 5*
log(x + 3/5)/1331
```

GIAC/XCAS [A] time = 0.229772, size = 45, normalized size = 1.05

$$-\frac{8\,x-81}{484\,(2\,x-1)^2}+\frac{5}{1331}\,\ln\left(|5\,x+3|\right)-\frac{5}{1331}\,\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)/((5*x + 3)*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] -1/484*(8*x - 81)/(2*x - 1)^2 + 5/1331*ln(abs(5*x + 3)) - 5/1331*
ln(abs(2*x - 1))
```

3.1662 $\int \frac{1}{(1-2x)^3(3+5x)}\,dx$

Optimal. Leaf size=43

$$\frac{5}{121(1-2x)}+\frac{1}{22(1-2x)^2}-\frac{25\log(1-2x)}{1331}+\frac{25\log(5x+3)}{1331}$$

```
[Out] 1/(22*(1 - 2*x)^2) + 5/(121*(1 - 2*x)) - (25*Log[1 - 2*x])/1331 +
 (25*Log[3 + 5*x])/1331
```

Rubi [A] time = 0.0349789, antiderivative size = 43, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.067

$$\frac{5}{121(1-2x)}+\frac{1}{22(1-2x)^2}-\frac{25\log(1-2x)}{1331}+\frac{25\log(5x+3)}{1331}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^3*(3 + 5*x)),x]
```

```
[Out] 1/(22*(1 - 2*x)^2) + 5/(121*(1 - 2*x)) - (25*Log[1 - 2*x])/1331 +
 (25*Log[3 + 5*x])/1331
```

Rubi in Sympy [A] time = 6.25068, size = 36, normalized size = 0.84

$$-\frac{25\log(-2x+1)}{1331}+\frac{25\log(5x+3)}{1331}+\frac{5}{121(-2x+1)}+\frac{1}{22(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**3/(3+5*x),x)
```

```
[Out] -25*log(-2*x + 1)/1331 + 25*log(5*x + 3)/1331 + 5/(121*(-2*x + 1)
) + 1/(22*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0208357, size = 46, normalized size = 1.07

$$\frac{-220x-50(1-2x)^2\log(1-2x)+50(1-2x)^2\log(10x+6)+231}{2662(1-2x)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^3*(3 + 5*x)),x]
```

```
[Out] (231 - 220*x - 50*(1 - 2*x)^2*Log[1 - 2*x] + 50*(1 - 2*x)^2*Log[6
 + 10*x])/(2662*(1 - 2*x)^2)
```

Maple [A] time = 0.01, size = 36, normalized size = 0.8

$$\frac{25\ln(3+5x)}{1331}+\frac{1}{22(-1+2x)^2}-\frac{5}{-121+242x}-\frac{25\ln(-1+2x)}{1331}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^3/(3+5*x),x)
```

```
[Out] 25/1331*ln(3+5*x)+1/22/(-1+2*x)^2-5/121/(-1+2*x)-25/1331*ln(-1+2*
x)
```

Maxima [A] time = 1.34628, size = 49, normalized size = 1.14

$$-\frac{20\,x-21}{242\,(4\,x^2-4\,x+1)}+\frac{25}{1331}\,\log\left(5\,x+3\right)-\frac{25}{1331}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] -1/242*(20*x - 21)/(4*x^2 - 4*x + 1) + 25/1331*log(5*x + 3) - 25/
1331*log(2*x - 1)
```

Fricas [A] time = 0.214133, size = 74, normalized size = 1.72

$$\frac{50\,\left(4\,x^2-4\,x+1\right)\,\log\left(5\,x+3\right)-50\,\left(4\,x^2-4\,x+1\right)\,\log\left(2\,x-1\right)-220\,x+231}{2662\,(4\,x^2-4\,x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] 1/2662*(50*(4*x^2 - 4*x + 1)*log(5*x + 3) - 50*(4*x^2 - 4*x + 1)*
log(2*x - 1) - 220*x + 231)/(4*x^2 - 4*x + 1)
```

Sympy [A] time = 0.321855, size = 34, normalized size = 0.79

$$-\frac{20x-21}{968x^2-968x+242}-\frac{25\log\left(x-\frac{1}{2}\right)}{1331}+\frac{25\log\left(x+\frac{3}{5}\right)}{1331}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**3/(3+5*x),x)
```

```
[Out] -(20*x - 21)/(968*x**2 - 968*x + 242) - 25*log(x - 1/2)/1331 + 25
*log(x + 3/5)/1331
```

GIAC/XCAS [A] time = 0.208737, size = 45, normalized size = 1.05

$$-\frac{20\,x-21}{242\,(2\,x-1)^2}+\frac{25}{1331}\,\ln\left(|5\,x+3|\right)-\frac{25}{1331}\,\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] -1/242*(20*x - 21)/(2*x - 1)^2 + 25/1331*ln(abs(5*x + 3)) - 25/13
31*ln(abs(2*x - 1))
```

3.1663 $\int \frac{1}{(1-2x)^3(2+3x)(3+5x)} dx$

Optimal. Leaf size=53

$$\frac{136}{5929(1-2x)}+\frac{1}{77(1-2x)^2}-\frac{6938\log(1-2x)}{456533}-\frac{27}{343}\log(3x+2)+\frac{125\log(5x+3)}{1331}$$

```
[Out] 1/(77*(1 - 2*x)^2) + 136/(5929*(1 - 2*x)) - (6938*Log[1 - 2*x])/4
56533 - (27*Log[2 + 3*x])/343 + (125*Log[3 + 5*x])/1331
```

Rubi [A] time = 0.0617132, antiderivative size = 53, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{136}{5929(1-2x)}+\frac{1}{77(1-2x)^2}-\frac{6938\log(1-2x)}{456533}-\frac{27}{343}\log(3x+2)+\frac{125\log(5x+3)}{1331}$$

Antiderivative was successfully verified.

```
[In] Int[1/((1 - 2*x)^3*(2 + 3*x)*(3 + 5*x)),x]
```

```
[Out] 1/(77*(1 - 2*x)^2) + 136/(5929*(1 - 2*x)) - (6938*Log[1 - 2*x])/4
56533 - (27*Log[2 + 3*x])/343 + (125*Log[3 + 5*x])/1331
```

Rubi in Sympy [A] time = 8.71225, size = 46, normalized size = 0.87

$$-\frac{6938\log(-2x+1)}{456533}-\frac{27\log(3x+2)}{343}+\frac{125\log(5x+3)}{1331}+\frac{136}{5929(-2x+1)}+\frac{1}{77(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(1/(1-2*x)**3/(2+3*x)/(3+5*x),x)
```

```
[Out] -6938*log(-2*x + 1)/456533 - 27*log(3*x + 2)/343 + 125*log(5*x +
3)/1331 + 136/(5929*(-2*x + 1)) + 1/(77*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0458772, size = 52, normalized size = 0.98

$$\frac{-6938\log(3-6x)-35937\log(3x+2)+\frac{7(-2992x+6125(1-2x)^2\log(-3(5x+3))+2343)}{(1-2x)^2}}{456533}$$

Antiderivative was successfully verified.

```
[In] Integrate[1/((1 - 2*x)^3*(2 + 3*x)*(3 + 5*x)),x]
```

```
[Out] (-6938*Log[3 - 6*x] - 35937*Log[2 + 3*x] + (7*(2343 - 2992*x + 61
25*(1 - 2*x)^2*Log[-3*(3 + 5*x)]))/(1 - 2*x)^2)/456533
```

Maple [A] time = 0.015, size = 44, normalized size = 0.8

$$\frac{125\ln(3+5x)}{1331}-\frac{27\ln(2+3x)}{343}+\frac{1}{77(-1+2x)^2}-\frac{136}{-5929+11858x}-\frac{6938\ln(-1+2x)}{456533}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^3/(2+3*x)/(3+5*x),x)
```

```
[Out] 125/1331*ln(3+5*x)-27/343*ln(2+3*x)+1/77/(-1+2*x)^2-136/5929/(-1+
2*x)-6938/456533*ln(-1+2*x)
```

Maxima [A] time = 1.35296, size = 59, normalized size = 1.11

$$-\frac{272\,x-213}{5929\,(4\,x^2-4\,x+1)}+\frac{125}{1331}\,\log\left(5\,x+3\right)-\frac{27}{343}\,\log\left(3\,x+2\right)-\frac{6938}{456533}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-1/((5*x + 3)*(3*x + 2)*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] -1/5929*(272*x - 213)/(4*x^2 - 4*x + 1) + 125/1331*log(5*x + 3) -
 27/343*log(3*x + 2) - 6938/456533*log(2*x - 1)
```

Fricas [A] time = 0.210698, size = 99, normalized size = 1.87

$$\frac{42875\left(4\,x^2-4\,x+1\right)\log\left(5\,x+3\right)-35937\left(4\,x^2-4\,x+1\right)\log\left(3\,x+2\right)-6938\left(4\,x^2-4\,x+1\right)\log\left(2\,x-1\right)-20944\,x+16}{456533\,(4\,x^2-4\,x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-1/((5*x + 3)*(3*x + 2)*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] 1/456533*(42875*(4*x^2 - 4*x + 1)*log(5*x + 3) - 35937*(4*x^2 - 4
*x + 1)*log(3*x + 2) - 6938*(4*x^2 - 4*x + 1)*log(2*x - 1) - 2094
4*x + 16401)/(4*x^2 - 4*x + 1)
```

Sympy [A] time = 0.49509, size = 44, normalized size = 0.83

$$-\frac{272x-213}{23716x^2-23716x+5929}-\frac{6938\log\left(x-\frac{1}{2}\right)}{456533}+\frac{125\log\left(x+\frac{3}{5}\right)}{1331}-\frac{27\log\left(x+\frac{2}{3}\right)}{343}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**3/(2+3*x)/(3+5*x),x)
```

```
[Out] -(272*x - 213)/(23716*x**2 - 23716*x + 5929) - 6938*log(x - 1/2)/
456533 + 125*log(x + 3/5)/1331 - 27*log(x + 2/3)/343
```

GIAC/XCAS [A] time = 0.216307, size = 57, normalized size = 1.08

$$-\frac{272\,x-213}{5929\,(2\,x-1)^2}+\frac{125}{1331}\ln\left(|5\,x+3|\right)-\frac{27}{343}\ln\left(|3\,x+2|\right)-\frac{6938}{456533}\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)*(3*x + 2)*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] -1/5929*(272*x - 213)/(2*x - 1)^2 + 125/1331*ln(abs(5*x + 3)) - 2
7/343*ln(abs(3*x + 2)) - 6938/456533*ln(abs(2*x - 1))
```

3.1664 $\int \frac{1}{(1-2x)^3(2+3x)^2(3+5x)} dx$

Optimal. Leaf size=64

$$\frac{404}{41503(1-2x)}+\frac{27}{343(3x+2)}+\frac{2}{539(1-2x)^2}-\frac{27208\log(1-2x)}{3195731}-\frac{1107\log(3x+2)}{2401}+\frac{625\log(5x+3)}{1331}$$

```
[Out] 2/(539*(1 - 2*x)^2) + 404/(41503*(1 - 2*x)) + 27/(343*(2 + 3*x))
- (27208*Log[1 - 2*x])/3195731 - (1107*Log[2 + 3*x])/2401 + (625*
Log[3 + 5*x])/1331
```

Rubi [A] time = 0.0735967, antiderivative size = 64, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{404}{41503(1-2x)}+\frac{27}{343(3x+2)}+\frac{2}{539(1-2x)^2}-\frac{27208\log(1-2x)}{3195731}-\frac{1107\log(3x+2)}{2401}+\frac{625\log(5x+3)}{1331}$$

Antiderivative was successfully verified.

```
[In] Int[1/((1 - 2*x)^3*(2 + 3*x)^2*(3 + 5*x)),x]
```

```
[Out] 2/(539*(1 - 2*x)^2) + 404/(41503*(1 - 2*x)) + 27/(343*(2 + 3*x))
- (27208*Log[1 - 2*x])/3195731 - (1107*Log[2 + 3*x])/2401 + (625*
Log[3 + 5*x])/1331
```

Rubi in Sympy [A] time = 10.0073, size = 53, normalized size = 0.83

$$-\frac{27208\log\left(-2x+1\right)}{3195731}-\frac{1107\log\left(3x+2\right)}{2401}+\frac{625\log\left(5x+3\right)}{1331}+\frac{27}{343\left(3x+2\right)}+\frac{404}{41503\left(-2x+1\right)}+\frac{2}{539\left(-2x+1\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(1/(1-2*x)**3/(2+3*x)**2/(3+5*x),x)
```

```
[Out] -27208*log(-2*x + 1)/3195731 - 1107*log(3*x + 2)/2401 + 625*log(5
*x + 3)/1331 + 27/(343*(3*x + 2)) + 404/(41503*(-2*x + 1)) + 2/(5
39*(-2*x + 1)**2)
```

Mathematica [A] time = 0.107907, size = 57, normalized size = 0.89

$$\frac{\frac{77(10644x^2-13010x+4383)}{(1-2x)^2(3x+2)}-27208\log(5-10x)-1473417\log(5(3x+2))+1500625\log(5x+3)}{3195731}$$

Antiderivative was successfully verified.

```
[In] Integrate[1/((1 - 2*x)^3*(2 + 3*x)^2*(3 + 5*x)),x]
```

```
[Out] ((77*(4383 - 13010*x + 10644*x^2))/((1 - 2*x)^2*(2 + 3*x)) - 2720
8*Log[5 - 10*x] - 1473417*Log[5*(2 + 3*x)] + 1500625*Log[3 + 5*x]
)/3195731
```

Maple [A] time = 0.016, size = 53, normalized size = 0.8

$$\frac{625\ \ln\left(3+5\,x\right)}{1331}+\frac{27}{686+1029\,x}-\frac{1107\ \ln\left(2+3\,x\right)}{2401}+\frac{2}{539\ \left(-1+2\,x\right)^{2}}-\frac{404}{-41503+83006\,x}-\frac{27208\ \ln\left(-1+2\,x\right)}{3195731}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^3/(2+3*x)^2/(3+5*x),x)
```

```
[Out] 625/1331*ln(3+5*x)+27/343/(2+3*x)-1107/2401*ln(2+3*x)+2/539/(-1+2
*x)^2-404/41503/(-1+2*x)-27208/3195731*ln(-1+2*x)
```

Maxima [A] time = 1.37048, size = 73, normalized size = 1.14

$$\frac{10644\,x^{2}-13010\,x+4383}{41503\,\left(12\,x^{3}-4\,x^{2}-5\,x+2\right)}+\frac{625}{1331}\,\log\left(5\,x+3\right)-\frac{1107}{2401}\,\log\left(3\,x+2\right)-\frac{27208}{3195731}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)*(3*x + 2)^2*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] 1/41503*(10644*x^2 - 13010*x + 4383)/(12*x^3 - 4*x^2 - 5*x + 2) +
 625/1331*log(5*x + 3) - 1107/2401*log(3*x + 2) - 27208/3195731*l
og(2*x - 1)
```

Fricas [A] time = 0.214713, size = 132, normalized size = 2.06

$$\frac{819588\,x^{2}+1500625\,\left(12\,x^{3}-4\,x^{2}-5\,x+2\right)\log\left(5\,x+3\right)-1473417\,\left(12\,x^{3}-4\,x^{2}-5\,x+2\right)\log\left(3\,x+2\right)-27208\,\left(12\,x^{3}-\right.}{3195731\,\left(12\,x^{3}-4\,x^{2}-5\,x+2\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)*(3*x + 2)^2*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] 1/3195731*(819588*x^2 + 1500625*(12*x^3 - 4*x^2 - 5*x + 2)*log(5*
x + 3) - 1473417*(12*x^3 - 4*x^2 - 5*x + 2)*log(3*x + 2) - 27208*
(12*x^3 - 4*x^2 - 5*x + 2)*log(2*x - 1) - 1001770*x + 337491)/(12
*x^3 - 4*x^2 - 5*x + 2)
```

Sympy [A] time = 0.539397, size = 54, normalized size = 0.84

$$\frac{10644x^{2}-13010x+4383}{498036x^{3}-166012x^{2}-207515x+83006}-\frac{27208\log\left(x-\frac{1}{2}\right)}{3195731}+\frac{625\log\left(x+\frac{3}{5}\right)}{1331}-\frac{1107\log\left(x+\frac{2}{3}\right)}{2401}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**3/(2+3*x)**2/(3+5*x),x)
```

```
[Out] (10644*x**2 - 13010*x + 4383)/(498036*x**3 - 166012*x**2 - 207515
*x + 83006) - 27208*log(x - 1/2)/3195731 + 625*log(x + 3/5)/1331
- 1107*log(x + 2/3)/2401
```

GIAC/XCAS [A] time = 0.21945, size = 89, normalized size = 1.39

$$\frac{27}{343\,(3\,x+2)}+\frac{24\,\left(\frac{938}{3\,x+2}-235\right)}{290521\,\left(\frac{7}{3\,x+2}-2\right)^{2}}+\frac{625}{1331}\ln\left(\left|-\frac{1}{3\,x+2}+5\right|\right)-\frac{27208}{3195731}\ln\left(\left|-\frac{7}{3\,x+2}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-1/((5*x + 3)*(3*x + 2)^2*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] 27/343/(3*x + 2) + 24/290521*(938/(3*x + 2) - 235)/(7/(3*x + 2) -
 2)^2 + 625/1331*ln(abs(-1/(3*x + 2) + 5)) - 27208/3195731*ln(abs
(-7/(3*x + 2) + 2))
```

3.1665 $\int \frac{1}{(1-2x)^3(2+3x)^3(3+5x)}\,dx$

Optimal. Leaf size=75

$$\frac{1072}{290521(1-2x)}+\frac{1107}{2401(3x+2)}+\frac{4}{3773(1-2x)^2}+\frac{27}{686(3x+2)^2}-\frac{89792\log(1-2x)}{22370117}-\frac{39393\log(3x+2)}{16807}+\frac{3125\log(5x+3)}{1331}$$

```
[Out] 4/(3773*(1 - 2*x)^2) + 1072/(290521*(1 - 2*x)) + 27/(686*(2 + 3*x
)^2) + 1107/(2401*(2 + 3*x)) - (89792*Log[1 - 2*x])/22370117 - (3
9393*Log[2 + 3*x])/16807 + (3125*Log[3 + 5*x])/1331
```

Rubi [A] time = 0.0866764, antiderivative size = 75, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{1072}{290521(1-2x)}+\frac{1107}{2401(3x+2)}+\frac{4}{3773(1-2x)^2}+\frac{27}{686(3x+2)^2}-\frac{89792\log(1-2x)}{22370117}-\frac{39393\log(3x+2)}{16807}+\frac{3125\log(5x+3)}{1331}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^3*(2 + 3*x)^3*(3 + 5*x)),x]
```

```
[Out] 4/(3773*(1 - 2*x)^2) + 1072/(290521*(1 - 2*x)) + 27/(686*(2 + 3*x
)^2) + 1107/(2401*(2 + 3*x)) - (89792*Log[1 - 2*x])/22370117 - (3
9393*Log[2 + 3*x])/16807 + (3125*Log[3 + 5*x])/1331
```

Rubi in Sympy [A] time = 11.4603, size = 63, normalized size = 0.84

$$-\frac{89792\log(-2x+1)}{22370117}-\frac{39393\log(3x+2)}{16807}+\frac{3125\log(5x+3)}{1331}+\frac{1107}{2401(3x+2)}+\frac{27}{686(3x+2)^2}+\frac{1072}{290521(-2x+1)}+\frac{4}{3773(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**3/(2+3*x)**3/(3+5*x),x)
```

```
[Out] -89792*log(-2*x + 1)/22370117 - 39393*log(3*x + 2)/16807 + 3125*l
og(5*x + 3)/1331 + 1107/(2401*(3*x + 2)) + 27/(686*(3*x + 2)**2)
+ 1072/(290521*(-2*x + 1)) + 4/(3773*(-2*x + 1)**2)
```

Mathematica [A] time = 0.104706, size = 58, normalized size = 0.77

$$\frac{\frac{77(3176136x^3-1006716x^2-1414978x+569697)}{(6x^2+x-2)^2}-179584\log(5-10x)-104864166\log(5(3x+2))+105043750\log(5x+3)}{44740234}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^3*(2 + 3*x)^3*(3 + 5*x)),x]
```

```
[Out] ((77*(569697 - 1414978*x - 1006716*x^2 + 3176136*x^3))/(-2 + x +
6*x^2)^2 - 179584*Log[5 - 10*x] - 104864166*Log[5*(2 + 3*x)] + 10
5043750*Log[3 + 5*x])/44740234
```

Maple [A] time = 0.017, size = 62, normalized size = 0.8

$$\frac{3125\ \ln\left(3+5\,x\right)}{1331}+\frac{27}{686\ \left(2+3\,x\right)^{2}}+\frac{1107}{4802+7203\,x}-\frac{39393\ \ln\left(2+3\,x\right)}{16807}+\frac{4}{3773\ \left(-1+2\,x\right)^{2}}-\frac{1072}{-290521+581042\,x}-\frac{89792\ \ln\left(-1+2\,x\right)}{22370117}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^3/(2+3*x)^3/(3+5*x),x)
```

```
[Out] 3125/1331*ln(3+5*x)+27/686/(2+3*x)^2+1107/2401/(2+3*x)-39393/1680
7*ln(2+3*x)+4/3773/(-1+2*x)^2-1072/290521/(-1+2*x)-89792/22370117
*ln(-1+2*x)
```

Maxima [A] time = 1.35602, size = 86, normalized size = 1.15

$$\frac{3176136\,x^{3}-1006716\,x^{2}-1414978\,x+569697}{581042\,(36\,x^{4}+12\,x^{3}-23\,x^{2}-4\,x+4)}+\frac{3125}{1331}\log\left(5\,x+3\right)-\frac{39393}{16807}\log\left(3\,x+2\right)-\frac{89792}{22370117}\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)*(3*x + 2)^3*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] 1/581042*(3176136*x^3 - 1006716*x^2 - 1414978*x + 569697)/(36*x^4
 + 12*x^3 - 23*x^2 - 4*x + 4) + 3125/1331*log(5*x + 3) - 39393/16
807*log(3*x + 2) - 89792/22370117*log(2*x - 1)
```

Fricas [A] time = 0.22097, size = 166, normalized size = 2.21

$$\frac{244562472\,x^{3}-77517132\,x^{2}+105043750\left(36\,x^{4}+12\,x^{3}-23\,x^{2}-4\,x+4\right)\log\left(5\,x+3\right)-104864166\left(36\,x^{4}+12\,x^{3}-23\,x^{2}\right.}{44740234\,(36\,x^{4}+12\,x^{3}-23}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)*(3*x + 2)^3*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] 1/44740234*(244562472*x^3 - 77517132*x^2 + 105043750*(36*x^4 + 12
*x^3 - 23*x^2 - 4*x + 4)*log(5*x + 3) - 104864166*(36*x^4 + 12*x^
3 - 23*x^2 - 4*x + 4)*log(3*x + 2) - 179584*(36*x^4 + 12*x^3 - 23
*x^2 - 4*x + 4)*log(2*x - 1) - 108953306*x + 43866669)/(36*x^4 +
12*x^3 - 23*x^2 - 4*x + 4)
```

Sympy [A] time = 0.606914, size = 65, normalized size = 0.87

$$\frac{3176136x^{3}-1006716x^{2}-1414978x+569697}{20917512x^{4}+6972504x^{3}-13363966x^{2}-2324168x+2324168}-\frac{89792\log\left(x-\frac{1}{2}\right)}{22370117}+\frac{3125\log\left(x+\frac{3}{5}\right)}{1331}-\frac{39393\log\left(x+\frac{2}{3}\right)}{16807}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**3/(2+3*x)**3/(3+5*x),x)
```

```
[Out] (3176136*x**3 - 1006716*x**2 - 1414978*x + 569697)/(20917512*x**4
 + 6972504*x**3 - 13363966*x**2 - 2324168*x + 2324168) - 89792*lo
g(x - 1/2)/22370117 + 3125*log(x + 3/5)/1331 - 39393*log(x + 2/3)
/16807
```

GIAC/XCAS [A] time = 0.213359, size = 80, normalized size = 1.07

$$\frac{3176136\,x^{3}-1006716\,x^{2}-1414978\,x+569697}{581042\,(3\,x+2)^{2}(2\,x-1)^{2}}+\frac{3125}{1331}\ln\left(|5\,x+3|\right)-\frac{39393}{16807}\ln\left(|3\,x+2|\right)-\frac{89792}{22370117}\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-1/((5*x + 3)*(3*x + 2)^3*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] 1/581042*(3176136*x^3 - 1006716*x^2 - 1414978*x + 569697)/((3*x +
 2)^2*(2*x - 1)^2) + 3125/1331*ln(abs(5*x + 3)) - 39393/16807*ln(
abs(3*x + 2)) - 89792/22370117*ln(abs(2*x - 1))
```

3.1666 $\int \frac{1}{(1-2x)^3(2+3x)^4(3+5x)}\,dx$

Optimal. Leaf size=86

$$\frac{2672}{2033647(1-2x)}+\frac{39393}{16807(3x+2)}+\frac{8}{26411(1-2x)^2}+\frac{1107}{4802(3x+2)^2}+\frac{9}{343(3x+2)^3}-\frac{267760\log(1-2x)}{156590819}-\frac{1380915\log(3x+2)}{117649}+\frac{15625\log(5x+3)}{1331}$$

```
[Out] 8/(26411*(1 - 2*x)^2) + 2672/(2033647*(1 - 2*x)) + 9/(343*(2 + 3*
x)^3) + 1107/(4802*(2 + 3*x)^2) + 39393/(16807*(2 + 3*x)) - (2677
60*Log[1 - 2*x])/156590819 - (1380915*Log[2 + 3*x])/117649 + (156
25*Log[3 + 5*x])/1331
```

Rubi [A] time = 0.10132, antiderivative size = 86, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{2672}{2033647(1-2x)}+\frac{39393}{16807(3x+2)}+\frac{8}{26411(1-2x)^2}+\frac{1107}{4802(3x+2)^2}+\frac{9}{343(3x+2)^3}-\frac{267760\log(1-2x)}{156590819}-\frac{1380915\log(3x+2)}{117649}+\frac{15625\log(5x+3)}{1331}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^3*(2 + 3*x)^4*(3 + 5*x)),x]
```

```
[Out] 8/(26411*(1 - 2*x)^2) + 2672/(2033647*(1 - 2*x)) + 9/(343*(2 + 3*
x)^3) + 1107/(4802*(2 + 3*x)^2) + 39393/(16807*(2 + 3*x)) - (2677
60*Log[1 - 2*x])/156590819 - (1380915*Log[2 + 3*x])/117649 + (156
25*Log[3 + 5*x])/1331
```

Rubi in Sympy [A] time = 12.8778, size = 73, normalized size = 0.85

$$-\frac{267760\log\left(-2x+1\right)}{156590819}-\frac{1380915\log\left(3x+2\right)}{117649}+\frac{15625\log\left(5x+3\right)}{1331}+\frac{39393}{16807\left(3x+2\right)}+\frac{1107}{4802\left(3x+2\right)^2}+\frac{9}{343\left(3x+2\right)^3}+\frac{2672}{2033647\left(-2x+1\right)}+\frac{8}{26411\left(-2x+1\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**3/(2+3*x)**4/(3+5*x),x)
```

```
[Out] -267760*log(-2*x + 1)/156590819 - 1380915*log(3*x + 2)/117649 + 1
5625*log(5*x + 3)/1331 + 39393/(16807*(3*x + 2)) + 1107/(4802*(3*
x + 2)**2) + 9/(343*(3*x + 2)**3) + 2672/(2033647*(-2*x + 1)) + 8
/(26411*(-2*x + 1)**2)
```

Mathematica [A] time = 0.153722, size = 69, normalized size = 0.8

$$\frac{5\left(\frac{77\left(342903240x^4+125249220x^3-222614730x^2-43096225x+40167012\right)}{5(1-2x)^2(3x+2)^3}-107104\log(5-10x)-735199146\log(5(3x+2))+735306250\log\right.}{313181638}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^3*(2 + 3*x)^4*(3 + 5*x)),x]
```

```
[Out] (5*((77*(40167012 - 43096225*x - 222614730*x^2 + 125249220*x^3 +
342903240*x^4))/(5*(1 - 2*x)^2*(2 + 3*x)^3) - 107104*Log[5 - 10*x
] - 735199146*Log[5*(2 + 3*x)] + 735306250*Log[3 + 5*x]))/3131816
38
```

Maple [A] time = 0.017, size = 71, normalized size = 0.8

$$\frac{15625\ \ln(3+5x)}{1331}+\frac{9}{343\ (2+3x)^3}+\frac{1107}{4802\ (2+3x)^2}+\frac{39393}{33614+50421x}-\frac{1380915\ \ln(2+3x)}{117649}+\frac{8}{26411\ (-1+2x)^2}-\frac{2672}{-2033647+4067294x}-\frac{267760\ \ln(-1+2x)}{156590819}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^3/(2+3*x)^4/(3+5*x),x)
```

```
[Out] 15625/1331*ln(3+5*x)+9/343/(2+3*x)^3+1107/4802/(2+3*x)^2+39393/16
807/(2+3*x)-1380915/117649*ln(2+3*x)+8/26411/(-1+2*x)^2-2672/2033
647/(-1+2*x)-267760/156590819*ln(-1+2*x)
```

Maxima [A] time = 1.32716, size = 100, normalized size = 1.16

$$\frac{342903240\,x^4+125249220\,x^3-222614730\,x^2-43096225\,x+40167012}{4067294\,(108\,x^5+108\,x^4-45\,x^3-58\,x^2+4\,x+8)}+\frac{15625}{1331}\log(5\,x+3)-\frac{1380915}{117649}\log(3\,x+2)-\frac{267760}{156590819}\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)*(3*x + 2)^4*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] 1/4067294*(342903240*x^4 + 125249220*x^3 - 222614730*x^2 - 430962
25*x + 40167012)/(108*x^5 + 108*x^4 - 45*x^3 - 58*x^2 + 4*x + 8)
+ 15625/1331*log(5*x + 3) - 1380915/117649*log(3*x + 2) - 267760/
156590819*log(2*x - 1)
```

Fricas [A] time = 0.224291, size = 200, normalized size = 2.33

$$\frac{26403549480\,x^4+9644189940\,x^3-17141334210\,x^2+3676531250\,\left(108\,x^5+108\,x^4-45\,x^3-58\,x^2+4\,x+8\right)\log(5\,x+3)-}{31318}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)*(3*x + 2)^4*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] 1/313181638*(26403549480*x^4 + 9644189940*x^3 - 17141334210*x^2 +
 3676531250*(108*x^5 + 108*x^4 - 45*x^3 - 58*x^2 + 4*x + 8)*log(5
*x + 3) - 3675995730*(108*x^5 + 108*x^4 - 45*x^3 - 58*x^2 + 4*x +
 8)*log(3*x + 2) - 535520*(108*x^5 + 108*x^4 - 45*x^3 - 58*x^2 +
4*x + 8)*log(2*x - 1) - 3318409325*x + 3092859924)/(108*x^5 + 108
*x^4 - 45*x^3 - 58*x^2 + 4*x + 8)
```

Sympy [A] time = 0.663606, size = 75, normalized size = 0.87

$$\frac{342903240x^4+125249220x^3-222614730x^2-43096225x+40167012}{439267752x^5+439267752x^4-183028230x^3-235903052x^2+16269176x+32538352}-\frac{267760\log\left(x-\frac{1}{2}\right)}{156590819}+\frac{15625\log\left(x+\frac{3}{5}\right)}{1331}-\frac{1380915\log\left(x+\frac{2}{3}\right)}{117649}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**3/(2+3*x)**4/(3+5*x),x)
```

```
[Out] (342903240*x**4 + 125249220*x**3 - 222614730*x**2 - 43096225*x +
40167012)/(439267752*x**5 + 439267752*x**4 - 183028230*x**3 - 235
903052*x**2 + 16269176*x + 32538352) - 267760*log(x - 1/2)/156590
819 + 15625*log(x + 3/5)/1331 - 1380915*log(x + 2/3)/117649
```

GIAC/XCAS [A] time = 0.215782, size = 86, normalized size = 1.

$$\frac{342903240\,x^4+125249220\,x^3-222614730\,x^2-43096225\,x+40167012}{4067294\,(3\,x+2)^3(2\,x-1)^2}+\frac{15625}{1331}\ln\left(|5\,x+3|\right)-\frac{1380915}{117649}\ln\left(|3\,x+2|\right)-\frac{267760}{156590819}\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-1/((5*x + 3)*(3*x + 2)^4*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] 1/4067294*(342903240*x^4 + 125249220*x^3 - 222614730*x^2 - 430962
25*x + 40167012)/((3*x + 2)^3*(2*x - 1)^2) + 15625/1331*ln(abs(5*
x + 3)) - 1380915/117649*ln(abs(3*x + 2)) - 267760/156590819*ln(a
bs(2*x - 1))
```

3.1667 $\int \frac{(2+3x)^8}{(1-2x)^3(3+5x)^2}\,dx$

Optimal. Leaf size=80

$$-\frac{6561x^4}{800}-\frac{123201x^3}{2000}-\frac{4863159x^2}{20000}-\frac{81001863x}{100000}-\frac{79883671}{85184(1-2x)}-\frac{1}{20796875(5x+3)}+\frac{5764801}{30976(1-2x)^2}-\frac{1845559863\log(1-2x)}{1874048}+\frac{54\log(5x+3)}{45753125}$$

```
[Out] 5764801/(30976*(1 - 2*x)^2) - 79883671/(85184*(1 - 2*x)) - (81001
863*x)/100000 - (4863159*x^2)/20000 - (123201*x^3)/2000 - (6561*x
^4)/800 - 1/(20796875*(3 + 5*x)) - (1845559863*Log[1 - 2*x])/1874
048 + (54*Log[3 + 5*x])/45753125
```

Rubi [A] time = 0.0973772, antiderivative size = 80, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$-\frac{6561x^4}{800}-\frac{123201x^3}{2000}-\frac{4863159x^2}{20000}-\frac{81001863x}{100000}-\frac{79883671}{85184(1-2x)}-\frac{1}{20796875(5x+3)}+\frac{5764801}{30976(1-2x)^2}-\frac{1845559863\log(1-2x)}{1874048}+\frac{54\log(5x+3)}{45753125}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^8/((1 - 2*x)^3*(3 + 5*x)^2),x]
```

```
[Out] 5764801/(30976*(1 - 2*x)^2) - 79883671/(85184*(1 - 2*x)) - (81001
863*x)/100000 - (4863159*x^2)/20000 - (123201*x^3)/2000 - (6561*x
^4)/800 - 1/(20796875*(3 + 5*x)) - (1845559863*Log[1 - 2*x])/1874
048 + (54*Log[3 + 5*x])/45753125
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{6561x^4}{800}-\frac{123201x^3}{2000}-\frac{1845559863\log(-2x+1)}{1874048}+\frac{54\log(5x+3)}{45753125}+\int\left(-\frac{81001863}{100000}\right)dx-\frac{4863159\int x\,dx}{10000}-\frac{1}{20796875(5x+3)}-\frac{79883671}{85184(-2x+1)}+\frac{5764801}{30976(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**8/(1-2*x)**3/(3+5*x)**2,x)
```

```
[Out] -6561*x**4/800 - 123201*x**3/2000 - 1845559863*log(-2*x + 1)/1874
048 + 54*log(5*x + 3)/45753125 + Integral(-81001863/100000, x) -
4863159*Integral(x, x)/10000 - 1/(20796875*(5*x + 3)) - 79883671/
(85184*(-2*x + 1)) + 5764801/(30976*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0947457, size = 98, normalized size = 1.22

$$-\frac{81}{800}(3x+2)^4-\frac{2943(3x+2)^3}{2000}-\frac{315171(3x+2)^2}{20000}-\frac{18607401(3x+2)}{100000}+\frac{79883671}{85184(2x-1)}-\frac{1}{20796875(5x+3)}+\frac{5764801}{30976(1-2x)^2}-\frac{1845559863\log(3-6x)}{1874048}+\frac{54\log(-3(5x+3))}{45753125}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^8/((1 - 2*x)^3*(3 + 5*x)^2),x]
```

```
[Out] 5764801/(30976*(1 - 2*x)^2) + 79883671/(85184*(-1 + 2*x)) - (1860
7401*(2 + 3*x))/100000 - (315171*(2 + 3*x)^2)/20000 - (2943*(2 +
3*x)^3)/2000 - (81*(2 + 3*x)^4)/800 - 1/(20796875*(3 + 5*x)) - (1
845559863*Log[3 - 6*x])/1874048 + (54*Log[-3*(3 + 5*x)])/45753125
```

Maple [A] time = 0.017, size = 63, normalized size = 0.8

$$-\frac{6561\,x^4}{800}-\frac{123201\,x^3}{2000}-\frac{4863159\,x^2}{20000}-\frac{81001863\,x}{100000}-\frac{1}{62390625+103984375\,x}+\frac{54\,\ln(3+5\,x)}{45753125}+\frac{5764801}{30976\,(-1+2\,x)^2}+\frac{79883671}{-85184+170368\,x}-\frac{1845559863\,\ln(-1+2\,x)}{1874048}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^8/(1-2*x)^3/(3+5*x)^2,x)
```

```
[Out] -6561/800*x^4-123201/2000*x^3-4863159/20000*x^2-81001863/100000*x
-1/20796875/(3+5*x)+54/45753125*ln(3+5*x)+5764801/30976/(-1+2*x)^
2+79883671/85184/(-1+2*x)-1845559863/1874048*ln(-1+2*x)
```

Maxima [A] time = 1.35692, size = 86, normalized size = 1.08

$$-\frac{6561}{800}\,x^4-\frac{123201}{2000}\,x^3-\frac{4863159}{20000}\,x^2-\frac{81001863}{100000}\,x+\frac{49927294373976\,x^2+9946855297899\,x-12005712797131}{5324000000\,(20\,x^3-8\,x^2-7\,x+3)}+\frac{54}{45753125}\,\log(5\,x+3)-\frac{1845559863}{1874048}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^8/((5*x + 3)^2*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] -6561/800*x^4 - 123201/2000*x^3 - 4863159/20000*x^2 - 81001863/10
0000*x + 1/5324000000*(49927294373976*x^2 + 9946855297899*x - 120
05712797131)/(20*x^3 - 8*x^2 - 7*x + 3) + 54/45753125*log(5*x + 3
) - 1845559863/1874048*log(2*x - 1)
```

Fricas [A] time = 0.21127, size = 135, normalized size = 1.69

$$-\frac{9605960100000\,x^7+68309049600000\,x^6+252583384185000\,x^5+811024095717000\,x^4-468362848619160\,x^3-8385448}{58}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^8/((5*x + 3)^2*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] -1/58564000000*(9605960100000*x^7 + 68309049600000*x^6 + 25258338
4185000*x^5 + 811024095717000*x^4 - 468362848619160*x^3 - 8385448
48893576*x^2 - 69120*(20*x^3 - 8*x^2 - 7*x + 3)*log(5*x + 3) + 57
673745718750*(20*x^3 - 8*x^2 - 7*x + 3)*log(2*x - 1) + 3289838486
5071*x + 132062840768441)/(20*x^3 - 8*x^2 - 7*x + 3)
```

Sympy [A] time = 0.543379, size = 70, normalized size = 0.88

$$-\frac{6561x^4}{800}-\frac{123201x^3}{2000}-\frac{4863159x^2}{20000}-\frac{81001863x}{100000}+\frac{49927294373976x^2+9946855297899x-12005712797131}{106480000000x^3-42592000000x^2-37268000000x+15972000000}-\frac{1845559863\log\left(x-\frac{1}{2}\right)}{1874048}+\frac{54\log\left(x+\frac{3}{5}\right)}{45753125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**8/(1-2*x)**3/(3+5*x)**2,x)
```

```
[Out] -6561*x**4/800 - 123201*x**3/2000 - 4863159*x**2/20000 - 81001863
*x/100000 + (49927294373976*x**2 + 9946855297899*x - 120057127971
31)/(106480000000*x**3 - 42592000000*x**2 - 37268000000*x + 15972
000000) - 1845559863*log(x - 1/2)/1874048 + 54*log(x + 3/5)/45753
125
```

GIAC/XCAS [A] time = 0.214802, size = 151, normalized size = 1.89

$$-\frac{(5x+3)^4\left(\frac{11185606872}{5x+3}+\frac{158583727962}{(5x+3)^2}+\frac{3495217526460}{(5x+3)^3}-\frac{86510680819405}{(5x+3)^4}+\frac{317205578854725}{(5x+3)^5}+768476808\right)}{14641000000\left(\frac{11}{5x+3}-2\right)^2}-\frac{1}{20796875(5x+3)}+\frac{393919443}{400000}\ln\left(\frac{|5x+3|}{5(5x+3)^2}\right)-\frac{1845559863}{1874048}\ln\left(\left|-\frac{11}{5x+3}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^8/((5*x + 3)^2*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] -1/14641000000*(5*x + 3)^4*(11185606872/(5*x + 3) + 158583727962/
(5*x + 3)^2 + 3495217526460/(5*x + 3)^3 - 86510680819405/(5*x + 3
)^4 + 317205578854725/(5*x + 3)^5 + 768476808)/(11/(5*x + 3) - 2)
^2 - 1/20796875/(5*x + 3) + 393919443/400000*ln(1/5*abs(5*x + 3)/
(5*x + 3)^2) - 1845559863/1874048*ln(abs(-11/(5*x + 3) + 2))
```

3.1668 $\int \frac{(2+3x)^7}{(1-2x)^3(3+5x)^2}\,dx$

Optimal. Leaf size=73

$$-\frac{729x^3}{200}-\frac{108621x^2}{4000}-\frac{1258983x}{10000}-\frac{18941489}{85184(1-2x)}-\frac{1}{4159375(5x+3)}+\frac{823543}{15488(1-2x)^2}-\frac{87177909\log(1-2x)}{468512}+\frac{237\log(5x+3)}{45753125}$$

```
[Out] 823543/(15488*(1 - 2*x)^2) - 18941489/(85184*(1 - 2*x)) - (125898
3*x)/10000 - (108621*x^2)/4000 - (729*x^3)/200 - 1/(4159375*(3 +
5*x)) - (87177909*Log[1 - 2*x])/468512 + (237*Log[3 + 5*x])/45753
125
```

Rubi [A] time = 0.0879544, antiderivative size = 73, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{729x^3}{200}-\frac{108621x^2}{4000}-\frac{1258983x}{10000}-\frac{18941489}{85184(1-2x)}-\frac{1}{4159375(5x+3)}+\frac{823543}{15488(1-2x)^2}-\frac{87177909\log(1-2x)}{468512}+\frac{237\log(5x+3)}{45753125}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^7/((1 - 2*x)^3*(3 + 5*x)^2),x]
```

```
[Out] 823543/(15488*(1 - 2*x)^2) - 18941489/(85184*(1 - 2*x)) - (125898
3*x)/10000 - (108621*x^2)/4000 - (729*x^3)/200 - 1/(4159375*(3 +
5*x)) - (87177909*Log[1 - 2*x])/468512 + (237*Log[3 + 5*x])/45753
125
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{729x^3}{200}-\frac{87177909\log(-2x+1)}{468512}+\frac{237\log(5x+3)}{45753125}+\int\left(-\frac{1258983}{10000}\right)dx-\frac{108621\int x\,dx}{2000}-\frac{1}{4159375(5x+3)}-\frac{18941489}{85184(-2x+1)}+\frac{823543}{15488(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**7/(1-2*x)**3/(3+5*x)**2,x)
```

```
[Out] -729*x**3/200 - 87177909*log(-2*x + 1)/468512 + 237*log(5*x + 3)/
45753125 + Integral(-1258983/10000, x) - 108621*Integral(x, x)/20
00 - 1/(4159375*(5*x + 3)) - 18941489/(85184*(-2*x + 1)) + 823543
/(15488*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0788707, size = 67, normalized size = 0.92

$$\frac{-\frac{22(4851495000x^6+34203039750x^5+151415158950x^4-172378468845x^3-163837494156x^2+25343933346x+19763981131)}{(1-2x)^2(5x+3)}-272430965625\log(1-2x)+}{1464100000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^7/((1 - 2*x)^3*(3 + 5*x)^2),x]
```

```
[Out] ((-22*(19763981131 + 25343933346*x - 163837494156*x^2 - 172378468
845*x^3 + 151415158950*x^4 + 34203039750*x^5 + 4851495000*x^6))/(
(1 - 2*x)^2*(3 + 5*x)) - 272430965625*Log[1 - 2*x] + 7584*Log[6 +
 10*x])/1464100000
```

Maple [A] time = 0.014, size = 58, normalized size = 0.8

$$-\frac{729 x^3}{200} - \frac{108621 x^2}{4000} - \frac{1258983 x}{10000} - \frac{1}{12478125 + 20796875 x} + \frac{237 \ln(3 + 5 x)}{45753125} + \frac{823543}{15488 (-1 + 2 x)^2} + \frac{18941489}{-85184 + 170368 x} - \frac{87177909 \ln(-1 + 2 x)}{468512}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^7/(1-2*x)^3/(3+5*x)^2,x)
```

```
[Out] -729/200*x^3-108621/4000*x^2-1258983/10000*x-1/4159375/(3+5*x)+23
7/45753125*ln(3+5*x)+823543/15488/(-1+2*x)^2+18941489/85184/(-1+2
*x)-87177909/468512*ln(-1+2*x)
```

Maxima [A] time = 1.33961, size = 80, normalized size = 1.1

$$-\frac{729}{200} x^3 - \frac{108621}{4000} x^2 - \frac{1258983}{10000} x + \frac{1183843061988 x^2 + 259930759887 x - 270225047003}{532400000 (20 x^3 - 8 x^2 - 7 x + 3)} + \frac{237}{45753125} \log(5 x + 3) - \frac{87177909}{468512} \log(2 x - 1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^7/((5*x + 3)^2*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] -729/200*x^3 - 108621/4000*x^2 - 1258983/10000*x + 1/532400000*(1
183843061988*x^2 + 259930759887*x - 270225047003)/(20*x^3 - 8*x^2
 - 7*x + 3) + 237/45753125*log(5*x + 3) - 87177909/468512*log(2*x
 - 1)
```

Fricas [A] time = 0.20975, size = 128, normalized size = 1.75

$$-\frac{426931560000 x^6 + 3009867498000 x^5 + 13324533987600 x^4 - 6947670741660 x^3 - 17706353292408 x^2 - 30336 \left(20 x^3 - \right.}{5856400000 (20 x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^7/((5*x + 3)^2*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] -1/5856400000*(426931560000*x^6 + 3009867498000*x^5 + 13324533987
600*x^4 - 6947670741660*x^3 - 17706353292408*x^2 - 30336*(20*x^3
- 8*x^2 - 7*x + 3)*log(5*x + 3) + 1089723862500*(20*x^3 - 8*x^2 -
 7*x + 3)*log(2*x - 1) - 647305946397*x + 2972475517033)/(20*x^3
- 8*x^2 - 7*x + 3)
```

Sympy [A] time = 0.534817, size = 63, normalized size = 0.86

$$-\frac{729x^3}{200} - \frac{108621x^2}{4000} - \frac{1258983x}{10000} + \frac{1183843061988x^2 + 259930759887x - 270225047003}{10648000000x^3 - 4259200000x^2 - 3726800000x + 1597200000} - \frac{87177909 \log\left(x - \frac{1}{2}\right)}{468512} + \frac{237 \log\left(x + \frac{3}{5}\right)}{45753125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**7/(1-2*x)**3/(3+5*x)**2,x)
```

```
[Out] -729*x**3/200 - 108621*x**2/4000 - 1258983*x/10000 + (11838430619
88*x**2 + 259930759887*x - 270225047003)/(10648000000*x**3 - 4259
200000*x**2 - 3726800000*x + 1597200000) - 87177909*log(x - 1/2)/
468512 + 237*log(x + 3/5)/45753125
```

GIAC/XCAS [A] time = 0.221194, size = 139, normalized size = 1.9

$$-\frac{(5x+3)^3\left(\frac{1472913882}{5x+3}+\frac{33001809588}{(5x+3)^2}-\frac{817302548083}{(5x+3)^3}+\frac{2996736348771}{(5x+3)^4}+85386312\right)}{732050000\left(\frac{11}{5x+3}-2\right)^2}-\frac{1}{4159375(5x+3)}+\frac{18607401}{100000}\ln\left(\frac{|5x+3|}{5(5x+3)^2}\right)-\frac{87177909}{468512}\ln\left(\left|-\frac{11}{5x+3}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^7/((5*x + 3)^2*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] -1/732050000*(5*x + 3)^3*(1472913882/(5*x + 3) + 33001809588/(5*x
 + 3)^2 - 817302548083/(5*x + 3)^3 + 2996736348771/(5*x + 3)^4 +
85386312)/(11/(5*x + 3) - 2)^2 - 1/4159375/(5*x + 3) + 18607401/1
00000*ln(1/5*abs(5*x + 3)/(5*x + 3)^2) - 87177909/468512*ln(abs(-
11/(5*x + 3) + 2))
```

3.1669 $\int \frac{(2+3x)^6}{(1-2x)^3(3+5x)^2}\,dx$

Optimal. Leaf size=66

$$-\frac{729x^2}{400}-\frac{31347x}{2000}-\frac{67228}{1331(1-2x)}-\frac{1}{831875(5x+3)}+\frac{117649}{7744(1-2x)^2}-\frac{7383075\log(1-2x)}{234256}+\frac{204\log(5x+3)}{9150625}$$

```
[Out] 117649/(7744*(1 - 2*x)^2) - 67228/(1331*(1 - 2*x)) - (31347*x)/20
00 - (729*x^2)/400 - 1/(831875*(3 + 5*x)) - (7383075*Log[1 - 2*x]
)/234256 + (204*Log[3 + 5*x])/9150625
```

Rubi [A] time = 0.0757749, antiderivative size = 66, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{729x^2}{400}-\frac{31347x}{2000}-\frac{67228}{1331(1-2x)}-\frac{1}{831875(5x+3)}+\frac{117649}{7744(1-2x)^2}-\frac{7383075\log(1-2x)}{234256}+\frac{204\log(5x+3)}{9150625}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^6/((1 - 2*x)^3*(3 + 5*x)^2),x]
```

```
[Out] 117649/(7744*(1 - 2*x)^2) - 67228/(1331*(1 - 2*x)) - (31347*x)/20
00 - (729*x^2)/400 - 1/(831875*(3 + 5*x)) - (7383075*Log[1 - 2*x]
)/234256 + (204*Log[3 + 5*x])/9150625
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{7383075\log(-2x+1)}{234256}+\frac{204\log(5x+3)}{9150625}+\int\left(-\frac{31347}{2000}\right)dx-\frac{729\int x\,dx}{200}-\frac{1}{831875(5x+3)}-\frac{67228}{1331(-2x+1)}+\frac{117649}{7744(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**6/(1-2*x)**3/(3+5*x)**2,x)
```

```
[Out] -7383075*log(-2*x + 1)/234256 + 204*log(5*x + 3)/9150625 + Integr
al(-31347/2000, x) - 729*Integral(x, x)/200 - 1/(831875*(5*x + 3)
) - 67228/(1331*(-2*x + 1)) + 117649/(7744*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0742069, size = 74, normalized size = 1.12

$$-\frac{729(1-2x)^2}{1600}+\frac{2187}{250}(1-2x)+\frac{67228}{1331(2x-1)}-\frac{1}{831875(5x+3)}+\frac{117649}{7744(1-2x)^2}-\frac{7383075\log(1-2x)}{234256}+\frac{204\log(10x+6)}{9150625}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^6/((1 - 2*x)^3*(3 + 5*x)^2),x]
```

```
[Out] 117649/(7744*(1 - 2*x)^2) + (2187*(1 - 2*x))/250 - (729*(1 - 2*x)
^2)/1600 + 67228/(1331*(-1 + 2*x)) - 1/(831875*(3 + 5*x)) - (7383
075*Log[1 - 2*x])/234256 + (204*Log[6 + 10*x])/9150625
```

Maple [A] time = 0.014, size = 53, normalized size = 0.8

$$-\frac{729 x^2}{400}-\frac{31347 x}{2000}-\frac{1}{2495625+4159375 x}+\frac{204 \ln(3+5 x)}{9150625}+\frac{117649}{7744 (-1+2 x)^2}+\frac{67228}{-1331+2662 x}-\frac{7383075 \ln(-1+2 x)}{234256}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^6/(1-2*x)^3/(3+5*x)^2,x)
```

```
[Out] -729/400*x^2-31347/2000*x-1/831875/(3+5*x)+204/9150625*ln(3+5*x)+
117649/7744/(-1+2*x)^2+67228/1331/(-1+2*x)-7383075/234256*ln(-1+2
*x)
```

Maxima [A] time = 1.36592, size = 73, normalized size = 1.11

$$-\frac{729}{400} x^2-\frac{31347}{2000} x+\frac{26891199744 x^2+6733304631 x-5640849439}{53240000 (20 x^3-8 x^2-7 x+3)}+\frac{204}{9150625} \log(5 x+3)-\frac{7383075}{234256} \log(2 x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^6/((5*x + 3)^2*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] -729/400*x^2 - 31347/2000*x + 1/53240000*(26891199744*x^2 + 67333
04631*x - 5640849439)/(20*x^3 - 8*x^2 - 7*x + 3) + 204/9150625*lo
g(5*x + 3) - 7383075/234256*log(2*x - 1)
```

Fricas [A] time = 0.212648, size = 122, normalized size = 1.85

$$-\frac{21346578000 x^5+175041939600 x^4-80903530620 x^3-356854410264 x^2-13056 \left(20 x^3-8 x^2-7 x+3\right) \log(5 x+3)+}{585640000 (20 x^3-8 x^2-7 x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^6/((5*x + 3)^2*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] -1/585640000*(21346578000*x^5 + 175041939600*x^4 - 80903530620*x^
3 - 356854410264*x^2 - 13056*(20*x^3 - 8*x^2 - 7*x + 3)*log(5*x +
 3) + 18457687500*(20*x^3 - 8*x^2 - 7*x + 3)*log(2*x - 1) - 46529
265321*x + 62049343829)/(20*x^3 - 8*x^2 - 7*x + 3)
```

Sympy [A] time = 0.511198, size = 56, normalized size = 0.85

$$-\frac{729x^2}{400}-\frac{31347x}{2000}+\frac{26891199744x^2+6733304631x-5640849439}{1064800000x^3-425920000x^2-372680000x+159720000}-\frac{7383075 \log\left(x-\frac{1}{2}\right)}{234256}+\frac{204 \log\left(x+\frac{3}{5}\right)}{9150625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**6/(1-2*x)**3/(3+5*x)**2,x)
```

```
[Out] -729*x**2/400 - 31347*x/2000 + (26891199744*x**2 + 6733304631*x -
 5640849439)/(1064800000*x**3 - 425920000*x**2 - 372680000*x + 15
9720000) - 7383075*log(x - 1/2)/234256 + 204*log(x + 3/5)/9150625
```

GIAC/XCAS [A] time = 0.218881, size = 127, normalized size = 1.92

$$-\frac{(5x+3)^2\left(\frac{555011028}{5x+3}-\frac{13845990449}{(5x+3)^2}+\frac{50757096489}{(5x+3)^3}+21346578\right)}{73205000\left(\frac{11}{5x+3}-2\right)^2}-\frac{1}{831875(5x+3)}+\frac{315171}{10000}\ln\left(\frac{|5x+3|}{5(5x+3)^2}\right)-\frac{7383075}{234256}\ln\left(\left|-\frac{11}{5x+3}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^6/((5*x + 3)^2*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] -1/73205000*(5*x + 3)^2*(555011028/(5*x + 3) - 13845990449/(5*x +
 3)^2 + 50757096489/(5*x + 3)^3 + 21346578)/(11/(5*x + 3) - 2)^2
- 1/831875/(5*x + 3) + 315171/10000*ln(1/5*abs(5*x + 3)/(5*x + 3)
^2) - 7383075/234256*ln(abs(-11/(5*x + 3) + 2))
```

3.1670 $\int \frac{(2+3x)^5}{(1-2x)^3(3+5x)^2} \, dx$

Optimal. Leaf size=59

$$-\frac{243x}{200}-\frac{228095}{21296(1-2x)}-\frac{1}{166375(5x+3)}+\frac{16807}{3872(1-2x)^2}-\frac{1034145\log(1-2x)}{234256}+\frac{171\log(5x+3)}{1830125}$$

```
[Out] 16807/(3872*(1 - 2*x)^2) - 228095/(21296*(1 - 2*x)) - (243*x)/200
 - 1/(166375*(3 + 5*x)) - (1034145*Log[1 - 2*x])/234256 + (171*Lo
g[3 + 5*x])/1830125
```

Rubi [A] time = 0.0696638, antiderivative size = 59, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{243x}{200}-\frac{228095}{21296(1-2x)}-\frac{1}{166375(5x+3)}+\frac{16807}{3872(1-2x)^2}-\frac{1034145\log(1-2x)}{234256}+\frac{171\log(5x+3)}{1830125}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^5/((1 - 2*x)^3*(3 + 5*x)^2),x]
```

```
[Out] 16807/(3872*(1 - 2*x)^2) - 228095/(21296*(1 - 2*x)) - (243*x)/200
 - 1/(166375*(3 + 5*x)) - (1034145*Log[1 - 2*x])/234256 + (171*Lo
g[3 + 5*x])/1830125
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{1034145\log(-2x+1)}{234256}+\frac{171\log(5x+3)}{1830125}+\int\left(-\frac{243}{200}\right)dx-\frac{1}{166375(5x+3)}-\frac{228095}{21296(-2x+1)}+\frac{16807}{3872(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**5/(1-2*x)**3/(3+5*x)**2,x)
```

```
[Out] -1034145*log(-2*x + 1)/234256 + 171*log(5*x + 3)/1830125 + Integr
al(-243/200, x) - 1/(166375*(5*x + 3)) - 228095/(21296*(-2*x + 1)
) + 16807/(3872*(-2*x + 1)**2)
```

Mathematica [A] time = 0.058251, size = 55, normalized size = 0.93

$$\frac{35577630(1-2x)+\frac{627261250}{2x-1}-\frac{352}{5x+3}+\frac{254205875}{(1-2x)^2}-258536250\log(1-2x)+5472\log(10x+6)}{58564000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^5/((1 - 2*x)^3*(3 + 5*x)^2),x]
```

```
[Out] (254205875/(1 - 2*x)^2 + 35577630*(1 - 2*x) + 627261250/(-1 + 2*x
) - 352/(3 + 5*x) - 258536250*Log[1 - 2*x] + 5472*Log[6 + 10*x])/
58564000
```

Maple [A] time = 0.016, size = 48, normalized size = 0.8

$$-\frac{243 x}{200}-\frac{1}{499125+831875 x}+\frac{171 \ln (3+5 x)}{1830125}+\frac{16807}{3872 (-1+2 x)^{2}}+\frac{228095}{-21296+42592 x}-\frac{1034145 \ln (-1+2 x)}{234256}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^5/(1-2*x)^3/(3+5*x)^2,x)
```

```
[Out] -243/200*x-1/166375/(3+5*x)+171/1830125*ln(3+5*x)+16807/3872/(-1+
2*x)^2+228095/21296/(-1+2*x)-1034145/234256*ln(-1+2*x)
```

Maxima [A] time = 1.33184, size = 66, normalized size = 1.12

$$-\frac{243}{200} x+\frac{570237372 x^{2}+172572003 x-101742407}{5324000 (20 x^{3}-8 x^{2}-7 x+3)}+\frac{171}{1830125} \log (5 x+3)-\frac{1034145}{234256} \log (2 x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^5/((5*x + 3)^2*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] -243/200*x + 1/5324000*(570237372*x^2 + 172572003*x - 101742407)/
(20*x^3 - 8*x^2 - 7*x + 3) + 171/1830125*log(5*x + 3) - 1034145/2
34256*log(2*x - 1)
```

Fricas [A] time = 0.210346, size = 115, normalized size = 1.95

$$-\frac{1423105200 x^{4}-569242080 x^{3}-6770697912 x^{2}-5472 \left(20 x^{3}-8 x^{2}-7 x+3\right) \log (5 x+3)+258536250 \left(20 x^{3}-8 x^{2}-\right.}{58564000 (20 x^{3}-8 x^{2}-7 x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^5/((5*x + 3)^2*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] -1/58564000*(1423105200*x^4 - 569242080*x^3 - 6770697912*x^2 - 54
72*(20*x^3 - 8*x^2 - 7*x + 3)*log(5*x + 3) + 258536250*(20*x^3 -
8*x^2 - 7*x + 3)*log(2*x - 1) - 1684826253*x + 1119166477)/(20*x^
3 - 8*x^2 - 7*x + 3)
```

Sympy [A] time = 0.50125, size = 49, normalized size = 0.83

$$-\frac{243x}{200}+\frac{570237372x^{2}+172572003x-101742407}{106480000x^{3}-42592000x^{2}-37268000x+15972000}-\frac{1034145 \log \left(x-\frac{1}{2}\right)}{234256}+\frac{171 \log \left(x+\frac{3}{5}\right)}{1830125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**5/(1-2*x)**3/(3+5*x)**2,x)
```

```
[Out] -243*x/200 + (570237372*x**2 + 172572003*x - 101742407)/(10648000
0*x**3 - 42592000*x**2 - 37268000*x + 15972000) - 1034145*log(x -
 1/2)/234256 + 171*log(x + 3/5)/1830125
```

GIAC/XCAS [A] time = 0.217558, size = 112, normalized size = 1.9

$$\frac{(5\,x+3)\left(\frac{389138447}{5\,x+3}-\frac{1420901823}{(5\,x+3)^2}-14231052\right)}{14641000\left(\frac{11}{5\,x+3}-2\right)^2}-\frac{1}{166375\,(5\,x+3)}+\frac{8829}{2000}\ln\left(\frac{|5\,x+3|}{5\,(5\,x+3)^2}\right)-\frac{1034145}{234256}\ln\left(\left|-\frac{11}{5\,x+3}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^5/((5*x + 3)^2*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] 1/14641000*(5*x + 3)*(389138447/(5*x + 3) - 1420901823/(5*x + 3)^
2 - 14231052)/(11/(5*x + 3) - 2)^2 - 1/166375/(5*x + 3) + 8829/20
00*ln(1/5*abs(5*x + 3)/(5*x + 3)^2) - 1034145/234256*ln(abs(-11/(
5*x + 3) + 2))
```

3.1671 $\int \frac{(2+3x)^4}{(1-2x)^3(3+5x)^2}\,dx$

Optimal. Leaf size=54

$$-\frac{10633}{5324(1-2x)}-\frac{1}{33275(5x+3)}+\frac{2401}{1936(1-2x)^2}-\frac{47481\log(1-2x)}{117128}+\frac{138\log(5x+3)}{366025}$$

```
[Out] 2401/(1936*(1 - 2*x)^2) - 10633/(5324*(1 - 2*x)) - 1/(33275*(3 +
5*x)) - (47481*Log[1 - 2*x])/117128 + (138*Log[3 + 5*x])/366025
```

Rubi [A] time = 0.0628667, antiderivative size = 54, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{10633}{5324(1-2x)}-\frac{1}{33275(5x+3)}+\frac{2401}{1936(1-2x)^2}-\frac{47481\log(1-2x)}{117128}+\frac{138\log(5x+3)}{366025}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^4/((1 - 2*x)^3*(3 + 5*x)^2),x]
```

```
[Out] 2401/(1936*(1 - 2*x)^2) - 10633/(5324*(1 - 2*x)) - 1/(33275*(3 +
5*x)) - (47481*Log[1 - 2*x])/117128 + (138*Log[3 + 5*x])/366025
```

Rubi in Sympy [A] time = 8.98642, size = 42, normalized size = 0.78

$$-\frac{47481\log(-2x+1)}{117128}+\frac{138\log(5x+3)}{366025}-\frac{1}{33275(5x+3)}-\frac{10633}{5324(-2x+1)}+\frac{2401}{1936(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4/(1-2*x)**3/(3+5*x)**2,x)
```

```
[Out] -47481*log(-2*x + 1)/117128 + 138*log(5*x + 3)/366025 - 1/(33275*
(5*x + 3)) - 10633/(5324*(-2*x + 1)) + 2401/(1936*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0505429, size = 48, normalized size = 0.89

$$\frac{\frac{11696300}{2x-1}-\frac{176}{5x+3}+\frac{7263025}{(1-2x)^2}-2374050\log(1-2x)+2208\log(10x+6)}{5856400}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^4/((1 - 2*x)^3*(3 + 5*x)^2),x]
```

```
[Out] (7263025/(1 - 2*x)^2 + 11696300/(-1 + 2*x) - 176/(3 + 5*x) - 2374
050*Log[1 - 2*x] + 2208*Log[6 + 10*x])/5856400
```

Maple [A] time = 0.013, size = 45, normalized size = 0.8

$$-\frac{1}{99825+166375\,x}+\frac{138\,\ln(3+5\,x)}{366025}+\frac{2401}{1936\,(-1+2\,x)^2}+\frac{10633}{-5324+10648\,x}-\frac{47481\,\ln(-1+2\,x)}{117128}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4/(1-2*x)^3/(3+5*x)^2,x)
```

```
[Out] -1/33275/(3+5*x)+138/366025*ln(3+5*x)+2401/1936/(-1+2*x)^2+10633/
5324/(-1+2*x)-47481/117128*ln(-1+2*x)
```

Maxima [A] time = 1.3423, size = 62, normalized size = 1.15

$$\frac{10632936\,x^{2}+4364739\,x-1209091}{532400\,(20\,x^{3}-8\,x^{2}-7\,x+3)}+\frac{138}{366025}\,\log(5\,x+3)-\frac{47481}{117128}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^4/((5*x + 3)^2*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] 1/532400*(10632936*x^2 + 4364739*x - 1209091)/(20*x^3 - 8*x^2 - 7
*x + 3) + 138/366025*log(5*x + 3) - 47481/117128*log(2*x - 1)
```

Fricas [A] time = 0.208127, size = 101, normalized size = 1.87

$$\frac{116962296\,x^{2}+2208\,\left(20\,x^{3}-8\,x^{2}-7\,x+3\right)\log(5\,x+3)-2374050\,\left(20\,x^{3}-8\,x^{2}-7\,x+3\right)\log(2\,x-1)+48012129\,x-1}{5856400\,(20\,x^{3}-8\,x^{2}-7\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^4/((5*x + 3)^2*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] 1/5856400*(116962296*x^2 + 2208*(20*x^3 - 8*x^2 - 7*x + 3)*log(5*
x + 3) - 2374050*(20*x^3 - 8*x^2 - 7*x + 3)*log(2*x - 1) + 480121
29*x - 13300001)/(20*x^3 - 8*x^2 - 7*x + 3)
```

Sympy [A] time = 0.489822, size = 44, normalized size = 0.81

$$\frac{10632936x^{2}+4364739x-1209091}{10648000x^{3}-4259200x^{2}-3726800x+1597200}-\frac{47481\log\left(x-\frac{1}{2}\right)}{117128}+\frac{138\log\left(x+\frac{3}{5}\right)}{366025}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4/(1-2*x)**3/(3+5*x)**2,x)
```

```
[Out] (10632936*x**2 + 4364739*x - 1209091)/(10648000*x**3 - 4259200*x*
*2 - 3726800*x + 1597200) - 47481*log(x - 1/2)/117128 + 138*log(x
 + 3/5)/366025
```

GIAC/XCAS [A] time = 0.214788, size = 93, normalized size = 1.72

$$-\frac{1}{33275\,(5\,x+3)}-\frac{1715\left(\frac{297}{5\,x+3}-89\right)}{58564\left(\frac{11}{5\,x+3}-2\right)^{2}}+\frac{81}{200}\ln\left(\frac{|5\,x+3|}{5\,(5\,x+3)^{2}}\right)-\frac{47481}{117128}\ln\left(\left|-\frac{11}{5\,x+3}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^4/((5*x + 3)^2*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] -1/33275/(5*x + 3) - 1715/58564*(297/(5*x + 3) - 89)/(11/(5*x + 3
) - 2)^2 + 81/200*ln(1/5*abs(5*x + 3)/(5*x + 3)^2) - 47481/117128
*ln(abs(-11/(5*x + 3) + 2))
```

3.1672 $\int \frac{(2+3x)^3}{(1-2x)^3(3+5x)^2}\,dx$

Optimal. Leaf size=54

$$-\frac{1421}{5324(1-2x)}-\frac{1}{6655(5x+3)}+\frac{343}{968(1-2x)^2}-\frac{21\log(1-2x)}{14641}+\frac{21\log(5x+3)}{14641}$$

```
[Out] 343/(968*(1 - 2*x)^2) - 1421/(5324*(1 - 2*x)) - 1/(6655*(3 + 5*x)
) - (21*Log[1 - 2*x])/14641 + (21*Log[3 + 5*x])/14641
```

Rubi [A] time = 0.0635003, antiderivative size = 54, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{1421}{5324(1-2x)}-\frac{1}{6655(5x+3)}+\frac{343}{968(1-2x)^2}-\frac{21\log(1-2x)}{14641}+\frac{21\log(5x+3)}{14641}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^3/((1 - 2*x)^3*(3 + 5*x)^2),x]
```

```
[Out] 343/(968*(1 - 2*x)^2) - 1421/(5324*(1 - 2*x)) - 1/(6655*(3 + 5*x)
) - (21*Log[1 - 2*x])/14641 + (21*Log[3 + 5*x])/14641
```

Rubi in Sympy [A] time = 8.89175, size = 42, normalized size = 0.78

$$-\frac{21\log(-2x+1)}{14641}+\frac{21\log(5x+3)}{14641}-\frac{1}{6655(5x+3)}-\frac{1421}{5324(-2x+1)}+\frac{343}{968(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3/(1-2*x)**3/(3+5*x)**2,x)
```

```
[Out] -21*log(-2*x + 1)/14641 + 21*log(5*x + 3)/14641 - 1/(6655*(5*x +
3)) - 1421/(5324*(-2*x + 1)) + 343/(968*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0592593, size = 47, normalized size = 0.87

$$\frac{\frac{11(142068x^2+108567x+13957)}{(1-2x)^2(5x+3)}-840\log(1-2x)+840\log(10x+6)}{585640}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^3/((1 - 2*x)^3*(3 + 5*x)^2),x]
```

```
[Out] ((11*(13957 + 108567*x + 142068*x^2))/((1 - 2*x)^2*(3 + 5*x)) - 8
40*Log[1 - 2*x] + 840*Log[6 + 10*x])/585640
```

Maple [A] time = 0.015, size = 45, normalized size = 0.8

$$-\frac{1}{19965+33275\,x}+\frac{21\,\ln(3+5\,x)}{14641}+\frac{343}{968\,(-1+2\,x)^2}+\frac{1421}{-5324+10648\,x}-\frac{21\,\ln(-1+2\,x)}{14641}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3/(1-2*x)^3/(3+5*x)^2,x)
```

```
[Out] -1/6655/(3+5*x)+21/14641*ln(3+5*x)+343/968/(-1+2*x)^2+1421/5324/(
-1+2*x)-21/14641*ln(-1+2*x)
```

Maxima [A] time = 1.3656, size = 62, normalized size = 1.15

$$\frac{142068\,x^2+108567\,x+13957}{53240\,(20\,x^3-8\,x^2-7\,x+3)}+\frac{21}{14641}\,\log(5\,x+3)-\frac{21}{14641}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^3/((5*x + 3)^2*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] 1/53240*(142068*x^2 + 108567*x + 13957)/(20*x^3 - 8*x^2 - 7*x + 3
) + 21/14641*log(5*x + 3) - 21/14641*log(2*x - 1)
```

Fricas [A] time = 0.2083, size = 101, normalized size = 1.87

$$\frac{1562748\,x^2+840\,(20\,x^3-8\,x^2-7\,x+3)\,\log(5\,x+3)-840\,(20\,x^3-8\,x^2-7\,x+3)\,\log(2\,x-1)+1194237\,x+153527}{585640\,(20\,x^3-8\,x^2-7\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^3/((5*x + 3)^2*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] 1/585640*(1562748*x^2 + 840*(20*x^3 - 8*x^2 - 7*x + 3)*log(5*x +
3) - 840*(20*x^3 - 8*x^2 - 7*x + 3)*log(2*x - 1) + 1194237*x + 15
3527)/(20*x^3 - 8*x^2 - 7*x + 3)
```

Sympy [A] time = 0.433132, size = 44, normalized size = 0.81

$$\frac{142068x^2+108567x+13957}{1064800x^3-425920x^2-372680x+159720}-\frac{21\log\left(x-\frac{1}{2}\right)}{14641}+\frac{21\log\left(x+\frac{3}{5}\right)}{14641}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3/(1-2*x)**3/(3+5*x)**2,x)
```

```
[Out] (142068*x**2 + 108567*x + 13957)/(1064800*x**3 - 425920*x**2 - 37
2680*x + 159720) - 21*log(x - 1/2)/14641 + 21*log(x + 3/5)/14641
```

GIAC/XCAS [A] time = 0.211023, size = 69, normalized size = 1.28

$$-\frac{1}{6655\,(5\,x+3)}+\frac{245\,\left(\frac{66}{5\,x+3}+23\right)}{29282\,\left(\frac{11}{5\,x+3}-2\right)^2}-\frac{21}{14641}\,\ln\left(\left|-\frac{11}{5\,x+3}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^3/((5*x + 3)^2*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] -1/6655/(5*x + 3) + 245/29282*(66/(5*x + 3) + 23)/(11/(5*x + 3) -
 2)^2 - 21/14641*ln(abs(-11/(5*x + 3) + 2))
```

3.1673 $\int \frac{(2+3x)^2}{(1-2x)^3(3+5x)^2} dx$

Optimal. Leaf size=54

$$\frac{14}{1331(1-2x)}-\frac{1}{1331(5x+3)}+\frac{49}{484(1-2x)^2}-\frac{72\log(1-2x)}{14641}+\frac{72\log(5x+3)}{14641}$$

```
[Out] 49/(484*(1 - 2*x)^2) + 14/(1331*(1 - 2*x)) - 1/(1331*(3 + 5*x)) -
 (72*Log[1 - 2*x])/14641 + (72*Log[3 + 5*x])/14641
```

Rubi [A] time = 0.0614697, antiderivative size = 54, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$\frac{14}{1331(1-2x)}-\frac{1}{1331(5x+3)}+\frac{49}{484(1-2x)^2}-\frac{72\log(1-2x)}{14641}+\frac{72\log(5x+3)}{14641}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^2/((1 - 2*x)^3*(3 + 5*x)^2),x]
```

```
[Out] 49/(484*(1 - 2*x)^2) + 14/(1331*(1 - 2*x)) - 1/(1331*(3 + 5*x)) -
 (72*Log[1 - 2*x])/14641 + (72*Log[3 + 5*x])/14641
```

Rubi in Sympy [A] time = 8.89935, size = 42, normalized size = 0.78

$$-\frac{72\log(-2x+1)}{14641}+\frac{72\log(5x+3)}{14641}-\frac{1}{1331(5x+3)}+\frac{14}{1331(-2x+1)}+\frac{49}{484(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2/(1-2*x)**3/(3+5*x)**2,x)
```

```
[Out] -72*log(-2*x + 1)/14641 + 72*log(5*x + 3)/14641 - 1/(1331*(5*x +
3)) + 14/(1331*(-2*x + 1)) + 49/(484*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0522638, size = 48, normalized size = 0.89

$$\frac{\frac{616}{1-2x}-\frac{44}{5x+3}+\frac{5929}{(1-2x)^2}-288\log(1-2x)+288\log(10x+6)}{58564}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^2/((1 - 2*x)^3*(3 + 5*x)^2),x]
```

```
[Out] (5929/(1 - 2*x)^2 + 616/(1 - 2*x) - 44/(3 + 5*x) - 288*Log[1 - 2*
x] + 288*Log[6 + 10*x])/58564
```

Maple [A] time = 0.014, size = 45, normalized size = 0.8

$$-\frac{1}{3993+6655\,x}+\frac{72\,\ln(3+5\,x)}{14641}+\frac{49}{484\,(-1+2\,x)^2}-\frac{14}{-1331+2662\,x}-\frac{72\,\ln(-1+2\,x)}{14641}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2/(1-2*x)^3/(3+5*x)^2,x)
```

```
[Out] -1/1331/(3+5*x)+72/14641*ln(3+5*x)+49/484/(-1+2*x)^2-14/1331/(-1+
2*x)-72/14641*ln(-1+2*x)
```

Maxima [A] time = 1.34155, size = 62, normalized size = 1.15

$$-\frac{576\,x^2-2655\,x-1781}{5324\,(20\,x^3-8\,x^2-7\,x+3)}+\frac{72}{14641}\,\log(5\,x+3)-\frac{72}{14641}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^2/((5*x + 3)^2*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] -1/5324*(576*x^2 - 2655*x - 1781)/(20*x^3 - 8*x^2 - 7*x + 3) + 72
/14641*log(5*x + 3) - 72/14641*log(2*x - 1)
```

Fricas [A] time = 0.218756, size = 101, normalized size = 1.87

$$-\frac{6336\,x^2-288\,\left(20\,x^3-8\,x^2-7\,x+3\right)\log(5\,x+3)+288\,\left(20\,x^3-8\,x^2-7\,x+3\right)\log(2\,x-1)-29205\,x-19591}{58564\,(20\,x^3-8\,x^2-7\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^2/((5*x + 3)^2*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] -1/58564*(6336*x^2 - 288*(20*x^3 - 8*x^2 - 7*x + 3)*log(5*x + 3)
+ 288*(20*x^3 - 8*x^2 - 7*x + 3)*log(2*x - 1) - 29205*x - 19591)/
(20*x^3 - 8*x^2 - 7*x + 3)
```

Sympy [A] time = 0.411608, size = 44, normalized size = 0.81

$$-\frac{576x^2-2655x-1781}{106480x^3-42592x^2-37268x+15972}-\frac{72\log\left(x-\frac{1}{2}\right)}{14641}+\frac{72\log\left(x+\frac{3}{5}\right)}{14641}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2/(1-2*x)**3/(3+5*x)**2,x)
```

```
[Out] -(576*x**2 - 2655*x - 1781)/(106480*x**3 - 42592*x**2 - 37268*x +
 15972) - 72*log(x - 1/2)/14641 + 72*log(x + 3/5)/14641
```

GIAC/XCAS [A] time = 0.208683, size = 69, normalized size = 1.28

$$-\frac{1}{1331\,(5\,x+3)}+\frac{35\left(\frac{429}{5\,x+3}-43\right)}{14641\left(\frac{11}{5\,x+3}-2\right)^2}-\frac{72}{14641}\ln\left(\left|-\frac{11}{5\,x+3}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^2/((5*x + 3)^2*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] -1/1331/(5*x + 3) + 35/14641*(429/(5*x + 3) - 43)/(11/(5*x + 3) -
 2)^2 - 72/14641*ln(abs(-11/(5*x + 3) + 2))
```

3.1674 $\int \frac{2+3x}{(1-2x)^3(3+5x)^2}\,dx$

Optimal. Leaf size=54

$$\frac{37}{1331(1-2x)}-\frac{5}{1331(5x+3)}+\frac{7}{242(1-2x)^2}-\frac{195\log(1-2x)}{14641}+\frac{195\log(5x+3)}{14641}$$

```
[Out] 7/(242*(1 - 2*x)^2) + 37/(1331*(1 - 2*x)) - 5/(1331*(3 + 5*x)) -
(195*Log[1 - 2*x])/14641 + (195*Log[3 + 5*x])/14641
```

Rubi [A] time = 0.0579051, antiderivative size = 54, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{37}{1331(1-2x)}-\frac{5}{1331(5x+3)}+\frac{7}{242(1-2x)^2}-\frac{195\log(1-2x)}{14641}+\frac{195\log(5x+3)}{14641}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)/((1 - 2*x)^3*(3 + 5*x)^2),x]
```

```
[Out] 7/(242*(1 - 2*x)^2) + 37/(1331*(1 - 2*x)) - 5/(1331*(3 + 5*x)) -
(195*Log[1 - 2*x])/14641 + (195*Log[3 + 5*x])/14641
```

Rubi in Sympy [A] time = 8.44892, size = 42, normalized size = 0.78

$$-\frac{195\log(-2x+1)}{14641}+\frac{195\log(5x+3)}{14641}-\frac{5}{1331(5x+3)}+\frac{37}{1331(-2x+1)}+\frac{7}{242(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)/(1-2*x)**3/(3+5*x)**2,x)
```

```
[Out] -195*log(-2*x + 1)/14641 + 195*log(5*x + 3)/14641 - 5/(1331*(5*x
+ 3)) + 37/(1331*(-2*x + 1)) + 7/(242*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0305497, size = 62, normalized size = 1.15

$$\frac{10}{1331(5(1-2x)-11)}+\frac{37}{1331(1-2x)}+\frac{7}{242(1-2x)^2}+\frac{195\log(11-5(1-2x))}{14641}-\frac{195\log(1-2x)}{14641}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)/((1 - 2*x)^3*(3 + 5*x)^2),x]
```

```
[Out] 10/(1331*(-11 + 5*(1 - 2*x))) + 7/(242*(1 - 2*x)^2) + 37/(1331*(1
 - 2*x)) + (195*Log[11 - 5*(1 - 2*x)])/14641 - (195*Log[1 - 2*x])
/14641
```

Maple [A] time = 0.013, size = 45, normalized size = 0.8

$$-\frac{5}{3993+6655\,x}+\frac{195\,\ln(3+5\,x)}{14641}+\frac{7}{242\,(-1+2\,x)^2}-\frac{37}{-1331+2662\,x}-\frac{195\,\ln(-1+2\,x)}{14641}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)/(1-2*x)^3/(3+5*x)^2,x)
```

```
[Out] -5/1331/(3+5*x)+195/14641*ln(3+5*x)+7/242/(-1+2*x)^2-37/1331/(-1+
2*x)-195/14641*ln(-1+2*x)
```

Maxima [A] time = 1.33716, size = 62, normalized size = 1.15

$$-\frac{780\,x^2-351\,x-443}{2662\,(20\,x^3-8\,x^2-7\,x+3)}+\frac{195}{14641}\,\log(5\,x+3)-\frac{195}{14641}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)/((5*x + 3)^2*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] -1/2662*(780*x^2 - 351*x - 443)/(20*x^3 - 8*x^2 - 7*x + 3) + 195/
14641*log(5*x + 3) - 195/14641*log(2*x - 1)
```

Fricas [A] time = 0.214218, size = 101, normalized size = 1.87

$$-\frac{8580\,x^2-390\,\left(20\,x^3-8\,x^2-7\,x+3\right)\log(5\,x+3)+390\,\left(20\,x^3-8\,x^2-7\,x+3\right)\log(2\,x-1)-3861\,x-4873}{29282\,(20\,x^3-8\,x^2-7\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)/((5*x + 3)^2*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] -1/29282*(8580*x^2 - 390*(20*x^3 - 8*x^2 - 7*x + 3)*log(5*x + 3)
+ 390*(20*x^3 - 8*x^2 - 7*x + 3)*log(2*x - 1) - 3861*x - 4873)/(2
0*x^3 - 8*x^2 - 7*x + 3)
```

Sympy [A] time = 0.405237, size = 44, normalized size = 0.81

$$-\frac{780x^2-351x-443}{53240x^3-21296x^2-18634x+7986}-\frac{195\log\left(x-\frac{1}{2}\right)}{14641}+\frac{195\log\left(x+\frac{3}{5}\right)}{14641}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)/(1-2*x)**3/(3+5*x)**2,x)
```

```
[Out] -(780*x**2 - 351*x - 443)/(53240*x**3 - 21296*x**2 - 18634*x + 79
86) - 195*log(x - 1/2)/14641 + 195*log(x + 3/5)/14641
```

GIAC/XCAS [A] time = 0.21288, size = 69, normalized size = 1.28

$$-\frac{5}{1331\,(5\,x+3)}+\frac{10\left(\frac{792}{5\,x+3}-109\right)}{14641\left(\frac{11}{5\,x+3}-2\right)^2}-\frac{195}{14641}\ln\left(\left|-\frac{11}{5\,x+3}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)/((5*x + 3)^2*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] -5/1331/(5*x + 3) + 10/14641*(792/(5*x + 3) - 109)/(11/(5*x + 3)
- 2)^2 - 195/14641*ln(abs(-11/(5*x + 3) + 2))
```

3.1675 $\int \frac{1}{(1-2x)^3(3+5x)^2}\,dx$

Optimal. Leaf size=54

$$\frac{20}{1331(1-2x)}-\frac{25}{1331(5x+3)}+\frac{1}{121(1-2x)^2}-\frac{150\log(1-2x)}{14641}+\frac{150\log(5x+3)}{14641}$$

```
[Out] 1/(121*(1 - 2*x)^2) + 20/(1331*(1 - 2*x)) - 25/(1331*(3 + 5*x)) -
 (150*Log[1 - 2*x])/14641 + (150*Log[3 + 5*x])/14641
```

Rubi [A] time = 0.0480966, antiderivative size = 54, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.067

$$\frac{20}{1331(1-2x)}-\frac{25}{1331(5x+3)}+\frac{1}{121(1-2x)^2}-\frac{150\log(1-2x)}{14641}+\frac{150\log(5x+3)}{14641}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^3*(3 + 5*x)^2),x]
```

```
[Out] 1/(121*(1 - 2*x)^2) + 20/(1331*(1 - 2*x)) - 25/(1331*(3 + 5*x)) -
 (150*Log[1 - 2*x])/14641 + (150*Log[3 + 5*x])/14641
```

Rubi in Sympy [A] time = 7.4793, size = 42, normalized size = 0.78

$$-\frac{150\log(-2x+1)}{14641}+\frac{150\log(5x+3)}{14641}-\frac{25}{1331(5x+3)}+\frac{20}{1331(-2x+1)}+\frac{1}{121(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**3/(3+5*x)**2,x)
```

```
[Out] -150*log(-2*x + 1)/14641 + 150*log(5*x + 3)/14641 - 25/(1331*(5*x
 + 3)) + 20/(1331*(-2*x + 1)) + 1/(121*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0247513, size = 62, normalized size = 1.15

$$\frac{50}{1331(5(1-2x)-11)}+\frac{20}{1331(1-2x)}+\frac{1}{121(1-2x)^2}+\frac{150\log(11-5(1-2x))}{14641}-\frac{150\log(1-2x)}{14641}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^3*(3 + 5*x)^2),x]
```

```
[Out] 50/(1331*(-11 + 5*(1 - 2*x))) + 1/(121*(1 - 2*x)^2) + 20/(1331*(1
 - 2*x)) + (150*Log[11 - 5*(1 - 2*x)])/14641 - (150*Log[1 - 2*x])
/14641
```

Maple [A] time = 0.014, size = 45, normalized size = 0.8

$$-\frac{25}{3993+6655\,x}+\frac{150\,\ln(3+5\,x)}{14641}+\frac{1}{121\,(-1+2\,x)^2}-\frac{20}{-1331+2662\,x}-\frac{150\,\ln(-1+2\,x)}{14641}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^3/(3+5*x)^2,x)
```

```
[Out] -25/1331/(3+5*x)+150/14641*ln(3+5*x)+1/121/(-1+2*x)^2-20/1331/(-1
+2*x)-150/14641*ln(-1+2*x)
```

Maxima [A] time = 1.34425, size = 62, normalized size = 1.15

$$-\frac{300 x^2 - 135 x - 68}{1331 (20 x^3 - 8 x^2 - 7 x + 3)} + \frac{150}{14641} \log(5 x + 3) - \frac{150}{14641} \log(2 x - 1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^2*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] -1/1331*(300*x^2 - 135*x - 68)/(20*x^3 - 8*x^2 - 7*x + 3) + 150/1
4641*log(5*x + 3) - 150/14641*log(2*x - 1)
```

Fricas [A] time = 0.221373, size = 101, normalized size = 1.87

$$-\frac{3300 x^2 - 150 \left(20 x^3 - 8 x^2 - 7 x + 3\right) \log(5 x + 3) + 150 \left(20 x^3 - 8 x^2 - 7 x + 3\right) \log(2 x - 1) - 1485 x - 748}{14641 (20 x^3 - 8 x^2 - 7 x + 3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^2*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] -1/14641*(3300*x^2 - 150*(20*x^3 - 8*x^2 - 7*x + 3)*log(5*x + 3)
+ 150*(20*x^3 - 8*x^2 - 7*x + 3)*log(2*x - 1) - 1485*x - 748)/(20
*x^3 - 8*x^2 - 7*x + 3)
```

Sympy [A] time = 0.387617, size = 44, normalized size = 0.81

$$-\frac{300x^2 - 135x - 68}{26620x^3 - 10648x^2 - 9317x + 3993} - \frac{150 \log\left(x - \frac{1}{2}\right)}{14641} + \frac{150 \log\left(x + \frac{3}{5}\right)}{14641}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**3/(3+5*x)**2,x)
```

```
[Out] -(300*x**2 - 135*x - 68)/(26620*x**3 - 10648*x**2 - 9317*x + 3993
) - 150*log(x - 1/2)/14641 + 150*log(x + 3/5)/14641
```

GIAC/XCAS [A] time = 0.20803, size = 69, normalized size = 1.28

$$-\frac{25}{1331 (5 x + 3)} + \frac{100 \left(\frac{33}{5 x+3} - 5\right)}{14641 \left(\frac{11}{5 x+3} - 2\right)^2} - \frac{150}{14641} \ln\left(\left|-\frac{11}{5 x + 3} + 2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^2*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] -25/1331/(5*x + 3) + 100/14641*(33/(5*x + 3) - 5)/(11/(5*x + 3) -
 2)^2 - 150/14641*ln(abs(-11/(5*x + 3) + 2))
```

3.1676 $\int \frac{1}{(1-2x)^3(2+3x)(3+5x)^2} \, dx$

Optimal. Leaf size=64

$$\frac{412}{65219(1-2x)}-\frac{125}{1331(5x+3)}+\frac{2}{847(1-2x)^2}-\frac{28296\log(1-2x)}{5021863}+\frac{81}{343}\log(3x+2)-\frac{3375\log(5x+3)}{14641}$$

```
[Out] 2/(847*(1 - 2*x)^2) + 412/(65219*(1 - 2*x)) - 125/(1331*(3 + 5*x)
) - (28296*Log[1 - 2*x])/5021863 + (81*Log[2 + 3*x])/343 - (3375*
Log[3 + 5*x])/14641
```

Rubi [A] time = 0.0749698, antiderivative size = 64, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{412}{65219(1-2x)}-\frac{125}{1331(5x+3)}+\frac{2}{847(1-2x)^2}-\frac{28296\log(1-2x)}{5021863}+\frac{81}{343}\log(3x+2)-\frac{3375\log(5x+3)}{14641}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^3*(2 + 3*x)*(3 + 5*x)^2),x]
```

```
[Out] 2/(847*(1 - 2*x)^2) + 412/(65219*(1 - 2*x)) - 125/(1331*(3 + 5*x)
) - (28296*Log[1 - 2*x])/5021863 + (81*Log[2 + 3*x])/343 - (3375*
Log[3 + 5*x])/14641
```

Rubi in Sympy [A] time = 10.0634, size = 53, normalized size = 0.83

$$-\frac{28296\log(-2x+1)}{5021863}+\frac{81\log(3x+2)}{343}-\frac{3375\log(5x+3)}{14641}-\frac{125}{1331(5x+3)}+\frac{412}{65219(-2x+1)}+\frac{2}{847(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**3/(2+3*x)/(3+5*x)**2,x)
```

```
[Out] -28296*log(-2*x + 1)/5021863 + 81*log(3*x + 2)/343 - 3375*log(5*x
 + 3)/14641 - 125/(1331*(5*x + 3)) + 412/(65219*(-2*x + 1)) + 2/(
847*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0493635, size = 60, normalized size = 0.94

$$\frac{3\left(\frac{31724}{3-6x}-\frac{471625}{15x+9}+\frac{11858}{3(1-2x)^2}-9432\log(3-6x)+395307\log(3x+2)-385875\log(-3(5x+3))\right)}{5021863}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^3*(2 + 3*x)*(3 + 5*x)^2),x]
```

```
[Out] (3*(31724/(3 - 6*x) + 11858/(3*(1 - 2*x)^2) - 471625/(9 + 15*x) -
 9432*Log[3 - 6*x] + 395307*Log[2 + 3*x] - 385875*Log[-3*(3 + 5*x
)]))/5021863
```

Maple [A] time = 0.016, size = 53, normalized size = 0.8

$$-\frac{125}{3993+6655\,x}-\frac{3375\,\ln\left(3+5\,x\right)}{14641}+\frac{81\,\ln\left(2+3\,x\right)}{343}+\frac{2}{847\,\left(-1+2\,x\right)^{2}}-\frac{412}{-65219+130438\,x}-\frac{28296\,\ln\left(-1+2\,x\right)}{5021863}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^3/(2+3*x)/(3+5*x)^2,x)
```

```
[Out] -125/1331/(3+5*x)-3375/14641*ln(3+5*x)+81/343*ln(2+3*x)+2/847/(-1
+2*x)^2-412/65219/(-1+2*x)-28296/5021863*ln(-1+2*x)
```

Maxima [A] time = 1.34491, size = 73, normalized size = 1.14

$$-\frac{28620\,x^{2}-24858\,x+4427}{65219\,\left(20\,x^{3}-8\,x^{2}-7\,x+3\right)}-\frac{3375}{14641}\,\log\left(5\,x+3\right)+\frac{81}{343}\,\log\left(3\,x+2\right)-\frac{28296}{5021863}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^2*(3*x + 2)*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] -1/65219*(28620*x^2 - 24858*x + 4427)/(20*x^3 - 8*x^2 - 7*x + 3)
- 3375/14641*log(5*x + 3) + 81/343*log(3*x + 2) - 28296/5021863*l
og(2*x - 1)
```

Fricas [A] time = 0.215512, size = 132, normalized size = 2.06

$$-\frac{2203740\,x^{2}+1157625\,\left(20\,x^{3}-8\,x^{2}-7\,x+3\right)\log\left(5\,x+3\right)-1185921\,\left(20\,x^{3}-8\,x^{2}-7\,x+3\right)\log\left(3\,x+2\right)+28296\,\left(20\,x^{3}\right.}{5021863\,\left(20\,x^{3}-8\,x^{2}-7\,x+3\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^2*(3*x + 2)*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] -1/5021863*(2203740*x^2 + 1157625*(20*x^3 - 8*x^2 - 7*x + 3)*log(
5*x + 3) - 1185921*(20*x^3 - 8*x^2 - 7*x + 3)*log(3*x + 2) + 2829
6*(20*x^3 - 8*x^2 - 7*x + 3)*log(2*x - 1) - 1914066*x + 340879)/(
20*x^3 - 8*x^2 - 7*x + 3)
```

Sympy [A] time = 0.547006, size = 54, normalized size = 0.84

$$-\frac{28620x^{2}-24858x+4427}{1304380x^{3}-521752x^{2}-456533x+195657}-\frac{28296\log\left(x-\frac{1}{2}\right)}{5021863}-\frac{3375\log\left(x+\frac{3}{5}\right)}{14641}+\frac{81\log\left(x+\frac{2}{3}\right)}{343}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**3/(2+3*x)/(3+5*x)**2,x)
```

```
[Out] -(28620*x**2 - 24858*x + 4427)/(1304380*x**3 - 521752*x**2 - 4565
33*x + 195657) - 28296*log(x - 1/2)/5021863 - 3375*log(x + 3/5)/1
4641 + 81*log(x + 2/3)/343
```

GIAC/XCAS [A] time = 0.214861, size = 89, normalized size = 1.39

$$-\frac{125}{1331\,(5\,x+3)}+\frac{40\,\left(\frac{1518}{5\,x+3}-241\right)}{717409\,\left(\frac{11}{5\,x+3}-2\right)^{2}}+\frac{81}{343}\ln\left(\left|-\frac{1}{5\,x+3}-3\right|\right)-\frac{28296}{5021863}\ln\left(\left|-\frac{11}{5\,x+3}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^2*(3*x + 2)*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] -125/1331/(5*x + 3) + 40/717409*(1518/(5*x + 3) - 241)/(11/(5*x +
 3) - 2)^2 + 81/343*ln(abs(-1/(5*x + 3) - 3)) - 28296/5021863*ln(
abs(-11/(5*x + 3) + 2))
```

3.1677 $\int \frac{1}{(1-2x)^3(2+3x)^2(3+5x)^2}\,dx$

Optimal. Leaf size=75

$$\frac{1088}{456533(1-2x)}-\frac{81}{343(3x+2)}-\frac{625}{1331(5x+3)}+\frac{4}{5929(1-2x)^2}-\frac{92496\log(1-2x)}{35153041}+\frac{6156\log(3x+2)}{2401}-\frac{37500\log(5x+3)}{14641}$$

```
[Out] 4/(5929*(1 - 2*x)^2) + 1088/(456533*(1 - 2*x)) - 81/(343*(2 + 3*x
)) - 625/(1331*(3 + 5*x)) - (92496*Log[1 - 2*x])/35153041 + (6156
*Log[2 + 3*x])/2401 - (37500*Log[3 + 5*x])/14641
```

Rubi [A] time = 0.0877557, antiderivative size = 75, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{1088}{456533(1-2x)}-\frac{81}{343(3x+2)}-\frac{625}{1331(5x+3)}+\frac{4}{5929(1-2x)^2}-\frac{92496\log(1-2x)}{35153041}+\frac{6156\log(3x+2)}{2401}-\frac{37500\log(5x+3)}{14641}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^3*(2 + 3*x)^2*(3 + 5*x)^2),x]
```

```
[Out] 4/(5929*(1 - 2*x)^2) + 1088/(456533*(1 - 2*x)) - 81/(343*(2 + 3*x
)) - 625/(1331*(3 + 5*x)) - (92496*Log[1 - 2*x])/35153041 + (6156
*Log[2 + 3*x])/2401 - (37500*Log[3 + 5*x])/14641
```

Rubi in Sympy [A] time = 11.3953, size = 60, normalized size = 0.8

$$-\frac{92496\log(-2x+1)}{35153041}+\frac{6156\log(3x+2)}{2401}-\frac{37500\log(5x+3)}{14641}-\frac{625}{1331(5x+3)}-\frac{81}{343(3x+2)}+\frac{1088}{456533(-2x+1)}+\frac{4}{5929(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**3/(2+3*x)**2/(3+5*x)**2,x)
```

```
[Out] -92496*log(-2*x + 1)/35153041 + 6156*log(3*x + 2)/2401 - 37500*lo
g(5*x + 3)/14641 - 625/(1331*(5*x + 3)) - 81/(343*(3*x + 2)) + 10
88/(456533*(-2*x + 1)) + 4/(5929*(-2*x + 1)**2)
```

Mathematica [A] time = 0.113023, size = 68, normalized size = 0.91

$$\frac{2\left(77\left(-\frac{107811}{6x+4}-\frac{214375}{10x+6}+\frac{544}{1-2x}+\frac{154}{(1-2x)^2}\right)-46248\log(1-2x)+45064998\log(6x+4)-45018750\log(10x+6)\right)}{35153041}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^3*(2 + 3*x)^2*(3 + 5*x)^2),x]
```

```
[Out] (2*(77*(154/(1 - 2*x)^2 + 544/(1 - 2*x) - 107811/(4 + 6*x) - 2143
75/(6 + 10*x)) - 46248*Log[1 - 2*x] + 45064998*Log[4 + 6*x] - 450
18750*Log[6 + 10*x]))/35153041
```

Maple [A] time = 0.019, size = 62, normalized size = 0.8

$$-\frac{625}{3993+6655\,x}-\frac{37500\,\ln\left(3+5\,x\right)}{14641}-\frac{81}{686+1029\,x}+\frac{6156\,\ln\left(2+3\,x\right)}{2401}+\frac{4}{5929\,\left(-1+2\,x\right)^{2}}-\frac{1088}{-456533+913066\,x}-\frac{92496\,\ln\left(-1+2\,x\right)}{35153041}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^3/(2+3*x)^2/(3+5*x)^2,x)
```

```
[Out] -625/1331/(3+5*x)-37500/14641*ln(3+5*x)-81/343/(2+3*x)+6156/2401*
ln(2+3*x)+4/5929/(-1+2*x)^2-1088/456533/(-1+2*x)-92496/35153041*l
n(-1+2*x)
```

Maxima [A] time = 1.36466, size = 86, normalized size = 1.15

$$-\frac{4761360\,x^{3}-1699584\,x^{2}-1840020\,x+743807}{456533\,\left(60\,x^{4}+16\,x^{3}-37\,x^{2}-5\,x+6\right)}-\frac{37500}{14641}\,\log\left(5\,x+3\right)+\frac{6156}{2401}\,\log\left(3\,x+2\right)-\frac{92496}{35153041}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^2*(3*x + 2)^2*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] -1/456533*(4761360*x^3 - 1699584*x^2 - 1840020*x + 743807)/(60*x^
4 + 16*x^3 - 37*x^2 - 5*x + 6) - 37500/14641*log(5*x + 3) + 6156/
2401*log(3*x + 2) - 92496/35153041*log(2*x - 1)
```

Fricas [A] time = 0.214603, size = 166, normalized size = 2.21

$$-\frac{366624720\,x^{3}-130867968\,x^{2}+90037500\,\left(60\,x^{4}+16\,x^{3}-37\,x^{2}-5\,x+6\right)\,\log\left(5\,x+3\right)-90129996\,\left(60\,x^{4}+16\,x^{3}-37\,x^{2}\right.}{35153041\,\left(60\,x^{4}+16\,x^{3}-37\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^2*(3*x + 2)^2*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] -1/35153041*(366624720*x^3 - 130867968*x^2 + 90037500*(60*x^4 + 1
6*x^3 - 37*x^2 - 5*x + 6)*log(5*x + 3) - 90129996*(60*x^4 + 16*x^
3 - 37*x^2 - 5*x + 6)*log(3*x + 2) + 92496*(60*x^4 + 16*x^3 - 37*
x^2 - 5*x + 6)*log(2*x - 1) - 141681540*x + 57273139)/(60*x^4 + 1
6*x^3 - 37*x^2 - 5*x + 6)
```

Sympy [A] time = 0.613928, size = 65, normalized size = 0.87

$$-\frac{4761360x^{3}-1699584x^{2}-1840020x+743807}{27391980x^{4}+7304528x^{3}-16891721x^{2}-2282665x+2739198}-\frac{92496\log\left(x-\frac{1}{2}\right)}{35153041}-\frac{37500\log\left(x+\frac{3}{5}\right)}{14641}+\frac{6156\log\left(x+\frac{2}{3}\right)}{2401}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**3/(2+3*x)**2/(3+5*x)**2,x)
```

```
[Out] -(4761360*x**3 - 1699584*x**2 - 1840020*x + 743807)/(27391980*x**
4 + 7304528*x**3 - 16891721*x**2 - 2282665*x + 2739198) - 92496*l
og(x - 1/2)/35153041 - 37500*log(x + 3/5)/14641 + 6156*log(x + 2/
3)/2401
```

GIAC/XCAS [A] time = 0.21322, size = 116, normalized size = 1.55

$$-\frac{625}{1331\,(5\,x+3)}-\frac{5\left(\frac{156456196}{5\,x+3}-\frac{430519419}{(5\,x+3)^2}-14216316\right)}{5021863\left(\frac{11}{5\,x+3}-2\right)^2\left(\frac{1}{5\,x+3}+3\right)}+\frac{6156}{2401}\ln\left(\left|-\frac{1}{5\,x+3}-3\right|\right)-\frac{92496}{35153041}\ln\left(\left|-\frac{11}{5\,x+3}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-1/((5*x + 3)^2*(3*x + 2)^2*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] -625/1331/(5*x + 3) - 5/5021863*(156456196/(5*x + 3) - 430519419/
(5*x + 3)^2 - 14216316)/((11/(5*x + 3) - 2)^2*(1/(5*x + 3) + 3))
+ 6156/2401*ln(abs(-1/(5*x + 3) - 3)) - 92496/35153041*ln(abs(-11
/(5*x + 3) + 2))
```

3.1678 $\int \frac{1}{(1-2x)^3(2+3x)^3(3+5x)^2}\,dx$

Optimal. Leaf size=86

$$\frac{2704}{3195731(1-2x)}-\frac{6156}{2401(3x+2)}-\frac{3125}{1331(5x+3)}+\frac{8}{41503(1-2x)^2}-\frac{81}{686(3x+2)^2}-\frac{274224\log(1-2x)}{246071287}+\frac{333639\log(3x+2)}{16807}-\frac{290625\log(5x+3)}{14641}$$

```
[Out] 8/(41503*(1 - 2*x)^2) + 2704/(3195731*(1 - 2*x)) - 81/(686*(2 + 3
*x)^2) - 6156/(2401*(2 + 3*x)) - 3125/(1331*(3 + 5*x)) - (274224*
Log[1 - 2*x])/246071287 + (333639*Log[2 + 3*x])/16807 - (290625*L
og[3 + 5*x])/14641
```

Rubi [A] time = 0.104244, antiderivative size = 86, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{2704}{3195731(1-2x)}-\frac{6156}{2401(3x+2)}-\frac{3125}{1331(5x+3)}+\frac{8}{41503(1-2x)^2}-\frac{81}{686(3x+2)^2}-\frac{274224\log(1-2x)}{246071287}+\frac{333639\log(3x+2)}{16807}-\frac{290625\log(5x+3)}{14641}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^3*(2 + 3*x)^3*(3 + 5*x)^2),x]
```

```
[Out] 8/(41503*(1 - 2*x)^2) + 2704/(3195731*(1 - 2*x)) - 81/(686*(2 + 3
*x)^2) - 6156/(2401*(2 + 3*x)) - 3125/(1331*(3 + 5*x)) - (274224*
Log[1 - 2*x])/246071287 + (333639*Log[2 + 3*x])/16807 - (290625*L
og[3 + 5*x])/14641
```

Rubi in Sympy [A] time = 12.7818, size = 70, normalized size = 0.81

$$-\frac{274224\log(-2x+1)}{246071287}+\frac{333639\log(3x+2)}{16807}-\frac{290625\log(5x+3)}{14641}-\frac{3125}{1331(5x+3)}-\frac{6156}{2401(3x+2)}-\frac{81}{686(3x+2)^2}+\frac{2704}{3195731(-2x+1)}+\frac{8}{41503(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**3/(2+3*x)**3/(3+5*x)**2,x)
```

```
[Out] -274224*log(-2*x + 1)/246071287 + 333639*log(3*x + 2)/16807 - 290
625*log(5*x + 3)/14641 - 3125/(1331*(5*x + 3)) - 6156/(2401*(3*x
+ 2)) - 81/(686*(3*x + 2)**2) + 2704/(3195731*(-2*x + 1)) + 8/(41
503*(-2*x + 1)**2)
```

Mathematica [A] time = 0.10309, size = 74, normalized size = 0.86

$$\frac{\frac{41503(6558x-3251)}{(6x^2+x-2)^2}-\frac{154(16395384x-7937593)}{6x^2+x-2}-\frac{1155481250}{5x+3}-548448\log(5-10x)+9769617198\log(5(3x+2))-9769068750\log(5x}{492142574}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^3*(2 + 3*x)^3*(3 + 5*x)^2),x]
```

```
[Out] (-1155481250/(3 + 5*x) + (41503*(-3251 + 6558*x))/(-2 + x + 6*x^2
)^2 - (154*(-7937593 + 16395384*x))/(-2 + x + 6*x^2) - 548448*Log
```

```
[5 - 10*x] + 9769617198*Log[5*(2 + 3*x)] - 9769068750*Log[3 + 5*x
])/492142574
```

Maple [A] time = 0.02, size = 71, normalized size = 0.8

$$-\frac{3125}{3993+6655\,x}-\frac{290625\,\ln\left(3+5\,x\right)}{14641}-\frac{81}{686\,\left(2+3\,x\right)^{2}}-\frac{6156}{4802+7203\,x}+\frac{333639\,\ln\left(2+3\,x\right)}{16807}+\frac{8}{41503\,\left(-1+2\,x\right)^{2}}-\frac{2704}{-3195731+6391462\,x}-\frac{274224\,\ln\left(-1+2\,x\right)}{246071287}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^3/(2+3*x)^3/(3+5*x)^2,x)
```

```
[Out] -3125/1331/(3+5*x)-290625/14641*ln(3+5*x)-81/686/(2+3*x)^2-6156/2
401/(2+3*x)+333639/16807*ln(2+3*x)+8/41503/(-1+2*x)^2-2704/319573
1/(-1+2*x)-274224/246071287*ln(-1+2*x)
```

Maxima [A] time = 1.35141, size = 100, normalized size = 1.16

$$-\frac{1523948040\,x^{4}+458007084\,x^{3}-957482214\,x^{2}-147486147\,x+160532983}{6391462\,\left(180\,x^{5}+168\,x^{4}-79\,x^{3}-89\,x^{2}+8\,x+12\right)}-\frac{290625}{14641}\,\log\left(5\,x+3\right)+\frac{333639}{16807}\,\log\left(3\,x+2\right)-\frac{274224}{246071287}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^2*(3*x + 2)^3*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] -1/6391462*(1523948040*x^4 + 458007084*x^3 - 957482214*x^2 - 1474
86147*x + 160532983)/(180*x^5 + 168*x^4 - 79*x^3 - 89*x^2 + 8*x +
 12) - 290625/14641*log(5*x + 3) + 333639/16807*log(3*x + 2) - 27
4224/246071287*log(2*x - 1)
```

Fricas [A] time = 0.209767, size = 200, normalized size = 2.33

$$-\frac{117343999080\,x^{4}+35266545468\,x^{3}-73726130478\,x^{2}+9769068750\,\left(180\,x^{5}+168\,x^{4}-79\,x^{3}-89\,x^{2}+8\,x+12\right)\log\left(5\,x\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^2*(3*x + 2)^3*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] -1/492142574*(117343999080*x^4 + 35266545468*x^3 - 73726130478*x^
2 + 9769068750*(180*x^5 + 168*x^4 - 79*x^3 - 89*x^2 + 8*x + 12)*l
og(5*x + 3) - 9769617198*(180*x^5 + 168*x^4 - 79*x^3 - 89*x^2 + 8
*x + 12)*log(3*x + 2) + 548448*(180*x^5 + 168*x^4 - 79*x^3 - 89*x
^2 + 8*x + 12)*log(2*x - 1) - 11356433319*x + 12361039691)/(180*x
^5 + 168*x^4 - 79*x^3 - 89*x^2 + 8*x + 12)
```

Sympy [A] time = 0.675925, size = 75, normalized size = 0.87

$$-\frac{1523948040x^{4}+458007084x^{3}-957482214x^{2}-147486147x+160532983}{1150463160x^{5}+1073765616x^{4}-504925498x^{3}-568840118x^{2}+51131696x+76697544}-\frac{274224\log\left(x-\frac{1}{2}\right)}{246071287}-\frac{290625\log\left(x+\frac{3}{5}\right)}{14641}+\frac{333639\log\left(x+\frac{2}{3}\right)}{16807}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**3/(2+3*x)**3/(3+5*x)**2,x)
```

```
[Out] -(1523948040*x**4 + 458007084*x**3 - 957482214*x**2 - 147486147*x
 + 160532983)/(1150463160*x**5 + 1073765616*x**4 - 504925498*x**3
 - 568840118*x**2 + 51131696*x + 76697544) - 274224*log(x - 1/2)/
246071287 - 290625*log(x + 3/5)/14641 + 333639*log(x + 2/3)/16807
```

GIAC/XCAS [A] time = 0.220886, size = 128, normalized size = 1.49

$$-\frac{3125}{1331\,(5\,x+3)}-\frac{5\,\left(\frac{84659379036}{5\,x+3}-\frac{206753119043}{(5\,x+3)^{2}}-\frac{95568773322}{(5\,x+3)^{3}}-7983405324\right)}{70306082\,\left(\frac{11}{5\,x+3}-2\right)^{2}\left(\frac{1}{5\,x+3}+3\right)^{2}}+\frac{333639}{16807}\,\ln\left(\left|-\frac{1}{5\,x+3}-3\right|\right)-\frac{274224}{246071287}\,\ln\left(\left|-\frac{11}{5\,x+3}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-1/((5*x + 3)^2*(3*x + 2)^3*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] -3125/1331/(5*x + 3) - 5/70306082*(84659379036/(5*x + 3) - 206753
119043/(5*x + 3)^2 - 95568773322/(5*x + 3)^3 - 7983405324)/((11/(
5*x + 3) - 2)^2*(1/(5*x + 3) + 3)^2) + 333639/16807*ln(abs(-1/(5*
x + 3) - 3)) - 274224/246071287*ln(abs(-11/(5*x + 3) + 2))
```

3.1679 $\int \frac{1}{(1-2x)^3(2+3x)^4(3+5x)^2}\,dx$

Optimal. Leaf size=97

$$\frac{6464}{22370117(1-2x)}-\frac{333639}{16807(3x+2)}-\frac{15625}{1331(5x+3)}+\frac{16}{290521(1-2x)^2}-\frac{3078}{2401(3x+2)^2}-\frac{27}{343(3x+2)^3}-\frac{761760\log(1-2x)}{1722499009}+\frac{15820110\log(3x+2)}{117649}-\frac{1968750\log(5x+3)}{14641}$$

```
[Out] 16/(290521*(1 - 2*x)^2) + 6464/(22370117*(1 - 2*x)) - 27/(343*(2
+ 3*x)^3) - 3078/(2401*(2 + 3*x)^2) - 333639/(16807*(2 + 3*x)) -
15625/(1331*(3 + 5*x)) - (761760*Log[1 - 2*x])/1722499009 + (1582
0110*Log[2 + 3*x])/117649 - (1968750*Log[3 + 5*x])/14641
```

Rubi [A] time = 0.120249, antiderivative size = 97, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$\frac{6464}{22370117(1-2x)}-\frac{333639}{16807(3x+2)}-\frac{15625}{1331(5x+3)}+\frac{16}{290521(1-2x)^2}-\frac{3078}{2401(3x+2)^2}-\frac{27}{343(3x+2)^3}-\frac{761760\log(1-2x)}{1722499009}+\frac{15820110\log(3x+2)}{117649}-\frac{1968750\log(5x+3)}{14641}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^3*(2 + 3*x)^4*(3 + 5*x)^2),x]
```

```
[Out] 16/(290521*(1 - 2*x)^2) + 6464/(22370117*(1 - 2*x)) - 27/(343*(2
+ 3*x)^3) - 3078/(2401*(2 + 3*x)^2) - 333639/(16807*(2 + 3*x)) -
15625/(1331*(3 + 5*x)) - (761760*Log[1 - 2*x])/1722499009 + (1582
0110*Log[2 + 3*x])/117649 - (1968750*Log[3 + 5*x])/14641
```

Rubi in Sympy [A] time = 14.3051, size = 80, normalized size = 0.82

$$-\frac{761760\log(-2x+1)}{1722499009}+\frac{15820110\log(3x+2)}{117649}-\frac{1968750\log(5x+3)}{14641}-\frac{15625}{1331(5x+3)}-\frac{333639}{16807(3x+2)}-\frac{3078}{2401(3x+2)^2}-\frac{27}{343(3x+2)^3}+\frac{6464}{22370117(-2x+1)}+\frac{16}{290521(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**3/(2+3*x)**4/(3+5*x)**2,x)
```

```
[Out] -761760*log(-2*x + 1)/1722499009 + 15820110*log(3*x + 2)/117649 -
 1968750*log(5*x + 3)/14641 - 15625/(1331*(5*x + 3)) - 333639/(16
807*(3*x + 2)) - 3078/(2401*(3*x + 2)**2) - 27/(343*(3*x + 2)**3)
 + 6464/(22370117*(-2*x + 1)) + 16/(290521*(-2*x + 1)**2)
```

Mathematica [A] time = 0.238745, size = 88, normalized size = 0.91

$$\frac{2\left(\frac{77}{2}\left(-\frac{444073509}{3x+2}-\frac{262609375}{5x+3}-\frac{28677726}{(3x+2)^2}-\frac{1760913}{(3x+2)^3}+\frac{6464}{1-2x}+\frac{1232}{(1-2x)^2}\right)-380880\log(1-2x)+115811115255\log(6x+4)-1158\right.}{1722499009}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^3*(2 + 3*x)^4*(3 + 5*x)^2),x]
```

```
[Out] (2*((77*(1232/(1 - 2*x)^2 + 6464/(1 - 2*x) - 1760913/(2 + 3*x)^3
- 28677726/(2 + 3*x)^2 - 444073509/(2 + 3*x) - 262609375/(3 + 5*x
)))/2 - 380880*Log[1 - 2*x] + 115811115255*Log[4 + 6*x] - 1158107
34375*Log[6 + 10*x]))/1722499009
```

Maple [A] time = 0.02, size = 80, normalized size = 0.8

$$-\frac{15625}{3993+6655\,x}-\frac{1968750\,\ln\left(3+5\,x\right)}{14641}-\frac{27}{343\,\left(2+3\,x\right)^{3}}-\frac{3078}{2401\,\left(2+3\,x\right)^{2}}-\frac{333639}{33614+50421\,x}+\frac{15820110\,\ln\left(2+3\,x\right)}{117649}+\frac{16}{290521\,\left(-1+2\,x\right)^{2}}-\frac{6464}{-22370117+44740234\,x}-\frac{761760\,\ln\left(-1+2\,x\right)}{1722499009}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^3/(2+3*x)^4/(3+5*x)^2,x)
```

```
[Out] -15625/1331/(3+5*x)-1968750/14641*ln(3+5*x)-27/343/(2+3*x)^3-3078
/2401/(2+3*x)^2-333639/16807/(2+3*x)+15820110/117649*ln(2+3*x)+16
/290521/(-1+2*x)^2-6464/22370117/(-1+2*x)-761760/1722499009*ln(-1
+2*x)
```

Maxima [A] time = 1.33498, size = 113, normalized size = 1.16

$$-\frac{108296789400\,x^{5}+104690324340\,x^{4}-46403447130\,x^{3}-55829767905\,x^{2}+4446481815\,x+7606921499}{22370117\left(540\,x^{6}+864\,x^{5}+99\,x^{4}-425\,x^{3}-154\,x^{2}+52\,x+24\right)}-\frac{1968750}{14641}\log\left(5\,x+3\right)+\frac{15820110}{117649}\log\left(3\,x+2\right)-\frac{761760}{1722499009}\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^2*(3*x + 2)^4*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] -1/22370117*(108296789400*x^5 + 104690324340*x^4 - 46403447130*x^
3 - 55829767905*x^2 + 4446481815*x + 7606921499)/(540*x^6 + 864*x
^5 + 99*x^4 - 425*x^3 - 154*x^2 + 52*x + 24) - 1968750/14641*log(
5*x + 3) + 15820110/117649*log(3*x + 2) - 761760/1722499009*log(2
*x - 1)
```

Fricas [A] time = 0.22275, size = 234, normalized size = 2.41

$$-\frac{8338852783800\,x^{5}+8061154974180\,x^{4}-3573065429010\,x^{3}-4298892128685\,x^{2}+231621468750\left(540\,x^{6}+864\,x^{5}+99\,x\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^2*(3*x + 2)^4*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] -1/1722499009*(8338852783800*x^5 + 8061154974180*x^4 - 3573065429
010*x^3 - 4298892128685*x^2 + 231621468750*(540*x^6 + 864*x^5 + 9
9*x^4 - 425*x^3 - 154*x^2 + 52*x + 24)*log(5*x + 3) - 23162223051
0*(540*x^6 + 864*x^5 + 99*x^4 - 425*x^3 - 154*x^2 + 52*x + 24)*lo
g(3*x + 2) + 761760*(540*x^6 + 864*x^5 + 99*x^4 - 425*x^3 - 154*x
^2 + 52*x + 24)*log(2*x - 1) + 342379099755*x + 585732955423)/(54
0*x^6 + 864*x^5 + 99*x^4 - 425*x^3 - 154*x^2 + 52*x + 24)
```

Sympy [A] time = 0.754526, size = 85, normalized size = 0.88

$$-\frac{108296789400x^5+104690324340x^4-46403447130x^3-55829767905x^2+4446481815x+7606921499}{12079863180x^6+19327781088x^5+2214641583x^4-9507299725x^3-3444998018x^2+1163246084x+536882808} - \frac{761760\log\left(x-\frac{1}{2}\right)}{1722499009} - \frac{1968750\log\left(x+\frac{3}{5}\right)}{14641} + \frac{15820110\log\left(x+\frac{2}{3}\right)}{117649}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**3/(2+3*x)**4/(3+5*x)**2,x)
```

```
[Out] -(108296789400*x**5 + 104690324340*x**4 - 46403447130*x**3 - 5582
9767905*x**2 + 4446481815*x + 7606921499)/(12079863180*x**6 + 193
27781088*x**5 + 2214641583*x**4 - 9507299725*x**3 - 3444998018*x*
*2 + 1163246084*x + 536882808) - 761760*log(x - 1/2)/1722499009 -
 1968750*log(x + 3/5)/14641 + 15820110*log(x + 2/3)/117649
```

GIAC/XCAS [A] time = 0.214267, size = 140, normalized size = 1.44

$$-\frac{15625}{1331\,(5\,x+3)} - \frac{25\left(\frac{1535578147116}{5\,x+3} - \frac{3297944687832}{(5\,x+3)^2} - \frac{3224232263641}{(5\,x+3)^3} - \frac{689127341628}{(5\,x+3)^4} - 150040675728\right)}{246071287\left(\frac{11}{5\,x+3}-2\right)^2\left(\frac{1}{5\,x+3}+3\right)^3} + \frac{15820110}{117649}\ln\left(\left|-\frac{1}{5\,x+3}-3\right|\right) - \frac{761760}{1722499009}\ln\left(\left|-\frac{11}{5\,x+3}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-1/((5*x + 3)^2*(3*x + 2)^4*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] -15625/1331/(5*x + 3) - 25/246071287*(1535578147116/(5*x + 3) - 3
297944687832/(5*x + 3)^2 - 3224232263641/(5*x + 3)^3 - 6891273416
28/(5*x + 3)^4 - 150040675728)/((11/(5*x + 3) - 2)^2*(1/(5*x + 3)
 + 3)^3) + 15820110/117649*ln(abs(-1/(5*x + 3) - 3)) - 761760/172
2499009*ln(abs(-11/(5*x + 3) + 2))
```

3.1680 $\int \frac{(2+3x)^9}{(1-2x)^3(3+5x)^3}\,dx$

Optimal. Leaf size=91

$$-\frac{19683x^4}{4000}-\frac{373977x^3}{10000}-\frac{7459857x^2}{50000}-\frac{50150097x}{100000}-\frac{17294403}{29282(1-2x)}-\frac{303}{1143828125(5x+3)}+\frac{40353607}{340736(1-2x)^2}-\frac{1}{207968750(5x+3)^2}-\frac{12657032367\log(1-2x)}{20614528}+\frac{8202\log(5x+3)}{2516421875}$$

```
[Out] 40353607/(340736*(1 - 2*x)^2) - 17294403/(29282*(1 - 2*x)) - (501
50097*x)/100000 - (7459857*x^2)/50000 - (373977*x^3)/10000 - (196
83*x^4)/4000 - 1/(207968750*(3 + 5*x)^2) - 303/(1143828125*(3 + 5
*x)) - (12657032367*Log[1 - 2*x])/20614528 + (8202*Log[3 + 5*x])/
2516421875
```

Rubi [A] time = 0.114111, antiderivative size = 91, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{19683x^4}{4000}-\frac{373977x^3}{10000}-\frac{7459857x^2}{50000}-\frac{50150097x}{100000}-\frac{17294403}{29282(1-2x)}-\frac{303}{1143828125(5x+3)}+\frac{40353607}{340736(1-2x)^2}-\frac{1}{207968750(5x+3)^2}-\frac{12657032367\log(1-2x)}{20614528}+\frac{8202\log(5x+3)}{2516421875}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^9/((1 - 2*x)^3*(3 + 5*x)^3),x]
```

```
[Out] 40353607/(340736*(1 - 2*x)^2) - 17294403/(29282*(1 - 2*x)) - (501
50097*x)/100000 - (7459857*x^2)/50000 - (373977*x^3)/10000 - (196
83*x^4)/4000 - 1/(207968750*(3 + 5*x)^2) - 303/(1143828125*(3 + 5
*x)) - (12657032367*Log[1 - 2*x])/20614528 + (8202*Log[3 + 5*x])/
2516421875
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{19683x^4}{4000}-\frac{373977x^3}{10000}-\frac{12657032367\log(-2x+1)}{20614528}+\frac{8202\log(5x+3)}{2516421875}+\int\left(-\frac{50150097}{100000}\right)dx-\frac{7459857\int x\,dx}{25000}-\frac{303}{1143828125\,(5x+3)}-\frac{1}{207968750\,(5x+3)^2}-\frac{17294403}{29282\,(-2x+1)}+\frac{40353607}{340736\,(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**9/(1-2*x)**3/(3+5*x)**3,x)
```

```
[Out] -19683*x**4/4000 - 373977*x**3/10000 - 12657032367*log(-2*x + 1)/
20614528 + 8202*log(5*x + 3)/2516421875 + Integral(-50150097/1000
00, x) - 7459857*Integral(x, x)/25000 - 303/(1143828125*(5*x + 3)
) - 1/(207968750*(5*x + 3)**2) - 17294403/(29282*(-2*x + 1)) + 40
353607/(340736*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0753102, size = 75, normalized size = 0.82

$$-\frac{\frac{11(144089401500000x^8+1123897331700000x^7+4502793796875000x^6+14903967293820000x^5+8450955823285800x^4-15846035365304040x^3-12213049363361937x}{(10x^2+x-3)^2}}{3221020000000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^9/((1 - 2*x)^3*(3 + 5*x)^3),x]
```

```
[Out] ((-11*(1977372328510687 + 1867950230356442*x - 12213049363361937*
x^2 - 15846035365304040*x^3 + 8450955823285800*x^4 + 149039672938
20000*x^5 + 4502793796875000*x^6 + 1123897331700000*x^7 + 1440894
01500000*x^8))/(-3 + x + 10*x^2)^2 - 1977661307343750*Log[3 - 6*x
] + 10498560*Log[-3*(3 + 5*x)])/3221020000000
```

Maple [A] time = 0.017, size = 72, normalized size = 0.8

$$-\frac{19683\,x^{4}}{4000}-\frac{373977\,x^{3}}{10000}-\frac{7459857\,x^{2}}{50000}-\frac{50150097\,x}{100000}-\frac{1}{207968750\,(3+5\,x)^{2}}-\frac{303}{3431484375+5719140625\,x}+\frac{8202\,\ln(3+5\,x)}{2516421875}+\frac{40353607}{340736\,(-1+2\,x)^{2}}+\frac{17294403}{-29282+58564\,x}-\frac{12657032367\,\ln(-1+2\,x)}{20614528}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^9/(1-2*x)^3/(3+5*x)^3,x)
```

```
[Out] -19683/4000*x^4-373977/10000*x^3-7459857/50000*x^2-50150097/10000
0*x-1/207968750/(3+5*x)^2-303/1143828125/(3+5*x)+8202/2516421875*
ln(3+5*x)+40353607/340736/(-1+2*x)^2+17294403/29282/(-1+2*x)-1265
7032367/20614528*ln(-1+2*x)
```

Maxima [A] time = 1.36678, size = 100, normalized size = 1.1

$$-\frac{19683}{4000}\,x^{4}-\frac{373977}{10000}\,x^{3}-\frac{7459857}{50000}\,x^{2}-\frac{50150097}{100000}\,x+\frac{8647201498448640\,x^{3}+6920013076005537\,x^{2}-1034961928982642\,x-1244386341093487}{292820000000\,(100\,x^{4}+20\,x^{3}-59\,x^{2}-6\,x+9)}+\frac{8202}{2516421875}\,\log(5\,x+3)-\frac{12657032367}{20614528}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^9/((5*x + 3)^3*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] -19683/4000*x^4 - 373977/10000*x^3 - 7459857/50000*x^2 - 50150097
/100000*x + 1/292820000000*(8647201498448640*x^3 + 69200130760055
37*x^2 - 1034961928982642*x - 1244386341093487)/(100*x^4 + 20*x^3
 - 59*x^2 - 6*x + 9) + 8202/2516421875*log(5*x + 3) - 12657032367
/20614528*log(2*x - 1)
```

Fricas [A] time = 0.214576, size = 162, normalized size = 1.78

$$-\frac{1584983416500000\,x^{8}+12362870648700000\,x^{7}+49530731765625000\,x^{6}+163943640232020000\,x^{5}+3373337816263800}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^9/((5*x + 3)^3*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] -1/3221020000000*(1584983416500000*x^8 + 12362870648700000*x^7 +
49530731765625000*x^6 + 163943640232020000*x^5 + 3373337816263800
```

```
*x^4 - 192223824266320440*x^3 - 81487109015452107*x^2 - 10498560*
(100*x^4 + 20*x^3 - 59*x^2 - 6*x + 9)*log(5*x + 3) + 197766130734
3750*(100*x^4 + 20*x^3 - 59*x^2 - 6*x + 9)*log(2*x - 1) + 2592268
3108313662*x + 13688249752028357)/(100*x^4 + 20*x^3 - 59*x^2 - 6*
x + 9)
```

Sympy [A] time = 0.596888, size = 80, normalized size = 0.88

$$-\frac{19683x^4}{4000}-\frac{373977x^3}{10000}-\frac{7459857x^2}{50000}-\frac{50150097x}{100000}+\frac{8647201498448640x^3+6920013076005537x^2-1034961928982642x-1244386341093487}{29282000000000x^4+5856400000000x^3-17276380000000x^2-1756920000000x+2635380000000}-\frac{12657032367\log\left(x-\frac{1}{2}\right)}{20614528}+\frac{8202\log\left(x+\frac{3}{5}\right)}{2516421875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**9/(1-2*x)**3/(3+5*x)**3,x)
```

```
[Out] -19683*x**4/4000 - 373977*x**3/10000 - 7459857*x**2/50000 - 50150
097*x/100000 + (8647201498448640*x**3 + 6920013076005537*x**2 - 1
034961928982642*x - 1244386341093487)/(29282000000000*x**4 + 5856
400000000*x**3 - 17276380000000*x**2 - 1756920000000*x + 26353800
00000) - 12657032367*log(x - 1/2)/20614528 + 8202*log(x + 3/5)/25
16421875
```

GIAC/XCAS [A] time = 0.210452, size = 92, normalized size = 1.01

$$-\frac{19683}{4000}x^4-\frac{373977}{10000}x^3-\frac{7459857}{50000}x^2-\frac{50150097}{100000}x+\frac{8647201498448640x^3+6920013076005537x^2-1034961928982642x-1244386341093487}{292820000000(5x+3)^2(2x-1)^2}+\frac{8202}{2516421875}\ln(|5x+3|)-\frac{12657032367}{20614528}\ln(|2x-1|)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^9/((5*x + 3)^3*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] -19683/4000*x^4 - 373977/10000*x^3 - 7459857/50000*x^2 - 50150097
/100000*x + 1/292820000000*(8647201498448640*x^3 + 69200130760055
37*x^2 - 1034961928982642*x - 1244386341093487)/((5*x + 3)^2*(2*x
 - 1)^2) + 8202/2516421875*ln(abs(5*x + 3)) - 12657032367/2061452
8*ln(abs(2*x - 1))
```

3.1681 $\int \frac{(2+3x)^8}{(1-2x)^3(3+5x)^3}\,dx$

Optimal. Leaf size=84

$$-\frac{2187x^3}{1000}-\frac{330237x^2}{20000}-\frac{242028x}{3125}-\frac{130943337}{937024(1-2x)}-\frac{54}{45753125(5x+3)}+\frac{5764801}{170368(1-2x)^2}-\frac{1}{41593750(5x+3)^2}-\frac{595421589\log(1-2x)}{5153632}+\frac{1284\log(5x+3)}{100656875}$$

```
[Out] 5764801/(170368*(1 - 2*x)^2) - 130943337/(937024*(1 - 2*x)) - (24
2028*x)/3125 - (330237*x^2)/20000 - (2187*x^3)/1000 - 1/(41593750
*(3 + 5*x)^2) - 54/(45753125*(3 + 5*x)) - (595421589*Log[1 - 2*x]
)/5153632 + (1284*Log[3 + 5*x])/100656875
```

Rubi [A] time = 0.100667, antiderivative size = 84, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{2187x^3}{1000}-\frac{330237x^2}{20000}-\frac{242028x}{3125}-\frac{130943337}{937024(1-2x)}-\frac{54}{45753125(5x+3)}+\frac{5764801}{170368(1-2x)^2}-\frac{1}{41593750(5x+3)^2}-\frac{595421589\log(1-2x)}{5153632}+\frac{1284\log(5x+3)}{100656875}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^8/((1 - 2*x)^3*(3 + 5*x)^3),x]
```

```
[Out] 5764801/(170368*(1 - 2*x)^2) - 130943337/(937024*(1 - 2*x)) - (24
2028*x)/3125 - (330237*x^2)/20000 - (2187*x^3)/1000 - 1/(41593750
*(3 + 5*x)^2) - 54/(45753125*(3 + 5*x)) - (595421589*Log[1 - 2*x]
)/5153632 + (1284*Log[3 + 5*x])/100656875
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{2187x^3}{1000}-\frac{595421589\log\left(-2x+1\right)}{5153632}+\frac{1284\log\left(5x+3\right)}{100656875}+\int\left(-\frac{242028}{3125}\right)dx-\frac{330237\int x\,dx}{10000}-\frac{54}{45753125\left(5x+3\right)}-\frac{1}{41593750\left(5x+3\right)^2}-\frac{130943337}{937024\left(-2x+1\right)}+\frac{5764801}{170368\left(-2x+1\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**8/(1-2*x)**3/(3+5*x)**3,x)
```

```
[Out] -2187*x**3/1000 - 595421589*log(-2*x + 1)/5153632 + 1284*log(5*x
+ 3)/100656875 + Integral(-242028/3125, x) - 330237*Integral(x, x
)/10000 - 54/(45753125*(5*x + 3)) - 1/(41593750*(5*x + 3)**2) - 1
30943337/(937024*(-2*x + 1)) + 5764801/(170368*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0654333, size = 70, normalized size = 0.83

$$-\frac{\frac{11(6403973400000x^7+49630793850000x^6+232677700200000x^5+148045752548100x^4-314407515766380x^3-254889143270829x^2+31893783102814x+397543224262}{(10x^2+x-3)^2}}{322102000000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^8/((1 - 2*x)^3*(3 + 5*x)^3),x]
```

```
[Out] ((-11*(39754322426279 + 31893783102814*x - 254889143270829*x^2 -
314407515766380*x^3 + 148045752548100*x^4 + 232677700200000*x^5 +
 49630793850000*x^6 + 6403973400000*x^7))/(-3 + x + 10*x^2)^2 - 3
7213849312500*Log[3 - 6*x] + 4108800*Log[-3*(3 + 5*x)])/322102000
000
```

Maple [A] time = 0.016, size = 67, normalized size = 0.8

$$-\frac{2187\,x^3}{1000}-\frac{330237\,x^2}{20000}-\frac{242028\,x}{3125}-\frac{1}{41593750\,\left(3+5\,x\right)^2}-\frac{54}{137259375+228765625\,x}+\frac{1284\,\ln\left(3+5\,x\right)}{100656875}+\frac{5764801}{170368\,\left(-1+2\,x\right)^2}+\frac{130943337}{-937024+1874048\,x}-\frac{595421589\,\ln\left(-1+2\,x\right)}{5153632}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^8/(1-2*x)^3/(3+5*x)^3,x)
```

```
[Out] -2187/1000*x^3-330237/20000*x^2-242028/3125*x-1/41593750/(3+5*x)^
2-54/45753125/(3+5*x)+1284/100656875*ln(3+5*x)+5764801/170368/(-1
+2*x)^2+130943337/937024/(-1+2*x)-595421589/5153632*ln(-1+2*x)
```

Maxima [A] time = 1.33926, size = 93, normalized size = 1.11

$$-\frac{2187}{1000}\,x^3-\frac{330237}{20000}\,x^2-\frac{242028}{3125}\,x+\frac{204598963371300\,x^3+167989904414289\,x^2-19378995974014\,x-27910387088759}{29282000000\,\left(100\,x^4+20\,x^3-59\,x^2-6\,x+9\right)}+\frac{1284}{100656875}\,\log\left(5\,x+3\right)-\frac{595421589}{5153632}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^8/((5*x + 3)^3*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] -2187/1000*x^3 - 330237/20000*x^2 - 242028/3125*x + 1/29282000000
*(204598963371300*x^3 + 167989904414289*x^2 - 19378995974014*x -
27910387088759)/(100*x^4 + 20*x^3 - 59*x^2 - 6*x + 9) + 1284/1006
56875*log(5*x + 3) - 595421589/5153632*log(2*x - 1)
```

Fricas [A] time = 0.21418, size = 155, normalized size = 1.85

$$-\frac{70443707400000\,x^7+545938732350000\,x^6+2559454702200000\,x^5+180911181221100\,x^4-3748001092791780\,x^3-194}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^8/((5*x + 3)^3*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] -1/322102000000*(70443707400000*x^7 + 545938732350000*x^6 + 25594
54702200000*x^5 + 180911181221100*x^4 - 3748001092791780*x^3 - 19
49701238862399*x^2 - 4108800*(100*x^4 + 20*x^3 - 59*x^2 - 6*x + 9
)*log(5*x + 3) + 37213849312500*(100*x^4 + 20*x^3 - 59*x^2 - 6*x
+ 9)*log(2*x - 1) + 437687139939434*x + 307014257976349)/(100*x^4
 + 20*x^3 - 59*x^2 - 6*x + 9)
```

Sympy [A] time = 0.590169, size = 73, normalized size = 0.87

$$-\frac{2187x^3}{1000}-\frac{330237x^2}{20000}-\frac{242028x}{3125}+\frac{204598963371300x^3+167989904414289x^2-19378995974014x-27910387088759}{2928200000000x^4+585640000000x^3-1727638000000x^2-175692000000x+263538000000}-\frac{595421589\log\left(x-\frac{1}{2}\right)}{5153632}+\frac{1284\log\left(x+\frac{3}{5}\right)}{100656875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**8/(1-2*x)**3/(3+5*x)**3,x)
```

```
[Out] -2187*x**3/1000 - 330237*x**2/20000 - 242028*x/3125 + (2045989633
71300*x**3 + 167989904414289*x**2 - 19378995974014*x - 2791038708
8759)/(2928200000000*x**4 + 585640000000*x**3 - 1727638000000*x**
2 - 175692000000*x + 263538000000) - 595421589*log(x - 1/2)/51536
32 + 1284*log(x + 3/5)/100656875
```

GIAC/XCAS [A] time = 0.218425, size = 85, normalized size = 1.01

$$-\frac{2187}{1000}\,x^3-\frac{330237}{20000}\,x^2-\frac{242028}{3125}\,x+\frac{204598963371300\,x^3+167989904414289\,x^2-19378995974014\,x-27910387088759}{29282000000\,(5\,x+3)^2(2\,x-1)^2}+\frac{1284}{100656875}\ln\left(|5\,x+3|\right)-\frac{595421589}{5153632}\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^8/((5*x + 3)^3*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] -2187/1000*x^3 - 330237/20000*x^2 - 242028/3125*x + 1/29282000000
*(204598963371300*x^3 + 167989904414289*x^2 - 19378995974014*x -
27910387088759)/((5*x + 3)^2*(2*x - 1)^2) + 1284/100656875*ln(abs
(5*x + 3)) - 595421589/5153632*ln(abs(2*x - 1))
```

3.1682 $\int \frac{(2+3x)^7}{(1-2x)^3(3+5x)^3}\,dx$

Optimal. Leaf size=77

$$-\frac{2187x^2}{2000}-\frac{95499x}{10000}-\frac{7411887}{234256(1-2x)}-\frac{237}{45753125(5x+3)}+\frac{823543}{85184(1-2x)^2}-\frac{1}{8318750(5x+3)^2}-\frac{25059237\log(1-2x)}{1288408}+\frac{24279\log(5x+3)}{503284375}$$

```
[Out] 823543/(85184*(1 - 2*x)^2) - 7411887/(234256*(1 - 2*x)) - (95499*
x)/10000 - (2187*x^2)/2000 - 1/(8318750*(3 + 5*x)^2) - 237/(45753
125*(3 + 5*x)) - (25059237*Log[1 - 2*x])/1288408 + (24279*Log[3 +
 5*x])/503284375
```

Rubi [A] time = 0.0930943, antiderivative size = 77, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{2187x^2}{2000}-\frac{95499x}{10000}-\frac{7411887}{234256(1-2x)}-\frac{237}{45753125(5x+3)}+\frac{823543}{85184(1-2x)^2}-\frac{1}{8318750(5x+3)^2}-\frac{25059237\log(1-2x)}{1288408}+\frac{24279\log(5x+3)}{503284375}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^7/((1 - 2*x)^3*(3 + 5*x)^3),x]
```

```
[Out] 823543/(85184*(1 - 2*x)^2) - 7411887/(234256*(1 - 2*x)) - (95499*
x)/10000 - (2187*x^2)/2000 - 1/(8318750*(3 + 5*x)^2) - 237/(45753
125*(3 + 5*x)) - (25059237*Log[1 - 2*x])/1288408 + (24279*Log[3 +
 5*x])/503284375
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{25059237\log\left(-2x+1\right)}{1288408}+\frac{24279\log\left(5x+3\right)}{503284375}+\int\left(-\frac{95499}{10000}\right)dx-\frac{2187\int x\,dx}{1000}-\frac{237}{45753125\left(5x+3\right)}-\frac{1}{8318750\left(5x+3\right)^2}-\frac{7411887}{234256\left(-2x+1\right)}+\frac{823543}{85184\left(-2x+1\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**7/(1-2*x)**3/(3+5*x)**3,x)
```

```
[Out] -25059237*log(-2*x + 1)/1288408 + 24279*log(5*x + 3)/503284375 +
Integral(-95499/10000, x) - 2187*Integral(x, x)/1000 - 237/(45753
125*(5*x + 3)) - 1/(8318750*(5*x + 3)**2) - 7411887/(234256*(-2*x
 + 1)) + 823543/(85184*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0638939, size = 65, normalized size = 0.84

$$-\frac{\frac{11\left(320198670000x^6+2860441452000x^5+2092320420300x^4-5957126547060x^3-5105353973121x^2+410862940766x+734029874011\right)}{\left(10x^2+x-3\right)^2}-626480925000\log(3}{32210200000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^7/((1 - 2*x)^3*(3 + 5*x)^3),x]
```

```
[Out] ((-11*(734029874011 + 410862940766*x - 5105353973121*x^2 - 595712
6547060*x^3 + 2092320420300*x^4 + 2860441452000*x^5 + 32019867000
0*x^6))/(-3 + x + 10*x^2)^2 - 626480925000*Log[3 - 6*x] + 1553856
*Log[-3*(3 + 5*x)])/32210200000
```

Maple [A] time = 0.015, size = 62, normalized size = 0.8

$$-\frac{2187\,x^2}{2000}-\frac{95499\,x}{10000}-\frac{1}{8318750\,(3+5\,x)^2}-\frac{237}{137259375+228765625\,x}+\frac{24279\,\ln(3+5\,x)}{503284375}+\frac{823543}{85184\,(-1+2\,x)^2}+\frac{7411887}{-234256+468512\,x}-\frac{25059237\,\ln(-1+2\,x)}{1288408}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^7/(1-2*x)^3/(3+5*x)^3,x)
```

```
[Out] -2187/2000*x^2-95499/10000*x-1/8318750/(3+5*x)^2-237/45753125/(3+
5*x)+24279/503284375*ln(3+5*x)+823543/85184/(-1+2*x)^2+7411887/23
4256/(-1+2*x)-25059237/1288408*ln(-1+2*x)
```

Maxima [A] time = 1.35179, size = 86, normalized size = 1.12

$$-\frac{2187}{2000}\,x^2-\frac{95499}{10000}\,x+\frac{4632429071640\,x^3+3950432948061\,x^2-262504223666\,x-579053717731}{2928200000\,(100\,x^4+20\,x^3-59\,x^2-6\,x+9)}+\frac{24279}{503284375}\,\log(5\,x+3)-\frac{25059237}{1288408}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^7/((5*x + 3)^3*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] -2187/2000*x^2 - 95499/10000*x + 1/2928200000*(4632429071640*x^3
+ 3950432948061*x^2 - 262504223666*x - 579053717731)/(100*x^4 + 2
0*x^3 - 59*x^2 - 6*x + 9) + 24279/503284375*log(5*x + 3) - 250592
37/1288408*log(2*x - 1)
```

Fricas [A] time = 0.212516, size = 149, normalized size = 1.94

$$-\frac{3522185370000\,x^6+31464855972000\,x^5+4073994411300\,x^4-69316698060060\,x^3-44983390879251\,x^2-1553856\,(100}{32210200000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^7/((5*x + 3)^3*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] -1/32210200000*(3522185370000*x^6 + 31464855972000*x^5 + 40739944
11300*x^4 - 69316698060060*x^3 - 44983390879251*x^2 - 1553856*(10
0*x^4 + 20*x^3 - 59*x^2 - 6*x + 9)*log(5*x + 3) + 626480925000*(1
00*x^4 + 20*x^3 - 59*x^2 - 6*x + 9)*log(2*x - 1) + 5655984161146*
x + 6369590895041)/(100*x^4 + 20*x^3 - 59*x^2 - 6*x + 9)
```

Sympy [A] time = 0.575552, size = 66, normalized size = 0.86

$$-\frac{2187x^2}{2000} - \frac{95499x}{10000} + \frac{4632429071640x^3 + 3950432948061x^2 - 262504223666x - 579053717731}{292820000000x^4 + 58564000000x^3 - 172763800000x^2 - 17569200000x + 26353800000} - \frac{25059237\log\left(x - \frac{1}{2}\right)}{1288408} + \frac{24279\log\left(x + \frac{3}{5}\right)}{503284375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**7/(1-2*x)**3/(3+5*x)**3,x)
```

```
[Out] -2187*x**2/2000 - 95499*x/10000 + (4632429071640*x**3 + 395043294
8061*x**2 - 262504223666*x - 579053717731)/(292820000000*x**4 + 5
8564000000*x**3 - 172763800000*x**2 - 17569200000*x + 26353800000
) - 25059237*log(x - 1/2)/1288408 + 24279*log(x + 3/5)/503284375
```

GIAC/XCAS [A] time = 0.212058, size = 78, normalized size = 1.01

$$-\frac{2187}{2000}\,x^2 - \frac{95499}{10000}\,x + \frac{4632429071640\,x^3 + 3950432948061\,x^2 - 262504223666\,x - 579053717731}{2928200000\,(5\,x + 3)^2(2\,x - 1)^2} + \frac{24279}{503284375}\ln\left(|5\,x + 3|\right) - \frac{25059237}{1288408}\ln\left(|2\,x - 1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^7/((5*x + 3)^3*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] -2187/2000*x^2 - 95499/10000*x + 1/2928200000*(4632429071640*x^3
+ 3950432948061*x^2 - 262504223666*x - 579053717731)/((5*x + 3)^2
*(2*x - 1)^2) + 24279/503284375*ln(abs(5*x + 3)) - 25059237/12884
08*ln(abs(2*x - 1))
```

3.1683 $\int \frac{(2+3x)^6}{(1-2x)^3(3+5x)^3}\,dx$

Optimal. Leaf size=70

$$-\frac{729x}{1000}-\frac{1563051}{234256(1-2x)}-\frac{204}{9150625(5x+3)}+\frac{117649}{42592(1-2x)^2}-\frac{1}{1663750(5x+3)^2}-\frac{6950895\log(1-2x)}{2576816}+\frac{17547\log(5x+3)}{100656875}$$

```
[Out] 117649/(42592*(1 - 2*x)^2) - 1563051/(234256*(1 - 2*x)) - (729*x)
/1000 - 1/(1663750*(3 + 5*x)^2) - 204/(9150625*(3 + 5*x)) - (6950
895*Log[1 - 2*x])/2576816 + (17547*Log[3 + 5*x])/100656875
```

Rubi [A] time = 0.0794703, antiderivative size = 70, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{729x}{1000}-\frac{1563051}{234256(1-2x)}-\frac{204}{9150625(5x+3)}+\frac{117649}{42592(1-2x)^2}-\frac{1}{1663750(5x+3)^2}-\frac{6950895\log(1-2x)}{2576816}+\frac{17547\log(5x+3)}{100656875}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^6/((1 - 2*x)^3*(3 + 5*x)^3),x]
```

```
[Out] 117649/(42592*(1 - 2*x)^2) - 1563051/(234256*(1 - 2*x)) - (729*x)
/1000 - 1/(1663750*(3 + 5*x)^2) - 204/(9150625*(3 + 5*x)) - (6950
895*Log[1 - 2*x])/2576816 + (17547*Log[3 + 5*x])/100656875
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\frac{6950895\log(-2x+1)}{2576816}+\frac{17547\log(5x+3)}{100656875}+\int\left(-\frac{729}{1000}\right)dx-\frac{204}{9150625(5x+3)}-\frac{1}{1663750(5x+3)^2}-\frac{1563051}{234256(-2x+1)}+\frac{117649}{42592(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**6/(1-2*x)**3/(3+5*x)**3,x)
```

```
[Out] -6950895*log(-2*x + 1)/2576816 + 17547*log(5*x + 3)/100656875 + I
ntegral(-729/1000, x) - 204/(9150625*(5*x + 3)) - 1/(1663750*(5*x
 + 3)**2) - 1563051/(234256*(-2*x + 1)) + 117649/(42592*(-2*x + 1
)**2)
```

Mathematica [A] time = 0.0644526, size = 60, normalized size = 0.86

$$\frac{-\frac{55(4269315600x^5+3700073520x^4-21487765512x^3-19656314001x^2+49588250x+2317121263)}{(10x^2+x-3)^2}-8688618750\log(3-6x)+561504\log(-3(5x+3)}{3221020000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^6/((1 - 2*x)^3*(3 + 5*x)^3),x]
```

```
[Out] ((-55*(2317121263 + 49588250*x - 19656314001*x^2 - 21487765512*x^
3 + 3700073520*x^4 + 4269315600*x^5))/(-3 + x + 10*x^2)^2 - 86886
```

```
18750*Log[3 - 6*x] + 561504*Log[-3*(3 + 5*x)])/3221020000
```

Maple [A] time = 0.016, size = 57, normalized size = 0.8

$$-\frac{729\,x}{1000}-\frac{1}{1663750\;(3+5\,x)^{2}}-\frac{204}{27451875+45753125\,x}+\frac{17547\;\ln(3+5\,x)}{100656875}+\frac{117649}{42592\;(-1+2\,x)^{2}}+\frac{1563051}{-234256+468512\,x}-\frac{6950895\;\ln(-1+2\,x)}{2576816}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^6/(1-2*x)^3/(3+5*x)^3,x)
```

```
[Out] -729/1000*x-1/1663750/(3+5*x)^2-204/9150625/(3+5*x)+17547/1006568
75*ln(3+5*x)+117649/42592/(-1+2*x)^2+1563051/234256/(-1+2*x)-6950
895/2576816*ln(-1+2*x)
```

Maxima [A] time = 1.36465, size = 80, normalized size = 1.14

$$-\frac{729}{1000}\,x+\frac{19538111388\,x^{3}+17720890929\,x^{2}+163877530\,x-2060962327}{58564000\,(100\,x^{4}+20\,x^{3}-59\,x^{2}-6\,x+9)}+\frac{17547}{100656875}\,\log(5\,x+3)-\frac{6950895}{2576816}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^6/((5*x + 3)^3*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] -729/1000*x + 1/58564000*(19538111388*x^3 + 17720890929*x^2 + 163
877530*x - 2060962327)/(100*x^4 + 20*x^3 - 59*x^2 - 6*x + 9) + 17
547/100656875*log(5*x + 3) - 6950895/2576816*log(2*x - 1)
```

Fricas [A] time = 0.211889, size = 142, normalized size = 2.03

$$-\frac{234812358000\,x^{5}+46962471600\,x^{4}-1213135417560\,x^{3}-988737742575\,x^{2}-561504\left(100\,x^{4}+20\,x^{3}-59\,x^{2}-6\,x+9\right)\,\mathrm{l}}{3221020000\,(100\,x^{4}+20\,x^{3}-}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^6/((5*x + 3)^3*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] -1/3221020000*(234812358000*x^5 + 46962471600*x^4 - 1213135417560
*x^3 - 988737742575*x^2 - 561504*(100*x^4 + 20*x^3 - 59*x^2 - 6*x
 + 9)*log(5*x + 3) + 8688618750*(100*x^4 + 20*x^3 - 59*x^2 - 6*x
+ 9)*log(2*x - 1) + 12119848070*x + 113352927985)/(100*x^4 + 20*x
^3 - 59*x^2 - 6*x + 9)
```

Sympy [A] time = 0.563705, size = 60, normalized size = 0.86

$$-\frac{729x}{1000}+\frac{19538111388x^{3}+17720890929x^{2}+163877530x-2060962327}{5856400000x^{4}+1171280000x^{3}-3455276000x^{2}-351384000x+527076000}-\frac{6950895\log\left(x-\frac{1}{2}\right)}{2576816}+\frac{17547\log\left(x+\frac{3}{5}\right)}{100656875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**6/(1-2*x)**3/(3+5*x)**3,x)
```

```
[Out] -729*x/1000 + (19538111388*x**3 + 17720890929*x**2 + 163877530*x
- 2060962327)/(5856400000*x**4 + 1171280000*x**3 - 3455276000*x**
2 - 351384000*x + 527076000) - 6950895*log(x - 1/2)/2576816 + 175
47*log(x + 3/5)/100656875
```

GIAC/XCAS [A] time = 0.213233, size = 72, normalized size = 1.03

$$-\frac{729}{1000}\,x+\frac{19538111388\,x^3+17720890929\,x^2+163877530\,x-2060962327}{58564000\,(5\,x+3)^2(2\,x-1)^2}+\frac{17547}{100656875}\ln\left(|5\,x+3|\right)-\frac{6950895}{2576816}\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^6/((5*x + 3)^3*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] -729/1000*x + 1/58564000*(19538111388*x^3 + 17720890929*x^2 + 163
877530*x - 2060962327)/((5*x + 3)^2*(2*x - 1)^2) + 17547/10065687
5*ln(abs(5*x + 3)) - 6950895/2576816*ln(abs(2*x - 1))
```

3.1684 $\int \frac{(2+3x)^5}{(1-2x)^3(3+5x)^3} dx$

Optimal. Leaf size=65

$$-\frac{36015}{29282(1-2x)}-\frac{171}{1830125(5x+3)}+\frac{16807}{21296(1-2x)^2}-\frac{1}{332750(5x+3)^2}-\frac{313845\log(1-2x)}{1288408}+\frac{11904\log(5x+3)}{20131375}$$

```
[Out] 16807/(21296*(1 - 2*x)^2) - 36015/(29282*(1 - 2*x)) - 1/(332750*(
3 + 5*x)^2) - 171/(1830125*(3 + 5*x)) - (313845*Log[1 - 2*x])/128
8408 + (11904*Log[3 + 5*x])/20131375
```

Rubi [A] time = 0.0762062, antiderivative size = 65, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{36015}{29282(1-2x)}-\frac{171}{1830125(5x+3)}+\frac{16807}{21296(1-2x)^2}-\frac{1}{332750(5x+3)^2}-\frac{313845\log(1-2x)}{1288408}+\frac{11904\log(5x+3)}{20131375}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^5/((1 - 2*x)^3*(3 + 5*x)^3),x]
```

```
[Out] 16807/(21296*(1 - 2*x)^2) - 36015/(29282*(1 - 2*x)) - 1/(332750*(
3 + 5*x)^2) - 171/(1830125*(3 + 5*x)) - (313845*Log[1 - 2*x])/128
8408 + (11904*Log[3 + 5*x])/20131375
```

Rubi in Sympy [A] time = 10.4043, size = 53, normalized size = 0.82

$$-\frac{313845\log(-2x+1)}{1288408}+\frac{11904\log(5x+3)}{20131375}-\frac{171}{1830125(5x+3)}-\frac{1}{332750(5x+3)^2}-\frac{36015}{29282(-2x+1)}+\frac{16807}{21296(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**5/(1-2*x)**3/(3+5*x)**3,x)
```

```
[Out] -313845*log(-2*x + 1)/1288408 + 11904*log(5*x + 3)/20131375 - 171
/(1830125*(5*x + 3)) - 1/(332750*(5*x + 3)**2) - 36015/(29282*(-2
*x + 1)) + 16807/(21296*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0490937, size = 50, normalized size = 0.77

$$\frac{\frac{11(1800695280x^3+1838287161x^2+261128254x-116156671)}{(10x^2+x-3)^2}-78461250\log(3-6x)+190464\log(-3(5x+3))}{322102000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^5/((1 - 2*x)^3*(3 + 5*x)^3),x]
```

```
[Out] ((11*(-116156671 + 261128254*x + 1838287161*x^2 + 1800695280*x^3)
)/(-3 + x + 10*x^2)^2 - 78461250*Log[3 - 6*x] + 190464*Log[-3*(3
```

```
+ 5*x)])/322102000
```

Maple [A] time = 0.016, size = 54, normalized size = 0.8

$$-\frac{1}{332750\,(3+5\,x)^{2}}-\frac{171}{5490375+9150625\,x}+\frac{11904\,\ln(3+5\,x)}{20131375}+\frac{16807}{21296\,(-1+2\,x)^{2}}+\frac{36015}{-29282+58564\,x}-\frac{313845\,\ln(-1+2\,x)}{1288408}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^5/(1-2*x)^3/(3+5*x)^3,x)
```

```
[Out] -1/332750/(3+5*x)^2-171/1830125/(3+5*x)+11904/20131375*ln(3+5*x)+
16807/21296/(-1+2*x)^2+36015/29282/(-1+2*x)-313845/1288408*ln(-1+
2*x)
```

Maxima [A] time = 1.35413, size = 76, normalized size = 1.17

$$\frac{1800695280\,x^{3}+1838287161\,x^{2}+261128254\,x-116156671}{29282000\,(100\,x^{4}+20\,x^{3}-59\,x^{2}-6\,x+9)}+\frac{11904}{20131375}\log(5\,x+3)-\frac{313845}{1288408}\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^5/((5*x + 3)^3*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] 1/29282000*(1800695280*x^3 + 1838287161*x^2 + 261128254*x - 11615
6671)/(100*x^4 + 20*x^3 - 59*x^2 - 6*x + 9) + 11904/20131375*log(
5*x + 3) - 313845/1288408*log(2*x - 1)
```

Fricas [A] time = 0.209995, size = 128, normalized size = 1.97

$$\frac{19807648080\,x^{3}+20221158771\,x^{2}+190464\,(100\,x^{4}+20\,x^{3}-59\,x^{2}-6\,x+9)\log(5\,x+3)-78461250\,(100\,x^{4}+20\,x^{3}-59\ldots}{322102000\,(100\,x^{4}+20\,x^{3}-59\,x^{2}-6\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^5/((5*x + 3)^3*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] 1/322102000*(19807648080*x^3 + 20221158771*x^2 + 190464*(100*x^4
+ 20*x^3 - 59*x^2 - 6*x + 9)*log(5*x + 3) - 78461250*(100*x^4 + 2
0*x^3 - 59*x^2 - 6*x + 9)*log(2*x - 1) + 2872410794*x - 127772338
1)/(100*x^4 + 20*x^3 - 59*x^2 - 6*x + 9)
```

Sympy [A] time = 0.53994, size = 54, normalized size = 0.83

$$\frac{1800695280x^{3}+1838287161x^{2}+261128254x-116156671}{2928200000x^{4}+585640000x^{3}-1727638000x^{2}-175692000x+263538000}-\frac{313845\log\left(x-\frac{1}{2}\right)}{1288408}+\frac{11904\log\left(x+\frac{3}{5}\right)}{20131375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**5/(1-2*x)**3/(3+5*x)**3,x)
```

```
[Out] (1800695280*x**3 + 1838287161*x**2 + 261128254*x - 116156671)/(29
28200000*x**4 + 585640000*x**3 - 1727638000*x**2 - 175692000*x +
263538000) - 313845*log(x - 1/2)/1288408 + 11904*log(x + 3/5)/201
31375
```

GIAC/XCAS [A] time = 0.218465, size = 68, normalized size = 1.05

$$\frac{1800695280\,x^3 + 1838287161\,x^2 + 261128254\,x - 116156671}{29282000\,(5\,x+3)^2(2\,x-1)^2} + \frac{11904}{20131375}\ln\left(|5\,x+3|\right) - \frac{313845}{1288408}\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^5/((5*x + 3)^3*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] 1/29282000*(1800695280*x^3 + 1838287161*x^2 + 261128254*x - 11615
6671)/((5*x + 3)^2*(2*x - 1)^2) + 11904/20131375*ln(abs(5*x + 3))
 - 313845/1288408*ln(abs(2*x - 1))
```

3.1685 $\int \frac{(2+3x)^4}{(1-2x)^3(3+5x)^3}\,dx$

Optimal. Leaf size=65

$$-\frac{9261}{58564(1-2x)}-\frac{138}{366025(5x+3)}+\frac{2401}{10648(1-2x)^2}-\frac{1}{66550(5x+3)^2}-\frac{294\log(1-2x)}{161051}+\frac{294\log(5x+3)}{161051}$$

```
[Out] 2401/(10648*(1 - 2*x)^2) - 9261/(58564*(1 - 2*x)) - 1/(66550*(3 +
 5*x)^2) - 138/(366025*(3 + 5*x)) - (294*Log[1 - 2*x])/161051 + (
294*Log[3 + 5*x])/161051
```

Rubi [A] time = 0.0773588, antiderivative size = 65, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{9261}{58564(1-2x)}-\frac{138}{366025(5x+3)}+\frac{2401}{10648(1-2x)^2}-\frac{1}{66550(5x+3)^2}-\frac{294\log(1-2x)}{161051}+\frac{294\log(5x+3)}{161051}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^4/((1 - 2*x)^3*(3 + 5*x)^3),x]
```

```
[Out] 2401/(10648*(1 - 2*x)^2) - 9261/(58564*(1 - 2*x)) - 1/(66550*(3 +
 5*x)^2) - 138/(366025*(3 + 5*x)) - (294*Log[1 - 2*x])/161051 + (
294*Log[3 + 5*x])/161051
```

Rubi in Sympy [A] time = 10.3259, size = 53, normalized size = 0.82

$$-\frac{294\log\left(-2x+1\right)}{161051}+\frac{294\log\left(5x+3\right)}{161051}-\frac{138}{366025\left(5x+3\right)}-\frac{1}{66550\left(5x+3\right)^2}-\frac{9261}{58564\left(-2x+1\right)}+\frac{2401}{10648\left(-2x+1\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4/(1-2*x)**3/(3+5*x)**3,x)
```

```
[Out] -294*log(-2*x + 1)/161051 + 294*log(5*x + 3)/161051 - 138/(366025
*(5*x + 3)) - 1/(66550*(5*x + 3)**2) - 9261/(58564*(-2*x + 1)) +
2401/(10648*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0512741, size = 48, normalized size = 0.74

$$\frac{\frac{11\left(23130420x^3+32722281x^2+14259554x+1771669\right)}{\left(10x^2+x-3\right)^2}+58800\log(-5x-3)-58800\log(1-2x)}{32210200}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^4/((1 - 2*x)^3*(3 + 5*x)^3),x]
```

```
[Out] ((11*(1771669 + 14259554*x + 32722281*x^2 + 23130420*x^3))/(-3 +
x + 10*x^2)^2 + 58800*Log[-3 - 5*x] - 58800*Log[1 - 2*x])/3221020
0
```

Maple [A] time = 0.014, size = 54, normalized size = 0.8

$$-\frac{1}{66550\,(3+5\,x)^{2}}-\frac{138}{1098075+1830125\,x}+\frac{294\,\ln\left(3+5\,x\right)}{161051}+\frac{2401}{10648\,(-1+2\,x)^{2}}+\frac{9261}{-58564+117128\,x}-\frac{294\,\ln\left(-1+2\,x\right)}{161051}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4/(1-2*x)^3/(3+5*x)^3,x)
```

```
[Out] -1/66550/(3+5*x)^2-138/366025/(3+5*x)+294/161051*ln(3+5*x)+2401/1
0648/(-1+2*x)^2+9261/58564/(-1+2*x)-294/161051*ln(-1+2*x)
```

Maxima [A] time = 1.34286, size = 76, normalized size = 1.17

$$\frac{23130420\,x^{3}+32722281\,x^{2}+14259554\,x+1771669}{2928200\,(100\,x^{4}+20\,x^{3}-59\,x^{2}-6\,x+9)}+\frac{294}{161051}\,\log\left(5\,x+3\right)-\frac{294}{161051}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^4/((5*x + 3)^3*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] 1/2928200*(23130420*x^3 + 32722281*x^2 + 14259554*x + 1771669)/(1
00*x^4 + 20*x^3 - 59*x^2 - 6*x + 9) + 294/161051*log(5*x + 3) - 2
94/161051*log(2*x - 1)
```

Fricas [A] time = 0.209676, size = 128, normalized size = 1.97

$$\frac{254434620\,x^{3}+359945091\,x^{2}+58800\left(100\,x^{4}+20\,x^{3}-59\,x^{2}-6\,x+9\right)\log\left(5\,x+3\right)-58800\left(100\,x^{4}+20\,x^{3}-59\,x^{2}-6\,x\right.}{32210200\,(100\,x^{4}+20\,x^{3}-59\,x^{2}-6\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^4/((5*x + 3)^3*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] 1/32210200*(254434620*x^3 + 359945091*x^2 + 58800*(100*x^4 + 20*x
^3 - 59*x^2 - 6*x + 9)*log(5*x + 3) - 58800*(100*x^4 + 20*x^3 - 5
9*x^2 - 6*x + 9)*log(2*x - 1) + 156855094*x + 19488359)/(100*x^4
+ 20*x^3 - 59*x^2 - 6*x + 9)
```

Sympy [A] time = 0.478089, size = 54, normalized size = 0.83

$$\frac{23130420x^{3}+32722281x^{2}+14259554x+1771669}{292820000x^{4}+58564000x^{3}-172763800x^{2}-17569200x+26353800}-\frac{294\log\left(x-\frac{1}{2}\right)}{161051}+\frac{294\log\left(x+\frac{3}{5}\right)}{161051}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4/(1-2*x)**3/(3+5*x)**3,x)
```

```
[Out] (23130420*x**3 + 32722281*x**2 + 14259554*x + 1771669)/(292820000
*x**4 + 58564000*x**3 - 172763800*x**2 - 17569200*x + 26353800) -
 294*log(x - 1/2)/161051 + 294*log(x + 3/5)/161051
```

GIAC/XCAS [A] time = 0.219378, size = 62, normalized size = 0.95

$$\frac{23130420\,x^{3} + 32722281\,x^{2} + 14259554\,x + 1771669}{2928200\,(10\,x^{2} + x - 3)^{2}} + \frac{294}{161051}\ln\left(|5\,x + 3|\right) - \frac{294}{161051}\ln\left(|2\,x - 1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^4/((5*x + 3)^3*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] 1/2928200*(23130420*x^3 + 32722281*x^2 + 14259554*x + 1771669)/(1
0*x^2 + x - 3)^2 + 294/161051*ln(abs(5*x + 3)) - 294/161051*ln(ab
s(2*x - 1))
```

3.1686 $\int \frac{(2+3x)^3}{(1-2x)^3(3+5x)^3}\,dx$

Optimal. Leaf size=65

$$\frac{147}{14641(1-2x)}-\frac{21}{14641(5x+3)}+\frac{343}{5324(1-2x)^2}-\frac{1}{13310(5x+3)^2}-\frac{777\log(1-2x)}{161051}+\frac{777\log(5x+3)}{161051}$$

```
[Out] 343/(5324*(1 - 2*x)^2) + 147/(14641*(1 - 2*x)) - 1/(13310*(3 + 5*
x)^2) - 21/(14641*(3 + 5*x)) - (777*Log[1 - 2*x])/161051 + (777*L
og[3 + 5*x])/161051
```

Rubi [A] time = 0.078504, antiderivative size = 65, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{147}{14641(1-2x)}-\frac{21}{14641(5x+3)}+\frac{343}{5324(1-2x)^2}-\frac{1}{13310(5x+3)^2}-\frac{777\log(1-2x)}{161051}+\frac{777\log(5x+3)}{161051}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^3/((1 - 2*x)^3*(3 + 5*x)^3),x]
```

```
[Out] 343/(5324*(1 - 2*x)^2) + 147/(14641*(1 - 2*x)) - 1/(13310*(3 + 5*
x)^2) - 21/(14641*(3 + 5*x)) - (777*Log[1 - 2*x])/161051 + (777*L
og[3 + 5*x])/161051
```

Rubi in Sympy [A] time = 10.2658, size = 53, normalized size = 0.82

$$-\frac{777\log(-2x+1)}{161051}+\frac{777\log(5x+3)}{161051}-\frac{21}{14641(5x+3)}-\frac{1}{13310(5x+3)^2}+\frac{147}{14641(-2x+1)}+\frac{343}{5324(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3/(1-2*x)**3/(3+5*x)**3,x)
```

```
[Out] -777*log(-2*x + 1)/161051 + 777*log(5*x + 3)/161051 - 21/(14641*(
5*x + 3)) - 1/(13310*(5*x + 3)**2) + 147/(14641*(-2*x + 1)) + 343
/(5324*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0515681, size = 48, normalized size = 0.74

$$\frac{-\frac{11(155400x^3-371997x^2-604258x-194963)}{(10x^2+x-3)^2}+15540\log(-5x-3)-15540\log(1-2x)}{3221020}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^3/((1 - 2*x)^3*(3 + 5*x)^3),x]
```

```
[Out] ((-11*(-194963 - 604258*x - 371997*x^2 + 155400*x^3))/(-3 + x + 1
0*x^2)^2 + 15540*Log[-3 - 5*x] - 15540*Log[1 - 2*x])/3221020
```

Maple [A] time = 0.016, size = 54, normalized size = 0.8

$$-\frac{1}{13310\,(3+5\,x)^2}-\frac{21}{43923+73205\,x}+\frac{777\,\ln(3+5\,x)}{161051}+\frac{343}{5324\,(-1+2\,x)^2}-\frac{147}{-14641+29282\,x}-\frac{777\,\ln(-1+2\,x)}{161051}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3/(1-2*x)^3/(3+5*x)^3,x)
```

```
[Out] -1/13310/(3+5*x)^2-21/14641/(3+5*x)+777/161051*ln(3+5*x)+343/5324
/(-1+2*x)^2-147/14641/(-1+2*x)-777/161051*ln(-1+2*x)
```

Maxima [A] time = 1.34191, size = 76, normalized size = 1.17

$$-\frac{155400\,x^3-371997\,x^2-604258\,x-194963}{292820\,(100\,x^4+20\,x^3-59\,x^2-6\,x+9)}+\frac{777}{161051}\,\log(5\,x+3)-\frac{777}{161051}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^3/((5*x + 3)^3*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] -1/292820*(155400*x^3 - 371997*x^2 - 604258*x - 194963)/(100*x^4
+ 20*x^3 - 59*x^2 - 6*x + 9) + 777/161051*log(5*x + 3) - 777/1610
51*log(2*x - 1)
```

Fricas [A] time = 0.203042, size = 128, normalized size = 1.97

$$-\frac{1709400\,x^3-4091967\,x^2-15540\,\left(100\,x^4+20\,x^3-59\,x^2-6\,x+9\right)\log(5\,x+3)+15540\,\left(100\,x^4+20\,x^3-59\,x^2-6\,x+9\right.}{3221020\,(100\,x^4+20\,x^3-59\,x^2-6\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^3/((5*x + 3)^3*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] -1/3221020*(1709400*x^3 - 4091967*x^2 - 15540*(100*x^4 + 20*x^3 -
 59*x^2 - 6*x + 9)*log(5*x + 3) + 15540*(100*x^4 + 20*x^3 - 59*x^
2 - 6*x + 9)*log(2*x - 1) - 6646838*x - 2144593)/(100*x^4 + 20*x^
3 - 59*x^2 - 6*x + 9)
```

Sympy [A] time = 0.483399, size = 54, normalized size = 0.83

$$-\frac{155400x^3-371997x^2-604258x-194963}{29282000x^4+5856400x^3-17276380x^2-1756920x+2635380}-\frac{777\log\left(x-\frac{1}{2}\right)}{161051}+\frac{777\log\left(x+\frac{3}{5}\right)}{161051}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3/(1-2*x)**3/(3+5*x)**3,x)
```

```
[Out] -(155400*x**3 - 371997*x**2 - 604258*x - 194963)/(29282000*x**4 +
 5856400*x**3 - 17276380*x**2 - 1756920*x + 2635380) - 777*log(x
- 1/2)/161051 + 777*log(x + 3/5)/161051
```

GIAC/XCAS [A] time = 0.209384, size = 62, normalized size = 0.95

$$-\frac{155400\,x^3 - 371997\,x^2 - 604258\,x - 194963}{292820\,(10\,x^2 + x - 3)^2} + \frac{777}{161051}\ln\left(|5\,x + 3|\right) - \frac{777}{161051}\ln\left(|2\,x - 1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^3/((5*x + 3)^3*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] -1/292820*(155400*x^3 - 371997*x^2 - 604258*x - 194963)/(10*x^2 +
 x - 3)^2 + 777/161051*ln(abs(5*x + 3)) - 777/161051*ln(abs(2*x -
 1))
```

3.1687 $\int \frac{(2+3x)^2}{(1-2x)^3(3+5x)^3}\,dx$

Optimal. Leaf size=65

$$\frac{273}{14641(1-2x)}-\frac{72}{14641(5x+3)}+\frac{49}{2662(1-2x)^2}-\frac{1}{2662(5x+3)^2}-\frac{1509\log(1-2x)}{161051}+\frac{1509\log(5x+3)}{161051}$$

```
[Out] 49/(2662*(1 - 2*x)^2) + 273/(14641*(1 - 2*x)) - 1/(2662*(3 + 5*x)
^2) - 72/(14641*(3 + 5*x)) - (1509*Log[1 - 2*x])/161051 + (1509*L
og[3 + 5*x])/161051
```

Rubi [A] time = 0.0747835, antiderivative size = 65, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{273}{14641(1-2x)}-\frac{72}{14641(5x+3)}+\frac{49}{2662(1-2x)^2}-\frac{1}{2662(5x+3)^2}-\frac{1509\log(1-2x)}{161051}+\frac{1509\log(5x+3)}{161051}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^2/((1 - 2*x)^3*(3 + 5*x)^3),x]
```

```
[Out] 49/(2662*(1 - 2*x)^2) + 273/(14641*(1 - 2*x)) - 1/(2662*(3 + 5*x)
^2) - 72/(14641*(3 + 5*x)) - (1509*Log[1 - 2*x])/161051 + (1509*L
og[3 + 5*x])/161051
```

Rubi in Sympy [A] time = 10.33, size = 53, normalized size = 0.82

$$-\frac{1509\log(-2x+1)}{161051}+\frac{1509\log(5x+3)}{161051}-\frac{72}{14641(5x+3)}-\frac{1}{2662(5x+3)^2}+\frac{273}{14641(-2x+1)}+\frac{49}{2662(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2/(1-2*x)**3/(3+5*x)**3,x)
```

```
[Out] -1509*log(-2*x + 1)/161051 + 1509*log(5*x + 3)/161051 - 72/(14641
*(5*x + 3)) - 1/(2662*(5*x + 3)**2) + 273/(14641*(-2*x + 1)) + 49
/(2662*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0493545, size = 48, normalized size = 0.74

$$\frac{-\frac{11(30180x^3+4527x^2-23774x-9322)}{(10x^2+x-3)^2}+3018\log(-5x-3)-3018\log(1-2x)}{322102}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^2/((1 - 2*x)^3*(3 + 5*x)^3),x]
```

```
[Out] ((-11*(-9322 - 23774*x + 4527*x^2 + 30180*x^3))/(-3 + x + 10*x^2)
^2 + 3018*Log[-3 - 5*x] - 3018*Log[1 - 2*x])/322102
```

Maple [A] time = 0.019, size = 54, normalized size = 0.8

$$-\frac{1}{2662\,(3+5\,x)^2}-\frac{72}{43923+73205\,x}+\frac{1509\,\ln(3+5\,x)}{161051}+\frac{49}{2662\,(-1+2\,x)^2}-\frac{273}{-14641+29282\,x}-\frac{1509\,\ln(-1+2\,x)}{161051}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2/(1-2*x)^3/(3+5*x)^3,x)
```

```
[Out] -1/2662/(3+5*x)^2-72/14641/(3+5*x)+1509/161051*ln(3+5*x)+49/2662/
(-1+2*x)^2-273/14641/(-1+2*x)-1509/161051*ln(-1+2*x)
```

Maxima [A] time = 1.34916, size = 76, normalized size = 1.17

$$-\frac{30180\,x^3+4527\,x^2-23774\,x-9322}{29282\,(100\,x^4+20\,x^3-59\,x^2-6\,x+9)}+\frac{1509}{161051}\,\log(5\,x+3)-\frac{1509}{161051}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^2/((5*x + 3)^3*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] -1/29282*(30180*x^3 + 4527*x^2 - 23774*x - 9322)/(100*x^4 + 20*x^
3 - 59*x^2 - 6*x + 9) + 1509/161051*log(5*x + 3) - 1509/161051*lo
g(2*x - 1)
```

Fricas [A] time = 0.209178, size = 128, normalized size = 1.97

$$-\frac{331980\,x^3+49797\,x^2-3018\left(100\,x^4+20\,x^3-59\,x^2-6\,x+9\right)\log(5\,x+3)+3018\left(100\,x^4+20\,x^3-59\,x^2-6\,x+9\right)\log(}{322102\,(100\,x^4+20\,x^3-59\,x^2-6\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^2/((5*x + 3)^3*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] -1/322102*(331980*x^3 + 49797*x^2 - 3018*(100*x^4 + 20*x^3 - 59*x
^2 - 6*x + 9)*log(5*x + 3) + 3018*(100*x^4 + 20*x^3 - 59*x^2 - 6*
x + 9)*log(2*x - 1) - 261514*x - 102542)/(100*x^4 + 20*x^3 - 59*x
^2 - 6*x + 9)
```

Sympy [A] time = 0.455779, size = 54, normalized size = 0.83

$$-\frac{30180x^3+4527x^2-23774x-9322}{2928200x^4+585640x^3-1727638x^2-175692x+263538}-\frac{1509\log\left(x-\frac{1}{2}\right)}{161051}+\frac{1509\log\left(x+\frac{3}{5}\right)}{161051}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2/(1-2*x)**3/(3+5*x)**3,x)
```

```
[Out] -(30180*x**3 + 4527*x**2 - 23774*x - 9322)/(2928200*x**4 + 585640
*x**3 - 1727638*x**2 - 175692*x + 263538) - 1509*log(x - 1/2)/161
051 + 1509*log(x + 3/5)/161051
```

GIAC/XCAS [A] time = 0.210041, size = 62, normalized size = 0.95

$$-\frac{30180\,x^3+4527\,x^2-23774\,x-9322}{29282\,(10\,x^2+x-3)^2}+\frac{1509}{161051}\,\ln\left(|5\,x+3|\right)-\frac{1509}{161051}\,\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^2/((5*x + 3)^3*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] -1/29282*(30180*x^3 + 4527*x^2 - 23774*x - 9322)/(10*x^2 + x - 3)
^2 + 1509/161051*ln(abs(5*x + 3)) - 1509/161051*ln(abs(2*x - 1))
```

3.1688 $\int \frac{2+3x}{(1-2x)^3(3+5x)^3}\,dx$

Optimal. Leaf size=65

$$\frac{144}{14641(1-2x)}-\frac{195}{14641(5x+3)}+\frac{7}{1331(1-2x)^2}-\frac{5}{2662(5x+3)^2}-\frac{1110\log(1-2x)}{161051}+\frac{1110\log(5x+3)}{161051}$$

```
[Out] 7/(1331*(1 - 2*x)^2) + 144/(14641*(1 - 2*x)) - 5/(2662*(3 + 5*x)^
2) - 195/(14641*(3 + 5*x)) - (1110*Log[1 - 2*x])/161051 + (1110*L
og[3 + 5*x])/161051
```

Rubi [A] time = 0.068596, antiderivative size = 65, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{144}{14641(1-2x)}-\frac{195}{14641(5x+3)}+\frac{7}{1331(1-2x)^2}-\frac{5}{2662(5x+3)^2}-\frac{1110\log(1-2x)}{161051}+\frac{1110\log(5x+3)}{161051}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)/((1 - 2*x)^3*(3 + 5*x)^3),x]
```

```
[Out] 7/(1331*(1 - 2*x)^2) + 144/(14641*(1 - 2*x)) - 5/(2662*(3 + 5*x)^
2) - 195/(14641*(3 + 5*x)) - (1110*Log[1 - 2*x])/161051 + (1110*L
og[3 + 5*x])/161051
```

Rubi in Sympy [A] time = 9.87283, size = 53, normalized size = 0.82

$$-\frac{1110\log(-2x+1)}{161051}+\frac{1110\log(5x+3)}{161051}-\frac{195}{14641(5x+3)}-\frac{5}{2662(5x+3)^2}+\frac{144}{14641(-2x+1)}+\frac{7}{1331(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)/(1-2*x)**3/(3+5*x)**3,x)
```

```
[Out] -1110*log(-2*x + 1)/161051 + 1110*log(5*x + 3)/161051 - 195/(1464
1*(5*x + 3)) - 5/(2662*(5*x + 3)**2) + 144/(14641*(-2*x + 1)) + 7
/(1331*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0397905, size = 48, normalized size = 0.74

$$\frac{\frac{11(-22200x^3-3330x^2+11026x+2753)}{(10x^2+x-3)^2}-2220\log(1-2x)+2220\log(5x+3)}{322102}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)/((1 - 2*x)^3*(3 + 5*x)^3),x]
```

```
[Out] ((11*(2753 + 11026*x - 3330*x^2 - 22200*x^3))/(-3 + x + 10*x^2)^2
 - 2220*Log[1 - 2*x] + 2220*Log[3 + 5*x])/322102
```

Maple [A] time = 0.014, size = 54, normalized size = 0.8

$$-\frac{5}{2662\,(3+5\,x)^{2}}-\frac{195}{43923+73205\,x}+\frac{1110\,\ln(3+5\,x)}{161051}+\frac{7}{1331\,(-1+2\,x)^{2}}-\frac{144}{-14641+29282\,x}-\frac{1110\,\ln(-1+2\,x)}{161051}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)/(1-2*x)^3/(3+5*x)^3,x)
```

```
[Out] -5/2662/(3+5*x)^2-195/14641/(3+5*x)+1110/161051*ln(3+5*x)+7/1331/
(-1+2*x)^2-144/14641/(-1+2*x)-1110/161051*ln(-1+2*x)
```

Maxima [A] time = 1.35055, size = 76, normalized size = 1.17

$$-\frac{22200\,x^{3}+3330\,x^{2}-11026\,x-2753}{29282\,(100\,x^{4}+20\,x^{3}-59\,x^{2}-6\,x+9)}+\frac{1110}{161051}\,\log(5\,x+3)-\frac{1110}{161051}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)/((5*x + 3)^3*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] -1/29282*(22200*x^3 + 3330*x^2 - 11026*x - 2753)/(100*x^4 + 20*x^
3 - 59*x^2 - 6*x + 9) + 1110/161051*log(5*x + 3) - 1110/161051*lo
g(2*x - 1)
```

Fricas [A] time = 0.20892, size = 128, normalized size = 1.97

$$-\frac{244200\,x^{3}+36630\,x^{2}-2220\,\left(100\,x^{4}+20\,x^{3}-59\,x^{2}-6\,x+9\right)\log(5\,x+3)+2220\,\left(100\,x^{4}+20\,x^{3}-59\,x^{2}-6\,x+9\right)\log(}{322102\,(100\,x^{4}+20\,x^{3}-59\,x^{2}-6\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)/((5*x + 3)^3*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] -1/322102*(244200*x^3 + 36630*x^2 - 2220*(100*x^4 + 20*x^3 - 59*x
^2 - 6*x + 9)*log(5*x + 3) + 2220*(100*x^4 + 20*x^3 - 59*x^2 - 6*
x + 9)*log(2*x - 1) - 121286*x - 30283)/(100*x^4 + 20*x^3 - 59*x^
2 - 6*x + 9)
```

Sympy [A] time = 0.421865, size = 54, normalized size = 0.83

$$-\frac{22200x^{3}+3330x^{2}-11026x-2753}{2928200x^{4}+585640x^{3}-1727638x^{2}-175692x+263538}-\frac{1110\log\left(x-\frac{1}{2}\right)}{161051}+\frac{1110\log\left(x+\frac{3}{5}\right)}{161051}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)/(1-2*x)**3/(3+5*x)**3,x)
```

```
[Out] -(22200*x**3 + 3330*x**2 - 11026*x - 2753)/(2928200*x**4 + 585640
*x**3 - 1727638*x**2 - 175692*x + 263538) - 1110*log(x - 1/2)/161
051 + 1110*log(x + 3/5)/161051
```

GIAC/XCAS [A] time = 0.212943, size = 62, normalized size = 0.95

$$-\frac{22200\,x^3+3330\,x^2-11026\,x-2753}{29282\,(10\,x^2+x-3)^2}+\frac{1110}{161051}\ln\left(|5\,x+3|\right)-\frac{1110}{161051}\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)/((5*x + 3)^3*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] -1/29282*(22200*x^3 + 3330*x^2 - 11026*x - 2753)/(10*x^2 + x - 3)
^2 + 1110/161051*ln(abs(5*x + 3)) - 1110/161051*ln(abs(2*x - 1))
```

3.1689 $\int \frac{1}{(1-2x)^3(3+5x)^3}\,dx$

Optimal. Leaf size=65

$$\frac{60}{14641(1-2x)}-\frac{150}{14641(5x+3)}+\frac{2}{1331(1-2x)^2}-\frac{25}{2662(5x+3)^2}-\frac{600\log(1-2x)}{161051}+\frac{600\log(5x+3)}{161051}$$

```
[Out] 2/(1331*(1 - 2*x)^2) + 60/(14641*(1 - 2*x)) - 25/(2662*(3 + 5*x)^
2) - 150/(14641*(3 + 5*x)) - (600*Log[1 - 2*x])/161051 + (600*Log
[3 + 5*x])/161051
```

Rubi [A] time = 0.0612601, antiderivative size = 65, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.067

$$\frac{60}{14641(1-2x)}-\frac{150}{14641(5x+3)}+\frac{2}{1331(1-2x)^2}-\frac{25}{2662(5x+3)^2}-\frac{600\log(1-2x)}{161051}+\frac{600\log(5x+3)}{161051}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^3*(3 + 5*x)^3),x]
```

```
[Out] 2/(1331*(1 - 2*x)^2) + 60/(14641*(1 - 2*x)) - 25/(2662*(3 + 5*x)^
2) - 150/(14641*(3 + 5*x)) - (600*Log[1 - 2*x])/161051 + (600*Log
[3 + 5*x])/161051
```

Rubi in Sympy [A] time = 8.77144, size = 53, normalized size = 0.82

$$-\frac{600\log(-2x+1)}{161051}+\frac{600\log(5x+3)}{161051}-\frac{150}{14641(5x+3)}-\frac{25}{2662(5x+3)^2}+\frac{60}{14641(-2x+1)}+\frac{2}{1331(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**3/(3+5*x)**3,x)
```

```
[Out] -600*log(-2*x + 1)/161051 + 600*log(5*x + 3)/161051 - 150/(14641*
(5*x + 3)) - 25/(2662*(5*x + 3)**2) + 60/(14641*(-2*x + 1)) + 2/(
1331*(-2*x + 1)**2)
```

Mathematica [A] time = 0.0351338, size = 48, normalized size = 0.74

$$\frac{-\frac{11(12000x^3+1800x^2-5960x-301)}{(10x^2+x-3)^2}-1200\log(1-2x)+1200\log(5x+3)}{322102}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^3*(3 + 5*x)^3),x]
```

```
[Out] ((-11*(-301 - 5960*x + 1800*x^2 + 12000*x^3))/(-3 + x + 10*x^2)^2
 - 1200*Log[1 - 2*x] + 1200*Log[3 + 5*x])/322102
```

Maple [A] time = 0.014, size = 54, normalized size = 0.8

$$-\frac{25}{2662\,(3+5\,x)^2}-\frac{150}{43923+73205\,x}+\frac{600\,\ln(3+5\,x)}{161051}+\frac{2}{1331\,(-1+2\,x)^2}-\frac{60}{-14641+29282\,x}-\frac{600\,\ln(-1+2\,x)}{161051}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^3/(3+5*x)^3,x)
```

```
[Out] -25/2662/(3+5*x)^2-150/14641/(3+5*x)+600/161051*ln(3+5*x)+2/1331/
(-1+2*x)^2-60/14641/(-1+2*x)-600/161051*ln(-1+2*x)
```

Maxima [A] time = 1.34151, size = 76, normalized size = 1.17

$$-\frac{12000\,x^3+1800\,x^2-5960\,x-301}{29282\,(100\,x^4+20\,x^3-59\,x^2-6\,x+9)}+\frac{600}{161051}\,\log\left(5\,x+3\right)-\frac{600}{161051}\,\log\left(2\,x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^3*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] -1/29282*(12000*x^3 + 1800*x^2 - 5960*x - 301)/(100*x^4 + 20*x^3
- 59*x^2 - 6*x + 9) + 600/161051*log(5*x + 3) - 600/161051*log(2*
x - 1)
```

Fricas [A] time = 0.222251, size = 128, normalized size = 1.97

$$-\frac{132000\,x^3+19800\,x^2-1200\,\left(100\,x^4+20\,x^3-59\,x^2-6\,x+9\right)\log\left(5\,x+3\right)+1200\,\left(100\,x^4+20\,x^3-59\,x^2-6\,x+9\right)\log(}{322102\,(100\,x^4+20\,x^3-59\,x^2-6\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^3*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] -1/322102*(132000*x^3 + 19800*x^2 - 1200*(100*x^4 + 20*x^3 - 59*x
^2 - 6*x + 9)*log(5*x + 3) + 1200*(100*x^4 + 20*x^3 - 59*x^2 - 6*
x + 9)*log(2*x - 1) - 65560*x - 3311)/(100*x^4 + 20*x^3 - 59*x^2
- 6*x + 9)
```

Sympy [A] time = 0.427166, size = 54, normalized size = 0.83

$$-\frac{12000x^3+1800x^2-5960x-301}{2928200x^4+585640x^3-1727638x^2-175692x+263538}-\frac{600\log\left(x-\frac{1}{2}\right)}{161051}+\frac{600\log\left(x+\frac{3}{5}\right)}{161051}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**3/(3+5*x)**3,x)
```

```
[Out] -(12000*x**3 + 1800*x**2 - 5960*x - 301)/(2928200*x**4 + 585640*x
**3 - 1727638*x**2 - 175692*x + 263538) - 600*log(x - 1/2)/161051
 + 600*log(x + 3/5)/161051
```

GIAC/XCAS [A] time = 0.210065, size = 62, normalized size = 0.95

$$-\frac{12000\,x^3+1800\,x^2-5960\,x-301}{29282\,(10\,x^2+x-3)^2}+\frac{600}{161051}\,\ln\left(|5\,x+3|\right)-\frac{600}{161051}\,\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^3*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] -1/29282*(12000*x^3 + 1800*x^2 - 5960*x - 301)/(10*x^2 + x - 3)^2
 + 600/161051*ln(abs(5*x + 3)) - 600/161051*ln(abs(2*x - 1))
```

3.1690 $\int \frac{1}{(1-2x)^3(2+3x)(3+5x)^3} \, dx$

Optimal. Leaf size=75

$$\frac{1104}{717409(1-2x)}+\frac{3375}{14641(5x+3)}+\frac{4}{9317(1-2x)^2}-\frac{125}{2662(5x+3)^2}-\frac{95232\log(1-2x)}{55240493}-\frac{243}{343}\log(3x+2)+\frac{114375\log(5x+3)}{161051}$$

```
[Out] 4/(9317*(1 - 2*x)^2) + 1104/(717409*(1 - 2*x)) - 125/(2662*(3 + 5
*x)^2) + 3375/(14641*(3 + 5*x)) - (95232*Log[1 - 2*x])/55240493 -
 (243*Log[2 + 3*x])/343 + (114375*Log[3 + 5*x])/161051
```

Rubi [A] time = 0.0888151, antiderivative size = 75, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$\frac{1104}{717409(1-2x)}+\frac{3375}{14641(5x+3)}+\frac{4}{9317(1-2x)^2}-\frac{125}{2662(5x+3)^2}-\frac{95232\log(1-2x)}{55240493}-\frac{243}{343}\log(3x+2)+\frac{114375\log(5x+3)}{161051}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^3*(2 + 3*x)*(3 + 5*x)^3),x]
```



```
[Out] 4/(9317*(1 - 2*x)^2) + 1104/(717409*(1 - 2*x)) - 125/(2662*(3 + 5
*x)^2) + 3375/(14641*(3 + 5*x)) - (95232*Log[1 - 2*x])/55240493 -
 (243*Log[2 + 3*x])/343 + (114375*Log[3 + 5*x])/161051
```

Rubi in Sympy [A] time = 11.5909, size = 63, normalized size = 0.84

$$-\frac{95232\log(-2x+1)}{55240493}-\frac{243\log(3x+2)}{343}+\frac{114375\log(5x+3)}{161051}+\frac{3375}{14641(5x+3)}-\frac{125}{2662(5x+3)^2}+\frac{1104}{717409(-2x+1)}+\frac{4}{9317(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**3/(2+3*x)/(3+5*x)**3,x)
```

```
[Out] -95232*log(-2*x + 1)/55240493 - 243*log(3*x + 2)/343 + 114375*log
(5*x + 3)/161051 + 3375/(14641*(5*x + 3)) - 125/(2662*(5*x + 3)**
2) + 1104/(717409*(-2*x + 1)) + 4/(9317*(-2*x + 1)**2)
```

Mathematica [A] time = 0.118596, size = 60, normalized size = 0.8

$$-\frac{3\left(-\frac{77(6504600x^3-2977380x^2-2000774x+950291)}{3(10x^2+x-3)^2}+63488\log(3-6x)+26090262\log(3x+2)-26153750\log(-3(5x+3))\right)}{110480986}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^3*(2 + 3*x)*(3 + 5*x)^3),x]
```

```
[Out] (-3*((-77*(950291 - 2000774*x - 2977380*x^2 + 6504600*x^3))/(3*(-
3 + x + 10*x^2)^2) + 63488*Log[3 - 6*x] + 26090262*Log[2 + 3*x] -
 26153750*Log[-3*(3 + 5*x)]))/110480986
```

Maple [A] time = 0.017, size = 62, normalized size = 0.8

$$-\frac{125}{2662\,(3+5\,x)^2}+\frac{3375}{43923+73205\,x}+\frac{114375\,\ln(3+5\,x)}{161051}-\frac{243\,\ln(2+3\,x)}{343}+\frac{4}{9317\,(-1+2\,x)^2}-\frac{1104}{-717409+1434818\,x}-\frac{95232\,\ln(-1+2\,x)}{55240493}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^3/(2+3*x)/(3+5*x)^3,x)
```

```
[Out] -125/2662/(3+5*x)^2+3375/14641/(3+5*x)+114375/161051*ln(3+5*x)-24
3/343*ln(2+3*x)+4/9317/(-1+2*x)^2-1104/717409/(-1+2*x)-95232/5524
0493*ln(-1+2*x)
```

Maxima [A] time = 1.3596, size = 86, normalized size = 1.15

$$\frac{6504600\,x^3-2977380\,x^2-2000774\,x+950291}{1434818\,(100\,x^4+20\,x^3-59\,x^2-6\,x+9)}+\frac{114375}{161051}\,\log(5\,x+3)-\frac{243}{343}\,\log(3\,x+2)-\frac{95232}{55240493}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^3*(3*x + 2)*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] 1/1434818*(6504600*x^3 - 2977380*x^2 - 2000774*x + 950291)/(100*x
^4 + 20*x^3 - 59*x^2 - 6*x + 9) + 114375/161051*log(5*x + 3) - 24
3/343*log(3*x + 2) - 95232/55240493*log(2*x - 1)
```

Fricas [A] time = 0.227755, size = 166, normalized size = 2.21

$$\frac{500854200\,x^3-229258260\,x^2+78461250\,\left(100\,x^4+20\,x^3-59\,x^2-6\,x+9\right)\log(5\,x+3)-78270786\,\left(100\,x^4+20\,x^3-59\,x\right.}{110480986\,(100\,x^4+20\,x^3-5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^3*(3*x + 2)*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] 1/110480986*(500854200*x^3 - 229258260*x^2 + 78461250*(100*x^4 +
20*x^3 - 59*x^2 - 6*x + 9)*log(5*x + 3) - 78270786*(100*x^4 + 20*
x^3 - 59*x^2 - 6*x + 9)*log(3*x + 2) - 190464*(100*x^4 + 20*x^3 -
 59*x^2 - 6*x + 9)*log(2*x - 1) - 154059598*x + 73172407)/(100*x^
4 + 20*x^3 - 59*x^2 - 6*x + 9)
```

Sympy [A] time = 0.597871, size = 65, normalized size = 0.87

$$\frac{6504600x^3-2977380x^2-2000774x+950291}{143481800x^4+28696360x^3-84654262x^2-8608908x+12913362}-\frac{95232\log\left(x-\frac{1}{2}\right)}{55240493}+\frac{114375\log\left(x+\frac{3}{5}\right)}{161051}-\frac{243\log\left(x+\frac{2}{3}\right)}{343}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**3/(2+3*x)/(3+5*x)**3,x)
```

```
[Out] (6504600*x**3 - 2977380*x**2 - 2000774*x + 950291)/(143481800*x**
4 + 28696360*x**3 - 84654262*x**2 - 8608908*x + 12913362) - 95232
*log(x - 1/2)/55240493 + 114375*log(x + 3/5)/161051 - 243*log(x +
 2/3)/343
```

GIAC/XCAS [A] time = 0.213321, size = 80, normalized size = 1.07

$$\frac{6504600\,x^3-2977380\,x^2-2000774\,x+950291}{1434818\,(5\,x+3)^2(2\,x-1)^2}+\frac{114375}{161051}\ln\left(|5\,x+3|\right)-\frac{243}{343}\ln\left(|3\,x+2|\right)-\frac{95232}{55240493}\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-1/((5*x + 3)^3*(3*x + 2)*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] 1/1434818*(6504600*x^3 - 2977380*x^2 - 2000774*x + 950291)/((5*x
+ 3)^2*(2*x - 1)^2) + 114375/161051*ln(abs(5*x + 3)) - 243/343*ln
(abs(3*x + 2)) - 95232/55240493*ln(abs(2*x - 1))
```

3.1691 $\int \frac{1}{(1-2x)^3(2+3x)^2(3+5x)^3} \, dx$

Optimal. Leaf size=86

$$\frac{2736}{5021863(1-2x)}+\frac{243}{343(3x+2)}+\frac{37500}{14641(5x+3)}+\frac{8}{65219(1-2x)^2}-\frac{625}{2662(5x+3)^2}-\frac{280752\log(1-2x)}{386683451}-\frac{26973\log(3x+2)}{2401}+\frac{1809375\log(5x+3)}{161051}$$

```
[Out] 8/(65219*(1 - 2*x)^2) + 2736/(5021863*(1 - 2*x)) + 243/(343*(2 +
3*x)) - 625/(2662*(3 + 5*x)^2) + 37500/(14641*(3 + 5*x)) - (28075
2*Log[1 - 2*x])/386683451 - (26973*Log[2 + 3*x])/2401 + (1809375*
Log[3 + 5*x])/161051
```

Rubi [A] time = 0.102502, antiderivative size = 86, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{2736}{5021863(1-2x)}+\frac{243}{343(3x+2)}+\frac{37500}{14641(5x+3)}+\frac{8}{65219(1-2x)^2}-\frac{625}{2662(5x+3)^2}-\frac{280752\log(1-2x)}{386683451}-\frac{26973\log(3x+2)}{2401}+\frac{1809375\log(5x+3)}{161051}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^3*(2 + 3*x)^2*(3 + 5*x)^3),x]
```

```
[Out] 8/(65219*(1 - 2*x)^2) + 2736/(5021863*(1 - 2*x)) + 243/(343*(2 +
3*x)) - 625/(2662*(3 + 5*x)^2) + 37500/(14641*(3 + 5*x)) - (28075
2*Log[1 - 2*x])/386683451 - (26973*Log[2 + 3*x])/2401 + (1809375*
Log[3 + 5*x])/161051
```

Rubi in Sympy [A] time = 13.0251, size = 70, normalized size = 0.81

$$-\frac{280752\log\left(-2x+1\right)}{386683451}-\frac{26973\log\left(3x+2\right)}{2401}+\frac{1809375\log\left(5x+3\right)}{161051}+\frac{37500}{14641\left(5x+3\right)}-\frac{625}{2662\left(5x+3\right)^2}+\frac{243}{343\left(3x+2\right)}+\frac{2736}{5021863\left(-2x+1\right)}+\frac{8}{65219\left(-2x+1\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**3/(2+3*x)**2/(3+5*x)**3,x)
```

```
[Out] -280752*log(-2*x + 1)/386683451 - 26973*log(3*x + 2)/2401 + 18093
75*log(5*x + 3)/161051 + 37500/(14641*(5*x + 3)) - 625/(2662*(5*x
 + 3)**2) + 243/(343*(3*x + 2)) + 2736/(5021863*(-2*x + 1)) + 8/(
65219*(-2*x + 1)**2)
```

Mathematica [A] time = 0.107967, size = 76, normalized size = 0.88

$$-\frac{3\left(-\frac{65219(12290x-6101)}{3(10x^2+x-3)^2}-\frac{154(8570440x-4446931)}{10x^2+x-3}-\frac{182631834}{3x+2}+187168\log(3-6x)+2896019082\log(3x+2)-2896206250\log(-\right.}{773366902}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^3*(2 + 3*x)^2*(3 + 5*x)^3),x]
```

```
[Out] (-3*(-182631834/(2 + 3*x) - (65219*(-6101 + 12290*x))/(3*(-3 + x
+ 10*x^2)^2) - (154*(-4446931 + 8570440*x))/(-3 + x + 10*x^2) + 1
87168*Log[3 - 6*x] + 2896019082*Log[2 + 3*x] - 2896206250*Log[-3*
(3 + 5*x)]))/773366902
```

Maple [A] time = 0.02, size = 71, normalized size = 0.8

$$-\frac{625}{2662\,(3+5\,x)^2}+\frac{37500}{43923+73205\,x}+\frac{1809375\,\ln(3+5\,x)}{161051}+\frac{243}{686+1029\,x}-\frac{26973\,\ln(2+3\,x)}{2401}+\frac{8}{65219\,(-1+2\,x)^2}-\frac{2736}{-5021863+10043726\,x}-\frac{280752\,\ln(-1+2\,x)}{386683451}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^3/(2+3*x)^2/(3+5*x)^3,x)
```

```
[Out] -625/2662/(3+5*x)^2+37500/14641/(3+5*x)+1809375/161051*ln(3+5*x)+
243/343/(2+3*x)-26973/2401*ln(2+3*x)+8/65219/(-1+2*x)^2-2736/5021
863/(-1+2*x)-280752/386683451*ln(-1+2*x)
```

Maxima [A] time = 1.35709, size = 100, normalized size = 1.16

$$\frac{2254231800\,x^4+524583660\,x^3-1362222102\,x^2-159141275\,x+213794156}{10043726\,(300\,x^5+260\,x^4-137\,x^3-136\,x^2+15\,x+18)}+\frac{1809375}{161051}\log(5\,x+3)-\frac{26973}{2401}\log(3\,x+2)-\frac{280752}{386683451}\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^3*(3*x + 2)^2*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] 1/10043726*(2254231800*x^4 + 524583660*x^3 - 1362222102*x^2 - 159
141275*x + 213794156)/(300*x^5 + 260*x^4 - 137*x^3 - 136*x^2 + 15
*x + 18) + 1809375/161051*log(5*x + 3) - 26973/2401*log(3*x + 2)
- 280752/386683451*log(2*x - 1)
```

Fricas [A] time = 0.235172, size = 200, normalized size = 2.33

$$\frac{173575848600\,x^4+40392941820\,x^3-104891101854\,x^2+8688618750\left(300\,x^5+260\,x^4-137\,x^3-136\,x^2+15\,x+18\right)\log(5}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^3*(3*x + 2)^2*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] 1/773366902*(173575848600*x^4 + 40392941820*x^3 - 104891101854*x^
2 + 8688618750*(300*x^5 + 260*x^4 - 137*x^3 - 136*x^2 + 15*x + 18
)*log(5*x + 3) - 8688057246*(300*x^5 + 260*x^4 - 137*x^3 - 136*x^
2 + 15*x + 18)*log(3*x + 2) - 561504*(300*x^5 + 260*x^4 - 137*x^3
 - 136*x^2 + 15*x + 18)*log(2*x - 1) - 12253878175*x + 1646215001
2)/(300*x^5 + 260*x^4 - 137*x^3 - 136*x^2 + 15*x + 18)
```

Sympy [A] time = 0.700732, size = 75, normalized size = 0.87

$$\frac{2254231800x^4+524583660x^3-1362222102x^2-159141275x+213794156}{3013117800x^5+2611368760x^4-1375990462x^3-1365946736x^2+150655890x+180787068}-\frac{280752\log\left(x-\frac{1}{2}\right)}{386683451}+\frac{1809375\log\left(x+\frac{3}{5}\right)}{161051}-\frac{26973\log\left(x+\frac{2}{3}\right)}{2401}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**3/(2+3*x)**2/(3+5*x)**3,x)
```

```
[Out] (2254231800*x**4 + 524583660*x**3 - 1362222102*x**2 - 159141275*x
 + 213794156)/(3013117800*x**5 + 2611368760*x**4 - 1375990462*x**
3 - 1365946736*x**2 + 150655890*x + 180787068) - 280752*log(x - 1
/2)/386683451 + 1809375*log(x + 3/5)/161051 - 26973*log(x + 2/3)/
2401
```

GIAC/XCAS [A] time = 0.211355, size = 128, normalized size = 1.49

$$\frac{243}{343\,(3\,x+2)} - \frac{9\left(\frac{55432245900}{3\,x+2} - \frac{106776659235}{(3\,x+2)^2} + \frac{22794463286}{(3\,x+2)^3} - 7652987500\right)}{70306082\left(\frac{7}{3\,x+2}-2\right)^2\left(\frac{1}{3\,x+2}-5\right)^2} + \frac{1809375}{161051}\ln\left(\left|-\frac{1}{3\,x+2}+5\right|\right) - \frac{280752}{386683451}\ln\left(\left|-\frac{7}{3\,x+2}+2\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-1/((5*x + 3)^3*(3*x + 2)^2*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] 243/343/(3*x + 2) - 9/70306082*(55432245900/(3*x + 2) - 106776659
235/(3*x + 2)^2 + 22794463286/(3*x + 2)^3 - 7652987500)/((7/(3*x
+ 2) - 2)^2*(1/(3*x + 2) - 5)^2) + 1809375/161051*ln(abs(-1/(3*x
+ 2) + 5)) - 280752/386683451*ln(abs(-7/(3*x + 2) + 2))
```

3.1692 $\int \frac{1}{(1-2x)^3(2+3x)^3(3+5x)^3}\,dx$

Optimal. Leaf size=97

$$\frac{6528}{35153041(1-2x)}+\frac{26973}{2401(3x+2)}+\frac{290625}{14641(5x+3)}+\frac{16}{456533(1-2x)^2}+\frac{243}{686(3x+2)^2}-\frac{3125}{2662(5x+3)^2}-\frac{776928\log(1-2x)}{2706784157}-\frac{1944972\log(3x+2)}{16807}+\frac{18637500\log(5x+3)}{161051}$$

```
[Out] 16/(456533*(1 - 2*x)^2) + 6528/(35153041*(1 - 2*x)) + 243/(686*(2
 + 3*x)^2) + 26973/(2401*(2 + 3*x)) - 3125/(2662*(3 + 5*x)^2) + 2
90625/(14641*(3 + 5*x)) - (776928*Log[1 - 2*x])/2706784157 - (194
4972*Log[2 + 3*x])/16807 + (18637500*Log[3 + 5*x])/161051
```

Rubi [A] time = 0.119966, antiderivative size = 97, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{6528}{35153041(1-2x)}+\frac{26973}{2401(3x+2)}+\frac{290625}{14641(5x+3)}+\frac{16}{456533(1-2x)^2}+\frac{243}{686(3x+2)^2}-\frac{3125}{2662(5x+3)^2}-\frac{776928\log(1-2x)}{2706784157}-\frac{1944972\log(3x+2)}{16807}+\frac{18637500\log(5x+3)}{161051}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^3*(2 + 3*x)^3*(3 + 5*x)^3),x]
```


```
[Out] 16/(456533*(1 - 2*x)^2) + 6528/(35153041*(1 - 2*x)) + 243/(686*(2
 + 3*x)^2) + 26973/(2401*(2 + 3*x)) - 3125/(2662*(3 + 5*x)^2) + 2
90625/(14641*(3 + 5*x)) - (776928*Log[1 - 2*x])/2706784157 - (194
4972*Log[2 + 3*x])/16807 + (18637500*Log[3 + 5*x])/161051
```

Rubi in Sympy [A] time = 14.7127, size = 80, normalized size = 0.82

$$-\frac{776928\log(-2x+1)}{2706784157}-\frac{1944972\log(3x+2)}{16807}+\frac{18637500\log(5x+3)}{161051}+\frac{290625}{14641(5x+3)}-\frac{3125}{2662(5x+3)^2}+\frac{26973}{2401(3x+2)}+\frac{243}{686(3x+2)^2}+\frac{6528}{35153041(-2x+1)}+\frac{16}{456533(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**3/(2+3*x)**3/(3+5*x)**3,x)
```

```
[Out] -776928*log(-2*x + 1)/2706784157 - 1944972*log(3*x + 2)/16807 + 1
8637500*log(5*x + 3)/161051 + 290625/(14641*(5*x + 3)) - 3125/(26
62*(5*x + 3)**2) + 26973/(2401*(3*x + 2)) + 243/(686*(3*x + 2)**2
) + 6528/(35153041*(-2*x + 1)) + 16/(456533*(-2*x + 1)**2)
```

Mathematica [A] time = 0.242476, size = 88, normalized size = 0.91

$$\frac{2\left(\frac{77}{4}\left(\frac{789823386}{3x+2}+\frac{1395581250}{5x+3}+\frac{24904341}{(3x+2)^2}-\frac{82534375}{(5x+3)^2}+\frac{13056}{1-2x}+\frac{2464}{(1-2x)^2}\right)-388464\log(1-2x)-156619842786\log(6x+4)+1566\right.}{2706784157}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^3*(2 + 3*x)^3*(3 + 5*x)^3),x]
```

```
[Out] (2*((77*(2464/(1 - 2*x)^2 + 13056/(1 - 2*x) + 24904341/(2 + 3*x)^
2 + 789823386/(2 + 3*x) - 82534375/(3 + 5*x)^2 + 1395581250/(3 +
5*x)))/4 - 388464*Log[1 - 2*x] - 156619842786*Log[4 + 6*x] + 1566
20231250*Log[6 + 10*x]))/2706784157
```

Maple [A] time = 0.02, size = 80, normalized size = 0.8

$$-\frac{3125}{2662\left(3+5x\right)^{2}}+\frac{290625}{43923+73205x}+\frac{18637500\ln\left(3+5x\right)}{161051}+\frac{243}{686\left(2+3x\right)^{2}}+\frac{26973}{4802+7203x}-\frac{1944972\ln\left(2+3x\right)}{16807}+\frac{16}{456533\left(-1+2x\right)^{2}}-\frac{6528}{-35153041+70306082x}-\frac{776928\ln\left(-1+2x\right)}{2706784157}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(1/(1-2*x)^3/(2+3*x)^3/(3+5*x)^3,x)
```

```
[Out] -3125/2662/(3+5*x)^2+290625/14641/(3+5*x)+18637500/161051*ln(3+5*
x)+243/686/(2+3*x)^2+26973/2401/(2+3*x)-1944972/16807*ln(2+3*x)+1
6/456533/(-1+2*x)^2-6528/35153041/(-1+2*x)-776928/2706784157*ln(-
1+2*x)
```

Maxima [A] time = 1.35079, size = 113, normalized size = 1.16

$$\frac{488145765600\,x^{5}+439319535120\,x^{4}-218954328504\,x^{3}-231191334456\,x^{2}+23195310772\,x+30858356237}{70306082\,(900\,x^{6}+1380\,x^{5}+109\,x^{4}-682\,x^{3}-227\,x^{2}+84\,x+36)}+\frac{18637500}{161051}\log\left(5x+3\right)-\frac{1944972}{16807}\log\left(3x+2\right)-\frac{776928}{2706784157}\log\left(2x-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-1/((5*x + 3)^3*(3*x + 2)^3*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] 1/70306082*(488145765600*x^5 + 439319535120*x^4 - 218954328504*x^
3 - 231191334456*x^2 + 23195310772*x + 30858356237)/(900*x^6 + 13
80*x^5 + 109*x^4 - 682*x^3 - 227*x^2 + 84*x + 36) + 18637500/1610
51*log(5*x + 3) - 1944972/16807*log(3*x + 2) - 776928/2706784157*
log(2*x - 1)
```

Fricas [A] time = 0.228246, size = 234, normalized size = 2.41

$$37587223951200\,x^{5}+33827604204240\,x^{4}-16859483294808\,x^{3}-17801732753112\,x^{2}+626480925000\,\big(900\,x^{6}+1380\,x^{5}+$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-1/((5*x + 3)^3*(3*x + 2)^3*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] 1/5413568314*(37587223951200*x^5 + 33827604204240*x^4 - 168594832
94808*x^3 - 17801732753112*x^2 + 626480925000*(900*x^6 + 1380*x^5
 + 109*x^4 - 682*x^3 - 227*x^2 + 84*x + 36)*log(5*x + 3) - 626479
371144*(900*x^6 + 1380*x^5 + 109*x^4 - 682*x^3 - 227*x^2 + 84*x +
 36)*log(3*x + 2) - 1553856*(900*x^6 + 1380*x^5 + 109*x^4 - 682*x
^3 - 227*x^2 + 84*x + 36)*log(2*x - 1) + 1786038929444*x + 237609
3430249)/(900*x^6 + 1380*x^5 + 109*x^4 - 682*x^3 - 227*x^2 + 84*x
 + 36)
```

Sympy [A] time = 0.757523, size = 85, normalized size = 0.88

$$\frac{488145765600x^5+439319535120x^4-218954328504x^3-231191334456x^2+23195310772x+30858356237}{63275473800x^6+97022393160x^5+7663362938x^4-47948747924x^3-15959480614x^2+5905710888x+2531018952} - \frac{776928\log\left(x-\frac{1}{2}\right)}{2706784157} + \frac{18637500\log\left(x+\frac{3}{5}\right)}{161051} - \frac{1944972\log\left(x+\frac{2}{3}\right)}{16807}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**3/(2+3*x)**3/(3+5*x)**3,x)
```

```
[Out] (488145765600*x**5 + 439319535120*x**4 - 218954328504*x**3 - 2311
91334456*x**2 + 23195310772*x + 30858356237)/(63275473800*x**6 +
97022393160*x**5 + 7663362938*x**4 - 47948747924*x**3 - 159594806
14*x**2 + 5905710888*x + 2531018952) - 776928*log(x - 1/2)/270678
4157 + 18637500*log(x + 3/5)/161051 - 1944972*log(x + 2/3)/16807
```

GIAC/XCAS [A] time = 0.211355, size = 97, normalized size = 1.

$$\frac{488145765600\,x^5+439319535120\,x^4-218954328504\,x^3-231191334456\,x^2+23195310772\,x+30858356237}{70306082\,(30\,x^3+23\,x^2-7\,x-6)^2} + \frac{18637500}{161051}\ln\left(|5\,x+3|\right) - \frac{1944972}{16807}\ln\left(|3\,x+2|\right) - \frac{776928}{2706784157}\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^3*(3*x + 2)^3*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] 1/70306082*(488145765600*x^5 + 439319535120*x^4 - 218954328504*x^
3 - 231191334456*x^2 + 23195310772*x + 30858356237)/(30*x^3 + 23*
x^2 - 7*x - 6)^2 + 18637500/161051*ln(abs(5*x + 3)) - 1944972/168
07*ln(abs(3*x + 2)) - 776928/2706784157*ln(abs(2*x - 1))
```

3.1693 $\int \frac{1}{(1-2x)^3(2+3x)^4(3+5x)^3}\,dx$

Optimal. Leaf size=108

$$\frac{15168}{246071287(1-2x)}+\frac{1944972}{16807(3x+2)}+\frac{1968750}{14641(5x+3)}+\frac{32}{3195731(1-2x)^2}+\frac{26973}{4802(3x+2)^2}-\frac{15625}{2662(5x+3)^2}+\frac{81}{343(3x+2)^3}-\frac{2054400\log(1-2x)}{18947489099}-\frac{115534350\log(3x+2)}{117649}+\frac{158156250\log(5x+3)}{161051}$$

```
[Out] 32/(3195731*(1 - 2*x)^2) + 15168/(246071287*(1 - 2*x)) + 81/(343*
(2 + 3*x)^3) + 26973/(4802*(2 + 3*x)^2) + 1944972/(16807*(2 + 3*x
)) - 15625/(2662*(3 + 5*x)^2) + 1968750/(14641*(3 + 5*x)) - (2054
400*Log[1 - 2*x])/18947489099 - (115534350*Log[2 + 3*x])/117649 +
 (158156250*Log[3 + 5*x])/161051
```

Rubi [A] time = 0.138861, antiderivative size = 108, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{15168}{246071287(1-2x)}+\frac{1944972}{16807(3x+2)}+\frac{1968750}{14641(5x+3)}+\frac{32}{3195731(1-2x)^2}+\frac{26973}{4802(3x+2)^2}-\frac{15625}{2662(5x+3)^2}+\frac{81}{343(3x+2)^3}-\frac{2054400\log(1-2x)}{18947489099}-\frac{115534350\log(3x+2)}{117649}+\frac{158156250\log(5x+3)}{161051}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^3*(2 + 3*x)^4*(3 + 5*x)^3),x]
```

```
[Out] 32/(3195731*(1 - 2*x)^2) + 15168/(246071287*(1 - 2*x)) + 81/(343*
(2 + 3*x)^3) + 26973/(4802*(2 + 3*x)^2) + 1944972/(16807*(2 + 3*x
)) - 15625/(2662*(3 + 5*x)^2) + 1968750/(14641*(3 + 5*x)) - (2054
400*Log[1 - 2*x])/18947489099 - (115534350*Log[2 + 3*x])/117649 +
 (158156250*Log[3 + 5*x])/161051
```

Rubi in Sympy [A] time = 16.3087, size = 90, normalized size = 0.83

$$-\frac{2054400\log(-2x+1)}{18947489099}-\frac{115534350\log(3x+2)}{117649}+\frac{158156250\log(5x+3)}{161051}+\frac{1968750}{14641(5x+3)}-\frac{15625}{2662(5x+3)^2}+\frac{1944972}{16807(3x+2)}+\frac{26973}{4802(3x+2)^2}+\frac{81}{343(3x+2)^3}+\frac{15168}{246071287(-2x+1)}+\frac{32}{3195731(-2x+1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**3/(2+3*x)**4/(3+5*x)**3,x)
```

```
[Out] -2054400*log(-2*x + 1)/18947489099 - 115534350*log(3*x + 2)/11764
9 + 158156250*log(5*x + 3)/161051 + 1968750/(14641*(5*x + 3)) - 1
5625/(2662*(5*x + 3)**2) + 1944972/(16807*(3*x + 2)) + 26973/(480
2*(3*x + 2)**2) + 81/(343*(3*x + 2)**3) + 15168/(246071287*(-2*x
+ 1)) + 32/(3195731*(-2*x + 1)**2)
```

Mathematica [A] time = 0.177297, size = 82, normalized size = 0.76

$$-\frac{3\left(-\frac{77(86993245890000x^6+136289326113000x^5+13177709631900x^4-67213599053550x^3-23334840827100x^2+8254486652965x+3666255393392)}{3(3x+2)^3(10x^2+x-3)^2}+1369600\right.}{37894978198}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^3*(2 + 3*x)^4*(3 + 5*x)^3),x]
```

```
[Out] (-3*((-77*(3666255393392 + 8254486652965*x - 23334840827100*x^2 -
 67213599053550*x^3 + 13177709631900*x^4 + 136289326113000*x^5 +
86993245890000*x^6))/(3*(2 + 3*x)^3*(-3 + x + 10*x^2)^2) + 136960
0*Log[3 - 6*x] + 12404615067900*Log[2 + 3*x] - 12404616437500*Log
[-3*(3 + 5*x)]))/37894978198
```

Maple [A] time = 0.02, size = 89, normalized size = 0.8

$$-\frac{15625}{2662\,(3+5\,x)^{2}}+\frac{1968750}{43923+73205\,x}+\frac{158156250\,\ln(3+5\,x)}{161051}+\frac{81}{343\,(2+3\,x)^{3}}+\frac{26973}{4802\,(2+3\,x)^{2}}+\frac{1944972}{33614+50421\,x}-\frac{115534350\,\ln(2+3\,x)}{117649}+\frac{32}{3195731\,(-1+2\,x)^{2}}-\frac{15168}{-246071287+492142574\,x}-\frac{2054400\,\ln(-1+2\,x)}{18947489099}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^3/(2+3*x)^4/(3+5*x)^3,x)
```

```
[Out] -15625/2662/(3+5*x)^2+1968750/14641/(3+5*x)+158156250/161051*ln(3
+5*x)+81/343/(2+3*x)^3+26973/4802/(2+3*x)^2+1944972/16807/(2+3*x)
-115534350/117649*ln(2+3*x)+32/3195731/(-1+2*x)^2-15168/246071287
/(-1+2*x)-2054400/18947489099*ln(-1+2*x)
```

Maxima [A] time = 1.34058, size = 127, normalized size = 1.18

$$\frac{86993245890000\,x^{6}+136289326113000\,x^{5}+13177709631900\,x^{4}-67213599053550\,x^{3}-23334840827100\,x^{2}+8254486652\cdots}{492142574\,(2700\,x^{7}+5940\,x^{6}+3087\,x^{5}-1828\,x^{4}-2045\,x^{3}-202\,x^{2}+276\,x+72)}+\frac{158156250}{161051}\,\log(5\,x+3)-\frac{115534350}{117649}\,\log(3\,x+2)-\frac{2054400}{18947489099}\,\log(2\,x-1)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^3*(3*x + 2)^4*(2*x - 1)^3),x, algorithm="maxima")
```

```
[Out] 1/492142574*(86993245890000*x^6 + 136289326113000*x^5 + 131777096
31900*x^4 - 67213599053550*x^3 - 23334840827100*x^2 + 82544866529
65*x + 3666255393392)/(2700*x^7 + 5940*x^6 + 3087*x^5 - 1828*x^4
- 2045*x^3 - 202*x^2 + 276*x + 72) + 158156250/161051*log(5*x + 3
) - 115534350/117649*log(3*x + 2) - 2054400/18947489099*log(2*x -
 1)
```

Fricas [A] time = 0.21905, size = 267, normalized size = 2.47

$$\frac{6698479933530000\,x^{6}+10494278110701000\,x^{5}+1014683641656300\,x^{4}-5175447127123350\,x^{3}-1796782743686700\,x^{2}+\cdots}{\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^3*(3*x + 2)^4*(2*x - 1)^3),x, algorithm="fricas")
```

```
[Out] 1/37894978198*(6698479933530000*x^6 + 10494278110701000*x^5 + 101
4683641656300*x^4 - 5175447127123350*x^3 - 1796782743686700*x^2 +
 37213849312500*(2700*x^7 + 5940*x^6 + 3087*x^5 - 1828*x^4 - 2045
```

```
*x^3 - 202*x^2 + 276*x + 72)*log(5*x + 3) - 37213845203700*(2700*
x^7 + 5940*x^6 + 3087*x^5 - 1828*x^4 - 2045*x^3 - 202*x^2 + 276*x
 + 72)*log(3*x + 2) - 4108800*(2700*x^7 + 5940*x^6 + 3087*x^5 - 1
828*x^4 - 2045*x^3 - 202*x^2 + 276*x + 72)*log(2*x - 1) + 6355954
72278305*x + 282301665291184)/(2700*x^7 + 5940*x^6 + 3087*x^5 - 1
828*x^4 - 2045*x^3 - 202*x^2 + 276*x + 72)
```

Sympy [A] time = 0.842713, size = 95, normalized size = 0.88

$$\frac{86993245890000x^6 + 136289326113000x^5 + 13177709631900x^4 - 67213599053550x^3 - 23334840827100x^2 + 825448665}{1328784949800x^7 + 2923326889560x^6 + 1519244125938x^5 - 899636625272x^4 - 1006431563830x^3 - 99412799948x^2 + 135} - \frac{2054400\log\left(x-\frac{1}{2}\right)}{18947489099} + \frac{158156250\log\left(x+\frac{3}{5}\right)}{161051} - \frac{115534350\log\left(x+\frac{2}{3}\right)}{117649}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**3/(2+3*x)**4/(3+5*x)**3,x)
```

```
[Out] (86993245890000*x**6 + 136289326113000*x**5 + 13177709631900*x**4
 - 67213599053550*x**3 - 23334840827100*x**2 + 8254486652965*x +
3666255393392)/(1328784949800*x**7 + 2923326889560*x**6 + 1519244
125938*x**5 - 899636625272*x**4 - 1006431563830*x**3 - 9941279994
8*x**2 + 135831350424*x + 35434265328) - 2054400*log(x - 1/2)/189
47489099 + 158156250*log(x + 3/5)/161051 - 115534350*log(x + 2/3)
/117649
```

GIAC/XCAS [A] time = 0.210542, size = 109, normalized size = 1.01

$$\frac{86993245890000\,x^6 + 136289326113000\,x^5 + 13177709631900\,x^4 - 67213599053550\,x^3 - 23334840827100\,x^2 + 8254486652}{492142574\,(5\,x+3)^2(3\,x+2)^3(2\,x-1)^2} + \frac{158156250}{161051}\ln\left(|5\,x+3|\right) - \frac{115534350}{117649}\ln\left(|3\,x+2|\right) - \frac{2054400}{18947489099}\ln\left(|2\,x-1|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-1/((5*x + 3)^3*(3*x + 2)^4*(2*x - 1)^3),x, algorithm="giac")
```

```
[Out] 1/492142574*(86993245890000*x^6 + 136289326113000*x^5 + 131777096
31900*x^4 - 67213599053550*x^3 - 23334840827100*x^2 + 82544866529
65*x + 3666255393392)/((5*x + 3)^2*(3*x + 2)^3*(2*x - 1)^2) + 158
156250/161051*ln(abs(5*x + 3)) - 115534350/117649*ln(abs(3*x + 2)
) - 2054400/18947489099*ln(abs(2*x - 1))
```

3.1694 $\int (a+bx)^3(c+dx)^3(e+fx)^3\,dx$

Optimal. Leaf size=361

$$\frac{3df(a+bx)^8\left(5a^2d^2f^2-5abdf(cf+de)+b^2\left(c^2f^2+3cdef+d^2e^2\right)\right)}{8b^7}+\frac{(a+bx)^7(-2adf+bcf+bde)\left(10a^2d^2f^2-10abdf(cf+de)+b^2\left(c^2f^2+8cdef+d^2e^2\right)\right)}{7b^7}+\frac{(a+bx)^6(bc-ad)(be-af)\left(5a^2d^2f^2-5abdf(cf+de)+b^2\left(c^2f^2+3cdef+d^2e^2\right)\right)}{2b^7}+\frac{d^2f^2(a+bx)^9(-2adf+bcf+bde)}{3b^7}+\frac{3(a+bx)^5(bc-ad)^2(be-af)^2(-2adf+bcf+bde)}{5b^7}+\frac{(a+bx)^4(bc-ad)^3(be-af)^3}{4b^7}+\frac{d^3f^3(a+bx)^{10}}{10b^7}$$

```
[Out] ((b*c - a*d)^3*(b*e - a*f)^3*(a + b*x)^4)/(4*b^7) + (3*(b*c - a*d
)^2*(b*e - a*f)^2*(b*d*e + b*c*f - 2*a*d*f)*(a + b*x)^5)/(5*b^7)
+ ((b*c - a*d)*(b*e - a*f)*(5*a^2*d^2*f^2 - 5*a*b*d*f*(d*e + c*f)
 + b^2*(d^2*e^2 + 3*c*d*e*f + c^2*f^2))*(a + b*x)^6)/(2*b^7) + ((
b*d*e + b*c*f - 2*a*d*f)*(10*a^2*d^2*f^2 - 10*a*b*d*f*(d*e + c*f)
 + b^2*(d^2*e^2 + 8*c*d*e*f + c^2*f^2))*(a + b*x)^7)/(7*b^7) + (3
*d*f*(5*a^2*d^2*f^2 - 5*a*b*d*f*(d*e + c*f) + b^2*(d^2*e^2 + 3*c*
d*e*f + c^2*f^2))*(a + b*x)^8)/(8*b^7) + (d^2*f^2*(b*d*e + b*c*f
- 2*a*d*f)*(a + b*x)^9)/(3*b^7) + (d^3*f^3*(a + b*x)^10)/(10*b^7)
```

Rubi [A] time = 1.87454, antiderivative size = 361, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$\frac{3df(a+bx)^8\left(5a^2d^2f^2-5abdf(cf+de)+b^2\left(c^2f^2+3cdef+d^2e^2\right)\right)}{8b^7}+\frac{(a+bx)^7(-2adf+bcf+bde)\left(10a^2d^2f^2-10abdf(cf+de)+b^2\left(c^2f^2+8cdef+d^2e^2\right)\right)}{7b^7}+\frac{(a+bx)^6(bc-ad)(be-af)\left(5a^2d^2f^2-5abdf(cf+de)+b^2\left(c^2f^2+3cdef+d^2e^2\right)\right)}{2b^7}+\frac{d^2f^2(a+bx)^9(-2adf+bcf+bde)}{3b^7}+\frac{3(a+bx)^5(bc-ad)^2(be-af)^2(-2adf+bcf+bde)}{5b^7}+\frac{(a+bx)^4(bc-ad)^3(be-af)^3}{4b^7}+\frac{d^3f^3(a+bx)^{10}}{10b^7}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^3*(c + d*x)^3*(e + f*x)^3,x]
```


```
[Out] ((b*c - a*d)^3*(b*e - a*f)^3*(a + b*x)^4)/(4*b^7) + (3*(b*c - a*d
)^2*(b*e - a*f)^2*(b*d*e + b*c*f - 2*a*d*f)*(a + b*x)^5)/(5*b^7)
+ ((b*c - a*d)*(b*e - a*f)*(5*a^2*d^2*f^2 - 5*a*b*d*f*(d*e + c*f)
 + b^2*(d^2*e^2 + 3*c*d*e*f + c^2*f^2))*(a + b*x)^6)/(2*b^7) + ((
b*d*e + b*c*f - 2*a*d*f)*(10*a^2*d^2*f^2 - 10*a*b*d*f*(d*e + c*f)
 + b^2*(d^2*e^2 + 8*c*d*e*f + c^2*f^2))*(a + b*x)^7)/(7*b^7) + (3
*d*f*(5*a^2*d^2*f^2 - 5*a*b*d*f*(d*e + c*f) + b^2*(d^2*e^2 + 3*c*
d*e*f + c^2*f^2))*(a + b*x)^8)/(8*b^7) + (d^2*f^2*(b*d*e + b*c*f
- 2*a*d*f)*(a + b*x)^9)/(3*b^7) + (d^3*f^3*(a + b*x)^10)/(10*b^7)
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**3*(d*x+c)**3*(f*x+e)**3,x)
```

```
[Out] Timed out
```

Mathematica [A] time = 0.479117, size = 653, normalized size = 1.81

$$a^3c^3e^3x + \frac{3}{8}bdfx^8\left(a^2d^2f^2 + 3abdf(cf + de) + b^2\left(c^2f^2 + 3cdef + d^2e^2\right)\right) + acex^3\left(a^2\left(c^2f^2 + 3cdef + d^2e^2\right) + 3abce(cf + de) + b^2c^2e^2\right) + \frac{3}{2}a^2c^2e^2x^2(acf + ade + bce) + \frac{1}{7}x^7\left(a^3d^3f^3 + 9a^2bd^2f^2(cf + de) + 9ab^2df\left(c^2f^2 + 3cdef + d^2e^2\right) + b^3\left(c^3f^3 + 9c^2def^2 + 9cd^2e^2f + d^3e^3\right)\right) + \frac{1}{2}x^6\left(a^3d^2f^2(cf + de) + 3a^2bdf\left(c^2f^2 + 3cdef + d^2e^2\right) + ab^2\left(c^3f^3 + 9c^2def^2 + 9cd^2e^2f + d^3e^3\right) + b^3ce\left(c^2f^2 + 3cdef + d^2e^2\right)\right) + \frac{3}{5}x^5\left(a^3df\left(c^2f^2 + 3cdef + d^2e^2\right) + a^2b\left(c^3f^3 + 9c^2def^2 + 9cd^2e^2f + d^3e^3\right) + 3ab^2ce\left(c^2f^2 + 3cdef + d^2e^2\right) + b^3c^2e^2(cf + de)\right) + \frac{1}{4}x^4\left(a^3\left(c^3f^3 + 9c^2def^2 + 9cd^2e^2f + d^3e^3\right) + 9a^2bce\left(c^2f^2 + 3cdef + d^2e^2\right) + 9ab^2c^2e^2(cf + de) + b^3c^3e^3\right) + \frac{1}{3}b^2d^2f^2x^9(adf + bcf + bde) + \frac{1}{10}b^3d^3f^3x^{10}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^3*(c + d*x)^3*(e + f*x)^3,x]
```

```
[Out] a^3*c^3*e^3*x + (3*a^2*c^2*e^2*(b*c*e + a*d*e + a*c*f)*x^2)/2 + a
*c*e*(b^2*c^2*e^2 + 3*a*b*c*e*(d*e + c*f) + a^2*(d^2*e^2 + 3*c*d*
e*f + c^2*f^2))*x^3 + ((b^3*c^3*e^3 + 9*a*b^2*c^2*e^2*(d*e + c*f)
 + 9*a^2*b*c*e*(d^2*e^2 + 3*c*d*e*f + c^2*f^2) + a^3*(d^3*e^3 + 9
*c*d^2*e^2*f + 9*c^2*d*e*f^2 + c^3*f^3))*x^4)/4 + (3*(b^3*c^2*e^2
*(d*e + c*f) + 3*a*b^2*c*e*(d^2*e^2 + 3*c*d*e*f + c^2*f^2) + a^3*
d*f*(d^2*e^2 + 3*c*d*e*f + c^2*f^2) + a^2*b*(d^3*e^3 + 9*c*d^2*e^
2*f + 9*c^2*d*e*f^2 + c^3*f^3))*x^5)/5 + ((a^3*d^2*f^2*(d*e + c*f
) + b^3*c*e*(d^2*e^2 + 3*c*d*e*f + c^2*f^2) + 3*a^2*b*d*f*(d^2*e^
2 + 3*c*d*e*f + c^2*f^2) + a*b^2*(d^3*e^3 + 9*c*d^2*e^2*f + 9*c^2
*d*e*f^2 + c^3*f^3))*x^6)/2 + ((a^3*d^3*f^3 + 9*a^2*b*d^2*f^2*(d*
e + c*f) + 9*a*b^2*d*f*(d^2*e^2 + 3*c*d*e*f + c^2*f^2) + b^3*(d^3
*e^3 + 9*c*d^2*e^2*f + 9*c^2*d*e*f^2 + c^3*f^3))*x^7)/7 + (3*b*d*
f*(a^2*d^2*f^2 + 3*a*b*d*f*(d*e + c*f) + b^2*(d^2*e^2 + 3*c*d*e*f
 + c^2*f^2))*x^8)/8 + (b^2*d^2*f^2*(b*d*e + b*c*f + a*d*f)*x^9)/3
 + (b^3*d^3*f^3*x^10)/10
```

Maple [B] time = 0.001, size = 767, normalized size = 2.1

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3*(d*x+c)^3*(f*x+e)^3,x)
```

```
[Out] 1/10*b^3*d^3*f^3*x^10+1/9*((3*a*b^2*d^3+3*b^3*c*d^2)*f^3+3*b^3*d^
3*e*f^2)*x^9+1/8*((3*a^2*b*d^3+9*a*b^2*c*d^2+3*b^3*c^2*d)*f^3+3*(
3*a*b^2*d^3+3*b^3*c*d^2)*e*f^2+3*b^3*d^3*e^2*f)*x^8+1/7*((a^3*d^3
+9*a^2*b*c*d^2+9*a*b^2*c^2*d+b^3*c^3)*f^3+3*(3*a^2*b*d^3+9*a*b^2*
c*d^2+3*b^3*c^2*d)*e*f^2+3*(3*a*b^2*d^3+3*b^3*c*d^2)*e^2*f+b^3*d^
3*e^3)*x^7+1/6*((3*a^3*c*d^2+9*a^2*b*c^2*d+3*a*b^2*c^3)*f^3+3*(a^
3*d^3+9*a^2*b*c*d^2+9*a*b^2*c^2*d+b^3*c^3)*e*f^2+3*(3*a^2*b*d^3+9
*a*b^2*c*d^2+3*b^3*c^2*d)*e^2*f+(3*a*b^2*d^3+3*b^3*c*d^2)*e^3)*x^
6+1/5*((3*a^3*c^2*d+3*a^2*b*c^3)*f^3+3*(3*a^3*c*d^2+9*a^2*b*c^2*d
+3*a*b^2*c^3)*e*f^2+3*(a^3*d^3+9*a^2*b*c*d^2+9*a*b^2*c^2*d+b^3*c^
3)*e^2*f+(3*a^2*b*d^3+9*a*b^2*c*d^2+3*b^3*c^2*d)*e^3)*x^5+1/4*(a^
3*c^3*f^3+3*(3*a^3*c^2*d+3*a^2*b*c^3)*e*f^2+3*(3*a^3*c*d^2+9*a^2*
b*c^2*d+3*a*b^2*c^3)*e^2*f+(a^3*d^3+9*a^2*b*c*d^2+9*a*b^2*c^2*d+b
^3*c^3)*e^3)*x^4+1/3*(3*a^3*c^3*e*f^2+3*(3*a^3*c^2*d+3*a^2*b*c^3)
*e^2*f+(3*a^3*c*d^2+9*a^2*b*c^2*d+3*a*b^2*c^3)*e^3)*x^3+1/2*(3*a^
```

```
3*c^3*e^2*f+(3*a^3*c^2*d+3*a^2*b*c^3)*e^3)*x^2+a^3*c^3*e^3*x
```

Maxima [A] time = 1.39203, size = 981, normalized size = 2.72

$$\frac{1}{10}\,b^3d^3f^3x^{10} + a^3c^3e^3x + \frac{1}{3}\left(b^3d^3ef^2 + \left(b^3cd^2 + ab^2d^3\right)f^3\right)x^9$$
$$+ \frac{3}{8}\left(b^3d^3e^2f + 3\left(b^3cd^2 + ab^2d^3\right)ef^2 + \left(b^3c^2d + 3\,ab^2cd^2 + a^2bd^3\right)f^3\right)x^8$$
$$+ \frac{1}{7}\left(b^3d^3e^3 + 9\left(b^3cd^2 + ab^2d^3\right)e^2f + 9\left(b^3c^2d + 3\,ab^2cd^2 + a^2bd^3\right)ef^2 + \left(b^3c^3 + 9\,ab^2c^2d + 9\,a^2bcd^2 + a^3d^3\right)f^3\right)x^7$$
$$+ \frac{1}{2}\left(\left(b^3cd^2 + ab^2d^3\right)e^3 + 3\left(b^3c^2d + 3\,ab^2cd^2 + a^2bd^3\right)e^2f + \left(b^3c^3 + 9\,ab^2c^2d + 9\,a^2bcd^2 + a^3d^3\right)ef^2 + \left(ab^2c^3 + 3\,a^2bc^2d + a\right.\right.$$
$$+ \frac{3}{5}\left(\left(b^3c^2d + 3\,ab^2cd^2 + a^2bd^3\right)e^3 + \left(b^3c^3 + 9\,ab^2c^2d + 9\,a^2bcd^2 + a^3d^3\right)e^2f + 3\left(ab^2c^3 + 3\,a^2bc^2d + a^3cd^2\right)ef^2 + \left(a^2bc^3 + a\right.\right.$$
$$+ \frac{1}{4}\left(a^3c^3f^3 + \left(b^3c^3 + 9\,ab^2c^2d + 9\,a^2bcd^2 + a^3d^3\right)e^3 + 9\left(ab^2c^3 + 3\,a^2bc^2d + a^3cd^2\right)e^2f + 9\left(a^2bc^3 + a^3c^2d\right)ef^2\right)x^4$$
$$+ \left(a^3c^3ef^2 + \left(ab^2c^3 + 3\,a^2bc^2d + a^3cd^2\right)e^3 + 3\left(a^2bc^3 + a^3c^2d\right)e^2f\right)x^3 + \frac{3}{2}\left(a^3c^3e^2f + \left(a^2bc^3 + a^3c^2d\right)e^3\right)x^2$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^3*(d*x + c)^3*(f*x + e)^3,x, algorithm="maxima")
```

```
[Out] 1/10*b^3*d^3*f^3*x^10 + a^3*c^3*e^3*x + 1/3*(b^3*d^3*e*f^2 + (b^3
*c*d^2 + a*b^2*d^3)*f^3)*x^9 + 3/8*(b^3*d^3*e^2*f + 3*(b^3*c*d^2
+ a*b^2*d^3)*e*f^2 + (b^3*c^2*d + 3*a*b^2*c*d^2 + a^2*b*d^3)*f^3)
*x^8 + 1/7*(b^3*d^3*e^3 + 9*(b^3*c*d^2 + a*b^2*d^3)*e^2*f + 9*(b^
3*c^2*d + 3*a*b^2*c*d^2 + a^2*b*d^3)*e*f^2 + (b^3*c^3 + 9*a*b^2*c
^2*d + 9*a^2*b*c*d^2 + a^3*d^3)*f^3)*x^7 + 1/2*((b^3*c*d^2 + a*b^
2*d^3)*e^3 + 3*(b^3*c^2*d + 3*a*b^2*c*d^2 + a^2*b*d^3)*e^2*f + (b
^3*c^3 + 9*a*b^2*c^2*d + 9*a^2*b*c*d^2 + a^3*d^3)*e*f^2 + (a*b^2*
c^3 + 3*a^2*b*c^2*d + a^3*c*d^2)*f^3)*x^6 + 3/5*((b^3*c^2*d + 3*a
*b^2*c*d^2 + a^2*b*d^3)*e^3 + (b^3*c^3 + 9*a*b^2*c^2*d + 9*a^2*b*
c*d^2 + a^3*d^3)*e^2*f + 3*(a*b^2*c^3 + 3*a^2*b*c^2*d + a^3*c*d^2
)*e*f^2 + (a^2*b*c^3 + a^3*c^2*d)*f^3)*x^5 + 1/4*(a^3*c^3*f^3 + (
b^3*c^3 + 9*a*b^2*c^2*d + 9*a^2*b*c*d^2 + a^3*d^3)*e^3 + 9*(a*b^2
*c^3 + 3*a^2*b*c^2*d + a^3*c*d^2)*e^2*f + 9*(a^2*b*c^3 + a^3*c^2*
d)*e*f^2)*x^4 + (a^3*c^3*e*f^2 + (a*b^2*c^3 + 3*a^2*b*c^2*d + a^3
*c*d^2)*e^3 + 3*(a^2*b*c^3 + a^3*c^2*d)*e^2*f)*x^3 + 3/2*(a^3*c^3
*e^2*f + (a^2*b*c^3 + a^3*c^2*d)*e^3)*x^2
```

Fricas [A] time = 0.188738, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^3*(d*x + c)^3*(f*x + e)^3,x, algorithm="fricas")
```

```
[Out] 1/10*x^10*f^3*d^3*b^3 + 1/3*x^9*f^2*e*d^3*b^3 + 1/3*x^9*f^3*d^2*c
*b^3 + 1/3*x^9*f^3*d^3*b^2*a + 3/8*x^8*f*e^2*d^3*b^3 + 9/8*x^8*f^
2*e*d^2*c*b^3 + 3/8*x^8*f^3*d*c^2*b^3 + 9/8*x^8*f^2*e*d^3*b^2*a +
 9/8*x^8*f^3*d^2*c*b^2*a + 3/8*x^8*f^3*d^3*b*a^2 + 1/7*x^7*e^3*d^
3*b^3 + 9/7*x^7*f*e^2*d^2*c*b^3 + 9/7*x^7*f^2*e*d*c^2*b^3 + 1/7*x
^7*f^3*c^3*b^3 + 9/7*x^7*f*e^2*d^3*b^2*a + 27/7*x^7*f^2*e*d^2*c*b
^2*a + 9/7*x^7*f^3*d*c^2*b^2*a + 9/7*x^7*f^2*e*d^3*b*a^2 + 9/7*x^
7*f^3*d^2*c*b*a^2 + 1/7*x^7*f^3*d^3*a^3 + 1/2*x^6*e^3*d^2*c*b^3 +
 3/2*x^6*f*e^2*d*c^2*b^3 + 1/2*x^6*f^2*e*c^3*b^3 + 1/2*x^6*e^3*d^
3*b^2*a + 9/2*x^6*f*e^2*d^2*c*b^2*a + 9/2*x^6*f^2*e*d*c^2*b^2*a +
 1/2*x^6*f^3*c^3*b^2*a + 3/2*x^6*f*e^2*d^3*b*a^2 + 9/2*x^6*f^2*e*
d^2*c*b*a^2 + 3/2*x^6*f^3*d*c^2*b*a^2 + 1/2*x^6*f^2*e*d^3*a^3 + 1
/2*x^6*f^3*d^2*c*a^3 + 3/5*x^5*e^3*d*c^2*b^3 + 3/5*x^5*f*e^2*c^3*
b^3 + 9/5*x^5*e^3*d^2*c*b^2*a + 27/5*x^5*f*e^2*d*c^2*b^2*a + 9/5*
x^5*f^2*e*c^3*b^2*a + 3/5*x^5*e^3*d^3*b*a^2 + 27/5*x^5*f*e^2*d^2*
c*b*a^2 + 27/5*x^5*f^2*e*d*c^2*b*a^2 + 3/5*x^5*f^3*c^3*b*a^2 + 3/
```

```
5*x^5*f*e^2*d^3*a^3 + 9/5*x^5*f^2*e*d^2*c*a^3 + 3/5*x^5*f^3*d*c^2
*a^3 + 1/4*x^4*e^3*c^3*b^3 + 9/4*x^4*e^3*d*c^2*b^2*a + 9/4*x^4*f*
e^2*c^3*b^2*a + 9/4*x^4*e^3*d^2*c*b*a^2 + 27/4*x^4*f*e^2*d*c^2*b*
a^2 + 9/4*x^4*f^2*e*c^3*b*a^2 + 1/4*x^4*e^3*d^3*a^3 + 9/4*x^4*f*e
^2*d^2*c*a^3 + 9/4*x^4*f^2*e*d*c^2*a^3 + 1/4*x^4*f^3*c^3*a^3 + x^
3*e^3*c^3*b^2*a + 3*x^3*e^3*d*c^2*b*a^2 + 3*x^3*f*e^2*c^3*b*a^2 +
 x^3*e^3*d^2*c*a^3 + 3*x^3*f*e^2*d*c^2*a^3 + x^3*f^2*e*c^3*a^3 +
3/2*x^2*e^3*c^3*b*a^2 + 3/2*x^2*e^3*d*c^2*a^3 + 3/2*x^2*f*e^2*c^3
*a^3 + x*e^3*c^3*a^3
```

Sympy [A] time = 0.48649, size = 1018, normalized size = 2.82

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**3*(d*x+c)**3*(f*x+e)**3,x)
```

```
[Out] a**3*c**3*e**3*x + b**3*d**3*f**3*x**10/10 + x**9*(a*b**2*d**3*f*
*3/3 + b**3*c*d**2*f**3/3 + b**3*d**3*e*f**2/3) + x**8*(3*a**2*b*
d**3*f**3/8 + 9*a*b**2*c*d**2*f**3/8 + 9*a*b**2*d**3*e*f**2/8 + 3
*b**3*c**2*d*f**3/8 + 9*b**3*c*d**2*e*f**2/8 + 3*b**3*d**3*e**2*f
/8) + x**7*(a**3*d**3*f**3/7 + 9*a**2*b*c*d**2*f**3/7 + 9*a**2*b*
d**3*e*f**2/7 + 9*a*b**2*c**2*d*f**3/7 + 27*a*b**2*c*d**2*e*f**2/
7 + 9*a*b**2*d**3*e**2*f/7 + b**3*c**3*f**3/7 + 9*b**3*c**2*d*e*f
**2/7 + 9*b**3*c*d**2*e**2*f/7 + b**3*d**3*e**3/7) + x**6*(a**3*c
*d**2*f**3/2 + a**3*d**3*e*f**2/2 + 3*a**2*b*c**2*d*f**3/2 + 9*a*
*2*b*c*d**2*e*f**2/2 + 3*a**2*b*d**3*e**2*f/2 + a*b**2*c**3*f**3/
2 + 9*a*b**2*c**2*d*e*f**2/2 + 9*a*b**2*c*d**2*e**2*f/2 + a*b**2*
d**3*e**3/2 + b**3*c**3*e*f**2/2 + 3*b**3*c**2*d*e**2*f/2 + b**3*
c*d**2*e**3/2) + x**5*(3*a**3*c**2*d*f**3/5 + 9*a**3*c*d**2*e*f**
2/5 + 3*a**3*d**3*e**2*f/5 + 3*a**2*b*c**3*f**3/5 + 27*a**2*b*c**
2*d*e*f**2/5 + 27*a**2*b*c*d**2*e**2*f/5 + 3*a**2*b*d**3*e**3/5 +
 9*a*b**2*c**3*e*f**2/5 + 27*a*b**2*c**2*d*e**2*f/5 + 9*a*b**2*c*
d**2*e**3/5 + 3*b**3*c**3*e**2*f/5 + 3*b**3*c**2*d*e**3/5) + x**4
*(a**3*c**3*f**3/4 + 9*a**3*c**2*d*e*f**2/4 + 9*a**3*c*d**2*e**2*
f/4 + a**3*d**3*e**3/4 + 9*a**2*b*c**3*e*f**2/4 + 27*a**2*b*c**2*
d*e**2*f/4 + 9*a**2*b*c*d**2*e**3/4 + 9*a*b**2*c**3*e**2*f/4 + 9*
a*b**2*c**2*d*e**3/4 + b**3*c**3*e**3/4) + x**3*(a**3*c**3*e*f**2
 + 3*a**3*c**2*d*e**2*f + a**3*c*d**2*e**3 + 3*a**2*b*c**3*e**2*f
 + 3*a**2*b*c**2*d*e**3 + a*b**2*c**3*e**3) + x**2*(3*a**3*c**3*e
**2*f/2 + 3*a**3*c**2*d*e**3/2 + 3*a**2*b*c**3*e**3/2)
```

GIAC/XCAS [A] time = 0.209015, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^3*(d*x + c)^3*(f*x + e)^3,x, algorithm="giac")
```

```
[Out] Done
```

3.1695 $\int (a+bx)^2(c+dx)^2(e+fx)^2\,dx$

Optimal. Leaf size=193

$$\frac{(a+bx)^5\left(6a^2d^2f^2-6abdf(cf+de)+b^2\left(c^2f^2+4cdef+d^2e^2\right)\right)}{5b^5}+\frac{df(a+bx)^6(-2adf+bcf+bde)}{3b^5}+\frac{(a+bx)^4(bc-ad)(be-af)(-2adf+bcf+bde)}{2b^5}+\frac{(a+bx)^3(bc-ad)^2(be-af)^2}{3b^5}+\frac{d^2f^2(a+bx)^7}{7b^5}$$

```
[Out] ((b*c - a*d)^2*(b*e - a*f)^2*(a + b*x)^3)/(3*b^5) + ((b*c - a*d)*
(b*e - a*f)*(b*d*e + b*c*f - 2*a*d*f)*(a + b*x)^4)/(2*b^5) + ((6*
a^2*d^2*f^2 - 6*a*b*d*f*(d*e + c*f) + b^2*(d^2*e^2 + 4*c*d*e*f +
c^2*f^2))*(a + b*x)^5)/(5*b^5) + (d*f*(b*d*e + b*c*f - 2*a*d*f)*(
a + b*x)^6)/(3*b^5) + (d^2*f^2*(a + b*x)^7)/(7*b^5)
```

Rubi [A] time = 0.59866, antiderivative size = 193, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{(a+bx)^5\left(6a^2d^2f^2-6abdf(cf+de)+b^2\left(c^2f^2+4cdef+d^2e^2\right)\right)}{5b^5}+\frac{df(a+bx)^6(-2adf+bcf+bde)}{3b^5}+\frac{(a+bx)^4(bc-ad)(be-af)(-2adf+bcf+bde)}{2b^5}+\frac{(a+bx)^3(bc-ad)^2(be-af)^2}{3b^5}+\frac{d^2f^2(a+bx)^7}{7b^5}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^2*(c + d*x)^2*(e + f*x)^2,x]
```

```
[Out] ((b*c - a*d)^2*(b*e - a*f)^2*(a + b*x)^3)/(3*b^5) + ((b*c - a*d)*
(b*e - a*f)*(b*d*e + b*c*f - 2*a*d*f)*(a + b*x)^4)/(2*b^5) + ((6*
a^2*d^2*f^2 - 6*a*b*d*f*(d*e + c*f) + b^2*(d^2*e^2 + 4*c*d*e*f +
c^2*f^2))*(a + b*x)^5)/(5*b^5) + (d*f*(b*d*e + b*c*f - 2*a*d*f)*(
a + b*x)^6)/(3*b^5) + (d^2*f^2*(a + b*x)^7)/(7*b^5)
```

Rubi in Sympy [A] time = 92.3736, size = 201, normalized size = 1.04

$$\frac{d^2f^2\left(a+bx\right)^7}{7b^5}-\frac{df\left(a+bx\right)^6\left(2adf-bcf-bde\right)}{3b^5}+\frac{\left(a+bx\right)^5\left(6a^2d^2f^2-6abcdf^2-6abd^2ef+b^2c^2f^2+4b^2cdef+b^2d^2e^2\right)}{5b^5}-\frac{\left(a+bx\right)^4\left(ad-bc\right)\left(af-be\right)\left(2adf-bcf-bde\right)}{2b^5}+\frac{\left(a+bx\right)^3\left(ad-bc\right)^2\left(af-be\right)^2}{3b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**2*(d*x+c)**2*(f*x+e)**2,x)
```

```
[Out] d**2*f**2*(a + b*x)**7/(7*b**5) - d*f*(a + b*x)**6*(2*a*d*f - b*c
*f - b*d*e)/(3*b**5) + (a + b*x)**5*(6*a**2*d**2*f**2 - 6*a*b*c*d
*f**2 - 6*a*b*d**2*e*f + b**2*c**2*f**2 + 4*b**2*c*d*e*f + b**2*d
**2*e**2)/(5*b**5) - (a + b*x)**4*(a*d - b*c)*(a*f - b*e)*(2*a*d*
f - b*c*f - b*d*e)/(2*b**5) + (a + b*x)**3*(a*d - b*c)**2*(a*f -
b*e)**2/(3*b**5)
```

Mathematica [A] time = 0.145843, size = 241, normalized size = 1.25

$$\frac{1}{5}x^5\left(a^2d^2f^2+4abdf(cf+de)+b^2\left(c^2f^2+4cdef+d^2e^2\right)\right)+\frac{1}{2}x^4\left(a^2df(cf+de)+ab\left(c^2f^2+4cdef+d^2e^2\right)+b^2ce(cf+de)\right)+\frac{1}{3}x^3\left(a^2\left(c^2f^2+4cdef+d^2e^2\right)+4abce(cf+de)+b^2c^2e^2\right)+a^2c^2e^2x+\frac{1}{3}bdfx^6(adf+bcf+bde)+acex^2(acf+ade+bce)+\frac{1}{7}b^2d^2f^2x^7$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^2*(c + d*x)^2*(e + f*x)^2,x]
```

```
[Out] a^2*c^2*e^2*x + a*c*e*(b*c*e + a*d*e + a*c*f)*x^2 + ((b^2*c^2*e^2
 + 4*a*b*c*e*(d*e + c*f) + a^2*(d^2*e^2 + 4*c*d*e*f + c^2*f^2))*x
^3)/3 + ((b^2*c*e*(d*e + c*f) + a^2*d*f*(d*e + c*f) + a*b*(d^2*e^
2 + 4*c*d*e*f + c^2*f^2))*x^4)/2 + ((a^2*d^2*f^2 + 4*a*b*d*f*(d*e
 + c*f) + b^2*(d^2*e^2 + 4*c*d*e*f + c^2*f^2))*x^5)/5 + (b*d*f*(b
*d*e + b*c*f + a*d*f)*x^6)/3 + (b^2*d^2*f^2*x^7)/7
```

Maple [A] time = 0.001, size = 286, normalized size = 1.5

$$\frac{b^2d^2f^2x^7}{7}+\frac{\left(\left(2\,abd^2+2\,b^2cd\right)f^2+2\,b^2d^2ef\right)x^6}{6}+\frac{\left(\left(a^2d^2+4\,abcd+b^2c^2\right)f^2+2\,\left(2\,abd^2+2\,b^2cd\right)ef+b^2d^2e^2\right)x^5}{5}+\frac{\left(\left(2\,a^2cd+2\,abc^2\right)f^2+2\,\left(a^2d^2+4\,abcd+b^2c^2\right)ef+\left(2\,abd^2+2\,b^2cd\right)e^2\right)x^4}{4}+\frac{\left(a^2c^2f^2+2\,\left(2\,a^2cd+2\,abc^2\right)ef+\left(a^2d^2+4\,abcd+b^2c^2\right)e^2\right)x^3}{3}+\frac{\left(2\,a^2c^2ef+\left(2\,a^2cd+2\,abc^2\right)e^2\right)x^2}{2}+a^2c^2e^2x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^2*(d*x+c)^2*(f*x+e)^2,x)
```

```
[Out] 1/7*b^2*d^2*f^2*x^7+1/6*((2*a*b*d^2+2*b^2*c*d)*f^2+2*b^2*d^2*e*f)
*x^6+1/5*((a^2*d^2+4*a*b*c*d+b^2*c^2)*f^2+2*(2*a*b*d^2+2*b^2*c*d)
*e*f+b^2*d^2*e^2)*x^5+1/4*((2*a^2*c*d+2*a*b*c^2)*f^2+2*(a^2*d^2+4
*a*b*c*d+b^2*c^2)*e*f+(2*a*b*d^2+2*b^2*c*d)*e^2)*x^4+1/3*(a^2*c^2
*f^2+2*(2*a^2*c*d+2*a*b*c^2)*e*f+(a^2*d^2+4*a*b*c*d+b^2*c^2)*e^2)
*x^3+1/2*(2*a^2*c^2*e*f+(2*a^2*c*d+2*a*b*c^2)*e^2)*x^2+a^2*c^2*e^
2*x
```

Maxima [A] time = 1.36279, size = 363, normalized size = 1.88

$$\frac{1}{7}\,b^2d^2f^2x^7+a^2c^2e^2x+\frac{1}{3}\,\left(b^2d^2ef+\left(b^2cd+abd^2\right)f^2\right)x^6+\frac{1}{5}\,\left(b^2d^2e^2+4\,\left(b^2cd+abd^2\right)ef+\left(b^2c^2+4\,abcd+a^2d^2\right)f^2\right)x^5+\frac{1}{2}\,\left(\left(b^2cd+abd^2\right)e^2+\left(b^2c^2+4\,abcd+a^2d^2\right)ef+\left(abc^2+a^2cd\right)f^2\right)x^4+\frac{1}{3}\,\left(a^2c^2f^2+\left(b^2c^2+4\,abcd+a^2d^2\right)e^2+4\,\left(abc^2+a^2cd\right)ef\right)x^3+\left(a^2c^2ef+\left(abc^2+a^2cd\right)e^2\right)x^2$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^2*(d*x + c)^2*(f*x + e)^2,x, algorithm="maxima")
```

```
[Out] 1/7*b^2*d^2*f^2*x^7 + a^2*c^2*e^2*x + 1/3*(b^2*d^2*e*f + (b^2*c*d
 + a*b*d^2)*f^2)*x^6 + 1/5*(b^2*d^2*e^2 + 4*(b^2*c*d + a*b*d^2)*e
*f + (b^2*c^2 + 4*a*b*c*d + a^2*d^2)*f^2)*x^5 + 1/2*((b^2*c*d + a
*b*d^2)*e^2 + (b^2*c^2 + 4*a*b*c*d + a^2*d^2)*e*f + (a*b*c^2 + a^
2*c*d)*f^2)*x^4 + 1/3*(a^2*c^2*f^2 + (b^2*c^2 + 4*a*b*c*d + a^2*d
^2)*e^2 + 4*(a*b*c^2 + a^2*c*d)*e*f)*x^3 + (a^2*c^2*e*f + (a*b*c^
2 + a^2*c*d)*e^2)*x^2
```

Fricas [A] time = 0.187125, size = 1, normalized size = 0.01

$$\frac{1}{7}x^7f^2d^2b^2+\frac{1}{3}x^6fed^2b^2+\frac{1}{3}x^6f^2dcb^2+\frac{1}{3}x^6f^2d^2ba+\frac{1}{5}x^5e^2d^2b^2+\frac{4}{5}x^5fedcb^2+\frac{1}{5}x^5f^2c^2b^2+\frac{4}{5}x^5fed^2ba+\frac{4}{5}x^5f^2dcba+\frac{1}{5}x^5f^2d^2a^2+\frac{1}{2}x^4e^2dcb^2+\frac{1}{2}x^4fec^2b^2+\frac{1}{2}x^4e^2d^2ba+2x^4fedcba+\frac{1}{2}x^4f^2c^2ba+\frac{1}{2}x^4fed^2a^2+\frac{1}{2}x^4f^2dca^2+\frac{1}{3}x^3e^2c^2b^2+\frac{4}{3}x^3e^2dcba+\frac{4}{3}x^3fec^2ba+\frac{1}{3}x^3e^2d^2a^2+\frac{4}{3}x^3fedca^2+\frac{1}{3}x^3f^2c^2a^2+x^2e^2c^2ba+x^2e^2dca^2+x^2fec^2a^2+xe^2c^2a^2$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^2*(d*x + c)^2*(f*x + e)^2,x, algorithm="fricas")
```

```
[Out] 1/7*x^7*f^2*d^2*b^2 + 1/3*x^6*f*e*d^2*b^2 + 1/3*x^6*f^2*d*c*b^2 +
 1/3*x^6*f^2*d^2*b*a + 1/5*x^5*e^2*d^2*b^2 + 4/5*x^5*f*e*d*c*b^2
+ 1/5*x^5*f^2*c^2*b^2 + 4/5*x^5*f*e*d^2*b*a + 4/5*x^5*f^2*d*c*b*a
 + 1/5*x^5*f^2*d^2*a^2 + 1/2*x^4*e^2*d*c*b^2 + 1/2*x^4*f*e*c^2*b^
2 + 1/2*x^4*e^2*d^2*b*a + 2*x^4*f*e*d*c*b*a + 1/2*x^4*f^2*c^2*b*a
 + 1/2*x^4*f*e*d^2*a^2 + 1/2*x^4*f^2*d*c*a^2 + 1/3*x^3*e^2*c^2*b^
2 + 4/3*x^3*e^2*d*c*b*a + 4/3*x^3*f*e*c^2*b*a + 1/3*x^3*e^2*d^2*a
^2 + 4/3*x^3*f*e*d*c*a^2 + 1/3*x^3*f^2*c^2*a^2 + x^2*e^2*c^2*b*a
+ x^2*e^2*d*c*a^2 + x^2*f*e*c^2*a^2 + x*e^2*c^2*a^2
```

Sympy [A] time = 0.244329, size = 345, normalized size = 1.79

$$a^2c^2e^2x+\frac{b^2d^2f^2x^7}{7}+x^6\left(\frac{abd^2f^2}{3}+\frac{b^2cdf^2}{3}+\frac{b^2d^2ef}{3}\right)+x^5\left(\frac{a^2d^2f^2}{5}+\frac{4abcdf^2}{5}+\frac{4abd^2ef}{5}+\frac{b^2c^2f^2}{5}+\frac{4b^2cdef}{5}+\frac{b^2d^2e^2}{5}\right)+x^4\left(\frac{a^2cdf^2}{2}+\frac{a^2d^2ef}{2}+\frac{abc^2f^2}{2}+2abcdef+\frac{abd^2e^2}{2}+\frac{b^2c^2ef}{2}+\frac{b^2cde^2}{2}\right)+x^3\left(\frac{a^2c^2f^2}{3}+\frac{4a^2cdef}{3}+\frac{a^2d^2e^2}{3}+\frac{4abc^2ef}{3}+\frac{4abcde^2}{3}+\frac{b^2c^2e^2}{3}\right)+x^2\left(a^2c^2ef+a^2cde^2+abc^2e^2\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**2*(d*x+c)**2*(f*x+e)**2,x)
```

```
[Out] a**2*c**2*e**2*x + b**2*d**2*f**2*x**7/7 + x**6*(a*b*d**2*f**2/3
+ b**2*c*d*f**2/3 + b**2*d**2*e*f/3) + x**5*(a**2*d**2*f**2/5 + 4
*a*b*c*d*f**2/5 + 4*a*b*d**2*e*f/5 + b**2*c**2*f**2/5 + 4*b**2*c*
d*e*f/5 + b**2*d**2*e**2/5) + x**4*(a**2*c*d*f**2/2 + a**2*d**2*e
*f/2 + a*b*c**2*f**2/2 + 2*a*b*c*d*e*f + a*b*d**2*e**2/2 + b**2*c
**2*e*f/2 + b**2*c*d*e**2/2) + x**3*(a**2*c**2*f**2/3 + 4*a**2*c*
d*e*f/3 + a**2*d**2*e**2/3 + 4*a*b*c**2*e*f/3 + 4*a*b*c*d*e**2/3
+ b**2*c**2*e**2/3) + x**2*(a**2*c**2*e*f + a**2*c*d*e**2 + a*b*c
**2*e**2)
```

GIAC/XCAS [A] time = 0.208784, size = 467, normalized size = 2.42

$$\frac{1}{7}\,b^{2}d^{2}f^{2}x^{7} + \frac{1}{3}\,b^{2}cdf^{2}x^{6} + \frac{1}{3}\,abd^{2}f^{2}x^{6} + \frac{1}{3}\,b^{2}d^{2}fx^{6}e + \frac{1}{5}\,b^{2}c^{2}f^{2}x^{5} + \frac{4}{5}\,abcdf^{2}x^{5} + \frac{1}{5}\,a^{2}d^{2}f^{2}x^{5} + \frac{4}{5}\,b^{2}cdfx^{5}e + \frac{4}{5}\,abd^{2}fx^{5}e + \frac{1}{2}\,abc^{2}f^{2}x^{4} + \frac{1}{2}\,a^{2}cdf^{2}x^{4} + \frac{1}{5}\,b^{2}d^{2}x^{5}e^{2} + \frac{1}{2}\,b^{2}c^{2}fx^{4}e + 2\,abcdfx^{4}e + \frac{1}{2}\,a^{2}d^{2}fx^{4}e + \frac{1}{3}\,a^{2}c^{2}f^{2}x^{3} + \frac{1}{2}\,b^{2}cdx^{4}e^{2} + \frac{1}{2}\,abd^{2}x^{4}e^{2} + \frac{4}{3}\,abc^{2}fx^{3}e + \frac{4}{3}\,a^{2}cdfx^{3}e + \frac{1}{3}\,b^{2}c^{2}x^{3}e^{2} + \frac{4}{3}\,abcdx^{3}e^{2} + \frac{1}{3}\,a^{2}d^{2}x^{3}e^{2} + a^{2}c^{2}fx^{2}e + abc^{2}x^{2}e^{2} + a^{2}cdx^{2}e^{2} + a^{2}c^{2}xe^{2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^2*(d*x + c)^2*(f*x + e)^2,x, algorithm="giac")
```

```
[Out] 1/7*b^2*d^2*f^2*x^7 + 1/3*b^2*c*d*f^2*x^6 + 1/3*a*b*d^2*f^2*x^6 +
 1/3*b^2*d^2*f*x^6*e + 1/5*b^2*c^2*f^2*x^5 + 4/5*a*b*c*d*f^2*x^5
+ 1/5*a^2*d^2*f^2*x^5 + 4/5*b^2*c*d*f*x^5*e + 4/5*a*b*d^2*f*x^5*e
 + 1/2*a*b*c^2*f^2*x^4 + 1/2*a^2*c*d*f^2*x^4 + 1/5*b^2*d^2*x^5*e^
2 + 1/2*b^2*c^2*f*x^4*e + 2*a*b*c*d*f*x^4*e + 1/2*a^2*d^2*f*x^4*e
 + 1/3*a^2*c^2*f^2*x^3 + 1/2*b^2*c*d*x^4*e^2 + 1/2*a*b*d^2*x^4*e^
2 + 4/3*a*b*c^2*f*x^3*e + 4/3*a^2*c*d*f*x^3*e + 1/3*b^2*c^2*x^3*e
^2 + 4/3*a*b*c*d*x^3*e^2 + 1/3*a^2*d^2*x^3*e^2 + a^2*c^2*f*x^2*e
+ a*b*c^2*x^2*e^2 + a^2*c*d*x^2*e^2 + a^2*c^2*x*e^2
```

3.1696 $\int (a + bx)(c + dx)(e + fx)\, dx$

Optimal. Leaf size=56

$$\frac{1}{3}x^3(adf + bcf + bde) + \frac{1}{2}x^2(acf + ade + bce) + acex + \frac{1}{4}bdfx^4$$

```
[Out] a*c*e*x + ((b*c*e + a*d*e + a*c*f)*x^2)/2 + ((b*d*e + b*c*f + a*d
*f)*x^3)/3 + (b*d*f*x^4)/4
```

Rubi [A] time = 0.0998885, antiderivative size = 56, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 16, $\frac{\text{number of rules}}{\text{integrand size}} = 0.062$

$$\frac{1}{3}x^3(adf + bcf + bde) + \frac{1}{2}x^2(acf + ade + bce) + acex + \frac{1}{4}bdfx^4$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*x)*(c + d*x)*(e + f*x),x]
```

```
[Out] a*c*e*x + ((b*c*e + a*d*e + a*c*f)*x^2)/2 + ((b*d*e + b*c*f + a*d
*f)*x^3)/3 + (b*d*f*x^4)/4
```

Rubi in Sympy [F] time = 0., size = 0, normalized size = 0.

$$\frac{bdfx^4}{4} + ce\int a\, dx + x^3\left(\frac{adf}{3} + \frac{bcf}{3} + \frac{bde}{3}\right) + (acf + ade + bce)\int x\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)*(d*x+c)*(f*x+e),x)
```

```
[Out] b*d*f*x**4/4 + c*e*Integral(a, x) + x**3*(a*d*f/3 + b*c*f/3 + b*d
*e/3) + (a*c*f + a*d*e + b*c*e)*Integral(x, x)
```

Mathematica [A] time = 0.0336197, size = 53, normalized size = 0.95

$$\frac{1}{12}x\left(4x^2(adf + bcf + bde) + 6x(acf + ade + bce) + 12ace + 3bdfx^3\right)$$

Antiderivative was successfully verified.

```
[In] Integrate[(a + b*x)*(c + d*x)*(e + f*x),x]
```

```
[Out] (x*(12*a*c*e + 6*(b*c*e + a*d*e + a*c*f)*x + 4*(b*d*e + b*c*f + a
*d*f)*x^2 + 3*b*d*f*x^3))/12
```

Maple [A] time = 0.001, size = 53, normalized size = 1.

$$\frac{bdfx^4}{4} + \frac{((ad + bc)f + bde)x^3}{3} + \frac{(acf + (ad + bc)e)x^2}{2} + acex$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((b*x+a)*(d*x+c)*(f*x+e),x)
```

```
[Out] 1/4*b*d*f*x^4+1/3*((a*d+b*c)*f+b*d*e)*x^3+1/2*(a*c*f+(a*d+b*c)*e)
*x^2+a*c*e*x
```

Maxima [A] time = 1.38652, size = 70, normalized size = 1.25

$$\frac{1}{4}\,bdfx^{4}+acex+\frac{1}{3}\,(bde+(bc+ad)f)x^{3}+\frac{1}{2}\,(acf+(bc+ad)e)x^{2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)*(d*x + c)*(f*x + e),x, algorithm="maxima")
```

```
[Out] 1/4*b*d*f*x^4 + a*c*e*x + 1/3*(b*d*e + (b*c + a*d)*f)*x^3 + 1/2*(
a*c*f + (b*c + a*d)*e)*x^2
```

Fricas [A] time = 0.19059, size = 1, normalized size = 0.02

$$\frac{1}{4}x^{4}fdb+\frac{1}{3}x^{3}edb+\frac{1}{3}x^{3}fcb+\frac{1}{3}x^{3}fda+\frac{1}{2}x^{2}ecb+\frac{1}{2}x^{2}eda+\frac{1}{2}x^{2}fca+xeca$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)*(d*x + c)*(f*x + e),x, algorithm="fricas")
```

```
[Out] 1/4*x^4*f*d*b + 1/3*x^3*e*d*b + 1/3*x^3*f*c*b + 1/3*x^3*f*d*a + 1
/2*x^2*e*c*b + 1/2*x^2*e*d*a + 1/2*x^2*f*c*a + x*e*c*a
```

Sympy [A] time = 0.109698, size = 63, normalized size = 1.12

$$acex+\frac{bdfx^{4}}{4}+x^{3}\left(\frac{adf}{3}+\frac{bcf}{3}+\frac{bde}{3}\right)+x^{2}\left(\frac{acf}{2}+\frac{ade}{2}+\frac{bce}{2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(d*x+c)*(f*x+e),x)
```

```
[Out] a*c*e*x + b*d*f*x**4/4 + x**3*(a*d*f/3 + b*c*f/3 + b*d*e/3) + x**
2*(a*c*f/2 + a*d*e/2 + b*c*e/2)
```

GIAC/XCAS [A] time = 0.209837, size = 89, normalized size = 1.59

$$\frac{1}{4}\,bdfx^{4}+\frac{1}{3}\,bcfx^{3}+\frac{1}{3}\,adfx^{3}+\frac{1}{3}\,bdx^{3}e+\frac{1}{2}\,acfx^{2}+\frac{1}{2}\,bcx^{2}e+\frac{1}{2}\,adx^{2}e+acxe$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)*(d*x + c)*(f*x + e),x, algorithm="giac")
```

```
[Out] 1/4*b*d*f*x^4 + 1/3*b*c*f*x^3 + 1/3*a*d*f*x^3 + 1/3*b*d*x^3*e + 1
/2*a*c*f*x^2 + 1/2*b*c*x^2*e + 1/2*a*d*x^2*e + a*c*x*e
```

3.1697 $\int \frac{1}{(a+bx)(c+dx)(e+fx)} dx$

Optimal. Leaf size=86

$$\frac{b\log(a+bx)}{(bc-ad)(be-af)}-\frac{d\log(c+dx)}{(bc-ad)(de-cf)}+\frac{f\log(e+fx)}{(be-af)(de-cf)}$$

```
[Out] (b*Log[a + b*x])/((b*c - a*d)*(b*e - a*f)) - (d*Log[c + d*x])/((b
*c - a*d)*(d*e - c*f)) + (f*Log[e + f*x])/((b*e - a*f)*(d*e - c*f
))
```

Rubi [A] time = 0.161118, antiderivative size = 86, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{b\log(a+bx)}{(bc-ad)(be-af)}-\frac{d\log(c+dx)}{(bc-ad)(de-cf)}+\frac{f\log(e+fx)}{(be-af)(de-cf)}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((a + b*x)*(c + d*x)*(e + f*x)),x]
```

```
[Out] (b*Log[a + b*x])/((b*c - a*d)*(b*e - a*f)) - (d*Log[c + d*x])/((b
*c - a*d)*(d*e - c*f)) + (f*Log[e + f*x])/((b*e - a*f)*(d*e - c*f
))
```

Rubi in Sympy [A] time = 25.0541, size = 65, normalized size = 0.76

$$\frac{b\log(a+bx)}{(ad-bc)(af-be)}-\frac{d\log(c+dx)}{(ad-bc)(cf-de)}+\frac{f\log(e+fx)}{(af-be)(cf-de)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(b*x+a)/(d*x+c)/(f*x+e),x)
```

```
[Out] b*log(a + b*x)/((a*d - b*c)*(a*f - b*e)) - d*log(c + d*x)/((a*d -
 b*c)*(c*f - d*e)) + f*log(e + f*x)/((a*f - b*e)*(c*f - d*e))
```

Mathematica [A] time = 0.0852806, size = 80, normalized size = 0.93

$$\frac{b\log(a+bx)(cf-de)+d(be-af)\log(c+dx)+f(ad-bc)\log(e+fx)}{(bc-ad)(be-af)(cf-de)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((a + b*x)*(c + d*x)*(e + f*x)),x]
```

```
[Out] (b*(-(d*e) + c*f)*Log[a + b*x] + d*(b*e - a*f)*Log[c + d*x] + (-(
b*c) + a*d)*f*Log[e + f*x])/((b*c - a*d)*(b*e - a*f)*(-(d*e) + c*
f))
```

Maple [A] time = 0.011, size = 87, normalized size = 1.

$$-\frac{d\ln(dx+c)}{(ad-bc)(cf-de)}+\frac{b\ln(bx+a)}{(ad-bc)(af-be)}+\frac{f\ln(fx+e)}{(af-be)(cf-de)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(b*x+a)/(d*x+c)/(f*x+e),x)
```

```
[Out] -d/(a*d-b*c)/(c*f-d*e)*ln(d*x+c)+b/(a*d-b*c)/(a*f-b*e)*ln(b*x+a)+
f/(a*f-b*e)/(c*f-d*e)*ln(f*x+e)
```

Maxima [A] time = 1.35754, size = 151, normalized size = 1.76

$$\frac{b\log\left(bx+a\right)}{(b^2c-abd)e-(abc-a^2d)f}-\frac{d\log\left(dx+c\right)}{(bcd-ad^2)e-(bc^2-acd)f}+\frac{f\log\left(fx+e\right)}{bde^2+acf^2-(bc+ad)ef}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)*(d*x + c)*(f*x + e)),x, algorithm="maxima")
```

```
[Out] b*log(b*x + a)/((b^2*c - a*b*d)*e - (a*b*c - a^2*d)*f) - d*log(d*
x + c)/((b*c*d - a*d^2)*e - (b*c^2 - a*c*d)*f) + f*log(f*x + e)/(
b*d*e^2 + a*c*f^2 - (b*c + a*d)*e*f)
```

Fricas [A] time = 5.4974, size = 151, normalized size = 1.76

$$\frac{(bc-ad)f\log\left(fx+e\right)+(bde-bcf)\log\left(bx+a\right)-(bde-adf)\log\left(dx+c\right)}{(b^2cd-abd^2)e^2-(b^2c^2-a^2d^2)ef+(abc^2-a^2cd)f^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)*(d*x + c)*(f*x + e)),x, algorithm="fricas")
```

```
[Out] ((b*c - a*d)*f*log(f*x + e) + (b*d*e - b*c*f)*log(b*x + a) - (b*d
*e - a*d*f)*log(d*x + c))/((b^2*c*d - a*b*d^2)*e^2 - (b^2*c^2 - a
^2*d^2)*e*f + (a*b*c^2 - a^2*c*d)*f^2)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(b*x+a)/(d*x+c)/(f*x+e),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{1}{(bx+a)(dx+c)(fx+e)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)*(d*x + c)*(f*x + e)),x, algorithm="giac")
```

```
[Out] integrate(1/((b*x + a)*(d*x + c)*(f*x + e)), x)
```

3.1698 $\int \frac{1}{(a+bx)^2(c+dx)^2(e+fx)^2} dx$

Optimal. Leaf size=234

$$-\frac{b^3}{(a+bx)(bc-ad)^2(be-af)^2}-\frac{2b^3\log(a+bx)(-2adf+bcf+bde)}{(bc-ad)^3(be-af)^3}-\frac{d^3}{(c+dx)(bc-ad)^2(de-cf)^2}+\frac{2d^3\log(c+dx)(adf-2bcf+bde)}{(bc-ad)^3(de-cf)^3}-\frac{f^3}{(e+fx)(be-af)^2(de-cf)^2}+\frac{2f^3\log(e+fx)(-adf-bcf+2bde)}{(be-af)^3(de-cf)^3}$$

```
[Out] -(b^3/((b*c - a*d)^2*(b*e - a*f)^2*(a + b*x))) - d^3/((b*c - a*d)
^2*(d*e - c*f)^2*(c + d*x)) - f^3/((b*e - a*f)^2*(d*e - c*f)^2*(e
 + f*x)) - (2*b^3*(b*d*e + b*c*f - 2*a*d*f)*Log[a + b*x])/((b*c -
 a*d)^3*(b*e - a*f)^3) + (2*d^3*(b*d*e - 2*b*c*f + a*d*f)*Log[c +
 d*x])/((b*c - a*d)^3*(d*e - c*f)^3) + (2*f^3*(2*b*d*e - b*c*f -
a*d*f)*Log[e + f*x])/((b*e - a*f)^3*(d*e - c*f)^3)
```

Rubi [A] time = 0.892468, antiderivative size = 234, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{b^3}{(a+bx)(bc-ad)^2(be-af)^2}-\frac{2b^3\log(a+bx)(-2adf+bcf+bde)}{(bc-ad)^3(be-af)^3}-\frac{d^3}{(c+dx)(bc-ad)^2(de-cf)^2}+\frac{2d^3\log(c+dx)(adf-2bcf+bde)}{(bc-ad)^3(de-cf)^3}-\frac{f^3}{(e+fx)(be-af)^2(de-cf)^2}+\frac{2f^3\log(e+fx)(-adf-bcf+2bde)}{(be-af)^3(de-cf)^3}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((a + b*x)^2*(c + d*x)^2*(e + f*x)^2),x]
```

```
[Out] -(b^3/((b*c - a*d)^2*(b*e - a*f)^2*(a + b*x))) - d^3/((b*c - a*d)
^2*(d*e - c*f)^2*(c + d*x)) - f^3/((b*e - a*f)^2*(d*e - c*f)^2*(e
 + f*x)) - (2*b^3*(b*d*e + b*c*f - 2*a*d*f)*Log[a + b*x])/((b*c -
 a*d)^3*(b*e - a*f)^3) + (2*d^3*(b*d*e - 2*b*c*f + a*d*f)*Log[c +
 d*x])/((b*c - a*d)^3*(d*e - c*f)^3) + (2*f^3*(2*b*d*e - b*c*f -
a*d*f)*Log[e + f*x])/((b*e - a*f)^3*(d*e - c*f)^3)
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(b*x+a)**2/(d*x+c)**2/(f*x+e)**2,x)
```

```
[Out] Timed out
```

Mathematica [A] time = 1.45155, size = 232, normalized size = 0.99

$$-\frac{b^3}{(a+bx)(bc-ad)^2(be-af)^2}-\frac{2b^3\log(a+bx)(-2adf+bcf+bde)}{(bc-ad)^3(be-af)^3}-\frac{d^3}{(c+dx)(bc-ad)^2(de-cf)^2}-\frac{2d^3\log(c+dx)(adf-2bcf+bde)}{(bc-ad)^3(cf-de)^3}-\frac{f^3}{(e+fx)(be-af)^2(de-cf)^2}-\frac{2f^3\log(e+fx)(adf+bcf-2bde)}{(be-af)^3(de-cf)^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((a + b*x)^2*(c + d*x)^2*(e + f*x)^2),x]
```

```
[Out] -(b^3/((b*c - a*d)^2*(b*e - a*f)^2*(a + b*x))) - d^3/((b*c - a*d)
^2*(d*e - c*f)^2*(c + d*x)) - f^3/((b*e - a*f)^2*(d*e - c*f)^2*(e
 + f*x)) - (2*b^3*(b*d*e + b*c*f - 2*a*d*f)*Log[a + b*x])/((b*c -
 a*d)^3*(b*e - a*f)^3) - (2*d^3*(b*d*e - 2*b*c*f + a*d*f)*Log[c +
 d*x])/((b*c - a*d)^3*(-(d*e) + c*f)^3) - (2*f^3*(-2*b*d*e + b*c*
f + a*d*f)*Log[e + f*x])/((b*e - a*f)^3*(d*e - c*f)^3)
```

Maple [A] time = 0.058, size = 398, normalized size = 1.7

$$-\frac{d^3}{(ad-bc)^2(cf-de)^2(dx+c)}+2\frac{d^4\ln(dx+c)af}{(ad-bc)^3(cf-de)^3}-4\frac{d^3\ln(dx+c)bcf}{(ad-bc)^3(cf-de)^3}+2\frac{d^4\ln(dx+c)be}{(ad-bc)^3(cf-de)^3}-\frac{b^3}{(ad-bc)^2(af-be)^2(bx+a)}+4\frac{b^3\ln(bx+a)adf}{(ad-bc)^3(af-be)^3}-2\frac{b^4\ln(bx+a)cf}{(ad-bc)^3(af-be)^3}-2\frac{b^4\ln(bx+a)de}{(ad-bc)^3(af-be)^3}-\frac{f^3}{(af-be)^2(cf-de)^2(fx+e)}-2\frac{f^4\ln(fx+e)ad}{(af-be)^3(cf-de)^3}-2\frac{f^4\ln(fx+e)bc}{(af-be)^3(cf-de)^3}+4\frac{f^3\ln(fx+e)bde}{(af-be)^3(cf-de)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(b*x+a)^2/(d*x+c)^2/(f*x+e)^2,x)
```

```
[Out] -d^3/(a*d-b*c)^2/(c*f-d*e)^2/(d*x+c)+2*d^4/(a*d-b*c)^3/(c*f-d*e)^
3*ln(d*x+c)*a*f-4*d^3/(a*d-b*c)^3/(c*f-d*e)^3*ln(d*x+c)*b*c*f+2*d
^4/(a*d-b*c)^3/(c*f-d*e)^3*ln(d*x+c)*b*e-b^3/(a*d-b*c)^2/(a*f-b*e
)^2/(b*x+a)+4*b^3/(a*d-b*c)^3/(a*f-b*e)^3*ln(b*x+a)*a*d*f-2*b^4/(
a*d-b*c)^3/(a*f-b*e)^3*ln(b*x+a)*c*f-2*b^4/(a*d-b*c)^3/(a*f-b*e)^
3*ln(b*x+a)*d*e-f^3/(a*f-b*e)^2/(c*f-d*e)^2/(f*x+e)-2*f^4/(a*f-b*
e)^3/(c*f-d*e)^3*ln(f*x+e)*a*d-2*f^4/(a*f-b*e)^3/(c*f-d*e)^3*ln(f
*x+e)*b*c+4*f^3/(a*f-b*e)^3/(c*f-d*e)^3*ln(f*x+e)*b*d*e
```

Maxima [A] time = 1.52638, size = 2830, normalized size = 12.09

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((b*x + a)^2*(d*x + c)^2*(f*x + e)^2),x, algorithm="maxima")
```

```
[Out] -2*(b^4*d*e + (b^4*c - 2*a*b^3*d)*f)*log(b*x + a)/((b^6*c^3 - 3*a
*b^5*c^2*d + 3*a^2*b^4*c*d^2 - a^3*b^3*d^3)*e^3 - 3*(a*b^5*c^3 -
3*a^2*b^4*c^2*d + 3*a^3*b^3*c*d^2 - a^4*b^2*d^3)*e^2*f + 3*(a^2*b
^4*c^3 - 3*a^3*b^3*c^2*d + 3*a^4*b^2*c*d^2 - a^5*b*d^3)*e*f^2 - (
a^3*b^3*c^3 - 3*a^4*b^2*c^2*d + 3*a^5*b*c*d^2 - a^6*d^3)*f^3) + 2
*(b*d^4*e - (2*b*c*d^3 - a*d^4)*f)*log(d*x + c)/((b^3*c^3*d^3 - 3
*a*b^2*c^2*d^4 + 3*a^2*b*c*d^5 - a^3*d^6)*e^3 - 3*(b^3*c^4*d^2 -
3*a*b^2*c^3*d^3 + 3*a^2*b*c^2*d^4 - a^3*c*d^5)*e^2*f + 3*(b^3*c^5
*d - 3*a*b^2*c^4*d^2 + 3*a^2*b*c^3*d^3 - a^3*c^2*d^4)*e*f^2 - (b^
3*c^6 - 3*a*b^2*c^5*d + 3*a^2*b*c^4*d^2 - a^3*c^3*d^3)*f^3) + 2*(
2*b*d*e*f^3 - (b*c + a*d)*f^4)*log(f*x + e)/(b^3*d^3*e^6 + a^3*c^
3*f^6 - 3*(b^3*c*d^2 + a*b^2*d^3)*e^5*f + 3*(b^3*c^2*d + 3*a*b^2*
c*d^2 + a^2*b*d^3)*e^4*f^2 - (b^3*c^3 + 9*a*b^2*c^2*d + 9*a^2*b*c
*d^2 + a^3*d^3)*e^3*f^3 + 3*(a*b^2*c^3 + 3*a^2*b*c^2*d + a^3*c*d^
2)*e^2*f^4 - 3*(a^2*b*c^3 + a^3*c^2*d)*e*f^5) - ((b^3*c*d^2 + a*b
^2*d^3)*e^3 - 2*(b^3*c^2*d + a^2*b*d^3)*e^2*f + (b^3*c^3 + a^3*d^
3)*e*f^2 + (a*b^2*c^3 - 2*a^2*b*c^2*d + a^3*c*d^2)*f^3 + 2*(b^3*d
^3*e^2*f - (b^3*c*d^2 + a*b^2*d^3)*e*f^2 + (b^3*c^2*d - a*b^2*c*d
^2 + a^2*b*d^3)*f^3)*x^2 + (2*b^3*d^3*e^3 - (b^3*c*d^2 + a*b^2*d^
```

```
3)*e^2*f - (b^3*c^2*d + a^2*b*d^3)*e*f^2 + (2*b^3*c^3 - a*b^2*c^2
*d - a^2*b*c*d^2 + 2*a^3*d^3)*f^3)*x)/((a*b^4*c^3*d^2 - 2*a^2*b^3
*c^2*d^3 + a^3*b^2*c*d^4)*e^5 - 2*(a*b^4*c^4*d - a^2*b^3*c^3*d^2
- a^3*b^2*c^2*d^3 + a^4*b*c*d^4)*e^4*f + (a*b^4*c^5 + 2*a^2*b^3*c
^4*d - 6*a^3*b^2*c^3*d^2 + 2*a^4*b*c^2*d^3 + a^5*c*d^4)*e^3*f^2 -
 2*(a^2*b^3*c^5 - a^3*b^2*c^4*d - a^4*b*c^3*d^2 + a^5*c^2*d^3)*e^
2*f^3 + (a^3*b^2*c^5 - 2*a^4*b*c^4*d + a^5*c^3*d^2)*e*f^4 + ((b^5
*c^2*d^3 - 2*a*b^4*c*d^4 + a^2*b^3*d^5)*e^4*f - 2*(b^5*c^3*d^2 -
a*b^4*c^2*d^3 - a^2*b^3*c*d^4 + a^3*b^2*d^5)*e^3*f^2 + (b^5*c^4*d
 + 2*a*b^4*c^3*d^2 - 6*a^2*b^3*c^2*d^3 + 2*a^3*b^2*c*d^4 + a^4*b*
d^5)*e^2*f^3 - 2*(a*b^4*c^4*d - a^2*b^3*c^3*d^2 - a^3*b^2*c^2*d^3
 + a^4*b*c*d^4)*e*f^4 + (a^2*b^3*c^4*d - 2*a^3*b^2*c^3*d^2 + a^4*
b*c^2*d^3)*f^5)*x^3 + ((b^5*c^2*d^3 - 2*a*b^4*c*d^4 + a^2*b^3*d^5
)*e^5 - (b^5*c^3*d^2 - a*b^4*c^2*d^3 - a^2*b^3*c*d^4 + a^3*b^2*d^
5)*e^4*f - (b^5*c^4*d - 2*a*b^4*c^3*d^2 + 2*a^2*b^3*c^2*d^3 - 2*a
^3*b^2*c*d^4 + a^4*b*d^5)*e^3*f^2 + (b^5*c^5 + a*b^4*c^4*d - 2*a^
2*b^3*c^3*d^2 - 2*a^3*b^2*c^2*d^3 + a^4*b*c*d^4 + a^5*d^5)*e^2*f^
3 - (2*a*b^4*c^5 - a^2*b^3*c^4*d - 2*a^3*b^2*c^3*d^2 - a^4*b*c^2*
d^3 + 2*a^5*c*d^4)*e*f^4 + (a^2*b^3*c^5 - a^3*b^2*c^4*d - a^4*b*c
^3*d^2 + a^5*c^2*d^3)*f^5)*x^2 + ((b^5*c^3*d^2 - a*b^4*c^2*d^3 -
a^2*b^3*c*d^4 + a^3*b^2*d^5)*e^5 - (2*b^5*c^4*d - a*b^4*c^3*d^2 -
 2*a^2*b^3*c^2*d^3 - a^3*b^2*c*d^4 + 2*a^4*b*d^5)*e^4*f + (b^5*c^
5 + a*b^4*c^4*d - 2*a^2*b^3*c^3*d^2 - 2*a^3*b^2*c^2*d^3 + a^4*b*c
*d^4 + a^5*d^5)*e^3*f^2 - (a*b^4*c^5 - 2*a^2*b^3*c^4*d + 2*a^3*b^
2*c^3*d^2 - 2*a^4*b*c^2*d^3 + a^5*c*d^4)*e^2*f^3 - (a^2*b^3*c^5 -
 a^3*b^2*c^4*d - a^4*b*c^3*d^2 + a^5*c^2*d^3)*e*f^4 + (a^3*b^2*c^
5 - 2*a^4*b*c^4*d + a^5*c^3*d^2)*f^5)*x)
```

Fricas [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((b*x + a)^2*(d*x + c)^2*(f*x + e)^2),x, algorithm="fricas")
```

```
[Out] Timed out
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(b*x+a)**2/(d*x+c)**2/(f*x+e)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.453101, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((b*x + a)^2*(d*x + c)^2*(f*x + e)^2),x, algorithm="giac")
```

```
[Out] Done
```

3.1699 $\int \frac{1}{(a+bx)^3(c+dx)^3(e+fx)^3}\,dx$

Optimal. Leaf size=495

$$\frac{3f^5\log(e+fx)\left(2a^2d^2f^2-abdf(7de-3cf)+b^2\left(2c^2f^2-7cdef+7d^2e^2\right)\right)}{(be-af)^5(de-cf)^5}-\frac{3d^5\log(c+dx)\left(2a^2d^2f^2+abdf(3de-7cf)+b^2\left(7c^2f^2-7cdef+2d^2e^2\right)\right)}{(bc-ad)^5(de-cf)^5}+\frac{3b^5\log(a+bx)\left(7a^2d^2f^2-7abdf(cf+de)+b^2\left(2c^2f^2+3cdef+2d^2e^2\right)\right)}{(bc-ad)^5(be-af)^5}+\frac{3b^5(-2adf+bcf+bde)}{(a+bx)(bc-ad)^4(be-af)^4}-\frac{b^5}{2(a+bx)^2(bc-ad)^3(be-af)^3}+\frac{3d^5(adf-2bcf+bde)}{(c+dx)(bc-ad)^4(de-cf)^4}+\frac{d^5}{2(c+dx)^2(bc-ad)^3(de-cf)^3}-\frac{3f^5(-adf-bcf+2bde)}{(e+fx)(be-af)^4(de-cf)^4}-\frac{f^5}{2(e+fx)^2(be-af)^3(de-cf)^3}$$

```
[Out] -b^5/(2*(b*c - a*d)^3*(b*e - a*f)^3*(a + b*x)^2) + (3*b^5*(b*d*e
+ b*c*f - 2*a*d*f))/((b*c - a*d)^4*(b*e - a*f)^4*(a + b*x)) + d^5
/(2*(b*c - a*d)^3*(d*e - c*f)^3*(c + d*x)^2) + (3*d^5*(b*d*e - 2*
b*c*f + a*d*f))/((b*c - a*d)^4*(d*e - c*f)^4*(c + d*x)) - f^5/(2*
(b*e - a*f)^3*(d*e - c*f)^3*(e + f*x)^2) - (3*f^5*(2*b*d*e - b*c*
f - a*d*f))/((b*e - a*f)^4*(d*e - c*f)^4*(e + f*x)) + (3*b^5*(7*a
^2*d^2*f^2 - 7*a*b*d*f*(d*e + c*f) + b^2*(2*d^2*e^2 + 3*c*d*e*f +
 2*c^2*f^2))*Log[a + b*x])/((b*c - a*d)^5*(b*e - a*f)^5) - (3*d^5
*(2*a^2*d^2*f^2 + a*b*d*f*(3*d*e - 7*c*f) + b^2*(2*d^2*e^2 - 7*c*
d*e*f + 7*c^2*f^2))*Log[c + d*x])/((b*c - a*d)^5*(d*e - c*f)^5) +
 (3*f^5*(2*a^2*d^2*f^2 - a*b*d*f*(7*d*e - 3*c*f) + b^2*(7*d^2*e^2
 - 7*c*d*e*f + 2*c^2*f^2))*Log[e + f*x])/((b*e - a*f)^5*(d*e - c*
f)^5)
```

Rubi [A] time = 3.62388, antiderivative size = 495, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$\frac{3f^5\log(e+fx)\left(2a^2d^2f^2-abdf(7de-3cf)+b^2\left(2c^2f^2-7cdef+7d^2e^2\right)\right)}{(be-af)^5(de-cf)^5}-\frac{3d^5\log(c+dx)\left(2a^2d^2f^2+abdf(3de-7cf)+b^2\left(7c^2f^2-7cdef+2d^2e^2\right)\right)}{(bc-ad)^5(de-cf)^5}+\frac{3b^5\log(a+bx)\left(7a^2d^2f^2-7abdf(cf+de)+b^2\left(2c^2f^2+3cdef+2d^2e^2\right)\right)}{(bc-ad)^5(be-af)^5}+\frac{3b^5(-2adf+bcf+bde)}{(a+bx)(bc-ad)^4(be-af)^4}-\frac{b^5}{2(a+bx)^2(bc-ad)^3(be-af)^3}+\frac{3d^5(adf-2bcf+bde)}{(c+dx)(bc-ad)^4(de-cf)^4}+\frac{d^5}{2(c+dx)^2(bc-ad)^3(de-cf)^3}-\frac{3f^5(-adf-bcf+2bde)}{(e+fx)(be-af)^4(de-cf)^4}-\frac{f^5}{2(e+fx)^2(be-af)^3(de-cf)^3}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((a + b*x)^3*(c + d*x)^3*(e + f*x)^3),x]
```


```
[Out] -b^5/(2*(b*c - a*d)^3*(b*e - a*f)^3*(a + b*x)^2) + (3*b^5*(b*d*e
+ b*c*f - 2*a*d*f))/((b*c - a*d)^4*(b*e - a*f)^4*(a + b*x)) + d^5
/(2*(b*c - a*d)^3*(d*e - c*f)^3*(c + d*x)^2) + (3*d^5*(b*d*e - 2*
b*c*f + a*d*f))/((b*c - a*d)^4*(d*e - c*f)^4*(c + d*x)) - f^5/(2*
(b*e - a*f)^3*(d*e - c*f)^3*(e + f*x)^2) - (3*f^5*(2*b*d*e - b*c*
f - a*d*f))/((b*e - a*f)^4*(d*e - c*f)^4*(e + f*x)) + (3*b^5*(7*a
^2*d^2*f^2 - 7*a*b*d*f*(d*e + c*f) + b^2*(2*d^2*e^2 + 3*c*d*e*f +
 2*c^2*f^2))*Log[a + b*x])/((b*c - a*d)^5*(b*e - a*f)^5) - (3*d^5
*(2*a^2*d^2*f^2 + a*b*d*f*(3*d*e - 7*c*f) + b^2*(2*d^2*e^2 - 7*c*
d*e*f + 7*c^2*f^2))*Log[c + d*x])/((b*c - a*d)^5*(d*e - c*f)^5) +
 (3*f^5*(2*a^2*d^2*f^2 - a*b*d*f*(7*d*e - 3*c*f) + b^2*(7*d^2*e^2
```

```
 - 7*c*d*e*f + 2*c^2*f^2))*Log[e + f*x])/((b*e - a*f)^5*(d*e - c*
f)^5)
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(b*x+a)**3/(d*x+c)**3/(f*x+e)**3,x)
```

```
[Out] Timed out
```

Mathematica [A] time = 2.91516, size = 490, normalized size = 0.99

$$\frac{1}{2}\left(\frac{6f^5\log(e+fx)\left(2a^2d^2f^2+abdf(3cf-7de)+b^2\left(2c^2f^2-7cdef+7d^2e^2\right)\right)}{(be-af)^5(de-cf)^5}+\frac{6d^5\log(c+dx)\left(2a^2d^2f^2+abdf(3de-7cf)+b^2\left(7c^2f^2-7cdef+2d^2e^2\right)\right)}{(bc-ad)^5(cf-de)^5}+\frac{6b^5\log(a+bx)\left(7a^2d^2f^2-7abdf(cf+de)+b^2\left(2c^2f^2+3cdef+2d^2e^2\right)\right)}{(bc-ad)^5(be-af)^5}+\frac{6b^5(-2adf+bcf+bde)}{(a+bx)(bc-ad)^4(be-af)^4}-\frac{b^5}{(a+bx)^2(bc-ad)^3(be-af)^3}+\frac{6d^5(adf-2bcf+bde)}{(c+dx)(bc-ad)^4(de-cf)^4}-\frac{d^5}{(c+dx)^2(bc-ad)^3(cf-de)^3}+\frac{6f^5(adf+bcf-2bde)}{(e+fx)(be-af)^4(de-cf)^4}-\frac{f^5}{(e+fx)^2(be-af)^3(de-cf)^3}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((a + b*x)^3*(c + d*x)^3*(e + f*x)^3),x]
```

```
[Out] (-(b^5/((b*c - a*d)^3*(b*e - a*f)^3*(a + b*x)^2)) + (6*b^5*(b*d*e
 + b*c*f - 2*a*d*f))/((b*c - a*d)^4*(b*e - a*f)^4*(a + b*x)) - d^
5/((b*c - a*d)^3*(-(d*e) + c*f)^3*(c + d*x)^2) + (6*d^5*(b*d*e -
2*b*c*f + a*d*f))/((b*c - a*d)^4*(d*e - c*f)^4*(c + d*x)) - f^5/(
(b*e - a*f)^3*(d*e - c*f)^3*(e + f*x)^2) + (6*f^5*(-2*b*d*e + b*c
*f + a*d*f))/((b*e - a*f)^4*(d*e - c*f)^4*(e + f*x)) + (6*b^5*(7*
a^2*d^2*f^2 - 7*a*b*d*f*(d*e + c*f) + b^2*(2*d^2*e^2 + 3*c*d*e*f
+ 2*c^2*f^2))*Log[a + b*x])/((b*c - a*d)^5*(b*e - a*f)^5) + (6*d^
5*(2*a^2*d^2*f^2 + a*b*d*f*(3*d*e - 7*c*f) + b^2*(2*d^2*e^2 - 7*c
*d*e*f + 7*c^2*f^2))*Log[c + d*x])/((b*c - a*d)^5*(-(d*e) + c*f)^
5) + (6*f^5*(2*a^2*d^2*f^2 + a*b*d*f*(-7*d*e + 3*c*f) + b^2*(7*d^
2*e^2 - 7*c*d*e*f + 2*c^2*f^2))*Log[e + f*x])/((b*e - a*f)^5*(d*e
 - c*f)^5))/2
```

Maple [B] time = 0.047, size = 1076, normalized size = 2.2

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(b*x+a)^3/(d*x+c)^3/(f*x+e)^3,x)
```

```
[Out] -9*d^7/(a*d-b*c)^5/(c*f-d*e)^5*ln(d*x+c)*a*b*e*f-1/2*f^5/(a*f-b*e
)^3/(c*f-d*e)^3/(f*x+e)^2-21*b^6/(a*d-b*c)^5/(a*f-b*e)^5*ln(b*x+a
)*a*d^2*e*f+9*b^7/(a*d-b*c)^5/(a*f-b*e)^5*ln(b*x+a)*c*d*e*f+9*f^7
```

```
/(a*f-b*e)^5/(c*f-d*e)^5*ln(f*x+e)*b*a*c*d+21*d^6/(a*d-b*c)^5/(c*
f-d*e)^5*ln(d*x+c)*f^2*b*a*c-21*f^6/(a*f-b*e)^5/(c*f-d*e)^5*ln(f*
x+e)*a*b*d^2*e-21*f^6/(a*f-b*e)^5/(c*f-d*e)^5*ln(f*x+e)*b^2*c*d*e
+1/2*d^5/(a*d-b*c)^3/(c*f-d*e)^3/(d*x+c)^2-1/2*b^5/(a*d-b*c)^3/(a
*f-b*e)^3/(b*x+a)^2+3*d^6/(a*d-b*c)^4/(c*f-d*e)^4/(d*x+c)*a*f+6*f
^7/(a*f-b*e)^5/(c*f-d*e)^5*ln(f*x+e)*a^2*d^2+6*f^7/(a*f-b*e)^5/(c
*f-d*e)^5*ln(f*x+e)*b^2*c^2+6*b^7/(a*d-b*c)^5/(a*f-b*e)^5*ln(b*x+
a)*f^2*c^2+6*b^7/(a*d-b*c)^5/(a*f-b*e)^5*ln(b*x+a)*d^2*e^2+3*f^6/
(a*f-b*e)^4/(c*f-d*e)^4/(f*x+e)*a*d+3*f^6/(a*f-b*e)^4/(c*f-d*e)^4
/(f*x+e)*b*c+3*b^6/(a*d-b*c)^4/(a*f-b*e)^4/(b*x+a)*c*f+3*b^6/(a*d
-b*c)^4/(a*f-b*e)^4/(b*x+a)*d*e-6*d^7/(a*d-b*c)^5/(c*f-d*e)^5*ln(
d*x+c)*a^2*f^2-6*d^7/(a*d-b*c)^5/(c*f-d*e)^5*ln(d*x+c)*b^2*e^2+3*
d^6/(a*d-b*c)^4/(c*f-d*e)^4/(d*x+c)*b*e+21*d^6/(a*d-b*c)^5/(c*f-d
*e)^5*ln(d*x+c)*b^2*c*e*f-21*b^6/(a*d-b*c)^5/(a*f-b*e)^5*ln(b*x+a
)*f^2*a*c*d-6*d^5/(a*d-b*c)^4/(c*f-d*e)^4/(d*x+c)*b*c*f-6*f^5/(a*
f-b*e)^4/(c*f-d*e)^4/(f*x+e)*b*d*e+21*f^5/(a*f-b*e)^5/(c*f-d*e)^5
*ln(f*x+e)*b^2*d^2*e^2-21*d^5/(a*d-b*c)^5/(c*f-d*e)^5*ln(d*x+c)*b
^2*f^2*c^2-6*b^5/(a*d-b*c)^4/(a*f-b*e)^4/(b*x+a)*a*d*f+21*b^5/(a*
d-b*c)^5/(a*f-b*e)^5*ln(b*x+a)*a^2*d^2*f^2
```

Maxima [A] time = 2.5358, size = 14857, normalized size = 30.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((b*x + a)^3*(d*x + c)^3*(f*x + e)^3),x, algorithm="maxima")
```

```
[Out] 3*(2*b^7*d^2*e^2 + (3*b^7*c*d - 7*a*b^6*d^2)*e*f + (2*b^7*c^2 - 7
*a*b^6*c*d + 7*a^2*b^5*d^2)*f^2)*log(b*x + a)/((b^10*c^5 - 5*a*b^
9*c^4*d + 10*a^2*b^8*c^3*d^2 - 10*a^3*b^7*c^2*d^3 + 5*a^4*b^6*c*d
^4 - a^5*b^5*d^5)*e^5 - 5*(a*b^9*c^5 - 5*a^2*b^8*c^4*d + 10*a^3*b
^7*c^3*d^2 - 10*a^4*b^6*c^2*d^3 + 5*a^5*b^5*c*d^4 - a^6*b^4*d^5)*
e^4*f + 10*(a^2*b^8*c^5 - 5*a^3*b^7*c^4*d + 10*a^4*b^6*c^3*d^2 -
10*a^5*b^5*c^2*d^3 + 5*a^6*b^4*c*d^4 - a^7*b^3*d^5)*e^3*f^2 - 10*
(a^3*b^7*c^5 - 5*a^4*b^6*c^4*d + 10*a^5*b^5*c^3*d^2 - 10*a^6*b^4*
c^2*d^3 + 5*a^7*b^3*c*d^4 - a^8*b^2*d^5)*e^2*f^3 + 5*(a^4*b^6*c^5
 - 5*a^5*b^5*c^4*d + 10*a^6*b^4*c^3*d^2 - 10*a^7*b^3*c^2*d^3 + 5*
a^8*b^2*c*d^4 - a^9*b*d^5)*e*f^4 - (a^5*b^5*c^5 - 5*a^6*b^4*c^4*d
 + 10*a^7*b^3*c^3*d^2 - 10*a^8*b^2*c^2*d^3 + 5*a^9*b*c*d^4 - a^10
*d^5)*f^5) - 3*(2*b^2*d^7*e^2 - (7*b^2*c*d^6 - 3*a*b*d^7)*e*f + (
7*b^2*c^2*d^5 - 7*a*b*c*d^6 + 2*a^2*d^7)*f^2)*log(d*x + c)/((b^5*
c^5*d^5 - 5*a*b^4*c^4*d^6 + 10*a^2*b^3*c^3*d^7 - 10*a^3*b^2*c^2*d
^8 + 5*a^4*b*c*d^9 - a^5*d^10)*e^5 - 5*(b^5*c^6*d^4 - 5*a*b^4*c^5
*d^5 + 10*a^2*b^3*c^4*d^6 - 10*a^3*b^2*c^3*d^7 + 5*a^4*b*c^2*d^8
- a^5*c*d^9)*e^4*f + 10*(b^5*c^7*d^3 - 5*a*b^4*c^6*d^4 + 10*a^2*b
^3*c^5*d^5 - 10*a^3*b^2*c^4*d^6 + 5*a^4*b*c^3*d^7 - a^5*c^2*d^8)*
e^3*f^2 - 10*(b^5*c^8*d^2 - 5*a*b^4*c^7*d^3 + 10*a^2*b^3*c^6*d^4
- 10*a^3*b^2*c^5*d^5 + 5*a^4*b*c^4*d^6 - a^5*c^3*d^7)*e^2*f^3 + 5
*(b^5*c^9*d - 5*a*b^4*c^8*d^2 + 10*a^2*b^3*c^7*d^3 - 10*a^3*b^2*c
^6*d^4 + 5*a^4*b*c^5*d^5 - a^5*c^4*d^6)*e*f^4 - (b^5*c^10 - 5*a*b
^4*c^9*d + 10*a^2*b^3*c^8*d^2 - 10*a^3*b^2*c^7*d^3 + 5*a^4*b*c^6*
d^4 - a^5*c^5*d^5)*f^5) + 3*(7*b^2*d^2*e^2*f^5 - 7*(b^2*c*d + a*b
*d^2)*e*f^6 + (2*b^2*c^2 + 3*a*b*c*d + 2*a^2*d^2)*f^7)*log(f*x +
e)/(b^5*d^5*e^10 + a^5*c^5*f^10 - 5*(b^5*c*d^4 + a*b^4*d^5)*e^9*f
 + 5*(2*b^5*c^2*d^3 + 5*a*b^4*c*d^4 + 2*a^2*b^3*d^5)*e^8*f^2 - 10
*(b^5*c^3*d^2 + 5*a*b^4*c^2*d^3 + 5*a^2*b^3*c*d^4 + a^3*b^2*d^5)*
e^7*f^3 + 5*(b^5*c^4*d + 10*a*b^4*c^3*d^2 + 20*a^2*b^3*c^2*d^3 +
10*a^3*b^2*c*d^4 + a^4*b*d^5)*e^6*f^4 - (b^5*c^5 + 25*a*b^4*c^4*d
 + 100*a^2*b^3*c^3*d^2 + 100*a^3*b^2*c^2*d^3 + 25*a^4*b*c*d^4 + a
^5*d^5)*e^5*f^5 + 5*(a*b^4*c^5 + 10*a^2*b^3*c^4*d + 20*a^3*b^2*c^
3*d^2 + 10*a^4*b*c^2*d^3 + a^5*c*d^4)*e^4*f^6 - 10*(a^2*b^3*c^5 +
 5*a^3*b^2*c^4*d + 5*a^4*b*c^3*d^2 + a^5*c^2*d^3)*e^3*f^7 + 5*(2*
a^3*b^2*c^5 + 5*a^4*b*c^4*d + 2*a^5*c^3*d^2)*e^2*f^8 - 5*(a^4*b*c
^5 + a^5*c^4*d)*e*f^9) - 1/2*((b^7*c^3*d^4 - 7*a*b^6*c^2*d^5 - 7*
a^2*b^5*c*d^6 + a^3*b^4*d^7)*e^7 - (4*b^7*c^4*d^3 - 21*a*b^6*c^3*
d^4 - 26*a^2*b^5*c^2*d^5 - 21*a^3*b^4*c*d^6 + 4*a^4*b^3*d^7)*e^6*
f + 2*(3*b^7*c^5*d^2 - 7*a*b^6*c^4*d^3 - 26*a^2*b^5*c^3*d^4 - 26*
a^3*b^4*c^2*d^5 - 7*a^4*b^3*c*d^6 + 3*a^5*b^2*d^7)*e^5*f^2 - 2*(2
*b^7*c^6*d + 7*a*b^6*c^5*d^2 - 39*a^2*b^5*c^4*d^3 - 39*a^4*b^3*c^
```

2*d^5 + 7*a^5*b^2*c*d^6 + 2*a^6*b*d^7)*e^4*f^3 + (b^7*c^7 + 21*a*b^6*c^6*d - 52*a^2*b^5*c^5*d^2 - 52*a^5*b^2*c^2*d^5 + 21*a^6*b*c*d^6 + a^7*d^7)*e^3*f^4 - (7*a*b^6*c^7 - 26*a^2*b^5*c^6*d + 52*a^3*b^4*c^5*d^2 - 78*a^4*b^3*c^4*d^3 + 52*a^5*b^2*c^3*d^4 - 26*a^6*b*c^2*d^5 + 7*a^7*c*d^6)*e^2*f^5 - 7*(a^2*b^5*c^7 - 3*a^3*b^4*c^6*d + 2*a^4*b^3*c^5*d^2 + 2*a^5*b^2*c^4*d^3 - 3*a^6*b*c^3*d^4 + a^7*c^2*d^5)*e*f^6 + (a^3*b^4*c^7 - 4*a^4*b^3*c^6*d + 6*a^5*b^2*c^5*d^2 - 4*a^6*b*c^4*d^3 + a^7*c^3*d^4)*f^7 - 6*(2*b^7*d^7*e^5*f^2 - 5*(b^7*c*d^6 + a*b^6*d^7)*e^4*f^3 + 2*(b^7*c^2*d^5 + 8*a*b^6*c*d^6 + a^2*b^5*d^7)*e^3*f^4 + 2*(b^7*c^3*d^4 - 6*a*b^6*c^2*d^5 - 6*a^2*b^5*c*d^6 + a^3*b^4*d^7)*e^2*f^5 - (5*b^7*c^4*d^3 - 16*a*b^6*c^3*d^4 + 12*a^2*b^5*c^2*d^5 - 16*a^3*b^4*c*d^6 + 5*a^4*b^3*d^7)*e*f^6 + (2*b^7*c^5*d^2 - 5*a*b^6*c^4*d^3 + 2*a^2*b^5*c^3*d^4 + 2*a^3*b^4*c^2*d^5 - 5*a^4*b^3*c*d^6 + 2*a^5*b^2*d^7)*f^7)*x^5 - 3*(8*b^7*d^7*e^6*f - 14*(b^7*c*d^6 + a*b^6*d^7)*e^5*f^2 - (7*b^7*c^2*d^5 - 34*a*b^6*c*d^6 + 7*a^2*b^5*d^7)*e^4*f^3 + 2*(7*b^7*c^3*d^4 + 3*a*b^6*c^2*d^5 + 3*a^2*b^5*c*d^6 + 7*a^3*b^4*d^7)*e^3*f^4 - (7*b^7*c^4*d^3 - 6*a*b^6*c^3*d^4 + 78*a^2*b^5*c^2*d^5 - 6*a^3*b^4*c*d^6 + 7*a^4*b^3*d^7)*e^2*f^5 - 2*(7*b^7*c^5*d^2 - 17*a*b^6*c^4*d^3 - 3*a^2*b^5*c^3*d^4 - 3*a^3*b^4*c^2*d^5 - 17*a^4*b^3*c*d^6 + 7*a^5*b^2*d^7)*e*f^6 + (8*b^7*c^6*d - 14*a*b^6*c^5*d^2 - 7*a^2*b^5*c^4*d^3 + 14*a^3*b^4*c^3*d^4 - 7*a^4*b^3*c^2*d^5 - 14*a^5*b^2*c*d^6 + 8*a^6*b*d^7)*f^7)*x^4 - 2*(6*b^7*d^7*e^7 + 3*(b^7*c*d^6 + a*b^6*d^7)*e^6*f - (37*b^7*c^2*d^5 + 28*a*b^6*c*d^6 + 37*a^2*b^5*d^7)*e^5*f^2 + (19*b^7*c^3*d^4 + 86*a*b^6*c^2*d^5 + 86*a^2*b^5*c*d^6 + 19*a^3*b^4*d^7)*e^4*f^3 + (19*b^7*c^4*d^3 - 68*a*b^6*c^3*d^4 - 52*a^2*b^5*c^2*d^5 - 68*a^3*b^4*c*d^6 + 19*a^4*b^3*d^7)*e^3*f^4 - (37*b^7*c^5*d^2 - 86*a*b^6*c^4*d^3 + 52*a^2*b^5*c^3*d^4 + 52*a^3*b^4*c^2*d^5 - 86*a^4*b^3*c*d^6 + 37*a^5*b^2*d^7)*e^2*f^5 + (3*b^7*c^6*d - 28*a*b^6*c^5*d^2 + 86*a^2*b^5*c^4*d^3 - 68*a^3*b^4*c^3*d^4 + 86*a^4*b^3*c^2*d^5 - 28*a^5*b^2*c*d^6 + 3*a^6*b*d^7)*e*f^6 + (6*b^7*c^7 + 3*a*b^6*c^6*d - 37*a^2*b^5*c^5*d^2 + 19*a^3*b^4*c^4*d^3 + 19*a^4*b^3*c^3*d^4 - 37*a^5*b^2*c^2*d^5 + 3*a^6*b*c*d^6 + 6*a^7*d^7)*f^7)*x^3 - (18*(b^7*c*d^6 + a*b^6*d^7)*e^7 - (37*b^7*c^2*d^5 + 34*a*b^6*c*d^6 + 37*a^2*b^5*d^7)*e^6*f - 3*(b^7*c^3*d^4 - 3*a*b^6*c^2*d^5 - 3*a^2*b^5*c*d^6 + a^3*b^4*d^7)*e^5*f^2 + (32*b^7*c^4*d^3 + a*b^6*c^3*d^4 + 234*a^2*b^5*c^2*d^5 + a^3*b^4*c*d^6 + 32*a^4*b^3*d^7)*e^4*f^3 - (3*b^7*c^5*d^2 - a*b^6*c^4*d^3 + 208*a^2*b^5*c^3*d^4 + 208*a^3*b^4*c^2*d^5 - a^4*b^3*c*d^6 + 3*a^5*b^2*d^7)*e^3*f^4 - (37*b^7*c^6*d - 9*a*b^6*c^5*d^2 - 234*a^2*b^5*c^4*d^3 + 208*a^3*b^4*c^3*d^4 - 234*a^4*b^3*c^2*d^5 - 9*a^5*b^2*c*d^6 + 37*a^6*b*d^7)*e^2*f^5 + (18*b^7*c^7 - 34*a*b^6*c^6*d + 9*a^2*b^5*c^5*d^2 + a^3*b^4*c^4*d^3 + a^4*b^3*c^3*d^4 + 9*a^5*b^2*c^2*d^5 - 34*a^6*b*c*d^6 + 18*a^7*d^7)*e*f^6 + (18*a*b^6*c^7 - 37*a^2*b^5*c^6*d - 3*a^3*b^4*c^5*d^2 + 32*a^4*b^3*c^4*d^3 - 3*a^5*b^2*c^3*d^4 - 37*a^6*b*c^2*d^5 + 18*a^7*c*d^6)*f^7)*x^2 - 2*(2*(b^7*c^2*d^5 + 7*a*b^6*c*d^6 + a^2*b^5*d^7)*e^7 - 3*(2*b^7*c^3*d^4 + 11*a*b^6*c^2*d^5 + 11*a^2*b^5*c*d^6 + 2*a^3*b^4*d^7)*e^6*f + (4*b^7*c^4*d^3 + 17*a*b^6*c^3*d^4 + 78*a^2*b^5*c^2*d^5 + 17*a^3*b^4*c*d^6 + 4*a^4*b^3*d^7)*e^5*f^2 + 2*(2*b^7*c^5*d^2 - 4*a*b^6*c^4*d^3 - 13*a^2*b^5*c^3*d^4 - 13*a^3*b^4*c^2*d^5 - 4*a^4*b^3*c*d^6 + 2*a^5*b^2*d^7)*e^4*f^3 - (6*b^7*c^6*d - 17*a*b^6*c^5*d^2 + 26*a^2*b^5*c^4*d^3 + 26*a^4*b^3*c^2*d^5 - 17*a^5*b^2*c*d^6 + 6*a^6*b*d^7)*e^3*f^4 + (2*b^7*c^7 - 33*a*b^6*c^6*d + 78*a^2*b^5*c^5*d^2 - 26*a^3*b^4*c^4*d^3 - 26*a^4*b^3*c^3*d^4 + 78*a^5*b^2*c^2*d^5 - 33*a^6*b*c*d^6 + 2*a^7*d^7)*e^2*f^5 + (14*a*b^6*c^7 - 33*a^2*b^5*c^6*d + 17*a^3*b^4*c^5*d^2 - 8*a^4*b^3*c^4*d^3 + 17*a^5*b^2*c^3*d^4 - 33*a^6*b*c^2*d^5 + 14*a^7*c*d^6)*e*f^6 + 2*(a^2*b^5*c^7 - 3*a^3*b^4*c^6*d + 2*a^4*b^3*c^5*d^2 + 2*a^5*b^2*c^4*d^3 - 3*a^6*b*c^3*d^4 + a^7*c^2*d^5)*f^7)*x)/((a^2*b^8*c^6*d^4 - 4*a^3*b^7*c^5*d^5 + 6*a^4*b^6*c^4*d^6 - 4*a^5*b^5*c^3*d^7 + a^6*b^4*c^2*d^8)*e^10 - 4*(a^2*b^8*c^7*d^3 - 3*a^3*b^7*c^6*d^4 + 2*a^4*b^6*c^5*d^5 + 2*a^5*b^5*c^4*d^6 - 3*a^6*b^4*c^3*d^7 + a^7*b^3*c^2*d^8)*e^9*f + 2*(3*a^2*b^8*c^8*d^2 - 4*a^3*b^7*c^7*d^3 - 11*a^4*b^6*c^6*d^4 + 24*a^5*b^5*c^5*d^5 - 11*a^6*b^4*c^4*d^6 - 4*a^7*b^3*c^3*d^7 + 3*a^8*b^2*c^2*d^8)*e^8*f^2 - 4*(a^2*b^8*c^9*d + 2*a^3*b^7*c^8*d^2 - 12*a^4*b^6*c^7*d^3 + 9*a^5*b^5*c^6*d^4 + 9*a^6*b^4*c^5*d^5 - 12*a^7*b^3*c^4*d^6 + 2*a^8*b^2*c^3*d^7 + a^9*b*c^2*d^8)*e^7*f^3 + (a^2*b^8*c^10 + 12*a^3*b^7*c^9*d - 22*a^4*b^6*c^8*d^2 - 36*a^5*b^5*c^7*d^3 + 90*a^6*b^4*c^6*d^4 - 36*a^7*b^3*c^5*d^5 - 22*a^8*b^2*c^4*d^6 + 12*a^9*b*c^3*d^7 + a^10*c^2*d^8)*e^6*f^4 - 4*(a^3*b^7*c^10 + 2*a^4*b^6*c^9*d - 12*a^5*b^5*c^8*d^2 + 9*a^6*b^4*c^7*d^3 + 9*a^7*b^3*c^6*d^4 - 12*a^8*b^2*c^5*d^5 + 2*a^9*b*c^4*d^6 + a^10*c^3*d^7)*e^5*f^5 + 2*(3*a^4*b^6*c^10 - 4*a^5*b^5*c^9*d - 11*a^6*b^4*c^8* d^2 + 24*a^7*b^3*c^7*d^3 - 11*a^8*b^2*c^6*d^4 - 4*a^9*b*c^5*d^5 + 3*a^10*c^4*d^6)*e^4*f^6 - 4*(a^5*b^5*c^10 - 3*a^6*b^4*c^9*d + 2*a^7*b^3*c^8*d^2 + 2*a^8*b^2*c^7*d^3 - 3*a^9*b*c^6*d^4 + a^10*c^5*d^5)*e^3*f^7 + (a^6*b^4*c^10 - 4*a^7*b^3*c^9*d + 6*a^8*b^2*c^8*d^2 - 4*a^9*b*c^7*d^3 + a^10*c^6*d^4)*e^2*f^8 + ((b^10*c^4*d^6 - 4*a*b^9*c^3*d^7 + 6*a^2*b^8*c^2*d^8 - 4*a^3*b^7*c*d^9 + a^4*b^6*d^10)*e^8*f^2 - 4*(b^10*c^5*d^5 - 3*a*b^9*c^4*d^6 + 2*a^2*b^8*c^3*d^7 + 2*a^3*b^7*c^2*d^8 - 3*a^4*b^6*c*d^9 + a^5*b^5*d^10)*e^7*f^3 + 2*(3*b^10*c^6*d^4 - 4*a*b^9*c^5*d^5 - 11*a^2*b^8*c^4*d^6 + 24*a^3*b^7*c^3*d^7 - 11*a^4*b^6*c^2*d^8 - 4*a^5*b^5*c*d^9 + 3*a^6*b^4*d^10)*e^6*f^4 - 4*(b^10*c^7*d^3 + 2*a*b^9*c^6*d^4 - 12*a^2*b^8*c^5*d^5 + 9*a^3*b^7*c^4*d^6 + 9*a^4*b^6*c^3*d^7 - 12*a^5*b^5*c^2*d^8 + 2*a^6*b^4*c*d^9 + a^7*b^3*d^10)*e^5*f^5 + (b^10*c^8*d^2 + 12*a*b^9*c^7*d^3 - 22*a^2*b^8*c^6*d^4 - 36*a^3*b^7*c^5*d^5 + 90*a^4*b^6*c^4*d^6 - 36*a^5*b^5*c^3*d^7 - 22*a^6*b^4*c^2*d^8 + 12*a^7*b^3*c*d^9 + a^8*b^2*d^10)*e^4*f^6 - 4*(a*b^9*c^8*d^2 + 2*a^2*b^8*c^7*d^3 - 12*a^3*b^7*c^6*d^4 + 9*a^4*b^6*c^5*d^5 + 9*a^5*b^5*c^4*d^6 - 12*a^6*b^4*c^3*d^7 + 2*a^7*b^3*c^2*d^8 + a^8*b^2*c*d^9)*e^3*f^7 + 2*(3*a^2*b^8*c^8*d^2 - 4*a^3*b^7*c^7*d^3 - 11*a^4*b^6*c^6*d^4 + 24*a^5*b^5*c^5*d^5 - 11*a^6*b^4*c^4*d^6 - 4*a^7*b^3*c^3*d^7 + 3*a^8*b^2*c^2*d^8)*e^2*f^8 - 4*(a^3*b^7*c^8*d^2 - 3*a^4*b^6*c^7*d^3 + 2*a^5*b^5*c^6*d^4 + 2*a^6*b^4*c^5*d^5 - 3*a^7*b^3*c^4*d^6 + a^8*b^2*c^3*d^7)*e*f^9 + (a^4*b^6*c^8*d^2 - 4*a^5*b^5*c^7*d^3 + 6*a^6*b^4*c^6*d^4 - 4*a^7*b^3*c^5*d^5 + a^8*b^2*c^4*d^6)*f^10)*x^6 + 2*((b^10*c^4*d^6 - 4*a*b^9*c^3*d^7 + 6*a^2*b^8*c^2*d^8 - 4*a^3*b^7*c*d^9 + a^4*b^6*d^10)*e^9*f - 3*(b^10*c^5*d^5 - 3*a*b^9*c^4*d^6 + 2*a^2*b^8*c^3*d^7 + 2*a^3*b^7*c^2*d^8 - 3*a^4*b^6*c*d^9 + a^5*b^5*d^10)*e^8*f^2 + 2*(b^10*c^6*d^4 - 9*a^2*b^8*c^4*d^6 + 16*a^3*b^7*c^3*d^7 - 9*a^4*b^6*c^2*d^8 + a^6*b^4*d^10)*e^7*f^3 + 2*(b^10*c^7*d^3 - 5*a*b^9*c^6*d^4 + 9*a^2*b^8*c^5*d^5 - 5*a^3*b^7*c^4*d^6 - 5*a^4*b^6*c^3*d^7 + 9*a^5*b^5*c^2*d^8 - 5*a^6*b^4*c*d^9 + a^7*b^3*d^10)*e^6*f^4 - 3*(b^10*c^8*d^2 - 6*a^2*b^8*c^6*d^4 + 8*a^3*b^7*c^5*d^5 - 6*a^4*b^6*c^4*d^6 + 8*a^5*b^5*c^3*d^7 - 6*a^6*b^4*c^2*d^8 + a^8*b^2*d^10)*e^5*f^5 + (b^10*c^9*d + 9*a*b^9*c^8*d^2 - 18*a^2*b^8*c^7*d^3 - 10*a^3*b^7*c^6*d^4 + 18*a^4*b^6*c^5*d^5 + 18*a^5*b^5*c^4*d^6 - 10*a^6*b^4*c^3*d^7 - 18*a^7*b^3*c^2*d^8 + 9*a^8*b^2*c*d^9 + a^9*b*d^10)*e^4*f^6 - 2*(2*a*b^9*c^9*d + 3*a^2*b^8*c^8*d^2 - 16*a^3*b^7*c^7*d^3 + 5*a^4*b^6*c^6*d^4 + 12*a^5*b^5*c^5*d^5 + 5*a^6*b^4*c^4*d^6 - 16*a^7*b^3*c^3*d^7 + 3*a^8*b^2*c^2*d^8 + 2*a^9*b*c*d^9)*e^3*f^7 + 6*(a^2*b^8*c^9*d - a^3*b^7*c^8*d^2 - 3*a^4*b^6*c^7*d^3 + 3*a^5*b^5*c^6*d^4 + 3*a^6*b^4*c^5*d^5 - 3*a^7*b^3*c^4*d^6 - a^8*b^2*c^3*d^7 + a^9*b*c^2*d^8)*e^2*f^8 - (4*a^3*b^7*c^9*d - 9*a^4*b^6*c^8*d^2 + 10*a^6*b^4*c^6*d^4 - 9*a^8*b^2*c^4*d^6 + 4*a^9*b*c^3*d^7)*e*f^9 + (a^4*b^6*c^9*d - 3*a^5*b^5*c^8*d^2 + 2*a^6*b^4*c^7*d^3 + 2*a^7*b^3*c^6*d^4 - 3*a^8*b^2*c^5*d^5 + a^9*b*c^4*d^6)*f^10)*x^5 + ((b^10*c^4*d^6 - 4*a*b^9*c^3*d^7 + 6*a^2*b^8*c^2*d^8 - 4*a^3*b^7*c*d^9 + a^4*b^6*d^10)*e^10 - 3*(3*b^10*c^6*d^4 - 8*a*b^9*c^5*d^5 + 5*a^2*b^8*c^4*d^6 + 5*a^4*b^6*c^2*d^8 - 8*a^5*b^5*c*d^9 + 3*a^6*b^4*d^10)*e^8*f^2 + 4*(4*b^10*c^7*d^3 - 5*a*b^9*c^6*d^4 - 9*a^2*b^8*c^5*d^5 + 10*a^3*b^7*c^4*d^6 + 10*a^4*b^6*c^3*d^7 - 9*a^5*b^5*c^2*d^8 - 5*a^6*b^4*c*d^9 + 4*a^7*b^3*d^10)*e^7*f^3 - (9*b^10*c^8*d^2 + 20*a*b^9*c^7*d^3 - 90*a^2*b^8*c^6*d^4 + 36*a^3*b^7*c^5*d^5 + 50*a^4*b^6*c^4*d^6 + 36*a^5*b^5*c^3*d^7 - 90*a^6*b^4*c^2*d^8 + 20*a^7*b^3*c*d^9 + 9*a^8*b^2*d^10)*e^6*f^4 + 12*(2*a*b^9*c^8*d^2 - 3*a^2*b^8*c^7*d^3 - 3*a^3*b^7*c^6*d^4 + 4*a^4*b^6*c^5*d^5 + 4*a^5*b^5*c^4*d^6 - 3*a^6*b^4*c^3*d^7 - 3*a^7*b^3*c^2*d^8 + 2*a^8*b^2*c*d^9)*e^5*f^5 + (b^10*c^10 - 15*a^2*b^8*c^8*d^2 + 40*a^3*b^7*c^7*d^3 - 50*a^4*b^6*c^6*d^4 + 48*a^5*b^5*c^5*d^5 - 50*a^6*b^4*c^4*d^6 + 40*a^7*b^3*c^3*d^7 - 15*a^8*b^2*c^2*d^8 + a^10*d^10)*e^4*f^6 - 4*(a*b^9*c^10 - 10*a^4*b^6*c^7*d^3 + 9*a^5*b^5*c^6*d^4 + 9*a^6*b^4*c^5*d^5 - 10*a^7*b^3*c^4*d^6 + a^10*c*d^9)*e^3*f^7 + 3*(2*a^2*b^8*c^10 - 5*a^4*b^6*c^8*d^2 - 12*a^5*b^5*c^7*d^3 + 30*a^6*b^4*c^6*d^4 - 12*a^7*b^3*c^5*d^5 - 5*a^8*b^2*c^4*d^6 + 2*a^10*c^2*d^8)*e^2*f^8 - 4*(a^3*b^7*c^10 - 6*a^5*b^5*c^8*d^2 + 5*a^6*b^4*c^7*d^3 + 5*a^7*b^3*c^6*d^4 - 6*a^8*b^2*c^5*d^5 + a^10*c^3*d^7)*e*f^9 + (a^4*b^6*c^10 - 9*a^6*b^4*c^8*d^2 + 16*a^7*b^3*c^7*d^3 - 9*a^8*b^2*c^6*d^4 + a^10*c^4*d^6)*f^10)*x^4 + 2*((b^10*c^5*d^5 - 3*a*b^9*c^4*d^6 + 2*a^2*b^8*c^3*d^7 + 2*a^3*b^7*c^2*d^8 - 3*a^4*b^6*c*d^9 + a^5*b^5*d^10)*e^10 - (3*b^10*c^6*d^4 - 8*a*b^9*c^5*d^5 + 5*a^2*b^8*c^4*d^6 + 5*a^4*b^6*c^2*d^8 - 8*a^5*b^5*c*d^9 + 3*a^6*b^4*d^10)*e^9*f + (2*b^10*c^7*d^3 - 5*a*b^9*c^6*d^4 + 3*a^2*b^8*c^5*d^5 + 3*a^5*b^5*c^2*d^8 - 5*a^6*b^4*c*d^9 + 2*a^7*b^3*d^10)*e^8*f^2 + 2*(b^10*c^8*d^2 - 16*a^3*b^7*c^5*d^5 + 30*a^4*b^6*c^4*d^6 - 16*a^5*b^5*c^3*d^7 + a^8*b^2*d^

```
10)*e^7*f^3 - (3*b^10*c^9*d + 5*a*b^9*c^8*d^2 - 60*a^3*b^7*c^6*d^
4 + 52*a^4*b^6*c^5*d^5 + 52*a^5*b^5*c^4*d^6 - 60*a^6*b^4*c^3*d^7
+ 5*a^8*b^2*c*d^9 + 3*a^9*b*d^10)*e^6*f^4 + (b^10*c^10 + 8*a*b^9*
c^9*d + 3*a^2*b^8*c^8*d^2 - 32*a^3*b^7*c^7*d^3 - 52*a^4*b^6*c^6*d
^4 + 144*a^5*b^5*c^5*d^5 - 52*a^6*b^4*c^4*d^6 - 32*a^7*b^3*c^3*d^
7 + 3*a^8*b^2*c^2*d^8 + 8*a^9*b*c*d^9 + a^10*d^10)*e^5*f^5 - (3*a
*b^9*c^10 + 5*a^2*b^8*c^9*d - 60*a^4*b^6*c^7*d^3 + 52*a^5*b^5*c^6
*d^4 + 52*a^6*b^4*c^5*d^5 - 60*a^7*b^3*c^4*d^6 + 5*a^9*b*c^2*d^8
+ 3*a^10*c*d^9)*e^4*f^6 + 2*(a^2*b^8*c^10 - 16*a^5*b^5*c^7*d^3 +
30*a^6*b^4*c^6*d^4 - 16*a^7*b^3*c^5*d^5 + a^10*c^2*d^8)*e^3*f^7 +
 (2*a^3*b^7*c^10 - 5*a^4*b^6*c^9*d + 3*a^5*b^5*c^8*d^2 + 3*a^8*b^
2*c^5*d^5 - 5*a^9*b*c^4*d^6 + 2*a^10*c^3*d^7)*e^2*f^8 - (3*a^4*b^
6*c^10 - 8*a^5*b^5*c^9*d + 5*a^6*b^4*c^8*d^2 + 5*a^8*b^2*c^6*d^4
- 8*a^9*b*c^5*d^5 + 3*a^10*c^4*d^6)*e*f^9 + (a^5*b^5*c^10 - 3*a^6
*b^4*c^9*d + 2*a^7*b^3*c^8*d^2 + 2*a^8*b^2*c^7*d^3 - 3*a^9*b*c^6*
d^4 + a^10*c^5*d^5)*f^10)*x^3 + ((b^10*c^6*d^4 - 9*a^2*b^8*c^4*d^
6 + 16*a^3*b^7*c^3*d^7 - 9*a^4*b^6*c^2*d^8 + a^6*b^4*d^10)*e^10 -
 4*(b^10*c^7*d^3 - 6*a^2*b^8*c^5*d^5 + 5*a^3*b^7*c^4*d^6 + 5*a^4*
b^6*c^3*d^7 - 6*a^5*b^5*c^2*d^8 + a^7*b^3*d^10)*e^9*f + 3*(2*b^10
*c^8*d^2 - 5*a^2*b^8*c^6*d^4 - 12*a^3*b^7*c^5*d^5 + 30*a^4*b^6*c^
4*d^6 - 12*a^5*b^5*c^3*d^7 - 5*a^6*b^4*c^2*d^8 + 2*a^8*b^2*d^10)*
e^8*f^2 - 4*(b^10*c^9*d - 10*a^3*b^7*c^6*d^4 + 9*a^4*b^6*c^5*d^5
+ 9*a^5*b^5*c^4*d^6 - 10*a^6*b^4*c^3*d^7 + a^9*b*d^10)*e^7*f^3 +
(b^10*c^10 - 15*a^2*b^8*c^8*d^2 + 40*a^3*b^7*c^7*d^3 - 50*a^4*b^6
*c^6*d^4 + 48*a^5*b^5*c^5*d^5 - 50*a^6*b^4*c^4*d^6 + 40*a^7*b^3*c
^3*d^7 - 15*a^8*b^2*c^2*d^8 + a^10*d^10)*e^6*f^4 + 12*(2*a^2*b^8*
c^9*d - 3*a^3*b^7*c^8*d^2 - 3*a^4*b^6*c^7*d^3 + 4*a^5*b^5*c^6*d^4
 + 4*a^6*b^4*c^5*d^5 - 3*a^7*b^3*c^4*d^6 - 3*a^8*b^2*c^3*d^7 + 2*
a^9*b*c^2*d^8)*e^5*f^5 - (9*a^2*b^8*c^10 + 20*a^3*b^7*c^9*d - 90*
a^4*b^6*c^8*d^2 + 36*a^5*b^5*c^7*d^3 + 50*a^6*b^4*c^6*d^4 + 36*a^
7*b^3*c^5*d^5 - 90*a^8*b^2*c^4*d^6 + 20*a^9*b*c^3*d^7 + 9*a^10*c^
2*d^8)*e^4*f^6 + 4*(4*a^3*b^7*c^10 - 5*a^4*b^6*c^9*d - 9*a^5*b^5*
c^8*d^2 + 10*a^6*b^4*c^7*d^3 + 10*a^7*b^3*c^6*d^4 - 9*a^8*b^2*c^5
*d^5 - 5*a^9*b*c^4*d^6 + 4*a^10*c^3*d^7)*e^3*f^7 - 3*(3*a^4*b^6*c
^10 - 8*a^5*b^5*c^9*d + 5*a^6*b^4*c^8*d^2 + 5*a^8*b^2*c^6*d^4 - 8
*a^9*b*c^5*d^5 + 3*a^10*c^4*d^6)*e^2*f^8 + (a^6*b^4*c^10 - 4*a^7*
b^3*c^9*d + 6*a^8*b^2*c^8*d^2 - 4*a^9*b*c^7*d^3 + a^10*c^6*d^4)*f
^10)*x^2 + 2*((a*b^9*c^6*d^4 - 3*a^2*b^8*c^5*d^5 + 2*a^3*b^7*c^4*
d^6 + 2*a^4*b^6*c^3*d^7 - 3*a^5*b^5*c^2*d^8 + a^6*b^4*c*d^9)*e^10
 - (4*a*b^9*c^7*d^3 - 9*a^2*b^8*c^6*d^4 + 10*a^4*b^6*c^4*d^6 - 9*
a^6*b^4*c^2*d^8 + 4*a^7*b^3*c*d^9)*e^9*f + 6*(a*b^9*c^8*d^2 - a^2
*b^8*c^7*d^3 - 3*a^3*b^7*c^6*d^4 + 3*a^4*b^6*c^5*d^5 + 3*a^5*b^5*
c^4*d^6 - 3*a^6*b^4*c^3*d^7 - a^7*b^3*c^2*d^8 + a^8*b^2*c*d^9)*e^
8*f^2 - 2*(2*a*b^9*c^9*d + 3*a^2*b^8*c^8*d^2 - 16*a^3*b^7*c^7*d^3
 + 5*a^4*b^6*c^6*d^4 + 12*a^5*b^5*c^5*d^5 + 5*a^6*b^4*c^4*d^6 - 1
6*a^7*b^3*c^3*d^7 + 3*a^8*b^2*c^2*d^8 + 2*a^9*b*c*d^9)*e^7*f^3 +
(a*b^9*c^10 + 9*a^2*b^8*c^9*d - 18*a^3*b^7*c^8*d^2 - 10*a^4*b^6*c
^7*d^3 + 18*a^5*b^5*c^6*d^4 + 18*a^6*b^4*c^5*d^5 - 10*a^7*b^3*c^4
*d^6 - 18*a^8*b^2*c^3*d^7 + 9*a^9*b*c^2*d^8 + a^10*c*d^9)*e^6*f^4
 - 3*(a^2*b^8*c^10 - 6*a^4*b^6*c^8*d^2 + 8*a^5*b^5*c^7*d^3 - 6*a^
6*b^4*c^6*d^4 + 8*a^7*b^3*c^5*d^5 - 6*a^8*b^2*c^4*d^6 + a^10*c^2*
d^8)*e^5*f^5 + 2*(a^3*b^7*c^10 - 5*a^4*b^6*c^9*d + 9*a^5*b^5*c^8*
d^2 - 5*a^6*b^4*c^7*d^3 - 5*a^7*b^3*c^6*d^4 + 9*a^8*b^2*c^5*d^5 -
 5*a^9*b*c^4*d^6 + a^10*c^3*d^7)*e^4*f^6 + 2*(a^4*b^6*c^10 - 9*a^
6*b^4*c^8*d^2 + 16*a^7*b^3*c^7*d^3 - 9*a^8*b^2*c^6*d^4 + a^10*c^4
*d^6)*e^3*f^7 - 3*(a^5*b^5*c^10 - 3*a^6*b^4*c^9*d + 2*a^7*b^3*c^8
*d^2 + 2*a^8*b^2*c^7*d^3 - 3*a^9*b*c^6*d^4 + a^10*c^5*d^5)*e^2*f^
8 + (a^6*b^4*c^10 - 4*a^7*b^3*c^9*d + 6*a^8*b^2*c^8*d^2 - 4*a^9*b
*c^7*d^3 + a^10*c^6*d^4)*e*f^9)*x)
```

Fricas [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((b*x + a)^3*(d*x + c)^3*(f*x + e)^3),x, algorithm="fricas")
```

```
[Out] Timed out
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(b*x+a)**3/(d*x+c)**3/(f*x+e)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.335145, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((b*x + a)^3*(d*x + c)^3*(f*x + e)^3),x, algorithm="giac")
```

```
[Out] Done
```

3.1700 $\int \frac{(c+dx)^{3/2}}{(a+bx)^2(e+fx)}\,dx$

Optimal. Leaf size=170

$$-\frac{\sqrt{bc-ad}(-adf-2bcf+3bde)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{b^{3/2}(be-af)^2}-\frac{\sqrt{c+dx}(bc-ad)}{b(a+bx)(be-af)}+\frac{2(de-cf)^{3/2}\tan^{-1}\left(\frac{\sqrt{f}\sqrt{c+dx}}{\sqrt{de-cf}}\right)}{\sqrt{f}(be-af)^2}$$

```
[Out] -(((b*c - a*d)*Sqrt[c + d*x])/(b*(b*e - a*f)*(a + b*x))) + (2*(d*
e - c*f)^(3/2)*ArcTan[(Sqrt[f]*Sqrt[c + d*x])/Sqrt[d*e - c*f]])/(
Sqrt[f]*(b*e - a*f)^2) - (Sqrt[b*c - a*d]*(3*b*d*e - 2*b*c*f - a*
d*f)*ArcTanh[(Sqrt[b]*Sqrt[c + d*x])/Sqrt[b*c - a*d]])/(b^(3/2)*(
b*e - a*f)^2)
```

Rubi [A] time = 0.616161, antiderivative size = 170, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$-\frac{\sqrt{bc-ad}(-adf-2bcf+3bde)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{b^{3/2}(be-af)^2}-\frac{\sqrt{c+dx}(bc-ad)}{b(a+bx)(be-af)}+\frac{2(de-cf)^{3/2}\tan^{-1}\left(\frac{\sqrt{f}\sqrt{c+dx}}{\sqrt{de-cf}}\right)}{\sqrt{f}(be-af)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(c + d*x)^(3/2)/((a + b*x)^2*(e + f*x)),x]
```

```
[Out] -(((b*c - a*d)*Sqrt[c + d*x])/(b*(b*e - a*f)*(a + b*x))) + (2*(d*
e - c*f)^(3/2)*ArcTan[(Sqrt[f]*Sqrt[c + d*x])/Sqrt[d*e - c*f]])/(
Sqrt[f]*(b*e - a*f)^2) - (Sqrt[b*c - a*d]*(3*b*d*e - 2*b*c*f - a*
d*f)*ArcTanh[(Sqrt[b]*Sqrt[c + d*x])/Sqrt[b*c - a*d]])/(b^(3/2)*(
b*e - a*f)^2)
```

Rubi in Sympy [A] time = 82.7584, size = 146, normalized size = 0.86

$$-\frac{2\left(cf-de\right)^{\frac{3}{2}}\operatorname{atanh}\left(\frac{\sqrt{f}\sqrt{c+dx}}{\sqrt{cf-de}}\right)}{\sqrt{f}\left(af-be\right)^{2}}-\frac{\sqrt{c+dx}\left(ad-bc\right)}{b\left(a+bx\right)\left(af-be\right)}+\frac{\sqrt{ad-bc}\left(adf+2bcf-3bde\right)\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{ad-bc}}\right)}{b^{\frac{3}{2}}\left(af-be\right)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(3/2)/(b*x+a)**2/(f*x+e),x)
```

```
[Out] -2*(c*f - d*e)**(3/2)*atanh(sqrt(f)*sqrt(c + d*x)/sqrt(c*f - d*e)
)/(sqrt(f)*(a*f - b*e)**2) - sqrt(c + d*x)*(a*d - b*c)/(b*(a + b*
x)*(a*f - b*e)) + sqrt(a*d - b*c)*(a*d*f + 2*b*c*f - 3*b*d*e)*ata
n(sqrt(b)*sqrt(c + d*x)/sqrt(a*d - b*c))/(b**(3/2)*(a*f - b*e)**2
)
```

Mathematica [A] time = 0.428368, size = 156, normalized size = 0.92

$$\frac{\frac{\sqrt{bc-ad}(adf+2bcf-3bde)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{bc-ad}}\right)}{b^{3/2}}+\frac{\sqrt{c+dx}(ad-bc)(be-af)}{b(a+bx)}-\frac{2(cf-de)^{3/2}\tanh^{-1}\left(\frac{\sqrt{f}\sqrt{c+dx}}{\sqrt{cf-de}}\right)}{\sqrt{f}}}{(be-af)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(c + d*x)^(3/2)/((a + b*x)^2*(e + f*x)),x]
```

```
[Out] (((-(b*c) + a*d)*(b*e - a*f)*Sqrt[c + d*x])/(b*(a + b*x)) + (Sqrt
[b*c - a*d]*(-3*b*d*e + 2*b*c*f + a*d*f)*ArcTanh[(Sqrt[b]*Sqrt[c
+ d*x])/Sqrt[b*c - a*d]])/b^(3/2) - (2*(-(d*e) + c*f)^(3/2)*ArcTa
nh[(Sqrt[f]*Sqrt[c + d*x])/Sqrt[-(d*e) + c*f]])/Sqrt[f])/(b*e - a
*f)^2
```

Maple [B] time = 0.037, size = 549, normalized size = 3.2

$$-2\frac{c^2f^2}{(af-be)^2\sqrt{(cf-de)f}}Artanh\left(\frac{\sqrt{dx+c}f}{\sqrt{(cf-de)f}}\right)+4\frac{cdef}{(af-be)^2\sqrt{(cf-de)f}}Artanh\left(\frac{\sqrt{dx+c}f}{\sqrt{(cf-de)f}}\right)-2\frac{d^2e^2}{(af-be)^2\sqrt{(cf-de)f}}Artanh\left(\frac{\sqrt{dx+c}f}{\sqrt{(cf-de)f}}\right)-\frac{a^2d^2f}{(af-be)^2b(bdx+ad)}\sqrt{dx+c}+\frac{acdf}{(af-be)^2(bdx+ad)}\sqrt{dx+c}+\frac{ad^2e}{(af-be)^2(bdx+ad)}\sqrt{dx+c}-\frac{bcde}{(af-be)^2(bdx+ad)}\sqrt{dx+c}+\frac{a^2d^2f}{(af-be)^2b}\arctan\left(b\sqrt{dx+c}\frac{1}{\sqrt{(ad-bc)b}}\right)\frac{1}{\sqrt{(ad-bc)b}}+\frac{acdf}{(af-be)^2}\arctan\left(b\sqrt{dx+c}\frac{1}{\sqrt{(ad-bc)b}}\right)\frac{1}{\sqrt{(ad-bc)b}}-2\frac{bc^2f}{(af-be)^2\sqrt{(ad-bc)b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)b}}\right)-3\frac{ad^2e}{(af-be)^2\sqrt{(ad-bc)b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)b}}\right)+3\frac{bcde}{(af-be)^2\sqrt{(ad-bc)b}}\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{(ad-bc)b}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((d*x+c)^(3/2)/(b*x+a)^2/(f*x+e),x)
```

```
[Out] -2/(a*f-b*e)^2/((c*f-d*e)*f)^(1/2)*arctanh((d*x+c)^(1/2)*f/((c*f-
d*e)*f)^(1/2))*c^2*f^2+4*d/(a*f-b*e)^2/((c*f-d*e)*f)^(1/2)*arctan
h((d*x+c)^(1/2)*f/((c*f-d*e)*f)^(1/2))*c*e*f-2*d^2/(a*f-b*e)^2/((
c*f-d*e)*f)^(1/2)*arctanh((d*x+c)^(1/2)*f/((c*f-d*e)*f)^(1/2))*e^
2-d^2/(a*f-b*e)^2/b*(d*x+c)^(1/2)/(b*d*x+a*d)*a^2*f+d/(a*f-b*e)^2
*(d*x+c)^(1/2)/(b*d*x+a*d)*a*f*c+d^2/(a*f-b*e)^2*(d*x+c)^(1/2)/(b
*d*x+a*d)*e*a-d/(a*f-b*e)^2*(d*x+c)^(1/2)/(b*d*x+a*d)*e*b*c+d^2/(
a*f-b*e)^2/b/((a*d-b*c)*b)^(1/2)*arctan((d*x+c)^(1/2)*b/((a*d-b*c
)*b)^(1/2))*a^2*f+d/(a*f-b*e)^2/((a*d-b*c)*b)^(1/2)*arctan((d*x+c
)^(1/2)*b/((a*d-b*c)*b)^(1/2))*a*f*c-2/(a*f-b*e)^2/((a*d-b*c)*b)^
(1/2)*arctan((d*x+c)^(1/2)*b/((a*d-b*c)*b)^(1/2))*c^2*f*b-3*d^2/(
a*f-b*e)^2/((a*d-b*c)*b)^(1/2)*arctan((d*x+c)^(1/2)*b/((a*d-b*c)*
b)^(1/2))*e*a+3*d/(a*f-b*e)^2/((a*d-b*c)*b)^(1/2)*arctan((d*x+c)^
(1/2)*b/((a*d-b*c)*b)^(1/2))*e*b*c
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)^(3/2)/((b*x + a)^2*(f*x + e)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.820608, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)^(3/2)/((b*x + a)^2*(f*x + e)),x, algorithm="fricas")
```

```
[Out] [-1/2*((3*a*b*d*e - (2*a*b*c + a^2*d)*f + (3*b^2*d*e - (2*b^2*c +
 a*b*d)*f)*x)*sqrt((b*c - a*d)/b)*log((b*d*x + 2*b*c - a*d + 2*sq
rt(d*x + c)*b*sqrt((b*c - a*d)/b))/(b*x + a)) + 2*(a*b*d*e - a*b*
c*f + (b^2*d*e - b^2*c*f)*x)*sqrt(-(d*e - c*f)/f)*log((d*f*x - d*
e + 2*c*f - 2*sqrt(d*x + c)*f*sqrt(-(d*e - c*f)/f))/(f*x + e)) +
2*((b^2*c - a*b*d)*e - (a*b*c - a^2*d)*f)*sqrt(d*x + c))/(a*b^3*e
^2 - 2*a^2*b^2*e*f + a^3*b*f^2 + (b^4*e^2 - 2*a*b^3*e*f + a^2*b^2
*f^2)*x), -((3*a*b*d*e - (2*a*b*c + a^2*d)*f + (3*b^2*d*e - (2*b^
2*c + a*b*d)*f)*x)*sqrt(-(b*c - a*d)/b)*arctan(sqrt(d*x + c)/sqrt
(-(b*c - a*d)/b)) + (a*b*d*e - a*b*c*f + (b^2*d*e - b^2*c*f)*x)*s
qrt(-(d*e - c*f)/f)*log((d*f*x - d*e + 2*c*f - 2*sqrt(d*x + c)*f*
sqrt(-(d*e - c*f)/f))/(f*x + e)) + ((b^2*c - a*b*d)*e - (a*b*c -
a^2*d)*f)*sqrt(d*x + c))/(a*b^3*e^2 - 2*a^2*b^2*e*f + a^3*b*f^2 +
 (b^4*e^2 - 2*a*b^3*e*f + a^2*b^2*f^2)*x), 1/2*(4*(a*b*d*e - a*b*
c*f + (b^2*d*e - b^2*c*f)*x)*sqrt((d*e - c*f)/f)*arctan(sqrt(d*x
+ c)/sqrt((d*e - c*f)/f)) - (3*a*b*d*e - (2*a*b*c + a^2*d)*f + (3
*b^2*d*e - (2*b^2*c + a*b*d)*f)*x)*sqrt((b*c - a*d)/b)*log((b*d*x
 + 2*b*c - a*d + 2*sqrt(d*x + c)*b*sqrt((b*c - a*d)/b))/(b*x + a)
) - 2*((b^2*c - a*b*d)*e - (a*b*c - a^2*d)*f)*sqrt(d*x + c))/(a*b
^3*e^2 - 2*a^2*b^2*e*f + a^3*b*f^2 + (b^4*e^2 - 2*a*b^3*e*f + a^2
*b^2*f^2)*x), -((3*a*b*d*e - (2*a*b*c + a^2*d)*f + (3*b^2*d*e - (
2*b^2*c + a*b*d)*f)*x)*sqrt(-(b*c - a*d)/b)*arctan(sqrt(d*x + c)/
sqrt(-(b*c - a*d)/b)) - 2*(a*b*d*e - a*b*c*f + (b^2*d*e - b^2*c*f
)*x)*sqrt((d*e - c*f)/f)*arctan(sqrt(d*x + c)/sqrt((d*e - c*f)/f)
) + ((b^2*c - a*b*d)*e - (a*b*c - a^2*d)*f)*sqrt(d*x + c))/(a*b^3
*e^2 - 2*a^2*b^2*e*f + a^3*b*f^2 + (b^4*e^2 - 2*a*b^3*e*f + a^2*b
^2*f^2)*x)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x+c)**(3/2)/(b*x+a)**2/(f*x+e),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.219433, size = 338, normalized size = 1.99

$$-\frac{\left(2\,b^2c^2f - abcdf - a^2d^2f - 3\,b^2cde + 3\,abd^2e\right)\arctan\left(\frac{\sqrt{dx+c}b}{\sqrt{-b^2c+abd}}\right)}{\left(a^2bf^2 - 2\,ab^2fe + b^3e^2\right)\sqrt{-b^2c+abd}} + \frac{2\left(c^2f^2 - 2\,cdfe + d^2e^2\right)\arctan\left(\frac{\sqrt{dx+c}f}{\sqrt{-cf^2+dfe}}\right)}{\left(a^2f^2 - 2\,abfe + b^2e^2\right)\sqrt{-cf^2+dfe}} + \frac{\sqrt{dx+c}bcd - \sqrt{dx+c}ad^2}{\left(abf - b^2e\right)\left((dx+c)b - bc + ad\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)^(3/2)/((b*x + a)^2*(f*x + e)),x, algorithm="giac")
```

```
[Out] -(2*b^2*c^2*f - a*b*c*d*f - a^2*d^2*f - 3*b^2*c*d*e + 3*a*b*d^2*e
)*arctan(sqrt(d*x + c)*b/sqrt(-b^2*c + a*b*d))/((a^2*b*f^2 - 2*a*
```

```
b^2*f*e + b^3*e^2)*sqrt(-b^2*c + a*b*d)) + 2*(c^2*f^2 - 2*c*d*f*e
 + d^2*e^2)*arctan(sqrt(d*x + c)*f/sqrt(-c*f^2 + d*f*e))/((a^2*f^
2 - 2*a*b*f*e + b^2*e^2)*sqrt(-c*f^2 + d*f*e)) + (sqrt(d*x + c)*b
*c*d - sqrt(d*x + c)*a*d^2)/((a*b*f - b^2*e)*((d*x + c)*b - b*c +
 a*d))
```

3.1701 $\int (a+bx)(A+Bx)(d+ex)^{7/2}\,dx$

Optimal. Leaf size=83

$$-\frac{2(d+ex)^{11/2}(-aBe-Abe+2bBd)}{11e^3}+\frac{2(d+ex)^{9/2}(bd-ae)(Bd-Ae)}{9e^3}+\frac{2bB(d+ex)^{13/2}}{13e^3}$$

```
[Out] (2*(b*d - a*e)*(B*d - A*e)*(d + e*x)^(9/2))/(9*e^3) - (2*(2*b*B*d
 - A*b*e - a*B*e)*(d + e*x)^(11/2))/(11*e^3) + (2*b*B*(d + e*x)^(
13/2))/(13*e^3)
```

Rubi [A] time = 0.119191, antiderivative size = 83, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{2(d+ex)^{11/2}(-aBe-Abe+2bBd)}{11e^3}+\frac{2(d+ex)^{9/2}(bd-ae)(Bd-Ae)}{9e^3}+\frac{2bB(d+ex)^{13/2}}{13e^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)*(A + B*x)*(d + e*x)^(7/2),x]
```

```
[Out] (2*(b*d - a*e)*(B*d - A*e)*(d + e*x)^(9/2))/(9*e^3) - (2*(2*b*B*d
 - A*b*e - a*B*e)*(d + e*x)^(11/2))/(11*e^3) + (2*b*B*(d + e*x)^(
13/2))/(13*e^3)
```

Rubi in Sympy [A] time = 17.713, size = 78, normalized size = 0.94

$$\frac{2Bb\left(d+ex\right)^{\frac{13}{2}}}{13e^3}+\frac{2\left(d+ex\right)^{\frac{11}{2}}\left(Abe+Bae-2Bbd\right)}{11e^3}+\frac{2\left(d+ex\right)^{\frac{9}{2}}\left(Ae-Bd\right)\left(ae-bd\right)}{9e^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(B*x+A)*(e*x+d)**(7/2),x)
```

```
[Out] 2*B*b*(d + e*x)**(13/2)/(13*e**3) + 2*(d + e*x)**(11/2)*(A*b*e +
B*a*e - 2*B*b*d)/(11*e**3) + 2*(d + e*x)**(9/2)*(A*e - B*d)*(a*e
- b*d)/(9*e**3)
```

Mathematica [A] time = 0.151067, size = 70, normalized size = 0.84

$$\frac{2(d+ex)^{9/2}\left(13ae(11Ae-2Bd+9Bex)+13Abe(9ex-2d)+bB\left(8d^2-36dex+99e^2x^2\right)\right)}{1287e^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)*(A + B*x)*(d + e*x)^(7/2),x]
```

```
[Out] (2*(d + e*x)^(9/2)*(13*A*b*e*(-2*d + 9*e*x) + 13*a*e*(-2*B*d + 11
*A*e + 9*B*e*x) + b*B*(8*d^2 - 36*d*e*x + 99*e^2*x^2)))/(1287*e^3
)
```

Maple [A] time = 0.007, size = 73, normalized size = 0.9

$$\frac{198\,bBx^2e^2+234\,Abe^2x+234\,Bae^2x-72\,Bbdex+286\,aAe^2-52\,Abde-52\,Bade+16\,bBd^2}{1287\,e^3}\left(ex+d\right)^{\frac{9}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(B*x+A)*(e*x+d)^(7/2),x)
```

```
[Out] 2/1287*(e*x+d)^(9/2)*(99*B*b*e^2*x^2+117*A*b*e^2*x+117*B*a*e^2*x-
36*B*b*d*e*x+143*A*a*e^2-26*A*b*d*e-26*B*a*d*e+8*B*b*d^2)/e^3
```

Maxima [A] time = 1.34898, size = 101, normalized size = 1.22

$$\frac{2\left(99\,(ex+d)^{\frac{13}{2}}Bb-117\,(2\,Bbd-(Ba+Ab)e)(ex+d)^{\frac{11}{2}}+143\,\left(Bbd^2+Aae^2-(Ba+Ab)de\right)(ex+d)^{\frac{9}{2}}\right)}{1287\,e^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*(e*x + d)^(7/2),x, algorithm="maxima")
```

```
[Out] 2/1287*(99*(e*x + d)^(13/2)*B*b - 117*(2*B*b*d - (B*a + A*b)*e)*(
e*x + d)^(11/2) + 143*(B*b*d^2 + A*a*e^2 - (B*a + A*b)*d*e)*(e*x
+ d)^(9/2))/e^3
```

Fricas [A] time = 0.222775, size = 311, normalized size = 3.75

$$\frac{2\left(99\,Bbe^6x^6+8\,Bbd^6+143\,Aad^4e^2-26\,(Ba+Ab)d^5e+9\left(40\,Bbde^5+13\,(Ba+Ab)e^6\right)x^5+\left(458\,Bbd^2e^4+143\,Aae^6+442\,(\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*(e*x + d)^(7/2),x, algorithm="fricas")
```

```
[Out] 2/1287*(99*B*b*e^6*x^6 + 8*B*b*d^6 + 143*A*a*d^4*e^2 - 26*(B*a +
A*b)*d^5*e + 9*(40*B*b*d*e^5 + 13*(B*a + A*b)*e^6)*x^5 + (458*B*b
*d^2*e^4 + 143*A*a*e^6 + 442*(B*a + A*b)*d*e^5)*x^4 + 2*(106*B*b*
d^3*e^3 + 286*A*a*d*e^5 + 299*(B*a + A*b)*d^2*e^4)*x^3 + 3*(B*b*d
^4*e^2 + 286*A*a*d^2*e^4 + 104*(B*a + A*b)*d^3*e^3)*x^2 - (4*B*b*
d^5*e - 572*A*a*d^3*e^3 - 13*(B*a + A*b)*d^4*e^2)*x)*sqrt(e*x + d
)/e^3
```

Sympy [A] time = 25.2017, size = 578, normalized size = 6.96

$$\begin{cases} \frac{2Aad^4\sqrt{d+ex}}{9e}+\frac{8Aad^3x\sqrt{d+ex}}{9}+\frac{4Aad^2ex^2\sqrt{d+ex}}{3}+\frac{8Aade^2x^3\sqrt{d+ex}}{9}+\frac{2Aae^3x^4\sqrt{d+ex}}{9}-\frac{4Abd^5\sqrt{d+ex}}{99e^2}+\frac{2Abd^4x\sqrt{d+ex}}{99e}+\frac{16Abd^3x^2\sqrt{d+ex}}{33} \\ d^{\frac{7}{2}}\left(Aax+\frac{Abx^2}{2}+\frac{Bax^2}{2}+\frac{Bbx^3}{3}\right) \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(B*x+A)*(e*x+d)**(7/2),x)
```

```
[Out] Piecewise((2*A*a*d**4*sqrt(d + e*x)/(9*e) + 8*A*a*d**3*x*sqrt(d +
 e*x)/9 + 4*A*a*d**2*e*x**2*sqrt(d + e*x)/3 + 8*A*a*d*e**2*x**3*s
qrt(d + e*x)/9 + 2*A*a*e**3*x**4*sqrt(d + e*x)/9 - 4*A*b*d**5*sqr
t(d + e*x)/(99*e**2) + 2*A*b*d**4*x*sqrt(d + e*x)/(99*e) + 16*A*b
*d**3*x**2*sqrt(d + e*x)/33 + 92*A*b*d**2*e*x**3*sqrt(d + e*x)/99
 + 68*A*b*d*e**2*x**4*sqrt(d + e*x)/99 + 2*A*b*e**3*x**5*sqrt(d +
 e*x)/11 - 4*B*a*d**5*sqrt(d + e*x)/(99*e**2) + 2*B*a*d**4*x*sqrt
(d + e*x)/(99*e) + 16*B*a*d**3*x**2*sqrt(d + e*x)/33 + 92*B*a*d**
2*e*x**3*sqrt(d + e*x)/99 + 68*B*a*d*e**2*x**4*sqrt(d + e*x)/99 +
 2*B*a*e**3*x**5*sqrt(d + e*x)/11 + 16*B*b*d**6*sqrt(d + e*x)/(12
87*e**3) - 8*B*b*d**5*x*sqrt(d + e*x)/(1287*e**2) + 2*B*b*d**4*x*
```

```
*2*sqrt(d + e*x)/(429*e) + 424*B*b*d**3*x**3*sqrt(d + e*x)/1287 +
 916*B*b*d**2*e*x**4*sqrt(d + e*x)/1287 + 80*B*b*d*e**2*x**5*sqrt
(d + e*x)/143 + 2*B*b*e**3*x**6*sqrt(d + e*x)/13, Ne(e, 0)), (d**
(7/2)*(A*a*x + A*b*x**2/2 + B*a*x**2/2 + B*b*x**3/3), True))
```

GIAC/XCAS [A] time = 0.226669, size = 1, normalized size = 0.01

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*(e*x + d)^(7/2),x, algorithm="giac")

[Out] Done
```

3.1702 $\int (a+bx)(A+Bx)(d+ex)^{5/2}\,dx$

Optimal. Leaf size=83

$$-\frac{2(d+ex)^{9/2}(-aBe-Abe+2bBd)}{9e^3}+\frac{2(d+ex)^{7/2}(bd-ae)(Bd-Ae)}{7e^3}+\frac{2bB(d+ex)^{11/2}}{11e^3}$$

```
[Out] (2*(b*d - a*e)*(B*d - A*e)*(d + e*x)^(7/2))/(7*e^3) - (2*(2*b*B*d
 - A*b*e - a*B*e)*(d + e*x)^(9/2))/(9*e^3) + (2*b*B*(d + e*x)^(11
/2))/(11*e^3)
```

Rubi [A] time = 0.102462, antiderivative size = 83, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{2(d+ex)^{9/2}(-aBe-Abe+2bBd)}{9e^3}+\frac{2(d+ex)^{7/2}(bd-ae)(Bd-Ae)}{7e^3}+\frac{2bB(d+ex)^{11/2}}{11e^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)*(A + B*x)*(d + e*x)^(5/2),x]
```

```
[Out] (2*(b*d - a*e)*(B*d - A*e)*(d + e*x)^(7/2))/(7*e^3) - (2*(2*b*B*d
 - A*b*e - a*B*e)*(d + e*x)^(9/2))/(9*e^3) + (2*b*B*(d + e*x)^(11
/2))/(11*e^3)
```

Rubi in Sympy [A] time = 17.2187, size = 78, normalized size = 0.94

$$\frac{2Bb\,(d+ex)^{\frac{11}{2}}}{11e^3}+\frac{2\,(d+ex)^{\frac{9}{2}}\,(Abe+Bae-2Bbd)}{9e^3}+\frac{2\,(d+ex)^{\frac{7}{2}}\,(Ae-Bd)\,(ae-bd)}{7e^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(B*x+A)*(e*x+d)**(5/2),x)
```

```
[Out] 2*B*b*(d + e*x)**(11/2)/(11*e**3) + 2*(d + e*x)**(9/2)*(A*b*e + B
*a*e - 2*B*b*d)/(9*e**3) + 2*(d + e*x)**(7/2)*(A*e - B*d)*(a*e -
b*d)/(7*e**3)
```

Mathematica [A] time = 0.123406, size = 70, normalized size = 0.84

$$\frac{2(d+ex)^{7/2}\left(11ae(9Ae-2Bd+7Bex)+11Abe(7ex-2d)+bB\left(8d^2-28dex+63e^2x^2\right)\right)}{693e^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)*(A + B*x)*(d + e*x)^(5/2),x]
```

```
[Out] (2*(d + e*x)^(7/2)*(11*A*b*e*(-2*d + 7*e*x) + 11*a*e*(-2*B*d + 9*
A*e + 7*B*e*x) + b*B*(8*d^2 - 28*d*e*x + 63*e^2*x^2)))/(693*e^3)
```

Maple [A] time = 0.006, size = 73, normalized size = 0.9

$$\frac{126\,bBx^2e^2+154\,Abe^2x+154\,Bae^2x-56\,Bbdex+198\,aAe^2-44\,Abde-44\,Bade+16\,bBd^2}{693\,e^3}(ex+d)^{\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(B*x+A)*(e*x+d)^(5/2),x)
```

```
[Out] 2/693*(e*x+d)^(7/2)*(63*B*b*e^2*x^2+77*A*b*e^2*x+77*B*a*e^2*x-28*
B*b*d*e*x+99*A*a*e^2-22*A*b*d*e-22*B*a*d*e+8*B*b*d^2)/e^3
```

Maxima [A] time = 1.34416, size = 101, normalized size = 1.22

$$\frac{2\left(63\,(ex+d)^{\frac{11}{2}}Bb-77\,(2\,Bbd-(Ba+Ab)e)(ex+d)^{\frac{9}{2}}+99\,\left(Bbd^2+Aae^2-(Ba+Ab)de\right)(ex+d)^{\frac{7}{2}}\right)}{693\,e^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*(e*x + d)^(5/2),x, algorithm="maxima")
```

```
[Out] 2/693*(63*(e*x + d)^(11/2)*B*b - 77*(2*B*b*d - (B*a + A*b)*e)*(e*
x + d)^(9/2) + 99*(B*b*d^2 + A*a*e^2 - (B*a + A*b)*d*e)*(e*x + d)
^(7/2))/e^3
```

Fricas [A] time = 0.222415, size = 255, normalized size = 3.07

$$\frac{2\left(63\,Bbe^5x^5+8\,Bbd^5+99\,Aad^3e^2-22\,(Ba+Ab)d^4e+7\,\left(23\,Bbde^4+11\,(Ba+Ab)e^5\right)x^4+\left(113\,Bbd^2e^3+99\,Aae^5+209\,(Ba\right.\right.}{693\,e^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*(e*x + d)^(5/2),x, algorithm="fricas")
```

```
[Out] 2/693*(63*B*b*e^5*x^5 + 8*B*b*d^5 + 99*A*a*d^3*e^2 - 22*(B*a + A*
b)*d^4*e + 7*(23*B*b*d*e^4 + 11*(B*a + A*b)*e^5)*x^4 + (113*B*b*d
^2*e^3 + 99*A*a*e^5 + 209*(B*a + A*b)*d*e^4)*x^3 + 3*(B*b*d^3*e^2
 + 99*A*a*d*e^4 + 55*(B*a + A*b)*d^2*e^3)*x^2 - (4*B*b*d^4*e - 29
7*A*a*d^2*e^3 - 11*(B*a + A*b)*d^3*e^2)*x)*sqrt(e*x + d)/e^3
```

Sympy [A] time = 10.362, size = 476, normalized size = 5.73

$$\begin{cases} \frac{2Aad^3\sqrt{d+ex}}{7e}+\frac{6Aad^2x\sqrt{d+ex}}{7}+\frac{6Aadex^2\sqrt{d+ex}}{7}+\frac{2Aae^2x^3\sqrt{d+ex}}{7}-\frac{4Abd^4\sqrt{d+ex}}{63e^2}+\frac{2Abd^3x\sqrt{d+ex}}{63e}+\frac{10Abd^2x^2\sqrt{d+ex}}{21}+\frac{38Abdex^3\sqrt{d+ex}}{63} \\ d^{\frac{5}{2}}\left(Aax+\frac{Abx^2}{2}+\frac{Bax^2}{2}+\frac{Bbx^3}{3}\right) \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(B*x+A)*(e*x+d)**(5/2),x)
```

```
[Out] Piecewise((2*A*a*d**3*sqrt(d + e*x)/(7*e) + 6*A*a*d**2*x*sqrt(d +
 e*x)/7 + 6*A*a*d*e*x**2*sqrt(d + e*x)/7 + 2*A*a*e**2*x**3*sqrt(d
 + e*x)/7 - 4*A*b*d**4*sqrt(d + e*x)/(63*e**2) + 2*A*b*d**3*x*sqr
t(d + e*x)/(63*e) + 10*A*b*d**2*x**2*sqrt(d + e*x)/21 + 38*A*b*d*
e*x**3*sqrt(d + e*x)/63 + 2*A*b*e**2*x**4*sqrt(d + e*x)/9 - 4*B*a
*d**4*sqrt(d + e*x)/(63*e**2) + 2*B*a*d**3*x*sqrt(d + e*x)/(63*e)
 + 10*B*a*d**2*x**2*sqrt(d + e*x)/21 + 38*B*a*d*e*x**3*sqrt(d + e
*x)/63 + 2*B*a*e**2*x**4*sqrt(d + e*x)/9 + 16*B*b*d**5*sqrt(d + e
*x)/(693*e**3) - 8*B*b*d**4*x*sqrt(d + e*x)/(693*e**2) + 2*B*b*d*
*3*x**2*sqrt(d + e*x)/(231*e) + 226*B*b*d**2*x**3*sqrt(d + e*x)/6
93 + 46*B*b*d*e*x**4*sqrt(d + e*x)/99 + 2*B*b*e**2*x**5*sqrt(d +
e*x)/11, Ne(e, 0)), (d**(5/2)*(A*a*x + A*b*x**2/2 + B*a*x**2/2 +
B*b*x**3/3), True))
```

GIAC/XCAS [A] time = 0.218383, size = 1, normalized size = 0.01

$$\text{Done}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*(e*x + d)^(5/2),x, algorithm="giac")

[Out] Done
```

3.1703 $\int (a+bx)(A+Bx)(d+ex)^{3/2}\,dx$

Optimal. Leaf size=83

$$-\frac{2(d+ex)^{7/2}(-aBe-Abe+2bBd)}{7e^3}+\frac{2(d+ex)^{5/2}(bd-ae)(Bd-Ae)}{5e^3}+\frac{2bB(d+ex)^{9/2}}{9e^3}$$

```
[Out] (2*(b*d - a*e)*(B*d - A*e)*(d + e*x)^(5/2))/(5*e^3) - (2*(2*b*B*d
 - A*b*e - a*B*e)*(d + e*x)^(7/2))/(7*e^3) + (2*b*B*(d + e*x)^(9/
2))/(9*e^3)
```

Rubi [A] time = 0.0990722, antiderivative size = 83, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{2(d+ex)^{7/2}(-aBe-Abe+2bBd)}{7e^3}+\frac{2(d+ex)^{5/2}(bd-ae)(Bd-Ae)}{5e^3}+\frac{2bB(d+ex)^{9/2}}{9e^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)*(A + B*x)*(d + e*x)^(3/2),x]
```

```
[Out] (2*(b*d - a*e)*(B*d - A*e)*(d + e*x)^(5/2))/(5*e^3) - (2*(2*b*B*d
 - A*b*e - a*B*e)*(d + e*x)^(7/2))/(7*e^3) + (2*b*B*(d + e*x)^(9/
2))/(9*e^3)
```

Rubi in Sympy [A] time = 16.9556, size = 78, normalized size = 0.94

$$\frac{2Bb\left(d+ex\right)^{\frac{9}{2}}}{9e^3}+\frac{2\left(d+ex\right)^{\frac{7}{2}}\left(Abe+Bae-2Bbd\right)}{7e^3}+\frac{2\left(d+ex\right)^{\frac{5}{2}}\left(Ae-Bd\right)\left(ae-bd\right)}{5e^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(B*x+A)*(e*x+d)**(3/2),x)
```

```
[Out] 2*B*b*(d + e*x)**(9/2)/(9*e**3) + 2*(d + e*x)**(7/2)*(A*b*e + B*a
*e - 2*B*b*d)/(7*e**3) + 2*(d + e*x)**(5/2)*(A*e - B*d)*(a*e - b*
d)/(5*e**3)
```

Mathematica [A] time = 0.0989525, size = 70, normalized size = 0.84

$$\frac{2(d+ex)^{5/2}\left(9ae(7Ae-2Bd+5Bex)+9Abe(5ex-2d)+bB\left(8d^2-20dex+35e^2x^2\right)\right)}{315e^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)*(A + B*x)*(d + e*x)^(3/2),x]
```

```
[Out] (2*(d + e*x)^(5/2)*(9*A*b*e*(-2*d + 5*e*x) + 9*a*e*(-2*B*d + 7*A*
e + 5*B*e*x) + b*B*(8*d^2 - 20*d*e*x + 35*e^2*x^2)))/(315*e^3)
```

Maple [A] time = 0.005, size = 73, normalized size = 0.9

$$\frac{70\,bBx^2e^2+90\,Abe^2x+90\,Bae^2x-40\,Bbdex+126\,aAe^2-36\,Abde-36\,Bade+16\,bBd^2}{315\,e^3}(ex+d)^{\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(B*x+A)*(e*x+d)^(3/2),x)
```

```
[Out] 2/315*(e*x+d)^(5/2)*(35*B*b*e^2*x^2+45*A*b*e^2*x+45*B*a*e^2*x-20*
B*b*d*e*x+63*A*a*e^2-18*A*b*d*e-18*B*a*d*e+8*B*b*d^2)/e^3
```

Maxima [A] time = 1.35445, size = 101, normalized size = 1.22

$$\frac{2\left(35\,(ex+d)^{\frac{9}{2}}Bb-45\,(2\,Bbd-(Ba+Ab)e)(ex+d)^{\frac{7}{2}}+63\,\left(Bbd^2+Aae^2-(Ba+Ab)de\right)(ex+d)^{\frac{5}{2}}\right)}{315\,e^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*(e*x + d)^(3/2),x, algorithm="maxima")
```

```
[Out] 2/315*(35*(e*x + d)^(9/2)*B*b - 45*(2*B*b*d - (B*a + A*b)*e)*(e*x
 + d)^(7/2) + 63*(B*b*d^2 + A*a*e^2 - (B*a + A*b)*d*e)*(e*x + d)^
(5/2))/e^3
```

Fricas [A] time = 0.220094, size = 201, normalized size = 2.42

$$\frac{2\left(35\,Bbe^4x^4+8\,Bbd^4+63\,Aad^2e^2-18\,(Ba+Ab)d^3e+5\left(10\,Bbde^3+9\,(Ba+Ab)e^4\right)x^3+3\left(Bbd^2e^2+21\,Aae^4+24\,(Ba+Ab\right.\right.}{315\,e^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*(e*x + d)^(3/2),x, algorithm="fricas")
```

```
[Out] 2/315*(35*B*b*e^4*x^4 + 8*B*b*d^4 + 63*A*a*d^2*e^2 - 18*(B*a + A*
b)*d^3*e + 5*(10*B*b*d*e^3 + 9*(B*a + A*b)*e^4)*x^3 + 3*(B*b*d^2*
e^2 + 21*A*a*e^4 + 24*(B*a + A*b)*d*e^3)*x^2 - (4*B*b*d^3*e - 126
*A*a*d*e^3 - 9*(B*a + A*b)*d^2*e^2)*x)*sqrt(e*x + d)/e^3
```

Sympy [A] time = 8.04398, size = 318, normalized size = 3.83

$$Aad\left(\begin{cases}\sqrt{d}x & \text{for}\ e=0\\ \frac{2(d+ex)^{\frac{3}{2}}}{3e} & \text{otherwise}\end{cases}\right)+\frac{2Aa\left(-\frac{d(d+ex)^{\frac{3}{2}}}{3}+\frac{(d+ex)^{\frac{5}{2}}}{5}\right)}{e}+\frac{2Abd\left(-\frac{d(d+ex)^{\frac{3}{2}}}{3}+\frac{(d+ex)^{\frac{5}{2}}}{5}\right)}{e^2}+\frac{2Ab\left(\frac{d^2(d+ex)^{\frac{3}{2}}}{3}-\frac{2d(d+ex)^{\frac{5}{2}}}{5}+\frac{(d+ex)^{\frac{7}{2}}}{7}\right)}{e^2}+\frac{2Bad\left(-\frac{d(d+ex)^{\frac{3}{2}}}{3}+\frac{(d+ex)^{\frac{5}{2}}}{5}\right)}{e^2}+\frac{2Ba\left(\frac{d^2(d+ex)^{\frac{3}{2}}}{3}-\frac{2d(d+ex)^{\frac{5}{2}}}{5}+\frac{(d+ex)^{\frac{7}{2}}}{7}\right)}{e^2}+\frac{2Bbd\left(\frac{d^2(d+ex)^{\frac{3}{2}}}{3}-\frac{2d(d+ex)^{\frac{5}{2}}}{5}+\frac{(d+ex)^{\frac{7}{2}}}{7}\right)}{e^3}+\frac{2Bb\left(-\frac{d^3(d+ex)^{\frac{3}{2}}}{3}+\frac{3d^2(d+ex)^{\frac{5}{2}}}{5}-\frac{3d(d+ex)^{\frac{7}{2}}}{7}+\frac{(d+ex)^{\frac{9}{2}}}{9}\right)}{e^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(B*x+A)*(e*x+d)**(3/2),x)
```

```
[Out] A*a*d*Piecewise((sqrt(d)*x, Eq(e, 0)), (2*(d + e*x)**(3/2)/(3*e),
 True)) + 2*A*a*(-d*(d + e*x)**(3/2)/3 + (d + e*x)**(5/2)/5)/e +
2*A*b*d*(-d*(d + e*x)**(3/2)/3 + (d + e*x)**(5/2)/5)/e**2 + 2*A*b
```

```
*(d**2*(d + e*x)**(3/2)/3 - 2*d*(d + e*x)**(5/2)/5 + (d + e*x)**(
7/2)/7)/e**2 + 2*B*a*d*(-d*(d + e*x)**(3/2)/3 + (d + e*x)**(5/2)/
5)/e**2 + 2*B*a*(d**2*(d + e*x)**(3/2)/3 - 2*d*(d + e*x)**(5/2)/5
 + (d + e*x)**(7/2)/7)/e**2 + 2*B*b*d*(d**2*(d + e*x)**(3/2)/3 -
2*d*(d + e*x)**(5/2)/5 + (d + e*x)**(7/2)/7)/e**3 + 2*B*b*(-d**3*
(d + e*x)**(3/2)/3 + 3*d**2*(d + e*x)**(5/2)/5 - 3*d*(d + e*x)**(
7/2)/7 + (d + e*x)**(9/2)/9)/e**3
```

GIAC/XCAS [A] time = 0.216147, size = 412, normalized size = 4.96

$$\frac{2}{315}\left(21\left(3(xe+d)^{\frac{5}{2}}-5(xe+d)^{\frac{3}{2}}d\right)Bade^{(-1)}+21\left(3(xe+d)^{\frac{5}{2}}-5(xe+d)^{\frac{3}{2}}d\right)Abde^{(-1)}+3\left(15(xe+d)^{\frac{7}{2}}e^{12}-42(xe+d)^{\frac{5}{2}}d\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*(e*x + d)^(3/2),x, algorithm="giac")
```

```
[Out] 2/315*(21*(3*(x*e + d)^(5/2) - 5*(x*e + d)^(3/2)*d)*B*a*d*e^(-1)
+ 21*(3*(x*e + d)^(5/2) - 5*(x*e + d)^(3/2)*d)*A*b*d*e^(-1) + 3*(
15*(x*e + d)^(7/2)*e^12 - 42*(x*e + d)^(5/2)*d*e^12 + 35*(x*e + d
)^(3/2)*d^2*e^12)*B*b*d*e^(-14) + 105*(x*e + d)^(3/2)*A*a*d + 3*(
15*(x*e + d)^(7/2)*e^12 - 42*(x*e + d)^(5/2)*d*e^12 + 35*(x*e + d
)^(3/2)*d^2*e^12)*B*a*e^(-13) + 3*(15*(x*e + d)^(7/2)*e^12 - 42*(
x*e + d)^(5/2)*d*e^12 + 35*(x*e + d)^(3/2)*d^2*e^12)*A*b*e^(-13)
+ (35*(x*e + d)^(9/2)*e^24 - 135*(x*e + d)^(7/2)*d*e^24 + 189*(x*
e + d)^(5/2)*d^2*e^24 - 105*(x*e + d)^(3/2)*d^3*e^24)*B*b*e^(-26)
 + 21*(3*(x*e + d)^(5/2) - 5*(x*e + d)^(3/2)*d)*A*a)*e^(-1)
```

3.1704 $\int (a+bx)(A+Bx)\sqrt{d+ex}\,dx$

Optimal. Leaf size=83

$$-\frac{2(d+ex)^{5/2}(-aBe-Abe+2bBd)}{5e^3}+\frac{2(d+ex)^{3/2}(bd-ae)(Bd-Ae)}{3e^3}+\frac{2bB(d+ex)^{7/2}}{7e^3}$$

```
[Out] (2*(b*d - a*e)*(B*d - A*e)*(d + e*x)^(3/2))/(3*e^3) - (2*(2*b*B*d
 - A*b*e - a*B*e)*(d + e*x)^(5/2))/(5*e^3) + (2*b*B*(d + e*x)^(7/
2))/(7*e^3)
```

Rubi [A] time = 0.0989791, antiderivative size = 83, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{2(d+ex)^{5/2}(-aBe-Abe+2bBd)}{5e^3}+\frac{2(d+ex)^{3/2}(bd-ae)(Bd-Ae)}{3e^3}+\frac{2bB(d+ex)^{7/2}}{7e^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)*(A + B*x)*Sqrt[d + e*x],x]
```

```
[Out] (2*(b*d - a*e)*(B*d - A*e)*(d + e*x)^(3/2))/(3*e^3) - (2*(2*b*B*d
 - A*b*e - a*B*e)*(d + e*x)^(5/2))/(5*e^3) + (2*b*B*(d + e*x)^(7/
2))/(7*e^3)
```

Rubi in Sympy [A] time = 16.6209, size = 78, normalized size = 0.94

$$\frac{2Bb\left(d+ex\right)^{\frac{7}{2}}}{7e^3}+\frac{2\left(d+ex\right)^{\frac{5}{2}}\left(Abe+Bae-2Bbd\right)}{5e^3}+\frac{2\left(d+ex\right)^{\frac{3}{2}}\left(Ae-Bd\right)\left(ae-bd\right)}{3e^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(B*x+A)*(e*x+d)**(1/2),x)
```

```
[Out] 2*B*b*(d + e*x)**(7/2)/(7*e**3) + 2*(d + e*x)**(5/2)*(A*b*e + B*a
*e - 2*B*b*d)/(5*e**3) + 2*(d + e*x)**(3/2)*(A*e - B*d)*(a*e - b*
d)/(3*e**3)
```

Mathematica [A] time = 0.0837712, size = 70, normalized size = 0.84

$$\frac{2(d+ex)^{3/2}\left(7ae(5Ae-2Bd+3Bex)+7Abe(3ex-2d)+bB\left(8d^2-12dex+15e^2x^2\right)\right)}{105e^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)*(A + B*x)*Sqrt[d + e*x],x]
```

```
[Out] (2*(d + e*x)^(3/2)*(7*A*b*e*(-2*d + 3*e*x) + 7*a*e*(-2*B*d + 5*A*
e + 3*B*e*x) + b*B*(8*d^2 - 12*d*e*x + 15*e^2*x^2)))/(105*e^3)
```

Maple [A] time = 0.006, size = 73, normalized size = 0.9

$$\frac{30\,bBx^2e^2+42\,Abe^2x+42\,Bae^2x-24\,Bbdex+70\,aAe^2-28\,Abde-28\,Bade+16\,bBd^2}{105\,e^3}\left(ex+d\right)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(B*x+A)*(e*x+d)^(1/2),x)
```

```
[Out] 2/105*(e*x+d)^(3/2)*(15*B*b*e^2*x^2+21*A*b*e^2*x+21*B*a*e^2*x-12*
B*b*d*e*x+35*A*a*e^2-14*A*b*d*e-14*B*a*d*e+8*B*b*d^2)/e^3
```

Maxima [A] time = 1.34671, size = 101, normalized size = 1.22

$$\frac{2\left(15\,(ex+d)^{\frac{7}{2}}Bb-21\,(2\,Bbd-(Ba+Ab)e)(ex+d)^{\frac{5}{2}}+35\,\left(Bbd^2+Aae^2-(Ba+Ab)de\right)(ex+d)^{\frac{3}{2}}\right)}{105\,e^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*sqrt(e*x + d),x, algorithm="maxima")
```

```
[Out] 2/105*(15*(e*x + d)^(7/2)*B*b - 21*(2*B*b*d - (B*a + A*b)*e)*(e*x
 + d)^(5/2) + 35*(B*b*d^2 + A*a*e^2 - (B*a + A*b)*d*e)*(e*x + d)^
(3/2))/e^3
```

Fricas [A] time = 0.222182, size = 146, normalized size = 1.76

$$\frac{2\left(15\,Bbe^3x^3+8\,Bbd^3+35\,Aade^2-14\,(Ba+Ab)d^2e+3\,\left(Bbde^2+7\,(Ba+Ab)e^3\right)x^2-\left(4\,Bbd^2e-35\,Aae^3-7\,(Ba+Ab)de^2\right.}{105\,e^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*sqrt(e*x + d),x, algorithm="fricas")
```

```
[Out] 2/105*(15*B*b*e^3*x^3 + 8*B*b*d^3 + 35*A*a*d*e^2 - 14*(B*a + A*b)
*d^2*e + 3*(B*b*d*e^2 + 7*(B*a + A*b)*e^3)*x^2 - (4*B*b*d^2*e - 3
5*A*a*e^3 - 7*(B*a + A*b)*d*e^2)*x)*sqrt(e*x + d)/e^3
```

Sympy [A] time = 4.53441, size = 94, normalized size = 1.13

$$\frac{2\left(\frac{Bb(d+ex)^{\frac{7}{2}}}{7e^2}+\frac{(d+ex)^{\frac{5}{2}}(Abe+Bae-2Bbd)}{5e^2}+\frac{(d+ex)^{\frac{3}{2}}(Aae^2-Abde-Bade+Bbd^2)}{3e^2}\right)}{e}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(B*x+A)*(e*x+d)**(1/2),x)
```

```
[Out] 2*(B*b*(d + e*x)**(7/2)/(7*e**2) + (d + e*x)**(5/2)*(A*b*e + B*a*
e - 2*B*b*d)/(5*e**2) + (d + e*x)**(3/2)*(A*a*e**2 - A*b*d*e - B*
a*d*e + B*b*d**2)/(3*e**2))/e
```

GIAC/XCAS [A] time = 0.209361, size = 161, normalized size = 1.94

$$\frac{2}{105}\left(7\left(3\,(xe+d)^{\frac{5}{2}}-5\,(xe+d)^{\frac{3}{2}}d\right)Bae^{(-1)}+7\left(3\,(xe+d)^{\frac{5}{2}}-5\,(xe+d)^{\frac{3}{2}}d\right)Abe^{(-1)}+\left(15\,(xe+d)^{\frac{7}{2}}e^{12}-42\,(xe+d)^{\frac{5}{2}}de^{12}+\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*sqrt(e*x + d),x, algorithm="giac")
```

```
[Out] 2/105*(7*(3*(x*e + d)^(5/2) - 5*(x*e + d)^(3/2)*d)*B*a*e^(-1) + 7
*(3*(x*e + d)^(5/2) - 5*(x*e + d)^(3/2)*d)*A*b*e^(-1) + (15*(x*e
+ d)^(7/2)*e^12 - 42*(x*e + d)^(5/2)*d*e^12 + 35*(x*e + d)^(3/2)*
d^2*e^12)*B*b*e^(-14) + 35*(x*e + d)^(3/2)*A*a)*e^(-1)
```

3.1705 $\int \frac{(a+bx)(A+Bx)}{\sqrt{d+ex}}\,dx$

Optimal. Leaf size=81

$$-\frac{2(d+ex)^{3/2}(-aBe-Abe+2bBd)}{3e^3}+\frac{2\sqrt{d+ex}(bd-ae)(Bd-Ae)}{e^3}+\frac{2bB(d+ex)^{5/2}}{5e^3}$$

```
[Out] (2*(b*d - a*e)*(B*d - A*e)*Sqrt[d + e*x])/e^3 - (2*(2*b*B*d - A*b
*e - a*B*e)*(d + e*x)^(3/2))/(3*e^3) + (2*b*B*(d + e*x)^(5/2))/(5
*e^3)
```

Rubi [A] time = 0.10138, antiderivative size = 81, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{2(d+ex)^{3/2}(-aBe-Abe+2bBd)}{3e^3}+\frac{2\sqrt{d+ex}(bd-ae)(Bd-Ae)}{e^3}+\frac{2bB(d+ex)^{5/2}}{5e^3}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(A + B*x))/Sqrt[d + e*x],x]
```

```
[Out] (2*(b*d - a*e)*(B*d - A*e)*Sqrt[d + e*x])/e^3 - (2*(2*b*B*d - A*b
*e - a*B*e)*(d + e*x)^(3/2))/(3*e^3) + (2*b*B*(d + e*x)^(5/2))/(5
*e^3)
```

Rubi in Sympy [A] time = 16.4003, size = 76, normalized size = 0.94

$$\frac{2Bb\left(d+ex\right)^{\frac{5}{2}}}{5e^3}+\frac{2\left(d+ex\right)^{\frac{3}{2}}\left(Abe+Bae-2Bbd\right)}{3e^3}+\frac{2\sqrt{d+ex}\left(Ae-Bd\right)\left(ae-bd\right)}{e^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(B*x+A)/(e*x+d)**(1/2),x)
```

```
[Out] 2*B*b*(d + e*x)**(5/2)/(5*e**3) + 2*(d + e*x)**(3/2)*(A*b*e + B*a
*e - 2*B*b*d)/(3*e**3) + 2*sqrt(d + e*x)*(A*e - B*d)*(a*e - b*d)/
e**3
```

Mathematica [A] time = 0.0747272, size = 68, normalized size = 0.84

$$\frac{2\sqrt{d+ex}\left(5ae(3Ae-2Bd+Bex)+5Abe(ex-2d)+bB\left(8d^2-4dex+3e^2x^2\right)\right)}{15e^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(A + B*x))/Sqrt[d + e*x],x]
```

```
[Out] (2*Sqrt[d + e*x]*(5*A*b*e*(-2*d + e*x) + 5*a*e*(-2*B*d + 3*A*e +
B*e*x) + b*B*(8*d^2 - 4*d*e*x + 3*e^2*x^2)))/(15*e^3)
```

Maple [A] time = 0.005, size = 73, normalized size = 0.9

$$\frac{6\,bBx^2e^2+10\,Abe^2x+10\,Bae^2x-8\,Bbdex+30\,aAe^2-20\,Abde-20\,Bade+16\,bBd^2}{15\,e^3}\sqrt{ex+d}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((b*x+a)*(B*x+A)/(e*x+d)^(1/2),x)
```

```
[Out] 2/15*(e*x+d)^(1/2)*(3*B*b*e^2*x^2+5*A*b*e^2*x+5*B*a*e^2*x-4*B*b*d
*e*x+15*A*a*e^2-10*A*b*d*e-10*B*a*d*e+8*B*b*d^2)/e^3
```

Maxima [A]   time = 1.34608, size = 101, normalized size = 1.25

$$\frac{2\left(3(ex+d)^{\frac{5}{2}}Bb - 5\left(2Bbd - (Ba+Ab)e\right)(ex+d)^{\frac{3}{2}} + 15\left(Bbd^2 + Aae^2 - (Ba+Ab)de\right)\sqrt{ex+d}\right)}{15e^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*(b*x + a)/sqrt(e*x + d),x, algorithm="maxima")
```

```
[Out] 2/15*(3*(e*x + d)^(5/2)*B*b - 5*(2*B*b*d - (B*a + A*b)*e)*(e*x +
d)^(3/2) + 15*(B*b*d^2 + A*a*e^2 - (B*a + A*b)*d*e)*sqrt(e*x + d)
)/e^3
```

Fricas [A]   time = 0.231713, size = 95, normalized size = 1.17

$$\frac{2\left(3Bbe^2x^2 + 8Bbd^2 + 15Aae^2 - 10(Ba+Ab)de - \left(4Bbde - 5(Ba+Ab)e^2\right)x\right)\sqrt{ex+d}}{15e^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((B*x + A)*(b*x + a)/sqrt(e*x + d),x, algorithm="fricas")
```

```
[Out] 2/15*(3*B*b*e^2*x^2 + 8*B*b*d^2 + 15*A*a*e^2 - 10*(B*a + A*b)*d*e
 - (4*B*b*d*e - 5*(B*a + A*b)*e^2)*x)*sqrt(e*x + d)/e^3
```

Sympy [A]   time = 16.9335, size = 311, normalized size = 3.84

$$\begin{cases} -\frac{\frac{2Aad}{\sqrt{d+ex}} + 2Aa\left(-\frac{d}{\sqrt{d+ex}} - \sqrt{d+ex}\right) + \frac{2Abd\left(-\frac{d}{\sqrt{d+ex}} - \sqrt{d+ex}\right)}{e} + \frac{2Ab\left(\frac{d^2}{\sqrt{d+ex}} + 2d\sqrt{d+ex} - \frac{(d+ex)^{\frac{3}{2}}}{3}\right)}{e} + \frac{2Bad\left(-\frac{d}{\sqrt{d+ex}} - \sqrt{d+ex}\right)}{e} + \frac{2Ba\left(\frac{d^2}{\sqrt{d+ex}} + 2d\sqrt{d+ex} - \frac{(d+ex)^{\frac{3}{2}}}{3}\right)}{e} + \cdots}{e} \\ \frac{Aax + \frac{Bbx^3}{3} + \frac{x^2(Ab+Ba)}{2}}{\sqrt{d}} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((b*x+a)*(B*x+A)/(e*x+d)**(1/2),x)
```

```
[Out] Piecewise((-(2*A*a*d/sqrt(d + e*x) + 2*A*a*(-d/sqrt(d + e*x) - sq
rt(d + e*x)) + 2*A*b*d*(-d/sqrt(d + e*x) - sqrt(d + e*x))/e + 2*A
*b*(d**2/sqrt(d + e*x) + 2*d*sqrt(d + e*x) - (d + e*x)**(3/2)/3)/
e + 2*B*a*d*(-d/sqrt(d + e*x) - sqrt(d + e*x))/e + 2*B*a*(d**2/sq
rt(d + e*x) + 2*d*sqrt(d + e*x) - (d + e*x)**(3/2)/3)/e + 2*B*b*d
*(d**2/sqrt(d + e*x) + 2*d*sqrt(d + e*x) - (d + e*x)**(3/2)/3)/e*
*2 + 2*B*b*(-d**3/sqrt(d + e*x) - 3*d**2*sqrt(d + e*x) + d*(d + e
*x)**(3/2) - (d + e*x)**(5/2)/5)/e**2)/e, Ne(e, 0)), ((A*a*x + B*
b*x**3/3 + x**2*(A*b + B*a)/2)/sqrt(d), True))
```

GIAC/XCAS [A]   time = 0.207103, size = 155, normalized size = 1.91

$$\frac{2}{15}\left(5\left((xe+d)^{\frac{3}{2}} - 3\sqrt{xe+d}d\right)Bae^{(-1)} + 5\left((xe+d)^{\frac{3}{2}} - 3\sqrt{xe+d}d\right)Abe^{(-1)} + \left(3(xe+d)^{\frac{5}{2}}e^8 - 10(xe+d)^{\frac{3}{2}}de^8 + 15\sqrt{xe+\cdots}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/sqrt(e*x + d),x, algorithm="giac")
```

```
[Out] 2/15*(5*((x*e + d)^(3/2) - 3*sqrt(x*e + d)*d)*B*a*e^(-1) + 5*((x*
e + d)^(3/2) - 3*sqrt(x*e + d)*d)*A*b*e^(-1) + (3*(x*e + d)^(5/2)
*e^8 - 10*(x*e + d)^(3/2)*d*e^8 + 15*sqrt(x*e + d)*d^2*e^8)*B*b*e
^(-10) + 15*sqrt(x*e + d)*A*a)*e^(-1)
```

3.1706 $\int \frac{(a+bx)(A+Bx)}{(d+ex)^{3/2}}\,dx$

Optimal. Leaf size=79

$$-\frac{2\sqrt{d+ex}(-aBe-Abe+2bBd)}{e^3}-\frac{2(bd-ae)(Bd-Ae)}{e^3\sqrt{d+ex}}+\frac{2bB(d+ex)^{3/2}}{3e^3}$$

```
[Out] (-2*(b*d - a*e)*(B*d - A*e))/(e^3*Sqrt[d + e*x]) - (2*(2*b*B*d -
A*b*e - a*B*e)*Sqrt[d + e*x])/e^3 + (2*b*B*(d + e*x)^(3/2))/(3*e^
3)
```

Rubi [A] time = 0.101986, antiderivative size = 79, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{2\sqrt{d+ex}(-aBe-Abe+2bBd)}{e^3}-\frac{2(bd-ae)(Bd-Ae)}{e^3\sqrt{d+ex}}+\frac{2bB(d+ex)^{3/2}}{3e^3}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(A + B*x))/(d + e*x)^(3/2),x]
```

```
[Out] (-2*(b*d - a*e)*(B*d - A*e))/(e^3*Sqrt[d + e*x]) - (2*(2*b*B*d -
A*b*e - a*B*e)*Sqrt[d + e*x])/e^3 + (2*b*B*(d + e*x)^(3/2))/(3*e^
3)
```

Rubi in Sympy [A] time = 16.3844, size = 75, normalized size = 0.95

$$\frac{2Bb\,(d+ex)^{\frac{3}{2}}}{3e^3}+\frac{2\sqrt{d+ex}\,(Abe+Bae-2Bbd)}{e^3}-\frac{2\,(Ae-Bd)\,(ae-bd)}{e^3\sqrt{d+ex}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(B*x+A)/(e*x+d)**(3/2),x)
```

```
[Out] 2*B*b*(d + e*x)**(3/2)/(3*e**3) + 2*sqrt(d + e*x)*(A*b*e + B*a*e
- 2*B*b*d)/e**3 - 2*(A*e - B*d)*(a*e - b*d)/(e**3*sqrt(d + e*x))
```

Mathematica [A] time = 0.0883281, size = 68, normalized size = 0.86

$$\frac{6ae(-Ae+2Bd+Bex)+6Abe(2d+ex)+2bB\left(-8d^2-4dex+e^2x^2\right)}{3e^3\sqrt{d+ex}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(A + B*x))/(d + e*x)^(3/2),x]
```

```
[Out] (6*A*b*e*(2*d + e*x) + 6*a*e*(2*B*d - A*e + B*e*x) + 2*b*B*(-8*d^
2 - 4*d*e*x + e^2*x^2))/(3*e^3*Sqrt[d + e*x])
```

Maple [A] time = 0.006, size = 73, normalized size = 0.9

$$-\frac{-2\,bBx^2e^2-6\,Abe^2x-6\,Bae^2x+8\,Bbdex+6\,aAe^2-12\,Abde-12\,Bade+16\,bBd^2}{3\,e^3}\frac{1}{\sqrt{ex+d}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(B*x+A)/(e*x+d)^(3/2),x)
```

```
[Out] -2/3/(e*x+d)^(1/2)*(-B*b*e^2*x^2-3*A*b*e^2*x-3*B*a*e^2*x+4*B*b*d*
e*x+3*A*a*e^2-6*A*b*d*e-6*B*a*d*e+8*B*b*d^2)/e^3
```

Maxima [A] time = 1.35156, size = 111, normalized size = 1.41

$$\frac{2\left(\frac{(ex+d)^{\frac{3}{2}}Bb-3(2Bbd-(Ba+Ab)e)\sqrt{ex+d}}{e^2}-\frac{3(Bbd^2+Aae^2-(Ba+Ab)de)}{\sqrt{ex+d}e^2}\right)}{3e}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/(e*x + d)^(3/2),x, algorithm="maxima")
```

```
[Out] 2/3*(((e*x + d)^(3/2)*B*b - 3*(2*B*b*d - (B*a + A*b)*e)*sqrt(e*x
+ d))/e^2 - 3*(B*b*d^2 + A*a*e^2 - (B*a + A*b)*d*e)/(sqrt(e*x + d
)*e^2))/e
```

Fricas [A] time = 0.231779, size = 93, normalized size = 1.18

$$\frac{2\left(Bbe^2x^2-8Bbd^2-3Aae^2+6(Ba+Ab)de-\left(4Bbde-3(Ba+Ab)e^2\right)x\right)}{3\sqrt{ex+d}e^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/(e*x + d)^(3/2),x, algorithm="fricas")
```

```
[Out] 2/3*(B*b*e^2*x^2 - 8*B*b*d^2 - 3*A*a*e^2 + 6*(B*a + A*b)*d*e - (4
*B*b*d*e - 3*(B*a + A*b)*e^2)*x)/(sqrt(e*x + d)*e^3)
```

Sympy [A] time = 14.0894, size = 638, normalized size = 8.08

$$-\frac{2Aa}{e\sqrt{d+ex}}+Ab\left(\begin{cases}\frac{4d}{e^2\sqrt{d+ex}}+\frac{2x}{e\sqrt{d+ex}} & \text{for } e\neq 0\\ \frac{x^2}{2d^{\frac{3}{2}}} & \text{otherwise}\end{cases}\right)+Ba\left(\begin{cases}\frac{4d}{e^2\sqrt{d+ex}}+\frac{2x}{e\sqrt{d+ex}} & \text{for } e\neq 0\\ \frac{x^2}{2d^{\frac{3}{2}}} & \text{otherwise}\end{cases}\right)+Bb\left(-\frac{16d^{\frac{19}{2}}\sqrt{1+\frac{ex}{d}}}{3d^8e^3+9d^7e^4x+9d^6e^5x^2+3d^5e^6x^3}+\frac{16d^{\frac{19}{2}}}{3d^8e^3+9d^7e^4x+9d^6e^5x^2+3d^5e^6x^3}-\frac{40d^{\frac{17}{2}}ex\sqrt{1+\frac{ex}{d}}}{3d^8e^3+9d^7e^4x+9d^6e^5x^2+3d^5e^6x^3}+\frac{48d^{\frac{17}{2}}ex}{3d^8e^3+9d^7e^4x+9d^6e^5x^2+3d^5e^6x^3}-\frac{30d^{\frac{15}{2}}e^2x^2\sqrt{1+\frac{ex}{d}}}{3d^8e^3+9d^7e^4x+9d^6e^5x^2+3d^5e^6x^3}+\frac{48d^{\frac{15}{2}}e^2x^2}{3d^8e^3+9d^7e^4x+9d^6e^5x^2+3d^5e^6x^3}-\frac{4d^{\frac{13}{2}}e^3x^3\sqrt{1+\frac{ex}{d}}}{3d^8e^3+9d^7e^4x+9d^6e^5x^2+3d^5e^6x^3}+\frac{16d^{\frac{13}{2}}e^3x^3}{3d^8e^3+9d^7e^4x+9d^6e^5x^2+3d^5e^6x^3}+\frac{2d^{\frac{11}{2}}e^4x^4\sqrt{1+\frac{ex}{d}}}{3d^8e^3+9d^7e^4x+9d^6e^5x^2+3d^5e^6x^3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(B*x+A)/(e*x+d)**(3/2),x)
```

```
[Out] -2*A*a/(e*sqrt(d + e*x)) + A*b*Piecewise((4*d/(e**2*sqrt(d + e*x)
) + 2*x/(e*sqrt(d + e*x)), Ne(e, 0)), (x**2/(2*d**(3/2)), True))
```

```
+ B*a*Piecewise((4*d/(e**2*sqrt(d + e*x)) + 2*x/(e*sqrt(d + e*x))
, Ne(e, 0)), (x**2/(2*d**(3/2)), True)) + B*b*(-16*d**(19/2)*sqrt
(1 + e*x/d)/(3*d**8*e**3 + 9*d**7*e**4*x + 9*d**6*e**5*x**2 + 3*d
**5*e**6*x**3) + 16*d**(19/2)/(3*d**8*e**3 + 9*d**7*e**4*x + 9*d*
*6*e**5*x**2 + 3*d**5*e**6*x**3) - 40*d**(17/2)*e*x*sqrt(1 + e*x/
d)/(3*d**8*e**3 + 9*d**7*e**4*x + 9*d**6*e**5*x**2 + 3*d**5*e**6*
x**3) + 48*d**(17/2)*e*x/(3*d**8*e**3 + 9*d**7*e**4*x + 9*d**6*e*
*5*x**2 + 3*d**5*e**6*x**3) - 30*d**(15/2)*e**2*x**2*sqrt(1 + e*x
/d)/(3*d**8*e**3 + 9*d**7*e**4*x + 9*d**6*e**5*x**2 + 3*d**5*e**6
*x**3) + 48*d**(15/2)*e**2*x**2/(3*d**8*e**3 + 9*d**7*e**4*x + 9*
d**6*e**5*x**2 + 3*d**5*e**6*x**3) - 4*d**(13/2)*e**3*x**3*sqrt(1
 + e*x/d)/(3*d**8*e**3 + 9*d**7*e**4*x + 9*d**6*e**5*x**2 + 3*d**
5*e**6*x**3) + 16*d**(13/2)*e**3*x**3/(3*d**8*e**3 + 9*d**7*e**4*
x + 9*d**6*e**5*x**2 + 3*d**5*e**6*x**3) + 2*d**(11/2)*e**4*x**4*
sqrt(1 + e*x/d)/(3*d**8*e**3 + 9*d**7*e**4*x + 9*d**6*e**5*x**2 +
 3*d**5*e**6*x**3))
```

GIAC/XCAS [A] time = 0.210336, size = 135, normalized size = 1.71

$$\frac{2}{3}\left((xe+d)^{\frac{3}{2}}Bbe^{6} - 6\sqrt{xe+d}Bbde^{6} + 3\sqrt{xe+d}Bae^{7} + 3\sqrt{xe+d}Abe^{7}\right)e^{(-9)} - \frac{2\left(Bbd^{2} - Bade - Abde + Aae^{2}\right)e^{(-3)}}{\sqrt{xe+d}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/(e*x + d)^(3/2),x, algorithm="giac")
```

```
[Out] 2/3*((x*e + d)^(3/2)*B*b*e^6 - 6*sqrt(x*e + d)*B*b*d*e^6 + 3*sqrt
(x*e + d)*B*a*e^7 + 3*sqrt(x*e + d)*A*b*e^7)*e^(-9) - 2*(B*b*d^2
- B*a*d*e - A*b*d*e + A*a*e^2)*e^(-3)/sqrt(x*e + d)
```

3.1707 $\int \frac{(a+bx)(A+Bx)}{(d+ex)^{5/2}}\,dx$

Optimal. Leaf size=79

$$\frac{2(-aBe-Abe+2bBd)}{e^3\sqrt{d+ex}}-\frac{2(bd-ae)(Bd-Ae)}{3e^3(d+ex)^{3/2}}+\frac{2bB\sqrt{d+ex}}{e^3}$$

```
[Out] (-2*(b*d - a*e)*(B*d - A*e))/(3*e^3*(d + e*x)^(3/2)) + (2*(2*b*B*
d - A*b*e - a*B*e))/(e^3*Sqrt[d + e*x]) + (2*b*B*Sqrt[d + e*x])/e
^3
```

Rubi [A] time = 0.100903, antiderivative size = 79, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$\frac{2(-aBe-Abe+2bBd)}{e^3\sqrt{d+ex}}-\frac{2(bd-ae)(Bd-Ae)}{3e^3(d+ex)^{3/2}}+\frac{2bB\sqrt{d+ex}}{e^3}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(A + B*x))/(d + e*x)^(5/2),x]
```

```
[Out] (-2*(b*d - a*e)*(B*d - A*e))/(3*e^3*(d + e*x)^(3/2)) + (2*(2*b*B*
d - A*b*e - a*B*e))/(e^3*Sqrt[d + e*x]) + (2*b*B*Sqrt[d + e*x])/e
^3
```

Rubi in Sympy [A] time = 16.5992, size = 76, normalized size = 0.96

$$\frac{2Bb\sqrt{d+ex}}{e^3}-\frac{2\left(Abe+Bae-2Bbd\right)}{e^3\sqrt{d+ex}}-\frac{2\left(Ae-Bd\right)\left(ae-bd\right)}{3e^3\left(d+ex\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(B*x+A)/(e*x+d)**(5/2),x)
```

```
[Out] 2*B*b*sqrt(d + e*x)/e**3 - 2*(A*b*e + B*a*e - 2*B*b*d)/(e**3*sqrt
(d + e*x)) - 2*(A*e - B*d)*(a*e - b*d)/(3*e**3*(d + e*x)**(3/2))
```

Mathematica [A] time = 0.0930066, size = 68, normalized size = 0.86

$$-\frac{2\left(ae(Ae+2Bd+3Bex)+Abe(2d+3ex)-bB\left(8d^2+12dex+3e^2x^2\right)\right)}{3e^3(d+ex)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(A + B*x))/(d + e*x)^(5/2),x]
```

```
[Out] (-2*(A*b*e*(2*d + 3*e*x) + a*e*(2*B*d + A*e + 3*B*e*x) - b*B*(8*d
^2 + 12*d*e*x + 3*e^2*x^2)))/(3*e^3*(d + e*x)^(3/2))
```

Maple [A] time = 0.007, size = 72, normalized size = 0.9

$$-\frac{-6\,bBx^2e^2+6\,Abe^2x+6\,Bae^2x-24\,Bbdex+2\,aAe^2+4\,Abde+4\,Bade-16\,bBd^2}{3\,e^3}(ex+d)^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(B*x+A)/(e*x+d)^(5/2),x)
```

```
[Out] -2/3/(e*x+d)^(3/2)*(-3*B*b*e^2*x^2+3*A*b*e^2*x+3*B*a*e^2*x-12*B*b
*d*e*x+A*a*e^2+2*A*b*d*e+2*B*a*d*e-8*B*b*d^2)/e^3
```

Maxima [A] time = 1.34278, size = 107, normalized size = 1.35

$$\frac{2\left(\frac{3\sqrt{ex+d}Bb}{e^2}-\frac{Bbd^2+Aae^2-(Ba+Ab)de-3\,(2\,Bbd-(Ba+Ab)e)(ex+d)}{(ex+d)^{\frac{3}{2}}e^2}\right)}{3\,e}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/(e*x + d)^(5/2),x, algorithm="maxima")
```

```
[Out] 2/3*(3*sqrt(e*x + d)*B*b/e^2 - (B*b*d^2 + A*a*e^2 - (B*a + A*b)*d
*e - 3*(2*B*b*d - (B*a + A*b)*e)*(e*x + d))/((e*x + d)^(3/2)*e^2)
)/e
```

Fricas [A] time = 0.224134, size = 108, normalized size = 1.37

$$\frac{2\left(3\,Bbe^2x^2+8\,Bbd^2-Aae^2-2\,(Ba+Ab)de+3\,\left(4\,Bbde-(Ba+Ab)e^2\right)x\right)}{3\,(e^4x+de^3)\sqrt{ex+d}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/(e*x + d)^(5/2),x, algorithm="fricas")
```

```
[Out] 2/3*(3*B*b*e^2*x^2 + 8*B*b*d^2 - A*a*e^2 - 2*(B*a + A*b)*d*e + 3*
(4*B*b*d*e - (B*a + A*b)*e^2)*x)/((e^4*x + d*e^3)*sqrt(e*x + d))
```

Sympy [A] time = 4.34213, size = 355, normalized size = 4.49

$$\begin{cases}-\frac{2Aae^2}{3de^3\sqrt{d+ex}+3e^4x\sqrt{d+ex}}-\frac{4Abde}{3de^3\sqrt{d+ex}+3e^4x\sqrt{d+ex}}-\frac{6Abe^2x}{3de^3\sqrt{d+ex}+3e^4x\sqrt{d+ex}}-\frac{4Bade}{3de^3\sqrt{d+ex}+3e^4x\sqrt{d+ex}}-\frac{6Bae^2x}{3de^3\sqrt{d+ex}+3e^4x\sqrt{d+ex}}+\frac{}{3de^3} \\ \frac{Aax+\frac{Abx^2}{2}+\frac{Bax^2}{2}+\frac{Bbx^3}{3}}{d^{\frac{5}{2}}} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(B*x+A)/(e*x+d)**(5/2),x)
```

```
[Out] Piecewise((-2*A*a*e**2/(3*d*e**3*sqrt(d + e*x) + 3*e**4*x*sqrt(d
+ e*x)) - 4*A*b*d*e/(3*d*e**3*sqrt(d + e*x) + 3*e**4*x*sqrt(d + e
*x)) - 6*A*b*e**2*x/(3*d*e**3*sqrt(d + e*x) + 3*e**4*x*sqrt(d + e
*x)) - 4*B*a*d*e/(3*d*e**3*sqrt(d + e*x) + 3*e**4*x*sqrt(d + e*x)
) - 6*B*a*e**2*x/(3*d*e**3*sqrt(d + e*x) + 3*e**4*x*sqrt(d + e*x)
) + 16*B*b*d**2/(3*d*e**3*sqrt(d + e*x) + 3*e**4*x*sqrt(d + e*x))
 + 24*B*b*d*e*x/(3*d*e**3*sqrt(d + e*x) + 3*e**4*x*sqrt(d + e*x))
 + 6*B*b*e**2*x**2/(3*d*e**3*sqrt(d + e*x) + 3*e**4*x*sqrt(d + e*
x)), Ne(e, 0)), ((A*a*x + A*b*x**2/2 + B*a*x**2/2 + B*b*x**3/3)/d
**(5/2), True))
```

GIAC/XCAS [A] time = 0.210119, size = 119, normalized size = 1.51

$$2\sqrt{xe+d}Bbe^{(-3)} + \frac{2\left(6(xe+d)Bbd - Bbd^2 - 3(xe+d)Bae - 3(xe+d)Abe + Bade + Abde - Aae^2\right)e^{(-3)}}{3(xe+d)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/(e*x + d)^(5/2),x, algorithm="giac")
```

```
[Out] 2*sqrt(x*e + d)*B*b*e^(-3) + 2/3*(6*(x*e + d)*B*b*d - B*b*d^2 - 3
*(x*e + d)*B*a*e - 3*(x*e + d)*A*b*e + B*a*d*e + A*b*d*e - A*a*e^
2)*e^(-3)/(x*e + d)^(3/2)
```

3.1708 $\int \frac{(a+bx)(A+Bx)}{(d+ex)^{7/2}}\,dx$

Optimal. Leaf size=81

$$\frac{2(-aBe-Abe+2bBd)}{3e^3(d+ex)^{3/2}}-\frac{2(bd-ae)(Bd-Ae)}{5e^3(d+ex)^{5/2}}-\frac{2bB}{e^3\sqrt{d+ex}}$$

```
[Out] (-2*(b*d - a*e)*(B*d - A*e))/(5*e^3*(d + e*x)^(5/2)) + (2*(2*b*B*
d - A*b*e - a*B*e))/(3*e^3*(d + e*x)^(3/2)) - (2*b*B)/(e^3*Sqrt[d
 + e*x])
```

Rubi [A] time = 0.101409, antiderivative size = 81, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{2(-aBe-Abe+2bBd)}{3e^3(d+ex)^{3/2}}-\frac{2(bd-ae)(Bd-Ae)}{5e^3(d+ex)^{5/2}}-\frac{2bB}{e^3\sqrt{d+ex}}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(A + B*x))/(d + e*x)^(7/2),x]
```

```
[Out] (-2*(b*d - a*e)*(B*d - A*e))/(5*e^3*(d + e*x)^(5/2)) + (2*(2*b*B*
d - A*b*e - a*B*e))/(3*e^3*(d + e*x)^(3/2)) - (2*b*B)/(e^3*Sqrt[d
 + e*x])
```

Rubi in Sympy [A] time = 16.6884, size = 80, normalized size = 0.99

$$-\frac{2Bb}{e^3\sqrt{d+ex}}-\frac{2\left(Abe+Bae-2Bbd\right)}{3e^3\left(d+ex\right)^{\frac{3}{2}}}-\frac{2\left(Ae-Bd\right)\left(ae-bd\right)}{5e^3\left(d+ex\right)^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(B*x+A)/(e*x+d)**(7/2),x)
```

```
[Out] -2*B*b/(e**3*sqrt(d + e*x)) - 2*(A*b*e + B*a*e - 2*B*b*d)/(3*e**3
*(d + e*x)**(3/2)) - 2*(A*e - B*d)*(a*e - b*d)/(5*e**3*(d + e*x)*
*(5/2))
```

Mathematica [A] time = 0.0873675, size = 68, normalized size = 0.84

$$-\frac{2\left(ae(3Ae+2Bd+5Bex)+Abe(2d+5ex)+bB\left(8d^2+20dex+15e^2x^2\right)\right)}{15e^3(d+ex)^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(A + B*x))/(d + e*x)^(7/2),x]
```

```
[Out] (-2*(A*b*e*(2*d + 5*e*x) + a*e*(2*B*d + 3*A*e + 5*B*e*x) + b*B*(8
*d^2 + 20*d*e*x + 15*e^2*x^2)))/(15*e^3*(d + e*x)^(5/2))
```

Maple [A] time = 0.006, size = 73, normalized size = 0.9

$$-\frac{30\,bBx^2e^2+10\,Abe^2x+10\,Bae^2x+40\,Bbdex+6\,aAe^2+4\,Abde+4\,Bade+16\,bBd^2}{15\,e^3}(ex+d)^{-\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(B*x+A)/(e*x+d)^(7/2),x)
```

```
[Out] -2/15/(e*x+d)^(5/2)*(15*B*b*e^2*x^2+5*A*b*e^2*x+5*B*a*e^2*x+20*B*
b*d*e*x+3*A*a*e^2+2*A*b*d*e+2*B*a*d*e+8*B*b*d^2)/e^3
```

Maxima [A] time = 1.39192, size = 97, normalized size = 1.2

$$-\frac{2\left(15\,(ex+d)^{2}Bb+3\,Bbd^{2}+3\,Aae^{2}-3\,(Ba+Ab)de-5\,(2\,Bbd-(Ba+Ab)e)(ex+d)\right)}{15\,(ex+d)^{\frac{5}{2}}e^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/(e*x + d)^(7/2),x, algorithm="maxima")
```

```
[Out] -2/15*(15*(e*x + d)^2*B*b + 3*B*b*d^2 + 3*A*a*e^2 - 3*(B*a + A*b)
*d*e - 5*(2*B*b*d - (B*a + A*b)*e)*(e*x + d))/((e*x + d)^(5/2)*e^
3)
```

Fricas [A] time = 0.227252, size = 122, normalized size = 1.51

$$-\frac{2\left(15\,Bbe^{2}x^{2}+8\,Bbd^{2}+3\,Aae^{2}+2\,(Ba+Ab)de+5\left(4\,Bbde+(Ba+Ab)e^{2}\right)x\right)}{15\,(e^{5}x^{2}+2\,de^{4}x+d^{2}e^{3})\sqrt{ex+d}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/(e*x + d)^(7/2),x, algorithm="fricas")
```

```
[Out] -2/15*(15*B*b*e^2*x^2 + 8*B*b*d^2 + 3*A*a*e^2 + 2*(B*a + A*b)*d*e
 + 5*(4*B*b*d*e + (B*a + A*b)*e^2)*x)/((e^5*x^2 + 2*d*e^4*x + d^2
*e^3)*sqrt(e*x + d))
```

Sympy [A] time = 9.28145, size = 520, normalized size = 6.42

$$\begin{cases} -\frac{6Aae^{2}}{15d^{2}e^{3}\sqrt{d+ex}+30de^{4}x\sqrt{d+ex}+15e^{5}x^{2}\sqrt{d+ex}}-\frac{4Abde}{15d^{2}e^{3}\sqrt{d+ex}+30de^{4}x\sqrt{d+ex}+15e^{5}x^{2}\sqrt{d+ex}}-\frac{10Abe^{2}x}{15d^{2}e^{3}\sqrt{d+ex}+30de^{4}x\sqrt{d+ex}+15e^{5}x^{2}\sqrt{d+ex}}- \cdots 15d \\ \frac{Aax+\frac{Abx^{2}}{2}+\frac{Bax^{2}}{2}+\frac{Bbx^{3}}{3}}{d^{\frac{7}{2}}} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(B*x+A)/(e*x+d)**(7/2),x)
```

```
[Out] Piecewise((-6*A*a*e**2/(15*d**2*e**3*sqrt(d + e*x) + 30*d*e**4*x*
sqrt(d + e*x) + 15*e**5*x**2*sqrt(d + e*x)) - 4*A*b*d*e/(15*d**2*
e**3*sqrt(d + e*x) + 30*d*e**4*x*sqrt(d + e*x) + 15*e**5*x**2*sqr
t(d + e*x)) - 10*A*b*e**2*x/(15*d**2*e**3*sqrt(d + e*x) + 30*d*e*
*4*x*sqrt(d + e*x) + 15*e**5*x**2*sqrt(d + e*x)) - 4*B*a*d*e/(15*
d**2*e**3*sqrt(d + e*x) + 30*d*e**4*x*sqrt(d + e*x) + 15*e**5*x**
2*sqrt(d + e*x)) - 10*B*a*e**2*x/(15*d**2*e**3*sqrt(d + e*x) + 30
*d*e**4*x*sqrt(d + e*x) + 15*e**5*x**2*sqrt(d + e*x)) - 16*B*b*d*
*2/(15*d**2*e**3*sqrt(d + e*x) + 30*d*e**4*x*sqrt(d + e*x) + 15*e
**5*x**2*sqrt(d + e*x)) - 40*B*b*d*e*x/(15*d**2*e**3*sqrt(d + e*x
) + 30*d*e**4*x*sqrt(d + e*x) + 15*e**5*x**2*sqrt(d + e*x)) - 30*
B*b*e**2*x**2/(15*d**2*e**3*sqrt(d + e*x) + 30*d*e**4*x*sqrt(d +
e*x) + 15*e**5*x**2*sqrt(d + e*x)), Ne(e, 0)), ((A*a*x + A*b*x**2
/2 + B*a*x**2/2 + B*b*x**3/3)/d**(7/2), True))
```

GIAC/XCAS [A] time = 0.215903, size = 117, normalized size = 1.44

$$-\frac{2 \left(15 \, (xe + d)^{2} Bb - 10 \, (xe + d) Bbd + 3 \, Bbd^{2} + 5 \, (xe + d) Bae + 5 \, (xe + d) Abe - 3 \, Bade - 3 \, Abde + 3 \, Aae^{2}\right) e^{(-3)}}{15 \, (xe + d)^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)/(e*x + d)^(7/2),x, algorithm="giac")
```

```
[Out] -2/15*(15*(x*e + d)^2*B*b - 10*(x*e + d)*B*b*d + 3*B*b*d^2 + 5*(x
*e + d)*B*a*e + 5*(x*e + d)*A*b*e - 3*B*a*d*e - 3*A*b*d*e + 3*A*a
*e^2)*e^(-3)/(x*e + d)^(5/2)
```

3.1709 $\int (a+bx)^2(A+Bx)(d+ex)^{7/2}\,dx$

Optimal. Leaf size=128

$$-\frac{2b(d+ex)^{13/2}(-2aBe-Abe+3bBd)}{13e^4}+\frac{2(d+ex)^{11/2}(bd-ae)(-aBe-2Abe+3bBd)}{11e^4}-\frac{2(d+ex)^{9/2}(bd-ae)^2(Bd-Ae)}{9e^4}+\frac{2b^2B(d+ex)^{15/2}}{15e^4}$$

```
[Out] (-2*(b*d - a*e)^2*(B*d - A*e)*(d + e*x)^(9/2))/(9*e^4) + (2*(b*d
- a*e)*(3*b*B*d - 2*A*b*e - a*B*e)*(d + e*x)^(11/2))/(11*e^4) - (
2*b*(3*b*B*d - A*b*e - 2*a*B*e)*(d + e*x)^(13/2))/(13*e^4) + (2*b
^2*B*(d + e*x)^(15/2))/(15*e^4)
```

Rubi [A] time = 0.196146, antiderivative size = 128, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$-\frac{2b(d+ex)^{13/2}(-2aBe-Abe+3bBd)}{13e^4}+\frac{2(d+ex)^{11/2}(bd-ae)(-aBe-2Abe+3bBd)}{11e^4}-\frac{2(d+ex)^{9/2}(bd-ae)^2(Bd-Ae)}{9e^4}+\frac{2b^2B(d+ex)^{15/2}}{15e^4}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^2*(A + B*x)*(d + e*x)^(7/2),x]
```

```
[Out] (-2*(b*d - a*e)^2*(B*d - A*e)*(d + e*x)^(9/2))/(9*e^4) + (2*(b*d
- a*e)*(3*b*B*d - 2*A*b*e - a*B*e)*(d + e*x)^(11/2))/(11*e^4) - (
2*b*(3*b*B*d - A*b*e - 2*a*B*e)*(d + e*x)^(13/2))/(13*e^4) + (2*b
^2*B*(d + e*x)^(15/2))/(15*e^4)
```

Rubi in Sympy [A] time = 32.4907, size = 126, normalized size = 0.98

$$\frac{2Bb^2\left(d+ex\right)^{\frac{15}{2}}}{15e^4}+\frac{2b\left(d+ex\right)^{\frac{13}{2}}\left(Abe+2Bae-3Bbd\right)}{13e^4}+\frac{2\left(d+ex\right)^{\frac{11}{2}}\left(ae-bd\right)\left(2Abe+Bae-3Bbd\right)}{11e^4}+\frac{2\left(d+ex\right)^{\frac{9}{2}}\left(Ae-Bd\right)\left(ae-bd\right)^2}{9e^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**2*(B*x+A)*(e*x+d)**(7/2),x)
```

```
[Out] 2*B*b**2*(d + e*x)**(15/2)/(15*e**4) + 2*b*(d + e*x)**(13/2)*(A*b
*e + 2*B*a*e - 3*B*b*d)/(13*e**4) + 2*(d + e*x)**(11/2)*(a*e - b*
d)*(2*A*b*e + B*a*e - 3*B*b*d)/(11*e**4) + 2*(d + e*x)**(9/2)*(A*
e - B*d)*(a*e - b*d)**2/(9*e**4)
```

Mathematica [A] time = 0.29747, size = 138, normalized size = 1.08

$$\frac{2(d+ex)^{9/2}\left(65a^2e^2(11Ae-2Bd+9Bex)+10abe\left(13Ae(9ex-2d)+B\left(8d^2-36dex+99e^2x^2\right)\right)+b^2\left(5Ae\left(8d^2-36dex+\right.\right.\right.}{6435e^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^2*(A + B*x)*(d + e*x)^(7/2),x]
```

```
[Out] (2*(d + e*x)^(9/2)*(65*a^2*e^2*(-2*B*d + 11*A*e + 9*B*e*x) + 10*a
*b*e*(13*A*e*(-2*d + 9*e*x) + B*(8*d^2 - 36*d*e*x + 99*e^2*x^2))
```

```
+ b^2*(5*A*e*(8*d^2 - 36*d*e*x + 99*e^2*x^2) + B*(-16*d^3 + 72*d^
2*e*x - 198*d*e^2*x^2 + 429*e^3*x^3))))/(6435*e^4)
```

Maple [A] time = 0.01, size = 169, normalized size = 1.3

$$\frac{858\,Bb^2x^3e^3+990\,Ab^2e^3x^2+1980\,Babe^3x^2-396\,Bb^2de^2x^2+2340\,Aabe^3x-360\,Ab^2de^2x+1170\,Ba^2e^3x-720\,Babde^2x+}{6435\,e^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^2*(B*x+A)*(e*x+d)^(7/2),x)
```

```
[Out] 2/6435*(e*x+d)^(9/2)*(429*B*b^2*e^3*x^3+495*A*b^2*e^3*x^2+990*B*a
*b*e^3*x^2-198*B*b^2*d*e^2*x^2+1170*A*a*b*e^3*x-180*A*b^2*d*e^2*x
+585*B*a^2*e^3*x-360*B*a*b*d*e^2*x+72*B*b^2*d^2*e*x+715*A*a^2*e^3
-260*A*a*b*d*e^2+40*A*b^2*d^2*e-130*B*a^2*d*e^2+80*B*a*b*d^2*e-16
*B*b^2*d^3)/e^4
```

Maxima [A] time = 1.33885, size = 215, normalized size = 1.68

$$\frac{2\left(429\,(ex+d)^{\frac{15}{2}}Bb^2-495\left(3\,Bb^2d-\left(2\,Bab+Ab^2\right)e\right)(ex+d)^{\frac{13}{2}}+585\left(3\,Bb^2d^2-2\left(2\,Bab+Ab^2\right)de+\left(Ba^2+2\,Aab\right)e^2\right)(ex}{6435\,e^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*(e*x + d)^(7/2),x, algorithm="maxima")
```

```
[Out] 2/6435*(429*(e*x + d)^(15/2)*B*b^2 - 495*(3*B*b^2*d - (2*B*a*b +
A*b^2)*e)*(e*x + d)^(13/2) + 585*(3*B*b^2*d^2 - 2*(2*B*a*b + A*b^
2)*d*e + (B*a^2 + 2*A*a*b)*e^2)*(e*x + d)^(11/2) - 715*(B*b^2*d^3
 - A*a^2*e^3 - (2*B*a*b + A*b^2)*d^2*e + (B*a^2 + 2*A*a*b)*d*e^2)
*(e*x + d)^(9/2))/e^4
```

Fricas [A] time = 0.224407, size = 572, normalized size = 4.47

$$\frac{2\left(429\,Bb^2e^7x^7-16\,Bb^2d^7+715\,Aa^2d^4e^3+40\left(2\,Bab+Ab^2\right)d^6e-130\left(Ba^2+2\,Aab\right)d^5e^2+33\left(46\,Bb^2de^6+15\left(2\,Bab+Ab\right.\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*(e*x + d)^(7/2),x, algorithm="fricas")
```

```
[Out] 2/6435*(429*B*b^2*e^7*x^7 - 16*B*b^2*d^7 + 715*A*a^2*d^4*e^3 + 40
*(2*B*a*b + A*b^2)*d^6*e - 130*(B*a^2 + 2*A*a*b)*d^5*e^2 + 33*(46
*B*b^2*d*e^6 + 15*(2*B*a*b + A*b^2)*e^7)*x^6 + 9*(206*B*b^2*d^2*e
^5 + 200*(2*B*a*b + A*b^2)*d*e^6 + 65*(B*a^2 + 2*A*a*b)*e^7)*x^5
+ 5*(160*B*b^2*d^3*e^4 + 143*A*a^2*e^7 + 458*(2*B*a*b + A*b^2)*d^
2*e^5 + 442*(B*a^2 + 2*A*a*b)*d*e^6)*x^4 + 5*(B*b^2*d^4*e^3 + 572
*A*a^2*d*e^6 + 212*(2*B*a*b + A*b^2)*d^3*e^4 + 598*(B*a^2 + 2*A*a
*b)*d^2*e^5)*x^3 - 3*(2*B*b^2*d^5*e^2 - 1430*A*a^2*d^2*e^5 - 5*(2
*B*a*b + A*b^2)*d^4*e^3 - 520*(B*a^2 + 2*A*a*b)*d^3*e^4)*x^2 + (8
*B*b^2*d^6*e + 2860*A*a^2*d^3*e^4 - 20*(2*B*a*b + A*b^2)*d^5*e^2
+ 65*(B*a^2 + 2*A*a*b)*d^4*e^3)*x)*sqrt(e*x + d)/e^4
```

Sympy [A] time = 32.2462, size = 1020, normalized size = 7.97

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**2*(B*x+A)*(e*x+d)**(7/2),x)
```

```
[Out] Piecewise((2*A*a**2*d**4*sqrt(d + e*x)/(9*e) + 8*A*a**2*d**3*x*sq
rt(d + e*x)/9 + 4*A*a**2*d**2*e*x**2*sqrt(d + e*x)/3 + 8*A*a**2*d
*e**2*x**3*sqrt(d + e*x)/9 + 2*A*a**2*e**3*x**4*sqrt(d + e*x)/9 -
 8*A*a*b*d**5*sqrt(d + e*x)/(99*e**2) + 4*A*a*b*d**4*x*sqrt(d + e
*x)/(99*e) + 32*A*a*b*d**3*x**2*sqrt(d + e*x)/33 + 184*A*a*b*d**2
*e*x**3*sqrt(d + e*x)/99 + 136*A*a*b*d*e**2*x**4*sqrt(d + e*x)/99
 + 4*A*a*b*e**3*x**5*sqrt(d + e*x)/11 + 16*A*b**2*d**6*sqrt(d + e
*x)/(1287*e**3) - 8*A*b**2*d**5*x*sqrt(d + e*x)/(1287*e**2) + 2*A
*b**2*d**4*x**2*sqrt(d + e*x)/(429*e) + 424*A*b**2*d**3*x**3*sqrt
(d + e*x)/1287 + 916*A*b**2*d**2*e*x**4*sqrt(d + e*x)/1287 + 80*A
*b**2*d*e**2*x**5*sqrt(d + e*x)/143 + 2*A*b**2*e**3*x**6*sqrt(d +
 e*x)/13 - 4*B*a**2*d**5*sqrt(d + e*x)/(99*e**2) + 2*B*a**2*d**4*
x*sqrt(d + e*x)/(99*e) + 16*B*a**2*d**3*x**2*sqrt(d + e*x)/33 + 9
2*B*a**2*d**2*e*x**3*sqrt(d + e*x)/99 + 68*B*a**2*d*e**2*x**4*sqr
t(d + e*x)/99 + 2*B*a**2*e**3*x**5*sqrt(d + e*x)/11 + 32*B*a*b*d*
*6*sqrt(d + e*x)/(1287*e**3) - 16*B*a*b*d**5*x*sqrt(d + e*x)/(128
7*e**2) + 4*B*a*b*d**4*x**2*sqrt(d + e*x)/(429*e) + 848*B*a*b*d**
3*x**3*sqrt(d + e*x)/1287 + 1832*B*a*b*d**2*e*x**4*sqrt(d + e*x)/
1287 + 160*B*a*b*d*e**2*x**5*sqrt(d + e*x)/143 + 4*B*a*b*e**3*x**
6*sqrt(d + e*x)/13 - 32*B*b**2*d**7*sqrt(d + e*x)/(6435*e**4) + 1
6*B*b**2*d**6*x*sqrt(d + e*x)/(6435*e**3) - 4*B*b**2*d**5*x**2*sq
rt(d + e*x)/(2145*e**2) + 2*B*b**2*d**4*x**3*sqrt(d + e*x)/(1287*
e) + 320*B*b**2*d**3*x**4*sqrt(d + e*x)/1287 + 412*B*b**2*d**2*e*
x**5*sqrt(d + e*x)/715 + 92*B*b**2*d*e**2*x**6*sqrt(d + e*x)/195
+ 2*B*b**2*e**3*x**7*sqrt(d + e*x)/15, Ne(e, 0)), (d**(7/2)*(A*a*
*2*x + A*a*b*x**2 + A*b**2*x**3/3 + B*a**2*x**2/2 + 2*B*a*b*x**3/
3 + B*b**2*x**4/4), True))
```

GIAC/XCAS [A] time = 0.239422, size = 1, normalized size = 0.01

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*(e*x + d)^(7/2),x, algorithm="giac")
```

```
[Out] Done
```

3.1710 $\int (a+bx)^2(A+Bx)(d+ex)^{5/2}\,dx$

Optimal. Leaf size=128

$$-\frac{2b(d+ex)^{11/2}(-2aBe-Abe+3bBd)}{11e^4}+\frac{2(d+ex)^{9/2}(bd-ae)(-aBe-2Abe+3bBd)}{9e^4}-\frac{2(d+ex)^{7/2}(bd-ae)^2(Bd-Ae)}{7e^4}+\frac{2b^2B(d+ex)^{13/2}}{13e^4}$$

```
[Out] (-2*(b*d - a*e)^2*(B*d - A*e)*(d + e*x)^(7/2))/(7*e^4) + (2*(b*d
- a*e)*(3*b*B*d - 2*A*b*e - a*B*e)*(d + e*x)^(9/2))/(9*e^4) - (2*
b*(3*b*B*d - A*b*e - 2*a*B*e)*(d + e*x)^(11/2))/(11*e^4) + (2*b^2
*B*(d + e*x)^(13/2))/(13*e^4)
```

Rubi [A] time = 0.163978, antiderivative size = 128, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{2b(d+ex)^{11/2}(-2aBe-Abe+3bBd)}{11e^4}+\frac{2(d+ex)^{9/2}(bd-ae)(-aBe-2Abe+3bBd)}{9e^4}-\frac{2(d+ex)^{7/2}(bd-ae)^2(Bd-Ae)}{7e^4}+\frac{2b^2B(d+ex)^{13/2}}{13e^4}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^2*(A + B*x)*(d + e*x)^(5/2),x]
```

```
[Out] (-2*(b*d - a*e)^2*(B*d - A*e)*(d + e*x)^(7/2))/(7*e^4) + (2*(b*d
- a*e)*(3*b*B*d - 2*A*b*e - a*B*e)*(d + e*x)^(9/2))/(9*e^4) - (2*
b*(3*b*B*d - A*b*e - 2*a*B*e)*(d + e*x)^(11/2))/(11*e^4) + (2*b^2
*B*(d + e*x)^(13/2))/(13*e^4)
```

Rubi in Sympy [A] time = 31.3334, size = 126, normalized size = 0.98

$$\frac{2Bb^2\left(d+ex\right)^{\frac{13}{2}}}{13e^4}+\frac{2b\left(d+ex\right)^{\frac{11}{2}}\left(Abe+2Bae-3Bbd\right)}{11e^4}+\frac{2\left(d+ex\right)^{\frac{9}{2}}\left(ae-bd\right)\left(2Abe+Bae-3Bbd\right)}{9e^4}+\frac{2\left(d+ex\right)^{\frac{7}{2}}\left(Ae-Bd\right)\left(ae-bd\right)^2}{7e^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**2*(B*x+A)*(e*x+d)**(5/2),x)
```

```
[Out] 2*B*b**2*(d + e*x)**(13/2)/(13*e**4) + 2*b*(d + e*x)**(11/2)*(A*b
*e + 2*B*a*e - 3*B*b*d)/(11*e**4) + 2*(d + e*x)**(9/2)*(a*e - b*d
)*(2*A*b*e + B*a*e - 3*B*b*d)/(9*e**4) + 2*(d + e*x)**(7/2)*(A*e
- B*d)*(a*e - b*d)**2/(7*e**4)
```

Mathematica [A] time = 0.270092, size = 138, normalized size = 1.08

$$\frac{2(d+ex)^{7/2}\left(143a^2e^2(9Ae-2Bd+7Bex)+26abe\left(11Ae(7ex-2d)+B\left(8d^2-28dex+63e^2x^2\right)\right)+b^2\left(13Ae\left(8d^2-28dex\right.\right.\right.}{9009e^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^2*(A + B*x)*(d + e*x)^(5/2),x]
```

```
[Out] (2*(d + e*x)^(7/2)*(143*a^2*e^2*(-2*B*d + 9*A*e + 7*B*e*x) + 26*a
*b*e*(11*A*e*(-2*d + 7*e*x) + B*(8*d^2 - 28*d*e*x + 63*e^2*x^2))
```

```
+ b^2*(13*A*e*(8*d^2 - 28*d*e*x + 63*e^2*x^2) + B*(-48*d^3 + 168*
d^2*e*x - 378*d*e^2*x^2 + 693*e^3*x^3))))/(9009*e^4)
```

Maple [A] time = 0.01, size = 169, normalized size = 1.3

$$\frac{1386\,Bb^2x^3e^3+1638\,Ab^2e^3x^2+3276\,Babe^3x^2-756\,Bb^2de^2x^2+4004\,Aabe^3x-728\,Ab^2de^2x+2002\,Ba^2e^3x-1456\,Babde^2}{9009\,e^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^2*(B*x+A)*(e*x+d)^(5/2),x)
```

```
[Out] 2/9009*(e*x+d)^(7/2)*(693*B*b^2*e^3*x^3+819*A*b^2*e^3*x^2+1638*B*
a*b*e^3*x^2-378*B*b^2*d*e^2*x^2+2002*A*a*b*e^3*x-364*A*b^2*d*e^2*
x+1001*B*a^2*e^3*x-728*B*a*b*d*e^2*x+168*B*b^2*d^2*e*x+1287*A*a^2
*e^3-572*A*a*b*d*e^2+104*A*b^2*d^2*e-286*B*a^2*d*e^2+208*B*a*b*d^
2*e-48*B*b^2*d^3)/e^4
```

Maxima [A] time = 1.33318, size = 215, normalized size = 1.68

$$\frac{2\left(693\,(ex+d)^{\frac{13}{2}}Bb^2-819\left(3\,Bb^2d-\left(2\,Bab+Ab^2\right)e\right)(ex+d)^{\frac{11}{2}}+1001\left(3\,Bb^2d^2-2\left(2\,Bab+Ab^2\right)de+\left(Ba^2+2\,Aab\right)e^2\right)(e}{9009\,e^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*(e*x + d)^(5/2),x, algorithm="maxima")
```

```
[Out] 2/9009*(693*(e*x + d)^(13/2)*B*b^2 - 819*(3*B*b^2*d - (2*B*a*b +
A*b^2)*e)*(e*x + d)^(11/2) + 1001*(3*B*b^2*d^2 - 2*(2*B*a*b + A*b
^2)*d*e + (B*a^2 + 2*A*a*b)*e^2)*(e*x + d)^(9/2) - 1287*(B*b^2*d^
3 - A*a^2*e^3 - (2*B*a*b + A*b^2)*d^2*e + (B*a^2 + 2*A*a*b)*d*e^2
)*(e*x + d)^(7/2))/e^4
```

Fricas [A] time = 0.22877, size = 481, normalized size = 3.76

$$2\left(693\,Bb^2e^6x^6-48\,Bb^2d^6+1287\,Aa^2d^3e^3+104\left(2\,Bab+Ab^2\right)d^5e-286\left(Ba^2+2\,Aab\right)d^4e^2+63\left(27\,Bb^2de^5+13\left(2\,Bab+\right.\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*(e*x + d)^(5/2),x, algorithm="fricas")
```

```
[Out] 2/9009*(693*B*b^2*e^6*x^6 - 48*B*b^2*d^6 + 1287*A*a^2*d^3*e^3 + 1
04*(2*B*a*b + A*b^2)*d^5*e - 286*(B*a^2 + 2*A*a*b)*d^4*e^2 + 63*(
27*B*b^2*d*e^5 + 13*(2*B*a*b + A*b^2)*e^6)*x^5 + 7*(159*B*b^2*d^2
*e^4 + 299*(2*B*a*b + A*b^2)*d*e^5 + 143*(B*a^2 + 2*A*a*b)*e^6)*x
^4 + (15*B*b^2*d^3*e^3 + 1287*A*a^2*e^6 + 1469*(2*B*a*b + A*b^2)*
d^2*e^4 + 2717*(B*a^2 + 2*A*a*b)*d*e^5)*x^3 - 3*(6*B*b^2*d^4*e^2
- 1287*A*a^2*d*e^5 - 13*(2*B*a*b + A*b^2)*d^3*e^3 - 715*(B*a^2 +
2*A*a*b)*d^2*e^4)*x^2 + (24*B*b^2*d^5*e + 3861*A*a^2*d^2*e^4 - 52
*(2*B*a*b + A*b^2)*d^4*e^2 + 143*(B*a^2 + 2*A*a*b)*d^3*e^3)*x)*sq
rt(e*x + d)/e^4
```

Sympy [A] time = 14.7365, size = 857, normalized size = 6.7

$$\begin{cases} \frac{2Aa^2d^3\sqrt{d+ex}}{7e}+\frac{6Aa^2d^2x\sqrt{d+ex}}{7}+\frac{6Aa^2dex^2\sqrt{d+ex}}{7}+\frac{2Aa^2e^2x^3\sqrt{d+ex}}{7}-\frac{8Aabd^4\sqrt{d+ex}}{63e^2}+\frac{4Aabd^3x\sqrt{d+ex}}{63e}+\frac{20Aabd^2x^2\sqrt{d+ex}}{21}+\frac{76Aabdex}{63} \\ d^{\frac{5}{2}}\left(Aa^2x+Aabx^2+\frac{Ab^2x^3}{3}+\frac{Ba^2x^2}{2}+\frac{2Babx^3}{3}+\frac{Bb^2x^4}{4}\right) \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**2*(B*x+A)*(e*x+d)**(5/2),x)
```

```
[Out] Piecewise((2*A*a**2*d**3*sqrt(d + e*x)/(7*e) + 6*A*a**2*d**2*x*sq
rt(d + e*x)/7 + 6*A*a**2*d*e*x**2*sqrt(d + e*x)/7 + 2*A*a**2*e**2
*x**3*sqrt(d + e*x)/7 - 8*A*a*b*d**4*sqrt(d + e*x)/(63*e**2) + 4*
A*a*b*d**3*x*sqrt(d + e*x)/(63*e) + 20*A*a*b*d**2*x**2*sqrt(d + e
*x)/21 + 76*A*a*b*d*e*x**3*sqrt(d + e*x)/63 + 4*A*a*b*e**2*x**4*s
qrt(d + e*x)/9 + 16*A*b**2*d**5*sqrt(d + e*x)/(693*e**3) - 8*A*b*
*2*d**4*x*sqrt(d + e*x)/(693*e**2) + 2*A*b**2*d**3*x**2*sqrt(d +
e*x)/(231*e) + 226*A*b**2*d**2*x**3*sqrt(d + e*x)/693 + 46*A*b**2
*d*e*x**4*sqrt(d + e*x)/99 + 2*A*b**2*e**2*x**5*sqrt(d + e*x)/11
- 4*B*a**2*d**4*sqrt(d + e*x)/(63*e**2) + 2*B*a**2*d**3*x*sqrt(d
+ e*x)/(63*e) + 10*B*a**2*d**2*x**2*sqrt(d + e*x)/21 + 38*B*a**2*
d*e*x**3*sqrt(d + e*x)/63 + 2*B*a**2*e**2*x**4*sqrt(d + e*x)/9 +
32*B*a*b*d**5*sqrt(d + e*x)/(693*e**3) - 16*B*a*b*d**4*x*sqrt(d +
 e*x)/(693*e**2) + 4*B*a*b*d**3*x**2*sqrt(d + e*x)/(231*e) + 452*
B*a*b*d**2*x**3*sqrt(d + e*x)/693 + 92*B*a*b*d*e*x**4*sqrt(d + e*
x)/99 + 4*B*a*b*e**2*x**5*sqrt(d + e*x)/11 - 32*B*b**2*d**6*sqrt(
d + e*x)/(3003*e**4) + 16*B*b**2*d**5*x*sqrt(d + e*x)/(3003*e**3)
 - 4*B*b**2*d**4*x**2*sqrt(d + e*x)/(1001*e**2) + 10*B*b**2*d**3*
x**3*sqrt(d + e*x)/(3003*e) + 106*B*b**2*d**2*x**4*sqrt(d + e*x)/
429 + 54*B*b**2*d*e*x**5*sqrt(d + e*x)/143 + 2*B*b**2*e**2*x**6*s
qrt(d + e*x)/13, Ne(e, 0)), (d**(5/2)*(A*a**2*x + A*a*b*x**2 + A*
b**2*x**3/3 + B*a**2*x**2/2 + 2*B*a*b*x**3/3 + B*b**2*x**4/4), Tr
ue))
```

GIAC/XCAS [A] time = 0.234955, size = 1, normalized size = 0.01

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*(e*x + d)^(5/2),x, algorithm="giac")
```

```
[Out] Done
```

3.1711 $\int (a+bx)^2(A+Bx)(d+ex)^{3/2}\,dx$

Optimal. Leaf size=128

$$-\frac{2b(d+ex)^{9/2}(-2aBe-Abe+3bBd)}{9e^4}+\frac{2(d+ex)^{7/2}(bd-ae)(-aBe-2Abe+3bBd)}{7e^4}-\frac{2(d+ex)^{5/2}(bd-ae)^2(Bd-Ae)}{5e^4}+\frac{2b^2B(d+ex)^{11/2}}{11e^4}$$

```
[Out] (-2*(b*d - a*e)^2*(B*d - A*e)*(d + e*x)^(5/2))/(5*e^4) + (2*(b*d
- a*e)*(3*b*B*d - 2*A*b*e - a*B*e)*(d + e*x)^(7/2))/(7*e^4) - (2*
b*(3*b*B*d - A*b*e - 2*a*B*e)*(d + e*x)^(9/2))/(9*e^4) + (2*b^2*B
*(d + e*x)^(11/2))/(11*e^4)
```

Rubi [A] time = 0.158135, antiderivative size = 128, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$-\frac{2b(d+ex)^{9/2}(-2aBe-Abe+3bBd)}{9e^4}+\frac{2(d+ex)^{7/2}(bd-ae)(-aBe-2Abe+3bBd)}{7e^4}-\frac{2(d+ex)^{5/2}(bd-ae)^2(Bd-Ae)}{5e^4}+\frac{2b^2B(d+ex)^{11/2}}{11e^4}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^2*(A + B*x)*(d + e*x)^(3/2),x]
```

```
[Out] (-2*(b*d - a*e)^2*(B*d - A*e)*(d + e*x)^(5/2))/(5*e^4) + (2*(b*d
- a*e)*(3*b*B*d - 2*A*b*e - a*B*e)*(d + e*x)^(7/2))/(7*e^4) - (2*
b*(3*b*B*d - A*b*e - 2*a*B*e)*(d + e*x)^(9/2))/(9*e^4) + (2*b^2*B
*(d + e*x)^(11/2))/(11*e^4)
```

Rubi in Sympy [A] time = 30.7594, size = 126, normalized size = 0.98

$$\frac{2Bb^2(d+ex)^{\frac{11}{2}}}{11e^4}+\frac{2b(d+ex)^{\frac{9}{2}}(Abe+2Bae-3Bbd)}{9e^4}+\frac{2(d+ex)^{\frac{7}{2}}(ae-bd)(2Abe+Bae-3Bbd)}{7e^4}+\frac{2(d+ex)^{\frac{5}{2}}(Ae-Bd)(ae-bd)^2}{5e^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**2*(B*x+A)*(e*x+d)**(3/2),x)
```

```
[Out] 2*B*b**2*(d + e*x)**(11/2)/(11*e**4) + 2*b*(d + e*x)**(9/2)*(A*b*
e + 2*B*a*e - 3*B*b*d)/(9*e**4) + 2*(d + e*x)**(7/2)*(a*e - b*d)*
(2*A*b*e + B*a*e - 3*B*b*d)/(7*e**4) + 2*(d + e*x)**(5/2)*(A*e -
B*d)*(a*e - b*d)**2/(5*e**4)
```

Mathematica [A] time = 0.230435, size = 139, normalized size = 1.09

$$\frac{2(d+ex)^{5/2}\left(99a^2e^2(7Ae-2Bd+5Bex)+22abe\left(9Ae(5ex-2d)+B\left(8d^2-20dex+35e^2x^2\right)\right)+b^2\left(11Ae\left(8d^2-20dex+3\right.\right.\right.}{3465e^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^2*(A + B*x)*(d + e*x)^(3/2),x]
```

```
[Out] (2*(d + e*x)^(5/2)*(99*a^2*e^2*(-2*B*d + 7*A*e + 5*B*e*x) + 22*a*
b*e*(9*A*e*(-2*d + 5*e*x) + B*(8*d^2 - 20*d*e*x + 35*e^2*x^2)) +
```

```
b^2*(11*A*e*(8*d^2 - 20*d*e*x + 35*e^2*x^2) - 3*B*(16*d^3 - 40*d^
2*e*x + 70*d*e^2*x^2 - 105*e^3*x^3))))/(3465*e^4)
```

Maple [A] time = 0.01, size = 169, normalized size = 1.3

$$\frac{630\,Bb^2x^3e^3+770\,Ab^2e^3x^2+1540\,Babe^3x^2-420\,Bb^2de^2x^2+1980\,Aabe^3x-440\,Ab^2de^2x+990\,Ba^2e^3x-880\,Babde^2x+2}{3465\,e^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^2*(B*x+A)*(e*x+d)^(3/2),x)
```

```
[Out] 2/3465*(e*x+d)^(5/2)*(315*B*b^2*e^3*x^3+385*A*b^2*e^3*x^2+770*B*a
*b*e^3*x^2-210*B*b^2*d*e^2*x^2+990*A*a*b*e^3*x-220*A*b^2*d*e^2*x+
495*B*a^2*e^3*x-440*B*a*b*d*e^2*x+120*B*b^2*d^2*e*x+693*A*a^2*e^3
-396*A*a*b*d*e^2+88*A*b^2*d^2*e-198*B*a^2*d*e^2+176*B*a*b*d^2*e-4
8*B*b^2*d^3)/e^4
```

Maxima [A] time = 1.35708, size = 215, normalized size = 1.68

$$\frac{2\left(315\,(ex+d)^{\frac{11}{2}}Bb^2-385\left(3\,Bb^2d-\left(2\,Bab+Ab^2\right)e\right)(ex+d)^{\frac{9}{2}}+495\left(3\,Bb^2d^2-2\left(2\,Bab+Ab^2\right)de+\left(Ba^2+2\,Aab\right)e^2\right)(ex}{3465\,e^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^2*(e*x + d)^(3/2),x, algorithm="maxima")
```

```
[Out] 2/3465*(315*(e*x + d)^(11/2)*B*b^2 - 385*(3*B*b^2*d - (2*B*a*b +
A*b^2)*e)*(e*x + d)^(9/2) + 495*(3*B*b^2*d^2 - 2*(2*B*a*b + A*b^2
)*d*e + (B*a^2 + 2*A*a*b)*e^2)*(e*x + d)^(7/2) - 693*(B*b^2*d^3 -
 A*a^2*e^3 - (2*B*a*b + A*b^2)*d^2*e + (B*a^2 + 2*A*a*b)*d*e^2)*(
e*x + d)^(5/2))/e^4
```

Fricas [A] time = 0.224787, size = 390, normalized size = 3.05

$$2\left(315\,Bb^2e^5x^5-48\,Bb^2d^5+693\,Aa^2d^2e^3+88\left(2\,Bab+Ab^2\right)d^4e-198\left(Ba^2+2\,Aab\right)d^3e^2+35\left(12\,Bb^2de^4+11\left(2\,Bab+Ab\right.\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^2*(e*x + d)^(3/2),x, algorithm="fricas")
```

```
[Out] 2/3465*(315*B*b^2*e^5*x^5 - 48*B*b^2*d^5 + 693*A*a^2*d^2*e^3 + 88
*(2*B*a*b + A*b^2)*d^4*e - 198*(B*a^2 + 2*A*a*b)*d^3*e^2 + 35*(12
*B*b^2*d*e^4 + 11*(2*B*a*b + A*b^2)*e^5)*x^4 + 5*(3*B*b^2*d^2*e^3
 + 110*(2*B*a*b + A*b^2)*d*e^4 + 99*(B*a^2 + 2*A*a*b)*e^5)*x^3 -
3*(6*B*b^2*d^3*e^2 - 231*A*a^2*e^5 - 11*(2*B*a*b + A*b^2)*d^2*e^3
 - 264*(B*a^2 + 2*A*a*b)*d*e^4)*x^2 + (24*B*b^2*d^4*e + 1386*A*a^
2*d*e^4 - 44*(2*B*a*b + A*b^2)*d^3*e^2 + 99*(B*a^2 + 2*A*a*b)*d^2
*e^3)*x)*sqrt(e*x + d)/e^4
```

Sympy [A] time = 10.6279, size = 586, normalized size = 4.58

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**2*(B*x+A)*(e*x+d)**(3/2),x)
```

```
[Out] A*a**2*d*Piecewise((sqrt(d)*x, Eq(e, 0)), (2*(d + e*x)**(3/2)/(3*
e), True)) + 2*A*a**2*(-d*(d + e*x)**(3/2)/3 + (d + e*x)**(5/2)/5
)/e + 4*A*a*b*d*(-d*(d + e*x)**(3/2)/3 + (d + e*x)**(5/2)/5)/e**2
 + 4*A*a*b*(d**2*(d + e*x)**(3/2)/3 - 2*d*(d + e*x)**(5/2)/5 + (d
 + e*x)**(7/2)/7)/e**2 + 2*A*b**2*d*(d**2*(d + e*x)**(3/2)/3 - 2*
d*(d + e*x)**(5/2)/5 + (d + e*x)**(7/2)/7)/e**3 + 2*A*b**2*(-d**3
*(d + e*x)**(3/2)/3 + 3*d**2*(d + e*x)**(5/2)/5 - 3*d*(d + e*x)**
(7/2)/7 + (d + e*x)**(9/2)/9)/e**3 + 2*B*a**2*d*(-d*(d + e*x)**(3
/2)/3 + (d + e*x)**(5/2)/5)/e**2 + 2*B*a**2*(d**2*(d + e*x)**(3/2
)/3 - 2*d*(d + e*x)**(5/2)/5 + (d + e*x)**(7/2)/7)/e**2 + 4*B*a*b
*d*(d**2*(d + e*x)**(3/2)/3 - 2*d*(d + e*x)**(5/2)/5 + (d + e*x)*
*(7/2)/7)/e**3 + 4*B*a*b*(-d**3*(d + e*x)**(3/2)/3 + 3*d**2*(d +
e*x)**(5/2)/5 - 3*d*(d + e*x)**(7/2)/7 + (d + e*x)**(9/2)/9)/e**3
 + 2*B*b**2*d*(-d**3*(d + e*x)**(3/2)/3 + 3*d**2*(d + e*x)**(5/2)
/5 - 3*d*(d + e*x)**(7/2)/7 + (d + e*x)**(9/2)/9)/e**4 + 2*B*b**2
*(d**4*(d + e*x)**(3/2)/3 - 4*d**3*(d + e*x)**(5/2)/5 + 6*d**2*(d
 + e*x)**(7/2)/7 - 4*d*(d + e*x)**(9/2)/9 + (d + e*x)**(11/2)/11)
/e**4
```

GIAC/XCAS [A] time = 0.221369, size = 1, normalized size = 0.01

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*(e*x + d)^(3/2),x, algorithm="giac")
```

```
[Out] Done
```

3.1712 $\int (a+bx)^2(A+Bx)\sqrt{d+ex}\,dx$

Optimal. Leaf size=128

$$-\frac{2b(d+ex)^{7/2}(-2aBe-Abe+3bBd)}{7e^4}+\frac{2(d+ex)^{5/2}(bd-ae)(-aBe-2Abe+3bBd)}{5e^4}-\frac{2(d+ex)^{3/2}(bd-ae)^2(Bd-Ae)}{3e^4}+\frac{2b^2B(d+ex)^{9/2}}{9e^4}$$

```
[Out] (-2*(b*d - a*e)^2*(B*d - A*e)*(d + e*x)^(3/2))/(3*e^4) + (2*(b*d
- a*e)*(3*b*B*d - 2*A*b*e - a*B*e)*(d + e*x)^(5/2))/(5*e^4) - (2*
b*(3*b*B*d - A*b*e - 2*a*B*e)*(d + e*x)^(7/2))/(7*e^4) + (2*b^2*B
*(d + e*x)^(9/2))/(9*e^4)
```

Rubi [A] time = 0.154059, antiderivative size = 128, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$-\frac{2b(d+ex)^{7/2}(-2aBe-Abe+3bBd)}{7e^4}+\frac{2(d+ex)^{5/2}(bd-ae)(-aBe-2Abe+3bBd)}{5e^4}-\frac{2(d+ex)^{3/2}(bd-ae)^2(Bd-Ae)}{3e^4}+\frac{2b^2B(d+ex)^{9/2}}{9e^4}$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*x)^2*(A + B*x)*Sqrt[d + e*x],x]
```

```
[Out] (-2*(b*d - a*e)^2*(B*d - A*e)*(d + e*x)^(3/2))/(3*e^4) + (2*(b*d
- a*e)*(3*b*B*d - 2*A*b*e - a*B*e)*(d + e*x)^(5/2))/(5*e^4) - (2*
b*(3*b*B*d - A*b*e - 2*a*B*e)*(d + e*x)^(7/2))/(7*e^4) + (2*b^2*B
*(d + e*x)^(9/2))/(9*e^4)
```

Rubi in Sympy [A] time = 30.0952, size = 126, normalized size = 0.98

$$\frac{2Bb^2\left(d+ex\right)^{\frac{9}{2}}}{9e^4}+\frac{2b\left(d+ex\right)^{\frac{7}{2}}\left(Abe+2Bae-3Bbd\right)}{7e^4}+\frac{2\left(d+ex\right)^{\frac{5}{2}}\left(ae-bd\right)\left(2Abe+Bae-3Bbd\right)}{5e^4}+\frac{2\left(d+ex\right)^{\frac{3}{2}}\left(Ae-Bd\right)\left(ae-bd\right)^2}{3e^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)**2*(B*x+A)*(e*x+d)**(1/2),x)
```

```
[Out] 2*B*b**2*(d + e*x)**(9/2)/(9*e**4) + 2*b*(d + e*x)**(7/2)*(A*b*e
+ 2*B*a*e - 3*B*b*d)/(7*e**4) + 2*(d + e*x)**(5/2)*(a*e - b*d)*(2
*A*b*e + B*a*e - 3*B*b*d)/(5*e**4) + 2*(d + e*x)**(3/2)*(A*e - B*
d)*(a*e - b*d)**2/(3*e**4)
```

Mathematica [A] time = 0.191148, size = 138, normalized size = 1.08

$$\frac{2(d+ex)^{3/2}\left(21a^2e^2(5Ae-2Bd+3Bex)+6abe\left(7Ae(3ex-2d)+B\left(8d^2-12dex+15e^2x^2\right)\right)+b^2\left(3Ae\left(8d^2-12dex+15e\right.\right.\right.}{315e^4}$$

Antiderivative was successfully verified.

```
[In] Integrate[(a + b*x)^2*(A + B*x)*Sqrt[d + e*x],x]
```

```
[Out] (2*(d + e*x)^(3/2)*(21*a^2*e^2*(-2*B*d + 5*A*e + 3*B*e*x) + 6*a*b
*e*(7*A*e*(-2*d + 3*e*x) + B*(8*d^2 - 12*d*e*x + 15*e^2*x^2)) + b
^2*(3*A*e*(8*d^2 - 12*d*e*x + 15*e^2*x^2) + B*(-16*d^3 + 24*d^2*e
*x - 30*d*e^2*x^2 + 35*e^3*x^3))))/(315*e^4)
```

Maple [A] time = 0.009, size = 169, normalized size = 1.3

$$\frac{70\,Bb^{2}x^{3}e^{3}+90\,Ab^{2}e^{3}x^{2}+180\,Babe^{3}x^{2}-60\,Bb^{2}de^{2}x^{2}+252\,Aabe^{3}x-72\,Ab^{2}de^{2}x+126\,Ba^{2}e^{3}x-144\,Babde^{2}x+48\,Bb^{2}d}{315\,e^{4}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^2*(B*x+A)*(e*x+d)^(1/2),x)
```

```
[Out] 2/315*(e*x+d)^(3/2)*(35*B*b^2*e^3*x^3+45*A*b^2*e^3*x^2+90*B*a*b*e
^3*x^2-30*B*b^2*d*e^2*x^2+126*A*a*b*e^3*x-36*A*b^2*d*e^2*x+63*B*a
^2*e^3*x-72*B*a*b*d*e^2*x+24*B*b^2*d^2*e*x+105*A*a^2*e^3-84*A*a*b
*d*e^2+24*A*b^2*d^2*e-42*B*a^2*d*e^2+48*B*a*b*d^2*e-16*B*b^2*d^3)
/e^4
```

Maxima [A] time = 1.33472, size = 215, normalized size = 1.68

$$\frac{2\left(35\,(ex+d)^{\frac{9}{2}}Bb^{2}-45\left(3\,Bb^{2}d-\left(2\,Bab+Ab^{2}\right)e\right)(ex+d)^{\frac{7}{2}}+63\left(3\,Bb^{2}d^{2}-2\left(2\,Bab+Ab^{2}\right)de+\left(Ba^{2}+2\,Aab\right)e^{2}\right)(ex+d}{315\,e^{4}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*sqrt(e*x + d),x, algorithm="maxima")
```

```
[Out] 2/315*(35*(e*x + d)^(9/2)*B*b^2 - 45*(3*B*b^2*d - (2*B*a*b + A*b^
2)*e)*(e*x + d)^(7/2) + 63*(3*B*b^2*d^2 - 2*(2*B*a*b + A*b^2)*d*e
 + (B*a^2 + 2*A*a*b)*e^2)*(e*x + d)^(5/2) - 105*(B*b^2*d^3 - A*a^
2*e^3 - (2*B*a*b + A*b^2)*d^2*e + (B*a^2 + 2*A*a*b)*d*e^2)*(e*x +
 d)^(3/2))/e^4
```

Fricas [A] time = 0.224342, size = 297, normalized size = 2.32

$$\frac{2\left(35\,Bb^{2}e^{4}x^{4}-16\,Bb^{2}d^{4}+105\,Aa^{2}de^{3}+24\left(2\,Bab+Ab^{2}\right)d^{3}e-42\left(Ba^{2}+2\,Aab\right)d^{2}e^{2}+5\left(Bb^{2}de^{3}+9\left(2\,Bab+Ab^{2}\right)e^{4}\right)x^{3}}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*sqrt(e*x + d),x, algorithm="fricas")
```

```
[Out] 2/315*(35*B*b^2*e^4*x^4 - 16*B*b^2*d^4 + 105*A*a^2*d*e^3 + 24*(2*
B*a*b + A*b^2)*d^3*e - 42*(B*a^2 + 2*A*a*b)*d^2*e^2 + 5*(B*b^2*d*
e^3 + 9*(2*B*a*b + A*b^2)*e^4)*x^3 - 3*(2*B*b^2*d^2*e^2 - 3*(2*B*
a*b + A*b^2)*d*e^3 - 21*(B*a^2 + 2*A*a*b)*e^4)*x^2 + (8*B*b^2*d^3
*e + 105*A*a^2*e^4 - 12*(2*B*a*b + A*b^2)*d^2*e^2 + 21*(B*a^2 + 2
*A*a*b)*d*e^3)*x)*sqrt(e*x + d)/e^4
```

Sympy [A] time = 5.45374, size = 201, normalized size = 1.57

$$\frac{2\left(\frac{Bb^{2}(d+ex)^{\frac{9}{2}}}{9e^{3}}+\frac{(d+ex)^{\frac{7}{2}}\left(Ab^{2}e+2Babe-3Bb^{2}d\right)}{7e^{3}}+\frac{(d+ex)^{\frac{5}{2}}\left(2Aabe^{2}-2Ab^{2}de+Ba^{2}e^{2}-4Babde+3Bb^{2}d^{2}\right)}{5e^{3}}+\frac{(d+ex)^{\frac{3}{2}}\left(Aa^{2}e^{3}-2Aabde^{2}+Ab^{2}d^{2}e-Ba^{2}\right.}{3e^{3}}}{e}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**2*(B*x+A)*(e*x+d)**(1/2),x)
```

```
[Out] 2*(B*b**2*(d + e*x)**(9/2)/(9*e**3) + (d + e*x)**(7/2)*(A*b**2*e
+ 2*B*a*b*e - 3*B*b**2*d)/(7*e**3) + (d + e*x)**(5/2)*(2*A*a*b*e*
*2 - 2*A*b**2*d*e + B*a**2*e**2 - 4*B*a*b*d*e + 3*B*b**2*d**2)/(5
*e**3) + (d + e*x)**(3/2)*(A*a**2*e**3 - 2*A*a*b*d*e**2 + A*b**2*
d**2*e - B*a**2*d*e**2 + 2*B*a*b*d**2*e - B*b**2*d**3)/(3*e**3))/
e
```

GIAC/XCAS [A] time = 0.213707, size = 321, normalized size = 2.51

$$\frac{2}{315}\left(21\left(3\,(xe+d)^{\frac{5}{2}}-5\,(xe+d)^{\frac{3}{2}}d\right)Ba^{2}e^{(-1)}+42\left(3\,(xe+d)^{\frac{5}{2}}-5\,(xe+d)^{\frac{3}{2}}d\right)Aabe^{(-1)}+6\left(15\,(xe+d)^{\frac{7}{2}}e^{12}-42\,(xe+d)^{\frac{5}{2}}d\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*sqrt(e*x + d),x, algorithm="giac")
```

```
[Out] 2/315*(21*(3*(x*e + d)^(5/2) - 5*(x*e + d)^(3/2)*d)*B*a^2*e^(-1)
+ 42*(3*(x*e + d)^(5/2) - 5*(x*e + d)^(3/2)*d)*A*a*b*e^(-1) + 6*(
15*(x*e + d)^(7/2)*e^12 - 42*(x*e + d)^(5/2)*d*e^12 + 35*(x*e + d
)^(3/2)*d^2*e^12)*B*a*b*e^(-14) + 3*(15*(x*e + d)^(7/2)*e^12 - 42
*(x*e + d)^(5/2)*d*e^12 + 35*(x*e + d)^(3/2)*d^2*e^12)*A*b^2*e^(-
14) + (35*(x*e + d)^(9/2)*e^24 - 135*(x*e + d)^(7/2)*d*e^24 + 189
*(x*e + d)^(5/2)*d^2*e^24 - 105*(x*e + d)^(3/2)*d^3*e^24)*B*b^2*e
^(-27) + 105*(x*e + d)^(3/2)*A*a^2)*e^(-1)
```

3.1713 $\int \frac{(a+bx)^2(A+Bx)}{\sqrt{d+ex}}\,dx$

Optimal. Leaf size=126

$$-\frac{2b(d+ex)^{5/2}(-2aBe-Abe+3bBd)}{5e^4}+\frac{2(d+ex)^{3/2}(bd-ae)(-aBe-2Abe+3bBd)}{3e^4}-\frac{2\sqrt{d+ex}(bd-ae)^2(Bd-Ae)}{e^4}+\frac{2b^2B(d+ex)^{7/2}}{7e^4}$$

```
[Out] (-2*(b*d - a*e)^2*(B*d - A*e)*Sqrt[d + e*x])/e^4 + (2*(b*d - a*e)
*(3*b*B*d - 2*A*b*e - a*B*e)*(d + e*x)^(3/2))/(3*e^4) - (2*b*(3*b
*B*d - A*b*e - 2*a*B*e)*(d + e*x)^(5/2))/(5*e^4) + (2*b^2*B*(d +
e*x)^(7/2))/(7*e^4)
```

Rubi [A] time = 0.152867, antiderivative size = 126, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$-\frac{2b(d+ex)^{5/2}(-2aBe-Abe+3bBd)}{5e^4}+\frac{2(d+ex)^{3/2}(bd-ae)(-aBe-2Abe+3bBd)}{3e^4}-\frac{2\sqrt{d+ex}(bd-ae)^2(Bd-Ae)}{e^4}+\frac{2b^2B(d+ex)^{7/2}}{7e^4}$$

Antiderivative was successfully verified.

```
[In] Int[((a + b*x)^2*(A + B*x))/Sqrt[d + e*x],x]
```

```
[Out] (-2*(b*d - a*e)^2*(B*d - A*e)*Sqrt[d + e*x])/e^4 + (2*(b*d - a*e)
*(3*b*B*d - 2*A*b*e - a*B*e)*(d + e*x)^(3/2))/(3*e^4) - (2*b*(3*b
*B*d - A*b*e - 2*a*B*e)*(d + e*x)^(5/2))/(5*e^4) + (2*b^2*B*(d +
e*x)^(7/2))/(7*e^4)
```

Rubi in Sympy [A] time = 29.8856, size = 124, normalized size = 0.98

$$\frac{2Bb^2(d+ex)^{\frac{7}{2}}}{7e^4}+\frac{2b(d+ex)^{\frac{5}{2}}(Abe+2Bae-3Bbd)}{5e^4}+\frac{2(d+ex)^{\frac{3}{2}}(ae-bd)(2Abe+Bae-3Bbd)}{3e^4}+\frac{2\sqrt{d+ex}(Ae-Bd)(ae-bd)^2}{e^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)**2*(B*x+A)/(e*x+d)**(1/2),x)
```

```
[Out] 2*B*b**2*(d + e*x)**(7/2)/(7*e**4) + 2*b*(d + e*x)**(5/2)*(A*b*e
+ 2*B*a*e - 3*B*b*d)/(5*e**4) + 2*(d + e*x)**(3/2)*(a*e - b*d)*(2
*A*b*e + B*a*e - 3*B*b*d)/(3*e**4) + 2*sqrt(d + e*x)*(A*e - B*d)*
(a*e - b*d)**2/e**4
```

Mathematica [A] time = 0.188579, size = 137, normalized size = 1.09

$$\frac{2\sqrt{d+ex}\left(35a^2e^2(3Ae-2Bd+Bex)+14abe\left(5Ae(ex-2d)+B\left(8d^2-4dex+3e^2x^2\right)\right)+b^2\left(7Ae\left(8d^2-4dex+3e^2x^2\right)-3\right.\right.}{105e^4}$$

Antiderivative was successfully verified.

```
[In] Integrate[((a + b*x)^2*(A + B*x))/Sqrt[d + e*x],x]
```

```
[Out] (2*Sqrt[d + e*x]*(35*a^2*e^2*(-2*B*d + 3*A*e + B*e*x) + 14*a*b*e*
(5*A*e*(-2*d + e*x) + B*(8*d^2 - 4*d*e*x + 3*e^2*x^2)) + b^2*(7*A
*e*(8*d^2 - 4*d*e*x + 3*e^2*x^2) - 3*B*(16*d^3 - 8*d^2*e*x + 6*d*
e^2*x^2 - 5*e^3*x^3))))/(105*e^4)
```

Maple [A] time = 0.01, size = 169, normalized size = 1.3

$$\frac{30\,Bb^2x^3e^3+42\,Ab^2e^3x^2+84\,Babe^3x^2-36\,Bb^2de^2x^2+140\,Aabe^3x-56\,Ab^2de^2x+70\,Ba^2e^3x-112\,Babde^2x+48\,Bb^2d^2e\cdots}{105\,e^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^2*(B*x+A)/(e*x+d)^(1/2),x)
```

```
[Out] 2/105*(e*x+d)^(1/2)*(15*B*b^2*e^3*x^3+21*A*b^2*e^3*x^2+42*B*a*b*e
^3*x^2-18*B*b^2*d*e^2*x^2+70*A*a*b*e^3*x-28*A*b^2*d*e^2*x+35*B*a^
2*e^3*x-56*B*a*b*d*e^2*x+24*B*b^2*d^2*e*x+105*A*a^2*e^3-140*A*a*b
*d*e^2+56*A*b^2*d^2*e-70*B*a^2*d*e^2+112*B*a*b*d^2*e-48*B*b^2*d^3
)/e^4
```

Maxima [A] time = 1.34719, size = 215, normalized size = 1.71

$$\frac{2\left(15\,(ex+d)^{\frac{7}{2}}Bb^2-21\left(3\,Bb^2d-\left(2\,Bab+Ab^2\right)e\right)(ex+d)^{\frac{5}{2}}+35\left(3\,Bb^2d^2-2\left(2\,Bab+Ab^2\right)de+\left(Ba^2+2\,Aab\right)e^2\right)(ex+d\cdots}{105\,e^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/sqrt(e*x + d),x, algorithm="maxima")
```

```
[Out] 2/105*(15*(e*x + d)^(7/2)*B*b^2 - 21*(3*B*b^2*d - (2*B*a*b + A*b^
2)*e)*(e*x + d)^(5/2) + 35*(3*B*b^2*d^2 - 2*(2*B*a*b + A*b^2)*d*e
 + (B*a^2 + 2*A*a*b)*e^2)*(e*x + d)^(3/2) - 105*(B*b^2*d^3 - A*a^
2*e^3 - (2*B*a*b + A*b^2)*d^2*e + (B*a^2 + 2*A*a*b)*d*e^2)*sqrt(e
*x + d))/e^4
```

Fricas [A] time = 0.226124, size = 209, normalized size = 1.66

$$\frac{2\left(15\,Bb^2e^3x^3-48\,Bb^2d^3+105\,Aa^2e^3+56\left(2\,Bab+Ab^2\right)d^2e-70\left(Ba^2+2\,Aab\right)de^2-3\left(6\,Bb^2de^2-7\left(2\,Bab+Ab^2\right)e^3\right)x^2\cdots}{105\,e^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/sqrt(e*x + d),x, algorithm="fricas")
```

```
[Out] 2/105*(15*B*b^2*e^3*x^3 - 48*B*b^2*d^3 + 105*A*a^2*e^3 + 56*(2*B*
a*b + A*b^2)*d^2*e - 70*(B*a^2 + 2*A*a*b)*d*e^2 - 3*(6*B*b^2*d*e^
2 - 7*(2*B*a*b + A*b^2)*e^3)*x^2 + (24*B*b^2*d^2*e - 28*(2*B*a*b
+ A*b^2)*d*e^2 + 35*(B*a^2 + 2*A*a*b)*e^3)*x)*sqrt(e*x + d)/e^4
```

Sympy [A] time = 34.2601, size = 583, normalized size = 4.63

$$\begin{cases} -\frac{\frac{2Aa^2d}{\sqrt{d+ex}}+2Aa^2\left(-\frac{d}{\sqrt{d+ex}}-\sqrt{d+ex}\right)+\frac{4Aabd\left(-\frac{d}{\sqrt{d+ex}}-\sqrt{d+ex}\right)}{e}+\frac{4Aab\left(\frac{d^2}{\sqrt{d+ex}}+2d\sqrt{d+ex}-\frac{(d+ex)^{\frac{3}{2}}}{3}\right)}{e}+\frac{2Ab^2d\left(\frac{d^2}{\sqrt{d+ex}}+2d\sqrt{d+ex}-\frac{(d+ex)^{\frac{3}{2}}}{3}\right)}{e^2}+\frac{2Ab^2\left(-\frac{d^3}{\sqrt{d+ex}}-3d^2\sqrt{d+ex}+\cdots\right.}{e^2}\cdots}{\cdots} \\ \frac{Aa^2x+\frac{Bb^2x^4}{4}+\frac{x^3\left(Ab^2+2Bab\right)}{3}+\frac{x^2\left(2Aab+Ba^2\right)}{2}}{\sqrt{d}} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**2*(B*x+A)/(e*x+d)**(1/2),x)
```

```
[Out] Piecewise((-(2*A*a**2*d/sqrt(d + e*x) + 2*A*a**2*(-d/sqrt(d + e*x
) - sqrt(d + e*x)) + 4*A*a*b*d*(-d/sqrt(d + e*x) - sqrt(d + e*x))
/e + 4*A*a*b*(d**2/sqrt(d + e*x) + 2*d*sqrt(d + e*x) - (d + e*x)*
*(3/2)/3)/e + 2*A*b**2*d*(d**2/sqrt(d + e*x) + 2*d*sqrt(d + e*x)
- (d + e*x)**(3/2)/3)/e**2 + 2*A*b**2*(-d**3/sqrt(d + e*x) - 3*d*
*2*sqrt(d + e*x) + d*(d + e*x)**(3/2) - (d + e*x)**(5/2)/5)/e**2
+ 2*B*a**2*d*(-d/sqrt(d + e*x) - sqrt(d + e*x))/e + 2*B*a**2*(d**
2/sqrt(d + e*x) + 2*d*sqrt(d + e*x) - (d + e*x)**(3/2)/3)/e + 4*B
*a*b*d*(d**2/sqrt(d + e*x) + 2*d*sqrt(d + e*x) - (d + e*x)**(3/2)
/3)/e**2 + 4*B*a*b*(-d**3/sqrt(d + e*x) - 3*d**2*sqrt(d + e*x) +
d*(d + e*x)**(3/2) - (d + e*x)**(5/2)/5)/e**2 + 2*B*b**2*d*(-d**3
/sqrt(d + e*x) - 3*d**2*sqrt(d + e*x) + d*(d + e*x)**(3/2) - (d +
 e*x)**(5/2)/5)/e**3 + 2*B*b**2*(d**4/sqrt(d + e*x) + 4*d**3*sqrt
(d + e*x) - 2*d**2*(d + e*x)**(3/2) + 4*d*(d + e*x)**(5/2)/5 - (d
 + e*x)**(7/2)/7)/e**3)/e, Ne(e, 0)), ((A*a**2*x + B*b**2*x**4/4
+ x**3*(A*b**2 + 2*B*a*b)/3 + x**2*(2*A*a*b + B*a**2)/2)/sqrt(d),
 True))
```

GIAC/XCAS [A] time = 0.22447, size = 317, normalized size = 2.52

$$\frac{2}{105}\left(35\left((xe+d)^{\frac{3}{2}}-3\sqrt{xe+d}d\right)Ba^2e^{(-1)}+70\left((xe+d)^{\frac{3}{2}}-3\sqrt{xe+d}d\right)Aabe^{(-1)}+14\left(3(xe+d)^{\frac{5}{2}}e^8-10(xe+d)^{\frac{3}{2}}de^8+1\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/sqrt(e*x + d),x, algorithm="giac")
```

```
[Out] 2/105*(35*((x*e + d)^(3/2) - 3*sqrt(x*e + d)*d)*B*a^2*e^(-1) + 70
*((x*e + d)^(3/2) - 3*sqrt(x*e + d)*d)*A*a*b*e^(-1) + 14*(3*(x*e
+ d)^(5/2)*e^8 - 10*(x*e + d)^(3/2)*d*e^8 + 15*sqrt(x*e + d)*d^2*
e^8)*B*a*b*e^(-10) + 7*(3*(x*e + d)^(5/2)*e^8 - 10*(x*e + d)^(3/2
)*d*e^8 + 15*sqrt(x*e + d)*d^2*e^8)*A*b^2*e^(-10) + 3*(5*(x*e + d
)^(7/2)*e^18 - 21*(x*e + d)^(5/2)*d*e^18 + 35*(x*e + d)^(3/2)*d^2
*e^18 - 35*sqrt(x*e + d)*d^3*e^18)*B*b^2*e^(-21) + 105*sqrt(x*e +
 d)*A*a^2)*e^(-1)
```

3.1714 $\int \frac{(a+bx)^2(A+Bx)}{(d+ex)^{3/2}}\,dx$

Optimal. Leaf size=124

$$-\frac{2b(d+ex)^{3/2}(-2aBe-Abe+3bBd)}{3e^4}+\frac{2\sqrt{d+ex}(bd-ae)(-aBe-2Abe+3bBd)}{e^4}+\frac{2(bd-ae)^2(Bd-Ae)}{e^4\sqrt{d+ex}}+\frac{2b^2B(d+ex)^{5/2}}{5e^4}$$

```
[Out] (2*(b*d - a*e)^2*(B*d - A*e))/(e^4*Sqrt[d + e*x]) + (2*(b*d - a*e
)*(3*b*B*d - 2*A*b*e - a*B*e)*Sqrt[d + e*x])/e^4 - (2*b*(3*b*B*d
- A*b*e - 2*a*B*e)*(d + e*x)^(3/2))/(3*e^4) + (2*b^2*B*(d + e*x)^
(5/2))/(5*e^4)
```

Rubi [A] time = 0.160414, antiderivative size = 124, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{2b(d+ex)^{3/2}(-2aBe-Abe+3bBd)}{3e^4}+\frac{2\sqrt{d+ex}(bd-ae)(-aBe-2Abe+3bBd)}{e^4}+\frac{2(bd-ae)^2(Bd-Ae)}{e^4\sqrt{d+ex}}+\frac{2b^2B(d+ex)^{5/2}}{5e^4}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^2*(A + B*x))/(d + e*x)^(3/2),x]
```

```
[Out] (2*(b*d - a*e)^2*(B*d - A*e))/(e^4*Sqrt[d + e*x]) + (2*(b*d - a*e
)*(3*b*B*d - 2*A*b*e - a*B*e)*Sqrt[d + e*x])/e^4 - (2*b*(3*b*B*d
- A*b*e - 2*a*B*e)*(d + e*x)^(3/2))/(3*e^4) + (2*b^2*B*(d + e*x)^
(5/2))/(5*e^4)
```

Rubi in Sympy [A] time = 29.2582, size = 122, normalized size = 0.98

$$\frac{2Bb^2\left(d+ex\right)^{\frac{5}{2}}}{5e^4}+\frac{2b\left(d+ex\right)^{\frac{3}{2}}\left(Abe+2Bae-3Bbd\right)}{3e^4}+\frac{2\sqrt{d+ex}\left(ae-bd\right)\left(2Abe+Bae-3Bbd\right)}{e^4}-\frac{2\left(Ae-Bd\right)\left(ae-bd\right)^2}{e^4\sqrt{d+ex}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**2*(B*x+A)/(e*x+d)**(3/2),x)
```

```
[Out] 2*B*b**2*(d + e*x)**(5/2)/(5*e**4) + 2*b*(d + e*x)**(3/2)*(A*b*e
+ 2*B*a*e - 3*B*b*d)/(3*e**4) + 2*sqrt(d + e*x)*(a*e - b*d)*(2*A*
b*e + B*a*e - 3*B*b*d)/e**4 - 2*(A*e - B*d)*(a*e - b*d)**2/(e**4*
sqrt(d + e*x))
```

Mathematica [A] time = 0.169023, size = 135, normalized size = 1.09

$$\frac{30a^2e^2(-Ae+2Bd+Bex)+20abe\left(3Ae(2d+ex)+B\left(-8d^2-4dex+e^2x^2\right)\right)+2b^2\left(5Ae\left(-8d^2-4dex+e^2x^2\right)+3B\left(16d^3\right.\right.}{15e^4\sqrt{d+ex}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^2*(A + B*x))/(d + e*x)^(3/2),x]
```

```
[Out] (30*a^2*e^2*(2*B*d - A*e + B*e*x) + 20*a*b*e*(3*A*e*(2*d + e*x) +
 B*(-8*d^2 - 4*d*e*x + e^2*x^2)) + 2*b^2*(5*A*e*(-8*d^2 - 4*d*e*x
 + e^2*x^2) + 3*B*(16*d^3 + 8*d^2*e*x - 2*d*e^2*x^2 + e^3*x^3)))/
(15*e^4*Sqrt[d + e*x])
```

Maple [A] time = 0.01, size = 169, normalized size = 1.4

$$-\frac{-6\,Bb^2x^3e^3-10\,Ab^2e^3x^2-20\,Babe^3x^2+12\,Bb^2de^2x^2-60\,Aabe^3x+40\,Ab^2de^2x-30\,Ba^2e^3x+80\,Babde^2x-48\,Bb^2d^2e}{15\,e^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^2*(B*x+A)/(e*x+d)^(3/2),x)
```

```
[Out] -2/15/(e*x+d)^(1/2)*(-3*B*b^2*e^3*x^3-5*A*b^2*e^3*x^2-10*B*a*b*e^
3*x^2+6*B*b^2*d*e^2*x^2-30*A*a*b*e^3*x+20*A*b^2*d*e^2*x-15*B*a^2*
e^3*x+40*B*a*b*d*e^2*x-24*B*b^2*d^2*e*x+15*A*a^2*e^3-60*A*a*b*d*e
^2+40*A*b^2*d^2*e-30*B*a^2*d*e^2+80*B*a*b*d^2*e-48*B*b^2*d^3)/e^4
```

Maxima [A] time = 1.36962, size = 225, normalized size = 1.81

$$\frac{2\left(\frac{3\,(ex+d)^{\frac{5}{2}}Bb^2-5\left(3\,Bb^2d-\left(2\,Bab+Ab^2\right)e\right)(ex+d)^{\frac{3}{2}}+15\left(3\,Bb^2d^2-2\left(2\,Bab+Ab^2\right)de+\left(Ba^2+2\,Aab\right)e^2\right)\sqrt{ex+d}}{e^3}+\frac{15\left(Bb^2d^3-Aa^2e^3-\left(2\,Bab+Ab^2\right)d^2e+(B\right.}{\sqrt{ex+d}e^3}\right.}{15\,e}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/(e*x + d)^(3/2),x, algorithm="maxima")
```

```
[Out] 2/15*((3*(e*x + d)^(5/2)*B*b^2 - 5*(3*B*b^2*d - (2*B*a*b + A*b^2)
*e)*(e*x + d)^(3/2) + 15*(3*B*b^2*d^2 - 2*(2*B*a*b + A*b^2)*d*e +
 (B*a^2 + 2*A*a*b)*e^2)*sqrt(e*x + d))/e^3 + 15*(B*b^2*d^3 - A*a^
2*e^3 - (2*B*a*b + A*b^2)*d^2*e + (B*a^2 + 2*A*a*b)*d*e^2)/(sqrt(
e*x + d)*e^3))/e
```

Fricas [A] time = 0.224437, size = 209, normalized size = 1.69

$$\frac{2\left(3\,Bb^2e^3x^3+48\,Bb^2d^3-15\,Aa^2e^3-40\left(2\,Bab+Ab^2\right)d^2e+30\left(Ba^2+2\,Aab\right)de^2-\left(6\,Bb^2de^2-5\left(2\,Bab+Ab^2\right)e^3\right)x^2+(2\right.}{15\,\sqrt{ex+d}e^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/(e*x + d)^(3/2),x, algorithm="fricas")
```

```
[Out] 2/15*(3*B*b^2*e^3*x^3 + 48*B*b^2*d^3 - 15*A*a^2*e^3 - 40*(2*B*a*b
 + A*b^2)*d^2*e + 30*(B*a^2 + 2*A*a*b)*d*e^2 - (6*B*b^2*d*e^2 - 5
*(2*B*a*b + A*b^2)*e^3)*x^2 + (24*B*b^2*d^2*e - 20*(2*B*a*b + A*b
^2)*d*e^2 + 15*(B*a^2 + 2*A*a*b)*e^3)*x)/(sqrt(e*x + d)*e^4)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(A+Bx)\,(a+bx)^2}{(d+ex)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**2*(B*x+A)/(e*x+d)**(3/2),x)
```

```
[Out] Integral((A + B*x)*(a + b*x)**2/(d + e*x)**(3/2), x)
```

GIAC/XCAS [A] time = 0.214049, size = 296, normalized size = 2.39

$$\frac{2}{15}\left(3\,(xe+d)^{\frac{5}{2}}Bb^2e^{16} - 15\,(xe+d)^{\frac{3}{2}}Bb^2de^{16} + 45\,\sqrt{xe+d}Bb^2d^2e^{16} + 10\,(xe+d)^{\frac{3}{2}}Babe^{17} + 5\,(xe+d)^{\frac{3}{2}}Ab^2e^{17} - 60\,\sqrt{xe+d}\right.$$
$$+\frac{2\left(Bb^2d^3 - 2\,Babd^2e - Ab^2d^2e + Ba^2de^2 + 2\,Aabde^2 - Aa^2e^3\right)e^{(-4)}}{\sqrt{xe+d}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/(e*x + d)^(3/2),x, algorithm="giac")
```

```
[Out] 2/15*(3*(x*e + d)^(5/2)*B*b^2*e^16 - 15*(x*e + d)^(3/2)*B*b^2*d*e
^16 + 45*sqrt(x*e + d)*B*b^2*d^2*e^16 + 10*(x*e + d)^(3/2)*B*a*b*
e^17 + 5*(x*e + d)^(3/2)*A*b^2*e^17 - 60*sqrt(x*e + d)*B*a*b*d*e^
17 - 30*sqrt(x*e + d)*A*b^2*d*e^17 + 15*sqrt(x*e + d)*B*a^2*e^18
+ 30*sqrt(x*e + d)*A*a*b*e^18)*e^(-20) + 2*(B*b^2*d^3 - 2*B*a*b*d
^2*e - A*b^2*d^2*e + B*a^2*d*e^2 + 2*A*a*b*d*e^2 - A*a^2*e^3)*e^(
-4)/sqrt(x*e + d)
```

3.1715 $\int \frac{(a+bx)^2(A+Bx)}{(d+ex)^{5/2}}\,dx$

Optimal. Leaf size=124

$$-\frac{2b\sqrt{d+ex}(-2aBe-Abe+3bBd)}{e^4}-\frac{2(bd-ae)(-aBe-2Abe+3bBd)}{e^4\sqrt{d+ex}}+\frac{2(bd-ae)^2(Bd-Ae)}{3e^4(d+ex)^{3/2}}+\frac{2b^2B(d+ex)^{3/2}}{3e^4}$$

```
[Out] (2*(b*d - a*e)^2*(B*d - A*e))/(3*e^4*(d + e*x)^(3/2)) - (2*(b*d -
 a*e)*(3*b*B*d - 2*A*b*e - a*B*e))/(e^4*Sqrt[d + e*x]) - (2*b*(3*
b*B*d - A*b*e - 2*a*B*e)*Sqrt[d + e*x])/e^4 + (2*b^2*B*(d + e*x)^
(3/2))/(3*e^4)
```

Rubi [A] time = 0.158795, antiderivative size = 124, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{2b\sqrt{d+ex}(-2aBe-Abe+3bBd)}{e^4}-\frac{2(bd-ae)(-aBe-2Abe+3bBd)}{e^4\sqrt{d+ex}}+\frac{2(bd-ae)^2(Bd-Ae)}{3e^4(d+ex)^{3/2}}+\frac{2b^2B(d+ex)^{3/2}}{3e^4}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^2*(A + B*x))/(d + e*x)^(5/2),x]
```

```
[Out] (2*(b*d - a*e)^2*(B*d - A*e))/(3*e^4*(d + e*x)^(3/2)) - (2*(b*d -
 a*e)*(3*b*B*d - 2*A*b*e - a*B*e))/(e^4*Sqrt[d + e*x]) - (2*b*(3*
b*B*d - A*b*e - 2*a*B*e)*Sqrt[d + e*x])/e^4 + (2*b^2*B*(d + e*x)^
(3/2))/(3*e^4)
```

Rubi in Sympy [A] time = 29.4937, size = 122, normalized size = 0.98

$$\frac{2Bb^2\left(d+ex\right)^{\frac{3}{2}}}{3e^4}+\frac{2b\sqrt{d+ex}\left(Abe+2Bae-3Bbd\right)}{e^4}-\frac{2\left(ae-bd\right)\left(2Abe+Bae-3Bbd\right)}{e^4\sqrt{d+ex}}-\frac{2\left(Ae-Bd\right)\left(ae-bd\right)^2}{3e^4\left(d+ex\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**2*(B*x+A)/(e*x+d)**(5/2),x)
```

```
[Out] 2*B*b**2*(d + e*x)**(3/2)/(3*e**4) + 2*b*sqrt(d + e*x)*(A*b*e + 2
*B*a*e - 3*B*b*d)/e**4 - 2*(a*e - b*d)*(2*A*b*e + B*a*e - 3*B*b*d
)/(e**4*sqrt(d + e*x)) - 2*(A*e - B*d)*(a*e - b*d)**2/(3*e**4*(d
+ e*x)**(3/2))
```

Mathematica [A] time = 0.265413, size = 101, normalized size = 0.81

$$\frac{2\sqrt{d+ex}\left(-\frac{3(ae-bd)(aBe+2Abe-3bBd)}{d+ex}+\frac{(bd-ae)^2(Bd-Ae)}{(d+ex)^2}-b(-6aBe-3Abe+8bBd)+b^2Bex\right)}{3e^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^2*(A + B*x))/(d + e*x)^(5/2),x]
```

```
[Out] (2*Sqrt[d + e*x]*(-(b*(8*b*B*d - 3*A*b*e - 6*a*B*e)) + b^2*B*e*x
+ ((b*d - a*e)^2*(B*d - A*e))/(d + e*x)^2 - (3*(-(b*d) + a*e)*(-3
*b*B*d + 2*A*b*e + a*B*e))/(d + e*x)))/(3*e^4)
```

Maple [A] time = 0.01, size = 168, normalized size = 1.4

$$-\frac{-2\,Bb^2x^3e^3-6\,Ab^2e^3x^2-12\,Babe^3x^2+12\,Bb^2de^2x^2+12\,Aabe^3x-24\,Ab^2de^2x+6\,Ba^2e^3x-48\,Babde^2x+48\,Bb^2d^2ex+\cdots}{3\,e^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^2*(B*x+A)/(e*x+d)^(5/2),x)
```

```
[Out] -2/3/(e*x+d)^(3/2)*(-B*b^2*e^3*x^3-3*A*b^2*e^3*x^2-6*B*a*b*e^3*x^
2+6*B*b^2*d*e^2*x^2+6*A*a*b*e^3*x-12*A*b^2*d*e^2*x+3*B*a^2*e^3*x-
24*B*a*b*d*e^2*x+24*B*b^2*d^2*e*x+A*a^2*e^3+4*A*a*b*d*e^2-8*A*b^2
*d^2*e+2*B*a^2*d*e^2-16*B*a*b*d^2*e+16*B*b^2*d^3)/e^4
```

Maxima [A] time = 1.35786, size = 220, normalized size = 1.77

$$\frac{2\left(\frac{(ex+d)^{\frac{3}{2}}Bb^2-3\left(3\,Bb^2d-\left(2\,Bab+Ab^2\right)e\right)\sqrt{ex+d}}{e^3}+\frac{Bb^2d^3-Aa^2e^3-\left(2\,Bab+Ab^2\right)d^2e+\left(Ba^2+2\,Aab\right)de^2-3\left(3\,Bb^2d^2-2\left(2\,Bab+Ab^2\right)de+\left(Ba^2+2\,Aab\right)e^2\right)\cdots}{(ex+d)^{\frac{3}{2}}e^3}\cdots\right)}{3\,e}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/(e*x + d)^(5/2),x, algorithm="maxima")
```

```
[Out] 2/3*(((e*x + d)^(3/2)*B*b^2 - 3*(3*B*b^2*d - (2*B*a*b + A*b^2)*e)
*sqrt(e*x + d))/e^3 + (B*b^2*d^3 - A*a^2*e^3 - (2*B*a*b + A*b^2)*
d^2*e + (B*a^2 + 2*A*a*b)*d*e^2 - 3*(3*B*b^2*d^2 - 2*(2*B*a*b + A
*b^2)*d*e + (B*a^2 + 2*A*a*b)*e^2)*(e*x + d))/((e*x + d)^(3/2)*e^
3))/e
```

Fricas [A] time = 0.228209, size = 221, normalized size = 1.78

$$\frac{2\left(Bb^2e^3x^3-16\,Bb^2d^3-Aa^2e^3+8\left(2\,Bab+Ab^2\right)d^2e-2\left(Ba^2+2\,Aab\right)de^2-3\left(2\,Bb^2de^2-\left(2\,Bab+Ab^2\right)e^3\right)x^2-3\left(8\,Bb^2\cdots\right.\right.}{3\left(e^5x+de^4\right)\sqrt{ex+d}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/(e*x + d)^(5/2),x, algorithm="fricas")
```

```
[Out] 2/3*(B*b^2*e^3*x^3 - 16*B*b^2*d^3 - A*a^2*e^3 + 8*(2*B*a*b + A*b^
2)*d^2*e - 2*(B*a^2 + 2*A*a*b)*d*e^2 - 3*(2*B*b^2*d*e^2 - (2*B*a*
b + A*b^2)*e^3)*x^2 - 3*(8*B*b^2*d^2*e - 4*(2*B*a*b + A*b^2)*d*e^
2 + (B*a^2 + 2*A*a*b)*e^3)*x)/((e^5*x + d*e^4)*sqrt(e*x + d))
```

Sympy [A] time = 5.26519, size = 709, normalized size = 5.72

$$\begin{cases}-\frac{2Aa^2e^3}{3de^4\sqrt{d+ex}+3e^5x\sqrt{d+ex}}-\frac{8Aabde^2}{3de^4\sqrt{d+ex}+3e^5x\sqrt{d+ex}}-\frac{12Aabe^3x}{3de^4\sqrt{d+ex}+3e^5x\sqrt{d+ex}}+\frac{16Ab^2d^2e}{3de^4\sqrt{d+ex}+3e^5x\sqrt{d+ex}}+\frac{24Ab^2de^2x}{3de^4\sqrt{d+ex}+3e^5x\sqrt{d+ex}}+\cdots \\ \frac{Aa^2x+Aabx^2+\frac{Ab^2x^3}{3}+\frac{Ba^2x^2}{2}+\frac{2Babx^3}{3}+\frac{Bb^2x^4}{4}}{d^{\frac{5}{2}}}\end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**2*(B*x+A)/(e*x+d)**(5/2),x)
```

```
[Out] Piecewise((-2*A*a**2*e**3/(3*d*e**4*sqrt(d + e*x) + 3*e**5*x*sqrt
(d + e*x)) - 8*A*a*b*d*e**2/(3*d*e**4*sqrt(d + e*x) + 3*e**5*x*sq
rt(d + e*x)) - 12*A*a*b*e**3*x/(3*d*e**4*sqrt(d + e*x) + 3*e**5*x
*sqrt(d + e*x)) + 16*A*b**2*d**2*e/(3*d*e**4*sqrt(d + e*x) + 3*e*
*5*x*sqrt(d + e*x)) + 24*A*b**2*d*e**2*x/(3*d*e**4*sqrt(d + e*x)
+ 3*e**5*x*sqrt(d + e*x)) + 6*A*b**2*e**3*x**2/(3*d*e**4*sqrt(d +
 e*x) + 3*e**5*x*sqrt(d + e*x)) - 4*B*a**2*d*e**2/(3*d*e**4*sqrt(
d + e*x) + 3*e**5*x*sqrt(d + e*x)) - 6*B*a**2*e**3*x/(3*d*e**4*sq
rt(d + e*x) + 3*e**5*x*sqrt(d + e*x)) + 32*B*a*b*d**2*e/(3*d*e**4
*sqrt(d + e*x) + 3*e**5*x*sqrt(d + e*x)) + 48*B*a*b*d*e**2*x/(3*d
*e**4*sqrt(d + e*x) + 3*e**5*x*sqrt(d + e*x)) + 12*B*a*b*e**3*x**
2/(3*d*e**4*sqrt(d + e*x) + 3*e**5*x*sqrt(d + e*x)) - 32*B*b**2*d
**3/(3*d*e**4*sqrt(d + e*x) + 3*e**5*x*sqrt(d + e*x)) - 48*B*b**2
*d**2*e*x/(3*d*e**4*sqrt(d + e*x) + 3*e**5*x*sqrt(d + e*x)) - 12*
B*b**2*d*e**2*x**2/(3*d*e**4*sqrt(d + e*x) + 3*e**5*x*sqrt(d + e*
x)) + 2*B*b**2*e**3*x**3/(3*d*e**4*sqrt(d + e*x) + 3*e**5*x*sqrt(
d + e*x)), Ne(e, 0)), ((A*a**2*x + A*a*b*x**2 + A*b**2*x**3/3 + B
*a**2*x**2/2 + 2*B*a*b*x**3/3 + B*b**2*x**4/4)/d**(5/2), True))
```

GIAC/XCAS [A] time = 0.214175, size = 278, normalized size = 2.24

$$\frac{2}{3}\left((xe+d)^{\frac{3}{2}}Bb^2e^8 - 9\sqrt{xe+d}Bb^2de^8 + 6\sqrt{xe+d}Babe^9 + 3\sqrt{xe+d}Ab^2e^9\right)e^{(-12)} - \frac{2\,(9\,(xe+d)Bb^2d^2 - Bb^2d^3 - 12\,(xe+d)Babde - 6\,(xe+d)Ab^2de + 2\,Babd^2e + Ab^2d^2e + 3\,(xe+d)Ba^2e^2 + 6\,(xe+d)Aabe}{3\,(xe+d)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/(e*x + d)^(5/2),x, algorithm="giac")
```

```
[Out] 2/3*((x*e + d)^(3/2)*B*b^2*e^8 - 9*sqrt(x*e + d)*B*b^2*d*e^8 + 6*
sqrt(x*e + d)*B*a*b*e^9 + 3*sqrt(x*e + d)*A*b^2*e^9)*e^(-12) - 2/
3*(9*(x*e + d)*B*b^2*d^2 - B*b^2*d^3 - 12*(x*e + d)*B*a*b*d*e - 6
*(x*e + d)*A*b^2*d*e + 2*B*a*b*d^2*e + A*b^2*d^2*e + 3*(x*e + d)*
B*a^2*e^2 + 6*(x*e + d)*A*a*b*e^2 - B*a^2*d*e^2 - 2*A*a*b*d*e^2 +
 A*a^2*e^3)*e^(-4)/(x*e + d)^(3/2)
```

3.1716 $\int \frac{(a+bx)^2(A+Bx)}{(d+ex)^{7/2}}\,dx$

Optimal. Leaf size=124

$$\frac{2b(-2aBe-Abe+3bBd)}{e^4\sqrt{d+ex}}-\frac{2(bd-ae)(-aBe-2Abe+3bBd)}{3e^4(d+ex)^{3/2}}+\frac{2(bd-ae)^2(Bd-Ae)}{5e^4(d+ex)^{5/2}}+\frac{2b^2B\sqrt{d+ex}}{e^4}$$

```
[Out] (2*(b*d - a*e)^2*(B*d - A*e))/(5*e^4*(d + e*x)^(5/2)) - (2*(b*d -
 a*e)*(3*b*B*d - 2*A*b*e - a*B*e))/(3*e^4*(d + e*x)^(3/2)) + (2*b
*(3*b*B*d - A*b*e - 2*a*B*e))/(e^4*Sqrt[d + e*x]) + (2*b^2*B*Sqrt
[d + e*x])/e^4
```

Rubi [A] time = 0.158915, antiderivative size = 124, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{2b(-2aBe-Abe+3bBd)}{e^4\sqrt{d+ex}}-\frac{2(bd-ae)(-aBe-2Abe+3bBd)}{3e^4(d+ex)^{3/2}}+\frac{2(bd-ae)^2(Bd-Ae)}{5e^4(d+ex)^{5/2}}+\frac{2b^2B\sqrt{d+ex}}{e^4}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^2*(A + B*x))/(d + e*x)^(7/2),x]
```

```
[Out] (2*(b*d - a*e)^2*(B*d - A*e))/(5*e^4*(d + e*x)^(5/2)) - (2*(b*d -
 a*e)*(3*b*B*d - 2*A*b*e - a*B*e))/(3*e^4*(d + e*x)^(3/2)) + (2*b
*(3*b*B*d - A*b*e - 2*a*B*e))/(e^4*Sqrt[d + e*x]) + (2*b^2*B*Sqrt
[d + e*x])/e^4
```

Rubi in Sympy [A] time = 29.6144, size = 122, normalized size = 0.98

$$\frac{2Bb^2\sqrt{d+ex}}{e^4}-\frac{2b\,(Abe+2Bae-3Bbd)}{e^4\sqrt{d+ex}}-\frac{2\,(ae-bd)\,(2Abe+Bae-3Bbd)}{3e^4\,(d+ex)^{\frac{3}{2}}}-\frac{2\,(Ae-Bd)\,(ae-bd)^2}{5e^4\,(d+ex)^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**2*(B*x+A)/(e*x+d)**(7/2),x)
```

```
[Out] 2*B*b**2*sqrt(d + e*x)/e**4 - 2*b*(A*b*e + 2*B*a*e - 3*B*b*d)/(e*
*4*sqrt(d + e*x)) - 2*(a*e - b*d)*(2*A*b*e + B*a*e - 3*B*b*d)/(3*
e**4*(d + e*x)**(3/2)) - 2*(A*e - B*d)*(a*e - b*d)**2/(5*e**4*(d
+ e*x)**(5/2))
```

Mathematica [A] time = 0.342896, size = 107, normalized size = 0.86

$$\frac{2\sqrt{d+ex}\left(-\frac{15b(2aBe+Abe-3bBd)}{d+ex}-\frac{5(ae-bd)(aBe+2Abe-3bBd)}{(d+ex)^2}+\frac{3(bd-ae)^2(Bd-Ae)}{(d+ex)^3}+15b^2B\right)}{15e^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^2*(A + B*x))/(d + e*x)^(7/2),x]
```

```
[Out] (2*Sqrt[d + e*x]*(15*b^2*B + (3*(b*d - a*e)^2*(B*d - A*e))/(d + e
*x)^3 - (5*(-(b*d) + a*e)*(-3*b*B*d + 2*A*b*e + a*B*e))/(d + e*x)
^2 - (15*b*(-3*b*B*d + A*b*e + 2*a*B*e))/(d + e*x)))/(15*e^4)
```

Maple [A] time = 0.01, size = 169, normalized size = 1.4

$$-\frac{-30\,Bb^2x^3e^3+30\,Ab^2e^3x^2+60\,Babe^3x^2-180\,Bb^2de^2x^2+20\,Aabe^3x+40\,Ab^2de^2x+10\,Ba^2e^3x+80\,Babde^2x-240\,Bb^2d}{15\,e^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^2*(B*x+A)/(e*x+d)^(7/2),x)
```

```
[Out] -2/15/(e*x+d)^(5/2)*(-15*B*b^2*e^3*x^3+15*A*b^2*e^3*x^2+30*B*a*b*
e^3*x^2-90*B*b^2*d*e^2*x^2+10*A*a*b*e^3*x+20*A*b^2*d*e^2*x+5*B*a^
2*e^3*x+40*B*a*b*d*e^2*x-120*B*b^2*d^2*e*x+3*A*a^2*e^3+4*A*a*b*d*
e^2+8*A*b^2*d^2*e+2*B*a^2*d*e^2+16*B*a*b*d^2*e-48*B*b^2*d^3)/e^4
```

Maxima [A] time = 1.35612, size = 221, normalized size = 1.78

$$\frac{2\left(\frac{15\sqrt{ex+d}Bb^2}{e^3}+\frac{3\,Bb^2d^3-3\,Aa^2e^3-3\left(2\,Bab+Ab^2\right)d^2e+3\left(Ba^2+2\,Aab\right)de^2+15\left(3\,Bb^2d-\left(2\,Bab+Ab^2\right)e\right)(ex+d)^2-5\left(3\,Bb^2d^2-2\left(2\,Bab+Ab^2\right)de+\left(Ba^2+2\right.\right.}{(ex+d)^{\frac{5}{2}}e^3}\right.}{15\,e}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/(e*x + d)^(7/2),x, algorithm="maxima")
```

```
[Out] 2/15*(15*sqrt(e*x + d)*B*b^2/e^3 + (3*B*b^2*d^3 - 3*A*a^2*e^3 - 3
*(2*B*a*b + A*b^2)*d^2*e + 3*(B*a^2 + 2*A*a*b)*d*e^2 + 15*(3*B*b^
2*d - (2*B*a*b + A*b^2)*e)*(e*x + d)^2 - 5*(3*B*b^2*d^2 - 2*(2*B*
a*b + A*b^2)*d*e + (B*a^2 + 2*A*a*b)*e^2)*(e*x + d))/((e*x + d)^(
5/2)*e^3))/e
```

Fricas [A] time = 0.22384, size = 239, normalized size = 1.93

$$\frac{2\left(15\,Bb^2e^3x^3+48\,Bb^2d^3-3\,Aa^2e^3-8\left(2\,Bab+Ab^2\right)d^2e-2\left(Ba^2+2\,Aab\right)de^2+15\left(6\,Bb^2de^2-\left(2\,Bab+Ab^2\right)e^3\right)x^2+5\,(\right.}{15\left(e^6x^2+2\,de^5x+d^2e^4\right)\sqrt{ex+d}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/(e*x + d)^(7/2),x, algorithm="fricas")
```

```
[Out] 2/15*(15*B*b^2*e^3*x^3 + 48*B*b^2*d^3 - 3*A*a^2*e^3 - 8*(2*B*a*b
+ A*b^2)*d^2*e - 2*(B*a^2 + 2*A*a*b)*d*e^2 + 15*(6*B*b^2*d*e^2 -
(2*B*a*b + A*b^2)*e^3)*x^2 + 5*(24*B*b^2*d^2*e - 4*(2*B*a*b + A*b
^2)*d*e^2 - (B*a^2 + 2*A*a*b)*e^3)*x)/((e^6*x^2 + 2*d*e^5*x + d^2
*e^4)*sqrt(e*x + d))
```

Sympy [A] time = 10.9988, size = 1015, normalized size = 8.19

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**2*(B*x+A)/(e*x+d)**(7/2),x)
```

```
[Out] Piecewise((-6*A*a**2*e**3/(15*d**2*e**4*sqrt(d + e*x) + 30*d*e**5
*x*sqrt(d + e*x) + 15*e**6*x**2*sqrt(d + e*x)) - 8*A*a*b*d*e**2/(
15*d**2*e**4*sqrt(d + e*x) + 30*d*e**5*x*sqrt(d + e*x) + 15*e**6*
x**2*sqrt(d + e*x)) - 20*A*a*b*e**3*x/(15*d**2*e**4*sqrt(d + e*x)
```

```
 + 30*d*e**5*x*sqrt(d + e*x) + 15*e**6*x**2*sqrt(d + e*x)) - 16*A
*b**2*d**2*e/(15*d**2*e**4*sqrt(d + e*x) + 30*d*e**5*x*sqrt(d + e
*x) + 15*e**6*x**2*sqrt(d + e*x)) - 40*A*b**2*d*e**2*x/(15*d**2*e
**4*sqrt(d + e*x) + 30*d*e**5*x*sqrt(d + e*x) + 15*e**6*x**2*sqrt
(d + e*x)) - 30*A*b**2*e**3*x**2/(15*d**2*e**4*sqrt(d + e*x) + 30
*d*e**5*x*sqrt(d + e*x) + 15*e**6*x**2*sqrt(d + e*x)) - 4*B*a**2*
d*e**2/(15*d**2*e**4*sqrt(d + e*x) + 30*d*e**5*x*sqrt(d + e*x) +
15*e**6*x**2*sqrt(d + e*x)) - 10*B*a**2*e**3*x/(15*d**2*e**4*sqrt
(d + e*x) + 30*d*e**5*x*sqrt(d + e*x) + 15*e**6*x**2*sqrt(d + e*x
)) - 32*B*a*b*d**2*e/(15*d**2*e**4*sqrt(d + e*x) + 30*d*e**5*x*sq
rt(d + e*x) + 15*e**6*x**2*sqrt(d + e*x)) - 80*B*a*b*d*e**2*x/(15
*d**2*e**4*sqrt(d + e*x) + 30*d*e**5*x*sqrt(d + e*x) + 15*e**6*x*
*2*sqrt(d + e*x)) - 60*B*a*b*e**3*x**2/(15*d**2*e**4*sqrt(d + e*x
) + 30*d*e**5*x*sqrt(d + e*x) + 15*e**6*x**2*sqrt(d + e*x)) + 96*
B*b**2*d**3/(15*d**2*e**4*sqrt(d + e*x) + 30*d*e**5*x*sqrt(d + e*
x) + 15*e**6*x**2*sqrt(d + e*x)) + 240*B*b**2*d**2*e*x/(15*d**2*e
**4*sqrt(d + e*x) + 30*d*e**5*x*sqrt(d + e*x) + 15*e**6*x**2*sqrt
(d + e*x)) + 180*B*b**2*d*e**2*x**2/(15*d**2*e**4*sqrt(d + e*x) +
 30*d*e**5*x*sqrt(d + e*x) + 15*e**6*x**2*sqrt(d + e*x)) + 30*B*b
**2*e**3*x**3/(15*d**2*e**4*sqrt(d + e*x) + 30*d*e**5*x*sqrt(d +
e*x) + 15*e**6*x**2*sqrt(d + e*x)), Ne(e, 0)), ((A*a**2*x + A*a*b
*x**2 + A*b**2*x**3/3 + B*a**2*x**2/2 + 2*B*a*b*x**3/3 + B*b**2*x
**4/4)/d**(7/2), True))
```

GIAC/XCAS [A] time = 0.214354, size = 273, normalized size = 2.2

$$2\sqrt{xe+d}Bb^2e^{(-4)} + \frac{2\left(45\,(xe+d)^2Bb^2d - 15\,(xe+d)Bb^2d^2 + 3\,Bb^2d^3 - 30\,(xe+d)^2Babe - 15\,(xe+d)^2Ab^2e + 20\,(xe+d)Babde + 10\,(xe+d)A\right.}{15\,(xe+d)^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2/(e*x + d)^(7/2),x, algorithm="giac")
```

```
[Out] 2*sqrt(x*e + d)*B*b^2*e^(-4) + 2/15*(45*(x*e + d)^2*B*b^2*d - 15*
(x*e + d)*B*b^2*d^2 + 3*B*b^2*d^3 - 30*(x*e + d)^2*B*a*b*e - 15*(
x*e + d)^2*A*b^2*e + 20*(x*e + d)*B*a*b*d*e + 10*(x*e + d)*A*b^2*
d*e - 6*B*a*b*d^2*e - 3*A*b^2*d^2*e - 5*(x*e + d)*B*a^2*e^2 - 10*
(x*e + d)*A*a*b*e^2 + 3*B*a^2*d*e^2 + 6*A*a*b*d*e^2 - 3*A*a^2*e^3
)*e^(-4)/(x*e + d)^(5/2)
```

3.1717 $\int (a+bx)^3(A+Bx)(d+ex)^{7/2}\,dx$

Optimal. Leaf size=173

$$-\frac{2b^2(d+ex)^{15/2}(-3aBe-Abe+4bBd)}{15e^5}+\frac{6b(d+ex)^{13/2}(bd-ae)(-aBe-Abe+2bBd)}{13e^5}-\frac{2(d+ex)^{11/2}(bd-ae)^2(-aBe-3Abe+4bBd)}{11e^5}+\frac{2(d+ex)^{9/2}(bd-ae)^3(Bd-Ae)}{9e^5}+\frac{2b^3B(d+ex)^{17/2}}{17e^5}$$

```
[Out] (2*(b*d - a*e)^3*(B*d - A*e)*(d + e*x)^(9/2))/(9*e^5) - (2*(b*d -
 a*e)^2*(4*b*B*d - 3*A*b*e - a*B*e)*(d + e*x)^(11/2))/(11*e^5) +
(6*b*(b*d - a*e)*(2*b*B*d - A*b*e - a*B*e)*(d + e*x)^(13/2))/(13*
e^5) - (2*b^2*(4*b*B*d - A*b*e - 3*a*B*e)*(d + e*x)^(15/2))/(15*e
^5) + (2*b^3*B*(d + e*x)^(17/2))/(17*e^5)
```

Rubi [A] time = 0.274321, antiderivative size = 173, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$-\frac{2b^2(d+ex)^{15/2}(-3aBe-Abe+4bBd)}{15e^5}+\frac{6b(d+ex)^{13/2}(bd-ae)(-aBe-Abe+2bBd)}{13e^5}-\frac{2(d+ex)^{11/2}(bd-ae)^2(-aBe-3Abe+4bBd)}{11e^5}+\frac{2(d+ex)^{9/2}(bd-ae)^3(Bd-Ae)}{9e^5}+\frac{2b^3B(d+ex)^{17/2}}{17e^5}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^3*(A + B*x)*(d + e*x)^(7/2),x]
```

```
[Out] (2*(b*d - a*e)^3*(B*d - A*e)*(d + e*x)^(9/2))/(9*e^5) - (2*(b*d -
 a*e)^2*(4*b*B*d - 3*A*b*e - a*B*e)*(d + e*x)^(11/2))/(11*e^5) +
(6*b*(b*d - a*e)*(2*b*B*d - A*b*e - a*B*e)*(d + e*x)^(13/2))/(13*
e^5) - (2*b^2*(4*b*B*d - A*b*e - 3*a*B*e)*(d + e*x)^(15/2))/(15*e
^5) + (2*b^3*B*(d + e*x)^(17/2))/(17*e^5)
```

Rubi in Sympy [A] time = 48.3009, size = 170, normalized size = 0.98

$$\frac{2Bb^3\left(d+ex\right)^{\frac{17}{2}}}{17e^5}+\frac{2b^2\left(d+ex\right)^{\frac{15}{2}}\left(Abe+3Bae-4Bbd\right)}{15e^5}+\frac{6b\left(d+ex\right)^{\frac{13}{2}}\left(ae-bd\right)\left(Abe+Bae-2Bbd\right)}{13e^5}+\frac{2\left(d+ex\right)^{\frac{11}{2}}\left(ae-bd\right)^2\left(3Abe+Bae-4Bbd\right)}{11e^5}+\frac{2\left(d+ex\right)^{\frac{9}{2}}\left(Ae-Bd\right)\left(ae-bd\right)^3}{9e^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**3*(B*x+A)*(e*x+d)**(7/2),x)
```

```
[Out] 2*B*b**3*(d + e*x)**(17/2)/(17*e**5) + 2*b**2*(d + e*x)**(15/2)*(
A*b*e + 3*B*a*e - 4*B*b*d)/(15*e**5) + 6*b*(d + e*x)**(13/2)*(a*e
 - b*d)*(A*b*e + B*a*e - 2*B*b*d)/(13*e**5) + 2*(d + e*x)**(11/2)
*(a*e - b*d)**2*(3*A*b*e + B*a*e - 4*B*b*d)/(11*e**5) + 2*(d + e*
x)**(9/2)*(A*e - B*d)*(a*e - b*d)**3/(9*e**5)
```

Mathematica [A] time = 0.373722, size = 227, normalized size = 1.31

$$2(d+ex)^{9/2}\left(1105a^3e^3(11Ae-2Bd+9Bex)+255a^2be^2\left(13Ae(9ex-2d)+B\left(8d^2-36dex+99e^2x^2\right)\right)-51ab^2e\left(B\left(16d^3-\right.\right.\right.$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^3*(A + B*x)*(d + e*x)^(7/2),x]
```

```
[Out] (2*(d + e*x)^(9/2)*(1105*a^3*e^3*(-2*B*d + 11*A*e + 9*B*e*x) + 25
5*a^2*b*e^2*(13*A*e*(-2*d + 9*e*x) + B*(8*d^2 - 36*d*e*x + 99*e^2
*x^2)) - 51*a*b^2*e*(-5*A*e*(8*d^2 - 36*d*e*x + 99*e^2*x^2) + B*(
16*d^3 - 72*d^2*e*x + 198*d*e^2*x^2 - 429*e^3*x^3)) + b^3*(17*A*e
*(-16*d^3 + 72*d^2*e*x - 198*d*e^2*x^2 + 429*e^3*x^3) + B*(128*d^
4 - 576*d^3*e*x + 1584*d^2*e^2*x^2 - 3432*d*e^3*x^3 + 6435*e^4*x^
4))))/(109395*e^5)
```

Maple [A] time = 0.01, size = 301, normalized size = 1.7

$$\frac{12870\,Bb^3x^4e^4+14586\,Ab^3e^4x^3+43758\,Bab^2e^4x^3-6864\,Bb^3de^3x^3+50490\,Aab^2e^4x^2-6732\,Ab^3de^3x^2+50490\,Ba^2be^4x^2\cdots}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3*(B*x+A)*(e*x+d)^(7/2),x)
```

```
[Out] 2/109395*(e*x+d)^(9/2)*(6435*B*b^3*e^4*x^4+7293*A*b^3*e^4*x^3+218
79*B*a*b^2*e^4*x^3-3432*B*b^3*d*e^3*x^3+25245*A*a*b^2*e^4*x^2-336
6*A*b^3*d*e^3*x^2+25245*B*a^2*b*e^4*x^2-10098*B*a*b^2*d*e^3*x^2+1
584*B*b^3*d^2*e^2*x^2+29835*A*a^2*b*e^4*x-9180*A*a*b^2*d*e^3*x+12
24*A*b^3*d^2*e^2*x+9945*B*a^3*e^4*x-9180*B*a^2*b*d*e^3*x+3672*B*a
*b^2*d^2*e^2*x-576*B*b^3*d^3*e*x+12155*A*a^3*e^4-6630*A*a^2*b*d*e
^3+2040*A*a*b^2*d^2*e^2-272*A*b^3*d^3*e-2210*B*a^3*d*e^3+2040*B*a
^2*b*d^2*e^2-816*B*a*b^2*d^3*e+128*B*b^3*d^4)/e^5
```

Maxima [A] time = 1.37087, size = 358, normalized size = 2.07

$$\frac{2\left(6435\,(ex+d)^{\frac{17}{2}}Bb^3-7293\left(4\,Bb^3d-\left(3\,Bab^2+Ab^3\right)e\right)(ex+d)^{\frac{15}{2}}+25245\left(2\,Bb^3d^2-\left(3\,Bab^2+Ab^3\right)de+\left(Ba^2b+Aab^2\right)\cdots\right.\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*(e*x + d)^(7/2),x, algorithm="maxima")
```

```
[Out] 2/109395*(6435*(e*x + d)^(17/2)*B*b^3 - 7293*(4*B*b^3*d - (3*B*a*
b^2 + A*b^3)*e)*(e*x + d)^(15/2) + 25245*(2*B*b^3*d^2 - (3*B*a*b^
2 + A*b^3)*d*e + (B*a^2*b + A*a*b^2)*e^2)*(e*x + d)^(13/2) - 9945
*(4*B*b^3*d^3 - 3*(3*B*a*b^2 + A*b^3)*d^2*e + 6*(B*a^2*b + A*a*b^
2)*d*e^2 - (B*a^3 + 3*A*a^2*b)*e^3)*(e*x + d)^(11/2) + 12155*(B*b
^3*d^4 + A*a^3*e^4 - (3*B*a*b^2 + A*b^3)*d^3*e + 3*(B*a^2*b + A*a
*b^2)*d^2*e^2 - (B*a^3 + 3*A*a^2*b)*d*e^3)*(e*x + d)^(9/2))/e^5
```

Fricas [A] time = 0.226842, size = 855, normalized size = 4.94

$$\frac{2\left(6435\,Bb^3e^8x^8+128\,Bb^3d^8+12155\,Aa^3d^4e^4-272\left(3\,Bab^2+Ab^3\right)d^7e+2040\left(Ba^2b+Aab^2\right)d^6e^2-2210\left(Ba^3+3\,Aa^2b\right)d^{\cdots}\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*(e*x + d)^(7/2),x, algorithm="fricas")
```

```
[Out] 2/109395*(6435*B*b^3*e^8*x^8 + 128*B*b^3*d^8 + 12155*A*a^3*d^4*e^
4 - 272*(3*B*a*b^2 + A*b^3)*d^7*e + 2040*(B*a^2*b + A*a*b^2)*d^6*
```

```
e^2 - 2210*(B*a^3 + 3*A*a^2*b)*d^5*e^3 + 429*(52*B*b^3*d*e^7 + 17
*(3*B*a*b^2 + A*b^3)*e^8)*x^7 + 33*(802*B*b^3*d^2*e^6 + 782*(3*B*
a*b^2 + A*b^3)*d*e^7 + 765*(B*a^2*b + A*a*b^2)*e^8)*x^6 + 9*(1212
*B*b^3*d^3*e^5 + 3502*(3*B*a*b^2 + A*b^3)*d^2*e^6 + 10200*(B*a^2*
b + A*a*b^2)*d*e^7 + 1105*(B*a^3 + 3*A*a^2*b)*e^8)*x^5 + 5*(7*B*b
^3*d^4*e^4 + 2431*A*a^3*e^8 + 2720*(3*B*a*b^2 + A*b^3)*d^3*e^5 +
23358*(B*a^2*b + A*a*b^2)*d^2*e^6 + 7514*(B*a^3 + 3*A*a^2*b)*d*e^
7)*x^4 - 5*(8*B*b^3*d^5*e^3 - 9724*A*a^3*d*e^7 - 17*(3*B*a*b^2 +
A*b^3)*d^4*e^4 - 10812*(B*a^2*b + A*a*b^2)*d^3*e^5 - 10166*(B*a^3
 + 3*A*a^2*b)*d^2*e^6)*x^3 + 3*(16*B*b^3*d^6*e^2 + 24310*A*a^3*d^
2*e^6 - 34*(3*B*a*b^2 + A*b^3)*d^5*e^3 + 255*(B*a^2*b + A*a*b^2)*
d^4*e^4 + 8840*(B*a^3 + 3*A*a^2*b)*d^3*e^5)*x^2 - (64*B*b^3*d^7*e
 - 48620*A*a^3*d^3*e^5 - 136*(3*B*a*b^2 + A*b^3)*d^6*e^2 + 1020*(
B*a^2*b + A*a*b^2)*d^5*e^3 - 1105*(B*a^3 + 3*A*a^2*b)*d^4*e^4)*x)
*sqrt(e*x + d)/e^5
```

Sympy [A] time = 44.1309, size = 1523, normalized size = 8.8

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**3*(B*x+A)*(e*x+d)**(7/2),x)
```

```
[Out] Piecewise((2*A*a**3*d**4*sqrt(d + e*x)/(9*e) + 8*A*a**3*d**3*x*sq
rt(d + e*x)/9 + 4*A*a**3*d**2*e*x**2*sqrt(d + e*x)/3 + 8*A*a**3*d
*e**2*x**3*sqrt(d + e*x)/9 + 2*A*a**3*e**3*x**4*sqrt(d + e*x)/9 -
 4*A*a**2*b*d**5*sqrt(d + e*x)/(33*e**2) + 2*A*a**2*b*d**4*x*sqrt
(d + e*x)/(33*e) + 16*A*a**2*b*d**3*x**2*sqrt(d + e*x)/11 + 92*A*
a**2*b*d**2*e*x**3*sqrt(d + e*x)/33 + 68*A*a**2*b*d*e**2*x**4*sqr
t(d + e*x)/33 + 6*A*a**2*b*e**3*x**5*sqrt(d + e*x)/11 + 16*A*a*b*
*2*d**6*sqrt(d + e*x)/(429*e**3) - 8*A*a*b**2*d**5*x*sqrt(d + e*x
)/(429*e**2) + 2*A*a*b**2*d**4*x**2*sqrt(d + e*x)/(143*e) + 424*A
*a*b**2*d**3*x**3*sqrt(d + e*x)/429 + 916*A*a*b**2*d**2*e*x**4*sq
rt(d + e*x)/429 + 240*A*a*b**2*d*e**2*x**5*sqrt(d + e*x)/143 + 6*
A*a*b**2*e**3*x**6*sqrt(d + e*x)/13 - 32*A*b**3*d**7*sqrt(d + e*x
)/(6435*e**4) + 16*A*b**3*d**6*x*sqrt(d + e*x)/(6435*e**3) - 4*A*
b**3*d**5*x**2*sqrt(d + e*x)/(2145*e**2) + 2*A*b**3*d**4*x**3*sqr
t(d + e*x)/(1287*e) + 320*A*b**3*d**3*x**4*sqrt(d + e*x)/1287 + 4
12*A*b**3*d**2*e*x**5*sqrt(d + e*x)/715 + 92*A*b**3*d*e**2*x**6*s
qrt(d + e*x)/195 + 2*A*b**3*e**3*x**7*sqrt(d + e*x)/15 - 4*B*a**3
*d**5*sqrt(d + e*x)/(99*e**2) + 2*B*a**3*d**4*x*sqrt(d + e*x)/(99
*e) + 16*B*a**3*d**3*x**2*sqrt(d + e*x)/33 + 92*B*a**3*d**2*e*x**
3*sqrt(d + e*x)/99 + 68*B*a**3*d*e**2*x**4*sqrt(d + e*x)/99 + 2*B
*a**3*e**3*x**5*sqrt(d + e*x)/11 + 16*B*a**2*b*d**6*sqrt(d + e*x)
/(429*e**3) - 8*B*a**2*b*d**5*x*sqrt(d + e*x)/(429*e**2) + 2*B*a*
*2*b*d**4*x**2*sqrt(d + e*x)/(143*e) + 424*B*a**2*b*d**3*x**3*sqr
t(d + e*x)/429 + 916*B*a**2*b*d**2*e*x**4*sqrt(d + e*x)/429 + 240
*B*a**2*b*d*e**2*x**5*sqrt(d + e*x)/143 + 6*B*a**2*b*e**3*x**6*sq
rt(d + e*x)/13 - 32*B*a*b**2*d**7*sqrt(d + e*x)/(2145*e**4) + 16*
B*a*b**2*d**6*x*sqrt(d + e*x)/(2145*e**3) - 4*B*a*b**2*d**5*x**2*
sqrt(d + e*x)/(715*e**2) + 2*B*a*b**2*d**4*x**3*sqrt(d + e*x)/(42
9*e) + 320*B*a*b**2*d**3*x**4*sqrt(d + e*x)/429 + 1236*B*a*b**2*d
**2*e*x**5*sqrt(d + e*x)/715 + 92*B*a*b**2*d*e**2*x**6*sqrt(d + e
*x)/65 + 2*B*a*b**2*e**3*x**7*sqrt(d + e*x)/5 + 256*B*b**3*d**8*s
qrt(d + e*x)/(109395*e**5) - 128*B*b**3*d**7*x*sqrt(d + e*x)/(109
395*e**4) + 32*B*b**3*d**6*x**2*sqrt(d + e*x)/(36465*e**3) - 16*B
*b**3*d**5*x**3*sqrt(d + e*x)/(21879*e**2) + 14*B*b**3*d**4*x**4*
sqrt(d + e*x)/(21879*e) + 2424*B*b**3*d**3*x**5*sqrt(d + e*x)/121
55 + 1604*B*b**3*d**2*e*x**6*sqrt(d + e*x)/3315 + 104*B*b**3*d*e*
*2*x**7*sqrt(d + e*x)/255 + 2*B*b**3*e**3*x**8*sqrt(d + e*x)/17,
Ne(e, 0)), (d**(7/2)*(A*a**3*x + 3*A*a**2*b*x**2/2 + A*a*b**2*x**
3 + A*b**3*x**4/4 + B*a**3*x**2/2 + B*a**2*b*x**3 + 3*B*a*b**2*x*
*4/4 + B*b**3*x**5/5), True))
```

GIAC/XCAS [A] time = 0.258192, size = 1, normalized size = 0.01

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*(e*x + d)^(7/2),x, algorithm="giac")
```

```
[Out] Done
```

3.1718 $\int (a+bx)^3(A+Bx)(d+ex)^{5/2}\,dx$

Optimal. Leaf size=173

$$-\frac{2b^2(d+ex)^{13/2}(-3aBe-Abe+4bBd)}{13e^5}+\frac{6b(d+ex)^{11/2}(bd-ae)(-aBe-Abe+2bBd)}{11e^5}-\frac{2(d+ex)^{9/2}(bd-ae)^2(-aBe-3Abe+4bBd)}{9e^5}+\frac{2(d+ex)^{7/2}(bd-ae)^3(Bd-Ae)}{7e^5}+\frac{2b^3B(d+ex)^{15/2}}{15e^5}$$

```
[Out] (2*(b*d - a*e)^3*(B*d - A*e)*(d + e*x)^(7/2))/(7*e^5) - (2*(b*d -
 a*e)^2*(4*b*B*d - 3*A*b*e - a*B*e)*(d + e*x)^(9/2))/(9*e^5) + (6
*b*(b*d - a*e)*(2*b*B*d - A*b*e - a*B*e)*(d + e*x)^(11/2))/(11*e^
5) - (2*b^2*(4*b*B*d - A*b*e - 3*a*B*e)*(d + e*x)^(13/2))/(13*e^5
) + (2*b^3*B*(d + e*x)^(15/2))/(15*e^5)
```

Rubi [A] time = 0.218867, antiderivative size = 173, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$-\frac{2b^2(d+ex)^{13/2}(-3aBe-Abe+4bBd)}{13e^5}+\frac{6b(d+ex)^{11/2}(bd-ae)(-aBe-Abe+2bBd)}{11e^5}-\frac{2(d+ex)^{9/2}(bd-ae)^2(-aBe-3Abe+4bBd)}{9e^5}+\frac{2(d+ex)^{7/2}(bd-ae)^3(Bd-Ae)}{7e^5}+\frac{2b^3B(d+ex)^{15/2}}{15e^5}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^3*(A + B*x)*(d + e*x)^(5/2),x]
```

```
[Out] (2*(b*d - a*e)^3*(B*d - A*e)*(d + e*x)^(7/2))/(7*e^5) - (2*(b*d -
 a*e)^2*(4*b*B*d - 3*A*b*e - a*B*e)*(d + e*x)^(9/2))/(9*e^5) + (6
*b*(b*d - a*e)*(2*b*B*d - A*b*e - a*B*e)*(d + e*x)^(11/2))/(11*e^
5) - (2*b^2*(4*b*B*d - A*b*e - 3*a*B*e)*(d + e*x)^(13/2))/(13*e^5
) + (2*b^3*B*(d + e*x)^(15/2))/(15*e^5)
```

Rubi in Sympy [A] time = 46.5546, size = 170, normalized size = 0.98

$$\frac{2Bb^3(d+ex)^{\frac{15}{2}}}{15e^5}+\frac{2b^2(d+ex)^{\frac{13}{2}}(Abe+3Bae-4Bbd)}{13e^5}+\frac{6b(d+ex)^{\frac{11}{2}}(ae-bd)(Abe+Bae-2Bbd)}{11e^5}+\frac{2(d+ex)^{\frac{9}{2}}(ae-bd)^2(3Abe+Bae-4Bbd)}{9e^5}+\frac{2(d+ex)^{\frac{7}{2}}(Ae-Bd)(ae-bd)^3}{7e^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**3*(B*x+A)*(e*x+d)**(5/2),x)
```

```
[Out] 2*B*b**3*(d + e*x)**(15/2)/(15*e**5) + 2*b**2*(d + e*x)**(13/2)*(
A*b*e + 3*B*a*e - 4*B*b*d)/(13*e**5) + 6*b*(d + e*x)**(11/2)*(a*e
 - b*d)*(A*b*e + B*a*e - 2*B*b*d)/(11*e**5) + 2*(d + e*x)**(9/2)*
(a*e - b*d)**2*(3*A*b*e + B*a*e - 4*B*b*d)/(9*e**5) + 2*(d + e*x)
**(7/2)*(A*e - B*d)*(a*e - b*d)**3/(7*e**5)
```

Mathematica [A] time = 0.338188, size = 228, normalized size = 1.32

$$2(d+ex)^{7/2}\left(715a^3e^3(9Ae-2Bd+7Bex)+195a^2be^2\left(11Ae(7ex-2d)+B\left(8d^2-28dex+63e^2x^2\right)\right)-15ab^2e\left(3B\left(16d^3-\right.\right.\right.$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^3*(A + B*x)*(d + e*x)^(5/2),x]
```

```
[Out] (2*(d + e*x)^(7/2)*(715*a^3*e^3*(-2*B*d + 9*A*e + 7*B*e*x) + 195*
a^2*b*e^2*(11*A*e*(-2*d + 7*e*x) + B*(8*d^2 - 28*d*e*x + 63*e^2*x
^2)) - 15*a*b^2*e*(-13*A*e*(8*d^2 - 28*d*e*x + 63*e^2*x^2) + 3*B*
(16*d^3 - 56*d^2*e*x + 126*d*e^2*x^2 - 231*e^3*x^3)) + b^3*(15*A*
e*(-16*d^3 + 56*d^2*e*x - 126*d*e^2*x^2 + 231*e^3*x^3) + B*(128*d
^4 - 448*d^3*e*x + 1008*d^2*e^2*x^2 - 1848*d*e^3*x^3 + 3003*e^4*x
^4))))/(45045*e^5)
```

Maple [A] time = 0.012, size = 301, normalized size = 1.7

$$6006\,Bb^3x^4e^4 + 6930\,Ab^3e^4x^3 + 20790\,Bab^2e^4x^3 - 3696\,Bb^3de^3x^3 + 24570\,Aab^2e^4x^2 - 3780\,Ab^3de^3x^2 + 24570\,Ba^2be^4x^2 - 1$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3*(B*x+A)*(e*x+d)^(5/2),x)
```

```
[Out] 2/45045*(e*x+d)^(7/2)*(3003*B*b^3*e^4*x^4+3465*A*b^3*e^4*x^3+1039
5*B*a*b^2*e^4*x^3-1848*B*b^3*d*e^3*x^3+12285*A*a*b^2*e^4*x^2-1890
*A*b^3*d*e^3*x^2+12285*B*a^2*b*e^4*x^2-5670*B*a*b^2*d*e^3*x^2+100
8*B*b^3*d^2*e^2*x^2+15015*A*a^2*b*e^4*x-5460*A*a*b^2*d*e^3*x+840*
A*b^3*d^2*e^2*x+5005*B*a^3*e^4*x-5460*B*a^2*b*d*e^3*x+2520*B*a*b^
2*d^2*e^2*x-448*B*b^3*d^3*e*x+6435*A*a^3*e^4-4290*A*a^2*b*d*e^3+1
560*A*a*b^2*d^2*e^2-240*A*b^3*d^3*e-1430*B*a^3*d*e^3+1560*B*a^2*b
*d^2*e^2-720*B*a*b^2*d^3*e+128*B*b^3*d^4)/e^5
```

Maxima [A] time = 1.35407, size = 358, normalized size = 2.07

$$2\left(3003\,(ex+d)^{\frac{15}{2}}Bb^3 - 3465\,\left(4\,Bb^3d - \left(3\,Bab^2 + Ab^3\right)e\right)(ex+d)^{\frac{13}{2}} + 12285\,\left(2\,Bb^3d^2 - \left(3\,Bab^2 + Ab^3\right)de + \left(Ba^2b + Aab^2\right)\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*(e*x + d)^(5/2),x, algorithm="maxima")
```

```
[Out] 2/45045*(3003*(e*x + d)^(15/2)*B*b^3 - 3465*(4*B*b^3*d - (3*B*a*b
^2 + A*b^3)*e)*(e*x + d)^(13/2) + 12285*(2*B*b^3*d^2 - (3*B*a*b^2
 + A*b^3)*d*e + (B*a^2*b + A*a*b^2)*e^2)*(e*x + d)^(11/2) - 5005*
(4*B*b^3*d^3 - 3*(3*B*a*b^2 + A*b^3)*d^2*e + 6*(B*a^2*b + A*a*b^2
)*d*e^2 - (B*a^3 + 3*A*a^2*b)*e^3)*(e*x + d)^(9/2) + 6435*(B*b^3*
d^4 + A*a^3*e^4 - (3*B*a*b^2 + A*b^3)*d^3*e + 3*(B*a^2*b + A*a*b^
2)*d^2*e^2 - (B*a^3 + 3*A*a^2*b)*d*e^3)*(e*x + d)^(7/2))/e^5
```

Fricas [A] time = 0.228234, size = 728, normalized size = 4.21

$$2\left(3003\,Bb^3e^7x^7 + 128\,Bb^3d^7 + 6435\,Aa^3d^3e^4 - 240\,\left(3\,Bab^2 + Ab^3\right)d^6e + 1560\,\left(Ba^2b + Aab^2\right)d^5e^2 - 1430\,\left(Ba^3 + 3\,Aa^2b\right)d^4e\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*(e*x + d)^(5/2),x, algorithm="fricas")
```

```
[Out] 2/45045*(3003*B*b^3*e^7*x^7 + 128*B*b^3*d^7 + 6435*A*a^3*d^3*e^4
- 240*(3*B*a*b^2 + A*b^3)*d^6*e + 1560*(B*a^2*b + A*a*b^2)*d^5*e^
2 - 1430*(B*a^3 + 3*A*a^2*b)*d^4*e^3 + 231*(31*B*b^3*d*e^6 + 15*(
3*B*a*b^2 + A*b^3)*e^7)*x^6 + 63*(71*B*b^3*d^2*e^5 + 135*(3*B*a*b
^2 + A*b^3)*d*e^6 + 195*(B*a^2*b + A*a*b^2)*e^7)*x^5 + 35*(B*b^3*
d^3*e^4 + 159*(3*B*a*b^2 + A*b^3)*d^2*e^5 + 897*(B*a^2*b + A*a*b^
2)*d*e^6 + 143*(B*a^3 + 3*A*a^2*b)*e^7)*x^4 - 5*(8*B*b^3*d^4*e^3
- 1287*A*a^3*e^7 - 15*(3*B*a*b^2 + A*b^3)*d^3*e^4 - 4407*(B*a^2*b
```

```
 + A*a*b^2)*d^2*e^5 - 2717*(B*a^3 + 3*A*a^2*b)*d*e^6)*x^3 + 3*(16
*B*b^3*d^5*e^2 + 6435*A*a^3*d*e^6 - 30*(3*B*a*b^2 + A*b^3)*d^4*e^
3 + 195*(B*a^2*b + A*a*b^2)*d^3*e^4 + 3575*(B*a^3 + 3*A*a^2*b)*d^
2*e^5)*x^2 - (64*B*b^3*d^6*e - 19305*A*a^3*d^2*e^5 - 120*(3*B*a*b
^2 + A*b^3)*d^5*e^2 + 780*(B*a^2*b + A*a*b^2)*d^4*e^3 - 715*(B*a^
3 + 3*A*a^2*b)*d^3*e^4)*x)*sqrt(e*x + d)/e^5
```

Sympy [A] time = 19.223, size = 1564, normalized size = 9.04

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**3*(B*x+A)*(e*x+d)**(5/2),x)
```

```
[Out] A*a**3*d**2*Piecewise((sqrt(d)*x, Eq(e, 0)), (2*(d + e*x)**(3/2)/
(3*e), True)) + 4*A*a**3*d*(-d*(d + e*x)**(3/2)/3 + (d + e*x)**(5
/2)/5)/e + 2*A*a**3*(d**2*(d + e*x)**(3/2)/3 - 2*d*(d + e*x)**(5/
2)/5 + (d + e*x)**(7/2)/7)/e + 6*A*a**2*b*d**2*(-d*(d + e*x)**(3/
2)/3 + (d + e*x)**(5/2)/5)/e**2 + 12*A*a**2*b*d*(d**2*(d + e*x)**
(3/2)/3 - 2*d*(d + e*x)**(5/2)/5 + (d + e*x)**(7/2)/7)/e**2 + 6*A
*a**2*b*(-d**3*(d + e*x)**(3/2)/3 + 3*d**2*(d + e*x)**(5/2)/5 - 3
*d*(d + e*x)**(7/2)/7 + (d + e*x)**(9/2)/9)/e**2 + 6*A*a*b**2*d**
2*(d**2*(d + e*x)**(3/2)/3 - 2*d*(d + e*x)**(5/2)/5 + (d + e*x)**
(7/2)/7)/e**3 + 12*A*a*b**2*d*(-d**3*(d + e*x)**(3/2)/3 + 3*d**2*
(d + e*x)**(5/2)/5 - 3*d*(d + e*x)**(7/2)/7 + (d + e*x)**(9/2)/9)
/e**3 + 6*A*a*b**2*(d**4*(d + e*x)**(3/2)/3 - 4*d**3*(d + e*x)**(
5/2)/5 + 6*d**2*(d + e*x)**(7/2)/7 - 4*d*(d + e*x)**(9/2)/9 + (d
+ e*x)**(11/2)/11)/e**3 + 2*A*b**3*d**2*(-d**3*(d + e*x)**(3/2)/3
 + 3*d**2*(d + e*x)**(5/2)/5 - 3*d*(d + e*x)**(7/2)/7 + (d + e*x)
**(9/2)/9)/e**4 + 4*A*b**3*d*(d**4*(d + e*x)**(3/2)/3 - 4*d**3*(d
 + e*x)**(5/2)/5 + 6*d**2*(d + e*x)**(7/2)/7 - 4*d*(d + e*x)**(9/
2)/9 + (d + e*x)**(11/2)/11)/e**4 + 2*A*b**3*(-d**5*(d + e*x)**(3
/2)/3 + d**4*(d + e*x)**(5/2) - 10*d**3*(d + e*x)**(7/2)/7 + 10*d
**2*(d + e*x)**(9/2)/9 - 5*d*(d + e*x)**(11/2)/11 + (d + e*x)**(1
3/2)/13)/e**4 + 2*B*a**3*d**2*(-d*(d + e*x)**(3/2)/3 + (d + e*x)*
*(5/2)/5)/e**2 + 4*B*a**3*d*(d**2*(d + e*x)**(3/2)/3 - 2*d*(d + e
*x)**(5/2)/5 + (d + e*x)**(7/2)/7)/e**2 + 2*B*a**3*(-d**3*(d + e*
x)**(3/2)/3 + 3*d**2*(d + e*x)**(5/2)/5 - 3*d*(d + e*x)**(7/2)/7
+ (d + e*x)**(9/2)/9)/e**2 + 6*B*a**2*b*d**2*(d**2*(d + e*x)**(3/
2)/3 - 2*d*(d + e*x)**(5/2)/5 + (d + e*x)**(7/2)/7)/e**3 + 12*B*a
**2*b*d*(-d**3*(d + e*x)**(3/2)/3 + 3*d**2*(d + e*x)**(5/2)/5 - 3
*d*(d + e*x)**(7/2)/7 + (d + e*x)**(9/2)/9)/e**3 + 6*B*a**2*b*(d*
*4*(d + e*x)**(3/2)/3 - 4*d**3*(d + e*x)**(5/2)/5 + 6*d**2*(d + e
*x)**(7/2)/7 - 4*d*(d + e*x)**(9/2)/9 + (d + e*x)**(11/2)/11)/e**
3 + 6*B*a*b**2*d**2*(-d**3*(d + e*x)**(3/2)/3 + 3*d**2*(d + e*x)*
*(5/2)/5 - 3*d*(d + e*x)**(7/2)/7 + (d + e*x)**(9/2)/9)/e**4 + 12
*B*a*b**2*d*(d**4*(d + e*x)**(3/2)/3 - 4*d**3*(d + e*x)**(5/2)/5
+ 6*d**2*(d + e*x)**(7/2)/7 - 4*d*(d + e*x)**(9/2)/9 + (d + e*x)*
*(11/2)/11)/e**4 + 6*B*a*b**2*(-d**5*(d + e*x)**(3/2)/3 + d**4*(d
 + e*x)**(5/2) - 10*d**3*(d + e*x)**(7/2)/7 + 10*d**2*(d + e*x)**
(9/2)/9 - 5*d*(d + e*x)**(11/2)/11 + (d + e*x)**(13/2)/13)/e**4 +
 2*B*b**3*d**2*(d**4*(d + e*x)**(3/2)/3 - 4*d**3*(d + e*x)**(5/2)
/5 + 6*d**2*(d + e*x)**(7/2)/7 - 4*d*(d + e*x)**(9/2)/9 + (d + e*
x)**(11/2)/11)/e**5 + 4*B*b**3*d*(-d**5*(d + e*x)**(3/2)/3 + d**4
*(d + e*x)**(5/2) - 10*d**3*(d + e*x)**(7/2)/7 + 10*d**2*(d + e*x
)**(9/2)/9 - 5*d*(d + e*x)**(11/2)/11 + (d + e*x)**(13/2)/13)/e**
5 + 2*B*b**3*(d**6*(d + e*x)**(3/2)/3 - 6*d**5*(d + e*x)**(5/2)/5
 + 15*d**4*(d + e*x)**(7/2)/7 - 20*d**3*(d + e*x)**(9/2)/9 + 15*d
**2*(d + e*x)**(11/2)/11 - 6*d*(d + e*x)**(13/2)/13 + (d + e*x)**
(15/2)/15)/e**5
```

GIAC/XCAS [A] time = 0.238391, size = 1, normalized size = 0.01

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*(e*x + d)^(5/2),x, algorithm="giac")

[Out] Done
```

3.1719 $\int (a+bx)^3(A+Bx)(d+ex)^{3/2}\,dx$

Optimal. Leaf size=173

$$-\frac{2b^2(d+ex)^{11/2}(-3aBe-Abe+4bBd)}{11e^5}+\frac{2b(d+ex)^{9/2}(bd-ae)(-aBe-Abe+2bBd)}{3e^5}-\frac{2(d+ex)^{7/2}(bd-ae)^2(-aBe-3Abe+4bBd)}{7e^5}+\frac{2(d+ex)^{5/2}(bd-ae)^3(Bd-Ae)}{5e^5}+\frac{2b^3B(d+ex)^{13/2}}{13e^5}$$

```
[Out] (2*(b*d - a*e)^3*(B*d - A*e)*(d + e*x)^(5/2))/(5*e^5) - (2*(b*d -
 a*e)^2*(4*b*B*d - 3*A*b*e - a*B*e)*(d + e*x)^(7/2))/(7*e^5) + (2
*b*(b*d - a*e)*(2*b*B*d - A*b*e - a*B*e)*(d + e*x)^(9/2))/(3*e^5)
 - (2*b^2*(4*b*B*d - A*b*e - 3*a*B*e)*(d + e*x)^(11/2))/(11*e^5)
+ (2*b^3*B*(d + e*x)^(13/2))/(13*e^5)
```

Rubi [A] time = 0.215212, antiderivative size = 173, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{2b^2(d+ex)^{11/2}(-3aBe-Abe+4bBd)}{11e^5}+\frac{2b(d+ex)^{9/2}(bd-ae)(-aBe-Abe+2bBd)}{3e^5}-\frac{2(d+ex)^{7/2}(bd-ae)^2(-aBe-3Abe+4bBd)}{7e^5}+\frac{2(d+ex)^{5/2}(bd-ae)^3(Bd-Ae)}{5e^5}+\frac{2b^3B(d+ex)^{13/2}}{13e^5}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^3*(A + B*x)*(d + e*x)^(3/2),x]
```

```
[Out] (2*(b*d - a*e)^3*(B*d - A*e)*(d + e*x)^(5/2))/(5*e^5) - (2*(b*d -
 a*e)^2*(4*b*B*d - 3*A*b*e - a*B*e)*(d + e*x)^(7/2))/(7*e^5) + (2
*b*(b*d - a*e)*(2*b*B*d - A*b*e - a*B*e)*(d + e*x)^(9/2))/(3*e^5)
 - (2*b^2*(4*b*B*d - A*b*e - 3*a*B*e)*(d + e*x)^(11/2))/(11*e^5)
+ (2*b^3*B*(d + e*x)^(13/2))/(13*e^5)
```

Rubi in Sympy [A] time = 47.5374, size = 170, normalized size = 0.98

$$\frac{2Bb^3(d+ex)^{\frac{13}{2}}}{13e^5}+\frac{2b^2(d+ex)^{\frac{11}{2}}(Abe+3Bae-4Bbd)}{11e^5}+\frac{2b(d+ex)^{\frac{9}{2}}(ae-bd)(Abe+Bae-2Bbd)}{3e^5}+\frac{2(d+ex)^{\frac{7}{2}}(ae-bd)^2(3Abe+Bae-4Bbd)}{7e^5}+\frac{2(d+ex)^{\frac{5}{2}}(Ae-Bd)(ae-bd)^3}{5e^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**3*(B*x+A)*(e*x+d)**(3/2),x)
```

```
[Out] 2*B*b**3*(d + e*x)**(13/2)/(13*e**5) + 2*b**2*(d + e*x)**(11/2)*(
A*b*e + 3*B*a*e - 4*B*b*d)/(11*e**5) + 2*b*(d + e*x)**(9/2)*(a*e
- b*d)*(A*b*e + B*a*e - 2*B*b*d)/(3*e**5) + 2*(d + e*x)**(7/2)*(a
*e - b*d)**2*(3*A*b*e + B*a*e - 4*B*b*d)/(7*e**5) + 2*(d + e*x)**
(5/2)*(A*e - B*d)*(a*e - b*d)**3/(5*e**5)
```

Mathematica [A] time = 0.354477, size = 228, normalized size = 1.32

$$2(d+ex)^{5/2}\left(429a^3e^3(7Ae-2Bd+5Bex)+143a^2be^2\left(9Ae(5ex-2d)+B\left(8d^2-20dex+35e^2x^2\right)\right)-13ab^2e\left(3B\left(16d^3-4\right.\right.\right.$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^3*(A + B*x)*(d + e*x)^(3/2),x]
```

```
[Out] (2*(d + e*x)^(5/2)*(429*a^3*e^3*(-2*B*d + 7*A*e + 5*B*e*x) + 143*
a^2*b*e^2*(9*A*e*(-2*d + 5*e*x) + B*(8*d^2 - 20*d*e*x + 35*e^2*x^
2)) - 13*a*b^2*e*(-11*A*e*(8*d^2 - 20*d*e*x + 35*e^2*x^2) + 3*B*(
16*d^3 - 40*d^2*e*x + 70*d*e^2*x^2 - 105*e^3*x^3)) + b^3*(13*A*e*
(-16*d^3 + 40*d^2*e*x - 70*d*e^2*x^2 + 105*e^3*x^3) + B*(128*d^4
- 320*d^3*e*x + 560*d^2*e^2*x^2 - 840*d*e^3*x^3 + 1155*e^4*x^4)))
)/(15015*e^5)
```

Maple [A] time = 0.01, size = 301, normalized size = 1.7

$$2310\,Bb^3x^4e^4 + 2730\,Ab^3e^4x^3 + 8190\,Bab^2e^4x^3 - 1680\,Bb^3de^3x^3 + 10010\,Aab^2e^4x^2 - 1820\,Ab^3de^3x^2 + 10010\,Ba^2be^4x^2 - 5$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3*(B*x+A)*(e*x+d)^(3/2),x)
```

```
[Out] 2/15015*(e*x+d)^(5/2)*(1155*B*b^3*e^4*x^4+1365*A*b^3*e^4*x^3+4095
*B*a*b^2*e^4*x^3-840*B*b^3*d*e^3*x^3+5005*A*a*b^2*e^4*x^2-910*A*b
^3*d*e^3*x^2+5005*B*a^2*b*e^4*x^2-2730*B*a*b^2*d*e^3*x^2+560*B*b^
3*d^2*e^2*x^2+6435*A*a^2*b*e^4*x-2860*A*a*b^2*d*e^3*x+520*A*b^3*d
^2*e^2*x+2145*B*a^3*e^4*x-2860*B*a^2*b*d*e^3*x+1560*B*a*b^2*d^2*e
^2*x-320*B*b^3*d^3*e*x+3003*A*a^3*e^4-2574*A*a^2*b*d*e^3+1144*A*a
*b^2*d^2*e^2-208*A*b^3*d^3*e-858*B*a^3*d*e^3+1144*B*a^2*b*d^2*e^2
-624*B*a*b^2*d^3*e+128*B*b^3*d^4)/e^5
```

Maxima [A] time = 1.34576, size = 358, normalized size = 2.07

$$2\left(1155\,(ex+d)^{\frac{13}{2}}Bb^3 - 1365\,\left(4\,Bb^3d - \left(3\,Bab^2 + Ab^3\right)e\right)(ex+d)^{\frac{11}{2}} + 5005\,\left(2\,Bb^3d^2 - \left(3\,Bab^2 + Ab^3\right)de + \left(Ba^2b + Aab^2\right)e$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*(e*x + d)^(3/2),x, algorithm="maxima")
```

```
[Out] 2/15015*(1155*(e*x + d)^(13/2)*B*b^3 - 1365*(4*B*b^3*d - (3*B*a*b
^2 + A*b^3)*e)*(e*x + d)^(11/2) + 5005*(2*B*b^3*d^2 - (3*B*a*b^2
+ A*b^3)*d*e + (B*a^2*b + A*a*b^2)*e^2)*(e*x + d)^(9/2) - 2145*(4
*B*b^3*d^3 - 3*(3*B*a*b^2 + A*b^3)*d^2*e + 6*(B*a^2*b + A*a*b^2)*
d*e^2 - (B*a^3 + 3*A*a^2*b)*e^3)*(e*x + d)^(7/2) + 3003*(B*b^3*d^
4 + A*a^3*e^4 - (3*B*a*b^2 + A*b^3)*d^3*e + 3*(B*a^2*b + A*a*b^2)
*d^2*e^2 - (B*a^3 + 3*A*a^2*b)*d*e^3)*(e*x + d)^(5/2))/e^5
```

Fricas [A] time = 0.230838, size = 602, normalized size = 3.48

$$2\left(1155\,Bb^3e^6x^6 + 128\,Bb^3d^6 + 3003\,Aa^3d^2e^4 - 208\left(3\,Bab^2 + Ab^3\right)d^5e + 1144\left(Ba^2b + Aab^2\right)d^4e^2 - 858\left(Ba^3 + 3\,Aa^2b\right)d^3e^3$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*(e*x + d)^(3/2),x, algorithm="fricas")
```

```
[Out] 2/15015*(1155*B*b^3*e^6*x^6 + 128*B*b^3*d^6 + 3003*A*a^3*d^2*e^4
- 208*(3*B*a*b^2 + A*b^3)*d^5*e + 1144*(B*a^2*b + A*a*b^2)*d^4*e^
2 - 858*(B*a^3 + 3*A*a^2*b)*d^3*e^3 + 105*(14*B*b^3*d*e^5 + 13*(3
*B*a*b^2 + A*b^3)*e^6)*x^5 + 35*(B*b^3*d^2*e^4 + 52*(3*B*a*b^2 +
A*b^3)*d*e^5 + 143*(B*a^2*b + A*a*b^2)*e^6)*x^4 - 5*(8*B*b^3*d^3*
e^3 - 13*(3*B*a*b^2 + A*b^3)*d^2*e^4 - 1430*(B*a^2*b + A*a*b^2)*d
*e^5 - 429*(B*a^3 + 3*A*a^2*b)*e^6)*x^3 + 3*(16*B*b^3*d^4*e^2 + 1
001*A*a^3*e^6 - 26*(3*B*a*b^2 + A*b^3)*d^3*e^3 + 143*(B*a^2*b + A
```

```
*a*b^2)*d^2*e^4 + 1144*(B*a^3 + 3*A*a^2*b)*d*e^5)*x^2 - (64*B*b^3
*d^5*e - 6006*A*a^3*d*e^5 - 104*(3*B*a*b^2 + A*b^3)*d^4*e^2 + 572
*(B*a^2*b + A*a*b^2)*d^3*e^3 - 429*(B*a^3 + 3*A*a^2*b)*d^2*e^4)*x
)*sqrt(e*x + d)/e^5
```

Sympy [A] time = 13.0982, size = 913, normalized size = 5.28

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**3*(B*x+A)*(e*x+d)**(3/2),x)
```

```
[Out] A*a**3*d*Piecewise((sqrt(d)*x, Eq(e, 0)), (2*(d + e*x)**(3/2)/(3*
e), True)) + 2*A*a**3*(-d*(d + e*x)**(3/2)/3 + (d + e*x)**(5/2)/5
)/e + 6*A*a**2*b*d*(-d*(d + e*x)**(3/2)/3 + (d + e*x)**(5/2)/5)/e
**2 + 6*A*a**2*b*(d**2*(d + e*x)**(3/2)/3 - 2*d*(d + e*x)**(5/2)/
5 + (d + e*x)**(7/2)/7)/e**2 + 6*A*a*b**2*d*(d**2*(d + e*x)**(3/2
)/3 - 2*d*(d + e*x)**(5/2)/5 + (d + e*x)**(7/2)/7)/e**3 + 6*A*a*b
**2*(-d**3*(d + e*x)**(3/2)/3 + 3*d**2*(d + e*x)**(5/2)/5 - 3*d*(
d + e*x)**(7/2)/7 + (d + e*x)**(9/2)/9)/e**3 + 2*A*b**3*d*(-d**3*
(d + e*x)**(3/2)/3 + 3*d**2*(d + e*x)**(5/2)/5 - 3*d*(d + e*x)**(
7/2)/7 + (d + e*x)**(9/2)/9)/e**4 + 2*A*b**3*(d**4*(d + e*x)**(3/
2)/3 - 4*d**3*(d + e*x)**(5/2)/5 + 6*d**2*(d + e*x)**(7/2)/7 - 4*
d*(d + e*x)**(9/2)/9 + (d + e*x)**(11/2)/11)/e**4 + 2*B*a**3*d*(-
d*(d + e*x)**(3/2)/3 + (d + e*x)**(5/2)/5)/e**2 + 2*B*a**3*(d**2*
(d + e*x)**(3/2)/3 - 2*d*(d + e*x)**(5/2)/5 + (d + e*x)**(7/2)/7)
/e**2 + 6*B*a**2*b*d*(d**2*(d + e*x)**(3/2)/3 - 2*d*(d + e*x)**(5
/2)/5 + (d + e*x)**(7/2)/7)/e**3 + 6*B*a**2*b*(-d**3*(d + e*x)**(
3/2)/3 + 3*d**2*(d + e*x)**(5/2)/5 - 3*d*(d + e*x)**(7/2)/7 + (d
+ e*x)**(9/2)/9)/e**3 + 6*B*a*b**2*d*(-d**3*(d + e*x)**(3/2)/3 +
3*d**2*(d + e*x)**(5/2)/5 - 3*d*(d + e*x)**(7/2)/7 + (d + e*x)**(
9/2)/9)/e**4 + 6*B*a*b**2*(d**4*(d + e*x)**(3/2)/3 - 4*d**3*(d +
e*x)**(5/2)/5 + 6*d**2*(d + e*x)**(7/2)/7 - 4*d*(d + e*x)**(9/2)/
9 + (d + e*x)**(11/2)/11)/e**4 + 2*B*b**3*d*(d**4*(d + e*x)**(3/2
)/3 - 4*d**3*(d + e*x)**(5/2)/5 + 6*d**2*(d + e*x)**(7/2)/7 - 4*d
*(d + e*x)**(9/2)/9 + (d + e*x)**(11/2)/11)/e**5 + 2*B*b**3*(-d**
5*(d + e*x)**(3/2)/3 + d**4*(d + e*x)**(5/2) - 10*d**3*(d + e*x)*
*(7/2)/7 + 10*d**2*(d + e*x)**(9/2)/9 - 5*d*(d + e*x)**(11/2)/11
+ (d + e*x)**(13/2)/13)/e**5
```

GIAC/XCAS [A] time = 0.225424, size = 1, normalized size = 0.01

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*(e*x + d)^(3/2),x, algorithm="giac")
```

```
[Out] Done
```

3.1720 $\int (a+bx)^3(A+Bx)\sqrt{d+ex}\,dx$

Optimal. Leaf size=173

$$-\frac{2b^2(d+ex)^{9/2}(-3aBe-Abe+4bBd)}{9e^5}+\frac{6b(d+ex)^{7/2}(bd-ae)(-aBe-Abe+2bBd)}{7e^5}-\frac{2(d+ex)^{5/2}(bd-ae)^2(-aBe-3Abe+4bBd)}{5e^5}+\frac{2(d+ex)^{3/2}(bd-ae)^3(Bd-Ae)}{3e^5}+\frac{2b^3B(d+ex)^{11/2}}{11e^5}$$

```
[Out] (2*(b*d - a*e)^3*(B*d - A*e)*(d + e*x)^(3/2))/(3*e^5) - (2*(b*d -
 a*e)^2*(4*b*B*d - 3*A*b*e - a*B*e)*(d + e*x)^(5/2))/(5*e^5) + (6
*b*(b*d - a*e)*(2*b*B*d - A*b*e - a*B*e)*(d + e*x)^(7/2))/(7*e^5)
 - (2*b^2*(4*b*B*d - A*b*e - 3*a*B*e)*(d + e*x)^(9/2))/(9*e^5) +
(2*b^3*B*(d + e*x)^(11/2))/(11*e^5)
```

Rubi [A] time = 0.211043, antiderivative size = 173, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{2b^2(d+ex)^{9/2}(-3aBe-Abe+4bBd)}{9e^5}+\frac{6b(d+ex)^{7/2}(bd-ae)(-aBe-Abe+2bBd)}{7e^5}-\frac{2(d+ex)^{5/2}(bd-ae)^2(-aBe-3Abe+4bBd)}{5e^5}+\frac{2(d+ex)^{3/2}(bd-ae)^3(Bd-Ae)}{3e^5}+\frac{2b^3B(d+ex)^{11/2}}{11e^5}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^3*(A + B*x)*Sqrt[d + e*x],x]
```

```
[Out] (2*(b*d - a*e)^3*(B*d - A*e)*(d + e*x)^(3/2))/(3*e^5) - (2*(b*d -
 a*e)^2*(4*b*B*d - 3*A*b*e - a*B*e)*(d + e*x)^(5/2))/(5*e^5) + (6
*b*(b*d - a*e)*(2*b*B*d - A*b*e - a*B*e)*(d + e*x)^(7/2))/(7*e^5)
 - (2*b^2*(4*b*B*d - A*b*e - 3*a*B*e)*(d + e*x)^(9/2))/(9*e^5) +
(2*b^3*B*(d + e*x)^(11/2))/(11*e^5)
```

Rubi in Sympy [A] time = 44.356, size = 170, normalized size = 0.98

$$\frac{2Bb^3(d+ex)^{\frac{11}{2}}}{11e^5}+\frac{2b^2(d+ex)^{\frac{9}{2}}(Abe+3Bae-4Bbd)}{9e^5}+\frac{6b(d+ex)^{\frac{7}{2}}(ae-bd)(Abe+Bae-2Bbd)}{7e^5}+\frac{2(d+ex)^{\frac{5}{2}}(ae-bd)^2(3Abe+Bae-4Bbd)}{5e^5}+\frac{2(d+ex)^{\frac{3}{2}}(Ae-Bd)(ae-bd)^3}{3e^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**3*(B*x+A)*(e*x+d)**(1/2),x)
```

```
[Out] 2*B*b**3*(d + e*x)**(11/2)/(11*e**5) + 2*b**2*(d + e*x)**(9/2)*(A
*b*e + 3*B*a*e - 4*B*b*d)/(9*e**5) + 6*b*(d + e*x)**(7/2)*(a*e -
b*d)*(A*b*e + B*a*e - 2*B*b*d)/(7*e**5) + 2*(d + e*x)**(5/2)*(a*e
 - b*d)**2*(3*A*b*e + B*a*e - 4*B*b*d)/(5*e**5) + 2*(d + e*x)**(3
/2)*(A*e - B*d)*(a*e - b*d)**3/(3*e**5)
```

Mathematica [A] time = 0.235004, size = 227, normalized size = 1.31

$$2(d+ex)^{3/2}\left(231a^3e^3(5Ae-2Bd+3Bex)+99a^2be^2\left(7Ae(3ex-2d)+B\left(8d^2-12dex+15e^2x^2\right)\right)-33ab^2e\left(B\left(16d^3-24d\right.\right.\right.$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^3*(A + B*x)*Sqrt[d + e*x],x]
```

```
[Out] (2*(d + e*x)^(3/2)*(231*a^3*e^3*(-2*B*d + 5*A*e + 3*B*e*x) + 99*a
^2*b*e^2*(7*A*e*(-2*d + 3*e*x) + B*(8*d^2 - 12*d*e*x + 15*e^2*x^2
)) - 33*a*b^2*e*(-3*A*e*(8*d^2 - 12*d*e*x + 15*e^2*x^2) + B*(16*d
^3 - 24*d^2*e*x + 30*d*e^2*x^2 - 35*e^3*x^3)) + b^3*(11*A*e*(-16*
d^3 + 24*d^2*e*x - 30*d*e^2*x^2 + 35*e^3*x^3) + B*(128*d^4 - 192*
d^3*e*x + 240*d^2*e^2*x^2 - 280*d*e^3*x^3 + 315*e^4*x^4))))/(3465
*e^5)
```

Maple [A] time = 0.01, size = 301, normalized size = 1.7

$$630\,Bb^3x^4e^4 + 770\,Ab^3e^4x^3 + 2310\,Bab^2e^4x^3 - 560\,Bb^3de^3x^3 + 2970\,Aab^2e^4x^2 - 660\,Ab^3de^3x^2 + 2970\,Ba^2be^4x^2 - 1980\,Bab$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3*(B*x+A)*(e*x+d)^(1/2),x)
```

```
[Out] 2/3465*(e*x+d)^(3/2)*(315*B*b^3*e^4*x^4+385*A*b^3*e^4*x^3+1155*B*
a*b^2*e^4*x^3-280*B*b^3*d*e^3*x^3+1485*A*a*b^2*e^4*x^2-330*A*b^3*
d*e^3*x^2+1485*B*a^2*b*e^4*x^2-990*B*a*b^2*d*e^3*x^2+240*B*b^3*d^
2*e^2*x^2+2079*A*a^2*b*e^4*x-1188*A*a*b^2*d*e^3*x+264*A*b^3*d^2*e
^2*x+693*B*a^3*e^4*x-1188*B*a^2*b*d*e^3*x+792*B*a*b^2*d^2*e^2*x-1
92*B*b^3*d^3*e*x+1155*A*a^3*e^4-1386*A*a^2*b*d*e^3+792*A*a*b^2*d^
2*e^2-176*A*b^3*d^3*e-462*B*a^3*d*e^3+792*B*a^2*b*d^2*e^2-528*B*a
*b^2*d^3*e+128*B*b^3*d^4)/e^5
```

Maxima [A] time = 1.35613, size = 358, normalized size = 2.07

$$2\left(315\,(ex+d)^{\frac{11}{2}}Bb^3 - 385\,\left(4\,Bb^3d - \left(3\,Bab^2 + Ab^3\right)e\right)(ex+d)^{\frac{9}{2}} + 1485\,\left(2\,Bb^3d^2 - \left(3\,Bab^2 + Ab^3\right)de + \left(Ba^2b + Aab^2\right)e^2\right)($$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*sqrt(e*x + d),x, algorithm="maxima")
```

```
[Out] 2/3465*(315*(e*x + d)^(11/2)*B*b^3 - 385*(4*B*b^3*d - (3*B*a*b^2
+ A*b^3)*e)*(e*x + d)^(9/2) + 1485*(2*B*b^3*d^2 - (3*B*a*b^2 + A*
b^3)*d*e + (B*a^2*b + A*a*b^2)*e^2)*(e*x + d)^(7/2) - 693*(4*B*b^
3*d^3 - 3*(3*B*a*b^2 + A*b^3)*d^2*e + 6*(B*a^2*b + A*a*b^2)*d*e^2
 - (B*a^3 + 3*A*a^2*b)*e^3)*(e*x + d)^(5/2) + 1155*(B*b^3*d^4 + A
*a^3*e^4 - (3*B*a*b^2 + A*b^3)*d^3*e + 3*(B*a^2*b + A*a*b^2)*d^2*
e^2 - (B*a^3 + 3*A*a^2*b)*d*e^3)*(e*x + d)^(3/2))/e^5
```

Fricas [A] time = 0.223963, size = 477, normalized size = 2.76

$$2\left(315\,Bb^3e^5x^5 + 128\,Bb^3d^5 + 1155\,Aa^3de^4 - 176\,\left(3\,Bab^2 + Ab^3\right)d^4e + 792\,\left(Ba^2b + Aab^2\right)d^3e^2 - 462\,\left(Ba^3 + 3\,Aa^2b\right)d^2e^3 + $$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*sqrt(e*x + d),x, algorithm="fricas")
```

```
[Out] 2/3465*(315*B*b^3*e^5*x^5 + 128*B*b^3*d^5 + 1155*A*a^3*d*e^4 - 17
6*(3*B*a*b^2 + A*b^3)*d^4*e + 792*(B*a^2*b + A*a*b^2)*d^3*e^2 - 4
62*(B*a^3 + 3*A*a^2*b)*d^2*e^3 + 35*(B*b^3*d*e^4 + 11*(3*B*a*b^2
+ A*b^3)*e^5)*x^4 - 5*(8*B*b^3*d^2*e^3 - 11*(3*B*a*b^2 + A*b^3)*d
*e^4 - 297*(B*a^2*b + A*a*b^2)*e^5)*x^3 + 3*(16*B*b^3*d^3*e^2 - 2
2*(3*B*a*b^2 + A*b^3)*d^2*e^3 + 99*(B*a^2*b + A*a*b^2)*d*e^4 + 23
1*(B*a^3 + 3*A*a^2*b)*e^5)*x^2 - (64*B*b^3*d^4*e - 1155*A*a^3*e^5
 - 88*(3*B*a*b^2 + A*b^3)*d^3*e^2 + 396*(B*a^2*b + A*a*b^2)*d^2*e
```

```
^3 - 231*(B*a^3 + 3*A*a^2*b)*d*e^4)*x)*sqrt(e*x + d)/e^5
```

Sympy [A] time = 6.65397, size = 342, normalized size = 1.98

$$\frac{2\left(\frac{Bb^3(d+ex)^{\frac{11}{2}}}{11e^4}+\frac{(d+ex)^{\frac{9}{2}}(Ab^3e+3Bab^2e-4Bb^3d)}{9e^4}+\frac{(d+ex)^{\frac{7}{2}}(3Aab^2e^2-3Ab^3de+3Ba^2be^2-9Bab^2de+6Bb^3d^2)}{7e^4}+\frac{(d+ex)^{\frac{5}{2}}(3Aa^2be^3-6Aab^2de^2+3Ab\ldots}{}\right.}{e}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**3*(B*x+A)*(e*x+d)**(1/2),x)
```

```
[Out] 2*(B*b**3*(d + e*x)**(11/2)/(11*e**4) + (d + e*x)**(9/2)*(A*b**3*
e + 3*B*a*b**2*e - 4*B*b**3*d)/(9*e**4) + (d + e*x)**(7/2)*(3*A*a
*b**2*e**2 - 3*A*b**3*d*e + 3*B*a**2*b*e**2 - 9*B*a*b**2*d*e + 6*
B*b**3*d**2)/(7*e**4) + (d + e*x)**(5/2)*(3*A*a**2*b*e**3 - 6*A*a
*b**2*d*e**2 + 3*A*b**3*d**2*e + B*a**3*e**3 - 6*B*a**2*b*d*e**2
+ 9*B*a*b**2*d**2*e - 4*B*b**3*d**3)/(5*e**4) + (d + e*x)**(3/2)*
(A*a**3*e**4 - 3*A*a**2*b*d*e**3 + 3*A*a*b**2*d**2*e**2 - A*b**3*
d**3*e - B*a**3*d*e**3 + 3*B*a**2*b*d**2*e**2 - 3*B*a*b**2*d**3*e
 + B*b**3*d**4)/(3*e**4))/e
```

GIAC/XCAS [A] time = 0.215393, size = 522, normalized size = 3.02

$$\frac{2}{3465}\left(231\left(3(xe+d)^{\frac{5}{2}}-5(xe+d)^{\frac{3}{2}}d\right)Ba^3e^{(-1)}+693\left(3(xe+d)^{\frac{5}{2}}-5(xe+d)^{\frac{3}{2}}d\right)Aa^2be^{(-1)}+99\left(15(xe+d)^{\frac{7}{2}}e^{12}-42(xe\ldots\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*sqrt(e*x + d),x, algorithm="giac")
```

```
[Out] 2/3465*(231*(3*(x*e + d)^(5/2) - 5*(x*e + d)^(3/2)*d)*B*a^3*e^(-1
) + 693*(3*(x*e + d)^(5/2) - 5*(x*e + d)^(3/2)*d)*A*a^2*b*e^(-1)
+ 99*(15*(x*e + d)^(7/2)*e^12 - 42*(x*e + d)^(5/2)*d*e^12 + 35*(x
*e + d)^(3/2)*d^2*e^12)*B*a^2*b*e^(-14) + 99*(15*(x*e + d)^(7/2)*
e^12 - 42*(x*e + d)^(5/2)*d*e^12 + 35*(x*e + d)^(3/2)*d^2*e^12)*A
*a*b^2*e^(-14) + 33*(35*(x*e + d)^(9/2)*e^24 - 135*(x*e + d)^(7/2
)*d*e^24 + 189*(x*e + d)^(5/2)*d^2*e^24 - 105*(x*e + d)^(3/2)*d^3
*e^24)*B*a*b^2*e^(-27) + 11*(35*(x*e + d)^(9/2)*e^24 - 135*(x*e +
 d)^(7/2)*d*e^24 + 189*(x*e + d)^(5/2)*d^2*e^24 - 105*(x*e + d)^(
3/2)*d^3*e^24)*A*b^3*e^(-27) + (315*(x*e + d)^(11/2)*e^40 - 1540*
(x*e + d)^(9/2)*d*e^40 + 2970*(x*e + d)^(7/2)*d^2*e^40 - 2772*(x*
e + d)^(5/2)*d^3*e^40 + 1155*(x*e + d)^(3/2)*d^4*e^40)*B*b^3*e^(-
44) + 1155*(x*e + d)^(3/2)*A*a^3)*e^(-1)
```

3.1721 $\int \frac{(a+bx)^3(A+Bx)}{\sqrt{d+ex}}\,dx$

Optimal. Leaf size=171

$$-\frac{2b^2(d+ex)^{7/2}(-3aBe-Abe+4bBd)}{7e^5}+\frac{6b(d+ex)^{5/2}(bd-ae)(-aBe-Abe+2bBd)}{5e^5}-\frac{2(d+ex)^{3/2}(bd-ae)^2(-aBe-3Abe+4bBd)}{3e^5}+\frac{2\sqrt{d+ex}(bd-ae)^3(Bd-Ae)}{e^5}+\frac{2b^3B(d+ex)^{9/2}}{9e^5}$$

```
[Out] (2*(b*d - a*e)^3*(B*d - A*e)*Sqrt[d + e*x])/e^5 - (2*(b*d - a*e)^
2*(4*b*B*d - 3*A*b*e - a*B*e)*(d + e*x)^(3/2))/(3*e^5) + (6*b*(b*
d - a*e)*(2*b*B*d - A*b*e - a*B*e)*(d + e*x)^(5/2))/(5*e^5) - (2*
b^2*(4*b*B*d - A*b*e - 3*a*B*e)*(d + e*x)^(7/2))/(7*e^5) + (2*b^3
*B*(d + e*x)^(9/2))/(9*e^5)
```

Rubi [A] time = 0.209443, antiderivative size = 171, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$-\frac{2b^2(d+ex)^{7/2}(-3aBe-Abe+4bBd)}{7e^5}+\frac{6b(d+ex)^{5/2}(bd-ae)(-aBe-Abe+2bBd)}{5e^5}-\frac{2(d+ex)^{3/2}(bd-ae)^2(-aBe-3Abe+4bBd)}{3e^5}+\frac{2\sqrt{d+ex}(bd-ae)^3(Bd-Ae)}{e^5}+\frac{2b^3B(d+ex)^{9/2}}{9e^5}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^3*(A + B*x))/Sqrt[d + e*x],x]
```

```
[Out] (2*(b*d - a*e)^3*(B*d - A*e)*Sqrt[d + e*x])/e^5 - (2*(b*d - a*e)^
2*(4*b*B*d - 3*A*b*e - a*B*e)*(d + e*x)^(3/2))/(3*e^5) + (6*b*(b*
d - a*e)*(2*b*B*d - A*b*e - a*B*e)*(d + e*x)^(5/2))/(5*e^5) - (2*
b^2*(4*b*B*d - A*b*e - 3*a*B*e)*(d + e*x)^(7/2))/(7*e^5) + (2*b^3
*B*(d + e*x)^(9/2))/(9*e^5)
```

Rubi in Sympy [A] time = 43.7818, size = 168, normalized size = 0.98

$$\frac{2Bb^3(d+ex)^{\frac{9}{2}}}{9e^5}+\frac{2b^2(d+ex)^{\frac{7}{2}}(Abe+3Bae-4Bbd)}{7e^5}+\frac{6b(d+ex)^{\frac{5}{2}}(ae-bd)(Abe+Bae-2Bbd)}{5e^5}+\frac{2(d+ex)^{\frac{3}{2}}(ae-bd)^2(3Abe+Bae-4Bbd)}{3e^5}+\frac{2\sqrt{d+ex}(Ae-Bd)(ae-bd)^3}{e^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**3*(B*x+A)/(e*x+d)**(1/2),x)
```

```
[Out] 2*B*b**3*(d + e*x)**(9/2)/(9*e**5) + 2*b**2*(d + e*x)**(7/2)*(A*b
*e + 3*B*a*e - 4*B*b*d)/(7*e**5) + 6*b*(d + e*x)**(5/2)*(a*e - b*
d)*(A*b*e + B*a*e - 2*B*b*d)/(5*e**5) + 2*(d + e*x)**(3/2)*(a*e -
 b*d)**2*(3*A*b*e + B*a*e - 4*B*b*d)/(3*e**5) + 2*sqrt(d + e*x)*(
A*e - B*d)*(a*e - b*d)**3/e**5
```

Mathematica [A] time = 0.233443, size = 226, normalized size = 1.32

$$\frac{2\sqrt{d+ex}\left(105a^3e^3(3Ae-2Bd+Bex)+63a^2be^2\left(5Ae(ex-2d)+B\left(8d^2-4dex+3e^2x^2\right)\right)-9ab^2e\left(3B\left(16d^3-8d^2ex+6d\right.\right.\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^3*(A + B*x))/Sqrt[d + e*x],x]
```

```
[Out] (2*Sqrt[d + e*x]*(105*a^3*e^3*(-2*B*d + 3*A*e + B*e*x) + 63*a^2*b
*e^2*(5*A*e*(-2*d + e*x) + B*(8*d^2 - 4*d*e*x + 3*e^2*x^2)) - 9*a
*b^2*e*(-7*A*e*(8*d^2 - 4*d*e*x + 3*e^2*x^2) + 3*B*(16*d^3 - 8*d^
2*e*x + 6*d*e^2*x^2 - 5*e^3*x^3)) + b^3*(9*A*e*(-16*d^3 + 8*d^2*e
*x - 6*d*e^2*x^2 + 5*e^3*x^3) + B*(128*d^4 - 64*d^3*e*x + 48*d^2*
e^2*x^2 - 40*d*e^3*x^3 + 35*e^4*x^4))))/(315*e^5)
```

Maple [A] time = 0.011, size = 301, normalized size = 1.8

$$\frac{70\,Bb^3x^4e^4 + 90\,Ab^3e^4x^3 + 270\,Bab^2e^4x^3 - 80\,Bb^3de^3x^3 + 378\,Aab^2e^4x^2 - 108\,Ab^3de^3x^2 + 378\,Ba^2be^4x^2 - 324\,Bab^2de^3x^2 + \cdots}{\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3*(B*x+A)/(e*x+d)^(1/2),x)
```

```
[Out] 2/315*(e*x+d)^(1/2)*(35*B*b^3*e^4*x^4+45*A*b^3*e^4*x^3+135*B*a*b^
2*e^4*x^3-40*B*b^3*d*e^3*x^3+189*A*a*b^2*e^4*x^2-54*A*b^3*d*e^3*x
^2+189*B*a^2*b*e^4*x^2-162*B*a*b^2*d*e^3*x^2+48*B*b^3*d^2*e^2*x^2
+315*A*a^2*b*e^4*x-252*A*a*b^2*d*e^3*x+72*A*b^3*d^2*e^2*x+105*B*a
^3*e^4*x-252*B*a^2*b*d*e^3*x+216*B*a*b^2*d^2*e^2*x-64*B*b^3*d^3*e
*x+315*A*a^3*e^4-630*A*a^2*b*d*e^3+504*A*a*b^2*d^2*e^2-144*A*b^3*
d^3*e-210*B*a^3*d*e^3+504*B*a^2*b*d^2*e^2-432*B*a*b^2*d^3*e+128*B
*b^3*d^4)/e^5
```

Maxima [A] time = 1.37529, size = 358, normalized size = 2.09

$$\frac{2\left(35\,(ex+d)^{\frac{9}{2}}Bb^3 - 45\left(4\,Bb^3d - \left(3\,Bab^2 + Ab^3\right)e\right)(ex+d)^{\frac{7}{2}} + 189\left(2\,Bb^3d^2 - \left(3\,Bab^2 + Ab^3\right)de + \left(Ba^2b + Aab^2\right)e^2\right)(ex + \cdots}{\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/sqrt(e*x + d),x, algorithm="maxima")
```

```
[Out] 2/315*(35*(e*x + d)^(9/2)*B*b^3 - 45*(4*B*b^3*d - (3*B*a*b^2 + A*
b^3)*e)*(e*x + d)^(7/2) + 189*(2*B*b^3*d^2 - (3*B*a*b^2 + A*b^3)*
d*e + (B*a^2*b + A*a*b^2)*e^2)*(e*x + d)^(5/2) - 105*(4*B*b^3*d^3
 - 3*(3*B*a*b^2 + A*b^3)*d^2*e + 6*(B*a^2*b + A*a*b^2)*d*e^2 - (B
*a^3 + 3*A*a^2*b)*e^3)*(e*x + d)^(3/2) + 315*(B*b^3*d^4 + A*a^3*e
^4 - (3*B*a*b^2 + A*b^3)*d^3*e + 3*(B*a^2*b + A*a*b^2)*d^2*e^2 -
(B*a^3 + 3*A*a^2*b)*d*e^3)*sqrt(e*x + d))/e^5
```

Fricas [A] time = 0.23031, size = 355, normalized size = 2.08

$$\frac{2\left(35\,Bb^3e^4x^4 + 128\,Bb^3d^4 + 315\,Aa^3e^4 - 144\left(3\,Bab^2 + Ab^3\right)d^3e + 504\left(Ba^2b + Aab^2\right)d^2e^2 - 210\left(Ba^3 + 3\,Aa^2b\right)de^3 - 5\left(8\,B \cdots\right.}{\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/sqrt(e*x + d),x, algorithm="fricas")
```

```
[Out] 2/315*(35*B*b^3*e^4*x^4 + 128*B*b^3*d^4 + 315*A*a^3*e^4 - 144*(3*
B*a*b^2 + A*b^3)*d^3*e + 504*(B*a^2*b + A*a*b^2)*d^2*e^2 - 210*(B
*a^3 + 3*A*a^2*b)*d*e^3 - 5*(8*B*b^3*d*e^3 - 9*(3*B*a*b^2 + A*b^3
)*e^4)*x^3 + 3*(16*B*b^3*d^2*e^2 - 18*(3*B*a*b^2 + A*b^3)*d*e^3 +
 63*(B*a^2*b + A*a*b^2)*e^4)*x^2 - (64*B*b^3*d^3*e - 72*(3*B*a*b^
2 + A*b^3)*d^2*e^2 + 252*(B*a^2*b + A*a*b^2)*d*e^3 - 105*(B*a^3 +
```

```
3*A*a^2*b)*e^4)*x)*sqrt(e*x + d)/e^5
```

Sympy [A] time = 58.8297, size = 916, normalized size = 5.36

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**3*(B*x+A)/(e*x+d)**(1/2),x)
```

```
[Out] Piecewise((-(2*A*a**3*d/sqrt(d + e*x) + 2*A*a**3*(-d/sqrt(d + e*x
) - sqrt(d + e*x)) + 6*A*a**2*b*d*(-d/sqrt(d + e*x) - sqrt(d + e*
x))/e + 6*A*a**2*b*(d**2/sqrt(d + e*x) + 2*d*sqrt(d + e*x) - (d +
 e*x)**(3/2)/3)/e + 6*A*a*b**2*d*(d**2/sqrt(d + e*x) + 2*d*sqrt(d
 + e*x) - (d + e*x)**(3/2)/3)/e**2 + 6*A*a*b**2*(-d**3/sqrt(d + e
*x) - 3*d**2*sqrt(d + e*x) + d*(d + e*x)**(3/2) - (d + e*x)**(5/2
)/5)/e**2 + 2*A*b**3*d*(-d**3/sqrt(d + e*x) - 3*d**2*sqrt(d + e*x
) + d*(d + e*x)**(3/2) - (d + e*x)**(5/2)/5)/e**3 + 2*A*b**3*(d**
4/sqrt(d + e*x) + 4*d**3*sqrt(d + e*x) - 2*d**2*(d + e*x)**(3/2)
+ 4*d*(d + e*x)**(5/2)/5 - (d + e*x)**(7/2)/7)/e**3 + 2*B*a**3*d*
(-d/sqrt(d + e*x) - sqrt(d + e*x))/e + 2*B*a**3*(d**2/sqrt(d + e*
x) + 2*d*sqrt(d + e*x) - (d + e*x)**(3/2)/3)/e + 6*B*a**2*b*d*(d*
*2/sqrt(d + e*x) + 2*d*sqrt(d + e*x) - (d + e*x)**(3/2)/3)/e**2 +
 6*B*a**2*b*(-d**3/sqrt(d + e*x) - 3*d**2*sqrt(d + e*x) + d*(d +
e*x)**(3/2) - (d + e*x)**(5/2)/5)/e**2 + 6*B*a*b**2*d*(-d**3/sqrt
(d + e*x) - 3*d**2*sqrt(d + e*x) + d*(d + e*x)**(3/2) - (d + e*x)
**(5/2)/5)/e**3 + 6*B*a*b**2*(d**4/sqrt(d + e*x) + 4*d**3*sqrt(d
+ e*x) - 2*d**2*(d + e*x)**(3/2) + 4*d*(d + e*x)**(5/2)/5 - (d +
e*x)**(7/2)/7)/e**3 + 2*B*b**3*d*(d**4/sqrt(d + e*x) + 4*d**3*sqr
t(d + e*x) - 2*d**2*(d + e*x)**(3/2) + 4*d*(d + e*x)**(5/2)/5 - (
d + e*x)**(7/2)/7)/e**4 + 2*B*b**3*(-d**5/sqrt(d + e*x) - 5*d**4*
sqrt(d + e*x) + 10*d**3*(d + e*x)**(3/2)/3 - 2*d**2*(d + e*x)**(5
/2) + 5*d*(d + e*x)**(7/2)/7 - (d + e*x)**(9/2)/9)/e**4)/e, Ne(e,
 0)), ((A*a**3*x + B*b**3*x**5/5 + x**4*(A*b**3 + 3*B*a*b**2)/4 +
 x**3*(3*A*a*b**2 + 3*B*a**2*b)/3 + x**2*(3*A*a**2*b + B*a**3)/2)
/sqrt(d), True))
```

GIAC/XCAS [A] time = 0.2154, size = 517, normalized size = 3.02

$$\frac{2}{315}\left(105\left((xe+d)^{\frac{3}{2}}-3\sqrt{xe+d}d\right)Ba^{3}e^{(-1)}+315\left((xe+d)^{\frac{3}{2}}-3\sqrt{xe+d}d\right)Aa^{2}be^{(-1)}+63\left(3(xe+d)^{\frac{5}{2}}e^{8}-10(xe+d)^{\frac{3}{2}}de^{8}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/sqrt(e*x + d),x, algorithm="giac")
```

```
[Out] 2/315*(105*((x*e + d)^(3/2) - 3*sqrt(x*e + d)*d)*B*a^3*e^(-1) + 3
15*((x*e + d)^(3/2) - 3*sqrt(x*e + d)*d)*A*a^2*b*e^(-1) + 63*(3*(
x*e + d)^(5/2)*e^8 - 10*(x*e + d)^(3/2)*d*e^8 + 15*sqrt(x*e + d)*
d^2*e^8)*B*a^2*b*e^(-10) + 63*(3*(x*e + d)^(5/2)*e^8 - 10*(x*e +
d)^(3/2)*d*e^8 + 15*sqrt(x*e + d)*d^2*e^8)*A*a*b^2*e^(-10) + 27*(
5*(x*e + d)^(7/2)*e^18 - 21*(x*e + d)^(5/2)*d*e^18 + 35*(x*e + d)
^(3/2)*d^2*e^18 - 35*sqrt(x*e + d)*d^3*e^18)*B*a*b^2*e^(-21) + 9*
(5*(x*e + d)^(7/2)*e^18 - 21*(x*e + d)^(5/2)*d*e^18 + 35*(x*e + d
)^(3/2)*d^2*e^18 - 35*sqrt(x*e + d)*d^3*e^18)*A*b^3*e^(-21) + (35
*(x*e + d)^(9/2)*e^32 - 180*(x*e + d)^(7/2)*d*e^32 + 378*(x*e + d
)^(5/2)*d^2*e^32 - 420*(x*e + d)^(3/2)*d^3*e^32 + 315*sqrt(x*e +
d)*d^4*e^32)*B*b^3*e^(-36) + 315*sqrt(x*e + d)*A*a^3)*e^(-1)
```

3.1722 $\int \frac{(a+bx)^3(A+Bx)}{(d+ex)^{3/2}}\,dx$

Optimal. Leaf size=167

$$-\frac{2b^2(d+ex)^{5/2}(-3aBe-Abe+4bBd)}{5e^5}+\frac{2b(d+ex)^{3/2}(bd-ae)(-aBe-Abe+2bBd)}{e^5}-\frac{2\sqrt{d+ex}(bd-ae)^2(-aBe-3Abe+4bBd)}{e^5}-\frac{2(bd-ae)^3(Bd-Ae)}{e^5\sqrt{d+ex}}+\frac{2b^3B(d+ex)^{7/2}}{7e^5}$$

```
[Out] (-2*(b*d - a*e)^3*(B*d - A*e))/(e^5*Sqrt[d + e*x]) - (2*(b*d - a*
e)^2*(4*b*B*d - 3*A*b*e - a*B*e)*Sqrt[d + e*x])/e^5 + (2*b*(b*d -
 a*e)*(2*b*B*d - A*b*e - a*B*e)*(d + e*x)^(3/2))/e^5 - (2*b^2*(4*
b*B*d - A*b*e - 3*a*B*e)*(d + e*x)^(5/2))/(5*e^5) + (2*b^3*B*(d +
 e*x)^(7/2))/(7*e^5)
```

Rubi [A] time = 0.217848, antiderivative size = 167, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{2b^2(d+ex)^{5/2}(-3aBe-Abe+4bBd)}{5e^5}+\frac{2b(d+ex)^{3/2}(bd-ae)(-aBe-Abe+2bBd)}{e^5}-\frac{2\sqrt{d+ex}(bd-ae)^2(-aBe-3Abe+4bBd)}{e^5}-\frac{2(bd-ae)^3(Bd-Ae)}{e^5\sqrt{d+ex}}+\frac{2b^3B(d+ex)^{7/2}}{7e^5}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^3*(A + B*x))/(d + e*x)^(3/2),x]
```

```
[Out] (-2*(b*d - a*e)^3*(B*d - A*e))/(e^5*Sqrt[d + e*x]) - (2*(b*d - a*
e)^2*(4*b*B*d - 3*A*b*e - a*B*e)*Sqrt[d + e*x])/e^5 + (2*b*(b*d -
 a*e)*(2*b*B*d - A*b*e - a*B*e)*(d + e*x)^(3/2))/e^5 - (2*b^2*(4*
b*B*d - A*b*e - 3*a*B*e)*(d + e*x)^(5/2))/(5*e^5) + (2*b^3*B*(d +
 e*x)^(7/2))/(7*e^5)
```

Rubi in Sympy [A] time = 43.1489, size = 165, normalized size = 0.99

$$\frac{2Bb^3\left(d+ex\right)^{\frac{7}{2}}}{7e^5}+\frac{2b^2\left(d+ex\right)^{\frac{5}{2}}\left(Abe+3Bae-4Bbd\right)}{5e^5}+\frac{2b\left(d+ex\right)^{\frac{3}{2}}\left(ae-bd\right)\left(Abe+Bae-2Bbd\right)}{e^5}+\frac{2\sqrt{d+ex}\left(ae-bd\right)^2\left(3Abe+Bae-4Bbd\right)}{e^5}-\frac{2\left(Ae-Bd\right)\left(ae-bd\right)^3}{e^5\sqrt{d+ex}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**3*(B*x+A)/(e*x+d)**(3/2),x)
```

```
[Out] 2*B*b**3*(d + e*x)**(7/2)/(7*e**5) + 2*b**2*(d + e*x)**(5/2)*(A*b
*e + 3*B*a*e - 4*B*b*d)/(5*e**5) + 2*b*(d + e*x)**(3/2)*(a*e - b*
d)*(A*b*e + B*a*e - 2*B*b*d)/e**5 + 2*sqrt(d + e*x)*(a*e - b*d)**
2*(3*A*b*e + B*a*e - 4*B*b*d)/e**5 - 2*(A*e - B*d)*(a*e - b*d)**3
/(e**5*sqrt(d + e*x))
```

Mathematica [A] time = 0.247825, size = 222, normalized size = 1.33

$$\frac{2\left(35a^3e^3(-Ae+2Bd+Bex)+35a^2be^2\left(3Ae(2d+ex)+B\left(-8d^2-4dex+e^2x^2\right)\right)+7ab^2e\left(5Ae\left(-8d^2-4dex+e^2x^2\right)+3B\right.}{35}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^3*(A + B*x))/(d + e*x)^(3/2),x]
```

```
[Out] (2*(35*a^3*e^3*(2*B*d - A*e + B*e*x) + 35*a^2*b*e^2*(3*A*e*(2*d +
 e*x) + B*(-8*d^2 - 4*d*e*x + e^2*x^2)) + 7*a*b^2*e*(5*A*e*(-8*d^
2 - 4*d*e*x + e^2*x^2) + 3*B*(16*d^3 + 8*d^2*e*x - 2*d*e^2*x^2 +
e^3*x^3)) + b^3*(7*A*e*(16*d^3 + 8*d^2*e*x - 2*d*e^2*x^2 + e^3*x^
3) + B*(-128*d^4 - 64*d^3*e*x + 16*d^2*e^2*x^2 - 8*d*e^3*x^3 + 5*
e^4*x^4))))/(35*e^5*Sqrt[d + e*x])
```

Maple [A] time = 0.013, size = 301, normalized size = 1.8

$$-\frac{-10\,Bb^3x^4e^4-14\,Ab^3e^4x^3-42\,Bab^2e^4x^3+16\,Bb^3de^3x^3-70\,Aab^2e^4x^2+28\,Ab^3de^3x^2-70\,Ba^2be^4x^2+84\,Bab^2de^3x^2-3$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3*(B*x+A)/(e*x+d)^(3/2),x)
```

```
[Out] -2/35/(e*x+d)^(1/2)*(-5*B*b^3*e^4*x^4-7*A*b^3*e^4*x^3-21*B*a*b^2*
e^4*x^3+8*B*b^3*d*e^3*x^3-35*A*a*b^2*e^4*x^2+14*A*b^3*d*e^3*x^2-3
5*B*a^2*b*e^4*x^2+42*B*a*b^2*d*e^3*x^2-16*B*b^3*d^2*e^2*x^2-105*A
*a^2*b*e^4*x+140*A*a*b^2*d*e^3*x-56*A*b^3*d^2*e^2*x-35*B*a^3*e^4*
x+140*B*a^2*b*d*e^3*x-168*B*a*b^2*d^2*e^2*x+64*B*b^3*d^3*e*x+35*A
*a^3*e^4-210*A*a^2*b*d*e^3+280*A*a*b^2*d^2*e^2-112*A*b^3*d^3*e-70
*B*a^3*d*e^3+280*B*a^2*b*d^2*e^2-336*B*a*b^2*d^3*e+128*B*b^3*d^4)
/e^5
```

Maxima [A] time = 1.36191, size = 369, normalized size = 2.21

$$\frac{2\left(\frac{5\,(ex+d)^{\frac{7}{2}}Bb^3-7\,\left(4\,Bb^3d-\left(3\,Bab^2+Ab^3\right)e\right)(ex+d)^{\frac{5}{2}}+35\,\left(2\,Bb^3d^2-\left(3\,Bab^2+Ab^3\right)de+\left(Ba^2b+Aab^2\right)e^2\right)(ex+d)^{\frac{3}{2}}-35\,\left(4\,Bb^3d^3-3\,\left(3\,Bab^2+Ab^3\right)d^2e+6\,(Ba}{e^4}\right.}{35\,e}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/(e*x + d)^(3/2),x, algorithm="maxima")
```

```
[Out] 2/35*((5*(e*x + d)^(7/2)*B*b^3 - 7*(4*B*b^3*d - (3*B*a*b^2 + A*b^
3)*e)*(e*x + d)^(5/2) + 35*(2*B*b^3*d^2 - (3*B*a*b^2 + A*b^3)*d*e
 + (B*a^2*b + A*a*b^2)*e^2)*(e*x + d)^(3/2) - 35*(4*B*b^3*d^3 - 3
*(3*B*a*b^2 + A*b^3)*d^2*e + 6*(B*a^2*b + A*a*b^2)*d*e^2 - (B*a^3
 + 3*A*a^2*b)*e^3)*sqrt(e*x + d))/e^4 - 35*(B*b^3*d^4 + A*a^3*e^4
 - (3*B*a*b^2 + A*b^3)*d^3*e + 3*(B*a^2*b + A*a*b^2)*d^2*e^2 - (B
*a^3 + 3*A*a^2*b)*d*e^3)/(sqrt(e*x + d)*e^4))/e
```

Fricas [A] time = 0.224013, size = 354, normalized size = 2.12

$$\frac{2\left(5\,Bb^3e^4x^4-128\,Bb^3d^4-35\,Aa^3e^4+112\,\left(3\,Bab^2+Ab^3\right)d^3e-280\,\left(Ba^2b+Aab^2\right)d^2e^2+70\,\left(Ba^3+3\,Aa^2b\right)de^3-\left(8\,Bb^3de\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/(e*x + d)^(3/2),x, algorithm="fricas")
```

```
[Out] 2/35*(5*B*b^3*e^4*x^4 - 128*B*b^3*d^4 - 35*A*a^3*e^4 + 112*(3*B*a
*b^2 + A*b^3)*d^3*e - 280*(B*a^2*b + A*a*b^2)*d^2*e^2 + 70*(B*a^3
 + 3*A*a^2*b)*d*e^3 - (8*B*b^3*d*e^3 - 7*(3*B*a*b^2 + A*b^3)*e^4)
*x^3 + (16*B*b^3*d^2*e^2 - 14*(3*B*a*b^2 + A*b^3)*d*e^3 + 35*(B*a
^2*b + A*a*b^2)*e^4)*x^2 - (64*B*b^3*d^3*e - 56*(3*B*a*b^2 + A*b^
```

```
3)*d^2*e^2 + 140*(B*a^2*b + A*a*b^2)*d*e^3 - 35*(B*a^3 + 3*A*a^2*
b)*e^4)*x)/(sqrt(e*x + d)*e^5)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(A+Bx)(a+bx)^3}{(d+ex)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**3*(B*x+A)/(e*x+d)**(3/2),x)

[Out] Integral((A + B*x)*(a + b*x)**3/(d + e*x)**(3/2), x)
```

GIAC/XCAS [A] time = 0.215658, size = 514, normalized size = 3.08

$$\frac{2}{35}\left(5\,(xe+d)^{\frac{7}{2}}Bb^3e^{30}-28\,(xe+d)^{\frac{5}{2}}Bb^3de^{30}+70\,(xe+d)^{\frac{3}{2}}Bb^3d^2e^{30}-140\,\sqrt{xe+d}Bb^3d^3e^{30}+21\,(xe+d)^{\frac{5}{2}}Bab^2e^{31}+7\,(xe\right.$$
$$-\frac{2\left(Bb^3d^4-3\,Bab^2d^3e-Ab^3d^3e+3\,Ba^2bd^2e^2+3\,Aab^2d^2e^2-Ba^3de^3-3\,Aa^2bde^3+Aa^3e^4\right)e^{(-5)}}{\sqrt{xe+d}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/(e*x + d)^(3/2),x, algorithm="giac")

[Out] 2/35*(5*(x*e + d)^(7/2)*B*b^3*e^30 - 28*(x*e + d)^(5/2)*B*b^3*d*e
^30 + 70*(x*e + d)^(3/2)*B*b^3*d^2*e^30 - 140*sqrt(x*e + d)*B*b^3
*d^3*e^30 + 21*(x*e + d)^(5/2)*B*a*b^2*e^31 + 7*(x*e + d)^(5/2)*A
*b^3*e^31 - 105*(x*e + d)^(3/2)*B*a*b^2*d*e^31 - 35*(x*e + d)^(3/
2)*A*b^3*d*e^31 + 315*sqrt(x*e + d)*B*a*b^2*d^2*e^31 + 105*sqrt(x
*e + d)*A*b^3*d^2*e^31 + 35*(x*e + d)^(3/2)*B*a^2*b*e^32 + 35*(x*
e + d)^(3/2)*A*a*b^2*e^32 - 210*sqrt(x*e + d)*B*a^2*b*d*e^32 - 21
0*sqrt(x*e + d)*A*a*b^2*d*e^32 + 35*sqrt(x*e + d)*B*a^3*e^33 + 10
5*sqrt(x*e + d)*A*a^2*b*e^33)*e^(-35) - 2*(B*b^3*d^4 - 3*B*a*b^2*
d^3*e - A*b^3*d^3*e + 3*B*a^2*b*d^2*e^2 + 3*A*a*b^2*d^2*e^2 - B*a
^3*d*e^3 - 3*A*a^2*b*d*e^3 + A*a^3*e^4)*e^(-5)/sqrt(x*e + d)
```

3.1723 $\int \frac{(a+bx)^3(A+Bx)}{(d+ex)^{5/2}}\,dx$

Optimal. Leaf size=169

$$-\frac{2b^2(d+ex)^{3/2}(-3aBe-Abe+4bBd)}{3e^5}+\frac{6b\sqrt{d+ex}(bd-ae)(-aBe-Abe+2bBd)}{e^5}+\frac{2(bd-ae)^2(-aBe-3Abe+4bBd)}{e^5\sqrt{d+ex}}-\frac{2(bd-ae)^3(Bd-Ae)}{3e^5(d+ex)^{3/2}}+\frac{2b^3B(d+ex)^{5/2}}{5e^5}$$

```
[Out] (-2*(b*d - a*e)^3*(B*d - A*e))/(3*e^5*(d + e*x)^(3/2)) + (2*(b*d
- a*e)^2*(4*b*B*d - 3*A*b*e - a*B*e))/(e^5*Sqrt[d + e*x]) + (6*b*
(b*d - a*e)*(2*b*B*d - A*b*e - a*B*e)*Sqrt[d + e*x])/e^5 - (2*b^2
*(4*b*B*d - A*b*e - 3*a*B*e)*(d + e*x)^(3/2))/(3*e^5) + (2*b^3*B*
(d + e*x)^(5/2))/(5*e^5)
```

Rubi [A] time = 0.220401, antiderivative size = 169, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{2b^2(d+ex)^{3/2}(-3aBe-Abe+4bBd)}{3e^5}+\frac{6b\sqrt{d+ex}(bd-ae)(-aBe-Abe+2bBd)}{e^5}+\frac{2(bd-ae)^2(-aBe-3Abe+4bBd)}{e^5\sqrt{d+ex}}-\frac{2(bd-ae)^3(Bd-Ae)}{3e^5(d+ex)^{3/2}}+\frac{2b^3B(d+ex)^{5/2}}{5e^5}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^3*(A + B*x))/(d + e*x)^(5/2),x]
```

```
[Out] (-2*(b*d - a*e)^3*(B*d - A*e))/(3*e^5*(d + e*x)^(3/2)) + (2*(b*d
- a*e)^2*(4*b*B*d - 3*A*b*e - a*B*e))/(e^5*Sqrt[d + e*x]) + (6*b*
(b*d - a*e)*(2*b*B*d - A*b*e - a*B*e)*Sqrt[d + e*x])/e^5 - (2*b^2
*(4*b*B*d - A*b*e - 3*a*B*e)*(d + e*x)^(3/2))/(3*e^5) + (2*b^3*B*
(d + e*x)^(5/2))/(5*e^5)
```

Rubi in Sympy [A] time = 43.0643, size = 167, normalized size = 0.99

$$\frac{2Bb^3\left(d+ex\right)^{\frac{5}{2}}}{5e^5}+\frac{2b^2\left(d+ex\right)^{\frac{3}{2}}\left(Abe+3Bae-4Bbd\right)}{3e^5}+\frac{6b\sqrt{d+ex}\left(ae-bd\right)\left(Abe+Bae-2Bbd\right)}{e^5}-\frac{2\left(ae-bd\right)^2\left(3Abe+Bae-4Bbd\right)}{e^5\sqrt{d+ex}}-\frac{2\left(Ae-Bd\right)\left(ae-bd\right)^3}{3e^5\left(d+ex\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**3*(B*x+A)/(e*x+d)**(5/2),x)
```

```
[Out] 2*B*b**3*(d + e*x)**(5/2)/(5*e**5) + 2*b**2*(d + e*x)**(3/2)*(A*b
*e + 3*B*a*e - 4*B*b*d)/(3*e**5) + 6*b*sqrt(d + e*x)*(a*e - b*d)*
(A*b*e + B*a*e - 2*B*b*d)/e**5 - 2*(a*e - b*d)**2*(3*A*b*e + B*a*
e - 4*B*b*d)/(e**5*sqrt(d + e*x)) - 2*(A*e - B*d)*(a*e - b*d)**3/
(3*e**5*(d + e*x)**(3/2))
```

Mathematica [A] time = 0.387448, size = 152, normalized size = 0.9

$$\frac{2\sqrt{d+ex}\left(b\left(45a^2Be^2+15abe(3Ae-8Bd)+b^2d(73Bd-40Ae)\right)+b^2ex(15aBe+5Abe-14bBd)-\frac{15(bd-ae)^2(aBe+3Abe-4bBc}{d+ex}\right.}{15e^5}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^3*(A + B*x))/(d + e*x)^(5/2),x]
```

```
[Out] (2*Sqrt[d + e*x]*(b*(45*a^2*B*e^2 + b^2*d*(73*B*d - 40*A*e) + 15*
a*b*e*(-8*B*d + 3*A*e)) + b^2*e*(-14*b*B*d + 5*A*b*e + 15*a*B*e)*
x + 3*b^3*B*e^2*x^2 - (5*(b*d - a*e)^3*(B*d - A*e))/(d + e*x)^2 -
 (15*(b*d - a*e)^2*(-4*b*B*d + 3*A*b*e + a*B*e))/(d + e*x)))/(15*
e^5)
```

Maple [A] time = 0.011, size = 301, normalized size = 1.8

$$-\frac{-6\,Bb^3x^4e^4-10\,Ab^3e^4x^3-30\,Bab^2e^4x^3+16\,Bb^3de^3x^3-90\,Aab^2e^4x^2+60\,Ab^3de^3x^2-90\,Ba^2be^4x^2+180\,Bab^2de^3x^2-9}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3*(B*x+A)/(e*x+d)^(5/2),x)
```

```
[Out] -2/15/(e*x+d)^(3/2)*(-3*B*b^3*e^4*x^4-5*A*b^3*e^4*x^3-15*B*a*b^2*
e^4*x^3+8*B*b^3*d*e^3*x^3-45*A*a*b^2*e^4*x^2+30*A*b^3*d*e^3*x^2-4
5*B*a^2*b*e^4*x^2+90*B*a*b^2*d*e^3*x^2-48*B*b^3*d^2*e^2*x^2+45*A*
a^2*b*e^4*x-180*A*a*b^2*d*e^3*x+120*A*b^3*d^2*e^2*x+15*B*a^3*e^4*
x-180*B*a^2*b*d*e^3*x+360*B*a*b^2*d^2*e^2*x-192*B*b^3*d^3*e*x+5*A
*a^3*e^4+30*A*a^2*b*d*e^3-120*A*a*b^2*d^2*e^2+80*A*b^3*d^3*e+10*B
*a^3*d*e^3-120*B*a^2*b*d^2*e^2+240*B*a*b^2*d^3*e-128*B*b^3*d^4)/e
^5
```

Maxima [A] time = 1.36913, size = 366, normalized size = 2.17

$$\frac{2\left(\frac{3\,(ex+d)^{\frac{5}{2}}Bb^3-5\left(4\,Bb^3d-\left(3\,Bab^2+Ab^3\right)e\right)(ex+d)^{\frac{3}{2}}+45\left(2\,Bb^3d^2-\left(3\,Bab^2+Ab^3\right)de+\left(Ba^2b+Aab^2\right)e^2\right)\sqrt{ex+d}}{e^4}-\frac{5\left(Bb^3d^4+Aa^3e^4-\left(3\,Bab^2+Ab^3\right)d^3e+3\right.}{}\right.}{15\,e}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/(e*x + d)^(5/2),x, algorithm="maxima")
```

```
[Out] 2/15*((3*(e*x + d)^(5/2)*B*b^3 - 5*(4*B*b^3*d - (3*B*a*b^2 + A*b^
3)*e)*(e*x + d)^(3/2) + 45*(2*B*b^3*d^2 - (3*B*a*b^2 + A*b^3)*d*e
 + (B*a^2*b + A*a*b^2)*e^2)*sqrt(e*x + d))/e^4 - 5*(B*b^3*d^4 + A
*a^3*e^4 - (3*B*a*b^2 + A*b^3)*d^3*e + 3*(B*a^2*b + A*a*b^2)*d^2*
e^2 - (B*a^3 + 3*A*a^2*b)*d*e^3 - 3*(4*B*b^3*d^3 - 3*(3*B*a*b^2 +
 A*b^3)*d^2*e + 6*(B*a^2*b + A*a*b^2)*d*e^2 - (B*a^3 + 3*A*a^2*b)
*e^3)*(e*x + d))/((e*x + d)^(3/2)*e^4))/e
```

Fricas [A] time = 0.233289, size = 369, normalized size = 2.18

$$\frac{2\left(3\,Bb^3e^4x^4+128\,Bb^3d^4-5\,Aa^3e^4-80\left(3\,Bab^2+Ab^3\right)d^3e+120\left(Ba^2b+Aab^2\right)d^2e^2-10\left(Ba^3+3\,Aa^2b\right)de^3-\left(8\,Bb^3de^3\right.\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/(e*x + d)^(5/2),x, algorithm="fricas")
```

```
[Out] 2/15*(3*B*b^3*e^4*x^4 + 128*B*b^3*d^4 - 5*A*a^3*e^4 - 80*(3*B*a*b
^2 + A*b^3)*d^3*e + 120*(B*a^2*b + A*a*b^2)*d^2*e^2 - 10*(B*a^3 +
 3*A*a^2*b)*d*e^3 - (8*B*b^3*d*e^3 - 5*(3*B*a*b^2 + A*b^3)*e^4)*x
^3 + 3*(16*B*b^3*d^2*e^2 - 10*(3*B*a*b^2 + A*b^3)*d*e^3 + 15*(B*a
^2*b + A*a*b^2)*e^4)*x^2 + 3*(64*B*b^3*d^3*e - 40*(3*B*a*b^2 + A*
b^3)*d^2*e^2 + 60*(B*a^2*b + A*a*b^2)*d*e^3 - 5*(B*a^3 + 3*A*a^2*
```

```
b)*e^4)*x)/((e^6*x + d*e^5)*sqrt(e*x + d))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(A+Bx)(a+bx)^3}{(d+ex)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**3*(B*x+A)/(e*x+d)**(5/2),x)
```

```
[Out] Integral((A + B*x)*(a + b*x)**3/(d + e*x)**(5/2), x)
```

GIAC/XCAS [A] time = 0.216189, size = 493, normalized size = 2.92

$$\frac{2}{15}\left(3\,(xe+d)^{\frac{5}{2}}Bb^3e^{20} - 20\,(xe+d)^{\frac{3}{2}}Bb^3de^{20} + 90\,\sqrt{xe+d}Bb^3d^2e^{20} + 15\,(xe+d)^{\frac{3}{2}}Bab^2e^{21} + 5\,(xe+d)^{\frac{3}{2}}Ab^3e^{21} - 135\,\sqrt{xe+\right.$$
$$+\frac{2\left(12\,(xe+d)Bb^3d^3 - Bb^3d^4 - 27\,(xe+d)Bab^2d^2e - 9\,(xe+d)Ab^3d^2e + 3\,Bab^2d^3e + Ab^3d^3e + 18\,(xe+d)Ba^2bde^2 + 18\,(xe\right.}{3\,(xe+d}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/(e*x + d)^(5/2),x, algorithm="giac")
```

```
[Out] 2/15*(3*(x*e + d)^(5/2)*B*b^3*e^20 - 20*(x*e + d)^(3/2)*B*b^3*d*e
^20 + 90*sqrt(x*e + d)*B*b^3*d^2*e^20 + 15*(x*e + d)^(3/2)*B*a*b^
2*e^21 + 5*(x*e + d)^(3/2)*A*b^3*e^21 - 135*sqrt(x*e + d)*B*a*b^2
*d*e^21 - 45*sqrt(x*e + d)*A*b^3*d*e^21 + 45*sqrt(x*e + d)*B*a^2*
b*e^22 + 45*sqrt(x*e + d)*A*a*b^2*e^22)*e^(-25) + 2/3*(12*(x*e +
d)*B*b^3*d^3 - B*b^3*d^4 - 27*(x*e + d)*B*a*b^2*d^2*e - 9*(x*e +
d)*A*b^3*d^2*e + 3*B*a*b^2*d^3*e + A*b^3*d^3*e + 18*(x*e + d)*B*a
^2*b*d*e^2 + 18*(x*e + d)*A*a*b^2*d*e^2 - 3*B*a^2*b*d^2*e^2 - 3*A
*a*b^2*d^2*e^2 - 3*(x*e + d)*B*a^3*e^3 - 9*(x*e + d)*A*a^2*b*e^3
+ B*a^3*d*e^3 + 3*A*a^2*b*d*e^3 - A*a^3*e^4)*e^(-5)/(x*e + d)^(3/
2)
```

3.1724 $\int \frac{(a+bx)^3(A+Bx)}{(d+ex)^{7/2}}\,dx$

Optimal. Leaf size=169

$$-\frac{2b^2\sqrt{d+ex}(-3aBe-Abe+4bBd)}{e^5}-\frac{6b(bd-ae)(-aBe-Abe+2bBd)}{e^5\sqrt{d+ex}}+\frac{2(bd-ae)^2(-aBe-3Abe+4bBd)}{3e^5(d+ex)^{3/2}}-\frac{2(bd-ae)^3(Bd-Ae)}{5e^5(d+ex)^{5/2}}+\frac{2b^3B(d+ex)^{3/2}}{3e^5}$$

```
[Out] (-2*(b*d - a*e)^3*(B*d - A*e))/(5*e^5*(d + e*x)^(5/2)) + (2*(b*d
- a*e)^2*(4*b*B*d - 3*A*b*e - a*B*e))/(3*e^5*(d + e*x)^(3/2)) - (
6*b*(b*d - a*e)*(2*b*B*d - A*b*e - a*B*e))/(e^5*Sqrt[d + e*x]) -
(2*b^2*(4*b*B*d - A*b*e - 3*a*B*e)*Sqrt[d + e*x])/e^5 + (2*b^3*B*
(d + e*x)^(3/2))/(3*e^5)
```

Rubi [A] time = 0.204597, antiderivative size = 169, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$-\frac{2b^2\sqrt{d+ex}(-3aBe-Abe+4bBd)}{e^5}-\frac{6b(bd-ae)(-aBe-Abe+2bBd)}{e^5\sqrt{d+ex}}+\frac{2(bd-ae)^2(-aBe-3Abe+4bBd)}{3e^5(d+ex)^{3/2}}-\frac{2(bd-ae)^3(Bd-Ae)}{5e^5(d+ex)^{5/2}}+\frac{2b^3B(d+ex)^{3/2}}{3e^5}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^3*(A + B*x))/(d + e*x)^(7/2),x]
```

```
[Out] (-2*(b*d - a*e)^3*(B*d - A*e))/(5*e^5*(d + e*x)^(5/2)) + (2*(b*d
- a*e)^2*(4*b*B*d - 3*A*b*e - a*B*e))/(3*e^5*(d + e*x)^(3/2)) - (
6*b*(b*d - a*e)*(2*b*B*d - A*b*e - a*B*e))/(e^5*Sqrt[d + e*x]) -
(2*b^2*(4*b*B*d - A*b*e - 3*a*B*e)*Sqrt[d + e*x])/e^5 + (2*b^3*B*
(d + e*x)^(3/2))/(3*e^5)
```

Rubi in Sympy [A] time = 45.8058, size = 167, normalized size = 0.99

$$\frac{2Bb^3\left(d+ex\right)^{\frac{3}{2}}}{3e^5}+\frac{2b^2\sqrt{d+ex}\left(Abe+3Bae-4Bbd\right)}{e^5}-\frac{6b\left(ae-bd\right)\left(Abe+Bae-2Bbd\right)}{e^5\sqrt{d+ex}}-\frac{2\left(ae-bd\right)^2\left(3Abe+Bae-4Bbd\right)}{3e^5\left(d+ex\right)^{\frac{3}{2}}}-\frac{2\left(Ae-Bd\right)\left(ae-bd\right)^3}{5e^5\left(d+ex\right)^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**3*(B*x+A)/(e*x+d)**(7/2),x)
```

```
[Out] 2*B*b**3*(d + e*x)**(3/2)/(3*e**5) + 2*b**2*sqrt(d + e*x)*(A*b*e
+ 3*B*a*e - 4*B*b*d)/e**5 - 6*b*(a*e - b*d)*(A*b*e + B*a*e - 2*B*
b*d)/(e**5*sqrt(d + e*x)) - 2*(a*e - b*d)**2*(3*A*b*e + B*a*e - 4
*B*b*d)/(3*e**5*(d + e*x)**(3/2)) - 2*(A*e - B*d)*(a*e - b*d)**3/
(5*e**5*(d + e*x)**(5/2))
```

Mathematica [A] time = 0.366143, size = 139, normalized size = 0.82

$$\frac{2\sqrt{d+ex}\left(-5b^2(-9aBe-3Abe+11bBd)+\frac{45b(bd-ae)(aBe+Abe-2bBd)}{d+ex}-\frac{5(bd-ae)^2(aBe+3Abe-4bBd)}{(d+ex)^2}-\frac{3(bd-ae)^3(Bd-Ae)}{(d+ex)^3}+5b^3Be

```
[In]  Integrate[((a + b*x)^3*(A + B*x))/(d + e*x)^(7/2),x]
```

```
[Out] (2*Sqrt[d + e*x]*(-5*b^2*(11*b*B*d - 3*A*b*e - 9*a*B*e) + 5*b^3*B
*e*x - (3*(b*d - a*e)^3*(B*d - A*e))/(d + e*x)^3 - (5*(b*d - a*e)
^2*(-4*b*B*d + 3*A*b*e + a*B*e))/(d + e*x)^2 + (45*b*(b*d - a*e)*
(-2*b*B*d + A*b*e + a*B*e))/(d + e*x)))/(15*e^5)
```

Maple [A] time = 0.01, size = 301, normalized size = 1.8

$$-\frac{-10\,Bb^3x^4e^4-30\,Ab^3e^4x^3-90\,Bab^2e^4x^3+80\,Bb^3de^3x^3+90\,Aab^2e^4x^2-180\,Ab^3de^3x^2+90\,Ba^2be^4x^2-540\,Bab^2de^3x^2+\cdots}{\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3*(B*x+A)/(e*x+d)^(7/2),x)
```

```
[Out] -2/15/(e*x+d)^(5/2)*(-5*B*b^3*e^4*x^4-15*A*b^3*e^4*x^3-45*B*a*b^2
*e^4*x^3+40*B*b^3*d*e^3*x^3+45*A*a*b^2*e^4*x^2-90*A*b^3*d*e^3*x^2
+45*B*a^2*b*e^4*x^2-270*B*a*b^2*d*e^3*x^2+240*B*b^3*d^2*e^2*x^2+1
5*A*a^2*b*e^4*x+60*A*a*b^2*d*e^3*x-120*A*b^3*d^2*e^2*x+5*B*a^3*e^
4*x+60*B*a^2*b*d*e^3*x-360*B*a*b^2*d^2*e^2*x+320*B*b^3*d^3*e*x+3*
A*a^3*e^4+6*A*a^2*b*d*e^3+24*A*a*b^2*d^2*e^2-48*A*b^3*d^3*e+2*B*a
^3*d*e^3+24*B*a^2*b*d^2*e^2-144*B*a*b^2*d^3*e+128*B*b^3*d^4)/e^5
```

Maxima [A] time = 1.36751, size = 369, normalized size = 2.18

$$\frac{2\left(\frac{5\left((ex+d)^{\frac{3}{2}}Bb^3-3\left(4\,Bb^3d-\left(3\,Bab^2+Ab^3\right)e\right)\sqrt{ex+d}\right)}{e^4}-\frac{3\,Bb^3d^4+3\,Aa^3e^4-3\left(3\,Bab^2+Ab^3\right)d^3e+9\left(Ba^2b+Aab^2\right)d^2e^2-3\left(Ba^3+3\,Aa^2b\right)de^3+45\left(2\,Bb^3d^2-\cdots\right.}{\cdots}\right)}{15\,e}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/(e*x + d)^(7/2),x, algorithm="maxima")
```

```
[Out] 2/15*(5*((e*x + d)^(3/2)*B*b^3 - 3*(4*B*b^3*d - (3*B*a*b^2 + A*b^
3)*e)*sqrt(e*x + d))/e^4 - (3*B*b^3*d^4 + 3*A*a^3*e^4 - 3*(3*B*a*
b^2 + A*b^3)*d^3*e + 9*(B*a^2*b + A*a*b^2)*d^2*e^2 - 3*(B*a^3 + 3
*A*a^2*b)*d*e^3 + 45*(2*B*b^3*d^2 - (3*B*a*b^2 + A*b^3)*d*e + (B*
a^2*b + A*a*b^2)*e^2)*(e*x + d)^2 - 5*(4*B*b^3*d^3 - 3*(3*B*a*b^2
 + A*b^3)*d^2*e + 6*(B*a^2*b + A*a*b^2)*d*e^2 - (B*a^3 + 3*A*a^2*
b)*e^3)*(e*x + d))/((e*x + d)^(5/2)*e^4))/e
```

Fricas [A] time = 0.232319, size = 382, normalized size = 2.26

$$\frac{2\left(5\,Bb^3e^4x^4-128\,Bb^3d^4-3\,Aa^3e^4+48\left(3\,Bab^2+Ab^3\right)d^3e-24\left(Ba^2b+Aab^2\right)d^2e^2-2\left(Ba^3+3\,Aa^2b\right)de^3-5\left(8\,Bb^3de^3-\cdots\right.\right.}{\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/(e*x + d)^(7/2),x, algorithm="fricas")
```

```
[Out] 2/15*(5*B*b^3*e^4*x^4 - 128*B*b^3*d^4 - 3*A*a^3*e^4 + 48*(3*B*a*b
^2 + A*b^3)*d^3*e - 24*(B*a^2*b + A*a*b^2)*d^2*e^2 - 2*(B*a^3 + 3
*A*a^2*b)*d*e^3 - 5*(8*B*b^3*d*e^3 - 3*(3*B*a*b^2 + A*b^3)*e^4)*x
^3 - 15*(16*B*b^3*d^2*e^2 - 6*(3*B*a*b^2 + A*b^3)*d*e^3 + 3*(B*a^
2*b + A*a*b^2)*e^4)*x^2 - 5*(64*B*b^3*d^3*e - 24*(3*B*a*b^2 + A*b
^3)*d^2*e^2 + 12*(B*a^2*b + A*a*b^2)*d*e^3 + (B*a^3 + 3*A*a^2*b)*
e^4)*x)/((e^7*x^2 + 2*d*e^6*x + d^2*e^5)*sqrt(e*x + d))
```

Sympy [A] time = 13.338, size = 1654, normalized size = 9.79

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**3*(B*x+A)/(e*x+d)**(7/2),x)
```

```
[Out] Piecewise((-6*A*a**3*e**4/(15*d**2*e**5*sqrt(d + e*x) + 30*d*e**6
*x*sqrt(d + e*x) + 15*e**7*x**2*sqrt(d + e*x)) - 12*A*a**2*b*d*e*
*3/(15*d**2*e**5*sqrt(d + e*x) + 30*d*e**6*x*sqrt(d + e*x) + 15*e
**7*x**2*sqrt(d + e*x)) - 30*A*a**2*b*e**4*x/(15*d**2*e**5*sqrt(d
 + e*x) + 30*d*e**6*x*sqrt(d + e*x) + 15*e**7*x**2*sqrt(d + e*x))
 - 48*A*a*b**2*d**2*e**2/(15*d**2*e**5*sqrt(d + e*x) + 30*d*e**6*
x*sqrt(d + e*x) + 15*e**7*x**2*sqrt(d + e*x)) - 120*A*a*b**2*d*e*
*3*x/(15*d**2*e**5*sqrt(d + e*x) + 30*d*e**6*x*sqrt(d + e*x) + 15
*e**7*x**2*sqrt(d + e*x)) - 90*A*a*b**2*e**4*x**2/(15*d**2*e**5*s
qrt(d + e*x) + 30*d*e**6*x*sqrt(d + e*x) + 15*e**7*x**2*sqrt(d +
e*x)) + 96*A*b**3*d**3*e/(15*d**2*e**5*sqrt(d + e*x) + 30*d*e**6*
x*sqrt(d + e*x) + 15*e**7*x**2*sqrt(d + e*x)) + 240*A*b**3*d**2*e
**2*x/(15*d**2*e**5*sqrt(d + e*x) + 30*d*e**6*x*sqrt(d + e*x) + 1
5*e**7*x**2*sqrt(d + e*x)) + 180*A*b**3*d*e**3*x**2/(15*d**2*e**5
*sqrt(d + e*x) + 30*d*e**6*x*sqrt(d + e*x) + 15*e**7*x**2*sqrt(d
+ e*x)) + 30*A*b**3*e**4*x**3/(15*d**2*e**5*sqrt(d + e*x) + 30*d*
e**6*x*sqrt(d + e*x) + 15*e**7*x**2*sqrt(d + e*x)) - 4*B*a**3*d*e
**3/(15*d**2*e**5*sqrt(d + e*x) + 30*d*e**6*x*sqrt(d + e*x) + 15*
e**7*x**2*sqrt(d + e*x)) - 10*B*a**3*e**4*x/(15*d**2*e**5*sqrt(d
+ e*x) + 30*d*e**6*x*sqrt(d + e*x) + 15*e**7*x**2*sqrt(d + e*x))
- 48*B*a**2*b*d**2*e**2/(15*d**2*e**5*sqrt(d + e*x) + 30*d*e**6*x
*sqrt(d + e*x) + 15*e**7*x**2*sqrt(d + e*x)) - 120*B*a**2*b*d*e**
3*x/(15*d**2*e**5*sqrt(d + e*x) + 30*d*e**6*x*sqrt(d + e*x) + 15*
e**7*x**2*sqrt(d + e*x)) - 90*B*a**2*b*e**4*x**2/(15*d**2*e**5*sq
rt(d + e*x) + 30*d*e**6*x*sqrt(d + e*x) + 15*e**7*x**2*sqrt(d + e
*x)) + 288*B*a*b**2*d**3*e/(15*d**2*e**5*sqrt(d + e*x) + 30*d*e**
6*x*sqrt(d + e*x) + 15*e**7*x**2*sqrt(d + e*x)) + 720*B*a*b**2*d*
*2*e**2*x/(15*d**2*e**5*sqrt(d + e*x) + 30*d*e**6*x*sqrt(d + e*x)
 + 15*e**7*x**2*sqrt(d + e*x)) + 540*B*a*b**2*d*e**3*x**2/(15*d**
2*e**5*sqrt(d + e*x) + 30*d*e**6*x*sqrt(d + e*x) + 15*e**7*x**2*s
qrt(d + e*x)) + 90*B*a*b**2*e**4*x**3/(15*d**2*e**5*sqrt(d + e*x)
 + 30*d*e**6*x*sqrt(d + e*x) + 15*e**7*x**2*sqrt(d + e*x)) - 256*
B*b**3*d**4/(15*d**2*e**5*sqrt(d + e*x) + 30*d*e**6*x*sqrt(d + e*
x) + 15*e**7*x**2*sqrt(d + e*x)) - 640*B*b**3*d**3*e*x/(15*d**2*e
**5*sqrt(d + e*x) + 30*d*e**6*x*sqrt(d + e*x) + 15*e**7*x**2*sqrt
(d + e*x)) - 480*B*b**3*d**2*e**2*x**2/(15*d**2*e**5*sqrt(d + e*x
) + 30*d*e**6*x*sqrt(d + e*x) + 15*e**7*x**2*sqrt(d + e*x)) - 80*
B*b**3*d*e**3*x**3/(15*d**2*e**5*sqrt(d + e*x) + 30*d*e**6*x*sqrt
(d + e*x) + 15*e**7*x**2*sqrt(d + e*x)) + 10*B*b**3*e**4*x**4/(15
*d**2*e**5*sqrt(d + e*x) + 30*d*e**6*x*sqrt(d + e*x) + 15*e**7*x*
*2*sqrt(d + e*x)), Ne(e, 0)), ((A*a**3*x + 3*A*a**2*b*x**2/2 + A*
a*b**2*x**3 + A*b**3*x**4/4 + B*a**3*x**2/2 + B*a**2*b*x**3 + 3*B
*a*b**2*x**4/4 + B*b**3*x**5/5)/d**(7/2), True))
```

GIAC/XCAS [A] time = 0.215547, size = 491, normalized size = 2.91

$$\frac{2}{3}\left((xe+d)^{\frac{3}{2}}Bb^3e^{10} - 12\sqrt{xe+d}Bb^3de^{10} + 9\sqrt{xe+d}Bab^2e^{11} + 3\sqrt{xe+d}Ab^3e^{11}\right)e^{(-15)}$$
$$-\frac{2\left(90(xe+d)^2Bb^3d^2 - 20(xe+d)Bb^3d^3 + 3Bb^3d^4 - 135(xe+d)^2Bab^2de - 45(xe+d)^2Ab^3de + 45(xe+d)Bab^2d^2e + 15(\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3/(e*x + d)^(7/2),x, algorithm="giac")
```

```
[Out] 2/3*((x*e + d)^(3/2)*B*b^3*e^10 - 12*sqrt(x*e + d)*B*b^3*d*e^10 +
 9*sqrt(x*e + d)*B*a*b^2*e^11 + 3*sqrt(x*e + d)*A*b^3*e^11)*e^(-1
```

```
5) - 2/15*(90*(x*e + d)^2*B*b^3*d^2 - 20*(x*e + d)*B*b^3*d^3 + 3*
B*b^3*d^4 - 135*(x*e + d)^2*B*a*b^2*d*e - 45*(x*e + d)^2*A*b^3*d*
e + 45*(x*e + d)*B*a*b^2*d^2*e + 15*(x*e + d)*A*b^3*d^2*e - 9*B*a
*b^2*d^3*e - 3*A*b^3*d^3*e + 45*(x*e + d)^2*B*a^2*b*e^2 + 45*(x*e
 + d)^2*A*a*b^2*e^2 - 30*(x*e + d)*B*a^2*b*d*e^2 - 30*(x*e + d)*A
*a*b^2*d*e^2 + 9*B*a^2*b*d^2*e^2 + 9*A*a*b^2*d^2*e^2 + 5*(x*e + d
)*B*a^3*e^3 + 15*(x*e + d)*A*a^2*b*e^3 - 3*B*a^3*d*e^3 - 9*A*a^2*
b*d*e^3 + 3*A*a^3*e^4)*e^(-5)/(x*e + d)^(5/2)
```

3.1725 $\int \frac{(A+Bx)(d+ex)^{7/2}}{a+bx}\,dx$

Optimal. Leaf size=198

$$-\frac{2(Ab-aB)(bd-ae)^{7/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{b^{11/2}}+\frac{2\sqrt{d+ex}(Ab-aB)(bd-ae)^3}{b^5}+\frac{2(d+ex)^{3/2}(Ab-aB)(bd-ae)^2}{3b^4}+\frac{2(d+ex)^{5/2}(Ab-aB)(bd-ae)}{5b^3}+\frac{2(d+ex)^{7/2}(Ab-aB)}{7b^2}+\frac{2B(d+ex)^{9/2}}{9be}$$

```
[Out] (2*(A*b - a*B)*(b*d - a*e)^3*Sqrt[d + e*x])/b^5 + (2*(A*b - a*B)*
(b*d - a*e)^2*(d + e*x)^(3/2))/(3*b^4) + (2*(A*b - a*B)*(b*d - a*
e)*(d + e*x)^(5/2))/(5*b^3) + (2*(A*b - a*B)*(d + e*x)^(7/2))/(7*
b^2) + (2*B*(d + e*x)^(9/2))/(9*b*e) - (2*(A*b - a*B)*(b*d - a*e)
^(7/2)*ArcTanh[(Sqrt[b]*Sqrt[d + e*x])/Sqrt[b*d - a*e]])/b^(11/2)
```

Rubi [A] time = 0.491274, antiderivative size = 198, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.182$

$$-\frac{2(Ab-aB)(bd-ae)^{7/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{b^{11/2}}+\frac{2\sqrt{d+ex}(Ab-aB)(bd-ae)^3}{b^5}+\frac{2(d+ex)^{3/2}(Ab-aB)(bd-ae)^2}{3b^4}+\frac{2(d+ex)^{5/2}(Ab-aB)(bd-ae)}{5b^3}+\frac{2(d+ex)^{7/2}(Ab-aB)}{7b^2}+\frac{2B(d+ex)^{9/2}}{9be}$$

Antiderivative was successfully verified.

```
[In]  Int[((A + B*x)*(d + e*x)^(7/2))/(a + b*x),x]
```

```
[Out] (2*(A*b - a*B)*(b*d - a*e)^3*Sqrt[d + e*x])/b^5 + (2*(A*b - a*B)*
(b*d - a*e)^2*(d + e*x)^(3/2))/(3*b^4) + (2*(A*b - a*B)*(b*d - a*
e)*(d + e*x)^(5/2))/(5*b^3) + (2*(A*b - a*B)*(d + e*x)^(7/2))/(7*
b^2) + (2*B*(d + e*x)^(9/2))/(9*b*e) - (2*(A*b - a*B)*(b*d - a*e)
^(7/2)*ArcTanh[(Sqrt[b]*Sqrt[d + e*x])/Sqrt[b*d - a*e]])/b^(11/2)
```

Rubi in Sympy [A] time = 43.6617, size = 175, normalized size = 0.88

$$\frac{2B(d+ex)^{\frac{9}{2}}}{9be}+\frac{2(d+ex)^{\frac{7}{2}}(Ab-Ba)}{7b^2}-\frac{2(d+ex)^{\frac{5}{2}}(Ab-Ba)(ae-bd)}{5b^3}+\frac{2(d+ex)^{\frac{3}{2}}(Ab-Ba)(ae-bd)^2}{3b^4}-\frac{2\sqrt{d+ex}(Ab-Ba)(ae-bd)^3}{b^5}+\frac{2(Ab-Ba)(ae-bd)^{\frac{7}{2}}\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{ae-bd}}\right)}{b^{\frac{11}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(e*x+d)**(7/2)/(b*x+a),x)
```

```
[Out] 2*B*(d + e*x)**(9/2)/(9*b*e) + 2*(d + e*x)**(7/2)*(A*b - B*a)/(7*
b**2) - 2*(d + e*x)**(5/2)*(A*b - B*a)*(a*e - b*d)/(5*b**3) + 2*(
d + e*x)**(3/2)*(A*b - B*a)*(a*e - b*d)**2/(3*b**4) - 2*sqrt(d +
e*x)*(A*b - B*a)*(a*e - b*d)**3/b**5 + 2*(A*b - B*a)*(a*e - b*d)*
*(7/2)*atan(sqrt(b)*sqrt(d + e*x)/sqrt(a*e - b*d))/b**(11/2)
```

Mathematica [A] time = 0.462303, size = 263, normalized size = 1.33

$$\frac{2\sqrt{d+ex}\left(315a^4Be^4-105a^3be^3(3Ae+10Bd+Bex)+21a^2b^2e^2\left(5Ae(10d+ex)+B\left(58d^2+16dex+3e^2x^2\right)\right)-3ab^3e\left(7Ae\right.\right.}{}$$

$$-\frac{2(Ab-aB)(bd-ae)^{7/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{b^{11/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((A + B*x)*(d + e*x)^(7/2))/(a + b*x),x]
```

```
[Out] (2*Sqrt[d + e*x]*(315*a^4*B*e^4 - 105*a^3*b*e^3*(10*B*d + 3*A*e +
 B*e*x) + 21*a^2*b^2*e^2*(5*A*e*(10*d + e*x) + B*(58*d^2 + 16*d*e
*x + 3*e^2*x^2)) - 3*a*b^3*e*(7*A*e*(58*d^2 + 16*d*e*x + 3*e^2*x^
2) + B*(176*d^3 + 122*d^2*e*x + 66*d*e^2*x^2 + 15*e^3*x^3)) + b^4
*(35*B*(d + e*x)^4 + 3*A*e*(176*d^3 + 122*d^2*e*x + 66*d*e^2*x^2
+ 15*e^3*x^3))))/(315*b^5*e) - (2*(A*b - a*B)*(b*d - a*e)^(7/2)*A
rcTanh[(Sqrt[b]*Sqrt[d + e*x])/Sqrt[b*d - a*e]])/b^(11/2)
```

Maple [B] time = 0.025, size = 820, normalized size = 4.1

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(e*x+d)^(7/2)/(b*x+a),x)
```

```
[Out] 2/((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))
*A*d^4+2/b*A*d^3*(e*x+d)^(1/2)+2/3/b*A*(e*x+d)^(3/2)*d^2-2/7/b^2*
B*(e*x+d)^(7/2)*a+2/5/b*A*(e*x+d)^(5/2)*d+2/3*e^2/b^3*A*(e*x+d)^(
3/2)*a^2-2/5*e/b^2*A*(e*x+d)^(5/2)*a+2/5*e/b^3*B*(e*x+d)^(5/2)*a^
2-2*e^3/b^4*A*a^3*(e*x+d)^(1/2)-2/3*e^2/b^4*B*(e*x+d)^(3/2)*a^3-2
/3/b^2*B*(e*x+d)^(3/2)*a*d^2+2*e^3/b^5*B*a^4*(e*x+d)^(1/2)-2/b^2*
B*a*d^3*(e*x+d)^(1/2)-2/5/b^2*B*(e*x+d)^(5/2)*a*d-8*e/b/((a*e-b*d
)*b)^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*A*a*d^3+8*
e^3/b^4/((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^
(1/2))*B*a^4*d-12*e^2/b^3/((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2
)*b/((a*e-b*d)*b)^(1/2))*B*a^3*d^2+8*e/b^2/((a*e-b*d)*b)^(1/2)*ar
ctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*B*a^2*d^3-8*e^3/b^3/((a
*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*A*a^
3*d+12*e^2/b^2/((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b
*d)*b)^(1/2))*A*a^2*d^2+2/9*B*(e*x+d)^(9/2)/b/e+4/3*e/b^3*B*(e*x+
d)^(3/2)*a^2*d+2*e^4/b^4/((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)
*b/((a*e-b*d)*b)^(1/2))*A*a^4-2*e^4/b^5/((a*e-b*d)*b)^(1/2)*arcta
n((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*B*a^5+6*e/b^3*B*a^2*d^2*(e
*x+d)^(1/2)-4/3*e/b^2*A*(e*x+d)^(3/2)*a*d-2/b/((a*e-b*d)*b)^(1/2)
*arctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*B*a*d^4+6*e^2/b^3*A*
a^2*d*(e*x+d)^(1/2)-6*e/b^2*A*a*d^2*(e*x+d)^(1/2)-6*e^2/b^4*B*a^3
*d*(e*x+d)^(1/2)+2/7/b*A*(e*x+d)^(7/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^(7/2)/(b*x + a),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.251215, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(e*x + d)^(7/2)/(b*x + a),x, algorithm="fricas")
```

```
[Out] [-1/315*(315*((B*a*b^3 - A*b^4)*d^3*e - 3*(B*a^2*b^2 - A*a*b^3)*d
^2*e^2 + 3*(B*a^3*b - A*a^2*b^2)*d*e^3 - (B*a^4 - A*a^3*b)*e^4)*s
qrt((b*d - a*e)/b)*log((b*e*x + 2*b*d - a*e - 2*sqrt(e*x + d)*b*s
qrt((b*d - a*e)/b))/(b*x + a)) - 2*(35*B*b^4*e^4*x^4 + 35*B*b^4*d
^4 - 528*(B*a*b^3 - A*b^4)*d^3*e + 1218*(B*a^2*b^2 - A*a*b^3)*d^2
*e^2 - 1050*(B*a^3*b - A*a^2*b^2)*d*e^3 + 315*(B*a^4 - A*a^3*b)*e
^4 + 5*(28*B*b^4*d*e^3 - 9*(B*a*b^3 - A*b^4)*e^4)*x^3 + 3*(70*B*b
^4*d^2*e^2 - 66*(B*a*b^3 - A*b^4)*d*e^3 + 21*(B*a^2*b^2 - A*a*b^3
)*e^4)*x^2 + (140*B*b^4*d^3*e - 366*(B*a*b^3 - A*b^4)*d^2*e^2 + 3
36*(B*a^2*b^2 - A*a*b^3)*d*e^3 - 105*(B*a^3*b - A*a^2*b^2)*e^4)*x
)*sqrt(e*x + d))/(b^5*e), 2/315*(315*((B*a*b^3 - A*b^4)*d^3*e - 3
*(B*a^2*b^2 - A*a*b^3)*d^2*e^2 + 3*(B*a^3*b - A*a^2*b^2)*d*e^3 -
(B*a^4 - A*a^3*b)*e^4)*sqrt(-(b*d - a*e)/b)*arctan(sqrt(e*x + d)/
sqrt(-(b*d - a*e)/b)) + (35*B*b^4*e^4*x^4 + 35*B*b^4*d^4 - 528*(B
*a*b^3 - A*b^4)*d^3*e + 1218*(B*a^2*b^2 - A*a*b^3)*d^2*e^2 - 1050
*(B*a^3*b - A*a^2*b^2)*d*e^3 + 315*(B*a^4 - A*a^3*b)*e^4 + 5*(28*
B*b^4*d*e^3 - 9*(B*a*b^3 - A*b^4)*e^4)*x^3 + 3*(70*B*b^4*d^2*e^2
- 66*(B*a*b^3 - A*b^4)*d*e^3 + 21*(B*a^2*b^2 - A*a*b^3)*e^4)*x^2
+ (140*B*b^4*d^3*e - 366*(B*a*b^3 - A*b^4)*d^2*e^2 + 336*(B*a^2*b
^2 - A*a*b^3)*d*e^3 - 105*(B*a^3*b - A*a^2*b^2)*e^4)*x)*sqrt(e*x
+ d))/(b^5*e)]
```

Sympy [A] time = 119.826, size = 456, normalized size = 2.3

$$\frac{2B(d+ex)^{\frac{9}{2}}}{9be} + \frac{(d+ex)^{\frac{7}{2}}(2Ab-2Ba)}{7b^2} + \frac{(d+ex)^{\frac{5}{2}}(-2Aabe+2Ab^2d+2Ba^2e-2Babd)}{5b^3} + \frac{(d+ex)^{\frac{3}{2}}(2Aa^2be^2-4Aab^2de+2Ab^3d^2-2Ba^3e^2+4Ba^2bde-2Bab^2d^2)}{3b^4} + \frac{\sqrt{d+ex}(-2Aa^3be^3+6Aa^2b^2de^2-6Aab^3d^2e+2Ab^4d^3+2Ba^4e^3-6Ba^3bde^2+6Ba^2b^2d^2e-2Bab^3d^3)}{b^5} - \frac{2(-Ab+Ba)(ae-bd)^4\left(\begin{cases}\frac{\operatorname{atan}\left(\frac{\sqrt{d+ex}}{\sqrt{\frac{ae-bd}{b}}}\right)}{b\sqrt{\frac{ae-bd}{b}}} & \text{for } \frac{ae-bd}{b}>0\\ -\frac{\operatorname{acoth}\left(\frac{\sqrt{d+ex}}{\sqrt{\frac{-ae+bd}{b}}}\right)}{b\sqrt{\frac{-ae+bd}{b}}} & \text{for } d+ex>\frac{-ae+bd}{b}\wedge\frac{ae-bd}{b}<0\\ -\frac{\operatorname{atanh}\left(\frac{\sqrt{d+ex}}{\sqrt{\frac{-ae+bd}{b}}}\right)}{b\sqrt{\frac{-ae+bd}{b}}} & \text{for } \frac{ae-bd}{b}<0\wedge d+ex<\frac{-ae+bd}{b}\end{cases}\right)}{b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x+A)*(e*x+d)**(7/2)/(b*x+a),x)
```

```
[Out] 2*B*(d + e*x)**(9/2)/(9*b*e) + (d + e*x)**(7/2)*(2*A*b - 2*B*a)/(
7*b**2) + (d + e*x)**(5/2)*(-2*A*a*b*e + 2*A*b**2*d + 2*B*a**2*e
- 2*B*a*b*d)/(5*b**3) + (d + e*x)**(3/2)*(2*A*a**2*b*e**2 - 4*A*a
*b**2*d*e + 2*A*b**3*d**2 - 2*B*a**3*e**2 + 4*B*a**2*b*d*e - 2*B*
a*b**2*d**2)/(3*b**4) + sqrt(d + e*x)*(-2*A*a**3*b*e**3 + 6*A*a**
2*b**2*d*e**2 - 6*A*a*b**3*d**2*e + 2*A*b**4*d**3 + 2*B*a**4*e**3
 - 6*B*a**3*b*d*e**2 + 6*B*a**2*b**2*d**2*e - 2*B*a*b**3*d**3)/b*
*5 - 2*(-A*b + B*a)*(a*e - b*d)**4*Piecewise((atan(sqrt(d + e*x)/
sqrt((a*e - b*d)/b))/(b*sqrt((a*e - b*d)/b)), (a*e - b*d)/b > 0),
 (-acoth(sqrt(d + e*x)/sqrt((-a*e + b*d)/b))/(b*sqrt((-a*e + b*d)
/b)), ((a*e - b*d)/b < 0) & (d + e*x > (-a*e + b*d)/b)), (-atanh(
sqrt(d + e*x)/sqrt((-a*e + b*d)/b))/(b*sqrt((-a*e + b*d)/b)), ((a
```

```
*e - b*d)/b < 0) & (d + e*x < (-a*e + b*d)/b)))/b**5
```

GIAC/XCAS [A] time = 0.226874, size = 753, normalized size = 3.8

$$-\frac{2\left(Bab^4d^4 - Ab^5d^4 - 4\,Ba^2b^3d^3e + 4\,Aab^4d^3e + 6\,Ba^3b^2d^2e^2 - 6\,Aa^2b^3d^2e^2 - 4\,Ba^4bde^3 + 4\,Aa^3b^2de^3 + Ba^5e^4 - Aa^4be^4\right) \cdots}{\sqrt{-b^2d + abe}b^5} + \frac{2\left(35\,(xe+d)^{\frac{9}{2}}Bb^8e^8 - 45\,(xe+d)^{\frac{7}{2}}Bab^7e^9 + 45\,(xe+d)^{\frac{7}{2}}Ab^8e^9 - 63\,(xe+d)^{\frac{5}{2}}Bab^7de^9 + 63\,(xe+d)^{\frac{5}{2}}Ab^8de^9 - 105\,(xe+d \cdots\right.}{\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^(7/2)/(b*x + a),x, algorithm="giac")
```

```
[Out] -2*(B*a*b^4*d^4 - A*b^5*d^4 - 4*B*a^2*b^3*d^3*e + 4*A*a*b^4*d^3*e
 + 6*B*a^3*b^2*d^2*e^2 - 6*A*a^2*b^3*d^2*e^2 - 4*B*a^4*b*d*e^3 +
4*A*a^3*b^2*d*e^3 + B*a^5*e^4 - A*a^4*b*e^4)*arctan(sqrt(x*e + d)
*b/sqrt(-b^2*d + a*b*e))/(sqrt(-b^2*d + a*b*e)*b^5) + 2/315*(35*(
x*e + d)^(9/2)*B*b^8*e^8 - 45*(x*e + d)^(7/2)*B*a*b^7*e^9 + 45*(x
*e + d)^(7/2)*A*b^8*e^9 - 63*(x*e + d)^(5/2)*B*a*b^7*d*e^9 + 63*(
x*e + d)^(5/2)*A*b^8*d*e^9 - 105*(x*e + d)^(3/2)*B*a*b^7*d^2*e^9
+ 105*(x*e + d)^(3/2)*A*b^8*d^2*e^9 - 315*sqrt(x*e + d)*B*a*b^7*d
^3*e^9 + 315*sqrt(x*e + d)*A*b^8*d^3*e^9 + 63*(x*e + d)^(5/2)*B*a
^2*b^6*e^10 - 63*(x*e + d)^(5/2)*A*a*b^7*e^10 + 210*(x*e + d)^(3/
2)*B*a^2*b^6*d*e^10 - 210*(x*e + d)^(3/2)*A*a*b^7*d*e^10 + 945*sq
rt(x*e + d)*B*a^2*b^6*d^2*e^10 - 945*sqrt(x*e + d)*A*a*b^7*d^2*e^
10 - 105*(x*e + d)^(3/2)*B*a^3*b^5*e^11 + 105*(x*e + d)^(3/2)*A*a
^2*b^6*e^11 - 945*sqrt(x*e + d)*B*a^3*b^5*d*e^11 + 945*sqrt(x*e +
 d)*A*a^2*b^6*d*e^11 + 315*sqrt(x*e + d)*B*a^4*b^4*e^12 - 315*sqr
t(x*e + d)*A*a^3*b^5*e^12)*e^(-9)/b^9
```

3.1726 $\int \frac{(A+Bx)(d+ex)^{5/2}}{a+bx}\,dx$

Optimal. Leaf size=164

$$-\frac{2(Ab-aB)(bd-ae)^{5/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{b^{9/2}}+\frac{2\sqrt{d+ex}(Ab-aB)(bd-ae)^2}{b^4}+\frac{2(d+ex)^{3/2}(Ab-aB)(bd-ae)}{3b^3}+\frac{2(d+ex)^{5/2}(Ab-aB)}{5b^2}+\frac{2B(d+ex)^{7/2}}{7be}$$

```
[Out] (2*(A*b - a*B)*(b*d - a*e)^2*Sqrt[d + e*x])/b^4 + (2*(A*b - a*B)*
(b*d - a*e)*(d + e*x)^(3/2))/(3*b^3) + (2*(A*b - a*B)*(d + e*x)^(
5/2))/(5*b^2) + (2*B*(d + e*x)^(7/2))/(7*b*e) - (2*(A*b - a*B)*(b
*d - a*e)^(5/2)*ArcTanh[(Sqrt[b]*Sqrt[d + e*x])/Sqrt[b*d - a*e]])
/b^(9/2)
```

Rubi [A] time = 0.276734, antiderivative size = 164, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{2(Ab-aB)(bd-ae)^{5/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{b^{9/2}}+\frac{2\sqrt{d+ex}(Ab-aB)(bd-ae)^2}{b^4}+\frac{2(d+ex)^{3/2}(Ab-aB)(bd-ae)}{3b^3}+\frac{2(d+ex)^{5/2}(Ab-aB)}{5b^2}+\frac{2B(d+ex)^{7/2}}{7be}$$

Antiderivative was successfully verified.

```
[In]  Int[((A + B*x)*(d + e*x)^(5/2))/(a + b*x),x]
```

```
[Out] (2*(A*b - a*B)*(b*d - a*e)^2*Sqrt[d + e*x])/b^4 + (2*(A*b - a*B)*
(b*d - a*e)*(d + e*x)^(3/2))/(3*b^3) + (2*(A*b - a*B)*(d + e*x)^(
5/2))/(5*b^2) + (2*B*(d + e*x)^(7/2))/(7*b*e) - (2*(A*b - a*B)*(b
*d - a*e)^(5/2)*ArcTanh[(Sqrt[b]*Sqrt[d + e*x])/Sqrt[b*d - a*e]])
/b^(9/2)
```

Rubi in Sympy [A] time = 33.6048, size = 144, normalized size = 0.88

$$\frac{2B(d+ex)^{\frac{7}{2}}}{7be}+\frac{2(d+ex)^{\frac{5}{2}}(Ab-Ba)}{5b^2}-\frac{2(d+ex)^{\frac{3}{2}}(Ab-Ba)(ae-bd)}{3b^3}+\frac{2\sqrt{d+ex}(Ab-Ba)(ae-bd)^2}{b^4}-\frac{2(Ab-Ba)(ae-bd)^{\frac{5}{2}}\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{ae-bd}}\right)}{b^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(e*x+d)**(5/2)/(b*x+a),x)
```

```
[Out] 2*B*(d + e*x)**(7/2)/(7*b*e) + 2*(d + e*x)**(5/2)*(A*b - B*a)/(5*
b**2) - 2*(d + e*x)**(3/2)*(A*b - B*a)*(a*e - b*d)/(3*b**3) + 2*s
qrt(d + e*x)*(A*b - B*a)*(a*e - b*d)**2/b**4 - 2*(A*b - B*a)*(a*e
 - b*d)**(5/2)*atan(sqrt(b)*sqrt(d + e*x)/sqrt(a*e - b*d))/b**(9/
2)
```

Mathematica [A] time = 0.319855, size = 185, normalized size = 1.13

$$\frac{2\sqrt{d+ex}\left(-105a^3Be^3+35a^2be^2(3Ae+7Bd+Bex)-7ab^2e\left(5Ae(7d+ex)+B\left(23d^2+11dex+3e^2x^2\right)\right)+b^3\left(7Ae\left(23d^2+1\right.\right.}{105b^4e}$$

$$-\frac{2(Ab-aB)(bd-ae)^{5/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{b^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((A + B*x)*(d + e*x)^(5/2))/(a + b*x),x]
```

```
[Out] (2*Sqrt[d + e*x]*(-105*a^3*B*e^3 + 35*a^2*b*e^2*(7*B*d + 3*A*e +
B*e*x) - 7*a*b^2*e*(5*A*e*(7*d + e*x) + B*(23*d^2 + 11*d*e*x + 3*
e^2*x^2)) + b^3*(15*B*(d + e*x)^3 + 7*A*e*(23*d^2 + 11*d*e*x + 3*
e^2*x^2))))/(105*b^4*e) - (2*(A*b - a*B)*(b*d - a*e)^(5/2)*ArcTan
h[(Sqrt[b]*Sqrt[d + e*x])/Sqrt[b*d - a*e]])/b^(9/2)
```

Maple [B] time = 0.016, size = 573, normalized size = 3.5

$$
\begin{aligned}
&\frac{2B}{7be}(ex+d)^{\frac{7}{2}}+\frac{2A}{5b}(ex+d)^{\frac{5}{2}}-\frac{2Ba}{5b^2}(ex+d)^{\frac{5}{2}}-\frac{2Aae}{3b^2}(ex+d)^{\frac{3}{2}}+\frac{2Ad}{3b}(ex+d)^{\frac{3}{2}}\\
&+\frac{2eBa^2}{3b^3}(ex+d)^{\frac{3}{2}}-\frac{2Bad}{3b^2}(ex+d)^{\frac{3}{2}}+2\frac{a^2Ae^2\sqrt{ex+d}}{b^3}-4\frac{aAde\sqrt{ex+d}}{b^2}\\
&+2\frac{Ad^2\sqrt{ex+d}}{b}-2\frac{e^2Ba^3\sqrt{ex+d}}{b^4}+4\frac{eBa^2d\sqrt{ex+d}}{b^3}-2\frac{Bad^2\sqrt{ex+d}}{b^2}\\
&-2\frac{a^3Ae^3}{b^3\sqrt{(ae-bd)b}}\arctan\left(\frac{\sqrt{ex+d}b}{\sqrt{(ae-bd)b}}\right)+6\frac{a^2Ae^2d}{b^2\sqrt{(ae-bd)b}}\arctan\left(\frac{\sqrt{ex+d}b}{\sqrt{(ae-bd)b}}\right)\\
&-6\frac{aAd^2e}{b\sqrt{(ae-bd)b}}\arctan\left(\frac{\sqrt{ex+d}b}{\sqrt{(ae-bd)b}}\right)+2\frac{Ad^3}{\sqrt{(ae-bd)b}}\arctan\left(\frac{\sqrt{ex+d}b}{\sqrt{(ae-bd)b}}\right)\\
&+2\frac{Ba^4e^3}{b^4\sqrt{(ae-bd)b}}\arctan\left(\frac{\sqrt{ex+d}b}{\sqrt{(ae-bd)b}}\right)-6\frac{e^2Ba^3d}{b^3\sqrt{(ae-bd)b}}\arctan\left(\frac{\sqrt{ex+d}b}{\sqrt{(ae-bd)b}}\right)\\
&+6\frac{eBa^2d^2}{b^2\sqrt{(ae-bd)b}}\arctan\left(\frac{\sqrt{ex+d}b}{\sqrt{(ae-bd)b}}\right)-2\frac{Bad^3}{b\sqrt{(ae-bd)b}}\arctan\left(\frac{\sqrt{ex+d}b}{\sqrt{(ae-bd)b}}\right)
\end{aligned}
$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(e*x+d)^(5/2)/(b*x+a),x)
```

```
[Out] 2/7*B*(e*x+d)^(7/2)/b/e+2/5/b*A*(e*x+d)^(5/2)-2/5/b^2*B*(e*x+d)^(
5/2)*a-2/3*e/b^2*A*(e*x+d)^(3/2)*a+2/3/b*A*(e*x+d)^(3/2)*d+2/3*e/
b^3*B*(e*x+d)^(3/2)*a^2-2/3/b^2*B*(e*x+d)^(3/2)*a*d+2*e^2/b^3*A*a
^2*(e*x+d)^(1/2)-4*e/b^2*A*a*d*(e*x+d)^(1/2)+2/b*A*d^2*(e*x+d)^(1
/2)-2*e^2/b^4*B*a^3*(e*x+d)^(1/2)+4*e/b^3*B*a^2*d*(e*x+d)^(1/2)-2
/b^2*B*a*d^2*(e*x+d)^(1/2)-2*e^3/b^3/((a*e-b*d)*b)^(1/2)*arctan((
e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*A*a^3+6*e^2/b^2/((a*e-b*d)*b)
^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*A*a^2*d-6*e/b/
((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*A
*a*d^2+2/((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)
^(1/2))*A*d^3+2*e^3/b^4/((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*
b/((a*e-b*d)*b)^(1/2))*B*a^4-6*e^2/b^3/((a*e-b*d)*b)^(1/2)*arctan
((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*B*a^3*d+6*e/b^2/((a*e-b*d)*
b)^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*B*a^2*d^2-2/
b/((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))
*B*a*d^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^(5/2)/(b*x + a),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.241404, size = 1, normalized size = 0.01

$$\left[\frac{105\left(\left(Bab^2-Ab^3\right)d^2e-2\left(Ba^2b-Aab^2\right)de^2+\left(Ba^3-Aa^2b\right)e^3\right)\sqrt{\frac{bd-ae}{b}}\log\left(\frac{bex+2\,bd-ae+2\,\sqrt{ex+d}b\sqrt{\frac{bd-ae}{b}}}{bx+a}\right)+2\left(15\,Bb^3e^3x\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^(5/2)/(b*x + a),x, algorithm="fricas")
```

```
[Out] [1/105*(105*((B*a*b^2 - A*b^3)*d^2*e - 2*(B*a^2*b - A*a*b^2)*d*e^
2 + (B*a^3 - A*a^2*b)*e^3)*sqrt((b*d - a*e)/b)*log((b*e*x + 2*b*d
 - a*e + 2*sqrt(e*x + d)*b*sqrt((b*d - a*e)/b))/(b*x + a)) + 2*(1
5*B*b^3*e^3*x^3 + 15*B*b^3*d^3 - 161*(B*a*b^2 - A*b^3)*d^2*e + 24
5*(B*a^2*b - A*a*b^2)*d*e^2 - 105*(B*a^3 - A*a^2*b)*e^3 + 3*(15*B
*b^3*d*e^2 - 7*(B*a*b^2 - A*b^3)*e^3)*x^2 + (45*B*b^3*d^2*e - 77*
(B*a*b^2 - A*b^3)*d*e^2 + 35*(B*a^2*b - A*a*b^2)*e^3)*x)*sqrt(e*x
 + d))/(b^4*e), 2/105*(105*((B*a*b^2 - A*b^3)*d^2*e - 2*(B*a^2*b
- A*a*b^2)*d*e^2 + (B*a^3 - A*a^2*b)*e^3)*sqrt(-(b*d - a*e)/b)*ar
ctan(sqrt(e*x + d)/sqrt(-(b*d - a*e)/b)) + (15*B*b^3*e^3*x^3 + 15
*B*b^3*d^3 - 161*(B*a*b^2 - A*b^3)*d^2*e + 245*(B*a^2*b - A*a*b^2
)*d*e^2 - 105*(B*a^3 - A*a^2*b)*e^3 + 3*(15*B*b^3*d*e^2 - 7*(B*a*
b^2 - A*b^3)*e^3)*x^2 + (45*B*b^3*d^2*e - 77*(B*a*b^2 - A*b^3)*d*
e^2 + 35*(B*a^2*b - A*a*b^2)*e^3)*x)*sqrt(e*x + d))/(b^4*e)]
```

Sympy [A] time = 75.4846, size = 340, normalized size = 2.07

$$\frac{2B\left(d+ex\right)^{\frac{7}{2}}}{7be}+\frac{\left(d+ex\right)^{\frac{5}{2}}\left(2Ab-2Ba\right)}{5b^2}+\frac{\left(d+ex\right)^{\frac{3}{2}}\left(-2Aabe+2Ab^2d+2Ba^2e-2Babd\right)}{3b^3}+\frac{\sqrt{d+ex}\left(2Aa^2be^2-4Aab^2de+2Ab^3d^2-2Ba^3e^2+4Ba^2bde-2Bab^2d^2\right)}{b^4}+\frac{2\left(-Ab+Ba\right)\left(ae-bd\right)^3\left(\begin{cases}\frac{\operatorname{atan}\left(\frac{\sqrt{d+ex}}{\sqrt{\frac{ae-bd}{b}}}\right)}{b\sqrt{\frac{ae-bd}{b}}} & \text{for}\ \frac{ae-bd}{b}>0\\ -\frac{\operatorname{acoth}\left(\frac{\sqrt{d+ex}}{\sqrt{\frac{-ae+bd}{b}}}\right)}{b\sqrt{\frac{-ae+bd}{b}}} & \text{for}\ d+ex>\frac{-ae+bd}{b}\wedge\frac{ae-bd}{b}<0\\ -\frac{\operatorname{atanh}\left(\frac{\sqrt{d+ex}}{\sqrt{\frac{-ae+bd}{b}}}\right)}{b\sqrt{\frac{-ae+bd}{b}}} & \text{for}\ \frac{ae-bd}{b}<0\wedge d+ex<\frac{-ae+bd}{b}\end{cases}\right)}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(e*x+d)**(5/2)/(b*x+a),x)
```

```
[Out] 2*B*(d + e*x)**(7/2)/(7*b*e) + (d + e*x)**(5/2)*(2*A*b - 2*B*a)/(
5*b**2) + (d + e*x)**(3/2)*(-2*A*a*b*e + 2*A*b**2*d + 2*B*a**2*e
- 2*B*a*b*d)/(3*b**3) + sqrt(d + e*x)*(2*A*a**2*b*e**2 - 4*A*a*b*
*2*d*e + 2*A*b**3*d**2 - 2*B*a**3*e**2 + 4*B*a**2*b*d*e - 2*B*a*b
**2*d**2)/b**4 + 2*(-A*b + B*a)*(a*e - b*d)**3*Piecewise((atan(sq
rt(d + e*x)/sqrt((a*e - b*d)/b))/(b*sqrt((a*e - b*d)/b)), (a*e -
b*d)/b > 0), (-acoth(sqrt(d + e*x)/sqrt((-a*e + b*d)/b))/(b*sqrt(
(-a*e + b*d)/b)), ((a*e - b*d)/b < 0) & (d + e*x > (-a*e + b*d)/b
)), (-atanh(sqrt(d + e*x)/sqrt((-a*e + b*d)/b))/(b*sqrt((-a*e + b
*d)/b)), ((a*e - b*d)/b < 0) & (d + e*x < (-a*e + b*d)/b)))/b**4
```

GIAC/XCAS [A] time = 0.221615, size = 501, normalized size = 3.05

$$-\frac{2\left(Bab^3d^3 - Ab^4d^3 - 3\,Ba^2b^2d^2e + 3\,Aab^3d^2e + 3\,Ba^3bde^2 - 3\,Aa^2b^2de^2 - Ba^4e^3 + Aa^3be^3\right)\arctan\left(\frac{\sqrt{xe+d}b}{\sqrt{-b^2d+abe}}\right)}{\sqrt{-b^2d+abe}b^4} + \frac{2\left(15\,(xe+d)^{\frac{7}{2}}Bb^6e^6 - 21\,(xe+d)^{\frac{5}{2}}Bab^5e^7 + 21\,(xe+d)^{\frac{5}{2}}Ab^6e^7 - 35\,(xe+d)^{\frac{3}{2}}Bab^5de^7 + 35\,(xe+d)^{\frac{3}{2}}Ab^6de^7 - 105\,\sqrt{xe+\cdots}\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^(5/2)/(b*x + a),x, algorithm="giac")
```

```
[Out] -2*(B*a*b^3*d^3 - A*b^4*d^3 - 3*B*a^2*b^2*d^2*e + 3*A*a*b^3*d^2*e
 + 3*B*a^3*b*d*e^2 - 3*A*a^2*b^2*d*e^2 - B*a^4*e^3 + A*a^3*b*e^3)
*arctan(sqrt(x*e + d)*b/sqrt(-b^2*d + a*b*e))/(sqrt(-b^2*d + a*b*
e)*b^4) + 2/105*(15*(x*e + d)^(7/2)*B*b^6*e^6 - 21*(x*e + d)^(5/2
)*B*a*b^5*e^7 + 21*(x*e + d)^(5/2)*A*b^6*e^7 - 35*(x*e + d)^(3/2)
*B*a*b^5*d*e^7 + 35*(x*e + d)^(3/2)*A*b^6*d*e^7 - 105*sqrt(x*e +
d)*B*a*b^5*d^2*e^7 + 105*sqrt(x*e + d)*A*b^6*d^2*e^7 + 35*(x*e +
d)^(3/2)*B*a^2*b^4*e^8 - 35*(x*e + d)^(3/2)*A*a*b^5*e^8 + 210*sqr
t(x*e + d)*B*a^2*b^4*d*e^8 - 210*sqrt(x*e + d)*A*a*b^5*d*e^8 - 10
5*sqrt(x*e + d)*B*a^3*b^3*e^9 + 105*sqrt(x*e + d)*A*a^2*b^4*e^9)*
e^(-7)/b^7
```

3.1727 $\int \frac{(A+Bx)(d+ex)^{3/2}}{a+bx} dx$

Optimal. Leaf size=130

$$-\frac{2(Ab-aB)(bd-ae)^{3/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{b^{7/2}}+\frac{2\sqrt{d+ex}(Ab-aB)(bd-ae)}{b^3}+\frac{2(d+ex)^{3/2}(Ab-aB)}{3b^2}+\frac{2B(d+ex)^{5/2}}{5be}$$

```
[Out] (2*(A*b - a*B)*(b*d - a*e)*Sqrt[d + e*x])/b^3 + (2*(A*b - a*B)*(d
 + e*x)^(3/2))/(3*b^2) + (2*B*(d + e*x)^(5/2))/(5*b*e) - (2*(A*b
- a*B)*(b*d - a*e)^(3/2)*ArcTanh[(Sqrt[b]*Sqrt[d + e*x])/Sqrt[b*d
 - a*e]])/b^(7/2)
```

Rubi [A] time = 0.221491, antiderivative size = 130, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{2(Ab-aB)(bd-ae)^{3/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{b^{7/2}}+\frac{2\sqrt{d+ex}(Ab-aB)(bd-ae)}{b^3}+\frac{2(d+ex)^{3/2}(Ab-aB)}{3b^2}+\frac{2B(d+ex)^{5/2}}{5be}$$

Antiderivative was successfully verified.

```
[In] Int[((A + B*x)*(d + e*x)^(3/2))/(a + b*x),x]
```

```
[Out] (2*(A*b - a*B)*(b*d - a*e)*Sqrt[d + e*x])/b^3 + (2*(A*b - a*B)*(d
 + e*x)^(3/2))/(3*b^2) + (2*B*(d + e*x)^(5/2))/(5*b*e) - (2*(A*b
- a*B)*(b*d - a*e)^(3/2)*ArcTanh[(Sqrt[b]*Sqrt[d + e*x])/Sqrt[b*d
 - a*e]])/b^(7/2)
```

Rubi in Sympy [A] time = 24.1211, size = 114, normalized size = 0.88

$$\frac{2B(d+ex)^{\frac{5}{2}}}{5be}+\frac{2(d+ex)^{\frac{3}{2}}(Ab-Ba)}{3b^2}-\frac{2\sqrt{d+ex}(Ab-Ba)(ae-bd)}{b^3}+\frac{2(Ab-Ba)(ae-bd)^{\frac{3}{2}}\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{ae-bd}}\right)}{b^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((B*x+A)*(e*x+d)**(3/2)/(b*x+a),x)
```

```
[Out] 2*B*(d + e*x)**(5/2)/(5*b*e) + 2*(d + e*x)**(3/2)*(A*b - B*a)/(3*
b**2) - 2*sqrt(d + e*x)*(A*b - B*a)*(a*e - b*d)/b**3 + 2*(A*b - B
*a)*(a*e - b*d)**(3/2)*atan(sqrt(b)*sqrt(d + e*x)/sqrt(a*e - b*d)
)/b**(7/2)
```

Mathematica [A] time = 0.205054, size = 129, normalized size = 0.99

$$\frac{2\sqrt{d+ex}\left(15a^2Be^2-5abe(3Ae+4Bd+Bex)+b^2\left(5Ae(4d+ex)+3B(d+ex)^2\right)\right)}{15b^3e}-\frac{2(Ab-aB)(bd-ae)^{3/2}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{b^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((A + B*x)*(d + e*x)^(3/2))/(a + b*x),x]
```

```
[Out] (2*Sqrt[d + e*x]*(15*a^2*B*e^2 - 5*a*b*e*(4*B*d + 3*A*e + B*e*x)
+ b^2*(3*B*(d + e*x)^2 + 5*A*e*(4*d + e*x))))/(15*b^3*e) - (2*(A*
b - a*B)*(b*d - a*e)^(3/2)*ArcTanh[(Sqrt[b]*Sqrt[d + e*x])/Sqrt[b
*d - a*e]])/b^(7/2)
```

Maple [B] time = 0.014, size = 370, normalized size = 2.9

$$
\frac{2B}{5be}(ex+d)^{\frac{5}{2}}+\frac{2A}{3b}(ex+d)^{\frac{3}{2}}-\frac{2Ba}{3b^2}(ex+d)^{\frac{3}{2}}-2\frac{Aae\sqrt{ex+d}}{b^2}
+2\frac{Ad\sqrt{ex+d}}{b}+2\frac{eBa^2\sqrt{ex+d}}{b^3}-2\frac{Bad\sqrt{ex+d}}{b^2}
+2\frac{a^2Ae^2}{b^2\sqrt{(ae-bd)b}}\arctan\left(\frac{\sqrt{ex+d}b}{\sqrt{(ae-bd)b}}\right)-4\frac{aAde}{b\sqrt{(ae-bd)b}}\arctan\left(\frac{\sqrt{ex+d}b}{\sqrt{(ae-bd)b}}\right)
+2\frac{Ad^2}{\sqrt{(ae-bd)b}}\arctan\left(\frac{\sqrt{ex+d}b}{\sqrt{(ae-bd)b}}\right)-2\frac{Ba^3e^2}{b^3\sqrt{(ae-bd)b}}\arctan\left(\frac{\sqrt{ex+d}b}{\sqrt{(ae-bd)b}}\right)
+4\frac{eBa^2d}{b^2\sqrt{(ae-bd)b}}\arctan\left(\frac{\sqrt{ex+d}b}{\sqrt{(ae-bd)b}}\right)-2\frac{Bad^2}{b\sqrt{(ae-bd)b}}\arctan\left(\frac{\sqrt{ex+d}b}{\sqrt{(ae-bd)b}}\right)
$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(e*x+d)^(3/2)/(b*x+a),x)
```

```
[Out] 2/5*B*(e*x+d)^(5/2)/b/e+2/3/b*A*(e*x+d)^(3/2)-2/3/b^2*B*(e*x+d)^(
3/2)*a-2*e/b^2*A*a*(e*x+d)^(1/2)+2/b*A*d*(e*x+d)^(1/2)+2*e/b^3*B*
a^2*(e*x+d)^(1/2)-2/b^2*B*a*d*(e*x+d)^(1/2)+2*e^2/b^2/((a*e-b*d)*
b)^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*A*a^2-4*e/b/
((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*A
*a*d+2/((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(
1/2))*A*d^2-2*e^2/b^3/((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*b/
((a*e-b*d)*b)^(1/2))*B*a^3+4*e/b^2/((a*e-b*d)*b)^(1/2)*arctan((e*
x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*B*a^2*d-2/b/((a*e-b*d)*b)^(1/2)
*arctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*B*a*d^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^(3/2)/(b*x + a),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.222078, size = 1, normalized size = 0.01

$$
\left[-\frac{15\left(\left(Bab-Ab^2\right)de-\left(Ba^2-Aab\right)e^2\right)\sqrt{\frac{bd-ae}{b}}\log\left(\frac{bex+2bd-ae-2\sqrt{ex+d}b\sqrt{\frac{bd-ae}{b}}}{bx+a}\right)-2\left(3Bb^2e^2x^2+3Bb^2d^2-20\left(Bab-A\right.\right.}{15b^3e}\right.
$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^(3/2)/(b*x + a),x, algorithm="fricas")
```

```
[Out] [-1/15*(15*((B*a*b - A*b^2)*d*e - (B*a^2 - A*a*b)*e^2)*sqrt((b*d
- a*e)/b)*log((b*e*x + 2*b*d - a*e - 2*sqrt(e*x + d)*b*sqrt((b*d
- a*e)/b))/(b*x + a)) - 2*(3*B*b^2*e^2*x^2 + 3*B*b^2*d^2 - 20*(B*
a*b - A*b^2)*d*e + 15*(B*a^2 - A*a*b)*e^2 + (6*B*b^2*d*e - 5*(B*a
*b - A*b^2)*e^2)*x)*sqrt(e*x + d))/(b^3*e), 2/15*(15*((B*a*b - A*
b^2)*d*e - (B*a^2 - A*a*b)*e^2)*sqrt(-(b*d - a*e)/b)*arctan(sqrt(
e*x + d)/sqrt(-(b*d - a*e)/b)) + (3*B*b^2*e^2*x^2 + 3*B*b^2*d^2 -
 20*(B*a*b - A*b^2)*d*e + 15*(B*a^2 - A*a*b)*e^2 + (6*B*b^2*d*e -
 5*(B*a*b - A*b^2)*e^2)*x)*sqrt(e*x + d))/(b^3*e)]
```

Sympy [A] time = 46.673, size = 258, normalized size = 1.98

$$\frac{2B(d+ex)^{\frac{5}{2}}}{5be}+\frac{(d+ex)^{\frac{3}{2}}(2Ab-2Ba)}{3b^2}+\frac{\sqrt{d+ex}\left(-2Aabe+2Ab^2d+2Ba^2e-2Babd\right)}{b^3}-\frac{2(-Ab+Ba)(ae-bd)^2\left(\begin{cases}\frac{\operatorname{atan}\left(\frac{\sqrt{d+ex}}{\sqrt{\frac{ae-bd}{b}}}\right)}{b\sqrt{\frac{ae-bd}{b}}} & \text{for } \frac{ae-bd}{b}>0\\ -\frac{\operatorname{acoth}\left(\frac{\sqrt{d+ex}}{\sqrt{\frac{-ae+bd}{b}}}\right)}{b\sqrt{\frac{-ae+bd}{b}}} & \text{for } d+ex>\frac{-ae+bd}{b}\wedge\frac{ae-bd}{b}<0\\ -\frac{\operatorname{atanh}\left(\frac{\sqrt{d+ex}}{\sqrt{\frac{-ae+bd}{b}}}\right)}{b\sqrt{\frac{-ae+bd}{b}}} & \text{for } \frac{ae-bd}{b}<0\wedge d+ex<\frac{-ae+bd}{b}\end{cases}\right)}{b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(e*x+d)**(3/2)/(b*x+a),x)
```

```
[Out] 2*B*(d + e*x)**(5/2)/(5*b*e) + (d + e*x)**(3/2)*(2*A*b - 2*B*a)/(
3*b**2) + sqrt(d + e*x)*(-2*A*a*b*e + 2*A*b**2*d + 2*B*a**2*e - 2
*B*a*b*d)/b**3 - 2*(-A*b + B*a)*(a*e - b*d)**2*Piecewise((atan(sq
rt(d + e*x)/sqrt((a*e - b*d)/b))/(b*sqrt((a*e - b*d)/b)), (a*e -
b*d)/b > 0), (-acoth(sqrt(d + e*x)/sqrt((-a*e + b*d)/b))/(b*sqrt(
(-a*e + b*d)/b)), ((a*e - b*d)/b < 0) & (d + e*x > (-a*e + b*d)/b
)), (-atanh(sqrt(d + e*x)/sqrt((-a*e + b*d)/b))/(b*sqrt((-a*e + b
*d)/b)), ((a*e - b*d)/b < 0) & (d + e*x < (-a*e + b*d)/b)))/b**3
```

GIAC/XCAS [A] time = 0.212768, size = 308, normalized size = 2.37

$$-\frac{2\left(Bab^2d^2-Ab^3d^2-2Ba^2bde+2Aab^2de+Ba^3e^2-Aa^2be^2\right)\arctan\left(\frac{\sqrt{xe+d}b}{\sqrt{-b^2d+abe}}\right)}{\sqrt{-b^2d+abe}b^3}+\frac{2\left(3(xe+d)^{\frac{5}{2}}Bb^4e^4-5(xe+d)^{\frac{3}{2}}Bab^3e^5+5(xe+d)^{\frac{3}{2}}Ab^4e^5-15\sqrt{xe+d}Bab^3de^5+15\sqrt{xe+d}Ab^4de^5+15\sqrt{xe+d}Ba^2b^2\right.}{15b^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^(3/2)/(b*x + a),x, algorithm="giac")
```

```
[Out] -2*(B*a*b^2*d^2 - A*b^3*d^2 - 2*B*a^2*b*d*e + 2*A*a*b^2*d*e + B*a
^3*e^2 - A*a^2*b*e^2)*arctan(sqrt(x*e + d)*b/sqrt(-b^2*d + a*b*e)
)/(sqrt(-b^2*d + a*b*e)*b^3) + 2/15*(3*(x*e + d)^(5/2)*B*b^4*e^4
- 5*(x*e + d)^(3/2)*B*a*b^3*e^5 + 5*(x*e + d)^(3/2)*A*b^4*e^5 - 1
5*sqrt(x*e + d)*B*a*b^3*d*e^5 + 15*sqrt(x*e + d)*A*b^4*d*e^5 + 15
*sqrt(x*e + d)*B*a^2*b^2*e^6 - 15*sqrt(x*e + d)*A*a*b^3*e^6)*e^(-
5)/b^5
```

3.1728 $\int \frac{(A+Bx)\sqrt{d+ex}}{a+bx}\,dx$

Optimal. Leaf size=98

$$-\frac{2(Ab-aB)\sqrt{bd-ae}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{b^{5/2}}+\frac{2\sqrt{d+ex}(Ab-aB)}{b^2}+\frac{2B(d+ex)^{3/2}}{3be}$$

```
[Out] (2*(A*b - a*B)*Sqrt[d + e*x])/b^2 + (2*B*(d + e*x)^(3/2))/(3*b*e)
 - (2*(A*b - a*B)*Sqrt[b*d - a*e]*ArcTanh[(Sqrt[b]*Sqrt[d + e*x])
/Sqrt[b*d - a*e]])/b^(5/2)
```

Rubi [A] time = 0.163181, antiderivative size = 98, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{2(Ab-aB)\sqrt{bd-ae}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{b^{5/2}}+\frac{2\sqrt{d+ex}(Ab-aB)}{b^2}+\frac{2B(d+ex)^{3/2}}{3be}$$

Antiderivative was successfully verified.

```
[In]  Int[((A + B*x)*Sqrt[d + e*x])/(a + b*x),x]
```

```
[Out] (2*(A*b - a*B)*Sqrt[d + e*x])/b^2 + (2*B*(d + e*x)^(3/2))/(3*b*e)
 - (2*(A*b - a*B)*Sqrt[b*d - a*e]*ArcTanh[(Sqrt[b]*Sqrt[d + e*x])
/Sqrt[b*d - a*e]])/b^(5/2)
```

Rubi in Sympy [A] time = 18.1014, size = 85, normalized size = 0.87

$$\frac{2B(d+ex)^{\frac{3}{2}}}{3be}+\frac{2\sqrt{d+ex}\,(Ab-Ba)}{b^2}-\frac{2\,(Ab-Ba)\,\sqrt{ae-bd}\,\mathrm{atan}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{ae-bd}}\right)}{b^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(e*x+d)**(1/2)/(b*x+a),x)
```

```
[Out] 2*B*(d + e*x)**(3/2)/(3*b*e) + 2*sqrt(d + e*x)*(A*b - B*a)/b**2 -
 2*(A*b - B*a)*sqrt(a*e - b*d)*atan(sqrt(b)*sqrt(d + e*x)/sqrt(a*
e - b*d))/b**(5/2)
```

Mathematica [A] time = 0.217269, size = 94, normalized size = 0.96

$$\frac{2(aB-Ab)\sqrt{bd-ae}\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{b^{5/2}}+\frac{2\sqrt{d+ex}(-3aBe+3Abe+bB(d+ex))}{3b^2e}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((A + B*x)*Sqrt[d + e*x])/(a + b*x),x]
```

```
[Out] (2*Sqrt[d + e*x]*(3*A*b*e - 3*a*B*e + b*B*(d + e*x)))/(3*b^2*e) +
 (2*(-(A*b) + a*B)*Sqrt[b*d - a*e]*ArcTanh[(Sqrt[b]*Sqrt[d + e*x]
)/Sqrt[b*d - a*e]])/b^(5/2)
```

Maple [B] time = 0.013, size = 211, normalized size = 2.2

$$\frac{2B}{3be}(ex+d)^{\frac{3}{2}}+2\frac{A\sqrt{ex+d}}{b}-2\frac{Ba\sqrt{ex+d}}{b^2}-2\frac{Aae}{b\sqrt{(ae-bd)b}}\arctan\left(\frac{\sqrt{ex+d}b}{\sqrt{(ae-bd)b}}\right)+2\frac{Ad}{\sqrt{(ae-bd)b}}\arctan\left(\frac{\sqrt{ex+d}b}{\sqrt{(ae-bd)b}}\right)+2\frac{Ba^2e}{b^2\sqrt{(ae-bd)b}}\arctan\left(\frac{\sqrt{ex+d}b}{\sqrt{(ae-bd)b}}\right)-2\frac{Bad}{b\sqrt{(ae-bd)b}}\arctan\left(\frac{\sqrt{ex+d}b}{\sqrt{(ae-bd)b}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(e*x+d)^(1/2)/(b*x+a),x)
```

```
[Out] 2/3*B*(e*x+d)^(3/2)/b/e+2/b*A*(e*x+d)^(1/2)-2/b^2*B*a*(e*x+d)^(1/
2)-2*e/b/((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)
^(1/2))*A*a+2/((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*
d)*b)^(1/2))*A*d+2*e/b^2/((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)
*b/((a*e-b*d)*b)^(1/2))*B*a^2-2/b/((a*e-b*d)*b)^(1/2)*arctan((e*x
+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*B*a*d
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(e*x + d)/(b*x + a),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.22322, size = 1, normalized size = 0.01

$$\left[-\frac{3(Ba-Ab)e\sqrt{\frac{bd-ae}{b}}\log\left(\frac{bex+2bd-ae-2\sqrt{ex+d}b\sqrt{\frac{bd-ae}{b}}}{bx+a}\right)-2(Bbex+Bbd-3(Ba-Ab)e)\sqrt{ex+d}}{3b^2e},\ \frac{2\left(3(Ba-Ab)e\sqrt{-\frac{bd-\cdots}{\cdots}}\right.}{\cdots}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(e*x + d)/(b*x + a),x, algorithm="fricas")
```

```
[Out] [-1/3*(3*(B*a - A*b)*e*sqrt((b*d - a*e)/b)*log((b*e*x + 2*b*d - a
*e - 2*sqrt(e*x + d)*b*sqrt((b*d - a*e)/b))/(b*x + a)) - 2*(B*b*e
*x + B*b*d - 3*(B*a - A*b)*e)*sqrt(e*x + d))/(b^2*e), 2/3*(3*(B*a
 - A*b)*e*sqrt(-(b*d - a*e)/b)*arctan(sqrt(e*x + d)/sqrt(-(b*d -
a*e)/b)) + (B*b*e*x + B*b*d - 3*(B*a - A*b)*e)*sqrt(e*x + d))/(b^
2*e)]
```

Sympy [A] time = 15.7031, size = 212, normalized size = 2.16

$$\frac{2\left(\frac{B(d+ex)^{\frac{3}{2}}}{3b}+\frac{e(-Ab+Ba)(ae-bd)\left(\begin{cases}\frac{\operatorname{atan}\left(\frac{\sqrt{d+ex}}{\sqrt{\frac{ae-bd}{b}}}\right)}{b\sqrt{\frac{ae-bd}{b}}} & \text{for } \frac{ae-bd}{b}>0\\ -\frac{\operatorname{acoth}\left(\frac{\sqrt{d+ex}}{\sqrt{\frac{-ae+bd}{b}}}\right)}{b\sqrt{\frac{-ae+bd}{b}}} & \text{for } d+ex>\frac{-ae+bd}{b}\wedge\frac{ae-bd}{b}<0\\ -\frac{\operatorname{atanh}\left(\frac{\sqrt{d+ex}}{\sqrt{\frac{-ae+bd}{b}}}\right)}{b\sqrt{\frac{-ae+bd}{b}}} & \text{for } \frac{ae-bd}{b}<0\wedge d+ex<\frac{-ae+bd}{b}\end{cases}\right)}{b^2}+\frac{\sqrt{d+ex}(Abe-Bae)}{b^2}\right)}{e}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(e*x+d)**(1/2)/(b*x+a),x)
```

```
[Out] 2*(B*(d + e*x)**(3/2)/(3*b) + e*(-A*b + B*a)*(a*e - b*d)*Piecewis
e((atan(sqrt(d + e*x)/sqrt((a*e - b*d)/b))/(b*sqrt((a*e - b*d)/b)
), (a*e - b*d)/b > 0), (-acoth(sqrt(d + e*x)/sqrt((-a*e + b*d)/b)
)/(b*sqrt((-a*e + b*d)/b)), ((a*e - b*d)/b < 0) & (d + e*x > (-a*
e + b*d)/b)), (-atanh(sqrt(d + e*x)/sqrt((-a*e + b*d)/b))/(b*sqrt
((-a*e + b*d)/b)), ((a*e - b*d)/b < 0) & (d + e*x < (-a*e + b*d)/
b)))/b**2 + sqrt(d + e*x)*(A*b*e - B*a*e)/b**2)/e
```

GIAC/XCAS [A] time = 0.21087, size = 170, normalized size = 1.73

$$-\frac{2\left(Babd-Ab^2d-Ba^2e+Aabe\right)\arctan\left(\frac{\sqrt{xe+d}b}{\sqrt{-b^2d+abe}}\right)}{\sqrt{-b^2d+abe}b^2}+\frac{2\left((xe+d)^{\frac{3}{2}}Bb^2e^2-3\sqrt{xe+d}Babe^3+3\sqrt{xe+d}Ab^2e^3\right)e^{(-3)}}{3\,b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(e*x + d)/(b*x + a),x, algorithm="giac")
```

```
[Out] -2*(B*a*b*d - A*b^2*d - B*a^2*e + A*a*b*e)*arctan(sqrt(x*e + d)*b
/sqrt(-b^2*d + a*b*e))/(sqrt(-b^2*d + a*b*e)*b^2) + 2/3*((x*e + d
)^(3/2)*B*b^2*e^2 - 3*sqrt(x*e + d)*B*a*b*e^3 + 3*sqrt(x*e + d)*A
*b^2*e^3)*e^(-3)/b^3
```

3.1729 $\int \frac{A+Bx}{(a+bx)\sqrt{d+ex}}\,dx$

Optimal. Leaf size=74

$$\frac{2B\sqrt{d+ex}}{be}-\frac{2(Ab-aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{b^{3/2}\sqrt{bd-ae}}$$

```
[Out] (2*B*Sqrt[d + e*x])/(b*e) - (2*(A*b - a*B)*ArcTanh[(Sqrt[b]*Sqrt[
d + e*x])/Sqrt[b*d - a*e]])/(b^(3/2)*Sqrt[b*d - a*e])
```

Rubi [A] time = 0.114113, antiderivative size = 74, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.136

$$\frac{2B\sqrt{d+ex}}{be}-\frac{2(Ab-aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{b^{3/2}\sqrt{bd-ae}}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/((a + b*x)*Sqrt[d + e*x]),x]
```

```
[Out] (2*B*Sqrt[d + e*x])/(b*e) - (2*(A*b - a*B)*ArcTanh[(Sqrt[b]*Sqrt[
d + e*x])/Sqrt[b*d - a*e]])/(b^(3/2)*Sqrt[b*d - a*e])
```

Rubi in Sympy [A] time = 12.8449, size = 63, normalized size = 0.85

$$\frac{2B\sqrt{d+ex}}{be}+\frac{2\left(Ab-Ba\right)\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{ae-bd}}\right)}{b^{\frac{3}{2}}\sqrt{ae-bd}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(b*x+a)/(e*x+d)**(1/2),x)
```

```
[Out] 2*B*sqrt(d + e*x)/(b*e) + 2*(A*b - B*a)*atan(sqrt(b)*sqrt(d + e*x
)/sqrt(a*e - b*d))/(b**(3/2)*sqrt(a*e - b*d))
```

Mathematica [A] time = 0.116443, size = 74, normalized size = 1.

$$\frac{2B\sqrt{d+ex}}{be}-\frac{2(Ab-aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{b^{3/2}\sqrt{bd-ae}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/((a + b*x)*Sqrt[d + e*x]),x]
```

```
[Out] (2*B*Sqrt[d + e*x])/(b*e) - (2*(A*b - a*B)*ArcTanh[(Sqrt[b]*Sqrt[
d + e*x])/Sqrt[b*d - a*e]])/(b^(3/2)*Sqrt[b*d - a*e])
```

Maple [A] time = 0.013, size = 96, normalized size = 1.3

$$2\,{\frac{B\sqrt{ex+d}}{be}}+2\,{\frac{A}{\sqrt{(ae-bd)b}}\arctan\left({\frac{\sqrt{ex+d}b}{\sqrt{(ae-bd)b}}}\right)}-2\,{\frac{Ba}{b\sqrt{(ae-bd)b}}\arctan\left({\frac{\sqrt{ex+d}b}{\sqrt{(ae-bd)b}}}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(b*x+a)/(e*x+d)^(1/2),x)
```

```
[Out] 2*B*(e*x+d)^(1/2)/b/e+2/((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*
b/((a*e-b*d)*b)^(1/2))*A-2/b/((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(
1/2)*b/((a*e-b*d)*b)^(1/2))*B*a
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*sqrt(e*x + d)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.221832, size = 1, normalized size = 0.01

$$\left[-\frac{(Ba-Ab)e\log\left(\frac{\sqrt{b^2d-abe}(bex+2\,bd-ae)-2\,(b^2d-abe)\,\sqrt{ex+d}}{bx+a}\right)-2\,\sqrt{b^2d-abe}\sqrt{ex+d}B}{\sqrt{b^2d-abe}be},\ \frac{2\left((Ba-Ab)e\arctan\left(-\frac{bd-ae}{\sqrt{-b^2d+abe}\sqrt{e\right.}}\right.}{\sqrt{-b^2d+a}}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*sqrt(e*x + d)),x, algorithm="fricas")
```

```
[Out] [-((B*a - A*b)*e*log((sqrt(b^2*d - a*b*e)*(b*e*x + 2*b*d - a*e) -
 2*(b^2*d - a*b*e)*sqrt(e*x + d))/(b*x + a)) - 2*sqrt(b^2*d - a*b
*e)*sqrt(e*x + d)*B)/(sqrt(b^2*d - a*b*e)*b*e), 2*((B*a - A*b)*e*
arctan(-(b*d - a*e)/(sqrt(-b^2*d + a*b*e)*sqrt(e*x + d))) + sqrt(
-b^2*d + a*b*e)*sqrt(e*x + d)*B)/(sqrt(-b^2*d + a*b*e)*b*e)]
```

Sympy [A] time = 13.1921, size = 211, normalized size = 2.85

$$\frac{2B\sqrt{d+ex}}{be}+\frac{2\left(-Ab+Ba\right)\left(\begin{cases}\frac{\operatorname{atan}\left(\frac{1}{\sqrt{\frac{b}{ae-bd}}\sqrt{d+ex}}\right)}{\sqrt{\frac{b}{ae-bd}}(ae-bd)} & \text{for}\ \frac{b}{ae-bd}>0\\ -\frac{\operatorname{acoth}\left(\frac{1}{\sqrt{-\frac{b}{ae-bd}}\sqrt{d+ex}}\right)}{\sqrt{-\frac{b}{ae-bd}}(ae-bd)} & \text{for}\ \frac{1}{d+ex}>-\frac{b}{ae-bd}\wedge\frac{b}{ae-bd}<0\\ -\frac{\operatorname{atanh}\left(\frac{1}{\sqrt{-\frac{b}{ae-bd}}\sqrt{d+ex}}\right)}{\sqrt{-\frac{b}{ae-bd}}(ae-bd)} & \text{for}\ \frac{b}{ae-bd}<0\wedge\frac{1}{d+ex}<-\frac{b}{ae-bd}\end{cases}\right)}{b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(b*x+a)/(e*x+d)**(1/2),x)
```

```
[Out] 2*B*sqrt(d + e*x)/(b*e) + 2*(-A*b + B*a)*Piecewise((atan(1/(sqrt(
b/(a*e - b*d))*sqrt(d + e*x)))/(sqrt(b/(a*e - b*d))*(a*e - b*d)),
 b/(a*e - b*d) > 0), (-acoth(1/(sqrt(-b/(a*e - b*d))*sqrt(d + e*x
)))/(sqrt(-b/(a*e - b*d))*(a*e - b*d)), (b/(a*e - b*d) < 0) & (1/
(d + e*x) > -b/(a*e - b*d))), (-atanh(1/(sqrt(-b/(a*e - b*d))*sqr
```

```
t(d + e*x)))/(sqrt(-b/(a*e - b*d))*(a*e - b*d)), (b/(a*e - b*d) <
 0) & (1/(d + e*x) < -b/(a*e - b*d))))/b
```

GIAC/XCAS [A] time = 0.220934, size = 93, normalized size = 1.26

$$\frac{2\sqrt{xe+d}Be^{(-1)}}{b}-\frac{2\,(Ba-Ab)\arctan\left(\frac{\sqrt{xe+d}b}{\sqrt{-b^2d+abe}}\right)}{\sqrt{-b^2d+abe}b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*sqrt(e*x + d)),x, algorithm="giac")
```

```
[Out] 2*sqrt(x*e + d)*B*e^(-1)/b - 2*(B*a - A*b)*arctan(sqrt(x*e + d)*b
/sqrt(-b^2*d + a*b*e))/(sqrt(-b^2*d + a*b*e)*b)
```

3.1730 $\int \frac{A+Bx}{(a+bx)(d+ex)^{3/2}} \, dx$

Optimal. Leaf size=88

$$-\frac{2(Bd-Ae)}{e\sqrt{d+ex}(bd-ae)}-\frac{2(Ab-aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{\sqrt{b}(bd-ae)^{3/2}}$$

```
[Out] (-2*(B*d - A*e))/(e*(b*d - a*e)*Sqrt[d + e*x]) - (2*(A*b - a*B)*A
rcTanh[(Sqrt[b]*Sqrt[d + e*x])/Sqrt[b*d - a*e]])/(Sqrt[b]*(b*d -
a*e)^(3/2))
```

Rubi [A] time = 0.171444, antiderivative size = 88, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.136

$$-\frac{2(Bd-Ae)}{e\sqrt{d+ex}(bd-ae)}-\frac{2(Ab-aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{\sqrt{b}(bd-ae)^{3/2}}$$

Antiderivative was successfully verified.

```
[In] Int[(A + B*x)/((a + b*x)*(d + e*x)^(3/2)),x]
```

```
[Out] (-2*(B*d - A*e))/(e*(b*d - a*e)*Sqrt[d + e*x]) - (2*(A*b - a*B)*A
rcTanh[(Sqrt[b]*Sqrt[d + e*x])/Sqrt[b*d - a*e]])/(Sqrt[b]*(b*d -
a*e)^(3/2))
```

Rubi in Sympy [A] time = 15.4125, size = 76, normalized size = 0.86

$$-\frac{2\,(Ae-Bd)}{e\sqrt{d+ex}\,(ae-bd)}-\frac{2\,(Ab-Ba)\,\mathrm{atan}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{ae-bd}}\right)}{\sqrt{b}\,(ae-bd)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((B*x+A)/(b*x+a)/(e*x+d)**(3/2),x)
```

```
[Out] -2*(A*e - B*d)/(e*sqrt(d + e*x)*(a*e - b*d)) - 2*(A*b - B*a)*atan
(sqrt(b)*sqrt(d + e*x)/sqrt(a*e - b*d))/(sqrt(b)*(a*e - b*d)**(3/
2))
```

Mathematica [A] time = 0.345443, size = 88, normalized size = 1.

$$\frac{2\left(\frac{(Ab-aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{\sqrt{b}\sqrt{bd-ae}}+\frac{Bd-Ae}{e\sqrt{d+ex}}\right)}{ae-bd}$$

Antiderivative was successfully verified.

```
[In] Integrate[(A + B*x)/((a + b*x)*(d + e*x)^(3/2)),x]
```

```
[Out] (2*((B*d - A*e)/(e*Sqrt[d + e*x]) + ((A*b - a*B)*ArcTanh[(Sqrt[b]
*Sqrt[d + e*x])/Sqrt[b*d - a*e]])/(Sqrt[b]*Sqrt[b*d - a*e])))/(-(
b*d) + a*e)
```

Maple [A] time = 0.016, size = 142, normalized size = 1.6

$$-2\frac{Ab}{(ae-bd)\sqrt{(ae-bd)\,b}}\arctan\left(\frac{\sqrt{ex+d}\,b}{\sqrt{(ae-bd)\,b}}\right)+2\frac{Ba}{(ae-bd)\sqrt{(ae-bd)\,b}}\arctan\left(\frac{\sqrt{ex+d}\,b}{\sqrt{(ae-bd)\,b}}\right)-2\frac{A}{(ae-bd)\sqrt{ex+d}}+2\frac{Bd}{e(ae-bd)\sqrt{ex+d}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(b*x+a)/(e*x+d)^(3/2),x)
```

```
[Out] -2/(a*e-b*d)/((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*d
)*b)^(1/2))*A*b+2/(a*e-b*d)/((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1
/2)*b/((a*e-b*d)*b)^(1/2))*B*a-2/(a*e-b*d)/(e*x+d)^(1/2)*A+2/e/(a
*e-b*d)/(e*x+d)^(1/2)*B*d
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*(e*x + d)^(3/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.226327, size = 1, normalized size = 0.01

$$\left[\frac{(Ba-Ab)\sqrt{ex+d}\,e\log\left(\frac{\sqrt{b^2d-abe}(bex+2\,bd-ae)+2\left(b^2d-abe\right)\sqrt{ex+d}}{bx+a}\right)-2\sqrt{b^2d-abe}(Bd-Ae)}{\sqrt{b^2d-abe}(bde-ae^2)\sqrt{ex+d}},\ \frac{2\left((Ba-Ab)\sqrt{ex+d}\,e\arctan\left(\right.\right.}{\sqrt{-b^2d+}}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*(e*x + d)^(3/2)),x, algorithm="fricas")
```

```
[Out] [((B*a - A*b)*sqrt(e*x + d)*e*log((sqrt(b^2*d - a*b*e)*(b*e*x + 2
*b*d - a*e) + 2*(b^2*d - a*b*e)*sqrt(e*x + d))/(b*x + a)) - 2*sqr
t(b^2*d - a*b*e)*(B*d - A*e))/(sqrt(b^2*d - a*b*e)*(b*d*e - a*e^2
)*sqrt(e*x + d)), 2*((B*a - A*b)*sqrt(e*x + d)*e*arctan(-(b*d - a
*e)/(sqrt(-b^2*d + a*b*e)*sqrt(e*x + d))) - sqrt(-b^2*d + a*b*e)*
(B*d - A*e))/(sqrt(-b^2*d + a*b*e)*(b*d*e - a*e^2)*sqrt(e*x + d))
]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{A+Bx}{(a+bx)\,(d+ex)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(b*x+a)/(e*x+d)**(3/2),x)
```

```
[Out] Integral((A + B*x)/((a + b*x)*(d + e*x)**(3/2)), x)
```

GIAC/XCAS [A] time = 0.220307, size = 126, normalized size = 1.43

$$-\frac{2\,(Ba-Ab)\arctan\left(\frac{\sqrt{xe+d}b}{\sqrt{-b^2d+abe}}\right)}{\sqrt{-b^2d+abe}(bd-ae)}-\frac{2\,(Bd-Ae)}{(bde-ae^2)\sqrt{xe+d}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*(e*x + d)^(3/2)),x, algorithm="giac")
```

```
[Out] -2*(B*a - A*b)*arctan(sqrt(x*e + d)*b/sqrt(-b^2*d + a*b*e))/(sqrt
(-b^2*d + a*b*e)*(b*d - a*e)) - 2*(B*d - A*e)/((b*d*e - a*e^2)*sq
rt(x*e + d))
```

3.1731 $\int \frac{A+Bx}{(a+bx)(d+ex)^{5/2}}\,dx$

Optimal. Leaf size=119

$$\frac{2(Ab-aB)}{\sqrt{d+ex}(bd-ae)^2}-\frac{2(Bd-Ae)}{3e(d+ex)^{3/2}(bd-ae)}-\frac{2\sqrt{b}(Ab-aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{(bd-ae)^{5/2}}$$

```
[Out] (-2*(B*d - A*e))/(3*e*(b*d - a*e)*(d + e*x)^(3/2)) + (2*(A*b - a*
B))/((b*d - a*e)^2*Sqrt[d + e*x]) - (2*Sqrt[b]*(A*b - a*B)*ArcTan
h[(Sqrt[b]*Sqrt[d + e*x])/Sqrt[b*d - a*e]])/(b*d - a*e)^(5/2)
```

Rubi [A] time = 0.220248, antiderivative size = 119, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$\frac{2(Ab-aB)}{\sqrt{d+ex}(bd-ae)^2}-\frac{2(Bd-Ae)}{3e(d+ex)^{3/2}(bd-ae)}-\frac{2\sqrt{b}(Ab-aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{(bd-ae)^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/((a + b*x)*(d + e*x)^(5/2)),x]
```

```
[Out] (-2*(B*d - A*e))/(3*e*(b*d - a*e)*(d + e*x)^(3/2)) + (2*(A*b - a*
B))/((b*d - a*e)^2*Sqrt[d + e*x]) - (2*Sqrt[b]*(A*b - a*B)*ArcTan
h[(Sqrt[b]*Sqrt[d + e*x])/Sqrt[b*d - a*e]])/(b*d - a*e)^(5/2)
```

Rubi in Sympy [A] time = 22.6272, size = 104, normalized size = 0.87

$$\frac{2\sqrt{b}\left(Ab-Ba\right)\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{ae-bd}}\right)}{\left(ae-bd\right)^{\frac{5}{2}}}+\frac{2\left(Ab-Ba\right)}{\sqrt{d+ex}\left(ae-bd\right)^{2}}-\frac{2\left(Ae-Bd\right)}{3e\left(d+ex\right)^{\frac{3}{2}}\left(ae-bd\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(b*x+a)/(e*x+d)**(5/2),x)
```

```
[Out] 2*sqrt(b)*(A*b - B*a)*atan(sqrt(b)*sqrt(d + e*x)/sqrt(a*e - b*d))
/(a*e - b*d)**(5/2) + 2*(A*b - B*a)/(sqrt(d + e*x)*(a*e - b*d)**2
) - 2*(A*e - B*d)/(3*e*(d + e*x)**(3/2)*(a*e - b*d))
```

Mathematica [A] time = 0.34649, size = 118, normalized size = 0.99

$$-\frac{2\left(ae(Ae+2Bd+3Bex)-Abe(4d+3ex)+bBd^2\right)}{3e(d+ex)^{3/2}(bd-ae)^2}-\frac{2\sqrt{b}(Ab-aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{(bd-ae)^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/((a + b*x)*(d + e*x)^(5/2)),x]
```

```
[Out] (-2*(b*B*d^2 - A*b*e*(4*d + 3*e*x) + a*e*(2*B*d + A*e + 3*B*e*x))
)/(3*e*(b*d - a*e)^2*(d + e*x)^(3/2)) - (2*Sqrt[b]*(A*b - a*B)*Ar
cTanh[(Sqrt[b]*Sqrt[d + e*x])/Sqrt[b*d - a*e]])/(b*d - a*e)^(5/2)
```

Maple [A] time = 0.019, size = 187, normalized size = 1.6

$$-\frac{2A}{3ae-3bd}(ex+d)^{-\frac{3}{2}}+\frac{2Bd}{3e(ae-bd)}(ex+d)^{-\frac{3}{2}}+2\frac{Ab}{(ae-bd)^{2}\sqrt{ex+d}}-2\frac{Ba}{(ae-bd)^{2}\sqrt{ex+d}}+2\frac{b^{2}A}{(ae-bd)^{2}\sqrt{(ae-bd)b}}\arctan\left(\frac{\sqrt{ex+d}b}{\sqrt{(ae-bd)b}}\right)-2\frac{Bba}{(ae-bd)^{2}\sqrt{(ae-bd)b}}\arctan\left(\frac{\sqrt{ex+d}b}{\sqrt{(ae-bd)b}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(b*x+a)/(e*x+d)^(5/2),x)
```

```
[Out] -2/3/(a*e-b*d)/(e*x+d)^(3/2)*A+2/3/e/(a*e-b*d)/(e*x+d)^(3/2)*B*d+
2/(a*e-b*d)^2/(e*x+d)^(1/2)*A*b-2/(a*e-b*d)^2/(e*x+d)^(1/2)*B*a+2
*b^2/(a*e-b*d)^2/((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e
-b*d)*b)^(1/2))*A-2*b/(a*e-b*d)^2/((a*e-b*d)*b)^(1/2)*arctan((e*x
+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*B*a
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*(e*x + d)^(5/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.226166, size = 1, normalized size = 0.01

$$\left[-\frac{2Bbd^{2}+2Aae^{2}+6(Ba-Ab)e^{2}x+4(Ba-2Ab)de+3\left((Ba-Ab)e^{2}x+(Ba-Ab)de\right)\sqrt{ex+d}\sqrt{\frac{b}{bd-ae}}\log\left(\frac{bex+2bd-ae-}{}\right.}{3(b^{2}d^{3}e-2abd^{2}e^{2}+a^{2}de^{3}+(b^{2}d^{2}e^{2}-2abde^{3}+a^{2}e^{4})x)\sqrt{ex+d}}\right.$$

$$-\frac{2\left(Bbd^{2}+Aae^{2}+3(Ba-Ab)e^{2}x+2(Ba-2Ab)de-3\left((Ba-Ab)e^{2}x+(Ba-Ab)de\right)\sqrt{ex+d}\sqrt{-\frac{b}{bd-ae}}\arctan\left(-\frac{(bd-ae)}{\sqrt{ex}}\right.\right.}{3(b^{2}d^{3}e-2abd^{2}e^{2}+a^{2}de^{3}+(b^{2}d^{2}e^{2}-2abde^{3}+a^{2}e^{4})x)\sqrt{ex+d}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*(e*x + d)^(5/2)),x, algorithm="fricas")
```

```
[Out] [-1/3*(2*B*b*d^2 + 2*A*a*e^2 + 6*(B*a - A*b)*e^2*x + 4*(B*a - 2*A
*b)*d*e + 3*((B*a - A*b)*e^2*x + (B*a - A*b)*d*e)*sqrt(e*x + d)*s
qrt(b/(b*d - a*e))*log((b*e*x + 2*b*d - a*e - 2*(b*d - a*e)*sqrt(
e*x + d)*sqrt(b/(b*d - a*e)))/(b*x + a)))/((b^2*d^3*e - 2*a*b*d^2
*e^2 + a^2*d*e^3 + (b^2*d^2*e^2 - 2*a*b*d*e^3 + a^2*e^4)*x)*sqrt(
e*x + d)), -2/3*(B*b*d^2 + A*a*e^2 + 3*(B*a - A*b)*e^2*x + 2*(B*a
 - 2*A*b)*d*e - 3*((B*a - A*b)*e^2*x + (B*a - A*b)*d*e)*sqrt(e*x
+ d)*sqrt(-b/(b*d - a*e))*arctan(-(b*d - a*e)*sqrt(-b/(b*d - a*e)
)/(sqrt(e*x + d)*b)))/((b^2*d^3*e - 2*a*b*d^2*e^2 + a^2*d*e^3 + (
b^2*d^2*e^2 - 2*a*b*d*e^3 + a^2*e^4)*x)*sqrt(e*x + d))]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{A + Bx}{(a + bx)(d + ex)^{\frac{5}{2}}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(b*x+a)/(e*x+d)**(5/2),x)
```

```
[Out] Integral((A + B*x)/((a + b*x)*(d + e*x)**(5/2)), x)
```

GIAC/XCAS [A] time = 0.216129, size = 217, normalized size = 1.82

$$-\frac{2\left(Bab - Ab^2\right)\arctan\left(\frac{\sqrt{xe+d}\,b}{\sqrt{-b^2d+abe}}\right)}{(b^2d^2 - 2\,abde + a^2e^2)\sqrt{-b^2d + abe}} - \frac{2\left(Bbd^2 + 3\,(xe + d)Bae - 3\,(xe + d)Abe - Bade - Abde + Aae^2\right)}{3\,(b^2d^2e - 2\,abde^2 + a^2e^3)(xe + d)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*(e*x + d)^(5/2)),x, algorithm="giac")
```

```
[Out] -2*(B*a*b - A*b^2)*arctan(sqrt(x*e + d)*b/sqrt(-b^2*d + a*b*e))/(
(b^2*d^2 - 2*a*b*d*e + a^2*e^2)*sqrt(-b^2*d + a*b*e)) - 2/3*(B*b*
d^2 + 3*(x*e + d)*B*a*e - 3*(x*e + d)*A*b*e - B*a*d*e - A*b*d*e +
 A*a*e^2)/((b^2*d^2*e - 2*a*b*d*e^2 + a^2*e^3)*(x*e + d)^(3/2))
```

3.1732 $\int \frac{A+Bx}{(a+bx)(d+ex)^{7/2}}\,dx$

Optimal. Leaf size=151

$$-\frac{2b^{3/2}(Ab-aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{(bd-ae)^{7/2}}+\frac{2b(Ab-aB)}{\sqrt{d+ex}(bd-ae)^3}+\frac{2(Ab-aB)}{3(d+ex)^{3/2}(bd-ae)^2}-\frac{2(Bd-Ae)}{5e(d+ex)^{5/2}(bd-ae)}$$

```
[Out] (-2*(B*d - A*e))/(5*e*(b*d - a*e)*(d + e*x)^(5/2)) + (2*(A*b - a*
B))/(3*(b*d - a*e)^2*(d + e*x)^(3/2)) + (2*b*(A*b - a*B))/((b*d -
 a*e)^3*Sqrt[d + e*x]) - (2*b^(3/2)*(A*b - a*B)*ArcTanh[(Sqrt[b]*
Sqrt[d + e*x])/Sqrt[b*d - a*e]])/(b*d - a*e)^(7/2)
```

Rubi [A] time = 0.272204, antiderivative size = 151, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{2b^{3/2}(Ab-aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{(bd-ae)^{7/2}}+\frac{2b(Ab-aB)}{\sqrt{d+ex}(bd-ae)^3}+\frac{2(Ab-aB)}{3(d+ex)^{3/2}(bd-ae)^2}-\frac{2(Bd-Ae)}{5e(d+ex)^{5/2}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/((a + b*x)*(d + e*x)^(7/2)),x]
```

```
[Out] (-2*(B*d - A*e))/(5*e*(b*d - a*e)*(d + e*x)^(5/2)) + (2*(A*b - a*
B))/(3*(b*d - a*e)^2*(d + e*x)^(3/2)) + (2*b*(A*b - a*B))/((b*d -
 a*e)^3*Sqrt[d + e*x]) - (2*b^(3/2)*(A*b - a*B)*ArcTanh[(Sqrt[b]*
Sqrt[d + e*x])/Sqrt[b*d - a*e]])/(b*d - a*e)^(7/2)
```

Rubi in Sympy [A] time = 30.8357, size = 133, normalized size = 0.88

$$-\frac{2b^{\frac{3}{2}}(Ab-Ba)\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{ae-bd}}\right)}{(ae-bd)^{\frac{7}{2}}}-\frac{2b(Ab-Ba)}{\sqrt{d+ex}(ae-bd)^3}+\frac{2(Ab-Ba)}{3(d+ex)^{\frac{3}{2}}(ae-bd)^2}-\frac{2(Ae-Bd)}{5e(d+ex)^{\frac{5}{2}}(ae-bd)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(b*x+a)/(e*x+d)**(7/2),x)
```

```
[Out] -2*b**(3/2)*(A*b - B*a)*atan(sqrt(b)*sqrt(d + e*x)/sqrt(a*e - b*d
))/(a*e - b*d)**(7/2) - 2*b*(A*b - B*a)/(sqrt(d + e*x)*(a*e - b*d
)**3) + 2*(A*b - B*a)/(3*(d + e*x)**(3/2)*(a*e - b*d)**2) - 2*(A*
e - B*d)/(5*e*(d + e*x)**(5/2)*(a*e - b*d))
```

Mathematica [A] time = 0.427198, size = 151, normalized size = 1.

$$-\frac{2b^{3/2}(Ab-aB)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{(bd-ae)^{7/2}}+\frac{2b(Ab-aB)}{\sqrt{d+ex}(bd-ae)^3}+\frac{2(Ab-aB)}{3(d+ex)^{3/2}(bd-ae)^2}-\frac{2(Ae-Bd)}{5e(d+ex)^{5/2}(ae-bd)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/((a + b*x)*(d + e*x)^(7/2)),x]
```

```
[Out] (-2*(-(B*d) + A*e))/(5*e*(-(b*d) + a*e)*(d + e*x)^(5/2)) + (2*(A*
b - a*B))/(3*(b*d - a*e)^2*(d + e*x)^(3/2)) + (2*b*(A*b - a*B))/(
(b*d - a*e)^3*Sqrt[d + e*x]) - (2*b^(3/2)*(A*b - a*B)*ArcTanh[(Sq
```

```
rt[b]*Sqrt[d + e*x])/Sqrt[b*d - a*e]])/(b*d - a*e)^(7/2)
```

Maple [A] time = 0.02, size = 234, normalized size = 1.6

$$-\frac{2A}{5ae-5bd}(ex+d)^{-\frac{5}{2}}+\frac{2Bd}{5e(ae-bd)}(ex+d)^{-\frac{5}{2}}-2\frac{b^2A}{(ae-bd)^3\sqrt{ex+d}}+2\frac{Bba}{(ae-bd)^3\sqrt{ex+d}}+\frac{2Ab}{3(ae-bd)^2}(ex+d)^{-\frac{3}{2}}-\frac{2Ba}{3(ae-bd)^2}(ex+d)^{-\frac{3}{2}}-2\frac{b^3A}{(ae-bd)^3\sqrt{(ae-bd)b}}\arctan\left(\frac{\sqrt{ex+d}b}{\sqrt{(ae-bd)b}}\right)+2\frac{b^2Ba}{(ae-bd)^3\sqrt{(ae-bd)b}}\arctan\left(\frac{\sqrt{ex+d}b}{\sqrt{(ae-bd)b}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(b*x+a)/(e*x+d)^(7/2),x)
```

```
[Out] -2/5/(a*e-b*d)/(e*x+d)^(5/2)*A+2/5/e/(a*e-b*d)/(e*x+d)^(5/2)*B*d-
2/(a*e-b*d)^3*b^2/(e*x+d)^(1/2)*A+2/(a*e-b*d)^3*b/(e*x+d)^(1/2)*B
*a+2/3/(a*e-b*d)^2/(e*x+d)^(3/2)*A*b-2/3/(a*e-b*d)^2/(e*x+d)^(3/2
)*B*a-2*b^3/(a*e-b*d)^3/((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*
b/((a*e-b*d)*b)^(1/2))*A+2*b^2/(a*e-b*d)^3/((a*e-b*d)*b)^(1/2)*ar
ctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*B*a
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*(e*x + d)^(7/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.231961, size = 1, normalized size = 0.01

$$\left[-\frac{6Bb^2d^3-6Aa^2e^3+30\left(Bab-Ab^2\right)e^3x^2+2\left(14Bab-23Ab^2\right)d^2e-2\left(2Ba^2-11Aab\right)de^2-15\left(\left(Bab-Ab^2\right)e^3x^2+2\right.}{15\left(b^3d^5e-3ab^2d^4e^2+3a^2bd^3e^3-a^3d^2e^4+(b^3d^3e^3-3ab^2d\right.}\right.$$

$$-\frac{2\left(3Bb^2d^3-3Aa^2e^3+15\left(Bab-Ab^2\right)e^3x^2+\left(14Bab-23Ab^2\right)d^2e-\left(2Ba^2-11Aab\right)de^2-15\left(\left(Bab-Ab^2\right)e^3x^2+2\right.\right.}{15\left(b^3d^5e-3ab^2d^4e^2+3a^2bd^3e^3-a^3d^2e^4+(b^3d^3e^3-3ab^2d^2e^4+3\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*(e*x + d)^(7/2)),x, algorithm="fricas")
```

```
[Out] [-1/15*(6*B*b^2*d^3 - 6*A*a^2*e^3 + 30*(B*a*b - A*b^2)*e^3*x^2 +
2*(14*B*a*b - 23*A*b^2)*d^2*e - 2*(2*B*a^2 - 11*A*a*b)*d*e^2 - 15
*((B*a*b - A*b^2)*e^3*x^2 + 2*(B*a*b - A*b^2)*d*e^2*x + (B*a*b -
A*b^2)*d^2*e)*sqrt(e*x + d)*sqrt(b/(b*d - a*e))*log((b*e*x + 2*b*
d - a*e + 2*(b*d - a*e)*sqrt(e*x + d)*sqrt(b/(b*d - a*e)))/(b*x +
```

```
 a)) + 10*(7*(B*a*b - A*b^2)*d*e^2 - (B*a^2 - A*a*b)*e^3)*x)/((b^
3*d^5*e - 3*a*b^2*d^4*e^2 + 3*a^2*b*d^3*e^3 - a^3*d^2*e^4 + (b^3*
d^3*e^3 - 3*a*b^2*d^2*e^4 + 3*a^2*b*d*e^5 - a^3*e^6)*x^2 + 2*(b^3
*d^4*e^2 - 3*a*b^2*d^3*e^3 + 3*a^2*b*d^2*e^4 - a^3*d*e^5)*x)*sqrt
(e*x + d)), -2/15*(3*B*b^2*d^3 - 3*A*a^2*e^3 + 15*(B*a*b - A*b^2)
*e^3*x^2 + (14*B*a*b - 23*A*b^2)*d^2*e - (2*B*a^2 - 11*A*a*b)*d*e
^2 - 15*((B*a*b - A*b^2)*e^3*x^2 + 2*(B*a*b - A*b^2)*d*e^2*x + (B
*a*b - A*b^2)*d^2*e)*sqrt(e*x + d)*sqrt(-b/(b*d - a*e))*arctan(-(
b*d - a*e)*sqrt(-b/(b*d - a*e))/(sqrt(e*x + d)*b)) + 5*(7*(B*a*b
- A*b^2)*d*e^2 - (B*a^2 - A*a*b)*e^3)*x)/((b^3*d^5*e - 3*a*b^2*d^
4*e^2 + 3*a^2*b*d^3*e^3 - a^3*d^2*e^4 + (b^3*d^3*e^3 - 3*a*b^2*d^
2*e^4 + 3*a^2*b*d*e^5 - a^3*e^6)*x^2 + 2*(b^3*d^4*e^2 - 3*a*b^2*d
^3*e^3 + 3*a^2*b*d^2*e^4 - a^3*d*e^5)*x)*sqrt(e*x + d))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(b*x+a)/(e*x+d)**(7/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.220733, size = 383, normalized size = 2.54

$$-\frac{2\left(Bab^2 - Ab^3\right)\arctan\left(\frac{\sqrt{xe+d}b}{\sqrt{-b^2d+abe}}\right)}{\left(b^3d^3 - 3\,ab^2d^2e + 3\,a^2bde^2 - a^3e^3\right)\sqrt{-b^2d+abe}} - \frac{2\left(3\,Bb^2d^3 + 15\,(xe+d)^2Babe - 15\,(xe+d)^2Ab^2e + 5\,(xe+d)Babde - 5\,(xe+d)Ab^2de - 6\,Babd^2e - 3\,Ab^2d^2e - 5\,(xe+d\right.}{15\left(b^3d^3e - 3\,ab^2d^2e^2 + 3\,a^2bde^3 - a^3e^4\right)(xe+d)^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)*(e*x + d)^(7/2)),x, algorithm="giac")
```

```
[Out] -2*(B*a*b^2 - A*b^3)*arctan(sqrt(x*e + d)*b/sqrt(-b^2*d + a*b*e))
/((b^3*d^3 - 3*a*b^2*d^2*e + 3*a^2*b*d*e^2 - a^3*e^3)*sqrt(-b^2*d
 + a*b*e)) - 2/15*(3*B*b^2*d^3 + 15*(x*e + d)^2*B*a*b*e - 15*(x*e
 + d)^2*A*b^2*e + 5*(x*e + d)*B*a*b*d*e - 5*(x*e + d)*A*b^2*d*e -
 6*B*a*b*d^2*e - 3*A*b^2*d^2*e - 5*(x*e + d)*B*a^2*e^2 + 5*(x*e +
 d)*A*a*b*e^2 + 3*B*a^2*d*e^2 + 6*A*a*b*d*e^2 - 3*A*a^2*e^3)/((b^
3*d^3*e - 3*a*b^2*d^2*e^2 + 3*a^2*b*d*e^3 - a^3*e^4)*(x*e + d)^(5
/2))
```

3.1733 $\int \frac{(A+Bx)(d+ex)^{7/2}}{(a+bx)^2} \, dx$

Optimal. Leaf size=256

$$-\frac{(bd-ae)^{5/2}(-9aBe+7Abe+2bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{b^{11/2}}+\frac{\sqrt{d+ex}(bd-ae)^2(-9aBe+7Abe+2bBd)}{b^5}+\frac{(d+ex)^{3/2}(bd-ae)(-9aBe+7Abe+2bBd)}{3b^4}+\frac{(d+ex)^{5/2}(-9aBe+7Abe+2bBd)}{5b^3}+\frac{(d+ex)^{7/2}(-9aBe+7Abe+2bBd)}{7b^2(bd-ae)}-\frac{(d+ex)^{9/2}(Ab-aB)}{b(a+bx)(bd-ae)}$$

```
[Out] ((b*d - a*e)^2*(2*b*B*d + 7*A*b*e - 9*a*B*e)*Sqrt[d + e*x])/b^5 +
 ((b*d - a*e)*(2*b*B*d + 7*A*b*e - 9*a*B*e)*(d + e*x)^(3/2))/(3*b
^4) + ((2*b*B*d + 7*A*b*e - 9*a*B*e)*(d + e*x)^(5/2))/(5*b^3) + (
(2*b*B*d + 7*A*b*e - 9*a*B*e)*(d + e*x)^(7/2))/(7*b^2*(b*d - a*e)
) - ((A*b - a*B)*(d + e*x)^(9/2))/(b*(b*d - a*e)*(a + b*x)) - ((b
*d - a*e)^(5/2)*(2*b*B*d + 7*A*b*e - 9*a*B*e)*ArcTanh[(Sqrt[b]*Sq
rt[d + e*x])/Sqrt[b*d - a*e]])/b^(11/2)
```

Rubi [A] time = 0.564854, antiderivative size = 256, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{(bd-ae)^{5/2}(-9aBe+7Abe+2bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{b^{11/2}}+\frac{\sqrt{d+ex}(bd-ae)^2(-9aBe+7Abe+2bBd)}{b^5}+\frac{(d+ex)^{3/2}(bd-ae)(-9aBe+7Abe+2bBd)}{3b^4}+\frac{(d+ex)^{5/2}(-9aBe+7Abe+2bBd)}{5b^3}+\frac{(d+ex)^{7/2}(-9aBe+7Abe+2bBd)}{7b^2(bd-ae)}-\frac{(d+ex)^{9/2}(Ab-aB)}{b(a+bx)(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[((A + B*x)*(d + e*x)^(7/2))/(a + b*x)^2,x]
```


```
[Out] ((b*d - a*e)^2*(2*b*B*d + 7*A*b*e - 9*a*B*e)*Sqrt[d + e*x])/b^5 +
 ((b*d - a*e)*(2*b*B*d + 7*A*b*e - 9*a*B*e)*(d + e*x)^(3/2))/(3*b
^4) + ((2*b*B*d + 7*A*b*e - 9*a*B*e)*(d + e*x)^(5/2))/(5*b^3) + (
(2*b*B*d + 7*A*b*e - 9*a*B*e)*(d + e*x)^(7/2))/(7*b^2*(b*d - a*e)
) - ((A*b - a*B)*(d + e*x)^(9/2))/(b*(b*d - a*e)*(a + b*x)) - ((b
*d - a*e)^(5/2)*(2*b*B*d + 7*A*b*e - 9*a*B*e)*ArcTanh[(Sqrt[b]*Sq
rt[d + e*x])/Sqrt[b*d - a*e]])/b^(11/2)
```

Rubi in Sympy [A] time = 62.3861, size = 245, normalized size = 0.96

$$\frac{(d+ex)^{\frac{9}{2}}(Ab-Ba)}{b(a+bx)(ae-bd)}-\frac{(d+ex)^{\frac{7}{2}}(7Abe-9Bae+2Bbd)}{7b^2(ae-bd)}+\frac{(d+ex)^{\frac{5}{2}}(7Abe-9Bae+2Bbd)}{5b^3}-\frac{(d+ex)^{\frac{3}{2}}(ae-bd)(7Abe-9Bae+2Bbd)}{3b^4}+\frac{\sqrt{d+ex}(ae-bd)^2(7Abe-9Bae+2Bbd)}{b^5}-\frac{(ae-bd)^{\frac{5}{2}}(7Abe-9Bae+2Bbd)\,\mathrm{atan}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{ae-bd}}\right)}{b^{\frac{11}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(e*x+d)**(7/2)/(b*x+a)**2,x)
```

```
[Out] (d + e*x)**(9/2)*(A*b - B*a)/(b*(a + b*x)*(a*e - b*d)) - (d + e*x
)**(7/2)*(7*A*b*e - 9*B*a*e + 2*B*b*d)/(7*b**2*(a*e - b*d)) + (d
+ e*x)**(5/2)*(7*A*b*e - 9*B*a*e + 2*B*b*d)/(5*b**3) - (d + e*x)*
```

```
*(3/2)*(a*e - b*d)*(7*A*b*e - 9*B*a*e + 2*B*b*d)/(3*b**4) + sqrt(
d + e*x)*(a*e - b*d)**2*(7*A*b*e - 9*B*a*e + 2*B*b*d)/b**5 - (a*e
 - b*d)**(5/2)*(7*A*b*e - 9*B*a*e + 2*B*b*d)*atan(sqrt(b)*sqrt(d
+ e*x)/sqrt(a*e - b*d))/b**(11/2)
```

Mathematica [A] time = 1.31201, size = 252, normalized size = 0.98

$$\frac{\sqrt{d+ex}\left(-840a^3Be^3+2bex\left(105a^2Be^2-14abe(5Ae+16Bd)+2b^2d(56Ae+61Bd)\right)+210a^2be^2(3Ae+10Bd)+6b^2e^2x^2(-1\right.}{105b^5}$$
$$-\frac{(bd-ae)^{5/2}(-9aBe+7Abe+2bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{b^{11/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((A + B*x)*(d + e*x)^(7/2))/(a + b*x)^2,x]
```

```
[Out] (Sqrt[d + e*x]*(-840*a^3*B*e^3 + 210*a^2*b*e^2*(10*B*d + 3*A*e) -
 56*a*b^2*d*e*(29*B*d + 25*A*e) + 4*b^3*d^2*(88*B*d + 203*A*e) +
2*b*e*(105*a^2*B*e^2 - 14*a*b*e*(16*B*d + 5*A*e) + 2*b^2*d*(61*B*
d + 56*A*e))*x + 6*b^2*e^2*(22*b*B*d + 7*A*b*e - 14*a*B*e)*x^2 +
30*b^3*B*e^3*x^3 - (105*(A*b - a*B)*(b*d - a*e)^3)/(a + b*x)))/(1
05*b^5) - ((b*d - a*e)^(5/2)*(2*b*B*d + 7*A*b*e - 9*a*B*e)*ArcTan
h[(Sqrt[b]*Sqrt[d + e*x])/Sqrt[b*d - a*e]])/b^(11/2)
```

Maple [B] time = 0.031, size = 915, normalized size = 3.6

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(e*x+d)^(7/2)/(b*x+a)^2,x)
```

```
[Out] 2/b/((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2
))*B*d^4-4/3/b^3*A*(e*x+d)^(3/2)*a*e^2+4/3/b^2*A*(e*x+d)^(3/2)*d*
e+2/b^4*B*(e*x+d)^(3/2)*a^2*e^2+6/b^4*A*a^2*e^3*(e*x+d)^(1/2)+6/b
^2*A*d^2*e*(e*x+d)^(1/2)-8/b^5*B*a^3*e^3*(e*x+d)^(1/2)+2/b^2*B*d^
3*(e*x+d)^(1/2)+2/5/b^2*B*(e*x+d)^(5/2)*d+2/3/b^2*B*(e*x+d)^(3/2)
*d^2+2/5/b^2*A*(e*x+d)^(5/2)*e+2/7/b^2*B*(e*x+d)^(7/2)+3/b^2*(e*x
+d)^(1/2)/(b*e*x+a*e)*A*a*d^2*e^2+3/b^4*(e*x+d)^(1/2)/(b*e*x+a*e)
*B*a^3*d*e^3-3/b^3*(e*x+d)^(1/2)/(b*e*x+a*e)*B*a^2*d^2*e^2+1/b^2*
(e*x+d)^(1/2)/(b*e*x+a*e)*B*a*d^3*e+21/b^3/((a*e-b*d)*b)^(1/2)*ar
ctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*A*a^2*d*e^3-21/b^2/((a*
e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*A*a*d
^2*e^2-29/b^4/((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*
d)*b)^(1/2))*B*a^3*d*e^3+33/b^3/((a*e-b*d)*b)^(1/2)*arctan((e*x+d
)^(1/2)*b/((a*e-b*d)*b)^(1/2))*B*a^2*d^2*e^2-15/b^2/((a*e-b*d)*b)
^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*B*a*d^3*e-12/b
^3*A*a*d*e^2*(e*x+d)^(1/2)+18/b^4*B*a^2*d*e^2*(e*x+d)^(1/2)-12/b^
3*B*a*d^2*e*(e*x+d)^(1/2)+9/b^5/((a*e-b*d)*b)^(1/2)*arctan((e*x+d
)^(1/2)*b/((a*e-b*d)*b)^(1/2))*B*a^4*e^4+1/b^4*(e*x+d)^(1/2)/(b*e
*x+a*e)*A*a^3*e^4-1/b*(e*x+d)^(1/2)/(b*e*x+a*e)*A*d^3*e-1/b^5*(e*
x+d)^(1/2)/(b*e*x+a*e)*B*a^4*e^4-7/b^4/((a*e-b*d)*b)^(1/2)*arctan
((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*A*a^3*e^4+7/b/((a*e-b*d)*b)
^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*A*d^3*e-8/3/b^
3*B*(e*x+d)^(3/2)*a*d*e-3/b^3*(e*x+d)^(1/2)/(b*e*x+a*e)*A*a^2*d*e
^3-4/5/b^3*B*(e*x+d)^(5/2)*a*e
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^(7/2)/(b*x + a)^2,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.231991, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^(7/2)/(b*x + a)^2,x, algorithm="fricas")
```

```
[Out] [1/210*(105*(2*B*a*b^3*d^3 - (13*B*a^2*b^2 - 7*A*a*b^3)*d^2*e + 2
*(10*B*a^3*b - 7*A*a^2*b^2)*d*e^2 - (9*B*a^4 - 7*A*a^3*b)*e^3 + (
2*B*b^4*d^3 - (13*B*a*b^3 - 7*A*b^4)*d^2*e + 2*(10*B*a^2*b^2 - 7*
A*a*b^3)*d*e^2 - (9*B*a^3*b - 7*A*a^2*b^2)*e^3)*x)*sqrt((b*d - a*
e)/b)*log((b*e*x + 2*b*d - a*e - 2*sqrt(e*x + d)*b*sqrt((b*d - a*
e)/b))/(b*x + a)) + 2*(30*B*b^4*e^3*x^4 + (457*B*a*b^3 - 105*A*b^
4)*d^3 - 7*(277*B*a^2*b^2 - 161*A*a*b^3)*d^2*e + 35*(69*B*a^3*b -
 49*A*a^2*b^2)*d*e^2 - 105*(9*B*a^4 - 7*A*a^3*b)*e^3 + 6*(22*B*b^
4*d*e^2 - (9*B*a*b^3 - 7*A*b^4)*e^3)*x^3 + 2*(122*B*b^4*d^2*e - 2
*(79*B*a*b^3 - 56*A*b^4)*d*e^2 + 7*(9*B*a^2*b^2 - 7*A*a*b^3)*e^3)
*x^2 + 2*(176*B*b^4*d^3 - 2*(345*B*a*b^3 - 203*A*b^4)*d^2*e + 14*
(59*B*a^2*b^2 - 42*A*a*b^3)*d*e^2 - 35*(9*B*a^3*b - 7*A*a^2*b^2)*
e^3)*x)*sqrt(e*x + d))/(b^6*x + a*b^5), -1/105*(105*(2*B*a*b^3*d^
3 - (13*B*a^2*b^2 - 7*A*a*b^3)*d^2*e + 2*(10*B*a^3*b - 7*A*a^2*b^
2)*d*e^2 - (9*B*a^4 - 7*A*a^3*b)*e^3 + (2*B*b^4*d^3 - (13*B*a*b^3
 - 7*A*b^4)*d^2*e + 2*(10*B*a^2*b^2 - 7*A*a*b^3)*d*e^2 - (9*B*a^3
*b - 7*A*a^2*b^2)*e^3)*x)*sqrt(-(b*d - a*e)/b)*arctan(sqrt(e*x +
d)/sqrt(-(b*d - a*e)/b)) - (30*B*b^4*e^3*x^4 + (457*B*a*b^3 - 105
*A*b^4)*d^3 - 7*(277*B*a^2*b^2 - 161*A*a*b^3)*d^2*e + 35*(69*B*a^
3*b - 49*A*a^2*b^2)*d*e^2 - 105*(9*B*a^4 - 7*A*a^3*b)*e^3 + 6*(22
*B*b^4*d*e^2 - (9*B*a*b^3 - 7*A*b^4)*e^3)*x^3 + 2*(122*B*b^4*d^2*
e - 2*(79*B*a*b^3 - 56*A*b^4)*d*e^2 + 7*(9*B*a^2*b^2 - 7*A*a*b^3)
*e^3)*x^2 + 2*(176*B*b^4*d^3 - 2*(345*B*a*b^3 - 203*A*b^4)*d^2*e
+ 14*(59*B*a^2*b^2 - 42*A*a*b^3)*d*e^2 - 35*(9*B*a^3*b - 7*A*a^2*
b^2)*e^3)*x)*sqrt(e*x + d))/(b^6*x + a*b^5)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(e*x+d)**(7/2)/(b*x+a)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.231603, size = 815, normalized size = 3.18

$$\frac{\left(2\,Bb^4d^4 - 15\,Bab^3d^3e + 7\,Ab^4d^3e + 33\,Ba^2b^2d^2e^2 - 21\,Aab^3d^2e^2 - 29\,Ba^3bde^3 + 21\,Aa^2b^2de^3 + 9\,Ba^4e^4 - 7\,Aa^3be^4\right)\arctan}{\sqrt{-b^2d + abe}b^5} + \frac{\sqrt{xe + d}Bab^3d^3e - \sqrt{xe + d}Ab^4d^3e - 3\,\sqrt{xe + d}Ba^2b^2d^2e^2 + 3\,\sqrt{xe + d}Aab^3d^2e^2 + 3\,\sqrt{xe + d}Ba^3bde^3 - 3\,\sqrt{xe + d}Aa^2b^2de^3}{((xe + d)b - bd + ae)b^5} + \frac{2\left(15\,(xe + d)^{\frac{7}{2}}Bb^{12} + 21\,(xe + d)^{\frac{5}{2}}Bb^{12}d + 35\,(xe + d)^{\frac{3}{2}}Bb^{12}d^2 + 105\,\sqrt{xe + d}Bb^{12}d^3 - 42\,(xe + d)^{\frac{5}{2}}Bab^{11}e + 21\,(xe + d)^{\frac{5}{2}}Ab\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^(7/2)/(b*x + a)^2,x, algorithm="giac")
```

```
[Out] (2*B*b^4*d^4 - 15*B*a*b^3*d^3*e + 7*A*b^4*d^3*e + 33*B*a^2*b^2*d^
2*e^2 - 21*A*a*b^3*d^2*e^2 - 29*B*a^3*b*d*e^3 + 21*A*a^2*b^2*d*e^
3 + 9*B*a^4*e^4 - 7*A*a^3*b*e^4)*arctan(sqrt(x*e + d)*b/sqrt(-b^2
*d + a*b*e))/(sqrt(-b^2*d + a*b*e)*b^5) + (sqrt(x*e + d)*B*a*b^3*
d^3*e - sqrt(x*e + d)*A*b^4*d^3*e - 3*sqrt(x*e + d)*B*a^2*b^2*d^2
*e^2 + 3*sqrt(x*e + d)*A*a*b^3*d^2*e^2 + 3*sqrt(x*e + d)*B*a^3*b*
d*e^3 - 3*sqrt(x*e + d)*A*a^2*b^2*d*e^3 - sqrt(x*e + d)*B*a^4*e^4
 + sqrt(x*e + d)*A*a^3*b*e^4)/(((x*e + d)*b - b*d + a*e)*b^5) + 2
/105*(15*(x*e + d)^(7/2)*B*b^12 + 21*(x*e + d)^(5/2)*B*b^12*d + 3
5*(x*e + d)^(3/2)*B*b^12*d^2 + 105*sqrt(x*e + d)*B*b^12*d^3 - 42*
(x*e + d)^(5/2)*B*a*b^11*e + 21*(x*e + d)^(5/2)*A*b^12*e - 140*(x
*e + d)^(3/2)*B*a*b^11*d*e + 70*(x*e + d)^(3/2)*A*b^12*d*e - 630*
sqrt(x*e + d)*B*a*b^11*d^2*e + 315*sqrt(x*e + d)*A*b^12*d^2*e + 1
05*(x*e + d)^(3/2)*B*a^2*b^10*e^2 - 70*(x*e + d)^(3/2)*A*a*b^11*e
^2 + 945*sqrt(x*e + d)*B*a^2*b^10*d*e^2 - 630*sqrt(x*e + d)*A*a*b
^11*d*e^2 - 420*sqrt(x*e + d)*B*a^3*b^9*e^3 + 315*sqrt(x*e + d)*A
*a^2*b^10*e^3)/b^14
```

3.1734 $\int \frac{(A+Bx)(d+ex)^{5/2}}{(a+bx)^2}\,dx$

Optimal. Leaf size=214

$$-\frac{(bd-ae)^{3/2}(-7aBe+5Abe+2bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{b^{9/2}}+\frac{\sqrt{d+ex}(bd-ae)(-7aBe+5Abe+2bBd)}{b^4}+\frac{(d+ex)^{3/2}(-7aBe+5Abe+2bBd)}{3b^3}+\frac{(d+ex)^{5/2}(-7aBe+5Abe+2bBd)}{5b^2(bd-ae)}-\frac{(d+ex)^{7/2}(Ab-aB)}{b(a+bx)(bd-ae)}$$

```
[Out] ((b*d - a*e)*(2*b*B*d + 5*A*b*e - 7*a*B*e)*Sqrt[d + e*x])/b^4 + (
(2*b*B*d + 5*A*b*e - 7*a*B*e)*(d + e*x)^(3/2))/(3*b^3) + ((2*b*B*
d + 5*A*b*e - 7*a*B*e)*(d + e*x)^(5/2))/(5*b^2*(b*d - a*e)) - ((A
*b - a*B)*(d + e*x)^(7/2))/(b*(b*d - a*e)*(a + b*x)) - ((b*d - a*
e)^(3/2)*(2*b*B*d + 5*A*b*e - 7*a*B*e)*ArcTanh[(Sqrt[b]*Sqrt[d +
e*x])/Sqrt[b*d - a*e]])/b^(9/2)
```

Rubi [A] time = 0.480962, antiderivative size = 214, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{(bd-ae)^{3/2}(-7aBe+5Abe+2bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{b^{9/2}}+\frac{\sqrt{d+ex}(bd-ae)(-7aBe+5Abe+2bBd)}{b^4}+\frac{(d+ex)^{3/2}(-7aBe+5Abe+2bBd)}{3b^3}+\frac{(d+ex)^{5/2}(-7aBe+5Abe+2bBd)}{5b^2(bd-ae)}-\frac{(d+ex)^{7/2}(Ab-aB)}{b(a+bx)(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[((A + B*x)*(d + e*x)^(5/2))/(a + b*x)^2,x]
```

```
[Out] ((b*d - a*e)*(2*b*B*d + 5*A*b*e - 7*a*B*e)*Sqrt[d + e*x])/b^4 + (
(2*b*B*d + 5*A*b*e - 7*a*B*e)*(d + e*x)^(3/2))/(3*b^3) + ((2*b*B*
d + 5*A*b*e - 7*a*B*e)*(d + e*x)^(5/2))/(5*b^2*(b*d - a*e)) - ((A
*b - a*B)*(d + e*x)^(7/2))/(b*(b*d - a*e)*(a + b*x)) - ((b*d - a*
e)^(3/2)*(2*b*B*d + 5*A*b*e - 7*a*B*e)*ArcTanh[(Sqrt[b]*Sqrt[d +
e*x])/Sqrt[b*d - a*e]])/b^(9/2)
```

Rubi in Sympy [A] time = 49.0773, size = 202, normalized size = 0.94

$$\frac{(d+ex)^{\frac{7}{2}}(Ab-Ba)}{b(a+bx)(ae-bd)}-\frac{(d+ex)^{\frac{5}{2}}(5Abe-7Bae+2Bbd)}{5b^2(ae-bd)}+\frac{(d+ex)^{\frac{3}{2}}(5Abe-7Bae+2Bbd)}{3b^3}-\frac{\sqrt{d+ex}(ae-bd)(5Abe-7Bae+2Bbd)}{b^4}+\frac{(ae-bd)^{\frac{3}{2}}(5Abe-7Bae+2Bbd)\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{ae-bd}}\right)}{b^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(e*x+d)**(5/2)/(b*x+a)**2,x)
```

```
[Out] (d + e*x)**(7/2)*(A*b - B*a)/(b*(a + b*x)*(a*e - b*d)) - (d + e*x
)**(5/2)*(5*A*b*e - 7*B*a*e + 2*B*b*d)/(5*b**2*(a*e - b*d)) + (d
+ e*x)**(3/2)*(5*A*b*e - 7*B*a*e + 2*B*b*d)/(3*b**3) - sqrt(d + e
*x)*(a*e - b*d)*(5*A*b*e - 7*B*a*e + 2*B*b*d)/b**4 + (a*e - b*d)*
*(3/2)*(5*A*b*e - 7*B*a*e + 2*B*b*d)*atan(sqrt(b)*sqrt(d + e*x)/s
qrt(a*e - b*d))/b**(9/2)
```

Mathematica [A] time = 0.652234, size = 179, normalized size = 0.84

$$\frac{\sqrt{d+ex}\left(90a^2Be^2+2bex(-10aBe+5Abe+11bBd)-\frac{15(Ab-aB)(bd-ae)^2}{a+bx}-20abe(3Ae+7Bd)+2b^2d(35Ae+23Bd)+6b^2Be^2\right.}{15b^4}$$
$$-\frac{(bd-ae)^{3/2}(-7aBe+5Abe+2bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{b^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((A + B*x)*(d + e*x)^(5/2))/(a + b*x)^2,x]
```

```
[Out] (Sqrt[d + e*x]*(90*a^2*B*e^2 - 20*a*b*e*(7*B*d + 3*A*e) + 2*b^2*d
*(23*B*d + 35*A*e) + 2*b*e*(11*b*B*d + 5*A*b*e - 10*a*B*e)*x + 6*
b^2*B*e^2*x^2 - (15*(A*b - a*B)*(b*d - a*e)^2)/(a + b*x)))/(15*b^
4) - ((b*d - a*e)^(3/2)*(2*b*B*d + 5*A*b*e - 7*a*B*e)*ArcTanh[(Sq
rt[b]*Sqrt[d + e*x])/Sqrt[b*d - a*e]])/b^(9/2)
```

Maple [B] time = 0.025, size = 626, normalized size = 2.9

$$\frac{2B}{5b^2}(ex+d)^{\frac{5}{2}}+\frac{2Ae}{3b^2}(ex+d)^{\frac{3}{2}}-\frac{4Bae}{3b^3}(ex+d)^{\frac{3}{2}}+\frac{2Bd}{3b^2}(ex+d)^{\frac{3}{2}}-4\frac{aAe^2\sqrt{ex+d}}{b^3}$$
$$+4\frac{Ade\sqrt{ex+d}}{b^2}+6\frac{Ba^2e^2\sqrt{ex+d}}{b^4}-8\frac{Bade\sqrt{ex+d}}{b^3}+2\frac{Bd^2\sqrt{ex+d}}{b^2}$$
$$-\frac{Aa^2e^3}{b^3(bxe+ae)}\sqrt{ex+d}+2\frac{\sqrt{ex+d}Aade^2}{b^2(bxe+ae)}-\frac{Ad^2e}{b(bxe+ae)}\sqrt{ex+d}+\frac{Ba^3e^3}{b^4(bxe+ae)}\sqrt{ex+d}$$
$$-2\frac{\sqrt{ex+d}Ba^2de^2}{b^3(bxe+ae)}+\frac{Bad^2e}{b^2(bxe+ae)}\sqrt{ex+d}+5\frac{Aa^2e^3}{b^3\sqrt{(ae-bd)b}}\arctan\left(\frac{\sqrt{ex+d}b}{\sqrt{(ae-bd)b}}\right)$$
$$-10\frac{aAde^2}{b^2\sqrt{(ae-bd)b}}\arctan\left(\frac{\sqrt{ex+d}b}{\sqrt{(ae-bd)b}}\right)+5\frac{Ad^2e}{b\sqrt{(ae-bd)b}}\arctan\left(\frac{\sqrt{ex+d}b}{\sqrt{(ae-bd)b}}\right)$$
$$-7\frac{Ba^3e^3}{b^4\sqrt{(ae-bd)b}}\arctan\left(\frac{\sqrt{ex+d}b}{\sqrt{(ae-bd)b}}\right)+16\frac{Ba^2de^2}{b^3\sqrt{(ae-bd)b}}\arctan\left(\frac{\sqrt{ex+d}b}{\sqrt{(ae-bd)b}}\right)$$
$$-11\frac{Bad^2e}{b^2\sqrt{(ae-bd)b}}\arctan\left(\frac{\sqrt{ex+d}b}{\sqrt{(ae-bd)b}}\right)+2\frac{Bd^3}{b\sqrt{(ae-bd)b}}\arctan\left(\frac{\sqrt{ex+d}b}{\sqrt{(ae-bd)b}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(e*x+d)^(5/2)/(b*x+a)^2,x)
```

```
[Out] 2/5/b^2*B*(e*x+d)^(5/2)+2/3/b^2*A*(e*x+d)^(3/2)*e-4/3/b^3*B*(e*x+
d)^(3/2)*a*e+2/3/b^2*B*(e*x+d)^(3/2)*d-4/b^3*A*a*e^2*(e*x+d)^(1/2
)+4/b^2*A*d*e*(e*x+d)^(1/2)+6/b^4*B*a^2*e^2*(e*x+d)^(1/2)-8/b^3*B
*a*d*e*(e*x+d)^(1/2)+2/b^2*B*d^2*(e*x+d)^(1/2)-1/b^3*(e*x+d)^(1/2
)/(b*e*x+a*e)*A*a^2*e^3+2/b^2*(e*x+d)^(1/2)/(b*e*x+a*e)*A*a*d*e^2
-1/b*(e*x+d)^(1/2)/(b*e*x+a*e)*A*d^2*e+1/b^4*(e*x+d)^(1/2)/(b*e*x
+a*e)*B*a^3*e^3-2/b^3*(e*x+d)^(1/2)/(b*e*x+a*e)*B*a^2*d*e^2+1/b^2
*(e*x+d)^(1/2)/(b*e*x+a*e)*B*a*d^2*e+5/b^3/((a*e-b*d)*b)^(1/2)*ar
ctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*A*a^2*e^3-10/b^2/((a*e-
b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*A*a*d*e
^2+5/b/((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(
1/2))*A*d^2*e-7/b^4/((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*b/((
a*e-b*d)*b)^(1/2))*B*a^3*e^3+16/b^3/((a*e-b*d)*b)^(1/2)*arctan((e
*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*B*a^2*d*e^2-11/b^2/((a*e-b*d)*
b)^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*B*a*d^2*e+2/
b/((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))
*B*d^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(e*x + d)^(5/2)/(b*x + a)^2,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.228565, size = 1, normalized size = 0.

$$\left[-\frac{15\left(2\,Bab^2d^2-\left(9\,Ba^2b-5\,Aab^2\right)de+\left(7\,Ba^3-5\,Aa^2b\right)e^2+\left(2\,Bb^3d^2-\left(9\,Bab^2-5\,Ab^3\right)de+\left(7\,Ba^2b-5\,Aab^2\right)e^2\right)x\right)\sqrt{\cdots}}{\cdots}\right.$$

$$-\frac{15\left(2\,Bab^2d^2-\left(9\,Ba^2b-5\,Aab^2\right)de+\left(7\,Ba^3-5\,Aa^2b\right)e^2+\left(2\,Bb^3d^2-\left(9\,Bab^2-5\,Ab^3\right)de+\left(7\,Ba^2b-5\,Aab^2\right)e^2\right)x\right)\sqrt{-\cdots}}{\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(e*x + d)^(5/2)/(b*x + a)^2,x, algorithm="fricas")
```

```
[Out] [-1/30*(15*(2*B*a*b^2*d^2 - (9*B*a^2*b - 5*A*a*b^2)*d*e + (7*B*a^
3 - 5*A*a^2*b)*e^2 + (2*B*b^3*d^2 - (9*B*a*b^2 - 5*A*b^3)*d*e + (
7*B*a^2*b - 5*A*a*b^2)*e^2)*x)*sqrt((b*d - a*e)/b)*log((b*e*x + 2
*b*d - a*e + 2*sqrt(e*x + d)*b*sqrt((b*d - a*e)/b))/(b*x + a)) -
2*(6*B*b^3*e^2*x^3 + (61*B*a*b^2 - 15*A*b^3)*d^2 - 10*(17*B*a^2*b
 - 10*A*a*b^2)*d*e + 15*(7*B*a^3 - 5*A*a^2*b)*e^2 + 2*(11*B*b^3*d
*e - (7*B*a*b^2 - 5*A*b^3)*e^2)*x^2 + 2*(23*B*b^3*d^2 - (59*B*a*b
^2 - 35*A*b^3)*d*e + 5*(7*B*a^2*b - 5*A*a*b^2)*e^2)*x)*sqrt(e*x +
 d))/(b^5*x + a*b^4), -1/15*(15*(2*B*a*b^2*d^2 - (9*B*a^2*b - 5*A
*a*b^2)*d*e + (7*B*a^3 - 5*A*a^2*b)*e^2 + (2*B*b^3*d^2 - (9*B*a*b
^2 - 5*A*b^3)*d*e + (7*B*a^2*b - 5*A*a*b^2)*e^2)*x)*sqrt(-(b*d -
a*e)/b)*arctan(sqrt(e*x + d)/sqrt(-(b*d - a*e)/b)) - (6*B*b^3*e^2
*x^3 + (61*B*a*b^2 - 15*A*b^3)*d^2 - 10*(17*B*a^2*b - 10*A*a*b^2)
*d*e + 15*(7*B*a^3 - 5*A*a^2*b)*e^2 + 2*(11*B*b^3*d*e - (7*B*a*b^
2 - 5*A*b^3)*e^2)*x^2 + 2*(23*B*b^3*d^2 - (59*B*a*b^2 - 35*A*b^3)
*d*e + 5*(7*B*a^2*b - 5*A*a*b^2)*e^2)*x)*sqrt(e*x + d))/(b^5*x +
a*b^4)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(e*x+d)**(5/2)/(b*x+a)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.222899, size = 540, normalized size = 2.52

$$\frac{\left(2\,Bb^3d^3-11\,Bab^2d^2e+5\,Ab^3d^2e+16\,Ba^2bde^2-10\,Aab^2de^2-7\,Ba^3e^3+5\,Aa^2be^3\right)\arctan\left(\frac{\sqrt{xe+d}b}{\sqrt{-b^2d+abe}}\right)}{\sqrt{-b^2d+abe}b^4}$$
$$+\frac{\sqrt{xe+d}Bab^2d^2e-\sqrt{xe+d}Ab^3d^2e-2\,\sqrt{xe+d}Ba^2bde^2+2\,\sqrt{xe+d}Aab^2de^2+\sqrt{xe+d}Ba^3e^3-\sqrt{xe+d}Aa^2be^3}{((xe+d)b-bd+ae)b^4}$$
$$+\frac{2\left(3\,(xe+d)^{\frac{5}{2}}Bb^8+5\,(xe+d)^{\frac{3}{2}}Bb^8d+15\,\sqrt{xe+d}Bb^8d^2-10\,(xe+d)^{\frac{3}{2}}Bab^7e+5\,(xe+d)^{\frac{3}{2}}Ab^8e-60\,\sqrt{xe+d}Bab^7de+30\,\cdots\right.}{15\,b^{10}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^(5/2)/(b*x + a)^2,x, algorithm="giac")
```

```
[Out] (2*B*b^3*d^3 - 11*B*a*b^2*d^2*e + 5*A*b^3*d^2*e + 16*B*a^2*b*d*e^
2 - 10*A*a*b^2*d*e^2 - 7*B*a^3*e^3 + 5*A*a^2*b*e^3)*arctan(sqrt(x
*e + d)*b/sqrt(-b^2*d + a*b*e))/(sqrt(-b^2*d + a*b*e)*b^4) + (sqr
t(x*e + d)*B*a*b^2*d^2*e - sqrt(x*e + d)*A*b^3*d^2*e - 2*sqrt(x*e
 + d)*B*a^2*b*d*e^2 + 2*sqrt(x*e + d)*A*a*b^2*d*e^2 + sqrt(x*e +
d)*B*a^3*e^3 - sqrt(x*e + d)*A*a^2*b*e^3)/(((x*e + d)*b - b*d + a
*e)*b^4) + 2/15*(3*(x*e + d)^(5/2)*B*b^8 + 5*(x*e + d)^(3/2)*B*b^
8*d + 15*sqrt(x*e + d)*B*b^8*d^2 - 10*(x*e + d)^(3/2)*B*a*b^7*e +
 5*(x*e + d)^(3/2)*A*b^8*e - 60*sqrt(x*e + d)*B*a*b^7*d*e + 30*sq
rt(x*e + d)*A*b^8*d*e + 45*sqrt(x*e + d)*B*a^2*b^6*e^2 - 30*sqrt(
x*e + d)*A*a*b^7*e^2)/b^10
```

3.1735 $\int \frac{(A+Bx)(d+ex)^{3/2}}{(a+bx)^2} dx$

Optimal. Leaf size=174

$$-\frac{\sqrt{bd-ae}(-5aBe+3Abe+2bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{b^{7/2}}+\frac{\sqrt{d+ex}(-5aBe+3Abe+2bBd)}{b^3}+\frac{(d+ex)^{3/2}(-5aBe+3Abe+2bBd)}{3b^2(bd-ae)}-\frac{(d+ex)^{5/2}(Ab-aB)}{b(a+bx)(bd-ae)}$$

```
[Out] ((2*b*B*d + 3*A*b*e - 5*a*B*e)*Sqrt[d + e*x])/b^3 + ((2*b*B*d + 3
*A*b*e - 5*a*B*e)*(d + e*x)^(3/2))/(3*b^2*(b*d - a*e)) - ((A*b -
a*B)*(d + e*x)^(5/2))/(b*(b*d - a*e)*(a + b*x)) - (Sqrt[b*d - a*e
]*(2*b*B*d + 3*A*b*e - 5*a*B*e)*ArcTanh[(Sqrt[b]*Sqrt[d + e*x])/S
qrt[b*d - a*e]])/b^(7/2)
```

Rubi [A] time = 0.342787, antiderivative size = 174, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.182$

$$-\frac{\sqrt{bd-ae}(-5aBe+3Abe+2bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{b^{7/2}}+\frac{\sqrt{d+ex}(-5aBe+3Abe+2bBd)}{b^3}+\frac{(d+ex)^{3/2}(-5aBe+3Abe+2bBd)}{3b^2(bd-ae)}-\frac{(d+ex)^{5/2}(Ab-aB)}{b(a+bx)(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[((A + B*x)*(d + e*x)^(3/2))/(a + b*x)^2,x]
```

```
[Out] ((2*b*B*d + 3*A*b*e - 5*a*B*e)*Sqrt[d + e*x])/b^3 + ((2*b*B*d + 3
*A*b*e - 5*a*B*e)*(d + e*x)^(3/2))/(3*b^2*(b*d - a*e)) - ((A*b -
a*B)*(d + e*x)^(5/2))/(b*(b*d - a*e)*(a + b*x)) - (Sqrt[b*d - a*e
]*(2*b*B*d + 3*A*b*e - 5*a*B*e)*ArcTanh[(Sqrt[b]*Sqrt[d + e*x])/S
qrt[b*d - a*e]])/b^(7/2)
```

Rubi in Sympy [A] time = 40.464, size = 162, normalized size = 0.93

$$\frac{(d+ex)^{\frac{5}{2}}(Ab-Ba)}{b(a+bx)(ae-bd)}-\frac{(d+ex)^{\frac{3}{2}}(3Abe-5Bae+2Bbd)}{3b^2(ae-bd)}+\frac{\sqrt{d+ex}(3Abe-5Bae+2Bbd)}{b^3}-\frac{\sqrt{ae-bd}(3Abe-5Bae+2Bbd)\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{ae-bd}}\right)}{b^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(e*x+d)**(3/2)/(b*x+a)**2,x)
```

```
[Out] (d + e*x)**(5/2)*(A*b - B*a)/(b*(a + b*x)*(a*e - b*d)) - (d + e*x
)**(3/2)*(3*A*b*e - 5*B*a*e + 2*B*b*d)/(3*b**2*(a*e - b*d)) + sqr
t(d + e*x)*(3*A*b*e - 5*B*a*e + 2*B*b*d)/b**3 - sqrt(a*e - b*d)*(
3*A*b*e - 5*B*a*e + 2*B*b*d)*atan(sqrt(b)*sqrt(d + e*x)/sqrt(a*e
- b*d))/b**(7/2)
```

Mathematica [A] time = 0.322288, size = 127, normalized size = 0.73

$$\frac{\sqrt{d+ex}\left(-\frac{3(Ab-aB)(bd-ae)}{a+bx}-12aBe+6Abe+8bBd+2bBex\right)}{3b^3}-\frac{\sqrt{bd-ae}(-5aBe+3Abe+2bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{b^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((A + B*x)*(d + e*x)^(3/2))/(a + b*x)^2,x]
```

```
[Out] (Sqrt[d + e*x]*(8*b*B*d + 6*A*b*e - 12*a*B*e + 2*b*B*e*x - (3*(A*
b - a*B)*(b*d - a*e))/(a + b*x)))/(3*b^3) - (Sqrt[b*d - a*e]*(2*b
*B*d + 3*A*b*e - 5*a*B*e)*ArcTanh[(Sqrt[b]*Sqrt[d + e*x])/Sqrt[b*
d - a*e]])/b^(7/2)
```

Maple [B] time = 0.024, size = 381, normalized size = 2.2

$$\frac{2B}{3b^2}(ex+d)^{\frac{3}{2}}+2\frac{Ae\sqrt{ex+d}}{b^2}-4\frac{Bae\sqrt{ex+d}}{b^3}+2\frac{Bd\sqrt{ex+d}}{b^2}+\frac{aAe^2}{b^2(bxe+ae)}\sqrt{ex+d}-\frac{Ade}{b(bxe+ae)}\sqrt{ex+d}-\frac{Ba^2e^2}{b^3(bxe+ae)}\sqrt{ex+d}+\frac{Bade}{b^2(bxe+ae)}\sqrt{ex+d}-3\frac{aAe^2}{b^2\sqrt{(ae-bd)b}}\arctan\left(\frac{\sqrt{ex+d}b}{\sqrt{(ae-bd)b}}\right)+3\frac{Ade}{b\sqrt{(ae-bd)b}}\arctan\left(\frac{\sqrt{ex+d}b}{\sqrt{(ae-bd)b}}\right)+5\frac{Ba^2e^2}{b^3\sqrt{(ae-bd)b}}\arctan\left(\frac{\sqrt{ex+d}b}{\sqrt{(ae-bd)b}}\right)-7\frac{Bade}{b^2\sqrt{(ae-bd)b}}\arctan\left(\frac{\sqrt{ex+d}b}{\sqrt{(ae-bd)b}}\right)+2\frac{Bd^2}{b\sqrt{(ae-bd)b}}\arctan\left(\frac{\sqrt{ex+d}b}{\sqrt{(ae-bd)b}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(e*x+d)^(3/2)/(b*x+a)^2,x)
```

```
[Out] 2/3/b^2*B*(e*x+d)^(3/2)+2/b^2*A*e*(e*x+d)^(1/2)-4/b^3*B*a*e*(e*x+
d)^(1/2)+2/b^2*B*d*(e*x+d)^(1/2)+1/b^2*(e*x+d)^(1/2)/(b*e*x+a*e)*
A*a*e^2-1/b*(e*x+d)^(1/2)/(b*e*x+a*e)*A*d*e-1/b^3*(e*x+d)^(1/2)/(
b*e*x+a*e)*B*a^2*e^2+1/b^2*(e*x+d)^(1/2)/(b*e*x+a*e)*B*a*d*e-3/b^
2/((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))
*A*a*e^2+3/b/((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*d
)*b)^(1/2))*A*d*e+5/b^3/((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*
b/((a*e-b*d)*b)^(1/2))*B*a^2*e^2-7/b^2/((a*e-b*d)*b)^(1/2)*arctan
((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*B*a*d*e+2/b/((a*e-b*d)*b)^(
1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*B*d^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^(3/2)/(b*x + a)^2,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.22373, size = 1, normalized size = 0.01

$$\left[\frac{3\left(2\,Babd-\left(5\,Ba^{2}-3\,Aab\right)e+\left(2\,Bb^{2}d-\left(5\,Bab-3\,Ab^{2}\right)e\right)x\right)\sqrt{\frac{bd-ae}{b}}\log\left(\frac{bex+2\,bd-ae-2\,\sqrt{ex+d}b\sqrt{\frac{bd-ae}{b}}}{bx+a}\right)+2\left(2\,Bb^{2}ex^{2}+\right.}{6\left(b^{4}x+ab^{3}\right)}\right.$$

$$-\frac{3\left(2\,Babd-\left(5\,Ba^{2}-3\,Aab\right)e+\left(2\,Bb^{2}d-\left(5\,Bab-3\,Ab^{2}\right)e\right)x\right)\sqrt{-\frac{bd-ae}{b}}\arctan\left(\frac{\sqrt{ex+d}}{\sqrt{-\frac{bd-ae}{b}}}\right)-\left(2\,Bb^{2}ex^{2}+\left(11\,Bab-3\,A\right.\right.}{3\left(b^{4}x+ab^{3}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(e*x + d)^(3/2)/(b*x + a)^2,x, algorithm="fricas")
```

```
[Out] [1/6*(3*(2*B*a*b*d - (5*B*a^2 - 3*A*a*b)*e + (2*B*b^2*d - (5*B*a*
b - 3*A*b^2)*e)*x)*sqrt((b*d - a*e)/b)*log((b*e*x + 2*b*d - a*e -
 2*sqrt(e*x + d)*b*sqrt((b*d - a*e)/b))/(b*x + a)) + 2*(2*B*b^2*e
*x^2 + (11*B*a*b - 3*A*b^2)*d - 3*(5*B*a^2 - 3*A*a*b)*e + 2*(4*B*
b^2*d - (5*B*a*b - 3*A*b^2)*e)*x)*sqrt(e*x + d))/(b^4*x + a*b^3),
 -1/3*(3*(2*B*a*b*d - (5*B*a^2 - 3*A*a*b)*e + (2*B*b^2*d - (5*B*a
*b - 3*A*b^2)*e)*x)*sqrt(-(b*d - a*e)/b)*arctan(sqrt(e*x + d)/sqr
t(-(b*d - a*e)/b)) - (2*B*b^2*e*x^2 + (11*B*a*b - 3*A*b^2)*d - 3*
(5*B*a^2 - 3*A*a*b)*e + 2*(4*B*b^2*d - (5*B*a*b - 3*A*b^2)*e)*x)*
sqrt(e*x + d))/(b^4*x + a*b^3)]
```

Sympy [A] time = 165.419, size = 2508, normalized size = 14.41

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x+A)*(e*x+d)**(3/2)/(b*x+a)**2,x)
```

```
[Out] 2*A*a**2*e**3*sqrt(d + e*x)/(2*a**2*b**2*e**2 - 2*a*b**3*d*e + 2*
a*b**3*e**2*x - 2*b**4*d*e*x) - A*a**2*e**3*sqrt(-1/(b*(a*e - b*d
)**3))*log(-a**2*e**2*sqrt(-1/(b*(a*e - b*d)**3)) + 2*a*b*d*e*sqr
t(-1/(b*(a*e - b*d)**3)) - b**2*d**2*sqrt(-1/(b*(a*e - b*d)**3))
+ sqrt(d + e*x))/(2*b**2) + A*a**2*e**3*sqrt(-1/(b*(a*e - b*d)**3
))*log(a**2*e**2*sqrt(-1/(b*(a*e - b*d)**3)) - 2*a*b*d*e*sqrt(-1/
(b*(a*e - b*d)**3)) + b**2*d**2*sqrt(-1/(b*(a*e - b*d)**3)) + sqr
t(d + e*x))/(2*b**2) - 4*A*a*d*e**2*sqrt(d + e*x)/(2*a**2*b*e**2
- 2*a*b**2*d*e + 2*a*b**2*e**2*x - 2*b**3*d*e*x) + A*a*d*e**2*sqr
t(-1/(b*(a*e - b*d)**3))*log(-a**2*e**2*sqrt(-1/(b*(a*e - b*d)**3
)) + 2*a*b*d*e*sqrt(-1/(b*(a*e - b*d)**3)) - b**2*d**2*sqrt(-1/(b
*(a*e - b*d)**3)) + sqrt(d + e*x))/b - A*a*d*e**2*sqrt(-1/(b*(a*e
 - b*d)**3))*log(a**2*e**2*sqrt(-1/(b*(a*e - b*d)**3)) - 2*a*b*d*
e*sqrt(-1/(b*(a*e - b*d)**3)) + b**2*d**2*sqrt(-1/(b*(a*e - b*d)*
*3)) + sqrt(d + e*x))/b - 4*A*a*e**2*Piecewise((atan(sqrt(d + e*x
)/sqrt(a*e/b - d))/(b*sqrt(a*e/b - d)), a*e/b - d > 0), (-acoth(s
qrt(d + e*x)/sqrt(-a*e/b + d))/(b*sqrt(-a*e/b + d)), (a*e/b - d <
 0) & (d + e*x > -a*e/b + d)), (-atanh(sqrt(d + e*x)/sqrt(-a*e/b
+ d))/(b*sqrt(-a*e/b + d)), (a*e/b - d < 0) & (d + e*x < -a*e/b +
 d)))/b**2 - A*d**2*e*sqrt(-1/(b*(a*e - b*d)**3))*log(-a**2*e**2*
sqrt(-1/(b*(a*e - b*d)**3)) + 2*a*b*d*e*sqrt(-1/(b*(a*e - b*d)**3
)) - b**2*d**2*sqrt(-1/(b*(a*e - b*d)**3)) + sqrt(d + e*x))/2 + A
*d**2*e*sqrt(-1/(b*(a*e - b*d)**3))*log(a**2*e**2*sqrt(-1/(b*(a*e
 - b*d)**3)) - 2*a*b*d*e*sqrt(-1/(b*(a*e - b*d)**3)) + b**2*d**2*
sqrt(-1/(b*(a*e - b*d)**3)) + sqrt(d + e*x))/2 + 2*A*d**2*e*sqrt(
d + e*x)/(2*a**2*e**2 - 2*a*b*d*e + 2*a*b*e**2*x - 2*b**2*d*e*x)
+ 4*A*d*e*Piecewise((atan(sqrt(d + e*x)/sqrt(a*e/b - d))/(b*sqrt(
a*e/b - d)), a*e/b - d > 0), (-acoth(sqrt(d + e*x)/sqrt(-a*e/b +
d))/(b*sqrt(-a*e/b + d)), (a*e/b - d < 0) & (d + e*x > -a*e/b + d
)), (-atanh(sqrt(d + e*x)/sqrt(-a*e/b + d))/(b*sqrt(-a*e/b + d)),
```

```
 (a*e/b - d < 0) & (d + e*x < -a*e/b + d)))/b + 2*A*e*sqrt(d + e*
x)/b**2 - 2*B*a**3*e**3*sqrt(d + e*x)/(2*a**2*b**3*e**2 - 2*a*b**
4*d*e + 2*a*b**4*e**2*x - 2*b**5*d*e*x) + B*a**3*e**3*sqrt(-1/(b*
(a*e - b*d)**3))*log(-a**2*e**2*sqrt(-1/(b*(a*e - b*d)**3)) + 2*a
*b*d*e*sqrt(-1/(b*(a*e - b*d)**3)) - b**2*d**2*sqrt(-1/(b*(a*e -
b*d)**3)) + sqrt(d + e*x))/(2*b**3) - B*a**3*e**3*sqrt(-1/(b*(a*e
 - b*d)**3))*log(a**2*e**2*sqrt(-1/(b*(a*e - b*d)**3)) - 2*a*b*d*
e*sqrt(-1/(b*(a*e - b*d)**3)) + b**2*d**2*sqrt(-1/(b*(a*e - b*d)*
*3)) + sqrt(d + e*x))/(2*b**3) + 4*B*a**2*d*e**2*sqrt(d + e*x)/(2
*a**2*b**2*e**2 - 2*a*b**3*d*e + 2*a*b**3*e**2*x - 2*b**4*d*e*x)
- B*a**2*d*e**2*sqrt(-1/(b*(a*e - b*d)**3))*log(-a**2*e**2*sqrt(-
1/(b*(a*e - b*d)**3)) + 2*a*b*d*e*sqrt(-1/(b*(a*e - b*d)**3)) - b
**2*d**2*sqrt(-1/(b*(a*e - b*d)**3)) + sqrt(d + e*x))/b**2 + B*a*
*2*d*e**2*sqrt(-1/(b*(a*e - b*d)**3))*log(a**2*e**2*sqrt(-1/(b*(a
*e - b*d)**3)) - 2*a*b*d*e*sqrt(-1/(b*(a*e - b*d)**3)) + b**2*d**
2*sqrt(-1/(b*(a*e - b*d)**3)) + sqrt(d + e*x))/b**2 + 6*B*a**2*e*
*2*Piecewise((atan(sqrt(d + e*x)/sqrt(a*e/b - d))/(b*sqrt(a*e/b -
 d)), a*e/b - d > 0), (-acoth(sqrt(d + e*x)/sqrt(-a*e/b + d))/(b*
sqrt(-a*e/b + d)), (a*e/b - d < 0) & (d + e*x > -a*e/b + d)), (-a
tanh(sqrt(d + e*x)/sqrt(-a*e/b + d))/(b*sqrt(-a*e/b + d)), (a*e/b
 - d < 0) & (d + e*x < -a*e/b + d)))/b**3 - 2*B*a*d**2*e*sqrt(d +
 e*x)/(2*a**2*b*e**2 - 2*a*b**2*d*e + 2*a*b**2*e**2*x - 2*b**3*d*
e*x) + B*a*d**2*e*sqrt(-1/(b*(a*e - b*d)**3))*log(-a**2*e**2*sqrt
(-1/(b*(a*e - b*d)**3)) + 2*a*b*d*e*sqrt(-1/(b*(a*e - b*d)**3)) -
 b**2*d**2*sqrt(-1/(b*(a*e - b*d)**3)) + sqrt(d + e*x))/(2*b) - B
*a*d**2*e*sqrt(-1/(b*(a*e - b*d)**3))*log(a**2*e**2*sqrt(-1/(b*(a
*e - b*d)**3)) - 2*a*b*d*e*sqrt(-1/(b*(a*e - b*d)**3)) + b**2*d**
2*sqrt(-1/(b*(a*e - b*d)**3)) + sqrt(d + e*x))/(2*b) - 8*B*a*d*e*
Piecewise((atan(sqrt(d + e*x)/sqrt(a*e/b - d))/(b*sqrt(a*e/b - d)
), a*e/b - d > 0), (-acoth(sqrt(d + e*x)/sqrt(-a*e/b + d))/(b*sqr
t(-a*e/b + d)), (a*e/b - d < 0) & (d + e*x > -a*e/b + d)), (-atan
h(sqrt(d + e*x)/sqrt(-a*e/b + d))/(b*sqrt(-a*e/b + d)), (a*e/b -
d < 0) & (d + e*x < -a*e/b + d)))/b**2 - 4*B*a*e*sqrt(d + e*x)/b*
*3 + 2*B*d**2*Piecewise((atan(sqrt(d + e*x)/sqrt(a*e/b - d))/(b*s
qrt(a*e/b - d)), a*e/b - d > 0), (-acoth(sqrt(d + e*x)/sqrt(-a*e/
b + d))/(b*sqrt(-a*e/b + d)), (a*e/b - d < 0) & (d + e*x > -a*e/b
 + d)), (-atanh(sqrt(d + e*x)/sqrt(-a*e/b + d))/(b*sqrt(-a*e/b +
d)), (a*e/b - d < 0) & (d + e*x < -a*e/b + d)))/b + 2*B*d*sqrt(d
+ e*x)/b**2 + 2*B*(d + e*x)**(3/2)/(3*b**2)
```

GIAC/XCAS [A] time = 0.224658, size = 323, normalized size = 1.86

$$\frac{\left(2\,Bb^2d^2-7\,Babde+3\,Ab^2de+5\,Ba^2e^2-3\,Aabe^2\right)\arctan\left(\frac{\sqrt{xe+d}b}{\sqrt{-b^2d+abe}}\right)}{\sqrt{-b^2d+abe}b^3}+\frac{\sqrt{xe+d}Babde-\sqrt{xe+d}Ab^2de-\sqrt{xe+d}Ba^2e^2+\sqrt{xe+d}Aabe^2}{((xe+d)b-bd+ae)b^3}+\frac{2\left((xe+d)^{\frac{3}{2}}Bb^4+3\sqrt{xe+d}Bb^4d-6\sqrt{xe+d}Bab^3e+3\sqrt{xe+d}Ab^4e\right)}{3\,b^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(e*x + d)^(3/2)/(b*x + a)^2,x, algorithm="giac")
```

```
[Out] (2*B*b^2*d^2 - 7*B*a*b*d*e + 3*A*b^2*d*e + 5*B*a^2*e^2 - 3*A*a*b*
e^2)*arctan(sqrt(x*e + d)*b/sqrt(-b^2*d + a*b*e))/(sqrt(-b^2*d +
a*b*e)*b^3) + (sqrt(x*e + d)*B*a*b*d*e - sqrt(x*e + d)*A*b^2*d*e
- sqrt(x*e + d)*B*a^2*e^2 + sqrt(x*e + d)*A*a*b*e^2)/(((x*e + d)*
b - b*d + a*e)*b^3) + 2/3*((x*e + d)^(3/2)*B*b^4 + 3*sqrt(x*e + d
)*B*b^4*d - 6*sqrt(x*e + d)*B*a*b^3*e + 3*sqrt(x*e + d)*A*b^4*e)/
b^6
```

3.1736 $\int \frac{(A+Bx)\sqrt{d+ex}}{(a+bx)^2}\,dx$

Optimal. Leaf size=140

$$-\frac{(-3aBe+Abe+2bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{b^{5/2}\sqrt{bd-ae}}+\frac{\sqrt{d+ex}(-3aBe+Abe+2bBd)}{b^2(bd-ae)}-\frac{(d+ex)^{3/2}(Ab-aB)}{b(a+bx)(bd-ae)}$$

```
[Out] ((2*b*B*d + A*b*e - 3*a*B*e)*Sqrt[d + e*x])/(b^2*(b*d - a*e)) - (
(A*b - a*B)*(d + e*x)^(3/2))/(b*(b*d - a*e)*(a + b*x)) - ((2*b*B*
d + A*b*e - 3*a*B*e)*ArcTanh[(Sqrt[b]*Sqrt[d + e*x])/Sqrt[b*d - a
*e]])/(b^(5/2)*Sqrt[b*d - a*e])
```

Rubi [A] time = 0.264834, antiderivative size = 140, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{(-3aBe+Abe+2bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{b^{5/2}\sqrt{bd-ae}}+\frac{\sqrt{d+ex}(-3aBe+Abe+2bBd)}{b^2(bd-ae)}-\frac{(d+ex)^{3/2}(Ab-aB)}{b(a+bx)(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[((A + B*x)*Sqrt[d + e*x])/(a + b*x)^2,x]
```

```
[Out] ((2*b*B*d + A*b*e - 3*a*B*e)*Sqrt[d + e*x])/(b^2*(b*d - a*e)) - (
(A*b - a*B)*(d + e*x)^(3/2))/(b*(b*d - a*e)*(a + b*x)) - ((2*b*B*
d + A*b*e - 3*a*B*e)*ArcTanh[(Sqrt[b]*Sqrt[d + e*x])/Sqrt[b*d - a
*e]])/(b^(5/2)*Sqrt[b*d - a*e])
```

Rubi in Sympy [A] time = 29.7772, size = 124, normalized size = 0.89

$$\frac{(d+ex)^{\frac{3}{2}}(Ab-Ba)}{b(a+bx)(ae-bd)}-\frac{\sqrt{d+ex}(Abe-3Bae+2Bbd)}{b^2(ae-bd)}+\frac{(Abe-3Bae+2Bbd)\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{ae-bd}}\right)}{b^{\frac{5}{2}}\sqrt{ae-bd}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(e*x+d)**(1/2)/(b*x+a)**2,x)
```

```
[Out] (d + e*x)**(3/2)*(A*b - B*a)/(b*(a + b*x)*(a*e - b*d)) - sqrt(d +
 e*x)*(A*b*e - 3*B*a*e + 2*B*b*d)/(b**2*(a*e - b*d)) + (A*b*e - 3
*B*a*e + 2*B*b*d)*atan(sqrt(b)*sqrt(d + e*x)/sqrt(a*e - b*d))/(b*
*(5/2)*sqrt(a*e - b*d))
```

Mathematica [A] time = 0.127544, size = 99, normalized size = 0.71

$$\sqrt{d+ex}\left(\frac{aB-Ab}{b^2(a+bx)}+\frac{2B}{b^2}\right)-\frac{(-3aBe+Abe+2bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{b^{5/2}\sqrt{bd-ae}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((A + B*x)*Sqrt[d + e*x])/(a + b*x)^2,x]
```

```
[Out] Sqrt[d + e*x]*((2*B)/b^2 + (-(A*b) + a*B)/(b^2*(a + b*x))) - ((2*
b*B*d + A*b*e - 3*a*B*e)*ArcTanh[(Sqrt[b]*Sqrt[d + e*x])/Sqrt[b*d
 - a*e]])/(b^(5/2)*Sqrt[b*d - a*e])
```

Maple [A] time = 0.022, size = 186, normalized size = 1.3

$$2\frac{B\sqrt{ex+d}}{b^2}-\frac{Ae}{b(bxe+ae)}\sqrt{ex+d}+\frac{Bae}{b^2(bxe+ae)}\sqrt{ex+d}+\frac{Ae}{b}\arctan\left(b\sqrt{ex+d}\frac{1}{\sqrt{(ae-bd)b}}\right)\frac{1}{\sqrt{(ae-bd)b}}-3\frac{Bae}{b^2\sqrt{(ae-bd)b}}\arctan\left(\frac{\sqrt{ex+d}b}{\sqrt{(ae-bd)b}}\right)+2\frac{Bd}{b\sqrt{(ae-bd)b}}\arctan\left(\frac{\sqrt{ex+d}b}{\sqrt{(ae-bd)b}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(e*x+d)^(1/2)/(b*x+a)^2,x)
```

```
[Out] 2*B/b^2*(e*x+d)^(1/2)-1/b*(e*x+d)^(1/2)/(b*e*x+a*e)*A*e+1/b^2*(e*
x+d)^(1/2)/(b*e*x+a*e)*B*a*e+1/b/((a*e-b*d)*b)^(1/2)*arctan((e*x+
d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*A*e-3/b^2/((a*e-b*d)*b)^(1/2)*arc
tan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*B*a*e+2/b/((a*e-b*d)*b)^
(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*B*d
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(e*x + d)/(b*x + a)^2,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.225052, size = 1, normalized size = 0.01

$$\left[\frac{2\sqrt{b^2d-abe}(2Bbx+3Ba-Ab)\sqrt{ex+d}+\left(2Babd-\left(3Ba^2-Aab\right)e+\left(2Bb^2d-\left(3Bab-Ab^2\right)e\right)x\right)\log\left(\frac{\sqrt{b^2d-abe}(bex+\right.}{2\left(b^3x+ab^2\right)\sqrt{b^2d-abe}}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(e*x + d)/(b*x + a)^2,x, algorithm="fricas")
```

```
[Out] [1/2*(2*sqrt(b^2*d - a*b*e)*(2*B*b*x + 3*B*a - A*b)*sqrt(e*x + d)
 + (2*B*a*b*d - (3*B*a^2 - A*a*b)*e + (2*B*b^2*d - (3*B*a*b - A*b
^2)*e)*x)*log((sqrt(b^2*d - a*b*e)*(b*e*x + 2*b*d - a*e) - 2*(b^2
*d - a*b*e)*sqrt(e*x + d))/(b*x + a)))/((b^3*x + a*b^2)*sqrt(b^2*
d - a*b*e)), (sqrt(-b^2*d + a*b*e)*(2*B*b*x + 3*B*a - A*b)*sqrt(e
*x + d) - (2*B*a*b*d - (3*B*a^2 - A*a*b)*e + (2*B*b^2*d - (3*B*a*
b - A*b^2)*e)*x)*arctan(-(b*d - a*e)/(sqrt(-b^2*d + a*b*e)*sqrt(e
*x + d))))/((b^3*x + a*b^2)*sqrt(-b^2*d + a*b*e))]
```

Sympy [A] time = 39.9498, size = 1559, normalized size = 11.14

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(e*x+d)**(1/2)/(b*x+a)**2,x)
```

```
[Out] -2*A*a*e**2*sqrt(d + e*x)/(2*a**2*b*e**2 - 2*a*b**2*d*e + 2*a*b**
2*e**2*x - 2*b**3*d*e*x) + A*a*e**2*sqrt(-1/(b*(a*e - b*d)**3))*l
og(-a**2*e**2*sqrt(-1/(b*(a*e - b*d)**3)) + 2*a*b*d*e*sqrt(-1/(b*
(a*e - b*d)**3)) - b**2*d**2*sqrt(-1/(b*(a*e - b*d)**3)) + sqrt(d
 + e*x))/(2*b) - A*a*e**2*sqrt(-1/(b*(a*e - b*d)**3))*log(a**2*e*
*2*sqrt(-1/(b*(a*e - b*d)**3)) - 2*a*b*d*e*sqrt(-1/(b*(a*e - b*d)
**3)) + b**2*d**2*sqrt(-1/(b*(a*e - b*d)**3)) + sqrt(d + e*x))/(2
*b) - A*d*e*sqrt(-1/(b*(a*e - b*d)**3))*log(-a**2*e**2*sqrt(-1/(b
*(a*e - b*d)**3)) + 2*a*b*d*e*sqrt(-1/(b*(a*e - b*d)**3)) - b**2*
d**2*sqrt(-1/(b*(a*e - b*d)**3)) + sqrt(d + e*x))/2 + A*d*e*sqrt(
-1/(b*(a*e - b*d)**3))*log(a**2*e**2*sqrt(-1/(b*(a*e - b*d)**3))
- 2*a*b*d*e*sqrt(-1/(b*(a*e - b*d)**3)) + b**2*d**2*sqrt(-1/(b*(a
*e - b*d)**3)) + sqrt(d + e*x))/2 + 2*A*d*e*sqrt(d + e*x)/(2*a**2
*e**2 - 2*a*b*d*e + 2*a*b*e**2*x - 2*b**2*d*e*x) + 2*A*e*Piecewis
e((atan(sqrt(d + e*x)/sqrt(a*e/b - d))/(b*sqrt(a*e/b - d)), a*e/b
 - d > 0), (-acoth(sqrt(d + e*x)/sqrt(-a*e/b + d))/(b*sqrt(-a*e/b
 + d)), (a*e/b - d < 0) & (d + e*x > -a*e/b + d)), (-atanh(sqrt(d
 + e*x)/sqrt(-a*e/b + d))/(b*sqrt(-a*e/b + d)), (a*e/b - d < 0) &
 (d + e*x < -a*e/b + d)))/b + 2*B*a**2*e**2*sqrt(d + e*x)/(2*a**2
*b**2*e**2 - 2*a*b**3*d*e + 2*a*b**3*e**2*x - 2*b**4*d*e*x) - B*a
**2*e**2*sqrt(-1/(b*(a*e - b*d)**3))*log(-a**2*e**2*sqrt(-1/(b*(a
*e - b*d)**3)) + 2*a*b*d*e*sqrt(-1/(b*(a*e - b*d)**3)) - b**2*d**
2*sqrt(-1/(b*(a*e - b*d)**3)) + sqrt(d + e*x))/(2*b**2) + B*a**2*
e**2*sqrt(-1/(b*(a*e - b*d)**3))*log(a**2*e**2*sqrt(-1/(b*(a*e -
b*d)**3)) - 2*a*b*d*e*sqrt(-1/(b*(a*e - b*d)**3)) + b**2*d**2*sqr
t(-1/(b*(a*e - b*d)**3)) + sqrt(d + e*x))/(2*b**2) - 2*B*a*d*e*sq
rt(d + e*x)/(2*a**2*b*e**2 - 2*a*b**2*d*e + 2*a*b**2*e**2*x - 2*b
**3*d*e*x) + B*a*d*e*sqrt(-1/(b*(a*e - b*d)**3))*log(-a**2*e**2*s
qrt(-1/(b*(a*e - b*d)**3)) + 2*a*b*d*e*sqrt(-1/(b*(a*e - b*d)**3)
) - b**2*d**2*sqrt(-1/(b*(a*e - b*d)**3)) + sqrt(d + e*x))/(2*b)
- B*a*d*e*sqrt(-1/(b*(a*e - b*d)**3))*log(a**2*e**2*sqrt(-1/(b*(a
*e - b*d)**3)) - 2*a*b*d*e*sqrt(-1/(b*(a*e - b*d)**3)) + b**2*d**
2*sqrt(-1/(b*(a*e - b*d)**3)) + sqrt(d + e*x))/(2*b) - 4*B*a*e*Pi
ecewise((atan(sqrt(d + e*x)/sqrt(a*e/b - d))/(b*sqrt(a*e/b - d)),
 a*e/b - d > 0), (-acoth(sqrt(d + e*x)/sqrt(-a*e/b + d))/(b*sqrt(
-a*e/b + d)), (a*e/b - d < 0) & (d + e*x > -a*e/b + d)), (-atanh(
sqrt(d + e*x)/sqrt(-a*e/b + d))/(b*sqrt(-a*e/b + d)), (a*e/b - d
< 0) & (d + e*x < -a*e/b + d)))/b**2 + 2*B*d*Piecewise((atan(sqrt
(d + e*x)/sqrt(a*e/b - d))/(b*sqrt(a*e/b - d)), a*e/b - d > 0), (
-acoth(sqrt(d + e*x)/sqrt(-a*e/b + d))/(b*sqrt(-a*e/b + d)), (a*e
/b - d < 0) & (d + e*x > -a*e/b + d)), (-atanh(sqrt(d + e*x)/sqrt
(-a*e/b + d))/(b*sqrt(-a*e/b + d)), (a*e/b - d < 0) & (d + e*x <
-a*e/b + d)))/b + 2*B*sqrt(d + e*x)/b**2
```

GIAC/XCAS [A] time = 0.218078, size = 170, normalized size = 1.21

$$\frac{2\sqrt{xe+d}B}{b^2}+\frac{(2\,Bbd-3\,Bae+Abe)\arctan\left(\frac{\sqrt{xe+d}b}{\sqrt{-b^2d+abe}}\right)}{\sqrt{-b^2d+abe}b^2}+\frac{\sqrt{xe+d}Bae-\sqrt{xe+d}Abe}{((xe+d)b-bd+ae)b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(e*x + d)/(b*x + a)^2,x, algorithm="giac")
```

```
[Out] 2*sqrt(x*e + d)*B/b^2 + (2*B*b*d - 3*B*a*e + A*b*e)*arctan(sqrt(x
*e + d)*b/sqrt(-b^2*d + a*b*e))/(sqrt(-b^2*d + a*b*e)*b^2) + (sqr
t(x*e + d)*B*a*e - sqrt(x*e + d)*A*b*e)/(((x*e + d)*b - b*d + a*e
)*b^2)
```

3.1737 $\int \frac{A+Bx}{(a+bx)^2\sqrt{d+ex}}\,dx$

Optimal. Leaf size=103

$$-\frac{(-aBe-Abe+2bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{b^{3/2}(bd-ae)^{3/2}}-\frac{\sqrt{d+ex}(Ab-aB)}{b(a+bx)(bd-ae)}$$

```
[Out] -(((A*b - a*B)*Sqrt[d + e*x])/(b*(b*d - a*e)*(a + b*x))) - ((2*b*
B*d - A*b*e - a*B*e)*ArcTanh[(Sqrt[b]*Sqrt[d + e*x])/Sqrt[b*d - a
*e]])/(b^(3/2)*(b*d - a*e)^(3/2))
```

Rubi [A] time = 0.195802, antiderivative size = 103, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.136

$$-\frac{(-aBe-Abe+2bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{b^{3/2}(bd-ae)^{3/2}}-\frac{\sqrt{d+ex}(Ab-aB)}{b(a+bx)(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/((a + b*x)^2*Sqrt[d + e*x]),x]
```

```
[Out] -(((A*b - a*B)*Sqrt[d + e*x])/(b*(b*d - a*e)*(a + b*x))) - ((2*b*
B*d - A*b*e - a*B*e)*ArcTanh[(Sqrt[b]*Sqrt[d + e*x])/Sqrt[b*d - a
*e]])/(b^(3/2)*(b*d - a*e)^(3/2))
```

Rubi in Sympy [A] time = 17.8736, size = 85, normalized size = 0.83

$$\frac{\sqrt{d+ex}\,(Ab-Ba)}{b\,(a+bx)\,(ae-bd)}+\frac{(Abe+Bae-2Bbd)\,\text{atan}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{ae-bd}}\right)}{b^{\frac{3}{2}}\,(ae-bd)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(b*x+a)**2/(e*x+d)**(1/2),x)
```

```
[Out] sqrt(d + e*x)*(A*b - B*a)/(b*(a + b*x)*(a*e - b*d)) + (A*b*e + B*
a*e - 2*B*b*d)*atan(sqrt(b)*sqrt(d + e*x)/sqrt(a*e - b*d))/(b**(3
/2)*(a*e - b*d)**(3/2))
```

Mathematica [A] time = 0.142715, size = 102, normalized size = 0.99

$$\frac{\sqrt{d+ex}(aB-Ab)}{b(a+bx)(bd-ae)}-\frac{(-aBe-Abe+2bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{b^{3/2}(bd-ae)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/((a + b*x)^2*Sqrt[d + e*x]),x]
```

```
[Out] ((-(A*b) + a*B)*Sqrt[d + e*x])/(b*(b*d - a*e)*(a + b*x)) - ((2*b*
B*d - A*b*e - a*B*e)*ArcTanh[(Sqrt[b]*Sqrt[d + e*x])/Sqrt[b*d - a
*e]])/(b^(3/2)*(b*d - a*e)^(3/2))
```

Maple [B] time = 0.02, size = 195, normalized size = 1.9

$$\frac{e\,(Ab-Ba)}{(ae-bd)\,b\,(b\,(ex+d)+ae-bd)}\sqrt{ex+d}+\frac{Ae}{ae-bd}\arctan\left(b\sqrt{ex+d}\frac{1}{\sqrt{(ae-bd)\,b}}\right)\frac{1}{\sqrt{(ae-bd)\,b}}$$
$$+\frac{Bae}{(ae-bd)\,b}\arctan\left(b\sqrt{ex+d}\frac{1}{\sqrt{(ae-bd)\,b}}\right)\frac{1}{\sqrt{(ae-bd)\,b}}$$
$$-2\,\frac{Bd}{(ae-bd)\,\sqrt{(ae-bd)\,b}}\arctan\left(\frac{\sqrt{ex+d}b}{\sqrt{(ae-bd)\,b}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(b*x+a)^2/(e*x+d)^(1/2),x)
```

```
[Out] e*(A*b-B*a)/(a*e-b*d)/b*(e*x+d)^(1/2)/(b*(e*x+d)+a*e-b*d)+1/(a*e-
b*d)/((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/
2))*A*e+1/(a*e-b*d)/b/((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*b/
((a*e-b*d)*b)^(1/2))*B*a*e-2/(a*e-b*d)/((a*e-b*d)*b)^(1/2)*arctan
((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*B*d
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^2*sqrt(e*x + d)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.22024, size = 1, normalized size = 0.01

$$\left[\frac{2\sqrt{b^2d-abe}(Ba-Ab)\sqrt{ex+d}+\left(2\,Babd-\left(Ba^2+Aab\right)e+\left(2\,Bb^2d-\left(Bab+Ab^2\right)e\right)x\right)\log\left(\frac{\sqrt{b^2d-abe}(bex+2\,bd-ae)-2\,(b^2d\cdot}{bx+a}\right.}{2\,(ab^2d-a^2be+(b^3d-ab^2e)x)\sqrt{b^2d-abe}}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^2*sqrt(e*x + d)),x, algorithm="fricas")
```

```
[Out] [1/2*(2*sqrt(b^2*d - a*b*e)*(B*a - A*b)*sqrt(e*x + d) + (2*B*a*b*
d - (B*a^2 + A*a*b)*e + (2*B*b^2*d - (B*a*b + A*b^2)*e)*x)*log((s
qrt(b^2*d - a*b*e)*(b*e*x + 2*b*d - a*e) - 2*(b^2*d - a*b*e)*sqrt
(e*x + d))/(b*x + a)))/((a*b^2*d - a^2*b*e + (b^3*d - a*b^2*e)*x)
*sqrt(b^2*d - a*b*e)), (sqrt(-b^2*d + a*b*e)*(B*a - A*b)*sqrt(e*x
 + d) - (2*B*a*b*d - (B*a^2 + A*a*b)*e + (2*B*b^2*d - (B*a*b + A*
b^2)*e)*x)*arctan(-(b*d - a*e)/(sqrt(-b^2*d + a*b*e)*sqrt(e*x + d
))))/((a*b^2*d - a^2*b*e + (b^3*d - a*b^2*e)*x)*sqrt(-b^2*d + a*b
*e))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(b*x+a)**2/(e*x+d)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.247232, size = 182, normalized size = 1.77

$$\frac{(2\,Bbd - Bae - Abe)\arctan\left(\frac{\sqrt{xe+d}b}{\sqrt{-b^2d+abe}}\right)}{(b^2d - abe)\sqrt{-b^2d + abe}} + \frac{\sqrt{xe + d}Bae - \sqrt{xe + d}Abe}{(b^2d - abe)((xe + d)b - bd + ae)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^2*sqrt(e*x + d)),x, algorithm="giac")
```

```
[Out] (2*B*b*d - B*a*e - A*b*e)*arctan(sqrt(x*e + d)*b/sqrt(-b^2*d + a*
b*e))/((b^2*d - a*b*e)*sqrt(-b^2*d + a*b*e)) + (sqrt(x*e + d)*B*a
*e - sqrt(x*e + d)*A*b*e)/((b^2*d - a*b*e)*((x*e + d)*b - b*d + a
*e))
```

3.1738 $\int \frac{A+Bx}{(a+bx)^2(d+ex)^{3/2}}\,dx$

Optimal. Leaf size=140

$$-\frac{Ab-aB}{b(a+bx)\sqrt{d+ex}(bd-ae)}+\frac{aBe-3Abe+2bBd}{b\sqrt{d+ex}(bd-ae)^2}-\frac{(aBe-3Abe+2bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{\sqrt{b}(bd-ae)^{5/2}}$$

```
[Out] (2*b*B*d - 3*A*b*e + a*B*e)/(b*(b*d - a*e)^2*Sqrt[d + e*x]) - (A*
b - a*B)/(b*(b*d - a*e)*(a + b*x)*Sqrt[d + e*x]) - ((2*b*B*d - 3*
A*b*e + a*B*e)*ArcTanh[(Sqrt[b]*Sqrt[d + e*x])/Sqrt[b*d - a*e]])/
(Sqrt[b]*(b*d - a*e)^(5/2))
```

Rubi [A] time = 0.30329, antiderivative size = 140, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{Ab-aB}{b(a+bx)\sqrt{d+ex}(bd-ae)}+\frac{aBe-3Abe+2bBd}{b\sqrt{d+ex}(bd-ae)^2}-\frac{(aBe-3Abe+2bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{\sqrt{b}(bd-ae)^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/((a + b*x)^2*(d + e*x)^(3/2)),x]
```

```
[Out] (2*b*B*d - 3*A*b*e + a*B*e)/(b*(b*d - a*e)^2*Sqrt[d + e*x]) - (A*
b - a*B)/(b*(b*d - a*e)*(a + b*x)*Sqrt[d + e*x]) - ((2*b*B*d - 3*
A*b*e + a*B*e)*ArcTanh[(Sqrt[b]*Sqrt[d + e*x])/Sqrt[b*d - a*e]])/
(Sqrt[b]*(b*d - a*e)^(5/2))
```

Rubi in Sympy [A] time = 30.8975, size = 124, normalized size = 0.89

$$-\frac{3Abe-Bae-2Bbd}{b\sqrt{d+ex}\,(ae-bd)^2}+\frac{Ab-Ba}{b\,(a+bx)\,\sqrt{d+ex}\,(ae-bd)}-\frac{(3Abe-Bae-2Bbd)\,\mathrm{atan}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{ae-bd}}\right)}{\sqrt{b}\,(ae-bd)^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(b*x+a)**2/(e*x+d)**(3/2),x)
```

```
[Out] -(3*A*b*e - B*a*e - 2*B*b*d)/(b*sqrt(d + e*x)*(a*e - b*d)**2) + (
A*b - B*a)/(b*(a + b*x)*sqrt(d + e*x)*(a*e - b*d)) - (3*A*b*e - B
*a*e - 2*B*b*d)*atan(sqrt(b)*sqrt(d + e*x)/sqrt(a*e - b*d))/(sqrt
(b)*(a*e - b*d)**(5/2))
```

Mathematica [A] time = 0.322992, size = 123, normalized size = 0.88

$$\frac{B(3ad+aex+2bdx)-A(2ae+b(d+3ex))}{(a+bx)\sqrt{d+ex}(bd-ae)^2}-\frac{(aBe-3Abe+2bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{\sqrt{b}(bd-ae)^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/((a + b*x)^2*(d + e*x)^(3/2)),x]
```

```
[Out] (B*(3*a*d + 2*b*d*x + a*e*x) - A*(2*a*e + b*(d + 3*e*x)))/((b*d -
 a*e)^2*(a + b*x)*Sqrt[d + e*x]) - ((2*b*B*d - 3*A*b*e + a*B*e)*A
rcTanh[(Sqrt[b]*Sqrt[d + e*x])/Sqrt[b*d - a*e]])/(Sqrt[b]*(b*d -
```

```
a*e)^(5/2))
```

Maple [B] time = 0.027, size = 253, normalized size = 1.8

$$-2\frac{Ae}{\left(ae-bd\right)^{2}\sqrt{ex+d}}+2\frac{Bd}{\left(ae-bd\right)^{2}\sqrt{ex+d}}-\frac{Abe}{\left(ae-bd\right)^{2}\left(bxe+ae\right)}\sqrt{ex+d}+\frac{Bae}{\left(ae-bd\right)^{2}\left(bxe+ae\right)}\sqrt{ex+d}-3\frac{Abe}{\left(ae-bd\right)^{2}\sqrt{\left(ae-bd\right)b}}\arctan\left(\frac{\sqrt{ex+d}b}{\sqrt{\left(ae-bd\right)b}}\right)+\frac{Bae}{\left(ae-bd\right)^{2}}\arctan\left(b\sqrt{ex+d}\frac{1}{\sqrt{\left(ae-bd\right)b}}\right)\frac{1}{\sqrt{\left(ae-bd\right)b}}+2\frac{Bbd}{\left(ae-bd\right)^{2}\sqrt{\left(ae-bd\right)b}}\arctan\left(\frac{\sqrt{ex+d}b}{\sqrt{\left(ae-bd\right)b}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(b*x+a)^2/(e*x+d)^(3/2),x)
```

```
[Out] -2/(a*e-b*d)^2/(e*x+d)^(1/2)*A*e+2/(a*e-b*d)^2/(e*x+d)^(1/2)*B*d-
1/(a*e-b*d)^2*(e*x+d)^(1/2)/(b*e*x+a*e)*A*b*e+1/(a*e-b*d)^2*(e*x+
d)^(1/2)/(b*e*x+a*e)*B*a*e-3/(a*e-b*d)^2/((a*e-b*d)*b)^(1/2)*arct
an((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*A*b*e+1/(a*e-b*d)^2/((a*e
-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*B*a*e+
2/(a*e-b*d)^2/((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*
d)*b)^(1/2))*B*b*d
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^2*(e*x + d)^(3/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.224561, size = 1, normalized size = 0.01

$$\left[-\frac{\left(2\,Babd+\left(Ba^{2}-3\,Aab\right)e+\left(2\,Bb^{2}d+\left(Bab-3\,Ab^{2}\right)e\right)x\right)\sqrt{ex+d}\log\left(\frac{\sqrt{b^{2}d-abe}(bex+2\,bd-ae)+2\,(b^{2}d-abe)\sqrt{ex+d}}{bx+a}\right)+2\,\sqrt{b^{2}d}}{2\,(ab^{2}d^{2}-2\,a^{2}bde+a^{3}e^{2}+(b^{3}d^{2}-2\,ab^{2}de+a^{2}be^{2})x)\sqrt{b^{2}d-abe}\sqrt{e}}\right.$$

$$-\frac{\left(2\,Babd+\left(Ba^{2}-3\,Aab\right)e+\left(2\,Bb^{2}d+\left(Bab-3\,Ab^{2}\right)e\right)x\right)\sqrt{ex+d}\arctan\left(-\frac{bd-ae}{\sqrt{-b^{2}d+abe}\sqrt{ex+d}}\right)+\sqrt{-b^{2}d+abe}(2\,Aae-(3}{(ab^{2}d^{2}-2\,a^{2}bde+a^{3}e^{2}+(b^{3}d^{2}-2\,ab^{2}de+a^{2}be^{2})x)\sqrt{-b^{2}d+abe}\sqrt{ex+d}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^2*(e*x + d)^(3/2)),x, algorithm="fricas")
```

```
[Out] [-1/2*((2*B*a*b*d + (B*a^2 - 3*A*a*b)*e + (2*B*b^2*d + (B*a*b - 3
*A*b^2)*e)*x)*sqrt(e*x + d)*log((sqrt(b^2*d - a*b*e)*(b*e*x + 2*b
*d - a*e) + 2*(b^2*d - a*b*e)*sqrt(e*x + d))/(b*x + a)) + 2*sqrt(
b^2*d - a*b*e)*(2*A*a*e - (3*B*a - A*b)*d - (2*B*b*d + (B*a - 3*A
*b)*e)*x))/((a*b^2*d^2 - 2*a^2*b*d*e + a^3*e^2 + (b^3*d^2 - 2*a*b
^2*d*e + a^2*b*e^2)*x)*sqrt(b^2*d - a*b*e)*sqrt(e*x + d)), -((2*B
```

```
*a*b*d + (B*a^2 - 3*A*a*b)*e + (2*B*b^2*d + (B*a*b - 3*A*b^2)*e)*
x)*sqrt(e*x + d)*arctan(-(b*d - a*e)/(sqrt(-b^2*d + a*b*e)*sqrt(e
*x + d))) + sqrt(-b^2*d + a*b*e)*(2*A*a*e - (3*B*a - A*b)*d - (2*
B*b*d + (B*a - 3*A*b)*e)*x))/((a*b^2*d^2 - 2*a^2*b*d*e + a^3*e^2
+ (b^3*d^2 - 2*a*b^2*d*e + a^2*b*e^2)*x)*sqrt(-b^2*d + a*b*e)*sqr
t(e*x + d))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(b*x+a)**2/(e*x+d)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.234022, size = 275, normalized size = 1.96

$$\frac{(2\,Bbd + Bae - 3\,Abe)\arctan\left(\frac{\sqrt{xe+d}b}{\sqrt{-b^2d+abe}}\right)}{(b^2d^2 - 2\,abde + a^2e^2)\sqrt{-b^2d+abe}} + \frac{2\,(xe+d)Bbd - 2\,Bbd^2 + (xe+d)Bae - 3\,(xe+d)Abe + 2\,Bade + 2\,Abde - 2\,Aae^2}{(b^2d^2 - 2\,abde + a^2e^2)\left((xe+d)^{\frac{3}{2}}b - \sqrt{xe+d}bd + \sqrt{xe+d}ae\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^2*(e*x + d)^(3/2)),x, algorithm="giac")
```

```
[Out] (2*B*b*d + B*a*e - 3*A*b*e)*arctan(sqrt(x*e + d)*b/sqrt(-b^2*d +
a*b*e))/((b^2*d^2 - 2*a*b*d*e + a^2*e^2)*sqrt(-b^2*d + a*b*e)) +
(2*(x*e + d)*B*b*d - 2*B*b*d^2 + (x*e + d)*B*a*e - 3*(x*e + d)*A*
b*e + 2*B*a*d*e + 2*A*b*d*e - 2*A*a*e^2)/((b^2*d^2 - 2*a*b*d*e +
a^2*e^2)*((x*e + d)^(3/2)*b - sqrt(x*e + d)*b*d + sqrt(x*e + d)*a
*e))
```

3.1739 $\int \frac{A+Bx}{(a+bx)^2(d+ex)^{5/2}}\,dx$

Optimal. Leaf size=181

$$-\frac{Ab-aB}{b(a+bx)(d+ex)^{3/2}(bd-ae)}+\frac{3aBe-5Abe+2bBd}{\sqrt{d+ex}(bd-ae)^3}+\frac{3aBe-5Abe+2bBd}{3b(d+ex)^{3/2}(bd-ae)^2}-\frac{\sqrt{b}(3aBe-5Abe+2bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{(bd-ae)^{7/2}}$$

```
[Out] (2*b*B*d - 5*A*b*e + 3*a*B*e)/(3*b*(b*d - a*e)^2*(d + e*x)^(3/2))
 - (A*b - a*B)/(b*(b*d - a*e)*(a + b*x)*(d + e*x)^(3/2)) + (2*b*B
*d - 5*A*b*e + 3*a*B*e)/((b*d - a*e)^3*Sqrt[d + e*x]) - (Sqrt[b]*
(2*b*B*d - 5*A*b*e + 3*a*B*e)*ArcTanh[(Sqrt[b]*Sqrt[d + e*x])/Sqr
t[b*d - a*e]])/(b*d - a*e)^(7/2)
```

Rubi [A] time = 0.385207, antiderivative size = 181, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{Ab-aB}{b(a+bx)(d+ex)^{3/2}(bd-ae)}+\frac{3aBe-5Abe+2bBd}{\sqrt{d+ex}(bd-ae)^3}+\frac{3aBe-5Abe+2bBd}{3b(d+ex)^{3/2}(bd-ae)^2}-\frac{\sqrt{b}(3aBe-5Abe+2bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{(bd-ae)^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/((a + b*x)^2*(d + e*x)^(5/2)),x]
```

```
[Out] (2*b*B*d - 5*A*b*e + 3*a*B*e)/(3*b*(b*d - a*e)^2*(d + e*x)^(3/2))
 - (A*b - a*B)/(b*(b*d - a*e)*(a + b*x)*(d + e*x)^(3/2)) + (2*b*B
*d - 5*A*b*e + 3*a*B*e)/((b*d - a*e)^3*Sqrt[d + e*x]) - (Sqrt[b]*
(2*b*B*d - 5*A*b*e + 3*a*B*e)*ArcTanh[(Sqrt[b]*Sqrt[d + e*x])/Sqr
t[b*d - a*e]])/(b*d - a*e)^(7/2)
```

Rubi in Sympy [A] time = 41.7624, size = 167, normalized size = 0.92

$$\frac{\sqrt{b}\,(5Abe-3Bae-2Bbd)\,\mathrm{atan}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{ae-bd}}\right)}{(ae-bd)^{\frac{7}{2}}}+\frac{5Abe-3Bae-2Bbd}{\sqrt{d+ex}\,(ae-bd)^3}-\frac{5Abe-3Bae-2Bbd}{3b\,(d+ex)^{\frac{3}{2}}\,(ae-bd)^2}+\frac{Ab-Ba}{b\,(a+bx)\,(d+ex)^{\frac{3}{2}}\,(ae-bd)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(b*x+a)**2/(e*x+d)**(5/2),x)
```

```
[Out] sqrt(b)*(5*A*b*e - 3*B*a*e - 2*B*b*d)*atan(sqrt(b)*sqrt(d + e*x)/
sqrt(a*e - b*d))/(a*e - b*d)**(7/2) + (5*A*b*e - 3*B*a*e - 2*B*b*
d)/(sqrt(d + e*x)*(a*e - b*d)**3) - (5*A*b*e - 3*B*a*e - 2*B*b*d)
/(3*b*(d + e*x)**(3/2)*(a*e - b*d)**2) + (A*b - B*a)/(b*(a + b*x)
*(d + e*x)**(3/2)*(a*e - b*d))
```

Mathematica [A] time = 0.874896, size = 154, normalized size = 0.85

$$\frac{\sqrt{d+ex}\left(\frac{6(aBe-2Abe+bBd)}{d+ex}+\frac{2(bd-ae)(Bd-Ae)}{(d+ex)^2}+\frac{3b(aB-Ab)}{a+bx}\right)}{3(bd-ae)^3}-\frac{\sqrt{b}(3aBe-5Abe+2bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{(bd-ae)^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/((a + b*x)^2*(d + e*x)^(5/2)),x]
```

```
[Out] (Sqrt[d + e*x]*((3*b*(-(A*b) + a*B))/(a + b*x) + (2*(b*d - a*e)*(
B*d - A*e))/(d + e*x)^2 + (6*(b*B*d - 2*A*b*e + a*B*e))/(d + e*x)
))/(3*(b*d - a*e)^3) - (Sqrt[b]*(2*b*B*d - 5*A*b*e + 3*a*B*e)*Arc
Tanh[(Sqrt[b]*Sqrt[d + e*x])/Sqrt[b*d - a*e]])/(b*d - a*e)^(7/2)
```

Maple [B] time = 0.03, size = 328, normalized size = 1.8

$$-\frac{2\,Ae}{3\,(ae-bd)^2}(ex+d)^{-\frac{3}{2}}+\frac{2\,Bd}{3\,(ae-bd)^2}(ex+d)^{-\frac{3}{2}}+4\,\frac{Abe}{(ae-bd)^3\sqrt{ex+d}}$$
$$-2\,\frac{Bae}{(ae-bd)^3\sqrt{ex+d}}-2\,\frac{Bbd}{(ae-bd)^3\sqrt{ex+d}}+\frac{Ab^2e}{(ae-bd)^3\,(bxe+ae)}\sqrt{ex+d}$$
$$-\frac{Babe}{(ae-bd)^3\,(bxe+ae)}\sqrt{ex+d}+5\,\frac{Ab^2e}{(ae-bd)^3\sqrt{(ae-bd)\,b}}\arctan\left(\frac{\sqrt{ex+d}b}{\sqrt{(ae-bd)\,b}}\right)$$
$$-3\,\frac{Babe}{(ae-bd)^3\sqrt{(ae-bd)\,b}}\arctan\left(\frac{\sqrt{ex+d}b}{\sqrt{(ae-bd)\,b}}\right)$$
$$-2\,\frac{b^2Bd}{(ae-bd)^3\sqrt{(ae-bd)\,b}}\arctan\left(\frac{\sqrt{ex+d}b}{\sqrt{(ae-bd)\,b}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(b*x+a)^2/(e*x+d)^(5/2),x)
```

```
[Out] -2/3/(a*e-b*d)^2/(e*x+d)^(3/2)*A*e+2/3/(a*e-b*d)^2/(e*x+d)^(3/2)*
B*d+4/(a*e-b*d)^3/(e*x+d)^(1/2)*A*b*e-2/(a*e-b*d)^3/(e*x+d)^(1/2)
*B*a*e-2/(a*e-b*d)^3/(e*x+d)^(1/2)*B*b*d+1/(a*e-b*d)^3*b^2*(e*x+d
)^(1/2)/(b*e*x+a*e)*A*e-1/(a*e-b*d)^3*b*(e*x+d)^(1/2)/(b*e*x+a*e)
*B*a*e+5/(a*e-b*d)^3*b^2/((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)
*b/((a*e-b*d)*b)^(1/2))*A*e-3/(a*e-b*d)^3*b/((a*e-b*d)*b)^(1/2)*a
rctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*B*a*e-2/(a*e-b*d)^3*b^
2/((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))
*B*d
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^2*(e*x + d)^(5/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.229689, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^2*(e*x + d)^(5/2)),x, algorithm="fricas")
```

```
[Out] [1/6*(4*A*a^2*e^2 + 2*(11*B*a*b - 3*A*b^2)*d^2 + 4*(2*B*a^2 - 7*A
*a*b)*d*e + 6*(2*B*b^2*d*e + (3*B*a*b - 5*A*b^2)*e^2)*x^2 + 3*(2*
```

```
B*a*b*d^2 + (3*B*a^2 - 5*A*a*b)*d*e + (2*B*b^2*d*e + (3*B*a*b - 5
*A*b^2)*e^2)*x^2 + (2*B*b^2*d^2 + 5*(B*a*b - A*b^2)*d*e + (3*B*a^
2 - 5*A*a*b)*e^2)*x)*sqrt(e*x + d)*sqrt(b/(b*d - a*e))*log((b*e*x
 + 2*b*d - a*e - 2*(b*d - a*e)*sqrt(e*x + d)*sqrt(b/(b*d - a*e)))
/(b*x + a)) + 4*(4*B*b^2*d^2 + 2*(4*B*a*b - 5*A*b^2)*d*e + (3*B*a
^2 - 5*A*a*b)*e^2)*x)/((a*b^3*d^4 - 3*a^2*b^2*d^3*e + 3*a^3*b*d^2
*e^2 - a^4*d*e^3 + (b^4*d^3*e - 3*a*b^3*d^2*e^2 + 3*a^2*b^2*d*e^3
 - a^3*b*e^4)*x^2 + (b^4*d^4 - 2*a*b^3*d^3*e + 2*a^3*b*d*e^3 - a^
4*e^4)*x)*sqrt(e*x + d)), 1/3*(2*A*a^2*e^2 + (11*B*a*b - 3*A*b^2)
*d^2 + 2*(2*B*a^2 - 7*A*a*b)*d*e + 3*(2*B*b^2*d*e + (3*B*a*b - 5*
A*b^2)*e^2)*x^2 - 3*(2*B*a*b*d^2 + (3*B*a^2 - 5*A*a*b)*d*e + (2*B
*b^2*d*e + (3*B*a*b - 5*A*b^2)*e^2)*x^2 + (2*B*b^2*d^2 + 5*(B*a*b
 - A*b^2)*d*e + (3*B*a^2 - 5*A*a*b)*e^2)*x)*sqrt(e*x + d)*sqrt(-b
/(b*d - a*e))*arctan(-(b*d - a*e)*sqrt(-b/(b*d - a*e))/(sqrt(e*x
+ d)*b)) + 2*(4*B*b^2*d^2 + 2*(4*B*a*b - 5*A*b^2)*d*e + (3*B*a^2
- 5*A*a*b)*e^2)*x)/((a*b^3*d^4 - 3*a^2*b^2*d^3*e + 3*a^3*b*d^2*e^
2 - a^4*d*e^3 + (b^4*d^3*e - 3*a*b^3*d^2*e^2 + 3*a^2*b^2*d*e^3 -
a^3*b*e^4)*x^2 + (b^4*d^4 - 2*a*b^3*d^3*e + 2*a^3*b*d*e^3 - a^4*e
^4)*x)*sqrt(e*x + d))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(b*x+a)**2/(e*x+d)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.232987, size = 401, normalized size = 2.22

$$\frac{\left(2\,Bb^2d+3\,Babe-5\,Ab^2e\right)\arctan\left(\frac{\sqrt{xe+d}b}{\sqrt{-b^2d+abe}}\right)}{\left(b^3d^3-3\,ab^2d^2e+3\,a^2bde^2-a^3e^3\right)\sqrt{-b^2d+abe}}+\frac{\sqrt{xe+d}Babe-\sqrt{xe+d}Ab^2e}{\left(b^3d^3-3\,ab^2d^2e+3\,a^2bde^2-a^3e^3\right)\left((xe+d)b-bd+ae\right)}+\frac{2\left(3\,(xe+d)Bbd+Bbd^2+3\,(xe+d)Bae-6\,(xe+d)Abe-Bade-Abde+Aae^2\right)}{3\left(b^3d^3-3\,ab^2d^2e+3\,a^2bde^2-a^3e^3\right)(xe+d)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/((b*x + a)^2*(e*x + d)^(5/2)),x, algorithm="giac")
```

```
[Out] (2*B*b^2*d + 3*B*a*b*e - 5*A*b^2*e)*arctan(sqrt(x*e + d)*b/sqrt(-
b^2*d + a*b*e))/((b^3*d^3 - 3*a*b^2*d^2*e + 3*a^2*b*d*e^2 - a^3*e
^3)*sqrt(-b^2*d + a*b*e)) + (sqrt(x*e + d)*B*a*b*e - sqrt(x*e + d
)*A*b^2*e)/((b^3*d^3 - 3*a*b^2*d^2*e + 3*a^2*b*d*e^2 - a^3*e^3)*(
(x*e + d)*b - b*d + a*e)) + 2/3*(3*(x*e + d)*B*b*d + B*b*d^2 + 3*
(x*e + d)*B*a*e - 6*(x*e + d)*A*b*e - B*a*d*e - A*b*d*e + A*a*e^2
)/((b^3*d^3 - 3*a*b^2*d^2*e + 3*a^2*b*d*e^2 - a^3*e^3)*(x*e + d)^
(3/2))
```

3.1740 $\int \frac{A+Bx}{(a+bx)^2(d+ex)^{7/2}}\,dx$

Optimal. Leaf size=221

$$-\frac{b^{3/2}(5aBe-7Abe+2bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{(bd-ae)^{9/2}}+\frac{b(5aBe-7Abe+2bBd)}{\sqrt{d+ex}(bd-ae)^4}+\frac{5aBe-7Abe+2bBd}{3(d+ex)^{3/2}(bd-ae)^3}+\frac{5aBe-7Abe+2bBd}{5b(d+ex)^{5/2}(bd-ae)^2}-\frac{Ab-aB}{b(a+bx)(d+ex)^{5/2}(bd-ae)}$$

```
[Out] (2*b*B*d - 7*A*b*e + 5*a*B*e)/(5*b*(b*d - a*e)^2*(d + e*x)^(5/2))
 - (A*b - a*B)/(b*(b*d - a*e)*(a + b*x)*(d + e*x)^(5/2)) + (2*b*B
*d - 7*A*b*e + 5*a*B*e)/(3*(b*d - a*e)^3*(d + e*x)^(3/2)) + (b*(2
*b*B*d - 7*A*b*e + 5*a*B*e))/((b*d - a*e)^4*Sqrt[d + e*x]) - (b^(
3/2)*(2*b*B*d - 7*A*b*e + 5*a*B*e)*ArcTanh[(Sqrt[b]*Sqrt[d + e*x]
)/Sqrt[b*d - a*e]])/(b*d - a*e)^(9/2)
```

Rubi [A] time = 0.52826, antiderivative size = 221, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{b^{3/2}(5aBe-7Abe+2bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{(bd-ae)^{9/2}}+\frac{b(5aBe-7Abe+2bBd)}{\sqrt{d+ex}(bd-ae)^4}+\frac{5aBe-7Abe+2bBd}{3(d+ex)^{3/2}(bd-ae)^3}+\frac{5aBe-7Abe+2bBd}{5b(d+ex)^{5/2}(bd-ae)^2}-\frac{Ab-aB}{b(a+bx)(d+ex)^{5/2}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/((a + b*x)^2*(d + e*x)^(7/2)),x]
```

```
[Out] (2*b*B*d - 7*A*b*e + 5*a*B*e)/(5*b*(b*d - a*e)^2*(d + e*x)^(5/2))
 - (A*b - a*B)/(b*(b*d - a*e)*(a + b*x)*(d + e*x)^(5/2)) + (2*b*B
*d - 7*A*b*e + 5*a*B*e)/(3*(b*d - a*e)^3*(d + e*x)^(3/2)) + (b*(2
*b*B*d - 7*A*b*e + 5*a*B*e))/((b*d - a*e)^4*Sqrt[d + e*x]) - (b^(
3/2)*(2*b*B*d - 7*A*b*e + 5*a*B*e)*ArcTanh[(Sqrt[b]*Sqrt[d + e*x]
)/Sqrt[b*d - a*e]])/(b*d - a*e)^(9/2)
```

Rubi in Sympy [A] time = 53.8819, size = 207, normalized size = 0.94

$$-\frac{b^{\frac{3}{2}}(7Abe-5Bae-2Bbd)\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{ae-bd}}\right)}{(ae-bd)^{\frac{9}{2}}}-\frac{b(7Abe-5Bae-2Bbd)}{\sqrt{d+ex}(ae-bd)^4}+\frac{7Abe-5Bae-2Bbd}{3(d+ex)^{\frac{3}{2}}(ae-bd)^3}-\frac{7Abe-5Bae-2Bbd}{5b(d+ex)^{\frac{5}{2}}(ae-bd)^2}+\frac{Ab-Ba}{b(a+bx)(d+ex)^{\frac{5}{2}}(ae-bd)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(b*x+a)**2/(e*x+d)**(7/2),x)
```

```
[Out] -b**(3/2)*(7*A*b*e - 5*B*a*e - 2*B*b*d)*atan(sqrt(b)*sqrt(d + e*x
)/sqrt(a*e - b*d))/(a*e - b*d)**(9/2) - b*(7*A*b*e - 5*B*a*e - 2*
B*b*d)/(sqrt(d + e*x)*(a*e - b*d)**4) + (7*A*b*e - 5*B*a*e - 2*B*
b*d)/(3*(d + e*x)**(3/2)*(a*e - b*d)**3) - (7*A*b*e - 5*B*a*e - 2
*B*b*d)/(5*b*(d + e*x)**(5/2)*(a*e - b*d)**2) + (A*b - B*a)/(b*(a
 + b*x)*(d + e*x)**(5/2)*(a*e - b*d))
```

Mathematica [A] time = 0.758903, size = 191, normalized size = 0.86

$$\frac{\sqrt{d+ex}\left(\frac{15b^2(aB-Ab)}{a+bx}+\frac{30b(2aBe-3Abe+bBd)}{d+ex}+\frac{10(bd-ae)(aBe-2Abe+bBd)}{(d+ex)^2}+\frac{6(bd-ae)^2(Bd-Ae)}{(d+ex)^3}\right)}{15(bd-ae)^4}-\frac{b^{3/2}(5aBe-7Abe+2bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{(bd-ae)^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/((a + b*x)^2*(d + e*x)^(7/2)),x]
```

```
[Out] (Sqrt[d + e*x]*((15*b^2*(-(A*b) + a*B))/(a + b*x) + (6*(b*d - a*e
)^2*(B*d - A*e))/(d + e*x)^3 + (10*(b*d - a*e)*(b*B*d - 2*A*b*e +
 a*B*e))/(d + e*x)^2 + (30*b*(b*B*d - 3*A*b*e + 2*a*B*e))/(d + e*
x)))/(15*(b*d - a*e)^4) - (b^(3/2)*(2*b*B*d - 7*A*b*e + 5*a*B*e)*
ArcTanh[(Sqrt[b]*Sqrt[d + e*x])/Sqrt[b*d - a*e]])/(b*d - a*e)^(9/
2)
```

Maple [B] time = 0.033, size = 403, normalized size = 1.8

$$-\frac{2\,Ae}{5\,(ae-bd)^2}(ex+d)^{-\frac{5}{2}}+\frac{2\,Bd}{5\,(ae-bd)^2}(ex+d)^{-\frac{5}{2}}+\frac{4\,Abe}{3\,(ae-bd)^3}(ex+d)^{-\frac{3}{2}}-\frac{2\,Bae}{3\,(ae-bd)^3}(ex+d)^{-\frac{3}{2}}-\frac{2\,Bbd}{3\,(ae-bd)^3}(ex+d)^{-\frac{3}{2}}-6\,\frac{Ab^2e}{(ae-bd)^4\sqrt{ex+d}}+4\,\frac{Babe}{(ae-bd)^4\sqrt{ex+d}}+2\,\frac{b^2Bd}{(ae-bd)^4\sqrt{ex+d}}-\frac{Ab^3e}{(ae-bd)^4(bxe+ae)}\sqrt{ex+d}+\frac{Bab^2e}{(ae-bd)^4(bxe+ae)}\sqrt{ex+d}-7\,\frac{Ab^3e}{(ae-bd)^4\sqrt{(ae-bd)\,b}}\arctan\left(\frac{\sqrt{ex+d}b}{\sqrt{(ae-bd)\,b}}\right)+5\,\frac{Bab^2e}{(ae-bd)^4\sqrt{(ae-bd)\,b}}\arctan\left(\frac{\sqrt{ex+d}b}{\sqrt{(ae-bd)\,b}}\right)+2\,\frac{Bb^3d}{(ae-bd)^4\sqrt{(ae-bd)\,b}}\arctan\left(\frac{\sqrt{ex+d}b}{\sqrt{(ae-bd)\,b}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(b*x+a)^2/(e*x+d)^(7/2),x)
```

```
[Out] -2/5/(a*e-b*d)^2/(e*x+d)^(5/2)*A*e+2/5/(a*e-b*d)^2/(e*x+d)^(5/2)*
B*d+4/3/(a*e-b*d)^3/(e*x+d)^(3/2)*A*b*e-2/3/(a*e-b*d)^3/(e*x+d)^(
3/2)*B*a*e-2/3/(a*e-b*d)^3/(e*x+d)^(3/2)*B*b*d-6*b^2/(a*e-b*d)^4/
(e*x+d)^(1/2)*A*e+4*b/(a*e-b*d)^4/(e*x+d)^(1/2)*B*a*e+2*b^2/(a*e-
b*d)^4/(e*x+d)^(1/2)*B*d-1/(a*e-b*d)^4*b^3*(e*x+d)^(1/2)/(b*e*x+a
*e)*A*e+1/(a*e-b*d)^4*b^2*(e*x+d)^(1/2)/(b*e*x+a*e)*B*a*e-7/(a*e-
b*d)^4*b^3/((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*d)*
b)^(1/2))*A*e+5/(a*e-b*d)^4*b^2/((a*e-b*d)*b)^(1/2)*arctan((e*x+d
)^(1/2)*b/((a*e-b*d)*b)^(1/2))*B*a*e+2/(a*e-b*d)^4*b^3/((a*e-b*d)
*b)^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*B*d
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^2*(e*x + d)^(7/2)),x, algorithm="maxima")
```

[Out] Exception raised: ValueError

Fricas [A] time = 0.235421, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/((b*x + a)^2*(e*x + d)^(7/2)),x, algorithm="fricas")
```

```
[Out] [-1/30*(12*A*a^3*e^3 - 2*(61*B*a*b^2 - 15*A*b^3)*d^3 - 8*(12*B*a^
2*b - 29*A*a*b^2)*d^2*e + 8*(B*a^3 - 8*A*a^2*b)*d*e^2 - 30*(2*B*b
^3*d*e^2 + (5*B*a*b^2 - 7*A*b^3)*e^3)*x^3 - 10*(14*B*b^3*d^2*e +
(39*B*a*b^2 - 49*A*b^3)*d*e^2 + 2*(5*B*a^2*b - 7*A*a*b^2)*e^3)*x^
2 + 15*(2*B*a*b^2*d^3 + (5*B*a^2*b - 7*A*a*b^2)*d^2*e + (2*B*b^3*
d*e^2 + (5*B*a*b^2 - 7*A*b^3)*e^3)*x^3 + (4*B*b^3*d^2*e + 2*(6*B*
a*b^2 - 7*A*b^3)*d*e^2 + (5*B*a^2*b - 7*A*a*b^2)*e^3)*x^2 + (2*B*
b^3*d^3 + (9*B*a*b^2 - 7*A*b^3)*d^2*e + 2*(5*B*a^2*b - 7*A*a*b^2)
*d*e^2)*x)*sqrt(e*x + d)*sqrt(b/(b*d - a*e))*log((b*e*x + 2*b*d -
 a*e + 2*(b*d - a*e)*sqrt(e*x + d)*sqrt(b/(b*d - a*e)))/(b*x + a)
) - 2*(46*B*b^3*d^3 + (163*B*a*b^2 - 161*A*b^3)*d^2*e + 4*(29*B*a
^2*b - 42*A*a*b^2)*d*e^2 - 2*(5*B*a^3 - 7*A*a^2*b)*e^3)*x)/((a*b^
4*d^6 - 4*a^2*b^3*d^5*e + 6*a^3*b^2*d^4*e^2 - 4*a^4*b*d^3*e^3 + a
^5*d^2*e^4 + (b^5*d^4*e^2 - 4*a*b^4*d^3*e^3 + 6*a^2*b^3*d^2*e^4 -
 4*a^3*b^2*d*e^5 + a^4*b*e^6)*x^3 + (2*b^5*d^5*e - 7*a*b^4*d^4*e^
2 + 8*a^2*b^3*d^3*e^3 - 2*a^3*b^2*d^2*e^4 - 2*a^4*b*d*e^5 + a^5*e
^6)*x^2 + (b^5*d^6 - 2*a*b^4*d^5*e - 2*a^2*b^3*d^4*e^2 + 8*a^3*b^
2*d^3*e^3 - 7*a^4*b*d^2*e^4 + 2*a^5*d*e^5)*x)*sqrt(e*x + d)), -1/
15*(6*A*a^3*e^3 - (61*B*a*b^2 - 15*A*b^3)*d^3 - 4*(12*B*a^2*b - 2
9*A*a*b^2)*d^2*e + 4*(B*a^3 - 8*A*a^2*b)*d*e^2 - 15*(2*B*b^3*d*e^
2 + (5*B*a*b^2 - 7*A*b^3)*e^3)*x^3 - 5*(14*B*b^3*d^2*e + (39*B*a*
b^2 - 49*A*b^3)*d*e^2 + 2*(5*B*a^2*b - 7*A*a*b^2)*e^3)*x^2 + 15*(
2*B*a*b^2*d^3 + (5*B*a^2*b - 7*A*a*b^2)*d^2*e + (2*B*b^3*d*e^2 +
(5*B*a*b^2 - 7*A*b^3)*e^3)*x^3 + (4*B*b^3*d^2*e + 2*(6*B*a*b^2 -
7*A*b^3)*d*e^2 + (5*B*a^2*b - 7*A*a*b^2)*e^3)*x^2 + (2*B*b^3*d^3
+ (9*B*a*b^2 - 7*A*b^3)*d^2*e + 2*(5*B*a^2*b - 7*A*a*b^2)*d*e^2)*
x)*sqrt(e*x + d)*sqrt(-b/(b*d - a*e))*arctan(-(b*d - a*e)*sqrt(-b
/(b*d - a*e))/(sqrt(e*x + d)*b)) - (46*B*b^3*d^3 + (163*B*a*b^2 -
 161*A*b^3)*d^2*e + 4*(29*B*a^2*b - 42*A*a*b^2)*d*e^2 - 2*(5*B*a^
3 - 7*A*a^2*b)*e^3)*x)/((a*b^4*d^6 - 4*a^2*b^3*d^5*e + 6*a^3*b^2*
d^4*e^2 - 4*a^4*b*d^3*e^3 + a^5*d^2*e^4 + (b^5*d^4*e^2 - 4*a*b^4*
d^3*e^3 + 6*a^2*b^3*d^2*e^4 - 4*a^3*b^2*d*e^5 + a^4*b*e^6)*x^3 +
(2*b^5*d^5*e - 7*a*b^4*d^4*e^2 + 8*a^2*b^3*d^3*e^3 - 2*a^3*b^2*d^
2*e^4 - 2*a^4*b*d*e^5 + a^5*e^6)*x^2 + (b^5*d^6 - 2*a*b^4*d^5*e -
 2*a^2*b^3*d^4*e^2 + 8*a^3*b^2*d^3*e^3 - 7*a^4*b*d^2*e^4 + 2*a^5*
d*e^5)*x)*sqrt(e*x + d))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x+A)/(b*x+a)**2/(e*x+d)**(7/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.236931, size = 587, normalized size = 2.66

$$\frac{\left(2\,Bb^3d+5\,Bab^2e-7\,Ab^3e\right)\arctan\left(\frac{\sqrt{xe+d}b}{\sqrt{-b^2d+abe}}\right)}{\left(b^4d^4-4\,ab^3d^3e+6\,a^2b^2d^2e^2-4\,a^3bde^3+a^4e^4\right)\sqrt{-b^2d+abe}}+\frac{\sqrt{xe+d}Bab^2e-\sqrt{xe+d}Ab^3e}{\left(b^4d^4-4\,ab^3d^3e+6\,a^2b^2d^2e^2-4\,a^3bde^3+a^4e^4\right)\left((xe+d)b-bd+ae\right)}+\frac{2\left(15\,(xe+d)^2Bb^2d+5\,(xe+d)Bb^2d^2+3\,Bb^2d^3+30\,(xe+d)^2Babe-45\,(xe+d)^2Ab^2e-10\,(xe+d)Ab^2de-6\,Babd^2e-3\right.}{15\left(b^4d^4-4\,ab^3d^3e+6\,a^2b^2d^2e^2-4\,a^3bde^3+a^4e^4\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/((b*x + a)^2*(e*x + d)^(7/2)),x, algorithm="giac")
```

```
[Out] (2*B*b^3*d + 5*B*a*b^2*e - 7*A*b^3*e)*arctan(sqrt(x*e + d)*b/sqrt
(-b^2*d + a*b*e))/((b^4*d^4 - 4*a*b^3*d^3*e + 6*a^2*b^2*d^2*e^2 -
 4*a^3*b*d*e^3 + a^4*e^4)*sqrt(-b^2*d + a*b*e)) + (sqrt(x*e + d)*
B*a*b^2*e - sqrt(x*e + d)*A*b^3*e)/((b^4*d^4 - 4*a*b^3*d^3*e + 6*
a^2*b^2*d^2*e^2 - 4*a^3*b*d*e^3 + a^4*e^4)*((x*e + d)*b - b*d + a
*e)) + 2/15*(15*(x*e + d)^2*B*b^2*d + 5*(x*e + d)*B*b^2*d^2 + 3*B
*b^2*d^3 + 30*(x*e + d)^2*B*a*b*e - 45*(x*e + d)^2*A*b^2*e - 10*(
x*e + d)*A*b^2*d*e - 6*B*a*b*d^2*e - 3*A*b^2*d^2*e - 5*(x*e + d)*
B*a^2*e^2 + 10*(x*e + d)*A*a*b*e^2 + 3*B*a^2*d*e^2 + 6*A*a*b*d*e^
2 - 3*A*a^2*e^3)/((b^4*d^4 - 4*a*b^3*d^3*e + 6*a^2*b^2*d^2*e^2 -
4*a^3*b*d*e^3 + a^4*e^4)*(x*e + d)^(5/2))
```

3.1741 $\int \frac{(A+Bx)(d+ex)^{7/2}}{(a+bx)^3} dx$

Optimal. Leaf size=274

$$-\frac{7e(bd-ae)^{3/2}(-9aBe+5Abe+4bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{4b^{11/2}}+\frac{7e\sqrt{d+ex}(bd-ae)(-9aBe+5Abe+4bBd)}{4b^5}+\frac{7e(d+ex)^{3/2}(-9aBe+5Abe+4bBd)}{12b^4}+\frac{7e(d+ex)^{5/2}(-9aBe+5Abe+4bBd)}{20b^3(bd-ae)}-\frac{(d+ex)^{7/2}(-9aBe+5Abe+4bBd)}{4b^2(a+bx)(bd-ae)}-\frac{(d+ex)^{9/2}(Ab-aB)}{2b(a+bx)^2(bd-ae)}$$

```
[Out] (7*e*(b*d - a*e)*(4*b*B*d + 5*A*b*e - 9*a*B*e)*Sqrt[d + e*x])/(4*
b^5) + (7*e*(4*b*B*d + 5*A*b*e - 9*a*B*e)*(d + e*x)^(3/2))/(12*b^
4) + (7*e*(4*b*B*d + 5*A*b*e - 9*a*B*e)*(d + e*x)^(5/2))/(20*b^3*
(b*d - a*e)) - ((4*b*B*d + 5*A*b*e - 9*a*B*e)*(d + e*x)^(7/2))/(4
*b^2*(b*d - a*e)*(a + b*x)) - ((A*b - a*B)*(d + e*x)^(9/2))/(2*b*
(b*d - a*e)*(a + b*x)^2) - (7*e*(b*d - a*e)^(3/2)*(4*b*B*d + 5*A*
b*e - 9*a*B*e)*ArcTanh[(Sqrt[b]*Sqrt[d + e*x])/Sqrt[b*d - a*e]])/
(4*b^(11/2))
```

Rubi [A] time = 0.593197, antiderivative size = 274, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.227$

$$-\frac{7e(bd-ae)^{3/2}(-9aBe+5Abe+4bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{4b^{11/2}}+\frac{7e\sqrt{d+ex}(bd-ae)(-9aBe+5Abe+4bBd)}{4b^5}+\frac{7e(d+ex)^{3/2}(-9aBe+5Abe+4bBd)}{12b^4}+\frac{7e(d+ex)^{5/2}(-9aBe+5Abe+4bBd)}{20b^3(bd-ae)}-\frac{(d+ex)^{7/2}(-9aBe+5Abe+4bBd)}{4b^2(a+bx)(bd-ae)}-\frac{(d+ex)^{9/2}(Ab-aB)}{2b(a+bx)^2(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[((A + B*x)*(d + e*x)^(7/2))/(a + b*x)^3,x]
```

```
[Out] (7*e*(b*d - a*e)*(4*b*B*d + 5*A*b*e - 9*a*B*e)*Sqrt[d + e*x])/(4*
b^5) + (7*e*(4*b*B*d + 5*A*b*e - 9*a*B*e)*(d + e*x)^(3/2))/(12*b^
4) + (7*e*(4*b*B*d + 5*A*b*e - 9*a*B*e)*(d + e*x)^(5/2))/(20*b^3*
(b*d - a*e)) - ((4*b*B*d + 5*A*b*e - 9*a*B*e)*(d + e*x)^(7/2))/(4
*b^2*(b*d - a*e)*(a + b*x)) - ((A*b - a*B)*(d + e*x)^(9/2))/(2*b*
(b*d - a*e)*(a + b*x)^2) - (7*e*(b*d - a*e)^(3/2)*(4*b*B*d + 5*A*
b*e - 9*a*B*e)*ArcTanh[(Sqrt[b]*Sqrt[d + e*x])/Sqrt[b*d - a*e]])/
(4*b^(11/2))
```

Rubi in Sympy [A] time = 60.7287, size = 269, normalized size = 0.98

$$\frac{(d+ex)^{\frac{9}{2}}(Ab-Ba)}{2b(a+bx)^2(ae-bd)}+\frac{(d+ex)^{\frac{7}{2}}(5Abe-9Bae+4Bbd)}{4b^2(a+bx)(ae-bd)}-\frac{7e(d+ex)^{\frac{5}{2}}(5Abe-9Bae+4Bbd)}{20b^3(ae-bd)}+\frac{7e(d+ex)^{\frac{3}{2}}(5Abe-9Bae+4Bbd)}{12b^4}-\frac{7e\sqrt{d+ex}(ae-bd)(5Abe-9Bae+4Bbd)}{4b^5}+\frac{7e(ae-bd)^{\frac{3}{2}}(5Abe-9Bae+4Bbd)\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{ae-bd}}\right)}{4b^{\frac{11}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(e*x+d)**(7/2)/(b*x+a)**3,x)
```

```
[Out] (d + e*x)**(9/2)*(A*b - B*a)/(2*b*(a + b*x)**2*(a*e - b*d)) + (d
+ e*x)**(7/2)*(5*A*b*e - 9*B*a*e + 4*B*b*d)/(4*b**2*(a + b*x)*(a*
```

```
e - b*d)) - 7*e*(d + e*x)**(5/2)*(5*A*b*e - 9*B*a*e + 4*B*b*d)/(2
0*b**3*(a*e - b*d)) + 7*e*(d + e*x)**(3/2)*(5*A*b*e - 9*B*a*e + 4
*B*b*d)/(12*b**4) - 7*e*sqrt(d + e*x)*(a*e - b*d)*(5*A*b*e - 9*B*
a*e + 4*B*b*d)/(4*b**5) + 7*e*(a*e - b*d)**(3/2)*(5*A*b*e - 9*B*a
*e + 4*B*b*d)*atan(sqrt(b)*sqrt(d + e*x)/sqrt(a*e - b*d))/(4*b**(
11/2))
```

Mathematica [A] time = 0.805434, size = 223, normalized size = 0.81

$$\frac{\sqrt{d+ex}\left(8e\left(90a^2Be^2-15abe(3Ae+10Bd)+2b^2d(25Ae+29Bd)\right)+8be^2x(-15aBe+5Abe+16bBd)-\frac{15(bd-ae)^2(-17aBe+13}{a+bx}}{60b^5}-\frac{7e(bd-ae)^{3/2}(-9aBe+5Abe+4bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{4b^{11/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((A + B*x)*(d + e*x)^(7/2))/(a + b*x)^3,x]
```

```
[Out] (Sqrt[d + e*x]*(8*e*(90*a^2*B*e^2 - 15*a*b*e*(10*B*d + 3*A*e) + 2
*b^2*d*(29*B*d + 25*A*e)) + 8*b*e^2*(16*b*B*d + 5*A*b*e - 15*a*B*
e)*x + 24*b^2*B*e^3*x^2 - (30*(A*b - a*B)*(b*d - a*e)^3)/(a + b*x
)^2 - (15*(b*d - a*e)^2*(4*b*B*d + 13*A*b*e - 17*a*B*e))/(a + b*x
)))/(60*b^5) - (7*e*(b*d - a*e)^(3/2)*(4*b*B*d + 5*A*b*e - 9*a*B*
e)*ArcTanh[(Sqrt[b]*Sqrt[d + e*x])/Sqrt[b*d - a*e]])/(4*b^(11/2))
```

Maple [B] time = 0.036, size = 940, normalized size = 3.4

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(e*x+d)^(7/2)/(b*x+a)^3,x)
```

```
[Out] -19/2/b^3/(b*e*x+a*e)^2*(e*x+d)^(3/2)*B*a^2*d*e^3-13/4/b/(b*e*x+a
*e)^2*(e*x+d)^(3/2)*A*d^2*e^2+17/4/b^4/(b*e*x+a*e)^2*(e*x+d)^(3/2
)*B*a^3*e^4-18/b^4*B*a*d*e^2*(e*x+d)^(1/2)-13/4/b^3/(b*e*x+a*e)^2
*(e*x+d)^(3/2)*A*a^2*e^4-11/4/b^4/(b*e*x+a*e)^2*(e*x+d)^(1/2)*A*a
^3*e^5+11/4/b/(b*e*x+a*e)^2*(e*x+d)^(1/2)*A*d^3*e^2+15/4/b^5/(b*e
*x+a*e)^2*(e*x+d)^(1/2)*B*a^4*e^5+35/4/b^4/((a*e-b*d)*b)^(1/2)*ar
ctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*A*a^2*e^4+35/4/b^2/((a*
e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*A*d^2
*e^2-63/4/b^5/((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*
d)*b)^(1/2))*B*a^3*e^4+2/3/b^3*A*(e*x+d)^(3/2)*e^2+2/5*e/b^3*B*(e
*x+d)^(5/2)+6*e/b^3*B*d^2*(e*x+d)^(1/2)-27/4/b^2/(b*e*x+a*e)^2*(e
*x+d)^(1/2)*B*a*d^3*e^2-2/b^4*B*(e*x+d)^(3/2)*a*e^2-6/b^4*A*a*e^3
*(e*x+d)^(1/2)+6/b^3*A*d*e^2*(e*x+d)^(1/2)+12/b^5*B*a^2*e^3*(e*x+
d)^(1/2)+4/3*e/b^3*B*(e*x+d)^(3/2)*d+25/4/b^2/(b*e*x+a*e)^2*(e*x+
d)^(3/2)*B*a*d^2*e^2-35/2/b^3/((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^
(1/2)*b/((a*e-b*d)*b)^(1/2))*A*a*d*e^3+77/2/b^4/((a*e-b*d)*b)^(1/
2)*arctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*B*a^2*d*e^3-119/4/
b^3/((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2
))*B*a*d^2*e^2+13/2/b^2/(b*e*x+a*e)^2*(e*x+d)^(3/2)*A*a*d*e^3-e/b
/(b*e*x+a*e)^2*(e*x+d)^(3/2)*B*d^3+e/b/(b*e*x+a*e)^2*(e*x+d)^(1/2
)*B*d^4+7*e/b^2/((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-
b*d)*b)^(1/2))*B*d^3+57/4/b^3/(b*e*x+a*e)^2*(e*x+d)^(1/2)*B*a^2*d
^2*e^3+33/4/b^3/(b*e*x+a*e)^2*(e*x+d)^(1/2)*A*a^2*d*e^4-33/4/b^2/
(b*e*x+a*e)^2*(e*x+d)^(1/2)*A*a*d^2*e^3-49/4/b^4/(b*e*x+a*e)^2*(e
*x+d)^(1/2)*B*a^3*d*e^4
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(e*x + d)^(7/2)/(b*x + a)^3,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.232953, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(e*x + d)^(7/2)/(b*x + a)^3,x, algorithm="fricas")
```

```
[Out] [1/120*(105*(4*B*a^2*b^2*d^2*e - (13*B*a^3*b - 5*A*a^2*b^2)*d*e^2
 + (9*B*a^4 - 5*A*a^3*b)*e^3 + (4*B*b^4*d^2*e - (13*B*a*b^3 - 5*A
*b^4)*d*e^2 + (9*B*a^2*b^2 - 5*A*a*b^3)*e^3)*x^2 + 2*(4*B*a*b^3*d
^2*e - (13*B*a^2*b^2 - 5*A*a*b^3)*d*e^2 + (9*B*a^3*b - 5*A*a^2*b^
2)*e^3)*x)*sqrt((b*d - a*e)/b)*log((b*e*x + 2*b*d - a*e - 2*sqrt(
e*x + d)*b*sqrt((b*d - a*e)/b))/(b*x + a)) + 2*(24*B*b^4*e^3*x^4
- 30*(B*a*b^3 + A*b^4)*d^3 + 7*(107*B*a^2*b^2 - 15*A*a*b^3)*d^2*e
 - 140*(12*B*a^3*b - 5*A*a^2*b^2)*d*e^2 + 105*(9*B*a^4 - 5*A*a^3*
b)*e^3 + 8*(16*B*b^4*d*e^2 - (9*B*a*b^3 - 5*A*b^4)*e^3)*x^3 + 8*(
58*B*b^4*d^2*e - 2*(59*B*a*b^3 - 25*A*b^4)*d*e^2 + 7*(9*B*a^2*b^2
 - 5*A*a*b^3)*e^3)*x^2 - (60*B*b^4*d^3 - (1303*B*a*b^3 - 195*A*b^
4)*d^2*e + 14*(203*B*a^2*b^2 - 85*A*a*b^3)*d*e^2 - 175*(9*B*a^3*b
 - 5*A*a^2*b^2)*e^3)*x)*sqrt(e*x + d))/(b^7*x^2 + 2*a*b^6*x + a^2
*b^5), -1/60*(105*(4*B*a^2*b^2*d^2*e - (13*B*a^3*b - 5*A*a^2*b^2)
*d*e^2 + (9*B*a^4 - 5*A*a^3*b)*e^3 + (4*B*b^4*d^2*e - (13*B*a*b^3
 - 5*A*b^4)*d*e^2 + (9*B*a^2*b^2 - 5*A*a*b^3)*e^3)*x^2 + 2*(4*B*a
*b^3*d^2*e - (13*B*a^2*b^2 - 5*A*a*b^3)*d*e^2 + (9*B*a^3*b - 5*A*
a^2*b^2)*e^3)*x)*sqrt(-(b*d - a*e)/b)*arctan(sqrt(e*x + d)/sqrt(-
(b*d - a*e)/b)) - (24*B*b^4*e^3*x^4 - 30*(B*a*b^3 + A*b^4)*d^3 +
7*(107*B*a^2*b^2 - 15*A*a*b^3)*d^2*e - 140*(12*B*a^3*b - 5*A*a^2*
b^2)*d*e^2 + 105*(9*B*a^4 - 5*A*a^3*b)*e^3 + 8*(16*B*b^4*d*e^2 -
(9*B*a*b^3 - 5*A*b^4)*e^3)*x^3 + 8*(58*B*b^4*d^2*e - 2*(59*B*a*b^
3 - 25*A*b^4)*d*e^2 + 7*(9*B*a^2*b^2 - 5*A*a*b^3)*e^3)*x^2 - (60*
B*b^4*d^3 - (1303*B*a*b^3 - 195*A*b^4)*d^2*e + 14*(203*B*a^2*b^2
- 85*A*a*b^3)*d*e^2 - 175*(9*B*a^3*b - 5*A*a^2*b^2)*e^3)*x)*sqrt(
e*x + d))/(b^7*x^2 + 2*a*b^6*x + a^2*b^5)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x+A)*(e*x+d)**(7/2)/(b*x+a)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.234489, size = 819, normalized size = 2.99

$$\frac{7\left(4\,Bb^3d^3e - 17\,Bab^2d^2e^2 + 5\,Ab^3d^2e^2 + 22\,Ba^2bde^3 - 10\,Aab^2de^3 - 9\,Ba^3e^4 + 5\,Aa^2be^4\right)\arctan\left(\frac{\sqrt{xe+d}b}{\sqrt{-b^2d+abe}}\right)}{4\sqrt{-b^2d+abe}b^5} - \frac{4\,(xe+d)^{\frac{3}{2}}Bb^4d^3e - 4\sqrt{xe+d}Bb^4d^4e - 25\,(xe+d)^{\frac{3}{2}}Bab^3d^2e^2 + 13\,(xe+d)^{\frac{3}{2}}Ab^4d^2e^2 + 27\sqrt{xe+d}Bab^3d^3e^2 - 11\sqrt{xe+d}}{} + \frac{2\left(3\,(xe+d)^{\frac{5}{2}}Bb^{12}e + 10\,(xe+d)^{\frac{3}{2}}Bb^{12}de + 45\sqrt{xe+d}Bb^{12}d^2e - 15\,(xe+d)^{\frac{3}{2}}Bab^{11}e^2 + 5\,(xe+d)^{\frac{3}{2}}Ab^{12}e^2 - 135\sqrt{xe+d}B\right.}{15\,b^{15}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^(7/2)/(b*x + a)^3,x, algorithm="giac")
```

```
[Out] 7/4*(4*B*b^3*d^3*e - 17*B*a*b^2*d^2*e^2 + 5*A*b^3*d^2*e^2 + 22*B*
a^2*b*d*e^3 - 10*A*a*b^2*d*e^3 - 9*B*a^3*e^4 + 5*A*a^2*b*e^4)*arc
tan(sqrt(x*e + d)*b/sqrt(-b^2*d + a*b*e))/(sqrt(-b^2*d + a*b*e)*b
^5) - 1/4*(4*(x*e + d)^(3/2)*B*b^4*d^3*e - 4*sqrt(x*e + d)*B*b^4*
d^4*e - 25*(x*e + d)^(3/2)*B*a*b^3*d^2*e^2 + 13*(x*e + d)^(3/2)*A
*b^4*d^2*e^2 + 27*sqrt(x*e + d)*B*a*b^3*d^3*e^2 - 11*sqrt(x*e + d
)*A*b^4*d^3*e^2 + 38*(x*e + d)^(3/2)*B*a^2*b^2*d*e^3 - 26*(x*e +
d)^(3/2)*A*a*b^3*d*e^3 - 57*sqrt(x*e + d)*B*a^2*b^2*d^2*e^3 + 33*
sqrt(x*e + d)*A*a*b^3*d^2*e^3 - 17*(x*e + d)^(3/2)*B*a^3*b*e^4 +
13*(x*e + d)^(3/2)*A*a^2*b^2*e^4 + 49*sqrt(x*e + d)*B*a^3*b*d*e^4
 - 33*sqrt(x*e + d)*A*a^2*b^2*d*e^4 - 15*sqrt(x*e + d)*B*a^4*e^5
+ 11*sqrt(x*e + d)*A*a^3*b*e^5)/(((x*e + d)*b - b*d + a*e)^2*b^5)
 + 2/15*(3*(x*e + d)^(5/2)*B*b^12*e + 10*(x*e + d)^(3/2)*B*b^12*d
*e + 45*sqrt(x*e + d)*B*b^12*d^2*e - 15*(x*e + d)^(3/2)*B*a*b^11*
e^2 + 5*(x*e + d)^(3/2)*A*b^12*e^2 - 135*sqrt(x*e + d)*B*a*b^11*d
*e^2 + 45*sqrt(x*e + d)*A*b^12*d*e^2 + 90*sqrt(x*e + d)*B*a^2*b^1
0*e^3 - 45*sqrt(x*e + d)*A*a*b^11*e^3)/b^15
```

3.1742 $\int \frac{(A+Bx)(d+ex)^{5/2}}{(a+bx)^3} dx$

Optimal. Leaf size=233

$$-\frac{5e\sqrt{bd-ae}(-7aBe+3Abe+4bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{4b^{9/2}}+\frac{5e\sqrt{d+ex}(-7aBe+3Abe+4bBd)}{4b^4}+\frac{5e(d+ex)^{3/2}(-7aBe+3Abe+4bBd)}{12b^3(bd-ae)}-\frac{(d+ex)^{5/2}(-7aBe+3Abe+4bBd)}{4b^2(a+bx)(bd-ae)}-\frac{(d+ex)^{7/2}(Ab-aB)}{2b(a+bx)^2(bd-ae)}$$

```
[Out] (5*e*(4*b*B*d + 3*A*b*e - 7*a*B*e)*Sqrt[d + e*x])/(4*b^4) + (5*e*
(4*b*B*d + 3*A*b*e - 7*a*B*e)*(d + e*x)^(3/2))/(12*b^3*(b*d - a*e
)) - ((4*b*B*d + 3*A*b*e - 7*a*B*e)*(d + e*x)^(5/2))/(4*b^2*(b*d
- a*e)*(a + b*x)) - ((A*b - a*B)*(d + e*x)^(7/2))/(2*b*(b*d - a*e
)*(a + b*x)^2) - (5*e*Sqrt[b*d - a*e]*(4*b*B*d + 3*A*b*e - 7*a*B*
e)*ArcTanh[(Sqrt[b]*Sqrt[d + e*x])/Sqrt[b*d - a*e]])/(4*b^(9/2))
```

Rubi [A] time = 0.449489, antiderivative size = 233, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.227$

$$-\frac{5e\sqrt{bd-ae}(-7aBe+3Abe+4bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{4b^{9/2}}+\frac{5e\sqrt{d+ex}(-7aBe+3Abe+4bBd)}{4b^4}+\frac{5e(d+ex)^{3/2}(-7aBe+3Abe+4bBd)}{12b^3(bd-ae)}-\frac{(d+ex)^{5/2}(-7aBe+3Abe+4bBd)}{4b^2(a+bx)(bd-ae)}-\frac{(d+ex)^{7/2}(Ab-aB)}{2b(a+bx)^2(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[((A + B*x)*(d + e*x)^(5/2))/(a + b*x)^3,x]
```

```
[Out] (5*e*(4*b*B*d + 3*A*b*e - 7*a*B*e)*Sqrt[d + e*x])/(4*b^4) + (5*e*
(4*b*B*d + 3*A*b*e - 7*a*B*e)*(d + e*x)^(3/2))/(12*b^3*(b*d - a*e
)) - ((4*b*B*d + 3*A*b*e - 7*a*B*e)*(d + e*x)^(5/2))/(4*b^2*(b*d
- a*e)*(a + b*x)) - ((A*b - a*B)*(d + e*x)^(7/2))/(2*b*(b*d - a*e
)*(a + b*x)^2) - (5*e*Sqrt[b*d - a*e]*(4*b*B*d + 3*A*b*e - 7*a*B*
e)*ArcTanh[(Sqrt[b]*Sqrt[d + e*x])/Sqrt[b*d - a*e]])/(4*b^(9/2))
```

Rubi in Sympy [A] time = 48.8593, size = 224, normalized size = 0.96

$$\frac{(d+ex)^{\frac{7}{2}}(Ab-Ba)}{2b(a+bx)^2(ae-bd)}+\frac{(d+ex)^{\frac{5}{2}}(3Abe-7Bae+4Bbd)}{4b^2(a+bx)(ae-bd)}-\frac{5e(d+ex)^{\frac{3}{2}}(3Abe-7Bae+4Bbd)}{12b^3(ae-bd)}+\frac{5e\sqrt{d+ex}(3Abe-7Bae+4Bbd)}{4b^4}-\frac{5e\sqrt{ae-bd}(3Abe-7Bae+4Bbd)\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{ae-bd}}\right)}{4b^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(e*x+d)**(5/2)/(b*x+a)**3,x)
```

```
[Out] (d + e*x)**(7/2)*(A*b - B*a)/(2*b*(a + b*x)**2*(a*e - b*d)) + (d
+ e*x)**(5/2)*(3*A*b*e - 7*B*a*e + 4*B*b*d)/(4*b**2*(a + b*x)*(a*
e - b*d)) - 5*e*(d + e*x)**(3/2)*(3*A*b*e - 7*B*a*e + 4*B*b*d)/(1
2*b**3*(a*e - b*d)) + 5*e*sqrt(d + e*x)*(3*A*b*e - 7*B*a*e + 4*B*
b*d)/(4*b**4) - 5*e*sqrt(a*e - b*d)*(3*A*b*e - 7*B*a*e + 4*B*b*d)
*atan(sqrt(b)*sqrt(d + e*x)/sqrt(a*e - b*d))/(4*b**(9/2))
```

Mathematica [A] time = 0.527278, size = 171, normalized size = 0.73

$$\frac{\sqrt{d+ex}\left(-\frac{3(bd-ae)(-13aBe+9Abe+4bBd)}{a+bx}-\frac{6(Ab-aB)(bd-ae)^2}{(a+bx)^2}+8e(-9aBe+3Abe+7bBd)+8bBe^2x\right)}{12b^4}-\frac{5e\sqrt{bd-ae}(-7aBe+3Abe+4bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{4b^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((A + B*x)*(d + e*x)^(5/2))/(a + b*x)^3,x]
```

```
[Out] (Sqrt[d + e*x]*(8*e*(7*b*B*d + 3*A*b*e - 9*a*B*e) + 8*b*B*e^2*x -
 (6*(A*b - a*B)*(b*d - a*e)^2)/(a + b*x)^2 - (3*(b*d - a*e)*(4*b*
B*d + 9*A*b*e - 13*a*B*e))/(a + b*x)))/(12*b^4) - (5*e*Sqrt[b*d -
 a*e]*(4*b*B*d + 3*A*b*e - 7*a*B*e)*ArcTanh[(Sqrt[b]*Sqrt[d + e*x
])/Sqrt[b*d - a*e]])/(4*b^(9/2))
```

Maple [B] time = 0.03, size = 626, normalized size = 2.7

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(e*x+d)^(5/2)/(b*x+a)^3,x)
```

```
[Out] 2/3*e/b^3*B*(e*x+d)^(3/2)+2/b^3*A*e^2*(e*x+d)^(1/2)-6/b^4*B*a*e^2
*(e*x+d)^(1/2)+4*e/b^3*B*d*(e*x+d)^(1/2)+9/4/b^2/(b*e*x+a*e)^2*(e
*x+d)^(3/2)*A*a*e^3-9/4/b/(b*e*x+a*e)^2*(e*x+d)^(3/2)*A*d*e^2-13/
4/b^3/(b*e*x+a*e)^2*(e*x+d)^(3/2)*B*a^2*e^3+17/4/b^2/(b*e*x+a*e)^
2*(e*x+d)^(3/2)*B*a*d*e^2-e/b/(b*e*x+a*e)^2*(e*x+d)^(3/2)*B*d^2+7
/4/b^3/(b*e*x+a*e)^2*(e*x+d)^(1/2)*A*a^2*e^4-7/2/b^2/(b*e*x+a*e)^
2*(e*x+d)^(1/2)*A*a*d*e^3+7/4/b/(b*e*x+a*e)^2*(e*x+d)^(1/2)*A*d^2
*e^2-11/4/b^4/(b*e*x+a*e)^2*(e*x+d)^(1/2)*B*a^3*e^4+13/2/b^3/(b*e
*x+a*e)^2*(e*x+d)^(1/2)*B*a^2*d*e^3-19/4/b^2/(b*e*x+a*e)^2*(e*x+d
)^(1/2)*B*a*d^2*e^2+e/b/(b*e*x+a*e)^2*(e*x+d)^(1/2)*B*d^3-15/4/b^
3/((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))
*A*a*e^3+15/4/b^2/((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*b/((a*
e-b*d)*b)^(1/2))*A*d*e^2+35/4/b^4/((a*e-b*d)*b)^(1/2)*arctan((e*x
+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*B*a^2*e^3-55/4/b^3/((a*e-b*d)*b)
^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*B*a*d*e^2+5*e/
b^2/((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2
))*B*d^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^(5/2)/(b*x + a)^3,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.226386, size = 1, normalized size = 0.

$$\left[-\frac{15\left(4\,Ba^2bde-\left(7\,Ba^3-3\,Aa^2b\right)e^2+\left(4\,Bb^3de-\left(7\,Bab^2-3\,Ab^3\right)e^2\right)x^2+2\left(4\,Bab^2de-\left(7\,Ba^2b-3\,Aab^2\right)e^2\right)x\right)\sqrt{\frac{bd-a}{b}}\cdots}{\cdots}\right.$$

$$-\frac{15\left(4\,Ba^2bde-\left(7\,Ba^3-3\,Aa^2b\right)e^2+\left(4\,Bb^3de-\left(7\,Bab^2-3\,Ab^3\right)e^2\right)x^2+2\left(4\,Bab^2de-\left(7\,Ba^2b-3\,Aab^2\right)e^2\right)x\right)\sqrt{-\frac{bd-a}{b}}\cdots}{\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(e*x + d)^(5/2)/(b*x + a)^3,x, algorithm="fricas")
```

```
[Out] [-1/24*(15*(4*B*a^2*b*d*e - (7*B*a^3 - 3*A*a^2*b)*e^2 + (4*B*b^3*
d*e - (7*B*a*b^2 - 3*A*b^3)*e^2)*x^2 + 2*(4*B*a*b^2*d*e - (7*B*a^
2*b - 3*A*a*b^2)*e^2)*x)*sqrt((b*d - a*e)/b)*log((b*e*x + 2*b*d -
 a*e + 2*sqrt(e*x + d)*b*sqrt((b*d - a*e)/b))/(b*x + a)) - 2*(8*B
*b^3*e^2*x^3 - 6*(B*a*b^2 + A*b^3)*d^2 + 5*(19*B*a^2*b - 3*A*a*b^
2)*d*e - 15*(7*B*a^3 - 3*A*a^2*b)*e^2 + 8*(7*B*b^3*d*e - (7*B*a*b
^2 - 3*A*b^3)*e^2)*x^2 - (12*B*b^3*d^2 - (163*B*a*b^2 - 27*A*b^3)
*d*e + 25*(7*B*a^2*b - 3*A*a*b^2)*e^2)*x)*sqrt(e*x + d))/(b^6*x^2
 + 2*a*b^5*x + a^2*b^4), -1/12*(15*(4*B*a^2*b*d*e - (7*B*a^3 - 3*
A*a^2*b)*e^2 + (4*B*b^3*d*e - (7*B*a*b^2 - 3*A*b^3)*e^2)*x^2 + 2*
(4*B*a*b^2*d*e - (7*B*a^2*b - 3*A*a*b^2)*e^2)*x)*sqrt(-(b*d - a*e
)/b)*arctan(sqrt(e*x + d)/sqrt(-(b*d - a*e)/b)) - (8*B*b^3*e^2*x^
3 - 6*(B*a*b^2 + A*b^3)*d^2 + 5*(19*B*a^2*b - 3*A*a*b^2)*d*e - 15
*(7*B*a^3 - 3*A*a^2*b)*e^2 + 8*(7*B*b^3*d*e - (7*B*a*b^2 - 3*A*b^
3)*e^2)*x^2 - (12*B*b^3*d^2 - (163*B*a*b^2 - 27*A*b^3)*d*e + 25*(
7*B*a^2*b - 3*A*a*b^2)*e^2)*x)*sqrt(e*x + d))/(b^6*x^2 + 2*a*b^5*
x + a^2*b^4)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(e*x+d)**(5/2)/(b*x+a)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.227147, size = 540, normalized size = 2.32

$$\frac{5\left(4\,Bb^2d^2e-11\,Babde^2+3\,Ab^2de^2+7\,Ba^2e^3-3\,Aabe^3\right)\arctan\left(\frac{\sqrt{xe+d}b}{\sqrt{-b^2d+abe}}\right)}{4\sqrt{-b^2d+abe}b^4}-\frac{4\,(xe+d)^{\frac{3}{2}}Bb^3d^2e-4\sqrt{xe+d}Bb^3d^3e-17\,(xe+d)^{\frac{3}{2}}Bab^2de^2+9\,(xe+d)^{\frac{3}{2}}Ab^3de^2+19\sqrt{xe+d}Bab^2d^2e^2-7\sqrt{xe+d}Ab^3\cdots}{4\,((xe+\cdots}+\frac{2\left((xe+d)^{\frac{3}{2}}Bb^6e+6\sqrt{xe+d}Bb^6de-9\sqrt{xe+d}Bab^5e^2+3\sqrt{xe+d}Ab^6e^2\right)}{3\,b^9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(e*x + d)^(5/2)/(b*x + a)^3,x, algorithm="giac")
```

```
[Out] 5/4*(4*B*b^2*d^2*e - 11*B*a*b*d*e^2 + 3*A*b^2*d*e^2 + 7*B*a^2*e^3
 - 3*A*a*b*e^3)*arctan(sqrt(x*e + d)*b/sqrt(-b^2*d + a*b*e))/(sqr
```

```
t(-b^2*d + a*b*e)*b^4) - 1/4*(4*(x*e + d)^(3/2)*B*b^3*d^2*e - 4*s
qrt(x*e + d)*B*b^3*d^3*e - 17*(x*e + d)^(3/2)*B*a*b^2*d*e^2 + 9*(
x*e + d)^(3/2)*A*b^3*d*e^2 + 19*sqrt(x*e + d)*B*a*b^2*d^2*e^2 - 7
*sqrt(x*e + d)*A*b^3*d^2*e^2 + 13*(x*e + d)^(3/2)*B*a^2*b*e^3 - 9
*(x*e + d)^(3/2)*A*a*b^2*e^3 - 26*sqrt(x*e + d)*B*a^2*b*d*e^3 + 1
4*sqrt(x*e + d)*A*a*b^2*d*e^3 + 11*sqrt(x*e + d)*B*a^3*e^4 - 7*sq
rt(x*e + d)*A*a^2*b*e^4)/(((x*e + d)*b - b*d + a*e)^2*b^4) + 2/3*
((x*e + d)^(3/2)*B*b^6*e + 6*sqrt(x*e + d)*B*b^6*d*e - 9*sqrt(x*e
 + d)*B*a*b^5*e^2 + 3*sqrt(x*e + d)*A*b^6*e^2)/b^9
```

3.1743 $\int \frac{(A+Bx)(d+ex)^{3/2}}{(a+bx)^3}\,dx$

Optimal. Leaf size=197

$$-\frac{3e(-5aBe+Abe+4bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{4b^{7/2}\sqrt{bd-ae}}+\frac{3e\sqrt{d+ex}(-5aBe+Abe+4bBd)}{4b^3(bd-ae)}-\frac{(d+ex)^{3/2}(-5aBe+Abe+4bBd)}{4b^2(a+bx)(bd-ae)}-\frac{(d+ex)^{5/2}(Ab-aB)}{2b(a+bx)^2(bd-ae)}$$

```
[Out] (3*e*(4*b*B*d + A*b*e - 5*a*B*e)*Sqrt[d + e*x])/(4*b^3*(b*d - a*e
)) - ((4*b*B*d + A*b*e - 5*a*B*e)*(d + e*x)^(3/2))/(4*b^2*(b*d -
a*e)*(a + b*x)) - ((A*b - a*B)*(d + e*x)^(5/2))/(2*b*(b*d - a*e)*
(a + b*x)^2) - (3*e*(4*b*B*d + A*b*e - 5*a*B*e)*ArcTanh[(Sqrt[b]*
Sqrt[d + e*x])/Sqrt[b*d - a*e]])/(4*b^(7/2)*Sqrt[b*d - a*e])
```

Rubi [A] time = 0.359684, antiderivative size = 197, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.227$

$$-\frac{3e(-5aBe+Abe+4bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{4b^{7/2}\sqrt{bd-ae}}+\frac{3e\sqrt{d+ex}(-5aBe+Abe+4bBd)}{4b^3(bd-ae)}-\frac{(d+ex)^{3/2}(-5aBe+Abe+4bBd)}{4b^2(a+bx)(bd-ae)}-\frac{(d+ex)^{5/2}(Ab-aB)}{2b(a+bx)^2(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[((A + B*x)*(d + e*x)^(3/2))/(a + b*x)^3,x]
```

```
[Out] (3*e*(4*b*B*d + A*b*e - 5*a*B*e)*Sqrt[d + e*x])/(4*b^3*(b*d - a*e
)) - ((4*b*B*d + A*b*e - 5*a*B*e)*(d + e*x)^(3/2))/(4*b^2*(b*d -
a*e)*(a + b*x)) - ((A*b - a*B)*(d + e*x)^(5/2))/(2*b*(b*d - a*e)*
(a + b*x)^2) - (3*e*(4*b*B*d + A*b*e - 5*a*B*e)*ArcTanh[(Sqrt[b]*
Sqrt[d + e*x])/Sqrt[b*d - a*e]])/(4*b^(7/2)*Sqrt[b*d - a*e])
```

Rubi in Sympy [A] time = 39.3463, size = 182, normalized size = 0.92

$$\frac{(d+ex)^{\frac{5}{2}}(Ab-Ba)}{2b(a+bx)^2(ae-bd)}+\frac{(d+ex)^{\frac{3}{2}}(Abe-5Bae+4Bbd)}{4b^2(a+bx)(ae-bd)}-\frac{3e\sqrt{d+ex}(Abe-5Bae+4Bbd)}{4b^3(ae-bd)}+\frac{3e(Abe-5Bae+4Bbd)\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{ae-bd}}\right)}{4b^{\frac{7}{2}}\sqrt{ae-bd}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(e*x+d)**(3/2)/(b*x+a)**3,x)
```

```
[Out] (d + e*x)**(5/2)*(A*b - B*a)/(2*b*(a + b*x)**2*(a*e - b*d)) + (d
+ e*x)**(3/2)*(A*b*e - 5*B*a*e + 4*B*b*d)/(4*b**2*(a + b*x)*(a*e
- b*d)) - 3*e*sqrt(d + e*x)*(A*b*e - 5*B*a*e + 4*B*b*d)/(4*b**3*(
a*e - b*d)) + 3*e*(A*b*e - 5*B*a*e + 4*B*b*d)*atan(sqrt(b)*sqrt(d
 + e*x)/sqrt(a*e - b*d))/(4*b**(7/2)*sqrt(a*e - b*d))
```

Mathematica [A] time = 0.261223, size = 139, normalized size = 0.71

$$-\frac{\sqrt{d+ex}\left(B\left(-15a^2e+ab(2d-25ex)+4b^2x(d-2ex)\right)+Ab(3ae+2bd+5bex)\right)}{4b^3(a+bx)^2}-\frac{3e(-5aBe+Abe+4bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{4b^{7/2}\sqrt{bd-ae}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((A + B*x)*(d + e*x)^(3/2))/(a + b*x)^3,x]
```

```
[Out] -(Sqrt[d + e*x]*(A*b*(2*b*d + 3*a*e + 5*b*e*x) + B*(-15*a^2*e + a
*b*(2*d - 25*e*x) + 4*b^2*x*(d - 2*e*x))))/(4*b^3*(a + b*x)^2) -
(3*e*(4*b*B*d + A*b*e - 5*a*B*e)*ArcTanh[(Sqrt[b]*Sqrt[d + e*x])/
Sqrt[b*d - a*e]])/(4*b^(7/2)*Sqrt[b*d - a*e])
```

Maple [B] time = 0.026, size = 360, normalized size = 1.8

$$2\,{\frac{eB\sqrt{ex+d}}{{b}^{3}}}-{\frac{5\,A{e}^{2}}{4\,b \left(bxe+ae \right) ^{2}} \left(ex+d \right) ^{{\frac{3}{2}}}}+{\frac{9\,Ba{e}^{2}}{4\,{b}^{2} \left(bxe+ae \right) ^{2}} \left(ex+d \right) ^{{\frac{3}{2}}}}-{\frac{eBd}{b \left(bxe+ae \right) ^{2}} \left(ex+d \right) ^{{\frac{3}{2}}}}-{\frac{3\,aA{e}^{3}}{4\,{b}^{2} \left(bxe+ae \right) ^{2}}\sqrt{ex+d}}+{\frac{3\,Ad{e}^{2}}{4\,b \left(bxe+ae \right) ^{2}}\sqrt{ex+d}}+{\frac{7\,B{a}^{2}{e}^{3}}{4\,{b}^{3} \left(bxe+ae \right) ^{2}}\sqrt{ex+d}}-{\frac{11\,Bade^{2}}{4\,{b}^{2} \left(bxe+ae \right) ^{2}}\sqrt{ex+d}}+{\frac{eB{d}^{2}}{b \left(bxe+ae \right) ^{2}}\sqrt{ex+d}}+{\frac{3\,A{e}^{2}}{4\,{b}^{2}}\arctan \left(b\sqrt{ex+d}{\frac{1}{\sqrt{ \left(ae-bd \right) b}}} \right) {\frac{1}{\sqrt{ \left(ae-bd \right) b}}}}-{\frac{15\,Ba{e}^{2}}{4\,{b}^{3}}\arctan \left(b\sqrt{ex+d}{\frac{1}{\sqrt{ \left(ae-bd \right) b}}} \right) {\frac{1}{\sqrt{ \left(ae-bd \right) b}}}}+3\,{\frac{eBd}{{b}^{2}\sqrt{ \left(ae-bd \right) b}}\arctan \left({\frac{\sqrt{ex+d}b}{\sqrt{ \left(ae-bd \right) b}}} \right) }$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(e*x+d)^(3/2)/(b*x+a)^3,x)
```

```
[Out] 2*e*B/b^3*(e*x+d)^(1/2)-5/4/b/(b*e*x+a*e)^2*(e*x+d)^(3/2)*A*e^2+9
/4/b^2/(b*e*x+a*e)^2*(e*x+d)^(3/2)*B*a*e^2-e/b/(b*e*x+a*e)^2*(e*x
+d)^(3/2)*B*d-3/4/b^2/(b*e*x+a*e)^2*(e*x+d)^(1/2)*A*a*e^3+3/4/b/(
b*e*x+a*e)^2*(e*x+d)^(1/2)*A*d*e^2+7/4/b^3/(b*e*x+a*e)^2*(e*x+d)^
(1/2)*B*a^2*e^3-11/4/b^2/(b*e*x+a*e)^2*(e*x+d)^(1/2)*B*a*d*e^2+e/
b/(b*e*x+a*e)^2*(e*x+d)^(1/2)*B*d^2+3/4/b^2/((a*e-b*d)*b)^(1/2)*a
rctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*A*e^2-15/4/b^3/((a*e-b
*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*B*a*e^2+
3*e/b^2/((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^
(1/2))*B*d
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(e*x + d)^(3/2)/(b*x + a)^3,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.225263, size = 1, normalized size = 0.01

$$\left[\frac{2\left(8\,Bb^{2}ex^{2}-2\left(Bab+Ab^{2}\right)d+3\left(5\,Ba^{2}-Aab\right)e-\left(4\,Bb^{2}d-5\left(5\,Bab-Ab^{2}\right)e\right)x\right)\sqrt{b^{2}d-abe}\sqrt{ex+d}+3\left(4\,Ba^{2}bde-(\right.}{8\left(b^{5}x^{2}+2\right.}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^(3/2)/(b*x + a)^3,x, algorithm="fricas")
```

```
[Out] [1/8*(2*(8*B*b^2*e*x^2 - 2*(B*a*b + A*b^2)*d + 3*(5*B*a^2 - A*a*b
)*e - (4*B*b^2*d - 5*(5*B*a*b - A*b^2)*e)*x)*sqrt(b^2*d - a*b*e)*
sqrt(e*x + d) + 3*(4*B*a^2*b*d*e - (5*B*a^3 - A*a^2*b)*e^2 + (4*B
*b^3*d*e - (5*B*a*b^2 - A*b^3)*e^2)*x^2 + 2*(4*B*a*b^2*d*e - (5*B
*a^2*b - A*a*b^2)*e^2)*x)*log((sqrt(b^2*d - a*b*e)*(b*e*x + 2*b*d
 - a*e) - 2*(b^2*d - a*b*e)*sqrt(e*x + d))/(b*x + a)))/((b^5*x^2
+ 2*a*b^4*x + a^2*b^3)*sqrt(b^2*d - a*b*e)), 1/4*((8*B*b^2*e*x^2
- 2*(B*a*b + A*b^2)*d + 3*(5*B*a^2 - A*a*b)*e - (4*B*b^2*d - 5*(5
*B*a*b - A*b^2)*e)*x)*sqrt(-b^2*d + a*b*e)*sqrt(e*x + d) - 3*(4*B
*a^2*b*d*e - (5*B*a^3 - A*a^2*b)*e^2 + (4*B*b^3*d*e - (5*B*a*b^2
- A*b^3)*e^2)*x^2 + 2*(4*B*a*b^2*d*e - (5*B*a^2*b - A*a*b^2)*e^2)
*x)*arctan(-(b*d - a*e)/(sqrt(-b^2*d + a*b*e)*sqrt(e*x + d))))/((
b^5*x^2 + 2*a*b^4*x + a^2*b^3)*sqrt(-b^2*d + a*b*e))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(e*x+d)**(3/2)/(b*x+a)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.220284, size = 319, normalized size = 1.62

$$\frac{2\sqrt{xe+d}Be}{b^3} + \frac{3\left(4Bbde - 5Bae^2 + Abe^2\right)\arctan\left(\frac{\sqrt{xe+d}b}{\sqrt{-b^2d+abe}}\right)}{4\sqrt{-b^2d+abe}b^3} - \frac{4(xe+d)^{\frac{3}{2}}Bb^2de - 4\sqrt{xe+d}Bb^2d^2e - 9(xe+d)^{\frac{3}{2}}Babe^2 + 5(xe+d)^{\frac{3}{2}}Ab^2e^2 + 11\sqrt{xe+d}Babde^2 - 3\sqrt{xe+d}Ab^2de^2 - 7}{4\left((xe+d)b - bd + ae\right)^2b^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^(3/2)/(b*x + a)^3,x, algorithm="giac")
```

```
[Out] 2*sqrt(x*e + d)*B*e/b^3 + 3/4*(4*B*b*d*e - 5*B*a*e^2 + A*b*e^2)*a
rctan(sqrt(x*e + d)*b/sqrt(-b^2*d + a*b*e))/(sqrt(-b^2*d + a*b*e)
*b^3) - 1/4*(4*(x*e + d)^(3/2)*B*b^2*d*e - 4*sqrt(x*e + d)*B*b^2*
d^2*e - 9*(x*e + d)^(3/2)*B*a*b*e^2 + 5*(x*e + d)^(3/2)*A*b^2*e^2
 + 11*sqrt(x*e + d)*B*a*b*d*e^2 - 3*sqrt(x*e + d)*A*b^2*d*e^2 - 7
*sqrt(x*e + d)*B*a^2*e^3 + 3*sqrt(x*e + d)*A*a*b*e^3)/(((x*e + d)
*b - b*d + a*e)^2*b^3)
```

3.1744 $\int \frac{(A+Bx)\sqrt{d+ex}}{(a+bx)^3}\,dx$

Optimal. Leaf size=157

$$-\frac{e(-3aBe-Abe+4bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{4b^{5/2}(bd-ae)^{3/2}}-\frac{\sqrt{d+ex}(-3aBe-Abe+4bBd)}{4b^2(a+bx)(bd-ae)}-\frac{(d+ex)^{3/2}(Ab-aB)}{2b(a+bx)^2(bd-ae)}$$

```
[Out] -((4*b*B*d - A*b*e - 3*a*B*e)*Sqrt[d + e*x])/(4*b^2*(b*d - a*e)*(
a + b*x)) - ((A*b - a*B)*(d + e*x)^(3/2))/(2*b*(b*d - a*e)*(a + b
*x)^2) - (e*(4*b*B*d - A*b*e - 3*a*B*e)*ArcTanh[(Sqrt[b]*Sqrt[d +
 e*x])/Sqrt[b*d - a*e]])/(4*b^(5/2)*(b*d - a*e)^(3/2))
```

Rubi [A] time = 0.285947, antiderivative size = 157, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.182$

$$-\frac{e(-3aBe-Abe+4bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{4b^{5/2}(bd-ae)^{3/2}}-\frac{\sqrt{d+ex}(-3aBe-Abe+4bBd)}{4b^2(a+bx)(bd-ae)}-\frac{(d+ex)^{3/2}(Ab-aB)}{2b(a+bx)^2(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[((A + B*x)*Sqrt[d + e*x])/(a + b*x)^3,x]
```

```
[Out] -((4*b*B*d - A*b*e - 3*a*B*e)*Sqrt[d + e*x])/(4*b^2*(b*d - a*e)*(
a + b*x)) - ((A*b - a*B)*(d + e*x)^(3/2))/(2*b*(b*d - a*e)*(a + b
*x)^2) - (e*(4*b*B*d - A*b*e - 3*a*B*e)*ArcTanh[(Sqrt[b]*Sqrt[d +
 e*x])/Sqrt[b*d - a*e]])/(4*b^(5/2)*(b*d - a*e)^(3/2))
```

Rubi in Sympy [A] time = 28.6493, size = 138, normalized size = 0.88

$$\frac{(d+ex)^{\frac{3}{2}}(Ab-Ba)}{2b(a+bx)^2(ae-bd)}-\frac{\sqrt{d+ex}\,(Abe+3Bae-4Bbd)}{4b^2(a+bx)(ae-bd)}+\frac{e\,(Abe+3Bae-4Bbd)\,\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{ae-bd}}\right)}{4b^{\frac{5}{2}}(ae-bd)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(e*x+d)**(1/2)/(b*x+a)**3,x)
```

```
[Out] (d + e*x)**(3/2)*(A*b - B*a)/(2*b*(a + b*x)**2*(a*e - b*d)) - sqr
t(d + e*x)*(A*b*e + 3*B*a*e - 4*B*b*d)/(4*b**2*(a + b*x)*(a*e - b
*d)) + e*(A*b*e + 3*B*a*e - 4*B*b*d)*atan(sqrt(b)*sqrt(d + e*x)/s
qrt(a*e - b*d))/(4*b**(5/2)*(a*e - b*d)**(3/2))
```

Mathematica [A] time = 0.318498, size = 129, normalized size = 0.82

$$\frac{e(3aBe+Abe-4bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{4b^{5/2}(bd-ae)^{3/2}}-\frac{\sqrt{d+ex}\left(\frac{(a+bx)(-5aBe+Abe+4bBd)}{bd-ae}-2aB+2Ab\right)}{4b^2(a+bx)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((A + B*x)*Sqrt[d + e*x])/(a + b*x)^3,x]
```

```
[Out] -(Sqrt[d + e*x]*(2*A*b - 2*a*B + ((4*b*B*d + A*b*e - 5*a*B*e)*(a
+ b*x))/(b*d - a*e)))/(4*b^2*(a + b*x)^2) + (e*(-4*b*B*d + A*b*e
+ 3*a*B*e)*ArcTanh[(Sqrt[b]*Sqrt[d + e*x])/Sqrt[b*d - a*e]])/(4*b
```

```
^(5/2)*(b*d - a*e)^(3/2))
```

Maple [B] time = 0.021, size = 339, normalized size = 2.2

$$\frac{Ae^2}{4\,(bxe+ae)^2\,(ae-bd)}(ex+d)^{\frac{3}{2}}-\frac{5\,Bae^2}{4\,(bxe+ae)^2\,(ae-bd)\,b}(ex+d)^{\frac{3}{2}}+\frac{eBd}{(bxe+ae)^2\,(ae-bd)}(ex+d)^{\frac{3}{2}}-\frac{Ae^2}{4\,(bxe+ae)^2\,b}\sqrt{ex+d}-\frac{3\,Bae^2}{4\,(bxe+ae)^2\,b^2}\sqrt{ex+d}+\frac{eBd}{(bxe+ae)^2\,b}\sqrt{ex+d}+\frac{Ae^2}{(4\,ae-4\,bd)\,b}\arctan\left(b\sqrt{ex+d}\frac{1}{\sqrt{(ae-bd)\,b}}\right)\frac{1}{\sqrt{(ae-bd)\,b}}+\frac{3\,Bae^2}{(4\,ae-4\,bd)\,b^2}\arctan\left(b\sqrt{ex+d}\frac{1}{\sqrt{(ae-bd)\,b}}\right)\frac{1}{\sqrt{(ae-bd)\,b}}-\frac{eBd}{(ae-bd)\,b}\arctan\left(b\sqrt{ex+d}\frac{1}{\sqrt{(ae-bd)\,b}}\right)\frac{1}{\sqrt{(ae-bd)\,b}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(e*x+d)^(1/2)/(b*x+a)^3,x)
```

```
[Out] 1/4/(b*e*x+a*e)^2/(a*e-b*d)*(e*x+d)^(3/2)*A*e^2-5/4/(b*e*x+a*e)^2
/(a*e-b*d)/b*(e*x+d)^(3/2)*B*a*e^2+e/(b*e*x+a*e)^2/(a*e-b*d)*(e*x
+d)^(3/2)*B*d-1/4/(b*e*x+a*e)^2/b*(e*x+d)^(1/2)*A*e^2-3/4/(b*e*x+
a*e)^2/b^2*(e*x+d)^(1/2)*B*a*e^2+e/(b*e*x+a*e)^2/b*(e*x+d)^(1/2)*
B*d+1/4/(a*e-b*d)/b/((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*b/((
a*e-b*d)*b)^(1/2))*A*e^2+3/4/(a*e-b*d)/b^2/((a*e-b*d)*b)^(1/2)*ar
ctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*B*a*e^2-e/(a*e-b*d)/b/(
(a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*B*
d
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(e*x + d)/(b*x + a)^3,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.226476, size = 1, normalized size = 0.01

$$\left[-\frac{2\,\sqrt{b^2d-abe}\left(2\,\left(Bab+Ab^2\right)d-\left(3\,Ba^2+Aab\right)e+\left(4\,Bb^2d-\left(5\,Bab-Ab^2\right)e\right)x\right)\sqrt{ex+d}-\left(4\,Ba^2bde-\left(3\,Ba^3+Aa^2b\right)e\right.}{8\left(a^2b^3d-a^3b^2e+\left(b^5d-ab^4e\right)x\right.}\right.$$

$$-\frac{\sqrt{-b^2d+abe}\left(2\,\left(Bab+Ab^2\right)d-\left(3\,Ba^2+Aab\right)e+\left(4\,Bb^2d-\left(5\,Bab-Ab^2\right)e\right)x\right)\sqrt{ex+d}+\left(4\,Ba^2bde-\left(3\,Ba^3+Aa^2b\right)e^2\right.}{4\left(a^2b^3d-a^3b^2e+\left(b^5d-ab^4e\right)x^2+2\left(ab^4d\right.\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(e*x + d)/(b*x + a)^3,x, algorithm="fricas")
```

```
[Out] [-1/8*(2*sqrt(b^2*d - a*b*e)*(2*(B*a*b + A*b^2)*d - (3*B*a^2 + A*
a*b)*e + (4*B*b^2*d - (5*B*a*b - A*b^2)*e)*x)*sqrt(e*x + d) - (4*
```

```
B*a^2*b*d*e - (3*B*a^3 + A*a^2*b)*e^2 + (4*B*b^3*d*e - (3*B*a*b^2
 + A*b^3)*e^2)*x^2 + 2*(4*B*a*b^2*d*e - (3*B*a^2*b + A*a*b^2)*e^2
)*x)*log((sqrt(b^2*d - a*b*e)*(b*e*x + 2*b*d - a*e) - 2*(b^2*d -
a*b*e)*sqrt(e*x + d))/(b*x + a)))/((a^2*b^3*d - a^3*b^2*e + (b^5*
d - a*b^4*e)*x^2 + 2*(a*b^4*d - a^2*b^3*e)*x)*sqrt(b^2*d - a*b*e)
), -1/4*(sqrt(-b^2*d + a*b*e)*(2*(B*a*b + A*b^2)*d - (3*B*a^2 + A
*a*b)*e + (4*B*b^2*d - (5*B*a*b - A*b^2)*e)*x)*sqrt(e*x + d) + (4
*B*a^2*b*d*e - (3*B*a^3 + A*a^2*b)*e^2 + (4*B*b^3*d*e - (3*B*a*b^
2 + A*b^3)*e^2)*x^2 + 2*(4*B*a*b^2*d*e - (3*B*a^2*b + A*a*b^2)*e^
2)*x)*arctan(-(b*d - a*e)/(sqrt(-b^2*d + a*b*e)*sqrt(e*x + d))))/
((a^2*b^3*d - a^3*b^2*e + (b^5*d - a*b^4*e)*x^2 + 2*(a*b^4*d - a^
2*b^3*e)*x)*sqrt(-b^2*d + a*b*e))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(e*x+d)**(1/2)/(b*x+a)**3,x)

[Out] Timed out
```

GIAC/XCAS [A] time = 0.220532, size = 331, normalized size = 2.11

$$\frac{\left(4\,Bbde - 3\,Bae^2 - Abe^2\right)\arctan\left(\frac{\sqrt{xe+d}b}{\sqrt{-b^2d+abe}}\right)}{4\,(b^3d - ab^2e)\sqrt{-b^2d + abe}} - \frac{4\,(xe+d)^{\frac{3}{2}}Bb^2de - 4\,\sqrt{xe+d}Bb^2d^2e - 5\,(xe+d)^{\frac{3}{2}}Babe^2 + (xe+d)^{\frac{3}{2}}Ab^2e^2 + 7\,\sqrt{xe+d}Babde^2 + \sqrt{xe+d}Ab^2de^2 - 3\,\sqrt{xe}}{4\,(b^3d - ab^2e)((xe+d)b - bd + ae)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(e*x + d)/(b*x + a)^3,x, algorithm="giac")

[Out] 1/4*(4*B*b*d*e - 3*B*a*e^2 - A*b*e^2)*arctan(sqrt(x*e + d)*b/sqrt
(-b^2*d + a*b*e))/((b^3*d - a*b^2*e)*sqrt(-b^2*d + a*b*e)) - 1/4*
(4*(x*e + d)^(3/2)*B*b^2*d*e - 4*sqrt(x*e + d)*B*b^2*d^2*e - 5*(x
*e + d)^(3/2)*B*a*b*e^2 + (x*e + d)^(3/2)*A*b^2*e^2 + 7*sqrt(x*e
+ d)*B*a*b*d*e^2 + sqrt(x*e + d)*A*b^2*d*e^2 - 3*sqrt(x*e + d)*B*
a^2*e^3 - sqrt(x*e + d)*A*a*b*e^3)/((b^3*d - a*b^2*e)*((x*e + d)*
b - b*d + a*e)^2)
```

3.1745 $\int \frac{A+Bx}{(a+bx)^3\sqrt{d+ex}}\,dx$

Optimal. Leaf size=157

$$\frac{e(-aBe-3Abe+4bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{4b^{3/2}(bd-ae)^{5/2}}-\frac{\sqrt{d+ex}(Ab-aB)}{2b(a+bx)^2(bd-ae)}-\frac{\sqrt{d+ex}(-aBe-3Abe+4bBd)}{4b(a+bx)(bd-ae)^2}$$

```
[Out] -((A*b - a*B)*Sqrt[d + e*x])/(2*b*(b*d - a*e)*(a + b*x)^2) - ((4*
b*B*d - 3*A*b*e - a*B*e)*Sqrt[d + e*x])/(4*b*(b*d - a*e)^2*(a + b
*x)) + (e*(4*b*B*d - 3*A*b*e - a*B*e)*ArcTanh[(Sqrt[b]*Sqrt[d + e
*x])/Sqrt[b*d - a*e]])/(4*b^(3/2)*(b*d - a*e)^(5/2))
```

Rubi [A] time = 0.336153, antiderivative size = 157, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$\frac{e(-aBe-3Abe+4bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{4b^{3/2}(bd-ae)^{5/2}}-\frac{\sqrt{d+ex}(Ab-aB)}{2b(a+bx)^2(bd-ae)}-\frac{\sqrt{d+ex}(-aBe-3Abe+4bBd)}{4b(a+bx)(bd-ae)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/((a + b*x)^3*Sqrt[d + e*x]),x]
```

```
[Out] -((A*b - a*B)*Sqrt[d + e*x])/(2*b*(b*d - a*e)*(a + b*x)^2) - ((4*
b*B*d - 3*A*b*e - a*B*e)*Sqrt[d + e*x])/(4*b*(b*d - a*e)^2*(a + b
*x)) + (e*(4*b*B*d - 3*A*b*e - a*B*e)*ArcTanh[(Sqrt[b]*Sqrt[d + e
*x])/Sqrt[b*d - a*e]])/(4*b^(3/2)*(b*d - a*e)^(5/2))
```

Rubi in Sympy [A] time = 29.6263, size = 138, normalized size = 0.88

$$\frac{\sqrt{d+ex}\,(3Abe+Bae-4Bbd)}{4b\,(a+bx)\,(ae-bd)^2}+\frac{\sqrt{d+ex}\,(Ab-Ba)}{2b\,(a+bx)^2\,(ae-bd)}+\frac{e\,(3Abe+Bae-4Bbd)\,\mathrm{atan}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{ae-bd}}\right)}{4b^{\frac{3}{2}}\,(ae-bd)^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(b*x+a)**3/(e*x+d)**(1/2),x)
```

```
[Out] sqrt(d + e*x)*(3*A*b*e + B*a*e - 4*B*b*d)/(4*b*(a + b*x)*(a*e - b
*d)**2) + sqrt(d + e*x)*(A*b - B*a)/(2*b*(a + b*x)**2*(a*e - b*d)
) + e*(3*A*b*e + B*a*e - 4*B*b*d)*atan(sqrt(b)*sqrt(d + e*x)/sqrt
(a*e - b*d))/(4*b**(3/2)*(a*e - b*d)**(5/2))
```

Mathematica [A] time = 0.308606, size = 143, normalized size = 0.91

$$-\frac{\sqrt{d+ex}\left(B\left(a^2e+ab(2d-ex)+4b^2dx\right)+Ab(-5ae+2bd-3bex)\right)}{4b(a+bx)^2(bd-ae)^2}-\frac{e(aBe+3Abe-4bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{4b^{3/2}(bd-ae)^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/((a + b*x)^3*Sqrt[d + e*x]),x]
```

```
[Out] -(Sqrt[d + e*x]*(A*b*(2*b*d - 5*a*e - 3*b*e*x) + B*(a^2*e + 4*b^2
*d*x + a*b*(2*d - e*x))))/(4*b*(b*d - a*e)^2*(a + b*x)^2) - (e*(-
```

```
4*b*B*d + 3*A*b*e + a*B*e)*ArcTanh[(Sqrt[b]*Sqrt[d + e*x])/Sqrt[b
*d - a*e]])/(4*b^(3/2)*(b*d - a*e)^(5/2))
```

Maple [B] time = 0.025, size = 436, normalized size = 2.8

$$\frac{3\,Abe^2}{4\,(bxe+ae)^2\,(a^2e^2-2\,abde+b^2d^2)}(ex+d)^{\frac{3}{2}}+\frac{Bae^2}{4\,(bxe+ae)^2\,(a^2e^2-2\,abde+b^2d^2)}(ex+d)^{\frac{3}{2}} -\frac{bBde}{(bxe+ae)^2\,(a^2e^2-2\,abde+b^2d^2)}(ex+d)^{\frac{3}{2}}+\frac{5\,Ae^2}{4\,(bxe+ae)^2\,(ae-bd)}\sqrt{ex+d} -\frac{Bae^2}{4\,(bxe+ae)^2\,(ae-bd)\,b}\sqrt{ex+d}-\frac{eBd}{(bxe+ae)^2\,(ae-bd)}\sqrt{ex+d} +\frac{3\,Ae^2}{4\,a^2e^2-8\,abde+4\,b^2d^2}\arctan\left(b\sqrt{ex+d}\frac{1}{\sqrt{(ae-bd)\,b}}\right)\frac{1}{\sqrt{(ae-bd)\,b}} +\frac{Bae^2}{(4\,a^2e^2-8\,abde+4\,b^2d^2)\,b}\arctan\left(b\sqrt{ex+d}\frac{1}{\sqrt{(ae-bd)\,b}}\right)\frac{1}{\sqrt{(ae-bd)\,b}} -\frac{eBd}{a^2e^2-2\,abde+b^2d^2}\arctan\left(b\sqrt{ex+d}\frac{1}{\sqrt{(ae-bd)\,b}}\right)\frac{1}{\sqrt{(ae-bd)\,b}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(b*x+a)^3/(e*x+d)^(1/2),x)
```

```
[Out] 3/4/(b*e*x+a*e)^2/(a^2*e^2-2*a*b*d*e+b^2*d^2)*(e*x+d)^(3/2)*A*b*e
^2+1/4/(b*e*x+a*e)^2/(a^2*e^2-2*a*b*d*e+b^2*d^2)*(e*x+d)^(3/2)*B*
a*e^2-e/(b*e*x+a*e)^2/(a^2*e^2-2*a*b*d*e+b^2*d^2)*(e*x+d)^(3/2)*B
*b*d+5/4/(b*e*x+a*e)^2/(a*e-b*d)*(e*x+d)^(1/2)*A*e^2-1/4/(b*e*x+a
*e)^2/(a*e-b*d)/b*(e*x+d)^(1/2)*B*a*e^2-e/(b*e*x+a*e)^2/(a*e-b*d)
*(e*x+d)^(1/2)*B*d+3/4/(a^2*e^2-2*a*b*d*e+b^2*d^2)/((a*e-b*d)*b)^
(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*A*e^2+1/4/(a^2*
e^2-2*a*b*d*e+b^2*d^2)/b/((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)
*b/((a*e-b*d)*b)^(1/2))*B*a*e^2-e/(a^2*e^2-2*a*b*d*e+b^2*d^2)/((a
*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*B*d
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/((b*x + a)^3*sqrt(e*x + d)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.226826, size = 1, normalized size = 0.01

$$\left[-\frac{2\sqrt{b^2d-abe}\left(2\left(Bab+Ab^2\right)d+\left(Ba^2-5\,Aab\right)e+\left(4\,Bb^2d-\left(Bab+3\,Ab^2\right)e\right)x\right)\sqrt{ex+d}+\left(4\,Ba^2bde-\left(Ba^3+3\,Aa^2b\right)e\right.}{8\left(a^2b^3d^2-2\,a^3b^2de+a^4be^2+(b^5d^2-2\,ab^4de+a^2b\right.}\right.$$

$$-\frac{\sqrt{-b^2d+abe}\left(2\left(Bab+Ab^2\right)d+\left(Ba^2-5\,Aab\right)e+\left(4\,Bb^2d-\left(Bab+3\,Ab^2\right)e\right)x\right)\sqrt{ex+d}-\left(4\,Ba^2bde-\left(Ba^3+3\,Aa^2b\right)e^2\right.}{4\left(a^2b^3d^2-2\,a^3b^2de+a^4be^2+(b^5d^2-2\,ab^4de+a^2b^3e^2)x^2+2\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/((b*x + a)^3*sqrt(e*x + d)),x, algorithm="fricas")
```

```
[Out] [-1/8*(2*sqrt(b^2*d - a*b*e)*(2*(B*a*b + A*b^2)*d + (B*a^2 - 5*A*
a*b)*e + (4*B*b^2*d - (B*a*b + 3*A*b^2)*e)*x)*sqrt(e*x + d) + (4*
B*a^2*b*d*e - (B*a^3 + 3*A*a^2*b)*e^2 + (4*B*b^3*d*e - (B*a*b^2 +
 3*A*b^3)*e^2)*x^2 + 2*(4*B*a*b^2*d*e - (B*a^2*b + 3*A*a*b^2)*e^2
)*x)*log((sqrt(b^2*d - a*b*e)*(b*e*x + 2*b*d - a*e) - 2*(b^2*d -
a*b*e)*sqrt(e*x + d))/(b*x + a)))/((a^2*b^3*d^2 - 2*a^3*b^2*d*e +
 a^4*b*e^2 + (b^5*d^2 - 2*a*b^4*d*e + a^2*b^3*e^2)*x^2 + 2*(a*b^4
*d^2 - 2*a^2*b^3*d*e + a^3*b^2*e^2)*x)*sqrt(b^2*d - a*b*e)), -1/4
*(sqrt(-b^2*d + a*b*e)*(2*(B*a*b + A*b^2)*d + (B*a^2 - 5*A*a*b)*e
 + (4*B*b^2*d - (B*a*b + 3*A*b^2)*e)*x)*sqrt(e*x + d) - (4*B*a^2*
b*d*e - (B*a^3 + 3*A*a^2*b)*e^2 + (4*B*b^3*d*e - (B*a*b^2 + 3*A*b
^3)*e^2)*x^2 + 2*(4*B*a*b^2*d*e - (B*a^2*b + 3*A*a*b^2)*e^2)*x)*a
rctan(-(b*d - a*e)/(sqrt(-b^2*d + a*b*e)*sqrt(e*x + d))))/((a^2*b
^3*d^2 - 2*a^3*b^2*d*e + a^4*b*e^2 + (b^5*d^2 - 2*a*b^4*d*e + a^2
*b^3*e^2)*x^2 + 2*(a*b^4*d^2 - 2*a^2*b^3*d*e + a^3*b^2*e^2)*x)*sq
rt(-b^2*d + a*b*e))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x+A)/(b*x+a)**3/(e*x+d)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.219294, size = 359, normalized size = 2.29

$$-\frac{\left(4\,Bbde - Bae^2 - 3\,Abe^2\right)\arctan\left(\frac{\sqrt{xe+d}b}{\sqrt{-b^2d+abe}}\right)}{4\left(b^3d^2 - 2\,ab^2de + a^2be^2\right)\sqrt{-b^2d + abe}} - \frac{4\,(xe+d)^{\frac{3}{2}}Bb^2de - 4\,\sqrt{xe+d}Bb^2d^2e - (xe+d)^{\frac{3}{2}}Babe^2 - 3\,(xe+d)^{\frac{3}{2}}Ab^2e^2 + 3\,\sqrt{xe+d}Babde^2 + 5\,\sqrt{xe+d}Ab^2de^2 + \sqrt{xe}}{4\left(b^3d^2 - 2\,ab^2de + a^2be^2\right)\left((xe+d)b - bd + ae\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/((b*x + a)^3*sqrt(e*x + d)),x, algorithm="giac")
```

```
[Out] -1/4*(4*B*b*d*e - B*a*e^2 - 3*A*b*e^2)*arctan(sqrt(x*e + d)*b/sqr
t(-b^2*d + a*b*e))/((b^3*d^2 - 2*a*b^2*d*e + a^2*b*e^2)*sqrt(-b^2
*d + a*b*e)) - 1/4*(4*(x*e + d)^(3/2)*B*b^2*d*e - 4*sqrt(x*e + d)
*B*b^2*d^2*e - (x*e + d)^(3/2)*B*a*b*e^2 - 3*(x*e + d)^(3/2)*A*b^
2*e^2 + 3*sqrt(x*e + d)*B*a*b*d*e^2 + 5*sqrt(x*e + d)*A*b^2*d*e^2
 + sqrt(x*e + d)*B*a^2*e^3 - 5*sqrt(x*e + d)*A*a*b*e^3)/((b^3*d^2
 - 2*a*b^2*d*e + a^2*b*e^2)*((x*e + d)*b - b*d + a*e)^2)
```

3.1746 $\int \frac{A+Bx}{(a+bx)^3(d+ex)^{3/2}}\,dx$

Optimal. Leaf size=197

$$-\frac{Ab-aB}{2b(a+bx)^2\sqrt{d+ex}(bd-ae)}-\frac{3e(aBe-5Abe+4bBd)}{4b\sqrt{d+ex}(bd-ae)^3}-\frac{aBe-5Abe+4bBd}{4b(a+bx)\sqrt{d+ex}(bd-ae)^2}+\frac{3e(aBe-5Abe+4bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{4\sqrt{b}(bd-ae)^{7/2}}$$

```
[Out] (-3*e*(4*b*B*d - 5*A*b*e + a*B*e))/(4*b*(b*d - a*e)^3*Sqrt[d + e*
x]) - (A*b - a*B)/(2*b*(b*d - a*e)*(a + b*x)^2*Sqrt[d + e*x]) - (
4*b*B*d - 5*A*b*e + a*B*e)/(4*b*(b*d - a*e)^2*(a + b*x)*Sqrt[d +
e*x]) + (3*e*(4*b*B*d - 5*A*b*e + a*B*e)*ArcTanh[(Sqrt[b]*Sqrt[d
+ e*x])/Sqrt[b*d - a*e]])/(4*Sqrt[b]*(b*d - a*e)^(7/2))
```

Rubi [A] time = 0.404686, antiderivative size = 197, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$-\frac{Ab-aB}{2b(a+bx)^2\sqrt{d+ex}(bd-ae)}-\frac{3e(aBe-5Abe+4bBd)}{4b\sqrt{d+ex}(bd-ae)^3}-\frac{aBe-5Abe+4bBd}{4b(a+bx)\sqrt{d+ex}(bd-ae)^2}+\frac{3e(aBe-5Abe+4bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{4\sqrt{b}(bd-ae)^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/((a + b*x)^3*(d + e*x)^(3/2)),x]
```

```
[Out] (-3*e*(4*b*B*d - 5*A*b*e + a*B*e))/(4*b*(b*d - a*e)^3*Sqrt[d + e*
x]) - (A*b - a*B)/(2*b*(b*d - a*e)*(a + b*x)^2*Sqrt[d + e*x]) - (
4*b*B*d - 5*A*b*e + a*B*e)/(4*b*(b*d - a*e)^2*(a + b*x)*Sqrt[d +
e*x]) + (3*e*(4*b*B*d - 5*A*b*e + a*B*e)*ArcTanh[(Sqrt[b]*Sqrt[d
+ e*x])/Sqrt[b*d - a*e]])/(4*Sqrt[b]*(b*d - a*e)^(7/2))
```

Rubi in Sympy [A] time = 42.7661, size = 182, normalized size = 0.92

$$-\frac{3e\left(5Abe-Bae-4Bbd\right)}{4b\sqrt{d+ex}\left(ae-bd\right)^{3}}+\frac{5Abe-Bae-4Bbd}{4b\left(a+bx\right)\sqrt{d+ex}\left(ae-bd\right)^{2}}+\frac{Ab-Ba}{2b\left(a+bx\right)^{2}\sqrt{d+ex}\left(ae-bd\right)}-\frac{3e\left(5Abe-Bae-4Bbd\right)\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{ae-bd}}\right)}{4\sqrt{b}\left(ae-bd\right)^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(b*x+a)**3/(e*x+d)**(3/2),x)
```

```
[Out] -3*e*(5*A*b*e - B*a*e - 4*B*b*d)/(4*b*sqrt(d + e*x)*(a*e - b*d)**
3) + (5*A*b*e - B*a*e - 4*B*b*d)/(4*b*(a + b*x)*sqrt(d + e*x)*(a*
e - b*d)**2) + (A*b - B*a)/(2*b*(a + b*x)**2*sqrt(d + e*x)*(a*e -
 b*d)) - 3*e*(5*A*b*e - B*a*e - 4*B*b*d)*atan(sqrt(b)*sqrt(d + e*
x)/sqrt(a*e - b*d))/(4*sqrt(b)*(a*e - b*d)**(7/2))
```

Mathematica [A] time = 0.879222, size = 156, normalized size = 0.79

$$\frac{1}{4}\left(\frac{\sqrt{d+ex}\left(\frac{2(aB-Ab)(bd-ae)}{(a+bx)^2}+\frac{-3aBe+7Abe-4bBd}{a+bx}+\frac{8e(Ae-Bd)}{d+ex}\right)}{(bd-ae)^3}+\frac{3e(aBe-5Abe+4bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{\sqrt{b}(bd-ae)^{7/2}}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/((a + b*x)^3*(d + e*x)^(3/2)),x]
```

```
[Out] ((Sqrt[d + e*x]*((2*(-(A*b) + a*B)*(b*d - a*e))/(a + b*x)^2 + (-4
*b*B*d + 7*A*b*e - 3*a*B*e)/(a + b*x) + (8*e*(-(B*d) + A*e))/(d +
 e*x)))/(b*d - a*e)^3 + (3*e*(4*b*B*d - 5*A*b*e + a*B*e)*ArcTanh[
(Sqrt[b]*Sqrt[d + e*x])/Sqrt[b*d - a*e]])/(Sqrt[b]*(b*d - a*e)^(7
/2)))/4
```

Maple [B] time = 0.03, size = 485, normalized size = 2.5

$$-2\frac{Ae^2}{(ae-bd)^3\sqrt{ex+d}}+2\frac{eBd}{(ae-bd)^3\sqrt{ex+d}}-\frac{7b^2Ae^2}{4(ae-bd)^3(bxe+ae)^2}(ex+d)^{\frac{3}{2}}+\frac{3Bbae^2}{4(ae-bd)^3(bxe+ae)^2}(ex+d)^{\frac{3}{2}}+\frac{b^2Bde}{(ae-bd)^3(bxe+ae)^2}(ex+d)^{\frac{3}{2}}-\frac{9Aabe^3}{4(ae-bd)^3(bxe+ae)^2}\sqrt{ex+d}+\frac{9b^2Ade^2}{4(ae-bd)^3(bxe+ae)^2}\sqrt{ex+d}+\frac{5Ba^2e^3}{4(ae-bd)^3(bxe+ae)^2}\sqrt{ex+d}-\frac{Bbade^2}{4(ae-bd)^3(bxe+ae)^2}\sqrt{ex+d}-\frac{b^2eBd^2}{(ae-bd)^3(bxe+ae)^2}\sqrt{ex+d}-\frac{15Abe^2}{4(ae-bd)^3}\arctan\left(b\sqrt{ex+d}\frac{1}{\sqrt{(ae-bd)b}}\right)\frac{1}{\sqrt{(ae-bd)b}}+\frac{3Bae^2}{4(ae-bd)^3}\arctan\left(b\sqrt{ex+d}\frac{1}{\sqrt{(ae-bd)b}}\right)\frac{1}{\sqrt{(ae-bd)b}}+3\frac{bBde}{(ae-bd)^3\sqrt{(ae-bd)b}}\arctan\left(\frac{\sqrt{ex+d}b}{\sqrt{(ae-bd)b}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(b*x+a)^3/(e*x+d)^(3/2),x)
```

```
[Out] -2/(a*e-b*d)^3/(e*x+d)^(1/2)*A*e^2+2*e/(a*e-b*d)^3/(e*x+d)^(1/2)*
B*d-7/4/(a*e-b*d)^3/(b*e*x+a*e)^2*(e*x+d)^(3/2)*A*b^2*e^2+3/4/(a*
e-b*d)^3/(b*e*x+a*e)^2*(e*x+d)^(3/2)*B*a*b*e^2+e/(a*e-b*d)^3/(b*e
*x+a*e)^2*(e*x+d)^(3/2)*b^2*B*d-9/4/(a*e-b*d)^3/(b*e*x+a*e)^2*(e*
x+d)^(1/2)*A*a*b*e^3+9/4/(a*e-b*d)^3/(b*e*x+a*e)^2*(e*x+d)^(1/2)*
A*b^2*d*e^2+5/4/(a*e-b*d)^3/(b*e*x+a*e)^2*(e*x+d)^(1/2)*B*a^2*e^3
-1/4/(a*e-b*d)^3/(b*e*x+a*e)^2*(e*x+d)^(1/2)*B*a*b*d*e^2-e/(a*e-b
*d)^3/(b*e*x+a*e)^2*(e*x+d)^(1/2)*b^2*B*d^2-15/4/(a*e-b*d)^3/((a*
e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*A*b*e
^2+3/4/(a*e-b*d)^3/((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*b/((a
*e-b*d)*b)^(1/2))*B*a*e^2+3*e/(a*e-b*d)^3/((a*e-b*d)*b)^(1/2)*arc
tan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*B*b*d
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^3*(e*x + d)^(3/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.234017, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/((b*x + a)^3*(e*x + d)^(3/2)),x, algorithm="fricas")
```

```
[Out] [1/8*(3*(4*B*a^2*b*d*e + (B*a^3 - 5*A*a^2*b)*e^2 + (4*B*b^3*d*e +
 (B*a*b^2 - 5*A*b^3)*e^2)*x^2 + 2*(4*B*a*b^2*d*e + (B*a^2*b - 5*A
*a*b^2)*e^2)*x)*sqrt(e*x + d)*log((sqrt(b^2*d - a*b*e)*(b*e*x + 2
*b*d - a*e) + 2*(b^2*d - a*b*e)*sqrt(e*x + d))/(b*x + a)) + 2*(8*
A*a^2*e^2 - 2*(B*a*b + A*b^2)*d^2 - (13*B*a^2 - 9*A*a*b)*d*e - 3*
(4*B*b^2*d*e + (B*a*b - 5*A*b^2)*e^2)*x^2 - (4*B*b^2*d^2 + (21*B*
a*b - 5*A*b^2)*d*e + 5*(B*a^2 - 5*A*a*b)*e^2)*x)*sqrt(b^2*d - a*b
*e))/((a^2*b^3*d^3 - 3*a^3*b^2*d^2*e + 3*a^4*b*d*e^2 - a^5*e^3 +
(b^5*d^3 - 3*a*b^4*d^2*e + 3*a^2*b^3*d*e^2 - a^3*b^2*e^3)*x^2 + 2
*(a*b^4*d^3 - 3*a^2*b^3*d^2*e + 3*a^3*b^2*d*e^2 - a^4*b*e^3)*x)*s
qrt(b^2*d - a*b*e)*sqrt(e*x + d)), 1/4*(3*(4*B*a^2*b*d*e + (B*a^3
 - 5*A*a^2*b)*e^2 + (4*B*b^3*d*e + (B*a*b^2 - 5*A*b^3)*e^2)*x^2 +
 2*(4*B*a*b^2*d*e + (B*a^2*b - 5*A*a*b^2)*e^2)*x)*sqrt(e*x + d)*a
rctan(-(b*d - a*e)/(sqrt(-b^2*d + a*b*e)*sqrt(e*x + d))) + (8*A*a
^2*e^2 - 2*(B*a*b + A*b^2)*d^2 - (13*B*a^2 - 9*A*a*b)*d*e - 3*(4*
B*b^2*d*e + (B*a*b - 5*A*b^2)*e^2)*x^2 - (4*B*b^2*d^2 + (21*B*a*b
 - 5*A*b^2)*d*e + 5*(B*a^2 - 5*A*a*b)*e^2)*x)*sqrt(-b^2*d + a*b*e
))/((a^2*b^3*d^3 - 3*a^3*b^2*d^2*e + 3*a^4*b*d*e^2 - a^5*e^3 + (b
^5*d^3 - 3*a*b^4*d^2*e + 3*a^2*b^3*d*e^2 - a^3*b^2*e^3)*x^2 + 2*(
a*b^4*d^3 - 3*a^2*b^3*d^2*e + 3*a^3*b^2*d*e^2 - a^4*b*e^3)*x)*sqr
t(-b^2*d + a*b*e)*sqrt(e*x + d))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x+A)/(b*x+a)**3/(e*x+d)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.224927, size = 467, normalized size = 2.37

$$-\frac{3\left(4\,Bbde+Bae^{2}-5\,Abe^{2}\right)\arctan\left(\frac{\sqrt{xe+d}b}{\sqrt{-b^{2}d+abe}}\right)}{4\left(b^{3}d^{3}-3\,ab^{2}d^{2}e+3\,a^{2}bde^{2}-a^{3}e^{3}\right)\sqrt{-b^{2}d+abe}}-\frac{2\left(Bde-Ae^{2}\right)}{\left(b^{3}d^{3}-3\,ab^{2}d^{2}e+3\,a^{2}bde^{2}-a^{3}e^{3}\right)\sqrt{xe+d}}-\frac{4\,(xe+d)^{\frac{3}{2}}Bb^{2}de-4\,\sqrt{xe+d}Bb^{2}d^{2}e+3\,(xe+d)^{\frac{3}{2}}Babe^{2}-7\,(xe+d)^{\frac{3}{2}}Ab^{2}e^{2}-\sqrt{xe+d}Babde^{2}+9\,\sqrt{xe+d}Ab^{2}de^{2}+5\,\sqrt{xe}}{4\left(b^{3}d^{3}-3\,ab^{2}d^{2}e+3\,a^{2}bde^{2}-a^{3}e^{3}\right)\left((xe+d)b-bd+ae\right)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/((b*x + a)^3*(e*x + d)^(3/2)),x, algorithm="giac")
```

```
[Out] -3/4*(4*B*b*d*e + B*a*e^2 - 5*A*b*e^2)*arctan(sqrt(x*e + d)*b/sqr
t(-b^2*d + a*b*e))/((b^3*d^3 - 3*a*b^2*d^2*e + 3*a^2*b*d*e^2 - a^
3*e^3)*sqrt(-b^2*d + a*b*e)) - 2*(B*d*e - A*e^2)/((b^3*d^3 - 3*a*
b^2*d^2*e + 3*a^2*b*d*e^2 - a^3*e^3)*sqrt(x*e + d)) - 1/4*(4*(x*e
 + d)^(3/2)*B*b^2*d*e - 4*sqrt(x*e + d)*B*b^2*d^2*e + 3*(x*e + d)
^(3/2)*B*a*b*e^2 - 7*(x*e + d)^(3/2)*A*b^2*e^2 - sqrt(x*e + d)*B*
a*b*d*e^2 + 9*sqrt(x*e + d)*A*b^2*d*e^2 + 5*sqrt(x*e + d)*B*a^2*e
^3 - 9*sqrt(x*e + d)*A*a*b*e^3)/((b^3*d^3 - 3*a*b^2*d^2*e + 3*a^2
*b*d*e^2 - a^3*e^3)*((x*e + d)*b - b*d + a*e)^2)
```

3.1747 $\int \frac{A+Bx}{(a+bx)^3(d+ex)^{5/2}}\,dx$

Optimal. Leaf size=240

$$-\frac{Ab-aB}{2b(a+bx)^2(d+ex)^{3/2}(bd-ae)}-\frac{5e(3aBe-7Abe+4bBd)}{4\sqrt{d+ex}(bd-ae)^4}-\frac{5e(3aBe-7Abe+4bBd)}{12b(d+ex)^{3/2}(bd-ae)^3}-\frac{3aBe-7Abe+4bBd}{4b(a+bx)(d+ex)^{3/2}(bd-ae)^2}+\frac{5\sqrt{b}e(3aBe-7Abe+4bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{4(bd-ae)^{9/2}}$$

```
[Out] (-5*e*(4*b*B*d - 7*A*b*e + 3*a*B*e))/(12*b*(b*d - a*e)^3*(d + e*x
)^(3/2)) - (A*b - a*B)/(2*b*(b*d - a*e)*(a + b*x)^2*(d + e*x)^(3/
2)) - (4*b*B*d - 7*A*b*e + 3*a*B*e)/(4*b*(b*d - a*e)^2*(a + b*x)*
(d + e*x)^(3/2)) - (5*e*(4*b*B*d - 7*A*b*e + 3*a*B*e))/(4*(b*d -
a*e)^4*Sqrt[d + e*x]) + (5*Sqrt[b]*e*(4*b*B*d - 7*A*b*e + 3*a*B*e
)*ArcTanh[(Sqrt[b]*Sqrt[d + e*x])/Sqrt[b*d - a*e]])/(4*(b*d - a*e
)^(9/2))
```

Rubi [A] time = 0.51879, antiderivative size = 240, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$-\frac{Ab-aB}{2b(a+bx)^2(d+ex)^{3/2}(bd-ae)}-\frac{5e(3aBe-7Abe+4bBd)}{4\sqrt{d+ex}(bd-ae)^4}-\frac{5e(3aBe-7Abe+4bBd)}{12b(d+ex)^{3/2}(bd-ae)^3}-\frac{3aBe-7Abe+4bBd}{4b(a+bx)(d+ex)^{3/2}(bd-ae)^2}+\frac{5\sqrt{b}e(3aBe-7Abe+4bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{4(bd-ae)^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/((a + b*x)^3*(d + e*x)^(5/2)),x]
```

```
[Out] (-5*e*(4*b*B*d - 7*A*b*e + 3*a*B*e))/(12*b*(b*d - a*e)^3*(d + e*x
)^(3/2)) - (A*b - a*B)/(2*b*(b*d - a*e)*(a + b*x)^2*(d + e*x)^(3/
2)) - (4*b*B*d - 7*A*b*e + 3*a*B*e)/(4*b*(b*d - a*e)^2*(a + b*x)*
(d + e*x)^(3/2)) - (5*e*(4*b*B*d - 7*A*b*e + 3*a*B*e))/(4*(b*d -
a*e)^4*Sqrt[d + e*x]) + (5*Sqrt[b]*e*(4*b*B*d - 7*A*b*e + 3*a*B*e
)*ArcTanh[(Sqrt[b]*Sqrt[d + e*x])/Sqrt[b*d - a*e]])/(4*(b*d - a*e
)^(9/2))
```

Rubi in Sympy [A] time = 54.8479, size = 230, normalized size = 0.96

$$\frac{5\sqrt{b}e\left(7Abe-3Bae-4Bbd\right)\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{ae-bd}}\right)}{4\left(ae-bd\right)^{\frac{9}{2}}}+\frac{5e\left(7Abe-3Bae-4Bbd\right)}{4\sqrt{d+ex}\left(ae-bd\right)^{4}}-\frac{5e\left(7Abe-3Bae-4Bbd\right)}{12b\left(d+ex\right)^{\frac{3}{2}}\left(ae-bd\right)^{3}}+\frac{7Abe-3Bae-4Bbd}{4b\left(a+bx\right)\left(d+ex\right)^{\frac{3}{2}}\left(ae-bd\right)^{2}}+\frac{Ab-Ba}{2b\left(a+bx\right)^{2}\left(d+ex\right)^{\frac{3}{2}}\left(ae-bd\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(b*x+a)**3/(e*x+d)**(5/2),x)
```

```
[Out] 5*sqrt(b)*e*(7*A*b*e - 3*B*a*e - 4*B*b*d)*atan(sqrt(b)*sqrt(d + e
*x)/sqrt(a*e - b*d))/(4*(a*e - b*d)**(9/2)) + 5*e*(7*A*b*e - 3*B*
a*e - 4*B*b*d)/(4*sqrt(d + e*x)*(a*e - b*d)**4) - 5*e*(7*A*b*e -
3*B*a*e - 4*B*b*d)/(12*b*(d + e*x)**(3/2)*(a*e - b*d)**3) + (7*A*
b*e - 3*B*a*e - 4*B*b*d)/(4*b*(a + b*x)*(d + e*x)**(3/2)*(a*e - b
*d)**2) + (A*b - B*a)/(2*b*(a + b*x)**2*(d + e*x)**(3/2)*(a*e - b
*d))
```

Mathematica [A] time = 1.36517, size = 195, normalized size = 0.81

$$\frac{\sqrt{d+ex}\left(-\frac{6b(Ab-aB)(bd-ae)}{(a+bx)^2}+\frac{8e(bd-ae)(Ae-Bd)}{(d+ex)^2}-\frac{3b(7aBe-11Abe+4bBd)}{a+bx}+\frac{24e(-aBe+3Abe-2bBd)}{d+ex}\right)}{12(bd-ae)^4}+\frac{5\sqrt{b}e(3aBe-7Abe+4bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{4(bd-ae)^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/((a + b*x)^3*(d + e*x)^(5/2)),x]
```

```
[Out] (Sqrt[d + e*x]*((-6*b*(A*b - a*B)*(b*d - a*e))/(a + b*x)^2 - (3*b
*(4*b*B*d - 11*A*b*e + 7*a*B*e))/(a + b*x) + (8*e*(b*d - a*e)*(-(
B*d) + A*e))/(d + e*x)^2 + (24*e*(-2*b*B*d + 3*A*b*e - a*B*e))/(d
 + e*x)))/(12*(b*d - a*e)^4) + (5*Sqrt[b]*e*(4*b*B*d - 7*A*b*e +
3*a*B*e)*ArcTanh[(Sqrt[b]*Sqrt[d + e*x])/Sqrt[b*d - a*e]])/(4*(b*
d - a*e)^(9/2))
```

Maple [B] time = 0.037, size = 568, normalized size = 2.4

$$-\frac{2\,Ae^2}{3\,(ae-bd)^3}(ex+d)^{-\frac{3}{2}}+\frac{2\,eBd}{3\,(ae-bd)^3}(ex+d)^{-\frac{3}{2}}+6\,\frac{Abe^2}{(ae-bd)^4\sqrt{ex+d}}-2\,\frac{Bae^2}{(ae-bd)^4\sqrt{ex+d}}-4\,\frac{bBde}{(ae-bd)^4\sqrt{ex+d}}+\frac{11\,b^3Ae^2}{4\,(ae-bd)^4(bxe+ae)^2}(ex+d)^{\frac{3}{2}}-\frac{7\,b^2Bae^2}{4\,(ae-bd)^4(bxe+ae)^2}(ex+d)^{\frac{3}{2}}-\frac{b^3Bde}{(ae-bd)^4(bxe+ae)^2}(ex+d)^{\frac{3}{2}}+\frac{13\,b^2Aae^3}{4\,(ae-bd)^4(bxe+ae)^2}\sqrt{ex+d}-\frac{13\,b^3Ade^2}{4\,(ae-bd)^4(bxe+ae)^2}\sqrt{ex+d}-\frac{9\,bBa^2e^3}{4\,(ae-bd)^4(bxe+ae)^2}\sqrt{ex+d}+\frac{5\,b^2Bade^2}{4\,(ae-bd)^4(bxe+ae)^2}\sqrt{ex+d}+\frac{b^3Bd^2e}{(ae-bd)^4(bxe+ae)^2}\sqrt{ex+d}+\frac{35\,b^2Ae^2}{4\,(ae-bd)^4}\arctan\left(b\sqrt{ex+d}\frac{1}{\sqrt{(ae-bd)\,b}}\right)\frac{1}{\sqrt{(ae-bd)\,b}}-\frac{15\,Bbae^2}{4\,(ae-bd)^4}\arctan\left(b\sqrt{ex+d}\frac{1}{\sqrt{(ae-bd)\,b}}\right)\frac{1}{\sqrt{(ae-bd)\,b}}-5\,\frac{b^2Bde}{(ae-bd)^4\sqrt{(ae-bd)\,b}}\arctan\left(\frac{\sqrt{ex+d}\,b}{\sqrt{(ae-bd)\,b}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(b*x+a)^3/(e*x+d)^(5/2),x)
```

```
[Out] -2/3/(a*e-b*d)^3/(e*x+d)^(3/2)*A*e^2+2/3*e/(a*e-b*d)^3/(e*x+d)^(3
/2)*B*d+6/(a*e-b*d)^4/(e*x+d)^(1/2)*A*b*e^2-2/(a*e-b*d)^4/(e*x+d)
^(1/2)*B*a*e^2-4*e/(a*e-b*d)^4/(e*x+d)^(1/2)*B*b*d+11/4/(a*e-b*d)
^4*b^3/(b*e*x+a*e)^2*(e*x+d)^(3/2)*A*e^2-7/4/(a*e-b*d)^4*b^2/(b*e
*x+a*e)^2*(e*x+d)^(3/2)*B*a*e^2-e/(a*e-b*d)^4*b^3/(b*e*x+a*e)^2*(
e*x+d)^(3/2)*B*d+13/4/(a*e-b*d)^4*b^2/(b*e*x+a*e)^2*(e*x+d)^(1/2)
*A*a*e^3-13/4/(a*e-b*d)^4*b^3/(b*e*x+a*e)^2*(e*x+d)^(1/2)*A*d*e^2
-9/4/(a*e-b*d)^4*b/(b*e*x+a*e)^2*(e*x+d)^(1/2)*B*a^2*e^3+5/4/(a*e
-b*d)^4*b^2/(b*e*x+a*e)^2*(e*x+d)^(1/2)*B*a*d*e^2+e/(a*e-b*d)^4*b
^3/(b*e*x+a*e)^2*(e*x+d)^(1/2)*B*d^2+35/4/(a*e-b*d)^4*b^2/((a*e-b
*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*A*e^2-15
/4/(a*e-b*d)^4*b/((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e
-b*d)*b)^(1/2))*B*a*e^2-5*e/(a*e-b*d)^4*b^2/((a*e-b*d)*b)^(1/2)*a
rctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*B*d
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/((b*x + a)^3*(e*x + d)^(5/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.240887, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/((b*x + a)^3*(e*x + d)^(5/2)),x, algorithm="fricas")
```

```
[Out] [-1/24*(16*A*a^3*e^3 + 12*(B*a*b^2 + A*b^3)*d^3 + 2*(83*B*a^2*b -
 39*A*a*b^2)*d^2*e + 32*(B*a^3 - 5*A*a^2*b)*d*e^2 + 30*(4*B*b^3*d
*e^2 + (3*B*a*b^2 - 7*A*b^3)*e^3)*x^3 + 10*(16*B*b^3*d^2*e + 4*(8
*B*a*b^2 - 7*A*b^3)*d*e^2 + 5*(3*B*a^2*b - 7*A*a*b^2)*e^3)*x^2 +
15*(4*B*a^2*b*d^2*e + (3*B*a^3 - 7*A*a^2*b)*d*e^2 + (4*B*b^3*d*e^
2 + (3*B*a*b^2 - 7*A*b^3)*e^3)*x^3 + (4*B*b^3*d^2*e + (11*B*a*b^2
 - 7*A*b^3)*d*e^2 + 2*(3*B*a^2*b - 7*A*a*b^2)*e^3)*x^2 + (8*B*a*b
^2*d^2*e + 2*(5*B*a^2*b - 7*A*a*b^2)*d*e^2 + (3*B*a^3 - 7*A*a^2*b
)*e^3)*x)*sqrt(e*x + d)*sqrt(b/(b*d - a*e))*log((b*e*x + 2*b*d -
a*e - 2*(b*d - a*e)*sqrt(e*x + d)*sqrt(b/(b*d - a*e)))/(b*x + a))
 + 2*(12*B*b^3*d^3 + (145*B*a*b^2 - 21*A*b^3)*d^2*e + 2*(67*B*a^2
*b - 119*A*a*b^2)*d*e^2 + 8*(3*B*a^3 - 7*A*a^2*b)*e^3)*x)/((a^2*b
^4*d^5 - 4*a^3*b^3*d^4*e + 6*a^4*b^2*d^3*e^2 - 4*a^5*b*d^2*e^3 +
a^6*d*e^4 + (b^6*d^4*e - 4*a*b^5*d^3*e^2 + 6*a^2*b^4*d^2*e^3 - 4*
a^3*b^3*d*e^4 + a^4*b^2*e^5)*x^3 + (b^6*d^5 - 2*a*b^5*d^4*e - 2*a
^2*b^4*d^3*e^2 + 8*a^3*b^3*d^2*e^3 - 7*a^4*b^2*d*e^4 + 2*a^5*b*e^
5)*x^2 + (2*a*b^5*d^5 - 7*a^2*b^4*d^4*e + 8*a^3*b^3*d^3*e^2 - 2*a
^4*b^2*d^2*e^3 - 2*a^5*b*d*e^4 + a^6*e^5)*x)*sqrt(e*x + d)), -1/1
2*(8*A*a^3*e^3 + 6*(B*a*b^2 + A*b^3)*d^3 + (83*B*a^2*b - 39*A*a*b
^2)*d^2*e + 16*(B*a^3 - 5*A*a^2*b)*d*e^2 + 15*(4*B*b^3*d*e^2 + (3
*B*a*b^2 - 7*A*b^3)*e^3)*x^3 + 5*(16*B*b^3*d^2*e + 4*(8*B*a*b^2 -
 7*A*b^3)*d*e^2 + 5*(3*B*a^2*b - 7*A*a*b^2)*e^3)*x^2 - 15*(4*B*a^
2*b*d^2*e + (3*B*a^3 - 7*A*a^2*b)*d*e^2 + (4*B*b^3*d*e^2 + (3*B*a
*b^2 - 7*A*b^3)*e^3)*x^3 + (4*B*b^3*d^2*e + (11*B*a*b^2 - 7*A*b^3
)*d*e^2 + 2*(3*B*a^2*b - 7*A*a*b^2)*e^3)*x^2 + (8*B*a*b^2*d^2*e +
 2*(5*B*a^2*b - 7*A*a*b^2)*d*e^2 + (3*B*a^3 - 7*A*a^2*b)*e^3)*x)*
sqrt(e*x + d)*sqrt(-b/(b*d - a*e))*arctan(-(b*d - a*e)*sqrt(-b/(b
*d - a*e))/(sqrt(e*x + d)*b)) + (12*B*b^3*d^3 + (145*B*a*b^2 - 21
*A*b^3)*d^2*e + 2*(67*B*a^2*b - 119*A*a*b^2)*d*e^2 + 8*(3*B*a^3 -
 7*A*a^2*b)*e^3)*x)/((a^2*b^4*d^5 - 4*a^3*b^3*d^4*e + 6*a^4*b^2*d
^3*e^2 - 4*a^5*b*d^2*e^3 + a^6*d*e^4 + (b^6*d^4*e - 4*a*b^5*d^3*e
^2 + 6*a^2*b^4*d^2*e^3 - 4*a^3*b^3*d*e^4 + a^4*b^2*e^5)*x^3 + (b^
6*d^5 - 2*a*b^5*d^4*e - 2*a^2*b^4*d^3*e^2 + 8*a^3*b^3*d^2*e^3 - 7
*a^4*b^2*d*e^4 + 2*a^5*b*e^5)*x^2 + (2*a*b^5*d^5 - 7*a^2*b^4*d^4*
e + 8*a^3*b^3*d^3*e^2 - 2*a^4*b^2*d^2*e^3 - 2*a^5*b*d*e^4 + a^6*e
^5)*x)*sqrt(e*x + d))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x+A)/(b*x+a)**3/(e*x+d)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.227213, size = 606, normalized size = 2.52

$$-\frac{5\left(4\,Bb^{2}de+3\,Babe^{2}-7\,Ab^{2}e^{2}\right)\arctan\left(\frac{\sqrt{xe+d}b}{\sqrt{-b^{2}d+abe}}\right)}{4\,(b^{4}d^{4}-4\,ab^{3}d^{3}e+6\,a^{2}b^{2}d^{2}e^{2}-4\,a^{3}bde^{3}+a^{4}e^{4})\sqrt{-b^{2}d+abe}}-\frac{2\left(6\,(xe+d)Bbde+Bbd^{2}e+3\,(xe+d)Bae^{2}-9\,(xe+d)Abe^{2}-Bade^{2}-Abde^{2}+Aae^{3}\right)}{3\,(b^{4}d^{4}-4\,ab^{3}d^{3}e+6\,a^{2}b^{2}d^{2}e^{2}-4\,a^{3}bde^{3}+a^{4}e^{4})(xe+d)^{\frac{3}{2}}}-\frac{4\,(xe+d)^{\frac{3}{2}}Bb^{3}de-4\,\sqrt{xe+d}Bb^{3}d^{2}e+7\,(xe+d)^{\frac{3}{2}}Bab^{2}e^{2}-11\,(xe+d)^{\frac{3}{2}}Ab^{3}e^{2}-5\,\sqrt{xe+d}Bab^{2}de^{2}+13\,\sqrt{xe+d}Ab^{3}de^{2}+}{4\,(b^{4}d^{4}-4\,ab^{3}d^{3}e+6\,a^{2}b^{2}d^{2}e^{2}-4\,a^{3}bde^{3}+a^{4}e^{4})((xe+d)b-bd+ae)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/((b*x + a)^3*(e*x + d)^(5/2)),x, algorithm="giac")
```

```
[Out] -5/4*(4*B*b^2*d*e + 3*B*a*b*e^2 - 7*A*b^2*e^2)*arctan(sqrt(x*e +
d)*b/sqrt(-b^2*d + a*b*e))/((b^4*d^4 - 4*a*b^3*d^3*e + 6*a^2*b^2*
d^2*e^2 - 4*a^3*b*d*e^3 + a^4*e^4)*sqrt(-b^2*d + a*b*e)) - 2/3*(6
*(x*e + d)*B*b*d*e + B*b*d^2*e + 3*(x*e + d)*B*a*e^2 - 9*(x*e + d
)*A*b*e^2 - B*a*d*e^2 - A*b*d*e^2 + A*a*e^3)/((b^4*d^4 - 4*a*b^3*
d^3*e + 6*a^2*b^2*d^2*e^2 - 4*a^3*b*d*e^3 + a^4*e^4)*(x*e + d)^(3
/2)) - 1/4*(4*(x*e + d)^(3/2)*B*b^3*d*e - 4*sqrt(x*e + d)*B*b^3*d
^2*e + 7*(x*e + d)^(3/2)*B*a*b^2*e^2 - 11*(x*e + d)^(3/2)*A*b^3*e
^2 - 5*sqrt(x*e + d)*B*a*b^2*d*e^2 + 13*sqrt(x*e + d)*A*b^3*d*e^2
 + 9*sqrt(x*e + d)*B*a^2*b*e^3 - 13*sqrt(x*e + d)*A*a*b^2*e^3)/((
b^4*d^4 - 4*a*b^3*d^3*e + 6*a^2*b^2*d^2*e^2 - 4*a^3*b*d*e^3 + a^4
*e^4)*((x*e + d)*b - b*d + a*e)^2)
```

3.1748 $\int \frac{A+Bx}{(a+bx)^3(d+ex)^{7/2}}\,dx$

Optimal. Leaf size=281

$$\frac{7b^{3/2}e(5aBe-9Abe+4bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{4(bd-ae)^{11/2}}-\frac{7be(5aBe-9Abe+4bBd)}{4\sqrt{d+ex}(bd-ae)^5}-\frac{7e(5aBe-9Abe+4bBd)}{12(d+ex)^{3/2}(bd-ae)^4}-\frac{7e(5aBe-9Abe+4bBd)}{20b(d+ex)^{5/2}(bd-ae)^3}-\frac{5aBe-9Abe+4bBd}{4b(a+bx)(d+ex)^{5/2}(bd-ae)^2}-\frac{Ab-aB}{2b(a+bx)^2(d+ex)^{5/2}(bd-ae)}$$

```
[Out] (-7*e*(4*b*B*d - 9*A*b*e + 5*a*B*e))/(20*b*(b*d - a*e)^3*(d + e*x
)^(5/2)) - (A*b - a*B)/(2*b*(b*d - a*e)*(a + b*x)^2*(d + e*x)^(5/
2)) - (4*b*B*d - 9*A*b*e + 5*a*B*e)/(4*b*(b*d - a*e)^2*(a + b*x)*
(d + e*x)^(5/2)) - (7*e*(4*b*B*d - 9*A*b*e + 5*a*B*e))/(12*(b*d -
 a*e)^4*(d + e*x)^(3/2)) - (7*b*e*(4*b*B*d - 9*A*b*e + 5*a*B*e))/
(4*(b*d - a*e)^5*Sqrt[d + e*x]) + (7*b^(3/2)*e*(4*b*B*d - 9*A*b*e
 + 5*a*B*e)*ArcTanh[(Sqrt[b]*Sqrt[d + e*x])/Sqrt[b*d - a*e]])/(4*
(b*d - a*e)^(11/2))
```

Rubi [A] time = 0.664483, antiderivative size = 281, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$\frac{7b^{3/2}e(5aBe-9Abe+4bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{4(bd-ae)^{11/2}}-\frac{7be(5aBe-9Abe+4bBd)}{4\sqrt{d+ex}(bd-ae)^5}-\frac{7e(5aBe-9Abe+4bBd)}{12(d+ex)^{3/2}(bd-ae)^4}-\frac{7e(5aBe-9Abe+4bBd)}{20b(d+ex)^{5/2}(bd-ae)^3}-\frac{5aBe-9Abe+4bBd}{4b(a+bx)(d+ex)^{5/2}(bd-ae)^2}-\frac{Ab-aB}{2b(a+bx)^2(d+ex)^{5/2}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/((a + b*x)^3*(d + e*x)^(7/2)),x]
```

```
[Out] (-7*e*(4*b*B*d - 9*A*b*e + 5*a*B*e))/(20*b*(b*d - a*e)^3*(d + e*x
)^(5/2)) - (A*b - a*B)/(2*b*(b*d - a*e)*(a + b*x)^2*(d + e*x)^(5/
2)) - (4*b*B*d - 9*A*b*e + 5*a*B*e)/(4*b*(b*d - a*e)^2*(a + b*x)*
(d + e*x)^(5/2)) - (7*e*(4*b*B*d - 9*A*b*e + 5*a*B*e))/(12*(b*d -
 a*e)^4*(d + e*x)^(3/2)) - (7*b*e*(4*b*B*d - 9*A*b*e + 5*a*B*e))/
(4*(b*d - a*e)^5*Sqrt[d + e*x]) + (7*b^(3/2)*e*(4*b*B*d - 9*A*b*e
 + 5*a*B*e)*ArcTanh[(Sqrt[b]*Sqrt[d + e*x])/Sqrt[b*d - a*e]])/(4*
(b*d - a*e)^(11/2))
```

Rubi in Sympy [A] time = 68.6842, size = 274, normalized size = 0.98

$$-\frac{7b^{\frac{3}{2}}e\left(9Abe-5Bae-4Bbd\right)\operatorname{atan}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{ae-bd}}\right)}{4\left(ae-bd\right)^{\frac{11}{2}}}-\frac{7be\left(9Abe-5Bae-4Bbd\right)}{4\sqrt{d+ex}\left(ae-bd\right)^{5}}+\frac{7e\left(9Abe-5Bae-4Bbd\right)}{12\left(d+ex\right)^{\frac{3}{2}}\left(ae-bd\right)^{4}}-\frac{7e\left(9Abe-5Bae-4Bbd\right)}{20b\left(d+ex\right)^{\frac{5}{2}}\left(ae-bd\right)^{3}}+\frac{9Abe-5Bae-4Bbd}{4b\left(a+bx\right)\left(d+ex\right)^{\frac{5}{2}}\left(ae-bd\right)^{2}}+\frac{Ab-Ba}{2b\left(a+bx\right)^{2}\left(d+ex\right)^{\frac{5}{2}}\left(ae-bd\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(b*x+a)**3/(e*x+d)**(7/2),x)
```

```
[Out] -7*b**(3/2)*e*(9*A*b*e - 5*B*a*e - 4*B*b*d)*atan(sqrt(b)*sqrt(d +
 e*x)/sqrt(a*e - b*d))/(4*(a*e - b*d)**(11/2)) - 7*b*e*(9*A*b*e -
 5*B*a*e - 4*B*b*d)/(4*sqrt(d + e*x)*(a*e - b*d)**5) + 7*e*(9*A*b
*e - 5*B*a*e - 4*B*b*d)/(12*(d + e*x)**(3/2)*(a*e - b*d)**4) - 7*
e*(9*A*b*e - 5*B*a*e - 4*B*b*d)/(20*b*(d + e*x)**(5/2)*(a*e - b*d
)**3) + (9*A*b*e - 5*B*a*e - 4*B*b*d)/(4*b*(a + b*x)*(d + e*x)**(
5/2)*(a*e - b*d)**2) + (A*b - B*a)/(2*b*(a + b*x)**2*(d + e*x)**(
5/2)*(a*e - b*d))
```

Mathematica [A] time = 1.21268, size = 236, normalized size = 0.84

$$\frac{7b^{3/2}e(5aBe-9Abe+4bBd)\tanh^{-1}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{bd-ae}}\right)}{4(bd-ae)^{11/2}} + \frac{\sqrt{d+ex}\left(-\frac{15b^2(11aBe-15Abe+4bBd)}{a+bx}-\frac{30b^2(Ab-aB)(bd-ae)}{(a+bx)^2}+\frac{360be(-aBe+2Abe-bBd)}{d+ex}+\frac{40e(bd-ae)(-aBe+3Abe-2bBd)}{(d+ex)^2}+\frac{24e(bd-ae)^2(A\cdots}{(d+ex)^3}\right.}{60(bd-ae)^5}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/((a + b*x)^3*(d + e*x)^(7/2)),x]
```

```
[Out] (Sqrt[d + e*x]*((-30*b^2*(A*b - a*B)*(b*d - a*e))/(a + b*x)^2 - (
15*b^2*(4*b*B*d - 15*A*b*e + 11*a*B*e))/(a + b*x) + (24*e*(b*d -
a*e)^2*(-(B*d) + A*e))/(d + e*x)^3 + (40*e*(b*d - a*e)*(-2*b*B*d
+ 3*A*b*e - a*B*e))/(d + e*x)^2 + (360*b*e*(-(b*B*d) + 2*A*b*e -
a*B*e))/(d + e*x)))/(60*(b*d - a*e)^5) + (7*b^(3/2)*e*(4*b*B*d -
9*A*b*e + 5*a*B*e)*ArcTanh[(Sqrt[b]*Sqrt[d + e*x])/Sqrt[b*d - a*e
]])/(4*(b*d - a*e)^(11/2))
```

Maple [B] time = 0.039, size = 648, normalized size = 2.3

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(b*x+a)^3/(e*x+d)^(7/2),x)
```

```
[Out] -2/5/(a*e-b*d)^3/(e*x+d)^(5/2)*A*e^2+2/5*e/(a*e-b*d)^3/(e*x+d)^(5
/2)*B*d+2/(a*e-b*d)^4/(e*x+d)^(3/2)*A*b*e^2-2/3/(a*e-b*d)^4/(e*x+
d)^(3/2)*B*a*e^2-4/3*e/(a*e-b*d)^4/(e*x+d)^(3/2)*B*b*d-12*b^2/(a*
e-b*d)^5/(e*x+d)^(1/2)*A*e^2+6*b/(a*e-b*d)^5/(e*x+d)^(1/2)*B*a*e^
2+6*e*b^2/(a*e-b*d)^5/(e*x+d)^(1/2)*B*d-15/4/(a*e-b*d)^5*b^4/(b*e
*x+a*e)^2*(e*x+d)^(3/2)*A*e^2+11/4/(a*e-b*d)^5*b^3/(b*e*x+a*e)^2*
(e*x+d)^(3/2)*B*a*e^2+e/(a*e-b*d)^5*b^4/(b*e*x+a*e)^2*(e*x+d)^(3/
2)*B*d-17/4/(a*e-b*d)^5*b^3/(b*e*x+a*e)^2*(e*x+d)^(1/2)*A*a*e^3+1
7/4/(a*e-b*d)^5*b^4/(b*e*x+a*e)^2*(e*x+d)^(1/2)*A*d*e^2+13/4/(a*e
-b*d)^5*b^2/(b*e*x+a*e)^2*(e*x+d)^(1/2)*B*a^2*e^3-9/4/(a*e-b*d)^5
*b^3/(b*e*x+a*e)^2*(e*x+d)^(1/2)*B*a*d*e^2-e/(a*e-b*d)^5*b^4/(b*e
*x+a*e)^2*(e*x+d)^(1/2)*B*d^2-63/4/(a*e-b*d)^5*b^3/((a*e-b*d)*b)^
(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*A*e^2+35/4/(a*e
-b*d)^5*b^2/((a*e-b*d)*b)^(1/2)*arctan((e*x+d)^(1/2)*b/((a*e-b*d)
*b)^(1/2))*B*a*e^2+7*e/(a*e-b*d)^5*b^3/((a*e-b*d)*b)^(1/2)*arctan
((e*x+d)^(1/2)*b/((a*e-b*d)*b)^(1/2))*B*d
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/((b*x + a)^3*(e*x + d)^(7/2)),x, algorithm="maxima")

[Out] Exception raised: ValueError
```

Fricas [A] time = 0.244841, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/((b*x + a)^3*(e*x + d)^(7/2)),x, algorithm="fricas")

[Out] [1/120*(48*A*a^4*e^4 - 60*(B*a*b^3 + A*b^4)*d^4 - 2*(659*B*a^2*b^
2 - 255*A*a*b^3)*d^3*e - 32*(17*B*a^3*b - 54*A*a^2*b^2)*d^2*e^2 +
 16*(2*B*a^4 - 21*A*a^3*b)*d*e^3 - 210*(4*B*b^4*d*e^3 + (5*B*a*b^
3 - 9*A*b^4)*e^4)*x^4 - 70*(28*B*b^4*d^2*e^2 + (55*B*a*b^3 - 63*A
*b^4)*d*e^3 + 5*(5*B*a^2*b^2 - 9*A*a*b^3)*e^4)*x^3 - 14*(92*B*b^4
*d^3*e + 9*(39*B*a*b^3 - 23*A*b^4)*d^2*e^2 + 3*(109*B*a^2*b^2 - 1
77*A*a*b^3)*d*e^3 + 8*(5*B*a^3*b - 9*A*a^2*b^2)*e^4)*x^2 + 105*(4
*B*a^2*b^2*d^3*e + (5*B*a^3*b - 9*A*a^2*b^2)*d^2*e^2 + (4*B*b^4*d
*e^3 + (5*B*a*b^3 - 9*A*b^4)*e^4)*x^4 + 2*(4*B*b^4*d^2*e^2 + 9*(B
*a*b^3 - A*b^4)*d*e^3 + (5*B*a^2*b^2 - 9*A*a*b^3)*e^4)*x^3 + (4*B
*b^4*d^3*e + 3*(7*B*a*b^3 - 3*A*b^4)*d^2*e^2 + 12*(2*B*a^2*b^2 -
3*A*a*b^3)*d*e^3 + (5*B*a^3*b - 9*A*a^2*b^2)*e^4)*x^2 + 2*(4*B*a*
b^3*d^3*e + 9*(B*a^2*b^2 - A*a*b^3)*d^2*e^2 + (5*B*a^3*b - 9*A*a^
2*b^2)*d*e^3)*x)*sqrt(e*x + d)*sqrt(b/(b*d - a*e))*log((b*e*x + 2
*b*d - a*e + 2*(b*d - a*e)*sqrt(e*x + d)*sqrt(b/(b*d - a*e)))/(b*
x + a)) - 2*(60*B*b^4*d^4 + (1183*B*a*b^3 - 135*A*b^4)*d^3*e + 3*
(643*B*a^2*b^2 - 831*A*a*b^3)*d^2*e^2 + 72*(9*B*a^3*b - 17*A*a^2*
b^2)*d*e^3 - 8*(5*B*a^4 - 9*A*a^3*b)*e^4)*x)/((a^2*b^5*d^7 - 5*a^
3*b^4*d^6*e + 10*a^4*b^3*d^5*e^2 - 10*a^5*b^2*d^4*e^3 + 5*a^6*b*d
^3*e^4 - a^7*d^2*e^5 + (b^7*d^5*e^2 - 5*a*b^6*d^4*e^3 + 10*a^2*b^
5*d^3*e^4 - 10*a^3*b^4*d^2*e^5 + 5*a^4*b^3*d*e^6 - a^5*b^2*e^7)*x
^4 + 2*(b^7*d^6*e - 4*a*b^6*d^5*e^2 + 5*a^2*b^5*d^4*e^3 - 5*a^4*b
^3*d^2*e^5 + 4*a^5*b^2*d*e^6 - a^6*b*e^7)*x^3 + (b^7*d^7 - a*b^6*
d^6*e - 9*a^2*b^5*d^5*e^2 + 25*a^3*b^4*d^4*e^3 - 25*a^4*b^3*d^3*e
^4 + 9*a^5*b^2*d^2*e^5 + a^6*b*d*e^6 - a^7*e^7)*x^2 + 2*(a*b^6*d^
7 - 4*a^2*b^5*d^6*e + 5*a^3*b^4*d^5*e^2 - 5*a^5*b^2*d^3*e^4 + 4*a
^6*b*d^2*e^5 - a^7*d*e^6)*x)*sqrt(e*x + d)), 1/60*(24*A*a^4*e^4 -
 30*(B*a*b^3 + A*b^4)*d^4 - (659*B*a^2*b^2 - 255*A*a*b^3)*d^3*e -
 16*(17*B*a^3*b - 54*A*a^2*b^2)*d^2*e^2 + 8*(2*B*a^4 - 21*A*a^3*b
)*d*e^3 - 105*(4*B*b^4*d*e^3 + (5*B*a*b^3 - 9*A*b^4)*e^4)*x^4 - 3
5*(28*B*b^4*d^2*e^2 + (55*B*a*b^3 - 63*A*b^4)*d*e^3 + 5*(5*B*a^2*
b^2 - 9*A*a*b^3)*e^4)*x^3 - 7*(92*B*b^4*d^3*e + 9*(39*B*a*b^3 - 2
3*A*b^4)*d^2*e^2 + 3*(109*B*a^2*b^2 - 177*A*a*b^3)*d*e^3 + 8*(5*B
*a^3*b - 9*A*a^2*b^2)*e^4)*x^2 + 105*(4*B*a^2*b^2*d^3*e + (5*B*a^
3*b - 9*A*a^2*b^2)*d^2*e^2 + (4*B*b^4*d*e^3 + (5*B*a*b^3 - 9*A*b^
4)*e^4)*x^4 + 2*(4*B*b^4*d^2*e^2 + 9*(B*a*b^3 - A*b^4)*d*e^3 + (5
*B*a^2*b^2 - 9*A*a*b^3)*e^4)*x^3 + (4*B*b^4*d^3*e + 3*(7*B*a*b^3
- 3*A*b^4)*d^2*e^2 + 12*(2*B*a^2*b^2 - 3*A*a*b^3)*d*e^3 + (5*B*a^
3*b - 9*A*a^2*b^2)*e^4)*x^2 + 2*(4*B*a*b^3*d^3*e + 9*(B*a^2*b^2 -
 A*a*b^3)*d^2*e^2 + (5*B*a^3*b - 9*A*a^2*b^2)*d*e^3)*x)*sqrt(e*x
+ d)*sqrt(-b/(b*d - a*e))*arctan(-(b*d - a*e)*sqrt(-b/(b*d - a*e)
)/(sqrt(e*x + d)*b)) - (60*B*b^4*d^4 + (1183*B*a*b^3 - 135*A*b^4)
*d^3*e + 3*(643*B*a^2*b^2 - 831*A*a*b^3)*d^2*e^2 + 72*(9*B*a^3*b
- 17*A*a^2*b^2)*d*e^3 - 8*(5*B*a^4 - 9*A*a^3*b)*e^4)*x)/((a^2*b^5
*d^7 - 5*a^3*b^4*d^6*e + 10*a^4*b^3*d^5*e^2 - 10*a^5*b^2*d^4*e^3
+ 5*a^6*b*d^3*e^4 - a^7*d^2*e^5 + (b^7*d^5*e^2 - 5*a*b^6*d^4*e^3
+ 10*a^2*b^5*d^3*e^4 - 10*a^3*b^4*d^2*e^5 + 5*a^4*b^3*d*e^6 - a^5
*b^2*e^7)*x^4 + 2*(b^7*d^6*e - 4*a*b^6*d^5*e^2 + 5*a^2*b^5*d^4*e^
3 - 5*a^4*b^3*d^2*e^5 + 4*a^5*b^2*d*e^6 - a^6*b*e^7)*x^3 + (b^7*d
^7 - a*b^6*d^6*e - 9*a^2*b^5*d^5*e^2 + 25*a^3*b^4*d^4*e^3 - 25*a^
4*b^3*d^3*e^4 + 9*a^5*b^2*d^2*e^5 + a^6*b*d*e^6 - a^7*e^7)*x^2 +
2*(a*b^6*d^7 - 4*a^2*b^5*d^6*e + 5*a^3*b^4*d^5*e^2 - 5*a^5*b^2*d^
3*e^4 + 4*a^6*b*d^2*e^5 - a^7*d*e^6)*x)*sqrt(e*x + d))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(b*x+a)**3/(e*x+d)**(7/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.233492, size = 822, normalized size = 2.93

$$-\frac{7\left(4\,Bb^3de+5\,Bab^2e^2-9\,Ab^3e^2\right)\arctan\left(\frac{\sqrt{xe+d}b}{\sqrt{-b^2d+abe}}\right)}{4\left(b^5d^5-5\,ab^4d^4e+10\,a^2b^3d^3e^2-10\,a^3b^2d^2e^3+5\,a^4bde^4-a^5e^5\right)\sqrt{-b^2d+abe}}-\frac{4\,(xe+d)^{\frac{3}{2}}Bb^4de-4\sqrt{xe+d}Bb^4d^2e+11\,(xe+d)^{\frac{3}{2}}Bab^3e^2-15\,(xe+d)^{\frac{3}{2}}Ab^4e^2-9\sqrt{xe+d}Bab^3de^2+17\sqrt{xe+d}Ab^4de^2}{4\left(b^5d^5-5\,ab^4d^4e+10\,a^2b^3d^3e^2-10\,a^3b^2d^2e^3+5\,a^4bde^4-a^5e^5\right)\left((xe+d)b-bd+\right.}-\frac{2\left(45\,(xe+d)^2Bb^2de+10\,(xe+d)Bb^2d^2e+3\,Bb^2d^3e+45\,(xe+d)^2Babe^2-90\,(xe+d)^2Ab^2e^2-5\,(xe+d)Babde^2-15\,(xe\right.}{15\left(b^5d^5-5\,ab^4d^4e+10\,a^2b^3d^3e^2-10\,a^3b^2\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^3*(e*x + d)^(7/2)),x, algorithm="giac")
```

```
[Out] -7/4*(4*B*b^3*d*e + 5*B*a*b^2*e^2 - 9*A*b^3*e^2)*arctan(sqrt(x*e
+ d)*b/sqrt(-b^2*d + a*b*e))/((b^5*d^5 - 5*a*b^4*d^4*e + 10*a^2*b
^3*d^3*e^2 - 10*a^3*b^2*d^2*e^3 + 5*a^4*b*d*e^4 - a^5*e^5)*sqrt(-
b^2*d + a*b*e)) - 1/4*(4*(x*e + d)^(3/2)*B*b^4*d*e - 4*sqrt(x*e +
 d)*B*b^4*d^2*e + 11*(x*e + d)^(3/2)*B*a*b^3*e^2 - 15*(x*e + d)^(
3/2)*A*b^4*e^2 - 9*sqrt(x*e + d)*B*a*b^3*d*e^2 + 17*sqrt(x*e + d)
*A*b^4*d*e^2 + 13*sqrt(x*e + d)*B*a^2*b^2*e^3 - 17*sqrt(x*e + d)*
A*a*b^3*e^3)/((b^5*d^5 - 5*a*b^4*d^4*e + 10*a^2*b^3*d^3*e^2 - 10*
a^3*b^2*d^2*e^3 + 5*a^4*b*d*e^4 - a^5*e^5)*((x*e + d)*b - b*d + a
*e)^2) - 2/15*(45*(x*e + d)^2*B*b^2*d*e + 10*(x*e + d)*B*b^2*d^2*
e + 3*B*b^2*d^3*e + 45*(x*e + d)^2*B*a*b*e^2 - 90*(x*e + d)^2*A*b
^2*e^2 - 5*(x*e + d)*B*a*b*d*e^2 - 15*(x*e + d)*A*b^2*d*e^2 - 6*B
*a*b*d^2*e^2 - 3*A*b^2*d^2*e^2 - 5*(x*e + d)*B*a^2*e^3 + 15*(x*e
+ d)*A*a*b*e^3 + 3*B*a^2*d*e^3 + 6*A*a*b*d*e^3 - 3*A*a^2*e^4)/((b
^5*d^5 - 5*a*b^4*d^4*e + 10*a^2*b^3*d^3*e^2 - 10*a^3*b^2*d^2*e^3
+ 5*a^4*b*d*e^4 - a^5*e^5)*(x*e + d)^(5/2))
```

3.1749 $\int \frac{(a+bx)(e+fx)^{5/2}}{c+dx}\,dx$

Optimal. Leaf size=164

$$\frac{2(bc-ad)(de-cf)^{5/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{9/2}}-\frac{2\sqrt{e+fx}(bc-ad)(de-cf)^2}{d^4}-\frac{2(e+fx)^{3/2}(bc-ad)(de-cf)}{3d^3}-\frac{2(e+fx)^{5/2}(bc-ad)}{5d^2}+\frac{2b(e+fx)^{7/2}}{7df}$$

```
[Out] (-2*(b*c - a*d)*(d*e - c*f)^2*Sqrt[e + f*x])/d^4 - (2*(b*c - a*d)
*(d*e - c*f)*(e + f*x)^(3/2))/(3*d^3) - (2*(b*c - a*d)*(e + f*x)^
(5/2))/(5*d^2) + (2*b*(e + f*x)^(7/2))/(7*d*f) + (2*(b*c - a*d)*(
d*e - c*f)^(5/2)*ArcTanh[(Sqrt[d]*Sqrt[e + f*x])/Sqrt[d*e - c*f]]
)/d^(9/2)
```

Rubi [A] time = 0.408381, antiderivative size = 164, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$\frac{2(bc-ad)(de-cf)^{5/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{9/2}}-\frac{2\sqrt{e+fx}(bc-ad)(de-cf)^2}{d^4}-\frac{2(e+fx)^{3/2}(bc-ad)(de-cf)}{3d^3}-\frac{2(e+fx)^{5/2}(bc-ad)}{5d^2}+\frac{2b(e+fx)^{7/2}}{7df}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(e + f*x)^(5/2))/(c + d*x),x]
```

```
[Out] (-2*(b*c - a*d)*(d*e - c*f)^2*Sqrt[e + f*x])/d^4 - (2*(b*c - a*d)
*(d*e - c*f)*(e + f*x)^(3/2))/(3*d^3) - (2*(b*c - a*d)*(e + f*x)^
(5/2))/(5*d^2) + (2*b*(e + f*x)^(7/2))/(7*d*f) + (2*(b*c - a*d)*(
d*e - c*f)^(5/2)*ArcTanh[(Sqrt[d]*Sqrt[e + f*x])/Sqrt[d*e - c*f]]
)/d^(9/2)
```

Rubi in Sympy [A] time = 33.8015, size = 144, normalized size = 0.88

$$\frac{2b\left(e+fx\right)^{\frac{7}{2}}}{7df}+\frac{2\left(e+fx\right)^{\frac{5}{2}}\left(ad-bc\right)}{5d^2}-\frac{2\left(e+fx\right)^{\frac{3}{2}}\left(ad-bc\right)\left(cf-de\right)}{3d^3}+\frac{2\sqrt{e+fx}\left(ad-bc\right)\left(cf-de\right)^2}{d^4}-\frac{2\left(ad-bc\right)\left(cf-de\right)^{\frac{5}{2}}\operatorname{atan}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{cf-de}}\right)}{d^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(f*x+e)**(5/2)/(d*x+c),x)
```

```
[Out] 2*b*(e + f*x)**(7/2)/(7*d*f) + 2*(e + f*x)**(5/2)*(a*d - b*c)/(5*
d**2) - 2*(e + f*x)**(3/2)*(a*d - b*c)*(c*f - d*e)/(3*d**3) + 2*s
qrt(e + f*x)*(a*d - b*c)*(c*f - d*e)**2/d**4 - 2*(a*d - b*c)*(c*f
 - d*e)**(5/2)*atan(sqrt(d)*sqrt(e + f*x)/sqrt(c*f - d*e))/d**(9/
2)
```

Mathematica [A] time = 0.337608, size = 190, normalized size = 1.16

$$\frac{2\sqrt{e+fx}\left(7adf\left(15c^2f^2-5cdf(7e+fx)+d^2\left(23e^2+11efx+3f^2x^2\right)\right)+b\left(-105c^3f^3+35c^2df^2(7e+fx)-7cd^2f\left(23e^2\right.\right.}{105d^4f}$$
$$+\frac{2(bc-ad)(de-cf)^{5/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(e + f*x)^(5/2))/(c + d*x),x]
```

```
[Out] (2*Sqrt[e + f*x]*(7*a*d*f*(15*c^2*f^2 - 5*c*d*f*(7*e + f*x) + d^2
*(23*e^2 + 11*e*f*x + 3*f^2*x^2)) + b*(-105*c^3*f^3 + 15*d^3*(e +
 f*x)^3 + 35*c^2*d*f^2*(7*e + f*x) - 7*c*d^2*f*(23*e^2 + 11*e*f*x
 + 3*f^2*x^2))))/(105*d^4*f) + (2*(b*c - a*d)*(d*e - c*f)^(5/2)*A
rcTanh[(Sqrt[d]*Sqrt[e + f*x])/Sqrt[d*e - c*f]])/d^(9/2)
```

Maple [B] time = 0.023, size = 573, normalized size = 3.5

$$\frac{2b}{7df}(fx+e)^{\frac{7}{2}}+\frac{2a}{5d}(fx+e)^{\frac{5}{2}}-\frac{2bc}{5d^2}(fx+e)^{\frac{5}{2}}-\frac{2acf}{3d^2}(fx+e)^{\frac{3}{2}}+\frac{2ae}{3d}(fx+e)^{\frac{3}{2}}$$
$$+\frac{2bfc^2}{3d^3}(fx+e)^{\frac{3}{2}}-\frac{2bce}{3d^2}(fx+e)^{\frac{3}{2}}+2\frac{f^2ac^2\sqrt{fx+e}}{d^3}-4\frac{acfe\sqrt{fx+e}}{d^2}$$
$$+2\frac{ae^2\sqrt{fx+e}}{d}-2\frac{bf^2c^3\sqrt{fx+e}}{d^4}+4\frac{bfc^2e\sqrt{fx+e}}{d^3}-2\frac{bce^2\sqrt{fx+e}}{d^2}$$
$$-2\frac{f^3ac^3}{d^3\sqrt{(cf-de)d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)d}}\right)+6\frac{f^2ac^2e}{d^2\sqrt{(cf-de)d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)d}}\right)$$
$$-6\frac{acfe^2}{d\sqrt{(cf-de)d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)d}}\right)+2\frac{ae^3}{\sqrt{(cf-de)d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)d}}\right)$$
$$+2\frac{bc^4f^3}{d^4\sqrt{(cf-de)d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)d}}\right)-6\frac{bf^2c^3e}{d^3\sqrt{(cf-de)d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)d}}\right)$$
$$+6\frac{bfc^2e^2}{d^2\sqrt{(cf-de)d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)d}}\right)-2\frac{bce^3}{d\sqrt{(cf-de)d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)d}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(f*x+e)^(5/2)/(d*x+c),x)
```

```
[Out] 2/7*b*(f*x+e)^(7/2)/d/f+2/5/d*(f*x+e)^(5/2)*a-2/5/d^2*(f*x+e)^(5/
2)*b*c-2/3*f/d^2*(f*x+e)^(3/2)*a*c+2/3/d*(f*x+e)^(3/2)*a*e+2/3*f/
d^3*(f*x+e)^(3/2)*b*c^2-2/3/d^2*(f*x+e)^(3/2)*b*c*e+2*f^2/d^3*a*c
^2*(f*x+e)^(1/2)-4*f/d^2*a*c*e*(f*x+e)^(1/2)+2/d*a*e^2*(f*x+e)^(1
/2)-2*f^2/d^4*b*c^3*(f*x+e)^(1/2)+4*f/d^3*b*c^2*e*(f*x+e)^(1/2)-2
/d^2*b*c*e^2*(f*x+e)^(1/2)-2*f^3/d^3/((c*f-d*e)*d)^(1/2)*arctan((
f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a*c^3+6*f^2/d^2/((c*f-d*e)*d)
^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a*c^2*e-6*f/d/
((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a
*c*e^2+2/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)
^(1/2))*a*e^3+2*f^3/d^4/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*
d/((c*f-d*e)*d)^(1/2))*b*c^4-6*f^2/d^3/((c*f-d*e)*d)^(1/2)*arctan
((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*b*c^3*e+6*f/d^2/((c*f-d*e)*
d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*b*c^2*e^2-2/
d/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))
*b*c*e^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)*(f*x + e)^(5/2)/(d*x + c),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.224025, size = 1, normalized size = 0.01

$$\left[\frac{105\left(\left(bcd^2-ad^3\right)e^2f-2\left(bc^2d-acd^2\right)ef^2+\left(bc^3-ac^2d\right)f^3\right)\sqrt{\frac{de-cf}{d}}\log\left(\frac{dfx+2\,de-cf+2\sqrt{fx+e}\,d\sqrt{\frac{de-cf}{d}}}{dx+c}\right)+2\left(15\,bd^3f^3x^3\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)*(f*x + e)^(5/2)/(d*x + c),x, algorithm="fricas")
```

```
[Out] [1/105*(105*((b*c*d^2 - a*d^3)*e^2*f - 2*(b*c^2*d - a*c*d^2)*e*f^
2 + (b*c^3 - a*c^2*d)*f^3)*sqrt((d*e - c*f)/d)*log((d*f*x + 2*d*e
 - c*f + 2*sqrt(f*x + e)*d*sqrt((d*e - c*f)/d))/(d*x + c)) + 2*(1
5*b*d^3*f^3*x^3 + 15*b*d^3*e^3 - 161*(b*c*d^2 - a*d^3)*e^2*f + 24
5*(b*c^2*d - a*c*d^2)*e*f^2 - 105*(b*c^3 - a*c^2*d)*f^3 + 3*(15*b
*d^3*e*f^2 - 7*(b*c*d^2 - a*d^3)*f^3)*x^2 + (45*b*d^3*e^2*f - 77*
(b*c*d^2 - a*d^3)*e*f^2 + 35*(b*c^2*d - a*c*d^2)*f^3)*x)*sqrt(f*x
 + e))/(d^4*f), 2/105*(105*((b*c*d^2 - a*d^3)*e^2*f - 2*(b*c^2*d
- a*c*d^2)*e*f^2 + (b*c^3 - a*c^2*d)*f^3)*sqrt(-(d*e - c*f)/d)*ar
ctan(sqrt(f*x + e)/sqrt(-(d*e - c*f)/d)) + (15*b*d^3*f^3*x^3 + 15
*b*d^3*e^3 - 161*(b*c*d^2 - a*d^3)*e^2*f + 245*(b*c^2*d - a*c*d^2
)*e*f^2 - 105*(b*c^3 - a*c^2*d)*f^3 + 3*(15*b*d^3*e*f^2 - 7*(b*c*
d^2 - a*d^3)*f^3)*x^2 + (45*b*d^3*e^2*f - 77*(b*c*d^2 - a*d^3)*e*
f^2 + 35*(b*c^2*d - a*c*d^2)*f^3)*x)*sqrt(f*x + e))/(d^4*f)]
```

Sympy [A] time = 78.5803, size = 340, normalized size = 2.07

$$\frac{2b\left(e+fx\right)^{\frac{7}{2}}}{7df}+\frac{\left(e+fx\right)^{\frac{5}{2}}\left(2ad-2bc\right)}{5d^2}+\frac{\left(e+fx\right)^{\frac{3}{2}}\left(-2acdf+2ad^2e+2bc^2f-2bcde\right)}{3d^3}+\frac{\sqrt{e+fx}\left(2ac^2df^2-4acd^2ef+2ad^3e^2-2bc^3f^2+4bc^2def-2bcd^2e^2\right)}{d^4}-\frac{2\left(ad-bc\right)\left(cf-de\right)^3\left(\begin{cases}\frac{\operatorname{atan}\left(\frac{\sqrt{e+fx}}{\sqrt{\frac{cf-de}{d}}}\right)}{d\sqrt{\frac{cf-de}{d}}} & \text{for}\ \frac{cf-de}{d}>0\\ -\frac{\operatorname{acoth}\left(\frac{\sqrt{e+fx}}{\sqrt{\frac{-cf+de}{d}}}\right)}{d\sqrt{\frac{-cf+de}{d}}} & \text{for}\ e+fx>\frac{-cf+de}{d}\wedge\frac{cf-de}{d}<0\\ -\frac{\operatorname{atanh}\left(\frac{\sqrt{e+fx}}{\sqrt{\frac{-cf+de}{d}}}\right)}{d\sqrt{\frac{-cf+de}{d}}} & \text{for}\ \frac{cf-de}{d}<0\wedge e+fx<\frac{-cf+de}{d}\end{cases}\right)}{d^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(f*x+e)**(5/2)/(d*x+c),x)
```

```
[Out] 2*b*(e + f*x)**(7/2)/(7*d*f) + (e + f*x)**(5/2)*(2*a*d - 2*b*c)/(
5*d**2) + (e + f*x)**(3/2)*(-2*a*c*d*f + 2*a*d**2*e + 2*b*c**2*f
- 2*b*c*d*e)/(3*d**3) + sqrt(e + f*x)*(2*a*c**2*d*f**2 - 4*a*c*d*
*2*e*f + 2*a*d**3*e**2 - 2*b*c**3*f**2 + 4*b*c**2*d*e*f - 2*b*c*d
**2*e**2)/d**4 - 2*(a*d - b*c)*(c*f - d*e)**3*Piecewise((atan(sqr
```

```
t(e + f*x)/sqrt((c*f - d*e)/d))/(d*sqrt((c*f - d*e)/d)), (c*f - d
*e)/d > 0), (-acoth(sqrt(e + f*x)/sqrt((-c*f + d*e)/d))/(d*sqrt((
-c*f + d*e)/d)), ((c*f - d*e)/d < 0) & (e + f*x > (-c*f + d*e)/d)
), (-atanh(sqrt(e + f*x)/sqrt((-c*f + d*e)/d))/(d*sqrt((-c*f + d*
e)/d)), ((c*f - d*e)/d < 0) & (e + f*x < (-c*f + d*e)/d)))/d**4
```

GIAC/XCAS [A] time = 0.220656, size = 522, normalized size = 3.18

$$\frac{2\left(bc^4f^3 - ac^3df^3 - 3\,bc^3df^2e + 3\,ac^2d^2f^2e + 3\,bc^2d^2fe^2 - 3\,acd^3fe^2 - bcd^3e^3 + ad^4e^3\right)\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{cdf-d^2e}}\right)}{\sqrt{cdf-d^2e}d^4} + \frac{2\left(15\,(fx+e)^{\frac{7}{2}}bd^6f^6 - 21\,(fx+e)^{\frac{5}{2}}bcd^5f^7 + 21\,(fx+e)^{\frac{5}{2}}ad^6f^7 + 35\,(fx+e)^{\frac{3}{2}}bc^2d^4f^8 - 35\,(fx+e)^{\frac{3}{2}}acd^5f^8 - 105\,\sqrt{fx}\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)*(f*x + e)^(5/2)/(d*x + c),x, algorithm="giac")
```

```
[Out] 2*(b*c^4*f^3 - a*c^3*d*f^3 - 3*b*c^3*d*f^2*e + 3*a*c^2*d^2*f^2*e
+ 3*b*c^2*d^2*f*e^2 - 3*a*c*d^3*f*e^2 - b*c*d^3*e^3 + a*d^4*e^3)*
arctan(sqrt(f*x + e)*d/sqrt(c*d*f - d^2*e))/(sqrt(c*d*f - d^2*e)*
d^4) + 2/105*(15*(f*x + e)^(7/2)*b*d^6*f^6 - 21*(f*x + e)^(5/2)*b
*c*d^5*f^7 + 21*(f*x + e)^(5/2)*a*d^6*f^7 + 35*(f*x + e)^(3/2)*b*
c^2*d^4*f^8 - 35*(f*x + e)^(3/2)*a*c*d^5*f^8 - 105*sqrt(f*x + e)*
b*c^3*d^3*f^9 + 105*sqrt(f*x + e)*a*c^2*d^4*f^9 - 35*(f*x + e)^(3
/2)*b*c*d^5*f^7*e + 35*(f*x + e)^(3/2)*a*d^6*f^7*e + 210*sqrt(f*x
 + e)*b*c^2*d^4*f^8*e - 210*sqrt(f*x + e)*a*c*d^5*f^8*e - 105*sqr
t(f*x + e)*b*c*d^5*f^7*e^2 + 105*sqrt(f*x + e)*a*d^6*f^7*e^2)/(d^
7*f^7)
```

3.1750 $\int \frac{(a+bx)(e+fx)^{3/2}}{c+dx}\,dx$

Optimal. Leaf size=130

$$\frac{2(bc-ad)(de-cf)^{3/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{7/2}}-\frac{2\sqrt{e+fx}(bc-ad)(de-cf)}{d^3}-\frac{2(e+fx)^{3/2}(bc-ad)}{3d^2}+\frac{2b(e+fx)^{5/2}}{5df}$$

```
[Out] (-2*(b*c - a*d)*(d*e - c*f)*Sqrt[e + f*x])/d^3 - (2*(b*c - a*d)*(
e + f*x)^(3/2))/(3*d^2) + (2*b*(e + f*x)^(5/2))/(5*d*f) + (2*(b*c
 - a*d)*(d*e - c*f)^(3/2)*ArcTanh[(Sqrt[d]*Sqrt[e + f*x])/Sqrt[d*
e - c*f]])/d^(7/2)
```

Rubi [A] time = 0.233401, antiderivative size = 130, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$\frac{2(bc-ad)(de-cf)^{3/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{7/2}}-\frac{2\sqrt{e+fx}(bc-ad)(de-cf)}{d^3}-\frac{2(e+fx)^{3/2}(bc-ad)}{3d^2}+\frac{2b(e+fx)^{5/2}}{5df}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(e + f*x)^(3/2))/(c + d*x),x]
```

```
[Out] (-2*(b*c - a*d)*(d*e - c*f)*Sqrt[e + f*x])/d^3 - (2*(b*c - a*d)*(
e + f*x)^(3/2))/(3*d^2) + (2*b*(e + f*x)^(5/2))/(5*d*f) + (2*(b*c
 - a*d)*(d*e - c*f)^(3/2)*ArcTanh[(Sqrt[d]*Sqrt[e + f*x])/Sqrt[d*
e - c*f]])/d^(7/2)
```

Rubi in Sympy [A] time = 24.8086, size = 114, normalized size = 0.88

$$\frac{2b\left(e+fx\right)^{\frac{5}{2}}}{5df}+\frac{2\left(e+fx\right)^{\frac{3}{2}}\left(ad-bc\right)}{3d^2}-\frac{2\sqrt{e+fx}\left(ad-bc\right)\left(cf-de\right)}{d^3}+\frac{2\left(ad-bc\right)\left(cf-de\right)^{\frac{3}{2}}\operatorname{atan}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{cf-de}}\right)}{d^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(f*x+e)**(3/2)/(d*x+c),x)
```

```
[Out] 2*b*(e + f*x)**(5/2)/(5*d*f) + 2*(e + f*x)**(3/2)*(a*d - b*c)/(3*
d**2) - 2*sqrt(e + f*x)*(a*d - b*c)*(c*f - d*e)/d**3 + 2*(a*d - b
*c)*(c*f - d*e)**(3/2)*atan(sqrt(d)*sqrt(e + f*x)/sqrt(c*f - d*e)
)/d**(7/2)
```

Mathematica [A] time = 0.203358, size = 129, normalized size = 0.99

$$\frac{2\sqrt{e+fx}\left(5adf(-3cf+4de+dfx)+b\left(15c^2f^2-5cdf(4e+fx)+3d^2(e+fx)^2\right)\right)}{15d^3f}+\frac{2(bc-ad)(de-cf)^{3/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(e + f*x)^(3/2))/(c + d*x),x]
```

```
[Out] (2*Sqrt[e + f*x]*(5*a*d*f*(4*d*e - 3*c*f + d*f*x) + b*(15*c^2*f^2
 + 3*d^2*(e + f*x)^2 - 5*c*d*f*(4*e + f*x))))/(15*d^3*f) + (2*(b*
c - a*d)*(d*e - c*f)^(3/2)*ArcTanh[(Sqrt[d]*Sqrt[e + f*x])/Sqrt[d
*e - c*f]])/d^(7/2)
```

Maple [B] time = 0.014, size = 370, normalized size = 2.9

$$\frac{2b}{5df}(fx+e)^{\frac{5}{2}}+\frac{2a}{3d}(fx+e)^{\frac{3}{2}}-\frac{2bc}{3d^2}(fx+e)^{\frac{3}{2}}-2\frac{acf\sqrt{fx+e}}{d^2}+2\frac{ae\sqrt{fx+e}}{d}+2\frac{bfc^2\sqrt{fx+e}}{d^3}-2\frac{bce\sqrt{fx+e}}{d^2}+2\frac{f^2ac^2}{d^2\sqrt{(cf-de)d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)d}}\right)-4\frac{acfe}{d\sqrt{(cf-de)d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)d}}\right)+2\frac{ae^2}{\sqrt{(cf-de)d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)d}}\right)-2\frac{bc^3f^2}{d^3\sqrt{(cf-de)d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)d}}\right)+4\frac{bfc^2e}{d^2\sqrt{(cf-de)d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)d}}\right)-2\frac{bce^2}{d\sqrt{(cf-de)d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)d}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(f*x+e)^(3/2)/(d*x+c),x)
```

```
[Out] 2/5*b*(f*x+e)^(5/2)/d/f+2/3/d*(f*x+e)^(3/2)*a-2/3/d^2*(f*x+e)^(3/
2)*b*c-2*f/d^2*a*c*(f*x+e)^(1/2)+2/d*a*e*(f*x+e)^(1/2)+2*f/d^3*b*
c^2*(f*x+e)^(1/2)-2/d^2*b*c*e*(f*x+e)^(1/2)+2*f^2/d^2/((c*f-d*e)*
d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a*c^2-4*f/d/
((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a
*c*e+2/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(
1/2))*a*e^2-2*f^2/d^3/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/
((c*f-d*e)*d)^(1/2))*b*c^3+4*f/d^2/((c*f-d*e)*d)^(1/2)*arctan((f*
x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*b*c^2*e-2/d/((c*f-d*e)*d)^(1/2)
*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*b*c*e^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)*(f*x + e)^(3/2)/(d*x + c),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.221155, size = 1, normalized size = 0.01

$$\left[-\frac{15\left(\left(bcd-ad^2\right)ef-\left(bc^2-acd\right)f^2\right)\sqrt{\frac{de-cf}{d}}\log\left(\frac{dfx+2\,de-cf-2\,\sqrt{fx+e}d\sqrt{\frac{de-cf}{d}}}{dx+c}\right)-2\left(3\,bd^2f^2x^2+3\,bd^2e^2-20\left(bcd-ad\right.\right.}{15\,d^3f}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)*(f*x + e)^(3/2)/(d*x + c),x, algorithm="fricas")
```

```
[Out] [-1/15*(15*((b*c*d - a*d^2)*e*f - (b*c^2 - a*c*d)*f^2)*sqrt((d*e
- c*f)/d)*log((d*f*x + 2*d*e - c*f - 2*sqrt(f*x + e)*d*sqrt((d*e
- c*f)/d))/(d*x + c)) - 2*(3*b*d^2*f^2*x^2 + 3*b*d^2*e^2 - 20*(b*
c*d - a*d^2)*e*f + 15*(b*c^2 - a*c*d)*f^2 + (6*b*d^2*e*f - 5*(b*c
*d - a*d^2)*f^2)*x)*sqrt(f*x + e))/(d^3*f), 2/15*(15*((b*c*d - a*
d^2)*e*f - (b*c^2 - a*c*d)*f^2)*sqrt(-(d*e - c*f)/d)*arctan(sqrt(
f*x + e)/sqrt(-(d*e - c*f)/d)) + (3*b*d^2*f^2*x^2 + 3*b*d^2*e^2 -
 20*(b*c*d - a*d^2)*e*f + 15*(b*c^2 - a*c*d)*f^2 + (6*b*d^2*e*f -
 5*(b*c*d - a*d^2)*f^2)*x)*sqrt(f*x + e))/(d^3*f)]
```

Sympy [A] time = 46.4003, size = 258, normalized size = 1.98

$$\frac{2b\left(e+fx\right)^{\frac{5}{2}}}{5df}+\frac{\left(e+fx\right)^{\frac{3}{2}}\left(2ad-2bc\right)}{3d^{2}}+\frac{\sqrt{e+fx}\left(-2acdf+2ad^{2}e+2bc^{2}f-2bcde\right)}{d^{3}}+\frac{2\left(ad-bc\right)\left(cf-de\right)^{2}\left(\begin{cases}\frac{\operatorname{atan}\left(\frac{\sqrt{e+fx}}{\sqrt{\frac{cf-de}{d}}}\right)}{d\sqrt{\frac{cf-de}{d}}} & \text{for}\ \frac{cf-de}{d}>0\\-\frac{\operatorname{acoth}\left(\frac{\sqrt{e+fx}}{\sqrt{\frac{-cf+de}{d}}}\right)}{d\sqrt{\frac{-cf+de}{d}}} & \text{for}\ e+fx>\frac{-cf+de}{d}\wedge\frac{cf-de}{d}<0\\-\frac{\operatorname{atanh}\left(\frac{\sqrt{e+fx}}{\sqrt{\frac{-cf+de}{d}}}\right)}{d\sqrt{\frac{-cf+de}{d}}} & \text{for}\ \frac{cf-de}{d}<0\wedge e+fx<\frac{-cf+de}{d}\end{cases}\right)}{d^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(f*x+e)**(3/2)/(d*x+c),x)
```

```
[Out] 2*b*(e + f*x)**(5/2)/(5*d*f) + (e + f*x)**(3/2)*(2*a*d - 2*b*c)/(
3*d**2) + sqrt(e + f*x)*(-2*a*c*d*f + 2*a*d**2*e + 2*b*c**2*f - 2
*b*c*d*e)/d**3 + 2*(a*d - b*c)*(c*f - d*e)**2*Piecewise((atan(sqr
t(e + f*x)/sqrt((c*f - d*e)/d))/(d*sqrt((c*f - d*e)/d)), (c*f - d
*e)/d > 0), (-acoth(sqrt(e + f*x)/sqrt((-c*f + d*e)/d))/(d*sqrt((
-c*f + d*e)/d)), ((c*f - d*e)/d < 0) & (e + f*x > (-c*f + d*e)/d)
), (-atanh(sqrt(e + f*x)/sqrt((-c*f + d*e)/d))/(d*sqrt((-c*f + d*
e)/d)), ((c*f - d*e)/d < 0) & (e + f*x < (-c*f + d*e)/d)))/d**3
```

GIAC/XCAS [A] time = 0.216712, size = 321, normalized size = 2.47

$$-\frac{2\left(bc^{3}f^{2}-ac^{2}df^{2}-2\,bc^{2}dfe+2\,acd^{2}fe+bcd^{2}e^{2}-ad^{3}e^{2}\right)\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{cdf-d^{2}e}}\right)}{\sqrt{cdf-d^{2}e}d^{3}}+\frac{2\left(3\left(fx+e\right)^{\frac{5}{2}}bd^{4}f^{4}-5\left(fx+e\right)^{\frac{3}{2}}bcd^{3}f^{5}+5\left(fx+e\right)^{\frac{3}{2}}ad^{4}f^{5}+15\sqrt{fx+e}bc^{2}d^{2}f^{6}-15\sqrt{fx+e}acd^{3}f^{6}-15\sqrt{fx+e}bcd\right.}{15\,d^{5}f^{5}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)*(f*x + e)^(3/2)/(d*x + c),x, algorithm="giac")
```

```
[Out] -2*(b*c^3*f^2 - a*c^2*d*f^2 - 2*b*c^2*d*f*e + 2*a*c*d^2*f*e + b*c
*d^2*e^2 - a*d^3*e^2)*arctan(sqrt(f*x + e)*d/sqrt(c*d*f - d^2*e))
/(sqrt(c*d*f - d^2*e)*d^3) + 2/15*(3*(f*x + e)^(5/2)*b*d^4*f^4 -
5*(f*x + e)^(3/2)*b*c*d^3*f^5 + 5*(f*x + e)^(3/2)*a*d^4*f^5 + 15*
sqrt(f*x + e)*b*c^2*d^2*f^6 - 15*sqrt(f*x + e)*a*c*d^3*f^6 - 15*s
qrt(f*x + e)*b*c*d^3*f^5*e + 15*sqrt(f*x + e)*a*d^4*f^5*e)/(d^5*f
^5)
```

3.1751 $\int \frac{(a+bx)\sqrt{e+fx}}{c+dx}\,dx$

Optimal. Leaf size=98

$$\frac{2(bc-ad)\sqrt{de-cf}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{5/2}}-\frac{2\sqrt{e+fx}(bc-ad)}{d^2}+\frac{2b(e+fx)^{3/2}}{3df}$$

```
[Out] (-2*(b*c - a*d)*Sqrt[e + f*x])/d^2 + (2*b*(e + f*x)^(3/2))/(3*d*f
) + (2*(b*c - a*d)*Sqrt[d*e - c*f]*ArcTanh[(Sqrt[d]*Sqrt[e + f*x]
)/Sqrt[d*e - c*f]])/d^(5/2)
```

Rubi [A] time = 0.165123, antiderivative size = 98, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$\frac{2(bc-ad)\sqrt{de-cf}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{5/2}}-\frac{2\sqrt{e+fx}(bc-ad)}{d^2}+\frac{2b(e+fx)^{3/2}}{3df}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*Sqrt[e + f*x])/(c + d*x),x]
```

```
[Out] (-2*(b*c - a*d)*Sqrt[e + f*x])/d^2 + (2*b*(e + f*x)^(3/2))/(3*d*f
) + (2*(b*c - a*d)*Sqrt[d*e - c*f]*ArcTanh[(Sqrt[d]*Sqrt[e + f*x]
)/Sqrt[d*e - c*f]])/d^(5/2)
```

Rubi in Sympy [A] time = 17.8235, size = 85, normalized size = 0.87

$$\frac{2b\,(e+fx)^{\frac{3}{2}}}{3df}+\frac{2\sqrt{e+fx}\,(ad-bc)}{d^2}-\frac{2\,(ad-bc)\,\sqrt{cf-de}\,\mathrm{atan}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{cf-de}}\right)}{d^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(f*x+e)**(1/2)/(d*x+c),x)
```

```
[Out] 2*b*(e + f*x)**(3/2)/(3*d*f) + 2*sqrt(e + f*x)*(a*d - b*c)/d**2 -
 2*(a*d - b*c)*sqrt(c*f - d*e)*atan(sqrt(d)*sqrt(e + f*x)/sqrt(c*
f - d*e))/d**(5/2)
```

Mathematica [A] time = 0.213632, size = 94, normalized size = 0.96

$$\frac{2(bc-ad)\sqrt{de-cf}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{5/2}}+\frac{2\sqrt{e+fx}(3adf-3bcf+bd(e+fx))}{3d^2f}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*Sqrt[e + f*x])/(c + d*x),x]
```

```
[Out] (2*Sqrt[e + f*x]*(-3*b*c*f + 3*a*d*f + b*d*(e + f*x)))/(3*d^2*f)
+ (2*(b*c - a*d)*Sqrt[d*e - c*f]*ArcTanh[(Sqrt[d]*Sqrt[e + f*x])/
Sqrt[d*e - c*f]])/d^(5/2)
```

Maple [B] time = 0.013, size = 211, normalized size = 2.2

$$\frac{2b}{3df}(fx+e)^{\frac{3}{2}}+2\frac{a\sqrt{fx+e}}{d}-2\frac{bc\sqrt{fx+e}}{d^2}-2\frac{acf}{d\sqrt{(cf-de)d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)d}}\right)+2\frac{ae}{\sqrt{(cf-de)d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)d}}\right)+2\frac{bc^2f}{d^2\sqrt{(cf-de)d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)d}}\right)-2\frac{bce}{d\sqrt{(cf-de)d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)d}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(f*x+e)^(1/2)/(d*x+c),x)
```

```
[Out] 2/3*b*(f*x+e)^(3/2)/d/f+2/d*a*(f*x+e)^(1/2)-2/d^2*b*c*(f*x+e)^(1/
2)-2*f/d/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)
^(1/2))*a*c+2/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*
e)*d)^(1/2))*a*e+2*f/d^2/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)
*d/((c*f-d*e)*d)^(1/2))*b*c^2-2/d/((c*f-d*e)*d)^(1/2)*arctan((f*x
+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*b*c*e
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)*sqrt(f*x + e)/(d*x + c),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.22108, size = 1, normalized size = 0.01

$$\left[-\frac{3(bc-ad)f\sqrt{\frac{de-cf}{d}}\log\left(\frac{dfx+2de-cf-2\sqrt{fx+e}d\sqrt{\frac{de-cf}{d}}}{dx+c}\right)-2(bdfx+bde-3(bc-ad)f)\sqrt{fx+e}}{3d^2f}, \frac{2\left(3(bc-ad)f\sqrt{-\frac{de-}{d}}\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)*sqrt(f*x + e)/(d*x + c),x, algorithm="fricas")
```

```
[Out] [-1/3*(3*(b*c - a*d)*f*sqrt((d*e - c*f)/d)*log((d*f*x + 2*d*e - c
*f - 2*sqrt(f*x + e)*d*sqrt((d*e - c*f)/d))/(d*x + c)) - 2*(b*d*f
*x + b*d*e - 3*(b*c - a*d)*f)*sqrt(f*x + e))/(d^2*f), 2/3*(3*(b*c
 - a*d)*f*sqrt(-(d*e - c*f)/d)*arctan(sqrt(f*x + e)/sqrt(-(d*e -
c*f)/d)) + (b*d*f*x + b*d*e - 3*(b*c - a*d)*f)*sqrt(f*x + e))/(d^
2*f)]
```

Sympy [A] time = 15.6016, size = 212, normalized size = 2.16

$$\frac{2\left(\frac{b(e+fx)^{\frac{3}{2}}}{3d}-\frac{f(ad-bc)(cf-de)\left(\begin{cases}\frac{\operatorname{atan}\left(\frac{\sqrt{e+fx}}{\sqrt{\frac{cf-de}{d}}}\right)}{d\sqrt{\frac{cf-de}{d}}} & \text{for}\ \frac{cf-de}{d}>0\\ -\frac{\operatorname{acoth}\left(\frac{\sqrt{e+fx}}{\sqrt{\frac{-cf+de}{d}}}\right)}{d\sqrt{\frac{-cf+de}{d}}} & \text{for}\ e+fx>\frac{-cf+de}{d}\wedge\frac{cf-de}{d}<0\\ -\frac{\operatorname{atanh}\left(\frac{\sqrt{e+fx}}{\sqrt{\frac{-cf+de}{d}}}\right)}{d\sqrt{\frac{-cf+de}{d}}} & \text{for}\ \frac{cf-de}{d}<0\wedge e+fx<\frac{-cf+de}{d}\end{cases}\right)}{d^2}+\frac{\sqrt{e+fx}(adf-bcf)}{d^2}\right)}{f}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((b*x+a)*(f*x+e)**(1/2)/(d*x+c),x)
```

```
[Out] 2*(b*(e + f*x)**(3/2)/(3*d) - f*(a*d - b*c)*(c*f - d*e)*Piecewise
((atan(sqrt(e + f*x)/sqrt((c*f - d*e)/d))/(d*sqrt((c*f - d*e)/d))
, (c*f - d*e)/d > 0), (-acoth(sqrt(e + f*x)/sqrt((-c*f + d*e)/d))
/(d*sqrt((-c*f + d*e)/d)), ((c*f - d*e)/d < 0) & (e + f*x > (-c*f
 + d*e)/d)), (-atanh(sqrt(e + f*x)/sqrt((-c*f + d*e)/d))/(d*sqrt(
(-c*f + d*e)/d)), ((c*f - d*e)/d < 0) & (e + f*x < (-c*f + d*e)/d
)))/d**2 + sqrt(e + f*x)*(a*d*f - b*c*f)/d**2)/f
```

GIAC/XCAS [A] time = 0.216843, size = 176, normalized size = 1.8

$$\frac{2\left(bc^2f-acdf-bcde+ad^2e\right)\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{cdf-d^2e}}\right)}{\sqrt{cdf-d^2e}d^2}+\frac{2\left((fx+e)^{\frac{3}{2}}bd^2f^2-3\sqrt{fx+e}bcdf^3+3\sqrt{fx+e}ad^2f^3\right)}{3\,d^3f^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((b*x + a)*sqrt(f*x + e)/(d*x + c),x, algorithm="giac")
```

```
[Out] 2*(b*c^2*f - a*c*d*f - b*c*d*e + a*d^2*e)*arctan(sqrt(f*x + e)*d/
sqrt(c*d*f - d^2*e))/(sqrt(c*d*f - d^2*e)*d^2) + 2/3*((f*x + e)^(
3/2)*b*d^2*f^2 - 3*sqrt(f*x + e)*b*c*d*f^3 + 3*sqrt(f*x + e)*a*d^
2*f^3)/(d^3*f^3)
```

3.1752 $\int \frac{a+bx}{(c+dx)\sqrt{e+fx}}\,dx$

Optimal. Leaf size=74

$$\frac{2(bc-ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{3/2}\sqrt{de-cf}}+\frac{2b\sqrt{e+fx}}{df}$$

```
[Out] (2*b*Sqrt[e + f*x])/(d*f) + (2*(b*c - a*d)*ArcTanh[(Sqrt[d]*Sqrt[
e + f*x])/Sqrt[d*e - c*f]])/(d^(3/2)*Sqrt[d*e - c*f])
```

Rubi [A] time = 0.120619, antiderivative size = 74, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.136

$$\frac{2(bc-ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{3/2}\sqrt{de-cf}}+\frac{2b\sqrt{e+fx}}{df}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)/((c + d*x)*Sqrt[e + f*x]),x]
```

```
[Out] (2*b*Sqrt[e + f*x])/(d*f) + (2*(b*c - a*d)*ArcTanh[(Sqrt[d]*Sqrt[
e + f*x])/Sqrt[d*e - c*f]])/(d^(3/2)*Sqrt[d*e - c*f])
```

Rubi in Sympy [A] time = 13.7004, size = 63, normalized size = 0.85

$$\frac{2b\sqrt{e+fx}}{df}+\frac{2\left(ad-bc\right)\operatorname{atan}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{cf-de}}\right)}{d^{\frac{3}{2}}\sqrt{cf-de}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)/(d*x+c)/(f*x+e)**(1/2),x)
```

```
[Out] 2*b*sqrt(e + f*x)/(d*f) + 2*(a*d - b*c)*atan(sqrt(d)*sqrt(e + f*x
)/sqrt(c*f - d*e))/(d**(3/2)*sqrt(c*f - d*e))
```

Mathematica [A] time = 0.134985, size = 74, normalized size = 1.

$$\frac{2b\sqrt{e+fx}}{df}-\frac{2(ad-bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{3/2}\sqrt{de-cf}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)/((c + d*x)*Sqrt[e + f*x]),x]
```

```
[Out] (2*b*Sqrt[e + f*x])/(d*f) - (2*(-(b*c) + a*d)*ArcTanh[(Sqrt[d]*Sq
rt[e + f*x])/Sqrt[d*e - c*f]])/(d^(3/2)*Sqrt[d*e - c*f])
```

Maple [A] time = 0.013, size = 96, normalized size = 1.3

$$2\,\frac{b\sqrt{fx+e}}{df}+2\,\frac{a}{\sqrt{(cf-de)\,d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)\,d}}\right)-2\,\frac{bc}{d\sqrt{(cf-de)\,d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)\,d}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)/(d*x+c)/(f*x+e)^(1/2),x)
```

```
[Out] 2*b*(f*x+e)^(1/2)/d/f+2/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*
d/((c*f-d*e)*d)^(1/2))*a-2/d/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(
1/2)*d/((c*f-d*e)*d)^(1/2))*b*c
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)/((d*x + c)*sqrt(f*x + e)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.219801, size = 1, normalized size = 0.01

$$\left[-\frac{(bc-ad)f\log\left(\frac{\sqrt{d^2e-cdf}(dfx+2de-cf)-2(d^2e-cdf)\sqrt{fx+e}}{dx+c}\right)-2\sqrt{d^2e-cdf}\sqrt{fx+eb}}{\sqrt{d^2e-cdf}df}, \frac{2\left((bc-ad)f\arctan\left(-\frac{de-cf}{\sqrt{-d^2e+cdf}\sqrt{f\right.}}\right.}{\sqrt{-d^2e+c}}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)/((d*x + c)*sqrt(f*x + e)),x, algorithm="fricas")
```

```
[Out] [-((b*c - a*d)*f*log((sqrt(d^2*e - c*d*f)*(d*f*x + 2*d*e - c*f) -
 2*(d^2*e - c*d*f)*sqrt(f*x + e))/(d*x + c)) - 2*sqrt(d^2*e - c*d
*f)*sqrt(f*x + e)*b)/(sqrt(d^2*e - c*d*f)*d*f), 2*((b*c - a*d)*f*
arctan(-(d*e - c*f)/(sqrt(-d^2*e + c*d*f)*sqrt(f*x + e))) + sqrt(
-d^2*e + c*d*f)*sqrt(f*x + e)*b)/(sqrt(-d^2*e + c*d*f)*d*f)]
```

Sympy [A] time = 12.8869, size = 211, normalized size = 2.85

$$\frac{2b\sqrt{e+fx}}{df}-\frac{2(ad-bc)\left(\begin{cases}\frac{\operatorname{atan}\left(\frac{1}{\sqrt{\frac{d}{cf-de}}\sqrt{e+fx}}\right)}{\sqrt{\frac{d}{cf-de}}(cf-de)} & \text{for}\ \frac{d}{cf-de}>0\\ -\frac{\operatorname{acoth}\left(\frac{1}{\sqrt{-\frac{d}{cf-de}}\sqrt{e+fx}}\right)}{\sqrt{-\frac{d}{cf-de}}(cf-de)} & \text{for}\ \frac{1}{e+fx}>-\frac{d}{cf-de}\wedge\frac{d}{cf-de}<0\\ -\frac{\operatorname{atanh}\left(\frac{1}{\sqrt{-\frac{d}{cf-de}}\sqrt{e+fx}}\right)}{\sqrt{-\frac{d}{cf-de}}(cf-de)} & \text{for}\ \frac{d}{cf-de}<0\wedge\frac{1}{e+fx}<-\frac{d}{cf-de}\end{cases}\right)}{d}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)/(d*x+c)/(f*x+e)**(1/2),x)
```

```
[Out] 2*b*sqrt(e + f*x)/(d*f) - 2*(a*d - b*c)*Piecewise((atan(1/(sqrt(d
/(c*f - d*e))*sqrt(e + f*x)))/(sqrt(d/(c*f - d*e))*(c*f - d*e)),
d/(c*f - d*e) > 0), (-acoth(1/(sqrt(-d/(c*f - d*e))*sqrt(e + f*x)
```

```
))/(sqrt(-d/(c*f - d*e))*(c*f - d*e)), (d/(c*f - d*e) < 0) & (1/(
e + f*x) > -d/(c*f - d*e))), (-atanh(1/(sqrt(-d/(c*f - d*e))*sqrt
(e + f*x)))/(sqrt(-d/(c*f - d*e))*(c*f - d*e)), (d/(c*f - d*e) <
0) & (1/(e + f*x) < -d/(c*f - d*e))))/d
```

GIAC/XCAS [A] time = 0.213691, size = 95, normalized size = 1.28

$$-\frac{2\left(bc-ad\right)\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{cdf-d^2e}}\right)}{\sqrt{cdf-d^2e}d}+\frac{2\sqrt{fx+e}b}{df}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)/((d*x + c)*sqrt(f*x + e)),x, algorithm="giac")
```

```
[Out] -2*(b*c - a*d)*arctan(sqrt(f*x + e)*d/sqrt(c*d*f - d^2*e))/(sqrt(
c*d*f - d^2*e)*d) + 2*sqrt(f*x + e)*b/(d*f)
```

3.1753 $\int \frac{a+bx}{(c+dx)(e+fx)^{3/2}}\,dx$

Optimal. Leaf size=88

$$\frac{2(bc-ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{\sqrt{d}(de-cf)^{3/2}}-\frac{2(be-af)}{f\sqrt{e+fx}(de-cf)}$$

```
[Out] (-2*(b*e - a*f))/(f*(d*e - c*f)*Sqrt[e + f*x]) + (2*(b*c - a*d)*A
rcTanh[(Sqrt[d]*Sqrt[e + f*x])/Sqrt[d*e - c*f]])/(Sqrt[d]*(d*e -
c*f)^(3/2))
```

Rubi [A] time = 0.171358, antiderivative size = 88, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.136$

$$\frac{2(bc-ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{\sqrt{d}(de-cf)^{3/2}}-\frac{2(be-af)}{f\sqrt{e+fx}(de-cf)}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)/((c + d*x)*(e + f*x)^(3/2)),x]
```

```
[Out] (-2*(b*e - a*f))/(f*(d*e - c*f)*Sqrt[e + f*x]) + (2*(b*c - a*d)*A
rcTanh[(Sqrt[d]*Sqrt[e + f*x])/Sqrt[d*e - c*f]])/(Sqrt[d]*(d*e -
c*f)^(3/2))
```

Rubi in Sympy [A] time = 15.9762, size = 76, normalized size = 0.86

$$-\frac{2\,(af-be)}{f\sqrt{e+fx}\,(cf-de)}-\frac{2\,(ad-bc)\,\mathrm{atan}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{cf-de}}\right)}{\sqrt{d}\,(cf-de)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)/(d*x+c)/(f*x+e)**(3/2),x)
```

```
[Out] -2*(a*f - b*e)/(f*sqrt(e + f*x)*(c*f - d*e)) - 2*(a*d - b*c)*atan
(sqrt(d)*sqrt(e + f*x)/sqrt(c*f - d*e))/(sqrt(d)*(c*f - d*e)**(3/
2))
```

Mathematica [A] time = 0.35999, size = 88, normalized size = 1.

$$\frac{2\left(\frac{(ad-bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{\sqrt{d}\sqrt{de-cf}}+\frac{be-af}{f\sqrt{e+fx}}\right)}{cf-de}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)/((c + d*x)*(e + f*x)^(3/2)),x]
```

```
[Out] (2*((b*e - a*f)/(f*Sqrt[e + f*x]) + ((-(b*c) + a*d)*ArcTanh[(Sqrt
[d]*Sqrt[e + f*x])/Sqrt[d*e - c*f]])/(Sqrt[d]*Sqrt[d*e - c*f])))/
(-(d*e) + c*f)
```

Maple [A] time = 0.015, size = 142, normalized size = 1.6

$$-2\frac{ad}{(cf-de)\sqrt{(cf-de)\,d}}\arctan\left(\frac{\sqrt{fx+e}\,d}{\sqrt{(cf-de)\,d}}\right)+2\frac{bc}{(cf-de)\sqrt{(cf-de)\,d}}\arctan\left(\frac{\sqrt{fx+e}\,d}{\sqrt{(cf-de)\,d}}\right)-2\frac{a}{(cf-de)\sqrt{fx+e}}+2\frac{be}{(cf-de)\,f\sqrt{fx+e}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)/(d*x+c)/(f*x+e)^(3/2),x)
```

```
[Out] -2/(c*f-d*e)/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e
)*d)^(1/2))*a*d+2/(c*f-d*e)/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1
/2)*d/((c*f-d*e)*d)^(1/2))*b*c-2/(c*f-d*e)/(f*x+e)^(1/2)*a+2/f/(c
*f-d*e)/(f*x+e)^(1/2)*b*e
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)/((d*x + c)*(f*x + e)^(3/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.219316, size = 1, normalized size = 0.01

$$\left[\frac{(bc-ad)\sqrt{fx+e}f\log\left(\frac{\sqrt{d^2e-cdf}(dfx+2\,de-cf)+2\,(d^2e-cdf)\sqrt{fx+e}}{dx+c}\right)-2\sqrt{d^2e-cdf}(be-af)}{\sqrt{d^2e-cdf}(def-cf^2)\sqrt{fx+e}},\ \frac{2\left((bc-ad)\sqrt{fx+e}f\arctan\left(\right.\right.}{\sqrt{-d^2e+}}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)/((d*x + c)*(f*x + e)^(3/2)),x, algorithm="fricas")
```

```
[Out] [((b*c - a*d)*sqrt(f*x + e)*f*log((sqrt(d^2*e - c*d*f)*(d*f*x + 2
*d*e - c*f) + 2*(d^2*e - c*d*f)*sqrt(f*x + e))/(d*x + c)) - 2*sqr
t(d^2*e - c*d*f)*(b*e - a*f))/(sqrt(d^2*e - c*d*f)*(d*e*f - c*f^2
)*sqrt(f*x + e)), 2*((b*c - a*d)*sqrt(f*x + e)*f*arctan(-(d*e - c
*f)/(sqrt(-d^2*e + c*d*f)*sqrt(f*x + e))) - sqrt(-d^2*e + c*d*f)*
(b*e - a*f))/(sqrt(-d^2*e + c*d*f)*(d*e*f - c*f^2)*sqrt(f*x + e))
]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{a+bx}{(c+dx)\,(e+fx)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)/(d*x+c)/(f*x+e)**(3/2),x)
```

```
[Out] Integral((a + b*x)/((c + d*x)*(e + f*x)**(3/2)), x)
```

GIAC/XCAS [A] time = 0.215174, size = 127, normalized size = 1.44

$$\frac{2\,(bc-ad)\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{cdf-d^2e}}\right)}{\sqrt{cdf-d^2e}(cf-de)}-\frac{2\,(af-be)}{(cf^2-dfe)\sqrt{fx+e}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)/((d*x + c)*(f*x + e)^(3/2)),x, algorithm="giac")
```

```
[Out] 2*(b*c - a*d)*arctan(sqrt(f*x + e)*d/sqrt(c*d*f - d^2*e))/(sqrt(c
*d*f - d^2*e)*(c*f - d*e)) - 2*(a*f - b*e)/((c*f^2 - d*f*e)*sqrt(
f*x + e))
```

3.1754 $\int \frac{a+bx}{(c+dx)(e+fx)^{5/2}}\,dx$

Optimal. Leaf size=119

$$-\frac{2(bc-ad)}{\sqrt{e+fx}(de-cf)^2}-\frac{2(be-af)}{3f(e+fx)^{3/2}(de-cf)}+\frac{2\sqrt{d}(bc-ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{(de-cf)^{5/2}}$$

```
[Out] (-2*(b*e - a*f))/(3*f*(d*e - c*f)*(e + f*x)^(3/2)) - (2*(b*c - a*
d))/((d*e - c*f)^2*Sqrt[e + f*x]) + (2*Sqrt[d]*(b*c - a*d)*ArcTan
h[(Sqrt[d]*Sqrt[e + f*x])/Sqrt[d*e - c*f]])/(d*e - c*f)^(5/2)
```

Rubi [A] time = 0.23188, antiderivative size = 119, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.182$

$$-\frac{2(bc-ad)}{\sqrt{e+fx}(de-cf)^2}-\frac{2(be-af)}{3f(e+fx)^{3/2}(de-cf)}+\frac{2\sqrt{d}(bc-ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{(de-cf)^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)/((c + d*x)*(e + f*x)^(5/2)),x]
```

```
[Out] (-2*(b*e - a*f))/(3*f*(d*e - c*f)*(e + f*x)^(3/2)) - (2*(b*c - a*
d))/((d*e - c*f)^2*Sqrt[e + f*x]) + (2*Sqrt[d]*(b*c - a*d)*ArcTan
h[(Sqrt[d]*Sqrt[e + f*x])/Sqrt[d*e - c*f]])/(d*e - c*f)^(5/2)
```

Rubi in Sympy [A] time = 22.785, size = 104, normalized size = 0.87

$$\frac{2\sqrt{d}\,(ad-bc)\,\mathrm{atan}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{cf-de}}\right)}{(cf-de)^{\frac{5}{2}}}+\frac{2\,(ad-bc)}{\sqrt{e+fx}\,(cf-de)^2}-\frac{2\,(af-be)}{3f\,(e+fx)^{\frac{3}{2}}\,(cf-de)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)/(d*x+c)/(f*x+e)**(5/2),x)
```

```
[Out] 2*sqrt(d)*(a*d - b*c)*atan(sqrt(d)*sqrt(e + f*x)/sqrt(c*f - d*e))
/(c*f - d*e)**(5/2) + 2*(a*d - b*c)/(sqrt(e + f*x)*(c*f - d*e)**2
) - 2*(a*f - b*e)/(3*f*(e + f*x)**(3/2)*(c*f - d*e))
```

Mathematica [A] time = 0.234288, size = 116, normalized size = 0.97

$$\frac{2\sqrt{d}(bc-ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{(de-cf)^{5/2}}-\frac{2(3f(e+fx)(bc-ad)+(be-af)(de-cf))}{3f(e+fx)^{3/2}(de-cf)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)/((c + d*x)*(e + f*x)^(5/2)),x]
```

```
[Out] (-2*((b*e - a*f)*(d*e - c*f) + 3*(b*c - a*d)*f*(e + f*x)))/(3*f*(
d*e - c*f)^2*(e + f*x)^(3/2)) + (2*Sqrt[d]*(b*c - a*d)*ArcTanh[(S
qrt[d]*Sqrt[e + f*x])/Sqrt[d*e - c*f]])/(d*e - c*f)^(5/2)
```

Maple [A] time = 0.02, size = 187, normalized size = 1.6

$$-\frac{2a}{3cf-3de}(fx+e)^{-\frac{3}{2}}+\frac{2be}{3(cf-de)f}(fx+e)^{-\frac{3}{2}}+2\frac{ad}{(cf-de)^2\sqrt{fx+e}}$$
$$-2\frac{bc}{(cf-de)^2\sqrt{fx+e}}+2\frac{d^2a}{(cf-de)^2\sqrt{(cf-de)d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)d}}\right)$$
$$-2\frac{bdc}{(cf-de)^2\sqrt{(cf-de)d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)d}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)/(d*x+c)/(f*x+e)^(5/2),x)
```

```
[Out] -2/3/(c*f-d*e)/(f*x+e)^(3/2)*a+2/3/f/(c*f-d*e)/(f*x+e)^(3/2)*b*e+
2/(c*f-d*e)^2/(f*x+e)^(1/2)*a*d-2/(c*f-d*e)^2/(f*x+e)^(1/2)*b*c+2
*d^2/(c*f-d*e)^2/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f
-d*e)*d)^(1/2))*a-2*d/(c*f-d*e)^2/((c*f-d*e)*d)^(1/2)*arctan((f*x
+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*b*c
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)/((d*x + c)*(f*x + e)^(5/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.22321, size = 1, normalized size = 0.01

$$\left[-\frac{2\,bde^2+2\,acf^2+6\,(bc-ad)f^2x+4\,(bc-2\,ad)ef+3\left((bc-ad)f^2x+(bc-ad)ef\right)\sqrt{fx+e}\sqrt{\frac{d}{de-cf}}\log\left(\frac{dfx+2\,de-cf-2(\cdots}{\cdots}\right)}{3\,(d^2e^3f-2\,cde^2f^2+c^2ef^3+(d^2e^2f^2-2\,cdef^3+c^2f^4)x)\sqrt{fx+e}}\right.$$
$$-\frac{2\left(bde^2+acf^2+3\,(bc-ad)f^2x+2\,(bc-2\,ad)ef-3\left((bc-ad)f^2x+(bc-ad)ef\right)\sqrt{fx+e}\sqrt{-\frac{d}{de-cf}}\arctan\left(-\frac{(de-cf)\sqrt{\cdots}}{\sqrt{fx+\cdots}}\right)\right)}{3\,(d^2e^3f-2\,cde^2f^2+c^2ef^3+(d^2e^2f^2-2\,cdef^3+c^2f^4)x)\sqrt{fx+e}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)/((d*x + c)*(f*x + e)^(5/2)),x, algorithm="fricas")
```

```
[Out] [-1/3*(2*b*d*e^2 + 2*a*c*f^2 + 6*(b*c - a*d)*f^2*x + 4*(b*c - 2*a
*d)*e*f + 3*((b*c - a*d)*f^2*x + (b*c - a*d)*e*f)*sqrt(f*x + e)*s
qrt(d/(d*e - c*f))*log((d*f*x + 2*d*e - c*f - 2*(d*e - c*f)*sqrt(
f*x + e)*sqrt(d/(d*e - c*f)))/(d*x + c)))/((d^2*e^3*f - 2*c*d*e^2
*f^2 + c^2*e*f^3 + (d^2*e^2*f^2 - 2*c*d*e*f^3 + c^2*f^4)*x)*sqrt(
f*x + e)), -2/3*(b*d*e^2 + a*c*f^2 + 3*(b*c - a*d)*f^2*x + 2*(b*c
 - 2*a*d)*e*f - 3*((b*c - a*d)*f^2*x + (b*c - a*d)*e*f)*sqrt(f*x
+ e)*sqrt(-d/(d*e - c*f))*arctan(-(d*e - c*f)*sqrt(-d/(d*e - c*f)
)/(sqrt(f*x + e)*d)))/((d^2*e^3*f - 2*c*d*e^2*f^2 + c^2*e*f^3 + (
d^2*e^2*f^2 - 2*c*d*e*f^3 + c^2*f^4)*x)*sqrt(f*x + e))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)/(d*x+c)/(f*x+e)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.219759, size = 216, normalized size = 1.82

$$-\frac{2\left(bcd-ad^2\right)\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{cdf-d^2e}}\right)}{(c^2f^2-2\,cdfe+d^2e^2)\sqrt{cdf-d^2e}}-\frac{2\left(3\,(fx+e)bcf-3\,(fx+e)adf+acf^2-bcfe-adfe+bde^2\right)}{3\,(c^2f^3-2\,cdf^2e+d^2fe^2)(fx+e)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)/((d*x + c)*(f*x + e)^(5/2)),x, algorithm="giac")
```

```
[Out] -2*(b*c*d - a*d^2)*arctan(sqrt(f*x + e)*d/sqrt(c*d*f - d^2*e))/((
c^2*f^2 - 2*c*d*f*e + d^2*e^2)*sqrt(c*d*f - d^2*e)) - 2/3*(3*(f*x
 + e)*b*c*f - 3*(f*x + e)*a*d*f + a*c*f^2 - b*c*f*e - a*d*f*e + b
*d*e^2)/((c^2*f^3 - 2*c*d*f^2*e + d^2*f*e^2)*(f*x + e)^(3/2))
```

3.1755 $\int \frac{a+bx}{(c+dx)(e+fx)^{7/2}}\,dx$

Optimal. Leaf size=151

$$\frac{2d^{3/2}(bc-ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{(de-cf)^{7/2}}-\frac{2d(bc-ad)}{\sqrt{e+fx}(de-cf)^3}-\frac{2(bc-ad)}{3(e+fx)^{3/2}(de-cf)^2}-\frac{2(be-af)}{5f(e+fx)^{5/2}(de-cf)}$$

```
[Out] (-2*(b*e - a*f))/(5*f*(d*e - c*f)*(e + f*x)^(5/2)) - (2*(b*c - a*
d))/(3*(d*e - c*f)^2*(e + f*x)^(3/2)) - (2*d*(b*c - a*d))/((d*e -
 c*f)^3*Sqrt[e + f*x]) + (2*d^(3/2)*(b*c - a*d)*ArcTanh[(Sqrt[d]*
Sqrt[e + f*x])/Sqrt[d*e - c*f]])/(d*e - c*f)^(7/2)
```

Rubi [A] time = 0.328917, antiderivative size = 151, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.182$

$$\frac{2d^{3/2}(bc-ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{(de-cf)^{7/2}}-\frac{2d(bc-ad)}{\sqrt{e+fx}(de-cf)^3}-\frac{2(bc-ad)}{3(e+fx)^{3/2}(de-cf)^2}-\frac{2(be-af)}{5f(e+fx)^{5/2}(de-cf)}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)/((c + d*x)*(e + f*x)^(7/2)),x]
```

```
[Out] (-2*(b*e - a*f))/(5*f*(d*e - c*f)*(e + f*x)^(5/2)) - (2*(b*c - a*
d))/(3*(d*e - c*f)^2*(e + f*x)^(3/2)) - (2*d*(b*c - a*d))/((d*e -
 c*f)^3*Sqrt[e + f*x]) + (2*d^(3/2)*(b*c - a*d)*ArcTanh[(Sqrt[d]*
Sqrt[e + f*x])/Sqrt[d*e - c*f]])/(d*e - c*f)^(7/2)
```

Rubi in Sympy [A] time = 30.3367, size = 133, normalized size = 0.88

$$-\frac{2d^{\frac{3}{2}}(ad-bc)\,\mathrm{atan}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{cf-de}}\right)}{(cf-de)^{\frac{7}{2}}}-\frac{2d\,(ad-bc)}{\sqrt{e+fx}\,(cf-de)^3}+\frac{2\,(ad-bc)}{3\,(e+fx)^{\frac{3}{2}}\,(cf-de)^2}-\frac{2\,(af-be)}{5f\,(e+fx)^{\frac{5}{2}}\,(cf-de)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)/(d*x+c)/(f*x+e)**(7/2),x)
```

```
[Out] -2*d**(3/2)*(a*d - b*c)*atan(sqrt(d)*sqrt(e + f*x)/sqrt(c*f - d*e
))/(c*f - d*e)**(7/2) - 2*d*(a*d - b*c)/(sqrt(e + f*x)*(c*f - d*e
)**3) + 2*(a*d - b*c)/(3*(e + f*x)**(3/2)*(c*f - d*e)**2) - 2*(a*
f - b*e)/(5*f*(e + f*x)**(5/2)*(c*f - d*e))
```

Mathematica [A] time = 0.435367, size = 151, normalized size = 1.

$$-\frac{2d^{3/2}(ad-bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{(de-cf)^{7/2}}+\frac{2d(ad-bc)}{\sqrt{e+fx}(de-cf)^3}-\frac{2(bc-ad)}{3(e+fx)^{3/2}(de-cf)^2}-\frac{2(af-be)}{5f(e+fx)^{5/2}(cf-de)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)/((c + d*x)*(e + f*x)^(7/2)),x]
```

```
[Out] (-2*(-(b*e) + a*f))/(5*f*(-(d*e) + c*f)*(e + f*x)^(5/2)) - (2*(b*
c - a*d))/(3*(d*e - c*f)^2*(e + f*x)^(3/2)) + (2*d*(-(b*c) + a*d)
```

```
)/((d*e - c*f)^3*Sqrt[e + f*x]) - (2*d^(3/2)*(-(b*c) + a*d)*ArcTa
nh[(Sqrt[d]*Sqrt[e + f*x])/Sqrt[d*e - c*f]])/(d*e - c*f)^(7/2)
```

Maple [A] time = 0.022, size = 234, normalized size = 1.6

$$-\frac{2a}{5cf-5de}(fx+e)^{-\frac{5}{2}}+\frac{2be}{5(cf-de)f}(fx+e)^{-\frac{5}{2}}-2\frac{d^2a}{(cf-de)^3\sqrt{fx+e}}+2\frac{bdc}{(cf-de)^3\sqrt{fx+e}}+\frac{2ad}{3(cf-de)^2}(fx+e)^{-\frac{3}{2}}-\frac{2bc}{3(cf-de)^2}(fx+e)^{-\frac{3}{2}}-2\frac{d^3a}{(cf-de)^3\sqrt{(cf-de)d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)d}}\right)+2\frac{bd^2c}{(cf-de)^3\sqrt{(cf-de)d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)d}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)/(d*x+c)/(f*x+e)^(7/2),x)
```

```
[Out] -2/5/(c*f-d*e)/(f*x+e)^(5/2)*a+2/5/f/(c*f-d*e)/(f*x+e)^(5/2)*b*e-
2/(c*f-d*e)^3*d^2/(f*x+e)^(1/2)*a+2/(c*f-d*e)^3*d/(f*x+e)^(1/2)*b
*c+2/3/(c*f-d*e)^2/(f*x+e)^(3/2)*a*d-2/3/(c*f-d*e)^2/(f*x+e)^(3/2
)*b*c-2*d^3/(c*f-d*e)^3/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*
d/((c*f-d*e)*d)^(1/2))*a+2*d^2/(c*f-d*e)^3/((c*f-d*e)*d)^(1/2)*ar
ctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*b*c
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)/((d*x + c)*(f*x + e)^(7/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.233718, size = 1, normalized size = 0.01

$$\left[-\frac{6bd^2e^3-6ac^2f^3+30\left(bcd-ad^2\right)f^3x^2+2\left(14bcd-23ad^2\right)e^2f-2\left(2bc^2-11acd\right)ef^2-15\left(\left(bcd-ad^2\right)f^3x^2+2\left(b\right.\right.}{15\left(d^3e^5f-3cd^2e^4f^2+3c^2de^3f^3-c^3e^2f^4+\left(d^3e^3f^3-3cd^2e^2f\right.\right.}\right.$$

$$-\frac{2\left(3bd^2e^3-3ac^2f^3+15\left(bcd-ad^2\right)f^3x^2+\left(14bcd-23ad^2\right)e^2f-\left(2bc^2-11acd\right)ef^2-15\left(\left(bcd-ad^2\right)f^3x^2+2\left(bc\right.\right.\right.}{15\left(d^3e^5f-3cd^2e^4f^2+3c^2de^3f^3-c^3e^2f^4+\left(d^3e^3f^3-3cd^2e^2f^4+3c\right.\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)/((d*x + c)*(f*x + e)^(7/2)),x, algorithm="fricas")
```

```
[Out] [-1/15*(6*b*d^2*e^3 - 6*a*c^2*f^3 + 30*(b*c*d - a*d^2)*f^3*x^2 +
2*(14*b*c*d - 23*a*d^2)*e^2*f - 2*(2*b*c^2 - 11*a*c*d)*e*f^2 - 15
*((b*c*d - a*d^2)*f^3*x^2 + 2*(b*c*d - a*d^2)*e*f^2*x + (b*c*d -
a*d^2)*e^2*f)*sqrt(f*x + e)*sqrt(d/(d*e - c*f))*log((d*f*x + 2*d*
```

```
e - c*f + 2*(d*e - c*f)*sqrt(f*x + e)*sqrt(d/(d*e - c*f)))/(d*x +
 c)) + 10*(7*(b*c*d - a*d^2)*e*f^2 - (b*c^2 - a*c*d)*f^3)*x)/((d^
3*e^5*f - 3*c*d^2*e^4*f^2 + 3*c^2*d*e^3*f^3 - c^3*e^2*f^4 + (d^3*
e^3*f^3 - 3*c*d^2*e^2*f^4 + 3*c^2*d*e*f^5 - c^3*f^6)*x^2 + 2*(d^3
*e^4*f^2 - 3*c*d^2*e^3*f^3 + 3*c^2*d*e^2*f^4 - c^3*e*f^5)*x)*sqrt
(f*x + e)), -2/15*(3*b*d^2*e^3 - 3*a*c^2*f^3 + 15*(b*c*d - a*d^2)
*f^3*x^2 + (14*b*c*d - 23*a*d^2)*e^2*f - (2*b*c^2 - 11*a*c*d)*e*f
^2 - 15*((b*c*d - a*d^2)*f^3*x^2 + 2*(b*c*d - a*d^2)*e*f^2*x + (b
*c*d - a*d^2)*e^2*f)*sqrt(f*x + e)*sqrt(-d/(d*e - c*f))*arctan(-(
d*e - c*f)*sqrt(-d/(d*e - c*f))/(sqrt(f*x + e)*d)) + 5*(7*(b*c*d
 - a*d^2)*e*f^2 - (b*c^2 - a*c*d)*f^3)*x)/((d^3*e^5*f - 3*c*d^2*e^
4*f^2 + 3*c^2*d*e^3*f^3 - c^3*e^2*f^4 + (d^3*e^3*f^3 - 3*c*d^2*e^
2*f^4 + 3*c^2*d*e*f^5 - c^3*f^6)*x^2 + 2*(d^3*e^4*f^2 - 3*c*d^2*e
^3*f^3 + 3*c^2*d*e^2*f^4 - c^3*e*f^5)*x)*sqrt(f*x + e))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)/(d*x+c)/(f*x+e)**(7/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.22161, size = 385, normalized size = 2.55

$$\frac{2\left(bcd^2 - ad^3\right)\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{cdf-d^2e}}\right)}{(c^3f^3 - 3\,c^2df^2e + 3\,cd^2fe^2 - d^3e^3)\sqrt{cdf - d^2e}} + \frac{2\left(15\,(fx+e)^2bcdf - 15\,(fx+e)^2ad^2f - 5\,(fx+e)bc^2f^2 + 5\,(fx+e)acdf^2 - 3\,ac^2f^3 + 5\,(fx+e)bcdfe - 5\,(fx+e)ad^2\right.}{15\,(c^3f^4 - 3\,c^2df^3e + 3\,cd^2f^2e^2 - d^3fe^3)(fx+e)^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)/((d*x + c)*(f*x + e)^(7/2)),x, algorithm="giac")
```

```
[Out] 2*(b*c*d^2 - a*d^3)*arctan(sqrt(f*x + e)*d/sqrt(c*d*f - d^2*e))/(
(c^3*f^3 - 3*c^2*d*f^2*e + 3*c*d^2*f*e^2 - d^3*e^3)*sqrt(c*d*f -
d^2*e)) + 2/15*(15*(f*x + e)^2*b*c*d*f - 15*(f*x + e)^2*a*d^2*f -
 5*(f*x + e)*b*c^2*f^2 + 5*(f*x + e)*a*c*d*f^2 - 3*a*c^2*f^3 + 5*
(f*x + e)*b*c*d*f*e - 5*(f*x + e)*a*d^2*f*e + 3*b*c^2*f^2*e + 6*a
*c*d*f^2*e - 6*b*c*d*f*e^2 - 3*a*d^2*f*e^2 + 3*b*d^2*e^3)/((c^3*f
^4 - 3*c^2*d*f^3*e + 3*c*d^2*f^2*e^2 - d^3*f*e^3)*(f*x + e)^(5/2)
)
```

3.1756 $\int \frac{a+bx}{(c+dx)(e+fx)^{9/2}}\,dx$

Optimal. Leaf size=185

$$\frac{2d^{5/2}(bc-ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{(de-cf)^{9/2}}-\frac{2d^2(bc-ad)}{\sqrt{e+fx}(de-cf)^4}-\frac{2d(bc-ad)}{3(e+fx)^{3/2}(de-cf)^3}-\frac{2(bc-ad)}{5(e+fx)^{5/2}(de-cf)^2}-\frac{2(be-af)}{7f(e+fx)^{7/2}(de-cf)}$$

```
[Out] (-2*(b*e - a*f))/(7*f*(d*e - c*f)*(e + f*x)^(7/2)) - (2*(b*c - a*
d))/(5*(d*e - c*f)^2*(e + f*x)^(5/2)) - (2*d*(b*c - a*d))/(3*(d*e
 - c*f)^3*(e + f*x)^(3/2)) - (2*d^2*(b*c - a*d))/((d*e - c*f)^4*S
qrt[e + f*x]) + (2*d^(5/2)*(b*c - a*d)*ArcTanh[(Sqrt[d]*Sqrt[e +
f*x])/Sqrt[d*e - c*f]])/(d*e - c*f)^(9/2)
```

Rubi [A] time = 0.400514, antiderivative size = 185, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$\frac{2d^{5/2}(bc-ad)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{(de-cf)^{9/2}}-\frac{2d^2(bc-ad)}{\sqrt{e+fx}(de-cf)^4}-\frac{2d(bc-ad)}{3(e+fx)^{3/2}(de-cf)^3}-\frac{2(bc-ad)}{5(e+fx)^{5/2}(de-cf)^2}-\frac{2(be-af)}{7f(e+fx)^{7/2}(de-cf)}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)/((c + d*x)*(e + f*x)^(9/2)),x]
```

```
[Out] (-2*(b*e - a*f))/(7*f*(d*e - c*f)*(e + f*x)^(7/2)) - (2*(b*c - a*
d))/(5*(d*e - c*f)^2*(e + f*x)^(5/2)) - (2*d*(b*c - a*d))/(3*(d*e
 - c*f)^3*(e + f*x)^(3/2)) - (2*d^2*(b*c - a*d))/((d*e - c*f)^4*S
qrt[e + f*x]) + (2*d^(5/2)*(b*c - a*d)*ArcTanh[(Sqrt[d]*Sqrt[e +
f*x])/Sqrt[d*e - c*f]])/(d*e - c*f)^(9/2)
```

Rubi in Sympy [A] time = 40.5435, size = 163, normalized size = 0.88

$$\frac{2d^{\frac{5}{2}}\left(ad-bc\right)\operatorname{atan}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{cf-de}}\right)}{\left(cf-de\right)^{\frac{9}{2}}}+\frac{2d^{2}\left(ad-bc\right)}{\sqrt{e+fx}\left(cf-de\right)^{4}}-\frac{2d\left(ad-bc\right)}{3\left(e+fx\right)^{\frac{3}{2}}\left(cf-de\right)^{3}}+\frac{2\left(ad-bc\right)}{5\left(e+fx\right)^{\frac{5}{2}}\left(cf-de\right)^{2}}-\frac{2\left(af-be\right)}{7f\left(e+fx\right)^{\frac{7}{2}}\left(cf-de\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)/(d*x+c)/(f*x+e)**(9/2),x)
```

```
[Out] 2*d**(5/2)*(a*d - b*c)*atan(sqrt(d)*sqrt(e + f*x)/sqrt(c*f - d*e)
)/(c*f - d*e)**(9/2) + 2*d**2*(a*d - b*c)/(sqrt(e + f*x)*(c*f - d
*e)**4) - 2*d*(a*d - b*c)/(3*(e + f*x)**(3/2)*(c*f - d*e)**3) + 2
*(a*d - b*c)/(5*(e + f*x)**(5/2)*(c*f - d*e)**2) - 2*(a*f - b*e)/
(7*f*(e + f*x)**(7/2)*(c*f - d*e))
```

Mathematica [A] time = 0.772054, size = 185, normalized size = 1.

$$-\frac{2d^{5/2}(ad-bc)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{(de-cf)^{9/2}}+\frac{2d^2(ad-bc)}{\sqrt{e+fx}(de-cf)^4}+\frac{2d(ad-bc)}{3(e+fx)^{3/2}(de-cf)^3}-\frac{2(bc-ad)}{5(e+fx)^{5/2}(de-cf)^2}-\frac{2(af-be)}{7f(e+fx)^{7/2}(cf-de)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)/((c + d*x)*(e + f*x)^(9/2)),x]
```

```
[Out] (-2*(-(b*e) + a*f))/(7*f*(-(d*e) + c*f)*(e + f*x)^(7/2)) - (2*(b*
c - a*d))/(5*(d*e - c*f)^2*(e + f*x)^(5/2)) + (2*d*(-(b*c) + a*d)
)/(3*(d*e - c*f)^3*(e + f*x)^(3/2)) + (2*d^2*(-(b*c) + a*d))/((d*
e - c*f)^4*Sqrt[e + f*x]) - (2*d^(5/2)*(-(b*c) + a*d)*ArcTanh[(Sq
rt[d]*Sqrt[e + f*x])/Sqrt[d*e - c*f]])/(d*e - c*f)^(9/2)
```

Maple [A] time = 0.024, size = 281, normalized size = 1.5

$$-\frac{2\,a}{7\,cf-7\,de}(fx+e)^{-\frac{7}{2}}+\frac{2\,be}{7\,(cf-de)\,f}(fx+e)^{-\frac{7}{2}}-\frac{2\,d^2a}{3\,(cf-de)^3}(fx+e)^{-\frac{3}{2}}+\frac{2\,bdc}{3\,(cf-de)^3}(fx+e)^{-\frac{3}{2}}+\frac{2\,ad}{5\,(cf-de)^2}(fx+e)^{-\frac{5}{2}}-\frac{2\,bc}{5\,(cf-de)^2}(fx+e)^{-\frac{5}{2}}+2\,\frac{d^3a}{(cf-de)^4\sqrt{fx+e}}-2\,\frac{d^2bc}{(cf-de)^4\sqrt{fx+e}}+2\,\frac{d^4a}{(cf-de)^4\sqrt{(cf-de)\,d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)\,d}}\right)-2\,\frac{bd^3c}{(cf-de)^4\sqrt{(cf-de)\,d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)\,d}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)/(d*x+c)/(f*x+e)^(9/2),x)
```

```
[Out] -2/7/(c*f-d*e)/(f*x+e)^(7/2)*a+2/7/f/(c*f-d*e)/(f*x+e)^(7/2)*b*e-
2/3/(c*f-d*e)^3*d^2/(f*x+e)^(3/2)*a+2/3/(c*f-d*e)^3*d/(f*x+e)^(3/
2)*b*c+2/5/(c*f-d*e)^2/(f*x+e)^(5/2)*a*d-2/5/(c*f-d*e)^2/(f*x+e)^
(5/2)*b*c+2/(c*f-d*e)^4*d^3/(f*x+e)^(1/2)*a-2/(c*f-d*e)^4*d^2/(f*
x+e)^(1/2)*b*c+2*d^4/(c*f-d*e)^4/((c*f-d*e)*d)^(1/2)*arctan((f*x+
e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a-2*d^3/(c*f-d*e)^4/((c*f-d*e)*d)
^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*b*c
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)/((d*x + c)*(f*x + e)^(9/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.236608, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)/((d*x + c)*(f*x + e)^(9/2)),x, algorithm="fricas")
```

```
[Out] [-1/105*(30*b*d^3*e^4 + 30*a*c^3*f^4 + 210*(b*c*d^2 - a*d^3)*f^4*
x^3 + 8*(29*b*c*d^2 - 44*a*d^3)*e^3*f - 4*(16*b*c^2*d - 61*a*c*d^
2)*e^2*f^2 + 12*(b*c^3 - 11*a*c^2*d)*e*f^3 + 70*(10*(b*c*d^2 - a*
d^3)*e*f^3 - (b*c^2*d - a*c*d^2)*f^4)*x^2 + 105*((b*c*d^2 - a*d^3
)*f^4*x^3 + 3*(b*c*d^2 - a*d^3)*e*f^3*x^2 + 3*(b*c*d^2 - a*d^3)*e
^2*f^2*x + (b*c*d^2 - a*d^3)*e^3*f)*sqrt(f*x + e)*sqrt(d/(d*e - c
*f))*log((d*f*x + 2*d*e - c*f - 2*(d*e - c*f)*sqrt(f*x + e)*sqrt(
d/(d*e - c*f)))/(d*x + c)) + 14*(58*(b*c*d^2 - a*d^3)*e^2*f^2 - 1
6*(b*c^2*d - a*c*d^2)*e*f^3 + 3*(b*c^3 - a*c^2*d)*f^4)*x)/((d^4*e
^7*f - 4*c*d^3*e^6*f^2 + 6*c^2*d^2*e^5*f^3 - 4*c^3*d*e^4*f^4 + c^
4*e^3*f^5 + (d^4*e^4*f^4 - 4*c*d^3*e^3*f^5 + 6*c^2*d^2*e^2*f^6 -
4*c^3*d*e*f^7 + c^4*f^8)*x^3 + 3*(d^4*e^5*f^3 - 4*c*d^3*e^4*f^4 +
 6*c^2*d^2*e^3*f^5 - 4*c^3*d*e^2*f^6 + c^4*e*f^7)*x^2 + 3*(d^4*e^
6*f^2 - 4*c*d^3*e^5*f^3 + 6*c^2*d^2*e^4*f^4 - 4*c^3*d*e^3*f^5 + c
^4*e^2*f^6)*x)*sqrt(f*x + e)), -2/105*(15*b*d^3*e^4 + 15*a*c^3*f^
4 + 105*(b*c*d^2 - a*d^3)*f^4*x^3 + 4*(29*b*c*d^2 - 44*a*d^3)*e^3
*f - 2*(16*b*c^2*d - 61*a*c*d^2)*e^2*f^2 + 6*(b*c^3 - 11*a*c^2*d)
*e*f^3 + 35*(10*(b*c*d^2 - a*d^3)*e*f^3 - (b*c^2*d - a*c*d^2)*f^4
)*x^2 - 105*((b*c*d^2 - a*d^3)*f^4*x^3 + 3*(b*c*d^2 - a*d^3)*e*f^
3*x^2 + 3*(b*c*d^2 - a*d^3)*e^2*f^2*x + (b*c*d^2 - a*d^3)*e^3*f)*
sqrt(f*x + e)*sqrt(-d/(d*e - c*f))*arctan(-(d*e - c*f)*sqrt(-d/(d
*e - c*f))/(sqrt(f*x + e)*d)) + 7*(58*(b*c*d^2 - a*d^3)*e^2*f^2 -
 16*(b*c^2*d - a*c*d^2)*e*f^3 + 3*(b*c^3 - a*c^2*d)*f^4)*x)/((d^4
*e^7*f - 4*c*d^3*e^6*f^2 + 6*c^2*d^2*e^5*f^3 - 4*c^3*d*e^4*f^4 +
c^4*e^3*f^5 + (d^4*e^4*f^4 - 4*c*d^3*e^3*f^5 + 6*c^2*d^2*e^2*f^6
- 4*c^3*d*e*f^7 + c^4*f^8)*x^3 + 3*(d^4*e^5*f^3 - 4*c*d^3*e^4*f^4
 + 6*c^2*d^2*e^3*f^5 - 4*c^3*d*e^2*f^6 + c^4*e*f^7)*x^2 + 3*(d^4*
e^6*f^2 - 4*c*d^3*e^5*f^3 + 6*c^2*d^2*e^4*f^4 - 4*c^3*d*e^3*f^5 +
 c^4*e^2*f^6)*x)*sqrt(f*x + e))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)/(d*x+c)/(f*x+e)**(9/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.226167, size = 608, normalized size = 3.29

$$-\frac{2\,\left(bcd^3-ad^4\right)\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{cdf-d^2e}}\right)}{\left(c^4f^4-4\,c^3df^3e+6\,c^2d^2f^2e^2-4\,cd^3fe^3+d^4e^4\right)\sqrt{cdf-d^2e}}-\frac{2\,\left(105\,(fx+e)^3bcd^2f-105\,(fx+e)^3ad^3f-35\,(fx+e)^2bc^2df^2+35\,(fx+e)^2acd^2f^2+21\,(fx+e)bc^3f^3-21\,(fx+e)a\ldots\right.}{\ldots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)/((d*x + c)*(f*x + e)^(9/2)),x, algorithm="giac")
```

```
[Out] -2*(b*c*d^3 - a*d^4)*arctan(sqrt(f*x + e)*d/sqrt(c*d*f - d^2*e))/
((c^4*f^4 - 4*c^3*d*f^3*e + 6*c^2*d^2*f^2*e^2 - 4*c*d^3*f*e^3 + d
^4*e^4)*sqrt(c*d*f - d^2*e)) - 2/105*(105*(f*x + e)^3*b*c*d^2*f -
 105*(f*x + e)^3*a*d^3*f - 35*(f*x + e)^2*b*c^2*d*f^2 + 35*(f*x +
 e)^2*a*c*d^2*f^2 + 21*(f*x + e)*b*c^3*f^3 - 21*(f*x + e)*a*c^2*d
*f^3 + 15*a*c^3*f^4 + 35*(f*x + e)^2*b*c*d^2*f*e - 35*(f*x + e)^2
```

```
*a*d^3*f*e - 42*(f*x + e)*b*c^2*d*f^2*e + 42*(f*x + e)*a*c*d^2*f^
2*e - 15*b*c^3*f^3*e - 45*a*c^2*d*f^3*e + 21*(f*x + e)*b*c*d^2*f*
e^2 - 21*(f*x + e)*a*d^3*f*e^2 + 45*b*c^2*d*f^2*e^2 + 45*a*c*d^2*
f^2*e^2 - 45*b*c*d^2*f*e^3 - 15*a*d^3*f*e^3 + 15*b*d^3*e^4)/((c^4
*f^5 - 4*c^3*d*f^4*e + 6*c^2*d^2*f^3*e^2 - 4*c*d^3*f^2*e^3 + d^4*
f*e^4)*(f*x + e)^(7/2))
```

3.1757 $\int \frac{(a+bx)^2(e+fx)^{5/2}}{c+dx}\,dx$

Optimal. Leaf size=208

$$-\frac{2(bc-ad)^2(de-cf)^{5/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{11/2}}+\frac{2\sqrt{e+fx}(bc-ad)^2(de-cf)^2}{d^5}+\frac{2(e+fx)^{3/2}(bc-ad)^2(de-cf)}{3d^4}+\frac{2(e+fx)^{5/2}(bc-ad)^2}{5d^3}-\frac{2b(e+fx)^{7/2}(-2adf+bcf+bde)}{7d^2f^2}+\frac{2b^2(e+fx)^{9/2}}{9df^2}$$

```
[Out] (2*(b*c - a*d)^2*(d*e - c*f)^2*Sqrt[e + f*x])/d^5 + (2*(b*c - a*d
)^2*(d*e - c*f)*(e + f*x)^(3/2))/(3*d^4) + (2*(b*c - a*d)^2*(e +
f*x)^(5/2))/(5*d^3) - (2*b*(b*d*e + b*c*f - 2*a*d*f)*(e + f*x)^(7
/2))/(7*d^2*f^2) + (2*b^2*(e + f*x)^(9/2))/(9*d*f^2) - (2*(b*c -
a*d)^2*(d*e - c*f)^(5/2)*ArcTanh[(Sqrt[d]*Sqrt[e + f*x])/Sqrt[d*e
 - c*f]])/d^(11/2)
```

Rubi [A] time = 0.442449, antiderivative size = 208, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$-\frac{2(bc-ad)^2(de-cf)^{5/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{11/2}}+\frac{2\sqrt{e+fx}(bc-ad)^2(de-cf)^2}{d^5}+\frac{2(e+fx)^{3/2}(bc-ad)^2(de-cf)}{3d^4}+\frac{2(e+fx)^{5/2}(bc-ad)^2}{5d^3}-\frac{2b(e+fx)^{7/2}(-2adf+bcf+bde)}{7d^2f^2}+\frac{2b^2(e+fx)^{9/2}}{9df^2}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^2*(e + f*x)^(5/2))/(c + d*x),x]
```


```
[Out] (2*(b*c - a*d)^2*(d*e - c*f)^2*Sqrt[e + f*x])/d^5 + (2*(b*c - a*d
)^2*(d*e - c*f)*(e + f*x)^(3/2))/(3*d^4) + (2*(b*c - a*d)^2*(e +
f*x)^(5/2))/(5*d^3) - (2*b*(b*d*e + b*c*f - 2*a*d*f)*(e + f*x)^(7
/2))/(7*d^2*f^2) + (2*b^2*(e + f*x)^(9/2))/(9*d*f^2) - (2*(b*c -
a*d)^2*(d*e - c*f)^(5/2)*ArcTanh[(Sqrt[d]*Sqrt[e + f*x])/Sqrt[d*e
 - c*f]])/d^(11/2)
```

Rubi in Sympy [A] time = 57.3301, size = 192, normalized size = 0.92

$$\frac{2b^2(e+fx)^{\frac{9}{2}}}{9df^2}+\frac{2b(e+fx)^{\frac{7}{2}}(2adf-bcf-bde)}{7d^2f^2}+\frac{2(e+fx)^{\frac{5}{2}}(ad-bc)^2}{5d^3}-\frac{2(e+fx)^{\frac{3}{2}}(ad-bc)^2(cf-de)}{3d^4}+\frac{2\sqrt{e+fx}(ad-bc)^2(cf-de)^2}{d^5}-\frac{2(ad-bc)^2(cf-de)^{\frac{5}{2}}\operatorname{atan}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{cf-de}}\right)}{d^{\frac{11}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**2*(f*x+e)**(5/2)/(d*x+c),x)
```

```
[Out] 2*b**2*(e + f*x)**(9/2)/(9*d*f**2) + 2*b*(e + f*x)**(7/2)*(2*a*d*
f - b*c*f - b*d*e)/(7*d**2*f**2) + 2*(e + f*x)**(5/2)*(a*d - b*c)
**2/(5*d**3) - 2*(e + f*x)**(3/2)*(a*d - b*c)**2*(c*f - d*e)/(3*d
**4) + 2*sqrt(e + f*x)*(a*d - b*c)**2*(c*f - d*e)**2/d**5 - 2*(a*
```

```
d - b*c)**2*(c*f - d*e)**(5/2)*atan(sqrt(d)*sqrt(e + f*x)/sqrt(c*
f - d*e))/d**(11/2)
```

Mathematica [A] time = 0.593137, size = 295, normalized size = 1.42

$$\frac{2\sqrt{e+fx}\left(21a^2d^2f^2\left(15c^2f^2-5cdf(7e+fx)+d^2\left(23e^2+11efx+3f^2x^2\right)\right)+6abdf\left(-105c^3f^3+35c^2df^2(7e+fx)-7c\right.}{}$$

$$-\frac{2(bc-ad)^2(de-cf)^{5/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{11/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^2*(e + f*x)^(5/2))/(c + d*x),x]
```

```
[Out] (2*Sqrt[e + f*x]*(21*a^2*d^2*f^2*(15*c^2*f^2 - 5*c*d*f*(7*e + f*x
) + d^2*(23*e^2 + 11*e*f*x + 3*f^2*x^2)) + 6*a*b*d*f*(-105*c^3*f^
3 + 15*d^3*(e + f*x)^3 + 35*c^2*d*f^2*(7*e + f*x) - 7*c*d^2*f*(23
*e^2 + 11*e*f*x + 3*f^2*x^2)) + b^2*(315*c^4*f^4 - 45*c*d^3*f*(e
+ f*x)^3 - 5*d^4*(2*e - 7*f*x)*(e + f*x)^3 - 105*c^3*d*f^3*(7*e +
 f*x) + 21*c^2*d^2*f^2*(23*e^2 + 11*e*f*x + 3*f^2*x^2))))/(315*d^
5*f^2) - (2*(b*c - a*d)^2*(d*e - c*f)^(5/2)*ArcTanh[(Sqrt[d]*Sqrt
[e + f*x])/Sqrt[d*e - c*f]])/d^(11/2)
```

Maple [B] time = 0.022, size = 972, normalized size = 4.7

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^2*(f*x+e)^(5/2)/(d*x+c),x)
```

```
[Out] -4*f/d^2*a^2*c*e*(f*x+e)^(1/2)-4*f^2/d^4*a*b*c^3*(f*x+e)^(1/2)-4*
f/d^4*b^2*c^3*e*(f*x+e)^(1/2)-2*f^3/d^3/((c*f-d*e)*d)^(1/2)*arcta
n((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a^2*c^3-2*f^3/d^5/((c*f-d*
e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*b^2*c^5-4
/3/d^2*(f*x+e)^(3/2)*a*b*c*e-4/d^2*a*b*c*e^2*(f*x+e)^(1/2)+2/d^2/
((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*b
^2*c^2*e^3+2/d*a^2*e^2*(f*x+e)^(1/2)-12*f^2/d^3/((c*f-d*e)*d)^(1/
2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a*b*c^3*e+2/3/d^3*
(f*x+e)^(3/2)*b^2*c^2*e+2/5/d^3*(f*x+e)^(5/2)*b^2*c^2+2/3/d*(f*x+
e)^(3/2)*a^2*e+2/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f
-d*e)*d)^(1/2))*a^2*e^3-6*f/d/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^
(1/2)*d/((c*f-d*e)*d)^(1/2))*a^2*c*e^2-4/d/((c*f-d*e)*d)^(1/2)*ar
ctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a*b*c*e^3+8*f/d^3*a*b*c
^2*e*(f*x+e)^(1/2)+4*f^3/d^4/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(
1/2)*d/((c*f-d*e)*d)^(1/2))*a*b*c^4+6*f^2/d^4/((c*f-d*e)*d)^(1/2)
*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*b^2*c^4*e-6*f/d^3/((
c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*b^2
*c^3*e^2+6*f^2/d^2/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c
*f-d*e)*d)^(1/2))*a^2*c^2*e+2/9*b^2*(f*x+e)^(9/2)/d/f^2+12*f/d^2/
((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a
*b*c^2*e^2+2/5/d*(f*x+e)^(5/2)*a^2+4/3*f/d^3*(f*x+e)^(3/2)*a*b*c^
2+2/d^3*b^2*c^2*e^2*(f*x+e)^(1/2)-2/7/f^2/d*(f*x+e)^(7/2)*b^2*e+4
/7/f/d*(f*x+e)^(7/2)*a*b-2/7/f/d^2*(f*x+e)^(7/2)*b^2*c-2/3*f/d^2*
(f*x+e)^(3/2)*a^2*c-2/3*f/d^4*(f*x+e)^(3/2)*b^2*c^3+2*f^2/d^3*a^2
*c^2*(f*x+e)^(1/2)-4/5/d^2*(f*x+e)^(5/2)*a*b*c+2*f^2/d^5*b^2*c^4*
(f*x+e)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^2*(f*x + e)^(5/2)/(d*x + c),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.230956, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^2*(f*x + e)^(5/2)/(d*x + c),x, algorithm="fricas")
```

```
[Out] [1/315*(315*((b^2*c^2*d^2 - 2*a*b*c*d^3 + a^2*d^4)*e^2*f^2 - 2*(b
^2*c^3*d - 2*a*b*c^2*d^2 + a^2*c*d^3)*e*f^3 + (b^2*c^4 - 2*a*b*c^
3*d + a^2*c^2*d^2)*f^4)*sqrt((d*e - c*f)/d)*log((d*f*x + 2*d*e -
c*f - 2*sqrt(f*x + e)*d*sqrt((d*e - c*f)/d))/(d*x + c)) + 2*(35*b
^2*d^4*f^4*x^4 - 10*b^2*d^4*e^4 - 45*(b^2*c*d^3 - 2*a*b*d^4)*e^3*
f + 483*(b^2*c^2*d^2 - 2*a*b*c*d^3 + a^2*d^4)*e^2*f^2 - 735*(b^2*
c^3*d - 2*a*b*c^2*d^2 + a^2*c*d^3)*e*f^3 + 315*(b^2*c^4 - 2*a*b*c
^3*d + a^2*c^2*d^2)*f^4 + 5*(19*b^2*d^4*e*f^3 - 9*(b^2*c*d^3 - 2*
a*b*d^4)*f^4)*x^3 + 3*(25*b^2*d^4*e^2*f^2 - 45*(b^2*c*d^3 - 2*a*b
*d^4)*e*f^3 + 21*(b^2*c^2*d^2 - 2*a*b*c*d^3 + a^2*d^4)*f^4)*x^2 +
 (5*b^2*d^4*e^3*f - 135*(b^2*c*d^3 - 2*a*b*d^4)*e^2*f^2 + 231*(b^
2*c^2*d^2 - 2*a*b*c*d^3 + a^2*d^4)*e*f^3 - 105*(b^2*c^3*d - 2*a*b
*c^2*d^2 + a^2*c*d^3)*f^4)*x)*sqrt(f*x + e))/(d^5*f^2), -2/315*(3
15*((b^2*c^2*d^2 - 2*a*b*c*d^3 + a^2*d^4)*e^2*f^2 - 2*(b^2*c^3*d
- 2*a*b*c^2*d^2 + a^2*c*d^3)*e*f^3 + (b^2*c^4 - 2*a*b*c^3*d + a^2
*c^2*d^2)*f^4)*sqrt(-(d*e - c*f)/d)*arctan(sqrt(f*x + e)/sqrt(-(d
*e - c*f)/d)) - (35*b^2*d^4*f^4*x^4 - 10*b^2*d^4*e^4 - 45*(b^2*c*
d^3 - 2*a*b*d^4)*e^3*f + 483*(b^2*c^2*d^2 - 2*a*b*c*d^3 + a^2*d^4
)*e^2*f^2 - 735*(b^2*c^3*d - 2*a*b*c^2*d^2 + a^2*c*d^3)*e*f^3 + 3
15*(b^2*c^4 - 2*a*b*c^3*d + a^2*c^2*d^2)*f^4 + 5*(19*b^2*d^4*e*f^
3 - 9*(b^2*c*d^3 - 2*a*b*d^4)*f^4)*x^3 + 3*(25*b^2*d^4*e^2*f^2 -
45*(b^2*c*d^3 - 2*a*b*d^4)*e*f^3 + 21*(b^2*c^2*d^2 - 2*a*b*c*d^3
+ a^2*d^4)*f^4)*x^2 + (5*b^2*d^4*e^3*f - 135*(b^2*c*d^3 - 2*a*b*d
^4)*e^2*f^2 + 231*(b^2*c^2*d^2 - 2*a*b*c*d^3 + a^2*d^4)*e*f^3 - 1
05*(b^2*c^3*d - 2*a*b*c^2*d^2 + a^2*c*d^3)*f^4)*x)*sqrt(f*x + e))
/(d^5*f^2)]
```

Sympy [A] time = 138.01, size = 493, normalized size = 2.37

$$\frac{2b^2(e+fx)^{\frac{9}{2}}}{9df^2}+\frac{(e+fx)^{\frac{7}{2}}\left(4abdf-2b^2cf-2b^2de\right)}{7d^2f^2}+\frac{(e+fx)^{\frac{5}{2}}\left(2a^2d^2-4abcd+2b^2c^2\right)}{5d^3}$$
$$+\frac{(e+fx)^{\frac{3}{2}}\left(-2a^2cd^2f+2a^2d^3e+4abc^2df-4abcd^2e-2b^2c^3f+2b^2c^2de\right)}{3d^4}$$
$$+\frac{\sqrt{e+fx}\left(2a^2c^2d^2f^2-4a^2cd^3ef+2a^2d^4e^2-4abc^3df^2+8abc^2d^2ef-4abcd^3e^2+2b^2c^4f^2-4b^2c^3def+2b^2c^2d^2e^2\right)}{d^5}$$
$$-\frac{2(ad-bc)^2(cf-de)^3\left(\begin{cases}\frac{\operatorname{atan}\left(\frac{\sqrt{e+fx}}{\sqrt{\frac{cf-de}{d}}}\right)}{d\sqrt{\frac{cf-de}{d}}} & \text{for}\ \frac{cf-de}{d}>0\\ -\frac{\operatorname{acoth}\left(\frac{\sqrt{e+fx}}{\sqrt{\frac{-cf+de}{d}}}\right)}{d\sqrt{\frac{-cf+de}{d}}} & \text{for}\ e+fx>\frac{-cf+de}{d}\wedge\frac{cf-de}{d}<0\\ -\frac{\operatorname{atanh}\left(\frac{\sqrt{e+fx}}{\sqrt{\frac{-cf+de}{d}}}\right)}{d\sqrt{\frac{-cf+de}{d}}} & \text{for}\ \frac{cf-de}{d}<0\wedge e+fx<\frac{-cf+de}{d}\end{cases}\right)}{d^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**2*(f*x+e)**(5/2)/(d*x+c),x)
```

```
[Out] 2*b**2*(e + f*x)**(9/2)/(9*d*f**2) + (e + f*x)**(7/2)*(4*a*b*d*f
- 2*b**2*c*f - 2*b**2*d*e)/(7*d**2*f**2) + (e + f*x)**(5/2)*(2*a*
*2*d**2 - 4*a*b*c*d + 2*b**2*c**2)/(5*d**3) + (e + f*x)**(3/2)*(-
2*a**2*c*d**2*f + 2*a**2*d**3*e + 4*a*b*c**2*d*f - 4*a*b*c*d**2*e
 - 2*b**2*c**3*f + 2*b**2*c**2*d*e)/(3*d**4) + sqrt(e + f*x)*(2*a
**2*c**2*d**2*f**2 - 4*a**2*c*d**3*e*f + 2*a**2*d**4*e**2 - 4*a*b
*c**3*d*f**2 + 8*a*b*c**2*d**2*e*f - 4*a*b*c*d**3*e**2 + 2*b**2*c
**4*f**2 - 4*b**2*c**3*d*e*f + 2*b**2*c**2*d**2*e**2)/d**5 - 2*(a
*d - b*c)**2*(c*f - d*e)**3*Piecewise((atan(sqrt(e + f*x)/sqrt((c
*f - d*e)/d))/(d*sqrt((c*f - d*e)/d)), (c*f - d*e)/d > 0), (-acot
h(sqrt(e + f*x)/sqrt((-c*f + d*e)/d))/(d*sqrt((-c*f + d*e)/d)), (
(c*f - d*e)/d < 0) & (e + f*x > (-c*f + d*e)/d)), (-atanh(sqrt(e
+ f*x)/sqrt((-c*f + d*e)/d))/(d*sqrt((-c*f + d*e)/d)), ((c*f - d*
e)/d < 0) & (e + f*x < (-c*f + d*e)/d)))/d**5
```

GIAC/XCAS [A] time = 0.231479, size = 909, normalized size = 4.37

$$-\frac{2\left(b^2c^5f^3 - 2\,abc^4df^3 + a^2c^3d^2f^3 - 3\,b^2c^4df^2e + 6\,abc^3d^2f^2e - 3\,a^2c^2d^3f^2e + 3\,b^2c^3d^2fe^2 - 6\,abc^2d^3fe^2 + 3\,a^2cd^4fe^2 -\right.}{\sqrt{cdf - d^2e}d^5}$$

$$+\frac{2\left(35\,(fx+e)^{\frac{9}{2}}b^2d^8f^{16} - 45\,(fx+e)^{\frac{7}{2}}b^2cd^7f^{17} + 90\,(fx+e)^{\frac{7}{2}}abd^8f^{17} + 63\,(fx+e)^{\frac{5}{2}}b^2c^2d^6f^{18} - 126\,(fx+e)^{\frac{5}{2}}abcd^7f^{18}\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^2*(f*x + e)^(5/2)/(d*x + c),x, algorithm="giac")
```

```
[Out] -2*(b^2*c^5*f^3 - 2*a*b*c^4*d*f^3 + a^2*c^3*d^2*f^3 - 3*b^2*c^4*d
*f^2*e + 6*a*b*c^3*d^2*f^2*e - 3*a^2*c^2*d^3*f^2*e + 3*b^2*c^3*d^
2*f*e^2 - 6*a*b*c^2*d^3*f*e^2 + 3*a^2*c*d^4*f*e^2 - b^2*c^2*d^3*e
^3 + 2*a*b*c*d^4*e^3 - a^2*d^5*e^3)*arctan(sqrt(f*x + e)*d/sqrt(c
*d*f - d^2*e))/(sqrt(c*d*f - d^2*e)*d^5) + 2/315*(35*(f*x + e)^(9
/2)*b^2*d^8*f^16 - 45*(f*x + e)^(7/2)*b^2*c*d^7*f^17 + 90*(f*x +
e)^(7/2)*a*b*d^8*f^17 + 63*(f*x + e)^(5/2)*b^2*c^2*d^6*f^18 - 126
*(f*x + e)^(5/2)*a*b*c*d^7*f^18 + 63*(f*x + e)^(5/2)*a^2*d^8*f^18
 - 105*(f*x + e)^(3/2)*b^2*c^3*d^5*f^19 + 210*(f*x + e)^(3/2)*a*b
*c^2*d^6*f^19 - 105*(f*x + e)^(3/2)*a^2*c*d^7*f^19 + 315*sqrt(f*x
 + e)*b^2*c^4*d^4*f^20 - 630*sqrt(f*x + e)*a*b*c^3*d^5*f^20 + 315
*sqrt(f*x + e)*a^2*c^2*d^6*f^20 - 45*(f*x + e)^(7/2)*b^2*d^8*f^16
*e + 105*(f*x + e)^(3/2)*b^2*c^2*d^6*f^18*e - 210*(f*x + e)^(3/2)
*a*b*c*d^7*f^18*e + 105*(f*x + e)^(3/2)*a^2*d^8*f^18*e - 630*sqrt
(f*x + e)*b^2*c^3*d^5*f^19*e + 1260*sqrt(f*x + e)*a*b*c^2*d^6*f^1
9*e - 630*sqrt(f*x + e)*a^2*c*d^7*f^19*e + 315*sqrt(f*x + e)*b^2*
c^2*d^6*f^18*e^2 - 630*sqrt(f*x + e)*a*b*c*d^7*f^18*e^2 + 315*sqr
t(f*x + e)*a^2*d^8*f^18*e^2)/(d^9*f^18)
```

3.1758 $\int \frac{(a+bx)^2(e+fx)^{3/2}}{c+dx}\,dx$

Optimal. Leaf size=172

$$-\frac{2(bc-ad)^2(de-cf)^{3/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{9/2}}+\frac{2\sqrt{e+fx}(bc-ad)^2(de-cf)}{d^4}+\frac{2(e+fx)^{3/2}(bc-ad)^2}{3d^3}-\frac{2b(e+fx)^{5/2}(-2adf+bcf+bde)}{5d^2f^2}+\frac{2b^2(e+fx)^{7/2}}{7df^2}$$

```
[Out] (2*(b*c - a*d)^2*(d*e - c*f)*Sqrt[e + f*x])/d^4 + (2*(b*c - a*d)^
2*(e + f*x)^(3/2))/(3*d^3) - (2*b*(b*d*e + b*c*f - 2*a*d*f)*(e +
f*x)^(5/2))/(5*d^2*f^2) + (2*b^2*(e + f*x)^(7/2))/(7*d*f^2) - (2*
(b*c - a*d)^2*(d*e - c*f)^(3/2)*ArcTanh[(Sqrt[d]*Sqrt[e + f*x])/S
qrt[d*e - c*f]])/d^(9/2)
```

Rubi [A] time = 0.333745, antiderivative size = 172, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$-\frac{2(bc-ad)^2(de-cf)^{3/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{9/2}}+\frac{2\sqrt{e+fx}(bc-ad)^2(de-cf)}{d^4}+\frac{2(e+fx)^{3/2}(bc-ad)^2}{3d^3}-\frac{2b(e+fx)^{5/2}(-2adf+bcf+bde)}{5d^2f^2}+\frac{2b^2(e+fx)^{7/2}}{7df^2}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^2*(e + f*x)^(3/2))/(c + d*x),x]
```

```
[Out] (2*(b*c - a*d)^2*(d*e - c*f)*Sqrt[e + f*x])/d^4 + (2*(b*c - a*d)^
2*(e + f*x)^(3/2))/(3*d^3) - (2*b*(b*d*e + b*c*f - 2*a*d*f)*(e +
f*x)^(5/2))/(5*d^2*f^2) + (2*b^2*(e + f*x)^(7/2))/(7*d*f^2) - (2*
(b*c - a*d)^2*(d*e - c*f)^(3/2)*ArcTanh[(Sqrt[d]*Sqrt[e + f*x])/S
qrt[d*e - c*f]])/d^(9/2)
```

Rubi in Sympy [A] time = 45.6134, size = 160, normalized size = 0.93

$$\frac{2b^2\left(e+fx\right)^{\frac{7}{2}}}{7df^2}+\frac{2b\left(e+fx\right)^{\frac{5}{2}}\left(2adf-bcf-bde\right)}{5d^2f^2}+\frac{2\left(e+fx\right)^{\frac{3}{2}}\left(ad-bc\right)^2}{3d^3}-\frac{2\sqrt{e+fx}\left(ad-bc\right)^2\left(cf-de\right)}{d^4}+\frac{2\left(ad-bc\right)^2\left(cf-de\right)^{\frac{3}{2}}\operatorname{atan}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{cf-de}}\right)}{d^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**2*(f*x+e)**(3/2)/(d*x+c),x)
```

```
[Out] 2*b**2*(e + f*x)**(7/2)/(7*d*f**2) + 2*b*(e + f*x)**(5/2)*(2*a*d*
f - b*c*f - b*d*e)/(5*d**2*f**2) + 2*(e + f*x)**(3/2)*(a*d - b*c)
**2/(3*d**3) - 2*sqrt(e + f*x)*(a*d - b*c)**2*(c*f - d*e)/d**4 +
2*(a*d - b*c)**2*(c*f - d*e)**(3/2)*atan(sqrt(d)*sqrt(e + f*x)/sq
rt(c*f - d*e))/d**(9/2)
```

Mathematica [A] time = 0.51647, size = 204, normalized size = 1.19

$$\frac{2\sqrt{e+fx}\left(35a^2d^2f^2(-3cf+4de+dfx)+14abdf\left(15c^2f^2-5cdf(4e+fx)+3d^2(e+fx)^2\right)+b^2\left(-105c^3f^3+35c^2df^2(4e\right.\right.}{105d^4f^2}$$

$$-\frac{2(bc-ad)^2(de-cf)^{3/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^2*(e + f*x)^(3/2))/(c + d*x),x]
```

```
[Out] (2*Sqrt[e + f*x]*(35*a^2*d^2*f^2*(4*d*e - 3*c*f + d*f*x) + 14*a*b
*d*f*(15*c^2*f^2 + 3*d^2*(e + f*x)^2 - 5*c*d*f*(4*e + f*x)) + b^2
*(-105*c^3*f^3 - 21*c*d^2*f*(e + f*x)^2 - 3*d^3*(2*e - 5*f*x)*(e
+ f*x)^2 + 35*c^2*d*f^2*(4*e + f*x))))/(105*d^4*f^2) - (2*(b*c -
a*d)^2*(d*e - c*f)^(3/2)*ArcTanh[(Sqrt[d]*Sqrt[e + f*x])/Sqrt[d*e
 - c*f]])/d^(9/2)
```

Maple [B] time = 0.02, size = 644, normalized size = 3.7

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^2*(f*x+e)^(3/2)/(d*x+c),x)
```

```
[Out] 2/7*b^2*(f*x+e)^(7/2)/d/f^2+4/5/f/d*(f*x+e)^(5/2)*a*b-2/5/f/d^2*(
f*x+e)^(5/2)*b^2*c-2/5/f^2/d*(f*x+e)^(5/2)*b^2*e+2/3/d*(f*x+e)^(3
/2)*a^2-4/3/d^2*(f*x+e)^(3/2)*a*b*c+2/3/d^3*(f*x+e)^(3/2)*b^2*c^2
-2*f/d^2*a^2*c*(f*x+e)^(1/2)+2/d*a^2*e*(f*x+e)^(1/2)+4*f/d^3*a*b*
c^2*(f*x+e)^(1/2)-4/d^2*a*b*c*e*(f*x+e)^(1/2)-2*f/d^4*b^2*c^3*(f*
x+e)^(1/2)+2/d^3*b^2*c^2*e*(f*x+e)^(1/2)+2*f^2/d^2/((c*f-d*e)*d)^
(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a^2*c^2-4*f/d/(
(c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a^
2*c*e+2/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^
(1/2))*a^2*e^2-4*f^2/d^3/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)
*d/((c*f-d*e)*d)^(1/2))*a*b*c^3+8*f/d^2/((c*f-d*e)*d)^(1/2)*arcta
n((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a*b*c^2*e-4/d/((c*f-d*e)*d
)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a*b*c*e^2+2*f
^2/d^4/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(
1/2))*b^2*c^4-4*f/d^3/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/
((c*f-d*e)*d)^(1/2))*b^2*c^3*e+2/d^2/((c*f-d*e)*d)^(1/2)*arctan((
f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*b^2*c^2*e^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^2*(f*x + e)^(3/2)/(d*x + c),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.228018, size = 1, normalized size = 0.01

$$\left[-\frac{105\left(\left(b^2c^2d-2\,abcd^2+a^2d^3\right)ef^2-\left(b^2c^3-2\,abc^2d+a^2cd^2\right)f^3\right)\sqrt{\frac{de-cf}{d}}\log\left(\frac{dfx+2\,de-cf+2\,\sqrt{fx+e}d\sqrt{\frac{de-cf}{d}}}{dx+c}\right)-2\left(15\,b^2d^3\right.}{}\right.$$

$$-\frac{2\left(105\left(\left(b^2c^2d-2\,abcd^2+a^2d^3\right)ef^2-\left(b^2c^3-2\,abc^2d+a^2cd^2\right)f^3\right)\sqrt{-\frac{de-cf}{d}}\arctan\left(\frac{\sqrt{fx+e}}{\sqrt{-\frac{de-cf}{d}}}\right)-\left(15\,b^2d^3f^3x^3-6\,b^2d^3\right.\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^2*(f*x + e)^(3/2)/(d*x + c),x, algorithm="fricas")
```

```
[Out] [-1/105*(105*((b^2*c^2*d - 2*a*b*c*d^2 + a^2*d^3)*e*f^2 - (b^2*c^
3 - 2*a*b*c^2*d + a^2*c*d^2)*f^3)*sqrt((d*e - c*f)/d)*log((d*f*x
+ 2*d*e - c*f + 2*sqrt(f*x + e)*d*sqrt((d*e - c*f)/d))/(d*x + c))
 - 2*(15*b^2*d^3*f^3*x^3 - 6*b^2*d^3*e^3 - 21*(b^2*c*d^2 - 2*a*b*
d^3)*e^2*f + 140*(b^2*c^2*d - 2*a*b*c*d^2 + a^2*d^3)*e*f^2 - 105*
(b^2*c^3 - 2*a*b*c^2*d + a^2*c*d^2)*f^3 + 3*(8*b^2*d^3*e*f^2 - 7*
(b^2*c*d^2 - 2*a*b*d^3)*f^3)*x^2 + (3*b^2*d^3*e^2*f - 42*(b^2*c*d
^2 - 2*a*b*d^3)*e*f^2 + 35*(b^2*c^2*d - 2*a*b*c*d^2 + a^2*d^3)*f^
3)*x)*sqrt(f*x + e))/(d^4*f^2), -2/105*(105*((b^2*c^2*d - 2*a*b*c
*d^2 + a^2*d^3)*e*f^2 - (b^2*c^3 - 2*a*b*c^2*d + a^2*c*d^2)*f^3)*
sqrt(-(d*e - c*f)/d)*arctan(sqrt(f*x + e)/sqrt(-(d*e - c*f)/d)) -
 (15*b^2*d^3*f^3*x^3 - 6*b^2*d^3*e^3 - 21*(b^2*c*d^2 - 2*a*b*d^3)
*e^2*f + 140*(b^2*c^2*d - 2*a*b*c*d^2 + a^2*d^3)*e*f^2 - 105*(b^2
*c^3 - 2*a*b*c^2*d + a^2*c*d^2)*f^3 + 3*(8*b^2*d^3*e*f^2 - 7*(b^2
*c*d^2 - 2*a*b*d^3)*f^3)*x^2 + (3*b^2*d^3*e^2*f - 42*(b^2*c*d^2 -
 2*a*b*d^3)*e*f^2 + 35*(b^2*c^2*d - 2*a*b*c*d^2 + a^2*d^3)*f^3)*x
)*sqrt(f*x + e))/(d^4*f^2)]
```

Sympy [A] time = 76.7458, size = 355, normalized size = 2.06

$$\frac{2b^2\left(e+fx\right)^{\frac{7}{2}}}{7df^2}+\frac{\left(e+fx\right)^{\frac{5}{2}}\left(4abdf-2b^2cf-2b^2de\right)}{5d^2f^2}+\frac{\left(e+fx\right)^{\frac{3}{2}}\left(2a^2d^2-4abcd+2b^2c^2\right)}{3d^3}+\frac{\sqrt{e+fx}\left(-2a^2cd^2f+2a^2d^3e+4abc^2df-4abcd^2e-2b^2c^3f+2b^2c^2de\right)}{d^4}+\frac{2\left(ad-bc\right)^2\left(cf-de\right)^2\left(\begin{cases}\frac{\operatorname{atan}\left(\frac{\sqrt{e+fx}}{\sqrt{\frac{cf-de}{d}}}\right)}{d\sqrt{\frac{cf-de}{d}}} & \text{for}\ \frac{cf-de}{d}>0\\ -\frac{\operatorname{acoth}\left(\frac{\sqrt{e+fx}}{\sqrt{\frac{-cf+de}{d}}}\right)}{d\sqrt{\frac{-cf+de}{d}}} & \text{for}\ e+fx>\frac{-cf+de}{d}\wedge\frac{cf-de}{d}<0\\ -\frac{\operatorname{atanh}\left(\frac{\sqrt{e+fx}}{\sqrt{\frac{-cf+de}{d}}}\right)}{d\sqrt{\frac{-cf+de}{d}}} & \text{for}\ \frac{cf-de}{d}<0\wedge e+fx<\frac{-cf+de}{d}\end{cases}\right)}{d^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**2*(f*x+e)**(3/2)/(d*x+c),x)
```

```
[Out] 2*b**2*(e + f*x)**(7/2)/(7*d*f**2) + (e + f*x)**(5/2)*(4*a*b*d*f
- 2*b**2*c*f - 2*b**2*d*e)/(5*d**2*f**2) + (e + f*x)**(3/2)*(2*a*
*2*d**2 - 4*a*b*c*d + 2*b**2*c**2)/(3*d**3) + sqrt(e + f*x)*(-2*a
**2*c*d**2*f + 2*a**2*d**3*e + 4*a*b*c**2*d*f - 4*a*b*c*d**2*e -
2*b**2*c**3*f + 2*b**2*c**2*d*e)/d**4 + 2*(a*d - b*c)**2*(c*f - d
```

```
*e)**2*Piecewise((atan(sqrt(e + f*x)/sqrt((c*f - d*e)/d))/(d*sqrt
((c*f - d*e)/d)), (c*f - d*e)/d > 0), (-acoth(sqrt(e + f*x)/sqrt(
(-c*f + d*e)/d))/(d*sqrt((-c*f + d*e)/d)), ((c*f - d*e)/d < 0) &
(e + f*x > (-c*f + d*e)/d)), (-atanh(sqrt(e + f*x)/sqrt((-c*f + d
*e)/d))/(d*sqrt((-c*f + d*e)/d)), ((c*f - d*e)/d < 0) & (e + f*x
< (-c*f + d*e)/d)))/d**4
```

GIAC/XCAS [A] time = 0.223798, size = 572, normalized size = 3.33

$$\frac{2\left(b^2c^4f^2 - 2\,abc^3df^2 + a^2c^2d^2f^2 - 2\,b^2c^3dfe + 4\,abc^2d^2fe - 2\,a^2cd^3fe + b^2c^2d^2e^2 - 2\,abcd^3e^2 + a^2d^4e^2\right)\arctan\left(\frac{\sqrt{fx+e}}{\sqrt{cdf-d}}\right.}{\sqrt{cdf-d^2e}d^4} + \frac{2\left(15\,(fx+e)^{\frac{7}{2}}b^2d^6f^{12} - 21\,(fx+e)^{\frac{5}{2}}b^2cd^5f^{13} + 42\,(fx+e)^{\frac{5}{2}}abd^6f^{13} + 35\,(fx+e)^{\frac{3}{2}}b^2c^2d^4f^{14} - 70\,(fx+e)^{\frac{3}{2}}abcd^5f^{14} + \right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^2*(f*x + e)^(3/2)/(d*x + c),x, algorithm="giac")
```

```
[Out] 2*(b^2*c^4*f^2 - 2*a*b*c^3*d*f^2 + a^2*c^2*d^2*f^2 - 2*b^2*c^3*d*
f*e + 4*a*b*c^2*d^2*f*e - 2*a^2*c*d^3*f*e + b^2*c^2*d^2*e^2 - 2*a
*b*c*d^3*e^2 + a^2*d^4*e^2)*arctan(sqrt(f*x + e)*d/sqrt(c*d*f - d
^2*e))/(sqrt(c*d*f - d^2*e)*d^4) + 2/105*(15*(f*x + e)^(7/2)*b^2*
d^6*f^12 - 21*(f*x + e)^(5/2)*b^2*c*d^5*f^13 + 42*(f*x + e)^(5/2)
*a*b*d^6*f^13 + 35*(f*x + e)^(3/2)*b^2*c^2*d^4*f^14 - 70*(f*x + e
)^(3/2)*a*b*c*d^5*f^14 + 35*(f*x + e)^(3/2)*a^2*d^6*f^14 - 105*sq
rt(f*x + e)*b^2*c^3*d^3*f^15 + 210*sqrt(f*x + e)*a*b*c^2*d^4*f^15
 - 105*sqrt(f*x + e)*a^2*c*d^5*f^15 - 21*(f*x + e)^(5/2)*b^2*d^6*
f^12*e + 105*sqrt(f*x + e)*b^2*c^2*d^4*f^14*e - 210*sqrt(f*x + e)
*a*b*c*d^5*f^14*e + 105*sqrt(f*x + e)*a^2*d^6*f^14*e)/(d^7*f^14)
```

3.1759 $\int \frac{(a+bx)^2\sqrt{e+fx}}{c+dx}\,dx$

Optimal. Leaf size=138

$$-\frac{2(bc-ad)^2\sqrt{de-cf}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{7/2}}+\frac{2\sqrt{e+fx}(bc-ad)^2}{d^3}-\frac{2b(e+fx)^{3/2}(-2adf+bcf+bde)}{3d^2f^2}+\frac{2b^2(e+fx)^{5/2}}{5df^2}$$

```
[Out] (2*(b*c - a*d)^2*Sqrt[e + f*x])/d^3 - (2*b*(b*d*e + b*c*f - 2*a*d
*f)*(e + f*x)^(3/2))/(3*d^2*f^2) + (2*b^2*(e + f*x)^(5/2))/(5*d*f
^2) - (2*(b*c - a*d)^2*Sqrt[d*e - c*f]*ArcTanh[(Sqrt[d]*Sqrt[e +
f*x])/Sqrt[d*e - c*f]])/d^(7/2)
```

Rubi [A] time = 0.253491, antiderivative size = 138, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$-\frac{2(bc-ad)^2\sqrt{de-cf}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{7/2}}+\frac{2\sqrt{e+fx}(bc-ad)^2}{d^3}-\frac{2b(e+fx)^{3/2}(-2adf+bcf+bde)}{3d^2f^2}+\frac{2b^2(e+fx)^{5/2}}{5df^2}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^2*Sqrt[e + f*x])/(c + d*x),x]
```

```
[Out] (2*(b*c - a*d)^2*Sqrt[e + f*x])/d^3 - (2*b*(b*d*e + b*c*f - 2*a*d
*f)*(e + f*x)^(3/2))/(3*d^2*f^2) + (2*b^2*(e + f*x)^(5/2))/(5*d*f
^2) - (2*(b*c - a*d)^2*Sqrt[d*e - c*f]*ArcTanh[(Sqrt[d]*Sqrt[e +
f*x])/Sqrt[d*e - c*f]])/d^(7/2)
```

Rubi in Sympy [A] time = 36.9727, size = 129, normalized size = 0.93

$$\frac{2b^2\,(e+fx)^{\frac{5}{2}}}{5df^2}+\frac{2b\,(e+fx)^{\frac{3}{2}}\,(2adf-bcf-bde)}{3d^2f^2}+\frac{2\sqrt{e+fx}\,(ad-bc)^2}{d^3}-\frac{2\,(ad-bc)^2\,\sqrt{cf-de}\,\operatorname{atan}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{cf-de}}\right)}{d^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**2*(f*x+e)**(1/2)/(d*x+c),x)
```

```
[Out] 2*b**2*(e + f*x)**(5/2)/(5*d*f**2) + 2*b*(e + f*x)**(3/2)*(2*a*d*
f - b*c*f - b*d*e)/(3*d**2*f**2) + 2*sqrt(e + f*x)*(a*d - b*c)**2
/d**3 - 2*(a*d - b*c)**2*sqrt(c*f - d*e)*atan(sqrt(d)*sqrt(e + f*
x)/sqrt(c*f - d*e))/d**(7/2)
```

Mathematica [A] time = 0.203872, size = 152, normalized size = 1.1

$$\frac{2\sqrt{e+fx}\left(15a^2d^2f^2+10abdf(d(e+fx)-3cf)+b^2\left(15c^2f^2-5cdf(e+fx)+d^2\left(-2e^2+efx+3f^2x^2\right)\right)\right)}{15d^3f^2}-\frac{2(bc-ad)^2\sqrt{de-cf}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^2*Sqrt[e + f*x])/(c + d*x),x]
```

```
[Out] (2*Sqrt[e + f*x]*(15*a^2*d^2*f^2 + 10*a*b*d*f*(-3*c*f + d*(e + f*
x)) + b^2*(15*c^2*f^2 - 5*c*d*f*(e + f*x) + d^2*(-2*e^2 + e*f*x +
 3*f^2*x^2))))/(15*d^3*f^2) - (2*(b*c - a*d)^2*Sqrt[d*e - c*f]*Ar
cTanh[(Sqrt[d]*Sqrt[e + f*x])/Sqrt[d*e - c*f]])/d^(7/2)
```

Maple [B] time = 0.017, size = 387, normalized size = 2.8

$$\frac{2b^2}{5df^2}(fx+e)^{\frac{5}{2}}+\frac{4ab}{3df}(fx+e)^{\frac{3}{2}}-\frac{2b^2c}{3fd^2}(fx+e)^{\frac{3}{2}}-\frac{2b^2e}{3df^2}(fx+e)^{\frac{3}{2}}+2\frac{a^2\sqrt{fx+e}}{d}-4\frac{abc\sqrt{fx+e}}{d^2}+2\frac{b^2c^2\sqrt{fx+e}}{d^3}-2\frac{a^2fc}{d\sqrt{(cf-de)d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)d}}\right)+2\frac{a^2e}{\sqrt{(cf-de)d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)d}}\right)+4\frac{bfac^2}{d^2\sqrt{(cf-de)d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)d}}\right)-4\frac{abce}{d\sqrt{(cf-de)d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)d}}\right)-2\frac{b^2c^3f}{d^3\sqrt{(cf-de)d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)d}}\right)+2\frac{b^2c^2e}{d^2\sqrt{(cf-de)d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)d}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^2*(f*x+e)^(1/2)/(d*x+c),x)
```

```
[Out] 2/5*b^2*(f*x+e)^(5/2)/d/f^2+4/3/f/d*(f*x+e)^(3/2)*a*b-2/3/f/d^2*(
f*x+e)^(3/2)*b^2*c-2/3/f^2/d*(f*x+e)^(3/2)*b^2*e+2/d*a^2*(f*x+e)^
(1/2)-4/d^2*a*b*c*(f*x+e)^(1/2)+2/d^3*b^2*c^2*(f*x+e)^(1/2)-2*f/d
/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*
a^2*c+2/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^
(1/2))*a^2*e+4*f/d^2/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/(
(c*f-d*e)*d)^(1/2))*a*b*c^2-4/d/((c*f-d*e)*d)^(1/2)*arctan((f*x+e
)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a*b*c*e-2*f/d^3/((c*f-d*e)*d)^(1/2
)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*b^2*c^3+2/d^2/((c*f
-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*b^2*c^
2*e
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^2*sqrt(f*x + e)/(d*x + c),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.224154, size = 1, normalized size = 0.01

$$\left[\frac{15\left(b^2c^2-2\,abcd+a^2d^2\right)f^2\sqrt{\frac{de-cf}{d}}\log\left(\frac{dfx+2\,de-cf-2\,\sqrt{fx+e}d\sqrt{\frac{de-cf}{d}}}{dx+c}\right)+2\left(3\,b^2d^2f^2x^2-2\,b^2d^2e^2-5\left(b^2cd-2\,abd^2\right)ef\right.}{15\,d^3f^2}\right.$$

$$-\frac{2\left(15\left(b^2c^2-2\,abcd+a^2d^2\right)f^2\sqrt{-\frac{de-cf}{d}}\arctan\left(\frac{\sqrt{fx+e}}{\sqrt{-\frac{de-cf}{d}}}\right)-\left(3\,b^2d^2f^2x^2-2\,b^2d^2e^2-5\left(b^2cd-2\,abd^2\right)ef+15\left(b^2c^2-\right.\right.\right.}{15\,d^3f^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^2*sqrt(f*x + e)/(d*x + c),x, algorithm="fricas")
```

```
[Out] [1/15*(15*(b^2*c^2 - 2*a*b*c*d + a^2*d^2)*f^2*sqrt((d*e - c*f)/d)
*log((d*f*x + 2*d*e - c*f - 2*sqrt(f*x + e)*d*sqrt((d*e - c*f)/d)
)/(d*x + c)) + 2*(3*b^2*d^2*f^2*x^2 - 2*b^2*d^2*e^2 - 5*(b^2*c*d
- 2*a*b*d^2)*e*f + 15*(b^2*c^2 - 2*a*b*c*d + a^2*d^2)*f^2 + (b^2*
d^2*e*f - 5*(b^2*c*d - 2*a*b*d^2)*f^2)*x)*sqrt(f*x + e))/(d^3*f^2
), -2/15*(15*(b^2*c^2 - 2*a*b*c*d + a^2*d^2)*f^2*sqrt(-(d*e - c*f
)/d)*arctan(sqrt(f*x + e)/sqrt(-(d*e - c*f)/d)) - (3*b^2*d^2*f^2*
x^2 - 2*b^2*d^2*e^2 - 5*(b^2*c*d - 2*a*b*d^2)*e*f + 15*(b^2*c^2 -
 2*a*b*c*d + a^2*d^2)*f^2 + (b^2*d^2*e*f - 5*(b^2*c*d - 2*a*b*d^2
)*f^2)*x)*sqrt(f*x + e))/(d^3*f^2)]
```

Sympy [A] time = 13.9607, size = 274, normalized size = 1.99

$$\frac{2\left(\frac{b^2(e+fx)^{\frac{5}{2}}}{5df}+\frac{(e+fx)^{\frac{3}{2}}\left(2abdf-b^2cf-b^2de\right)}{3d^2f}-\frac{f(ad-bc)^2(cf-de)\begin{cases}\frac{\operatorname{atan}\left(\frac{\sqrt{e+fx}}{\sqrt{\frac{cf-de}{d}}}\right)}{d\sqrt{\frac{cf-de}{d}}} & \text{for}\ \frac{cf-de}{d}>0\\ -\frac{\operatorname{acoth}\left(\frac{\sqrt{e+fx}}{\sqrt{\frac{-cf+de}{d}}}\right)}{d\sqrt{\frac{-cf+de}{d}}} & \text{for}\ e+fx>\frac{-cf+de}{d}\wedge\frac{cf-de}{d}<0\\ -\frac{\operatorname{atanh}\left(\frac{\sqrt{e+fx}}{\sqrt{\frac{-cf+de}{d}}}\right)}{d\sqrt{\frac{-cf+de}{d}}} & \text{for}\ \frac{cf-de}{d}<0\wedge e+fx<\frac{-cf+de}{d}\end{cases}}{d^3}+\frac{\sqrt{e+fx}(a\cdots}{}\right.}{f}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**2*(f*x+e)**(1/2)/(d*x+c),x)
```

```
[Out] 2*(b**2*(e + f*x)**(5/2)/(5*d*f) + (e + f*x)**(3/2)*(2*a*b*d*f -
b**2*c*f - b**2*d*e)/(3*d**2*f) - f*(a*d - b*c)**2*(c*f - d*e)*Pi
ecewise((atan(sqrt(e + f*x)/sqrt((c*f - d*e)/d))/(d*sqrt((c*f - d
*e)/d)), (c*f - d*e)/d > 0), (-acoth(sqrt(e + f*x)/sqrt((-c*f + d
*e)/d))/(d*sqrt((-c*f + d*e)/d)), ((c*f - d*e)/d < 0) & (e + f*x
```

```
> (-c*f + d*e)/d)), (-atanh(sqrt(e + f*x)/sqrt((-c*f + d*e)/d))/(
d*sqrt((-c*f + d*e)/d)), ((c*f - d*e)/d < 0) & (e + f*x < (-c*f +
 d*e)/d)))/d**3 + sqrt(e + f*x)*(a**2*d**2*f - 2*a*b*c*d*f + b**2
*c**2*f)/d**3)/f
```

GIAC/XCAS [A] time = 0.217278, size = 338, normalized size = 2.45

$$-\frac{2\left(b^{2}c^{3}f-2\,abc^{2}df+a^{2}cd^{2}f-b^{2}c^{2}de+2\,abcd^{2}e-a^{2}d^{3}e\right)\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{cdf-d^{2}e}}\right)}{\sqrt{cdf-d^{2}e}d^{3}}+\frac{2\left(3\,(fx+e)^{\frac{5}{2}}b^{2}d^{4}f^{8}-5\,(fx+e)^{\frac{3}{2}}b^{2}cd^{3}f^{9}+10\,(fx+e)^{\frac{3}{2}}abd^{4}f^{9}+15\,\sqrt{fx+e}b^{2}c^{2}d^{2}f^{10}-30\,\sqrt{fx+e}abcd^{3}f^{10}+15\,\sqrt{f\cdots}\right)}{15\,d^{5}f^{10}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^2*sqrt(f*x + e)/(d*x + c),x, algorithm="giac")
```

```
[Out] -2*(b^2*c^3*f - 2*a*b*c^2*d*f + a^2*c*d^2*f - b^2*c^2*d*e + 2*a*b
*c*d^2*e - a^2*d^3*e)*arctan(sqrt(f*x + e)*d/sqrt(c*d*f - d^2*e))
/(sqrt(c*d*f - d^2*e)*d^3) + 2/15*(3*(f*x + e)^(5/2)*b^2*d^4*f^8
- 5*(f*x + e)^(3/2)*b^2*c*d^3*f^9 + 10*(f*x + e)^(3/2)*a*b*d^4*f^
9 + 15*sqrt(f*x + e)*b^2*c^2*d^2*f^10 - 30*sqrt(f*x + e)*a*b*c*d^
3*f^10 + 15*sqrt(f*x + e)*a^2*d^4*f^10 - 5*(f*x + e)^(3/2)*b^2*d^
4*f^8*e)/(d^5*f^10)
```

3.1760 $\int \frac{(a+bx)^2}{(c+dx)\sqrt{e+fx}}\,dx$

Optimal. Leaf size=112

$$-\frac{2(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{5/2}\sqrt{de-cf}}-\frac{2b\sqrt{e+fx}(-2adf+bcf+bde)}{d^2f^2}+\frac{2b^2(e+fx)^{3/2}}{3df^2}$$

```
[Out] (-2*b*(b*d*e + b*c*f - 2*a*d*f)*Sqrt[e + f*x])/(d^2*f^2) + (2*b^2
*(e + f*x)^(3/2))/(3*d*f^2) - (2*(b*c - a*d)^2*ArcTanh[(Sqrt[d]*S
qrt[e + f*x])/Sqrt[d*e - c*f]])/(d^(5/2)*Sqrt[d*e - c*f])
```

Rubi [A] time = 0.226745, antiderivative size = 112, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$-\frac{2(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{5/2}\sqrt{de-cf}}-\frac{2b\sqrt{e+fx}(-2adf+bcf+bde)}{d^2f^2}+\frac{2b^2(e+fx)^{3/2}}{3df^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^2/((c + d*x)*Sqrt[e + f*x]),x]
```

```
[Out] (-2*b*(b*d*e + b*c*f - 2*a*d*f)*Sqrt[e + f*x])/(d^2*f^2) + (2*b^2
*(e + f*x)^(3/2))/(3*d*f^2) - (2*(b*c - a*d)^2*ArcTanh[(Sqrt[d]*S
qrt[e + f*x])/Sqrt[d*e - c*f]])/(d^(5/2)*Sqrt[d*e - c*f])
```

Rubi in Sympy [A] time = 31.7234, size = 105, normalized size = 0.94

$$\frac{2b^2\left(e+fx\right)^{\frac{3}{2}}}{3df^2}+\frac{2b\sqrt{e+fx}\left(2adf-bcf-bde\right)}{d^2f^2}+\frac{2\left(ad-bc\right)^2\operatorname{atan}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{cf-de}}\right)}{d^{\frac{5}{2}}\sqrt{cf-de}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**2/(d*x+c)/(f*x+e)**(1/2),x)
```

```
[Out] 2*b**2*(e + f*x)**(3/2)/(3*d*f**2) + 2*b*sqrt(e + f*x)*(2*a*d*f -
 b*c*f - b*d*e)/(d**2*f**2) + 2*(a*d - b*c)**2*atan(sqrt(d)*sqrt(
e + f*x)/sqrt(c*f - d*e))/(d**(5/2)*sqrt(c*f - d*e))
```

Mathematica [A] time = 0.155697, size = 99, normalized size = 0.88

$$\frac{2b\sqrt{e+fx}(6adf+b(-3cf-2de+dfx))}{3d^2f^2}-\frac{2(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{5/2}\sqrt{de-cf}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^2/((c + d*x)*Sqrt[e + f*x]),x]
```

```
[Out] (2*b*Sqrt[e + f*x]*(6*a*d*f + b*(-2*d*e - 3*c*f + d*f*x)))/(3*d^2
*f^2) - (2*(b*c - a*d)^2*ArcTanh[(Sqrt[d]*Sqrt[e + f*x])/Sqrt[d*e
 - c*f]])/(d^(5/2)*Sqrt[d*e - c*f])
```

Maple [B] time = 0.015, size = 201, normalized size = 1.8

$$\frac{2\,b^{2}}{3\,d f^{2}}(f x+e)^{\frac{3}{2}}+4\,\frac{a b\sqrt{f x+e}}{d f}-2\,\frac{b^{2} c\sqrt{f x+e}}{f d^{2}}-2\,\frac{b^{2} e\sqrt{f x+e}}{d f^{2}}+2\,\frac{a^{2}}{\sqrt{(c f-d e)\,d}}\arctan\left(\frac{\sqrt{f x+e}\,d}{\sqrt{(c f-d e)\,d}}\right)-4\,\frac{a b c}{d\sqrt{(c f-d e)\,d}}\arctan\left(\frac{\sqrt{f x+e}\,d}{\sqrt{(c f-d e)\,d}}\right)+2\,\frac{b^{2} c^{2}}{d^{2}\sqrt{(c f-d e)\,d}}\arctan\left(\frac{\sqrt{f x+e}\,d}{\sqrt{(c f-d e)\,d}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^2/(d*x+c)/(f*x+e)^(1/2),x)
```

```
[Out] 2/3*b^2*(f*x+e)^(3/2)/d/f^2+4/f*b/d*a*(f*x+e)^(1/2)-2/f*b^2/d^2*c
*(f*x+e)^(1/2)-2/f^2*b^2/d*e*(f*x+e)^(1/2)+2/((c*f-d*e)*d)^(1/2)*
arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a^2-4/d/((c*f-d*e)*d)
^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a*b*c+2/d^2/((
c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*b^2
*c^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^2/((d*x + c)*sqrt(f*x + e)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.222352, size = 1, normalized size = 0.01

$$\left[\frac{3\left(b^{2} c^{2}-2\,a b c d+a^{2} d^{2}\right) f^{2} \log\left(\frac{\sqrt{d^{2} e-c d f}\,(d f x+2\,d e-c f)-2\left(d^{2} e-c d f\right)\sqrt{f x+e}}{d x+c}\right)+2\left(b^{2} d f x-2\,b^{2} d e-3\left(b^{2} c-2\,a b d\right) f\right)\sqrt{d^{2} e-}}{3\sqrt{d^{2} e-c d f}\,d^{2} f^{2}}\right.$$

$$-\frac{2\left(3\left(b^{2} c^{2}-2\,a b c d+a^{2} d^{2}\right) f^{2} \arctan\left(-\frac{d e-c f}{\sqrt{-d^{2} e+c d f}\sqrt{f x+e}}\right)-\left(b^{2} d f x-2\,b^{2} d e-3\left(b^{2} c-2\,a b d\right) f\right)\sqrt{-d^{2} e+c d f}\sqrt{f x+e}\right)}{3\sqrt{-d^{2} e+c d f}\,d^{2} f^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^2/((d*x + c)*sqrt(f*x + e)),x, algorithm="fricas")
```

```
[Out] [1/3*(3*(b^2*c^2 - 2*a*b*c*d + a^2*d^2)*f^2*log((sqrt(d^2*e - c*d
*f)*(d*f*x + 2*d*e - c*f) - 2*(d^2*e - c*d*f)*sqrt(f*x + e))/(d*x
 + c)) + 2*(b^2*d*f*x - 2*b^2*d*e - 3*(b^2*c - 2*a*b*d)*f)*sqrt(d
^2*e - c*d*f)*sqrt(f*x + e))/(sqrt(d^2*e - c*d*f)*d^2*f^2), -2/3*
(3*(b^2*c^2 - 2*a*b*c*d + a^2*d^2)*f^2*arctan(-(d*e - c*f)/(sqrt(
-d^2*e + c*d*f)*sqrt(f*x + e))) - (b^2*d*f*x - 2*b^2*d*e - 3*(b^2
*c - 2*a*b*d)*f)*sqrt(-d^2*e + c*d*f)*sqrt(f*x + e))/(sqrt(-d^2*e
 + c*d*f)*d^2*f^2)]
```

Sympy [A] time = 30.8499, size = 255, normalized size = 2.28

$$\frac{2b^2(e+fx)^{\frac{3}{2}}}{3df^2}+\frac{2b\sqrt{e+fx}\,(2adf-bcf-bde)}{d^2f^2}-\frac{2(ad-bc)^2\left(\begin{cases}\frac{\operatorname{atan}\left(\frac{1}{\sqrt{\frac{d}{cf-de}}\sqrt{e+fx}}\right)}{\sqrt{\frac{d}{cf-de}}(cf-de)} & \text{for}\ \frac{d}{cf-de}>0\\ -\frac{\operatorname{acoth}\left(\frac{1}{\sqrt{-\frac{d}{cf-de}}\sqrt{e+fx}}\right)}{\sqrt{-\frac{d}{cf-de}}(cf-de)} & \text{for}\ \frac{1}{e+fx}>-\frac{d}{cf-de}\wedge\frac{d}{cf-de}<0\\ -\frac{\operatorname{atanh}\left(\frac{1}{\sqrt{-\frac{d}{cf-de}}\sqrt{e+fx}}\right)}{\sqrt{-\frac{d}{cf-de}}(cf-de)} & \text{for}\ \frac{d}{cf-de}<0\wedge\frac{1}{e+fx}<-\frac{d}{cf-de}\end{cases}\right)}{d^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**2/(d*x+c)/(f*x+e)**(1/2),x)
```

```
[Out] 2*b**2*(e + f*x)**(3/2)/(3*d*f**2) + 2*b*sqrt(e + f*x)*(2*a*d*f -
 b*c*f - b*d*e)/(d**2*f**2) - 2*(a*d - b*c)**2*Piecewise((atan(1/
(sqrt(d/(c*f - d*e))*sqrt(e + f*x)))/(sqrt(d/(c*f - d*e))*(c*f -
d*e)), d/(c*f - d*e) > 0), (-acoth(1/(sqrt(-d/(c*f - d*e))*sqrt(e
 + f*x)))/(sqrt(-d/(c*f - d*e))*(c*f - d*e)), (d/(c*f - d*e) < 0)
 & (1/(e + f*x) > -d/(c*f - d*e))), (-atanh(1/(sqrt(-d/(c*f - d*e
))*sqrt(e + f*x)))/(sqrt(-d/(c*f - d*e))*(c*f - d*e)), (d/(c*f -
d*e) < 0) & (1/(e + f*x) < -d/(c*f - d*e))))/d**2
```

GIAC/XCAS [A] time = 0.214133, size = 203, normalized size = 1.81

$$\frac{2\left(b^2c^2-2\,abcd+a^2d^2\right)\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{cdf-d^2e}}\right)}{\sqrt{cdf-d^2e}d^2}+\frac{2\left((fx+e)^{\frac{3}{2}}b^2d^2f^4-3\sqrt{fx+e}b^2cdf^5+6\sqrt{fx+e}abd^2f^5-3\sqrt{fx+e}b^2d^2f^4e\right)}{3\,d^3f^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^2/((d*x + c)*sqrt(f*x + e)),x, algorithm="giac")
```

```
[Out] 2*(b^2*c^2 - 2*a*b*c*d + a^2*d^2)*arctan(sqrt(f*x + e)*d/sqrt(c*d
*f - d^2*e))/(sqrt(c*d*f - d^2*e)*d^2) + 2/3*((f*x + e)^(3/2)*b^2
*d^2*f^4 - 3*sqrt(f*x + e)*b^2*c*d*f^5 + 6*sqrt(f*x + e)*a*b*d^2*
f^5 - 3*sqrt(f*x + e)*b^2*d^2*f^4*e)/(d^3*f^6)
```

3.1761 $\int \frac{(a+bx)^2}{(c+dx)(e+fx)^{3/2}}\,dx$

Optimal. Leaf size=112

$$-\frac{2(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{3/2}(de-cf)^{3/2}}+\frac{2(be-af)^2}{f^2\sqrt{e+fx}(de-cf)}+\frac{2b^2\sqrt{e+fx}}{df^2}$$

```
[Out] (2*(b*e - a*f)^2)/(f^2*(d*e - c*f)*Sqrt[e + f*x]) + (2*b^2*Sqrt[e
 + f*x])/(d*f^2) - (2*(b*c - a*d)^2*ArcTanh[(Sqrt[d]*Sqrt[e + f*x
])/Sqrt[d*e - c*f]])/(d^(3/2)*(d*e - c*f)^(3/2))
```

Rubi [A] time = 0.280463, antiderivative size = 112, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$-\frac{2(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{3/2}(de-cf)^{3/2}}+\frac{2(be-af)^2}{f^2\sqrt{e+fx}(de-cf)}+\frac{2b^2\sqrt{e+fx}}{df^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^2/((c + d*x)*(e + f*x)^(3/2)),x]
```

```
[Out] (2*(b*e - a*f)^2)/(f^2*(d*e - c*f)*Sqrt[e + f*x]) + (2*b^2*Sqrt[e
 + f*x])/(d*f^2) - (2*(b*c - a*d)^2*ArcTanh[(Sqrt[d]*Sqrt[e + f*x
])/Sqrt[d*e - c*f]])/(d^(3/2)*(d*e - c*f)^(3/2))
```

Rubi in Sympy [A] time = 58.9068, size = 153, normalized size = 1.37

$$-\frac{2\sqrt{e+fx}\,(af-be)\,(adf-2bcf+bde)}{f^2\,(cf-de)^2}-\frac{2\,(af-be)^2}{f^2\sqrt{e+fx}\,(cf-de)}+\frac{2\sqrt{e+fx}\,(ad-bc)^2}{d\,(cf-de)^2}-\frac{2\,(ad-bc)^2\,\mathrm{atan}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{cf-de}}\right)}{d^{\frac{3}{2}}\,(cf-de)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**2/(d*x+c)/(f*x+e)**(3/2),x)
```

```
[Out] -2*sqrt(e + f*x)*(a*f - b*e)*(a*d*f - 2*b*c*f + b*d*e)/(f**2*(c*f
 - d*e)**2) - 2*(a*f - b*e)**2/(f**2*sqrt(e + f*x)*(c*f - d*e)) +
 2*sqrt(e + f*x)*(a*d - b*c)**2/(d*(c*f - d*e)**2) - 2*(a*d - b*c
)**2*atan(sqrt(d)*sqrt(e + f*x)/sqrt(c*f - d*e))/(d**(3/2)*(c*f -
 d*e)**(3/2))
```

Mathematica [A] time = 0.354946, size = 108, normalized size = 0.96

$$\frac{2\sqrt{e+fx}\left(\frac{(be-af)^2}{(e+fx)(de-cf)}+\frac{b^2}{d}\right)}{f^2}-\frac{2(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{3/2}(de-cf)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^2/((c + d*x)*(e + f*x)^(3/2)),x]
```

```
[Out] (2*Sqrt[e + f*x]*(b^2/d + (b*e - a*f)^2/((d*e - c*f)*(e + f*x))))
/f^2 - (2*(b*c - a*d)^2*ArcTanh[(Sqrt[d]*Sqrt[e + f*x])/Sqrt[d*e
- c*f]])/(d^(3/2)*(d*e - c*f)^(3/2))
```

Maple [B] time = 0.02, size = 249, normalized size = 2.2

$$2\,\frac{b^2\sqrt{fx+e}}{df^2}-2\,\frac{da^2}{(cf-de)\sqrt{(cf-de)\,d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)\,d}}\right)+4\,\frac{abc}{(cf-de)\sqrt{(cf-de)\,d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)\,d}}\right)-2\,\frac{b^2c^2}{(cf-de)\,d\sqrt{(cf-de)\,d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)\,d}}\right)-2\,\frac{a^2}{(cf-de)\sqrt{fx+e}}+4\,\frac{abe}{(cf-de)\,f\sqrt{fx+e}}-2\,\frac{b^2e^2}{f^2(cf-de)\sqrt{fx+e}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^2/(d*x+c)/(f*x+e)^(3/2),x)
```

```
[Out] 2*b^2*(f*x+e)^(1/2)/d/f^2-2/(c*f-d*e)*d/((c*f-d*e)*d)^(1/2)*arcta
n((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a^2+4/(c*f-d*e)/((c*f-d*e)
*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a*b*c-2/(c*
f-d*e)/d/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)
^(1/2))*b^2*c^2-2/(c*f-d*e)/(f*x+e)^(1/2)*a^2+4/f/(c*f-d*e)/(f*x+
e)^(1/2)*a*b*e-2/f^2/(c*f-d*e)/(f*x+e)^(1/2)*b^2*e^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^2/((d*x + c)*(f*x + e)^(3/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.220759, size = 1, normalized size = 0.01

$$\left[-\frac{\left(b^2c^2-2\,abcd+a^2d^2\right)\sqrt{fx+e}f^2\log\left(\frac{\sqrt{d^2e-cdf}(dfx+2\,de-cf)+2\,(d^2e-cdf)\sqrt{fx+e}}{dx+c}\right)-2\left(2\,b^2de^2+a^2df^2-\left(b^2c+2\,abd\right)ef\cdots\right.}{(d^2ef^2-cdf^3)\sqrt{d^2e-cdf}\sqrt{fx+e}}\right.$$

$$-\frac{2\left(\left(b^2c^2-2\,abcd+a^2d^2\right)\sqrt{fx+e}f^2\arctan\left(-\frac{de-cf}{\sqrt{-d^2e+cdf}\sqrt{fx+e}}\right)-\left(2\,b^2de^2+a^2df^2-\left(b^2c+2\,abd\right)ef+\left(b^2def-b^2cf^2\cdots\right.\right.\right.}{(d^2ef^2-cdf^3)\sqrt{-d^2e+cdf}\sqrt{fx+e}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^2/((d*x + c)*(f*x + e)^(3/2)),x, algorithm="fricas")
```

```
[Out] [-((b^2*c^2 - 2*a*b*c*d + a^2*d^2)*sqrt(f*x + e)*f^2*log((sqrt(d^
2*e - c*d*f)*(d*f*x + 2*d*e - c*f) + 2*(d^2*e - c*d*f)*sqrt(f*x +
 e))/(d*x + c)) - 2*(2*b^2*d*e^2 + a^2*d*f^2 - (b^2*c + 2*a*b*d)*
e*f + (b^2*d*e*f - b^2*c*f^2)*x)*sqrt(d^2*e - c*d*f))/((d^2*e*f^2
```

```
 - c*d*f^3)*sqrt(d^2*e - c*d*f)*sqrt(f*x + e)), -2*((b^2*c^2 - 2*
a*b*c*d + a^2*d^2)*sqrt(f*x + e)*f^2*arctan(-(d*e - c*f)/(sqrt(-d
^2*e + c*d*f)*sqrt(f*x + e))) - (2*b^2*d*e^2 + a^2*d*f^2 - (b^2*c
 + 2*a*b*d)*e*f + (b^2*d*e*f - b^2*c*f^2)*x)*sqrt(-d^2*e + c*d*f)
)/((d^2*e*f^2 - c*d*f^3)*sqrt(-d^2*e + c*d*f)*sqrt(f*x + e))]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a+bx)^2}{(c+dx)(e+fx)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**2/(d*x+c)/(f*x+e)**(3/2),x)
```

```
[Out] Integral((a + b*x)**2/((c + d*x)*(e + f*x)**(3/2)), x)
```

GIAC/XCAS [A] time = 0.21739, size = 174, normalized size = 1.55

$$-\frac{2\left(b^2c^2-2\,abcd+a^2d^2\right)\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{cdf-d^2e}}\right)}{\left(cdf-d^2e\right)^{\frac{3}{2}}}-\frac{2\left(a^2f^2-2\,abfe+b^2e^2\right)}{\left(cf^3-df^2e\right)\sqrt{fx+e}}+\frac{2\sqrt{fx+e}b^2}{df^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^2/((d*x + c)*(f*x + e)^(3/2)),x, algorithm="giac")
```

```
[Out] -2*(b^2*c^2 - 2*a*b*c*d + a^2*d^2)*arctan(sqrt(f*x + e)*d/sqrt(c*
d*f - d^2*e))/(c*d*f - d^2*e)^(3/2) - 2*(a^2*f^2 - 2*a*b*f*e + b^
2*e^2)/((c*f^3 - d*f^2*e)*sqrt(f*x + e)) + 2*sqrt(f*x + e)*b^2/(d
*f^2)
```

3.1762 $\int \frac{(a+bx)^2}{(c+dx)(e+fx)^{5/2}}\,dx$

Optimal. Leaf size=140

$$-\frac{2(be-af)(adf-2bcf+bde)}{f^2\sqrt{e+fx}(de-cf)^2}+\frac{2(be-af)^2}{3f^2(e+fx)^{3/2}(de-cf)}-\frac{2(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{\sqrt{d}(de-cf)^{5/2}}$$

```
[Out] (2*(b*e - a*f)^2)/(3*f^2*(d*e - c*f)*(e + f*x)^(3/2)) - (2*(b*e -
 a*f)*(b*d*e - 2*b*c*f + a*d*f))/(f^2*(d*e - c*f)^2*Sqrt[e + f*x]
) - (2*(b*c - a*d)^2*ArcTanh[(Sqrt[d]*Sqrt[e + f*x])/Sqrt[d*e - c
*f]])/(Sqrt[d]*(d*e - c*f)^(5/2))
```

Rubi [A] time = 0.361286, antiderivative size = 140, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$-\frac{2(be-af)(adf-2bcf+bde)}{f^2\sqrt{e+fx}(de-cf)^2}+\frac{2(be-af)^2}{3f^2(e+fx)^{3/2}(de-cf)}-\frac{2(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{\sqrt{d}(de-cf)^{5/2}}$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*x)^2/((c + d*x)*(e + f*x)^(5/2)),x]
```

```
[Out] (2*(b*e - a*f)^2)/(3*f^2*(d*e - c*f)*(e + f*x)^(3/2)) - (2*(b*e -
 a*f)*(b*d*e - 2*b*c*f + a*d*f))/(f^2*(d*e - c*f)^2*Sqrt[e + f*x]
) - (2*(b*c - a*d)^2*ArcTanh[(Sqrt[d]*Sqrt[e + f*x])/Sqrt[d*e - c
*f]])/(Sqrt[d]*(d*e - c*f)^(5/2))
```

Rubi in Sympy [A] time = 70.269, size = 126, normalized size = 0.9

$$\frac{2\,(af-be)\,(adf-2bcf+bde)}{f^2\sqrt{e+fx}\,(cf-de)^2}-\frac{2\,(af-be)^2}{3f^2\,(e+fx)^{\frac{3}{2}}\,(cf-de)}+\frac{2\,(ad-bc)^2\,\mathrm{atan}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{cf-de}}\right)}{\sqrt{d}\,(cf-de)^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)**2/(d*x+c)/(f*x+e)**(5/2),x)
```

```
[Out] 2*(a*f - b*e)*(a*d*f - 2*b*c*f + b*d*e)/(f**2*sqrt(e + f*x)*(c*f
- d*e)**2) - 2*(a*f - b*e)**2/(3*f**2*(e + f*x)**(3/2)*(c*f - d*e
)) + 2*(a*d - b*c)**2*atan(sqrt(d)*sqrt(e + f*x)/sqrt(c*f - d*e))
/(sqrt(d)*(c*f - d*e)**(5/2))
```

Mathematica [A] time = 0.397636, size = 140, normalized size = 1.

$$-\frac{2(be-af)(adf-2bcf+bde)}{f^2\sqrt{e+fx}(de-cf)^2}-\frac{2(be-af)^2}{3f^2(e+fx)^{3/2}(cf-de)}-\frac{2(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{\sqrt{d}(de-cf)^{5/2}}$$

Antiderivative was successfully verified.

```
[In] Integrate[(a + b*x)^2/((c + d*x)*(e + f*x)^(5/2)),x]
```

```
[Out] (-2*(b*e - a*f)^2)/(3*f^2*(-(d*e) + c*f)*(e + f*x)^(3/2)) - (2*(b
*e - a*f)*(b*d*e - 2*b*c*f + a*d*f))/(f^2*(d*e - c*f)^2*Sqrt[e +
```

```
f*x]) - (2*(b*c - a*d)^2*ArcTanh[(Sqrt[d]*Sqrt[e + f*x])/Sqrt[d*e
 - c*f]])/(Sqrt[d]*(d*e - c*f)^(5/2))
```

Maple [B] time = 0.023, size = 332, normalized size = 2.4

$$
\begin{aligned}
&-\frac{2\,a^2}{3\,cf-3\,de}\,(fx+e)^{-\frac{3}{2}}+\frac{4\,abe}{3\,(cf-de)\,f}\,(fx+e)^{-\frac{3}{2}}-\frac{2\,b^2e^2}{3\,f^2\,(cf-de)}\,(fx+e)^{-\frac{3}{2}}\\
&+2\,\frac{a^2d}{(cf-de)^2\,\sqrt{fx+e}}-4\,\frac{abc}{(cf-de)^2\,\sqrt{fx+e}}+4\,\frac{ceb^2}{f\,(cf-de)^2\,\sqrt{fx+e}}\\
&-2\,\frac{b^2de^2}{f^2\,(cf-de)^2\,\sqrt{fx+e}}+2\,\frac{a^2d^2}{(cf-de)^2\,\sqrt{(cf-de)\,d}}\arctan\left(\frac{\sqrt{fx+e}\,d}{\sqrt{(cf-de)\,d}}\right)\\
&-4\,\frac{abcd}{(cf-de)^2\,\sqrt{(cf-de)\,d}}\arctan\left(\frac{\sqrt{fx+e}\,d}{\sqrt{(cf-de)\,d}}\right)\\
&+2\,\frac{b^2c^2}{(cf-de)^2\,\sqrt{(cf-de)\,d}}\arctan\left(\frac{\sqrt{fx+e}\,d}{\sqrt{(cf-de)\,d}}\right)
\end{aligned}
$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^2/(d*x+c)/(f*x+e)^(5/2),x)
```

```
[Out] -2/3/(c*f-d*e)/(f*x+e)^(3/2)*a^2+4/3/f/(c*f-d*e)/(f*x+e)^(3/2)*a*
b*e-2/3/f^2/(c*f-d*e)/(f*x+e)^(3/2)*b^2*e^2+2/(c*f-d*e)^2/(f*x+e)
^(1/2)*a^2*d-4/(c*f-d*e)^2/(f*x+e)^(1/2)*a*b*c+4/f/(c*f-d*e)^2/(f
*x+e)^(1/2)*b^2*c*e-2/f^2/(c*f-d*e)^2/(f*x+e)^(1/2)*b^2*d*e^2+2/(
c*f-d*e)^2/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*
d)^(1/2))*a^2*d^2-4/(c*f-d*e)^2/((c*f-d*e)*d)^(1/2)*arctan((f*x+e
)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a*b*c*d+2/(c*f-d*e)^2/((c*f-d*e)*d
)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*b^2*c^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^2/((d*x + c)*(f*x + e)^(5/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.231493, size = 1, normalized size = 0.01

$$
\left[\frac{3\left(\left(b^2c^2-2\,abcd+a^2d^2\right)f^3x+\left(b^2c^2-2\,abcd+a^2d^2\right)ef^2\right)\sqrt{fx+e}\log\left(\frac{\sqrt{d^2e-cdf}(dfx+2\,de-cf)-2\,(d^2e-cdf)\sqrt{fx+e}}{dx+c}\right)-2\,(2\,b\cdots}{3\,(d^2e^3f^2-2\,cde^2f^3+c^2ef^4+(d^2e^2f^3-2\,c\cdots}\right.
$$

$$
-\frac{2\left(3\left(\left(b^2c^2-2\,abcd+a^2d^2\right)f^3x+\left(b^2c^2-2\,abcd+a^2d^2\right)ef^2\right)\sqrt{fx+e}\arctan\left(-\frac{de-cf}{\sqrt{-d^2e+cdf}\sqrt{fx+e}}\right)+\left(2\,b^2de^3+a^2cf^3-\cdots\right.}{3\,(d^2e^3f^2-2\,cde^2f^3+c^2ef^4+(d^2e^2f^3-2\,cdef^4+\cdots}
$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^2/((d*x + c)*(f*x + e)^(5/2)),x, algorithm="fricas")
```

```
[Out] [1/3*(3*((b^2*c^2 - 2*a*b*c*d + a^2*d^2)*f^3*x + (b^2*c^2 - 2*a*b
*c*d + a^2*d^2)*e*f^2)*sqrt(f*x + e)*log((sqrt(d^2*e - c*d*f)*(d*
```

```
f*x + 2*d*e - c*f) - 2*(d^2*e - c*d*f)*sqrt(f*x + e))/(d*x + c))
- 2*(2*b^2*d*e^3 + a^2*c*f^3 - (5*b^2*c - 2*a*b*d)*e^2*f + 4*(a*b
*c - a^2*d)*e*f^2 + 3*(b^2*d*e^2*f - 2*b^2*c*e*f^2 + (2*a*b*c - a
^2*d)*f^3)*x)*sqrt(d^2*e - c*d*f))/((d^2*e^3*f^2 - 2*c*d*e^2*f^3
+ c^2*e*f^4 + (d^2*e^2*f^3 - 2*c*d*e*f^4 + c^2*f^5)*x)*sqrt(d^2*e
 - c*d*f)*sqrt(f*x + e)), -2/3*(3*((b^2*c^2 - 2*a*b*c*d + a^2*d^2
)*f^3*x + (b^2*c^2 - 2*a*b*c*d + a^2*d^2)*e*f^2)*sqrt(f*x + e)*ar
ctan(-(d*e - c*f)/(sqrt(-d^2*e + c*d*f)*sqrt(f*x + e))) + (2*b^2*
d*e^3 + a^2*c*f^3 - (5*b^2*c - 2*a*b*d)*e^2*f + 4*(a*b*c - a^2*d)
*e*f^2 + 3*(b^2*d*e^2*f - 2*b^2*c*e*f^2 + (2*a*b*c - a^2*d)*f^3)*
x)*sqrt(-d^2*e + c*d*f))/((d^2*e^3*f^2 - 2*c*d*e^2*f^3 + c^2*e*f^
4 + (d^2*e^2*f^3 - 2*c*d*e*f^4 + c^2*f^5)*x)*sqrt(-d^2*e + c*d*f)
*sqrt(f*x + e))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**2/(d*x+c)/(f*x+e)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.220839, size = 319, normalized size = 2.28

$$\frac{2\left(b^{2}c^{2}-2\,abcd+a^{2}d^{2}\right)\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{cdf-d^{2}e}}\right)}{(c^{2}f^{2}-2\,cdfe+d^{2}e^{2})\sqrt{cdf-d^{2}e}} - \frac{2\left(6\,(fx+e)abcf^{2}-3\,(fx+e)a^{2}df^{2}+a^{2}cf^{3}-6\,(fx+e)b^{2}cfe-2\,abcf^{2}e-a^{2}df^{2}e+3\,(fx+e)b^{2}de^{2}+b^{2}cfe^{2}+2\,abd\right.}{3\,(c^{2}f^{4}-2\,cdf^{3}e+d^{2}f^{2}e^{2})(fx+e)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^2/((d*x + c)*(f*x + e)^(5/2)),x, algorithm="giac")
```

```
[Out] 2*(b^2*c^2 - 2*a*b*c*d + a^2*d^2)*arctan(sqrt(f*x + e)*d/sqrt(c*d
*f - d^2*e))/((c^2*f^2 - 2*c*d*f*e + d^2*e^2)*sqrt(c*d*f - d^2*e)
) - 2/3*(6*(f*x + e)*a*b*c*f^2 - 3*(f*x + e)*a^2*d*f^2 + a^2*c*f^
3 - 6*(f*x + e)*b^2*c*f*e - 2*a*b*c*f^2*e - a^2*d*f^2*e + 3*(f*x
+ e)*b^2*d*e^2 + b^2*c*f*e^2 + 2*a*b*d*f*e^2 - b^2*d*e^3)/((c^2*f
^4 - 2*c*d*f^3*e + d^2*f^2*e^2)*(f*x + e)^(3/2))
```

3.1763 $\int \frac{(a+bx)^2}{(c+dx)(e+fx)^{7/2}} \, dx$

Optimal. Leaf size=173

$$-\frac{2(be-af)(adf-2bcf+bde)}{3f^2(e+fx)^{3/2}(de-cf)^2}+\frac{2(be-af)^2}{5f^2(e+fx)^{5/2}(de-cf)}+\frac{2(bc-ad)^2}{\sqrt{e+fx}(de-cf)^3}-\frac{2\sqrt{d}(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{(de-cf)^{7/2}}$$

```
[Out] (2*(b*e - a*f)^2)/(5*f^2*(d*e - c*f)*(e + f*x)^(5/2)) - (2*(b*e -
 a*f)*(b*d*e - 2*b*c*f + a*d*f))/(3*f^2*(d*e - c*f)^2*(e + f*x)^(
3/2)) + (2*(b*c - a*d)^2)/((d*e - c*f)^3*Sqrt[e + f*x]) - (2*Sqrt
[d]*(b*c - a*d)^2*ArcTanh[(Sqrt[d]*Sqrt[e + f*x])/Sqrt[d*e - c*f]
])/(d*e - c*f)^(7/2)
```

Rubi [A] time = 0.459008, antiderivative size = 173, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$-\frac{2(be-af)(adf-2bcf+bde)}{3f^2(e+fx)^{3/2}(de-cf)^2}+\frac{2(be-af)^2}{5f^2(e+fx)^{5/2}(de-cf)}+\frac{2(bc-ad)^2}{\sqrt{e+fx}(de-cf)^3}-\frac{2\sqrt{d}(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{(de-cf)^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^2/((c + d*x)*(e + f*x)^(7/2)),x]
```

```
[Out] (2*(b*e - a*f)^2)/(5*f^2*(d*e - c*f)*(e + f*x)^(5/2)) - (2*(b*e -
 a*f)*(b*d*e - 2*b*c*f + a*d*f))/(3*f^2*(d*e - c*f)^2*(e + f*x)^(
3/2)) + (2*(b*c - a*d)^2)/((d*e - c*f)^3*Sqrt[e + f*x]) - (2*Sqrt
[d]*(b*c - a*d)^2*ArcTanh[(Sqrt[d]*Sqrt[e + f*x])/Sqrt[d*e - c*f]
])/(d*e - c*f)^(7/2)
```

Rubi in Sympy [A] time = 87.6304, size = 155, normalized size = 0.9

$$-\frac{2\sqrt{d}\,(ad-bc)^2\operatorname{atan}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{cf-de}}\right)}{(cf-de)^{\frac{7}{2}}}-\frac{2\,(ad-bc)^2}{\sqrt{e+fx}\,(cf-de)^3}+\frac{2\,(af-be)\,(adf-2bcf+bde)}{3f^2\,(e+fx)^{\frac{3}{2}}\,(cf-de)^2}-\frac{2\,(af-be)^2}{5f^2\,(e+fx)^{\frac{5}{2}}\,(cf-de)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**2/(d*x+c)/(f*x+e)**(7/2),x)
```

```
[Out] -2*sqrt(d)*(a*d - b*c)**2*atan(sqrt(d)*sqrt(e + f*x)/sqrt(c*f - d
*e))/(c*f - d*e)**(7/2) - 2*(a*d - b*c)**2/(sqrt(e + f*x)*(c*f -
d*e)**3) + 2*(a*f - b*e)*(a*d*f - 2*b*c*f + b*d*e)/(3*f**2*(e + f
*x)**(3/2)*(c*f - d*e)**2) - 2*(a*f - b*e)**2/(5*f**2*(e + f*x)**
(5/2)*(c*f - d*e))
```

Mathematica [A] time = 0.494044, size = 166, normalized size = 0.96

$$\frac{2\left(15f^2(e+fx)^2(bc-ad)^2-5(e+fx)(be-af)(de-cf)(adf-2bcf+bde)+3(be-af)^2(de-cf)^2\right)}{15f^2(e+fx)^{5/2}(de-cf)^3}-\frac{2\sqrt{d}(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{(de-cf)^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^2/((c + d*x)*(e + f*x)^(7/2)),x]
```

```
[Out] (2*(3*(b*e - a*f)^2*(d*e - c*f)^2 - 5*(b*e - a*f)*(d*e - c*f)*(b*
d*e - 2*b*c*f + a*d*f)*(e + f*x) + 15*(b*c - a*d)^2*f^2*(e + f*x)
^2))/(15*f^2*(d*e - c*f)^3*(e + f*x)^(5/2)) - (2*Sqrt[d]*(b*c - a
*d)^2*ArcTanh[(Sqrt[d]*Sqrt[e + f*x])/Sqrt[d*e - c*f]])/(d*e - c*
f)^(7/2)
```

Maple [B] time = 0.026, size = 408, normalized size = 2.4

$$-\frac{2a^2}{5cf-5de}(fx+e)^{-\frac{5}{2}}+\frac{4abe}{5(cf-de)f}(fx+e)^{-\frac{5}{2}}-\frac{2b^2e^2}{5f^2(cf-de)}(fx+e)^{-\frac{5}{2}}+\frac{2a^2d}{3(cf-de)^2}(fx+e)^{-\frac{3}{2}}-\frac{4abc}{3(cf-de)^2}(fx+e)^{-\frac{3}{2}}+\frac{4ceb^2}{3f(cf-de)^2}(fx+e)^{-\frac{3}{2}}-\frac{2b^2de^2}{3f^2(cf-de)^2}(fx+e)^{-\frac{3}{2}}-2\frac{a^2d^2}{(cf-de)^3\sqrt{fx+e}}+4\frac{abcd}{(cf-de)^3\sqrt{fx+e}}-2\frac{b^2c^2}{(cf-de)^3\sqrt{fx+e}}-2\frac{d^3a^2}{(cf-de)^3\sqrt{(cf-de)d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)d}}\right)+4\frac{d^2abc}{(cf-de)^3\sqrt{(cf-de)d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)d}}\right)-2\frac{b^2dc^2}{(cf-de)^3\sqrt{(cf-de)d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)d}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^2/(d*x+c)/(f*x+e)^(7/2),x)
```

```
[Out] -2/5/(c*f-d*e)/(f*x+e)^(5/2)*a^2+4/5/f/(c*f-d*e)/(f*x+e)^(5/2)*a*
b*e-2/5/f^2/(c*f-d*e)/(f*x+e)^(5/2)*b^2*e^2+2/3/(c*f-d*e)^2/(f*x+
e)^(3/2)*a^2*d-4/3/(c*f-d*e)^2/(f*x+e)^(3/2)*a*b*c+4/3/f/(c*f-d*e
)^2/(f*x+e)^(3/2)*b^2*c*e-2/3/f^2/(c*f-d*e)^2/(f*x+e)^(3/2)*b^2*d
*e^2-2/(c*f-d*e)^3/(f*x+e)^(1/2)*a^2*d^2+4/(c*f-d*e)^3/(f*x+e)^(1
/2)*a*b*c*d-2/(c*f-d*e)^3/(f*x+e)^(1/2)*b^2*c^2-2*d^3/(c*f-d*e)^3
/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*
a^2+4*d^2/(c*f-d*e)^3/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/
((c*f-d*e)*d)^(1/2))*a*b*c-2*d/(c*f-d*e)^3/((c*f-d*e)*d)^(1/2)*ar
ctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*b^2*c^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^2/((d*x + c)*(f*x + e)^(7/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.231224, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^2/((d*x + c)*(f*x + e)^(7/2)),x, algorithm="fricas")
```

```
[Out] [-1/15*(4*b^2*d^2*e^4 - 6*a^2*c^2*f^4 - 30*(b^2*c^2 - 2*a*b*c*d +
 a^2*d^2)*f^4*x^2 - 6*(3*b^2*c*d - 2*a*b*d^2)*e^3*f - 2*(8*b^2*c^
2 - 28*a*b*c*d + 23*a^2*d^2)*e^2*f^2 - 2*(4*a*b*c^2 - 11*a^2*c*d)
*e*f^3 + 15*((b^2*c^2 - 2*a*b*c*d + a^2*d^2)*f^4*x^2 + 2*(b^2*c^2
 - 2*a*b*c*d + a^2*d^2)*e*f^3*x + (b^2*c^2 - 2*a*b*c*d + a^2*d^2)
*e^2*f^2)*sqrt(f*x + e)*sqrt(d/(d*e - c*f))*log((d*f*x + 2*d*e -
c*f + 2*(d*e - c*f)*sqrt(f*x + e)*sqrt(d/(d*e - c*f)))/(d*x + c))
 + 10*(b^2*d^2*e^3*f - 3*b^2*c*d*e^2*f^2 - (4*b^2*c^2 - 14*a*b*c*
d + 7*a^2*d^2)*e*f^3 - (2*a*b*c^2 - a^2*c*d)*f^4)*x)/((d^3*e^5*f^
2 - 3*c*d^2*e^4*f^3 + 3*c^2*d*e^3*f^4 - c^3*e^2*f^5 + (d^3*e^3*f^
4 - 3*c*d^2*e^2*f^5 + 3*c^2*d*e*f^6 - c^3*f^7)*x^2 + 2*(d^3*e^4*f
^3 - 3*c*d^2*e^3*f^4 + 3*c^2*d*e^2*f^5 - c^3*e*f^6)*x)*sqrt(f*x +
 e)), -2/15*(2*b^2*d^2*e^4 - 3*a^2*c^2*f^4 - 15*(b^2*c^2 - 2*a*b*
c*d + a^2*d^2)*f^4*x^2 - 3*(3*b^2*c*d - 2*a*b*d^2)*e^3*f - (8*b^2
*c^2 - 28*a*b*c*d + 23*a^2*d^2)*e^2*f^2 - (4*a*b*c^2 - 11*a^2*c*d
)*e*f^3 + 15*((b^2*c^2 - 2*a*b*c*d + a^2*d^2)*f^4*x^2 + 2*(b^2*c^
2 - 2*a*b*c*d + a^2*d^2)*e*f^3*x + (b^2*c^2 - 2*a*b*c*d + a^2*d^2
)*e^2*f^2)*sqrt(f*x + e)*sqrt(-d/(d*e - c*f))*arctan(-(d*e - c*f)
*sqrt(-d/(d*e - c*f))/(sqrt(f*x + e)*d)) + 5*(b^2*d^2*e^3*f - 3*b
^2*c*d*e^2*f^2 - (4*b^2*c^2 - 14*a*b*c*d + 7*a^2*d^2)*e*f^3 - (2*
a*b*c^2 - a^2*c*d)*f^4)*x)/((d^3*e^5*f^2 - 3*c*d^2*e^4*f^3 + 3*c^
2*d*e^3*f^4 - c^3*e^2*f^5 + (d^3*e^3*f^4 - 3*c*d^2*e^2*f^5 + 3*c^
2*d*e*f^6 - c^3*f^7)*x^2 + 2*(d^3*e^4*f^3 - 3*c*d^2*e^3*f^4 + 3*c
^2*d*e^2*f^5 - c^3*e*f^6)*x)*sqrt(f*x + e))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**2/(d*x+c)/(f*x+e)**(7/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.224861, size = 583, normalized size = 3.37

$$-\frac{2\left(b^2c^2d - 2\,abcd^2 + a^2d^3\right)\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{cdf-d^2e}}\right)}{\left(c^3f^3 - 3\,c^2df^2e + 3\,cd^2fe^2 - d^3e^3\right)\sqrt{cdf-d^2e}} - \frac{2\left(15\,(fx+e)^2b^2c^2f^2 - 30\,(fx+e)^2abcdf^2 + 15\,(fx+e)^2a^2d^2f^2 + 10\,(fx+e)abc^2f^3 - 5\,(fx+e)a^2cdf^3 + 3\,a^2c^2f^4 - 10\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^2/((d*x + c)*(f*x + e)^(7/2)),x, algorithm="giac")
```

```
[Out] -2*(b^2*c^2*d - 2*a*b*c*d^2 + a^2*d^3)*arctan(sqrt(f*x + e)*d/sqr
t(c*d*f - d^2*e))/((c^3*f^3 - 3*c^2*d*f^2*e + 3*c*d^2*f*e^2 - d^3
*e^3)*sqrt(c*d*f - d^2*e)) - 2/15*(15*(f*x + e)^2*b^2*c^2*f^2 - 3
0*(f*x + e)^2*a*b*c*d*f^2 + 15*(f*x + e)^2*a^2*d^2*f^2 + 10*(f*x
+ e)*a*b*c^2*f^3 - 5*(f*x + e)*a^2*c*d*f^3 + 3*a^2*c^2*f^4 - 10*(
```

```
f*x + e)*b^2*c^2*f^2*e - 10*(f*x + e)*a*b*c*d*f^2*e + 5*(f*x + e)
*a^2*d^2*f^2*e - 6*a*b*c^2*f^3*e - 6*a^2*c*d*f^3*e + 15*(f*x + e)
*b^2*c*d*f*e^2 + 3*b^2*c^2*f^2*e^2 + 12*a*b*c*d*f^2*e^2 + 3*a^2*d
^2*f^2*e^2 - 5*(f*x + e)*b^2*d^2*e^3 - 6*b^2*c*d*f*e^3 - 6*a*b*d^
2*f*e^3 + 3*b^2*d^2*e^4)/((c^3*f^5 - 3*c^2*d*f^4*e + 3*c*d^2*f^3*
e^2 - d^3*f^2*e^3)*(f*x + e)^(5/2))
```

3.1764 $\int \frac{(a+bx)^2}{(c+dx)(e+fx)^{9/2}}\,dx$

Optimal. Leaf size=207

$$-\frac{2d^{3/2}(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{(de-cf)^{9/2}}-\frac{2(be-af)(adf-2bcf+bde)}{5f^2(e+fx)^{5/2}(de-cf)^2}+\frac{2(be-af)^2}{7f^2(e+fx)^{7/2}(de-cf)}+\frac{2d(bc-ad)^2}{\sqrt{e+fx}(de-cf)^4}+\frac{2(bc-ad)^2}{3(e+fx)^{3/2}(de-cf)^3}$$

```
[Out] (2*(b*e - a*f)^2)/(7*f^2*(d*e - c*f)*(e + f*x)^(7/2)) - (2*(b*e -
 a*f)*(b*d*e - 2*b*c*f + a*d*f))/(5*f^2*(d*e - c*f)^2*(e + f*x)^(
5/2)) + (2*(b*c - a*d)^2)/(3*(d*e - c*f)^3*(e + f*x)^(3/2)) + (2*
d*(b*c - a*d)^2)/((d*e - c*f)^4*Sqrt[e + f*x]) - (2*d^(3/2)*(b*c
- a*d)^2*ArcTanh[(Sqrt[d]*Sqrt[e + f*x])/Sqrt[d*e - c*f]])/(d*e -
 c*f)^(9/2)
```

Rubi [A] time = 0.753569, antiderivative size = 207, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.125$

$$-\frac{2d^{3/2}(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{(de-cf)^{9/2}}-\frac{2(be-af)(adf-2bcf+bde)}{5f^2(e+fx)^{5/2}(de-cf)^2}+\frac{2(be-af)^2}{7f^2(e+fx)^{7/2}(de-cf)}+\frac{2d(bc-ad)^2}{\sqrt{e+fx}(de-cf)^4}+\frac{2(bc-ad)^2}{3(e+fx)^{3/2}(de-cf)^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^2/((c + d*x)*(e + f*x)^(9/2)),x]
```

```
[Out] (2*(b*e - a*f)^2)/(7*f^2*(d*e - c*f)*(e + f*x)^(7/2)) - (2*(b*e -
 a*f)*(b*d*e - 2*b*c*f + a*d*f))/(5*f^2*(d*e - c*f)^2*(e + f*x)^(
5/2)) + (2*(b*c - a*d)^2)/(3*(d*e - c*f)^3*(e + f*x)^(3/2)) + (2*
d*(b*c - a*d)^2)/((d*e - c*f)^4*Sqrt[e + f*x]) - (2*d^(3/2)*(b*c
- a*d)^2*ArcTanh[(Sqrt[d]*Sqrt[e + f*x])/Sqrt[d*e - c*f]])/(d*e -
 c*f)^(9/2)
```

Rubi in Sympy [A] time = 110.165, size = 185, normalized size = 0.89

$$\frac{2d^{\frac{3}{2}}(ad-bc)^2\,\mathrm{atan}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{cf-de}}\right)}{(cf-de)^{\frac{9}{2}}}+\frac{2d\,(ad-bc)^2}{\sqrt{e+fx}\,(cf-de)^4}-\frac{2\,(ad-bc)^2}{3\,(e+fx)^{\frac{3}{2}}\,(cf-de)^3}+\frac{2\,(af-be)\,(adf-2bcf+bde)}{5f^2\,(e+fx)^{\frac{5}{2}}\,(cf-de)^2}-\frac{2\,(af-be)^2}{7f^2\,(e+fx)^{\frac{7}{2}}\,(cf-de)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**2/(d*x+c)/(f*x+e)**(9/2),x)
```

```
[Out] 2*d**(3/2)*(a*d - b*c)**2*atan(sqrt(d)*sqrt(e + f*x)/sqrt(c*f - d
*e))/(c*f - d*e)**(9/2) + 2*d*(a*d - b*c)**2/(sqrt(e + f*x)*(c*f
- d*e)**4) - 2*(a*d - b*c)**2/(3*(e + f*x)**(3/2)*(c*f - d*e)**3)
 + 2*(a*f - b*e)*(a*d*f - 2*b*c*f + b*d*e)/(5*f**2*(e + f*x)**(5/
2)*(c*f - d*e)**2) - 2*(a*f - b*e)**2/(7*f**2*(e + f*x)**(7/2)*(c
*f - d*e))
```

Mathematica [A] time = 0.839672, size = 207, normalized size = 1.

$$-\frac{2d^{3/2}(bc-ad)^2\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{(de-cf)^{9/2}}-\frac{2(be-af)(adf-2bcf+bde)}{5f^2(e+fx)^{5/2}(de-cf)^2}-\frac{2(be-af)^2}{7f^2(e+fx)^{7/2}(cf-de)}+\frac{2d(bc-ad)^2}{\sqrt{e+fx}(de-cf)^4}+\frac{2(bc-ad)^2}{3(e+fx)^{3/2}(de-cf)^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^2/((c + d*x)*(e + f*x)^(9/2)),x]
```

```
[Out] (-2*(b*e - a*f)^2)/(7*f^2*(-(d*e) + c*f)*(e + f*x)^(7/2)) - (2*(b
*e - a*f)*(b*d*e - 2*b*c*f + a*d*f))/(5*f^2*(d*e - c*f)^2*(e + f*
x)^(5/2)) + (2*(b*c - a*d)^2)/(3*(d*e - c*f)^3*(e + f*x)^(3/2)) +
 (2*d*(b*c - a*d)^2)/((d*e - c*f)^4*Sqrt[e + f*x]) - (2*d^(3/2)*(
b*c - a*d)^2*ArcTanh[(Sqrt[d]*Sqrt[e + f*x])/Sqrt[d*e - c*f]])/(d
*e - c*f)^(9/2)
```

Maple [B] time = 0.03, size = 486, normalized size = 2.4

$$-\frac{2a^2}{7cf-7de}(fx+e)^{-\frac{7}{2}}+\frac{4abe}{7(cf-de)f}(fx+e)^{-\frac{7}{2}}-\frac{2b^2e^2}{7f^2(cf-de)}(fx+e)^{-\frac{7}{2}}+\frac{2a^2d}{5(cf-de)^2}(fx+e)^{-\frac{5}{2}}-\frac{4abc}{5(cf-de)^2}(fx+e)^{-\frac{5}{2}}+\frac{4ceb^2}{5f(cf-de)^2}(fx+e)^{-\frac{5}{2}}-\frac{2b^2de^2}{5f^2(cf-de)^2}(fx+e)^{-\frac{5}{2}}-\frac{2a^2d^2}{3(cf-de)^3}(fx+e)^{-\frac{3}{2}}+\frac{4abcd}{3(cf-de)^3}(fx+e)^{-\frac{3}{2}}-\frac{2b^2c^2}{3(cf-de)^3}(fx+e)^{-\frac{3}{2}}+2\frac{d^3a^2}{(cf-de)^4\sqrt{fx+e}}-4\frac{d^2abc}{(cf-de)^4\sqrt{fx+e}}+2\frac{b^2dc^2}{(cf-de)^4\sqrt{fx+e}}+2\frac{d^4a^2}{(cf-de)^4\sqrt{(cf-de)d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)d}}\right)-4\frac{d^3abc}{(cf-de)^4\sqrt{(cf-de)d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)d}}\right)+2\frac{b^2d^2c^2}{(cf-de)^4\sqrt{(cf-de)d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)d}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^2/(d*x+c)/(f*x+e)^(9/2),x)
```

```
[Out] -2/7/(c*f-d*e)/(f*x+e)^(7/2)*a^2+4/7/f/(c*f-d*e)/(f*x+e)^(7/2)*a*
b*e-2/7/f^2/(c*f-d*e)/(f*x+e)^(7/2)*b^2*e^2+2/5/(c*f-d*e)^2/(f*x+
e)^(5/2)*a^2*d-4/5/(c*f-d*e)^2/(f*x+e)^(5/2)*a*b*c+4/5/f/(c*f-d*e
)^2/(f*x+e)^(5/2)*b^2*c*e-2/5/f^2/(c*f-d*e)^2/(f*x+e)^(5/2)*b^2*d
*e^2-2/3/(c*f-d*e)^3/(f*x+e)^(3/2)*a^2*d^2+4/3/(c*f-d*e)^3/(f*x+e
)^(3/2)*a*b*c*d-2/3/(c*f-d*e)^3/(f*x+e)^(3/2)*b^2*c^2+2/(c*f-d*e)
^4*d^3/(f*x+e)^(1/2)*a^2-4/(c*f-d*e)^4*d^2/(f*x+e)^(1/2)*a*b*c+2/
(c*f-d*e)^4*d/(f*x+e)^(1/2)*b^2*c^2+2*d^4/(c*f-d*e)^4/((c*f-d*e)*
d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a^2-4*d^3/(c
*f-d*e)^4/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d
)^(1/2))*a*b*c+2*d^2/(c*f-d*e)^4/((c*f-d*e)*d)^(1/2)*arctan((f*x+
e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*b^2*c^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^2/((d*x + c)*(f*x + e)^(9/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.240976, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^2/((d*x + c)*(f*x + e)^(9/2)),x, algorithm="fricas")
```

```
[Out] [-1/105*(12*b^2*d^3*e^5 + 30*a^2*c^3*f^5 - 210*(b^2*c^2*d - 2*a*b
*c*d^2 + a^2*d^3)*f^5*x^3 - 6*(13*b^2*c*d^2 - 10*a*b*d^3)*e^4*f -
 16*(10*b^2*c^2*d - 29*a*b*c*d^2 + 22*a^2*d^3)*e^3*f^2 + 4*(4*b^2
*c^3 - 32*a*b*c^2*d + 61*a^2*c*d^2)*e^2*f^3 + 12*(2*a*b*c^3 - 11*
a^2*c^2*d)*e*f^4 - 70*(10*(b^2*c^2*d - 2*a*b*c*d^2 + a^2*d^3)*e*f
^4 - (b^2*c^3 - 2*a*b*c^2*d + a^2*c*d^2)*f^5)*x^2 - 105*((b^2*c^2
*d - 2*a*b*c*d^2 + a^2*d^3)*f^5*x^3 + 3*(b^2*c^2*d - 2*a*b*c*d^2
+ a^2*d^3)*e*f^4*x^2 + 3*(b^2*c^2*d - 2*a*b*c*d^2 + a^2*d^3)*e^2*
f^3*x + (b^2*c^2*d - 2*a*b*c*d^2 + a^2*d^3)*e^3*f^2)*sqrt(f*x + e
)*sqrt(d/(d*e - c*f))*log((d*f*x + 2*d*e - c*f - 2*(d*e - c*f)*sq
rt(f*x + e)*sqrt(d/(d*e - c*f)))/(d*x + c)) + 14*(3*b^2*d^3*e^4*f
 - 12*b^2*c*d^2*e^3*f^2 - 2*(20*b^2*c^2*d - 58*a*b*c*d^2 + 29*a^2
*d^3)*e^2*f^3 + 4*(b^2*c^3 - 8*a*b*c^2*d + 4*a^2*c*d^2)*e*f^4 + 3
*(2*a*b*c^3 - a^2*c^2*d)*f^5)*x)/((d^4*e^7*f^2 - 4*c*d^3*e^6*f^3
+ 6*c^2*d^2*e^5*f^4 - 4*c^3*d*e^4*f^5 + c^4*e^3*f^6 + (d^4*e^4*f^
5 - 4*c*d^3*e^3*f^6 + 6*c^2*d^2*e^2*f^7 - 4*c^3*d*e*f^8 + c^4*f^9
)*x^3 + 3*(d^4*e^5*f^4 - 4*c*d^3*e^4*f^5 + 6*c^2*d^2*e^3*f^6 - 4*
c^3*d*e^2*f^7 + c^4*e*f^8)*x^2 + 3*(d^4*e^6*f^3 - 4*c*d^3*e^5*f^4
 + 6*c^2*d^2*e^4*f^5 - 4*c^3*d*e^3*f^6 + c^4*e^2*f^7)*x)*sqrt(f*x
 + e)), -2/105*(6*b^2*d^3*e^5 + 15*a^2*c^3*f^5 - 105*(b^2*c^2*d -
 2*a*b*c*d^2 + a^2*d^3)*f^5*x^3 - 3*(13*b^2*c*d^2 - 10*a*b*d^3)*e
^4*f - 8*(10*b^2*c^2*d - 29*a*b*c*d^2 + 22*a^2*d^3)*e^3*f^2 + 2*(
4*b^2*c^3 - 32*a*b*c^2*d + 61*a^2*c*d^2)*e^2*f^3 + 6*(2*a*b*c^3 -
 11*a^2*c^2*d)*e*f^4 - 35*(10*(b^2*c^2*d - 2*a*b*c*d^2 + a^2*d^3)
*e*f^4 - (b^2*c^3 - 2*a*b*c^2*d + a^2*c*d^2)*f^5)*x^2 + 105*((b^2
*c^2*d - 2*a*b*c*d^2 + a^2*d^3)*f^5*x^3 + 3*(b^2*c^2*d - 2*a*b*c*
d^2 + a^2*d^3)*e*f^4*x^2 + 3*(b^2*c^2*d - 2*a*b*c*d^2 + a^2*d^3)*
e^2*f^3*x + (b^2*c^2*d - 2*a*b*c*d^2 + a^2*d^3)*e^3*f^2)*sqrt(f*x
 + e)*sqrt(-d/(d*e - c*f))*arctan(-(d*e - c*f)*sqrt(-d/(d*e - c*f
))/(sqrt(f*x + e)*d)) + 7*(3*b^2*d^3*e^4*f - 12*b^2*c*d^2*e^3*f^2
 - 2*(20*b^2*c^2*d - 58*a*b*c*d^2 + 29*a^2*d^3)*e^2*f^3 + 4*(b^2*
c^3 - 8*a*b*c^2*d + 4*a^2*c*d^2)*e*f^4 + 3*(2*a*b*c^3 - a^2*c^2*d
)*f^5)*x)/((d^4*e^7*f^2 - 4*c*d^3*e^6*f^3 + 6*c^2*d^2*e^5*f^4 - 4
*c^3*d*e^4*f^5 + c^4*e^3*f^6 + (d^4*e^4*f^5 - 4*c*d^3*e^3*f^6 + 6
*c^2*d^2*e^2*f^7 - 4*c^3*d*e*f^8 + c^4*f^9)*x^3 + 3*(d^4*e^5*f^4
- 4*c*d^3*e^4*f^5 + 6*c^2*d^2*e^3*f^6 - 4*c^3*d*e^2*f^7 + c^4*e*f
^8)*x^2 + 3*(d^4*e^6*f^3 - 4*c*d^3*e^5*f^4 + 6*c^2*d^2*e^4*f^5 -
4*c^3*d*e^3*f^6 + c^4*e^2*f^7)*x)*sqrt(f*x + e))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**2/(d*x+c)/(f*x+e)**(9/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.22876, size = 938, normalized size = 4.53

$$\frac{2\left(b^2c^2d^2 - 2\,abcd^3 + a^2d^4\right)\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{cdf-d^2e}}\right)}{(c^4f^4 - 4\,c^3df^3e + 6\,c^2d^2f^2e^2 - 4\,cd^3fe^3 + d^4e^4)\sqrt{cdf-d^2e}} + \frac{2\left(105\,(fx+e)^3b^2c^2df^2 - 210\,(fx+e)^3abcd^2f^2 + 105\,(fx+e)^3a^2d^3f^2 - 35\,(fx+e)^2b^2c^3f^3 + 70\,(fx+e)^2abc^2df^3 - 35\,(\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^2/((d*x + c)*(f*x + e)^(9/2)),x, algorithm="giac")
```

```
[Out] 2*(b^2*c^2*d^2 - 2*a*b*c*d^3 + a^2*d^4)*arctan(sqrt(f*x + e)*d/sq
rt(c*d*f - d^2*e))/((c^4*f^4 - 4*c^3*d*f^3*e + 6*c^2*d^2*f^2*e^2
- 4*c*d^3*f*e^3 + d^4*e^4)*sqrt(c*d*f - d^2*e)) + 2/105*(105*(f*x
 + e)^3*b^2*c^2*d*f^2 - 210*(f*x + e)^3*a*b*c*d^2*f^2 + 105*(f*x
+ e)^3*a^2*d^3*f^2 - 35*(f*x + e)^2*b^2*c^3*f^3 + 70*(f*x + e)^2*
a*b*c^2*d*f^3 - 35*(f*x + e)^2*a^2*c*d^2*f^3 - 42*(f*x + e)*a*b*c
^3*f^4 + 21*(f*x + e)*a^2*c^2*d*f^4 - 15*a^2*c^3*f^5 + 35*(f*x +
e)^2*b^2*c^2*d*f^2*e - 70*(f*x + e)^2*a*b*c*d^2*f^2*e + 35*(f*x +
 e)^2*a^2*d^3*f^2*e + 42*(f*x + e)*b^2*c^3*f^3*e + 84*(f*x + e)*a
*b*c^2*d*f^3*e - 42*(f*x + e)*a^2*c*d^2*f^3*e + 30*a*b*c^3*f^4*e
+ 45*a^2*c^2*d*f^4*e - 105*(f*x + e)*b^2*c^2*d*f^2*e^2 - 42*(f*x
+ e)*a*b*c*d^2*f^2*e^2 + 21*(f*x + e)*a^2*d^3*f^2*e^2 - 15*b^2*c^
3*f^3*e^2 - 90*a*b*c^2*d*f^3*e^2 - 45*a^2*c*d^2*f^3*e^2 + 84*(f*x
 + e)*b^2*c*d^2*f*e^3 + 45*b^2*c^2*d*f^2*e^3 + 90*a*b*c*d^2*f^2*e
^3 + 15*a^2*d^3*f^2*e^3 - 21*(f*x + e)*b^2*d^3*e^4 - 45*b^2*c*d^2
*f*e^4 - 30*a*b*d^3*f*e^4 + 15*b^2*d^3*e^5)/((c^4*f^6 - 4*c^3*d*f
^5*e + 6*c^2*d^2*f^4*e^2 - 4*c*d^3*f^3*e^3 + d^4*f^2*e^4)*(f*x +
e)^(7/2))
```

3.1765 $\int \frac{(a+bx)^3(e+fx)^{5/2}}{c+dx}\,dx$

Optimal. Leaf size=280

$$\frac{2b(e+fx)^{7/2}\left(3a^2d^2f^2-3abdf(cf+de)+b^2\left(c^2f^2+cdef+d^2e^2\right)\right)}{7d^3f^3} - \frac{2b^2(e+fx)^{9/2}(-3adf+bcf+2bde)}{9d^2f^3} + \frac{2(bc-ad)^3(de-cf)^{5/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{13/2}} - \frac{2\sqrt{e+fx}(bc-ad)^3(de-cf)^2}{d^6} - \frac{2(e+fx)^{3/2}(bc-ad)^3(de-cf)}{3d^5} - \frac{2(e+fx)^{5/2}(bc-ad)^3}{5d^4} + \frac{2b^3(e+fx)^{11/2}}{11df^3}$$

```
[Out] (-2*(b*c - a*d)^3*(d*e - c*f)^2*Sqrt[e + f*x])/d^6 - (2*(b*c - a*
d)^3*(d*e - c*f)*(e + f*x)^(3/2))/(3*d^5) - (2*(b*c - a*d)^3*(e +
 f*x)^(5/2))/(5*d^4) + (2*b*(3*a^2*d^2*f^2 - 3*a*b*d*f*(d*e + c*f
) + b^2*(d^2*e^2 + c*d*e*f + c^2*f^2))*(e + f*x)^(7/2))/(7*d^3*f^
3) - (2*b^2*(2*b*d*e + b*c*f - 3*a*d*f)*(e + f*x)^(9/2))/(9*d^2*f
^3) + (2*b^3*(e + f*x)^(11/2))/(11*d*f^3) + (2*(b*c - a*d)^3*(d*e
 - c*f)^(5/2)*ArcTanh[(Sqrt[d]*Sqrt[e + f*x])/Sqrt[d*e - c*f]])/d
^(13/2)
```

Rubi [A] time = 0.666971, antiderivative size = 280, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$\frac{2b(e+fx)^{7/2}\left(3a^2d^2f^2-3abdf(cf+de)+b^2\left(c^2f^2+cdef+d^2e^2\right)\right)}{7d^3f^3} - \frac{2b^2(e+fx)^{9/2}(-3adf+bcf+2bde)}{9d^2f^3} + \frac{2(bc-ad)^3(de-cf)^{5/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{13/2}} - \frac{2\sqrt{e+fx}(bc-ad)^3(de-cf)^2}{d^6} - \frac{2(e+fx)^{3/2}(bc-ad)^3(de-cf)}{3d^5} - \frac{2(e+fx)^{5/2}(bc-ad)^3}{5d^4} + \frac{2b^3(e+fx)^{11/2}}{11df^3}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^3*(e + f*x)^(5/2))/(c + d*x),x]
```

```
[Out] (-2*(b*c - a*d)^3*(d*e - c*f)^2*Sqrt[e + f*x])/d^6 - (2*(b*c - a*
d)^3*(d*e - c*f)*(e + f*x)^(3/2))/(3*d^5) - (2*(b*c - a*d)^3*(e +
 f*x)^(5/2))/(5*d^4) + (2*b*(3*a^2*d^2*f^2 - 3*a*b*d*f*(d*e + c*f
) + b^2*(d^2*e^2 + c*d*e*f + c^2*f^2))*(e + f*x)^(7/2))/(7*d^3*f^
3) - (2*b^2*(2*b*d*e + b*c*f - 3*a*d*f)*(e + f*x)^(9/2))/(9*d^2*f
^3) + (2*b^3*(e + f*x)^(11/2))/(11*d*f^3) + (2*(b*c - a*d)^3*(d*e
 - c*f)^(5/2)*ArcTanh[(Sqrt[d]*Sqrt[e + f*x])/Sqrt[d*e - c*f]])/d
^(13/2)
```

Rubi in Sympy [A] time = 99.3163, size = 282, normalized size = 1.01

$$\frac{2b^3\left(e+fx\right)^{\frac{11}{2}}}{11df^3} + \frac{2b^2\left(e+fx\right)^{\frac{9}{2}}\left(3adf-bcf-2bde\right)}{9d^2f^3} + \frac{2b\left(e+fx\right)^{\frac{7}{2}}\left(3a^2d^2f^2-3abcdf^2-3abd^2ef+b^2c^2f^2+b^2cdef+b^2d^2e^2\right)}{7d^3f^3} + \frac{2\left(e+fx\right)^{\frac{5}{2}}\left(ad-bc\right)^3}{5d^4} - \frac{2\left(e+fx\right)^{\frac{3}{2}}\left(ad-bc\right)^3\left(cf-de\right)}{3d^5} + \frac{2\sqrt{e+fx}\left(ad-bc\right)^3\left(cf-de\right)^2}{d^6} - \frac{2\left(ad-bc\right)^3\left(cf-de\right)^{\frac{5}{2}}\operatorname{atan}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{cf-de}}\right)}{d^{\frac{13}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**3*(f*x+e)**(5/2)/(d*x+c),x)
```

```
[Out] 2*b**3*(e + f*x)**(11/2)/(11*d*f**3) + 2*b**2*(e + f*x)**(9/2)*(3
*a*d*f - b*c*f - 2*b*d*e)/(9*d**2*f**3) + 2*b*(e + f*x)**(7/2)*(3
*a**2*d**2*f**2 - 3*a*b*c*d*f**2 - 3*a*b*d**2*e*f + b**2*c**2*f**
2 + b**2*c*d*e*f + b**2*d**2*e**2)/(7*d**3*f**3) + 2*(e + f*x)**(
5/2)*(a*d - b*c)**3/(5*d**4) - 2*(e + f*x)**(3/2)*(a*d - b*c)**3*
(c*f - d*e)/(3*d**5) + 2*sqrt(e + f*x)*(a*d - b*c)**3*(c*f - d*e)
**2/d**6 - 2*(a*d - b*c)**3*(c*f - d*e)**(5/2)*atan(sqrt(d)*sqrt(
e + f*x)/sqrt(c*f - d*e))/d**(13/2)
```

Mathematica [A] time = 0.882474, size = 435, normalized size = 1.55

$$\frac{2\sqrt{e+fx}\left(231a^3d^3f^3\left(15c^2f^2-5cdf(7e+fx)+d^2\left(23e^2+11efx+3f^2x^2\right)\right)+99a^2bd^2f^2\left(-105c^3f^3+35c^2df^2(7e+fx)\right.\right.}{}$$

$$+\frac{2(bc-ad)^3(de-cf)^{5/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{13/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^3*(e + f*x)^(5/2))/(c + d*x),x]
```

```
[Out] (2*Sqrt[e + f*x]*(231*a^3*d^3*f^3*(15*c^2*f^2 - 5*c*d*f*(7*e + f*
x) + d^2*(23*e^2 + 11*e*f*x + 3*f^2*x^2)) + 99*a^2*b*d^2*f^2*(-10
5*c^3*f^3 + 15*d^3*(e + f*x)^3 + 35*c^2*d*f^2*(7*e + f*x) - 7*c*d
^2*f*(23*e^2 + 11*e*f*x + 3*f^2*x^2)) - 33*a*b^2*d*f*(-315*c^4*f^
4 + 45*c*d^3*f*(e + f*x)^3 + 5*d^4*(2*e - 7*f*x)*(e + f*x)^3 + 10
5*c^3*d*f^3*(7*e + f*x) - 21*c^2*d^2*f^2*(23*e^2 + 11*e*f*x + 3*f
^2*x^2)) + b^3*(-3465*c^5*f^5 + 495*c^2*d^3*f^2*(e + f*x)^3 + 55*
c*d^4*f*(2*e - 7*f*x)*(e + f*x)^3 + 1155*c^4*d*f^4*(7*e + f*x) -
231*c^3*d^2*f^3*(23*e^2 + 11*e*f*x + 3*f^2*x^2) + 5*d^5*(e + f*x)
^3*(8*e^2 - 28*e*f*x + 63*f^2*x^2))))/(3465*d^6*f^3) + (2*(b*c -
a*d)^3*(d*e - c*f)^(5/2)*ArcTanh[(Sqrt[d]*Sqrt[e + f*x])/Sqrt[d*e
 - c*f]])/d^(13/2)
```

Maple [B] time = 0.021, size = 1437, normalized size = 5.1

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3*(f*x+e)^(5/2)/(d*x+c),x)
```

```
[Out] 2*f^2/d^3*a^3*c^2*(f*x+e)^(1/2)+6/7/f/d*(f*x+e)^(7/2)*a^2*b+2/7/f
/d^3*(f*x+e)^(7/2)*b^3*c^2-2/9/f^2/d^2*(f*x+e)^(9/2)*b^3*c-2/3*f/
d^2*(f*x+e)^(3/2)*a^3*c-2*f^2/d^6*b^3*c^5*(f*x+e)^(1/2)+2/3/f^2/d
*(f*x+e)^(9/2)*a*b^2+6/5/d^3*(f*x+e)^(5/2)*a*b^2*c^2-2/d^4*b^3*c^
3*e^2*(f*x+e)^(1/2)+2/d*a^3*e^2*(f*x+e)^(1/2)-2/5/d^4*(f*x+e)^(5/
2)*b^3*c^3+2/3/d*(f*x+e)^(3/2)*a^3*e+2/((c*f-d*e)*d)^(1/2)*arctan
((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a^3*e^3-4/9/f^3/d*(f*x+e)^(
9/2)*b^3*e+2/3*f/d^5*(f*x+e)^(3/2)*b^3*c^4+2/11*b^3*(f*x+e)^(11/2
)/d/f^3-18*f^2/d^3/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c
*f-d*e)*d)^(1/2))*a^2*b*c^3*e+18*f/d^2/((c*f-d*e)*d)^(1/2)*arctan
((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a^2*b*c^2*e^2-18*f/d^3/((c*
f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a*b^2
*c^3*e^2+2/5/d*(f*x+e)^(5/2)*a^3-6*f/d/((c*f-d*e)*d)^(1/2)*arctan
((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a^3*c*e^2+6*f^3/d^4/((c*f-d
*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a^2*b*c^
4-6*f^3/d^5/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)
*d)^(1/2))*a*b^2*c^5-6*f^2/d^5/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)
```

```
^(1/2)*d/((c*f-d*e)*d)^(1/2))*b^3*c^5*e+6*f/d^4/((c*f-d*e)*d)^(1/
2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*b^3*c^4*e^2-12*f/d
^4*a*b^2*c^3*e*(f*x+e)^(1/2)+18*f^2/d^4/((c*f-d*e)*d)^(1/2)*arcta
n((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a*b^2*c^4*e-2/3/d^4*(f*x+e
)^(3/2)*b^3*c^3*e+4*f/d^5*b^3*c^4*e*(f*x+e)^(1/2)+2*f/d^3*(f*x+e)
^(3/2)*a^2*b*c^2+2*f^3/d^6/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/
2)*d/((c*f-d*e)*d)^(1/2))*b^3*c^6-6/5/d^2*(f*x+e)^(5/2)*a^2*b*c+2
/7/f^3/d*(f*x+e)^(7/2)*b^3*e^2-6/7/f/d^2*(f*x+e)^(7/2)*a*b^2*c-6/
7/f^2/d*(f*x+e)^(7/2)*a*b^2*e-2*f/d^4*(f*x+e)^(3/2)*a*b^2*c^3-6*f
^2/d^4*a^2*b*c^3*(f*x+e)^(1/2)+2/7/f^2/d^2*(f*x+e)^(7/2)*b^3*c*e-
4*f/d^2*a^3*c*e*(f*x+e)^(1/2)-2*f^3/d^3/((c*f-d*e)*d)^(1/2)*arcta
n((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a^3*c^3-2/d^3/((c*f-d*e)*d
)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*b^3*c^3*e^3+6
/d^3*a*b^2*c^2*e^2*(f*x+e)^(1/2)+2/d^3*(f*x+e)^(3/2)*a*b^2*c^2*e-
2/d^2*(f*x+e)^(3/2)*a^2*b*c*e-6/d^2*a^2*b*c*e^2*(f*x+e)^(1/2)+6*f
^2/d^5*a*b^2*c^4*(f*x+e)^(1/2)+12*f/d^3*a^2*b*c^2*e*(f*x+e)^(1/2)
+6*f^2/d^2/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*
d)^(1/2))*a^3*c^2*e+6/d^2/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2
)*d/((c*f-d*e)*d)^(1/2))*a*b^2*c^2*e^3-6/d/((c*f-d*e)*d)^(1/2)*ar
ctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a^2*b*c*e^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^3*(f*x + e)^(5/2)/(d*x + c),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.23622, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^3*(f*x + e)^(5/2)/(d*x + c),x, algorithm="fricas")
```

```
[Out] [-1/3465*(3465*((b^3*c^3*d^2 - 3*a*b^2*c^2*d^3 + 3*a^2*b*c*d^4 -
a^3*d^5)*e^2*f^3 - 2*(b^3*c^4*d - 3*a*b^2*c^3*d^2 + 3*a^2*b*c^2*d
^3 - a^3*c*d^4)*e*f^4 + (b^3*c^5 - 3*a*b^2*c^4*d + 3*a^2*b*c^3*d^
2 - a^3*c^2*d^3)*f^5)*sqrt((d*e - c*f)/d)*log((d*f*x + 2*d*e - c*
f - 2*sqrt(f*x + e)*d*sqrt((d*e - c*f)/d))/(d*x + c)) - 2*(315*b^
3*d^5*f^5*x^5 + 40*b^3*d^5*e^5 + 110*(b^3*c*d^4 - 3*a*b^2*d^5)*e^
4*f + 495*(b^3*c^2*d^3 - 3*a*b^2*c*d^4 + 3*a^2*b*d^5)*e^3*f^2 - 5
313*(b^3*c^3*d^2 - 3*a*b^2*c^2*d^3 + 3*a^2*b*c*d^4 - a^3*d^5)*e^2
*f^3 + 8085*(b^3*c^4*d - 3*a*b^2*c^3*d^2 + 3*a^2*b*c^2*d^3 - a^3*
c*d^4)*e*f^4 - 3465*(b^3*c^5 - 3*a*b^2*c^4*d + 3*a^2*b*c^3*d^2 -
a^3*c^2*d^3)*f^5 + 35*(23*b^3*d^5*e*f^4 - 11*(b^3*c*d^4 - 3*a*b^2
*d^5)*f^5)*x^4 + 5*(113*b^3*d^5*e^2*f^3 - 209*(b^3*c*d^4 - 3*a*b^
2*d^5)*e*f^4 + 99*(b^3*c^2*d^3 - 3*a*b^2*c*d^4 + 3*a^2*b*d^5)*f^5
)*x^3 + 3*(5*b^3*d^5*e^3*f^2 - 275*(b^3*c*d^4 - 3*a*b^2*d^5)*e^2*
f^3 + 495*(b^3*c^2*d^3 - 3*a*b^2*c*d^4 + 3*a^2*b*d^5)*e*f^4 - 231
*(b^3*c^3*d^2 - 3*a*b^2*c^2*d^3 + 3*a^2*b*c*d^4 - a^3*d^5)*f^5)*x
^2 - (20*b^3*d^5*e^4*f + 55*(b^3*c*d^4 - 3*a*b^2*d^5)*e^3*f^2 - 1
485*(b^3*c^2*d^3 - 3*a*b^2*c*d^4 + 3*a^2*b*d^5)*e^2*f^3 + 2541*(b
^3*c^3*d^2 - 3*a*b^2*c^2*d^3 + 3*a^2*b*c*d^4 - a^3*d^5)*e*f^4 - 1
155*(b^3*c^4*d - 3*a*b^2*c^3*d^2 + 3*a^2*b*c^2*d^3 - a^3*c*d^4)*f
^5)*x)*sqrt(f*x + e))/(d^6*f^3), 2/3465*(3465*((b^3*c^3*d^2 - 3*a
*b^2*c^2*d^3 + 3*a^2*b*c*d^4 - a^3*d^5)*e^2*f^3 - 2*(b^3*c^4*d -
3*a*b^2*c^3*d^2 + 3*a^2*b*c^2*d^3 - a^3*c*d^4)*e*f^4 + (b^3*c^5 -
 3*a*b^2*c^4*d + 3*a^2*b*c^3*d^2 - a^3*c^2*d^3)*f^5)*sqrt(-(d*e -
 c*f)/d)*arctan(sqrt(f*x + e)/sqrt(-(d*e - c*f)/d)) + (315*b^3*d^
5*f^5*x^5 + 40*b^3*d^5*e^5 + 110*(b^3*c*d^4 - 3*a*b^2*d^5)*e^4*f
```

```
+ 495*(b^3*c^2*d^3 - 3*a*b^2*c*d^4 + 3*a^2*b*d^5)*e^3*f^2 - 5313*
(b^3*c^3*d^2 - 3*a*b^2*c^2*d^3 + 3*a^2*b*c*d^4 - a^3*d^5)*e^2*f^3
 + 8085*(b^3*c^4*d - 3*a*b^2*c^3*d^2 + 3*a^2*b*c^2*d^3 - a^3*c*d^
4)*e*f^4 - 3465*(b^3*c^5 - 3*a*b^2*c^4*d + 3*a^2*b*c^3*d^2 - a^3*
c^2*d^3)*f^5 + 35*(23*b^3*d^5*e*f^4 - 11*(b^3*c*d^4 - 3*a*b^2*d^5
)*f^5)*x^4 + 5*(113*b^3*d^5*e^2*f^3 - 209*(b^3*c*d^4 - 3*a*b^2*d^
5)*e*f^4 + 99*(b^3*c^2*d^3 - 3*a*b^2*c*d^4 + 3*a^2*b*d^5)*f^5)*x^
3 + 3*(5*b^3*d^5*e^3*f^2 - 275*(b^3*c*d^4 - 3*a*b^2*d^5)*e^2*f^3
+ 495*(b^3*c^2*d^3 - 3*a*b^2*c*d^4 + 3*a^2*b*d^5)*e*f^4 - 231*(b^
3*c^3*d^2 - 3*a*b^2*c^2*d^3 + 3*a^2*b*c*d^4 - a^3*d^5)*f^5)*x^2 -
 (20*b^3*d^5*e^4*f + 55*(b^3*c*d^4 - 3*a*b^2*d^5)*e^3*f^2 - 1485*
(b^3*c^2*d^3 - 3*a*b^2*c*d^4 + 3*a^2*b*d^5)*e^2*f^3 + 2541*(b^3*c
^3*d^2 - 3*a*b^2*c^2*d^3 + 3*a^2*b*c*d^4 - a^3*d^5)*e*f^4 - 1155*
(b^3*c^4*d - 3*a*b^2*c^3*d^2 + 3*a^2*b*c^2*d^3 - a^3*c*d^4)*f^5)*
x)*sqrt(f*x + e))/(d^6*f^3)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**3*(f*x+e)**(5/2)/(d*x+c),x)

[Out] Timed out
```

GIAC/XCAS [A] time = 0.237423, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^3*(f*x + e)^(5/2)/(d*x + c),x, algorithm="giac")

[Out] Done
```

3.1766 $\int \frac{(a+bx)^3(e+fx)^{3/2}}{c+dx}\,dx$

Optimal. Leaf size=244

$$\frac{2b(e+fx)^{5/2}\left(3a^2d^2f^2-3abdf(cf+de)+b^2\left(c^2f^2+cdef+d^2e^2\right)\right)}{5d^3f^3}-\frac{2b^2(e+fx)^{7/2}(-3adf+bcf+2bde)}{7d^2f^3}+\frac{2(bc-ad)^3(de-cf)^{3/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{11/2}}-\frac{2\sqrt{e+fx}(bc-ad)^3(de-cf)}{d^5}-\frac{2(e+fx)^{3/2}(bc-ad)^3}{3d^4}+\frac{2b^3(e+fx)^{9/2}}{9df^3}$$

```
[Out] (-2*(b*c - a*d)^3*(d*e - c*f)*Sqrt[e + f*x])/d^5 - (2*(b*c - a*d)
^3*(e + f*x)^(3/2))/(3*d^4) + (2*b*(3*a^2*d^2*f^2 - 3*a*b*d*f*(d*
e + c*f) + b^2*(d^2*e^2 + c*d*e*f + c^2*f^2))*(e + f*x)^(5/2))/(5
*d^3*f^3) - (2*b^2*(2*b*d*e + b*c*f - 3*a*d*f)*(e + f*x)^(7/2))/(
7*d^2*f^3) + (2*b^3*(e + f*x)^(9/2))/(9*d*f^3) + (2*(b*c - a*d)^3
*(d*e - c*f)^(3/2)*ArcTanh[(Sqrt[d]*Sqrt[e + f*x])/Sqrt[d*e - c*f
]])/d^(11/2)
```

Rubi [A] time = 0.481759, antiderivative size = 244, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$\frac{2b(e+fx)^{5/2}\left(3a^2d^2f^2-3abdf(cf+de)+b^2\left(c^2f^2+cdef+d^2e^2\right)\right)}{5d^3f^3}-\frac{2b^2(e+fx)^{7/2}(-3adf+bcf+2bde)}{7d^2f^3}+\frac{2(bc-ad)^3(de-cf)^{3/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{11/2}}-\frac{2\sqrt{e+fx}(bc-ad)^3(de-cf)}{d^5}-\frac{2(e+fx)^{3/2}(bc-ad)^3}{3d^4}+\frac{2b^3(e+fx)^{9/2}}{9df^3}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^3*(e + f*x)^(3/2))/(c + d*x),x]
```

```
[Out] (-2*(b*c - a*d)^3*(d*e - c*f)*Sqrt[e + f*x])/d^5 - (2*(b*c - a*d)
^3*(e + f*x)^(3/2))/(3*d^4) + (2*b*(3*a^2*d^2*f^2 - 3*a*b*d*f*(d*
e + c*f) + b^2*(d^2*e^2 + c*d*e*f + c^2*f^2))*(e + f*x)^(5/2))/(5
*d^3*f^3) - (2*b^2*(2*b*d*e + b*c*f - 3*a*d*f)*(e + f*x)^(7/2))/(
7*d^2*f^3) + (2*b^3*(e + f*x)^(9/2))/(9*d*f^3) + (2*(b*c - a*d)^3
*(d*e - c*f)^(3/2)*ArcTanh[(Sqrt[d]*Sqrt[e + f*x])/Sqrt[d*e - c*f
]])/d^(11/2)
```

Rubi in Sympy [A] time = 85.6216, size = 250, normalized size = 1.02

$$\frac{2b^3\left(e+fx\right)^{\frac{9}{2}}}{9df^3}+\frac{2b^2\left(e+fx\right)^{\frac{7}{2}}\left(3adf-bcf-2bde\right)}{7d^2f^3}+\frac{2b\left(e+fx\right)^{\frac{5}{2}}\left(3a^2d^2f^2-3abcdf^2-3abd^2ef+b^2c^2f^2+b^2cdef+b^2d^2e^2\right)}{5d^3f^3}+\frac{2\left(e+fx\right)^{\frac{3}{2}}\left(ad-bc\right)^3}{3d^4}-\frac{2\sqrt{e+fx}\left(ad-bc\right)^3\left(cf-de\right)}{d^5}+\frac{2\left(ad-bc\right)^3\left(cf-de\right)^{\frac{3}{2}}\operatorname{atan}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{cf-de}}\right)}{d^{\frac{11}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**3*(f*x+e)**(3/2)/(d*x+c),x)
```

```
[Out] 2*b**3*(e + f*x)**(9/2)/(9*d*f**3) + 2*b**2*(e + f*x)**(7/2)*(3*a
*d*f - b*c*f - 2*b*d*e)/(7*d**2*f**3) + 2*b*(e + f*x)**(5/2)*(3*a
**2*d**2*f**2 - 3*a*b*c*d*f**2 - 3*a*b*d**2*e*f + b**2*c**2*f**2
+ b**2*c*d*e*f + b**2*d**2*e**2)/(5*d**3*f**3) + 2*(e + f*x)**(3/
2)*(a*d - b*c)**3/(3*d**4) - 2*sqrt(e + f*x)*(a*d - b*c)**3*(c*f
- d*e)/d**5 + 2*(a*d - b*c)**3*(c*f - d*e)**(3/2)*atan(sqrt(d)*sq
rt(e + f*x)/sqrt(c*f - d*e))/d**(11/2)
```

Mathematica [A] time = 0.606743, size = 313, normalized size = 1.28

$$\frac{2\sqrt{e+fx}\left(105a^3d^3f^3(-3cf+4de+dfx)+63a^2bd^2f^2\left(15c^2f^2-5cdf(4e+fx)+3d^2(e+fx)^2\right)-9ab^2df\left(105c^3f^3-35c\right.\right.}{}$$

$$+\frac{2(bc-ad)^3(de-cf)^{3/2}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{11/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^3*(e + f*x)^(3/2))/(c + d*x),x]
```

```
[Out] (2*Sqrt[e + f*x]*(105*a^3*d^3*f^3*(4*d*e - 3*c*f + d*f*x) + 63*a^
2*b*d^2*f^2*(15*c^2*f^2 + 3*d^2*(e + f*x)^2 - 5*c*d*f*(4*e + f*x)
) - 9*a*b^2*d*f*(105*c^3*f^3 + 21*c*d^2*f*(e + f*x)^2 + 3*d^3*(2*
e - 5*f*x)*(e + f*x)^2 - 35*c^2*d*f^2*(4*e + f*x)) + b^3*(315*c^4
*f^4 + 63*c^2*d^2*f^2*(e + f*x)^2 + 9*c*d^3*f*(2*e - 5*f*x)*(e +
f*x)^2 - 105*c^3*d*f^3*(4*e + f*x) + d^4*(e + f*x)^2*(8*e^2 - 20*
e*f*x + 35*f^2*x^2))))/(315*d^5*f^3) + (2*(b*c - a*d)^3*(d*e - c*
f)^(3/2)*ArcTanh[(Sqrt[d]*Sqrt[e + f*x])/Sqrt[d*e - c*f]])/d^(11/
2)
```

Maple [B] time = 0.022, size = 984, normalized size = 4.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3*(f*x+e)^(3/2)/(d*x+c),x)
```

```
[Out] -2/d^3/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(
1/2))*b^3*c^3*e^2-2*f^2/d^5/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1
/2)*d/((c*f-d*e)*d)^(1/2))*b^3*c^5-6/5/f/d^2*(f*x+e)^(5/2)*a*b^2*
c-6/5/f^2/d*(f*x+e)^(5/2)*a*b^2*e+2/5/f^2/d^2*(f*x+e)^(5/2)*b^3*c
*e+6*f/d^3*a^2*b*c^2*(f*x+e)^(1/2)+2/3/d*(f*x+e)^(3/2)*a^3-2*f/d^
2*a^3*c*(f*x+e)^(1/2)-2/3/d^4*(f*x+e)^(3/2)*b^3*c^3+2/d*a^3*e*(f*
x+e)^(1/2)+2/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e
)*d)^(1/2))*a^3*e^2+6/5/f/d*(f*x+e)^(5/2)*a^2*b+2/5/f/d^3*(f*x+e)
^(5/2)*b^3*c^2+2/9*b^3*(f*x+e)^(9/2)/d/f^3+12*f/d^2/((c*f-d*e)*d)
^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a^2*b*c^2*e-12
*f/d^3/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(
1/2))*a*b^2*c^3*e+4*f/d^4/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2
)*d/((c*f-d*e)*d)^(1/2))*b^3*c^4*e+6/d^2/((c*f-d*e)*d)^(1/2)*arct
an((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a*b^2*c^2*e^2-6/d/((c*f-d
*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a^2*b*c*
e^2-4*f/d/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d
)^(1/2))*a^3*c*e-6*f^2/d^3/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/
2)*d/((c*f-d*e)*d)^(1/2))*a^2*b*c^3+6*f^2/d^4/((c*f-d*e)*d)^(1/2)
*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a*b^2*c^4-6*f/d^4*a*
b^2*c^3*(f*x+e)^(1/2)+2*f^2/d^2/((c*f-d*e)*d)^(1/2)*arctan((f*x+e
)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a^3*c^2-6/d^2*a^2*b*c*e*(f*x+e)^(1
/2)+6/d^3*a*b^2*c^2*e*(f*x+e)^(1/2)+6/7/f^2/d*(f*x+e)^(7/2)*a*b^2
-2/7/f^2/d^2*(f*x+e)^(7/2)*b^3*c-2/d^2*(f*x+e)^(3/2)*a^2*b*c+2/d^
3*(f*x+e)^(3/2)*a*b^2*c^2-2/d^4*b^3*c^3*e*(f*x+e)^(1/2)-4/7/f^3/d
*(f*x+e)^(7/2)*b^3*e+2/5/f^3/d*(f*x+e)^(5/2)*b^3*e^2+2*f/d^5*b^3*
c^4*(f*x+e)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^3*(f*x + e)^(3/2)/(d*x + c),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.231866, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^3*(f*x + e)^(3/2)/(d*x + c),x, algorithm="fricas")
```

```
[Out] [1/315*(315*((b^3*c^3*d - 3*a*b^2*c^2*d^2 + 3*a^2*b*c*d^3 - a^3*d
^4)*e*f^3 - (b^3*c^4 - 3*a*b^2*c^3*d + 3*a^2*b*c^2*d^2 - a^3*c*d^
3)*f^4)*sqrt((d*e - c*f)/d)*log((d*f*x + 2*d*e - c*f + 2*sqrt(f*x
 + e)*d*sqrt((d*e - c*f)/d))/(d*x + c)) + 2*(35*b^3*d^4*f^4*x^4 +
 8*b^3*d^4*e^4 + 18*(b^3*c*d^3 - 3*a*b^2*d^4)*e^3*f + 63*(b^3*c^2
*d^2 - 3*a*b^2*c*d^3 + 3*a^2*b*d^4)*e^2*f^2 - 420*(b^3*c^3*d - 3*
a*b^2*c^2*d^2 + 3*a^2*b*c*d^3 - a^3*d^4)*e*f^3 + 315*(b^3*c^4 - 3
*a*b^2*c^3*d + 3*a^2*b*c^2*d^2 - a^3*c*d^3)*f^4 + 5*(10*b^3*d^4*e
*f^3 - 9*(b^3*c*d^3 - 3*a*b^2*d^4)*f^4)*x^3 + 3*(b^3*d^4*e^2*f^2
- 24*(b^3*c*d^3 - 3*a*b^2*d^4)*e*f^3 + 21*(b^3*c^2*d^2 - 3*a*b^2*
c*d^3 + 3*a^2*b*d^4)*f^4)*x^2 - (4*b^3*d^4*e^3*f + 9*(b^3*c*d^3 -
 3*a*b^2*d^4)*e^2*f^2 - 126*(b^3*c^2*d^2 - 3*a*b^2*c*d^3 + 3*a^2*
b*d^4)*e*f^3 + 105*(b^3*c^3*d - 3*a*b^2*c^2*d^2 + 3*a^2*b*c*d^3 -
 a^3*d^4)*f^4)*x)*sqrt(f*x + e))/(d^5*f^3), 2/315*(315*((b^3*c^3*
d - 3*a*b^2*c^2*d^2 + 3*a^2*b*c*d^3 - a^3*d^4)*e*f^3 - (b^3*c^4 -
 3*a*b^2*c^3*d + 3*a^2*b*c^2*d^2 - a^3*c*d^3)*f^4)*sqrt(-(d*e - c
*f)/d)*arctan(sqrt(f*x + e)/sqrt(-(d*e - c*f)/d)) + (35*b^3*d^4*f
^4*x^4 + 8*b^3*d^4*e^4 + 18*(b^3*c*d^3 - 3*a*b^2*d^4)*e^3*f + 63*
(b^3*c^2*d^2 - 3*a*b^2*c*d^3 + 3*a^2*b*d^4)*e^2*f^2 - 420*(b^3*c^
3*d - 3*a*b^2*c^2*d^2 + 3*a^2*b*c*d^3 - a^3*d^4)*e*f^3 + 315*(b^3
*c^4 - 3*a*b^2*c^3*d + 3*a^2*b*c^2*d^2 - a^3*c*d^3)*f^4 + 5*(10*b
^3*d^4*e*f^3 - 9*(b^3*c*d^3 - 3*a*b^2*d^4)*f^4)*x^3 + 3*(b^3*d^4*
e^2*f^2 - 24*(b^3*c*d^3 - 3*a*b^2*d^4)*e*f^3 + 21*(b^3*c^2*d^2 -
3*a*b^2*c*d^3 + 3*a^2*b*d^4)*f^4)*x^2 - (4*b^3*d^4*e^3*f + 9*(b^3
*c*d^3 - 3*a*b^2*d^4)*e^2*f^2 - 126*(b^3*c^2*d^2 - 3*a*b^2*c*d^3
+ 3*a^2*b*d^4)*e*f^3 + 105*(b^3*c^3*d - 3*a*b^2*c^2*d^2 + 3*a^2*b
*c*d^3 - a^3*d^4)*f^4)*x)*sqrt(f*x + e))/(d^5*f^3)]
```

Sympy [A] time = 136.518, size = 500, normalized size = 2.05

$$\frac{2b^3(e+fx)^{\frac{9}{2}}}{9df^3}+\frac{(e+fx)^{\frac{7}{2}}(6ab^2df-2b^3cf-4b^3de)}{7d^2f^3}+\frac{(e+fx)^{\frac{5}{2}}(6a^2bd^2f^2-6ab^2cdf^2-6ab^2d^2ef+2b^3c^2f^2+2b^3cdef+2b^3d^2e^2)}{5d^3f^3}+\frac{(e+fx)^{\frac{3}{2}}(2a^3d^3-6a^2bcd^2+6ab^2c^2d-2b^3c^3)}{3d^4}+\frac{\sqrt{e+fx}(-2a^3cd^3f+2a^3d^4e+6a^2bc^2d^2f-6a^2bcd^3e-6ab^2c^3df+6ab^2c^2d^2e+2b^3c^4f-2b^3c^3de)}{d^5}+\frac{2(ad-bc)^3(cf-de)^2\left(\begin{cases}\frac{\operatorname{atan}\left(\frac{\sqrt{e+fx}}{\sqrt{\frac{cf-de}{d}}}\right)}{d\sqrt{\frac{cf-de}{d}}} & \text{for } \frac{cf-de}{d}>0\\ -\frac{\operatorname{acoth}\left(\frac{\sqrt{e+fx}}{\sqrt{\frac{-cf+de}{d}}}\right)}{d\sqrt{\frac{-cf+de}{d}}} & \text{for } e+fx>\frac{-cf+de}{d}\wedge\frac{cf-de}{d}<0\\ -\frac{\operatorname{atanh}\left(\frac{\sqrt{e+fx}}{\sqrt{\frac{-cf+de}{d}}}\right)}{d\sqrt{\frac{-cf+de}{d}}} & \text{for } \frac{cf-de}{d}<0\wedge e+fx<\frac{-cf+de}{d}\end{cases}\right)}{d^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**3*(f*x+e)**(3/2)/(d*x+c),x)
```

```
[Out] 2*b**3*(e + f*x)**(9/2)/(9*d*f**3) + (e + f*x)**(7/2)*(6*a*b**2*d
*f - 2*b**3*c*f - 4*b**3*d*e)/(7*d**2*f**3) + (e + f*x)**(5/2)*(6
*a**2*b*d**2*f**2 - 6*a*b**2*c*d*f**2 - 6*a*b**2*d**2*e*f + 2*b**
3*c**2*f**2 + 2*b**3*c*d*e*f + 2*b**3*d**2*e**2)/(5*d**3*f**3) +
(e + f*x)**(3/2)*(2*a**3*d**3 - 6*a**2*b*c*d**2 + 6*a*b**2*c**2*d
 - 2*b**3*c**3)/(3*d**4) + sqrt(e + f*x)*(-2*a**3*c*d**3*f + 2*a*
*3*d**4*e + 6*a**2*b*c**2*d**2*f - 6*a**2*b*c*d**3*e - 6*a*b**2*c
**3*d*f + 6*a*b**2*c**2*d**2*e + 2*b**3*c**4*f - 2*b**3*c**3*d*e)
/d**5 + 2*(a*d - b*c)**3*(c*f - d*e)**2*Piecewise((atan(sqrt(e +
f*x)/sqrt((c*f - d*e)/d))/(d*sqrt((c*f - d*e)/d)), (c*f - d*e)/d
> 0), (-acoth(sqrt(e + f*x)/sqrt((-c*f + d*e)/d))/(d*sqrt((-c*f +
 d*e)/d)), ((c*f - d*e)/d < 0) & (e + f*x > (-c*f + d*e)/d)), (-a
tanh(sqrt(e + f*x)/sqrt((-c*f + d*e)/d))/(d*sqrt((-c*f + d*e)/d))
, ((c*f - d*e)/d < 0) & (e + f*x < (-c*f + d*e)/d)))/d**5
```

GIAC/XCAS [A] time = 0.234999, size = 922, normalized size = 3.78

$$-\frac{2\left(b^3c^5f^2-3\,ab^2c^4df^2+3\,a^2bc^3d^2f^2-a^3c^2d^3f^2-2\,b^3c^4dfe+6\,ab^2c^3d^2fe-6\,a^2bc^2d^3fe+2\,a^3cd^4fe+b^3c^3d^2e^2-3\,a\right.}{\sqrt{cdf-d^2e}d^5}$$
$$+\frac{2\left(35(fx+e)^{\frac{9}{2}}b^3d^8f^{24}-45(fx+e)^{\frac{7}{2}}b^3cd^7f^{25}+135(fx+e)^{\frac{7}{2}}ab^2d^8f^{25}+63(fx+e)^{\frac{5}{2}}b^3c^2d^6f^{26}-189(fx+e)^{\frac{5}{2}}ab^2cd^7f\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^3*(f*x + e)^(3/2)/(d*x + c),x, algorithm="giac")
```

```
[Out] -2*(b^3*c^5*f^2 - 3*a*b^2*c^4*d*f^2 + 3*a^2*b*c^3*d^2*f^2 - a^3*c
^2*d^3*f^2 - 2*b^3*c^4*d*f*e + 6*a*b^2*c^3*d^2*f*e - 6*a^2*b*c^2*
d^3*f*e + 2*a^3*c*d^4*f*e + b^3*c^3*d^2*e^2 - 3*a*b^2*c^2*d^3*e^2
 + 3*a^2*b*c*d^4*e^2 - a^3*d^5*e^2)*arctan(sqrt(f*x + e)*d/sqrt(c
*d*f - d^2*e))/(sqrt(c*d*f - d^2*e)*d^5) + 2/315*(35*(f*x + e)^(9
/2)*b^3*d^8*f^24 - 45*(f*x + e)^(7/2)*b^3*c*d^7*f^25 + 135*(f*x +
 e)^(7/2)*a*b^2*d^8*f^25 + 63*(f*x + e)^(5/2)*b^3*c^2*d^6*f^26 -
189*(f*x + e)^(5/2)*a*b^2*c*d^7*f^26 + 189*(f*x + e)^(5/2)*a^2*b*
```

```
d^8*f^26 - 105*(f*x + e)^(3/2)*b^3*c^3*d^5*f^27 + 315*(f*x + e)^(
3/2)*a*b^2*c^2*d^6*f^27 - 315*(f*x + e)^(3/2)*a^2*b*c*d^7*f^27 +
105*(f*x + e)^(3/2)*a^3*d^8*f^27 + 315*sqrt(f*x + e)*b^3*c^4*d^4*
f^28 - 945*sqrt(f*x + e)*a*b^2*c^3*d^5*f^28 + 945*sqrt(f*x + e)*a
^2*b*c^2*d^6*f^28 - 315*sqrt(f*x + e)*a^3*c*d^7*f^28 - 90*(f*x +
e)^(7/2)*b^3*d^8*f^24*e + 63*(f*x + e)^(5/2)*b^3*c*d^7*f^25*e - 1
89*(f*x + e)^(5/2)*a*b^2*d^8*f^25*e - 315*sqrt(f*x + e)*b^3*c^3*d
^5*f^27*e + 945*sqrt(f*x + e)*a*b^2*c^2*d^6*f^27*e - 945*sqrt(f*x
 + e)*a^2*b*c*d^7*f^27*e + 315*sqrt(f*x + e)*a^3*d^8*f^27*e + 63*
(f*x + e)^(5/2)*b^3*d^8*f^24*e^2)/(d^9*f^27)
```

3.1767 $\int \frac{(a+bx)^3\sqrt{e+fx}}{c+dx}\,dx$

Optimal. Leaf size=210

$$\frac{2b(e+fx)^{3/2}\left(3a^2d^2f^2-3abdf(cf+de)+b^2\left(c^2f^2+cdef+d^2e^2\right)\right)}{3d^3f^3} - \frac{2b^2(e+fx)^{5/2}(-3adf+bcf+2bde)}{5d^2f^3} + \frac{2(bc-ad)^3\sqrt{de-cf}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{9/2}} - \frac{2\sqrt{e+fx}(bc-ad)^3}{d^4} + \frac{2b^3(e+fx)^{7/2}}{7df^3}$$

```
[Out] (-2*(b*c - a*d)^3*Sqrt[e + f*x])/d^4 + (2*b*(3*a^2*d^2*f^2 - 3*a*
b*d*f*(d*e + c*f) + b^2*(d^2*e^2 + c*d*e*f + c^2*f^2))*(e + f*x)^
(3/2))/(3*d^3*f^3) - (2*b^2*(2*b*d*e + b*c*f - 3*a*d*f)*(e + f*x)
^(5/2))/(5*d^2*f^3) + (2*b^3*(e + f*x)^(7/2))/(7*d*f^3) + (2*(b*c
 - a*d)^3*Sqrt[d*e - c*f]*ArcTanh[(Sqrt[d]*Sqrt[e + f*x])/Sqrt[d*
e - c*f]])/d^(9/2)
```

Rubi [A] time = 0.375833, antiderivative size = 210, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$\frac{2b(e+fx)^{3/2}\left(3a^2d^2f^2-3abdf(cf+de)+b^2\left(c^2f^2+cdef+d^2e^2\right)\right)}{3d^3f^3} - \frac{2b^2(e+fx)^{5/2}(-3adf+bcf+2bde)}{5d^2f^3} + \frac{2(bc-ad)^3\sqrt{de-cf}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{9/2}} - \frac{2\sqrt{e+fx}(bc-ad)^3}{d^4} + \frac{2b^3(e+fx)^{7/2}}{7df^3}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^3*Sqrt[e + f*x])/(c + d*x),x]
```

```
[Out] (-2*(b*c - a*d)^3*Sqrt[e + f*x])/d^4 + (2*b*(3*a^2*d^2*f^2 - 3*a*
b*d*f*(d*e + c*f) + b^2*(d^2*e^2 + c*d*e*f + c^2*f^2))*(e + f*x)^
(3/2))/(3*d^3*f^3) - (2*b^2*(2*b*d*e + b*c*f - 3*a*d*f)*(e + f*x)
^(5/2))/(5*d^2*f^3) + (2*b^3*(e + f*x)^(7/2))/(7*d*f^3) + (2*(b*c
 - a*d)^3*Sqrt[d*e - c*f]*ArcTanh[(Sqrt[d]*Sqrt[e + f*x])/Sqrt[d*
e - c*f]])/d^(9/2)
```

Rubi in Sympy [A] time = 83.0947, size = 219, normalized size = 1.04

$$\frac{2b^3\left(e+fx\right)^{\frac{7}{2}}}{7df^3} + \frac{2b^2\left(e+fx\right)^{\frac{5}{2}}\left(3adf-bcf-2bde\right)}{5d^2f^3} + \frac{2b\left(e+fx\right)^{\frac{3}{2}}\left(3a^2d^2f^2-3abcdf^2-3abd^2ef+b^2c^2f^2+b^2cdef+b^2d^2e^2\right)}{3d^3f^3} + \frac{2\sqrt{e+fx}\left(ad-bc\right)^3}{d^4} - \frac{2\left(ad-bc\right)^3\sqrt{cf-de}\,\mathrm{atan}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{cf-de}}\right)}{d^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**3*(f*x+e)**(1/2)/(d*x+c),x)
```

```
[Out] 2*b**3*(e + f*x)**(7/2)/(7*d*f**3) + 2*b**2*(e + f*x)**(5/2)*(3*a
*d*f - b*c*f - 2*b*d*e)/(5*d**2*f**3) + 2*b*(e + f*x)**(3/2)*(3*a
```

```
**2*d**2*f**2 - 3*a*b*c*d*f**2 - 3*a*b*d**2*e*f + b**2*c**2*f**2
+ b**2*c*d*e*f + b**2*d**2*e**2)/(3*d**3*f**3) + 2*sqrt(e + f*x)*
(a*d - b*c)**3/d**4 - 2*(a*d - b*c)**3*sqrt(c*f - d*e)*atan(sqrt(
d)*sqrt(e + f*x)/sqrt(c*f - d*e))/d**(9/2)
```

Mathematica [A] time = 0.38069, size = 249, normalized size = 1.19

$$\frac{2\sqrt{e+fx}\left(105a^3d^3f^3+105a^2bd^2f^2(d(e+fx)-3cf)-21ab^2df\left(-15c^2f^2+5cdf(e+fx)+d^2\left(2e^2-efx-3f^2x^2\right)\right)+b\right.}{105d^4f^3}$$

$$+\frac{2(bc-ad)^3\sqrt{de-cf}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^3*Sqrt[e + f*x])/(c + d*x),x]
```

```
[Out] (2*Sqrt[e + f*x]*(105*a^3*d^3*f^3 + 105*a^2*b*d^2*f^2*(-3*c*f + d
*(e + f*x)) - 21*a*b^2*d*f*(-15*c^2*f^2 + 5*c*d*f*(e + f*x) + d^2
*(2*e^2 - e*f*x - 3*f^2*x^2)) + b^3*(-105*c^3*f^3 + 35*c^2*d*f^2*
(e + f*x) - 7*c*d^2*f*(-2*e^2 + e*f*x + 3*f^2*x^2) + d^3*(8*e^3 -
 4*e^2*f*x + 3*e*f^2*x^2 + 15*f^3*x^3))))/(105*d^4*f^3) + (2*(b*c
 - a*d)^3*Sqrt[d*e - c*f]*ArcTanh[(Sqrt[d]*Sqrt[e + f*x])/Sqrt[d*
e - c*f]])/d^(9/2)
```

Maple [B] time = 0.019, size = 629, normalized size = 3.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3*(f*x+e)^(1/2)/(d*x+c),x)
```

```
[Out] 2/7*b^3*(f*x+e)^(7/2)/d/f^3+6/5/f^2/d*(f*x+e)^(5/2)*a*b^2-2/5/f^2
/d^2*(f*x+e)^(5/2)*b^3*c-4/5/f^3/d*(f*x+e)^(5/2)*b^3*e+2/f/d*(f*x
+e)^(3/2)*a^2*b-2/f/d^2*(f*x+e)^(3/2)*a*b^2*c-2/f^2/d*(f*x+e)^(3/
2)*a*b^2*e+2/3/f/d^3*(f*x+e)^(3/2)*b^3*c^2+2/3/f^2/d^2*(f*x+e)^(3
/2)*b^3*c*e+2/3/f^3/d*(f*x+e)^(3/2)*b^3*e^2+2/d*a^3*(f*x+e)^(1/2)
-6/d^2*a^2*b*c*(f*x+e)^(1/2)+6/d^3*a*b^2*c^2*(f*x+e)^(1/2)-2/d^4*
b^3*c^3*(f*x+e)^(1/2)-2*f/d/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1
/2)*d/((c*f-d*e)*d)^(1/2))*a^3*c+2/((c*f-d*e)*d)^(1/2)*arctan((f*
x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a^3*e+6*f/d^2/((c*f-d*e)*d)^(1/
2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a^2*b*c^2-6/d/((c*
f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a^2*b
*c*e-6*f/d^3/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e
)*d)^(1/2))*a*b^2*c^3+6/d^2/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1
/2)*d/((c*f-d*e)*d)^(1/2))*a*b^2*c^2*e+2*f/d^4/((c*f-d*e)*d)^(1/2
)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*b^3*c^4-2/d^3/((c*f
-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*b^3*c^
3*e
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^3*sqrt(f*x + e)/(d*x + c),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.224183, size = 1, normalized size = 0.

$$\left[-\frac{105\left(b^{3}c^{3}-3\,ab^{2}c^{2}d+3\,a^{2}bcd^{2}-a^{3}d^{3}\right)f^{3}\sqrt{\frac{de-cf}{d}}\log\left(\frac{dfx+2\,de-cf-2\,\sqrt{fx+e}d\sqrt{\frac{de-cf}{d}}}{dx+c}\right)-2\left(15\,b^{3}d^{3}f^{3}x^{3}+8\,b^{3}d^{3}e^{3}+14\left(\right.\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^3*sqrt(f*x + e)/(d*x + c),x, algorithm="fricas")
```

```
[Out] [-1/105*(105*(b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*
f^3*sqrt((d*e - c*f)/d)*log((d*f*x + 2*d*e - c*f - 2*sqrt(f*x + e
)*d*sqrt((d*e - c*f)/d))/(d*x + c)) - 2*(15*b^3*d^3*f^3*x^3 + 8*b
^3*d^3*e^3 + 14*(b^3*c*d^2 - 3*a*b^2*d^3)*e^2*f + 35*(b^3*c^2*d -
 3*a*b^2*c*d^2 + 3*a^2*b*d^3)*e*f^2 - 105*(b^3*c^3 - 3*a*b^2*c^2*
d + 3*a^2*b*c*d^2 - a^3*d^3)*f^3 + 3*(b^3*d^3*e*f^2 - 7*(b^3*c*d^
2 - 3*a*b^2*d^3)*f^3)*x^2 - (4*b^3*d^3*e^2*f + 7*(b^3*c*d^2 - 3*a
*b^2*d^3)*e*f^2 - 35*(b^3*c^2*d - 3*a*b^2*c*d^2 + 3*a^2*b*d^3)*f^
3)*x)*sqrt(f*x + e))/(d^4*f^3), 2/105*(105*(b^3*c^3 - 3*a*b^2*c^2
*d + 3*a^2*b*c*d^2 - a^3*d^3)*f^3*sqrt(-(d*e - c*f)/d)*arctan(sqr
t(f*x + e)/sqrt(-(d*e - c*f)/d)) + (15*b^3*d^3*f^3*x^3 + 8*b^3*d^
3*e^3 + 14*(b^3*c*d^2 - 3*a*b^2*d^3)*e^2*f + 35*(b^3*c^2*d - 3*a*
b^2*c*d^2 + 3*a^2*b*d^3)*e*f^2 - 105*(b^3*c^3 - 3*a*b^2*c^2*d + 3
*a^2*b*c*d^2 - a^3*d^3)*f^3 + 3*(b^3*d^3*e*f^2 - 7*(b^3*c*d^2 - 3
*a*b^2*d^3)*f^3)*x^2 - (4*b^3*d^3*e^2*f + 7*(b^3*c*d^2 - 3*a*b^2*
d^3)*e*f^2 - 35*(b^3*c^2*d - 3*a*b^2*c*d^2 + 3*a^2*b*d^3)*f^3)*x)
*sqrt(f*x + e))/(d^4*f^3)]
```

Sympy [A] time = 25.3216, size = 388, normalized size = 1.85

$$\frac{2\left(\frac{b^{3}(e+fx)^{\frac{7}{2}}}{7df^{2}}+\frac{(e+fx)^{\frac{5}{2}}\left(3ab^{2}df-b^{3}cf-2b^{3}de\right)}{5d^{2}f^{2}}+\frac{(e+fx)^{\frac{3}{2}}\left(3a^{2}bd^{2}f^{2}-3ab^{2}cdf^{2}-3ab^{2}d^{2}ef+b^{3}c^{2}f^{2}+b^{3}cdef+b^{3}d^{2}e^{2}\right)}{3d^{3}f^{2}}-\frac{f(ad-bc)^{3}(cf-de)\left\{\begin{array}{l}\frac{\operatorname{atan}\left(\right.}{d\sqrt{}}\\ -\frac{\operatorname{acot}}{}\\ -\frac{\operatorname{atan}}{}\end{array}\right.}{}\right.}{f}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**3*(f*x+e)**(1/2)/(d*x+c),x)
```

```
[Out] 2*(b**3*(e + f*x)**(7/2)/(7*d*f**2) + (e + f*x)**(5/2)*(3*a*b**2*
d*f - b**3*c*f - 2*b**3*d*e)/(5*d**2*f**2) + (e + f*x)**(3/2)*(3*
a**2*b*d**2*f**2 - 3*a*b**2*c*d*f**2 - 3*a*b**2*d**2*e*f + b**3*c
**2*f**2 + b**3*c*d*e*f + b**3*d**2*e**2)/(3*d**3*f**2) - f*(a*d
- b*c)**3*(c*f - d*e)*Piecewise((atan(sqrt(e + f*x)/sqrt((c*f - d
*e)/d))/(d*sqrt((c*f - d*e)/d)), (c*f - d*e)/d > 0), (-acoth(sqrt
(e + f*x)/sqrt((-c*f + d*e)/d))/(d*sqrt((-c*f + d*e)/d)), ((c*f -
 d*e)/d < 0) & (e + f*x > (-c*f + d*e)/d)), (-atanh(sqrt(e + f*x)
/sqrt((-c*f + d*e)/d))/(d*sqrt((-c*f + d*e)/d)), ((c*f - d*e)/d <
 0) & (e + f*x < (-c*f + d*e)/d)))/d**4 + sqrt(e + f*x)*(a**3*d**
3*f - 3*a**2*b*c*d**2*f + 3*a*b**2*c**2*d*f - b**3*c**3*f)/d**4)/
f
```

GIAC/XCAS [A] time = 0.221507, size = 589, normalized size = 2.8

$$\frac{2\left(b^3c^4f - 3\,ab^2c^3df + 3\,a^2bc^2d^2f - a^3cd^3f - b^3c^3de + 3\,ab^2c^2d^2e - 3\,a^2bcd^3e + a^3d^4e\right)\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{cdf-d^2e}}\right)}{\sqrt{cdf-d^2e}d^4} + \frac{2\left(15\,(fx+e)^{\frac{7}{2}}b^3d^6f^{18} - 21\,(fx+e)^{\frac{5}{2}}b^3cd^5f^{19} + 63\,(fx+e)^{\frac{5}{2}}ab^2d^6f^{19} + 35\,(fx+e)^{\frac{3}{2}}b^3c^2d^4f^{20} - 105\,(fx+e)^{\frac{3}{2}}ab^2cd^5f^{2\cdots}\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^3*sqrt(f*x + e)/(d*x + c),x, algorithm="giac")
```

```
[Out] 2*(b^3*c^4*f - 3*a*b^2*c^3*d*f + 3*a^2*b*c^2*d^2*f - a^3*c*d^3*f
- b^3*c^3*d*e + 3*a*b^2*c^2*d^2*e - 3*a^2*b*c*d^3*e + a^3*d^4*e)*
arctan(sqrt(f*x + e)*d/sqrt(c*d*f - d^2*e))/(sqrt(c*d*f - d^2*e)*
d^4) + 2/105*(15*(f*x + e)^(7/2)*b^3*d^6*f^18 - 21*(f*x + e)^(5/2
)*b^3*c*d^5*f^19 + 63*(f*x + e)^(5/2)*a*b^2*d^6*f^19 + 35*(f*x +
e)^(3/2)*b^3*c^2*d^4*f^20 - 105*(f*x + e)^(3/2)*a*b^2*c*d^5*f^20
+ 105*(f*x + e)^(3/2)*a^2*b*d^6*f^20 - 105*sqrt(f*x + e)*b^3*c^3*
d^3*f^21 + 315*sqrt(f*x + e)*a*b^2*c^2*d^4*f^21 - 315*sqrt(f*x +
e)*a^2*b*c*d^5*f^21 + 105*sqrt(f*x + e)*a^3*d^6*f^21 - 42*(f*x +
e)^(5/2)*b^3*d^6*f^18*e + 35*(f*x + e)^(3/2)*b^3*c*d^5*f^19*e - 1
05*(f*x + e)^(3/2)*a*b^2*d^6*f^19*e + 35*(f*x + e)^(3/2)*b^3*d^6*
f^18*e^2)/(d^7*f^21)
```

3.1768 $\int \frac{(a+bx)^3}{(c+dx)\sqrt{e+fx}}\,dx$

Optimal. Leaf size=184

$$\frac{2b\sqrt{e+fx}\left(3a^2d^2f^2-3abdf(cf+de)+b^2\left(c^2f^2+cdef+d^2e^2\right)\right)}{d^3f^3} - \frac{2b^2(e+fx)^{3/2}(-3adf+bcf+2bde)}{3d^2f^3} + \frac{2(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{7/2}\sqrt{de-cf}} + \frac{2b^3(e+fx)^{5/2}}{5df^3}$$

```
[Out] (2*b*(3*a^2*d^2*f^2 - 3*a*b*d*f*(d*e + c*f) + b^2*(d^2*e^2 + c*d*
e*f + c^2*f^2))*Sqrt[e + f*x])/(d^3*f^3) - (2*b^2*(2*b*d*e + b*c*
f - 3*a*d*f)*(e + f*x)^(3/2))/(3*d^2*f^3) + (2*b^3*(e + f*x)^(5/2
))/(5*d*f^3) + (2*(b*c - a*d)^3*ArcTanh[(Sqrt[d]*Sqrt[e + f*x])/S
qrt[d*e - c*f]])/(d^(7/2)*Sqrt[d*e - c*f])
```

Rubi [A] time = 0.347774, antiderivative size = 184, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$\frac{2b\sqrt{e+fx}\left(3a^2d^2f^2-3abdf(cf+de)+b^2\left(c^2f^2+cdef+d^2e^2\right)\right)}{d^3f^3} - \frac{2b^2(e+fx)^{3/2}(-3adf+bcf+2bde)}{3d^2f^3} + \frac{2(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{7/2}\sqrt{de-cf}} + \frac{2b^3(e+fx)^{5/2}}{5df^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^3/((c + d*x)*Sqrt[e + f*x]),x]
```

```
[Out] (2*b*(3*a^2*d^2*f^2 - 3*a*b*d*f*(d*e + c*f) + b^2*(d^2*e^2 + c*d*
e*f + c^2*f^2))*Sqrt[e + f*x])/(d^3*f^3) - (2*b^2*(2*b*d*e + b*c*
f - 3*a*d*f)*(e + f*x)^(3/2))/(3*d^2*f^3) + (2*b^3*(e + f*x)^(5/2
))/(5*d*f^3) + (2*(b*c - a*d)^3*ArcTanh[(Sqrt[d]*Sqrt[e + f*x])/S
qrt[d*e - c*f]])/(d^(7/2)*Sqrt[d*e - c*f])
```

Rubi in Sympy [A] time = 70.5545, size = 196, normalized size = 1.07

$$\frac{2b^3(e+fx)^{\frac{5}{2}}}{5df^3} + \frac{2b^2(e+fx)^{\frac{3}{2}}(3adf-bcf-2bde)}{3d^2f^3} + \frac{2b\sqrt{e+fx}\left(3a^2d^2f^2-3abcdf^2-3abd^2ef+b^2c^2f^2+b^2cdef+b^2d^2e^2\right)}{d^3f^3} + \frac{2(ad-bc)^3\operatorname{atan}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{cf-de}}\right)}{d^{\frac{7}{2}}\sqrt{cf-de}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**3/(d*x+c)/(f*x+e)**(1/2),x)
```

```
[Out] 2*b**3*(e + f*x)**(5/2)/(5*d*f**3) + 2*b**2*(e + f*x)**(3/2)*(3*a
*d*f - b*c*f - 2*b*d*e)/(3*d**2*f**3) + 2*b*sqrt(e + f*x)*(3*a**2
*d**2*f**2 - 3*a*b*c*d*f**2 - 3*a*b*d**2*e*f + b**2*c**2*f**2 + b
**2*c*d*e*f + b**2*d**2*e**2)/(d**3*f**3) + 2*(a*d - b*c)**3*atan
(sqrt(d)*sqrt(e + f*x)/sqrt(c*f - d*e))/(d**(7/2)*sqrt(c*f - d*e)
)
```

Mathematica [A] time = 0.268279, size = 157, normalized size = 0.85

$$\frac{2b\sqrt{e+fx}\left(45a^2d^2f^2+15abdf(-3cf-2de+dfx)+b^2\left(15c^2f^2-5cdf(fx-2e)+d^2\left(8e^2-4efx+3f^2x^2\right)\right)\right)}{15d^3f^3}+\frac{2(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{7/2}\sqrt{de-cf}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^3/((c + d*x)*Sqrt[e + f*x]),x]
```

```
[Out] (2*b*Sqrt[e + f*x]*(45*a^2*d^2*f^2 + 15*a*b*d*f*(-2*d*e - 3*c*f +
 d*f*x) + b^2*(15*c^2*f^2 - 5*c*d*f*(-2*e + f*x) + d^2*(8*e^2 - 4
*e*f*x + 3*f^2*x^2))))/(15*d^3*f^3) + (2*(b*c - a*d)^3*ArcTanh[(S
qrt[d]*Sqrt[e + f*x])/Sqrt[d*e - c*f]])/(d^(7/2)*Sqrt[d*e - c*f])
```

Maple [B] time = 0.016, size = 372, normalized size = 2.

$$\frac{2\,b^3}{5\,df^3}(fx+e)^{\frac{5}{2}}+2\,\frac{b^2(fx+e)^{3/2}a}{df^2}-\frac{2\,b^3c}{3\,d^2f^2}(fx+e)^{\frac{3}{2}}-\frac{4\,b^3e}{3\,df^3}(fx+e)^{\frac{3}{2}}+6\,\frac{a^2b\sqrt{fx+e}}{df}-6\,\frac{ab^2c\sqrt{fx+e}}{d^2f}-6\,\frac{ab^2e\sqrt{fx+e}}{df^2}+2\,\frac{b^3c^2\sqrt{fx+e}}{fd^3}+2\,\frac{ceb^3\sqrt{fx+e}}{d^2f^2}+2\,\frac{b^3e^2\sqrt{fx+e}}{df^3}+2\,\frac{a^3}{\sqrt{(cf-de)\,d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)\,d}}\right)-6\,\frac{a^2bc}{d\sqrt{(cf-de)\,d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)\,d}}\right)+6\,\frac{ab^2c^2}{d^2\sqrt{(cf-de)\,d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)\,d}}\right)-2\,\frac{b^3c^3}{d^3\sqrt{(cf-de)\,d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)\,d}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3/(d*x+c)/(f*x+e)^(1/2),x)
```

```
[Out] 2/5*b^3*(f*x+e)^(5/2)/d/f^3+2/f^2*b^2/d*(f*x+e)^(3/2)*a-2/3/f^2*b
^3/d^2*(f*x+e)^(3/2)*c-4/3/f^3*b^3/d*(f*x+e)^(3/2)*e+6/f*b/d*a^2*
(f*x+e)^(1/2)-6/f*b^2/d^2*a*c*(f*x+e)^(1/2)-6/f^2*b^2/d*a*e*(f*x+
e)^(1/2)+2/f*b^3/d^3*c^2*(f*x+e)^(1/2)+2/f^2*b^3/d^2*c*e*(f*x+e)^
(1/2)+2/f^3*b^3/d*e^2*(f*x+e)^(1/2)+2/((c*f-d*e)*d)^(1/2)*arctan(
(f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a^3-6/d/((c*f-d*e)*d)^(1/2)*
arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a^2*c*b+6/d^2/((c*f-d
*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a*b^2*c^
2-2/d^3/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^
(1/2))*b^3*c^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^3/((d*x + c)*sqrt(f*x + e)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.220908, size = 1, normalized size = 0.01

$$\left[-\frac{15\left(b^3c^3-3\,ab^2c^2d+3\,a^2bcd^2-a^3d^3\right)f^3\log\left(\frac{\sqrt{d^2e-cdf}(dfx+2\,de-cf)-2\left(d^2e-cdf\right)\sqrt{fx+e}}{dx+c}\right)-2\left(3\,b^3d^2f^2x^2+8\,b^3d^2e^2+10\,(\right.}{15\,\sqrt{d^2e-cd}}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^3/((d*x + c)*sqrt(f*x + e)),x, algorithm="fricas")
```

```
[Out] [-1/15*(15*(b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*f^
3*log((sqrt(d^2*e - c*d*f)*(d*f*x + 2*d*e - c*f) - 2*(d^2*e - c*d
*f)*sqrt(f*x + e))/(d*x + c)) - 2*(3*b^3*d^2*f^2*x^2 + 8*b^3*d^2*
e^2 + 10*(b^3*c*d - 3*a*b^2*d^2)*e*f + 15*(b^3*c^2 - 3*a*b^2*c*d
+ 3*a^2*b*d^2)*f^2 - (4*b^3*d^2*e*f + 5*(b^3*c*d - 3*a*b^2*d^2)*f
^2)*x)*sqrt(d^2*e - c*d*f)*sqrt(f*x + e))/(sqrt(d^2*e - c*d*f)*d^
3*f^3), 2/15*(15*(b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d
^3)*f^3*arctan(-(d*e - c*f)/(sqrt(-d^2*e + c*d*f)*sqrt(f*x + e)))
 + (3*b^3*d^2*f^2*x^2 + 8*b^3*d^2*e^2 + 10*(b^3*c*d - 3*a*b^2*d^2
)*e*f + 15*(b^3*c^2 - 3*a*b^2*c*d + 3*a^2*b*d^2)*f^2 - (4*b^3*d^2
*e*f + 5*(b^3*c*d - 3*a*b^2*d^2)*f^2)*x)*sqrt(-d^2*e + c*d*f)*sqr
t(f*x + e))/(sqrt(-d^2*e + c*d*f)*d^3*f^3)]
```

Sympy [A] time = 75.7796, size = 345, normalized size = 1.88

$$\frac{2b^3(e+fx)^{\frac{5}{2}}}{5df^3}+\frac{2b^2(e+fx)^{\frac{3}{2}}(3adf-bcf-2bde)}{3d^2f^3}+\frac{2b\sqrt{e+fx}\left(3a^2d^2f^2-3abcdf^2-3abd^2ef+b^2c^2f^2+b^2cdef+b^2d^2e^2\right)}{d^3f^3}-\frac{2(ad-bc)^3\left(\begin{cases}\frac{\operatorname{atan}\left(\frac{1}{\sqrt{\frac{d}{cf-de}}\sqrt{e+fx}}\right)}{\sqrt{\frac{d}{cf-de}}(cf-de)} & \text{for}\ \frac{d}{cf-de}>0\\ -\frac{\operatorname{acoth}\left(\frac{1}{\sqrt{-\frac{d}{cf-de}}\sqrt{e+fx}}\right)}{\sqrt{-\frac{d}{cf-de}}(cf-de)} & \text{for}\ \frac{1}{e+fx}>-\frac{d}{cf-de}\wedge\frac{d}{cf-de}<0\\ -\frac{\operatorname{atanh}\left(\frac{1}{\sqrt{-\frac{d}{cf-de}}\sqrt{e+fx}}\right)}{\sqrt{-\frac{d}{cf-de}}(cf-de)} & \text{for}\ \frac{d}{cf-de}<0\wedge\frac{1}{e+fx}<-\frac{d}{cf-de}\end{cases}\right)}{d^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**3/(d*x+c)/(f*x+e)**(1/2),x)
```

```
[Out] 2*b**3*(e + f*x)**(5/2)/(5*d*f**3) + 2*b**2*(e + f*x)**(3/2)*(3*a
*d*f - b*c*f - 2*b*d*e)/(3*d**2*f**3) + 2*b*sqrt(e + f*x)*(3*a**2
*d**2*f**2 - 3*a*b*c*d*f**2 - 3*a*b*d**2*e*f + b**2*c**2*f**2 + b
**2*c*d*e*f + b**2*d**2*e**2)/(d**3*f**3) - 2*(a*d - b*c)**3*Piec
ewise((atan(1/(sqrt(d/(c*f - d*e))*sqrt(e + f*x)))/(sqrt(d/(c*f -
 d*e))*(c*f - d*e)), d/(c*f - d*e) > 0), (-acoth(1/(sqrt(-d/(c*f
- d*e))*sqrt(e + f*x)))/(sqrt(-d/(c*f - d*e))*(c*f - d*e)), (d/(c
*f - d*e) < 0) & (1/(e + f*x) > -d/(c*f - d*e))), (-atanh(1/(sqrt
(-d/(c*f - d*e))*sqrt(e + f*x)))/(sqrt(-d/(c*f - d*e))*(c*f - d*e
)), (d/(c*f - d*e) < 0) & (1/(e + f*x) < -d/(c*f - d*e))))/d**3
```

GIAC/XCAS [A] time = 0.216274, size = 402, normalized size = 2.18

$$-\frac{2\left(b^3c^3 - 3\,ab^2c^2d + 3\,a^2bcd^2 - a^3d^3\right)\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{cdf-d^2e}}\right)}{\sqrt{cdf-d^2e}d^3} + \frac{2\left(3\,(fx+e)^{\frac{5}{2}}b^3d^4f^{12} - 5\,(fx+e)^{\frac{3}{2}}b^3cd^3f^{13} + 15\,(fx+e)^{\frac{3}{2}}ab^2d^4f^{13} + 15\,\sqrt{fx+e}b^3c^2d^2f^{14} - 45\,\sqrt{fx+e}ab^2cd^3f^{14} + 45\right.}{15\,d^5f}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^3/((d*x + c)*sqrt(f*x + e)),x, algorithm="giac")
```

```
[Out] -2*(b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*arctan(sqr
t(f*x + e)*d/sqrt(c*d*f - d^2*e))/(sqrt(c*d*f - d^2*e)*d^3) + 2/1
5*(3*(f*x + e)^(5/2)*b^3*d^4*f^12 - 5*(f*x + e)^(3/2)*b^3*c*d^3*f
^13 + 15*(f*x + e)^(3/2)*a*b^2*d^4*f^13 + 15*sqrt(f*x + e)*b^3*c^
2*d^2*f^14 - 45*sqrt(f*x + e)*a*b^2*c*d^3*f^14 + 45*sqrt(f*x + e)
*a^2*b*d^4*f^14 - 10*(f*x + e)^(3/2)*b^3*d^4*f^12*e + 15*sqrt(f*x
 + e)*b^3*c*d^3*f^13*e - 45*sqrt(f*x + e)*a*b^2*d^4*f^13*e + 15*s
qrt(f*x + e)*b^3*d^4*f^12*e^2)/(d^5*f^15)
```

3.1769 $\int \frac{(a+bx)^3}{(c+dx)(e+fx)^{3/2}}\,dx$

Optimal. Leaf size=149

$$-\frac{2b^2\sqrt{e+fx}(-3adf+bcf+2bde)}{d^2f^3}+\frac{2(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{5/2}(de-cf)^{3/2}}-\frac{2(be-af)^3}{f^3\sqrt{e+fx}(de-cf)}+\frac{2b^3(e+fx)^{3/2}}{3df^3}$$

```
[Out] (-2*(b*e - a*f)^3)/(f^3*(d*e - c*f)*Sqrt[e + f*x]) - (2*b^2*(2*b*
d*e + b*c*f - 3*a*d*f)*Sqrt[e + f*x])/(d^2*f^3) + (2*b^3*(e + f*x
)^(3/2))/(3*d*f^3) + (2*(b*c - a*d)^3*ArcTanh[(Sqrt[d]*Sqrt[e + f
*x])/Sqrt[d*e - c*f]])/(d^(5/2)*(d*e - c*f)^(3/2))
```

Rubi [A] time = 0.44494, antiderivative size = 169, normalized size of antiderivative = 1.13, number of steps used = 6, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$-\frac{2b^2\sqrt{e+fx}(-3adf+bcf+bde)}{d^2f^3}+\frac{2(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{5/2}(de-cf)^{3/2}}-\frac{2(be-af)^3}{f^3\sqrt{e+fx}(de-cf)}+\frac{2b^3(e+fx)^{3/2}}{3df^3}-\frac{2b^3e\sqrt{e+fx}}{df^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^3/((c + d*x)*(e + f*x)^(3/2)),x]
```

```
[Out] (-2*(b*e - a*f)^3)/(f^3*(d*e - c*f)*Sqrt[e + f*x]) - (2*b^3*e*Sqr
t[e + f*x])/(d*f^3) - (2*b^2*(b*d*e + b*c*f - 3*a*d*f)*Sqrt[e + f
*x])/(d^2*f^3) + (2*b^3*(e + f*x)^(3/2))/(3*d*f^3) + (2*(b*c - a*
d)^3*ArcTanh[(Sqrt[d]*Sqrt[e + f*x])/Sqrt[d*e - c*f]])/(d^(5/2)*(
d*e - c*f)^(3/2))
```

Rubi in Sympy [A] time = 73.6328, size = 178, normalized size = 1.19

$$\frac{2b^3\left(e+fx\right)^{\frac{3}{2}}}{3df^3}-\frac{2\sqrt{e+fx}\left(af-be\right)^2\left(adf-3bcf+2bde\right)}{f^3\left(cf-de\right)^2}-\frac{2\left(af-be\right)^3}{f^3\sqrt{e+fx}\left(cf-de\right)}+\frac{2\sqrt{e+fx}\left(ad-bc\right)^3}{d^2\left(cf-de\right)^2}-\frac{2\left(ad-bc\right)^3\operatorname{atan}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{cf-de}}\right)}{d^{\frac{5}{2}}\left(cf-de\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**3/(d*x+c)/(f*x+e)**(3/2),x)
```

```
[Out] 2*b**3*(e + f*x)**(3/2)/(3*d*f**3) - 2*sqrt(e + f*x)*(a*f - b*e)*
*2*(a*d*f - 3*b*c*f + 2*b*d*e)/(f**3*(c*f - d*e)**2) - 2*(a*f - b
*e)**3/(f**3*sqrt(e + f*x)*(c*f - d*e)) + 2*sqrt(e + f*x)*(a*d -
b*c)**3/(d**2*(c*f - d*e)**2) - 2*(a*d - b*c)**3*atan(sqrt(d)*sqr
t(e + f*x)/sqrt(c*f - d*e))/(d**(5/2)*(c*f - d*e)**(3/2))
```

Mathematica [A] time = 0.479248, size = 137, normalized size = 0.92

$$\frac{2\sqrt{e+fx}\left(-\frac{b^2(-9adf+3bcf+5bde)}{d^2}-\frac{3(be-af)^3}{(e+fx)(de-cf)}+\frac{b^3fx}{d}\right)}{3f^3}+\frac{2(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{5/2}(de-cf)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^3/((c + d*x)*(e + f*x)^(3/2)),x]
```

```
[Out] (2*Sqrt[e + f*x]*(-((b^2*(5*b*d*e + 3*b*c*f - 9*a*d*f))/d^2) + (b
^3*f*x)/d - (3*(b*e - a*f)^3)/((d*e - c*f)*(e + f*x))))/(3*f^3) +
 (2*(b*c - a*d)^3*ArcTanh[(Sqrt[d]*Sqrt[e + f*x])/Sqrt[d*e - c*f]
])/(d^(5/2)*(d*e - c*f)^(3/2))
```

Maple [B] time = 0.021, size = 395, normalized size = 2.7

$$\frac{2b^3}{3df^3}(fx+e)^{\frac{3}{2}}+6\frac{ab^2\sqrt{fx+e}}{df^2}-2\frac{b^3c\sqrt{fx+e}}{d^2f^2}-4\frac{b^3e\sqrt{fx+e}}{df^3}$$
$$-2\frac{da^3}{(cf-de)\sqrt{(cf-de)d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)d}}\right)$$
$$+6\frac{a^2bc}{(cf-de)\sqrt{(cf-de)d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)d}}\right)$$
$$-6\frac{ab^2c^2}{(cf-de)d\sqrt{(cf-de)d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)d}}\right)$$
$$+2\frac{b^3c^3}{(cf-de)d^2\sqrt{(cf-de)d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)d}}\right)-2\frac{a^3}{(cf-de)\sqrt{fx+e}}$$
$$+6\frac{a^2be}{(cf-de)f\sqrt{fx+e}}-6\frac{ab^2e^2}{f^2(cf-de)\sqrt{fx+e}}+2\frac{b^3e^3}{f^3(cf-de)\sqrt{fx+e}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3/(d*x+c)/(f*x+e)^(3/2),x)
```

```
[Out] 2/3*b^3*(f*x+e)^(3/2)/d/f^3+6/f^2*b^2/d*a*(f*x+e)^(1/2)-2/f^2*b^3
/d^2*c*(f*x+e)^(1/2)-4*b^3*e*(f*x+e)^(1/2)/d/f^3-2/(c*f-d*e)*d/((
c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a^3
+6/(c*f-d*e)/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e
)*d)^(1/2))*a^2*c*b-6/(c*f-d*e)/d/((c*f-d*e)*d)^(1/2)*arctan((f*x
+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a*b^2*c^2+2/(c*f-d*e)/d^2/((c*f-
d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*b^3*c^3
-2/(c*f-d*e)/(f*x+e)^(1/2)*a^3+6/f/(c*f-d*e)/(f*x+e)^(1/2)*a^2*b*
e-6/f^2/(c*f-d*e)/(f*x+e)^(1/2)*a*b^2*e^2+2/f^3/(c*f-d*e)/(f*x+e)
^(1/2)*b^3*e^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^3/((d*x + c)*(f*x + e)^(3/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.227149, size = 1, normalized size = 0.01

$$\left[\frac{3\left(b^3c^3-3ab^2c^2d+3a^2bcd^2-a^3d^3\right)\sqrt{fx+e}f^3\log\left(\frac{\sqrt{d^2e-cdf}(dfx+2de-cf)+2\left(d^2e-cdf\right)\sqrt{fx+e}}{dx+c}\right)-2\left(8b^3d^2e^3-3a^3d^2f^3-\right.}{3}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^3/((d*x + c)*(f*x + e)^(3/2)),x, algorithm="fricas")
```

```
[Out] [1/3*(3*(b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*sqrt(
f*x + e)*f^3*log((sqrt(d^2*e - c*d*f)*(d*f*x + 2*d*e - c*f) + 2*(
d^2*e - c*d*f)*sqrt(f*x + e))/(d*x + c)) - 2*(8*b^3*d^2*e^3 - 3*a
^3*d^2*f^3 - 2*(b^3*c*d + 9*a*b^2*d^2)*e^2*f - 3*(b^3*c^2 - 3*a*b
^2*c*d - 3*a^2*b*d^2)*e*f^2 - (b^3*d^2*e*f^2 - b^3*c*d*f^3)*x^2 +
 (4*b^3*d^2*e^2*f - (b^3*c*d + 9*a*b^2*d^2)*e*f^2 - 3*(b^3*c^2 -
3*a*b^2*c*d)*f^3)*x)*sqrt(d^2*e - c*d*f))/((d^3*e*f^3 - c*d^2*f^4
)*sqrt(d^2*e - c*d*f)*sqrt(f*x + e)), 2/3*(3*(b^3*c^3 - 3*a*b^2*c
^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*sqrt(f*x + e)*f^3*arctan(-(d*e -
c*f)/(sqrt(-d^2*e + c*d*f)*sqrt(f*x + e))) - (8*b^3*d^2*e^3 - 3*a
^3*d^2*f^3 - 2*(b^3*c*d + 9*a*b^2*d^2)*e^2*f - 3*(b^3*c^2 - 3*a*b
^2*c*d - 3*a^2*b*d^2)*e*f^2 - (b^3*d^2*e*f^2 - b^3*c*d*f^3)*x^2 +
 (4*b^3*d^2*e^2*f - (b^3*c*d + 9*a*b^2*d^2)*e*f^2 - 3*(b^3*c^2 -
3*a*b^2*c*d)*f^3)*x)*sqrt(-d^2*e + c*d*f))/((d^3*e*f^3 - c*d^2*f^
4)*sqrt(-d^2*e + c*d*f)*sqrt(f*x + e))]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a+bx)^3}{(c+dx)(e+fx)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**3/(d*x+c)/(f*x+e)**(3/2),x)
```

```
[Out] Integral((a + b*x)**3/((c + d*x)*(e + f*x)**(3/2)), x)
```

GIAC/XCAS [A] time = 0.217885, size = 325, normalized size = 2.18

$$\frac{2\left(b^3c^3-3\,ab^2c^2d+3\,a^2bcd^2-a^3d^3\right)\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{cdf-d^2e}}\right)}{(cd^2f-d^3e)\sqrt{cdf-d^2e}}-\frac{2\left(a^3f^3-3\,a^2bf^2e+3\,ab^2fe^2-b^3e^3\right)}{(cf^4-df^3e)\sqrt{fx+e}}+\frac{2\left((fx+e)^{\frac{3}{2}}b^3d^2f^6-3\sqrt{fx+e}b^3cdf^7+9\sqrt{fx+e}ab^2d^2f^7-6\sqrt{fx+e}b^3d^2f^6e\right)}{3\,d^3f^9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^3/((d*x + c)*(f*x + e)^(3/2)),x, algorithm="giac")
```

```
[Out] 2*(b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*arctan(sqrt
(f*x + e)*d/sqrt(c*d*f - d^2*e))/((c*d^2*f - d^3*e)*sqrt(c*d*f -
d^2*e)) - 2*(a^3*f^3 - 3*a^2*b*f^2*e + 3*a*b^2*f*e^2 - b^3*e^3)/(
(c*f^4 - d*f^3*e)*sqrt(f*x + e)) + 2/3*((f*x + e)^(3/2)*b^3*d^2*f
^6 - 3*sqrt(f*x + e)*b^3*c*d*f^7 + 9*sqrt(f*x + e)*a*b^2*d^2*f^7
- 6*sqrt(f*x + e)*b^3*d^2*f^6*e)/(d^3*f^9)
```

3.1770 $\int \frac{(a+bx)^3}{(c+dx)(e+fx)^{5/2}}\,dx$

Optimal. Leaf size=163

$$\frac{2(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{3/2}(de-cf)^{5/2}}+\frac{2(be-af)^2(adf-3bcf+2bde)}{f^3\sqrt{e+fx}(de-cf)^2}-\frac{2(be-af)^3}{3f^3(e+fx)^{3/2}(de-cf)}+\frac{2b^3\sqrt{e+fx}}{df^3}$$

```
[Out] (-2*(b*e - a*f)^3)/(3*f^3*(d*e - c*f)*(e + f*x)^(3/2)) + (2*(b*e
- a*f)^2*(2*b*d*e - 3*b*c*f + a*d*f))/(f^3*(d*e - c*f)^2*Sqrt[e +
 f*x]) + (2*b^3*Sqrt[e + f*x])/(d*f^3) + (2*(b*c - a*d)^3*ArcTanh
[(Sqrt[d]*Sqrt[e + f*x])/Sqrt[d*e - c*f]])/(d^(3/2)*(d*e - c*f)^(
5/2))
```

Rubi [A] time = 0.456902, antiderivative size = 163, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$\frac{2(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{3/2}(de-cf)^{5/2}}+\frac{2(be-af)^2(adf-3bcf+2bde)}{f^3\sqrt{e+fx}(de-cf)^2}-\frac{2(be-af)^3}{3f^3(e+fx)^{3/2}(de-cf)}+\frac{2b^3\sqrt{e+fx}}{df^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^3/((c + d*x)*(e + f*x)^(5/2)),x]
```

```
[Out] (-2*(b*e - a*f)^3)/(3*f^3*(d*e - c*f)*(e + f*x)^(3/2)) + (2*(b*e
- a*f)^2*(2*b*d*e - 3*b*c*f + a*d*f))/(f^3*(d*e - c*f)^2*Sqrt[e +
 f*x]) + (2*b^3*Sqrt[e + f*x])/(d*f^3) + (2*(b*c - a*d)^3*ArcTanh
[(Sqrt[d]*Sqrt[e + f*x])/Sqrt[d*e - c*f]])/(d^(3/2)*(d*e - c*f)^(
5/2))
```

Rubi in Sympy [A] time = 140.259, size = 253, normalized size = 1.55

$$\frac{2\sqrt{e+fx}\,(af-be)\left(a^2d^2f^2-3abcdf^2+abd^2ef+3b^2c^2f^2-3b^2cdef+b^2d^2e^2\right)}{f^3\,(cf-de)^3}+\frac{2\,(af-be)^2\,(adf-3bcf+2bde)}{f^3\sqrt{e+fx}\,(cf-de)^2}-\frac{2\,(af-be)^3}{3f^3\,(e+fx)^{\frac{3}{2}}\,(cf-de)}-\frac{2\sqrt{e+fx}\,(ad-bc)^3}{d\,(cf-de)^3}+\frac{2\,(ad-bc)^3\operatorname{atan}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{cf-de}}\right)}{d^{\frac{3}{2}}\,(cf-de)^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**3/(d*x+c)/(f*x+e)**(5/2),x)
```

```
[Out] 2*sqrt(e + f*x)*(a*f - b*e)*(a**2*d**2*f**2 - 3*a*b*c*d*f**2 + a*
b*d**2*e*f + 3*b**2*c**2*f**2 - 3*b**2*c*d*e*f + b**2*d**2*e**2)/
(f**3*(c*f - d*e)**3) + 2*(a*f - b*e)**2*(a*d*f - 3*b*c*f + 2*b*d
*e)/(f**3*sqrt(e + f*x)*(c*f - d*e)**2) - 2*(a*f - b*e)**3/(3*f**
3*(e + f*x)**(3/2)*(c*f - d*e)) - 2*sqrt(e + f*x)*(a*d - b*c)**3/
(d*(c*f - d*e)**3) + 2*(a*d - b*c)**3*atan(sqrt(d)*sqrt(e + f*x)/
sqrt(c*f - d*e))/(d**(3/2)*(c*f - d*e)**(5/2))
```

Mathematica [A] time = 0.684428, size = 156, normalized size = 0.96

$$\frac{2\sqrt{e+fx}\left(\frac{3(be-af)^2(adf-3bcf+2bde)}{(e+fx)(de-cf)^2}-\frac{(be-af)^3}{(e+fx)^2(de-cf)}+\frac{3b^3}{d}\right)}{3f^3}+\frac{2(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{3/2}(de-cf)^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^3/((c + d*x)*(e + f*x)^(5/2)),x]
```

```
[Out] (2*Sqrt[e + f*x]*((3*b^3)/d - (b*e - a*f)^3/((d*e - c*f)*(e + f*x
)^2) + (3*(b*e - a*f)^2*(2*b*d*e - 3*b*c*f + a*d*f))/((d*e - c*f)
^2*(e + f*x))))/(3*f^3) + (2*(b*c - a*d)^3*ArcTanh[(Sqrt[d]*Sqrt[
e + f*x])/Sqrt[d*e - c*f]])/(d^(3/2)*(d*e - c*f)^(5/2))
```

Maple [B] time = 0.026, size = 501, normalized size = 3.1

$$2\,\frac{b^3\sqrt{fx+e}}{df^3}-\frac{2\,a^3}{3\,cf-3\,de}\,(fx+e)^{-\frac{3}{2}}+2\,\frac{a^2be}{(cf-de)\,f\,(fx+e)^{3/2}}-2\,\frac{ab^2e^2}{f^2\,(cf-de)\,(fx+e)^{3/2}}+\frac{2\,b^3e^3}{3\,f^3\,(cf-de)}\,(fx+e)^{-\frac{3}{2}}+2\,\frac{a^3d}{(cf-de)^2\,\sqrt{fx+e}}-6\,\frac{a^2bc}{(cf-de)^2\,\sqrt{fx+e}}+12\,\frac{ab^2ce}{f\,(cf-de)^2\,\sqrt{fx+e}}-6\,\frac{ab^2de^2}{f^2\,(cf-de)^2\,\sqrt{fx+e}}-6\,\frac{b^3ce^2}{f^2\,(cf-de)^2\,\sqrt{fx+e}}+4\,\frac{b^3de^3}{f^3\,(cf-de)^2\,\sqrt{fx+e}}+2\,\frac{d^2a^3}{(cf-de)^2\,\sqrt{(cf-de)\,d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)\,d}}\right)-6\,\frac{da^2cb}{(cf-de)^2\,\sqrt{(cf-de)\,d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)\,d}}\right)+6\,\frac{ab^2c^2}{(cf-de)^2\,\sqrt{(cf-de)\,d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)\,d}}\right)-2\,\frac{b^3c^3}{d\,(cf-de)^2\,\sqrt{(cf-de)\,d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)\,d}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3/(d*x+c)/(f*x+e)^(5/2),x)
```

```
[Out] 2*b^3*(f*x+e)^(1/2)/d/f^3-2/3/(c*f-d*e)/(f*x+e)^(3/2)*a^3+2/f/(c*
f-d*e)/(f*x+e)^(3/2)*a^2*b*e-2/f^2/(c*f-d*e)/(f*x+e)^(3/2)*a*b^2*
e^2+2/3/f^3/(c*f-d*e)/(f*x+e)^(3/2)*b^3*e^3+2/(c*f-d*e)^2/(f*x+e)
^(1/2)*a^3*d-6/(c*f-d*e)^2/(f*x+e)^(1/2)*a^2*b*c+12/f/(c*f-d*e)^2
/(f*x+e)^(1/2)*a*b^2*c*e-6/f^2/(c*f-d*e)^2/(f*x+e)^(1/2)*a*b^2*d*
e^2-6/f^2/(c*f-d*e)^2/(f*x+e)^(1/2)*b^3*c*e^2+4/f^3/(c*f-d*e)^2/(
f*x+e)^(1/2)*b^3*d*e^3+2*d^2/(c*f-d*e)^2/((c*f-d*e)*d)^(1/2)*arct
an((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a^3-6*d/(c*f-d*e)^2/((c*f
-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a^2*c*
b+6/(c*f-d*e)^2/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-
d*e)*d)^(1/2))*a*b^2*c^2-2/d/(c*f-d*e)^2/((c*f-d*e)*d)^(1/2)*arct
an((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*b^3*c^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^3/((d*x + c)*(f*x + e)^(5/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.23141, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^3/((d*x + c)*(f*x + e)^(5/2)),x, algorithm="fricas")
```

```
[Out] [-1/3*(3*((b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*f^4
*x + (b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*e*f^3)*s
qrt(f*x + e)*log((sqrt(d^2*e - c*d*f)*(d*f*x + 2*d*e - c*f) - 2*(
d^2*e - c*d*f)*sqrt(f*x + e))/(d*x + c)) - 2*(8*b^3*d^2*e^4 - a^3
*c*d*f^4 - 2*(7*b^3*c*d + 3*a*b^2*d^2)*e^3*f + 3*(b^3*c^2 + 5*a*b
^2*c*d - a^2*b*d^2)*e^2*f^2 - 2*(3*a^2*b*c*d - 2*a^3*d^2)*e*f^3 +
 3*(b^3*d^2*e^2*f^2 - 2*b^3*c*d*e*f^3 + b^3*c^2*f^4)*x^2 + 3*(4*b
^3*d^2*e^3*f - (7*b^3*c*d + 3*a*b^2*d^2)*e^2*f^2 + 2*(b^3*c^2 + 3
*a*b^2*c*d)*e*f^3 - (3*a^2*b*c*d - a^3*d^2)*f^4)*x)*sqrt(d^2*e -
c*d*f))/((d^3*e^3*f^3 - 2*c*d^2*e^2*f^4 + c^2*d*e*f^5 + (d^3*e^2*
f^4 - 2*c*d^2*e*f^5 + c^2*d*f^6)*x)*sqrt(d^2*e - c*d*f)*sqrt(f*x
+ e)), 2/3*(3*((b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3
)*f^4*x + (b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*e*f
^3)*sqrt(f*x + e)*arctan(-(d*e - c*f)/(sqrt(-d^2*e + c*d*f)*sqrt(
f*x + e))) + (8*b^3*d^2*e^4 - a^3*c*d*f^4 - 2*(7*b^3*c*d + 3*a*b^
2*d^2)*e^3*f + 3*(b^3*c^2 + 5*a*b^2*c*d - a^2*b*d^2)*e^2*f^2 - 2*
(3*a^2*b*c*d - 2*a^3*d^2)*e*f^3 + 3*(b^3*d^2*e^2*f^2 - 2*b^3*c*d*
e*f^3 + b^3*c^2*f^4)*x^2 + 3*(4*b^3*d^2*e^3*f - (7*b^3*c*d + 3*a*
b^2*d^2)*e^2*f^2 + 2*(b^3*c^2 + 3*a*b^2*c*d)*e*f^3 - (3*a^2*b*c*d
 - a^3*d^2)*f^4)*x)*sqrt(-d^2*e + c*d*f))/((d^3*e^3*f^3 - 2*c*d^2
*e^2*f^4 + c^2*d*e*f^5 + (d^3*e^2*f^4 - 2*c*d^2*e*f^5 + c^2*d*f^6
)*x)*sqrt(-d^2*e + c*d*f)*sqrt(f*x + e))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**3/(d*x+c)/(f*x+e)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.221206, size = 455, normalized size = 2.79

$$-\frac{2\left(b^{3}c^{3}-3\,ab^{2}c^{2}d+3\,a^{2}bcd^{2}-a^{3}d^{3}\right)\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{cdf-d^{2}e}}\right)}{\left(c^{2}df^{2}-2\,cd^{2}fe+d^{3}e^{2}\right)\sqrt{cdf-d^{2}e}}+\frac{2\,\sqrt{fx+e}b^{3}}{df^{3}}-\frac{2\left(9\,(fx+e)a^{2}bcf^{3}-3\,(fx+e)a^{3}df^{3}+a^{3}cf^{4}-18\,(fx+e)ab^{2}cf^{2}e-3\,a^{2}bcf^{3}e-a^{3}df^{3}e+9\,(fx+e)b^{3}cfe^{2}+9\,(fx+\right.}{3\left(c^{2}f^{5}-2\,cdf^{4}e+d^{2}f^{3}e^{2}\right)(fx+e}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^3/((d*x + c)*(f*x + e)^(5/2)),x, algorithm="giac")
```

```
[Out] -2*(b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*arctan(sqr
t(f*x + e)*d/sqrt(c*d*f - d^2*e))/((c^2*d*f^2 - 2*c*d^2*f*e + d^3
*e^2)*sqrt(c*d*f - d^2*e)) + 2*sqrt(f*x + e)*b^3/(d*f^3) - 2/3*(9
*(f*x + e)*a^2*b*c*f^3 - 3*(f*x + e)*a^3*d*f^3 + a^3*c*f^4 - 18*(
f*x + e)*a*b^2*c*f^2*e - 3*a^2*b*c*f^3*e - a^3*d*f^3*e + 9*(f*x +
 e)*b^3*c*f*e^2 + 9*(f*x + e)*a*b^2*d*f*e^2 + 3*a*b^2*c*f^2*e^2 +
 3*a^2*b*d*f^2*e^2 - 6*(f*x + e)*b^3*d*e^3 - b^3*c*f*e^3 - 3*a*b^
2*d*f*e^3 + b^3*d*e^4)/((c^2*f^5 - 2*c*d*f^4*e + d^2*f^3*e^2)*(f*
x + e)^(3/2))
```

3.1771 $\int \frac{(a+bx)^3}{(c+dx)(e+fx)^{7/2}}\,dx$

Optimal. Leaf size=227

$$-\frac{2(be-af)\left(a^2d^2f^2+abdf(de-3cf)+b^2\left(3c^2f^2-3cdef+d^2e^2\right)\right)}{f^3\sqrt{e+fx}(de-cf)^3}+\frac{2(be-af)^2(adf-3bcf+2bde)}{3f^3(e+fx)^{3/2}(de-cf)^2}-\frac{2(be-af)^3}{5f^3(e+fx)^{5/2}(de-cf)}+\frac{2(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{\sqrt{d}(de-cf)^{7/2}}$$

```
[Out] (-2*(b*e - a*f)^3)/(5*f^3*(d*e - c*f)*(e + f*x)^(5/2)) + (2*(b*e
- a*f)^2*(2*b*d*e - 3*b*c*f + a*d*f))/(3*f^3*(d*e - c*f)^2*(e + f
*x)^(3/2)) - (2*(b*e - a*f)*(a^2*d^2*f^2 + a*b*d*f*(d*e - 3*c*f)
+ b^2*(d^2*e^2 - 3*c*d*e*f + 3*c^2*f^2)))/(f^3*(d*e - c*f)^3*Sqrt
[e + f*x]) + (2*(b*c - a*d)^3*ArcTanh[(Sqrt[d]*Sqrt[e + f*x])/Sqr
t[d*e - c*f]])/(Sqrt[d]*(d*e - c*f)^(7/2))
```

Rubi [A] time = 0.694216, antiderivative size = 227, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$-\frac{2(be-af)\left(a^2d^2f^2+abdf(de-3cf)+b^2\left(3c^2f^2-3cdef+d^2e^2\right)\right)}{f^3\sqrt{e+fx}(de-cf)^3}+\frac{2(be-af)^2(adf-3bcf+2bde)}{3f^3(e+fx)^{3/2}(de-cf)^2}-\frac{2(be-af)^3}{5f^3(e+fx)^{5/2}(de-cf)}+\frac{2(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{\sqrt{d}(de-cf)^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^3/((c + d*x)*(e + f*x)^(7/2)),x]
```

```
[Out] (-2*(b*e - a*f)^3)/(5*f^3*(d*e - c*f)*(e + f*x)^(5/2)) + (2*(b*e
- a*f)^2*(2*b*d*e - 3*b*c*f + a*d*f))/(3*f^3*(d*e - c*f)^2*(e + f
*x)^(3/2)) - (2*(b*e - a*f)*(a^2*d^2*f^2 + a*b*d*f*(d*e - 3*c*f)
+ b^2*(d^2*e^2 - 3*c*d*e*f + 3*c^2*f^2)))/(f^3*(d*e - c*f)^3*Sqrt
[e + f*x]) + (2*(b*c - a*d)^3*ArcTanh[(Sqrt[d]*Sqrt[e + f*x])/Sqr
t[d*e - c*f]])/(Sqrt[d]*(d*e - c*f)^(7/2))
```

Rubi in Sympy [A] time = 159.692, size = 226, normalized size = 1.

$$-\frac{2\left(af-be\right)\left(a^2d^2f^2-3abcdf^2+abd^2ef+3b^2c^2f^2-3b^2cdef+b^2d^2e^2\right)}{f^3\sqrt{e+fx}\left(cf-de\right)^3}+\frac{2\left(af-be\right)^2\left(adf-3bcf+2bde\right)}{3f^3\left(e+fx\right)^{\frac{3}{2}}\left(cf-de\right)^2}-\frac{2\left(af-be\right)^3}{5f^3\left(e+fx\right)^{\frac{5}{2}}\left(cf-de\right)}-\frac{2\left(ad-bc\right)^3\operatorname{atan}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{cf-de}}\right)}{\sqrt{d}\left(cf-de\right)^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**3/(d*x+c)/(f*x+e)**(7/2),x)
```

```
[Out] -2*(a*f - b*e)*(a**2*d**2*f**2 - 3*a*b*c*d*f**2 + a*b*d**2*e*f +
3*b**2*c**2*f**2 - 3*b**2*c*d*e*f + b**2*d**2*e**2)/(f**3*sqrt(e
+ f*x)*(c*f - d*e)**3) + 2*(a*f - b*e)**2*(a*d*f - 3*b*c*f + 2*b*
d*e)/(3*f**3*(e + f*x)**(3/2)*(c*f - d*e)**2) - 2*(a*f - b*e)**3/
(5*f**3*(e + f*x)**(5/2)*(c*f - d*e)) - 2*(a*d - b*c)**3*atan(sqr
t(d)*sqrt(e + f*x)/sqrt(c*f - d*e))/(sqrt(d)*(c*f - d*e)**(7/2))
```

Mathematica [A] time = 0.935301, size = 212, normalized size = 0.93

$$\frac{2(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{\sqrt{d}(de-cf)^{7/2}} - \frac{2(be-af)\left(15(e+fx)^2\left(a^2d^2f^2+abdf(de-3cf)+b^2\left(3c^2f^2-3cdef+d^2e^2\right)\right)-5(e+fx)(be-af)(de-cf)(adf-3$$
$$15f^3(e+fx)^{5/2}(de-cf)^3$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^3/((c + d*x)*(e + f*x)^(7/2)),x]
```

```
[Out] (-2*(b*e - a*f)*(3*(b*e - a*f)^2*(d*e - c*f)^2 - 5*(b*e - a*f)*(d
*e - c*f)*(2*b*d*e - 3*b*c*f + a*d*f)*(e + f*x) + 15*(a^2*d^2*f^2
 + a*b*d*f*(d*e - 3*c*f) + b^2*(d^2*e^2 - 3*c*d*e*f + 3*c^2*f^2))
*(e + f*x)^2))/(15*f^3*(d*e - c*f)^3*(e + f*x)^(5/2)) + (2*(b*c -
 a*d)^3*ArcTanh[(Sqrt[d]*Sqrt[e + f*x])/Sqrt[d*e - c*f]])/(Sqrt[d
]*(d*e - c*f)^(7/2))
```

Maple [B] time = 0.028, size = 649, normalized size = 2.9

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3/(d*x+c)/(f*x+e)^(7/2),x)
```

```
[Out] -2/5/(c*f-d*e)/(f*x+e)^(5/2)*a^3+6/5/f/(c*f-d*e)/(f*x+e)^(5/2)*a^
2*b*e-6/5/f^2/(c*f-d*e)/(f*x+e)^(5/2)*a*b^2*e^2+2/5/f^3/(c*f-d*e)
/(f*x+e)^(5/2)*b^3*e^3+2/3/(c*f-d*e)^2/(f*x+e)^(3/2)*a^3*d-2/(c*f
-d*e)^2/(f*x+e)^(3/2)*a^2*b*c+4/f/(c*f-d*e)^2/(f*x+e)^(3/2)*a*b^2
*c*e-2/f^2/(c*f-d*e)^2/(f*x+e)^(3/2)*a*b^2*d*e^2-2/f^2/(c*f-d*e)^
2/(f*x+e)^(3/2)*b^3*c*e^2+4/3/f^3/(c*f-d*e)^2/(f*x+e)^(3/2)*b^3*d
*e^3-2/(c*f-d*e)^3/(f*x+e)^(1/2)*a^3*d^2+6/(c*f-d*e)^3/(f*x+e)^(1
/2)*a^2*b*c*d-6/(c*f-d*e)^3/(f*x+e)^(1/2)*a*b^2*c^2+6/f/(c*f-d*e)
^3/(f*x+e)^(1/2)*b^3*c^2*e-6/f^2/(c*f-d*e)^3/(f*x+e)^(1/2)*b^3*c*
d*e^2+2/f^3/(c*f-d*e)^3/(f*x+e)^(1/2)*b^3*d^2*e^3-2/(c*f-d*e)^3/(
(c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a^
3*d^3+6/(c*f-d*e)^3/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((
c*f-d*e)*d)^(1/2))*a^2*c*b*d^2-6/(c*f-d*e)^3/((c*f-d*e)*d)^(1/2)*
arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a*b^2*c^2*d+2/(c*f-d*
e)^3/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/
2))*b^3*c^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^3/((d*x + c)*(f*x + e)^(7/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.25766, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^3/((d*x + c)*(f*x + e)^(7/2)),x, algorithm="fricas")
```

```
[Out] [1/15*(15*((b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*f^
5*x^2 + 2*(b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*e*f
^4*x + (b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*e^2*f^
3)*sqrt(f*x + e)*log((sqrt(d^2*e - c*d*f)*(d*f*x + 2*d*e - c*f) +
 2*(d^2*e - c*d*f)*sqrt(f*x + e))/(d*x + c)) - 2*(8*b^3*d^2*e^5 -
 3*a^3*c^2*f^5 - 2*(13*b^3*c*d - 3*a*b^2*d^2)*e^4*f + 3*(11*b^3*c
^2 - 9*a*b^2*c*d + 3*a^2*b*d^2)*e^3*f^2 - (24*a*b^2*c^2 - 42*a^2*
b*c*d + 23*a^3*d^2)*e^2*f^3 - (6*a^2*b*c^2 - 11*a^3*c*d)*e*f^4 +
15*(b^3*d^2*e^3*f^2 - 3*b^3*c*d*e^2*f^3 + 3*b^3*c^2*e*f^4 - (3*a*
b^2*c^2 - 3*a^2*b*c*d + a^3*d^2)*f^5)*x^2 + 5*(4*b^3*d^2*e^4*f -
(13*b^3*c*d - 3*a*b^2*d^2)*e^3*f^2 + 3*(5*b^3*c^2 - 3*a*b^2*c*d)*
e^2*f^3 - (12*a*b^2*c^2 - 21*a^2*b*c*d + 7*a^3*d^2)*e*f^4 - (3*a^
2*b*c^2 - a^3*c*d)*f^5)*x)*sqrt(d^2*e - c*d*f))/((d^3*e^5*f^3 - 3
*c*d^2*e^4*f^4 + 3*c^2*d*e^3*f^5 - c^3*e^2*f^6 + (d^3*e^3*f^5 - 3
*c*d^2*e^2*f^6 + 3*c^2*d*e*f^7 - c^3*f^8)*x^2 + 2*(d^3*e^4*f^4 -
3*c*d^2*e^3*f^5 + 3*c^2*d*e^2*f^6 - c^3*e*f^7)*x)*sqrt(d^2*e - c*
d*f)*sqrt(f*x + e)), 2/15*(15*((b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b
*c*d^2 - a^3*d^3)*f^5*x^2 + 2*(b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*
c*d^2 - a^3*d^3)*e*f^4*x + (b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d
^2 - a^3*d^3)*e^2*f^3)*sqrt(f*x + e)*arctan(-(d*e - c*f)/(sqrt(-d
^2*e + c*d*f)*sqrt(f*x + e))) - (8*b^3*d^2*e^5 - 3*a^3*c^2*f^5 -
2*(13*b^3*c*d - 3*a*b^2*d^2)*e^4*f + 3*(11*b^3*c^2 - 9*a*b^2*c*d
+ 3*a^2*b*d^2)*e^3*f^2 - (24*a*b^2*c^2 - 42*a^2*b*c*d + 23*a^3*d^
2)*e^2*f^3 - (6*a^2*b*c^2 - 11*a^3*c*d)*e*f^4 + 15*(b^3*d^2*e^3*f
^2 - 3*b^3*c*d*e^2*f^3 + 3*b^3*c^2*e*f^4 - (3*a*b^2*c^2 - 3*a^2*b
*c*d + a^3*d^2)*f^5)*x^2 + 5*(4*b^3*d^2*e^4*f - (13*b^3*c*d - 3*a
*b^2*d^2)*e^3*f^2 + 3*(5*b^3*c^2 - 3*a*b^2*c*d)*e^2*f^3 - (12*a*b
^2*c^2 - 21*a^2*b*c*d + 7*a^3*d^2)*e*f^4 - (3*a^2*b*c^2 - a^3*c*d
)*f^5)*x)*sqrt(-d^2*e + c*d*f))/((d^3*e^5*f^3 - 3*c*d^2*e^4*f^4 +
 3*c^2*d*e^3*f^5 - c^3*e^2*f^6 + (d^3*e^3*f^5 - 3*c*d^2*e^2*f^6 +
 3*c^2*d*e*f^7 - c^3*f^8)*x^2 + 2*(d^3*e^4*f^4 - 3*c*d^2*e^3*f^5
+ 3*c^2*d*e^2*f^6 - c^3*e*f^7)*x)*sqrt(-d^2*e + c*d*f)*sqrt(f*x +
 e))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**3/(d*x+c)/(f*x+e)**(7/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.232642, size = 826, normalized size = 3.64

$$\frac{2\left(b^3c^3 - 3\,ab^2c^2d + 3\,a^2bcd^2 - a^3d^3\right)\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{cdf-d^2e}}\right)}{(c^3f^3 - 3\,c^2df^2e + 3\,cd^2fe^2 - d^3e^3)\sqrt{cdf - d^2e}} - \frac{2\left(45\,(fx+e)^2ab^2c^2f^3 - 45\,(fx+e)^2a^2bcdf^3 + 15\,(fx+e)^2a^3d^2f^3 + 15\,(fx+e)a^2bc^2f^4 - 5\,(fx+e)a^3cdf^4 + 3\,a^3c^2f^5 -}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^3/((d*x + c)*(f*x + e)^(7/2)),x, algorithm="giac")
```

```
[Out] 2*(b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*arctan(sqrt
(f*x + e)*d/sqrt(c*d*f - d^2*e))/((c^3*f^3 - 3*c^2*d*f^2*e + 3*c*
d^2*f*e^2 - d^3*e^3)*sqrt(c*d*f - d^2*e)) - 2/15*(45*(f*x + e)^2*
a*b^2*c^2*f^3 - 45*(f*x + e)^2*a^2*b*c*d*f^3 + 15*(f*x + e)^2*a^3
*d^2*f^3 + 15*(f*x + e)*a^2*b*c^2*f^4 - 5*(f*x + e)*a^3*c*d*f^4 +
```

```
 3*a^3*c^2*f^5 - 45*(f*x + e)^2*b^3*c^2*f^2*e - 30*(f*x + e)*a*b^
2*c^2*f^3*e - 15*(f*x + e)*a^2*b*c*d*f^3*e + 5*(f*x + e)*a^3*d^2*
f^3*e - 9*a^2*b*c^2*f^4*e - 6*a^3*c*d*f^4*e + 45*(f*x + e)^2*b^3*
c*d*f*e^2 + 15*(f*x + e)*b^3*c^2*f^2*e^2 + 45*(f*x + e)*a*b^2*c*d
*f^2*e^2 + 9*a*b^2*c^2*f^3*e^2 + 18*a^2*b*c*d*f^3*e^2 + 3*a^3*d^2
*f^3*e^2 - 15*(f*x + e)^2*b^3*d^2*e^3 - 25*(f*x + e)*b^3*c*d*f*e^
3 - 15*(f*x + e)*a*b^2*d^2*f*e^3 - 3*b^3*c^2*f^2*e^3 - 18*a*b^2*c
*d*f^2*e^3 - 9*a^2*b*d^2*f^2*e^3 + 10*(f*x + e)*b^3*d^2*e^4 + 6*b
^3*c*d*f*e^4 + 9*a*b^2*d^2*f*e^4 - 3*b^3*d^2*e^5)/((c^3*f^6 - 3*c
^2*d*f^5*e + 3*c*d^2*f^4*e^2 - d^3*f^3*e^3)*(f*x + e)^(5/2))
```

3.1772 $\int \frac{(a+bx)^3}{(c+dx)(e+fx)^{9/2}}\,dx$

Optimal. Leaf size=260

$$-\frac{2(be-af)\left(a^2d^2f^2+abdf(de-3cf)+b^2\left(3c^2f^2-3cdef+d^2e^2\right)\right)}{3f^3(e+fx)^{3/2}(de-cf)^3}+\frac{2(be-af)^2(adf-3bcf+2bde)}{5f^3(e+fx)^{5/2}(de-cf)^2}-\frac{2(be-af)^3}{7f^3(e+fx)^{7/2}(de-cf)}-\frac{2(bc-ad)^3}{\sqrt{e+fx}(de-cf)^4}+\frac{2\sqrt{d}(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{(de-cf)^{9/2}}$$

```
[Out] (-2*(b*e - a*f)^3)/(7*f^3*(d*e - c*f)*(e + f*x)^(7/2)) + (2*(b*e
- a*f)^2*(2*b*d*e - 3*b*c*f + a*d*f))/(5*f^3*(d*e - c*f)^2*(e + f
*x)^(5/2)) - (2*(b*e - a*f)*(a^2*d^2*f^2 + a*b*d*f*(d*e - 3*c*f)
+ b^2*(d^2*e^2 - 3*c*d*e*f + 3*c^2*f^2)))/(3*f^3*(d*e - c*f)^3*(e
 + f*x)^(3/2)) - (2*(b*c - a*d)^3)/((d*e - c*f)^4*Sqrt[e + f*x])
+ (2*Sqrt[d]*(b*c - a*d)^3*ArcTanh[(Sqrt[d]*Sqrt[e + f*x])/Sqrt[d
*e - c*f]])/(d*e - c*f)^(9/2)
```

Rubi [A] time = 0.970684, antiderivative size = 260, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$-\frac{2(be-af)\left(a^2d^2f^2+abdf(de-3cf)+b^2\left(3c^2f^2-3cdef+d^2e^2\right)\right)}{3f^3(e+fx)^{3/2}(de-cf)^3}+\frac{2(be-af)^2(adf-3bcf+2bde)}{5f^3(e+fx)^{5/2}(de-cf)^2}-\frac{2(be-af)^3}{7f^3(e+fx)^{7/2}(de-cf)}-\frac{2(bc-ad)^3}{\sqrt{e+fx}(de-cf)^4}+\frac{2\sqrt{d}(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{(de-cf)^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^3/((c + d*x)*(e + f*x)^(9/2)),x]
```


```
[Out] (-2*(b*e - a*f)^3)/(7*f^3*(d*e - c*f)*(e + f*x)^(7/2)) + (2*(b*e
- a*f)^2*(2*b*d*e - 3*b*c*f + a*d*f))/(5*f^3*(d*e - c*f)^2*(e + f
*x)^(5/2)) - (2*(b*e - a*f)*(a^2*d^2*f^2 + a*b*d*f*(d*e - 3*c*f)
+ b^2*(d^2*e^2 - 3*c*d*e*f + 3*c^2*f^2)))/(3*f^3*(d*e - c*f)^3*(e
 + f*x)^(3/2)) - (2*(b*c - a*d)^3)/((d*e - c*f)^4*Sqrt[e + f*x])
+ (2*Sqrt[d]*(b*c - a*d)^3*ArcTanh[(Sqrt[d]*Sqrt[e + f*x])/Sqrt[d
*e - c*f]])/(d*e - c*f)^(9/2)
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**3/(d*x+c)/(f*x+e)**(9/2),x)
```

```
[Out] Timed out
```

Mathematica [A] time = 1.22391, size = 246, normalized size = 0.95

$$\frac{2\sqrt{d}(bc-ad)^3\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{(de-cf)^{9/2}} - \frac{2\left(35(e+fx)^2(be-af)(de-cf)\left(a^2d^2f^2+abdf(de-3cf)+b^2\left(3c^2f^2-3cdef+d^2e^2\right)\right)+105f^3(e+fx)^3(bc-ad)^3-\right.}{105f^3(e+fx)^{7/2}(de-cf)^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^3/((c + d*x)*(e + f*x)^(9/2)),x]
```

```
[Out] (-2*(15*(b*e - a*f)^3*(d*e - c*f)^3 - 21*(b*e - a*f)^2*(d*e - c*f
)^2*(2*b*d*e - 3*b*c*f + a*d*f)*(e + f*x) + 35*(b*e - a*f)*(d*e -
 c*f)*(a^2*d^2*f^2 + a*b*d*f*(d*e - 3*c*f) + b^2*(d^2*e^2 - 3*c*d
*e*f + 3*c^2*f^2))*(e + f*x)^2 + 105*(b*c - a*d)^3*f^3*(e + f*x)^
3))/(105*f^3*(d*e - c*f)^4*(e + f*x)^(7/2)) + (2*Sqrt[d]*(b*c - a
*d)^3*ArcTanh[(Sqrt[d]*Sqrt[e + f*x])/Sqrt[d*e - c*f]])/(d*e - c*
f)^(9/2)
```

Maple [B] time = 0.032, size = 756, normalized size = 2.9

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3/(d*x+c)/(f*x+e)^(9/2),x)
```

```
[Out] -2/7/(c*f-d*e)/(f*x+e)^(7/2)*a^3+6/7/f/(c*f-d*e)/(f*x+e)^(7/2)*a^
2*b*e-6/7/f^2/(c*f-d*e)/(f*x+e)^(7/2)*a*b^2*e^2+2/7/f^3/(c*f-d*e)
/(f*x+e)^(7/2)*b^3*e^3+2/5/(c*f-d*e)^2/(f*x+e)^(5/2)*a^3*d-6/5/(c
*f-d*e)^2/(f*x+e)^(5/2)*a^2*b*c+12/5/f/(c*f-d*e)^2/(f*x+e)^(5/2)*
a*b^2*c*e-6/5/f^2/(c*f-d*e)^2/(f*x+e)^(5/2)*a*b^2*d*e^2-6/5/f^2/(
c*f-d*e)^2/(f*x+e)^(5/2)*b^3*c*e^2+4/5/f^3/(c*f-d*e)^2/(f*x+e)^(5
/2)*b^3*d*e^3-2/3/(c*f-d*e)^3/(f*x+e)^(3/2)*a^3*d^2+2/(c*f-d*e)^3
/(f*x+e)^(3/2)*a^2*b*c*d-2/(c*f-d*e)^3/(f*x+e)^(3/2)*a*b^2*c^2+2/
f/(c*f-d*e)^3/(f*x+e)^(3/2)*b^3*c^2*e-2/f^2/(c*f-d*e)^3/(f*x+e)^(
3/2)*b^3*c*d*e^2+2/3/f^3/(c*f-d*e)^3/(f*x+e)^(3/2)*b^3*d^2*e^3+2/
(c*f-d*e)^4/(f*x+e)^(1/2)*a^3*d^3-6/(c*f-d*e)^4/(f*x+e)^(1/2)*a^2
*c*b*d^2+6/(c*f-d*e)^4/(f*x+e)^(1/2)*a*b^2*c^2*d-2/(c*f-d*e)^4/(f
*x+e)^(1/2)*b^3*c^3+2*d^4/(c*f-d*e)^4/((c*f-d*e)*d)^(1/2)*arctan(
(f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a^3-6*d^3/(c*f-d*e)^4/((c*f-
d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a^2*c*b
+6*d^2/(c*f-d*e)^4/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c
*f-d*e)*d)^(1/2))*a*b^2*c^2-2*d/(c*f-d*e)^4/((c*f-d*e)*d)^(1/2)*a
rctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*b^3*c^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^3/((d*x + c)*(f*x + e)^(9/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.23939, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^3/((d*x + c)*(f*x + e)^(9/2)),x, algorithm="fricas")
```

```
[Out] [-1/105*(16*b^3*d^3*e^6 + 30*a^3*c^3*f^6 + 210*(b^3*c^3 - 3*a*b^2
*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*f^6*x^3 - 4*(19*b^3*c*d^2 - 9*a
*b^2*d^3)*e^5*f + 6*(29*b^3*c^2*d - 39*a*b^2*c*d^2 + 15*a^2*b*d^3
)*e^4*f^2 + 8*(12*b^3*c^3 - 60*a*b^2*c^2*d + 87*a^2*b*c*d^2 - 44*
a^3*d^3)*e^3*f^3 + 4*(12*a*b^2*c^3 - 48*a^2*b*c^2*d + 61*a^3*c*d^
2)*e^2*f^4 + 12*(3*a^2*b*c^3 - 11*a^3*c^2*d)*e*f^5 + 70*(b^3*d^3*
e^4*f^2 - 4*b^3*c*d^2*e^3*f^3 + 6*b^3*c^2*d*e^2*f^4 + 2*(3*b^3*c^
3 - 15*a*b^2*c^2*d + 15*a^2*b*c*d^2 - 5*a^3*d^3)*e*f^5 + (3*a*b^2
*c^3 - 3*a^2*b*c^2*d + a^3*c*d^2)*f^6)*x^2 + 105*((b^3*c^3 - 3*a*
b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*f^6*x^3 + 3*(b^3*c^3 - 3*a*b
^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*e*f^5*x^2 + 3*(b^3*c^3 - 3*a*
b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*e^2*f^4*x + (b^3*c^3 - 3*a*b
^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*e^3*f^3)*sqrt(f*x + e)*sqrt(d
/(d*e - c*f))*log((d*f*x + 2*d*e - c*f - 2*(d*e - c*f)*sqrt(f*x +
 e)*sqrt(d/(d*e - c*f)))/(d*x + c)) + 14*(4*b^3*d^3*e^5*f - (19*b
^3*c*d^2 - 9*a*b^2*d^3)*e^4*f^2 + 36*(b^3*c^2*d - a*b^2*c*d^2)*e^
3*f^3 + 2*(12*b^3*c^3 - 60*a*b^2*c^2*d + 87*a^2*b*c*d^2 - 29*a^3*
d^3)*e^2*f^4 + 4*(3*a*b^2*c^3 - 12*a^2*b*c^2*d + 4*a^3*c*d^2)*e*f
^5 + 3*(3*a^2*b*c^3 - a^3*c^2*d)*f^6)*x)/((d^4*e^7*f^3 - 4*c*d^3*
e^6*f^4 + 6*c^2*d^2*e^5*f^5 - 4*c^3*d*e^4*f^6 + c^4*e^3*f^7 + (d^
4*e^4*f^6 - 4*c*d^3*e^3*f^7 + 6*c^2*d^2*e^2*f^8 - 4*c^3*d*e*f^9 +
 c^4*f^10)*x^3 + 3*(d^4*e^5*f^5 - 4*c*d^3*e^4*f^6 + 6*c^2*d^2*e^3
*f^7 - 4*c^3*d*e^2*f^8 + c^4*e*f^9)*x^2 + 3*(d^4*e^6*f^4 - 4*c*d^
3*e^5*f^5 + 6*c^2*d^2*e^4*f^6 - 4*c^3*d*e^3*f^7 + c^4*e^2*f^8)*x)
*sqrt(f*x + e)), -2/105*(8*b^3*d^3*e^6 + 15*a^3*c^3*f^6 + 105*(b^
3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*f^6*x^3 - 2*(19*
b^3*c*d^2 - 9*a*b^2*d^3)*e^5*f + 3*(29*b^3*c^2*d - 39*a*b^2*c*d^2
 + 15*a^2*b*d^3)*e^4*f^2 + 4*(12*b^3*c^3 - 60*a*b^2*c^2*d + 87*a^
2*b*c*d^2 - 44*a^3*d^3)*e^3*f^3 + 2*(12*a*b^2*c^3 - 48*a^2*b*c^2*
d + 61*a^3*c*d^2)*e^2*f^4 + 6*(3*a^2*b*c^3 - 11*a^3*c^2*d)*e*f^5
+ 35*(b^3*d^3*e^4*f^2 - 4*b^3*c*d^2*e^3*f^3 + 6*b^3*c^2*d*e^2*f^4
 + 2*(3*b^3*c^3 - 15*a*b^2*c^2*d + 15*a^2*b*c*d^2 - 5*a^3*d^3)*e*
f^5 + (3*a*b^2*c^3 - 3*a^2*b*c^2*d + a^3*c*d^2)*f^6)*x^2 - 105*((
b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*f^6*x^3 + 3*(b
^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*e*f^5*x^2 + 3*(
b^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*e^2*f^4*x + (b
^3*c^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*e^3*f^3)*sqrt(f
*x + e)*sqrt(-d/(d*e - c*f))*arctan(-(d*e - c*f)*sqrt(-d/(d*e - c
*f))/(sqrt(f*x + e)*d)) + 7*(4*b^3*d^3*e^5*f - (19*b^3*c*d^2 - 9*
a*b^2*d^3)*e^4*f^2 + 36*(b^3*c^2*d - a*b^2*c*d^2)*e^3*f^3 + 2*(12
*b^3*c^3 - 60*a*b^2*c^2*d + 87*a^2*b*c*d^2 - 29*a^3*d^3)*e^2*f^4
+ 4*(3*a*b^2*c^3 - 12*a^2*b*c^2*d + 4*a^3*c*d^2)*e*f^5 + 3*(3*a^2
*b*c^3 - a^3*c^2*d)*f^6)*x)/((d^4*e^7*f^3 - 4*c*d^3*e^6*f^4 + 6*c
^2*d^2*e^5*f^5 - 4*c^3*d*e^4*f^6 + c^4*e^3*f^7 + (d^4*e^4*f^6 - 4
*c*d^3*e^3*f^7 + 6*c^2*d^2*e^2*f^8 - 4*c^3*d*e*f^9 + c^4*f^10)*x^
3 + 3*(d^4*e^5*f^5 - 4*c*d^3*e^4*f^6 + 6*c^2*d^2*e^3*f^7 - 4*c^3*
d*e^2*f^8 + c^4*e*f^9)*x^2 + 3*(d^4*e^6*f^4 - 4*c*d^3*e^5*f^5 + 6
*c^2*d^2*e^4*f^6 - 4*c^3*d*e^3*f^7 + c^4*e^2*f^8)*x)*sqrt(f*x + e
))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**3/(d*x+c)/(f*x+e)**(9/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.231277, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^3/((d*x + c)*(f*x + e)^(9/2)),x, algorithm="giac")

[Out] Done
```

3.1773 $\int \sqrt{1-2x}(2+3x)^6(3+5x)\,dx$

Optimal. Leaf size=105

$$\frac{3645(1-2x)^{17/2}}{2176}-\frac{19683}{640}(1-2x)^{15/2}+\frac{409941(1-2x)^{13/2}}{1664}-\frac{1580985(1-2x)^{11/2}}{1408}+\frac{406455}{128}(1-2x)^{9/2}-\frac{725445}{128}(1-2x)^{7/2}+\frac{3916031}{640}(1-2x)^{5/2}-\frac{1294139}{384}(1-2x)^{3/2}$$

```
[Out] (-1294139*(1 - 2*x)^(3/2))/384 + (3916031*(1 - 2*x)^(5/2))/640 -
(725445*(1 - 2*x)^(7/2))/128 + (406455*(1 - 2*x)^(9/2))/128 - (15
80985*(1 - 2*x)^(11/2))/1408 + (409941*(1 - 2*x)^(13/2))/1664 - (
19683*(1 - 2*x)^(15/2))/640 + (3645*(1 - 2*x)^(17/2))/2176
```

Rubi [A] time = 0.0662704, antiderivative size = 105, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{3645(1-2x)^{17/2}}{2176}-\frac{19683}{640}(1-2x)^{15/2}+\frac{409941(1-2x)^{13/2}}{1664}-\frac{1580985(1-2x)^{11/2}}{1408}+\frac{406455}{128}(1-2x)^{9/2}-\frac{725445}{128}(1-2x)^{7/2}+\frac{3916031}{640}(1-2x)^{5/2}-\frac{1294139}{384}(1-2x)^{3/2}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]*(2 + 3*x)^6*(3 + 5*x),x]
```

```
[Out] (-1294139*(1 - 2*x)^(3/2))/384 + (3916031*(1 - 2*x)^(5/2))/640 -
(725445*(1 - 2*x)^(7/2))/128 + (406455*(1 - 2*x)^(9/2))/128 - (15
80985*(1 - 2*x)^(11/2))/1408 + (409941*(1 - 2*x)^(13/2))/1664 - (
19683*(1 - 2*x)^(15/2))/640 + (3645*(1 - 2*x)^(17/2))/2176
```

Rubi in Sympy [A] time = 10.9717, size = 94, normalized size = 0.9

$$\frac{3645\,(-2x+1)^{\frac{17}{2}}}{2176}-\frac{19683\,(-2x+1)^{\frac{15}{2}}}{640}+\frac{409941\,(-2x+1)^{\frac{13}{2}}}{1664}-\frac{1580985\,(-2x+1)^{\frac{11}{2}}}{1408}+\frac{406455\,(-2x+1)^{\frac{9}{2}}}{128}-\frac{725445\,(-2x+1)^{\frac{7}{2}}}{128}+\frac{3916031\,(-2x+1)^{\frac{5}{2}}}{640}-\frac{1294139\,(-2x+1)^{\frac{3}{2}}}{384}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**6*(3+5*x)*(1-2*x)**(1/2),x)
```

```
[Out] 3645*(-2*x + 1)**(17/2)/2176 - 19683*(-2*x + 1)**(15/2)/640 + 409
941*(-2*x + 1)**(13/2)/1664 - 1580985*(-2*x + 1)**(11/2)/1408 + 4
06455*(-2*x + 1)**(9/2)/128 - 725445*(-2*x + 1)**(7/2)/128 + 3916
031*(-2*x + 1)**(5/2)/640 - 1294139*(-2*x + 1)**(3/2)/384
```

Mathematica [A] time = 0.0358343, size = 48, normalized size = 0.46

$$-\frac{(1-2x)^{3/2}\left(7818525x^7+44409222x^6+113196204x^5+171389520x^4+172440720x^3+122662080x^2+64000896x+23667\right.}{36465}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]*(2 + 3*x)^6*(3 + 5*x),x]
```

```
[Out] -((1 - 2*x)^(3/2)*(23667392 + 64000896*x + 122662080*x^2 + 172440
720*x^3 + 171389520*x^4 + 113196204*x^5 + 44409222*x^6 + 7818525*
```

```
x^7))/36465
```

Maple [A] time = 0.006, size = 45, normalized size = 0.4

$$-\frac{7818525\,x^{7}+44409222\,x^{6}+113196204\,x^{5}+171389520\,x^{4}+172440720\,x^{3}+122662080\,x^{2}+64000896\,x+23667392}{36465}(1-$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^6*(3+5*x)*(1-2*x)^(1/2),x)
```

```
[Out] -1/36465*(7818525*x^7+44409222*x^6+113196204*x^5+171389520*x^4+17
2440720*x^3+122662080*x^2+64000896*x+23667392)*(1-2*x)^(3/2)
```

Maxima [A] time = 1.3447, size = 99, normalized size = 0.94

$$\frac{3645}{2176}\,(-2\,x+1)^{\frac{17}{2}}-\frac{19683}{640}\,(-2\,x+1)^{\frac{15}{2}}+\frac{409941}{1664}\,(-2\,x+1)^{\frac{13}{2}}-\frac{1580985}{1408}\,(-2\,x+1)^{\frac{11}{2}}+\frac{406455}{128}\,(-2\,x+1)^{\frac{9}{2}}-\frac{725445}{128}\,(-2\,x+1)^{\frac{7}{2}}+\frac{3916031}{640}\,(-2\,x+1)^{\frac{5}{2}}-\frac{1294139}{384}\,(-2\,x+1)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^6*sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] 3645/2176*(-2*x + 1)^(17/2) - 19683/640*(-2*x + 1)^(15/2) + 40994
1/1664*(-2*x + 1)^(13/2) - 1580985/1408*(-2*x + 1)^(11/2) + 40645
5/128*(-2*x + 1)^(9/2) - 725445/128*(-2*x + 1)^(7/2) + 3916031/64
0*(-2*x + 1)^(5/2) - 1294139/384*(-2*x + 1)^(3/2)
```

Fricas [A] time = 0.206321, size = 66, normalized size = 0.63

$$\frac{1}{36465}\left(15637050\,x^{8}+80999919\,x^{7}+181983186\,x^{6}+229582836\,x^{5}+173491920\,x^{4}+72883440\,x^{3}+5339712\,x^{2}-1666611$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^6*sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] 1/36465*(15637050*x^8 + 80999919*x^7 + 181983186*x^6 + 229582836*
x^5 + 173491920*x^4 + 72883440*x^3 + 5339712*x^2 - 16666112*x - 2
3667392)*sqrt(-2*x + 1)
```

Sympy [A] time = 3.90783, size = 94, normalized size = 0.9

$$\frac{3645\,(-2x+1)^{\frac{17}{2}}}{2176}-\frac{19683\,(-2x+1)^{\frac{15}{2}}}{640}+\frac{409941\,(-2x+1)^{\frac{13}{2}}}{1664}-\frac{1580985\,(-2x+1)^{\frac{11}{2}}}{1408}+\frac{406455\,(-2x+1)^{\frac{9}{2}}}{128}-\frac{725445\,(-2x+1)^{\frac{7}{2}}}{128}+\frac{3916031\,(-2x+1)^{\frac{5}{2}}}{640}-\frac{1294139\,(-2x+1)^{\frac{3}{2}}}{384}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**6*(3+5*x)*(1-2*x)**(1/2),x)
```

```
[Out] 3645*(-2*x + 1)**(17/2)/2176 - 19683*(-2*x + 1)**(15/2)/640 + 409
941*(-2*x + 1)**(13/2)/1664 - 1580985*(-2*x + 1)**(11/2)/1408 + 4
```

```
06455*(-2*x + 1)**(9/2)/128 - 725445*(-2*x + 1)**(7/2)/128 + 3916
031*(-2*x + 1)**(5/2)/640 - 1294139*(-2*x + 1)**(3/2)/384
```

GIAC/XCAS [A] time = 0.217735, size = 165, normalized size = 1.57

$$\frac{3645}{2176}(2x-1)^8\sqrt{-2x+1}+\frac{19683}{640}(2x-1)^7\sqrt{-2x+1}+\frac{409941}{1664}(2x-1)^6\sqrt{-2x+1}+\frac{1580985}{1408}(2x-1)^5\sqrt{-2x+1}+\frac{406455}{128}(2x-1)^4\sqrt{-2x+1}+\frac{725445}{128}(2x-1)^3\sqrt{-2x+1}+\frac{3916031}{640}(2x-1)^2\sqrt{-2x+1}-\frac{1294139}{384}(-2x+1)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^6*sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] 3645/2176*(2*x - 1)^8*sqrt(-2*x + 1) + 19683/640*(2*x - 1)^7*sqrt
(-2*x + 1) + 409941/1664*(2*x - 1)^6*sqrt(-2*x + 1) + 1580985/140
8*(2*x - 1)^5*sqrt(-2*x + 1) + 406455/128*(2*x - 1)^4*sqrt(-2*x +
 1) + 725445/128*(2*x - 1)^3*sqrt(-2*x + 1) + 3916031/640*(2*x -
1)^2*sqrt(-2*x + 1) - 1294139/384*(-2*x + 1)^(3/2)
```

3.1774 $\int \sqrt{1-2x}(2+3x)^5(3+5x)\,dx$

Optimal. Leaf size=92

$$-\frac{81}{64}(1-2x)^{15/2}+\frac{81}{4}(1-2x)^{13/2}-\frac{97335}{704}(1-2x)^{11/2}+\frac{4165}{8}(1-2x)^{9/2}-\frac{74235}{64}(1-2x)^{7/2}+\frac{12005}{8}(1-2x)^{5/2}-\frac{184877}{192}(1-2x)^{3/2}$$

```
[Out] (-184877*(1 - 2*x)^(3/2))/192 + (12005*(1 - 2*x)^(5/2))/8 - (7423
5*(1 - 2*x)^(7/2))/64 + (4165*(1 - 2*x)^(9/2))/8 - (97335*(1 - 2*
x)^(11/2))/704 + (81*(1 - 2*x)^(13/2))/4 - (81*(1 - 2*x)^(15/2))/
64
```

Rubi [A] time = 0.0616982, antiderivative size = 92, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$-\frac{81}{64}(1-2x)^{15/2}+\frac{81}{4}(1-2x)^{13/2}-\frac{97335}{704}(1-2x)^{11/2}+\frac{4165}{8}(1-2x)^{9/2}-\frac{74235}{64}(1-2x)^{7/2}+\frac{12005}{8}(1-2x)^{5/2}-\frac{184877}{192}(1-2x)^{3/2}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]*(2 + 3*x)^5*(3 + 5*x),x]
```

```
[Out] (-184877*(1 - 2*x)^(3/2))/192 + (12005*(1 - 2*x)^(5/2))/8 - (7423
5*(1 - 2*x)^(7/2))/64 + (4165*(1 - 2*x)^(9/2))/8 - (97335*(1 - 2*
x)^(11/2))/704 + (81*(1 - 2*x)^(13/2))/4 - (81*(1 - 2*x)^(15/2))/
64
```

Rubi in Sympy [A] time = 9.96896, size = 82, normalized size = 0.89

$$-\frac{81\left(-2x+1\right)^{\frac{15}{2}}}{64}+\frac{81\left(-2x+1\right)^{\frac{13}{2}}}{4}-\frac{97335\left(-2x+1\right)^{\frac{11}{2}}}{704}+\frac{4165\left(-2x+1\right)^{\frac{9}{2}}}{8}-\frac{74235\left(-2x+1\right)^{\frac{7}{2}}}{64}+\frac{12005\left(-2x+1\right)^{\frac{5}{2}}}{8}-\frac{184877\left(-2x+1\right)^{\frac{3}{2}}}{192}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**5*(3+5*x)*(1-2*x)**(1/2),x)
```

```
[Out] -81*(-2*x + 1)**(15/2)/64 + 81*(-2*x + 1)**(13/2)/4 - 97335*(-2*x
 + 1)**(11/2)/704 + 4165*(-2*x + 1)**(9/2)/8 - 74235*(-2*x + 1)**
(7/2)/64 + 12005*(-2*x + 1)**(5/2)/8 - 184877*(-2*x + 1)**(3/2)/1
92
```

Mathematica [A] time = 0.0350631, size = 48, normalized size = 0.52

$$\frac{1}{33}\sqrt{1-2x}\left(5346x^7+24057x^6+45765x^5+46875x^4+26220x^3+5172x^2-4120x-7288\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]*(2 + 3*x)^5*(3 + 5*x),x]
```

```
[Out] (Sqrt[1 - 2*x]*(-7288 - 4120*x + 5172*x^2 + 26220*x^3 + 46875*x^4
 + 45765*x^5 + 24057*x^6 + 5346*x^7))/33
```

Maple [A] time = 0.004, size = 40, normalized size = 0.4

$$-\frac{2673\,x^{6}+13365\,x^{5}+29565\,x^{4}+38220\,x^{3}+32220\,x^{2}+18696\,x+7288}{33}\,(1-2\,x)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^5*(3+5*x)*(1-2*x)^(1/2),x)
```

```
[Out] -1/33*(2673*x^6+13365*x^5+29565*x^4+38220*x^3+32220*x^2+18696*x+7
288)*(1-2*x)^(3/2)
```

Maxima [A] time = 1.34956, size = 86, normalized size = 0.93

$$-\frac{81}{64}\,(-2\,x+1)^{\frac{15}{2}}+\frac{81}{4}\,(-2\,x+1)^{\frac{13}{2}}-\frac{97335}{704}\,(-2\,x+1)^{\frac{11}{2}}+\frac{4165}{8}\,(-2\,x+1)^{\frac{9}{2}}-\frac{74235}{64}\,(-2\,x+1)^{\frac{7}{2}}+\frac{12005}{8}\,(-2\,x+1)^{\frac{5}{2}}-\frac{184877}{192}\,(-2\,x+1)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^5*sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] -81/64*(-2*x + 1)^(15/2) + 81/4*(-2*x + 1)^(13/2) - 97335/704*(-2
*x + 1)^(11/2) + 4165/8*(-2*x + 1)^(9/2) - 74235/64*(-2*x + 1)^(7
/2) + 12005/8*(-2*x + 1)^(5/2) - 184877/192*(-2*x + 1)^(3/2)
```

Fricas [A] time = 0.212056, size = 59, normalized size = 0.64

$$\frac{1}{33}\,\left(5346\,x^{7}+24057\,x^{6}+45765\,x^{5}+46875\,x^{4}+26220\,x^{3}+5172\,x^{2}-4120\,x-7288\right)\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^5*sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] 1/33*(5346*x^7 + 24057*x^6 + 45765*x^5 + 46875*x^4 + 26220*x^3 +
5172*x^2 - 4120*x - 7288)*sqrt(-2*x + 1)
```

Sympy [A] time = 3.59212, size = 82, normalized size = 0.89

$$-\frac{81\,(-2x+1)^{\frac{15}{2}}}{64}+\frac{81\,(-2x+1)^{\frac{13}{2}}}{4}-\frac{97335\,(-2x+1)^{\frac{11}{2}}}{704}+\frac{4165\,(-2x+1)^{\frac{9}{2}}}{8}-\frac{74235\,(-2x+1)^{\frac{7}{2}}}{64}+\frac{12005\,(-2x+1)^{\frac{5}{2}}}{8}-\frac{184877\,(-2x+1)^{\frac{3}{2}}}{192}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**5*(3+5*x)*(1-2*x)**(1/2),x)
```

```
[Out] -81*(-2*x + 1)**(15/2)/64 + 81*(-2*x + 1)**(13/2)/4 - 97335*(-2*x
 + 1)**(11/2)/704 + 4165*(-2*x + 1)**(9/2)/8 - 74235*(-2*x + 1)**
(7/2)/64 + 12005*(-2*x + 1)**(5/2)/8 - 184877*(-2*x + 1)**(3/2)/1
92
```

GIAC/XCAS [A] time = 0.216387, size = 143, normalized size = 1.55

$$\frac{81}{64}(2x-1)^7\sqrt{-2x+1}+\frac{81}{4}(2x-1)^6\sqrt{-2x+1}+\frac{97335}{704}(2x-1)^5\sqrt{-2x+1}+\frac{4165}{8}(2x-1)^4\sqrt{-2x+1}+\frac{74235}{64}(2x-1)^3\sqrt{-2x+1}+\frac{12005}{8}(2x-1)^2\sqrt{-2x+1}-\frac{184877}{192}(-2x+1)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^5*sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] 81/64*(2*x - 1)^7*sqrt(-2*x + 1) + 81/4*(2*x - 1)^6*sqrt(-2*x + 1
) + 97335/704*(2*x - 1)^5*sqrt(-2*x + 1) + 4165/8*(2*x - 1)^4*sqr
t(-2*x + 1) + 74235/64*(2*x - 1)^3*sqrt(-2*x + 1) + 12005/8*(2*x
- 1)^2*sqrt(-2*x + 1) - 184877/192*(-2*x + 1)^(3/2)
```

3.1775 $\int \sqrt{1-2x}(2+3x)^4(3+5x)\,dx$

Optimal. Leaf size=79

$$\frac{405}{416}(1-2x)^{13/2} - \frac{4671}{352}(1-2x)^{11/2} + \frac{1197}{16}(1-2x)^{9/2} - \frac{3549}{16}(1-2x)^{7/2} + \frac{57281}{160}(1-2x)^{5/2} - \frac{26411}{96}(1-2x)^{3/2}$$

```
[Out] (-26411*(1 - 2*x)^(3/2))/96 + (57281*(1 - 2*x)^(5/2))/160 - (3549
*(1 - 2*x)^(7/2))/16 + (1197*(1 - 2*x)^(9/2))/16 - (4671*(1 - 2*x
)^(11/2))/352 + (405*(1 - 2*x)^(13/2))/416
```

Rubi [A] time = 0.0560559, antiderivative size = 79, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$\frac{405}{416}(1-2x)^{13/2} - \frac{4671}{352}(1-2x)^{11/2} + \frac{1197}{16}(1-2x)^{9/2} - \frac{3549}{16}(1-2x)^{7/2} + \frac{57281}{160}(1-2x)^{5/2} - \frac{26411}{96}(1-2x)^{3/2}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]*(2 + 3*x)^4*(3 + 5*x),x]
```

```
[Out] (-26411*(1 - 2*x)^(3/2))/96 + (57281*(1 - 2*x)^(5/2))/160 - (3549
*(1 - 2*x)^(7/2))/16 + (1197*(1 - 2*x)^(9/2))/16 - (4671*(1 - 2*x
)^(11/2))/352 + (405*(1 - 2*x)^(13/2))/416
```

Rubi in Sympy [A] time = 9.08667, size = 70, normalized size = 0.89

$$\frac{405(-2x+1)^{\frac{13}{2}}}{416} - \frac{4671(-2x+1)^{\frac{11}{2}}}{352} + \frac{1197(-2x+1)^{\frac{9}{2}}}{16} - \frac{3549(-2x+1)^{\frac{7}{2}}}{16} + \frac{57281(-2x+1)^{\frac{5}{2}}}{160} - \frac{26411(-2x+1)^{\frac{3}{2}}}{96}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4*(3+5*x)*(1-2*x)**(1/2),x)
```

```
[Out] 405*(-2*x + 1)**(13/2)/416 - 4671*(-2*x + 1)**(11/2)/352 + 1197*(
-2*x + 1)**(9/2)/16 - 3549*(-2*x + 1)**(7/2)/16 + 57281*(-2*x + 1
)**(5/2)/160 - 26411*(-2*x + 1)**(3/2)/96
```

Mathematica [A] time = 0.0277649, size = 38, normalized size = 0.48

$$-\frac{(1-2x)^{3/2}\left(66825x^5+288360x^4+540000x^3+577080x^2+388704x+163888\right)}{2145}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]*(2 + 3*x)^4*(3 + 5*x),x]
```

```
[Out] -((1 - 2*x)^(3/2)*(163888 + 388704*x + 577080*x^2 + 540000*x^3 +
288360*x^4 + 66825*x^5))/2145
```

Maple [A] time = 0.004, size = 35, normalized size = 0.4

$$-\frac{66825\,x^{5}+288360\,x^{4}+540000\,x^{3}+577080\,x^{2}+388704\,x+163888}{2145}\,(1-2\,x)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4*(3+5*x)*(1-2*x)^(1/2),x)
```

```
[Out] -1/2145*(66825*x^5+288360*x^4+540000*x^3+577080*x^2+388704*x+1638
88)*(1-2*x)^(3/2)
```

Maxima [A] time = 1.36371, size = 74, normalized size = 0.94

$$\frac{405}{416}\,(-2\,x+1)^{\frac{13}{2}}-\frac{4671}{352}\,(-2\,x+1)^{\frac{11}{2}}+\frac{1197}{16}\,(-2\,x+1)^{\frac{9}{2}}-\frac{3549}{16}\,(-2\,x+1)^{\frac{7}{2}}+\frac{57281}{160}\,(-2\,x+1)^{\frac{5}{2}}-\frac{26411}{96}\,(-2\,x+1)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^4*sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] 405/416*(-2*x + 1)^(13/2) - 4671/352*(-2*x + 1)^(11/2) + 1197/16*
(-2*x + 1)^(9/2) - 3549/16*(-2*x + 1)^(7/2) + 57281/160*(-2*x + 1
)^(5/2) - 26411/96*(-2*x + 1)^(3/2)
```

Fricas [A] time = 0.206573, size = 53, normalized size = 0.67

$$\frac{1}{2145}\,\left(133650\,x^{6}+509895\,x^{5}+791640\,x^{4}+614160\,x^{3}+200328\,x^{2}-60928\,x-163888\right)\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^4*sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] 1/2145*(133650*x^6 + 509895*x^5 + 791640*x^4 + 614160*x^3 + 20032
8*x^2 - 60928*x - 163888)*sqrt(-2*x + 1)
```

Sympy [A] time = 3.32226, size = 70, normalized size = 0.89

$$\frac{405\,(-2x+1)^{\frac{13}{2}}}{416}-\frac{4671\,(-2x+1)^{\frac{11}{2}}}{352}+\frac{1197\,(-2x+1)^{\frac{9}{2}}}{16}-\frac{3549\,(-2x+1)^{\frac{7}{2}}}{16}+\frac{57281\,(-2x+1)^{\frac{5}{2}}}{160}-\frac{26411\,(-2x+1)^{\frac{3}{2}}}{96}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4*(3+5*x)*(1-2*x)**(1/2),x)
```

```
[Out] 405*(-2*x + 1)**(13/2)/416 - 4671*(-2*x + 1)**(11/2)/352 + 1197*(
-2*x + 1)**(9/2)/16 - 3549*(-2*x + 1)**(7/2)/16 + 57281*(-2*x + 1
)**(5/2)/160 - 26411*(-2*x + 1)**(3/2)/96
```

GIAC/XCAS [A] time = 0.215343, size = 122, normalized size = 1.54

$$\frac{405}{416}(2x-1)^6\sqrt{-2x+1}+\frac{4671}{352}(2x-1)^5\sqrt{-2x+1}+\frac{1197}{16}(2x-1)^4\sqrt{-2x+1}+\frac{3549}{16}(2x-1)^3\sqrt{-2x+1}+\frac{57281}{160}(2x-1)^2\sqrt{-2x+1}-\frac{26411}{96}(-2x+1)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^4*sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] 405/416*(2*x - 1)^6*sqrt(-2*x + 1) + 4671/352*(2*x - 1)^5*sqrt(-2
*x + 1) + 1197/16*(2*x - 1)^4*sqrt(-2*x + 1) + 3549/16*(2*x - 1)^
3*sqrt(-2*x + 1) + 57281/160*(2*x - 1)^2*sqrt(-2*x + 1) - 26411/9
6*(-2*x + 1)^(3/2)
```

3.1776 $\int \sqrt{1-2x}(2+3x)^3(3+5x)\,dx$

Optimal. Leaf size=66

$$-\frac{135}{176}(1-2x)^{11/2}+\frac{69}{8}(1-2x)^{9/2}-\frac{153}{4}(1-2x)^{7/2}+\frac{3283}{40}(1-2x)^{5/2}-\frac{3773}{48}(1-2x)^{3/2}$$

```
[Out] (-3773*(1 - 2*x)^(3/2))/48 + (3283*(1 - 2*x)^(5/2))/40 - (153*(1
- 2*x)^(7/2))/4 + (69*(1 - 2*x)^(9/2))/8 - (135*(1 - 2*x)^(11/2))
/176
```

Rubi [A] time = 0.0509167, antiderivative size = 66, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{135}{176}(1-2x)^{11/2}+\frac{69}{8}(1-2x)^{9/2}-\frac{153}{4}(1-2x)^{7/2}+\frac{3283}{40}(1-2x)^{5/2}-\frac{3773}{48}(1-2x)^{3/2}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]*(2 + 3*x)^3*(3 + 5*x),x]
```

```
[Out] (-3773*(1 - 2*x)^(3/2))/48 + (3283*(1 - 2*x)^(5/2))/40 - (153*(1
- 2*x)^(7/2))/4 + (69*(1 - 2*x)^(9/2))/8 - (135*(1 - 2*x)^(11/2))
/176
```

Rubi in Sympy [A] time = 7.84628, size = 58, normalized size = 0.88

$$-\frac{135\,(-2x+1)^{\frac{11}{2}}}{176}+\frac{69\,(-2x+1)^{\frac{9}{2}}}{8}-\frac{153\,(-2x+1)^{\frac{7}{2}}}{4}+\frac{3283\,(-2x+1)^{\frac{5}{2}}}{40}-\frac{3773\,(-2x+1)^{\frac{3}{2}}}{48}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3*(3+5*x)*(1-2*x)**(1/2),x)
```

```
[Out] -135*(-2*x + 1)**(11/2)/176 + 69*(-2*x + 1)**(9/2)/8 - 153*(-2*x
+ 1)**(7/2)/4 + 3283*(-2*x + 1)**(5/2)/40 - 3773*(-2*x + 1)**(3/2
)/48
```

Mathematica [A] time = 0.0303094, size = 38, normalized size = 0.58

$$\frac{1}{165}\sqrt{1-2x}\left(4050x^5+12645x^4+15075x^3+7527x^2-482x-4442\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]*(2 + 3*x)^3*(3 + 5*x),x]
```

```
[Out] (Sqrt[1 - 2*x]*(-4442 - 482*x + 7527*x^2 + 15075*x^3 + 12645*x^4
+ 4050*x^5))/165
```

Maple [A] time = 0.006, size = 30, normalized size = 0.5

$$-\frac{2025\,x^4+7335\,x^3+11205\,x^2+9366\,x+4442}{165}\,(1-2\,x)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3*(3+5*x)*(1-2*x)^(1/2),x)
```

```
[Out] -1/165*(2025*x^4+7335*x^3+11205*x^2+9366*x+4442)*(1-2*x)^(3/2)
```

Maxima [A] time = 1.354, size = 62, normalized size = 0.94

$$-\frac{135}{176}(-2x+1)^{\frac{11}{2}}+\frac{69}{8}(-2x+1)^{\frac{9}{2}}-\frac{153}{4}(-2x+1)^{\frac{7}{2}}+\frac{3283}{40}(-2x+1)^{\frac{5}{2}}-\frac{3773}{48}(-2x+1)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^3*sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] -135/176*(-2*x + 1)^(11/2) + 69/8*(-2*x + 1)^(9/2) - 153/4*(-2*x
+ 1)^(7/2) + 3283/40*(-2*x + 1)^(5/2) - 3773/48*(-2*x + 1)^(3/2)
```

Fricas [A] time = 0.206714, size = 46, normalized size = 0.7

$$\frac{1}{165}\left(4050x^5+12645x^4+15075x^3+7527x^2-482x-4442\right)\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^3*sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] 1/165*(4050*x^5 + 12645*x^4 + 15075*x^3 + 7527*x^2 - 482*x - 4442
)*sqrt(-2*x + 1)
```

Sympy [A] time = 3.207, size = 58, normalized size = 0.88

$$-\frac{135(-2x+1)^{\frac{11}{2}}}{176}+\frac{69(-2x+1)^{\frac{9}{2}}}{8}-\frac{153(-2x+1)^{\frac{7}{2}}}{4}+\frac{3283(-2x+1)^{\frac{5}{2}}}{40}-\frac{3773(-2x+1)^{\frac{3}{2}}}{48}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3*(3+5*x)*(1-2*x)**(1/2),x)
```

```
[Out] -135*(-2*x + 1)**(11/2)/176 + 69*(-2*x + 1)**(9/2)/8 - 153*(-2*x
+ 1)**(7/2)/4 + 3283*(-2*x + 1)**(5/2)/40 - 3773*(-2*x + 1)**(3/2
)/48
```

GIAC/XCAS [A] time = 0.214987, size = 100, normalized size = 1.52

$$\frac{135}{176}(2x-1)^5\sqrt{-2x+1}+\frac{69}{8}(2x-1)^4\sqrt{-2x+1}+\frac{153}{4}(2x-1)^3\sqrt{-2x+1}+\frac{3283}{40}(2x-1)^2\sqrt{-2x+1}-\frac{3773}{48}(-2x+1)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^3*sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] 135/176*(2*x - 1)^5*sqrt(-2*x + 1) + 69/8*(2*x - 1)^4*sqrt(-2*x +
 1) + 153/4*(2*x - 1)^3*sqrt(-2*x + 1) + 3283/40*(2*x - 1)^2*sqrt
(-2*x + 1) - 3773/48*(-2*x + 1)^(3/2)
```

3.1777 $\int \sqrt{1-2x}(2+3x)^2(3+5x)\,dx$

Optimal. Leaf size=53

$$\frac{5}{8}(1-2x)^{9/2}-\frac{309}{56}(1-2x)^{7/2}+\frac{707}{40}(1-2x)^{5/2}-\frac{539}{24}(1-2x)^{3/2}$$

```
[Out] (-539*(1 - 2*x)^(3/2))/24 + (707*(1 - 2*x)^(5/2))/40 - (309*(1 -
2*x)^(7/2))/56 + (5*(1 - 2*x)^(9/2))/8
```

Rubi [A] time = 0.0455995, antiderivative size = 53, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{5}{8}(1-2x)^{9/2}-\frac{309}{56}(1-2x)^{7/2}+\frac{707}{40}(1-2x)^{5/2}-\frac{539}{24}(1-2x)^{3/2}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]*(2 + 3*x)^2*(3 + 5*x),x]
```

```
[Out] (-539*(1 - 2*x)^(3/2))/24 + (707*(1 - 2*x)^(5/2))/40 - (309*(1 -
2*x)^(7/2))/56 + (5*(1 - 2*x)^(9/2))/8
```

Rubi in Sympy [A] time = 6.8185, size = 46, normalized size = 0.87

$$\frac{5\,(-2x+1)^{\frac{9}{2}}}{8}-\frac{309\,(-2x+1)^{\frac{7}{2}}}{56}+\frac{707\,(-2x+1)^{\frac{5}{2}}}{40}-\frac{539\,(-2x+1)^{\frac{3}{2}}}{24}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2*(3+5*x)*(1-2*x)**(1/2),x)
```

```
[Out] 5*(-2*x + 1)**(9/2)/8 - 309*(-2*x + 1)**(7/2)/56 + 707*(-2*x + 1)
**(5/2)/40 - 539*(-2*x + 1)**(3/2)/24
```

Mathematica [A] time = 0.0280065, size = 33, normalized size = 0.62

$$\frac{1}{105}\sqrt{1-2x}\left(1050x^4+2535x^3+2046x^2+244x-1016\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]*(2 + 3*x)^2*(3 + 5*x),x]
```

```
[Out] (Sqrt[1 - 2*x]*(-1016 + 244*x + 2046*x^2 + 2535*x^3 + 1050*x^4))/
105
```

Maple [A] time = 0.006, size = 25, normalized size = 0.5

$$-\frac{525\,x^3+1530\,x^2+1788\,x+1016}{105}(1-2\,x)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2*(3+5*x)*(1-2*x)^(1/2),x)
```

```
[Out] -1/105*(525*x^3+1530*x^2+1788*x+1016)*(1-2*x)^(3/2)
```

Maxima [A] time = 1.35691, size = 50, normalized size = 0.94

$$\frac{5}{8}\,(-2\,x+1)^{\frac{9}{2}}-\frac{309}{56}\,(-2\,x+1)^{\frac{7}{2}}+\frac{707}{40}\,(-2\,x+1)^{\frac{5}{2}}-\frac{539}{24}\,(-2\,x+1)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(3*x + 2)^2*sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] 5/8*(-2*x + 1)^(9/2) - 309/56*(-2*x + 1)^(7/2) + 707/40*(-2*x + 1
)^(5/2) - 539/24*(-2*x + 1)^(3/2)
```

Fricas [A] time = 0.204373, size = 39, normalized size = 0.74

$$\frac{1}{105}\,\left(1050\,x^4+2535\,x^3+2046\,x^2+244\,x-1016\right)\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(3*x + 2)^2*sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] 1/105*(1050*x^4 + 2535*x^3 + 2046*x^2 + 244*x - 1016)*sqrt(-2*x +
 1)
```

Sympy [A] time = 3.03171, size = 46, normalized size = 0.87

$$\frac{5(-2x+1)^{\frac{9}{2}}}{8}-\frac{309(-2x+1)^{\frac{7}{2}}}{56}+\frac{707(-2x+1)^{\frac{5}{2}}}{40}-\frac{539(-2x+1)^{\frac{3}{2}}}{24}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2*(3+5*x)*(1-2*x)**(1/2),x)
```

```
[Out] 5*(-2*x + 1)**(9/2)/8 - 309*(-2*x + 1)**(7/2)/56 + 707*(-2*x + 1)
**(5/2)/40 - 539*(-2*x + 1)**(3/2)/24
```

GIAC/XCAS [A] time = 0.213263, size = 78, normalized size = 1.47

$$\frac{5}{8}\,(2\,x-1)^4\sqrt{-2\,x+1}+\frac{309}{56}\,(2\,x-1)^3\sqrt{-2\,x+1}+\frac{707}{40}\,(2\,x-1)^2\sqrt{-2\,x+1}-\frac{539}{24}\,(-2\,x+1)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^2*sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] 5/8*(2*x - 1)^4*sqrt(-2*x + 1) + 309/56*(2*x - 1)^3*sqrt(-2*x + 1
) + 707/40*(2*x - 1)^2*sqrt(-2*x + 1) - 539/24*(-2*x + 1)^(3/2)
```

3.1778 $\int \sqrt{1-2x}(2+3x)(3+5x)\,dx$

Optimal. Leaf size=40

$$-\frac{15}{28}(1-2x)^{7/2}+\frac{17}{5}(1-2x)^{5/2}-\frac{77}{12}(1-2x)^{3/2}$$

```
[Out] (-77*(1 - 2*x)^(3/2))/12 + (17*(1 - 2*x)^(5/2))/5 - (15*(1 - 2*x)
^(7/2))/28
```

Rubi [A] time = 0.033172, antiderivative size = 40, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{15}{28}(1-2x)^{7/2}+\frac{17}{5}(1-2x)^{5/2}-\frac{77}{12}(1-2x)^{3/2}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]*(2 + 3*x)*(3 + 5*x),x]
```

```
[Out] (-77*(1 - 2*x)^(3/2))/12 + (17*(1 - 2*x)^(5/2))/5 - (15*(1 - 2*x)
^(7/2))/28
```

Rubi in Sympy [A] time = 5.58375, size = 34, normalized size = 0.85

$$-\frac{15\left(-2x+1\right)^{\frac{7}{2}}}{28}+\frac{17\left(-2x+1\right)^{\frac{5}{2}}}{5}-\frac{77\left(-2x+1\right)^{\frac{3}{2}}}{12}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)*(3+5*x)*(1-2*x)**(1/2),x)
```

```
[Out] -15*(-2*x + 1)**(7/2)/28 + 17*(-2*x + 1)**(5/2)/5 - 77*(-2*x + 1)
**(3/2)/12
```

Mathematica [A] time = 0.0122109, size = 23, normalized size = 0.57

$$-\frac{1}{105}(1-2x)^{3/2}\left(225x^2+489x+373\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]*(2 + 3*x)*(3 + 5*x),x]
```

```
[Out] -((1 - 2*x)^(3/2)*(373 + 489*x + 225*x^2))/105
```

Maple [A] time = 0.005, size = 20, normalized size = 0.5

$$-\frac{225\,x^2+489\,x+373}{105}\left(1-2\,x\right)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)*(3+5*x)*(1-2*x)^(1/2),x)
```

```
[Out] -1/105*(225*x^2+489*x+373)*(1-2*x)^(3/2)
```

Maxima [A] time = 1.35803, size = 38, normalized size = 0.95

$$-\frac{15}{28}\left(-2x+1\right)^{\frac{7}{2}}+\frac{17}{5}\left(-2x+1\right)^{\frac{5}{2}}-\frac{77}{12}\left(-2x+1\right)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)*sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] -15/28*(-2*x + 1)^(7/2) + 17/5*(-2*x + 1)^(5/2) - 77/12*(-2*x + 1
)^(3/2)
```

Fricas [A] time = 0.204952, size = 32, normalized size = 0.8

$$\frac{1}{105}\left(450x^3+753x^2+257x-373\right)\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)*sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] 1/105*(450*x^3 + 753*x^2 + 257*x - 373)*sqrt(-2*x + 1)
```

Sympy [A] time = 2.9254, size = 34, normalized size = 0.85

$$-\frac{15\left(-2x+1\right)^{\frac{7}{2}}}{28}+\frac{17\left(-2x+1\right)^{\frac{5}{2}}}{5}-\frac{77\left(-2x+1\right)^{\frac{3}{2}}}{12}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)*(3+5*x)*(1-2*x)**(1/2),x)
```

```
[Out] -15*(-2*x + 1)**(7/2)/28 + 17*(-2*x + 1)**(5/2)/5 - 77*(-2*x + 1)
**(3/2)/12
```

GIAC/XCAS [A] time = 0.214296, size = 57, normalized size = 1.42

$$\frac{15}{28}\left(2x-1\right)^3\sqrt{-2x+1}+\frac{17}{5}\left(2x-1\right)^2\sqrt{-2x+1}-\frac{77}{12}\left(-2x+1\right)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)*sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] 15/28*(2*x - 1)^3*sqrt(-2*x + 1) + 17/5*(2*x - 1)^2*sqrt(-2*x + 1
) - 77/12*(-2*x + 1)^(3/2)
```

3.1779 $\int \sqrt{1-2x}(3+5x)\,dx$

Optimal. Leaf size=27

$$\frac{1}{2}(1-2x)^{5/2}-\frac{11}{6}(1-2x)^{3/2}$$

```
[Out] (-11*(1 - 2*x)^(3/2))/6 + (1 - 2*x)^(5/2)/2
```

Rubi [A] time = 0.0186, antiderivative size = 27, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.067

$$\frac{1}{2}(1-2x)^{5/2}-\frac{11}{6}(1-2x)^{3/2}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]*(3 + 5*x),x]

[Out] (-11*(1 - 2*x)^(3/2))/6 + (1 - 2*x)^(5/2)/2
```

Rubi in Sympy [A] time = 4.09354, size = 20, normalized size = 0.74

$$\frac{(-2x+1)^{\frac{5}{2}}}{2}-\frac{11(-2x+1)^{\frac{3}{2}}}{6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)*(1-2*x)**(1/2),x)

[Out] (-2*x + 1)**(5/2)/2 - 11*(-2*x + 1)**(3/2)/6
```

Mathematica [A] time = 0.00888337, size = 18, normalized size = 0.67

$$-\frac{1}{3}(1-2x)^{3/2}(3x+4)$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]*(3 + 5*x),x]

[Out] -((1 - 2*x)^(3/2)*(4 + 3*x))/3
```

Maple [A] time = 0.005, size = 15, normalized size = 0.6

$$-\frac{3x+4}{3}(1-2x)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)*(1-2*x)^(1/2),x)

[Out] -1/3*(3*x+4)*(1-2*x)^(3/2)
```

Maxima [A] time = 1.35328, size = 26, normalized size = 0.96

$$\frac{1}{2}(-2x+1)^{\frac{5}{2}} - \frac{11}{6}(-2x+1)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] 1/2*(-2*x + 1)^(5/2) - 11/6*(-2*x + 1)^(3/2)
```

Fricas [A] time = 0.20698, size = 26, normalized size = 0.96

$$\frac{1}{3}\left(6x^2+5x-4\right)\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] 1/3*(6*x^2 + 5*x - 4)*sqrt(-2*x + 1)
```

Sympy [A] time = 3.44916, size = 138, normalized size = 5.11

$$\begin{cases} \frac{2\sqrt{5}i\left(x+\frac{3}{5}\right)^2\sqrt{10x-5}}{5} - \frac{11\sqrt{5}i\left(x+\frac{3}{5}\right)\sqrt{10x-5}}{75} - \frac{121\sqrt{5}i\sqrt{10x-5}}{375} & \text{for}\ \frac{10\left|x+\frac{3}{5}\right|}{11} > 1 \\ \frac{2\sqrt{5}\sqrt{-10x+5}\left(x+\frac{3}{5}\right)^2}{5} - \frac{11\sqrt{5}\sqrt{-10x+5}\left(x+\frac{3}{5}\right)}{75} - \frac{121\sqrt{5}\sqrt{-10x+5}}{375} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)*(1-2*x)**(1/2),x)
```

```
[Out] Piecewise((2*sqrt(5)*I*(x + 3/5)**2*sqrt(10*x - 5)/5 - 11*sqrt(5)
*I*(x + 3/5)*sqrt(10*x - 5)/75 - 121*sqrt(5)*I*sqrt(10*x - 5)/375
, 10*Abs(x + 3/5)/11 > 1), (2*sqrt(5)*sqrt(-10*x + 5)*(x + 3/5)**
2/5 - 11*sqrt(5)*sqrt(-10*x + 5)*(x + 3/5)/75 - 121*sqrt(5)*sqrt(
-10*x + 5)/375, True))
```

GIAC/XCAS [A] time = 0.212763, size = 35, normalized size = 1.3

$$\frac{1}{2}(2x-1)^2\sqrt{-2x+1} - \frac{11}{6}(-2x+1)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] 1/2*(2*x - 1)^2*sqrt(-2*x + 1) - 11/6*(-2*x + 1)^(3/2)
```

3.1780 $\int \frac{\sqrt{1-2x}(3+5x)}{2+3x} \, dx$

Optimal. Leaf size=56

$$-\frac{5}{9}(1-2x)^{3/2}-\frac{2}{9}\sqrt{1-2x}+\frac{2}{9}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

```
[Out] (-2*Sqrt[1 - 2*x])/9 - (5*(1 - 2*x)^(3/2))/9 + (2*Sqrt[7/3]*ArcTa
nh[Sqrt[3/7]*Sqrt[1 - 2*x]])/9
```

Rubi [A] time = 0.0637262, antiderivative size = 56, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{5}{9}(1-2x)^{3/2}-\frac{2}{9}\sqrt{1-2x}+\frac{2}{9}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In] Int[(Sqrt[1 - 2*x]*(3 + 5*x))/(2 + 3*x),x]
```

```
[Out] (-2*Sqrt[1 - 2*x])/9 - (5*(1 - 2*x)^(3/2))/9 + (2*Sqrt[7/3]*ArcTa
nh[Sqrt[3/7]*Sqrt[1 - 2*x]])/9
```

Rubi in Sympy [A] time = 7.00967, size = 48, normalized size = 0.86

$$-\frac{5\left(-2x+1\right)^{\frac{3}{2}}}{9}-\frac{2\sqrt{-2x+1}}{9}+\frac{2\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{27}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((3+5*x)*(1-2*x)**(1/2)/(2+3*x),x)
```

```
[Out] -5*(-2*x + 1)**(3/2)/9 - 2*sqrt(-2*x + 1)/9 + 2*sqrt(21)*atanh(sq
rt(21)*sqrt(-2*x + 1)/7)/27
```

Mathematica [A] time = 0.0499141, size = 46, normalized size = 0.82

$$\frac{1}{27}\left(3\sqrt{1-2x}(10x-7)+2\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)\right)$$

Antiderivative was successfully verified.

```
[In] Integrate[(Sqrt[1 - 2*x]*(3 + 5*x))/(2 + 3*x),x]
```

```
[Out] (3*Sqrt[1 - 2*x]*(-7 + 10*x) + 2*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[
1 - 2*x]])/27
```

Maple [A] time = 0.009, size = 38, normalized size = 0.7

$$-\frac{5}{9}\left(1-2\,x\right)^{\frac{3}{2}}+\frac{2\,\sqrt{21}}{27}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)-\frac{2}{9}\sqrt{1-2\,x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)*(1-2*x)^(1/2)/(2+3*x),x)
```

```
[Out] -5/9*(1-2*x)^(3/2)+2/27*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1
/2)-2/9*(1-2*x)^(1/2)
```

Maxima [A] time = 1.51873, size = 74, normalized size = 1.32

$$-\frac{5}{9}(-2x+1)^{\frac{3}{2}}-\frac{1}{27}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{2}{9}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*sqrt(-2*x + 1)/(3*x + 2),x, algorithm="maxima")
```

```
[Out] -5/9*(-2*x + 1)^(3/2) - 1/27*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*
x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 2/9*sqrt(-2*x + 1)
```

Fricas [A] time = 0.21255, size = 77, normalized size = 1.38

$$\frac{1}{27}\sqrt{3}\left(\sqrt{3}(10x-7)\sqrt{-2x+1}+\sqrt{7}\log\left(\frac{\sqrt{3}(3x-5)-3\sqrt{7}\sqrt{-2x+1}}{3x+2}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*sqrt(-2*x + 1)/(3*x + 2),x, algorithm="fricas")
```

```
[Out] 1/27*sqrt(3)*(sqrt(3)*(10*x - 7)*sqrt(-2*x + 1) + sqrt(7)*log((sq
rt(3)*(3*x - 5) - 3*sqrt(7)*sqrt(-2*x + 1))/(3*x + 2)))
```

Sympy [A] time = 8.39125, size = 88, normalized size = 1.57

$$-\frac{5(-2x+1)^{\frac{3}{2}}}{9}-\frac{2\sqrt{-2x+1}}{9}-\frac{14\left(\begin{cases}-\frac{\sqrt{21}\operatorname{acoth}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for } -2x+1>\frac{7}{3}\\ -\frac{\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for } -2x+1<\frac{7}{3}\end{cases}\right)}{9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)*(1-2*x)**(1/2)/(2+3*x),x)
```

```
[Out] -5*(-2*x + 1)**(3/2)/9 - 2*sqrt(-2*x + 1)/9 - 14*Piecewise((-sqrt
(21)*acoth(sqrt(21)*sqrt(-2*x + 1)/7)/21, -2*x + 1 > 7/3), (-sqrt
(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/21, -2*x + 1 < 7/3))/9
```

GIAC/XCAS [A] time = 0.223767, size = 78, normalized size = 1.39

$$-\frac{5}{9}(-2x+1)^{\frac{3}{2}}-\frac{1}{27}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{2}{9}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*sqrt(-2*x + 1)/(3*x + 2),x, algorithm="giac")
```

```
[Out] -5/9*(-2*x + 1)^(3/2) - 1/27*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*
sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 2/9*sqrt(-2*x +
1)
```

3.1781 $\int \frac{\sqrt{1-2x}(3+5x)}{(2+3x)^2}\,dx$

Optimal. Leaf size=59

$$\frac{(1-2x)^{3/2}}{21(3x+2)}+\frac{8}{7}\sqrt{1-2x}-\frac{8\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{\sqrt{21}}$$

```
[Out] (8*Sqrt[1 - 2*x])/7 + (1 - 2*x)^(3/2)/(21*(2 + 3*x)) - (8*ArcTanh
[Sqrt[3/7]*Sqrt[1 - 2*x]])/Sqrt[21]
```

Rubi [A] time = 0.0608249, antiderivative size = 59, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$\frac{(1-2x)^{3/2}}{21(3x+2)}+\frac{8}{7}\sqrt{1-2x}-\frac{8\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(3 + 5*x))/(2 + 3*x)^2,x]
```

```
[Out] (8*Sqrt[1 - 2*x])/7 + (1 - 2*x)^(3/2)/(21*(2 + 3*x)) - (8*ArcTanh
[Sqrt[3/7]*Sqrt[1 - 2*x]])/Sqrt[21]
```

Rubi in Sympy [A] time = 7.2672, size = 49, normalized size = 0.83

$$\frac{(-2x+1)^{\frac{3}{2}}}{21\,(3x+2)}+\frac{8\sqrt{-2x+1}}{7}-\frac{8\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)*(1-2*x)**(1/2)/(2+3*x)**2,x)
```

```
[Out] (-2*x + 1)**(3/2)/(21*(3*x + 2)) + 8*sqrt(-2*x + 1)/7 - 8*sqrt(21
)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/21
```

Mathematica [A] time = 0.0618879, size = 55, normalized size = 0.93

$$\frac{7\sqrt{1-2x}(10x+7)-8\sqrt{21}(3x+2)\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{63x+42}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(3 + 5*x))/(2 + 3*x)^2,x]
```

```
[Out] (7*Sqrt[1 - 2*x]*(7 + 10*x) - 8*Sqrt[21]*(2 + 3*x)*ArcTanh[Sqrt[3
/7]*Sqrt[1 - 2*x]])/(42 + 63*x)
```

Maple [A] time = 0.014, size = 45, normalized size = 0.8

$$\frac{10}{9}\sqrt{1-2\,x}-\frac{2}{27}\sqrt{1-2\,x}\left(-\frac{4}{3}-2\,x\right)^{-1}-\frac{8\,\sqrt{21}}{21}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((3+5*x)*(1-2*x)^(1/2)/(2+3*x)^2,x)
```

```
[Out] 10/9*(1-2*x)^(1/2)-2/27*(1-2*x)^(1/2)/(-4/3-2*x)-8/21*arctanh(1/7
*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.49533, size = 84, normalized size = 1.42

$$\frac{4}{21}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{10}{9}\sqrt{-2x+1}+\frac{\sqrt{-2x+1}}{9(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^2,x, algorithm="maxima")
```

```
[Out] 4/21*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21) + 3*sq
rt(-2*x + 1))) + 10/9*sqrt(-2*x + 1) + 1/9*sqrt(-2*x + 1)/(3*x +
2)
```

Fricas [A] time = 0.219032, size = 86, normalized size = 1.46

$$\frac{\sqrt{21}\left(\sqrt{21}(10x+7)\sqrt{-2x+1}+12(3x+2)\log\left(\frac{\sqrt{21}(3x-5)+21\sqrt{-2x+1}}{3x+2}\right)\right)}{63(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^2,x, algorithm="fricas")
```

```
[Out] 1/63*sqrt(21)*(sqrt(21)*(10*x + 7)*sqrt(-2*x + 1) + 12*(3*x + 2)*
log((sqrt(21)*(3*x - 5) + 21*sqrt(-2*x + 1))/(3*x + 2)))/(3*x + 2
)
```

Sympy [A] time = 42.6055, size = 175, normalized size = 2.97

$$\frac{10\sqrt{-2x+1}}{9}+\frac{28\left(\begin{cases}\frac{\sqrt{21}\left(-\frac{\log\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)}{4}+\frac{\log\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)}{4}-\frac{1}{4\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)}-\frac{1}{4\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)}\right)}{147} & \text{for}\ x\le\frac{1}{2}\wedge x>-\frac{2}{3}\end{cases}\right)}{9}+\frac{74\left(\begin{cases}-\frac{\sqrt{21}\,\operatorname{acoth}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for}\ -2x+1>\frac{7}{3}\\ -\frac{\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for}\ -2x+1<\frac{7}{3}\end{cases}\right)}{9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((3+5*x)*(1-2*x)**(1/2)/(2+3*x)**2,x)
```

```
[Out] 10*sqrt(-2*x + 1)/9 + 28*Piecewise((sqrt(21)*(-log(sqrt(21)*sqrt(
-2*x + 1)/7 - 1)/4 + log(sqrt(21)*sqrt(-2*x + 1)/7 + 1)/4 - 1/(4*
(sqrt(21)*sqrt(-2*x + 1)/7 + 1)) - 1/(4*(sqrt(21)*sqrt(-2*x + 1)/
7 - 1)))/147, (x <= 1/2) & (x > -2/3)))/9 + 74*Piecewise((-sqrt(2
1)*acoth(sqrt(21)*sqrt(-2*x + 1)/7)/21, -2*x + 1 > 7/3), (-sqrt(2
```

```
1)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/21, -2*x + 1 < 7/3))/9
```

GIAC/XCAS [A] time = 0.216274, size = 88, normalized size = 1.49

$$\frac{4}{21}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{10}{9}\sqrt{-2x+1}+\frac{\sqrt{-2x+1}}{9(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^2,x, algorithm="giac")
```

```
[Out] 4/21*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqrt(21
) + 3*sqrt(-2*x + 1))) + 10/9*sqrt(-2*x + 1) + 1/9*sqrt(-2*x + 1)
/(3*x + 2)
```

3.1782 $\int \frac{\sqrt{1-2x}(3+5x)}{(2+3x)^3}\,dx$

Optimal. Leaf size=68

$$\frac{(1-2x)^{3/2}}{42(3x+2)^2}-\frac{23\sqrt{1-2x}}{42(3x+2)}+\frac{23\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{21\sqrt{21}}$$

```
[Out] (1 - 2*x)^(3/2)/(42*(2 + 3*x)^2) - (23*Sqrt[1 - 2*x])/(42*(2 + 3*
x)) + (23*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(21*Sqrt[21])
```

Rubi [A] time = 0.0624341, antiderivative size = 68, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$\frac{(1-2x)^{3/2}}{42(3x+2)^2}-\frac{23\sqrt{1-2x}}{42(3x+2)}+\frac{23\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{21\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(3 + 5*x))/(2 + 3*x)^3,x]
```

```
[Out] (1 - 2*x)^(3/2)/(42*(2 + 3*x)^2) - (23*Sqrt[1 - 2*x])/(42*(2 + 3*
x)) + (23*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(21*Sqrt[21])
```

Rubi in Sympy [A] time = 8.08846, size = 56, normalized size = 0.82

$$\frac{(-2x+1)^{\frac{3}{2}}}{42\,(3x+2)^2}-\frac{23\sqrt{-2x+1}}{42\,(3x+2)}+\frac{23\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{441}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)*(1-2*x)**(1/2)/(2+3*x)**3,x)
```

```
[Out] (-2*x + 1)**(3/2)/(42*(3*x + 2)**2) - 23*sqrt(-2*x + 1)/(42*(3*x
+ 2)) + 23*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/441
```

Mathematica [A] time = 0.0852665, size = 53, normalized size = 0.78

$$\frac{23\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{21\sqrt{21}}-\frac{\sqrt{1-2x}(71x+45)}{42(3x+2)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(3 + 5*x))/(2 + 3*x)^3,x]
```

```
[Out] -(Sqrt[1 - 2*x]*(45 + 71*x))/(42*(2 + 3*x)^2) + (23*ArcTanh[Sqrt[
3/7]*Sqrt[1 - 2*x]])/(21*Sqrt[21])
```

Maple [A] time = 0.015, size = 48, normalized size = 0.7

$$-36\,\frac{1}{(-4-6\,x)^2}\left(-\frac{71\,(1-2\,x)^{3/2}}{756}+\frac{23\,\sqrt{1-2\,x}}{108}\right)+\frac{23\,\sqrt{21}}{441}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((3+5*x)*(1-2*x)^(1/2)/(2+3*x)^3,x)
```

```
[Out] -36*(-71/756*(1-2*x)^(3/2)+23/108*(1-2*x)^(1/2))/(-4-6*x)^2+23/44
1*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.48954, size = 100, normalized size = 1.47

$$-\frac{23}{882}\,\sqrt{21}\log\left(-\frac{\sqrt{21}-3\,\sqrt{-2\,x+1}}{\sqrt{21}+3\,\sqrt{-2\,x+1}}\right)+\frac{71\,(-2\,x+1)^{\frac{3}{2}}-161\,\sqrt{-2\,x+1}}{21\,\left(9\,(2\,x-1)^{2}+84\,x+7\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^3,x, algorithm="maxima")
```

```
[Out] -23/882*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21) + 3
*sqrt(-2*x + 1))) + 1/21*(71*(-2*x + 1)^(3/2) - 161*sqrt(-2*x + 1
))/(9*(2*x - 1)^2 + 84*x + 7)
```

Fricas [A] time = 0.215696, size = 100, normalized size = 1.47

$$-\frac{\sqrt{21}\left(\sqrt{21}(71\,x+45)\sqrt{-2\,x+1}-23\,\left(9\,x^{2}+12\,x+4\right)\,\log\left(\frac{\sqrt{21}(3\,x-5)-21\,\sqrt{-2\,x+1}}{3\,x+2}\right)\right)}{882\,\left(9\,x^{2}+12\,x+4\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^3,x, algorithm="fricas")
```

```
[Out] -1/882*sqrt(21)*(sqrt(21)*(71*x + 45)*sqrt(-2*x + 1) - 23*(9*x^2
+ 12*x + 4)*log((sqrt(21)*(3*x - 5) - 21*sqrt(-2*x + 1))/(3*x + 2
)))/(9*x^2 + 12*x + 4)
```

Sympy [A] time = 95.0717, size = 313, normalized size = 4.6

$$-\frac{148\left(\begin{cases}\frac{\sqrt{21}\left(-\frac{\log\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)}{4}+\frac{\log\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)}{4}-\frac{1}{4\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)}-\frac{1}{4\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)}\right)}{147} & \text{for}\ x\leq\frac{1}{2}\wedge x>-\frac{2}{3}\end{cases}\right)}{9}-\frac{56\left(\begin{cases}\frac{\sqrt{21}\left(\frac{3\log\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)}{16}-\frac{3\log\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)}{16}+\frac{3}{16\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)}+\frac{1}{16\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)^{2}}+\frac{3}{16\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)}-\frac{1}{16\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)^{2}}\right)}{1029} & \text{for}\ x\leq\frac{1}{2}\wedge x>-\frac{2}{3}\end{cases}\right)}{9}-\frac{20\left(\begin{cases}-\frac{\sqrt{21}\,\operatorname{acoth}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for}\ -2x+1>\frac{7}{3}\\-\frac{\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for}\ -2x+1<\frac{7}{3}\end{cases}\right)}{9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)*(1-2*x)**(1/2)/(2+3*x)**3,x)
```

```
[Out] -148*Piecewise((sqrt(21)*(-log(sqrt(21)*sqrt(-2*x + 1)/7 - 1)/4 +
 log(sqrt(21)*sqrt(-2*x + 1)/7 + 1)/4 - 1/(4*(sqrt(21)*sqrt(-2*x
+ 1)/7 + 1)) - 1/(4*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)))/147, (x <=
```

```
1/2) & (x > -2/3)))/9 - 56*Piecewise((sqrt(21)*(3*log(sqrt(21)*sq
rt(-2*x + 1)/7 - 1)/16 - 3*log(sqrt(21)*sqrt(-2*x + 1)/7 + 1)/16
+ 3/(16*(sqrt(21)*sqrt(-2*x + 1)/7 + 1)) + 1/(16*(sqrt(21)*sqrt(-
2*x + 1)/7 + 1)**2) + 3/(16*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)) - 1/
(16*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)**2))/1029, (x <= 1/2) & (x >
-2/3)))/9 - 20*Piecewise((-sqrt(21)*acoth(sqrt(21)*sqrt(-2*x + 1)
/7)/21, -2*x + 1 > 7/3), (-sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)
/7)/21, -2*x + 1 < 7/3))/9
```

GIAC/XCAS [A] time = 0.219827, size = 92, normalized size = 1.35

$$-\frac{23}{882}\,\sqrt{21}\ln\left(\frac{\left|-2\,\sqrt{21}+6\,\sqrt{-2\,x+1}\right|}{2\,\left(\sqrt{21}+3\,\sqrt{-2\,x+1}\right)}\right)+\frac{71\,(-2\,x+1)^{\frac{3}{2}}-161\,\sqrt{-2\,x+1}}{84\,(3\,x+2)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^3,x, algorithm="giac")
```

```
[Out] -23/882*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqrt
(21) + 3*sqrt(-2*x + 1))) + 1/84*(71*(-2*x + 1)^(3/2) - 161*sqrt(
-2*x + 1))/(3*x + 2)^2
```

3.1783 $\int \frac{\sqrt{1-2x}(3+5x)}{(2+3x)^4}\,dx$

Optimal. Leaf size=88

$$\frac{(1-2x)^{3/2}}{63(3x+2)^3}+\frac{17\sqrt{1-2x}}{441(3x+2)}-\frac{17\sqrt{1-2x}}{63(3x+2)^2}+\frac{34\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{441\sqrt{21}}$$

```
[Out] (1 - 2*x)^(3/2)/(63*(2 + 3*x)^3) - (17*Sqrt[1 - 2*x])/(63*(2 + 3*
x)^2) + (17*Sqrt[1 - 2*x])/(441*(2 + 3*x)) + (34*ArcTanh[Sqrt[3/7
]*Sqrt[1 - 2*x]])/(441*Sqrt[21])
```

Rubi [A] time = 0.079383, antiderivative size = 88, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$\frac{(1-2x)^{3/2}}{63(3x+2)^3}+\frac{17\sqrt{1-2x}}{441(3x+2)}-\frac{17\sqrt{1-2x}}{63(3x+2)^2}+\frac{34\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{441\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In] Int[(Sqrt[1 - 2*x]*(3 + 5*x))/(2 + 3*x)^4,x]
```

```
[Out] (1 - 2*x)^(3/2)/(63*(2 + 3*x)^3) - (17*Sqrt[1 - 2*x])/(63*(2 + 3*
x)^2) + (17*Sqrt[1 - 2*x])/(441*(2 + 3*x)) + (34*ArcTanh[Sqrt[3/7
]*Sqrt[1 - 2*x]])/(441*Sqrt[21])
```

Rubi in Sympy [A] time = 9.8744, size = 75, normalized size = 0.85

$$\frac{(-2x+1)^{\frac{3}{2}}}{63\,(3x+2)^3}+\frac{17\sqrt{-2x+1}}{441\,(3x+2)}-\frac{17\sqrt{-2x+1}}{63\,(3x+2)^2}+\frac{34\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{9261}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((3+5*x)*(1-2*x)**(1/2)/(2+3*x)**4,x)
```

```
[Out] (-2*x + 1)**(3/2)/(63*(3*x + 2)**3) + 17*sqrt(-2*x + 1)/(441*(3*x
 + 2)) - 17*sqrt(-2*x + 1)/(63*(3*x + 2)**2) + 34*sqrt(21)*atanh(
sqrt(21)*sqrt(-2*x + 1)/7)/9261
```

Mathematica [A] time = 0.0895572, size = 58, normalized size = 0.66

$$\frac{\frac{21\sqrt{1-2x}(153x^2-167x-163)}{(3x+2)^3}+34\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{9261}$$

Antiderivative was successfully verified.

```
[In] Integrate[(Sqrt[1 - 2*x]*(3 + 5*x))/(2 + 3*x)^4,x]
```

```
[Out] ((21*Sqrt[1 - 2*x]*(-163 - 167*x + 153*x^2))/(2 + 3*x)^3 + 34*Sqr
t[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/9261
```

Maple [A] time = 0.017, size = 57, normalized size = 0.7

$$216\,\frac{1}{\left(-4-6\,x\right)^{3}}\left(-\frac{17\,\left(1-2\,x\right)^{5/2}}{5292}-\frac{\left(1-2\,x\right)^{3/2}}{1701}+\frac{17\,\sqrt{1-2\,x}}{972}\right)+\frac{34\,\sqrt{21}}{9261}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)*(1-2*x)^(1/2)/(2+3*x)^4,x)
```

```
[Out] 216*(-17/5292*(1-2*x)^(5/2)-1/1701*(1-2*x)^(3/2)+17/972*(1-2*x)^(
1/2))/(-4-6*x)^3+34/9261*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(
1/2)
```

Maxima [A] time = 1.5161, size = 124, normalized size = 1.41

$$-\frac{17}{9261}\,\sqrt{21}\log\left(-\frac{\sqrt{21}-3\,\sqrt{-2\,x+1}}{\sqrt{21}+3\,\sqrt{-2\,x+1}}\right)+\frac{2\,\left(153\,\left(-2\,x+1\right)^{\frac{5}{2}}+28\,\left(-2\,x+1\right)^{\frac{3}{2}}-833\,\sqrt{-2\,x+1}\right)}{441\,\left(27\,\left(2\,x-1\right)^{3}+189\,\left(2\,x-1\right)^{2}+882\,x-98\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^4,x, algorithm="maxima")
```

```
[Out] -17/9261*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21) +
3*sqrt(-2*x + 1))) + 2/441*(153*(-2*x + 1)^(5/2) + 28*(-2*x + 1)^
(3/2) - 833*sqrt(-2*x + 1))/(27*(2*x - 1)^3 + 189*(2*x - 1)^2 + 8
82*x - 98)
```

Fricas [A] time = 0.211377, size = 120, normalized size = 1.36

$$\frac{\sqrt{21}\left(\sqrt{21}\left(153\,x^{2}-167\,x-163\right)\sqrt{-2\,x+1}+17\,\left(27\,x^{3}+54\,x^{2}+36\,x+8\right)\,\log\left(\frac{\sqrt{21}(3\,x-5)-21\,\sqrt{-2\,x+1}}{3\,x+2}\right)\right)}{9261\,\left(27\,x^{3}+54\,x^{2}+36\,x+8\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^4,x, algorithm="fricas")
```

```
[Out] 1/9261*sqrt(21)*(sqrt(21)*(153*x^2 - 167*x - 163)*sqrt(-2*x + 1)
+ 17*(27*x^3 + 54*x^2 + 36*x + 8)*log((sqrt(21)*(3*x - 5) - 21*sq
rt(-2*x + 1))/(3*x + 2)))/(27*x^3 + 54*x^2 + 36*x + 8)
```

Sympy [A] time = 163.61, size = 439, normalized size = 4.99

$$\frac{40\left(\begin{cases}\frac{\sqrt{21}\left(-\frac{\log\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)}{4}+\frac{\log\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)}{4}-\frac{1}{4\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)}-\frac{1}{4\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)}\right)}{147} & \text{for}\ x\leq\frac{1}{2}\wedge x>-\frac{2}{3}\end{cases}\right)}{9}$$
$$+\frac{296\left(\begin{cases}\frac{\sqrt{21}\left(\frac{3\log\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)}{16}-\frac{3\log\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)}{16}+\frac{3}{16\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)}+\frac{1}{16\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)^{2}}+\frac{3}{16\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)}-\frac{1}{16\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)^{2}}\right)}{1029} & \text{for}\ x\leq\frac{1}{2}\wedge x>-\frac{2}{3}\end{cases}\right.}{9}$$
$$+\frac{112\left(\begin{cases}\frac{\sqrt{21}\left(-\frac{5\log\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)}{32}+\frac{5\log\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)}{32}-\frac{5}{32\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)}-\frac{1}{16\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)^{2}}-\frac{1}{48\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)^{3}}-\frac{5}{32\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)}+\frac{1}{16\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)^{2}}-\frac{1}{48\left(\sqrt{21}\sqrt{-}\right.}\right.}{7203}\end{cases}\right.}{9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)*(1-2*x)**(1/2)/(2+3*x)**4,x)
```

```
[Out] 40*Piecewise((sqrt(21)*(-log(sqrt(21)*sqrt(-2*x + 1)/7 - 1)/4 + l
og(sqrt(21)*sqrt(-2*x + 1)/7 + 1)/4 - 1/(4*(sqrt(21)*sqrt(-2*x +
1)/7 + 1)) - 1/(4*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)))/147, (x <= 1/
2) & (x > -2/3)))/9 + 296*Piecewise((sqrt(21)*(3*log(sqrt(21)*sqr
t(-2*x + 1)/7 - 1)/16 - 3*log(sqrt(21)*sqrt(-2*x + 1)/7 + 1)/16 +
 3/(16*(sqrt(21)*sqrt(-2*x + 1)/7 + 1)) + 1/(16*(sqrt(21)*sqrt(-2
*x + 1)/7 + 1)**2) + 3/(16*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)) - 1/(
16*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)**2))/1029, (x <= 1/2) & (x > -
2/3)))/9 + 112*Piecewise((sqrt(21)*(-5*log(sqrt(21)*sqrt(-2*x + 1
)/7 - 1)/32 + 5*log(sqrt(21)*sqrt(-2*x + 1)/7 + 1)/32 - 5/(32*(sq
rt(21)*sqrt(-2*x + 1)/7 + 1)) - 1/(16*(sqrt(21)*sqrt(-2*x + 1)/7
+ 1)**2) - 1/(48*(sqrt(21)*sqrt(-2*x + 1)/7 + 1)**3) - 5/(32*(sqr
t(21)*sqrt(-2*x + 1)/7 - 1)) + 1/(16*(sqrt(21)*sqrt(-2*x + 1)/7 -
 1)**2) - 1/(48*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)**3))/7203, (x <=
1/2) & (x > -2/3)))/9
```

GIAC/XCAS [A] time = 0.213245, size = 113, normalized size = 1.28

$$-\frac{17}{9261}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{153\,(2x-1)^{2}\sqrt{-2x+1}+28\,(-2x+1)^{\frac{3}{2}}-833\sqrt{-2x+1}}{1764\,(3x+2)^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^4,x, algorithm="giac")
```

```
[Out] -17/9261*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqr
t(21) + 3*sqrt(-2*x + 1))) + 1/1764*(153*(2*x - 1)^2*sqrt(-2*x +
1) + 28*(-2*x + 1)^(3/2) - 833*sqrt(-2*x + 1))/(3*x + 2)^3
```

3.1784 $\int \frac{\sqrt{1-2x}(3+5x)}{(2+3x)^5}\,dx$

Optimal. Leaf size=110

$$\frac{(1-2x)^{3/2}}{84(3x+2)^4}+\frac{15\sqrt{1-2x}}{2744(3x+2)}+\frac{5\sqrt{1-2x}}{392(3x+2)^2}-\frac{5\sqrt{1-2x}}{28(3x+2)^3}+\frac{5\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{1372}$$

```
[Out] (1 - 2*x)^(3/2)/(84*(2 + 3*x)^4) - (5*Sqrt[1 - 2*x])/(28*(2 + 3*x
)^3) + (5*Sqrt[1 - 2*x])/(392*(2 + 3*x)^2) + (15*Sqrt[1 - 2*x])/(
2744*(2 + 3*x)) + (5*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/
1372
```

Rubi [A] time = 0.103278, antiderivative size = 110, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.227$

$$\frac{(1-2x)^{3/2}}{84(3x+2)^4}+\frac{15\sqrt{1-2x}}{2744(3x+2)}+\frac{5\sqrt{1-2x}}{392(3x+2)^2}-\frac{5\sqrt{1-2x}}{28(3x+2)^3}+\frac{5\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{1372}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(3 + 5*x))/(2 + 3*x)^5,x]
```

```
[Out] (1 - 2*x)^(3/2)/(84*(2 + 3*x)^4) - (5*Sqrt[1 - 2*x])/(28*(2 + 3*x
)^3) + (5*Sqrt[1 - 2*x])/(392*(2 + 3*x)^2) + (15*Sqrt[1 - 2*x])/(
2744*(2 + 3*x)) + (5*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/
1372
```

Rubi in Sympy [A] time = 11.0725, size = 94, normalized size = 0.85

$$\frac{(-2x+1)^{\frac{3}{2}}}{84\,(3x+2)^4}+\frac{15\sqrt{-2x+1}}{2744\,(3x+2)}+\frac{5\sqrt{-2x+1}}{392\,(3x+2)^2}-\frac{5\sqrt{-2x+1}}{28\,(3x+2)^3}+\frac{5\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{9604}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)*(1-2*x)**(1/2)/(2+3*x)**5,x)
```

```
[Out] (-2*x + 1)**(3/2)/(84*(3*x + 2)**4) + 15*sqrt(-2*x + 1)/(2744*(3*
x + 2)) + 5*sqrt(-2*x + 1)/(392*(3*x + 2)**2) - 5*sqrt(-2*x + 1)/
(28*(3*x + 2)**3) + 5*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/9
604
```

Mathematica [A] time = 0.103055, size = 63, normalized size = 0.57

$$\frac{\frac{7\sqrt{1-2x}\left(1215x^3+3375x^2-1726x-2062\right)}{(3x+2)^4}+30\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{57624}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(3 + 5*x))/(2 + 3*x)^5,x]
```

```
[Out] ((7*Sqrt[1 - 2*x]*(-2062 - 1726*x + 3375*x^2 + 1215*x^3))/(2 + 3*
x)^4 + 30*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/57624
```

Maple [A] time = 0.016, size = 66, normalized size = 0.6

$$-1296\frac{1}{\left(-4-6x\right)^{4}}\left(\frac{5\left(1-2x\right)^{7/2}}{21952}-\frac{55\left(1-2x\right)^{5/2}}{28224}+\frac{209\left(1-2x\right)^{3/2}}{108864}+\frac{5\sqrt{1-2x}}{1728}\right)+\frac{5\sqrt{21}}{9604}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((3+5*x)*(1-2*x)^(1/2)/(2+3*x)^5,x)
```

```
[Out] -1296*(5/21952*(1-2*x)^(7/2)-55/28224*(1-2*x)^(5/2)+209/108864*(1
-2*x)^(3/2)+5/1728*(1-2*x)^(1/2))/(-4-6*x)^4+5/9604*arctanh(1/7*2
1^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.4952, size = 149, normalized size = 1.35

$$-\frac{5}{19208}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{1215\left(-2x+1\right)^{\frac{7}{2}}-10395\left(-2x+1\right)^{\frac{5}{2}}+10241\left(-2x+1\right)^{\frac{3}{2}}+15435\sqrt{-2x+1}}{4116\left(81\left(2x-1\right)^{4}+756\left(2x-1\right)^{3}+2646\left(2x-1\right)^{2}+8232x-1715\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^5,x, algorithm="maxima")
```

```
[Out] -5/19208*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21) +
3*sqrt(-2*x + 1))) - 1/4116*(1215*(-2*x + 1)^(7/2) - 10395*(-2*x
+ 1)^(5/2) + 10241*(-2*x + 1)^(3/2) + 15435*sqrt(-2*x + 1))/(81*(
2*x - 1)^4 + 756*(2*x - 1)^3 + 2646*(2*x - 1)^2 + 8232*x - 1715)
```

Fricas [A] time = 0.211163, size = 149, normalized size = 1.35

$$\frac{\sqrt{7}\left(15\sqrt{3}\left(81x^{4}+216x^{3}+216x^{2}+96x+16\right)\log\left(\frac{\sqrt{7}(3x-5)-7\sqrt{3}\sqrt{-2x+1}}{3x+2}\right)+\sqrt{7}\left(1215x^{3}+3375x^{2}-1726x-2062\right)\sqrt{-2x+1}\right)}{57624\left(81x^{4}+216x^{3}+216x^{2}+96x+16\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^5,x, algorithm="fricas")
```

```
[Out] 1/57624*sqrt(7)*(15*sqrt(3)*(81*x^4 + 216*x^3 + 216*x^2 + 96*x +
16)*log((sqrt(7)*(3*x - 5) - 7*sqrt(3)*sqrt(-2*x + 1))/(3*x + 2))
 + sqrt(7)*(1215*x^3 + 3375*x^2 - 1726*x - 2062)*sqrt(-2*x + 1))/
(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((3+5*x)*(1-2*x)**(1/2)/(2+3*x)**5,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.215421, size = 135, normalized size = 1.23

$$-\frac{5}{19208}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{1215(2x-1)^3\sqrt{-2x+1}+10395(2x-1)^2\sqrt{-2x+1}-10241(-2x+1)^{\frac{3}{2}}-15435\sqrt{-2x+1}}{65856(3x+2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^5,x, algorithm="giac")
```

```
[Out] -5/19208*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqr
t(21) + 3*sqrt(-2*x + 1))) + 1/65856*(1215*(2*x - 1)^3*sqrt(-2*x
+ 1) + 10395*(2*x - 1)^2*sqrt(-2*x + 1) - 10241*(-2*x + 1)^(3/2)
- 15435*sqrt(-2*x + 1))/(3*x + 2)^4
```

3.1785 $\int \frac{\sqrt{1-2x}(3+5x)}{(2+3x)^6}\,dx$

Optimal. Leaf size=128

$$\frac{(1-2x)^{3/2}}{105(3x+2)^5}+\frac{\sqrt{1-2x}}{1029(3x+2)}+\frac{\sqrt{1-2x}}{441(3x+2)^2}+\frac{2\sqrt{1-2x}}{315(3x+2)^3}-\frac{2\sqrt{1-2x}}{15(3x+2)^4}+\frac{2\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{1029\sqrt{21}}$$

```
[Out] (1 - 2*x)^(3/2)/(105*(2 + 3*x)^5) - (2*Sqrt[1 - 2*x])/(15*(2 + 3*
x)^4) + (2*Sqrt[1 - 2*x])/(315*(2 + 3*x)^3) + Sqrt[1 - 2*x]/(441*
(2 + 3*x)^2) + Sqrt[1 - 2*x]/(1029*(2 + 3*x)) + (2*ArcTanh[Sqrt[3
/7]*Sqrt[1 - 2*x]])/(1029*Sqrt[21])
```

Rubi [A] time = 0.125811, antiderivative size = 128, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.227$

$$\frac{(1-2x)^{3/2}}{105(3x+2)^5}+\frac{\sqrt{1-2x}}{1029(3x+2)}+\frac{\sqrt{1-2x}}{441(3x+2)^2}+\frac{2\sqrt{1-2x}}{315(3x+2)^3}-\frac{2\sqrt{1-2x}}{15(3x+2)^4}+\frac{2\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{1029\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In] Int[(Sqrt[1 - 2*x]*(3 + 5*x))/(2 + 3*x)^6,x]
```

```
[Out] (1 - 2*x)^(3/2)/(105*(2 + 3*x)^5) - (2*Sqrt[1 - 2*x])/(15*(2 + 3*
x)^4) + (2*Sqrt[1 - 2*x])/(315*(2 + 3*x)^3) + Sqrt[1 - 2*x]/(441*
(2 + 3*x)^2) + Sqrt[1 - 2*x]/(1029*(2 + 3*x)) + (2*ArcTanh[Sqrt[3
/7]*Sqrt[1 - 2*x]])/(1029*Sqrt[21])
```

Rubi in Sympy [A] time = 13.1683, size = 109, normalized size = 0.85

$$\frac{(-2x+1)^{\frac{3}{2}}}{105\,(3x+2)^5}+\frac{\sqrt{-2x+1}}{1029\,(3x+2)}+\frac{\sqrt{-2x+1}}{441\,(3x+2)^2}+\frac{2\sqrt{-2x+1}}{315\,(3x+2)^3}-\frac{2\sqrt{-2x+1}}{15\,(3x+2)^4}+\frac{2\sqrt{21}\,\mathrm{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21609}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((3+5*x)*(1-2*x)**(1/2)/(2+3*x)**6,x)
```

```
[Out] (-2*x + 1)**(3/2)/(105*(3*x + 2)**5) + sqrt(-2*x + 1)/(1029*(3*x
+ 2)) + sqrt(-2*x + 1)/(441*(3*x + 2)**2) + 2*sqrt(-2*x + 1)/(315
*(3*x + 2)**3) - 2*sqrt(-2*x + 1)/(15*(3*x + 2)**4) + 2*sqrt(21)*
atanh(sqrt(21)*sqrt(-2*x + 1)/7)/21609
```

Mathematica [A] time = 0.100768, size = 68, normalized size = 0.53

$$\frac{\frac{21\sqrt{1-2x}(405x^4+1395x^3+2004x^2-864x-1019)}{(3x+2)^5}+10\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{108045}$$

Antiderivative was successfully verified.

```
[In] Integrate[(Sqrt[1 - 2*x]*(3 + 5*x))/(2 + 3*x)^6,x]
```

```
[Out] ((21*Sqrt[1 - 2*x]*(-1019 - 864*x + 2004*x^2 + 1395*x^3 + 405*x^4
))/(2 + 3*x)^5 + 10*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/10
```

```
8045
```

Maple [A] time = 0.017, size = 75, normalized size = 0.6

$$7776\frac{1}{(-4-6x)^5}\left(-\frac{(1-2x)^{9/2}}{49392}+\frac{(1-2x)^{7/2}}{4536}-\frac{8(1-2x)^{5/2}}{8505}+\frac{13(1-2x)^{3/2}}{13608}+\frac{7\sqrt{1-2x}}{11664}\right)+\frac{2\sqrt{21}}{21609}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)*(1-2*x)^(1/2)/(2+3*x)^6,x)
```

```
[Out] 7776*(-1/49392*(1-2*x)^(9/2)+1/4536*(1-2*x)^(7/2)-8/8505*(1-2*x)^
(5/2)+13/13608*(1-2*x)^(3/2)+7/11664*(1-2*x)^(1/2))/(-4-6*x)^5+2/
21609*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.47698, size = 173, normalized size = 1.35

$$-\frac{1}{21609}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{2\left(405(-2x+1)^{\frac{9}{2}}-4410(-2x+1)^{\frac{7}{2}}+18816(-2x+1)^{\frac{5}{2}}-19110(-2x+1)^{\frac{3}{2}}-12005\sqrt{-2x+1}\right)}{5145\left(243(2x-1)^5+2835(2x-1)^4+13230(2x-1)^3+30870(2x-1)^2+72030x-19208\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^6,x, algorithm="maxima")
```

```
[Out] -1/21609*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21) +
3*sqrt(-2*x + 1))) + 2/5145*(405*(-2*x + 1)^(9/2) - 4410*(-2*x +
1)^(7/2) + 18816*(-2*x + 1)^(5/2) - 19110*(-2*x + 1)^(3/2) - 1200
5*sqrt(-2*x + 1))/(243*(2*x - 1)^5 + 2835*(2*x - 1)^4 + 13230*(2*
x - 1)^3 + 30870*(2*x - 1)^2 + 72030*x - 19208)
```

Fricas [A] time = 0.213214, size = 161, normalized size = 1.26

$$\frac{\sqrt{21}\left(\sqrt{21}\left(405x^4+1395x^3+2004x^2-864x-1019\right)\sqrt{-2x+1}+5\left(243x^5+810x^4+1080x^3+720x^2+240x+32\right)\log\left(\right.\right.}{108045\left(243x^5+810x^4+1080x^3+720x^2+240x+32\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^6,x, algorithm="fricas")
```

```
[Out] 1/108045*sqrt(21)*(sqrt(21)*(405*x^4 + 1395*x^3 + 2004*x^2 - 864*
x - 1019)*sqrt(-2*x + 1) + 5*(243*x^5 + 810*x^4 + 1080*x^3 + 720*
x^2 + 240*x + 32)*log((sqrt(21)*(3*x - 5) - 21*sqrt(-2*x + 1))/(3
*x + 2)))/(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)*(1-2*x)**(1/2)/(2+3*x)**6,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.219379, size = 157, normalized size = 1.23

$$-\frac{1}{21609}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{405\,(2x-1)^4\sqrt{-2x+1}+4410\,(2x-1)^3\sqrt{-2x+1}+18816\,(2x-1)^2\sqrt{-2x+1}-19110\,(-2x+1)^{\frac{3}{2}}-12005\sqrt{-2x+1}}{82320\,(3x+2)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^6,x, algorithm="giac")
```

```
[Out] -1/21609*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqr
t(21) + 3*sqrt(-2*x + 1))) + 1/82320*(405*(2*x - 1)^4*sqrt(-2*x +
 1) + 4410*(2*x - 1)^3*sqrt(-2*x + 1) + 18816*(2*x - 1)^2*sqrt(-2
*x + 1) - 19110*(-2*x + 1)^(3/2) - 12005*sqrt(-2*x + 1))/(3*x + 2
)^5
```

3.1786 $\int \sqrt{1-2x}(2+3x)^4(3+5x)^2\,dx$

Optimal. Leaf size=92

$$-\frac{135}{64}(1-2x)^{15/2}+\frac{13905}{416}(1-2x)^{13/2}-\frac{159111}{704}(1-2x)^{11/2}+\frac{40453}{48}(1-2x)^{9/2}-\frac{118993}{64}(1-2x)^{7/2}+\frac{381073}{160}(1-2x)^{5/2}-\frac{290521}{192}(1-2x)^{3/2}$$

```
[Out] (-290521*(1 - 2*x)^(3/2))/192 + (381073*(1 - 2*x)^(5/2))/160 - (1
18993*(1 - 2*x)^(7/2))/64 + (40453*(1 - 2*x)^(9/2))/48 - (159111*
(1 - 2*x)^(11/2))/704 + (13905*(1 - 2*x)^(13/2))/416 - (135*(1 -
2*x)^(15/2))/64
```

Rubi [A] time = 0.0684216, antiderivative size = 92, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.042

$$-\frac{135}{64}(1-2x)^{15/2}+\frac{13905}{416}(1-2x)^{13/2}-\frac{159111}{704}(1-2x)^{11/2}+\frac{40453}{48}(1-2x)^{9/2}-\frac{118993}{64}(1-2x)^{7/2}+\frac{381073}{160}(1-2x)^{5/2}-\frac{290521}{192}(1-2x)^{3/2}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]*(2 + 3*x)^4*(3 + 5*x)^2,x]
```

```
[Out] (-290521*(1 - 2*x)^(3/2))/192 + (381073*(1 - 2*x)^(5/2))/160 - (1
18993*(1 - 2*x)^(7/2))/64 + (40453*(1 - 2*x)^(9/2))/48 - (159111*
(1 - 2*x)^(11/2))/704 + (13905*(1 - 2*x)^(13/2))/416 - (135*(1 -
2*x)^(15/2))/64
```

Rubi in Sympy [A] time = 10.3154, size = 82, normalized size = 0.89

$$-\frac{135\,(-2x+1)^{\frac{15}{2}}}{64}+\frac{13905\,(-2x+1)^{\frac{13}{2}}}{416}-\frac{159111\,(-2x+1)^{\frac{11}{2}}}{704}+\frac{40453\,(-2x+1)^{\frac{9}{2}}}{48}-\frac{118993\,(-2x+1)^{\frac{7}{2}}}{64}+\frac{381073\,(-2x+1)^{\frac{5}{2}}}{160}-\frac{290521\,(-2x+1)^{\frac{3}{2}}}{192}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4*(3+5*x)**2*(1-2*x)**(1/2),x)
```

```
[Out] -135*(-2*x + 1)**(15/2)/64 + 13905*(-2*x + 1)**(13/2)/416 - 15911
1*(-2*x + 1)**(11/2)/704 + 40453*(-2*x + 1)**(9/2)/48 - 118993*(-
2*x + 1)**(7/2)/64 + 381073*(-2*x + 1)**(5/2)/160 - 290521*(-2*x
+ 1)**(3/2)/192
```

Mathematica [A] time = 0.0593655, size = 43, normalized size = 0.47

$$-\frac{(1-2x)^{3/2}\left(289575x^6+1425600x^5+3106755x^4+3960500x^3+3298140x^2+1895832x+734904\right)}{2145}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]*(2 + 3*x)^4*(3 + 5*x)^2,x]
```

```
[Out] -((1 - 2*x)^(3/2)*(734904 + 1895832*x + 3298140*x^2 + 3960500*x^3
 + 3106755*x^4 + 1425600*x^5 + 289575*x^6))/2145
```

Maple [A] time = 0.006, size = 40, normalized size = 0.4

$$-\frac{289575 x^{6}+1425600 x^{5}+3106755 x^{4}+3960500 x^{3}+3298140 x^{2}+1895832 x+734904}{2145}(1-2 x)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4*(3+5*x)^2*(1-2*x)^(1/2),x)
```

```
[Out] -1/2145*(289575*x^6+1425600*x^5+3106755*x^4+3960500*x^3+3298140*x
^2+1895832*x+734904)*(1-2*x)^(3/2)
```

Maxima [A] time = 1.34927, size = 86, normalized size = 0.93

$$-\frac{135}{64}(-2x+1)^{\frac{15}{2}}+\frac{13905}{416}(-2x+1)^{\frac{13}{2}}-\frac{159111}{704}(-2x+1)^{\frac{11}{2}}+\frac{40453}{48}(-2x+1)^{\frac{9}{2}}-\frac{118993}{64}(-2x+1)^{\frac{7}{2}}+\frac{381073}{160}(-2x+1)^{\frac{5}{2}}-\frac{290521}{192}(-2x+1)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^4*sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] -135/64*(-2*x + 1)^(15/2) + 13905/416*(-2*x + 1)^(13/2) - 159111/
704*(-2*x + 1)^(11/2) + 40453/48*(-2*x + 1)^(9/2) - 118993/64*(-2
*x + 1)^(7/2) + 381073/160*(-2*x + 1)^(5/2) - 290521/192*(-2*x +
1)^(3/2)
```

Fricas [A] time = 0.206349, size = 59, normalized size = 0.64

$$\frac{1}{2145}\left(579150 x^{7}+2561625 x^{6}+4787910 x^{5}+4814245 x^{4}+2635780 x^{3}+493524 x^{2}-426024 x-734904\right)\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^4*sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] 1/2145*(579150*x^7 + 2561625*x^6 + 4787910*x^5 + 4814245*x^4 + 26
35780*x^3 + 493524*x^2 - 426024*x - 734904)*sqrt(-2*x + 1)
```

Sympy [A] time = 3.36127, size = 82, normalized size = 0.89

$$-\frac{135(-2x+1)^{\frac{15}{2}}}{64}+\frac{13905(-2x+1)^{\frac{13}{2}}}{416}-\frac{159111(-2x+1)^{\frac{11}{2}}}{704}+\frac{40453(-2x+1)^{\frac{9}{2}}}{48}-\frac{118993(-2x+1)^{\frac{7}{2}}}{64}+\frac{381073(-2x+1)^{\frac{5}{2}}}{160}-\frac{290521(-2x+1)^{\frac{3}{2}}}{192}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4*(3+5*x)**2*(1-2*x)**(1/2),x)
```

```
[Out] -135*(-2*x + 1)**(15/2)/64 + 13905*(-2*x + 1)**(13/2)/416 - 15911
1*(-2*x + 1)**(11/2)/704 + 40453*(-2*x + 1)**(9/2)/48 - 118993*(-
2*x + 1)**(7/2)/64 + 381073*(-2*x + 1)**(5/2)/160 - 290521*(-2*x
+ 1)**(3/2)/192
```

GIAC/XCAS [A] time = 0.216021, size = 143, normalized size = 1.55

$$\frac{135}{64}\,(2\,x-1)^7\sqrt{-2\,x+1}+\frac{13905}{416}\,(2\,x-1)^6\sqrt{-2\,x+1}+\frac{159111}{704}\,(2\,x-1)^5\sqrt{-2\,x+1}+\frac{40453}{48}\,(2\,x-1)^4\sqrt{-2\,x+1}+\frac{118993}{64}\,(2\,x-1)^3\sqrt{-2\,x+1}+\frac{381073}{160}\,(2\,x-1)^2\sqrt{-2\,x+1}-\frac{290521}{192}\,(-2\,x+1)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(3*x + 2)^4*sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] 135/64*(2*x - 1)^7*sqrt(-2*x + 1) + 13905/416*(2*x - 1)^6*sqrt(-2
*x + 1) + 159111/704*(2*x - 1)^5*sqrt(-2*x + 1) + 40453/48*(2*x -
 1)^4*sqrt(-2*x + 1) + 118993/64*(2*x - 1)^3*sqrt(-2*x + 1) + 381
073/160*(2*x - 1)^2*sqrt(-2*x + 1) - 290521/192*(-2*x + 1)^(3/2)
```

3.1787 $\int \sqrt{1-2x}(2+3x)^3(3+5x)^2\,dx$

Optimal. Leaf size=79

$$\frac{675}{416}(1-2x)^{13/2}-\frac{7695}{352}(1-2x)^{11/2}+\frac{1949}{16}(1-2x)^{9/2}-\frac{5711}{16}(1-2x)^{7/2}+\frac{91091}{160}(1-2x)^{5/2}-\frac{41503}{96}(1-2x)^{3/2}$$

```
[Out] (-41503*(1 - 2*x)^(3/2))/96 + (91091*(1 - 2*x)^(5/2))/160 - (5711
*(1 - 2*x)^(7/2))/16 + (1949*(1 - 2*x)^(9/2))/16 - (7695*(1 - 2*x
)^(11/2))/352 + (675*(1 - 2*x)^(13/2))/416
```

Rubi [A] time = 0.0614147, antiderivative size = 79, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.042

$$\frac{675}{416}(1-2x)^{13/2}-\frac{7695}{352}(1-2x)^{11/2}+\frac{1949}{16}(1-2x)^{9/2}-\frac{5711}{16}(1-2x)^{7/2}+\frac{91091}{160}(1-2x)^{5/2}-\frac{41503}{96}(1-2x)^{3/2}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]*(2 + 3*x)^3*(3 + 5*x)^2,x]
```

```
[Out] (-41503*(1 - 2*x)^(3/2))/96 + (91091*(1 - 2*x)^(5/2))/160 - (5711
*(1 - 2*x)^(7/2))/16 + (1949*(1 - 2*x)^(9/2))/16 - (7695*(1 - 2*x
)^(11/2))/352 + (675*(1 - 2*x)^(13/2))/416
```

Rubi in Sympy [A] time = 9.90325, size = 70, normalized size = 0.89

$$\frac{675\left(-2x+1\right)^{\frac{13}{2}}}{416}-\frac{7695\left(-2x+1\right)^{\frac{11}{2}}}{352}+\frac{1949\left(-2x+1\right)^{\frac{9}{2}}}{16}-\frac{5711\left(-2x+1\right)^{\frac{7}{2}}}{16}+\frac{91091\left(-2x+1\right)^{\frac{5}{2}}}{160}-\frac{41503\left(-2x+1\right)^{\frac{3}{2}}}{96}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3*(3+5*x)**2*(1-2*x)**(1/2),x)
```

```
[Out] 675*(-2*x + 1)**(13/2)/416 - 7695*(-2*x + 1)**(11/2)/352 + 1949*(
-2*x + 1)**(9/2)/16 - 5711*(-2*x + 1)**(7/2)/16 + 91091*(-2*x + 1
)**(5/2)/160 - 41503*(-2*x + 1)**(3/2)/96
```

Mathematica [A] time = 0.0523316, size = 38, normalized size = 0.48

$$-\frac{(1-2x)^{3/2}\left(111375x^5+471825x^4+868215x^3+913245x^2+607254x+253898\right)}{2145}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]*(2 + 3*x)^3*(3 + 5*x)^2,x]
```

```
[Out] -((1 - 2*x)^(3/2)*(253898 + 607254*x + 913245*x^2 + 868215*x^3 +
471825*x^4 + 111375*x^5))/2145
```

Maple [A] time = 0.005, size = 35, normalized size = 0.4

$$-\frac{111375 x^5 + 471825 x^4 + 868215 x^3 + 913245 x^2 + 607254 x + 253898}{2145} (1 - 2x)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3*(3+5*x)^2*(1-2*x)^(1/2),x)
```

```
[Out] -1/2145*(111375*x^5+471825*x^4+868215*x^3+913245*x^2+607254*x+253
898)*(1-2*x)^(3/2)
```

Maxima [A] time = 1.35932, size = 74, normalized size = 0.94

$$\frac{675}{416} (-2x + 1)^{\frac{13}{2}} - \frac{7695}{352} (-2x + 1)^{\frac{11}{2}} + \frac{1949}{16} (-2x + 1)^{\frac{9}{2}} - \frac{5711}{16} (-2x + 1)^{\frac{7}{2}} + \frac{91091}{160} (-2x + 1)^{\frac{5}{2}} - \frac{41503}{96} (-2x + 1)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^3*sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] 675/416*(-2*x + 1)^(13/2) - 7695/352*(-2*x + 1)^(11/2) + 1949/16*
(-2*x + 1)^(9/2) - 5711/16*(-2*x + 1)^(7/2) + 91091/160*(-2*x + 1
)^(5/2) - 41503/96*(-2*x + 1)^(3/2)
```

Fricas [A] time = 0.206287, size = 53, normalized size = 0.67

$$\frac{1}{2145} \left(222750 x^6 + 832275 x^5 + 1264605 x^4 + 958275 x^3 + 301263 x^2 - 99458 x - 253898\right) \sqrt{-2x + 1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^3*sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] 1/2145*(222750*x^6 + 832275*x^5 + 1264605*x^4 + 958275*x^3 + 3012
63*x^2 - 99458*x - 253898)*sqrt(-2*x + 1)
```

Sympy [A] time = 3.16487, size = 70, normalized size = 0.89

$$\frac{675 (-2x + 1)^{\frac{13}{2}}}{416} - \frac{7695 (-2x + 1)^{\frac{11}{2}}}{352} + \frac{1949 (-2x + 1)^{\frac{9}{2}}}{16} - \frac{5711 (-2x + 1)^{\frac{7}{2}}}{16} + \frac{91091 (-2x + 1)^{\frac{5}{2}}}{160} - \frac{41503 (-2x + 1)^{\frac{3}{2}}}{96}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3*(3+5*x)**2*(1-2*x)**(1/2),x)
```

```
[Out] 675*(-2*x + 1)**(13/2)/416 - 7695*(-2*x + 1)**(11/2)/352 + 1949*(
-2*x + 1)**(9/2)/16 - 5711*(-2*x + 1)**(7/2)/16 + 91091*(-2*x + 1
)**(5/2)/160 - 41503*(-2*x + 1)**(3/2)/96
```

GIAC/XCAS [A] time = 0.220198, size = 122, normalized size = 1.54

$$\frac{675}{416}\,(2\,x-1)^{6}\sqrt{-2\,x+1}+\frac{7695}{352}\,(2\,x-1)^{5}\sqrt{-2\,x+1}+\frac{1949}{16}\,(2\,x-1)^{4}\sqrt{-2\,x+1}+\frac{5711}{16}\,(2\,x-1)^{3}\sqrt{-2\,x+1}+\frac{91091}{160}\,(2\,x-1)^{2}\sqrt{-2\,x+1}-\frac{41503}{96}\,(-2\,x+1)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(3*x + 2)^3*sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] 675/416*(2*x - 1)^6*sqrt(-2*x + 1) + 7695/352*(2*x - 1)^5*sqrt(-2
*x + 1) + 1949/16*(2*x - 1)^4*sqrt(-2*x + 1) + 5711/16*(2*x - 1)^
3*sqrt(-2*x + 1) + 91091/160*(2*x - 1)^2*sqrt(-2*x + 1) - 41503/9
6*(-2*x + 1)^(3/2)
```

3.1788 $\int \sqrt{1-2x}(2+3x)^2(3+5x)^2\,dx$

Optimal. Leaf size=66

$$-\frac{225}{176}(1-2x)^{11/2}+\frac{85}{6}(1-2x)^{9/2}-\frac{3467}{56}(1-2x)^{7/2}+\frac{1309}{10}(1-2x)^{5/2}-\frac{5929}{48}(1-2x)^{3/2}$$

```
[Out] (-5929*(1 - 2*x)^(3/2))/48 + (1309*(1 - 2*x)^(5/2))/10 - (3467*(1
 - 2*x)^(7/2))/56 + (85*(1 - 2*x)^(9/2))/6 - (225*(1 - 2*x)^(11/2
))/176
```

Rubi [A] time = 0.0555836, antiderivative size = 66, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.042

$$-\frac{225}{176}(1-2x)^{11/2}+\frac{85}{6}(1-2x)^{9/2}-\frac{3467}{56}(1-2x)^{7/2}+\frac{1309}{10}(1-2x)^{5/2}-\frac{5929}{48}(1-2x)^{3/2}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]*(2 + 3*x)^2*(3 + 5*x)^2,x]
```

```
[Out] (-5929*(1 - 2*x)^(3/2))/48 + (1309*(1 - 2*x)^(5/2))/10 - (3467*(1
 - 2*x)^(7/2))/56 + (85*(1 - 2*x)^(9/2))/6 - (225*(1 - 2*x)^(11/2
))/176
```

Rubi in Sympy [A] time = 8.36407, size = 58, normalized size = 0.88

$$-\frac{225\,(-2x+1)^{\frac{11}{2}}}{176}+\frac{85\,(-2x+1)^{\frac{9}{2}}}{6}-\frac{3467\,(-2x+1)^{\frac{7}{2}}}{56}+\frac{1309\,(-2x+1)^{\frac{5}{2}}}{10}-\frac{5929\,(-2x+1)^{\frac{3}{2}}}{48}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2*(3+5*x)**2*(1-2*x)**(1/2),x)
```

```
[Out] -225*(-2*x + 1)**(11/2)/176 + 85*(-2*x + 1)**(9/2)/6 - 3467*(-2*x
 + 1)**(7/2)/56 + 1309*(-2*x + 1)**(5/2)/10 - 5929*(-2*x + 1)**(3
/2)/48
```

Mathematica [A] time = 0.0516299, size = 33, normalized size = 0.5

$$-\frac{(1-2x)^{3/2}\left(23625x^4+83650x^3+125115x^2+102714x+48098\right)}{1155}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]*(2 + 3*x)^2*(3 + 5*x)^2,x]
```

```
[Out] -((1 - 2*x)^(3/2)*(48098 + 102714*x + 125115*x^2 + 83650*x^3 + 23
625*x^4))/1155
```

Maple [A] time = 0.007, size = 30, normalized size = 0.5

$$-\frac{23625\,x^4+83650\,x^3+125115\,x^2+102714\,x+48098}{1155}(1-2\,x)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2*(3+5*x)^2*(1-2*x)^(1/2),x)
```

```
[Out] -1/1155*(23625*x^4+83650*x^3+125115*x^2+102714*x+48098)*(1-2*x)^(
3/2)
```

Maxima [A] time = 1.34646, size = 62, normalized size = 0.94

$$-\frac{225}{176}\,(-2\,x+1)^{\frac{11}{2}}+\frac{85}{6}\,(-2\,x+1)^{\frac{9}{2}}-\frac{3467}{56}\,(-2\,x+1)^{\frac{7}{2}}+\frac{1309}{10}\,(-2\,x+1)^{\frac{5}{2}}-\frac{5929}{48}\,(-2\,x+1)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(3*x + 2)^2*sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] -225/176*(-2*x + 1)^(11/2) + 85/6*(-2*x + 1)^(9/2) - 3467/56*(-2*
x + 1)^(7/2) + 1309/10*(-2*x + 1)^(5/2) - 5929/48*(-2*x + 1)^(3/2
)
```

Fricas [A] time = 0.211954, size = 46, normalized size = 0.7

$$\frac{1}{1155}\,\left(47250\,x^5+143675\,x^4+166580\,x^3+80313\,x^2-6518\,x-48098\right)\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(3*x + 2)^2*sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] 1/1155*(47250*x^5 + 143675*x^4 + 166580*x^3 + 80313*x^2 - 6518*x
- 48098)*sqrt(-2*x + 1)
```

Sympy [A] time = 2.96689, size = 58, normalized size = 0.88

$$-\frac{225\,(-2x+1)^{\frac{11}{2}}}{176}+\frac{85\,(-2x+1)^{\frac{9}{2}}}{6}-\frac{3467\,(-2x+1)^{\frac{7}{2}}}{56}+\frac{1309\,(-2x+1)^{\frac{5}{2}}}{10}-\frac{5929\,(-2x+1)^{\frac{3}{2}}}{48}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2*(3+5*x)**2*(1-2*x)**(1/2),x)
```

```
[Out] -225*(-2*x + 1)**(11/2)/176 + 85*(-2*x + 1)**(9/2)/6 - 3467*(-2*x
 + 1)**(7/2)/56 + 1309*(-2*x + 1)**(5/2)/10 - 5929*(-2*x + 1)**(3
/2)/48
```

GIAC/XCAS [A] time = 0.211629, size = 100, normalized size = 1.52

$$\frac{225}{176}\,(2\,x-1)^5\sqrt{-2\,x+1}+\frac{85}{6}\,(2\,x-1)^4\sqrt{-2\,x+1}+\frac{3467}{56}\,(2\,x-1)^3\sqrt{-2\,x+1}+\frac{1309}{10}\,(2\,x-1)^2\sqrt{-2\,x+1}-\frac{5929}{48}\,(-2\,x+1)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(3*x + 2)^2*sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] 225/176*(2*x - 1)^5*sqrt(-2*x + 1) + 85/6*(2*x - 1)^4*sqrt(-2*x +
 1) + 3467/56*(2*x - 1)^3*sqrt(-2*x + 1) + 1309/10*(2*x - 1)^2*sq
rt(-2*x + 1) - 5929/48*(-2*x + 1)^(3/2)
```

3.1789 $\int \sqrt{1-2x}(2+3x)(3+5x)^2\,dx$

Optimal. Leaf size=53

$$\frac{25}{24}(1-2x)^{9/2}-\frac{505}{56}(1-2x)^{7/2}+\frac{1133}{40}(1-2x)^{5/2}-\frac{847}{24}(1-2x)^{3/2}$$

```
[Out] (-847*(1 - 2*x)^(3/2))/24 + (1133*(1 - 2*x)^(5/2))/40 - (505*(1 -
 2*x)^(7/2))/56 + (25*(1 - 2*x)^(9/2))/24
```

Rubi [A] time = 0.0443285, antiderivative size = 53, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{25}{24}(1-2x)^{9/2}-\frac{505}{56}(1-2x)^{7/2}+\frac{1133}{40}(1-2x)^{5/2}-\frac{847}{24}(1-2x)^{3/2}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]*(2 + 3*x)*(3 + 5*x)^2,x]
```

```
[Out] (-847*(1 - 2*x)^(3/2))/24 + (1133*(1 - 2*x)^(5/2))/40 - (505*(1 -
 2*x)^(7/2))/56 + (25*(1 - 2*x)^(9/2))/24
```

Rubi in Sympy [A] time = 6.85334, size = 46, normalized size = 0.87

$$\frac{25\left(-2x+1\right)^{\frac{9}{2}}}{24}-\frac{505\left(-2x+1\right)^{\frac{7}{2}}}{56}+\frac{1133\left(-2x+1\right)^{\frac{5}{2}}}{40}-\frac{847\left(-2x+1\right)^{\frac{3}{2}}}{24}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)*(3+5*x)**2*(1-2*x)**(1/2),x)
```

```
[Out] 25*(-2*x + 1)**(9/2)/24 - 505*(-2*x + 1)**(7/2)/56 + 1133*(-2*x +
 1)**(5/2)/40 - 847*(-2*x + 1)**(3/2)/24
```

Mathematica [A] time = 0.0271067, size = 33, normalized size = 0.62

$$\frac{1}{105}\sqrt{1-2x}\left(1750x^4+4075x^3+3159x^2+321x-1569\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]*(2 + 3*x)*(3 + 5*x)^2,x]
```

```
[Out] (Sqrt[1 - 2*x]*(-1569 + 321*x + 3159*x^2 + 4075*x^3 + 1750*x^4))/
105
```

Maple [A] time = 0.006, size = 25, normalized size = 0.5

$$-\frac{875\,x^3+2475\,x^2+2817\,x+1569}{105}(1-2\,x)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)*(3+5*x)^2*(1-2*x)^(1/2),x)
```

```
[Out] -1/105*(875*x^3+2475*x^2+2817*x+1569)*(1-2*x)^(3/2)
```

Maxima [A] time = 1.34543, size = 50, normalized size = 0.94

$$\frac{25}{24}\,(-2\,x+1)^{\frac{9}{2}}-\frac{505}{56}\,(-2\,x+1)^{\frac{7}{2}}+\frac{1133}{40}\,(-2\,x+1)^{\frac{5}{2}}-\frac{847}{24}\,(-2\,x+1)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(3*x + 2)*sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] 25/24*(-2*x + 1)^(9/2) - 505/56*(-2*x + 1)^(7/2) + 1133/40*(-2*x
+ 1)^(5/2) - 847/24*(-2*x + 1)^(3/2)
```

Fricas [A] time = 0.209659, size = 39, normalized size = 0.74

$$\frac{1}{105}\left(1750\,x^4+4075\,x^3+3159\,x^2+321\,x-1569\right)\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(3*x + 2)*sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] 1/105*(1750*x^4 + 4075*x^3 + 3159*x^2 + 321*x - 1569)*sqrt(-2*x +
 1)
```

Sympy [A] time = 2.84287, size = 46, normalized size = 0.87

$$\frac{25\,(-2x+1)^{\frac{9}{2}}}{24}-\frac{505\,(-2x+1)^{\frac{7}{2}}}{56}+\frac{1133\,(-2x+1)^{\frac{5}{2}}}{40}-\frac{847\,(-2x+1)^{\frac{3}{2}}}{24}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)*(3+5*x)**2*(1-2*x)**(1/2),x)
```

```
[Out] 25*(-2*x + 1)**(9/2)/24 - 505*(-2*x + 1)**(7/2)/56 + 1133*(-2*x +
 1)**(5/2)/40 - 847*(-2*x + 1)**(3/2)/24
```

GIAC/XCAS [A] time = 0.211764, size = 78, normalized size = 1.47

$$\frac{25}{24}\,(2\,x-1)^4\sqrt{-2\,x+1}+\frac{505}{56}\,(2\,x-1)^3\sqrt{-2\,x+1}+\frac{1133}{40}\,(2\,x-1)^2\sqrt{-2\,x+1}-\frac{847}{24}\,(-2\,x+1)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)*sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] 25/24*(2*x - 1)^4*sqrt(-2*x + 1) + 505/56*(2*x - 1)^3*sqrt(-2*x +
 1) + 1133/40*(2*x - 1)^2*sqrt(-2*x + 1) - 847/24*(-2*x + 1)^(3/2
)
```

3.1790 $\int \sqrt{1-2x}(3+5x)^2\,dx$

Optimal. Leaf size=40

$$-\frac{25}{28}(1-2x)^{7/2}+\frac{11}{2}(1-2x)^{5/2}-\frac{121}{12}(1-2x)^{3/2}$$

```
[Out] (-121*(1 - 2*x)^(3/2))/12 + (11*(1 - 2*x)^(5/2))/2 - (25*(1 - 2*x
)^(7/2))/28
```

Rubi [A] time = 0.0248892, antiderivative size = 40, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 17, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.059

$$-\frac{25}{28}(1-2x)^{7/2}+\frac{11}{2}(1-2x)^{5/2}-\frac{121}{12}(1-2x)^{3/2}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]*(3 + 5*x)^2,x]
```

```
[Out] (-121*(1 - 2*x)^(3/2))/12 + (11*(1 - 2*x)^(5/2))/2 - (25*(1 - 2*x
)^(7/2))/28
```

Rubi in Sympy [A] time = 4.97057, size = 34, normalized size = 0.85

$$-\frac{25\left(-2x+1\right)^{\frac{7}{2}}}{28}+\frac{11\left(-2x+1\right)^{\frac{5}{2}}}{2}-\frac{121\left(-2x+1\right)^{\frac{3}{2}}}{12}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**2*(1-2*x)**(1/2),x)
```

```
[Out] -25*(-2*x + 1)**(7/2)/28 + 11*(-2*x + 1)**(5/2)/2 - 121*(-2*x + 1
)**(3/2)/12
```

Mathematica [A] time = 0.0192825, size = 28, normalized size = 0.7

$$\frac{1}{21}\sqrt{1-2x}\left(150x^3+237x^2+74x-115\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]*(3 + 5*x)^2,x]
```

```
[Out] (Sqrt[1 - 2*x]*(-115 + 74*x + 237*x^2 + 150*x^3))/21
```

Maple [A] time = 0.006, size = 20, normalized size = 0.5

$$-\frac{75\,x^2+156\,x+115}{21}\left(1-2\,x\right)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^2*(1-2*x)^(1/2),x)
```

```
[Out] -1/21*(75*x^2+156*x+115)*(1-2*x)^(3/2)
```

Maxima [A] time = 1.34405, size = 38, normalized size = 0.95

$$-\frac{25}{28}(-2x+1)^{\frac{7}{2}}+\frac{11}{2}(-2x+1)^{\frac{5}{2}}-\frac{121}{12}(-2x+1)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] -25/28*(-2*x + 1)^(7/2) + 11/2*(-2*x + 1)^(5/2) - 121/12*(-2*x +
1)^(3/2)
```

Fricas [A] time = 0.213896, size = 32, normalized size = 0.8

$$\frac{1}{21}\left(150x^3+237x^2+74x-115\right)\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] 1/21*(150*x^3 + 237*x^2 + 74*x - 115)*sqrt(-2*x + 1)
```

Sympy [A] time = 4.67384, size = 187, normalized size = 4.68

$$\begin{cases} \frac{10\sqrt{5}i\left(x+\frac{3}{5}\right)^3\sqrt{10x-5}}{7}-\frac{11\sqrt{5}i\left(x+\frac{3}{5}\right)^2\sqrt{10x-5}}{35}-\frac{242\sqrt{5}i\left(x+\frac{3}{5}\right)\sqrt{10x-5}}{525}-\frac{2662\sqrt{5}i\sqrt{10x-5}}{2625} & \text{for}\ \frac{10\left|x+\frac{3}{5}\right|}{11}>1 \\ \frac{10\sqrt{5}\sqrt{-10x+5}\left(x+\frac{3}{5}\right)^3}{7}-\frac{11\sqrt{5}\sqrt{-10x+5}\left(x+\frac{3}{5}\right)^2}{35}-\frac{242\sqrt{5}\sqrt{-10x+5}\left(x+\frac{3}{5}\right)}{525}-\frac{2662\sqrt{5}\sqrt{-10x+5}}{2625} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2*(1-2*x)**(1/2),x)
```

```
[Out] Piecewise((10*sqrt(5)*I*(x + 3/5)**3*sqrt(10*x - 5)/7 - 11*sqrt(5
)*I*(x + 3/5)**2*sqrt(10*x - 5)/35 - 242*sqrt(5)*I*(x + 3/5)*sqrt
(10*x - 5)/525 - 2662*sqrt(5)*I*sqrt(10*x - 5)/2625, 10*Abs(x + 3
/5)/11 > 1), (10*sqrt(5)*sqrt(-10*x + 5)*(x + 3/5)**3/7 - 11*sqrt
(5)*sqrt(-10*x + 5)*(x + 3/5)**2/35 - 242*sqrt(5)*sqrt(-10*x + 5)
*(x + 3/5)/525 - 2662*sqrt(5)*sqrt(-10*x + 5)/2625, True))
```

GIAC/XCAS [A] time = 0.209909, size = 57, normalized size = 1.42

$$\frac{25}{28}(2x-1)^3\sqrt{-2x+1}+\frac{11}{2}(2x-1)^2\sqrt{-2x+1}-\frac{121}{12}(-2x+1)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] 25/28*(2*x - 1)^3*sqrt(-2*x + 1) + 11/2*(2*x - 1)^2*sqrt(-2*x + 1
) - 121/12*(-2*x + 1)^(3/2)
```

3.1791 $\int \frac{\sqrt{1-2x}(3+5x)^2}{2+3x}\,dx$

Optimal. Leaf size=69

$$\frac{5}{6}(1-2x)^{5/2}-\frac{155}{54}(1-2x)^{3/2}+\frac{2}{27}\sqrt{1-2x}-\frac{2}{27}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

```
[Out] (2*Sqrt[1 - 2*x])/27 - (155*(1 - 2*x)^(3/2))/54 + (5*(1 - 2*x)^(5
/2))/6 - (2*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/27
```

Rubi [A] time = 0.0852035, antiderivative size = 69, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$\frac{5}{6}(1-2x)^{5/2}-\frac{155}{54}(1-2x)^{3/2}+\frac{2}{27}\sqrt{1-2x}-\frac{2}{27}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(3 + 5*x)^2)/(2 + 3*x),x]
```

```
[Out] (2*Sqrt[1 - 2*x])/27 - (155*(1 - 2*x)^(3/2))/54 + (5*(1 - 2*x)^(5
/2))/6 - (2*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/27
```

Rubi in Sympy [A] time = 8.64901, size = 60, normalized size = 0.87

$$\frac{5(-2x+1)^{\frac{5}{2}}}{6}-\frac{155(-2x+1)^{\frac{3}{2}}}{54}+\frac{2\sqrt{-2x+1}}{27}-\frac{2\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{81}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**2*(1-2*x)**(1/2)/(2+3*x),x)
```

```
[Out] 5*(-2*x + 1)**(5/2)/6 - 155*(-2*x + 1)**(3/2)/54 + 2*sqrt(-2*x +
1)/27 - 2*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/81
```

Mathematica [A] time = 0.0626629, size = 51, normalized size = 0.74

$$\frac{1}{81}\left(3\sqrt{1-2x}\left(90x^2+65x-53\right)-2\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(3 + 5*x)^2)/(2 + 3*x),x]
```

```
[Out] (3*Sqrt[1 - 2*x]*(-53 + 65*x + 90*x^2) - 2*Sqrt[21]*ArcTanh[Sqrt[
3/7]*Sqrt[1 - 2*x]])/81
```

Maple [A] time = 0.009, size = 47, normalized size = 0.7

$$-\frac{155}{54}(1-2x)^{\frac{3}{2}}+\frac{5}{6}(1-2x)^{\frac{5}{2}}-\frac{2\sqrt{21}}{81}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)+\frac{2}{27}\sqrt{1-2x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((3+5*x)^2*(1-2*x)^(1/2)/(2+3*x),x)
```

```
[Out] -155/54*(1-2*x)^(3/2)+5/6*(1-2*x)^(5/2)-2/81*arctanh(1/7*21^(1/2)
*(1-2*x)^(1/2))*21^(1/2)+2/27*(1-2*x)^(1/2)
```

Maxima [A] time = 1.50432, size = 86, normalized size = 1.25

$$\frac{5}{6}\,(-2\,x+1)^{\frac{5}{2}}-\frac{155}{54}\,(-2\,x+1)^{\frac{3}{2}}+\frac{1}{81}\,\sqrt{21}\log\left(-\frac{\sqrt{21}-3\,\sqrt{-2\,x+1}}{\sqrt{21}+3\,\sqrt{-2\,x+1}}\right)+\frac{2}{27}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*sqrt(-2*x + 1)/(3*x + 2),x, algorithm="maxima")
```

```
[Out] 5/6*(-2*x + 1)^(5/2) - 155/54*(-2*x + 1)^(3/2) + 1/81*sqrt(21)*lo
g(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) +
 2/27*sqrt(-2*x + 1)
```

Fricas [A] time = 0.212784, size = 84, normalized size = 1.22

$$\frac{1}{81}\,\sqrt{3}\left(\sqrt{3}\left(90\,x^{2}+65\,x-53\right)\sqrt{-2\,x+1}+\sqrt{7}\log\left(\frac{\sqrt{3}(3\,x-5)+3\,\sqrt{7}\sqrt{-2\,x+1}}{3\,x+2}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*sqrt(-2*x + 1)/(3*x + 2),x, algorithm="fricas")
```

```
[Out] 1/81*sqrt(3)*(sqrt(3)*(90*x^2 + 65*x - 53)*sqrt(-2*x + 1) + sqrt(
7)*log((sqrt(3)*(3*x - 5) + 3*sqrt(7)*sqrt(-2*x + 1))/(3*x + 2)))
```

Sympy [A] time = 6.42481, size = 99, normalized size = 1.43

$$\frac{5\,(-2x+1)^{\frac{5}{2}}}{6}-\frac{155\,(-2x+1)^{\frac{3}{2}}}{54}+\frac{2\sqrt{-2x+1}}{27}+\frac{14\left(\begin{cases}-\frac{\sqrt{21}\operatorname{acoth}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for } -2x+1>\frac{7}{3}\\ -\frac{\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for } -2x+1<\frac{7}{3}\end{cases}\right)}{27}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((3+5*x)**2*(1-2*x)**(1/2)/(2+3*x),x)
```

```
[Out] 5*(-2*x + 1)**(5/2)/6 - 155*(-2*x + 1)**(3/2)/54 + 2*sqrt(-2*x +
1)/27 + 14*Piecewise((-sqrt(21)*acoth(sqrt(21)*sqrt(-2*x + 1)/7)/
21, -2*x + 1 > 7/3), (-sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/
21, -2*x + 1 < 7/3))/27
```

GIAC/XCAS [A] time = 0.21951, size = 100, normalized size = 1.45

$$\frac{5}{6}\,(2\,x-1)^{2}\sqrt{-2\,x+1}-\frac{155}{54}\,(-2\,x+1)^{\frac{3}{2}}+\frac{1}{81}\,\sqrt{21}\ln\left(\frac{\left|-2\,\sqrt{21}+6\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{21}+3\,\sqrt{-2\,x+1}\right)}\right)+\frac{2}{27}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*sqrt(-2*x + 1)/(3*x + 2),x, algorithm="giac")
```

```
[Out] 5/6*(2*x - 1)^2*sqrt(-2*x + 1) - 155/54*(-2*x + 1)^(3/2) + 1/81*s
qrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*
sqrt(-2*x + 1))) + 2/27*sqrt(-2*x + 1)
```

3.1792 $\int \frac{\sqrt{1-2x}(3+5x)^2}{(2+3x)^2}\,dx$

Optimal. Leaf size=74

$$-\frac{(1-2x)^{3/2}}{63(3x+2)}-\frac{25}{27}(1-2x)^{3/2}-\frac{142}{189}\sqrt{1-2x}+\frac{142\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{27\sqrt{21}}$$

```
[Out] (-142*Sqrt[1 - 2*x])/189 - (25*(1 - 2*x)^(3/2))/27 - (1 - 2*x)^(3
/2)/(63*(2 + 3*x)) + (142*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(27*S
qrt[21])
```

Rubi [A] time = 0.0896951, antiderivative size = 74, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$-\frac{(1-2x)^{3/2}}{63(3x+2)}-\frac{25}{27}(1-2x)^{3/2}-\frac{142}{189}\sqrt{1-2x}+\frac{142\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{27\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(3 + 5*x)^2)/(2 + 3*x)^2,x]
```

```
[Out] (-142*Sqrt[1 - 2*x])/189 - (25*(1 - 2*x)^(3/2))/27 - (1 - 2*x)^(3
/2)/(63*(2 + 3*x)) + (142*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(27*S
qrt[21])
```

Rubi in Sympy [A] time = 8.92098, size = 61, normalized size = 0.82

$$-\frac{25\left(-2x+1\right)^{\frac{3}{2}}}{27}-\frac{\left(-2x+1\right)^{\frac{3}{2}}}{63\left(3x+2\right)}-\frac{142\sqrt{-2x+1}}{189}+\frac{142\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{567}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**2*(1-2*x)**(1/2)/(2+3*x)**2,x)
```

```
[Out] -25*(-2*x + 1)**(3/2)/27 - (-2*x + 1)**(3/2)/(63*(3*x + 2)) - 142
*sqrt(-2*x + 1)/189 + 142*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/
7)/567
```

Mathematica [A] time = 0.0977814, size = 55, normalized size = 0.74

$$\frac{\sqrt{1-2x}\left(150x^2-35x-91\right)}{81x+54}+\frac{142\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{27\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(3 + 5*x)^2)/(2 + 3*x)^2,x]
```

```
[Out] (Sqrt[1 - 2*x]*(-91 - 35*x + 150*x^2))/(54 + 81*x) + (142*ArcTanh
[Sqrt[3/7]*Sqrt[1 - 2*x]])/(27*Sqrt[21])
```

Maple [A] time = 0.017, size = 54, normalized size = 0.7

$$-\frac{25}{27}(1-2x)^{\frac{3}{2}}-\frac{20}{27}\sqrt{1-2x}+\frac{2}{81}\sqrt{1-2x}\left(-\frac{4}{3}-2x\right)^{-1}+\frac{142\sqrt{21}}{567}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^2*(1-2*x)^(1/2)/(2+3*x)^2,x)
```

```
[Out] -25/27*(1-2*x)^(3/2)-20/27*(1-2*x)^(1/2)+2/81*(1-2*x)^(1/2)/(-4/3
-2*x)+142/567*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.51001, size = 96, normalized size = 1.3

$$-\frac{25}{27}(-2x+1)^{\frac{3}{2}}-\frac{71}{567}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{20}{27}\sqrt{-2x+1}-\frac{\sqrt{-2x+1}}{27(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*sqrt(-2*x + 1)/(3*x + 2)^2,x, algorithm="maxima")
```

```
[Out] -25/27*(-2*x + 1)^(3/2) - 71/567*sqrt(21)*log(-(sqrt(21) - 3*sqrt
(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 20/27*sqrt(-2*x + 1)
 - 1/27*sqrt(-2*x + 1)/(3*x + 2)
```

Fricas [A] time = 0.215588, size = 93, normalized size = 1.26

$$\frac{\sqrt{21}\left(\sqrt{21}\left(150x^2-35x-91\right)\sqrt{-2x+1}+71(3x+2)\log\left(\frac{\sqrt{21}(3x-5)-21\sqrt{-2x+1}}{3x+2}\right)\right)}{567(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*sqrt(-2*x + 1)/(3*x + 2)^2,x, algorithm="fricas")
```

```
[Out] 1/567*sqrt(21)*(sqrt(21)*(150*x^2 - 35*x - 91)*sqrt(-2*x + 1) + 7
1*(3*x + 2)*log((sqrt(21)*(3*x - 5) - 21*sqrt(-2*x + 1))/(3*x + 2
)))/(3*x + 2)
```

Sympy [A] time = 51.18, size = 189, normalized size = 2.55

$$-\frac{25(-2x+1)^{\frac{3}{2}}}{27}-\frac{20\sqrt{-2x+1}}{27}-\frac{28\left(\begin{cases}\frac{\sqrt{21}\left(-\frac{\log\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)}{4}+\frac{\log\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)}{4}-\frac{1}{4\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)}-\frac{1}{4\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)}\right)}{147} & \text{for } x \le \frac{1}{2} \wedge x > -\frac{2}{3}\end{cases}\right)}{27}-\frac{16\left(\begin{cases}-\frac{\sqrt{21}\,\text{acoth}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for } -2x+1>\frac{7}{3}\\ -\frac{\sqrt{21}\,\text{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for } -2x+1<\frac{7}{3}\end{cases}\right)}{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2*(1-2*x)**(1/2)/(2+3*x)**2,x)
```

```
[Out] -25*(-2*x + 1)**(3/2)/27 - 20*sqrt(-2*x + 1)/27 - 28*Piecewise((s
qrt(21)*(-log(sqrt(21)*sqrt(-2*x + 1)/7 - 1)/4 + log(sqrt(21)*sqr
t(-2*x + 1)/7 + 1)/4 - 1/(4*(sqrt(21)*sqrt(-2*x + 1)/7 + 1)) - 1/
(4*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)))/147, (x <= 1/2) & (x > -2/3)
))/27 - 16*Piecewise((-sqrt(21)*acoth(sqrt(21)*sqrt(-2*x + 1)/7)/
21, -2*x + 1 > 7/3), (-sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/
21, -2*x + 1 < 7/3))/3
```

GIAC/XCAS [A] time = 0.212287, size = 100, normalized size = 1.35

$$-\frac{25}{27}\,(-2\,x+1)^{\frac{3}{2}}-\frac{71}{567}\,\sqrt{21}\ln\left(\frac{\left|-2\,\sqrt{21}+6\,\sqrt{-2\,x+1}\right|}{2\,\left(\sqrt{21}+3\,\sqrt{-2\,x+1}\right)}\right)-\frac{20}{27}\,\sqrt{-2\,x+1}-\frac{\sqrt{-2\,x+1}}{27\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*sqrt(-2*x + 1)/(3*x + 2)^2,x, algorithm="giac")
```

```
[Out] -25/27*(-2*x + 1)^(3/2) - 71/567*sqrt(21)*ln(1/2*abs(-2*sqrt(21)
+ 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 20/27*sqrt(-
2*x + 1) - 1/27*sqrt(-2*x + 1)/(3*x + 2)
```

3.1793 $\int \frac{\sqrt{1-2x}(3+5x)^2}{(2+3x)^3}\,dx$

Optimal. Leaf size=81

$$\frac{139(1-2x)^{3/2}}{882(3x+2)}-\frac{(1-2x)^{3/2}}{126(3x+2)^2}+\frac{863}{441}\sqrt{1-2x}-\frac{863\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{63\sqrt{21}}$$

```
[Out] (863*Sqrt[1 - 2*x])/441 - (1 - 2*x)^(3/2)/(126*(2 + 3*x)^2) + (13
9*(1 - 2*x)^(3/2))/(882*(2 + 3*x)) - (863*ArcTanh[Sqrt[3/7]*Sqrt[
1 - 2*x]])/(63*Sqrt[21])
```

Rubi [A] time = 0.0934741, antiderivative size = 81, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{139(1-2x)^{3/2}}{882(3x+2)}-\frac{(1-2x)^{3/2}}{126(3x+2)^2}+\frac{863}{441}\sqrt{1-2x}-\frac{863\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{63\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(3 + 5*x)^2)/(2 + 3*x)^3,x]
```

```
[Out] (863*Sqrt[1 - 2*x])/441 - (1 - 2*x)^(3/2)/(126*(2 + 3*x)^2) + (13
9*(1 - 2*x)^(3/2))/(882*(2 + 3*x)) - (863*ArcTanh[Sqrt[3/7]*Sqrt[
1 - 2*x]])/(63*Sqrt[21])
```

Rubi in Sympy [A] time = 10.2312, size = 68, normalized size = 0.84

$$\frac{139\left(-2x+1\right)^{\frac{3}{2}}}{882\left(3x+2\right)}-\frac{\left(-2x+1\right)^{\frac{3}{2}}}{126\left(3x+2\right)^{2}}+\frac{863\sqrt{-2x+1}}{441}-\frac{863\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{1323}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**2*(1-2*x)**(1/2)/(2+3*x)**3,x)
```

```
[Out] 139*(-2*x + 1)**(3/2)/(882*(3*x + 2)) - (-2*x + 1)**(3/2)/(126*(3
*x + 2)**2) + 863*sqrt(-2*x + 1)/441 - 863*sqrt(21)*atanh(sqrt(21
)*sqrt(-2*x + 1)/7)/1323
```

Mathematica [A] time = 0.096089, size = 58, normalized size = 0.72

$$\frac{\sqrt{1-2x}\left(2100x^2+2941x+1025\right)}{126(3x+2)^2}-\frac{863\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{63\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(3 + 5*x)^2)/(2 + 3*x)^3,x]
```

```
[Out] (Sqrt[1 - 2*x]*(1025 + 2941*x + 2100*x^2))/(126*(2 + 3*x)^2) - (8
63*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(63*Sqrt[21])
```

Maple [A] time = 0.016, size = 57, normalized size = 0.7

$$\frac{50}{27}\sqrt{1-2\,x}+\frac{2}{3\left(-4-6\,x\right)^{2}}\left(-\frac{47}{14}\left(1-2\,x\right)^{\frac{3}{2}}+\frac{139}{18}\sqrt{1-2\,x}\right)-\frac{863\,\sqrt{21}}{1323}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((3+5*x)^2*(1-2*x)^(1/2)/(2+3*x)^3,x)
```

```
[Out] 50/27*(1-2*x)^(1/2)+2/3*(-47/14*(1-2*x)^(3/2)+139/18*(1-2*x)^(1/2
))/(-4-6*x)^2-863/1323*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/
2)
```

Maxima [A] time = 1.51689, size = 112, normalized size = 1.38

$$\frac{863}{2646}\,\sqrt{21}\log\left(-\frac{\sqrt{21}-3\,\sqrt{-2\,x+1}}{\sqrt{21}+3\,\sqrt{-2\,x+1}}\right)+\frac{50}{27}\,\sqrt{-2\,x+1}-\frac{423\,(-2\,x+1)^{\frac{3}{2}}-973\,\sqrt{-2\,x+1}}{189\,\left(9\,(2\,x-1)^{2}+84\,x+7\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*sqrt(-2*x + 1)/(3*x + 2)^3,x, algorithm="maxima")
```

```
[Out] 863/2646*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21) +
3*sqrt(-2*x + 1))) + 50/27*sqrt(-2*x + 1) - 1/189*(423*(-2*x + 1)
^(3/2) - 973*sqrt(-2*x + 1))/(9*(2*x - 1)^2 + 84*x + 7)
```

Fricas [A] time = 0.221341, size = 107, normalized size = 1.32

$$\frac{\sqrt{21}\left(\sqrt{21}\left(2100\,x^{2}+2941\,x+1025\right)\sqrt{-2\,x+1}+863\,\left(9\,x^{2}+12\,x+4\right)\,\log\left(\frac{\sqrt{21}(3\,x-5)+21\,\sqrt{-2\,x+1}}{3\,x+2}\right)\right)}{2646\,(9\,x^{2}+12\,x+4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*sqrt(-2*x + 1)/(3*x + 2)^3,x, algorithm="fricas")
```

```
[Out] 1/2646*sqrt(21)*(sqrt(21)*(2100*x^2 + 2941*x + 1025)*sqrt(-2*x +
1) + 863*(9*x^2 + 12*x + 4)*log((sqrt(21)*(3*x - 5) + 21*sqrt(-2*
x + 1))/(3*x + 2)))/(9*x^2 + 12*x + 4)
```

Sympy [A] time = 125.215, size = 323, normalized size = 3.99

$$\frac{50\sqrt{-2x+1}}{27}+\frac{32\left(\begin{cases}\frac{\sqrt{21}\left(-\frac{\log\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)}{4}+\frac{\log\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)}{4}-\frac{1}{4\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)}-\frac{1}{4\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)}\right)}{147} & \text{for}\: x\leq\frac{1}{2}\wedge x>-\frac{2}{3}\end{cases}\right)}{3}$$
$$+\frac{56\left(\begin{cases}\frac{\sqrt{21}\left(\frac{3\log\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)}{16}-\frac{3\log\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)}{16}+\frac{3}{16\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)}+\frac{1}{16\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)^{2}}+\frac{3}{16\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)}-\frac{1}{16\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)^{2}}\right)}{1029} & \text{for}\: x\leq\frac{1}{2}\wedge x>-\frac{2}{3}\end{cases}\right)}{27}$$
$$+\frac{130\left(\begin{cases}-\frac{\sqrt{21}\,\operatorname{acoth}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for}\: -2x+1>\frac{7}{3}\\-\frac{\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for}\: -2x+1<\frac{7}{3}\end{cases}\right)}{9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2*(1-2*x)**(1/2)/(2+3*x)**3,x)
```

```
[Out] 50*sqrt(-2*x + 1)/27 + 32*Piecewise((sqrt(21)*(-log(sqrt(21)*sqrt
(-2*x + 1)/7 - 1)/4 + log(sqrt(21)*sqrt(-2*x + 1)/7 + 1)/4 - 1/(4
*(sqrt(21)*sqrt(-2*x + 1)/7 + 1)) - 1/(4*(sqrt(21)*sqrt(-2*x + 1)
/7 - 1)))/147, (x <= 1/2) & (x > -2/3)))/3 + 56*Piecewise((sqrt(2
1)*(3*log(sqrt(21)*sqrt(-2*x + 1)/7 - 1)/16 - 3*log(sqrt(21)*sqrt
(-2*x + 1)/7 + 1)/16 + 3/(16*(sqrt(21)*sqrt(-2*x + 1)/7 + 1)) + 1
/(16*(sqrt(21)*sqrt(-2*x + 1)/7 + 1)**2) + 3/(16*(sqrt(21)*sqrt(-
2*x + 1)/7 - 1)) - 1/(16*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)**2))/102
9, (x <= 1/2) & (x > -2/3)))/27 + 130*Piecewise((-sqrt(21)*acoth(
sqrt(21)*sqrt(-2*x + 1)/7)/21, -2*x + 1 > 7/3), (-sqrt(21)*atanh(
sqrt(21)*sqrt(-2*x + 1)/7)/21, -2*x + 1 < 7/3))/9
```

GIAC/XCAS [A] time = 0.210964, size = 104, normalized size = 1.28

$$\frac{863}{2646}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{50}{27}\sqrt{-2x+1}-\frac{423\,(-2x+1)^{\frac{3}{2}}-973\sqrt{-2x+1}}{756\,(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*sqrt(-2*x + 1)/(3*x + 2)^3,x, algorithm="giac")
```

```
[Out] 863/2646*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqr
t(21) + 3*sqrt(-2*x + 1))) + 50/27*sqrt(-2*x + 1) - 1/756*(423*(-
2*x + 1)^(3/2) - 973*sqrt(-2*x + 1))/(3*x + 2)^2
```

3.1794 $\int \frac{\sqrt{1-2x}(3+5x)^2}{(2+3x)^4}\,dx$

Optimal. Leaf size=88

$$\frac{23(1-2x)^{3/2}}{294(3x+2)^2}-\frac{(1-2x)^{3/2}}{189(3x+2)^3}-\frac{2381\sqrt{1-2x}}{2646(3x+2)}+\frac{2381\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{1323\sqrt{21}}$$

```
[Out] -(1 - 2*x)^(3/2)/(189*(2 + 3*x)^3) + (23*(1 - 2*x)^(3/2))/(294*(2
 + 3*x)^2) - (2381*Sqrt[1 - 2*x])/(2646*(2 + 3*x)) + (2381*ArcTan
h[Sqrt[3/7]*Sqrt[1 - 2*x]])/(1323*Sqrt[21])
```

Rubi [A] time = 0.100315, antiderivative size = 88, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{23(1-2x)^{3/2}}{294(3x+2)^2}-\frac{(1-2x)^{3/2}}{189(3x+2)^3}-\frac{2381\sqrt{1-2x}}{2646(3x+2)}+\frac{2381\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{1323\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(3 + 5*x)^2)/(2 + 3*x)^4,x]
```

```
[Out] -(1 - 2*x)^(3/2)/(189*(2 + 3*x)^3) + (23*(1 - 2*x)^(3/2))/(294*(2
 + 3*x)^2) - (2381*Sqrt[1 - 2*x])/(2646*(2 + 3*x)) + (2381*ArcTan
h[Sqrt[3/7]*Sqrt[1 - 2*x]])/(1323*Sqrt[21])
```

Rubi in Sympy [A] time = 10.4553, size = 75, normalized size = 0.85

$$\frac{23\left(-2x+1\right)^{\frac{3}{2}}}{294\left(3x+2\right)^{2}}-\frac{\left(-2x+1\right)^{\frac{3}{2}}}{189\left(3x+2\right)^{3}}-\frac{2381\sqrt{-2x+1}}{2646\left(3x+2\right)}+\frac{2381\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{27783}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**2*(1-2*x)**(1/2)/(2+3*x)**4,x)
```

```
[Out] 23*(-2*x + 1)**(3/2)/(294*(3*x + 2)**2) - (-2*x + 1)**(3/2)/(189*
(3*x + 2)**3) - 2381*sqrt(-2*x + 1)/(2646*(3*x + 2)) + 2381*sqrt(
21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/27783
```

Mathematica [A] time = 0.0959549, size = 58, normalized size = 0.66

$$\frac{4762\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{21\sqrt{1-2x}(22671x^2+28751x+9124)}{(3x+2)^3}}{55566}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(3 + 5*x)^2)/(2 + 3*x)^4,x]
```

```
[Out] ((-21*Sqrt[1 - 2*x]*(9124 + 28751*x + 22671*x^2))/(2 + 3*x)^3 + 4
762*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/55566
```

Maple [A] time = 0.017, size = 57, normalized size = 0.7

$$-108\frac{1}{\left(-4-6x\right)^{3}}\left(-\frac{2519\left(1-2x\right)^{5/2}}{15876}+\frac{3673\left(1-2x\right)^{3/2}}{5103}-\frac{2381\sqrt{1-2x}}{2916}\right)+\frac{2381\sqrt{21}}{27783}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^2*(1-2*x)^(1/2)/(2+3*x)^4,x)
```

```
[Out] -108*(-2519/15876*(1-2*x)^(5/2)+3673/5103*(1-2*x)^(3/2)-2381/2916
*(1-2*x)^(1/2))/(-4-6*x)^3+2381/27783*arctanh(1/7*21^(1/2)*(1-2*x
)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.49279, size = 124, normalized size = 1.41

$$-\frac{2381}{55566}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{22671\left(-2x+1\right)^{\frac{5}{2}}-102844\left(-2x+1\right)^{\frac{3}{2}}+116669\sqrt{-2x+1}}{1323\left(27\left(2x-1\right)^{3}+189\left(2x-1\right)^{2}+882x-98\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*sqrt(-2*x + 1)/(3*x + 2)^4,x, algorithm="maxima")
```

```
[Out] -2381/55566*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21)
 + 3*sqrt(-2*x + 1))) - 1/1323*(22671*(-2*x + 1)^(5/2) - 102844*(
-2*x + 1)^(3/2) + 116669*sqrt(-2*x + 1))/(27*(2*x - 1)^3 + 189*(2
*x - 1)^2 + 882*x - 98)
```

Fricas [A] time = 0.223918, size = 120, normalized size = 1.36

$$-\frac{\sqrt{21}\left(\sqrt{21}\left(22671x^{2}+28751x+9124\right)\sqrt{-2x+1}-2381\left(27x^{3}+54x^{2}+36x+8\right)\log\left(\frac{\sqrt{21}(3x-5)-21\sqrt{-2x+1}}{3x+2}\right)\right)}{55566\left(27x^{3}+54x^{2}+36x+8\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*sqrt(-2*x + 1)/(3*x + 2)^4,x, algorithm="fricas")
```

```
[Out] -1/55566*sqrt(21)*(sqrt(21)*(22671*x^2 + 28751*x + 9124)*sqrt(-2*
x + 1) - 2381*(27*x^3 + 54*x^2 + 36*x + 8)*log((sqrt(21)*(3*x - 5
) - 21*sqrt(-2*x + 1))/(3*x + 2)))/(27*x^3 + 54*x^2 + 36*x + 8)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2*(1-2*x)**(1/2)/(2+3*x)**4,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.215485, size = 113, normalized size = 1.28

$$-\frac{2381}{55566}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{22671\,(2x-1)^2\sqrt{-2x+1}-102844\,(-2x+1)^{\frac{3}{2}}+116669\sqrt{-2x+1}}{10584\,(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*sqrt(-2*x + 1)/(3*x + 2)^4,x, algorithm="giac")
```

```
[Out] -2381/55566*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(
sqrt(21) + 3*sqrt(-2*x + 1))) - 1/10584*(22671*(2*x - 1)^2*sqrt(-
2*x + 1) - 102844*(-2*x + 1)^(3/2) + 116669*sqrt(-2*x + 1))/(3*x
+ 2)^3
```

3.1795 $\int \frac{\sqrt{1-2x}(3+5x)^2}{(2+3x)^5} dx$

Optimal. Leaf size=108

$$\frac{275(1-2x)^{3/2}}{5292(3x+2)^3}-\frac{(1-2x)^{3/2}}{252(3x+2)^4}+\frac{4625\sqrt{1-2x}}{74088(3x+2)}-\frac{4625\sqrt{1-2x}}{10584(3x+2)^2}+\frac{4625\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{37044\sqrt{21}}$$

```
[Out] -(1 - 2*x)^(3/2)/(252*(2 + 3*x)^4) + (275*(1 - 2*x)^(3/2))/(5292*
(2 + 3*x)^3) - (4625*Sqrt[1 - 2*x])/(10584*(2 + 3*x)^2) + (4625*S
qrt[1 - 2*x])/(74088*(2 + 3*x)) + (4625*ArcTanh[Sqrt[3/7]*Sqrt[1
- 2*x]])/(37044*Sqrt[21])
```

Rubi [A] time = 0.1171, antiderivative size = 108, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$\frac{275(1-2x)^{3/2}}{5292(3x+2)^3}-\frac{(1-2x)^{3/2}}{252(3x+2)^4}+\frac{4625\sqrt{1-2x}}{74088(3x+2)}-\frac{4625\sqrt{1-2x}}{10584(3x+2)^2}+\frac{4625\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{37044\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(3 + 5*x)^2)/(2 + 3*x)^5,x]
```

```
[Out] -(1 - 2*x)^(3/2)/(252*(2 + 3*x)^4) + (275*(1 - 2*x)^(3/2))/(5292*
(2 + 3*x)^3) - (4625*Sqrt[1 - 2*x])/(10584*(2 + 3*x)^2) + (4625*S
qrt[1 - 2*x])/(74088*(2 + 3*x)) + (4625*ArcTanh[Sqrt[3/7]*Sqrt[1
- 2*x]])/(37044*Sqrt[21])
```

Rubi in Sympy [A] time = 12.5388, size = 94, normalized size = 0.87

$$\frac{275\left(-2x+1\right)^{\frac{3}{2}}}{5292\left(3x+2\right)^{3}}-\frac{\left(-2x+1\right)^{\frac{3}{2}}}{252\left(3x+2\right)^{4}}+\frac{4625\sqrt{-2x+1}}{74088\left(3x+2\right)}-\frac{4625\sqrt{-2x+1}}{10584\left(3x+2\right)^{2}}+\frac{4625\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{777924}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**2*(1-2*x)**(1/2)/(2+3*x)**5,x)
```

```
[Out] 275*(-2*x + 1)**(3/2)/(5292*(3*x + 2)**3) - (-2*x + 1)**(3/2)/(25
2*(3*x + 2)**4) + 4625*sqrt(-2*x + 1)/(74088*(3*x + 2)) - 4625*sq
rt(-2*x + 1)/(10584*(3*x + 2)**2) + 4625*sqrt(21)*atanh(sqrt(21)*
sqrt(-2*x + 1)/7)/777924
```

Mathematica [A] time = 0.106241, size = 63, normalized size = 0.58

$$\frac{\frac{21\sqrt{1-2x}\left(124875x^3-64725x^2-225262x-85094\right)}{(3x+2)^4}+9250\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{1555848}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(3 + 5*x)^2)/(2 + 3*x)^5,x]
```

```
[Out] ((21*Sqrt[1 - 2*x]*(-85094 - 225262*x - 64725*x^2 + 124875*x^3))/
(2 + 3*x)^4 + 9250*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/155
```

```
5848
```

Maple [A] time = 0.018, size = 66, normalized size = 0.6

$$648 \frac{1}{(-4-6x)^4}\left(-\frac{4625 (1-2x)^{7/2}}{889056}+\frac{11675 (1-2x)^{5/2}}{1143072}+\frac{16027 (1-2x)^{3/2}}{489888}-\frac{4625 \sqrt{1-2x}}{69984}\right) + \frac{4625 \sqrt{21}}{777924} Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^2*(1-2*x)^(1/2)/(2+3*x)^5,x)
```

```
[Out] 648*(-4625/889056*(1-2*x)^(7/2)+11675/1143072*(1-2*x)^(5/2)+16027
/489888*(1-2*x)^(3/2)-4625/69984*(1-2*x)^(1/2))/(-4-6*x)^4+4625/7
77924*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.49584, size = 149, normalized size = 1.38

$$-\frac{4625}{1555848}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right) - \frac{124875(-2x+1)^{\frac{7}{2}} - 245175(-2x+1)^{\frac{5}{2}} - 785323(-2x+1)^{\frac{3}{2}} + 1586375\sqrt{-2x+1}}{37044\left(81(2x-1)^4 + 756(2x-1)^3 + 2646(2x-1)^2 + 8232x - 1715\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*sqrt(-2*x + 1)/(3*x + 2)^5,x, algorithm="maxima")
```

```
[Out] -4625/1555848*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(2
1) + 3*sqrt(-2*x + 1))) - 1/37044*(124875*(-2*x + 1)^(7/2) - 2451
75*(-2*x + 1)^(5/2) - 785323*(-2*x + 1)^(3/2) + 1586375*sqrt(-2*x
 + 1))/(81*(2*x - 1)^4 + 756*(2*x - 1)^3 + 2646*(2*x - 1)^2 + 823
2*x - 1715)
```

Fricas [A] time = 0.220487, size = 140, normalized size = 1.3

$$\frac{\sqrt{21}\left(\sqrt{21}\left(124875x^3 - 64725x^2 - 225262x - 85094\right)\sqrt{-2x+1} + 4625\left(81x^4 + 216x^3 + 216x^2 + 96x + 16\right)\log\left(\frac{\sqrt{21}(3x-5)-}{3x}\right.\right.}{1555848\left(81x^4 + 216x^3 + 216x^2 + 96x + 16\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*sqrt(-2*x + 1)/(3*x + 2)^5,x, algorithm="fricas")
```

```
[Out] 1/1555848*sqrt(21)*(sqrt(21)*(124875*x^3 - 64725*x^2 - 225262*x -
 85094)*sqrt(-2*x + 1) + 4625*(81*x^4 + 216*x^3 + 216*x^2 + 96*x
+ 16)*log((sqrt(21)*(3*x - 5) - 21*sqrt(-2*x + 1))/(3*x + 2)))/(8
1*x^4 + 216*x^3 + 216*x^2 + 96*x + 16)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2*(1-2*x)**(1/2)/(2+3*x)**5,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.218876, size = 135, normalized size = 1.25

$$-\frac{4625}{1555848}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{124875\,(2x-1)^{3}\sqrt{-2x+1}+245175\,(2x-1)^{2}\sqrt{-2x+1}+785323\,(-2x+1)^{\frac{3}{2}}-1586375\sqrt{-2x+1}}{592704\,(3x+2)^{4}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*sqrt(-2*x + 1)/(3*x + 2)^5,x, algorithm="giac")
```

```
[Out] -4625/1555848*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))
/(sqrt(21) + 3*sqrt(-2*x + 1))) + 1/592704*(124875*(2*x - 1)^3*sq
rt(-2*x + 1) + 245175*(2*x - 1)^2*sqrt(-2*x + 1) + 785323*(-2*x +
 1)^(3/2) - 1586375*sqrt(-2*x + 1))/(3*x + 2)^4
```

3.1796 $\int \frac{\sqrt{1-2x}(3+5x)^2}{(2+3x)^6}\,dx$

Optimal. Leaf size=128

$$\frac{7(1-2x)^{3/2}}{180(3x+2)^4}-\frac{(1-2x)^{3/2}}{315(3x+2)^5}+\frac{31\sqrt{1-2x}}{3528(3x+2)}+\frac{31\sqrt{1-2x}}{1512(3x+2)^2}-\frac{31\sqrt{1-2x}}{108(3x+2)^3}+\frac{31\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{1764\sqrt{21}}$$

```
[Out] -(1 - 2*x)^(3/2)/(315*(2 + 3*x)^5) + (7*(1 - 2*x)^(3/2))/(180*(2
+ 3*x)^4) - (31*Sqrt[1 - 2*x])/(108*(2 + 3*x)^3) + (31*Sqrt[1 - 2
*x])/(1512*(2 + 3*x)^2) + (31*Sqrt[1 - 2*x])/(3528*(2 + 3*x)) + (
31*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(1764*Sqrt[21])
```

Rubi [A] time = 0.141388, antiderivative size = 128, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$\frac{7(1-2x)^{3/2}}{180(3x+2)^4}-\frac{(1-2x)^{3/2}}{315(3x+2)^5}+\frac{31\sqrt{1-2x}}{3528(3x+2)}+\frac{31\sqrt{1-2x}}{1512(3x+2)^2}-\frac{31\sqrt{1-2x}}{108(3x+2)^3}+\frac{31\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{1764\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(3 + 5*x)^2)/(2 + 3*x)^6,x]
```

```
[Out] -(1 - 2*x)^(3/2)/(315*(2 + 3*x)^5) + (7*(1 - 2*x)^(3/2))/(180*(2
+ 3*x)^4) - (31*Sqrt[1 - 2*x])/(108*(2 + 3*x)^3) + (31*Sqrt[1 - 2
*x])/(1512*(2 + 3*x)^2) + (31*Sqrt[1 - 2*x])/(3528*(2 + 3*x)) + (
31*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(1764*Sqrt[21])
```

Rubi in Sympy [A] time = 14.3364, size = 112, normalized size = 0.88

$$\frac{7\left(-2x+1\right)^{\frac{3}{2}}}{180\left(3x+2\right)^4}-\frac{\left(-2x+1\right)^{\frac{3}{2}}}{315\left(3x+2\right)^5}+\frac{31\sqrt{-2x+1}}{3528\left(3x+2\right)}+\frac{31\sqrt{-2x+1}}{1512\left(3x+2\right)^2}-\frac{31\sqrt{-2x+1}}{108\left(3x+2\right)^3}+\frac{31\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{37044}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**2*(1-2*x)**(1/2)/(2+3*x)**6,x)
```

```
[Out] 7*(-2*x + 1)**(3/2)/(180*(3*x + 2)**4) - (-2*x + 1)**(3/2)/(315*(
3*x + 2)**5) + 31*sqrt(-2*x + 1)/(3528*(3*x + 2)) + 31*sqrt(-2*x
+ 1)/(1512*(3*x + 2)**2) - 31*sqrt(-2*x + 1)/(108*(3*x + 2)**3) +
 31*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/37044
```

Mathematica [A] time = 0.110264, size = 68, normalized size = 0.53

$$\frac{\frac{21\sqrt{1-2x}\left(12555x^4+43245x^3+3324x^2-33434x-13564\right)}{(3x+2)^5}+310\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{370440}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(3 + 5*x)^2)/(2 + 3*x)^6,x]
```

```
[Out] ((21*Sqrt[1 - 2*x]*(-13564 - 33434*x + 3324*x^2 + 43245*x^3 + 125
55*x^4))/(2 + 3*x)^5 + 310*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*
```

```
x]])/370440
```

Maple [A] time = 0.017, size = 75, normalized size = 0.6

$$-3888\frac{1}{\left(-4-6x\right)^{5}}\left(\frac{31\left(1-2x\right)^{9/2}}{84672}-\frac{31\left(1-2x\right)^{7/2}}{7776}+\frac{37\left(1-2x\right)^{5/2}}{3645}-\frac{983\left(1-2x\right)^{3/2}}{489888}-\frac{1519\sqrt{1-2x}}{139968}\right)+\frac{31\sqrt{21}}{37044}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^2*(1-2*x)^(1/2)/(2+3*x)^6,x)
```

```
[Out] -3888*(31/84672*(1-2*x)^(9/2)-31/7776*(1-2*x)^(7/2)+37/3645*(1-2*
x)^(5/2)-983/489888*(1-2*x)^(3/2)-1519/139968*(1-2*x)^(1/2))/(-4-
6*x)^5+31/37044*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.4928, size = 173, normalized size = 1.35

$$-\frac{31}{74088}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{12555\left(-2x+1\right)^{\frac{9}{2}}-136710\left(-2x+1\right)^{\frac{7}{2}}+348096\left(-2x+1\right)^{\frac{5}{2}}-68810\left(-2x+1\right)^{\frac{3}{2}}-372155\sqrt{-2x+1}}{8820\left(243\left(2x-1\right)^{5}+2835\left(2x-1\right)^{4}+13230\left(2x-1\right)^{3}+30870\left(2x-1\right)^{2}+72030x-19208\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*sqrt(-2*x + 1)/(3*x + 2)^6,x, algorithm="maxima")
```

```
[Out] -31/74088*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21) +
 3*sqrt(-2*x + 1))) + 1/8820*(12555*(-2*x + 1)^(9/2) - 136710*(-2
*x + 1)^(7/2) + 348096*(-2*x + 1)^(5/2) - 68810*(-2*x + 1)^(3/2)
- 372155*sqrt(-2*x + 1))/(243*(2*x - 1)^5 + 2835*(2*x - 1)^4 + 13
230*(2*x - 1)^3 + 30870*(2*x - 1)^2 + 72030*x - 19208)
```

Fricas [A] time = 0.213666, size = 161, normalized size = 1.26

$$\frac{\sqrt{21}\left(\sqrt{21}\left(12555x^{4}+43245x^{3}+3324x^{2}-33434x-13564\right)\sqrt{-2x+1}+155\left(243x^{5}+810x^{4}+1080x^{3}+720x^{2}+240x+\right.\right.}{370440\left(243x^{5}+810x^{4}+1080x^{3}+720x^{2}+240x+32\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*sqrt(-2*x + 1)/(3*x + 2)^6,x, algorithm="fricas")
```

```
[Out] 1/370440*sqrt(21)*(sqrt(21)*(12555*x^4 + 43245*x^3 + 3324*x^2 - 3
3434*x - 13564)*sqrt(-2*x + 1) + 155*(243*x^5 + 810*x^4 + 1080*x^
3 + 720*x^2 + 240*x + 32)*log((sqrt(21)*(3*x - 5) - 21*sqrt(-2*x
+ 1))/(3*x + 2)))/(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x
 + 32)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2*(1-2*x)**(1/2)/(2+3*x)**6,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.216035, size = 157, normalized size = 1.23

$$-\frac{31}{74088}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{12555(2x-1)^4\sqrt{-2x+1}+136710(2x-1)^3\sqrt{-2x+1}+348096(2x-1)^2\sqrt{-2x+1}-68810(-2x+1)^{\frac{3}{2}}-372155\sqrt{-2x+1}}{282240(3x+2)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*sqrt(-2*x + 1)/(3*x + 2)^6,x, algorithm="giac")
```

```
[Out] -31/74088*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sq
rt(21) + 3*sqrt(-2*x + 1))) + 1/282240*(12555*(2*x - 1)^4*sqrt(-2
*x + 1) + 136710*(2*x - 1)^3*sqrt(-2*x + 1) + 348096*(2*x - 1)^2*
sqrt(-2*x + 1) - 68810*(-2*x + 1)^(3/2) - 372155*sqrt(-2*x + 1))/
(3*x + 2)^5
```

3.1797 $\int \frac{\sqrt{1-2x}(3+5x)^2}{(2+3x)^7}\,dx$

Optimal. Leaf size=148

$$\frac{137(1-2x)^{3/2}}{4410(3x+2)^5}-\frac{(1-2x)^{3/2}}{378(3x+2)^6}+\frac{1613\sqrt{1-2x}}{1037232(3x+2)}+\frac{1613\sqrt{1-2x}}{444528(3x+2)^2}+\frac{1613\sqrt{1-2x}}{158760(3x+2)^3}-\frac{1613\sqrt{1-2x}}{7560(3x+2)^4}+\frac{1613\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{518616\sqrt{21}}$$

```
[Out] -(1 - 2*x)^(3/2)/(378*(2 + 3*x)^6) + (137*(1 - 2*x)^(3/2))/(4410*
(2 + 3*x)^5) - (1613*Sqrt[1 - 2*x])/(7560*(2 + 3*x)^4) + (1613*Sq
rt[1 - 2*x])/(158760*(2 + 3*x)^3) + (1613*Sqrt[1 - 2*x])/(444528*
(2 + 3*x)^2) + (1613*Sqrt[1 - 2*x])/(1037232*(2 + 3*x)) + (1613*A
rcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(518616*Sqrt[21])
```

Rubi [A] time = 0.16292, antiderivative size = 148, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.25$

$$\frac{137(1-2x)^{3/2}}{4410(3x+2)^5}-\frac{(1-2x)^{3/2}}{378(3x+2)^6}+\frac{1613\sqrt{1-2x}}{1037232(3x+2)}+\frac{1613\sqrt{1-2x}}{444528(3x+2)^2}+\frac{1613\sqrt{1-2x}}{158760(3x+2)^3}-\frac{1613\sqrt{1-2x}}{7560(3x+2)^4}+\frac{1613\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{518616\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(3 + 5*x)^2)/(2 + 3*x)^7,x]
```

```
[Out] -(1 - 2*x)^(3/2)/(378*(2 + 3*x)^6) + (137*(1 - 2*x)^(3/2))/(4410*
(2 + 3*x)^5) - (1613*Sqrt[1 - 2*x])/(7560*(2 + 3*x)^4) + (1613*Sq
rt[1 - 2*x])/(158760*(2 + 3*x)^3) + (1613*Sqrt[1 - 2*x])/(444528*
(2 + 3*x)^2) + (1613*Sqrt[1 - 2*x])/(1037232*(2 + 3*x)) + (1613*A
rcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(518616*Sqrt[21])
```

Rubi in Sympy [A] time = 16.1669, size = 131, normalized size = 0.89

$$\frac{137\left(-2x+1\right)^{\frac{3}{2}}}{4410\left(3x+2\right)^{5}}-\frac{\left(-2x+1\right)^{\frac{3}{2}}}{378\left(3x+2\right)^{6}}+\frac{1613\sqrt{-2x+1}}{1037232\left(3x+2\right)}+\frac{1613\sqrt{-2x+1}}{444528\left(3x+2\right)^{2}}+\frac{1613\sqrt{-2x+1}}{158760\left(3x+2\right)^{3}}-\frac{1613\sqrt{-2x+1}}{7560\left(3x+2\right)^{4}}+\frac{1613\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{10890936}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**2*(1-2*x)**(1/2)/(2+3*x)**7,x)
```

```
[Out] 137*(-2*x + 1)**(3/2)/(4410*(3*x + 2)**5) - (-2*x + 1)**(3/2)/(37
8*(3*x + 2)**6) + 1613*sqrt(-2*x + 1)/(1037232*(3*x + 2)) + 1613*
sqrt(-2*x + 1)/(444528*(3*x + 2)**2) + 1613*sqrt(-2*x + 1)/(15876
0*(3*x + 2)**3) - 1613*sqrt(-2*x + 1)/(7560*(3*x + 2)**4) + 1613*
sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/10890936
```

Mathematica [A] time = 0.124675, size = 73, normalized size = 0.49

$$\frac{\frac{21\sqrt{1-2x}\left(1959795x^5+8056935x^4+14197626x^3+1791558x^2-7772840x-3136864\right)}{(3x+2)^6}+16130\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{108909360}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(3 + 5*x)^2)/(2 + 3*x)^7,x]
```

```
[Out] ((21*Sqrt[1 - 2*x]*(-3136864 - 7772840*x + 1791558*x^2 + 14197626
*x^3 + 8056935*x^4 + 1959795*x^5))/(2 + 3*x)^6 + 16130*Sqrt[21]*A
rcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/108909360
```

Maple [A] time = 0.017, size = 84, normalized size = 0.6

$$23328 \frac{1}{(-4-6x)^6}\left(-\frac{1613(1-2x)^{11/2}}{49787136}+\frac{27421(1-2x)^{9/2}}{64012032}-\frac{17743(1-2x)^{7/2}}{7620480}+\frac{4213(1-2x)^{5/2}}{846720}-\frac{86837(1-2x)^{3/2}}{35271936}\right.$$
$$\left.+\frac{1613\sqrt{21}}{10890936}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^2*(1-2*x)^(1/2)/(2+3*x)^7,x)
```

```
[Out] 23328*(-1613/49787136*(1-2*x)^(11/2)+27421/64012032*(1-2*x)^(9/2)
-17743/7620480*(1-2*x)^(7/2)+4213/846720*(1-2*x)^(5/2)-86837/3527
1936*(1-2*x)^(3/2)-11291/5038848*(1-2*x)^(1/2))/(-4-6*x)^6+1613/1
0890936*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.52931, size = 197, normalized size = 1.33

$$-\frac{1613}{21781872}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)$$
$$-\frac{1959795(-2x+1)^{\frac{11}{2}}-25912845(-2x+1)^{\frac{9}{2}}+140843934(-2x+1)^{\frac{7}{2}}-300985146(-2x+1)^{\frac{5}{2}}+148925455(-2x+1)^{\frac{3}{2}}+}{2593080\left(729(2x-1)^6+10206(2x-1)^5+59535(2x-1)^4+185220(2x-1)^3+324135(2x-1)^2+605052x\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*sqrt(-2*x + 1)/(3*x + 2)^7,x, algorithm="maxima")
```

```
[Out] -1613/21781872*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(
21) + 3*sqrt(-2*x + 1))) - 1/2593080*(1959795*(-2*x + 1)^(11/2) -
 25912845*(-2*x + 1)^(9/2) + 140843934*(-2*x + 1)^(7/2) - 3009851
46*(-2*x + 1)^(5/2) + 148925455*(-2*x + 1)^(3/2) + 135548455*sqrt
(-2*x + 1))/(729*(2*x - 1)^6 + 10206*(2*x - 1)^5 + 59535*(2*x - 1
)^4 + 185220*(2*x - 1)^3 + 324135*(2*x - 1)^2 + 605052*x - 184877
)
```

Fricas [A] time = 0.211783, size = 181, normalized size = 1.22

$$\frac{\sqrt{21}\left(\sqrt{21}\left(1959795x^5+8056935x^4+14197626x^3+1791558x^2-7772840x-3136864\right)\sqrt{-2x+1}+8065\left(729x^6+2916x\right.\right.}{108909360\left(729x^6+2916x^5+4860x^4+4320x^3+2160x^2+\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*sqrt(-2*x + 1)/(3*x + 2)^7,x, algorithm="fricas")
```

```
[Out] 1/108909360*sqrt(21)*(sqrt(21)*(1959795*x^5 + 8056935*x^4 + 14197
626*x^3 + 1791558*x^2 - 7772840*x - 3136864)*sqrt(-2*x + 1) + 806
5*(729*x^6 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x +
```

```
64)*log((sqrt(21)*(3*x - 5) - 21*sqrt(-2*x + 1))/(3*x + 2)))/(729
*x^6 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2*(1-2*x)**(1/2)/(2+3*x)**7,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.222038, size = 178, normalized size = 1.2

$$-\frac{1613}{21781872}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{1959795\,(2x-1)^5\sqrt{-2x+1}+25912845\,(2x-1)^4\sqrt{-2x+1}+140843934\,(2x-1)^3\sqrt{-2x+1}+300985146\,(2x-1)^2\sqrt{-2}}{165957120\,(3x+2)^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*sqrt(-2*x + 1)/(3*x + 2)^7,x, algorithm="giac")
```

```
[Out] -1613/21781872*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1)
)/(sqrt(21) + 3*sqrt(-2*x + 1))) + 1/165957120*(1959795*(2*x - 1)
^5*sqrt(-2*x + 1) + 25912845*(2*x - 1)^4*sqrt(-2*x + 1) + 1408439
34*(2*x - 1)^3*sqrt(-2*x + 1) + 300985146*(2*x - 1)^2*sqrt(-2*x +
 1) - 148925455*(-2*x + 1)^(3/2) - 135548455*sqrt(-2*x + 1))/(3*x
 + 2)^6
```

3.1798 $\int \sqrt{1-2x}(2+3x)^4(3+5x)^3\,dx$

Optimal. Leaf size=105

$$\frac{10125(1-2x)^{17/2}}{2176}-\frac{10755}{128}(1-2x)^{15/2}+\frac{1101465(1-2x)^{13/2}}{1664}-\frac{4177401(1-2x)^{11/2}}{1408}+\frac{9504551(1-2x)^{9/2}}{1152}-\frac{1853313}{128}(1-2x)^{7/2}+\frac{9836211}{640}(1-2x)^{5/2}-\frac{3195731}{384}(1-2x)^{3/2}$$

```
[Out] (-3195731*(1 - 2*x)^(3/2))/384 + (9836211*(1 - 2*x)^(5/2))/640 -
(1853313*(1 - 2*x)^(7/2))/128 + (9504551*(1 - 2*x)^(9/2))/1152 -
(4177401*(1 - 2*x)^(11/2))/1408 + (1101465*(1 - 2*x)^(13/2))/1664
 - (10755*(1 - 2*x)^(15/2))/128 + (10125*(1 - 2*x)^(17/2))/2176
```

Rubi [A] time = 0.0746184, antiderivative size = 105, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.042$

$$\frac{10125(1-2x)^{17/2}}{2176}-\frac{10755}{128}(1-2x)^{15/2}+\frac{1101465(1-2x)^{13/2}}{1664}-\frac{4177401(1-2x)^{11/2}}{1408}+\frac{9504551(1-2x)^{9/2}}{1152}-\frac{1853313}{128}(1-2x)^{7/2}+\frac{9836211}{640}(1-2x)^{5/2}-\frac{3195731}{384}(1-2x)^{3/2}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]*(2 + 3*x)^4*(3 + 5*x)^3,x]
```

```
[Out] (-3195731*(1 - 2*x)^(3/2))/384 + (9836211*(1 - 2*x)^(5/2))/640 -
(1853313*(1 - 2*x)^(7/2))/128 + (9504551*(1 - 2*x)^(9/2))/1152 -
(4177401*(1 - 2*x)^(11/2))/1408 + (1101465*(1 - 2*x)^(13/2))/1664
 - (10755*(1 - 2*x)^(15/2))/128 + (10125*(1 - 2*x)^(17/2))/2176
```

Rubi in Sympy [A] time = 11.2985, size = 94, normalized size = 0.9

$$\frac{10125\left(-2x+1\right)^{\frac{17}{2}}}{2176}-\frac{10755\left(-2x+1\right)^{\frac{15}{2}}}{128}+\frac{1101465\left(-2x+1\right)^{\frac{13}{2}}}{1664}-\frac{4177401\left(-2x+1\right)^{\frac{11}{2}}}{1408}+\frac{9504551\left(-2x+1\right)^{\frac{9}{2}}}{1152}-\frac{1853313\left(-2x+1\right)^{\frac{7}{2}}}{128}+\frac{9836211\left(-2x+1\right)^{\frac{5}{2}}}{640}-\frac{3195731\left(-2x+1\right)^{\frac{3}{2}}}{384}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4*(3+5*x)**3*(1-2*x)**(1/2),x)
```

```
[Out] 10125*(-2*x + 1)**(17/2)/2176 - 10755*(-2*x + 1)**(15/2)/128 + 11
01465*(-2*x + 1)**(13/2)/1664 - 4177401*(-2*x + 1)**(11/2)/1408 +
 9504551*(-2*x + 1)**(9/2)/1152 - 1853313*(-2*x + 1)**(7/2)/128 +
 9836211*(-2*x + 1)**(5/2)/640 - 3195731*(-2*x + 1)**(3/2)/384
```

Mathematica [A] time = 0.0624309, size = 48, normalized size = 0.46

$$-\frac{(1-2x)^{3/2}\left(65154375x^7+360231300x^6+894452625x^5+1320982290x^4+1299289000x^3+906777120x^2+466679856x+\right.}{109395}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]*(2 + 3*x)^4*(3 + 5*x)^3,x]
```

```
[Out] -((1 - 2*x)^(3/2)*(171312832 + 466679856*x + 906777120*x^2 + 1299
289000*x^3 + 1320982290*x^4 + 894452625*x^5 + 360231300*x^6 + 651
```

```
54375*x^7))/109395
```

Maple [A] time = 0.007, size = 45, normalized size = 0.4

$$-\frac{65154375\,x^{7}+360231300\,x^{6}+894452625\,x^{5}+1320982290\,x^{4}+1299289000\,x^{3}+906777120\,x^{2}+466679856\,x+17131283}{109395}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4*(3+5*x)^3*(1-2*x)^(1/2),x)
```

```
[Out] -1/109395*(65154375*x^7+360231300*x^6+894452625*x^5+1320982290*x^
4+1299289000*x^3+906777120*x^2+466679856*x+171312832)*(1-2*x)^(3/
2)
```

Maxima [A] time = 1.33893, size = 99, normalized size = 0.94

$$\frac{10125}{2176}\,(-2\,x+1)^{\frac{17}{2}}-\frac{10755}{128}\,(-2\,x+1)^{\frac{15}{2}}+\frac{1101465}{1664}\,(-2\,x+1)^{\frac{13}{2}}-\frac{4177401}{1408}\,(-2\,x+1)^{\frac{11}{2}}+\frac{9504551}{1152}\,(-2\,x+1)^{\frac{9}{2}}-\frac{1853313}{128}\,(-2\,x+1)^{\frac{7}{2}}+\frac{9836211}{640}\,(-2\,x+1)^{\frac{5}{2}}-\frac{3195731}{384}\,(-2\,x+1)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^4*sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] 10125/2176*(-2*x + 1)^(17/2) - 10755/128*(-2*x + 1)^(15/2) + 1101
465/1664*(-2*x + 1)^(13/2) - 4177401/1408*(-2*x + 1)^(11/2) + 950
4551/1152*(-2*x + 1)^(9/2) - 1853313/128*(-2*x + 1)^(7/2) + 98362
11/640*(-2*x + 1)^(5/2) - 3195731/384*(-2*x + 1)^(3/2)
```

Fricas [A] time = 0.207347, size = 66, normalized size = 0.63

$$\frac{1}{109395}\left(130308750\,x^{8}+655308225\,x^{7}+1428673950\,x^{6}+1747511955\,x^{5}+1277595710\,x^{4}+514265240\,x^{3}+26582592\,x^{2}-\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^4*sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] 1/109395*(130308750*x^8 + 655308225*x^7 + 1428673950*x^6 + 174751
1955*x^5 + 1277595710*x^4 + 514265240*x^3 + 26582592*x^2 - 124054
192*x - 171312832)*sqrt(-2*x + 1)
```

Sympy [A] time = 3.69919, size = 94, normalized size = 0.9

$$\frac{10125\,(-2x+1)^{\frac{17}{2}}}{2176}-\frac{10755\,(-2x+1)^{\frac{15}{2}}}{128}+\frac{1101465\,(-2x+1)^{\frac{13}{2}}}{1664}-\frac{4177401\,(-2x+1)^{\frac{11}{2}}}{1408}+\frac{9504551\,(-2x+1)^{\frac{9}{2}}}{1152}-\frac{1853313\,(-2x+1)^{\frac{7}{2}}}{128}+\frac{9836211\,(-2x+1)^{\frac{5}{2}}}{640}-\frac{3195731\,(-2x+1)^{\frac{3}{2}}}{384}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4*(3+5*x)**3*(1-2*x)**(1/2),x)
```

```
[Out] 10125*(-2*x + 1)**(17/2)/2176 - 10755*(-2*x + 1)**(15/2)/128 + 11
01465*(-2*x + 1)**(13/2)/1664 - 4177401*(-2*x + 1)**(11/2)/1408 +
 9504551*(-2*x + 1)**(9/2)/1152 - 1853313*(-2*x + 1)**(7/2)/128 +
 9836211*(-2*x + 1)**(5/2)/640 - 3195731*(-2*x + 1)**(3/2)/384
```

GIAC/XCAS [A] time = 0.216035, size = 165, normalized size = 1.57

$$\frac{10125}{2176}\,(2\,x-1)^{8}\sqrt{-2\,x+1}+\frac{10755}{128}\,(2\,x-1)^{7}\sqrt{-2\,x+1}+\frac{1101465}{1664}\,(2\,x-1)^{6}\sqrt{-2\,x+1}+\frac{4177401}{1408}\,(2\,x-1)^{5}\sqrt{-2\,x+1}+\frac{9504551}{1152}\,(2\,x-1)^{4}\sqrt{-2\,x+1}+\frac{1853313}{128}\,(2\,x-1)^{3}\sqrt{-2\,x+1}+\frac{9836211}{640}\,(2\,x-1)^{2}\sqrt{-2\,x+1}-\frac{3195731}{384}\,(-2\,x+1)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3*(3*x + 2)^4*sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] 10125/2176*(2*x - 1)^8*sqrt(-2*x + 1) + 10755/128*(2*x - 1)^7*sqr
t(-2*x + 1) + 1101465/1664*(2*x - 1)^6*sqrt(-2*x + 1) + 4177401/1
408*(2*x - 1)^5*sqrt(-2*x + 1) + 9504551/1152*(2*x - 1)^4*sqrt(-2
*x + 1) + 1853313/128*(2*x - 1)^3*sqrt(-2*x + 1) + 9836211/640*(2
*x - 1)^2*sqrt(-2*x + 1) - 3195731/384*(-2*x + 1)^(3/2)
```

3.1799 $\int \sqrt{1-2x}(2+3x)^3(3+5x)^3\,dx$

Optimal. Leaf size=92

$$-\frac{225}{64}(1-2x)^{15/2}+\frac{11475}{208}(1-2x)^{13/2}-\frac{260055}{704}(1-2x)^{11/2}+\frac{98209}{72}(1-2x)^{9/2}-\frac{190707}{64}(1-2x)^{7/2}+\frac{302379}{80}(1-2x)^{5/2}-\frac{456533}{192}(1-2x)^{3/2}$$

```
[Out] (-456533*(1 - 2*x)^(3/2))/192 + (302379*(1 - 2*x)^(5/2))/80 - (19
0707*(1 - 2*x)^(7/2))/64 + (98209*(1 - 2*x)^(9/2))/72 - (260055*(
1 - 2*x)^(11/2))/704 + (11475*(1 - 2*x)^(13/2))/208 - (225*(1 - 2
*x)^(15/2))/64
```

Rubi [A] time = 0.0692709, antiderivative size = 92, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.042$

$$-\frac{225}{64}(1-2x)^{15/2}+\frac{11475}{208}(1-2x)^{13/2}-\frac{260055}{704}(1-2x)^{11/2}+\frac{98209}{72}(1-2x)^{9/2}-\frac{190707}{64}(1-2x)^{7/2}+\frac{302379}{80}(1-2x)^{5/2}-\frac{456533}{192}(1-2x)^{3/2}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]*(2 + 3*x)^3*(3 + 5*x)^3,x]
```

```
[Out] (-456533*(1 - 2*x)^(3/2))/192 + (302379*(1 - 2*x)^(5/2))/80 - (19
0707*(1 - 2*x)^(7/2))/64 + (98209*(1 - 2*x)^(9/2))/72 - (260055*(
1 - 2*x)^(11/2))/704 + (11475*(1 - 2*x)^(13/2))/208 - (225*(1 - 2
*x)^(15/2))/64
```

Rubi in Sympy [A] time = 10.2479, size = 82, normalized size = 0.89

$$-\frac{225\left(-2x+1\right)^{\frac{15}{2}}}{64}+\frac{11475\left(-2x+1\right)^{\frac{13}{2}}}{208}-\frac{260055\left(-2x+1\right)^{\frac{11}{2}}}{704}+\frac{98209\left(-2x+1\right)^{\frac{9}{2}}}{72}-\frac{190707\left(-2x+1\right)^{\frac{7}{2}}}{64}+\frac{302379\left(-2x+1\right)^{\frac{5}{2}}}{80}-\frac{456533\left(-2x+1\right)^{\frac{3}{2}}}{192}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3*(3+5*x)**3*(1-2*x)**(1/2),x)
```

```
[Out] -225*(-2*x + 1)**(15/2)/64 + 11475*(-2*x + 1)**(13/2)/208 - 26005
5*(-2*x + 1)**(11/2)/704 + 98209*(-2*x + 1)**(9/2)/72 - 190707*(-
2*x + 1)**(7/2)/64 + 302379*(-2*x + 1)**(5/2)/80 - 456533*(-2*x +
 1)**(3/2)/192
```

Mathematica [A] time = 0.0574264, size = 43, normalized size = 0.47

$$-\frac{(1-2x)^{3/2}\left(1447875x^6+7016625x^5+15061950x^4+18934285x^3+15577455x^2+8871906x+3420622\right)}{6435}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]*(2 + 3*x)^3*(3 + 5*x)^3,x]
```

```
[Out] -((1 - 2*x)^(3/2)*(3420622 + 8871906*x + 15577455*x^2 + 18934285*
x^3 + 15061950*x^4 + 7016625*x^5 + 1447875*x^6))/6435
```

Maple [A] time = 0.006, size = 40, normalized size = 0.4

$$-\frac{1447875\,x^{6}+7016625\,x^{5}+15061950\,x^{4}+18934285\,x^{3}+15577455\,x^{2}+8871906\,x+3420622}{6435}\,(1-2\,x)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3*(3+5*x)^3*(1-2*x)^(1/2),x)
```

```
[Out] -1/6435*(1447875*x^6+7016625*x^5+15061950*x^4+18934285*x^3+155774
55*x^2+8871906*x+3420622)*(1-2*x)^(3/2)
```

Maxima [A] time = 1.35789, size = 86, normalized size = 0.93

$$-\frac{225}{64}\,(-2\,x+1)^{\frac{15}{2}}+\frac{11475}{208}\,(-2\,x+1)^{\frac{13}{2}}-\frac{260055}{704}\,(-2\,x+1)^{\frac{11}{2}}+\frac{98209}{72}\,(-2\,x+1)^{\frac{9}{2}}-\frac{190707}{64}\,(-2\,x+1)^{\frac{7}{2}}+\frac{302379}{80}\,(-2\,x+1)^{\frac{5}{2}}-\frac{456533}{192}\,(-2\,x+1)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^3*sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] -225/64*(-2*x + 1)^(15/2) + 11475/208*(-2*x + 1)^(13/2) - 260055/
704*(-2*x + 1)^(11/2) + 98209/72*(-2*x + 1)^(9/2) - 190707/64*(-2
*x + 1)^(7/2) + 302379/80*(-2*x + 1)^(5/2) - 456533/192*(-2*x + 1
)^(3/2)
```

Fricas [A] time = 0.206001, size = 59, normalized size = 0.64

$$\frac{1}{6435}\left(2895750\,x^{7}+12585375\,x^{6}+23107275\,x^{5}+22806620\,x^{4}+12220625\,x^{3}+2166357\,x^{2}-2030662\,x-3420622\right)\sqrt{-2\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^3*sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] 1/6435*(2895750*x^7 + 12585375*x^6 + 23107275*x^5 + 22806620*x^4
+ 12220625*x^3 + 2166357*x^2 - 2030662*x - 3420622)*sqrt(-2*x + 1
)
```

Sympy [A] time = 3.38015, size = 82, normalized size = 0.89

$$-\frac{225\,(-2x+1)^{\frac{15}{2}}}{64}+\frac{11475\,(-2x+1)^{\frac{13}{2}}}{208}-\frac{260055\,(-2x+1)^{\frac{11}{2}}}{704}+\frac{98209\,(-2x+1)^{\frac{9}{2}}}{72}-\frac{190707\,(-2x+1)^{\frac{7}{2}}}{64}+\frac{302379\,(-2x+1)^{\frac{5}{2}}}{80}-\frac{456533\,(-2x+1)^{\frac{3}{2}}}{192}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3*(3+5*x)**3*(1-2*x)**(1/2),x)
```

```
[Out] -225*(-2*x + 1)**(15/2)/64 + 11475*(-2*x + 1)**(13/2)/208 - 26005
5*(-2*x + 1)**(11/2)/704 + 98209*(-2*x + 1)**(9/2)/72 - 190707*(-
2*x + 1)**(7/2)/64 + 302379*(-2*x + 1)**(5/2)/80 - 456533*(-2*x +
```

```
1)**(3/2)/192
```

GIAC/XCAS [A] time = 0.217723, size = 143, normalized size = 1.55

$$\frac{225}{64}(2x-1)^7\sqrt{-2x+1}+\frac{11475}{208}(2x-1)^6\sqrt{-2x+1}+\frac{260055}{704}(2x-1)^5\sqrt{-2x+1}+\frac{98209}{72}(2x-1)^4\sqrt{-2x+1}+\frac{190707}{64}(2x-1)^3\sqrt{-2x+1}+\frac{302379}{80}(2x-1)^2\sqrt{-2x+1}-\frac{456533}{192}(-2x+1)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3*(3*x + 2)^3*sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] 225/64*(2*x - 1)^7*sqrt(-2*x + 1) + 11475/208*(2*x - 1)^6*sqrt(-2
*x + 1) + 260055/704*(2*x - 1)^5*sqrt(-2*x + 1) + 98209/72*(2*x -
 1)^4*sqrt(-2*x + 1) + 190707/64*(2*x - 1)^3*sqrt(-2*x + 1) + 302
379/80*(2*x - 1)^2*sqrt(-2*x + 1) - 456533/192*(-2*x + 1)^(3/2)
```

3.1800 $\int \sqrt{1-2x}(2+3x)^2(3+5x)^3\,dx$

Optimal. Leaf size=79

$$\frac{1125}{416}(1-2x)^{13/2} - \frac{12675}{352}(1-2x)^{11/2} + \frac{28555}{144}(1-2x)^{9/2} - \frac{64317}{112}(1-2x)^{7/2} + \frac{144837}{160}(1-2x)^{5/2} - \frac{65219}{96}(1-2x)^{3/2}$$

```
[Out] (-65219*(1 - 2*x)^(3/2))/96 + (144837*(1 - 2*x)^(5/2))/160 - (643
17*(1 - 2*x)^(7/2))/112 + (28555*(1 - 2*x)^(9/2))/144 - (12675*(1
 - 2*x)^(11/2))/352 + (1125*(1 - 2*x)^(13/2))/416
```

Rubi [A] time = 0.0624584, antiderivative size = 79, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.042$

$$\frac{1125}{416}(1-2x)^{13/2} - \frac{12675}{352}(1-2x)^{11/2} + \frac{28555}{144}(1-2x)^{9/2} - \frac{64317}{112}(1-2x)^{7/2} + \frac{144837}{160}(1-2x)^{5/2} - \frac{65219}{96}(1-2x)^{3/2}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]*(2 + 3*x)^2*(3 + 5*x)^3,x]
```

```
[Out] (-65219*(1 - 2*x)^(3/2))/96 + (144837*(1 - 2*x)^(5/2))/160 - (643
17*(1 - 2*x)^(7/2))/112 + (28555*(1 - 2*x)^(9/2))/144 - (12675*(1
 - 2*x)^(11/2))/352 + (1125*(1 - 2*x)^(13/2))/416
```

Rubi in Sympy [A] time = 9.10429, size = 70, normalized size = 0.89

$$\frac{1125\,(-2x+1)^{\frac{13}{2}}}{416} - \frac{12675\,(-2x+1)^{\frac{11}{2}}}{352} + \frac{28555\,(-2x+1)^{\frac{9}{2}}}{144} - \frac{64317\,(-2x+1)^{\frac{7}{2}}}{112} + \frac{144837\,(-2x+1)^{\frac{5}{2}}}{160} - \frac{65219\,(-2x+1)^{\frac{3}{2}}}{96}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2*(3+5*x)**3*(1-2*x)**(1/2),x)
```

```
[Out] 1125*(-2*x + 1)**(13/2)/416 - 12675*(-2*x + 1)**(11/2)/352 + 2855
5*(-2*x + 1)**(9/2)/144 - 64317*(-2*x + 1)**(7/2)/112 + 144837*(-
2*x + 1)**(5/2)/160 - 65219*(-2*x + 1)**(3/2)/96
```

Mathematica [A] time = 0.0533175, size = 38, normalized size = 0.48

$$-\frac{(1-2x)^{3/2}\left(3898125x^5+16206750x^4+29300075x^3+30337080x^2+19918608x+8261156\right)}{45045}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]*(2 + 3*x)^2*(3 + 5*x)^3,x]
```

```
[Out] -((1 - 2*x)^(3/2)*(8261156 + 19918608*x + 30337080*x^2 + 29300075
*x^3 + 16206750*x^4 + 3898125*x^5))/45045
```

Maple [A] time = 0.006, size = 35, normalized size = 0.4

$$-\frac{3898125\,x^5+16206750\,x^4+29300075\,x^3+30337080\,x^2+19918608\,x+8261156}{45045}\,(1-2\,x)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2*(3+5*x)^3*(1-2*x)^(1/2),x)
```

```
[Out] -1/45045*(3898125*x^5+16206750*x^4+29300075*x^3+30337080*x^2+1991
8608*x+8261156)*(1-2*x)^(3/2)
```

Maxima [A] time = 1.33592, size = 74, normalized size = 0.94

$$\frac{1125}{416}\,(-2\,x+1)^{\frac{13}{2}}-\frac{12675}{352}\,(-2\,x+1)^{\frac{11}{2}}+\frac{28555}{144}\,(-2\,x+1)^{\frac{9}{2}}-\frac{64317}{112}\,(-2\,x+1)^{\frac{7}{2}}+\frac{144837}{160}\,(-2\,x+1)^{\frac{5}{2}}-\frac{65219}{96}\,(-2\,x+1)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^2*sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] 1125/416*(-2*x + 1)^(13/2) - 12675/352*(-2*x + 1)^(11/2) + 28555/
144*(-2*x + 1)^(9/2) - 64317/112*(-2*x + 1)^(7/2) + 144837/160*(-
2*x + 1)^(5/2) - 65219/96*(-2*x + 1)^(3/2)
```

Fricas [A] time = 0.207803, size = 53, normalized size = 0.67

$$\frac{1}{45045}\left(7796250\,x^6+28515375\,x^5+42393400\,x^4+31374085\,x^3+9500136\,x^2-3396296\,x-8261156\right)\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^2*sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] 1/45045*(7796250*x^6 + 28515375*x^5 + 42393400*x^4 + 31374085*x^3
 + 9500136*x^2 - 3396296*x - 8261156)*sqrt(-2*x + 1)
```

Sympy [A] time = 3.13149, size = 70, normalized size = 0.89

$$\frac{1125\,(-2x+1)^{\frac{13}{2}}}{416}-\frac{12675\,(-2x+1)^{\frac{11}{2}}}{352}+\frac{28555\,(-2x+1)^{\frac{9}{2}}}{144}-\frac{64317\,(-2x+1)^{\frac{7}{2}}}{112}+\frac{144837\,(-2x+1)^{\frac{5}{2}}}{160}-\frac{65219\,(-2x+1)^{\frac{3}{2}}}{96}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2*(3+5*x)**3*(1-2*x)**(1/2),x)
```

```
[Out] 1125*(-2*x + 1)**(13/2)/416 - 12675*(-2*x + 1)**(11/2)/352 + 2855
5*(-2*x + 1)**(9/2)/144 - 64317*(-2*x + 1)**(7/2)/112 + 144837*(-
2*x + 1)**(5/2)/160 - 65219*(-2*x + 1)**(3/2)/96
```

GIAC/XCAS [A] time = 0.213566, size = 122, normalized size = 1.54

$$\frac{1125}{416}\,(2\,x-1)^{6}\sqrt{-2\,x+1}+\frac{12675}{352}\,(2\,x-1)^{5}\sqrt{-2\,x+1}+\frac{28555}{144}\,(2\,x-1)^{4}\sqrt{-2\,x+1}+\frac{64317}{112}\,(2\,x-1)^{3}\sqrt{-2\,x+1}+\frac{144837}{160}\,(2\,x-1)^{2}\sqrt{-2\,x+1}-\frac{65219}{96}\,(-2\,x+1)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3*(3*x + 2)^2*sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] 1125/416*(2*x - 1)^6*sqrt(-2*x + 1) + 12675/352*(2*x - 1)^5*sqrt(
-2*x + 1) + 28555/144*(2*x - 1)^4*sqrt(-2*x + 1) + 64317/112*(2*x
 - 1)^3*sqrt(-2*x + 1) + 144837/160*(2*x - 1)^2*sqrt(-2*x + 1) -
65219/96*(-2*x + 1)^(3/2)
```

3.1801 $\int \sqrt{1-2x}(2+3x)(3+5x)^3\,dx$

Optimal. Leaf size=66

$$-\frac{375}{176}(1-2x)^{11/2}+\frac{1675}{72}(1-2x)^{9/2}-\frac{2805}{28}(1-2x)^{7/2}+\frac{8349}{40}(1-2x)^{5/2}-\frac{9317}{48}(1-2x)^{3/2}$$

```
[Out] (-9317*(1 - 2*x)^(3/2))/48 + (8349*(1 - 2*x)^(5/2))/40 - (2805*(1
 - 2*x)^(7/2))/28 + (1675*(1 - 2*x)^(9/2))/72 - (375*(1 - 2*x)^(1
1/2))/176
```

Rubi [A] time = 0.0501929, antiderivative size = 66, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$-\frac{375}{176}(1-2x)^{11/2}+\frac{1675}{72}(1-2x)^{9/2}-\frac{2805}{28}(1-2x)^{7/2}+\frac{8349}{40}(1-2x)^{5/2}-\frac{9317}{48}(1-2x)^{3/2}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]*(2 + 3*x)*(3 + 5*x)^3,x]
```

```
[Out] (-9317*(1 - 2*x)^(3/2))/48 + (8349*(1 - 2*x)^(5/2))/40 - (2805*(1
 - 2*x)^(7/2))/28 + (1675*(1 - 2*x)^(9/2))/72 - (375*(1 - 2*x)^(1
1/2))/176
```

Rubi in Sympy [A] time = 7.77331, size = 58, normalized size = 0.88

$$-\frac{375(-2x+1)^{\frac{11}{2}}}{176}+\frac{1675(-2x+1)^{\frac{9}{2}}}{72}-\frac{2805(-2x+1)^{\frac{7}{2}}}{28}+\frac{8349(-2x+1)^{\frac{5}{2}}}{40}-\frac{9317(-2x+1)^{\frac{3}{2}}}{48}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)*(3+5*x)**3*(1-2*x)**(1/2),x)
```

```
[Out] -375*(-2*x + 1)**(11/2)/176 + 1675*(-2*x + 1)**(9/2)/72 - 2805*(-
2*x + 1)**(7/2)/28 + 8349*(-2*x + 1)**(5/2)/40 - 9317*(-2*x + 1)*
*(3/2)/48
```

Mathematica [A] time = 0.0282996, size = 38, normalized size = 0.58

$$\frac{\sqrt{1-2x}\left(236250x^5+699125x^4+788075x^3+366816x^2-36121x-223231\right)}{3465}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]*(2 + 3*x)*(3 + 5*x)^3,x]
```

```
[Out] (Sqrt[1 - 2*x]*(-223231 - 36121*x + 366816*x^2 + 788075*x^3 + 699
125*x^4 + 236250*x^5))/3465
```

Maple [A] time = 0.005, size = 30, normalized size = 0.5

$$-\frac{118125\,x^4+408625\,x^3+598350\,x^2+482583\,x+223231}{3465}(1-2\,x)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)*(3+5*x)^3*(1-2*x)^(1/2),x)
```

```
[Out] -1/3465*(118125*x^4+408625*x^3+598350*x^2+482583*x+223231)*(1-2*x
)^(3/2)
```

Maxima [A] time = 1.39515, size = 62, normalized size = 0.94

$$-\frac{375}{176}\,(-2\,x+1)^{\frac{11}{2}}+\frac{1675}{72}\,(-2\,x+1)^{\frac{9}{2}}-\frac{2805}{28}\,(-2\,x+1)^{\frac{7}{2}}+\frac{8349}{40}\,(-2\,x+1)^{\frac{5}{2}}-\frac{9317}{48}\,(-2\,x+1)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3*(3*x + 2)*sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] -375/176*(-2*x + 1)^(11/2) + 1675/72*(-2*x + 1)^(9/2) - 2805/28*(
-2*x + 1)^(7/2) + 8349/40*(-2*x + 1)^(5/2) - 9317/48*(-2*x + 1)^(
3/2)
```

Fricas [A] time = 0.208789, size = 46, normalized size = 0.7

$$\frac{1}{3465}\,\left(236250\,x^{5}+699125\,x^{4}+788075\,x^{3}+366816\,x^{2}-36121\,x-223231\right)\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3*(3*x + 2)*sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] 1/3465*(236250*x^5 + 699125*x^4 + 788075*x^3 + 366816*x^2 - 36121
*x - 223231)*sqrt(-2*x + 1)
```

Sympy [A] time = 3.02685, size = 58, normalized size = 0.88

$$-\frac{375\,(-2x+1)^{\frac{11}{2}}}{176}+\frac{1675\,(-2x+1)^{\frac{9}{2}}}{72}-\frac{2805\,(-2x+1)^{\frac{7}{2}}}{28}+\frac{8349\,(-2x+1)^{\frac{5}{2}}}{40}-\frac{9317\,(-2x+1)^{\frac{3}{2}}}{48}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)*(3+5*x)**3*(1-2*x)**(1/2),x)
```

```
[Out] -375*(-2*x + 1)**(11/2)/176 + 1675*(-2*x + 1)**(9/2)/72 - 2805*(-
2*x + 1)**(7/2)/28 + 8349*(-2*x + 1)**(5/2)/40 - 9317*(-2*x + 1)*
*(3/2)/48
```

GIAC/XCAS [A] time = 0.233131, size = 100, normalized size = 1.52

$$\frac{375}{176}\,(2\,x-1)^{5}\sqrt{-2\,x+1}+\frac{1675}{72}\,(2\,x-1)^{4}\sqrt{-2\,x+1}+\frac{2805}{28}\,(2\,x-1)^{3}\sqrt{-2\,x+1}+\frac{8349}{40}\,(2\,x-1)^{2}\sqrt{-2\,x+1}-\frac{9317}{48}\,(-2\,x+1)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)*sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] 375/176*(2*x - 1)^5*sqrt(-2*x + 1) + 1675/72*(2*x - 1)^4*sqrt(-2*
x + 1) + 2805/28*(2*x - 1)^3*sqrt(-2*x + 1) + 8349/40*(2*x - 1)^2
*sqrt(-2*x + 1) - 9317/48*(-2*x + 1)^(3/2)
```

3.1802 $\int \sqrt{1-2x}(3+5x)^3\,dx$

Optimal. Leaf size=53

$$\frac{125}{72}(1-2x)^{9/2}-\frac{825}{56}(1-2x)^{7/2}+\frac{363}{8}(1-2x)^{5/2}-\frac{1331}{24}(1-2x)^{3/2}$$

```
[Out] (-1331*(1 - 2*x)^(3/2))/24 + (363*(1 - 2*x)^(5/2))/8 - (825*(1 -
2*x)^(7/2))/56 + (125*(1 - 2*x)^(9/2))/72
```

Rubi [A] time = 0.0310262, antiderivative size = 53, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 17, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.059

$$\frac{125}{72}(1-2x)^{9/2}-\frac{825}{56}(1-2x)^{7/2}+\frac{363}{8}(1-2x)^{5/2}-\frac{1331}{24}(1-2x)^{3/2}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]*(3 + 5*x)^3,x]
```

```
[Out] (-1331*(1 - 2*x)^(3/2))/24 + (363*(1 - 2*x)^(5/2))/8 - (825*(1 -
2*x)^(7/2))/56 + (125*(1 - 2*x)^(9/2))/72
```

Rubi in Sympy [A] time = 5.83045, size = 46, normalized size = 0.87

$$\frac{125\,(-2x+1)^{\frac{9}{2}}}{72}-\frac{825\,(-2x+1)^{\frac{7}{2}}}{56}+\frac{363\,(-2x+1)^{\frac{5}{2}}}{8}-\frac{1331\,(-2x+1)^{\frac{3}{2}}}{24}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**3*(1-2*x)**(1/2),x)
```

```
[Out] 125*(-2*x + 1)**(9/2)/72 - 825*(-2*x + 1)**(7/2)/56 + 363*(-2*x +
 1)**(5/2)/8 - 1331*(-2*x + 1)**(3/2)/24
```

Mathematica [A] time = 0.0213966, size = 33, normalized size = 0.62

$$\frac{1}{63}\sqrt{1-2x}\left(1750x^4+3925x^3+2922x^2+247x-1454\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]*(3 + 5*x)^3,x]
```

```
[Out] (Sqrt[1 - 2*x]*(-1454 + 247*x + 2922*x^2 + 3925*x^3 + 1750*x^4))/
63
```

Maple [A] time = 0.005, size = 25, normalized size = 0.5

$$-\frac{875\,x^3+2400\,x^2+2661\,x+1454}{63}(1-2\,x)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3*(1-2*x)^(1/2),x)
```

```
[Out] -1/63*(875*x^3+2400*x^2+2661*x+1454)*(1-2*x)^(3/2)
```

Maxima [A] time = 1.33964, size = 50, normalized size = 0.94

$$\frac{125}{72}(-2x+1)^{\frac{9}{2}} - \frac{825}{56}(-2x+1)^{\frac{7}{2}} + \frac{363}{8}(-2x+1)^{\frac{5}{2}} - \frac{1331}{24}(-2x+1)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] 125/72*(-2*x + 1)^(9/2) - 825/56*(-2*x + 1)^(7/2) + 363/8*(-2*x +
 1)^(5/2) - 1331/24*(-2*x + 1)^(3/2)
```

Fricas [A] time = 0.209733, size = 39, normalized size = 0.74

$$\frac{1}{63}\left(1750x^4 + 3925x^3 + 2922x^2 + 247x - 1454\right)\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] 1/63*(1750*x^4 + 3925*x^3 + 2922*x^2 + 247*x - 1454)*sqrt(-2*x +
1)
```

Sympy [A] time = 6.39695, size = 236, normalized size = 4.45

$$\begin{cases} \frac{50\sqrt{5}i\left(x+\frac{3}{5}\right)^4\sqrt{10x-5}}{9} - \frac{55\sqrt{5}i\left(x+\frac{3}{5}\right)^3\sqrt{10x-5}}{63} - \frac{121\sqrt{5}i\left(x+\frac{3}{5}\right)^2\sqrt{10x-5}}{105} - \frac{2662\sqrt{5}i\left(x+\frac{3}{5}\right)\sqrt{10x-5}}{1575} - \frac{29282\sqrt{5}i\sqrt{10x-5}}{7875} & \text{for}\ \frac{10\left|x+\frac{3}{5}\right|}{11} > 1 \\ \frac{50\sqrt{5}\sqrt{-10x+5}\left(x+\frac{3}{5}\right)^4}{9} - \frac{55\sqrt{5}\sqrt{-10x+5}\left(x+\frac{3}{5}\right)^3}{63} - \frac{121\sqrt{5}\sqrt{-10x+5}\left(x+\frac{3}{5}\right)^2}{105} - \frac{2662\sqrt{5}\sqrt{-10x+5}\left(x+\frac{3}{5}\right)}{1575} - \frac{29282\sqrt{5}\sqrt{-10x+5}}{7875} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3*(1-2*x)**(1/2),x)
```

```
[Out] Piecewise((50*sqrt(5)*I*(x + 3/5)**4*sqrt(10*x - 5)/9 - 55*sqrt(5
)*I*(x + 3/5)**3*sqrt(10*x - 5)/63 - 121*sqrt(5)*I*(x + 3/5)**2*s
qrt(10*x - 5)/105 - 2662*sqrt(5)*I*(x + 3/5)*sqrt(10*x - 5)/1575
- 29282*sqrt(5)*I*sqrt(10*x - 5)/7875, 10*Abs(x + 3/5)/11 > 1), (
50*sqrt(5)*sqrt(-10*x + 5)*(x + 3/5)**4/9 - 55*sqrt(5)*sqrt(-10*x
 + 5)*(x + 3/5)**3/63 - 121*sqrt(5)*sqrt(-10*x + 5)*(x + 3/5)**2/
105 - 2662*sqrt(5)*sqrt(-10*x + 5)*(x + 3/5)/1575 - 29282*sqrt(5)
*sqrt(-10*x + 5)/7875, True))
```

GIAC/XCAS [A] time = 0.237868, size = 78, normalized size = 1.47

$$\frac{125}{72}(2x-1)^4\sqrt{-2x+1} + \frac{825}{56}(2x-1)^3\sqrt{-2x+1} + \frac{363}{8}(2x-1)^2\sqrt{-2x+1} - \frac{1331}{24}(-2x+1)^{\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] 125/72*(2*x - 1)^4*sqrt(-2*x + 1) + 825/56*(2*x - 1)^3*sqrt(-2*x
+ 1) + 363/8*(2*x - 1)^2*sqrt(-2*x + 1) - 1331/24*(-2*x + 1)^(3/2
)
```

3.1803 $\int \frac{\sqrt{1-2x}(3+5x)^3}{2+3x}\,dx$

Optimal. Leaf size=82

$$-\frac{125}{84}(1-2x)^{7/2}+\frac{80}{9}(1-2x)^{5/2}-\frac{5135}{324}(1-2x)^{3/2}-\frac{2}{81}\sqrt{1-2x}+\frac{2}{81}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

```
[Out] (-2*Sqrt[1 - 2*x])/81 - (5135*(1 - 2*x)^(3/2))/324 + (80*(1 - 2*x
)^(5/2))/9 - (125*(1 - 2*x)^(7/2))/84 + (2*Sqrt[7/3]*ArcTanh[Sqrt
[3/7]*Sqrt[1 - 2*x]])/81
```

Rubi [A] time = 0.0904358, antiderivative size = 82, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$-\frac{125}{84}(1-2x)^{7/2}+\frac{80}{9}(1-2x)^{5/2}-\frac{5135}{324}(1-2x)^{3/2}-\frac{2}{81}\sqrt{1-2x}+\frac{2}{81}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(3 + 5*x)^3)/(2 + 3*x),x]
```

```
[Out] (-2*Sqrt[1 - 2*x])/81 - (5135*(1 - 2*x)^(3/2))/324 + (80*(1 - 2*x
)^(5/2))/9 - (125*(1 - 2*x)^(7/2))/84 + (2*Sqrt[7/3]*ArcTanh[Sqrt
[3/7]*Sqrt[1 - 2*x]])/81
```

Rubi in Sympy [A] time = 9.52275, size = 71, normalized size = 0.87

$$-\frac{125\left(-2x+1\right)^{\frac{7}{2}}}{84}+\frac{80\left(-2x+1\right)^{\frac{5}{2}}}{9}-\frac{5135\left(-2x+1\right)^{\frac{3}{2}}}{324}-\frac{2\sqrt{-2x+1}}{81}+\frac{2\sqrt{21}\,\mathrm{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{243}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**3*(1-2*x)**(1/2)/(2+3*x),x)
```

```
[Out] -125*(-2*x + 1)**(7/2)/84 + 80*(-2*x + 1)**(5/2)/9 - 5135*(-2*x +
 1)**(3/2)/324 - 2*sqrt(-2*x + 1)/81 + 2*sqrt(21)*atanh(sqrt(21)*
sqrt(-2*x + 1)/7)/243
```

Mathematica [A] time = 0.0755893, size = 56, normalized size = 0.68

$$\frac{3\sqrt{1-2x}\left(6750x^3+10035x^2+2875x-4804\right)+14\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{1701}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(3 + 5*x)^3)/(2 + 3*x),x]
```

```
[Out] (3*Sqrt[1 - 2*x]*(-4804 + 2875*x + 10035*x^2 + 6750*x^3) + 14*Sqr
t[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/1701
```

Maple [A] time = 0.01, size = 56, normalized size = 0.7

$$-\frac{5135}{324}\left(1-2\,x\right)^{\frac{3}{2}}+\frac{80}{9}\left(1-2\,x\right)^{\frac{5}{2}}-\frac{125}{84}\left(1-2\,x\right)^{\frac{7}{2}}+\frac{2\sqrt{21}}{243}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)-\frac{2}{81}\sqrt{1-2\,x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3*(1-2*x)^(1/2)/(2+3*x),x)
```

```
[Out] -5135/324*(1-2*x)^(3/2)+80/9*(1-2*x)^(5/2)-125/84*(1-2*x)^(7/2)+2
/243*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)-2/81*(1-2*x)^(1
/2)
```

Maxima [A] time = 1.49839, size = 99, normalized size = 1.21

$$-\frac{125}{84}\left(-2x+1\right)^{\frac{7}{2}}+\frac{80}{9}\left(-2x+1\right)^{\frac{5}{2}}-\frac{5135}{324}\left(-2x+1\right)^{\frac{3}{2}}-\frac{1}{243}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{2}{81}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3*sqrt(-2*x + 1)/(3*x + 2),x, algorithm="maxima")
```

```
[Out] -125/84*(-2*x + 1)^(7/2) + 80/9*(-2*x + 1)^(5/2) - 5135/324*(-2*x
 + 1)^(3/2) - 1/243*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(
sqrt(21) + 3*sqrt(-2*x + 1))) - 2/81*sqrt(-2*x + 1)
```

Fricas [A] time = 0.216355, size = 92, normalized size = 1.12

$$\frac{1}{1701}\sqrt{3}\left(\sqrt{3}\left(6750x^3+10035x^2+2875x-4804\right)\sqrt{-2x+1}+7\sqrt{7}\log\left(\frac{\sqrt{3}(3x-5)-3\sqrt{7}\sqrt{-2x+1}}{3x+2}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3*sqrt(-2*x + 1)/(3*x + 2),x, algorithm="fricas")
```

```
[Out] 1/1701*sqrt(3)*(sqrt(3)*(6750*x^3 + 10035*x^2 + 2875*x - 4804)*sq
rt(-2*x + 1) + 7*sqrt(7)*log((sqrt(3)*(3*x - 5) - 3*sqrt(7)*sqrt(
-2*x + 1))/(3*x + 2)))
```

Sympy [A] time = 6.91899, size = 110, normalized size = 1.34

$$-\frac{125\left(-2x+1\right)^{\frac{7}{2}}}{84}+\frac{80\left(-2x+1\right)^{\frac{5}{2}}}{9}-\frac{5135\left(-2x+1\right)^{\frac{3}{2}}}{324}-\frac{2\sqrt{-2x+1}}{81}-\frac{14\left(\begin{cases}-\frac{\sqrt{21}\operatorname{acoth}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for}\: -2x+1>\frac{7}{3}\\-\frac{\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for}\: -2x+1<\frac{7}{3}\end{cases}\right)}{81}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3*(1-2*x)**(1/2)/(2+3*x),x)
```

```
[Out] -125*(-2*x + 1)**(7/2)/84 + 80*(-2*x + 1)**(5/2)/9 - 5135*(-2*x +
 1)**(3/2)/324 - 2*sqrt(-2*x + 1)/81 - 14*Piecewise((-sqrt(21)*ac
oth(sqrt(21)*sqrt(-2*x + 1)/7)/21, -2*x + 1 > 7/3), (-sqrt(21)*at
anh(sqrt(21)*sqrt(-2*x + 1)/7)/21, -2*x + 1 < 7/3))/81
```

GIAC/XCAS [A] time = 0.241305, size = 122, normalized size = 1.49

$$\frac{125}{84}\,(2\,x-1)^3\sqrt{-2\,x+1}+\frac{80}{9}\,(2\,x-1)^2\sqrt{-2\,x+1}-\frac{5135}{324}\,(-2\,x+1)^{\frac{3}{2}}-\frac{1}{243}\,\sqrt{21}\ln\left(\frac{\left|-2\,\sqrt{21}+6\,\sqrt{-2\,x+1}\right|}{2\,\left(\sqrt{21}+3\,\sqrt{-2\,x+1}\right)}\right)-\frac{2}{81}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*sqrt(-2*x + 1)/(3*x + 2),x, algorithm="giac")
```

```
[Out] 125/84*(2*x - 1)^3*sqrt(-2*x + 1) + 80/9*(2*x - 1)^2*sqrt(-2*x +
1) - 5135/324*(-2*x + 1)^(3/2) - 1/243*sqrt(21)*ln(1/2*abs(-2*sqr
t(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 2/81*s
qrt(-2*x + 1)
```

3.1804 $\int \frac{\sqrt{1-2x}(3+5x)^3}{(2+3x)^2}\,dx$

Optimal. Leaf size=93

$$-\frac{\sqrt{1-2x}(5x+3)^3}{3(3x+2)}+\frac{7}{9}\sqrt{1-2x}(5x+3)^2-\frac{2}{81}\sqrt{1-2x}(170x+211)-\frac{212\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{81\sqrt{21}}$$

```
[Out] (7*Sqrt[1 - 2*x]*(3 + 5*x)^2)/9 - (Sqrt[1 - 2*x]*(3 + 5*x)^3)/(3*
(2 + 3*x)) - (2*Sqrt[1 - 2*x]*(211 + 170*x))/81 - (212*ArcTanh[Sq
rt[3/7]*Sqrt[1 - 2*x]])/(81*Sqrt[21])
```

Rubi [A] time = 0.153111, antiderivative size = 93, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.208$

$$-\frac{\sqrt{1-2x}(5x+3)^3}{3(3x+2)}+\frac{7}{9}\sqrt{1-2x}(5x+3)^2-\frac{2}{81}\sqrt{1-2x}(170x+211)-\frac{212\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{81\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(3 + 5*x)^3)/(2 + 3*x)^2,x]
```

```
[Out] (7*Sqrt[1 - 2*x]*(3 + 5*x)^2)/9 - (Sqrt[1 - 2*x]*(3 + 5*x)^3)/(3*
(2 + 3*x)) - (2*Sqrt[1 - 2*x]*(211 + 170*x))/81 - (212*ArcTanh[Sq
rt[3/7]*Sqrt[1 - 2*x]])/(81*Sqrt[21])
```

Rubi in Sympy [A] time = 18.7327, size = 78, normalized size = 0.84

$$\frac{7\sqrt{-2x+1}\,(5x+3)^2}{9}-\frac{\sqrt{-2x+1}\,(5100x+6330)}{1215}-\frac{\sqrt{-2x+1}\,(5x+3)^3}{3\,(3x+2)}-\frac{212\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{1701}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**3*(1-2*x)**(1/2)/(2+3*x)**2,x)
```

```
[Out] 7*sqrt(-2*x + 1)*(5*x + 3)**2/9 - sqrt(-2*x + 1)*(5100*x + 6330)/
1215 - sqrt(-2*x + 1)*(5*x + 3)**3/(3*(3*x + 2)) - 212*sqrt(21)*a
tanh(sqrt(21)*sqrt(-2*x + 1)/7)/1701
```

Mathematica [A] time = 0.0990805, size = 63, normalized size = 0.68

$$\frac{\sqrt{1-2x}\left(1350x^3+1725x^2-110x-439\right)}{81(3x+2)}-\frac{212\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{81\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(3 + 5*x)^3)/(2 + 3*x)^2,x]
```

```
[Out] (Sqrt[1 - 2*x]*(-439 - 110*x + 1725*x^2 + 1350*x^3))/(81*(2 + 3*x
)) - (212*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(81*Sqrt[21])
```

Maple [A] time = 0.018, size = 63, normalized size = 0.7

$$\frac{25}{18}(1-2x)^{\frac{5}{2}}-\frac{725}{162}(1-2x)^{\frac{3}{2}}+\frac{10}{27}\sqrt{1-2x}-\frac{2}{243}\sqrt{1-2x}\left(-\frac{4}{3}-2x\right)^{-1}-\frac{212\sqrt{21}}{1701}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3*(1-2*x)^(1/2)/(2+3*x)^2,x)
```

```
[Out] 25/18*(1-2*x)^(5/2)-725/162*(1-2*x)^(3/2)+10/27*(1-2*x)^(1/2)-2/2
43*(1-2*x)^(1/2)/(-4/3-2*x)-212/1701*arctanh(1/7*21^(1/2)*(1-2*x)
^(1/2))*21^(1/2)
```

Maxima [A] time = 1.51705, size = 108, normalized size = 1.16

$$\frac{25}{18}(-2x+1)^{\frac{5}{2}}-\frac{725}{162}(-2x+1)^{\frac{3}{2}}+\frac{106}{1701}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{10}{27}\sqrt{-2x+1}+\frac{\sqrt{-2x+1}}{81(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*sqrt(-2*x + 1)/(3*x + 2)^2,x, algorithm="maxima")
```

```
[Out] 25/18*(-2*x + 1)^(5/2) - 725/162*(-2*x + 1)^(3/2) + 106/1701*sqrt
(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x +
 1))) + 10/27*sqrt(-2*x + 1) + 1/81*sqrt(-2*x + 1)/(3*x + 2)
```

Fricas [A] time = 0.212003, size = 100, normalized size = 1.08

$$\frac{\sqrt{21}\left(\sqrt{21}\left(1350x^3+1725x^2-110x-439\right)\sqrt{-2x+1}+106(3x+2)\log\left(\frac{\sqrt{21}(3x-5)+21\sqrt{-2x+1}}{3x+2}\right)\right)}{1701(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*sqrt(-2*x + 1)/(3*x + 2)^2,x, algorithm="fricas")
```

```
[Out] 1/1701*sqrt(21)*(sqrt(21)*(1350*x^3 + 1725*x^2 - 110*x - 439)*sqr
t(-2*x + 1) + 106*(3*x + 2)*log((sqrt(21)*(3*x - 5) + 21*sqrt(-2*
x + 1))/(3*x + 2)))/(3*x + 2)
```

Sympy [A] time = 62.2676, size = 199, normalized size = 2.14

$$\frac{25(-2x+1)^{\frac{5}{2}}}{18}-\frac{725(-2x+1)^{\frac{3}{2}}}{162}+\frac{10\sqrt{-2x+1}}{27}+\frac{28\left(\begin{cases}\frac{\sqrt{21}\left(-\frac{\log\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)}{4}+\frac{\log\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)}{4}-\frac{1}{4\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)}-\frac{1}{4\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)}\right)}{147} & \text{for}\ x\leq\frac{1}{2}\wedge x>-\frac{2}{3}\end{cases}\right)}{81}+\frac{214\left(\begin{cases}-\frac{\sqrt{21}\operatorname{acoth}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for}\ -2x+1>\frac{7}{3}\\-\frac{\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for}\ -2x+1<\frac{7}{3}\end{cases}\right)}{81}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3*(1-2*x)**(1/2)/(2+3*x)**2,x)
```

```
[Out] 25*(-2*x + 1)**(5/2)/18 - 725*(-2*x + 1)**(3/2)/162 + 10*sqrt(-2*
x + 1)/27 + 28*Piecewise((sqrt(21)*(-log(sqrt(21)*sqrt(-2*x + 1)/
7 - 1)/4 + log(sqrt(21)*sqrt(-2*x + 1)/7 + 1)/4 - 1/(4*(sqrt(21)*
sqrt(-2*x + 1)/7 + 1)) - 1/(4*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)))/1
47, (x <= 1/2) & (x > -2/3)))/81 + 214*Piecewise((-sqrt(21)*acoth
(sqrt(21)*sqrt(-2*x + 1)/7)/21, -2*x + 1 > 7/3), (-sqrt(21)*atanh
(sqrt(21)*sqrt(-2*x + 1)/7)/21, -2*x + 1 < 7/3))/81
```

GIAC/XCAS [A] time = 0.21801, size = 122, normalized size = 1.31

$$\frac{25}{18}\,(2\,x-1)^2\sqrt{-2\,x+1}-\frac{725}{162}\,(-2\,x+1)^{\frac{3}{2}}+\frac{106}{1701}\,\sqrt{21}\ln\left(\frac{\left|-2\,\sqrt{21}+6\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{21}+3\,\sqrt{-2\,x+1}\right)}\right)+\frac{10}{27}\,\sqrt{-2\,x+1}+\frac{\sqrt{-2\,x+1}}{81\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3*sqrt(-2*x + 1)/(3*x + 2)^2,x, algorithm="giac")
```

```
[Out] 25/18*(2*x - 1)^2*sqrt(-2*x + 1) - 725/162*(-2*x + 1)^(3/2) + 106
/1701*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqrt(2
1) + 3*sqrt(-2*x + 1))) + 10/27*sqrt(-2*x + 1) + 1/81*sqrt(-2*x +
 1)/(3*x + 2)
```

3.1805 $\int \frac{\sqrt{1-2x}(3+5x)^3}{(2+3x)^3} \, dx$

Optimal. Leaf size=100

$$-\frac{\sqrt{1-2x}(5x+3)^3}{6(3x+2)^2}-\frac{53\sqrt{1-2x}(5x+3)^2}{63(3x+2)}+\frac{5\sqrt{1-2x}(2815x+323)}{1134}+\frac{7559\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{567\sqrt{21}}$$

```
[Out] (-53*Sqrt[1 - 2*x]*(3 + 5*x)^2)/(63*(2 + 3*x)) - (Sqrt[1 - 2*x]*(
3 + 5*x)^3)/(6*(2 + 3*x)^2) + (5*Sqrt[1 - 2*x]*(323 + 2815*x))/11
34 + (7559*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(567*Sqrt[21])
```

Rubi [A] time = 0.156679, antiderivative size = 100, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.208$

$$-\frac{\sqrt{1-2x}(5x+3)^3}{6(3x+2)^2}-\frac{53\sqrt{1-2x}(5x+3)^2}{63(3x+2)}+\frac{5\sqrt{1-2x}(2815x+323)}{1134}+\frac{7559\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{567\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(3 + 5*x)^3)/(2 + 3*x)^3,x]
```

```
[Out] (-53*Sqrt[1 - 2*x]*(3 + 5*x)^2)/(63*(2 + 3*x)) - (Sqrt[1 - 2*x]*(
3 + 5*x)^3)/(6*(2 + 3*x)^2) + (5*Sqrt[1 - 2*x]*(323 + 2815*x))/11
34 + (7559*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(567*Sqrt[21])
```

Rubi in Sympy [A] time = 19.0319, size = 85, normalized size = 0.85

$$\frac{\sqrt{-2x+1}\,(42225x+4845)}{3402}-\frac{53\sqrt{-2x+1}\,(5x+3)^2}{63\,(3x+2)}-\frac{\sqrt{-2x+1}\,(5x+3)^3}{6\,(3x+2)^2}+\frac{7559\sqrt{21}\,\text{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{11907}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**3*(1-2*x)**(1/2)/(2+3*x)**3,x)
```

```
[Out] sqrt(-2*x + 1)*(42225*x + 4845)/3402 - 53*sqrt(-2*x + 1)*(5*x + 3
)**2/(63*(3*x + 2)) - sqrt(-2*x + 1)*(5*x + 3)**3/(6*(3*x + 2)**2
) + 7559*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/11907
```

Mathematica [A] time = 0.112363, size = 63, normalized size = 0.63

$$\frac{\sqrt{1-2x}\left(31500x^3+7350x^2-32833x-15815\right)}{1134(3x+2)^2}+\frac{7559\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{567\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(3 + 5*x)^3)/(2 + 3*x)^3,x]
```

```
[Out] (Sqrt[1 - 2*x]*(-15815 - 32833*x + 7350*x^2 + 31500*x^3))/(1134*(
2 + 3*x)^2) + (7559*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(567*Sqrt[2
1])
```

Maple [A] time = 0.017, size = 66, normalized size = 0.7

$$-\frac{125}{81}(1-2x)^{\frac{3}{2}}-\frac{50}{27}\sqrt{1-2x}-\frac{2}{3(-4-6x)^{2}}\left(-\frac{211}{126}(1-2x)^{\frac{3}{2}}+\frac{209}{54}\sqrt{1-2x}\right)+\frac{7559\sqrt{21}}{11907}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3*(1-2*x)^(1/2)/(2+3*x)^3,x)
```

```
[Out] -125/81*(1-2*x)^(3/2)-50/27*(1-2*x)^(1/2)-2/3*(-211/126*(1-2*x)^(
3/2)+209/54*(1-2*x)^(1/2))/(-4-6*x)^2+7559/11907*arctanh(1/7*21^(
1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.49204, size = 124, normalized size = 1.24

$$-\frac{125}{81}(-2x+1)^{\frac{3}{2}}-\frac{7559}{23814}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{50}{27}\sqrt{-2x+1}+\frac{633(-2x+1)^{\frac{3}{2}}-1463\sqrt{-2x+1}}{567\left(9(2x-1)^{2}+84x+7\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*sqrt(-2*x + 1)/(3*x + 2)^3,x, algorithm="maxima")
```

```
[Out] -125/81*(-2*x + 1)^(3/2) - 7559/23814*sqrt(21)*log(-(sqrt(21) - 3
*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 50/27*sqrt(-2*x
 + 1) + 1/567*(633*(-2*x + 1)^(3/2) - 1463*sqrt(-2*x + 1))/(9*(2*
x - 1)^2 + 84*x + 7)
```

Fricas [A] time = 0.212737, size = 113, normalized size = 1.13

$$\frac{\sqrt{21}\left(\sqrt{21}\left(31500x^{3}+7350x^{2}-32833x-15815\right)\sqrt{-2x+1}+7559\left(9x^{2}+12x+4\right)\log\left(\frac{\sqrt{21}(3x-5)-21\sqrt{-2x+1}}{3x+2}\right)\right)}{23814\left(9x^{2}+12x+4\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*sqrt(-2*x + 1)/(3*x + 2)^3,x, algorithm="fricas")
```

```
[Out] 1/23814*sqrt(21)*(sqrt(21)*(31500*x^3 + 7350*x^2 - 32833*x - 1581
5)*sqrt(-2*x + 1) + 7559*(9*x^2 + 12*x + 4)*log((sqrt(21)*(3*x -
5) - 21*sqrt(-2*x + 1))/(3*x + 2)))/(9*x^2 + 12*x + 4)
```

Sympy [A] time = 152.759, size = 337, normalized size = 3.37

$$-\frac{125(-2x+1)^{\frac{3}{2}}}{81}-\frac{50\sqrt{-2x+1}}{27}-\frac{428\left(\begin{cases}\frac{\sqrt{21}\left(-\frac{\log\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)}{4}+\frac{\log\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)}{4}-\frac{1}{4\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)}-\frac{1}{4\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)}\right)}{147} & \text{for } x\le\frac{1}{2}\wedge x>-\frac{2}{3}\end{cases}\right)}{81}-\frac{56\left(\begin{cases}\frac{\sqrt{21}\left(\frac{3\log\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)}{16}-\frac{3\log\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)}{16}+\frac{3}{16\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)}+\frac{1}{16\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)^2}+\frac{3}{16\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)}-\frac{1}{16\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)^2}\right)}{1029} & \text{for } x\le\frac{1}{2}\wedge x>-\frac{2}{3}\end{cases}\right)}{81}-\frac{370\left(\begin{cases}-\frac{\sqrt{21}\operatorname{acoth}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for } -2x+1>\frac{7}{3}\\ -\frac{\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for } -2x+1<\frac{7}{3}\end{cases}\right)}{27}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3*(1-2*x)**(1/2)/(2+3*x)**3,x)
```

```
[Out] -125*(-2*x + 1)**(3/2)/81 - 50*sqrt(-2*x + 1)/27 - 428*Piecewise(
(sqrt(21)*(-log(sqrt(21)*sqrt(-2*x + 1)/7 - 1)/4 + log(sqrt(21)*s
qrt(-2*x + 1)/7 + 1)/4 - 1/(4*(sqrt(21)*sqrt(-2*x + 1)/7 + 1)) -
1/(4*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)))/147, (x <= 1/2) & (x > -2/
3)))/81 - 56*Piecewise((sqrt(21)*(3*log(sqrt(21)*sqrt(-2*x + 1)/7
 - 1)/16 - 3*log(sqrt(21)*sqrt(-2*x + 1)/7 + 1)/16 + 3/(16*(sqrt(
21)*sqrt(-2*x + 1)/7 + 1)) + 1/(16*(sqrt(21)*sqrt(-2*x + 1)/7 + 1
)**2) + 3/(16*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)) - 1/(16*(sqrt(21)*
sqrt(-2*x + 1)/7 - 1)**2))/1029, (x <= 1/2) & (x > -2/3)))/81 - 3
70*Piecewise((-sqrt(21)*acoth(sqrt(21)*sqrt(-2*x + 1)/7)/21, -2*x
 + 1 > 7/3), (-sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/21, -2*x
 + 1 < 7/3))/27
```

GIAC/XCAS [A] time = 0.21487, size = 116, normalized size = 1.16

$$-\frac{125}{81}(-2x+1)^{\frac{3}{2}}-\frac{7559}{23814}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{50}{27}\sqrt{-2x+1}+\frac{633(-2x+1)^{\frac{3}{2}}-1463\sqrt{-2x+1}}{2268(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*sqrt(-2*x + 1)/(3*x + 2)^3,x, algorithm="giac")
```

```
[Out] -125/81*(-2*x + 1)^(3/2) - 7559/23814*sqrt(21)*ln(1/2*abs(-2*sqrt
(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 50/27*s
qrt(-2*x + 1) + 1/2268*(633*(-2*x + 1)^(3/2) - 1463*sqrt(-2*x + 1
))/(3*x + 2)^2
```

3.1806 $\int \frac{\sqrt{1-2x}(3+5x)^3}{(2+3x)^4} dx$

Optimal. Leaf size=107

$$-\frac{\sqrt{1-2x}(5x+3)^3}{9(3x+2)^3}-\frac{53\sqrt{1-2x}(5x+3)^2}{189(3x+2)^2}+\frac{2\sqrt{1-2x}(26075x+18016)}{3969(3x+2)}-\frac{92996\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{3969\sqrt{21}}$$

```
[Out] (-53*Sqrt[1 - 2*x]*(3 + 5*x)^2)/(189*(2 + 3*x)^2) - (Sqrt[1 - 2*x
]*(3 + 5*x)^3)/(9*(2 + 3*x)^3) + (2*Sqrt[1 - 2*x]*(18016 + 26075*
x))/(3969*(2 + 3*x)) - (92996*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(
3969*Sqrt[21])
```

Rubi [A] time = 0.158251, antiderivative size = 107, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$-\frac{\sqrt{1-2x}(5x+3)^3}{9(3x+2)^3}-\frac{53\sqrt{1-2x}(5x+3)^2}{189(3x+2)^2}+\frac{2\sqrt{1-2x}(26075x+18016)}{3969(3x+2)}-\frac{92996\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{3969\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(3 + 5*x)^3)/(2 + 3*x)^4,x]
```

```
[Out] (-53*Sqrt[1 - 2*x]*(3 + 5*x)^2)/(189*(2 + 3*x)^2) - (Sqrt[1 - 2*x
]*(3 + 5*x)^3)/(9*(2 + 3*x)^3) + (2*Sqrt[1 - 2*x]*(18016 + 26075*
x))/(3969*(2 + 3*x)) - (92996*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(
3969*Sqrt[21])
```

Rubi in Sympy [A] time = 18.8735, size = 92, normalized size = 0.86

$$\frac{\sqrt{-2x+1}\,(312900x+216192)}{23814\,(3x+2)}-\frac{53\sqrt{-2x+1}\,(5x+3)^2}{189\,(3x+2)^2}-\frac{\sqrt{-2x+1}\,(5x+3)^3}{9\,(3x+2)^3}-\frac{92996\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{83349}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**3*(1-2*x)**(1/2)/(2+3*x)**4,x)
```

```
[Out] sqrt(-2*x + 1)*(312900*x + 216192)/(23814*(3*x + 2)) - 53*sqrt(-2
*x + 1)*(5*x + 3)**2/(189*(3*x + 2)**2) - sqrt(-2*x + 1)*(5*x + 3
)**3/(9*(3*x + 2)**3) - 92996*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x +
 1)/7)/83349
```

Mathematica [A] time = 0.105961, size = 63, normalized size = 0.59

$$\frac{\frac{21\sqrt{1-2x}(330750x^3+695043x^2+484618x+112187)}{(3x+2)^3}-92996\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{83349}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(3 + 5*x)^3)/(2 + 3*x)^4,x]
```

```
[Out] ((21*Sqrt[1 - 2*x]*(112187 + 484618*x + 695043*x^2 + 330750*x^3))
/(2 + 3*x)^3 - 92996*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/8
```

3349

Maple [A] time = 0.017, size = 66, normalized size = 0.6

$$\frac{250}{81}\sqrt{1-2x}+\frac{2}{3\left(-4-6x\right)^{3}}\left(-\frac{3727}{147}\left(1-2x\right)^{\frac{5}{2}}+\frac{22046}{189}\left(1-2x\right)^{\frac{3}{2}}-\frac{3623}{27}\sqrt{1-2x}\right)-\frac{92996\sqrt{21}}{83349}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3*(1-2*x)^(1/2)/(2+3*x)^4,x)
```

```
[Out] 250/81*(1-2*x)^(1/2)+2/3*(-3727/147*(1-2*x)^(5/2)+22046/189*(1-2*
x)^(3/2)-3623/27*(1-2*x)^(1/2))/(-4-6*x)^3-92996/83349*arctanh(1/
7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.51276, size = 136, normalized size = 1.27

$$\frac{46498}{83349}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{250}{81}\sqrt{-2x+1}+\frac{2\left(33543\left(-2x+1\right)^{\frac{5}{2}}-154322\left(-2x+1\right)^{\frac{3}{2}}+177527\sqrt{-2x+1}\right)}{3969\left(27\left(2x-1\right)^{3}+189\left(2x-1\right)^{2}+882x-98\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*sqrt(-2*x + 1)/(3*x + 2)^4,x, algorithm="maxima")
```

```
[Out] 46498/83349*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21)
 + 3*sqrt(-2*x + 1))) + 250/81*sqrt(-2*x + 1) + 2/3969*(33543*(-2
*x + 1)^(5/2) - 154322*(-2*x + 1)^(3/2) + 177527*sqrt(-2*x + 1))/
(27*(2*x - 1)^3 + 189*(2*x - 1)^2 + 882*x - 98)
```

Fricas [A] time = 0.21254, size = 127, normalized size = 1.19

$$\frac{\sqrt{21}\left(\sqrt{21}\left(330750\,x^{3}+695043\,x^{2}+484618\,x+112187\right)\sqrt{-2x+1}+46498\left(27\,x^{3}+54\,x^{2}+36\,x+8\right)\log\left(\frac{\sqrt{21}(3x-5)+21\sqrt{-2x+1}}{3x+2}\right)\right)}{83349\left(27\,x^{3}+54\,x^{2}+36\,x+8\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*sqrt(-2*x + 1)/(3*x + 2)^4,x, algorithm="fricas")
```

```
[Out] 1/83349*sqrt(21)*(sqrt(21)*(330750*x^3 + 695043*x^2 + 484618*x +
112187)*sqrt(-2*x + 1) + 46498*(27*x^3 + 54*x^2 + 36*x + 8)*log((
sqrt(21)*(3*x - 5) + 21*sqrt(-2*x + 1))/(3*x + 2)))/(27*x^3 + 54*
x^2 + 36*x + 8)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3*(1-2*x)**(1/2)/(2+3*x)**4,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.217749, size = 126, normalized size = 1.18

$$\frac{46498}{83349}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{250}{81}\sqrt{-2x+1}$$
$$+\frac{33543\,(2x-1)^2\sqrt{-2x+1}-154322\,(-2x+1)^{\frac{3}{2}}+177527\sqrt{-2x+1}}{15876\,(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*sqrt(-2*x + 1)/(3*x + 2)^4,x, algorithm="giac")
```

```
[Out] 46498/83349*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(
sqrt(21) + 3*sqrt(-2*x + 1))) + 250/81*sqrt(-2*x + 1) + 1/15876*(
33543*(2*x - 1)^2*sqrt(-2*x + 1) - 154322*(-2*x + 1)^(3/2) + 1775
27*sqrt(-2*x + 1))/(3*x + 2)^3
```

3.1807 $\int \frac{\sqrt{1-2x}(3+5x)^3}{(2+3x)^5} dx$

Optimal. Leaf size=107

$$-\frac{\sqrt{1-2x}(5x+3)^3}{12(3x+2)^4}-\frac{53\sqrt{1-2x}(5x+3)^2}{378(3x+2)^3}-\frac{5\sqrt{1-2x}(110981x+70429)}{222264(3x+2)^2}+\frac{328715\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{111132\sqrt{21}}$$

```
[Out] (-53*Sqrt[1 - 2*x]*(3 + 5*x)^2)/(378*(2 + 3*x)^3) - (Sqrt[1 - 2*x
]*(3 + 5*x)^3)/(12*(2 + 3*x)^4) - (5*Sqrt[1 - 2*x]*(70429 + 11098
1*x))/(222264*(2 + 3*x)^2) + (328715*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2
*x]])/(111132*Sqrt[21])
```

Rubi [A] time = 0.158053, antiderivative size = 107, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.208$

$$-\frac{\sqrt{1-2x}(5x+3)^3}{12(3x+2)^4}-\frac{53\sqrt{1-2x}(5x+3)^2}{378(3x+2)^3}-\frac{5\sqrt{1-2x}(110981x+70429)}{222264(3x+2)^2}+\frac{328715\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{111132\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(3 + 5*x)^3)/(2 + 3*x)^5,x]
```

```
[Out] (-53*Sqrt[1 - 2*x]*(3 + 5*x)^2)/(378*(2 + 3*x)^3) - (Sqrt[1 - 2*x
]*(3 + 5*x)^3)/(12*(2 + 3*x)^4) - (5*Sqrt[1 - 2*x]*(70429 + 11098
1*x))/(222264*(2 + 3*x)^2) + (328715*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2
*x]])/(111132*Sqrt[21])
```

Rubi in Sympy [A] time = 18.7503, size = 95, normalized size = 0.89

$$-\frac{\sqrt{-2x+1}\,(1664715x+1056435)}{666792\,(3x+2)^2}-\frac{53\sqrt{-2x+1}\,(5x+3)^2}{378\,(3x+2)^3}-\frac{\sqrt{-2x+1}\,(5x+3)^3}{12\,(3x+2)^4}+\frac{328715\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{2333772}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**3*(1-2*x)**(1/2)/(2+3*x)**5,x)
```

```
[Out] -sqrt(-2*x + 1)*(1664715*x + 1056435)/(666792*(3*x + 2)**2) - 53*
sqrt(-2*x + 1)*(5*x + 3)**2/(378*(3*x + 2)**3) - sqrt(-2*x + 1)*(
5*x + 3)**3/(12*(3*x + 2)**4) + 328715*sqrt(21)*atanh(sqrt(21)*sq
rt(-2*x + 1)/7)/2333772
```

Mathematica [A] time = 0.123023, size = 63, normalized size = 0.59

$$\frac{657430\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{21\sqrt{1-2x}\left(9646695x^3+18358575x^2+11657098x+2469626\right)}{(3x+2)^4}}{4667544}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(3 + 5*x)^3)/(2 + 3*x)^5,x]
```

```
[Out] ((-21*Sqrt[1 - 2*x]*(2469626 + 11657098*x + 18358575*x^2 + 964669
5*x^3))/(2 + 3*x)^4 + 657430*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 -
2*x]])/4667544
```

Maple [A] time = 0.016, size = 66, normalized size = 0.6

$$-324\,\frac{1}{\left(-4-6\,x\right)^{4}}\left(-\frac{119095\,\left(1-2\,x\right)^{7/2}}{444528}+\frac{3126535\,\left(1-2\,x\right)^{5/2}}{1714608}-\frac{3040873\,\left(1-2\,x\right)^{3/2}}{734832}+\frac{328715\,\sqrt{1-2\,x}}{104976}\right)+\frac{328715\,\sqrt{21}}{2333772}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3*(1-2*x)^(1/2)/(2+3*x)^5,x)
```

```
[Out] -324*(-119095/444528*(1-2*x)^(7/2)+3126535/1714608*(1-2*x)^(5/2)-
3040873/734832*(1-2*x)^(3/2)+328715/104976*(1-2*x)^(1/2))/(-4-6*x
)^4+328715/2333772*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.51911, size = 149, normalized size = 1.39

$$-\frac{328715}{4667544}\,\sqrt{21}\log\left(-\frac{\sqrt{21}-3\,\sqrt{-2\,x+1}}{\sqrt{21}+3\,\sqrt{-2\,x+1}}\right)+\frac{9646695\,(-2\,x+1)^{\frac{7}{2}}-65657235\,(-2\,x+1)^{\frac{5}{2}}+149002777\,(-2\,x+1)^{\frac{3}{2}}-112749245\,\sqrt{-2\,x+1}}{111132\,\left(81\,(2\,x-1)^{4}+756\,(2\,x-1)^{3}+2646\,(2\,x-1)^{2}+8232\,x-1715\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*sqrt(-2*x + 1)/(3*x + 2)^5,x, algorithm="maxima")
```

```
[Out] -328715/4667544*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt
(21) + 3*sqrt(-2*x + 1))) + 1/111132*(9646695*(-2*x + 1)^(7/2) -
65657235*(-2*x + 1)^(5/2) + 149002777*(-2*x + 1)^(3/2) - 11274924
5*sqrt(-2*x + 1))/(81*(2*x - 1)^4 + 756*(2*x - 1)^3 + 2646*(2*x -
 1)^2 + 8232*x - 1715)
```

Fricas [A] time = 0.211019, size = 140, normalized size = 1.31

$$-\frac{\sqrt{21}\left(\sqrt{21}\left(9646695\,x^{3}+18358575\,x^{2}+11657098\,x+2469626\right)\sqrt{-2\,x+1}-328715\,\left(81\,x^{4}+216\,x^{3}+216\,x^{2}+96\,x+16\right)\,\mathrm{l}\right.}{4667544\,(81\,x^{4}+216\,x^{3}+216\,x^{2}+96\,x+16)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*sqrt(-2*x + 1)/(3*x + 2)^5,x, algorithm="fricas")
```

```
[Out] -1/4667544*sqrt(21)*(sqrt(21)*(9646695*x^3 + 18358575*x^2 + 11657
098*x + 2469626)*sqrt(-2*x + 1) - 328715*(81*x^4 + 216*x^3 + 216*
x^2 + 96*x + 16)*log((sqrt(21)*(3*x - 5) - 21*sqrt(-2*x + 1))/(3*
x + 2)))/(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3*(1-2*x)**(1/2)/(2+3*x)**5,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.226706, size = 135, normalized size = 1.26

$$-\frac{328715}{4667544}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{9646695(2x-1)^3\sqrt{-2x+1}+65657235(2x-1)^2\sqrt{-2x+1}-149002777(-2x+1)^{\frac{3}{2}}+112749245\sqrt{-2x+1}}{1778112(3x+2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*sqrt(-2*x + 1)/(3*x + 2)^5,x, algorithm="giac")
```

```
[Out] -328715/4667544*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1
))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 1/1778112*(9646695*(2*x - 1)^
3*sqrt(-2*x + 1) + 65657235*(2*x - 1)^2*sqrt(-2*x + 1) - 14900277
7*(-2*x + 1)^(3/2) + 112749245*sqrt(-2*x + 1))/(3*x + 2)^4
```

3.1808 $\int \frac{\sqrt{1-2x}(3+5x)^3}{(2+3x)^6} dx$

Optimal. Leaf size=127

$$-\frac{\sqrt{1-2x}(5x+3)^3}{15(3x+2)^5}-\frac{53\sqrt{1-2x}(5x+3)^2}{630(3x+2)^4}-\frac{\sqrt{1-2x}(59665x+37224)}{79380(3x+2)^3}+\frac{11237\sqrt{1-2x}}{111132(3x+2)}+\frac{11237\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{55566\sqrt{21}}$$

```
[Out] (11237*Sqrt[1 - 2*x])/(111132*(2 + 3*x)) - (53*Sqrt[1 - 2*x]*(3 +
 5*x)^2)/(630*(2 + 3*x)^4) - (Sqrt[1 - 2*x]*(3 + 5*x)^3)/(15*(2 +
 3*x)^5) - (Sqrt[1 - 2*x]*(37224 + 59665*x))/(79380*(2 + 3*x)^3)
+ (11237*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(55566*Sqrt[21])
```

Rubi [A] time = 0.179008, antiderivative size = 127, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$-\frac{\sqrt{1-2x}(5x+3)^3}{15(3x+2)^5}-\frac{53\sqrt{1-2x}(5x+3)^2}{630(3x+2)^4}-\frac{\sqrt{1-2x}(59665x+37224)}{79380(3x+2)^3}+\frac{11237\sqrt{1-2x}}{111132(3x+2)}+\frac{11237\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{55566\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(3 + 5*x)^3)/(2 + 3*x)^6,x]
```

```
[Out] (11237*Sqrt[1 - 2*x])/(111132*(2 + 3*x)) - (53*Sqrt[1 - 2*x]*(3 +
 5*x)^2)/(630*(2 + 3*x)^4) - (Sqrt[1 - 2*x]*(3 + 5*x)^3)/(15*(2 +
 3*x)^5) - (Sqrt[1 - 2*x]*(37224 + 59665*x))/(79380*(2 + 3*x)^3)
+ (11237*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(55566*Sqrt[21])
```

Rubi in Sympy [A] time = 20.8472, size = 110, normalized size = 0.87

$$\frac{11237\sqrt{-2x+1}}{111132\,(3x+2)}-\frac{\sqrt{-2x+1}\,(2505930x+1563408)}{3333960\,(3x+2)^3}-\frac{53\sqrt{-2x+1}\,(5x+3)^2}{630\,(3x+2)^4}-\frac{\sqrt{-2x+1}\,(5x+3)^3}{15\,(3x+2)^5}+\frac{11237\sqrt{21}\,\mathrm{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{1166886}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**3*(1-2*x)**(1/2)/(2+3*x)**6,x)
```

```
[Out] 11237*sqrt(-2*x + 1)/(111132*(3*x + 2)) - sqrt(-2*x + 1)*(2505930
*x + 1563408)/(3333960*(3*x + 2)**3) - 53*sqrt(-2*x + 1)*(5*x + 3
)**2/(630*(3*x + 2)**4) - sqrt(-2*x + 1)*(5*x + 3)**3/(15*(3*x +
2)**5) + 11237*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/1166886
```

Mathematica [A] time = 0.116667, size = 68, normalized size = 0.54

$$\frac{\frac{21\sqrt{1-2x}(4550985x^4+240615x^3-10100352x^2-8471518x-1984928)}{(3x+2)^5}+112370\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{11668860}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(3 + 5*x)^3)/(2 + 3*x)^6,x]
```

```
[Out] ((21*Sqrt[1 - 2*x]*(-1984928 - 8471518*x - 10100352*x^2 + 240615*
x^3 + 4550985*x^4))/(2 + 3*x)^5 + 112370*Sqrt[21]*ArcTanh[Sqrt[3/
7]*Sqrt[1 - 2*x]])/11668860
```

Maple [A] time = 0.017, size = 75, normalized size = 0.6

$$1944\,\frac{1}{(-4-6\,x)^5}\left(-\frac{11237\,(1-2\,x)^{9/2}}{1333584}+\frac{4237\,(1-2\,x)^{7/2}}{122472}+\frac{4954\,(1-2\,x)^{5/2}}{229635}-\frac{263117\,(1-2\,x)^{3/2}}{1102248}+\frac{78659\,\sqrt{1-2\,x}}{314928}\right)+\frac{11237\,\sqrt{21}}{1166886}\,Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3*(1-2*x)^(1/2)/(2+3*x)^6,x)
```

```
[Out] 1944*(-11237/1333584*(1-2*x)^(9/2)+4237/122472*(1-2*x)^(7/2)+4954
/229635*(1-2*x)^(5/2)-263117/1102248*(1-2*x)^(3/2)+78659/314928*(
1-2*x)^(1/2))/(-4-6*x)^5+11237/1166886*arctanh(1/7*21^(1/2)*(1-2*
x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.52382, size = 173, normalized size = 1.36

$$-\frac{11237}{2333772}\,\sqrt{21}\log\left(-\frac{\sqrt{21}-3\,\sqrt{-2\,x+1}}{\sqrt{21}+3\,\sqrt{-2\,x+1}}\right)+\frac{4550985\,(-2\,x+1)^{\frac{9}{2}}-18685170\,(-2\,x+1)^{\frac{7}{2}}-11651808\,(-2\,x+1)^{\frac{5}{2}}+128927330\,(-2\,x+1)^{\frac{3}{2}}-134900185\,\sqrt{-2\,x+1}}{277830\,\left(243\,(2\,x-1)^5+2835\,(2\,x-1)^4+13230\,(2\,x-1)^3+30870\,(2\,x-1)^2+72030\,x-19208\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*sqrt(-2*x + 1)/(3*x + 2)^6,x, algorithm="maxima")
```

```
[Out] -11237/2333772*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(
21) + 3*sqrt(-2*x + 1))) + 1/277830*(4550985*(-2*x + 1)^(9/2) - 1
8685170*(-2*x + 1)^(7/2) - 11651808*(-2*x + 1)^(5/2) + 128927330*
(-2*x + 1)^(3/2) - 134900185*sqrt(-2*x + 1))/(243*(2*x - 1)^5 + 2
835*(2*x - 1)^4 + 13230*(2*x - 1)^3 + 30870*(2*x - 1)^2 + 72030*x
 - 19208)
```

Fricas [A] time = 0.210595, size = 161, normalized size = 1.27

$$\frac{\sqrt{21}\left(\sqrt{21}\left(4550985\,x^4+240615\,x^3-10100352\,x^2-8471518\,x-1984928\right)\sqrt{-2\,x+1}+56185\,\left(243\,x^5+810\,x^4+1080\,x^3+\right.\right.}{11668860\,(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240\,x+32)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*sqrt(-2*x + 1)/(3*x + 2)^6,x, algorithm="fricas")
```

```
[Out] 1/11668860*sqrt(21)*(sqrt(21)*(4550985*x^4 + 240615*x^3 - 1010035
2*x^2 - 8471518*x - 1984928)*sqrt(-2*x + 1) + 56185*(243*x^5 + 81
0*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)*log((sqrt(21)*(3*x - 5)
- 21*sqrt(-2*x + 1))/(3*x + 2)))/(243*x^5 + 810*x^4 + 1080*x^3 +
720*x^2 + 240*x + 32)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3*(1-2*x)**(1/2)/(2+3*x)**6,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.236427, size = 157, normalized size = 1.24

$$-\frac{11237}{2333772}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{4550985\,(2x-1)^4\sqrt{-2x+1}+18685170\,(2x-1)^3\sqrt{-2x+1}-11651808\,(2x-1)^2\sqrt{-2x+1}+128927330\,(-2x+1)^{\frac{3}{2}}-1}{8890560\,(3x+2)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*sqrt(-2*x + 1)/(3*x + 2)^6,x, algorithm="giac")
```

```
[Out] -11237/2333772*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1)
)/(sqrt(21) + 3*sqrt(-2*x + 1))) + 1/8890560*(4550985*(2*x - 1)^4
*sqrt(-2*x + 1) + 18685170*(2*x - 1)^3*sqrt(-2*x + 1) - 11651808*
(2*x - 1)^2*sqrt(-2*x + 1) + 128927330*(-2*x + 1)^(3/2) - 1349001
85*sqrt(-2*x + 1))/(3*x + 2)^5
```

3.1809 $\int \frac{\sqrt{1-2x}(3+5x)^3}{(2+3x)^7}\,dx$

Optimal. Leaf size=147

$$-\frac{\sqrt{1-2x}(5x+3)^3}{18(3x+2)^6}-\frac{53\sqrt{1-2x}(5x+3)^2}{945(3x+2)^5}-\frac{\sqrt{1-2x}(160029x+98995)}{476280(3x+2)^4}+\frac{43957\sqrt{1-2x}}{3111696(3x+2)}+\frac{43957\sqrt{1-2x}}{1333584(3x+2)^2}+\frac{43957\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{1555848\sqrt{21}}$$

```
[Out] (43957*Sqrt[1 - 2*x])/(1333584*(2 + 3*x)^2) + (43957*Sqrt[1 - 2*x
])/(3111696*(2 + 3*x)) - (53*Sqrt[1 - 2*x]*(3 + 5*x)^2)/(945*(2 +
 3*x)^5) - (Sqrt[1 - 2*x]*(3 + 5*x)^3)/(18*(2 + 3*x)^6) - (Sqrt[1
 - 2*x]*(98995 + 160029*x))/(476280*(2 + 3*x)^4) + (43957*ArcTanh
[Sqrt[3/7]*Sqrt[1 - 2*x]])/(1555848*Sqrt[21])
```

Rubi [A] time = 0.20289, antiderivative size = 147, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$-\frac{\sqrt{1-2x}(5x+3)^3}{18(3x+2)^6}-\frac{53\sqrt{1-2x}(5x+3)^2}{945(3x+2)^5}-\frac{\sqrt{1-2x}(160029x+98995)}{476280(3x+2)^4}+\frac{43957\sqrt{1-2x}}{3111696(3x+2)}+\frac{43957\sqrt{1-2x}}{1333584(3x+2)^2}+\frac{43957\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{1555848\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(3 + 5*x)^3)/(2 + 3*x)^7,x]
```

```
[Out] (43957*Sqrt[1 - 2*x])/(1333584*(2 + 3*x)^2) + (43957*Sqrt[1 - 2*x
])/(3111696*(2 + 3*x)) - (53*Sqrt[1 - 2*x]*(3 + 5*x)^2)/(945*(2 +
 3*x)^5) - (Sqrt[1 - 2*x]*(3 + 5*x)^3)/(18*(2 + 3*x)^6) - (Sqrt[1
 - 2*x]*(98995 + 160029*x))/(476280*(2 + 3*x)^4) + (43957*ArcTanh
[Sqrt[3/7]*Sqrt[1 - 2*x]])/(1555848*Sqrt[21])
```

Rubi in Sympy [A] time = 23.1395, size = 129, normalized size = 0.88

$$\frac{43957\sqrt{-2x+1}}{3111696\,(3x+2)}+\frac{43957\sqrt{-2x+1}}{1333584\,(3x+2)^2}-\frac{\sqrt{-2x+1}\,(3360609x+2078895)}{10001880\,(3x+2)^4}-\frac{53\sqrt{-2x+1}\,(5x+3)^2}{945\,(3x+2)^5}-\frac{\sqrt{-2x+1}\,(5x+3)^3}{18\,(3x+2)^6}+\frac{43957\sqrt{21}\,\mathrm{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{32672808}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**3*(1-2*x)**(1/2)/(2+3*x)**7,x)
```

```
[Out] 43957*sqrt(-2*x + 1)/(3111696*(3*x + 2)) + 43957*sqrt(-2*x + 1)/(
1333584*(3*x + 2)**2) - sqrt(-2*x + 1)*(3360609*x + 2078895)/(100
01880*(3*x + 2)**4) - 53*sqrt(-2*x + 1)*(5*x + 3)**2/(945*(3*x +
2)**5) - sqrt(-2*x + 1)*(5*x + 3)**3/(18*(3*x + 2)**6) + 43957*sq
rt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/32672808
```

Mathematica [A] time = 0.123963, size = 73, normalized size = 0.5

$$\frac{\frac{21\sqrt{1-2x}\left(53407755x^5+219565215x^4+127601514x^3-139462938x^2-150340360x-36741296\right)}{(3x+2)^6}+439570\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{326728080}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(3 + 5*x)^3)/(2 + 3*x)^7,x]
```

```
[Out] ((21*Sqrt[1 - 2*x]*(-36741296 - 150340360*x - 139462938*x^2 + 127
601514*x^3 + 219565215*x^4 + 53407755*x^5))/(2 + 3*x)^6 + 439570*
Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/326728080
```

Maple [A] time = 0.018, size = 84, normalized size = 0.6

$$-11664\,\frac{1}{(-4-6\,x)^{6}}\left(\frac{43957\,(1-2\,x)^{11/2}}{74680704}-\frac{747269\,(1-2\,x)^{9/2}}{96018048}+\frac{1058581\,(1-2\,x)^{7/2}}{34292160}-\frac{1354639\,(1-2\,x)^{5/2}}{34292160}-\frac{630947\,(1\ldots}{5290\ldots}\right.$$
$$+\frac{43957\,\sqrt{21}}{32672808}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3*(1-2*x)^(1/2)/(2+3*x)^7,x)
```

```
[Out] -11664*(43957/74680704*(1-2*x)^(11/2)-747269/96018048*(1-2*x)^(9/
2)+1058581/34292160*(1-2*x)^(7/2)-1354639/34292160*(1-2*x)^(5/2)-
630947/52907904*(1-2*x)^(3/2)+307699/7558272*(1-2*x)^(1/2))/(-4-6
*x)^6+43957/32672808*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maximа [A] time = 1.53615, size = 197, normalized size = 1.34

$$-\frac{43957}{65345616}\,\sqrt{21}\log\left(-\frac{\sqrt{21}-3\,\sqrt{-2\,x+1}}{\sqrt{21}+3\,\sqrt{-2\,x+1}}\right)$$
$$-\frac{53407755\,(-2\,x+1)^{\frac{11}{2}}-706169205\,(-2\,x+1)^{\frac{9}{2}}+2801005326\,(-2\,x+1)^{\frac{7}{2}}-3584374794\,(-2\,x+1)^{\frac{5}{2}}-1082074105\,(-2\,x\ldots}{7779240\,\left(729\,(2\,x-1)^{6}+10206\,(2\,x-1)^{5}+59535\,(2\,x-1)^{4}+185220\,(2\,x-1)^{3}+324135\,(2\,x-1)^{2}+6050\ldots\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*sqrt(-2*x + 1)/(3*x + 2)^7,x, algorithm="maxima")
```

```
[Out] -43957/65345616*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt
(21) + 3*sqrt(-2*x + 1))) - 1/7779240*(53407755*(-2*x + 1)^(11/2)
 - 706169205*(-2*x + 1)^(9/2) + 2801005326*(-2*x + 1)^(7/2) - 358
4374794*(-2*x + 1)^(5/2) - 1082074105*(-2*x + 1)^(3/2) + 36939264
95*sqrt(-2*x + 1))/(729*(2*x - 1)^6 + 10206*(2*x - 1)^5 + 59535*(
2*x - 1)^4 + 185220*(2*x - 1)^3 + 324135*(2*x - 1)^2 + 605052*x -
 184877)
```

Fricas [A] time = 0.21231, size = 181, normalized size = 1.23

$$\frac{\sqrt{21}\left(\sqrt{21}\left(53407755\,x^{5}+219565215\,x^{4}+127601514\,x^{3}-139462938\,x^{2}-150340360\,x-36741296\right)\sqrt{-2\,x+1}+219785\,(72\ldots\right.}{326728080\,(729\,x^{6}+2916\,x^{5}+4860\,x^{4}+4320\,x^{3}+216\ldots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*sqrt(-2*x + 1)/(3*x + 2)^7,x, algorithm="fricas")
```

```
[Out] 1/326728080*sqrt(21)*(sqrt(21)*(53407755*x^5 + 219565215*x^4 + 12
7601514*x^3 - 139462938*x^2 - 150340360*x - 36741296)*sqrt(-2*x +
 1) + 219785*(729*x^6 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 2160*x^2
```

```
 + 576*x + 64)*log((sqrt(21)*(3*x - 5) - 21*sqrt(-2*x + 1))/(3*x
+ 2)))/(729*x^6 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 576
*x + 64)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3*(1-2*x)**(1/2)/(2+3*x)**7,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.222565, size = 178, normalized size = 1.21

$$-\frac{43957}{65345616}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{53407755\,(2x-1)^5\sqrt{-2x+1}+706169205\,(2x-1)^4\sqrt{-2x+1}+2801005326\,(2x-1)^3\sqrt{-2x+1}+3584374794\,(2x-1)^2}{497871360\,(3x+2)^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*sqrt(-2*x + 1)/(3*x + 2)^7,x, algorithm="giac")
```

```
[Out] -43957/65345616*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1
))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 1/497871360*(53407755*(2*x -
1)^5*sqrt(-2*x + 1) + 706169205*(2*x - 1)^4*sqrt(-2*x + 1) + 2801
005326*(2*x - 1)^3*sqrt(-2*x + 1) + 3584374794*(2*x - 1)^2*sqrt(-
2*x + 1) + 1082074105*(-2*x + 1)^(3/2) - 3693926495*sqrt(-2*x + 1
))/(3*x + 2)^6
```

3.1810 $\int \frac{\sqrt{1-2x}(3+5x)^3}{(2+3x)^8} dx$

Optimal. Leaf size=167

$$-\frac{\sqrt{1-2x}(5x+3)^3}{21(3x+2)^7}-\frac{53\sqrt{1-2x}(5x+3)^2}{1323(3x+2)^6}-\frac{2\sqrt{1-2x}(88099x+54227)}{972405(3x+2)^5}+\frac{23717\sqrt{1-2x}}{9529569(3x+2)}+\frac{23717\sqrt{1-2x}}{4084101(3x+2)^2}+\frac{47434\sqrt{1-2x}}{2917215(3x+2)^3}+\frac{47434\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{9529569\sqrt{21}}$$

```
[Out] (47434*Sqrt[1 - 2*x])/(2917215*(2 + 3*x)^3) + (23717*Sqrt[1 - 2*x
])/(4084101*(2 + 3*x)^2) + (23717*Sqrt[1 - 2*x])/(9529569*(2 + 3*
x)) - (53*Sqrt[1 - 2*x]*(3 + 5*x)^2)/(1323*(2 + 3*x)^6) - (Sqrt[1
 - 2*x]*(3 + 5*x)^3)/(21*(2 + 3*x)^7) - (2*Sqrt[1 - 2*x]*(54227 +
 88099*x))/(972405*(2 + 3*x)^5) + (47434*ArcTanh[Sqrt[3/7]*Sqrt[1
 - 2*x]])/(9529569*Sqrt[21])
```

Rubi [A] time = 0.228374, antiderivative size = 167, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.25$

$$-\frac{\sqrt{1-2x}(5x+3)^3}{21(3x+2)^7}-\frac{53\sqrt{1-2x}(5x+3)^2}{1323(3x+2)^6}-\frac{2\sqrt{1-2x}(88099x+54227)}{972405(3x+2)^5}+\frac{23717\sqrt{1-2x}}{9529569(3x+2)}+\frac{23717\sqrt{1-2x}}{4084101(3x+2)^2}+\frac{47434\sqrt{1-2x}}{2917215(3x+2)^3}+\frac{47434\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{9529569\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(3 + 5*x)^3)/(2 + 3*x)^8,x]
```

```
[Out] (47434*Sqrt[1 - 2*x])/(2917215*(2 + 3*x)^3) + (23717*Sqrt[1 - 2*x
])/(4084101*(2 + 3*x)^2) + (23717*Sqrt[1 - 2*x])/(9529569*(2 + 3*
x)) - (53*Sqrt[1 - 2*x]*(3 + 5*x)^2)/(1323*(2 + 3*x)^6) - (Sqrt[1
 - 2*x]*(3 + 5*x)^3)/(21*(2 + 3*x)^7) - (2*Sqrt[1 - 2*x]*(54227 +
 88099*x))/(972405*(2 + 3*x)^5) + (47434*ArcTanh[Sqrt[3/7]*Sqrt[1
 - 2*x]])/(9529569*Sqrt[21])
```

Rubi in Sympy [A] time = 25.097, size = 148, normalized size = 0.89

$$\frac{23717\sqrt{-2x+1}}{9529569\,(3x+2)}+\frac{23717\sqrt{-2x+1}}{4084101\,(3x+2)^2}+\frac{47434\sqrt{-2x+1}}{2917215\,(3x+2)^3}-\frac{\sqrt{-2x+1}\,(4228752x+2602896)}{23337720\,(3x+2)^5}-\frac{53\sqrt{-2x+1}\,(5x+3)^2}{1323\,(3x+2)^6}-\frac{\sqrt{-2x+1}\,(5x+3)^3}{21\,(3x+2)^7}+\frac{47434\sqrt{21}\,\mathrm{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{200120949}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**3*(1-2*x)**(1/2)/(2+3*x)**8,x)
```

```
[Out] 23717*sqrt(-2*x + 1)/(9529569*(3*x + 2)) + 23717*sqrt(-2*x + 1)/(
4084101*(3*x + 2)**2) + 47434*sqrt(-2*x + 1)/(2917215*(3*x + 2)**
3) - sqrt(-2*x + 1)*(4228752*x + 2602896)/(23337720*(3*x + 2)**5)
 - 53*sqrt(-2*x + 1)*(5*x + 3)**2/(1323*(3*x + 2)**6) - sqrt(-2*x
 + 1)*(5*x + 3)**3/(21*(3*x + 2)**7) + 47434*sqrt(21)*atanh(sqrt(
21)*sqrt(-2*x + 1)/7)/200120949
```

Mathematica [A] time = 0.139917, size = 78, normalized size = 0.47

$$\frac{\frac{21\sqrt{1-2x}(86448465x^6+413031555x^5+863203932x^4+473987484x^3-306463011x^2-361589428x-88036937)}{(3x+2)^7}+237170\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{1000604745}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(3 + 5*x)^3)/(2 + 3*x)^8,x]
```

```
[Out] ((21*Sqrt[1 - 2*x]*(-88036937 - 361589428*x - 306463011*x^2 + 473
987484*x^3 + 863203932*x^4 + 413031555*x^5 + 86448465*x^6))/(2 +
3*x)^7 + 237170*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/100060
4745
```

Maple [A] time = 0.018, size = 93, normalized size = 0.6

$$69984\frac{1}{(-4-6x)^7}\left(-\frac{23717(1-2x)^{13/2}}{457419312}+\frac{118585(1-2x)^{11/2}}{147027636}-\frac{6711911(1-2x)^{9/2}}{1260236880}+\frac{1303513(1-2x)^{7/2}}{78764805}-\frac{5101561}{231\ldots}\right.$$
$$+\frac{47434\sqrt{21}}{200120949}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3*(1-2*x)^(1/2)/(2+3*x)^8,x)
```

```
[Out] 69984*(-23717/457419312*(1-2*x)^(13/2)+118585/147027636*(1-2*x)^(
11/2)-6711911/1260236880*(1-2*x)^(9/2)+1303513/78764805*(1-2*x)^(
7/2)-5101561/231472080*(1-2*x)^(5/2)+25163/4960116*(1-2*x)^(3/2)+
23717/2834352*(1-2*x)^(1/2))/(-4-6*x)^7+47434/200120949*arctanh(1
/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.51992, size = 221, normalized size = 1.32

$$-\frac{23717}{200120949}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)$$
$$+\frac{2\left(86448465(-2x+1)^{\frac{13}{2}}-1344753900(-2x+1)^{\frac{11}{2}}+8879858253(-2x+1)^{\frac{9}{2}}-27592763184(-2x+1)^{\frac{7}{2}}+36746543883(\ldots\right.}{47647845\left(2187(2x-1)^7+35721(2x-1)^6+250047(2x-1)^5+972405(2x-1)^4+2268945(2x-1)^{\ldots}\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*sqrt(-2*x + 1)/(3*x + 2)^8,x, algorithm="maxima")
```

```
[Out] -23717/200120949*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqr
t(21) + 3*sqrt(-2*x + 1))) + 2/47647845*(86448465*(-2*x + 1)^(13/
2) - 1344753900*(-2*x + 1)^(11/2) + 8879858253*(-2*x + 1)^(9/2) -
 27592763184*(-2*x + 1)^(7/2) + 36746543883*(-2*x + 1)^(5/2) - 84
58290820*(-2*x + 1)^(3/2) - 13951406665*sqrt(-2*x + 1))/(2187*(2*
x - 1)^7 + 35721*(2*x - 1)^6 + 250047*(2*x - 1)^5 + 972405*(2*x -
 1)^4 + 2268945*(2*x - 1)^3 + 3176523*(2*x - 1)^2 + 4941258*x - 1
647086)
```

Fricas [A] time = 0.21302, size = 201, normalized size = 1.2

$$\frac{\sqrt{21}\left(\sqrt{21}(86448465x^6+413031555x^5+863203932x^4+473987484x^3-306463011x^2-361589428x-88036937)\sqrt{-2x}\ldots\right.}{1000604745(2187x^7+10206x^6+20412x^5+2\ldots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3*sqrt(-2*x + 1)/(3*x + 2)^8,x, algorithm="fricas")
```

```
[Out] 1/1000604745*sqrt(21)*(sqrt(21)*(86448465*x^6 + 413031555*x^5 + 8
63203932*x^4 + 473987484*x^3 - 306463011*x^2 - 361589428*x - 8803
6937)*sqrt(-2*x + 1) + 118585*(2187*x^7 + 10206*x^6 + 20412*x^5 +
 22680*x^4 + 15120*x^3 + 6048*x^2 + 1344*x + 128)*log((sqrt(21)*(
3*x - 5) - 21*sqrt(-2*x + 1))/(3*x + 2)))/(2187*x^7 + 10206*x^6 +
 20412*x^5 + 22680*x^4 + 15120*x^3 + 6048*x^2 + 1344*x + 128)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3*(1-2*x)**(1/2)/(2+3*x)**8,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.227349, size = 200, normalized size = 1.2

$$-\frac{23717}{200120949}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{86448465\,(2x-1)^6\sqrt{-2x+1}+1344753900\,(2x-1)^5\sqrt{-2x+1}+8879858253\,(2x-1)^4\sqrt{-2x+1}+27592763184\,(2x-1}{3049462080\,(3x+2)^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3*sqrt(-2*x + 1)/(3*x + 2)^8,x, algorithm="giac")
```

```
[Out] -23717/200120949*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x +
1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 1/3049462080*(86448465*(2*x
- 1)^6*sqrt(-2*x + 1) + 1344753900*(2*x - 1)^5*sqrt(-2*x + 1) + 8
879858253*(2*x - 1)^4*sqrt(-2*x + 1) + 27592763184*(2*x - 1)^3*sq
rt(-2*x + 1) + 36746543883*(2*x - 1)^2*sqrt(-2*x + 1) - 845829082
0*(-2*x + 1)^(3/2) - 13951406665*sqrt(-2*x + 1))/(3*x + 2)^7
```

3.1811 $\int \frac{\sqrt{1-2x}(2+3x)^4}{3+5x} \, dx$

Optimal. Leaf size=95

$$\frac{9}{40}(1-2x)^{9/2}-\frac{2889(1-2x)^{7/2}}{1400}+\frac{34371(1-2x)^{5/2}}{5000}-\frac{45473(1-2x)^{3/2}}{5000}+\frac{2\sqrt{1-2x}}{3125}-\frac{2\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{3125}$$

```
[Out] (2*Sqrt[1 - 2*x])/3125 - (45473*(1 - 2*x)^(3/2))/5000 + (34371*(1
 - 2*x)^(5/2))/5000 - (2889*(1 - 2*x)^(7/2))/1400 + (9*(1 - 2*x)^
(9/2))/40 - (2*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/3125
```

Rubi [A] time = 0.0994315, antiderivative size = 95, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$\frac{9}{40}(1-2x)^{9/2}-\frac{2889(1-2x)^{7/2}}{1400}+\frac{34371(1-2x)^{5/2}}{5000}-\frac{45473(1-2x)^{3/2}}{5000}+\frac{2\sqrt{1-2x}}{3125}-\frac{2\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{3125}$$

Antiderivative was successfully verified.

```
[In] Int[(Sqrt[1 - 2*x]*(2 + 3*x)^4)/(3 + 5*x),x]
```

```
[Out] (2*Sqrt[1 - 2*x])/3125 - (45473*(1 - 2*x)^(3/2))/5000 + (34371*(1
 - 2*x)^(5/2))/5000 - (2889*(1 - 2*x)^(7/2))/1400 + (9*(1 - 2*x)^
(9/2))/40 - (2*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/3125
```

Rubi in Sympy [A] time = 10.2274, size = 83, normalized size = 0.87

$$\frac{9\left(-2x+1\right)^{\frac{9}{2}}}{40}-\frac{2889\left(-2x+1\right)^{\frac{7}{2}}}{1400}+\frac{34371\left(-2x+1\right)^{\frac{5}{2}}}{5000}-\frac{45473\left(-2x+1\right)^{\frac{3}{2}}}{5000}+\frac{2\sqrt{-2x+1}}{3125}-\frac{2\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{15625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**4*(1-2*x)**(1/2)/(3+5*x),x)
```

```
[Out] 9*(-2*x + 1)**(9/2)/40 - 2889*(-2*x + 1)**(7/2)/1400 + 34371*(-2*
x + 1)**(5/2)/5000 - 45473*(-2*x + 1)**(3/2)/5000 + 2*sqrt(-2*x +
 1)/3125 - 2*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/15625
```

Mathematica [A] time = 0.093379, size = 61, normalized size = 0.64

$$\frac{5\sqrt{1-2x}\left(78750x^4+203625x^3+177930x^2+27865x-88776\right)-14\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{109375}$$

Antiderivative was successfully verified.

```
[In] Integrate[(Sqrt[1 - 2*x]*(2 + 3*x)^4)/(3 + 5*x),x]
```

```
[Out] (5*Sqrt[1 - 2*x]*(-88776 + 27865*x + 177930*x^2 + 203625*x^3 + 78
750*x^4) - 14*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/109375
```

Maple [A] time = 0.01, size = 65, normalized size = 0.7

$$-\frac{45473}{5000}(1-2x)^{\frac{3}{2}}+\frac{34371}{5000}(1-2x)^{\frac{5}{2}}-\frac{2889}{1400}(1-2x)^{\frac{7}{2}}+\frac{9}{40}(1-2x)^{\frac{9}{2}}-\frac{2\sqrt{55}}{15625}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)+\frac{2}{3125}\sqrt{1-2x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((2+3*x)^4*(1-2*x)^(1/2)/(3+5*x),x)
```

```
[Out] -45473/5000*(1-2*x)^(3/2)+34371/5000*(1-2*x)^(5/2)-2889/1400*(1-2
*x)^(7/2)+9/40*(1-2*x)^(9/2)-2/15625*arctanh(1/11*55^(1/2)*(1-2*x
)^(1/2))*55^(1/2)+2/3125*(1-2*x)^(1/2)
```

Maxima [A] time = 1.49521, size = 111, normalized size = 1.17

$$\frac{9}{40}(-2x+1)^{\frac{9}{2}}-\frac{2889}{1400}(-2x+1)^{\frac{7}{2}}+\frac{34371}{5000}(-2x+1)^{\frac{5}{2}}-\frac{45473}{5000}(-2x+1)^{\frac{3}{2}}+\frac{1}{15625}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{2}{3125}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^4*sqrt(-2*x + 1)/(5*x + 3),x, algorithm="maxima")
```

```
[Out] 9/40*(-2*x + 1)^(9/2) - 2889/1400*(-2*x + 1)^(7/2) + 34371/5000*(
-2*x + 1)^(5/2) - 45473/5000*(-2*x + 1)^(3/2) + 1/15625*sqrt(55)*
log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1)))
 + 2/3125*sqrt(-2*x + 1)
```

Fricas [A] time = 0.211416, size = 99, normalized size = 1.04

$$\frac{1}{109375}\sqrt{5}\left(\sqrt{5}\left(78750x^4+203625x^3+177930x^2+27865x-88776\right)\sqrt{-2x+1}+7\sqrt{11}\log\left(\frac{\sqrt{5}(5x-8)+5\sqrt{11}\sqrt{-2x+}}{5x+3}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^4*sqrt(-2*x + 1)/(5*x + 3),x, algorithm="fricas")
```

```
[Out] 1/109375*sqrt(5)*(sqrt(5)*(78750*x^4 + 203625*x^3 + 177930*x^2 +
27865*x - 88776)*sqrt(-2*x + 1) + 7*sqrt(11)*log((sqrt(5)*(5*x -
8) + 5*sqrt(11)*sqrt(-2*x + 1))/(5*x + 3)))
```

Sympy [A] time = 7.56549, size = 122, normalized size = 1.28

$$\frac{9(-2x+1)^{\frac{9}{2}}}{40}-\frac{2889(-2x+1)^{\frac{7}{2}}}{1400}+\frac{34371(-2x+1)^{\frac{5}{2}}}{5000}-\frac{45473(-2x+1)^{\frac{3}{2}}}{5000}+\frac{2\sqrt{-2x+1}}{3125}+\frac{22\left(\begin{cases}-\frac{\sqrt{55}\operatorname{acoth}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1>\frac{11}{5}\\ -\frac{\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1<\frac{11}{5}\end{cases}\right)}{3125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4*(1-2*x)**(1/2)/(3+5*x),x)
```

```
[Out] 9*(-2*x + 1)**(9/2)/40 - 2889*(-2*x + 1)**(7/2)/1400 + 34371*(-2*
x + 1)**(5/2)/5000 - 45473*(-2*x + 1)**(3/2)/5000 + 2*sqrt(-2*x +
 1)/3125 + 22*Piecewise((-sqrt(55)*acoth(sqrt(55)*sqrt(-2*x + 1)/
11)/55, -2*x + 1 > 11/5), (-sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1
)/11)/55, -2*x + 1 < 11/5))/3125
```

GIAC/XCAS [A] time = 0.241419, size = 143, normalized size = 1.51

$$\frac{9}{40}(2x-1)^4\sqrt{-2x+1}+\frac{2889}{1400}(2x-1)^3\sqrt{-2x+1}+\frac{34371}{5000}(2x-1)^2\sqrt{-2x+1}$$
$$-\frac{45473}{5000}(-2x+1)^{\frac{3}{2}}+\frac{1}{15625}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{2}{3125}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4*sqrt(-2*x + 1)/(5*x + 3),x, algorithm="giac")
```

```
[Out] 9/40*(2*x - 1)^4*sqrt(-2*x + 1) + 2889/1400*(2*x - 1)^3*sqrt(-2*x
 + 1) + 34371/5000*(2*x - 1)^2*sqrt(-2*x + 1) - 45473/5000*(-2*x
+ 1)^(3/2) + 1/15625*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2
*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) + 2/3125*sqrt(-2*x + 1)
```

3.1812 $\int \frac{\sqrt{1-2x}(2+3x)^3}{3+5x}\,dx$

Optimal. Leaf size=82

$$-\frac{27}{140}(1-2x)^{7/2}+\frac{162}{125}(1-2x)^{5/2}-\frac{1299}{500}(1-2x)^{3/2}+\frac{2}{625}\sqrt{1-2x}-\frac{2}{625}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (2*Sqrt[1 - 2*x])/625 - (1299*(1 - 2*x)^(3/2))/500 + (162*(1 - 2*
x)^(5/2))/125 - (27*(1 - 2*x)^(7/2))/140 - (2*Sqrt[11/5]*ArcTanh[
Sqrt[5/11]*Sqrt[1 - 2*x]])/625
```

Rubi [A] time = 0.0887274, antiderivative size = 82, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$-\frac{27}{140}(1-2x)^{7/2}+\frac{162}{125}(1-2x)^{5/2}-\frac{1299}{500}(1-2x)^{3/2}+\frac{2}{625}\sqrt{1-2x}-\frac{2}{625}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(2 + 3*x)^3)/(3 + 5*x),x]
```

```
[Out] (2*Sqrt[1 - 2*x])/625 - (1299*(1 - 2*x)^(3/2))/500 + (162*(1 - 2*
x)^(5/2))/125 - (27*(1 - 2*x)^(7/2))/140 - (2*Sqrt[11/5]*ArcTanh[
Sqrt[5/11]*Sqrt[1 - 2*x]])/625
```

Rubi in Sympy [A] time = 9.34449, size = 71, normalized size = 0.87

$$-\frac{27\left(-2x+1\right)^{\frac{7}{2}}}{140}+\frac{162\left(-2x+1\right)^{\frac{5}{2}}}{125}-\frac{1299\left(-2x+1\right)^{\frac{3}{2}}}{500}+\frac{2\sqrt{-2x+1}}{625}-\frac{2\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{3125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3*(1-2*x)**(1/2)/(3+5*x),x)
```

```
[Out] -27*(-2*x + 1)**(7/2)/140 + 162*(-2*x + 1)**(5/2)/125 - 1299*(-2*
x + 1)**(3/2)/500 + 2*sqrt(-2*x + 1)/625 - 2*sqrt(55)*atanh(sqrt(
55)*sqrt(-2*x + 1)/11)/3125
```

Mathematica [A] time = 0.0690639, size = 56, normalized size = 0.68

$$\frac{5\sqrt{1-2x}\left(6750x^3+12555x^2+5115x-6526\right)-14\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{21875}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(2 + 3*x)^3)/(3 + 5*x),x]
```

```
[Out] (5*Sqrt[1 - 2*x]*(-6526 + 5115*x + 12555*x^2 + 6750*x^3) - 14*Sqr
t[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/21875
```

Maple [A] time = 0.01, size = 56, normalized size = 0.7

$$-\frac{1299}{500}\left(1-2\,x\right)^{\frac{3}{2}}+\frac{162}{125}\left(1-2\,x\right)^{\frac{5}{2}}-\frac{27}{140}\left(1-2\,x\right)^{\frac{7}{2}}-\frac{2\sqrt{55}}{3125}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2\,x}\right)+\frac{2}{625}\sqrt{1-2\,x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3*(1-2*x)^(1/2)/(3+5*x),x)
```

```
[Out] -1299/500*(1-2*x)^(3/2)+162/125*(1-2*x)^(5/2)-27/140*(1-2*x)^(7/2
)-2/3125*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)+2/625*(1-2
*x)^(1/2)
```

Maxima [A] time = 1.49774, size = 99, normalized size = 1.21

$$-\frac{27}{140}(-2x+1)^{\frac{7}{2}}+\frac{162}{125}(-2x+1)^{\frac{5}{2}}-\frac{1299}{500}(-2x+1)^{\frac{3}{2}}+\frac{1}{3125}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{2}{625}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^3*sqrt(-2*x + 1)/(5*x + 3),x, algorithm="maxima")
```

```
[Out] -27/140*(-2*x + 1)^(7/2) + 162/125*(-2*x + 1)^(5/2) - 1299/500*(-
2*x + 1)^(3/2) + 1/3125*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1
))/(sqrt(55) + 5*sqrt(-2*x + 1))) + 2/625*sqrt(-2*x + 1)
```

Fricas [A] time = 0.213524, size = 92, normalized size = 1.12

$$\frac{1}{21875}\sqrt{5}\left(\sqrt{5}\left(6750x^3+12555x^2+5115x-6526\right)\sqrt{-2x+1}+7\sqrt{11}\log\left(\frac{\sqrt{5}(5x-8)+5\sqrt{11}\sqrt{-2x+1}}{5x+3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^3*sqrt(-2*x + 1)/(5*x + 3),x, algorithm="fricas")
```

```
[Out] 1/21875*sqrt(5)*(sqrt(5)*(6750*x^3 + 12555*x^2 + 5115*x - 6526)*s
qrt(-2*x + 1) + 7*sqrt(11)*log((sqrt(5)*(5*x - 8) + 5*sqrt(11)*sq
rt(-2*x + 1))/(5*x + 3)))
```

Sympy [A] time = 6.94827, size = 110, normalized size = 1.34

$$-\frac{27(-2x+1)^{\frac{7}{2}}}{140}+\frac{162(-2x+1)^{\frac{5}{2}}}{125}-\frac{1299(-2x+1)^{\frac{3}{2}}}{500}+\frac{2\sqrt{-2x+1}}{625}+\frac{22\left(\begin{cases}-\frac{\sqrt{55}\operatorname{acoth}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1>\frac{11}{5}\\ -\frac{\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1<\frac{11}{5}\end{cases}\right)}{625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3*(1-2*x)**(1/2)/(3+5*x),x)
```

```
[Out] -27*(-2*x + 1)**(7/2)/140 + 162*(-2*x + 1)**(5/2)/125 - 1299*(-2*
x + 1)**(3/2)/500 + 2*sqrt(-2*x + 1)/625 + 22*Piecewise((-sqrt(55
)*acoth(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*x + 1 > 11/5), (-sqrt(
55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*x + 1 < 11/5))/625
```

GIAC/XCAS [A] time = 0.247271, size = 122, normalized size = 1.49

$$\frac{27}{140}\,(2\,x-1)^3\sqrt{-2\,x+1}+\frac{162}{125}\,(2\,x-1)^2\sqrt{-2\,x+1}-\frac{1299}{500}\,(-2\,x+1)^{\frac{3}{2}}+\frac{1}{3125}\,\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\,\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)+\frac{2}{625}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*sqrt(-2*x + 1)/(5*x + 3),x, algorithm="giac")
```

```
[Out] 27/140*(2*x - 1)^3*sqrt(-2*x + 1) + 162/125*(2*x - 1)^2*sqrt(-2*x
 + 1) - 1299/500*(-2*x + 1)^(3/2) + 1/3125*sqrt(55)*ln(1/2*abs(-2
*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) + 2
/625*sqrt(-2*x + 1)
```

3.1813 $\int \frac{\sqrt{1-2x}(2+3x)^2}{3+5x}\,dx$

Optimal. Leaf size=69

$$\frac{9}{50}(1-2x)^{5/2}-\frac{37}{50}(1-2x)^{3/2}+\frac{2}{125}\sqrt{1-2x}-\frac{2}{125}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (2*Sqrt[1 - 2*x])/125 - (37*(1 - 2*x)^(3/2))/50 + (9*(1 - 2*x)^(5
/2))/50 - (2*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/125
```

Rubi [A] time = 0.0852675, antiderivative size = 69, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$\frac{9}{50}(1-2x)^{5/2}-\frac{37}{50}(1-2x)^{3/2}+\frac{2}{125}\sqrt{1-2x}-\frac{2}{125}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In] Int[(Sqrt[1 - 2*x]*(2 + 3*x)^2)/(3 + 5*x),x]
```

```
[Out] (2*Sqrt[1 - 2*x])/125 - (37*(1 - 2*x)^(3/2))/50 + (9*(1 - 2*x)^(5
/2))/50 - (2*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/125
```

Rubi in Sympy [A] time = 8.35039, size = 60, normalized size = 0.87

$$\frac{9\left(-2x+1\right)^{\frac{5}{2}}}{50}-\frac{37\left(-2x+1\right)^{\frac{3}{2}}}{50}+\frac{2\sqrt{-2x+1}}{125}-\frac{2\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**2*(1-2*x)**(1/2)/(3+5*x),x)
```

```
[Out] 9*(-2*x + 1)**(5/2)/50 - 37*(-2*x + 1)**(3/2)/50 + 2*sqrt(-2*x +
1)/125 - 2*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/625
```

Mathematica [A] time = 0.0678694, size = 51, normalized size = 0.74

$$\frac{1}{625}\left(5\sqrt{1-2x}\left(90x^2+95x-68\right)-2\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)\right)$$

Antiderivative was successfully verified.

```
[In] Integrate[(Sqrt[1 - 2*x]*(2 + 3*x)^2)/(3 + 5*x),x]
```

```
[Out] (5*Sqrt[1 - 2*x]*(-68 + 95*x + 90*x^2) - 2*Sqrt[55]*ArcTanh[Sqrt[
5/11]*Sqrt[1 - 2*x]])/625
```

Maple [A] time = 0.011, size = 47, normalized size = 0.7

$$-\frac{37}{50}\left(1-2\,x\right)^{\frac{3}{2}}+\frac{9}{50}\left(1-2\,x\right)^{\frac{5}{2}}-\frac{2\sqrt{55}}{625}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2\,x}\right)+\frac{2}{125}\sqrt{1-2\,x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2*(1-2*x)^(1/2)/(3+5*x),x)
```

```
[Out] -37/50*(1-2*x)^(3/2)+9/50*(1-2*x)^(5/2)-2/625*arctanh(1/11*55^(1/
2)*(1-2*x)^(1/2))*55^(1/2)+2/125*(1-2*x)^(1/2)
```

Maxima [A] time = 1.52406, size = 86, normalized size = 1.25

$$\frac{9}{50}\left(-2x+1\right)^{\frac{5}{2}}-\frac{37}{50}\left(-2x+1\right)^{\frac{3}{2}}+\frac{1}{625}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{2}{125}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*sqrt(-2*x + 1)/(5*x + 3),x, algorithm="maxima")
```

```
[Out] 9/50*(-2*x + 1)^(5/2) - 37/50*(-2*x + 1)^(3/2) + 1/625*sqrt(55)*l
og(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1)))
+ 2/125*sqrt(-2*x + 1)
```

Fricas [A] time = 0.213615, size = 84, normalized size = 1.22

$$\frac{1}{625}\sqrt{5}\left(\sqrt{5}\left(90x^2+95x-68\right)\sqrt{-2x+1}+\sqrt{11}\log\left(\frac{\sqrt{5}(5x-8)+5\sqrt{11}\sqrt{-2x+1}}{5x+3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*sqrt(-2*x + 1)/(5*x + 3),x, algorithm="fricas")
```

```
[Out] 1/625*sqrt(5)*(sqrt(5)*(90*x^2 + 95*x - 68)*sqrt(-2*x + 1) + sqrt
(11)*log((sqrt(5)*(5*x - 8) + 5*sqrt(11)*sqrt(-2*x + 1))/(5*x + 3
)))
```

Sympy [A] time = 6.16729, size = 99, normalized size = 1.43

$$\frac{9(-2x+1)^{\frac{5}{2}}}{50}-\frac{37(-2x+1)^{\frac{3}{2}}}{50}+\frac{2\sqrt{-2x+1}}{125}+\frac{22\left(\begin{cases}-\frac{\sqrt{55}\operatorname{acoth}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1>\frac{11}{5}\\ -\frac{\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1<\frac{11}{5}\end{cases}\right)}{125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2*(1-2*x)**(1/2)/(3+5*x),x)
```

```
[Out] 9*(-2*x + 1)**(5/2)/50 - 37*(-2*x + 1)**(3/2)/50 + 2*sqrt(-2*x +
1)/125 + 22*Piecewise((-sqrt(55)*acoth(sqrt(55)*sqrt(-2*x + 1)/11
)/55, -2*x + 1 > 11/5), (-sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/
11)/55, -2*x + 1 < 11/5))/125
```

GIAC/XCAS [A] time = 0.228378, size = 100, normalized size = 1.45

$$\frac{9}{50}(2x-1)^2\sqrt{-2x+1}-\frac{37}{50}\left(-2x+1\right)^{\frac{3}{2}}+\frac{1}{625}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{2}{125}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*sqrt(-2*x + 1)/(5*x + 3),x, algorithm="giac")
```

```
[Out] 9/50*(2*x - 1)^2*sqrt(-2*x + 1) - 37/50*(-2*x + 1)^(3/2) + 1/625*
sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(55) +
5*sqrt(-2*x + 1))) + 2/125*sqrt(-2*x + 1)
```

3.1814 $\int \frac{\sqrt{1-2x}(2+3x)}{3+5x}\,dx$

Optimal. Leaf size=56

$$-\frac{1}{5}(1-2x)^{3/2}+\frac{2}{25}\sqrt{1-2x}-\frac{2}{25}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (2*Sqrt[1 - 2*x])/25 - (1 - 2*x)^(3/2)/5 - (2*Sqrt[11/5]*ArcTanh[
Sqrt[5/11]*Sqrt[1 - 2*x]])/25
```

Rubi [A] time = 0.0591537, antiderivative size = 56, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{1}{5}(1-2x)^{3/2}+\frac{2}{25}\sqrt{1-2x}-\frac{2}{25}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(2 + 3*x))/(3 + 5*x),x]
```

```
[Out] (2*Sqrt[1 - 2*x])/25 - (1 - 2*x)^(3/2)/5 - (2*Sqrt[11/5]*ArcTanh[
Sqrt[5/11]*Sqrt[1 - 2*x]])/25
```

Rubi in Sympy [A] time = 6.16112, size = 46, normalized size = 0.82

$$-\frac{(-2x+1)^{\frac{3}{2}}}{5}+\frac{2\sqrt{-2x+1}}{25}-\frac{2\sqrt{55}\,\mathrm{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)*(1-2*x)**(1/2)/(3+5*x),x)
```

```
[Out] -(-2*x + 1)**(3/2)/5 + 2*sqrt(-2*x + 1)/25 - 2*sqrt(55)*atanh(sqr
t(55)*sqrt(-2*x + 1)/11)/125
```

Mathematica [A] time = 0.0425222, size = 46, normalized size = 0.82

$$\frac{1}{125}\left(5\sqrt{1-2x}(10x-3)-2\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(2 + 3*x))/(3 + 5*x),x]
```

```
[Out] (5*Sqrt[1 - 2*x]*(-3 + 10*x) - 2*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt
[1 - 2*x]])/125
```

Maple [A] time = 0.007, size = 38, normalized size = 0.7

$$-\frac{1}{5}(1-2x)^{\frac{3}{2}}-\frac{2\sqrt{55}}{125}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)+\frac{2}{25}\sqrt{1-2x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)*(1-2*x)^(1/2)/(3+5*x),x)
```

```
[Out] -1/5*(1-2*x)^(3/2)-2/125*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^
(1/2)+2/25*(1-2*x)^(1/2)
```

Maxima [A] time = 1.6326, size = 74, normalized size = 1.32

$$-\frac{1}{5}\,(-2\,x+1)^{\frac{3}{2}}+\frac{1}{125}\,\sqrt{55}\log\left(-\frac{\sqrt{55}-5\,\sqrt{-2\,x+1}}{\sqrt{55}+5\,\sqrt{-2\,x+1}}\right)+\frac{2}{25}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)*sqrt(-2*x + 1)/(5*x + 3),x, algorithm="maxima")
```

```
[Out] -1/5*(-2*x + 1)^(3/2) + 1/125*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2
*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) + 2/25*sqrt(-2*x + 1)
```

Fricas [A] time = 0.210886, size = 77, normalized size = 1.38

$$\frac{1}{125}\,\sqrt{5}\left(\sqrt{5}(10\,x-3)\sqrt{-2\,x+1}+\sqrt{11}\log\left(\frac{\sqrt{5}(5\,x-8)+5\,\sqrt{11}\sqrt{-2\,x+1}}{5\,x+3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)*sqrt(-2*x + 1)/(5*x + 3),x, algorithm="fricas")
```

```
[Out] 1/125*sqrt(5)*(sqrt(5)*(10*x - 3)*sqrt(-2*x + 1) + sqrt(11)*log((
sqrt(5)*(5*x - 8) + 5*sqrt(11)*sqrt(-2*x + 1))/(5*x + 3)))
```

Sympy [A] time = 7.89633, size = 85, normalized size = 1.52

$$-\frac{(-2x+1)^{\frac{3}{2}}}{5}+\frac{2\sqrt{-2x+1}}{25}+\frac{22\left(\begin{cases}-\frac{\sqrt{55}\operatorname{acoth}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for }-2x+1>\frac{11}{5}\\ -\frac{\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for }-2x+1<\frac{11}{5}\end{cases}\right)}{25}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)*(1-2*x)**(1/2)/(3+5*x),x)
```

```
[Out] -(-2*x + 1)**(3/2)/5 + 2*sqrt(-2*x + 1)/25 + 22*Piecewise((-sqrt(
55)*acoth(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*x + 1 > 11/5), (-sqr
t(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*x + 1 < 11/5))/25
```

GIAC/XCAS [A] time = 0.209601, size = 78, normalized size = 1.39

$$-\frac{1}{5}\,(-2\,x+1)^{\frac{3}{2}}+\frac{1}{125}\,\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)+\frac{2}{25}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)*sqrt(-2*x + 1)/(5*x + 3),x, algorithm="giac")
```

```
[Out] -1/5*(-2*x + 1)^(3/2) + 1/125*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 1
0*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) + 2/25*sqrt(-2*x
 + 1)
```

3.1815 $\int \frac{\sqrt{1-2x}}{3+5x}\,dx$

Optimal. Leaf size=43

$$\frac{2}{5}\sqrt{1-2x}-\frac{2}{5}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (2*Sqrt[1 - 2*x])/5 - (2*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2
*x]])/5
```

Rubi [A] time = 0.0375814, antiderivative size = 43, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 17, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.176

$$\frac{2}{5}\sqrt{1-2x}-\frac{2}{5}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]/(3 + 5*x),x]
```

```
[Out] (2*Sqrt[1 - 2*x])/5 - (2*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2
*x]])/5
```

Rubi in Sympy [A] time = 4.54336, size = 36, normalized size = 0.84

$$\frac{2\sqrt{-2x+1}}{5}-\frac{2\sqrt{55}\,\mathrm{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{25}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)/(3+5*x),x)
```

```
[Out] 2*sqrt(-2*x + 1)/5 - 2*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)
/25
```

Mathematica [A] time = 0.0258767, size = 41, normalized size = 0.95

$$\frac{2}{25}\left(5\sqrt{1-2x}-\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]/(3 + 5*x),x]
```

```
[Out] (2*(5*Sqrt[1 - 2*x] - Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])
)/25
```

Maple [A] time = 0.008, size = 29, normalized size = 0.7

$$-\frac{2\sqrt{55}}{25}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2\,x}\right)+\frac{2}{5}\sqrt{1-2\,x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)/(3+5*x),x)
```

```
[Out] -2/25*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)+2/5*(1-2*x)^(
1/2)
```

Maxima [A] time = 1.50408, size = 62, normalized size = 1.44

$$\frac{1}{25}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{2}{5}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/(5*x + 3),x, algorithm="maxima")
```

```
[Out] 1/25*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sq
rt(-2*x + 1))) + 2/5*sqrt(-2*x + 1)
```

Fricas [A] time = 0.216477, size = 72, normalized size = 1.67

$$\frac{1}{25}\sqrt{5}\left(\sqrt{11}\log\left(\frac{\sqrt{5}(5x-8)+5\sqrt{11}\sqrt{-2x+1}}{5x+3}\right)+2\sqrt{5}\sqrt{-2x+1}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/(5*x + 3),x, algorithm="fricas")
```

```
[Out] 1/25*sqrt(5)*(sqrt(11)*log((sqrt(5)*(5*x - 8) + 5*sqrt(11)*sqrt(-
2*x + 1))/(5*x + 3)) + 2*sqrt(5)*sqrt(-2*x + 1))
```

Sympy [A] time = 4.57064, size = 107, normalized size = 2.49

$$\begin{cases}\frac{2\sqrt{5}i\sqrt{10x-5}}{25}+\frac{2\sqrt{55}i\operatorname{asin}\left(\frac{\sqrt{110}}{10\sqrt{x+\frac{3}{5}}}\right)}{25} & \text{for}\ \frac{10\left|x+\frac{3}{5}\right|}{11}>1\\ \frac{2\sqrt{5}\sqrt{-10x+5}}{25}+\frac{\sqrt{55}\log\left(x+\frac{3}{5}\right)}{25}-\frac{2\sqrt{55}\log\left(\sqrt{-\frac{10x}{11}+\frac{5}{11}}+1\right)}{25} & \text{otherwise}\end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)/(3+5*x),x)
```

```
[Out] Piecewise((2*sqrt(5)*I*sqrt(10*x - 5)/25 + 2*sqrt(55)*I*asin(sqrt
(110)/(10*sqrt(x + 3/5)))/25, 10*Abs(x + 3/5)/11 > 1), (2*sqrt(5)
*sqrt(-10*x + 5)/25 + sqrt(55)*log(x + 3/5)/25 - 2*sqrt(55)*log(s
qrt(-10*x/11 + 5/11) + 1)/25, True))
```

GIAC/XCAS [A] time = 0.215221, size = 66, normalized size = 1.53

$$\frac{1}{25}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{2}{5}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/(5*x + 3),x, algorithm="giac")
```

```
[Out] 1/25*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(5
5) + 5*sqrt(-2*x + 1))) + 2/5*sqrt(-2*x + 1)
```

3.1816 $\int \frac{\sqrt{1-2x}}{(2+3x)(3+5x)}\,dx$

Optimal. Leaf size=55

$$2\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-2\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] 2*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]] - 2*Sqrt[11/5]*ArcTa
nh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Rubi [A] time = 0.0702871, antiderivative size = 55, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$2\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-2\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]/((2 + 3*x)*(3 + 5*x)),x]
```

```
[Out] 2*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]] - 2*Sqrt[11/5]*ArcTa
nh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Rubi in Sympy [A] time = 8.11001, size = 49, normalized size = 0.89

$$\frac{2\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{3}-\frac{2\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)/(2+3*x)/(3+5*x),x)
```

```
[Out] 2*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/3 - 2*sqrt(55)*atanh(
sqrt(55)*sqrt(-2*x + 1)/11)/5
```

Mathematica [A] time = 0.045746, size = 55, normalized size = 1.

$$2\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-2\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]/((2 + 3*x)*(3 + 5*x)),x]
```

```
[Out] 2*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]] - 2*Sqrt[11/5]*ArcTa
nh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Maple [A] time = 0.013, size = 38, normalized size = 0.7

$$-\frac{2\sqrt{55}}{5}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)+\frac{2\sqrt{21}}{3}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)/(2+3*x)/(3+5*x),x)
```

```
[Out] -2/5*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)+2/3*arctanh(1/
7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.52145, size = 99, normalized size = 1.8

$$\frac{1}{5}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{1}{3}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/((5*x + 3)*(3*x + 2)),x, algorithm="maxima")
```

```
[Out] 1/5*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sqr
t(-2*x + 1))) - 1/3*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(
sqrt(21) + 3*sqrt(-2*x + 1)))
```

Fricas [A] time = 0.21917, size = 115, normalized size = 2.09

$$\frac{1}{15}\sqrt{5}\sqrt{3}\left(\sqrt{11}\sqrt{3}\log\left(\frac{\sqrt{5}(5x-8)+5\sqrt{11}\sqrt{-2x+1}}{5x+3}\right)+\sqrt{7}\sqrt{5}\log\left(\frac{\sqrt{3}(3x-5)-3\sqrt{7}\sqrt{-2x+1}}{3x+2}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/((5*x + 3)*(3*x + 2)),x, algorithm="fricas")
```

```
[Out] 1/15*sqrt(5)*sqrt(3)*(sqrt(11)*sqrt(3)*log((sqrt(5)*(5*x - 8) + 5
*sqrt(11)*sqrt(-2*x + 1))/(5*x + 3)) + sqrt(7)*sqrt(5)*log((sqrt(
3)*(3*x - 5) - 3*sqrt(7)*sqrt(-2*x + 1))/(3*x + 2)))
```

Sympy [A] time = 16.3111, size = 124, normalized size = 2.25

$$-14\left(\begin{cases}-\frac{\sqrt{21}\operatorname{acoth}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for } -2x+1>\frac{7}{3}\\ -\frac{\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for } -2x+1<\frac{7}{3}\end{cases}\right)+22\left(\begin{cases}-\frac{\sqrt{55}\operatorname{acoth}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1>\frac{11}{5}\\ -\frac{\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1<\frac{11}{5}\end{cases}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)/(2+3*x)/(3+5*x),x)
```

```
[Out] -14*Piecewise((-sqrt(21)*acoth(sqrt(21)*sqrt(-2*x + 1)/7)/21, -2*
x + 1 > 7/3), (-sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/21, -2*
x + 1 < 7/3)) + 22*Piecewise((-sqrt(55)*acoth(sqrt(55)*sqrt(-2*x
+ 1)/11)/55, -2*x + 1 > 11/5), (-sqrt(55)*atanh(sqrt(55)*sqrt(-2*
x + 1)/11)/55, -2*x + 1 < 11/5))
```

GIAC/XCAS [A] time = 0.220687, size = 107, normalized size = 1.95

$$\frac{1}{5}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{1}{3}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/((5*x + 3)*(3*x + 2)),x, algorithm="giac")
```

```
[Out] 1/5*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(55
) + 5*sqrt(-2*x + 1))) - 1/3*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*
sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1)))
```

3.1817 $\int \frac{\sqrt{1-2x}}{(2+3x)^2(3+5x)}\,dx$

Optimal. Leaf size=68

$$\frac{\sqrt{1-2x}}{3x+2}+\frac{68\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{\sqrt{21}}-2\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] Sqrt[1 - 2*x]/(2 + 3*x) + (68*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/S
qrt[21] - 2*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Rubi [A] time = 0.122492, antiderivative size = 68, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$\frac{\sqrt{1-2x}}{3x+2}+\frac{68\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{\sqrt{21}}-2\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]/((2 + 3*x)^2*(3 + 5*x)),x]
```

```
[Out] Sqrt[1 - 2*x]/(2 + 3*x) + (68*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/S
qrt[21] - 2*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Rubi in Sympy [A] time = 14.9269, size = 61, normalized size = 0.9

$$\frac{\sqrt{-2x+1}}{3x+2}+\frac{68\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21}-2\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)/(2+3*x)**2/(3+5*x),x)
```

```
[Out] sqrt(-2*x + 1)/(3*x + 2) + 68*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x +
 1)/7)/21 - 2*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)
```

Mathematica [A] time = 0.121971, size = 81, normalized size = 1.19

$$\frac{68\sqrt{21}(3x+2)\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+21\left(\sqrt{1-2x}-2\sqrt{55}(3x+2)\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)\right)}{63x+42}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]/((2 + 3*x)^2*(3 + 5*x)),x]
```

```
[Out] (68*Sqrt[21]*(2 + 3*x)*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]] + 21*(Sqr
t[1 - 2*x] - 2*Sqrt[55]*(2 + 3*x)*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x
]]))/(42 + 63*x)
```

Maple [A] time = 0.015, size = 54, normalized size = 0.8

$$-\frac{2}{3}\sqrt{1-2\,x}\left(-\frac{4}{3}-2\,x\right)^{-1}+\frac{68\,\sqrt{21}}{21}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)-2\,\mathit{Artanh}\left(1/11\,\sqrt{55}\sqrt{1-2\,x}\right)\sqrt{55}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)/(2+3*x)^2/(3+5*x),x)
```

```
[Out] -2/3*(1-2*x)^(1/2)/(-4/3-2*x)+68/21*arctanh(1/7*21^(1/2)*(1-2*x)^
(1/2))*21^(1/2)-2*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.679, size = 117, normalized size = 1.72

$$\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{34}{21}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{\sqrt{-2x+1}}{3x+2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/((5*x + 3)*(3*x + 2)^2),x, algorithm="maxima")
```

```
[Out] sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2
*x + 1))) - 34/21*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sq
rt(21) + 3*sqrt(-2*x + 1))) + sqrt(-2*x + 1)/(3*x + 2)
```

Fricas [A] time = 0.219221, size = 130, normalized size = 1.91

$$\frac{\sqrt{21}\left(\sqrt{55}\sqrt{21}(3x+2)\log\left(\frac{5x+\sqrt{55}\sqrt{-2x+1}-8}{5x+3}\right)+34(3x+2)\log\left(\frac{\sqrt{21}(3x-5)-21\sqrt{-2x+1}}{3x+2}\right)+\sqrt{21}\sqrt{-2x+1}\right)}{21(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/((5*x + 3)*(3*x + 2)^2),x, algorithm="fricas")
```

```
[Out] 1/21*sqrt(21)*(sqrt(55)*sqrt(21)*(3*x + 2)*log((5*x + sqrt(55)*sq
rt(-2*x + 1) - 8)/(5*x + 3)) + 34*(3*x + 2)*log((sqrt(21)*(3*x -
5) - 21*sqrt(-2*x + 1))/(3*x + 2)) + sqrt(21)*sqrt(-2*x + 1))/(3*
x + 2)
```

Sympy [A] time = 27.4837, size = 223, normalized size = 3.28

$$28\left(\begin{cases}\frac{\sqrt{21}\left(-\frac{\log\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)}{4}+\frac{\log\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)}{4}-\frac{1}{4\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)}-\frac{1}{4\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)}\right)}{147} & \text{for}\ x\le\frac{1}{2}\wedge x>-\frac{2}{3}\end{cases}\right)-66\left(\begin{cases}-\frac{\sqrt{21}\operatorname{acoth}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for}\ -2x+1>\frac{7}{3}\\ -\frac{\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for}\ -2x+1<\frac{7}{3}\end{cases}\right)+110\left(\begin{cases}-\frac{\sqrt{55}\operatorname{acoth}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for}\ -2x+1>\frac{11}{5}\\ -\frac{\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for}\ -2x+1<\frac{11}{5}\end{cases}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)/(2+3*x)**2/(3+5*x),x)
```

```
[Out] 28*Piecewise((sqrt(21)*(-log(sqrt(21)*sqrt(-2*x + 1)/7 - 1)/4 + l
og(sqrt(21)*sqrt(-2*x + 1)/7 + 1)/4 - 1/(4*(sqrt(21)*sqrt(-2*x +
1)/7 + 1)) - 1/(4*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)))/147, (x <= 1/
2) & (x > -2/3))) - 66*Piecewise((-sqrt(21)*acoth(sqrt(21)*sqrt(-
2*x + 1)/7)/21, -2*x + 1 > 7/3), (-sqrt(21)*atanh(sqrt(21)*sqrt(-
2*x + 1)/7)/21, -2*x + 1 < 7/3)) + 110*Piecewise((-sqrt(55)*acoth
(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*x + 1 > 11/5), (-sqrt(55)*ata
nh(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*x + 1 < 11/5))
```

GIAC/XCAS [A] time = 0.219452, size = 126, normalized size = 1.85

$$\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{34}{21}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{\sqrt{-2x+1}}{3x+2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/((5*x + 3)*(3*x + 2)^2),x, algorithm="giac")
```

```
[Out] sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(55) +
5*sqrt(-2*x + 1))) - 34/21*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sq
rt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + sqrt(-2*x + 1)/(3*
x + 2)
```

3.1818 $\int \frac{\sqrt{1-2x}}{(2+3x)^3(3+5x)}\,dx$

Optimal. Leaf size=95

$$\frac{69\sqrt{1-2x}}{14(3x+2)}+\frac{\sqrt{1-2x}}{2(3x+2)^2}+\frac{793}{7}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-10\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] Sqrt[1 - 2*x]/(2*(2 + 3*x)^2) + (69*Sqrt[1 - 2*x])/(14*(2 + 3*x))
 + (793*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/7 - 10*Sqrt[5
5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Rubi [A] time = 0.180311, antiderivative size = 95, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{69\sqrt{1-2x}}{14(3x+2)}+\frac{\sqrt{1-2x}}{2(3x+2)^2}+\frac{793}{7}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-10\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]/((2 + 3*x)^3*(3 + 5*x)),x]
```

```
[Out] Sqrt[1 - 2*x]/(2*(2 + 3*x)^2) + (69*Sqrt[1 - 2*x])/(14*(2 + 3*x))
 + (793*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/7 - 10*Sqrt[5
5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Rubi in Sympy [A] time = 21.2317, size = 80, normalized size = 0.84

$$\frac{69\sqrt{-2x+1}}{14\,(3x+2)}+\frac{\sqrt{-2x+1}}{2\,(3x+2)^2}+\frac{793\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{49}-10\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)/(2+3*x)**3/(3+5*x),x)
```

```
[Out] 69*sqrt(-2*x + 1)/(14*(3*x + 2)) + sqrt(-2*x + 1)/(2*(3*x + 2)**2
) + 793*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/49 - 10*sqrt(55
)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)
```

Mathematica [A] time = 0.135402, size = 80, normalized size = 0.84

$$\frac{\sqrt{1-2x}(207x+145)}{14(3x+2)^2}+\frac{793}{7}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-10\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]/((2 + 3*x)^3*(3 + 5*x)),x]
```

```
[Out] (Sqrt[1 - 2*x]*(145 + 207*x))/(14*(2 + 3*x)^2) + (793*Sqrt[3/7]*A
rcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/7 - 10*Sqrt[55]*ArcTanh[Sqrt[5/1
1]*Sqrt[1 - 2*x]]
```

Maple [A] time = 0.017, size = 66, normalized size = 0.7

$$-18\frac{1}{(-4-6x)^2}\left(\frac{23\,(1-2x)^{3/2}}{14}-\frac{71\sqrt{1-2x}}{18}\right)+\frac{793\sqrt{21}}{49}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)-10\,\mathit{Artanh}\left(1/11\sqrt{55}\sqrt{1-2x}\right)\sqrt{55}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)/(2+3*x)^3/(3+5*x),x)
```

```
[Out] -18*(23/14*(1-2*x)^(3/2)-71/18*(1-2*x)^(1/2))/(-4-6*x)^2+793/49*a
rctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)-10*arctanh(1/11*55^(1
/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.50263, size = 149, normalized size = 1.57

$$5\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{793}{98}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{207\,(-2x+1)^{\frac{3}{2}}-497\sqrt{-2x+1}}{7\left(9\,(2x-1)^2+84x+7\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/((5*x + 3)*(3*x + 2)^3),x, algorithm="maxima")
```

```
[Out] 5*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(
-2*x + 1))) - 793/98*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/
(sqrt(21) + 3*sqrt(-2*x + 1))) - 1/7*(207*(-2*x + 1)^(3/2) - 497*
sqrt(-2*x + 1))/(9*(2*x - 1)^2 + 84*x + 7)
```

Fricas [A] time = 0.219053, size = 166, normalized size = 1.75

$$\frac{\sqrt{7}\left(70\sqrt{55}\sqrt{7}\left(9x^2+12x+4\right)\log\left(\frac{5x+\sqrt{55}\sqrt{-2x+1}-8}{5x+3}\right)+793\sqrt{3}\left(9x^2+12x+4\right)\log\left(\frac{\sqrt{7}(3x-5)-7\sqrt{3}\sqrt{-2x+1}}{3x+2}\right)+\sqrt{7}(207x+14\ldots\right.}{98\left(9x^2+12x+4\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/((5*x + 3)*(3*x + 2)^3),x, algorithm="fricas")
```

```
[Out] 1/98*sqrt(7)*(70*sqrt(55)*sqrt(7)*(9*x^2 + 12*x + 4)*log((5*x + s
qrt(55)*sqrt(-2*x + 1) - 8)/(5*x + 3)) + 793*sqrt(3)*(9*x^2 + 12*
x + 4)*log((sqrt(7)*(3*x - 5) - 7*sqrt(3)*sqrt(-2*x + 1))/(3*x +
2)) + sqrt(7)*(207*x + 145)*sqrt(-2*x + 1))/(9*x^2 + 12*x + 4)
```

Sympy [A] time = 56.9448, size = 369, normalized size = 3.88

$$132\left(\begin{cases}\frac{\sqrt{21}\left(-\frac{\log\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)}{4}+\frac{\log\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)}{4}-\frac{1}{4\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)}-\frac{1}{4\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)}\right)}{147} & \text{for } x\le\frac{1}{2}\wedge x>-\frac{2}{3}\end{cases}\right)$$
$$-56\left(\begin{cases}\frac{\sqrt{21}\left(\frac{3\log\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)}{16}-\frac{3\log\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)}{16}+\frac{3}{16\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)}+\frac{1}{16\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)^2}+\frac{3}{16\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)}-\frac{1}{16\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)^2}\right)}{1029} & \text{for } x\le\frac{1}{2}\wedge x>-\frac{2}{3}\end{cases}\right)$$
$$-330\left(\begin{cases}-\frac{\sqrt{21}\operatorname{acoth}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for } -2x+1>\frac{7}{3}\\ -\frac{\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for } -2x+1<\frac{7}{3}\end{cases}\right)+550\left(\begin{cases}-\frac{\sqrt{55}\operatorname{acoth}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1>\frac{11}{5}\\ -\frac{\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1<\frac{11}{5}\end{cases}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)/(2+3*x)**3/(3+5*x),x)
```

```
[Out] 132*Piecewise((sqrt(21)*(-log(sqrt(21)*sqrt(-2*x + 1)/7 - 1)/4 +
log(sqrt(21)*sqrt(-2*x + 1)/7 + 1)/4 - 1/(4*(sqrt(21)*sqrt(-2*x +
 1)/7 + 1)) - 1/(4*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)))/147, (x <= 1
/2) & (x > -2/3))) - 56*Piecewise((sqrt(21)*(3*log(sqrt(21)*sqrt(
-2*x + 1)/7 - 1)/16 - 3*log(sqrt(21)*sqrt(-2*x + 1)/7 + 1)/16 + 3
/(16*(sqrt(21)*sqrt(-2*x + 1)/7 + 1)) + 1/(16*(sqrt(21)*sqrt(-2*x
 + 1)/7 + 1)**2) + 3/(16*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)) - 1/(16
*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)**2))/1029, (x <= 1/2) & (x > -2/
3))) - 330*Piecewise((-sqrt(21)*acoth(sqrt(21)*sqrt(-2*x + 1)/7)/
21, -2*x + 1 > 7/3), (-sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/
21, -2*x + 1 < 7/3)) + 550*Piecewise((-sqrt(55)*acoth(sqrt(55)*sq
rt(-2*x + 1)/11)/55, -2*x + 1 > 11/5), (-sqrt(55)*atanh(sqrt(55)*
sqrt(-2*x + 1)/11)/55, -2*x + 1 < 11/5))
```

GIAC/XCAS [A] time = 0.217315, size = 144, normalized size = 1.52

$$5\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{793}{98}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{207(-2x+1)^{\frac{3}{2}}-497\sqrt{-2x+1}}{28(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/((5*x + 3)*(3*x + 2)^3),x, algorithm="giac")
```

```
[Out] 5*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(55)
+ 5*sqrt(-2*x + 1))) - 793/98*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6
*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 1/28*(207*(-2*x
 + 1)^(3/2) - 497*sqrt(-2*x + 1))/(3*x + 2)^2
```

3.1819 $\int \frac{\sqrt{1-2x}}{(2+3x)^4(3+5x)}\,dx$

Optimal. Leaf size=113

$$\frac{1207\sqrt{1-2x}}{49(3x+2)}+\frac{52\sqrt{1-2x}}{21(3x+2)^2}+\frac{\sqrt{1-2x}}{3(3x+2)^3}+\frac{83264\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{49\sqrt{21}}-50\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] Sqrt[1 - 2*x]/(3*(2 + 3*x)^3) + (52*Sqrt[1 - 2*x])/(21*(2 + 3*x)^
2) + (1207*Sqrt[1 - 2*x])/(49*(2 + 3*x)) + (83264*ArcTanh[Sqrt[3/
7]*Sqrt[1 - 2*x]])/(49*Sqrt[21]) - 50*Sqrt[55]*ArcTanh[Sqrt[5/11]
*Sqrt[1 - 2*x]]
```

Rubi [A] time = 0.24113, antiderivative size = 113, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{1207\sqrt{1-2x}}{49(3x+2)}+\frac{52\sqrt{1-2x}}{21(3x+2)^2}+\frac{\sqrt{1-2x}}{3(3x+2)^3}+\frac{83264\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{49\sqrt{21}}-50\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]/((2 + 3*x)^4*(3 + 5*x)),x]
```

```
[Out] Sqrt[1 - 2*x]/(3*(2 + 3*x)^3) + (52*Sqrt[1 - 2*x])/(21*(2 + 3*x)^
2) + (1207*Sqrt[1 - 2*x])/(49*(2 + 3*x)) + (83264*ArcTanh[Sqrt[3/
7]*Sqrt[1 - 2*x]])/(49*Sqrt[21]) - 50*Sqrt[55]*ArcTanh[Sqrt[5/11]
*Sqrt[1 - 2*x]]
```

Rubi in Sympy [A] time = 27.9971, size = 99, normalized size = 0.88

$$\frac{1207\sqrt{-2x+1}}{49\,(3x+2)}+\frac{52\sqrt{-2x+1}}{21\,(3x+2)^2}+\frac{\sqrt{-2x+1}}{3\,(3x+2)^3}+\frac{83264\sqrt{21}\,\mathrm{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{1029}-50\sqrt{55}\,\mathrm{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)/(2+3*x)**4/(3+5*x),x)
```

```
[Out] 1207*sqrt(-2*x + 1)/(49*(3*x + 2)) + 52*sqrt(-2*x + 1)/(21*(3*x +
 2)**2) + sqrt(-2*x + 1)/(3*(3*x + 2)**3) + 83264*sqrt(21)*atanh(
sqrt(21)*sqrt(-2*x + 1)/7)/1029 - 50*sqrt(55)*atanh(sqrt(55)*sqrt
(-2*x + 1)/11)
```

Mathematica [A] time = 0.182588, size = 83, normalized size = 0.73

$$\frac{\sqrt{1-2x}\left(10863x^2+14848x+5087\right)}{49(3x+2)^3}+\frac{83264\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{49\sqrt{21}}-50\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]/((2 + 3*x)^4*(3 + 5*x)),x]
```

```
[Out] (Sqrt[1 - 2*x]*(5087 + 14848*x + 10863*x^2))/(49*(2 + 3*x)^3) + (
83264*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(49*Sqrt[21]) - 50*Sqrt[5
```

```
5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Maple [A] time = 0.019, size = 75, normalized size = 0.7

$$-54\frac{1}{(-4-6x)^3}\left(\frac{1207\,(1-2x)^{5/2}}{147}-\frac{7346\,(1-2x)^{3/2}}{189}+\frac{1243\sqrt{1-2x}}{27}\right)+\frac{83264\sqrt{21}}{1029}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)-50\,\mathit{Artanh}\left(1/11\sqrt{55}\sqrt{1-2x}\right)\sqrt{55}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)/(2+3*x)^4/(3+5*x),x)
```

```
[Out] -54*(1207/147*(1-2*x)^(5/2)-7346/189*(1-2*x)^(3/2)+1243/27*(1-2*x
)^(1/2))/(-4-6*x)^3+83264/1029*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2)
)*21^(1/2)-50*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.51494, size = 173, normalized size = 1.53

$$25\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{41632}{1029}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{2\left(10863\,(-2x+1)^{\frac{5}{2}}-51422\,(-2x+1)^{\frac{3}{2}}+60907\sqrt{-2x+1}\right)}{49\left(27\,(2x-1)^3+189\,(2x-1)^2+882x-98\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/((5*x + 3)*(3*x + 2)^4),x, algorithm="maxima")
```

```
[Out] 25*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt
(-2*x + 1))) - 41632/1029*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x +
 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 2/49*(10863*(-2*x + 1)^(5/2
) - 51422*(-2*x + 1)^(3/2) + 60907*sqrt(-2*x + 1))/(27*(2*x - 1)^
3 + 189*(2*x - 1)^2 + 882*x - 98)
```

Fricas [A] time = 0.218538, size = 185, normalized size = 1.64

$$\frac{\sqrt{21}\left(1225\sqrt{55}\sqrt{21}\left(27x^3+54x^2+36x+8\right)\log\left(\frac{5x+\sqrt{55}\sqrt{-2x+1}-8}{5x+3}\right)+\sqrt{21}\left(10863x^2+14848x+5087\right)\sqrt{-2x+1}+41632\,(2\right.}{1029\,(27x^3+54x^2+36x+8)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/((5*x + 3)*(3*x + 2)^4),x, algorithm="fricas")
```

```
[Out] 1/1029*sqrt(21)*(1225*sqrt(55)*sqrt(21)*(27*x^3 + 54*x^2 + 36*x +
 8)*log((5*x + sqrt(55)*sqrt(-2*x + 1) - 8)/(5*x + 3)) + sqrt(21)
*(10863*x^2 + 14848*x + 5087)*sqrt(-2*x + 1) + 41632*(27*x^3 + 54
*x^2 + 36*x + 8)*log((sqrt(21)*(3*x - 5) - 21*sqrt(-2*x + 1))/(3*
x + 2)))/(27*x^3 + 54*x^2 + 36*x + 8)
```

Sympy [A] time = 99.8497, size = 559, normalized size = 4.95

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)/(2+3*x)**4/(3+5*x),x)
```

```
[Out] 660*Piecewise((sqrt(21)*(-log(sqrt(21)*sqrt(-2*x + 1)/7 - 1)/4 +
log(sqrt(21)*sqrt(-2*x + 1)/7 + 1)/4 - 1/(4*(sqrt(21)*sqrt(-2*x +
 1)/7 + 1)) - 1/(4*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)))/147, (x <= 1
/2) & (x > -2/3))) - 264*Piecewise((sqrt(21)*(3*log(sqrt(21)*sqrt
(-2*x + 1)/7 - 1)/16 - 3*log(sqrt(21)*sqrt(-2*x + 1)/7 + 1)/16 +
3/(16*(sqrt(21)*sqrt(-2*x + 1)/7 + 1)) + 1/(16*(sqrt(21)*sqrt(-2*
x + 1)/7 + 1)**2) + 3/(16*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)) - 1/(1
6*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)**2))/1029, (x <= 1/2) & (x > -2
/3))) + 112*Piecewise((sqrt(21)*(-5*log(sqrt(21)*sqrt(-2*x + 1)/7
 - 1)/32 + 5*log(sqrt(21)*sqrt(-2*x + 1)/7 + 1)/32 - 5/(32*(sqrt(
21)*sqrt(-2*x + 1)/7 + 1)) - 1/(16*(sqrt(21)*sqrt(-2*x + 1)/7 + 1
)**2) - 1/(48*(sqrt(21)*sqrt(-2*x + 1)/7 + 1)**3) - 5/(32*(sqrt(2
1)*sqrt(-2*x + 1)/7 - 1)) + 1/(16*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)
**2) - 1/(48*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)**3))/7203, (x <= 1/2
) & (x > -2/3))) - 1650*Piecewise((-sqrt(21)*acoth(sqrt(21)*sqrt(
-2*x + 1)/7)/21, -2*x + 1 > 7/3), (-sqrt(21)*atanh(sqrt(21)*sqrt(
-2*x + 1)/7)/21, -2*x + 1 < 7/3)) + 2750*Piecewise((-sqrt(55)*aco
th(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*x + 1 > 11/5), (-sqrt(55)*a
tanh(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*x + 1 < 11/5))
```

GIAC/XCAS [A] time = 0.216681, size = 166, normalized size = 1.47

$$25\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{41632}{1029}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{10863\,(2x-1)^2\sqrt{-2x+1}-51422\,(-2x+1)^{\frac{3}{2}}+60907\sqrt{-2x+1}}{196\,(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/((5*x + 3)*(3*x + 2)^4),x, algorithm="giac")
```

```
[Out] 25*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(55)
 + 5*sqrt(-2*x + 1))) - 41632/1029*sqrt(21)*ln(1/2*abs(-2*sqrt(21
) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 1/196*(108
63*(2*x - 1)^2*sqrt(-2*x + 1) - 51422*(-2*x + 1)^(3/2) + 60907*sq
rt(-2*x + 1))/(3*x + 2)^3
```

3.1820 $\int \frac{\sqrt{1-2x}}{(2+3x)^5(3+5x)}\,dx$

Optimal. Leaf size=133

$$\frac{337955\sqrt{1-2x}}{2744(3x+2)}+\frac{14555\sqrt{1-2x}}{1176(3x+2)^2}+\frac{139\sqrt{1-2x}}{84(3x+2)^3}+\frac{\sqrt{1-2x}}{4(3x+2)^4}+\frac{11656955\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{1372\sqrt{21}}-250\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] Sqrt[1 - 2*x]/(4*(2 + 3*x)^4) + (139*Sqrt[1 - 2*x])/(84*(2 + 3*x)
^3) + (14555*Sqrt[1 - 2*x])/(1176*(2 + 3*x)^2) + (337955*Sqrt[1 -
 2*x])/(2744*(2 + 3*x)) + (11656955*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*
x]])/(1372*Sqrt[21]) - 250*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2
*x]]
```

Rubi [A] time = 0.301435, antiderivative size = 133, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{337955\sqrt{1-2x}}{2744(3x+2)}+\frac{14555\sqrt{1-2x}}{1176(3x+2)^2}+\frac{139\sqrt{1-2x}}{84(3x+2)^3}+\frac{\sqrt{1-2x}}{4(3x+2)^4}+\frac{11656955\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{1372\sqrt{21}}-250\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]/((2 + 3*x)^5*(3 + 5*x)),x]
```

```
[Out] Sqrt[1 - 2*x]/(4*(2 + 3*x)^4) + (139*Sqrt[1 - 2*x])/(84*(2 + 3*x)
^3) + (14555*Sqrt[1 - 2*x])/(1176*(2 + 3*x)^2) + (337955*Sqrt[1 -
 2*x])/(2744*(2 + 3*x)) + (11656955*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*
x]])/(1372*Sqrt[21]) - 250*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2
*x]]
```

Rubi in Sympy [A] time = 34.9262, size = 117, normalized size = 0.88

$$\frac{337955\sqrt{-2x+1}}{2744\,(3x+2)}+\frac{14555\sqrt{-2x+1}}{1176\,(3x+2)^2}+\frac{139\sqrt{-2x+1}}{84\,(3x+2)^3}+\frac{\sqrt{-2x+1}}{4\,(3x+2)^4}+\frac{11656955\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{28812}-250\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)/(2+3*x)**5/(3+5*x),x)
```

```
[Out] 337955*sqrt(-2*x + 1)/(2744*(3*x + 2)) + 14555*sqrt(-2*x + 1)/(11
76*(3*x + 2)**2) + 139*sqrt(-2*x + 1)/(84*(3*x + 2)**3) + sqrt(-2
*x + 1)/(4*(3*x + 2)**4) + 11656955*sqrt(21)*atanh(sqrt(21)*sqrt(
-2*x + 1)/7)/28812 - 250*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/1
1)
```

Mathematica [A] time = 0.248668, size = 88, normalized size = 0.66

$$\frac{\sqrt{1-2x}\left(9124785x^3+18555225x^2+12587542x+2849254\right)}{2744(3x+2)^4}+\frac{11656955\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{1372\sqrt{21}}-250\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]/((2 + 3*x)^5*(3 + 5*x)),x]
```

```
[Out] (Sqrt[1 - 2*x]*(2849254 + 12587542*x + 18555225*x^2 + 9124785*x^3
))/(2744*(2 + 3*x)^4) + (11656955*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]
])/(1372*Sqrt[21]) - 250*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x
]]
```

Maple [A] time = 0.019, size = 84, normalized size = 0.6

$$-162\frac{1}{(-4-6x)^4}\left(\frac{337955(1-2x)^{7/2}}{8232}-\frac{3070705(1-2x)^{5/2}}{10584}+\frac{3100927(1-2x)^{3/2}}{4536}-\frac{116015\sqrt{1-2x}}{216}\right)+\frac{11656955\sqrt{21}}{28812}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)-250\,Artanh\left(1/11\sqrt{55}\sqrt{1-2x}\right)\sqrt{55}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)/(2+3*x)^5/(3+5*x),x)
```

```
[Out] -162*(337955/8232*(1-2*x)^(7/2)-3070705/10584*(1-2*x)^(5/2)+31009
27/4536*(1-2*x)^(3/2)-116015/216*(1-2*x)^(1/2))/(-4-6*x)^4+116569
55/28812*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)-250*arctanh
(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.48267, size = 197, normalized size = 1.48

$$125\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{11656955}{57624}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{9124785(-2x+1)^{\frac{7}{2}}-64484805(-2x+1)^{\frac{5}{2}}+151945423(-2x+1)^{\frac{3}{2}}-119379435\sqrt{-2x+1}}{1372\left(81(2x-1)^4+756(2x-1)^3+2646(2x-1)^2+8232x-1715\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/((5*x + 3)*(3*x + 2)^5),x, algorithm="maxima")
```

```
[Out] 125*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sqr
t(-2*x + 1))) - 11656955/57624*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-
2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 1/1372*(9124785*(-2*x
+ 1)^(7/2) - 64484805*(-2*x + 1)^(5/2) + 151945423*(-2*x + 1)^(3/
2) - 119379435*sqrt(-2*x + 1))/(81*(2*x - 1)^4 + 756*(2*x - 1)^3
+ 2646*(2*x - 1)^2 + 8232*x - 1715)
```

Fricas [A] time = 0.220837, size = 212, normalized size = 1.59

$$\frac{\sqrt{21}\left(343000\sqrt{55}\sqrt{21}\left(81x^4+216x^3+216x^2+96x+16\right)\log\left(\frac{5x+\sqrt{55}\sqrt{-2x+1}-8}{5x+3}\right)+\sqrt{21}\left(9124785x^3+18555225x^2+12587\right.\right.}{57624\left(81x^4+216x^3+216x^2\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/((5*x + 3)*(3*x + 2)^5),x, algorithm="fricas")
```

```
[Out] 1/57624*sqrt(21)*(343000*sqrt(55)*sqrt(21)*(81*x^4 + 216*x^3 + 21
6*x^2 + 96*x + 16)*log((5*x + sqrt(55)*sqrt(-2*x + 1) - 8)/(5*x +
 3)) + sqrt(21)*(9124785*x^3 + 18555225*x^2 + 12587542*x + 284925
4)*sqrt(-2*x + 1) + 11656955*(81*x^4 + 216*x^3 + 216*x^2 + 96*x +
 16)*log((sqrt(21)*(3*x - 5) - 21*sqrt(-2*x + 1))/(3*x + 2)))/(81
*x^4 + 216*x^3 + 216*x^2 + 96*x + 16)
```

Sympy [A] time = 159.506, size = 794, normalized size = 5.97

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)/(2+3*x)**5/(3+5*x),x)
```

```
[Out] 3300*Piecewise((sqrt(21)*(-log(sqrt(21)*sqrt(-2*x + 1)/7 - 1)/4 +
 log(sqrt(21)*sqrt(-2*x + 1)/7 + 1)/4 - 1/(4*(sqrt(21)*sqrt(-2*x
+ 1)/7 + 1)) - 1/(4*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)))/147, (x <=
1/2) & (x > -2/3))) - 1320*Piecewise((sqrt(21)*(3*log(sqrt(21)*sq
rt(-2*x + 1)/7 - 1)/16 - 3*log(sqrt(21)*sqrt(-2*x + 1)/7 + 1)/16
+ 3/(16*(sqrt(21)*sqrt(-2*x + 1)/7 + 1)) + 1/(16*(sqrt(21)*sqrt(-
2*x + 1)/7 + 1)**2) + 3/(16*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)) - 1/
(16*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)**2))/1029, (x <= 1/2) & (x >
-2/3))) + 528*Piecewise((sqrt(21)*(-5*log(sqrt(21)*sqrt(-2*x + 1)
/7 - 1)/32 + 5*log(sqrt(21)*sqrt(-2*x + 1)/7 + 1)/32 - 5/(32*(sqr
t(21)*sqrt(-2*x + 1)/7 + 1)) - 1/(16*(sqrt(21)*sqrt(-2*x + 1)/7 +
 1)**2) - 1/(48*(sqrt(21)*sqrt(-2*x + 1)/7 + 1)**3) - 5/(32*(sqrt
(21)*sqrt(-2*x + 1)/7 - 1)) + 1/(16*(sqrt(21)*sqrt(-2*x + 1)/7 -
1)**2) - 1/(48*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)**3))/7203, (x <= 1
/2) & (x > -2/3))) - 224*Piecewise((sqrt(21)*(35*log(sqrt(21)*sqr
t(-2*x + 1)/7 - 1)/256 - 35*log(sqrt(21)*sqrt(-2*x + 1)/7 + 1)/25
6 + 35/(256*(sqrt(21)*sqrt(-2*x + 1)/7 + 1)) + 15/(256*(sqrt(21)*
sqrt(-2*x + 1)/7 + 1)**2) + 5/(192*(sqrt(21)*sqrt(-2*x + 1)/7 + 1
)**3) + 1/(128*(sqrt(21)*sqrt(-2*x + 1)/7 + 1)**4) + 35/(256*(sqr
t(21)*sqrt(-2*x + 1)/7 - 1)) - 15/(256*(sqrt(21)*sqrt(-2*x + 1)/7
 - 1)**2) + 5/(192*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)**3) - 1/(128*(
sqrt(21)*sqrt(-2*x + 1)/7 - 1)**4))/50421, (x <= 1/2) & (x > -2/3
))) - 8250*Piecewise((-sqrt(21)*acoth(sqrt(21)*sqrt(-2*x + 1)/7)/
21, -2*x + 1 > 7/3), (-sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/
21, -2*x + 1 < 7/3)) + 13750*Piecewise((-sqrt(55)*acoth(sqrt(55)*
sqrt(-2*x + 1)/11)/55, -2*x + 1 > 11/5), (-sqrt(55)*atanh(sqrt(55
)*sqrt(-2*x + 1)/11)/55, -2*x + 1 < 11/5))
```

GIAC/XCAS [A] time = 0.23176, size = 188, normalized size = 1.41

$$125\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{11656955}{57624}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{9124785\,(2x-1)^3\sqrt{-2x+1}+64484805\,(2x-1)^2\sqrt{-2x+1}-151945423\,(-2x+1)^{\frac{3}{2}}+119379435\sqrt{-2x+1}}{21952\,(3x+2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/((5*x + 3)*(3*x + 2)^5),x, algorithm="giac")
```

```
[Out] 125*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(55
) + 5*sqrt(-2*x + 1))) - 11656955/57624*sqrt(21)*ln(1/2*abs(-2*sq
rt(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 1/219
52*(9124785*(2*x - 1)^3*sqrt(-2*x + 1) + 64484805*(2*x - 1)^2*sqr
```

```
t(-2*x + 1) - 151945423*(-2*x + 1)^(3/2) + 119379435*sqrt(-2*x +
1))/(3*x + 2)^4
```

3.1821 $\int \frac{\sqrt{1-2x}(2+3x)^5}{(3+5x)^2}\,dx$

Optimal. Leaf size=133

$$-\frac{\sqrt{1-2x}(3x+2)^5}{5(5x+3)}+\frac{11}{75}\sqrt{1-2x}(3x+2)^4+\frac{64\sqrt{1-2x}(3x+2)^3}{2625}-\frac{172\sqrt{1-2x}(3x+2)^2}{3125}-\frac{4\sqrt{1-2x}(3625x+10998)}{15625}-\frac{328\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{15625\sqrt{55}}$$

```
[Out] (-172*Sqrt[1 - 2*x]*(2 + 3*x)^2)/3125 + (64*Sqrt[1 - 2*x]*(2 + 3*
x)^3)/2625 + (11*Sqrt[1 - 2*x]*(2 + 3*x)^4)/75 - (Sqrt[1 - 2*x]*(
2 + 3*x)^5)/(5*(3 + 5*x)) - (4*Sqrt[1 - 2*x]*(10998 + 3625*x))/15
625 - (328*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(15625*Sqrt[55])
```

Rubi [A] time = 0.260691, antiderivative size = 133, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$-\frac{\sqrt{1-2x}(3x+2)^5}{5(5x+3)}+\frac{11}{75}\sqrt{1-2x}(3x+2)^4+\frac{64\sqrt{1-2x}(3x+2)^3}{2625}-\frac{172\sqrt{1-2x}(3x+2)^2}{3125}-\frac{4\sqrt{1-2x}(3625x+10998)}{15625}-\frac{328\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{15625\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(2 + 3*x)^5)/(3 + 5*x)^2,x]
```

```
[Out] (-172*Sqrt[1 - 2*x]*(2 + 3*x)^2)/3125 + (64*Sqrt[1 - 2*x]*(2 + 3*
x)^3)/2625 + (11*Sqrt[1 - 2*x]*(2 + 3*x)^4)/75 - (Sqrt[1 - 2*x]*(
2 + 3*x)^5)/(5*(3 + 5*x)) - (4*Sqrt[1 - 2*x]*(10998 + 3625*x))/15
625 - (328*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(15625*Sqrt[55])
```

Rubi in Sympy [A] time = 34.3225, size = 116, normalized size = 0.87

$$-\frac{\sqrt{-2x+1}\,(3x+2)^5}{5\,(5x+3)}+\frac{11\sqrt{-2x+1}\,(3x+2)^4}{75}+\frac{64\sqrt{-2x+1}\,(3x+2)^3}{2625}-\frac{172\sqrt{-2x+1}\,(3x+2)^2}{3125}-\frac{\sqrt{-2x+1}\,(13702500x+41572440)}{14765625}-\frac{328\sqrt{55}\,\mathrm{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{859375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**5*(1-2*x)**(1/2)/(3+5*x)**2,x)
```

```
[Out] -sqrt(-2*x + 1)*(3*x + 2)**5/(5*(5*x + 3)) + 11*sqrt(-2*x + 1)*(3
*x + 2)**4/75 + 64*sqrt(-2*x + 1)*(3*x + 2)**3/2625 - 172*sqrt(-2
*x + 1)*(3*x + 2)**2/3125 - sqrt(-2*x + 1)*(13702500*x + 41572440
)/14765625 - 328*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/85937
5
```

Mathematica [A] time = 0.117275, size = 73, normalized size = 0.55

$$\frac{\frac{55\sqrt{1-2x}\left(1181250x^5+3864375x^4+4760100x^3+2225760x^2-1133340x-862072\right)}{5x+3}-2296\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{6015625}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(2 + 3*x)^5)/(3 + 5*x)^2,x]
```

```
[Out] ((55*Sqrt[1 - 2*x]*(-862072 - 1133340*x + 2225760*x^2 + 4760100*x
^3 + 3864375*x^4 + 1181250*x^5))/(3 + 5*x) - 2296*Sqrt[55]*ArcTan
h[Sqrt[5/11]*Sqrt[1 - 2*x]])/6015625
```

Maple [A] time = 0.016, size = 81, normalized size = 0.6

$$\frac{27}{200}(1-2x)^{\frac{9}{2}}-\frac{8829}{7000}(1-2x)^{\frac{7}{2}}+\frac{107109}{25000}(1-2x)^{\frac{5}{2}}-\frac{144681}{25000}(1-2x)^{\frac{3}{2}}+\frac{6}{3125}\sqrt{1-2x}+\frac{2}{78125}\sqrt{1-2x}\left(-\frac{6}{5}-2x\right)^{-1}-\frac{328\sqrt{55}}{859375}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^5*(1-2*x)^(1/2)/(3+5*x)^2,x)
```

```
[Out] 27/200*(1-2*x)^(9/2)-8829/7000*(1-2*x)^(7/2)+107109/25000*(1-2*x)
^(5/2)-144681/25000*(1-2*x)^(3/2)+6/3125*(1-2*x)^(1/2)+2/78125*(1
-2*x)^(1/2)/(-6/5-2*x)-328/859375*arctanh(1/11*55^(1/2)*(1-2*x)^(
1/2))*55^(1/2)
```

Maxima [A] time = 1.49628, size = 132, normalized size = 0.99

$$\frac{27}{200}(-2x+1)^{\frac{9}{2}}-\frac{8829}{7000}(-2x+1)^{\frac{7}{2}}+\frac{107109}{25000}(-2x+1)^{\frac{5}{2}}-\frac{144681}{25000}(-2x+1)^{\frac{3}{2}}+\frac{164}{859375}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{6}{3125}\sqrt{-2x+1}-\frac{\sqrt{-2x+1}}{15625(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5*sqrt(-2*x + 1)/(5*x + 3)^2,x, algorithm="maxima")
```

```
[Out] 27/200*(-2*x + 1)^(9/2) - 8829/7000*(-2*x + 1)^(7/2) + 107109/250
00*(-2*x + 1)^(5/2) - 144681/25000*(-2*x + 1)^(3/2) + 164/859375*
sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2
*x + 1))) + 6/3125*sqrt(-2*x + 1) - 1/15625*sqrt(-2*x + 1)/(5*x +
 3)
```

Fricas [A] time = 0.211285, size = 113, normalized size = 0.85

$$\frac{\sqrt{55}\left(\sqrt{55}\left(1181250x^5+3864375x^4+4760100x^3+2225760x^2-1133340x-862072\right)\sqrt{-2x+1}+1148(5x+3)\log\left(\frac{\sqrt{55}(5}{}\right.\right.}{6015625(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5*sqrt(-2*x + 1)/(5*x + 3)^2,x, algorithm="fricas")
```

```
[Out] 1/6015625*sqrt(55)*(sqrt(55)*(1181250*x^5 + 3864375*x^4 + 4760100
*x^3 + 2225760*x^2 - 1133340*x - 862072)*sqrt(-2*x + 1) + 1148*(5
*x + 3)*log((sqrt(55)*(5*x - 8) + 55*sqrt(-2*x + 1))/(5*x + 3)))/
(5*x + 3)
```

Sympy [A] time = 84.1751, size = 223, normalized size = 1.68

$$\frac{27(-2x+1)^{\frac{9}{2}}}{200}-\frac{8829(-2x+1)^{\frac{7}{2}}}{7000}+\frac{107109(-2x+1)^{\frac{5}{2}}}{25000}-\frac{144681(-2x+1)^{\frac{3}{2}}}{25000}+\frac{6\sqrt{-2x+1}}{3125}-\frac{44\left(\begin{cases}\frac{\sqrt{55}\left(-\frac{\log\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)}{4}+\frac{\log\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)}{4}-\frac{1}{4\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)}-\frac{1}{4\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)}\right)}{605} & \text{for } x\le\frac{1}{2}\wedge x>-\frac{3}{5}\end{cases}\right)}{15625}+\frac{326\left(\begin{cases}-\frac{\sqrt{55}\operatorname{acoth}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1>\frac{11}{5}\\ -\frac{\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1<\frac{11}{5}\end{cases}\right)}{15625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**5*(1-2*x)**(1/2)/(3+5*x)**2,x)
```

```
[Out] 27*(-2*x + 1)**(9/2)/200 - 8829*(-2*x + 1)**(7/2)/7000 + 107109*(
-2*x + 1)**(5/2)/25000 - 144681*(-2*x + 1)**(3/2)/25000 + 6*sqrt(
-2*x + 1)/3125 - 44*Piecewise((sqrt(55)*(-log(sqrt(55)*sqrt(-2*x
+ 1)/11 - 1)/4 + log(sqrt(55)*sqrt(-2*x + 1)/11 + 1)/4 - 1/(4*(sq
rt(55)*sqrt(-2*x + 1)/11 + 1)) - 1/(4*(sqrt(55)*sqrt(-2*x + 1)/11
 - 1)))/605, (x <= 1/2) & (x > -3/5)))/15625 + 326*Piecewise((-sq
rt(55)*acoth(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*x + 1 > 11/5), (-
sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*x + 1 < 11/5))/
15625
```

GIAC/XCAS [A] time = 0.219316, size = 165, normalized size = 1.24

$$\frac{27}{200}(2x-1)^4\sqrt{-2x+1}+\frac{8829}{7000}(2x-1)^3\sqrt{-2x+1}+\frac{107109}{25000}(2x-1)^2\sqrt{-2x+1}-\frac{144681}{25000}(-2x+1)^{\frac{3}{2}}+\frac{164}{859375}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{6}{3125}\sqrt{-2x+1}-\frac{\sqrt{-2x+1}}{15625(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5*sqrt(-2*x + 1)/(5*x + 3)^2,x, algorithm="giac")
```

```
[Out] 27/200*(2*x - 1)^4*sqrt(-2*x + 1) + 8829/7000*(2*x - 1)^3*sqrt(-2
*x + 1) + 107109/25000*(2*x - 1)^2*sqrt(-2*x + 1) - 144681/25000*
(-2*x + 1)^(3/2) + 164/859375*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 1
0*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) + 6/3125*sqrt(-2
*x + 1) - 1/15625*sqrt(-2*x + 1)/(5*x + 3)
```

3.1822 $\int \frac{\sqrt{1-2x}(2+3x)^4}{(3+5x)^2}\,dx$

Optimal. Leaf size=113

$$-\frac{\sqrt{1-2x}(3x+2)^4}{5(5x+3)}+\frac{27}{175}\sqrt{1-2x}(3x+2)^3+\frac{12}{625}\sqrt{1-2x}(3x+2)^2-\frac{3\sqrt{1-2x}(375x+1256)}{3125}-\frac{262\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{3125\sqrt{55}}$$

```
[Out] (12*Sqrt[1 - 2*x]*(2 + 3*x)^2)/625 + (27*Sqrt[1 - 2*x]*(2 + 3*x)^
3)/175 - (Sqrt[1 - 2*x]*(2 + 3*x)^4)/(5*(3 + 5*x)) - (3*Sqrt[1 -
2*x]*(1256 + 375*x))/3125 - (262*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]
])/(3125*Sqrt[55])
```

Rubi [A] time = 0.20314, antiderivative size = 113, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$-\frac{\sqrt{1-2x}(3x+2)^4}{5(5x+3)}+\frac{27}{175}\sqrt{1-2x}(3x+2)^3+\frac{12}{625}\sqrt{1-2x}(3x+2)^2-\frac{3\sqrt{1-2x}(375x+1256)}{3125}-\frac{262\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{3125\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(2 + 3*x)^4)/(3 + 5*x)^2,x]
```

```
[Out] (12*Sqrt[1 - 2*x]*(2 + 3*x)^2)/625 + (27*Sqrt[1 - 2*x]*(2 + 3*x)^
3)/175 - (Sqrt[1 - 2*x]*(2 + 3*x)^4)/(5*(3 + 5*x)) - (3*Sqrt[1 -
2*x]*(1256 + 375*x))/3125 - (262*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]
])/(3125*Sqrt[55])
```

Rubi in Sympy [A] time = 27.8669, size = 97, normalized size = 0.86

$$-\frac{\sqrt{-2x+1}\,(3x+2)^4}{5\,(5x+3)}+\frac{27\sqrt{-2x+1}\,(3x+2)^3}{175}+\frac{12\sqrt{-2x+1}\,(3x+2)^2}{625}-\frac{\sqrt{-2x+1}\,(118125x+395640)}{328125}-\frac{262\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{171875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4*(1-2*x)**(1/2)/(3+5*x)**2,x)
```

```
[Out] -sqrt(-2*x + 1)*(3*x + 2)**4/(5*(5*x + 3)) + 27*sqrt(-2*x + 1)*(3
*x + 2)**3/175 + 12*sqrt(-2*x + 1)*(3*x + 2)**2/625 - sqrt(-2*x +
 1)*(118125*x + 395640)/328125 - 262*sqrt(55)*atanh(sqrt(55)*sqrt
(-2*x + 1)/11)/171875
```

Mathematica [A] time = 0.107905, size = 68, normalized size = 0.6

$$\frac{\sqrt{1-2x}\left(101250x^4+258525x^3+206415x^2-52485x-63088\right)}{21875(5x+3)}-\frac{262\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{3125\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(2 + 3*x)^4)/(3 + 5*x)^2,x]
```

```
[Out] (Sqrt[1 - 2*x]*(-63088 - 52485*x + 206415*x^2 + 258525*x^3 + 1012
50*x^4))/(21875*(3 + 5*x)) - (262*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x
]])/(3125*Sqrt[55])
```

Maple [A] time = 0.015, size = 72, normalized size = 0.6

$$-\frac{81}{700}(1-2x)^{\frac{7}{2}}+\frac{999}{1250}(1-2x)^{\frac{5}{2}}-\frac{4131}{2500}(1-2x)^{\frac{3}{2}}+\frac{24}{3125}\sqrt{1-2x}+\frac{2}{15625}\sqrt{1-2x}\left(-\frac{6}{5}-2x\right)^{-1}-\frac{262\sqrt{55}}{171875}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4*(1-2*x)^(1/2)/(3+5*x)^2,x)
```

```
[Out] -81/700*(1-2*x)^(7/2)+999/1250*(1-2*x)^(5/2)-4131/2500*(1-2*x)^(3
/2)+24/3125*(1-2*x)^(1/2)+2/15625*(1-2*x)^(1/2)/(-6/5-2*x)-262/17
1875*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.52924, size = 120, normalized size = 1.06

$$-\frac{81}{700}(-2x+1)^{\frac{7}{2}}+\frac{999}{1250}(-2x+1)^{\frac{5}{2}}-\frac{4131}{2500}(-2x+1)^{\frac{3}{2}}+\frac{131}{171875}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{24}{3125}\sqrt{-2x+1}-\frac{\sqrt{-2x+1}}{3125(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4*sqrt(-2*x + 1)/(5*x + 3)^2,x, algorithm="maxima")
```

```
[Out] -81/700*(-2*x + 1)^(7/2) + 999/1250*(-2*x + 1)^(5/2) - 4131/2500*
(-2*x + 1)^(3/2) + 131/171875*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2
*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) + 24/3125*sqrt(-2*x + 1)
- 1/3125*sqrt(-2*x + 1)/(5*x + 3)
```

Fricas [A] time = 0.211903, size = 107, normalized size = 0.95

$$\frac{\sqrt{55}\left(\sqrt{55}\left(101250x^4+258525x^3+206415x^2-52485x-63088\right)\sqrt{-2x+1}+917(5x+3)\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{-2x+1}}{5x+3}\right)\right)}{1203125(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4*sqrt(-2*x + 1)/(5*x + 3)^2,x, algorithm="fricas")
```

```
[Out] 1/1203125*sqrt(55)*(sqrt(55)*(101250*x^4 + 258525*x^3 + 206415*x^
2 - 52485*x - 63088)*sqrt(-2*x + 1) + 917*(5*x + 3)*log((sqrt(55)
*(5*x - 8) + 55*sqrt(-2*x + 1))/(5*x + 3)))/(5*x + 3)
```

Sympy [A] time = 72.615, size = 211, normalized size = 1.87

$$-\frac{81(-2x+1)^{\frac{7}{2}}}{700}+\frac{999(-2x+1)^{\frac{5}{2}}}{1250}-\frac{4131(-2x+1)^{\frac{3}{2}}}{2500}+\frac{24\sqrt{-2x+1}}{3125}-\frac{44\left(\begin{cases}\frac{\sqrt{55}\left(-\frac{\log\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)}{4}+\frac{\log\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)}{4}-\frac{1}{4\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)}-\frac{1}{4\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)}\right)}{605} & \text{for } x\le\frac{1}{2}\wedge x>-\frac{3}{5}\end{cases}\right)}{3125}+\frac{52\left(\begin{cases}-\frac{\sqrt{55}\operatorname{acoth}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1>\frac{11}{5}\\ -\frac{\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1<\frac{11}{5}\end{cases}\right)}{625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4*(1-2*x)**(1/2)/(3+5*x)**2,x)
```

```
[Out] -81*(-2*x + 1)**(7/2)/700 + 999*(-2*x + 1)**(5/2)/1250 - 4131*(-2
*x + 1)**(3/2)/2500 + 24*sqrt(-2*x + 1)/3125 - 44*Piecewise((sqrt
(55)*(-log(sqrt(55)*sqrt(-2*x + 1)/11 - 1)/4 + log(sqrt(55)*sqrt(
-2*x + 1)/11 + 1)/4 - 1/(4*(sqrt(55)*sqrt(-2*x + 1)/11 + 1)) - 1/
(4*(sqrt(55)*sqrt(-2*x + 1)/11 - 1)))/605, (x <= 1/2) & (x > -3/5
)))/3125 + 52*Piecewise((-sqrt(55)*acoth(sqrt(55)*sqrt(-2*x + 1)/
11)/55, -2*x + 1 > 11/5), (-sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1
)/11)/55, -2*x + 1 < 11/5))/625
```

GIAC/XCAS [A] time = 0.217459, size = 143, normalized size = 1.27

$$\frac{81}{700}(2x-1)^3\sqrt{-2x+1}+\frac{999}{1250}(2x-1)^2\sqrt{-2x+1}-\frac{4131}{2500}(-2x+1)^{\frac{3}{2}}+\frac{131}{171875}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{24}{3125}\sqrt{-2x+1}-\frac{\sqrt{-2x+1}}{3125(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4*sqrt(-2*x + 1)/(5*x + 3)^2,x, algorithm="giac")
```

```
[Out] 81/700*(2*x - 1)^3*sqrt(-2*x + 1) + 999/1250*(2*x - 1)^2*sqrt(-2*
x + 1) - 4131/2500*(-2*x + 1)^(3/2) + 131/171875*sqrt(55)*ln(1/2*
abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1)
)) + 24/3125*sqrt(-2*x + 1) - 1/3125*sqrt(-2*x + 1)/(5*x + 3)
```

3.1823 $\int \frac{\sqrt{1-2x}(2+3x)^3}{(3+5x)^2}\,dx$

Optimal. Leaf size=88

$$-\frac{\sqrt{1-2x}(3x+2)^3}{5(5x+3)}+\frac{21}{125}\sqrt{1-2x}(3x+2)^2-\frac{294}{625}\sqrt{1-2x}-\frac{196\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{625\sqrt{55}}$$

```
[Out] (-294*Sqrt[1 - 2*x])/625 + (21*Sqrt[1 - 2*x]*(2 + 3*x)^2)/125 - (
Sqrt[1 - 2*x]*(2 + 3*x)^3)/(5*(3 + 5*x)) - (196*ArcTanh[Sqrt[5/11
]*Sqrt[1 - 2*x]])/(625*Sqrt[55])
```

Rubi [A] time = 0.138456, antiderivative size = 88, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$-\frac{\sqrt{1-2x}(3x+2)^3}{5(5x+3)}+\frac{21}{125}\sqrt{1-2x}(3x+2)^2-\frac{294}{625}\sqrt{1-2x}-\frac{196\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{625\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(2 + 3*x)^3)/(3 + 5*x)^2,x]
```

```
[Out] (-294*Sqrt[1 - 2*x])/625 + (21*Sqrt[1 - 2*x]*(2 + 3*x)^2)/125 - (
Sqrt[1 - 2*x]*(2 + 3*x)^3)/(5*(3 + 5*x)) - (196*ArcTanh[Sqrt[5/11
]*Sqrt[1 - 2*x]])/(625*Sqrt[55])
```

Rubi in Sympy [A] time = 15.9742, size = 75, normalized size = 0.85

$$-\frac{\sqrt{-2x+1}\,(3x+2)^3}{5\,(5x+3)}+\frac{21\sqrt{-2x+1}\,(3x+2)^2}{125}-\frac{294\sqrt{-2x+1}}{625}-\frac{196\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{34375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3*(1-2*x)**(1/2)/(3+5*x)**2,x)
```

```
[Out] -sqrt(-2*x + 1)*(3*x + 2)**3/(5*(5*x + 3)) + 21*sqrt(-2*x + 1)*(3
*x + 2)**2/125 - 294*sqrt(-2*x + 1)/625 - 196*sqrt(55)*atanh(sqrt
(55)*sqrt(-2*x + 1)/11)/34375
```

Mathematica [A] time = 0.103634, size = 63, normalized size = 0.72

$$\frac{\sqrt{1-2x}\left(1350x^3+2385x^2-90x-622\right)}{625(5x+3)}-\frac{196\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{625\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(2 + 3*x)^3)/(3 + 5*x)^2,x]
```

```
[Out] (Sqrt[1 - 2*x]*(-622 - 90*x + 2385*x^2 + 1350*x^3))/(625*(3 + 5*x
)) - (196*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(625*Sqrt[55])
```

Maple [A] time = 0.016, size = 63, normalized size = 0.7

$$\frac{27}{250}(1-2x)^{\frac{5}{2}}-\frac{117}{250}(1-2x)^{\frac{3}{2}}+\frac{18}{625}\sqrt{1-2x}+\frac{2}{3125}\sqrt{1-2x}\left(-\frac{6}{5}-2x\right)^{-1}-\frac{196\sqrt{55}}{34375}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3*(1-2*x)^(1/2)/(3+5*x)^2,x)
```

```
[Out] 27/250*(1-2*x)^(5/2)-117/250*(1-2*x)^(3/2)+18/625*(1-2*x)^(1/2)+2
/3125*(1-2*x)^(1/2)/(-6/5-2*x)-196/34375*arctanh(1/11*55^(1/2)*(1
-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.52692, size = 108, normalized size = 1.23

$$\frac{27}{250}(-2x+1)^{\frac{5}{2}}-\frac{117}{250}(-2x+1)^{\frac{3}{2}}+\frac{98}{34375}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{18}{625}\sqrt{-2x+1}-\frac{\sqrt{-2x+1}}{625(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*sqrt(-2*x + 1)/(5*x + 3)^2,x, algorithm="maxima")
```

```
[Out] 27/250*(-2*x + 1)^(5/2) - 117/250*(-2*x + 1)^(3/2) + 98/34375*sqr
t(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x
+ 1))) + 18/625*sqrt(-2*x + 1) - 1/625*sqrt(-2*x + 1)/(5*x + 3)
```

Fricas [A] time = 0.21411, size = 100, normalized size = 1.14

$$\frac{\sqrt{55}\left(\sqrt{55}\left(1350x^3+2385x^2-90x-622\right)\sqrt{-2x+1}+98(5x+3)\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{-2x+1}}{5x+3}\right)\right)}{34375(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*sqrt(-2*x + 1)/(5*x + 3)^2,x, algorithm="fricas")
```

```
[Out] 1/34375*sqrt(55)*(sqrt(55)*(1350*x^3 + 2385*x^2 - 90*x - 622)*sqr
t(-2*x + 1) + 98*(5*x + 3)*log((sqrt(55)*(5*x - 8) + 55*sqrt(-2*x
 + 1))/(5*x + 3)))/(5*x + 3)
```

Sympy [A] time = 60.7099, size = 199, normalized size = 2.26

$$\frac{27(-2x+1)^{\frac{5}{2}}}{250}-\frac{117(-2x+1)^{\frac{3}{2}}}{250}+\frac{18\sqrt{-2x+1}}{625}-\frac{44\left(\begin{cases}\frac{\sqrt{55}\left(-\frac{\log\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)}{4}+\frac{\log\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)}{4}-\frac{1}{4\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)}-\frac{1}{4\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)}\right)}{605} & \text{for}\ x\le\frac{1}{2}\wedge x>-\frac{3}{5}\end{cases}\right)}{625}+\frac{194\left(\begin{cases}-\frac{\sqrt{55}\operatorname{acoth}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for}\ -2x+1>\frac{11}{5}\\-\frac{\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for}\ -2x+1<\frac{11}{5}\end{cases}\right)}{625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3*(1-2*x)**(1/2)/(3+5*x)**2,x)
```

```
[Out] 27*(-2*x + 1)**(5/2)/250 - 117*(-2*x + 1)**(3/2)/250 + 18*sqrt(-2
*x + 1)/625 - 44*Piecewise((sqrt(55)*(-log(sqrt(55)*sqrt(-2*x + 1
)/11 - 1)/4 + log(sqrt(55)*sqrt(-2*x + 1)/11 + 1)/4 - 1/(4*(sqrt(
55)*sqrt(-2*x + 1)/11 + 1)) - 1/(4*(sqrt(55)*sqrt(-2*x + 1)/11 -
1)))/605, (x <= 1/2) & (x > -3/5)))/625 + 194*Piecewise((-sqrt(55
)*acoth(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*x + 1 > 11/5), (-sqrt(
55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*x + 1 < 11/5))/625
```

GIAC/XCAS [A] time = 0.218737, size = 122, normalized size = 1.39

$$\frac{27}{250}\,(2\,x-1)^2\sqrt{-2\,x+1}-\frac{117}{250}\,(-2\,x+1)^{\frac{3}{2}}+\frac{98}{34375}\,\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)+\frac{18}{625}\,\sqrt{-2\,x+1}-\frac{\sqrt{-2\,x+1}}{625\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*sqrt(-2*x + 1)/(5*x + 3)^2,x, algorithm="giac")
```

```
[Out] 27/250*(2*x - 1)^2*sqrt(-2*x + 1) - 117/250*(-2*x + 1)^(3/2) + 98
/34375*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt
(55) + 5*sqrt(-2*x + 1))) + 18/625*sqrt(-2*x + 1) - 1/625*sqrt(-2
*x + 1)/(5*x + 3)
```

3.1824 $\int \frac{\sqrt{1-2x}(2+3x)^2}{(3+5x)^2}\,dx$

Optimal. Leaf size=74

$$-\frac{(1-2x)^{3/2}}{275(5x+3)}-\frac{3}{25}(1-2x)^{3/2}+\frac{26}{275}\sqrt{1-2x}-\frac{26\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{25\sqrt{55}}$$

```
[Out] (26*Sqrt[1 - 2*x])/275 - (3*(1 - 2*x)^(3/2))/25 - (1 - 2*x)^(3/2)
/(275*(3 + 5*x)) - (26*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(25*Sqr
t[55])
```

Rubi [A] time = 0.0909177, antiderivative size = 74, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$-\frac{(1-2x)^{3/2}}{275(5x+3)}-\frac{3}{25}(1-2x)^{3/2}+\frac{26}{275}\sqrt{1-2x}-\frac{26\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{25\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(2 + 3*x)^2)/(3 + 5*x)^2,x]
```

```
[Out] (26*Sqrt[1 - 2*x])/275 - (3*(1 - 2*x)^(3/2))/25 - (1 - 2*x)^(3/2)
/(275*(3 + 5*x)) - (26*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(25*Sqr
t[55])
```

Rubi in Sympy [A] time = 9.23169, size = 61, normalized size = 0.82

$$-\frac{3\left(-2x+1\right)^{\frac{3}{2}}}{25}-\frac{\left(-2x+1\right)^{\frac{3}{2}}}{275\left(5x+3\right)}+\frac{26\sqrt{-2x+1}}{275}-\frac{26\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{1375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2*(1-2*x)**(1/2)/(3+5*x)**2,x)
```

```
[Out] -3*(-2*x + 1)**(3/2)/25 - (-2*x + 1)**(3/2)/(275*(5*x + 3)) + 26*
sqrt(-2*x + 1)/275 - 26*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11
)/1375
```

Mathematica [A] time = 0.0884846, size = 58, normalized size = 0.78

$$\frac{\sqrt{1-2x}\left(30x^2+15x-2\right)}{25(5x+3)}-\frac{26\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{25\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(2 + 3*x)^2)/(3 + 5*x)^2,x]
```

```
[Out] (Sqrt[1 - 2*x]*(-2 + 15*x + 30*x^2))/(25*(3 + 5*x)) - (26*ArcTanh
[Sqrt[5/11]*Sqrt[1 - 2*x]])/(25*Sqrt[55])
```

Maple [A] time = 0.017, size = 54, normalized size = 0.7

$$-\frac{3}{25}\left(1-2x\right)^{\frac{3}{2}}+\frac{12}{125}\sqrt{1-2x}+\frac{2}{625}\sqrt{1-2x}\left(-\frac{6}{5}-2x\right)^{-1}-\frac{26\sqrt{55}}{1375}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2*(1-2*x)^(1/2)/(3+5*x)^2,x)
```

```
[Out] -3/25*(1-2*x)^(3/2)+12/125*(1-2*x)^(1/2)+2/625*(1-2*x)^(1/2)/(-6/
5-2*x)-26/1375*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.50162, size = 96, normalized size = 1.3

$$-\frac{3}{25}\left(-2x+1\right)^{\frac{3}{2}}+\frac{13}{1375}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{12}{125}\sqrt{-2x+1}-\frac{\sqrt{-2x+1}}{125\left(5x+3\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2*sqrt(-2*x + 1)/(5*x + 3)^2,x, algorithm="maxima")
```

```
[Out] -3/25*(-2*x + 1)^(3/2) + 13/1375*sqrt(55)*log(-(sqrt(55) - 5*sqrt
(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) + 12/125*sqrt(-2*x + 1
) - 1/125*sqrt(-2*x + 1)/(5*x + 3)
```

Fricas [A] time = 0.218546, size = 93, normalized size = 1.26

$$\frac{\sqrt{55}\left(\sqrt{55}\left(30x^2+15x-2\right)\sqrt{-2x+1}+13\left(5x+3\right)\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{-2x+1}}{5x+3}\right)\right)}{1375\left(5x+3\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2*sqrt(-2*x + 1)/(5*x + 3)^2,x, algorithm="fricas")
```

```
[Out] 1/1375*sqrt(55)*(sqrt(55)*(30*x^2 + 15*x - 2)*sqrt(-2*x + 1) + 13
*(5*x + 3)*log((sqrt(55)*(5*x - 8) + 55*sqrt(-2*x + 1))/(5*x + 3)
))/(5*x + 3)
```

Sympy [A] time = 49.6527, size = 187, normalized size = 2.53

$$-\frac{3\left(-2x+1\right)^{\frac{3}{2}}}{25}+\frac{12\sqrt{-2x+1}}{125}-\frac{44\left(\begin{cases}\frac{\sqrt{55}\left(-\frac{\log\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)}{4}+\frac{\log\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)}{4}-\frac{1}{4\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)}-\frac{1}{4\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)}\right)}{605} & \text{for}\ x\leq\frac{1}{2}\wedge x>-\frac{3}{5}\end{cases}\right)}{125}+\frac{128\left(\begin{cases}-\frac{\sqrt{55}\operatorname{acoth}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for}\ -2x+1>\frac{11}{5}\\-\frac{\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for}\ -2x+1<\frac{11}{5}\end{cases}\right)}{125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2*(1-2*x)**(1/2)/(3+5*x)**2,x)
```

```
[Out] -3*(-2*x + 1)**(3/2)/25 + 12*sqrt(-2*x + 1)/125 - 44*Piecewise((s
qrt(55)*(-log(sqrt(55)*sqrt(-2*x + 1)/11 - 1)/4 + log(sqrt(55)*sq
rt(-2*x + 1)/11 + 1)/4 - 1/(4*(sqrt(55)*sqrt(-2*x + 1)/11 + 1)) -
 1/(4*(sqrt(55)*sqrt(-2*x + 1)/11 - 1)))/605, (x <= 1/2) & (x > -
3/5)))/125 + 128*Piecewise((-sqrt(55)*acoth(sqrt(55)*sqrt(-2*x +
1)/11)/55, -2*x + 1 > 11/5), (-sqrt(55)*atanh(sqrt(55)*sqrt(-2*x
+ 1)/11)/55, -2*x + 1 < 11/5))/125
```

GIAC/XCAS [A] time = 0.212767, size = 100, normalized size = 1.35

$$-\frac{3}{25}\,(-2\,x+1)^{\frac{3}{2}}+\frac{13}{1375}\,\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\,\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)+\frac{12}{125}\,\sqrt{-2\,x+1}-\frac{\sqrt{-2\,x+1}}{125\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2*sqrt(-2*x + 1)/(5*x + 3)^2,x, algorithm="giac")
```

```
[Out] -3/25*(-2*x + 1)^(3/2) + 13/1375*sqrt(55)*ln(1/2*abs(-2*sqrt(55)
+ 10*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) + 12/125*sqrt
(-2*x + 1) - 1/125*sqrt(-2*x + 1)/(5*x + 3)
```

3.1825 $\int \frac{\sqrt{1-2x}(2+3x)}{(3+5x)^2} dx$

Optimal. Leaf size=61

$$-\frac{(1-2x)^{3/2}}{55(5x+3)}+\frac{64}{275}\sqrt{1-2x}-\frac{64\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{25\sqrt{55}}$$

```
[Out] (64*Sqrt[1 - 2*x])/275 - (1 - 2*x)^(3/2)/(55*(3 + 5*x)) - (64*Arc
Tanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(25*Sqrt[55])
```

Rubi [A] time = 0.0601267, antiderivative size = 61, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{(1-2x)^{3/2}}{55(5x+3)}+\frac{64}{275}\sqrt{1-2x}-\frac{64\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{25\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(2 + 3*x))/(3 + 5*x)^2,x]
```

```
[Out] (64*Sqrt[1 - 2*x])/275 - (1 - 2*x)^(3/2)/(55*(3 + 5*x)) - (64*Arc
Tanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(25*Sqrt[55])
```

Rubi in Sympy [A] time = 7.02358, size = 49, normalized size = 0.8

$$-\frac{(-2x+1)^{\frac{3}{2}}}{55\,(5x+3)}+\frac{64\sqrt{-2x+1}}{275}-\frac{64\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{1375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)*(1-2*x)**(1/2)/(3+5*x)**2,x)
```

```
[Out] -(-2*x + 1)**(3/2)/(55*(5*x + 3)) + 64*sqrt(-2*x + 1)/275 - 64*sq
rt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/1375
```

Mathematica [A] time = 0.072152, size = 53, normalized size = 0.87

$$\frac{\sqrt{1-2x}(30x+17)}{25(5x+3)}-\frac{64\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{25\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(2 + 3*x))/(3 + 5*x)^2,x]
```

```
[Out] (Sqrt[1 - 2*x]*(17 + 30*x))/(25*(3 + 5*x)) - (64*ArcTanh[Sqrt[5/1
1]*Sqrt[1 - 2*x]])/(25*Sqrt[55])
```

Maple [A] time = 0.016, size = 45, normalized size = 0.7

$$\frac{6}{25}\sqrt{1-2\,x}+\frac{2}{125}\sqrt{1-2\,x}\left(-\frac{6}{5}-2\,x\right)^{-1}-\frac{64\,\sqrt{55}}{1375}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)*(1-2*x)^(1/2)/(3+5*x)^2,x)
```

```
[Out] 6/25*(1-2*x)^(1/2)+2/125*(1-2*x)^(1/2)/(-6/5-2*x)-64/1375*arctanh
(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.49081, size = 84, normalized size = 1.38

$$\frac{32}{1375}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{6}{25}\sqrt{-2x+1}-\frac{\sqrt{-2x+1}}{25(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)*sqrt(-2*x + 1)/(5*x + 3)^2,x, algorithm="maxima")
```

```
[Out] 32/1375*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5
*sqrt(-2*x + 1))) + 6/25*sqrt(-2*x + 1) - 1/25*sqrt(-2*x + 1)/(5*
x + 3)
```

Fricas [A] time = 0.21351, size = 86, normalized size = 1.41

$$\frac{\sqrt{55}\left(\sqrt{55}(30x+17)\sqrt{-2x+1}+32(5x+3)\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{-2x+1}}{5x+3}\right)\right)}{1375(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)*sqrt(-2*x + 1)/(5*x + 3)^2,x, algorithm="fricas")
```

```
[Out] 1/1375*sqrt(55)*(sqrt(55)*(30*x + 17)*sqrt(-2*x + 1) + 32*(5*x +
3)*log((sqrt(55)*(5*x - 8) + 55*sqrt(-2*x + 1))/(5*x + 3)))/(5*x
+ 3)
```

Sympy [A] time = 39.107, size = 175, normalized size = 2.87

$$\frac{6\sqrt{-2x+1}}{25}-\frac{44\left(\begin{cases}\frac{\sqrt{55}\left(-\frac{\log\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)}{4}+\frac{\log\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)}{4}-\frac{1}{4\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)}-\frac{1}{4\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)}\right)}{605} & \text{for } x\le\frac{1}{2}\wedge x>-\frac{3}{5}\end{cases}\right)}{25}+\frac{62\left(\begin{cases}-\frac{\sqrt{55}\operatorname{acoth}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1>\frac{11}{5}\\ -\frac{\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1<\frac{11}{5}\end{cases}\right)}{25}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)*(1-2*x)**(1/2)/(3+5*x)**2,x)
```

```
[Out] 6*sqrt(-2*x + 1)/25 - 44*Piecewise((sqrt(55)*(-log(sqrt(55)*sqrt(
-2*x + 1)/11 - 1)/4 + log(sqrt(55)*sqrt(-2*x + 1)/11 + 1)/4 - 1/(
4*(sqrt(55)*sqrt(-2*x + 1)/11 + 1)) - 1/(4*(sqrt(55)*sqrt(-2*x +
1)/11 - 1)))/605, (x <= 1/2) & (x > -3/5)))/25 + 62*Piecewise((-s
qrt(55)*acoth(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*x + 1 > 11/5), (
-sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*x + 1 < 11/5))
```

```
/25
```

GIAC/XCAS [A] time = 0.21152, size = 88, normalized size = 1.44

$$\frac{32}{1375}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{6}{25}\sqrt{-2x+1}-\frac{\sqrt{-2x+1}}{25\,(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)*sqrt(-2*x + 1)/(5*x + 3)^2,x, algorithm="giac")
```

```
[Out] 32/1375*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqr
t(55) + 5*sqrt(-2*x + 1))) + 6/25*sqrt(-2*x + 1) - 1/25*sqrt(-2*x
 + 1)/(5*x + 3)
```

3.1826 $\int \frac{\sqrt{1-2x}}{(3+5x)^2}\,dx$

Optimal. Leaf size=48

$$\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{5\sqrt{55}}-\frac{\sqrt{1-2x}}{5(5x+3)}$$

```
[Out] -Sqrt[1 - 2*x]/(5*(3 + 5*x)) + (2*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x
]])/(5*Sqrt[55])
```

Rubi [A] time = 0.0373359, antiderivative size = 48, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 17, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.176

$$\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{5\sqrt{55}}-\frac{\sqrt{1-2x}}{5(5x+3)}$$

Antiderivative was successfully verified.

```
[In] Int[Sqrt[1 - 2*x]/(3 + 5*x)^2,x]
```

```
[Out] -Sqrt[1 - 2*x]/(5*(3 + 5*x)) + (2*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x
]])/(5*Sqrt[55])
```

Rubi in Sympy [A] time = 4.8094, size = 37, normalized size = 0.77

$$-\frac{\sqrt{-2x+1}}{5\,(5x+3)}+\frac{2\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{275}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**(1/2)/(3+5*x)**2,x)
```

```
[Out] -sqrt(-2*x + 1)/(5*(5*x + 3)) + 2*sqrt(55)*atanh(sqrt(55)*sqrt(-2
*x + 1)/11)/275
```

Mathematica [A] time = 0.0592442, size = 48, normalized size = 1.

$$\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{5\sqrt{55}}-\frac{\sqrt{1-2x}}{5(5x+3)}$$

Antiderivative was successfully verified.

```
[In] Integrate[Sqrt[1 - 2*x]/(3 + 5*x)^2,x]
```

```
[Out] -Sqrt[1 - 2*x]/(5*(3 + 5*x)) + (2*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x
]])/(5*Sqrt[55])
```

Maple [A] time = 0.012, size = 36, normalized size = 0.8

$$\frac{2}{25}\sqrt{1-2\,x}\left(-\frac{6}{5}-2\,x\right)^{-1}+\frac{2\,\sqrt{55}}{275}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)/(3+5*x)^2,x)
```

```
[Out] 2/25*(1-2*x)^(1/2)/(-6/5-2*x)+2/275*arctanh(1/11*55^(1/2)*(1-2*x)
^(1/2))*55^(1/2)
```

Maxima [A] time = 1.4925, size = 72, normalized size = 1.5

$$-\frac{1}{275}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{\sqrt{-2x+1}}{5(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/(5*x + 3)^2,x, algorithm="maxima")
```

```
[Out] -1/275*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*
sqrt(-2*x + 1))) - 1/5*sqrt(-2*x + 1)/(5*x + 3)
```

Fricas [A] time = 0.210272, size = 80, normalized size = 1.67

$$\frac{\sqrt{55}\left((5x+3)\log\left(\frac{\sqrt{55}(5x-8)-55\sqrt{-2x+1}}{5x+3}\right)-\sqrt{55}\sqrt{-2x+1}\right)}{275(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/(5*x + 3)^2,x, algorithm="fricas")
```

```
[Out] 1/275*sqrt(55)*((5*x + 3)*log((sqrt(55)*(5*x - 8) - 55*sqrt(-2*x
+ 1))/(5*x + 3)) - sqrt(55)*sqrt(-2*x + 1))/(5*x + 3)
```

Sympy [A] time = 5.52035, size = 177, normalized size = 3.69

$$\begin{cases}\frac{2\sqrt{55}\operatorname{acosh}\left(\frac{\sqrt{110}}{10\sqrt{x+\frac{3}{5}}}\right)}{275}+\frac{\sqrt{2}}{25\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}\sqrt{x+\frac{3}{5}}}-\frac{11\sqrt{2}}{250\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)^{\frac{3}{2}}} & \text{for}\ \frac{11\left|\frac{1}{x+\frac{3}{5}}\right|}{10}>1\\ -\frac{2\sqrt{55}i\operatorname{asin}\left(\frac{\sqrt{110}}{10\sqrt{x+\frac{3}{5}}}\right)}{275}-\frac{\sqrt{2}i}{25\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}\sqrt{x+\frac{3}{5}}}+\frac{11\sqrt{2}i}{250\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)^{\frac{3}{2}}} & \text{otherwise}\end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)/(3+5*x)**2,x)
```

```
[Out] Piecewise((2*sqrt(55)*acosh(sqrt(110)/(10*sqrt(x + 3/5)))/275 + s
qrt(2)/(25*sqrt(-1 + 11/(10*(x + 3/5)))*sqrt(x + 3/5)) - 11*sqrt(
2)/(250*sqrt(-1 + 11/(10*(x + 3/5)))*(x + 3/5)**(3/2)), 11*Abs(1/
(x + 3/5))/10 > 1), (-2*sqrt(55)*I*asin(sqrt(110)/(10*sqrt(x + 3/
5)))/275 - sqrt(2)*I/(25*sqrt(1 - 11/(10*(x + 3/5)))*sqrt(x + 3/5
)) + 11*sqrt(2)*I/(250*sqrt(1 - 11/(10*(x + 3/5)))*(x + 3/5)**(3/
2)), True))
```

GIAC/XCAS [A] time = 0.212071, size = 76, normalized size = 1.58

$$-\frac{1}{275}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{\sqrt{-2x+1}}{5(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/(5*x + 3)^2,x, algorithm="giac")
```

```
[Out] -1/275*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt
(55) + 5*sqrt(-2*x + 1))) - 1/5*sqrt(-2*x + 1)/(5*x + 3)
```

3.1827 $\int \frac{\sqrt{1-2x}}{(2+3x)(3+5x)^2}\,dx$

Optimal. Leaf size=69

$$-\frac{\sqrt{1-2x}}{5x+3}-2\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+\frac{68\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{\sqrt{55}}$$

```
[Out] -(Sqrt[1 - 2*x]/(3 + 5*x)) - 2*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1
- 2*x]] + (68*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/Sqrt[55]
```

Rubi [A] time = 0.118421, antiderivative size = 69, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$-\frac{\sqrt{1-2x}}{5x+3}-2\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+\frac{68\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]/((2 + 3*x)*(3 + 5*x)^2),x]
```

```
[Out] -(Sqrt[1 - 2*x]/(3 + 5*x)) - 2*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1
- 2*x]] + (68*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/Sqrt[55]
```

Rubi in Sympy [A] time = 14.7759, size = 61, normalized size = 0.88

$$-\frac{\sqrt{-2x+1}}{5x+3}-2\sqrt{21}\,\mathrm{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)+\frac{68\sqrt{55}\,\mathrm{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)/(2+3*x)/(3+5*x)**2,x)
```

```
[Out] -sqrt(-2*x + 1)/(5*x + 3) - 2*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x +
 1)/7) + 68*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/55
```

Mathematica [A] time = 0.119936, size = 69, normalized size = 1.

$$-\frac{\sqrt{1-2x}}{5x+3}-2\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+\frac{68\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]/((2 + 3*x)*(3 + 5*x)^2),x]
```

```
[Out] -(Sqrt[1 - 2*x]/(3 + 5*x)) - 2*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1
- 2*x]] + (68*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/Sqrt[55]
```

Maple [A] time = 0.017, size = 54, normalized size = 0.8

$$-2\,\mathit{Artanh}\left(1/7\,\sqrt{21}\sqrt{1-2\,x}\right)\sqrt{21}+\frac{2}{5}\sqrt{1-2\,x}\left(-\frac{6}{5}-2\,x\right)^{-1}+\frac{68\,\sqrt{55}}{55}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)/(2+3*x)/(3+5*x)^2,x)
```

```
[Out] -2*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)+2/5*(1-2*x)^(1/2)
/(-6/5-2*x)+68/55*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.50384, size = 119, normalized size = 1.72

$$-\frac{34}{55}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{\sqrt{-2x+1}}{5x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/((5*x + 3)^2*(3*x + 2)),x, algorithm="maxima")
```

```
[Out] -34/55*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*
sqrt(-2*x + 1))) + sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(s
qrt(21) + 3*sqrt(-2*x + 1))) - sqrt(-2*x + 1)/(5*x + 3)
```

Fricas [A] time = 0.2205, size = 131, normalized size = 1.9

$$\frac{\sqrt{55}\left(\sqrt{55}\sqrt{21}(5x+3)\log\left(\frac{3x+\sqrt{21}\sqrt{-2x+1}-5}{3x+2}\right)+34(5x+3)\log\left(\frac{\sqrt{55}(5x-8)-55\sqrt{-2x+1}}{5x+3}\right)-\sqrt{55}\sqrt{-2x+1}\right)}{55(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/((5*x + 3)^2*(3*x + 2)),x, algorithm="fricas")
```

```
[Out] 1/55*sqrt(55)*(sqrt(55)*sqrt(21)*(5*x + 3)*log((3*x + sqrt(21)*sq
rt(-2*x + 1) - 5)/(3*x + 2)) + 34*(5*x + 3)*log((sqrt(55)*(5*x -
8) - 55*sqrt(-2*x + 1))/(5*x + 3)) - sqrt(55)*sqrt(-2*x + 1))/(5*
x + 3)
```

Sympy [A] time = 25.0942, size = 223, normalized size = 3.23

$$-44\left(\begin{cases}\frac{\sqrt{55}\left(-\frac{\log\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)}{4}+\frac{\log\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)}{4}-\frac{1}{4\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)}-\frac{1}{4\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)}\right)}{605} & \text{for}\ x\le\frac{1}{2}\wedge x>-\frac{3}{5}\end{cases}\right)+42\left(\begin{cases}-\frac{\sqrt{21}\operatorname{acoth}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for}\ -2x+1>\frac{7}{3}\\ -\frac{\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for}\ -2x+1<\frac{7}{3}\end{cases}\right)-70\left(\begin{cases}-\frac{\sqrt{55}\operatorname{acoth}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for}\ -2x+1>\frac{11}{5}\\ -\frac{\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for}\ -2x+1<\frac{11}{5}\end{cases}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)/(2+3*x)/(3+5*x)**2,x)
```

```
[Out] -44*Piecewise((sqrt(55)*(-log(sqrt(55)*sqrt(-2*x + 1)/11 - 1)/4 +
 log(sqrt(55)*sqrt(-2*x + 1)/11 + 1)/4 - 1/(4*(sqrt(55)*sqrt(-2*x
 + 1)/11 + 1)) - 1/(4*(sqrt(55)*sqrt(-2*x + 1)/11 - 1)))/605, (x
<= 1/2) & (x > -3/5))) + 42*Piecewise((-sqrt(21)*acoth(sqrt(21)*s
qrt(-2*x + 1)/7)/21, -2*x + 1 > 7/3), (-sqrt(21)*atanh(sqrt(21)*s
qrt(-2*x + 1)/7)/21, -2*x + 1 < 7/3)) - 70*Piecewise((-sqrt(55)*a
coth(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*x + 1 > 11/5), (-sqrt(55)
*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*x + 1 < 11/5))
```

GIAC/XCAS [A] time = 0.214093, size = 127, normalized size = 1.84

$$-\frac{34}{55}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{\sqrt{-2x+1}}{5x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/((5*x + 3)^2*(3*x + 2)),x, algorithm="giac")
```

```
[Out] -34/55*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt
(55) + 5*sqrt(-2*x + 1))) + sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*s
qrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - sqrt(-2*x + 1)/(5
*x + 3)
```

3.1828 $\int \frac{\sqrt{1-2x}}{(2+3x)^2(3+5x)^2} dx$

Optimal. Leaf size=97

$$-\frac{10\sqrt{1-2x}}{5x+3}+\frac{\sqrt{1-2x}}{(3x+2)(5x+3)}-138\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+134\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (-10*Sqrt[1 - 2*x])/(3 + 5*x) + Sqrt[1 - 2*x]/((2 + 3*x)*(3 + 5*x
)) - 138*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]] + 134*Sqrt[5/
11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Rubi [A] time = 0.174733, antiderivative size = 97, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$-\frac{10\sqrt{1-2x}}{5x+3}+\frac{\sqrt{1-2x}}{(3x+2)(5x+3)}-138\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+134\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]/((2 + 3*x)^2*(3 + 5*x)^2),x]
```

```
[Out] (-10*Sqrt[1 - 2*x])/(3 + 5*x) + Sqrt[1 - 2*x]/((2 + 3*x)*(3 + 5*x
)) - 138*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]] + 134*Sqrt[5/
11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Rubi in Sympy [A] time = 21.5309, size = 83, normalized size = 0.86

$$-\frac{10\sqrt{-2x+1}}{5x+3}+\frac{\sqrt{-2x+1}}{(3x+2)(5x+3)}-\frac{138\sqrt{21}\,\text{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{7}+\frac{134\sqrt{55}\,\text{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{11}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)/(2+3*x)**2/(3+5*x)**2,x)
```

```
[Out] -10*sqrt(-2*x + 1)/(5*x + 3) + sqrt(-2*x + 1)/((3*x + 2)*(5*x + 3
)) - 138*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/7 + 134*sqrt(5
5)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/11
```

Mathematica [A] time = 0.148007, size = 85, normalized size = 0.88

$$-\frac{\sqrt{1-2x}(30x+19)}{(3x+2)(5x+3)}-138\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+134\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]/((2 + 3*x)^2*(3 + 5*x)^2),x]
```

```
[Out] -((Sqrt[1 - 2*x]*(19 + 30*x))/((2 + 3*x)*(3 + 5*x))) - 138*Sqrt[3
/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]] + 134*Sqrt[5/11]*ArcTanh[Sqr
t[5/11]*Sqrt[1 - 2*x]]
```

Maple [A] time = 0.017, size = 70, normalized size = 0.7

$$2\frac{\sqrt{1-2x}}{-4/3-2x}-\frac{138\sqrt{21}}{7}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)+2\frac{\sqrt{1-2x}}{-6/5-2x}+\frac{134\sqrt{55}}{11}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)/(2+3*x)^2/(3+5*x)^2,x)
```

```
[Out] 2*(1-2*x)^(1/2)/(-4/3-2*x)-138/7*arctanh(1/7*21^(1/2)*(1-2*x)^(1/
2))*21^(1/2)+2*(1-2*x)^(1/2)/(-6/5-2*x)+134/11*arctanh(1/11*55^(1
/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.51994, size = 149, normalized size = 1.54

$$-\frac{67}{11}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{69}{7}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{4\left(15(-2x+1)^{\frac{3}{2}}-34\sqrt{-2x+1}\right)}{15(2x-1)^2+136x+9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/((5*x + 3)^2*(3*x + 2)^2),x, algorithm="maxima")
```

```
[Out] -67/11*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*
sqrt(-2*x + 1))) + 69/7*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1
))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 4*(15*(-2*x + 1)^(3/2) - 34*s
qrt(-2*x + 1))/(15*(2*x - 1)^2 + 136*x + 9)
```

Fricas [A] time = 0.222161, size = 188, normalized size = 1.94

$$\frac{\sqrt{11}\sqrt{7}\left(67\sqrt{7}\sqrt{5}\left(15x^2+19x+6\right)\log\left(\frac{\sqrt{11}(5x-8)-11\sqrt{5}\sqrt{-2x+1}}{5x+3}\right)+69\sqrt{11}\sqrt{3}\left(15x^2+19x+6\right)\log\left(\frac{\sqrt{7}(3x-5)+7\sqrt{3}\sqrt{-2x+1}}{3x+2}\right)-\cdots\right.}{77\left(15x^2+19x+6\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/((5*x + 3)^2*(3*x + 2)^2),x, algorithm="fricas")
```

```
[Out] 1/77*sqrt(11)*sqrt(7)*(67*sqrt(7)*sqrt(5)*(15*x^2 + 19*x + 6)*log
((sqrt(11)*(5*x - 8) - 11*sqrt(5)*sqrt(-2*x + 1))/(5*x + 3)) + 69
*sqrt(11)*sqrt(3)*(15*x^2 + 19*x + 6)*log((sqrt(7)*(3*x - 5) + 7*
sqrt(3)*sqrt(-2*x + 1))/(3*x + 2)) - sqrt(11)*sqrt(7)*(30*x + 19)
*sqrt(-2*x + 1))/(15*x^2 + 19*x + 6)
```

Sympy [A] time = 42.2571, size = 321, normalized size = 3.31

$$-84\left(\begin{cases}\frac{\sqrt{21}\left(-\frac{\log\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)}{4}+\frac{\log\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)}{4}-\frac{1}{4\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)}-\frac{1}{4\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)}\right)}{147} & \text{for } x\leq\frac{1}{2}\wedge x>-\frac{2}{3}\end{cases}\right)-220\left(\begin{cases}\frac{\sqrt{55}\left(-\frac{\log\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)}{4}+\frac{\log\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)}{4}-\frac{1}{4\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)}-\frac{1}{4\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)}\right)}{605} & \text{for } x\leq\frac{1}{2}\wedge x>-\frac{3}{5}\end{cases}\right)+408\left(\begin{cases}-\frac{\sqrt{21}\operatorname{acoth}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for } -2x+1>\frac{7}{3}\\ -\frac{\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for } -2x+1<\frac{7}{3}\end{cases}\right)-680\left(\begin{cases}-\frac{\sqrt{55}\operatorname{acoth}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1>\frac{11}{5}\\ -\frac{\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1<\frac{11}{5}\end{cases}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)/(2+3*x)**2/(3+5*x)**2,x)
```

```
[Out] -84*Piecewise((sqrt(21)*(-log(sqrt(21)*sqrt(-2*x + 1)/7 - 1)/4 +
log(sqrt(21)*sqrt(-2*x + 1)/7 + 1)/4 - 1/(4*(sqrt(21)*sqrt(-2*x +
 1)/7 + 1)) - 1/(4*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)))/147, (x <= 1
/2) & (x > -2/3))) - 220*Piecewise((sqrt(55)*(-log(sqrt(55)*sqrt(
-2*x + 1)/11 - 1)/4 + log(sqrt(55)*sqrt(-2*x + 1)/11 + 1)/4 - 1/(
4*(sqrt(55)*sqrt(-2*x + 1)/11 + 1)) - 1/(4*(sqrt(55)*sqrt(-2*x +
1)/11 - 1)))/605, (x <= 1/2) & (x > -3/5))) + 408*Piecewise((-sqr
t(21)*acoth(sqrt(21)*sqrt(-2*x + 1)/7)/21, -2*x + 1 > 7/3), (-sqr
t(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/21, -2*x + 1 < 7/3)) - 680
*Piecewise((-sqrt(55)*acoth(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*x
+ 1 > 11/5), (-sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*
x + 1 < 11/5))
```

GIAC/XCAS [A] time = 0.230463, size = 157, normalized size = 1.62

$$-\frac{67}{11}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{69}{7}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{4\left(15(-2x+1)^{\frac{3}{2}}-34\sqrt{-2x+1}\right)}{15(2x-1)^2+136x+9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/((5*x + 3)^2*(3*x + 2)^2),x, algorithm="giac")
```

```
[Out] -67/11*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt
(55) + 5*sqrt(-2*x + 1))) + 69/7*sqrt(21)*ln(1/2*abs(-2*sqrt(21)
+ 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 4*(15*(-2*x
+ 1)^(3/2) - 34*sqrt(-2*x + 1))/(15*(2*x - 1)^2 + 136*x + 9)
```

3.1829 $\int \frac{\sqrt{1-2x}}{(2+3x)^3(3+5x)^2} dx$

Optimal. Leaf size=131

$$-\frac{1045\sqrt{1-2x}}{14(5x+3)}+\frac{52\sqrt{1-2x}}{7(3x+2)(5x+3)}+\frac{\sqrt{1-2x}}{2(3x+2)^2(5x+3)}-\frac{7209}{7}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+1000\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (-1045*Sqrt[1 - 2*x])/(14*(3 + 5*x)) + Sqrt[1 - 2*x]/(2*(2 + 3*x)
^2*(3 + 5*x)) + (52*Sqrt[1 - 2*x])/(7*(2 + 3*x)*(3 + 5*x)) - (720
9*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/7 + 1000*Sqrt[5/11]
*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Rubi [A] time = 0.245399, antiderivative size = 131, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$-\frac{1045\sqrt{1-2x}}{14(5x+3)}+\frac{52\sqrt{1-2x}}{7(3x+2)(5x+3)}+\frac{\sqrt{1-2x}}{2(3x+2)^2(5x+3)}-\frac{7209}{7}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+1000\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]/((2 + 3*x)^3*(3 + 5*x)^2),x]
```

```
[Out] (-1045*Sqrt[1 - 2*x])/(14*(3 + 5*x)) + Sqrt[1 - 2*x]/(2*(2 + 3*x)
^2*(3 + 5*x)) + (52*Sqrt[1 - 2*x])/(7*(2 + 3*x)*(3 + 5*x)) - (720
9*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/7 + 1000*Sqrt[5/11]
*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Rubi in Sympy [A] time = 28.5465, size = 109, normalized size = 0.83

$$-\frac{1045\sqrt{-2x+1}}{14\,(5x+3)}+\frac{52\sqrt{-2x+1}}{7\,(3x+2)\,(5x+3)}+\frac{\sqrt{-2x+1}}{2\,(3x+2)^2\,(5x+3)}-\frac{7209\sqrt{21}\,\text{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{49}+\frac{1000\sqrt{55}\,\text{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{11}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)/(2+3*x)**3/(3+5*x)**2,x)
```

```
[Out] -1045*sqrt(-2*x + 1)/(14*(5*x + 3)) + 52*sqrt(-2*x + 1)/(7*(3*x +
 2)*(5*x + 3)) + sqrt(-2*x + 1)/(2*(3*x + 2)**2*(5*x + 3)) - 7209
*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/49 + 1000*sqrt(55)*ata
nh(sqrt(55)*sqrt(-2*x + 1)/11)/11
```

Mathematica [A] time = 0.192295, size = 94, normalized size = 0.72

$$-\frac{\sqrt{1-2x}\left(9405x^2+12228x+3965\right)}{14(3x+2)^2(5x+3)}-\frac{7209}{7}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+1000\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]/((2 + 3*x)^3*(3 + 5*x)^2),x]
```

```
[Out] -(Sqrt[1 - 2*x]*(3965 + 12228*x + 9405*x^2))/(14*(2 + 3*x)^2*(3 +
 5*x)) - (7209*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/7 + 10
00*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Maple [A] time = 0.02, size = 82, normalized size = 0.6

$$162\,\frac{1}{(-4-6\,x)^2}\left(\frac{139\,(1-2\,x)^{3/2}}{126}-\frac{47\,\sqrt{1-2\,x}}{18}\right)-\frac{7209\,\sqrt{21}}{49}\mathrm{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)+10\,\frac{\sqrt{1-2\,x}}{-6/5-2\,x}+\frac{1000\,\sqrt{55}}{11}\mathrm{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)/(2+3*x)^3/(3+5*x)^2,x)
```

```
[Out] 162*(139/126*(1-2*x)^(3/2)-47/18*(1-2*x)^(1/2))/(-4-6*x)^2-7209/4
9*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)+10*(1-2*x)^(1/2)/(
-6/5-2*x)+1000/11*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.50402, size = 173, normalized size = 1.32

$$-\frac{500}{11}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2\,x+1}}{\sqrt{55}+5\sqrt{-2\,x+1}}\right)+\frac{7209}{98}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2\,x+1}}{\sqrt{21}+3\sqrt{-2\,x+1}}\right)-\frac{9405\,(-2\,x+1)^{\frac{5}{2}}-43266\,(-2\,x+1)^{\frac{3}{2}}+49721\,\sqrt{-2\,x+1}}{7\left(45\,(2\,x-1)^3+309\,(2\,x-1)^2+1414\,x-168\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/((5*x + 3)^2*(3*x + 2)^3),x, algorithm="maxima")
```

```
[Out] -500/11*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5
*sqrt(-2*x + 1))) + 7209/98*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x
 + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 1/7*(9405*(-2*x + 1)^(5/2
) - 43266*(-2*x + 1)^(3/2) + 49721*sqrt(-2*x + 1))/(45*(2*x - 1)^
3 + 309*(2*x - 1)^2 + 1414*x - 168)
```

Fricas [A] time = 0.220664, size = 215, normalized size = 1.64

$$\frac{\sqrt{11}\sqrt{7}\left(7000\,\sqrt{7}\sqrt{5}\left(45\,x^3+87\,x^2+56\,x+12\right)\log\left(\frac{\sqrt{11}(5\,x-8)-11\,\sqrt{5}\sqrt{-2\,x+1}}{5\,x+3}\right)+7209\,\sqrt{11}\sqrt{3}\left(45\,x^3+87\,x^2+56\,x+12\right)\log\left(\sqrt{\right.}\right.}{1078\,(45\,x^3+87\,x^2+56\,x+12)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/((5*x + 3)^2*(3*x + 2)^3),x, algorithm="fricas")
```

```
[Out] 1/1078*sqrt(11)*sqrt(7)*(7000*sqrt(7)*sqrt(5)*(45*x^3 + 87*x^2 +
56*x + 12)*log((sqrt(11)*(5*x - 8) - 11*sqrt(5)*sqrt(-2*x + 1))/(
5*x + 3)) + 7209*sqrt(11)*sqrt(3)*(45*x^3 + 87*x^2 + 56*x + 12)*l
og((sqrt(7)*(3*x - 5) + 7*sqrt(3)*sqrt(-2*x + 1))/(3*x + 2)) - sq
rt(11)*sqrt(7)*(9405*x^2 + 12228*x + 3965)*sqrt(-2*x + 1))/(45*x^
3 + 87*x^2 + 56*x + 12)
```

Sympy [A] time = 69.4744, size = 468, normalized size = 3.57

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)/(2+3*x)**3/(3+5*x)**2,x)
```

```
[Out] -816*Piecewise((sqrt(21)*(-log(sqrt(21)*sqrt(-2*x + 1)/7 - 1)/4 +
 log(sqrt(21)*sqrt(-2*x + 1)/7 + 1)/4 - 1/(4*(sqrt(21)*sqrt(-2*x
+ 1)/7 + 1)) - 1/(4*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)))/147, (x <=
1/2) & (x > -2/3))) + 168*Piecewise((sqrt(21)*(3*log(sqrt(21)*sqr
t(-2*x + 1)/7 - 1)/16 - 3*log(sqrt(21)*sqrt(-2*x + 1)/7 + 1)/16 +
 3/(16*(sqrt(21)*sqrt(-2*x + 1)/7 + 1)) + 1/(16*(sqrt(21)*sqrt(-2
*x + 1)/7 + 1)**2) + 3/(16*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)) - 1/(
16*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)**2))/1029, (x <= 1/2) & (x > -
2/3))) - 1100*Piecewise((sqrt(55)*(-log(sqrt(55)*sqrt(-2*x + 1)/1
1 - 1)/4 + log(sqrt(55)*sqrt(-2*x + 1)/11 + 1)/4 - 1/(4*(sqrt(55)
*sqrt(-2*x + 1)/11 + 1)) - 1/(4*(sqrt(55)*sqrt(-2*x + 1)/11 - 1))
)/605, (x <= 1/2) & (x > -3/5))) + 3030*Piecewise((-sqrt(21)*acot
h(sqrt(21)*sqrt(-2*x + 1)/7)/21, -2*x + 1 > 7/3), (-sqrt(21)*atan
h(sqrt(21)*sqrt(-2*x + 1)/7)/21, -2*x + 1 < 7/3)) - 5050*Piecewis
e((-sqrt(55)*acoth(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*x + 1 > 11/
5), (-sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*x + 1 < 1
1/5))
```

GIAC/XCAS [A] time = 0.246, size = 166, normalized size = 1.27

$$-\frac{500}{11}\,\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\,\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)+\frac{7209}{98}\,\sqrt{21}\ln\left(\frac{\left|-2\,\sqrt{21}+6\,\sqrt{-2\,x+1}\right|}{2\,\left(\sqrt{21}+3\,\sqrt{-2\,x+1}\right)}\right)$$
$$-\frac{25\,\sqrt{-2\,x+1}}{5\,x+3}+\frac{9\,\left(139\,(-2\,x+1)^{\frac{3}{2}}-329\,\sqrt{-2\,x+1}\right)}{28\,(3\,x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/((5*x + 3)^2*(3*x + 2)^3),x, algorithm="giac")
```

```
[Out] -500/11*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqr
t(55) + 5*sqrt(-2*x + 1))) + 7209/98*sqrt(21)*ln(1/2*abs(-2*sqrt(
21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 25*sqrt(
-2*x + 1)/(5*x + 3) + 9/28*(139*(-2*x + 1)^(3/2) - 329*sqrt(-2*x
+ 1))/(3*x + 2)^2
```

3.1830 $\int \frac{\sqrt{1-2x}}{(2+3x)^4(3+5x)^2}\,dx$

Optimal. Leaf size=158

$$-\frac{48645\sqrt{1-2x}}{98(5x+3)}+\frac{7261\sqrt{1-2x}}{147(3x+2)(5x+3)}+\frac{139\sqrt{1-2x}}{42(3x+2)^2(5x+3)}+\frac{\sqrt{1-2x}}{3(3x+2)^3(5x+3)}-\frac{335579}{49}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+6650\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (-48645*Sqrt[1 - 2*x])/(98*(3 + 5*x)) + Sqrt[1 - 2*x]/(3*(2 + 3*x
)^3*(3 + 5*x)) + (139*Sqrt[1 - 2*x])/(42*(2 + 3*x)^2*(3 + 5*x)) +
 (7261*Sqrt[1 - 2*x])/(147*(2 + 3*x)*(3 + 5*x)) - (335579*Sqrt[3/
7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/49 + 6650*Sqrt[5/11]*ArcTanh
[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Rubi [A] time = 0.308064, antiderivative size = 158, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$-\frac{48645\sqrt{1-2x}}{98(5x+3)}+\frac{7261\sqrt{1-2x}}{147(3x+2)(5x+3)}+\frac{139\sqrt{1-2x}}{42(3x+2)^2(5x+3)}+\frac{\sqrt{1-2x}}{3(3x+2)^3(5x+3)}-\frac{335579}{49}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+6650\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]/((2 + 3*x)^4*(3 + 5*x)^2),x]
```

```
[Out] (-48645*Sqrt[1 - 2*x])/(98*(3 + 5*x)) + Sqrt[1 - 2*x]/(3*(2 + 3*x
)^3*(3 + 5*x)) + (139*Sqrt[1 - 2*x])/(42*(2 + 3*x)^2*(3 + 5*x)) +
 (7261*Sqrt[1 - 2*x])/(147*(2 + 3*x)*(3 + 5*x)) - (335579*Sqrt[3/
7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/49 + 6650*Sqrt[5/11]*ArcTanh
[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Rubi in Sympy [A] time = 34.3641, size = 133, normalized size = 0.84

$$-\frac{29187\sqrt{-2x+1}}{98\,(3x+2)}-\frac{2095\sqrt{-2x+1}}{42\,(3x+2)\,(5x+3)}+\frac{139\sqrt{-2x+1}}{42\,(3x+2)^2\,(5x+3)}+\frac{\sqrt{-2x+1}}{3\,(3x+2)^3\,(5x+3)}-\frac{335579\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{343}+\frac{6650\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{11}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)/(2+3*x)**4/(3+5*x)**2,x)
```

```
[Out] -29187*sqrt(-2*x + 1)/(98*(3*x + 2)) - 2095*sqrt(-2*x + 1)/(42*(3
*x + 2)*(5*x + 3)) + 139*sqrt(-2*x + 1)/(42*(3*x + 2)**2*(5*x + 3
)) + sqrt(-2*x + 1)/(3*(3*x + 2)**3*(5*x + 3)) - 335579*sqrt(21)*
atanh(sqrt(21)*sqrt(-2*x + 1)/7)/343 + 6650*sqrt(55)*atanh(sqrt(5
5)*sqrt(-2*x + 1)/11)/11
```

Mathematica [A] time = 0.158113, size = 99, normalized size = 0.63

$$-\frac{\sqrt{1-2x}\left(1313415x^3+2583264x^2+1692159x+369116\right)}{98(3x+2)^3(5x+3)}-\frac{335579}{49}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+6650\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]/((2 + 3*x)^4*(3 + 5*x)^2),x]
```

```
[Out] -(Sqrt[1 - 2*x]*(369116 + 1692159*x + 2583264*x^2 + 1313415*x^3))
/(98*(2 + 3*x)^3*(3 + 5*x)) - (335579*Sqrt[3/7]*ArcTanh[Sqrt[3/7]
*Sqrt[1 - 2*x]])/49 + 6650*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 -
 2*x]]
```

Maple [A] time = 0.02, size = 91, normalized size = 0.6

$$324\frac{1}{(-4-6x)^3}\left(\frac{7279\,(1-2x)^{5/2}}{588}-\frac{11023\,(1-2x)^{3/2}}{189}+\frac{7421\sqrt{1-2x}}{108}\right)-\frac{335579\sqrt{21}}{343}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)+50\frac{\sqrt{1-2x}}{-6/5-2x}+\frac{6650\sqrt{55}}{11}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)/(2+3*x)^4/(3+5*x)^2,x)
```

```
[Out] 324*(7279/588*(1-2*x)^(5/2)-11023/189*(1-2*x)^(3/2)+7421/108*(1-2
*x)^(1/2))/(-4-6*x)^3-335579/343*arctanh(1/7*21^(1/2)*(1-2*x)^(1/
2))*21^(1/2)+50*(1-2*x)^(1/2)/(-6/5-2*x)+6650/11*arctanh(1/11*55^
(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.51996, size = 197, normalized size = 1.25

$$-\frac{3325}{11}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{335579}{686}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{1313415\,(-2x+1)^{\frac{7}{2}}-9106773\,(-2x+1)^{\frac{5}{2}}+21041937\,(-2x+1)^{\frac{3}{2}}-16201507\sqrt{-2x+1}}{49\left(135\,(2x-1)^4+1242\,(2x-1)^3+4284\,(2x-1)^2+13132\,x-2793\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/((5*x + 3)^2*(3*x + 2)^4),x, algorithm="maxima")
```

```
[Out] -3325/11*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) +
5*sqrt(-2*x + 1))) + 335579/686*sqrt(21)*log(-(sqrt(21) - 3*sqrt(
-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 1/49*(1313415*(-2*x +
 1)^(7/2) - 9106773*(-2*x + 1)^(5/2) + 21041937*(-2*x + 1)^(3/2)
- 16201507*sqrt(-2*x + 1))/(135*(2*x - 1)^4 + 1242*(2*x - 1)^3 +
4284*(2*x - 1)^2 + 13132*x - 2793)
```

Fricas [A] time = 0.223085, size = 242, normalized size = 1.53

$$\frac{\sqrt{11}\sqrt{7}\Big(325850\sqrt{7}\sqrt{5}\left(135x^4+351x^3+342x^2+148x+24\right)\log\left(\frac{\sqrt{11}(5x-8)-11\sqrt{5}\sqrt{-2x+1}}{5x+3}\right)+335579\sqrt{11}\sqrt{3}\big(135x^4+351x^3}{7546\,(135x^4+351x^3+}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/((5*x + 3)^2*(3*x + 2)^4),x, algorithm="fricas")
```

```
[Out] 1/7546*sqrt(11)*sqrt(7)*(325850*sqrt(7)*sqrt(5)*(135*x^4 + 351*x^
3 + 342*x^2 + 148*x + 24)*log((sqrt(11)*(5*x - 8) - 11*sqrt(5)*sq
rt(-2*x + 1))/(5*x + 3)) + 335579*sqrt(11)*sqrt(3)*(135*x^4 + 351
```

```
*x^3 + 342*x^2 + 148*x + 24)*log((sqrt(7)*(3*x - 5) + 7*sqrt(3)*s
qrt(-2*x + 1))/(3*x + 2)) - sqrt(11)*sqrt(7)*(1313415*x^3 + 25832
64*x^2 + 1692159*x + 369116)*sqrt(-2*x + 1))/(135*x^4 + 351*x^3 +
 342*x^2 + 148*x + 24)
```

Sympy [A] time = 109.637, size = 658, normalized size = 4.16

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)/(2+3*x)**4/(3+5*x)**2,x)
```

```
[Out] -6060*Piecewise((sqrt(21)*(-log(sqrt(21)*sqrt(-2*x + 1)/7 - 1)/4
+ log(sqrt(21)*sqrt(-2*x + 1)/7 + 1)/4 - 1/(4*(sqrt(21)*sqrt(-2*x
 + 1)/7 + 1)) - 1/(4*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)))/147, (x <=
 1/2) & (x > -2/3))) + 1632*Piecewise((sqrt(21)*(3*log(sqrt(21)*s
qrt(-2*x + 1)/7 - 1)/16 - 3*log(sqrt(21)*sqrt(-2*x + 1)/7 + 1)/16
 + 3/(16*(sqrt(21)*sqrt(-2*x + 1)/7 + 1)) + 1/(16*(sqrt(21)*sqrt(
-2*x + 1)/7 + 1)**2) + 3/(16*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)) - 1
/(16*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)**2))/1029, (x <= 1/2) & (x >
 -2/3))) - 336*Piecewise((sqrt(21)*(-5*log(sqrt(21)*sqrt(-2*x + 1
)/7 - 1)/32 + 5*log(sqrt(21)*sqrt(-2*x + 1)/7 + 1)/32 - 5/(32*(sq
rt(21)*sqrt(-2*x + 1)/7 + 1)) - 1/(16*(sqrt(21)*sqrt(-2*x + 1)/7
+ 1)**2) - 1/(48*(sqrt(21)*sqrt(-2*x + 1)/7 + 1)**3) - 5/(32*(sqr
t(21)*sqrt(-2*x + 1)/7 - 1)) + 1/(16*(sqrt(21)*sqrt(-2*x + 1)/7 -
 1)**2) - 1/(48*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)**3))/7203, (x <=
1/2) & (x > -2/3))) - 5500*Piecewise((sqrt(55)*(-log(sqrt(55)*sqr
t(-2*x + 1)/11 - 1)/4 + log(sqrt(55)*sqrt(-2*x + 1)/11 + 1)/4 - 1
/(4*(sqrt(55)*sqrt(-2*x + 1)/11 + 1)) - 1/(4*(sqrt(55)*sqrt(-2*x
+ 1)/11 - 1)))/605, (x <= 1/2) & (x > -3/5))) + 20100*Piecewise((
-sqrt(21)*acoth(sqrt(21)*sqrt(-2*x + 1)/7)/21, -2*x + 1 > 7/3), (
-sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/21, -2*x + 1 < 7/3)) -
 33500*Piecewise((-sqrt(55)*acoth(sqrt(55)*sqrt(-2*x + 1)/11)/55,
 -2*x + 1 > 11/5), (-sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/5
5, -2*x + 1 < 11/5))
```

GIAC/XCAS [A] time = 0.227798, size = 188, normalized size = 1.19

$$-\frac{3325}{11}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{335579}{686}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)$$
$$-\frac{125\sqrt{-2x+1}}{5x+3}-\frac{3\left(65511(2x-1)^2\sqrt{-2x+1}-308644(-2x+1)^{\frac{3}{2}}+363629\sqrt{-2x+1}\right)}{392(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/((5*x + 3)^2*(3*x + 2)^4),x, algorithm="giac")
```

```
[Out] -3325/11*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sq
rt(55) + 5*sqrt(-2*x + 1))) + 335579/686*sqrt(21)*ln(1/2*abs(-2*s
qrt(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 125*
sqrt(-2*x + 1)/(5*x + 3) - 3/392*(65511*(2*x - 1)^2*sqrt(-2*x + 1
) - 308644*(-2*x + 1)^(3/2) + 363629*sqrt(-2*x + 1))/(3*x + 2)^3
```

3.1831 $\int \frac{\sqrt{1-2x}(2+3x)^4}{(3+5x)^3}\,dx$

Optimal. Leaf size=120

$$-\frac{\sqrt{1-2x}(3x+2)^4}{10(5x+3)^2}-\frac{131\sqrt{1-2x}(3x+2)^3}{550(5x+3)}+\frac{1428\sqrt{1-2x}(3x+2)^2}{6875}-\frac{21(704-375x)\sqrt{1-2x}}{68750}-\frac{12803\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{34375\sqrt{55}}$$

```
[Out] (-21*(704 - 375*x)*Sqrt[1 - 2*x])/68750 + (1428*Sqrt[1 - 2*x]*(2
+ 3*x)^2)/6875 - (Sqrt[1 - 2*x]*(2 + 3*x)^4)/(10*(3 + 5*x)^2) - (
131*Sqrt[1 - 2*x]*(2 + 3*x)^3)/(550*(3 + 5*x)) - (12803*ArcTanh[S
qrt[5/11]*Sqrt[1 - 2*x]])/(34375*Sqrt[55])
```

Rubi [A] time = 0.20493, antiderivative size = 120, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$-\frac{\sqrt{1-2x}(3x+2)^4}{10(5x+3)^2}-\frac{131\sqrt{1-2x}(3x+2)^3}{550(5x+3)}+\frac{1428\sqrt{1-2x}(3x+2)^2}{6875}-\frac{21(704-375x)\sqrt{1-2x}}{68750}-\frac{12803\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{34375\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(2 + 3*x)^4)/(3 + 5*x)^3,x]
```

```
[Out] (-21*(704 - 375*x)*Sqrt[1 - 2*x])/68750 + (1428*Sqrt[1 - 2*x]*(2
+ 3*x)^2)/6875 - (Sqrt[1 - 2*x]*(2 + 3*x)^4)/(10*(3 + 5*x)^2) - (
131*Sqrt[1 - 2*x]*(2 + 3*x)^3)/(550*(3 + 5*x)) - (12803*ArcTanh[S
qrt[5/11]*Sqrt[1 - 2*x]])/(34375*Sqrt[55])
```

Rubi in Sympy [A] time = 26.3079, size = 104, normalized size = 0.87

$$-\frac{(-118125x+221760)\sqrt{-2x+1}}{1031250}-\frac{\sqrt{-2x+1}\,(3x+2)^4}{10\,(5x+3)^2}-\frac{131\sqrt{-2x+1}\,(3x+2)^3}{550\,(5x+3)}+\frac{1428\sqrt{-2x+1}\,(3x+2)^2}{6875}-\frac{12803\sqrt{55}\,\text{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{1890625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4*(1-2*x)**(1/2)/(3+5*x)**3,x)
```

```
[Out] -(-118125*x + 221760)*sqrt(-2*x + 1)/1031250 - sqrt(-2*x + 1)*(3*
x + 2)**4/(10*(5*x + 3)**2) - 131*sqrt(-2*x + 1)*(3*x + 2)**3/(55
0*(5*x + 3)) + 1428*sqrt(-2*x + 1)*(3*x + 2)**2/6875 - 12803*sqrt
(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/1890625
```

Mathematica [A] time = 0.133484, size = 68, normalized size = 0.57

$$\frac{\frac{55\sqrt{1-2x}(445500x^4+1103850x^3+506880x^2-200305x-121976)}{(5x+3)^2}-25606\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{3781250}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(2 + 3*x)^4)/(3 + 5*x)^3,x]
```

```
[Out] ((55*Sqrt[1 - 2*x]*(-121976 - 200305*x + 506880*x^2 + 1103850*x^3
 + 445500*x^4))/(3 + 5*x)^2 - 25606*Sqrt[55]*ArcTanh[Sqrt[5/11]*S
qrt[1 - 2*x]])/3781250
```

Maple [A] time = 0.017, size = 75, normalized size = 0.6

$$\frac{81}{1250}(1-2x)^{\frac{5}{2}}-\frac{369}{1250}(1-2x)^{\frac{3}{2}}+\frac{108}{3125}\sqrt{1-2x}+\frac{4}{125(-6-10x)^2}\left(\frac{263}{220}(1-2x)^{\frac{3}{2}}-\frac{53}{20}\sqrt{1-2x}\right)-\frac{12803\sqrt{55}}{1890625}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4*(1-2*x)^(1/2)/(3+5*x)^3,x)
```

```
[Out] 81/1250*(1-2*x)^(5/2)-369/1250*(1-2*x)^(3/2)+108/3125*(1-2*x)^(1/
2)+4/125*(263/220*(1-2*x)^(3/2)-53/20*(1-2*x)^(1/2))/(-6-10*x)^2-
12803/1890625*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.48311, size = 136, normalized size = 1.13

$$\frac{81}{1250}(-2x+1)^{\frac{5}{2}}-\frac{369}{1250}(-2x+1)^{\frac{3}{2}}+\frac{12803}{3781250}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{108}{3125}\sqrt{-2x+1}+\frac{263(-2x+1)^{\frac{3}{2}}-583\sqrt{-2x+1}}{6875\left(25(2x-1)^2+220x+11\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4*sqrt(-2*x + 1)/(5*x + 3)^3,x, algorithm="maxima")
```

```
[Out] 81/1250*(-2*x + 1)^(5/2) - 369/1250*(-2*x + 1)^(3/2) + 12803/3781
250*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sqr
t(-2*x + 1))) + 108/3125*sqrt(-2*x + 1) + 1/6875*(263*(-2*x + 1)^
(3/2) - 583*sqrt(-2*x + 1))/(25*(2*x - 1)^2 + 220*x + 11)
```

Fricas [A] time = 0.214887, size = 120, normalized size = 1.

$$\frac{\sqrt{55}\left(\sqrt{55}\left(445500x^4+1103850x^3+506880x^2-200305x-121976\right)\sqrt{-2x+1}+12803\left(25x^2+30x+9\right)\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{-2x+1}}{5x+3}\right)\right)}{3781250\left(25x^2+30x+9\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4*sqrt(-2*x + 1)/(5*x + 3)^3,x, algorithm="fricas")
```

```
[Out] 1/3781250*sqrt(55)*(sqrt(55)*(445500*x^4 + 1103850*x^3 + 506880*x
^2 - 200305*x - 121976)*sqrt(-2*x + 1) + 12803*(25*x^2 + 30*x + 9
)*log((sqrt(55)*(5*x - 8) + 55*sqrt(-2*x + 1))/(5*x + 3)))/(25*x^
2 + 30*x + 9)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4*(1-2*x)**(1/2)/(3+5*x)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.213187, size = 138, normalized size = 1.15

$$\frac{81}{1250}\,(2\,x-1)^2\sqrt{-2\,x+1}-\frac{369}{1250}\,(-2\,x+1)^{\frac{3}{2}}+\frac{12803}{3781250}\,\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)+\frac{108}{3125}\,\sqrt{-2\,x+1}+\frac{263\,(-2\,x+1)^{\frac{3}{2}}-583\,\sqrt{-2\,x+1}}{27500\,(5\,x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4*sqrt(-2*x + 1)/(5*x + 3)^3,x, algorithm="giac")
```

```
[Out] 81/1250*(2*x - 1)^2*sqrt(-2*x + 1) - 369/1250*(-2*x + 1)^(3/2) +
12803/3781250*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1)
)/(sqrt(55) + 5*sqrt(-2*x + 1))) + 108/3125*sqrt(-2*x + 1) + 1/27
500*(263*(-2*x + 1)^(3/2) - 583*sqrt(-2*x + 1))/(5*x + 3)^2
```

3.1832 $\int \frac{\sqrt{1-2x}(2+3x)^3}{(3+5x)^3}\,dx$

Optimal. Leaf size=100

$$-\frac{\sqrt{1-2x}(3x+2)^3}{10(5x+3)^2}-\frac{49\sqrt{1-2x}(3x+2)^2}{275(5x+3)}+\frac{21\sqrt{1-2x}(75x+44)}{2750}-\frac{1267\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1375\sqrt{55}}$$

```
[Out] -(Sqrt[1 - 2*x]*(2 + 3*x)^3)/(10*(3 + 5*x)^2) - (49*Sqrt[1 - 2*x]
*(2 + 3*x)^2)/(275*(3 + 5*x)) + (21*Sqrt[1 - 2*x]*(44 + 75*x))/27
50 - (1267*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(1375*Sqrt[55])
```

Rubi [A] time = 0.153089, antiderivative size = 100, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$-\frac{\sqrt{1-2x}(3x+2)^3}{10(5x+3)^2}-\frac{49\sqrt{1-2x}(3x+2)^2}{275(5x+3)}+\frac{21\sqrt{1-2x}(75x+44)}{2750}-\frac{1267\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1375\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(2 + 3*x)^3)/(3 + 5*x)^3,x]
```

```
[Out] -(Sqrt[1 - 2*x]*(2 + 3*x)^3)/(10*(3 + 5*x)^2) - (49*Sqrt[1 - 2*x]
*(2 + 3*x)^2)/(275*(3 + 5*x)) + (21*Sqrt[1 - 2*x]*(44 + 75*x))/27
50 - (1267*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(1375*Sqrt[55])
```

Rubi in Sympy [A] time = 19.0843, size = 85, normalized size = 0.85

$$-\frac{\sqrt{-2x+1}\,(3x+2)^3}{10\,(5x+3)^2}-\frac{49\sqrt{-2x+1}\,(3x+2)^2}{275\,(5x+3)}+\frac{\sqrt{-2x+1}\,(23625x+13860)}{41250}-\frac{1267\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{75625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3*(1-2*x)**(1/2)/(3+5*x)**3,x)
```

```
[Out] -sqrt(-2*x + 1)*(3*x + 2)**3/(10*(5*x + 3)**2) - 49*sqrt(-2*x + 1
)*(3*x + 2)**2/(275*(5*x + 3)) + sqrt(-2*x + 1)*(23625*x + 13860)
/41250 - 1267*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/75625
```

Mathematica [A] time = 0.102445, size = 63, normalized size = 0.63

$$\frac{\frac{55\sqrt{1-2x}(9900x^3+12870x^2+4555x+236)}{(5x+3)^2}-2534\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{151250}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(2 + 3*x)^3)/(3 + 5*x)^3,x]
```

```
[Out] ((55*Sqrt[1 - 2*x]*(236 + 4555*x + 12870*x^2 + 9900*x^3))/(3 + 5*
x)^2 - 2534*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/151250
```

Maple [A] time = 0.017, size = 66, normalized size = 0.7

$$-\frac{9}{125}(1-2x)^{\frac{3}{2}}+\frac{54}{625}\sqrt{1-2x}+\frac{2}{25\,(-6-10\,x)^2}\left(\frac{197}{110}(1-2x)^{\frac{3}{2}}-\frac{199}{50}\sqrt{1-2x}\right)-\frac{1267\sqrt{55}}{75625}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3*(1-2*x)^(1/2)/(3+5*x)^3,x)
```

```
[Out] -9/125*(1-2*x)^(3/2)+54/625*(1-2*x)^(1/2)+2/25*(197/110*(1-2*x)^(
3/2)-199/50*(1-2*x)^(1/2))/(-6-10*x)^2-1267/75625*arctanh(1/11*55
^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.49875, size = 124, normalized size = 1.24

$$-\frac{9}{125}(-2x+1)^{\frac{3}{2}}+\frac{1267}{151250}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{54}{625}\sqrt{-2x+1}+\frac{985\,(-2x+1)^{\frac{3}{2}}-2189\sqrt{-2x+1}}{6875\left(25\,(2x-1)^2+220\,x+11\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*sqrt(-2*x + 1)/(5*x + 3)^3,x, algorithm="maxima")
```

```
[Out] -9/125*(-2*x + 1)^(3/2) + 1267/151250*sqrt(55)*log(-(sqrt(55) - 5
*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) + 54/625*sqrt(-2*
x + 1) + 1/6875*(985*(-2*x + 1)^(3/2) - 2189*sqrt(-2*x + 1))/(25*
(2*x - 1)^2 + 220*x + 11)
```

Fricas [A] time = 0.214679, size = 113, normalized size = 1.13

$$\frac{\sqrt{55}\left(\sqrt{55}\left(9900\,x^3+12870\,x^2+4555\,x+236\right)\sqrt{-2x+1}+1267\left(25\,x^2+30\,x+9\right)\log\left(\frac{\sqrt{55}(5\,x-8)+55\sqrt{-2x+1}}{5\,x+3}\right)\right)}{151250\,(25\,x^2+30\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*sqrt(-2*x + 1)/(5*x + 3)^3,x, algorithm="fricas")
```

```
[Out] 1/151250*sqrt(55)*(sqrt(55)*(9900*x^3 + 12870*x^2 + 4555*x + 236)
*sqrt(-2*x + 1) + 1267*(25*x^2 + 30*x + 9)*log((sqrt(55)*(5*x - 8
) + 55*sqrt(-2*x + 1))/(5*x + 3)))/(25*x^2 + 30*x + 9)
```

Sympy [A] time = 152.922, size = 335, normalized size = 3.35

$$-\frac{9(-2x+1)^{\frac{3}{2}}}{125}+\frac{54\sqrt{-2x+1}}{625}-\frac{388\left(\begin{cases}\frac{\sqrt{55}\left(-\frac{\log\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)}{4}+\frac{\log\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)}{4}-\frac{1}{4\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)}-\frac{1}{4\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)}\right)}{605} & \text{for } x\le\frac{1}{2}\wedge x>-\frac{3}{5}\end{cases}\right)}{625}$$
$$+\frac{88\left(\begin{cases}\frac{\sqrt{55}\left(\frac{3\log\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)}{16}-\frac{3\log\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)}{16}+\frac{3}{16\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)}+\frac{1}{16\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)^2}+\frac{3}{16\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)}-\frac{1}{16\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)^2}\right)}{6655} & \text{for } x\le\frac{1}{2}\wedge x>-\frac{3}{5}\end{cases}\right)}{625}$$
$$+\frac{558\left(\begin{cases}-\frac{\sqrt{55}\,\text{acoth}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1>\frac{11}{5}\\ -\frac{\sqrt{55}\,\text{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1<\frac{11}{5}\end{cases}\right)}{625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3*(1-2*x)**(1/2)/(3+5*x)**3,x)
```

```
[Out] -9*(-2*x + 1)**(3/2)/125 + 54*sqrt(-2*x + 1)/625 - 388*Piecewise(
(sqrt(55)*(-log(sqrt(55)*sqrt(-2*x + 1)/11 - 1)/4 + log(sqrt(55)*
sqrt(-2*x + 1)/11 + 1)/4 - 1/(4*(sqrt(55)*sqrt(-2*x + 1)/11 + 1))
 - 1/(4*(sqrt(55)*sqrt(-2*x + 1)/11 - 1)))/605, (x <= 1/2) & (x >
 -3/5)))/625 + 88*Piecewise((sqrt(55)*(3*log(sqrt(55)*sqrt(-2*x +
 1)/11 - 1)/16 - 3*log(sqrt(55)*sqrt(-2*x + 1)/11 + 1)/16 + 3/(16
*(sqrt(55)*sqrt(-2*x + 1)/11 + 1)) + 1/(16*(sqrt(55)*sqrt(-2*x +
1)/11 + 1)**2) + 3/(16*(sqrt(55)*sqrt(-2*x + 1)/11 - 1)) - 1/(16*
(sqrt(55)*sqrt(-2*x + 1)/11 - 1)**2))/6655, (x <= 1/2) & (x > -3/
5)))/625 + 558*Piecewise((-sqrt(55)*acoth(sqrt(55)*sqrt(-2*x + 1)
/11)/55, -2*x + 1 > 11/5), (-sqrt(55)*atanh(sqrt(55)*sqrt(-2*x +
1)/11)/55, -2*x + 1 < 11/5))/625
```

GIAC/XCAS [A] time = 0.219212, size = 116, normalized size = 1.16

$$-\frac{9}{125}(-2x+1)^{\frac{3}{2}}+\frac{1267}{151250}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{54}{625}\sqrt{-2x+1}+\frac{985(-2x+1)^{\frac{3}{2}}-2189\sqrt{-2x+1}}{27500(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^3*sqrt(-2*x + 1)/(5*x + 3)^3,x, algorithm="giac")
```

```
[Out] -9/125*(-2*x + 1)^(3/2) + 1267/151250*sqrt(55)*ln(1/2*abs(-2*sqrt
(55) + 10*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) + 54/625
*sqrt(-2*x + 1) + 1/27500*(985*(-2*x + 1)^(3/2) - 2189*sqrt(-2*x
+ 1))/(5*x + 3)^2
```

3.1833 $\int \frac{\sqrt{1-2x}(2+3x)^2}{(3+5x)^3} dx$

Optimal. Leaf size=81

$$-\frac{133(1-2x)^{3/2}}{6050(5x+3)}-\frac{(1-2x)^{3/2}}{550(5x+3)^2}+\frac{409\sqrt{1-2x}}{3025}-\frac{409\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{275\sqrt{55}}$$

```
[Out] (409*Sqrt[1 - 2*x])/3025 - (1 - 2*x)^(3/2)/(550*(3 + 5*x)^2) - (1
33*(1 - 2*x)^(3/2))/(6050*(3 + 5*x)) - (409*ArcTanh[Sqrt[5/11]*Sq
rt[1 - 2*x]])/(275*Sqrt[55])
```

Rubi [A] time = 0.0932296, antiderivative size = 81, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$-\frac{133(1-2x)^{3/2}}{6050(5x+3)}-\frac{(1-2x)^{3/2}}{550(5x+3)^2}+\frac{409\sqrt{1-2x}}{3025}-\frac{409\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{275\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In] Int[(Sqrt[1 - 2*x]*(2 + 3*x)^2)/(3 + 5*x)^3,x]
```

```
[Out] (409*Sqrt[1 - 2*x])/3025 - (1 - 2*x)^(3/2)/(550*(3 + 5*x)^2) - (1
33*(1 - 2*x)^(3/2))/(6050*(3 + 5*x)) - (409*ArcTanh[Sqrt[5/11]*Sq
rt[1 - 2*x]])/(275*Sqrt[55])
```

Rubi in Sympy [A] time = 9.82156, size = 68, normalized size = 0.84

$$-\frac{133\left(-2x+1\right)^{\frac{3}{2}}}{6050\left(5x+3\right)}-\frac{\left(-2x+1\right)^{\frac{3}{2}}}{550\left(5x+3\right)^2}+\frac{409\sqrt{-2x+1}}{3025}-\frac{409\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{15125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**2*(1-2*x)**(1/2)/(3+5*x)**3,x)
```

```
[Out] -133*(-2*x + 1)**(3/2)/(6050*(5*x + 3)) - (-2*x + 1)**(3/2)/(550*
(5*x + 3)**2) + 409*sqrt(-2*x + 1)/3025 - 409*sqrt(55)*atanh(sqrt
(55)*sqrt(-2*x + 1)/11)/15125
```

Mathematica [A] time = 0.0895959, size = 58, normalized size = 0.72

$$\frac{\sqrt{1-2x}\left(1980x^2+2245x+632\right)}{550(5x+3)^2}-\frac{409\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{275\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In] Integrate[(Sqrt[1 - 2*x]*(2 + 3*x)^2)/(3 + 5*x)^3,x]
```

```
[Out] (Sqrt[1 - 2*x]*(632 + 2245*x + 1980*x^2))/(550*(3 + 5*x)^2) - (40
9*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(275*Sqrt[55])
```

Maple [A] time = 0.015, size = 57, normalized size = 0.7

$$\frac{18}{125}\sqrt{1-2x}+\frac{2}{5\left(-6-10x\right)^{2}}\left(\frac{131}{110}\left(1-2x\right)^{\frac{3}{2}}-\frac{133}{50}\sqrt{1-2x}\right)-\frac{409\sqrt{55}}{15125}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2*(1-2*x)^(1/2)/(3+5*x)^3,x)
```

```
[Out] 18/125*(1-2*x)^(1/2)+2/5*(131/110*(1-2*x)^(3/2)-133/50*(1-2*x)^(1
/2))/(-6-10*x)^2-409/15125*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*5
5^(1/2)
```

Maxima [A] time = 1.47934, size = 112, normalized size = 1.38

$$\frac{409}{30250}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{18}{125}\sqrt{-2x+1}+\frac{655\left(-2x+1\right)^{\frac{3}{2}}-1463\sqrt{-2x+1}}{1375\left(25\left(2x-1\right)^{2}+220x+11\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*sqrt(-2*x + 1)/(5*x + 3)^3,x, algorithm="maxima")
```

```
[Out] 409/30250*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) +
 5*sqrt(-2*x + 1))) + 18/125*sqrt(-2*x + 1) + 1/1375*(655*(-2*x +
 1)^(3/2) - 1463*sqrt(-2*x + 1))/(25*(2*x - 1)^2 + 220*x + 11)
```

Fricas [A] time = 0.219777, size = 107, normalized size = 1.32

$$\frac{\sqrt{55}\left(\sqrt{55}\left(1980x^{2}+2245x+632\right)\sqrt{-2x+1}+409\left(25x^{2}+30x+9\right)\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{-2x+1}}{5x+3}\right)\right)}{30250\left(25x^{2}+30x+9\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*sqrt(-2*x + 1)/(5*x + 3)^3,x, algorithm="fricas")
```

```
[Out] 1/30250*sqrt(55)*(sqrt(55)*(1980*x^2 + 2245*x + 632)*sqrt(-2*x +
1) + 409*(25*x^2 + 30*x + 9)*log((sqrt(55)*(5*x - 8) + 55*sqrt(-2
*x + 1))/(5*x + 3)))/(25*x^2 + 30*x + 9)
```

Sympy [A] time = 123.005, size = 323, normalized size = 3.99

$$\frac{18\sqrt{-2x+1}}{125}-\frac{256\left(\begin{cases}\frac{\sqrt{55}\left(-\frac{\log\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)}{4}+\frac{\log\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)}{4}-\frac{1}{4\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)}-\frac{1}{4\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)}\right)}{605} & \text{for}\ x\leq\frac{1}{2}\wedge x>-\frac{3}{5}\end{cases}\right)}{125}$$
$$+\frac{88\left(\begin{cases}\frac{\sqrt{55}\left(\frac{3\log\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)}{16}-\frac{3\log\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)}{16}+\frac{3}{16\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)}+\frac{1}{16\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)^{2}}+\frac{3}{16\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)}-\frac{1}{16\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)^{2}}\right)}{6655} & \text{for}\ x\leq\frac{1}{2}\wedge x>-\frac{3}{5}\end{cases}\right)}{125}$$
$$+\frac{174\left(\begin{cases}-\frac{\sqrt{55}\operatorname{acoth}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for}\ -2x+1>\frac{11}{5}\\ -\frac{\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for}\ -2x+1<\frac{11}{5}\end{cases}\right)}{125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2*(1-2*x)**(1/2)/(3+5*x)**3,x)
```

```
[Out] 18*sqrt(-2*x + 1)/125 - 256*Piecewise((sqrt(55)*(-log(sqrt(55)*sq
rt(-2*x + 1)/11 - 1)/4 + log(sqrt(55)*sqrt(-2*x + 1)/11 + 1)/4 -
1/(4*(sqrt(55)*sqrt(-2*x + 1)/11 + 1)) - 1/(4*(sqrt(55)*sqrt(-2*x
 + 1)/11 - 1)))/605, (x <= 1/2) & (x > -3/5)))/125 + 88*Piecewise
((sqrt(55)*(3*log(sqrt(55)*sqrt(-2*x + 1)/11 - 1)/16 - 3*log(sqrt
(55)*sqrt(-2*x + 1)/11 + 1)/16 + 3/(16*(sqrt(55)*sqrt(-2*x + 1)/1
1 + 1)) + 1/(16*(sqrt(55)*sqrt(-2*x + 1)/11 + 1)**2) + 3/(16*(sqr
t(55)*sqrt(-2*x + 1)/11 - 1)) - 1/(16*(sqrt(55)*sqrt(-2*x + 1)/11
 - 1)**2))/6655, (x <= 1/2) & (x > -3/5)))/125 + 174*Piecewise((-
sqrt(55)*acoth(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*x + 1 > 11/5),
(-sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*x + 1 < 11/5)
)/125
```

GIAC/XCAS [A] time = 0.224905, size = 104, normalized size = 1.28

$$\frac{409}{30250}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{18}{125}\sqrt{-2x+1}+\frac{655(-2x+1)^{\frac{3}{2}}-1463\sqrt{-2x+1}}{5500(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*sqrt(-2*x + 1)/(5*x + 3)^3,x, algorithm="giac")
```

```
[Out] 409/30250*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(s
qrt(55) + 5*sqrt(-2*x + 1))) + 18/125*sqrt(-2*x + 1) + 1/5500*(65
5*(-2*x + 1)^(3/2) - 1463*sqrt(-2*x + 1))/(5*x + 3)^2
```

3.1834 $\int \frac{\sqrt{1-2x}(2+3x)}{(3+5x)^3}\,dx$

Optimal. Leaf size=68

$$-\frac{(1-2x)^{3/2}}{110(5x+3)^2}-\frac{67\sqrt{1-2x}}{550(5x+3)}+\frac{67\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{275\sqrt{55}}$$

```
[Out] -(1 - 2*x)^(3/2)/(110*(3 + 5*x)^2) - (67*Sqrt[1 - 2*x])/(550*(3 +
 5*x)) + (67*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(275*Sqrt[55])
```

Rubi [A] time = 0.0615903, antiderivative size = 68, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{(1-2x)^{3/2}}{110(5x+3)^2}-\frac{67\sqrt{1-2x}}{550(5x+3)}+\frac{67\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{275\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(2 + 3*x))/(3 + 5*x)^3,x]
```

```
[Out] -(1 - 2*x)^(3/2)/(110*(3 + 5*x)^2) - (67*Sqrt[1 - 2*x])/(550*(3 +
 5*x)) + (67*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(275*Sqrt[55])
```

Rubi in Sympy [A] time = 7.49919, size = 56, normalized size = 0.82

$$-\frac{(-2x+1)^{\frac{3}{2}}}{110\,(5x+3)^2}-\frac{67\sqrt{-2x+1}}{550\,(5x+3)}+\frac{67\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{15125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)*(1-2*x)**(1/2)/(3+5*x)**3,x)
```

```
[Out] -(-2*x + 1)**(3/2)/(110*(5*x + 3)**2) - 67*sqrt(-2*x + 1)/(550*(5
*x + 3)) + 67*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/15125
```

Mathematica [A] time = 0.0870639, size = 53, normalized size = 0.78

$$\frac{67\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{275\sqrt{55}}-\frac{\sqrt{1-2x}(325x+206)}{550(5x+3)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(2 + 3*x))/(3 + 5*x)^3,x]
```

```
[Out] -(Sqrt[1 - 2*x]*(206 + 325*x))/(550*(3 + 5*x)^2) + (67*ArcTanh[Sq
rt[5/11]*Sqrt[1 - 2*x]])/(275*Sqrt[55])
```

Maple [A] time = 0.016, size = 48, normalized size = 0.7

$$-100\,\frac{1}{(-6-10\,x)^2}\left(-\frac{13\,(1-2\,x)^{3/2}}{1100}+\frac{67\,\sqrt{1-2\,x}}{2500}\right)+\frac{67\,\sqrt{55}}{15125}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)*(1-2*x)^(1/2)/(3+5*x)^3,x)
```

```
[Out] -100*(-13/1100*(1-2*x)^(3/2)+67/2500*(1-2*x)^(1/2))/(-6-10*x)^2+6
7/15125*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.49686, size = 100, normalized size = 1.47

$$-\frac{67}{30250}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{325(-2x+1)^{\frac{3}{2}}-737\sqrt{-2x+1}}{275\left(25(2x-1)^2+220x+11\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)*sqrt(-2*x + 1)/(5*x + 3)^3,x, algorithm="maxima")
```

```
[Out] -67/30250*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) +
 5*sqrt(-2*x + 1))) + 1/275*(325*(-2*x + 1)^(3/2) - 737*sqrt(-2*x
 + 1))/(25*(2*x - 1)^2 + 220*x + 11)
```

Fricas [A] time = 0.213425, size = 100, normalized size = 1.47

$$-\frac{\sqrt{55}\left(\sqrt{55}(325x+206)\sqrt{-2x+1}-67\left(25x^2+30x+9\right)\log\left(\frac{\sqrt{55}(5x-8)-55\sqrt{-2x+1}}{5x+3}\right)\right)}{30250\left(25x^2+30x+9\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)*sqrt(-2*x + 1)/(5*x + 3)^3,x, algorithm="fricas")
```

```
[Out] -1/30250*sqrt(55)*(sqrt(55)*(325*x + 206)*sqrt(-2*x + 1) - 67*(25
*x^2 + 30*x + 9)*log((sqrt(55)*(5*x - 8) - 55*sqrt(-2*x + 1))/(5*
x + 3)))/(25*x^2 + 30*x + 9)
```

Sympy [A] time = 92.9142, size = 311, normalized size = 4.57

$$-\frac{124\left(\begin{cases}\frac{\sqrt{55}\left(-\frac{\log\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)}{4}+\frac{\log\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)}{4}-\frac{1}{4\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)}-\frac{1}{4\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)}\right)}{605} & \text{for } x\leq\frac{1}{2}\wedge x>-\frac{3}{5}\end{cases}\right)}{25}$$
$$+\frac{88\left(\begin{cases}\frac{\sqrt{55}\left(\frac{3\log\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)}{16}-\frac{3\log\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)}{16}+\frac{3}{16\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)}+\frac{1}{16\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)^2}+\frac{3}{16\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)}-\frac{1}{16\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)^2}\right)}{6655} & \text{for } x\leq\frac{1}{2}\wedge x>-\frac{3}{5}\end{cases}\right)}{25}$$
$$-\frac{12\left(\begin{cases}-\frac{\sqrt{55}\operatorname{acoth}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1>\frac{11}{5}\\ -\frac{\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1<\frac{11}{5}\end{cases}\right)}{25}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)*(1-2*x)**(1/2)/(3+5*x)**3,x)
```

```
[Out] -124*Piecewise((sqrt(55)*(-log(sqrt(55)*sqrt(-2*x + 1)/11 - 1)/4
+ log(sqrt(55)*sqrt(-2*x + 1)/11 + 1)/4 - 1/(4*(sqrt(55)*sqrt(-2*
x + 1)/11 + 1)) - 1/(4*(sqrt(55)*sqrt(-2*x + 1)/11 - 1)))/605, (x
 <= 1/2) & (x > -3/5)))/25 + 88*Piecewise((sqrt(55)*(3*log(sqrt(5
```

```
5)*sqrt(-2*x + 1)/11 - 1)/16 - 3*log(sqrt(55)*sqrt(-2*x + 1)/11 +
 1)/16 + 3/(16*(sqrt(55)*sqrt(-2*x + 1)/11 + 1)) + 1/(16*(sqrt(55
)*sqrt(-2*x + 1)/11 + 1)**2) + 3/(16*(sqrt(55)*sqrt(-2*x + 1)/11
- 1)) - 1/(16*(sqrt(55)*sqrt(-2*x + 1)/11 - 1)**2))/6655, (x <= 1
/2) & (x > -3/5)))/25 - 12*Piecewise((-sqrt(55)*acoth(sqrt(55)*sq
rt(-2*x + 1)/11)/55, -2*x + 1 > 11/5), (-sqrt(55)*atanh(sqrt(55)*
sqrt(-2*x + 1)/11)/55, -2*x + 1 < 11/5))/25
```

GIAC/XCAS [A] time = 0.217281, size = 92, normalized size = 1.35

$$-\frac{67}{30250}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{325(-2x+1)^{\frac{3}{2}}-737\sqrt{-2x+1}}{1100(5x+3)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)*sqrt(-2*x + 1)/(5*x + 3)^3,x, algorithm="giac")
```

```
[Out] -67/30250*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(s
qrt(55) + 5*sqrt(-2*x + 1))) + 1/1100*(325*(-2*x + 1)^(3/2) - 737
*sqrt(-2*x + 1))/(5*x + 3)^2
```

3.1835 $\int \frac{\sqrt{1-2x}}{(3+5x)^3}\,dx$

Optimal. Leaf size=68

$$\frac{\sqrt{1-2x}}{110(5x+3)}-\frac{\sqrt{1-2x}}{10(5x+3)^2}+\frac{\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{55\sqrt{55}}$$

```
[Out] -Sqrt[1 - 2*x]/(10*(3 + 5*x)^2) + Sqrt[1 - 2*x]/(110*(3 + 5*x)) +
 ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]/(55*Sqrt[55])
```

Rubi [A] time = 0.0535309, antiderivative size = 68, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 17, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.235

$$\frac{\sqrt{1-2x}}{110(5x+3)}-\frac{\sqrt{1-2x}}{10(5x+3)^2}+\frac{\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{55\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]/(3 + 5*x)^3,x]
```

```
[Out] -Sqrt[1 - 2*x]/(10*(3 + 5*x)^2) + Sqrt[1 - 2*x]/(110*(3 + 5*x)) +
 ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]/(55*Sqrt[55])
```

Rubi in Sympy [A] time = 6.6489, size = 53, normalized size = 0.78

$$\frac{\sqrt{-2x+1}}{110\,(5x+3)}-\frac{\sqrt{-2x+1}}{10\,(5x+3)^2}+\frac{\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{3025}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)/(3+5*x)**3,x)
```

```
[Out] sqrt(-2*x + 1)/(110*(5*x + 3)) - sqrt(-2*x + 1)/(10*(5*x + 3)**2)
 + sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/3025
```

Mathematica [A] time = 0.0789328, size = 53, normalized size = 0.78

$$\frac{\sqrt{1-2x}(5x-8)}{110(5x+3)^2}+\frac{\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{55\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]/(3 + 5*x)^3,x]
```

```
[Out] (Sqrt[1 - 2*x]*(-8 + 5*x))/(110*(3 + 5*x)^2) + ArcTanh[Sqrt[5/11]
*Sqrt[1 - 2*x]]/(55*Sqrt[55])
```

Maple [A] time = 0.014, size = 48, normalized size = 0.7

$$200\,\frac{1}{(-6-10\,x)^2}\left(-\frac{(1-2\,x)^{3/2}}{2200}-\frac{\sqrt{1-2\,x}}{1000}\right)+\frac{\sqrt{55}}{3025}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)/(3+5*x)^3,x)
```

```
[Out] 200*(-1/2200*(1-2*x)^(3/2)-1/1000*(1-2*x)^(1/2))/(-6-10*x)^2+1/30
25*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.49177, size = 100, normalized size = 1.47

$$-\frac{1}{6050}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{5(-2x+1)^{\frac{3}{2}}+11\sqrt{-2x+1}}{55\left(25(2x-1)^2+220x+11\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/(5*x + 3)^3,x, algorithm="maxima")
```

```
[Out] -1/6050*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5
*sqrt(-2*x + 1))) - 1/55*(5*(-2*x + 1)^(3/2) + 11*sqrt(-2*x + 1))
/(25*(2*x - 1)^2 + 220*x + 11)
```

Fricas [A] time = 0.215783, size = 99, normalized size = 1.46

$$\frac{\sqrt{55}\left(\sqrt{55}(5x-8)\sqrt{-2x+1}+\left(25x^2+30x+9\right)\log\left(\frac{\sqrt{55}(5x-8)-55\sqrt{-2x+1}}{5x+3}\right)\right)}{6050\,(25x^2+30x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/(5*x + 3)^3,x, algorithm="fricas")
```

```
[Out] 1/6050*sqrt(55)*(sqrt(55)*(5*x - 8)*sqrt(-2*x + 1) + (25*x^2 + 30
*x + 9)*log((sqrt(55)*(5*x - 8) - 55*sqrt(-2*x + 1))/(5*x + 3)))/
(25*x^2 + 30*x + 9)
```

Sympy [A] time = 9.32716, size = 233, normalized size = 3.43

$$\begin{cases} \frac{\sqrt{55}\operatorname{acosh}\left(\frac{\sqrt{110}}{10\sqrt{x+\frac{3}{5}}}\right)}{3025}-\frac{\sqrt{2}}{550\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}\sqrt{x+\frac{3}{5}}}+\frac{3\sqrt{2}}{500\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}-\frac{11\sqrt{2}}{2500\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)^{\frac{5}{2}}} & \text{for}\ \frac{11\left|\frac{1}{x+\frac{3}{5}}\right|}{10}>1 \\ -\frac{\sqrt{55}i\operatorname{asin}\left(\frac{\sqrt{110}}{10\sqrt{x+\frac{3}{5}}}\right)}{3025}+\frac{\sqrt{2}i}{550\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}\sqrt{x+\frac{3}{5}}}-\frac{3\sqrt{2}i}{500\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}+\frac{11\sqrt{2}i}{2500\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)^{\frac{5}{2}}} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)/(3+5*x)**3,x)
```

```
[Out] Piecewise((sqrt(55)*acosh(sqrt(110)/(10*sqrt(x + 3/5)))/3025 - sq
rt(2)/(550*sqrt(-1 + 11/(10*(x + 3/5)))*sqrt(x + 3/5)) + 3*sqrt(2
)/(500*sqrt(-1 + 11/(10*(x + 3/5)))*(x + 3/5)**(3/2)) - 11*sqrt(2
)/(2500*sqrt(-1 + 11/(10*(x + 3/5)))*(x + 3/5)**(5/2)), 11*Abs(1/
(x + 3/5))/10 > 1), (-sqrt(55)*I*asin(sqrt(110)/(10*sqrt(x + 3/5)
))/3025 + sqrt(2)*I/(550*sqrt(1 - 11/(10*(x + 3/5)))*sqrt(x + 3/5
)) - 3*sqrt(2)*I/(500*sqrt(1 - 11/(10*(x + 3/5)))*(x + 3/5)**(3/2
)) + 11*sqrt(2)*I/(2500*sqrt(1 - 11/(10*(x + 3/5)))*(x + 3/5)**(5
/2)), True))
```

GIAC/XCAS [A] time = 0.212118, size = 92, normalized size = 1.35

$$-\frac{1}{6050}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{5(-2x+1)^{\frac{3}{2}}+11\sqrt{-2x+1}}{220(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/(5*x + 3)^3,x, algorithm="giac")
```

```
[Out] -1/6050*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqr
t(55) + 5*sqrt(-2*x + 1))) - 1/220*(5*(-2*x + 1)^(3/2) + 11*sqrt(
-2*x + 1))/(5*x + 3)^2
```

3.1836 $\int \frac{\sqrt{1-2x}}{(2+3x)(3+5x)^3} \, dx$

Optimal. Leaf size=93

$$\frac{67\sqrt{1-2x}}{22(5x+3)} - \frac{\sqrt{1-2x}}{2(5x+3)^2} + 6\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right) - \frac{2243\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{11\sqrt{55}}$$

```
[Out] -Sqrt[1 - 2*x]/(2*(3 + 5*x)^2) + (67*Sqrt[1 - 2*x])/(22*(3 + 5*x)
) + 6*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]] - (2243*ArcTanh[S
qrt[5/11]*Sqrt[1 - 2*x]])/(11*Sqrt[55])
```

Rubi [A] time = 0.181467, antiderivative size = 93, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.208$

$$\frac{67\sqrt{1-2x}}{22(5x+3)} - \frac{\sqrt{1-2x}}{2(5x+3)^2} + 6\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right) - \frac{2243\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{11\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]/((2 + 3*x)*(3 + 5*x)^3),x]
```

```
[Out] -Sqrt[1 - 2*x]/(2*(3 + 5*x)^2) + (67*Sqrt[1 - 2*x])/(22*(3 + 5*x)
) + 6*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]] - (2243*ArcTanh[S
qrt[5/11]*Sqrt[1 - 2*x]])/(11*Sqrt[55])
```

Rubi in Sympy [A] time = 21.1849, size = 80, normalized size = 0.86

$$\frac{67\sqrt{-2x+1}}{22(5x+3)} - \frac{\sqrt{-2x+1}}{2(5x+3)^2} + 6\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right) - \frac{2243\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{605}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)/(2+3*x)/(3+5*x)**3,x)
```

```
[Out] 67*sqrt(-2*x + 1)/(22*(5*x + 3)) - sqrt(-2*x + 1)/(2*(5*x + 3)**2
) + 6*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7) - 2243*sqrt(55)*a
tanh(sqrt(55)*sqrt(-2*x + 1)/11)/605
```

Mathematica [A] time = 0.158374, size = 78, normalized size = 0.84

$$\frac{5\sqrt{1-2x}(67x+38)}{22(5x+3)^2} + 6\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right) - \frac{2243\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{11\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]/((2 + 3*x)*(3 + 5*x)^3),x]
```

```
[Out] (5*Sqrt[1 - 2*x]*(38 + 67*x))/(22*(3 + 5*x)^2) + 6*Sqrt[21]*ArcTa
nh[Sqrt[3/7]*Sqrt[1 - 2*x]] - (2243*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2
*x]])/(11*Sqrt[55])
```

Maple [A] time = 0.016, size = 66, normalized size = 0.7

$$6\,Artanh\left(1/7\sqrt{21}\sqrt{1-2\,x}\right)\sqrt{21}+50\,\frac{1}{(-6-10\,x)^2}\left(-\frac{67\,(1-2\,x)^{3/2}}{110}+\frac{13\sqrt{1-2\,x}}{10}\right)-\frac{2243\sqrt{55}}{605}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)/(2+3*x)/(3+5*x)^3,x)
```

```
[Out] 6*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)+50*(-67/110*(1-2*x
)^(3/2)+13/10*(1-2*x)^(1/2))/(-6-10*x)^2-2243/605*arctanh(1/11*55
^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.51386, size = 149, normalized size = 1.6

$$\frac{2243}{1210}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2\,x+1}}{\sqrt{55}+5\sqrt{-2\,x+1}}\right)-3\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2\,x+1}}{\sqrt{21}+3\sqrt{-2\,x+1}}\right)-\frac{5\left(67\,(-2\,x+1)^{\frac{3}{2}}-143\sqrt{-2\,x+1}\right)}{11\left(25\,(2\,x-1)^2+220\,x+11\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/((5*x + 3)^3*(3*x + 2)),x, algorithm="maxima")
```

```
[Out] 2243/1210*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) +
 5*sqrt(-2*x + 1))) - 3*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1
))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 5/11*(67*(-2*x + 1)^(3/2) - 1
43*sqrt(-2*x + 1))/(25*(2*x - 1)^2 + 220*x + 11)
```

Fricas [A] time = 0.221736, size = 161, normalized size = 1.73

$$\frac{\sqrt{55}\left(66\sqrt{55}\sqrt{21}\left(25\,x^2+30\,x+9\right)\log\left(\frac{3\,x-\sqrt{21}\sqrt{-2\,x+1}-5}{3\,x+2}\right)+5\sqrt{55}(67\,x+38)\sqrt{-2\,x+1}+2243\left(25\,x^2+30\,x+9\right)\log\left(\frac{\sqrt{55}(5\,x}{}\right.\right.}{1210\,(25\,x^2+30\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/((5*x + 3)^3*(3*x + 2)),x, algorithm="fricas")
```

```
[Out] 1/1210*sqrt(55)*(66*sqrt(55)*sqrt(21)*(25*x^2 + 30*x + 9)*log((3*
x - sqrt(21)*sqrt(-2*x + 1) - 5)/(3*x + 2)) + 5*sqrt(55)*(67*x +
38)*sqrt(-2*x + 1) + 2243*(25*x^2 + 30*x + 9)*log((sqrt(55)*(5*x
- 8) + 55*sqrt(-2*x + 1))/(5*x + 3)))/(25*x^2 + 30*x + 9)
```

Sympy [A] time = 55.0766, size = 369, normalized size = 3.97

$$140\left(\begin{cases}\frac{\sqrt{55}\left(-\frac{\log\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)}{4}+\frac{\log\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)}{4}-\frac{1}{4\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)}-\frac{1}{4\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)}\right)}{605} & \text{for } x\le\frac{1}{2}\wedge x>-\frac{3}{5}\end{cases}\right)$$
$$+88\left(\begin{cases}\frac{\sqrt{55}\left(\frac{3\log\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)}{16}-\frac{3\log\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)}{16}+\frac{3}{16\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)}+\frac{1}{16\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)^2}+\frac{3}{16\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)}-\frac{1}{16\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)^2}\right)}{6655} & \text{for } x\le\frac{1}{2}\wedge x>-\frac{3}{5}\end{cases}\right)$$
$$-126\left(\begin{cases}-\frac{\sqrt{21}\operatorname{acoth}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for } -2x+1>\frac{7}{3}\\ -\frac{\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for } -2x+1<\frac{7}{3}\end{cases}\right)+210\left(\begin{cases}-\frac{\sqrt{55}\operatorname{acoth}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1>\frac{11}{5}\\ -\frac{\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1<\frac{11}{5}\end{cases}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)/(2+3*x)/(3+5*x)**3,x)
```

```
[Out] 140*Piecewise((sqrt(55)*(-log(sqrt(55)*sqrt(-2*x + 1)/11 - 1)/4 +
 log(sqrt(55)*sqrt(-2*x + 1)/11 + 1)/4 - 1/(4*(sqrt(55)*sqrt(-2*x
 + 1)/11 + 1)) - 1/(4*(sqrt(55)*sqrt(-2*x + 1)/11 - 1)))/605, (x
<= 1/2) & (x > -3/5))) + 88*Piecewise((sqrt(55)*(3*log(sqrt(55)*s
qrt(-2*x + 1)/11 - 1)/16 - 3*log(sqrt(55)*sqrt(-2*x + 1)/11 + 1)/
16 + 3/(16*(sqrt(55)*sqrt(-2*x + 1)/11 + 1)) + 1/(16*(sqrt(55)*sq
rt(-2*x + 1)/11 + 1)**2) + 3/(16*(sqrt(55)*sqrt(-2*x + 1)/11 - 1)
) - 1/(16*(sqrt(55)*sqrt(-2*x + 1)/11 - 1)**2))/6655, (x <= 1/2)
& (x > -3/5))) - 126*Piecewise((-sqrt(21)*acoth(sqrt(21)*sqrt(-2*
x + 1)/7)/21, -2*x + 1 > 7/3), (-sqrt(21)*atanh(sqrt(21)*sqrt(-2*
x + 1)/7)/21, -2*x + 1 < 7/3)) + 210*Piecewise((-sqrt(55)*acoth(s
qrt(55)*sqrt(-2*x + 1)/11)/55, -2*x + 1 > 11/5), (-sqrt(55)*atanh
(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*x + 1 < 11/5))
```

GIAC/XCAS [A] time = 0.219744, size = 144, normalized size = 1.55

$$\frac{2243}{1210}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-3\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{5\left(67(-2x+1)^{\frac{3}{2}}-143\sqrt{-2x+1}\right)}{44(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/((5*x + 3)^3*(3*x + 2)),x, algorithm="giac")
```

```
[Out] 2243/1210*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(s
qrt(55) + 5*sqrt(-2*x + 1))) - 3*sqrt(21)*ln(1/2*abs(-2*sqrt(21)
+ 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 5/44*(67*(-2
*x + 1)^(3/2) - 143*sqrt(-2*x + 1))/(5*x + 3)^2
```

3.1837 $\int \frac{\sqrt{1-2x}}{(2+3x)^2(3+5x)^3}\,dx$

Optimal. Leaf size=121

$$\frac{995\sqrt{1-2x}}{22(5x+3)}-\frac{15\sqrt{1-2x}}{2(5x+3)^2}+\frac{\sqrt{1-2x}}{(3x+2)(5x+3)^2}+624\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{6665}{11}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (-15*Sqrt[1 - 2*x])/(2*(3 + 5*x)^2) + Sqrt[1 - 2*x]/((2 + 3*x)*(3
 + 5*x)^2) + (995*Sqrt[1 - 2*x])/(22*(3 + 5*x)) + 624*Sqrt[3/7]*A
rcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]] - (6665*Sqrt[5/11]*ArcTanh[Sqrt[5
/11]*Sqrt[1 - 2*x]])/11
```

Rubi [A] time = 0.231447, antiderivative size = 121, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{995\sqrt{1-2x}}{22(5x+3)}-\frac{15\sqrt{1-2x}}{2(5x+3)^2}+\frac{\sqrt{1-2x}}{(3x+2)(5x+3)^2}+624\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{6665}{11}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]/((2 + 3*x)^2*(3 + 5*x)^3),x]
```

```
[Out] (-15*Sqrt[1 - 2*x])/(2*(3 + 5*x)^2) + Sqrt[1 - 2*x]/((2 + 3*x)*(3
 + 5*x)^2) + (995*Sqrt[1 - 2*x])/(22*(3 + 5*x)) + 624*Sqrt[3/7]*A
rcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]] - (6665*Sqrt[5/11]*ArcTanh[Sqrt[5
/11]*Sqrt[1 - 2*x]])/11
```

Rubi in Sympy [A] time = 27.5096, size = 104, normalized size = 0.86

$$\frac{995\sqrt{-2x+1}}{22\,(5x+3)}-\frac{15\sqrt{-2x+1}}{2\,(5x+3)^2}+\frac{\sqrt{-2x+1}}{(3x+2)\,(5x+3)^2}+\frac{624\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{7}-\frac{6665\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{121}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)/(2+3*x)**2/(3+5*x)**3,x)
```

```
[Out] 995*sqrt(-2*x + 1)/(22*(5*x + 3)) - 15*sqrt(-2*x + 1)/(2*(5*x + 3
)**2) + sqrt(-2*x + 1)/((3*x + 2)*(5*x + 3)**2) + 624*sqrt(21)*at
anh(sqrt(21)*sqrt(-2*x + 1)/7)/7 - 6665*sqrt(55)*atanh(sqrt(55)*s
qrt(-2*x + 1)/11)/121
```

Mathematica [A] time = 0.178689, size = 94, normalized size = 0.78

$$\frac{\sqrt{1-2x}\left(14925x^2+18410x+5662\right)}{22(3x+2)(5x+3)^2}+624\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{6665}{11}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]/((2 + 3*x)^2*(3 + 5*x)^3),x]
```

```
[Out] (Sqrt[1 - 2*x]*(5662 + 18410*x + 14925*x^2))/(22*(2 + 3*x)*(3 + 5
*x)^2) + 624*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]] - (6665*S
qrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/11
```

Maple [A] time = 0.02, size = 82, normalized size = 0.7

$$-6\,{\frac{\sqrt{1-2\,x}}{-4/3-2\,x}}+{\frac{624\,\sqrt{21}}{7}{\it Artanh} \left({\frac{\sqrt{21}}{7}\sqrt{1-2\,x}} \right) }+250\,{\frac{1}{ \left(-6-10\,x \right) ^{2}} \left(-{\frac{133\, \left(1-2\,x \right) ^{3/2}}{110}}+{\frac{131\,\sqrt{1-2\,x}}{50}} \right) }-{\frac{6665\,\sqrt{55}}{121}{\it Artanh} \left({\frac{\sqrt{55}}{11}\sqrt{1-2\,x}} \right) }$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((1-2*x)^(1/2)/(2+3*x)^2/(3+5*x)^3,x)
```

```
[Out] -6*(1-2*x)^(1/2)/(-4/3-2*x)+624/7*arctanh(1/7*21^(1/2)*(1-2*x)^(1
/2))*21^(1/2)+250*(-133/110*(1-2*x)^(3/2)+131/50*(1-2*x)^(1/2))/(
-6-10*x)^2-6665/121*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.49791, size = 173, normalized size = 1.43

$$\frac{6665}{242}\,\sqrt{55}\log\left(-\frac{\sqrt{55}-5\,\sqrt{-2\,x+1}}{\sqrt{55}+5\,\sqrt{-2\,x+1}}\right)-\frac{312}{7}\,\sqrt{21}\log\left(-\frac{\sqrt{21}-3\,\sqrt{-2\,x+1}}{\sqrt{21}+3\,\sqrt{-2\,x+1}}\right)+\frac{14925\,(-2\,x+1)^{\frac{5}{2}}-66670\,(-2\,x+1)^{\frac{3}{2}}+74393\,\sqrt{-2\,x+1}}{11\,\left(75\,(2\,x-1)^3+505\,(2\,x-1)^2+2266\,x-286\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/((5*x + 3)^3*(3*x + 2)^2),x, algorithm="maxima")
```

```
[Out] 6665/242*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) +
5*sqrt(-2*x + 1))) - 312/7*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x
+ 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 1/11*(14925*(-2*x + 1)^(5/
2) - 66670*(-2*x + 1)^(3/2) + 74393*sqrt(-2*x + 1))/(75*(2*x - 1)
^3 + 505*(2*x - 1)^2 + 2266*x - 286)
```

Fricas [A] time = 0.220921, size = 213, normalized size = 1.76

$$\frac{\sqrt{11}\sqrt{7}\left(6665\,\sqrt{7}\sqrt{5}\left(75\,x^3+140\,x^2+87\,x+18\right)\log\left(\frac{\sqrt{11}(5\,x-8)+11\,\sqrt{5}\sqrt{-2\,x+1}}{5\,x+3}\right)+6864\,\sqrt{11}\sqrt{3}\left(75\,x^3+140\,x^2+87\,x+18\right)\log\left(\right.\right.}{1694\,(75\,x^3+140\,x^2+87\,x+18)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/((5*x + 3)^3*(3*x + 2)^2),x, algorithm="fricas")
```

```
[Out] 1/1694*sqrt(11)*sqrt(7)*(6665*sqrt(7)*sqrt(5)*(75*x^3 + 140*x^2 +
 87*x + 18)*log((sqrt(11)*(5*x - 8) + 11*sqrt(5)*sqrt(-2*x + 1))/
(5*x + 3)) + 6864*sqrt(11)*sqrt(3)*(75*x^3 + 140*x^2 + 87*x + 18)
*log((sqrt(7)*(3*x - 5) - 7*sqrt(3)*sqrt(-2*x + 1))/(3*x + 2)) +
sqrt(11)*sqrt(7)*(14925*x^2 + 18410*x + 5662)*sqrt(-2*x + 1))/(75
*x^3 + 140*x^2 + 87*x + 18)
```

Sympy [A] time = 72.4407, size = 468, normalized size = 3.87

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)/(2+3*x)**2/(3+5*x)**3,x)
```

```
[Out] 252*Piecewise((sqrt(21)*(-log(sqrt(21)*sqrt(-2*x + 1)/7 - 1)/4 +
log(sqrt(21)*sqrt(-2*x + 1)/7 + 1)/4 - 1/(4*(sqrt(21)*sqrt(-2*x +
 1)/7 + 1)) - 1/(4*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)))/147, (x <= 1
/2) & (x > -2/3))) + 1360*Piecewise((sqrt(55)*(-log(sqrt(55)*sqrt
(-2*x + 1)/11 - 1)/4 + log(sqrt(55)*sqrt(-2*x + 1)/11 + 1)/4 - 1/
(4*(sqrt(55)*sqrt(-2*x + 1)/11 + 1)) - 1/(4*(sqrt(55)*sqrt(-2*x +
 1)/11 - 1)))/605, (x <= 1/2) & (x > -3/5))) + 440*Piecewise((sqr
t(55)*(3*log(sqrt(55)*sqrt(-2*x + 1)/11 - 1)/16 - 3*log(sqrt(55)*
sqrt(-2*x + 1)/11 + 1)/16 + 3/(16*(sqrt(55)*sqrt(-2*x + 1)/11 + 1
)) + 1/(16*(sqrt(55)*sqrt(-2*x + 1)/11 + 1)**2) + 3/(16*(sqrt(55)
*sqrt(-2*x + 1)/11 - 1)) - 1/(16*(sqrt(55)*sqrt(-2*x + 1)/11 - 1)
**2))/6655, (x <= 1/2) & (x > -3/5))) - 1854*Piecewise((-sqrt(21)
*acoth(sqrt(21)*sqrt(-2*x + 1)/7)/21, -2*x + 1 > 7/3), (-sqrt(21)
*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/21, -2*x + 1 < 7/3)) + 3090*Pie
cewise((-sqrt(55)*acoth(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*x + 1
> 11/5), (-sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*x +
1 < 11/5))
```

GIAC/XCAS [A] time = 0.237369, size = 166, normalized size = 1.37

$$\frac{6665}{242}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{312}{7}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{9\sqrt{-2x+1}}{3x+2}-\frac{5\left(665(-2x+1)^{\frac{3}{2}}-1441\sqrt{-2x+1}\right)}{44(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/((5*x + 3)^3*(3*x + 2)^2),x, algorithm="giac")
```

```
[Out] 6665/242*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sq
rt(55) + 5*sqrt(-2*x + 1))) - 312/7*sqrt(21)*ln(1/2*abs(-2*sqrt(2
1) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 9*sqrt(-2
*x + 1)/(3*x + 2) - 5/44*(665*(-2*x + 1)^(3/2) - 1441*sqrt(-2*x +
 1))/(5*x + 3)^2
```

3.1838 $\int \frac{\sqrt{1-2x}}{(2+3x)^3(3+5x)^3}\,dx$

Optimal. Leaf size=153

$$\frac{34655\sqrt{1-2x}}{77(5x+3)}-\frac{1045\sqrt{1-2x}}{14(5x+3)^2}+\frac{139\sqrt{1-2x}}{14(3x+2)(5x+3)^2}+\frac{\sqrt{1-2x}}{2(3x+2)^2(5x+3)^2}+\frac{43467}{7}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{66325}{11}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (-1045*Sqrt[1 - 2*x])/(14*(3 + 5*x)^2) + Sqrt[1 - 2*x]/(2*(2 + 3*
x)^2*(3 + 5*x)^2) + (139*Sqrt[1 - 2*x])/(14*(2 + 3*x)*(3 + 5*x)^2
) + (34655*Sqrt[1 - 2*x])/(77*(3 + 5*x)) + (43467*Sqrt[3/7]*ArcTa
nh[Sqrt[3/7]*Sqrt[1 - 2*x]])/7 - (66325*Sqrt[5/11]*ArcTanh[Sqrt[5
/11]*Sqrt[1 - 2*x]])/11
```

Rubi [A] time = 0.301441, antiderivative size = 153, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{34655\sqrt{1-2x}}{77(5x+3)}-\frac{1045\sqrt{1-2x}}{14(5x+3)^2}+\frac{139\sqrt{1-2x}}{14(3x+2)(5x+3)^2}+\frac{\sqrt{1-2x}}{2(3x+2)^2(5x+3)^2}+\frac{43467}{7}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{66325}{11}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]/((2 + 3*x)^3*(3 + 5*x)^3),x]
```

```
[Out] (-1045*Sqrt[1 - 2*x])/(14*(3 + 5*x)^2) + Sqrt[1 - 2*x]/(2*(2 + 3*
x)^2*(3 + 5*x)^2) + (139*Sqrt[1 - 2*x])/(14*(2 + 3*x)*(3 + 5*x)^2
) + (34655*Sqrt[1 - 2*x])/(77*(3 + 5*x)) + (43467*Sqrt[3/7]*ArcTa
nh[Sqrt[3/7]*Sqrt[1 - 2*x]])/7 - (66325*Sqrt[5/11]*ArcTanh[Sqrt[5
/11]*Sqrt[1 - 2*x]])/11
```

Rubi in Sympy [A] time = 35.4562, size = 131, normalized size = 0.86

$$\frac{34655\sqrt{-2x+1}}{77\,(5x+3)}-\frac{1045\sqrt{-2x+1}}{14\,(5x+3)^2}+\frac{139\sqrt{-2x+1}}{14\,(3x+2)\,(5x+3)^2}+\frac{\sqrt{-2x+1}}{2\,(3x+2)^2\,(5x+3)^2}+\frac{43467\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{49}-\frac{66325\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{121}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)/(2+3*x)**3/(3+5*x)**3,x)
```

```
[Out] 34655*sqrt(-2*x + 1)/(77*(5*x + 3)) - 1045*sqrt(-2*x + 1)/(14*(5*
x + 3)**2) + 139*sqrt(-2*x + 1)/(14*(3*x + 2)*(5*x + 3)**2) + sqr
t(-2*x + 1)/(2*(3*x + 2)**2*(5*x + 3)**2) + 43467*sqrt(21)*atanh(
sqrt(21)*sqrt(-2*x + 1)/7)/49 - 66325*sqrt(55)*atanh(sqrt(55)*sqr
t(-2*x + 1)/11)/121
```

Mathematica [A] time = 0.151565, size = 101, normalized size = 0.66

$$\frac{\sqrt{1-2x}\left(3118950x^3+5926515x^2+3748007x+788875\right)}{154(3x+2)^2(5x+3)^2}+\frac{43467}{7}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{66325}{11}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]/((2 + 3*x)^3*(3 + 5*x)^3),x]
```

```
[Out] (Sqrt[1 - 2*x]*(788875 + 3748007*x + 5926515*x^2 + 3118950*x^3))/
(154*(2 + 3*x)^2*(3 + 5*x)^2) + (43467*Sqrt[3/7]*ArcTanh[Sqrt[3/7
]*Sqrt[1 - 2*x]])/7 - (66325*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1
 - 2*x]])/11
```

Maple [A] time = 0.022, size = 94, normalized size = 0.6

$$-972\frac{1}{\left(-4-6x\right)^{2}}\left(\frac{209\left(1-2x\right)^{3/2}}{252}-\frac{211\sqrt{1-2x}}{108}\right)+\frac{43467\sqrt{21}}{49}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)+2500\frac{1}{\left(-6-10x\right)^{2}}\left(-\frac{199\left(1-2x\right)^{3/2}}{220}+\frac{197\sqrt{1-2x}}{100}\right)-\frac{66325\sqrt{55}}{121}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)/(2+3*x)^3/(3+5*x)^3,x)
```

```
[Out] -972*(209/252*(1-2*x)^(3/2)-211/108*(1-2*x)^(1/2))/(-4-6*x)^2+434
67/49*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)+2500*(-199/220
*(1-2*x)^(3/2)+197/100*(1-2*x)^(1/2))/(-6-10*x)^2-66325/121*arcta
nh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.49512, size = 197, normalized size = 1.29

$$\frac{66325}{242}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{43467}{98}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{2\left(1559475\left(-2x+1\right)^{\frac{7}{2}}-10604940\left(-2x+1\right)^{\frac{5}{2}}+24027469\left(-2x+1\right)^{\frac{3}{2}}-18137504\sqrt{-2x+1}\right)}{77\left(225\left(2x-1\right)^{4}+2040\left(2x-1\right)^{3}+6934\left(2x-1\right)^{2}+20944x-4543\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/((5*x + 3)^3*(3*x + 2)^3),x, algorithm="maxima")
```

```
[Out] 66325/242*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) +
 5*sqrt(-2*x + 1))) - 43467/98*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-
2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 2/77*(1559475*(-2*x +
1)^(7/2) - 10604940*(-2*x + 1)^(5/2) + 24027469*(-2*x + 1)^(3/2)
- 18137504*sqrt(-2*x + 1))/(225*(2*x - 1)^4 + 2040*(2*x - 1)^3 +
6934*(2*x - 1)^2 + 20944*x - 4543)
```

Fricas [A] time = 0.224679, size = 240, normalized size = 1.57

$$\frac{\sqrt{11}\sqrt{7}\left(464275\sqrt{7}\sqrt{5}\left(225x^{4}+570x^{3}+541x^{2}+228x+36\right)\log\left(\frac{\sqrt{11}(5x-8)+11\sqrt{5}\sqrt{-2x+1}}{5x+3}\right)+478137\sqrt{11}\sqrt{3}\left(225x^{4}+570x^{3}\right.}{11858\left(225x^{4}+570x^{3}+\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/((5*x + 3)^3*(3*x + 2)^3),x, algorithm="fricas")
```

```
[Out] 1/11858*sqrt(11)*sqrt(7)*(464275*sqrt(7)*sqrt(5)*(225*x^4 + 570*x
^3 + 541*x^2 + 228*x + 36)*log((sqrt(11)*(5*x - 8) + 11*sqrt(5)*s
qrt(-2*x + 1))/(5*x + 3)) + 478137*sqrt(11)*sqrt(3)*(225*x^4 + 57
```

```
0*x^3 + 541*x^2 + 228*x + 36)*log((sqrt(7)*(3*x - 5) - 7*sqrt(3)*
sqrt(-2*x + 1))/(3*x + 2)) + sqrt(11)*sqrt(7)*(3118950*x^3 + 5926
515*x^2 + 3748007*x + 788875)*sqrt(-2*x + 1))/(225*x^4 + 570*x^3
+ 541*x^2 + 228*x + 36)
```

Sympy [A] time = 100.473, size = 614, normalized size = 4.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)/(2+3*x)**3/(3+5*x)**3,x)
```

```
[Out] 3708*Piecewise((sqrt(21)*(-log(sqrt(21)*sqrt(-2*x + 1)/7 - 1)/4 +
 log(sqrt(21)*sqrt(-2*x + 1)/7 + 1)/4 - 1/(4*(sqrt(21)*sqrt(-2*x
+ 1)/7 + 1)) - 1/(4*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)))/147, (x <=
1/2) & (x > -2/3))) - 504*Piecewise((sqrt(21)*(3*log(sqrt(21)*sqr
t(-2*x + 1)/7 - 1)/16 - 3*log(sqrt(21)*sqrt(-2*x + 1)/7 + 1)/16 +
 3/(16*(sqrt(21)*sqrt(-2*x + 1)/7 + 1)) + 1/(16*(sqrt(21)*sqrt(-2
*x + 1)/7 + 1)**2) + 3/(16*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)) - 1/(
16*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)**2))/1029, (x <= 1/2) & (x > -
2/3))) + 10100*Piecewise((sqrt(55)*(-log(sqrt(55)*sqrt(-2*x + 1)/
11 - 1)/4 + log(sqrt(55)*sqrt(-2*x + 1)/11 + 1)/4 - 1/(4*(sqrt(55
)*sqrt(-2*x + 1)/11 + 1)) - 1/(4*(sqrt(55)*sqrt(-2*x + 1)/11 - 1)
))/605, (x <= 1/2) & (x > -3/5))) + 2200*Piecewise((sqrt(55)*(3*l
og(sqrt(55)*sqrt(-2*x + 1)/11 - 1)/16 - 3*log(sqrt(55)*sqrt(-2*x
+ 1)/11 + 1)/16 + 3/(16*(sqrt(55)*sqrt(-2*x + 1)/11 + 1)) + 1/(16
*(sqrt(55)*sqrt(-2*x + 1)/11 + 1)**2) + 3/(16*(sqrt(55)*sqrt(-2*x
 + 1)/11 - 1)) - 1/(16*(sqrt(55)*sqrt(-2*x + 1)/11 - 1)**2))/6655
, (x <= 1/2) & (x > -3/5))) - 18360*Piecewise((-sqrt(21)*acoth(sq
rt(21)*sqrt(-2*x + 1)/7)/21, -2*x + 1 > 7/3), (-sqrt(21)*atanh(sq
rt(21)*sqrt(-2*x + 1)/7)/21, -2*x + 1 < 7/3)) + 30600*Piecewise((
-sqrt(55)*acoth(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*x + 1 > 11/5),
 (-sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*x + 1 < 11/5
))
```

GIAC/XCAS [A] time = 0.251543, size = 200, normalized size = 1.31

$$\frac{66325}{242}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{43467}{98}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{2\left(1559475(2x-1)^3\sqrt{-2x+1}+10604940(2x-1)^2\sqrt{-2x+1}-24027469(-2x+1)^{\frac{3}{2}}+18137504\sqrt{-2x+1}\right)}{77\left(15(2x-1)^2+136x+9\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/((5*x + 3)^3*(3*x + 2)^3),x, algorithm="giac")
```

```
[Out] 66325/242*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(s
qrt(55) + 5*sqrt(-2*x + 1))) - 43467/98*sqrt(21)*ln(1/2*abs(-2*sq
rt(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 2/77*
(1559475*(2*x - 1)^3*sqrt(-2*x + 1) + 10604940*(2*x - 1)^2*sqrt(-
2*x + 1) - 24027469*(-2*x + 1)^(3/2) + 18137504*sqrt(-2*x + 1))/(
15*(2*x - 1)^2 + 136*x + 9)^2
```

3.1839 $\int \frac{\sqrt{1-2x}}{(2+3x)^4(3+5x)^3}\,dx$

Optimal. Leaf size=180

$$\frac{4031135\sqrt{1-2x}}{1078(5x+3)}-\frac{182335\sqrt{1-2x}}{294(5x+3)^2}+\frac{4042\sqrt{1-2x}}{49(3x+2)(5x+3)^2}+\frac{29\sqrt{1-2x}}{7(3x+2)^2(5x+3)^2}+\frac{\sqrt{1-2x}}{3(3x+2)^3(5x+3)^2}+\frac{2528082}{49}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{551075}{11}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (-182335*Sqrt[1 - 2*x])/(294*(3 + 5*x)^2) + Sqrt[1 - 2*x]/(3*(2 +
 3*x)^3*(3 + 5*x)^2) + (29*Sqrt[1 - 2*x])/(7*(2 + 3*x)^2*(3 + 5*x
)^2) + (4042*Sqrt[1 - 2*x])/(49*(2 + 3*x)*(3 + 5*x)^2) + (4031135
*Sqrt[1 - 2*x])/(1078*(3 + 5*x)) + (2528082*Sqrt[3/7]*ArcTanh[Sqr
t[3/7]*Sqrt[1 - 2*x]])/49 - (551075*Sqrt[5/11]*ArcTanh[Sqrt[5/11]
*Sqrt[1 - 2*x]])/11
```

Rubi [A] time = 0.369008, antiderivative size = 180, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{4031135\sqrt{1-2x}}{1078(5x+3)}-\frac{182335\sqrt{1-2x}}{294(5x+3)^2}+\frac{4042\sqrt{1-2x}}{49(3x+2)(5x+3)^2}+\frac{29\sqrt{1-2x}}{7(3x+2)^2(5x+3)^2}+\frac{\sqrt{1-2x}}{3(3x+2)^3(5x+3)^2}+\frac{2528082}{49}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{551075}{11}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]/((2 + 3*x)^4*(3 + 5*x)^3),x]
```

```
[Out] (-182335*Sqrt[1 - 2*x])/(294*(3 + 5*x)^2) + Sqrt[1 - 2*x]/(3*(2 +
 3*x)^3*(3 + 5*x)^2) + (29*Sqrt[1 - 2*x])/(7*(2 + 3*x)^2*(3 + 5*x
)^2) + (4042*Sqrt[1 - 2*x])/(49*(2 + 3*x)*(3 + 5*x)^2) + (4031135
*Sqrt[1 - 2*x])/(1078*(3 + 5*x)) + (2528082*Sqrt[3/7]*ArcTanh[Sqr
t[3/7]*Sqrt[1 - 2*x]])/49 - (551075*Sqrt[5/11]*ArcTanh[Sqrt[5/11]
*Sqrt[1 - 2*x]])/11
```

Rubi in Sympy [A] time = 42.9798, size = 160, normalized size = 0.89

$$\frac{2418681\sqrt{-2x+1}}{1078\,(3x+2)}+\frac{28935\sqrt{-2x+1}}{77\,(3x+2)\,(5x+3)}-\frac{1745\sqrt{-2x+1}}{42\,(3x+2)\,(5x+3)^2}+\frac{29\sqrt{-2x+1}}{7\,(3x+2)^2\,(5x+3)^2}+\frac{\sqrt{-2x+1}}{3\,(3x+2)^3\,(5x+3)^2}+\frac{2528082\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{343}-\frac{551075\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{121}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)/(2+3*x)**4/(3+5*x)**3,x)
```

```
[Out] 2418681*sqrt(-2*x + 1)/(1078*(3*x + 2)) + 28935*sqrt(-2*x + 1)/(7
7*(3*x + 2)*(5*x + 3)) - 1745*sqrt(-2*x + 1)/(42*(3*x + 2)*(5*x +
 3)**2) + 29*sqrt(-2*x + 1)/(7*(3*x + 2)**2*(5*x + 3)**2) + sqrt(
-2*x + 1)/(3*(3*x + 2)**3*(5*x + 3)**2) + 2528082*sqrt(21)*atanh(
sqrt(21)*sqrt(-2*x + 1)/7)/343 - 551075*sqrt(55)*atanh(sqrt(55)*s
qrt(-2*x + 1)/11)/121
```

Mathematica [A] time = 0.173552, size = 106, normalized size = 0.59

$$\frac{\sqrt{1-2x}\left(544203225x^4+1396877220x^3+1343346156x^2+573620246x+91763734\right)}{1078(3x+2)^3(5x+3)^2}+\frac{2528082}{49}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{551075}{11}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]/((2 + 3*x)^4*(3 + 5*x)^3),x]
```

```
[Out] (Sqrt[1 - 2*x]*(91763734 + 573620246*x + 1343346156*x^2 + 1396877
220*x^3 + 544203225*x^4))/(1078*(2 + 3*x)^3*(3 + 5*x)^2) + (25280
82*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/49 - (551075*Sqrt[
5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/11
```

Maple [A] time = 0.022, size = 103, normalized size = 0.6

$$-972\,\frac{1}{(-4-6\,x)^3}\left(\frac{7297\,(1-2\,x)^{5/2}}{294}-\frac{22048\,(1-2\,x)^{3/2}}{189}+\frac{7403\,\sqrt{1-2\,x}}{54}\right)+\frac{2528082\,\sqrt{21}}{343}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)+62500\,\frac{1}{(-6-10\,x)^2}\left(-\frac{53\,(1-2\,x)^{3/2}}{220}+\frac{263\,\sqrt{1-2\,x}}{500}\right)-\frac{551075\,\sqrt{55}}{121}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)/(2+3*x)^4/(3+5*x)^3,x)
```

```
[Out] -972*(7297/294*(1-2*x)^(5/2)-22048/189*(1-2*x)^(3/2)+7403/54*(1-2
*x)^(1/2))/(-4-6*x)^3+2528082/343*arctanh(1/7*21^(1/2)*(1-2*x)^(1
/2))*21^(1/2)+62500*(-53/220*(1-2*x)^(3/2)+263/500*(1-2*x)^(1/2))
/(-6-10*x)^2-551075/121*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(
1/2)
```

Maxima [A] time = 1.53046, size = 221, normalized size = 1.23

$$\frac{551075}{242}\,\sqrt{55}\log\left(-\frac{\sqrt{55}-5\,\sqrt{-2\,x+1}}{\sqrt{55}+5\,\sqrt{-2\,x+1}}\right)-\frac{1264041}{343}\,\sqrt{21}\log\left(-\frac{\sqrt{21}-3\,\sqrt{-2\,x+1}}{\sqrt{21}+3\,\sqrt{-2\,x+1}}\right)+\frac{544203225\,(-2\,x+1)^{\frac{9}{2}}-4970567340\,(-2\,x+1)^{\frac{7}{2}}+17019867294\,(-2\,x+1)^{\frac{5}{2}}-25893807436\,(-2\,x+1)^{\frac{3}{2}}+14768524001\,\sqrt{\cdot}}{539\left(675\,(2\,x-1)^5+7695\,(2\,x-1)^4+35082\,(2\,x-1)^3+79954\,(2\,x-1)^2+182182\,x-49588\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/((5*x + 3)^3*(3*x + 2)^4),x, algorithm="maxima")
```

```
[Out] 551075/242*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55)
+ 5*sqrt(-2*x + 1))) - 1264041/343*sqrt(21)*log(-(sqrt(21) - 3*sq
rt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 1/539*(544203225*(
-2*x + 1)^(9/2) - 4970567340*(-2*x + 1)^(7/2) + 17019867294*(-2*x
 + 1)^(5/2) - 25893807436*(-2*x + 1)^(3/2) + 14768524001*sqrt(-2*
x + 1))/(675*(2*x - 1)^5 + 7695*(2*x - 1)^4 + 35082*(2*x - 1)^3 +
 79954*(2*x - 1)^2 + 182182*x - 49588)
```

Fricas [A] time = 0.222448, size = 267, normalized size = 1.48

$$\frac{\sqrt{11}\sqrt{7}\left(27002675\sqrt{7}\sqrt{5}\left(675x^5+2160x^4+2763x^3+1766x^2+564x+72\right)\log\left(\frac{\sqrt{11}(5x-8)+11\sqrt{5}\sqrt{-2x+1}}{5x+3}\right)+27808902\sqrt{11}\sqrt{3}\cdots\right)}{83\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/((5*x + 3)^3*(3*x + 2)^4),x, algorithm="fricas")
```

```
[Out] 1/83006*sqrt(11)*sqrt(7)*(27002675*sqrt(7)*sqrt(5)*(675*x^5 + 216
0*x^4 + 2763*x^3 + 1766*x^2 + 564*x + 72)*log((sqrt(11)*(5*x - 8)
 + 11*sqrt(5)*sqrt(-2*x + 1))/(5*x + 3)) + 27808902*sqrt(11)*sqrt
(3)*(675*x^5 + 2160*x^4 + 2763*x^3 + 1766*x^2 + 564*x + 72)*log((
sqrt(7)*(3*x - 5) - 7*sqrt(3)*sqrt(-2*x + 1))/(3*x + 2)) + sqrt(1
1)*sqrt(7)*(544203225*x^4 + 1396877220*x^3 + 1343346156*x^2 + 573
620246*x + 91763734)*sqrt(-2*x + 1))/(675*x^5 + 2160*x^4 + 2763*x
^3 + 1766*x^2 + 564*x + 72)
```

Sympy [A] time = 141.276, size = 804, normalized size = 4.47

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(1/2)/(2+3*x)**4/(3+5*x)**3,x)
```

```
[Out] 36720*Piecewise((sqrt(21)*(-log(sqrt(21)*sqrt(-2*x + 1)/7 - 1)/4
+ log(sqrt(21)*sqrt(-2*x + 1)/7 + 1)/4 - 1/(4*(sqrt(21)*sqrt(-2*x
 + 1)/7 + 1)) - 1/(4*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)))/147, (x <=
 1/2) & (x > -2/3))) - 7416*Piecewise((sqrt(21)*(3*log(sqrt(21)*s
qrt(-2*x + 1)/7 - 1)/16 - 3*log(sqrt(21)*sqrt(-2*x + 1)/7 + 1)/16
 + 3/(16*(sqrt(21)*sqrt(-2*x + 1)/7 + 1)) + 1/(16*(sqrt(21)*sqrt(
-2*x + 1)/7 + 1)**2) + 3/(16*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)) - 1
/(16*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)**2))/1029, (x <= 1/2) & (x >
 -2/3))) + 1008*Piecewise((sqrt(21)*(-5*log(sqrt(21)*sqrt(-2*x +
1)/7 - 1)/32 + 5*log(sqrt(21)*sqrt(-2*x + 1)/7 + 1)/32 - 5/(32*(s
qrt(21)*sqrt(-2*x + 1)/7 + 1)) - 1/(16*(sqrt(21)*sqrt(-2*x + 1)/7
 + 1)**2) - 1/(48*(sqrt(21)*sqrt(-2*x + 1)/7 + 1)**3) - 5/(32*(sq
rt(21)*sqrt(-2*x + 1)/7 - 1)) + 1/(16*(sqrt(21)*sqrt(-2*x + 1)/7
- 1)**2) - 1/(48*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)**3))/7203, (x <=
 1/2) & (x > -2/3))) + 67000*Piecewise((sqrt(55)*(-log(sqrt(55)*s
qrt(-2*x + 1)/11 - 1)/4 + log(sqrt(55)*sqrt(-2*x + 1)/11 + 1)/4 -
 1/(4*(sqrt(55)*sqrt(-2*x + 1)/11 + 1)) - 1/(4*(sqrt(55)*sqrt(-2*
x + 1)/11 - 1)))/605, (x <= 1/2) & (x > -3/5))) + 11000*Piecewise
((sqrt(55)*(3*log(sqrt(55)*sqrt(-2*x + 1)/11 - 1)/16 - 3*log(sqrt
(55)*sqrt(-2*x + 1)/11 + 1)/16 + 3/(16*(sqrt(55)*sqrt(-2*x + 1)/1
1 + 1)) + 1/(16*(sqrt(55)*sqrt(-2*x + 1)/11 + 1)**2) + 3/(16*(sqr
t(55)*sqrt(-2*x + 1)/11 - 1)) - 1/(16*(sqrt(55)*sqrt(-2*x + 1)/11
 - 1)**2))/6655, (x <= 1/2) & (x > -3/5))) - 152100*Piecewise((-s
qrt(21)*acoth(sqrt(21)*sqrt(-2*x + 1)/7)/21, -2*x + 1 > 7/3), (-s
qrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/21, -2*x + 1 < 7/3)) + 2
53500*Piecewise((-sqrt(55)*acoth(sqrt(55)*sqrt(-2*x + 1)/11)/55,
-2*x + 1 > 11/5), (-sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/55
, -2*x + 1 < 11/5))
```

GIAC/XCAS [A] time = 0.247513, size = 204, normalized size = 1.13

$$\frac{551075}{242}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{1264041}{343}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{125\left(1325(-2x+1)^{\frac{3}{2}}-2893\sqrt{-2x+1}\right)}{44(5x+3)^2}+\frac{9\left(65673(2x-1)^2\sqrt{-2x+1}-308672(-2x+1)^{\frac{3}{2}}+362747\sqrt{-2x+1}\right)}{196(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/((5*x + 3)^3*(3*x + 2)^4),x, algorithm="giac")
```

```
[Out] 551075/242*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(
sqrt(55) + 5*sqrt(-2*x + 1))) - 1264041/343*sqrt(21)*ln(1/2*abs(-
2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 1
25/44*(1325*(-2*x + 1)^(3/2) - 2893*sqrt(-2*x + 1))/(5*x + 3)^2 +
 9/196*(65673*(2*x - 1)^2*sqrt(-2*x + 1) - 308672*(-2*x + 1)^(3/2
) + 362747*sqrt(-2*x + 1))/(3*x + 2)^3
```

3.1840 $\int (1-2x)^{3/2}(2+3x)^6(3+5x)\,dx$

Optimal. Leaf size=105

$$\frac{3645(1-2x)^{19/2}}{2432}-\frac{59049(1-2x)^{17/2}}{2176}+\frac{136647}{640}(1-2x)^{15/2}-\frac{1580985(1-2x)^{13/2}}{1664}+\frac{3658095(1-2x)^{11/2}}{1408}-\frac{564235}{128}(1-2x)^{9/2}+\frac{559433}{128}(1-2x)^{7/2}-\frac{1294139}{640}(1-2x)^{5/2}$$

```
[Out] (-1294139*(1 - 2*x)^(5/2))/640 + (559433*(1 - 2*x)^(7/2))/128 - (
564235*(1 - 2*x)^(9/2))/128 + (3658095*(1 - 2*x)^(11/2))/1408 - (
1580985*(1 - 2*x)^(13/2))/1664 + (136647*(1 - 2*x)^(15/2))/640 -
(59049*(1 - 2*x)^(17/2))/2176 + (3645*(1 - 2*x)^(19/2))/2432
```

Rubi [A] time = 0.0678274, antiderivative size = 105, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{3645(1-2x)^{19/2}}{2432}-\frac{59049(1-2x)^{17/2}}{2176}+\frac{136647}{640}(1-2x)^{15/2}-\frac{1580985(1-2x)^{13/2}}{1664}+\frac{3658095(1-2x)^{11/2}}{1408}-\frac{564235}{128}(1-2x)^{9/2}+\frac{559433}{128}(1-2x)^{7/2}-\frac{1294139}{640}(1-2x)^{5/2}$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^(3/2)*(2 + 3*x)^6*(3 + 5*x),x]
```

```
[Out] (-1294139*(1 - 2*x)^(5/2))/640 + (559433*(1 - 2*x)^(7/2))/128 - (
564235*(1 - 2*x)^(9/2))/128 + (3658095*(1 - 2*x)^(11/2))/1408 - (
1580985*(1 - 2*x)^(13/2))/1664 + (136647*(1 - 2*x)^(15/2))/640 -
(59049*(1 - 2*x)^(17/2))/2176 + (3645*(1 - 2*x)^(19/2))/2432
```

Rubi in Sympy [A] time = 11.2754, size = 94, normalized size = 0.9

$$\frac{3645\left(-2x+1\right)^{\frac{19}{2}}}{2432}-\frac{59049\left(-2x+1\right)^{\frac{17}{2}}}{2176}+\frac{136647\left(-2x+1\right)^{\frac{15}{2}}}{640}-\frac{1580985\left(-2x+1\right)^{\frac{13}{2}}}{1664}+\frac{3658095\left(-2x+1\right)^{\frac{11}{2}}}{1408}-\frac{564235\left(-2x+1\right)^{\frac{9}{2}}}{128}+\frac{559433\left(-2x+1\right)^{\frac{7}{2}}}{128}-\frac{1294139\left(-2x+1\right)^{\frac{5}{2}}}{640}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**(3/2)*(2+3*x)**6*(3+5*x),x)
```

```
[Out] 3645*(-2*x + 1)**(19/2)/2432 - 59049*(-2*x + 1)**(17/2)/2176 + 13
6647*(-2*x + 1)**(15/2)/640 - 1580985*(-2*x + 1)**(13/2)/1664 + 3
658095*(-2*x + 1)**(11/2)/1408 - 564235*(-2*x + 1)**(9/2)/128 + 5
59433*(-2*x + 1)**(7/2)/128 - 1294139*(-2*x + 1)**(5/2)/640
```

Mathematica [A] time = 0.0364784, size = 48, normalized size = 0.46

$$-\frac{(1-2x)^{5/2}\left(44304975x^7+246022920x^6+607227192x^5+876286620x^4+817490880x^3+512679760x^2+214047840x+51\right.}{230945}$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)^(3/2)*(2 + 3*x)^6*(3 + 5*x),x]
```

```
[Out] -((1 - 2*x)^(5/2)*(51677856 + 214047840*x + 512679760*x^2 + 81749
0880*x^3 + 876286620*x^4 + 607227192*x^5 + 246022920*x^6 + 443049
```

```
75*x^7))/230945
```

Maple [A] time = 0.004, size = 45, normalized size = 0.4

$$-\frac{44304975\,x^{7}+246022920\,x^{6}+607227192\,x^{5}+876286620\,x^{4}+817490880\,x^{3}+512679760\,x^{2}+214047840\,x+51677856}{230945}\,($$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^6*(3+5*x),x)
```

```
[Out] -1/230945*(44304975*x^7+246022920*x^6+607227192*x^5+876286620*x^4
+817490880*x^3+512679760*x^2+214047840*x+51677856)*(1-2*x)^(5/2)
```

Maxima [A] time = 1.37242, size = 99, normalized size = 0.94

$$\frac{3645}{2432}\,(-2\,x+1)^{\frac{19}{2}}-\frac{59049}{2176}\,(-2\,x+1)^{\frac{17}{2}}+\frac{136647}{640}\,(-2\,x+1)^{\frac{15}{2}}-\frac{1580985}{1664}\,(-2\,x+1)^{\frac{13}{2}}+\frac{3658095}{1408}\,(-2\,x+1)^{\frac{11}{2}}-\frac{564235}{128}\,(-2\,x+1)^{\frac{9}{2}}+\frac{559433}{128}\,(-2\,x+1)^{\frac{7}{2}}-\frac{1294139}{640}\,(-2\,x+1)^{\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^6*(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] 3645/2432*(-2*x + 1)^(19/2) - 59049/2176*(-2*x + 1)^(17/2) + 1366
47/640*(-2*x + 1)^(15/2) - 1580985/1664*(-2*x + 1)^(13/2) + 36580
95/1408*(-2*x + 1)^(11/2) - 564235/128*(-2*x + 1)^(9/2) + 559433/
128*(-2*x + 1)^(7/2) - 1294139/640*(-2*x + 1)^(5/2)
```

Fricas [A] time = 0.206947, size = 73, normalized size = 0.7

$$-\frac{1}{230945}\,\left(177219900\,x^{9}+806871780\,x^{8}+1489122063\,x^{7}+1322260632\,x^{6}+372044232\,x^{5}-342957860\,x^{4}-377036800\,x^{3}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^6*(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/230945*(177219900*x^9 + 806871780*x^8 + 1489122063*x^7 + 13222
60632*x^6 + 372044232*x^5 - 342957860*x^4 - 377036800*x^3 - 13680
0176*x^2 + 7336416*x + 51677856)*sqrt(-2*x + 1)
```

Sympy [A] time = 10.0804, size = 94, normalized size = 0.9

$$\frac{3645\,(-2x+1)^{\frac{19}{2}}}{2432}-\frac{59049\,(-2x+1)^{\frac{17}{2}}}{2176}+\frac{136647\,(-2x+1)^{\frac{15}{2}}}{640}-\frac{1580985\,(-2x+1)^{\frac{13}{2}}}{1664}+\frac{3658095\,(-2x+1)^{\frac{11}{2}}}{1408}-\frac{564235\,(-2x+1)^{\frac{9}{2}}}{128}+\frac{559433\,(-2x+1)^{\frac{7}{2}}}{128}-\frac{1294139\,(-2x+1)^{\frac{5}{2}}}{640}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)**6*(3+5*x),x)
```

```
[Out] 3645*(-2*x + 1)**(19/2)/2432 - 59049*(-2*x + 1)**(17/2)/2176 + 13
6647*(-2*x + 1)**(15/2)/640 - 1580985*(-2*x + 1)**(13/2)/1664 + 3
```

```
658095*(-2*x + 1)**(11/2)/1408 - 564235*(-2*x + 1)**(9/2)/128 + 5
59433*(-2*x + 1)**(7/2)/128 - 1294139*(-2*x + 1)**(5/2)/640
```

GIAC/XCAS [A] time = 0.226311, size = 1, normalized size = 0.01

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(3*x + 2)^6*(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] Done
```

3.1841 $\int (1-2x)^{3/2}(2+3x)^5(3+5x)\,dx$

Optimal. Leaf size=92

$$-\frac{1215(1-2x)^{17/2}}{1088}+\frac{351}{20}(1-2x)^{15/2}-\frac{97335}{832}(1-2x)^{13/2}+\frac{37485}{88}(1-2x)^{11/2}-\frac{173215}{192}(1-2x)^{9/2}+\frac{8575}{8}(1-2x)^{7/2}-\frac{184877}{320}(1-2x)^{5/2}$$

```
[Out] (-184877*(1 - 2*x)^(5/2))/320 + (8575*(1 - 2*x)^(7/2))/8 - (17321
5*(1 - 2*x)^(9/2))/192 + (37485*(1 - 2*x)^(11/2))/88 - (97335*(1
- 2*x)^(13/2))/832 + (351*(1 - 2*x)^(15/2))/20 - (1215*(1 - 2*x)^
(17/2))/1088
```

Rubi [A] time = 0.0622137, antiderivative size = 92, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$-\frac{1215(1-2x)^{17/2}}{1088}+\frac{351}{20}(1-2x)^{15/2}-\frac{97335}{832}(1-2x)^{13/2}+\frac{37485}{88}(1-2x)^{11/2}-\frac{173215}{192}(1-2x)^{9/2}+\frac{8575}{8}(1-2x)^{7/2}-\frac{184877}{320}(1-2x)^{5/2}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)*(2 + 3*x)^5*(3 + 5*x),x]
```

```
[Out] (-184877*(1 - 2*x)^(5/2))/320 + (8575*(1 - 2*x)^(7/2))/8 - (17321
5*(1 - 2*x)^(9/2))/192 + (37485*(1 - 2*x)^(11/2))/88 - (97335*(1
- 2*x)^(13/2))/832 + (351*(1 - 2*x)^(15/2))/20 - (1215*(1 - 2*x)^
(17/2))/1088
```

Rubi in Sympy [A] time = 10.0803, size = 82, normalized size = 0.89

$$-\frac{1215\,(-2x+1)^{\frac{17}{2}}}{1088}+\frac{351\,(-2x+1)^{\frac{15}{2}}}{20}-\frac{97335\,(-2x+1)^{\frac{13}{2}}}{832}+\frac{37485\,(-2x+1)^{\frac{11}{2}}}{88}-\frac{173215\,(-2x+1)^{\frac{9}{2}}}{192}+\frac{8575\,(-2x+1)^{\frac{7}{2}}}{8}-\frac{184877\,(-2x+1)^{\frac{5}{2}}}{320}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)**5*(3+5*x),x)
```

```
[Out] -1215*(-2*x + 1)**(17/2)/1088 + 351*(-2*x + 1)**(15/2)/20 - 97335
*(-2*x + 1)**(13/2)/832 + 37485*(-2*x + 1)**(11/2)/88 - 173215*(-
2*x + 1)**(9/2)/192 + 8575*(-2*x + 1)**(7/2)/8 - 184877*(-2*x + 1
)**(5/2)/320
```

Mathematica [A] time = 0.0471898, size = 43, normalized size = 0.47

$$-\frac{(1-2x)^{5/2}\left(2606175x^6+12660219x^5+26832465x^4+32431860x^3+24424220x^2+11562520x+3012632\right)}{36465}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)*(2 + 3*x)^5*(3 + 5*x),x]
```

```
[Out] -((1 - 2*x)^(5/2)*(3012632 + 11562520*x + 24424220*x^2 + 32431860
*x^3 + 26832465*x^4 + 12660219*x^5 + 2606175*x^6))/36465
```

Maple [A] time = 0.005, size = 40, normalized size = 0.4

$$-\frac{2606175\,x^{6}+12660219\,x^{5}+26832465\,x^{4}+32431860\,x^{3}+24424220\,x^{2}+11562520\,x+3012632}{36465}\left(1-2\,x\right)^{\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^5*(3+5*x),x)
```

```
[Out] -1/36465*(2606175*x^6+12660219*x^5+26832465*x^4+32431860*x^3+2442
4220*x^2+11562520*x+3012632)*(1-2*x)^(5/2)
```

Maxima [A] time = 1.34558, size = 86, normalized size = 0.93

$$-\frac{1215}{1088}\left(-2\,x+1\right)^{\frac{17}{2}}+\frac{351}{20}\left(-2\,x+1\right)^{\frac{15}{2}}-\frac{97335}{832}\left(-2\,x+1\right)^{\frac{13}{2}}+\frac{37485}{88}\left(-2\,x+1\right)^{\frac{11}{2}}-\frac{173215}{192}\left(-2\,x+1\right)^{\frac{9}{2}}+\frac{8575}{8}\left(-2\,x+1\right)^{\frac{7}{2}}-\frac{184877}{320}\left(-2\,x+1\right)^{\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^5*(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] -1215/1088*(-2*x + 1)^(17/2) + 351/20*(-2*x + 1)^(15/2) - 97335/8
32*(-2*x + 1)^(13/2) + 37485/88*(-2*x + 1)^(11/2) - 173215/192*(-
2*x + 1)^(9/2) + 8575/8*(-2*x + 1)^(7/2) - 184877/320*(-2*x + 1)^
(5/2)
```

Fricas [A] time = 0.207949, size = 66, normalized size = 0.72

$$-\frac{1}{36465}\left(10424700\,x^{8}+40216176\,x^{7}+59295159\,x^{6}+35057799\,x^{5}-5198095\,x^{4}-19014940\,x^{3}-9775332\,x^{2}-488008\,x+\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^5*(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/36465*(10424700*x^8 + 40216176*x^7 + 59295159*x^6 + 35057799*x
^5 - 5198095*x^4 - 19014940*x^3 - 9775332*x^2 - 488008*x + 301263
2)*sqrt(-2*x + 1)
```

Sympy [A] time = 8.69681, size = 82, normalized size = 0.89

$$-\frac{1215\left(-2x+1\right)^{\frac{17}{2}}}{1088}+\frac{351\left(-2x+1\right)^{\frac{15}{2}}}{20}-\frac{97335\left(-2x+1\right)^{\frac{13}{2}}}{832}+\frac{37485\left(-2x+1\right)^{\frac{11}{2}}}{88}-\frac{173215\left(-2x+1\right)^{\frac{9}{2}}}{192}+\frac{8575\left(-2x+1\right)^{\frac{7}{2}}}{8}-\frac{184877\left(-2x+1\right)^{\frac{5}{2}}}{320}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)**5*(3+5*x),x)
```

```
[Out] -1215*(-2*x + 1)**(17/2)/1088 + 351*(-2*x + 1)**(15/2)/20 - 97335
*(-2*x + 1)**(13/2)/832 + 37485*(-2*x + 1)**(11/2)/88 - 173215*(-
2*x + 1)**(9/2)/192 + 8575*(-2*x + 1)**(7/2)/8 - 184877*(-2*x + 1
```

```
)**(5/2)/320
```

GIAC/XCAS [A] time = 0.217815, size = 153, normalized size = 1.66

$$-\frac{1215}{1088}(2x-1)^8\sqrt{-2x+1}-\frac{351}{20}(2x-1)^7\sqrt{-2x+1}-\frac{97335}{832}(2x-1)^6\sqrt{-2x+1}-\frac{37485}{88}(2x-1)^5\sqrt{-2x+1}-\frac{173215}{192}(2x-1)^4\sqrt{-2x+1}-\frac{8575}{8}(2x-1)^3\sqrt{-2x+1}-\frac{184877}{320}(2x-1)^2\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(3*x + 2)^5*(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] -1215/1088*(2*x - 1)^8*sqrt(-2*x + 1) - 351/20*(2*x - 1)^7*sqrt(-
2*x + 1) - 97335/832*(2*x - 1)^6*sqrt(-2*x + 1) - 37485/88*(2*x -
 1)^5*sqrt(-2*x + 1) - 173215/192*(2*x - 1)^4*sqrt(-2*x + 1) - 85
75/8*(2*x - 1)^3*sqrt(-2*x + 1) - 184877/320*(2*x - 1)^2*sqrt(-2*
x + 1)
```

3.1842 $\int (1-2x)^{3/2}(2+3x)^4(3+5x)\,dx$

Optimal. Leaf size=79

$$\frac{27}{32}(1-2x)^{15/2}-\frac{4671}{416}(1-2x)^{13/2}+\frac{10773}{176}(1-2x)^{11/2}-\frac{8281}{48}(1-2x)^{9/2}+\frac{8183}{32}(1-2x)^{7/2}-\frac{26411}{160}(1-2x)^{5/2}$$

```
[Out] (-26411*(1 - 2*x)^(5/2))/160 + (8183*(1 - 2*x)^(7/2))/32 - (8281*
(1 - 2*x)^(9/2))/48 + (10773*(1 - 2*x)^(11/2))/176 - (4671*(1 - 2
*x)^(13/2))/416 + (27*(1 - 2*x)^(15/2))/32
```

Rubi [A] time = 0.0568757, antiderivative size = 79, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{27}{32}(1-2x)^{15/2}-\frac{4671}{416}(1-2x)^{13/2}+\frac{10773}{176}(1-2x)^{11/2}-\frac{8281}{48}(1-2x)^{9/2}+\frac{8183}{32}(1-2x)^{7/2}-\frac{26411}{160}(1-2x)^{5/2}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)*(2 + 3*x)^4*(3 + 5*x),x]
```

```
[Out] (-26411*(1 - 2*x)^(5/2))/160 + (8183*(1 - 2*x)^(7/2))/32 - (8281*
(1 - 2*x)^(9/2))/48 + (10773*(1 - 2*x)^(11/2))/176 - (4671*(1 - 2
*x)^(13/2))/416 + (27*(1 - 2*x)^(15/2))/32
```

Rubi in Sympy [A] time = 9.0286, size = 70, normalized size = 0.89

$$\frac{27\left(-2x+1\right)^{\frac{15}{2}}}{32}-\frac{4671\left(-2x+1\right)^{\frac{13}{2}}}{416}+\frac{10773\left(-2x+1\right)^{\frac{11}{2}}}{176}-\frac{8281\left(-2x+1\right)^{\frac{9}{2}}}{48}+\frac{8183\left(-2x+1\right)^{\frac{7}{2}}}{32}-\frac{26411\left(-2x+1\right)^{\frac{5}{2}}}{160}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)**4*(3+5*x),x)
```

```
[Out] 27*(-2*x + 1)**(15/2)/32 - 4671*(-2*x + 1)**(13/2)/416 + 10773*(-
2*x + 1)**(11/2)/176 - 8281*(-2*x + 1)**(9/2)/48 + 8183*(-2*x + 1
)**(7/2)/32 - 26411*(-2*x + 1)**(5/2)/160
```

Mathematica [A] time = 0.0303923, size = 38, normalized size = 0.48

$$-\frac{(1-2x)^{5/2}\left(57915x^5+240570x^4+424440x^3+410320x^2+230000x+66592\right)}{2145}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)*(2 + 3*x)^4*(3 + 5*x),x]
```

```
[Out] -((1 - 2*x)^(5/2)*(66592 + 230000*x + 410320*x^2 + 424440*x^3 + 2
40570*x^4 + 57915*x^5))/2145
```

Maple [A] time = 0.005, size = 35, normalized size = 0.4

$$-\frac{57915 x^5 + 240570 x^4 + 424440 x^3 + 410320 x^2 + 230000 x + 66592}{2145} (1 - 2 x)^{\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^4*(3+5*x),x)
```

```
[Out] -1/2145*(57915*x^5+240570*x^4+424440*x^3+410320*x^2+230000*x+6659
2)*(1-2*x)^(5/2)
```

Maxima [A] time = 1.34469, size = 74, normalized size = 0.94

$$\frac{27}{32} (-2 x + 1)^{\frac{15}{2}} - \frac{4671}{416} (-2 x + 1)^{\frac{13}{2}} + \frac{10773}{176} (-2 x + 1)^{\frac{11}{2}} - \frac{8281}{48} (-2 x + 1)^{\frac{9}{2}} + \frac{8183}{32} (-2 x + 1)^{\frac{7}{2}} - \frac{26411}{160} (-2 x + 1)^{\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^4*(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] 27/32*(-2*x + 1)^(15/2) - 4671/416*(-2*x + 1)^(13/2) + 10773/176*
(-2*x + 1)^(11/2) - 8281/48*(-2*x + 1)^(9/2) + 8183/32*(-2*x + 1)
^(7/2) - 26411/160*(-2*x + 1)^(5/2)
```

Fricas [A] time = 0.215723, size = 59, normalized size = 0.75

$$-\frac{1}{2145} \left(231660 x^7 + 730620 x^6 + 793395 x^5 + 184090 x^4 - 296840 x^3 - 243312 x^2 - 36368 x + 66592\right) \sqrt{-2 x + 1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^4*(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/2145*(231660*x^7 + 730620*x^6 + 793395*x^5 + 184090*x^4 - 2968
40*x^3 - 243312*x^2 - 36368*x + 66592)*sqrt(-2*x + 1)
```

Sympy [A] time = 7.47068, size = 70, normalized size = 0.89

$$\frac{27 (-2x + 1)^{\frac{15}{2}}}{32} - \frac{4671 (-2x + 1)^{\frac{13}{2}}}{416} + \frac{10773 (-2x + 1)^{\frac{11}{2}}}{176} - \frac{8281 (-2x + 1)^{\frac{9}{2}}}{48} + \frac{8183 (-2x + 1)^{\frac{7}{2}}}{32} - \frac{26411 (-2x + 1)^{\frac{5}{2}}}{160}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)**4*(3+5*x),x)
```

```
[Out] 27*(-2*x + 1)**(15/2)/32 - 4671*(-2*x + 1)**(13/2)/416 + 10773*(-
2*x + 1)**(11/2)/176 - 8281*(-2*x + 1)**(9/2)/48 + 8183*(-2*x + 1
)**(7/2)/32 - 26411*(-2*x + 1)**(5/2)/160
```

GIAC/XCAS [A] time = 0.212437, size = 131, normalized size = 1.66

$$-\frac{27}{32}\,(2\,x-1)^7\sqrt{-2\,x+1}-\frac{4671}{416}\,(2\,x-1)^6\sqrt{-2\,x+1}-\frac{10773}{176}\,(2\,x-1)^5\sqrt{-2\,x+1}-\frac{8281}{48}\,(2\,x-1)^4\sqrt{-2\,x+1}-\frac{8183}{32}\,(2\,x-1)^3\sqrt{-2\,x+1}-\frac{26411}{160}\,(2\,x-1)^2\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(3*x + 2)^4*(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] -27/32*(2*x - 1)^7*sqrt(-2*x + 1) - 4671/416*(2*x - 1)^6*sqrt(-2*
x + 1) - 10773/176*(2*x - 1)^5*sqrt(-2*x + 1) - 8281/48*(2*x - 1)
^4*sqrt(-2*x + 1) - 8183/32*(2*x - 1)^3*sqrt(-2*x + 1) - 26411/16
0*(2*x - 1)^2*sqrt(-2*x + 1)
```

3.1843 $\int (1-2x)^{3/2}(2+3x)^3(3+5x)\,dx$

Optimal. Leaf size=66

$$-\frac{135}{208}(1-2x)^{13/2}+\frac{621}{88}(1-2x)^{11/2}-\frac{119}{4}(1-2x)^{9/2}+\frac{469}{8}(1-2x)^{7/2}-\frac{3773}{80}(1-2x)^{5/2}$$

```
[Out] (-3773*(1 - 2*x)^(5/2))/80 + (469*(1 - 2*x)^(7/2))/8 - (119*(1 - 
2*x)^(9/2))/4 + (621*(1 - 2*x)^(11/2))/88 - (135*(1 - 2*x)^(13/2)
)/208
```

Rubi [A] time = 0.0503384, antiderivative size = 66, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{135}{208}(1-2x)^{13/2}+\frac{621}{88}(1-2x)^{11/2}-\frac{119}{4}(1-2x)^{9/2}+\frac{469}{8}(1-2x)^{7/2}-\frac{3773}{80}(1-2x)^{5/2}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)*(2 + 3*x)^3*(3 + 5*x),x]
```

```
[Out] (-3773*(1 - 2*x)^(5/2))/80 + (469*(1 - 2*x)^(7/2))/8 - (119*(1 - 
2*x)^(9/2))/4 + (621*(1 - 2*x)^(11/2))/88 - (135*(1 - 2*x)^(13/2)
)/208
```

Rubi in Sympy [A] time = 8.22283, size = 58, normalized size = 0.88

$$-\frac{135(-2x+1)^{\frac{13}{2}}}{208}+\frac{621(-2x+1)^{\frac{11}{2}}}{88}-\frac{119(-2x+1)^{\frac{9}{2}}}{4}+\frac{469(-2x+1)^{\frac{7}{2}}}{8}-\frac{3773(-2x+1)^{\frac{5}{2}}}{80}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)**3*(3+5*x),x)
```

```
[Out] -135*(-2*x + 1)**(13/2)/208 + 621*(-2*x + 1)**(11/2)/88 - 119*(-2
*x + 1)**(9/2)/4 + 469*(-2*x + 1)**(7/2)/8 - 3773*(-2*x + 1)**(5/
2)/80
```

Mathematica [A] time = 0.0395662, size = 33, normalized size = 0.5

$$-\frac{1}{715}(1-2x)^{5/2}\left(7425x^4+25515x^3+35675x^2+25310x+8494\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)*(2 + 3*x)^3*(3 + 5*x),x]
```

```
[Out] -((1 - 2*x)^(5/2)*(8494 + 25310*x + 35675*x^2 + 25515*x^3 + 7425*
x^4))/715
```

Maple [A] time = 0.006, size = 30, normalized size = 0.5

$$-\frac{7425x^4+25515x^3+35675x^2+25310x+8494}{715}(1-2x)^{\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^3*(3+5*x),x)
```

```
[Out] -1/715*(7425*x^4+25515*x^3+35675*x^2+25310*x+8494)*(1-2*x)^(5/2)
```

Maxima [A] time = 1.35344, size = 62, normalized size = 0.94

$$-\frac{135}{208}\,(-2\,x+1)^{\frac{13}{2}}+\frac{621}{88}\,(-2\,x+1)^{\frac{11}{2}}-\frac{119}{4}\,(-2\,x+1)^{\frac{9}{2}}+\frac{469}{8}\,(-2\,x+1)^{\frac{7}{2}}-\frac{3773}{80}\,(-2\,x+1)^{\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^3*(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] -135/208*(-2*x + 1)^(13/2) + 621/88*(-2*x + 1)^(11/2) - 119/4*(-2
*x + 1)^(9/2) + 469/8*(-2*x + 1)^(7/2) - 3773/80*(-2*x + 1)^(5/2)
```

Fricas [A] time = 0.209094, size = 53, normalized size = 0.8

$$-\frac{1}{715}\,\left(29700\,x^{6}+72360\,x^{5}+48065\,x^{4}-15945\,x^{3}-31589\,x^{2}-8666\,x+8494\right)\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^3*(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/715*(29700*x^6 + 72360*x^5 + 48065*x^4 - 15945*x^3 - 31589*x^2
 - 8666*x + 8494)*sqrt(-2*x + 1)
```

Sympy [A] time = 6.43758, size = 58, normalized size = 0.88

$$-\frac{135\,(-2x+1)^{\frac{13}{2}}}{208}+\frac{621\,(-2x+1)^{\frac{11}{2}}}{88}-\frac{119\,(-2x+1)^{\frac{9}{2}}}{4}+\frac{469\,(-2x+1)^{\frac{7}{2}}}{8}-\frac{3773\,(-2x+1)^{\frac{5}{2}}}{80}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)**3*(3+5*x),x)
```

```
[Out] -135*(-2*x + 1)**(13/2)/208 + 621*(-2*x + 1)**(11/2)/88 - 119*(-2
*x + 1)**(9/2)/4 + 469*(-2*x + 1)**(7/2)/8 - 3773*(-2*x + 1)**(5/
2)/80
```

GIAC/XCAS [A] time = 0.210532, size = 109, normalized size = 1.65

$$-\frac{135}{208}\,(2\,x-1)^{6}\sqrt{-2\,x+1}-\frac{621}{88}\,(2\,x-1)^{5}\sqrt{-2\,x+1}-\frac{119}{4}\,(2\,x-1)^{4}\sqrt{-2\,x+1}-\frac{469}{8}\,(2\,x-1)^{3}\sqrt{-2\,x+1}-\frac{3773}{80}\,(2\,x-1)^{2}\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^3*(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] -135/208*(2*x - 1)^6*sqrt(-2*x + 1) - 621/88*(2*x - 1)^5*sqrt(-2*
x + 1) - 119/4*(2*x - 1)^4*sqrt(-2*x + 1) - 469/8*(2*x - 1)^3*sqr
t(-2*x + 1) - 3773/80*(2*x - 1)^2*sqrt(-2*x + 1)
```

3.1844 $\int (1-2x)^{3/2}(2+3x)^2(3+5x)\,dx$

Optimal. Leaf size=53

$$\frac{45}{88}(1-2x)^{11/2}-\frac{103}{24}(1-2x)^{9/2}+\frac{101}{8}(1-2x)^{7/2}-\frac{539}{40}(1-2x)^{5/2}$$

```
[Out] (-539*(1 - 2*x)^(5/2))/40 + (101*(1 - 2*x)^(7/2))/8 - (103*(1 - 2
*x)^(9/2))/24 + (45*(1 - 2*x)^(11/2))/88
```

Rubi [A] time = 0.0467812, antiderivative size = 53, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{45}{88}(1-2x)^{11/2}-\frac{103}{24}(1-2x)^{9/2}+\frac{101}{8}(1-2x)^{7/2}-\frac{539}{40}(1-2x)^{5/2}$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^(3/2)*(2 + 3*x)^2*(3 + 5*x),x]
```

```
[Out] (-539*(1 - 2*x)^(5/2))/40 + (101*(1 - 2*x)^(7/2))/8 - (103*(1 - 2
*x)^(9/2))/24 + (45*(1 - 2*x)^(11/2))/88
```

Rubi in Sympy [A] time = 7.21313, size = 46, normalized size = 0.87

$$\frac{45\left(-2x+1\right)^{\frac{11}{2}}}{88}-\frac{103\left(-2x+1\right)^{\frac{9}{2}}}{24}+\frac{101\left(-2x+1\right)^{\frac{7}{2}}}{8}-\frac{539\left(-2x+1\right)^{\frac{5}{2}}}{40}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**(3/2)*(2+3*x)**2*(3+5*x),x)
```

```
[Out] 45*(-2*x + 1)**(11/2)/88 - 103*(-2*x + 1)**(9/2)/24 + 101*(-2*x +
 1)**(7/2)/8 - 539*(-2*x + 1)**(5/2)/40
```

Mathematica [A] time = 0.0368172, size = 28, normalized size = 0.53

$$-\frac{1}{165}(1-2x)^{5/2}\left(675x^3+1820x^2+1840x+764\right)$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)^(3/2)*(2 + 3*x)^2*(3 + 5*x),x]
```

```
[Out] -((1 - 2*x)^(5/2)*(764 + 1840*x + 1820*x^2 + 675*x^3))/165
```

Maple [A] time = 0.005, size = 25, normalized size = 0.5

$$-\frac{675\,x^3+1820\,x^2+1840\,x+764}{165}\left(1-2\,x\right)^{\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((1-2*x)^(3/2)*(2+3*x)^2*(3+5*x),x)
```

```
[Out] -1/165*(675*x^3+1820*x^2+1840*x+764)*(1-2*x)^(5/2)
```

Maxima [A] time = 1.34336, size = 50, normalized size = 0.94

$$\frac{45}{88}\,(-2\,x+1)^{\frac{11}{2}}-\frac{103}{24}\,(-2\,x+1)^{\frac{9}{2}}+\frac{101}{8}\,(-2\,x+1)^{\frac{7}{2}}-\frac{539}{40}\,(-2\,x+1)^{\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(3*x + 2)^2*(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] 45/88*(-2*x + 1)^(11/2) - 103/24*(-2*x + 1)^(9/2) + 101/8*(-2*x +
 1)^(7/2) - 539/40*(-2*x + 1)^(5/2)
```

Fricas [A] time = 0.219789, size = 46, normalized size = 0.87

$$-\frac{1}{165}\left(2700\,x^5+4580\,x^4+755\,x^3-2484\,x^2-1216\,x+764\right)\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(3*x + 2)^2*(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/165*(2700*x^5 + 4580*x^4 + 755*x^3 - 2484*x^2 - 1216*x + 764)*
sqrt(-2*x + 1)
```

Sympy [A] time = 5.64208, size = 46, normalized size = 0.87

$$\frac{45\,(-2x+1)^{\frac{11}{2}}}{88}-\frac{103\,(-2x+1)^{\frac{9}{2}}}{24}+\frac{101\,(-2x+1)^{\frac{7}{2}}}{8}-\frac{539\,(-2x+1)^{\frac{5}{2}}}{40}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)**2*(3+5*x),x)
```

```
[Out] 45*(-2*x + 1)**(11/2)/88 - 103*(-2*x + 1)**(9/2)/24 + 101*(-2*x +
 1)**(7/2)/8 - 539*(-2*x + 1)**(5/2)/40
```

GIAC/XCAS [A] time = 0.227437, size = 88, normalized size = 1.66

$$-\frac{45}{88}\,(2\,x-1)^5\sqrt{-2\,x+1}-\frac{103}{24}\,(2\,x-1)^4\sqrt{-2\,x+1}-\frac{101}{8}\,(2\,x-1)^3\sqrt{-2\,x+1}-\frac{539}{40}\,(2\,x-1)^2\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(3*x + 2)^2*(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] -45/88*(2*x - 1)^5*sqrt(-2*x + 1) - 103/24*(2*x - 1)^4*sqrt(-2*x
+ 1) - 101/8*(2*x - 1)^3*sqrt(-2*x + 1) - 539/40*(2*x - 1)^2*sqrt
(-2*x + 1)
```

3.1845 $\int (1-2x)^{3/2}(2+3x)(3+5x)\,dx$

Optimal. Leaf size=40

$$-\frac{5}{12}(1-2x)^{9/2}+\frac{17}{7}(1-2x)^{7/2}-\frac{77}{20}(1-2x)^{5/2}$$

```
[Out] (-77*(1 - 2*x)^(5/2))/20 + (17*(1 - 2*x)^(7/2))/7 - (5*(1 - 2*x)^
(9/2))/12
```

Rubi [A] time = 0.0344212, antiderivative size = 40, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{5}{12}(1-2x)^{9/2}+\frac{17}{7}(1-2x)^{7/2}-\frac{77}{20}(1-2x)^{5/2}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)*(2 + 3*x)*(3 + 5*x),x]
```

```
[Out] (-77*(1 - 2*x)^(5/2))/20 + (17*(1 - 2*x)^(7/2))/7 - (5*(1 - 2*x)^
(9/2))/12
```

Rubi in Sympy [A] time = 6.06836, size = 34, normalized size = 0.85

$$-\frac{5\left(-2x+1\right)^{\frac{9}{2}}}{12}+\frac{17\left(-2x+1\right)^{\frac{7}{2}}}{7}-\frac{77\left(-2x+1\right)^{\frac{5}{2}}}{20}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)*(3+5*x),x)
```

```
[Out] -5*(-2*x + 1)**(9/2)/12 + 17*(-2*x + 1)**(7/2)/7 - 77*(-2*x + 1)*
*(5/2)/20
```

Mathematica [A] time = 0.0138271, size = 23, normalized size = 0.57

$$-\frac{1}{105}(1-2x)^{5/2}\left(175x^2+335x+193\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)*(2 + 3*x)*(3 + 5*x),x]
```

```
[Out] -((1 - 2*x)^(5/2)*(193 + 335*x + 175*x^2))/105
```

Maple [A] time = 0.003, size = 20, normalized size = 0.5

$$-\frac{175\,x^2+335\,x+193}{105}\left(1-2\,x\right)^{\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)*(3+5*x),x)
```

```
[Out] -1/105*(175*x^2+335*x+193)*(1-2*x)^(5/2)
```

Maxima [A] time = 1.35584, size = 38, normalized size = 0.95

$$-\frac{5}{12}(-2x+1)^{\frac{9}{2}} + \frac{17}{7}(-2x+1)^{\frac{7}{2}} - \frac{77}{20}(-2x+1)^{\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(3*x + 2)*(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] -5/12*(-2*x + 1)^(9/2) + 17/7*(-2*x + 1)^(7/2) - 77/20*(-2*x + 1)
^(5/2)
```

Fricas [A] time = 0.224346, size = 39, normalized size = 0.98

$$-\frac{1}{105}\left(700x^4 + 640x^3 - 393x^2 - 437x + 193\right)\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(3*x + 2)*(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/105*(700*x^4 + 640*x^3 - 393*x^2 - 437*x + 193)*sqrt(-2*x + 1)
```

Sympy [A] time = 4.79387, size = 34, normalized size = 0.85

$$-\frac{5(-2x+1)^{\frac{9}{2}}}{12} + \frac{17(-2x+1)^{\frac{7}{2}}}{7} - \frac{77(-2x+1)^{\frac{5}{2}}}{20}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)*(3+5*x),x)
```

```
[Out] -5*(-2*x + 1)**(9/2)/12 + 17*(-2*x + 1)**(7/2)/7 - 77*(-2*x + 1)*
*(5/2)/20
```

GIAC/XCAS [A] time = 0.237516, size = 66, normalized size = 1.65

$$-\frac{5}{12}(2x-1)^4\sqrt{-2x+1} - \frac{17}{7}(2x-1)^3\sqrt{-2x+1} - \frac{77}{20}(2x-1)^2\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)*(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] -5/12*(2*x - 1)^4*sqrt(-2*x + 1) - 17/7*(2*x - 1)^3*sqrt(-2*x + 1
) - 77/20*(2*x - 1)^2*sqrt(-2*x + 1)
```

3.1846 $\int (1-2x)^{3/2}(3+5x)\,dx$

Optimal. Leaf size=27

$$\frac{5}{14}(1-2x)^{7/2}-\frac{11}{10}(1-2x)^{5/2}$$

```
[Out] (-11*(1 - 2*x)^(5/2))/10 + (5*(1 - 2*x)^(7/2))/14
```

Rubi [A] time = 0.0184909, antiderivative size = 27, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.067

$$\frac{5}{14}(1-2x)^{7/2}-\frac{11}{10}(1-2x)^{5/2}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)*(3 + 5*x),x]

[Out] (-11*(1 - 2*x)^(5/2))/10 + (5*(1 - 2*x)^(7/2))/14
```

Rubi in Sympy [A] time = 3.78904, size = 22, normalized size = 0.81

$$\frac{5\left(-2x+1\right)^{\frac{7}{2}}}{14}-\frac{11\left(-2x+1\right)^{\frac{5}{2}}}{10}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x),x)

[Out] 5*(-2*x + 1)**(7/2)/14 - 11*(-2*x + 1)**(5/2)/10
```

Mathematica [A] time = 0.010625, size = 18, normalized size = 0.67

$$-\frac{1}{35}(1-2x)^{5/2}(25x+26)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)*(3 + 5*x),x]

[Out] -((1 - 2*x)^(5/2)*(26 + 25*x))/35
```

Maple [A] time = 0.004, size = 15, normalized size = 0.6

$$-\frac{25\,x+26}{35}\left(1-2\,x\right)^{\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x),x)

[Out] -1/35*(25*x+26)*(1-2*x)^(5/2)
```

Maxima [A] time = 1.37885, size = 26, normalized size = 0.96

$$\frac{5}{14}\,(-2\,x+1)^{\frac{7}{2}}-\frac{11}{10}\,(-2\,x+1)^{\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] 5/14*(-2*x + 1)^(7/2) - 11/10*(-2*x + 1)^(5/2)
```

Fricas [A] time = 0.222322, size = 32, normalized size = 1.19

$$-\frac{1}{35}\left(100\,x^3+4\,x^2-79\,x+26\right)\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/35*(100*x^3 + 4*x^2 - 79*x + 26)*sqrt(-2*x + 1)
```

Sympy [A] time = 1.07133, size = 54, normalized size = 2.

$$-\frac{20x^3\sqrt{-2x+1}}{7}-\frac{4x^2\sqrt{-2x+1}}{35}+\frac{79x\sqrt{-2x+1}}{35}-\frac{26\sqrt{-2x+1}}{35}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x),x)
```

```
[Out] -20*x**3*sqrt(-2*x + 1)/7 - 4*x**2*sqrt(-2*x + 1)/35 + 79*x*sqrt(
-2*x + 1)/35 - 26*sqrt(-2*x + 1)/35
```

GIAC/XCAS [A] time = 0.229932, size = 45, normalized size = 1.67

$$-\frac{5}{14}\,(2\,x-1)^3\sqrt{-2\,x+1}-\frac{11}{10}\,(2\,x-1)^2\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] -5/14*(2*x - 1)^3*sqrt(-2*x + 1) - 11/10*(2*x - 1)^2*sqrt(-2*x +
1)
```

3.1847 $\int \frac{(1-2x)^{3/2}(3+5x)}{2+3x}\,dx$

Optimal. Leaf size=69

$$-\frac{1}{3}(1-2x)^{5/2}-\frac{2}{27}(1-2x)^{3/2}-\frac{14}{27}\sqrt{1-2x}+\frac{14}{27}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

```
[Out] (-14*Sqrt[1 - 2*x])/27 - (2*(1 - 2*x)^(3/2))/27 - (1 - 2*x)^(5/2)
/3 + (14*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/27
```

Rubi [A] time = 0.0740745, antiderivative size = 69, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{1}{3}(1-2x)^{5/2}-\frac{2}{27}(1-2x)^{3/2}-\frac{14}{27}\sqrt{1-2x}+\frac{14}{27}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(3 + 5*x))/(2 + 3*x),x]
```

```
[Out] (-14*Sqrt[1 - 2*x])/27 - (2*(1 - 2*x)^(3/2))/27 - (1 - 2*x)^(5/2)
/3 + (14*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/27
```

Rubi in Sympy [A] time = 7.88838, size = 58, normalized size = 0.84

$$-\frac{(-2x+1)^{\frac{5}{2}}}{3}-\frac{2(-2x+1)^{\frac{3}{2}}}{27}-\frac{14\sqrt{-2x+1}}{27}+\frac{14\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{81}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)/(2+3*x),x)
```

```
[Out] -(-2*x + 1)**(5/2)/3 - 2*(-2*x + 1)**(3/2)/27 - 14*sqrt(-2*x + 1)
/27 + 14*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/81
```

Mathematica [A] time = 0.060519, size = 51, normalized size = 0.74

$$\frac{1}{81}\left(14\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-3\sqrt{1-2x}\left(36x^2-40x+25\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(3 + 5*x))/(2 + 3*x),x]
```

```
[Out] (-3*Sqrt[1 - 2*x]*(25 - 40*x + 36*x^2) + 14*Sqrt[21]*ArcTanh[Sqrt
[3/7]*Sqrt[1 - 2*x]])/81
```

Maple [A] time = 0.009, size = 47, normalized size = 0.7

$$-\frac{2}{27}(1-2x)^{\frac{3}{2}}-\frac{1}{3}(1-2x)^{\frac{5}{2}}+\frac{14\sqrt{21}}{81}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)-\frac{14}{27}\sqrt{1-2x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)/(2+3*x),x)
```

```
[Out] -2/27*(1-2*x)^(3/2)-1/3*(1-2*x)^(5/2)+14/81*arctanh(1/7*21^(1/2)*
(1-2*x)^(1/2))*21^(1/2)-14/27*(1-2*x)^(1/2)
```

Maxima [A] time = 1.5807, size = 86, normalized size = 1.25

$$-\frac{1}{3}\,(-2\,x+1)^{\frac{5}{2}}-\frac{2}{27}\,(-2\,x+1)^{\frac{3}{2}}-\frac{7}{81}\,\sqrt{21}\log\left(-\frac{\sqrt{21}-3\,\sqrt{-2\,x+1}}{\sqrt{21}+3\,\sqrt{-2\,x+1}}\right)-\frac{14}{27}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2),x, algorithm="maxima")
```

```
[Out] -1/3*(-2*x + 1)^(5/2) - 2/27*(-2*x + 1)^(3/2) - 7/81*sqrt(21)*log
(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) -
14/27*sqrt(-2*x + 1)
```

Fricas [A] time = 0.22607, size = 85, normalized size = 1.23

$$-\frac{1}{81}\,\sqrt{3}\left(\sqrt{3}\left(36\,x^{2}-40\,x+25\right)\sqrt{-2\,x+1}-7\,\sqrt{7}\log\left(\frac{\sqrt{3}(3\,x-5)-3\,\sqrt{7}\sqrt{-2\,x+1}}{3\,x+2}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2),x, algorithm="fricas")
```

```
[Out] -1/81*sqrt(3)*(sqrt(3)*(36*x^2 - 40*x + 25)*sqrt(-2*x + 1) - 7*sq
rt(7)*log((sqrt(3)*(3*x - 5) - 3*sqrt(7)*sqrt(-2*x + 1))/(3*x + 2
)))
```

Sympy [A] time = 14.2373, size = 99, normalized size = 1.43

$$-\frac{(-2x+1)^{\frac{5}{2}}}{3}-\frac{2\,(-2x+1)^{\frac{3}{2}}}{27}-\frac{14\sqrt{-2x+1}}{27}-\frac{98\left(\begin{cases}-\frac{\sqrt{21}\operatorname{acoth}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for }-2x+1>\frac{7}{3}\\ -\frac{\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for }-2x+1<\frac{7}{3}\end{cases}\right)}{27}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)/(2+3*x),x)
```

```
[Out] -(-2*x + 1)**(5/2)/3 - 2*(-2*x + 1)**(3/2)/27 - 14*sqrt(-2*x + 1)
/27 - 98*Piecewise((-sqrt(21)*acoth(sqrt(21)*sqrt(-2*x + 1)/7)/21
, -2*x + 1 > 7/3), (-sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/21
, -2*x + 1 < 7/3))/27
```

GIAC/XCAS [A] time = 0.234531, size = 100, normalized size = 1.45

$$-\frac{1}{3}\,(2\,x-1)^{2}\sqrt{-2\,x+1}-\frac{2}{27}\,(-2\,x+1)^{\frac{3}{2}}-\frac{7}{81}\,\sqrt{21}\ln\left(\frac{\left|-2\,\sqrt{21}+6\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{21}+3\,\sqrt{-2\,x+1}\right)}\right)-\frac{14}{27}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2),x, algorithm="giac")
```

```
[Out] -1/3*(2*x - 1)^2*sqrt(-2*x + 1) - 2/27*(-2*x + 1)^(3/2) - 7/81*sq
rt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*s
qrt(-2*x + 1))) - 14/27*sqrt(-2*x + 1)
```

3.1848 $\int \frac{(1-2x)^{3/2}(3+5x)}{(2+3x)^2} dx$

Optimal. Leaf size=76

$$\frac{(1-2x)^{5/2}}{21(3x+2)}+\frac{76}{189}(1-2x)^{3/2}+\frac{76}{27}\sqrt{1-2x}-\frac{76}{27}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

```
[Out] (76*Sqrt[1 - 2*x])/27 + (76*(1 - 2*x)^(3/2))/189 + (1 - 2*x)^(5/2
)/(21*(2 + 3*x)) - (76*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]]
)/27
```

Rubi [A] time = 0.077049, antiderivative size = 76, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$\frac{(1-2x)^{5/2}}{21(3x+2)}+\frac{76}{189}(1-2x)^{3/2}+\frac{76}{27}\sqrt{1-2x}-\frac{76}{27}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(3 + 5*x))/(2 + 3*x)^2,x]
```

```
[Out] (76*Sqrt[1 - 2*x])/27 + (76*(1 - 2*x)^(3/2))/189 + (1 - 2*x)^(5/2
)/(21*(2 + 3*x)) - (76*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]]
)/27
```

Rubi in Sympy [A] time = 8.73667, size = 61, normalized size = 0.8

$$\frac{(-2x+1)^{\frac{5}{2}}}{21\,(3x+2)}+\frac{76\,(-2x+1)^{\frac{3}{2}}}{189}+\frac{76\sqrt{-2x+1}}{27}-\frac{76\sqrt{21}\,\text{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{81}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)/(2+3*x)**2,x)
```

```
[Out] (-2*x + 1)**(5/2)/(21*(3*x + 2)) + 76*(-2*x + 1)**(3/2)/189 + 76*
sqrt(-2*x + 1)/27 - 76*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/
81
```

Mathematica [A] time = 0.0836496, size = 58, normalized size = 0.76

$$\frac{1}{81}\left(\frac{3\sqrt{1-2x}\,(-60x^2+212x+175)}{3x+2}-76\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(3 + 5*x))/(2 + 3*x)^2,x]
```

```
[Out] ((3*Sqrt[1 - 2*x]*(175 + 212*x - 60*x^2))/(2 + 3*x) - 76*Sqrt[21]
*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/81
```

Maple [A] time = 0.014, size = 54, normalized size = 0.7

$$\frac{10}{27}(1-2x)^{\frac{3}{2}}+\frac{74}{27}\sqrt{1-2x}-\frac{14}{81}\sqrt{1-2x}\left(-\frac{4}{3}-2x\right)^{-1}-\frac{76\sqrt{21}}{81}\textit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)/(2+3*x)^2,x)
```

```
[Out] 10/27*(1-2*x)^(3/2)+74/27*(1-2*x)^(1/2)-14/81*(1-2*x)^(1/2)/(-4/3
-2*x)-76/81*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.59866, size = 96, normalized size = 1.26

$$\frac{10}{27}\,(-2\,x+1)^{\frac{3}{2}}+\frac{38}{81}\,\sqrt{21}\log\left(-\frac{\sqrt{21}-3\,\sqrt{-2\,x+1}}{\sqrt{21}+3\,\sqrt{-2\,x+1}}\right)+\frac{74}{27}\,\sqrt{-2\,x+1}+\frac{7\,\sqrt{-2\,x+1}}{27\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^2,x, algorithm="maxima")
```

```
[Out] 10/27*(-2*x + 1)^(3/2) + 38/81*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-
2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 74/27*sqrt(-2*x + 1) +
 7/27*sqrt(-2*x + 1)/(3*x + 2)
```

Fricas [A] time = 0.234974, size = 103, normalized size = 1.36

$$\frac{\sqrt{3}\left(38\,\sqrt{7}(3\,x+2)\log\left(\frac{\sqrt{3}(3\,x-5)+3\,\sqrt{7}\sqrt{-2\,x+1}}{3\,x+2}\right)-\sqrt{3}\left(60\,x^2-212\,x-175\right)\sqrt{-2\,x+1}\right)}{81\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^2,x, algorithm="fricas")
```

```
[Out] 1/81*sqrt(3)*(38*sqrt(7)*(3*x + 2)*log((sqrt(3)*(3*x - 5) + 3*sqr
t(7)*sqrt(-2*x + 1))/(3*x + 2)) - sqrt(3)*(60*x^2 - 212*x - 175)*
sqrt(-2*x + 1))/(3*x + 2)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)/(2+3*x)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.242523, size = 100, normalized size = 1.32

$$\frac{10}{27}\,(-2\,x+1)^{\frac{3}{2}}+\frac{38}{81}\,\sqrt{21}\ln\left(\frac{\left|-2\,\sqrt{21}+6\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{21}+3\,\sqrt{-2\,x+1}\right)}\right)+\frac{74}{27}\,\sqrt{-2\,x+1}+\frac{7\,\sqrt{-2\,x+1}}{27\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^2,x, algorithm="giac")
```

```
[Out] 10/27*(-2*x + 1)^(3/2) + 38/81*sqrt(21)*ln(1/2*abs(-2*sqrt(21) +
6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 74/27*sqrt(-2*
x + 1) + 7/27*sqrt(-2*x + 1)/(3*x + 2)
```

3.1849 $\int \frac{(1-2x)^{3/2}(3+5x)}{(2+3x)^3} \, dx$

Optimal. Leaf size=81

$$\frac{(1-2x)^{5/2}}{42(3x+2)^2} - \frac{71(1-2x)^{3/2}}{126(3x+2)} - \frac{71}{63}\sqrt{1-2x} + \frac{71\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{9\sqrt{21}}$$

```
[Out] (-71*Sqrt[1 - 2*x])/63 + (1 - 2*x)^(5/2)/(42*(2 + 3*x)^2) - (71*(
1 - 2*x)^(3/2))/(126*(2 + 3*x)) + (71*ArcTanh[Sqrt[3/7]*Sqrt[1 -
2*x]])/(9*Sqrt[21])
```

Rubi [A] time = 0.0737455, antiderivative size = 81, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$\frac{(1-2x)^{5/2}}{42(3x+2)^2} - \frac{71(1-2x)^{3/2}}{126(3x+2)} - \frac{71}{63}\sqrt{1-2x} + \frac{71\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{9\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)^(3/2)*(3 + 5*x))/(2 + 3*x)^3,x]
```

```
[Out] (-71*Sqrt[1 - 2*x])/63 + (1 - 2*x)^(5/2)/(42*(2 + 3*x)^2) - (71*(
1 - 2*x)^(3/2))/(126*(2 + 3*x)) + (71*ArcTanh[Sqrt[3/7]*Sqrt[1 -
2*x]])/(9*Sqrt[21])
```

Rubi in Sympy [A] time = 9.07737, size = 68, normalized size = 0.84

$$\frac{(-2x+1)^{\frac{5}{2}}}{42(3x+2)^2} - \frac{71(-2x+1)^{\frac{3}{2}}}{126(3x+2)} - \frac{71\sqrt{-2x+1}}{63} + \frac{71\sqrt{21}\,\text{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{189}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**(3/2)*(3+5*x)/(2+3*x)**3,x)
```

```
[Out] (-2*x + 1)**(5/2)/(42*(3*x + 2)**2) - 71*(-2*x + 1)**(3/2)/(126*(
3*x + 2)) - 71*sqrt(-2*x + 1)/63 + 71*sqrt(21)*atanh(sqrt(21)*sqr
t(-2*x + 1)/7)/189
```

Mathematica [A] time = 0.100154, size = 58, normalized size = 0.72

$$\frac{71\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{9\sqrt{21}} - \frac{\sqrt{1-2x}\left(120x^2+235x+101\right)}{18(3x+2)^2}$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)^(3/2)*(3 + 5*x))/(2 + 3*x)^3,x]
```

```
[Out] -(Sqrt[1 - 2*x]*(101 + 235*x + 120*x^2))/(18*(2 + 3*x)^2) + (71*A
rcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(9*Sqrt[21])
```

Maple [A] time = 0.016, size = 57, normalized size = 0.7

$$-\frac{20}{27}\sqrt{1-2x}-\frac{4}{3\left(-4-6x\right)^{2}}\left(-\frac{25}{4}\left(1-2x\right)^{\frac{3}{2}}+\frac{511}{36}\sqrt{1-2x}\right)+\frac{71\sqrt{21}}{189}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)/(2+3*x)^3,x)
```

```
[Out] -20/27*(1-2*x)^(1/2)-4/3*(-25/4*(1-2*x)^(3/2)+511/36*(1-2*x)^(1/2
))/(-4-6*x)^2+71/189*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.53401, size = 112, normalized size = 1.38

$$-\frac{71}{378}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{20}{27}\sqrt{-2x+1}+\frac{225\left(-2x+1\right)^{\frac{3}{2}}-511\sqrt{-2x+1}}{27\left(9\left(2x-1\right)^{2}+84x+7\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^3,x, algorithm="maxima")
```

```
[Out] -71/378*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21) + 3
*sqrt(-2*x + 1))) - 20/27*sqrt(-2*x + 1) + 1/27*(225*(-2*x + 1)^(
3/2) - 511*sqrt(-2*x + 1))/(9*(2*x - 1)^2 + 84*x + 7)
```

Fricas [A] time = 0.236758, size = 107, normalized size = 1.32

$$-\frac{\sqrt{21}\left(\sqrt{21}\left(120x^{2}+235x+101\right)\sqrt{-2x+1}-71\left(9x^{2}+12x+4\right)\log\left(\frac{\sqrt{21}(3x-5)-21\sqrt{-2x+1}}{3x+2}\right)\right)}{378\left(9x^{2}+12x+4\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^3,x, algorithm="fricas")
```

```
[Out] -1/378*sqrt(21)*(sqrt(21)*(120*x^2 + 235*x + 101)*sqrt(-2*x + 1)
- 71*(9*x^2 + 12*x + 4)*log((sqrt(21)*(3*x - 5) - 21*sqrt(-2*x +
1))/(3*x + 2)))/(9*x^2 + 12*x + 4)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)/(2+3*x)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.242581, size = 104, normalized size = 1.28

$$-\frac{71}{378}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{20}{27}\sqrt{-2x+1}+\frac{225\left(-2x+1\right)^{\frac{3}{2}}-511\sqrt{-2x+1}}{108\left(3x+2\right)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^3,x, algorithm="giac")
```

```
[Out] -71/378*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqrt
(21) + 3*sqrt(-2*x + 1))) - 20/27*sqrt(-2*x + 1) + 1/108*(225*(-2
*x + 1)^(3/2) - 511*sqrt(-2*x + 1))/(3*x + 2)^2
```

3.1850 $\int \frac{(1-2x)^{3/2}(3+5x)}{(2+3x)^4} \, dx$

Optimal. Leaf size=88

$$\frac{(1-2x)^{5/2}}{63(3x+2)^3}-\frac{52(1-2x)^{3/2}}{189(3x+2)^2}+\frac{52\sqrt{1-2x}}{189(3x+2)}-\frac{104\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{189\sqrt{21}}$$

```
[Out] (1 - 2*x)^(5/2)/(63*(2 + 3*x)^3) - (52*(1 - 2*x)^(3/2))/(189*(2 +
 3*x)^2) + (52*Sqrt[1 - 2*x])/(189*(2 + 3*x)) - (104*ArcTanh[Sqrt
[3/7]*Sqrt[1 - 2*x]])/(189*Sqrt[21])
```

Rubi [A] time = 0.0802553, antiderivative size = 88, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$\frac{(1-2x)^{5/2}}{63(3x+2)^3}-\frac{52(1-2x)^{3/2}}{189(3x+2)^2}+\frac{52\sqrt{1-2x}}{189(3x+2)}-\frac{104\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{189\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(3 + 5*x))/(2 + 3*x)^4,x]
```

```
[Out] (1 - 2*x)^(5/2)/(63*(2 + 3*x)^3) - (52*(1 - 2*x)^(3/2))/(189*(2 +
 3*x)^2) + (52*Sqrt[1 - 2*x])/(189*(2 + 3*x)) - (104*ArcTanh[Sqrt
[3/7]*Sqrt[1 - 2*x]])/(189*Sqrt[21])
```

Rubi in Sympy [A] time = 9.93894, size = 75, normalized size = 0.85

$$\frac{(-2x+1)^{\frac{5}{2}}}{63\,(3x+2)^3}-\frac{52\,(-2x+1)^{\frac{3}{2}}}{189\,(3x+2)^2}+\frac{52\sqrt{-2x+1}}{189\,(3x+2)}-\frac{104\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{3969}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)/(2+3*x)**4,x)
```

```
[Out] (-2*x + 1)**(5/2)/(63*(3*x + 2)**3) - 52*(-2*x + 1)**(3/2)/(189*(
3*x + 2)**2) + 52*sqrt(-2*x + 1)/(189*(3*x + 2)) - 104*sqrt(21)*a
tanh(sqrt(21)*sqrt(-2*x + 1)/7)/3969
```

Mathematica [A] time = 0.0907821, size = 58, normalized size = 0.66

$$\frac{\frac{21\sqrt{1-2x}(792x^2+664x+107)}{(3x+2)^3}-104\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{3969}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(3 + 5*x))/(2 + 3*x)^4,x]
```

```
[Out] ((21*Sqrt[1 - 2*x]*(107 + 664*x + 792*x^2))/(2 + 3*x)^3 - 104*Sqr
t[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/3969
```

Maple [A] time = 0.016, size = 57, normalized size = 0.7

$$216\frac{1}{(-4-6x)^3}\left(-\frac{22(1-2x)^{5/2}}{567}+\frac{104(1-2x)^{3/2}}{729}-\frac{91\sqrt{1-2x}}{729}\right)-\frac{104\sqrt{21}}{3969}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)/(2+3*x)^4,x)
```

```
[Out] 216*(-22/567*(1-2*x)^(5/2)+104/729*(1-2*x)^(3/2)-91/729*(1-2*x)^(
1/2))/(-4-6*x)^3-104/3969*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^
(1/2)
```

Maxima [A] time = 1.50705, size = 124, normalized size = 1.41

$$\frac{52}{3969}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{8\left(198(-2x+1)^{\frac{5}{2}}-728(-2x+1)^{\frac{3}{2}}+637\sqrt{-2x+1}\right)}{189\left(27(2x-1)^3+189(2x-1)^2+882x-98\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^4,x, algorithm="maxima")
```

```
[Out] 52/3969*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21) + 3
*sqrt(-2*x + 1))) + 8/189*(198*(-2*x + 1)^(5/2) - 728*(-2*x + 1)^
(3/2) + 637*sqrt(-2*x + 1))/(27*(2*x - 1)^3 + 189*(2*x - 1)^2 + 8
82*x - 98)
```

Fricas [A] time = 0.21725, size = 120, normalized size = 1.36

$$\frac{\sqrt{21}\left(\sqrt{21}\left(792x^2+664x+107\right)\sqrt{-2x+1}+52\left(27x^3+54x^2+36x+8\right)\log\left(\frac{\sqrt{21}(3x-5)+21\sqrt{-2x+1}}{3x+2}\right)\right)}{3969\left(27x^3+54x^2+36x+8\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^4,x, algorithm="fricas")
```

```
[Out] 1/3969*sqrt(21)*(sqrt(21)*(792*x^2 + 664*x + 107)*sqrt(-2*x + 1)
+ 52*(27*x^3 + 54*x^2 + 36*x + 8)*log((sqrt(21)*(3*x - 5) + 21*sq
rt(-2*x + 1))/(3*x + 2)))/(27*x^3 + 54*x^2 + 36*x + 8)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)/(2+3*x)**4,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.21188, size = 113, normalized size = 1.28

$$\frac{52}{3969}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{198(2x-1)^2\sqrt{-2x+1}-728(-2x+1)^{\frac{3}{2}}+637\sqrt{-2x+1}}{189(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^4,x, algorithm="giac")
```

```
[Out] 52/3969*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqrt
(21) + 3*sqrt(-2*x + 1))) + 1/189*(198*(2*x - 1)^2*sqrt(-2*x + 1)
 - 728*(-2*x + 1)^(3/2) + 637*sqrt(-2*x + 1))/(3*x + 2)^3
```

3.1851 $\int \frac{(1-2x)^{3/2}(3+5x)}{(2+3x)^5}\,dx$

Optimal. Leaf size=108

$$\frac{(1-2x)^{5/2}}{84(3x+2)^4}-\frac{137(1-2x)^{3/2}}{756(3x+2)^3}-\frac{137\sqrt{1-2x}}{10584(3x+2)}+\frac{137\sqrt{1-2x}}{1512(3x+2)^2}-\frac{137\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{5292\sqrt{21}}$$

```
[Out] (1 - 2*x)^(5/2)/(84*(2 + 3*x)^4) - (137*(1 - 2*x)^(3/2))/(756*(2
+ 3*x)^3) + (137*Sqrt[1 - 2*x])/(1512*(2 + 3*x)^2) - (137*Sqrt[1
- 2*x])/(10584*(2 + 3*x)) - (137*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]]
)/(5292*Sqrt[21])
```

Rubi [A] time = 0.101946, antiderivative size = 108, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$\frac{(1-2x)^{5/2}}{84(3x+2)^4}-\frac{137(1-2x)^{3/2}}{756(3x+2)^3}-\frac{137\sqrt{1-2x}}{10584(3x+2)}+\frac{137\sqrt{1-2x}}{1512(3x+2)^2}-\frac{137\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{5292\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(3 + 5*x))/(2 + 3*x)^5,x]
```

```
[Out] (1 - 2*x)^(5/2)/(84*(2 + 3*x)^4) - (137*(1 - 2*x)^(3/2))/(756*(2
+ 3*x)^3) + (137*Sqrt[1 - 2*x])/(1512*(2 + 3*x)^2) - (137*Sqrt[1
- 2*x])/(10584*(2 + 3*x)) - (137*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]]
)/(5292*Sqrt[21])
```

Rubi in Sympy [A] time = 12.3066, size = 94, normalized size = 0.87

$$\frac{(-2x+1)^{\frac{5}{2}}}{84\,(3x+2)^4}-\frac{137\,(-2x+1)^{\frac{3}{2}}}{756\,(3x+2)^3}-\frac{137\sqrt{-2x+1}}{10584\,(3x+2)}+\frac{137\sqrt{-2x+1}}{1512\,(3x+2)^2}-\frac{137\sqrt{21}\,\mathrm{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{111132}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)/(2+3*x)**5,x)
```

```
[Out] (-2*x + 1)**(5/2)/(84*(3*x + 2)**4) - 137*(-2*x + 1)**(3/2)/(756*
(3*x + 2)**3) - 137*sqrt(-2*x + 1)/(10584*(3*x + 2)) + 137*sqrt(-
2*x + 1)/(1512*(3*x + 2)**2) - 137*sqrt(21)*atanh(sqrt(21)*sqrt(-
2*x + 1)/7)/111132
```

Mathematica [A] time = 0.110492, size = 63, normalized size = 0.58

$$\frac{-\frac{21\sqrt{1-2x}(3699x^3-13245x^2-7990x+970)}{(3x+2)^4}-274\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{222264}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(3 + 5*x))/(2 + 3*x)^5,x]
```

```
[Out] ((-21*Sqrt[1 - 2*x]*(970 - 7990*x - 13245*x^2 + 3699*x^3))/(2 + 3
*x)^4 - 274*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/222264
```

Maple [A] time = 0.016, size = 66, normalized size = 0.6

$$-1296\frac{1}{\left(-4-6x\right)^{4}}\left(-\frac{137\left(1-2x\right)^{7/2}}{254016}-\frac{733\left(1-2x\right)^{5/2}}{326592}+\frac{1507\left(1-2x\right)^{3/2}}{139968}-\frac{959\sqrt{1-2x}}{139968}\right)-\frac{137\sqrt{21}}{111132}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)/(2+3*x)^5,x)
```

```
[Out] -1296*(-137/254016*(1-2*x)^(7/2)-733/326592*(1-2*x)^(5/2)+1507/13
9968*(1-2*x)^(3/2)-959/139968*(1-2*x)^(1/2))/(-4-6*x)^4-137/11113
2*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.53593, size = 149, normalized size = 1.38

$$\frac{137}{222264}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{3699\left(-2x+1\right)^{\frac{7}{2}}+15393\left(-2x+1\right)^{\frac{5}{2}}-73843\left(-2x+1\right)^{\frac{3}{2}}+46991\sqrt{-2x+1}}{5292\left(81\left(2x-1\right)^{4}+756\left(2x-1\right)^{3}+2646\left(2x-1\right)^{2}+8232x-1715\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^5,x, algorithm="maxima")
```

```
[Out] 137/222264*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21)
+ 3*sqrt(-2*x + 1))) + 1/5292*(3699*(-2*x + 1)^(7/2) + 15393*(-2*
x + 1)^(5/2) - 73843*(-2*x + 1)^(3/2) + 46991*sqrt(-2*x + 1))/(81
*(2*x - 1)^4 + 756*(2*x - 1)^3 + 2646*(2*x - 1)^2 + 8232*x - 1715
)
```

Fricas [A] time = 0.215433, size = 140, normalized size = 1.3

$$-\frac{\sqrt{21}\left(\sqrt{21}\left(3699x^{3}-13245x^{2}-7990x+970\right)\sqrt{-2x+1}-137\left(81x^{4}+216x^{3}+216x^{2}+96x+16\right)\log\left(\frac{\sqrt{21}(3x-5)+21\sqrt{-2x+1}}{3x+2}\right)\right)}{222264\left(81x^{4}+216x^{3}+216x^{2}+96x+16\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^5,x, algorithm="fricas")
```

```
[Out] -1/222264*sqrt(21)*(sqrt(21)*(3699*x^3 - 13245*x^2 - 7990*x + 970
)*sqrt(-2*x + 1) - 137*(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16)*l
og((sqrt(21)*(3*x - 5) + 21*sqrt(-2*x + 1))/(3*x + 2)))/(81*x^4 +
 216*x^3 + 216*x^2 + 96*x + 16)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)/(2+3*x)**5,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.213111, size = 135, normalized size = 1.25

$$\frac{137}{222264}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right) - \frac{3699\,(2x-1)^{3}\sqrt{-2x+1} - 15393\,(2x-1)^{2}\sqrt{-2x+1} + 73843\,(-2x+1)^{\frac{3}{2}} - 46991\sqrt{-2x+1}}{84672\,(3x+2)^{4}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^5,x, algorithm="giac")
```

```
[Out] 137/222264*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(s
qrt(21) + 3*sqrt(-2*x + 1))) - 1/84672*(3699*(2*x - 1)^3*sqrt(-2*
x + 1) - 15393*(2*x - 1)^2*sqrt(-2*x + 1) + 73843*(-2*x + 1)^(3/2
) - 46991*sqrt(-2*x + 1))/(3*x + 2)^4
```

3.1852 $\int \frac{(1-2x)^{3/2}(3+5x)}{(2+3x)^6} dx$

Optimal. Leaf size=128

$$\frac{(1-2x)^{5/2}}{105(3x+2)^5}-\frac{17(1-2x)^{3/2}}{126(3x+2)^4}-\frac{17\sqrt{1-2x}}{12348(3x+2)}-\frac{17\sqrt{1-2x}}{5292(3x+2)^2}+\frac{17\sqrt{1-2x}}{378(3x+2)^3}-\frac{17\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{6174\sqrt{21}}$$

```
[Out] (1 - 2*x)^(5/2)/(105*(2 + 3*x)^5) - (17*(1 - 2*x)^(3/2))/(126*(2
+ 3*x)^4) + (17*Sqrt[1 - 2*x])/(378*(2 + 3*x)^3) - (17*Sqrt[1 - 2
*x])/(5292*(2 + 3*x)^2) - (17*Sqrt[1 - 2*x])/(12348*(2 + 3*x)) -
(17*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(6174*Sqrt[21])
```

Rubi [A] time = 0.122894, antiderivative size = 128, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$\frac{(1-2x)^{5/2}}{105(3x+2)^5}-\frac{17(1-2x)^{3/2}}{126(3x+2)^4}-\frac{17\sqrt{1-2x}}{12348(3x+2)}-\frac{17\sqrt{1-2x}}{5292(3x+2)^2}+\frac{17\sqrt{1-2x}}{378(3x+2)^3}-\frac{17\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{6174\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(3 + 5*x))/(2 + 3*x)^6,x]
```

```
[Out] (1 - 2*x)^(5/2)/(105*(2 + 3*x)^5) - (17*(1 - 2*x)^(3/2))/(126*(2
+ 3*x)^4) + (17*Sqrt[1 - 2*x])/(378*(2 + 3*x)^3) - (17*Sqrt[1 - 2
*x])/(5292*(2 + 3*x)^2) - (17*Sqrt[1 - 2*x])/(12348*(2 + 3*x)) -
(17*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(6174*Sqrt[21])
```

Rubi in Sympy [A] time = 13.7819, size = 112, normalized size = 0.88

$$\frac{(-2x+1)^{\frac{5}{2}}}{105(3x+2)^5}-\frac{17(-2x+1)^{\frac{3}{2}}}{126(3x+2)^4}-\frac{17\sqrt{-2x+1}}{12348(3x+2)}-\frac{17\sqrt{-2x+1}}{5292(3x+2)^2}+\frac{17\sqrt{-2x+1}}{378(3x+2)^3}-\frac{17\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{129654}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)/(2+3*x)**6,x)
```

```
[Out] (-2*x + 1)**(5/2)/(105*(3*x + 2)**5) - 17*(-2*x + 1)**(3/2)/(126*
(3*x + 2)**4) - 17*sqrt(-2*x + 1)/(12348*(3*x + 2)) - 17*sqrt(-2*
x + 1)/(5292*(3*x + 2)**2) + 17*sqrt(-2*x + 1)/(378*(3*x + 2)**3)
 - 17*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/129654
```

Mathematica [A] time = 0.106587, size = 68, normalized size = 0.53

$$\frac{-\frac{21\sqrt{1-2x}(6885x^4+23715x^3-48252x^2-23998x+7912)}{(3x+2)^5}-170\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{1296540}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(3 + 5*x))/(2 + 3*x)^6,x]
```

```
[Out] ((-21*Sqrt[1 - 2*x]*(7912 - 23998*x - 48252*x^2 + 23715*x^3 + 688
5*x^4))/(2 + 3*x)^5 - 170*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x
```

```
]])/1296540
```

Maple [A] time = 0.017, size = 75, normalized size = 0.6

$$7776\frac{1}{(-4-6x)^5}\left(\frac{17\,(1-2x)^{9/2}}{592704}-\frac{17\,(1-2x)^{7/2}}{54432}-\frac{(1-2x)^{5/2}}{25515}+\frac{119\,(1-2x)^{3/2}}{69984}-\frac{119\sqrt{1-2x}}{139968}\right)-\frac{17\sqrt{21}}{129654}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)/(2+3*x)^6,x)
```

```
[Out] 7776*(17/592704*(1-2*x)^(9/2)-17/54432*(1-2*x)^(7/2)-1/25515*(1-2
*x)^(5/2)+119/69984*(1-2*x)^(3/2)-119/139968*(1-2*x)^(1/2))/(-4-6
*x)^5-17/129654*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.52539, size = 173, normalized size = 1.35

$$\frac{17}{259308}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{6885\,(-2x+1)^{\frac{9}{2}}-74970\,(-2x+1)^{\frac{7}{2}}-9408\,(-2x+1)^{\frac{5}{2}}+408170\,(-2x+1)^{\frac{3}{2}}-204085\sqrt{-2x+1}}{30870\left(243\,(2x-1)^5+2835\,(2x-1)^4+13230\,(2x-1)^3+30870\,(2x-1)^2+72030\,x-19208\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^6,x, algorithm="maxima")
```

```
[Out] 17/259308*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21) +
 3*sqrt(-2*x + 1))) - 1/30870*(6885*(-2*x + 1)^(9/2) - 74970*(-2*
x + 1)^(7/2) - 9408*(-2*x + 1)^(5/2) + 408170*(-2*x + 1)^(3/2) -
204085*sqrt(-2*x + 1))/(243*(2*x - 1)^5 + 2835*(2*x - 1)^4 + 1323
0*(2*x - 1)^3 + 30870*(2*x - 1)^2 + 72030*x - 19208)
```

Fricas [A] time = 0.214984, size = 161, normalized size = 1.26

$$-\frac{\sqrt{21}\left(\sqrt{21}\left(6885\,x^4+23715\,x^3-48252\,x^2-23998\,x+7912\right)\sqrt{-2x+1}-85\left(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240\,x+\right.\right.}{1296540\,(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240\,x+32)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^6,x, algorithm="fricas")
```

```
[Out] -1/1296540*sqrt(21)*(sqrt(21)*(6885*x^4 + 23715*x^3 - 48252*x^2 -
 23998*x + 7912)*sqrt(-2*x + 1) - 85*(243*x^5 + 810*x^4 + 1080*x^
3 + 720*x^2 + 240*x + 32)*log((sqrt(21)*(3*x - 5) + 21*sqrt(-2*x
+ 1))/(3*x + 2)))/(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x
 + 32)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)/(2+3*x)**6,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.216358, size = 157, normalized size = 1.23

$$\frac{17}{259308}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right) - \frac{6885\,(2x-1)^4\sqrt{-2x+1}+74970\,(2x-1)^3\sqrt{-2x+1}-9408\,(2x-1)^2\sqrt{-2x+1}+408170\,(-2x+1)^{\frac{3}{2}}-204085\sqrt{-2x+1}}{987840\,(3x+2)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^6,x, algorithm="giac")
```

```
[Out] 17/259308*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sq
rt(21) + 3*sqrt(-2*x + 1))) - 1/987840*(6885*(2*x - 1)^4*sqrt(-2*
x + 1) + 74970*(2*x - 1)^3*sqrt(-2*x + 1) - 9408*(2*x - 1)^2*sqrt
(-2*x + 1) + 408170*(-2*x + 1)^(3/2) - 204085*sqrt(-2*x + 1))/(3*
x + 2)^5
```

3.1853 $\int (1-2x)^{3/2}(2+3x)^4(3+5x)^2\,dx$

Optimal. Leaf size=92

$$-\frac{2025(1-2x)^{17/2}}{1088}+\frac{927}{32}(1-2x)^{15/2}-\frac{159111}{832}(1-2x)^{13/2}+\frac{121359}{176}(1-2x)^{11/2}-\frac{832951}{576}(1-2x)^{9/2}+\frac{54439}{32}(1-2x)^{7/2}-\frac{290521}{320}(1-2x)^{5/2}$$

```
[Out] (-290521*(1 - 2*x)^(5/2))/320 + (54439*(1 - 2*x)^(7/2))/32 - (832
951*(1 - 2*x)^(9/2))/576 + (121359*(1 - 2*x)^(11/2))/176 - (15911
1*(1 - 2*x)^(13/2))/832 + (927*(1 - 2*x)^(15/2))/32 - (2025*(1 -
2*x)^(17/2))/1088
```

Rubi [A] time = 0.0712052, antiderivative size = 92, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.042

$$-\frac{2025(1-2x)^{17/2}}{1088}+\frac{927}{32}(1-2x)^{15/2}-\frac{159111}{832}(1-2x)^{13/2}+\frac{121359}{176}(1-2x)^{11/2}-\frac{832951}{576}(1-2x)^{9/2}+\frac{54439}{32}(1-2x)^{7/2}-\frac{290521}{320}(1-2x)^{5/2}$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^(3/2)*(2 + 3*x)^4*(3 + 5*x)^2,x]
```

```
[Out] (-290521*(1 - 2*x)^(5/2))/320 + (54439*(1 - 2*x)^(7/2))/32 - (832
951*(1 - 2*x)^(9/2))/576 + (121359*(1 - 2*x)^(11/2))/176 - (15911
1*(1 - 2*x)^(13/2))/832 + (927*(1 - 2*x)^(15/2))/32 - (2025*(1 -
2*x)^(17/2))/1088
```

Rubi in Sympy [A] time = 10.5893, size = 82, normalized size = 0.89

$$-\frac{2025\left(-2x+1\right)^{\frac{17}{2}}}{1088}+\frac{927\left(-2x+1\right)^{\frac{15}{2}}}{32}-\frac{159111\left(-2x+1\right)^{\frac{13}{2}}}{832}+\frac{121359\left(-2x+1\right)^{\frac{11}{2}}}{176}-\frac{832951\left(-2x+1\right)^{\frac{9}{2}}}{576}+\frac{54439\left(-2x+1\right)^{\frac{7}{2}}}{32}-\frac{290521\left(-2x+1\right)^{\frac{5}{2}}}{320}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**(3/2)*(2+3*x)**4*(3+5*x)**2,x)
```

```
[Out] -2025*(-2*x + 1)**(17/2)/1088 + 927*(-2*x + 1)**(15/2)/32 - 15911
1*(-2*x + 1)**(13/2)/832 + 121359*(-2*x + 1)**(11/2)/176 - 832951
*(-2*x + 1)**(9/2)/576 + 54439*(-2*x + 1)**(7/2)/32 - 290521*(-2*
x + 1)**(5/2)/320
```

Mathematica [A] time = 0.060096, size = 43, normalized size = 0.47

$$-\frac{(1-2x)^{5/2}\left(13030875x^6+62316540x^5+130072635x^4+154943820x^3+115145660x^2+53902600x+13931096\right)}{109395}$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)^(3/2)*(2 + 3*x)^4*(3 + 5*x)^2,x]
```

```
[Out] -((1 - 2*x)^(5/2)*(13931096 + 53902600*x + 115145660*x^2 + 154943
820*x^3 + 130072635*x^4 + 62316540*x^5 + 13030875*x^6))/109395
```

Maple [A] time = 0.007, size = 40, normalized size = 0.4

$$-\frac{13030875\,x^{6}+62316540\,x^{5}+130072635\,x^{4}+154943820\,x^{3}+115145660\,x^{2}+53902600\,x+13931096}{109395}\,(1-2\,x)^{\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^4*(3+5*x)^2,x)
```

```
[Out] -1/109395*(13030875*x^6+62316540*x^5+130072635*x^4+154943820*x^3+
115145660*x^2+53902600*x+13931096)*(1-2*x)^(5/2)
```

Maxima [A] time = 1.34883, size = 86, normalized size = 0.93

$$-\frac{2025}{1088}\,(-2\,x+1)^{\frac{17}{2}}+\frac{927}{32}\,(-2\,x+1)^{\frac{15}{2}}-\frac{159111}{832}\,(-2\,x+1)^{\frac{13}{2}}+\frac{121359}{176}\,(-2\,x+1)^{\frac{11}{2}}-\frac{832951}{576}\,(-2\,x+1)^{\frac{9}{2}}+\frac{54439}{32}\,(-2\,x+1)^{\frac{7}{2}}-\frac{290521}{320}\,(-2\,x+1)^{\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^4*(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] -2025/1088*(-2*x + 1)^(17/2) + 927/32*(-2*x + 1)^(15/2) - 159111/
832*(-2*x + 1)^(13/2) + 121359/176*(-2*x + 1)^(11/2) - 832951/576
*(-2*x + 1)^(9/2) + 54439/32*(-2*x + 1)^(7/2) - 290521/320*(-2*x
+ 1)^(5/2)
```

Fricas [A] time = 0.205787, size = 66, normalized size = 0.72

$$-\frac{1}{109395}\,\left(52123500\,x^{8}+197142660\,x^{7}+284055255\,x^{6}+161801280\,x^{5}-29120005\,x^{4}-90028420\,x^{3}-44740356\,x^{2}-182\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^4*(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/109395*(52123500*x^8 + 197142660*x^7 + 284055255*x^6 + 1618012
80*x^5 - 29120005*x^4 - 90028420*x^3 - 44740356*x^2 - 1821784*x +
 13931096)*sqrt(-2*x + 1)
```

Sympy [A] time = 4.15093, size = 82, normalized size = 0.89

$$-\frac{2025\,(-2x+1)^{\frac{17}{2}}}{1088}+\frac{927\,(-2x+1)^{\frac{15}{2}}}{32}-\frac{159111\,(-2x+1)^{\frac{13}{2}}}{832}+\frac{121359\,(-2x+1)^{\frac{11}{2}}}{176}-\frac{832951\,(-2x+1)^{\frac{9}{2}}}{576}+\frac{54439\,(-2x+1)^{\frac{7}{2}}}{32}-\frac{290521\,(-2x+1)^{\frac{5}{2}}}{320}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)**4*(3+5*x)**2,x)
```

```
[Out] -2025*(-2*x + 1)**(17/2)/1088 + 927*(-2*x + 1)**(15/2)/32 - 15911
1*(-2*x + 1)**(13/2)/832 + 121359*(-2*x + 1)**(11/2)/176 - 832951
*(-2*x + 1)**(9/2)/576 + 54439*(-2*x + 1)**(7/2)/32 - 290521*(-2*
```

```
x + 1)**(5/2)/320
```

GIAC/XCAS [A] time = 0.23843, size = 153, normalized size = 1.66

$$-\frac{2025}{1088}(2x-1)^{8}\sqrt{-2x+1}-\frac{927}{32}(2x-1)^{7}\sqrt{-2x+1}-\frac{159111}{832}(2x-1)^{6}\sqrt{-2x+1}-\frac{121359}{176}(2x-1)^{5}\sqrt{-2x+1}-\frac{832951}{576}(2x-1)^{4}\sqrt{-2x+1}-\frac{54439}{32}(2x-1)^{3}\sqrt{-2x+1}-\frac{290521}{320}(2x-1)^{2}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(3*x + 2)^4*(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] -2025/1088*(2*x - 1)^8*sqrt(-2*x + 1) - 927/32*(2*x - 1)^7*sqrt(-
2*x + 1) - 159111/832*(2*x - 1)^6*sqrt(-2*x + 1) - 121359/176*(2*
x - 1)^5*sqrt(-2*x + 1) - 832951/576*(2*x - 1)^4*sqrt(-2*x + 1) -
 54439/32*(2*x - 1)^3*sqrt(-2*x + 1) - 290521/320*(2*x - 1)^2*sqr
t(-2*x + 1)
```

3.1854 $\int (1-2x)^{3/2}(2+3x)^3(3+5x)^2\,dx$

Optimal. Leaf size=79

$$\frac{45}{32}(1-2x)^{15/2}-\frac{7695}{416}(1-2x)^{13/2}+\frac{17541}{176}(1-2x)^{11/2}-\frac{39977}{144}(1-2x)^{9/2}+\frac{13013}{32}(1-2x)^{7/2}-\frac{41503}{160}(1-2x)^{5/2}$$

```
[Out] (-41503*(1 - 2*x)^(5/2))/160 + (13013*(1 - 2*x)^(7/2))/32 - (3997
7*(1 - 2*x)^(9/2))/144 + (17541*(1 - 2*x)^(11/2))/176 - (7695*(1
- 2*x)^(13/2))/416 + (45*(1 - 2*x)^(15/2))/32
```

Rubi [A] time = 0.0646887, antiderivative size = 79, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.042$

$$\frac{45}{32}(1-2x)^{15/2}-\frac{7695}{416}(1-2x)^{13/2}+\frac{17541}{176}(1-2x)^{11/2}-\frac{39977}{144}(1-2x)^{9/2}+\frac{13013}{32}(1-2x)^{7/2}-\frac{41503}{160}(1-2x)^{5/2}$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^(3/2)*(2 + 3*x)^3*(3 + 5*x)^2,x]
```

```
[Out] (-41503*(1 - 2*x)^(5/2))/160 + (13013*(1 - 2*x)^(7/2))/32 - (3997
7*(1 - 2*x)^(9/2))/144 + (17541*(1 - 2*x)^(11/2))/176 - (7695*(1
- 2*x)^(13/2))/416 + (45*(1 - 2*x)^(15/2))/32
```

Rubi in Sympy [A] time = 9.52624, size = 70, normalized size = 0.89

$$\frac{45\left(-2x+1\right)^{\frac{15}{2}}}{32}-\frac{7695\left(-2x+1\right)^{\frac{13}{2}}}{416}+\frac{17541\left(-2x+1\right)^{\frac{11}{2}}}{176}-\frac{39977\left(-2x+1\right)^{\frac{9}{2}}}{144}+\frac{13013\left(-2x+1\right)^{\frac{7}{2}}}{32}-\frac{41503\left(-2x+1\right)^{\frac{5}{2}}}{160}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**(3/2)*(2+3*x)**3*(3+5*x)**2,x)
```

```
[Out] 45*(-2*x + 1)**(15/2)/32 - 7695*(-2*x + 1)**(13/2)/416 + 17541*(-
2*x + 1)**(11/2)/176 - 39977*(-2*x + 1)**(9/2)/144 + 13013*(-2*x
+ 1)**(7/2)/32 - 41503*(-2*x + 1)**(5/2)/160
```

Mathematica [A] time = 0.0544201, size = 38, normalized size = 0.48

$$-\frac{(1-2x)^{5/2}\left(289575x^5+1180575x^4+2045655x^3+1944575x^2+1074070x+307478\right)}{6435}$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)^(3/2)*(2 + 3*x)^3*(3 + 5*x)^2,x]
```

```
[Out] -((1 - 2*x)^(5/2)*(307478 + 1074070*x + 1944575*x^2 + 2045655*x^3
 + 1180575*x^4 + 289575*x^5))/6435
```

Maple [A] time = 0.006, size = 35, normalized size = 0.4

$$-\frac{289575 x^{5}+1180575 x^{4}+2045655 x^{3}+1944575 x^{2}+1074070 x+307478}{6435}(1-2 x)^{\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^3*(3+5*x)^2,x)
```

```
[Out] -1/6435*(289575*x^5+1180575*x^4+2045655*x^3+1944575*x^2+1074070*x
+307478)*(1-2*x)^(5/2)
```

Maxima [A] time = 1.36638, size = 74, normalized size = 0.94

$$\frac{45}{32}(-2x+1)^{\frac{15}{2}}-\frac{7695}{416}(-2x+1)^{\frac{13}{2}}+\frac{17541}{176}(-2x+1)^{\frac{11}{2}}-\frac{39977}{144}(-2x+1)^{\frac{9}{2}}+\frac{13013}{32}(-2x+1)^{\frac{7}{2}}-\frac{41503}{160}(-2x+1)^{\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^3*(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] 45/32*(-2*x + 1)^(15/2) - 7695/416*(-2*x + 1)^(13/2) + 17541/176*
(-2*x + 1)^(11/2) - 39977/144*(-2*x + 1)^(9/2) + 13013/32*(-2*x +
 1)^(7/2) - 41503/160*(-2*x + 1)^(5/2)
```

Fricas [A] time = 0.207175, size = 59, normalized size = 0.75

$$-\frac{1}{6435}\left(1158300 x^{7}+3564000 x^{6}+3749895 x^{5}+776255 x^{4}-1436365 x^{3}-1121793 x^{2}-155842 x+307478\right)\sqrt{-2 x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^3*(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/6435*(1158300*x^7 + 3564000*x^6 + 3749895*x^5 + 776255*x^4 - 1
436365*x^3 - 1121793*x^2 - 155842*x + 307478)*sqrt(-2*x + 1)
```

Sympy [A] time = 3.56813, size = 70, normalized size = 0.89

$$\frac{45(-2x+1)^{\frac{15}{2}}}{32}-\frac{7695(-2x+1)^{\frac{13}{2}}}{416}+\frac{17541(-2x+1)^{\frac{11}{2}}}{176}-\frac{39977(-2x+1)^{\frac{9}{2}}}{144}+\frac{13013(-2x+1)^{\frac{7}{2}}}{32}-\frac{41503(-2x+1)^{\frac{5}{2}}}{160}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)**3*(3+5*x)**2,x)
```

```
[Out] 45*(-2*x + 1)**(15/2)/32 - 7695*(-2*x + 1)**(13/2)/416 + 17541*(-
2*x + 1)**(11/2)/176 - 39977*(-2*x + 1)**(9/2)/144 + 13013*(-2*x
+ 1)**(7/2)/32 - 41503*(-2*x + 1)**(5/2)/160
```

GIAC/XCAS [A] time = 0.219081, size = 131, normalized size = 1.66

$$-\frac{45}{32}\,(2\,x-1)^7\sqrt{-2\,x+1}-\frac{7695}{416}\,(2\,x-1)^6\sqrt{-2\,x+1}-\frac{17541}{176}\,(2\,x-1)^5\sqrt{-2\,x+1}-\frac{39977}{144}\,(2\,x-1)^4\sqrt{-2\,x+1}-\frac{13013}{32}\,(2\,x-1)^3\sqrt{-2\,x+1}-\frac{41503}{160}\,(2\,x-1)^2\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(3*x + 2)^3*(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] -45/32*(2*x - 1)^7*sqrt(-2*x + 1) - 7695/416*(2*x - 1)^6*sqrt(-2*
x + 1) - 17541/176*(2*x - 1)^5*sqrt(-2*x + 1) - 39977/144*(2*x -
1)^4*sqrt(-2*x + 1) - 13013/32*(2*x - 1)^3*sqrt(-2*x + 1) - 41503
/160*(2*x - 1)^2*sqrt(-2*x + 1)
```

3.1855 $\int (1-2x)^{3/2}(2+3x)^2(3+5x)^2\,dx$

Optimal. Leaf size=66

$$-\frac{225}{208}(1-2x)^{13/2}+\frac{255}{22}(1-2x)^{11/2}-\frac{3467}{72}(1-2x)^{9/2}+\frac{187}{2}(1-2x)^{7/2}-\frac{5929}{80}(1-2x)^{5/2}$$

```
[Out] (-5929*(1 - 2*x)^(5/2))/80 + (187*(1 - 2*x)^(7/2))/2 - (3467*(1 -
 2*x)^(9/2))/72 + (255*(1 - 2*x)^(11/2))/22 - (225*(1 - 2*x)^(13/
2))/208
```

Rubi [A] time = 0.0587761, antiderivative size = 66, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.042

$$-\frac{225}{208}(1-2x)^{13/2}+\frac{255}{22}(1-2x)^{11/2}-\frac{3467}{72}(1-2x)^{9/2}+\frac{187}{2}(1-2x)^{7/2}-\frac{5929}{80}(1-2x)^{5/2}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)*(2 + 3*x)^2*(3 + 5*x)^2,x]
```

```
[Out] (-5929*(1 - 2*x)^(5/2))/80 + (187*(1 - 2*x)^(7/2))/2 - (3467*(1 -
 2*x)^(9/2))/72 + (255*(1 - 2*x)^(11/2))/22 - (225*(1 - 2*x)^(13/
2))/208
```

Rubi in Sympy [A] time = 8.8943, size = 58, normalized size = 0.88

$$-\frac{225(-2x+1)^{\frac{13}{2}}}{208}+\frac{255(-2x+1)^{\frac{11}{2}}}{22}-\frac{3467(-2x+1)^{\frac{9}{2}}}{72}+\frac{187(-2x+1)^{\frac{7}{2}}}{2}-\frac{5929(-2x+1)^{\frac{5}{2}}}{80}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)**2*(3+5*x)**2,x)
```

```
[Out] -225*(-2*x + 1)**(13/2)/208 + 255*(-2*x + 1)**(11/2)/22 - 3467*(-
2*x + 1)**(9/2)/72 + 187*(-2*x + 1)**(7/2)/2 - 5929*(-2*x + 1)**(
5/2)/80
```

Mathematica [A] time = 0.0505749, size = 33, normalized size = 0.5

$$-\frac{(1-2x)^{5/2}\left(111375x^4+373950x^3+511465x^2+355730x+117478\right)}{6435}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)*(2 + 3*x)^2*(3 + 5*x)^2,x]
```

```
[Out] -((1 - 2*x)^(5/2)*(117478 + 355730*x + 511465*x^2 + 373950*x^3 +
111375*x^4))/6435
```

Maple [A] time = 0.007, size = 30, normalized size = 0.5

$$-\frac{111375\,x^4+373950\,x^3+511465\,x^2+355730\,x+117478}{6435}(1-2\,x)^{\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^2*(3+5*x)^2,x)
```

```
[Out] -1/6435*(111375*x^4+373950*x^3+511465*x^2+355730*x+117478)*(1-2*x
)^(5/2)
```

Maxima [A] time = 1.34991, size = 62, normalized size = 0.94

$$-\frac{225}{208}\,(-2\,x+1)^{\frac{13}{2}}+\frac{255}{22}\,(-2\,x+1)^{\frac{11}{2}}-\frac{3467}{72}\,(-2\,x+1)^{\frac{9}{2}}+\frac{187}{2}\,(-2\,x+1)^{\frac{7}{2}}-\frac{5929}{80}\,(-2\,x+1)^{\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^2*(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] -225/208*(-2*x + 1)^(13/2) + 255/22*(-2*x + 1)^(11/2) - 3467/72*(
-2*x + 1)^(9/2) + 187/2*(-2*x + 1)^(7/2) - 5929/80*(-2*x + 1)^(5/
2)
```

Fricas [A] time = 0.205361, size = 53, normalized size = 0.8

$$-\frac{1}{6435}\,\left(445500\,x^{6}+1050300\,x^{5}+661435\,x^{4}-248990\,x^{3}-441543\,x^{2}-114182\,x+117478\right)\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^2*(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/6435*(445500*x^6 + 1050300*x^5 + 661435*x^4 - 248990*x^3 - 441
543*x^2 - 114182*x + 117478)*sqrt(-2*x + 1)
```

Sympy [A] time = 3.09588, size = 58, normalized size = 0.88

$$-\frac{225\,(-2x+1)^{\frac{13}{2}}}{208}+\frac{255\,(-2x+1)^{\frac{11}{2}}}{22}-\frac{3467\,(-2x+1)^{\frac{9}{2}}}{72}+\frac{187\,(-2x+1)^{\frac{7}{2}}}{2}-\frac{5929\,(-2x+1)^{\frac{5}{2}}}{80}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)**2*(3+5*x)**2,x)
```

```
[Out] -225*(-2*x + 1)**(13/2)/208 + 255*(-2*x + 1)**(11/2)/22 - 3467*(-
2*x + 1)**(9/2)/72 + 187*(-2*x + 1)**(7/2)/2 - 5929*(-2*x + 1)**(
5/2)/80
```

GIAC/XCAS [A] time = 0.218878, size = 109, normalized size = 1.65

$$-\frac{225}{208}\,(2\,x-1)^{6}\sqrt{-2\,x+1}-\frac{255}{22}\,(2\,x-1)^{5}\sqrt{-2\,x+1}-\frac{3467}{72}\,(2\,x-1)^{4}\sqrt{-2\,x+1}-\frac{187}{2}\,(2\,x-1)^{3}\sqrt{-2\,x+1}-\frac{5929}{80}\,(2\,x-1)^{2}\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^2*(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] -225/208*(2*x - 1)^6*sqrt(-2*x + 1) - 255/22*(2*x - 1)^5*sqrt(-2*
x + 1) - 3467/72*(2*x - 1)^4*sqrt(-2*x + 1) - 187/2*(2*x - 1)^3*s
qrt(-2*x + 1) - 5929/80*(2*x - 1)^2*sqrt(-2*x + 1)
```

3.1856 $\int (1-2x)^{3/2}(2+3x)(3+5x)^2\,dx$

Optimal. Leaf size=53

$$\frac{75}{88}(1-2x)^{11/2}-\frac{505}{72}(1-2x)^{9/2}+\frac{1133}{56}(1-2x)^{7/2}-\frac{847}{40}(1-2x)^{5/2}$$

```
[Out] (-847*(1 - 2*x)^(5/2))/40 + (1133*(1 - 2*x)^(7/2))/56 - (505*(1 -
 2*x)^(9/2))/72 + (75*(1 - 2*x)^(11/2))/88
```

Rubi [A] time = 0.0449807, antiderivative size = 53, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{75}{88}(1-2x)^{11/2}-\frac{505}{72}(1-2x)^{9/2}+\frac{1133}{56}(1-2x)^{7/2}-\frac{847}{40}(1-2x)^{5/2}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)*(2 + 3*x)*(3 + 5*x)^2,x]
```

```
[Out] (-847*(1 - 2*x)^(5/2))/40 + (1133*(1 - 2*x)^(7/2))/56 - (505*(1 -
 2*x)^(9/2))/72 + (75*(1 - 2*x)^(11/2))/88
```

Rubi in Sympy [A] time = 7.24041, size = 46, normalized size = 0.87

$$\frac{75\left(-2x+1\right)^{\frac{11}{2}}}{88}-\frac{505\left(-2x+1\right)^{\frac{9}{2}}}{72}+\frac{1133\left(-2x+1\right)^{\frac{7}{2}}}{56}-\frac{847\left(-2x+1\right)^{\frac{5}{2}}}{40}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)*(3+5*x)**2,x)
```

```
[Out] 75*(-2*x + 1)**(11/2)/88 - 505*(-2*x + 1)**(9/2)/72 + 1133*(-2*x
+ 1)**(7/2)/56 - 847*(-2*x + 1)**(5/2)/40
```

Mathematica [A] time = 0.0355021, size = 28, normalized size = 0.53

$$-\frac{(1-2x)^{5/2}\left(23625x^3+61775x^2+60715x+24617\right)}{3465}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)*(2 + 3*x)*(3 + 5*x)^2,x]
```

```
[Out] -((1 - 2*x)^(5/2)*(24617 + 60715*x + 61775*x^2 + 23625*x^3))/3465
```

Maple [A] time = 0.005, size = 25, normalized size = 0.5

$$-\frac{23625\,x^3+61775\,x^2+60715\,x+24617}{3465}\left(1-2\,x\right)^{\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)*(3+5*x)^2,x)
```

```
[Out] -1/3465*(23625*x^3+61775*x^2+60715*x+24617)*(1-2*x)^(5/2)
```

Maxima [A] time = 1.36039, size = 50, normalized size = 0.94

$$\frac{75}{88}\,(-2\,x+1)^{\frac{11}{2}}-\frac{505}{72}\,(-2\,x+1)^{\frac{9}{2}}+\frac{1133}{56}\,(-2\,x+1)^{\frac{7}{2}}-\frac{847}{40}\,(-2\,x+1)^{\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(3*x + 2)*(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] 75/88*(-2*x + 1)^(11/2) - 505/72*(-2*x + 1)^(9/2) + 1133/56*(-2*x
 + 1)^(7/2) - 847/40*(-2*x + 1)^(5/2)
```

Fricas [A] time = 0.210006, size = 46, normalized size = 0.87

$$-\frac{1}{3465}\,\left(94500\,x^{5}+152600\,x^{4}+19385\,x^{3}-82617\,x^{2}-37753\,x+24617\right)\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(3*x + 2)*(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/3465*(94500*x^5 + 152600*x^4 + 19385*x^3 - 82617*x^2 - 37753*x
 + 24617)*sqrt(-2*x + 1)
```

Sympy [A] time = 2.71756, size = 46, normalized size = 0.87

$$\frac{75\,(-2x+1)^{\frac{11}{2}}}{88}-\frac{505\,(-2x+1)^{\frac{9}{2}}}{72}+\frac{1133\,(-2x+1)^{\frac{7}{2}}}{56}-\frac{847\,(-2x+1)^{\frac{5}{2}}}{40}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)*(3+5*x)**2,x)
```

```
[Out] 75*(-2*x + 1)**(11/2)/88 - 505*(-2*x + 1)**(9/2)/72 + 1133*(-2*x
+ 1)**(7/2)/56 - 847*(-2*x + 1)**(5/2)/40
```

GIAC/XCAS [A] time = 0.214384, size = 88, normalized size = 1.66

$$-\frac{75}{88}\,(2\,x-1)^{5}\sqrt{-2\,x+1}-\frac{505}{72}\,(2\,x-1)^{4}\sqrt{-2\,x+1}-\frac{1133}{56}\,(2\,x-1)^{3}\sqrt{-2\,x+1}-\frac{847}{40}\,(2\,x-1)^{2}\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(3*x + 2)*(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] -75/88*(2*x - 1)^5*sqrt(-2*x + 1) - 505/72*(2*x - 1)^4*sqrt(-2*x
+ 1) - 1133/56*(2*x - 1)^3*sqrt(-2*x + 1) - 847/40*(2*x - 1)^2*sq
rt(-2*x + 1)
```

3.1857 $\int (1-2x)^{3/2}(3+5x)^2\,dx$

Optimal. Leaf size=40

$$-\frac{25}{36}(1-2x)^{9/2}+\frac{55}{14}(1-2x)^{7/2}-\frac{121}{20}(1-2x)^{5/2}$$

```
[Out] (-121*(1 - 2*x)^(5/2))/20 + (55*(1 - 2*x)^(7/2))/14 - (25*(1 - 2*
x)^(9/2))/36
```

Rubi [A] time = 0.0253241, antiderivative size = 40, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 17, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.059

$$-\frac{25}{36}(1-2x)^{9/2}+\frac{55}{14}(1-2x)^{7/2}-\frac{121}{20}(1-2x)^{5/2}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)*(3 + 5*x)^2,x]
```

```
[Out] (-121*(1 - 2*x)^(5/2))/20 + (55*(1 - 2*x)^(7/2))/14 - (25*(1 - 2*
x)^(9/2))/36
```

Rubi in Sympy [A] time = 5.32961, size = 34, normalized size = 0.85

$$-\frac{25\left(-2x+1\right)^{\frac{9}{2}}}{36}+\frac{55\left(-2x+1\right)^{\frac{7}{2}}}{14}-\frac{121\left(-2x+1\right)^{\frac{5}{2}}}{20}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**2,x)
```

```
[Out] -25*(-2*x + 1)**(9/2)/36 + 55*(-2*x + 1)**(7/2)/14 - 121*(-2*x +
1)**(5/2)/20
```

Mathematica [A] time = 0.0292301, size = 23, normalized size = 0.57

$$-\frac{1}{315}(1-2x)^{5/2}\left(875x^2+1600x+887\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)*(3 + 5*x)^2,x]
```

```
[Out] -((1 - 2*x)^(5/2)*(887 + 1600*x + 875*x^2))/315
```

Maple [A] time = 0.005, size = 20, normalized size = 0.5

$$-\frac{875\,x^2+1600\,x+887}{315}\left(1-2\,x\right)^{\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^2,x)
```

```
[Out] -1/315*(875*x^2+1600*x+887)*(1-2*x)^(5/2)
```

Maxima [A] time = 1.35259, size = 38, normalized size = 0.95

$$-\frac{25}{36}\,(-2\,x+1)^{\frac{9}{2}}+\frac{55}{14}\,(-2\,x+1)^{\frac{7}{2}}-\frac{121}{20}\,(-2\,x+1)^{\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] -25/36*(-2*x + 1)^(9/2) + 55/14*(-2*x + 1)^(7/2) - 121/20*(-2*x +
 1)^(5/2)
```

Fricas [A] time = 0.208672, size = 39, normalized size = 0.98

$$-\frac{1}{315}\,\left(3500\,x^4+2900\,x^3-1977\,x^2-1948\,x+887\right)\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/315*(3500*x^4 + 2900*x^3 - 1977*x^2 - 1948*x + 887)*sqrt(-2*x
+ 1)
```

Sympy [A] time = 2.74134, size = 236, normalized size = 5.9

$$\begin{cases} -\frac{20\sqrt{5}i\left(x+\frac{3}{5}\right)^4\sqrt{10x-5}}{9}+\frac{220\sqrt{5}i\left(x+\frac{3}{5}\right)^3\sqrt{10x-5}}{63}-\frac{121\sqrt{5}i\left(x+\frac{3}{5}\right)^2\sqrt{10x-5}}{525}-\frac{2662\sqrt{5}i\left(x+\frac{3}{5}\right)\sqrt{10x-5}}{7875}-\frac{29282\sqrt{5}i\sqrt{10x-5}}{39375} & \text{for}\ \frac{10\left|x+\frac{3}{5}\right|}{11}>1 \\ -\frac{20\sqrt{5}\sqrt{-10x+5}\left(x+\frac{3}{5}\right)^4}{9}+\frac{220\sqrt{5}\sqrt{-10x+5}\left(x+\frac{3}{5}\right)^3}{63}-\frac{121\sqrt{5}\sqrt{-10x+5}\left(x+\frac{3}{5}\right)^2}{525}-\frac{2662\sqrt{5}\sqrt{-10x+5}\left(x+\frac{3}{5}\right)}{7875}-\frac{29282\sqrt{5}\sqrt{-10x+5}}{39375} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**2,x)
```

```
[Out] Piecewise((-20*sqrt(5)*I*(x + 3/5)**4*sqrt(10*x - 5)/9 + 220*sqrt
(5)*I*(x + 3/5)**3*sqrt(10*x - 5)/63 - 121*sqrt(5)*I*(x + 3/5)**2
*sqrt(10*x - 5)/525 - 2662*sqrt(5)*I*(x + 3/5)*sqrt(10*x - 5)/787
5 - 29282*sqrt(5)*I*sqrt(10*x - 5)/39375, 10*Abs(x + 3/5)/11 > 1)
, (-20*sqrt(5)*sqrt(-10*x + 5)*(x + 3/5)**4/9 + 220*sqrt(5)*sqrt(
-10*x + 5)*(x + 3/5)**3/63 - 121*sqrt(5)*sqrt(-10*x + 5)*(x + 3/5
)**2/525 - 2662*sqrt(5)*sqrt(-10*x + 5)*(x + 3/5)/7875 - 29282*sq
rt(5)*sqrt(-10*x + 5)/39375, True))
```

GIAC/XCAS [A] time = 0.224425, size = 66, normalized size = 1.65

$$-\frac{25}{36}\,(2\,x-1)^4\sqrt{-2\,x+1}-\frac{55}{14}\,(2\,x-1)^3\sqrt{-2\,x+1}-\frac{121}{20}\,(2\,x-1)^2\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] -25/36*(2*x - 1)^4*sqrt(-2*x + 1) - 55/14*(2*x - 1)^3*sqrt(-2*x +
 1) - 121/20*(2*x - 1)^2*sqrt(-2*x + 1)
```

3.1858 $\int \frac{(1-2x)^{3/2}(3+5x)^2}{2+3x}\,dx$

Optimal. Leaf size=82

$$\frac{25}{42}(1-2x)^{7/2}-\frac{31}{18}(1-2x)^{5/2}+\frac{2}{81}(1-2x)^{3/2}+\frac{14}{81}\sqrt{1-2x}-\frac{14}{81}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

```
[Out] (14*Sqrt[1 - 2*x])/81 + (2*(1 - 2*x)^(3/2))/81 - (31*(1 - 2*x)^(5
/2))/18 + (25*(1 - 2*x)^(7/2))/42 - (14*Sqrt[7/3]*ArcTanh[Sqrt[3/
7]*Sqrt[1 - 2*x]])/81
```

Rubi [A] time = 0.0985676, antiderivative size = 82, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$\frac{25}{42}(1-2x)^{7/2}-\frac{31}{18}(1-2x)^{5/2}+\frac{2}{81}(1-2x)^{3/2}+\frac{14}{81}\sqrt{1-2x}-\frac{14}{81}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(3 + 5*x)^2)/(2 + 3*x),x]
```

```
[Out] (14*Sqrt[1 - 2*x])/81 + (2*(1 - 2*x)^(3/2))/81 - (31*(1 - 2*x)^(5
/2))/18 + (25*(1 - 2*x)^(7/2))/42 - (14*Sqrt[7/3]*ArcTanh[Sqrt[3/
7]*Sqrt[1 - 2*x]])/81
```

Rubi in Sympy [A] time = 10.1917, size = 71, normalized size = 0.87

$$\frac{25\left(-2x+1\right)^{\frac{7}{2}}}{42}-\frac{31\left(-2x+1\right)^{\frac{5}{2}}}{18}+\frac{2\left(-2x+1\right)^{\frac{3}{2}}}{81}+\frac{14\sqrt{-2x+1}}{81}-\frac{14\sqrt{21}\,\text{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{243}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**2/(2+3*x),x)
```

```
[Out] 25*(-2*x + 1)**(7/2)/42 - 31*(-2*x + 1)**(5/2)/18 + 2*(-2*x + 1)*
*(3/2)/81 + 14*sqrt(-2*x + 1)/81 - 14*sqrt(21)*atanh(sqrt(21)*sqr
t(-2*x + 1)/7)/243
```

Mathematica [A] time = 0.0799874, size = 56, normalized size = 0.68

$$\frac{3\sqrt{1-2x}\left(-2700x^3+144x^2+1853x-527\right)-98\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{1701}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(3 + 5*x)^2)/(2 + 3*x),x]
```

```
[Out] (3*Sqrt[1 - 2*x]*(-527 + 1853*x + 144*x^2 - 2700*x^3) - 98*Sqrt[2
1]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/1701
```

Maple [A] time = 0.008, size = 56, normalized size = 0.7

$$\frac{2}{81}(1-2x)^{\frac{3}{2}}-\frac{31}{18}(1-2x)^{\frac{5}{2}}+\frac{25}{42}(1-2x)^{\frac{7}{2}}-\frac{14\sqrt{21}}{243}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)+\frac{14}{81}\sqrt{1-2x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^2/(2+3*x),x)
```

```
[Out] 2/81*(1-2*x)^(3/2)-31/18*(1-2*x)^(5/2)+25/42*(1-2*x)^(7/2)-14/243
*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)+14/81*(1-2*x)^(1/2)
```

Maxima [A] time = 1.49161, size = 99, normalized size = 1.21

$$\frac{25}{42}(-2x+1)^{\frac{7}{2}}-\frac{31}{18}(-2x+1)^{\frac{5}{2}}+\frac{2}{81}(-2x+1)^{\frac{3}{2}}+\frac{7}{243}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{14}{81}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(-2*x + 1)^(3/2)/(3*x + 2),x, algorithm="maxima")
```

```
[Out] 25/42*(-2*x + 1)^(7/2) - 31/18*(-2*x + 1)^(5/2) + 2/81*(-2*x + 1)
^(3/2) + 7/243*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(
21) + 3*sqrt(-2*x + 1))) + 14/81*sqrt(-2*x + 1)
```

Fricas [A] time = 0.227257, size = 92, normalized size = 1.12

$$-\frac{1}{1701}\sqrt{3}\left(\sqrt{3}\left(2700x^3-144x^2-1853x+527\right)\sqrt{-2x+1}-49\sqrt{7}\log\left(\frac{\sqrt{3}(3x-5)+3\sqrt{7}\sqrt{-2x+1}}{3x+2}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(-2*x + 1)^(3/2)/(3*x + 2),x, algorithm="fricas")
```

```
[Out] -1/1701*sqrt(3)*(sqrt(3)*(2700*x^3 - 144*x^2 - 1853*x + 527)*sqrt
(-2*x + 1) - 49*sqrt(7)*log((sqrt(3)*(3*x - 5) + 3*sqrt(7)*sqrt(-
2*x + 1))/(3*x + 2)))
```

Sympy [A] time = 9.91931, size = 110, normalized size = 1.34

$$\frac{25(-2x+1)^{\frac{7}{2}}}{42}-\frac{31(-2x+1)^{\frac{5}{2}}}{18}+\frac{2(-2x+1)^{\frac{3}{2}}}{81}+\frac{14\sqrt{-2x+1}}{81}+\frac{98\left(\begin{cases}-\frac{\sqrt{21}\operatorname{acoth}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for } -2x+1>\frac{7}{3}\\ -\frac{\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for } -2x+1<\frac{7}{3}\end{cases}\right)}{81}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**2/(2+3*x),x)
```

```
[Out] 25*(-2*x + 1)**(7/2)/42 - 31*(-2*x + 1)**(5/2)/18 + 2*(-2*x + 1)*
*(3/2)/81 + 14*sqrt(-2*x + 1)/81 + 98*Piecewise((-sqrt(21)*acoth(
sqrt(21)*sqrt(-2*x + 1)/7)/21, -2*x + 1 > 7/3), (-sqrt(21)*atanh(
sqrt(21)*sqrt(-2*x + 1)/7)/21, -2*x + 1 < 7/3))/81
```

GIAC/XCAS [A] time = 0.231448, size = 122, normalized size = 1.49

$$-\frac{25}{42}(2x-1)^3\sqrt{-2x+1}-\frac{31}{18}(2x-1)^2\sqrt{-2x+1}+\frac{2}{81}(-2x+1)^{\frac{3}{2}}+\frac{7}{243}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{14}{81}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(-2*x + 1)^(3/2)/(3*x + 2),x, algorithm="giac")
```

```
[Out] -25/42*(2*x - 1)^3*sqrt(-2*x + 1) - 31/18*(2*x - 1)^2*sqrt(-2*x +
 1) + 2/81*(-2*x + 1)^(3/2) + 7/243*sqrt(21)*ln(1/2*abs(-2*sqrt(2
1) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 14/81*sqr
t(-2*x + 1)
```

3.1859 $\int \frac{(1-2x)^{3/2}(3+5x)^2}{(2+3x)^2}\,dx$

Optimal. Leaf size=89

$$-\frac{(1-2x)^{5/2}}{63(3x+2)}-\frac{5}{9}(1-2x)^{5/2}-\frac{146}{567}(1-2x)^{3/2}-\frac{146}{81}\sqrt{1-2x}+\frac{146}{81}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

```
[Out] (-146*Sqrt[1 - 2*x])/81 - (146*(1 - 2*x)^(3/2))/567 - (5*(1 - 2*x
)^(5/2))/9 - (1 - 2*x)^(5/2)/(63*(2 + 3*x)) + (146*Sqrt[7/3]*ArcT
anh[Sqrt[3/7]*Sqrt[1 - 2*x]])/81
```

Rubi [A] time = 0.10659, antiderivative size = 89, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$-\frac{(1-2x)^{5/2}}{63(3x+2)}-\frac{5}{9}(1-2x)^{5/2}-\frac{146}{567}(1-2x)^{3/2}-\frac{146}{81}\sqrt{1-2x}+\frac{146}{81}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(3 + 5*x)^2)/(2 + 3*x)^2,x]
```

```
[Out] (-146*Sqrt[1 - 2*x])/81 - (146*(1 - 2*x)^(3/2))/567 - (5*(1 - 2*x
)^(5/2))/9 - (1 - 2*x)^(5/2)/(63*(2 + 3*x)) + (146*Sqrt[7/3]*ArcT
anh[Sqrt[3/7]*Sqrt[1 - 2*x]])/81
```

Rubi in Sympy [A] time = 11.9506, size = 73, normalized size = 0.82

$$-\frac{5\left(-2x+1\right)^{\frac{5}{2}}}{9}-\frac{\left(-2x+1\right)^{\frac{5}{2}}}{63\left(3x+2\right)}-\frac{146\left(-2x+1\right)^{\frac{3}{2}}}{567}-\frac{146\sqrt{-2x+1}}{81}+\frac{146\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{243}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**2/(2+3*x)**2,x)
```

```
[Out] -5*(-2*x + 1)**(5/2)/9 - (-2*x + 1)**(5/2)/(63*(3*x + 2)) - 146*(
-2*x + 1)**(3/2)/567 - 146*sqrt(-2*x + 1)/81 + 146*sqrt(21)*atanh
(sqrt(21)*sqrt(-2*x + 1)/7)/243
```

Mathematica [A] time = 0.0995483, size = 63, normalized size = 0.71

$$\frac{1}{243}\left(146\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{3\sqrt{1-2x}\left(540x^3-300x^2+187x+425\right)}{3x+2}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(3 + 5*x)^2)/(2 + 3*x)^2,x]
```

```
[Out] ((-3*Sqrt[1 - 2*x]*(425 + 187*x - 300*x^2 + 540*x^3))/(2 + 3*x) +
 146*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/243
```

Maple [A] time = 0.017, size = 63, normalized size = 0.7

$$-\frac{5}{9}\left(1-2\,x\right)^{\frac{5}{2}}-\frac{20}{81}\left(1-2\,x\right)^{\frac{3}{2}}-\frac{16}{9}\sqrt{1-2\,x}+\frac{14}{243}\sqrt{1-2\,x}\left(-\frac{4}{3}-2\,x\right)^{-1}+\frac{146\,\sqrt{21}}{243}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((1-2*x)^(3/2)*(3+5*x)^2/(2+3*x)^2,x)
```

```
[Out] -5/9*(1-2*x)^(5/2)-20/81*(1-2*x)^(3/2)-16/9*(1-2*x)^(1/2)+14/243*
(1-2*x)^(1/2)/(-4/3-2*x)+146/243*arctanh(1/7*21^(1/2)*(1-2*x)^(1/
2))*21^(1/2)
```

Maxima [A] time = 1.47897, size = 108, normalized size = 1.21

$$-\frac{5}{9}(-2x+1)^{\frac{5}{2}}-\frac{20}{81}(-2x+1)^{\frac{3}{2}}-\frac{73}{243}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{16}{9}\sqrt{-2x+1}-\frac{7\sqrt{-2x+1}}{81(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(-2*x + 1)^(3/2)/(3*x + 2)^2,x, algorithm="maxima")
```

```
[Out] -5/9*(-2*x + 1)^(5/2) - 20/81*(-2*x + 1)^(3/2) - 73/243*sqrt(21)*
log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1)))
 - 16/9*sqrt(-2*x + 1) - 7/81*sqrt(-2*x + 1)/(3*x + 2)
```

Fricas [A] time = 0.222277, size = 109, normalized size = 1.22

$$\frac{\sqrt{3}\left(73\sqrt{7}(3x+2)\log\left(\frac{\sqrt{3}(3x-5)-3\sqrt{7}\sqrt{-2x+1}}{3x+2}\right)-\sqrt{3}\left(540x^3-300x^2+187x+425\right)\sqrt{-2x+1}\right)}{243(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(-2*x + 1)^(3/2)/(3*x + 2)^2,x, algorithm="fricas")
```

```
[Out] 1/243*sqrt(3)*(73*sqrt(7)*(3*x + 2)*log((sqrt(3)*(3*x - 5) - 3*sq
rt(7)*sqrt(-2*x + 1))/(3*x + 2)) - sqrt(3)*(540*x^3 - 300*x^2 + 1
87*x + 425)*sqrt(-2*x + 1))/(3*x + 2)
```

Sympy [A] time = 158.729, size = 201, normalized size = 2.26

$$-\frac{5(-2x+1)^{\frac{5}{2}}}{9}-\frac{20(-2x+1)^{\frac{3}{2}}}{81}-\frac{16\sqrt{-2x+1}}{9}-\frac{196\left(\begin{cases}\frac{\sqrt{21}\left(-\frac{\log\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)}{4}+\frac{\log\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)}{4}-\frac{1}{4\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)}-\frac{1}{4\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)}\right)}{147} & \text{for}\ x\le\frac{1}{2}\wedge x>-\frac{2}{3}\end{cases}\right)}{81}-\frac{1036\left(\begin{cases}-\frac{\sqrt{21}\operatorname{acoth}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for}\ -2x+1>\frac{7}{3}\\-\frac{\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for}\ -2x+1<\frac{7}{3}\end{cases}\right)}{81}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((1-2*x)**(3/2)*(3+5*x)**2/(2+3*x)**2,x)
```

```
[Out] -5*(-2*x + 1)**(5/2)/9 - 20*(-2*x + 1)**(3/2)/81 - 16*sqrt(-2*x +
 1)/9 - 196*Piecewise((sqrt(21)*(-log(sqrt(21)*sqrt(-2*x + 1)/7 -
 1)/4 + log(sqrt(21)*sqrt(-2*x + 1)/7 + 1)/4 - 1/(4*(sqrt(21)*sqr
t(-2*x + 1)/7 + 1)) - 1/(4*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)))/147,
 (x <= 1/2) & (x > -2/3)))/81 - 1036*Piecewise((-sqrt(21)*acoth(s
```

```
qrt(21)*sqrt(-2*x + 1)/7)/21, -2*x + 1 > 7/3), (-sqrt(21)*atanh(s
qrt(21)*sqrt(-2*x + 1)/7)/21, -2*x + 1 < 7/3))/81
```

GIAC/XCAS [A] time = 0.220847, size = 122, normalized size = 1.37

$$-\frac{5}{9}\,(2\,x-1)^{2}\sqrt{-2\,x+1}-\frac{20}{81}\,(-2\,x+1)^{\frac{3}{2}}-\frac{73}{243}\,\sqrt{21}\ln\left(\frac{\left|-2\,\sqrt{21}+6\,\sqrt{-2\,x+1}\right|}{2\,\left(\sqrt{21}+3\,\sqrt{-2\,x+1}\right)}\right)-\frac{16}{9}\,\sqrt{-2\,x+1}-\frac{7\,\sqrt{-2\,x+1}}{81\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(-2*x + 1)^(3/2)/(3*x + 2)^2,x, algorithm="giac")
```

```
[Out] -5/9*(2*x - 1)^2*sqrt(-2*x + 1) - 20/81*(-2*x + 1)^(3/2) - 73/243
*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqrt(21) +
3*sqrt(-2*x + 1))) - 16/9*sqrt(-2*x + 1) - 7/81*sqrt(-2*x + 1)/(3
*x + 2)
```

3.1860 $\int \frac{(1-2x)^{3/2}(3+5x)^2}{(2+3x)^3} dx$

Optimal. Leaf size=94

$$\frac{47(1-2x)^{5/2}}{294(3x+2)}-\frac{(1-2x)^{5/2}}{126(3x+2)^2}+\frac{2873(1-2x)^{3/2}}{3969}+\frac{2873}{567}\sqrt{1-2x}-\frac{2873\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{81\sqrt{21}}$$

```
[Out] (2873*Sqrt[1 - 2*x])/567 + (2873*(1 - 2*x)^(3/2))/3969 - (1 - 2*x
)^(5/2)/(126*(2 + 3*x)^2) + (47*(1 - 2*x)^(5/2))/(294*(2 + 3*x))
- (2873*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(81*Sqrt[21])
```

Rubi [A] time = 0.111206, antiderivative size = 94, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{47(1-2x)^{5/2}}{294(3x+2)}-\frac{(1-2x)^{5/2}}{126(3x+2)^2}+\frac{2873(1-2x)^{3/2}}{3969}+\frac{2873}{567}\sqrt{1-2x}-\frac{2873\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{81\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)^(3/2)*(3 + 5*x)^2)/(2 + 3*x)^3,x]
```

```
[Out] (2873*Sqrt[1 - 2*x])/567 + (2873*(1 - 2*x)^(3/2))/3969 - (1 - 2*x
)^(5/2)/(126*(2 + 3*x)^2) + (47*(1 - 2*x)^(5/2))/(294*(2 + 3*x))
- (2873*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(81*Sqrt[21])
```

Rubi in Sympy [A] time = 12.4717, size = 80, normalized size = 0.85

$$\frac{47\left(-2x+1\right)^{\frac{5}{2}}}{294\left(3x+2\right)}-\frac{\left(-2x+1\right)^{\frac{5}{2}}}{126\left(3x+2\right)^{2}}+\frac{2873\left(-2x+1\right)^{\frac{3}{2}}}{3969}+\frac{2873\sqrt{-2x+1}}{567}-\frac{2873\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{1701}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**(3/2)*(3+5*x)**2/(2+3*x)**3,x)
```

```
[Out] 47*(-2*x + 1)**(5/2)/(294*(3*x + 2)) - (-2*x + 1)**(5/2)/(126*(3*
x + 2)**2) + 2873*(-2*x + 1)**(3/2)/3969 + 2873*sqrt(-2*x + 1)/56
7 - 2873*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/1701
```

Mathematica [A] time = 0.113303, size = 63, normalized size = 0.67

$$\frac{\sqrt{1-2x}\left(-1800x^3+5520x^2+10195x+3803\right)}{162(3x+2)^2}-\frac{2873\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{81\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)^(3/2)*(3 + 5*x)^2)/(2 + 3*x)^3,x]
```

```
[Out] (Sqrt[1 - 2*x]*(3803 + 10195*x + 5520*x^2 - 1800*x^3))/(162*(2 +
3*x)^2) - (2873*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(81*Sqrt[21])
```

Maple [A] time = 0.017, size = 66, normalized size = 0.7

$$\frac{50}{81}(1-2x)^{\frac{3}{2}}+\frac{130}{27}\sqrt{1-2x}+\frac{2}{3(-4-6x)^{2}}\left(-\frac{145}{18}(1-2x)^{\frac{3}{2}}+\frac{1001}{54}\sqrt{1-2x}\right)-\frac{2873\sqrt{21}}{1701}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^2/(2+3*x)^3,x)
```

```
[Out] 50/81*(1-2*x)^(3/2)+130/27*(1-2*x)^(1/2)+2/3*(-145/18*(1-2*x)^(3/
2)+1001/54*(1-2*x)^(1/2))/(-4-6*x)^2-2873/1701*arctanh(1/7*21^(1/
2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.48829, size = 124, normalized size = 1.32

$$\frac{50}{81}(-2x+1)^{\frac{3}{2}}+\frac{2873}{3402}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{130}{27}\sqrt{-2x+1}-\frac{435(-2x+1)^{\frac{3}{2}}-1001\sqrt{-2x+1}}{81\left(9(2x-1)^{2}+84x+7\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(-2*x + 1)^(3/2)/(3*x + 2)^3,x, algorithm="maxima")
```

```
[Out] 50/81*(-2*x + 1)^(3/2) + 2873/3402*sqrt(21)*log(-(sqrt(21) - 3*sq
rt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 130/27*sqrt(-2*x +
 1) - 1/81*(435*(-2*x + 1)^(3/2) - 1001*sqrt(-2*x + 1))/(9*(2*x -
 1)^2 + 84*x + 7)
```

Fricas [A] time = 0.216735, size = 113, normalized size = 1.2

$$-\frac{\sqrt{21}\left(\sqrt{21}\left(1800x^{3}-5520x^{2}-10195x-3803\right)\sqrt{-2x+1}-2873\left(9x^{2}+12x+4\right)\log\left(\frac{\sqrt{21}(3x-5)+21\sqrt{-2x+1}}{3x+2}\right)\right)}{3402\left(9x^{2}+12x+4\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(-2*x + 1)^(3/2)/(3*x + 2)^3,x, algorithm="fricas")
```

```
[Out] -1/3402*sqrt(21)*(sqrt(21)*(1800*x^3 - 5520*x^2 - 10195*x - 3803)
*sqrt(-2*x + 1) - 2873*(9*x^2 + 12*x + 4)*log((sqrt(21)*(3*x - 5)
 + 21*sqrt(-2*x + 1))/(3*x + 2)))/(9*x^2 + 12*x + 4)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**2/(2+3*x)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.254565, size = 116, normalized size = 1.23

$$\frac{50}{81}\,(-2\,x+1)^{\frac{3}{2}}+\frac{2873}{3402}\,\sqrt{21}\ln\left(\frac{\left|-2\,\sqrt{21}+6\,\sqrt{-2\,x+1}\right|}{2\,\left(\sqrt{21}+3\,\sqrt{-2\,x+1}\right)}\right)+\frac{130}{27}\,\sqrt{-2\,x+1}-\frac{435\,(-2\,x+1)^{\frac{3}{2}}-1001\,\sqrt{-2\,x+1}}{324\,(3\,x+2)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(-2*x + 1)^(3/2)/(3*x + 2)^3,x, algorithm="giac")
```

```
[Out] 50/81*(-2*x + 1)^(3/2) + 2873/3402*sqrt(21)*ln(1/2*abs(-2*sqrt(21
) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 130/27*sqr
t(-2*x + 1) - 1/324*(435*(-2*x + 1)^(3/2) - 1001*sqrt(-2*x + 1))/
(3*x + 2)^2
```

3.1861 $\int \frac{(1-2x)^{3/2}(3+5x)^2}{(2+3x)^4}\,dx$

Optimal. Leaf size=101

$$\frac{209(1-2x)^{5/2}}{2646(3x+2)^2}-\frac{(1-2x)^{5/2}}{189(3x+2)^3}-\frac{7559(1-2x)^{3/2}}{7938(3x+2)}-\frac{7559\sqrt{1-2x}}{3969}+\frac{7559\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{567\sqrt{21}}$$

```
[Out] (-7559*Sqrt[1 - 2*x])/3969 - (1 - 2*x)^(5/2)/(189*(2 + 3*x)^3) +
(209*(1 - 2*x)^(5/2))/(2646*(2 + 3*x)^2) - (7559*(1 - 2*x)^(3/2))
/(7938*(2 + 3*x)) + (7559*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(567*
Sqrt[21])
```

Rubi [A] time = 0.110694, antiderivative size = 101, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$\frac{209(1-2x)^{5/2}}{2646(3x+2)^2}-\frac{(1-2x)^{5/2}}{189(3x+2)^3}-\frac{7559(1-2x)^{3/2}}{7938(3x+2)}-\frac{7559\sqrt{1-2x}}{3969}+\frac{7559\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{567\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(3 + 5*x)^2)/(2 + 3*x)^4,x]
```

```
[Out] (-7559*Sqrt[1 - 2*x])/3969 - (1 - 2*x)^(5/2)/(189*(2 + 3*x)^3) +
(209*(1 - 2*x)^(5/2))/(2646*(2 + 3*x)^2) - (7559*(1 - 2*x)^(3/2))
/(7938*(2 + 3*x)) + (7559*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(567*
Sqrt[21])
```

Rubi in Sympy [A] time = 12.5695, size = 87, normalized size = 0.86

$$\frac{209\left(-2x+1\right)^{\frac{5}{2}}}{2646\left(3x+2\right)^{2}}-\frac{\left(-2x+1\right)^{\frac{5}{2}}}{189\left(3x+2\right)^{3}}-\frac{7559\left(-2x+1\right)^{\frac{3}{2}}}{7938\left(3x+2\right)}-\frac{7559\sqrt{-2x+1}}{3969}+\frac{7559\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{11907}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**2/(2+3*x)**4,x)
```

```
[Out] 209*(-2*x + 1)**(5/2)/(2646*(3*x + 2)**2) - (-2*x + 1)**(5/2)/(18
9*(3*x + 2)**3) - 7559*(-2*x + 1)**(3/2)/(7938*(3*x + 2)) - 7559*
sqrt(-2*x + 1)/3969 + 7559*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)
/7)/11907
```

Mathematica [A] time = 0.113901, size = 63, normalized size = 0.62

$$\frac{7559\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{567\sqrt{21}}-\frac{\sqrt{1-2x}\left(37800x^3+100809x^2+82493x+21424\right)}{1134(3x+2)^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(3 + 5*x)^2)/(2 + 3*x)^4,x]
```

```
[Out] -(Sqrt[1 - 2*x]*(21424 + 82493*x + 100809*x^2 + 37800*x^3))/(1134
*(2 + 3*x)^3) + (7559*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(567*Sqrt
```

```
[21])
```

Maple [A] time = 0.017, size = 66, normalized size = 0.7

$$-\frac{100}{81}\sqrt{1-2x}-\frac{4}{3\left(-4-6x\right)^{3}}\left(-\frac{2801}{84}\left(1-2x\right)^{\frac{5}{2}}+\frac{4093}{27}\left(1-2x\right)^{\frac{3}{2}}-\frac{18613}{108}\sqrt{1-2x}\right)+\frac{7559\sqrt{21}}{11907}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^2/(2+3*x)^4,x)
```

```
[Out] -100/81*(1-2*x)^(1/2)-4/3*(-2801/84*(1-2*x)^(5/2)+4093/27*(1-2*x)
^(3/2)-18613/108*(1-2*x)^(1/2))/(-4-6*x)^3+7559/11907*arctanh(1/7
*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.51251, size = 136, normalized size = 1.35

$$-\frac{7559}{23814}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{100}{81}\sqrt{-2x+1}-\frac{25209\left(-2x+1\right)^{\frac{5}{2}}-114604\left(-2x+1\right)^{\frac{3}{2}}+130291\sqrt{-2x+1}}{567\left(27\left(2x-1\right)^{3}+189\left(2x-1\right)^{2}+882x-98\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(-2*x + 1)^(3/2)/(3*x + 2)^4,x, algorithm="maxima")
```

```
[Out] -7559/23814*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21)
 + 3*sqrt(-2*x + 1))) - 100/81*sqrt(-2*x + 1) - 1/567*(25209*(-2*
x + 1)^(5/2) - 114604*(-2*x + 1)^(3/2) + 130291*sqrt(-2*x + 1))/(
27*(2*x - 1)^3 + 189*(2*x - 1)^2 + 882*x - 98)
```

Fricas [A] time = 0.226029, size = 127, normalized size = 1.26

$$-\frac{\sqrt{21}\left(\sqrt{21}\left(37800x^{3}+100809x^{2}+82493x+21424\right)\sqrt{-2x+1}-7559\left(27x^{3}+54x^{2}+36x+8\right)\log\left(\frac{\sqrt{21}(3x-5)-21\sqrt{-2x+1}}{3x+2}\right)\right)}{23814\left(27x^{3}+54x^{2}+36x+8\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(-2*x + 1)^(3/2)/(3*x + 2)^4,x, algorithm="fricas")
```

```
[Out] -1/23814*sqrt(21)*(sqrt(21)*(37800*x^3 + 100809*x^2 + 82493*x + 2
1424)*sqrt(-2*x + 1) - 7559*(27*x^3 + 54*x^2 + 36*x + 8)*log((sqr
t(21)*(3*x - 5) - 21*sqrt(-2*x + 1))/(3*x + 2)))/(27*x^3 + 54*x^2
 + 36*x + 8)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**2/(2+3*x)**4,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.227526, size = 126, normalized size = 1.25

$$-\frac{7559}{23814}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{100}{81}\sqrt{-2x+1}-\frac{25209\,(2x-1)^{2}\sqrt{-2x+1}-114604\,(-2x+1)^{\frac{3}{2}}+130291\sqrt{-2x+1}}{4536\,(3x+2)^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(-2*x + 1)^(3/2)/(3*x + 2)^4,x, algorithm="giac")
```

```
[Out] -7559/23814*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(
sqrt(21) + 3*sqrt(-2*x + 1))) - 100/81*sqrt(-2*x + 1) - 1/4536*(2
5209*(2*x - 1)^2*sqrt(-2*x + 1) - 114604*(-2*x + 1)^(3/2) + 13029
1*sqrt(-2*x + 1))/(3*x + 2)^3
```

3.1862 $\int \frac{(1-2x)^{3/2}(3+5x)^2}{(2+3x)^5}\,dx$

Optimal. Leaf size=108

$$\frac{277(1-2x)^{5/2}}{5292(3x+2)^3}-\frac{(1-2x)^{5/2}}{252(3x+2)^4}-\frac{14423(1-2x)^{3/2}}{31752(3x+2)^2}+\frac{14423\sqrt{1-2x}}{31752(3x+2)}-\frac{14423\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{15876\sqrt{21}}$$

```
[Out] -(1 - 2*x)^(5/2)/(252*(2 + 3*x)^4) + (277*(1 - 2*x)^(5/2))/(5292*
(2 + 3*x)^3) - (14423*(1 - 2*x)^(3/2))/(31752*(2 + 3*x)^2) + (144
23*Sqrt[1 - 2*x])/(31752*(2 + 3*x)) - (14423*ArcTanh[Sqrt[3/7]*Sq
rt[1 - 2*x]])/(15876*Sqrt[21])
```

Rubi [A] time = 0.118817, antiderivative size = 108, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{277(1-2x)^{5/2}}{5292(3x+2)^3}-\frac{(1-2x)^{5/2}}{252(3x+2)^4}-\frac{14423(1-2x)^{3/2}}{31752(3x+2)^2}+\frac{14423\sqrt{1-2x}}{31752(3x+2)}-\frac{14423\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{15876\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)^(3/2)*(3 + 5*x)^2)/(2 + 3*x)^5,x]
```

```
[Out] -(1 - 2*x)^(5/2)/(252*(2 + 3*x)^4) + (277*(1 - 2*x)^(5/2))/(5292*
(2 + 3*x)^3) - (14423*(1 - 2*x)^(3/2))/(31752*(2 + 3*x)^2) + (144
23*Sqrt[1 - 2*x])/(31752*(2 + 3*x)) - (14423*ArcTanh[Sqrt[3/7]*Sq
rt[1 - 2*x]])/(15876*Sqrt[21])
```

Rubi in Sympy [A] time = 12.5541, size = 94, normalized size = 0.87

$$\frac{277\left(-2x+1\right)^{\frac{5}{2}}}{5292\left(3x+2\right)^{3}}-\frac{\left(-2x+1\right)^{\frac{5}{2}}}{252\left(3x+2\right)^{4}}-\frac{14423\left(-2x+1\right)^{\frac{3}{2}}}{31752\left(3x+2\right)^{2}}+\frac{14423\sqrt{-2x+1}}{31752\left(3x+2\right)}-\frac{14423\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{333396}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**(3/2)*(3+5*x)**2/(2+3*x)**5,x)
```

```
[Out] 277*(-2*x + 1)**(5/2)/(5292*(3*x + 2)**3) - (-2*x + 1)**(5/2)/(25
2*(3*x + 2)**4) - 14423*(-2*x + 1)**(3/2)/(31752*(3*x + 2)**2) +
14423*sqrt(-2*x + 1)/(31752*(3*x + 2)) - 14423*sqrt(21)*atanh(sqr
t(21)*sqrt(-2*x + 1)/7)/333396
```

Mathematica [A] time = 0.119303, size = 63, normalized size = 0.58

$$\frac{\frac{21\sqrt{1-2x}\left(668979x^3+988035x^2+453730x+60890\right)}{(3x+2)^4}-28846\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{666792}$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)^(3/2)*(3 + 5*x)^2)/(2 + 3*x)^5,x]
```

```
[Out] ((21*Sqrt[1 - 2*x]*(60890 + 453730*x + 988035*x^2 + 668979*x^3))/
(2 + 3*x)^4 - 28846*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/66
```

```
6792
```

Maple [A] time = 0.019, size = 66, normalized size = 0.6

$$648 \frac{1}{(-4-6x)^4}\left(-\frac{2753\,(1-2x)^{7/2}}{42336}+\frac{189667\,(1-2x)^{5/2}}{489888}-\frac{158653\,(1-2x)^{3/2}}{209952}+\frac{100961\sqrt{1-2x}}{209952}\right)-\frac{14423\sqrt{21}}{333396}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^2/(2+3*x)^5,x)
```

```
[Out] 648*(-2753/42336*(1-2*x)^(7/2)+189667/489888*(1-2*x)^(5/2)-158653
/209952*(1-2*x)^(3/2)+100961/209952*(1-2*x)^(1/2))/(-4-6*x)^4-144
23/333396*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.50726, size = 149, normalized size = 1.38

$$\frac{14423}{666792}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{668979\,(-2x+1)^{\frac{7}{2}}-3983007\,(-2x+1)^{\frac{5}{2}}+7773997\,(-2x+1)^{\frac{3}{2}}-4947089\sqrt{-2x+1}}{15876\left(81\,(2x-1)^4+756\,(2x-1)^3+2646\,(2x-1)^2+8232x-1715\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(-2*x + 1)^(3/2)/(3*x + 2)^5,x, algorithm="maxima")
```

```
[Out] 14423/666792*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21
) + 3*sqrt(-2*x + 1))) - 1/15876*(668979*(-2*x + 1)^(7/2) - 39830
07*(-2*x + 1)^(5/2) + 7773997*(-2*x + 1)^(3/2) - 4947089*sqrt(-2*
x + 1))/(81*(2*x - 1)^4 + 756*(2*x - 1)^3 + 2646*(2*x - 1)^2 + 82
32*x - 1715)
```

Fricas [A] time = 0.223621, size = 140, normalized size = 1.3

$$\frac{\sqrt{21}\left(\sqrt{21}\left(668979x^3+988035x^2+453730x+60890\right)\sqrt{-2x+1}+14423\left(81x^4+216x^3+216x^2+96x+16\right)\log\left(\frac{\sqrt{21}(3x-}{}\right.\right.}{666792\left(81x^4+216x^3+216x^2+96x+16\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(-2*x + 1)^(3/2)/(3*x + 2)^5,x, algorithm="fricas")
```

```
[Out] 1/666792*sqrt(21)*(sqrt(21)*(668979*x^3 + 988035*x^2 + 453730*x +
 60890)*sqrt(-2*x + 1) + 14423*(81*x^4 + 216*x^3 + 216*x^2 + 96*x
 + 16)*log((sqrt(21)*(3*x - 5) + 21*sqrt(-2*x + 1))/(3*x + 2)))/(
81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**2/(2+3*x)**5,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.213011, size = 135, normalized size = 1.25

$$\frac{14423}{666792}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{668979\,(2x-1)^3\sqrt{-2x+1}+3983007\,(2x-1)^2\sqrt{-2x+1}-7773997\,(-2x+1)^{\frac{3}{2}}+4947089\sqrt{-2x+1}}{254016\,(3x+2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(-2*x + 1)^(3/2)/(3*x + 2)^5,x, algorithm="giac")
```

```
[Out] 14423/666792*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/
(sqrt(21) + 3*sqrt(-2*x + 1))) + 1/254016*(668979*(2*x - 1)^3*sqr
t(-2*x + 1) + 3983007*(2*x - 1)^2*sqrt(-2*x + 1) - 7773997*(-2*x
+ 1)^(3/2) + 4947089*sqrt(-2*x + 1))/(3*x + 2)^4
```

3.1863 $\int \frac{(1-2x)^{3/2}(3+5x)^2}{(2+3x)^6} dx$

Optimal. Leaf size=128

$$\frac{23(1-2x)^{5/2}}{588(3x+2)^4}-\frac{(1-2x)^{5/2}}{315(3x+2)^5}-\frac{4693(1-2x)^{3/2}}{15876(3x+2)^3}-\frac{4693\sqrt{1-2x}}{222264(3x+2)}+\frac{4693\sqrt{1-2x}}{31752(3x+2)^2}-\frac{4693\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{111132\sqrt{21}}$$

```
[Out] -(1 - 2*x)^(5/2)/(315*(2 + 3*x)^5) + (23*(1 - 2*x)^(5/2))/(588*(2
 + 3*x)^4) - (4693*(1 - 2*x)^(3/2))/(15876*(2 + 3*x)^3) + (4693*S
qrt[1 - 2*x])/(31752*(2 + 3*x)^2) - (4693*Sqrt[1 - 2*x])/(222264*
(2 + 3*x)) - (4693*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(111132*Sqrt
[21])
```

Rubi [A] time = 0.138231, antiderivative size = 128, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$\frac{23(1-2x)^{5/2}}{588(3x+2)^4}-\frac{(1-2x)^{5/2}}{315(3x+2)^5}-\frac{4693(1-2x)^{3/2}}{15876(3x+2)^3}-\frac{4693\sqrt{1-2x}}{222264(3x+2)}+\frac{4693\sqrt{1-2x}}{31752(3x+2)^2}-\frac{4693\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{111132\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(3 + 5*x)^2)/(2 + 3*x)^6,x]
```

```
[Out] -(1 - 2*x)^(5/2)/(315*(2 + 3*x)^5) + (23*(1 - 2*x)^(5/2))/(588*(2
 + 3*x)^4) - (4693*(1 - 2*x)^(3/2))/(15876*(2 + 3*x)^3) + (4693*S
qrt[1 - 2*x])/(31752*(2 + 3*x)^2) - (4693*Sqrt[1 - 2*x])/(222264*
(2 + 3*x)) - (4693*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(111132*Sqrt
[21])
```

Rubi in Sympy [A] time = 14.4003, size = 112, normalized size = 0.88

$$\frac{23\left(-2x+1\right)^{\frac{5}{2}}}{588\left(3x+2\right)^{4}}-\frac{\left(-2x+1\right)^{\frac{5}{2}}}{315\left(3x+2\right)^{5}}-\frac{4693\left(-2x+1\right)^{\frac{3}{2}}}{15876\left(3x+2\right)^{3}}-\frac{4693\sqrt{-2x+1}}{222264\left(3x+2\right)}+\frac{4693\sqrt{-2x+1}}{31752\left(3x+2\right)^{2}}-\frac{4693\sqrt{21}\,\mathrm{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{2333772}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**2/(2+3*x)**6,x)
```

```
[Out] 23*(-2*x + 1)**(5/2)/(588*(3*x + 2)**4) - (-2*x + 1)**(5/2)/(315*
(3*x + 2)**5) - 4693*(-2*x + 1)**(3/2)/(15876*(3*x + 2)**3) - 469
3*sqrt(-2*x + 1)/(222264*(3*x + 2)) + 4693*sqrt(-2*x + 1)/(31752*
(3*x + 2)**2) - 4693*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/23
33772
```

Mathematica [A] time = 0.122395, size = 68, normalized size = 0.53

$$\frac{-\frac{21\sqrt{1-2x}\left(1900665x^4-5801265x^3-8540988x^2-2143262x+292028\right)}{(3x+2)^5}-46930\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{23337720}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(3 + 5*x)^2)/(2 + 3*x)^6,x]
```

```
[Out] ((-21*Sqrt[1 - 2*x]*(292028 - 2143262*x - 8540988*x^2 - 5801265*x
^3 + 1900665*x^4))/(2 + 3*x)^5 - 46930*Sqrt[21]*ArcTanh[Sqrt[3/7]
*Sqrt[1 - 2*x]])/23337720
```

Maple [A] time = 0.019, size = 75, normalized size = 0.6

$$-3888\,\frac{1}{(-4-6\,x)^5}\left(-\frac{4693\,(1-2\,x)^{9/2}}{5334336}-\frac{907\,(1-2\,x)^{7/2}}{489888}+\frac{6119\,(1-2\,x)^{5/2}}{229635}-\frac{32851\,(1-2\,x)^{3/2}}{629856}+\frac{32851\,\sqrt{1-2\,x}}{1259712}\right)-\frac{4693\,\sqrt{21}}{2333772}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^2/(2+3*x)^6,x)
```

```
[Out] -3888*(-4693/5334336*(1-2*x)^(9/2)-907/489888*(1-2*x)^(7/2)+6119/
229635*(1-2*x)^(5/2)-32851/629856*(1-2*x)^(3/2)+32851/1259712*(1-
2*x)^(1/2))/(-4-6*x)^5-4693/2333772*arctanh(1/7*21^(1/2)*(1-2*x)^
(1/2))*21^(1/2)
```

Maxima [A] time = 1.5132, size = 173, normalized size = 1.35

$$\frac{4693}{4667544}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\,\sqrt{-2\,x+1}}{\sqrt{21}+3\,\sqrt{-2\,x+1}}\right)-\frac{1900665\,(-2\,x+1)^{\frac{9}{2}}+3999870\,(-2\,x+1)^{\frac{7}{2}}-57567552\,(-2\,x+1)^{\frac{5}{2}}+112678930\,(-2\,x+1)^{\frac{3}{2}}-56339465\,\sqrt{-2\,x+1}}{555660\,\left(243\,(2\,x-1)^5+2835\,(2\,x-1)^4+13230\,(2\,x-1)^3+30870\,(2\,x-1)^2+72030\,x-19208\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(-2*x + 1)^(3/2)/(3*x + 2)^6,x, algorithm="maxima")
```

```
[Out] 4693/4667544*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21
) + 3*sqrt(-2*x + 1))) - 1/555660*(1900665*(-2*x + 1)^(9/2) + 399
9870*(-2*x + 1)^(7/2) - 57567552*(-2*x + 1)^(5/2) + 112678930*(-2
*x + 1)^(3/2) - 56339465*sqrt(-2*x + 1))/(243*(2*x - 1)^5 + 2835*
(2*x - 1)^4 + 13230*(2*x - 1)^3 + 30870*(2*x - 1)^2 + 72030*x - 1
9208)
```

Fricas [A] time = 0.222669, size = 161, normalized size = 1.26

$$-\frac{\sqrt{21}\Big(\sqrt{21}\big(1900665\,x^4-5801265\,x^3-8540988\,x^2-2143262\,x+292028\big)\sqrt{-2\,x+1}-23465\,\big(243\,x^5+810\,x^4+1080\,x^3+}{23337720\,(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240\,x+32)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(-2*x + 1)^(3/2)/(3*x + 2)^6,x, algorithm="fricas")
```

```
[Out] -1/23337720*sqrt(21)*(sqrt(21)*(1900665*x^4 - 5801265*x^3 - 85409
88*x^2 - 2143262*x + 292028)*sqrt(-2*x + 1) - 23465*(243*x^5 + 81
0*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)*log((sqrt(21)*(3*x - 5)
+ 21*sqrt(-2*x + 1))/(3*x + 2)))/(243*x^5 + 810*x^4 + 1080*x^3 +
```

```
720*x^2 + 240*x + 32)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**2/(2+3*x)**6,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.215296, size = 157, normalized size = 1.23

$$\frac{4693}{4667544}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)$$
$$-\frac{1900665\,(2x-1)^4\sqrt{-2x+1}-3999870\,(2x-1)^3\sqrt{-2x+1}-57567552\,(2x-1)^2\sqrt{-2x+1}+112678930\,(-2x+1)^{\frac{3}{2}}-56}{17781120\,(3x+2)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(-2*x + 1)^(3/2)/(3*x + 2)^6,x, algorithm="giac")
```

```
[Out] 4693/4667544*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/
(sqrt(21) + 3*sqrt(-2*x + 1))) - 1/17781120*(1900665*(2*x - 1)^4*
sqrt(-2*x + 1) - 3999870*(2*x - 1)^3*sqrt(-2*x + 1) - 57567552*(2
*x - 1)^2*sqrt(-2*x + 1) + 112678930*(-2*x + 1)^(3/2) - 56339465*
sqrt(-2*x + 1))/(3*x + 2)^5
```

3.1864 $\int \frac{(1-2x)^{3/2}(3+5x)^2}{(2+3x)^7}\,dx$

Optimal. Leaf size=148

$$\frac{59(1-2x)^{5/2}}{1890(3x+2)^5}-\frac{(1-2x)^{5/2}}{378(3x+2)^6}-\frac{991(1-2x)^{3/2}}{4536(3x+2)^4}-\frac{991\sqrt{1-2x}}{444528(3x+2)}-\frac{991\sqrt{1-2x}}{190512(3x+2)^2}+\frac{991\sqrt{1-2x}}{13608(3x+2)^3}-\frac{991\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{222264\sqrt{21}}$$

```
[Out] -(1 - 2*x)^(5/2)/(378*(2 + 3*x)^6) + (59*(1 - 2*x)^(5/2))/(1890*(
2 + 3*x)^5) - (991*(1 - 2*x)^(3/2))/(4536*(2 + 3*x)^4) + (991*Sqr
t[1 - 2*x])/(13608*(2 + 3*x)^3) - (991*Sqrt[1 - 2*x])/(190512*(2
+ 3*x)^2) - (991*Sqrt[1 - 2*x])/(444528*(2 + 3*x)) - (991*ArcTanh
[Sqrt[3/7]*Sqrt[1 - 2*x]])/(222264*Sqrt[21])
```

Rubi [A] time = 0.165024, antiderivative size = 148, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$\frac{59(1-2x)^{5/2}}{1890(3x+2)^5}-\frac{(1-2x)^{5/2}}{378(3x+2)^6}-\frac{991(1-2x)^{3/2}}{4536(3x+2)^4}-\frac{991\sqrt{1-2x}}{444528(3x+2)}-\frac{991\sqrt{1-2x}}{190512(3x+2)^2}+\frac{991\sqrt{1-2x}}{13608(3x+2)^3}-\frac{991\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{222264\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(3 + 5*x)^2)/(2 + 3*x)^7,x]
```

```
[Out] -(1 - 2*x)^(5/2)/(378*(2 + 3*x)^6) + (59*(1 - 2*x)^(5/2))/(1890*(
2 + 3*x)^5) - (991*(1 - 2*x)^(3/2))/(4536*(2 + 3*x)^4) + (991*Sqr
t[1 - 2*x])/(13608*(2 + 3*x)^3) - (991*Sqrt[1 - 2*x])/(190512*(2
+ 3*x)^2) - (991*Sqrt[1 - 2*x])/(444528*(2 + 3*x)) - (991*ArcTanh
[Sqrt[3/7]*Sqrt[1 - 2*x]])/(222264*Sqrt[21])
```

Rubi in Sympy [A] time = 17.8758, size = 131, normalized size = 0.89

$$\frac{59\,(-2x+1)^{\frac{5}{2}}}{1890\,(3x+2)^5}-\frac{(-2x+1)^{\frac{5}{2}}}{378\,(3x+2)^6}-\frac{991\,(-2x+1)^{\frac{3}{2}}}{4536\,(3x+2)^4}-\frac{991\sqrt{-2x+1}}{444528\,(3x+2)}-\frac{991\sqrt{-2x+1}}{190512\,(3x+2)^2}+\frac{991\sqrt{-2x+1}}{13608\,(3x+2)^3}-\frac{991\sqrt{21}\,\mathrm{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{4667544}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**2/(2+3*x)**7,x)
```

```
[Out] 59*(-2*x + 1)**(5/2)/(1890*(3*x + 2)**5) - (-2*x + 1)**(5/2)/(378
*(3*x + 2)**6) - 991*(-2*x + 1)**(3/2)/(4536*(3*x + 2)**4) - 991*
sqrt(-2*x + 1)/(444528*(3*x + 2)) - 991*sqrt(-2*x + 1)/(190512*(3
*x + 2)**2) + 991*sqrt(-2*x + 1)/(13608*(3*x + 2)**3) - 991*sqrt(
21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/4667544
```

Mathematica [A] time = 0.123164, size = 73, normalized size = 0.49

$$\frac{-\frac{21\sqrt{1-2x}\left(1204065x^5+4950045x^4-6094818x^3-9658494x^2-1262200x+858112\right)}{(3x+2)^6}-9910\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{46675440}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(3 + 5*x)^2)/(2 + 3*x)^7,x]
```

```
[Out] ((-21*Sqrt[1 - 2*x]*(858112 - 1262200*x - 9658494*x^2 - 6094818*x
^3 + 4950045*x^4 + 1204065*x^5))/(2 + 3*x)^6 - 9910*Sqrt[21]*ArcT
anh[Sqrt[3/7]*Sqrt[1 - 2*x]])/46675440
```

Maple [A] time = 0.02, size = 84, normalized size = 0.6

$$23328\frac{1}{(-4-6x)^6}\left(\frac{991\,(1-2x)^{11/2}}{21337344}-\frac{16847\,(1-2x)^{9/2}}{27433728}+\frac{10303\,(1-2x)^{7/2}}{9797760}+\frac{29843\,(1-2x)^{5/2}}{9797760}-\frac{117929\,(1-2x)^{3/2}}{15116544}\right.$$
$$\left.-\frac{991\sqrt{21}}{4667544}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^2/(2+3*x)^7,x)
```

```
[Out] 23328*(991/21337344*(1-2*x)^(11/2)-16847/27433728*(1-2*x)^(9/2)+1
0303/9797760*(1-2*x)^(7/2)+29843/9797760*(1-2*x)^(5/2)-117929/151
16544*(1-2*x)^(3/2)+48559/15116544*(1-2*x)^(1/2))/(-4-6*x)^6-991/
4667544*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.50967, size = 197, normalized size = 1.33

$$\frac{991}{9335088}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)$$
$$+\frac{1204065\,(-2x+1)^{\frac{11}{2}}-15920415\,(-2x+1)^{\frac{9}{2}}+27261738\,(-2x+1)^{\frac{7}{2}}+78964578\,(-2x+1)^{\frac{5}{2}}-202248235\,(-2x+1)^{\frac{3}{2}}+83}{1111320\left(729\,(2x-1)^6+10206\,(2x-1)^5+59535\,(2x-1)^4+185220\,(2x-1)^3+324135\,(2x-1)^2+605052\,x-\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(-2*x + 1)^(3/2)/(3*x + 2)^7,x, algorithm="maxima")
```

```
[Out] 991/9335088*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21)
 + 3*sqrt(-2*x + 1))) + 1/1111320*(1204065*(-2*x + 1)^(11/2) - 15
920415*(-2*x + 1)^(9/2) + 27261738*(-2*x + 1)^(7/2) + 78964578*(-
2*x + 1)^(5/2) - 202248235*(-2*x + 1)^(3/2) + 83278685*sqrt(-2*x
+ 1))/(729*(2*x - 1)^6 + 10206*(2*x - 1)^5 + 59535*(2*x - 1)^4 +
185220*(2*x - 1)^3 + 324135*(2*x - 1)^2 + 605052*x - 184877)
```

Fricas [A] time = 0.217875, size = 181, normalized size = 1.22

$$-\frac{\sqrt{21}\left(\sqrt{21}\left(1204065\,x^5+4950045\,x^4-6094818\,x^3-9658494\,x^2-1262200\,x+858112\right)\sqrt{-2x+1}-4955\left(729\,x^6+2916\,x\right.\right.}{46675440\left(729\,x^6+2916\,x^5+4860\,x^4+4320\,x^3+2160\,x^2+\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(-2*x + 1)^(3/2)/(3*x + 2)^7,x, algorithm="fricas")
```

```
[Out] -1/46675440*sqrt(21)*(sqrt(21)*(1204065*x^5 + 4950045*x^4 - 60948
18*x^3 - 9658494*x^2 - 1262200*x + 858112)*sqrt(-2*x + 1) - 4955*
(729*x^6 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64
)*log((sqrt(21)*(3*x - 5) + 21*sqrt(-2*x + 1))/(3*x + 2)))/(729*x
```

```
^6 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**2/(2+3*x)**7,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.213485, size = 178, normalized size = 1.2

$$\frac{991}{9335088}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right) - \frac{1204065(2x-1)^5\sqrt{-2x+1}+15920415(2x-1)^4\sqrt{-2x+1}+27261738(2x-1)^3\sqrt{-2x+1}-78964578(2x-1)^2\sqrt{-2x}}{71124480(3x+2)^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(-2*x + 1)^(3/2)/(3*x + 2)^7,x, algorithm="giac")
```

```
[Out] 991/9335088*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(
sqrt(21) + 3*sqrt(-2*x + 1))) - 1/71124480*(1204065*(2*x - 1)^5*s
qrt(-2*x + 1) + 15920415*(2*x - 1)^4*sqrt(-2*x + 1) + 27261738*(2
*x - 1)^3*sqrt(-2*x + 1) - 78964578*(2*x - 1)^2*sqrt(-2*x + 1) +
202248235*(-2*x + 1)^(3/2) - 83278685*sqrt(-2*x + 1))/(3*x + 2)^6
```

3.1865 $\int (1-2x)^{3/2}(2+3x)^4(3+5x)^3\,dx$

Optimal. Leaf size=105

$$\frac{10125(1-2x)^{19/2}}{2432}-\frac{161325(1-2x)^{17/2}}{2176}+\frac{73431}{128}(1-2x)^{15/2}-\frac{4177401(1-2x)^{13/2}}{1664}+\frac{9504551(1-2x)^{11/2}}{1408}-\frac{4324397}{384}(1-2x)^{9/2}+\frac{1405173}{128}(1-2x)^{7/2}-\frac{3195731}{640}(1-2x)^{5/2}$$

```
[Out] (-3195731*(1 - 2*x)^(5/2))/640 + (1405173*(1 - 2*x)^(7/2))/128 -
(4324397*(1 - 2*x)^(9/2))/384 + (9504551*(1 - 2*x)^(11/2))/1408 -
 (4177401*(1 - 2*x)^(13/2))/1664 + (73431*(1 - 2*x)^(15/2))/128 -
 (161325*(1 - 2*x)^(17/2))/2176 + (10125*(1 - 2*x)^(19/2))/2432
```

Rubi [A] time = 0.0743113, antiderivative size = 105, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.042

$$\frac{10125(1-2x)^{19/2}}{2432}-\frac{161325(1-2x)^{17/2}}{2176}+\frac{73431}{128}(1-2x)^{15/2}-\frac{4177401(1-2x)^{13/2}}{1664}+\frac{9504551(1-2x)^{11/2}}{1408}-\frac{4324397}{384}(1-2x)^{9/2}+\frac{1405173}{128}(1-2x)^{7/2}-\frac{3195731}{640}(1-2x)^{5/2}$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^(3/2)*(2 + 3*x)^4*(3 + 5*x)^3,x]
```

```
[Out] (-3195731*(1 - 2*x)^(5/2))/640 + (1405173*(1 - 2*x)^(7/2))/128 -
(4324397*(1 - 2*x)^(9/2))/384 + (9504551*(1 - 2*x)^(11/2))/1408 -
 (4177401*(1 - 2*x)^(13/2))/1664 + (73431*(1 - 2*x)^(15/2))/128 -
 (161325*(1 - 2*x)^(17/2))/2176 + (10125*(1 - 2*x)^(19/2))/2432
```

Rubi in Sympy [A] time = 12.1596, size = 94, normalized size = 0.9

$$\frac{10125\left(-2x+1\right)^{\frac{19}{2}}}{2432}-\frac{161325\left(-2x+1\right)^{\frac{17}{2}}}{2176}+\frac{73431\left(-2x+1\right)^{\frac{15}{2}}}{128}-\frac{4177401\left(-2x+1\right)^{\frac{13}{2}}}{1664}+\frac{9504551\left(-2x+1\right)^{\frac{11}{2}}}{1408}-\frac{4324397\left(-2x+1\right)^{\frac{9}{2}}}{384}+\frac{1405173\left(-2x+1\right)^{\frac{7}{2}}}{128}-\frac{3195731\left(-2x+1\right)^{\frac{5}{2}}}{640}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**(3/2)*(2+3*x)**4*(3+5*x)**3,x)
```

```
[Out] 10125*(-2*x + 1)**(19/2)/2432 - 161325*(-2*x + 1)**(17/2)/2176 +
73431*(-2*x + 1)**(15/2)/128 - 4177401*(-2*x + 1)**(13/2)/1664 +
9504551*(-2*x + 1)**(11/2)/1408 - 4324397*(-2*x + 1)**(9/2)/384 +
 1405173*(-2*x + 1)**(7/2)/128 - 3195731*(-2*x + 1)**(5/2)/640
```

Mathematica [A] time = 0.0649255, size = 48, normalized size = 0.46

$$-\frac{(1-2x)^{5/2}\left(369208125x^7+1995171750x^6+4795033815x^5+6744559140x^4+6142984080x^3+3771434840x^2+15478888\right.}{692835}$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)^(3/2)*(2 + 3*x)^4*(3 + 5*x)^3,x]
```

```
[Out] -((1 - 2*x)^(5/2)*(369438704 + 1547888800*x + 3771434840*x^2 + 61
42984080*x^3 + 6744559140*x^4 + 4795033815*x^5 + 1995171750*x^6 +
```

```
369208125*x^7))/692835
```

Maple [A] time = 0.006, size = 45, normalized size = 0.4

$$-\frac{369208125\,x^{7}+1995171750\,x^{6}+4795033815\,x^{5}+6744559140\,x^{4}+6142984080\,x^{3}+3771434840\,x^{2}+1547888800\,x+369}{692835}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^4*(3+5*x)^3,x)
```

```
[Out] -1/692835*(369208125*x^7+1995171750*x^6+4795033815*x^5+6744559140
*x^4+6142984080*x^3+3771434840*x^2+1547888800*x+369438704)*(1-2*x
)^(5/2)
```

Maxima [A] time = 1.34966, size = 99, normalized size = 0.94

$$\frac{10125}{2432}\left(-2\,x+1\right)^{\frac{19}{2}}-\frac{161325}{2176}\left(-2\,x+1\right)^{\frac{17}{2}}+\frac{73431}{128}\left(-2\,x+1\right)^{\frac{15}{2}}-\frac{4177401}{1664}\left(-2\,x+1\right)^{\frac{13}{2}}+\frac{9504551}{1408}\left(-2\,x+1\right)^{\frac{11}{2}}-\frac{4324397}{384}\left(-2\,x+1\right)^{\frac{9}{2}}+\frac{1405173}{128}\left(-2\,x+1\right)^{\frac{7}{2}}-\frac{3195731}{640}\left(-2\,x+1\right)^{\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^4*(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] 10125/2432*(-2*x + 1)^(19/2) - 161325/2176*(-2*x + 1)^(17/2) + 73
431/128*(-2*x + 1)^(15/2) - 4177401/1664*(-2*x + 1)^(13/2) + 9504
551/1408*(-2*x + 1)^(11/2) - 4324397/384*(-2*x + 1)^(9/2) + 14051
73/128*(-2*x + 1)^(7/2) - 3195731/640*(-2*x + 1)^(5/2)
```

Fricas [A] time = 0.206876, size = 73, normalized size = 0.7

$$-\frac{1}{692835}\left(1476832500\,x^{9}+6503854500\,x^{8}+11568656385\,x^{7}+9793273050\,x^{6}+2388733575\,x^{5}-2741637820\,x^{4}-275120\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^4*(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/692835*(1476832500*x^9 + 6503854500*x^8 + 11568656385*x^7 + 97
93273050*x^6 + 2388733575*x^5 - 2741637820*x^4 - 2751200080*x^3 -
 942365544*x^2 + 70133984*x + 369438704)*sqrt(-2*x + 1)
```

Sympy [A] time = 4.82992, size = 94, normalized size = 0.9

$$\frac{10125\left(-2x+1\right)^{\frac{19}{2}}}{2432}-\frac{161325\left(-2x+1\right)^{\frac{17}{2}}}{2176}+\frac{73431\left(-2x+1\right)^{\frac{15}{2}}}{128}-\frac{4177401\left(-2x+1\right)^{\frac{13}{2}}}{1664}+\frac{9504551\left(-2x+1\right)^{\frac{11}{2}}}{1408}-\frac{4324397\left(-2x+1\right)^{\frac{9}{2}}}{384}+\frac{1405173\left(-2x+1\right)^{\frac{7}{2}}}{128}-\frac{3195731\left(-2x+1\right)^{\frac{5}{2}}}{640}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)**4*(3+5*x)**3,x)
```

```
[Out] 10125*(-2*x + 1)**(19/2)/2432 - 161325*(-2*x + 1)**(17/2)/2176 +
73431*(-2*x + 1)**(15/2)/128 - 4177401*(-2*x + 1)**(13/2)/1664 +
9504551*(-2*x + 1)**(11/2)/1408 - 4324397*(-2*x + 1)**(9/2)/384 +
 1405173*(-2*x + 1)**(7/2)/128 - 3195731*(-2*x + 1)**(5/2)/640
```

GIAC/XCAS [A] time = 0.211702, size = 1, normalized size = 0.01

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3*(3*x + 2)^4*(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] Done
```

3.1866 $\int (1-2x)^{3/2}(2+3x)^3(3+5x)^3\,dx$

Optimal. Leaf size=92

$$-\frac{3375(1-2x)^{17/2}}{1088}+\frac{765}{16}(1-2x)^{15/2}-\frac{260055}{832}(1-2x)^{13/2}+\frac{98209}{88}(1-2x)^{11/2}-\frac{444983}{192}(1-2x)^{9/2}+\frac{43197}{16}(1-2x)^{7/2}-\frac{456533}{320}(1-2x)^{5/2}$$

```
[Out] (-456533*(1 - 2*x)^(5/2))/320 + (43197*(1 - 2*x)^(7/2))/16 - (444
983*(1 - 2*x)^(9/2))/192 + (98209*(1 - 2*x)^(11/2))/88 - (260055*
(1 - 2*x)^(13/2))/832 + (765*(1 - 2*x)^(15/2))/16 - (3375*(1 - 2*
x)^(17/2))/1088
```

Rubi [A] time = 0.0687739, antiderivative size = 92, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.042

$$-\frac{3375(1-2x)^{17/2}}{1088}+\frac{765}{16}(1-2x)^{15/2}-\frac{260055}{832}(1-2x)^{13/2}+\frac{98209}{88}(1-2x)^{11/2}-\frac{444983}{192}(1-2x)^{9/2}+\frac{43197}{16}(1-2x)^{7/2}-\frac{456533}{320}(1-2x)^{5/2}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)*(2 + 3*x)^3*(3 + 5*x)^3,x]
```

```
[Out] (-456533*(1 - 2*x)^(5/2))/320 + (43197*(1 - 2*x)^(7/2))/16 - (444
983*(1 - 2*x)^(9/2))/192 + (98209*(1 - 2*x)^(11/2))/88 - (260055*
(1 - 2*x)^(13/2))/832 + (765*(1 - 2*x)^(15/2))/16 - (3375*(1 - 2*
x)^(17/2))/1088
```

Rubi in Sympy [A] time = 10.9318, size = 82, normalized size = 0.89

$$-\frac{3375\,(-2x+1)^{\frac{17}{2}}}{1088}+\frac{765\,(-2x+1)^{\frac{15}{2}}}{16}-\frac{260055\,(-2x+1)^{\frac{13}{2}}}{832}+\frac{98209\,(-2x+1)^{\frac{11}{2}}}{88}-\frac{444983\,(-2x+1)^{\frac{9}{2}}}{192}+\frac{43197\,(-2x+1)^{\frac{7}{2}}}{16}-\frac{456533\,(-2x+1)^{\frac{5}{2}}}{320}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)**3*(3+5*x)**3,x)
```

```
[Out] -3375*(-2*x + 1)**(17/2)/1088 + 765*(-2*x + 1)**(15/2)/16 - 26005
5*(-2*x + 1)**(13/2)/832 + 98209*(-2*x + 1)**(11/2)/88 - 444983*(
-2*x + 1)**(9/2)/192 + 43197*(-2*x + 1)**(7/2)/16 - 456533*(-2*x
+ 1)**(5/2)/320
```

Mathematica [A] time = 0.0567208, size = 43, normalized size = 0.47

$$-\frac{(1-2x)^{5/2}\left(7239375x^6+34073325x^5+70032600x^4+82215885x^3+60296725x^2+27917090x+7158706\right)}{36465}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)*(2 + 3*x)^3*(3 + 5*x)^3,x]
```

```
[Out] -((1 - 2*x)^(5/2)*(7158706 + 27917090*x + 60296725*x^2 + 82215885
*x^3 + 70032600*x^4 + 34073325*x^5 + 7239375*x^6))/36465
```

Maple [A] time = 0.006, size = 40, normalized size = 0.4

$$-\frac{7239375 x^{6}+34073325 x^{5}+70032600 x^{4}+82215885 x^{3}+60296725 x^{2}+27917090 x+7158706}{36465} (1-2 x)^{\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^3*(3+5*x)^3,x)
```

```
[Out] -1/36465*(7239375*x^6+34073325*x^5+70032600*x^4+82215885*x^3+6029
6725*x^2+27917090*x+7158706)*(1-2*x)^(5/2)
```

Maxima [A] time = 1.35957, size = 86, normalized size = 0.93

$$-\frac{3375}{1088} (-2 x+1)^{\frac{17}{2}}+\frac{765}{16} (-2 x+1)^{\frac{15}{2}}-\frac{260055}{832} (-2 x+1)^{\frac{13}{2}}+\frac{98209}{88} (-2 x+1)^{\frac{11}{2}} -\frac{444983}{192} (-2 x+1)^{\frac{9}{2}}+\frac{43197}{16} (-2 x+1)^{\frac{7}{2}}-\frac{456533}{320} (-2 x+1)^{\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^3*(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] -3375/1088*(-2*x + 1)^(17/2) + 765/16*(-2*x + 1)^(15/2) - 260055/
832*(-2*x + 1)^(13/2) + 98209/88*(-2*x + 1)^(11/2) - 444983/192*(
-2*x + 1)^(9/2) + 43197/16*(-2*x + 1)^(7/2) - 456533/320*(-2*x +
1)^(5/2)
```

Fricas [A] time = 0.204799, size = 66, normalized size = 0.72

$$-\frac{1}{36465} \left(28957500 x^{8}+107335800 x^{7}+151076475 x^{6}+82806465 x^{5}-17644040 x^{4}-47302655 x^{3}-22736811 x^{2}-71773$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^3*(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/36465*(28957500*x^8 + 107335800*x^7 + 151076475*x^6 + 82806465
*x^5 - 17644040*x^4 - 47302655*x^3 - 22736811*x^2 - 717734*x + 71
58706)*sqrt(-2*x + 1)
```

Sympy [A] time = 4.17803, size = 82, normalized size = 0.89

$$-\frac{3375 (-2x+1)^{\frac{17}{2}}}{1088}+\frac{765 (-2x+1)^{\frac{15}{2}}}{16}-\frac{260055 (-2x+1)^{\frac{13}{2}}}{832}+\frac{98209 (-2x+1)^{\frac{11}{2}}}{88} -\frac{444983 (-2x+1)^{\frac{9}{2}}}{192}+\frac{43197 (-2x+1)^{\frac{7}{2}}}{16}-\frac{456533 (-2x+1)^{\frac{5}{2}}}{320}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)**3*(3+5*x)**3,x)
```

```
[Out] -3375*(-2*x + 1)**(17/2)/1088 + 765*(-2*x + 1)**(15/2)/16 - 26005
5*(-2*x + 1)**(13/2)/832 + 98209*(-2*x + 1)**(11/2)/88 - 444983*(
-2*x + 1)**(9/2)/192 + 43197*(-2*x + 1)**(7/2)/16 - 456533*(-2*x
```

```
+ 1)**(5/2)/320
```

GIAC/XCAS [A] time = 0.213685, size = 153, normalized size = 1.66

$$-\frac{3375}{1088}(2x-1)^8\sqrt{-2x+1}-\frac{765}{16}(2x-1)^7\sqrt{-2x+1}-\frac{260055}{832}(2x-1)^6\sqrt{-2x+1}-\frac{98209}{88}(2x-1)^5\sqrt{-2x+1}-\frac{444983}{192}(2x-1)^4\sqrt{-2x+1}-\frac{43197}{16}(2x-1)^3\sqrt{-2x+1}-\frac{456533}{320}(2x-1)^2\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3*(3*x + 2)^3*(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] -3375/1088*(2*x - 1)^8*sqrt(-2*x + 1) - 765/16*(2*x - 1)^7*sqrt(-
2*x + 1) - 260055/832*(2*x - 1)^6*sqrt(-2*x + 1) - 98209/88*(2*x
- 1)^5*sqrt(-2*x + 1) - 444983/192*(2*x - 1)^4*sqrt(-2*x + 1) - 4
3197/16*(2*x - 1)^3*sqrt(-2*x + 1) - 456533/320*(2*x - 1)^2*sqrt(
-2*x + 1)
```

3.1867 $\int (1-2x)^{3/2}(2+3x)^2(3+5x)^3\,dx$

Optimal. Leaf size=79

$$\frac{75}{32}(1-2x)^{15/2}-\frac{975}{32}(1-2x)^{13/2}+\frac{28555}{176}(1-2x)^{11/2}-\frac{21439}{48}(1-2x)^{9/2}+\frac{20691}{32}(1-2x)^{7/2}-\frac{65219}{160}(1-2x)^{5/2}$$

```
[Out] (-65219*(1 - 2*x)^(5/2))/160 + (20691*(1 - 2*x)^(7/2))/32 - (2143
9*(1 - 2*x)^(9/2))/48 + (28555*(1 - 2*x)^(11/2))/176 - (975*(1 -
2*x)^(13/2))/32 + (75*(1 - 2*x)^(15/2))/32
```

Rubi [A] time = 0.0639268, antiderivative size = 79, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.042

$$\frac{75}{32}(1-2x)^{15/2}-\frac{975}{32}(1-2x)^{13/2}+\frac{28555}{176}(1-2x)^{11/2}-\frac{21439}{48}(1-2x)^{9/2}+\frac{20691}{32}(1-2x)^{7/2}-\frac{65219}{160}(1-2x)^{5/2}$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^(3/2)*(2 + 3*x)^2*(3 + 5*x)^3,x]
```

```
[Out] (-65219*(1 - 2*x)^(5/2))/160 + (20691*(1 - 2*x)^(7/2))/32 - (2143
9*(1 - 2*x)^(9/2))/48 + (28555*(1 - 2*x)^(11/2))/176 - (975*(1 -
2*x)^(13/2))/32 + (75*(1 - 2*x)^(15/2))/32
```

Rubi in Sympy [A] time = 10.1565, size = 70, normalized size = 0.89

$$\frac{75(-2x+1)^{\frac{15}{2}}}{32}-\frac{975(-2x+1)^{\frac{13}{2}}}{32}+\frac{28555(-2x+1)^{\frac{11}{2}}}{176}-\frac{21439(-2x+1)^{\frac{9}{2}}}{48}+\frac{20691(-2x+1)^{\frac{7}{2}}}{32}-\frac{65219(-2x+1)^{\frac{5}{2}}}{160}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**(3/2)*(2+3*x)**2*(3+5*x)**3,x)
```

```
[Out] 75*(-2*x + 1)**(15/2)/32 - 975*(-2*x + 1)**(13/2)/32 + 28555*(-2*
x + 1)**(11/2)/176 - 21439*(-2*x + 1)**(9/2)/48 + 20691*(-2*x + 1
)**(7/2)/32 - 65219*(-2*x + 1)**(5/2)/160
```

Mathematica [A] time = 0.0541882, size = 38, normalized size = 0.48

$$-\frac{1}{165}(1-2x)^{5/2}\left(12375x^5+49500x^4+84225x^3+78730x^2+42860x+12136\right)$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)^(3/2)*(2 + 3*x)^2*(3 + 5*x)^3,x]
```

```
[Out] -((1 - 2*x)^(5/2)*(12136 + 42860*x + 78730*x^2 + 84225*x^3 + 4950
0*x^4 + 12375*x^5))/165
```

Maple [A] time = 0.006, size = 35, normalized size = 0.4

$$-\frac{12375\,x^{5}+49500\,x^{4}+84225\,x^{3}+78730\,x^{2}+42860\,x+12136}{165}\,(1-2\,x)^{\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^2*(3+5*x)^3,x)
```

```
[Out] -1/165*(12375*x^5+49500*x^4+84225*x^3+78730*x^2+42860*x+12136)*(1
-2*x)^(5/2)
```

Maxima [A] time = 1.36577, size = 74, normalized size = 0.94

$$\frac{75}{32}\,(-2\,x+1)^{\frac{15}{2}}-\frac{975}{32}\,(-2\,x+1)^{\frac{13}{2}}+\frac{28555}{176}\,(-2\,x+1)^{\frac{11}{2}}-\frac{21439}{48}\,(-2\,x+1)^{\frac{9}{2}}+\frac{20691}{32}\,(-2\,x+1)^{\frac{7}{2}}-\frac{65219}{160}\,(-2\,x+1)^{\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^2*(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] 75/32*(-2*x + 1)^(15/2) - 975/32*(-2*x + 1)^(13/2) + 28555/176*(-
2*x + 1)^(11/2) - 21439/48*(-2*x + 1)^(9/2) + 20691/32*(-2*x + 1)
^(7/2) - 65219/160*(-2*x + 1)^(5/2)
```

Fricas [A] time = 0.207656, size = 59, normalized size = 0.75

$$-\frac{1}{165}\left(49500\,x^{7}+148500\,x^{6}+151275\,x^{5}+27520\,x^{4}-59255\,x^{3}-44166\,x^{2}-5684\,x+12136\right)\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^2*(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/165*(49500*x^7 + 148500*x^6 + 151275*x^5 + 27520*x^4 - 59255*x
^3 - 44166*x^2 - 5684*x + 12136)*sqrt(-2*x + 1)
```

Sympy [A] time = 3.56669, size = 70, normalized size = 0.89

$$\frac{75\,(-2x+1)^{\frac{15}{2}}}{32}-\frac{975\,(-2x+1)^{\frac{13}{2}}}{32}+\frac{28555\,(-2x+1)^{\frac{11}{2}}}{176}-\frac{21439\,(-2x+1)^{\frac{9}{2}}}{48}+\frac{20691\,(-2x+1)^{\frac{7}{2}}}{32}-\frac{65219\,(-2x+1)^{\frac{5}{2}}}{160}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)**2*(3+5*x)**3,x)
```

```
[Out] 75*(-2*x + 1)**(15/2)/32 - 975*(-2*x + 1)**(13/2)/32 + 28555*(-2*
x + 1)**(11/2)/176 - 21439*(-2*x + 1)**(9/2)/48 + 20691*(-2*x + 1
)**(7/2)/32 - 65219*(-2*x + 1)**(5/2)/160
```

GIAC/XCAS [A] time = 0.215222, size = 131, normalized size = 1.66

$$-\frac{75}{32}\,(2\,x-1)^{7}\sqrt{-2\,x+1}-\frac{975}{32}\,(2\,x-1)^{6}\sqrt{-2\,x+1}-\frac{28555}{176}\,(2\,x-1)^{5}\sqrt{-2\,x+1}-\frac{21439}{48}\,(2\,x-1)^{4}\sqrt{-2\,x+1}-\frac{20691}{32}\,(2\,x-1)^{3}\sqrt{-2\,x+1}-\frac{65219}{160}\,(2\,x-1)^{2}\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3*(3*x + 2)^2*(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] -75/32*(2*x - 1)^7*sqrt(-2*x + 1) - 975/32*(2*x - 1)^6*sqrt(-2*x
+ 1) - 28555/176*(2*x - 1)^5*sqrt(-2*x + 1) - 21439/48*(2*x - 1)^
4*sqrt(-2*x + 1) - 20691/32*(2*x - 1)^3*sqrt(-2*x + 1) - 65219/16
0*(2*x - 1)^2*sqrt(-2*x + 1)
```

3.1868 $\int (1-2x)^{3/2}(2+3x)(3+5x)^3\,dx$

Optimal. Leaf size=66

$$-\frac{375}{208}(1-2x)^{13/2}+\frac{1675}{88}(1-2x)^{11/2}-\frac{935}{12}(1-2x)^{9/2}+\frac{8349}{56}(1-2x)^{7/2}-\frac{9317}{80}(1-2x)^{5/2}$$

```
[Out] (-9317*(1 - 2*x)^(5/2))/80 + (8349*(1 - 2*x)^(7/2))/56 - (935*(1
- 2*x)^(9/2))/12 + (1675*(1 - 2*x)^(11/2))/88 - (375*(1 - 2*x)^(1
3/2))/208
```

Rubi [A] time = 0.0506069, antiderivative size = 66, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{375}{208}(1-2x)^{13/2}+\frac{1675}{88}(1-2x)^{11/2}-\frac{935}{12}(1-2x)^{9/2}+\frac{8349}{56}(1-2x)^{7/2}-\frac{9317}{80}(1-2x)^{5/2}$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^(3/2)*(2 + 3*x)*(3 + 5*x)^3,x]
```

```
[Out] (-9317*(1 - 2*x)^(5/2))/80 + (8349*(1 - 2*x)^(7/2))/56 - (935*(1
- 2*x)^(9/2))/12 + (1675*(1 - 2*x)^(11/2))/88 - (375*(1 - 2*x)^(1
3/2))/208
```

Rubi in Sympy [A] time = 8.2551, size = 58, normalized size = 0.88

$$-\frac{375(-2x+1)^{\frac{13}{2}}}{208}+\frac{1675(-2x+1)^{\frac{11}{2}}}{88}-\frac{935(-2x+1)^{\frac{9}{2}}}{12}+\frac{8349(-2x+1)^{\frac{7}{2}}}{56}-\frac{9317(-2x+1)^{\frac{5}{2}}}{80}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**(3/2)*(2+3*x)*(3+5*x)**3,x)
```

```
[Out] -375*(-2*x + 1)**(13/2)/208 + 1675*(-2*x + 1)**(11/2)/88 - 935*(-
2*x + 1)**(9/2)/12 + 8349*(-2*x + 1)**(7/2)/56 - 9317*(-2*x + 1)*
*(5/2)/80
```

Mathematica [A] time = 0.0394805, size = 33, normalized size = 0.5

$$-\frac{(1-2x)^{5/2}\left(433125x^4+1420125x^3+1899800x^2+1295695x+421301\right)}{15015}$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)^(3/2)*(2 + 3*x)*(3 + 5*x)^3,x]
```

```
[Out] -((1 - 2*x)^(5/2)*(421301 + 1295695*x + 1899800*x^2 + 1420125*x^3
 + 433125*x^4))/15015
```

Maple [A] time = 0.006, size = 30, normalized size = 0.5

$$-\frac{433125\,x^4+1420125\,x^3+1899800\,x^2+1295695\,x+421301}{15015}(1-2\,x)^{\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)*(3+5*x)^3,x)
```

```
[Out] -1/15015*(433125*x^4+1420125*x^3+1899800*x^2+1295695*x+421301)*(1
-2*x)^(5/2)
```

Maxima [A] time = 1.34357, size = 62, normalized size = 0.94

$$-\frac{375}{208}(-2x+1)^{\frac{13}{2}}+\frac{1675}{88}(-2x+1)^{\frac{11}{2}}-\frac{935}{12}(-2x+1)^{\frac{9}{2}}+\frac{8349}{56}(-2x+1)^{\frac{7}{2}}-\frac{9317}{80}(-2x+1)^{\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)*(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] -375/208*(-2*x + 1)^(13/2) + 1675/88*(-2*x + 1)^(11/2) - 935/12*(
-2*x + 1)^(9/2) + 8349/56*(-2*x + 1)^(7/2) - 9317/80*(-2*x + 1)^(
5/2)
```

Fricas [A] time = 0.217995, size = 53, normalized size = 0.8

$$-\frac{1}{15015}\left(1732500x^6+3948000x^5+2351825x^4-996295x^3-1597776x^2-389509x+421301\right)\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)*(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/15015*(1732500*x^6 + 3948000*x^5 + 2351825*x^4 - 996295*x^3 -
1597776*x^2 - 389509*x + 421301)*sqrt(-2*x + 1)
```

Sympy [A] time = 3.13261, size = 58, normalized size = 0.88

$$-\frac{375(-2x+1)^{\frac{13}{2}}}{208}+\frac{1675(-2x+1)^{\frac{11}{2}}}{88}-\frac{935(-2x+1)^{\frac{9}{2}}}{12}+\frac{8349(-2x+1)^{\frac{7}{2}}}{56}-\frac{9317(-2x+1)^{\frac{5}{2}}}{80}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)*(3+5*x)**3,x)
```

```
[Out] -375*(-2*x + 1)**(13/2)/208 + 1675*(-2*x + 1)**(11/2)/88 - 935*(-
2*x + 1)**(9/2)/12 + 8349*(-2*x + 1)**(7/2)/56 - 9317*(-2*x + 1)*
*(5/2)/80
```

GIAC/XCAS [A] time = 0.214322, size = 109, normalized size = 1.65

$$-\frac{375}{208}(2x-1)^6\sqrt{-2x+1}-\frac{1675}{88}(2x-1)^5\sqrt{-2x+1}-\frac{935}{12}(2x-1)^4\sqrt{-2x+1}-\frac{8349}{56}(2x-1)^3\sqrt{-2x+1}-\frac{9317}{80}(2x-1)^2\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)*(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] -375/208*(2*x - 1)^6*sqrt(-2*x + 1) - 1675/88*(2*x - 1)^5*sqrt(-2
*x + 1) - 935/12*(2*x - 1)^4*sqrt(-2*x + 1) - 8349/56*(2*x - 1)^3
*sqrt(-2*x + 1) - 9317/80*(2*x - 1)^2*sqrt(-2*x + 1)
```

3.1869 $\int (1-2x)^{3/2}(3+5x)^3\,dx$

Optimal. Leaf size=53

$$\frac{125}{88}(1-2x)^{11/2}-\frac{275}{24}(1-2x)^{9/2}+\frac{1815}{56}(1-2x)^{7/2}-\frac{1331}{40}(1-2x)^{5/2}$$

```
[Out] (-1331*(1 - 2*x)^(5/2))/40 + (1815*(1 - 2*x)^(7/2))/56 - (275*(1
- 2*x)^(9/2))/24 + (125*(1 - 2*x)^(11/2))/88
```

Rubi [A] time = 0.0309673, antiderivative size = 53, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 17, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.059

$$\frac{125}{88}(1-2x)^{11/2}-\frac{275}{24}(1-2x)^{9/2}+\frac{1815}{56}(1-2x)^{7/2}-\frac{1331}{40}(1-2x)^{5/2}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)*(3 + 5*x)^3,x]
```

```
[Out] (-1331*(1 - 2*x)^(5/2))/40 + (1815*(1 - 2*x)^(7/2))/56 - (275*(1
- 2*x)^(9/2))/24 + (125*(1 - 2*x)^(11/2))/88
```

Rubi in Sympy [A] time = 6.0054, size = 46, normalized size = 0.87

$$\frac{125(-2x+1)^{\frac{11}{2}}}{88}-\frac{275(-2x+1)^{\frac{9}{2}}}{24}+\frac{1815(-2x+1)^{\frac{7}{2}}}{56}-\frac{1331(-2x+1)^{\frac{5}{2}}}{40}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**3,x)
```

```
[Out] 125*(-2*x + 1)**(11/2)/88 - 275*(-2*x + 1)**(9/2)/24 + 1815*(-2*x
 + 1)**(7/2)/56 - 1331*(-2*x + 1)**(5/2)/40
```

Mathematica [A] time = 0.0319007, size = 28, normalized size = 0.53

$$-\frac{(1-2x)^{5/2}\left(13125x^3+33250x^2+31775x+12592\right)}{1155}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)*(3 + 5*x)^3,x]
```

```
[Out] -((1 - 2*x)^(5/2)*(12592 + 31775*x + 33250*x^2 + 13125*x^3))/1155
```

Maple [A] time = 0.005, size = 25, normalized size = 0.5

$$-\frac{13125\,x^3+33250\,x^2+31775\,x+12592}{1155}(1-2\,x)^{\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^3,x)
```

```
[Out] -1/1155*(13125*x^3+33250*x^2+31775*x+12592)*(1-2*x)^(5/2)
```

Maxima [A] time = 1.34981, size = 50, normalized size = 0.94

$$\frac{125}{88}\,(-2\,x+1)^{\frac{11}{2}}-\frac{275}{24}\,(-2\,x+1)^{\frac{9}{2}}+\frac{1815}{56}\,(-2\,x+1)^{\frac{7}{2}}-\frac{1331}{40}\,(-2\,x+1)^{\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] 125/88*(-2*x + 1)^(11/2) - 275/24*(-2*x + 1)^(9/2) + 1815/56*(-2*
x + 1)^(7/2) - 1331/40*(-2*x + 1)^(5/2)
```

Fricas [A] time = 0.209929, size = 46, normalized size = 0.87

$$-\frac{1}{1155}\left(52500\,x^5+80500\,x^4+7225\,x^3-43482\,x^2-18593\,x+12592\right)\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/1155*(52500*x^5 + 80500*x^4 + 7225*x^3 - 43482*x^2 - 18593*x +
 12592)*sqrt(-2*x + 1)
```

Sympy [A] time = 3.70336, size = 286, normalized size = 5.4

$$\begin{cases}-\frac{100\sqrt{5}i\left(x+\frac{3}{5}\right)^5\sqrt{10x-5}}{11}+\frac{40\sqrt{5}i\left(x+\frac{3}{5}\right)^4\sqrt{10x-5}}{3}-\frac{11\sqrt{5}i\left(x+\frac{3}{5}\right)^3\sqrt{10x-5}}{21}-\frac{121\sqrt{5}i\left(x+\frac{3}{5}\right)^2\sqrt{10x-5}}{175}-\frac{2662\sqrt{5}i\left(x+\frac{3}{5}\right)\sqrt{10x-5}}{2625}-\frac{29282\sqrt{5}i\sqrt{10x-5}}{13125} \\ -\frac{100\sqrt{5}\sqrt{-10x+5}\left(x+\frac{3}{5}\right)^5}{11}+\frac{40\sqrt{5}\sqrt{-10x+5}\left(x+\frac{3}{5}\right)^4}{3}-\frac{11\sqrt{5}\sqrt{-10x+5}\left(x+\frac{3}{5}\right)^3}{21}-\frac{121\sqrt{5}\sqrt{-10x+5}\left(x+\frac{3}{5}\right)^2}{175}-\frac{2662\sqrt{5}\sqrt{-10x+5}\left(x+\frac{3}{5}\right)}{2625}-\frac{29282\sqrt{5}\sqrt{-10x+5}}{13125}\end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**3,x)
```

```
[Out] Piecewise((-100*sqrt(5)*I*(x + 3/5)**5*sqrt(10*x - 5)/11 + 40*sqr
t(5)*I*(x + 3/5)**4*sqrt(10*x - 5)/3 - 11*sqrt(5)*I*(x + 3/5)**3*
sqrt(10*x - 5)/21 - 121*sqrt(5)*I*(x + 3/5)**2*sqrt(10*x - 5)/175
 - 2662*sqrt(5)*I*(x + 3/5)*sqrt(10*x - 5)/2625 - 29282*sqrt(5)*I
*sqrt(10*x - 5)/13125, 10*Abs(x + 3/5)/11 > 1), (-100*sqrt(5)*sqr
t(-10*x + 5)*(x + 3/5)**5/11 + 40*sqrt(5)*sqrt(-10*x + 5)*(x + 3/
5)**4/3 - 11*sqrt(5)*sqrt(-10*x + 5)*(x + 3/5)**3/21 - 121*sqrt(5
)*sqrt(-10*x + 5)*(x + 3/5)**2/175 - 2662*sqrt(5)*sqrt(-10*x + 5)
*(x + 3/5)/2625 - 29282*sqrt(5)*sqrt(-10*x + 5)/13125, True))
```

GIAC/XCAS [A] time = 0.214335, size = 88, normalized size = 1.66

$$-\frac{125}{88}\,(2\,x-1)^5\sqrt{-2\,x+1}-\frac{275}{24}\,(2\,x-1)^4\sqrt{-2\,x+1}-\frac{1815}{56}\,(2\,x-1)^3\sqrt{-2\,x+1}-\frac{1331}{40}\,(2\,x-1)^2\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] -125/88*(2*x - 1)^5*sqrt(-2*x + 1) - 275/24*(2*x - 1)^4*sqrt(-2*x
 + 1) - 1815/56*(2*x - 1)^3*sqrt(-2*x + 1) - 1331/40*(2*x - 1)^2*
sqrt(-2*x + 1)
```

3.1870 $\int \frac{(1-2x)^{3/2}(3+5x)^3}{2+3x}\,dx$

Optimal. Leaf size=95

$$-\frac{125}{108}(1-2x)^{9/2}+\frac{400}{63}(1-2x)^{7/2}-\frac{1027}{108}(1-2x)^{5/2}-\frac{2}{243}(1-2x)^{3/2}-\frac{14}{243}\sqrt{1-2x}+\frac{14}{243}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

```
[Out] (-14*Sqrt[1 - 2*x])/243 - (2*(1 - 2*x)^(3/2))/243 - (1027*(1 - 2*
x)^(5/2))/108 + (400*(1 - 2*x)^(7/2))/63 - (125*(1 - 2*x)^(9/2))/
108 + (14*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/243
```

Rubi [A] time = 0.103802, antiderivative size = 95, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$-\frac{125}{108}(1-2x)^{9/2}+\frac{400}{63}(1-2x)^{7/2}-\frac{1027}{108}(1-2x)^{5/2}-\frac{2}{243}(1-2x)^{3/2}-\frac{14}{243}\sqrt{1-2x}+\frac{14}{243}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)^(3/2)*(3 + 5*x)^3)/(2 + 3*x),x]
```

```
[Out] (-14*Sqrt[1 - 2*x])/243 - (2*(1 - 2*x)^(3/2))/243 - (1027*(1 - 2*
x)^(5/2))/108 + (400*(1 - 2*x)^(7/2))/63 - (125*(1 - 2*x)^(9/2))/
108 + (14*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/243
```

Rubi in Sympy [A] time = 11.7621, size = 83, normalized size = 0.87

$$-\frac{125\left(-2x+1\right)^{\frac{9}{2}}}{108}+\frac{400\left(-2x+1\right)^{\frac{7}{2}}}{63}-\frac{1027\left(-2x+1\right)^{\frac{5}{2}}}{108}-\frac{2\left(-2x+1\right)^{\frac{3}{2}}}{243}-\frac{14\sqrt{-2x+1}}{243}+\frac{14\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{729}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**(3/2)*(3+5*x)**3/(2+3*x),x)
```

```
[Out] -125*(-2*x + 1)**(9/2)/108 + 400*(-2*x + 1)**(7/2)/63 - 1027*(-2*
x + 1)**(5/2)/108 - 2*(-2*x + 1)**(3/2)/243 - 14*sqrt(-2*x + 1)/2
43 + 14*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/729
```

Mathematica [A] time = 0.0881326, size = 61, normalized size = 0.64

$$\frac{98\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-3\sqrt{1-2x}\left(31500x^4+23400x^3-17649x^2-15679x+7456\right)}{5103}$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)^(3/2)*(3 + 5*x)^3)/(2 + 3*x),x]
```

```
[Out] (-3*Sqrt[1 - 2*x]*(7456 - 15679*x - 17649*x^2 + 23400*x^3 + 31500
*x^4) + 98*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/5103
```

Maple [A] time = 0.01, size = 65, normalized size = 0.7

$$-\frac{2}{243}(1-2x)^{\frac{3}{2}}-\frac{1027}{108}(1-2x)^{\frac{5}{2}}+\frac{400}{63}(1-2x)^{\frac{7}{2}}-\frac{125}{108}(1-2x)^{\frac{9}{2}}+\frac{14\sqrt{21}}{729}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)-\frac{14}{243}\sqrt{1-2x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((1-2*x)^(3/2)*(3+5*x)^3/(2+3*x),x)
```

```
[Out] -2/243*(1-2*x)^(3/2)-1027/108*(1-2*x)^(5/2)+400/63*(1-2*x)^(7/2)-
125/108*(1-2*x)^(9/2)+14/729*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*
21^(1/2)-14/243*(1-2*x)^(1/2)
```

Maxima [A] time = 1.49875, size = 111, normalized size = 1.17

$$-\frac{125}{108}(-2x+1)^{\frac{9}{2}}+\frac{400}{63}(-2x+1)^{\frac{7}{2}}-\frac{1027}{108}(-2x+1)^{\frac{5}{2}}-\frac{2}{243}(-2x+1)^{\frac{3}{2}}-\frac{7}{729}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{14}{243}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3*(-2*x + 1)^(3/2)/(3*x + 2),x, algorithm="maxima")
```

```
[Out] -125/108*(-2*x + 1)^(9/2) + 400/63*(-2*x + 1)^(7/2) - 1027/108*(-
2*x + 1)^(5/2) - 2/243*(-2*x + 1)^(3/2) - 7/729*sqrt(21)*log(-(sq
rt(21) - 3*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 14/24
3*sqrt(-2*x + 1)
```

Fricas [A] time = 0.216106, size = 99, normalized size = 1.04

$$-\frac{1}{5103}\sqrt{3}\left(\sqrt{3}\left(31500x^4+23400x^3-17649x^2-15679x+7456\right)\sqrt{-2x+1}-49\sqrt{7}\log\left(\frac{\sqrt{3}(3x-5)-3\sqrt{7}\sqrt{-2x+1}}{3x+2}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3*(-2*x + 1)^(3/2)/(3*x + 2),x, algorithm="fricas")
```

```
[Out] -1/5103*sqrt(3)*(sqrt(3)*(31500*x^4 + 23400*x^3 - 17649*x^2 - 156
79*x + 7456)*sqrt(-2*x + 1) - 49*sqrt(7)*log((sqrt(3)*(3*x - 5) -
 3*sqrt(7)*sqrt(-2*x + 1))/(3*x + 2)))
```

Sympy [A] time = 13.3597, size = 122, normalized size = 1.28

$$-\frac{125(-2x+1)^{\frac{9}{2}}}{108}+\frac{400(-2x+1)^{\frac{7}{2}}}{63}-\frac{1027(-2x+1)^{\frac{5}{2}}}{108}-\frac{2(-2x+1)^{\frac{3}{2}}}{243}-\frac{14\sqrt{-2x+1}}{243}-\frac{98\left(\begin{cases}-\frac{\sqrt{21}\operatorname{acoth}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for } -2x+1>\frac{7}{3}\\ -\frac{\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for } -2x+1<\frac{7}{3}\end{cases}\right)}{243}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**3/(2+3*x),x)
```

```
[Out] -125*(-2*x + 1)**(9/2)/108 + 400*(-2*x + 1)**(7/2)/63 - 1027*(-2*
x + 1)**(5/2)/108 - 2*(-2*x + 1)**(3/2)/243 - 14*sqrt(-2*x + 1)/2
43 - 98*Piecewise((-sqrt(21)*acoth(sqrt(21)*sqrt(-2*x + 1)/7)/21,
 -2*x + 1 > 7/3), (-sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/21,
 -2*x + 1 < 7/3))/243
```

GIAC/XCAS [A] time = 0.233508, size = 143, normalized size = 1.51

$$-\frac{125}{108}\,(2\,x-1)^{4}\sqrt{-2\,x+1}-\frac{400}{63}\,(2\,x-1)^{3}\sqrt{-2\,x+1}-\frac{1027}{108}\,(2\,x-1)^{2}\sqrt{-2\,x+1}-\frac{2}{243}\,(-2\,x+1)^{\frac{3}{2}}-\frac{7}{729}\,\sqrt{21}\ln\left(\frac{\left|-2\,\sqrt{21}+6\,\sqrt{-2\,x+1}\right|}{2\,\left(\sqrt{21}+3\,\sqrt{-2\,x+1}\right)}\right)-\frac{14}{243}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(-2*x + 1)^(3/2)/(3*x + 2),x, algorithm="giac")
```

```
[Out] -125/108*(2*x - 1)^4*sqrt(-2*x + 1) - 400/63*(2*x - 1)^3*sqrt(-2*
x + 1) - 1027/108*(2*x - 1)^2*sqrt(-2*x + 1) - 2/243*(-2*x + 1)^(
3/2) - 7/729*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/
(sqrt(21) + 3*sqrt(-2*x + 1))) - 14/243*sqrt(-2*x + 1)
```

3.1871 $\int \frac{(1-2x)^{3/2}(3+5x)^3}{(2+3x)^2}\,dx$

Optimal. Leaf size=108

$$-\frac{(1-2x)^{3/2}(5x+3)^3}{3(3x+2)}+\frac{5}{7}(1-2x)^{3/2}(5x+3)^2-\frac{10}{63}(1-2x)^{3/2}(27x+22)+\frac{8}{9}\sqrt{1-2x}-\frac{8}{9}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

```
[Out] (8*Sqrt[1 - 2*x])/9 + (5*(1 - 2*x)^(3/2)*(3 + 5*x)^2)/7 - ((1 - 2
*x)^(3/2)*(3 + 5*x)^3)/(3*(2 + 3*x)) - (10*(1 - 2*x)^(3/2)*(22 +
27*x))/63 - (8*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/9
```

Rubi [A] time = 0.155814, antiderivative size = 108, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$-\frac{(1-2x)^{3/2}(5x+3)^3}{3(3x+2)}+\frac{5}{7}(1-2x)^{3/2}(5x+3)^2-\frac{10}{63}(1-2x)^{3/2}(27x+22)+\frac{8}{9}\sqrt{1-2x}-\frac{8}{9}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(3 + 5*x)^3)/(2 + 3*x)^2,x]
```

```
[Out] (8*Sqrt[1 - 2*x])/9 + (5*(1 - 2*x)^(3/2)*(3 + 5*x)^2)/7 - ((1 - 2
*x)^(3/2)*(3 + 5*x)^3)/(3*(2 + 3*x)) - (10*(1 - 2*x)^(3/2)*(22 +
27*x))/63 - (8*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/9
```

Rubi in Sympy [A] time = 20.8721, size = 90, normalized size = 0.83

$$\frac{5\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{2}}{7}-\frac{\left(-2x+1\right)^{\frac{3}{2}}\left(36450x+29700\right)}{8505}-\frac{\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{3}}{3\left(3x+2\right)}+\frac{8\sqrt{-2x+1}}{9}-\frac{8\sqrt{21}\,\mathrm{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{27}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**3/(2+3*x)**2,x)
```

```
[Out] 5*(-2*x + 1)**(3/2)*(5*x + 3)**2/7 - (-2*x + 1)**(3/2)*(36450*x +
 29700)/8505 - (-2*x + 1)**(3/2)*(5*x + 3)**3/(3*(3*x + 2)) + 8*s
qrt(-2*x + 1)/9 - 8*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/27
```

Mathematica [A] time = 0.118557, size = 70, normalized size = 0.65

$$-\frac{\sqrt{1-2x}\left(1500x^4+780x^3-1005x^2-442x+85\right)}{63(3x+2)}-\frac{8}{9}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(3 + 5*x)^3)/(2 + 3*x)^2,x]
```

```
[Out] -(Sqrt[1 - 2*x]*(85 - 442*x - 1005*x^2 + 780*x^3 + 1500*x^4))/(63
*(2 + 3*x)) - (8*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/9
```

Maple [A] time = 0.017, size = 72, normalized size = 0.7

$$\frac{125}{126}(1-2x)^{\frac{7}{2}}-\frac{145}{54}(1-2x)^{\frac{5}{2}}+\frac{10}{81}(1-2x)^{\frac{3}{2}}+\frac{214}{243}\sqrt{1-2x}-\frac{14}{729}\sqrt{1-2x}\left(-\frac{4}{3}-2x\right)^{-1}-\frac{8\sqrt{21}}{27}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((1-2*x)^(3/2)*(3+5*x)^3/(2+3*x)^2,x)
```

```
[Out] 125/126*(1-2*x)^(7/2)-145/54*(1-2*x)^(5/2)+10/81*(1-2*x)^(3/2)+21
4/243*(1-2*x)^(1/2)-14/729*(1-2*x)^(1/2)/(-4/3-2*x)-8/27*arctanh(
1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.49626, size = 120, normalized size = 1.11

$$\frac{125}{126}(-2x+1)^{\frac{7}{2}}-\frac{145}{54}(-2x+1)^{\frac{5}{2}}+\frac{10}{81}(-2x+1)^{\frac{3}{2}}+\frac{4}{27}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{214}{243}\sqrt{-2x+1}+\frac{7\sqrt{-2x+1}}{243(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3*(-2*x + 1)^(3/2)/(3*x + 2)^2,x, algorithm="maxima")
```

```
[Out] 125/126*(-2*x + 1)^(7/2) - 145/54*(-2*x + 1)^(5/2) + 10/81*(-2*x
+ 1)^(3/2) + 4/27*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sq
rt(21) + 3*sqrt(-2*x + 1))) + 214/243*sqrt(-2*x + 1) + 7/243*sqrt
(-2*x + 1)/(3*x + 2)
```

Fricas [A] time = 0.217633, size = 116, normalized size = 1.07

$$\frac{\sqrt{3}\left(28\sqrt{7}(3x+2)\log\left(\frac{\sqrt{3}(3x-5)+3\sqrt{7}\sqrt{-2x+1}}{3x+2}\right)-\sqrt{3}\left(1500x^4+780x^3-1005x^2-442x+85\right)\sqrt{-2x+1}\right)}{189(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3*(-2*x + 1)^(3/2)/(3*x + 2)^2,x, algorithm="fricas")
```

```
[Out] 1/189*sqrt(3)*(28*sqrt(7)*(3*x + 2)*log((sqrt(3)*(3*x - 5) + 3*sq
rt(7)*sqrt(-2*x + 1))/(3*x + 2)) - sqrt(3)*(1500*x^4 + 780*x^3 -
1005*x^2 - 442*x + 85)*sqrt(-2*x + 1))/(3*x + 2)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(3/2)*(3+5*x)**3/(2+3*x)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.242675, size = 143, normalized size = 1.32

$$-\frac{125}{126}\,(2\,x-1)^3\sqrt{-2\,x+1}-\frac{145}{54}\,(2\,x-1)^2\sqrt{-2\,x+1}+\frac{10}{81}\,(-2\,x+1)^{\frac{3}{2}}+\frac{4}{27}\,\sqrt{21}\ln\left(\frac{\left|-2\,\sqrt{21}+6\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{21}+3\,\sqrt{-2\,x+1}\right)}\right)+\frac{214}{243}\,\sqrt{-2\,x+1}+\frac{7\,\sqrt{-2\,x+1}}{243\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3*(-2*x + 1)^(3/2)/(3*x + 2)^2,x, algorithm="giac")
```

```
[Out] -125/126*(2*x - 1)^3*sqrt(-2*x + 1) - 145/54*(2*x - 1)^2*sqrt(-2*
x + 1) + 10/81*(-2*x + 1)^(3/2) + 4/27*sqrt(21)*ln(1/2*abs(-2*sqr
t(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 214/24
3*sqrt(-2*x + 1) + 7/243*sqrt(-2*x + 1)/(3*x + 2)
```

3.1872 $\int \frac{(1-2x)^{3/2}(3+5x)^3}{(2+3x)^3}\,dx$

Optimal. Leaf size=118

$$\frac{6\sqrt{1-2x}(5x+3)^3}{3x+2}-\frac{(1-2x)^{3/2}(5x+3)^3}{6(3x+2)^2}-\frac{31}{3}\sqrt{1-2x}(5x+3)^2+\frac{1}{54}\sqrt{1-2x}(1715x+367)+\frac{887\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{27\sqrt{21}}$$

```
[Out] (-31*Sqrt[1 - 2*x]*(3 + 5*x)^2)/3 - ((1 - 2*x)^(3/2)*(3 + 5*x)^3)
/(6*(2 + 3*x)^2) + (6*Sqrt[1 - 2*x]*(3 + 5*x)^3)/(2 + 3*x) + (Sqr
t[1 - 2*x]*(367 + 1715*x))/54 + (887*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2
*x]])/(27*Sqrt[21])
```

Rubi [A] time = 0.203561, antiderivative size = 118, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$\frac{6\sqrt{1-2x}(5x+3)^3}{3x+2}-\frac{(1-2x)^{3/2}(5x+3)^3}{6(3x+2)^2}-\frac{31}{3}\sqrt{1-2x}(5x+3)^2+\frac{1}{54}\sqrt{1-2x}(1715x+367)+\frac{887\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{27\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(3 + 5*x)^3)/(2 + 3*x)^3,x]
```

```
[Out] (-31*Sqrt[1 - 2*x]*(3 + 5*x)^2)/3 - ((1 - 2*x)^(3/2)*(3 + 5*x)^3)
/(6*(2 + 3*x)^2) + (6*Sqrt[1 - 2*x]*(3 + 5*x)^3)/(2 + 3*x) + (Sqr
t[1 - 2*x]*(367 + 1715*x))/54 + (887*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2
*x]])/(27*Sqrt[21])
```

Rubi in Sympy [A] time = 20.1884, size = 97, normalized size = 0.82

$$\frac{(-2x+1)^{\frac{3}{2}}(192375x+56925)}{17010}-\frac{6(-2x+1)^{\frac{3}{2}}(5x+3)^2}{7(3x+2)}-\frac{(-2x+1)^{\frac{3}{2}}(5x+3)^3}{6(3x+2)^2}-\frac{887\sqrt{-2x+1}}{189}+\frac{887\sqrt{21}\,\mathrm{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{567}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**3/(2+3*x)**3,x)
```

```
[Out] (-2*x + 1)**(3/2)*(192375*x + 56925)/17010 - 6*(-2*x + 1)**(3/2)*
(5*x + 3)**2/(7*(3*x + 2)) - (-2*x + 1)**(3/2)*(5*x + 3)**3/(6*(3
*x + 2)**2) - 887*sqrt(-2*x + 1)/189 + 887*sqrt(21)*atanh(sqrt(21
)*sqrt(-2*x + 1)/7)/567
```

Mathematica [A] time = 0.107982, size = 63, normalized size = 0.53

$$\frac{887\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{27\sqrt{21}}-\frac{\sqrt{1-2x}\left(1800x^4+570x^2+2965x+1367\right)}{54(3x+2)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(3 + 5*x)^3)/(2 + 3*x)^3,x]
```

```
[Out] -(Sqrt[1 - 2*x]*(1367 + 2965*x + 570*x^2 + 1800*x^4))/(54*(2 + 3*
x)^2) + (887*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(27*Sqrt[21])
```

Maple [A] time = 0.017, size = 75, normalized size = 0.6

$$-\frac{25}{27}(1-2x)^{\frac{5}{2}}-\frac{50}{81}(1-2x)^{\frac{3}{2}}-\frac{370}{81}\sqrt{1-2x}-\frac{2}{9(-4-6x)^2}\left(-\frac{215}{18}(1-2x)^{\frac{3}{2}}+\frac{497}{18}\sqrt{1-2x}\right)+\frac{887\sqrt{21}}{567}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^3/(2+3*x)^3,x)
```

```
[Out] -25/27*(1-2*x)^(5/2)-50/81*(1-2*x)^(3/2)-370/81*(1-2*x)^(1/2)-2/9
*(-215/18*(1-2*x)^(3/2)+497/18*(1-2*x)^(1/2))/(-4-6*x)^2+887/567*
arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.49383, size = 136, normalized size = 1.15

$$-\frac{25}{27}(-2x+1)^{\frac{5}{2}}-\frac{50}{81}(-2x+1)^{\frac{3}{2}}-\frac{887}{1134}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{370}{81}\sqrt{-2x+1}+\frac{215(-2x+1)^{\frac{3}{2}}-497\sqrt{-2x+1}}{81\left(9(2x-1)^2+84x+7\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(-2*x + 1)^(3/2)/(3*x + 2)^3,x, algorithm="maxima")
```

```
[Out] -25/27*(-2*x + 1)^(5/2) - 50/81*(-2*x + 1)^(3/2) - 887/1134*sqrt(
21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x +
1))) - 370/81*sqrt(-2*x + 1) + 1/81*(215*(-2*x + 1)^(3/2) - 497*s
qrt(-2*x + 1))/(9*(2*x - 1)^2 + 84*x + 7)
```

Fricas [A] time = 0.211789, size = 113, normalized size = 0.96

$$-\frac{\sqrt{21}\left(\sqrt{21}\left(1800x^4+570x^2+2965x+1367\right)\sqrt{-2x+1}-887\left(9x^2+12x+4\right)\log\left(\frac{\sqrt{21}(3x-5)-21\sqrt{-2x+1}}{3x+2}\right)\right)}{1134\left(9x^2+12x+4\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(-2*x + 1)^(3/2)/(3*x + 2)^3,x, algorithm="fricas")
```

```
[Out] -1/1134*sqrt(21)*(sqrt(21)*(1800*x^4 + 570*x^2 + 2965*x + 1367)*s
qrt(-2*x + 1) - 887*(9*x^2 + 12*x + 4)*log((sqrt(21)*(3*x - 5) -
21*sqrt(-2*x + 1))/(3*x + 2)))/(9*x^2 + 12*x + 4)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**3/(2+3*x)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.223522, size = 138, normalized size = 1.17

$$-\frac{25}{27}\,(2\,x-1)^{2}\sqrt{-2\,x+1}-\frac{50}{81}\,(-2\,x+1)^{\frac{3}{2}}-\frac{887}{1134}\,\sqrt{21}\ln\left(\frac{\left|-2\,\sqrt{21}+6\,\sqrt{-2\,x+1}\right|}{2\,\left(\sqrt{21}+3\,\sqrt{-2\,x+1}\right)}\right)-\frac{370}{81}\,\sqrt{-2\,x+1}+\frac{215\,(-2\,x+1)^{\frac{3}{2}}-497\,\sqrt{-2\,x+1}}{324\,(3\,x+2)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(-2*x + 1)^(3/2)/(3*x + 2)^3,x, algorithm="giac")
```

```
[Out] -25/27*(2*x - 1)^2*sqrt(-2*x + 1) - 50/81*(-2*x + 1)^(3/2) - 887/
1134*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqrt(21
) + 3*sqrt(-2*x + 1))) - 370/81*sqrt(-2*x + 1) + 1/324*(215*(-2*x
 + 1)^(3/2) - 497*sqrt(-2*x + 1))/(3*x + 2)^2
```

3.1873 $\int \frac{(1-2x)^{3/2}(3+5x)^3}{(2+3x)^4}\,dx$

Optimal. Leaf size=125

$$\frac{2\sqrt{1-2x}(5x+3)^3}{(3x+2)^2}-\frac{(1-2x)^{3/2}(5x+3)^3}{9(3x+2)^3}+\frac{251\sqrt{1-2x}(5x+3)^2}{63(3x+2)}-\frac{5}{567}\sqrt{1-2x}(7265x+2323)-\frac{36038\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{567\sqrt{21}}$$

```
[Out] (251*Sqrt[1 - 2*x]*(3 + 5*x)^2)/(63*(2 + 3*x)) - ((1 - 2*x)^(3/2)
*(3 + 5*x)^3)/(9*(2 + 3*x)^3) + (2*Sqrt[1 - 2*x]*(3 + 5*x)^3)/(2
+ 3*x)^2 - (5*Sqrt[1 - 2*x]*(2323 + 7265*x))/567 - (36038*ArcTanh
[Sqrt[3/7]*Sqrt[1 - 2*x]])/(567*Sqrt[21])
```

Rubi [A] time = 0.205132, antiderivative size = 125, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{2\sqrt{1-2x}(5x+3)^3}{(3x+2)^2}-\frac{(1-2x)^{3/2}(5x+3)^3}{9(3x+2)^3}+\frac{251\sqrt{1-2x}(5x+3)^2}{63(3x+2)}-\frac{5}{567}\sqrt{1-2x}(7265x+2323)-\frac{36038\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{567\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(3 + 5*x)^3)/(2 + 3*x)^4,x]
```

```
[Out] (251*Sqrt[1 - 2*x]*(3 + 5*x)^2)/(63*(2 + 3*x)) - ((1 - 2*x)^(3/2)
*(3 + 5*x)^3)/(9*(2 + 3*x)^3) + (2*Sqrt[1 - 2*x]*(3 + 5*x)^3)/(2
+ 3*x)^2 - (5*Sqrt[1 - 2*x]*(2323 + 7265*x))/567 - (36038*ArcTanh
[Sqrt[3/7]*Sqrt[1 - 2*x]])/(567*Sqrt[21])
```

Rubi in Sympy [A] time = 20.1066, size = 104, normalized size = 0.83

$$\frac{(-2x+1)^{\frac{3}{2}}(500850x+358146)}{71442(3x+2)}-\frac{2(-2x+1)^{\frac{3}{2}}(5x+3)^2}{7(3x+2)^2}-\frac{(-2x+1)^{\frac{3}{2}}(5x+3)^3}{9(3x+2)^3}+\frac{36038\sqrt{-2x+1}}{3969}-\frac{36038\sqrt{21}\,\mathrm{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{11907}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**3/(2+3*x)**4,x)
```

```
[Out] (-2*x + 1)**(3/2)*(500850*x + 358146)/(71442*(3*x + 2)) - 2*(-2*x
 + 1)**(3/2)*(5*x + 3)**2/(7*(3*x + 2)**2) - (-2*x + 1)**(3/2)*(5
*x + 3)**3/(9*(3*x + 2)**3) + 36038*sqrt(-2*x + 1)/3969 - 36038*s
qrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/11907
```

Mathematica [A] time = 0.128696, size = 68, normalized size = 0.54

$$\frac{\sqrt{1-2x}\left(-31500x^4+81900x^3+259614x^2+199243x+47939\right)}{567(3x+2)^3}-\frac{36038\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{567\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(3 + 5*x)^3)/(2 + 3*x)^4,x]
```

```
[Out] (Sqrt[1 - 2*x]*(47939 + 199243*x + 259614*x^2 + 81900*x^3 - 31500
*x^4))/(567*(2 + 3*x)^3) - (36038*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]
])/(567*Sqrt[21])
```

Maple [A] time = 0.017, size = 75, normalized size = 0.6

$$\frac{250}{243}(1-2x)^{\frac{3}{2}}+\frac{2050}{243}\sqrt{1-2x}+\frac{2}{9(-4-6x)^{3}}\left(-\frac{3938}{21}(1-2x)^{\frac{5}{2}}+\frac{23306}{27}(1-2x)^{\frac{3}{2}}-\frac{26824}{27}\sqrt{1-2x}\right)-\frac{36038\sqrt{21}}{11907}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^3/(2+3*x)^4,x)
```

```
[Out] 250/243*(1-2*x)^(3/2)+2050/243*(1-2*x)^(1/2)+2/9*(-3938/21*(1-2*x
)^(5/2)+23306/27*(1-2*x)^(3/2)-26824/27*(1-2*x)^(1/2))/(-4-6*x)^3
-36038/11907*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.50661, size = 149, normalized size = 1.19

$$\frac{250}{243}(-2x+1)^{\frac{3}{2}}+\frac{18019}{11907}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{2050}{243}\sqrt{-2x+1}+\frac{4\left(17721(-2x+1)^{\frac{5}{2}}-81571(-2x+1)^{\frac{3}{2}}+93884\sqrt{-2x+1}\right)}{1701\left(27(2x-1)^{3}+189(2x-1)^{2}+882x-98\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(-2*x + 1)^(3/2)/(3*x + 2)^4,x, algorithm="maxima")
```

```
[Out] 250/243*(-2*x + 1)^(3/2) + 18019/11907*sqrt(21)*log(-(sqrt(21) -
3*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 2050/243*sqrt(
-2*x + 1) + 4/1701*(17721*(-2*x + 1)^(5/2) - 81571*(-2*x + 1)^(3/
2) + 93884*sqrt(-2*x + 1))/(27*(2*x - 1)^3 + 189*(2*x - 1)^2 + 88
2*x - 98)
```

Fricas [A] time = 0.212197, size = 134, normalized size = 1.07

$$-\frac{\sqrt{21}\left(\sqrt{21}\left(31500x^{4}-81900x^{3}-259614x^{2}-199243x-47939\right)\sqrt{-2x+1}-18019\left(27x^{3}+54x^{2}+36x+8\right)\log\left(\frac{\sqrt{21}(3x}{}\right.\right.}{11907\left(27x^{3}+54x^{2}+36x+8\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(-2*x + 1)^(3/2)/(3*x + 2)^4,x, algorithm="fricas")
```

```
[Out] -1/11907*sqrt(21)*(sqrt(21)*(31500*x^4 - 81900*x^3 - 259614*x^2 -
 199243*x - 47939)*sqrt(-2*x + 1) - 18019*(27*x^3 + 54*x^2 + 36*x
 + 8)*log((sqrt(21)*(3*x - 5) + 21*sqrt(-2*x + 1))/(3*x + 2)))/(2
7*x^3 + 54*x^2 + 36*x + 8)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**3/(2+3*x)**4,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.221543, size = 138, normalized size = 1.1

$$\frac{250}{243}\left(-2x+1\right)^{\frac{3}{2}}+\frac{18019}{11907}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{2050}{243}\sqrt{-2x+1}+\frac{17721\left(2x-1\right)^{2}\sqrt{-2x+1}-81571\left(-2x+1\right)^{\frac{3}{2}}+93884\sqrt{-2x+1}}{3402\left(3x+2\right)^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(-2*x + 1)^(3/2)/(3*x + 2)^4,x, algorithm="giac")
```

```
[Out] 250/243*(-2*x + 1)^(3/2) + 18019/11907*sqrt(21)*ln(1/2*abs(-2*sqr
t(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 2050/2
43*sqrt(-2*x + 1) + 1/3402*(17721*(2*x - 1)^2*sqrt(-2*x + 1) - 81
571*(-2*x + 1)^(3/2) + 93884*sqrt(-2*x + 1))/(3*x + 2)^3
```

3.1874 $\int \frac{(1-2x)^{3/2}(3+5x)^3}{(2+3x)^5}\,dx$

Optimal. Leaf size=131

$$\frac{\sqrt{1-2x}(5x+3)^3}{(3x+2)^3}-\frac{(1-2x)^{3/2}(5x+3)^3}{12(3x+2)^4}+\frac{13\sqrt{1-2x}(5x+3)^2}{56(3x+2)^2}-\frac{\sqrt{1-2x}(26775x+18187)}{1176(3x+2)}+\frac{13243\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{588\sqrt{21}}$$

```
[Out] (13*Sqrt[1 - 2*x]*(3 + 5*x)^2)/(56*(2 + 3*x)^2) - ((1 - 2*x)^(3/2
)*(3 + 5*x)^3)/(12*(2 + 3*x)^4) + (Sqrt[1 - 2*x]*(3 + 5*x)^3)/(2
+ 3*x)^3 - (Sqrt[1 - 2*x]*(18187 + 26775*x))/(1176*(2 + 3*x)) + (
13243*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(588*Sqrt[21])
```

Rubi [A] time = 0.211923, antiderivative size = 131, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{\sqrt{1-2x}(5x+3)^3}{(3x+2)^3}-\frac{(1-2x)^{3/2}(5x+3)^3}{12(3x+2)^4}+\frac{13\sqrt{1-2x}(5x+3)^2}{56(3x+2)^2}-\frac{\sqrt{1-2x}(26775x+18187)}{1176(3x+2)}+\frac{13243\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{588\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(3 + 5*x)^3)/(2 + 3*x)^5,x]
```

```
[Out] (13*Sqrt[1 - 2*x]*(3 + 5*x)^2)/(56*(2 + 3*x)^2) - ((1 - 2*x)^(3/2
)*(3 + 5*x)^3)/(12*(2 + 3*x)^4) + (Sqrt[1 - 2*x]*(3 + 5*x)^3)/(2
+ 3*x)^3 - (Sqrt[1 - 2*x]*(18187 + 26775*x))/(1176*(2 + 3*x)) + (
13243*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(588*Sqrt[21])
```

Rubi in Sympy [A] time = 20.2025, size = 105, normalized size = 0.8

$$-\frac{(-2x+1)^{\frac{3}{2}}(1914597x+1219131)}{666792(3x+2)^2}-\frac{(-2x+1)^{\frac{3}{2}}(5x+3)^2}{7(3x+2)^3}-\frac{(-2x+1)^{\frac{3}{2}}(5x+3)^3}{12(3x+2)^4}-\frac{13243\sqrt{-2x+1}}{4116}+\frac{13243\sqrt{21}\,\mathrm{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{12348}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**3/(2+3*x)**5,x)
```

```
[Out] -(-2*x + 1)**(3/2)*(1914597*x + 1219131)/(666792*(3*x + 2)**2) -
(-2*x + 1)**(3/2)*(5*x + 3)**2/(7*(3*x + 2)**3) - (-2*x + 1)**(3/
2)*(5*x + 3)**3/(12*(3*x + 2)**4) - 13243*sqrt(-2*x + 1)/4116 + 1
3243*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/12348
```

Mathematica [A] time = 0.133585, size = 68, normalized size = 0.52

$$\frac{26486\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{21\sqrt{1-2x}(196000x^4+661639x^3+788415x^2+401850x+74810)}{(3x+2)^4}}{24696}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(3 + 5*x)^3)/(2 + 3*x)^5,x]
```

```
[Out] ((-21*Sqrt[1 - 2*x]*(74810 + 401850*x + 788415*x^2 + 661639*x^3 +
 196000*x^4))/(2 + 3*x)^4 + 26486*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt
[1 - 2*x]])/24696
```

Maple [A] time = 0.017, size = 75, normalized size = 0.6

$$-\frac{500}{243}\sqrt{1-2x} - \frac{4}{3(-4-6x)^4}\left(-\frac{416917}{2352}(1-2x)^{\frac{7}{2}} + \frac{406463}{336}(1-2x)^{\frac{5}{2}} - \frac{1189171}{432}(1-2x)^{\frac{3}{2}} + \frac{2706781}{1296}\sqrt{1-2x}\right) + \frac{13243\sqrt{21}}{12348}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^3/(2+3*x)^5,x)
```

```
[Out] -500/243*(1-2*x)^(1/2)-4/3*(-416917/2352*(1-2*x)^(7/2)+406463/336
*(1-2*x)^(5/2)-1189171/432*(1-2*x)^(3/2)+2706781/1296*(1-2*x)^(1/
2))/(-4-6*x)^4+13243/12348*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21
^(1/2)
```

Maxima [A] time = 1.52601, size = 161, normalized size = 1.23

$$-\frac{13243}{24696}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right) - \frac{500}{243}\sqrt{-2x+1} + \frac{11256759(-2x+1)^{\frac{7}{2}} - 76821507(-2x+1)^{\frac{5}{2}} + 174808137(-2x+1)^{\frac{3}{2}} - 132632269\sqrt{-2x+1}}{47628\left(81(2x-1)^4 + 756(2x-1)^3 + 2646(2x-1)^2 + 8232x - 1715\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(-2*x + 1)^(3/2)/(3*x + 2)^5,x, algorithm="maxima")
```

```
[Out] -13243/24696*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21
) + 3*sqrt(-2*x + 1))) - 500/243*sqrt(-2*x + 1) + 1/47628*(112567
59*(-2*x + 1)^(7/2) - 76821507*(-2*x + 1)^(5/2) + 174808137*(-2*x
 + 1)^(3/2) - 132632269*sqrt(-2*x + 1))/(81*(2*x - 1)^4 + 756*(2*
x - 1)^3 + 2646*(2*x - 1)^2 + 8232*x - 1715)
```

Fricas [A] time = 0.212153, size = 147, normalized size = 1.12

$$-\frac{\sqrt{21}\left(\sqrt{21}\left(196000x^4 + 661639x^3 + 788415x^2 + 401850x + 74810\right)\sqrt{-2x+1} - 13243\left(81x^4 + 216x^3 + 216x^2 + 96x + 16\right.\right.}{24696\left(81x^4 + 216x^3 + 216x^2 + 96x + 16\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(-2*x + 1)^(3/2)/(3*x + 2)^5,x, algorithm="fricas")
```

```
[Out] -1/24696*sqrt(21)*(sqrt(21)*(196000*x^4 + 661639*x^3 + 788415*x^2
 + 401850*x + 74810)*sqrt(-2*x + 1) - 13243*(81*x^4 + 216*x^3 + 2
16*x^2 + 96*x + 16)*log((sqrt(21)*(3*x - 5) - 21*sqrt(-2*x + 1))/
(3*x + 2)))/(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**3/(2+3*x)**5,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.215981, size = 147, normalized size = 1.12

$$-\frac{13243}{24696}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{500}{243}\sqrt{-2x+1}-\frac{11256759\,(2x-1)^{3}\sqrt{-2x+1}+76821507\,(2x-1)^{2}\sqrt{-2x+1}-174808137\,(-2x+1)^{\frac{3}{2}}+132632269\sqrt{-2x+1}}{762048\,(3x+2)^{4}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(-2*x + 1)^(3/2)/(3*x + 2)^5,x, algorithm="giac")
```

```
[Out] -13243/24696*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/
(sqrt(21) + 3*sqrt(-2*x + 1))) - 500/243*sqrt(-2*x + 1) - 1/76204
8*(11256759*(2*x - 1)^3*sqrt(-2*x + 1) + 76821507*(2*x - 1)^2*sqr
t(-2*x + 1) - 174808137*(-2*x + 1)^(3/2) + 132632269*sqrt(-2*x +
1))/(3*x + 2)^4
```

3.1875 $\int \frac{(1-2x)^{3/2}(3+5x)^3}{(2+3x)^6} \, dx$

Optimal. Leaf size=134

$$\frac{3\sqrt{1-2x}(5x+3)^3}{5(3x+2)^4}-\frac{(1-2x)^{3/2}(5x+3)^3}{15(3x+2)^5}-\frac{67\sqrt{1-2x}(5x+3)^2}{315(3x+2)^3}-\frac{2\sqrt{1-2x}(15074x+9529)}{9261(3x+2)^2}-\frac{13892\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{9261\sqrt{21}}$$

```
[Out] (-67*Sqrt[1 - 2*x]*(3 + 5*x)^2)/(315*(2 + 3*x)^3) - ((1 - 2*x)^(3
/2)*(3 + 5*x)^3)/(15*(2 + 3*x)^5) + (3*Sqrt[1 - 2*x]*(3 + 5*x)^3)
/(5*(2 + 3*x)^4) - (2*Sqrt[1 - 2*x]*(9529 + 15074*x))/(9261*(2 +
3*x)^2) - (13892*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(9261*Sqrt[21]
)
```

Rubi [A] time = 0.209828, antiderivative size = 134, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.208$

$$\frac{3\sqrt{1-2x}(5x+3)^3}{5(3x+2)^4}-\frac{(1-2x)^{3/2}(5x+3)^3}{15(3x+2)^5}-\frac{67\sqrt{1-2x}(5x+3)^2}{315(3x+2)^3}-\frac{2\sqrt{1-2x}(15074x+9529)}{9261(3x+2)^2}-\frac{13892\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{9261\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(3 + 5*x)^3)/(2 + 3*x)^6,x]
```

```
[Out] (-67*Sqrt[1 - 2*x]*(3 + 5*x)^2)/(315*(2 + 3*x)^3) - ((1 - 2*x)^(3
/2)*(3 + 5*x)^3)/(15*(2 + 3*x)^5) + (3*Sqrt[1 - 2*x]*(3 + 5*x)^3)
/(5*(2 + 3*x)^4) - (2*Sqrt[1 - 2*x]*(9529 + 15074*x))/(9261*(2 +
3*x)^2) - (13892*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(9261*Sqrt[21]
)
```

Rubi in Sympy [A] time = 22.4241, size = 110, normalized size = 0.82

$$-\frac{(-2x+1)^{\frac{3}{2}}(2896560x+1815120)}{3333960(3x+2)^3}-\frac{3(-2x+1)^{\frac{3}{2}}(5x+3)^2}{35(3x+2)^4}-\frac{(-2x+1)^{\frac{3}{2}}(5x+3)^3}{15(3x+2)^5}+\frac{6946\sqrt{-2x+1}}{9261(3x+2)}-\frac{13892\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{194481}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**3/(2+3*x)**6,x)
```

```
[Out] -(-2*x + 1)**(3/2)*(2896560*x + 1815120)/(3333960*(3*x + 2)**3) -
 3*(-2*x + 1)**(3/2)*(5*x + 3)**2/(35*(3*x + 2)**4) - (-2*x + 1)*
*(3/2)*(5*x + 3)**3/(15*(3*x + 2)**5) + 6946*sqrt(-2*x + 1)/(9261
*(3*x + 2)) - 13892*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/194
481
```

Mathematica [A] time = 0.127583, size = 68, normalized size = 0.51

$$\frac{\frac{63\sqrt{1-2x}(4904370x^4+10375830x^3+7992771x^2+2619854x+300049)}{(3x+2)^5}-208380\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{2917215}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(3 + 5*x)^3)/(2 + 3*x)^6,x]
```

```
[Out] ((63*Sqrt[1 - 2*x]*(300049 + 2619854*x + 7992771*x^2 + 10375830*x
^3 + 4904370*x^4))/(2 + 3*x)^5 - 208380*Sqrt[21]*ArcTanh[Sqrt[3/7
]*Sqrt[1 - 2*x]])/2917215
```

Maple [A] time = 0.017, size = 75, normalized size = 0.6

$$1944\frac{1}{(-4-6x)^5}\left(-\frac{54493\,(1-2x)^{9/2}}{500094}+\frac{4577\,(1-2x)^{7/2}}{5103}-\frac{210293\,(1-2x)^{5/2}}{76545}+\frac{24311\,(1-2x)^{3/2}}{6561}-\frac{24311\sqrt{1-2x}}{13122}\right)-\frac{13892\sqrt{21}}{194481}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^3/(2+3*x)^6,x)
```

```
[Out] 1944*(-54493/500094*(1-2*x)^(9/2)+4577/5103*(1-2*x)^(7/2)-210293/
76545*(1-2*x)^(5/2)+24311/6561*(1-2*x)^(3/2)-24311/13122*(1-2*x)^
(1/2))/(-4-6*x)^5-13892/194481*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2)
)*21^(1/2)
```

Maxima [A] time = 1.5039, size = 173, normalized size = 1.29

$$\frac{6946}{194481}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{4\left(2452185\,(-2x+1)^{\frac{9}{2}}-20184570\,(-2x+1)^{\frac{7}{2}}+61826142\,(-2x+1)^{\frac{5}{2}}-83386730\,(-2x+1)^{\frac{3}{2}}+41693365\sqrt{-2x+1}\right)}{46305\left(243\,(2x-1)^5+2835\,(2x-1)^4+13230\,(2x-1)^3+30870\,(2x-1)^2+72030\,x-19208\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(-2*x + 1)^(3/2)/(3*x + 2)^6,x, algorithm="maxima")
```

```
[Out] 6946/194481*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21)
 + 3*sqrt(-2*x + 1))) + 4/46305*(2452185*(-2*x + 1)^(9/2) - 20184
570*(-2*x + 1)^(7/2) + 61826142*(-2*x + 1)^(5/2) - 83386730*(-2*x
 + 1)^(3/2) + 41693365*sqrt(-2*x + 1))/(243*(2*x - 1)^5 + 2835*(2
*x - 1)^4 + 13230*(2*x - 1)^3 + 30870*(2*x - 1)^2 + 72030*x - 192
08)
```

Fricas [A] time = 0.210318, size = 161, normalized size = 1.2

$$\frac{\sqrt{21}\left(\sqrt{21}\left(4904370\,x^4+10375830\,x^3+7992771\,x^2+2619854\,x+300049\right)\sqrt{-2x+1}+34730\left(243\,x^5+810\,x^4+1080\,x^3+7\right.\right.}{972405\left(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240\,x+32\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(-2*x + 1)^(3/2)/(3*x + 2)^6,x, algorithm="fricas")
```

```
[Out] 1/972405*sqrt(21)*(sqrt(21)*(4904370*x^4 + 10375830*x^3 + 7992771
*x^2 + 2619854*x + 300049)*sqrt(-2*x + 1) + 34730*(243*x^5 + 810*
x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)*log((sqrt(21)*(3*x - 5) +
21*sqrt(-2*x + 1))/(3*x + 2)))/(243*x^5 + 810*x^4 + 1080*x^3 + 72
```

```
0*x^2 + 240*x + 32)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**3/(2+3*x)**6,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.216499, size = 157, normalized size = 1.17

$$\frac{6946}{194481}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{2452185(2x-1)^4\sqrt{-2x+1}+20184570(2x-1)^3\sqrt{-2x+1}+61826142(2x-1)^2\sqrt{-2x+1}-83386730(-2x+1)^{\frac{3}{2}}+416}{370440(3x+2)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(-2*x + 1)^(3/2)/(3*x + 2)^6,x, algorithm="giac")
```

```
[Out] 6946/194481*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(
sqrt(21) + 3*sqrt(-2*x + 1))) + 1/370440*(2452185*(2*x - 1)^4*sqr
t(-2*x + 1) + 20184570*(2*x - 1)^3*sqrt(-2*x + 1) + 61826142*(2*x
 - 1)^2*sqrt(-2*x + 1) - 83386730*(-2*x + 1)^(3/2) + 41693365*sqr
t(-2*x + 1))/(3*x + 2)^5
```

3.1876 $\int \frac{(1-2x)^{3/2}(3+5x)^3}{(2+3x)^7}\,dx$

Optimal. Leaf size=154

$$\frac{2\sqrt{1-2x}(5x+3)^3}{5(3x+2)^5}-\frac{(1-2x)^{3/2}(5x+3)^3}{18(3x+2)^6}-\frac{653\sqrt{1-2x}(5x+3)^2}{2520(3x+2)^4}-\frac{\sqrt{1-2x}(664915x+413424)}{317520(3x+2)^3}-\frac{15313\sqrt{1-2x}}{444528(3x+2)}-\frac{15313\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{222264\sqrt{21}}$$

```
[Out] (-15313*Sqrt[1 - 2*x])/(444528*(2 + 3*x)) - (653*Sqrt[1 - 2*x]*(3
 + 5*x)^2)/(2520*(2 + 3*x)^4) - ((1 - 2*x)^(3/2)*(3 + 5*x)^3)/(18
*(2 + 3*x)^6) + (2*Sqrt[1 - 2*x]*(3 + 5*x)^3)/(5*(2 + 3*x)^5) - (
Sqrt[1 - 2*x]*(413424 + 664915*x))/(317520*(2 + 3*x)^3) - (15313*
ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(222264*Sqrt[21])
```

Rubi [A] time = 0.233413, antiderivative size = 154, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.25$

$$\frac{2\sqrt{1-2x}(5x+3)^3}{5(3x+2)^5}-\frac{(1-2x)^{3/2}(5x+3)^3}{18(3x+2)^6}-\frac{653\sqrt{1-2x}(5x+3)^2}{2520(3x+2)^4}-\frac{\sqrt{1-2x}(664915x+413424)}{317520(3x+2)^3}-\frac{15313\sqrt{1-2x}}{444528(3x+2)}-\frac{15313\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{222264\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(3 + 5*x)^3)/(2 + 3*x)^7,x]
```

```
[Out] (-15313*Sqrt[1 - 2*x])/(444528*(2 + 3*x)) - (653*Sqrt[1 - 2*x]*(3
 + 5*x)^2)/(2520*(2 + 3*x)^4) - ((1 - 2*x)^(3/2)*(3 + 5*x)^3)/(18
*(2 + 3*x)^6) + (2*Sqrt[1 - 2*x]*(3 + 5*x)^3)/(5*(2 + 3*x)^5) - (
Sqrt[1 - 2*x]*(413424 + 664915*x))/(317520*(2 + 3*x)^3) - (15313*
ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(222264*Sqrt[21])
```

Rubi in Sympy [A] time = 23.5592, size = 129, normalized size = 0.84

$$-\frac{(-2x+1)^{\frac{3}{2}}(3918915x+2436651)}{10001880(3x+2)^4}-\frac{2(-2x+1)^{\frac{3}{2}}(5x+3)^2}{35(3x+2)^5}-\frac{(-2x+1)^{\frac{3}{2}}(5x+3)^3}{18(3x+2)^6}-\frac{15313\sqrt{-2x+1}}{444528(3x+2)}+\frac{15313\sqrt{-2x+1}}{63504(3x+2)^2}-\frac{15313\sqrt{21}\,\mathrm{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{4667544}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**3/(2+3*x)**7,x)
```

```
[Out] -(-2*x + 1)**(3/2)*(3918915*x + 2436651)/(10001880*(3*x + 2)**4)
- 2*(-2*x + 1)**(3/2)*(5*x + 3)**2/(35*(3*x + 2)**5) - (-2*x + 1)
**(3/2)*(5*x + 3)**3/(18*(3*x + 2)**6) - 15313*sqrt(-2*x + 1)/(44
4528*(3*x + 2)) + 15313*sqrt(-2*x + 1)/(63504*(3*x + 2)**2) - 153
13*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/4667544
```

Mathematica [A] time = 0.137855, size = 73, normalized size = 0.47

$$\frac{-\frac{63\sqrt{1-2x}\left(18605295x^5-46991565x^4-122053374x^3-75153042x^2-10947400x+1660816\right)}{(3x+2)^6}-459390\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{140026320}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(3 + 5*x)^3)/(2 + 3*x)^7,x]
```

```
[Out] ((-63*Sqrt[1 - 2*x]*(1660816 - 10947400*x - 75153042*x^2 - 122053
374*x^3 - 46991565*x^4 + 18605295*x^5))/(2 + 3*x)^6 - 459390*Sqrt
[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/140026320
```

Maple [A] time = 0.018, size = 84, normalized size = 0.6

$$-11664\frac{1}{(-4-6x)^6}\left(-\frac{15313(1-2x)^{11/2}}{10668672}-\frac{3037(1-2x)^{9/2}}{41150592}+\frac{256271(1-2x)^{7/2}}{4898880}-\frac{923549(1-2x)^{5/2}}{4898880}+\frac{1822247(1-\dots}{755827\dots}\right.$$
$$\left.-\frac{15313\sqrt{21}}{4667544}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^3/(2+3*x)^7,x)
```

```
[Out] -11664*(-15313/10668672*(1-2*x)^(11/2)-3037/41150592*(1-2*x)^(9/2
)+256271/4898880*(1-2*x)^(7/2)-923549/4898880*(1-2*x)^(5/2)+18222
47/7558272*(1-2*x)^(3/2)-750337/7558272*(1-2*x)^(1/2))/(-4-6*x)^6
-15313/4667544*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.51746, size = 197, normalized size = 1.28

$$\frac{15313}{9335088}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)$$
$$+\frac{18605295(-2x+1)^{\frac{11}{2}}+956655(-2x+1)^{\frac{9}{2}}-678093066(-2x+1)^{\frac{7}{2}}+2443710654(-2x+1)^{\frac{5}{2}}-3125153605(-2x+1)^{\frac{3}{2}}-\dots}{1111320\left(729(2x-1)^6+10206(2x-1)^5+59535(2x-1)^4+185220(2x-1)^3+324135(2x-1)^2+605052x\dots\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(-2*x + 1)^(3/2)/(3*x + 2)^7,x, algorithm="maxima")
```

```
[Out] 15313/9335088*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(2
1) + 3*sqrt(-2*x + 1))) + 1/1111320*(18605295*(-2*x + 1)^(11/2) +
 956655*(-2*x + 1)^(9/2) - 678093066*(-2*x + 1)^(7/2) + 244371065
4*(-2*x + 1)^(5/2) - 3125153605*(-2*x + 1)^(3/2) + 1286827955*sqr
t(-2*x + 1))/(729*(2*x - 1)^6 + 10206*(2*x - 1)^5 + 59535*(2*x -
1)^4 + 185220*(2*x - 1)^3 + 324135*(2*x - 1)^2 + 605052*x - 18487
7)
```

Fricas [A] time = 0.211174, size = 181, normalized size = 1.18

$$-\frac{\sqrt{21}\left(\sqrt{21}\left(18605295x^5-46991565x^4-122053374x^3-75153042x^2-10947400x+1660816\right)\sqrt{-2x+1}-76565\left(729x^{\dots}\right.\right.}{46675440\left(729x^6+2916x^5+4860x^4+4320x^3+2160\dots\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(-2*x + 1)^(3/2)/(3*x + 2)^7,x, algorithm="fricas")
```

```
[Out] -1/46675440*sqrt(21)*(sqrt(21)*(18605295*x^5 - 46991565*x^4 - 122
053374*x^3 - 75153042*x^2 - 10947400*x + 1660816)*sqrt(-2*x + 1)
- 76565*(729*x^6 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 57
```

```
6*x + 64)*log((sqrt(21)*(3*x - 5) + 21*sqrt(-2*x + 1))/(3*x + 2))
)/(729*x^6 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x +
64)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(3/2)*(3+5*x)**3/(2+3*x)**7,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.225271, size = 178, normalized size = 1.16

$$\frac{15313}{9335088}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right) - \frac{18605295\,(2x-1)^5\sqrt{-2x+1} - 956655\,(2x-1)^4\sqrt{-2x+1} - 678093066\,(2x-1)^3\sqrt{-2x+1} - 2443710654\,(2x-1)^2\sqrt{-2}}{71124480\,(3x+2)^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3*(-2*x + 1)^(3/2)/(3*x + 2)^7,x, algorithm="giac")
```

```
[Out] 15313/9335088*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))
/(sqrt(21) + 3*sqrt(-2*x + 1))) - 1/71124480*(18605295*(2*x - 1)^
5*sqrt(-2*x + 1) - 956655*(2*x - 1)^4*sqrt(-2*x + 1) - 678093066*
(2*x - 1)^3*sqrt(-2*x + 1) - 2443710654*(2*x - 1)^2*sqrt(-2*x + 1
) + 3125153605*(-2*x + 1)^(3/2) - 1286827955*sqrt(-2*x + 1))/(3*x
 + 2)^6
```

3.1877 $\int \frac{(1-2x)^{3/2}(3+5x)^3}{(2+3x)^8}\,dx$

Optimal. Leaf size=174

$$\frac{2\sqrt{1-2x}(5x+3)^3}{7(3x+2)^6}-\frac{(1-2x)^{3/2}(5x+3)^3}{21(3x+2)^7}-\frac{173\sqrt{1-2x}(5x+3)^2}{735(3x+2)^5}-\frac{\sqrt{1-2x}(237807x+146585)}{185220(3x+2)^4}-\frac{4369\sqrt{1-2x}}{1210104(3x+2)}-\frac{4369\sqrt{1-2x}}{518616(3x+2)^2}-\frac{4369\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{605052\sqrt{21}}$$

```
[Out] (-4369*Sqrt[1 - 2*x])/(518616*(2 + 3*x)^2) - (4369*Sqrt[1 - 2*x])
/(1210104*(2 + 3*x)) - (173*Sqrt[1 - 2*x]*(3 + 5*x)^2)/(735*(2 +
3*x)^5) - ((1 - 2*x)^(3/2)*(3 + 5*x)^3)/(21*(2 + 3*x)^7) + (2*Sqr
t[1 - 2*x]*(3 + 5*x)^3)/(7*(2 + 3*x)^6) - (Sqrt[1 - 2*x]*(146585
+ 237807*x))/(185220*(2 + 3*x)^4) - (4369*ArcTanh[Sqrt[3/7]*Sqrt[
1 - 2*x]])/(605052*Sqrt[21])
```

Rubi [A] time = 0.259958, antiderivative size = 174, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.25$

$$\frac{2\sqrt{1-2x}(5x+3)^3}{7(3x+2)^6}-\frac{(1-2x)^{3/2}(5x+3)^3}{21(3x+2)^7}-\frac{173\sqrt{1-2x}(5x+3)^2}{735(3x+2)^5}-\frac{\sqrt{1-2x}(237807x+146585)}{185220(3x+2)^4}-\frac{4369\sqrt{1-2x}}{1210104(3x+2)}-\frac{4369\sqrt{1-2x}}{518616(3x+2)^2}-\frac{4369\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{605052\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(3 + 5*x)^3)/(2 + 3*x)^8,x]
```


```
[Out] (-4369*Sqrt[1 - 2*x])/(518616*(2 + 3*x)^2) - (4369*Sqrt[1 - 2*x])
/(1210104*(2 + 3*x)) - (173*Sqrt[1 - 2*x]*(3 + 5*x)^2)/(735*(2 +
3*x)^5) - ((1 - 2*x)^(3/2)*(3 + 5*x)^3)/(21*(2 + 3*x)^7) + (2*Sqr
t[1 - 2*x]*(3 + 5*x)^3)/(7*(2 + 3*x)^6) - (Sqrt[1 - 2*x]*(146585
+ 237807*x))/(185220*(2 + 3*x)^4) - (4369*ArcTanh[Sqrt[3/7]*Sqrt[
1 - 2*x]])/(605052*Sqrt[21])
```

Rubi in Sympy [A] time = 26.1178, size = 148, normalized size = 0.85

$$-\frac{(-2x+1)^{\frac{3}{2}}(4981662x+3083724)}{23337720(3x+2)^5}-\frac{2(-2x+1)^{\frac{3}{2}}(5x+3)^2}{49(3x+2)^6}-\frac{(-2x+1)^{\frac{3}{2}}(5x+3)^3}{21(3x+2)^7}-\frac{4369\sqrt{-2x+1}}{1210104(3x+2)}-\frac{4369\sqrt{-2x+1}}{518616(3x+2)^2}+\frac{4369\sqrt{-2x+1}}{37044(3x+2)^3}-\frac{4369\sqrt{21}\,\mathrm{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{12706092}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**3/(2+3*x)**8,x)
```

```
[Out] -(-2*x + 1)**(3/2)*(4981662*x + 3083724)/(23337720*(3*x + 2)**5)
- 2*(-2*x + 1)**(3/2)*(5*x + 3)**2/(49*(3*x + 2)**6) - (-2*x + 1)
**(3/2)*(5*x + 3)**3/(21*(3*x + 2)**7) - 4369*sqrt(-2*x + 1)/(121
0104*(3*x + 2)) - 4369*sqrt(-2*x + 1)/(518616*(3*x + 2)**2) + 436
9*sqrt(-2*x + 1)/(37044*(3*x + 2)**3) - 4369*sqrt(21)*atanh(sqrt(
21)*sqrt(-2*x + 1)/7)/12706092
```

Mathematica [A] time = 0.165455, size = 78, normalized size = 0.45

$$\frac{-\frac{21\sqrt{1-2x}\left(15925005x^6+76086135x^5-42669876x^4-182748162x^3-98441652x^2+606784x+7033976\right)}{(3x+2)^7}-43690\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{127060920}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(3 + 5*x)^3)/(2 + 3*x)^8,x]
```

```
[Out] ((-21*Sqrt[1 - 2*x]*(7033976 + 606784*x - 98441652*x^2 - 18274816
2*x^3 - 42669876*x^4 + 76086135*x^5 + 15925005*x^6))/(2 + 3*x)^7
- 43690*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/127060920
```

Maple [A] time = 0.019, size = 93, normalized size = 0.5

$$69984\frac{1}{(-4-6x)^7}\left(\frac{4369(1-2x)^{13/2}}{58084992}-\frac{21845(1-2x)^{11/2}}{18670176}+\frac{5639843(1-2x)^{9/2}}{1440270720}+\frac{1798(1-2x)^{7/2}}{1250235}-\frac{725323(1-2x)}{29393280}\right.$$
$$-\frac{4369\sqrt{21}}{12706092}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^3/(2+3*x)^8,x)
```

```
[Out] 69984*(4369/58084992*(1-2*x)^(13/2)-21845/18670176*(1-2*x)^(11/2)
+5639843/1440270720*(1-2*x)^(9/2)+1798/1250235*(1-2*x)^(7/2)-7253
23/29393280*(1-2*x)^(5/2)+21845/629856*(1-2*x)^(3/2)-30583/251942
4*(1-2*x)^(1/2))/(-4-6*x)^7-4369/12706092*arctanh(1/7*21^(1/2)*(1
-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.49496, size = 221, normalized size = 1.27

$$\frac{4369}{25412184}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)$$
$$-\frac{15925005(-2x+1)^{\frac{13}{2}}-247722300(-2x+1)^{\frac{11}{2}}+829056921(-2x+1)^{\frac{9}{2}}+304480512(-2x+1)^{\frac{7}{2}}-5224501569(-2x+1}{3025260\left(2187(2x-1)^7+35721(2x-1)^6+250047(2x-1)^5+972405(2x-1)^4+2268945(2x-1)^3+31\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(-2*x + 1)^(3/2)/(3*x + 2)^8,x, algorithm="maxima")
```

```
[Out] 4369/25412184*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(2
1) + 3*sqrt(-2*x + 1))) - 1/3025260*(15925005*(-2*x + 1)^(13/2) -
 247722300*(-2*x + 1)^(11/2) + 829056921*(-2*x + 1)^(9/2) + 30448
0512*(-2*x + 1)^(7/2) - 5224501569*(-2*x + 1)^(5/2) + 7342978300*
(-2*x + 1)^(3/2) - 2570042405*sqrt(-2*x + 1))/(2187*(2*x - 1)^7 +
 35721*(2*x - 1)^6 + 250047*(2*x - 1)^5 + 972405*(2*x - 1)^4 + 22
68945*(2*x - 1)^3 + 3176523*(2*x - 1)^2 + 4941258*x - 1647086)
```

Fricas [A] time = 0.208838, size = 201, normalized size = 1.16

$$-\frac{\sqrt{21}\left(\sqrt{21}\left(15925005x^6+76086135x^5-42669876x^4-182748162x^3-98441652x^2+606784x+7033976\right)\sqrt{-2x+1}-2\right.}{127060920\left(2187x^7+10206x^6+20412x^5+2268\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3*(-2*x + 1)^(3/2)/(3*x + 2)^8,x, algorithm="fricas")
```

```
[Out] -1/127060920*sqrt(21)*(sqrt(21)*(15925005*x^6 + 76086135*x^5 - 42
669876*x^4 - 182748162*x^3 - 98441652*x^2 + 606784*x + 7033976)*s
qrt(-2*x + 1) - 21845*(2187*x^7 + 10206*x^6 + 20412*x^5 + 22680*x
^4 + 15120*x^3 + 6048*x^2 + 1344*x + 128)*log((sqrt(21)*(3*x - 5)
 + 21*sqrt(-2*x + 1))/(3*x + 2)))/(2187*x^7 + 10206*x^6 + 20412*x
^5 + 22680*x^4 + 15120*x^3 + 6048*x^2 + 1344*x + 128)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(3/2)*(3+5*x)**3/(2+3*x)**8,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.215005, size = 200, normalized size = 1.15

$$\frac{4369}{25412184}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right) - \frac{15925005\,(2x-1)^6\sqrt{-2x+1}+247722300\,(2x-1)^5\sqrt{-2x+1}+829056921\,(2x-1)^4\sqrt{-2x+1}-304480512\,(2x-1)^3\sqrt{}}{387233280\,(3x+2)^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3*(-2*x + 1)^(3/2)/(3*x + 2)^8,x, algorithm="giac")
```

```
[Out] 4369/25412184*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))
/(sqrt(21) + 3*sqrt(-2*x + 1))) - 1/387233280*(15925005*(2*x - 1)
^6*sqrt(-2*x + 1) + 247722300*(2*x - 1)^5*sqrt(-2*x + 1) + 829056
921*(2*x - 1)^4*sqrt(-2*x + 1) - 304480512*(2*x - 1)^3*sqrt(-2*x
+ 1) - 5224501569*(2*x - 1)^2*sqrt(-2*x + 1) + 7342978300*(-2*x +
 1)^(3/2) - 2570042405*sqrt(-2*x + 1))/(3*x + 2)^7
```

3.1878 $\int \frac{(1-2x)^{3/2}(2+3x)^6}{3+5x}\,dx$

Optimal. Leaf size=134

$$\frac{243}{800}(1-2x)^{15/2}-\frac{43011(1-2x)^{13/2}}{10400}+\frac{507627(1-2x)^{11/2}}{22000}-\frac{665817(1-2x)^{9/2}}{10000}+\frac{70752609(1-2x)^{7/2}}{700000}-\frac{167115051(1-2x)^{5/2}}{2500000}+\frac{2(1-2x)^{3/2}}{234375}+\frac{22\sqrt{1-2x}}{390625}-\frac{22\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{390625}$$

```
[Out] (22*Sqrt[1 - 2*x])/390625 + (2*(1 - 2*x)^(3/2))/234375 - (1671150
51*(1 - 2*x)^(5/2))/2500000 + (70752609*(1 - 2*x)^(7/2))/700000 -
 (665817*(1 - 2*x)^(9/2))/10000 + (507627*(1 - 2*x)^(11/2))/22000
 - (43011*(1 - 2*x)^(13/2))/10400 + (243*(1 - 2*x)^(15/2))/800 -
(22*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/390625
```

Rubi [A] time = 0.119211, antiderivative size = 134, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$\frac{243}{800}(1-2x)^{15/2}-\frac{43011(1-2x)^{13/2}}{10400}+\frac{507627(1-2x)^{11/2}}{22000}-\frac{665817(1-2x)^{9/2}}{10000}+\frac{70752609(1-2x)^{7/2}}{700000}-\frac{167115051(1-2x)^{5/2}}{2500000}+\frac{2(1-2x)^{3/2}}{234375}+\frac{22\sqrt{1-2x}}{390625}-\frac{22\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{390625}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(2 + 3*x)^6)/(3 + 5*x),x]
```

```
[Out] (22*Sqrt[1 - 2*x])/390625 + (2*(1 - 2*x)^(3/2))/234375 - (1671150
51*(1 - 2*x)^(5/2))/2500000 + (70752609*(1 - 2*x)^(7/2))/700000 -
 (665817*(1 - 2*x)^(9/2))/10000 + (507627*(1 - 2*x)^(11/2))/22000
 - (43011*(1 - 2*x)^(13/2))/10400 + (243*(1 - 2*x)^(15/2))/800 -
(22*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/390625
```

Rubi in Sympy [A] time = 14.0578, size = 119, normalized size = 0.89

$$\frac{243(-2x+1)^{\frac{15}{2}}}{800}-\frac{43011(-2x+1)^{\frac{13}{2}}}{10400}+\frac{507627(-2x+1)^{\frac{11}{2}}}{22000}-\frac{665817(-2x+1)^{\frac{9}{2}}}{10000}+\frac{70752609(-2x+1)^{\frac{7}{2}}}{700000}-\frac{167115051(-2x+1)^{\frac{5}{2}}}{2500000}+\frac{2(-2x+1)^{\frac{3}{2}}}{234375}+\frac{22\sqrt{-2x+1}}{390625}-\frac{22\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{1953125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)**6/(3+5*x),x)
```

```
[Out] 243*(-2*x + 1)**(15/2)/800 - 43011*(-2*x + 1)**(13/2)/10400 + 507
627*(-2*x + 1)**(11/2)/22000 - 665817*(-2*x + 1)**(9/2)/10000 + 7
0752609*(-2*x + 1)**(7/2)/700000 - 167115051*(-2*x + 1)**(5/2)/25
00000 + 2*(-2*x + 1)**(3/2)/234375 + 22*sqrt(-2*x + 1)/390625 - 2
2*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/1953125
```

Mathematica [A] time = 0.127264, size = 76, normalized size = 0.57

$$\frac{-5\sqrt{1-2x}\left(45608062500x^7+150857437500x^6+174123928125x^5+49094797500x^4-61883481375x^3-56176961670x^2-\right.}{5865234375}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(2 + 3*x)^6)/(3 + 5*x),x]
```

```
[Out] (-5*Sqrt[1 - 2*x]*(15379193944 - 9645684935*x - 56176961670*x^2 -
 61883481375*x^3 + 49094797500*x^4 + 174123928125*x^5 + 150857437
500*x^6 + 45608062500*x^7) - 66066*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sq
rt[1 - 2*x]])/5865234375
```

Maple [A] time = 0.013, size = 92, normalized size = 0.7

$$\frac{2}{234375}(1-2x)^{\frac{3}{2}}-\frac{167115051}{2500000}(1-2x)^{\frac{5}{2}}+\frac{70752609}{700000}(1-2x)^{\frac{7}{2}}-\frac{665817}{10000}(1-2x)^{\frac{9}{2}}+\frac{507627}{22000}(1-2x)^{\frac{11}{2}}-\frac{43011}{10400}(1-2x)^{\frac{13}{2}}+\frac{243}{800}(1-2x)^{\frac{15}{2}}-\frac{22\sqrt{55}}{1953125}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)+\frac{22}{390625}\sqrt{1-2x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^6/(3+5*x),x)
```

```
[Out] 2/234375*(1-2*x)^(3/2)-167115051/2500000*(1-2*x)^(5/2)+70752609/7
00000*(1-2*x)^(7/2)-665817/10000*(1-2*x)^(9/2)+507627/22000*(1-2*
x)^(11/2)-43011/10400*(1-2*x)^(13/2)+243/800*(1-2*x)^(15/2)-22/19
53125*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)+22/390625*(1-
2*x)^(1/2)
```

Maxima [A] time = 1.49478, size = 147, normalized size = 1.1

$$\frac{243}{800}(-2x+1)^{\frac{15}{2}}-\frac{43011}{10400}(-2x+1)^{\frac{13}{2}}+\frac{507627}{22000}(-2x+1)^{\frac{11}{2}}-\frac{665817}{10000}(-2x+1)^{\frac{9}{2}}+\frac{70752609}{700000}(-2x+1)^{\frac{7}{2}}-\frac{167115051}{2500000}(-2x+1)^{\frac{5}{2}}+\frac{2}{234375}(-2x+1)^{\frac{3}{2}}+\frac{11}{1953125}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{22}{390625}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^6*(-2*x + 1)^(3/2)/(5*x + 3),x, algorithm="maxima")
```

```
[Out] 243/800*(-2*x + 1)^(15/2) - 43011/10400*(-2*x + 1)^(13/2) + 50762
7/22000*(-2*x + 1)^(11/2) - 665817/10000*(-2*x + 1)^(9/2) + 70752
609/700000*(-2*x + 1)^(7/2) - 167115051/2500000*(-2*x + 1)^(5/2)
+ 2/234375*(-2*x + 1)^(3/2) + 11/1953125*sqrt(55)*log(-(sqrt(55)
- 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) + 22/390625*sq
rt(-2*x + 1)
```

Fricas [A] time = 0.211562, size = 119, normalized size = 0.89

$$-\frac{1}{5865234375}\sqrt{5}\left(\sqrt{5}\left(45608062500\,x^{7}+150857437500\,x^{6}+174123928125\,x^{5}+49094797500\,x^{4}-61883481375\,x^{3}-56176\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^6*(-2*x + 1)^(3/2)/(5*x + 3),x, algorithm="fricas")
```

```
[Out] -1/5865234375*sqrt(5)*(sqrt(5)*(45608062500*x^7 + 150857437500*x^
6 + 174123928125*x^5 + 49094797500*x^4 - 61883481375*x^3 - 561769
61670*x^2 - 9645684935*x + 15379193944)*sqrt(-2*x + 1) - 33033*sq
rt(11)*log((sqrt(5)*(5*x - 8) + 5*sqrt(11)*sqrt(-2*x + 1))/(5*x +
 3)))
```

Sympy [A] time = 25.4479, size = 158, normalized size = 1.18

$$\frac{243(-2x+1)^{\frac{15}{2}}}{800}-\frac{43011(-2x+1)^{\frac{13}{2}}}{10400}+\frac{507627(-2x+1)^{\frac{11}{2}}}{22000}-\frac{665817(-2x+1)^{\frac{9}{2}}}{10000}+\frac{70752609(-2x+1)^{\frac{7}{2}}}{700000}-\frac{167115051(-2x+1)^{\frac{5}{2}}}{2500000}+\frac{2(-2x+1)^{\frac{3}{2}}}{234375}+\frac{22\sqrt{-2x+1}}{390625}+\frac{242\left(\begin{cases}-\frac{\sqrt{55}\operatorname{acoth}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1>\frac{11}{5}\\ -\frac{\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1<\frac{11}{5}\end{cases}\right)}{390625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)**6/(3+5*x),x)
```

```
[Out] 243*(-2*x + 1)**(15/2)/800 - 43011*(-2*x + 1)**(13/2)/10400 + 507
627*(-2*x + 1)**(11/2)/22000 - 665817*(-2*x + 1)**(9/2)/10000 + 7
0752609*(-2*x + 1)**(7/2)/700000 - 167115051*(-2*x + 1)**(5/2)/25
00000 + 2*(-2*x + 1)**(3/2)/234375 + 22*sqrt(-2*x + 1)/390625 + 2
42*Piecewise((-sqrt(55)*acoth(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*
x + 1 > 11/5), (-sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/55, -
2*x + 1 < 11/5))/390625
```

GIAC/XCAS [A] time = 0.216279, size = 208, normalized size = 1.55

$$-\frac{243}{800}(2x-1)^7\sqrt{-2x+1}-\frac{43011}{10400}(2x-1)^6\sqrt{-2x+1}-\frac{507627}{22000}(2x-1)^5\sqrt{-2x+1}-\frac{665817}{10000}(2x-1)^4\sqrt{-2x+1}-\frac{70752609}{700000}(2x-1)^3\sqrt{-2x+1}-\frac{167115051}{2500000}(2x-1)^2\sqrt{-2x+1}+\frac{2}{234375}(-2x+1)^{\frac{3}{2}}+\frac{11}{1953125}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{22}{390625}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^6*(-2*x + 1)^(3/2)/(5*x + 3),x, algorithm="giac")
```

```
[Out] -243/800*(2*x - 1)^7*sqrt(-2*x + 1) - 43011/10400*(2*x - 1)^6*sqr
t(-2*x + 1) - 507627/22000*(2*x - 1)^5*sqrt(-2*x + 1) - 665817/10
000*(2*x - 1)^4*sqrt(-2*x + 1) - 70752609/700000*(2*x - 1)^3*sqrt
(-2*x + 1) - 167115051/2500000*(2*x - 1)^2*sqrt(-2*x + 1) + 2/234
375*(-2*x + 1)^(3/2) + 11/1953125*sqrt(55)*ln(1/2*abs(-2*sqrt(55)
 + 10*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) + 22/390625*
sqrt(-2*x + 1)
```

3.1879 $\int \frac{(1-2x)^{3/2}(2+3x)^5}{3+5x}\,dx$

Optimal. Leaf size=121

$$-\frac{243(1-2x)^{13/2}}{1040}+\frac{5751(1-2x)^{11/2}}{2200}-\frac{5673}{500}(1-2x)^{9/2}+\frac{806121(1-2x)^{7/2}}{35000}-\frac{4774713(1-2x)^{5/2}}{250000}+\frac{2(1-2x)^{3/2}}{46875}+\frac{22\sqrt{1-2x}}{78125}-\frac{22\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{78125}$$

```
[Out] (22*Sqrt[1 - 2*x])/78125 + (2*(1 - 2*x)^(3/2))/46875 - (4774713*(
1 - 2*x)^(5/2))/250000 + (806121*(1 - 2*x)^(7/2))/35000 - (5673*(
1 - 2*x)^(9/2))/500 + (5751*(1 - 2*x)^(11/2))/2200 - (243*(1 - 2*
x)^(13/2))/1040 - (22*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]
])/78125
```

Rubi [A] time = 0.116987, antiderivative size = 121, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$-\frac{243(1-2x)^{13/2}}{1040}+\frac{5751(1-2x)^{11/2}}{2200}-\frac{5673}{500}(1-2x)^{9/2}+\frac{806121(1-2x)^{7/2}}{35000}-\frac{4774713(1-2x)^{5/2}}{250000}+\frac{2(1-2x)^{3/2}}{46875}+\frac{22\sqrt{1-2x}}{78125}-\frac{22\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{78125}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(2 + 3*x)^5)/(3 + 5*x),x]
```

```
[Out] (22*Sqrt[1 - 2*x])/78125 + (2*(1 - 2*x)^(3/2))/46875 - (4774713*(
1 - 2*x)^(5/2))/250000 + (806121*(1 - 2*x)^(7/2))/35000 - (5673*(
1 - 2*x)^(9/2))/500 + (5751*(1 - 2*x)^(11/2))/2200 - (243*(1 - 2*
x)^(13/2))/1040 - (22*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]
])/78125
```

Rubi in Sympy [A] time = 13.1163, size = 107, normalized size = 0.88

$$-\frac{243\left(-2x+1\right)^{\frac{13}{2}}}{1040}+\frac{5751\left(-2x+1\right)^{\frac{11}{2}}}{2200}-\frac{5673\left(-2x+1\right)^{\frac{9}{2}}}{500}+\frac{806121\left(-2x+1\right)^{\frac{7}{2}}}{35000}-\frac{4774713\left(-2x+1\right)^{\frac{5}{2}}}{250000}+\frac{2\left(-2x+1\right)^{\frac{3}{2}}}{46875}+\frac{22\sqrt{-2x+1}}{78125}-\frac{22\sqrt{55}\,\mathrm{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{390625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)**5/(3+5*x),x)
```

```
[Out] -243*(-2*x + 1)**(13/2)/1040 + 5751*(-2*x + 1)**(11/2)/2200 - 567
3*(-2*x + 1)**(9/2)/500 + 806121*(-2*x + 1)**(7/2)/35000 - 477471
3*(-2*x + 1)**(5/2)/250000 + 2*(-2*x + 1)**(3/2)/46875 + 22*sqrt(
-2*x + 1)/78125 - 22*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/3
90625
```

Mathematica [A] time = 0.0989947, size = 71, normalized size = 0.59

$$\frac{-5\sqrt{1-2x}\left(3508312500x^6+9100350000x^5+6683000625x^4-1659418875x^3-4276774170x^2-1321809935x+11805689\right.}{1173046875}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(2 + 3*x)^5)/(3 + 5*x),x]
```

```
[Out] (-5*Sqrt[1 - 2*x]*(1180568944 - 1321809935*x - 4276774170*x^2 - 1
659418875*x^3 + 6683000625*x^4 + 9100350000*x^5 + 3508312500*x^6)
 - 66066*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/1173046875
```

Maple [A] time = 0.01, size = 83, normalized size = 0.7

$$\frac{2}{46875}(1-2x)^{\frac{3}{2}}-\frac{4774713}{250000}(1-2x)^{\frac{5}{2}}+\frac{806121}{35000}(1-2x)^{\frac{7}{2}}-\frac{5673}{500}(1-2x)^{\frac{9}{2}}+\frac{5751}{2200}(1-2x)^{\frac{11}{2}}-\frac{243}{1040}(1-2x)^{\frac{13}{2}}-\frac{22\sqrt{55}}{390625}\mathrm{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)+\frac{22}{78125}\sqrt{1-2x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^5/(3+5*x),x)
```

```
[Out] 2/46875*(1-2*x)^(3/2)-4774713/250000*(1-2*x)^(5/2)+806121/35000*(
1-2*x)^(7/2)-5673/500*(1-2*x)^(9/2)+5751/2200*(1-2*x)^(11/2)-243/
1040*(1-2*x)^(13/2)-22/390625*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2)
)*55^(1/2)+22/78125*(1-2*x)^(1/2)
```

Maxima [A] time = 1.49415, size = 135, normalized size = 1.12

$$-\frac{243}{1040}(-2x+1)^{\frac{13}{2}}+\frac{5751}{2200}(-2x+1)^{\frac{11}{2}}-\frac{5673}{500}(-2x+1)^{\frac{9}{2}}+\frac{806121}{35000}(-2x+1)^{\frac{7}{2}}-\frac{4774713}{250000}(-2x+1)^{\frac{5}{2}}+\frac{2}{46875}(-2x+1)^{\frac{3}{2}}+\frac{11}{390625}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{22}{78125}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5*(-2*x + 1)^(3/2)/(5*x + 3),x, algorithm="maxima")
```

```
[Out] -243/1040*(-2*x + 1)^(13/2) + 5751/2200*(-2*x + 1)^(11/2) - 5673/
500*(-2*x + 1)^(9/2) + 806121/35000*(-2*x + 1)^(7/2) - 4774713/25
0000*(-2*x + 1)^(5/2) + 2/46875*(-2*x + 1)^(3/2) + 11/390625*sqrt
(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x +
 1))) + 22/78125*sqrt(-2*x + 1)
```

Fricas [A] time = 0.212348, size = 112, normalized size = 0.93

$$-\frac{1}{1173046875}\sqrt{5}\left(\sqrt{5}\left(3508312500\,x^{6}+9100350000\,x^{5}+6683000625\,x^{4}-1659418875\,x^{3}-4276774170\,x^{2}-1321809935\,x\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5*(-2*x + 1)^(3/2)/(5*x + 3),x, algorithm="fricas")
```

```
[Out] -1/1173046875*sqrt(5)*(sqrt(5)*(3508312500*x^6 + 9100350000*x^5 +
 6683000625*x^4 - 1659418875*x^3 - 4276774170*x^2 - 1321809935*x
+ 1180568944)*sqrt(-2*x + 1) - 33033*sqrt(11)*log((sqrt(5)*(5*x -
 8) + 5*sqrt(11)*sqrt(-2*x + 1))/(5*x + 3)))
```

Sympy [A] time = 22.3684, size = 146, normalized size = 1.21

$$-\frac{243(-2x+1)^{\frac{13}{2}}}{1040}+\frac{5751(-2x+1)^{\frac{11}{2}}}{2200}-\frac{5673(-2x+1)^{\frac{9}{2}}}{500}+\frac{806121(-2x+1)^{\frac{7}{2}}}{35000}-\frac{4774713(-2x+1)^{\frac{5}{2}}}{250000}+\frac{2(-2x+1)^{\frac{3}{2}}}{46875}+\frac{22\sqrt{-2x+1}}{78125}+\frac{242\left(\begin{cases}-\frac{\sqrt{55}\operatorname{acoth}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1>\frac{11}{5}\\ -\frac{\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1<\frac{11}{5}\end{cases}\right)}{78125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)**5/(3+5*x),x)
```

```
[Out] -243*(-2*x + 1)**(13/2)/1040 + 5751*(-2*x + 1)**(11/2)/2200 - 567
3*(-2*x + 1)**(9/2)/500 + 806121*(-2*x + 1)**(7/2)/35000 - 477471
3*(-2*x + 1)**(5/2)/250000 + 2*(-2*x + 1)**(3/2)/46875 + 22*sqrt(
-2*x + 1)/78125 + 242*Piecewise((-sqrt(55)*acoth(sqrt(55)*sqrt(-2
*x + 1)/11)/55, -2*x + 1 > 11/5), (-sqrt(55)*atanh(sqrt(55)*sqrt(
-2*x + 1)/11)/55, -2*x + 1 < 11/5))/78125
```

GIAC/XCAS [A] time = 0.214825, size = 186, normalized size = 1.54

$$-\frac{243}{1040}(2x-1)^6\sqrt{-2x+1}-\frac{5751}{2200}(2x-1)^5\sqrt{-2x+1}-\frac{5673}{500}(2x-1)^4\sqrt{-2x+1}-\frac{806121}{35000}(2x-1)^3\sqrt{-2x+1}-\frac{4774713}{250000}(2x-1)^2\sqrt{-2x+1}+\frac{2}{46875}(-2x+1)^{\frac{3}{2}}+\frac{11}{390625}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{22}{78125}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5*(-2*x + 1)^(3/2)/(5*x + 3),x, algorithm="giac")
```

```
[Out] -243/1040*(2*x - 1)^6*sqrt(-2*x + 1) - 5751/2200*(2*x - 1)^5*sqrt
(-2*x + 1) - 5673/500*(2*x - 1)^4*sqrt(-2*x + 1) - 806121/35000*(
2*x - 1)^3*sqrt(-2*x + 1) - 4774713/250000*(2*x - 1)^2*sqrt(-2*x
+ 1) + 2/46875*(-2*x + 1)^(3/2) + 11/390625*sqrt(55)*ln(1/2*abs(-
2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) +
22/78125*sqrt(-2*x + 1)
```

3.1880 $\int \frac{(1-2x)^{3/2}(2+3x)^4}{3+5x}\,dx$

Optimal. Leaf size=108

$$\frac{81}{440}(1-2x)^{11/2}-\frac{321}{200}(1-2x)^{9/2}+\frac{34371(1-2x)^{7/2}}{7000}-\frac{136419(1-2x)^{5/2}}{25000}+\frac{2(1-2x)^{3/2}}{9375}+\frac{22\sqrt{1-2x}}{15625}-\frac{22\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{15625}$$

```
[Out] (22*Sqrt[1 - 2*x])/15625 + (2*(1 - 2*x)^(3/2))/9375 - (136419*(1
- 2*x)^(5/2))/25000 + (34371*(1 - 2*x)^(7/2))/7000 - (321*(1 - 2*
x)^(9/2))/200 + (81*(1 - 2*x)^(11/2))/440 - (22*Sqrt[11/5]*ArcTan
h[Sqrt[5/11]*Sqrt[1 - 2*x]])/15625
```

Rubi [A] time = 0.109813, antiderivative size = 108, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$\frac{81}{440}(1-2x)^{11/2}-\frac{321}{200}(1-2x)^{9/2}+\frac{34371(1-2x)^{7/2}}{7000}-\frac{136419(1-2x)^{5/2}}{25000}+\frac{2(1-2x)^{3/2}}{9375}+\frac{22\sqrt{1-2x}}{15625}-\frac{22\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{15625}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(2 + 3*x)^4)/(3 + 5*x),x]
```

```
[Out] (22*Sqrt[1 - 2*x])/15625 + (2*(1 - 2*x)^(3/2))/9375 - (136419*(1
- 2*x)^(5/2))/25000 + (34371*(1 - 2*x)^(7/2))/7000 - (321*(1 - 2*
x)^(9/2))/200 + (81*(1 - 2*x)^(11/2))/440 - (22*Sqrt[11/5]*ArcTan
h[Sqrt[5/11]*Sqrt[1 - 2*x]])/15625
```

Rubi in Sympy [A] time = 12.1008, size = 95, normalized size = 0.88

$$\frac{81\left(-2x+1\right)^{\frac{11}{2}}}{440}-\frac{321\left(-2x+1\right)^{\frac{9}{2}}}{200}+\frac{34371\left(-2x+1\right)^{\frac{7}{2}}}{7000}-\frac{136419\left(-2x+1\right)^{\frac{5}{2}}}{25000}+\frac{2\left(-2x+1\right)^{\frac{3}{2}}}{9375}+\frac{22\sqrt{-2x+1}}{15625}-\frac{22\sqrt{55}\,\mathrm{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{78125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)**4/(3+5*x),x)
```

```
[Out] 81*(-2*x + 1)**(11/2)/440 - 321*(-2*x + 1)**(9/2)/200 + 34371*(-2
*x + 1)**(7/2)/7000 - 136419*(-2*x + 1)**(5/2)/25000 + 2*(-2*x +
1)**(3/2)/9375 + 22*sqrt(-2*x + 1)/15625 - 22*sqrt(55)*atanh(sqrt
(55)*sqrt(-2*x + 1)/11)/78125
```

Mathematica [A] time = 0.10164, size = 66, normalized size = 0.61

$$\frac{-5\sqrt{1-2x}\left(21262500x^5+39532500x^4+9559125x^3-21433590x^2-12144995x+7095688\right)-5082\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-\right.}{18046875}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(2 + 3*x)^4)/(3 + 5*x),x]
```

```
[Out] (-5*Sqrt[1 - 2*x]*(7095688 - 12144995*x - 21433590*x^2 + 9559125*
x^3 + 39532500*x^4 + 21262500*x^5) - 5082*Sqrt[55]*ArcTanh[Sqrt[5
/11]*Sqrt[1 - 2*x]])/18046875
```

Maple [A] time = 0.01, size = 74, normalized size = 0.7

$$\frac{2}{9375}(1-2x)^{\frac{3}{2}}-\frac{136419}{25000}(1-2x)^{\frac{5}{2}}+\frac{34371}{7000}(1-2x)^{\frac{7}{2}}-\frac{321}{200}(1-2x)^{\frac{9}{2}}+\frac{81}{440}(1-2x)^{\frac{11}{2}}-\frac{22\sqrt{55}}{78125}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)+\frac{22}{15625}\sqrt{1-2x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^4/(3+5*x),x)
```

```
[Out] 2/9375*(1-2*x)^(3/2)-136419/25000*(1-2*x)^(5/2)+34371/7000*(1-2*x
)^(7/2)-321/200*(1-2*x)^(9/2)+81/440*(1-2*x)^(11/2)-22/78125*arct
anh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)+22/15625*(1-2*x)^(1/2)
```

Maxima [A] time = 1.56452, size = 123, normalized size = 1.14

$$\frac{81}{440}(-2x+1)^{\frac{11}{2}}-\frac{321}{200}(-2x+1)^{\frac{9}{2}}+\frac{34371}{7000}(-2x+1)^{\frac{7}{2}}-\frac{136419}{25000}(-2x+1)^{\frac{5}{2}}+\frac{2}{9375}(-2x+1)^{\frac{3}{2}}+\frac{11}{78125}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{22}{15625}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4*(-2*x + 1)^(3/2)/(5*x + 3),x, algorithm="maxima")
```

```
[Out] 81/440*(-2*x + 1)^(11/2) - 321/200*(-2*x + 1)^(9/2) + 34371/7000*
(-2*x + 1)^(7/2) - 136419/25000*(-2*x + 1)^(5/2) + 2/9375*(-2*x +
 1)^(3/2) + 11/78125*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/
(sqrt(55) + 5*sqrt(-2*x + 1))) + 22/15625*sqrt(-2*x + 1)
```

Fricas [A] time = 0.21145, size = 105, normalized size = 0.97

$$-\frac{1}{18046875}\sqrt{5}\left(\sqrt{5}\left(21262500x^5+39532500x^4+9559125x^3-21433590x^2-12144995x+7095688\right)\sqrt{-2x+1}-2541\sqrt{1}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4*(-2*x + 1)^(3/2)/(5*x + 3),x, algorithm="fricas")
```

```
[Out] -1/18046875*sqrt(5)*(sqrt(5)*(21262500*x^5 + 39532500*x^4 + 95591
25*x^3 - 21433590*x^2 - 12144995*x + 7095688)*sqrt(-2*x + 1) - 25
41*sqrt(11)*log((sqrt(5)*(5*x - 8) + 5*sqrt(11)*sqrt(-2*x + 1))/(
5*x + 3)))
```

Sympy [A] time = 17.462, size = 134, normalized size = 1.24

$$\frac{81(-2x+1)^{\frac{11}{2}}}{440} - \frac{321(-2x+1)^{\frac{9}{2}}}{200} + \frac{34371(-2x+1)^{\frac{7}{2}}}{7000} - \frac{136419(-2x+1)^{\frac{5}{2}}}{25000} + \frac{2(-2x+1)^{\frac{3}{2}}}{9375} + \frac{22\sqrt{-2x+1}}{15625} + \frac{242\left(\begin{cases} -\frac{\sqrt{55}\operatorname{acoth}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1 > \frac{11}{5} \\ -\frac{\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1 < \frac{11}{5} \end{cases}\right)}{15625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)**4/(3+5*x),x)
```

```
[Out] 81*(-2*x + 1)**(11/2)/440 - 321*(-2*x + 1)**(9/2)/200 + 34371*(-2
*x + 1)**(7/2)/7000 - 136419*(-2*x + 1)**(5/2)/25000 + 2*(-2*x +
1)**(3/2)/9375 + 22*sqrt(-2*x + 1)/15625 + 242*Piecewise((-sqrt(5
5)*acoth(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*x + 1 > 11/5), (-sqrt
(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*x + 1 < 11/5))/1562
5
```

GIAC/XCAS [A] time = 0.214573, size = 165, normalized size = 1.53

$$-\frac{81}{440}(2x-1)^5\sqrt{-2x+1} - \frac{321}{200}(2x-1)^4\sqrt{-2x+1} - \frac{34371}{7000}(2x-1)^3\sqrt{-2x+1} - \frac{136419}{25000}(2x-1)^2\sqrt{-2x+1} + \frac{2}{9375}(-2x+1)^{\frac{3}{2}} + \frac{11}{78125}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right) + \frac{22}{15625}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4*(-2*x + 1)^(3/2)/(5*x + 3),x, algorithm="giac")
```

```
[Out] -81/440*(2*x - 1)^5*sqrt(-2*x + 1) - 321/200*(2*x - 1)^4*sqrt(-2*
x + 1) - 34371/7000*(2*x - 1)^3*sqrt(-2*x + 1) - 136419/25000*(2*
x - 1)^2*sqrt(-2*x + 1) + 2/9375*(-2*x + 1)^(3/2) + 11/78125*sqrt
(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(55) + 5*sq
rt(-2*x + 1))) + 22/15625*sqrt(-2*x + 1)
```

3.1881 $\int \frac{(1-2x)^{3/2}(2+3x)^3}{3+5x}\,dx$

Optimal. Leaf size=95

$$-\frac{3}{20}(1-2x)^{9/2}+\frac{162}{175}(1-2x)^{7/2}-\frac{3897(1-2x)^{5/2}}{2500}+\frac{2(1-2x)^{3/2}}{1875}+\frac{22\sqrt{1-2x}}{3125}-\frac{22\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{3125}$$

```
[Out] (22*Sqrt[1 - 2*x])/3125 + (2*(1 - 2*x)^(3/2))/1875 - (3897*(1 - 2
*x)^(5/2))/2500 + (162*(1 - 2*x)^(7/2))/175 - (3*(1 - 2*x)^(9/2))
/20 - (22*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/3125
```

Rubi [A] time = 0.104002, antiderivative size = 95, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$-\frac{3}{20}(1-2x)^{9/2}+\frac{162}{175}(1-2x)^{7/2}-\frac{3897(1-2x)^{5/2}}{2500}+\frac{2(1-2x)^{3/2}}{1875}+\frac{22\sqrt{1-2x}}{3125}-\frac{22\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{3125}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(2 + 3*x)^3)/(3 + 5*x),x]
```

```
[Out] (22*Sqrt[1 - 2*x])/3125 + (2*(1 - 2*x)^(3/2))/1875 - (3897*(1 - 2
*x)^(5/2))/2500 + (162*(1 - 2*x)^(7/2))/175 - (3*(1 - 2*x)^(9/2))
/20 - (22*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/3125
```

Rubi in Sympy [A] time = 11.0173, size = 83, normalized size = 0.87

$$-\frac{3\left(-2x+1\right)^{\frac{9}{2}}}{20}+\frac{162\left(-2x+1\right)^{\frac{7}{2}}}{175}-\frac{3897\left(-2x+1\right)^{\frac{5}{2}}}{2500}+\frac{2\left(-2x+1\right)^{\frac{3}{2}}}{1875}+\frac{22\sqrt{-2x+1}}{3125}-\frac{22\sqrt{55}\,\mathrm{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{15625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)**3/(3+5*x),x)
```

```
[Out] -3*(-2*x + 1)**(9/2)/20 + 162*(-2*x + 1)**(7/2)/175 - 3897*(-2*x
+ 1)**(5/2)/2500 + 2*(-2*x + 1)**(3/2)/1875 + 22*sqrt(-2*x + 1)/3
125 - 22*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/15625
```

Mathematica [A] time = 0.0813522, size = 61, normalized size = 0.64

$$\frac{-5\sqrt{1-2x}\left(157500x^4+171000x^3-83565x^2-123295x+50858\right)-462\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{328125}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(2 + 3*x)^3)/(3 + 5*x),x]
```

```
[Out] (-5*Sqrt[1 - 2*x]*(50858 - 123295*x - 83565*x^2 + 171000*x^3 + 15
7500*x^4) - 462*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/32812
5
```

Maple [A] time = 0.008, size = 65, normalized size = 0.7

$$\frac{2}{1875}(1-2x)^{\frac{3}{2}}-\frac{3897}{2500}(1-2x)^{\frac{5}{2}}+\frac{162}{175}(1-2x)^{\frac{7}{2}}-\frac{3}{20}(1-2x)^{\frac{9}{2}}-\frac{22\sqrt{55}}{15625}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)+\frac{22}{3125}\sqrt{1-2x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((1-2*x)^(3/2)*(2+3*x)^3/(3+5*x),x)
```

```
[Out] 2/1875*(1-2*x)^(3/2)-3897/2500*(1-2*x)^(5/2)+162/175*(1-2*x)^(7/2
)-3/20*(1-2*x)^(9/2)-22/15625*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2)
)*55^(1/2)+22/3125*(1-2*x)^(1/2)
```

Maxima [A] time = 1.49428, size = 111, normalized size = 1.17

$$-\frac{3}{20}(-2x+1)^{\frac{9}{2}}+\frac{162}{175}(-2x+1)^{\frac{7}{2}}-\frac{3897}{2500}(-2x+1)^{\frac{5}{2}}+\frac{2}{1875}(-2x+1)^{\frac{3}{2}}+\frac{11}{15625}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{22}{3125}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^3*(-2*x + 1)^(3/2)/(5*x + 3),x, algorithm="maxima")
```

```
[Out] -3/20*(-2*x + 1)^(9/2) + 162/175*(-2*x + 1)^(7/2) - 3897/2500*(-2
*x + 1)^(5/2) + 2/1875*(-2*x + 1)^(3/2) + 11/15625*sqrt(55)*log(-
(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) + 22
/3125*sqrt(-2*x + 1)
```

Fricas [A] time = 0.215449, size = 99, normalized size = 1.04

$$-\frac{1}{328125}\sqrt{5}\left(\sqrt{5}\left(157500x^4+171000x^3-83565x^2-123295x+50858\right)\sqrt{-2x+1}-231\sqrt{11}\log\left(\frac{\sqrt{5}(5x-8)+5\sqrt{11}\sqrt{-}}{5x+3}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^3*(-2*x + 1)^(3/2)/(5*x + 3),x, algorithm="fricas")
```

```
[Out] -1/328125*sqrt(5)*(sqrt(5)*(157500*x^4 + 171000*x^3 - 83565*x^2 -
 123295*x + 50858)*sqrt(-2*x + 1) - 231*sqrt(11)*log((sqrt(5)*(5*
x - 8) + 5*sqrt(11)*sqrt(-2*x + 1))/(5*x + 3)))
```

Sympy [A] time = 13.2415, size = 122, normalized size = 1.28

$$-\frac{3(-2x+1)^{\frac{9}{2}}}{20}+\frac{162(-2x+1)^{\frac{7}{2}}}{175}-\frac{3897(-2x+1)^{\frac{5}{2}}}{2500}+\frac{2(-2x+1)^{\frac{3}{2}}}{1875}+\frac{22\sqrt{-2x+1}}{3125}+\frac{242\left(\begin{cases}-\frac{\sqrt{55}\operatorname{acoth}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1>\frac{11}{5}\\ -\frac{\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1<\frac{11}{5}\end{cases}\right)}{3125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)**3/(3+5*x),x)
```

```
[Out] -3*(-2*x + 1)**(9/2)/20 + 162*(-2*x + 1)**(7/2)/175 - 3897*(-2*x
+ 1)**(5/2)/2500 + 2*(-2*x + 1)**(3/2)/1875 + 22*sqrt(-2*x + 1)/3
125 + 242*Piecewise((-sqrt(55)*acoth(sqrt(55)*sqrt(-2*x + 1)/11)/
55, -2*x + 1 > 11/5), (-sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11
)/55, -2*x + 1 < 11/5))/3125
```

GIAC/XCAS [A] time = 0.213089, size = 143, normalized size = 1.51

$$-\frac{3}{20}(2x-1)^4\sqrt{-2x+1}-\frac{162}{175}(2x-1)^3\sqrt{-2x+1}-\frac{3897}{2500}(2x-1)^2\sqrt{-2x+1}+\frac{2}{1875}(-2x+1)^{\frac{3}{2}}+\frac{11}{15625}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{22}{3125}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*(-2*x + 1)^(3/2)/(5*x + 3),x, algorithm="giac")
```

```
[Out] -3/20*(2*x - 1)^4*sqrt(-2*x + 1) - 162/175*(2*x - 1)^3*sqrt(-2*x
+ 1) - 3897/2500*(2*x - 1)^2*sqrt(-2*x + 1) + 2/1875*(-2*x + 1)^(
3/2) + 11/15625*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x +
1))/(sqrt(55) + 5*sqrt(-2*x + 1))) + 22/3125*sqrt(-2*x + 1)
```

3.1882 $\int \frac{(1-2x)^{3/2}(2+3x)^2}{3+5x}\,dx$

Optimal. Leaf size=82

$$\frac{9}{70}(1-2x)^{7/2}-\frac{111}{250}(1-2x)^{5/2}+\frac{2}{375}(1-2x)^{3/2}+\frac{22}{625}\sqrt{1-2x}-\frac{22}{625}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (22*Sqrt[1 - 2*x])/625 + (2*(1 - 2*x)^(3/2))/375 - (111*(1 - 2*x)
^(5/2))/250 + (9*(1 - 2*x)^(7/2))/70 - (22*Sqrt[11/5]*ArcTanh[Sqr
t[5/11]*Sqrt[1 - 2*x]])/625
```

Rubi [A] time = 0.0992437, antiderivative size = 82, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$\frac{9}{70}(1-2x)^{7/2}-\frac{111}{250}(1-2x)^{5/2}+\frac{2}{375}(1-2x)^{3/2}+\frac{22}{625}\sqrt{1-2x}-\frac{22}{625}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(2 + 3*x)^2)/(3 + 5*x),x]
```

```
[Out] (22*Sqrt[1 - 2*x])/625 + (2*(1 - 2*x)^(3/2))/375 - (111*(1 - 2*x)
^(5/2))/250 + (9*(1 - 2*x)^(7/2))/70 - (22*Sqrt[11/5]*ArcTanh[Sqr
t[5/11]*Sqrt[1 - 2*x]])/625
```

Rubi in Sympy [A] time = 10.0775, size = 71, normalized size = 0.87

$$\frac{9(-2x+1)^{\frac{7}{2}}}{70}-\frac{111(-2x+1)^{\frac{5}{2}}}{250}+\frac{2(-2x+1)^{\frac{3}{2}}}{375}+\frac{22\sqrt{-2x+1}}{625}-\frac{22\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{3125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)**2/(3+5*x),x)
```

```
[Out] 9*(-2*x + 1)**(7/2)/70 - 111*(-2*x + 1)**(5/2)/250 + 2*(-2*x + 1)
**(3/2)/375 + 22*sqrt(-2*x + 1)/625 - 22*sqrt(55)*atanh(sqrt(55)*
sqrt(-2*x + 1)/11)/3125
```

Mathematica [A] time = 0.0787094, size = 56, normalized size = 0.68

$$\frac{-5\sqrt{1-2x}\left(13500x^3+3060x^2-13045x+3608\right)-462\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{65625}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(2 + 3*x)^2)/(3 + 5*x),x]
```

```
[Out] (-5*Sqrt[1 - 2*x]*(3608 - 13045*x + 3060*x^2 + 13500*x^3) - 462*S
qrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/65625
```

Maple [A] time = 0.01, size = 56, normalized size = 0.7

$$\frac{2}{375}(1-2x)^{\frac{3}{2}}-\frac{111}{250}(1-2x)^{\frac{5}{2}}+\frac{9}{70}(1-2x)^{\frac{7}{2}}-\frac{22\sqrt{55}}{3125}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)+\frac{22}{625}\sqrt{1-2x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^2/(3+5*x),x)
```

```
[Out] 2/375*(1-2*x)^(3/2)-111/250*(1-2*x)^(5/2)+9/70*(1-2*x)^(7/2)-22/3
125*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)+22/625*(1-2*x)^
(1/2)
```

Maxima [A] time = 1.4964, size = 99, normalized size = 1.21

$$\frac{9}{70}\,(-2\,x+1)^{\frac{7}{2}}-\frac{111}{250}\,(-2\,x+1)^{\frac{5}{2}}+\frac{2}{375}\,(-2\,x+1)^{\frac{3}{2}}+\frac{11}{3125}\,\sqrt{55}\log\left(-\frac{\sqrt{55}-5\,\sqrt{-2\,x+1}}{\sqrt{55}+5\,\sqrt{-2\,x+1}}\right)+\frac{22}{625}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2*(-2*x + 1)^(3/2)/(5*x + 3),x, algorithm="maxima")
```

```
[Out] 9/70*(-2*x + 1)^(7/2) - 111/250*(-2*x + 1)^(5/2) + 2/375*(-2*x +
1)^(3/2) + 11/3125*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(s
qrt(55) + 5*sqrt(-2*x + 1))) + 22/625*sqrt(-2*x + 1)
```

Fricas [A] time = 0.211381, size = 92, normalized size = 1.12

$$-\frac{1}{65625}\,\sqrt{5}\left(\sqrt{5}\left(13500\,x^{3}+3060\,x^{2}-13045\,x+3608\right)\sqrt{-2\,x+1}-231\,\sqrt{11}\log\left(\frac{\sqrt{5}(5\,x-8)+5\,\sqrt{11}\sqrt{-2\,x+1}}{5\,x+3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2*(-2*x + 1)^(3/2)/(5*x + 3),x, algorithm="fricas")
```

```
[Out] -1/65625*sqrt(5)*(sqrt(5)*(13500*x^3 + 3060*x^2 - 13045*x + 3608)
*sqrt(-2*x + 1) - 231*sqrt(11)*log((sqrt(5)*(5*x - 8) + 5*sqrt(11
)*sqrt(-2*x + 1))/(5*x + 3)))
```

Sympy [A] time = 9.75902, size = 110, normalized size = 1.34

$$\frac{9\,(-2x+1)^{\frac{7}{2}}}{70}-\frac{111\,(-2x+1)^{\frac{5}{2}}}{250}+\frac{2\,(-2x+1)^{\frac{3}{2}}}{375}+\frac{22\sqrt{-2x+1}}{625}+\frac{242\left(\begin{cases}-\frac{\sqrt{55}\operatorname{acoth}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1>\frac{11}{5}\\ -\frac{\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1<\frac{11}{5}\end{cases}\right)}{625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)**2/(3+5*x),x)
```

```
[Out] 9*(-2*x + 1)**(7/2)/70 - 111*(-2*x + 1)**(5/2)/250 + 2*(-2*x + 1)
**(3/2)/375 + 22*sqrt(-2*x + 1)/625 + 242*Piecewise((-sqrt(55)*ac
oth(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*x + 1 > 11/5), (-sqrt(55)*
atanh(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*x + 1 < 11/5))/625
```

GIAC/XCAS [A] time = 0.213922, size = 122, normalized size = 1.49

$$-\frac{9}{70}(2x-1)^3\sqrt{-2x+1}-\frac{111}{250}(2x-1)^2\sqrt{-2x+1}+\frac{2}{375}(-2x+1)^{\frac{3}{2}}+\frac{11}{3125}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{22}{625}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2*(-2*x + 1)^(3/2)/(5*x + 3),x, algorithm="giac")
```

```
[Out] -9/70*(2*x - 1)^3*sqrt(-2*x + 1) - 111/250*(2*x - 1)^2*sqrt(-2*x
+ 1) + 2/375*(-2*x + 1)^(3/2) + 11/3125*sqrt(55)*ln(1/2*abs(-2*sq
rt(55) + 10*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) + 22/6
25*sqrt(-2*x + 1)
```

3.1883 $\int \frac{(1-2x)^{3/2}(2+3x)}{3+5x}\,dx$

Optimal. Leaf size=69

$$-\frac{3}{25}(1-2x)^{5/2}+\frac{2}{75}(1-2x)^{3/2}+\frac{22}{125}\sqrt{1-2x}-\frac{22}{125}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (22*Sqrt[1 - 2*x])/125 + (2*(1 - 2*x)^(3/2))/75 - (3*(1 - 2*x)^(5
/2))/25 - (22*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/125
```

Rubi [A] time = 0.0730236, antiderivative size = 69, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{3}{25}(1-2x)^{5/2}+\frac{2}{75}(1-2x)^{3/2}+\frac{22}{125}\sqrt{1-2x}-\frac{22}{125}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(2 + 3*x))/(3 + 5*x),x]
```

```
[Out] (22*Sqrt[1 - 2*x])/125 + (2*(1 - 2*x)^(3/2))/75 - (3*(1 - 2*x)^(5
/2))/25 - (22*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/125
```

Rubi in Sympy [A] time = 7.90258, size = 60, normalized size = 0.87

$$-\frac{3\left(-2x+1\right)^{\frac{5}{2}}}{25}+\frac{2\left(-2x+1\right)^{\frac{3}{2}}}{75}+\frac{22\sqrt{-2x+1}}{125}-\frac{22\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)/(3+5*x),x)
```

```
[Out] -3*(-2*x + 1)**(5/2)/25 + 2*(-2*x + 1)**(3/2)/75 + 22*sqrt(-2*x +
 1)/125 - 22*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/625
```

Mathematica [A] time = 0.0506408, size = 51, normalized size = 0.74

$$\frac{5\sqrt{1-2x}\left(-180x^2+160x+31\right)-66\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1875}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(2 + 3*x))/(3 + 5*x),x]
```

```
[Out] (5*Sqrt[1 - 2*x]*(31 + 160*x - 180*x^2) - 66*Sqrt[55]*ArcTanh[Sqr
t[5/11]*Sqrt[1 - 2*x]])/1875
```

Maple [A] time = 0.008, size = 47, normalized size = 0.7

$$\frac{2}{75}(1-2x)^{\frac{3}{2}}-\frac{3}{25}(1-2x)^{\frac{5}{2}}-\frac{22\sqrt{55}}{625}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)+\frac{22}{125}\sqrt{1-2x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)/(3+5*x),x)
```

```
[Out] 2/75*(1-2*x)^(3/2)-3/25*(1-2*x)^(5/2)-22/625*arctanh(1/11*55^(1/2
)*(1-2*x)^(1/2))*55^(1/2)+22/125*(1-2*x)^(1/2)
```

Maxima [A] time = 1.48614, size = 86, normalized size = 1.25

$$-\frac{3}{25}\,(-2\,x+1)^{\frac{5}{2}}+\frac{2}{75}\,(-2\,x+1)^{\frac{3}{2}}+\frac{11}{625}\,\sqrt{55}\log\left(-\frac{\sqrt{55}-5\,\sqrt{-2\,x+1}}{\sqrt{55}+5\,\sqrt{-2\,x+1}}\right)+\frac{22}{125}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)*(-2*x + 1)^(3/2)/(5*x + 3),x, algorithm="maxima")
```

```
[Out] -3/25*(-2*x + 1)^(5/2) + 2/75*(-2*x + 1)^(3/2) + 11/625*sqrt(55)*
log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1)))
 + 22/125*sqrt(-2*x + 1)
```

Fricas [A] time = 0.213753, size = 85, normalized size = 1.23

$$-\frac{1}{1875}\,\sqrt{5}\left(\sqrt{5}\left(180\,x^{2}-160\,x-31\right)\sqrt{-2\,x+1}-33\,\sqrt{11}\log\left(\frac{\sqrt{5}(5\,x-8)+5\,\sqrt{11}\sqrt{-2\,x+1}}{5\,x+3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)*(-2*x + 1)^(3/2)/(5*x + 3),x, algorithm="fricas")
```

```
[Out] -1/1875*sqrt(5)*(sqrt(5)*(180*x^2 - 160*x - 31)*sqrt(-2*x + 1) -
33*sqrt(11)*log((sqrt(5)*(5*x - 8) + 5*sqrt(11)*sqrt(-2*x + 1))/(
5*x + 3)))
```

Sympy [A] time = 6.73885, size = 99, normalized size = 1.43

$$-\frac{3\,(-2x+1)^{\frac{5}{2}}}{25}+\frac{2\,(-2x+1)^{\frac{3}{2}}}{75}+\frac{22\sqrt{-2x+1}}{125}+\frac{242\left(\begin{cases}-\frac{\sqrt{55}\operatorname{acoth}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1>\frac{11}{5}\\ -\frac{\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1<\frac{11}{5}\end{cases}\right)}{125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)/(3+5*x),x)
```

```
[Out] -3*(-2*x + 1)**(5/2)/25 + 2*(-2*x + 1)**(3/2)/75 + 22*sqrt(-2*x +
 1)/125 + 242*Piecewise((-sqrt(55)*acoth(sqrt(55)*sqrt(-2*x + 1)/
11)/55, -2*x + 1 > 11/5), (-sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1
)/11)/55, -2*x + 1 < 11/5))/125
```

GIAC/XCAS [A] time = 0.211935, size = 100, normalized size = 1.45

$$-\frac{3}{25}\,(2\,x-1)^{2}\sqrt{-2\,x+1}+\frac{2}{75}\,(-2\,x+1)^{\frac{3}{2}}+\frac{11}{625}\,\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)+\frac{22}{125}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)*(-2*x + 1)^(3/2)/(5*x + 3),x, algorithm="giac")
```

```
[Out] -3/25*(2*x - 1)^2*sqrt(-2*x + 1) + 2/75*(-2*x + 1)^(3/2) + 11/625
*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(55) +
 5*sqrt(-2*x + 1))) + 22/125*sqrt(-2*x + 1)
```

3.1884 $\int \frac{(1-2x)^{3/2}}{3+5x}\,dx$

Optimal. Leaf size=56

$$\frac{2}{15}(1-2x)^{3/2}+\frac{22}{25}\sqrt{1-2x}-\frac{22}{25}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (22*Sqrt[1 - 2*x])/25 + (2*(1 - 2*x)^(3/2))/15 - (22*Sqrt[11/5]*A
rcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/25
```

Rubi [A] time = 0.0490057, antiderivative size = 56, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 17, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.176

$$\frac{2}{15}(1-2x)^{3/2}+\frac{22}{25}\sqrt{1-2x}-\frac{22}{25}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)/(3 + 5*x),x]
```

```
[Out] (22*Sqrt[1 - 2*x])/25 + (2*(1 - 2*x)^(3/2))/15 - (22*Sqrt[11/5]*A
rcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/25
```

Rubi in Sympy [A] time = 5.79157, size = 48, normalized size = 0.86

$$\frac{2\left(-2x+1\right)^{\frac{3}{2}}}{15}+\frac{22\sqrt{-2x+1}}{25}-\frac{22\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)/(3+5*x),x)
```

```
[Out] 2*(-2*x + 1)**(3/2)/15 + 22*sqrt(-2*x + 1)/25 - 22*sqrt(55)*atanh
(sqrt(55)*sqrt(-2*x + 1)/11)/125
```

Mathematica [A] time = 0.046108, size = 46, normalized size = 0.82

$$-\frac{2}{375}\left(10\sqrt{1-2x}(5x-19)+33\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)/(3 + 5*x),x]
```

```
[Out] (-2*(10*Sqrt[1 - 2*x]*(-19 + 5*x) + 33*Sqrt[55]*ArcTanh[Sqrt[5/11
]*Sqrt[1 - 2*x]]))/375
```

Maple [A] time = 0.008, size = 38, normalized size = 0.7

$$\frac{2}{15}\left(1-2\,x\right)^{\frac{3}{2}}-\frac{22\,\sqrt{55}}{125}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2\,x}\right)+\frac{22}{25}\sqrt{1-2\,x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)/(3+5*x),x)
```

```
[Out] 2/15*(1-2*x)^(3/2)-22/125*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55
^(1/2)+22/25*(1-2*x)^(1/2)
```

Maxima [A] time = 1.48653, size = 74, normalized size = 1.32

$$\frac{2}{15}\,(-2\,x+1)^{\frac{3}{2}}+\frac{11}{125}\,\sqrt{55}\log\left(-\frac{\sqrt{55}-5\,\sqrt{-2\,x+1}}{\sqrt{55}+5\,\sqrt{-2\,x+1}}\right)+\frac{22}{25}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/(5*x + 3),x, algorithm="maxima")
```

```
[Out] 2/15*(-2*x + 1)^(3/2) + 11/125*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-
2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) + 22/25*sqrt(-2*x + 1)
```

Fricas [A] time = 0.213309, size = 80, normalized size = 1.43

$$-\frac{1}{375}\,\sqrt{5}\left(4\,\sqrt{5}(5\,x-19)\sqrt{-2\,x+1}-33\,\sqrt{11}\log\left(\frac{\sqrt{5}(5\,x-8)+5\,\sqrt{11}\sqrt{-2\,x+1}}{5\,x+3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/(5*x + 3),x, algorithm="fricas")
```

```
[Out] -1/375*sqrt(5)*(4*sqrt(5)*(5*x - 19)*sqrt(-2*x + 1) - 33*sqrt(11)
*log((sqrt(5)*(5*x - 8) + 5*sqrt(11)*sqrt(-2*x + 1))/(5*x + 3)))
```

Sympy [A] time = 3.01722, size = 155, normalized size = 2.77

$$\begin{cases} -\frac{4\sqrt{5}i\left(x+\frac{3}{5}\right)\sqrt{10x-5}}{75}+\frac{88\sqrt{5}i\sqrt{10x-5}}{375}+\frac{22\sqrt{55}i\operatorname{asin}\left(\frac{\sqrt{110}}{10\sqrt{x+\frac{3}{5}}}\right)}{125} & \text{for}\ \frac{10\left|x+\frac{3}{5}\right|}{11}>1 \\ -\frac{4\sqrt{5}\sqrt{-10x+5}\left(x+\frac{3}{5}\right)}{75}+\frac{88\sqrt{5}\sqrt{-10x+5}}{375}+\frac{11\sqrt{55}\log\left(x+\frac{3}{5}\right)}{125}-\frac{22\sqrt{55}\log\left(\sqrt{-\frac{10x}{11}+\frac{5}{11}}+1\right)}{125} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)/(3+5*x),x)
```

```
[Out] Piecewise((-4*sqrt(5)*I*(x + 3/5)*sqrt(10*x - 5)/75 + 88*sqrt(5)*
I*sqrt(10*x - 5)/375 + 22*sqrt(55)*I*asin(sqrt(110)/(10*sqrt(x +
3/5)))/125, 10*Abs(x + 3/5)/11 > 1), (-4*sqrt(5)*sqrt(-10*x + 5)*
(x + 3/5)/75 + 88*sqrt(5)*sqrt(-10*x + 5)/375 + 11*sqrt(55)*log(x
 + 3/5)/125 - 22*sqrt(55)*log(sqrt(-10*x/11 + 5/11) + 1)/125, Tru
e))
```

GIAC/XCAS [A] time = 0.209879, size = 78, normalized size = 1.39

$$\frac{2}{15}\,(-2\,x+1)^{\frac{3}{2}}+\frac{11}{125}\,\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)+\frac{22}{25}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/(5*x + 3),x, algorithm="giac")
```

```
[Out] 2/15*(-2*x + 1)^(3/2) + 11/125*sqrt(55)*ln(1/2*abs(-2*sqrt(55) +
10*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) + 22/25*sqrt(-2
*x + 1)
```

3.1885 $\int \frac{(1-2x)^{3/2}}{(2+3x)(3+5x)}\,dx$

Optimal. Leaf size=72

$$-\frac{4}{15}\sqrt{1-2x}+\frac{14}{3}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{22}{5}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (-4*Sqrt[1 - 2*x])/15 + (14*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 -
2*x]])/3 - (22*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/5
```

Rubi [A] time = 0.122085, antiderivative size = 72, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$-\frac{4}{15}\sqrt{1-2x}+\frac{14}{3}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{22}{5}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)/((2 + 3*x)*(3 + 5*x)),x]
```

```
[Out] (-4*Sqrt[1 - 2*x])/15 + (14*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 -
2*x]])/3 - (22*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/5
```

Rubi in Sympy [A] time = 13.6936, size = 61, normalized size = 0.85

$$-\frac{4\sqrt{-2x+1}}{15}+\frac{14\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{9}-\frac{22\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{25}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)/(2+3*x)/(3+5*x),x)
```

```
[Out] -4*sqrt(-2*x + 1)/15 + 14*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/
7)/9 - 22*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/25
```

Mathematica [A] time = 0.0649297, size = 66, normalized size = 0.92

$$-\frac{2}{225}\left(30\sqrt{1-2x}-175\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+99\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)/((2 + 3*x)*(3 + 5*x)),x]
```

```
[Out] (-2*(30*Sqrt[1 - 2*x] - 175*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2
*x]] + 99*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]))/225
```

Maple [A] time = 0.013, size = 47, normalized size = 0.7

$$-\frac{22\sqrt{55}}{25}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2\,x}\right)+\frac{14\sqrt{21}}{9}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)-\frac{4}{15}\sqrt{1-2\,x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)/(2+3*x)/(3+5*x),x)
```

```
[Out] -22/25*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)+14/9*arctanh
(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)-4/15*(1-2*x)^(1/2)
```

Maxima [A] time = 1.49164, size = 111, normalized size = 1.54

$$\frac{11}{25}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{7}{9}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{4}{15}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/((5*x + 3)*(3*x + 2)),x, algorithm="maxima")
```

```
[Out] 11/25*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*s
qrt(-2*x + 1))) - 7/9*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))
/(sqrt(21) + 3*sqrt(-2*x + 1))) - 4/15*sqrt(-2*x + 1)
```

Fricas [A] time = 0.2364, size = 138, normalized size = 1.92

$$\frac{1}{225}\sqrt{5}\sqrt{3}\left(33\sqrt{11}\sqrt{3}\log\left(\frac{\sqrt{5}(5x-8)+5\sqrt{11}\sqrt{-2x+1}}{5x+3}\right)+35\sqrt{7}\sqrt{5}\log\left(\frac{\sqrt{3}(3x-5)-3\sqrt{7}\sqrt{-2x+1}}{3x+2}\right)-4\sqrt{5}\sqrt{3}\sqrt{-2x}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/((5*x + 3)*(3*x + 2)),x, algorithm="fricas")
```

```
[Out] 1/225*sqrt(5)*sqrt(3)*(33*sqrt(11)*sqrt(3)*log((sqrt(5)*(5*x - 8)
 + 5*sqrt(11)*sqrt(-2*x + 1))/(5*x + 3)) + 35*sqrt(7)*sqrt(5)*log
((sqrt(3)*(3*x - 5) - 3*sqrt(7)*sqrt(-2*x + 1))/(3*x + 2)) - 4*sq
rt(5)*sqrt(3)*sqrt(-2*x + 1))
```

Sympy [A] time = 6.71963, size = 139, normalized size = 1.93

$$-\frac{4\sqrt{-2x+1}}{15}-\frac{98\left(\begin{cases}-\frac{\sqrt{21}\operatorname{acoth}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for } -2x+1>\frac{7}{3}\\ -\frac{\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for } -2x+1<\frac{7}{3}\end{cases}\right)}{3}+\frac{242\left(\begin{cases}-\frac{\sqrt{55}\operatorname{acoth}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1>\frac{11}{5}\\ -\frac{\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1<\frac{11}{5}\end{cases}\right)}{5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)/(2+3*x)/(3+5*x),x)
```

```
[Out] -4*sqrt(-2*x + 1)/15 - 98*Piecewise((-sqrt(21)*acoth(sqrt(21)*sqr
t(-2*x + 1)/7)/21, -2*x + 1 > 7/3), (-sqrt(21)*atanh(sqrt(21)*sqr
t(-2*x + 1)/7)/21, -2*x + 1 < 7/3))/3 + 242*Piecewise((-sqrt(55)*
acoth(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*x + 1 > 11/5), (-sqrt(55
)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*x + 1 < 11/5))/5
```

GIAC/XCAS [A] time = 0.212118, size = 119, normalized size = 1.65

$$\frac{11}{25}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{7}{9}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{4}{15}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/((5*x + 3)*(3*x + 2)),x, algorithm="giac")
```

```
[Out] 11/25*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(
55) + 5*sqrt(-2*x + 1))) - 7/9*sqrt(21)*ln(1/2*abs(-2*sqrt(21) +
6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 4/15*sqrt(-2*x
 + 1)
```

3.1886 $\int \frac{(1-2x)^{3/2}}{(2+3x)^2(3+5x)}\,dx$

Optimal. Leaf size=77

$$\frac{7\sqrt{1-2x}}{3(3x+2)}+\frac{64}{3}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-22\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (7*Sqrt[1 - 2*x])/(3*(2 + 3*x)) + (64*Sqrt[7/3]*ArcTanh[Sqrt[3/7]
*Sqrt[1 - 2*x]])/3 - 22*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*
x]]
```

Rubi [A] time = 0.125472, antiderivative size = 77, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$\frac{7\sqrt{1-2x}}{3(3x+2)}+\frac{64}{3}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-22\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)/((2 + 3*x)^2*(3 + 5*x)),x]
```

```
[Out] (7*Sqrt[1 - 2*x])/(3*(2 + 3*x)) + (64*Sqrt[7/3]*ArcTanh[Sqrt[3/7]
*Sqrt[1 - 2*x]])/3 - 22*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*
x]]
```

Rubi in Sympy [A] time = 14.7761, size = 65, normalized size = 0.84

$$\frac{7\sqrt{-2x+1}}{3(3x+2)}+\frac{64\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{9}-\frac{22\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)/(2+3*x)**2/(3+5*x),x)
```

```
[Out] 7*sqrt(-2*x + 1)/(3*(3*x + 2)) + 64*sqrt(21)*atanh(sqrt(21)*sqrt(
-2*x + 1)/7)/9 - 22*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/5
```

Mathematica [A] time = 0.135607, size = 75, normalized size = 0.97

$$\frac{7\sqrt{1-2x}}{9x+6}+\frac{64}{3}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-22\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)/((2 + 3*x)^2*(3 + 5*x)),x]
```

```
[Out] (7*Sqrt[1 - 2*x])/(6 + 9*x) + (64*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqr
t[1 - 2*x]])/3 - 22*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Maple [A] time = 0.016, size = 54, normalized size = 0.7

$$-\frac{14}{9}\sqrt{1-2\,x}\left(-\frac{4}{3}-2\,x\right)^{-1}+\frac{64\,\sqrt{21}}{9}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)-\frac{22\,\sqrt{55}}{5}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)/(2+3*x)^2/(3+5*x),x)
```

```
[Out] -14/9*(1-2*x)^(1/2)/(-4/3-2*x)+64/9*arctanh(1/7*21^(1/2)*(1-2*x)^
(1/2))*21^(1/2)-22/5*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2
)
```

Maxima [A] time = 1.49016, size = 120, normalized size = 1.56

$$\frac{11}{5}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{32}{9}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{7\sqrt{-2x+1}}{3(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)*(3*x + 2)^2),x, algorithm="maxima")
```

```
[Out] 11/5*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sq
rt(-2*x + 1))) - 32/9*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))
/(sqrt(21) + 3*sqrt(-2*x + 1))) + 7/3*sqrt(-2*x + 1)/(3*x + 2)
```

Fricas [A] time = 0.236376, size = 161, normalized size = 2.09

$$\frac{\sqrt{5}\sqrt{3}\left(33\sqrt{11}\sqrt{3}(3x+2)\log\left(\frac{\sqrt{5}(5x-8)+5\sqrt{11}\sqrt{-2x+1}}{5x+3}\right)+32\sqrt{7}\sqrt{5}(3x+2)\log\left(\frac{\sqrt{3}(3x-5)-3\sqrt{7}\sqrt{-2x+1}}{3x+2}\right)+7\sqrt{5}\sqrt{3}\sqrt{-2x+1}\right)}{45(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)*(3*x + 2)^2),x, algorithm="fricas")
```

```
[Out] 1/45*sqrt(5)*sqrt(3)*(33*sqrt(11)*sqrt(3)*(3*x + 2)*log((sqrt(5)*
(5*x - 8) + 5*sqrt(11)*sqrt(-2*x + 1))/(5*x + 3)) + 32*sqrt(7)*sq
rt(5)*(3*x + 2)*log((sqrt(3)*(3*x - 5) - 3*sqrt(7)*sqrt(-2*x + 1)
)/(3*x + 2)) + 7*sqrt(5)*sqrt(3)*sqrt(-2*x + 1))/(3*x + 2)
```

Sympy [A] time = 56.7161, size = 226, normalized size = 2.94

$$\frac{196\left(\begin{cases}\frac{\sqrt{21}\left(-\frac{\log\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)}{4}+\frac{\log\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)}{4}-\frac{1}{4\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)}-\frac{1}{4\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)}\right)}{147} & \text{for}\ x\le\frac{1}{2}\wedge x>-\frac{2}{3}\end{cases}\right)}{3}-\frac{434\left(\begin{cases}-\frac{\sqrt{21}\operatorname{acoth}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for}\ -2x+1>\frac{7}{3}\\-\frac{\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for}\ -2x+1<\frac{7}{3}\end{cases}\right)}{3}+242\left(\begin{cases}-\frac{\sqrt{55}\operatorname{acoth}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for}\ -2x+1>\frac{11}{5}\\-\frac{\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for}\ -2x+1<\frac{11}{5}\end{cases}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)/(2+3*x)**2/(3+5*x),x)
```

```
[Out] 196*Piecewise((sqrt(21)*(-log(sqrt(21)*sqrt(-2*x + 1)/7 - 1)/4 +
log(sqrt(21)*sqrt(-2*x + 1)/7 + 1)/4 - 1/(4*(sqrt(21)*sqrt(-2*x +
```

```
 1)/7 + 1)) - 1/(4*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)))/147, (x <= 1
/2) & (x > -2/3)))/3 - 434*Piecewise((-sqrt(21)*acoth(sqrt(21)*sq
rt(-2*x + 1)/7)/21, -2*x + 1 > 7/3), (-sqrt(21)*atanh(sqrt(21)*sq
rt(-2*x + 1)/7)/21, -2*x + 1 < 7/3))/3 + 242*Piecewise((-sqrt(55)
*acoth(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*x + 1 > 11/5), (-sqrt(5
5)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*x + 1 < 11/5))
```

GIAC/XCAS [A] time = 0.212343, size = 128, normalized size = 1.66

$$\frac{11}{5}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{32}{9}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{7\sqrt{-2x+1}}{3(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/((5*x + 3)*(3*x + 2)^2),x, algorithm="giac")
```

```
[Out] 11/5*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(5
5) + 5*sqrt(-2*x + 1))) - 32/9*sqrt(21)*ln(1/2*abs(-2*sqrt(21) +
6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 7/3*sqrt(-2*x
+ 1)/(3*x + 2)
```

3.1887 $\int \frac{(1-2x)^{3/2}}{(2+3x)^3(3+5x)}\,dx$

Optimal. Leaf size=93

$$\frac{65\sqrt{1-2x}}{6(3x+2)}+\frac{7\sqrt{1-2x}}{6(3x+2)^2}+\frac{2243\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{3\sqrt{21}}-22\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (7*Sqrt[1 - 2*x])/(6*(2 + 3*x)^2) + (65*Sqrt[1 - 2*x])/(6*(2 + 3*
x)) + (2243*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(3*Sqrt[21]) - 22*S
qrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Rubi [A] time = 0.183725, antiderivative size = 93, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{65\sqrt{1-2x}}{6(3x+2)}+\frac{7\sqrt{1-2x}}{6(3x+2)^2}+\frac{2243\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{3\sqrt{21}}-22\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)/((2 + 3*x)^3*(3 + 5*x)),x]
```

```
[Out] (7*Sqrt[1 - 2*x])/(6*(2 + 3*x)^2) + (65*Sqrt[1 - 2*x])/(6*(2 + 3*
x)) + (2243*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(3*Sqrt[21]) - 22*S
qrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Rubi in Sympy [A] time = 21.4851, size = 82, normalized size = 0.88

$$\frac{65\sqrt{-2x+1}}{6\,(3x+2)}+\frac{7\sqrt{-2x+1}}{6\,(3x+2)^2}+\frac{2243\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{63}-22\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)/(2+3*x)**3/(3+5*x),x)
```

```
[Out] 65*sqrt(-2*x + 1)/(6*(3*x + 2)) + 7*sqrt(-2*x + 1)/(6*(3*x + 2)**
2) + 2243*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/63 - 22*sqrt(
55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)
```

Mathematica [A] time = 0.155359, size = 78, normalized size = 0.84

$$\frac{\sqrt{1-2x}(195x+137)}{6(3x+2)^2}+\frac{2243\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{3\sqrt{21}}-22\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)/((2 + 3*x)^3*(3 + 5*x)),x]
```

```
[Out] (Sqrt[1 - 2*x]*(137 + 195*x))/(6*(2 + 3*x)^2) + (2243*ArcTanh[Sqr
t[3/7]*Sqrt[1 - 2*x]])/(3*Sqrt[21]) - 22*Sqrt[55]*ArcTanh[Sqrt[5/
11]*Sqrt[1 - 2*x]]
```

Maple [A] time = 0.017, size = 66, normalized size = 0.7

$$-18\frac{1}{(-4-6x)^2}\left(\frac{65\,(1-2x)^{3/2}}{18}-\frac{469\sqrt{1-2x}}{54}\right)+\frac{2243\sqrt{21}}{63}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)-22\,Artanh\left(1/11\sqrt{55}\sqrt{1-2x}\right)\sqrt{55}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)/(2+3*x)^3/(3+5*x),x)
```

```
[Out] -18*(65/18*(1-2*x)^(3/2)-469/54*(1-2*x)^(1/2))/(-4-6*x)^2+2243/63
*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)-22*arctanh(1/11*55^
(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.50793, size = 149, normalized size = 1.6

$$11\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{2243}{126}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{195\,(-2x+1)^{\frac{3}{2}}-469\sqrt{-2x+1}}{3\left(9\,(2x-1)^2+84x+7\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)*(3*x + 2)^3),x, algorithm="maxima")
```

```
[Out] 11*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt
(-2*x + 1))) - 2243/126*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1
))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 1/3*(195*(-2*x + 1)^(3/2) - 4
69*sqrt(-2*x + 1))/(9*(2*x - 1)^2 + 84*x + 7)
```

Fricas [A] time = 0.235456, size = 158, normalized size = 1.7

$$\frac{\sqrt{21}\left(66\sqrt{55}\sqrt{21}\left(9x^2+12x+4\right)\log\left(\frac{5x+\sqrt{55}\sqrt{-2x+1}-8}{5x+3}\right)+\sqrt{21}(195x+137)\sqrt{-2x+1}+2243\left(9x^2+12x+4\right)\log\left(\frac{\sqrt{21}(3x-5}{}\right.\right.}{126\left(9x^2+12x+4\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)*(3*x + 2)^3),x, algorithm="fricas")
```

```
[Out] 1/126*sqrt(21)*(66*sqrt(55)*sqrt(21)*(9*x^2 + 12*x + 4)*log((5*x
+ sqrt(55)*sqrt(-2*x + 1) - 8)/(5*x + 3)) + sqrt(21)*(195*x + 137
)*sqrt(-2*x + 1) + 2243*(9*x^2 + 12*x + 4)*log((sqrt(21)*(3*x - 5
) - 21*sqrt(-2*x + 1))/(3*x + 2)))/(9*x^2 + 12*x + 4)
```

Sympy [A] time = 142.934, size = 372, normalized size = 4.

$$\frac{868\left(\begin{cases}\frac{\sqrt{21}\left(-\frac{\log\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)}{4}+\frac{\log\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)}{4}-\frac{1}{4\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)}-\frac{1}{4\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)}\right)}{147} & \text{for } x\le\frac{1}{2}\wedge x>-\frac{2}{3}\end{cases}\right)}{3} - \frac{392\left(\begin{cases}\frac{\sqrt{21}\left(\frac{3\log\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)}{16}-\frac{3\log\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)}{16}+\frac{3}{16\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)}+\frac{1}{16\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)^2}+\frac{3}{16\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)}-\frac{1}{16\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)^2}\right)}{1029} & \text{for } x\le\frac{1}{2}\wedge x>-\frac{2}{3}\end{cases}\right)}{3} - 726\left(\begin{cases}-\frac{\sqrt{21}\operatorname{acoth}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for } -2x+1>\frac{7}{3}\\ -\frac{\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for } -2x+1<\frac{7}{3}\end{cases}\right) + 1210\left(\begin{cases}-\frac{\sqrt{55}\operatorname{acoth}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1>\frac{11}{5}\\ -\frac{\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1<\frac{11}{5}\end{cases}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)/(2+3*x)**3/(3+5*x),x)
```

```
[Out] 868*Piecewise((sqrt(21)*(-log(sqrt(21)*sqrt(-2*x + 1)/7 - 1)/4 +
log(sqrt(21)*sqrt(-2*x + 1)/7 + 1)/4 - 1/(4*(sqrt(21)*sqrt(-2*x +
 1)/7 + 1)) - 1/(4*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)))/147, (x <= 1
/2) & (x > -2/3)))/3 - 392*Piecewise((sqrt(21)*(3*log(sqrt(21)*sq
rt(-2*x + 1)/7 - 1)/16 - 3*log(sqrt(21)*sqrt(-2*x + 1)/7 + 1)/16
+ 3/(16*(sqrt(21)*sqrt(-2*x + 1)/7 + 1)) + 1/(16*(sqrt(21)*sqrt(-
2*x + 1)/7 + 1)**2) + 3/(16*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)) - 1/
(16*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)**2))/1029, (x <= 1/2) & (x >
-2/3)))/3 - 726*Piecewise((-sqrt(21)*acoth(sqrt(21)*sqrt(-2*x + 1
)/7)/21, -2*x + 1 > 7/3), (-sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1
)/7)/21, -2*x + 1 < 7/3)) + 1210*Piecewise((-sqrt(55)*acoth(sqrt(
55)*sqrt(-2*x + 1)/11)/55, -2*x + 1 > 11/5), (-sqrt(55)*atanh(sqr
t(55)*sqrt(-2*x + 1)/11)/55, -2*x + 1 < 11/5))
```

GIAC/XCAS [A] time = 0.214258, size = 144, normalized size = 1.55

$$11\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{2243}{126}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{195(-2x+1)^{\frac{3}{2}}-469\sqrt{-2x+1}}{12(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)*(3*x + 2)^3),x, algorithm="giac")
```

```
[Out] 11*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(55)
 + 5*sqrt(-2*x + 1))) - 2243/126*sqrt(21)*ln(1/2*abs(-2*sqrt(21)
+ 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 1/12*(195*(-
2*x + 1)^(3/2) - 469*sqrt(-2*x + 1))/(3*x + 2)^2
```

3.1888 $\int \frac{(1-2x)^{3/2}}{(2+3x)^4(3+5x)}\,dx$

Optimal. Leaf size=113

$$\frac{1138\sqrt{1-2x}}{21(3x+2)}+\frac{49\sqrt{1-2x}}{9(3x+2)^2}+\frac{7\sqrt{1-2x}}{9(3x+2)^3}+\frac{78506\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{21\sqrt{21}}-110\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (7*Sqrt[1 - 2*x])/(9*(2 + 3*x)^3) + (49*Sqrt[1 - 2*x])/(9*(2 + 3*
x)^2) + (1138*Sqrt[1 - 2*x])/(21*(2 + 3*x)) + (78506*ArcTanh[Sqrt
[3/7]*Sqrt[1 - 2*x]])/(21*Sqrt[21]) - 110*Sqrt[55]*ArcTanh[Sqrt[5
/11]*Sqrt[1 - 2*x]]
```

Rubi [A] time = 0.243521, antiderivative size = 113, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{1138\sqrt{1-2x}}{21(3x+2)}+\frac{49\sqrt{1-2x}}{9(3x+2)^2}+\frac{7\sqrt{1-2x}}{9(3x+2)^3}+\frac{78506\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{21\sqrt{21}}-110\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)/((2 + 3*x)^4*(3 + 5*x)),x]
```

```
[Out] (7*Sqrt[1 - 2*x])/(9*(2 + 3*x)^3) + (49*Sqrt[1 - 2*x])/(9*(2 + 3*
x)^2) + (1138*Sqrt[1 - 2*x])/(21*(2 + 3*x)) + (78506*ArcTanh[Sqrt
[3/7]*Sqrt[1 - 2*x]])/(21*Sqrt[21]) - 110*Sqrt[55]*ArcTanh[Sqrt[5
/11]*Sqrt[1 - 2*x]]
```

Rubi in Sympy [A] time = 28.1951, size = 100, normalized size = 0.88

$$\frac{1138\sqrt{-2x+1}}{21\,(3x+2)}+\frac{49\sqrt{-2x+1}}{9\,(3x+2)^2}+\frac{7\sqrt{-2x+1}}{9\,(3x+2)^3}+\frac{78506\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{441}-110\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)/(2+3*x)**4/(3+5*x),x)
```

```
[Out] 1138*sqrt(-2*x + 1)/(21*(3*x + 2)) + 49*sqrt(-2*x + 1)/(9*(3*x +
2)**2) + 7*sqrt(-2*x + 1)/(9*(3*x + 2)**3) + 78506*sqrt(21)*atanh
(sqrt(21)*sqrt(-2*x + 1)/7)/441 - 110*sqrt(55)*atanh(sqrt(55)*sqr
t(-2*x + 1)/11)
```

Mathematica [A] time = 0.182168, size = 83, normalized size = 0.73

$$\frac{\sqrt{1-2x}\left(10242x^2+13999x+4797\right)}{21(3x+2)^3}+\frac{78506\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{21\sqrt{21}}-110\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)/((2 + 3*x)^4*(3 + 5*x)),x]
```

```
[Out] (Sqrt[1 - 2*x]*(4797 + 13999*x + 10242*x^2))/(21*(2 + 3*x)^3) + (
78506*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(21*Sqrt[21]) - 110*Sqrt[
```

```
55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Maple [A] time = 0.017, size = 75, normalized size = 0.7

$$-54\frac{1}{(-4-6x)^3}\left(\frac{1138(1-2x)^{5/2}}{63}-\frac{6926(1-2x)^{3/2}}{81}+\frac{8204\sqrt{1-2x}}{81}\right)+\frac{78506\sqrt{21}}{441}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)-110\,\mathit{Artanh}\left(1/11\sqrt{55}\sqrt{1-2x}\right)\sqrt{55}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((1-2*x)^(3/2)/(2+3*x)^4/(3+5*x),x)
```

```
[Out] -54*(1138/63*(1-2*x)^(5/2)-6926/81*(1-2*x)^(3/2)+8204/81*(1-2*x)^
(1/2))/(-4-6*x)^3+78506/441*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*2
1^(1/2)-110*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.50485, size = 173, normalized size = 1.53

$$55\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{39253}{441}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{4\left(5121(-2x+1)^{\frac{5}{2}}-24241(-2x+1)^{\frac{3}{2}}+28714\sqrt{-2x+1}\right)}{21\left(27(2x-1)^3+189(2x-1)^2+882x-98\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/((5*x + 3)*(3*x + 2)^4),x, algorithm="maxima")
```

```
[Out] 55*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt
(-2*x + 1))) - 39253/441*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x +
1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 4/21*(5121*(-2*x + 1)^(5/2)
- 24241*(-2*x + 1)^(3/2) + 28714*sqrt(-2*x + 1))/(27*(2*x - 1)^3
+ 189*(2*x - 1)^2 + 882*x - 98)
```

Fricas [A] time = 0.235447, size = 185, normalized size = 1.64

$$\frac{\sqrt{21}\left(1155\sqrt{55}\sqrt{21}\left(27x^3+54x^2+36x+8\right)\log\left(\frac{5x+\sqrt{55}\sqrt{-2x+1}-8}{5x+3}\right)+\sqrt{21}\left(10242x^2+13999x+4797\right)\sqrt{-2x+1}+39253\,(2\ldots\right.}{441\left(27x^3+54x^2+36x+8\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/((5*x + 3)*(3*x + 2)^4),x, algorithm="fricas")
```

```
[Out] 1/441*sqrt(21)*(1155*sqrt(55)*sqrt(21)*(27*x^3 + 54*x^2 + 36*x +
8)*log((5*x + sqrt(55)*sqrt(-2*x + 1) - 8)/(5*x + 3)) + sqrt(21)*
(10242*x^2 + 13999*x + 4797)*sqrt(-2*x + 1) + 39253*(27*x^3 + 54*
x^2 + 36*x + 8)*log((sqrt(21)*(3*x - 5) - 21*sqrt(-2*x + 1))/(3*x
 + 2)))/(27*x^3 + 54*x^2 + 36*x + 8)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)/(2+3*x)**4/(3+5*x),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.214848, size = 166, normalized size = 1.47

$$55\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{39253}{441}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{5121\,(2x-1)^2\sqrt{-2x+1}-24241\,(-2x+1)^{\frac{3}{2}}+28714\sqrt{-2x+1}}{42\,(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)*(3*x + 2)^4),x, algorithm="giac")
```

```
[Out] 55*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(55)
 + 5*sqrt(-2*x + 1))) - 39253/441*sqrt(21)*ln(1/2*abs(-2*sqrt(21)
 + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 1/42*(5121*
(2*x - 1)^2*sqrt(-2*x + 1) - 24241*(-2*x + 1)^(3/2) + 28714*sqrt(
-2*x + 1))/(3*x + 2)^3
```

3.1889 $\int \frac{(1-2x)^{3/2}}{(2+3x)^5(3+5x)}\,dx$

Optimal. Leaf size=133

$$\frac{318643\sqrt{1-2x}}{1176(3x+2)}+\frac{13723\sqrt{1-2x}}{504(3x+2)^2}+\frac{131\sqrt{1-2x}}{36(3x+2)^3}+\frac{7\sqrt{1-2x}}{12(3x+2)^4}+\frac{10990843\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{588\sqrt{21}}-550\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (7*Sqrt[1 - 2*x])/(12*(2 + 3*x)^4) + (131*Sqrt[1 - 2*x])/(36*(2 +
 3*x)^3) + (13723*Sqrt[1 - 2*x])/(504*(2 + 3*x)^2) + (318643*Sqrt
[1 - 2*x])/(1176*(2 + 3*x)) + (10990843*ArcTanh[Sqrt[3/7]*Sqrt[1
- 2*x]])/(588*Sqrt[21]) - 550*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1
- 2*x]]
```

Rubi [A] time = 0.302879, antiderivative size = 133, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.208$

$$\frac{318643\sqrt{1-2x}}{1176(3x+2)}+\frac{13723\sqrt{1-2x}}{504(3x+2)^2}+\frac{131\sqrt{1-2x}}{36(3x+2)^3}+\frac{7\sqrt{1-2x}}{12(3x+2)^4}+\frac{10990843\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{588\sqrt{21}}-550\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)/((2 + 3*x)^5*(3 + 5*x)),x]
```

```
[Out] (7*Sqrt[1 - 2*x])/(12*(2 + 3*x)^4) + (131*Sqrt[1 - 2*x])/(36*(2 +
 3*x)^3) + (13723*Sqrt[1 - 2*x])/(504*(2 + 3*x)^2) + (318643*Sqrt
[1 - 2*x])/(1176*(2 + 3*x)) + (10990843*ArcTanh[Sqrt[3/7]*Sqrt[1
- 2*x]])/(588*Sqrt[21]) - 550*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1
- 2*x]]
```

Rubi in Sympy [A] time = 34.7981, size = 119, normalized size = 0.89

$$\frac{318643\sqrt{-2x+1}}{1176\,(3x+2)}+\frac{13723\sqrt{-2x+1}}{504\,(3x+2)^2}+\frac{131\sqrt{-2x+1}}{36\,(3x+2)^3}+\frac{7\sqrt{-2x+1}}{12\,(3x+2)^4}+\frac{10990843\sqrt{21}\,\text{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{12348}-550\sqrt{55}\,\text{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)/(2+3*x)**5/(3+5*x),x)
```

```
[Out] 318643*sqrt(-2*x + 1)/(1176*(3*x + 2)) + 13723*sqrt(-2*x + 1)/(50
4*(3*x + 2)**2) + 131*sqrt(-2*x + 1)/(36*(3*x + 2)**3) + 7*sqrt(-
2*x + 1)/(12*(3*x + 2)**4) + 10990843*sqrt(21)*atanh(sqrt(21)*sqr
t(-2*x + 1)/7)/12348 - 550*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)
/11)
```

Mathematica [A] time = 0.16575, size = 88, normalized size = 0.66

$$\frac{\sqrt{1-2x}\left(8603361x^3+17494905x^2+11868230x+2686470\right)}{1176(3x+2)^4}+\frac{10990843\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{588\sqrt{21}}-550\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)/((2 + 3*x)^5*(3 + 5*x)),x]
```

```
[Out] (Sqrt[1 - 2*x]*(2686470 + 11868230*x + 17494905*x^2 + 8603361*x^3
))/(1176*(2 + 3*x)^4) + (10990843*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]
])/(588*Sqrt[21]) - 550*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]
]
```

Maple [A] time = 0.019, size = 84, normalized size = 0.6

$$-162\frac{1}{(-4-6x)^4}\left(\frac{318643(1-2x)^{7/2}}{3528}-\frac{2895233(1-2x)^{5/2}}{4536}+\frac{2923727(1-2x)^{3/2}}{1944}-\frac{2297099\sqrt{1-2x}}{1944}\right)+\frac{10990843\sqrt{21}}{12348}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)-550\,\mathit{Artanh}\left(1/11\sqrt{55}\sqrt{1-2x}\right)\sqrt{55}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)/(2+3*x)^5/(3+5*x),x)
```

```
[Out] -162*(318643/3528*(1-2*x)^(7/2)-2895233/4536*(1-2*x)^(5/2)+292372
7/1944*(1-2*x)^(3/2)-2297099/1944*(1-2*x)^(1/2))/(-4-6*x)^4+10990
843/12348*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)-550*arctan
h(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.52141, size = 197, normalized size = 1.48

$$275\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{10990843}{24696}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{8603361(-2x+1)^{\frac{7}{2}}-60799893(-2x+1)^{\frac{5}{2}}+143262623(-2x+1)^{\frac{3}{2}}-112557851\sqrt{-2x+1}}{588\left(81(2x-1)^4+756(2x-1)^3+2646(2x-1)^2+8232x-1715\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)*(3*x + 2)^5),x, algorithm="maxima")
```

```
[Out] 275*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sqr
t(-2*x + 1))) - 10990843/24696*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-
2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 1/588*(8603361*(-2*x +
 1)^(7/2) - 60799893*(-2*x + 1)^(5/2) + 143262623*(-2*x + 1)^(3/2
) - 112557851*sqrt(-2*x + 1))/(81*(2*x - 1)^4 + 756*(2*x - 1)^3 +
 2646*(2*x - 1)^2 + 8232*x - 1715)
```

Fricas [A] time = 0.23387, size = 212, normalized size = 1.59

$$\frac{\sqrt{21}\left(323400\sqrt{55}\sqrt{21}\left(81x^4+216x^3+216x^2+96x+16\right)\log\left(\frac{5x+\sqrt{55}\sqrt{-2x+1}-8}{5x+3}\right)+\sqrt{21}\left(8603361x^3+17494905x^2+11868\right.\right.}{24696\left(81x^4+216x^3+216x^2\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)*(3*x + 2)^5),x, algorithm="fricas")
```

```
[Out] 1/24696*sqrt(21)*(323400*sqrt(55)*sqrt(21)*(81*x^4 + 216*x^3 + 21
6*x^2 + 96*x + 16)*log((5*x + sqrt(55)*sqrt(-2*x + 1) - 8)/(5*x +
 3)) + sqrt(21)*(8603361*x^3 + 17494905*x^2 + 11868230*x + 268647
0)*sqrt(-2*x + 1) + 10990843*(81*x^4 + 216*x^3 + 216*x^2 + 96*x +
 16)*log((sqrt(21)*(3*x - 5) - 21*sqrt(-2*x + 1))/(3*x + 2)))/(81
*x^4 + 216*x^3 + 216*x^2 + 96*x + 16)
```

Sympy [F(-1)]   time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)/(2+3*x)**5/(3+5*x),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A]   time = 0.217053, size = 188, normalized size = 1.41

$$275\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{10990843}{24696}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{8603361\,(2x-1)^3\sqrt{-2x+1}+60799893\,(2x-1)^2\sqrt{-2x+1}-143262623\,(-2x+1)^{\frac{3}{2}}+112557851\sqrt{-2x+1}}{9408\,(3x+2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)*(3*x + 2)^5),x, algorithm="giac")
```

```
[Out] 275*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(55
) + 5*sqrt(-2*x + 1))) - 10990843/24696*sqrt(21)*ln(1/2*abs(-2*sq
rt(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 1/940
8*(8603361*(2*x - 1)^3*sqrt(-2*x + 1) + 60799893*(2*x - 1)^2*sqrt
(-2*x + 1) - 143262623*(-2*x + 1)^(3/2) + 112557851*sqrt(-2*x + 1
))/(3*x + 2)^4
```

3.1890 $\int \frac{(1-2x)^{3/2}}{(2+3x)^6(3+5x)}\,dx$

Optimal. Leaf size=153

$$\frac{2788127\sqrt{1-2x}}{2058(3x+2)}+\frac{120077\sqrt{1-2x}}{882(3x+2)^2}+\frac{5732\sqrt{1-2x}}{315(3x+2)^3}+\frac{41\sqrt{1-2x}}{15(3x+2)^4}+\frac{7\sqrt{1-2x}}{15(3x+2)^5}+\frac{96169877\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{1029\sqrt{21}}-2750\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (7*Sqrt[1 - 2*x])/(15*(2 + 3*x)^5) + (41*Sqrt[1 - 2*x])/(15*(2 +
3*x)^4) + (5732*Sqrt[1 - 2*x])/(315*(2 + 3*x)^3) + (120077*Sqrt[1
 - 2*x])/(882*(2 + 3*x)^2) + (2788127*Sqrt[1 - 2*x])/(2058*(2 + 3
*x)) + (96169877*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(1029*Sqrt[21]
) - 2750*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Rubi [A] time = 0.369469, antiderivative size = 153, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{2788127\sqrt{1-2x}}{2058(3x+2)}+\frac{120077\sqrt{1-2x}}{882(3x+2)^2}+\frac{5732\sqrt{1-2x}}{315(3x+2)^3}+\frac{41\sqrt{1-2x}}{15(3x+2)^4}+\frac{7\sqrt{1-2x}}{15(3x+2)^5}+\frac{96169877\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{1029\sqrt{21}}-2750\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)/((2 + 3*x)^6*(3 + 5*x)),x]
```

```
[Out] (7*Sqrt[1 - 2*x])/(15*(2 + 3*x)^5) + (41*Sqrt[1 - 2*x])/(15*(2 +
3*x)^4) + (5732*Sqrt[1 - 2*x])/(315*(2 + 3*x)^3) + (120077*Sqrt[1
 - 2*x])/(882*(2 + 3*x)^2) + (2788127*Sqrt[1 - 2*x])/(2058*(2 + 3
*x)) + (96169877*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(1029*Sqrt[21]
) - 2750*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Rubi in Sympy [A] time = 42.4778, size = 138, normalized size = 0.9

$$\frac{2788127\sqrt{-2x+1}}{2058\,(3x+2)}+\frac{120077\sqrt{-2x+1}}{882\,(3x+2)^2}+\frac{5732\sqrt{-2x+1}}{315\,(3x+2)^3}+\frac{41\sqrt{-2x+1}}{15\,(3x+2)^4}+\frac{7\sqrt{-2x+1}}{15\,(3x+2)^5}+\frac{96169877\sqrt{21}\,\mathrm{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21609}-2750\sqrt{55}\,\mathrm{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)/(2+3*x)**6/(3+5*x),x)
```

```
[Out] 2788127*sqrt(-2*x + 1)/(2058*(3*x + 2)) + 120077*sqrt(-2*x + 1)/(
882*(3*x + 2)**2) + 5732*sqrt(-2*x + 1)/(315*(3*x + 2)**3) + 41*s
qrt(-2*x + 1)/(15*(3*x + 2)**4) + 7*sqrt(-2*x + 1)/(15*(3*x + 2)*
*5) + 96169877*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/21609 -
2750*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)
```

Mathematica [A] time = 0.174382, size = 93, normalized size = 0.61

$$\frac{\sqrt{1-2x}\left(1129191435x^4+3049001415x^3+3088510878x^2+1391064622x+235067382\right)}{10290(3x+2)^5}+\frac{96169877\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{1029\sqrt{21}}-2750\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)/((2 + 3*x)^6*(3 + 5*x)),x]
```

```
[Out] (Sqrt[1 - 2*x]*(235067382 + 1391064622*x + 3088510878*x^2 + 30490
01415*x^3 + 1129191435*x^4))/(10290*(2 + 3*x)^5) + (96169877*ArcT
anh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(1029*Sqrt[21]) - 2750*Sqrt[55]*Arc
Tanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Maple [A] time = 0.019, size = 93, normalized size = 0.6

$$-486\frac{1}{(-4-6x)^5}\left(\frac{2788127(1-2x)^{9/2}}{6174}-\frac{2406977(1-2x)^{7/2}}{567}+\frac{127289798(1-2x)^{5/2}}{8505}-\frac{17098361(1-2x)^{3/2}}{729}+\frac{20099\cdots}{}\right.$$
$$+\frac{96169877\sqrt{21}}{21609}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)-2750\,\mathit{Artanh}\left(1/11\sqrt{55}\sqrt{1-2x}\right)\sqrt{55}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)/(2+3*x)^6/(3+5*x),x)
```

```
[Out] -486*(2788127/6174*(1-2*x)^(9/2)-2406977/567*(1-2*x)^(7/2)+127289
798/8505*(1-2*x)^(5/2)-17098361/729*(1-2*x)^(3/2)+20099611/1458*(
1-2*x)^(1/2))/(-4-6*x)^5+96169877/21609*arctanh(1/7*21^(1/2)*(1-2
*x)^(1/2))*21^(1/2)-2750*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^
(1/2)
```

Maxima [A] time = 1.51715, size = 221, normalized size = 1.44

$$1375\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{96169877}{43218}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)$$
$$+\frac{1129191435(-2x+1)^{\frac{9}{2}}-10614768570(-2x+1)^{\frac{7}{2}}+37423200612(-2x+1)^{\frac{5}{2}}-58647378230(-2x+1)^{\frac{3}{2}}+34470832865\cdots}{5145\left(243(2x-1)^5+2835(2x-1)^4+13230(2x-1)^3+30870(2x-1)^2+72030x-19208\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)*(3*x + 2)^6),x, algorithm="maxima")
```

```
[Out] 1375*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sq
rt(-2*x + 1))) - 96169877/43218*sqrt(21)*log(-(sqrt(21) - 3*sqrt(
-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 1/5145*(1129191435*(-
2*x + 1)^(9/2) - 10614768570*(-2*x + 1)^(7/2) + 37423200612*(-2*x
 + 1)^(5/2) - 58647378230*(-2*x + 1)^(3/2) + 34470832865*sqrt(-2*
x + 1))/(243*(2*x - 1)^5 + 2835*(2*x - 1)^4 + 13230*(2*x - 1)^3 +
 30870*(2*x - 1)^2 + 72030*x - 19208)
```

Fricas [A] time = 0.219211, size = 239, normalized size = 1.56

$$\frac{\sqrt{21}\left(14148750\sqrt{55}\sqrt{21}\left(243x^5+810x^4+1080x^3+720x^2+240x+32\right)\log\left(\frac{5x+\sqrt{55}\sqrt{-2x+1}-8}{5x+3}\right)+\sqrt{21}\left(1129191435x^4+30\cdots\right.\right.}{216090(2\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/((5*x + 3)*(3*x + 2)^6),x, algorithm="fricas")
```

```
[Out] 1/216090*sqrt(21)*(14148750*sqrt(55)*sqrt(21)*(243*x^5 + 810*x^4
+ 1080*x^3 + 720*x^2 + 240*x + 32)*log((5*x + sqrt(55)*sqrt(-2*x
+ 1) - 8)/(5*x + 3)) + sqrt(21)*(1129191435*x^4 + 3049001415*x^3
+ 3088510878*x^2 + 1391064622*x + 235067382)*sqrt(-2*x + 1) + 480
849385*(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)*log(
(sqrt(21)*(3*x - 5) - 21*sqrt(-2*x + 1))/(3*x + 2)))/(243*x^5 + 8
10*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(3/2)/(2+3*x)**6/(3+5*x),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.217569, size = 209, normalized size = 1.37

$$1375\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{96169877}{43218}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{1129191435\,(2x-1)^4\sqrt{-2x+1}+10614768570\,(2x-1)^3\sqrt{-2x+1}+37423200612\,(2x-1)^2\sqrt{-2x+1}-58647378230\,(-}{164640\,(3x+2)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/((5*x + 3)*(3*x + 2)^6),x, algorithm="giac")
```

```
[Out] 1375*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(5
5) + 5*sqrt(-2*x + 1))) - 96169877/43218*sqrt(21)*ln(1/2*abs(-2*s
qrt(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 1/16
4640*(1129191435*(2*x - 1)^4*sqrt(-2*x + 1) + 10614768570*(2*x -
1)^3*sqrt(-2*x + 1) + 37423200612*(2*x - 1)^2*sqrt(-2*x + 1) - 58
647378230*(-2*x + 1)^(3/2) + 34470832865*sqrt(-2*x + 1))/(3*x + 2
)^5
```

3.1891 $\int \frac{(1-2x)^{3/2}(2+3x)^5}{(3+5x)^2}\,dx$

Optimal. Leaf size=148

$$-\frac{(1-2x)^{3/2}(3x+2)^5}{5(5x+3)}+\frac{39}{275}(1-2x)^{3/2}(3x+2)^4+\frac{38(1-2x)^{3/2}(3x+2)^3}{4125}-\frac{4016(1-2x)^{3/2}(3x+2)^2}{48125}-\frac{2(1-2x)^{3/2}(204777x+298462)}{515625}+\frac{324\sqrt{1-2x}}{78125}-\frac{324\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{78125}$$

```
[Out] (324*Sqrt[1 - 2*x])/78125 - (4016*(1 - 2*x)^(3/2)*(2 + 3*x)^2)/48
125 + (38*(1 - 2*x)^(3/2)*(2 + 3*x)^3)/4125 + (39*(1 - 2*x)^(3/2)
*(2 + 3*x)^4)/275 - ((1 - 2*x)^(3/2)*(2 + 3*x)^5)/(5*(3 + 5*x)) -
 (2*(1 - 2*x)^(3/2)*(298462 + 204777*x))/515625 - (324*Sqrt[11/5]
*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/78125
```

Rubi [A] time = 0.26344, antiderivative size = 148, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.25$

$$-\frac{(1-2x)^{3/2}(3x+2)^5}{5(5x+3)}+\frac{39}{275}(1-2x)^{3/2}(3x+2)^4+\frac{38(1-2x)^{3/2}(3x+2)^3}{4125}-\frac{4016(1-2x)^{3/2}(3x+2)^2}{48125}-\frac{2(1-2x)^{3/2}(204777x+298462)}{515625}+\frac{324\sqrt{1-2x}}{78125}-\frac{324\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{78125}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(2 + 3*x)^5)/(3 + 5*x)^2,x]
```

```
[Out] (324*Sqrt[1 - 2*x])/78125 - (4016*(1 - 2*x)^(3/2)*(2 + 3*x)^2)/48
125 + (38*(1 - 2*x)^(3/2)*(2 + 3*x)^3)/4125 + (39*(1 - 2*x)^(3/2)
*(2 + 3*x)^4)/275 - ((1 - 2*x)^(3/2)*(2 + 3*x)^5)/(5*(3 + 5*x)) -
 (2*(1 - 2*x)^(3/2)*(298462 + 204777*x))/515625 - (324*Sqrt[11/5]
*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/78125
```

Rubi in Sympy [A] time = 35.5685, size = 128, normalized size = 0.86

$$-\frac{(-2x+1)^{\frac{3}{2}}(3x+2)^5}{5(5x+3)}+\frac{39(-2x+1)^{\frac{3}{2}}(3x+2)^4}{275}+\frac{38(-2x+1)^{\frac{3}{2}}(3x+2)^3}{4125}-\frac{4016(-2x+1)^{\frac{3}{2}}(3x+2)^2}{48125}-\frac{(-2x+1)^{\frac{3}{2}}(129009510x+188031060)}{162421875}+\frac{324\sqrt{-2x+1}}{78125}-\frac{324\sqrt{55}\,\mathrm{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{390625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)**5/(3+5*x)**2,x)
```

```
[Out] -(-2*x + 1)**(3/2)*(3*x + 2)**5/(5*(5*x + 3)) + 39*(-2*x + 1)**(3
/2)*(3*x + 2)**4/275 + 38*(-2*x + 1)**(3/2)*(3*x + 2)**3/4125 - 4
016*(-2*x + 1)**(3/2)*(3*x + 2)**2/48125 - (-2*x + 1)**(3/2)*(129
009510*x + 188031060)/162421875 + 324*sqrt(-2*x + 1)/78125 - 324*
sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/390625
```

Mathematica [A] time = 0.137739, size = 78, normalized size = 0.53

$$\frac{-\frac{5\sqrt{1-2x}\left(106312500x^6+270112500x^5+181738125x^4-76760550x^3-135193430x^2-2532130x+23061496\right)}{5x+3}-24948\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{30078125}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(2 + 3*x)^5)/(3 + 5*x)^2,x]
```

```
[Out] ((-5*Sqrt[1 - 2*x]*(23061496 - 2532130*x - 135193430*x^2 - 767605
50*x^3 + 181738125*x^4 + 270112500*x^5 + 106312500*x^6))/(3 + 5*x
) - 24948*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/30078125
```

Maple [A] time = 0.017, size = 90, normalized size = 0.6

$$\frac{243}{2200}(1-2x)^{\frac{11}{2}}-\frac{981}{1000}(1-2x)^{\frac{9}{2}}+\frac{107109}{35000}(1-2x)^{\frac{7}{2}}-\frac{434043}{125000}(1-2x)^{\frac{5}{2}}+\frac{2}{3125}(1-2x)^{\frac{3}{2}}+\frac{326}{78125}\sqrt{1-2x}+\frac{22}{390625}\sqrt{1-2x}\left(-\frac{6}{5}-2x\right)^{-1}-\frac{324\sqrt{55}}{390625}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^5/(3+5*x)^2,x)
```

```
[Out] 243/2200*(1-2*x)^(11/2)-981/1000*(1-2*x)^(9/2)+107109/35000*(1-2*
x)^(7/2)-434043/125000*(1-2*x)^(5/2)+2/3125*(1-2*x)^(3/2)+326/781
25*(1-2*x)^(1/2)+22/390625*(1-2*x)^(1/2)/(-6/5-2*x)-324/390625*ar
ctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.54204, size = 144, normalized size = 0.97

$$\frac{243}{2200}(-2x+1)^{\frac{11}{2}}-\frac{981}{1000}(-2x+1)^{\frac{9}{2}}+\frac{107109}{35000}(-2x+1)^{\frac{7}{2}}-\frac{434043}{125000}(-2x+1)^{\frac{5}{2}}+\frac{2}{3125}(-2x+1)^{\frac{3}{2}}+\frac{162}{390625}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{326}{78125}\sqrt{-2x+1}-\frac{11\sqrt{-2x+1}}{78125(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5*(-2*x + 1)^(3/2)/(5*x + 3)^2,x, algorithm="maxima")
```

```
[Out] 243/2200*(-2*x + 1)^(11/2) - 981/1000*(-2*x + 1)^(9/2) + 107109/3
5000*(-2*x + 1)^(7/2) - 434043/125000*(-2*x + 1)^(5/2) + 2/3125*(
-2*x + 1)^(3/2) + 162/390625*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*
x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) + 326/78125*sqrt(-2*x + 1)
 - 11/78125*sqrt(-2*x + 1)/(5*x + 3)
```

Fricas [A] time = 0.212137, size = 130, normalized size = 0.88

$$\frac{\sqrt{5}\left(12474\sqrt{11}(5x+3)\log\left(\frac{\sqrt{5}(5x-8)+5\sqrt{11}\sqrt{-2x+1}}{5x+3}\right)-\sqrt{5}\left(106312500x^6+270112500x^5+181738125x^4-76760550x^3-13\right.\right.}{30078125(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5*(-2*x + 1)^(3/2)/(5*x + 3)^2,x, algorithm="fricas")
```

```
[Out] 1/30078125*sqrt(5)*(12474*sqrt(11)*(5*x + 3)*log((sqrt(5)*(5*x -
8) + 5*sqrt(11)*sqrt(-2*x + 1))/(5*x + 3)) - sqrt(5)*(106312500*x
^6 + 270112500*x^5 + 181738125*x^4 - 76760550*x^3 - 135193430*x^2
 - 2532130*x + 23061496)*sqrt(-2*x + 1))/(5*x + 3)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)**5/(3+5*x)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.216762, size = 186, normalized size = 1.26

$$-\frac{243}{2200}(2x-1)^5\sqrt{-2x+1}-\frac{981}{1000}(2x-1)^4\sqrt{-2x+1}-\frac{107109}{35000}(2x-1)^3\sqrt{-2x+1}-\frac{434043}{125000}(2x-1)^2\sqrt{-2x+1}+\frac{2}{3125}(-2x+1)^{\frac{3}{2}}+\frac{162}{390625}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{326}{78125}\sqrt{-2x+1}-\frac{11\sqrt{-2x+1}}{78125(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5*(-2*x + 1)^(3/2)/(5*x + 3)^2,x, algorithm="giac")
```

```
[Out] -243/2200*(2*x - 1)^5*sqrt(-2*x + 1) - 981/1000*(2*x - 1)^4*sqrt(
-2*x + 1) - 107109/35000*(2*x - 1)^3*sqrt(-2*x + 1) - 434043/1250
00*(2*x - 1)^2*sqrt(-2*x + 1) + 2/3125*(-2*x + 1)^(3/2) + 162/390
625*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(55
) + 5*sqrt(-2*x + 1))) + 326/78125*sqrt(-2*x + 1) - 11/78125*sqrt
(-2*x + 1)/(5*x + 3)
```

3.1892 $\int \frac{(1-2x)^{3/2}(2+3x)^4}{(3+5x)^2}\,dx$

Optimal. Leaf size=128

$$-\frac{(1-2x)^{3/2}(3x+2)^4}{5(5x+3)}+\frac{11}{75}(1-2x)^{3/2}(3x+2)^3-\frac{2}{875}(1-2x)^{3/2}(3x+2)^2-\frac{(1-2x)^{3/2}(3663x+5678)}{9375}+\frac{258\sqrt{1-2x}}{15625}-\frac{258\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{15625}$$

```
[Out] (258*Sqrt[1 - 2*x])/15625 - (2*(1 - 2*x)^(3/2)*(2 + 3*x)^2)/875 +
 (11*(1 - 2*x)^(3/2)*(2 + 3*x)^3)/75 - ((1 - 2*x)^(3/2)*(2 + 3*x)
^4)/(5*(3 + 5*x)) - ((1 - 2*x)^(3/2)*(5678 + 3663*x))/9375 - (258
*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/15625
```

Rubi [A] time = 0.20574, antiderivative size = 128, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.25$

$$-\frac{(1-2x)^{3/2}(3x+2)^4}{5(5x+3)}+\frac{11}{75}(1-2x)^{3/2}(3x+2)^3-\frac{2}{875}(1-2x)^{3/2}(3x+2)^2-\frac{(1-2x)^{3/2}(3663x+5678)}{9375}+\frac{258\sqrt{1-2x}}{15625}-\frac{258\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{15625}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(2 + 3*x)^4)/(3 + 5*x)^2,x]
```

```
[Out] (258*Sqrt[1 - 2*x])/15625 - (2*(1 - 2*x)^(3/2)*(2 + 3*x)^2)/875 +
 (11*(1 - 2*x)^(3/2)*(2 + 3*x)^3)/75 - ((1 - 2*x)^(3/2)*(2 + 3*x)
^4)/(5*(3 + 5*x)) - ((1 - 2*x)^(3/2)*(5678 + 3663*x))/9375 - (258
*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/15625
```

Rubi in Sympy [A] time = 27.9593, size = 109, normalized size = 0.85

$$-\frac{(-2x+1)^{\frac{3}{2}}(3x+2)^4}{5(5x+3)}+\frac{11(-2x+1)^{\frac{3}{2}}(3x+2)^3}{75}-\frac{2(-2x+1)^{\frac{3}{2}}(3x+2)^2}{875}-\frac{(-2x+1)^{\frac{3}{2}}(1153845x+1788570)}{2953125}+\frac{258\sqrt{-2x+1}}{15625}-\frac{258\sqrt{55}\,\mathrm{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{78125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)**4/(3+5*x)**2,x)
```

```
[Out] -(-2*x + 1)**(3/2)*(3*x + 2)**4/(5*(5*x + 3)) + 11*(-2*x + 1)**(3
/2)*(3*x + 2)**3/75 - 2*(-2*x + 1)**(3/2)*(3*x + 2)**2/875 - (-2*
x + 1)**(3/2)*(1153845*x + 1788570)/2953125 + 258*sqrt(-2*x + 1)/
15625 - 258*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/78125
```

Mathematica [A] time = 0.128429, size = 78, normalized size = 0.61

$$-\frac{5\sqrt{1-2x}\left(787500x^5+1395000x^4+157275x^3-924335x^2-143235x+161312\right)+1806\sqrt{55}(5x+3)\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{546875(5x+3)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(2 + 3*x)^4)/(3 + 5*x)^2,x]
```

```
[Out] -(5*Sqrt[1 - 2*x]*(161312 - 143235*x - 924335*x^2 + 157275*x^3 +
1395000*x^4 + 787500*x^5) + 1806*Sqrt[55]*(3 + 5*x)*ArcTanh[Sqrt[
5/11]*Sqrt[1 - 2*x]])/(546875*(3 + 5*x))
```

Maple [A] time = 0.016, size = 81, normalized size = 0.6

$$-\frac{9}{100}(1-2x)^{\frac{9}{2}}+\frac{999}{1750}(1-2x)^{\frac{7}{2}}-\frac{12393}{12500}(1-2x)^{\frac{5}{2}}+\frac{8}{3125}(1-2x)^{\frac{3}{2}}+\frac{52}{3125}\sqrt{1-2x}+\frac{22}{78125}\sqrt{1-2x}\left(-\frac{6}{5}-2x\right)^{-1}-\frac{258\sqrt{55}}{78125}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^4/(3+5*x)^2,x)
```

```
[Out] -9/100*(1-2*x)^(9/2)+999/1750*(1-2*x)^(7/2)-12393/12500*(1-2*x)^(
5/2)+8/3125*(1-2*x)^(3/2)+52/3125*(1-2*x)^(1/2)+22/78125*(1-2*x)^
(1/2)/(-6/5-2*x)-258/78125*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*5
5^(1/2)
```

Maxima [A] time = 1.49627, size = 132, normalized size = 1.03

$$-\frac{9}{100}(-2x+1)^{\frac{9}{2}}+\frac{999}{1750}(-2x+1)^{\frac{7}{2}}-\frac{12393}{12500}(-2x+1)^{\frac{5}{2}}+\frac{8}{3125}(-2x+1)^{\frac{3}{2}}+\frac{129}{78125}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{52}{3125}\sqrt{-2x+1}-\frac{11\sqrt{-2x+1}}{15625(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4*(-2*x + 1)^(3/2)/(5*x + 3)^2,x, algorithm="maxima")
```

```
[Out] -9/100*(-2*x + 1)^(9/2) + 999/1750*(-2*x + 1)^(7/2) - 12393/12500
*(-2*x + 1)^(5/2) + 8/3125*(-2*x + 1)^(3/2) + 129/78125*sqrt(55)*
log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1)))
 + 52/3125*sqrt(-2*x + 1) - 11/15625*sqrt(-2*x + 1)/(5*x + 3)
```

Fricas [A] time = 0.21365, size = 123, normalized size = 0.96

$$\frac{\sqrt{5}\left(903\sqrt{11}(5x+3)\log\left(\frac{\sqrt{5}(5x-8)+5\sqrt{11}\sqrt{-2x+1}}{5x+3}\right)-\sqrt{5}(787500x^5+1395000x^4+157275x^3-924335x^2-143235x+16131$$
$$546875\,(5x+3)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4*(-2*x + 1)^(3/2)/(5*x + 3)^2,x, algorithm="fricas")
```

```
[Out] 1/546875*sqrt(5)*(903*sqrt(11)*(5*x + 3)*log((sqrt(5)*(5*x - 8) +
 5*sqrt(11)*sqrt(-2*x + 1))/(5*x + 3)) - sqrt(5)*(787500*x^5 + 13
95000*x^4 + 157275*x^3 - 924335*x^2 - 143235*x + 161312)*sqrt(-2*
x + 1))/(5*x + 3)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)**4/(3+5*x)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.216547, size = 165, normalized size = 1.29

$$-\frac{9}{100}\,(2\,x-1)^{4}\sqrt{-2\,x+1}-\frac{999}{1750}\,(2\,x-1)^{3}\sqrt{-2\,x+1}-\frac{12393}{12500}\,(2\,x-1)^{2}\sqrt{-2\,x+1}+\frac{8}{3125}\,(-2\,x+1)^{\frac{3}{2}}+\frac{129}{78125}\,\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)+\frac{52}{3125}\,\sqrt{-2\,x+1}-\frac{11\,\sqrt{-2\,x+1}}{15625\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4*(-2*x + 1)^(3/2)/(5*x + 3)^2,x, algorithm="giac")
```

```
[Out] -9/100*(2*x - 1)^4*sqrt(-2*x + 1) - 999/1750*(2*x - 1)^3*sqrt(-2*
x + 1) - 12393/12500*(2*x - 1)^2*sqrt(-2*x + 1) + 8/3125*(-2*x +
1)^(3/2) + 129/78125*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2
*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) + 52/3125*sqrt(-2*x + 1)
- 11/15625*sqrt(-2*x + 1)/(5*x + 3)
```

3.1893 $\int \frac{(1-2x)^{3/2}(2+3x)^3}{(3+5x)^2}\,dx$

Optimal. Leaf size=108

$$-\frac{(1-2x)^{3/2}(3x+2)^3}{5(5x+3)}+\frac{27}{175}(1-2x)^{3/2}(3x+2)^2-\frac{6}{625}(1-2x)^{3/2}(9x+29)+\frac{192\sqrt{1-2x}}{3125}-\frac{192\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{3125}$$

```
[Out] (192*Sqrt[1 - 2*x])/3125 + (27*(1 - 2*x)^(3/2)*(2 + 3*x)^2)/175 -
 ((1 - 2*x)^(3/2)*(2 + 3*x)^3)/(5*(3 + 5*x)) - (6*(1 - 2*x)^(3/2)
*(29 + 9*x))/625 - (192*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*
x]])/3125
```

Rubi [A] time = 0.15843, antiderivative size = 108, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$-\frac{(1-2x)^{3/2}(3x+2)^3}{5(5x+3)}+\frac{27}{175}(1-2x)^{3/2}(3x+2)^2-\frac{6}{625}(1-2x)^{3/2}(9x+29)+\frac{192\sqrt{1-2x}}{3125}-\frac{192\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{3125}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(2 + 3*x)^3)/(3 + 5*x)^2,x]
```

```
[Out] (192*Sqrt[1 - 2*x])/3125 + (27*(1 - 2*x)^(3/2)*(2 + 3*x)^2)/175 -
 ((1 - 2*x)^(3/2)*(2 + 3*x)^3)/(5*(3 + 5*x)) - (6*(1 - 2*x)^(3/2)
*(29 + 9*x))/625 - (192*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*
x]])/3125
```

Rubi in Sympy [A] time = 21.0747, size = 90, normalized size = 0.83

$$-\frac{(-2x+1)^{\frac{3}{2}}(3x+2)^3}{5(5x+3)}+\frac{27(-2x+1)^{\frac{3}{2}}(3x+2)^2}{175}-\frac{(-2x+1)^{\frac{3}{2}}(5670x+18270)}{65625}+\frac{192\sqrt{-2x+1}}{3125}-\frac{192\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{15625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)**3/(3+5*x)**2,x)
```

```
[Out] -(-2*x + 1)**(3/2)*(3*x + 2)**3/(5*(5*x + 3)) + 27*(-2*x + 1)**(3
/2)*(3*x + 2)**2/175 - (-2*x + 1)**(3/2)*(5670*x + 18270)/65625 +
 192*sqrt(-2*x + 1)/3125 - 192*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x
+ 1)/11)/15625
```

Mathematica [A] time = 0.10631, size = 68, normalized size = 0.63

$$\frac{-\frac{5\sqrt{1-2x}(67500x^4+62100x^3-57165x^2-27640x+8738)}{5x+3}-1344\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{109375}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(2 + 3*x)^3)/(3 + 5*x)^2,x]
```

```
[Out] ((-5*Sqrt[1 - 2*x]*(8738 - 27640*x - 57165*x^2 + 62100*x^3 + 6750
0*x^4))/(3 + 5*x) - 1344*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x
]])/109375
```

Maple [A] time = 0.016, size = 72, normalized size = 0.7

$$\frac{27}{350}(1-2x)^{\frac{7}{2}}-\frac{351}{1250}(1-2x)^{\frac{5}{2}}+\frac{6}{625}(1-2x)^{\frac{3}{2}}+\frac{194}{3125}\sqrt{1-2x}+\frac{22}{15625}\sqrt{1-2x}\left(-\frac{6}{5}-2x\right)^{-1}-\frac{192\sqrt{55}}{15625}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^3/(3+5*x)^2,x)
```

```
[Out] 27/350*(1-2*x)^(7/2)-351/1250*(1-2*x)^(5/2)+6/625*(1-2*x)^(3/2)+1
94/3125*(1-2*x)^(1/2)+22/15625*(1-2*x)^(1/2)/(-6/5-2*x)-192/15625
*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.53305, size = 120, normalized size = 1.11

$$\frac{27}{350}(-2x+1)^{\frac{7}{2}}-\frac{351}{1250}(-2x+1)^{\frac{5}{2}}+\frac{6}{625}(-2x+1)^{\frac{3}{2}}+\frac{96}{15625}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{194}{3125}\sqrt{-2x+1}-\frac{11\sqrt{-2x+1}}{3125(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*(-2*x + 1)^(3/2)/(5*x + 3)^2,x, algorithm="maxima")
```

```
[Out] 27/350*(-2*x + 1)^(7/2) - 351/1250*(-2*x + 1)^(5/2) + 6/625*(-2*x
 + 1)^(3/2) + 96/15625*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1)
)/(sqrt(55) + 5*sqrt(-2*x + 1))) + 194/3125*sqrt(-2*x + 1) - 11/3
125*sqrt(-2*x + 1)/(5*x + 3)
```

Fricas [A] time = 0.213756, size = 116, normalized size = 1.07

$$\frac{\sqrt{5}\left(672\sqrt{11}(5x+3)\log\left(\frac{\sqrt{5}(5x-8)+5\sqrt{11}\sqrt{-2x+1}}{5x+3}\right)-\sqrt{5}\left(67500x^4+62100x^3-57165x^2-27640x+8738\right)\sqrt{-2x+1}\right)}{109375(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*(-2*x + 1)^(3/2)/(5*x + 3)^2,x, algorithm="fricas")
```

```
[Out] 1/109375*sqrt(5)*(672*sqrt(11)*(5*x + 3)*log((sqrt(5)*(5*x - 8) +
 5*sqrt(11)*sqrt(-2*x + 1))/(5*x + 3)) - sqrt(5)*(67500*x^4 + 621
00*x^3 - 57165*x^2 - 27640*x + 8738)*sqrt(-2*x + 1))/(5*x + 3)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)**3/(3+5*x)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.216055, size = 143, normalized size = 1.32

$$-\frac{27}{350}(2x-1)^3\sqrt{-2x+1}-\frac{351}{1250}(2x-1)^2\sqrt{-2x+1}+\frac{6}{625}(-2x+1)^{\frac{3}{2}}+\frac{96}{15625}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{194}{3125}\sqrt{-2x+1}-\frac{11\sqrt{-2x+1}}{3125(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*(-2*x + 1)^(3/2)/(5*x + 3)^2,x, algorithm="giac")
```

```
[Out] -27/350*(2*x - 1)^3*sqrt(-2*x + 1) - 351/1250*(2*x - 1)^2*sqrt(-2
*x + 1) + 6/625*(-2*x + 1)^(3/2) + 96/15625*sqrt(55)*ln(1/2*abs(-
2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) +
194/3125*sqrt(-2*x + 1) - 11/3125*sqrt(-2*x + 1)/(5*x + 3)
```

3.1894 $\int \frac{(1-2x)^{3/2}(2+3x)^2}{(3+5x)^2}\,dx$

Optimal. Leaf size=89

$$-\frac{(1-2x)^{5/2}}{275(5x+3)}-\frac{9}{125}(1-2x)^{5/2}+\frac{42(1-2x)^{3/2}}{1375}+\frac{126}{625}\sqrt{1-2x}-\frac{126}{625}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (126*Sqrt[1 - 2*x])/625 + (42*(1 - 2*x)^(3/2))/1375 - (9*(1 - 2*x
)^(5/2))/125 - (1 - 2*x)^(5/2)/(275*(3 + 5*x)) - (126*Sqrt[11/5]*
ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/625
```

Rubi [A] time = 0.10814, antiderivative size = 89, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$-\frac{(1-2x)^{5/2}}{275(5x+3)}-\frac{9}{125}(1-2x)^{5/2}+\frac{42(1-2x)^{3/2}}{1375}+\frac{126}{625}\sqrt{1-2x}-\frac{126}{625}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(2 + 3*x)^2)/(3 + 5*x)^2,x]
```

```
[Out] (126*Sqrt[1 - 2*x])/625 + (42*(1 - 2*x)^(3/2))/1375 - (9*(1 - 2*x
)^(5/2))/125 - (1 - 2*x)^(5/2)/(275*(3 + 5*x)) - (126*Sqrt[11/5]*
ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/625
```

Rubi in Sympy [A] time = 11.0204, size = 73, normalized size = 0.82

$$-\frac{9\left(-2x+1\right)^{\frac{5}{2}}}{125}-\frac{\left(-2x+1\right)^{\frac{5}{2}}}{275\left(5x+3\right)}+\frac{42\left(-2x+1\right)^{\frac{3}{2}}}{1375}+\frac{126\sqrt{-2x+1}}{625}-\frac{126\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{3125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)**2/(3+5*x)**2,x)
```

```
[Out] -9*(-2*x + 1)**(5/2)/125 - (-2*x + 1)**(5/2)/(275*(5*x + 3)) + 42
*(-2*x + 1)**(3/2)/1375 + 126*sqrt(-2*x + 1)/625 - 126*sqrt(55)*a
tanh(sqrt(55)*sqrt(-2*x + 1)/11)/3125
```

Mathematica [A] time = 0.104378, size = 63, normalized size = 0.71

$$\frac{\frac{5\sqrt{1-2x}\left(-900x^3+160x^2+935x+298\right)}{5x+3}-126\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{3125}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(2 + 3*x)^2)/(3 + 5*x)^2,x]
```

```
[Out] ((5*Sqrt[1 - 2*x]*(298 + 935*x + 160*x^2 - 900*x^3))/(3 + 5*x) -
126*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/3125
```

Maple [A] time = 0.016, size = 63, normalized size = 0.7

$$-\frac{9}{125}(1-2x)^{\frac{5}{2}}+\frac{4}{125}(1-2x)^{\frac{3}{2}}+\frac{128}{625}\sqrt{1-2x}+\frac{22}{3125}\sqrt{1-2x}\left(-\frac{6}{5}-2x\right)^{-1}-\frac{126\sqrt{55}}{3125}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^2/(3+5*x)^2,x)
```

```
[Out] -9/125*(1-2*x)^(5/2)+4/125*(1-2*x)^(3/2)+128/625*(1-2*x)^(1/2)+22
/3125*(1-2*x)^(1/2)/(-6/5-2*x)-126/3125*arctanh(1/11*55^(1/2)*(1-
2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.50484, size = 108, normalized size = 1.21

$$-\frac{9}{125}(-2x+1)^{\frac{5}{2}}+\frac{4}{125}(-2x+1)^{\frac{3}{2}}+\frac{63}{3125}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{128}{625}\sqrt{-2x+1}-\frac{11\sqrt{-2x+1}}{625(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*(-2*x + 1)^(3/2)/(5*x + 3)^2,x, algorithm="maxima")
```

```
[Out] -9/125*(-2*x + 1)^(5/2) + 4/125*(-2*x + 1)^(3/2) + 63/3125*sqrt(5
5)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1
))) + 128/625*sqrt(-2*x + 1) - 11/625*sqrt(-2*x + 1)/(5*x + 3)
```

Fricas [A] time = 0.212885, size = 109, normalized size = 1.22

$$\frac{\sqrt{5}\left(63\sqrt{11}(5x+3)\log\left(\frac{\sqrt{5}(5x-8)+5\sqrt{11}\sqrt{-2x+1}}{5x+3}\right)-\sqrt{5}\left(900x^3-160x^2-935x-298\right)\sqrt{-2x+1}\right)}{3125(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*(-2*x + 1)^(3/2)/(5*x + 3)^2,x, algorithm="fricas")
```

```
[Out] 1/3125*sqrt(5)*(63*sqrt(11)*(5*x + 3)*log((sqrt(5)*(5*x - 8) + 5*
sqrt(11)*sqrt(-2*x + 1))/(5*x + 3)) - sqrt(5)*(900*x^3 - 160*x^2
- 935*x - 298)*sqrt(-2*x + 1))/(5*x + 3)
```

Sympy [A] time = 158.772, size = 199, normalized size = 2.24

$$-\frac{9(-2x+1)^{\frac{5}{2}}}{125}+\frac{4(-2x+1)^{\frac{3}{2}}}{125}+\frac{128\sqrt{-2x+1}}{625}-\frac{484\left(\begin{cases}\frac{\sqrt{55}\left(-\frac{\log\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)}{4}+\frac{\log\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)}{4}-\frac{1}{4\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)}-\frac{1}{4\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)}\right)}{605} & \text{for } x\leq\frac{1}{2}\wedge x>-\frac{3}{5}\end{cases}\right)}{625}+\frac{1364\left(\begin{cases}-\frac{\sqrt{55}\operatorname{acoth}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1>\frac{11}{5}\\ -\frac{\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1<\frac{11}{5}\end{cases}\right)}{625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)**2/(3+5*x)**2,x)
```

```
[Out] -9*(-2*x + 1)**(5/2)/125 + 4*(-2*x + 1)**(3/2)/125 + 128*sqrt(-2*
x + 1)/625 - 484*Piecewise((sqrt(55)*(-log(sqrt(55)*sqrt(-2*x + 1
)/11 - 1)/4 + log(sqrt(55)*sqrt(-2*x + 1)/11 + 1)/4 - 1/(4*(sqrt(
55)*sqrt(-2*x + 1)/11 + 1)) - 1/(4*(sqrt(55)*sqrt(-2*x + 1)/11 -
1)))/605, (x <= 1/2) & (x > -3/5)))/625 + 1364*Piecewise((-sqrt(5
5)*acoth(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*x + 1 > 11/5), (-sqrt
(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*x + 1 < 11/5))/625
```

GIAC/XCAS [A] time = 0.212435, size = 122, normalized size = 1.37

$$-\frac{9}{125}(2x-1)^2\sqrt{-2x+1}+\frac{4}{125}(-2x+1)^{\frac{3}{2}}+\frac{63}{3125}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{128}{625}\sqrt{-2x+1}-\frac{11\sqrt{-2x+1}}{625(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*(-2*x + 1)^(3/2)/(5*x + 3)^2,x, algorithm="giac")
```

```
[Out] -9/125*(2*x - 1)^2*sqrt(-2*x + 1) + 4/125*(-2*x + 1)^(3/2) + 63/3
125*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(55
) + 5*sqrt(-2*x + 1))) + 128/625*sqrt(-2*x + 1) - 11/625*sqrt(-2*
x + 1)/(5*x + 3)
```

3.1895 $\int \frac{(1-2x)^{3/2}(2+3x)}{(3+5x)^2} dx$

Optimal. Leaf size=76

$$-\frac{(1-2x)^{5/2}}{55(5x+3)}+\frac{4}{55}(1-2x)^{3/2}+\frac{12}{25}\sqrt{1-2x}-\frac{12}{25}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (12*Sqrt[1 - 2*x])/25 + (4*(1 - 2*x)^(3/2))/55 - (1 - 2*x)^(5/2)/
(55*(3 + 5*x)) - (12*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
)/25
```

Rubi [A] time = 0.076643, antiderivative size = 76, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{(1-2x)^{5/2}}{55(5x+3)}+\frac{4}{55}(1-2x)^{3/2}+\frac{12}{25}\sqrt{1-2x}-\frac{12}{25}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(2 + 3*x))/(3 + 5*x)^2,x]
```

```
[Out] (12*Sqrt[1 - 2*x])/25 + (4*(1 - 2*x)^(3/2))/55 - (1 - 2*x)^(5/2)/
(55*(3 + 5*x)) - (12*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
)/25
```

Rubi in Sympy [A] time = 8.40946, size = 61, normalized size = 0.8

$$-\frac{(-2x+1)^{\frac{5}{2}}}{55\,(5x+3)}+\frac{4\,(-2x+1)^{\frac{3}{2}}}{55}+\frac{12\sqrt{-2x+1}}{25}-\frac{12\sqrt{55}\,\text{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)/(3+5*x)**2,x)
```

```
[Out] -(-2*x + 1)**(5/2)/(55*(5*x + 3)) + 4*(-2*x + 1)**(3/2)/55 + 12*s
qrt(-2*x + 1)/25 - 12*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/
125
```

Mathematica [A] time = 0.0910931, size = 58, normalized size = 0.76

$$\frac{1}{125}\left(\frac{5\sqrt{1-2x}\left(-20x^2+60x+41\right)}{5x+3}-12\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(2 + 3*x))/(3 + 5*x)^2,x]
```

```
[Out] ((5*Sqrt[1 - 2*x]*(41 + 60*x - 20*x^2))/(3 + 5*x) - 12*Sqrt[55]*A
rcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/125
```

Maple [A] time = 0.014, size = 54, normalized size = 0.7

$$\frac{2}{25}\left(1-2\,x\right)^{\frac{3}{2}}+\frac{62}{125}\sqrt{1-2\,x}+\frac{22}{625}\sqrt{1-2\,x}\left(-\frac{6}{5}-2\,x\right)^{-1}-\frac{12\,\sqrt{55}}{125}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)/(3+5*x)^2,x)
```

```
[Out] 2/25*(1-2*x)^(3/2)+62/125*(1-2*x)^(1/2)+22/625*(1-2*x)^(1/2)/(-6/
5-2*x)-12/125*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.48375, size = 96, normalized size = 1.26

$$\frac{2}{25}\,(-2\,x+1)^{\frac{3}{2}}+\frac{6}{125}\,\sqrt{55}\log\left(-\frac{\sqrt{55}-5\,\sqrt{-2\,x+1}}{\sqrt{55}+5\,\sqrt{-2\,x+1}}\right)+\frac{62}{125}\,\sqrt{-2\,x+1}-\frac{11\,\sqrt{-2\,x+1}}{125\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)*(-2*x + 1)^(3/2)/(5*x + 3)^2,x, algorithm="maxima")
```

```
[Out] 2/25*(-2*x + 1)^(3/2) + 6/125*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2
*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) + 62/125*sqrt(-2*x + 1) -
 11/125*sqrt(-2*x + 1)/(5*x + 3)
```

Fricas [A] time = 0.230226, size = 103, normalized size = 1.36

$$\frac{\sqrt{5}\left(6\,\sqrt{11}(5\,x+3)\log\left(\frac{\sqrt{5}(5\,x-8)+5\,\sqrt{11}\sqrt{-2\,x+1}}{5\,x+3}\right)-\sqrt{5}\left(20\,x^2-60\,x-41\right)\sqrt{-2\,x+1}\right)}{125\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)*(-2*x + 1)^(3/2)/(5*x + 3)^2,x, algorithm="fricas")
```

```
[Out] 1/125*sqrt(5)*(6*sqrt(11)*(5*x + 3)*log((sqrt(5)*(5*x - 8) + 5*sq
rt(11)*sqrt(-2*x + 1))/(5*x + 3)) - sqrt(5)*(20*x^2 - 60*x - 41)*
sqrt(-2*x + 1))/(5*x + 3)
```

Sympy [A] time = 104.48, size = 187, normalized size = 2.46

$$\frac{2\,(-2x+1)^{\frac{3}{2}}}{25}+\frac{62\sqrt{-2x+1}}{125}-\frac{484\left(\begin{cases}\frac{\sqrt{55}\left(-\frac{\log\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)}{4}+\frac{\log\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)}{4}-\frac{1}{4\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)}-\frac{1}{4\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)}\right)}{605} & \text{for } x\le\frac{1}{2}\wedge x>-\frac{3}{5}\end{cases}\right)}{125}+\frac{638\left(\begin{cases}-\frac{\sqrt{55}\,\operatorname{acoth}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1>\frac{11}{5}\\ -\frac{\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1<\frac{11}{5}\end{cases}\right)}{125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)/(3+5*x)**2,x)
```

```
[Out] 2*(-2*x + 1)**(3/2)/25 + 62*sqrt(-2*x + 1)/125 - 484*Piecewise((s
qrt(55)*(-log(sqrt(55)*sqrt(-2*x + 1)/11 - 1)/4 + log(sqrt(55)*sq
rt(-2*x + 1)/11 + 1)/4 - 1/(4*(sqrt(55)*sqrt(-2*x + 1)/11 + 1)) -
 1/(4*(sqrt(55)*sqrt(-2*x + 1)/11 - 1)))/605, (x <= 1/2) & (x > -
3/5)))/125 + 638*Piecewise((-sqrt(55)*acoth(sqrt(55)*sqrt(-2*x +
1)/11)/55, -2*x + 1 > 11/5), (-sqrt(55)*atanh(sqrt(55)*sqrt(-2*x
```

```
+ 1)/11)/55, -2*x + 1 < 11/5))/125
```

GIAC/XCAS [A] time = 0.21077, size = 100, normalized size = 1.32

$$\frac{2}{25}\,(-2\,x+1)^{\frac{3}{2}}+\frac{6}{125}\,\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\,\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)+\frac{62}{125}\,\sqrt{-2\,x+1}-\frac{11\,\sqrt{-2\,x+1}}{125\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)*(-2*x + 1)^(3/2)/(5*x + 3)^2,x, algorithm="giac")
```

```
[Out] 2/25*(-2*x + 1)^(3/2) + 6/125*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 1
0*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) + 62/125*sqrt(-2
*x + 1) - 11/125*sqrt(-2*x + 1)/(5*x + 3)
```

3.1896 $\int \frac{(1-2x)^{3/2}}{(3+5x)^2} dx$

Optimal. Leaf size=63

$$-\frac{(1-2x)^{3/2}}{5(5x+3)}-\frac{6}{25}\sqrt{1-2x}+\frac{6}{25}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (-6*Sqrt[1 - 2*x])/25 - (1 - 2*x)^(3/2)/(5*(3 + 5*x)) + (6*Sqrt[1
1/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/25
```

Rubi [A] time = 0.0512542, antiderivative size = 63, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 17, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.235

$$-\frac{(1-2x)^{3/2}}{5(5x+3)}-\frac{6}{25}\sqrt{1-2x}+\frac{6}{25}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)/(3 + 5*x)^2,x]
```

```
[Out] (-6*Sqrt[1 - 2*x])/25 - (1 - 2*x)^(3/2)/(5*(3 + 5*x)) + (6*Sqrt[1
1/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/25
```

Rubi in Sympy [A] time = 6.34716, size = 49, normalized size = 0.78

$$-\frac{(-2x+1)^{\frac{3}{2}}}{5(5x+3)}-\frac{6\sqrt{-2x+1}}{25}+\frac{6\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)/(3+5*x)**2,x)
```

```
[Out] -(-2*x + 1)**(3/2)/(5*(5*x + 3)) - 6*sqrt(-2*x + 1)/25 + 6*sqrt(5
5)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/125
```

Mathematica [A] time = 0.0726717, size = 53, normalized size = 0.84

$$\frac{1}{125}\left(6\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)-\frac{5\sqrt{1-2x}(20x+23)}{5x+3}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)/(3 + 5*x)^2,x]
```

```
[Out] ((-5*Sqrt[1 - 2*x]*(23 + 20*x))/(3 + 5*x) + 6*Sqrt[55]*ArcTanh[Sq
rt[5/11]*Sqrt[1 - 2*x]])/125
```

Maple [A] time = 0.013, size = 45, normalized size = 0.7

$$-\frac{4}{25}\sqrt{1-2x}+\frac{22}{125}\sqrt{1-2x}\left(-\frac{6}{5}-2x\right)^{-1}+\frac{6\sqrt{55}}{125}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)/(3+5*x)^2,x)
```

```
[Out] -4/25*(1-2*x)^(1/2)+22/125*(1-2*x)^(1/2)/(-6/5-2*x)+6/125*arctanh
(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.49443, size = 84, normalized size = 1.33

$$-\frac{3}{125}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{4}{25}\sqrt{-2x+1}-\frac{11\sqrt{-2x+1}}{25(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/(5*x + 3)^2,x, algorithm="maxima")
```

```
[Out] -3/125*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*
sqrt(-2*x + 1))) - 4/25*sqrt(-2*x + 1) - 11/25*sqrt(-2*x + 1)/(5*
x + 3)
```

Fricas [A] time = 0.224538, size = 96, normalized size = 1.52

$$\frac{\sqrt{5}\left(3\sqrt{11}(5x+3)\log\left(\frac{\sqrt{5}(5x-8)-5\sqrt{11}\sqrt{-2x+1}}{5x+3}\right)-\sqrt{5}(20x+23)\sqrt{-2x+1}\right)}{125(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/(5*x + 3)^2,x, algorithm="fricas")
```

```
[Out] 1/125*sqrt(5)*(3*sqrt(11)*(5*x + 3)*log((sqrt(5)*(5*x - 8) - 5*sq
rt(11)*sqrt(-2*x + 1))/(5*x + 3)) - sqrt(5)*(20*x + 23)*sqrt(-2*x
 + 1))/(5*x + 3)
```

Sympy [A] time = 3.49434, size = 240, normalized size = 3.81

$$\begin{cases} \frac{6\sqrt{55}\operatorname{acosh}\left(\frac{\sqrt{110}}{10\sqrt{x+\frac{3}{5}}}\right)}{125}+\frac{4\sqrt{2}\sqrt{x+\frac{3}{5}}}{25\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}}-\frac{11\sqrt{2}}{125\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}\sqrt{x+\frac{3}{5}}}-\frac{121\sqrt{2}}{1250\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)^{\frac{3}{2}}} & \text{for}\ \frac{11\left|\frac{1}{x+\frac{3}{5}}\right|}{10}>1 \\ -\frac{6\sqrt{55}i\operatorname{asin}\left(\frac{\sqrt{110}}{10\sqrt{x+\frac{3}{5}}}\right)}{125}-\frac{4\sqrt{2}i\sqrt{x+\frac{3}{5}}}{25\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}}+\frac{11\sqrt{2}i}{125\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}\sqrt{x+\frac{3}{5}}}+\frac{121\sqrt{2}i}{1250\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)^{\frac{3}{2}}} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)/(3+5*x)**2,x)
```

```
[Out] Piecewise((6*sqrt(55)*acosh(sqrt(110)/(10*sqrt(x + 3/5)))/125 + 4
*sqrt(2)*sqrt(x + 3/5)/(25*sqrt(-1 + 11/(10*(x + 3/5)))) - 11*sqr
t(2)/(125*sqrt(-1 + 11/(10*(x + 3/5)))*sqrt(x + 3/5)) - 121*sqrt(
2)/(1250*sqrt(-1 + 11/(10*(x + 3/5)))*(x + 3/5)**(3/2)), 11*Abs(1
/(x + 3/5))/10 > 1), (-6*sqrt(55)*I*asin(sqrt(110)/(10*sqrt(x + 3
/5)))/125 - 4*sqrt(2)*I*sqrt(x + 3/5)/(25*sqrt(1 - 11/(10*(x + 3/
5)))) + 11*sqrt(2)*I/(125*sqrt(1 - 11/(10*(x + 3/5)))*sqrt(x + 3/
5)) + 121*sqrt(2)*I/(1250*sqrt(1 - 11/(10*(x + 3/5)))*(x + 3/5)**
(3/2)), True))
```

GIAC/XCAS [A] time = 0.211644, size = 88, normalized size = 1.4

$$-\frac{3}{125}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{4}{25}\sqrt{-2x+1}-\frac{11\sqrt{-2x+1}}{25(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/(5*x + 3)^2,x, algorithm="giac")
```

```
[Out] -3/125*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt
(55) + 5*sqrt(-2*x + 1))) - 4/25*sqrt(-2*x + 1) - 11/25*sqrt(-2*x
 + 1)/(5*x + 3)
```

3.1897 $\int \frac{(1-2x)^{3/2}}{(2+3x)(3+5x)^2}\,dx$

Optimal. Leaf size=77

$$-\frac{11\sqrt{1-2x}}{5(5x+3)}-14\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+\frac{72}{5}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (-11*Sqrt[1 - 2*x])/(5*(3 + 5*x)) - 14*Sqrt[7/3]*ArcTanh[Sqrt[3/7
]*Sqrt[1 - 2*x]] + (72*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x
]])/5
```

Rubi [A] time = 0.126999, antiderivative size = 77, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$-\frac{11\sqrt{1-2x}}{5(5x+3)}-14\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+\frac{72}{5}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)/((2 + 3*x)*(3 + 5*x)^2),x]
```

```
[Out] (-11*Sqrt[1 - 2*x])/(5*(3 + 5*x)) - 14*Sqrt[7/3]*ArcTanh[Sqrt[3/7
]*Sqrt[1 - 2*x]] + (72*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x
]])/5
```

Rubi in Sympy [A] time = 15.3008, size = 65, normalized size = 0.84

$$-\frac{11\sqrt{-2x+1}}{5\,(5x+3)}-\frac{14\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{3}+\frac{72\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{25}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)/(2+3*x)/(3+5*x)**2,x)
```

```
[Out] -11*sqrt(-2*x + 1)/(5*(5*x + 3)) - 14*sqrt(21)*atanh(sqrt(21)*sqr
t(-2*x + 1)/7)/3 + 72*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/
25
```

Mathematica [A] time = 0.185232, size = 76, normalized size = 0.99

$$\frac{1}{25}\left(72\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)-\frac{55\sqrt{1-2x}}{5x+3}\right)-14\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)/((2 + 3*x)*(3 + 5*x)^2),x]
```

```
[Out] -14*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]] + ((-55*Sqrt[1 - 2
*x])/(3 + 5*x) + 72*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/2
5
```

Maple [A] time = 0.016, size = 54, normalized size = 0.7

$$-\frac{14\sqrt{21}}{3}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)+\frac{22}{25}\sqrt{1-2x}\left(-\frac{6}{5}-2x\right)^{-1}+\frac{72\sqrt{55}}{25}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)/(2+3*x)/(3+5*x)^2,x)
```

```
[Out] -14/3*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)+22/25*(1-2*x)^
(1/2)/(-6/5-2*x)+72/25*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1
/2)
```

Maxima [A] time = 1.58289, size = 120, normalized size = 1.56

$$-\frac{36}{25}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{7}{3}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{11\sqrt{-2x+1}}{5(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^2*(3*x + 2)),x, algorithm="maxima")
```

```
[Out] -36/25*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*
sqrt(-2*x + 1))) + 7/3*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1)
)/(sqrt(21) + 3*sqrt(-2*x + 1))) - 11/5*sqrt(-2*x + 1)/(5*x + 3)
```

Fricas [A] time = 0.234363, size = 161, normalized size = 2.09

$$\frac{\sqrt{5}\sqrt{3}\left(36\sqrt{11}\sqrt{3}(5x+3)\log\left(\frac{\sqrt{5}(5x-8)-5\sqrt{11}\sqrt{-2x+1}}{5x+3}\right)+35\sqrt{7}\sqrt{5}(5x+3)\log\left(\frac{\sqrt{3}(3x-5)+3\sqrt{7}\sqrt{-2x+1}}{3x+2}\right)-11\sqrt{5}\sqrt{3}\sqrt{-2x+1}\right)}{75(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^2*(3*x + 2)),x, algorithm="fricas")
```

```
[Out] 1/75*sqrt(5)*sqrt(3)*(36*sqrt(11)*sqrt(3)*(5*x + 3)*log((sqrt(5)*
(5*x - 8) - 5*sqrt(11)*sqrt(-2*x + 1))/(5*x + 3)) + 35*sqrt(7)*sq
rt(5)*(5*x + 3)*log((sqrt(3)*(3*x - 5) + 3*sqrt(7)*sqrt(-2*x + 1)
)/(3*x + 2)) - 11*sqrt(5)*sqrt(3)*sqrt(-2*x + 1))/(5*x + 3)
```

Sympy [A] time = 57.9494, size = 226, normalized size = 2.94

$$-\frac{484\left(\begin{cases}\frac{\sqrt{55}\left(-\frac{\log\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)}{4}+\frac{\log\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)}{4}-\frac{1}{4\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)}-\frac{1}{4\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)}\right)}{605} & \text{for}\ x\leq\frac{1}{2}\wedge x>-\frac{3}{5}\end{cases}\right)}{5}+98\left(\begin{cases}-\frac{\sqrt{21}\operatorname{acoth}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for}\ -2x+1>\frac{7}{3}\\ -\frac{\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for}\ -2x+1<\frac{7}{3}\end{cases}\right)-\frac{814\left(\begin{cases}-\frac{\sqrt{55}\operatorname{acoth}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for}\ -2x+1>\frac{11}{5}\\ -\frac{\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for}\ -2x+1<\frac{11}{5}\end{cases}\right)}{5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)/(2+3*x)/(3+5*x)**2,x)
```

```
[Out] -484*Piecewise((sqrt(55)*(-log(sqrt(55)*sqrt(-2*x + 1)/11 - 1)/4
+ log(sqrt(55)*sqrt(-2*x + 1)/11 + 1)/4 - 1/(4*(sqrt(55)*sqrt(-2*
x + 1)/11 + 1)) - 1/(4*(sqrt(55)*sqrt(-2*x + 1)/11 - 1)))/605, (x
 <= 1/2) & (x > -3/5)))/5 + 98*Piecewise((-sqrt(21)*acoth(sqrt(21
)*sqrt(-2*x + 1)/7)/21, -2*x + 1 > 7/3), (-sqrt(21)*atanh(sqrt(21
)*sqrt(-2*x + 1)/7)/21, -2*x + 1 < 7/3)) - 814*Piecewise((-sqrt(5
5)*acoth(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*x + 1 > 11/5), (-sqrt
(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*x + 1 < 11/5))/5
```

GIAC/XCAS [A] time = 0.213204, size = 128, normalized size = 1.66

$$-\frac{36}{25}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{7}{3}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{11\sqrt{-2x+1}}{5(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/((5*x + 3)^2*(3*x + 2)),x, algorithm="giac")
```

```
[Out] -36/25*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt
(55) + 5*sqrt(-2*x + 1))) + 7/3*sqrt(21)*ln(1/2*abs(-2*sqrt(21) +
 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 11/5*sqrt(-2*
x + 1)/(5*x + 3)
```

3.1898 $\int \frac{(1-2x)^{3/2}}{(2+3x)^2(3+5x)^2} dx$

Optimal. Leaf size=102

$$-\frac{68\sqrt{1-2x}}{3(5x+3)}+\frac{7\sqrt{1-2x}}{3(3x+2)(5x+3)}-134\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+138\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (-68*Sqrt[1 - 2*x])/(3*(3 + 5*x)) + (7*Sqrt[1 - 2*x])/(3*(2 + 3*x
)*(3 + 5*x)) - 134*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]] + 1
38*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Rubi [A] time = 0.193019, antiderivative size = 102, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$-\frac{68\sqrt{1-2x}}{3(5x+3)}+\frac{7\sqrt{1-2x}}{3(3x+2)(5x+3)}-134\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+138\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)/((2 + 3*x)^2*(3 + 5*x)^2),x]
```

```
[Out] (-68*Sqrt[1 - 2*x])/(3*(3 + 5*x)) + (7*Sqrt[1 - 2*x])/(3*(2 + 3*x
)*(3 + 5*x)) - 134*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]] + 1
38*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Rubi in Sympy [A] time = 22.0718, size = 87, normalized size = 0.85

$$-\frac{68\sqrt{-2x+1}}{3(5x+3)}+\frac{7\sqrt{-2x+1}}{3(3x+2)(5x+3)}-\frac{134\sqrt{21}\,\text{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{3}+\frac{138\sqrt{55}\,\text{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)/(2+3*x)**2/(3+5*x)**2,x)
```

```
[Out] -68*sqrt(-2*x + 1)/(3*(5*x + 3)) + 7*sqrt(-2*x + 1)/(3*(3*x + 2)*
(5*x + 3)) - 134*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/3 + 13
8*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/5
```

Mathematica [A] time = 0.157702, size = 85, normalized size = 0.83

$$-\frac{\sqrt{1-2x}(68x+43)}{(3x+2)(5x+3)}-134\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+138\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)/((2 + 3*x)^2*(3 + 5*x)^2),x]
```

```
[Out] -((Sqrt[1 - 2*x]*(43 + 68*x))/((2 + 3*x)*(3 + 5*x))) - 134*Sqrt[7
/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]] + 138*Sqrt[11/5]*ArcTanh[Sqr
t[5/11]*Sqrt[1 - 2*x]]
```

Maple [A] time = 0.02, size = 70, normalized size = 0.7

$$\frac{14}{3}\sqrt{1-2x}\left(-\frac{4}{3}-2x\right)^{-1}-\frac{134\sqrt{21}}{3}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)+\frac{22}{5}\sqrt{1-2x}\left(-\frac{6}{5}-2x\right)^{-1}+\frac{138\sqrt{55}}{5}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)/(2+3*x)^2/(3+5*x)^2,x)
```

```
[Out] 14/3*(1-2*x)^(1/2)/(-4/3-2*x)-134/3*arctanh(1/7*21^(1/2)*(1-2*x)^
(1/2))*21^(1/2)+22/5*(1-2*x)^(1/2)/(-6/5-2*x)+138/5*arctanh(1/11*
55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.50816, size = 149, normalized size = 1.46

$$-\frac{69}{5}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{67}{3}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{4\left(34(-2x+1)^{\frac{3}{2}}-77\sqrt{-2x+1}\right)}{15(2x-1)^2+136x+9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^2*(3*x + 2)^2),x, algorithm="maxima")
```

```
[Out] -69/5*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*s
qrt(-2*x + 1))) + 67/3*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1)
)/(sqrt(21) + 3*sqrt(-2*x + 1))) + 4*(34*(-2*x + 1)^(3/2) - 77*sq
rt(-2*x + 1))/(15*(2*x - 1)^2 + 136*x + 9)
```

Fricas [A] time = 0.235378, size = 188, normalized size = 1.84

$$\frac{\sqrt{5}\sqrt{3}\left(69\sqrt{11}\sqrt{3}\left(15x^2+19x+6\right)\log\left(\frac{\sqrt{5}(5x-8)-5\sqrt{11}\sqrt{-2x+1}}{5x+3}\right)+67\sqrt{7}\sqrt{5}\left(15x^2+19x+6\right)\log\left(\frac{\sqrt{3}(3x-5)+3\sqrt{7}\sqrt{-2x+1}}{3x+2}\right)-\sqrt{5}\right.}{15\left(15x^2+19x+6\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^2*(3*x + 2)^2),x, algorithm="fricas")
```

```
[Out] 1/15*sqrt(5)*sqrt(3)*(69*sqrt(11)*sqrt(3)*(15*x^2 + 19*x + 6)*log
((sqrt(5)*(5*x - 8) - 5*sqrt(11)*sqrt(-2*x + 1))/(5*x + 3)) + 67*
sqrt(7)*sqrt(5)*(15*x^2 + 19*x + 6)*log((sqrt(3)*(3*x - 5) + 3*sq
rt(7)*sqrt(-2*x + 1))/(3*x + 2)) - sqrt(5)*sqrt(3)*(68*x + 43)*sq
rt(-2*x + 1))/(15*x^2 + 19*x + 6)
```

Sympy [A] time = 119.229, size = 321, normalized size = 3.15

$$-196\left(\begin{cases}\frac{\sqrt{21}\left(-\frac{\log\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)}{4}+\frac{\log\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)}{4}-\frac{1}{4\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)}-\frac{1}{4\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)}\right)}{147} & \text{for } x\le\frac{1}{2}\wedge x>-\frac{2}{3}\end{cases}\right)$$
$$-484\left(\begin{cases}\frac{\sqrt{55}\left(-\frac{\log\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)}{4}+\frac{\log\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)}{4}-\frac{1}{4\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)}-\frac{1}{4\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)}\right)}{605} & \text{for } x\le\frac{1}{2}\wedge x>-\frac{3}{5}\end{cases}\right)$$
$$+924\left(\begin{cases}-\frac{\sqrt{21}\,\mathrm{acoth}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for } -2x+1>\frac{7}{3}\\ -\frac{\sqrt{21}\,\mathrm{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for } -2x+1<\frac{7}{3}\end{cases}\right)$$
$$-1540\left(\begin{cases}-\frac{\sqrt{55}\,\mathrm{acoth}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1>\frac{11}{5}\\ -\frac{\sqrt{55}\,\mathrm{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1<\frac{11}{5}\end{cases}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((1-2*x)**(3/2)/(2+3*x)**2/(3+5*x)**2,x)
```

```
[Out] -196*Piecewise((sqrt(21)*(-log(sqrt(21)*sqrt(-2*x + 1)/7 - 1)/4 +
 log(sqrt(21)*sqrt(-2*x + 1)/7 + 1)/4 - 1/(4*(sqrt(21)*sqrt(-2*x
+ 1)/7 + 1)) - 1/(4*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)))/147, (x <=
1/2) & (x > -2/3))) - 484*Piecewise((sqrt(55)*(-log(sqrt(55)*sqrt
(-2*x + 1)/11 - 1)/4 + log(sqrt(55)*sqrt(-2*x + 1)/11 + 1)/4 - 1/
(4*(sqrt(55)*sqrt(-2*x + 1)/11 + 1)) - 1/(4*(sqrt(55)*sqrt(-2*x +
 1)/11 - 1)))/605, (x <= 1/2) & (x > -3/5))) + 924*Piecewise((-sq
rt(21)*acoth(sqrt(21)*sqrt(-2*x + 1)/7)/21, -2*x + 1 > 7/3), (-sq
rt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/21, -2*x + 1 < 7/3)) - 15
40*Piecewise((-sqrt(55)*acoth(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*
x + 1 > 11/5), (-sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/55, -
2*x + 1 < 11/5))
```

GIAC/XCAS [A] time = 0.214257, size = 157, normalized size = 1.54

$$-\frac{69}{5}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{67}{3}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{4\left(34(-2x+1)^{\frac{3}{2}}-77\sqrt{-2x+1}\right)}{15(2x-1)^2+136x+9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/((5*x + 3)^2*(3*x + 2)^2),x, algorithm="giac")
```

```
[Out] -69/5*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(
55) + 5*sqrt(-2*x + 1))) + 67/3*sqrt(21)*ln(1/2*abs(-2*sqrt(21) +
 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 4*(34*(-2*x +
 1)^(3/2) - 77*sqrt(-2*x + 1))/(15*(2*x - 1)^2 + 136*x + 9)
```

3.1899 $\int \frac{(1-2x)^{3/2}}{(2+3x)^3(3+5x)^2} \, dx$

Optimal. Leaf size=127

$$-\frac{335\sqrt{1-2x}}{2(5x+3)}+\frac{50\sqrt{1-2x}}{3(3x+2)(5x+3)}+\frac{7\sqrt{1-2x}}{6(3x+2)^2(5x+3)}-2311\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+204\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (-335*Sqrt[1 - 2*x])/(2*(3 + 5*x)) + (7*Sqrt[1 - 2*x])/(6*(2 + 3*
x)^2*(3 + 5*x)) + (50*Sqrt[1 - 2*x])/(3*(2 + 3*x)*(3 + 5*x)) - 23
11*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]] + 204*Sqrt[55]*ArcT
anh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Rubi [A] time = 0.264281, antiderivative size = 127, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.208$

$$-\frac{335\sqrt{1-2x}}{2(5x+3)}+\frac{50\sqrt{1-2x}}{3(3x+2)(5x+3)}+\frac{7\sqrt{1-2x}}{6(3x+2)^2(5x+3)}-2311\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+204\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)/((2 + 3*x)^3*(3 + 5*x)^2),x]
```

```
[Out] (-335*Sqrt[1 - 2*x])/(2*(3 + 5*x)) + (7*Sqrt[1 - 2*x])/(6*(2 + 3*
x)^2*(3 + 5*x)) + (50*Sqrt[1 - 2*x])/(3*(2 + 3*x)*(3 + 5*x)) - 23
11*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]] + 204*Sqrt[55]*ArcT
anh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Rubi in Sympy [A] time = 28.3416, size = 109, normalized size = 0.86

$$-\frac{335\sqrt{-2x+1}}{2\,(5x+3)}+\frac{50\sqrt{-2x+1}}{3\,(3x+2)\,(5x+3)}+\frac{7\sqrt{-2x+1}}{6\,(3x+2)^2\,(5x+3)}-\frac{2311\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{7}+204\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)/(2+3*x)**3/(3+5*x)**2,x)
```

```
[Out] -335*sqrt(-2*x + 1)/(2*(5*x + 3)) + 50*sqrt(-2*x + 1)/(3*(3*x + 2
)*(5*x + 3)) + 7*sqrt(-2*x + 1)/(6*(3*x + 2)**2*(5*x + 3)) - 2311
*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/7 + 204*sqrt(55)*atanh
(sqrt(55)*sqrt(-2*x + 1)/11)
```

Mathematica [A] time = 0.165706, size = 90, normalized size = 0.71

$$-\frac{\sqrt{1-2x}\left(3015x^2+3920x+1271\right)}{2(3x+2)^2(5x+3)}-2311\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+204\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)/((2 + 3*x)^3*(3 + 5*x)^2),x]
```

```
[Out] -(Sqrt[1 - 2*x]*(1271 + 3920*x + 3015*x^2))/(2*(2 + 3*x)^2*(3 + 5
*x)) - 2311*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]] + 204*Sqrt
[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Maple [A] time = 0.02, size = 82, normalized size = 0.7

$$18\,\frac{1}{(-4-6\,x)^2}\left(\frac{45\,(1-2\,x)^{3/2}}{2}-\frac{959\,\sqrt{1-2\,x}}{18}\right)-\frac{2311\,\sqrt{21}}{7}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)+22\,\frac{\sqrt{1-2\,x}}{-6/5-2\,x}+204\,\mathit{Artanh}\left(1/11\,\sqrt{55}\sqrt{1-2\,x}\right)\sqrt{55}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)/(2+3*x)^3/(3+5*x)^2,x)
```

```
[Out] 18*(45/2*(1-2*x)^(3/2)-959/18*(1-2*x)^(1/2))/(-4-6*x)^2-2311/7*ar
ctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)+22*(1-2*x)^(1/2)/(-6/5
-2*x)+204*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.50186, size = 173, normalized size = 1.36

$$-102\,\sqrt{55}\log\left(-\frac{\sqrt{55}-5\,\sqrt{-2\,x+1}}{\sqrt{55}+5\,\sqrt{-2\,x+1}}\right)+\frac{2311}{14}\,\sqrt{21}\log\left(-\frac{\sqrt{21}-3\,\sqrt{-2\,x+1}}{\sqrt{21}+3\,\sqrt{-2\,x+1}}\right)-\frac{3015\,(-2\,x+1)^{\frac{5}{2}}-13870\,(-2\,x+1)^{\frac{3}{2}}+15939\,\sqrt{-2\,x+1}}{45\,(2\,x-1)^3+309\,(2\,x-1)^2+1414\,x-168}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^2*(3*x + 2)^3),x, algorithm="maxima")
```

```
[Out] -102*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sq
rt(-2*x + 1))) + 2311/14*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x +
1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - (3015*(-2*x + 1)^(5/2) - 138
70*(-2*x + 1)^(3/2) + 15939*sqrt(-2*x + 1))/(45*(2*x - 1)^3 + 309
*(2*x - 1)^2 + 1414*x - 168)
```

Fricas [A] time = 0.220106, size = 196, normalized size = 1.54

$$\frac{\sqrt{7}\left(204\,\sqrt{55}\sqrt{7}\left(45\,x^3+87\,x^2+56\,x+12\right)\log\left(\frac{5\,x-\sqrt{55}\sqrt{-2\,x+1}-8}{5\,x+3}\right)+2311\,\sqrt{3}\left(45\,x^3+87\,x^2+56\,x+12\right)\log\left(\frac{\sqrt{7}(3\,x-5)+7\,\sqrt{3}\sqrt{-2}}{3\,x+2}\right.\right.}{14\,(45\,x^3+87\,x^2+56\,x+12)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^2*(3*x + 2)^3),x, algorithm="fricas")
```

```
[Out] 1/14*sqrt(7)*(204*sqrt(55)*sqrt(7)*(45*x^3 + 87*x^2 + 56*x + 12)*
log((5*x - sqrt(55)*sqrt(-2*x + 1) - 8)/(5*x + 3)) + 2311*sqrt(3)
*(45*x^3 + 87*x^2 + 56*x + 12)*log((sqrt(7)*(3*x - 5) + 7*sqrt(3)
*sqrt(-2*x + 1))/(3*x + 2)) - sqrt(7)*(3015*x^2 + 3920*x + 1271)*
sqrt(-2*x + 1))/(45*x^3 + 87*x^2 + 56*x + 12)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((1-2*x)**(3/2)/(2+3*x)**3/(3+5*x)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.215014, size = 166, normalized size = 1.31

$$-102\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{2311}{14}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{55\sqrt{-2x+1}}{5x+3}+\frac{405(-2x+1)^{\frac{3}{2}}-959\sqrt{-2x+1}}{4(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^2*(3*x + 2)^3),x, algorithm="giac")
```

```
[Out] -102*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(5
5) + 5*sqrt(-2*x + 1))) + 2311/14*sqrt(21)*ln(1/2*abs(-2*sqrt(21)
 + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 55*sqrt(-2*
x + 1)/(5*x + 3) + 1/4*(405*(-2*x + 1)^(3/2) - 959*sqrt(-2*x + 1)
)/(3*x + 2)^2
```

3.1900 $\int \frac{(1-2x)^{3/2}}{(2+3x)^4(3+5x)^2} \, dx$

Optimal. Leaf size=154

$$-\frac{46555\sqrt{1-2x}}{42(5x+3)}+\frac{6949\sqrt{1-2x}}{63(3x+2)(5x+3)}+\frac{133\sqrt{1-2x}}{18(3x+2)^2(5x+3)}+\frac{7\sqrt{1-2x}}{9(3x+2)^3(5x+3)}-\frac{321161\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{7\sqrt{21}}+1350\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (-46555*Sqrt[1 - 2*x])/(42*(3 + 5*x)) + (7*Sqrt[1 - 2*x])/(9*(2 +
 3*x)^3*(3 + 5*x)) + (133*Sqrt[1 - 2*x])/(18*(2 + 3*x)^2*(3 + 5*x
)) + (6949*Sqrt[1 - 2*x])/(63*(2 + 3*x)*(3 + 5*x)) - (321161*ArcT
anh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(7*Sqrt[21]) + 1350*Sqrt[55]*ArcTan
h[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Rubi [A] time = 0.331451, antiderivative size = 154, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$-\frac{46555\sqrt{1-2x}}{42(5x+3)}+\frac{6949\sqrt{1-2x}}{63(3x+2)(5x+3)}+\frac{133\sqrt{1-2x}}{18(3x+2)^2(5x+3)}+\frac{7\sqrt{1-2x}}{9(3x+2)^3(5x+3)}-\frac{321161\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{7\sqrt{21}}+1350\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)/((2 + 3*x)^4*(3 + 5*x)^2),x]
```

```
[Out] (-46555*Sqrt[1 - 2*x])/(42*(3 + 5*x)) + (7*Sqrt[1 - 2*x])/(9*(2 +
 3*x)^3*(3 + 5*x)) + (133*Sqrt[1 - 2*x])/(18*(2 + 3*x)^2*(3 + 5*x
)) + (6949*Sqrt[1 - 2*x])/(63*(2 + 3*x)*(3 + 5*x)) - (321161*ArcT
anh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(7*Sqrt[21]) + 1350*Sqrt[55]*ArcTan
h[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Rubi in Sympy [A] time = 35.2434, size = 133, normalized size = 0.86

$$-\frac{9311\sqrt{-2x+1}}{14(3x+2)}-\frac{2005\sqrt{-2x+1}}{18(3x+2)(5x+3)}+\frac{133\sqrt{-2x+1}}{18(3x+2)^2(5x+3)}+\frac{7\sqrt{-2x+1}}{9(3x+2)^3(5x+3)}-\frac{321161\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{147}+1350\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)/(2+3*x)**4/(3+5*x)**2,x)
```

```
[Out] -9311*sqrt(-2*x + 1)/(14*(3*x + 2)) - 2005*sqrt(-2*x + 1)/(18*(3*
x + 2)*(5*x + 3)) + 133*sqrt(-2*x + 1)/(18*(3*x + 2)**2*(5*x + 3)
) + 7*sqrt(-2*x + 1)/(9*(3*x + 2)**3*(5*x + 3)) - 321161*sqrt(21)
*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/147 + 1350*sqrt(55)*atanh(sqrt(
55)*sqrt(-2*x + 1)/11)
```

Mathematica [A] time = 0.15733, size = 95, normalized size = 0.62

$$-\frac{\sqrt{1-2x}\left(418995x^3+824092x^2+539819x+117752\right)}{14(3x+2)^3(5x+3)}-\frac{321161\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{7\sqrt{21}}+1350\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)/((2 + 3*x)^4*(3 + 5*x)^2),x]
```

```
[Out] -(Sqrt[1 - 2*x]*(117752 + 539819*x + 824092*x^2 + 418995*x^3))/(1
4*(2 + 3*x)^3*(3 + 5*x)) - (321161*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x
]])/(7*Sqrt[21]) + 1350*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]
]
```

Maple [A] time = 0.02, size = 91, normalized size = 0.6

$$108\frac{1}{(-4-6x)^3}\left(\frac{7001(1-2x)^{5/2}}{84}-\frac{10603(1-2x)^{3/2}}{27}+\frac{49973\sqrt{1-2x}}{108}\right)-\frac{321161\sqrt{21}}{147}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)+110\frac{\sqrt{1-2x}}{-6/5-2x}+1350\,\mathit{Artanh}\left(1/11\sqrt{55}\sqrt{1-2x}\right)\sqrt{55}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)/(2+3*x)^4/(3+5*x)^2,x)
```

```
[Out] 108*(7001/84*(1-2*x)^(5/2)-10603/27*(1-2*x)^(3/2)+49973/108*(1-2*
x)^(1/2))/(-4-6*x)^3-321161/147*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2
))*21^(1/2)+110*(1-2*x)^(1/2)/(-6/5-2*x)+1350*arctanh(1/11*55^(1/
2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.50663, size = 197, normalized size = 1.28

$$-675\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{321161}{294}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{418995(-2x+1)^{\frac{7}{2}}-2905169(-2x+1)^{\frac{5}{2}}+6712629(-2x+1)^{\frac{3}{2}}-5168471\sqrt{-2x+1}}{7\left(135(2x-1)^4+1242(2x-1)^3+4284(2x-1)^2+13132x-2793\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^2*(3*x + 2)^4),x, algorithm="maxima")
```

```
[Out] -675*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sq
rt(-2*x + 1))) + 321161/294*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x
 + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 1/7*(418995*(-2*x + 1)^(7
/2) - 2905169*(-2*x + 1)^(5/2) + 6712629*(-2*x + 1)^(3/2) - 51684
71*sqrt(-2*x + 1))/(135*(2*x - 1)^4 + 1242*(2*x - 1)^3 + 4284*(2*
x - 1)^2 + 13132*x - 2793)
```

Fricas [A] time = 0.219039, size = 215, normalized size = 1.4

$$\frac{\sqrt{21}\left(9450\sqrt{55}\sqrt{21}\left(135x^4+351x^3+342x^2+148x+24\right)\log\left(\frac{5x-\sqrt{55}\sqrt{-2x+1}-8}{5x+3}\right)-\sqrt{21}\left(418995x^3+824092x^2+539819x\right.\right.}{294\left(135x^4+351x^3+342x^2+14\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/((5*x + 3)^2*(3*x + 2)^4),x, algorithm="fricas")
```

```
[Out] 1/294*sqrt(21)*(9450*sqrt(55)*sqrt(21)*(135*x^4 + 351*x^3 + 342*x
^2 + 148*x + 24)*log((5*x - sqrt(55)*sqrt(-2*x + 1) - 8)/(5*x + 3
)) - sqrt(21)*(418995*x^3 + 824092*x^2 + 539819*x + 117752)*sqrt(
-2*x + 1) + 321161*(135*x^4 + 351*x^3 + 342*x^2 + 148*x + 24)*log
((sqrt(21)*(3*x - 5) + 21*sqrt(-2*x + 1))/(3*x + 2)))/(135*x^4 +
351*x^3 + 342*x^2 + 148*x + 24)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(3/2)/(2+3*x)**4/(3+5*x)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.213834, size = 188, normalized size = 1.22

$$-675\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{321161}{294}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{275\sqrt{-2x+1}}{5x+3}-\frac{63009(2x-1)^2\sqrt{-2x+1}-296884(-2x+1)^{\frac{3}{2}}+349811\sqrt{-2x+1}}{56(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/((5*x + 3)^2*(3*x + 2)^4),x, algorithm="giac")
```

```
[Out] -675*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(5
5) + 5*sqrt(-2*x + 1))) + 321161/294*sqrt(21)*ln(1/2*abs(-2*sqrt(
21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 275*sqrt
(-2*x + 1)/(5*x + 3) - 1/56*(63009*(2*x - 1)^2*sqrt(-2*x + 1) - 2
96884*(-2*x + 1)^(3/2) + 349811*sqrt(-2*x + 1))/(3*x + 2)^3
```

3.1901 $\int \frac{(1-2x)^{3/2}}{(2+3x)^5(3+5x)^2}\,dx$

Optimal. Leaf size=181

$$-\frac{8110915\sqrt{1-2x}}{1176(5x+3)}+\frac{302668\sqrt{1-2x}}{441(3x+2)(5x+3)}+\frac{23173\sqrt{1-2x}}{504(3x+2)^2(5x+3)}+\frac{83\sqrt{1-2x}}{18(3x+2)^3(5x+3)}+\frac{7\sqrt{1-2x}}{12(3x+2)^4(5x+3)}-\frac{55953383\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{196\sqrt{21}}+8400\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (-8110915*Sqrt[1 - 2*x])/(1176*(3 + 5*x)) + (7*Sqrt[1 - 2*x])/(12
*(2 + 3*x)^4*(3 + 5*x)) + (83*Sqrt[1 - 2*x])/(18*(2 + 3*x)^3*(3 +
 5*x)) + (23173*Sqrt[1 - 2*x])/(504*(2 + 3*x)^2*(3 + 5*x)) + (302
668*Sqrt[1 - 2*x])/(441*(2 + 3*x)*(3 + 5*x)) - (55953383*ArcTanh[
Sqrt[3/7]*Sqrt[1 - 2*x]])/(196*Sqrt[21]) + 8400*Sqrt[55]*ArcTanh[
Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Rubi [A] time = 0.37468, antiderivative size = 181, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$-\frac{8110915\sqrt{1-2x}}{1176(5x+3)}+\frac{302668\sqrt{1-2x}}{441(3x+2)(5x+3)}+\frac{23173\sqrt{1-2x}}{504(3x+2)^2(5x+3)}+\frac{83\sqrt{1-2x}}{18(3x+2)^3(5x+3)}+\frac{7\sqrt{1-2x}}{12(3x+2)^4(5x+3)}-\frac{55953383\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{196\sqrt{21}}+8400\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)/((2 + 3*x)^5*(3 + 5*x)^2),x]
```

```
[Out] (-8110915*Sqrt[1 - 2*x])/(1176*(3 + 5*x)) + (7*Sqrt[1 - 2*x])/(12
*(2 + 3*x)^4*(3 + 5*x)) + (83*Sqrt[1 - 2*x])/(18*(2 + 3*x)^3*(3 +
 5*x)) + (23173*Sqrt[1 - 2*x])/(504*(2 + 3*x)^2*(3 + 5*x)) + (302
668*Sqrt[1 - 2*x])/(441*(2 + 3*x)*(3 + 5*x)) - (55953383*ArcTanh[
Sqrt[3/7]*Sqrt[1 - 2*x]])/(196*Sqrt[21]) + 8400*Sqrt[55]*ArcTanh[
Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Rubi in Sympy [A] time = 42.4618, size = 153, normalized size = 0.85

$$-\frac{1622183\sqrt{-2x+1}}{392\,(3x+2)}-\frac{69863\sqrt{-2x+1}}{168\,(3x+2)^2}-\frac{3335\sqrt{-2x+1}}{36\,(3x+2)^2\,(5x+3)}+\frac{83\sqrt{-2x+1}}{18\,(3x+2)^3\,(5x+3)}+\frac{7\sqrt{-2x+1}}{12\,(3x+2)^4\,(5x+3)}-\frac{55953383\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{4116}+8400\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)/(2+3*x)**5/(3+5*x)**2,x)
```

```
[Out] -1622183*sqrt(-2*x + 1)/(392*(3*x + 2)) - 69863*sqrt(-2*x + 1)/(1
68*(3*x + 2)**2) - 3335*sqrt(-2*x + 1)/(36*(3*x + 2)**2*(5*x + 3)
) + 83*sqrt(-2*x + 1)/(18*(3*x + 2)**3*(5*x + 3)) + 7*sqrt(-2*x +
 1)/(12*(3*x + 2)**4*(5*x + 3)) - 55953383*sqrt(21)*atanh(sqrt(21
)*sqrt(-2*x + 1)/7)/4116 + 8400*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x
 + 1)/11)
```

Mathematica [A] time = 0.176049, size = 100, normalized size = 0.55

$$-\frac{\sqrt{1-2x}\left(218994705x^4+576721848x^3+569295605x^2+249642200x+41029970\right)}{392(3x+2)^4(5x+3)}-\frac{55953383\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{196\sqrt{21}}+8400\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)/((2 + 3*x)^5*(3 + 5*x)^2),x]
```

```
[Out] -(Sqrt[1 - 2*x]*(41029970 + 249642200*x + 569295605*x^2 + 5767218
48*x^3 + 218994705*x^4))/(392*(2 + 3*x)^4*(3 + 5*x)) - (55953383*
ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(196*Sqrt[21]) + 8400*Sqrt[55]*
ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Maple [A] time = 0.021, size = 100, normalized size = 0.6

$$162\frac{1}{(-4-6x)^4}\left(\frac{1298783(1-2x)^{7/2}}{1176}-\frac{11773333(1-2x)^{5/2}}{1512}+\frac{11859787(1-2x)^{3/2}}{648}-\frac{344197\sqrt{1-2x}}{24}\right)-\frac{55953383\sqrt{21}}{4116}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)+550\frac{\sqrt{1-2x}}{-6/5-2x}+8400\,\mathit{Artanh}\left(1/11\sqrt{55}\sqrt{1-2x}\right)\sqrt{55}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)/(2+3*x)^5/(3+5*x)^2,x)
```

```
[Out] 162*(1298783/1176*(1-2*x)^(7/2)-11773333/1512*(1-2*x)^(5/2)+11859
787/648*(1-2*x)^(3/2)-344197/24*(1-2*x)^(1/2))/(-4-6*x)^4-5595338
3/4116*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)+550*(1-2*x)^(
1/2)/(-6/5-2*x)+8400*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2
)
```

Maxima [A] time = 1.51201, size = 221, normalized size = 1.22

$$-4200\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{55953383}{8232}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{218994705(-2x+1)^{\frac{9}{2}}-2029422516(-2x+1)^{\frac{7}{2}}+7051481738(-2x+1)^{\frac{5}{2}}-10887812348(-2x+1)^{\frac{3}{2}}+6303237941\sqrt{-2}}{196\left(405(2x-1)^5+4671(2x-1)^4+21546(2x-1)^3+49686(2x-1)^2+114562x-30870\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^2*(3*x + 2)^5),x, algorithm="maxima")
```

```
[Out] -4200*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*s
qrt(-2*x + 1))) + 55953383/8232*sqrt(21)*log(-(sqrt(21) - 3*sqrt(
-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 1/196*(218994705*(-2*
x + 1)^(9/2) - 2029422516*(-2*x + 1)^(7/2) + 7051481738*(-2*x + 1
)^(5/2) - 10887812348*(-2*x + 1)^(3/2) + 6303237941*sqrt(-2*x + 1
))/(405*(2*x - 1)^5 + 4671*(2*x - 1)^4 + 21546*(2*x - 1)^3 + 4968
6*(2*x - 1)^2 + 114562*x - 30870)
```

Fricas [A] time = 0.221664, size = 242, normalized size = 1.34

$$\frac{\sqrt{21}\left(1646400\sqrt{55}\sqrt{21}\left(405x^5+1323x^4+1728x^3+1128x^2+368x+48\right)\log\left(\frac{5x-\sqrt{55}\sqrt{-2x+1}-8}{5x+3}\right)-\sqrt{21}\left(218994705x^4+57\right.\right.}{8232\left(405x\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^2*(3*x + 2)^5),x, algorithm="fricas")
```

```
[Out] 1/8232*sqrt(21)*(1646400*sqrt(55)*sqrt(21)*(405*x^5 + 1323*x^4 +
1728*x^3 + 1128*x^2 + 368*x + 48)*log((5*x - sqrt(55)*sqrt(-2*x +
 1) - 8)/(5*x + 3)) - sqrt(21)*(218994705*x^4 + 576721848*x^3 + 5
69295605*x^2 + 249642200*x + 41029970)*sqrt(-2*x + 1) + 55953383*
(405*x^5 + 1323*x^4 + 1728*x^3 + 1128*x^2 + 368*x + 48)*log((sqrt
(21)*(3*x - 5) + 21*sqrt(-2*x + 1))/(3*x + 2)))/(405*x^5 + 1323*x
^4 + 1728*x^3 + 1128*x^2 + 368*x + 48)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)/(2+3*x)**5/(3+5*x)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.216211, size = 209, normalized size = 1.15

$$-4200\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{55953383}{8232}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{1375\sqrt{-2x+1}}{5x+3}-\frac{35067141(2x-1)^3\sqrt{-2x+1}+247239993(2x-1)^2\sqrt{-2x+1}-581129563(-2x+1)^{\frac{3}{2}}+455372631\sqrt{-2x+1}}{3136(3x+2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^2*(3*x + 2)^5),x, algorithm="giac")
```

```
[Out] -4200*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(
55) + 5*sqrt(-2*x + 1))) + 55953383/8232*sqrt(21)*ln(1/2*abs(-2*s
qrt(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 1375
*sqrt(-2*x + 1)/(5*x + 3) - 1/3136*(35067141*(2*x - 1)^3*sqrt(-2*
x + 1) + 247239993*(2*x - 1)^2*sqrt(-2*x + 1) - 581129563*(-2*x +
 1)^(3/2) + 455372631*sqrt(-2*x + 1))/(3*x + 2)^4
```

3.1902 $\int \frac{(1-2x)^{3/2}(2+3x)^4}{(3+5x)^3}\,dx$

Optimal. Leaf size=140

$$-\frac{129\sqrt{1-2x}(3x+2)^4}{50(5x+3)}-\frac{(1-2x)^{3/2}(3x+2)^4}{10(5x+3)^2}+\frac{2643\sqrt{1-2x}(3x+2)^3}{1750}+\frac{1404\sqrt{1-2x}(3x+2)^2}{3125}+\frac{9\sqrt{1-2x}(1375x+32)}{31250}-\frac{12279\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{15625\sqrt{55}}$$

```
[Out] (1404*Sqrt[1 - 2*x]*(2 + 3*x)^2)/3125 + (2643*Sqrt[1 - 2*x]*(2 +
3*x)^3)/1750 - ((1 - 2*x)^(3/2)*(2 + 3*x)^4)/(10*(3 + 5*x)^2) - (
129*Sqrt[1 - 2*x]*(2 + 3*x)^4)/(50*(3 + 5*x)) + (9*Sqrt[1 - 2*x]*
(32 + 1375*x))/31250 - (12279*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/
(15625*Sqrt[55])
```

Rubi [A] time = 0.25783, antiderivative size = 140, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.25$

$$-\frac{129\sqrt{1-2x}(3x+2)^4}{50(5x+3)}-\frac{(1-2x)^{3/2}(3x+2)^4}{10(5x+3)^2}+\frac{2643\sqrt{1-2x}(3x+2)^3}{1750}+\frac{1404\sqrt{1-2x}(3x+2)^2}{3125}+\frac{9\sqrt{1-2x}(1375x+32)}{31250}-\frac{12279\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{15625\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(2 + 3*x)^4)/(3 + 5*x)^3,x]
```

```
[Out] (1404*Sqrt[1 - 2*x]*(2 + 3*x)^2)/3125 + (2643*Sqrt[1 - 2*x]*(2 +
3*x)^3)/1750 - ((1 - 2*x)^(3/2)*(2 + 3*x)^4)/(10*(3 + 5*x)^2) - (
129*Sqrt[1 - 2*x]*(2 + 3*x)^4)/(50*(3 + 5*x)) + (9*Sqrt[1 - 2*x]*
(32 + 1375*x))/31250 - (12279*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/
(15625*Sqrt[55])
```

Rubi in Sympy [A] time = 27.6367, size = 116, normalized size = 0.83

$$-\frac{(-360045x+769230)(-2x+1)^{\frac{3}{2}}}{7218750}-\frac{(-2x+1)^{\frac{3}{2}}(3x+2)^4}{10(5x+3)^2}-\frac{129(-2x+1)^{\frac{3}{2}}(3x+2)^3}{550(5x+3)}+\frac{1899(-2x+1)^{\frac{3}{2}}(3x+2)^2}{9625}+\frac{12279\sqrt{-2x+1}}{171875}-\frac{12279\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{859375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)**4/(3+5*x)**3,x)
```

```
[Out] -(-360045*x + 769230)*(-2*x + 1)**(3/2)/7218750 - (-2*x + 1)**(3/
2)*(3*x + 2)**4/(10*(5*x + 3)**2) - 129*(-2*x + 1)**(3/2)*(3*x +
2)**3/(550*(5*x + 3)) + 1899*(-2*x + 1)**(3/2)*(3*x + 2)**2/9625
+ 12279*sqrt(-2*x + 1)/171875 - 12279*sqrt(55)*atanh(sqrt(55)*sqr
t(-2*x + 1)/11)/859375
```

Mathematica [A] time = 0.132871, size = 73, normalized size = 0.52

$$-\frac{\frac{55\sqrt{1-2x}(2025000x^5+3267000x^4-496350x^3-2120880x^2-489445x+96776)}{(5x+3)^2}-171906\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{12031250}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(2 + 3*x)^4)/(3 + 5*x)^3,x]
```

```
[Out] ((-55*Sqrt[1 - 2*x]*(96776 - 489445*x - 2120880*x^2 - 496350*x^3
+ 3267000*x^4 + 2025000*x^5))/(3 + 5*x)^2 - 171906*Sqrt[55]*ArcTa
nh[Sqrt[5/11]*Sqrt[1 - 2*x]])/12031250
```

Maple [A] time = 0.018, size = 84, normalized size = 0.6

$$\frac{81}{1750}(1-2x)^{\frac{7}{2}}-\frac{1107}{6250}(1-2x)^{\frac{5}{2}}+\frac{36}{3125}(1-2x)^{\frac{3}{2}}+\frac{228}{3125}\sqrt{1-2x}+\frac{4}{125(-6-10x)^2}\left(\frac{259}{100}(1-2x)^{\frac{3}{2}}-\frac{2871}{500}\sqrt{1-2x}\right)-\frac{12279\sqrt{55}}{859375}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^4/(3+5*x)^3,x)
```

```
[Out] 81/1750*(1-2*x)^(7/2)-1107/6250*(1-2*x)^(5/2)+36/3125*(1-2*x)^(3/
2)+228/3125*(1-2*x)^(1/2)+4/125*(259/100*(1-2*x)^(3/2)-2871/500*(
1-2*x)^(1/2))/(-6-10*x)^2-12279/859375*arctanh(1/11*55^(1/2)*(1-2
*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.5049, size = 149, normalized size = 1.06

$$\frac{81}{1750}(-2x+1)^{\frac{7}{2}}-\frac{1107}{6250}(-2x+1)^{\frac{5}{2}}+\frac{36}{3125}(-2x+1)^{\frac{3}{2}}+\frac{12279}{1718750}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{228}{3125}\sqrt{-2x+1}+\frac{1295(-2x+1)^{\frac{3}{2}}-2871\sqrt{-2x+1}}{15625\left(25(2x-1)^2+220x+11\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4*(-2*x + 1)^(3/2)/(5*x + 3)^3,x, algorithm="maxima")
```

```
[Out] 81/1750*(-2*x + 1)^(7/2) - 1107/6250*(-2*x + 1)^(5/2) + 36/3125*(
-2*x + 1)^(3/2) + 12279/1718750*sqrt(55)*log(-(sqrt(55) - 5*sqrt(
-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) + 228/3125*sqrt(-2*x +
1) + 1/15625*(1295*(-2*x + 1)^(3/2) - 2871*sqrt(-2*x + 1))/(25*(2
*x - 1)^2 + 220*x + 11)
```

Fricas [A] time = 0.215846, size = 127, normalized size = 0.91

$$-\frac{\sqrt{55}\left(\sqrt{55}\left(2025000x^5+3267000x^4-496350x^3-2120880x^2-489445x+96776\right)\sqrt{-2x+1}-85953\left(25x^2+30x+9\right)\right.}{12031250\left(25x^2+30x+9\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4*(-2*x + 1)^(3/2)/(5*x + 3)^3,x, algorithm="fricas")
```

```
[Out] -1/12031250*sqrt(55)*(sqrt(55)*(2025000*x^5 + 3267000*x^4 - 49635
0*x^3 - 2120880*x^2 - 489445*x + 96776)*sqrt(-2*x + 1) - 85953*(2
5*x^2 + 30*x + 9)*log((sqrt(55)*(5*x - 8) + 55*sqrt(-2*x + 1))/(5
*x + 3)))/(25*x^2 + 30*x + 9)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)**4/(3+5*x)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.216504, size = 159, normalized size = 1.14

$$-\frac{81}{1750}(2x-1)^3\sqrt{-2x+1}-\frac{1107}{6250}(2x-1)^2\sqrt{-2x+1}+\frac{36}{3125}(-2x+1)^{\frac{3}{2}}+\frac{12279}{1718750}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{228}{3125}\sqrt{-2x+1}+\frac{1295(-2x+1)^{\frac{3}{2}}-2871\sqrt{-2x+1}}{62500(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4*(-2*x + 1)^(3/2)/(5*x + 3)^3,x, algorithm="giac")
```

```
[Out] -81/1750*(2*x - 1)^3*sqrt(-2*x + 1) - 1107/6250*(2*x - 1)^2*sqrt(
-2*x + 1) + 36/3125*(-2*x + 1)^(3/2) + 12279/1718750*sqrt(55)*ln(
1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x
+ 1))) + 228/3125*sqrt(-2*x + 1) + 1/62500*(1295*(-2*x + 1)^(3/2)
 - 2871*sqrt(-2*x + 1))/(5*x + 3)^2
```

3.1903 $\int \frac{(1-2x)^{3/2}(2+3x)^3}{(3+5x)^3}\,dx$

Optimal. Leaf size=120

$$-\frac{48\sqrt{1-2x}(3x+2)^3}{25(5x+3)}-\frac{(1-2x)^{3/2}(3x+2)^3}{10(5x+3)^2}+\frac{693}{625}\sqrt{1-2x}(3x+2)^2+\frac{63\sqrt{1-2x}(125x+92)}{6250}-\frac{5943\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{3125\sqrt{55}}$$

```
[Out] (693*Sqrt[1 - 2*x]*(2 + 3*x)^2)/625 - ((1 - 2*x)^(3/2)*(2 + 3*x)^
3)/(10*(3 + 5*x)^2) - (48*Sqrt[1 - 2*x]*(2 + 3*x)^3)/(25*(3 + 5*x
)) + (63*Sqrt[1 - 2*x]*(92 + 125*x))/6250 - (5943*ArcTanh[Sqrt[5/
11]*Sqrt[1 - 2*x]])/(3125*Sqrt[55])
```

Rubi [A] time = 0.2003, antiderivative size = 120, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$-\frac{48\sqrt{1-2x}(3x+2)^3}{25(5x+3)}-\frac{(1-2x)^{3/2}(3x+2)^3}{10(5x+3)^2}+\frac{693}{625}\sqrt{1-2x}(3x+2)^2+\frac{63\sqrt{1-2x}(125x+92)}{6250}-\frac{5943\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{3125\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(2 + 3*x)^3)/(3 + 5*x)^3,x]
```

```
[Out] (693*Sqrt[1 - 2*x]*(2 + 3*x)^2)/625 - ((1 - 2*x)^(3/2)*(2 + 3*x)^
3)/(10*(3 + 5*x)^2) - (48*Sqrt[1 - 2*x]*(2 + 3*x)^3)/(25*(3 + 5*x
)) + (63*Sqrt[1 - 2*x]*(92 + 125*x))/6250 - (5943*ArcTanh[Sqrt[5/
11]*Sqrt[1 - 2*x]])/(3125*Sqrt[55])
```

Rubi in Sympy [A] time = 20.5463, size = 97, normalized size = 0.81

$$-\frac{(-2x+1)^{\frac{3}{2}}(3x+2)^3}{10(5x+3)^2}-\frac{48(-2x+1)^{\frac{3}{2}}(3x+2)^2}{275(5x+3)}+\frac{(-2x+1)^{\frac{3}{2}}(104895x+62370)}{206250}+\frac{5943\sqrt{-2x+1}}{34375}-\frac{5943\sqrt{55}\,\mathrm{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{171875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)**3/(3+5*x)**3,x)
```

```
[Out] -(-2*x + 1)**(3/2)*(3*x + 2)**3/(10*(5*x + 3)**2) - 48*(-2*x + 1)
**(3/2)*(3*x + 2)**2/(275*(5*x + 3)) + (-2*x + 1)**(3/2)*(104895*
x + 62370)/206250 + 5943*sqrt(-2*x + 1)/34375 - 5943*sqrt(55)*ata
nh(sqrt(55)*sqrt(-2*x + 1)/11)/171875
```

Mathematica [A] time = 0.141885, size = 68, normalized size = 0.57

$$\frac{\sqrt{1-2x}\left(-27000x^4-14400x^3+37530x^2+36295x+8644\right)}{6250(5x+3)^2}-\frac{5943\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{3125\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(2 + 3*x)^3)/(3 + 5*x)^3,x]
```

```
[Out] (Sqrt[1 - 2*x]*(8644 + 36295*x + 37530*x^2 - 14400*x^3 - 27000*x^
4))/(6250*(3 + 5*x)^2) - (5943*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])
/(3125*Sqrt[55])
```

Maple [A] time = 0.016, size = 75, normalized size = 0.6

$$-\frac{27}{625}(1-2x)^{\frac{5}{2}}+\frac{18}{625}(1-2x)^{\frac{3}{2}}+\frac{558}{3125}\sqrt{1-2x}+\frac{2}{125(-6-10x)^2}\left(\frac{193}{10}(1-2x)^{\frac{3}{2}}-\frac{429}{10}\sqrt{1-2x}\right)-\frac{5943\sqrt{55}}{171875}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^3/(3+5*x)^3,x)
```

```
[Out] -27/625*(1-2*x)^(5/2)+18/625*(1-2*x)^(3/2)+558/3125*(1-2*x)^(1/2)
+2/125*(193/10*(1-2*x)^(3/2)-429/10*(1-2*x)^(1/2))/(-6-10*x)^2-59
43/171875*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.5025, size = 136, normalized size = 1.13

$$-\frac{27}{625}(-2x+1)^{\frac{5}{2}}+\frac{18}{625}(-2x+1)^{\frac{3}{2}}+\frac{5943}{343750}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{558}{3125}\sqrt{-2x+1}+\frac{193(-2x+1)^{\frac{3}{2}}-429\sqrt{-2x+1}}{625\left(25(2x-1)^2+220x+11\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*(-2*x + 1)^(3/2)/(5*x + 3)^3,x, algorithm="maxima")
```

```
[Out] -27/625*(-2*x + 1)^(5/2) + 18/625*(-2*x + 1)^(3/2) + 5943/343750*
sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2
*x + 1))) + 558/3125*sqrt(-2*x + 1) + 1/625*(193*(-2*x + 1)^(3/2)
 - 429*sqrt(-2*x + 1))/(25*(2*x - 1)^2 + 220*x + 11)
```

Fricas [A] time = 0.212464, size = 120, normalized size = 1.

$$-\frac{\sqrt{55}\left(\sqrt{55}\left(27000x^4+14400x^3-37530x^2-36295x-8644\right)\sqrt{-2x+1}-5943\left(25x^2+30x+9\right)\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{-2x+1}}{5x+3}\right)\right)}{343750\left(25x^2+30x+9\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*(-2*x + 1)^(3/2)/(5*x + 3)^3,x, algorithm="fricas")
```

```
[Out] -1/343750*sqrt(55)*(sqrt(55)*(27000*x^4 + 14400*x^3 - 37530*x^2 -
 36295*x - 8644)*sqrt(-2*x + 1) - 5943*(25*x^2 + 30*x + 9)*log((s
qrt(55)*(5*x - 8) + 55*sqrt(-2*x + 1))/(5*x + 3)))/(25*x^2 + 30*x
 + 9)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)**3/(3+5*x)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.214068, size = 138, normalized size = 1.15

$$-\frac{27}{625}\,(2\,x-1)^{2}\sqrt{-2\,x+1}+\frac{18}{625}\,(-2\,x+1)^{\frac{3}{2}}+\frac{5943}{343750}\,\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)+\frac{558}{3125}\,\sqrt{-2\,x+1}+\frac{193\,(-2\,x+1)^{\frac{3}{2}}-429\,\sqrt{-2\,x+1}}{2500\,(5\,x+3)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*(-2*x + 1)^(3/2)/(5*x + 3)^3,x, algorithm="giac")
```

```
[Out] -27/625*(2*x - 1)^2*sqrt(-2*x + 1) + 18/625*(-2*x + 1)^(3/2) + 59
43/343750*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(s
qrt(55) + 5*sqrt(-2*x + 1))) + 558/3125*sqrt(-2*x + 1) + 1/2500*(
193*(-2*x + 1)^(3/2) - 429*sqrt(-2*x + 1))/(5*x + 3)^2
```

3.1904 $\int \frac{(1-2x)^{3/2}(2+3x)^2}{(3+5x)^3}\,dx$

Optimal. Leaf size=94

$$-\frac{131(1-2x)^{5/2}}{6050(5x+3)}-\frac{(1-2x)^{5/2}}{550(5x+3)^2}+\frac{119(1-2x)^{3/2}}{3025}+\frac{357\sqrt{1-2x}}{1375}-\frac{357\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{125\sqrt{55}}$$

```
[Out] (357*Sqrt[1 - 2*x])/1375 + (119*(1 - 2*x)^(3/2))/3025 - (1 - 2*x)
^(5/2)/(550*(3 + 5*x)^2) - (131*(1 - 2*x)^(5/2))/(6050*(3 + 5*x))
 - (357*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(125*Sqrt[55])
```

Rubi [A] time = 0.111067, antiderivative size = 94, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$-\frac{131(1-2x)^{5/2}}{6050(5x+3)}-\frac{(1-2x)^{5/2}}{550(5x+3)^2}+\frac{119(1-2x)^{3/2}}{3025}+\frac{357\sqrt{1-2x}}{1375}-\frac{357\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{125\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(2 + 3*x)^2)/(3 + 5*x)^3,x]
```



```
[Out] (357*Sqrt[1 - 2*x])/1375 + (119*(1 - 2*x)^(3/2))/3025 - (1 - 2*x)
^(5/2)/(550*(3 + 5*x)^2) - (131*(1 - 2*x)^(5/2))/(6050*(3 + 5*x))
 - (357*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(125*Sqrt[55])
```

Rubi in Sympy [A] time = 11.426, size = 80, normalized size = 0.85

$$-\frac{131\left(-2x+1\right)^{\frac{5}{2}}}{6050\left(5x+3\right)}-\frac{\left(-2x+1\right)^{\frac{5}{2}}}{550\left(5x+3\right)^{2}}+\frac{119\left(-2x+1\right)^{\frac{3}{2}}}{3025}+\frac{357\sqrt{-2x+1}}{1375}-\frac{357\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{6875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)**2/(3+5*x)**3,x)
```

```
[Out] -131*(-2*x + 1)**(5/2)/(6050*(5*x + 3)) - (-2*x + 1)**(5/2)/(550*
(5*x + 3)**2) + 119*(-2*x + 1)**(3/2)/3025 + 357*sqrt(-2*x + 1)/1
375 - 357*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/6875
```

Mathematica [A] time = 0.126539, size = 63, normalized size = 0.67

$$\frac{\sqrt{1-2x}\left(-600x^3+1320x^2+2105x+656\right)}{250(5x+3)^2}-\frac{357\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{125\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(2 + 3*x)^2)/(3 + 5*x)^3,x]
```

```
[Out] (Sqrt[1 - 2*x]*(656 + 2105*x + 1320*x^2 - 600*x^3))/(250*(3 + 5*x
)^2) - (357*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(125*Sqrt[55])
```

Maple [A] time = 0.017, size = 66, normalized size = 0.7

$$\frac{6}{125}(1-2x)^{\frac{3}{2}}+\frac{174}{625}\sqrt{1-2x}+\frac{2}{25(-6-10x)^{2}}\left(\frac{127}{10}(1-2x)^{\frac{3}{2}}-\frac{1419}{50}\sqrt{1-2x}\right)-\frac{357\sqrt{55}}{6875}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^2/(3+5*x)^3,x)
```

```
[Out] 6/125*(1-2*x)^(3/2)+174/625*(1-2*x)^(1/2)+2/25*(127/10*(1-2*x)^(3
/2)-1419/50*(1-2*x)^(1/2))/(-6-10*x)^2-357/6875*arctanh(1/11*55^(
1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.50632, size = 124, normalized size = 1.32

$$\frac{6}{125}(-2x+1)^{\frac{3}{2}}+\frac{357}{13750}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{174}{625}\sqrt{-2x+1}+\frac{635(-2x+1)^{\frac{3}{2}}-1419\sqrt{-2x+1}}{625\left(25(2x-1)^{2}+220x+11\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*(-2*x + 1)^(3/2)/(5*x + 3)^3,x, algorithm="maxima")
```

```
[Out] 6/125*(-2*x + 1)^(3/2) + 357/13750*sqrt(55)*log(-(sqrt(55) - 5*sq
rt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) + 174/625*sqrt(-2*x
+ 1) + 1/625*(635*(-2*x + 1)^(3/2) - 1419*sqrt(-2*x + 1))/(25*(2*
x - 1)^2 + 220*x + 11)
```

Fricas [A] time = 0.213614, size = 113, normalized size = 1.2

$$-\frac{\sqrt{55}\left(\sqrt{55}\left(600x^{3}-1320x^{2}-2105x-656\right)\sqrt{-2x+1}-357\left(25x^{2}+30x+9\right)\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{-2x+1}}{5x+3}\right)\right)}{13750\left(25x^{2}+30x+9\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*(-2*x + 1)^(3/2)/(5*x + 3)^3,x, algorithm="fricas")
```

```
[Out] -1/13750*sqrt(55)*(sqrt(55)*(600*x^3 - 1320*x^2 - 2105*x - 656)*s
qrt(-2*x + 1) - 357*(25*x^2 + 30*x + 9)*log((sqrt(55)*(5*x - 8) +
 55*sqrt(-2*x + 1))/(5*x + 3)))/(25*x^2 + 30*x + 9)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)**2/(3+5*x)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.213687, size = 116, normalized size = 1.23

$$\frac{6}{125}\,(-2\,x+1)^{\frac{3}{2}}+\frac{357}{13750}\,\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\,\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)+\frac{174}{625}\,\sqrt{-2\,x+1}+\frac{635\,(-2\,x+1)^{\frac{3}{2}}-1419\,\sqrt{-2\,x+1}}{2500\,(5\,x+3)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*(-2*x + 1)^(3/2)/(5*x + 3)^3,x, algorithm="giac")
```

```
[Out] 6/125*(-2*x + 1)^(3/2) + 357/13750*sqrt(55)*ln(1/2*abs(-2*sqrt(55
) + 10*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) + 174/625*s
qrt(-2*x + 1) + 1/2500*(635*(-2*x + 1)^(3/2) - 1419*sqrt(-2*x + 1
))/(5*x + 3)^2
```

3.1905 $\int \frac{(1-2x)^{3/2}(2+3x)}{(3+5x)^3}\,dx$

Optimal. Leaf size=81

$$-\frac{(1-2x)^{5/2}}{110(5x+3)^2}-\frac{13(1-2x)^{3/2}}{110(5x+3)}-\frac{39}{275}\sqrt{1-2x}+\frac{39\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{25\sqrt{55}}$$

```
[Out] (-39*Sqrt[1 - 2*x])/275 - (1 - 2*x)^(5/2)/(110*(3 + 5*x)^2) - (13
*(1 - 2*x)^(3/2))/(110*(3 + 5*x)) + (39*ArcTanh[Sqrt[5/11]*Sqrt[1
 - 2*x]])/(25*Sqrt[55])
```

Rubi [A] time = 0.07649, antiderivative size = 81, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$-\frac{(1-2x)^{5/2}}{110(5x+3)^2}-\frac{13(1-2x)^{3/2}}{110(5x+3)}-\frac{39}{275}\sqrt{1-2x}+\frac{39\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{25\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)^(3/2)*(2 + 3*x))/(3 + 5*x)^3,x]
```

```
[Out] (-39*Sqrt[1 - 2*x])/275 - (1 - 2*x)^(5/2)/(110*(3 + 5*x)^2) - (13
*(1 - 2*x)^(3/2))/(110*(3 + 5*x)) + (39*ArcTanh[Sqrt[5/11]*Sqrt[1
 - 2*x]])/(25*Sqrt[55])
```

Rubi in Sympy [A] time = 9.01845, size = 68, normalized size = 0.84

$$-\frac{(-2x+1)^{\frac{5}{2}}}{110\,(5x+3)^2}-\frac{13\,(-2x+1)^{\frac{3}{2}}}{110\,(5x+3)}-\frac{39\sqrt{-2x+1}}{275}+\frac{39\sqrt{55}\,\text{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{1375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**(3/2)*(2+3*x)/(3+5*x)**3,x)
```

```
[Out] -(-2*x + 1)**(5/2)/(110*(5*x + 3)**2) - 13*(-2*x + 1)**(3/2)/(110
*(5*x + 3)) - 39*sqrt(-2*x + 1)/275 + 39*sqrt(55)*atanh(sqrt(55)*
sqrt(-2*x + 1)/11)/1375
```

Mathematica [A] time = 0.0968499, size = 58, normalized size = 0.72

$$\frac{39\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{25\sqrt{55}}-\frac{\sqrt{1-2x}\left(120x^2+205x+82\right)}{50(5x+3)^2}$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)^(3/2)*(2 + 3*x))/(3 + 5*x)^3,x]
```

```
[Out] -(Sqrt[1 - 2*x]*(82 + 205*x + 120*x^2))/(50*(3 + 5*x)^2) + (39*Ar
cTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(25*Sqrt[55])
```

Maple [A] time = 0.015, size = 57, normalized size = 0.7

$$-\frac{12}{125}\sqrt{1-2x}-\frac{4}{5\left(-6-10x\right)^{2}}\left(-\frac{61}{20}\left(1-2x\right)^{\frac{3}{2}}+\frac{693}{100}\sqrt{1-2x}\right)+\frac{39\sqrt{55}}{1375}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)/(3+5*x)^3,x)
```

```
[Out] -12/125*(1-2*x)^(1/2)-4/5*(-61/20*(1-2*x)^(3/2)+693/100*(1-2*x)^(
1/2))/(-6-10*x)^2+39/1375*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55
^(1/2)
```

Maxima [A] time = 1.49858, size = 112, normalized size = 1.38

$$-\frac{39}{2750}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{12}{125}\sqrt{-2x+1}+\frac{305\left(-2x+1\right)^{\frac{3}{2}}-693\sqrt{-2x+1}}{125\left(25\left(2x-1\right)^{2}+220x+11\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)*(-2*x + 1)^(3/2)/(5*x + 3)^3,x, algorithm="maxima")
```

```
[Out] -39/2750*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) +
5*sqrt(-2*x + 1))) - 12/125*sqrt(-2*x + 1) + 1/125*(305*(-2*x + 1
)^(3/2) - 693*sqrt(-2*x + 1))/(25*(2*x - 1)^2 + 220*x + 11)
```

Fricas [A] time = 0.215126, size = 107, normalized size = 1.32

$$-\frac{\sqrt{55}\left(\sqrt{55}\left(120x^{2}+205x+82\right)\sqrt{-2x+1}-39\left(25x^{2}+30x+9\right)\log\left(\frac{\sqrt{55}(5x-8)-55\sqrt{-2x+1}}{5x+3}\right)\right)}{2750\left(25x^{2}+30x+9\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)*(-2*x + 1)^(3/2)/(5*x + 3)^3,x, algorithm="fricas")
```

```
[Out] -1/2750*sqrt(55)*(sqrt(55)*(120*x^2 + 205*x + 82)*sqrt(-2*x + 1)
- 39*(25*x^2 + 30*x + 9)*log((sqrt(55)*(5*x - 8) - 55*sqrt(-2*x +
 1))/(5*x + 3)))/(25*x^2 + 30*x + 9)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)/(3+5*x)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.211832, size = 104, normalized size = 1.28

$$-\frac{39}{2750}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{12}{125}\sqrt{-2x+1}+\frac{305\left(-2x+1\right)^{\frac{3}{2}}-693\sqrt{-2x+1}}{500\left(5x+3\right)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)*(-2*x + 1)^(3/2)/(5*x + 3)^3,x, algorithm="giac")
```

```
[Out] -39/2750*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sq
rt(55) + 5*sqrt(-2*x + 1))) - 12/125*sqrt(-2*x + 1) + 1/500*(305*
(-2*x + 1)^(3/2) - 693*sqrt(-2*x + 1))/(5*x + 3)^2
```

3.1906 $\int \frac{(1-2x)^{3/2}}{(3+5x)^3} \, dx$

Optimal. Leaf size=68

$$-\frac{(1-2x)^{3/2}}{10(5x+3)^2}+\frac{3\sqrt{1-2x}}{50(5x+3)}-\frac{3\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{25\sqrt{55}}$$

```
[Out] -(1 - 2*x)^(3/2)/(10*(3 + 5*x)^2) + (3*Sqrt[1 - 2*x])/(50*(3 + 5*
x)) - (3*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(25*Sqrt[55])
```

Rubi [A] time = 0.0531767, antiderivative size = 68, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 17, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.176

$$-\frac{(1-2x)^{3/2}}{10(5x+3)^2}+\frac{3\sqrt{1-2x}}{50(5x+3)}-\frac{3\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{25\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^(3/2)/(3 + 5*x)^3,x]
```

```
[Out] -(1 - 2*x)^(3/2)/(10*(3 + 5*x)^2) + (3*Sqrt[1 - 2*x])/(50*(3 + 5*
x)) - (3*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(25*Sqrt[55])
```

Rubi in Sympy [A] time = 7.22817, size = 56, normalized size = 0.82

$$-\frac{(-2x+1)^{\frac{3}{2}}}{10\,(5x+3)^2}+\frac{3\sqrt{-2x+1}}{50\,(5x+3)}-\frac{3\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{1375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**(3/2)/(3+5*x)**3,x)
```

```
[Out] -(-2*x + 1)**(3/2)/(10*(5*x + 3)**2) + 3*sqrt(-2*x + 1)/(50*(5*x
+ 3)) - 3*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/1375
```

Mathematica [A] time = 0.0756638, size = 53, normalized size = 0.78

$$\frac{\sqrt{1-2x}(25x+4)}{50(5x+3)^2}-\frac{3\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{25\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)^(3/2)/(3 + 5*x)^3,x]
```

```
[Out] (Sqrt[1 - 2*x]*(4 + 25*x))/(50*(3 + 5*x)^2) - (3*ArcTanh[Sqrt[5/1
1]*Sqrt[1 - 2*x]])/(25*Sqrt[55])
```

Maple [A] time = 0.012, size = 48, normalized size = 0.7

$$200\,\frac{1}{(-6-10\,x)^2}\left(-\frac{(1-2\,x)^{3/2}}{200}+\frac{33\,\sqrt{1-2\,x}}{5000}\right)-\frac{3\,\sqrt{55}}{1375}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((1-2*x)^(3/2)/(3+5*x)^3,x)
```

```
[Out] 200*(-1/200*(1-2*x)^(3/2)+33/5000*(1-2*x)^(1/2))/(-6-10*x)^2-3/13
75*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.50583, size = 100, normalized size = 1.47

$$\frac{3}{2750}\,\sqrt{55}\log\left(-\frac{\sqrt{55}-5\,\sqrt{-2\,x+1}}{\sqrt{55}+5\,\sqrt{-2\,x+1}}\right)-\frac{25\,(-2\,x+1)^{\frac{3}{2}}-33\,\sqrt{-2\,x+1}}{25\,\left(25\,(2\,x-1)^2+220\,x+11\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((-2*x + 1)^(3/2)/(5*x + 3)^3,x, algorithm="maxima")
```

```
[Out] 3/2750*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*
sqrt(-2*x + 1))) - 1/25*(25*(-2*x + 1)^(3/2) - 33*sqrt(-2*x + 1))
/(25*(2*x - 1)^2 + 220*x + 11)
```

Fricas [A] time = 0.216255, size = 100, normalized size = 1.47

$$\frac{\sqrt{55}\left(\sqrt{55}(25\,x+4)\sqrt{-2\,x+1}+3\,\left(25\,x^2+30\,x+9\right)\,\log\left(\frac{\sqrt{55}(5\,x-8)+55\,\sqrt{-2\,x+1}}{5\,x+3}\right)\right)}{2750\,(25\,x^2+30\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((-2*x + 1)^(3/2)/(5*x + 3)^3,x, algorithm="fricas")
```

```
[Out] 1/2750*sqrt(55)*(sqrt(55)*(25*x + 4)*sqrt(-2*x + 1) + 3*(25*x^2 +
 30*x + 9)*log((sqrt(55)*(5*x - 8) + 55*sqrt(-2*x + 1))/(5*x + 3)
))/(25*x^2 + 30*x + 9)
```

Sympy [A] time = 4.26169, size = 236, normalized size = 3.47

$$\begin{cases} -\frac{3\sqrt{55}\,\operatorname{acosh}\left(\frac{\sqrt{110}}{10\sqrt{x+\frac{3}{5}}}\right)}{1375}-\frac{\sqrt{2}}{50\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}\sqrt{x+\frac{3}{5}}}+\frac{77\sqrt{2}}{2500\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}-\frac{121\sqrt{2}}{12500\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)^{\frac{5}{2}}} & \text{for}\ \frac{11\left|\frac{1}{x+\frac{3}{5}}\right|}{10}>1 \\ \frac{3\sqrt{55}i\,\operatorname{asin}\left(\frac{\sqrt{110}}{10\sqrt{x+\frac{3}{5}}}\right)}{1375}+\frac{\sqrt{2}i}{50\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}\sqrt{x+\frac{3}{5}}}-\frac{77\sqrt{2}i}{2500\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}+\frac{121\sqrt{2}i}{12500\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)^{\frac{5}{2}}} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((1-2*x)**(3/2)/(3+5*x)**3,x)
```

```
[Out] Piecewise((-3*sqrt(55)*acosh(sqrt(110)/(10*sqrt(x + 3/5)))/1375 -
 sqrt(2)/(50*sqrt(-1 + 11/(10*(x + 3/5)))*sqrt(x + 3/5)) + 77*sqr
t(2)/(2500*sqrt(-1 + 11/(10*(x + 3/5)))*(x + 3/5)**(3/2)) - 121*s
qrt(2)/(12500*sqrt(-1 + 11/(10*(x + 3/5)))*(x + 3/5)**(5/2)), 11*
Abs(1/(x + 3/5))/10 > 1), (3*sqrt(55)*I*asin(sqrt(110)/(10*sqrt(x
 + 3/5)))/1375 + sqrt(2)*I/(50*sqrt(1 - 11/(10*(x + 3/5)))*sqrt(x
 + 3/5)) - 77*sqrt(2)*I/(2500*sqrt(1 - 11/(10*(x + 3/5)))*(x + 3/
5)**(3/2)) + 121*sqrt(2)*I/(12500*sqrt(1 - 11/(10*(x + 3/5)))*(x
+ 3/5)**(5/2)), True))
```

GIAC/XCAS [A] time = 0.211105, size = 92, normalized size = 1.35

$$\frac{3}{2750}\,\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\,\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)-\frac{25\,(-2\,x+1)^{\frac{3}{2}}-33\,\sqrt{-2\,x+1}}{100\,(5\,x+3)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/(5*x + 3)^3,x, algorithm="giac")
```

```
[Out] 3/2750*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt
(55) + 5*sqrt(-2*x + 1))) - 1/100*(25*(-2*x + 1)^(3/2) - 33*sqrt(
-2*x + 1))/(5*x + 3)^2
```

3.1907 $\int \frac{(1-2x)^{3/2}}{(2+3x)(3+5x)^3}\,dx$

Optimal. Leaf size=93

$$\frac{71\sqrt{1-2x}}{10(5x+3)}-\frac{11\sqrt{1-2x}}{10(5x+3)^2}+14\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{2379\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{5\sqrt{55}}$$

```
[Out] (-11*Sqrt[1 - 2*x])/(10*(3 + 5*x)^2) + (71*Sqrt[1 - 2*x])/(10*(3
+ 5*x)) + 14*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]] - (2379*Ar
cTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(5*Sqrt[55])
```

Rubi [A] time = 0.183646, antiderivative size = 93, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{71\sqrt{1-2x}}{10(5x+3)}-\frac{11\sqrt{1-2x}}{10(5x+3)^2}+14\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{2379\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{5\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)/((2 + 3*x)*(3 + 5*x)^3),x]
```

```
[Out] (-11*Sqrt[1 - 2*x])/(10*(3 + 5*x)^2) + (71*Sqrt[1 - 2*x])/(10*(3
+ 5*x)) + 14*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]] - (2379*Ar
cTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(5*Sqrt[55])
```

Rubi in Sympy [A] time = 21.6272, size = 82, normalized size = 0.88

$$\frac{71\sqrt{-2x+1}}{10\,(5x+3)}-\frac{11\sqrt{-2x+1}}{10\,(5x+3)^2}+14\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)-\frac{2379\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{275}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)/(2+3*x)/(3+5*x)**3,x)
```

```
[Out] 71*sqrt(-2*x + 1)/(10*(5*x + 3)) - 11*sqrt(-2*x + 1)/(10*(5*x + 3
)**2) + 14*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7) - 2379*sqrt(
55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/275
```

Mathematica [A] time = 0.156133, size = 78, normalized size = 0.84

$$\frac{\sqrt{1-2x}(355x+202)}{10(5x+3)^2}+14\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{2379\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{5\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)/((2 + 3*x)*(3 + 5*x)^3),x]
```

```
[Out] (Sqrt[1 - 2*x]*(202 + 355*x))/(10*(3 + 5*x)^2) + 14*Sqrt[21]*ArcT
anh[Sqrt[3/7]*Sqrt[1 - 2*x]] - (2379*ArcTanh[Sqrt[5/11]*Sqrt[1 -
2*x]])/(5*Sqrt[55])
```

Maple [A] time = 0.018, size = 66, normalized size = 0.7

$$14\,Artanh\left(1/7\sqrt{21}\sqrt{1-2x}\right)\sqrt{21}+50\,\frac{1}{\left(-6-10x\right)^2}\left(-\frac{71\,\left(1-2x\right)^{3/2}}{50}+\frac{759\sqrt{1-2x}}{250}\right)-\frac{2379\sqrt{55}}{275}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((1-2*x)^(3/2)/(2+3*x)/(3+5*x)^3,x)
```

```
[Out] 14*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)+50*(-71/50*(1-2*x
)^(3/2)+759/250*(1-2*x)^(1/2))/(-6-10*x)^2-2379/275*arctanh(1/11*
55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.52434, size = 149, normalized size = 1.6

$$\frac{2379}{550}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-7\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{355\left(-2x+1\right)^{\frac{3}{2}}-759\sqrt{-2x+1}}{5\left(25\left(2x-1\right)^2+220x+11\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/((5*x + 3)^3*(3*x + 2)),x, algorithm="maxima")
```

```
[Out] 2379/550*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) +
5*sqrt(-2*x + 1))) - 7*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1)
)/(sqrt(21) + 3*sqrt(-2*x + 1))) - 1/5*(355*(-2*x + 1)^(3/2) - 75
9*sqrt(-2*x + 1))/(25*(2*x - 1)^2 + 220*x + 11)
```

Fricas [A] time = 0.225125, size = 159, normalized size = 1.71

$$\frac{\sqrt{55}\left(70\sqrt{55}\sqrt{21}\left(25x^2+30x+9\right)\log\left(\frac{3x-\sqrt{21}\sqrt{-2x+1}-5}{3x+2}\right)+\sqrt{55}(355x+202)\sqrt{-2x+1}+2379\left(25x^2+30x+9\right)\log\left(\frac{\sqrt{55}(5 \ldots}{\ldots}\right.\right.}{550\left(25x^2+30x+9\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/((5*x + 3)^3*(3*x + 2)),x, algorithm="fricas")
```

```
[Out] 1/550*sqrt(55)*(70*sqrt(55)*sqrt(21)*(25*x^2 + 30*x + 9)*log((3*x
 - sqrt(21)*sqrt(-2*x + 1) - 5)/(3*x + 2)) + sqrt(55)*(355*x + 20
2)*sqrt(-2*x + 1) + 2379*(25*x^2 + 30*x + 9)*log((sqrt(55)*(5*x -
 8) + 55*sqrt(-2*x + 1))/(5*x + 3)))/(25*x^2 + 30*x + 9)
```

Sympy [A] time = 146.733, size = 372, normalized size = 4.

$$\frac{1628\left(\begin{cases}\frac{\sqrt{55}\left(-\frac{\log\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)}{4}+\frac{\log\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)}{4}-\frac{1}{4\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)}-\frac{1}{4\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)}\right)}{605} & \text{for}\ x\le\frac{1}{2}\wedge x>-\frac{3}{5}\end{cases}\right)}{5}$$
$$+\frac{968\left(\begin{cases}\frac{\sqrt{55}\left(\frac{3\log\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)}{16}-\frac{3\log\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)}{16}+\frac{3}{16\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)}+\frac{1}{16\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)^2}+\frac{3}{16\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)}-\frac{1}{16\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)^2}\right)}{6655} & \text{for}\ x\le\frac{1}{2}\wedge x>-\frac{3}{5}\end{cases}\right)}{5}$$
$$-294\left(\begin{cases}-\frac{\sqrt{21}\operatorname{acoth}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for}\ -2x+1>\frac{7}{3}\\-\frac{\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for}\ -2x+1<\frac{7}{3}\end{cases}\right)+490\left(\begin{cases}-\frac{\sqrt{55}\operatorname{acoth}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for}\ -2x+1>\frac{11}{5}\\-\frac{\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for}\ -2x+1<\frac{11}{5}\end{cases}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)/(2+3*x)/(3+5*x)**3,x)
```

```
[Out] 1628*Piecewise((sqrt(55)*(-log(sqrt(55)*sqrt(-2*x + 1)/11 - 1)/4
+ log(sqrt(55)*sqrt(-2*x + 1)/11 + 1)/4 - 1/(4*(sqrt(55)*sqrt(-2*
x + 1)/11 + 1)) - 1/(4*(sqrt(55)*sqrt(-2*x + 1)/11 - 1)))/605, (x
 <= 1/2) & (x > -3/5)))/5 + 968*Piecewise((sqrt(55)*(3*log(sqrt(5
5)*sqrt(-2*x + 1)/11 - 1)/16 - 3*log(sqrt(55)*sqrt(-2*x + 1)/11 +
 1)/16 + 3/(16*(sqrt(55)*sqrt(-2*x + 1)/11 + 1)) + 1/(16*(sqrt(55
)*sqrt(-2*x + 1)/11 + 1)**2) + 3/(16*(sqrt(55)*sqrt(-2*x + 1)/11
- 1)) - 1/(16*(sqrt(55)*sqrt(-2*x + 1)/11 - 1)**2))/6655, (x <= 1
/2) & (x > -3/5)))/5 - 294*Piecewise((-sqrt(21)*acoth(sqrt(21)*sq
rt(-2*x + 1)/7)/21, -2*x + 1 > 7/3), (-sqrt(21)*atanh(sqrt(21)*sq
rt(-2*x + 1)/7)/21, -2*x + 1 < 7/3)) + 490*Piecewise((-sqrt(55)*a
coth(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*x + 1 > 11/5), (-sqrt(55)
*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*x + 1 < 11/5))
```

GIAC/XCAS [A] time = 0.217633, size = 144, normalized size = 1.55

$$\frac{2379}{550}\,\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\,\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)-7\,\sqrt{21}\ln\left(\frac{\left|-2\,\sqrt{21}+6\,\sqrt{-2\,x+1}\right|}{2\,\left(\sqrt{21}+3\,\sqrt{-2\,x+1}\right)}\right)-\frac{355\,(-2\,x+1)^{\frac{3}{2}}-759\,\sqrt{-2\,x+1}}{20\,(5\,x+3)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/((5*x + 3)^3*(3*x + 2)),x, algorithm="giac")
```

```
[Out] 2379/550*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sq
rt(55) + 5*sqrt(-2*x + 1))) - 7*sqrt(21)*ln(1/2*abs(-2*sqrt(21) +
 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 1/20*(355*(-2
*x + 1)^(3/2) - 759*sqrt(-2*x + 1))/(5*x + 3)^2
```

3.1908 $\int \frac{(1-2x)^{3/2}}{(2+3x)^2(3+5x)^3} dx$

Optimal. Leaf size=118

$$\frac{207\sqrt{1-2x}}{2(5x+3)} - \frac{103\sqrt{1-2x}}{6(5x+3)^2} + \frac{7\sqrt{1-2x}}{3(3x+2)(5x+3)^2} + 204\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right) - \frac{6933\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{\sqrt{55}}$$

```
[Out] (-103*Sqrt[1 - 2*x])/(6*(3 + 5*x)^2) + (7*Sqrt[1 - 2*x])/(3*(2 +
3*x)*(3 + 5*x)^2) + (207*Sqrt[1 - 2*x])/(2*(3 + 5*x)) + 204*Sqrt[
21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]] - (6933*ArcTanh[Sqrt[5/11]*S
qrt[1 - 2*x]])/Sqrt[55]
```

Rubi [A] time = 0.257334, antiderivative size = 118, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{207\sqrt{1-2x}}{2(5x+3)} - \frac{103\sqrt{1-2x}}{6(5x+3)^2} + \frac{7\sqrt{1-2x}}{3(3x+2)(5x+3)^2} + 204\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right) - \frac{6933\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)/((2 + 3*x)^2*(3 + 5*x)^3),x]
```


```
[Out] (-103*Sqrt[1 - 2*x])/(6*(3 + 5*x)^2) + (7*Sqrt[1 - 2*x])/(3*(2 +
3*x)*(3 + 5*x)^2) + (207*Sqrt[1 - 2*x])/(2*(3 + 5*x)) + 204*Sqrt[
21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]] - (6933*ArcTanh[Sqrt[5/11]*S
qrt[1 - 2*x]])/Sqrt[55]
```

Rubi in Sympy [A] time = 28.7544, size = 105, normalized size = 0.89

$$\frac{207\sqrt{-2x+1}}{2(5x+3)} - \frac{103\sqrt{-2x+1}}{6(5x+3)^2} + \frac{7\sqrt{-2x+1}}{3(3x+2)(5x+3)^2} + 204\sqrt{21}\,\mathrm{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right) - \frac{6933\sqrt{55}\,\mathrm{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)/(2+3*x)**2/(3+5*x)**3,x)
```

```
[Out] 207*sqrt(-2*x + 1)/(2*(5*x + 3)) - 103*sqrt(-2*x + 1)/(6*(5*x + 3
)**2) + 7*sqrt(-2*x + 1)/(3*(3*x + 2)*(5*x + 3)**2) + 204*sqrt(21
)*atanh(sqrt(21)*sqrt(-2*x + 1)/7) - 6933*sqrt(55)*atanh(sqrt(55)
*sqrt(-2*x + 1)/11)/55
```

Mathematica [A] time = 0.186808, size = 88, normalized size = 0.75

$$\frac{\sqrt{1-2x}\left(3105x^2+3830x+1178\right)}{2(3x+2)(5x+3)^2} + 204\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right) - \frac{6933\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)/((2 + 3*x)^2*(3 + 5*x)^3),x]
```

```
[Out] (Sqrt[1 - 2*x]*(1178 + 3830*x + 3105*x^2))/(2*(2 + 3*x)*(3 + 5*x)
^2) + 204*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]] - (6933*ArcTa
nh[Sqrt[5/11]*Sqrt[1 - 2*x]])/Sqrt[55]
```

Maple [A] time = 0.02, size = 82, normalized size = 0.7

$$-14\frac{\sqrt{1-2x}}{-4/3-2x}+204\,\mathit{Artanh}\left(1/7\sqrt{21}\sqrt{1-2x}\right)\sqrt{21}+50\frac{1}{(-6-10x)^2}\left(-\frac{137(1-2x)^{3/2}}{10}+\frac{297\sqrt{1-2x}}{10}\right)-\frac{6933\sqrt{55}}{55}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)/(2+3*x)^2/(3+5*x)^3,x)
```

```
[Out] -14*(1-2*x)^(1/2)/(-4/3-2*x)+204*arctanh(1/7*21^(1/2)*(1-2*x)^(1/
2))*21^(1/2)+50*(-137/10*(1-2*x)^(3/2)+297/10*(1-2*x)^(1/2))/(-6-
10*x)^2-6933/55*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.50273, size = 171, normalized size = 1.45

$$\frac{6933}{110}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-102\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{3105(-2x+1)^{\frac{5}{2}}-13870(-2x+1)^{\frac{3}{2}}+15477\sqrt{-2x+1}}{75(2x-1)^3+505(2x-1)^2+2266x-286}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^3*(3*x + 2)^2),x, algorithm="maxima")
```

```
[Out] 6933/110*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) +
5*sqrt(-2*x + 1))) - 102*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x +
1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + (3105*(-2*x + 1)^(5/2) - 138
70*(-2*x + 1)^(3/2) + 15477*sqrt(-2*x + 1))/(75*(2*x - 1)^3 + 505
*(2*x - 1)^2 + 2266*x - 286)
```

Fricas [A] time = 0.222674, size = 186, normalized size = 1.58

$$\frac{\sqrt{55}\left(204\sqrt{55}\sqrt{21}\left(75x^3+140x^2+87x+18\right)\log\left(\frac{3x-\sqrt{21}\sqrt{-2x+1}-5}{3x+2}\right)+\sqrt{55}\left(3105x^2+3830x+1178\right)\sqrt{-2x+1}+6933\,(75}{110\left(75x^3+140x^2+87x+18\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^3*(3*x + 2)^2),x, algorithm="fricas")
```

```
[Out] 1/110*sqrt(55)*(204*sqrt(55)*sqrt(21)*(75*x^3 + 140*x^2 + 87*x +
18)*log((3*x - sqrt(21)*sqrt(-2*x + 1) - 5)/(3*x + 2)) + sqrt(55)
*(3105*x^2 + 3830*x + 1178)*sqrt(-2*x + 1) + 6933*(75*x^3 + 140*x
^2 + 87*x + 18)*log((sqrt(55)*(5*x - 8) + 55*sqrt(-2*x + 1))/(5*x
 + 3)))/(75*x^3 + 140*x^2 + 87*x + 18)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)/(2+3*x)**2/(3+5*x)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.215549, size = 166, normalized size = 1.41

$$\frac{6933}{110}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-102\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{21\sqrt{-2x+1}}{3x+2}-\frac{5\left(137(-2x+1)^{\frac{3}{2}}-297\sqrt{-2x+1}\right)}{4(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^3*(3*x + 2)^2),x, algorithm="giac")
```

```
[Out] 6933/110*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sq
rt(55) + 5*sqrt(-2*x + 1))) - 102*sqrt(21)*ln(1/2*abs(-2*sqrt(21)
 + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 21*sqrt(-2*
x + 1)/(3*x + 2) - 5/4*(137*(-2*x + 1)^(3/2) - 297*sqrt(-2*x + 1)
)/(5*x + 3)^2
```

3.1909 $\int \frac{(1-2x)^{3/2}}{(2+3x)^3(3+5x)^3} \, dx$

Optimal. Leaf size=147

$$\frac{1020\sqrt{1-2x}}{5x+3}-\frac{1015\sqrt{1-2x}}{6(5x+3)^2}+\frac{45\sqrt{1-2x}}{2(3x+2)(5x+3)^2}+\frac{7\sqrt{1-2x}}{6(3x+2)^2(5x+3)^2}+14073\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-13665\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (-1015*Sqrt[1 - 2*x])/(6*(3 + 5*x)^2) + (7*Sqrt[1 - 2*x])/(6*(2 +
 3*x)^2*(3 + 5*x)^2) + (45*Sqrt[1 - 2*x])/(2*(2 + 3*x)*(3 + 5*x)^
2) + (1020*Sqrt[1 - 2*x])/(3 + 5*x) + 14073*Sqrt[3/7]*ArcTanh[Sqr
t[3/7]*Sqrt[1 - 2*x]] - 13665*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[
1 - 2*x]]
```

Rubi [A] time = 0.320903, antiderivative size = 147, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{1020\sqrt{1-2x}}{5x+3}-\frac{1015\sqrt{1-2x}}{6(5x+3)^2}+\frac{45\sqrt{1-2x}}{2(3x+2)(5x+3)^2}+\frac{7\sqrt{1-2x}}{6(3x+2)^2(5x+3)^2}+14073\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-13665\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)/((2 + 3*x)^3*(3 + 5*x)^3),x]
```

```
[Out] (-1015*Sqrt[1 - 2*x])/(6*(3 + 5*x)^2) + (7*Sqrt[1 - 2*x])/(6*(2 +
 3*x)^2*(3 + 5*x)^2) + (45*Sqrt[1 - 2*x])/(2*(2 + 3*x)*(3 + 5*x)^
2) + (1020*Sqrt[1 - 2*x])/(3 + 5*x) + 14073*Sqrt[3/7]*ArcTanh[Sqr
t[3/7]*Sqrt[1 - 2*x]] - 13665*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[
1 - 2*x]]
```

Rubi in Sympy [A] time = 34.5174, size = 133, normalized size = 0.9

$$\frac{1020\sqrt{-2x+1}}{5x+3}-\frac{1015\sqrt{-2x+1}}{6\left(5x+3\right)^2}+\frac{45\sqrt{-2x+1}}{2\left(3x+2\right)\left(5x+3\right)^2}+\frac{7\sqrt{-2x+1}}{6\left(3x+2\right)^2\left(5x+3\right)^2}+\frac{14073\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{7}-\frac{13665\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{11}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)/(2+3*x)**3/(3+5*x)**3,x)
```

```
[Out] 1020*sqrt(-2*x + 1)/(5*x + 3) - 1015*sqrt(-2*x + 1)/(6*(5*x + 3)*
*2) + 45*sqrt(-2*x + 1)/(2*(3*x + 2)*(5*x + 3)**2) + 7*sqrt(-2*x
+ 1)/(6*(3*x + 2)**2*(5*x + 3)**2) + 14073*sqrt(21)*atanh(sqrt(21
)*sqrt(-2*x + 1)/7)/7 - 13665*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x +
 1)/11)/11
```

Mathematica [A] time = 0.149535, size = 97, normalized size = 0.66

$$\frac{\sqrt{1-2x}\left(91800x^3+174435x^2+110315x+23219\right)}{2(3x+2)^2(5x+3)^2}+14073\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-13665\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)/((2 + 3*x)^3*(3 + 5*x)^3),x]
```

```
[Out] (Sqrt[1 - 2*x]*(23219 + 110315*x + 174435*x^2 + 91800*x^3))/(2*(2
 + 3*x)^2*(3 + 5*x)^2) + 14073*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1
 - 2*x]] - 13665*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Maple [A] time = 0.02, size = 94, normalized size = 0.6

$$-324 \frac{1}{(-4-6x)^2}\left(\frac{205\,(1-2x)^{3/2}}{36}-\frac{161\sqrt{1-2x}}{12}\right)+\frac{14073\sqrt{21}}{7}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)+500\frac{1}{(-6-10x)^2}\left(-\frac{203\,(1-2x)^{3/2}}{20}+\frac{2211\sqrt{1-2x}}{100}\right)-\frac{13665\sqrt{55}}{11}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)/(2+3*x)^3/(3+5*x)^3,x)
```

```
[Out] -324*(205/36*(1-2*x)^(3/2)-161/12*(1-2*x)^(1/2))/(-4-6*x)^2+14073
/7*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)+500*(-203/20*(1-2
*x)^(3/2)+2211/100*(1-2*x)^(1/2))/(-6-10*x)^2-13665/11*arctanh(1/
11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.50601, size = 197, normalized size = 1.34

$$\frac{13665}{22}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{14073}{14}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{2\left(45900\,(-2x+1)^{\frac{7}{2}}-312135\,(-2x+1)^{\frac{5}{2}}+707200\,(-2x+1)^{\frac{3}{2}}-533841\sqrt{-2x+1}\right)}{225\,(2x-1)^4+2040\,(2x-1)^3+6934\,(2x-1)^2+20944x-4543}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^3*(3*x + 2)^3),x, algorithm="maxima")
```

```
[Out] 13665/22*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) +
5*sqrt(-2*x + 1))) - 14073/14*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2
*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 2*(45900*(-2*x + 1)^(7/
2) - 312135*(-2*x + 1)^(5/2) + 707200*(-2*x + 1)^(3/2) - 533841*s
qrt(-2*x + 1))/(225*(2*x - 1)^4 + 2040*(2*x - 1)^3 + 6934*(2*x -
1)^2 + 20944*x - 4543)
```

Fricas [A] time = 0.226305, size = 240, normalized size = 1.63

$$\frac{\sqrt{11}\sqrt{7}\left(13665\sqrt{7}\sqrt{5}\left(225x^4+570x^3+541x^2+228x+36\right)\log\left(\frac{\sqrt{11}(5x-8)+11\sqrt{5}\sqrt{-2x+1}}{5x+3}\right)+14073\sqrt{11}\sqrt{3}\left(225x^4+570x^3+\right.\right.}{154\left(225x^4+570x^3+541x\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^3*(3*x + 2)^3),x, algorithm="fricas")
```

```
[Out] 1/154*sqrt(11)*sqrt(7)*(13665*sqrt(7)*sqrt(5)*(225*x^4 + 570*x^3
+ 541*x^2 + 228*x + 36)*log((sqrt(11)*(5*x - 8) + 11*sqrt(5)*sqrt
(-2*x + 1))/(5*x + 3)) + 14073*sqrt(11)*sqrt(3)*(225*x^4 + 570*x^
3 + 541*x^2 + 228*x + 36)*log((sqrt(7)*(3*x - 5) - 7*sqrt(3)*sqrt
```

```
(-2*x + 1))/(3*x + 2)) + sqrt(11)*sqrt(7)*(91800*x^3 + 174435*x^2
 + 110315*x + 23219)*sqrt(-2*x + 1))/(225*x^4 + 570*x^3 + 541*x^2
 + 228*x + 36)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)/(2+3*x)**3/(3+5*x)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.239226, size = 200, normalized size = 1.36

$$\frac{13665}{22}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{14073}{14}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{2\left(45900(2x-1)^3\sqrt{-2x+1}+312135(2x-1)^2\sqrt{-2x+1}-707200(-2x+1)^{\frac{3}{2}}+533841\sqrt{-2x+1}\right)}{\left(15(2x-1)^2+136x+9\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^3*(3*x + 2)^3),x, algorithm="giac")
```

```
[Out] 13665/22*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sq
rt(55) + 5*sqrt(-2*x + 1))) - 14073/14*sqrt(21)*ln(1/2*abs(-2*sqr
t(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 2*(459
00*(2*x - 1)^3*sqrt(-2*x + 1) + 312135*(2*x - 1)^2*sqrt(-2*x + 1)
 - 707200*(-2*x + 1)^(3/2) + 533841*sqrt(-2*x + 1))/(15*(2*x - 1)
^2 + 136*x + 9)^2
```

3.1910 $\int \frac{(1-2x)^{3/2}}{(2+3x)^4(3+5x)^3} dx$

Optimal. Leaf size=178

$$\frac{117955\sqrt{1-2x}}{14(5x+3)} - \frac{176065\sqrt{1-2x}}{126(5x+3)^2} + \frac{1301\sqrt{1-2x}}{7(3x+2)(5x+3)^2} + \frac{28\sqrt{1-2x}}{3(3x+2)^2(5x+3)^2} + \frac{7\sqrt{1-2x}}{9(3x+2)^3(5x+3)^2} + \frac{813716}{7}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right) - 112875\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (-176065*Sqrt[1 - 2*x])/(126*(3 + 5*x)^2) + (7*Sqrt[1 - 2*x])/(9*
(2 + 3*x)^3*(3 + 5*x)^2) + (28*Sqrt[1 - 2*x])/(3*(2 + 3*x)^2*(3 +
 5*x)^2) + (1301*Sqrt[1 - 2*x])/(7*(2 + 3*x)*(3 + 5*x)^2) + (1179
55*Sqrt[1 - 2*x])/(14*(3 + 5*x)) + (813716*Sqrt[3/7]*ArcTanh[Sqrt
[3/7]*Sqrt[1 - 2*x]])/7 - 112875*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sq
rt[1 - 2*x]]
```

Rubi [A] time = 0.388923, antiderivative size = 178, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{117955\sqrt{1-2x}}{14(5x+3)} - \frac{176065\sqrt{1-2x}}{126(5x+3)^2} + \frac{1301\sqrt{1-2x}}{7(3x+2)(5x+3)^2} + \frac{28\sqrt{1-2x}}{3(3x+2)^2(5x+3)^2} + \frac{7\sqrt{1-2x}}{9(3x+2)^3(5x+3)^2} + \frac{813716}{7}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right) - 112875\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)/((2 + 3*x)^4*(3 + 5*x)^3),x]
```

```
[Out] (-176065*Sqrt[1 - 2*x])/(126*(3 + 5*x)^2) + (7*Sqrt[1 - 2*x])/(9*
(2 + 3*x)^3*(3 + 5*x)^2) + (28*Sqrt[1 - 2*x])/(3*(2 + 3*x)^2*(3 +
 5*x)^2) + (1301*Sqrt[1 - 2*x])/(7*(2 + 3*x)*(3 + 5*x)^2) + (1179
55*Sqrt[1 - 2*x])/(14*(3 + 5*x)) + (813716*Sqrt[3/7]*ArcTanh[Sqrt
[3/7]*Sqrt[1 - 2*x]])/7 - 112875*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sq
rt[1 - 2*x]]
```

Rubi in Sympy [A] time = 41.2455, size = 162, normalized size = 0.91

$$\frac{70773\sqrt{-2x+1}}{14(3x+2)} + \frac{2540\sqrt{-2x+1}}{3(3x+2)(5x+3)} - \frac{1685\sqrt{-2x+1}}{18(3x+2)(5x+3)^2} + \frac{28\sqrt{-2x+1}}{3(3x+2)^2(5x+3)^2} + \frac{7\sqrt{-2x+1}}{9(3x+2)^3(5x+3)^2} + \frac{813716\sqrt{21}\,\mathrm{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{49} - \frac{112875\sqrt{55}\,\mathrm{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{11}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)/(2+3*x)**4/(3+5*x)**3,x)
```

```
[Out] 70773*sqrt(-2*x + 1)/(14*(3*x + 2)) + 2540*sqrt(-2*x + 1)/(3*(3*x
 + 2)*(5*x + 3)) - 1685*sqrt(-2*x + 1)/(18*(3*x + 2)*(5*x + 3)**2
) + 28*sqrt(-2*x + 1)/(3*(3*x + 2)**2*(5*x + 3)**2) + 7*sqrt(-2*x
 + 1)/(9*(3*x + 2)**3*(5*x + 3)**2) + 813716*sqrt(21)*atanh(sqrt(
21)*sqrt(-2*x + 1)/7)/49 - 112875*sqrt(55)*atanh(sqrt(55)*sqrt(-2
*x + 1)/11)/11
```

Mathematica [A] time = 0.185318, size = 104, normalized size = 0.58

$$\frac{\sqrt{1-2x}\left(15923925x^4+40874010x^3+39307638x^2+16784696x+2685098\right)}{14(3x+2)^3(5x+3)^2}+\frac{813716}{7}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-112875\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)/((2 + 3*x)^4*(3 + 5*x)^3),x]
```

```
[Out] (Sqrt[1 - 2*x]*(2685098 + 16784696*x + 39307638*x^2 + 40874010*x^
3 + 15923925*x^4))/(14*(2 + 3*x)^3*(3 + 5*x)^2) + (813716*Sqrt[3/
7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/7 - 112875*Sqrt[5/11]*ArcTan
h[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Maple [A] time = 0.02, size = 103, normalized size = 0.6

$$-324\frac{1}{(-4-6x)^3}\left(\frac{3544(1-2x)^{5/2}}{21}-\frac{21418(1-2x)^{3/2}}{27}+\frac{25172\sqrt{1-2x}}{27}\right)+\frac{813716\sqrt{21}}{49}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)+2500\frac{1}{(-6-10x)^2}\left(-\frac{269(1-2x)^{3/2}}{20}+\frac{2937\sqrt{1-2x}}{100}\right)-\frac{112875\sqrt{55}}{11}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)/(2+3*x)^4/(3+5*x)^3,x)
```

```
[Out] -324*(3544/21*(1-2*x)^(5/2)-21418/27*(1-2*x)^(3/2)+25172/27*(1-2*
x)^(1/2))/(-4-6*x)^3+813716/49*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2)
)*21^(1/2)+2500*(-269/20*(1-2*x)^(3/2)+2937/100*(1-2*x)^(1/2))/(-
6-10*x)^2-112875/11*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.50358, size = 221, normalized size = 1.24

$$\frac{112875}{22}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{406858}{49}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{15923925(-2x+1)^{\frac{9}{2}}-145443720(-2x+1)^{\frac{7}{2}}+498018162(-2x+1)^{\frac{5}{2}}-757678432(-2x+1)^{\frac{3}{2}}+432141633\sqrt{-2x+1}}{7\left(675(2x-1)^5+7695(2x-1)^4+35082(2x-1)^3+79954(2x-1)^2+182182x-49588\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^3*(3*x + 2)^4),x, algorithm="maxima")
```

```
[Out] 112875/22*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) +
 5*sqrt(-2*x + 1))) - 406858/49*sqrt(21)*log(-(sqrt(21) - 3*sqrt(
-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 1/7*(15923925*(-2*x +
 1)^(9/2) - 145443720*(-2*x + 1)^(7/2) + 498018162*(-2*x + 1)^(5/
2) - 757678432*(-2*x + 1)^(3/2) + 432141633*sqrt(-2*x + 1))/(675*
(2*x - 1)^5 + 7695*(2*x - 1)^4 + 35082*(2*x - 1)^3 + 79954*(2*x -
 1)^2 + 182182*x - 49588)
```

Fricas [A] time = 0.239876, size = 267, normalized size = 1.5

$$\sqrt{11}\sqrt{7}\left(790125\sqrt{7}\sqrt{5}\left(675x^5+2160x^4+2763x^3+1766x^2+564x+72\right)\log\left(\frac{\sqrt{11}(5x-8)+11\sqrt{5}\sqrt{-2x+1}}{5x+3}\right)+813716\sqrt{11}\sqrt{3}(675\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^3*(3*x + 2)^4),x, algorithm="fricas")
```

```
[Out] 1/1078*sqrt(11)*sqrt(7)*(790125*sqrt(7)*sqrt(5)*(675*x^5 + 2160*x
^4 + 2763*x^3 + 1766*x^2 + 564*x + 72)*log((sqrt(11)*(5*x - 8) +
11*sqrt(5)*sqrt(-2*x + 1))/(5*x + 3)) + 813716*sqrt(11)*sqrt(3)*(
675*x^5 + 2160*x^4 + 2763*x^3 + 1766*x^2 + 564*x + 72)*log((sqrt(
7)*(3*x - 5) - 7*sqrt(3)*sqrt(-2*x + 1))/(3*x + 2)) + sqrt(11)*sq
rt(7)*(15923925*x^4 + 40874010*x^3 + 39307638*x^2 + 16784696*x +
2685098)*sqrt(-2*x + 1))/(675*x^5 + 2160*x^4 + 2763*x^3 + 1766*x^
2 + 564*x + 72)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)/(2+3*x)**4/(3+5*x)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.236531, size = 204, normalized size = 1.15

$$\frac{112875}{22}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{406858}{49}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{25\left(1345(-2x+1)^{\frac{3}{2}}-2937\sqrt{-2x+1}\right)}{4(5x+3)^2}+\frac{3\left(15948(2x-1)^2\sqrt{-2x+1}-74963(-2x+1)^{\frac{3}{2}}+88102\sqrt{-2x+1}\right)}{7(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^3*(3*x + 2)^4),x, algorithm="giac")
```

```
[Out] 112875/22*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(s
qrt(55) + 5*sqrt(-2*x + 1))) - 406858/49*sqrt(21)*ln(1/2*abs(-2*s
qrt(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 25/4
*(1345*(-2*x + 1)^(3/2) - 2937*sqrt(-2*x + 1))/(5*x + 3)^2 + 3/7*
(15948*(2*x - 1)^2*sqrt(-2*x + 1) - 74963*(-2*x + 1)^(3/2) + 8810
2*sqrt(-2*x + 1))/(3*x + 2)^3
```

3.1911 $\int (1-2x)^{5/2}(2+3x)^6(3+5x)\,dx$

Optimal. Leaf size=105

$$\frac{1215}{896}(1-2x)^{21/2}-\frac{59049(1-2x)^{19/2}}{2432}+\frac{409941(1-2x)^{17/2}}{2176}-\frac{105399}{128}(1-2x)^{15/2}+\frac{3658095(1-2x)^{13/2}}{1664}-\frac{5078115(1-2x)^{11/2}}{1408}+\frac{3916031(1-2x)^{9/2}}{1152}-\frac{184877}{128}(1-2x)^{7/2}$$

```
[Out] (-184877*(1 - 2*x)^(7/2))/128 + (3916031*(1 - 2*x)^(9/2))/1152 -
(5078115*(1 - 2*x)^(11/2))/1408 + (3658095*(1 - 2*x)^(13/2))/1664
 - (105399*(1 - 2*x)^(15/2))/128 + (409941*(1 - 2*x)^(17/2))/2176
 - (59049*(1 - 2*x)^(19/2))/2432 + (1215*(1 - 2*x)^(21/2))/896
```

Rubi [A] time = 0.0739202, antiderivative size = 105, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$\frac{1215}{896}(1-2x)^{21/2}-\frac{59049(1-2x)^{19/2}}{2432}+\frac{409941(1-2x)^{17/2}}{2176}-\frac{105399}{128}(1-2x)^{15/2}+\frac{3658095(1-2x)^{13/2}}{1664}-\frac{5078115(1-2x)^{11/2}}{1408}+\frac{3916031(1-2x)^{9/2}}{1152}-\frac{184877}{128}(1-2x)^{7/2}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)*(2 + 3*x)^6*(3 + 5*x),x]
```

```
[Out] (-184877*(1 - 2*x)^(7/2))/128 + (3916031*(1 - 2*x)^(9/2))/1152 -
(5078115*(1 - 2*x)^(11/2))/1408 + (3658095*(1 - 2*x)^(13/2))/1664
 - (105399*(1 - 2*x)^(15/2))/128 + (409941*(1 - 2*x)^(17/2))/2176
 - (59049*(1 - 2*x)^(19/2))/2432 + (1215*(1 - 2*x)^(21/2))/896
```

Rubi in Sympy [A] time = 10.8505, size = 94, normalized size = 0.9

$$\frac{1215\,(-2x+1)^{\frac{21}{2}}}{896}-\frac{59049\,(-2x+1)^{\frac{19}{2}}}{2432}+\frac{409941\,(-2x+1)^{\frac{17}{2}}}{2176}-\frac{105399\,(-2x+1)^{\frac{15}{2}}}{128}+\frac{3658095\,(-2x+1)^{\frac{13}{2}}}{1664}-\frac{5078115\,(-2x+1)^{\frac{11}{2}}}{1408}+\frac{3916031\,(-2x+1)^{\frac{9}{2}}}{1152}-\frac{184877\,(-2x+1)^{\frac{7}{2}}}{128}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**6*(3+5*x),x)
```

```
[Out] 1215*(-2*x + 1)**(21/2)/896 - 59049*(-2*x + 1)**(19/2)/2432 + 409
941*(-2*x + 1)**(17/2)/2176 - 105399*(-2*x + 1)**(15/2)/128 + 365
8095*(-2*x + 1)**(13/2)/1664 - 5078115*(-2*x + 1)**(11/2)/1408 +
3916031*(-2*x + 1)**(9/2)/1152 - 184877*(-2*x + 1)**(7/2)/128
```

Mathematica [A] time = 0.0396472, size = 48, normalized size = 0.46

$$-\frac{(1-2x)^{7/2}\left(505076715x^7+2753997246x^6+6628858236x^5+9228315096x^4+8157896208x^3+4700947104x^2+17068204\right.}{2909907}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)*(2 + 3*x)^6*(3 + 5*x),x]
```

```
[Out] -((1 - 2*x)^(7/2)*(323646080 + 1706820416*x + 4700947104*x^2 + 81
57896208*x^3 + 9228315096*x^4 + 6628858236*x^5 + 2753997246*x^6 +
```

```
505076715*x^7))/2909907
```

Maple [A] time = 0.006, size = 45, normalized size = 0.4

$$-\frac{505076715\,x^{7}+2753997246\,x^{6}+6628858236\,x^{5}+9228315096\,x^{4}+8157896208\,x^{3}+4700947104\,x^{2}+1706820416\,x+323}{2909907}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^6*(3+5*x),x)
```

```
[Out] -1/2909907*(505076715*x^7+2753997246*x^6+6628858236*x^5+922831509
6*x^4+8157896208*x^3+4700947104*x^2+1706820416*x+323646080)*(1-2*
x)^(7/2)
```

Maxima [A] time = 1.34591, size = 99, normalized size = 0.94

$$\frac{1215}{896}\,(-2\,x+1)^{\frac{21}{2}}-\frac{59049}{2432}\,(-2\,x+1)^{\frac{19}{2}}+\frac{409941}{2176}\,(-2\,x+1)^{\frac{17}{2}}-\frac{105399}{128}\,(-2\,x+1)^{\frac{15}{2}}+\frac{3658095}{1664}\,(-2\,x+1)^{\frac{13}{2}}-\frac{5078115}{1408}\,(-2\,x+1)^{\frac{11}{2}}+\frac{3916031}{1152}\,(-2\,x+1)^{\frac{9}{2}}-\frac{184877}{128}\,(-2\,x+1)^{\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^6*(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] 1215/896*(-2*x + 1)^(21/2) - 59049/2432*(-2*x + 1)^(19/2) + 40994
1/2176*(-2*x + 1)^(17/2) - 105399/128*(-2*x + 1)^(15/2) + 3658095
/1664*(-2*x + 1)^(13/2) - 5078115/1408*(-2*x + 1)^(11/2) + 391603
1/1152*(-2*x + 1)^(9/2) - 184877/128*(-2*x + 1)^(7/2)
```

Fricas [A] time = 0.223772, size = 80, normalized size = 0.76

$$\frac{1}{2909907}\,\left(4040613720\,x^{10}+15971057388\,x^{9}+23013359226\,x^{8}+10299128697\,x^{7}-8457459318\,x^{6}-11546145324\,x^{5}-303\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^6*(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/2909907*(4040613720*x^10 + 15971057388*x^9 + 23013359226*x^8 +
10299128697*x^7 - 8457459318*x^6 - 11546145324*x^5 - 3037739768*x
^4 + 2155110064*x^3 + 1656222432*x^2 + 235056064*x - 323646080)*s
qrt(-2*x + 1)
```

Sympy [A] time = 6.72843, size = 94, normalized size = 0.9

$$\frac{1215\,(-2x+1)^{\frac{21}{2}}}{896}-\frac{59049\,(-2x+1)^{\frac{19}{2}}}{2432}+\frac{409941\,(-2x+1)^{\frac{17}{2}}}{2176}-\frac{105399\,(-2x+1)^{\frac{15}{2}}}{128}+\frac{3658095\,(-2x+1)^{\frac{13}{2}}}{1664}-\frac{5078115\,(-2x+1)^{\frac{11}{2}}}{1408}+\frac{3916031\,(-2x+1)^{\frac{9}{2}}}{1152}-\frac{184877\,(-2x+1)^{\frac{7}{2}}}{128}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)**6*(3+5*x),x)
```

```
[Out] 1215*(-2*x + 1)**(21/2)/896 - 59049*(-2*x + 1)**(19/2)/2432 + 409
941*(-2*x + 1)**(17/2)/2176 - 105399*(-2*x + 1)**(15/2)/128 + 365
8095*(-2*x + 1)**(13/2)/1664 - 5078115*(-2*x + 1)**(11/2)/1408 +
3916031*(-2*x + 1)**(9/2)/1152 - 184877*(-2*x + 1)**(7/2)/128
```

GIAC/XCAS [A] time = 0.21645, size = 1, normalized size = 0.01

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(3*x + 2)^6*(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] Done
```

3.1912 $\int (1-2x)^{5/2}(2+3x)^5(3+5x)\,dx$

Optimal. Leaf size=92

$$-\frac{1215(1-2x)^{19/2}}{1216}+\frac{1053}{68}(1-2x)^{17/2}-\frac{6489}{64}(1-2x)^{15/2}+\frac{37485}{104}(1-2x)^{13/2}-\frac{519645}{704}(1-2x)^{11/2}+\frac{60025}{72}(1-2x)^{9/2}-\frac{26411}{64}(1-2x)^{7/2}$$

```
[Out] (-26411*(1 - 2*x)^(7/2))/64 + (60025*(1 - 2*x)^(9/2))/72 - (51964
5*(1 - 2*x)^(11/2))/704 + (37485*(1 - 2*x)^(13/2))/104 - (6489*(1
 - 2*x)^(15/2))/64 + (1053*(1 - 2*x)^(17/2))/68 - (1215*(1 - 2*x)
^(19/2))/1216
```

Rubi [A] time = 0.0684792, antiderivative size = 92, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{1215(1-2x)^{19/2}}{1216}+\frac{1053}{68}(1-2x)^{17/2}-\frac{6489}{64}(1-2x)^{15/2}+\frac{37485}{104}(1-2x)^{13/2}-\frac{519645}{704}(1-2x)^{11/2}+\frac{60025}{72}(1-2x)^{9/2}-\frac{26411}{64}(1-2x)^{7/2}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)*(2 + 3*x)^5*(3 + 5*x),x]
```

```
[Out] (-26411*(1 - 2*x)^(7/2))/64 + (60025*(1 - 2*x)^(9/2))/72 - (51964
5*(1 - 2*x)^(11/2))/704 + (37485*(1 - 2*x)^(13/2))/104 - (6489*(1
 - 2*x)^(15/2))/64 + (1053*(1 - 2*x)^(17/2))/68 - (1215*(1 - 2*x)
^(19/2))/1216
```

Rubi in Sympy [A] time = 9.81639, size = 82, normalized size = 0.89

$$-\frac{1215\left(-2x+1\right)^{\frac{19}{2}}}{1216}+\frac{1053\left(-2x+1\right)^{\frac{17}{2}}}{68}-\frac{6489\left(-2x+1\right)^{\frac{15}{2}}}{64}+\frac{37485\left(-2x+1\right)^{\frac{13}{2}}}{104}-\frac{519645\left(-2x+1\right)^{\frac{11}{2}}}{704}+\frac{60025\left(-2x+1\right)^{\frac{9}{2}}}{72}-\frac{26411\left(-2x+1\right)^{\frac{7}{2}}}{64}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**5*(3+5*x),x)
```

```
[Out] -1215*(-2*x + 1)**(19/2)/1216 + 1053*(-2*x + 1)**(17/2)/68 - 6489
*(-2*x + 1)**(15/2)/64 + 37485*(-2*x + 1)**(13/2)/104 - 519645*(-
2*x + 1)**(11/2)/704 + 60025*(-2*x + 1)**(9/2)/72 - 26411*(-2*x +
 1)**(7/2)/64
```

Mathematica [A] time = 0.0519467, size = 43, normalized size = 0.47

$$-\frac{(1-2x)^{7/2}\left(26582985x^6+126243117x^5+259076961x^4+298438668x^3+208370124x^2+86950792x+18122584\right)}{415701}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)*(2 + 3*x)^5*(3 + 5*x),x]
```

```
[Out] -((1 - 2*x)^(7/2)*(18122584 + 86950792*x + 208370124*x^2 + 298438
668*x^3 + 259076961*x^4 + 126243117*x^5 + 26582985*x^6))/415701
```

Maple [A] time = 0.007, size = 40, normalized size = 0.4

$$-\frac{26582985\,x^{6}+126243117\,x^{5}+259076961\,x^{4}+298438668\,x^{3}+208370124\,x^{2}+86950792\,x+18122584}{415701}\left(1-2\,x\right)^{\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^5*(3+5*x),x)
```

```
[Out] -1/415701*(26582985*x^6+126243117*x^5+259076961*x^4+298438668*x^3
+208370124*x^2+86950792*x+18122584)*(1-2*x)^(7/2)
```

Maxima [A] time = 1.33681, size = 86, normalized size = 0.93

$$-\frac{1215}{1216}\,(-2\,x+1)^{\frac{19}{2}}+\frac{1053}{68}\,(-2\,x+1)^{\frac{17}{2}}-\frac{6489}{64}\,(-2\,x+1)^{\frac{15}{2}}+\frac{37485}{104}\,(-2\,x+1)^{\frac{13}{2}}-\frac{519645}{704}\,(-2\,x+1)^{\frac{11}{2}}+\frac{60025}{72}\,(-2\,x+1)^{\frac{9}{2}}-\frac{26411}{64}\,(-2\,x+1)^{\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(3*x + 2)^5*(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] -1215/1216*(-2*x + 1)^(19/2) + 1053/68*(-2*x + 1)^(17/2) - 6489/6
4*(-2*x + 1)^(15/2) + 37485/104*(-2*x + 1)^(13/2) - 519645/704*(-
2*x + 1)^(11/2) + 60025/72*(-2*x + 1)^(9/2) - 26411/64*(-2*x + 1)
^(7/2)
```

Fricas [A] time = 0.225345, size = 73, normalized size = 0.79

$$\frac{1}{415701}\left(212663880\,x^{9}+690949116\,x^{8}+717196194\,x^{7}+9461529\,x^{6}-486084375\,x^{5}-273280105\,x^{4}+53353244\,x^{3}+9586$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(3*x + 2)^5*(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/415701*(212663880*x^9 + 690949116*x^8 + 717196194*x^7 + 9461529
*x^6 - 486084375*x^5 - 273280105*x^4 + 53353244*x^3 + 95863620*x^
2 + 21784712*x - 18122584)*sqrt(-2*x + 1)
```

Sympy [A] time = 5.81371, size = 82, normalized size = 0.89

$$-\frac{1215\,(-2x+1)^{\frac{19}{2}}}{1216}+\frac{1053\,(-2x+1)^{\frac{17}{2}}}{68}-\frac{6489\,(-2x+1)^{\frac{15}{2}}}{64}+\frac{37485\,(-2x+1)^{\frac{13}{2}}}{104}-\frac{519645\,(-2x+1)^{\frac{11}{2}}}{704}+\frac{60025\,(-2x+1)^{\frac{9}{2}}}{72}-\frac{26411\,(-2x+1)^{\frac{7}{2}}}{64}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)**5*(3+5*x),x)
```

```
[Out] -1215*(-2*x + 1)**(19/2)/1216 + 1053*(-2*x + 1)**(17/2)/68 - 6489
*(-2*x + 1)**(15/2)/64 + 37485*(-2*x + 1)**(13/2)/104 - 519645*(-
2*x + 1)**(11/2)/704 + 60025*(-2*x + 1)**(9/2)/72 - 26411*(-2*x +
```

```
1)**(7/2)/64
```

GIAC/XCAS [A] time = 0.21433, size = 1, normalized size = 0.01

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(3*x + 2)^5*(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] Done
```

3.1913 $\int (1-2x)^{5/2}(2+3x)^4(3+5x)\,dx$

Optimal. Leaf size=79

$$\frac{405}{544}(1-2x)^{17/2}-\frac{1557}{160}(1-2x)^{15/2}+\frac{10773}{208}(1-2x)^{13/2}-\frac{24843}{176}(1-2x)^{11/2}+\frac{57281}{288}(1-2x)^{9/2}-\frac{3773}{32}(1-2x)^{7/2}$$

```
[Out] (-3773*(1 - 2*x)^(7/2))/32 + (57281*(1 - 2*x)^(9/2))/288 - (24843
*(1 - 2*x)^(11/2))/176 + (10773*(1 - 2*x)^(13/2))/208 - (1557*(1
- 2*x)^(15/2))/160 + (405*(1 - 2*x)^(17/2))/544
```

Rubi [A] time = 0.0635393, antiderivative size = 79, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$\frac{405}{544}(1-2x)^{17/2}-\frac{1557}{160}(1-2x)^{15/2}+\frac{10773}{208}(1-2x)^{13/2}-\frac{24843}{176}(1-2x)^{11/2}+\frac{57281}{288}(1-2x)^{9/2}-\frac{3773}{32}(1-2x)^{7/2}$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^(5/2)*(2 + 3*x)^4*(3 + 5*x),x]
```

```
[Out] (-3773*(1 - 2*x)^(7/2))/32 + (57281*(1 - 2*x)^(9/2))/288 - (24843
*(1 - 2*x)^(11/2))/176 + (10773*(1 - 2*x)^(13/2))/208 - (1557*(1
- 2*x)^(15/2))/160 + (405*(1 - 2*x)^(17/2))/544
```

Rubi in Sympy [A] time = 9.01517, size = 70, normalized size = 0.89

$$\frac{405\,(-2x+1)^{\frac{17}{2}}}{544}-\frac{1557\,(-2x+1)^{\frac{15}{2}}}{160}+\frac{10773\,(-2x+1)^{\frac{13}{2}}}{208}-\frac{24843\,(-2x+1)^{\frac{11}{2}}}{176}+\frac{57281\,(-2x+1)^{\frac{9}{2}}}{288}-\frac{3773\,(-2x+1)^{\frac{7}{2}}}{32}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**(5/2)*(2+3*x)**4*(3+5*x),x)
```

```
[Out] 405*(-2*x + 1)**(17/2)/544 - 1557*(-2*x + 1)**(15/2)/160 + 10773*
(-2*x + 1)**(13/2)/208 - 24843*(-2*x + 1)**(11/2)/176 + 57281*(-2
*x + 1)**(9/2)/288 - 3773*(-2*x + 1)**(7/2)/32
```

Mathematica [A] time = 0.031797, size = 38, normalized size = 0.48

$$-\frac{(1-2x)^{7/2}\left(2606175x^5+10517364x^4+17777232x^3+16066296x^2+8043328x+1899184\right)}{109395}$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)^(5/2)*(2 + 3*x)^4*(3 + 5*x),x]
```

```
[Out] -((1 - 2*x)^(7/2)*(1899184 + 8043328*x + 16066296*x^2 + 17777232*
x^3 + 10517364*x^4 + 2606175*x^5))/109395
```

Maple [A] time = 0.004, size = 35, normalized size = 0.4

$$-\frac{2606175 x^5 + 10517364 x^4 + 17777232 x^3 + 16066296 x^2 + 8043328 x + 1899184}{109395} (1 - 2 x)^{\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^4*(3+5*x),x)
```

```
[Out] -1/109395*(2606175*x^5+10517364*x^4+17777232*x^3+16066296*x^2+804
3328*x+1899184)*(1-2*x)^(7/2)
```

Maxima [A] time = 1.34435, size = 74, normalized size = 0.94

$$\frac{405}{544} (-2 x + 1)^{\frac{17}{2}} - \frac{1557}{160} (-2 x + 1)^{\frac{15}{2}} + \frac{10773}{208} (-2 x + 1)^{\frac{13}{2}} - \frac{24843}{176} (-2 x + 1)^{\frac{11}{2}} + \frac{57281}{288} (-2 x + 1)^{\frac{9}{2}} - \frac{3773}{32} (-2 x + 1)^{\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^4*(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] 405/544*(-2*x + 1)^(17/2) - 1557/160*(-2*x + 1)^(15/2) + 10773/20
8*(-2*x + 1)^(13/2) - 24843/176*(-2*x + 1)^(11/2) + 57281/288*(-2
*x + 1)^(9/2) - 3773/32*(-2*x + 1)^(7/2)
```

Fricas [A] time = 0.211099, size = 66, normalized size = 0.84

$$\frac{1}{109395} \left(20849400 x^8 + 52864812 x^7 + 31646538 x^6 - 24298407 x^5 - 32302900 x^4 - 2705920 x^3 + 9403464 x^2 + 3351776 x -\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^4*(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/109395*(20849400*x^8 + 52864812*x^7 + 31646538*x^6 - 24298407*x
^5 - 32302900*x^4 - 2705920*x^3 + 9403464*x^2 + 3351776*x - 18991
84)*sqrt(-2*x + 1)
```

Sympy [A] time = 5.04977, size = 70, normalized size = 0.89

$$\frac{405 (-2x + 1)^{\frac{17}{2}}}{544} - \frac{1557 (-2x + 1)^{\frac{15}{2}}}{160} + \frac{10773 (-2x + 1)^{\frac{13}{2}}}{208} - \frac{24843 (-2x + 1)^{\frac{11}{2}}}{176} + \frac{57281 (-2x + 1)^{\frac{9}{2}}}{288} - \frac{3773 (-2x + 1)^{\frac{7}{2}}}{32}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)**4*(3+5*x),x)
```

```
[Out] 405*(-2*x + 1)**(17/2)/544 - 1557*(-2*x + 1)**(15/2)/160 + 10773*
(-2*x + 1)**(13/2)/208 - 24843*(-2*x + 1)**(11/2)/176 + 57281*(-2
*x + 1)**(9/2)/288 - 3773*(-2*x + 1)**(7/2)/32
```

GIAC/XCAS [A] time = 0.213032, size = 131, normalized size = 1.66

$$\frac{405}{544}\,(2\,x-1)^{8}\sqrt{-2\,x+1}+\frac{1557}{160}\,(2\,x-1)^{7}\sqrt{-2\,x+1}+\frac{10773}{208}\,(2\,x-1)^{6}\sqrt{-2\,x+1}+\frac{24843}{176}\,(2\,x-1)^{5}\sqrt{-2\,x+1}+\frac{57281}{288}\,(2\,x-1)^{4}\sqrt{-2\,x+1}+\frac{3773}{32}\,(2\,x-1)^{3}\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(3*x + 2)^4*(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] 405/544*(2*x - 1)^8*sqrt(-2*x + 1) + 1557/160*(2*x - 1)^7*sqrt(-2
*x + 1) + 10773/208*(2*x - 1)^6*sqrt(-2*x + 1) + 24843/176*(2*x -
 1)^5*sqrt(-2*x + 1) + 57281/288*(2*x - 1)^4*sqrt(-2*x + 1) + 377
3/32*(2*x - 1)^3*sqrt(-2*x + 1)
```

3.1914 $\int (1-2x)^{5/2}(2+3x)^3(3+5x)\,dx$

Optimal. Leaf size=66

$$-\frac{9}{16}(1-2x)^{15/2}+\frac{621}{104}(1-2x)^{13/2}-\frac{1071}{44}(1-2x)^{11/2}+\frac{3283}{72}(1-2x)^{9/2}-\frac{539}{16}(1-2x)^{7/2}$$

```
[Out] (-539*(1 - 2*x)^(7/2))/16 + (3283*(1 - 2*x)^(9/2))/72 - (1071*(1
- 2*x)^(11/2))/44 + (621*(1 - 2*x)^(13/2))/104 - (9*(1 - 2*x)^(15
/2))/16
```

Rubi [A] time = 0.0576552, antiderivative size = 66, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{9}{16}(1-2x)^{15/2}+\frac{621}{104}(1-2x)^{13/2}-\frac{1071}{44}(1-2x)^{11/2}+\frac{3283}{72}(1-2x)^{9/2}-\frac{539}{16}(1-2x)^{7/2}$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^(5/2)*(2 + 3*x)^3*(3 + 5*x),x]
```

```
[Out] (-539*(1 - 2*x)^(7/2))/16 + (3283*(1 - 2*x)^(9/2))/72 - (1071*(1
- 2*x)^(11/2))/44 + (621*(1 - 2*x)^(13/2))/104 - (9*(1 - 2*x)^(15
/2))/16
```

Rubi in Sympy [A] time = 8.01092, size = 58, normalized size = 0.88

$$-\frac{9(-2x+1)^{\frac{15}{2}}}{16}+\frac{621(-2x+1)^{\frac{13}{2}}}{104}-\frac{1071(-2x+1)^{\frac{11}{2}}}{44}+\frac{3283(-2x+1)^{\frac{9}{2}}}{72}-\frac{539(-2x+1)^{\frac{7}{2}}}{16}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**(5/2)*(2+3*x)**3*(3+5*x),x)
```

```
[Out] -9*(-2*x + 1)**(15/2)/16 + 621*(-2*x + 1)**(13/2)/104 - 1071*(-2*
x + 1)**(11/2)/44 + 3283*(-2*x + 1)**(9/2)/72 - 539*(-2*x + 1)**(
7/2)/16
```

Mathematica [A] time = 0.0446939, size = 33, normalized size = 0.5

$$-\frac{(1-2x)^{7/2}\left(11583x^4+38313x^3+50463x^2+32378x+9038\right)}{1287}$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)^(5/2)*(2 + 3*x)^3*(3 + 5*x),x]
```

```
[Out] -((1 - 2*x)^(7/2)*(9038 + 32378*x + 50463*x^2 + 38313*x^3 + 11583
*x^4))/1287
```

Maple [A] time = 0.005, size = 30, normalized size = 0.5

$$-\frac{11583\,x^4+38313\,x^3+50463\,x^2+32378\,x+9038}{1287}(1-2\,x)^{\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^3*(3+5*x),x)
```

```
[Out] -1/1287*(11583*x^4+38313*x^3+50463*x^2+32378*x+9038)*(1-2*x)^(7/2
)
```

Maxima [A] time = 1.34843, size = 62, normalized size = 0.94

$$-\frac{9}{16}\left(-2x+1\right)^{\frac{15}{2}}+\frac{621}{104}\left(-2x+1\right)^{\frac{13}{2}}-\frac{1071}{44}\left(-2x+1\right)^{\frac{11}{2}}+\frac{3283}{72}\left(-2x+1\right)^{\frac{9}{2}}-\frac{539}{16}\left(-2x+1\right)^{\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^3*(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] -9/16*(-2*x + 1)^(15/2) + 621/104*(-2*x + 1)^(13/2) - 1071/44*(-2
*x + 1)^(11/2) + 3283/72*(-2*x + 1)^(9/2) - 539/16*(-2*x + 1)^(7/
2)
```

Fricas [A] time = 0.205125, size = 59, normalized size = 0.89

$$\frac{1}{1287}\left(92664x^{7}+167508x^{6}+13446x^{5}-128237x^{4}-51767x^{3}+35349x^{2}+21850x-9038\right)\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^3*(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/1287*(92664*x^7 + 167508*x^6 + 13446*x^5 - 128237*x^4 - 51767*x
^3 + 35349*x^2 + 21850*x - 9038)*sqrt(-2*x + 1)
```

Sympy [A] time = 4.4418, size = 58, normalized size = 0.88

$$-\frac{9\left(-2x+1\right)^{\frac{15}{2}}}{16}+\frac{621\left(-2x+1\right)^{\frac{13}{2}}}{104}-\frac{1071\left(-2x+1\right)^{\frac{11}{2}}}{44}+\frac{3283\left(-2x+1\right)^{\frac{9}{2}}}{72}-\frac{539\left(-2x+1\right)^{\frac{7}{2}}}{16}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)**3*(3+5*x),x)
```

```
[Out] -9*(-2*x + 1)**(15/2)/16 + 621*(-2*x + 1)**(13/2)/104 - 1071*(-2*
x + 1)**(11/2)/44 + 3283*(-2*x + 1)**(9/2)/72 - 539*(-2*x + 1)**(
7/2)/16
```

GIAC/XCAS [A] time = 0.210079, size = 109, normalized size = 1.65

$$\frac{9}{16}\left(2x-1\right)^{7}\sqrt{-2x+1}+\frac{621}{104}\left(2x-1\right)^{6}\sqrt{-2x+1}+\frac{1071}{44}\left(2x-1\right)^{5}\sqrt{-2x+1}+\frac{3283}{72}\left(2x-1\right)^{4}\sqrt{-2x+1}+\frac{539}{16}\left(2x-1\right)^{3}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^3*(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] 9/16*(2*x - 1)^7*sqrt(-2*x + 1) + 621/104*(2*x - 1)^6*sqrt(-2*x +
 1) + 1071/44*(2*x - 1)^5*sqrt(-2*x + 1) + 3283/72*(2*x - 1)^4*sq
rt(-2*x + 1) + 539/16*(2*x - 1)^3*sqrt(-2*x + 1)
```

3.1915 $\int (1-2x)^{5/2}(2+3x)^2(3+5x)\,dx$

Optimal. Leaf size=53

$$\frac{45}{104}(1-2x)^{13/2}-\frac{309}{88}(1-2x)^{11/2}+\frac{707}{72}(1-2x)^{9/2}-\frac{77}{8}(1-2x)^{7/2}$$

```
[Out] (-77*(1 - 2*x)^(7/2))/8 + (707*(1 - 2*x)^(9/2))/72 - (309*(1 - 2*
x)^(11/2))/88 + (45*(1 - 2*x)^(13/2))/104
```

Rubi [A] time = 0.0510248, antiderivative size = 53, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{45}{104}(1-2x)^{13/2}-\frac{309}{88}(1-2x)^{11/2}+\frac{707}{72}(1-2x)^{9/2}-\frac{77}{8}(1-2x)^{7/2}$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^(5/2)*(2 + 3*x)^2*(3 + 5*x),x]
```

```
[Out] (-77*(1 - 2*x)^(7/2))/8 + (707*(1 - 2*x)^(9/2))/72 - (309*(1 - 2*
x)^(11/2))/88 + (45*(1 - 2*x)^(13/2))/104
```

Rubi in Sympy [A] time = 7.02017, size = 46, normalized size = 0.87

$$\frac{45\,(-2x+1)^{\frac{13}{2}}}{104}-\frac{309\,(-2x+1)^{\frac{11}{2}}}{88}+\frac{707\,(-2x+1)^{\frac{9}{2}}}{72}-\frac{77\,(-2x+1)^{\frac{7}{2}}}{8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**(5/2)*(2+3*x)**2*(3+5*x),x)
```

```
[Out] 45*(-2*x + 1)**(13/2)/104 - 309*(-2*x + 1)**(11/2)/88 + 707*(-2*x
 + 1)**(9/2)/72 - 77*(-2*x + 1)**(7/2)/8
```

Mathematica [A] time = 0.0428262, size = 28, normalized size = 0.53

$$-\frac{(1-2x)^{7/2}\left(4455x^3+11394x^2+10540x+3712\right)}{1287}$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)^(5/2)*(2 + 3*x)^2*(3 + 5*x),x]
```

```
[Out] -((1 - 2*x)^(7/2)*(3712 + 10540*x + 11394*x^2 + 4455*x^3))/1287
```

Maple [A] time = 0.006, size = 25, normalized size = 0.5

$$-\frac{4455\,x^3+11394\,x^2+10540\,x+3712}{1287}(1-2\,x)^{\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((1-2*x)^(5/2)*(2+3*x)^2*(3+5*x),x)
```

```
[Out] -1/1287*(4455*x^3+11394*x^2+10540*x+3712)*(1-2*x)^(7/2)
```

Maxima [A] time = 1.39561, size = 50, normalized size = 0.94

$$\frac{45}{104}\left(-2x+1\right)^{\frac{13}{2}}-\frac{309}{88}\left(-2x+1\right)^{\frac{11}{2}}+\frac{707}{72}\left(-2x+1\right)^{\frac{9}{2}}-\frac{77}{8}\left(-2x+1\right)^{\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(3*x + 2)^2*(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] 45/104*(-2*x + 1)^(13/2) - 309/88*(-2*x + 1)^(11/2) + 707/72*(-2*
x + 1)^(9/2) - 77/8*(-2*x + 1)^(7/2)
```

Fricas [A] time = 0.223651, size = 53, normalized size = 1.

$$\frac{1}{1287}\left(35640\,x^{6}+37692\,x^{5}-25678\,x^{4}-32875\,x^{3}+7302\,x^{2}+11732\,x-3712\right)\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(3*x + 2)^2*(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/1287*(35640*x^6 + 37692*x^5 - 25678*x^4 - 32875*x^3 + 7302*x^2
+ 11732*x - 3712)*sqrt(-2*x + 1)
```

Sympy [A] time = 2.90691, size = 100, normalized size = 1.89

$$\frac{360x^{6}\sqrt{-2x+1}}{13}+\frac{4188x^{5}\sqrt{-2x+1}}{143}-\frac{25678x^{4}\sqrt{-2x+1}}{1287}-\frac{32875x^{3}\sqrt{-2x+1}}{1287}+\frac{2434x^{2}\sqrt{-2x+1}}{429}+\frac{11732x\sqrt{-2x+1}}{1287}-\frac{3712\sqrt{-2x+1}}{1287}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)**2*(3+5*x),x)
```

```
[Out] 360*x**6*sqrt(-2*x + 1)/13 + 4188*x**5*sqrt(-2*x + 1)/143 - 25678
*x**4*sqrt(-2*x + 1)/1287 - 32875*x**3*sqrt(-2*x + 1)/1287 + 2434
*x**2*sqrt(-2*x + 1)/429 + 11732*x*sqrt(-2*x + 1)/1287 - 3712*sqr
t(-2*x + 1)/1287
```

GIAC/XCAS [A] time = 0.211124, size = 88, normalized size = 1.66

$$\frac{45}{104}\left(2\,x-1\right)^{6}\sqrt{-2\,x+1}+\frac{309}{88}\left(2\,x-1\right)^{5}\sqrt{-2\,x+1}+\frac{707}{72}\left(2\,x-1\right)^{4}\sqrt{-2\,x+1}+\frac{77}{8}\left(2\,x-1\right)^{3}\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(3*x + 2)^2*(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] 45/104*(2*x - 1)^6*sqrt(-2*x + 1) + 309/88*(2*x - 1)^5*sqrt(-2*x
+ 1) + 707/72*(2*x - 1)^4*sqrt(-2*x + 1) + 77/8*(2*x - 1)^3*sqrt(
-2*x + 1)
```

3.1916 $\int (1-2x)^{5/2}(2+3x)(3+5x)\,dx$

Optimal. Leaf size=40

$$-\frac{15}{44}(1-2x)^{11/2}+\frac{17}{9}(1-2x)^{9/2}-\frac{11}{4}(1-2x)^{7/2}$$

```
[Out] (-11*(1 - 2*x)^(7/2))/4 + (17*(1 - 2*x)^(9/2))/9 - (15*(1 - 2*x)^
(11/2))/44
```

Rubi [A] time = 0.0375503, antiderivative size = 40, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{15}{44}(1-2x)^{11/2}+\frac{17}{9}(1-2x)^{9/2}-\frac{11}{4}(1-2x)^{7/2}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)*(2 + 3*x)*(3 + 5*x),x]
```

```
[Out] (-11*(1 - 2*x)^(7/2))/4 + (17*(1 - 2*x)^(9/2))/9 - (15*(1 - 2*x)^
(11/2))/44
```

Rubi in Sympy [A] time = 5.85238, size = 34, normalized size = 0.85

$$-\frac{15\left(-2x+1\right)^{\frac{11}{2}}}{44}+\frac{17\left(-2x+1\right)^{\frac{9}{2}}}{9}-\frac{11\left(-2x+1\right)^{\frac{7}{2}}}{4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)*(3+5*x),x)
```

```
[Out] -15*(-2*x + 1)**(11/2)/44 + 17*(-2*x + 1)**(9/2)/9 - 11*(-2*x + 1
)**(7/2)/4
```

Mathematica [A] time = 0.0152654, size = 23, normalized size = 0.57

$$-\frac{1}{99}(1-2x)^{7/2}\left(135x^2+239x+119\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)*(2 + 3*x)*(3 + 5*x),x]
```

```
[Out] -((1 - 2*x)^(7/2)*(119 + 239*x + 135*x^2))/99
```

Maple [A] time = 0.005, size = 20, normalized size = 0.5

$$-\frac{135\,x^2+239\,x+119}{99}\left(1-2\,x\right)^{\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)*(3+5*x),x)
```

```
[Out] -1/99*(135*x^2+239*x+119)*(1-2*x)^(7/2)
```

Maxima [A] time = 1.46945, size = 38, normalized size = 0.95

$$-\frac{15}{44}\,(-2\,x+1)^{\frac{11}{2}}+\frac{17}{9}\,(-2\,x+1)^{\frac{9}{2}}-\frac{11}{4}\,(-2\,x+1)^{\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(3*x + 2)*(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] -15/44*(-2*x + 1)^(11/2) + 17/9*(-2*x + 1)^(9/2) - 11/4*(-2*x + 1
)^(7/2)
```

Fricas [A] time = 0.202956, size = 46, normalized size = 1.15

$$\frac{1}{99}\left(1080\,x^5+292\,x^4-1106\,x^3-129\,x^2+475\,x-119\right)\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(3*x + 2)*(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/99*(1080*x^5 + 292*x^4 - 1106*x^3 - 129*x^2 + 475*x - 119)*sqrt
(-2*x + 1)
```

Sympy [A] time = 2.25485, size = 85, normalized size = 2.12

$$\frac{120x^5\sqrt{-2x+1}}{11}+\frac{292x^4\sqrt{-2x+1}}{99}-\frac{1106x^3\sqrt{-2x+1}}{99}-\frac{43x^2\sqrt{-2x+1}}{33}+\frac{475x\sqrt{-2x+1}}{99}-\frac{119\sqrt{-2x+1}}{99}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)*(3+5*x),x)
```

```
[Out] 120*x**5*sqrt(-2*x + 1)/11 + 292*x**4*sqrt(-2*x + 1)/99 - 1106*x*
*3*sqrt(-2*x + 1)/99 - 43*x**2*sqrt(-2*x + 1)/33 + 475*x*sqrt(-2*
x + 1)/99 - 119*sqrt(-2*x + 1)/99
```

GIAC/XCAS [A] time = 0.209733, size = 66, normalized size = 1.65

$$\frac{15}{44}\,(2\,x-1)^5\sqrt{-2\,x+1}+\frac{17}{9}\,(2\,x-1)^4\sqrt{-2\,x+1}+\frac{11}{4}\,(2\,x-1)^3\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)*(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] 15/44*(2*x - 1)^5*sqrt(-2*x + 1) + 17/9*(2*x - 1)^4*sqrt(-2*x + 1
) + 11/4*(2*x - 1)^3*sqrt(-2*x + 1)
```

3.1917 $\int (1-2x)^{5/2}(3+5x)\,dx$

Optimal. Leaf size=27

$$\frac{5}{18}(1-2x)^{9/2}-\frac{11}{14}(1-2x)^{7/2}$$

```
[Out] (-11*(1 - 2*x)^(7/2))/14 + (5*(1 - 2*x)^(9/2))/18
```

Rubi [A] time = 0.0211112, antiderivative size = 27, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.067

$$\frac{5}{18}(1-2x)^{9/2}-\frac{11}{14}(1-2x)^{7/2}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)*(3 + 5*x),x]

[Out] (-11*(1 - 2*x)^(7/2))/14 + (5*(1 - 2*x)^(9/2))/18
```

Rubi in Sympy [A] time = 3.91119, size = 22, normalized size = 0.81

$$\frac{5\,(-2x+1)^{\frac{9}{2}}}{18}-\frac{11\,(-2x+1)^{\frac{7}{2}}}{14}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x),x)

[Out] 5*(-2*x + 1)**(9/2)/18 - 11*(-2*x + 1)**(7/2)/14
```

Mathematica [A] time = 0.0120454, size = 18, normalized size = 0.67

$$-\frac{1}{63}(1-2x)^{7/2}(35x+32)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)*(3 + 5*x),x]

[Out] -((1 - 2*x)^(7/2)*(32 + 35*x))/63
```

Maple [A] time = 0.003, size = 15, normalized size = 0.6

$$-\frac{35\,x+32}{63}\,(1-2\,x)^{\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x),x)

[Out] -1/63*(35*x+32)*(1-2*x)^(7/2)
```

Maxima [A] time = 1.34984, size = 26, normalized size = 0.96

$$\frac{5}{18}\,(-2\,x+1)^{\frac{9}{2}}-\frac{11}{14}\,(-2\,x+1)^{\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(-2*x + 1)^(5/2),x, algorithm="maxima")

[Out] 5/18*(-2*x + 1)^(9/2) - 11/14*(-2*x + 1)^(7/2)
```

Fricas [A] time = 0.206911, size = 39, normalized size = 1.44

$$\frac{1}{63}\,\left(280\,x^4-164\,x^3-174\,x^2+157\,x-32\right)\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(-2*x + 1)^(5/2),x, algorithm="fricas")

[Out] 1/63*(280*x^4 - 164*x^3 - 174*x^2 + 157*x - 32)*sqrt(-2*x + 1)
```

Sympy [A] time = 1.62297, size = 70, normalized size = 2.59

$$\frac{40x^4\sqrt{-2x+1}}{9}-\frac{164x^3\sqrt{-2x+1}}{63}-\frac{58x^2\sqrt{-2x+1}}{21}+\frac{157x\sqrt{-2x+1}}{63}-\frac{32\sqrt{-2x+1}}{63}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x),x)

[Out] 40*x**4*sqrt(-2*x + 1)/9 - 164*x**3*sqrt(-2*x + 1)/63 - 58*x**2*s
qrt(-2*x + 1)/21 + 157*x*sqrt(-2*x + 1)/63 - 32*sqrt(-2*x + 1)/63
```

GIAC/XCAS [A] time = 0.207716, size = 45, normalized size = 1.67

$$\frac{5}{18}\,(2\,x-1)^4\sqrt{-2\,x+1}+\frac{11}{14}\,(2\,x-1)^3\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(-2*x + 1)^(5/2),x, algorithm="giac")

[Out] 5/18*(2*x - 1)^4*sqrt(-2*x + 1) + 11/14*(2*x - 1)^3*sqrt(-2*x + 1
)
```

3.1918 $\int \frac{(1-2x)^{5/2}(3+5x)}{2+3x}\,dx$

Optimal. Leaf size=82

$$-\frac{5}{21}(1-2x)^{7/2}-\frac{2}{45}(1-2x)^{5/2}-\frac{14}{81}(1-2x)^{3/2}-\frac{98}{81}\sqrt{1-2x}+\frac{98}{81}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

```
[Out] (-98*Sqrt[1 - 2*x])/81 - (14*(1 - 2*x)^(3/2))/81 - (2*(1 - 2*x)^(
5/2))/45 - (5*(1 - 2*x)^(7/2))/21 + (98*Sqrt[7/3]*ArcTanh[Sqrt[3/
7]*Sqrt[1 - 2*x]])/81
```

Rubi [A] time = 0.0954778, antiderivative size = 82, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{5}{21}(1-2x)^{7/2}-\frac{2}{45}(1-2x)^{5/2}-\frac{14}{81}(1-2x)^{3/2}-\frac{98}{81}\sqrt{1-2x}+\frac{98}{81}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x))/(2 + 3*x),x]
```

```
[Out] (-98*Sqrt[1 - 2*x])/81 - (14*(1 - 2*x)^(3/2))/81 - (2*(1 - 2*x)^(
5/2))/45 - (5*(1 - 2*x)^(7/2))/21 + (98*Sqrt[7/3]*ArcTanh[Sqrt[3/
7]*Sqrt[1 - 2*x]])/81
```

Rubi in Sympy [A] time = 9.16496, size = 71, normalized size = 0.87

$$-\frac{5\left(-2x+1\right)^{\frac{7}{2}}}{21}-\frac{2\left(-2x+1\right)^{\frac{5}{2}}}{45}-\frac{14\left(-2x+1\right)^{\frac{3}{2}}}{81}-\frac{98\sqrt{-2x+1}}{81}+\frac{98\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{243}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)/(2+3*x),x)
```

```
[Out] -5*(-2*x + 1)**(7/2)/21 - 2*(-2*x + 1)**(5/2)/45 - 14*(-2*x + 1)*
*(3/2)/81 - 98*sqrt(-2*x + 1)/81 + 98*sqrt(21)*atanh(sqrt(21)*sqr
t(-2*x + 1)/7)/243
```

Mathematica [A] time = 0.0685167, size = 56, normalized size = 0.68

$$\frac{3\sqrt{1-2x}\left(5400x^3-8604x^2+5534x-4721\right)+3430\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{8505}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x))/(2 + 3*x),x]
```

```
[Out] (3*Sqrt[1 - 2*x]*(-4721 + 5534*x - 8604*x^2 + 5400*x^3) + 3430*Sq
rt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/8505
```

Maple [A] time = 0.008, size = 56, normalized size = 0.7

$$-\frac{14}{81}\left(1-2\,x\right)^{\frac{3}{2}}-\frac{2}{45}\left(1-2\,x\right)^{\frac{5}{2}}-\frac{5}{21}\left(1-2\,x\right)^{\frac{7}{2}}+\frac{98\,\sqrt{21}}{243}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)-\frac{98}{81}\sqrt{1-2\,x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)/(2+3*x),x)
```

```
[Out] -14/81*(1-2*x)^(3/2)-2/45*(1-2*x)^(5/2)-5/21*(1-2*x)^(7/2)+98/243
*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)-98/81*(1-2*x)^(1/2)
```

Maxima [A] time = 1.50144, size = 99, normalized size = 1.21

$$-\frac{5}{21}\,(-2\,x+1)^{\frac{7}{2}}-\frac{2}{45}\,(-2\,x+1)^{\frac{5}{2}}-\frac{14}{81}\,(-2\,x+1)^{\frac{3}{2}}-\frac{49}{243}\,\sqrt{21}\log\left(-\frac{\sqrt{21}-3\,\sqrt{-2\,x+1}}{\sqrt{21}+3\,\sqrt{-2\,x+1}}\right)-\frac{98}{81}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2),x, algorithm="maxima")
```

```
[Out] -5/21*(-2*x + 1)^(7/2) - 2/45*(-2*x + 1)^(5/2) - 14/81*(-2*x + 1)
^(3/2) - 49/243*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt
(21) + 3*sqrt(-2*x + 1))) - 98/81*sqrt(-2*x + 1)
```

Fricas [A] time = 0.217915, size = 92, normalized size = 1.12

$$\frac{1}{8505}\,\sqrt{3}\left(\sqrt{3}\left(5400\,x^{3}-8604\,x^{2}+5534\,x-4721\right)\sqrt{-2\,x+1}+1715\,\sqrt{7}\log\left(\frac{\sqrt{3}(3\,x-5)-3\,\sqrt{7}\sqrt{-2\,x+1}}{3\,x+2}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2),x, algorithm="fricas")
```

```
[Out] 1/8505*sqrt(3)*(sqrt(3)*(5400*x^3 - 8604*x^2 + 5534*x - 4721)*sqr
t(-2*x + 1) + 1715*sqrt(7)*log((sqrt(3)*(3*x - 5) - 3*sqrt(7)*sqr
t(-2*x + 1))/(3*x + 2)))
```

Sympy [A] time = 10.0818, size = 112, normalized size = 1.37

$$-\frac{5(-2x+1)^{\frac{7}{2}}}{21}-\frac{2(-2x+1)^{\frac{5}{2}}}{45}-\frac{14(-2x+1)^{\frac{3}{2}}}{81}-\frac{98\sqrt{-2x+1}}{81}-\frac{686\left(\begin{cases}-\frac{\sqrt{21}\operatorname{acoth}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for } -2x+1>\frac{7}{3}\\ -\frac{\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for } -2x+1<\frac{7}{3}\end{cases}\right)}{81}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)/(2+3*x),x)
```

```
[Out] -5*(-2*x + 1)**(7/2)/21 - 2*(-2*x + 1)**(5/2)/45 - 14*(-2*x + 1)*
*(3/2)/81 - 98*sqrt(-2*x + 1)/81 - 686*Piecewise((-sqrt(21)*acoth
(sqrt(21)*sqrt(-2*x + 1)/7)/21, -2*x + 1 > 7/3), (-sqrt(21)*atanh
(sqrt(21)*sqrt(-2*x + 1)/7)/21, -2*x + 1 < 7/3))/81
```

GIAC/XCAS [A] time = 0.210562, size = 122, normalized size = 1.49

$$\frac{5}{21}\,(2\,x-1)^{3}\sqrt{-2\,x+1}-\frac{2}{45}\,(2\,x-1)^{2}\sqrt{-2\,x+1}-\frac{14}{81}\,(-2\,x+1)^{\frac{3}{2}}-\frac{49}{243}\,\sqrt{21}\ln\left(\frac{\left|-2\,\sqrt{21}+6\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{21}+3\,\sqrt{-2\,x+1}\right)}\right)-\frac{98}{81}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2),x, algorithm="giac")
```

```
[Out] 5/21*(2*x - 1)^3*sqrt(-2*x + 1) - 2/45*(2*x - 1)^2*sqrt(-2*x + 1)
 - 14/81*(-2*x + 1)^(3/2) - 49/243*sqrt(21)*ln(1/2*abs(-2*sqrt(21
) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 98/81*sqrt
(-2*x + 1)
```

3.1919 $\int \frac{(1-2x)^{5/2}(3+5x)}{(2+3x)^2}\,dx$

Optimal. Leaf size=89

$$\frac{(1-2x)^{7/2}}{21(3x+2)}+\frac{16}{63}(1-2x)^{5/2}+\frac{80}{81}(1-2x)^{3/2}+\frac{560}{81}\sqrt{1-2x}-\frac{560}{81}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

```
[Out] (560*Sqrt[1 - 2*x])/81 + (80*(1 - 2*x)^(3/2))/81 + (16*(1 - 2*x)^
(5/2))/63 + (1 - 2*x)^(7/2)/(21*(2 + 3*x)) - (560*Sqrt[7/3]*ArcTa
nh[Sqrt[3/7]*Sqrt[1 - 2*x]])/81
```

Rubi [A] time = 0.099307, antiderivative size = 89, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$\frac{(1-2x)^{7/2}}{21(3x+2)}+\frac{16}{63}(1-2x)^{5/2}+\frac{80}{81}(1-2x)^{3/2}+\frac{560}{81}\sqrt{1-2x}-\frac{560}{81}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x))/(2 + 3*x)^2,x]
```

```
[Out] (560*Sqrt[1 - 2*x])/81 + (80*(1 - 2*x)^(3/2))/81 + (16*(1 - 2*x)^
(5/2))/63 + (1 - 2*x)^(7/2)/(21*(2 + 3*x)) - (560*Sqrt[7/3]*ArcTa
nh[Sqrt[3/7]*Sqrt[1 - 2*x]])/81
```

Rubi in Sympy [A] time = 9.62198, size = 73, normalized size = 0.82

$$\frac{(-2x+1)^{\frac{7}{2}}}{21(3x+2)}+\frac{16(-2x+1)^{\frac{5}{2}}}{63}+\frac{80(-2x+1)^{\frac{3}{2}}}{81}+\frac{560\sqrt{-2x+1}}{81}-\frac{560\sqrt{21}\,\text{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{243}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)/(2+3*x)**2,x)
```

```
[Out] (-2*x + 1)**(7/2)/(21*(3*x + 2)) + 16*(-2*x + 1)**(5/2)/63 + 80*(
-2*x + 1)**(3/2)/81 + 560*sqrt(-2*x + 1)/81 - 560*sqrt(21)*atanh(
sqrt(21)*sqrt(-2*x + 1)/7)/243
```

Mathematica [A] time = 0.088985, size = 63, normalized size = 0.71

$$\frac{1}{243}\left(\frac{3\sqrt{1-2x}\left(216x^3-516x^2+1474x+1325\right)}{3x+2}-560\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x))/(2 + 3*x)^2,x]
```

```
[Out] ((3*Sqrt[1 - 2*x]*(1325 + 1474*x - 516*x^2 + 216*x^3))/(2 + 3*x)
- 560*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/243
```

Maple [A] time = 0.016, size = 63, normalized size = 0.7

$$\frac{2}{9}(1-2x)^{\frac{5}{2}}+\frac{74}{81}(1-2x)^{\frac{3}{2}}+\frac{182}{27}\sqrt{1-2x}-\frac{98}{243}\sqrt{1-2x}\left(-\frac{4}{3}-2x\right)^{-1}-\frac{560\sqrt{21}}{243}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)/(2+3*x)^2,x)
```

```
[Out] 2/9*(1-2*x)^(5/2)+74/81*(1-2*x)^(3/2)+182/27*(1-2*x)^(1/2)-98/243
*(1-2*x)^(1/2)/(-4/3-2*x)-560/243*arctanh(1/7*21^(1/2)*(1-2*x)^(1
/2))*21^(1/2)
```

Maxima [A] time = 1.50181, size = 108, normalized size = 1.21

$$\frac{2}{9}\,(-2\,x+1)^{\frac{5}{2}}+\frac{74}{81}\,(-2\,x+1)^{\frac{3}{2}}+\frac{280}{243}\,\sqrt{21}\log\left(-\frac{\sqrt{21}-3\,\sqrt{-2\,x+1}}{\sqrt{21}+3\,\sqrt{-2\,x+1}}\right)+\frac{182}{27}\,\sqrt{-2\,x+1}+\frac{49\,\sqrt{-2\,x+1}}{81\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^2,x, algorithm="maxima")
```

```
[Out] 2/9*(-2*x + 1)^(5/2) + 74/81*(-2*x + 1)^(3/2) + 280/243*sqrt(21)*
log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1)))
 + 182/27*sqrt(-2*x + 1) + 49/81*sqrt(-2*x + 1)/(3*x + 2)
```

Fricas [A] time = 0.21846, size = 108, normalized size = 1.21

$$\frac{\sqrt{3}\left(280\,\sqrt{7}(3\,x+2)\log\left(\frac{\sqrt{3}(3\,x-5)+3\,\sqrt{7}\sqrt{-2\,x+1}}{3\,x+2}\right)+\sqrt{3}\left(216\,x^{3}-516\,x^{2}+1474\,x+1325\right)\sqrt{-2\,x+1}\right)}{243\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^2,x, algorithm="fricas")
```

```
[Out] 1/243*sqrt(3)*(280*sqrt(7)*(3*x + 2)*log((sqrt(3)*(3*x - 5) + 3*s
qrt(7)*sqrt(-2*x + 1))/(3*x + 2)) + sqrt(3)*(216*x^3 - 516*x^2 +
1474*x + 1325)*sqrt(-2*x + 1))/(3*x + 2)
```

Sympy [A] time = 153.727, size = 199, normalized size = 2.24

$$\frac{2\,(-2x+1)^{\frac{5}{2}}}{9}+\frac{74\,(-2x+1)^{\frac{3}{2}}}{81}+\frac{182\sqrt{-2x+1}}{27}+\frac{1372\left(\begin{cases}\frac{\sqrt{21}\left(-\frac{\log\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)}{4}+\frac{\log\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)}{4}-\frac{1}{4\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)}-\frac{1}{4\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)}\right)}{147} & \text{for}\ x\le\frac{1}{2}\wedge x>-\frac{2}{3}\end{cases}\right)}{81}+\frac{4018\left(\begin{cases}-\frac{\sqrt{21}\operatorname{acoth}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for}\ -2x+1>\frac{7}{3}\\ -\frac{\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for}\ -2x+1<\frac{7}{3}\end{cases}\right)}{81}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)/(2+3*x)**2,x)
```

```
[Out] 2*(-2*x + 1)**(5/2)/9 + 74*(-2*x + 1)**(3/2)/81 + 182*sqrt(-2*x +
 1)/27 + 1372*Piecewise((sqrt(21)*(-log(sqrt(21)*sqrt(-2*x + 1)/7
 - 1)/4 + log(sqrt(21)*sqrt(-2*x + 1)/7 + 1)/4 - 1/(4*(sqrt(21)*s
qrt(-2*x + 1)/7 + 1)) - 1/(4*(sqrt(21)*sqrt(-2*x + 1)/7 - 1)))/14
7, (x <= 1/2) & (x > -2/3)))/81 + 4018*Piecewise((-sqrt(21)*acoth
```

```
(sqrt(21)*sqrt(-2*x + 1)/7)/21, -2*x + 1 > 7/3), (-sqrt(21)*atanh
(sqrt(21)*sqrt(-2*x + 1)/7)/21, -2*x + 1 < 7/3))/81
```

GIAC/XCAS [A] time = 0.219286, size = 122, normalized size = 1.37

$$\frac{2}{9}(2x-1)^2\sqrt{-2x+1}+\frac{74}{81}(-2x+1)^{\frac{3}{2}}+\frac{280}{243}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{182}{27}\sqrt{-2x+1}+\frac{49\sqrt{-2x+1}}{81(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^2,x, algorithm="giac")
```

```
[Out] 2/9*(2*x - 1)^2*sqrt(-2*x + 1) + 74/81*(-2*x + 1)^(3/2) + 280/243
*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqrt(21) +
3*sqrt(-2*x + 1))) + 182/27*sqrt(-2*x + 1) + 49/81*sqrt(-2*x + 1)
/(3*x + 2)
```

3.1920 $\int \frac{(1-2x)^{5/2}(3+5x)}{(2+3x)^3} dx$

Optimal. Leaf size=96

$$\frac{(1-2x)^{7/2}}{42(3x+2)^2}-\frac{73(1-2x)^{5/2}}{126(3x+2)}-\frac{365}{567}(1-2x)^{3/2}-\frac{365}{81}\sqrt{1-2x}+\frac{365}{81}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

```
[Out] (-365*Sqrt[1 - 2*x])/81 - (365*(1 - 2*x)^(3/2))/567 + (1 - 2*x)^(
7/2)/(42*(2 + 3*x)^2) - (73*(1 - 2*x)^(5/2))/(126*(2 + 3*x)) + (3
65*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/81
```

Rubi [A] time = 0.10505, antiderivative size = 96, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$\frac{(1-2x)^{7/2}}{42(3x+2)^2}-\frac{73(1-2x)^{5/2}}{126(3x+2)}-\frac{365}{567}(1-2x)^{3/2}-\frac{365}{81}\sqrt{1-2x}+\frac{365}{81}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x))/(2 + 3*x)^3,x]
```

```
[Out] (-365*Sqrt[1 - 2*x])/81 - (365*(1 - 2*x)^(3/2))/567 + (1 - 2*x)^(
7/2)/(42*(2 + 3*x)^2) - (73*(1 - 2*x)^(5/2))/(126*(2 + 3*x)) + (3
65*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/81
```

Rubi in Sympy [A] time = 10.4319, size = 80, normalized size = 0.83

$$\frac{(-2x+1)^{\frac{7}{2}}}{42(3x+2)^2}-\frac{73(-2x+1)^{\frac{5}{2}}}{126(3x+2)}-\frac{365(-2x+1)^{\frac{3}{2}}}{567}-\frac{365\sqrt{-2x+1}}{81}+\frac{365\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{243}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)/(2+3*x)**3,x)
```

```
[Out] (-2*x + 1)**(7/2)/(42*(3*x + 2)**2) - 73*(-2*x + 1)**(5/2)/(126*(
3*x + 2)) - 365*(-2*x + 1)**(3/2)/567 - 365*sqrt(-2*x + 1)/81 + 3
65*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/243
```

Mathematica [A] time = 0.104901, size = 63, normalized size = 0.66

$$\frac{1}{486}\left(\frac{3\sqrt{1-2x}\left(720x^3-4584x^2-8731x-3521\right)}{(3x+2)^2}+730\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x))/(2 + 3*x)^3,x]
```

```
[Out] ((3*Sqrt[1 - 2*x]*(-3521 - 8731*x - 4584*x^2 + 720*x^3))/(2 + 3*x
)^2 + 730*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/486
```

Maple [A] time = 0.016, size = 66, normalized size = 0.7

$$-\frac{20}{81}(1-2x)^{\frac{3}{2}}-\frac{32}{9}\sqrt{1-2x}-\frac{28}{3(-4-6x)^2}\left(-\frac{79}{36}(1-2x)^{\frac{3}{2}}+\frac{539}{108}\sqrt{1-2x}\right)+\frac{365\sqrt{21}}{243}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)/(2+3*x)^3,x)
```

```
[Out] -20/81*(1-2*x)^(3/2)-32/9*(1-2*x)^(1/2)-28/3*(-79/36*(1-2*x)^(3/2
)+539/108*(1-2*x)^(1/2))/(-4-6*x)^2+365/243*arctanh(1/7*21^(1/2)*
(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.50192, size = 124, normalized size = 1.29

$$-\frac{20}{81}(-2x+1)^{\frac{3}{2}}-\frac{365}{486}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{32}{9}\sqrt{-2x+1}+\frac{7\left(237(-2x+1)^{\frac{3}{2}}-539\sqrt{-2x+1}\right)}{81\left(9(2x-1)^2+84x+7\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^3,x, algorithm="maxima")
```

```
[Out] -20/81*(-2*x + 1)^(3/2) - 365/486*sqrt(21)*log(-(sqrt(21) - 3*sqr
t(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 32/9*sqrt(-2*x + 1)
 + 7/81*(237*(-2*x + 1)^(3/2) - 539*sqrt(-2*x + 1))/(9*(2*x - 1)^
2 + 84*x + 7)
```

Fricas [A] time = 0.213401, size = 122, normalized size = 1.27

$$\frac{\sqrt{3}\left(365\sqrt{7}\left(9x^2+12x+4\right)\log\left(\frac{\sqrt{3}(3x-5)-3\sqrt{7}\sqrt{-2x+1}}{3x+2}\right)+\sqrt{3}\left(720x^3-4584x^2-8731x-3521\right)\sqrt{-2x+1}\right)}{486\left(9x^2+12x+4\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^3,x, algorithm="fricas")
```

```
[Out] 1/486*sqrt(3)*(365*sqrt(7)*(9*x^2 + 12*x + 4)*log((sqrt(3)*(3*x -
 5) - 3*sqrt(7)*sqrt(-2*x + 1))/(3*x + 2)) + sqrt(3)*(720*x^3 - 4
584*x^2 - 8731*x - 3521)*sqrt(-2*x + 1))/(9*x^2 + 12*x + 4)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)/(2+3*x)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.212099, size = 116, normalized size = 1.21

$$-\frac{20}{81}\,(-2\,x+1)^{\frac{3}{2}}-\frac{365}{486}\,\sqrt{21}\ln\left(\frac{\left|-2\,\sqrt{21}+6\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{21}+3\,\sqrt{-2\,x+1}\right)}\right)-\frac{32}{9}\,\sqrt{-2\,x+1}+\frac{7\left(237\,(-2\,x+1)^{\frac{3}{2}}-539\,\sqrt{-2\,x+1}\right)}{324\,(3\,x+2)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^3,x, algorithm="giac")
```

```
[Out] -20/81*(-2*x + 1)^(3/2) - 365/486*sqrt(21)*ln(1/2*abs(-2*sqrt(21)
 + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 32/9*sqrt(-
2*x + 1) + 7/324*(237*(-2*x + 1)^(3/2) - 539*sqrt(-2*x + 1))/(3*x
 + 2)^2
```

3.1921 $\int \frac{(1-2x)^{5/2}(3+5x)}{(2+3x)^4} \, dx$

Optimal. Leaf size=101

$$\frac{(1-2x)^{7/2}}{63(3x+2)^3}-\frac{53(1-2x)^{5/2}}{189(3x+2)^2}+\frac{265(1-2x)^{3/2}}{567(3x+2)}+\frac{530}{567}\sqrt{1-2x}-\frac{530\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{81\sqrt{21}}$$

```
[Out] (530*Sqrt[1 - 2*x])/567 + (1 - 2*x)^(7/2)/(63*(2 + 3*x)^3) - (53*
(1 - 2*x)^(5/2))/(189*(2 + 3*x)^2) + (265*(1 - 2*x)^(3/2))/(567*(
2 + 3*x)) - (530*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(81*Sqrt[21])
```

Rubi [A] time = 0.103009, antiderivative size = 101, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.227$

$$\frac{(1-2x)^{7/2}}{63(3x+2)^3}-\frac{53(1-2x)^{5/2}}{189(3x+2)^2}+\frac{265(1-2x)^{3/2}}{567(3x+2)}+\frac{530}{567}\sqrt{1-2x}-\frac{530\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{81\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)^(5/2)*(3 + 5*x))/(2 + 3*x)^4,x]
```

```
[Out] (530*Sqrt[1 - 2*x])/567 + (1 - 2*x)^(7/2)/(63*(2 + 3*x)^3) - (53*
(1 - 2*x)^(5/2))/(189*(2 + 3*x)^2) + (265*(1 - 2*x)^(3/2))/(567*(
2 + 3*x)) - (530*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(81*Sqrt[21])
```

Rubi in Sympy [A] time = 10.8474, size = 87, normalized size = 0.86

$$\frac{(-2x+1)^{\frac{7}{2}}}{63(3x+2)^3}-\frac{53(-2x+1)^{\frac{5}{2}}}{189(3x+2)^2}+\frac{265(-2x+1)^{\frac{3}{2}}}{567(3x+2)}+\frac{530\sqrt{-2x+1}}{567}-\frac{530\sqrt{21}\,\mathrm{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{1701}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**(5/2)*(3+5*x)/(2+3*x)**4,x)
```

```
[Out] (-2*x + 1)**(7/2)/(63*(3*x + 2)**3) - 53*(-2*x + 1)**(5/2)/(189*(
3*x + 2)**2) + 265*(-2*x + 1)**(3/2)/(567*(3*x + 2)) + 530*sqrt(-
2*x + 1)/567 - 530*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/1701
```

Mathematica [A] time = 0.109669, size = 63, normalized size = 0.62

$$\frac{\sqrt{1-2x}\left(1080x^3+3627x^2+2983x+713\right)}{81(3x+2)^3}-\frac{530\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{81\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)^(5/2)*(3 + 5*x))/(2 + 3*x)^4,x]
```

```
[Out] (Sqrt[1 - 2*x]*(713 + 2983*x + 3627*x^2 + 1080*x^3))/(81*(2 + 3*x
)^3) - (530*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(81*Sqrt[21])
```

Maple [A] time = 0.017, size = 66, normalized size = 0.7

$$\frac{40}{81}\sqrt{1-2x}+\frac{8}{3\left(-4-6x\right)^{3}}\left(-\frac{163}{12}\left(1-2x\right)^{\frac{5}{2}}+\frac{1505}{27}\left(1-2x\right)^{\frac{3}{2}}-\frac{6125}{108}\sqrt{1-2x}\right)-\frac{530\sqrt{21}}{1701}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)/(2+3*x)^4,x)
```

```
[Out] 40/81*(1-2*x)^(1/2)+8/3*(-163/12*(1-2*x)^(5/2)+1505/27*(1-2*x)^(3
/2)-6125/108*(1-2*x)^(1/2))/(-4-6*x)^3-530/1701*arctanh(1/7*21^(1
/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.51163, size = 136, normalized size = 1.35

$$\frac{265}{1701}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{40}{81}\sqrt{-2x+1}+\frac{2\left(1467\left(-2x+1\right)^{\frac{5}{2}}-6020\left(-2x+1\right)^{\frac{3}{2}}+6125\sqrt{-2x+1}\right)}{81\left(27\left(2x-1\right)^{3}+189\left(2x-1\right)^{2}+882x-98\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^4,x, algorithm="maxima")
```

```
[Out] 265/1701*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21) +
3*sqrt(-2*x + 1))) + 40/81*sqrt(-2*x + 1) + 2/81*(1467*(-2*x + 1)
^(5/2) - 6020*(-2*x + 1)^(3/2) + 6125*sqrt(-2*x + 1))/(27*(2*x -
1)^3 + 189*(2*x - 1)^2 + 882*x - 98)
```

Fricas [A] time = 0.212904, size = 127, normalized size = 1.26

$$\frac{\sqrt{21}\left(\sqrt{21}\left(1080\,x^{3}+3627\,x^{2}+2983\,x+713\right)\sqrt{-2x+1}+265\left(27\,x^{3}+54\,x^{2}+36\,x+8\right)\log\left(\frac{\sqrt{21}(3x-5)+21\sqrt{-2x+1}}{3x+2}\right)\right)}{1701\left(27\,x^{3}+54\,x^{2}+36\,x+8\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^4,x, algorithm="fricas")
```

```
[Out] 1/1701*sqrt(21)*(sqrt(21)*(1080*x^3 + 3627*x^2 + 2983*x + 713)*sq
rt(-2*x + 1) + 265*(27*x^3 + 54*x^2 + 36*x + 8)*log((sqrt(21)*(3*
x - 5) + 21*sqrt(-2*x + 1))/(3*x + 2)))/(27*x^3 + 54*x^2 + 36*x +
 8)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)/(2+3*x)**4,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.214154, size = 126, normalized size = 1.25

$$\frac{265}{1701}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{40}{81}\sqrt{-2x+1}+\frac{1467\,(2x-1)^2\sqrt{-2x+1}-6020\,(-2x+1)^{\frac{3}{2}}+6125\sqrt{-2x+1}}{324\,(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^4,x, algorithm="giac")
```

```
[Out] 265/1701*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqr
t(21) + 3*sqrt(-2*x + 1))) + 40/81*sqrt(-2*x + 1) + 1/324*(1467*(
2*x - 1)^2*sqrt(-2*x + 1) - 6020*(-2*x + 1)^(3/2) + 6125*sqrt(-2*
x + 1))/(3*x + 2)^3
```

3.1922 $\int \frac{(1-2x)^{5/2}(3+5x)}{(2+3x)^5}\,dx$

Optimal. Leaf size=108

$$\frac{(1-2x)^{7/2}}{84(3x+2)^4}-\frac{139(1-2x)^{5/2}}{756(3x+2)^3}+\frac{695(1-2x)^{3/2}}{4536(3x+2)^2}-\frac{695\sqrt{1-2x}}{4536(3x+2)}+\frac{695\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{2268\sqrt{21}}$$

```
[Out] (1 - 2*x)^(7/2)/(84*(2 + 3*x)^4) - (139*(1 - 2*x)^(5/2))/(756*(2
+ 3*x)^3) + (695*(1 - 2*x)^(3/2))/(4536*(2 + 3*x)^2) - (695*Sqrt[
1 - 2*x])/(4536*(2 + 3*x)) + (695*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]
])/(2268*Sqrt[21])
```

Rubi [A] time = 0.109508, antiderivative size = 108, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$\frac{(1-2x)^{7/2}}{84(3x+2)^4}-\frac{139(1-2x)^{5/2}}{756(3x+2)^3}+\frac{695(1-2x)^{3/2}}{4536(3x+2)^2}-\frac{695\sqrt{1-2x}}{4536(3x+2)}+\frac{695\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{2268\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x))/(2 + 3*x)^5,x]
```

```
[Out] (1 - 2*x)^(7/2)/(84*(2 + 3*x)^4) - (139*(1 - 2*x)^(5/2))/(756*(2
+ 3*x)^3) + (695*(1 - 2*x)^(3/2))/(4536*(2 + 3*x)^2) - (695*Sqrt[
1 - 2*x])/(4536*(2 + 3*x)) + (695*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]
])/(2268*Sqrt[21])
```

Rubi in Sympy [A] time = 11.4768, size = 94, normalized size = 0.87

$$\frac{(-2x+1)^{\frac{7}{2}}}{84\,(3x+2)^4}-\frac{139\,(-2x+1)^{\frac{5}{2}}}{756\,(3x+2)^3}+\frac{695\,(-2x+1)^{\frac{3}{2}}}{4536\,(3x+2)^2}-\frac{695\sqrt{-2x+1}}{4536\,(3x+2)}+\frac{695\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{47628}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)/(2+3*x)**5,x)
```

```
[Out] (-2*x + 1)**(7/2)/(84*(3*x + 2)**4) - 139*(-2*x + 1)**(5/2)/(756*
(3*x + 2)**3) + 695*(-2*x + 1)**(3/2)/(4536*(3*x + 2)**2) - 695*s
qrt(-2*x + 1)/(4536*(3*x + 2)) + 695*sqrt(21)*atanh(sqrt(21)*sqrt
(-2*x + 1)/7)/47628
```

Mathematica [A] time = 0.113138, size = 63, normalized size = 0.58

$$\frac{1390\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{21\sqrt{1-2x}\left(41715x^3+43971x^2+18394x+4394\right)}{(3x+2)^4}}{95256}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x))/(2 + 3*x)^5,x]
```

```
[Out] ((-21*Sqrt[1 - 2*x]*(4394 + 18394*x + 43971*x^2 + 41715*x^3))/(2
+ 3*x)^4 + 1390*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/95256
```

Maple [A] time = 0.017, size = 66, normalized size = 0.6

$$-1296 \frac{1}{(-4-6x)^4} \left(-\frac{515 (1-2x)^{7/2}}{36288} + \frac{10147 (1-2x)^{5/2}}{139968} - \frac{53515 (1-2x)^{3/2}}{419904} + \frac{34055 \sqrt{1-2x}}{419904} \right) + \frac{695 \sqrt{21}}{47628} \mathit{Artanh}\left(\frac{\sqrt{21}}{7} \sqrt{1-2x} \right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)/(2+3*x)^5,x)
```

```
[Out] -1296*(-515/36288*(1-2*x)^(7/2)+10147/139968*(1-2*x)^(5/2)-53515/
419904*(1-2*x)^(3/2)+34055/419904*(1-2*x)^(1/2))/(-4-6*x)^4+695/4
7628*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.56576, size = 149, normalized size = 1.38

$$-\frac{695}{95256} \sqrt{21} \log \left(-\frac{\sqrt{21} - 3\sqrt{-2x+1}}{\sqrt{21} + 3\sqrt{-2x+1}} \right) + \frac{41715 (-2x+1)^{\frac{7}{2}} - 213087 (-2x+1)^{\frac{5}{2}} + 374605 (-2x+1)^{\frac{3}{2}} - 238385 \sqrt{-2x+1}}{2268 \left(81 (2x-1)^4 + 756 (2x-1)^3 + 2646 (2x-1)^2 + 8232x - 1715 \right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^5,x, algorithm="maxima")
```

```
[Out] -695/95256*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21)
+ 3*sqrt(-2*x + 1))) + 1/2268*(41715*(-2*x + 1)^(7/2) - 213087*(-
2*x + 1)^(5/2) + 374605*(-2*x + 1)^(3/2) - 238385*sqrt(-2*x + 1))
/(81*(2*x - 1)^4 + 756*(2*x - 1)^3 + 2646*(2*x - 1)^2 + 8232*x -
1715)
```

Fricas [A] time = 0.21496, size = 140, normalized size = 1.3

$$-\frac{\sqrt{21} \left(\sqrt{21} \left(41715x^3 + 43971x^2 + 18394x + 4394 \right) \sqrt{-2x+1} - 695 \left(81x^4 + 216x^3 + 216x^2 + 96x + 16 \right) \log \left(\frac{\sqrt{21}(3x-5) - 21}{3x+2} \right.\right.}{95256 \left(81x^4 + 216x^3 + 216x^2 + 96x + 16 \right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^5,x, algorithm="fricas")
```

```
[Out] -1/95256*sqrt(21)*(sqrt(21)*(41715*x^3 + 43971*x^2 + 18394*x + 43
94)*sqrt(-2*x + 1) - 695*(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16)
*log((sqrt(21)*(3*x - 5) - 21*sqrt(-2*x + 1))/(3*x + 2)))/(81*x^4
 + 216*x^3 + 216*x^2 + 96*x + 16)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)/(2+3*x)**5,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.21351, size = 135, normalized size = 1.25

$$-\frac{695}{95256}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{41715\,(2x-1)^{3}\sqrt{-2x+1}+213087\,(2x-1)^{2}\sqrt{-2x+1}-374605\,(-2x+1)^{\frac{3}{2}}+238385\sqrt{-2x+1}}{36288\,(3x+2)^{4}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^5,x, algorithm="giac")
```

```
[Out] -695/95256*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(s
qrt(21) + 3*sqrt(-2*x + 1))) - 1/36288*(41715*(2*x - 1)^3*sqrt(-2
*x + 1) + 213087*(2*x - 1)^2*sqrt(-2*x + 1) - 374605*(-2*x + 1)^(
3/2) + 238385*sqrt(-2*x + 1))/(3*x + 2)^4
```

3.1923 $\int \frac{(1-2x)^{5/2}(3+5x)}{(2+3x)^6} dx$

Optimal. Leaf size=128

$$\frac{(1-2x)^{7/2}}{105(3x+2)^5}-\frac{43(1-2x)^{5/2}}{315(3x+2)^4}+\frac{43(1-2x)^{3/2}}{567(3x+2)^3}+\frac{43\sqrt{1-2x}}{7938(3x+2)}-\frac{43\sqrt{1-2x}}{1134(3x+2)^2}+\frac{43\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{3969\sqrt{21}}$$

```
[Out] (1 - 2*x)^(7/2)/(105*(2 + 3*x)^5) - (43*(1 - 2*x)^(5/2))/(315*(2
+ 3*x)^4) + (43*(1 - 2*x)^(3/2))/(567*(2 + 3*x)^3) - (43*Sqrt[1 -
 2*x])/(1134*(2 + 3*x)^2) + (43*Sqrt[1 - 2*x])/(7938*(2 + 3*x)) +
 (43*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(3969*Sqrt[21])
```

Rubi [A] time = 0.13383, antiderivative size = 128, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$\frac{(1-2x)^{7/2}}{105(3x+2)^5}-\frac{43(1-2x)^{5/2}}{315(3x+2)^4}+\frac{43(1-2x)^{3/2}}{567(3x+2)^3}+\frac{43\sqrt{1-2x}}{7938(3x+2)}-\frac{43\sqrt{1-2x}}{1134(3x+2)^2}+\frac{43\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{3969\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x))/(2 + 3*x)^6,x]
```

```
[Out] (1 - 2*x)^(7/2)/(105*(2 + 3*x)^5) - (43*(1 - 2*x)^(5/2))/(315*(2
+ 3*x)^4) + (43*(1 - 2*x)^(3/2))/(567*(2 + 3*x)^3) - (43*Sqrt[1 -
 2*x])/(1134*(2 + 3*x)^2) + (43*Sqrt[1 - 2*x])/(7938*(2 + 3*x)) +
 (43*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(3969*Sqrt[21])
```

Rubi in Sympy [A] time = 13.4362, size = 112, normalized size = 0.88

$$\frac{(-2x+1)^{\frac{7}{2}}}{105\,(3x+2)^5}-\frac{43\,(-2x+1)^{\frac{5}{2}}}{315\,(3x+2)^4}+\frac{43\,(-2x+1)^{\frac{3}{2}}}{567\,(3x+2)^3}+\frac{43\sqrt{-2x+1}}{7938\,(3x+2)}-\frac{43\sqrt{-2x+1}}{1134\,(3x+2)^2}+\frac{43\sqrt{21}\,\mathrm{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{83349}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)/(2+3*x)**6,x)
```

```
[Out] (-2*x + 1)**(7/2)/(105*(3*x + 2)**5) - 43*(-2*x + 1)**(5/2)/(315*
(3*x + 2)**4) + 43*(-2*x + 1)**(3/2)/(567*(3*x + 2)**3) + 43*sqrt
(-2*x + 1)/(7938*(3*x + 2)) - 43*sqrt(-2*x + 1)/(1134*(3*x + 2)**
2) + 43*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/83349
```

Mathematica [A] time = 0.117651, size = 68, normalized size = 0.53

$$\frac{\frac{21\sqrt{1-2x}(17415x^4-116415x^3-53772x^2+3322x-7018)}{(3x+2)^5}+430\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{833490}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x))/(2 + 3*x)^6,x]
```

```
[Out] ((21*Sqrt[1 - 2*x]*(-7018 + 3322*x - 53772*x^2 - 116415*x^3 + 174
15*x^4))/(2 + 3*x)^5 + 430*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*
```

```
x]])/833490
```

Maple [A] time = 0.017, size = 75, normalized size = 0.6

$$7776 \frac{1}{(-4-6x)^5}\left(-\frac{43 (1-2x)^{9/2}}{381024}-\frac{37 (1-2x)^{7/2}}{34992}+\frac{172 (1-2x)^{5/2}}{32805}-\frac{2107 (1-2x)^{3/2}}{314928}+\frac{2107 \sqrt{1-2x}}{629856}\right)+\frac{43\sqrt{21}}{83349} Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)/(2+3*x)^6,x)
```

```
[Out] 7776*(-43/381024*(1-2*x)^(9/2)-37/34992*(1-2*x)^(7/2)+172/32805*(
1-2*x)^(5/2)-2107/314928*(1-2*x)^(3/2)+2107/629856*(1-2*x)^(1/2))
/(-4-6*x)^5+43/83349*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.53027, size = 173, normalized size = 1.35

$$-\frac{43}{166698}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{17415(-2x+1)^{\frac{9}{2}}+163170(-2x+1)^{\frac{7}{2}}-809088(-2x+1)^{\frac{5}{2}}+1032430(-2x+1)^{\frac{3}{2}}-516215\sqrt{-2x+1}}{19845\left(243(2x-1)^5+2835(2x-1)^4+13230(2x-1)^3+30870(2x-1)^2+72030x-19208\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^6,x, algorithm="maxima")
```

```
[Out] -43/166698*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21)
+ 3*sqrt(-2*x + 1))) + 1/19845*(17415*(-2*x + 1)^(9/2) + 163170*(
-2*x + 1)^(7/2) - 809088*(-2*x + 1)^(5/2) + 1032430*(-2*x + 1)^(3
/2) - 516215*sqrt(-2*x + 1))/(243*(2*x - 1)^5 + 2835*(2*x - 1)^4
+ 13230*(2*x - 1)^3 + 30870*(2*x - 1)^2 + 72030*x - 19208)
```

Fricas [A] time = 0.21532, size = 161, normalized size = 1.26

$$\frac{\sqrt{21}\Big(\sqrt{21}\left(17415x^4-116415x^3-53772x^2+3322x-7018\right)\sqrt{-2x+1}+215\left(243x^5+810x^4+1080x^3+720x^2+240x+\right.}{833490\left(243x^5+810x^4+1080x^3+720x^2+240x+32\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^6,x, algorithm="fricas")
```

```
[Out] 1/833490*sqrt(21)*(sqrt(21)*(17415*x^4 - 116415*x^3 - 53772*x^2 +
 3322*x - 7018)*sqrt(-2*x + 1) + 215*(243*x^5 + 810*x^4 + 1080*x^
3 + 720*x^2 + 240*x + 32)*log((sqrt(21)*(3*x - 5) - 21*sqrt(-2*x
+ 1))/(3*x + 2)))/(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x
 + 32)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)/(2+3*x)**6,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.214494, size = 157, normalized size = 1.23

$$-\frac{43}{166698}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{17415\,(2x-1)^4\sqrt{-2x+1}-163170\,(2x-1)^3\sqrt{-2x+1}-809088\,(2x-1)^2\sqrt{-2x+1}+1032430\,(-2x+1)^{\frac{3}{2}}-516215\sqrt{-}}{635040\,(3x+2)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^6,x, algorithm="giac")
```

```
[Out] -43/166698*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(s
qrt(21) + 3*sqrt(-2*x + 1))) + 1/635040*(17415*(2*x - 1)^4*sqrt(-
2*x + 1) - 163170*(2*x - 1)^3*sqrt(-2*x + 1) - 809088*(2*x - 1)^2
*sqrt(-2*x + 1) + 1032430*(-2*x + 1)^(3/2) - 516215*sqrt(-2*x + 1
))/(3*x + 2)^5
```

3.1924 $\int \frac{(1-2x)^{5/2}(3+5x)}{(2+3x)^7}\,dx$

Optimal. Leaf size=148

$$\frac{(1-2x)^{7/2}}{126(3x+2)^6}-\frac{41(1-2x)^{5/2}}{378(3x+2)^5}+\frac{205(1-2x)^{3/2}}{4536(3x+2)^4}+\frac{205\sqrt{1-2x}}{444528(3x+2)}+\frac{205\sqrt{1-2x}}{190512(3x+2)^2}-\frac{205\sqrt{1-2x}}{13608(3x+2)^3}+\frac{205\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{222264\sqrt{21}}$$

```
[Out] (1 - 2*x)^(7/2)/(126*(2 + 3*x)^6) - (41*(1 - 2*x)^(5/2))/(378*(2
+ 3*x)^5) + (205*(1 - 2*x)^(3/2))/(4536*(2 + 3*x)^4) - (205*Sqrt[
1 - 2*x])/(13608*(2 + 3*x)^3) + (205*Sqrt[1 - 2*x])/(190512*(2 +
3*x)^2) + (205*Sqrt[1 - 2*x])/(444528*(2 + 3*x)) + (205*ArcTanh[S
qrt[3/7]*Sqrt[1 - 2*x]])/(222264*Sqrt[21])
```

Rubi [A] time = 0.158577, antiderivative size = 148, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.227$

$$\frac{(1-2x)^{7/2}}{126(3x+2)^6}-\frac{41(1-2x)^{5/2}}{378(3x+2)^5}+\frac{205(1-2x)^{3/2}}{4536(3x+2)^4}+\frac{205\sqrt{1-2x}}{444528(3x+2)}+\frac{205\sqrt{1-2x}}{190512(3x+2)^2}-\frac{205\sqrt{1-2x}}{13608(3x+2)^3}+\frac{205\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{222264\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x))/(2 + 3*x)^7,x]
```

```
[Out] (1 - 2*x)^(7/2)/(126*(2 + 3*x)^6) - (41*(1 - 2*x)^(5/2))/(378*(2
+ 3*x)^5) + (205*(1 - 2*x)^(3/2))/(4536*(2 + 3*x)^4) - (205*Sqrt[
1 - 2*x])/(13608*(2 + 3*x)^3) + (205*Sqrt[1 - 2*x])/(190512*(2 +
3*x)^2) + (205*Sqrt[1 - 2*x])/(444528*(2 + 3*x)) + (205*ArcTanh[S
qrt[3/7]*Sqrt[1 - 2*x]])/(222264*Sqrt[21])
```

Rubi in Sympy [A] time = 15.9173, size = 131, normalized size = 0.89

$$\frac{(-2x+1)^{\frac{7}{2}}}{126\,(3x+2)^6}-\frac{41\,(-2x+1)^{\frac{5}{2}}}{378\,(3x+2)^5}+\frac{205\,(-2x+1)^{\frac{3}{2}}}{4536\,(3x+2)^4}+\frac{205\sqrt{-2x+1}}{444528\,(3x+2)}+\frac{205\sqrt{-2x+1}}{190512\,(3x+2)^2}-\frac{205\sqrt{-2x+1}}{13608\,(3x+2)^3}+\frac{205\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{4667544}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)/(2+3*x)**7,x)
```

```
[Out] (-2*x + 1)**(7/2)/(126*(3*x + 2)**6) - 41*(-2*x + 1)**(5/2)/(378*
(3*x + 2)**5) + 205*(-2*x + 1)**(3/2)/(4536*(3*x + 2)**4) + 205*s
qrt(-2*x + 1)/(444528*(3*x + 2)) + 205*sqrt(-2*x + 1)/(190512*(3*
x + 2)**2) - 205*sqrt(-2*x + 1)/(13608*(3*x + 2)**3) + 205*sqrt(2
1)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/4667544
```

Mathematica [A] time = 0.122311, size = 73, normalized size = 0.49

$$\frac{\frac{21\sqrt{1-2x}\left(49815x^5+204795x^4-824526x^3-176850x^2+154312x-51904\right)}{(3x+2)^6}+410\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{9335088}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x))/(2 + 3*x)^7,x]
```

```
[Out] ((21*Sqrt[1 - 2*x]*(-51904 + 154312*x - 176850*x^2 - 824526*x^3 +
 204795*x^4 + 49815*x^5))/(2 + 3*x)^6 + 410*Sqrt[21]*ArcTanh[Sqrt
[3/7]*Sqrt[1 - 2*x]])/9335088
```

Maple [A] time = 0.016, size = 84, normalized size = 0.6

$$-46656\frac{1}{(-4-6x)^{6}}\left(\frac{205(1-2x)^{11/2}}{42674688}-\frac{3485(1-2x)^{9/2}}{54867456}-\frac{439(1-2x)^{7/2}}{3919104}+\frac{451(1-2x)^{5/2}}{559872}-\frac{24395(1-2x)^{3/2}}{30233088}+\frac{10\ldots}{\ldots}\right.$$
$$+\frac{205\sqrt{21}}{4667544}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)/(2+3*x)^7,x)
```

```
[Out] -46656*(205/42674688*(1-2*x)^(11/2)-3485/54867456*(1-2*x)^(9/2)-4
39/3919104*(1-2*x)^(7/2)+451/559872*(1-2*x)^(5/2)-24395/30233088*
(1-2*x)^(3/2)+10045/30233088*(1-2*x)^(1/2))/(-4-6*x)^6+205/466754
4*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.49485, size = 197, normalized size = 1.33

$$-\frac{205}{9335088}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)$$
$$-\frac{49815(-2x+1)^{\frac{11}{2}}-658665(-2x+1)^{\frac{9}{2}}-1161594(-2x+1)^{\frac{7}{2}}+8353422(-2x+1)^{\frac{5}{2}}-8367485(-2x+1)^{\frac{3}{2}}+3445435\sqrt{\ldots}}{222264\left(729(2x-1)^{6}+10206(2x-1)^{5}+59535(2x-1)^{4}+185220(2x-1)^{3}+324135(2x-1)^{2}+605052x-1848\ldots\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^7,x, algorithm="maxima")
```

```
[Out] -205/9335088*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21
) + 3*sqrt(-2*x + 1))) - 1/222264*(49815*(-2*x + 1)^(11/2) - 6586
65*(-2*x + 1)^(9/2) - 1161594*(-2*x + 1)^(7/2) + 8353422*(-2*x +
1)^(5/2) - 8367485*(-2*x + 1)^(3/2) + 3445435*sqrt(-2*x + 1))/(72
9*(2*x - 1)^6 + 10206*(2*x - 1)^5 + 59535*(2*x - 1)^4 + 185220*(2
*x - 1)^3 + 324135*(2*x - 1)^2 + 605052*x - 184877)
```

Fricas [A] time = 0.236599, size = 181, normalized size = 1.22

$$\frac{\sqrt{21}\left(\sqrt{21}\left(49815x^{5}+204795x^{4}-824526x^{3}-176850x^{2}+154312x-51904\right)\sqrt{-2x+1}+205\left(729x^{6}+2916x^{5}+4860x^{4}\ldots\right.\right.}{9335088\left(729x^{6}+2916x^{5}+4860x^{4}+4320x^{3}+2160x^{2}+576x+\ldots\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^7,x, algorithm="fricas")
```

```
[Out] 1/9335088*sqrt(21)*(sqrt(21)*(49815*x^5 + 204795*x^4 - 824526*x^3
 - 176850*x^2 + 154312*x - 51904)*sqrt(-2*x + 1) + 205*(729*x^6 +
 2916*x^5 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64)*log((sqr
t(21)*(3*x - 5) - 21*sqrt(-2*x + 1))/(3*x + 2)))/(729*x^6 + 2916*
```

```
x^5 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)/(2+3*x)**7,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.240267, size = 178, normalized size = 1.2

$$-\frac{205}{9335088}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{49815(2x-1)^5\sqrt{-2x+1}+658665(2x-1)^4\sqrt{-2x+1}-1161594(2x-1)^3\sqrt{-2x+1}-8353422(2x-1)^2\sqrt{-2x+1}+8}{14224896(3x+2)^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^7,x, algorithm="giac")
```

```
[Out] -205/9335088*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/
(sqrt(21) + 3*sqrt(-2*x + 1))) + 1/14224896*(49815*(2*x - 1)^5*sq
rt(-2*x + 1) + 658665*(2*x - 1)^4*sqrt(-2*x + 1) - 1161594*(2*x -
 1)^3*sqrt(-2*x + 1) - 8353422*(2*x - 1)^2*sqrt(-2*x + 1) + 83674
85*(-2*x + 1)^(3/2) - 3445435*sqrt(-2*x + 1))/(3*x + 2)^6
```

3.1925 $\int (1-2x)^{5/2}(2+3x)^4(3+5x)^2\,dx$

Optimal. Leaf size=92

$$-\frac{2025(1-2x)^{19/2}}{1216}+\frac{13905}{544}(1-2x)^{17/2}-\frac{53037}{320}(1-2x)^{15/2}+\frac{121359}{208}(1-2x)^{13/2}-\frac{832951}{704}(1-2x)^{11/2}+\frac{381073}{288}(1-2x)^{9/2}-\frac{41503}{64}(1-2x)^{7/2}$$

```
[Out] (-41503*(1 - 2*x)^(7/2))/64 + (381073*(1 - 2*x)^(9/2))/288 - (832
951*(1 - 2*x)^(11/2))/704 + (121359*(1 - 2*x)^(13/2))/208 - (5303
7*(1 - 2*x)^(15/2))/320 + (13905*(1 - 2*x)^(17/2))/544 - (2025*(1
 - 2*x)^(19/2))/1216
```

Rubi [A] time = 0.0718861, antiderivative size = 92, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.042$

$$-\frac{2025(1-2x)^{19/2}}{1216}+\frac{13905}{544}(1-2x)^{17/2}-\frac{53037}{320}(1-2x)^{15/2}+\frac{121359}{208}(1-2x)^{13/2}-\frac{832951}{704}(1-2x)^{11/2}+\frac{381073}{288}(1-2x)^{9/2}-\frac{41503}{64}(1-2x)^{7/2}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)*(2 + 3*x)^4*(3 + 5*x)^2,x]
```

```
[Out] (-41503*(1 - 2*x)^(7/2))/64 + (381073*(1 - 2*x)^(9/2))/288 - (832
951*(1 - 2*x)^(11/2))/704 + (121359*(1 - 2*x)^(13/2))/208 - (5303
7*(1 - 2*x)^(15/2))/320 + (13905*(1 - 2*x)^(17/2))/544 - (2025*(1
 - 2*x)^(19/2))/1216
```

Rubi in Sympy [A] time = 10.2238, size = 82, normalized size = 0.89

$$-\frac{2025(-2x+1)^{\frac{19}{2}}}{1216}+\frac{13905(-2x+1)^{\frac{17}{2}}}{544}-\frac{53037(-2x+1)^{\frac{15}{2}}}{320}+\frac{121359(-2x+1)^{\frac{13}{2}}}{208}-\frac{832951(-2x+1)^{\frac{11}{2}}}{704}+\frac{381073(-2x+1)^{\frac{9}{2}}}{288}-\frac{41503(-2x+1)^{\frac{7}{2}}}{64}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**4*(3+5*x)**2,x)
```

```
[Out] -2025*(-2*x + 1)**(19/2)/1216 + 13905*(-2*x + 1)**(17/2)/544 - 53
037*(-2*x + 1)**(15/2)/320 + 121359*(-2*x + 1)**(13/2)/208 - 8329
51*(-2*x + 1)**(11/2)/704 + 381073*(-2*x + 1)**(9/2)/288 - 41503*
(-2*x + 1)**(7/2)/64
```

Mathematica [A] time = 0.0626914, size = 43, normalized size = 0.47

$$-\frac{(1-2x)^{7/2}\left(221524875x^6+1035520200x^5+2092364703x^4+2374399764x^3+1634664492x^2+673648856x+138993368\right)}{2078505}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)*(2 + 3*x)^4*(3 + 5*x)^2,x]
```

```
[Out] -((1 - 2*x)^(7/2)*(138993368 + 673648856*x + 1634664492*x^2 + 237
4399764*x^3 + 2092364703*x^4 + 1035520200*x^5 + 221524875*x^6))/2
```

078505

Maple [A] time = 0.006, size = 40, normalized size = 0.4

$$-\frac{221524875\,x^{6}+1035520200\,x^{5}+2092364703\,x^{4}+2374399764\,x^{3}+1634664492\,x^{2}+673648856\,x+138993368}{2078505}\,(1-2\,x)^{\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^4*(3+5*x)^2,x)
```

```
[Out] -1/2078505*(221524875*x^6+1035520200*x^5+2092364703*x^4+237439976
4*x^3+1634664492*x^2+673648856*x+138993368)*(1-2*x)^(7/2)
```

Maxima [A] time = 1.34997, size = 86, normalized size = 0.93

$$-\frac{2025}{1216}\,(-2\,x+1)^{\frac{19}{2}}+\frac{13905}{544}\,(-2\,x+1)^{\frac{17}{2}}-\frac{53037}{320}\,(-2\,x+1)^{\frac{15}{2}}+\frac{121359}{208}\,(-2\,x+1)^{\frac{13}{2}}-\frac{832951}{704}\,(-2\,x+1)^{\frac{11}{2}}+\frac{381073}{288}\,(-2\,x+1)^{\frac{9}{2}}-\frac{41503}{64}\,(-2\,x+1)^{\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^4*(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] -2025/1216*(-2*x + 1)^(19/2) + 13905/544*(-2*x + 1)^(17/2) - 5303
7/320*(-2*x + 1)^(15/2) + 121359/208*(-2*x + 1)^(13/2) - 832951/7
04*(-2*x + 1)^(11/2) + 381073/288*(-2*x + 1)^(9/2) - 41503/64*(-2
*x + 1)^(7/2)
```

Fricas [A] time = 0.23249, size = 73, normalized size = 0.79

$$\frac{1}{2078505}\left(1772199000\,x^{9}+5625863100\,x^{8}+5641824474\,x^{7}-121581999\,x^{6}-3896813214\,x^{5}-2072749175\,x^{4}+46174786\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^4*(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/2078505*(1772199000*x^9 + 5625863100*x^8 + 5641824474*x^7 - 121
581999*x^6 - 3896813214*x^5 - 2072749175*x^4 + 461747860*x^3 + 73
9308228*x^2 + 160311352*x - 138993368)*sqrt(-2*x + 1)
```

Sympy [A] time = 5.73562, size = 82, normalized size = 0.89

$$-\frac{2025\,(-2x+1)^{\frac{19}{2}}}{1216}+\frac{13905\,(-2x+1)^{\frac{17}{2}}}{544}-\frac{53037\,(-2x+1)^{\frac{15}{2}}}{320}+\frac{121359\,(-2x+1)^{\frac{13}{2}}}{208}-\frac{832951\,(-2x+1)^{\frac{11}{2}}}{704}+\frac{381073\,(-2x+1)^{\frac{9}{2}}}{288}-\frac{41503\,(-2x+1)^{\frac{7}{2}}}{64}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)**4*(3+5*x)**2,x)
```

```
[Out] -2025*(-2*x + 1)**(19/2)/1216 + 13905*(-2*x + 1)**(17/2)/544 - 53
037*(-2*x + 1)**(15/2)/320 + 121359*(-2*x + 1)**(13/2)/208 - 8329
```

```
51*(-2*x + 1)**(11/2)/704 + 381073*(-2*x + 1)**(9/2)/288 - 41503*
(-2*x + 1)**(7/2)/64
```

GIAC/XCAS [A] time = 0.23805, size = 1, normalized size = 0.01

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(3*x + 2)^4*(-2*x + 1)^(5/2),x, algorithm="giac")

[Out] Done
```

3.1926 $\int (1-2x)^{5/2}(2+3x)^3(3+5x)^2\,dx$

Optimal. Leaf size=79

$$\frac{675}{544}(1-2x)^{17/2}-\frac{513}{32}(1-2x)^{15/2}+\frac{17541}{208}(1-2x)^{13/2}-\frac{39977}{176}(1-2x)^{11/2}+\frac{91091}{288}(1-2x)^{9/2}-\frac{5929}{32}(1-2x)^{7/2}$$

```
[Out] (-5929*(1 - 2*x)^(7/2))/32 + (91091*(1 - 2*x)^(9/2))/288 - (39977
*(1 - 2*x)^(11/2))/176 + (17541*(1 - 2*x)^(13/2))/208 - (513*(1 -
 2*x)^(15/2))/32 + (675*(1 - 2*x)^(17/2))/544
```

Rubi [A] time = 0.0678521, antiderivative size = 79, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.042

$$\frac{675}{544}(1-2x)^{17/2}-\frac{513}{32}(1-2x)^{15/2}+\frac{17541}{208}(1-2x)^{13/2}-\frac{39977}{176}(1-2x)^{11/2}+\frac{91091}{288}(1-2x)^{9/2}-\frac{5929}{32}(1-2x)^{7/2}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)*(2 + 3*x)^3*(3 + 5*x)^2,x]
```

```
[Out] (-5929*(1 - 2*x)^(7/2))/32 + (91091*(1 - 2*x)^(9/2))/288 - (39977
*(1 - 2*x)^(11/2))/176 + (17541*(1 - 2*x)^(13/2))/208 - (513*(1 -
 2*x)^(15/2))/32 + (675*(1 - 2*x)^(17/2))/544
```

Rubi in Sympy [A] time = 9.50438, size = 70, normalized size = 0.89

$$\frac{675\left(-2x+1\right)^{\frac{17}{2}}}{544}-\frac{513\left(-2x+1\right)^{\frac{15}{2}}}{32}+\frac{17541\left(-2x+1\right)^{\frac{13}{2}}}{208}-\frac{39977\left(-2x+1\right)^{\frac{11}{2}}}{176}+\frac{91091\left(-2x+1\right)^{\frac{9}{2}}}{288}-\frac{5929\left(-2x+1\right)^{\frac{7}{2}}}{32}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**3*(3+5*x)**2,x)
```

```
[Out] 675*(-2*x + 1)**(17/2)/544 - 513*(-2*x + 1)**(15/2)/32 + 17541*(-
2*x + 1)**(13/2)/208 - 39977*(-2*x + 1)**(11/2)/176 + 91091*(-2*x
 + 1)**(9/2)/288 - 5929*(-2*x + 1)**(7/2)/32
```

Mathematica [A] time = 0.0554895, size = 38, normalized size = 0.48

$$-\frac{(1-2x)^{7/2}\left(868725x^5+3440151x^4+5708637x^3+5069475x^2+2497634x+581846\right)}{21879}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)*(2 + 3*x)^3*(3 + 5*x)^2,x]
```

```
[Out] -((1 - 2*x)^(7/2)*(581846 + 2497634*x + 5069475*x^2 + 5708637*x^3
 + 3440151*x^4 + 868725*x^5))/21879
```

Maple [A] time = 0.007, size = 35, normalized size = 0.4

$$-\frac{868725\,x^{5}+3440151\,x^{4}+5708637\,x^{3}+5069475\,x^{2}+2497634\,x+581846}{21879}\left(1-2\,x\right)^{\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^3*(3+5*x)^2,x)
```

```
[Out] -1/21879*(868725*x^5+3440151*x^4+5708637*x^3+5069475*x^2+2497634*
x+581846)*(1-2*x)^(7/2)
```

Maxima [A] time = 1.35017, size = 74, normalized size = 0.94

$$\frac{675}{544}\left(-2\,x+1\right)^{\frac{17}{2}}-\frac{513}{32}\left(-2\,x+1\right)^{\frac{15}{2}}+\frac{17541}{208}\left(-2\,x+1\right)^{\frac{13}{2}}-\frac{39977}{176}\left(-2\,x+1\right)^{\frac{11}{2}}+\frac{91091}{288}\left(-2\,x+1\right)^{\frac{9}{2}}-\frac{5929}{32}\left(-2\,x+1\right)^{\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^3*(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] 675/544*(-2*x + 1)^(17/2) - 513/32*(-2*x + 1)^(15/2) + 17541/208*
(-2*x + 1)^(13/2) - 39977/176*(-2*x + 1)^(11/2) + 91091/288*(-2*x
 + 1)^(9/2) - 5929/32*(-2*x + 1)^(7/2)
```

Fricas [A] time = 0.231932, size = 66, normalized size = 0.84

$$\frac{1}{21879}\left(6949800\,x^{8}+17096508\,x^{7}+9599634\,x^{6}-8175663\,x^{5}-10040957\,x^{4}-608627\,x^{3}+2934177\,x^{2}+993442\,x-58184\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^3*(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/21879*(6949800*x^8 + 17096508*x^7 + 9599634*x^6 - 8175663*x^5 -
 10040957*x^4 - 608627*x^3 + 2934177*x^2 + 993442*x - 581846)*sqr
t(-2*x + 1)
```

Sympy [A] time = 4.95616, size = 70, normalized size = 0.89

$$\frac{675\left(-2x+1\right)^{\frac{17}{2}}}{544}-\frac{513\left(-2x+1\right)^{\frac{15}{2}}}{32}+\frac{17541\left(-2x+1\right)^{\frac{13}{2}}}{208}-\frac{39977\left(-2x+1\right)^{\frac{11}{2}}}{176}+\frac{91091\left(-2x+1\right)^{\frac{9}{2}}}{288}-\frac{5929\left(-2x+1\right)^{\frac{7}{2}}}{32}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)**3*(3+5*x)**2,x)
```

```
[Out] 675*(-2*x + 1)**(17/2)/544 - 513*(-2*x + 1)**(15/2)/32 + 17541*(-
2*x + 1)**(13/2)/208 - 39977*(-2*x + 1)**(11/2)/176 + 91091*(-2*x
 + 1)**(9/2)/288 - 5929*(-2*x + 1)**(7/2)/32
```

GIAC/XCAS [A] time = 0.219473, size = 131, normalized size = 1.66

$$\frac{675}{544}\,(2\,x-1)^{8}\sqrt{-2\,x+1}+\frac{513}{32}\,(2\,x-1)^{7}\sqrt{-2\,x+1}+\frac{17541}{208}\,(2\,x-1)^{6}\sqrt{-2\,x+1}+\frac{39977}{176}\,(2\,x-1)^{5}\sqrt{-2\,x+1}+\frac{91091}{288}\,(2\,x-1)^{4}\sqrt{-2\,x+1}+\frac{5929}{32}\,(2\,x-1)^{3}\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(3*x + 2)^3*(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] 675/544*(2*x - 1)^8*sqrt(-2*x + 1) + 513/32*(2*x - 1)^7*sqrt(-2*x
 + 1) + 17541/208*(2*x - 1)^6*sqrt(-2*x + 1) + 39977/176*(2*x - 1
)^5*sqrt(-2*x + 1) + 91091/288*(2*x - 1)^4*sqrt(-2*x + 1) + 5929/
32*(2*x - 1)^3*sqrt(-2*x + 1)
```

3.1927 $\int (1-2x)^{5/2}(2+3x)^2(3+5x)^2\,dx$

Optimal. Leaf size=66

$$-\frac{15}{16}(1-2x)^{15/2}+\frac{255}{26}(1-2x)^{13/2}-\frac{3467}{88}(1-2x)^{11/2}+\frac{1309}{18}(1-2x)^{9/2}-\frac{847}{16}(1-2x)^{7/2}$$

```
[Out] (-847*(1 - 2*x)^(7/2))/16 + (1309*(1 - 2*x)^(9/2))/18 - (3467*(1
- 2*x)^(11/2))/88 + (255*(1 - 2*x)^(13/2))/26 - (15*(1 - 2*x)^(15
/2))/16
```

Rubi [A] time = 0.064587, antiderivative size = 66, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.042$

$$-\frac{15}{16}(1-2x)^{15/2}+\frac{255}{26}(1-2x)^{13/2}-\frac{3467}{88}(1-2x)^{11/2}+\frac{1309}{18}(1-2x)^{9/2}-\frac{847}{16}(1-2x)^{7/2}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)*(2 + 3*x)^2*(3 + 5*x)^2,x]
```

```
[Out] (-847*(1 - 2*x)^(7/2))/16 + (1309*(1 - 2*x)^(9/2))/18 - (3467*(1
- 2*x)^(11/2))/88 + (255*(1 - 2*x)^(13/2))/26 - (15*(1 - 2*x)^(15
/2))/16
```

Rubi in Sympy [A] time = 8.46977, size = 58, normalized size = 0.88

$$-\frac{15(-2x+1)^{\frac{15}{2}}}{16}+\frac{255(-2x+1)^{\frac{13}{2}}}{26}-\frac{3467(-2x+1)^{\frac{11}{2}}}{88}+\frac{1309(-2x+1)^{\frac{9}{2}}}{18}-\frac{847(-2x+1)^{\frac{7}{2}}}{16}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**2*(3+5*x)**2,x)
```

```
[Out] -15*(-2*x + 1)**(15/2)/16 + 255*(-2*x + 1)**(13/2)/26 - 3467*(-2*
x + 1)**(11/2)/88 + 1309*(-2*x + 1)**(9/2)/18 - 847*(-2*x + 1)**(
7/2)/16
```

Mathematica [A] time = 0.053234, size = 33, normalized size = 0.5

$$-\frac{(1-2x)^{7/2}\left(19305x^4+62370x^3+80307x^2+50450x+13826\right)}{1287}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)*(2 + 3*x)^2*(3 + 5*x)^2,x]
```

```
[Out] -((1 - 2*x)^(7/2)*(13826 + 50450*x + 80307*x^2 + 62370*x^3 + 1930
5*x^4))/1287
```

Maple [A] time = 0.005, size = 30, normalized size = 0.5

$$-\frac{19305\,x^4+62370\,x^3+80307\,x^2+50450\,x+13826}{1287}(1-2\,x)^{\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^2*(3+5*x)^2,x)
```

```
[Out] -1/1287*(19305*x^4+62370*x^3+80307*x^2+50450*x+13826)*(1-2*x)^(7/
2)
```

Maxima [A] time = 1.33029, size = 62, normalized size = 0.94

$$-\frac{15}{16}\,(-2\,x+1)^{\frac{15}{2}}+\frac{255}{26}\,(-2\,x+1)^{\frac{13}{2}}-\frac{3467}{88}\,(-2\,x+1)^{\frac{11}{2}}+\frac{1309}{18}\,(-2\,x+1)^{\frac{9}{2}}-\frac{847}{16}\,(-2\,x+1)^{\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^2*(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] -15/16*(-2*x + 1)^(15/2) + 255/26*(-2*x + 1)^(13/2) - 3467/88*(-2
*x + 1)^(11/2) + 1309/18*(-2*x + 1)^(9/2) - 847/16*(-2*x + 1)^(7/
2)
```

Fricas [A] time = 0.235843, size = 59, normalized size = 0.89

$$\frac{1}{1287}\,\left(154440\,x^{7}+267300\,x^{6}+9846\,x^{5}-205169\,x^{4}-75320\,x^{3}+56481\,x^{2}+32506\,x-13826\right)\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^2*(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/1287*(154440*x^7 + 267300*x^6 + 9846*x^5 - 205169*x^4 - 75320*x
^3 + 56481*x^2 + 32506*x - 13826)*sqrt(-2*x + 1)
```

Sympy [A] time = 4.38694, size = 58, normalized size = 0.88

$$-\frac{15\,(-2x+1)^{\frac{15}{2}}}{16}+\frac{255\,(-2x+1)^{\frac{13}{2}}}{26}-\frac{3467\,(-2x+1)^{\frac{11}{2}}}{88}+\frac{1309\,(-2x+1)^{\frac{9}{2}}}{18}-\frac{847\,(-2x+1)^{\frac{7}{2}}}{16}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)**2*(3+5*x)**2,x)
```

```
[Out] -15*(-2*x + 1)**(15/2)/16 + 255*(-2*x + 1)**(13/2)/26 - 3467*(-2*
x + 1)**(11/2)/88 + 1309*(-2*x + 1)**(9/2)/18 - 847*(-2*x + 1)**(
7/2)/16
```

GIAC/XCAS [A] time = 0.213177, size = 109, normalized size = 1.65

$$\frac{15}{16}\,(2\,x-1)^{7}\sqrt{-2\,x+1}+\frac{255}{26}\,(2\,x-1)^{6}\sqrt{-2\,x+1}+\frac{3467}{88}\,(2\,x-1)^{5}\sqrt{-2\,x+1}+\frac{1309}{18}\,(2\,x-1)^{4}\sqrt{-2\,x+1}+\frac{847}{16}\,(2\,x-1)^{3}\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^2*(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] 15/16*(2*x - 1)^7*sqrt(-2*x + 1) + 255/26*(2*x - 1)^6*sqrt(-2*x +
 1) + 3467/88*(2*x - 1)^5*sqrt(-2*x + 1) + 1309/18*(2*x - 1)^4*sq
rt(-2*x + 1) + 847/16*(2*x - 1)^3*sqrt(-2*x + 1)
```

3.1928 $\int(1-2x)^{5/2}(2+3x)(3+5x)^2\,dx$

Optimal. Leaf size=53

$$\frac{75}{104}(1-2x)^{13/2}-\frac{505}{88}(1-2x)^{11/2}+\frac{1133}{72}(1-2x)^{9/2}-\frac{121}{8}(1-2x)^{7/2}$$

```
[Out] (-121*(1 - 2*x)^(7/2))/8 + (1133*(1 - 2*x)^(9/2))/72 - (505*(1 -
2*x)^(11/2))/88 + (75*(1 - 2*x)^(13/2))/104
```

Rubi [A] time = 0.0500025, antiderivative size = 53, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{75}{104}(1-2x)^{13/2}-\frac{505}{88}(1-2x)^{11/2}+\frac{1133}{72}(1-2x)^{9/2}-\frac{121}{8}(1-2x)^{7/2}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)*(2 + 3*x)*(3 + 5*x)^2,x]
```

```
[Out] (-121*(1 - 2*x)^(7/2))/8 + (1133*(1 - 2*x)^(9/2))/72 - (505*(1 -
2*x)^(11/2))/88 + (75*(1 - 2*x)^(13/2))/104
```

Rubi in Sympy [A] time = 6.96746, size = 46, normalized size = 0.87

$$\frac{75\,(-2x+1)^{\frac{13}{2}}}{104}-\frac{505\,(-2x+1)^{\frac{11}{2}}}{88}+\frac{1133\,(-2x+1)^{\frac{9}{2}}}{72}-\frac{121\,(-2x+1)^{\frac{7}{2}}}{8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)*(3+5*x)**2,x)
```

```
[Out] 75*(-2*x + 1)**(13/2)/104 - 505*(-2*x + 1)**(11/2)/88 + 1133*(-2*
x + 1)**(9/2)/72 - 121*(-2*x + 1)**(7/2)/8
```

Mathematica [A] time = 0.0418346, size = 28, normalized size = 0.53

$$-\frac{(1-2x)^{7/2}\left(7425x^3+18405x^2+16531x+5671\right)}{1287}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)*(2 + 3*x)*(3 + 5*x)^2,x]
```

```
[Out] -((1 - 2*x)^(7/2)*(5671 + 16531*x + 18405*x^2 + 7425*x^3))/1287
```

Maple [A] time = 0.004, size = 25, normalized size = 0.5

$$-\frac{7425\,x^3+18405\,x^2+16531\,x+5671}{1287}\,(1-2\,x)^{\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)*(3+5*x)^2,x)
```

```
[Out] -1/1287*(7425*x^3+18405*x^2+16531*x+5671)*(1-2*x)^(7/2)
```

Maxima [A] time = 1.3402, size = 50, normalized size = 0.94

$$\frac{75}{104}\left(-2x+1\right)^{\frac{13}{2}}-\frac{505}{88}\left(-2x+1\right)^{\frac{11}{2}}+\frac{1133}{72}\left(-2x+1\right)^{\frac{9}{2}}-\frac{121}{8}\left(-2x+1\right)^{\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(3*x + 2)*(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] 75/104*(-2*x + 1)^(13/2) - 505/88*(-2*x + 1)^(11/2) + 1133/72*(-2
*x + 1)^(9/2) - 121/8*(-2*x + 1)^(7/2)
```

Fricas [A] time = 0.211826, size = 53, normalized size = 1.

$$\frac{1}{1287}\left(59400\,x^{6}+58140\,x^{5}-44062\,x^{4}-49999\,x^{3}+12729\,x^{2}+17495\,x-5671\right)\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(3*x + 2)*(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/1287*(59400*x^6 + 58140*x^5 - 44062*x^4 - 49999*x^3 + 12729*x^2
 + 17495*x - 5671)*sqrt(-2*x + 1)
```

Sympy [A] time = 2.89975, size = 100, normalized size = 1.89

$$\frac{600x^{6}\sqrt{-2x+1}}{13}+\frac{6460x^{5}\sqrt{-2x+1}}{143}-\frac{44062x^{4}\sqrt{-2x+1}}{1287}-\frac{49999x^{3}\sqrt{-2x+1}}{1287}+\frac{4243x^{2}\sqrt{-2x+1}}{429}+\frac{17495x\sqrt{-2x+1}}{1287}-\frac{5671\sqrt{-2x+1}}{1287}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)*(3+5*x)**2,x)
```

```
[Out] 600*x**6*sqrt(-2*x + 1)/13 + 6460*x**5*sqrt(-2*x + 1)/143 - 44062
*x**4*sqrt(-2*x + 1)/1287 - 49999*x**3*sqrt(-2*x + 1)/1287 + 4243
*x**2*sqrt(-2*x + 1)/429 + 17495*x*sqrt(-2*x + 1)/1287 - 5671*sqr
t(-2*x + 1)/1287
```

GIAC/XCAS [A] time = 0.23299, size = 88, normalized size = 1.66

$$\frac{75}{104}\left(2\,x-1\right)^{6}\sqrt{-2\,x+1}+\frac{505}{88}\left(2\,x-1\right)^{5}\sqrt{-2\,x+1}+\frac{1133}{72}\left(2\,x-1\right)^{4}\sqrt{-2\,x+1}+\frac{121}{8}\left(2\,x-1\right)^{3}\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(3*x + 2)*(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] 75/104*(2*x - 1)^6*sqrt(-2*x + 1) + 505/88*(2*x - 1)^5*sqrt(-2*x
+ 1) + 1133/72*(2*x - 1)^4*sqrt(-2*x + 1) + 121/8*(2*x - 1)^3*sqr
t(-2*x + 1)
```

3.1929 $\int (1-2x)^{5/2}(3+5x)^2\,dx$

Optimal. Leaf size=40

$$-\frac{25}{44}(1-2x)^{11/2}+\frac{55}{18}(1-2x)^{9/2}-\frac{121}{28}(1-2x)^{7/2}$$

```
[Out] (-121*(1 - 2*x)^(7/2))/28 + (55*(1 - 2*x)^(9/2))/18 - (25*(1 - 2*
x)^(11/2))/44
```

Rubi [A] time = 0.0306902, antiderivative size = 40, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 17, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.059

$$-\frac{25}{44}(1-2x)^{11/2}+\frac{55}{18}(1-2x)^{9/2}-\frac{121}{28}(1-2x)^{7/2}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)*(3 + 5*x)^2,x]
```

```
[Out] (-121*(1 - 2*x)^(7/2))/28 + (55*(1 - 2*x)^(9/2))/18 - (25*(1 - 2*
x)^(11/2))/44
```

Rubi in Sympy [A] time = 5.05594, size = 34, normalized size = 0.85

$$-\frac{25\left(-2x+1\right)^{\frac{11}{2}}}{44}+\frac{55\left(-2x+1\right)^{\frac{9}{2}}}{18}-\frac{121\left(-2x+1\right)^{\frac{7}{2}}}{28}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**2,x)
```

```
[Out] -25*(-2*x + 1)**(11/2)/44 + 55*(-2*x + 1)**(9/2)/18 - 121*(-2*x +
 1)**(7/2)/28
```

Mathematica [A] time = 0.0340296, size = 23, normalized size = 0.57

$$-\frac{1}{693}(1-2x)^{7/2}\left(1575x^2+2660x+1271\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)*(3 + 5*x)^2,x]
```

```
[Out] -((1 - 2*x)^(7/2)*(1271 + 2660*x + 1575*x^2))/693
```

Maple [A] time = 0.006, size = 20, normalized size = 0.5

$$-\frac{1575\,x^2+2660\,x+1271}{693}\left(1-2\,x\right)^{\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^2,x)
```

```
[Out] -1/693*(1575*x^2+2660*x+1271)*(1-2*x)^(7/2)
```

Maxima [A] time = 1.35181, size = 38, normalized size = 0.95

$$-\frac{25}{44}\left(-2x+1\right)^{\frac{11}{2}}+\frac{55}{18}\left(-2x+1\right)^{\frac{9}{2}}-\frac{121}{28}\left(-2x+1\right)^{\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] -25/44*(-2*x + 1)^(11/2) + 55/18*(-2*x + 1)^(9/2) - 121/28*(-2*x
+ 1)^(7/2)
```

Fricas [A] time = 0.203623, size = 46, normalized size = 1.15

$$\frac{1}{693}\left(12600x^5+2380x^4-12302x^3-867x^2+4966x-1271\right)\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/693*(12600*x^5 + 2380*x^4 - 12302*x^3 - 867*x^2 + 4966*x - 1271
)*sqrt(-2*x + 1)
```

Sympy [A] time = 2.2788, size = 85, normalized size = 2.12

$$\frac{200x^5\sqrt{-2x+1}}{11}+\frac{340x^4\sqrt{-2x+1}}{99}-\frac{12302x^3\sqrt{-2x+1}}{693}-\frac{289x^2\sqrt{-2x+1}}{231}+\frac{4966x\sqrt{-2x+1}}{693}-\frac{1271\sqrt{-2x+1}}{693}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**2,x)
```

```
[Out] 200*x**5*sqrt(-2*x + 1)/11 + 340*x**4*sqrt(-2*x + 1)/99 - 12302*x
**3*sqrt(-2*x + 1)/693 - 289*x**2*sqrt(-2*x + 1)/231 + 4966*x*sqr
t(-2*x + 1)/693 - 1271*sqrt(-2*x + 1)/693
```

GIAC/XCAS [A] time = 0.209813, size = 66, normalized size = 1.65

$$\frac{25}{44}\left(2x-1\right)^5\sqrt{-2x+1}+\frac{55}{18}\left(2x-1\right)^4\sqrt{-2x+1}+\frac{121}{28}\left(2x-1\right)^3\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] 25/44*(2*x - 1)^5*sqrt(-2*x + 1) + 55/18*(2*x - 1)^4*sqrt(-2*x +
1) + 121/28*(2*x - 1)^3*sqrt(-2*x + 1)
```

3.1930 $\int \frac{(1-2x)^{5/2}(3+5x)^2}{2+3x} \, dx$

Optimal. Leaf size=95

$$\frac{25}{54}(1-2x)^{9/2} - \frac{155}{126}(1-2x)^{7/2} + \frac{2}{135}(1-2x)^{5/2} + \frac{14}{243}(1-2x)^{3/2} + \frac{98}{243}\sqrt{1-2x} - \frac{98}{243}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

```
[Out] (98*Sqrt[1 - 2*x])/243 + (14*(1 - 2*x)^(3/2))/243 + (2*(1 - 2*x)^
(5/2))/135 - (155*(1 - 2*x)^(7/2))/126 + (25*(1 - 2*x)^(9/2))/54
- (98*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/243
```

Rubi [A] time = 0.123307, antiderivative size = 95, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$\frac{25}{54}(1-2x)^{9/2} - \frac{155}{126}(1-2x)^{7/2} + \frac{2}{135}(1-2x)^{5/2} + \frac{14}{243}(1-2x)^{3/2} + \frac{98}{243}\sqrt{1-2x} - \frac{98}{243}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)^(5/2)*(3 + 5*x)^2)/(2 + 3*x),x]
```

```
[Out] (98*Sqrt[1 - 2*x])/243 + (14*(1 - 2*x)^(3/2))/243 + (2*(1 - 2*x)^
(5/2))/135 - (155*(1 - 2*x)^(7/2))/126 + (25*(1 - 2*x)^(9/2))/54
- (98*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/243
```

Rubi in Sympy [A] time = 11.586, size = 83, normalized size = 0.87

$$\frac{25\left(-2x+1\right)^{\frac{9}{2}}}{54} - \frac{155\left(-2x+1\right)^{\frac{7}{2}}}{126} + \frac{2\left(-2x+1\right)^{\frac{5}{2}}}{135} + \frac{14\left(-2x+1\right)^{\frac{3}{2}}}{243} + \frac{98\sqrt{-2x+1}}{243} - \frac{98\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{729}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**(5/2)*(3+5*x)**2/(2+3*x),x)
```

```
[Out] 25*(-2*x + 1)**(9/2)/54 - 155*(-2*x + 1)**(7/2)/126 + 2*(-2*x + 1
)**(5/2)/135 + 14*(-2*x + 1)**(3/2)/243 + 98*sqrt(-2*x + 1)/243 -
 98*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/729
```

Mathematica [A] time = 0.0850716, size = 61, normalized size = 0.64

$$\frac{3\sqrt{1-2x}\left(63000x^4-42300x^3-30546x^2+29791x-2479\right)-3430\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{25515}$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^2)/(2 + 3*x),x]
```

```
[Out] (3*Sqrt[1 - 2*x]*(-2479 + 29791*x - 30546*x^2 - 42300*x^3 + 63000
*x^4) - 3430*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/25515
```

Maple [A] time = 0.01, size = 65, normalized size = 0.7

$$\frac{14}{243}(1-2x)^{\frac{3}{2}}+\frac{2}{135}(1-2x)^{\frac{5}{2}}-\frac{155}{126}(1-2x)^{\frac{7}{2}}+\frac{25}{54}(1-2x)^{\frac{9}{2}}-\frac{98\sqrt{21}}{729}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)+\frac{98}{243}\sqrt{1-2x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^2/(2+3*x),x)
```

```
[Out] 14/243*(1-2*x)^(3/2)+2/135*(1-2*x)^(5/2)-155/126*(1-2*x)^(7/2)+25
/54*(1-2*x)^(9/2)-98/729*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(
1/2)+98/243*(1-2*x)^(1/2)
```

Maxima [A] time = 1.50745, size = 111, normalized size = 1.17

$$\frac{25}{54}(-2x+1)^{\frac{9}{2}}-\frac{155}{126}(-2x+1)^{\frac{7}{2}}+\frac{2}{135}(-2x+1)^{\frac{5}{2}}+\frac{14}{243}(-2x+1)^{\frac{3}{2}}+\frac{49}{729}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{98}{243}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(-2*x + 1)^(5/2)/(3*x + 2),x, algorithm="maxima")
```

```
[Out] 25/54*(-2*x + 1)^(9/2) - 155/126*(-2*x + 1)^(7/2) + 2/135*(-2*x +
 1)^(5/2) + 14/243*(-2*x + 1)^(3/2) + 49/729*sqrt(21)*log(-(sqrt(
21) - 3*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 98/243*s
qrt(-2*x + 1)
```

Fricas [A] time = 0.22473, size = 99, normalized size = 1.04

$$\frac{1}{25515}\sqrt{3}\left(\sqrt{3}\left(63000x^4-42300x^3-30546x^2+29791x-2479\right)\sqrt{-2x+1}+1715\sqrt{7}\log\left(\frac{\sqrt{3}(3x-5)+3\sqrt{7}\sqrt{-2x+1}}{3x+2}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(-2*x + 1)^(5/2)/(3*x + 2),x, algorithm="fricas")
```

```
[Out] 1/25515*sqrt(3)*(sqrt(3)*(63000*x^4 - 42300*x^3 - 30546*x^2 + 297
91*x - 2479)*sqrt(-2*x + 1) + 1715*sqrt(7)*log((sqrt(3)*(3*x - 5)
 + 3*sqrt(7)*sqrt(-2*x + 1))/(3*x + 2)))
```

Sympy [A] time = 13.7211, size = 122, normalized size = 1.28

$$\frac{25(-2x+1)^{\frac{9}{2}}}{54}-\frac{155(-2x+1)^{\frac{7}{2}}}{126}+\frac{2(-2x+1)^{\frac{5}{2}}}{135}+\frac{14(-2x+1)^{\frac{3}{2}}}{243}+\frac{98\sqrt{-2x+1}}{243}+\frac{686\left(\begin{cases}-\frac{\sqrt{21}\operatorname{acoth}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for } -2x+1>\frac{7}{3}\\ -\frac{\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for } -2x+1<\frac{7}{3}\end{cases}\right)}{243}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**2/(2+3*x),x)
```

```
[Out] 25*(-2*x + 1)**(9/2)/54 - 155*(-2*x + 1)**(7/2)/126 + 2*(-2*x + 1
)**(5/2)/135 + 14*(-2*x + 1)**(3/2)/243 + 98*sqrt(-2*x + 1)/243 +
 686*Piecewise((-sqrt(21)*acoth(sqrt(21)*sqrt(-2*x + 1)/7)/21, -2
*x + 1 > 7/3), (-sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/21, -2
*x + 1 < 7/3))/243
```

GIAC/XCAS [A] time = 0.212845, size = 143, normalized size = 1.51

$$\frac{25}{54}(2x-1)^4\sqrt{-2x+1}+\frac{155}{126}(2x-1)^3\sqrt{-2x+1}+\frac{2}{135}(2x-1)^2\sqrt{-2x+1}+\frac{14}{243}(-2x+1)^{\frac{3}{2}}+\frac{49}{729}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{98}{243}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(-2*x + 1)^(5/2)/(3*x + 2),x, algorithm="giac")
```

```
[Out] 25/54*(2*x - 1)^4*sqrt(-2*x + 1) + 155/126*(2*x - 1)^3*sqrt(-2*x
+ 1) + 2/135*(2*x - 1)^2*sqrt(-2*x + 1) + 14/243*(-2*x + 1)^(3/2)
 + 49/729*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sq
rt(21) + 3*sqrt(-2*x + 1))) + 98/243*sqrt(-2*x + 1)
```

3.1931 $\int \frac{(1-2x)^{5/2}(3+5x)^2}{(2+3x)^2} dx$

Optimal. Leaf size=102

$$-\frac{(1-2x)^{7/2}}{63(3x+2)} - \frac{25}{63}(1-2x)^{7/2} - \frac{10}{63}(1-2x)^{5/2} - \frac{50}{81}(1-2x)^{3/2} - \frac{350}{81}\sqrt{1-2x} + \frac{350}{81}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

```
[Out] (-350*Sqrt[1 - 2*x])/81 - (50*(1 - 2*x)^(3/2))/81 - (10*(1 - 2*x)
^(5/2))/63 - (25*(1 - 2*x)^(7/2))/63 - (1 - 2*x)^(7/2)/(63*(2 + 3
*x)) + (350*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/81
```

Rubi [A] time = 0.129634, antiderivative size = 102, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.208$

$$-\frac{(1-2x)^{7/2}}{63(3x+2)} - \frac{25}{63}(1-2x)^{7/2} - \frac{10}{63}(1-2x)^{5/2} - \frac{50}{81}(1-2x)^{3/2} - \frac{350}{81}\sqrt{1-2x} + \frac{350}{81}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)^(5/2)*(3 + 5*x)^2)/(2 + 3*x)^2,x]
```

```
[Out] (-350*Sqrt[1 - 2*x])/81 - (50*(1 - 2*x)^(3/2))/81 - (10*(1 - 2*x)
^(5/2))/63 - (25*(1 - 2*x)^(7/2))/63 - (1 - 2*x)^(7/2)/(63*(2 + 3
*x)) + (350*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/81
```

Rubi in Sympy [A] time = 12.3821, size = 85, normalized size = 0.83

$$-\frac{25(-2x+1)^{\frac{7}{2}}}{63} - \frac{(-2x+1)^{\frac{7}{2}}}{63(3x+2)} - \frac{10(-2x+1)^{\frac{5}{2}}}{63} - \frac{50(-2x+1)^{\frac{3}{2}}}{81} - \frac{350\sqrt{-2x+1}}{81} + \frac{350\sqrt{21}\,\text{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{243}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**(5/2)*(3+5*x)**2/(2+3*x)**2,x)
```

```
[Out] -25*(-2*x + 1)**(7/2)/63 - (-2*x + 1)**(7/2)/(63*(3*x + 2)) - 10*
(-2*x + 1)**(5/2)/63 - 50*(-2*x + 1)**(3/2)/81 - 350*sqrt(-2*x +
1)/81 + 350*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/243
```

Mathematica [A] time = 0.113314, size = 70, normalized size = 0.69

$$\frac{\sqrt{1-2x}\left(5400x^4 - 5508x^3 + 1002x^2 - 4471x - 6239\right)}{567(3x+2)} + \frac{350}{81}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^2)/(2 + 3*x)^2,x]
```

```
[Out] (Sqrt[1 - 2*x]*(-6239 - 4471*x + 1002*x^2 - 5508*x^3 + 5400*x^4))
/(567*(2 + 3*x)) + (350*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]
```

```
])/81
```

Maple [A] time = 0.016, size = 72, normalized size = 0.7

$$-\frac{25}{63}(1-2x)^{\frac{7}{2}}-\frac{4}{27}(1-2x)^{\frac{5}{2}}-\frac{16}{27}(1-2x)^{\frac{3}{2}}-\frac{1036}{243}\sqrt{1-2x}+\frac{98}{729}\sqrt{1-2x}\left(-\frac{4}{3}-2x\right)^{-1}+\frac{350\sqrt{21}}{243}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^2/(2+3*x)^2,x)
```

```
[Out] -25/63*(1-2*x)^(7/2)-4/27*(1-2*x)^(5/2)-16/27*(1-2*x)^(3/2)-1036/
243*(1-2*x)^(1/2)+98/729*(1-2*x)^(1/2)/(-4/3-2*x)+350/243*arctanh
(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.58291, size = 120, normalized size = 1.18

$$-\frac{25}{63}(-2x+1)^{\frac{7}{2}}-\frac{4}{27}(-2x+1)^{\frac{5}{2}}-\frac{16}{27}(-2x+1)^{\frac{3}{2}}-\frac{175}{243}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{1036}{243}\sqrt{-2x+1}-\frac{49\sqrt{-2x+1}}{243(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(-2*x + 1)^(5/2)/(3*x + 2)^2,x, algorithm="maxima")
```

```
[Out] -25/63*(-2*x + 1)^(7/2) - 4/27*(-2*x + 1)^(5/2) - 16/27*(-2*x + 1
)^(3/2) - 175/243*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sq
rt(21) + 3*sqrt(-2*x + 1))) - 1036/243*sqrt(-2*x + 1) - 49/243*sq
rt(-2*x + 1)/(3*x + 2)
```

Fricas [A] time = 0.22135, size = 115, normalized size = 1.13

$$\frac{\sqrt{3}\left(1225\sqrt{7}(3x+2)\log\left(\frac{\sqrt{3}(3x-5)-3\sqrt{7}\sqrt{-2x+1}}{3x+2}\right)+\sqrt{3}\left(5400x^4-5508x^3+1002x^2-4471x-6239\right)\sqrt{-2x+1}\right)}{1701(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(-2*x + 1)^(5/2)/(3*x + 2)^2,x, algorithm="fricas")
```

```
[Out] 1/1701*sqrt(3)*(1225*sqrt(7)*(3*x + 2)*log((sqrt(3)*(3*x - 5) - 3
*sqrt(7)*sqrt(-2*x + 1))/(3*x + 2)) + sqrt(3)*(5400*x^4 - 5508*x^
3 + 1002*x^2 - 4471*x - 6239)*sqrt(-2*x + 1))/(3*x + 2)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**2/(2+3*x)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.212413, size = 143, normalized size = 1.4

$$\frac{25}{63}\,(2\,x-1)^{3}\sqrt{-2\,x+1}-\frac{4}{27}\,(2\,x-1)^{2}\sqrt{-2\,x+1}-\frac{16}{27}\,(-2\,x+1)^{\frac{3}{2}}-\frac{175}{243}\,\sqrt{21}\ln\left(\frac{\left|-2\,\sqrt{21}+6\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{21}+3\,\sqrt{-2\,x+1}\right)}\right)-\frac{1036}{243}\,\sqrt{-2\,x+1}-\frac{49\,\sqrt{-2\,x+1}}{243\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(-2*x + 1)^(5/2)/(3*x + 2)^2,x, algorithm="giac")
```

```
[Out] 25/63*(2*x - 1)^3*sqrt(-2*x + 1) - 4/27*(2*x - 1)^2*sqrt(-2*x + 1
) - 16/27*(-2*x + 1)^(3/2) - 175/243*sqrt(21)*ln(1/2*abs(-2*sqrt(
21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 1036/243
*sqrt(-2*x + 1) - 49/243*sqrt(-2*x + 1)/(3*x + 2)
```

3.1932 $\int \frac{(1-2x)^{5/2}(3+5x)^2}{(2+3x)^3}\,dx$

Optimal. Leaf size=109

$$\frac{143(1-2x)^{7/2}}{882(3x+2)}-\frac{(1-2x)^{7/2}}{126(3x+2)^2}+\frac{211}{441}(1-2x)^{5/2}+\frac{1055}{567}(1-2x)^{3/2}+\frac{1055}{81}\sqrt{1-2x}-\frac{1055}{81}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

```
[Out] (1055*Sqrt[1 - 2*x])/81 + (1055*(1 - 2*x)^(3/2))/567 + (211*(1 -
2*x)^(5/2))/441 - (1 - 2*x)^(7/2)/(126*(2 + 3*x)^2) + (143*(1 - 2
*x)^(7/2))/(882*(2 + 3*x)) - (1055*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sq
rt[1 - 2*x]])/81
```

Rubi [A] time = 0.137634, antiderivative size = 109, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{143(1-2x)^{7/2}}{882(3x+2)}-\frac{(1-2x)^{7/2}}{126(3x+2)^2}+\frac{211}{441}(1-2x)^{5/2}+\frac{1055}{567}(1-2x)^{3/2}+\frac{1055}{81}\sqrt{1-2x}-\frac{1055}{81}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x)^2)/(2 + 3*x)^3,x]
```

```
[Out] (1055*Sqrt[1 - 2*x])/81 + (1055*(1 - 2*x)^(3/2))/567 + (211*(1 -
2*x)^(5/2))/441 - (1 - 2*x)^(7/2)/(126*(2 + 3*x)^2) + (143*(1 - 2
*x)^(7/2))/(882*(2 + 3*x)) - (1055*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sq
rt[1 - 2*x]])/81
```

Rubi in Sympy [A] time = 12.7367, size = 92, normalized size = 0.84

$$\frac{143\left(-2x+1\right)^{\frac{7}{2}}}{882\left(3x+2\right)}-\frac{\left(-2x+1\right)^{\frac{7}{2}}}{126\left(3x+2\right)^{2}}+\frac{211\left(-2x+1\right)^{\frac{5}{2}}}{441}+\frac{1055\left(-2x+1\right)^{\frac{3}{2}}}{567}+\frac{1055\sqrt{-2x+1}}{81}-\frac{1055\sqrt{21}\,\text{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{243}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**2/(2+3*x)**3,x)
```

```
[Out] 143*(-2*x + 1)**(7/2)/(882*(3*x + 2)) - (-2*x + 1)**(7/2)/(126*(3
*x + 2)**2) + 211*(-2*x + 1)**(5/2)/441 + 1055*(-2*x + 1)**(3/2)/
567 + 1055*sqrt(-2*x + 1)/81 - 1055*sqrt(21)*atanh(sqrt(21)*sqrt(
-2*x + 1)/7)/243
```

Mathematica [A] time = 0.116225, size = 68, normalized size = 0.62

$$\frac{1}{486}\left(\frac{3\sqrt{1-2x}\left(2160x^4-3960x^3+12828x^2+25987x+10007\right)}{(3x+2)^2}-2110\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^2)/(2 + 3*x)^3,x]
```

```
[Out] ((3*Sqrt[1 - 2*x]*(10007 + 25987*x + 12828*x^2 - 3960*x^3 + 2160*
x^4))/(2 + 3*x)^2 - 2110*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]
])/486
```

Maple [A] time = 0.016, size = 75, normalized size = 0.7

$$\frac{10}{27}(1-2x)^{\frac{5}{2}}+\frac{130}{81}(1-2x)^{\frac{3}{2}}+\frac{1006}{81}\sqrt{1-2x}+\frac{14}{9(-4-6x)^{2}}\left(-\frac{149}{18}(1-2x)^{\frac{3}{2}}+\frac{343}{18}\sqrt{1-2x}\right)-\frac{1055\sqrt{21}}{243}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^2/(2+3*x)^3,x)
```

```
[Out] 10/27*(1-2*x)^(5/2)+130/81*(1-2*x)^(3/2)+1006/81*(1-2*x)^(1/2)+14
/9*(-149/18*(1-2*x)^(3/2)+343/18*(1-2*x)^(1/2))/(-4-6*x)^2-1055/2
43*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.49283, size = 136, normalized size = 1.25

$$\frac{10}{27}(-2x+1)^{\frac{5}{2}}+\frac{130}{81}(-2x+1)^{\frac{3}{2}}+\frac{1055}{486}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{1006}{81}\sqrt{-2x+1}-\frac{7\left(149(-2x+1)^{\frac{3}{2}}-343\sqrt{-2x+1}\right)}{81\left(9(2x-1)^{2}+84x+7\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(-2*x + 1)^(5/2)/(3*x + 2)^3,x, algorithm="maxima")
```

```
[Out] 10/27*(-2*x + 1)^(5/2) + 130/81*(-2*x + 1)^(3/2) + 1055/486*sqrt(
21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x +
1))) + 1006/81*sqrt(-2*x + 1) - 7/81*(149*(-2*x + 1)^(3/2) - 343*
sqrt(-2*x + 1))/(9*(2*x - 1)^2 + 84*x + 7)
```

Fricas [A] time = 0.2221, size = 128, normalized size = 1.17

$$\frac{\sqrt{3}\left(1055\sqrt{7}\left(9x^{2}+12x+4\right)\log\left(\frac{\sqrt{3}(3x-5)+3\sqrt{7}\sqrt{-2x+1}}{3x+2}\right)+\sqrt{3}\left(2160x^{4}-3960x^{3}+12828x^{2}+25987x+10007\right)\sqrt{-2x+1}\right)}{486\left(9x^{2}+12x+4\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(-2*x + 1)^(5/2)/(3*x + 2)^3,x, algorithm="fricas")
```

```
[Out] 1/486*sqrt(3)*(1055*sqrt(7)*(9*x^2 + 12*x + 4)*log((sqrt(3)*(3*x
- 5) + 3*sqrt(7)*sqrt(-2*x + 1))/(3*x + 2)) + sqrt(3)*(2160*x^4 -
 3960*x^3 + 12828*x^2 + 25987*x + 10007)*sqrt(-2*x + 1))/(9*x^2 +
 12*x + 4)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((1-2*x)**(5/2)*(3+5*x)**2/(2+3*x)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.213631, size = 138, normalized size = 1.27

$$\frac{10}{27}(2x-1)^2\sqrt{-2x+1}+\frac{130}{81}(-2x+1)^{\frac{3}{2}}+\frac{1055}{486}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{1006}{81}\sqrt{-2x+1}-\frac{7\left(149(-2x+1)^{\frac{3}{2}}-343\sqrt{-2x+1}\right)}{324(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(-2*x + 1)^(5/2)/(3*x + 2)^3,x, algorithm="giac")
```

```
[Out] 10/27*(2*x - 1)^2*sqrt(-2*x + 1) + 130/81*(-2*x + 1)^(3/2) + 1055
/486*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqrt(21
) + 3*sqrt(-2*x + 1))) + 1006/81*sqrt(-2*x + 1) - 7/324*(149*(-2*
x + 1)^(3/2) - 343*sqrt(-2*x + 1))/(3*x + 2)^2
```

3.1933 $\int \frac{(1-2x)^{5/2}(3+5x)^2}{(2+3x)^4}\,dx$

Optimal. Leaf size=114

$$\frac{211(1-2x)^{7/2}}{2646(3x+2)^2}-\frac{(1-2x)^{7/2}}{189(3x+2)^3}-\frac{887(1-2x)^{5/2}}{882(3x+2)}-\frac{4435(1-2x)^{3/2}}{3969}-\frac{4435}{567}\sqrt{1-2x}+\frac{4435\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{81\sqrt{21}}$$

```
[Out] (-4435*Sqrt[1 - 2*x])/567 - (4435*(1 - 2*x)^(3/2))/3969 - (1 - 2*
x)^(7/2)/(189*(2 + 3*x)^3) + (211*(1 - 2*x)^(7/2))/(2646*(2 + 3*x
)^2) - (887*(1 - 2*x)^(5/2))/(882*(2 + 3*x)) + (4435*ArcTanh[Sqrt
[3/7]*Sqrt[1 - 2*x]])/(81*Sqrt[21])
```

Rubi [A] time = 0.137359, antiderivative size = 114, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$\frac{211(1-2x)^{7/2}}{2646(3x+2)^2}-\frac{(1-2x)^{7/2}}{189(3x+2)^3}-\frac{887(1-2x)^{5/2}}{882(3x+2)}-\frac{4435(1-2x)^{3/2}}{3969}-\frac{4435}{567}\sqrt{1-2x}+\frac{4435\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{81\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)^(5/2)*(3 + 5*x)^2)/(2 + 3*x)^4,x]
```

```
[Out] (-4435*Sqrt[1 - 2*x])/567 - (4435*(1 - 2*x)^(3/2))/3969 - (1 - 2*
x)^(7/2)/(189*(2 + 3*x)^3) + (211*(1 - 2*x)^(7/2))/(2646*(2 + 3*x
)^2) - (887*(1 - 2*x)^(5/2))/(882*(2 + 3*x)) + (4435*ArcTanh[Sqrt
[3/7]*Sqrt[1 - 2*x]])/(81*Sqrt[21])
```

Rubi in Sympy [A] time = 13.3107, size = 99, normalized size = 0.87

$$\frac{211\,(-2x+1)^{\frac{7}{2}}}{2646\,(3x+2)^2}-\frac{(-2x+1)^{\frac{7}{2}}}{189\,(3x+2)^3}-\frac{887\,(-2x+1)^{\frac{5}{2}}}{882\,(3x+2)}-\frac{4435\,(-2x+1)^{\frac{3}{2}}}{3969}-\frac{4435\sqrt{-2x+1}}{567}+\frac{4435\sqrt{21}\,\text{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{1701}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**(5/2)*(3+5*x)**2/(2+3*x)**4,x)
```

```
[Out] 211*(-2*x + 1)**(7/2)/(2646*(3*x + 2)**2) - (-2*x + 1)**(7/2)/(18
9*(3*x + 2)**3) - 887*(-2*x + 1)**(5/2)/(882*(3*x + 2)) - 4435*(-
2*x + 1)**(3/2)/3969 - 4435*sqrt(-2*x + 1)/567 + 4435*sqrt(21)*at
anh(sqrt(21)*sqrt(-2*x + 1)/7)/1701
```

Mathematica [A] time = 0.12474, size = 68, normalized size = 0.6

$$\frac{\sqrt{1-2x}\left(3600x^4-21240x^3-61353x^2-48697x-12212\right)}{162(3x+2)^3}+\frac{4435\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{81\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^2)/(2 + 3*x)^4,x]
```

```
[Out] (Sqrt[1 - 2*x]*(-12212 - 48697*x - 61353*x^2 - 21240*x^3 + 3600*x
^4))/(162*(2 + 3*x)^3) + (4435*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/
(81*Sqrt[21])
```

Maple [A] time = 0.016, size = 75, normalized size = 0.7

$$-\frac{100}{243}(1-2x)^{\frac{3}{2}}-\frac{1480}{243}\sqrt{1-2x}-\frac{4}{9(-4-6x)^3}\left(-\frac{3091}{12}(1-2x)^{\frac{5}{2}}+\frac{31675}{27}(1-2x)^{\frac{3}{2}}-\frac{144305}{108}\sqrt{1-2x}\right)+\frac{4435\sqrt{21}}{1701}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^2/(2+3*x)^4,x)
```

```
[Out] -100/243*(1-2*x)^(3/2)-1480/243*(1-2*x)^(1/2)-4/9*(-3091/12*(1-2*
x)^(5/2)+31675/27*(1-2*x)^(3/2)-144305/108*(1-2*x)^(1/2))/(-4-6*x
)^3+4435/1701*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.51505, size = 149, normalized size = 1.31

$$-\frac{100}{243}(-2x+1)^{\frac{3}{2}}-\frac{4435}{3402}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{1480}{243}\sqrt{-2x+1}-\frac{27819(-2x+1)^{\frac{5}{2}}-126700(-2x+1)^{\frac{3}{2}}+144305\sqrt{-2x+1}}{243\left(27(2x-1)^3+189(2x-1)^2+882x-98\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(-2*x + 1)^(5/2)/(3*x + 2)^4,x, algorithm="maxima")
```

```
[Out] -100/243*(-2*x + 1)^(3/2) - 4435/3402*sqrt(21)*log(-(sqrt(21) - 3
*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 1480/243*sqrt(-
2*x + 1) - 1/243*(27819*(-2*x + 1)^(5/2) - 126700*(-2*x + 1)^(3/2
) + 144305*sqrt(-2*x + 1))/(27*(2*x - 1)^3 + 189*(2*x - 1)^2 + 88
2*x - 98)
```

Fricas [A] time = 0.212345, size = 134, normalized size = 1.18

$$\frac{\sqrt{21}\left(\sqrt{21}\left(3600x^4-21240x^3-61353x^2-48697x-12212\right)\sqrt{-2x+1}+4435\left(27x^3+54x^2+36x+8\right)\log\left(\frac{\sqrt{21}(3x-5)-21\sqrt{-2x+1}}{3x+2}\right)\right)}{3402\left(27x^3+54x^2+36x+8\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(-2*x + 1)^(5/2)/(3*x + 2)^4,x, algorithm="fricas")
```

```
[Out] 1/3402*sqrt(21)*(sqrt(21)*(3600*x^4 - 21240*x^3 - 61353*x^2 - 486
97*x - 12212)*sqrt(-2*x + 1) + 4435*(27*x^3 + 54*x^2 + 36*x + 8)*
log((sqrt(21)*(3*x - 5) - 21*sqrt(-2*x + 1))/(3*x + 2)))/(27*x^3
+ 54*x^2 + 36*x + 8)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**2/(2+3*x)**4,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.213956, size = 138, normalized size = 1.21

$$-\frac{100}{243}\,(-2\,x+1)^{\frac{3}{2}}-\frac{4435}{3402}\,\sqrt{21}\ln\left(\frac{\left|-2\,\sqrt{21}+6\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{21}+3\,\sqrt{-2\,x+1}\right)}\right)-\frac{1480}{243}\,\sqrt{-2\,x+1}-\frac{27819\,(2\,x-1)^{2}\sqrt{-2\,x+1}-126700\,(-2\,x+1)^{\frac{3}{2}}+144305\,\sqrt{-2\,x+1}}{1944\,(3\,x+2)^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(-2*x + 1)^(5/2)/(3*x + 2)^4,x, algorithm="giac")
```

```
[Out] -100/243*(-2*x + 1)^(3/2) - 4435/3402*sqrt(21)*ln(1/2*abs(-2*sqrt
(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 1480/24
3*sqrt(-2*x + 1) - 1/1944*(27819*(2*x - 1)^2*sqrt(-2*x + 1) - 126
700*(-2*x + 1)^(3/2) + 144305*sqrt(-2*x + 1))/(3*x + 2)^3
```

3.1934 $\int \frac{(1-2x)^{5/2}(3+5x)^2}{(2+3x)^5}\,dx$

Optimal. Leaf size=121

$$\frac{31(1-2x)^{7/2}}{588(3x+2)^3}-\frac{(1-2x)^{7/2}}{252(3x+2)^4}-\frac{4993(1-2x)^{5/2}}{10584(3x+2)^2}+\frac{24965(1-2x)^{3/2}}{31752(3x+2)}+\frac{24965\sqrt{1-2x}}{15876}-\frac{24965\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{2268\sqrt{21}}$$

```
[Out] (24965*Sqrt[1 - 2*x])/15876 - (1 - 2*x)^(7/2)/(252*(2 + 3*x)^4) +
 (31*(1 - 2*x)^(7/2))/(588*(2 + 3*x)^3) - (4993*(1 - 2*x)^(5/2))/
(10584*(2 + 3*x)^2) + (24965*(1 - 2*x)^(3/2))/(31752*(2 + 3*x)) -
 (24965*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(2268*Sqrt[21])
```

Rubi [A] time = 0.143712, antiderivative size = 121, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$\frac{31(1-2x)^{7/2}}{588(3x+2)^3}-\frac{(1-2x)^{7/2}}{252(3x+2)^4}-\frac{4993(1-2x)^{5/2}}{10584(3x+2)^2}+\frac{24965(1-2x)^{3/2}}{31752(3x+2)}+\frac{24965\sqrt{1-2x}}{15876}-\frac{24965\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{2268\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x)^2)/(2 + 3*x)^5,x]
```

```
[Out] (24965*Sqrt[1 - 2*x])/15876 - (1 - 2*x)^(7/2)/(252*(2 + 3*x)^4) +
 (31*(1 - 2*x)^(7/2))/(588*(2 + 3*x)^3) - (4993*(1 - 2*x)^(5/2))/
(10584*(2 + 3*x)^2) + (24965*(1 - 2*x)^(3/2))/(31752*(2 + 3*x)) -
 (24965*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(2268*Sqrt[21])
```

Rubi in Sympy [A] time = 13.8666, size = 105, normalized size = 0.87

$$\frac{31\left(-2x+1\right)^{\frac{7}{2}}}{588\left(3x+2\right)^{3}}-\frac{\left(-2x+1\right)^{\frac{7}{2}}}{252\left(3x+2\right)^{4}}-\frac{4993\left(-2x+1\right)^{\frac{5}{2}}}{10584\left(3x+2\right)^{2}}+\frac{24965\left(-2x+1\right)^{\frac{3}{2}}}{31752\left(3x+2\right)}+\frac{24965\sqrt{-2x+1}}{15876}-\frac{24965\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{47628}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**2/(2+3*x)**5,x)
```

```
[Out] 31*(-2*x + 1)**(7/2)/(588*(3*x + 2)**3) - (-2*x + 1)**(7/2)/(252*
(3*x + 2)**4) - 4993*(-2*x + 1)**(5/2)/(10584*(3*x + 2)**2) + 249
65*(-2*x + 1)**(3/2)/(31752*(3*x + 2)) + 24965*sqrt(-2*x + 1)/158
76 - 24965*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/47628
```

Mathematica [A] time = 0.131967, size = 68, normalized size = 0.56

$$\frac{\frac{21\sqrt{1-2x}\left(302400x^4+1231065x^3+1526937x^2+762598x+134558\right)}{(3x+2)^4}-49930\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{95256}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^2)/(2 + 3*x)^5,x]
```

```
[Out] ((21*Sqrt[1 - 2*x]*(134558 + 762598*x + 1526937*x^2 + 1231065*x^3
 + 302400*x^4))/(2 + 3*x)^4 - 49930*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sq
rt[1 - 2*x]])/95256
```

Maple [A] time = 0.019, size = 75, normalized size = 0.6

$$\frac{200}{243}\sqrt{1-2\,x} + \frac{8}{3\,(-4-6\,x)^4}\left(-\frac{47185}{672}(1-2\,x)^{\frac{7}{2}} + \frac{129289}{288}(1-2\,x)^{\frac{5}{2}} - \frac{824705}{864}(1-2\,x)^{\frac{3}{2}} + \frac{1749055}{2592}\sqrt{1-2\,x}\right) - \frac{24965\,\sqrt{21}}{47628}\,Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^2/(2+3*x)^5,x)
```

```
[Out] 200/243*(1-2*x)^(1/2)+8/3*(-47185/672*(1-2*x)^(7/2)+129289/288*(1
-2*x)^(5/2)-824705/864*(1-2*x)^(3/2)+1749055/2592*(1-2*x)^(1/2))/
(-4-6*x)^4-24965/47628*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/
2)
```

Maxima [A] time = 1.50568, size = 161, normalized size = 1.33

$$\frac{24965}{95256}\,\sqrt{21}\log\left(-\frac{\sqrt{21}-3\,\sqrt{-2\,x+1}}{\sqrt{21}+3\,\sqrt{-2\,x+1}}\right) + \frac{200}{243}\,\sqrt{-2\,x+1} - \frac{1273995\,(-2\,x+1)^{\frac{7}{2}} - 8145207\,(-2\,x+1)^{\frac{5}{2}} + 17318805\,(-2\,x+1)^{\frac{3}{2}} - 12243385\,\sqrt{-2\,x+1}}{6804\left(81\,(2\,x-1)^4 + 756\,(2\,x-1)^3 + 2646\,(2\,x-1)^2 + 8232\,x - 1715\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(-2*x + 1)^(5/2)/(3*x + 2)^5,x, algorithm="maxima")
```

```
[Out] 24965/95256*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21)
 + 3*sqrt(-2*x + 1))) + 200/243*sqrt(-2*x + 1) - 1/6804*(1273995*
(-2*x + 1)^(7/2) - 8145207*(-2*x + 1)^(5/2) + 17318805*(-2*x + 1)
^(3/2) - 12243385*sqrt(-2*x + 1))/(81*(2*x - 1)^4 + 756*(2*x - 1)
^3 + 2646*(2*x - 1)^2 + 8232*x - 1715)
```

Fricas [A] time = 0.215477, size = 147, normalized size = 1.21

$$\frac{\sqrt{21}\left(\sqrt{21}\left(302400\,x^4 + 1231065\,x^3 + 1526937\,x^2 + 762598\,x + 134558\right)\sqrt{-2\,x+1} + 24965\left(81\,x^4 + 216\,x^3 + 216\,x^2 + 96\,x + 1\right.\right.}{95256\left(81\,x^4 + 216\,x^3 + 216\,x^2 + 96\,x + 16\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(-2*x + 1)^(5/2)/(3*x + 2)^5,x, algorithm="fricas")
```

```
[Out] 1/95256*sqrt(21)*(sqrt(21)*(302400*x^4 + 1231065*x^3 + 1526937*x^
2 + 762598*x + 134558)*sqrt(-2*x + 1) + 24965*(81*x^4 + 216*x^3 +
 216*x^2 + 96*x + 16)*log((sqrt(21)*(3*x - 5) + 21*sqrt(-2*x + 1)
)/(3*x + 2)))/(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**2/(2+3*x)**5,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.215345, size = 147, normalized size = 1.21

$$\frac{24965}{95256}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{200}{243}\sqrt{-2x+1}$$
$$+\frac{1273995(2x-1)^3\sqrt{-2x+1}+8145207(2x-1)^2\sqrt{-2x+1}-17318805(-2x+1)^{\frac{3}{2}}+12243385\sqrt{-2x+1}}{108864(3x+2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(-2*x + 1)^(5/2)/(3*x + 2)^5,x, algorithm="giac")
```

```
[Out] 24965/95256*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(
sqrt(21) + 3*sqrt(-2*x + 1))) + 200/243*sqrt(-2*x + 1) + 1/108864
*(1273995*(2*x - 1)^3*sqrt(-2*x + 1) + 8145207*(2*x - 1)^2*sqrt(-
2*x + 1) - 17318805*(-2*x + 1)^(3/2) + 12243385*sqrt(-2*x + 1))/(
3*x + 2)^4
```

3.1935 $\int \frac{(1-2x)^{5/2}(3+5x)^2}{(2+3x)^6}\,dx$

Optimal. Leaf size=128

$$\frac{347(1-2x)^{7/2}}{8820(3x+2)^4}-\frac{(1-2x)^{7/2}}{315(3x+2)^5}-\frac{8051(1-2x)^{5/2}}{26460(3x+2)^3}+\frac{8051(1-2x)^{3/2}}{31752(3x+2)^2}-\frac{8051\sqrt{1-2x}}{31752(3x+2)}+\frac{8051\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{15876\sqrt{21}}$$

```
[Out] -(1 - 2*x)^(7/2)/(315*(2 + 3*x)^5) + (347*(1 - 2*x)^(7/2))/(8820*
(2 + 3*x)^4) - (8051*(1 - 2*x)^(5/2))/(26460*(2 + 3*x)^3) + (8051
*(1 - 2*x)^(3/2))/(31752*(2 + 3*x)^2) - (8051*Sqrt[1 - 2*x])/(317
52*(2 + 3*x)) + (8051*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(15876*Sq
rt[21])
```

Rubi [A] time = 0.151381, antiderivative size = 128, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{347(1-2x)^{7/2}}{8820(3x+2)^4}-\frac{(1-2x)^{7/2}}{315(3x+2)^5}-\frac{8051(1-2x)^{5/2}}{26460(3x+2)^3}+\frac{8051(1-2x)^{3/2}}{31752(3x+2)^2}-\frac{8051\sqrt{1-2x}}{31752(3x+2)}+\frac{8051\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{15876\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x)^2)/(2 + 3*x)^6,x]
```

```
[Out] -(1 - 2*x)^(7/2)/(315*(2 + 3*x)^5) + (347*(1 - 2*x)^(7/2))/(8820*
(2 + 3*x)^4) - (8051*(1 - 2*x)^(5/2))/(26460*(2 + 3*x)^3) + (8051
*(1 - 2*x)^(3/2))/(31752*(2 + 3*x)^2) - (8051*Sqrt[1 - 2*x])/(317
52*(2 + 3*x)) + (8051*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(15876*Sq
rt[21])
```

Rubi in Sympy [A] time = 15.7018, size = 112, normalized size = 0.88

$$\frac{347\left(-2x+1\right)^{\frac{7}{2}}}{8820\left(3x+2\right)^{4}}-\frac{\left(-2x+1\right)^{\frac{7}{2}}}{315\left(3x+2\right)^{5}}-\frac{8051\left(-2x+1\right)^{\frac{5}{2}}}{26460\left(3x+2\right)^{3}}+\frac{8051\left(-2x+1\right)^{\frac{3}{2}}}{31752\left(3x+2\right)^{2}}-\frac{8051\sqrt{-2x+1}}{31752\left(3x+2\right)}+\frac{8051\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{333396}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**2/(2+3*x)**6,x)
```

```
[Out] 347*(-2*x + 1)**(7/2)/(8820*(3*x + 2)**4) - (-2*x + 1)**(7/2)/(31
5*(3*x + 2)**5) - 8051*(-2*x + 1)**(5/2)/(26460*(3*x + 2)**3) + 8
051*(-2*x + 1)**(3/2)/(31752*(3*x + 2)**2) - 8051*sqrt(-2*x + 1)/
(31752*(3*x + 2)) + 8051*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7
)/333396
```

Mathematica [A] time = 0.12269, size = 68, normalized size = 0.53

$$\frac{80510\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{21\sqrt{1-2x}\left(7323345x^4+12406455x^3+8277204x^2+2919346x+503276\right)}{(3x+2)^5}}{3333960}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^2)/(2 + 3*x)^6,x]
```

```
[Out] ((-21*Sqrt[1 - 2*x]*(503276 + 2919346*x + 8277204*x^2 + 12406455*
x^3 + 7323345*x^4))/(2 + 3*x)^5 + 80510*Sqrt[21]*ArcTanh[Sqrt[3/7
]*Sqrt[1 - 2*x]])/3333960
```

Maple [A] time = 0.017, size = 75, normalized size = 0.6

$$-3888\,\frac{1}{(-4-6\,x)^5}\left(-\frac{54247\,(1-2\,x)^{9/2}}{2286144}+\frac{12269\,(1-2\,x)^{7/2}}{69984}-\frac{16102\,(1-2\,x)^{5/2}}{32805}+\frac{394499\,(1-2\,x)^{3/2}}{629856}-\frac{394499\,\sqrt{1-2\,x}}{1259712}\right)+\frac{8051\,\sqrt{21}}{333396}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^2/(2+3*x)^6,x)
```

```
[Out] -3888*(-54247/2286144*(1-2*x)^(9/2)+12269/69984*(1-2*x)^(7/2)-161
02/32805*(1-2*x)^(5/2)+394499/629856*(1-2*x)^(3/2)-394499/1259712
*(1-2*x)^(1/2))/(-4-6*x)^5+8051/333396*arctanh(1/7*21^(1/2)*(1-2*
x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.48828, size = 173, normalized size = 1.35

$$-\frac{8051}{666792}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2\,x+1}}{\sqrt{21}+3\sqrt{-2\,x+1}}\right)-\frac{7323345\,(-2\,x+1)^{\frac{9}{2}}-54106290\,(-2\,x+1)^{\frac{7}{2}}+151487616\,(-2\,x+1)^{\frac{5}{2}}-193304510\,(-2\,x+1)^{\frac{3}{2}}+96652255\,\sqrt{-2\,x+1}}{79380\,\left(243\,(2\,x-1)^5+2835\,(2\,x-1)^4+13230\,(2\,x-1)^3+30870\,(2\,x-1)^2+72030\,x-19208\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(-2*x + 1)^(5/2)/(3*x + 2)^6,x, algorithm="maxima")
```

```
[Out] -8051/666792*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21
) + 3*sqrt(-2*x + 1))) - 1/79380*(7323345*(-2*x + 1)^(9/2) - 5410
6290*(-2*x + 1)^(7/2) + 151487616*(-2*x + 1)^(5/2) - 193304510*(-
2*x + 1)^(3/2) + 96652255*sqrt(-2*x + 1))/(243*(2*x - 1)^5 + 2835
*(2*x - 1)^4 + 13230*(2*x - 1)^3 + 30870*(2*x - 1)^2 + 72030*x -
19208)
```

Fricas [A] time = 0.212591, size = 161, normalized size = 1.26

$$-\frac{\sqrt{21}\left(\sqrt{21}\left(7323345\,x^4+12406455\,x^3+8277204\,x^2+2919346\,x+503276\right)\sqrt{-2\,x+1}-40255\,\left(243\,x^5+810\,x^4+1080\,x^3+\right.\right.}{3333960\,(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240\,x+32)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(-2*x + 1)^(5/2)/(3*x + 2)^6,x, algorithm="fricas")
```

```
[Out] -1/3333960*sqrt(21)*(sqrt(21)*(7323345*x^4 + 12406455*x^3 + 82772
04*x^2 + 2919346*x + 503276)*sqrt(-2*x + 1) - 40255*(243*x^5 + 81
0*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)*log((sqrt(21)*(3*x - 5)
- 21*sqrt(-2*x + 1))/(3*x + 2)))/(243*x^5 + 810*x^4 + 1080*x^3 +
```

```
720*x^2 + 240*x + 32)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**2/(2+3*x)**6,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.213774, size = 157, normalized size = 1.23

$$-\frac{8051}{666792}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{7323345\,(2x-1)^4\sqrt{-2x+1}+54106290\,(2x-1)^3\sqrt{-2x+1}+151487616\,(2x-1)^2\sqrt{-2x+1}-193304510\,(-2x+1)^{\frac{3}{2}}+}{2540160\,(3x+2)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(-2*x + 1)^(5/2)/(3*x + 2)^6,x, algorithm="giac")
```

```
[Out] -8051/666792*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/
(sqrt(21) + 3*sqrt(-2*x + 1))) - 1/2540160*(7323345*(2*x - 1)^4*s
qrt(-2*x + 1) + 54106290*(2*x - 1)^3*sqrt(-2*x + 1) + 151487616*(
2*x - 1)^2*sqrt(-2*x + 1) - 193304510*(-2*x + 1)^(3/2) + 96652255
*sqrt(-2*x + 1))/(3*x + 2)^5
```

3.1936 $\int \frac{(1-2x)^{5/2}(3+5x)^2}{(2+3x)^7}\,dx$

Optimal. Leaf size=148

$$\frac{83(1-2x)^{7/2}}{2646(3x+2)^5}-\frac{(1-2x)^{7/2}}{378(3x+2)^6}-\frac{263(1-2x)^{5/2}}{1176(3x+2)^4}+\frac{1315(1-2x)^{3/2}}{10584(3x+2)^3}+\frac{1315\sqrt{1-2x}}{148176(3x+2)}-\frac{1315\sqrt{1-2x}}{21168(3x+2)^2}+\frac{1315\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{74088\sqrt{21}}$$

```
[Out] -(1 - 2*x)^(7/2)/(378*(2 + 3*x)^6) + (83*(1 - 2*x)^(7/2))/(2646*(
2 + 3*x)^5) - (263*(1 - 2*x)^(5/2))/(1176*(2 + 3*x)^4) + (1315*(1
 - 2*x)^(3/2))/(10584*(2 + 3*x)^3) - (1315*Sqrt[1 - 2*x])/(21168*
(2 + 3*x)^2) + (1315*Sqrt[1 - 2*x])/(148176*(2 + 3*x)) + (1315*Ar
cTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(74088*Sqrt[21])
```

Rubi [A] time = 0.174873, antiderivative size = 148, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$\frac{83(1-2x)^{7/2}}{2646(3x+2)^5}-\frac{(1-2x)^{7/2}}{378(3x+2)^6}-\frac{263(1-2x)^{5/2}}{1176(3x+2)^4}+\frac{1315(1-2x)^{3/2}}{10584(3x+2)^3}+\frac{1315\sqrt{1-2x}}{148176(3x+2)}-\frac{1315\sqrt{1-2x}}{21168(3x+2)^2}+\frac{1315\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{74088\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x)^2)/(2 + 3*x)^7,x]
```

```
[Out] -(1 - 2*x)^(7/2)/(378*(2 + 3*x)^6) + (83*(1 - 2*x)^(7/2))/(2646*(
2 + 3*x)^5) - (263*(1 - 2*x)^(5/2))/(1176*(2 + 3*x)^4) + (1315*(1
 - 2*x)^(3/2))/(10584*(2 + 3*x)^3) - (1315*Sqrt[1 - 2*x])/(21168*
(2 + 3*x)^2) + (1315*Sqrt[1 - 2*x])/(148176*(2 + 3*x)) + (1315*Ar
cTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(74088*Sqrt[21])
```

Rubi in Sympy [A] time = 17.5621, size = 131, normalized size = 0.89

$$\frac{83\left(-2x+1\right)^{\frac{7}{2}}}{2646\left(3x+2\right)^{5}}-\frac{\left(-2x+1\right)^{\frac{7}{2}}}{378\left(3x+2\right)^{6}}-\frac{263\left(-2x+1\right)^{\frac{5}{2}}}{1176\left(3x+2\right)^{4}}+\frac{1315\left(-2x+1\right)^{\frac{3}{2}}}{10584\left(3x+2\right)^{3}}+\frac{1315\sqrt{-2x+1}}{148176\left(3x+2\right)}-\frac{1315\sqrt{-2x+1}}{21168\left(3x+2\right)^{2}}+\frac{1315\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{1555848}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**2/(2+3*x)**7,x)
```

```
[Out] 83*(-2*x + 1)**(7/2)/(2646*(3*x + 2)**5) - (-2*x + 1)**(7/2)/(378
*(3*x + 2)**6) - 263*(-2*x + 1)**(5/2)/(1176*(3*x + 2)**4) + 1315
*(-2*x + 1)**(3/2)/(10584*(3*x + 2)**3) + 1315*sqrt(-2*x + 1)/(14
8176*(3*x + 2)) - 1315*sqrt(-2*x + 1)/(21168*(3*x + 2)**2) + 1315
*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/1555848
```

Mathematica [A] time = 0.133995, size = 73, normalized size = 0.49

$$\frac{\frac{189\sqrt{1-2x}\left(319545x^5-1979115x^4-2360850x^3-587502x^2-106808x-81568\right)}{(3x+2)^6}+23670\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{28005264}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^2)/(2 + 3*x)^7,x]
```

```
[Out] ((189*Sqrt[1 - 2*x]*(-81568 - 106808*x - 587502*x^2 - 2360850*x^3
 - 1979115*x^4 + 319545*x^5))/(2 + 3*x)^6 + 23670*Sqrt[21]*ArcTan
h[Sqrt[3/7]*Sqrt[1 - 2*x]])/28005264
```

Maple [A] time = 0.019, size = 84, normalized size = 0.6

$$23328\frac{1}{(-4-6x)^6}\left(-\frac{1315\,(1-2x)^{11/2}}{7112448}-\frac{112405\,(1-2x)^{9/2}}{82301184}+\frac{8345\,(1-2x)^{7/2}}{653184}-\frac{2893\,(1-2x)^{5/2}}{93312}+\frac{156485\,(1-2x)^{3/}}{5038848}\right.$$
$$\left.+\frac{1315\sqrt{21}}{1555848}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^2/(2+3*x)^7,x)
```

```
[Out] 23328*(-1315/7112448*(1-2*x)^(11/2)-112405/82301184*(1-2*x)^(9/2)
+8345/653184*(1-2*x)^(7/2)-2893/93312*(1-2*x)^(5/2)+156485/503884
8*(1-2*x)^(3/2)-64435/5038848*(1-2*x)^(1/2))/(-4-6*x)^6+1315/1555
848*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.52881, size = 197, normalized size = 1.33

$$-\frac{1315}{3111696}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)$$
$$-\frac{319545\,(-2x+1)^{\frac{11}{2}}+2360505\,(-2x+1)^{\frac{9}{2}}-22080870\,(-2x+1)^{\frac{7}{2}}+53584146\,(-2x+1)^{\frac{5}{2}}-53674355\,(-2x+1)^{\frac{3}{2}}+2210}{74088\left(729\,(2x-1)^6+10206\,(2x-1)^5+59535\,(2x-1)^4+185220\,(2x-1)^3+324135\,(2x-1)^2+605052\,x-18\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(-2*x + 1)^(5/2)/(3*x + 2)^7,x, algorithm="maxima")
```

```
[Out] -1315/3111696*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(2
1) + 3*sqrt(-2*x + 1))) - 1/74088*(319545*(-2*x + 1)^(11/2) + 236
0505*(-2*x + 1)^(9/2) - 22080870*(-2*x + 1)^(7/2) + 53584146*(-2*
x + 1)^(5/2) - 53674355*(-2*x + 1)^(3/2) + 22101205*sqrt(-2*x + 1
))/(729*(2*x - 1)^6 + 10206*(2*x - 1)^5 + 59535*(2*x - 1)^4 + 185
220*(2*x - 1)^3 + 324135*(2*x - 1)^2 + 605052*x - 184877)
```

Fricas [A] time = 0.216313, size = 181, normalized size = 1.22

$$\frac{\sqrt{21}\left(\sqrt{21}\left(319545\,x^5-1979115\,x^4-2360850\,x^3-587502\,x^2-106808\,x-81568\right)\sqrt{-2x+1}+1315\,\left(729\,x^6+2916\,x^5+48\right.\right.}{3111696\,(729\,x^6+2916\,x^5+4860\,x^4+4320\,x^3+2160\,x^2+576\,}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(-2*x + 1)^(5/2)/(3*x + 2)^7,x, algorithm="fricas")
```

```
[Out] 1/3111696*sqrt(21)*(sqrt(21)*(319545*x^5 - 1979115*x^4 - 2360850*
x^3 - 587502*x^2 - 106808*x - 81568)*sqrt(-2*x + 1) + 1315*(729*x
^6 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64)*log(
(sqrt(21)*(3*x - 5) - 21*sqrt(-2*x + 1))/(3*x + 2)))/(729*x^6 + 2
```

```
916*x^5 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**2/(2+3*x)**7,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.216735, size = 178, normalized size = 1.2

$$-\frac{1315}{3111696}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{319545\,(2x-1)^5\sqrt{-2x+1}-2360505\,(2x-1)^4\sqrt{-2x+1}-22080870\,(2x-1)^3\sqrt{-2x+1}-53584146\,(2x-1)^2\sqrt{-2x+}}{4741632\,(3x+2)^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(-2*x + 1)^(5/2)/(3*x + 2)^7,x, algorithm="giac")
```

```
[Out] -1315/3111696*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))
/(sqrt(21) + 3*sqrt(-2*x + 1))) + 1/4741632*(319545*(2*x - 1)^5*s
qrt(-2*x + 1) - 2360505*(2*x - 1)^4*sqrt(-2*x + 1) - 22080870*(2*
x - 1)^3*sqrt(-2*x + 1) - 53584146*(2*x - 1)^2*sqrt(-2*x + 1) + 5
3674355*(-2*x + 1)^(3/2) - 22101205*sqrt(-2*x + 1))/(3*x + 2)^6
```

3.1937 $\int \frac{(1-2x)^{5/2}(3+5x)^2}{(2+3x)^8}\,dx$

Optimal. Leaf size=168

$$\frac{23(1-2x)^{7/2}}{882(3x+2)^6}-\frac{(1-2x)^{7/2}}{441(3x+2)^7}-\frac{467(1-2x)^{5/2}}{2646(3x+2)^5}+\frac{2335(1-2x)^{3/2}}{31752(3x+2)^4}+\frac{2335\sqrt{1-2x}}{3111696(3x+2)}+\frac{2335\sqrt{1-2x}}{1333584(3x+2)^2}-\frac{2335\sqrt{1-2x}}{95256(3x+2)^3}+\frac{2335\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{1555848\sqrt{21}}$$

```
[Out] -(1 - 2*x)^(7/2)/(441*(2 + 3*x)^7) + (23*(1 - 2*x)^(7/2))/(882*(2
 + 3*x)^6) - (467*(1 - 2*x)^(5/2))/(2646*(2 + 3*x)^5) + (2335*(1
- 2*x)^(3/2))/(31752*(2 + 3*x)^4) - (2335*Sqrt[1 - 2*x])/(95256*(
2 + 3*x)^3) + (2335*Sqrt[1 - 2*x])/(1333584*(2 + 3*x)^2) + (2335*
Sqrt[1 - 2*x])/(3111696*(2 + 3*x)) + (2335*ArcTanh[Sqrt[3/7]*Sqrt
[1 - 2*x]])/(1555848*Sqrt[21])
```

Rubi [A] time = 0.208574, antiderivative size = 168, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.25$

$$\frac{23(1-2x)^{7/2}}{882(3x+2)^6}-\frac{(1-2x)^{7/2}}{441(3x+2)^7}-\frac{467(1-2x)^{5/2}}{2646(3x+2)^5}+\frac{2335(1-2x)^{3/2}}{31752(3x+2)^4}+\frac{2335\sqrt{1-2x}}{3111696(3x+2)}+\frac{2335\sqrt{1-2x}}{1333584(3x+2)^2}-\frac{2335\sqrt{1-2x}}{95256(3x+2)^3}+\frac{2335\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{1555848\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x)^2)/(2 + 3*x)^8,x]
```

```
[Out] -(1 - 2*x)^(7/2)/(441*(2 + 3*x)^7) + (23*(1 - 2*x)^(7/2))/(882*(2
 + 3*x)^6) - (467*(1 - 2*x)^(5/2))/(2646*(2 + 3*x)^5) + (2335*(1
- 2*x)^(3/2))/(31752*(2 + 3*x)^4) - (2335*Sqrt[1 - 2*x])/(95256*(
2 + 3*x)^3) + (2335*Sqrt[1 - 2*x])/(1333584*(2 + 3*x)^2) + (2335*
Sqrt[1 - 2*x])/(3111696*(2 + 3*x)) + (2335*ArcTanh[Sqrt[3/7]*Sqrt
[1 - 2*x]])/(1555848*Sqrt[21])
```

Rubi in Sympy [A] time = 19.5954, size = 150, normalized size = 0.89

$$\frac{23\left(-2x+1\right)^{\frac{7}{2}}}{882\left(3x+2\right)^{6}}-\frac{\left(-2x+1\right)^{\frac{7}{2}}}{441\left(3x+2\right)^{7}}-\frac{467\left(-2x+1\right)^{\frac{5}{2}}}{2646\left(3x+2\right)^{5}}+\frac{2335\left(-2x+1\right)^{\frac{3}{2}}}{31752\left(3x+2\right)^{4}}+\frac{2335\sqrt{-2x+1}}{3111696\left(3x+2\right)}+\frac{2335\sqrt{-2x+1}}{1333584\left(3x+2\right)^{2}}-\frac{2335\sqrt{-2x+1}}{95256\left(3x+2\right)^{3}}+\frac{2335\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{32672808}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**2/(2+3*x)**8,x)
```

```
[Out] 23*(-2*x + 1)**(7/2)/(882*(3*x + 2)**6) - (-2*x + 1)**(7/2)/(441*
(3*x + 2)**7) - 467*(-2*x + 1)**(5/2)/(2646*(3*x + 2)**5) + 2335*
(-2*x + 1)**(3/2)/(31752*(3*x + 2)**4) + 2335*sqrt(-2*x + 1)/(311
1696*(3*x + 2)) + 2335*sqrt(-2*x + 1)/(1333584*(3*x + 2)**2) - 23
35*sqrt(-2*x + 1)/(95256*(3*x + 2)**3) + 2335*sqrt(21)*atanh(sqrt
(21)*sqrt(-2*x + 1)/7)/32672808
```

Mathematica [A] time = 0.137874, size = 78, normalized size = 0.46

$$\frac{\frac{21\sqrt{1-2x}(1702215x^6+8132805x^5-24492348x^4-23950566x^3+1405308x^2+1415408x-1107536)}{(3x+2)^7}+4670\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{65345616}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^2)/(2 + 3*x)^8,x]
```

```
[Out] ((21*Sqrt[1 - 2*x]*(-1107536 + 1415408*x + 1405308*x^2 - 23950566
*x^3 - 24492348*x^4 + 8132805*x^5 + 1702215*x^6))/(2 + 3*x)^7 + 4
670*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/65345616
```

Maple [A] time = 0.02, size = 93, normalized size = 0.6

$$-139968\frac{1}{(-4-6x)^7}\left(\frac{2335(1-2x)^{13/2}}{298722816}-\frac{11675(1-2x)^{11/2}}{96018048}+\frac{6721(1-2x)^{9/2}}{164602368}+\frac{571(1-2x)^{7/2}}{321489}-\frac{132161(1-2x)^{5/}}{30233088}\right.$$
$$+\frac{2335\sqrt{21}}{32672808}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^2/(2+3*x)^8,x)
```

```
[Out] -139968*(2335/298722816*(1-2*x)^(13/2)-11675/96018048*(1-2*x)^(11
/2)+6721/164602368*(1-2*x)^(9/2)+571/321489*(1-2*x)^(7/2)-132161/
30233088*(1-2*x)^(5/2)+81725/22674816*(1-2*x)^(3/2)-114415/906992
64*(1-2*x)^(1/2))/(-4-6*x)^7+2335/32672808*arctanh(1/7*21^(1/2)*(
1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.50551, size = 221, normalized size = 1.32

$$-\frac{2335}{65345616}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)$$
$$+\frac{1702215(-2x+1)^{\frac{13}{2}}-26478900(-2x+1)^{\frac{11}{2}}+8891883(-2x+1)^{\frac{9}{2}}+386781696(-2x+1)^{\frac{7}{2}}-951955683(-2x+1)^{\frac{5}{2}}+78}{1555848\left(2187(2x-1)^7+35721(2x-1)^6+250047(2x-1)^5+972405(2x-1)^4+2268945(2x-1)^3+317652\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(-2*x + 1)^(5/2)/(3*x + 2)^8,x, algorithm="maxima")
```

```
[Out] -2335/65345616*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(
21) + 3*sqrt(-2*x + 1))) + 1/1555848*(1702215*(-2*x + 1)^(13/2) -
 26478900*(-2*x + 1)^(11/2) + 8891883*(-2*x + 1)^(9/2) + 38678169
6*(-2*x + 1)^(7/2) - 951955683*(-2*x + 1)^(5/2) + 784886900*(-2*x
 + 1)^(3/2) - 274710415*sqrt(-2*x + 1))/(2187*(2*x - 1)^7 + 35721
*(2*x - 1)^6 + 250047*(2*x - 1)^5 + 972405*(2*x - 1)^4 + 2268945*
(2*x - 1)^3 + 3176523*(2*x - 1)^2 + 4941258*x - 1647086)
```

Fricas [A] time = 0.221586, size = 201, normalized size = 1.2

$$\frac{\sqrt{21}\left(\sqrt{21}(1702215x^6+8132805x^5-24492348x^4-23950566x^3+1405308x^2+1415408x-1107536)\sqrt{-2x+1}+2335\right(}{65345616(2187x^7+10206x^6+20412x^5+22680x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(-2*x + 1)^(5/2)/(3*x + 2)^8,x, algorithm="fricas")
```

```
[Out] 1/65345616*sqrt(21)*(sqrt(21)*(1702215*x^6 + 8132805*x^5 - 244923
48*x^4 - 23950566*x^3 + 1405308*x^2 + 1415408*x - 1107536)*sqrt(-
2*x + 1) + 2335*(2187*x^7 + 10206*x^6 + 20412*x^5 + 22680*x^4 + 1
5120*x^3 + 6048*x^2 + 1344*x + 128)*log((sqrt(21)*(3*x - 5) - 21*
sqrt(-2*x + 1))/(3*x + 2)))/(2187*x^7 + 10206*x^6 + 20412*x^5 + 2
2680*x^4 + 15120*x^3 + 6048*x^2 + 1344*x + 128)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(5/2)*(3+5*x)**2/(2+3*x)**8,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.230304, size = 200, normalized size = 1.19

$$-\frac{2335}{65345616}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{1702215(2x-1)^6\sqrt{-2x+1}+26478900(2x-1)^5\sqrt{-2x+1}+8891883(2x-1)^4\sqrt{-2x+1}-386781696(2x-1)^3\sqrt{-2x}}{199148544(3x+2)^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(-2*x + 1)^(5/2)/(3*x + 2)^8,x, algorithm="giac")
```

```
[Out] -2335/65345616*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1)
)/(sqrt(21) + 3*sqrt(-2*x + 1))) + 1/199148544*(1702215*(2*x - 1)
^6*sqrt(-2*x + 1) + 26478900*(2*x - 1)^5*sqrt(-2*x + 1) + 8891883
*(2*x - 1)^4*sqrt(-2*x + 1) - 386781696*(2*x - 1)^3*sqrt(-2*x + 1
) - 951955683*(2*x - 1)^2*sqrt(-2*x + 1) + 784886900*(-2*x + 1)^(
3/2) - 274710415*sqrt(-2*x + 1))/(3*x + 2)^7
```

3.1938 $\int (1-2x)^{5/2}(2+3x)^4(3+5x)^3\,dx$

Optimal. Leaf size=105

$$\frac{3375}{896}(1-2x)^{21/2}-\frac{161325(1-2x)^{19/2}}{2432}+\frac{1101465(1-2x)^{17/2}}{2176}-\frac{1392467}{640}(1-2x)^{15/2}+\frac{9504551(1-2x)^{13/2}}{1664}-\frac{1179381}{128}(1-2x)^{11/2}+\frac{3278737}{384}(1-2x)^{9/2}-\frac{456533}{128}(1-2x)^{7/2}$$

```
[Out] (-456533*(1 - 2*x)^(7/2))/128 + (3278737*(1 - 2*x)^(9/2))/384 - (
1179381*(1 - 2*x)^(11/2))/128 + (9504551*(1 - 2*x)^(13/2))/1664 -
 (1392467*(1 - 2*x)^(15/2))/640 + (1101465*(1 - 2*x)^(17/2))/2176
 - (161325*(1 - 2*x)^(19/2))/2432 + (3375*(1 - 2*x)^(21/2))/896
```

Rubi [A] time = 0.0817825, antiderivative size = 105, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.042

$$\frac{3375}{896}(1-2x)^{21/2}-\frac{161325(1-2x)^{19/2}}{2432}+\frac{1101465(1-2x)^{17/2}}{2176}-\frac{1392467}{640}(1-2x)^{15/2}+\frac{9504551(1-2x)^{13/2}}{1664}-\frac{1179381}{128}(1-2x)^{11/2}+\frac{3278737}{384}(1-2x)^{9/2}-\frac{456533}{128}(1-2x)^{7/2}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)*(2 + 3*x)^4*(3 + 5*x)^3,x]
```

```
[Out] (-456533*(1 - 2*x)^(7/2))/128 + (3278737*(1 - 2*x)^(9/2))/384 - (
1179381*(1 - 2*x)^(11/2))/128 + (9504551*(1 - 2*x)^(13/2))/1664 -
 (1392467*(1 - 2*x)^(15/2))/640 + (1101465*(1 - 2*x)^(17/2))/2176
 - (161325*(1 - 2*x)^(19/2))/2432 + (3375*(1 - 2*x)^(21/2))/896
```

Rubi in Sympy [A] time = 11.3157, size = 94, normalized size = 0.9

$$\frac{3375\left(-2x+1\right)^{\frac{21}{2}}}{896}-\frac{161325\left(-2x+1\right)^{\frac{19}{2}}}{2432}+\frac{1101465\left(-2x+1\right)^{\frac{17}{2}}}{2176}-\frac{1392467\left(-2x+1\right)^{\frac{15}{2}}}{640}+\frac{9504551\left(-2x+1\right)^{\frac{13}{2}}}{1664}-\frac{1179381\left(-2x+1\right)^{\frac{11}{2}}}{128}+\frac{3278737\left(-2x+1\right)^{\frac{9}{2}}}{384}-\frac{456533\left(-2x+1\right)^{\frac{7}{2}}}{128}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**4*(3+5*x)**3,x)
```

```
[Out] 3375*(-2*x + 1)**(21/2)/896 - 161325*(-2*x + 1)**(19/2)/2432 + 11
01465*(-2*x + 1)**(17/2)/2176 - 1392467*(-2*x + 1)**(15/2)/640 +
9504551*(-2*x + 1)**(13/2)/1664 - 1179381*(-2*x + 1)**(11/2)/128
+ 3278737*(-2*x + 1)**(9/2)/384 - 456533*(-2*x + 1)**(7/2)/128
```

Mathematica [A] time = 0.0638286, size = 48, normalized size = 0.46

$$-\frac{(1-2x)^{7/2}\left(212574375x^7+1127763000x^6+2642319225x^5+3583371246x^4+3089723448x^3+1740153744x^2+61949339\right.}{440895}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)*(2 + 3*x)^4*(3 + 5*x)^3,x]
```

```
[Out] -((1 - 2*x)^(7/2)*(115708576 + 619493392*x + 1740153744*x^2 + 308
9723448*x^3 + 3583371246*x^4 + 2642319225*x^5 + 1127763000*x^6 +
```

```
212574375*x^7))/440895
```

Maple [A] time = 0.007, size = 45, normalized size = 0.4

$$-\frac{212574375\,x^{7}+1127763000\,x^{6}+2642319225\,x^{5}+3583371246\,x^{4}+3089723448\,x^{3}+1740153744\,x^{2}+619493392\,x+1157}{440895}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^4*(3+5*x)^3,x)
```

```
[Out] -1/440895*(212574375*x^7+1127763000*x^6+2642319225*x^5+3583371246
*x^4+3089723448*x^3+1740153744*x^2+619493392*x+115708576)*(1-2*x)
^(7/2)
```

Maxima [A] time = 1.34387, size = 99, normalized size = 0.94

$$\frac{3375}{896}\,(-2\,x+1)^{\frac{21}{2}}-\frac{161325}{2432}\,(-2\,x+1)^{\frac{19}{2}}+\frac{1101465}{2176}\,(-2\,x+1)^{\frac{17}{2}}-\frac{1392467}{640}\,(-2\,x+1)^{\frac{15}{2}}+\frac{9504551}{1664}\,(-2\,x+1)^{\frac{13}{2}}-\frac{1179381}{128}\,(-2\,x+1)^{\frac{11}{2}}+\frac{3278737}{384}\,(-2\,x+1)^{\frac{9}{2}}-\frac{456533}{128}\,(-2\,x+1)^{\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^4*(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] 3375/896*(-2*x + 1)^(21/2) - 161325/2432*(-2*x + 1)^(19/2) + 1101
465/2176*(-2*x + 1)^(17/2) - 1392467/640*(-2*x + 1)^(15/2) + 9504
551/1664*(-2*x + 1)^(13/2) - 1179381/128*(-2*x + 1)^(11/2) + 3278
737/384*(-2*x + 1)^(9/2) - 456533/128*(-2*x + 1)^(7/2)
```

Fricas [A] time = 0.259767, size = 80, normalized size = 0.76

$$\frac{1}{440895}\left(1700595000\,x^{10}+6471211500\,x^{9}+8880844050\,x^{8}+3513142893\,x^{7}-3556515018\,x^{6}-4297543173\,x^{5}-97092835\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^4*(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/440895*(1700595000*x^10 + 6471211500*x^9 + 8880844050*x^8 + 351
3142893*x^7 - 3556515018*x^6 - 4297543173*x^5 - 970928350*x^4 + 8
42946920*x^3 + 588303696*x^2 + 74758064*x - 115708576)*sqrt(-2*x
+ 1)
```

Sympy [A] time = 6.62769, size = 94, normalized size = 0.9

$$\frac{3375\,(-2x+1)^{\frac{21}{2}}}{896}-\frac{161325\,(-2x+1)^{\frac{19}{2}}}{2432}+\frac{1101465\,(-2x+1)^{\frac{17}{2}}}{2176}-\frac{1392467\,(-2x+1)^{\frac{15}{2}}}{640}+\frac{9504551\,(-2x+1)^{\frac{13}{2}}}{1664}-\frac{1179381\,(-2x+1)^{\frac{11}{2}}}{128}+\frac{3278737\,(-2x+1)^{\frac{9}{2}}}{384}-\frac{456533\,(-2x+1)^{\frac{7}{2}}}{128}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)**4*(3+5*x)**3,x)
```

```
[Out] 3375*(-2*x + 1)**(21/2)/896 - 161325*(-2*x + 1)**(19/2)/2432 + 11
01465*(-2*x + 1)**(17/2)/2176 - 1392467*(-2*x + 1)**(15/2)/640 +
9504551*(-2*x + 1)**(13/2)/1664 - 1179381*(-2*x + 1)**(11/2)/128
+ 3278737*(-2*x + 1)**(9/2)/384 - 456533*(-2*x + 1)**(7/2)/128
```

GIAC/XCAS [A] time = 0.215901, size = 1, normalized size = 0.01

$$\text{Done}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3*(3*x + 2)^4*(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] Done
```

3.1939 $\int (1-2x)^{5/2}(2+3x)^3(3+5x)^3\,dx$

Optimal. Leaf size=92

$$-\frac{3375(1-2x)^{19/2}}{1216}+\frac{675}{16}(1-2x)^{17/2}-\frac{17337}{64}(1-2x)^{15/2}+\frac{98209}{104}(1-2x)^{13/2}-\frac{121359}{64}(1-2x)^{11/2}+\frac{100793}{48}(1-2x)^{9/2}-\frac{65219}{64}(1-2x)^{7/2}$$

```
[Out] (-65219*(1 - 2*x)^(7/2))/64 + (100793*(1 - 2*x)^(9/2))/48 - (1213
59*(1 - 2*x)^(11/2))/64 + (98209*(1 - 2*x)^(13/2))/104 - (17337*(
1 - 2*x)^(15/2))/64 + (675*(1 - 2*x)^(17/2))/16 - (3375*(1 - 2*x)
^(19/2))/1216
```

Rubi [A] time = 0.0691515, antiderivative size = 92, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.042

$$-\frac{3375(1-2x)^{19/2}}{1216}+\frac{675}{16}(1-2x)^{17/2}-\frac{17337}{64}(1-2x)^{15/2}+\frac{98209}{104}(1-2x)^{13/2}-\frac{121359}{64}(1-2x)^{11/2}+\frac{100793}{48}(1-2x)^{9/2}-\frac{65219}{64}(1-2x)^{7/2}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)*(2 + 3*x)^3*(3 + 5*x)^3,x]
```

```
[Out] (-65219*(1 - 2*x)^(7/2))/64 + (100793*(1 - 2*x)^(9/2))/48 - (1213
59*(1 - 2*x)^(11/2))/64 + (98209*(1 - 2*x)^(13/2))/104 - (17337*(
1 - 2*x)^(15/2))/64 + (675*(1 - 2*x)^(17/2))/16 - (3375*(1 - 2*x)
^(19/2))/1216
```

Rubi in Sympy [A] time = 10.3054, size = 82, normalized size = 0.89

$$-\frac{3375\,(-2x+1)^{\frac{19}{2}}}{1216}+\frac{675\,(-2x+1)^{\frac{17}{2}}}{16}-\frac{17337\,(-2x+1)^{\frac{15}{2}}}{64}+\frac{98209\,(-2x+1)^{\frac{13}{2}}}{104}-\frac{121359\,(-2x+1)^{\frac{11}{2}}}{64}+\frac{100793\,(-2x+1)^{\frac{9}{2}}}{48}-\frac{65219\,(-2x+1)^{\frac{7}{2}}}{64}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**3*(3+5*x)**3,x)
```

```
[Out] -3375*(-2*x + 1)**(19/2)/1216 + 675*(-2*x + 1)**(17/2)/16 - 17337
*(-2*x + 1)**(15/2)/64 + 98209*(-2*x + 1)**(13/2)/104 - 121359*(-
2*x + 1)**(11/2)/64 + 100793*(-2*x + 1)**(9/2)/48 - 65219*(-2*x +
 1)**(7/2)/64
```

Mathematica [A] time = 0.0594413, size = 43, normalized size = 0.47

$$-\frac{1}{741}(1-2x)^{7/2}\left(131625x^6+605475x^5+1204398x^4+1346367x^3+914049x^2+372070x+76018\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)*(2 + 3*x)^3*(3 + 5*x)^3,x]
```

```
[Out] -((1 - 2*x)^(7/2)*(76018 + 372070*x + 914049*x^2 + 1346367*x^3 +
1204398*x^4 + 605475*x^5 + 131625*x^6))/741
```

Maple [A] time = 0.006, size = 40, normalized size = 0.4

$$-\frac{131625\,x^{6}+605475\,x^{5}+1204398\,x^{4}+1346367\,x^{3}+914049\,x^{2}+372070\,x+76018}{741}\left(1-2\,x\right)^{\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^3*(3+5*x)^3,x)
```

```
[Out] -1/741*(131625*x^6+605475*x^5+1204398*x^4+1346367*x^3+914049*x^2+
372070*x+76018)*(1-2*x)^(7/2)
```

Maxima [A] time = 1.48647, size = 86, normalized size = 0.93

$$-\frac{3375}{1216}\left(-2\,x+1\right)^{\frac{19}{2}}+\frac{675}{16}\left(-2\,x+1\right)^{\frac{17}{2}}-\frac{17337}{64}\left(-2\,x+1\right)^{\frac{15}{2}}+\frac{98209}{104}\left(-2\,x+1\right)^{\frac{13}{2}}-\frac{121359}{64}\left(-2\,x+1\right)^{\frac{11}{2}}+\frac{100793}{48}\left(-2\,x+1\right)^{\frac{9}{2}}-\frac{65219}{64}\left(-2\,x+1\right)^{\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^3*(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] -3375/1216*(-2*x + 1)^(19/2) + 675/16*(-2*x + 1)^(17/2) - 17337/6
4*(-2*x + 1)^(15/2) + 98209/104*(-2*x + 1)^(13/2) - 121359/64*(-2
*x + 1)^(11/2) + 100793/48*(-2*x + 1)^(9/2) - 65219/64*(-2*x + 1)
^(7/2)
```

Fricas [A] time = 0.216599, size = 73, normalized size = 0.79

$$\frac{1}{741}\left(1053000\,x^{9}+3264300\,x^{8}+3159234\,x^{7}-180615\,x^{6}-2223099\,x^{5}-1118224\,x^{4}+281231\,x^{3}+406155\,x^{2}+84038\,x-7$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^3*(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/741*(1053000*x^9 + 3264300*x^8 + 3159234*x^7 - 180615*x^6 - 222
3099*x^5 - 1118224*x^4 + 281231*x^3 + 406155*x^2 + 84038*x - 7601
8)*sqrt(-2*x + 1)
```

Sympy [A] time = 5.76534, size = 82, normalized size = 0.89

$$-\frac{3375\left(-2x+1\right)^{\frac{19}{2}}}{1216}+\frac{675\left(-2x+1\right)^{\frac{17}{2}}}{16}-\frac{17337\left(-2x+1\right)^{\frac{15}{2}}}{64}+\frac{98209\left(-2x+1\right)^{\frac{13}{2}}}{104}-\frac{121359\left(-2x+1\right)^{\frac{11}{2}}}{64}+\frac{100793\left(-2x+1\right)^{\frac{9}{2}}}{48}-\frac{65219\left(-2x+1\right)^{\frac{7}{2}}}{64}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)**3*(3+5*x)**3,x)
```

```
[Out] -3375*(-2*x + 1)**(19/2)/1216 + 675*(-2*x + 1)**(17/2)/16 - 17337
*(-2*x + 1)**(15/2)/64 + 98209*(-2*x + 1)**(13/2)/104 - 121359*(-
2*x + 1)**(11/2)/64 + 100793*(-2*x + 1)**(9/2)/48 - 65219*(-2*x +
```

```
1)**(7/2)/64
```

GIAC/XCAS [A] time = 0.215973, size = 1, normalized size = 0.01

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3*(3*x + 2)^3*(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] Done
```

3.1940 $\int (1-2x)^{5/2}(2+3x)^2(3+5x)^3\,dx$

Optimal. Leaf size=79

$$\frac{1125}{544}(1-2x)^{17/2}-\frac{845}{32}(1-2x)^{15/2}+\frac{28555}{208}(1-2x)^{13/2}-\frac{5847}{16}(1-2x)^{11/2}+\frac{16093}{32}(1-2x)^{9/2}-\frac{9317}{32}(1-2x)^{7/2}$$

```
[Out] (-9317*(1 - 2*x)^(7/2))/32 + (16093*(1 - 2*x)^(9/2))/32 - (5847*(
1 - 2*x)^(11/2))/16 + (28555*(1 - 2*x)^(13/2))/208 - (845*(1 - 2*
x)^(15/2))/32 + (1125*(1 - 2*x)^(17/2))/544
```

Rubi [A] time = 0.0702132, antiderivative size = 79, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.042

$$\frac{1125}{544}(1-2x)^{17/2}-\frac{845}{32}(1-2x)^{15/2}+\frac{28555}{208}(1-2x)^{13/2}-\frac{5847}{16}(1-2x)^{11/2}+\frac{16093}{32}(1-2x)^{9/2}-\frac{9317}{32}(1-2x)^{7/2}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)*(2 + 3*x)^2*(3 + 5*x)^3,x]
```

```
[Out] (-9317*(1 - 2*x)^(7/2))/32 + (16093*(1 - 2*x)^(9/2))/32 - (5847*(
1 - 2*x)^(11/2))/16 + (28555*(1 - 2*x)^(13/2))/208 - (845*(1 - 2*
x)^(15/2))/32 + (1125*(1 - 2*x)^(17/2))/544
```

Rubi in Sympy [A] time = 9.48245, size = 70, normalized size = 0.89

$$\frac{1125\,(-2x+1)^{\frac{17}{2}}}{544}-\frac{845\,(-2x+1)^{\frac{15}{2}}}{32}+\frac{28555\,(-2x+1)^{\frac{13}{2}}}{208}-\frac{5847\,(-2x+1)^{\frac{11}{2}}}{16}+\frac{16093\,(-2x+1)^{\frac{9}{2}}}{32}-\frac{9317\,(-2x+1)^{\frac{7}{2}}}{32}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**2*(3+5*x)**3,x)
```

```
[Out] 1125*(-2*x + 1)**(17/2)/544 - 845*(-2*x + 1)**(15/2)/32 + 28555*(
-2*x + 1)**(13/2)/208 - 5847*(-2*x + 1)**(11/2)/16 + 16093*(-2*x
+ 1)**(9/2)/32 - 9317*(-2*x + 1)**(7/2)/32
```

Mathematica [A] time = 0.0557228, size = 38, normalized size = 0.48

$$-\frac{1}{221}(1-2x)^{7/2}\left(14625x^5+56810x^4+92535x^3+80748x^2+39160x+9004\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)*(2 + 3*x)^2*(3 + 5*x)^3,x]
```

```
[Out] -((1 - 2*x)^(7/2)*(9004 + 39160*x + 80748*x^2 + 92535*x^3 + 56810
*x^4 + 14625*x^5))/221
```

Maple [A] time = 0.006, size = 35, normalized size = 0.4

$$-\frac{14625 x^5 + 56810 x^4 + 92535 x^3 + 80748 x^2 + 39160 x + 9004}{221} (1 - 2 x)^{\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^2*(3+5*x)^3,x)
```

```
[Out] -1/221*(14625*x^5+56810*x^4+92535*x^3+80748*x^2+39160*x+9004)*(1-
2*x)^(7/2)
```

Maxima [A] time = 1.35608, size = 74, normalized size = 0.94

$$\frac{1125}{544} (-2 x + 1)^{\frac{17}{2}} - \frac{845}{32} (-2 x + 1)^{\frac{15}{2}} + \frac{28555}{208} (-2 x + 1)^{\frac{13}{2}} - \frac{5847}{16} (-2 x + 1)^{\frac{11}{2}} + \frac{16093}{32} (-2 x + 1)^{\frac{9}{2}} - \frac{9317}{32} (-2 x + 1)^{\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^2*(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] 1125/544*(-2*x + 1)^(17/2) - 845/32*(-2*x + 1)^(15/2) + 28555/208
*(-2*x + 1)^(13/2) - 5847/16*(-2*x + 1)^(11/2) + 16093/32*(-2*x +
 1)^(9/2) - 9317/32*(-2*x + 1)^(7/2)
```

Fricas [A] time = 0.206102, size = 66, normalized size = 0.84

$$\frac{1}{221} \left(117000 x^8 + 278980 x^7 + 146310 x^6 - 138201 x^5 - 157296 x^4 - 5935 x^3 + 46164 x^2 + 14864 x - 9004\right) \sqrt{-2 x + 1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^2*(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/221*(117000*x^8 + 278980*x^7 + 146310*x^6 - 138201*x^5 - 157296
*x^4 - 5935*x^3 + 46164*x^2 + 14864*x - 9004)*sqrt(-2*x + 1)
```

Sympy [A] time = 4.98225, size = 70, normalized size = 0.89

$$\frac{1125 (-2x + 1)^{\frac{17}{2}}}{544} - \frac{845 (-2x + 1)^{\frac{15}{2}}}{32} + \frac{28555 (-2x + 1)^{\frac{13}{2}}}{208} - \frac{5847 (-2x + 1)^{\frac{11}{2}}}{16} + \frac{16093 (-2x + 1)^{\frac{9}{2}}}{32} - \frac{9317 (-2x + 1)^{\frac{7}{2}}}{32}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)**2*(3+5*x)**3,x)
```

```
[Out] 1125*(-2*x + 1)**(17/2)/544 - 845*(-2*x + 1)**(15/2)/32 + 28555*(
-2*x + 1)**(13/2)/208 - 5847*(-2*x + 1)**(11/2)/16 + 16093*(-2*x
+ 1)**(9/2)/32 - 9317*(-2*x + 1)**(7/2)/32
```

GIAC/XCAS [A] time = 0.218469, size = 131, normalized size = 1.66

$$\frac{1125}{544}\,(2\,x-1)^{8}\sqrt{-2\,x+1}+\frac{845}{32}\,(2\,x-1)^{7}\sqrt{-2\,x+1}+\frac{28555}{208}\,(2\,x-1)^{6}\sqrt{-2\,x+1}+\frac{5847}{16}\,(2\,x-1)^{5}\sqrt{-2\,x+1}+\frac{16093}{32}\,(2\,x-1)^{4}\sqrt{-2\,x+1}+\frac{9317}{32}\,(2\,x-1)^{3}\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3*(3*x + 2)^2*(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] 1125/544*(2*x - 1)^8*sqrt(-2*x + 1) + 845/32*(2*x - 1)^7*sqrt(-2*
x + 1) + 28555/208*(2*x - 1)^6*sqrt(-2*x + 1) + 5847/16*(2*x - 1)
^5*sqrt(-2*x + 1) + 16093/32*(2*x - 1)^4*sqrt(-2*x + 1) + 9317/32
*(2*x - 1)^3*sqrt(-2*x + 1)
```

3.1941 $\int (1-2x)^{5/2}(2+3x)(3+5x)^3\,dx$

Optimal. Leaf size=66

$$-\frac{25}{16}(1-2x)^{15/2}+\frac{1675}{104}(1-2x)^{13/2}-\frac{255}{4}(1-2x)^{11/2}+\frac{2783}{24}(1-2x)^{9/2}-\frac{1331}{16}(1-2x)^{7/2}$$

```
[Out] (-1331*(1 - 2*x)^(7/2))/16 + (2783*(1 - 2*x)^(9/2))/24 - (255*(1
- 2*x)^(11/2))/4 + (1675*(1 - 2*x)^(13/2))/104 - (25*(1 - 2*x)^(1
5/2))/16
```

Rubi [A] time = 0.0564082, antiderivative size = 66, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{25}{16}(1-2x)^{15/2}+\frac{1675}{104}(1-2x)^{13/2}-\frac{255}{4}(1-2x)^{11/2}+\frac{2783}{24}(1-2x)^{9/2}-\frac{1331}{16}(1-2x)^{7/2}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)*(2 + 3*x)*(3 + 5*x)^3,x]
```

```
[Out] (-1331*(1 - 2*x)^(7/2))/16 + (2783*(1 - 2*x)^(9/2))/24 - (255*(1
- 2*x)^(11/2))/4 + (1675*(1 - 2*x)^(13/2))/104 - (25*(1 - 2*x)^(1
5/2))/16
```

Rubi in Sympy [A] time = 7.96625, size = 58, normalized size = 0.88

$$-\frac{25\left(-2x+1\right)^{\frac{15}{2}}}{16}+\frac{1675\left(-2x+1\right)^{\frac{13}{2}}}{104}-\frac{255\left(-2x+1\right)^{\frac{11}{2}}}{4}+\frac{2783\left(-2x+1\right)^{\frac{9}{2}}}{24}-\frac{1331\left(-2x+1\right)^{\frac{7}{2}}}{16}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)*(3+5*x)**3,x)
```

```
[Out] -25*(-2*x + 1)**(15/2)/16 + 1675*(-2*x + 1)**(13/2)/104 - 255*(-2
*x + 1)**(11/2)/4 + 2783*(-2*x + 1)**(9/2)/24 - 1331*(-2*x + 1)**
(7/2)/16
```

Mathematica [A] time = 0.0437705, size = 33, normalized size = 0.5

$$-\frac{1}{39}(1-2x)^{7/2}\left(975x^4+3075x^3+3870x^2+2381x+641\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)*(2 + 3*x)*(3 + 5*x)^3,x]
```

```
[Out] -((1 - 2*x)^(7/2)*(641 + 2381*x + 3870*x^2 + 3075*x^3 + 975*x^4))
/39
```

Maple [A] time = 0.006, size = 30, normalized size = 0.5

$$-\frac{975\,x^4+3075\,x^3+3870\,x^2+2381\,x+641}{39}\left(1-2\,x\right)^{\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)*(3+5*x)^3,x)
```

```
[Out] -1/39*(975*x^4+3075*x^3+3870*x^2+2381*x+641)*(1-2*x)^(7/2)
```

Maxima [A] time = 1.34387, size = 62, normalized size = 0.94

$$-\frac{25}{16}\,(-2\,x+1)^{\frac{15}{2}}+\frac{1675}{104}\,(-2\,x+1)^{\frac{13}{2}}-\frac{255}{4}\,(-2\,x+1)^{\frac{11}{2}}+\frac{2783}{24}\,(-2\,x+1)^{\frac{9}{2}}-\frac{1331}{16}\,(-2\,x+1)^{\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)*(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] -25/16*(-2*x + 1)^(15/2) + 1675/104*(-2*x + 1)^(13/2) - 255/4*(-2
*x + 1)^(11/2) + 2783/24*(-2*x + 1)^(9/2) - 1331/16*(-2*x + 1)^(7
/2)
```

Fricas [A] time = 0.204995, size = 59, normalized size = 0.89

$$\frac{1}{39}\,\left(7800\,x^{7}+12900\,x^{6}-90\,x^{5}-9917\,x^{4}-3299\,x^{3}+2724\,x^{2}+1465\,x-641\right)\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)*(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/39*(7800*x^7 + 12900*x^6 - 90*x^5 - 9917*x^4 - 3299*x^3 + 2724*
x^2 + 1465*x - 641)*sqrt(-2*x + 1)
```

Sympy [A] time = 4.49573, size = 58, normalized size = 0.88

$$-\frac{25\,(-2x+1)^{\frac{15}{2}}}{16}+\frac{1675\,(-2x+1)^{\frac{13}{2}}}{104}-\frac{255\,(-2x+1)^{\frac{11}{2}}}{4}+\frac{2783\,(-2x+1)^{\frac{9}{2}}}{24}-\frac{1331\,(-2x+1)^{\frac{7}{2}}}{16}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)*(3+5*x)**3,x)
```

```
[Out] -25*(-2*x + 1)**(15/2)/16 + 1675*(-2*x + 1)**(13/2)/104 - 255*(-2
*x + 1)**(11/2)/4 + 2783*(-2*x + 1)**(9/2)/24 - 1331*(-2*x + 1)**
(7/2)/16
```

GIAC/XCAS [A] time = 0.214283, size = 109, normalized size = 1.65

$$\frac{25}{16}\,(2\,x-1)^{7}\sqrt{-2\,x+1}+\frac{1675}{104}\,(2\,x-1)^{6}\sqrt{-2\,x+1}+\frac{255}{4}\,(2\,x-1)^{5}\sqrt{-2\,x+1}+\frac{2783}{24}\,(2\,x-1)^{4}\sqrt{-2\,x+1}+\frac{1331}{16}\,(2\,x-1)^{3}\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)*(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] 25/16*(2*x - 1)^7*sqrt(-2*x + 1) + 1675/104*(2*x - 1)^6*sqrt(-2*x
 + 1) + 255/4*(2*x - 1)^5*sqrt(-2*x + 1) + 2783/24*(2*x - 1)^4*sq
rt(-2*x + 1) + 1331/16*(2*x - 1)^3*sqrt(-2*x + 1)
```

3.1942 $\int (1-2x)^{5/2}(3+5x)^3\,dx$

Optimal. Leaf size=53

$$\frac{125}{104}(1-2x)^{13/2}-\frac{75}{8}(1-2x)^{11/2}+\frac{605}{24}(1-2x)^{9/2}-\frac{1331}{56}(1-2x)^{7/2}$$

```
[Out] (-1331*(1 - 2*x)^(7/2))/56 + (605*(1 - 2*x)^(9/2))/24 - (75*(1 -
2*x)^(11/2))/8 + (125*(1 - 2*x)^(13/2))/104
```

Rubi [A] time = 0.0318697, antiderivative size = 53, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 17, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.059

$$\frac{125}{104}(1-2x)^{13/2}-\frac{75}{8}(1-2x)^{11/2}+\frac{605}{24}(1-2x)^{9/2}-\frac{1331}{56}(1-2x)^{7/2}$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^(5/2)*(3 + 5*x)^3,x]
```

```
[Out] (-1331*(1 - 2*x)^(7/2))/56 + (605*(1 - 2*x)^(9/2))/24 - (75*(1 -
2*x)^(11/2))/8 + (125*(1 - 2*x)^(13/2))/104
```

Rubi in Sympy [A] time = 6.01234, size = 46, normalized size = 0.87

$$\frac{125\left(-2x+1\right)^{\frac{13}{2}}}{104}-\frac{75\left(-2x+1\right)^{\frac{11}{2}}}{8}+\frac{605\left(-2x+1\right)^{\frac{9}{2}}}{24}-\frac{1331\left(-2x+1\right)^{\frac{7}{2}}}{56}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**(5/2)*(3+5*x)**3,x)
```

```
[Out] 125*(-2*x + 1)**(13/2)/104 - 75*(-2*x + 1)**(11/2)/8 + 605*(-2*x
+ 1)**(9/2)/24 - 1331*(-2*x + 1)**(7/2)/56
```

Mathematica [A] time = 0.0367001, size = 28, normalized size = 0.53

$$-\frac{1}{273}(1-2x)^{7/2}\left(2625x^3+6300x^2+5495x+1838\right)$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)^(5/2)*(3 + 5*x)^3,x]
```

```
[Out] -((1 - 2*x)^(7/2)*(1838 + 5495*x + 6300*x^2 + 2625*x^3))/273
```

Maple [A] time = 0.004, size = 25, normalized size = 0.5

$$-\frac{2625\,x^3+6300\,x^2+5495\,x+1838}{273}\left(1-2\,x\right)^{\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((1-2*x)^(5/2)*(3+5*x)^3,x)
```

```
[Out] -1/273*(2625*x^3+6300*x^2+5495*x+1838)*(1-2*x)^(7/2)
```

Maxima [A] time = 1.33905, size = 50, normalized size = 0.94

$$\frac{125}{104}\left(-2x+1\right)^{\frac{13}{2}}-\frac{75}{8}\left(-2x+1\right)^{\frac{11}{2}}+\frac{605}{24}\left(-2x+1\right)^{\frac{9}{2}}-\frac{1331}{56}\left(-2x+1\right)^{\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] 125/104*(-2*x + 1)^(13/2) - 75/8*(-2*x + 1)^(11/2) + 605/24*(-2*x
 + 1)^(9/2) - 1331/56*(-2*x + 1)^(7/2)
```

Fricas [A] time = 0.222156, size = 53, normalized size = 1.

$$\frac{1}{273}\left(21000x^{6}+18900x^{5}-15890x^{4}-16061x^{3}+4614x^{2}+5533x-1838\right)\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/273*(21000*x^6 + 18900*x^5 - 15890*x^4 - 16061*x^3 + 4614*x^2 +
 5533*x - 1838)*sqrt(-2*x + 1)
```

Sympy [A] time = 2.91186, size = 100, normalized size = 1.89

$$\frac{1000x^{6}\sqrt{-2x+1}}{13}+\frac{900x^{5}\sqrt{-2x+1}}{13}-\frac{2270x^{4}\sqrt{-2x+1}}{39}-\frac{16061x^{3}\sqrt{-2x+1}}{273}+\frac{1538x^{2}\sqrt{-2x+1}}{91}+\frac{5533x\sqrt{-2x+1}}{273}-\frac{1838\sqrt{-2x+1}}{273}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**3,x)
```

```
[Out] 1000*x**6*sqrt(-2*x + 1)/13 + 900*x**5*sqrt(-2*x + 1)/13 - 2270*x
**4*sqrt(-2*x + 1)/39 - 16061*x**3*sqrt(-2*x + 1)/273 + 1538*x**2
*sqrt(-2*x + 1)/91 + 5533*x*sqrt(-2*x + 1)/273 - 1838*sqrt(-2*x +
 1)/273
```

GIAC/XCAS [A] time = 0.212275, size = 88, normalized size = 1.66

$$\frac{125}{104}\left(2x-1\right)^{6}\sqrt{-2x+1}+\frac{75}{8}\left(2x-1\right)^{5}\sqrt{-2x+1}+\frac{605}{24}\left(2x-1\right)^{4}\sqrt{-2x+1}+\frac{1331}{56}\left(2x-1\right)^{3}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] 125/104*(2*x - 1)^6*sqrt(-2*x + 1) + 75/8*(2*x - 1)^5*sqrt(-2*x +
 1) + 605/24*(2*x - 1)^4*sqrt(-2*x + 1) + 1331/56*(2*x - 1)^3*sqr
t(-2*x + 1)
```

3.1943 $\int \frac{(1-2x)^{5/2}(3+5x)^3}{2+3x}\,dx$

Optimal. Leaf size=108

$$-\frac{125}{132}(1-2x)^{11/2}+\frac{400}{81}(1-2x)^{9/2}-\frac{5135}{756}(1-2x)^{7/2}-\frac{2}{405}(1-2x)^{5/2}-\frac{14}{729}(1-2x)^{3/2}-\frac{98}{729}\sqrt{1-2x}+\frac{98}{729}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

```
[Out] (-98*Sqrt[1 - 2*x])/729 - (14*(1 - 2*x)^(3/2))/729 - (2*(1 - 2*x)
^(5/2))/405 - (5135*(1 - 2*x)^(7/2))/756 + (400*(1 - 2*x)^(9/2))/
81 - (125*(1 - 2*x)^(11/2))/132 + (98*Sqrt[7/3]*ArcTanh[Sqrt[3/7]
*Sqrt[1 - 2*x]])/729
```

Rubi [A] time = 0.12963, antiderivative size = 108, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$-\frac{125}{132}(1-2x)^{11/2}+\frac{400}{81}(1-2x)^{9/2}-\frac{5135}{756}(1-2x)^{7/2}-\frac{2}{405}(1-2x)^{5/2}-\frac{14}{729}(1-2x)^{3/2}-\frac{98}{729}\sqrt{1-2x}+\frac{98}{729}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x)^3)/(2 + 3*x),x]
```

```
[Out] (-98*Sqrt[1 - 2*x])/729 - (14*(1 - 2*x)^(3/2))/729 - (2*(1 - 2*x)
^(5/2))/405 - (5135*(1 - 2*x)^(7/2))/756 + (400*(1 - 2*x)^(9/2))/
81 - (125*(1 - 2*x)^(11/2))/132 + (98*Sqrt[7/3]*ArcTanh[Sqrt[3/7]
*Sqrt[1 - 2*x]])/729
```

Rubi in Sympy [A] time = 12.7788, size = 95, normalized size = 0.88

$$-\frac{125(-2x+1)^{\frac{11}{2}}}{132}+\frac{400(-2x+1)^{\frac{9}{2}}}{81}-\frac{5135(-2x+1)^{\frac{7}{2}}}{756}-\frac{2(-2x+1)^{\frac{5}{2}}}{405}-\frac{14(-2x+1)^{\frac{3}{2}}}{729}-\frac{98\sqrt{-2x+1}}{729}+\frac{98\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{2187}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**3/(2+3*x),x)
```

```
[Out] -125*(-2*x + 1)**(11/2)/132 + 400*(-2*x + 1)**(9/2)/81 - 5135*(-2
*x + 1)**(7/2)/756 - 2*(-2*x + 1)**(5/2)/405 - 14*(-2*x + 1)**(3/
2)/729 - 98*sqrt(-2*x + 1)/729 + 98*sqrt(21)*atanh(sqrt(21)*sqrt(
-2*x + 1)/7)/2187
```

Mathematica [A] time = 0.101016, size = 66, normalized size = 0.61

$$\frac{3\sqrt{1-2x}\left(8505000x^5+913500x^4-7838550x^3-249219x^2+3024349x-830656\right)+37730\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{841995}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^3)/(2 + 3*x),x]
```

```
[Out] (3*Sqrt[1 - 2*x]*(-830656 + 3024349*x - 249219*x^2 - 7838550*x^3
+ 913500*x^4 + 8505000*x^5) + 37730*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sq
rt[1 - 2*x]])/841995
```

Maple [A] time = 0.01, size = 74, normalized size = 0.7

$$-\frac{14}{729}(1-2x)^{\frac{3}{2}}-\frac{2}{405}(1-2x)^{\frac{5}{2}}-\frac{5135}{756}(1-2x)^{\frac{7}{2}}+\frac{400}{81}(1-2x)^{\frac{9}{2}}-\frac{125}{132}(1-2x)^{\frac{11}{2}}+\frac{98\sqrt{21}}{2187}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)-\frac{98}{729}\sqrt{1-2x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((1-2*x)^(5/2)*(3+5*x)^3/(2+3*x),x)
```

```
[Out] -14/729*(1-2*x)^(3/2)-2/405*(1-2*x)^(5/2)-5135/756*(1-2*x)^(7/2)+
400/81*(1-2*x)^(9/2)-125/132*(1-2*x)^(11/2)+98/2187*arctanh(1/7*2
1^(1/2)*(1-2*x)^(1/2))*21^(1/2)-98/729*(1-2*x)^(1/2)
```

Maxima [A] time = 1.50502, size = 123, normalized size = 1.14

$$-\frac{125}{132}(-2x+1)^{\frac{11}{2}}+\frac{400}{81}(-2x+1)^{\frac{9}{2}}-\frac{5135}{756}(-2x+1)^{\frac{7}{2}}-\frac{2}{405}(-2x+1)^{\frac{5}{2}}-\frac{14}{729}(-2x+1)^{\frac{3}{2}}-\frac{49}{2187}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{98}{729}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3*(-2*x + 1)^(5/2)/(3*x + 2),x, algorithm="maxima")
```

```
[Out] -125/132*(-2*x + 1)^(11/2) + 400/81*(-2*x + 1)^(9/2) - 5135/756*(
-2*x + 1)^(7/2) - 2/405*(-2*x + 1)^(5/2) - 14/729*(-2*x + 1)^(3/2
) - 49/2187*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21)
 + 3*sqrt(-2*x + 1))) - 98/729*sqrt(-2*x + 1)
```

Fricas [A] time = 0.21647, size = 105, normalized size = 0.97

$$\frac{1}{841995}\sqrt{3}\left(\sqrt{3}\left(8505000x^5+913500x^4-7838550x^3-249219x^2+3024349x-830656\right)\sqrt{-2x+1}+18865\sqrt{7}\log\left(\frac{\sqrt{3}(3\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3*(-2*x + 1)^(5/2)/(3*x + 2),x, algorithm="fricas")
```

```
[Out] 1/841995*sqrt(3)*(sqrt(3)*(8505000*x^5 + 913500*x^4 - 7838550*x^3
 - 249219*x^2 + 3024349*x - 830656)*sqrt(-2*x + 1) + 18865*sqrt(7
)*log((sqrt(3)*(3*x - 5) - 3*sqrt(7)*sqrt(-2*x + 1))/(3*x + 2)))
```

Sympy [A] time = 18.1488, size = 134, normalized size = 1.24

$$-\frac{125(-2x+1)^{\frac{11}{2}}}{132}+\frac{400(-2x+1)^{\frac{9}{2}}}{81}-\frac{5135(-2x+1)^{\frac{7}{2}}}{756}-\frac{2(-2x+1)^{\frac{5}{2}}}{405}-\frac{14(-2x+1)^{\frac{3}{2}}}{729}-\frac{98\sqrt{-2x+1}}{729}-\frac{686\left(\begin{cases}-\frac{\sqrt{21}\operatorname{acoth}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for } -2x+1>\frac{7}{3}\\ -\frac{\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for } -2x+1<\frac{7}{3}\end{cases}\right)}{729}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**3/(2+3*x),x)
```

```
[Out] -125*(-2*x + 1)**(11/2)/132 + 400*(-2*x + 1)**(9/2)/81 - 5135*(-2
*x + 1)**(7/2)/756 - 2*(-2*x + 1)**(5/2)/405 - 14*(-2*x + 1)**(3/
2)/729 - 98*sqrt(-2*x + 1)/729 - 686*Piecewise((-sqrt(21)*acoth(s
qrt(21)*sqrt(-2*x + 1)/7)/21, -2*x + 1 > 7/3), (-sqrt(21)*atanh(s
qrt(21)*sqrt(-2*x + 1)/7)/21, -2*x + 1 < 7/3)))/729
```

GIAC/XCAS [A] time = 0.212836, size = 165, normalized size = 1.53

$$\frac{125}{132}\,(2\,x-1)^{5}\sqrt{-2\,x+1}+\frac{400}{81}\,(2\,x-1)^{4}\sqrt{-2\,x+1}+\frac{5135}{756}\,(2\,x-1)^{3}\sqrt{-2\,x+1}-\frac{2}{405}\,(2\,x-1)^{2}\sqrt{-2\,x+1}-\frac{14}{729}\,(-2\,x+1)^{\frac{3}{2}}-\frac{49}{2187}\,\sqrt{21}\ln\left(\frac{\left|-2\,\sqrt{21}+6\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{21}+3\,\sqrt{-2\,x+1}\right)}\right)-\frac{98}{729}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(-2*x + 1)^(5/2)/(3*x + 2),x, algorithm="giac")
```

```
[Out] 125/132*(2*x - 1)^5*sqrt(-2*x + 1) + 400/81*(2*x - 1)^4*sqrt(-2*x
 + 1) + 5135/756*(2*x - 1)^3*sqrt(-2*x + 1) - 2/405*(2*x - 1)^2*s
qrt(-2*x + 1) - 14/729*(-2*x + 1)^(3/2) - 49/2187*sqrt(21)*ln(1/2
*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1)
)) - 98/729*sqrt(-2*x + 1)
```

3.1944 $\int \frac{(1-2x)^{5/2}(3+5x)^3}{(2+3x)^2}\,dx$

Optimal. Leaf size=121

$$-\frac{(1-2x)^{5/2}(5x+3)^3}{3(3x+2)}+\frac{55}{81}(1-2x)^{5/2}(5x+3)^2+\frac{220}{729}(1-2x)^{3/2}-\frac{22}{567}(1-2x)^{5/2}(100x+69)+\frac{1540}{729}\sqrt{1-2x}-\frac{1540}{729}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

```
[Out] (1540*Sqrt[1 - 2*x])/729 + (220*(1 - 2*x)^(3/2))/729 + (55*(1 - 2
*x)^(5/2)*(3 + 5*x)^2)/81 - ((1 - 2*x)^(5/2)*(3 + 5*x)^3)/(3*(2 +
 3*x)) - (22*(1 - 2*x)^(5/2)*(69 + 100*x))/567 - (1540*Sqrt[7/3]*
ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/729
```

Rubi [A] time = 0.198865, antiderivative size = 121, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 7, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.292

$$-\frac{(1-2x)^{5/2}(5x+3)^3}{3(3x+2)}+\frac{55}{81}(1-2x)^{5/2}(5x+3)^2+\frac{220}{729}(1-2x)^{3/2}-\frac{22}{567}(1-2x)^{5/2}(100x+69)+\frac{1540}{729}\sqrt{1-2x}-\frac{1540}{729}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x)^3)/(2 + 3*x)^2,x]
```

```
[Out] (1540*Sqrt[1 - 2*x])/729 + (220*(1 - 2*x)^(3/2))/729 + (55*(1 - 2
*x)^(5/2)*(3 + 5*x)^2)/81 - ((1 - 2*x)^(5/2)*(3 + 5*x)^3)/(3*(2 +
 3*x)) - (22*(1 - 2*x)^(5/2)*(69 + 100*x))/567 - (1540*Sqrt[7/3]*
ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/729
```

Rubi in Sympy [A] time = 20.0508, size = 104, normalized size = 0.86

$$\frac{55\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{2}}{81}-\frac{11\left(-2x+1\right)^{\frac{5}{2}}\left(1800x+1242\right)}{5103}-\frac{\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{3}}{3\left(3x+2\right)}+\frac{220\left(-2x+1\right)^{\frac{3}{2}}}{729}+\frac{1540\sqrt{-2x+1}}{729}-\frac{1540\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{2187}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**3/(2+3*x)**2,x)
```

```
[Out] 55*(-2*x + 1)**(5/2)*(5*x + 3)**2/81 - 11*(-2*x + 1)**(5/2)*(1800
*x + 1242)/5103 - (-2*x + 1)**(5/2)*(5*x + 3)**3/(3*(3*x + 2)) +
220*(-2*x + 1)**(3/2)/729 + 1540*sqrt(-2*x + 1)/729 - 1540*sqrt(2
1)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/2187
```

Mathematica [A] time = 0.113175, size = 73, normalized size = 0.6

$$\frac{\frac{3\sqrt{1-2x}\left(189000x^5-17100x^4-159714x^3+25275x^2+65558x+13759\right)}{3x+2}-10780\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{15309}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^3)/(2 + 3*x)^2,x]
```

```
[Out] ((3*Sqrt[1 - 2*x]*(13759 + 65558*x + 25275*x^2 - 159714*x^3 - 171
00*x^4 + 189000*x^5))/(2 + 3*x) - 10780*Sqrt[21]*ArcTanh[Sqrt[3/7
]*Sqrt[1 - 2*x]])/15309
```

Maple [A] time = 0.017, size = 81, normalized size = 0.7

$$\frac{125}{162}(1-2x)^{\frac{9}{2}}-\frac{725}{378}(1-2x)^{\frac{7}{2}}+\frac{2}{27}(1-2x)^{\frac{5}{2}}+\frac{214}{729}(1-2x)^{\frac{3}{2}}+\frac{1526}{729}\sqrt{1-2x}-\frac{98}{2187}\sqrt{1-2x}\left(-\frac{4}{3}-2x\right)^{-1}-\frac{1540\sqrt{21}}{2187}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^3/(2+3*x)^2,x)
```

```
[Out] 125/162*(1-2*x)^(9/2)-725/378*(1-2*x)^(7/2)+2/27*(1-2*x)^(5/2)+21
4/729*(1-2*x)^(3/2)+1526/729*(1-2*x)^(1/2)-98/2187*(1-2*x)^(1/2)/
(-4/3-2*x)-1540/2187*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.48702, size = 132, normalized size = 1.09

$$\frac{125}{162}(-2x+1)^{\frac{9}{2}}-\frac{725}{378}(-2x+1)^{\frac{7}{2}}+\frac{2}{27}(-2x+1)^{\frac{5}{2}}+\frac{214}{729}(-2x+1)^{\frac{3}{2}}+\frac{770}{2187}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{1526}{729}\sqrt{-2x+1}+\frac{49\sqrt{-2x+1}}{729(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(-2*x + 1)^(5/2)/(3*x + 2)^2,x, algorithm="maxima")
```

```
[Out] 125/162*(-2*x + 1)^(9/2) - 725/378*(-2*x + 1)^(7/2) + 2/27*(-2*x
+ 1)^(5/2) + 214/729*(-2*x + 1)^(3/2) + 770/2187*sqrt(21)*log(-(s
qrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 1526
/729*sqrt(-2*x + 1) + 49/729*sqrt(-2*x + 1)/(3*x + 2)
```

Fricas [A] time = 0.213866, size = 122, normalized size = 1.01

$$\frac{\sqrt{3}\left(5390\sqrt{7}(3x+2)\log\left(\frac{\sqrt{3}(3x-5)+3\sqrt{7}\sqrt{-2x+1}}{3x+2}\right)+\sqrt{3}\left(189000x^5-17100x^4-159714x^3+25275x^2+65558x+13759\right)\sqrt{-2}\right.}{15309(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(-2*x + 1)^(5/2)/(3*x + 2)^2,x, algorithm="fricas")
```

```
[Out] 1/15309*sqrt(3)*(5390*sqrt(7)*(3*x + 2)*log((sqrt(3)*(3*x - 5) +
3*sqrt(7)*sqrt(-2*x + 1))/(3*x + 2)) + sqrt(3)*(189000*x^5 - 1710
0*x^4 - 159714*x^3 + 25275*x^2 + 65558*x + 13759)*sqrt(-2*x + 1))
/(3*x + 2)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**3/(2+3*x)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.215088, size = 165, normalized size = 1.36

$$\frac{125}{162}\,(2\,x-1)^{4}\sqrt{-2\,x+1}+\frac{725}{378}\,(2\,x-1)^{3}\sqrt{-2\,x+1}+\frac{2}{27}\,(2\,x-1)^{2}\sqrt{-2\,x+1}+\frac{214}{729}\,(-2\,x+1)^{\frac{3}{2}}+\frac{770}{2187}\,\sqrt{21}\ln\left(\frac{\left|-2\,\sqrt{21}+6\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{21}+3\,\sqrt{-2\,x+1}\right)}\right)+\frac{1526}{729}\,\sqrt{-2\,x+1}+\frac{49\,\sqrt{-2\,x+1}}{729\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(-2*x + 1)^(5/2)/(3*x + 2)^2,x, algorithm="giac")
```

```
[Out] 125/162*(2*x - 1)^4*sqrt(-2*x + 1) + 725/378*(2*x - 1)^3*sqrt(-2*
x + 1) + 2/27*(2*x - 1)^2*sqrt(-2*x + 1) + 214/729*(-2*x + 1)^(3/
2) + 770/2187*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))
/(sqrt(21) + 3*sqrt(-2*x + 1))) + 1526/729*sqrt(-2*x + 1) + 49/72
9*sqrt(-2*x + 1)/(3*x + 2)
```

3.1945 $\int \frac{(1-2x)^{5/2}(3+5x)^3}{(2+3x)^3}\,dx$

Optimal. Leaf size=135

$$\frac{55(1-2x)^{3/2}(5x+3)^3}{9(3x+2)}-\frac{(1-2x)^{5/2}(5x+3)^3}{6(3x+2)^2}-\frac{220}{21}(1-2x)^{3/2}(5x+3)^2+\frac{55(1-2x)^{3/2}(603x+209)}{1134}-\frac{935}{81}\sqrt{1-2x}+\frac{935}{81}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

```
[Out] (-935*Sqrt[1 - 2*x])/81 - (220*(1 - 2*x)^(3/2)*(3 + 5*x)^2)/21 -
((1 - 2*x)^(5/2)*(3 + 5*x)^3)/(6*(2 + 3*x)^2) + (55*(1 - 2*x)^(3/
2)*(3 + 5*x)^3)/(9*(2 + 3*x)) + (55*(1 - 2*x)^(3/2)*(209 + 603*x)
)/1134 + (935*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/81
```

Rubi [A] time = 0.230923, antiderivative size = 135, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 8, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.333

$$\frac{55(1-2x)^{3/2}(5x+3)^3}{9(3x+2)}-\frac{(1-2x)^{5/2}(5x+3)^3}{6(3x+2)^2}-\frac{220}{21}(1-2x)^{3/2}(5x+3)^2+\frac{55(1-2x)^{3/2}(603x+209)}{1134}-\frac{935}{81}\sqrt{1-2x}+\frac{935}{81}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x)^3)/(2 + 3*x)^3,x]
```

```
[Out] (-935*Sqrt[1 - 2*x])/81 - (220*(1 - 2*x)^(3/2)*(3 + 5*x)^2)/21 -
((1 - 2*x)^(5/2)*(3 + 5*x)^3)/(6*(2 + 3*x)^2) + (55*(1 - 2*x)^(3/
2)*(3 + 5*x)^3)/(9*(2 + 3*x)) + (55*(1 - 2*x)^(3/2)*(209 + 603*x)
)/1134 + (935*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/81
```

Rubi in Sympy [A] time = 20.4617, size = 110, normalized size = 0.81

$$\frac{11\left(-2x+1\right)^{\frac{5}{2}}\left(7875x+2835\right)}{7938}-\frac{55\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{2}}{63\left(3x+2\right)}-\frac{\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{3}}{6\left(3x+2\right)^{2}}-\frac{935\left(-2x+1\right)^{\frac{3}{2}}}{567}-\frac{935\sqrt{-2x+1}}{81}+\frac{935\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{243}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**3/(2+3*x)**3,x)
```

```
[Out] 11*(-2*x + 1)**(5/2)*(7875*x + 2835)/7938 - 55*(-2*x + 1)**(5/2)*
(5*x + 3)**2/(63*(3*x + 2)) - (-2*x + 1)**(5/2)*(5*x + 3)**3/(6*(
3*x + 2)**2) - 935*(-2*x + 1)**(3/2)/567 - 935*sqrt(-2*x + 1)/81
+ 935*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/243
```

Mathematica [A] time = 0.12804, size = 75, normalized size = 0.56

$$\frac{\sqrt{1-2x}\left(54000x^5-24120x^4-17460x^3-67962x^2-152833x-64943\right)}{1134(3x+2)^2}+\frac{935}{81}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^3)/(2 + 3*x)^3,x]
```

```
[Out] (Sqrt[1 - 2*x]*(-64943 - 152833*x - 67962*x^2 - 17460*x^3 - 24120
*x^4 + 54000*x^5))/(1134*(2 + 3*x)^2) + (935*Sqrt[7/3]*ArcTanh[Sq
rt[3/7]*Sqrt[1 - 2*x]])/81
```

Maple [A] time = 0.016, size = 84, normalized size = 0.6

$$-\frac{125}{189}(1-2x)^{\frac{7}{2}}-\frac{10}{27}(1-2x)^{\frac{5}{2}}-\frac{370}{243}(1-2x)^{\frac{3}{2}}-\frac{8198}{729}\sqrt{1-2x}-\frac{14}{81(-4-6x)^2}\left(-\frac{73}{2}(1-2x)^{\frac{3}{2}}+\frac{1519}{18}\sqrt{1-2x}\right)+\frac{935\sqrt{21}}{243}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^3/(2+3*x)^3,x)
```

```
[Out] -125/189*(1-2*x)^(7/2)-10/27*(1-2*x)^(5/2)-370/243*(1-2*x)^(3/2)-
8198/729*(1-2*x)^(1/2)-14/81*(-73/2*(1-2*x)^(3/2)+1519/18*(1-2*x)
^(1/2))/(-4-6*x)^2+935/243*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21
^(1/2)
```

Maxima [A] time = 1.50288, size = 149, normalized size = 1.1

$$-\frac{125}{189}(-2x+1)^{\frac{7}{2}}-\frac{10}{27}(-2x+1)^{\frac{5}{2}}-\frac{370}{243}(-2x+1)^{\frac{3}{2}}-\frac{935}{486}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{8198}{729}\sqrt{-2x+1}+\frac{7\left(657(-2x+1)^{\frac{3}{2}}-1519\sqrt{-2x+1}\right)}{729\left(9(2x-1)^2+84x+7\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(-2*x + 1)^(5/2)/(3*x + 2)^3,x, algorithm="maxima")
```

```
[Out] -125/189*(-2*x + 1)^(7/2) - 10/27*(-2*x + 1)^(5/2) - 370/243*(-2*
x + 1)^(3/2) - 935/486*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1)
)/(sqrt(21) + 3*sqrt(-2*x + 1))) - 8198/729*sqrt(-2*x + 1) + 7/72
9*(657*(-2*x + 1)^(3/2) - 1519*sqrt(-2*x + 1))/(9*(2*x - 1)^2 + 8
4*x + 7)
```

Fricas [A] time = 0.214413, size = 135, normalized size = 1.

$$\frac{\sqrt{3}\left(6545\sqrt{7}\left(9x^2+12x+4\right)\log\left(\frac{\sqrt{3}(3x-5)-3\sqrt{7}\sqrt{-2x+1}}{3x+2}\right)+\sqrt{3}\left(54000x^5-24120x^4-17460x^3-67962x^2-152833x-649\right.\right.}{3402\left(9x^2+12x+4\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(-2*x + 1)^(5/2)/(3*x + 2)^3,x, algorithm="fricas")
```

```
[Out] 1/3402*sqrt(3)*(6545*sqrt(7)*(9*x^2 + 12*x + 4)*log((sqrt(3)*(3*x
 - 5) - 3*sqrt(7)*sqrt(-2*x + 1))/(3*x + 2)) + sqrt(3)*(54000*x^5
 - 24120*x^4 - 17460*x^3 - 67962*x^2 - 152833*x - 64943)*sqrt(-2*
x + 1))/(9*x^2 + 12*x + 4)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**3/(2+3*x)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.21632, size = 159, normalized size = 1.18

$$\frac{125}{189}\,(2\,x-1)^3\sqrt{-2\,x+1}-\frac{10}{27}\,(2\,x-1)^2\sqrt{-2\,x+1}-\frac{370}{243}\,(-2\,x+1)^{\frac{3}{2}}-\frac{935}{486}\,\sqrt{21}\ln\left(\frac{\left|-2\,\sqrt{21}+6\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{21}+3\,\sqrt{-2\,x+1}\right)}\right)-\frac{8198}{729}\,\sqrt{-2\,x+1}+\frac{7\left(657\,(-2\,x+1)^{\frac{3}{2}}-1519\,\sqrt{-2\,x+1}\right)}{2916\,(3\,x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(-2*x + 1)^(5/2)/(3*x + 2)^3,x, algorithm="giac")
```

```
[Out] 125/189*(2*x - 1)^3*sqrt(-2*x + 1) - 10/27*(2*x - 1)^2*sqrt(-2*x
+ 1) - 370/243*(-2*x + 1)^(3/2) - 935/486*sqrt(21)*ln(1/2*abs(-2*
sqrt(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 819
8/729*sqrt(-2*x + 1) + 7/2916*(657*(-2*x + 1)^(3/2) - 1519*sqrt(-
2*x + 1))/(3*x + 2)^2
```

3.1946 $\int \frac{(1-2x)^{5/2}(3+5x)^3}{(2+3x)^4}\,dx$

Optimal. Leaf size=147

$$-\frac{275\sqrt{1-2x}(5x+3)^3}{9(3x+2)}+\frac{55(1-2x)^{3/2}(5x+3)^3}{27(3x+2)^2}-\frac{(1-2x)^{5/2}(5x+3)^3}{9(3x+2)^3}+\frac{1441}{27}\sqrt{1-2x}(5x+3)^2-\frac{22}{243}\sqrt{1-2x}(1885x+578)-\frac{41360\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{243\sqrt{21}}$$

```
[Out] (1441*Sqrt[1 - 2*x]*(3 + 5*x)^2)/27 - ((1 - 2*x)^(5/2)*(3 + 5*x)^
3)/(9*(2 + 3*x)^3) + (55*(1 - 2*x)^(3/2)*(3 + 5*x)^3)/(27*(2 + 3*
x)^2) - (275*Sqrt[1 - 2*x]*(3 + 5*x)^3)/(9*(2 + 3*x)) - (22*Sqrt[
1 - 2*x]*(578 + 1885*x))/243 - (41360*ArcTanh[Sqrt[3/7]*Sqrt[1 -
2*x]])/(243*Sqrt[21])
```

Rubi [A] time = 0.288188, antiderivative size = 147, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 7, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.292

$$-\frac{275\sqrt{1-2x}(5x+3)^3}{9(3x+2)}+\frac{55(1-2x)^{3/2}(5x+3)^3}{27(3x+2)^2}-\frac{(1-2x)^{5/2}(5x+3)^3}{9(3x+2)^3}+\frac{1441}{27}\sqrt{1-2x}(5x+3)^2-\frac{22}{243}\sqrt{1-2x}(1885x+578)-\frac{41360\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{243\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x)^3)/(2 + 3*x)^4,x]
```

```
[Out] (1441*Sqrt[1 - 2*x]*(3 + 5*x)^2)/27 - ((1 - 2*x)^(5/2)*(3 + 5*x)^
3)/(9*(2 + 3*x)^3) + (55*(1 - 2*x)^(3/2)*(3 + 5*x)^3)/(27*(2 + 3*
x)^2) - (275*Sqrt[1 - 2*x]*(3 + 5*x)^3)/(9*(2 + 3*x)) - (22*Sqrt[
1 - 2*x]*(578 + 1885*x))/243 - (41360*ArcTanh[Sqrt[3/7]*Sqrt[1 -
2*x]])/(243*Sqrt[21])
```

Rubi in Sympy [A] time = 21.0823, size = 117, normalized size = 0.8

$$\frac{11\,(-2x+1)^{\frac{5}{2}}\,(12600x+9180)}{23814\,(3x+2)}-\frac{55\,(-2x+1)^{\frac{5}{2}}\,(5x+3)^2}{189\,(3x+2)^2}-\frac{(-2x+1)^{\frac{5}{2}}\,(5x+3)^3}{9\,(3x+2)^3}+\frac{41360\,(-2x+1)^{\frac{3}{2}}}{11907}+\frac{41360\sqrt{-2x+1}}{1701}-\frac{41360\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{5103}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**3/(2+3*x)**4,x)
```

```
[Out] 11*(-2*x + 1)**(5/2)*(12600*x + 9180)/(23814*(3*x + 2)) - 55*(-2*
x + 1)**(5/2)*(5*x + 3)**2/(189*(3*x + 2)**2) - (-2*x + 1)**(5/2)
*(5*x + 3)**3/(9*(3*x + 2)**3) + 41360*(-2*x + 1)**(3/2)/11907 +
41360*sqrt(-2*x + 1)/1701 - 41360*sqrt(21)*atanh(sqrt(21)*sqrt(-2
*x + 1)/7)/5103
```

Mathematica [A] time = 0.136946, size = 73, normalized size = 0.5

$$\frac{\frac{21\sqrt{1-2x}\left(16200x^5-20700x^4+87030x^3+289719x^2+229336x+56141\right)}{(3x+2)^3}-41360\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{5103}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^3)/(2 + 3*x)^4,x]
```

```
[Out] ((21*Sqrt[1 - 2*x]*(56141 + 229336*x + 289719*x^2 + 87030*x^3 - 2
0700*x^4 + 16200*x^5))/(2 + 3*x)^3 - 41360*Sqrt[21]*ArcTanh[Sqrt[
3/7]*Sqrt[1 - 2*x]])/5103
```

Maple [A] time = 0.019, size = 84, normalized size = 0.6

$$\frac{50}{81}(1-2x)^{\frac{5}{2}}+\frac{2050}{729}(1-2x)^{\frac{3}{2}}+\frac{16570}{729}\sqrt{1-2x}+\frac{2}{27(-4-6x)^3}\left(-\frac{4153}{3}(1-2x)^{\frac{5}{2}}+\frac{172130}{27}(1-2x)^{\frac{3}{2}}-\frac{198205}{27}\sqrt{1-2x}\right)-\frac{41360\sqrt{21}}{5103}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^3/(2+3*x)^4,x)
```

```
[Out] 50/81*(1-2*x)^(5/2)+2050/729*(1-2*x)^(3/2)+16570/729*(1-2*x)^(1/2
)+2/27*(-4153/3*(1-2*x)^(5/2)+172130/27*(1-2*x)^(3/2)-198205/27*(
1-2*x)^(1/2))/(-4-6*x)^3-41360/5103*arctanh(1/7*21^(1/2)*(1-2*x)^
(1/2))*21^(1/2)
```

Maxima [A] time = 1.49995, size = 161, normalized size = 1.1

$$\frac{50}{81}(-2x+1)^{\frac{5}{2}}+\frac{2050}{729}(-2x+1)^{\frac{3}{2}}+\frac{20680}{5103}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{16570}{729}\sqrt{-2x+1}+\frac{2\left(37377(-2x+1)^{\frac{5}{2}}-172130(-2x+1)^{\frac{3}{2}}+198205\sqrt{-2x+1}\right)}{729\left(27(2x-1)^3+189(2x-1)^2+882x-98\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(-2*x + 1)^(5/2)/(3*x + 2)^4,x, algorithm="maxima")
```

```
[Out] 50/81*(-2*x + 1)^(5/2) + 2050/729*(-2*x + 1)^(3/2) + 20680/5103*s
qrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*
x + 1))) + 16570/729*sqrt(-2*x + 1) + 2/729*(37377*(-2*x + 1)^(5/
2) - 172130*(-2*x + 1)^(3/2) + 198205*sqrt(-2*x + 1))/(27*(2*x -
1)^3 + 189*(2*x - 1)^2 + 882*x - 98)
```

Fricas [A] time = 0.211639, size = 140, normalized size = 0.95

$$\frac{\sqrt{21}\left(\sqrt{21}\left(16200x^5-20700x^4+87030x^3+289719x^2+229336x+56141\right)\sqrt{-2x+1}+20680\left(27x^3+54x^2+36x+8\right)\log\right.}{5103\left(27x^3+54x^2+36x+8\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(-2*x + 1)^(5/2)/(3*x + 2)^4,x, algorithm="fricas")
```

```
[Out] 1/5103*sqrt(21)*(sqrt(21)*(16200*x^5 - 20700*x^4 + 87030*x^3 + 28
9719*x^2 + 229336*x + 56141)*sqrt(-2*x + 1) + 20680*(27*x^3 + 54*
x^2 + 36*x + 8)*log((sqrt(21)*(3*x - 5) + 21*sqrt(-2*x + 1))/(3*x
```

```
+ 2)))/(27*x^3 + 54*x^2 + 36*x + 8)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**3/(2+3*x)**4,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.220987, size = 159, normalized size = 1.08

$$\frac{50}{81}\,(2\,x-1)^2\sqrt{-2\,x+1}+\frac{2050}{729}\,(-2\,x+1)^{\frac{3}{2}}+\frac{20680}{5103}\,\sqrt{21}\ln\left(\frac{\left|-2\,\sqrt{21}+6\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{21}+3\,\sqrt{-2\,x+1}\right)}\right)+\frac{16570}{729}\,\sqrt{-2\,x+1}+\frac{37377\,(2\,x-1)^2\sqrt{-2\,x+1}-172130\,(-2\,x+1)^{\frac{3}{2}}+198205\,\sqrt{-2\,x+1}}{2916\,(3\,x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(-2*x + 1)^(5/2)/(3*x + 2)^4,x, algorithm="giac")
```

```
[Out] 50/81*(2*x - 1)^2*sqrt(-2*x + 1) + 2050/729*(-2*x + 1)^(3/2) + 20
680/5103*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqr
t(21) + 3*sqrt(-2*x + 1))) + 16570/729*sqrt(-2*x + 1) + 1/2916*(3
7377*(2*x - 1)^2*sqrt(-2*x + 1) - 172130*(-2*x + 1)^(3/2) + 19820
5*sqrt(-2*x + 1))/(3*x + 2)^3
```

3.1947 $\int \frac{(1-2x)^{5/2}(3+5x)^3}{(2+3x)^5} dx$

Optimal. Leaf size=154

$$-\frac{55\sqrt{1-2x}(5x+3)^3}{24(3x+2)^2}+\frac{55(1-2x)^{3/2}(5x+3)^3}{54(3x+2)^3}-\frac{(1-2x)^{5/2}(5x+3)^3}{12(3x+2)^4}-\frac{2255\sqrt{1-2x}(5x+3)^2}{378(3x+2)}+\frac{275\sqrt{1-2x}(4595x+1123)}{13608}+\frac{645865\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{6804\sqrt{21}}$$

```
[Out] (-2255*Sqrt[1 - 2*x]*(3 + 5*x)^2)/(378*(2 + 3*x)) - ((1 - 2*x)^(5
/2)*(3 + 5*x)^3)/(12*(2 + 3*x)^4) + (55*(1 - 2*x)^(3/2)*(3 + 5*x)
^3)/(54*(2 + 3*x)^3) - (55*Sqrt[1 - 2*x]*(3 + 5*x)^3)/(24*(2 + 3*
x)^2) + (275*Sqrt[1 - 2*x]*(1123 + 4595*x))/13608 + (645865*ArcTa
nh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(6804*Sqrt[21])
```

Rubi [A] time = 0.296976, antiderivative size = 154, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$-\frac{55\sqrt{1-2x}(5x+3)^3}{24(3x+2)^2}+\frac{55(1-2x)^{3/2}(5x+3)^3}{54(3x+2)^3}-\frac{(1-2x)^{5/2}(5x+3)^3}{12(3x+2)^4}-\frac{2255\sqrt{1-2x}(5x+3)^2}{378(3x+2)}+\frac{275\sqrt{1-2x}(4595x+1123)}{13608}+\frac{645865\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{6804\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x)^3)/(2 + 3*x)^5,x]
```



```
[Out] (-2255*Sqrt[1 - 2*x]*(3 + 5*x)^2)/(378*(2 + 3*x)) - ((1 - 2*x)^(5
/2)*(3 + 5*x)^3)/(12*(2 + 3*x)^4) + (55*(1 - 2*x)^(3/2)*(3 + 5*x)
^3)/(54*(2 + 3*x)^3) - (55*Sqrt[1 - 2*x]*(3 + 5*x)^3)/(24*(2 + 3*
x)^2) + (275*Sqrt[1 - 2*x]*(1123 + 4595*x))/13608 + (645865*ArcTa
nh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(6804*Sqrt[21])
```

Rubi in Sympy [A] time = 20.6064, size = 121, normalized size = 0.79

$$-\frac{55(-2x+1)^{\frac{5}{2}}(39537x+25245)}{666792(3x+2)^2}-\frac{55(-2x+1)^{\frac{5}{2}}(5x+3)^2}{378(3x+2)^3}-\frac{(-2x+1)^{\frac{5}{2}}(5x+3)^3}{12(3x+2)^4}-\frac{645865(-2x+1)^{\frac{3}{2}}}{333396}-\frac{645865\sqrt{-2x+1}}{47628}+\frac{645865\sqrt{21}\,\mathrm{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{142884}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**3/(2+3*x)**5,x)
```

```
[Out] -55*(-2*x + 1)**(5/2)*(39537*x + 25245)/(666792*(3*x + 2)**2) - 5
5*(-2*x + 1)**(5/2)*(5*x + 3)**2/(378*(3*x + 2)**3) - (-2*x + 1)*
*(5/2)*(5*x + 3)**3/(12*(3*x + 2)**4) - 645865*(-2*x + 1)**(3/2)/
333396 - 645865*sqrt(-2*x + 1)/47628 + 645865*sqrt(21)*atanh(sqrt
(21)*sqrt(-2*x + 1)/7)/142884
```

Mathematica [A] time = 0.138832, size = 73, normalized size = 0.47

$$\frac{\frac{21\sqrt{1-2x}(1512000x^5-8215200x^4-32946525x^3-39158517x^2-19526798x-3553918)}{(3x+2)^4}+1291730\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{285768}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^3)/(2 + 3*x)^5,x]
```

```
[Out] ((21*Sqrt[1 - 2*x]*(-3553918 - 19526798*x - 39158517*x^2 - 329465
25*x^3 - 8215200*x^4 + 1512000*x^5))/(2 + 3*x)^4 + 1291730*Sqrt[2
1]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/285768
```

Maple [A] time = 0.017, size = 84, normalized size = 0.6

$$
\begin{aligned}
&-\frac{500}{729}(1-2x)^{\frac{3}{2}}-\frac{7600}{729}\sqrt{1-2x} \\
&-\frac{4}{9(-4-6x)^4}\left(-\frac{159975}{112}(1-2x)^{\frac{7}{2}}+\frac{4220087}{432}(1-2x)^{\frac{5}{2}}-\frac{28870415}{1296}(1-2x)^{\frac{3}{2}}+\frac{21951755}{1296}\sqrt{1-2x}\right) \\
&+\frac{645865\sqrt{21}}{142884}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)
\end{aligned}
$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^3/(2+3*x)^5,x)
```

```
[Out] -500/729*(1-2*x)^(3/2)-7600/729*(1-2*x)^(1/2)-4/9*(-159975/112*(1
-2*x)^(7/2)+4220087/432*(1-2*x)^(5/2)-28870415/1296*(1-2*x)^(3/2)
+21951755/1296*(1-2*x)^(1/2))/(-4-6*x)^4+645865/142884*arctanh(1/
7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.4979, size = 173, normalized size = 1.12

$$
\begin{aligned}
&-\frac{500}{729}(-2x+1)^{\frac{3}{2}}-\frac{645865}{285768}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{7600}{729}\sqrt{-2x+1} \\
&+\frac{12957975(-2x+1)^{\frac{7}{2}}-88621827(-2x+1)^{\frac{5}{2}}+202092905(-2x+1)^{\frac{3}{2}}-153662285\sqrt{-2x+1}}{20412\left(81(2x-1)^4+756(2x-1)^3+2646(2x-1)^2+8232x-1715\right)}
\end{aligned}
$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(-2*x + 1)^(5/2)/(3*x + 2)^5,x, algorithm="maxima")
```

```
[Out] -500/729*(-2*x + 1)^(3/2) - 645865/285768*sqrt(21)*log(-(sqrt(21)
 - 3*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 7600/729*sq
rt(-2*x + 1) + 1/20412*(12957975*(-2*x + 1)^(7/2) - 88621827*(-2*
x + 1)^(5/2) + 202092905*(-2*x + 1)^(3/2) - 153662285*sqrt(-2*x +
 1))/(81*(2*x - 1)^4 + 756*(2*x - 1)^3 + 2646*(2*x - 1)^2 + 8232*
x - 1715)
```

Fricas [A] time = 0.210509, size = 154, normalized size = 1.

$$
\frac{\sqrt{21}\left(\sqrt{21}\left(1512000x^5-8215200x^4-32946525x^3-39158517x^2-19526798x-3553918\right)\sqrt{-2x+1}+645865\left(81x^4+21\right.\right.}{285768\left(81x^4+216x^3+216x^2+96x+16\right)}
$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(-2*x + 1)^(5/2)/(3*x + 2)^5,x, algorithm="fricas")
```

```
[Out] 1/285768*sqrt(21)*(sqrt(21)*(1512000*x^5 - 8215200*x^4 - 32946525
*x^3 - 39158517*x^2 - 19526798*x - 3553918)*sqrt(-2*x + 1) + 6458
```

```
65*(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16)*log((sqrt(21)*(3*x -
5) - 21*sqrt(-2*x + 1))/(3*x + 2)))/(81*x^4 + 216*x^3 + 216*x^2 +
 96*x + 16)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**3/(2+3*x)**5,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.235267, size = 159, normalized size = 1.03

$$-\frac{500}{729}\,(-2\,x+1)^{\frac{3}{2}}-\frac{645865}{285768}\,\sqrt{21}\ln\left(\frac{\left|-2\,\sqrt{21}+6\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{21}+3\,\sqrt{-2\,x+1}\right)}\right)-\frac{7600}{729}\,\sqrt{-2\,x+1}-\frac{12957975\,(2\,x-1)^{3}\sqrt{-2\,x+1}+88621827\,(2\,x-1)^{2}\sqrt{-2\,x+1}-202092905\,(-2\,x+1)^{\frac{3}{2}}+153662285\,\sqrt{-2\,x+1}}{326592\,(3\,x+2)^{4}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(-2*x + 1)^(5/2)/(3*x + 2)^5,x, algorithm="giac")
```

```
[Out] -500/729*(-2*x + 1)^(3/2) - 645865/285768*sqrt(21)*ln(1/2*abs(-2*
sqrt(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 760
0/729*sqrt(-2*x + 1) - 1/326592*(12957975*(2*x - 1)^3*sqrt(-2*x +
 1) + 88621827*(2*x - 1)^2*sqrt(-2*x + 1) - 202092905*(-2*x + 1)^
(3/2) + 153662285*sqrt(-2*x + 1))/(3*x + 2)^4
```

3.1948 $\int \frac{(1-2x)^{5/2}(3+5x)^3}{(2+3x)^6}\,dx$

Optimal. Leaf size=161

$$\frac{11\sqrt{1-2x}(5x+3)^3}{9(3x+2)^3}+\frac{11(1-2x)^{3/2}(5x+3)^3}{18(3x+2)^4}-\frac{(1-2x)^{5/2}(5x+3)^3}{15(3x+2)^5}-\frac{209\sqrt{1-2x}(5x+3)^2}{756(3x+2)^2}-\frac{11\sqrt{1-2x}(6475x+3911)}{15876(3x+2)}-\frac{146971\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{7938\sqrt{21}}$$

```
[Out] (-209*Sqrt[1 - 2*x]*(3 + 5*x)^2)/(756*(2 + 3*x)^2) - ((1 - 2*x)^(
5/2)*(3 + 5*x)^3)/(15*(2 + 3*x)^5) + (11*(1 - 2*x)^(3/2)*(3 + 5*x
)^3)/(18*(2 + 3*x)^4) + (11*Sqrt[1 - 2*x]*(3 + 5*x)^3)/(9*(2 + 3*
x)^3) - (11*Sqrt[1 - 2*x]*(3911 + 6475*x))/(15876*(2 + 3*x)) - (1
46971*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(7938*Sqrt[21])
```

Rubi [A] time = 0.306201, antiderivative size = 161, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$\frac{11\sqrt{1-2x}(5x+3)^3}{9(3x+2)^3}+\frac{11(1-2x)^{3/2}(5x+3)^3}{18(3x+2)^4}-\frac{(1-2x)^{5/2}(5x+3)^3}{15(3x+2)^5}-\frac{209\sqrt{1-2x}(5x+3)^2}{756(3x+2)^2}-\frac{11\sqrt{1-2x}(6475x+3911)}{15876(3x+2)}-\frac{146971\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{7938\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x)^3)/(2 + 3*x)^6,x]
```

```
[Out] (-209*Sqrt[1 - 2*x]*(3 + 5*x)^2)/(756*(2 + 3*x)^2) - ((1 - 2*x)^(
5/2)*(3 + 5*x)^3)/(15*(2 + 3*x)^5) + (11*(1 - 2*x)^(3/2)*(3 + 5*x
)^3)/(18*(2 + 3*x)^4) + (11*Sqrt[1 - 2*x]*(3 + 5*x)^3)/(9*(2 + 3*
x)^3) - (11*Sqrt[1 - 2*x]*(3911 + 6475*x))/(15876*(2 + 3*x)) - (1
46971*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(7938*Sqrt[21])
```

Rubi in Sympy [A] time = 21.1453, size = 124, normalized size = 0.77

$$-\frac{11\left(-2x+1\right)^{\frac{5}{2}}\left(59994x+37728\right)}{666792\left(3x+2\right)^{3}}-\frac{11\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{2}}{126\left(3x+2\right)^{4}}-\frac{\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{3}}{15\left(3x+2\right)^{5}}+\frac{146971\left(-2x+1\right)^{\frac{3}{2}}}{111132\left(3x+2\right)}+\frac{146971\sqrt{-2x+1}}{55566}-\frac{146971\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{166698}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**3/(2+3*x)**6,x)
```

```
[Out] -11*(-2*x + 1)**(5/2)*(59994*x + 37728)/(666792*(3*x + 2)**3) - 1
1*(-2*x + 1)**(5/2)*(5*x + 3)**2/(126*(3*x + 2)**4) - (-2*x + 1)*
*(5/2)*(5*x + 3)**3/(15*(3*x + 2)**5) + 146971*(-2*x + 1)**(3/2)/
(111132*(3*x + 2)) + 146971*sqrt(-2*x + 1)/55566 - 146971*sqrt(21
)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/166698
```

Mathematica [A] time = 0.136621, size = 73, normalized size = 0.45

$$\frac{\frac{63\sqrt{1-2x}\left(26460000x^5+126578745x^4+207486855x^3+157178184x^2+56745266x+7933096\right)}{(3x+2)^5}-4409130\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{5000940}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^3)/(2 + 3*x)^6,x]
```

```
[Out] ((63*Sqrt[1 - 2*x]*(7933096 + 56745266*x + 157178184*x^2 + 207486
855*x^3 + 126578745*x^4 + 26460000*x^5))/(2 + 3*x)^5 - 4409130*Sq
rt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/5000940
```

Maple [A] time = 0.02, size = 84, normalized size = 0.5

$$\frac{1000}{729}\sqrt{1-2x}+\frac{8}{3\left(-4-6x\right)^{5}}\left(-\frac{284287}{784}\left(1-2x\right)^{\frac{9}{2}}+\frac{226727}{72}\left(1-2x\right)^{\frac{7}{2}}-\frac{1383554}{135}\left(1-2x\right)^{\frac{5}{2}}+\frac{9599737}{648}\left(1-2x\right)^{\frac{3}{2}}-\frac{31200211}{3888}\sqrt{1-2x}\right)-\frac{146971\sqrt{21}}{166698}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^3/(2+3*x)^6,x)
```

```
[Out] 1000/729*(1-2*x)^(1/2)+8/3*(-284287/784*(1-2*x)^(9/2)+226727/72*(
1-2*x)^(7/2)-1383554/135*(1-2*x)^(5/2)+9599737/648*(1-2*x)^(3/2)-
31200211/3888*(1-2*x)^(1/2))/(-4-6*x)^5-146971/166698*arctanh(1/7
*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.50387, size = 185, normalized size = 1.15

$$\frac{146971}{333396}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{1000}{729}\sqrt{-2x+1}+\frac{345408705\left(-2x+1\right)^{\frac{9}{2}}-2999598210\left(-2x+1\right)^{\frac{7}{2}}+9762357024\left(-2x+1\right)^{\frac{5}{2}}-14111613390\left(-2x+1\right)^{\frac{3}{2}}+7644051695\sqrt{-2}}{357210\left(243\left(2x-1\right)^{5}+2835\left(2x-1\right)^{4}+13230\left(2x-1\right)^{3}+30870\left(2x-1\right)^{2}+72030x-19208\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(-2*x + 1)^(5/2)/(3*x + 2)^6,x, algorithm="maxima")
```

```
[Out] 146971/333396*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(2
1) + 3*sqrt(-2*x + 1))) + 1000/729*sqrt(-2*x + 1) + 1/357210*(345
408705*(-2*x + 1)^(9/2) - 2999598210*(-2*x + 1)^(7/2) + 976235702
4*(-2*x + 1)^(5/2) - 14111613390*(-2*x + 1)^(3/2) + 7644051695*sq
rt(-2*x + 1))/(243*(2*x - 1)^5 + 2835*(2*x - 1)^4 + 13230*(2*x -
1)^3 + 30870*(2*x - 1)^2 + 72030*x - 19208)
```

Fricas [A] time = 0.212324, size = 167, normalized size = 1.04

$$\frac{\sqrt{21}\left(\sqrt{21}\left(26460000x^{5}+126578745x^{4}+207486855x^{3}+157178184x^{2}+56745266x+7933096\right)\sqrt{-2x+1}+734855\left(243x\right.\right.}{1666980\left(243x^{5}+810x^{4}+1080x^{3}+720x^{2}+240x+3\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(-2*x + 1)^(5/2)/(3*x + 2)^6,x, algorithm="fricas")
```

```
[Out] 1/1666980*sqrt(21)*(sqrt(21)*(26460000*x^5 + 126578745*x^4 + 2074
86855*x^3 + 157178184*x^2 + 56745266*x + 7933096)*sqrt(-2*x + 1)
```

```
+ 734855*(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)*lo
g((sqrt(21)*(3*x - 5) + 21*sqrt(-2*x + 1))/(3*x + 2)))/(243*x^5 +
 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**3/(2+3*x)**6,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.248554, size = 169, normalized size = 1.05

$$\frac{146971}{333396}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{1000}{729}\sqrt{-2x+1}$$
$$+\frac{345408705(2x-1)^4\sqrt{-2x+1}+2999598210(2x-1)^3\sqrt{-2x+1}+9762357024(2x-1)^2\sqrt{-2x+1}-14111613390(-2x}{11430720(3x+2)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(-2*x + 1)^(5/2)/(3*x + 2)^6,x, algorithm="giac")
```

```
[Out] 146971/333396*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))
/(sqrt(21) + 3*sqrt(-2*x + 1))) + 1000/729*sqrt(-2*x + 1) + 1/114
30720*(345408705*(2*x - 1)^4*sqrt(-2*x + 1) + 2999598210*(2*x - 1
)^3*sqrt(-2*x + 1) + 9762357024*(2*x - 1)^2*sqrt(-2*x + 1) - 1411
1613390*(-2*x + 1)^(3/2) + 7644051695*sqrt(-2*x + 1))/(3*x + 2)^5
```

3.1949 $\int \frac{(1-2x)^{5/2}(3+5x)^3}{(2+3x)^7}\,dx$

Optimal. Leaf size=162

$$\frac{11(1-2x)^{3/2}(5x+3)^3}{27(3x+2)^5}-\frac{(1-2x)^{5/2}(5x+3)^3}{18(3x+2)^6}+\frac{559625\sqrt{1-2x}}{1333584(3x+2)}-\frac{559625\sqrt{1-2x}}{190512(3x+2)^2}+\frac{33275(1-2x)^{3/2}}{95256(3x+2)^3}-\frac{121(1-2x)^{3/2}}{4536(3x+2)^4}+\frac{559625\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{666792\sqrt{21}}$$

```
[Out] (-121*(1 - 2*x)^(3/2))/(4536*(2 + 3*x)^4) + (33275*(1 - 2*x)^(3/2
))/(95256*(2 + 3*x)^3) - (559625*Sqrt[1 - 2*x])/(190512*(2 + 3*x)
^2) + (559625*Sqrt[1 - 2*x])/(1333584*(2 + 3*x)) - ((1 - 2*x)^(5/
2)*(3 + 5*x)^3)/(18*(2 + 3*x)^6) + (11*(1 - 2*x)^(3/2)*(3 + 5*x)^
3)/(27*(2 + 3*x)^5) + (559625*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(
666792*Sqrt[21])
```

Rubi [A] time = 0.258565, antiderivative size = 162, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 9, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.375

$$\frac{11(1-2x)^{3/2}(5x+3)^3}{27(3x+2)^5}-\frac{(1-2x)^{5/2}(5x+3)^3}{18(3x+2)^6}+\frac{559625\sqrt{1-2x}}{1333584(3x+2)}-\frac{559625\sqrt{1-2x}}{190512(3x+2)^2}+\frac{33275(1-2x)^{3/2}}{95256(3x+2)^3}-\frac{121(1-2x)^{3/2}}{4536(3x+2)^4}+\frac{559625\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{666792\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x)^3)/(2 + 3*x)^7,x]
```

```
[Out] (-121*(1 - 2*x)^(3/2))/(4536*(2 + 3*x)^4) + (33275*(1 - 2*x)^(3/2
))/(95256*(2 + 3*x)^3) - (559625*Sqrt[1 - 2*x])/(190512*(2 + 3*x)
^2) + (559625*Sqrt[1 - 2*x])/(1333584*(2 + 3*x)) - ((1 - 2*x)^(5/
2)*(3 + 5*x)^3)/(18*(2 + 3*x)^6) + (11*(1 - 2*x)^(3/2)*(3 + 5*x)^
3)/(27*(2 + 3*x)^5) + (559625*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(
666792*Sqrt[21])
```

Rubi in Sympy [A] time = 22.3947, size = 131, normalized size = 0.81

$$-\frac{11\left(-2x+1\right)^{\frac{5}{2}}\left(81675x+50985\right)}{2000376\left(3x+2\right)^{4}}-\frac{11\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{2}}{189\left(3x+2\right)^{5}}-\frac{\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{3}}{18\left(3x+2\right)^{6}}+\frac{559625\left(-2x+1\right)^{\frac{3}{2}}}{1333584\left(3x+2\right)^{2}}-\frac{559625\sqrt{-2x+1}}{1333584\left(3x+2\right)}+\frac{559625\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{14002632}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**3/(2+3*x)**7,x)
```

```
[Out] -11*(-2*x + 1)**(5/2)*(81675*x + 50985)/(2000376*(3*x + 2)**4) -
11*(-2*x + 1)**(5/2)*(5*x + 3)**2/(189*(3*x + 2)**5) - (-2*x + 1)
**(5/2)*(5*x + 3)**3/(18*(3*x + 2)**6) + 559625*(-2*x + 1)**(3/2)
/(1333584*(3*x + 2)**2) - 559625*sqrt(-2*x + 1)/(1333584*(3*x + 2
)) + 559625*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/14002632
```

Mathematica [A] time = 0.14685, size = 73, normalized size = 0.45

$$\frac{3357750\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{63\sqrt{1-2x}(308539125x^5+720187425x^4+687940758x^3+352611738x^2+102558856x+13847024)}{(3x+2)^6}}{84015792}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^3)/(2 + 3*x)^7,x]
```

```
[Out] ((-63*Sqrt[1 - 2*x]*(13847024 + 102558856*x + 352611738*x^2 + 687
940758*x^3 + 720187425*x^4 + 308539125*x^5))/(2 + 3*x)^6 + 335775
0*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/84015792
```

Maple [A] time = 0.02, size = 84, normalized size = 0.5

$$-11664\frac{1}{(-4-6x)^6}\left(-\frac{3809125(1-2x)^{11/2}}{96018048}+\frac{47350325(1-2x)^{9/2}}{123451776}-\frac{4383467(1-2x)^{7/2}}{2939328}+\frac{1231175(1-2x)^{5/2}}{419904}-665\right.$$
$$+\frac{559625\sqrt{21}}{14002632}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^3/(2+3*x)^7,x)
```

```
[Out] -11664*(-3809125/96018048*(1-2*x)^(11/2)+47350325/123451776*(1-2*
x)^(9/2)-4383467/2939328*(1-2*x)^(7/2)+1231175/419904*(1-2*x)^(5/
2)-66595375/22674816*(1-2*x)^(3/2)+27421625/22674816*(1-2*x)^(1/2
))/(-4-6*x)^6+559625/14002632*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))
*21^(1/2)
```

Maxima [A] time = 1.52216, size = 197, normalized size = 1.22

$$-\frac{559625}{28005264}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)$$
$$+\frac{308539125(-2x+1)^{\frac{11}{2}}-2983070475(-2x+1)^{\frac{9}{2}}+11598653682(-2x+1)^{\frac{7}{2}}-22803823350(-2x+1)^{\frac{5}{2}}+22842213625(-}{666792\left(729(2x-1)^6+10206(2x-1)^5+59535(2x-1)^4+185220(2x-1)^3+324135(2x-1)^2+605\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(-2*x + 1)^(5/2)/(3*x + 2)^7,x, algorithm="maxima")
```

```
[Out] -559625/28005264*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqr
t(21) + 3*sqrt(-2*x + 1))) + 1/666792*(308539125*(-2*x + 1)^(11/2
) - 2983070475*(-2*x + 1)^(9/2) + 11598653682*(-2*x + 1)^(7/2) -
22803823350*(-2*x + 1)^(5/2) + 22842213625*(-2*x + 1)^(3/2) - 940
5617375*sqrt(-2*x + 1))/(729*(2*x - 1)^6 + 10206*(2*x - 1)^5 + 59
535*(2*x - 1)^4 + 185220*(2*x - 1)^3 + 324135*(2*x - 1)^2 + 60505
2*x - 184877)
```

Fricas [A] time = 0.214057, size = 181, normalized size = 1.12

$$-\frac{\sqrt{21}\left(\sqrt{21}(308539125x^5+720187425x^4+687940758x^3+352611738x^2+102558856x+13847024)\sqrt{-2x+1}-559625\right.}{28005264(729x^6+2916x^5+4860x^4+4320x^3+21}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3*(-2*x + 1)^(5/2)/(3*x + 2)^7,x, algorithm="fricas")
```

```
[Out] -1/28005264*sqrt(21)*(sqrt(21)*(308539125*x^5 + 720187425*x^4 + 6
87940758*x^3 + 352611738*x^2 + 102558856*x + 13847024)*sqrt(-2*x
+ 1) - 559625*(729*x^6 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 2160*x^
2 + 576*x + 64)*log((sqrt(21)*(3*x - 5) - 21*sqrt(-2*x + 1))/(3*x
 + 2)))/(729*x^6 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 57
6*x + 64)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**3/(2+3*x)**7,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.235034, size = 178, normalized size = 1.1

$$-\frac{559625}{28005264}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)$$
$$-\frac{308539125\,(2x-1)^5\sqrt{-2x+1}+2983070475\,(2x-1)^4\sqrt{-2x+1}+11598653682\,(2x-1)^3\sqrt{-2x+1}+22803823350\,(2x}{42674688\,(3x+2)^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3*(-2*x + 1)^(5/2)/(3*x + 2)^7,x, algorithm="giac")
```

```
[Out] -559625/28005264*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x +
1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 1/42674688*(308539125*(2*x -
 1)^5*sqrt(-2*x + 1) + 2983070475*(2*x - 1)^4*sqrt(-2*x + 1) + 11
598653682*(2*x - 1)^3*sqrt(-2*x + 1) + 22803823350*(2*x - 1)^2*sq
rt(-2*x + 1) - 22842213625*(-2*x + 1)^(3/2) + 9405617375*sqrt(-2*
x + 1))/(3*x + 2)^6
```

3.1950 $\int \frac{(1-2x)^{5/2}(3+5x)^3}{(2+3x)^8}\,dx$

Optimal. Leaf size=181

$$\frac{11\sqrt{1-2x}(5x+3)^3}{7(3x+2)^5}+\frac{55(1-2x)^{3/2}(5x+3)^3}{189(3x+2)^6}-\frac{(1-2x)^{5/2}(5x+3)^3}{21(3x+2)^7}-\frac{3223\sqrt{1-2x}(5x+3)^2}{2646(3x+2)^4}-\frac{11\sqrt{1-2x}(301765x+187704)}{333396(3x+2)^3}+\frac{33935\sqrt{1-2x}}{2333772(3x+2)}+\frac{33935\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{1166886\sqrt{21}}$$

```
[Out] (33935*Sqrt[1 - 2*x])/(2333772*(2 + 3*x)) - (3223*Sqrt[1 - 2*x]*(
3 + 5*x)^2)/(2646*(2 + 3*x)^4) - ((1 - 2*x)^(5/2)*(3 + 5*x)^3)/(2
1*(2 + 3*x)^7) + (55*(1 - 2*x)^(3/2)*(3 + 5*x)^3)/(189*(2 + 3*x)^
6) + (11*Sqrt[1 - 2*x]*(3 + 5*x)^3)/(7*(2 + 3*x)^5) - (11*Sqrt[1
- 2*x]*(187704 + 301765*x))/(333396*(2 + 3*x)^3) + (33935*ArcTanh
[Sqrt[3/7]*Sqrt[1 - 2*x]])/(1166886*Sqrt[21])
```

Rubi [A] time = 0.332418, antiderivative size = 181, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 7, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.292$

$$\frac{11\sqrt{1-2x}(5x+3)^3}{7(3x+2)^5}+\frac{55(1-2x)^{3/2}(5x+3)^3}{189(3x+2)^6}-\frac{(1-2x)^{5/2}(5x+3)^3}{21(3x+2)^7}-\frac{3223\sqrt{1-2x}(5x+3)^2}{2646(3x+2)^4}-\frac{11\sqrt{1-2x}(301765x+187704)}{333396(3x+2)^3}+\frac{33935\sqrt{1-2x}}{2333772(3x+2)}+\frac{33935\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{1166886\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x)^3)/(2 + 3*x)^8,x]
```

```
[Out] (33935*Sqrt[1 - 2*x])/(2333772*(2 + 3*x)) - (3223*Sqrt[1 - 2*x]*(
3 + 5*x)^2)/(2646*(2 + 3*x)^4) - ((1 - 2*x)^(5/2)*(3 + 5*x)^3)/(2
1*(2 + 3*x)^7) + (55*(1 - 2*x)^(3/2)*(3 + 5*x)^3)/(189*(2 + 3*x)^
6) + (11*Sqrt[1 - 2*x]*(3 + 5*x)^3)/(7*(2 + 3*x)^5) - (11*Sqrt[1
- 2*x]*(187704 + 301765*x))/(333396*(2 + 3*x)^3) + (33935*ArcTanh
[Sqrt[3/7]*Sqrt[1 - 2*x]])/(1166886*Sqrt[21])
```

Rubi in Sympy [A] time = 24.732, size = 150, normalized size = 0.83

$$-\frac{11\left(-2x+1\right)^{\frac{5}{2}}\left(104580x+65016\right)}{4667544\left(3x+2\right)^{5}}-\frac{55\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{2}}{1323\left(3x+2\right)^{6}}-\frac{\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{3}}{21\left(3x+2\right)^{7}}+\frac{33935\left(-2x+1\right)^{\frac{3}{2}}}{166698\left(3x+2\right)^{3}}+\frac{33935\sqrt{-2x+1}}{2333772\left(3x+2\right)}-\frac{33935\sqrt{-2x+1}}{333396\left(3x+2\right)^{2}}+\frac{33935\sqrt{21}\,\mathrm{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{24504606}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**3/(2+3*x)**8,x)
```

```
[Out] -11*(-2*x + 1)**(5/2)*(104580*x + 65016)/(4667544*(3*x + 2)**5) -
 55*(-2*x + 1)**(5/2)*(5*x + 3)**2/(1323*(3*x + 2)**6) - (-2*x +
1)**(5/2)*(5*x + 3)**3/(21*(3*x + 2)**7) + 33935*(-2*x + 1)**(3/2
)/(166698*(3*x + 2)**3) + 33935*sqrt(-2*x + 1)/(2333772*(3*x + 2)
) - 33935*sqrt(-2*x + 1)/(333396*(3*x + 2)**2) + 33935*sqrt(21)*a
tanh(sqrt(21)*sqrt(-2*x + 1)/7)/24504606
```

Mathematica [A] time = 0.157527, size = 78, normalized size = 0.43

$$\frac{\frac{63\sqrt{1-2x}(24738615x^6-141112395x^5-283697388x^4-164222766x^3-39606312x^2-12384752x-4005436)}{(3x+2)^7}+203610\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{147027636}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^3)/(2 + 3*x)^8,x]
```

```
[Out] ((63*Sqrt[1 - 2*x]*(-4005436 - 12384752*x - 39606312*x^2 - 164222
766*x^3 - 283697388*x^4 - 141112395*x^5 + 24738615*x^6))/(2 + 3*x
)^7 + 203610*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/147027636
```

Maple [A] time = 0.02, size = 93, normalized size = 0.5

$$69984\frac{1}{(-4-6x)^7}\left(-\frac{33935(1-2x)^{13/2}}{112021056}-\frac{176975(1-2x)^{11/2}}{108020304}+\frac{4931597(1-2x)^{9/2}}{185177664}-\frac{96613(1-2x)^{7/2}}{964467}+\frac{1920721(1\ldots}{11337\ldots}\right.$$
$$+\frac{33935\sqrt{21}}{24504606}\mathrm{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^3/(2+3*x)^8,x)
```

```
[Out] 69984*(-33935/112021056*(1-2*x)^(13/2)-176975/108020304*(1-2*x)^(
11/2)+4931597/185177664*(1-2*x)^(9/2)-96613/964467*(1-2*x)^(7/2)+
1920721/11337408*(1-2*x)^(5/2)-1187725/8503056*(1-2*x)^(3/2)+1662
815/34012224*(1-2*x)^(1/2))/(-4-6*x)^7+33935/24504606*arctanh(1/7
*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.50757, size = 221, normalized size = 1.22

$$-\frac{33935}{49009212}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)$$
$$+\frac{24738615(-2x+1)^{\frac{13}{2}}+133793100(-2x+1)^{\frac{11}{2}}-2174834277(-2x+1)^{\frac{9}{2}}+8180415936(-2x+1)^{\frac{7}{2}}-13834953363(-2x\ldots}{1166886\left(2187(2x-1)^7+35721(2x-1)^6+250047(2x-1)^5+972405(2x-1)^4+2268945(2x-1)^3+3\ldots\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(-2*x + 1)^(5/2)/(3*x + 2)^8,x, algorithm="maxima")
```

```
[Out] -33935/49009212*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt
(21) + 3*sqrt(-2*x + 1))) + 1/1166886*(24738615*(-2*x + 1)^(13/2)
 + 133793100*(-2*x + 1)^(11/2) - 2174834277*(-2*x + 1)^(9/2) + 81
80415936*(-2*x + 1)^(7/2) - 13834953363*(-2*x + 1)^(5/2) + 114069
10900*(-2*x + 1)^(3/2) - 3992418815*sqrt(-2*x + 1))/(2187*(2*x -
1)^7 + 35721*(2*x - 1)^6 + 250047*(2*x - 1)^5 + 972405*(2*x - 1)^
4 + 2268945*(2*x - 1)^3 + 3176523*(2*x - 1)^2 + 4941258*x - 16470
86)
```

Fricas [A] time = 0.212073, size = 201, normalized size = 1.11

$$\frac{\sqrt{21}\left(\sqrt{21}(24738615x^6-141112395x^5-283697388x^4-164222766x^3-39606312x^2-12384752x-4005436)\sqrt{-2x+1}\ldots\right.}{49009212(2187x^7+10206x^6+20412x^5+2268\ldots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(-2*x + 1)^(5/2)/(3*x + 2)^8,x, algorithm="fricas")
```

```
[Out] 1/49009212*sqrt(21)*(sqrt(21)*(24738615*x^6 - 141112395*x^5 - 283
697388*x^4 - 164222766*x^3 - 39606312*x^2 - 12384752*x - 4005436)
*sqrt(-2*x + 1) + 33935*(2187*x^7 + 10206*x^6 + 20412*x^5 + 22680
*x^4 + 15120*x^3 + 6048*x^2 + 1344*x + 128)*log((sqrt(21)*(3*x -
5) - 21*sqrt(-2*x + 1))/(3*x + 2)))/(2187*x^7 + 10206*x^6 + 20412
*x^5 + 22680*x^4 + 15120*x^3 + 6048*x^2 + 1344*x + 128)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**3/(2+3*x)**8,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.220849, size = 200, normalized size = 1.1

$$-\frac{33935}{49009212}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{24738615\,(2x-1)^6\sqrt{-2x+1}-133793100\,(2x-1)^5\sqrt{-2x+1}-2174834277\,(2x-1)^4\sqrt{-2x+1}-8180415936\,(2x-1)^3}{149361408\,(3x+2)^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(-2*x + 1)^(5/2)/(3*x + 2)^8,x, algorithm="giac")
```

```
[Out] -33935/49009212*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1
))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 1/149361408*(24738615*(2*x -
1)^6*sqrt(-2*x + 1) - 133793100*(2*x - 1)^5*sqrt(-2*x + 1) - 2174
834277*(2*x - 1)^4*sqrt(-2*x + 1) - 8180415936*(2*x - 1)^3*sqrt(-
2*x + 1) - 13834953363*(2*x - 1)^2*sqrt(-2*x + 1) + 11406910900*(
-2*x + 1)^(3/2) - 3992418815*sqrt(-2*x + 1))/(3*x + 2)^7
```

3.1951 $\int \frac{(1-2x)^{5/2}(2+3x)^4}{3+5x}\,dx$

Optimal. Leaf size=121

$$\frac{81}{520}(1-2x)^{13/2}-\frac{2889(1-2x)^{11/2}}{2200}+\frac{3819(1-2x)^{9/2}}{1000}-\frac{136419(1-2x)^{7/2}}{35000}+\frac{2(1-2x)^{5/2}}{15625}+\frac{22(1-2x)^{3/2}}{46875}+\frac{242\sqrt{1-2x}}{78125}-\frac{242\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{78125}$$

```
[Out] (242*Sqrt[1 - 2*x])/78125 + (22*(1 - 2*x)^(3/2))/46875 + (2*(1 -
2*x)^(5/2))/15625 - (136419*(1 - 2*x)^(7/2))/35000 + (3819*(1 - 2
*x)^(9/2))/1000 - (2889*(1 - 2*x)^(11/2))/2200 + (81*(1 - 2*x)^(1
3/2))/520 - (242*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/78
125
```

Rubi [A] time = 0.136763, antiderivative size = 121, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$\frac{81}{520}(1-2x)^{13/2}-\frac{2889(1-2x)^{11/2}}{2200}+\frac{3819(1-2x)^{9/2}}{1000}-\frac{136419(1-2x)^{7/2}}{35000}+\frac{2(1-2x)^{5/2}}{15625}+\frac{22(1-2x)^{3/2}}{46875}+\frac{242\sqrt{1-2x}}{78125}-\frac{242\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{78125}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(2 + 3*x)^4)/(3 + 5*x),x]
```

```
[Out] (242*Sqrt[1 - 2*x])/78125 + (22*(1 - 2*x)^(3/2))/46875 + (2*(1 -
2*x)^(5/2))/15625 - (136419*(1 - 2*x)^(7/2))/35000 + (3819*(1 - 2
*x)^(9/2))/1000 - (2889*(1 - 2*x)^(11/2))/2200 + (81*(1 - 2*x)^(1
3/2))/520 - (242*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/78
125
```

Rubi in Sympy [A] time = 13.4454, size = 107, normalized size = 0.88

$$\frac{81\left(-2x+1\right)^{\frac{13}{2}}}{520}-\frac{2889\left(-2x+1\right)^{\frac{11}{2}}}{2200}+\frac{3819\left(-2x+1\right)^{\frac{9}{2}}}{1000}-\frac{136419\left(-2x+1\right)^{\frac{7}{2}}}{35000}+\frac{2\left(-2x+1\right)^{\frac{5}{2}}}{15625}+\frac{22\left(-2x+1\right)^{\frac{3}{2}}}{46875}+\frac{242\sqrt{-2x+1}}{78125}-\frac{242\sqrt{55}\,\mathrm{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{390625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**4/(3+5*x),x)
```

```
[Out] 81*(-2*x + 1)**(13/2)/520 - 2889*(-2*x + 1)**(11/2)/2200 + 3819*(
-2*x + 1)**(9/2)/1000 - 136419*(-2*x + 1)**(7/2)/35000 + 2*(-2*x
+ 1)**(5/2)/15625 + 22*(-2*x + 1)**(3/2)/46875 + 242*sqrt(-2*x +
1)/78125 - 242*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/390625
```

Mathematica [A] time = 0.129296, size = 71, normalized size = 0.59

$$\frac{5\sqrt{1-2x}\left(2338875000x^6+2842087500x^5-1540428750x^4-2556079875x^3+399578370x^2+960784285x-289133384\right)-}{1173046875}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(2 + 3*x)^4)/(3 + 5*x),x]
```

```
[Out] (5*Sqrt[1 - 2*x]*(-289133384 + 960784285*x + 399578370*x^2 - 2556
079875*x^3 - 1540428750*x^4 + 2842087500*x^5 + 2338875000*x^6) -
726726*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/1173046875
```

Maple [A] time = 0.01, size = 83, normalized size = 0.7

$$\frac{22}{46875}(1-2x)^{\frac{3}{2}}+\frac{2}{15625}(1-2x)^{\frac{5}{2}}-\frac{136419}{35000}(1-2x)^{\frac{7}{2}}+\frac{3819}{1000}(1-2x)^{\frac{9}{2}}-\frac{2889}{2200}(1-2x)^{\frac{11}{2}}+\frac{81}{520}(1-2x)^{\frac{13}{2}}-\frac{242\sqrt{55}}{390625}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)+\frac{242}{78125}\sqrt{1-2x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^4/(3+5*x),x)
```

```
[Out] 22/46875*(1-2*x)^(3/2)+2/15625*(1-2*x)^(5/2)-136419/35000*(1-2*x)
^(7/2)+3819/1000*(1-2*x)^(9/2)-2889/2200*(1-2*x)^(11/2)+81/520*(1
-2*x)^(13/2)-242/390625*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(
1/2)+242/78125*(1-2*x)^(1/2)
```

Maxima [A] time = 1.4896, size = 135, normalized size = 1.12

$$\frac{81}{520}(-2x+1)^{\frac{13}{2}}-\frac{2889}{2200}(-2x+1)^{\frac{11}{2}}+\frac{3819}{1000}(-2x+1)^{\frac{9}{2}}-\frac{136419}{35000}(-2x+1)^{\frac{7}{2}}+\frac{2}{15625}(-2x+1)^{\frac{5}{2}}+\frac{22}{46875}(-2x+1)^{\frac{3}{2}}+\frac{121}{390625}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{242}{78125}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4*(-2*x + 1)^(5/2)/(5*x + 3),x, algorithm="maxima")
```

```
[Out] 81/520*(-2*x + 1)^(13/2) - 2889/2200*(-2*x + 1)^(11/2) + 3819/100
0*(-2*x + 1)^(9/2) - 136419/35000*(-2*x + 1)^(7/2) + 2/15625*(-2*
x + 1)^(5/2) + 22/46875*(-2*x + 1)^(3/2) + 121/390625*sqrt(55)*lo
g(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) +
 242/78125*sqrt(-2*x + 1)
```

Fricas [A] time = 0.213604, size = 112, normalized size = 0.93

$$\frac{1}{1173046875}\sqrt{5}\left(\sqrt{5}\left(2338875000\,x^6+2842087500\,x^5-1540428750\,x^4-2556079875\,x^3+399578370\,x^2+960784285\,x-2\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4*(-2*x + 1)^(5/2)/(5*x + 3),x, algorithm="fricas")
```

```
[Out] 1/1173046875*sqrt(5)*(sqrt(5)*(2338875000*x^6 + 2842087500*x^5 -
1540428750*x^4 - 2556079875*x^3 + 399578370*x^2 + 960784285*x - 2
89133384)*sqrt(-2*x + 1) + 363363*sqrt(11)*log((sqrt(5)*(5*x - 8)
 + 5*sqrt(11)*sqrt(-2*x + 1))/(5*x + 3)))
```

Sympy [A] time = 23.4905, size = 146, normalized size = 1.21

$$\frac{81(-2x+1)^{\frac{13}{2}}}{520} - \frac{2889(-2x+1)^{\frac{11}{2}}}{2200} + \frac{3819(-2x+1)^{\frac{9}{2}}}{1000} - \frac{136419(-2x+1)^{\frac{7}{2}}}{35000} + \frac{2(-2x+1)^{\frac{5}{2}}}{15625} + \frac{22(-2x+1)^{\frac{3}{2}}}{46875} + \frac{242\sqrt{-2x+1}}{78125} + \frac{2662\left(\begin{cases} -\frac{\sqrt{55}\,\mathrm{acoth}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1 > \frac{11}{5} \\ -\frac{\sqrt{55}\,\mathrm{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1 < \frac{11}{5} \end{cases}\right)}{78125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)**4/(3+5*x),x)
```

```
[Out] 81*(-2*x + 1)**(13/2)/520 - 2889*(-2*x + 1)**(11/2)/2200 + 3819*(
-2*x + 1)**(9/2)/1000 - 136419*(-2*x + 1)**(7/2)/35000 + 2*(-2*x
+ 1)**(5/2)/15625 + 22*(-2*x + 1)**(3/2)/46875 + 242*sqrt(-2*x +
1)/78125 + 2662*Piecewise((-sqrt(55)*acoth(sqrt(55)*sqrt(-2*x + 1
)/11)/55, -2*x + 1 > 11/5), (-sqrt(55)*atanh(sqrt(55)*sqrt(-2*x +
 1)/11)/55, -2*x + 1 < 11/5))/78125
```

GIAC/XCAS [A] time = 0.216213, size = 186, normalized size = 1.54

$$\frac{81}{520}(2x-1)^6\sqrt{-2x+1} + \frac{2889}{2200}(2x-1)^5\sqrt{-2x+1} + \frac{3819}{1000}(2x-1)^4\sqrt{-2x+1} + \frac{136419}{35000}(2x-1)^3\sqrt{-2x+1} + \frac{2}{15625}(2x-1)^2\sqrt{-2x+1} + \frac{22}{46875}(-2x+1)^{\frac{3}{2}} + \frac{121}{390625}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right) + \frac{242}{78125}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4*(-2*x + 1)^(5/2)/(5*x + 3),x, algorithm="giac")
```

```
[Out] 81/520*(2*x - 1)^6*sqrt(-2*x + 1) + 2889/2200*(2*x - 1)^5*sqrt(-2
*x + 1) + 3819/1000*(2*x - 1)^4*sqrt(-2*x + 1) + 136419/35000*(2*
x - 1)^3*sqrt(-2*x + 1) + 2/15625*(2*x - 1)^2*sqrt(-2*x + 1) + 22
/46875*(-2*x + 1)^(3/2) + 121/390625*sqrt(55)*ln(1/2*abs(-2*sqrt(
55) + 10*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) + 242/781
25*sqrt(-2*x + 1)
```

3.1952 $\int \frac{(1-2x)^{5/2}(2+3x)^3}{3+5x}\,dx$

Optimal. Leaf size=108

$$-\frac{27}{220}(1-2x)^{11/2}+\frac{18}{25}(1-2x)^{9/2}-\frac{3897(1-2x)^{7/2}}{3500}+\frac{2(1-2x)^{5/2}}{3125}+\frac{22(1-2x)^{3/2}}{9375}+\frac{242\sqrt{1-2x}}{15625}-\frac{242\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{15625}$$

```
[Out] (242*Sqrt[1 - 2*x])/15625 + (22*(1 - 2*x)^(3/2))/9375 + (2*(1 - 2
*x)^(5/2))/3125 - (3897*(1 - 2*x)^(7/2))/3500 + (18*(1 - 2*x)^(9/
2))/25 - (27*(1 - 2*x)^(11/2))/220 - (242*Sqrt[11/5]*ArcTanh[Sqrt
[5/11]*Sqrt[1 - 2*x]])/15625
```

Rubi [A] time = 0.134463, antiderivative size = 108, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$-\frac{27}{220}(1-2x)^{11/2}+\frac{18}{25}(1-2x)^{9/2}-\frac{3897(1-2x)^{7/2}}{3500}+\frac{2(1-2x)^{5/2}}{3125}+\frac{22(1-2x)^{3/2}}{9375}+\frac{242\sqrt{1-2x}}{15625}-\frac{242\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{15625}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(2 + 3*x)^3)/(3 + 5*x),x]
```

```
[Out] (242*Sqrt[1 - 2*x])/15625 + (22*(1 - 2*x)^(3/2))/9375 + (2*(1 - 2
*x)^(5/2))/3125 - (3897*(1 - 2*x)^(7/2))/3500 + (18*(1 - 2*x)^(9/
2))/25 - (27*(1 - 2*x)^(11/2))/220 - (242*Sqrt[11/5]*ArcTanh[Sqrt
[5/11]*Sqrt[1 - 2*x]])/15625
```

Rubi in Sympy [A] time = 12.4998, size = 95, normalized size = 0.88

$$-\frac{27(-2x+1)^{\frac{11}{2}}}{220}+\frac{18(-2x+1)^{\frac{9}{2}}}{25}-\frac{3897(-2x+1)^{\frac{7}{2}}}{3500}+\frac{2(-2x+1)^{\frac{5}{2}}}{3125}+\frac{22(-2x+1)^{\frac{3}{2}}}{9375}+\frac{242\sqrt{-2x+1}}{15625}-\frac{242\sqrt{55}\,\mathrm{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{78125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**3/(3+5*x),x)
```

```
[Out] -27*(-2*x + 1)**(11/2)/220 + 18*(-2*x + 1)**(9/2)/25 - 3897*(-2*x
 + 1)**(7/2)/3500 + 2*(-2*x + 1)**(5/2)/3125 + 22*(-2*x + 1)**(3/
2)/9375 + 242*sqrt(-2*x + 1)/15625 - 242*sqrt(55)*atanh(sqrt(55)*
sqrt(-2*x + 1)/11)/78125
```

Mathematica [A] time = 0.0938392, size = 66, normalized size = 0.61

$$\frac{5\sqrt{1-2x}\left(14175000x^5+6142500x^4-15572250x^3-3564885x^2+7726195x-1796318\right)-55902\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{18046875}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(2 + 3*x)^3)/(3 + 5*x),x]
```

```
[Out] (5*Sqrt[1 - 2*x]*(-1796318 + 7726195*x - 3564885*x^2 - 15572250*x
^3 + 6142500*x^4 + 14175000*x^5) - 55902*Sqrt[55]*ArcTanh[Sqrt[5/
11]*Sqrt[1 - 2*x]])/18046875
```

Maple [A] time = 0.008, size = 74, normalized size = 0.7

$$\frac{22}{9375}(1-2x)^{\frac{3}{2}}+\frac{2}{3125}(1-2x)^{\frac{5}{2}}-\frac{3897}{3500}(1-2x)^{\frac{7}{2}}+\frac{18}{25}(1-2x)^{\frac{9}{2}}-\frac{27}{220}(1-2x)^{\frac{11}{2}}-\frac{242\sqrt{55}}{78125}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)+\frac{242}{15625}\sqrt{1-2x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^3/(3+5*x),x)
```

```
[Out] 22/9375*(1-2*x)^(3/2)+2/3125*(1-2*x)^(5/2)-3897/3500*(1-2*x)^(7/2
)+18/25*(1-2*x)^(9/2)-27/220*(1-2*x)^(11/2)-242/78125*arctanh(1/1
1*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)+242/15625*(1-2*x)^(1/2)
```

Maxima [A] time = 1.51159, size = 123, normalized size = 1.14

$$-\frac{27}{220}(-2x+1)^{\frac{11}{2}}+\frac{18}{25}(-2x+1)^{\frac{9}{2}}-\frac{3897}{3500}(-2x+1)^{\frac{7}{2}}+\frac{2}{3125}(-2x+1)^{\frac{5}{2}}+\frac{22}{9375}(-2x+1)^{\frac{3}{2}}+\frac{121}{78125}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{242}{15625}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*(-2*x + 1)^(5/2)/(5*x + 3),x, algorithm="maxima")
```

```
[Out] -27/220*(-2*x + 1)^(11/2) + 18/25*(-2*x + 1)^(9/2) - 3897/3500*(-
2*x + 1)^(7/2) + 2/3125*(-2*x + 1)^(5/2) + 22/9375*(-2*x + 1)^(3/
2) + 121/78125*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(
55) + 5*sqrt(-2*x + 1))) + 242/15625*sqrt(-2*x + 1)
```

Fricas [A] time = 0.212069, size = 105, normalized size = 0.97

$$\frac{1}{18046875}\sqrt{5}\left(\sqrt{5}\left(14175000x^5+6142500x^4-15572250x^3-3564885x^2+7726195x-1796318\right)\sqrt{-2x+1}+27951\sqrt{11}\,\mathrm{l}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*(-2*x + 1)^(5/2)/(5*x + 3),x, algorithm="fricas")
```

```
[Out] 1/18046875*sqrt(5)*(sqrt(5)*(14175000*x^5 + 6142500*x^4 - 1557225
0*x^3 - 3564885*x^2 + 7726195*x - 1796318)*sqrt(-2*x + 1) + 27951
*sqrt(11)*log((sqrt(5)*(5*x - 8) + 5*sqrt(11)*sqrt(-2*x + 1))/(5*
x + 3)))
```

Sympy [A] time = 18.03, size = 134, normalized size = 1.24

$$-\frac{27(-2x+1)^{\frac{11}{2}}}{220}+\frac{18(-2x+1)^{\frac{9}{2}}}{25}-\frac{3897(-2x+1)^{\frac{7}{2}}}{3500}+\frac{2(-2x+1)^{\frac{5}{2}}}{3125}+\frac{22(-2x+1)^{\frac{3}{2}}}{9375}+\frac{242\sqrt{-2x+1}}{15625}+\frac{2662\left(\begin{cases}-\frac{\sqrt{55}\operatorname{acoth}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1>\frac{11}{5}\\ -\frac{\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1<\frac{11}{5}\end{cases}\right)}{15625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)**3/(3+5*x),x)
```

```
[Out] -27*(-2*x + 1)**(11/2)/220 + 18*(-2*x + 1)**(9/2)/25 - 3897*(-2*x
 + 1)**(7/2)/3500 + 2*(-2*x + 1)**(5/2)/3125 + 22*(-2*x + 1)**(3/
2)/9375 + 242*sqrt(-2*x + 1)/15625 + 2662*Piecewise((-sqrt(55)*ac
oth(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*x + 1 > 11/5), (-sqrt(55)*
atanh(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*x + 1 < 11/5))/15625
```

GIAC/XCAS [A] time = 0.213471, size = 165, normalized size = 1.53

$$\frac{27}{220}(2x-1)^5\sqrt{-2x+1}+\frac{18}{25}(2x-1)^4\sqrt{-2x+1}+\frac{3897}{3500}(2x-1)^3\sqrt{-2x+1}+\frac{2}{3125}(2x-1)^2\sqrt{-2x+1}+\frac{22}{9375}(-2x+1)^{\frac{3}{2}}+\frac{121}{78125}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{242}{15625}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*(-2*x + 1)^(5/2)/(5*x + 3),x, algorithm="giac")
```

```
[Out] 27/220*(2*x - 1)^5*sqrt(-2*x + 1) + 18/25*(2*x - 1)^4*sqrt(-2*x +
 1) + 3897/3500*(2*x - 1)^3*sqrt(-2*x + 1) + 2/3125*(2*x - 1)^2*s
qrt(-2*x + 1) + 22/9375*(-2*x + 1)^(3/2) + 121/78125*sqrt(55)*ln(
1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x
+ 1))) + 242/15625*sqrt(-2*x + 1)
```

3.1953 $\int \frac{(1-2x)^{5/2}(2+3x)^2}{3+5x}\,dx$

Optimal. Leaf size=95

$$\frac{1}{10}(1-2x)^{9/2} - \frac{111}{350}(1-2x)^{7/2} + \frac{2}{625}(1-2x)^{5/2} + \frac{22(1-2x)^{3/2}}{1875} + \frac{242\sqrt{1-2x}}{3125} - \frac{242\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{3125}$$

```
[Out] (242*Sqrt[1 - 2*x])/3125 + (22*(1 - 2*x)^(3/2))/1875 + (2*(1 - 2*
x)^(5/2))/625 - (111*(1 - 2*x)^(7/2))/350 + (1 - 2*x)^(9/2)/10 -
(242*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/3125
```

Rubi [A] time = 0.129542, antiderivative size = 95, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$\frac{1}{10}(1-2x)^{9/2} - \frac{111}{350}(1-2x)^{7/2} + \frac{2}{625}(1-2x)^{5/2} + \frac{22(1-2x)^{3/2}}{1875} + \frac{242\sqrt{1-2x}}{3125} - \frac{242\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{3125}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(2 + 3*x)^2)/(3 + 5*x),x]
```

```
[Out] (242*Sqrt[1 - 2*x])/3125 + (22*(1 - 2*x)^(3/2))/1875 + (2*(1 - 2*
x)^(5/2))/625 - (111*(1 - 2*x)^(7/2))/350 + (1 - 2*x)^(9/2)/10 -
(242*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/3125
```

Rubi in Sympy [A] time = 11.5608, size = 82, normalized size = 0.86

$$\frac{(-2x+1)^{\frac{9}{2}}}{10} - \frac{111(-2x+1)^{\frac{7}{2}}}{350} + \frac{2(-2x+1)^{\frac{5}{2}}}{625} + \frac{22(-2x+1)^{\frac{3}{2}}}{1875} + \frac{242\sqrt{-2x+1}}{3125} - \frac{242\sqrt{55}\,\mathrm{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{15625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**2/(3+5*x),x)
```

```
[Out] (-2*x + 1)**(9/2)/10 - 111*(-2*x + 1)**(7/2)/350 + 2*(-2*x + 1)**
(5/2)/625 + 22*(-2*x + 1)**(3/2)/1875 + 242*sqrt(-2*x + 1)/3125 -
 242*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/15625
```

Mathematica [A] time = 0.0834599, size = 61, normalized size = 0.64

$$\frac{5\sqrt{1-2x}\left(105000x^4-43500x^3-91410x^2+69995x-8188\right)-5082\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{328125}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(2 + 3*x)^2)/(3 + 5*x),x]
```

```
[Out] (5*Sqrt[1 - 2*x]*(-8188 + 69995*x - 91410*x^2 - 43500*x^3 + 10500
0*x^4) - 5082*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/328125
```

Maple [A] time = 0.01, size = 65, normalized size = 0.7

$$\frac{22}{1875}(1-2x)^{\frac{3}{2}}+\frac{2}{625}(1-2x)^{\frac{5}{2}}-\frac{111}{350}(1-2x)^{\frac{7}{2}}+\frac{1}{10}(1-2x)^{\frac{9}{2}}-\frac{242\sqrt{55}}{15625}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)+\frac{242}{3125}\sqrt{1-2x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^2/(3+5*x),x)
```

```
[Out] 22/1875*(1-2*x)^(3/2)+2/625*(1-2*x)^(5/2)-111/350*(1-2*x)^(7/2)+1
/10*(1-2*x)^(9/2)-242/15625*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*
55^(1/2)+242/3125*(1-2*x)^(1/2)
```

Maxima [A] time = 1.50439, size = 111, normalized size = 1.17

$$\frac{1}{10}(-2x+1)^{\frac{9}{2}}-\frac{111}{350}(-2x+1)^{\frac{7}{2}}+\frac{2}{625}(-2x+1)^{\frac{5}{2}}+\frac{22}{1875}(-2x+1)^{\frac{3}{2}}+\frac{121}{15625}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{242}{3125}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*(-2*x + 1)^(5/2)/(5*x + 3),x, algorithm="maxima")
```

```
[Out] 1/10*(-2*x + 1)^(9/2) - 111/350*(-2*x + 1)^(7/2) + 2/625*(-2*x +
1)^(5/2) + 22/1875*(-2*x + 1)^(3/2) + 121/15625*sqrt(55)*log(-(sq
rt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) + 242/3
125*sqrt(-2*x + 1)
```

Fricas [A] time = 0.217669, size = 99, normalized size = 1.04

$$\frac{1}{328125}\sqrt{5}\left(\sqrt{5}\left(105000x^4-43500x^3-91410x^2+69995x-8188\right)\sqrt{-2x+1}+2541\sqrt{11}\log\left(\frac{\sqrt{5}(5x-8)+5\sqrt{11}\sqrt{-2x}}{5x+3}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*(-2*x + 1)^(5/2)/(5*x + 3),x, algorithm="fricas")
```

```
[Out] 1/328125*sqrt(5)*(sqrt(5)*(105000*x^4 - 43500*x^3 - 91410*x^2 + 6
9995*x - 8188)*sqrt(-2*x + 1) + 2541*sqrt(11)*log((sqrt(5)*(5*x -
 8) + 5*sqrt(11)*sqrt(-2*x + 1))/(5*x + 3)))
```

Sympy [A] time = 13.6067, size = 121, normalized size = 1.27

$$\frac{(-2x+1)^{\frac{9}{2}}}{10}-\frac{111(-2x+1)^{\frac{7}{2}}}{350}+\frac{2(-2x+1)^{\frac{5}{2}}}{625}+\frac{22(-2x+1)^{\frac{3}{2}}}{1875}+\frac{242\sqrt{-2x+1}}{3125}+\frac{2662\left(\begin{cases}-\frac{\sqrt{55}\operatorname{acoth}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1>\frac{11}{5}\\ -\frac{\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1<\frac{11}{5}\end{cases}\right)}{3125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)**2/(3+5*x),x)
```

```
[Out] (-2*x + 1)**(9/2)/10 - 111*(-2*x + 1)**(7/2)/350 + 2*(-2*x + 1)**
(5/2)/625 + 22*(-2*x + 1)**(3/2)/1875 + 242*sqrt(-2*x + 1)/3125 +
 2662*Piecewise((-sqrt(55)*acoth(sqrt(55)*sqrt(-2*x + 1)/11)/55,
-2*x + 1 > 11/5), (-sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/55
, -2*x + 1 < 11/5))/3125
```

GIAC/XCAS [A] time = 0.214017, size = 143, normalized size = 1.51

$$\frac{1}{10}(2x-1)^4\sqrt{-2x+1}+\frac{111}{350}(2x-1)^3\sqrt{-2x+1}+\frac{2}{625}(2x-1)^2\sqrt{-2x+1}+\frac{22}{1875}(-2x+1)^{\frac{3}{2}}+\frac{121}{15625}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{242}{3125}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*(-2*x + 1)^(5/2)/(5*x + 3),x, algorithm="giac")
```

```
[Out] 1/10*(2*x - 1)^4*sqrt(-2*x + 1) + 111/350*(2*x - 1)^3*sqrt(-2*x +
 1) + 2/625*(2*x - 1)^2*sqrt(-2*x + 1) + 22/1875*(-2*x + 1)^(3/2)
 + 121/15625*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))
/(sqrt(55) + 5*sqrt(-2*x + 1))) + 242/3125*sqrt(-2*x + 1)
```

3.1954 $\int \frac{(1-2x)^{5/2}(2+3x)}{3+5x}\,dx$

Optimal. Leaf size=82

$$-\frac{3}{35}(1-2x)^{7/2}+\frac{2}{125}(1-2x)^{5/2}+\frac{22}{375}(1-2x)^{3/2}+\frac{242}{625}\sqrt{1-2x}-\frac{242}{625}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (242*Sqrt[1 - 2*x])/625 + (22*(1 - 2*x)^(3/2))/375 + (2*(1 - 2*x)
^(5/2))/125 - (3*(1 - 2*x)^(7/2))/35 - (242*Sqrt[11/5]*ArcTanh[Sq
rt[5/11]*Sqrt[1 - 2*x]])/625
```

Rubi [A] time = 0.0984079, antiderivative size = 82, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{3}{35}(1-2x)^{7/2}+\frac{2}{125}(1-2x)^{5/2}+\frac{22}{375}(1-2x)^{3/2}+\frac{242}{625}\sqrt{1-2x}-\frac{242}{625}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(2 + 3*x))/(3 + 5*x),x]
```

```
[Out] (242*Sqrt[1 - 2*x])/625 + (22*(1 - 2*x)^(3/2))/375 + (2*(1 - 2*x)
^(5/2))/125 - (3*(1 - 2*x)^(7/2))/35 - (242*Sqrt[11/5]*ArcTanh[Sq
rt[5/11]*Sqrt[1 - 2*x]])/625
```

Rubi in Sympy [A] time = 9.3952, size = 71, normalized size = 0.87

$$-\frac{3\left(-2x+1\right)^{\frac{7}{2}}}{35}+\frac{2\left(-2x+1\right)^{\frac{5}{2}}}{125}+\frac{22\left(-2x+1\right)^{\frac{3}{2}}}{375}+\frac{242\sqrt{-2x+1}}{625}-\frac{242\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{3125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)/(3+5*x),x)
```

```
[Out] -3*(-2*x + 1)**(7/2)/35 + 2*(-2*x + 1)**(5/2)/125 + 22*(-2*x + 1)
**(3/2)/375 + 242*sqrt(-2*x + 1)/625 - 242*sqrt(55)*atanh(sqrt(55
)*sqrt(-2*x + 1)/11)/3125
```

Mathematica [A] time = 0.0613631, size = 56, normalized size = 0.68

$$\frac{5\sqrt{1-2x}\left(9000x^3-12660x^2+4370x+4937\right)-5082\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{65625}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(2 + 3*x))/(3 + 5*x),x]
```

```
[Out] (5*Sqrt[1 - 2*x]*(4937 + 4370*x - 12660*x^2 + 9000*x^3) - 5082*Sq
rt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/65625
```

Maple [A] time = 0.009, size = 56, normalized size = 0.7

$$\frac{22}{375}\left(1-2\,x\right)^{\frac{3}{2}}+\frac{2}{125}\left(1-2\,x\right)^{\frac{5}{2}}-\frac{3}{35}\left(1-2\,x\right)^{\frac{7}{2}}-\frac{242\,\sqrt{55}}{3125}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2\,x}\right)+\frac{242}{625}\sqrt{1-2\,x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)/(3+5*x),x)
```

```
[Out] 22/375*(1-2*x)^(3/2)+2/125*(1-2*x)^(5/2)-3/35*(1-2*x)^(7/2)-242/3
125*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)+242/625*(1-2*x)
^(1/2)
```

Maxima [A] time = 1.49977, size = 99, normalized size = 1.21

$$-\frac{3}{35}\,(-2\,x+1)^{\frac{7}{2}}+\frac{2}{125}\,(-2\,x+1)^{\frac{5}{2}}+\frac{22}{375}\,(-2\,x+1)^{\frac{3}{2}}+\frac{121}{3125}\,\sqrt{55}\log\left(-\frac{\sqrt{55}-5\,\sqrt{-2\,x+1}}{\sqrt{55}+5\,\sqrt{-2\,x+1}}\right)+\frac{242}{625}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)*(-2*x + 1)^(5/2)/(5*x + 3),x, algorithm="maxima")
```

```
[Out] -3/35*(-2*x + 1)^(7/2) + 2/125*(-2*x + 1)^(5/2) + 22/375*(-2*x +
1)^(3/2) + 121/3125*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(
sqrt(55) + 5*sqrt(-2*x + 1))) + 242/625*sqrt(-2*x + 1)
```

Fricas [A] time = 0.210469, size = 92, normalized size = 1.12

$$\frac{1}{65625}\,\sqrt{5}\left(\sqrt{5}\left(9000\,x^{3}-12660\,x^{2}+4370\,x+4937\right)\sqrt{-2\,x+1}+2541\,\sqrt{11}\log\left(\frac{\sqrt{5}(5\,x-8)+5\,\sqrt{11}\sqrt{-2\,x+1}}{5\,x+3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)*(-2*x + 1)^(5/2)/(5*x + 3),x, algorithm="fricas")
```

```
[Out] 1/65625*sqrt(5)*(sqrt(5)*(9000*x^3 - 12660*x^2 + 4370*x + 4937)*s
qrt(-2*x + 1) + 2541*sqrt(11)*log((sqrt(5)*(5*x - 8) + 5*sqrt(11)
*sqrt(-2*x + 1))/(5*x + 3)))
```

Sympy [A] time = 9.95482, size = 110, normalized size = 1.34

$$-\frac{3\,(-2x+1)^{\frac{7}{2}}}{35}+\frac{2\,(-2x+1)^{\frac{5}{2}}}{125}+\frac{22\,(-2x+1)^{\frac{3}{2}}}{375}+\frac{242\sqrt{-2x+1}}{625}+\frac{2662\left(\begin{cases}-\frac{\sqrt{55}\operatorname{acoth}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1>\frac{11}{5}\\ -\frac{\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1<\frac{11}{5}\end{cases}\right)}{625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)/(3+5*x),x)
```

```
[Out] -3*(-2*x + 1)**(7/2)/35 + 2*(-2*x + 1)**(5/2)/125 + 22*(-2*x + 1)
**(3/2)/375 + 242*sqrt(-2*x + 1)/625 + 2662*Piecewise((-sqrt(55)*
acoth(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*x + 1 > 11/5), (-sqrt(55
)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*x + 1 < 11/5))/625
```

GIAC/XCAS [A] time = 0.209679, size = 122, normalized size = 1.49

$$\frac{3}{35}\,(2\,x-1)^3\sqrt{-2\,x+1}+\frac{2}{125}\,(2\,x-1)^2\sqrt{-2\,x+1}+\frac{22}{375}\,(-2\,x+1)^{\frac{3}{2}}+\frac{121}{3125}\,\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)+\frac{242}{625}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)*(-2*x + 1)^(5/2)/(5*x + 3),x, algorithm="giac")
```

```
[Out] 3/35*(2*x - 1)^3*sqrt(-2*x + 1) + 2/125*(2*x - 1)^2*sqrt(-2*x + 1
) + 22/375*(-2*x + 1)^(3/2) + 121/3125*sqrt(55)*ln(1/2*abs(-2*sqr
t(55) + 10*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) + 242/6
25*sqrt(-2*x + 1)
```

3.1955 $\int \frac{(1-2x)^{5/2}}{3+5x}\,dx$

Optimal. Leaf size=69

$$\frac{2}{25}(1-2x)^{5/2}+\frac{22}{75}(1-2x)^{3/2}+\frac{242}{125}\sqrt{1-2x}-\frac{242}{125}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (242*Sqrt[1 - 2*x])/125 + (22*(1 - 2*x)^(3/2))/75 + (2*(1 - 2*x)^
(5/2))/25 - (242*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/12
5
```

Rubi [A] time = 0.0708609, antiderivative size = 69, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 17, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.176

$$\frac{2}{25}(1-2x)^{5/2}+\frac{22}{75}(1-2x)^{3/2}+\frac{242}{125}\sqrt{1-2x}-\frac{242}{125}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/(3 + 5*x),x]
```

```
[Out] (242*Sqrt[1 - 2*x])/125 + (22*(1 - 2*x)^(3/2))/75 + (2*(1 - 2*x)^
(5/2))/25 - (242*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/12
5
```

Rubi in Sympy [A] time = 7.06808, size = 60, normalized size = 0.87

$$\frac{2\left(-2x+1\right)^{\frac{5}{2}}}{25}+\frac{22\left(-2x+1\right)^{\frac{3}{2}}}{75}+\frac{242\sqrt{-2x+1}}{125}-\frac{242\sqrt{55}\,\mathrm{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(3+5*x),x)
```

```
[Out] 2*(-2*x + 1)**(5/2)/25 + 22*(-2*x + 1)**(3/2)/75 + 242*sqrt(-2*x
+ 1)/125 - 242*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/625
```

Mathematica [A] time = 0.0555151, size = 51, normalized size = 0.74

$$\frac{2\left(5\sqrt{1-2x}\left(60x^2-170x+433\right)-363\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)\right)}{1875}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/(3 + 5*x),x]
```

```
[Out] (2*(5*Sqrt[1 - 2*x]*(433 - 170*x + 60*x^2) - 363*Sqrt[55]*ArcTanh
[Sqrt[5/11]*Sqrt[1 - 2*x]]))/1875
```

Maple [A] time = 0.007, size = 47, normalized size = 0.7

$$\frac{22}{75}\left(1-2\,x\right)^{\frac{3}{2}}+\frac{2}{25}\left(1-2\,x\right)^{\frac{5}{2}}-\frac{242\,\sqrt{55}}{625}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2\,x}\right)+\frac{242}{125}\sqrt{1-2\,x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((1-2*x)^(5/2)/(3+5*x),x)
```

```
[Out] 22/75*(1-2*x)^(3/2)+2/25*(1-2*x)^(5/2)-242/625*arctanh(1/11*55^(1
/2)*(1-2*x)^(1/2))*55^(1/2)+242/125*(1-2*x)^(1/2)
```

Maxima [A] time = 1.48976, size = 86, normalized size = 1.25

$$\frac{2}{25}\,(-2\,x+1)^{\frac{5}{2}}+\frac{22}{75}\,(-2\,x+1)^{\frac{3}{2}}+\frac{121}{625}\,\sqrt{55}\log\left(-\frac{\sqrt{55}-5\,\sqrt{-2\,x+1}}{\sqrt{55}+5\,\sqrt{-2\,x+1}}\right)+\frac{242}{125}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((-2*x + 1)^(5/2)/(5*x + 3),x, algorithm="maxima")
```

```
[Out] 2/25*(-2*x + 1)^(5/2) + 22/75*(-2*x + 1)^(3/2) + 121/625*sqrt(55)
*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))
) + 242/125*sqrt(-2*x + 1)
```

Fricas [A] time = 0.209991, size = 86, normalized size = 1.25

$$\frac{1}{1875}\,\sqrt{5}\left(2\,\sqrt{5}\left(60\,x^{2}-170\,x+433\right)\sqrt{-2\,x+1}+363\,\sqrt{11}\log\left(\frac{\sqrt{5}(5\,x-8)+5\,\sqrt{11}\sqrt{-2\,x+1}}{5\,x+3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((-2*x + 1)^(5/2)/(5*x + 3),x, algorithm="fricas")
```

```
[Out] 1/1875*sqrt(5)*(2*sqrt(5)*(60*x^2 - 170*x + 433)*sqrt(-2*x + 1) +
 363*sqrt(11)*log((sqrt(5)*(5*x - 8) + 5*sqrt(11)*sqrt(-2*x + 1))
/(5*x + 3)))
```

Sympy [A] time = 4.6883, size = 204, normalized size = 2.96

$$\begin{cases} \frac{8\sqrt{5}i\left(x+\frac{3}{5}\right)^{2}\sqrt{10x-5}}{125}-\frac{484\sqrt{5}i\left(x+\frac{3}{5}\right)\sqrt{10x-5}}{1875}+\frac{5566\sqrt{5}i\sqrt{10x-5}}{9375}+\frac{242\sqrt{55}i\operatorname{asin}\left(\frac{\sqrt{110}}{10\sqrt{x+\frac{3}{5}}}\right)}{625} & \text{for}\ \frac{10\left|x+\frac{3}{5}\right|}{11}>1\\ \frac{8\sqrt{5}\sqrt{-10x+5}\left(x+\frac{3}{5}\right)^{2}}{125}-\frac{484\sqrt{5}\sqrt{-10x+5}\left(x+\frac{3}{5}\right)}{1875}+\frac{5566\sqrt{5}\sqrt{-10x+5}}{9375}+\frac{121\sqrt{55}\log\left(x+\frac{3}{5}\right)}{625}-\frac{242\sqrt{55}\log\left(\sqrt{-\frac{10x}{11}+\frac{5}{11}}+1\right)}{625} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((1-2*x)**(5/2)/(3+5*x),x)
```

```
[Out] Piecewise((8*sqrt(5)*I*(x + 3/5)**2*sqrt(10*x - 5)/125 - 484*sqrt
(5)*I*(x + 3/5)*sqrt(10*x - 5)/1875 + 5566*sqrt(5)*I*sqrt(10*x -
5)/9375 + 242*sqrt(55)*I*asin(sqrt(110)/(10*sqrt(x + 3/5)))/625,
10*Abs(x + 3/5)/11 > 1), (8*sqrt(5)*sqrt(-10*x + 5)*(x + 3/5)**2/
125 - 484*sqrt(5)*sqrt(-10*x + 5)*(x + 3/5)/1875 + 5566*sqrt(5)*s
qrt(-10*x + 5)/9375 + 121*sqrt(55)*log(x + 3/5)/625 - 242*sqrt(55
)*log(sqrt(-10*x/11 + 5/11) + 1)/625, True))
```

GIAC/XCAS [A] time = 0.210593, size = 100, normalized size = 1.45

$$\frac{2}{25}\,(2\,x-1)^2\sqrt{-2\,x+1}+\frac{22}{75}\,(-2\,x+1)^{\frac{3}{2}}+\frac{121}{625}\,\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)+\frac{242}{125}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/(5*x + 3),x, algorithm="giac")
```

```
[Out] 2/25*(2*x - 1)^2*sqrt(-2*x + 1) + 22/75*(-2*x + 1)^(3/2) + 121/62
5*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(55)
+ 5*sqrt(-2*x + 1))) + 242/125*sqrt(-2*x + 1)
```

3.1956 $\int \frac{(1-2x)^{5/2}}{(2+3x)(3+5x)}\,dx$

Optimal. Leaf size=85

$$-\frac{4}{45}(1-2x)^{3/2}-\frac{272}{225}\sqrt{1-2x}+\frac{98}{9}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{242}{25}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (-272*Sqrt[1 - 2*x])/225 - (4*(1 - 2*x)^(3/2))/45 + (98*Sqrt[7/3]
*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/9 - (242*Sqrt[11/5]*ArcTanh[Sq
rt[5/11]*Sqrt[1 - 2*x]])/25
```

Rubi [A] time = 0.187728, antiderivative size = 85, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$-\frac{4}{45}(1-2x)^{3/2}-\frac{272}{225}\sqrt{1-2x}+\frac{98}{9}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{242}{25}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)*(3 + 5*x)),x]
```

```
[Out] (-272*Sqrt[1 - 2*x])/225 - (4*(1 - 2*x)^(3/2))/45 + (98*Sqrt[7/3]
*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/9 - (242*Sqrt[11/5]*ArcTanh[Sq
rt[5/11]*Sqrt[1 - 2*x]])/25
```

Rubi in Sympy [A] time = 20.724, size = 73, normalized size = 0.86

$$-\frac{4(-2x+1)^{\frac{3}{2}}}{45}-\frac{272\sqrt{-2x+1}}{225}+\frac{98\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{27}-\frac{242\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)/(3+5*x),x)
```

```
[Out] -4*(-2*x + 1)**(3/2)/45 - 272*sqrt(-2*x + 1)/225 + 98*sqrt(21)*at
anh(sqrt(21)*sqrt(-2*x + 1)/7)/27 - 242*sqrt(55)*atanh(sqrt(55)*s
qrt(-2*x + 1)/11)/125
```

Mathematica [A] time = 0.113769, size = 71, normalized size = 0.84

$$\frac{2\left(30\sqrt{1-2x}(10x-73)+6125\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-3267\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)\right)}{3375}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)*(3 + 5*x)),x]
```

```
[Out] (2*(30*Sqrt[1 - 2*x]*(-73 + 10*x) + 6125*Sqrt[21]*ArcTanh[Sqrt[3/
7]*Sqrt[1 - 2*x]] - 3267*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x
]]))/3375
```

Maple [A] time = 0.014, size = 56, normalized size = 0.7

$$-\frac{4}{45}\left(1-2x\right)^{\frac{3}{2}}-\frac{242\sqrt{55}}{125}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)+\frac{98\sqrt{21}}{27}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)-\frac{272}{225}\sqrt{1-2x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)/(3+5*x),x)
```

```
[Out] -4/45*(1-2*x)^(3/2)-242/125*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*
55^(1/2)+98/27*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)-272/2
25*(1-2*x)^(1/2)
```

Maxima [A] time = 1.47872, size = 123, normalized size = 1.45

$$-\frac{4}{45}\left(-2x+1\right)^{\frac{3}{2}}+\frac{121}{125}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{49}{27}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{272}{225}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)*(3*x + 2)),x, algorithm="maxima")
```

```
[Out] -4/45*(-2*x + 1)^(3/2) + 121/125*sqrt(55)*log(-(sqrt(55) - 5*sqrt
(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) - 49/27*sqrt(21)*log(-
(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 27
2/225*sqrt(-2*x + 1)
```

Fricas [A] time = 0.217301, size = 144, normalized size = 1.69

$$\frac{1}{3375}\sqrt{5}\sqrt{3}\left(4\sqrt{5}\sqrt{3}(10x-73)\sqrt{-2x+1}+1089\sqrt{11}\sqrt{3}\log\left(\frac{\sqrt{5}(5x-8)+5\sqrt{11}\sqrt{-2x+1}}{5x+3}\right)+1225\sqrt{7}\sqrt{5}\log\left(\frac{\sqrt{3}(3x-5}{}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)*(3*x + 2)),x, algorithm="fricas")
```

```
[Out] 1/3375*sqrt(5)*sqrt(3)*(4*sqrt(5)*sqrt(3)*(10*x - 73)*sqrt(-2*x +
 1) + 1089*sqrt(11)*sqrt(3)*log((sqrt(5)*(5*x - 8) + 5*sqrt(11)*s
qrt(-2*x + 1))/(5*x + 3)) + 1225*sqrt(7)*sqrt(5)*log((sqrt(3)*(3*
x - 5) - 3*sqrt(7)*sqrt(-2*x + 1))/(3*x + 2)))
```

Sympy [A] time = 10.0773, size = 151, normalized size = 1.78

$$-\frac{4\left(-2x+1\right)^{\frac{3}{2}}}{45}-\frac{272\sqrt{-2x+1}}{225}-\frac{686\left(\begin{cases}-\frac{\sqrt{21}\operatorname{acoth}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for}\ -2x+1>\frac{7}{3}\\-\frac{\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for}\ -2x+1<\frac{7}{3}\end{cases}\right)}{9}+\frac{2662\left(\begin{cases}-\frac{\sqrt{55}\operatorname{acoth}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for}\ -2x+1>\frac{11}{5}\\-\frac{\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for}\ -2x+1<\frac{11}{5}\end{cases}\right)}{25}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)/(2+3*x)/(3+5*x),x)
```

```
[Out] -4*(-2*x + 1)**(3/2)/45 - 272*sqrt(-2*x + 1)/225 - 686*Piecewise(
(-sqrt(21)*acoth(sqrt(21)*sqrt(-2*x + 1)/7)/21, -2*x + 1 > 7/3),
(-sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/21, -2*x + 1 < 7/3))/
9 + 2662*Piecewise((-sqrt(55)*acoth(sqrt(55)*sqrt(-2*x + 1)/11)/5
5, -2*x + 1 > 11/5), (-sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)
/55, -2*x + 1 < 11/5))/25
```

GIAC/XCAS [A] time = 0.215343, size = 131, normalized size = 1.54

$$-\frac{4}{45}\,(-2\,x+1)^{\frac{3}{2}}+\frac{121}{125}\,\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)-\frac{49}{27}\,\sqrt{21}\ln\left(\frac{\left|-2\,\sqrt{21}+6\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{21}+3\,\sqrt{-2\,x+1}\right)}\right)-\frac{272}{225}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)*(3*x + 2)),x, algorithm="giac")
```

```
[Out] -4/45*(-2*x + 1)^(3/2) + 121/125*sqrt(55)*ln(1/2*abs(-2*sqrt(55)
+ 10*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) - 49/27*sqrt(
21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt
(-2*x + 1))) - 272/225*sqrt(-2*x + 1)
```

3.1957 $\int \frac{(1-2x)^{5/2}}{(2+3x)^2(3+5x)}\,dx$

Optimal. Leaf size=92

$$\frac{7(1-2x)^{3/2}}{3(3x+2)}+\frac{26}{15}\sqrt{1-2x}+\frac{140}{3}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{242}{5}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (26*Sqrt[1 - 2*x])/15 + (7*(1 - 2*x)^(3/2))/(3*(2 + 3*x)) + (140*
Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/3 - (242*Sqrt[11/5]*A
rcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/5
```

Rubi [A] time = 0.189801, antiderivative size = 92, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{7(1-2x)^{3/2}}{3(3x+2)}+\frac{26}{15}\sqrt{1-2x}+\frac{140}{3}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{242}{5}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)^2*(3 + 5*x)),x]
```

```
[Out] (26*Sqrt[1 - 2*x])/15 + (7*(1 - 2*x)^(3/2))/(3*(2 + 3*x)) + (140*
Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/3 - (242*Sqrt[11/5]*A
rcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/5
```

Rubi in Sympy [A] time = 21.6008, size = 76, normalized size = 0.83

$$\frac{7\left(-2x+1\right)^{\frac{3}{2}}}{3\left(3x+2\right)}+\frac{26\sqrt{-2x+1}}{15}+\frac{140\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{9}-\frac{242\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{25}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)**2/(3+5*x),x)
```

```
[Out] 7*(-2*x + 1)**(3/2)/(3*(3*x + 2)) + 26*sqrt(-2*x + 1)/15 + 140*sq
rt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/9 - 242*sqrt(55)*atanh(sq
rt(55)*sqrt(-2*x + 1)/11)/25
```

Mathematica [A] time = 0.159934, size = 78, normalized size = 0.85

$$\frac{1}{225}\left(\frac{15\sqrt{1-2x}(8x+87)}{3x+2}+3500\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-2178\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)^2*(3 + 5*x)),x]
```

```
[Out] ((15*Sqrt[1 - 2*x]*(87 + 8*x))/(2 + 3*x) + 3500*Sqrt[21]*ArcTanh[
Sqrt[3/7]*Sqrt[1 - 2*x]] - 2178*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[
1 - 2*x]])/225
```

Maple [A] time = 0.017, size = 63, normalized size = 0.7

$$\frac{8}{45}\sqrt{1-2x}-\frac{98}{27}\sqrt{1-2x}\left(-\frac{4}{3}-2x\right)^{-1}+\frac{140\sqrt{21}}{9}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)-\frac{242\sqrt{55}}{25}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((1-2*x)^(5/2)/(2+3*x)^2/(3+5*x),x)
```

```
[Out] 8/45*(1-2*x)^(1/2)-98/27*(1-2*x)^(1/2)/(-4/3-2*x)+140/9*arctanh(1
/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)-242/25*arctanh(1/11*55^(1/2)*
(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.50163, size = 132, normalized size = 1.43

$$\frac{121}{25}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{70}{9}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{8}{45}\sqrt{-2x+1}+\frac{49\sqrt{-2x+1}}{9(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)*(3*x + 2)^2),x, algorithm="maxima")
```

```
[Out] 121/25*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*
sqrt(-2*x + 1))) - 70/9*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1
))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 8/45*sqrt(-2*x + 1) + 49/9*sq
rt(-2*x + 1)/(3*x + 2)
```

Fricas [A] time = 0.219872, size = 166, normalized size = 1.8

$$\frac{\sqrt{5}\sqrt{3}\left(363\sqrt{11}\sqrt{3}(3x+2)\log\left(\frac{\sqrt{5}(5x-8)+5\sqrt{11}\sqrt{-2x+1}}{5x+3}\right)+350\sqrt{7}\sqrt{5}(3x+2)\log\left(\frac{\sqrt{3}(3x-5)-3\sqrt{7}\sqrt{-2x+1}}{3x+2}\right)+\sqrt{5}\sqrt{3}(8x+87)\sqrt{-2}\right.}{225(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)*(3*x + 2)^2),x, algorithm="fricas")
```

```
[Out] 1/225*sqrt(5)*sqrt(3)*(363*sqrt(11)*sqrt(3)*(3*x + 2)*log((sqrt(5
)*(5*x - 8) + 5*sqrt(11)*sqrt(-2*x + 1))/(5*x + 3)) + 350*sqrt(7)
*sqrt(5)*(3*x + 2)*log((sqrt(3)*(3*x - 5) - 3*sqrt(7)*sqrt(-2*x +
 1))/(3*x + 2)) + sqrt(5)*sqrt(3)*(8*x + 87)*sqrt(-2*x + 1))/(3*x
 + 2)
```

Sympy [A] time = 99.0665, size = 240, normalized size = 2.61

$$\frac{8\sqrt{-2x+1}}{45} + \frac{1372\left(\begin{cases}\frac{\sqrt{21}\left(-\frac{\log\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)}{4}+\frac{\log\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)}{4}-\frac{1}{4\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}+1\right)}-\frac{1}{4\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}-1\right)}\right)}{147} & \text{for } x \le \frac{1}{2} \wedge x > -\frac{2}{3}\end{cases}\right)}{9} - \frac{2842\left(\begin{cases}-\frac{\sqrt{21}\operatorname{acoth}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for } -2x+1 > \frac{7}{3}\\ -\frac{\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for } -2x+1 < \frac{7}{3}\end{cases}\right)}{9} + \frac{2662\left(\begin{cases}-\frac{\sqrt{55}\operatorname{acoth}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1 > \frac{11}{5}\\ -\frac{\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1 < \frac{11}{5}\end{cases}\right)}{5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)/(2+3*x)**2/(3+5*x),x)
```

```
[Out] 8*sqrt(-2*x + 1)/45 + 1372*Piecewise((sqrt(21)*(-log(sqrt(21)*sqr
t(-2*x + 1)/7 - 1)/4 + log(sqrt(21)*sqrt(-2*x + 1)/7 + 1)/4 - 1/(
4*(sqrt(21)*sqrt(-2*x + 1)/7 + 1)) - 1/(4*(sqrt(21)*sqrt(-2*x + 1
)/7 - 1)))/147, (x <= 1/2) & (x > -2/3)))/9 - 2842*Piecewise((-sq
rt(21)*acoth(sqrt(21)*sqrt(-2*x + 1)/7)/21, -2*x + 1 > 7/3), (-sq
rt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/21, -2*x + 1 < 7/3))/9 +
2662*Piecewise((-sqrt(55)*acoth(sqrt(55)*sqrt(-2*x + 1)/11)/55, -
2*x + 1 > 11/5), (-sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/55,
 -2*x + 1 < 11/5))/5
```

GIAC/XCAS [A] time = 0.217383, size = 140, normalized size = 1.52

$$\frac{121}{25}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{70}{9}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{8}{45}\sqrt{-2x+1}+\frac{49\sqrt{-2x+1}}{9(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)*(3*x + 2)^2),x, algorithm="giac")
```

```
[Out] 121/25*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt
(55) + 5*sqrt(-2*x + 1))) - 70/9*sqrt(21)*ln(1/2*abs(-2*sqrt(21)
+ 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 8/45*sqrt(-2
*x + 1) + 49/9*sqrt(-2*x + 1)/(3*x + 2)
```

3.1958 $\int \frac{(1-2x)^{5/2}}{(2+3x)^3(3+5x)}\,dx$

Optimal. Leaf size=95

$$\frac{7(1-2x)^{3/2}}{6(3x+2)^2}+\frac{49\sqrt{1-2x}}{2(3x+2)}+235\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-242\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (7*(1 - 2*x)^(3/2))/(6*(2 + 3*x)^2) + (49*Sqrt[1 - 2*x])/(2*(2 +
3*x)) + 235*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]] - 242*Sqrt
[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Rubi [A] time = 0.188595, antiderivative size = 95, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{7(1-2x)^{3/2}}{6(3x+2)^2}+\frac{49\sqrt{1-2x}}{2(3x+2)}+235\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-242\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)^3*(3 + 5*x)),x]
```

```
[Out] (7*(1 - 2*x)^(3/2))/(6*(2 + 3*x)^2) + (49*Sqrt[1 - 2*x])/(2*(2 +
3*x)) + 235*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]] - 242*Sqrt
[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Rubi in Sympy [A] time = 20.925, size = 83, normalized size = 0.87

$$\frac{7\left(-2x+1\right)^{\frac{3}{2}}}{6\left(3x+2\right)^{2}}+\frac{49\sqrt{-2x+1}}{2\left(3x+2\right)}+\frac{235\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{3}-\frac{242\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)**3/(3+5*x),x)
```

```
[Out] 7*(-2*x + 1)**(3/2)/(6*(3*x + 2)**2) + 49*sqrt(-2*x + 1)/(2*(3*x
+ 2)) + 235*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/3 - 242*sqr
t(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/5
```

Mathematica [A] time = 0.14918, size = 80, normalized size = 0.84

$$\frac{7\sqrt{1-2x}(61x+43)}{6(3x+2)^2}+235\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-242\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)^3*(3 + 5*x)),x]
```

```
[Out] (7*Sqrt[1 - 2*x]*(43 + 61*x))/(6*(2 + 3*x)^2) + 235*Sqrt[7/3]*Arc
Tanh[Sqrt[3/7]*Sqrt[1 - 2*x]] - 242*Sqrt[11/5]*ArcTanh[Sqrt[5/11]
*Sqrt[1 - 2*x]]
```

Maple [A] time = 0.018, size = 66, normalized size = 0.7

$$-126\frac{1}{(-4-6x)^2}\left(\frac{61\,(1-2x)^{3/2}}{54}-\frac{49\sqrt{1-2x}}{18}\right)+\frac{235\sqrt{21}}{3}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)-\frac{242\sqrt{55}}{5}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)^3/(3+5*x),x)
```

```
[Out] -126*(61/54*(1-2*x)^(3/2)-49/18*(1-2*x)^(1/2))/(-4-6*x)^2+235/3*a
rctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)-242/5*arctanh(1/11*55
^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.48093, size = 149, normalized size = 1.57

$$\frac{121}{5}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{235}{6}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{7\left(61\,(-2x+1)^{\frac{3}{2}}-147\sqrt{-2x+1}\right)}{3\left(9\,(2x-1)^2+84x+7\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)*(3*x + 2)^3),x, algorithm="maxima")
```

```
[Out] 121/5*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*s
qrt(-2*x + 1))) - 235/6*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1
))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 7/3*(61*(-2*x + 1)^(3/2) - 14
7*sqrt(-2*x + 1))/(9*(2*x - 1)^2 + 84*x + 7)
```

Fricas [A] time = 0.219496, size = 188, normalized size = 1.98

$$\frac{\sqrt{5}\sqrt{3}\left(726\sqrt{11}\sqrt{3}\left(9x^2+12x+4\right)\log\left(\frac{\sqrt{5}(5x-8)+5\sqrt{11}\sqrt{-2x+1}}{5x+3}\right)+705\sqrt{7}\sqrt{5}\left(9x^2+12x+4\right)\log\left(\frac{\sqrt{3}(3x-5)-3\sqrt{7}\sqrt{-2x+1}}{3x+2}\right)+7\sqrt{}\right.}{90\left(9x^2+12x+4\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)*(3*x + 2)^3),x, algorithm="fricas")
```

```
[Out] 1/90*sqrt(5)*sqrt(3)*(726*sqrt(11)*sqrt(3)*(9*x^2 + 12*x + 4)*log
((sqrt(5)*(5*x - 8) + 5*sqrt(11)*sqrt(-2*x + 1))/(5*x + 3)) + 705
*sqrt(7)*sqrt(5)*(9*x^2 + 12*x + 4)*log((sqrt(3)*(3*x - 5) - 3*sq
rt(7)*sqrt(-2*x + 1))/(3*x + 2)) + 7*sqrt(5)*sqrt(3)*(61*x + 43)*
sqrt(-2*x + 1))/(9*x^2 + 12*x + 4)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)/(2+3*x)**3/(3+5*x),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.216867, size = 144, normalized size = 1.52

$$\frac{121}{5}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{235}{6}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{7\left(61\,(-2x+1)^{\frac{3}{2}}-147\sqrt{-2x+1}\right)}{12\,(3x+2)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)*(3*x + 2)^3),x, algorithm="giac")
```

```
[Out] 121/5*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(
55) + 5*sqrt(-2*x + 1))) - 235/6*sqrt(21)*ln(1/2*abs(-2*sqrt(21)
+ 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 7/12*(61*(-2
*x + 1)^(3/2) - 147*sqrt(-2*x + 1))/(3*x + 2)^2
```

3.1959 $\int \frac{(1-2x)^{5/2}}{(2+3x)^4(3+5x)}\,dx$

Optimal. Leaf size=113

$$\frac{7(1-2x)^{3/2}}{9(3x+2)^3}+\frac{1073\sqrt{1-2x}}{9(3x+2)}+\frac{112\sqrt{1-2x}}{9(3x+2)^2}+\frac{74020\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{9\sqrt{21}}-242\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (7*(1 - 2*x)^(3/2))/(9*(2 + 3*x)^3) + (112*Sqrt[1 - 2*x])/(9*(2 +
 3*x)^2) + (1073*Sqrt[1 - 2*x])/(9*(2 + 3*x)) + (74020*ArcTanh[Sq
rt[3/7]*Sqrt[1 - 2*x]])/(9*Sqrt[21]) - 242*Sqrt[55]*ArcTanh[Sqrt[
5/11]*Sqrt[1 - 2*x]]
```

Rubi [A] time = 0.252359, antiderivative size = 113, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$\frac{7(1-2x)^{3/2}}{9(3x+2)^3}+\frac{1073\sqrt{1-2x}}{9(3x+2)}+\frac{112\sqrt{1-2x}}{9(3x+2)^2}+\frac{74020\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{9\sqrt{21}}-242\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)^4*(3 + 5*x)),x]
```

```
[Out] (7*(1 - 2*x)^(3/2))/(9*(2 + 3*x)^3) + (112*Sqrt[1 - 2*x])/(9*(2 +
 3*x)^2) + (1073*Sqrt[1 - 2*x])/(9*(2 + 3*x)) + (74020*ArcTanh[Sq
rt[3/7]*Sqrt[1 - 2*x]])/(9*Sqrt[21]) - 242*Sqrt[55]*ArcTanh[Sqrt[
5/11]*Sqrt[1 - 2*x]]
```

Rubi in Sympy [A] time = 27.6992, size = 100, normalized size = 0.88

$$\frac{7\left(-2x+1\right)^{\frac{3}{2}}}{9\left(3x+2\right)^{3}}+\frac{1073\sqrt{-2x+1}}{9\left(3x+2\right)}+\frac{112\sqrt{-2x+1}}{9\left(3x+2\right)^{2}}+\frac{74020\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{189}-242\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)**4/(3+5*x),x)
```

```
[Out] 7*(-2*x + 1)**(3/2)/(9*(3*x + 2)**3) + 1073*sqrt(-2*x + 1)/(9*(3*
x + 2)) + 112*sqrt(-2*x + 1)/(9*(3*x + 2)**2) + 74020*sqrt(21)*at
anh(sqrt(21)*sqrt(-2*x + 1)/7)/189 - 242*sqrt(55)*atanh(sqrt(55)*
sqrt(-2*x + 1)/11)
```

Mathematica [A] time = 0.168051, size = 83, normalized size = 0.73

$$\frac{\sqrt{1-2x}\left(9657x^2+13198x+4523\right)}{9(3x+2)^3}+\frac{74020\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{9\sqrt{21}}-242\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)^4*(3 + 5*x)),x]
```

```
[Out] (Sqrt[1 - 2*x]*(4523 + 13198*x + 9657*x^2))/(9*(2 + 3*x)^3) + (74
020*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(9*Sqrt[21]) - 242*Sqrt[55]
*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Maple [A] time = 0.017, size = 75, normalized size = 0.7

$$-54\,\frac{1}{(-4-6\,x)^3}\left(\frac{1073\,(1-2\,x)^{5/2}}{27}-\frac{45710\,(1-2\,x)^{3/2}}{243}+\frac{54145\,\sqrt{1-2\,x}}{243}\right)+\frac{74020\,\sqrt{21}}{189}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)-242\,\mathit{Artanh}\left(1/11\,\sqrt{55}\sqrt{1-2\,x}\right)\sqrt{55}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)^4/(3+5*x),x)
```

```
[Out] -54*(1073/27*(1-2*x)^(5/2)-45710/243*(1-2*x)^(3/2)+54145/243*(1-2
*x)^(1/2))/(-4-6*x)^3+74020/189*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2
))*21^(1/2)-242*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.50311, size = 173, normalized size = 1.53

$$121\,\sqrt{55}\log\left(-\frac{\sqrt{55}-5\,\sqrt{-2\,x+1}}{\sqrt{55}+5\,\sqrt{-2\,x+1}}\right)-\frac{37010}{189}\,\sqrt{21}\log\left(-\frac{\sqrt{21}-3\,\sqrt{-2\,x+1}}{\sqrt{21}+3\,\sqrt{-2\,x+1}}\right)+\frac{2\left(9657\,(-2\,x+1)^{\frac{5}{2}}-45710\,(-2\,x+1)^{\frac{3}{2}}+54145\,\sqrt{-2\,x+1}\right)}{9\left(27\,(2\,x-1)^3+189\,(2\,x-1)^2+882\,x-98\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)*(3*x + 2)^4),x, algorithm="maxima")
```

```
[Out] 121*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sqr
t(-2*x + 1))) - 37010/189*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x +
 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 2/9*(9657*(-2*x + 1)^(5/2)
- 45710*(-2*x + 1)^(3/2) + 54145*sqrt(-2*x + 1))/(27*(2*x - 1)^3
+ 189*(2*x - 1)^2 + 882*x - 98)
```

Fricas [A] time = 0.219085, size = 185, normalized size = 1.64

$$\frac{\sqrt{21}\left(1089\,\sqrt{55}\sqrt{21}\left(27\,x^3+54\,x^2+36\,x+8\right)\log\left(\frac{5\,x+\sqrt{55}\sqrt{-2\,x+1}-8}{5\,x+3}\right)+\sqrt{21}\left(9657\,x^2+13198\,x+4523\right)\sqrt{-2\,x+1}+37010\,(27\cdots\right.}{189\left(27\,x^3+54\,x^2+36\,x+8\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)*(3*x + 2)^4),x, algorithm="fricas")
```

```
[Out] 1/189*sqrt(21)*(1089*sqrt(55)*sqrt(21)*(27*x^3 + 54*x^2 + 36*x +
8)*log((5*x + sqrt(55)*sqrt(-2*x + 1) - 8)/(5*x + 3)) + sqrt(21)*
(9657*x^2 + 13198*x + 4523)*sqrt(-2*x + 1) + 37010*(27*x^3 + 54*x
^2 + 36*x + 8)*log((sqrt(21)*(3*x - 5) - 21*sqrt(-2*x + 1))/(3*x
+ 2)))/(27*x^3 + 54*x^2 + 36*x + 8)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)/(2+3*x)**4/(3+5*x),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.215576, size = 166, normalized size = 1.47

$$121\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{37010}{189}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{9657\left(2x-1\right)^{2}\sqrt{-2x+1}-45710\left(-2x+1\right)^{\frac{3}{2}}+54145\sqrt{-2x+1}}{36\left(3x+2\right)^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)*(3*x + 2)^4),x, algorithm="giac")
```

```
[Out] 121*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(55
) + 5*sqrt(-2*x + 1))) - 37010/189*sqrt(21)*ln(1/2*abs(-2*sqrt(21
) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 1/36*(9657
*(2*x - 1)^2*sqrt(-2*x + 1) - 45710*(-2*x + 1)^(3/2) + 54145*sqrt
(-2*x + 1))/(3*x + 2)^3
```

3.1960 $\int \frac{(1-2x)^{5/2}}{(2+3x)^5(3+5x)}\,dx$

Optimal. Leaf size=133

$$\frac{7(1-2x)^{3/2}}{12(3x+2)^4}+\frac{100145\sqrt{1-2x}}{168(3x+2)}+\frac{4313\sqrt{1-2x}}{72(3x+2)^2}+\frac{301\sqrt{1-2x}}{36(3x+2)^3}+\frac{3454265\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{84\sqrt{21}}-1210\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (7*(1 - 2*x)^(3/2))/(12*(2 + 3*x)^4) + (301*Sqrt[1 - 2*x])/(36*(2
 + 3*x)^3) + (4313*Sqrt[1 - 2*x])/(72*(2 + 3*x)^2) + (100145*Sqrt
[1 - 2*x])/(168*(2 + 3*x)) + (3454265*ArcTanh[Sqrt[3/7]*Sqrt[1 -
2*x]])/(84*Sqrt[21]) - 1210*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 -
2*x]]
```

Rubi [A] time = 0.313929, antiderivative size = 133, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.25$

$$\frac{7(1-2x)^{3/2}}{12(3x+2)^4}+\frac{100145\sqrt{1-2x}}{168(3x+2)}+\frac{4313\sqrt{1-2x}}{72(3x+2)^2}+\frac{301\sqrt{1-2x}}{36(3x+2)^3}+\frac{3454265\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{84\sqrt{21}}-1210\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)^5*(3 + 5*x)),x]
```

```
[Out] (7*(1 - 2*x)^(3/2))/(12*(2 + 3*x)^4) + (301*Sqrt[1 - 2*x])/(36*(2
 + 3*x)^3) + (4313*Sqrt[1 - 2*x])/(72*(2 + 3*x)^2) + (100145*Sqrt
[1 - 2*x])/(168*(2 + 3*x)) + (3454265*ArcTanh[Sqrt[3/7]*Sqrt[1 -
2*x]])/(84*Sqrt[21]) - 1210*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 -
2*x]]
```

Rubi in Sympy [A] time = 34.6217, size = 119, normalized size = 0.89

$$\frac{7\left(-2x+1\right)^{\frac{3}{2}}}{12\left(3x+2\right)^{4}}+\frac{100145\sqrt{-2x+1}}{168\left(3x+2\right)}+\frac{4313\sqrt{-2x+1}}{72\left(3x+2\right)^{2}}+\frac{301\sqrt{-2x+1}}{36\left(3x+2\right)^{3}}+\frac{3454265\sqrt{21}\,\text{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{1764}-1210\sqrt{55}\,\text{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)**5/(3+5*x),x)
```

```
[Out] 7*(-2*x + 1)**(3/2)/(12*(3*x + 2)**4) + 100145*sqrt(-2*x + 1)/(16
8*(3*x + 2)) + 4313*sqrt(-2*x + 1)/(72*(3*x + 2)**2) + 301*sqrt(-
2*x + 1)/(36*(3*x + 2)**3) + 3454265*sqrt(21)*atanh(sqrt(21)*sqrt
(-2*x + 1)/7)/1764 - 1210*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/
11)
```

Mathematica [A] time = 0.171652, size = 88, normalized size = 0.66

$$\frac{\sqrt{1-2x}\,(2703915x^3+5498403x^2+3730002x+844322)}{168(3x+2)^4}+\frac{3454265\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{84\sqrt{21}}-1210\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)^5*(3 + 5*x)),x]
```

```
[Out] (Sqrt[1 - 2*x]*(844322 + 3730002*x + 5498403*x^2 + 2703915*x^3))/
(168*(2 + 3*x)^4) + (3454265*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(8
4*Sqrt[21]) - 1210*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Maple [A] time = 0.019, size = 84, normalized size = 0.6

$$-162\,\frac{1}{(-4-6\,x)^4}\left(\frac{100145\,(1-2\,x)^{7/2}}{504}-\frac{909931\,(1-2\,x)^{5/2}}{648}+\frac{2144065\,(1-2\,x)^{3/2}}{648}-\frac{5053615\,\sqrt{1-2\,x}}{1944}\right)+\frac{3454265\,\sqrt{21}}{1764}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)-1210\,\mathit{Artanh}\left(1/11\,\sqrt{55}\sqrt{1-2\,x}\right)\sqrt{55}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)^5/(3+5*x),x)
```

```
[Out] -162*(100145/504*(1-2*x)^(7/2)-909931/648*(1-2*x)^(5/2)+2144065/6
48*(1-2*x)^(3/2)-5053615/1944*(1-2*x)^(1/2))/(-4-6*x)^4+3454265/1
764*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)-1210*arctanh(1/1
1*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.50777, size = 197, normalized size = 1.48

$$605\,\sqrt{55}\log\left(-\frac{\sqrt{55}-5\,\sqrt{-2\,x+1}}{\sqrt{55}+5\,\sqrt{-2\,x+1}}\right)-\frac{3454265}{3528}\,\sqrt{21}\log\left(-\frac{\sqrt{21}-3\,\sqrt{-2\,x+1}}{\sqrt{21}+3\,\sqrt{-2\,x+1}}\right)-\frac{2703915\,(-2\,x+1)^{\frac{7}{2}}-19108551\,(-2\,x+1)^{\frac{5}{2}}+45025365\,(-2\,x+1)^{\frac{3}{2}}-35375305\,\sqrt{-2\,x+1}}{84\,\left(81\,(2\,x-1)^4+756\,(2\,x-1)^3+2646\,(2\,x-1)^2+8232\,x-1715\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)*(3*x + 2)^5),x, algorithm="maxima")
```

```
[Out] 605*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sqr
t(-2*x + 1))) - 3454265/3528*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*
x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 1/84*(2703915*(-2*x + 1)
^(7/2) - 19108551*(-2*x + 1)^(5/2) + 45025365*(-2*x + 1)^(3/2) -
35375305*sqrt(-2*x + 1))/(81*(2*x - 1)^4 + 756*(2*x - 1)^3 + 2646
*(2*x - 1)^2 + 8232*x - 1715)
```

Fricas [A] time = 0.2177, size = 212, normalized size = 1.59

$$\frac{\sqrt{21}\left(101640\,\sqrt{55}\sqrt{21}\left(81\,x^4+216\,x^3+216\,x^2+96\,x+16\right)\log\left(\frac{5\,x+\sqrt{55}\sqrt{-2\,x+1}-8}{5\,x+3}\right)+\sqrt{21}\left(2703915\,x^3+5498403\,x^2+373000\right.\right.}{3528\,(81\,x^4+216\,x^3+216\,x^2+9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)*(3*x + 2)^5),x, algorithm="fricas")
```

```
[Out] 1/3528*sqrt(21)*(101640*sqrt(55)*sqrt(21)*(81*x^4 + 216*x^3 + 216
*x^2 + 96*x + 16)*log((5*x + sqrt(55)*sqrt(-2*x + 1) - 8)/(5*x +
3)) + sqrt(21)*(2703915*x^3 + 5498403*x^2 + 3730002*x + 844322)*s
qrt(-2*x + 1) + 3454265*(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16)*
log((sqrt(21)*(3*x - 5) - 21*sqrt(-2*x + 1))/(3*x + 2)))/(81*x^4
+ 216*x^3 + 216*x^2 + 96*x + 16)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(5/2)/(2+3*x)**5/(3+5*x),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.215943, size = 188, normalized size = 1.41

$$605\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{3454265}{3528}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{2703915\,(2x-1)^3\sqrt{-2x+1}+19108551\,(2x-1)^2\sqrt{-2x+1}-45025365\,(-2x+1)^{\frac{3}{2}}+35375305\sqrt{-2x+1}}{1344\,(3x+2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)*(3*x + 2)^5),x, algorithm="giac")
```

```
[Out] 605*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(55
) + 5*sqrt(-2*x + 1))) - 3454265/3528*sqrt(21)*ln(1/2*abs(-2*sqrt
(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 1/1344*
(2703915*(2*x - 1)^3*sqrt(-2*x + 1) + 19108551*(2*x - 1)^2*sqrt(-
2*x + 1) - 45025365*(-2*x + 1)^(3/2) + 35375305*sqrt(-2*x + 1))/(
3*x + 2)^4
```

3.1961 $\int \frac{(1-2x)^{5/2}}{(2+3x)^6(3+5x)}\,dx$

Optimal. Leaf size=153

$$\frac{7(1-2x)^{3/2}}{15(3x+2)^5}+\frac{584179\sqrt{1-2x}}{196(3x+2)}+\frac{25159\sqrt{1-2x}}{84(3x+2)^2}+\frac{1201\sqrt{1-2x}}{30(3x+2)^3}+\frac{63\sqrt{1-2x}}{10(3x+2)^4}+\frac{20149879\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{98\sqrt{21}}-6050\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (7*(1 - 2*x)^(3/2))/(15*(2 + 3*x)^5) + (63*Sqrt[1 - 2*x])/(10*(2
+ 3*x)^4) + (1201*Sqrt[1 - 2*x])/(30*(2 + 3*x)^3) + (25159*Sqrt[1
 - 2*x])/(84*(2 + 3*x)^2) + (584179*Sqrt[1 - 2*x])/(196*(2 + 3*x)
) + (20149879*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(98*Sqrt[21]) - 6
050*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Rubi [A] time = 0.377968, antiderivative size = 153, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$\frac{7(1-2x)^{3/2}}{15(3x+2)^5}+\frac{584179\sqrt{1-2x}}{196(3x+2)}+\frac{25159\sqrt{1-2x}}{84(3x+2)^2}+\frac{1201\sqrt{1-2x}}{30(3x+2)^3}+\frac{63\sqrt{1-2x}}{10(3x+2)^4}+\frac{20149879\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{98\sqrt{21}}-6050\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)^6*(3 + 5*x)),x]
```

```
[Out] (7*(1 - 2*x)^(3/2))/(15*(2 + 3*x)^5) + (63*Sqrt[1 - 2*x])/(10*(2
+ 3*x)^4) + (1201*Sqrt[1 - 2*x])/(30*(2 + 3*x)^3) + (25159*Sqrt[1
 - 2*x])/(84*(2 + 3*x)^2) + (584179*Sqrt[1 - 2*x])/(196*(2 + 3*x)
) + (20149879*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(98*Sqrt[21]) - 6
050*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Rubi in Sympy [A] time = 41.4284, size = 138, normalized size = 0.9

$$\frac{7\left(-2x+1\right)^{\frac{3}{2}}}{15\left(3x+2\right)^{5}}+\frac{584179\sqrt{-2x+1}}{196\left(3x+2\right)}+\frac{25159\sqrt{-2x+1}}{84\left(3x+2\right)^{2}}+\frac{1201\sqrt{-2x+1}}{30\left(3x+2\right)^{3}}+\frac{63\sqrt{-2x+1}}{10\left(3x+2\right)^{4}}+\frac{20149879\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{2058}-6050\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)**6/(3+5*x),x)
```

```
[Out] 7*(-2*x + 1)**(3/2)/(15*(3*x + 2)**5) + 584179*sqrt(-2*x + 1)/(19
6*(3*x + 2)) + 25159*sqrt(-2*x + 1)/(84*(3*x + 2)**2) + 1201*sqrt
(-2*x + 1)/(30*(3*x + 2)**3) + 63*sqrt(-2*x + 1)/(10*(3*x + 2)**4
) + 20149879*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/2058 - 605
0*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)
```

Mathematica [A] time = 0.192321, size = 93, normalized size = 0.61

$$\frac{\sqrt{1-2x}\left(709777485x^4+1916515215x^3+1941349752x^2+874383298x+147756688\right)}{2940(3x+2)^5}+\frac{20149879\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{98\sqrt{21}}-6050\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)^6*(3 + 5*x)),x]
```

```
[Out] (Sqrt[1 - 2*x]*(147756688 + 874383298*x + 1941349752*x^2 + 191651
5215*x^3 + 709777485*x^4))/(2940*(2 + 3*x)^5) + (20149879*ArcTanh
[Sqrt[3/7]*Sqrt[1 - 2*x]])/(98*Sqrt[21]) - 6050*Sqrt[55]*ArcTanh[
Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Maple [A] time = 0.017, size = 93, normalized size = 0.6

$$-486\frac{1}{(-4-6x)^5}\left(\frac{584179(1-2x)^{9/2}}{588}-\frac{504319(1-2x)^{7/2}}{54}+\frac{13335122(1-2x)^{5/2}}{405}-\frac{75232787(1-2x)^{3/2}}{1458}+\frac{29479429}{97}\right.$$
$$+\frac{20149879\sqrt{21}}{2058}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)-6050\,Artanh\left(1/11\sqrt{55}\sqrt{1-2x}\right)\sqrt{55}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)^6/(3+5*x),x)
```

```
[Out] -486*(584179/588*(1-2*x)^(9/2)-504319/54*(1-2*x)^(7/2)+13335122/4
05*(1-2*x)^(5/2)-75232787/1458*(1-2*x)^(3/2)+29479429/972*(1-2*x)
^(1/2))/(-4-6*x)^5+20149879/2058*arctanh(1/7*21^(1/2)*(1-2*x)^(1/
2))*21^(1/2)-6050*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.47627, size = 221, normalized size = 1.44

$$3025\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{20149879}{4116}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)$$
$$+\frac{709777485(-2x+1)^{\frac{9}{2}}-6672140370(-2x+1)^{\frac{7}{2}}+23523155208(-2x+1)^{\frac{5}{2}}-36864065630(-2x+1)^{\frac{3}{2}}+21667380315\sqrt{-}}{1470\left(243(2x-1)^5+2835(2x-1)^4+13230(2x-1)^3+30870(2x-1)^2+72030x-19208\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)*(3*x + 2)^6),x, algorithm="maxima")
```

```
[Out] 3025*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sq
rt(-2*x + 1))) - 20149879/4116*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-
2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 1/1470*(709777485*(-2*
x + 1)^(9/2) - 6672140370*(-2*x + 1)^(7/2) + 23523155208*(-2*x +
1)^(5/2) - 36864065630*(-2*x + 1)^(3/2) + 21667380315*sqrt(-2*x +
 1))/(243*(2*x - 1)^5 + 2835*(2*x - 1)^4 + 13230*(2*x - 1)^3 + 30
870*(2*x - 1)^2 + 72030*x - 19208)
```

Fricas [A] time = 0.226928, size = 239, normalized size = 1.56

$$\frac{\sqrt{21}\left(8893500\sqrt{55}\sqrt{21}\left(243x^5+810x^4+1080x^3+720x^2+240x+32\right)\log\left(\frac{5x+\sqrt{55}\sqrt{-2x+1}-8}{5x+3}\right)+\sqrt{21}\left(709777485x^4+1916\right.\right.}{61740(243}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)*(3*x + 2)^6),x, algorithm="fricas")
```

```
[Out] 1/61740*sqrt(21)*(8893500*sqrt(55)*sqrt(21)*(243*x^5 + 810*x^4 +
1080*x^3 + 720*x^2 + 240*x + 32)*log((5*x + sqrt(55)*sqrt(-2*x +
1) - 8)/(5*x + 3)) + sqrt(21)*(709777485*x^4 + 1916515215*x^3 + 1
941349752*x^2 + 874383298*x + 147756688)*sqrt(-2*x + 1) + 3022481
85*(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)*log((sqr
t(21)*(3*x - 5) - 21*sqrt(-2*x + 1))/(3*x + 2)))/(243*x^5 + 810*x
^4 + 1080*x^3 + 720*x^2 + 240*x + 32)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(5/2)/(2+3*x)**6/(3+5*x),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.218011, size = 209, normalized size = 1.37

$$3025\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{20149879}{4116}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{709777485\,(2x-1)^4\sqrt{-2x+1}+6672140370\,(2x-1)^3\sqrt{-2x+1}+23523155208\,(2x-1)^2\sqrt{-2x+1}-36864065630\,(-2x}{47040\,(3x+2)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)*(3*x + 2)^6),x, algorithm="giac")
```

```
[Out] 3025*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(5
5) + 5*sqrt(-2*x + 1))) - 20149879/4116*sqrt(21)*ln(1/2*abs(-2*sq
rt(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 1/470
40*(709777485*(2*x - 1)^4*sqrt(-2*x + 1) + 6672140370*(2*x - 1)^3
*sqrt(-2*x + 1) + 23523155208*(2*x - 1)^2*sqrt(-2*x + 1) - 368640
65630*(-2*x + 1)^(3/2) + 21667380315*sqrt(-2*x + 1))/(3*x + 2)^5
```

3.1962 $\int \frac{(1-2x)^{5/2}}{(2+3x)^7(3+5x)}\,dx$

Optimal. Leaf size=173

$$\frac{7(1-2x)^{3/2}}{18(3x+2)^6}+\frac{736065535\sqrt{1-2x}}{49392(3x+2)}+\frac{31700335\sqrt{1-2x}}{21168(3x+2)^2}+\frac{302651\sqrt{1-2x}}{1512(3x+2)^3}+\frac{2165\sqrt{1-2x}}{72(3x+2)^4}+\frac{91\sqrt{1-2x}}{18(3x+2)^5}+\frac{25388847535\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{24696\sqrt{21}}-30250\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (7*(1 - 2*x)^(3/2))/(18*(2 + 3*x)^6) + (91*Sqrt[1 - 2*x])/(18*(2
+ 3*x)^5) + (2165*Sqrt[1 - 2*x])/(72*(2 + 3*x)^4) + (302651*Sqrt[
1 - 2*x])/(1512*(2 + 3*x)^3) + (31700335*Sqrt[1 - 2*x])/(21168*(2
 + 3*x)^2) + (736065535*Sqrt[1 - 2*x])/(49392*(2 + 3*x)) + (25388
847535*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(24696*Sqrt[21]) - 30250
*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Rubi [A] time = 0.450076, antiderivative size = 173, normalized size of antiderivative = 1., number of steps used = 11, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$\frac{7(1-2x)^{3/2}}{18(3x+2)^6}+\frac{736065535\sqrt{1-2x}}{49392(3x+2)}+\frac{31700335\sqrt{1-2x}}{21168(3x+2)^2}+\frac{302651\sqrt{1-2x}}{1512(3x+2)^3}+\frac{2165\sqrt{1-2x}}{72(3x+2)^4}+\frac{91\sqrt{1-2x}}{18(3x+2)^5}+\frac{25388847535\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{24696\sqrt{21}}-30250\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)^7*(3 + 5*x)),x]
```

```
[Out] (7*(1 - 2*x)^(3/2))/(18*(2 + 3*x)^6) + (91*Sqrt[1 - 2*x])/(18*(2
+ 3*x)^5) + (2165*Sqrt[1 - 2*x])/(72*(2 + 3*x)^4) + (302651*Sqrt[
1 - 2*x])/(1512*(2 + 3*x)^3) + (31700335*Sqrt[1 - 2*x])/(21168*(2
 + 3*x)^2) + (736065535*Sqrt[1 - 2*x])/(49392*(2 + 3*x)) + (25388
847535*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(24696*Sqrt[21]) - 30250
*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Rubi in Sympy [A] time = 49.0993, size = 156, normalized size = 0.9

$$\frac{7\left(-2x+1\right)^{\frac{3}{2}}}{18\left(3x+2\right)^{6}}+\frac{736065535\sqrt{-2x+1}}{49392\left(3x+2\right)}+\frac{31700335\sqrt{-2x+1}}{21168\left(3x+2\right)^{2}}+\frac{302651\sqrt{-2x+1}}{1512\left(3x+2\right)^{3}}+\frac{2165\sqrt{-2x+1}}{72\left(3x+2\right)^{4}}+\frac{91\sqrt{-2x+1}}{18\left(3x+2\right)^{5}}+\frac{25388847535\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{518616}-30250\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)**7/(3+5*x),x)
```

```
[Out] 7*(-2*x + 1)**(3/2)/(18*(3*x + 2)**6) + 736065535*sqrt(-2*x + 1)/
(49392*(3*x + 2)) + 31700335*sqrt(-2*x + 1)/(21168*(3*x + 2)**2)
+ 302651*sqrt(-2*x + 1)/(1512*(3*x + 2)**3) + 2165*sqrt(-2*x + 1)
/(72*(3*x + 2)**4) + 91*sqrt(-2*x + 1)/(18*(3*x + 2)**5) + 253888
47535*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/518616 - 30250*sq
rt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)
```

Mathematica [A] time = 0.210102, size = 98, normalized size = 0.57

$$\frac{\sqrt{1-2x}\left(178863925005x^5+602204446665x^4+811194684822x^3+546491397114x^2+184131053992x+24823128464\right)}{49392(3x+2)^6}+\frac{25388847535\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{24696\sqrt{21}}-30250\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)^7*(3 + 5*x)),x]
```

```
[Out] (Sqrt[1 - 2*x]*(24823128464 + 184131053992*x + 546491397114*x^2 +
 811194684822*x^3 + 602204446665*x^4 + 178863925005*x^5))/(49392*
(2 + 3*x)^6) + (25388847535*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(24
696*Sqrt[21]) - 30250*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Maple [A] time = 0.019, size = 102, normalized size = 0.6

$$-1458\frac{1}{(-4-6x)^6}\left(\frac{736065535(1-2x)^{11/2}}{148176}-\frac{11104383695(1-2x)^{9/2}}{190512}+\frac{1240999441(1-2x)^{7/2}}{4536}-\frac{3744956269(1-2x}{5832}\right.$$
$$+\frac{25388847535\sqrt{21}}{518616}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)-30250\,\mathit{Artanh}\left(1/11\sqrt{55}\sqrt{1-2x}\right)\sqrt{55}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)^7/(3+5*x),x)
```

```
[Out] -1458*(736065535/148176*(1-2*x)^(11/2)-11104383695/190512*(1-2*x)
^(9/2)+1240999441/4536*(1-2*x)^(7/2)-3744956269/5832*(1-2*x)^(5/2
)+79114433335/104976*(1-2*x)^(3/2)-37144080785/104976*(1-2*x)^(1/
2))/(-4-6*x)^6+25388847535/518616*arctanh(1/7*21^(1/2)*(1-2*x)^(1
/2))*21^(1/2)-30250*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.51115, size = 246, normalized size = 1.42

$$15125\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{25388847535}{1037232}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)$$
$$-\frac{178863925005(-2x+1)^{\frac{11}{2}}-2098728518355(-2x+1)^{\frac{9}{2}}+9851053562658(-2x+1)^{\frac{7}{2}}-23121360004806(-2x+1)^{\frac{5}{2}}+2'}{24696\left(729(2x-1)^6+10206(2x-1)^5+59535(2x-1)^4+185220(2x-1)^3+324135(2x\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)*(3*x + 2)^7),x, algorithm="maxima")
```

```
[Out] 15125*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*s
qrt(-2*x + 1))) - 25388847535/1037232*sqrt(21)*log(-(sqrt(21) - 3
*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 1/24696*(178863
925005*(-2*x + 1)^(11/2) - 2098728518355*(-2*x + 1)^(9/2) + 98510
53562658*(-2*x + 1)^(7/2) - 23121360004806*(-2*x + 1)^(5/2) + 271
36250633905*(-2*x + 1)^(3/2) - 12740419709255*sqrt(-2*x + 1))/(72
9*(2*x - 1)^6 + 10206*(2*x - 1)^5 + 59535*(2*x - 1)^4 + 185220*(2
*x - 1)^3 + 324135*(2*x - 1)^2 + 605052*x - 184877)
```

Fricas [A] time = 0.22387, size = 266, normalized size = 1.54

$$\frac{\sqrt{21}\left(747054000\,\sqrt{55}\sqrt{21}\left(729\,x^6+2916\,x^5+4860\,x^4+4320\,x^3+2160\,x^2+576\,x+64\right)\log\left(\frac{5\,x+\sqrt{55}\sqrt{-2\,x+1}-8}{5\,x+3}\right)+\sqrt{21}(17886\cdots}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)*(3*x + 2)^7),x, algorithm="fricas")
```

```
[Out] 1/1037232*sqrt(21)*(747054000*sqrt(55)*sqrt(21)*(729*x^6 + 2916*x
^5 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64)*log((5*x + sqrt
(55)*sqrt(-2*x + 1) - 8)/(5*x + 3)) + sqrt(21)*(178863925005*x^5
+ 602204446665*x^4 + 811194684822*x^3 + 546491397114*x^2 + 184131
053992*x + 24823128464)*sqrt(-2*x + 1) + 25388847535*(729*x^6 + 2
916*x^5 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64)*log((sqrt(
21)*(3*x - 5) - 21*sqrt(-2*x + 1))/(3*x + 2)))/(729*x^6 + 2916*x^
5 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(5/2)/(2+3*x)**7/(3+5*x),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.219507, size = 231, normalized size = 1.34

$$15125\,\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)-\frac{25388847535}{1037232}\,\sqrt{21}\ln\left(\frac{\left|-2\,\sqrt{21}+6\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{21}+3\,\sqrt{-2\,x+1}\right)}\right)$$
$$+\frac{178863925005\,(2\,x-1)^5\sqrt{-2\,x+1}+2098728518355\,(2\,x-1)^4\sqrt{-2\,x+1}+9851053562658\,(2\,x-1)^3\sqrt{-2\,x+1}+2312136\cdots}{1580544\,(3\,x+2)^6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)*(3*x + 2)^7),x, algorithm="giac")
```

```
[Out] 15125*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(
55) + 5*sqrt(-2*x + 1))) - 25388847535/1037232*sqrt(21)*ln(1/2*ab
s(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1)))
+ 1/1580544*(178863925005*(2*x - 1)^5*sqrt(-2*x + 1) + 2098728518
355*(2*x - 1)^4*sqrt(-2*x + 1) + 9851053562658*(2*x - 1)^3*sqrt(-
2*x + 1) + 23121360004806*(2*x - 1)^2*sqrt(-2*x + 1) - 2713625063
3905*(-2*x + 1)^(3/2) + 12740419709255*sqrt(-2*x + 1))/(3*x + 2)^
6
```

3.1963 $\int \frac{(1-2x)^{5/2}(2+3x)^4}{(3+5x)^2}\,dx$

Optimal. Leaf size=141

$$-\frac{(1-2x)^{5/2}(3x+2)^4}{5(5x+3)}+\frac{39}{275}(1-2x)^{5/2}(3x+2)^3-\frac{32(1-2x)^{5/2}(3x+2)^2}{4125}+\frac{254(1-2x)^{3/2}}{46875}-\frac{(1-2x)^{5/2}(1110975x+1347116)}{3609375}+\frac{2794\sqrt{1-2x}}{78125}-\frac{2794\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{78125}$$

```
[Out] (2794*Sqrt[1 - 2*x])/78125 + (254*(1 - 2*x)^(3/2))/46875 - (32*(1
 - 2*x)^(5/2)*(2 + 3*x)^2)/4125 + (39*(1 - 2*x)^(5/2)*(2 + 3*x)^3
)/275 - ((1 - 2*x)^(5/2)*(2 + 3*x)^4)/(5*(3 + 5*x)) - ((1 - 2*x)^
(5/2)*(1347116 + 1110975*x))/3609375 - (2794*Sqrt[11/5]*ArcTanh[S
qrt[5/11]*Sqrt[1 - 2*x]])/78125
```

Rubi [A] time = 0.250919, antiderivative size = 141, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$-\frac{(1-2x)^{5/2}(3x+2)^4}{5(5x+3)}+\frac{39}{275}(1-2x)^{5/2}(3x+2)^3-\frac{32(1-2x)^{5/2}(3x+2)^2}{4125}+\frac{254(1-2x)^{3/2}}{46875}-\frac{(1-2x)^{5/2}(1110975x+1347116)}{3609375}+\frac{2794\sqrt{1-2x}}{78125}-\frac{2794\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{78125}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(2 + 3*x)^4)/(3 + 5*x)^2,x]
```

```
[Out] (2794*Sqrt[1 - 2*x])/78125 + (254*(1 - 2*x)^(3/2))/46875 - (32*(1
 - 2*x)^(5/2)*(2 + 3*x)^2)/4125 + (39*(1 - 2*x)^(5/2)*(2 + 3*x)^3
)/275 - ((1 - 2*x)^(5/2)*(2 + 3*x)^4)/(5*(3 + 5*x)) - ((1 - 2*x)^
(5/2)*(1347116 + 1110975*x))/3609375 - (2794*Sqrt[11/5]*ArcTanh[S
qrt[5/11]*Sqrt[1 - 2*x]])/78125
```

Rubi in Sympy [A] time = 28.9059, size = 121, normalized size = 0.86

$$-\frac{(-2x+1)^{\frac{5}{2}}(3x+2)^4}{5(5x+3)}+\frac{39(-2x+1)^{\frac{5}{2}}(3x+2)^3}{275}-\frac{32(-2x+1)^{\frac{5}{2}}(3x+2)^2}{4125}-\frac{(-2x+1)^{\frac{5}{2}}(3332925x+4041348)}{10828125}+\frac{254(-2x+1)^{\frac{3}{2}}}{46875}+\frac{2794\sqrt{-2x+1}}{78125}-\frac{2794\sqrt{55}\,\mathrm{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{390625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**4/(3+5*x)**2,x)
```

```
[Out] -(-2*x + 1)**(5/2)*(3*x + 2)**4/(5*(5*x + 3)) + 39*(-2*x + 1)**(5
/2)*(3*x + 2)**3/275 - 32*(-2*x + 1)**(5/2)*(3*x + 2)**2/4125 - (
-2*x + 1)**(5/2)*(3332925*x + 4041348)/10828125 + 254*(-2*x + 1)*
*(3/2)/46875 + 2794*sqrt(-2*x + 1)/78125 - 2794*sqrt(55)*atanh(sq
rt(55)*sqrt(-2*x + 1)/11)/390625
```

Mathematica [A] time = 0.142793, size = 78, normalized size = 0.55

$$\frac{\frac{5\sqrt{1-2x}\left(212625000x^6+237037500x^5-173598750x^4-214071975x^3+85482115x^2+50081215x-15982128\right)}{5x+3}-645414\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{90234375}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(2 + 3*x)^4)/(3 + 5*x)^2,x]
```

```
[Out] ((5*Sqrt[1 - 2*x]*(-15982128 + 50081215*x + 85482115*x^2 - 214071
975*x^3 - 173598750*x^4 + 237037500*x^5 + 212625000*x^6))/(3 + 5*
x) - 645414*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/90234375
```

Maple [A] time = 0.017, size = 90, normalized size = 0.6

$$-\frac{81}{1100}(1-2x)^{\frac{11}{2}}+\frac{111}{250}(1-2x)^{\frac{9}{2}}-\frac{12393}{17500}(1-2x)^{\frac{7}{2}}+\frac{24}{15625}(1-2x)^{\frac{5}{2}}+\frac{52}{9375}(1-2x)^{\frac{3}{2}}+\frac{2816}{78125}\sqrt{1-2x}+\frac{242}{390625}\sqrt{1-2x}\left(-\frac{6}{5}-2x\right)^{-1}-\frac{2794\sqrt{55}}{390625}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^4/(3+5*x)^2,x)
```

```
[Out] -81/1100*(1-2*x)^(11/2)+111/250*(1-2*x)^(9/2)-12393/17500*(1-2*x)
^(7/2)+24/15625*(1-2*x)^(5/2)+52/9375*(1-2*x)^(3/2)+2816/78125*(1
-2*x)^(1/2)+242/390625*(1-2*x)^(1/2)/(-6/5-2*x)-2794/390625*arcta
nh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.51153, size = 144, normalized size = 1.02

$$-\frac{81}{1100}(-2x+1)^{\frac{11}{2}}+\frac{111}{250}(-2x+1)^{\frac{9}{2}}-\frac{12393}{17500}(-2x+1)^{\frac{7}{2}}+\frac{24}{15625}(-2x+1)^{\frac{5}{2}}+\frac{52}{9375}(-2x+1)^{\frac{3}{2}}+\frac{1397}{390625}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{2816}{78125}\sqrt{-2x+1}-\frac{121\sqrt{-2x+1}}{78125(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4*(-2*x + 1)^(5/2)/(5*x + 3)^2,x, algorithm="maxima")
```

```
[Out] -81/1100*(-2*x + 1)^(11/2) + 111/250*(-2*x + 1)^(9/2) - 12393/175
00*(-2*x + 1)^(7/2) + 24/15625*(-2*x + 1)^(5/2) + 52/9375*(-2*x +
 1)^(3/2) + 1397/390625*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1
))/(sqrt(55) + 5*sqrt(-2*x + 1))) + 2816/78125*sqrt(-2*x + 1) - 1
21/78125*sqrt(-2*x + 1)/(5*x + 3)
```

Fricas [A] time = 0.214952, size = 128, normalized size = 0.91

$$\frac{\sqrt{5}\left(322707\sqrt{11}(5x+3)\log\left(\frac{\sqrt{5}(5x-8)+5\sqrt{11}\sqrt{-2x+1}}{5x+3}\right)+\sqrt{5}\left(212625000x^6+237037500x^5-173598750x^4-214071975x^3+8\right.\right.}{90234375(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4*(-2*x + 1)^(5/2)/(5*x + 3)^2,x, algorithm="fricas")
```

```
[Out] 1/90234375*sqrt(5)*(322707*sqrt(11)*(5*x + 3)*log((sqrt(5)*(5*x -
 8) + 5*sqrt(11)*sqrt(-2*x + 1))/(5*x + 3)) + sqrt(5)*(212625000*
x^6 + 237037500*x^5 - 173598750*x^4 - 214071975*x^3 + 85482115*x^
2 + 50081215*x - 15982128)*sqrt(-2*x + 1))/(5*x + 3)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)**4/(3+5*x)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.216255, size = 186, normalized size = 1.32

$$\frac{81}{1100}(2x-1)^5\sqrt{-2x+1}+\frac{111}{250}(2x-1)^4\sqrt{-2x+1}+\frac{12393}{17500}(2x-1)^3\sqrt{-2x+1}+\frac{24}{15625}(2x-1)^2\sqrt{-2x+1}+\frac{52}{9375}(-2x+1)^{\frac{3}{2}}+\frac{1397}{390625}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{2816}{78125}\sqrt{-2x+1}-\frac{121\sqrt{-2x+1}}{78125(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4*(-2*x + 1)^(5/2)/(5*x + 3)^2,x, algorithm="giac")
```

```
[Out] 81/1100*(2*x - 1)^5*sqrt(-2*x + 1) + 111/250*(2*x - 1)^4*sqrt(-2*
x + 1) + 12393/17500*(2*x - 1)^3*sqrt(-2*x + 1) + 24/15625*(2*x -
 1)^2*sqrt(-2*x + 1) + 52/9375*(-2*x + 1)^(3/2) + 1397/390625*sqr
t(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(55) + 5*s
qrt(-2*x + 1))) + 2816/78125*sqrt(-2*x + 1) - 121/78125*sqrt(-2*x
 + 1)/(5*x + 3)
```

3.1964 $\int \frac{(1-2x)^{5/2}(2+3x)^3}{(3+5x)^2} dx$

Optimal. Leaf size=121

$$-\frac{(1-2x)^{5/2}(3x+2)^3}{5(5x+3)}+\frac{11}{75}(1-2x)^{5/2}(3x+2)^2+\frac{188(1-2x)^{3/2}}{9375}-\frac{2(1-2x)^{5/2}(2850x+6191)}{65625}+\frac{2068\sqrt{1-2x}}{15625}-\frac{2068\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{15625}$$

```
[Out] (2068*Sqrt[1 - 2*x])/15625 + (188*(1 - 2*x)^(3/2))/9375 + (11*(1
- 2*x)^(5/2)*(2 + 3*x)^2)/75 - ((1 - 2*x)^(5/2)*(2 + 3*x)^3)/(5*(
3 + 5*x)) - (2*(1 - 2*x)^(5/2)*(6191 + 2850*x))/65625 - (2068*Sqr
t[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/15625
```

Rubi [A] time = 0.192115, antiderivative size = 121, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$-\frac{(1-2x)^{5/2}(3x+2)^3}{5(5x+3)}+\frac{11}{75}(1-2x)^{5/2}(3x+2)^2+\frac{188(1-2x)^{3/2}}{9375}-\frac{2(1-2x)^{5/2}(2850x+6191)}{65625}+\frac{2068\sqrt{1-2x}}{15625}-\frac{2068\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{15625}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(2 + 3*x)^3)/(3 + 5*x)^2,x]
```

```
[Out] (2068*Sqrt[1 - 2*x])/15625 + (188*(1 - 2*x)^(3/2))/9375 + (11*(1
- 2*x)^(5/2)*(2 + 3*x)^2)/75 - ((1 - 2*x)^(5/2)*(2 + 3*x)^3)/(5*(
3 + 5*x)) - (2*(1 - 2*x)^(5/2)*(6191 + 2850*x))/65625 - (2068*Sqr
t[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/15625
```

Rubi in Sympy [A] time = 21.935, size = 102, normalized size = 0.84

$$-\frac{(-2x+1)^{\frac{5}{2}}(3x+2)^3}{5(5x+3)}+\frac{11(-2x+1)^{\frac{5}{2}}(3x+2)^2}{75}-\frac{(-2x+1)^{\frac{5}{2}}(17100x+37146)}{196875}+\frac{188(-2x+1)^{\frac{3}{2}}}{9375}+\frac{2068\sqrt{-2x+1}}{15625}-\frac{2068\sqrt{55}\,\mathrm{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{78125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**3/(3+5*x)**2,x)
```

```
[Out] -(-2*x + 1)**(5/2)*(3*x + 2)**3/(5*(5*x + 3)) + 11*(-2*x + 1)**(5
/2)*(3*x + 2)**2/75 - (-2*x + 1)**(5/2)*(17100*x + 37146)/196875
+ 188*(-2*x + 1)**(3/2)/9375 + 2068*sqrt(-2*x + 1)/15625 - 2068*s
qrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/78125
```

Mathematica [A] time = 0.12092, size = 73, normalized size = 0.6

$$\frac{\frac{5\sqrt{1-2x}(1575000x^5+427500x^4-1858950x^3+152105x^2+680930x+16794)}{5x+3}-43428\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1640625}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(2 + 3*x)^3)/(3 + 5*x)^2,x]
```

```
[Out] ((5*Sqrt[1 - 2*x]*(16794 + 680930*x + 152105*x^2 - 1858950*x^3 +
427500*x^4 + 1575000*x^5))/(3 + 5*x) - 43428*Sqrt[55]*ArcTanh[Sqr
t[5/11]*Sqrt[1 - 2*x]])/1640625
```

Maple [A] time = 0.016, size = 81, normalized size = 0.7

$$\frac{3}{50}(1-2x)^{\frac{9}{2}}-\frac{351}{1750}(1-2x)^{\frac{7}{2}}+\frac{18}{3125}(1-2x)^{\frac{5}{2}}+\frac{194}{9375}(1-2x)^{\frac{3}{2}}+\frac{418}{3125}\sqrt{1-2x}+\frac{242}{78125}\sqrt{1-2x}\left(-\frac{6}{5}-2x\right)^{-1}-\frac{2068\sqrt{55}}{78125}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^3/(3+5*x)^2,x)
```

```
[Out] 3/50*(1-2*x)^(9/2)-351/1750*(1-2*x)^(7/2)+18/3125*(1-2*x)^(5/2)+1
94/9375*(1-2*x)^(3/2)+418/3125*(1-2*x)^(1/2)+242/78125*(1-2*x)^(1
/2)/(-6/5-2*x)-2068/78125*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55
^(1/2)
```

Maxima [A] time = 1.53054, size = 132, normalized size = 1.09

$$\frac{3}{50}(-2x+1)^{\frac{9}{2}}-\frac{351}{1750}(-2x+1)^{\frac{7}{2}}+\frac{18}{3125}(-2x+1)^{\frac{5}{2}}+\frac{194}{9375}(-2x+1)^{\frac{3}{2}}+\frac{1034}{78125}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{418}{3125}\sqrt{-2x+1}-\frac{121\sqrt{-2x+1}}{15625(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*(-2*x + 1)^(5/2)/(5*x + 3)^2,x, algorithm="maxima")
```

```
[Out] 3/50*(-2*x + 1)^(9/2) - 351/1750*(-2*x + 1)^(7/2) + 18/3125*(-2*x
 + 1)^(5/2) + 194/9375*(-2*x + 1)^(3/2) + 1034/78125*sqrt(55)*log
(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) +
418/3125*sqrt(-2*x + 1) - 121/15625*sqrt(-2*x + 1)/(5*x + 3)
```

Fricas [A] time = 0.212319, size = 122, normalized size = 1.01

$$\frac{\sqrt{5}\left(21714\sqrt{11}(5x+3)\log\left(\frac{\sqrt{5}(5x-8)+5\sqrt{11}\sqrt{-2x+1}}{5x+3}\right)+\sqrt{5}\left(1575000x^5+427500x^4-1858950x^3+152105x^2+680930x+16\right.\right.}{1640625(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*(-2*x + 1)^(5/2)/(5*x + 3)^2,x, algorithm="fricas")
```

```
[Out] 1/1640625*sqrt(5)*(21714*sqrt(11)*(5*x + 3)*log((sqrt(5)*(5*x - 8
) + 5*sqrt(11)*sqrt(-2*x + 1))/(5*x + 3)) + sqrt(5)*(1575000*x^5
+ 427500*x^4 - 1858950*x^3 + 152105*x^2 + 680930*x + 16794)*sqrt(
-2*x + 1))/(5*x + 3)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)**3/(3+5*x)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.217818, size = 165, normalized size = 1.36

$$\frac{3}{50}(2x-1)^4\sqrt{-2x+1}+\frac{351}{1750}(2x-1)^3\sqrt{-2x+1}+\frac{18}{3125}(2x-1)^2\sqrt{-2x+1}+\frac{194}{9375}(-2x+1)^{\frac{3}{2}}+\frac{1034}{78125}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{418}{3125}\sqrt{-2x+1}-\frac{121\sqrt{-2x+1}}{15625(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*(-2*x + 1)^(5/2)/(5*x + 3)^2,x, algorithm="giac")
```

```
[Out] 3/50*(2*x - 1)^4*sqrt(-2*x + 1) + 351/1750*(2*x - 1)^3*sqrt(-2*x
+ 1) + 18/3125*(2*x - 1)^2*sqrt(-2*x + 1) + 194/9375*(-2*x + 1)^(
3/2) + 1034/78125*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x
+ 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) + 418/3125*sqrt(-2*x + 1) -
121/15625*sqrt(-2*x + 1)/(5*x + 3)
```

3.1965 $\int \frac{(1-2x)^{5/2}(2+3x)^2}{(3+5x)^2}\,dx$

Optimal. Leaf size=102

$$-\frac{(1-2x)^{7/2}}{275(5x+3)}-\frac{9}{175}(1-2x)^{7/2}+\frac{122(1-2x)^{5/2}}{6875}+\frac{122(1-2x)^{3/2}}{1875}+\frac{1342\sqrt{1-2x}}{3125}-\frac{1342\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{3125}$$

```
[Out] (1342*Sqrt[1 - 2*x])/3125 + (122*(1 - 2*x)^(3/2))/1875 + (122*(1
- 2*x)^(5/2))/6875 - (9*(1 - 2*x)^(7/2))/175 - (1 - 2*x)^(7/2)/(2
75*(3 + 5*x)) - (1342*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]
])/3125
```

Rubi [A] time = 0.131915, antiderivative size = 102, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$-\frac{(1-2x)^{7/2}}{275(5x+3)}-\frac{9}{175}(1-2x)^{7/2}+\frac{122(1-2x)^{5/2}}{6875}+\frac{122(1-2x)^{3/2}}{1875}+\frac{1342\sqrt{1-2x}}{3125}-\frac{1342\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{3125}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(2 + 3*x)^2)/(3 + 5*x)^2,x]
```


```
[Out] (1342*Sqrt[1 - 2*x])/3125 + (122*(1 - 2*x)^(3/2))/1875 + (122*(1
- 2*x)^(5/2))/6875 - (9*(1 - 2*x)^(7/2))/175 - (1 - 2*x)^(7/2)/(2
75*(3 + 5*x)) - (1342*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]
])/3125
```


Rubi in Sympy [A] time = 12.2443, size = 85, normalized size = 0.83

$$-\frac{9(-2x+1)^{\frac{7}{2}}}{175}-\frac{(-2x+1)^{\frac{7}{2}}}{275(5x+3)}+\frac{122(-2x+1)^{\frac{5}{2}}}{6875}+\frac{122(-2x+1)^{\frac{3}{2}}}{1875}+\frac{1342\sqrt{-2x+1}}{3125}-\frac{1342\sqrt{55}\,\text{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{15625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**2/(3+5*x)**2,x)
```

```
[Out] -9*(-2*x + 1)**(7/2)/175 - (-2*x + 1)**(7/2)/(275*(5*x + 3)) + 12
2*(-2*x + 1)**(5/2)/6875 + 122*(-2*x + 1)**(3/2)/1875 + 1342*sqrt
(-2*x + 1)/3125 - 1342*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)
/15625
```

Mathematica [A] time = 0.10638, size = 68, normalized size = 0.67

$$\frac{\frac{5\sqrt{1-2x}(135000x^4-96300x^3-75130x^2+173795x+90486)}{5x+3}-28182\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{328125}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(2 + 3*x)^2)/(3 + 5*x)^2,x]
```

```
[Out] ((5*Sqrt[1 - 2*x]*(90486 + 173795*x - 75130*x^2 - 96300*x^3 + 135
000*x^4))/(3 + 5*x) - 28182*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 -
2*x]])/328125
```

Maple [A] time = 0.015, size = 72, normalized size = 0.7

$$-\frac{9}{175}(1-2x)^{\frac{7}{2}}+\frac{12}{625}(1-2x)^{\frac{5}{2}}+\frac{128}{1875}(1-2x)^{\frac{3}{2}}+\frac{1364}{3125}\sqrt{1-2x}+\frac{242}{15625}\sqrt{1-2x}\left(-\frac{6}{5}-2x\right)^{-1}-\frac{1342\sqrt{55}}{15625}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^2/(3+5*x)^2,x)
```

```
[Out] -9/175*(1-2*x)^(7/2)+12/625*(1-2*x)^(5/2)+128/1875*(1-2*x)^(3/2)+
1364/3125*(1-2*x)^(1/2)+242/15625*(1-2*x)^(1/2)/(-6/5-2*x)-1342/1
5625*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maple [A] time = 1.48869, size = 120, normalized size = 1.18

$$-\frac{9}{175}(-2x+1)^{\frac{7}{2}}+\frac{12}{625}(-2x+1)^{\frac{5}{2}}+\frac{128}{1875}(-2x+1)^{\frac{3}{2}}+\frac{671}{15625}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{1364}{3125}\sqrt{-2x+1}-\frac{121\sqrt{-2x+1}}{3125(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*(-2*x + 1)^(5/2)/(5*x + 3)^2,x, algorithm="maxima")
```

```
[Out] -9/175*(-2*x + 1)^(7/2) + 12/625*(-2*x + 1)^(5/2) + 128/1875*(-2*
x + 1)^(3/2) + 671/15625*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x +
1))/(sqrt(55) + 5*sqrt(-2*x + 1))) + 1364/3125*sqrt(-2*x + 1) - 1
21/3125*sqrt(-2*x + 1)/(5*x + 3)
```

Fricas [A] time = 0.214823, size = 115, normalized size = 1.13

$$\frac{\sqrt{5}\left(14091\sqrt{11}(5x+3)\log\left(\frac{\sqrt{5}(5x-8)+5\sqrt{11}\sqrt{-2x+1}}{5x+3}\right)+\sqrt{5}\left(135000x^4-96300x^3-75130x^2+173795x+90486\right)\sqrt{-2x+1}\right)}{328125(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*(-2*x + 1)^(5/2)/(5*x + 3)^2,x, algorithm="fricas")
```

```
[Out] 1/328125*sqrt(5)*(14091*sqrt(11)*(5*x + 3)*log((sqrt(5)*(5*x - 8)
 + 5*sqrt(11)*sqrt(-2*x + 1))/(5*x + 3)) + sqrt(5)*(135000*x^4 -
96300*x^3 - 75130*x^2 + 173795*x + 90486)*sqrt(-2*x + 1))/(5*x +
3)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)**2/(3+5*x)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.212434, size = 143, normalized size = 1.4

$$\frac{9}{175}\,(2\,x-1)^{3}\sqrt{-2\,x+1}+\frac{12}{625}\,(2\,x-1)^{2}\sqrt{-2\,x+1}+\frac{128}{1875}\,(-2\,x+1)^{\frac{3}{2}}+\frac{671}{15625}\,\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)+\frac{1364}{3125}\,\sqrt{-2\,x+1}-\frac{121\,\sqrt{-2\,x+1}}{3125\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*(-2*x + 1)^(5/2)/(5*x + 3)^2,x, algorithm="giac")
```

```
[Out] 9/175*(2*x - 1)^3*sqrt(-2*x + 1) + 12/625*(2*x - 1)^2*sqrt(-2*x +
 1) + 128/1875*(-2*x + 1)^(3/2) + 671/15625*sqrt(55)*ln(1/2*abs(-
2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) +
1364/3125*sqrt(-2*x + 1) - 121/3125*sqrt(-2*x + 1)/(5*x + 3)
```

3.1966 $\int \frac{(1-2x)^{5/2}(2+3x)}{(3+5x)^2} dx$

Optimal. Leaf size=89

$$-\frac{(1-2x)^{7/2}}{55(5x+3)}+\frac{56(1-2x)^{5/2}}{1375}+\frac{56}{375}(1-2x)^{3/2}+\frac{616}{625}\sqrt{1-2x}-\frac{616}{625}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (616*Sqrt[1 - 2*x])/625 + (56*(1 - 2*x)^(3/2))/375 + (56*(1 - 2*x
)^(5/2))/1375 - (1 - 2*x)^(7/2)/(55*(3 + 5*x)) - (616*Sqrt[11/5]*
ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/625
```

Rubi [A] time = 0.0979778, antiderivative size = 89, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{(1-2x)^{7/2}}{55(5x+3)}+\frac{56(1-2x)^{5/2}}{1375}+\frac{56}{375}(1-2x)^{3/2}+\frac{616}{625}\sqrt{1-2x}-\frac{616}{625}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(2 + 3*x))/(3 + 5*x)^2,x]
```

```
[Out] (616*Sqrt[1 - 2*x])/625 + (56*(1 - 2*x)^(3/2))/375 + (56*(1 - 2*x
)^(5/2))/1375 - (1 - 2*x)^(7/2)/(55*(3 + 5*x)) - (616*Sqrt[11/5]*
ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/625
```

Rubi in Sympy [A] time = 9.74244, size = 73, normalized size = 0.82

$$-\frac{(-2x+1)^{\frac{7}{2}}}{55\,(5x+3)}+\frac{56\,(-2x+1)^{\frac{5}{2}}}{1375}+\frac{56\,(-2x+1)^{\frac{3}{2}}}{375}+\frac{616\sqrt{-2x+1}}{625}-\frac{616\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{3125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)/(3+5*x)**2,x)
```

```
[Out] -(-2*x + 1)**(7/2)/(55*(5*x + 3)) + 56*(-2*x + 1)**(5/2)/1375 + 5
6*(-2*x + 1)**(3/2)/375 + 616*sqrt(-2*x + 1)/625 - 616*sqrt(55)*a
tanh(sqrt(55)*sqrt(-2*x + 1)/11)/3125
```

Mathematica [A] time = 0.107007, size = 63, normalized size = 0.71

$$\frac{\frac{5\sqrt{1-2x}(1800x^3-3820x^2+8630x+6579)}{5x+3}-1848\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{9375}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(2 + 3*x))/(3 + 5*x)^2,x]
```

```
[Out] ((5*Sqrt[1 - 2*x]*(6579 + 8630*x - 3820*x^2 + 1800*x^3))/(3 + 5*x
) - 1848*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/9375
```

Maple [A] time = 0.014, size = 63, normalized size = 0.7

$$\frac{6}{125}(1-2x)^{\frac{5}{2}}+\frac{62}{375}(1-2x)^{\frac{3}{2}}+\frac{638}{625}\sqrt{1-2x}+\frac{242}{3125}\sqrt{1-2x}\left(-\frac{6}{5}-2x\right)^{-1}-\frac{616\sqrt{55}}{3125}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)/(3+5*x)^2,x)
```

```
[Out] 6/125*(1-2*x)^(5/2)+62/375*(1-2*x)^(3/2)+638/625*(1-2*x)^(1/2)+24
2/3125*(1-2*x)^(1/2)/(-6/5-2*x)-616/3125*arctanh(1/11*55^(1/2)*(1
-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.5087, size = 108, normalized size = 1.21

$$\frac{6}{125}(-2x+1)^{\frac{5}{2}}+\frac{62}{375}(-2x+1)^{\frac{3}{2}}+\frac{308}{3125}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{638}{625}\sqrt{-2x+1}-\frac{121\sqrt{-2x+1}}{625(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)*(-2*x + 1)^(5/2)/(5*x + 3)^2,x, algorithm="maxima")
```

```
[Out] 6/125*(-2*x + 1)^(5/2) + 62/375*(-2*x + 1)^(3/2) + 308/3125*sqrt(
55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x +
1))) + 638/625*sqrt(-2*x + 1) - 121/625*sqrt(-2*x + 1)/(5*x + 3)
```

Fricas [A] time = 0.211835, size = 108, normalized size = 1.21

$$\frac{\sqrt{5}\left(924\sqrt{11}(5x+3)\log\left(\frac{\sqrt{5}(5x-8)+5\sqrt{11}\sqrt{-2x+1}}{5x+3}\right)+\sqrt{5}\left(1800x^3-3820x^2+8630x+6579\right)\sqrt{-2x+1}\right)}{9375(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)*(-2*x + 1)^(5/2)/(5*x + 3)^2,x, algorithm="fricas")
```

```
[Out] 1/9375*sqrt(5)*(924*sqrt(11)*(5*x + 3)*log((sqrt(5)*(5*x - 8) + 5
*sqrt(11)*sqrt(-2*x + 1))/(5*x + 3)) + sqrt(5)*(1800*x^3 - 3820*x
^2 + 8630*x + 6579)*sqrt(-2*x + 1))/(5*x + 3)
```

Sympy [A] time = 153.886, size = 199, normalized size = 2.24

$$\frac{6(-2x+1)^{\frac{5}{2}}}{125}+\frac{62(-2x+1)^{\frac{3}{2}}}{375}+\frac{638\sqrt{-2x+1}}{625}-\frac{5324\left(\begin{cases}\frac{\sqrt{55}\left(-\frac{\log\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)}{4}+\frac{\log\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)}{4}-\frac{1}{4\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)}-\frac{1}{4\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)}\right)}{605} & \text{for}\ x\leq\frac{1}{2}\wedge x>-\frac{3}{5}\end{cases}\right)}{625}+\frac{6534\left(\begin{cases}-\frac{\sqrt{55}\,\mathrm{acoth}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for}\ -2x+1>\frac{11}{5}\\ -\frac{\sqrt{55}\,\mathrm{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for}\ -2x+1<\frac{11}{5}\end{cases}\right)}{625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)/(3+5*x)**2,x)
```

```
[Out] 6*(-2*x + 1)**(5/2)/125 + 62*(-2*x + 1)**(3/2)/375 + 638*sqrt(-2*
x + 1)/625 - 5324*Piecewise((sqrt(55)*(-log(sqrt(55)*sqrt(-2*x +
1)/11 - 1)/4 + log(sqrt(55)*sqrt(-2*x + 1)/11 + 1)/4 - 1/(4*(sqrt
(55)*sqrt(-2*x + 1)/11 + 1)) - 1/(4*(sqrt(55)*sqrt(-2*x + 1)/11 -
 1)))/605, (x <= 1/2) & (x > -3/5)))/625 + 6534*Piecewise((-sqrt(
55)*acoth(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*x + 1 > 11/5), (-sqr
t(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/55, -2*x + 1 < 11/5))/625
```

GIAC/XCAS [A] time = 0.212356, size = 122, normalized size = 1.37

$$\frac{6}{125}(2x-1)^2\sqrt{-2x+1}+\frac{62}{375}(-2x+1)^{\frac{3}{2}}+\frac{308}{3125}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{638}{625}\sqrt{-2x+1}-\frac{121\sqrt{-2x+1}}{625(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)*(-2*x + 1)^(5/2)/(5*x + 3)^2,x, algorithm="giac")
```

```
[Out] 6/125*(2*x - 1)^2*sqrt(-2*x + 1) + 62/375*(-2*x + 1)^(3/2) + 308/
3125*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(5
5) + 5*sqrt(-2*x + 1))) + 638/625*sqrt(-2*x + 1) - 121/625*sqrt(-
2*x + 1)/(5*x + 3)
```

3.1967 $\int \frac{(1-2x)^{5/2}}{(3+5x)^2}\,dx$

Optimal. Leaf size=76

$$-\frac{(1-2x)^{5/2}}{5(5x+3)}-\frac{2}{15}(1-2x)^{3/2}-\frac{22}{25}\sqrt{1-2x}+\frac{22}{25}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (-22*Sqrt[1 - 2*x])/25 - (2*(1 - 2*x)^(3/2))/15 - (1 - 2*x)^(5/2)
/(5*(3 + 5*x)) + (22*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
)/25
```

Rubi [A] time = 0.0675084, antiderivative size = 76, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 17, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.235

$$-\frac{(1-2x)^{5/2}}{5(5x+3)}-\frac{2}{15}(1-2x)^{3/2}-\frac{22}{25}\sqrt{1-2x}+\frac{22}{25}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/(3 + 5*x)^2,x]
```

```
[Out] (-22*Sqrt[1 - 2*x])/25 - (2*(1 - 2*x)^(3/2))/15 - (1 - 2*x)^(5/2)
/(5*(3 + 5*x)) + (22*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
)/25
```

Rubi in Sympy [A] time = 7.36659, size = 61, normalized size = 0.8

$$-\frac{(-2x+1)^{\frac{5}{2}}}{5(5x+3)}-\frac{2(-2x+1)^{\frac{3}{2}}}{15}-\frac{22\sqrt{-2x+1}}{25}+\frac{22\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(3+5*x)**2,x)
```

```
[Out] -(-2*x + 1)**(5/2)/(5*(5*x + 3)) - 2*(-2*x + 1)**(3/2)/15 - 22*sq
rt(-2*x + 1)/25 + 22*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/1
25
```

Mathematica [A] time = 0.0778733, size = 58, normalized size = 0.76

$$\frac{1}{375}\left(\frac{5\sqrt{1-2x}\left(40x^2-260x-243\right)}{5x+3}+66\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/(3 + 5*x)^2,x]
```

```
[Out] ((5*Sqrt[1 - 2*x]*(-243 - 260*x + 40*x^2))/(3 + 5*x) + 66*Sqrt[55
]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/375
```

Maple [A] time = 0.013, size = 54, normalized size = 0.7

$$-\frac{4}{75}(1-2x)^{\frac{3}{2}}-\frac{88}{125}\sqrt{1-2x}+\frac{242}{625}\sqrt{1-2x}\left(-\frac{6}{5}-2x\right)^{-1}+\frac{22\sqrt{55}}{125}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(3+5*x)^2,x)
```

```
[Out] -4/75*(1-2*x)^(3/2)-88/125*(1-2*x)^(1/2)+242/625*(1-2*x)^(1/2)/(-
6/5-2*x)+22/125*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.52051, size = 96, normalized size = 1.26

$$-\frac{4}{75}\left(-2x+1\right)^{\frac{3}{2}}-\frac{11}{125}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{88}{125}\sqrt{-2x+1}-\frac{121\sqrt{-2x+1}}{125\left(5x+3\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/(5*x + 3)^2,x, algorithm="maxima")
```

```
[Out] -4/75*(-2*x + 1)^(3/2) - 11/125*sqrt(55)*log(-(sqrt(55) - 5*sqrt(
-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) - 88/125*sqrt(-2*x + 1)
 - 121/125*sqrt(-2*x + 1)/(5*x + 3)
```

Fricas [A] time = 0.213493, size = 101, normalized size = 1.33

$$\frac{\sqrt{5}\left(33\sqrt{11}(5x+3)\log\left(\frac{\sqrt{5}(5x-8)-5\sqrt{11}\sqrt{-2x+1}}{5x+3}\right)+\sqrt{5}\left(40x^2-260x-243\right)\sqrt{-2x+1}\right)}{375\left(5x+3\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/(5*x + 3)^2,x, algorithm="fricas")
```

```
[Out] 1/375*sqrt(5)*(33*sqrt(11)*(5*x + 3)*log((sqrt(5)*(5*x - 8) - 5*s
qrt(11)*sqrt(-2*x + 1))/(5*x + 3)) + sqrt(5)*(40*x^2 - 260*x - 24
3)*sqrt(-2*x + 1))/(5*x + 3)
```

Sympy [A] time = 4.83603, size = 197, normalized size = 2.59

$$\begin{cases} \frac{8\sqrt{5}i\left(x+\frac{3}{5}\right)\sqrt{10x-5}}{375}-\frac{308\sqrt{5}i\sqrt{10x-5}}{1875}-\frac{22\sqrt{55}i\operatorname{asin}\left(\frac{\sqrt{110}}{10\sqrt{x+\frac{3}{5}}}\right)}{125}-\frac{121\sqrt{5}i\sqrt{10x-5}}{3125\left(x+\frac{3}{5}\right)} & \text{for}\ \frac{10\left|x+\frac{3}{5}\right|}{11}>1 \\ \frac{8\sqrt{5}\sqrt{-10x+5}\left(x+\frac{3}{5}\right)}{375}-\frac{308\sqrt{5}\sqrt{-10x+5}}{1875}-\frac{121\sqrt{5}\sqrt{-10x+5}}{3125\left(x+\frac{3}{5}\right)}-\frac{11\sqrt{55}\log\left(x+\frac{3}{5}\right)}{125}+\frac{22\sqrt{55}\log\left(\sqrt{-\frac{10x}{11}+\frac{5}{11}}+1\right)}{125} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)/(3+5*x)**2,x)
```

```
[Out] Piecewise((8*sqrt(5)*I*(x + 3/5)*sqrt(10*x - 5)/375 - 308*sqrt(5)
*I*sqrt(10*x - 5)/1875 - 22*sqrt(55)*I*asin(sqrt(110)/(10*sqrt(x
+ 3/5)))/125 - 121*sqrt(5)*I*sqrt(10*x - 5)/(3125*(x + 3/5)), 10*
Abs(x + 3/5)/11 > 1), (8*sqrt(5)*sqrt(-10*x + 5)*(x + 3/5)/375 -
308*sqrt(5)*sqrt(-10*x + 5)/1875 - 121*sqrt(5)*sqrt(-10*x + 5)/(3
125*(x + 3/5)) - 11*sqrt(55)*log(x + 3/5)/125 + 22*sqrt(55)*log(s
qrt(-10*x/11 + 5/11) + 1)/125, True))
```

GIAC/XCAS [A] time = 0.212034, size = 100, normalized size = 1.32

$$-\frac{4}{75}\,(-2\,x+1)^{\frac{3}{2}}-\frac{11}{125}\,\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)-\frac{88}{125}\,\sqrt{-2\,x+1}-\frac{121\,\sqrt{-2\,x+1}}{125\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/(5*x + 3)^2,x, algorithm="giac")
```

```
[Out] -4/75*(-2*x + 1)^(3/2) - 11/125*sqrt(55)*ln(1/2*abs(-2*sqrt(55) +
 10*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) - 88/125*sqrt(
-2*x + 1) - 121/125*sqrt(-2*x + 1)/(5*x + 3)
```

3.1968 $\int \frac{(1-2x)^{5/2}}{(2+3x)(3+5x)^2} dx$

Optimal. Leaf size=92

$$-\frac{11(1-2x)^{3/2}}{5(5x+3)}-\frac{58}{75}\sqrt{1-2x}-\frac{98}{3}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+\frac{836}{25}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (-58*Sqrt[1 - 2*x])/75 - (11*(1 - 2*x)^(3/2))/(5*(3 + 5*x)) - (98
*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/3 + (836*Sqrt[11/5]*
ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/25
```

Rubi [A] time = 0.191144, antiderivative size = 92, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$-\frac{11(1-2x)^{3/2}}{5(5x+3)}-\frac{58}{75}\sqrt{1-2x}-\frac{98}{3}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+\frac{836}{25}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)*(3 + 5*x)^2),x]
```

```
[Out] (-58*Sqrt[1 - 2*x])/75 - (11*(1 - 2*x)^(3/2))/(5*(3 + 5*x)) - (98
*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/3 + (836*Sqrt[11/5]*
ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/25
```

Rubi in Sympy [A] time = 21.491, size = 76, normalized size = 0.83

$$-\frac{11\left(-2x+1\right)^{\frac{3}{2}}}{5\left(5x+3\right)}-\frac{58\sqrt{-2x+1}}{75}-\frac{98\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{9}+\frac{836\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)/(3+5*x)**2,x)
```

```
[Out] -11*(-2*x + 1)**(3/2)/(5*(5*x + 3)) - 58*sqrt(-2*x + 1)/75 - 98*s
qrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/9 + 836*sqrt(55)*atanh(s
qrt(55)*sqrt(-2*x + 1)/11)/125
```

Mathematica [A] time = 0.220928, size = 83, normalized size = 0.9

$$\frac{1}{375}\left(\frac{5\sqrt{1-2x}(40x-339)}{5x+3}+2508\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)\right)-\frac{98}{3}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)*(3 + 5*x)^2),x]
```

```
[Out] (-98*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/3 + ((5*Sqrt[1 -
 2*x]*(-339 + 40*x))/(3 + 5*x) + 2508*Sqrt[55]*ArcTanh[Sqrt[5/11]
*Sqrt[1 - 2*x]])/375
```

Maple [A] time = 0.018, size = 63, normalized size = 0.7

$$\frac{8}{75}\sqrt{1-2x}-\frac{98\sqrt{21}}{9}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)+\frac{242}{125}\sqrt{1-2x}\left(-\frac{6}{5}-2x\right)^{-1}+\frac{836\sqrt{55}}{125}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((1-2*x)^(5/2)/(2+3*x)/(3+5*x)^2,x)
```

```
[Out] 8/75*(1-2*x)^(1/2)-98/9*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1
/2)+242/125*(1-2*x)^(1/2)/(-6/5-2*x)+836/125*arctanh(1/11*55^(1/2
)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.50505, size = 132, normalized size = 1.43

$$-\frac{418}{125}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{49}{9}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{8}{75}\sqrt{-2x+1}-\frac{121\sqrt{-2x+1}}{25(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((-2*x + 1)^(5/2)/((5*x + 3)^2*(3*x + 2)),x, algorithm="maxima")
```

```
[Out] -418/125*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) +
5*sqrt(-2*x + 1))) + 49/9*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x +
 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 8/75*sqrt(-2*x + 1) - 121/2
5*sqrt(-2*x + 1)/(5*x + 3)
```

Fricas [A] time = 0.22265, size = 166, normalized size = 1.8

$$\frac{\sqrt{5}\sqrt{3}\left(1254\sqrt{11}\sqrt{3}(5x+3)\log\left(\frac{\sqrt{5}(5x-8)-5\sqrt{11}\sqrt{-2x+1}}{5x+3}\right)+1225\sqrt{7}\sqrt{5}(5x+3)\log\left(\frac{\sqrt{3}(3x-5)+3\sqrt{7}\sqrt{-2x+1}}{3x+2}\right)+\sqrt{5}\sqrt{3}(40x-339)\right.}{1125(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((-2*x + 1)^(5/2)/((5*x + 3)^2*(3*x + 2)),x, algorithm="fricas")
```

```
[Out] 1/1125*sqrt(5)*sqrt(3)*(1254*sqrt(11)*sqrt(3)*(5*x + 3)*log((sqrt
(5)*(5*x - 8) - 5*sqrt(11)*sqrt(-2*x + 1))/(5*x + 3)) + 1225*sqrt
(7)*sqrt(5)*(5*x + 3)*log((sqrt(3)*(3*x - 5) + 3*sqrt(7)*sqrt(-2*
x + 1))/(3*x + 2)) + sqrt(5)*sqrt(3)*(40*x - 339)*sqrt(-2*x + 1))
/(5*x + 3)
```

Sympy [A] time = 99.6752, size = 240, normalized size = 2.61

$$\frac{8\sqrt{-2x+1}}{75} - \frac{5324\left(\begin{cases} \frac{\sqrt{55}\left(-\frac{\log\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)}{4}+\frac{\log\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)}{4}-\frac{1}{4\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}+1\right)}-\frac{1}{4\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}-1\right)}\right)}{605} & \text{for } x \le \frac{1}{2} \wedge x > -\frac{3}{5} \end{cases}\right)}{25} + \frac{686\left(\begin{cases} -\frac{\sqrt{21}\operatorname{acoth}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for } -2x+1 > \frac{7}{3} \\ -\frac{\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21} & \text{for } -2x+1 < \frac{7}{3} \end{cases}\right)}{3} - \frac{9438\left(\begin{cases} -\frac{\sqrt{55}\operatorname{acoth}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1 > \frac{11}{5} \\ -\frac{\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55} & \text{for } -2x+1 < \frac{11}{5} \end{cases}\right)}{25}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)/(2+3*x)/(3+5*x)**2,x)
```

```
[Out] 8*sqrt(-2*x + 1)/75 - 5324*Piecewise((sqrt(55)*(-log(sqrt(55)*sqr
t(-2*x + 1)/11 - 1)/4 + log(sqrt(55)*sqrt(-2*x + 1)/11 + 1)/4 - 1
/(4*(sqrt(55)*sqrt(-2*x + 1)/11 + 1)) - 1/(4*(sqrt(55)*sqrt(-2*x
+ 1)/11 - 1)))/605, (x <= 1/2) & (x > -3/5)))/25 + 686*Piecewise(
(-sqrt(21)*acoth(sqrt(21)*sqrt(-2*x + 1)/7)/21, -2*x + 1 > 7/3),
(-sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/21, -2*x + 1 < 7/3))/
3 - 9438*Piecewise((-sqrt(55)*acoth(sqrt(55)*sqrt(-2*x + 1)/11)/5
5, -2*x + 1 > 11/5), (-sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)
/55, -2*x + 1 < 11/5))/25
```

GIAC/XCAS [A] time = 0.21577, size = 140, normalized size = 1.52

$$-\frac{418}{125}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right) + \frac{49}{9}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right) + \frac{8}{75}\sqrt{-2x+1} - \frac{121\sqrt{-2x+1}}{25(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^2*(3*x + 2)),x, algorithm="giac")
```

```
[Out] -418/125*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sq
rt(55) + 5*sqrt(-2*x + 1))) + 49/9*sqrt(21)*ln(1/2*abs(-2*sqrt(21
) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 8/75*sqrt(
-2*x + 1) - 121/25*sqrt(-2*x + 1)/(5*x + 3)
```

3.1969 $\int \frac{(1-2x)^{5/2}}{(2+3x)^2(3+5x)^2}\,dx$

Optimal. Leaf size=106

$$\frac{7(1-2x)^{3/2}}{3(3x+2)(5x+3)}-\frac{748\sqrt{1-2x}}{15(5x+3)}-\frac{910}{3}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+\frac{1562}{5}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (-748*Sqrt[1 - 2*x])/(15*(3 + 5*x)) + (7*(1 - 2*x)^(3/2))/(3*(2 +
 3*x)*(3 + 5*x)) - (910*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]
])/3 + (1562*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/5
```

Rubi [A] time = 0.193692, antiderivative size = 106, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.208$

$$\frac{7(1-2x)^{3/2}}{3(3x+2)(5x+3)}-\frac{748\sqrt{1-2x}}{15(5x+3)}-\frac{910}{3}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+\frac{1562}{5}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)^2*(3 + 5*x)^2),x]
```

```
[Out] (-748*Sqrt[1 - 2*x])/(15*(3 + 5*x)) + (7*(1 - 2*x)^(3/2))/(3*(2 +
 3*x)*(3 + 5*x)) - (910*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]
])/3 + (1562*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/5
```

Rubi in Sympy [A] time = 20.8688, size = 87, normalized size = 0.82

$$\frac{7\left(-2x+1\right)^{\frac{3}{2}}}{3\left(3x+2\right)\left(5x+3\right)}-\frac{748\sqrt{-2x+1}}{15\left(5x+3\right)}-\frac{910\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{9}+\frac{1562\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{25}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)**2/(3+5*x)**2,x)
```

```
[Out] 7*(-2*x + 1)**(3/2)/(3*(3*x + 2)*(5*x + 3)) - 748*sqrt(-2*x + 1)/
(15*(5*x + 3)) - 910*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/9
+ 1562*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/25
```

Mathematica [A] time = 0.194505, size = 90, normalized size = 0.85

$$\frac{1}{75}\left(4686\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)-\frac{5\sqrt{1-2x}(2314x+1461)}{(3x+2)(5x+3)}\right)-\frac{910}{3}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)^2*(3 + 5*x)^2),x]
```

```
[Out] (-910*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/3 + ((-5*Sqrt[1
 - 2*x]*(1461 + 2314*x))/((2 + 3*x)*(3 + 5*x)) + 4686*Sqrt[55]*Ar
cTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/75
```

Maple [A] time = 0.02, size = 70, normalized size = 0.7

$$\frac{98}{9}\sqrt{1-2x}\left(-\frac{4}{3}-2x\right)^{-1}-\frac{910\sqrt{21}}{9}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)+\frac{242}{25}\sqrt{1-2x}\left(-\frac{6}{5}-2x\right)^{-1}+\frac{1562\sqrt{55}}{25}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)^2/(3+5*x)^2,x)
```

```
[Out] 98/9*(1-2*x)^(1/2)/(-4/3-2*x)-910/9*arctanh(1/7*21^(1/2)*(1-2*x)^
(1/2))*21^(1/2)+242/25*(1-2*x)^(1/2)/(-6/5-2*x)+1562/25*arctanh(1
/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.52375, size = 149, normalized size = 1.41

$$-\frac{781}{25}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{455}{9}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{4\left(1157(-2x+1)^{\frac{3}{2}}-2618\sqrt{-2x+1}\right)}{15\left(15(2x-1)^2+136x+9\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^2*(3*x + 2)^2),x, algorithm="maxima")
```

```
[Out] -781/25*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5
*sqrt(-2*x + 1))) + 455/9*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x +
 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 4/15*(1157*(-2*x + 1)^(3/2)
 - 2618*sqrt(-2*x + 1))/(15*(2*x - 1)^2 + 136*x + 9)
```

Fricas [A] time = 0.21992, size = 188, normalized size = 1.77

$$\frac{\sqrt{5}\sqrt{3}\left(2343\sqrt{11}\sqrt{3}\left(15x^2+19x+6\right)\log\left(\frac{\sqrt{5}(5x-8)-5\sqrt{11}\sqrt{-2x+1}}{5x+3}\right)+2275\sqrt{7}\sqrt{5}\left(15x^2+19x+6\right)\log\left(\frac{\sqrt{3}(3x-5)+3\sqrt{7}\sqrt{-2x+1}}{3x+2}\right)\right.}{225\left(15x^2+19x+6\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^2*(3*x + 2)^2),x, algorithm="fricas")
```

```
[Out] 1/225*sqrt(5)*sqrt(3)*(2343*sqrt(11)*sqrt(3)*(15*x^2 + 19*x + 6)*
log((sqrt(5)*(5*x - 8) - 5*sqrt(11)*sqrt(-2*x + 1))/(5*x + 3)) +
2275*sqrt(7)*sqrt(5)*(15*x^2 + 19*x + 6)*log((sqrt(3)*(3*x - 5) +
 3*sqrt(7)*sqrt(-2*x + 1))/(3*x + 2)) - sqrt(5)*sqrt(3)*(2314*x +
 1461)*sqrt(-2*x + 1))/(15*x^2 + 19*x + 6)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)/(2+3*x)**2/(3+5*x)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.213573, size = 157, normalized size = 1.48

$$-\frac{781}{25}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{455}{9}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{4\left(1157(-2x+1)^{\frac{3}{2}}-2618\sqrt{-2x+1}\right)}{15\left(15(2x-1)^2+136x+9\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)^2*(3*x + 2)^2),x, algorithm="giac")
```

```
[Out] -781/25*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqr
t(55) + 5*sqrt(-2*x + 1))) + 455/9*sqrt(21)*ln(1/2*abs(-2*sqrt(21
) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 4/15*(1157
*(-2*x + 1)^(3/2) - 2618*sqrt(-2*x + 1))/(15*(2*x - 1)^2 + 136*x
+ 9)
```

3.1970 $\int \frac{(1-2x)^{5/2}}{(2+3x)^3(3+5x)^2}\,dx$

Optimal. Leaf size=131

$$\frac{7(1-2x)^{3/2}}{6(3x+2)^2(5x+3)}+\frac{343\sqrt{1-2x}}{9(3x+2)(5x+3)}-\frac{6763\sqrt{1-2x}}{18(5x+3)}-\frac{6665}{3}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+2288\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (-6763*Sqrt[1 - 2*x])/(18*(3 + 5*x)) + (7*(1 - 2*x)^(3/2))/(6*(2
+ 3*x)^2*(3 + 5*x)) + (343*Sqrt[1 - 2*x])/(9*(2 + 3*x)*(3 + 5*x))
 - (6665*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/3 + 2288*Sqr
t[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Rubi [A] time = 0.251381, antiderivative size = 131, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$\frac{7(1-2x)^{3/2}}{6(3x+2)^2(5x+3)}+\frac{343\sqrt{1-2x}}{9(3x+2)(5x+3)}-\frac{6763\sqrt{1-2x}}{18(5x+3)}-\frac{6665}{3}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+2288\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)^3*(3 + 5*x)^2),x]
```

```
[Out] (-6763*Sqrt[1 - 2*x])/(18*(3 + 5*x)) + (7*(1 - 2*x)^(3/2))/(6*(2
+ 3*x)^2*(3 + 5*x)) + (343*Sqrt[1 - 2*x])/(9*(2 + 3*x)*(3 + 5*x))
 - (6665*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/3 + 2288*Sqr
t[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Rubi in Sympy [A] time = 27.2124, size = 110, normalized size = 0.84

$$\frac{7\left(-2x+1\right)^{\frac{3}{2}}}{6\left(3x+2\right)^{2}\left(5x+3\right)}-\frac{6763\sqrt{-2x+1}}{18\left(5x+3\right)}+\frac{343\sqrt{-2x+1}}{9\left(3x+2\right)\left(5x+3\right)}-\frac{6665\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{9}+\frac{2288\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)**3/(3+5*x)**2,x)
```

```
[Out] 7*(-2*x + 1)**(3/2)/(6*(3*x + 2)**2*(5*x + 3)) - 6763*sqrt(-2*x +
 1)/(18*(5*x + 3)) + 343*sqrt(-2*x + 1)/(9*(3*x + 2)*(5*x + 3)) -
 6665*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/9 + 2288*sqrt(55)
*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/5
```

Mathematica [A] time = 0.191953, size = 94, normalized size = 0.72

$$-\frac{\sqrt{1-2x}\left(20289x^2+26380x+8553\right)}{6(3x+2)^2(5x+3)}-\frac{6665}{3}\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+2288\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)^3*(3 + 5*x)^2),x]
```

```
[Out] -(Sqrt[1 - 2*x]*(8553 + 26380*x + 20289*x^2))/(6*(2 + 3*x)^2*(3 +
 5*x)) - (6665*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/3 + 22
88*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Maple [A] time = 0.019, size = 82, normalized size = 0.6

$$126\,\frac{1}{(-4-6\,x)^{2}}\left(\frac{131\,(1-2\,x)^{3/2}}{18}-\frac{931\,\sqrt{1-2\,x}}{54}\right)-\frac{6665\,\sqrt{21}}{9}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)+\frac{242}{5}\sqrt{1-2\,x}\left(-\frac{6}{5}-2\,x\right)^{-1}+\frac{2288\,\sqrt{55}}{5}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)^3/(3+5*x)^2,x)
```

```
[Out] 126*(131/18*(1-2*x)^(3/2)-931/54*(1-2*x)^(1/2))/(-4-6*x)^2-6665/9
*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)+242/5*(1-2*x)^(1/2)
/(-6/5-2*x)+2288/5*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.52392, size = 173, normalized size = 1.32

$$-\frac{1144}{5}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2\,x+1}}{\sqrt{55}+5\sqrt{-2\,x+1}}\right)+\frac{6665}{18}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2\,x+1}}{\sqrt{21}+3\sqrt{-2\,x+1}}\right)-\frac{20289\,(-2\,x+1)^{\frac{5}{2}}-93338\,(-2\,x+1)^{\frac{3}{2}}+107261\sqrt{-2\,x+1}}{3\left(45\,(2\,x-1)^{3}+309\,(2\,x-1)^{2}+1414\,x-168\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^2*(3*x + 2)^3),x, algorithm="maxima")
```

```
[Out] -1144/5*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5
*sqrt(-2*x + 1))) + 6665/18*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x
 + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 1/3*(20289*(-2*x + 1)^(5/
2) - 93338*(-2*x + 1)^(3/2) + 107261*sqrt(-2*x + 1))/(45*(2*x - 1
)^3 + 309*(2*x - 1)^2 + 1414*x - 168)
```

Fricas [A] time = 0.225562, size = 215, normalized size = 1.64

$$\frac{\sqrt{5}\sqrt{3}\left(6864\sqrt{11}\sqrt{3}\left(45\,x^{3}+87\,x^{2}+56\,x+12\right)\log\left(\frac{\sqrt{5}(5\,x-8)-5\sqrt{11}\sqrt{-2\,x+1}}{5\,x+3}\right)+6665\sqrt{7}\sqrt{5}\left(45\,x^{3}+87\,x^{2}+56\,x+12\right)\log\left(\frac{\sqrt{3}(3\cdots}{\cdots}\right)\cdots\right)}{90\left(45\,x^{3}+87\,x^{2}+56\,x+12\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^2*(3*x + 2)^3),x, algorithm="fricas")
```

```
[Out] 1/90*sqrt(5)*sqrt(3)*(6864*sqrt(11)*sqrt(3)*(45*x^3 + 87*x^2 + 56
*x + 12)*log((sqrt(5)*(5*x - 8) - 5*sqrt(11)*sqrt(-2*x + 1))/(5*x
 + 3)) + 6665*sqrt(7)*sqrt(5)*(45*x^3 + 87*x^2 + 56*x + 12)*log((
sqrt(3)*(3*x - 5) + 3*sqrt(7)*sqrt(-2*x + 1))/(3*x + 2)) - sqrt(5
)*sqrt(3)*(20289*x^2 + 26380*x + 8553)*sqrt(-2*x + 1))/(45*x^3 +
87*x^2 + 56*x + 12)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)/(2+3*x)**3/(3+5*x)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.216788, size = 166, normalized size = 1.27

$$-\frac{1144}{5}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{6665}{18}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{121\sqrt{-2x+1}}{5x+3}+\frac{7\left(393(-2x+1)^{\frac{3}{2}}-931\sqrt{-2x+1}\right)}{12(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^2*(3*x + 2)^3),x, algorithm="giac")
```

```
[Out] -1144/5*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqr
t(55) + 5*sqrt(-2*x + 1))) + 6665/18*sqrt(21)*ln(1/2*abs(-2*sqrt(
21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 121*sqrt
(-2*x + 1)/(5*x + 3) + 7/12*(393*(-2*x + 1)^(3/2) - 931*sqrt(-2*x
 + 1))/(3*x + 2)^2
```

3.1971 $\int \frac{(1-2x)^{5/2}}{(2+3x)^4(3+5x)^2}\,dx$

Optimal. Leaf size=154

$$\frac{7(1-2x)^{3/2}}{9(3x+2)^3(5x+3)}+\frac{6649\sqrt{1-2x}}{27(3x+2)(5x+3)}+\frac{917\sqrt{1-2x}}{54(3x+2)^2(5x+3)}-\frac{44545\sqrt{1-2x}}{18(5x+3)}-\frac{307295\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{3\sqrt{21}}+3014\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (-44545*Sqrt[1 - 2*x])/(18*(3 + 5*x)) + (7*(1 - 2*x)^(3/2))/(9*(2
 + 3*x)^3*(3 + 5*x)) + (917*Sqrt[1 - 2*x])/(54*(2 + 3*x)^2*(3 + 5
*x)) + (6649*Sqrt[1 - 2*x])/(27*(2 + 3*x)*(3 + 5*x)) - (307295*Ar
cTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(3*Sqrt[21]) + 3014*Sqrt[55]*ArcT
anh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Rubi [A] time = 0.31887, antiderivative size = 154, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$\frac{7(1-2x)^{3/2}}{9(3x+2)^3(5x+3)}+\frac{6649\sqrt{1-2x}}{27(3x+2)(5x+3)}+\frac{917\sqrt{1-2x}}{54(3x+2)^2(5x+3)}-\frac{44545\sqrt{1-2x}}{18(5x+3)}-\frac{307295\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{3\sqrt{21}}+3014\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)^4*(3 + 5*x)^2),x]
```

```
[Out] (-44545*Sqrt[1 - 2*x])/(18*(3 + 5*x)) + (7*(1 - 2*x)^(3/2))/(9*(2
 + 3*x)^3*(3 + 5*x)) + (917*Sqrt[1 - 2*x])/(54*(2 + 3*x)^2*(3 + 5
*x)) + (6649*Sqrt[1 - 2*x])/(27*(2 + 3*x)*(3 + 5*x)) - (307295*Ar
cTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(3*Sqrt[21]) + 3014*Sqrt[55]*ArcT
anh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Rubi in Sympy [A] time = 34.2833, size = 133, normalized size = 0.86

$$\frac{7\left(-2x+1\right)^{\frac{3}{2}}}{9\left(3x+2\right)^{3}\left(5x+3\right)}-\frac{44545\sqrt{-2x+1}}{18\left(5x+3\right)}+\frac{6649\sqrt{-2x+1}}{27\left(3x+2\right)\left(5x+3\right)}+\frac{917\sqrt{-2x+1}}{54\left(3x+2\right)^{2}\left(5x+3\right)}-\frac{307295\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{63}+3014\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)**4/(3+5*x)**2,x)
```

```
[Out] 7*(-2*x + 1)**(3/2)/(9*(3*x + 2)**3*(5*x + 3)) - 44545*sqrt(-2*x
+ 1)/(18*(5*x + 3)) + 6649*sqrt(-2*x + 1)/(27*(3*x + 2)*(5*x + 3)
) + 917*sqrt(-2*x + 1)/(54*(3*x + 2)**2*(5*x + 3)) - 307295*sqrt(
21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/63 + 3014*sqrt(55)*atanh(sqr
t(55)*sqrt(-2*x + 1)/11)
```

Mathematica [A] time = 0.229, size = 95, normalized size = 0.62

$$-\frac{\sqrt{1-2x}\left(400905x^3+788512x^2+516513x+112668\right)}{6(3x+2)^3(5x+3)}-\frac{307295\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{3\sqrt{21}}+3014\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)^4*(3 + 5*x)^2),x]
```

```
[Out] -(Sqrt[1 - 2*x]*(112668 + 516513*x + 788512*x^2 + 400905*x^3))/(6
*(2 + 3*x)^3*(3 + 5*x)) - (307295*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]
])/(3*Sqrt[21]) + 3014*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Maple [A] time = 0.021, size = 91, normalized size = 0.6

$$108\,\frac{1}{(-4-6\,x)^3}\left(\frac{6731\,(1-2\,x)^{5/2}}{36}-\frac{71365\,(1-2\,x)^{3/2}}{81}+\frac{336385\,\sqrt{1-2\,x}}{324}\right)-\frac{307295\,\sqrt{21}}{63}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)+242\,\frac{\sqrt{1-2\,x}}{-6/5-2\,x}+3014\,\mathit{Artanh}\left(1/11\,\sqrt{55}\sqrt{1-2\,x}\right)\sqrt{55}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)^4/(3+5*x)^2,x)
```

```
[Out] 108*(6731/36*(1-2*x)^(5/2)-71365/81*(1-2*x)^(3/2)+336385/324*(1-2
*x)^(1/2))/(-4-6*x)^3-307295/63*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2
))*21^(1/2)+242*(1-2*x)^(1/2)/(-6/5-2*x)+3014*arctanh(1/11*55^(1/
2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.4911, size = 197, normalized size = 1.28

$$-1507\,\sqrt{55}\log\left(-\frac{\sqrt{55}-5\,\sqrt{-2\,x+1}}{\sqrt{55}+5\,\sqrt{-2\,x+1}}\right)+\frac{307295}{126}\,\sqrt{21}\log\left(-\frac{\sqrt{21}-3\,\sqrt{-2\,x+1}}{\sqrt{21}+3\,\sqrt{-2\,x+1}}\right)+\frac{400905\,(-2\,x+1)^{\frac{7}{2}}-2779739\,(-2\,x+1)^{\frac{5}{2}}+6422815\,(-2\,x+1)^{\frac{3}{2}}-4945325\,\sqrt{-2\,x+1}}{3\left(135\,(2\,x-1)^4+1242\,(2\,x-1)^3+4284\,(2\,x-1)^2+13132\,x-2793\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^2*(3*x + 2)^4),x, algorithm="maxima")
```

```
[Out] -1507*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*s
qrt(-2*x + 1))) + 307295/126*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*
x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 1/3*(400905*(-2*x + 1)^(
7/2) - 2779739*(-2*x + 1)^(5/2) + 6422815*(-2*x + 1)^(3/2) - 4945
325*sqrt(-2*x + 1))/(135*(2*x - 1)^4 + 1242*(2*x - 1)^3 + 4284*(2
*x - 1)^2 + 13132*x - 2793)
```

Fricas [A] time = 0.219914, size = 215, normalized size = 1.4

$$\frac{\sqrt{21}\left(9042\,\sqrt{55}\sqrt{21}\left(135\,x^4+351\,x^3+342\,x^2+148\,x+24\right)\log\left(\frac{5\,x-\sqrt{55}\sqrt{-2\,x+1}-8}{5\,x+3}\right)-\sqrt{21}\left(400905\,x^3+788512\,x^2+516513\,x\right.\right.}{126\left(135\,x^4+351\,x^3+342\,x^2+14\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^2*(3*x + 2)^4),x, algorithm="fricas")
```

```
[Out] 1/126*sqrt(21)*(9042*sqrt(55)*sqrt(21)*(135*x^4 + 351*x^3 + 342*x
^2 + 148*x + 24)*log((5*x - sqrt(55)*sqrt(-2*x + 1) - 8)/(5*x + 3
)) - sqrt(21)*(400905*x^3 + 788512*x^2 + 516513*x + 112668)*sqrt(
-2*x + 1) + 307295*(135*x^4 + 351*x^3 + 342*x^2 + 148*x + 24)*log
((sqrt(21)*(3*x - 5) + 21*sqrt(-2*x + 1))/(3*x + 2)))/(135*x^4 +
351*x^3 + 342*x^2 + 148*x + 24)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)/(2+3*x)**4/(3+5*x)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.217571, size = 188, normalized size = 1.22

$$-1507\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{307295}{126}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{605\sqrt{-2x+1}}{5x+3}-\frac{60579(2x-1)^2\sqrt{-2x+1}-285460(-2x+1)^{\frac{3}{2}}+336385\sqrt{-2x+1}}{24(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^2*(3*x + 2)^4),x, algorithm="giac")
```

```
[Out] -1507*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(
55) + 5*sqrt(-2*x + 1))) + 307295/126*sqrt(21)*ln(1/2*abs(-2*sqrt
(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 605*sqr
t(-2*x + 1)/(5*x + 3) - 1/24*(60579*(2*x - 1)^2*sqrt(-2*x + 1) -
285460*(-2*x + 1)^(3/2) + 336385*sqrt(-2*x + 1))/(3*x + 2)^3
```

3.1972 $\int \frac{(1-2x)^{5/2}}{(2+3x)^5(3+5x)^2}\,dx$

Optimal. Leaf size=181

$$\frac{7(1-2x)^{3/2}}{12(3x+2)^4(5x+3)}+\frac{288770\sqrt{1-2x}}{189(3x+2)(5x+3)}+\frac{22109\sqrt{1-2x}}{216(3x+2)^2(5x+3)}+\frac{287\sqrt{1-2x}}{27(3x+2)^3(5x+3)}-\frac{7738475\sqrt{1-2x}}{504(5x+3)}-\frac{53384095\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{84\sqrt{21}}+18700\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (-7738475*Sqrt[1 - 2*x])/(504*(3 + 5*x)) + (7*(1 - 2*x)^(3/2))/(1
2*(2 + 3*x)^4*(3 + 5*x)) + (287*Sqrt[1 - 2*x])/(27*(2 + 3*x)^3*(3
 + 5*x)) + (22109*Sqrt[1 - 2*x])/(216*(2 + 3*x)^2*(3 + 5*x)) + (2
88770*Sqrt[1 - 2*x])/(189*(2 + 3*x)*(3 + 5*x)) - (53384095*ArcTan
h[Sqrt[3/7]*Sqrt[1 - 2*x]])/(84*Sqrt[21]) + 18700*Sqrt[55]*ArcTan
h[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Rubi [A] time = 0.38267, antiderivative size = 181, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$\frac{7(1-2x)^{3/2}}{12(3x+2)^4(5x+3)}+\frac{288770\sqrt{1-2x}}{189(3x+2)(5x+3)}+\frac{22109\sqrt{1-2x}}{216(3x+2)^2(5x+3)}+\frac{287\sqrt{1-2x}}{27(3x+2)^3(5x+3)}-\frac{7738475\sqrt{1-2x}}{504(5x+3)}-\frac{53384095\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{84\sqrt{21}}+18700\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)^5*(3 + 5*x)^2),x]
```

```
[Out] (-7738475*Sqrt[1 - 2*x])/(504*(3 + 5*x)) + (7*(1 - 2*x)^(3/2))/(1
2*(2 + 3*x)^4*(3 + 5*x)) + (287*Sqrt[1 - 2*x])/(27*(2 + 3*x)^3*(3
 + 5*x)) + (22109*Sqrt[1 - 2*x])/(216*(2 + 3*x)^2*(3 + 5*x)) + (2
88770*Sqrt[1 - 2*x])/(189*(2 + 3*x)*(3 + 5*x)) - (53384095*ArcTan
h[Sqrt[3/7]*Sqrt[1 - 2*x]])/(84*Sqrt[21]) + 18700*Sqrt[55]*ArcTan
h[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Rubi in Sympy [A] time = 41.8225, size = 156, normalized size = 0.86

$$\frac{7\left(-2x+1\right)^{\frac{3}{2}}}{12\left(3x+2\right)^{4}\left(5x+3\right)}-\frac{7738475\sqrt{-2x+1}}{504\left(5x+3\right)}+\frac{288770\sqrt{-2x+1}}{189\left(3x+2\right)\left(5x+3\right)}+\frac{22109\sqrt{-2x+1}}{216\left(3x+2\right)^{2}\left(5x+3\right)}+\frac{287\sqrt{-2x+1}}{27\left(3x+2\right)^{3}\left(5x+3\right)}-\frac{53384095\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{1764}+18700\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)**5/(3+5*x)**2,x)
```

```
[Out] 7*(-2*x + 1)**(3/2)/(12*(3*x + 2)**4*(5*x + 3)) - 7738475*sqrt(-2
*x + 1)/(504*(5*x + 3)) + 288770*sqrt(-2*x + 1)/(189*(3*x + 2)*(5
*x + 3)) + 22109*sqrt(-2*x + 1)/(216*(3*x + 2)**2*(5*x + 3)) + 28
7*sqrt(-2*x + 1)/(27*(3*x + 2)**3*(5*x + 3)) - 53384095*sqrt(21)*
atanh(sqrt(21)*sqrt(-2*x + 1)/7)/1764 + 18700*sqrt(55)*atanh(sqrt
(55)*sqrt(-2*x + 1)/11)
```

Mathematica [A] time = 0.186144, size = 100, normalized size = 0.55

$$-\frac{\sqrt{1-2x}\left(208938825x^4+550239720x^3+543154477x^2+238179048x+39145938\right)}{168(3x+2)^4(5x+3)}-\frac{53384095\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{84\sqrt{21}}+18700\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)^5*(3 + 5*x)^2),x]
```

```
[Out] -(Sqrt[1 - 2*x]*(39145938 + 238179048*x + 543154477*x^2 + 5502397
20*x^3 + 208938825*x^4))/(168*(2 + 3*x)^4*(3 + 5*x)) - (53384095*
ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(84*Sqrt[21]) + 18700*Sqrt[55]*
ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Maple [A] time = 0.021, size = 100, normalized size = 0.6

$$162\frac{1}{(-4-6x)^4}\left(\frac{1242775(1-2x)^{7/2}}{504}-\frac{11266013(1-2x)^{5/2}}{648}+\frac{79444085(1-2x)^{3/2}}{1944}-\frac{62254745\sqrt{1-2x}}{1944}\right)-\frac{53384095\sqrt{21}}{1764}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)+1210\frac{\sqrt{1-2x}}{-6/5-2x}+18700\,\mathit{Artanh}\left(1/11\sqrt{55}\sqrt{1-2x}\right)\sqrt{55}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)^5/(3+5*x)^2,x)
```

```
[Out] 162*(1242775/504*(1-2*x)^(7/2)-11266013/648*(1-2*x)^(5/2)+7944408
5/1944*(1-2*x)^(3/2)-62254745/1944*(1-2*x)^(1/2))/(-4-6*x)^4-5338
4095/1764*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)+1210*(1-2*
x)^(1/2)/(-6/5-2*x)+18700*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55
^(1/2)
```

Maxima [A] time = 1.56327, size = 221, normalized size = 1.22

$$-9350\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{53384095}{3528}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{208938825(-2x+1)^{\frac{9}{2}}-1936234740(-2x+1)^{\frac{7}{2}}+6727689178(-2x+1)^{\frac{5}{2}}-10387861820(-2x+1)^{\frac{3}{2}}+6013803565\sqrt{-2}}{84\left(405(2x-1)^5+4671(2x-1)^4+21546(2x-1)^3+49686(2x-1)^2+114562x-30870\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^2*(3*x + 2)^5),x, algorithm="maxima")
```

```
[Out] -9350*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*s
qrt(-2*x + 1))) + 53384095/3528*sqrt(21)*log(-(sqrt(21) - 3*sqrt(
-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 1/84*(208938825*(-2*x
 + 1)^(9/2) - 1936234740*(-2*x + 1)^(7/2) + 6727689178*(-2*x + 1)
^(5/2) - 10387861820*(-2*x + 1)^(3/2) + 6013803565*sqrt(-2*x + 1)
)/(405*(2*x - 1)^5 + 4671*(2*x - 1)^4 + 21546*(2*x - 1)^3 + 49686
*(2*x - 1)^2 + 114562*x - 30870)
```

Fricas [A] time = 0.219992, size = 242, normalized size = 1.34

$$\frac{\sqrt{21}\left(1570800\sqrt{55}\sqrt{21}\left(405x^5+1323x^4+1728x^3+1128x^2+368x+48\right)\log\left(\frac{5x-\sqrt{55}\sqrt{-2x+1}-8}{5x+3}\right)-\sqrt{21}\left(208938825x^4+55\right.\right.}{3528\left(405x\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)^2*(3*x + 2)^5),x, algorithm="fricas")
```

```
[Out] 1/3528*sqrt(21)*(1570800*sqrt(55)*sqrt(21)*(405*x^5 + 1323*x^4 +
1728*x^3 + 1128*x^2 + 368*x + 48)*log((5*x - sqrt(55)*sqrt(-2*x +
 1) - 8)/(5*x + 3)) - sqrt(21)*(208938825*x^4 + 550239720*x^3 + 5
43154477*x^2 + 238179048*x + 39145938)*sqrt(-2*x + 1) + 53384095*
(405*x^5 + 1323*x^4 + 1728*x^3 + 1128*x^2 + 368*x + 48)*log((sqrt
(21)*(3*x - 5) + 21*sqrt(-2*x + 1))/(3*x + 2)))/(405*x^5 + 1323*x
^4 + 1728*x^3 + 1128*x^2 + 368*x + 48)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(5/2)/(2+3*x)**5/(3+5*x)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.22027, size = 209, normalized size = 1.15

$$-9350\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{53384095}{3528}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{3025\sqrt{-2x+1}}{5x+3}-\frac{33554925(2x-1)^3\sqrt{-2x+1}+236586273(2x-1)^2\sqrt{-2x+1}-556108595(-2x+1)^{\frac{3}{2}}+435783215\sqrt{-2x+1}}{1344(3x+2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)^2*(3*x + 2)^5),x, algorithm="giac")
```

```
[Out] -9350*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(
55) + 5*sqrt(-2*x + 1))) + 53384095/3528*sqrt(21)*ln(1/2*abs(-2*s
qrt(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 3025
*sqrt(-2*x + 1)/(5*x + 3) - 1/1344*(33554925*(2*x - 1)^3*sqrt(-2*
x + 1) + 236586273*(2*x - 1)^2*sqrt(-2*x + 1) - 556108595*(-2*x +
 1)^(3/2) + 435783215*sqrt(-2*x + 1))/(3*x + 2)^4
```

3.1973 $\int \frac{(1-2x)^{5/2}}{(2+3x)^6(3+5x)^2}\,dx$

Optimal. Leaf size=208

$$\frac{7(1-2x)^{3/2}}{15(3x+2)^5(5x+3)}+\frac{12068887\sqrt{1-2x}}{1323(3x+2)(5x+3)}+\frac{924025\sqrt{1-2x}}{1512(3x+2)^2(5x+3)}+\frac{16549\sqrt{1-2x}}{270(3x+2)^3(5x+3)}+\frac{1379\sqrt{1-2x}}{180(3x+2)^4(5x+3)}-\frac{323422735\sqrt{1-2x}}{3528(5x+3)}-\frac{2231141147\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{588\sqrt{21}}+111650\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (-323422735*Sqrt[1 - 2*x])/(3528*(3 + 5*x)) + (7*(1 - 2*x)^(3/2))
/(15*(2 + 3*x)^5*(3 + 5*x)) + (1379*Sqrt[1 - 2*x])/(180*(2 + 3*x)
^4*(3 + 5*x)) + (16549*Sqrt[1 - 2*x])/(270*(2 + 3*x)^3*(3 + 5*x))
 + (924025*Sqrt[1 - 2*x])/(1512*(2 + 3*x)^2*(3 + 5*x)) + (1206888
7*Sqrt[1 - 2*x])/(1323*(2 + 3*x)*(3 + 5*x)) - (2231141147*ArcTanh
[Sqrt[3/7]*Sqrt[1 - 2*x]])/(588*Sqrt[21]) + 111650*Sqrt[55]*ArcTa
nh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Rubi [A] time = 0.461337, antiderivative size = 208, normalized size of antiderivative = 1., number of steps used = 11, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$\frac{7(1-2x)^{3/2}}{15(3x+2)^5(5x+3)}+\frac{12068887\sqrt{1-2x}}{1323(3x+2)(5x+3)}+\frac{924025\sqrt{1-2x}}{1512(3x+2)^2(5x+3)}+\frac{16549\sqrt{1-2x}}{270(3x+2)^3(5x+3)}+\frac{1379\sqrt{1-2x}}{180(3x+2)^4(5x+3)}-\frac{323422735\sqrt{1-2x}}{3528(5x+3)}-\frac{2231141147\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{588\sqrt{21}}+111650\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)^6*(3 + 5*x)^2),x]
```

```
[Out] (-323422735*Sqrt[1 - 2*x])/(3528*(3 + 5*x)) + (7*(1 - 2*x)^(3/2))
/(15*(2 + 3*x)^5*(3 + 5*x)) + (1379*Sqrt[1 - 2*x])/(180*(2 + 3*x)
^4*(3 + 5*x)) + (16549*Sqrt[1 - 2*x])/(270*(2 + 3*x)^3*(3 + 5*x))
 + (924025*Sqrt[1 - 2*x])/(1512*(2 + 3*x)^2*(3 + 5*x)) + (1206888
7*Sqrt[1 - 2*x])/(1323*(2 + 3*x)*(3 + 5*x)) - (2231141147*ArcTanh
[Sqrt[3/7]*Sqrt[1 - 2*x]])/(588*Sqrt[21]) + 111650*Sqrt[55]*ArcTa
nh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Rubi in Sympy [A] time = 49.0816, size = 180, normalized size = 0.87

$$\frac{7\left(-2x+1\right)^{\frac{3}{2}}}{15\left(3x+2\right)^{5}\left(5x+3\right)}-\frac{64684547\sqrt{-2x+1}}{1176\left(3x+2\right)}-\frac{13928935\sqrt{-2x+1}}{1512\left(3x+2\right)\left(5x+3\right)}+\frac{924025\sqrt{-2x+1}}{1512\left(3x+2\right)^{2}\left(5x+3\right)}+\frac{16549\sqrt{-2x+1}}{270\left(3x+2\right)^{3}\left(5x+3\right)}+\frac{1379\sqrt{-2x+1}}{180\left(3x+2\right)^{4}\left(5x+3\right)}-\frac{2231141147\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{12348}+111650\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)**6/(3+5*x)**2,x)
```

```
[Out] 7*(-2*x + 1)**(3/2)/(15*(3*x + 2)**5*(5*x + 3)) - 64684547*sqrt(-
2*x + 1)/(1176*(3*x + 2)) - 13928935*sqrt(-2*x + 1)/(1512*(3*x +
2)*(5*x + 3)) + 924025*sqrt(-2*x + 1)/(1512*(3*x + 2)**2*(5*x + 3
)) + 16549*sqrt(-2*x + 1)/(270*(3*x + 2)**3*(5*x + 3)) + 1379*sqr
t(-2*x + 1)/(180*(3*x + 2)**4*(5*x + 3)) - 2231141147*sqrt(21)*at
anh(sqrt(21)*sqrt(-2*x + 1)/7)/12348 + 111650*sqrt(55)*atanh(sqrt
(55)*sqrt(-2*x + 1)/11)
```

Mathematica [A] time = 0.20682, size = 105, normalized size = 0.5

$$-\frac{\sqrt{1-2x}\left(130986207675x^5+432275892930x^4+570477768855x^3+376323861626x^2+124085884254x+16360698684\right)}{5880(3x+2)^5(5x+3)}-\frac{2231141147\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{588\sqrt{21}}+111650\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)^6*(3 + 5*x)^2),x]
```

```
[Out] -(Sqrt[1 - 2*x]*(16360698684 + 124085884254*x + 376323861626*x^2
+ 570477768855*x^3 + 432275892930*x^4 + 130986207675*x^5))/(5880*
(2 + 3*x)^5*(3 + 5*x)) - (2231141147*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2
*x]])/(588*Sqrt[21]) + 111650*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1
- 2*x]]
```

Maple [A] time = 0.022, size = 109, normalized size = 0.5

$$972\frac{1}{(-4-6x)^5}\left(\frac{54012347(1-2x)^{9/2}}{7056}-\frac{46563587(1-2x)^{7/2}}{648}+\frac{307361449(1-2x)^{5/2}}{1215}-\frac{2308578797(1-2x)^{3/2}}{5832}+27\ldots\right.$$
$$-\frac{2231141147\sqrt{21}}{12348}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)+6050\frac{\sqrt{1-2x}}{-6/5-2x}+111650\,\mathit{Artanh}\left(1/11\sqrt{55}\sqrt{1-2x}\right)\sqrt{55}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)^6/(3+5*x)^2,x)
```

```
[Out] 972*(54012347/7056*(1-2*x)^(9/2)-46563587/648*(1-2*x)^(7/2)+30736
1449/1215*(1-2*x)^(5/2)-2308578797/5832*(1-2*x)^(3/2)+2709545797/
11664*(1-2*x)^(1/2))/(-4-6*x)^5-2231141147/12348*arctanh(1/7*21^(
1/2)*(1-2*x)^(1/2))*21^(1/2)+6050*(1-2*x)^(1/2)/(-6/5-2*x)+111650
*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.51451, size = 246, normalized size = 1.18

$$-55825\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{2231141147}{24696}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)$$
$$+\frac{130986207675(-2x+1)^{\frac{11}{2}}-1519482824235(-2x+1)^{\frac{9}{2}}+7049980295610(-2x+1)^{\frac{7}{2}}-16353496911178(-2x+1)^{\frac{5}{2}}+18\ldots}{2940\left(1215(2x-1)^6+16848(2x-1)^5+97335(2x-1)^4+299880(2x-1)^3+519645(2x-\ldots\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^2*(3*x + 2)^6),x, algorithm="maxima")
```

```
[Out] -55825*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*
sqrt(-2*x + 1))) + 2231141147/24696*sqrt(21)*log(-(sqrt(21) - 3*s
```

```
qrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 1/2940*(130986207
675*(-2*x + 1)^(11/2) - 1519482824235*(-2*x + 1)^(9/2) + 70499802
95610*(-2*x + 1)^(7/2) - 16353496911178*(-2*x + 1)^(5/2) + 189654
27342155*(-2*x + 1)^(3/2) - 8796956467915*sqrt(-2*x + 1))/(1215*(
2*x - 1)^6 + 16848*(2*x - 1)^5 + 97335*(2*x - 1)^4 + 299880*(2*x
- 1)^3 + 519645*(2*x - 1)^2 + 960400*x - 295323)
```

Fricas [A] time = 0.221, size = 269, normalized size = 1.29

$$\frac{\sqrt{21}\left(328251000\,\sqrt{55}\sqrt{21}\left(1215\,x^{6}+4779\,x^{5}+7830\,x^{4}+6840\,x^{3}+3360\,x^{2}+880\,x+96\right)\log\left(\frac{5\,x-\sqrt{55}\sqrt{-2\,x+1}-8}{5\,x+3}\right)-\sqrt{21}\left(1309\right.\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)^2*(3*x + 2)^6),x, algorithm="fricas")
```

```
[Out] 1/123480*sqrt(21)*(328251000*sqrt(55)*sqrt(21)*(1215*x^6 + 4779*x
^5 + 7830*x^4 + 6840*x^3 + 3360*x^2 + 880*x + 96)*log((5*x - sqrt
(55)*sqrt(-2*x + 1) - 8)/(5*x + 3)) - sqrt(21)*(130986207675*x^5
+ 432275892930*x^4 + 570477768855*x^3 + 376323861626*x^2 + 124085
884254*x + 16360698684)*sqrt(-2*x + 1) + 11155705735*(1215*x^6 +
4779*x^5 + 7830*x^4 + 6840*x^3 + 3360*x^2 + 880*x + 96)*log((sqrt
(21)*(3*x - 5) + 21*sqrt(-2*x + 1))/(3*x + 2)))/(1215*x^6 + 4779*
x^5 + 7830*x^4 + 6840*x^3 + 3360*x^2 + 880*x + 96)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(5/2)/(2+3*x)**6/(3+5*x)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.221103, size = 231, normalized size = 1.11

$$-55825\,\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)+\frac{2231141147}{24696}\,\sqrt{21}\ln\left(\frac{\left|-2\,\sqrt{21}+6\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{21}+3\,\sqrt{-2\,x+1}\right)}\right)-\frac{15125\,\sqrt{-2\,x+1}}{5\,x+3}-\frac{21875000535\,(2\,x-1)^{4}\sqrt{-2\,x+1}+205345418670\,(2\,x-1)^{3}\sqrt{-2\,x+1}+722914128048\,(2\,x-1)^{2}\sqrt{-2\,x+1}-1131203610}{94080\,(3\,x+2)^{5}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)^2*(3*x + 2)^6),x, algorithm="giac")
```

```
[Out] -55825*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt
(55) + 5*sqrt(-2*x + 1))) + 2231141147/24696*sqrt(21)*ln(1/2*abs(
-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) -
15125*sqrt(-2*x + 1)/(5*x + 3) - 1/94080*(21875000535*(2*x - 1)^4
*sqrt(-2*x + 1) + 205345418670*(2*x - 1)^3*sqrt(-2*x + 1) + 72291
4128048*(2*x - 1)^2*sqrt(-2*x + 1) - 1131203610530*(-2*x + 1)^(3/
2) + 663838720265*sqrt(-2*x + 1))/(3*x + 2)^5
```

3.1974 $\int \frac{(1-2x)^{5/2}(2+3x)^4}{(3+5x)^3}\,dx$

Optimal. Leaf size=155

$$-\frac{127(1-2x)^{3/2}(3x+2)^4}{50(5x+3)}-\frac{(1-2x)^{5/2}(3x+2)^4}{10(5x+3)^2}+\frac{1117}{750}(1-2x)^{3/2}(3x+2)^3+\frac{1903(1-2x)^{3/2}(3x+2)^2}{4375}+\frac{(1-2x)^{3/2}(24939x+734)}{93750}+\frac{11763\sqrt{1-2x}}{78125}-\frac{11763\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{\right.}}{78125}$$

```
[Out] (11763*Sqrt[1 - 2*x])/78125 + (1903*(1 - 2*x)^(3/2)*(2 + 3*x)^2)/
4375 + (1117*(1 - 2*x)^(3/2)*(2 + 3*x)^3)/750 - ((1 - 2*x)^(5/2)*
(2 + 3*x)^4)/(10*(3 + 5*x)^2) - (127*(1 - 2*x)^(3/2)*(2 + 3*x)^4)
/(50*(3 + 5*x)) + ((1 - 2*x)^(3/2)*(734 + 24939*x))/93750 - (1176
3*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/78125
```

Rubi [A] time = 0.286376, antiderivative size = 155, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 7, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.292$

$$-\frac{127(1-2x)^{3/2}(3x+2)^4}{50(5x+3)}-\frac{(1-2x)^{5/2}(3x+2)^4}{10(5x+3)^2}+\frac{1117}{750}(1-2x)^{3/2}(3x+2)^3+\frac{1903(1-2x)^{3/2}(3x+2)^2}{4375}+\frac{(1-2x)^{3/2}(24939x+734)}{93750}+\frac{11763\sqrt{1-2x}}{78125}-\frac{11763\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{\right.}}{78125}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(2 + 3*x)^4)/(3 + 5*x)^3,x]
```

```
[Out] (11763*Sqrt[1 - 2*x])/78125 + (1903*(1 - 2*x)^(3/2)*(2 + 3*x)^2)/
4375 + (1117*(1 - 2*x)^(3/2)*(2 + 3*x)^3)/750 - ((1 - 2*x)^(5/2)*
(2 + 3*x)^4)/(10*(3 + 5*x)^2) - (127*(1 - 2*x)^(3/2)*(2 + 3*x)^4)
/(50*(3 + 5*x)) + ((1 - 2*x)^(3/2)*(734 + 24939*x))/93750 - (1176
3*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/78125
```

Rubi in Sympy [A] time = 29.1388, size = 128, normalized size = 0.83

$$-\frac{(-938925x+1159092)(-2x+1)^{\frac{5}{2}}}{21656250}-\frac{(-2x+1)^{\frac{5}{2}}(3x+2)^4}{10(5x+3)^2}-\frac{127(-2x+1)^{\frac{5}{2}}(3x+2)^3}{550(5x+3)}+\frac{262(-2x+1)^{\frac{5}{2}}(3x+2)^2}{1375}+\frac{3921(-2x+1)^{\frac{3}{2}}}{171875}+\frac{11763\sqrt{-2x+1}}{78125}-\frac{11763\sqrt{55}\,\mathrm{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{390625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**4/(3+5*x)**3,x)
```

```
[Out] -(-938925*x + 1159092)*(-2*x + 1)**(5/2)/21656250 - (-2*x + 1)**(
5/2)*(3*x + 2)**4/(10*(5*x + 3)**2) - 127*(-2*x + 1)**(5/2)*(3*x
+ 2)**3/(550*(5*x + 3)) + 262*(-2*x + 1)**(5/2)*(3*x + 2)**2/1375
 + 3921*(-2*x + 1)**(3/2)/171875 + 11763*sqrt(-2*x + 1)/78125 - 1
1763*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/390625
```

Mathematica [A] time = 0.14941, size = 78, normalized size = 0.5

$$\frac{\frac{5\sqrt{1-2x}(15750000x^6+15075000x^5-16051500x^4-11139550x^3+9372960x^2+6891315x+871208)}{(5x+3)^2}-164682\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{5468750}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(2 + 3*x)^4)/(3 + 5*x)^3,x]
```

```
[Out] ((5*Sqrt[1 - 2*x]*(871208 + 6891315*x + 9372960*x^2 - 11139550*x^
3 - 16051500*x^4 + 15075000*x^5 + 15750000*x^6))/(3 + 5*x)^2 - 16
4682*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/5468750
```

Maple [A] time = 0.017, size = 93, normalized size = 0.6

$$\frac{9}{250}(1-2x)^{\frac{9}{2}}-\frac{1107}{8750}(1-2x)^{\frac{7}{2}}+\frac{108}{15625}(1-2x)^{\frac{5}{2}}+\frac{76}{3125}(1-2x)^{\frac{3}{2}}+\frac{2404}{15625}\sqrt{1-2x}+\frac{44}{625(-6-10x)^2}\left(\frac{51}{20}(1-2x)^{\frac{3}{2}}-\frac{2827}{500}\sqrt{1-2x}\right)-\frac{11763\sqrt{55}}{390625}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^4/(3+5*x)^3,x)
```

```
[Out] 9/250*(1-2*x)^(9/2)-1107/8750*(1-2*x)^(7/2)+108/15625*(1-2*x)^(5/
2)+76/3125*(1-2*x)^(3/2)+2404/15625*(1-2*x)^(1/2)+44/625*(51/20*(
1-2*x)^(3/2)-2827/500*(1-2*x)^(1/2))/(-6-10*x)^2-11763/390625*arc
tanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.55026, size = 161, normalized size = 1.04

$$\frac{9}{250}(-2x+1)^{\frac{9}{2}}-\frac{1107}{8750}(-2x+1)^{\frac{7}{2}}+\frac{108}{15625}(-2x+1)^{\frac{5}{2}}+\frac{76}{3125}(-2x+1)^{\frac{3}{2}}+\frac{11763}{781250}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{2404}{15625}\sqrt{-2x+1}+\frac{11\left(1275(-2x+1)^{\frac{3}{2}}-2827\sqrt{-2x+1}\right)}{78125\left(25(2x-1)^2+220x+11\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4*(-2*x + 1)^(5/2)/(5*x + 3)^3,x, algorithm="maxima")
```

```
[Out] 9/250*(-2*x + 1)^(9/2) - 1107/8750*(-2*x + 1)^(7/2) + 108/15625*(
-2*x + 1)^(5/2) + 76/3125*(-2*x + 1)^(3/2) + 11763/781250*sqrt(55
)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1)
)) + 2404/15625*sqrt(-2*x + 1) + 11/78125*(1275*(-2*x + 1)^(3/2)
- 2827*sqrt(-2*x + 1))/(25*(2*x - 1)^2 + 220*x + 11)
```

Fricas [A] time = 0.215177, size = 142, normalized size = 0.92

$$\frac{\sqrt{5}\left(82341\sqrt{11}\left(25x^2+30x+9\right)\log\left(\frac{\sqrt{5}(5x-8)+5\sqrt{11}\sqrt{-2x+1}}{5x+3}\right)+\sqrt{5}\left(15750000x^6+15075000x^5-16051500x^4-11139550x^3\right.\right.}{5468750\left(25x^2+30x+9\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4*(-2*x + 1)^(5/2)/(5*x + 3)^3,x, algorithm="fricas")
```

```
[Out] 1/5468750*sqrt(5)*(82341*sqrt(11)*(25*x^2 + 30*x + 9)*log((sqrt(5
)*(5*x - 8) + 5*sqrt(11)*sqrt(-2*x + 1))/(5*x + 3)) + sqrt(5)*(15
750000*x^6 + 15075000*x^5 - 16051500*x^4 - 11139550*x^3 + 9372960
*x^2 + 6891315*x + 871208)*sqrt(-2*x + 1))/(25*x^2 + 30*x + 9)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)**4/(3+5*x)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.216581, size = 181, normalized size = 1.17

$$\frac{9}{250}(2x-1)^4\sqrt{-2x+1}+\frac{1107}{8750}(2x-1)^3\sqrt{-2x+1}+\frac{108}{15625}(2x-1)^2\sqrt{-2x+1}+\frac{76}{3125}(-2x+1)^{\frac{3}{2}}+\frac{11763}{781250}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{2404}{15625}\sqrt{-2x+1}+\frac{11\left(1275(-2x+1)^{\frac{3}{2}}-2827\sqrt{-2x+1}\right)}{312500(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^4*(-2*x + 1)^(5/2)/(5*x + 3)^3,x, algorithm="giac")
```

```
[Out] 9/250*(2*x - 1)^4*sqrt(-2*x + 1) + 1107/8750*(2*x - 1)^3*sqrt(-2*
x + 1) + 108/15625*(2*x - 1)^2*sqrt(-2*x + 1) + 76/3125*(-2*x + 1
)^(3/2) + 11763/781250*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(
-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) + 2404/15625*sqrt(-2*x
+ 1) + 11/312500*(1275*(-2*x + 1)^(3/2) - 2827*sqrt(-2*x + 1))/(5
*x + 3)^2
```

3.1975 $\int \frac{(1-2x)^{5/2}(2+3x)^3}{(3+5x)^3}\,dx$

Optimal. Leaf size=135

$$-\frac{47(1-2x)^{3/2}(3x+2)^3}{25(5x+3)}-\frac{(1-2x)^{5/2}(3x+2)^3}{10(5x+3)^2}+\frac{954}{875}(1-2x)^{3/2}(3x+2)^2+\frac{3(1-2x)^{3/2}(2403x+1618)}{6250}+\frac{5559\sqrt{1-2x}}{15625}-\frac{5559\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{15625}$$

```
[Out] (5559*Sqrt[1 - 2*x])/15625 + (954*(1 - 2*x)^(3/2)*(2 + 3*x)^2)/87
5 - ((1 - 2*x)^(5/2)*(2 + 3*x)^3)/(10*(3 + 5*x)^2) - (47*(1 - 2*x
)^(3/2)*(2 + 3*x)^3)/(25*(3 + 5*x)) + (3*(1 - 2*x)^(3/2)*(1618 +
2403*x))/6250 - (5559*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]
])/15625
```

Rubi [A] time = 0.231648, antiderivative size = 135, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 7, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.292$

$$-\frac{47(1-2x)^{3/2}(3x+2)^3}{25(5x+3)}-\frac{(1-2x)^{5/2}(3x+2)^3}{10(5x+3)^2}+\frac{954}{875}(1-2x)^{3/2}(3x+2)^2+\frac{3(1-2x)^{3/2}(2403x+1618)}{6250}+\frac{5559\sqrt{1-2x}}{15625}-\frac{5559\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{15625}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(2 + 3*x)^3)/(3 + 5*x)^3,x]
```

```
[Out] (5559*Sqrt[1 - 2*x])/15625 + (954*(1 - 2*x)^(3/2)*(2 + 3*x)^2)/87
5 - ((1 - 2*x)^(5/2)*(2 + 3*x)^3)/(10*(3 + 5*x)^2) - (47*(1 - 2*x
)^(3/2)*(2 + 3*x)^3)/(25*(3 + 5*x)) + (3*(1 - 2*x)^(3/2)*(1618 +
2403*x))/6250 - (5559*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]
])/15625
```

Rubi in Sympy [A] time = 21.5326, size = 109, normalized size = 0.81

$$-\frac{(-2x+1)^{\frac{5}{2}}(3x+2)^3}{10(5x+3)^2}-\frac{47(-2x+1)^{\frac{5}{2}}(3x+2)^2}{275(5x+3)}+\frac{(-2x+1)^{\frac{5}{2}}(229725x+143616)}{481250}+\frac{1853(-2x+1)^{\frac{3}{2}}}{34375}+\frac{5559\sqrt{-2x+1}}{15625}-\frac{5559\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{78125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**3/(3+5*x)**3,x)
```

```
[Out] -(-2*x + 1)**(5/2)*(3*x + 2)**3/(10*(5*x + 3)**2) - 47*(-2*x + 1)
**(5/2)*(3*x + 2)**2/(275*(5*x + 3)) + (-2*x + 1)**(5/2)*(229725*
x + 143616)/481250 + 1853*(-2*x + 1)**(3/2)/34375 + 5559*sqrt(-2*
x + 1)/15625 - 5559*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/78
125
```

Mathematica [A] time = 0.130807, size = 73, normalized size = 0.54

$$\frac{\frac{5\sqrt{1-2x}(1350000x^5-27000x^4-1506900x^3+1651030x^2+2637795x+770444)}{(5x+3)^2}-77826\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1093750}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(2 + 3*x)^3)/(3 + 5*x)^3,x]
```

```
[Out] ((5*Sqrt[1 - 2*x]*(770444 + 2637795*x + 1651030*x^2 - 1506900*x^3
 - 27000*x^4 + 1350000*x^5))/(3 + 5*x)^2 - 77826*Sqrt[55]*ArcTanh
[Sqrt[5/11]*Sqrt[1 - 2*x]])/1093750
```

Maple [A] time = 0.017, size = 84, normalized size = 0.6

$$-\frac{27}{875}(1-2x)^{\frac{7}{2}}+\frac{54}{3125}(1-2x)^{\frac{5}{2}}+\frac{186}{3125}(1-2x)^{\frac{3}{2}}+\frac{46}{125}\sqrt{1-2x}+\frac{22}{125(-6-10x)^2}\left(\frac{189}{50}(1-2x)^{\frac{3}{2}}-\frac{2101}{250}\sqrt{1-2x}\right)-\frac{5559\sqrt{55}}{78125}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^3/(3+5*x)^3,x)
```

```
[Out] -27/875*(1-2*x)^(7/2)+54/3125*(1-2*x)^(5/2)+186/3125*(1-2*x)^(3/2
)+46/125*(1-2*x)^(1/2)+22/125*(189/50*(1-2*x)^(3/2)-2101/250*(1-2
*x)^(1/2))/(-6-10*x)^2-5559/78125*arctanh(1/11*55^(1/2)*(1-2*x)^(
1/2))*55^(1/2)
```

Maxima [A] time = 1.52987, size = 149, normalized size = 1.1

$$-\frac{27}{875}(-2x+1)^{\frac{7}{2}}+\frac{54}{3125}(-2x+1)^{\frac{5}{2}}+\frac{186}{3125}(-2x+1)^{\frac{3}{2}}+\frac{5559}{156250}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{46}{125}\sqrt{-2x+1}+\frac{11\left(945(-2x+1)^{\frac{3}{2}}-2101\sqrt{-2x+1}\right)}{15625\left(25(2x-1)^2+220x+11\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*(-2*x + 1)^(5/2)/(5*x + 3)^3,x, algorithm="maxima")
```

```
[Out] -27/875*(-2*x + 1)^(7/2) + 54/3125*(-2*x + 1)^(5/2) + 186/3125*(-
2*x + 1)^(3/2) + 5559/156250*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*
x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) + 46/125*sqrt(-2*x + 1) +
11/15625*(945*(-2*x + 1)^(3/2) - 2101*sqrt(-2*x + 1))/(25*(2*x -
1)^2 + 220*x + 11)
```

Fricas [A] time = 0.228321, size = 135, normalized size = 1.

$$\frac{\sqrt{5}\left(38913\sqrt{11}\left(25x^2+30x+9\right)\log\left(\frac{\sqrt{5}(5x-8)+5\sqrt{11}\sqrt{-2x+1}}{5x+3}\right)+\sqrt{5}\left(1350000x^5-27000x^4-1506900x^3+1651030x^2+2637\right.\right.}{1093750\left(25x^2+30x+9\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*(-2*x + 1)^(5/2)/(5*x + 3)^3,x, algorithm="fricas")
```

```
[Out] 1/1093750*sqrt(5)*(38913*sqrt(11)*(25*x^2 + 30*x + 9)*log((sqrt(5
)*(5*x - 8) + 5*sqrt(11)*sqrt(-2*x + 1))/(5*x + 3)) + sqrt(5)*(13
50000*x^5 - 27000*x^4 - 1506900*x^3 + 1651030*x^2 + 2637795*x + 7
70444)*sqrt(-2*x + 1))/(25*x^2 + 30*x + 9)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)**3/(3+5*x)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.217299, size = 159, normalized size = 1.18

$$\frac{27}{875}(2x-1)^3\sqrt{-2x+1}+\frac{54}{3125}(2x-1)^2\sqrt{-2x+1}+\frac{186}{3125}(-2x+1)^{\frac{3}{2}}+\frac{5559}{156250}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{46}{125}\sqrt{-2x+1}+\frac{11\left(945(-2x+1)^{\frac{3}{2}}-2101\sqrt{-2x+1}\right)}{62500(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*(-2*x + 1)^(5/2)/(5*x + 3)^3,x, algorithm="giac")
```

```
[Out] 27/875*(2*x - 1)^3*sqrt(-2*x + 1) + 54/3125*(2*x - 1)^2*sqrt(-2*x
 + 1) + 186/3125*(-2*x + 1)^(3/2) + 5559/156250*sqrt(55)*ln(1/2*a
bs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))
) + 46/125*sqrt(-2*x + 1) + 11/62500*(945*(-2*x + 1)^(3/2) - 2101
*sqrt(-2*x + 1))/(5*x + 3)^2
```

3.1976 $\int \frac{(1-2x)^{5/2}(2+3x)^2}{(3+5x)^3}\,dx$

Optimal. Leaf size=109

$$-\frac{129(1-2x)^{7/2}}{6050(5x+3)}-\frac{(1-2x)^{7/2}}{550(5x+3)^2}+\frac{1533(1-2x)^{5/2}}{75625}+\frac{511(1-2x)^{3/2}}{6875}+\frac{1533\sqrt{1-2x}}{3125}-\frac{1533\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{3125}$$

```
[Out] (1533*Sqrt[1 - 2*x])/3125 + (511*(1 - 2*x)^(3/2))/6875 + (1533*(1
 - 2*x)^(5/2))/75625 - (1 - 2*x)^(7/2)/(550*(3 + 5*x)^2) - (129*(
1 - 2*x)^(7/2))/(6050*(3 + 5*x)) - (1533*Sqrt[11/5]*ArcTanh[Sqrt[
5/11]*Sqrt[1 - 2*x]])/3125
```

Rubi [A] time = 0.14179, antiderivative size = 109, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$-\frac{129(1-2x)^{7/2}}{6050(5x+3)}-\frac{(1-2x)^{7/2}}{550(5x+3)^2}+\frac{1533(1-2x)^{5/2}}{75625}+\frac{511(1-2x)^{3/2}}{6875}+\frac{1533\sqrt{1-2x}}{3125}-\frac{1533\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{3125}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(2 + 3*x)^2)/(3 + 5*x)^3,x]
```

```
[Out] (1533*Sqrt[1 - 2*x])/3125 + (511*(1 - 2*x)^(3/2))/6875 + (1533*(1
 - 2*x)^(5/2))/75625 - (1 - 2*x)^(7/2)/(550*(3 + 5*x)^2) - (129*(
1 - 2*x)^(7/2))/(6050*(3 + 5*x)) - (1533*Sqrt[11/5]*ArcTanh[Sqrt[
5/11]*Sqrt[1 - 2*x]])/3125
```

Rubi in Sympy [A] time = 12.5627, size = 92, normalized size = 0.84

$$-\frac{129\left(-2x+1\right)^{\frac{7}{2}}}{6050\left(5x+3\right)}-\frac{\left(-2x+1\right)^{\frac{7}{2}}}{550\left(5x+3\right)^{2}}+\frac{1533\left(-2x+1\right)^{\frac{5}{2}}}{75625}+\frac{511\left(-2x+1\right)^{\frac{3}{2}}}{6875}+\frac{1533\sqrt{-2x+1}}{3125}-\frac{1533\sqrt{55}\,\mathrm{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{15625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**2/(3+5*x)**3,x)
```

```
[Out] -129*(-2*x + 1)**(7/2)/(6050*(5*x + 3)) - (-2*x + 1)**(7/2)/(550*
(5*x + 3)**2) + 1533*(-2*x + 1)**(5/2)/75625 + 511*(-2*x + 1)**(3
/2)/6875 + 1533*sqrt(-2*x + 1)/3125 - 1533*sqrt(55)*atanh(sqrt(55
)*sqrt(-2*x + 1)/11)/15625
```

Mathematica [A] time = 0.11946, size = 68, normalized size = 0.62

$$\frac{\frac{5\sqrt{1-2x}\left(18000x^4-25400x^3+51980x^2+98595x+32504\right)}{(5x+3)^2}-3066\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{31250}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(2 + 3*x)^2)/(3 + 5*x)^3,x]
```

```
[Out] ((5*Sqrt[1 - 2*x]*(32504 + 98595*x + 51980*x^2 - 25400*x^3 + 1800
0*x^4))/(3 + 5*x)^2 - 3066*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2
*x]])/31250
```

Maple [A] time = 0.017, size = 75, normalized size = 0.7

$$\frac{18}{625}(1-2x)^{\frac{5}{2}}+\frac{58}{625}(1-2x)^{\frac{3}{2}}+\frac{1658}{3125}\sqrt{1-2x}+\frac{22}{125(-6-10x)^2}\left(\frac{123}{10}(1-2x)^{\frac{3}{2}}-\frac{55}{2}\sqrt{1-2x}\right)-\frac{1533\sqrt{55}}{15625}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^2/(3+5*x)^3,x)
```

```
[Out] 18/625*(1-2*x)^(5/2)+58/625*(1-2*x)^(3/2)+1658/3125*(1-2*x)^(1/2)
+22/125*(123/10*(1-2*x)^(3/2)-55/2*(1-2*x)^(1/2))/(-6-10*x)^2-153
3/15625*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.49904, size = 136, normalized size = 1.25

$$\frac{18}{625}(-2x+1)^{\frac{5}{2}}+\frac{58}{625}(-2x+1)^{\frac{3}{2}}+\frac{1533}{31250}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{1658}{3125}\sqrt{-2x+1}+\frac{11\left(123(-2x+1)^{\frac{3}{2}}-275\sqrt{-2x+1}\right)}{625\left(25(2x-1)^2+220x+11\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*(-2*x + 1)^(5/2)/(5*x + 3)^3,x, algorithm="maxima")
```

```
[Out] 18/625*(-2*x + 1)^(5/2) + 58/625*(-2*x + 1)^(3/2) + 1533/31250*sq
rt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x
 + 1))) + 1658/3125*sqrt(-2*x + 1) + 11/625*(123*(-2*x + 1)^(3/2)
 - 275*sqrt(-2*x + 1))/(25*(2*x - 1)^2 + 220*x + 11)
```

Fricas [A] time = 0.221521, size = 128, normalized size = 1.17

$$\frac{\sqrt{5}\left(1533\sqrt{11}\left(25x^2+30x+9\right)\log\left(\frac{\sqrt{5}(5x-8)+5\sqrt{11}\sqrt{-2x+1}}{5x+3}\right)+\sqrt{5}\left(18000x^4-25400x^3+51980x^2+98595x+32504\right)\sqrt{-2x}\right.}{31250\left(25x^2+30x+9\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*(-2*x + 1)^(5/2)/(5*x + 3)^3,x, algorithm="fricas")
```

```
[Out] 1/31250*sqrt(5)*(1533*sqrt(11)*(25*x^2 + 30*x + 9)*log((sqrt(5)*(
5*x - 8) + 5*sqrt(11)*sqrt(-2*x + 1))/(5*x + 3)) + sqrt(5)*(18000
*x^4 - 25400*x^3 + 51980*x^2 + 98595*x + 32504)*sqrt(-2*x + 1))/(
25*x^2 + 30*x + 9)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)**2/(3+5*x)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.213798, size = 138, normalized size = 1.27

$$\frac{18}{625}\,(2\,x-1)^2\sqrt{-2\,x+1}+\frac{58}{625}\,(-2\,x+1)^{\frac{3}{2}}+\frac{1533}{31250}\,\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)+\frac{1658}{3125}\,\sqrt{-2\,x+1}+\frac{11\left(123\,(-2\,x+1)^{\frac{3}{2}}-275\,\sqrt{-2\,x+1}\right)}{2500\,(5\,x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*(-2*x + 1)^(5/2)/(5*x + 3)^3,x, algorithm="giac")
```

```
[Out] 18/625*(2*x - 1)^2*sqrt(-2*x + 1) + 58/625*(-2*x + 1)^(3/2) + 153
3/31250*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqr
t(55) + 5*sqrt(-2*x + 1))) + 1658/3125*sqrt(-2*x + 1) + 11/2500*(
123*(-2*x + 1)^(3/2) - 275*sqrt(-2*x + 1))/(5*x + 3)^2
```

3.1977 $\int \frac{(1-2x)^{5/2}(2+3x)}{(3+5x)^3} dx$

Optimal. Leaf size=96

$$-\frac{(1-2x)^{7/2}}{110(5x+3)^2}-\frac{63(1-2x)^{5/2}}{550(5x+3)}-\frac{21}{275}(1-2x)^{3/2}-\frac{63}{125}\sqrt{1-2x}+\frac{63}{125}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (-63*Sqrt[1 - 2*x])/125 - (21*(1 - 2*x)^(3/2))/275 - (1 - 2*x)^(7
/2)/(110*(3 + 5*x)^2) - (63*(1 - 2*x)^(5/2))/(550*(3 + 5*x)) + (6
3*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/125
```

Rubi [A] time = 0.0992715, antiderivative size = 96, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.227$

$$-\frac{(1-2x)^{7/2}}{110(5x+3)^2}-\frac{63(1-2x)^{5/2}}{550(5x+3)}-\frac{21}{275}(1-2x)^{3/2}-\frac{63}{125}\sqrt{1-2x}+\frac{63}{125}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(2 + 3*x))/(3 + 5*x)^3,x]
```

```
[Out] (-63*Sqrt[1 - 2*x])/125 - (21*(1 - 2*x)^(3/2))/275 - (1 - 2*x)^(7
/2)/(110*(3 + 5*x)^2) - (63*(1 - 2*x)^(5/2))/(550*(3 + 5*x)) + (6
3*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/125
```

Rubi in Sympy [A] time = 9.84733, size = 80, normalized size = 0.83

$$-\frac{(-2x+1)^{\frac{7}{2}}}{110\,(5x+3)^2}-\frac{63\,(-2x+1)^{\frac{5}{2}}}{550\,(5x+3)}-\frac{21\,(-2x+1)^{\frac{3}{2}}}{275}-\frac{63\sqrt{-2x+1}}{125}+\frac{63\sqrt{55}\,\text{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)/(3+5*x)**3,x)
```

```
[Out] -(-2*x + 1)**(7/2)/(110*(5*x + 3)**2) - 63*(-2*x + 1)**(5/2)/(550
*(5*x + 3)) - 21*(-2*x + 1)**(3/2)/275 - 63*sqrt(-2*x + 1)/125 +
63*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/625
```

Mathematica [A] time = 0.112232, size = 63, normalized size = 0.66

$$\frac{\frac{5\sqrt{1-2x}(400x^3-2280x^2-3795x-1394)}{(5x+3)^2}+126\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1250}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(2 + 3*x))/(3 + 5*x)^3,x]
```

```
[Out] ((5*Sqrt[1 - 2*x]*(-1394 - 3795*x - 2280*x^2 + 400*x^3))/(3 + 5*x
)^2 + 126*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/1250
```

Maple [A] time = 0.016, size = 66, normalized size = 0.7

$$-\frac{4}{125}(1-2x)^{\frac{3}{2}}-\frac{256}{625}\sqrt{1-2x}-\frac{44}{25(-6-10x)^{2}}\left(-\frac{57}{20}(1-2x)^{\frac{3}{2}}+\frac{649}{100}\sqrt{1-2x}\right)+\frac{63\sqrt{55}}{625}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)/(3+5*x)^3,x)
```

```
[Out] -4/125*(1-2*x)^(3/2)-256/625*(1-2*x)^(1/2)-44/25*(-57/20*(1-2*x)^
(3/2)+649/100*(1-2*x)^(1/2))/(-6-10*x)^2+63/625*arctanh(1/11*55^(
1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.49943, size = 124, normalized size = 1.29

$$-\frac{4}{125}(-2x+1)^{\frac{3}{2}}-\frac{63}{1250}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{256}{625}\sqrt{-2x+1}+\frac{11\left(285(-2x+1)^{\frac{3}{2}}-649\sqrt{-2x+1}\right)}{625\left(25(2x-1)^{2}+220x+11\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)*(-2*x + 1)^(5/2)/(5*x + 3)^3,x, algorithm="maxima")
```

```
[Out] -4/125*(-2*x + 1)^(3/2) - 63/1250*sqrt(55)*log(-(sqrt(55) - 5*sqr
t(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) - 256/625*sqrt(-2*x +
 1) + 11/625*(285*(-2*x + 1)^(3/2) - 649*sqrt(-2*x + 1))/(25*(2*x
 - 1)^2 + 220*x + 11)
```

Fricas [A] time = 0.215696, size = 122, normalized size = 1.27

$$\frac{\sqrt{5}\left(63\sqrt{11}(25x^{2}+30x+9)\log\left(\frac{\sqrt{5}(5x-8)-5\sqrt{11}\sqrt{-2x+1}}{5x+3}\right)+\sqrt{5}(400x^{3}-2280x^{2}-3795x-1394)\sqrt{-2x+1}\right)}{1250(25x^{2}+30x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)*(-2*x + 1)^(5/2)/(5*x + 3)^3,x, algorithm="fricas")
```

```
[Out] 1/1250*sqrt(5)*(63*sqrt(11)*(25*x^2 + 30*x + 9)*log((sqrt(5)*(5*x
 - 8) - 5*sqrt(11)*sqrt(-2*x + 1))/(5*x + 3)) + sqrt(5)*(400*x^3
- 2280*x^2 - 3795*x - 1394)*sqrt(-2*x + 1))/(25*x^2 + 30*x + 9)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)/(3+5*x)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.213426, size = 116, normalized size = 1.21

$$-\frac{4}{125}\,(-2\,x+1)^{\frac{3}{2}}-\frac{63}{1250}\,\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)-\frac{256}{625}\,\sqrt{-2\,x+1}+\frac{11\left(285\,(-2\,x+1)^{\frac{3}{2}}-649\,\sqrt{-2\,x+1}\right)}{2500\,(5\,x+3)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)*(-2*x + 1)^(5/2)/(5*x + 3)^3,x, algorithm="giac")
```

```
[Out] -4/125*(-2*x + 1)^(3/2) - 63/1250*sqrt(55)*ln(1/2*abs(-2*sqrt(55)
 + 10*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) - 256/625*sq
rt(-2*x + 1) + 11/2500*(285*(-2*x + 1)^(3/2) - 649*sqrt(-2*x + 1)
)/(5*x + 3)^2
```

3.1978 $\int \frac{(1-2x)^{5/2}}{(3+5x)^3}\,dx$

Optimal. Leaf size=83

$$-\frac{(1-2x)^{5/2}}{10(5x+3)^2}+\frac{(1-2x)^{3/2}}{10(5x+3)}+\frac{3}{25}\sqrt{1-2x}-\frac{3}{25}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (3*Sqrt[1 - 2*x])/25 - (1 - 2*x)^(5/2)/(10*(3 + 5*x)^2) + (1 - 2*
x)^(3/2)/(10*(3 + 5*x)) - (3*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1
 - 2*x]])/25
```

Rubi [A] time = 0.0737343, antiderivative size = 83, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 17, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.235

$$-\frac{(1-2x)^{5/2}}{10(5x+3)^2}+\frac{(1-2x)^{3/2}}{10(5x+3)}+\frac{3}{25}\sqrt{1-2x}-\frac{3}{25}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/(3 + 5*x)^3,x]
```

```
[Out] (3*Sqrt[1 - 2*x])/25 - (1 - 2*x)^(5/2)/(10*(3 + 5*x)^2) + (1 - 2*
x)^(3/2)/(10*(3 + 5*x)) - (3*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1
 - 2*x]])/25
```

Rubi in Sympy [A] time = 8.19581, size = 66, normalized size = 0.8

$$-\frac{(-2x+1)^{\frac{5}{2}}}{10\,(5x+3)^2}+\frac{(-2x+1)^{\frac{3}{2}}}{10\,(5x+3)}+\frac{3\sqrt{-2x+1}}{25}-\frac{3\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(3+5*x)**3,x)
```

```
[Out] -(-2*x + 1)**(5/2)/(10*(5*x + 3)**2) + (-2*x + 1)**(3/2)/(10*(5*x
 + 3)) + 3*sqrt(-2*x + 1)/25 - 3*sqrt(55)*atanh(sqrt(55)*sqrt(-2*
x + 1)/11)/125
```

Mathematica [A] time = 0.0858566, size = 58, normalized size = 0.7

$$\frac{1}{250}\left(\frac{5\sqrt{1-2x}\left(80x^2+195x+64\right)}{(5x+3)^2}-6\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/(3 + 5*x)^3,x]
```

```
[Out] ((5*Sqrt[1 - 2*x]*(64 + 195*x + 80*x^2))/(3 + 5*x)^2 - 6*Sqrt[55]
*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/250
```

Maple [A] time = 0.015, size = 57, normalized size = 0.7

$$\frac{8}{125}\sqrt{1-2\,x}+\frac{88}{5\,(-6-10\,x)^2}\left(-\frac{9}{40}\,(1-2\,x)^{\frac{3}{2}}+\frac{77}{200}\sqrt{1-2\,x}\right)-\frac{3\,\sqrt{55}}{125}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((1-2*x)^(5/2)/(3+5*x)^3,x)
```

```
[Out] 8/125*(1-2*x)^(1/2)+88/5*(-9/40*(1-2*x)^(3/2)+77/200*(1-2*x)^(1/2
))/(-6-10*x)^2-3/125*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2
)
```

Maxima [A] time = 1.48288, size = 112, normalized size = 1.35

$$\frac{3}{250}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{8}{125}\sqrt{-2x+1}-\frac{11\left(45\,(-2x+1)^{\frac{3}{2}}-77\sqrt{-2x+1}\right)}{125\left(25\,(2x-1)^{2}+220\,x+11\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((-2*x + 1)^(5/2)/(5*x + 3)^3,x, algorithm="maxima")
```

```
[Out] 3/250*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*s
qrt(-2*x + 1))) + 8/125*sqrt(-2*x + 1) - 11/125*(45*(-2*x + 1)^(3
/2) - 77*sqrt(-2*x + 1))/(25*(2*x - 1)^2 + 220*x + 11)
```

Fricas [A] time = 0.213657, size = 115, normalized size = 1.39

$$\frac{\sqrt{5}\left(3\sqrt{11}\left(25x^{2}+30x+9\right)\log\left(\frac{\sqrt{5}(5x-8)+5\sqrt{11}\sqrt{-2x+1}}{5x+3}\right)+\sqrt{5}\left(80x^{2}+195x+64\right)\sqrt{-2x+1}\right)}{250\left(25x^{2}+30x+9\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((-2*x + 1)^(5/2)/(5*x + 3)^3,x, algorithm="fricas")
```

```
[Out] 1/250*sqrt(5)*(3*sqrt(11)*(25*x^2 + 30*x + 9)*log((sqrt(5)*(5*x -
 8) + 5*sqrt(11)*sqrt(-2*x + 1))/(5*x + 3)) + sqrt(5)*(80*x^2 + 1
95*x + 64)*sqrt(-2*x + 1))/(25*x^2 + 30*x + 9)
```

Sympy [A] time = 5.67293, size = 299, normalized size = 3.6

$$\begin{cases} -\frac{3\sqrt{55}\operatorname{acosh}\left(\frac{\sqrt{110}}{10\sqrt{x+\frac{3}{5}}}\right)}{125}-\frac{8\sqrt{2}\sqrt{x+\frac{3}{5}}}{125\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}}-\frac{11\sqrt{2}}{1250\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}\sqrt{x+\frac{3}{5}}}+\frac{1331\sqrt{2}}{12500\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}-\frac{1331\sqrt{2}}{62500\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)^{\frac{5}{2}}} & \text{for}\ \frac{11\left|\frac{1}{x+\frac{3}{5}}\right.}{10} \\ \frac{3\sqrt{55}i\operatorname{asin}\left(\frac{\sqrt{110}}{10\sqrt{x+\frac{3}{5}}}\right)}{125}+\frac{8\sqrt{2}i\sqrt{x+\frac{3}{5}}}{125\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}}+\frac{11\sqrt{2}i}{1250\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}\sqrt{x+\frac{3}{5}}}-\frac{1331\sqrt{2}i}{12500\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}+\frac{1331\sqrt{2}i}{62500\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)^{\frac{5}{2}}} & \text{otherwis} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((1-2*x)**(5/2)/(3+5*x)**3,x)
```

```
[Out] Piecewise((-3*sqrt(55)*acosh(sqrt(110)/(10*sqrt(x + 3/5)))/125 -
8*sqrt(2)*sqrt(x + 3/5)/(125*sqrt(-1 + 11/(10*(x + 3/5)))) - 11*s
qrt(2)/(1250*sqrt(-1 + 11/(10*(x + 3/5)))*sqrt(x + 3/5)) + 1331*s
qrt(2)/(12500*sqrt(-1 + 11/(10*(x + 3/5)))*(x + 3/5)**(3/2)) - 13
31*sqrt(2)/(62500*sqrt(-1 + 11/(10*(x + 3/5)))*(x + 3/5)**(5/2)),
 11*Abs(1/(x + 3/5))/10 > 1), (3*sqrt(55)*I*asin(sqrt(110)/(10*sq
rt(x + 3/5)))/125 + 8*sqrt(2)*I*sqrt(x + 3/5)/(125*sqrt(1 - 11/(1
0*(x + 3/5)))) + 11*sqrt(2)*I/(1250*sqrt(1 - 11/(10*(x + 3/5)))*s
qrt(x + 3/5)) - 1331*sqrt(2)*I/(12500*sqrt(1 - 11/(10*(x + 3/5)))
```

```
*(x + 3/5)**(3/2)) + 1331*sqrt(2)*I/(62500*sqrt(1 - 11/(10*(x + 3
/5)))*(x + 3/5)**(5/2)), True))
```

GIAC/XCAS [A] time = 0.21234, size = 104, normalized size = 1.25

$$\frac{3}{250}\,\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\,\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)+\frac{8}{125}\,\sqrt{-2\,x+1}-\frac{11\,\left(45\,(-2\,x+1)^{\frac{3}{2}}-77\,\sqrt{-2\,x+1}\right)}{500\,(5\,x+3)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/(5*x + 3)^3,x, algorithm="giac")
```

```
[Out] 3/250*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(
55) + 5*sqrt(-2*x + 1))) + 8/125*sqrt(-2*x + 1) - 11/500*(45*(-2*
x + 1)^(3/2) - 77*sqrt(-2*x + 1))/(5*x + 3)^2
```

3.1979 $\int \frac{(1-2x)^{5/2}}{(2+3x)(3+5x)^3}\,dx$

Optimal. Leaf size=97

$$-\frac{11(1-2x)^{3/2}}{10(5x+3)^2}+\frac{803\sqrt{1-2x}}{50(5x+3)}+98\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{2523}{25}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (-11*(1 - 2*x)^(3/2))/(10*(3 + 5*x)^2) + (803*Sqrt[1 - 2*x])/(50*
(3 + 5*x)) + 98*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]] - (252
3*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/25
```

Rubi [A] time = 0.192331, antiderivative size = 97, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$-\frac{11(1-2x)^{3/2}}{10(5x+3)^2}+\frac{803\sqrt{1-2x}}{50(5x+3)}+98\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{2523}{25}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^(5/2)/((2 + 3*x)*(3 + 5*x)^3),x]
```

```
[Out] (-11*(1 - 2*x)^(3/2))/(10*(3 + 5*x)^2) + (803*Sqrt[1 - 2*x])/(50*
(3 + 5*x)) + 98*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]] - (252
3*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/25
```

Rubi in Sympy [A] time = 20.7293, size = 83, normalized size = 0.86

$$-\frac{11\left(-2x+1\right)^{\frac{3}{2}}}{10\left(5x+3\right)^{2}}+\frac{803\sqrt{-2x+1}}{50\left(5x+3\right)}+\frac{98\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{3}-\frac{2523\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**(5/2)/(2+3*x)/(3+5*x)**3,x)
```

```
[Out] -11*(-2*x + 1)**(3/2)/(10*(5*x + 3)**2) + 803*sqrt(-2*x + 1)/(50*
(5*x + 3)) + 98*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/3 - 252
3*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/125
```

Mathematica [A] time = 0.215576, size = 81, normalized size = 0.84

$$98\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+\frac{1}{250}\left(\frac{55\sqrt{1-2x}(375x+214)}{(5x+3)^2}-5046\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)\right)$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)*(3 + 5*x)^3),x]
```

```
[Out] 98*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]] + ((55*Sqrt[1 - 2*x
]*(214 + 375*x))/(3 + 5*x)^2 - 5046*Sqrt[55]*ArcTanh[Sqrt[5/11]*S
qrt[1 - 2*x]])/250
```

Maple [A] time = 0.017, size = 66, normalized size = 0.7

$$\frac{98\sqrt{21}}{3}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)+550\,\frac{1}{\left(-6-10\,x\right)^{2}}\left(-3/10\,\left(1-2\,x\right)^{3/2}+\frac{803\sqrt{1-2\,x}}{1250}\right)-\frac{2523\sqrt{55}}{125}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((1-2*x)^(5/2)/(2+3*x)/(3+5*x)^3,x)
```

```
[Out] 98/3*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)+550*(-3/10*(1-2
*x)^(3/2)+803/1250*(1-2*x)^(1/2))/(-6-10*x)^2-2523/125*arctanh(1/
11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.49604, size = 149, normalized size = 1.54

$$\frac{2523}{250}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2\,x+1}}{\sqrt{55}+5\sqrt{-2\,x+1}}\right)-\frac{49}{3}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2\,x+1}}{\sqrt{21}+3\sqrt{-2\,x+1}}\right)-\frac{11\left(375\left(-2\,x+1\right)^{\frac{3}{2}}-803\sqrt{-2\,x+1}\right)}{25\left(25\left(2\,x-1\right)^{2}+220\,x+11\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^3*(3*x + 2)),x, algorithm="maxima")
```

```
[Out] 2523/250*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) +
5*sqrt(-2*x + 1))) - 49/3*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x +
 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 11/25*(375*(-2*x + 1)^(3/2)
 - 803*sqrt(-2*x + 1))/(25*(2*x - 1)^2 + 220*x + 11)
```

Fricas [A] time = 0.242496, size = 188, normalized size = 1.94

$$\frac{\sqrt{5}\sqrt{3}\left(2523\sqrt{11}\sqrt{3}\left(25\,x^{2}+30\,x+9\right)\log\left(\frac{\sqrt{5}(5\,x-8)+5\sqrt{11}\sqrt{-2\,x+1}}{5\,x+3}\right)+2450\sqrt{7}\sqrt{5}\left(25\,x^{2}+30\,x+9\right)\log\left(\frac{\sqrt{3}(3\,x-5)-3\sqrt{7}\sqrt{-2\,x+1}}{3\,x+2}\right)}{750\left(25\,x^{2}+30\,x+9\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^3*(3*x + 2)),x, algorithm="fricas")
```

```
[Out] 1/750*sqrt(5)*sqrt(3)*(2523*sqrt(11)*sqrt(3)*(25*x^2 + 30*x + 9)*
log((sqrt(5)*(5*x - 8) + 5*sqrt(11)*sqrt(-2*x + 1))/(5*x + 3)) +
2450*sqrt(7)*sqrt(5)*(25*x^2 + 30*x + 9)*log((sqrt(3)*(3*x - 5) -
 3*sqrt(7)*sqrt(-2*x + 1))/(3*x + 2)) + 11*sqrt(5)*sqrt(3)*(375*x
 + 214)*sqrt(-2*x + 1))/(25*x^2 + 30*x + 9)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((1-2*x)**(5/2)/(2+3*x)/(3+5*x)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.215822, size = 144, normalized size = 1.48

$$\frac{2523}{250}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{49}{3}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{11\left(375\,(-2x+1)^{\frac{3}{2}}-803\sqrt{-2x+1}\right)}{100\,(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)^3*(3*x + 2)),x, algorithm="giac")
```

```
[Out] 2523/250*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sq
rt(55) + 5*sqrt(-2*x + 1))) - 49/3*sqrt(21)*ln(1/2*abs(-2*sqrt(21
) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 11/100*(37
5*(-2*x + 1)^(3/2) - 803*sqrt(-2*x + 1))/(5*x + 3)^2
```

3.1980 $\int \frac{(1-2x)^{5/2}}{(2+3x)^2(3+5x)^3}\,dx$

Optimal. Leaf size=124

$$\frac{7(1-2x)^{3/2}}{3(3x+2)(5x+3)^2}+\frac{7103\sqrt{1-2x}}{30(5x+3)}-\frac{1133\sqrt{1-2x}}{30(5x+3)^2}+1400\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{7209}{5}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (-1133*Sqrt[1 - 2*x])/(30*(3 + 5*x)^2) + (7*(1 - 2*x)^(3/2))/(3*(
2 + 3*x)*(3 + 5*x)^2) + (7103*Sqrt[1 - 2*x])/(30*(3 + 5*x)) + 140
0*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]] - (7209*Sqrt[11/5]*A
rcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/5
```

Rubi [A] time = 0.256805, antiderivative size = 124, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$\frac{7(1-2x)^{3/2}}{3(3x+2)(5x+3)^2}+\frac{7103\sqrt{1-2x}}{30(5x+3)}-\frac{1133\sqrt{1-2x}}{30(5x+3)^2}+1400\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{7209}{5}\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)^2*(3 + 5*x)^3),x]
```

```
[Out] (-1133*Sqrt[1 - 2*x])/(30*(3 + 5*x)^2) + (7*(1 - 2*x)^(3/2))/(3*(
2 + 3*x)*(3 + 5*x)^2) + (7103*Sqrt[1 - 2*x])/(30*(3 + 5*x)) + 140
0*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]] - (7209*Sqrt[11/5]*A
rcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/5
```

Rubi in Sympy [A] time = 27.1644, size = 107, normalized size = 0.86

$$\frac{7\left(-2x+1\right)^{\frac{3}{2}}}{3\left(3x+2\right)\left(5x+3\right)^{2}}+\frac{7103\sqrt{-2x+1}}{30\left(5x+3\right)}-\frac{1133\sqrt{-2x+1}}{30\left(5x+3\right)^{2}}+\frac{1400\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{3}-\frac{7209\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{25}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)**2/(3+5*x)**3,x)
```

```
[Out] 7*(-2*x + 1)**(3/2)/(3*(3*x + 2)*(5*x + 3)**2) + 7103*sqrt(-2*x +
 1)/(30*(5*x + 3)) - 1133*sqrt(-2*x + 1)/(30*(5*x + 3)**2) + 1400
*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/3 - 7209*sqrt(55)*atan
h(sqrt(55)*sqrt(-2*x + 1)/11)/25
```

Mathematica [A] time = 0.218613, size = 93, normalized size = 0.75

$$\frac{1}{50}\left(\frac{5\sqrt{1-2x}\left(35515x^2+43806x+13474\right)}{(3x+2)(5x+3)^2}-14418\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)\right)+1400\sqrt{\frac{7}{3}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)^2*(3 + 5*x)^3),x]
```

```
[Out] 1400*Sqrt[7/3]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]] + ((5*Sqrt[1 - 2*
x]*(13474 + 43806*x + 35515*x^2))/((2 + 3*x)*(3 + 5*x)^2) - 14418
*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/50
```

Maple [A] time = 0.019, size = 82, normalized size = 0.7

$$-\frac{98}{3}\sqrt{1-2\,x}\left(-\frac{4}{3}-2\,x\right)^{-1}+\frac{1400\,\sqrt{21}}{3}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)+550\,\frac{1}{\left(-6-10\,x\right)^{2}}\left(-\frac{141\,\left(1-2\,x\right)^{3/2}}{50}+\frac{1529\,\sqrt{1-2\,x}}{250}\right)-\frac{7209\,\sqrt{55}}{25}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)^2/(3+5*x)^3,x)
```

```
[Out] -98/3*(1-2*x)^(1/2)/(-4/3-2*x)+1400/3*arctanh(1/7*21^(1/2)*(1-2*x
)^(1/2))*21^(1/2)+550*(-141/50*(1-2*x)^(3/2)+1529/250*(1-2*x)^(1/
2))/(-6-10*x)^2-7209/25*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(
1/2)
```

Maxima [A] time = 1.60069, size = 173, normalized size = 1.4

$$\frac{7209}{50}\,\sqrt{55}\log\left(-\frac{\sqrt{55}-5\,\sqrt{-2\,x+1}}{\sqrt{55}+5\,\sqrt{-2\,x+1}}\right)-\frac{700}{3}\,\sqrt{21}\log\left(-\frac{\sqrt{21}-3\,\sqrt{-2\,x+1}}{\sqrt{21}+3\,\sqrt{-2\,x+1}}\right)+\frac{35515\,(-2\,x+1)^{\frac{5}{2}}-158642\,(-2\,x+1)^{\frac{3}{2}}+177023\,\sqrt{-2\,x+1}}{5\,\left(75\,(2\,x-1)^{3}+505\,(2\,x-1)^{2}+2266\,x-286\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^3*(3*x + 2)^2),x, algorithm="maxima")
```

```
[Out] 7209/50*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5
*sqrt(-2*x + 1))) - 700/3*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x +
 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 1/5*(35515*(-2*x + 1)^(5/2)
 - 158642*(-2*x + 1)^(3/2) + 177023*sqrt(-2*x + 1))/(75*(2*x - 1)
^3 + 505*(2*x - 1)^2 + 2266*x - 286)
```

Fricas [A] time = 0.243497, size = 213, normalized size = 1.72

$$\frac{\sqrt{5}\sqrt{3}\left(7209\,\sqrt{11}\sqrt{3}\left(75\,x^{3}+140\,x^{2}+87\,x+18\right)\log\left(\frac{\sqrt{5}(5\,x-8)+5\,\sqrt{11}\sqrt{-2\,x+1}}{5\,x+3}\right)+7000\,\sqrt{7}\sqrt{5}\left(75\,x^{3}+140\,x^{2}+87\,x+18\right)\log\left(\sqrt{\right.}{150\,(75\,x^{3}+140\,x^{2}+87\,x+18)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^3*(3*x + 2)^2),x, algorithm="fricas")
```

```
[Out] 1/150*sqrt(5)*sqrt(3)*(7209*sqrt(11)*sqrt(3)*(75*x^3 + 140*x^2 +
87*x + 18)*log((sqrt(5)*(5*x - 8) + 5*sqrt(11)*sqrt(-2*x + 1))/(5
*x + 3)) + 7000*sqrt(7)*sqrt(5)*(75*x^3 + 140*x^2 + 87*x + 18)*lo
g((sqrt(3)*(3*x - 5) - 3*sqrt(7)*sqrt(-2*x + 1))/(3*x + 2)) + sqr
t(5)*sqrt(3)*(35515*x^2 + 43806*x + 13474)*sqrt(-2*x + 1))/(75*x^
```

```
3 + 140*x^2 + 87*x + 18)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)/(2+3*x)**2/(3+5*x)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.215712, size = 166, normalized size = 1.34

$$\frac{7209}{50}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{700}{3}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{49\sqrt{-2x+1}}{3x+2}-\frac{11\left(705(-2x+1)^{\frac{3}{2}}-1529\sqrt{-2x+1}\right)}{20(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^3*(3*x + 2)^2),x, algorithm="giac")
```

```
[Out] 7209/50*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqr
t(55) + 5*sqrt(-2*x + 1))) - 700/3*sqrt(21)*ln(1/2*abs(-2*sqrt(21
) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 49*sqrt(-2
*x + 1)/(3*x + 2) - 11/20*(705*(-2*x + 1)^(3/2) - 1529*sqrt(-2*x
+ 1))/(5*x + 3)^2
```

3.1981 $\int \frac{(1-2x)^{5/2}}{(2+3x)^3(3+5x)^3}\,dx$

Optimal. Leaf size=145

$$\frac{7(1-2x)^{3/2}}{6(3x+2)^2(5x+3)^2}+\frac{2311\sqrt{1-2x}}{5x+3}+\frac{931\sqrt{1-2x}}{18(3x+2)(5x+3)^2}-\frac{6899\sqrt{1-2x}}{18(5x+3)^2}+4555\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-14073\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (-6899*Sqrt[1 - 2*x])/(18*(3 + 5*x)^2) + (7*(1 - 2*x)^(3/2))/(6*(
2 + 3*x)^2*(3 + 5*x)^2) + (931*Sqrt[1 - 2*x])/(18*(2 + 3*x)*(3 +
5*x)^2) + (2311*Sqrt[1 - 2*x])/(3 + 5*x) + 4555*Sqrt[21]*ArcTanh[
Sqrt[3/7]*Sqrt[1 - 2*x]] - 14073*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sq
rt[1 - 2*x]]
```

Rubi [A] time = 0.318668, antiderivative size = 145, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.25$

$$\frac{7(1-2x)^{3/2}}{6(3x+2)^2(5x+3)^2}+\frac{2311\sqrt{1-2x}}{5x+3}+\frac{931\sqrt{1-2x}}{18(3x+2)(5x+3)^2}-\frac{6899\sqrt{1-2x}}{18(5x+3)^2}+4555\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-14073\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)^3*(3 + 5*x)^3),x]
```

```
[Out] (-6899*Sqrt[1 - 2*x])/(18*(3 + 5*x)^2) + (7*(1 - 2*x)^(3/2))/(6*(
2 + 3*x)^2*(3 + 5*x)^2) + (931*Sqrt[1 - 2*x])/(18*(2 + 3*x)*(3 +
5*x)^2) + (2311*Sqrt[1 - 2*x])/(3 + 5*x) + 4555*Sqrt[21]*ArcTanh[
Sqrt[3/7]*Sqrt[1 - 2*x]] - 14073*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sq
rt[1 - 2*x]]
```

Rubi in Sympy [A] time = 34.5004, size = 131, normalized size = 0.9

$$\frac{7\left(-2x+1\right)^{\frac{3}{2}}}{6\left(3x+2\right)^{2}\left(5x+3\right)^{2}}+\frac{2311\sqrt{-2x+1}}{5x+3}-\frac{6899\sqrt{-2x+1}}{18\left(5x+3\right)^{2}}+\frac{931\sqrt{-2x+1}}{18\left(3x+2\right)\left(5x+3\right)^{2}}+4555\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)-\frac{14073\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)**3/(3+5*x)**3,x)
```

```
[Out] 7*(-2*x + 1)**(3/2)/(6*(3*x + 2)**2*(5*x + 3)**2) + 2311*sqrt(-2*
x + 1)/(5*x + 3) - 6899*sqrt(-2*x + 1)/(18*(5*x + 3)**2) + 931*sq
rt(-2*x + 1)/(18*(3*x + 2)*(5*x + 3)**2) + 4555*sqrt(21)*atanh(sq
rt(21)*sqrt(-2*x + 1)/7) - 14073*sqrt(55)*atanh(sqrt(55)*sqrt(-2*
x + 1)/11)/5
```

Mathematica [A] time = 0.15864, size = 95, normalized size = 0.66

$$\frac{\sqrt{1-2x}\left(207990x^3+395215x^2+249939x+52607\right)}{2(3x+2)^2(5x+3)^2}+4555\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-14073\sqrt{\frac{11}{5}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)^3*(3 + 5*x)^3),x]
```

```
[Out] (Sqrt[1 - 2*x]*(52607 + 249939*x + 395215*x^2 + 207990*x^3))/(2*(
2 + 3*x)^2*(3 + 5*x)^2) + 4555*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1
- 2*x]] - 14073*Sqrt[11/5]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Maple [A] time = 0.021, size = 94, normalized size = 0.7

$$-252\frac{1}{(-4-6x)^2}\left(\frac{67(1-2x)^{3/2}}{4}-\frac{1421\sqrt{1-2x}}{36}\right)+4555\,Artanh\left(1/7\sqrt{21}\sqrt{1-2x}\right)\sqrt{21}+1100\frac{1}{(-6-10x)^2}\left(-\frac{207(1-2x)^{3/2}}{20}+\frac{451\sqrt{1-2x}}{20}\right)-\frac{14073\sqrt{55}}{5}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)^3/(3+5*x)^3,x)
```

```
[Out] -252*(67/4*(1-2*x)^(3/2)-1421/36*(1-2*x)^(1/2))/(-4-6*x)^2+4555*a
rctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)+1100*(-207/20*(1-2*x)
^(3/2)+451/20*(1-2*x)^(1/2))/(-6-10*x)^2-14073/5*arctanh(1/11*55^
(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.49643, size = 197, normalized size = 1.36

$$\frac{14073}{10}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{4555}{2}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{2\left(103995(-2x+1)^{\frac{7}{2}}-707200(-2x+1)^{\frac{5}{2}}+1602293(-2x+1)^{\frac{3}{2}}-1209516\sqrt{-2x+1}\right)}{225(2x-1)^4+2040(2x-1)^3+6934(2x-1)^2+20944x-4543}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^3*(3*x + 2)^3),x, algorithm="maxima")
```

```
[Out] 14073/10*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) +
5*sqrt(-2*x + 1))) - 4555/2*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x
 + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 2*(103995*(-2*x + 1)^(7/2
) - 707200*(-2*x + 1)^(5/2) + 1602293*(-2*x + 1)^(3/2) - 1209516*
sqrt(-2*x + 1))/(225*(2*x - 1)^4 + 2040*(2*x - 1)^3 + 6934*(2*x -
 1)^2 + 20944*x - 4543)
```

Fricas [A] time = 0.2321, size = 221, normalized size = 1.52

$$\frac{\sqrt{5}\left(4555\sqrt{21}\sqrt{5}\left(225x^4+570x^3+541x^2+228x+36\right)\log\left(\frac{3x-\sqrt{21}\sqrt{-2x+1}-5}{3x+2}\right)+14073\sqrt{11}\left(225x^4+570x^3+541x^2+228\right.\right.}{10\left(225x^4+570x^3+541x^2+228\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^3*(3*x + 2)^3),x, algorithm="fricas")
```

```
[Out] 1/10*sqrt(5)*(4555*sqrt(21)*sqrt(5)*(225*x^4 + 570*x^3 + 541*x^2
+ 228*x + 36)*log((3*x - sqrt(21)*sqrt(-2*x + 1) - 5)/(3*x + 2))
+ 14073*sqrt(11)*(225*x^4 + 570*x^3 + 541*x^2 + 228*x + 36)*log((
sqrt(5)*(5*x - 8) + 5*sqrt(11)*sqrt(-2*x + 1))/(5*x + 3)) + sqrt(
```

```
5)*(207990*x^3 + 395215*x^2 + 249939*x + 52607)*sqrt(-2*x + 1))/(
225*x^4 + 570*x^3 + 541*x^2 + 228*x + 36)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)/(2+3*x)**3/(3+5*x)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.213942, size = 200, normalized size = 1.38

$$\frac{14073}{10}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{4555}{2}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{2\left(103995\,(2x-1)^3\sqrt{-2x+1}+707200\,(2x-1)^2\sqrt{-2x+1}-1602293\,(-2x+1)^{\frac{3}{2}}+1209516\sqrt{-2x+1}\right)}{\left(15\,(2x-1)^2+136x+9\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^3*(3*x + 2)^3),x, algorithm="giac")
```

```
[Out] 14073/10*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sq
rt(55) + 5*sqrt(-2*x + 1))) - 4555/2*sqrt(21)*ln(1/2*abs(-2*sqrt(
21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 2*(10399
5*(2*x - 1)^3*sqrt(-2*x + 1) + 707200*(2*x - 1)^2*sqrt(-2*x + 1)
- 1602293*(-2*x + 1)^(3/2) + 1209516*sqrt(-2*x + 1))/(15*(2*x - 1
)^2 + 136*x + 9)^2
```

3.1982 $\int \frac{(1-2x)^{5/2}}{(2+3x)^4(3+5x)^3}\,dx$

Optimal. Leaf size=172

$$\frac{7(1-2x)^{3/2}}{9(3x+2)^3(5x+3)^2}+\frac{113875\sqrt{1-2x}}{6(5x+3)}+\frac{1256\sqrt{1-2x}}{3(3x+2)(5x+3)^2}+\frac{581\sqrt{1-2x}}{27(3x+2)^2(5x+3)^2}-\frac{169975\sqrt{1-2x}}{54(5x+3)^2}+\frac{785570\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{\sqrt{21}}-23115\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (-169975*Sqrt[1 - 2*x])/(54*(3 + 5*x)^2) + (7*(1 - 2*x)^(3/2))/(9
*(2 + 3*x)^3*(3 + 5*x)^2) + (581*Sqrt[1 - 2*x])/(27*(2 + 3*x)^2*(
3 + 5*x)^2) + (1256*Sqrt[1 - 2*x])/(3*(2 + 3*x)*(3 + 5*x)^2) + (1
13875*Sqrt[1 - 2*x])/(6*(3 + 5*x)) + (785570*ArcTanh[Sqrt[3/7]*Sq
rt[1 - 2*x]])/Sqrt[21] - 23115*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1
 - 2*x]]
```

Rubi [A] time = 0.387671, antiderivative size = 172, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$\frac{7(1-2x)^{3/2}}{9(3x+2)^3(5x+3)^2}+\frac{113875\sqrt{1-2x}}{6(5x+3)}+\frac{1256\sqrt{1-2x}}{3(3x+2)(5x+3)^2}+\frac{581\sqrt{1-2x}}{27(3x+2)^2(5x+3)^2}-\frac{169975\sqrt{1-2x}}{54(5x+3)^2}+\frac{785570\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{\sqrt{21}}-23115\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)^4*(3 + 5*x)^3),x]
```

```
[Out] (-169975*Sqrt[1 - 2*x])/(54*(3 + 5*x)^2) + (7*(1 - 2*x)^(3/2))/(9
*(2 + 3*x)^3*(3 + 5*x)^2) + (581*Sqrt[1 - 2*x])/(27*(2 + 3*x)^2*(
3 + 5*x)^2) + (1256*Sqrt[1 - 2*x])/(3*(2 + 3*x)*(3 + 5*x)^2) + (1
13875*Sqrt[1 - 2*x])/(6*(3 + 5*x)) + (785570*ArcTanh[Sqrt[3/7]*Sq
rt[1 - 2*x]])/Sqrt[21] - 23115*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1
 - 2*x]]
```

Rubi in Sympy [A] time = 41.0449, size = 156, normalized size = 0.91

$$\frac{7\left(-2x+1\right)^{\frac{3}{2}}}{9\left(3x+2\right)^{3}\left(5x+3\right)^{2}}+\frac{113875\sqrt{-2x+1}}{6\left(5x+3\right)}-\frac{169975\sqrt{-2x+1}}{54\left(5x+3\right)^{2}}+\frac{1256\sqrt{-2x+1}}{3\left(3x+2\right)\left(5x+3\right)^{2}}+\frac{581\sqrt{-2x+1}}{27\left(3x+2\right)^{2}\left(5x+3\right)^{2}}+\frac{785570\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21}-23115\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)**4/(3+5*x)**3,x)
```

```
[Out] 7*(-2*x + 1)**(3/2)/(9*(3*x + 2)**3*(5*x + 3)**2) + 113875*sqrt(-
2*x + 1)/(6*(5*x + 3)) - 169975*sqrt(-2*x + 1)/(54*(5*x + 3)**2)
+ 1256*sqrt(-2*x + 1)/(3*(3*x + 2)*(5*x + 3)**2) + 581*sqrt(-2*x
+ 1)/(27*(3*x + 2)**2*(5*x + 3)**2) + 785570*sqrt(21)*atanh(sqrt(
21)*sqrt(-2*x + 1)/7)/21 - 23115*sqrt(55)*atanh(sqrt(55)*sqrt(-2*
x + 1)/11)
```

Mathematica [A] time = 0.176157, size = 98, normalized size = 0.57

$$\frac{\sqrt{1-2x}\left(5124375x^4+13153400x^3+12649336x^2+5401374x+864074\right)}{2(3x+2)^3(5x+3)^2}+\frac{785570\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{\sqrt{21}}-23115\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)^4*(3 + 5*x)^3),x]
```

```
[Out] (Sqrt[1 - 2*x]*(864074 + 5401374*x + 12649336*x^2 + 13153400*x^3
+ 5124375*x^4))/(2*(2 + 3*x)^3*(3 + 5*x)^2) + (785570*ArcTanh[Sqr
t[3/7]*Sqrt[1 - 2*x]])/Sqrt[21] - 23115*Sqrt[55]*ArcTanh[Sqrt[5/1
1]*Sqrt[1 - 2*x]]
```

Maple [A] time = 0.021, size = 103, normalized size = 0.6

$$-108\,\frac{1}{(-4-6\,x)^3}\left(\frac{6883\,(1-2\,x)^{5/2}}{6}-\frac{145600\,(1-2\,x)^{3/2}}{27}+\frac{342265\,\sqrt{1-2\,x}}{54}\right)+\frac{785570\,\sqrt{21}}{21}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)+5500\,\frac{1}{(-6-10\,x)^2}\left(-\frac{273\,(1-2\,x)^{3/2}}{20}+\frac{2981\,\sqrt{1-2\,x}}{100}\right)-23115\,\mathit{Artanh}\left(1/11\,\sqrt{55}\sqrt{1-2\,x}\right)\sqrt{55}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)^4/(3+5*x)^3,x)
```

```
[Out] -108*(6883/6*(1-2*x)^(5/2)-145600/27*(1-2*x)^(3/2)+342265/54*(1-2
*x)^(1/2))/(-4-6*x)^3+785570/21*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2
))*21^(1/2)+5500*(-273/20*(1-2*x)^(3/2)+2981/100*(1-2*x)^(1/2))/(
-6-10*x)^2-23115*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.50856, size = 220, normalized size = 1.28

$$\frac{23115}{2}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\,\sqrt{-2\,x+1}}{\sqrt{55}+5\,\sqrt{-2\,x+1}}\right)-\frac{392785}{21}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\,\sqrt{-2\,x+1}}{\sqrt{21}+3\,\sqrt{-2\,x+1}}\right)+\frac{5124375\,(-2\,x+1)^{\frac{9}{2}}-46804300\,(-2\,x+1)^{\frac{7}{2}}+160263994\,(-2\,x+1)^{\frac{5}{2}}-243823580\,(-2\,x+1)^{\frac{3}{2}}+139064695\,\sqrt{-2\,x+1}}{675\,(2\,x-1)^5+7695\,(2\,x-1)^4+35082\,(2\,x-1)^3+79954\,(2\,x-1)^2+182182\,x-49588}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^3*(3*x + 2)^4),x, algorithm="maxima")
```

```
[Out] 23115/2*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5
*sqrt(-2*x + 1))) - 392785/21*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2
*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + (5124375*(-2*x + 1)^(9/
2) - 46804300*(-2*x + 1)^(7/2) + 160263994*(-2*x + 1)^(5/2) - 243
823580*(-2*x + 1)^(3/2) + 139064695*sqrt(-2*x + 1))/(675*(2*x - 1
)^5 + 7695*(2*x - 1)^4 + 35082*(2*x - 1)^3 + 79954*(2*x - 1)^2 +
182182*x - 49588)
```

Fricas [A] time = 0.248025, size = 239, normalized size = 1.39

$$\frac{\sqrt{21}\left(23115\,\sqrt{55}\sqrt{21}\left(675\,x^5+2160\,x^4+2763\,x^3+1766\,x^2+564\,x+72\right)\log\left(\frac{5\,x+\sqrt{55}\sqrt{-2\,x+1}-8}{5\,x+3}\right)+\sqrt{21}\left(5124375\,x^4+131534\right.\right.}{42\,(675\,x^5+2160}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)^3*(3*x + 2)^4),x, algorithm="fricas")
```

```
[Out] 1/42*sqrt(21)*(23115*sqrt(55)*sqrt(21)*(675*x^5 + 2160*x^4 + 2763
*x^3 + 1766*x^2 + 564*x + 72)*log((5*x + sqrt(55)*sqrt(-2*x + 1)
- 8)/(5*x + 3)) + sqrt(21)*(5124375*x^4 + 13153400*x^3 + 12649336
*x^2 + 5401374*x + 864074)*sqrt(-2*x + 1) + 785570*(675*x^5 + 216
0*x^4 + 2763*x^3 + 1766*x^2 + 564*x + 72)*log((sqrt(21)*(3*x - 5)
 - 21*sqrt(-2*x + 1))/(3*x + 2)))/(675*x^5 + 2160*x^4 + 2763*x^3
+ 1766*x^2 + 564*x + 72)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)/(2+3*x)**4/(3+5*x)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.216529, size = 204, normalized size = 1.19

$$\frac{23115}{2}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{392785}{21}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{55\left(1365\,(-2x+1)^{\frac{3}{2}}-2981\sqrt{-2x+1}\right)}{4\,(5x+3)^2}+\frac{61947\,(2x-1)^2\sqrt{-2x+1}-291200\,(-2x+1)^{\frac{3}{2}}+342265\sqrt{-2x+1}}{4\,(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)^3*(3*x + 2)^4),x, algorithm="giac")
```

```
[Out] 23115/2*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqr
t(55) + 5*sqrt(-2*x + 1))) - 392785/21*sqrt(21)*ln(1/2*abs(-2*sqr
t(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 55/4*(
1365*(-2*x + 1)^(3/2) - 2981*sqrt(-2*x + 1))/(5*x + 3)^2 + 1/4*(6
1947*(2*x - 1)^2*sqrt(-2*x + 1) - 291200*(-2*x + 1)^(3/2) + 34226
5*sqrt(-2*x + 1))/(3*x + 2)^3
```

3.1983 $\int \frac{(1-2x)^{5/2}}{(2+3x)^5(3+5x)^3}\,dx$

Optimal. Leaf size=201

$$\frac{7(1-2x)^{3/2}}{12(3x+2)^4(5x+3)^2}+\frac{23680975\sqrt{1-2x}}{168(5x+3)}+\frac{522385\sqrt{1-2x}}{168(3x+2)(5x+3)^2}+\frac{11243\sqrt{1-2x}}{72(3x+2)^2(5x+3)^2}+\frac{1393\sqrt{1-2x}}{108(3x+2)^3(5x+3)^2}-\frac{8836825\sqrt{1-2x}}{378(5x+3)^2}+\frac{163363895\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{28\sqrt{21}}-171675\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (-8836825*Sqrt[1 - 2*x])/(378*(3 + 5*x)^2) + (7*(1 - 2*x)^(3/2))/
(12*(2 + 3*x)^4*(3 + 5*x)^2) + (1393*Sqrt[1 - 2*x])/(108*(2 + 3*x
)^3*(3 + 5*x)^2) + (11243*Sqrt[1 - 2*x])/(72*(2 + 3*x)^2*(3 + 5*x
)^2) + (522385*Sqrt[1 - 2*x])/(168*(2 + 3*x)*(3 + 5*x)^2) + (2368
0975*Sqrt[1 - 2*x])/(168*(3 + 5*x)) + (163363895*ArcTanh[Sqrt[3/7
]*Sqrt[1 - 2*x]])/(28*Sqrt[21]) - 171675*Sqrt[55]*ArcTanh[Sqrt[5/
11]*Sqrt[1 - 2*x]]
```

Rubi [A] time = 0.45996, antiderivative size = 201, normalized size of antiderivative = 1., number of steps used = 11, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$\frac{7(1-2x)^{3/2}}{12(3x+2)^4(5x+3)^2}+\frac{23680975\sqrt{1-2x}}{168(5x+3)}+\frac{522385\sqrt{1-2x}}{168(3x+2)(5x+3)^2}+\frac{11243\sqrt{1-2x}}{72(3x+2)^2(5x+3)^2}+\frac{1393\sqrt{1-2x}}{108(3x+2)^3(5x+3)^2}-\frac{8836825\sqrt{1-2x}}{378(5x+3)^2}+\frac{163363895\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{28\sqrt{21}}-171675\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)^5*(3 + 5*x)^3),x]
```

```
[Out] (-8836825*Sqrt[1 - 2*x])/(378*(3 + 5*x)^2) + (7*(1 - 2*x)^(3/2))/
(12*(2 + 3*x)^4*(3 + 5*x)^2) + (1393*Sqrt[1 - 2*x])/(108*(2 + 3*x
)^3*(3 + 5*x)^2) + (11243*Sqrt[1 - 2*x])/(72*(2 + 3*x)^2*(3 + 5*x
)^2) + (522385*Sqrt[1 - 2*x])/(168*(2 + 3*x)*(3 + 5*x)^2) + (2368
0975*Sqrt[1 - 2*x])/(168*(3 + 5*x)) + (163363895*ArcTanh[Sqrt[3/7
]*Sqrt[1 - 2*x]])/(28*Sqrt[21]) - 171675*Sqrt[55]*ArcTanh[Sqrt[5/
11]*Sqrt[1 - 2*x]]
```

Rubi in Sympy [A] time = 48.5419, size = 182, normalized size = 0.91

$$\frac{7\left(-2x+1\right)^{\frac{3}{2}}}{12\left(3x+2\right)^{4}\left(5x+3\right)^{2}}+\frac{23680975\sqrt{-2x+1}}{168\left(5x+3\right)}-\frac{8836825\sqrt{-2x+1}}{378\left(5x+3\right)^{2}}+\frac{522385\sqrt{-2x+1}}{168\left(3x+2\right)\left(5x+3\right)^{2}}+\frac{11243\sqrt{-2x+1}}{72\left(3x+2\right)^{2}\left(5x+3\right)^{2}}+\frac{1393\sqrt{-2x+1}}{108\left(3x+2\right)^{3}\left(5x+3\right)^{2}}+\frac{163363895\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{588}-171675\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)**5/(3+5*x)**3,x)
```

```
[Out] 7*(-2*x + 1)**(3/2)/(12*(3*x + 2)**4*(5*x + 3)**2) + 23680975*sqr
t(-2*x + 1)/(168*(5*x + 3)) - 8836825*sqrt(-2*x + 1)/(378*(5*x +
3)**2) + 522385*sqrt(-2*x + 1)/(168*(3*x + 2)*(5*x + 3)**2) + 112
43*sqrt(-2*x + 1)/(72*(3*x + 2)**2*(5*x + 3)**2) + 1393*sqrt(-2*x
 + 1)/(108*(3*x + 2)**3*(5*x + 3)**2) + 163363895*sqrt(21)*atanh(
sqrt(21)*sqrt(-2*x + 1)/7)/588 - 171675*sqrt(55)*atanh(sqrt(55)*s
qrt(-2*x + 1)/11)
```

Mathematica [A] time = 0.215936, size = 105, normalized size = 0.52

$$\frac{\sqrt{1-2x}\left(3196931625x^5+10337268075x^4+13362164665x^3+8630749831x^2+2785562634x+359378534\right)}{56(3x+2)^4(5x+3)^2}+\frac{163363895\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{28\sqrt{21}}-171675\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)^5*(3 + 5*x)^3),x]
```

```
[Out] (Sqrt[1 - 2*x]*(359378534 + 2785562634*x + 8630749831*x^2 + 13362
164665*x^3 + 10337268075*x^4 + 3196931625*x^5))/(56*(2 + 3*x)^4*(
3 + 5*x)^2) + (163363895*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(28*Sq
rt[21]) - 171675*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Maple [A] time = 0.023, size = 112, normalized size = 0.6

$$-162\,\frac{1}{(-4-6\,x)^4}\left(\frac{3170015\,(1-2\,x)^{7/2}}{168}-\frac{28695733\,(1-2\,x)^{5/2}}{216}+\frac{202051885\,(1-2\,x)^{3/2}}{648}-\frac{52696315\,\sqrt{1-2\,x}}{216}\right)+\frac{163363895\,\sqrt{21}}{588}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)+13750\,\frac{1}{(-6-10\,x)^2}\left(-\frac{339\,(1-2\,x)^{3/2}}{10}+\frac{3707\,\sqrt{1-2\,x}}{50}\right)-171675\,\mathit{Artanh}\left(1/11\,\sqrt{55}\sqrt{1-2\,x}\right)\sqrt{55}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)^5/(3+5*x)^3,x)
```

```
[Out] -162*(3170015/168*(1-2*x)^(7/2)-28695733/216*(1-2*x)^(5/2)+202051
885/648*(1-2*x)^(3/2)-52696315/216*(1-2*x)^(1/2))/(-4-6*x)^4+1633
63895/588*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)+13750*(-33
9/10*(1-2*x)^(3/2)+3707/50*(1-2*x)^(1/2))/(-6-10*x)^2-171675*arct
anh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.52273, size = 246, normalized size = 1.22

$$\frac{171675}{2}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2\,x+1}}{\sqrt{55}+5\sqrt{-2\,x+1}}\right)-\frac{163363895}{1176}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2\,x+1}}{\sqrt{21}+3\sqrt{-2\,x+1}}\right)-\frac{3196931625\,(-2\,x+1)^{\frac{11}{2}}-36659194275\,(-2\,x+1)^{\frac{9}{2}}+168116119510\,(-2\,x+1)^{\frac{7}{2}}-385408507778\,(-2\,x+1)^{\frac{5}{2}}+44168977\cdots}{28\left(2025\,(2\,x-1)^6+27810\,(2\,x-1)^5+159111\,(2\,x-1)^4+485436\,(2\,x-1)^3+832951\,(2\,x-1)^2+\cdots\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^3*(3*x + 2)^5),x, algorithm="maxima")
```

```
[Out] 171675/2*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) +
5*sqrt(-2*x + 1))) - 163363895/1176*sqrt(21)*log(-(sqrt(21) - 3*s
```

```
qrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 1/28*(3196931625*
(-2*x + 1)^(11/2) - 36659194275*(-2*x + 1)^(9/2) + 168116119510*(
-2*x + 1)^(7/2) - 385408507778*(-2*x + 1)^(5/2) + 441689778145*(-
2*x + 1)^(3/2) - 202435240315*sqrt(-2*x + 1))/(2025*(2*x - 1)^6 +
 27810*(2*x - 1)^5 + 159111*(2*x - 1)^4 + 485436*(2*x - 1)^3 + 83
2951*(2*x - 1)^2 + 1524292*x - 471625)
```

Fricas [A] time = 0.243986, size = 266, normalized size = 1.32

$$\frac{\sqrt{21}\left(4806900\sqrt{55}\sqrt{21}\left(2025x^6+7830x^5+12609x^4+10824x^3+5224x^2+1344x+144\right)\log\left(\frac{5x+\sqrt{55}\sqrt{-2x+1}-8}{5x+3}\right)+\sqrt{21}(31\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)^3*(3*x + 2)^5),x, algorithm="fricas")
```

```
[Out] 1/1176*sqrt(21)*(4806900*sqrt(55)*sqrt(21)*(2025*x^6 + 7830*x^5 +
 12609*x^4 + 10824*x^3 + 5224*x^2 + 1344*x + 144)*log((5*x + sqrt
(55)*sqrt(-2*x + 1) - 8)/(5*x + 3)) + sqrt(21)*(3196931625*x^5 +
10337268075*x^4 + 13362164665*x^3 + 8630749831*x^2 + 2785562634*x
 + 359378534)*sqrt(-2*x + 1) + 163363895*(2025*x^6 + 7830*x^5 + 1
2609*x^4 + 10824*x^3 + 5224*x^2 + 1344*x + 144)*log((sqrt(21)*(3*
x - 5) - 21*sqrt(-2*x + 1))/(3*x + 2)))/(2025*x^6 + 7830*x^5 + 12
609*x^4 + 10824*x^3 + 5224*x^2 + 1344*x + 144)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)/(2+3*x)**5/(3+5*x)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.220327, size = 225, normalized size = 1.12

$$\frac{171675}{2}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{163363895}{1176}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{275\left(1695(-2x+1)^{\frac{3}{2}}-3707\sqrt{-2x+1}\right)}{4(5x+3)^2}+\frac{85590405(2x-1)^3\sqrt{-2x+1}+602610393(2x-1)^2\sqrt{-2x+1}-1414363195(-2x+1)^{\frac{3}{2}}+1106622615\sqrt{-2x+1}}{448(3x+2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)^3*(3*x + 2)^5),x, algorithm="giac")
```

```
[Out] 171675/2*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sq
rt(55) + 5*sqrt(-2*x + 1))) - 163363895/1176*sqrt(21)*ln(1/2*abs(
-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) -
275/4*(1695*(-2*x + 1)^(3/2) - 3707*sqrt(-2*x + 1))/(5*x + 3)^2 +
 1/448*(85590405*(2*x - 1)^3*sqrt(-2*x + 1) + 602610393*(2*x - 1)
^2*sqrt(-2*x + 1) - 1414363195*(-2*x + 1)^(3/2) + 1106622615*sqrt
(-2*x + 1))/(3*x + 2)^4
```

3.1984 $\int \frac{(2+3x)^5(3+5x)}{\sqrt{1-2x}}\,dx$

Optimal. Leaf size=92

$$-\frac{1215}{832}(1-2x)^{13/2}+\frac{1053}{44}(1-2x)^{11/2}-\frac{10815}{64}(1-2x)^{9/2}+\frac{5355}{8}(1-2x)^{7/2}-\frac{103929}{64}(1-2x)^{5/2}+\frac{60025}{24}(1-2x)^{3/2}-\frac{184877}{64}\sqrt{1-2x}$$

```
[Out] (-184877*Sqrt[1 - 2*x])/64 + (60025*(1 - 2*x)^(3/2))/24 - (103929
*(1 - 2*x)^(5/2))/64 + (5355*(1 - 2*x)^(7/2))/8 - (10815*(1 - 2*x
)^(9/2))/64 + (1053*(1 - 2*x)^(11/2))/44 - (1215*(1 - 2*x)^(13/2)
)/832
```

Rubi [A] time = 0.0677545, antiderivative size = 92, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{1215}{832}(1-2x)^{13/2}+\frac{1053}{44}(1-2x)^{11/2}-\frac{10815}{64}(1-2x)^{9/2}+\frac{5355}{8}(1-2x)^{7/2}-\frac{103929}{64}(1-2x)^{5/2}+\frac{60025}{24}(1-2x)^{3/2}-\frac{184877}{64}\sqrt{1-2x}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^5*(3 + 5*x))/Sqrt[1 - 2*x],x]
```

```
[Out] (-184877*Sqrt[1 - 2*x])/64 + (60025*(1 - 2*x)^(3/2))/24 - (103929
*(1 - 2*x)^(5/2))/64 + (5355*(1 - 2*x)^(7/2))/8 - (10815*(1 - 2*x
)^(9/2))/64 + (1053*(1 - 2*x)^(11/2))/44 - (1215*(1 - 2*x)^(13/2)
)/832
```

Rubi in Sympy [A] time = 9.62075, size = 82, normalized size = 0.89

$$-\frac{1215(-2x+1)^{\frac{13}{2}}}{832}+\frac{1053(-2x+1)^{\frac{11}{2}}}{44}-\frac{10815(-2x+1)^{\frac{9}{2}}}{64}+\frac{5355(-2x+1)^{\frac{7}{2}}}{8}-\frac{103929(-2x+1)^{\frac{5}{2}}}{64}+\frac{60025(-2x+1)^{\frac{3}{2}}}{24}-\frac{184877\sqrt{-2x+1}}{64}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**5*(3+5*x)/(1-2*x)**(1/2),x)
```

```
[Out] -1215*(-2*x + 1)**(13/2)/832 + 1053*(-2*x + 1)**(11/2)/44 - 10815
*(-2*x + 1)**(9/2)/64 + 5355*(-2*x + 1)**(7/2)/8 - 103929*(-2*x +
 1)**(5/2)/64 + 60025*(-2*x + 1)**(3/2)/24 - 184877*sqrt(-2*x + 1
)/64
```

Mathematica [A] time = 0.0397604, size = 43, normalized size = 0.47

$$-\frac{1}{429}\sqrt{1-2x}\left(40095x^6+208251x^5+488925x^4+698580x^3+707436x^2+597464x+638648\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^5*(3 + 5*x))/Sqrt[1 - 2*x],x]
```

```
[Out] -(Sqrt[1 - 2*x]*(638648 + 597464*x + 707436*x^2 + 698580*x^3 + 48
8925*x^4 + 208251*x^5 + 40095*x^6))/429
```

Maple [A] time = 0.008, size = 40, normalized size = 0.4

$$-\frac{40095 x^{6}+208251 x^{5}+488925 x^{4}+698580 x^{3}+707436 x^{2}+597464 x+638648}{429}\sqrt{1-2 x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((2+3*x)^5*(3+5*x)/(1-2*x)^(1/2),x)
```

```
[Out] -1/429*(40095*x^6+208251*x^5+488925*x^4+698580*x^3+707436*x^2+597
464*x+638648)*(1-2*x)^(1/2)
```

Maxima [A] time = 1.34737, size = 86, normalized size = 0.93

$$-\frac{1215}{832}(-2x+1)^{\frac{13}{2}}+\frac{1053}{44}(-2x+1)^{\frac{11}{2}}-\frac{10815}{64}(-2x+1)^{\frac{9}{2}}+\frac{5355}{8}(-2x+1)^{\frac{7}{2}}-\frac{103929}{64}(-2x+1)^{\frac{5}{2}}+\frac{60025}{24}(-2x+1)^{\frac{3}{2}}-\frac{184877}{64}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(3*x + 2)^5/sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] -1215/832*(-2*x + 1)^(13/2) + 1053/44*(-2*x + 1)^(11/2) - 10815/6
4*(-2*x + 1)^(9/2) + 5355/8*(-2*x + 1)^(7/2) - 103929/64*(-2*x +
1)^(5/2) + 60025/24*(-2*x + 1)^(3/2) - 184877/64*sqrt(-2*x + 1)
```

Fricas [A] time = 0.208314, size = 53, normalized size = 0.58

$$-\frac{1}{429}\left(40095 x^{6}+208251 x^{5}+488925 x^{4}+698580 x^{3}+707436 x^{2}+597464 x+638648\right)\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(3*x + 2)^5/sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] -1/429*(40095*x^6 + 208251*x^5 + 488925*x^4 + 698580*x^3 + 707436
*x^2 + 597464*x + 638648)*sqrt(-2*x + 1)
```

Sympy [A] time = 18.8198, size = 82, normalized size = 0.89

$$-\frac{1215(-2x+1)^{\frac{13}{2}}}{832}+\frac{1053(-2x+1)^{\frac{11}{2}}}{44}-\frac{10815(-2x+1)^{\frac{9}{2}}}{64}+\frac{5355(-2x+1)^{\frac{7}{2}}}{8}-\frac{103929(-2x+1)^{\frac{5}{2}}}{64}+\frac{60025(-2x+1)^{\frac{3}{2}}}{24}-\frac{184877\sqrt{-2x+1}}{64}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((2+3*x)**5*(3+5*x)/(1-2*x)**(1/2),x)
```

```
[Out] -1215*(-2*x + 1)**(13/2)/832 + 1053*(-2*x + 1)**(11/2)/44 - 10815
*(-2*x + 1)**(9/2)/64 + 5355*(-2*x + 1)**(7/2)/8 - 103929*(-2*x +
 1)**(5/2)/64 + 60025*(-2*x + 1)**(3/2)/24 - 184877*sqrt(-2*x + 1
)/64
```

GIAC/XCAS [A] time = 0.209001, size = 134, normalized size = 1.46

$$-\frac{1215}{832}\,(2\,x-1)^{6}\sqrt{-2\,x+1}-\frac{1053}{44}\,(2\,x-1)^{5}\sqrt{-2\,x+1}-\frac{10815}{64}\,(2\,x-1)^{4}\sqrt{-2\,x+1}-\frac{5355}{8}\,(2\,x-1)^{3}\sqrt{-2\,x+1}-\frac{103929}{64}\,(2\,x-1)^{2}\sqrt{-2\,x+1}+\frac{60025}{24}\,(-2\,x+1)^{\frac{3}{2}}-\frac{184877}{64}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^5/sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] -1215/832*(2*x - 1)^6*sqrt(-2*x + 1) - 1053/44*(2*x - 1)^5*sqrt(-
2*x + 1) - 10815/64*(2*x - 1)^4*sqrt(-2*x + 1) - 5355/8*(2*x - 1)
^3*sqrt(-2*x + 1) - 103929/64*(2*x - 1)^2*sqrt(-2*x + 1) + 60025/
24*(-2*x + 1)^(3/2) - 184877/64*sqrt(-2*x + 1)
```

3.1985 $\int \frac{(2+3x)^4(3+5x)}{\sqrt{1-2x}}\,dx$

Optimal. Leaf size=79

$$\frac{405}{352}(1-2x)^{11/2}-\frac{519}{32}(1-2x)^{9/2}+\frac{1539}{16}(1-2x)^{7/2}-\frac{24843}{80}(1-2x)^{5/2}+\frac{57281}{96}(1-2x)^{3/2}-\frac{26411}{32}\sqrt{1-2x}$$

```
[Out] (-26411*Sqrt[1 - 2*x])/32 + (57281*(1 - 2*x)^(3/2))/96 - (24843*(
1 - 2*x)^(5/2))/80 + (1539*(1 - 2*x)^(7/2))/16 - (519*(1 - 2*x)^(
9/2))/32 + (405*(1 - 2*x)^(11/2))/352
```

Rubi [A] time = 0.0623013, antiderivative size = 79, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{405}{352}(1-2x)^{11/2}-\frac{519}{32}(1-2x)^{9/2}+\frac{1539}{16}(1-2x)^{7/2}-\frac{24843}{80}(1-2x)^{5/2}+\frac{57281}{96}(1-2x)^{3/2}-\frac{26411}{32}\sqrt{1-2x}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^4*(3 + 5*x))/Sqrt[1 - 2*x],x]
```

```
[Out] (-26411*Sqrt[1 - 2*x])/32 + (57281*(1 - 2*x)^(3/2))/96 - (24843*(
1 - 2*x)^(5/2))/80 + (1539*(1 - 2*x)^(7/2))/16 - (519*(1 - 2*x)^(
9/2))/32 + (405*(1 - 2*x)^(11/2))/352
```

Rubi in Sympy [A] time = 8.72704, size = 70, normalized size = 0.89

$$\frac{405\left(-2x+1\right)^{\frac{11}{2}}}{352}-\frac{519\left(-2x+1\right)^{\frac{9}{2}}}{32}+\frac{1539\left(-2x+1\right)^{\frac{7}{2}}}{16}-\frac{24843\left(-2x+1\right)^{\frac{5}{2}}}{80}+\frac{57281\left(-2x+1\right)^{\frac{3}{2}}}{96}-\frac{26411\sqrt{-2x+1}}{32}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4*(3+5*x)/(1-2*x)**(1/2),x)
```

```
[Out] 405*(-2*x + 1)**(11/2)/352 - 519*(-2*x + 1)**(9/2)/32 + 1539*(-2*
x + 1)**(7/2)/16 - 24843*(-2*x + 1)**(5/2)/80 + 57281*(-2*x + 1)*
*(3/2)/96 - 26411*sqrt(-2*x + 1)/32
```

Mathematica [A] time = 0.0244733, size = 38, normalized size = 0.48

$$-\frac{1}{165}\sqrt{1-2x}\left(6075x^5+27630x^4+56520x^3+71136x^2+67664x+75584\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^4*(3 + 5*x))/Sqrt[1 - 2*x],x]
```

```
[Out] -(Sqrt[1 - 2*x]*(75584 + 67664*x + 71136*x^2 + 56520*x^3 + 27630*
x^4 + 6075*x^5))/165
```

Maple [A] time = 0.005, size = 35, normalized size = 0.4

$$-\frac{6075\,x^5+27630\,x^4+56520\,x^3+71136\,x^2+67664\,x+75584}{165}\sqrt{1-2\,x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4*(3+5*x)/(1-2*x)^(1/2),x)
```

```
[Out] -1/165*(6075*x^5+27630*x^4+56520*x^3+71136*x^2+67664*x+75584)*(1-
2*x)^(1/2)
```

Maxima [A] time = 1.34961, size = 74, normalized size = 0.94

$$\frac{405}{352}\,(-2\,x+1)^{\frac{11}{2}} - \frac{519}{32}\,(-2\,x+1)^{\frac{9}{2}} + \frac{1539}{16}\,(-2\,x+1)^{\frac{7}{2}} - \frac{24843}{80}\,(-2\,x+1)^{\frac{5}{2}} + \frac{57281}{96}\,(-2\,x+1)^{\frac{3}{2}} - \frac{26411}{32}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^4/sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] 405/352*(-2*x + 1)^(11/2) - 519/32*(-2*x + 1)^(9/2) + 1539/16*(-2
*x + 1)^(7/2) - 24843/80*(-2*x + 1)^(5/2) + 57281/96*(-2*x + 1)^(
3/2) - 26411/32*sqrt(-2*x + 1)
```

Fricas [A] time = 0.204675, size = 46, normalized size = 0.58

$$-\frac{1}{165}\left(6075\,x^5 + 27630\,x^4 + 56520\,x^3 + 71136\,x^2 + 67664\,x + 75584\right)\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^4/sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] -1/165*(6075*x^5 + 27630*x^4 + 56520*x^3 + 71136*x^2 + 67664*x +
75584)*sqrt(-2*x + 1)
```

Sympy [A] time = 13.9001, size = 70, normalized size = 0.89

$$\frac{405\,(-2x+1)^{\frac{11}{2}}}{352} - \frac{519\,(-2x+1)^{\frac{9}{2}}}{32} + \frac{1539\,(-2x+1)^{\frac{7}{2}}}{16} - \frac{24843\,(-2x+1)^{\frac{5}{2}}}{80} + \frac{57281\,(-2x+1)^{\frac{3}{2}}}{96} - \frac{26411\sqrt{-2x+1}}{32}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4*(3+5*x)/(1-2*x)**(1/2),x)
```

```
[Out] 405*(-2*x + 1)**(11/2)/352 - 519*(-2*x + 1)**(9/2)/32 + 1539*(-2*
x + 1)**(7/2)/16 - 24843*(-2*x + 1)**(5/2)/80 + 57281*(-2*x + 1)*
*(3/2)/96 - 26411*sqrt(-2*x + 1)/32
```

GIAC/XCAS [A] time = 0.209187, size = 112, normalized size = 1.42

$$-\frac{405}{352}\,(2\,x-1)^5\sqrt{-2\,x+1} - \frac{519}{32}\,(2\,x-1)^4\sqrt{-2\,x+1} - \frac{1539}{16}\,(2\,x-1)^3\sqrt{-2\,x+1} - \frac{24843}{80}\,(2\,x-1)^2\sqrt{-2\,x+1} + \frac{57281}{96}\,(-2\,x+1)^{\frac{3}{2}} - \frac{26411}{32}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^4/sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] -405/352*(2*x - 1)^5*sqrt(-2*x + 1) - 519/32*(2*x - 1)^4*sqrt(-2*
x + 1) - 1539/16*(2*x - 1)^3*sqrt(-2*x + 1) - 24843/80*(2*x - 1)^
2*sqrt(-2*x + 1) + 57281/96*(-2*x + 1)^(3/2) - 26411/32*sqrt(-2*x
 + 1)
```

3.1986 $\int \frac{(2+3x)^3(3+5x)}{\sqrt{1-2x}}\,dx$

Optimal. Leaf size=66

$$-\frac{15}{16}(1-2x)^{9/2}+\frac{621}{56}(1-2x)^{7/2}-\frac{1071}{20}(1-2x)^{5/2}+\frac{3283}{24}(1-2x)^{3/2}-\frac{3773}{16}\sqrt{1-2x}$$

```
[Out] (-3773*Sqrt[1 - 2*x])/16 + (3283*(1 - 2*x)^(3/2))/24 - (1071*(1 -
 2*x)^(5/2))/20 + (621*(1 - 2*x)^(7/2))/56 - (15*(1 - 2*x)^(9/2))
/16
```

Rubi [A] time = 0.0549475, antiderivative size = 66, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{15}{16}(1-2x)^{9/2}+\frac{621}{56}(1-2x)^{7/2}-\frac{1071}{20}(1-2x)^{5/2}+\frac{3283}{24}(1-2x)^{3/2}-\frac{3773}{16}\sqrt{1-2x}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^3*(3 + 5*x))/Sqrt[1 - 2*x],x]
```

```
[Out] (-3773*Sqrt[1 - 2*x])/16 + (3283*(1 - 2*x)^(3/2))/24 - (1071*(1 -
 2*x)^(5/2))/20 + (621*(1 - 2*x)^(7/2))/56 - (15*(1 - 2*x)^(9/2))
/16
```

Rubi in Sympy [A] time = 7.85605, size = 58, normalized size = 0.88

$$-\frac{15(-2x+1)^{\frac{9}{2}}}{16}+\frac{621(-2x+1)^{\frac{7}{2}}}{56}-\frac{1071(-2x+1)^{\frac{5}{2}}}{20}+\frac{3283(-2x+1)^{\frac{3}{2}}}{24}-\frac{3773\sqrt{-2x+1}}{16}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3*(3+5*x)/(1-2*x)**(1/2),x)
```

```
[Out] -15*(-2*x + 1)**(9/2)/16 + 621*(-2*x + 1)**(7/2)/56 - 1071*(-2*x
+ 1)**(5/2)/20 + 3283*(-2*x + 1)**(3/2)/24 - 3773*sqrt(-2*x + 1)/
16
```

Mathematica [A] time = 0.03255, size = 33, normalized size = 0.5

$$-\frac{1}{105}\sqrt{1-2x}\left(1575x^4+6165x^3+10881x^2+12434x+14954\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^3*(3 + 5*x))/Sqrt[1 - 2*x],x]
```

```
[Out] -(Sqrt[1 - 2*x]*(14954 + 12434*x + 10881*x^2 + 6165*x^3 + 1575*x^
4))/105
```

Maple [A] time = 0.005, size = 30, normalized size = 0.5

$$-\frac{1575x^4+6165x^3+10881x^2+12434x+14954}{105}\sqrt{1-2x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((2+3*x)^3*(3+5*x)/(1-2*x)^(1/2),x)
```

```
[Out] -1/105*(1575*x^4+6165*x^3+10881*x^2+12434*x+14954)*(1-2*x)^(1/2)
```

Maxima [A] time = 1.34887, size = 62, normalized size = 0.94

$$-\frac{15}{16}\,(-2\,x+1)^{\frac{9}{2}}+\frac{621}{56}\,(-2\,x+1)^{\frac{7}{2}}-\frac{1071}{20}\,(-2\,x+1)^{\frac{5}{2}}+\frac{3283}{24}\,(-2\,x+1)^{\frac{3}{2}}-\frac{3773}{16}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^3/sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] -15/16*(-2*x + 1)^(9/2) + 621/56*(-2*x + 1)^(7/2) - 1071/20*(-2*x
 + 1)^(5/2) + 3283/24*(-2*x + 1)^(3/2) - 3773/16*sqrt(-2*x + 1)
```

Fricas [A] time = 0.209404, size = 39, normalized size = 0.59

$$-\frac{1}{105}\,\left(1575\,x^4+6165\,x^3+10881\,x^2+12434\,x+14954\right)\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^3/sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] -1/105*(1575*x^4 + 6165*x^3 + 10881*x^2 + 12434*x + 14954)*sqrt(-
2*x + 1)
```

Sympy [A] time = 9.9098, size = 58, normalized size = 0.88

$$-\frac{15(-2x+1)^{\frac{9}{2}}}{16}+\frac{621(-2x+1)^{\frac{7}{2}}}{56}-\frac{1071(-2x+1)^{\frac{5}{2}}}{20}+\frac{3283(-2x+1)^{\frac{3}{2}}}{24}-\frac{3773\sqrt{-2x+1}}{16}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((2+3*x)**3*(3+5*x)/(1-2*x)**(1/2),x)
```

```
[Out] -15*(-2*x + 1)**(9/2)/16 + 621*(-2*x + 1)**(7/2)/56 - 1071*(-2*x
+ 1)**(5/2)/20 + 3283*(-2*x + 1)**(3/2)/24 - 3773*sqrt(-2*x + 1)/
16
```

GIAC/XCAS [A] time = 0.20752, size = 90, normalized size = 1.36

$$-\frac{15}{16}\,(2\,x-1)^4\sqrt{-2\,x+1}-\frac{621}{56}\,(2\,x-1)^3\sqrt{-2\,x+1}-\frac{1071}{20}\,(2\,x-1)^2\sqrt{-2\,x+1}+\frac{3283}{24}\,(-2\,x+1)^{\frac{3}{2}}-\frac{3773}{16}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^3/sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] -15/16*(2*x - 1)^4*sqrt(-2*x + 1) - 621/56*(2*x - 1)^3*sqrt(-2*x
+ 1) - 1071/20*(2*x - 1)^2*sqrt(-2*x + 1) + 3283/24*(-2*x + 1)^(3
/2) - 3773/16*sqrt(-2*x + 1)
```

3.1987 $\int \frac{(2+3x)^2(3+5x)}{\sqrt{1-2x}}\,dx$

Optimal. Leaf size=53

$$\frac{45}{56}(1-2x)^{7/2}-\frac{309}{40}(1-2x)^{5/2}+\frac{707}{24}(1-2x)^{3/2}-\frac{539}{8}\sqrt{1-2x}$$

```
[Out] (-539*Sqrt[1 - 2*x])/8 + (707*(1 - 2*x)^(3/2))/24 - (309*(1 - 2*x
)^(5/2))/40 + (45*(1 - 2*x)^(7/2))/56
```

Rubi [A] time = 0.0521432, antiderivative size = 53, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{45}{56}(1-2x)^{7/2}-\frac{309}{40}(1-2x)^{5/2}+\frac{707}{24}(1-2x)^{3/2}-\frac{539}{8}\sqrt{1-2x}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^2*(3 + 5*x))/Sqrt[1 - 2*x],x]
```

```
[Out] (-539*Sqrt[1 - 2*x])/8 + (707*(1 - 2*x)^(3/2))/24 - (309*(1 - 2*x
)^(5/2))/40 + (45*(1 - 2*x)^(7/2))/56
```

Rubi in Sympy [A] time = 6.90542, size = 46, normalized size = 0.87

$$\frac{45\left(-2x+1\right)^{\frac{7}{2}}}{56}-\frac{309\left(-2x+1\right)^{\frac{5}{2}}}{40}+\frac{707\left(-2x+1\right)^{\frac{3}{2}}}{24}-\frac{539\sqrt{-2x+1}}{8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2*(3+5*x)/(1-2*x)**(1/2),x)
```

```
[Out] 45*(-2*x + 1)**(7/2)/56 - 309*(-2*x + 1)**(5/2)/40 + 707*(-2*x +
1)**(3/2)/24 - 539*sqrt(-2*x + 1)/8
```

Mathematica [A] time = 0.0302858, size = 28, normalized size = 0.53

$$-\frac{1}{105}\sqrt{1-2x}\left(675x^3+2232x^2+3448x+4708\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^2*(3 + 5*x))/Sqrt[1 - 2*x],x]
```

```
[Out] -(Sqrt[1 - 2*x]*(4708 + 3448*x + 2232*x^2 + 675*x^3))/105
```

Maple [A] time = 0.004, size = 25, normalized size = 0.5

$$-\frac{675\,x^3+2232\,x^2+3448\,x+4708}{105}\sqrt{1-2\,x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2*(3+5*x)/(1-2*x)^(1/2),x)
```

```
[Out] -1/105*(675*x^3+2232*x^2+3448*x+4708)*(1-2*x)^(1/2)
```

Maxima [A] time = 1.35547, size = 50, normalized size = 0.94

$$\frac{45}{56}\,(-2\,x+1)^{\frac{7}{2}}-\frac{309}{40}\,(-2\,x+1)^{\frac{5}{2}}+\frac{707}{24}\,(-2\,x+1)^{\frac{3}{2}}-\frac{539}{8}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(3*x + 2)^2/sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] 45/56*(-2*x + 1)^(7/2) - 309/40*(-2*x + 1)^(5/2) + 707/24*(-2*x +
 1)^(3/2) - 539/8*sqrt(-2*x + 1)
```

Fricas [A] time = 0.225527, size = 32, normalized size = 0.6

$$-\frac{1}{105}\,\left(675\,x^{3}+2232\,x^{2}+3448\,x+4708\right)\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(3*x + 2)^2/sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] -1/105*(675*x^3 + 2232*x^2 + 3448*x + 4708)*sqrt(-2*x + 1)
```

Sympy [A] time = 6.63422, size = 46, normalized size = 0.87

$$\frac{45\,(-2x+1)^{\frac{7}{2}}}{56}-\frac{309\,(-2x+1)^{\frac{5}{2}}}{40}+\frac{707\,(-2x+1)^{\frac{3}{2}}}{24}-\frac{539\sqrt{-2x+1}}{8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2*(3+5*x)/(1-2*x)**(1/2),x)
```

```
[Out] 45*(-2*x + 1)**(7/2)/56 - 309*(-2*x + 1)**(5/2)/40 + 707*(-2*x +
1)**(3/2)/24 - 539*sqrt(-2*x + 1)/8
```

GIAC/XCAS [A] time = 0.20726, size = 69, normalized size = 1.3

$$-\frac{45}{56}\,(2\,x-1)^{3}\sqrt{-2\,x+1}-\frac{309}{40}\,(2\,x-1)^{2}\sqrt{-2\,x+1}+\frac{707}{24}\,(-2\,x+1)^{\frac{3}{2}}-\frac{539}{8}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^2/sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] -45/56*(2*x - 1)^3*sqrt(-2*x + 1) - 309/40*(2*x - 1)^2*sqrt(-2*x
+ 1) + 707/24*(-2*x + 1)^(3/2) - 539/8*sqrt(-2*x + 1)
```

3.1988 $\int \frac{(2+3x)(3+5x)}{\sqrt{1-2x}}\,dx$

Optimal. Leaf size=40

$$-\frac{3}{4}(1-2x)^{5/2}+\frac{17}{3}(1-2x)^{3/2}-\frac{77}{4}\sqrt{1-2x}$$

```
[Out] (-77*Sqrt[1 - 2*x])/4 + (17*(1 - 2*x)^(3/2))/3 - (3*(1 - 2*x)^(5/
2))/4
```

Rubi [A] time = 0.0378761, antiderivative size = 40, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{3}{4}(1-2x)^{5/2}+\frac{17}{3}(1-2x)^{3/2}-\frac{77}{4}\sqrt{1-2x}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)*(3 + 5*x))/Sqrt[1 - 2*x],x]
```

```
[Out] (-77*Sqrt[1 - 2*x])/4 + (17*(1 - 2*x)^(3/2))/3 - (3*(1 - 2*x)^(5/
2))/4
```

Rubi in Sympy [A] time = 5.6273, size = 34, normalized size = 0.85

$$-\frac{3(-2x+1)^{\frac{5}{2}}}{4}+\frac{17(-2x+1)^{\frac{3}{2}}}{3}-\frac{77\sqrt{-2x+1}}{4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)*(3+5*x)/(1-2*x)**(1/2),x)
```

```
[Out] -3*(-2*x + 1)**(5/2)/4 + 17*(-2*x + 1)**(3/2)/3 - 77*sqrt(-2*x +
1)/4
```

Mathematica [A] time = 0.00886065, size = 23, normalized size = 0.57

$$-\frac{1}{3}\sqrt{1-2x}\left(9x^2+25x+43\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)*(3 + 5*x))/Sqrt[1 - 2*x],x]
```

```
[Out] -(Sqrt[1 - 2*x]*(43 + 25*x + 9*x^2))/3
```

Maple [A] time = 0.003, size = 20, normalized size = 0.5

$$-\frac{9x^2+25x+43}{3}\sqrt{1-2x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)*(3+5*x)/(1-2*x)^(1/2),x)
```

```
[Out] -1/3*(9*x^2+25*x+43)*(1-2*x)^(1/2)
```

Maxima [A] time = 1.34589, size = 38, normalized size = 0.95

$$-\frac{3}{4}\left(-2x+1\right)^{\frac{5}{2}}+\frac{17}{3}\left(-2x+1\right)^{\frac{3}{2}}-\frac{77}{4}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)/sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] -3/4*(-2*x + 1)^(5/2) + 17/3*(-2*x + 1)^(3/2) - 77/4*sqrt(-2*x +
1)
```

Fricas [A] time = 0.209956, size = 26, normalized size = 0.65

$$-\frac{1}{3}\left(9x^{2}+25x+43\right)\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)/sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] -1/3*(9*x^2 + 25*x + 43)*sqrt(-2*x + 1)
```

Sympy [A] time = 4.17247, size = 34, normalized size = 0.85

$$-\frac{3\left(-2x+1\right)^{\frac{5}{2}}}{4}+\frac{17\left(-2x+1\right)^{\frac{3}{2}}}{3}-\frac{77\sqrt{-2x+1}}{4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)*(3+5*x)/(1-2*x)**(1/2),x)
```

```
[Out] -3*(-2*x + 1)**(5/2)/4 + 17*(-2*x + 1)**(3/2)/3 - 77*sqrt(-2*x +
1)/4
```

GIAC/XCAS [A] time = 0.206517, size = 47, normalized size = 1.18

$$-\frac{3}{4}\left(2x-1\right)^{2}\sqrt{-2x+1}+\frac{17}{3}\left(-2x+1\right)^{\frac{3}{2}}-\frac{77}{4}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)/sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] -3/4*(2*x - 1)^2*sqrt(-2*x + 1) + 17/3*(-2*x + 1)^(3/2) - 77/4*sq
rt(-2*x + 1)
```

3.1989 $\int \frac{3+5x}{\sqrt{1-2x}}\,dx$

Optimal. Leaf size=27

$$\frac{5}{6}(1-2x)^{3/2}-\frac{11}{2}\sqrt{1-2x}$$

```
[Out] (-11*Sqrt[1 - 2*x])/2 + (5*(1 - 2*x)^(3/2))/6
```

Rubi [A] time = 0.0218363, antiderivative size = 27, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.067

$$\frac{5}{6}(1-2x)^{3/2}-\frac{11}{2}\sqrt{1-2x}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)/Sqrt[1 - 2*x],x]

[Out] (-11*Sqrt[1 - 2*x])/2 + (5*(1 - 2*x)^(3/2))/6
```

Rubi in Sympy [A] time = 3.75337, size = 22, normalized size = 0.81

$$\frac{5\,(-2x+1)^{\frac{3}{2}}}{6}-\frac{11\sqrt{-2x+1}}{2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)/(1-2*x)**(1/2),x)

[Out] 5*(-2*x + 1)**(3/2)/6 - 11*sqrt(-2*x + 1)/2
```

Mathematica [A] time = 0.00588417, size = 18, normalized size = 0.67

$$-\frac{1}{3}\sqrt{1-2x}(5x+14)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)/Sqrt[1 - 2*x],x]

[Out] -(Sqrt[1 - 2*x]*(14 + 5*x))/3
```

Maple [A] time = 0.004, size = 15, normalized size = 0.6

$$-\frac{14+5\,x}{3}\sqrt{1-2\,x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)/(1-2*x)^(1/2),x)

[Out] -1/3*(14+5*x)*(1-2*x)^(1/2)
```

Maxima [A] time = 1.34606, size = 26, normalized size = 0.96

$$\frac{5}{6}\,(-2\,x+1)^{\frac{3}{2}}-\frac{11}{2}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/sqrt(-2*x + 1),x, algorithm="maxima")

[Out] 5/6*(-2*x + 1)^(3/2) - 11/2*sqrt(-2*x + 1)
```

Fricas [A] time = 0.206348, size = 19, normalized size = 0.7

$$-\frac{1}{3}\,(5\,x+14)\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/sqrt(-2*x + 1),x, algorithm="fricas")

[Out] -1/3*(5*x + 14)*sqrt(-2*x + 1)
```

Sympy [A] time = 1.54853, size = 88, normalized size = 3.26

$$\begin{cases} -\frac{\sqrt{5}i\left(x+\frac{3}{5}\right)\sqrt{10x-5}}{3}-\frac{11\sqrt{5}i\sqrt{10x-5}}{15} & \text{for}\ \frac{10\left|x+\frac{3}{5}\right|}{11}>1 \\ -\frac{\sqrt{5}\sqrt{-10x+5}\left(x+\frac{3}{5}\right)}{3}-\frac{11\sqrt{5}\sqrt{-10x+5}}{15} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)/(1-2*x)**(1/2),x)

[Out] Piecewise((-sqrt(5)*I*(x + 3/5)*sqrt(10*x - 5)/3 - 11*sqrt(5)*I*s
qrt(10*x - 5)/15, 10*Abs(x + 3/5)/11 > 1), (-sqrt(5)*sqrt(-10*x +
 5)*(x + 3/5)/3 - 11*sqrt(5)*sqrt(-10*x + 5)/15, True))
```

GIAC/XCAS [A] time = 0.207046, size = 26, normalized size = 0.96

$$\frac{5}{6}\,(-2\,x+1)^{\frac{3}{2}}-\frac{11}{2}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/sqrt(-2*x + 1),x, algorithm="giac")

[Out] 5/6*(-2*x + 1)^(3/2) - 11/2*sqrt(-2*x + 1)
```

3.1990 $\int \frac{3+5x}{\sqrt{1-2x}(2+3x)}\,dx$

Optimal. Leaf size=41

$$\frac{2\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{3\sqrt{21}}-\frac{5}{3}\sqrt{1-2x}$$

```
[Out] (-5*Sqrt[1 - 2*x])/3 + (2*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(3*Sq
rt[21])
```

Rubi [A] time = 0.0497778, antiderivative size = 41, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.136

$$\frac{2\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{3\sqrt{21}}-\frac{5}{3}\sqrt{1-2x}$$

Antiderivative was successfully verified.

```
[In] Int[(3 + 5*x)/(Sqrt[1 - 2*x]*(2 + 3*x)),x]
```

```
[Out] (-5*Sqrt[1 - 2*x])/3 + (2*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(3*Sq
rt[21])
```

Rubi in Sympy [A] time = 4.89695, size = 36, normalized size = 0.88

$$-\frac{5\sqrt{-2x+1}}{3}+\frac{2\sqrt{21}\,\mathrm{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{63}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((3+5*x)/(2+3*x)/(1-2*x)**(1/2),x)
```

```
[Out] -5*sqrt(-2*x + 1)/3 + 2*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)
/63
```

Mathematica [A] time = 0.0452158, size = 41, normalized size = 1.

$$\frac{2\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{3\sqrt{21}}-\frac{5}{3}\sqrt{1-2x}$$

Antiderivative was successfully verified.

```
[In] Integrate[(3 + 5*x)/(Sqrt[1 - 2*x]*(2 + 3*x)),x]
```

```
[Out] (-5*Sqrt[1 - 2*x])/3 + (2*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(3*Sq
rt[21])
```

Maple [A] time = 0.008, size = 29, normalized size = 0.7

$$\frac{2\sqrt{21}}{63}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)-\frac{5}{3}\sqrt{1-2\,x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)/(2+3*x)/(1-2*x)^(1/2),x)
```

```
[Out] 2/63*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)-5/3*(1-2*x)^(1/
2)
```

Maxima [A] time = 1.49645, size = 62, normalized size = 1.51

$$-\frac{1}{63}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{5}{3}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)/((3*x + 2)*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] -1/63*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21) + 3*s
qrt(-2*x + 1))) - 5/3*sqrt(-2*x + 1)
```

Fricas [A] time = 0.228605, size = 65, normalized size = 1.59

$$-\frac{1}{63}\sqrt{21}\left(5\sqrt{21}\sqrt{-2x+1}-\log\left(\frac{\sqrt{21}(3x-5)-21\sqrt{-2x+1}}{3x+2}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)/((3*x + 2)*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/63*sqrt(21)*(5*sqrt(21)*sqrt(-2*x + 1) - log((sqrt(21)*(3*x -
5) - 21*sqrt(-2*x + 1))/(3*x + 2)))
```

Sympy [A] time = 3.56448, size = 80, normalized size = 1.95

$$-\frac{5\sqrt{-2x+1}}{3}-\frac{2\left(\begin{cases}-\frac{\sqrt{21}\operatorname{acoth}\left(\frac{\sqrt{21}}{3\sqrt{-2x+1}}\right)}{21} & \text{for}\ \frac{1}{-2x+1}>\frac{3}{7}\\ -\frac{\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}}{3\sqrt{-2x+1}}\right)}{21} & \text{for}\ \frac{1}{-2x+1}<\frac{3}{7}\end{cases}\right)}{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)/(2+3*x)/(1-2*x)**(1/2),x)
```

```
[Out] -5*sqrt(-2*x + 1)/3 - 2*Piecewise((-sqrt(21)*acoth(sqrt(21)/(3*sq
rt(-2*x + 1)))/21, 1/(-2*x + 1) > 3/7), (-sqrt(21)*atanh(sqrt(21)
/(3*sqrt(-2*x + 1)))/21, 1/(-2*x + 1) < 3/7))/3
```

GIAC/XCAS [A] time = 0.230919, size = 66, normalized size = 1.61

$$-\frac{1}{63}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{5}{3}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/((3*x + 2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] -1/63*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqrt(2
1) + 3*sqrt(-2*x + 1))) - 5/3*sqrt(-2*x + 1)
```

3.1991 $\int \frac{3+5x}{\sqrt{1-2x}(2+3x)^2}\,dx$

Optimal. Leaf size=48

$$\frac{\sqrt{1-2x}}{21(3x+2)}-\frac{68\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{21\sqrt{21}}$$

```
[Out] Sqrt[1 - 2*x]/(21*(2 + 3*x)) - (68*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x
]])/(21*Sqrt[21])
```

Rubi [A] time = 0.0540135, antiderivative size = 48, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.136

$$\frac{\sqrt{1-2x}}{21(3x+2)}-\frac{68\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{21\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)/(Sqrt[1 - 2*x]*(2 + 3*x)^2),x]
```

```
[Out] Sqrt[1 - 2*x]/(21*(2 + 3*x)) - (68*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x
]])/(21*Sqrt[21])
```

Rubi in Sympy [A] time = 5.27715, size = 37, normalized size = 0.77

$$\frac{\sqrt{-2x+1}}{21\,(3x+2)}-\frac{68\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{441}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)/(2+3*x)**2/(1-2*x)**(1/2),x)
```

```
[Out] sqrt(-2*x + 1)/(21*(3*x + 2)) - 68*sqrt(21)*atanh(sqrt(21)*sqrt(-
2*x + 1)/7)/441
```

Mathematica [A] time = 0.0708318, size = 45, normalized size = 0.94

$$\frac{\sqrt{1-2x}}{63x+42}-\frac{68\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{21\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)/(Sqrt[1 - 2*x]*(2 + 3*x)^2),x]
```

```
[Out] Sqrt[1 - 2*x]/(42 + 63*x) - (68*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])
/(21*Sqrt[21])
```

Maple [A] time = 0.013, size = 36, normalized size = 0.8

$$-\frac{2}{63}\sqrt{1-2\,x}\left(-\frac{4}{3}-2\,x\right)^{-1}-\frac{68\,\sqrt{21}}{441}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((3+5*x)/(2+3*x)^2/(1-2*x)^(1/2),x)
```

```
[Out] -2/63*(1-2*x)^(1/2)/(-4/3-2*x)-68/441*arctanh(1/7*21^(1/2)*(1-2*x
)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.50246, size = 72, normalized size = 1.5

$$\frac{34}{441}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{\sqrt{-2x+1}}{21(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)/((3*x + 2)^2*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 34/441*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21) + 3*
sqrt(-2*x + 1))) + 1/21*sqrt(-2*x + 1)/(3*x + 2)
```

Fricas [A] time = 0.231937, size = 80, normalized size = 1.67

$$\frac{\sqrt{21}\left(34(3x+2)\log\left(\frac{\sqrt{21}(3x-5)+21\sqrt{-2x+1}}{3x+2}\right)+\sqrt{21}\sqrt{-2x+1}\right)}{441(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)/((3*x + 2)^2*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] 1/441*sqrt(21)*(34*(3*x + 2)*log((sqrt(21)*(3*x - 5) + 21*sqrt(-2
*x + 1))/(3*x + 2)) + sqrt(21)*sqrt(-2*x + 1))/(3*x + 2)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((3+5*x)/(2+3*x)**2/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.23556, size = 76, normalized size = 1.58

$$\frac{34}{441}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{\sqrt{-2x+1}}{21(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)/((3*x + 2)^2*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 34/441*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqrt(
21) + 3*sqrt(-2*x + 1))) + 1/21*sqrt(-2*x + 1)/(3*x + 2)
```

3.1992 $\int \frac{3+5x}{\sqrt{1-2x}(2+3x)^3} dx$

Optimal. Leaf size=68

$$-\frac{67\sqrt{1-2x}}{294(3x+2)}+\frac{\sqrt{1-2x}}{42(3x+2)^2}-\frac{67\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{147\sqrt{21}}$$

```
[Out] Sqrt[1 - 2*x]/(42*(2 + 3*x)^2) - (67*Sqrt[1 - 2*x])/(294*(2 + 3*x
)) - (67*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(147*Sqrt[21])
```

Rubi [A] time = 0.0691723, antiderivative size = 68, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{67\sqrt{1-2x}}{294(3x+2)}+\frac{\sqrt{1-2x}}{42(3x+2)^2}-\frac{67\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{147\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)/(Sqrt[1 - 2*x]*(2 + 3*x)^3),x]
```

```
[Out] Sqrt[1 - 2*x]/(42*(2 + 3*x)^2) - (67*Sqrt[1 - 2*x])/(294*(2 + 3*x
)) - (67*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(147*Sqrt[21])
```

Rubi in Sympy [A] time = 6.89843, size = 56, normalized size = 0.82

$$-\frac{67\sqrt{-2x+1}}{294\,(3x+2)}+\frac{\sqrt{-2x+1}}{42\,(3x+2)^2}-\frac{67\sqrt{21}\,\mathrm{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{3087}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)/(2+3*x)**3/(1-2*x)**(1/2),x)
```

```
[Out] -67*sqrt(-2*x + 1)/(294*(3*x + 2)) + sqrt(-2*x + 1)/(42*(3*x + 2)
**2) - 67*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/3087
```

Mathematica [A] time = 0.0951428, size = 53, normalized size = 0.78

$$-\frac{\sqrt{1-2x}(201x+127)}{294(3x+2)^2}-\frac{67\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{147\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)/(Sqrt[1 - 2*x]*(2 + 3*x)^3),x]
```

```
[Out] -(Sqrt[1 - 2*x]*(127 + 201*x))/(294*(2 + 3*x)^2) - (67*ArcTanh[Sq
rt[3/7]*Sqrt[1 - 2*x]])/(147*Sqrt[21])
```

Maple [A] time = 0.015, size = 48, normalized size = 0.7

$$-36\,\frac{1}{(-4-6\,x)^2}\left(-\frac{67\,(1-2\,x)^{3/2}}{1764}+\frac{65\,\sqrt{1-2\,x}}{756}\right)-\frac{67\,\sqrt{21}}{3087}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)/(2+3*x)^3/(1-2*x)^(1/2),x)
```

```
[Out] -36*(-67/1764*(1-2*x)^(3/2)+65/756*(1-2*x)^(1/2))/(-4-6*x)^2-67/3
087*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.50663, size = 100, normalized size = 1.47

$$\frac{67}{6174}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{201\,(-2x+1)^{\frac{3}{2}}-455\sqrt{-2x+1}}{147\left(9\,(2x-1)^2+84x+7\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)/((3*x + 2)^3*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 67/6174*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21) + 3
*sqrt(-2*x + 1))) + 1/147*(201*(-2*x + 1)^(3/2) - 455*sqrt(-2*x +
 1))/(9*(2*x - 1)^2 + 84*x + 7)
```

Fricas [A] time = 0.23157, size = 100, normalized size = 1.47

$$-\frac{\sqrt{21}\left(\sqrt{21}(201x+127)\sqrt{-2x+1}-67\left(9x^2+12x+4\right)\log\left(\frac{\sqrt{21}(3x-5)+21\sqrt{-2x+1}}{3x+2}\right)\right)}{6174\,(9x^2+12x+4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)/((3*x + 2)^3*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/6174*sqrt(21)*(sqrt(21)*(201*x + 127)*sqrt(-2*x + 1) - 67*(9*x
^2 + 12*x + 4)*log((sqrt(21)*(3*x - 5) + 21*sqrt(-2*x + 1))/(3*x
+ 2)))/(9*x^2 + 12*x + 4)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)/(2+3*x)**3/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.220194, size = 92, normalized size = 1.35

$$\frac{67}{6174}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{201\,(-2x+1)^{\frac{3}{2}}-455\sqrt{-2x+1}}{588\,(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)/((3*x + 2)^3*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 67/6174*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqrt
(21) + 3*sqrt(-2*x + 1))) + 1/588*(201*(-2*x + 1)^(3/2) - 455*sqr
t(-2*x + 1))/(3*x + 2)^2
```

3.1993 $\int \frac{3+5x}{\sqrt{1-2x}(2+3x)^4} \, dx$

Optimal. Leaf size=88

$$-\frac{50\sqrt{1-2x}}{1029(3x+2)}-\frac{50\sqrt{1-2x}}{441(3x+2)^2}+\frac{\sqrt{1-2x}}{63(3x+2)^3}-\frac{100\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{1029\sqrt{21}}$$

```
[Out] Sqrt[1 - 2*x]/(63*(2 + 3*x)^3) - (50*Sqrt[1 - 2*x])/(441*(2 + 3*x
)^2) - (50*Sqrt[1 - 2*x])/(1029*(2 + 3*x)) - (100*ArcTanh[Sqrt[3/
7]*Sqrt[1 - 2*x]])/(1029*Sqrt[21])
```

Rubi [A] time = 0.090328, antiderivative size = 88, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{50\sqrt{1-2x}}{1029(3x+2)}-\frac{50\sqrt{1-2x}}{441(3x+2)^2}+\frac{\sqrt{1-2x}}{63(3x+2)^3}-\frac{100\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{1029\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)/(Sqrt[1 - 2*x]*(2 + 3*x)^4),x]
```

```
[Out] Sqrt[1 - 2*x]/(63*(2 + 3*x)^3) - (50*Sqrt[1 - 2*x])/(441*(2 + 3*x
)^2) - (50*Sqrt[1 - 2*x])/(1029*(2 + 3*x)) - (100*ArcTanh[Sqrt[3/
7]*Sqrt[1 - 2*x]])/(1029*Sqrt[21])
```

Rubi in Sympy [A] time = 8.72895, size = 75, normalized size = 0.85

$$-\frac{50\sqrt{-2x+1}}{1029\,(3x+2)}-\frac{50\sqrt{-2x+1}}{441\,(3x+2)^2}+\frac{\sqrt{-2x+1}}{63\,(3x+2)^3}-\frac{100\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21609}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)/(2+3*x)**4/(1-2*x)**(1/2),x)
```

```
[Out] -50*sqrt(-2*x + 1)/(1029*(3*x + 2)) - 50*sqrt(-2*x + 1)/(441*(3*x
 + 2)**2) + sqrt(-2*x + 1)/(63*(3*x + 2)**3) - 100*sqrt(21)*atanh
(sqrt(21)*sqrt(-2*x + 1)/7)/21609
```

Mathematica [A] time = 0.0976841, size = 58, normalized size = 0.66

$$\frac{-\frac{21\sqrt{1-2x}\left(450x^2+950x+417\right)}{(3x+2)^3}-100\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{21609}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)/(Sqrt[1 - 2*x]*(2 + 3*x)^4),x]
```

```
[Out] ((-21*Sqrt[1 - 2*x]*(417 + 950*x + 450*x^2))/(2 + 3*x)^3 - 100*Sq
rt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/21609
```

Maple [A] time = 0.014, size = 57, normalized size = 0.7

$$216\frac{1}{\left(-4-6x\right)^{3}}\left(\frac{25\left(1-2x\right)^{5/2}}{6174}-\frac{100\left(1-2x\right)^{3/2}}{3969}+\frac{41\sqrt{1-2x}}{1134}\right)-\frac{100\sqrt{21}}{21609}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)/(2+3*x)^4/(1-2*x)^(1/2),x)
```

```
[Out] 216*(25/6174*(1-2*x)^(5/2)-100/3969*(1-2*x)^(3/2)+41/1134*(1-2*x)
^(1/2))/(-4-6*x)^3-100/21609*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*
21^(1/2)
```

Maxima [A] time = 1.49497, size = 124, normalized size = 1.41

$$\frac{50}{21609}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{4\left(225\left(-2x+1\right)^{\frac{5}{2}}-1400\left(-2x+1\right)^{\frac{3}{2}}+2009\sqrt{-2x+1}\right)}{1029\left(27\left(2x-1\right)^{3}+189\left(2x-1\right)^{2}+882x-98\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/((3*x + 2)^4*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 50/21609*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21) +
3*sqrt(-2*x + 1))) - 4/1029*(225*(-2*x + 1)^(5/2) - 1400*(-2*x +
1)^(3/2) + 2009*sqrt(-2*x + 1))/(27*(2*x - 1)^3 + 189*(2*x - 1)^2
 + 882*x - 98)
```

Fricas [A] time = 0.230433, size = 120, normalized size = 1.36

$$-\frac{\sqrt{21}\left(\sqrt{21}\left(450x^{2}+950x+417\right)\sqrt{-2x+1}-50\left(27x^{3}+54x^{2}+36x+8\right)\log\left(\frac{\sqrt{21}(3x-5)+21\sqrt{-2x+1}}{3x+2}\right)\right)}{21609\left(27x^{3}+54x^{2}+36x+8\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/((3*x + 2)^4*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/21609*sqrt(21)*(sqrt(21)*(450*x^2 + 950*x + 417)*sqrt(-2*x + 1
) - 50*(27*x^3 + 54*x^2 + 36*x + 8)*log((sqrt(21)*(3*x - 5) + 21*
sqrt(-2*x + 1))/(3*x + 2)))/(27*x^3 + 54*x^2 + 36*x + 8)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)/(2+3*x)**4/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.211222, size = 113, normalized size = 1.28

$$\frac{50}{21609}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{225\left(2x-1\right)^{2}\sqrt{-2x+1}-1400\left(-2x+1\right)^{\frac{3}{2}}+2009\sqrt{-2x+1}}{2058\left(3x+2\right)^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)/((3*x + 2)^4*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 50/21609*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqr
t(21) + 3*sqrt(-2*x + 1))) - 1/2058*(225*(2*x - 1)^2*sqrt(-2*x +
1) - 1400*(-2*x + 1)^(3/2) + 2009*sqrt(-2*x + 1))/(3*x + 2)^3
```

3.1994 $\int \frac{3+5x}{\sqrt{1-2x}(2+3x)^5}\,dx$

Optimal. Leaf size=108

$$-\frac{95\sqrt{1-2x}}{8232(3x+2)}-\frac{95\sqrt{1-2x}}{3528(3x+2)^2}-\frac{19\sqrt{1-2x}}{252(3x+2)^3}+\frac{\sqrt{1-2x}}{84(3x+2)^4}-\frac{95\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{4116\sqrt{21}}$$

```
[Out] Sqrt[1 - 2*x]/(84*(2 + 3*x)^4) - (19*Sqrt[1 - 2*x])/(252*(2 + 3*x
)^3) - (95*Sqrt[1 - 2*x])/(3528*(2 + 3*x)^2) - (95*Sqrt[1 - 2*x])
/(8232*(2 + 3*x)) - (95*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(4116*S
qrt[21])
```

Rubi [A] time = 0.110913, antiderivative size = 108, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{95\sqrt{1-2x}}{8232(3x+2)}-\frac{95\sqrt{1-2x}}{3528(3x+2)^2}-\frac{19\sqrt{1-2x}}{252(3x+2)^3}+\frac{\sqrt{1-2x}}{84(3x+2)^4}-\frac{95\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{4116\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)/(Sqrt[1 - 2*x]*(2 + 3*x)^5),x]
```

```
[Out] Sqrt[1 - 2*x]/(84*(2 + 3*x)^4) - (19*Sqrt[1 - 2*x])/(252*(2 + 3*x
)^3) - (95*Sqrt[1 - 2*x])/(3528*(2 + 3*x)^2) - (95*Sqrt[1 - 2*x])
/(8232*(2 + 3*x)) - (95*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(4116*S
qrt[21])
```

Rubi in Sympy [A] time = 10.5144, size = 94, normalized size = 0.87

$$-\frac{95\sqrt{-2x+1}}{8232\,(3x+2)}-\frac{95\sqrt{-2x+1}}{3528\,(3x+2)^2}-\frac{19\sqrt{-2x+1}}{252\,(3x+2)^3}+\frac{\sqrt{-2x+1}}{84\,(3x+2)^4}-\frac{95\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{86436}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)/(2+3*x)**5/(1-2*x)**(1/2),x)
```

```
[Out] -95*sqrt(-2*x + 1)/(8232*(3*x + 2)) - 95*sqrt(-2*x + 1)/(3528*(3*
x + 2)**2) - 19*sqrt(-2*x + 1)/(252*(3*x + 2)**3) + sqrt(-2*x + 1
)/(84*(3*x + 2)**4) - 95*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7
)/86436
```

Mathematica [A] time = 0.114459, size = 63, normalized size = 0.58

$$-\frac{\sqrt{1-2x}\left(2565x^3+7125x^2+7942x+2790\right)}{8232(3x+2)^4}-\frac{95\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{4116\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)/(Sqrt[1 - 2*x]*(2 + 3*x)^5),x]
```

```
[Out] -(Sqrt[1 - 2*x]*(2790 + 7942*x + 7125*x^2 + 2565*x^3))/(8232*(2 +
 3*x)^4) - (95*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(4116*Sqrt[21])
```

Maple [A] time = 0.014, size = 66, normalized size = 0.6

$$-1296\frac{1}{(-4-6x)^4}\left(-\frac{95(1-2x)^{7/2}}{197568}+\frac{1045(1-2x)^{5/2}}{254016}-\frac{1387(1-2x)^{3/2}}{108864}+\frac{1447\sqrt{1-2x}}{108864}\right)-\frac{95\sqrt{21}}{86436}\mathrm{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)/(2+3*x)^5/(1-2*x)^(1/2),x)
```

```
[Out] -1296*(-95/197568*(1-2*x)^(7/2)+1045/254016*(1-2*x)^(5/2)-1387/10
8864*(1-2*x)^(3/2)+1447/108864*(1-2*x)^(1/2))/(-4-6*x)^4-95/86436
*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.50773, size = 149, normalized size = 1.38

$$\frac{95}{172872}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{2565(-2x+1)^{\frac{7}{2}}-21945(-2x+1)^{\frac{5}{2}}+67963(-2x+1)^{\frac{3}{2}}-70903\sqrt{-2x+1}}{4116\left(81(2x-1)^4+756(2x-1)^3+2646(2x-1)^2+8232x-1715\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/((3*x + 2)^5*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 95/172872*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21) +
 3*sqrt(-2*x + 1))) + 1/4116*(2565*(-2*x + 1)^(7/2) - 21945*(-2*x
 + 1)^(5/2) + 67963*(-2*x + 1)^(3/2) - 70903*sqrt(-2*x + 1))/(81*
(2*x - 1)^4 + 756*(2*x - 1)^3 + 2646*(2*x - 1)^2 + 8232*x - 1715)
```

Fricas [A] time = 0.238846, size = 140, normalized size = 1.3

$$-\frac{\sqrt{21}\left(\sqrt{21}\left(2565x^3+7125x^2+7942x+2790\right)\sqrt{-2x+1}-95\left(81x^4+216x^3+216x^2+96x+16\right)\log\left(\frac{\sqrt{21}(3x-5)+21\sqrt{-2x+}}{3x+2}\right.\right.}{172872\left(81x^4+216x^3+216x^2+96x+16\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/((3*x + 2)^5*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/172872*sqrt(21)*(sqrt(21)*(2565*x^3 + 7125*x^2 + 7942*x + 2790
)*sqrt(-2*x + 1) - 95*(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16)*lo
g((sqrt(21)*(3*x - 5) + 21*sqrt(-2*x + 1))/(3*x + 2)))/(81*x^4 +
216*x^3 + 216*x^2 + 96*x + 16)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)/(2+3*x)**5/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.21318, size = 135, normalized size = 1.25

$$\frac{95}{172872}\,\sqrt{21}\ln\left(\frac{\left|-2\,\sqrt{21}+6\,\sqrt{-2\,x+1}\right|}{2\,\left(\sqrt{21}+3\,\sqrt{-2\,x+1}\right)}\right)-\frac{2565\,(2\,x-1)^{3}\sqrt{-2\,x+1}+21945\,(2\,x-1)^{2}\sqrt{-2\,x+1}-67963\,(-2\,x+1)^{\frac{3}{2}}+70903\,\sqrt{-2\,x+1}}{65856\,(3\,x+2)^{4}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)/((3*x + 2)^5*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 95/172872*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sq
rt(21) + 3*sqrt(-2*x + 1))) - 1/65856*(2565*(2*x - 1)^3*sqrt(-2*x
 + 1) + 21945*(2*x - 1)^2*sqrt(-2*x + 1) - 67963*(-2*x + 1)^(3/2)
 + 70903*sqrt(-2*x + 1))/(3*x + 2)^4
```

3.1995 $\int \frac{(2+3x)^5(3+5x)^2}{\sqrt{1-2x}}\,dx$

Optimal. Leaf size=105

$$\frac{405}{128}(1-2x)^{15/2}-\frac{97605(1-2x)^{13/2}}{1664}+\frac{672003(1-2x)^{11/2}}{1408}-\frac{285565}{128}(1-2x)^{9/2}+\frac{842415}{128}(1-2x)^{7/2}-\frac{1623419}{128}(1-2x)^{5/2}+\frac{6206585}{384}(1-2x)^{3/2}-\frac{2033647}{128}\sqrt{1-2x}$$

```
[Out] (-2033647*Sqrt[1 - 2*x])/128 + (6206585*(1 - 2*x)^(3/2))/384 - (1
623419*(1 - 2*x)^(5/2))/128 + (842415*(1 - 2*x)^(7/2))/128 - (285
565*(1 - 2*x)^(9/2))/128 + (672003*(1 - 2*x)^(11/2))/1408 - (9760
5*(1 - 2*x)^(13/2))/1664 + (405*(1 - 2*x)^(15/2))/128
```

Rubi [A] time = 0.0801906, antiderivative size = 105, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.042

$$\frac{405}{128}(1-2x)^{15/2}-\frac{97605(1-2x)^{13/2}}{1664}+\frac{672003(1-2x)^{11/2}}{1408}-\frac{285565}{128}(1-2x)^{9/2}+\frac{842415}{128}(1-2x)^{7/2}-\frac{1623419}{128}(1-2x)^{5/2}+\frac{6206585}{384}(1-2x)^{3/2}-\frac{2033647}{128}\sqrt{1-2x}$$

Antiderivative was successfully verified.

```
[In] Int[((2 + 3*x)^5*(3 + 5*x)^2)/Sqrt[1 - 2*x],x]
```

```
[Out] (-2033647*Sqrt[1 - 2*x])/128 + (6206585*(1 - 2*x)^(3/2))/384 - (1
623419*(1 - 2*x)^(5/2))/128 + (842415*(1 - 2*x)^(7/2))/128 - (285
565*(1 - 2*x)^(9/2))/128 + (672003*(1 - 2*x)^(11/2))/1408 - (9760
5*(1 - 2*x)^(13/2))/1664 + (405*(1 - 2*x)^(15/2))/128
```

Rubi in Sympy [A] time = 11.2505, size = 94, normalized size = 0.9

$$\frac{405\,(-2x+1)^{\frac{15}{2}}}{128}-\frac{97605\,(-2x+1)^{\frac{13}{2}}}{1664}+\frac{672003\,(-2x+1)^{\frac{11}{2}}}{1408}-\frac{285565\,(-2x+1)^{\frac{9}{2}}}{128}+\frac{842415\,(-2x+1)^{\frac{7}{2}}}{128}-\frac{1623419\,(-2x+1)^{\frac{5}{2}}}{128}+\frac{6206585\,(-2x+1)^{\frac{3}{2}}}{384}-\frac{2033647\sqrt{-2x+1}}{128}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**5*(3+5*x)**2/(1-2*x)**(1/2),x)
```

```
[Out] 405*(-2*x + 1)**(15/2)/128 - 97605*(-2*x + 1)**(13/2)/1664 + 6720
03*(-2*x + 1)**(11/2)/1408 - 285565*(-2*x + 1)**(9/2)/128 + 84241
5*(-2*x + 1)**(7/2)/128 - 1623419*(-2*x + 1)**(5/2)/128 + 6206585
*(-2*x + 1)**(3/2)/384 - 2033647*sqrt(-2*x + 1)/128
```

Mathematica [A] time = 0.0572894, size = 48, normalized size = 0.46

$$-\frac{1}{429}\sqrt{1-2x}\left(173745x^7+1002375x^6+2632743x^5+4212525x^4+4694340x^3+4058988x^2+3152152x+3275704\right)$$

Antiderivative was successfully verified.

```
[In] Integrate[((2 + 3*x)^5*(3 + 5*x)^2)/Sqrt[1 - 2*x],x]
```

```
[Out] -(Sqrt[1 - 2*x]*(3275704 + 3152152*x + 4058988*x^2 + 4694340*x^3
+ 4212525*x^4 + 2632743*x^5 + 1002375*x^6 + 173745*x^7))/429
```

Maple [A] time = 0.007, size = 45, normalized size = 0.4

$$-\frac{173745\,x^7+1002375\,x^6+2632743\,x^5+4212525\,x^4+4694340\,x^3+4058988\,x^2+3152152\,x+3275704}{429}\sqrt{1-2\,x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^5*(3+5*x)^2/(1-2*x)^(1/2),x)
```

```
[Out] -1/429*(173745*x^7+1002375*x^6+2632743*x^5+4212525*x^4+4694340*x^
3+4058988*x^2+3152152*x+3275704)*(1-2*x)^(1/2)
```

Maxima [A] time = 1.3435, size = 99, normalized size = 0.94

$$\frac{405}{128}\,(-2\,x+1)^{\frac{15}{2}}-\frac{97605}{1664}\,(-2\,x+1)^{\frac{13}{2}}+\frac{672003}{1408}\,(-2\,x+1)^{\frac{11}{2}}-\frac{285565}{128}\,(-2\,x+1)^{\frac{9}{2}}+\frac{842415}{128}\,(-2\,x+1)^{\frac{7}{2}}-\frac{1623419}{128}\,(-2\,x+1)^{\frac{5}{2}}+\frac{6206585}{384}\,(-2\,x+1)^{\frac{3}{2}}-\frac{2033647}{128}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^5/sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] 405/128*(-2*x + 1)^(15/2) - 97605/1664*(-2*x + 1)^(13/2) + 672003
/1408*(-2*x + 1)^(11/2) - 285565/128*(-2*x + 1)^(9/2) + 842415/12
8*(-2*x + 1)^(7/2) - 1623419/128*(-2*x + 1)^(5/2) + 6206585/384*(
-2*x + 1)^(3/2) - 2033647/128*sqrt(-2*x + 1)
```

Fricas [A] time = 0.213941, size = 59, normalized size = 0.56

$$-\frac{1}{429}\left(173745\,x^7+1002375\,x^6+2632743\,x^5+4212525\,x^4+4694340\,x^3+4058988\,x^2+3152152\,x+3275704\right)\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^5/sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] -1/429*(173745*x^7 + 1002375*x^6 + 2632743*x^5 + 4212525*x^4 + 46
94340*x^3 + 4058988*x^2 + 3152152*x + 3275704)*sqrt(-2*x + 1)
```

Sympy [A] time = 24.5756, size = 94, normalized size = 0.9

$$\frac{405\,(-2x+1)^{\frac{15}{2}}}{128}-\frac{97605\,(-2x+1)^{\frac{13}{2}}}{1664}+\frac{672003\,(-2x+1)^{\frac{11}{2}}}{1408}-\frac{285565\,(-2x+1)^{\frac{9}{2}}}{128}+\frac{842415\,(-2x+1)^{\frac{7}{2}}}{128}-\frac{1623419\,(-2x+1)^{\frac{5}{2}}}{128}+\frac{6206585\,(-2x+1)^{\frac{3}{2}}}{384}-\frac{2033647\sqrt{-2x+1}}{128}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**5*(3+5*x)**2/(1-2*x)**(1/2),x)
```

```
[Out] 405*(-2*x + 1)**(15/2)/128 - 97605*(-2*x + 1)**(13/2)/1664 + 6720
03*(-2*x + 1)**(11/2)/1408 - 285565*(-2*x + 1)**(9/2)/128 + 84241
```

```
5*(-2*x + 1)**(7/2)/128 - 1623419*(-2*x + 1)**(5/2)/128 + 6206585
*(-2*x + 1)**(3/2)/384 - 2033647*sqrt(-2*x + 1)/128
```

GIAC/XCAS [A] time = 0.210944, size = 155, normalized size = 1.48

$$-\frac{405}{128}(2x-1)^{7}\sqrt{-2x+1}-\frac{97605}{1664}(2x-1)^{6}\sqrt{-2x+1}-\frac{672003}{1408}(2x-1)^{5}\sqrt{-2x+1}-\frac{285565}{128}(2x-1)^{4}\sqrt{-2x+1}-\frac{842415}{128}(2x-1)^{3}\sqrt{-2x+1}-\frac{1623419}{128}(2x-1)^{2}\sqrt{-2x+1}+\frac{6206585}{384}(-2x+1)^{\frac{3}{2}}-\frac{2033647}{128}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(3*x + 2)^5/sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] -405/128*(2*x - 1)^7*sqrt(-2*x + 1) - 97605/1664*(2*x - 1)^6*sqrt
(-2*x + 1) - 672003/1408*(2*x - 1)^5*sqrt(-2*x + 1) - 285565/128*
(2*x - 1)^4*sqrt(-2*x + 1) - 842415/128*(2*x - 1)^3*sqrt(-2*x + 1
) - 1623419/128*(2*x - 1)^2*sqrt(-2*x + 1) + 6206585/384*(-2*x +
1)^(3/2) - 2033647/128*sqrt(-2*x + 1)
```

3.1996 $\int \frac{(2+3x)^4(3+5x)^2}{\sqrt{1-2x}}\,dx$

Optimal. Leaf size=92

$$-\frac{2025}{832}(1-2x)^{13/2}+\frac{13905}{352}(1-2x)^{11/2}-\frac{17679}{64}(1-2x)^{9/2}+\frac{17337}{16}(1-2x)^{7/2}-\frac{832951}{320}(1-2x)^{5/2}+\frac{381073}{96}(1-2x)^{3/2}-\frac{290521}{64}\sqrt{1-2x}$$

```
[Out] (-290521*Sqrt[1 - 2*x])/64 + (381073*(1 - 2*x)^(3/2))/96 - (83295
1*(1 - 2*x)^(5/2))/320 + (17337*(1 - 2*x)^(7/2))/16 - (17679*(1 -
 2*x)^(9/2))/64 + (13905*(1 - 2*x)^(11/2))/352 - (2025*(1 - 2*x)^
(13/2))/832
```

Rubi [A] time = 0.0769236, antiderivative size = 92, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.042

$$-\frac{2025}{832}(1-2x)^{13/2}+\frac{13905}{352}(1-2x)^{11/2}-\frac{17679}{64}(1-2x)^{9/2}+\frac{17337}{16}(1-2x)^{7/2}-\frac{832951}{320}(1-2x)^{5/2}+\frac{381073}{96}(1-2x)^{3/2}-\frac{290521}{64}\sqrt{1-2x}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^4*(3 + 5*x)^2)/Sqrt[1 - 2*x],x]
```

```
[Out] (-290521*Sqrt[1 - 2*x])/64 + (381073*(1 - 2*x)^(3/2))/96 - (83295
1*(1 - 2*x)^(5/2))/320 + (17337*(1 - 2*x)^(7/2))/16 - (17679*(1 -
 2*x)^(9/2))/64 + (13905*(1 - 2*x)^(11/2))/352 - (2025*(1 - 2*x)^
(13/2))/832
```

Rubi in Sympy [A] time = 10.2182, size = 82, normalized size = 0.89

$$-\frac{2025(-2x+1)^{\frac{13}{2}}}{832}+\frac{13905(-2x+1)^{\frac{11}{2}}}{352}-\frac{17679(-2x+1)^{\frac{9}{2}}}{64}+\frac{17337(-2x+1)^{\frac{7}{2}}}{16}-\frac{832951(-2x+1)^{\frac{5}{2}}}{320}+\frac{381073(-2x+1)^{\frac{3}{2}}}{96}-\frac{290521\sqrt{-2x+1}}{64}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4*(3+5*x)**2/(1-2*x)**(1/2),x)
```

```
[Out] -2025*(-2*x + 1)**(13/2)/832 + 13905*(-2*x + 1)**(11/2)/352 - 176
79*(-2*x + 1)**(9/2)/64 + 17337*(-2*x + 1)**(7/2)/16 - 832951*(-2
*x + 1)**(5/2)/320 + 381073*(-2*x + 1)**(3/2)/96 - 290521*sqrt(-2
*x + 1)/64
```

Mathematica [A] time = 0.0528762, size = 43, normalized size = 0.47

$$-\frac{\sqrt{1-2x}\left(334125x^6+1709100x^5+3954645x^4+5576580x^3+5587044x^2+4685656x+4994536\right)}{2145}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^4*(3 + 5*x)^2)/Sqrt[1 - 2*x],x]
```

```
[Out] -(Sqrt[1 - 2*x]*(4994536 + 4685656*x + 5587044*x^2 + 5576580*x^3
+ 3954645*x^4 + 1709100*x^5 + 334125*x^6))/2145
```

Maple [A] time = 0.007, size = 40, normalized size = 0.4

$$-\frac{334125\,x^6+1709100\,x^5+3954645\,x^4+5576580\,x^3+5587044\,x^2+4685656\,x+4994536}{2145}\sqrt{1-2\,x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((2+3*x)^4*(3+5*x)^2/(1-2*x)^(1/2),x)
```

```
[Out] -1/2145*(334125*x^6+1709100*x^5+3954645*x^4+5576580*x^3+5587044*x
^2+4685656*x+4994536)*(1-2*x)^(1/2)
```

Maxima [A] time = 1.35869, size = 86, normalized size = 0.93

$$-\frac{2025}{832}\,(-2\,x+1)^{\frac{13}{2}}+\frac{13905}{352}\,(-2\,x+1)^{\frac{11}{2}}-\frac{17679}{64}\,(-2\,x+1)^{\frac{9}{2}}+\frac{17337}{16}\,(-2\,x+1)^{\frac{7}{2}}-\frac{832951}{320}\,(-2\,x+1)^{\frac{5}{2}}+\frac{381073}{96}\,(-2\,x+1)^{\frac{3}{2}}-\frac{290521}{64}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(3*x + 2)^4/sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] -2025/832*(-2*x + 1)^(13/2) + 13905/352*(-2*x + 1)^(11/2) - 17679
/64*(-2*x + 1)^(9/2) + 17337/16*(-2*x + 1)^(7/2) - 832951/320*(-2
*x + 1)^(5/2) + 381073/96*(-2*x + 1)^(3/2) - 290521/64*sqrt(-2*x
+ 1)
```

Fricas [A] time = 0.214528, size = 53, normalized size = 0.58

$$-\frac{1}{2145}\left(334125\,x^6+1709100\,x^5+3954645\,x^4+5576580\,x^3+5587044\,x^2+4685656\,x+4994536\right)\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(3*x + 2)^4/sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] -1/2145*(334125*x^6 + 1709100*x^5 + 3954645*x^4 + 5576580*x^3 + 5
587044*x^2 + 4685656*x + 4994536)*sqrt(-2*x + 1)
```

Sympy [A] time = 18.7463, size = 82, normalized size = 0.89

$$-\frac{2025(-2x+1)^{\frac{13}{2}}}{832}+\frac{13905(-2x+1)^{\frac{11}{2}}}{352}-\frac{17679(-2x+1)^{\frac{9}{2}}}{64}+\frac{17337(-2x+1)^{\frac{7}{2}}}{16}-\frac{832951(-2x+1)^{\frac{5}{2}}}{320}+\frac{381073(-2x+1)^{\frac{3}{2}}}{96}-\frac{290521\sqrt{-2x+1}}{64}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2+3*x)**4*(3+5*x)**2/(1-2*x)**(1/2),x)
```

```
[Out] -2025*(-2*x + 1)**(13/2)/832 + 13905*(-2*x + 1)**(11/2)/352 - 176
79*(-2*x + 1)**(9/2)/64 + 17337*(-2*x + 1)**(7/2)/16 - 832951*(-2
```

```
*x + 1)**(5/2)/320 + 381073*(-2*x + 1)**(3/2)/96 - 290521*sqrt(-2
*x + 1)/64
```

GIAC/XCAS [A] time = 0.21014, size = 134, normalized size = 1.46

$$-\frac{2025}{832}\,(2\,x-1)^6\sqrt{-2\,x+1}-\frac{13905}{352}\,(2\,x-1)^5\sqrt{-2\,x+1}-\frac{17679}{64}\,(2\,x-1)^4\sqrt{-2\,x+1}-\frac{17337}{16}\,(2\,x-1)^3\sqrt{-2\,x+1}-\frac{832951}{320}\,(2\,x-1)^2\sqrt{-2\,x+1}+\frac{381073}{96}\,(-2\,x+1)^{\frac{3}{2}}-\frac{290521}{64}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(3*x + 2)^4/sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] -2025/832*(2*x - 1)^6*sqrt(-2*x + 1) - 13905/352*(2*x - 1)^5*sqrt
(-2*x + 1) - 17679/64*(2*x - 1)^4*sqrt(-2*x + 1) - 17337/16*(2*x
- 1)^3*sqrt(-2*x + 1) - 832951/320*(2*x - 1)^2*sqrt(-2*x + 1) + 3
81073/96*(-2*x + 1)^(3/2) - 290521/64*sqrt(-2*x + 1)
```

3.1997 $\int \frac{(2+3x)^3(3+5x)^2}{\sqrt{1-2x}}\,dx$

Optimal. Leaf size=79

$$\frac{675}{352}(1-2x)^{11/2}-\frac{855}{32}(1-2x)^{9/2}+\frac{17541}{112}(1-2x)^{7/2}-\frac{39977}{80}(1-2x)^{5/2}+\frac{91091}{96}(1-2x)^{3/2}-\frac{41503}{32}\sqrt{1-2x}$$

```
[Out] (-41503*Sqrt[1 - 2*x])/32 + (91091*(1 - 2*x)^(3/2))/96 - (39977*(
1 - 2*x)^(5/2))/80 + (17541*(1 - 2*x)^(7/2))/112 - (855*(1 - 2*x)
^(9/2))/32 + (675*(1 - 2*x)^(11/2))/352
```

Rubi [A] time = 0.0702331, antiderivative size = 79, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.042

$$\frac{675}{352}(1-2x)^{11/2}-\frac{855}{32}(1-2x)^{9/2}+\frac{17541}{112}(1-2x)^{7/2}-\frac{39977}{80}(1-2x)^{5/2}+\frac{91091}{96}(1-2x)^{3/2}-\frac{41503}{32}\sqrt{1-2x}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^3*(3 + 5*x)^2)/Sqrt[1 - 2*x],x]
```

```
[Out] (-41503*Sqrt[1 - 2*x])/32 + (91091*(1 - 2*x)^(3/2))/96 - (39977*(
1 - 2*x)^(5/2))/80 + (17541*(1 - 2*x)^(7/2))/112 - (855*(1 - 2*x)
^(9/2))/32 + (675*(1 - 2*x)^(11/2))/352
```

Rubi in Sympy [A] time = 9.48198, size = 70, normalized size = 0.89

$$\frac{675\left(-2x+1\right)^{\frac{11}{2}}}{352}-\frac{855\left(-2x+1\right)^{\frac{9}{2}}}{32}+\frac{17541\left(-2x+1\right)^{\frac{7}{2}}}{112}-\frac{39977\left(-2x+1\right)^{\frac{5}{2}}}{80}+\frac{91091\left(-2x+1\right)^{\frac{3}{2}}}{96}-\frac{41503\sqrt{-2x+1}}{32}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3*(3+5*x)**2/(1-2*x)**(1/2),x)
```

```
[Out] 675*(-2*x + 1)**(11/2)/352 - 855*(-2*x + 1)**(9/2)/32 + 17541*(-2
*x + 1)**(7/2)/112 - 39977*(-2*x + 1)**(5/2)/80 + 91091*(-2*x + 1
)**(3/2)/96 - 41503*sqrt(-2*x + 1)/32
```

Mathematica [A] time = 0.0489244, size = 38, normalized size = 0.48

$$-\frac{\sqrt{1-2x}\left(70875x^5+316575x^4+636795x^3+790023x^2+743822x+826982\right)}{1155}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^3*(3 + 5*x)^2)/Sqrt[1 - 2*x],x]
```

```
[Out] -(Sqrt[1 - 2*x]*(826982 + 743822*x + 790023*x^2 + 636795*x^3 + 31
6575*x^4 + 70875*x^5))/1155
```

Maple [A] time = 0.005, size = 35, normalized size = 0.4

$$-\frac{70875\,x^5+316575\,x^4+636795\,x^3+790023\,x^2+743822\,x+826982}{1155}\sqrt{1-2\,x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((2+3*x)^3*(3+5*x)^2/(1-2*x)^(1/2),x)
```

```
[Out] -1/1155*(70875*x^5+316575*x^4+636795*x^3+790023*x^2+743822*x+8269
82)*(1-2*x)^(1/2)
```

Maxima [A] time = 1.36342, size = 74, normalized size = 0.94

$$\frac{675}{352}\left(-2x+1\right)^{\frac{11}{2}}-\frac{855}{32}\left(-2x+1\right)^{\frac{9}{2}}+\frac{17541}{112}\left(-2x+1\right)^{\frac{7}{2}}-\frac{39977}{80}\left(-2x+1\right)^{\frac{5}{2}}+\frac{91091}{96}\left(-2x+1\right)^{\frac{3}{2}}-\frac{41503}{32}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^3/sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] 675/352*(-2*x + 1)^(11/2) - 855/32*(-2*x + 1)^(9/2) + 17541/112*(
-2*x + 1)^(7/2) - 39977/80*(-2*x + 1)^(5/2) + 91091/96*(-2*x + 1)
^(3/2) - 41503/32*sqrt(-2*x + 1)
```

Fricas [A] time = 0.206375, size = 46, normalized size = 0.58

$$-\frac{1}{1155}\left(70875x^5+316575x^4+636795x^3+790023x^2+743822x+826982\right)\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^3/sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] -1/1155*(70875*x^5 + 316575*x^4 + 636795*x^3 + 790023*x^2 + 74382
2*x + 826982)*sqrt(-2*x + 1)
```

Sympy [A] time = 13.9001, size = 70, normalized size = 0.89

$$\frac{675\left(-2x+1\right)^{\frac{11}{2}}}{352}-\frac{855\left(-2x+1\right)^{\frac{9}{2}}}{32}+\frac{17541\left(-2x+1\right)^{\frac{7}{2}}}{112}-\frac{39977\left(-2x+1\right)^{\frac{5}{2}}}{80}+\frac{91091\left(-2x+1\right)^{\frac{3}{2}}}{96}-\frac{41503\sqrt{-2x+1}}{32}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((2+3*x)**3*(3+5*x)**2/(1-2*x)**(1/2),x)
```

```
[Out] 675*(-2*x + 1)**(11/2)/352 - 855*(-2*x + 1)**(9/2)/32 + 17541*(-2
*x + 1)**(7/2)/112 - 39977*(-2*x + 1)**(5/2)/80 + 91091*(-2*x + 1
)**(3/2)/96 - 41503*sqrt(-2*x + 1)/32
```

GIAC/XCAS [A] time = 0.213217, size = 112, normalized size = 1.42

$$-\frac{675}{352}\left(2x-1\right)^5\sqrt{-2x+1}-\frac{855}{32}\left(2x-1\right)^4\sqrt{-2x+1}-\frac{17541}{112}\left(2x-1\right)^3\sqrt{-2x+1}-\frac{39977}{80}\left(2x-1\right)^2\sqrt{-2x+1}+\frac{91091}{96}\left(-2x+1\right)^{\frac{3}{2}}-\frac{41503}{32}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(3*x + 2)^3/sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] -675/352*(2*x - 1)^5*sqrt(-2*x + 1) - 855/32*(2*x - 1)^4*sqrt(-2*
x + 1) - 17541/112*(2*x - 1)^3*sqrt(-2*x + 1) - 39977/80*(2*x - 1
)^2*sqrt(-2*x + 1) + 91091/96*(-2*x + 1)^(3/2) - 41503/32*sqrt(-2
*x + 1)
```

3.1998 $\int \frac{(2+3x)^2(3+5x)^2}{\sqrt{1-2x}}\,dx$

Optimal. Leaf size=66

$$-\frac{25}{16}(1-2x)^{9/2}+\frac{255}{14}(1-2x)^{7/2}-\frac{3467}{40}(1-2x)^{5/2}+\frac{1309}{6}(1-2x)^{3/2}-\frac{5929}{16}\sqrt{1-2x}$$

```
[Out] (-5929*Sqrt[1 - 2*x])/16 + (1309*(1 - 2*x)^(3/2))/6 - (3467*(1 -
2*x)^(5/2))/40 + (255*(1 - 2*x)^(7/2))/14 - (25*(1 - 2*x)^(9/2))/
16
```

Rubi [A] time = 0.0639656, antiderivative size = 66, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.042

$$-\frac{25}{16}(1-2x)^{9/2}+\frac{255}{14}(1-2x)^{7/2}-\frac{3467}{40}(1-2x)^{5/2}+\frac{1309}{6}(1-2x)^{3/2}-\frac{5929}{16}\sqrt{1-2x}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^2*(3 + 5*x)^2)/Sqrt[1 - 2*x],x]
```

```
[Out] (-5929*Sqrt[1 - 2*x])/16 + (1309*(1 - 2*x)^(3/2))/6 - (3467*(1 -
2*x)^(5/2))/40 + (255*(1 - 2*x)^(7/2))/14 - (25*(1 - 2*x)^(9/2))/
16
```

Rubi in Sympy [A] time = 8.39035, size = 58, normalized size = 0.88

$$-\frac{25(-2x+1)^{\frac{9}{2}}}{16}+\frac{255(-2x+1)^{\frac{7}{2}}}{14}-\frac{3467(-2x+1)^{\frac{5}{2}}}{40}+\frac{1309(-2x+1)^{\frac{3}{2}}}{6}-\frac{5929\sqrt{-2x+1}}{16}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2*(3+5*x)**2/(1-2*x)**(1/2),x)
```

```
[Out] -25*(-2*x + 1)**(9/2)/16 + 255*(-2*x + 1)**(7/2)/14 - 3467*(-2*x
+ 1)**(5/2)/40 + 1309*(-2*x + 1)**(3/2)/6 - 5929*sqrt(-2*x + 1)/1
6
```

Mathematica [A] time = 0.0457333, size = 33, normalized size = 0.5

$$-\frac{1}{105}\sqrt{1-2x}\left(2625x^4+10050x^3+17391x^2+19574x+23354\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^2*(3 + 5*x)^2)/Sqrt[1 - 2*x],x]
```

```
[Out] -(Sqrt[1 - 2*x]*(23354 + 19574*x + 17391*x^2 + 10050*x^3 + 2625*x
^4))/105
```

Maple [A] time = 0.006, size = 30, normalized size = 0.5

$$-\frac{2625x^4+10050x^3+17391x^2+19574x+23354}{105}\sqrt{1-2x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2*(3+5*x)^2/(1-2*x)^(1/2),x)
```

```
[Out] -1/105*(2625*x^4+10050*x^3+17391*x^2+19574*x+23354)*(1-2*x)^(1/2)
```

Maxima [A] time = 1.34345, size = 62, normalized size = 0.94

$$-\frac{25}{16}\,(-2\,x+1)^{\frac{9}{2}}+\frac{255}{14}\,(-2\,x+1)^{\frac{7}{2}}-\frac{3467}{40}\,(-2\,x+1)^{\frac{5}{2}}+\frac{1309}{6}\,(-2\,x+1)^{\frac{3}{2}}-\frac{5929}{16}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^2/sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] -25/16*(-2*x + 1)^(9/2) + 255/14*(-2*x + 1)^(7/2) - 3467/40*(-2*x
 + 1)^(5/2) + 1309/6*(-2*x + 1)^(3/2) - 5929/16*sqrt(-2*x + 1)
```

Fricas [A] time = 0.201366, size = 39, normalized size = 0.59

$$-\frac{1}{105}\,\left(2625\,x^4+10050\,x^3+17391\,x^2+19574\,x+23354\right)\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^2/sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] -1/105*(2625*x^4 + 10050*x^3 + 17391*x^2 + 19574*x + 23354)*sqrt(
-2*x + 1)
```

Sympy [A] time = 9.88765, size = 58, normalized size = 0.88

$$-\frac{25\,(-2x+1)^{\frac{9}{2}}}{16}+\frac{255\,(-2x+1)^{\frac{7}{2}}}{14}-\frac{3467\,(-2x+1)^{\frac{5}{2}}}{40}+\frac{1309\,(-2x+1)^{\frac{3}{2}}}{6}-\frac{5929\sqrt{-2x+1}}{16}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2*(3+5*x)**2/(1-2*x)**(1/2),x)
```

```
[Out] -25*(-2*x + 1)**(9/2)/16 + 255*(-2*x + 1)**(7/2)/14 - 3467*(-2*x
+ 1)**(5/2)/40 + 1309*(-2*x + 1)**(3/2)/6 - 5929*sqrt(-2*x + 1)/1
6
```

GIAC/XCAS [A] time = 0.211166, size = 90, normalized size = 1.36

$$-\frac{25}{16}\,(2\,x-1)^4\sqrt{-2\,x+1}-\frac{255}{14}\,(2\,x-1)^3\sqrt{-2\,x+1}-\frac{3467}{40}\,(2\,x-1)^2\sqrt{-2\,x+1}+\frac{1309}{6}\,(-2\,x+1)^{\frac{3}{2}}-\frac{5929}{16}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^2/sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] -25/16*(2*x - 1)^4*sqrt(-2*x + 1) - 255/14*(2*x - 1)^3*sqrt(-2*x
+ 1) - 3467/40*(2*x - 1)^2*sqrt(-2*x + 1) + 1309/6*(-2*x + 1)^(3/
2) - 5929/16*sqrt(-2*x + 1)
```

3.1999 $\int \frac{(2+3x)(3+5x)^2}{\sqrt{1-2x}} \, dx$

Optimal. Leaf size=53

$$\frac{75}{56}(1-2x)^{7/2}-\frac{101}{8}(1-2x)^{5/2}+\frac{1133}{24}(1-2x)^{3/2}-\frac{847}{8}\sqrt{1-2x}$$

```
[Out] (-847*Sqrt[1 - 2*x])/8 + (1133*(1 - 2*x)^(3/2))/24 - (101*(1 - 2*
x)^(5/2))/8 + (75*(1 - 2*x)^(7/2))/56
```

Rubi [A] time = 0.0500309, antiderivative size = 53, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{75}{56}(1-2x)^{7/2}-\frac{101}{8}(1-2x)^{5/2}+\frac{1133}{24}(1-2x)^{3/2}-\frac{847}{8}\sqrt{1-2x}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)*(3 + 5*x)^2)/Sqrt[1 - 2*x],x]
```

```
[Out] (-847*Sqrt[1 - 2*x])/8 + (1133*(1 - 2*x)^(3/2))/24 - (101*(1 - 2*
x)^(5/2))/8 + (75*(1 - 2*x)^(7/2))/56
```

Rubi in Sympy [A] time = 7.00804, size = 46, normalized size = 0.87

$$\frac{75\,(-2x+1)^{\frac{7}{2}}}{56}-\frac{101\,(-2x+1)^{\frac{5}{2}}}{8}+\frac{1133\,(-2x+1)^{\frac{3}{2}}}{24}-\frac{847\sqrt{-2x+1}}{8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)*(3+5*x)**2/(1-2*x)**(1/2),x)
```

```
[Out] 75*(-2*x + 1)**(7/2)/56 - 101*(-2*x + 1)**(5/2)/8 + 1133*(-2*x +
1)**(3/2)/24 - 847*sqrt(-2*x + 1)/8
```

Mathematica [A] time = 0.030088, size = 28, normalized size = 0.53

$$-\frac{1}{21}\sqrt{1-2x}\left(225x^3+723x^2+1091x+1469\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)*(3 + 5*x)^2)/Sqrt[1 - 2*x],x]
```

```
[Out] -(Sqrt[1 - 2*x]*(1469 + 1091*x + 723*x^2 + 225*x^3))/21
```

Maple [A] time = 0.006, size = 25, normalized size = 0.5

$$-\frac{225\,x^3+723\,x^2+1091\,x+1469}{21}\sqrt{1-2\,x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)*(3+5*x)^2/(1-2*x)^(1/2),x)
```

```
[Out] -1/21*(225*x^3+723*x^2+1091*x+1469)*(1-2*x)^(1/2)
```

Maxima [A] time = 1.34657, size = 50, normalized size = 0.94

$$\frac{75}{56}\,(-2\,x+1)^{\frac{7}{2}}-\frac{101}{8}\,(-2\,x+1)^{\frac{5}{2}}+\frac{1133}{24}\,(-2\,x+1)^{\frac{3}{2}}-\frac{847}{8}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(3*x + 2)/sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] 75/56*(-2*x + 1)^(7/2) - 101/8*(-2*x + 1)^(5/2) + 1133/24*(-2*x +
 1)^(3/2) - 847/8*sqrt(-2*x + 1)
```

Fricas [A] time = 0.222704, size = 32, normalized size = 0.6

$$-\frac{1}{21}\,\left(225\,x^{3}+723\,x^{2}+1091\,x+1469\right)\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(3*x + 2)/sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] -1/21*(225*x^3 + 723*x^2 + 1091*x + 1469)*sqrt(-2*x + 1)
```

Sympy [A] time = 6.61471, size = 46, normalized size = 0.87

$$\frac{75\,(-2x+1)^{\frac{7}{2}}}{56}-\frac{101\,(-2x+1)^{\frac{5}{2}}}{8}+\frac{1133\,(-2x+1)^{\frac{3}{2}}}{24}-\frac{847\sqrt{-2x+1}}{8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)*(3+5*x)**2/(1-2*x)**(1/2),x)
```

```
[Out] 75*(-2*x + 1)**(7/2)/56 - 101*(-2*x + 1)**(5/2)/8 + 1133*(-2*x +
1)**(3/2)/24 - 847*sqrt(-2*x + 1)/8
```

GIAC/XCAS [A] time = 0.210893, size = 69, normalized size = 1.3

$$-\frac{75}{56}\,(2\,x-1)^{3}\sqrt{-2\,x+1}-\frac{101}{8}\,(2\,x-1)^{2}\sqrt{-2\,x+1}+\frac{1133}{24}\,(-2\,x+1)^{\frac{3}{2}}-\frac{847}{8}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)/sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] -75/56*(2*x - 1)^3*sqrt(-2*x + 1) - 101/8*(2*x - 1)^2*sqrt(-2*x +
 1) + 1133/24*(-2*x + 1)^(3/2) - 847/8*sqrt(-2*x + 1)
```

3.2000 $\int \frac{(3+5x)^2}{\sqrt{1-2x}} \, dx$

Optimal. Leaf size=40

$$-\frac{5}{4}(1-2x)^{5/2}+\frac{55}{6}(1-2x)^{3/2}-\frac{121}{4}\sqrt{1-2x}$$

```
[Out] (-121*Sqrt[1 - 2*x])/4 + (55*(1 - 2*x)^(3/2))/6 - (5*(1 - 2*x)^(5
/2))/4
```

Rubi [A] time = 0.0289431, antiderivative size = 40, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 17, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.059

$$-\frac{5}{4}(1-2x)^{5/2}+\frac{55}{6}(1-2x)^{3/2}-\frac{121}{4}\sqrt{1-2x}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^2/Sqrt[1 - 2*x],x]
```

```
[Out] (-121*Sqrt[1 - 2*x])/4 + (55*(1 - 2*x)^(3/2))/6 - (5*(1 - 2*x)^(5
/2))/4
```

Rubi in Sympy [A] time = 5.15926, size = 34, normalized size = 0.85

$$-\frac{5\left(-2x+1\right)^{\frac{5}{2}}}{4}+\frac{55\left(-2x+1\right)^{\frac{3}{2}}}{6}-\frac{121\sqrt{-2x+1}}{4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**2/(1-2*x)**(1/2),x)
```

```
[Out] -5*(-2*x + 1)**(5/2)/4 + 55*(-2*x + 1)**(3/2)/6 - 121*sqrt(-2*x +
 1)/4
```

Mathematica [A] time = 0.0207163, size = 23, normalized size = 0.57

$$-\frac{1}{3}\sqrt{1-2x}\left(15x^2+40x+67\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^2/Sqrt[1 - 2*x],x]
```

```
[Out] -(Sqrt[1 - 2*x]*(67 + 40*x + 15*x^2))/3
```

Maple [A] time = 0.004, size = 20, normalized size = 0.5

$$-\frac{15\,x^2+40\,x+67}{3}\sqrt{1-2\,x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^2/(1-2*x)^(1/2),x)
```

```
[Out] -1/3*(15*x^2+40*x+67)*(1-2*x)^(1/2)
```

Maxima [A] time = 1.34789, size = 38, normalized size = 0.95

$$-\frac{5}{4}\,(-2\,x+1)^{\frac{5}{2}}+\frac{55}{6}\,(-2\,x+1)^{\frac{3}{2}}-\frac{121}{4}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2/sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] -5/4*(-2*x + 1)^(5/2) + 55/6*(-2*x + 1)^(3/2) - 121/4*sqrt(-2*x +
 1)
```

Fricas [A] time = 0.213117, size = 26, normalized size = 0.65

$$-\frac{1}{3}\left(15\,x^2+40\,x+67\right)\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2/sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] -1/3*(15*x^2 + 40*x + 67)*sqrt(-2*x + 1)
```

Sympy [A] time = 2.1714, size = 134, normalized size = 3.35

$$\begin{cases} -\sqrt{5}i\left(x+\frac{3}{5}\right)^2\sqrt{10x-5}-\frac{22\sqrt{5}i\left(x+\frac{3}{5}\right)\sqrt{10x-5}}{15}-\frac{242\sqrt{5}i\sqrt{10x-5}}{75} & \text{for}\ \frac{10\left|x+\frac{3}{5}\right|}{11}>1 \\ -\sqrt{5}\sqrt{-10x+5}\left(x+\frac{3}{5}\right)^2-\frac{22\sqrt{5}\sqrt{-10x+5}\left(x+\frac{3}{5}\right)}{15}-\frac{242\sqrt{5}\sqrt{-10x+5}}{75} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2/(1-2*x)**(1/2),x)
```

```
[Out] Piecewise((-sqrt(5)*I*(x + 3/5)**2*sqrt(10*x - 5) - 22*sqrt(5)*I*
(x + 3/5)*sqrt(10*x - 5)/15 - 242*sqrt(5)*I*sqrt(10*x - 5)/75, 10
*Abs(x + 3/5)/11 > 1), (-sqrt(5)*sqrt(-10*x + 5)*(x + 3/5)**2 - 2
2*sqrt(5)*sqrt(-10*x + 5)*(x + 3/5)/15 - 242*sqrt(5)*sqrt(-10*x +
 5)/75, True))
```

GIAC/XCAS [A] time = 0.209799, size = 47, normalized size = 1.18

$$-\frac{5}{4}\,(2\,x-1)^2\sqrt{-2\,x+1}+\frac{55}{6}\,(-2\,x+1)^{\frac{3}{2}}-\frac{121}{4}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2/sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] -5/4*(2*x - 1)^2*sqrt(-2*x + 1) + 55/6*(-2*x + 1)^(3/2) - 121/4*s
qrt(-2*x + 1)
```

3.2001 $\int \frac{(3+5x)^2}{\sqrt{1-2x}(2+3x)}\,dx$

Optimal. Leaf size=54

$$\frac{25}{18}(1-2x)^{3/2}-\frac{155}{18}\sqrt{1-2x}-\frac{2\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{9\sqrt{21}}$$

```
[Out] (-155*Sqrt[1 - 2*x])/18 + (25*(1 - 2*x)^(3/2))/18 - (2*ArcTanh[Sq
rt[3/7]*Sqrt[1 - 2*x]])/(9*Sqrt[21])
```

Rubi [A] time = 0.0698171, antiderivative size = 54, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$\frac{25}{18}(1-2x)^{3/2}-\frac{155}{18}\sqrt{1-2x}-\frac{2\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{9\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^2/(Sqrt[1 - 2*x]*(2 + 3*x)),x]
```

```
[Out] (-155*Sqrt[1 - 2*x])/18 + (25*(1 - 2*x)^(3/2))/18 - (2*ArcTanh[Sq
rt[3/7]*Sqrt[1 - 2*x]])/(9*Sqrt[21])
```

Rubi in Sympy [A] time = 7.201, size = 48, normalized size = 0.89

$$\frac{25\left(-2x+1\right)^{\frac{3}{2}}}{18}-\frac{155\sqrt{-2x+1}}{18}-\frac{2\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{189}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**2/(2+3*x)/(1-2*x)**(1/2),x)
```

```
[Out] 25*(-2*x + 1)**(3/2)/18 - 155*sqrt(-2*x + 1)/18 - 2*sqrt(21)*atan
h(sqrt(21)*sqrt(-2*x + 1)/7)/189
```

Mathematica [A] time = 0.0678124, size = 46, normalized size = 0.85

$$-\frac{5}{9}\sqrt{1-2x}(5x+13)-\frac{2\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{9\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^2/(Sqrt[1 - 2*x]*(2 + 3*x)),x]
```

```
[Out] (-5*Sqrt[1 - 2*x]*(13 + 5*x))/9 - (2*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2
*x]])/(9*Sqrt[21])
```

Maple [A] time = 0.009, size = 38, normalized size = 0.7

$$\frac{25}{18}\left(1-2\,x\right)^{\frac{3}{2}}-\frac{2\,\sqrt{21}}{189}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)-\frac{155}{18}\sqrt{1-2\,x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^2/(2+3*x)/(1-2*x)^(1/2),x)
```

```
[Out] 25/18*(1-2*x)^(3/2)-2/189*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^
(1/2)-155/18*(1-2*x)^(1/2)
```

Maxima [A] time = 1.49978, size = 74, normalized size = 1.37

$$\frac{25}{18}\,(-2\,x+1)^{\frac{3}{2}}+\frac{1}{189}\,\sqrt{21}\log\left(-\frac{\sqrt{21}-3\,\sqrt{-2\,x+1}}{\sqrt{21}+3\,\sqrt{-2\,x+1}}\right)-\frac{155}{18}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2/((3*x + 2)*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 25/18*(-2*x + 1)^(3/2) + 1/189*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-
2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 155/18*sqrt(-2*x + 1)
```

Fricas [A] time = 0.220792, size = 72, normalized size = 1.33

$$-\frac{1}{189}\,\sqrt{21}\left(5\,\sqrt{21}(5\,x+13)\sqrt{-2\,x+1}-\log\left(\frac{\sqrt{21}(3\,x-5)+21\,\sqrt{-2\,x+1}}{3\,x+2}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2/((3*x + 2)*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/189*sqrt(21)*(5*sqrt(21)*(5*x + 13)*sqrt(-2*x + 1) - log((sqrt
(21)*(3*x - 5) + 21*sqrt(-2*x + 1))/(3*x + 2)))
```

Sympy [A] time = 4.19013, size = 90, normalized size = 1.67

$$\frac{25\,(-2x+1)^{\frac{3}{2}}}{18}-\frac{155\sqrt{-2x+1}}{18}+\frac{2\left(\begin{cases}-\frac{\sqrt{21}\operatorname{acoth}\left(\frac{\sqrt{21}}{3\sqrt{-2x+1}}\right)}{21} & \text{for}\ \frac{1}{-2x+1}>\frac{3}{7}\\ -\frac{\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}}{3\sqrt{-2x+1}}\right)}{21} & \text{for}\ \frac{1}{-2x+1}<\frac{3}{7}\end{cases}\right)}{9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2/(2+3*x)/(1-2*x)**(1/2),x)
```

```
[Out] 25*(-2*x + 1)**(3/2)/18 - 155*sqrt(-2*x + 1)/18 + 2*Piecewise((-s
qrt(21)*acoth(sqrt(21)/(3*sqrt(-2*x + 1)))/21, 1/(-2*x + 1) > 3/7
), (-sqrt(21)*atanh(sqrt(21)/(3*sqrt(-2*x + 1)))/21, 1/(-2*x + 1)
 < 3/7))/9
```

GIAC/XCAS [A] time = 0.225691, size = 78, normalized size = 1.44

$$\frac{25}{18}\,(-2\,x+1)^{\frac{3}{2}}+\frac{1}{189}\,\sqrt{21}\ln\left(\frac{\left|-2\,\sqrt{21}+6\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{21}+3\,\sqrt{-2\,x+1}\right)}\right)-\frac{155}{18}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2/((3*x + 2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 25/18*(-2*x + 1)^(3/2) + 1/189*sqrt(21)*ln(1/2*abs(-2*sqrt(21) +
6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 155/18*sqrt(-2
*x + 1)
```

3.2002 $\int \frac{(3+5x)^2}{\sqrt{1-2x}(2+3x)^2}\,dx$

Optimal. Leaf size=61

$$-\frac{25}{9}\sqrt{1-2x}-\frac{\sqrt{1-2x}}{63(3x+2)}+\frac{46\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{21\sqrt{21}}$$

```
[Out] (-25*Sqrt[1 - 2*x])/9 - Sqrt[1 - 2*x]/(63*(2 + 3*x)) + (46*ArcTan
h[Sqrt[3/7]*Sqrt[1 - 2*x]])/(21*Sqrt[21])
```

Rubi [A] time = 0.0845875, antiderivative size = 61, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$-\frac{25}{9}\sqrt{1-2x}-\frac{\sqrt{1-2x}}{63(3x+2)}+\frac{46\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{21\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^2/(Sqrt[1 - 2*x]*(2 + 3*x)^2),x]
```

```
[Out] (-25*Sqrt[1 - 2*x])/9 - Sqrt[1 - 2*x]/(63*(2 + 3*x)) + (46*ArcTan
h[Sqrt[3/7]*Sqrt[1 - 2*x]])/(21*Sqrt[21])
```

Rubi in Sympy [A] time = 7.73569, size = 49, normalized size = 0.8

$$-\frac{25\sqrt{-2x+1}}{9}-\frac{\sqrt{-2x+1}}{63\,(3x+2)}+\frac{46\sqrt{21}\,\text{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{441}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**2/(2+3*x)**2/(1-2*x)**(1/2),x)
```

```
[Out] -25*sqrt(-2*x + 1)/9 - sqrt(-2*x + 1)/(63*(3*x + 2)) + 46*sqrt(21
)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/441
```

Mathematica [A] time = 0.096408, size = 51, normalized size = 0.84

$$\frac{46\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{21\sqrt{21}}-\frac{\sqrt{1-2x}(175x+117)}{63x+42}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^2/(Sqrt[1 - 2*x]*(2 + 3*x)^2),x]
```

```
[Out] -((Sqrt[1 - 2*x]*(117 + 175*x))/(42 + 63*x)) + (46*ArcTanh[Sqrt[3
/7]*Sqrt[1 - 2*x]])/(21*Sqrt[21])
```

Maple [A] time = 0.014, size = 45, normalized size = 0.7

$$-\frac{25}{9}\sqrt{1-2\,x}+\frac{2}{189}\sqrt{1-2\,x}\left(-\frac{4}{3}-2\,x\right)^{-1}+\frac{46\,\sqrt{21}}{441}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^2/(2+3*x)^2/(1-2*x)^(1/2),x)
```

```
[Out] -25/9*(1-2*x)^(1/2)+2/189*(1-2*x)^(1/2)/(-4/3-2*x)+46/441*arctanh
(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.49414, size = 84, normalized size = 1.38

$$-\frac{23}{441}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{25}{9}\sqrt{-2x+1}-\frac{\sqrt{-2x+1}}{63(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2/((3*x + 2)^2*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] -23/441*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21) + 3
*sqrt(-2*x + 1))) - 25/9*sqrt(-2*x + 1) - 1/63*sqrt(-2*x + 1)/(3*
x + 2)
```

Fricas [A] time = 0.213012, size = 86, normalized size = 1.41

$$-\frac{\sqrt{21}\left(\sqrt{21}(175x+117)\sqrt{-2x+1}-23(3x+2)\log\left(\frac{\sqrt{21}(3x-5)-21\sqrt{-2x+1}}{3x+2}\right)\right)}{441(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2/((3*x + 2)^2*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/441*sqrt(21)*(sqrt(21)*(175*x + 117)*sqrt(-2*x + 1) - 23*(3*x
+ 2)*log((sqrt(21)*(3*x - 5) - 21*sqrt(-2*x + 1))/(3*x + 2)))/(3*
x + 2)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2/(2+3*x)**2/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.228087, size = 88, normalized size = 1.44

$$-\frac{23}{441}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{25}{9}\sqrt{-2x+1}-\frac{\sqrt{-2x+1}}{63(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2/((3*x + 2)^2*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] -23/441*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqrt
(21) + 3*sqrt(-2*x + 1))) - 25/9*sqrt(-2*x + 1) - 1/63*sqrt(-2*x
+ 1)/(3*x + 2)
```

3.2003 $\int \frac{(3+5x)^2}{\sqrt{1-2x}(2+3x)^3} \, dx$

Optimal. Leaf size=68

$$\frac{137\sqrt{1-2x}}{882(3x+2)} - \frac{\sqrt{1-2x}}{126(3x+2)^2} - \frac{257\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{49\sqrt{21}}$$

```
[Out] -Sqrt[1 - 2*x]/(126*(2 + 3*x)^2) + (137*Sqrt[1 - 2*x])/(882*(2 +
3*x)) - (257*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(49*Sqrt[21])
```

Rubi [A] time = 0.0887066, antiderivative size = 68, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$\frac{137\sqrt{1-2x}}{882(3x+2)} - \frac{\sqrt{1-2x}}{126(3x+2)^2} - \frac{257\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{49\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^2/(Sqrt[1 - 2*x]*(2 + 3*x)^3),x]
```

```
[Out] -Sqrt[1 - 2*x]/(126*(2 + 3*x)^2) + (137*Sqrt[1 - 2*x])/(882*(2 +
3*x)) - (257*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(49*Sqrt[21])
```

Rubi in Sympy [A] time = 8.4091, size = 56, normalized size = 0.82

$$\frac{137\sqrt{-2x+1}}{882\,(3x+2)} - \frac{\sqrt{-2x+1}}{126\,(3x+2)^2} - \frac{257\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{1029}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**2/(2+3*x)**3/(1-2*x)**(1/2),x)
```

```
[Out] 137*sqrt(-2*x + 1)/(882*(3*x + 2)) - sqrt(-2*x + 1)/(126*(3*x + 2
)**2) - 257*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/1029
```

Mathematica [A] time = 0.0965043, size = 53, normalized size = 0.78

$$\frac{\frac{7\sqrt{1-2x}(137x+89)}{(3x+2)^2} - 514\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{2058}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^2/(Sqrt[1 - 2*x]*(2 + 3*x)^3),x]
```

```
[Out] ((7*Sqrt[1 - 2*x]*(89 + 137*x))/(2 + 3*x)^2 - 514*Sqrt[21]*ArcTan
h[Sqrt[3/7]*Sqrt[1 - 2*x]])/2058
```

Maple [A] time = 0.016, size = 48, normalized size = 0.7

$$18\,\frac{1}{(-4-6\,x)^2}\left(-\frac{137\,(1-2\,x)^{3/2}}{2646}+\frac{5\,\sqrt{1-2\,x}}{42}\right)-\frac{257\,\sqrt{21}}{1029}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^2/(2+3*x)^3/(1-2*x)^(1/2),x)
```

```
[Out] 18*(-137/2646*(1-2*x)^(3/2)+5/42*(1-2*x)^(1/2))/(-4-6*x)^2-257/10
29*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.49934, size = 100, normalized size = 1.47

$$\frac{257}{2058}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{137\,(-2x+1)^{\frac{3}{2}}-315\sqrt{-2x+1}}{147\left(9\,(2x-1)^2+84x+7\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2/((3*x + 2)^3*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 257/2058*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21) +
3*sqrt(-2*x + 1))) - 1/147*(137*(-2*x + 1)^(3/2) - 315*sqrt(-2*x
+ 1))/(9*(2*x - 1)^2 + 84*x + 7)
```

Fricas [A] time = 0.211007, size = 100, normalized size = 1.47

$$\frac{\sqrt{21}\left(\sqrt{21}(137x+89)\sqrt{-2x+1}+771\left(9x^2+12x+4\right)\log\left(\frac{\sqrt{21}(3x-5)+21\sqrt{-2x+1}}{3x+2}\right)\right)}{6174\,(9x^2+12x+4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2/((3*x + 2)^3*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] 1/6174*sqrt(21)*(sqrt(21)*(137*x + 89)*sqrt(-2*x + 1) + 771*(9*x^
2 + 12*x + 4)*log((sqrt(21)*(3*x - 5) + 21*sqrt(-2*x + 1))/(3*x +
 2)))/(9*x^2 + 12*x + 4)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2/(2+3*x)**3/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.217977, size = 92, normalized size = 1.35

$$\frac{257}{2058}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{137\,(-2x+1)^{\frac{3}{2}}-315\sqrt{-2x+1}}{588\,(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2/((3*x + 2)^3*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 257/2058*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqr
t(21) + 3*sqrt(-2*x + 1))) - 1/588*(137*(-2*x + 1)^(3/2) - 315*sq
rt(-2*x + 1))/(3*x + 2)^2
```

3.2004 $\int \frac{(3+5x)^2}{\sqrt{1-2x}(2+3x)^4}\,dx$

Optimal. Leaf size=88

$$-\frac{2245\sqrt{1-2x}}{6174(3x+2)}+\frac{205\sqrt{1-2x}}{2646(3x+2)^2}-\frac{\sqrt{1-2x}}{189(3x+2)^3}-\frac{2245\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{3087\sqrt{21}}$$

```
[Out] -Sqrt[1 - 2*x]/(189*(2 + 3*x)^3) + (205*Sqrt[1 - 2*x])/(2646*(2 +
 3*x)^2) - (2245*Sqrt[1 - 2*x])/(6174*(2 + 3*x)) - (2245*ArcTanh[
Sqrt[3/7]*Sqrt[1 - 2*x]])/(3087*Sqrt[21])
```

Rubi [A] time = 0.108727, antiderivative size = 88, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$-\frac{2245\sqrt{1-2x}}{6174(3x+2)}+\frac{205\sqrt{1-2x}}{2646(3x+2)^2}-\frac{\sqrt{1-2x}}{189(3x+2)^3}-\frac{2245\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{3087\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^2/(Sqrt[1 - 2*x]*(2 + 3*x)^4),x]
```

```
[Out] -Sqrt[1 - 2*x]/(189*(2 + 3*x)^3) + (205*Sqrt[1 - 2*x])/(2646*(2 +
 3*x)^2) - (2245*Sqrt[1 - 2*x])/(6174*(2 + 3*x)) - (2245*ArcTanh[
Sqrt[3/7]*Sqrt[1 - 2*x]])/(3087*Sqrt[21])
```

Rubi in Sympy [A] time = 10.1461, size = 75, normalized size = 0.85

$$-\frac{2245\sqrt{-2x+1}}{6174\,(3x+2)}+\frac{205\sqrt{-2x+1}}{2646\,(3x+2)^2}-\frac{\sqrt{-2x+1}}{189\,(3x+2)^3}-\frac{2245\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{64827}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**2/(2+3*x)**4/(1-2*x)**(1/2),x)
```

```
[Out] -2245*sqrt(-2*x + 1)/(6174*(3*x + 2)) + 205*sqrt(-2*x + 1)/(2646*
(3*x + 2)**2) - sqrt(-2*x + 1)/(189*(3*x + 2)**3) - 2245*sqrt(21)
*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/64827
```

Mathematica [A] time = 0.102521, size = 58, normalized size = 0.66

$$\frac{-\frac{21\sqrt{1-2x}(20205x^2+25505x+8056)}{(3x+2)^3}-4490\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{129654}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^2/(Sqrt[1 - 2*x]*(2 + 3*x)^4),x]
```

```
[Out] ((-21*Sqrt[1 - 2*x]*(8056 + 25505*x + 20205*x^2))/(2 + 3*x)^3 - 4
490*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/129654
```

Maple [A] time = 0.018, size = 57, normalized size = 0.7

$$-108\frac{1}{\left(-4-6x\right)^{3}}\left(-\frac{2245\left(1-2x\right)^{5/2}}{37044}+\frac{3265\left(1-2x\right)^{3/2}}{11907}-\frac{2111\sqrt{1-2x}}{6804}\right)-\frac{2245\sqrt{21}}{64827}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^2/(2+3*x)^4/(1-2*x)^(1/2),x)
```

```
[Out] -108*(-2245/37044*(1-2*x)^(5/2)+3265/11907*(1-2*x)^(3/2)-2111/680
4*(1-2*x)^(1/2))/(-4-6*x)^3-2245/64827*arctanh(1/7*21^(1/2)*(1-2*
x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.51419, size = 124, normalized size = 1.41

$$\frac{2245}{129654}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{20205\left(-2x+1\right)^{\frac{5}{2}}-91420\left(-2x+1\right)^{\frac{3}{2}}+103439\sqrt{-2x+1}}{3087\left(27\left(2x-1\right)^{3}+189\left(2x-1\right)^{2}+882x-98\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2/((3*x + 2)^4*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 2245/129654*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21)
 + 3*sqrt(-2*x + 1))) - 1/3087*(20205*(-2*x + 1)^(5/2) - 91420*(-
2*x + 1)^(3/2) + 103439*sqrt(-2*x + 1))/(27*(2*x - 1)^3 + 189*(2*
x - 1)^2 + 882*x - 98)
```

Fricas [A] time = 0.21004, size = 120, normalized size = 1.36

$$-\frac{\sqrt{21}\left(\sqrt{21}\left(20205x^{2}+25505x+8056\right)\sqrt{-2x+1}-2245\left(27x^{3}+54x^{2}+36x+8\right)\log\left(\frac{\sqrt{21}(3x-5)+21\sqrt{-2x+1}}{3x+2}\right)\right)}{129654\left(27x^{3}+54x^{2}+36x+8\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2/((3*x + 2)^4*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/129654*sqrt(21)*(sqrt(21)*(20205*x^2 + 25505*x + 8056)*sqrt(-2
*x + 1) - 2245*(27*x^3 + 54*x^2 + 36*x + 8)*log((sqrt(21)*(3*x -
5) + 21*sqrt(-2*x + 1))/(3*x + 2)))/(27*x^3 + 54*x^2 + 36*x + 8)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2/(2+3*x)**4/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.227387, size = 113, normalized size = 1.28

$$\frac{2245}{129654}\,\sqrt{21}\ln\left(\frac{\left|-2\,\sqrt{21}+6\,\sqrt{-2\,x+1}\right|}{2\,\left(\sqrt{21}+3\,\sqrt{-2\,x+1}\right)}\right)-\frac{20205\,(2\,x-1)^{2}\sqrt{-2\,x+1}-91420\,(-2\,x+1)^{\frac{3}{2}}+103439\,\sqrt{-2\,x+1}}{24696\,(3\,x+2)^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2/((3*x + 2)^4*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 2245/129654*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(
sqrt(21) + 3*sqrt(-2*x + 1))) - 1/24696*(20205*(2*x - 1)^2*sqrt(-
2*x + 1) - 91420*(-2*x + 1)^(3/2) + 103439*sqrt(-2*x + 1))/(3*x +
 2)^3
```

3.2005 $\int \frac{(3+5x)^2}{\sqrt{1-2x}(2+3x)^5} dx$

Optimal. Leaf size=108

$$-\frac{635\sqrt{1-2x}}{8232(3x+2)}-\frac{635\sqrt{1-2x}}{3528(3x+2)^2}+\frac{13\sqrt{1-2x}}{252(3x+2)^3}-\frac{\sqrt{1-2x}}{252(3x+2)^4}-\frac{635\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{4116\sqrt{21}}$$

```
[Out] -Sqrt[1 - 2*x]/(252*(2 + 3*x)^4) + (13*Sqrt[1 - 2*x])/(252*(2 + 3
*x)^3) - (635*Sqrt[1 - 2*x])/(3528*(2 + 3*x)^2) - (635*Sqrt[1 - 2
*x])/(8232*(2 + 3*x)) - (635*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(4
116*Sqrt[21])
```

Rubi [A] time = 0.131988, antiderivative size = 108, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.208$

$$-\frac{635\sqrt{1-2x}}{8232(3x+2)}-\frac{635\sqrt{1-2x}}{3528(3x+2)^2}+\frac{13\sqrt{1-2x}}{252(3x+2)^3}-\frac{\sqrt{1-2x}}{252(3x+2)^4}-\frac{635\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{4116\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^2/(Sqrt[1 - 2*x]*(2 + 3*x)^5),x]
```

```
[Out] -Sqrt[1 - 2*x]/(252*(2 + 3*x)^4) + (13*Sqrt[1 - 2*x])/(252*(2 + 3
*x)^3) - (635*Sqrt[1 - 2*x])/(3528*(2 + 3*x)^2) - (635*Sqrt[1 - 2
*x])/(8232*(2 + 3*x)) - (635*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(4
116*Sqrt[21])
```

Rubi in Sympy [A] time = 11.7493, size = 94, normalized size = 0.87

$$-\frac{635\sqrt{-2x+1}}{8232\,(3x+2)}-\frac{635\sqrt{-2x+1}}{3528\,(3x+2)^2}+\frac{13\sqrt{-2x+1}}{252\,(3x+2)^3}-\frac{\sqrt{-2x+1}}{252\,(3x+2)^4}-\frac{635\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{86436}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**2/(2+3*x)**5/(1-2*x)**(1/2),x)
```

```
[Out] -635*sqrt(-2*x + 1)/(8232*(3*x + 2)) - 635*sqrt(-2*x + 1)/(3528*(
3*x + 2)**2) + 13*sqrt(-2*x + 1)/(252*(3*x + 2)**3) - sqrt(-2*x +
 1)/(252*(3*x + 2)**4) - 635*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x +
1)/7)/86436
```

Mathematica [A] time = 0.126633, size = 63, normalized size = 0.58

$$-\frac{\sqrt{1-2x}\left(17145x^3+47625x^2+39366x+10190\right)}{8232(3x+2)^4}-\frac{635\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{4116\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^2/(Sqrt[1 - 2*x]*(2 + 3*x)^5),x]
```

```
[Out] -(Sqrt[1 - 2*x]*(10190 + 39366*x + 47625*x^2 + 17145*x^3))/(8232*
(2 + 3*x)^4) - (635*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(4116*Sqrt[
```

```
21])
```

Maple [A] time = 0.017, size = 66, normalized size = 0.6

$$648\frac{1}{\left(-4-6x\right)^{4}}\left(\frac{635\left(1-2x\right)^{7/2}}{98784}-\frac{6985\left(1-2x\right)^{5/2}}{127008}+\frac{2717\left(1-2x\right)^{3/2}}{18144}-\frac{7171\sqrt{1-2x}}{54432}\right)-\frac{635\sqrt{21}}{86436}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^2/(2+3*x)^5/(1-2*x)^(1/2),x)
```

```
[Out] 648*(635/98784*(1-2*x)^(7/2)-6985/127008*(1-2*x)^(5/2)+2717/18144
*(1-2*x)^(3/2)-7171/54432*(1-2*x)^(1/2))/(-4-6*x)^4-635/86436*arc
tanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.50669, size = 149, normalized size = 1.38

$$\frac{635}{172872}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{17145\left(-2x+1\right)^{\frac{7}{2}}-146685\left(-2x+1\right)^{\frac{5}{2}}+399399\left(-2x+1\right)^{\frac{3}{2}}-351379\sqrt{-2x+1}}{4116\left(81\left(2x-1\right)^{4}+756\left(2x-1\right)^{3}+2646\left(2x-1\right)^{2}+8232x-1715\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2/((3*x + 2)^5*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 635/172872*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21)
+ 3*sqrt(-2*x + 1))) + 1/4116*(17145*(-2*x + 1)^(7/2) - 146685*(-
2*x + 1)^(5/2) + 399399*(-2*x + 1)^(3/2) - 351379*sqrt(-2*x + 1))
/(81*(2*x - 1)^4 + 756*(2*x - 1)^3 + 2646*(2*x - 1)^2 + 8232*x -
1715)
```

Fricas [A] time = 0.232563, size = 140, normalized size = 1.3

$$-\frac{\sqrt{21}\left(\sqrt{21}\left(17145x^{3}+47625x^{2}+39366x+10190\right)\sqrt{-2x+1}-635\left(81x^{4}+216x^{3}+216x^{2}+96x+16\right)\log\left(\frac{\sqrt{21}(3x-5)+21}{3x+2}\right.\right.}{172872\left(81x^{4}+216x^{3}+216x^{2}+96x+16\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2/((3*x + 2)^5*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/172872*sqrt(21)*(sqrt(21)*(17145*x^3 + 47625*x^2 + 39366*x + 1
0190)*sqrt(-2*x + 1) - 635*(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 1
6)*log((sqrt(21)*(3*x - 5) + 21*sqrt(-2*x + 1))/(3*x + 2)))/(81*x
^4 + 216*x^3 + 216*x^2 + 96*x + 16)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2/(2+3*x)**5/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.230436, size = 135, normalized size = 1.25

$$\frac{635}{172872}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{17145\,(2x-1)^3\sqrt{-2x+1}+146685\,(2x-1)^2\sqrt{-2x+1}-399399\,(-2x+1)^{\frac{3}{2}}+351379\sqrt{-2x+1}}{65856\,(3x+2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2/((3*x + 2)^5*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 635/172872*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(s
qrt(21) + 3*sqrt(-2*x + 1))) - 1/65856*(17145*(2*x - 1)^3*sqrt(-2
*x + 1) + 146685*(2*x - 1)^2*sqrt(-2*x + 1) - 399399*(-2*x + 1)^(
3/2) + 351379*sqrt(-2*x + 1))/(3*x + 2)^4
```

3.2006 $\int \frac{(3+5x)^2}{\sqrt{1-2x}(2+3x)^6} \, dx$

Optimal. Leaf size=130

$$-\frac{351\sqrt{1-2x}}{19208(3x+2)}-\frac{117\sqrt{1-2x}}{2744(3x+2)^2}-\frac{117\sqrt{1-2x}}{980(3x+2)^3}+\frac{341\sqrt{1-2x}}{8820(3x+2)^4}-\frac{\sqrt{1-2x}}{315(3x+2)^5}-\frac{117\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{9604}$$

```
[Out] -Sqrt[1 - 2*x]/(315*(2 + 3*x)^5) + (341*Sqrt[1 - 2*x])/(8820*(2 +
 3*x)^4) - (117*Sqrt[1 - 2*x])/(980*(2 + 3*x)^3) - (117*Sqrt[1 -
2*x])/(2744*(2 + 3*x)^2) - (351*Sqrt[1 - 2*x])/(19208*(2 + 3*x))
- (117*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/9604
```

Rubi [A] time = 0.15353, antiderivative size = 130, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$-\frac{351\sqrt{1-2x}}{19208(3x+2)}-\frac{117\sqrt{1-2x}}{2744(3x+2)^2}-\frac{117\sqrt{1-2x}}{980(3x+2)^3}+\frac{341\sqrt{1-2x}}{8820(3x+2)^4}-\frac{\sqrt{1-2x}}{315(3x+2)^5}-\frac{117\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{9604}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^2/(Sqrt[1 - 2*x]*(2 + 3*x)^6),x]
```

```
[Out] -Sqrt[1 - 2*x]/(315*(2 + 3*x)^5) + (341*Sqrt[1 - 2*x])/(8820*(2 +
 3*x)^4) - (117*Sqrt[1 - 2*x])/(980*(2 + 3*x)^3) - (117*Sqrt[1 -
2*x])/(2744*(2 + 3*x)^2) - (351*Sqrt[1 - 2*x])/(19208*(2 + 3*x))
- (117*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/9604
```

Rubi in Sympy [A] time = 13.6707, size = 112, normalized size = 0.86

$$-\frac{351\sqrt{-2x+1}}{19208\,(3x+2)}-\frac{117\sqrt{-2x+1}}{2744\,(3x+2)^2}-\frac{117\sqrt{-2x+1}}{980\,(3x+2)^3}+\frac{341\sqrt{-2x+1}}{8820\,(3x+2)^4}-\frac{\sqrt{-2x+1}}{315\,(3x+2)^5}-\frac{117\sqrt{21}\,\text{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{67228}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**2/(2+3*x)**6/(1-2*x)**(1/2),x)
```

```
[Out] -351*sqrt(-2*x + 1)/(19208*(3*x + 2)) - 117*sqrt(-2*x + 1)/(2744*
(3*x + 2)**2) - 117*sqrt(-2*x + 1)/(980*(3*x + 2)**3) + 341*sqrt(
-2*x + 1)/(8820*(3*x + 2)**4) - sqrt(-2*x + 1)/(315*(3*x + 2)**5)
 - 117*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/67228
```

Mathematica [A] time = 0.127829, size = 68, normalized size = 0.52

$$\frac{-\frac{21\sqrt{1-2x}\left(426465x^4+1468935x^3+2110212x^2+1327058x+298748\right)}{(3x+2)^5}-10530\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{6050520}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^2/(Sqrt[1 - 2*x]*(2 + 3*x)^6),x]
```

```
[Out] ((-21*Sqrt[1 - 2*x]*(298748 + 1327058*x + 2110212*x^2 + 1468935*x
^3 + 426465*x^4))/(2 + 3*x)^5 - 10530*Sqrt[21]*ArcTanh[Sqrt[3/7]*
Sqrt[1 - 2*x]])/6050520
```

Maple [A] time = 0.017, size = 75, normalized size = 0.6

$$-3888\,\frac{1}{(-4-6\,x)^5}\left(-\frac{117\,(1-2\,x)^{9/2}}{153664}+\frac{13\,(1-2\,x)^{7/2}}{1568}-\frac{26\,(1-2\,x)^{5/2}}{735}+\frac{77587\,(1-2\,x)^{3/2}}{1143072}-\frac{5287\,\sqrt{1-2\,x}}{108864}\right)-\frac{117\,\sqrt{21}}{67228}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^2/(2+3*x)^6/(1-2*x)^(1/2),x)
```

```
[Out] -3888*(-117/153664*(1-2*x)^(9/2)+13/1568*(1-2*x)^(7/2)-26/735*(1-
2*x)^(5/2)+77587/1143072*(1-2*x)^(3/2)-5287/108864*(1-2*x)^(1/2))
/(-4-6*x)^5-117/67228*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2
)
```

Maxima [A] time = 1.56263, size = 173, normalized size = 1.33

$$\frac{117}{134456}\,\sqrt{21}\log\left(-\frac{\sqrt{21}-3\,\sqrt{-2\,x+1}}{\sqrt{21}+3\,\sqrt{-2\,x+1}}\right)-\frac{426465\,(-2\,x+1)^{\frac{9}{2}}-4643730\,(-2\,x+1)^{\frac{7}{2}}+19813248\,(-2\,x+1)^{\frac{5}{2}}-38017630\,(-2\,x+1)^{\frac{3}{2}}+27201615\,\sqrt{-2\,x+1}}{144060\,\left(243\,(2\,x-1)^5+2835\,(2\,x-1)^4+13230\,(2\,x-1)^3+30870\,(2\,x-1)^2+72030\,x-19208\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2/((3*x + 2)^6*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 117/134456*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21)
+ 3*sqrt(-2*x + 1))) - 1/144060*(426465*(-2*x + 1)^(9/2) - 464373
0*(-2*x + 1)^(7/2) + 19813248*(-2*x + 1)^(5/2) - 38017630*(-2*x +
 1)^(3/2) + 27201615*sqrt(-2*x + 1))/(243*(2*x - 1)^5 + 2835*(2*x
 - 1)^4 + 13230*(2*x - 1)^3 + 30870*(2*x - 1)^2 + 72030*x - 19208
)
```

Fricas [A] time = 0.234513, size = 170, normalized size = 1.31

$$\frac{\sqrt{7}\left(1755\,\sqrt{3}\left(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240\,x+32\right)\log\left(\frac{\sqrt{7}(3\,x-5)+7\,\sqrt{3}\sqrt{-2\,x+1}}{3\,x+2}\right)-\sqrt{7}\left(426465\,x^4+1468935\,x^3+21\right.\right.}{2016840\,(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240\,x+32)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2/((3*x + 2)^6*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] 1/2016840*sqrt(7)*(1755*sqrt(3)*(243*x^5 + 810*x^4 + 1080*x^3 + 7
20*x^2 + 240*x + 32)*log((sqrt(7)*(3*x - 5) + 7*sqrt(3)*sqrt(-2*x
 + 1))/(3*x + 2)) - sqrt(7)*(426465*x^4 + 1468935*x^3 + 2110212*x
^2 + 1327058*x + 298748)*sqrt(-2*x + 1))/(243*x^5 + 810*x^4 + 108
0*x^3 + 720*x^2 + 240*x + 32)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2/(2+3*x)**6/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.225632, size = 157, normalized size = 1.21

$$\frac{117}{134456}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)$$
$$-\frac{426465(2x-1)^4\sqrt{-2x+1}+4643730(2x-1)^3\sqrt{-2x+1}+19813248(2x-1)^2\sqrt{-2x+1}-38017630(-2x+1)^{\frac{3}{2}}+2720}{4609920(3x+2)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2/((3*x + 2)^6*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 117/134456*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(s
qrt(21) + 3*sqrt(-2*x + 1))) - 1/4609920*(426465*(2*x - 1)^4*sqrt
(-2*x + 1) + 4643730*(2*x - 1)^3*sqrt(-2*x + 1) + 19813248*(2*x -
 1)^2*sqrt(-2*x + 1) - 38017630*(-2*x + 1)^(3/2) + 27201615*sqrt(
-2*x + 1))/(3*x + 2)^5
```

3.2007 $\int \frac{(2+3x)^4(3+5x)^3}{\sqrt{1-2x}}\,dx$

Optimal. Leaf size=105

$$\frac{675}{128}(1-2x)^{15/2}-\frac{161325(1-2x)^{13/2}}{1664}+\frac{1101465(1-2x)^{11/2}}{1408}-\frac{1392467}{384}(1-2x)^{9/2}+\frac{1357793}{128}(1-2x)^{7/2}-\frac{12973191}{640}(1-2x)^{5/2}+\frac{3278737}{128}(1-2x)^{3/2}-\frac{3195731}{128}\sqrt{1-2x}$$

```
[Out] (-3195731*Sqrt[1 - 2*x])/128 + (3278737*(1 - 2*x)^(3/2))/128 - (1
2973191*(1 - 2*x)^(5/2))/640 + (1357793*(1 - 2*x)^(7/2))/128 - (1
392467*(1 - 2*x)^(9/2))/384 + (1101465*(1 - 2*x)^(11/2))/1408 - (
161325*(1 - 2*x)^(13/2))/1664 + (675*(1 - 2*x)^(15/2))/128
```

Rubi [A] time = 0.0794835, antiderivative size = 105, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.042$

$$\frac{675}{128}(1-2x)^{15/2}-\frac{161325(1-2x)^{13/2}}{1664}+\frac{1101465(1-2x)^{11/2}}{1408}-\frac{1392467}{384}(1-2x)^{9/2}+\frac{1357793}{128}(1-2x)^{7/2}-\frac{12973191}{640}(1-2x)^{5/2}+\frac{3278737}{128}(1-2x)^{3/2}-\frac{3195731}{128}\sqrt{1-2x}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^4*(3 + 5*x)^3)/Sqrt[1 - 2*x],x]
```

```
[Out] (-3195731*Sqrt[1 - 2*x])/128 + (3278737*(1 - 2*x)^(3/2))/128 - (1
2973191*(1 - 2*x)^(5/2))/640 + (1357793*(1 - 2*x)^(7/2))/128 - (1
392467*(1 - 2*x)^(9/2))/384 + (1101465*(1 - 2*x)^(11/2))/1408 - (
161325*(1 - 2*x)^(13/2))/1664 + (675*(1 - 2*x)^(15/2))/128
```

Rubi in Sympy [A] time = 11.3135, size = 94, normalized size = 0.9

$$\frac{675\left(-2x+1\right)^{\frac{15}{2}}}{128}-\frac{161325\left(-2x+1\right)^{\frac{13}{2}}}{1664}+\frac{1101465\left(-2x+1\right)^{\frac{11}{2}}}{1408}-\frac{1392467\left(-2x+1\right)^{\frac{9}{2}}}{384}+\frac{1357793\left(-2x+1\right)^{\frac{7}{2}}}{128}-\frac{12973191\left(-2x+1\right)^{\frac{5}{2}}}{640}+\frac{3278737\left(-2x+1\right)^{\frac{3}{2}}}{128}-\frac{3195731\sqrt{-2x+1}}{128}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4*(3+5*x)**3/(1-2*x)**(1/2),x)
```

```
[Out] 675*(-2*x + 1)**(15/2)/128 - 161325*(-2*x + 1)**(13/2)/1664 + 110
1465*(-2*x + 1)**(11/2)/1408 - 1392467*(-2*x + 1)**(9/2)/384 + 13
57793*(-2*x + 1)**(7/2)/128 - 12973191*(-2*x + 1)**(5/2)/640 + 32
78737*(-2*x + 1)**(3/2)/128 - 3195731*sqrt(-2*x + 1)/128
```

Mathematica [A] time = 0.0558134, size = 48, normalized size = 0.46

$$-\frac{\sqrt{1-2x}\left(1447875x^7+8241750x^6+21369825x^5+33786160x^4+37260640x^3+31962552x^2+24706048x+25632688\right)}{2145}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^4*(3 + 5*x)^3)/Sqrt[1 - 2*x],x]
```

```
[Out] -(Sqrt[1 - 2*x]*(25632688 + 24706048*x + 31962552*x^2 + 37260640*
x^3 + 33786160*x^4 + 21369825*x^5 + 8241750*x^6 + 1447875*x^7))/2
145
```

Maple [A] time = 0.007, size = 45, normalized size = 0.4

$$-\frac{1447875\,x^{7}+8241750\,x^{6}+21369825\,x^{5}+33786160\,x^{4}+37260640\,x^{3}+31962552\,x^{2}+24706048\,x+25632688}{2145}\sqrt{1-2\,x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((2+3*x)^4*(3+5*x)^3/(1-2*x)^(1/2),x)
```

```
[Out] -1/2145*(1447875*x^7+8241750*x^6+21369825*x^5+33786160*x^4+372606
40*x^3+31962552*x^2+24706048*x+25632688)*(1-2*x)^(1/2)
```

Maxima [A] time = 1.36828, size = 99, normalized size = 0.94

$$\frac{675}{128}\,(-2\,x+1)^{\frac{15}{2}}-\frac{161325}{1664}\,(-2\,x+1)^{\frac{13}{2}}+\frac{1101465}{1408}\,(-2\,x+1)^{\frac{11}{2}}-\frac{1392467}{384}\,(-2\,x+1)^{\frac{9}{2}}+\frac{1357793}{128}\,(-2\,x+1)^{\frac{7}{2}}-\frac{12973191}{640}\,(-2\,x+1)^{\frac{5}{2}}+\frac{3278737}{128}\,(-2\,x+1)^{\frac{3}{2}}-\frac{3195731}{128}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3*(3*x + 2)^4/sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] 675/128*(-2*x + 1)^(15/2) - 161325/1664*(-2*x + 1)^(13/2) + 11014
65/1408*(-2*x + 1)^(11/2) - 1392467/384*(-2*x + 1)^(9/2) + 135779
3/128*(-2*x + 1)^(7/2) - 12973191/640*(-2*x + 1)^(5/2) + 3278737/
128*(-2*x + 1)^(3/2) - 3195731/128*sqrt(-2*x + 1)
```

Fricas [A] time = 0.239252, size = 59, normalized size = 0.56

$$-\frac{1}{2145}\left(1447875\,x^{7}+8241750\,x^{6}+21369825\,x^{5}+33786160\,x^{4}+37260640\,x^{3}+31962552\,x^{2}+24706048\,x+25632688\right)\sqrt{-}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3*(3*x + 2)^4/sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] -1/2145*(1447875*x^7 + 8241750*x^6 + 21369825*x^5 + 33786160*x^4
+ 37260640*x^3 + 31962552*x^2 + 24706048*x + 25632688)*sqrt(-2*x
+ 1)
```

Sympy [A] time = 24.5891, size = 94, normalized size = 0.9

$$\frac{675(-2x+1)^{\frac{15}{2}}}{128}-\frac{161325(-2x+1)^{\frac{13}{2}}}{1664}+\frac{1101465(-2x+1)^{\frac{11}{2}}}{1408}-\frac{1392467(-2x+1)^{\frac{9}{2}}}{384}+\frac{1357793(-2x+1)^{\frac{7}{2}}}{128}-\frac{12973191(-2x+1)^{\frac{5}{2}}}{640}+\frac{3278737(-2x+1)^{\frac{3}{2}}}{128}-\frac{3195731\sqrt{-2x+1}}{128}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2+3*x)**4*(3+5*x)**3/(1-2*x)**(1/2),x)
```

```
[Out] 675*(-2*x + 1)**(15/2)/128 - 161325*(-2*x + 1)**(13/2)/1664 + 110
1465*(-2*x + 1)**(11/2)/1408 - 1392467*(-2*x + 1)**(9/2)/384 + 13
57793*(-2*x + 1)**(7/2)/128 - 12973191*(-2*x + 1)**(5/2)/640 + 32
78737*(-2*x + 1)**(3/2)/128 - 3195731*sqrt(-2*x + 1)/128
```

GIAC/XCAS [A] time = 0.23076, size = 155, normalized size = 1.48

$$-\frac{675}{128}(2x-1)^7\sqrt{-2x+1}-\frac{161325}{1664}(2x-1)^6\sqrt{-2x+1}-\frac{1101465}{1408}(2x-1)^5\sqrt{-2x+1}-\frac{1392467}{384}(2x-1)^4\sqrt{-2x+1}-\frac{1357793}{128}(2x-1)^3\sqrt{-2x+1}-\frac{12973191}{640}(2x-1)^2\sqrt{-2x+1}+\frac{3278737}{128}(-2x+1)^{\frac{3}{2}}-\frac{3195731}{128}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3*(3*x + 2)^4/sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] -675/128*(2*x - 1)^7*sqrt(-2*x + 1) - 161325/1664*(2*x - 1)^6*sqr
t(-2*x + 1) - 1101465/1408*(2*x - 1)^5*sqrt(-2*x + 1) - 1392467/3
84*(2*x - 1)^4*sqrt(-2*x + 1) - 1357793/128*(2*x - 1)^3*sqrt(-2*x
 + 1) - 12973191/640*(2*x - 1)^2*sqrt(-2*x + 1) + 3278737/128*(-2
*x + 1)^(3/2) - 3195731/128*sqrt(-2*x + 1)
```

3.2008 $\int \frac{(2+3x)^3(3+5x)^3}{\sqrt{1-2x}}\,dx$

Optimal. Leaf size=92

$$-\frac{3375}{832}(1-2x)^{13/2}+\frac{11475}{176}(1-2x)^{11/2}-\frac{28895}{64}(1-2x)^{9/2}+\frac{98209}{56}(1-2x)^{7/2}-\frac{1334949}{320}(1-2x)^{5/2}+\frac{100793}{16}(1-2x)^{3/2}-\frac{456533}{64}\sqrt{1-2x}$$

```
[Out] (-456533*Sqrt[1 - 2*x])/64 + (100793*(1 - 2*x)^(3/2))/16 - (13349
49*(1 - 2*x)^(5/2))/320 + (98209*(1 - 2*x)^(7/2))/56 - (28895*(1
- 2*x)^(9/2))/64 + (11475*(1 - 2*x)^(11/2))/176 - (3375*(1 - 2*x)
^(13/2))/832
```

Rubi [A] time = 0.075157, antiderivative size = 92, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.042

$$-\frac{3375}{832}(1-2x)^{13/2}+\frac{11475}{176}(1-2x)^{11/2}-\frac{28895}{64}(1-2x)^{9/2}+\frac{98209}{56}(1-2x)^{7/2}-\frac{1334949}{320}(1-2x)^{5/2}+\frac{100793}{16}(1-2x)^{3/2}-\frac{456533}{64}\sqrt{1-2x}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^3*(3 + 5*x)^3)/Sqrt[1 - 2*x],x]
```

```
[Out] (-456533*Sqrt[1 - 2*x])/64 + (100793*(1 - 2*x)^(3/2))/16 - (13349
49*(1 - 2*x)^(5/2))/320 + (98209*(1 - 2*x)^(7/2))/56 - (28895*(1
- 2*x)^(9/2))/64 + (11475*(1 - 2*x)^(11/2))/176 - (3375*(1 - 2*x)
^(13/2))/832
```

Rubi in Sympy [A] time = 10.5485, size = 82, normalized size = 0.89

$$-\frac{3375(-2x+1)^{\frac{13}{2}}}{832}+\frac{11475(-2x+1)^{\frac{11}{2}}}{176}-\frac{28895(-2x+1)^{\frac{9}{2}}}{64}+\frac{98209(-2x+1)^{\frac{7}{2}}}{56}-\frac{1334949(-2x+1)^{\frac{5}{2}}}{320}+\frac{100793(-2x+1)^{\frac{3}{2}}}{16}-\frac{456533\sqrt{-2x+1}}{64}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3*(3+5*x)**3/(1-2*x)**(1/2),x)
```

```
[Out] -3375*(-2*x + 1)**(13/2)/832 + 11475*(-2*x + 1)**(11/2)/176 - 288
95*(-2*x + 1)**(9/2)/64 + 98209*(-2*x + 1)**(7/2)/56 - 1334949*(-
2*x + 1)**(5/2)/320 + 100793*(-2*x + 1)**(3/2)/16 - 456533*sqrt(-
2*x + 1)/64
```

Mathematica [A] time = 0.0517732, size = 43, normalized size = 0.47

$$-\frac{\sqrt{1-2x}\left(1299375x^6+6544125x^5+14921900x^4+20766885x^3+20586249x^2+17147586x+18228666\right)}{5005}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^3*(3 + 5*x)^3)/Sqrt[1 - 2*x],x]
```

```
[Out] -(Sqrt[1 - 2*x]*(18228666 + 17147586*x + 20586249*x^2 + 20766885*
x^3 + 14921900*x^4 + 6544125*x^5 + 1299375*x^6))/5005
```

Maple [A] time = 0.006, size = 40, normalized size = 0.4

$$-\frac{1299375\,x^6+6544125\,x^5+14921900\,x^4+20766885\,x^3+20586249\,x^2+17147586\,x+18228666}{5005}\sqrt{1-2\,x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3*(3+5*x)^3/(1-2*x)^(1/2),x)
```

```
[Out] -1/5005*(1299375*x^6+6544125*x^5+14921900*x^4+20766885*x^3+205862
49*x^2+17147586*x+18228666)*(1-2*x)^(1/2)
```

Maxima [A] time = 1.37141, size = 86, normalized size = 0.93

$$-\frac{3375}{832}\,(-2\,x+1)^{\frac{13}{2}}+\frac{11475}{176}\,(-2\,x+1)^{\frac{11}{2}}-\frac{28895}{64}\,(-2\,x+1)^{\frac{9}{2}}+\frac{98209}{56}\,(-2\,x+1)^{\frac{7}{2}}-\frac{1334949}{320}\,(-2\,x+1)^{\frac{5}{2}}+\frac{100793}{16}\,(-2\,x+1)^{\frac{3}{2}}-\frac{456533}{64}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^3/sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] -3375/832*(-2*x + 1)^(13/2) + 11475/176*(-2*x + 1)^(11/2) - 28895
/64*(-2*x + 1)^(9/2) + 98209/56*(-2*x + 1)^(7/2) - 1334949/320*(-
2*x + 1)^(5/2) + 100793/16*(-2*x + 1)^(3/2) - 456533/64*sqrt(-2*x
 + 1)
```

Fricas [A] time = 0.257875, size = 53, normalized size = 0.58

$$-\frac{1}{5005}\left(1299375\,x^6+6544125\,x^5+14921900\,x^4+20766885\,x^3+20586249\,x^2+17147586\,x+18228666\right)\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^3/sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] -1/5005*(1299375*x^6 + 6544125*x^5 + 14921900*x^4 + 20766885*x^3
+ 20586249*x^2 + 17147586*x + 18228666)*sqrt(-2*x + 1)
```

Sympy [A] time = 18.7672, size = 82, normalized size = 0.89

$$-\frac{3375\,(-2x+1)^{\frac{13}{2}}}{832}+\frac{11475\,(-2x+1)^{\frac{11}{2}}}{176}-\frac{28895\,(-2x+1)^{\frac{9}{2}}}{64}+\frac{98209\,(-2x+1)^{\frac{7}{2}}}{56}-\frac{1334949\,(-2x+1)^{\frac{5}{2}}}{320}+\frac{100793\,(-2x+1)^{\frac{3}{2}}}{16}-\frac{456533\sqrt{-2x+1}}{64}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3*(3+5*x)**3/(1-2*x)**(1/2),x)
```

```
[Out] -3375*(-2*x + 1)**(13/2)/832 + 11475*(-2*x + 1)**(11/2)/176 - 288
95*(-2*x + 1)**(9/2)/64 + 98209*(-2*x + 1)**(7/2)/56 - 1334949*(-
```

```
2*x + 1)**(5/2)/320 + 100793*(-2*x + 1)**(3/2)/16 - 456533*sqrt(-
2*x + 1)/64
```

GIAC/XCAS [A] time = 0.233546, size = 134, normalized size = 1.46

$$-\frac{3375}{832}(2x-1)^6\sqrt{-2x+1}-\frac{11475}{176}(2x-1)^5\sqrt{-2x+1}-\frac{28895}{64}(2x-1)^4\sqrt{-2x+1}-\frac{98209}{56}(2x-1)^3\sqrt{-2x+1}-\frac{1334949}{320}(2x-1)^2\sqrt{-2x+1}+\frac{100793}{16}(-2x+1)^{\frac{3}{2}}-\frac{456533}{64}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3*(3*x + 2)^3/sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] -3375/832*(2*x - 1)^6*sqrt(-2*x + 1) - 11475/176*(2*x - 1)^5*sqrt
(-2*x + 1) - 28895/64*(2*x - 1)^4*sqrt(-2*x + 1) - 98209/56*(2*x
- 1)^3*sqrt(-2*x + 1) - 1334949/320*(2*x - 1)^2*sqrt(-2*x + 1) +
100793/16*(-2*x + 1)^(3/2) - 456533/64*sqrt(-2*x + 1)
```

3.2009 $\int \frac{(2+3x)^2(3+5x)^3}{\sqrt{1-2x}}\,dx$

Optimal. Leaf size=79

$$\frac{1125}{352}(1-2x)^{11/2}-\frac{4225}{96}(1-2x)^{9/2}+\frac{28555}{112}(1-2x)^{7/2}-\frac{64317}{80}(1-2x)^{5/2}+\frac{48279}{32}(1-2x)^{3/2}-\frac{65219}{32}\sqrt{1-2x}$$

```
[Out] (-65219*Sqrt[1 - 2*x])/32 + (48279*(1 - 2*x)^(3/2))/32 - (64317*(
1 - 2*x)^(5/2))/80 + (28555*(1 - 2*x)^(7/2))/112 - (4225*(1 - 2*x
)^(9/2))/96 + (1125*(1 - 2*x)^(11/2))/352
```

Rubi [A] time = 0.0707825, antiderivative size = 79, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.042

$$\frac{1125}{352}(1-2x)^{11/2}-\frac{4225}{96}(1-2x)^{9/2}+\frac{28555}{112}(1-2x)^{7/2}-\frac{64317}{80}(1-2x)^{5/2}+\frac{48279}{32}(1-2x)^{3/2}-\frac{65219}{32}\sqrt{1-2x}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^2*(3 + 5*x)^3)/Sqrt[1 - 2*x],x]
```

```
[Out] (-65219*Sqrt[1 - 2*x])/32 + (48279*(1 - 2*x)^(3/2))/32 - (64317*(
1 - 2*x)^(5/2))/80 + (28555*(1 - 2*x)^(7/2))/112 - (4225*(1 - 2*x
)^(9/2))/96 + (1125*(1 - 2*x)^(11/2))/352
```

Rubi in Sympy [A] time = 9.55476, size = 70, normalized size = 0.89

$$\frac{1125\left(-2x+1\right)^{\frac{11}{2}}}{352}-\frac{4225\left(-2x+1\right)^{\frac{9}{2}}}{96}+\frac{28555\left(-2x+1\right)^{\frac{7}{2}}}{112}-\frac{64317\left(-2x+1\right)^{\frac{5}{2}}}{80}+\frac{48279\left(-2x+1\right)^{\frac{3}{2}}}{32}-\frac{65219\sqrt{-2x+1}}{32}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2*(3+5*x)**3/(1-2*x)**(1/2),x)
```

```
[Out] 1125*(-2*x + 1)**(11/2)/352 - 4225*(-2*x + 1)**(9/2)/96 + 28555*(
-2*x + 1)**(7/2)/112 - 64317*(-2*x + 1)**(5/2)/80 + 48279*(-2*x +
 1)**(3/2)/32 - 65219*sqrt(-2*x + 1)/32
```

Mathematica [A] time = 0.0481702, size = 38, normalized size = 0.48

$$-\frac{\sqrt{1-2x}\left(118125x^5+518000x^4+1024475x^3+1252938x^2+1167932x+1292672\right)}{1155}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^2*(3 + 5*x)^3)/Sqrt[1 - 2*x],x]
```

```
[Out] -(Sqrt[1 - 2*x]*(1292672 + 1167932*x + 1252938*x^2 + 1024475*x^3
+ 518000*x^4 + 118125*x^5))/1155
```

Maple [A] time = 0.007, size = 35, normalized size = 0.4

$$-\frac{118125\,x^5+518000\,x^4+1024475\,x^3+1252938\,x^2+1167932\,x+1292672}{1155}\sqrt{1-2\,x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2*(3+5*x)^3/(1-2*x)^(1/2),x)
```

```
[Out] -1/1155*(118125*x^5+518000*x^4+1024475*x^3+1252938*x^2+1167932*x+
1292672)*(1-2*x)^(1/2)
```

Maxima [A] time = 1.33305, size = 74, normalized size = 0.94

$$\frac{1125}{352}\,(-2\,x+1)^{\frac{11}{2}}-\frac{4225}{96}\,(-2\,x+1)^{\frac{9}{2}}+\frac{28555}{112}\,(-2\,x+1)^{\frac{7}{2}}-\frac{64317}{80}\,(-2\,x+1)^{\frac{5}{2}}+\frac{48279}{32}\,(-2\,x+1)^{\frac{3}{2}}-\frac{65219}{32}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^2/sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] 1125/352*(-2*x + 1)^(11/2) - 4225/96*(-2*x + 1)^(9/2) + 28555/112
*(-2*x + 1)^(7/2) - 64317/80*(-2*x + 1)^(5/2) + 48279/32*(-2*x +
1)^(3/2) - 65219/32*sqrt(-2*x + 1)
```

Fricas [A] time = 0.234502, size = 46, normalized size = 0.58

$$-\frac{1}{1155}\left(118125\,x^5+518000\,x^4+1024475\,x^3+1252938\,x^2+1167932\,x+1292672\right)\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^2/sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] -1/1155*(118125*x^5 + 518000*x^4 + 1024475*x^3 + 1252938*x^2 + 11
67932*x + 1292672)*sqrt(-2*x + 1)
```

Sympy [A] time = 13.7588, size = 70, normalized size = 0.89

$$\frac{1125(-2x+1)^{\frac{11}{2}}}{352}-\frac{4225(-2x+1)^{\frac{9}{2}}}{96}+\frac{28555(-2x+1)^{\frac{7}{2}}}{112}-\frac{64317(-2x+1)^{\frac{5}{2}}}{80}+\frac{48279(-2x+1)^{\frac{3}{2}}}{32}-\frac{65219\sqrt{-2x+1}}{32}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2*(3+5*x)**3/(1-2*x)**(1/2),x)
```

```
[Out] 1125*(-2*x + 1)**(11/2)/352 - 4225*(-2*x + 1)**(9/2)/96 + 28555*(
-2*x + 1)**(7/2)/112 - 64317*(-2*x + 1)**(5/2)/80 + 48279*(-2*x +
 1)**(3/2)/32 - 65219*sqrt(-2*x + 1)/32
```

GIAC/XCAS [A] time = 0.228861, size = 112, normalized size = 1.42

$$-\frac{1125}{352}\,(2\,x-1)^5\sqrt{-2\,x+1}-\frac{4225}{96}\,(2\,x-1)^4\sqrt{-2\,x+1}-\frac{28555}{112}\,(2\,x-1)^3\sqrt{-2\,x+1}-\frac{64317}{80}\,(2\,x-1)^2\sqrt{-2\,x+1}+\frac{48279}{32}\,(-2\,x+1)^{\frac{3}{2}}-\frac{65219}{32}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3*(3*x + 2)^2/sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] -1125/352*(2*x - 1)^5*sqrt(-2*x + 1) - 4225/96*(2*x - 1)^4*sqrt(-
2*x + 1) - 28555/112*(2*x - 1)^3*sqrt(-2*x + 1) - 64317/80*(2*x -
 1)^2*sqrt(-2*x + 1) + 48279/32*(-2*x + 1)^(3/2) - 65219/32*sqrt(
-2*x + 1)
```

3.2010 $\int \frac{(2+3x)(3+5x)^3}{\sqrt{1-2x}}\,dx$

Optimal. Leaf size=66

$$-\frac{125}{48}(1-2x)^{9/2}+\frac{1675}{56}(1-2x)^{7/2}-\frac{561}{4}(1-2x)^{5/2}+\frac{2783}{8}(1-2x)^{3/2}-\frac{9317}{16}\sqrt{1-2x}$$

```
[Out] (-9317*Sqrt[1 - 2*x])/16 + (2783*(1 - 2*x)^(3/2))/8 - (561*(1 - 2
*x)^(5/2))/4 + (1675*(1 - 2*x)^(7/2))/56 - (125*(1 - 2*x)^(9/2))/
48
```

Rubi [A] time = 0.0571125, antiderivative size = 66, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{125}{48}(1-2x)^{9/2}+\frac{1675}{56}(1-2x)^{7/2}-\frac{561}{4}(1-2x)^{5/2}+\frac{2783}{8}(1-2x)^{3/2}-\frac{9317}{16}\sqrt{1-2x}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)*(3 + 5*x)^3)/Sqrt[1 - 2*x],x]
```

```
[Out] (-9317*Sqrt[1 - 2*x])/16 + (2783*(1 - 2*x)^(3/2))/8 - (561*(1 - 2
*x)^(5/2))/4 + (1675*(1 - 2*x)^(7/2))/56 - (125*(1 - 2*x)^(9/2))/
48
```

Rubi in Sympy [A] time = 8.3832, size = 58, normalized size = 0.88

$$-\frac{125\,(-2x+1)^{\frac{9}{2}}}{48}+\frac{1675\,(-2x+1)^{\frac{7}{2}}}{56}-\frac{561\,(-2x+1)^{\frac{5}{2}}}{4}+\frac{2783\,(-2x+1)^{\frac{3}{2}}}{8}-\frac{9317\sqrt{-2x+1}}{16}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)*(3+5*x)**3/(1-2*x)**(1/2),x)
```

```
[Out] -125*(-2*x + 1)**(9/2)/48 + 1675*(-2*x + 1)**(7/2)/56 - 561*(-2*x
 + 1)**(5/2)/4 + 2783*(-2*x + 1)**(3/2)/8 - 9317*sqrt(-2*x + 1)/1
6
```

Mathematica [A] time = 0.0327957, size = 33, normalized size = 0.5

$$-\frac{1}{21}\sqrt{1-2x}\left(875x^4+3275x^3+5556x^2+6161x+7295\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)*(3 + 5*x)^3)/Sqrt[1 - 2*x],x]
```

```
[Out] -(Sqrt[1 - 2*x]*(7295 + 6161*x + 5556*x^2 + 3275*x^3 + 875*x^4))/
21
```

Maple [A] time = 0.004, size = 30, normalized size = 0.5

$$-\frac{875\,x^4+3275\,x^3+5556\,x^2+6161\,x+7295}{21}\sqrt{1-2\,x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)*(3+5*x)^3/(1-2*x)^(1/2),x)
```

```
[Out] -1/21*(875*x^4+3275*x^3+5556*x^2+6161*x+7295)*(1-2*x)^(1/2)
```

Maxima [A] time = 1.37051, size = 62, normalized size = 0.94

$$-\frac{125}{48}\left(-2\,x+1\right)^{\frac{9}{2}}+\frac{1675}{56}\left(-2\,x+1\right)^{\frac{7}{2}}-\frac{561}{4}\left(-2\,x+1\right)^{\frac{5}{2}}+\frac{2783}{8}\left(-2\,x+1\right)^{\frac{3}{2}}-\frac{9317}{16}\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3*(3*x + 2)/sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] -125/48*(-2*x + 1)^(9/2) + 1675/56*(-2*x + 1)^(7/2) - 561/4*(-2*x
 + 1)^(5/2) + 2783/8*(-2*x + 1)^(3/2) - 9317/16*sqrt(-2*x + 1)
```

Fricas [A] time = 0.232528, size = 39, normalized size = 0.59

$$-\frac{1}{21}\left(875\,x^{4}+3275\,x^{3}+5556\,x^{2}+6161\,x+7295\right)\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3*(3*x + 2)/sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] -1/21*(875*x^4 + 3275*x^3 + 5556*x^2 + 6161*x + 7295)*sqrt(-2*x +
 1)
```

Sympy [A] time = 9.88824, size = 58, normalized size = 0.88

$$-\frac{125\left(-2x+1\right)^{\frac{9}{2}}}{48}+\frac{1675\left(-2x+1\right)^{\frac{7}{2}}}{56}-\frac{561\left(-2x+1\right)^{\frac{5}{2}}}{4}+\frac{2783\left(-2x+1\right)^{\frac{3}{2}}}{8}-\frac{9317\sqrt{-2x+1}}{16}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)*(3+5*x)**3/(1-2*x)**(1/2),x)
```

```
[Out] -125*(-2*x + 1)**(9/2)/48 + 1675*(-2*x + 1)**(7/2)/56 - 561*(-2*x
 + 1)**(5/2)/4 + 2783*(-2*x + 1)**(3/2)/8 - 9317*sqrt(-2*x + 1)/1
6
```

GIAC/XCAS [A] time = 0.241808, size = 90, normalized size = 1.36

$$-\frac{125}{48}\left(2\,x-1\right)^{4}\sqrt{-2\,x+1}-\frac{1675}{56}\left(2\,x-1\right)^{3}\sqrt{-2\,x+1}-\frac{561}{4}\left(2\,x-1\right)^{2}\sqrt{-2\,x+1}+\frac{2783}{8}\left(-2\,x+1\right)^{\frac{3}{2}}-\frac{9317}{16}\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)/sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] -125/48*(2*x - 1)^4*sqrt(-2*x + 1) - 1675/56*(2*x - 1)^3*sqrt(-2*
x + 1) - 561/4*(2*x - 1)^2*sqrt(-2*x + 1) + 2783/8*(-2*x + 1)^(3/
2) - 9317/16*sqrt(-2*x + 1)
```

3.2011 $\int \frac{(3+5x)^3}{\sqrt{1-2x}} dx$

Optimal. Leaf size=53

$$\frac{125}{56}(1-2x)^{7/2}-\frac{165}{8}(1-2x)^{5/2}+\frac{605}{8}(1-2x)^{3/2}-\frac{1331}{8}\sqrt{1-2x}$$

```
[Out] (-1331*Sqrt[1 - 2*x])/8 + (605*(1 - 2*x)^(3/2))/8 - (165*(1 - 2*x
)^(5/2))/8 + (125*(1 - 2*x)^(7/2))/56
```

Rubi [A] time = 0.0353927, antiderivative size = 53, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 17, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.059

$$\frac{125}{56}(1-2x)^{7/2}-\frac{165}{8}(1-2x)^{5/2}+\frac{605}{8}(1-2x)^{3/2}-\frac{1331}{8}\sqrt{1-2x}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^3/Sqrt[1 - 2*x],x]
```

```
[Out] (-1331*Sqrt[1 - 2*x])/8 + (605*(1 - 2*x)^(3/2))/8 - (165*(1 - 2*x
)^(5/2))/8 + (125*(1 - 2*x)^(7/2))/56
```

Rubi in Sympy [A] time = 6.05335, size = 46, normalized size = 0.87

$$\frac{125\left(-2x+1\right)^{\frac{7}{2}}}{56}-\frac{165\left(-2x+1\right)^{\frac{5}{2}}}{8}+\frac{605\left(-2x+1\right)^{\frac{3}{2}}}{8}-\frac{1331\sqrt{-2x+1}}{8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**3/(1-2*x)**(1/2),x)
```

```
[Out] 125*(-2*x + 1)**(7/2)/56 - 165*(-2*x + 1)**(5/2)/8 + 605*(-2*x +
1)**(3/2)/8 - 1331*sqrt(-2*x + 1)/8
```

Mathematica [A] time = 0.0235856, size = 28, normalized size = 0.53

$$-\frac{1}{7}\sqrt{1-2x}\left(125x^3+390x^2+575x+764\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^3/Sqrt[1 - 2*x],x]
```

```
[Out] -(Sqrt[1 - 2*x]*(764 + 575*x + 390*x^2 + 125*x^3))/7
```

Maple [A] time = 0.004, size = 25, normalized size = 0.5

$$-\frac{125\,x^3+390\,x^2+575\,x+764}{7}\sqrt{1-2\,x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3/(1-2*x)^(1/2),x)
```

```
[Out] -1/7*(125*x^3+390*x^2+575*x+764)*(1-2*x)^(1/2)
```

Maxima [A] time = 1.35588, size = 50, normalized size = 0.94

$$\frac{125}{56}\,(-2\,x+1)^{\frac{7}{2}}-\frac{165}{8}\,(-2\,x+1)^{\frac{5}{2}}+\frac{605}{8}\,(-2\,x+1)^{\frac{3}{2}}-\frac{1331}{8}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] 125/56*(-2*x + 1)^(7/2) - 165/8*(-2*x + 1)^(5/2) + 605/8*(-2*x +
1)^(3/2) - 1331/8*sqrt(-2*x + 1)
```

Fricas [A] time = 0.238393, size = 32, normalized size = 0.6

$$-\frac{1}{7}\,\left(125\,x^{3}+390\,x^{2}+575\,x+764\right)\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] -1/7*(125*x^3 + 390*x^2 + 575*x + 764)*sqrt(-2*x + 1)
```

Sympy [A] time = 3.13136, size = 190, normalized size = 3.58

$$\begin{cases} -\frac{25\sqrt{5}i\left(x+\frac{3}{5}\right)^{3}\sqrt{10x-5}}{7}-\frac{33\sqrt{5}i\left(x+\frac{3}{5}\right)^{2}\sqrt{10x-5}}{7}-\frac{242\sqrt{5}i\left(x+\frac{3}{5}\right)\sqrt{10x-5}}{35}-\frac{2662\sqrt{5}i\sqrt{10x-5}}{175} & \text{for}\ \frac{10\left|x+\frac{3}{5}\right|}{11}>1 \\ -\frac{25\sqrt{5}\sqrt{-10x+5}\left(x+\frac{3}{5}\right)^{3}}{7}-\frac{33\sqrt{5}\sqrt{-10x+5}\left(x+\frac{3}{5}\right)^{2}}{7}-\frac{242\sqrt{5}\sqrt{-10x+5}\left(x+\frac{3}{5}\right)}{35}-\frac{2662\sqrt{5}\sqrt{-10x+5}}{175} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3/(1-2*x)**(1/2),x)
```

```
[Out] Piecewise((-25*sqrt(5)*I*(x + 3/5)**3*sqrt(10*x - 5)/7 - 33*sqrt(
5)*I*(x + 3/5)**2*sqrt(10*x - 5)/7 - 242*sqrt(5)*I*(x + 3/5)*sqrt
(10*x - 5)/35 - 2662*sqrt(5)*I*sqrt(10*x - 5)/175, 10*Abs(x + 3/5
)/11 > 1), (-25*sqrt(5)*sqrt(-10*x + 5)*(x + 3/5)**3/7 - 33*sqrt(
5)*sqrt(-10*x + 5)*(x + 3/5)**2/7 - 242*sqrt(5)*sqrt(-10*x + 5)*(
x + 3/5)/35 - 2662*sqrt(5)*sqrt(-10*x + 5)/175, True))
```

GIAC/XCAS [A] time = 0.237445, size = 69, normalized size = 1.3

$$-\frac{125}{56}\,(2\,x-1)^{3}\sqrt{-2\,x+1}-\frac{165}{8}\,(2\,x-1)^{2}\sqrt{-2\,x+1}+\frac{605}{8}\,(-2\,x+1)^{\frac{3}{2}}-\frac{1331}{8}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] -125/56*(2*x - 1)^3*sqrt(-2*x + 1) - 165/8*(2*x - 1)^2*sqrt(-2*x
+ 1) + 605/8*(-2*x + 1)^(3/2) - 1331/8*sqrt(-2*x + 1)
```

3.2012 $\int \frac{(3+5x)^3}{\sqrt{1-2x}(2+3x)}\,dx$

Optimal. Leaf size=67

$$-\frac{25}{12}(1-2x)^{5/2}+\frac{400}{27}(1-2x)^{3/2}-\frac{5135}{108}\sqrt{1-2x}+\frac{2\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{27\sqrt{21}}$$

```
[Out] (-5135*Sqrt[1 - 2*x])/108 + (400*(1 - 2*x)^(3/2))/27 - (25*(1 - 2
*x)^(5/2))/12 + (2*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(27*Sqrt[21]
)
```

Rubi [A] time = 0.0852208, antiderivative size = 67, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$-\frac{25}{12}(1-2x)^{5/2}+\frac{400}{27}(1-2x)^{3/2}-\frac{5135}{108}\sqrt{1-2x}+\frac{2\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{27\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^3/(Sqrt[1 - 2*x]*(2 + 3*x)),x]
```

```
[Out] (-5135*Sqrt[1 - 2*x])/108 + (400*(1 - 2*x)^(3/2))/27 - (25*(1 - 2
*x)^(5/2))/12 + (2*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(27*Sqrt[21]
)
```

Rubi in Sympy [A] time = 8.71811, size = 60, normalized size = 0.9

$$-\frac{25\left(-2x+1\right)^{\frac{5}{2}}}{12}+\frac{400\left(-2x+1\right)^{\frac{3}{2}}}{27}-\frac{5135\sqrt{-2x+1}}{108}+\frac{2\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{567}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**3/(2+3*x)/(1-2*x)**(1/2),x)
```

```
[Out] -25*(-2*x + 1)**(5/2)/12 + 400*(-2*x + 1)**(3/2)/27 - 5135*sqrt(-
2*x + 1)/108 + 2*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/567
```

Mathematica [A] time = 0.0903213, size = 51, normalized size = 0.76

$$\frac{2\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{27\sqrt{21}}-\frac{5}{27}\sqrt{1-2x}\left(45x^2+115x+188\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^3/(Sqrt[1 - 2*x]*(2 + 3*x)),x]
```

```
[Out] (-5*Sqrt[1 - 2*x]*(188 + 115*x + 45*x^2))/27 + (2*ArcTanh[Sqrt[3/
7]*Sqrt[1 - 2*x]])/(27*Sqrt[21])
```

Maple [A] time = 0.009, size = 47, normalized size = 0.7

$$\frac{400}{27}(1-2x)^{\frac{3}{2}}-\frac{25}{12}(1-2x)^{\frac{5}{2}}+\frac{2\sqrt{21}}{567}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)-\frac{5135}{108}\sqrt{1-2x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3/(2+3*x)/(1-2*x)^(1/2),x)
```

```
[Out] 400/27*(1-2*x)^(3/2)-25/12*(1-2*x)^(5/2)+2/567*arctanh(1/7*21^(1/
2)*(1-2*x)^(1/2))*21^(1/2)-5135/108*(1-2*x)^(1/2)
```

Maxima [A] time = 1.52728, size = 86, normalized size = 1.28

$$-\frac{25}{12}(-2x+1)^{\frac{5}{2}}+\frac{400}{27}(-2x+1)^{\frac{3}{2}}-\frac{1}{567}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{5135}{108}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] -25/12*(-2*x + 1)^(5/2) + 400/27*(-2*x + 1)^(3/2) - 1/567*sqrt(21
)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1)
)) - 5135/108*sqrt(-2*x + 1)
```

Fricas [A] time = 0.244363, size = 78, normalized size = 1.16

$$-\frac{1}{567}\sqrt{21}\left(5\sqrt{21}\left(45x^2+115x+188\right)\sqrt{-2x+1}-\log\left(\frac{\sqrt{21}(3x-5)-21\sqrt{-2x+1}}{3x+2}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/567*sqrt(21)*(5*sqrt(21)*(45*x^2 + 115*x + 188)*sqrt(-2*x + 1)
 - log((sqrt(21)*(3*x - 5) - 21*sqrt(-2*x + 1))/(3*x + 2)))
```

Sympy [A] time = 5.05802, size = 102, normalized size = 1.52

$$-\frac{25(-2x+1)^{\frac{5}{2}}}{12}+\frac{400(-2x+1)^{\frac{3}{2}}}{27}-\frac{5135\sqrt{-2x+1}}{108}-\frac{2\left(\begin{cases}-\frac{\sqrt{21}\operatorname{acoth}\left(\frac{\sqrt{21}}{3\sqrt{-2x+1}}\right)}{21} & \text{for}\ \frac{1}{-2x+1}>\frac{3}{7}\\ -\frac{\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}}{3\sqrt{-2x+1}}\right)}{21} & \text{for}\ \frac{1}{-2x+1}<\frac{3}{7}\end{cases}\right)}{27}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3/(2+3*x)/(1-2*x)**(1/2),x)
```

```
[Out] -25*(-2*x + 1)**(5/2)/12 + 400*(-2*x + 1)**(3/2)/27 - 5135*sqrt(-
2*x + 1)/108 - 2*Piecewise((-sqrt(21)*acoth(sqrt(21)/(3*sqrt(-2*x
 + 1)))/21, 1/(-2*x + 1) > 3/7), (-sqrt(21)*atanh(sqrt(21)/(3*sqr
t(-2*x + 1)))/21, 1/(-2*x + 1) < 3/7))/27
```

GIAC/XCAS [A] time = 0.222391, size = 100, normalized size = 1.49

$$-\frac{25}{12}\,(2\,x-1)^{2}\sqrt{-2\,x+1}+\frac{400}{27}\,(-2\,x+1)^{\frac{3}{2}}-\frac{1}{567}\,\sqrt{21}\ln\left(\frac{\left|-2\,\sqrt{21}+6\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{21}+3\,\sqrt{-2\,x+1}\right)}\right)-\frac{5135}{108}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3/((3*x + 2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] -25/12*(2*x - 1)^2*sqrt(-2*x + 1) + 400/27*(-2*x + 1)^(3/2) - 1/5
67*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqrt(21)
+ 3*sqrt(-2*x + 1))) - 5135/108*sqrt(-2*x + 1)
```

3.2013 $\int \frac{(3+5x)^3}{\sqrt{1-2x}(2+3x)^2} dx$

Optimal. Leaf size=73

$$\frac{\sqrt{1-2x}(5x+3)^2}{21(3x+2)} - \frac{10}{189}\sqrt{1-2x}(95x+214) - \frac{208\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{189\sqrt{21}}$$

```
[Out] (Sqrt[1 - 2*x]*(3 + 5*x)^2)/(21*(2 + 3*x)) - (10*Sqrt[1 - 2*x]*(2
14 + 95*x))/189 - (208*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(189*Sqr
t[21])
```

Rubi [A] time = 0.107423, antiderivative size = 73, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$\frac{\sqrt{1-2x}(5x+3)^2}{21(3x+2)} - \frac{10}{189}\sqrt{1-2x}(95x+214) - \frac{208\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{189\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^3/(Sqrt[1 - 2*x]*(2 + 3*x)^2),x]
```

```
[Out] (Sqrt[1 - 2*x]*(3 + 5*x)^2)/(21*(2 + 3*x)) - (10*Sqrt[1 - 2*x]*(2
14 + 95*x))/189 - (208*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(189*Sqr
t[21])
```

Rubi in Sympy [A] time = 11.7547, size = 60, normalized size = 0.82

$$-\frac{\sqrt{-2x+1}\,(2850x+6420)}{567} + \frac{\sqrt{-2x+1}\,(5x+3)^2}{21\,(3x+2)} - \frac{208\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{3969}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**3/(2+3*x)**2/(1-2*x)**(1/2),x)
```

```
[Out] -sqrt(-2*x + 1)*(2850*x + 6420)/567 + sqrt(-2*x + 1)*(5*x + 3)**2
/(21*(3*x + 2)) - 208*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/3
969
```

Mathematica [A] time = 0.0951492, size = 58, normalized size = 0.79

$$\frac{-\frac{21\sqrt{1-2x}(2625x^2+8050x+4199)}{3x+2} - 208\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{3969}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^3/(Sqrt[1 - 2*x]*(2 + 3*x)^2),x]
```

```
[Out] ((-21*Sqrt[1 - 2*x]*(4199 + 8050*x + 2625*x^2))/(2 + 3*x) - 208*S
qrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/3969
```

Maple [A] time = 0.015, size = 54, normalized size = 0.7

$$\frac{125}{54}(1-2x)^{\frac{3}{2}}-\frac{725}{54}\sqrt{1-2x}-\frac{2}{567}\sqrt{1-2x}\left(-\frac{4}{3}-2x\right)^{-1}-\frac{208\sqrt{21}}{3969}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3/(2+3*x)^2/(1-2*x)^(1/2),x)
```

```
[Out] 125/54*(1-2*x)^(3/2)-725/54*(1-2*x)^(1/2)-2/567*(1-2*x)^(1/2)/(-4
/3-2*x)-208/3969*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.50784, size = 96, normalized size = 1.32

$$\frac{125}{54}(-2x+1)^{\frac{3}{2}}+\frac{104}{3969}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{725}{54}\sqrt{-2x+1}+\frac{\sqrt{-2x+1}}{189(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)^2*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 125/54*(-2*x + 1)^(3/2) + 104/3969*sqrt(21)*log(-(sqrt(21) - 3*sq
rt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 725/54*sqrt(-2*x +
 1) + 1/189*sqrt(-2*x + 1)/(3*x + 2)
```

Fricas [A] time = 0.239547, size = 93, normalized size = 1.27

$$-\frac{\sqrt{21}\left(\sqrt{21}\left(2625x^2+8050x+4199\right)\sqrt{-2x+1}-104(3x+2)\log\left(\frac{\sqrt{21}(3x-5)+21\sqrt{-2x+1}}{3x+2}\right)\right)}{3969(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)^2*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/3969*sqrt(21)*(sqrt(21)*(2625*x^2 + 8050*x + 4199)*sqrt(-2*x +
 1) - 104*(3*x + 2)*log((sqrt(21)*(3*x - 5) + 21*sqrt(-2*x + 1))/
(3*x + 2)))/(3*x + 2)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3/(2+3*x)**2/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.217925, size = 100, normalized size = 1.37

$$\frac{125}{54}(-2x+1)^{\frac{3}{2}}+\frac{104}{3969}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{725}{54}\sqrt{-2x+1}+\frac{\sqrt{-2x+1}}{189(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)^2*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 125/54*(-2*x + 1)^(3/2) + 104/3969*sqrt(21)*ln(1/2*abs(-2*sqrt(21
) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 725/54*sqr
t(-2*x + 1) + 1/189*sqrt(-2*x + 1)/(3*x + 2)
```

3.2014 $\int \frac{(3+5x)^3}{\sqrt{1-2x}(2+3x)^3}\,dx$

Optimal. Leaf size=80

$$\frac{\sqrt{1-2x}(5x+3)^2}{42(3x+2)^2}-\frac{\sqrt{1-2x}(12425x+8329)}{882(3x+2)}+\frac{2381\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{441\sqrt{21}}$$

```
[Out] (Sqrt[1 - 2*x]*(3 + 5*x)^2)/(42*(2 + 3*x)^2) - (Sqrt[1 - 2*x]*(83
29 + 12425*x))/(882*(2 + 3*x)) + (2381*ArcTanh[Sqrt[3/7]*Sqrt[1 -
 2*x]])/(441*Sqrt[21])
```

Rubi [A] time = 0.111224, antiderivative size = 80, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$\frac{\sqrt{1-2x}(5x+3)^2}{42(3x+2)^2}-\frac{\sqrt{1-2x}(12425x+8329)}{882(3x+2)}+\frac{2381\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{441\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^3/(Sqrt[1 - 2*x]*(2 + 3*x)^3),x]
```

```
[Out] (Sqrt[1 - 2*x]*(3 + 5*x)^2)/(42*(2 + 3*x)^2) - (Sqrt[1 - 2*x]*(83
29 + 12425*x))/(882*(2 + 3*x)) + (2381*ArcTanh[Sqrt[3/7]*Sqrt[1 -
 2*x]])/(441*Sqrt[21])
```

Rubi in Sympy [A] time = 12.1511, size = 66, normalized size = 0.82

$$-\frac{\sqrt{-2x+1}\,(37275x+24987)}{2646\,(3x+2)}+\frac{\sqrt{-2x+1}\,(5x+3)^2}{42\,(3x+2)^2}+\frac{2381\sqrt{21}\,\text{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{9261}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**3/(2+3*x)**3/(1-2*x)**(1/2),x)
```

```
[Out] -sqrt(-2*x + 1)*(37275*x + 24987)/(2646*(3*x + 2)) + sqrt(-2*x +
1)*(5*x + 3)**2/(42*(3*x + 2)**2) + 2381*sqrt(21)*atanh(sqrt(21)*
sqrt(-2*x + 1)/7)/9261
```

Mathematica [A] time = 0.114521, size = 58, normalized size = 0.72

$$\frac{2381\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{441\sqrt{21}}-\frac{\sqrt{1-2x}\left(36750x^2+49207x+16469\right)}{882(3x+2)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^3/(Sqrt[1 - 2*x]*(2 + 3*x)^3),x]
```

```
[Out] -(Sqrt[1 - 2*x]*(16469 + 49207*x + 36750*x^2))/(882*(2 + 3*x)^2)
+ (2381*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(441*Sqrt[21])
```

Maple [A] time = 0.016, size = 57, normalized size = 0.7

$$-\frac{125}{27}\sqrt{1-2x}-\frac{2}{3\left(-4-6x\right)^{2}}\left(-\frac{69}{98}\left(1-2x\right)^{\frac{3}{2}}+\frac{205}{126}\sqrt{1-2x}\right)+\frac{2381\sqrt{21}}{9261}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3/(2+3*x)^3/(1-2*x)^(1/2),x)
```

```
[Out] -125/27*(1-2*x)^(1/2)-2/3*(-69/98*(1-2*x)^(3/2)+205/126*(1-2*x)^(
1/2))/(-4-6*x)^2+2381/9261*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21
^(1/2)
```

Maxima [A] time = 1.52617, size = 112, normalized size = 1.4

$$-\frac{2381}{18522}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{125}{27}\sqrt{-2x+1}+\frac{621\left(-2x+1\right)^{\frac{3}{2}}-1435\sqrt{-2x+1}}{1323\left(9\left(2x-1\right)^{2}+84x+7\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)^3*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] -2381/18522*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21)
 + 3*sqrt(-2*x + 1))) - 125/27*sqrt(-2*x + 1) + 1/1323*(621*(-2*x
 + 1)^(3/2) - 1435*sqrt(-2*x + 1))/(9*(2*x - 1)^2 + 84*x + 7)
```

Fricas [A] time = 0.238761, size = 107, normalized size = 1.34

$$-\frac{\sqrt{21}\left(\sqrt{21}\left(36750x^{2}+49207x+16469\right)\sqrt{-2x+1}-2381\left(9x^{2}+12x+4\right)\log\left(\frac{\sqrt{21}(3x-5)-21\sqrt{-2x+1}}{3x+2}\right)\right)}{18522\left(9x^{2}+12x+4\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)^3*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/18522*sqrt(21)*(sqrt(21)*(36750*x^2 + 49207*x + 16469)*sqrt(-2
*x + 1) - 2381*(9*x^2 + 12*x + 4)*log((sqrt(21)*(3*x - 5) - 21*sq
rt(-2*x + 1))/(3*x + 2)))/(9*x^2 + 12*x + 4)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3/(2+3*x)**3/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.211114, size = 104, normalized size = 1.3

$$-\frac{2381}{18522}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{125}{27}\sqrt{-2x+1}+\frac{621\left(-2x+1\right)^{\frac{3}{2}}-1435\sqrt{-2x+1}}{5292\left(3x+2\right)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)^3*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] -2381/18522*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(
sqrt(21) + 3*sqrt(-2*x + 1))) - 125/27*sqrt(-2*x + 1) + 1/5292*(6
21*(-2*x + 1)^(3/2) - 1435*sqrt(-2*x + 1))/(3*x + 2)^2
```

3.2015 $\int \frac{(3+5x)^3}{\sqrt{1-2x}(2+3x)^4} dx$

Optimal. Leaf size=80

$$\frac{\sqrt{1-2x}(5x+3)^2}{63(3x+2)^3}+\frac{5\sqrt{1-2x}(1867x+1205)}{9261(3x+2)^2}-\frac{78710\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{9261\sqrt{21}}$$

```
[Out] (Sqrt[1 - 2*x]*(3 + 5*x)^2)/(63*(2 + 3*x)^3) + (5*Sqrt[1 - 2*x]*(
1205 + 1867*x))/(9261*(2 + 3*x)^2) - (78710*ArcTanh[Sqrt[3/7]*Sqr
t[1 - 2*x]])/(9261*Sqrt[21])
```

Rubi [A] time = 0.113402, antiderivative size = 80, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$\frac{\sqrt{1-2x}(5x+3)^2}{63(3x+2)^3}+\frac{5\sqrt{1-2x}(1867x+1205)}{9261(3x+2)^2}-\frac{78710\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{9261\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^3/(Sqrt[1 - 2*x]*(2 + 3*x)^4),x]
```

```
[Out] (Sqrt[1 - 2*x]*(3 + 5*x)^2)/(63*(2 + 3*x)^3) + (5*Sqrt[1 - 2*x]*(
1205 + 1867*x))/(9261*(2 + 3*x)^2) - (78710*ArcTanh[Sqrt[3/7]*Sqr
t[1 - 2*x]])/(9261*Sqrt[21])
```

Rubi in Sympy [A] time = 11.8951, size = 70, normalized size = 0.88

$$\frac{\sqrt{-2x+1}\,(56010x+36150)}{55566\,(3x+2)^2}+\frac{\sqrt{-2x+1}\,(5x+3)^2}{63\,(3x+2)^3}-\frac{78710\sqrt{21}\,\mathrm{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{194481}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**3/(2+3*x)**4/(1-2*x)**(1/2),x)
```

```
[Out] sqrt(-2*x + 1)*(56010*x + 36150)/(55566*(3*x + 2)**2) + sqrt(-2*x
 + 1)*(5*x + 3)**2/(63*(3*x + 2)**3) - 78710*sqrt(21)*atanh(sqrt(
21)*sqrt(-2*x + 1)/7)/194481
```

Mathematica [A] time = 0.105045, size = 58, normalized size = 0.72

$$\frac{\frac{21\sqrt{1-2x}(31680x^2+41155x+13373)}{(3x+2)^3}-78710\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{194481}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^3/(Sqrt[1 - 2*x]*(2 + 3*x)^4),x]
```

```
[Out] ((21*Sqrt[1 - 2*x]*(13373 + 41155*x + 31680*x^2))/(2 + 3*x)^3 - 7
8710*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/194481
```

Maple [A] time = 0.017, size = 57, normalized size = 0.7

$$54\frac{1}{\left(-4-6x\right)^{3}}\left(-\frac{3520\left(1-2x\right)^{5/2}}{27783}+\frac{20810\left(1-2x\right)^{3/2}}{35721}-\frac{3418\sqrt{1-2x}}{5103}\right)-\frac{78710\sqrt{21}}{194481}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3/(2+3*x)^4/(1-2*x)^(1/2),x)
```

```
[Out] 54*(-3520/27783*(1-2*x)^(5/2)+20810/35721*(1-2*x)^(3/2)-3418/5103
*(1-2*x)^(1/2))/(-4-6*x)^3-78710/194481*arctanh(1/7*21^(1/2)*(1-2
*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.49929, size = 124, normalized size = 1.55

$$\frac{39355}{194481}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{4\left(15840\left(-2x+1\right)^{\frac{5}{2}}-72835\left(-2x+1\right)^{\frac{3}{2}}+83741\sqrt{-2x+1}\right)}{9261\left(27\left(2x-1\right)^{3}+189\left(2x-1\right)^{2}+882x-98\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)^4*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 39355/194481*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21
) + 3*sqrt(-2*x + 1))) + 4/9261*(15840*(-2*x + 1)^(5/2) - 72835*(
-2*x + 1)^(3/2) + 83741*sqrt(-2*x + 1))/(27*(2*x - 1)^3 + 189*(2*
x - 1)^2 + 882*x - 98)
```

Fricas [A] time = 0.239747, size = 120, normalized size = 1.5

$$\frac{\sqrt{21}\left(\sqrt{21}\left(31680x^{2}+41155x+13373\right)\sqrt{-2x+1}+39355\left(27x^{3}+54x^{2}+36x+8\right)\log\left(\frac{\sqrt{21}(3x-5)+21\sqrt{-2x+1}}{3x+2}\right)\right)}{194481\left(27x^{3}+54x^{2}+36x+8\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)^4*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] 1/194481*sqrt(21)*(sqrt(21)*(31680*x^2 + 41155*x + 13373)*sqrt(-2
*x + 1) + 39355*(27*x^3 + 54*x^2 + 36*x + 8)*log((sqrt(21)*(3*x -
 5) + 21*sqrt(-2*x + 1))/(3*x + 2)))/(27*x^3 + 54*x^2 + 36*x + 8)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3/(2+3*x)**4/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.214403, size = 113, normalized size = 1.41

$$\frac{39355}{194481}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{15840(2x-1)^2\sqrt{-2x+1}-72835(-2x+1)^{\frac{3}{2}}+83741\sqrt{-2x+1}}{18522(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3/((3*x + 2)^4*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 39355/194481*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/
(sqrt(21) + 3*sqrt(-2*x + 1))) + 1/18522*(15840*(2*x - 1)^2*sqrt(
-2*x + 1) - 72835*(-2*x + 1)^(3/2) + 83741*sqrt(-2*x + 1))/(3*x +
 2)^3
```

3.2016 $\int \frac{(3+5x)^3}{\sqrt{1-2x}(2+3x)^5}\,dx$

Optimal. Leaf size=100

$$\frac{\sqrt{1-2x}(5x+3)^2}{84(3x+2)^4}+\frac{\sqrt{1-2x}(4955x+3168)}{10584(3x+2)^3}-\frac{42995\sqrt{1-2x}}{74088(3x+2)}-\frac{42995\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{37044\sqrt{21}}$$

```
[Out] (-42995*Sqrt[1 - 2*x])/(74088*(2 + 3*x)) + (Sqrt[1 - 2*x]*(3 + 5*
x)^2)/(84*(2 + 3*x)^4) + (Sqrt[1 - 2*x]*(3168 + 4955*x))/(10584*(
2 + 3*x)^3) - (42995*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(37044*Sqr
t[21])
```

Rubi [A] time = 0.130912, antiderivative size = 100, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{\sqrt{1-2x}(5x+3)^2}{84(3x+2)^4}+\frac{\sqrt{1-2x}(4955x+3168)}{10584(3x+2)^3}-\frac{42995\sqrt{1-2x}}{74088(3x+2)}-\frac{42995\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{37044\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^3/(Sqrt[1 - 2*x]*(2 + 3*x)^5),x]
```

```
[Out] (-42995*Sqrt[1 - 2*x])/(74088*(2 + 3*x)) + (Sqrt[1 - 2*x]*(3 + 5*
x)^2)/(84*(2 + 3*x)^4) + (Sqrt[1 - 2*x]*(3168 + 4955*x))/(10584*(
2 + 3*x)^3) - (42995*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(37044*Sqr
t[21])
```

Rubi in Sympy [A] time = 13.5307, size = 85, normalized size = 0.85

$$-\frac{42995\sqrt{-2x+1}}{74088\,(3x+2)}+\frac{\sqrt{-2x+1}\,(104055x+66528)}{222264\,(3x+2)^3}+\frac{\sqrt{-2x+1}\,(5x+3)^2}{84\,(3x+2)^4}-\frac{42995\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{777924}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**3/(2+3*x)**5/(1-2*x)**(1/2),x)
```

```
[Out] -42995*sqrt(-2*x + 1)/(74088*(3*x + 2)) + sqrt(-2*x + 1)*(104055*
x + 66528)/(222264*(3*x + 2)**3) + sqrt(-2*x + 1)*(5*x + 3)**2/(8
4*(3*x + 2)**4) - 42995*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)
/777924
```

Mathematica [A] time = 0.11309, size = 63, normalized size = 0.63

$$\frac{-\frac{21\sqrt{1-2x}\left(1160865x^3+2195625x^2+1385462x+291670\right)}{(3x+2)^4}-85990\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{1555848}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^3/(Sqrt[1 - 2*x]*(2 + 3*x)^5),x]
```

```
[Out] ((-21*Sqrt[1 - 2*x]*(291670 + 1385462*x + 2195625*x^2 + 1160865*x
^3))/(2 + 3*x)^4 - 85990*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]]
```

```
])/1555848
```

Maple [A] time = 0.017, size = 66, normalized size = 0.7

$$-324\frac{1}{(-4-6x)^4}\left(-\frac{42995(1-2x)^{7/2}}{444528}+\frac{374945(1-2x)^{5/2}}{571536}-\frac{363407(1-2x)^{3/2}}{244944}+\frac{274027\sqrt{1-2x}}{244944}\right)-\frac{42995\sqrt{21}}{777924}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3/(2+3*x)^5/(1-2*x)^(1/2),x)
```

```
[Out] -324*(-42995/444528*(1-2*x)^(7/2)+374945/571536*(1-2*x)^(5/2)-363
407/244944*(1-2*x)^(3/2)+274027/244944*(1-2*x)^(1/2))/(-4-6*x)^4-
42995/777924*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.53148, size = 149, normalized size = 1.49

$$\frac{42995}{1555848}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{1160865(-2x+1)^{\frac{7}{2}}-7873845(-2x+1)^{\frac{5}{2}}+17806943(-2x+1)^{\frac{3}{2}}-13427323\sqrt{-2x+1}}{37044\left(81(2x-1)^4+756(2x-1)^3+2646(2x-1)^2+8232x-1715\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)^5*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 42995/1555848*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(2
1) + 3*sqrt(-2*x + 1))) + 1/37044*(1160865*(-2*x + 1)^(7/2) - 787
3845*(-2*x + 1)^(5/2) + 17806943*(-2*x + 1)^(3/2) - 13427323*sqrt
(-2*x + 1))/(81*(2*x - 1)^4 + 756*(2*x - 1)^3 + 2646*(2*x - 1)^2
+ 8232*x - 1715)
```

Fricas [A] time = 0.245313, size = 140, normalized size = 1.4

$$-\frac{\sqrt{21}\left(\sqrt{21}(1160865x^3+2195625x^2+1385462x+291670)\sqrt{-2x+1}-42995\left(81x^4+216x^3+216x^2+96x+16\right)\log\left(\right.\right.}{1555848(81x^4+216x^3+216x^2+96x+16)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)^5*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/1555848*sqrt(21)*(sqrt(21)*(1160865*x^3 + 2195625*x^2 + 138546
2*x + 291670)*sqrt(-2*x + 1) - 42995*(81*x^4 + 216*x^3 + 216*x^2
+ 96*x + 16)*log((sqrt(21)*(3*x - 5) + 21*sqrt(-2*x + 1))/(3*x +
2)))/(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3/(2+3*x)**5/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.213583, size = 135, normalized size = 1.35

$$\frac{42995}{1555848}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right) - \frac{1160865(2x-1)^3\sqrt{-2x+1}+7873845(2x-1)^2\sqrt{-2x+1}-17806943(-2x+1)^{\frac{3}{2}}+13427323\sqrt{-2x+1}}{592704(3x+2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)^5*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 42995/1555848*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))
/(sqrt(21) + 3*sqrt(-2*x + 1))) - 1/592704*(1160865*(2*x - 1)^3*s
qrt(-2*x + 1) + 7873845*(2*x - 1)^2*sqrt(-2*x + 1) - 17806943*(-2
*x + 1)^(3/2) + 13427323*sqrt(-2*x + 1))/(3*x + 2)^4
```

3.2017 $\int \frac{(3+5x)^3}{\sqrt{1-2x}(2+3x)^6} dx$

Optimal. Leaf size=120

$$\frac{\sqrt{1-2x}(5x+3)^2}{105(3x+2)^5}+\frac{\sqrt{1-2x}(1971x+1255)}{6615(3x+2)^4}-\frac{5293\sqrt{1-2x}}{43218(3x+2)}-\frac{5293\sqrt{1-2x}}{18522(3x+2)^2}-\frac{5293\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{21609\sqrt{21}}$$

```
[Out] (-5293*Sqrt[1 - 2*x])/(18522*(2 + 3*x)^2) - (5293*Sqrt[1 - 2*x])/
(43218*(2 + 3*x)) + (Sqrt[1 - 2*x]*(3 + 5*x)^2)/(105*(2 + 3*x)^5)
 + (Sqrt[1 - 2*x]*(1255 + 1971*x))/(6615*(2 + 3*x)^4) - (5293*Arc
Tanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(21609*Sqrt[21])
```

Rubi [A] time = 0.151539, antiderivative size = 120, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{\sqrt{1-2x}(5x+3)^2}{105(3x+2)^5}+\frac{\sqrt{1-2x}(1971x+1255)}{6615(3x+2)^4}-\frac{5293\sqrt{1-2x}}{43218(3x+2)}-\frac{5293\sqrt{1-2x}}{18522(3x+2)^2}-\frac{5293\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{21609\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^3/(Sqrt[1 - 2*x]*(2 + 3*x)^6),x]
```

```
[Out] (-5293*Sqrt[1 - 2*x])/(18522*(2 + 3*x)^2) - (5293*Sqrt[1 - 2*x])/
(43218*(2 + 3*x)) + (Sqrt[1 - 2*x]*(3 + 5*x)^2)/(105*(2 + 3*x)^5)
 + (Sqrt[1 - 2*x]*(1255 + 1971*x))/(6615*(2 + 3*x)^4) - (5293*Arc
Tanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(21609*Sqrt[21])
```

Rubi in Sympy [A] time = 15.7059, size = 104, normalized size = 0.87

$$-\frac{5293\sqrt{-2x+1}}{43218\,(3x+2)}-\frac{5293\sqrt{-2x+1}}{18522\,(3x+2)^2}+\frac{\sqrt{-2x+1}\,(165564x+105420)}{555660\,(3x+2)^4}+\frac{\sqrt{-2x+1}\,(5x+3)^2}{105\,(3x+2)^5}-\frac{5293\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{453789}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**3/(2+3*x)**6/(1-2*x)**(1/2),x)
```

```
[Out] -5293*sqrt(-2*x + 1)/(43218*(3*x + 2)) - 5293*sqrt(-2*x + 1)/(185
22*(3*x + 2)**2) + sqrt(-2*x + 1)*(165564*x + 105420)/(555660*(3*
x + 2)**4) + sqrt(-2*x + 1)*(5*x + 3)**2/(105*(3*x + 2)**5) - 529
3*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/453789
```

Mathematica [A] time = 0.136995, size = 68, normalized size = 0.57

$$\frac{-\frac{21\sqrt{1-2x}\left(2143665x^4+7383735x^3+8806422x^2+4450198x+816938\right)}{(3x+2)^5}-52930\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{4537890}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^3/(Sqrt[1 - 2*x]*(2 + 3*x)^6),x]
```

```
[Out] ((-21*Sqrt[1 - 2*x]*(816938 + 4450198*x + 8806422*x^2 + 7383735*x
^3 + 2143665*x^4))/(2 + 3*x)^5 - 52930*Sqrt[21]*ArcTanh[Sqrt[3/7]
*Sqrt[1 - 2*x]])/4537890
```

Maple [A] time = 0.017, size = 75, normalized size = 0.6

$$1944\,\frac{1}{(-4-6\,x)^{5}}\left(\frac{5293\,(1-2\,x)^{9/2}}{518616}-\frac{5293\,(1-2\,x)^{7/2}}{47628}+\frac{78563\,(1-2\,x)^{5/2}}{178605}-\frac{324347\,(1-2\,x)^{3/2}}{428652}+\frac{58781\,\sqrt{1-2\,x}}{122472}\right)-\frac{5293\,\sqrt{21}}{453789}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3/(2+3*x)^6/(1-2*x)^(1/2),x)
```

```
[Out] 1944*(5293/518616*(1-2*x)^(9/2)-5293/47628*(1-2*x)^(7/2)+78563/17
8605*(1-2*x)^(5/2)-324347/428652*(1-2*x)^(3/2)+58781/122472*(1-2*
x)^(1/2))/(-4-6*x)^5-5293/453789*arctanh(1/7*21^(1/2)*(1-2*x)^(1/
2))*21^(1/2)
```

Maxima [A] time = 1.51553, size = 173, normalized size = 1.44

$$\frac{5293}{907578}\,\sqrt{21}\log\left(-\frac{\sqrt{21}-3\,\sqrt{-2\,x+1}}{\sqrt{21}+3\,\sqrt{-2\,x+1}}\right)-\frac{2143665\,(-2\,x+1)^{\frac{9}{2}}-23342130\,(-2\,x+1)^{\frac{7}{2}}+92390088\,(-2\,x+1)^{\frac{5}{2}}-158930030\,(-2\,x+1)^{\frac{3}{2}}+100809415\,\sqrt{-2\,x+1}}{108045\,\left(243\,(2\,x-1)^{5}+2835\,(2\,x-1)^{4}+13230\,(2\,x-1)^{3}+30870\,(2\,x-1)^{2}+72030\,x-19208\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)^6*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 5293/907578*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21)
 + 3*sqrt(-2*x + 1))) - 1/108045*(2143665*(-2*x + 1)^(9/2) - 2334
2130*(-2*x + 1)^(7/2) + 92390088*(-2*x + 1)^(5/2) - 158930030*(-2
*x + 1)^(3/2) + 100809415*sqrt(-2*x + 1))/(243*(2*x - 1)^5 + 2835
*(2*x - 1)^4 + 13230*(2*x - 1)^3 + 30870*(2*x - 1)^2 + 72030*x -
19208)
```

Fricas [A] time = 0.250714, size = 161, normalized size = 1.34

$$-\frac{\sqrt{21}\left(\sqrt{21}\left(2143665\,x^{4}+7383735\,x^{3}+8806422\,x^{2}+4450198\,x+816938\right)\sqrt{-2\,x+1}-26465\,\left(243\,x^{5}+810\,x^{4}+1080\,x^{3}+7\right.}{4537890\,(243\,x^{5}+810\,x^{4}+1080\,x^{3}+720\,x^{2}+240\,x+32)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)^6*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/4537890*sqrt(21)*(sqrt(21)*(2143665*x^4 + 7383735*x^3 + 880642
2*x^2 + 4450198*x + 816938)*sqrt(-2*x + 1) - 26465*(243*x^5 + 810
*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)*log((sqrt(21)*(3*x - 5) +
 21*sqrt(-2*x + 1))/(3*x + 2)))/(243*x^5 + 810*x^4 + 1080*x^3 + 7
20*x^2 + 240*x + 32)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3/(2+3*x)**6/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.219115, size = 157, normalized size = 1.31

$$\frac{5293}{907578}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right) - \frac{2143665\,(2x-1)^4\sqrt{-2x+1}+23342130\,(2x-1)^3\sqrt{-2x+1}+92390088\,(2x-1)^2\sqrt{-2x+1}-158930030\,(-2x+1)^{\frac{3}{2}}+1}{3457440\,(3x+2)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)^6*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 5293/907578*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(
sqrt(21) + 3*sqrt(-2*x + 1))) - 1/3457440*(2143665*(2*x - 1)^4*sq
rt(-2*x + 1) + 23342130*(2*x - 1)^3*sqrt(-2*x + 1) + 92390088*(2*
x - 1)^2*sqrt(-2*x + 1) - 158930030*(-2*x + 1)^(3/2) + 100809415*
sqrt(-2*x + 1))/(3*x + 2)^5
```

3.2018 $\int \frac{(a+bx)^2}{(c+dx)^2\sqrt{e+fx}}\,dx$

Optimal. Leaf size=132

$$\frac{(bc-ad)(-adf-3bcf+4bde)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{5/2}(de-cf)^{3/2}}-\frac{\sqrt{e+fx}(bc-ad)^2}{d^2(c+dx)(de-cf)}+\frac{2b^2\sqrt{e+fx}}{d^2f}$$

```
[Out] (2*b^2*Sqrt[e + f*x])/(d^2*f) - ((b*c - a*d)^2*Sqrt[e + f*x])/(d^
2*(d*e - c*f)*(c + d*x)) + ((b*c - a*d)*(4*b*d*e - 3*b*c*f - a*d*
f)*ArcTanh[(Sqrt[d]*Sqrt[e + f*x])/Sqrt[d*e - c*f]])/(d^(5/2)*(d*
e - c*f)^(3/2))
```

Rubi [A] time = 0.434057, antiderivative size = 132, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$\frac{(bc-ad)(-adf-3bcf+4bde)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{5/2}(de-cf)^{3/2}}-\frac{\sqrt{e+fx}(bc-ad)^2}{d^2(c+dx)(de-cf)}+\frac{2b^2\sqrt{e+fx}}{d^2f}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^2/((c + d*x)^2*Sqrt[e + f*x]),x]
```

```
[Out] (2*b^2*Sqrt[e + f*x])/(d^2*f) - ((b*c - a*d)^2*Sqrt[e + f*x])/(d^
2*(d*e - c*f)*(c + d*x)) + ((b*c - a*d)*(4*b*d*e - 3*b*c*f - a*d*
f)*ArcTanh[(Sqrt[d]*Sqrt[e + f*x])/Sqrt[d*e - c*f]])/(d^(5/2)*(d*
e - c*f)^(3/2))
```

Rubi in Sympy [A] time = 47.7275, size = 116, normalized size = 0.88

$$\frac{2b^2\sqrt{e+fx}}{d^2f}+\frac{\sqrt{e+fx}\,(ad-bc)^2}{d^2\,(c+dx)\,(cf-de)}+\frac{(ad-bc)\,(adf+3bcf-4bde)\,\mathrm{atan}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{cf-de}}\right)}{d^{\frac{5}{2}}\,(cf-de)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**2/(d*x+c)**2/(f*x+e)**(1/2),x)
```

```
[Out] 2*b**2*sqrt(e + f*x)/(d**2*f) + sqrt(e + f*x)*(a*d - b*c)**2/(d**
2*(c + d*x)*(c*f - d*e)) + (a*d - b*c)*(a*d*f + 3*b*c*f - 4*b*d*e
)*atan(sqrt(d)*sqrt(e + f*x)/sqrt(c*f - d*e))/(d**(5/2)*(c*f - d*
e)**(3/2))
```

Mathematica [A] time = 0.385783, size = 122, normalized size = 0.92

$$\frac{\sqrt{e+fx}\left(\frac{2b^2}{f}-\frac{(bc-ad)^2}{(c+dx)(de-cf)}\right)}{d^2}-\frac{(bc-ad)(adf+3bcf-4bde)\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{e+fx}}{\sqrt{de-cf}}\right)}{d^{5/2}(de-cf)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^2/((c + d*x)^2*Sqrt[e + f*x]),x]
```

```
[Out] (Sqrt[e + f*x]*((2*b^2)/f - (b*c - a*d)^2/((d*e - c*f)*(c + d*x))
))/d^2 - ((b*c - a*d)*(-4*b*d*e + 3*b*c*f + a*d*f)*ArcTanh[(Sqrt[
```

```
d]*Sqrt[e + f*x])/Sqrt[d*e - c*f]])/(d^(5/2)*(d*e - c*f)^(3/2))
```

Maple [B] time = 0.026, size = 387, normalized size = 2.9

$$2\frac{b^2\sqrt{fx+e}}{d^2f}+\frac{fa^2}{(cf-de)(dfx+cf)}\sqrt{fx+e}-2\frac{f\sqrt{fx+e}abc}{(cf-de)d(dfx+cf)}+\frac{b^2c^2f}{d^2(cf-de)(dfx+cf)}\sqrt{fx+e}+\frac{fa^2}{cf-de}\arctan\left(d\sqrt{fx+e}\frac{1}{\sqrt{(cf-de)d}}\right)\frac{1}{\sqrt{(cf-de)d}}+2\frac{bfac}{(cf-de)d\sqrt{(cf-de)d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)d}}\right)-4\frac{abe}{(cf-de)\sqrt{(cf-de)d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)d}}\right)-3\frac{b^2c^2f}{d^2(cf-de)\sqrt{(cf-de)d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)d}}\right)+4\frac{ceb^2}{(cf-de)d\sqrt{(cf-de)d}}\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{(cf-de)d}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^2/(d*x+c)^2/(f*x+e)^(1/2),x)
```

```
[Out] 2*b^2*(f*x+e)^(1/2)/d^2/f+f/(c*f-d*e)*(f*x+e)^(1/2)/(d*f*x+c*f)*a
^2-2*f/d/(c*f-d*e)*(f*x+e)^(1/2)/(d*f*x+c*f)*a*b*c+f/d^2/(c*f-d*e
)*(f*x+e)^(1/2)/(d*f*x+c*f)*b^2*c^2+f/(c*f-d*e)/((c*f-d*e)*d)^(1/
2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*a^2+2*f/d/(c*f-d*e
)/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))
*a*b*c-4/(c*f-d*e)/((c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c
*f-d*e)*d)^(1/2))*a*b*e-3*f/d^2/(c*f-d*e)/((c*f-d*e)*d)^(1/2)*arc
tan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*b^2*c^2+4/d/(c*f-d*e)/((
c*f-d*e)*d)^(1/2)*arctan((f*x+e)^(1/2)*d/((c*f-d*e)*d)^(1/2))*b^2
*c*e
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^2/((d*x + c)^2*sqrt(f*x + e)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.236838, size = 1, normalized size = 0.01

$$\left[\frac{2\left(2b^2cde-\left(3b^2c^2-2abcd+a^2d^2\right)f+2\left(b^2d^2e-b^2cdf\right)x\right)\sqrt{d^2e-cdf}\sqrt{fx+e}-\left(4\left(b^2c^2d-abcd^2\right)ef-\left(3b^2c^3-2\right.\right.}{2\left(cd^3ef-c^2d^2f^2+(d^4e\right.}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^2/((d*x + c)^2*sqrt(f*x + e)),x, algorithm="fricas")
```

```
[Out] [1/2*(2*(2*b^2*c*d*e - (3*b^2*c^2 - 2*a*b*c*d + a^2*d^2)*f + 2*(b
^2*d^2*e - b^2*c*d*f)*x)*sqrt(d^2*e - c*d*f)*sqrt(f*x + e) - (4*(
```

```
b^2*c^2*d - a*b*c*d^2)*e*f - (3*b^2*c^3 - 2*a*b*c^2*d - a^2*c*d^2
)*f^2 + (4*(b^2*c*d^2 - a*b*d^3)*e*f - (3*b^2*c^2*d - 2*a*b*c*d^2
 - a^2*d^3)*f^2)*x)*log((sqrt(d^2*e - c*d*f)*(d*f*x + 2*d*e - c*f
) - 2*(d^2*e - c*d*f)*sqrt(f*x + e))/(d*x + c)))/((c*d^3*e*f - c^
2*d^2*f^2 + (d^4*e*f - c*d^3*f^2)*x)*sqrt(d^2*e - c*d*f)), ((2*b^
2*c*d*e - (3*b^2*c^2 - 2*a*b*c*d + a^2*d^2)*f + 2*(b^2*d^2*e - b^
2*c*d*f)*x)*sqrt(-d^2*e + c*d*f)*sqrt(f*x + e) + (4*(b^2*c^2*d -
a*b*c*d^2)*e*f - (3*b^2*c^3 - 2*a*b*c^2*d - a^2*c*d^2)*f^2 + (4*(
b^2*c*d^2 - a*b*d^3)*e*f - (3*b^2*c^2*d - 2*a*b*c*d^2 - a^2*d^3)*
f^2)*x)*arctan(-(d*e - c*f)/(sqrt(-d^2*e + c*d*f)*sqrt(f*x + e)))
)/((c*d^3*e*f - c^2*d^2*f^2 + (d^4*e*f - c*d^3*f^2)*x)*sqrt(-d^2*
e + c*d*f))]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a+bx)^2}{(c+dx)^2\sqrt{e+fx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**2/(d*x+c)**2/(f*x+e)**(1/2),x)
```

```
[Out] Integral((a + b*x)**2/((c + d*x)**2*sqrt(e + f*x)), x)
```

GIAC/XCAS [A] time = 0.215906, size = 277, normalized size = 2.1

$$-\frac{\left(3\,b^2c^2f-2\,abcdf-a^2d^2f-4\,b^2cde+4\,abd^2e\right)\arctan\left(\frac{\sqrt{fx+e}d}{\sqrt{cdf-d^2e}}\right)}{\left(cd^2f-d^3e\right)\sqrt{cdf-d^2e}}+\frac{2\sqrt{fx+e}b^2}{d^2f}+\frac{\sqrt{fx+e}b^2c^2f-2\sqrt{fx+e}abcdf+\sqrt{fx+e}a^2d^2f}{\left(cd^2f-d^3e\right)\left((fx+e)d+cf-de\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^2/((d*x + c)^2*sqrt(f*x + e)),x, algorithm="giac")
```

```
[Out] -(3*b^2*c^2*f - 2*a*b*c*d*f - a^2*d^2*f - 4*b^2*c*d*e + 4*a*b*d^2
*e)*arctan(sqrt(f*x + e)*d/sqrt(c*d*f - d^2*e))/((c*d^2*f - d^3*e
)*sqrt(c*d*f - d^2*e)) + 2*sqrt(f*x + e)*b^2/(d^2*f) + (sqrt(f*x
+ e)*b^2*c^2*f - 2*sqrt(f*x + e)*a*b*c*d*f + sqrt(f*x + e)*a^2*d^
2*f)/((c*d^2*f - d^3*e)*((f*x + e)*d + c*f - d*e))
```

3.2019 $\int \frac{(2+3x)^5}{\sqrt{1-2x}(3+5x)}\,dx$

Optimal. Leaf size=93

$$-\frac{27}{80}(1-2x)^{9/2}+\frac{5751(1-2x)^{7/2}}{1400}-\frac{51057(1-2x)^{5/2}}{2500}+\frac{268707(1-2x)^{3/2}}{5000}-\frac{4774713\sqrt{1-2x}}{50000}-\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{3125\sqrt{55}}$$

```
[Out] (-4774713*Sqrt[1 - 2*x])/50000 + (268707*(1 - 2*x)^(3/2))/5000 -
(51057*(1 - 2*x)^(5/2))/2500 + (5751*(1 - 2*x)^(7/2))/1400 - (27*
(1 - 2*x)^(9/2))/80 - (2*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(3125
*Sqrt[55])
```

Rubi [A] time = 0.0971523, antiderivative size = 93, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$-\frac{27}{80}(1-2x)^{9/2}+\frac{5751(1-2x)^{7/2}}{1400}-\frac{51057(1-2x)^{5/2}}{2500}+\frac{268707(1-2x)^{3/2}}{5000}-\frac{4774713\sqrt{1-2x}}{50000}-\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{3125\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^5/(Sqrt[1 - 2*x]*(3 + 5*x)),x]
```

```
[Out] (-4774713*Sqrt[1 - 2*x])/50000 + (268707*(1 - 2*x)^(3/2))/5000 -
(51057*(1 - 2*x)^(5/2))/2500 + (5751*(1 - 2*x)^(7/2))/1400 - (27*
(1 - 2*x)^(9/2))/80 - (2*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(3125
*Sqrt[55])
```

Rubi in Sympy [A] time = 9.93523, size = 83, normalized size = 0.89

$$-\frac{27\left(-2x+1\right)^{\frac{9}{2}}}{80}+\frac{5751\left(-2x+1\right)^{\frac{7}{2}}}{1400}-\frac{51057\left(-2x+1\right)^{\frac{5}{2}}}{2500}+\frac{268707\left(-2x+1\right)^{\frac{3}{2}}}{5000}-\frac{4774713\sqrt{-2x+1}}{50000}-\frac{2\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{171875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**5/(3+5*x)/(1-2*x)**(1/2),x)
```

```
[Out] -27*(-2*x + 1)**(9/2)/80 + 5751*(-2*x + 1)**(7/2)/1400 - 51057*(-
2*x + 1)**(5/2)/2500 + 268707*(-2*x + 1)**(3/2)/5000 - 4774713*sq
rt(-2*x + 1)/50000 - 2*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)
/171875
```

Mathematica [A] time = 0.115263, size = 61, normalized size = 0.66

$$-\frac{3\sqrt{1-2x}\left(39375x^4+160875x^3+295290x^2+348095x+425872\right)}{21875}-\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{3125\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^5/(Sqrt[1 - 2*x]*(3 + 5*x)),x]
```

```
[Out] (-3*Sqrt[1 - 2*x]*(425872 + 348095*x + 295290*x^2 + 160875*x^3 +
39375*x^4))/21875 - (2*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(3125*S
qrt[55])
```

Maple [A]   time = 0.01, size = 65, normalized size = 0.7

$$\frac{268707}{5000}(1-2x)^{\frac{3}{2}} - \frac{51057}{2500}(1-2x)^{\frac{5}{2}} + \frac{5751}{1400}(1-2x)^{\frac{7}{2}} - \frac{27}{80}(1-2x)^{\frac{9}{2}} - \frac{2\sqrt{55}}{171875} Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right) - \frac{4774713}{50000}\sqrt{1-2x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^5/(3+5*x)/(1-2*x)^(1/2),x)
```

```
[Out] 268707/5000*(1-2*x)^(3/2)-51057/2500*(1-2*x)^(5/2)+5751/1400*(1-2
*x)^(7/2)-27/80*(1-2*x)^(9/2)-2/171875*arctanh(1/11*55^(1/2)*(1-2
*x)^(1/2))*55^(1/2)-4774713/50000*(1-2*x)^(1/2)
```

Maxima [A]   time = 1.54709, size = 111, normalized size = 1.19

$$-\frac{27}{80}(-2x+1)^{\frac{9}{2}} + \frac{5751}{1400}(-2x+1)^{\frac{7}{2}} - \frac{51057}{2500}(-2x+1)^{\frac{5}{2}} + \frac{268707}{5000}(-2x+1)^{\frac{3}{2}} + \frac{1}{171875}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right) - \frac{4774713}{50000}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/((5*x + 3)*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] -27/80*(-2*x + 1)^(9/2) + 5751/1400*(-2*x + 1)^(7/2) - 51057/2500
*(-2*x + 1)^(5/2) + 268707/5000*(-2*x + 1)^(3/2) + 1/171875*sqrt(
55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x +
1))) - 4774713/50000*sqrt(-2*x + 1)
```

Fricas [A]   time = 0.226179, size = 92, normalized size = 0.99

$$-\frac{1}{1203125}\sqrt{55}\left(3\sqrt{55}\left(39375x^4 + 160875x^3 + 295290x^2 + 348095x + 425872\right)\sqrt{-2x+1} - 7\log\left(\frac{\sqrt{55}(5x-8) + 55\sqrt{-2x}}{5x+3}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/((5*x + 3)*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/1203125*sqrt(55)*(3*sqrt(55)*(39375*x^4 + 160875*x^3 + 295290*
x^2 + 348095*x + 425872)*sqrt(-2*x + 1) - 7*log((sqrt(55)*(5*x -
8) + 55*sqrt(-2*x + 1))/(5*x + 3)))
```

Sympy [A] time = 7.3983, size = 126, normalized size = 1.35

$$-\frac{27(-2x+1)^{\frac{9}{2}}}{80}+\frac{5751(-2x+1)^{\frac{7}{2}}}{1400}-\frac{51057(-2x+1)^{\frac{5}{2}}}{2500}+\frac{268707(-2x+1)^{\frac{3}{2}}}{5000}-\frac{4774713\sqrt{-2x+1}}{50000}+\frac{2\left(\begin{cases}-\frac{\sqrt{55}\operatorname{acoth}\left(\frac{\sqrt{55}}{5\sqrt{-2x+1}}\right)}{55} & \text{for } \frac{1}{-2x+1}>\frac{5}{11}\\ -\frac{\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}}{5\sqrt{-2x+1}}\right)}{55} & \text{for } \frac{1}{-2x+1}<\frac{5}{11}\end{cases}\right)}{3125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**5/(3+5*x)/(1-2*x)**(1/2),x)
```

```
[Out] -27*(-2*x + 1)**(9/2)/80 + 5751*(-2*x + 1)**(7/2)/1400 - 51057*(-
2*x + 1)**(5/2)/2500 + 268707*(-2*x + 1)**(3/2)/5000 - 4774713*sq
rt(-2*x + 1)/50000 + 2*Piecewise((-sqrt(55)*acoth(sqrt(55)/(5*sqr
t(-2*x + 1)))/55, 1/(-2*x + 1) > 5/11), (-sqrt(55)*atanh(sqrt(55)
/(5*sqrt(-2*x + 1)))/55, 1/(-2*x + 1) < 5/11))/3125
```

GIAC/XCAS [A] time = 0.215382, size = 143, normalized size = 1.54

$$-\frac{27}{80}(2x-1)^{4}\sqrt{-2x+1}-\frac{5751}{1400}(2x-1)^{3}\sqrt{-2x+1}-\frac{51057}{2500}(2x-1)^{2}\sqrt{-2x+1}+\frac{268707}{5000}(-2x+1)^{\frac{3}{2}}+\frac{1}{171875}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{4774713}{50000}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/((5*x + 3)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] -27/80*(2*x - 1)^4*sqrt(-2*x + 1) - 5751/1400*(2*x - 1)^3*sqrt(-2
*x + 1) - 51057/2500*(2*x - 1)^2*sqrt(-2*x + 1) + 268707/5000*(-2
*x + 1)^(3/2) + 1/171875*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqr
t(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) - 4774713/50000*sqrt(
-2*x + 1)
```

3.2020 $\int \frac{(2+3x)^4}{\sqrt{1-2x}(3+5x)}\,dx$

Optimal. Leaf size=80

$$\frac{81}{280}(1-2x)^{7/2}-\frac{2889(1-2x)^{5/2}}{1000}+\frac{11457(1-2x)^{3/2}}{1000}-\frac{136419\sqrt{1-2x}}{5000}-\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{625\sqrt{55}}$$

```
[Out] (-136419*Sqrt[1 - 2*x])/5000 + (11457*(1 - 2*x)^(3/2))/1000 - (28
89*(1 - 2*x)^(5/2))/1000 + (81*(1 - 2*x)^(7/2))/280 - (2*ArcTanh[
Sqrt[5/11]*Sqrt[1 - 2*x]])/(625*Sqrt[55])
```

Rubi [A] time = 0.0940398, antiderivative size = 80, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.125$

$$\frac{81}{280}(1-2x)^{7/2}-\frac{2889(1-2x)^{5/2}}{1000}+\frac{11457(1-2x)^{3/2}}{1000}-\frac{136419\sqrt{1-2x}}{5000}-\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{625\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^4/(Sqrt[1 - 2*x]*(3 + 5*x)),x]
```

```
[Out] (-136419*Sqrt[1 - 2*x])/5000 + (11457*(1 - 2*x)^(3/2))/1000 - (28
89*(1 - 2*x)^(5/2))/1000 + (81*(1 - 2*x)^(7/2))/280 - (2*ArcTanh[
Sqrt[5/11]*Sqrt[1 - 2*x]])/(625*Sqrt[55])
```

Rubi in Sympy [A] time = 9.00939, size = 71, normalized size = 0.89

$$\frac{81\left(-2x+1\right)^{\frac{7}{2}}}{280}-\frac{2889\left(-2x+1\right)^{\frac{5}{2}}}{1000}+\frac{11457\left(-2x+1\right)^{\frac{3}{2}}}{1000}-\frac{136419\sqrt{-2x+1}}{5000}-\frac{2\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{34375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4/(3+5*x)/(1-2*x)**(1/2),x)
```

```
[Out] 81*(-2*x + 1)**(7/2)/280 - 2889*(-2*x + 1)**(5/2)/1000 + 11457*(-
2*x + 1)**(3/2)/1000 - 136419*sqrt(-2*x + 1)/5000 - 2*sqrt(55)*at
anh(sqrt(55)*sqrt(-2*x + 1)/11)/34375
```

Mathematica [A] time = 0.0884446, size = 56, normalized size = 0.7

$$-\frac{3\sqrt{1-2x}\left(3375x^3+11790x^2+19095x+26872\right)}{4375}-\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{625\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^4/(Sqrt[1 - 2*x]*(3 + 5*x)),x]
```

```
[Out] (-3*Sqrt[1 - 2*x]*(26872 + 19095*x + 11790*x^2 + 3375*x^3))/4375
- (2*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(625*Sqrt[55])
```

Maple [A] time = 0.01, size = 56, normalized size = 0.7

$$\frac{11457}{1000}(1-2x)^{\frac{3}{2}}-\frac{2889}{1000}(1-2x)^{\frac{5}{2}}+\frac{81}{280}(1-2x)^{\frac{7}{2}}-\frac{2\sqrt{55}}{34375}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)-\frac{136419}{5000}\sqrt{1-2x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4/(3+5*x)/(1-2*x)^(1/2),x)
```

```
[Out] 11457/1000*(1-2*x)^(3/2)-2889/1000*(1-2*x)^(5/2)+81/280*(1-2*x)^(
7/2)-2/34375*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)-136419
/5000*(1-2*x)^(1/2)
```

Maxima [A] time = 1.55474, size = 99, normalized size = 1.24

$$\frac{81}{280}(-2x+1)^{\frac{7}{2}}-\frac{2889}{1000}(-2x+1)^{\frac{5}{2}}+\frac{11457}{1000}(-2x+1)^{\frac{3}{2}}+\frac{1}{34375}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{136419}{5000}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4/((5*x + 3)*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 81/280*(-2*x + 1)^(7/2) - 2889/1000*(-2*x + 1)^(5/2) + 11457/1000
*(-2*x + 1)^(3/2) + 1/34375*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x
 + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) - 136419/5000*sqrt(-2*x + 1
)
```

Fricas [A] time = 0.255179, size = 85, normalized size = 1.06

$$-\frac{1}{240625}\sqrt{55}\left(3\sqrt{55}\left(3375x^3+11790x^2+19095x+26872\right)\sqrt{-2x+1}-7\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{-2x+1}}{5x+3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4/((5*x + 3)*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/240625*sqrt(55)*(3*sqrt(55)*(3375*x^3 + 11790*x^2 + 19095*x +
26872)*sqrt(-2*x + 1) - 7*log((sqrt(55)*(5*x - 8) + 55*sqrt(-2*x
+ 1))/(5*x + 3)))
```

Sympy [A] time = 6.19791, size = 114, normalized size = 1.42

$$\frac{81(-2x+1)^{\frac{7}{2}}}{280}-\frac{2889(-2x+1)^{\frac{5}{2}}}{1000}+\frac{11457(-2x+1)^{\frac{3}{2}}}{1000}-\frac{136419\sqrt{-2x+1}}{5000}+\frac{2\left(\begin{cases}-\frac{\sqrt{55}\operatorname{acoth}\left(\frac{\sqrt{55}}{5\sqrt{-2x+1}}\right)}{55} & \text{for } \frac{1}{-2x+1}>\frac{5}{11}\\ -\frac{\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}}{5\sqrt{-2x+1}}\right)}{55} & \text{for } \frac{1}{-2x+1}<\frac{5}{11}\end{cases}\right)}{625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4/(3+5*x)/(1-2*x)**(1/2),x)
```

```
[Out] 81*(-2*x + 1)**(7/2)/280 - 2889*(-2*x + 1)**(5/2)/1000 + 11457*(-
2*x + 1)**(3/2)/1000 - 136419*sqrt(-2*x + 1)/5000 + 2*Piecewise((
```

```
-sqrt(55)*acoth(sqrt(55)/(5*sqrt(-2*x + 1)))/55, 1/(-2*x + 1) > 5
/11), (-sqrt(55)*atanh(sqrt(55)/(5*sqrt(-2*x + 1)))/55, 1/(-2*x +
 1) < 5/11))/625
```

GIAC/XCAS [A] time = 0.236888, size = 122, normalized size = 1.52

$$-\frac{81}{280}\,(2\,x-1)^{3}\sqrt{-2\,x+1}-\frac{2889}{1000}\,(2\,x-1)^{2}\sqrt{-2\,x+1}+\frac{11457}{1000}\,(-2\,x+1)^{\frac{3}{2}}+\frac{1}{34375}\,\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)-\frac{136419}{5000}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^4/((5*x + 3)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] -81/280*(2*x - 1)^3*sqrt(-2*x + 1) - 2889/1000*(2*x - 1)^2*sqrt(-
2*x + 1) + 11457/1000*(-2*x + 1)^(3/2) + 1/34375*sqrt(55)*ln(1/2*
abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1)
)) - 136419/5000*sqrt(-2*x + 1)
```

3.2021 $\int \frac{(2+3x)^3}{\sqrt{1-2x}(3+5x)}\,dx$

Optimal. Leaf size=67

$$-\frac{27}{100}(1-2x)^{5/2}+\frac{54}{25}(1-2x)^{3/2}-\frac{3897}{500}\sqrt{1-2x}-\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{125\sqrt{55}}$$

```
[Out] (-3897*Sqrt[1 - 2*x])/500 + (54*(1 - 2*x)^(3/2))/25 - (27*(1 - 2*
x)^(5/2))/100 - (2*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(125*Sqrt[5
5])
```

Rubi [A] time = 0.0811323, antiderivative size = 67, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$-\frac{27}{100}(1-2x)^{5/2}+\frac{54}{25}(1-2x)^{3/2}-\frac{3897}{500}\sqrt{1-2x}-\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{125\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^3/(Sqrt[1 - 2*x]*(3 + 5*x)),x]
```

```
[Out] (-3897*Sqrt[1 - 2*x])/500 + (54*(1 - 2*x)^(3/2))/25 - (27*(1 - 2*
x)^(5/2))/100 - (2*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(125*Sqrt[5
5])
```

Rubi in Sympy [A] time = 7.9821, size = 60, normalized size = 0.9

$$-\frac{27(-2x+1)^{\frac{5}{2}}}{100}+\frac{54(-2x+1)^{\frac{3}{2}}}{25}-\frac{3897\sqrt{-2x+1}}{500}-\frac{2\sqrt{55}\,\mathrm{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{6875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3/(3+5*x)/(1-2*x)**(1/2),x)
```

```
[Out] -27*(-2*x + 1)**(5/2)/100 + 54*(-2*x + 1)**(3/2)/25 - 3897*sqrt(-
2*x + 1)/500 - 2*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/6875
```

Mathematica [A] time = 0.0717335, size = 51, normalized size = 0.76

$$\frac{-495\sqrt{1-2x}\left(15x^2+45x+82\right)-2\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{6875}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^3/(Sqrt[1 - 2*x]*(3 + 5*x)),x]
```

```
[Out] (-495*Sqrt[1 - 2*x]*(82 + 45*x + 15*x^2) - 2*Sqrt[55]*ArcTanh[Sqr
t[5/11]*Sqrt[1 - 2*x]])/6875
```

Maple [A] time = 0.009, size = 47, normalized size = 0.7

$$\frac{54}{25}(1-2x)^{\frac{3}{2}}-\frac{27}{100}(1-2x)^{\frac{5}{2}}-\frac{2\sqrt{55}}{6875}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)-\frac{3897}{500}\sqrt{1-2x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3/(3+5*x)/(1-2*x)^(1/2),x)
```

```
[Out] 54/25*(1-2*x)^(3/2)-27/100*(1-2*x)^(5/2)-2/6875*arctanh(1/11*55^(
1/2)*(1-2*x)^(1/2))*55^(1/2)-3897/500*(1-2*x)^(1/2)
```

Maxima [A] time = 1.53089, size = 86, normalized size = 1.28

$$-\frac{27}{100}(-2x+1)^{\frac{5}{2}}+\frac{54}{25}(-2x+1)^{\frac{3}{2}}+\frac{1}{6875}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{3897}{500}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3/((5*x + 3)*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] -27/100*(-2*x + 1)^(5/2) + 54/25*(-2*x + 1)^(3/2) + 1/6875*sqrt(5
5)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1
))) - 3897/500*sqrt(-2*x + 1)
```

Fricas [A] time = 0.27132, size = 78, normalized size = 1.16

$$-\frac{1}{6875}\sqrt{55}\left(9\sqrt{55}\left(15x^2+45x+82\right)\sqrt{-2x+1}-\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{-2x+1}}{5x+3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3/((5*x + 3)*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/6875*sqrt(55)*(9*sqrt(55)*(15*x^2 + 45*x + 82)*sqrt(-2*x + 1)
- log((sqrt(55)*(5*x - 8) + 55*sqrt(-2*x + 1))/(5*x + 3)))
```

Sympy [A] time = 5.04269, size = 102, normalized size = 1.52

$$-\frac{27(-2x+1)^{\frac{5}{2}}}{100}+\frac{54(-2x+1)^{\frac{3}{2}}}{25}-\frac{3897\sqrt{-2x+1}}{500}+\frac{2\left(\begin{cases}-\frac{\sqrt{55}\operatorname{acoth}\left(\frac{\sqrt{55}}{5\sqrt{-2x+1}}\right)}{55} & \text{for}\ \frac{1}{-2x+1}>\frac{5}{11}\\ -\frac{\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}}{5\sqrt{-2x+1}}\right)}{55} & \text{for}\ \frac{1}{-2x+1}<\frac{5}{11}\end{cases}\right)}{125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3/(3+5*x)/(1-2*x)**(1/2),x)
```

```
[Out] -27*(-2*x + 1)**(5/2)/100 + 54*(-2*x + 1)**(3/2)/25 - 3897*sqrt(-
2*x + 1)/500 + 2*Piecewise((-sqrt(55)*acoth(sqrt(55)/(5*sqrt(-2*x
 + 1)))/55, 1/(-2*x + 1) > 5/11), (-sqrt(55)*atanh(sqrt(55)/(5*sq
rt(-2*x + 1)))/55, 1/(-2*x + 1) < 5/11))/125
```

GIAC/XCAS [A] time = 0.223057, size = 100, normalized size = 1.49

$$-\frac{27}{100}\,(2\,x-1)^2\sqrt{-2\,x+1}+\frac{54}{25}\,(-2\,x+1)^{\frac{3}{2}}+\frac{1}{6875}\,\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)-\frac{3897}{500}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^3/((5*x + 3)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] -27/100*(2*x - 1)^2*sqrt(-2*x + 1) + 54/25*(-2*x + 1)^(3/2) + 1/6
875*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(55
) + 5*sqrt(-2*x + 1))) - 3897/500*sqrt(-2*x + 1)
```

3.2022 $\int \frac{(2+3x)^2}{\sqrt{1-2x}(3+5x)}\,dx$

Optimal. Leaf size=54

$$\frac{3}{10}(1-2x)^{3/2}-\frac{111}{50}\sqrt{1-2x}-\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{25\sqrt{55}}$$

```
[Out] (-111*Sqrt[1 - 2*x])/50 + (3*(1 - 2*x)^(3/2))/10 - (2*ArcTanh[Sqr
t[5/11]*Sqrt[1 - 2*x]])/(25*Sqrt[55])
```

Rubi [A] time = 0.0799516, antiderivative size = 54, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$\frac{3}{10}(1-2x)^{3/2}-\frac{111}{50}\sqrt{1-2x}-\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{25\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^2/(Sqrt[1 - 2*x]*(3 + 5*x)),x]
```

```
[Out] (-111*Sqrt[1 - 2*x])/50 + (3*(1 - 2*x)^(3/2))/10 - (2*ArcTanh[Sqr
t[5/11]*Sqrt[1 - 2*x]])/(25*Sqrt[55])
```

Rubi in Sympy [A] time = 7.21052, size = 48, normalized size = 0.89

$$\frac{3\left(-2x+1\right)^{\frac{3}{2}}}{10}-\frac{111\sqrt{-2x+1}}{50}-\frac{2\sqrt{55}\,\text{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{1375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2/(3+5*x)/(1-2*x)**(1/2),x)
```

```
[Out] 3*(-2*x + 1)**(3/2)/10 - 111*sqrt(-2*x + 1)/50 - 2*sqrt(55)*atanh
(sqrt(55)*sqrt(-2*x + 1)/11)/1375
```

Mathematica [A] time = 0.0544928, size = 46, normalized size = 0.85

$$-\frac{3}{25}\sqrt{1-2x}(5x+16)-\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{25\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^2/(Sqrt[1 - 2*x]*(3 + 5*x)),x]
```

```
[Out] (-3*Sqrt[1 - 2*x]*(16 + 5*x))/25 - (2*ArcTanh[Sqrt[5/11]*Sqrt[1 -
 2*x]])/(25*Sqrt[55])
```

Maple [A] time = 0.008, size = 38, normalized size = 0.7

$$\frac{3}{10}\left(1-2\,x\right)^{\frac{3}{2}}-\frac{2\,\sqrt{55}}{1375}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2\,x}\right)-\frac{111}{50}\sqrt{1-2\,x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2/(3+5*x)/(1-2*x)^(1/2),x)
```

```
[Out] 3/10*(1-2*x)^(3/2)-2/1375*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55
^(1/2)-111/50*(1-2*x)^(1/2)
```

Maxima [A] time = 1.54249, size = 74, normalized size = 1.37

$$\frac{3}{10}\,(-2\,x+1)^{\frac{3}{2}}+\frac{1}{1375}\,\sqrt{55}\log\left(-\frac{\sqrt{55}-5\,\sqrt{-2\,x+1}}{\sqrt{55}+5\,\sqrt{-2\,x+1}}\right)-\frac{111}{50}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2/((5*x + 3)*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 3/10*(-2*x + 1)^(3/2) + 1/1375*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-
2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) - 111/50*sqrt(-2*x + 1)
```

Fricas [A] time = 0.248188, size = 72, normalized size = 1.33

$$-\frac{1}{1375}\,\sqrt{55}\left(3\,\sqrt{55}(5\,x+16)\sqrt{-2\,x+1}-\log\left(\frac{\sqrt{55}(5\,x-8)+55\,\sqrt{-2\,x+1}}{5\,x+3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2/((5*x + 3)*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/1375*sqrt(55)*(3*sqrt(55)*(5*x + 16)*sqrt(-2*x + 1) - log((sqr
t(55)*(5*x - 8) + 55*sqrt(-2*x + 1))/(5*x + 3)))
```

Sympy [A] time = 4.21302, size = 90, normalized size = 1.67

$$\frac{3\,(-2x+1)^{\frac{3}{2}}}{10}-\frac{111\sqrt{-2x+1}}{50}+\frac{2\left(\begin{cases}-\frac{\sqrt{55}\operatorname{acoth}\left(\frac{\sqrt{55}}{5\sqrt{-2x+1}}\right)}{55} & \text{for}\ \frac{1}{-2x+1}>\frac{5}{11}\\ -\frac{\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}}{5\sqrt{-2x+1}}\right)}{55} & \text{for}\ \frac{1}{-2x+1}<\frac{5}{11}\end{cases}\right)}{25}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2/(3+5*x)/(1-2*x)**(1/2),x)
```

```
[Out] 3*(-2*x + 1)**(3/2)/10 - 111*sqrt(-2*x + 1)/50 + 2*Piecewise((-sq
rt(55)*acoth(sqrt(55)/(5*sqrt(-2*x + 1)))/55, 1/(-2*x + 1) > 5/11
), (-sqrt(55)*atanh(sqrt(55)/(5*sqrt(-2*x + 1)))/55, 1/(-2*x + 1)
 < 5/11))/25
```

GIAC/XCAS [A] time = 0.211406, size = 78, normalized size = 1.44

$$\frac{3}{10}\,(-2\,x+1)^{\frac{3}{2}}+\frac{1}{1375}\,\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)-\frac{111}{50}\,\sqrt{-2\,x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2/((5*x + 3)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 3/10*(-2*x + 1)^(3/2) + 1/1375*sqrt(55)*ln(1/2*abs(-2*sqrt(55) +
10*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) - 111/50*sqrt(-
2*x + 1)
```

3.2023 $\int \frac{2+3x}{\sqrt{1-2x}(3+5x)}\,dx$

Optimal. Leaf size=41

$$-\frac{3}{5}\sqrt{1-2x}-\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{5\sqrt{55}}$$

```
[Out] (-3*Sqrt[1 - 2*x])/5 - (2*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(5*S
qrt[55])
```

Rubi [A] time = 0.0520136, antiderivative size = 41, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.136

$$-\frac{3}{5}\sqrt{1-2x}-\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{5\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)/(Sqrt[1 - 2*x]*(3 + 5*x)),x]
```

```
[Out] (-3*Sqrt[1 - 2*x])/5 - (2*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(5*S
qrt[55])
```

Rubi in Sympy [A] time = 4.97006, size = 37, normalized size = 0.9

$$-\frac{3\sqrt{-2x+1}}{5}-\frac{2\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{275}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)/(3+5*x)/(1-2*x)**(1/2),x)
```

```
[Out] -3*sqrt(-2*x + 1)/5 - 2*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11
)/275
```

Mathematica [A] time = 0.0348391, size = 41, normalized size = 1.

$$-\frac{3}{5}\sqrt{1-2x}-\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{5\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)/(Sqrt[1 - 2*x]*(3 + 5*x)),x]
```

```
[Out] (-3*Sqrt[1 - 2*x])/5 - (2*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(5*S
qrt[55])
```

Maple [A] time = 0.007, size = 29, normalized size = 0.7

$$-\frac{2\sqrt{55}}{275}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2\,x}\right)-\frac{3}{5}\sqrt{1-2\,x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)/(3+5*x)/(1-2*x)^(1/2),x)
```

```
[Out] -2/275*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)-3/5*(1-2*x)^
(1/2)
```

Maxima [A] time = 1.49397, size = 62, normalized size = 1.51

$$\frac{1}{275}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{3}{5}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)/((5*x + 3)*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 1/275*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*s
qrt(-2*x + 1))) - 3/5*sqrt(-2*x + 1)
```

Fricas [A] time = 0.244934, size = 65, normalized size = 1.59

$$-\frac{1}{275}\sqrt{55}\left(3\sqrt{55}\sqrt{-2x+1}-\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{-2x+1}}{5x+3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)/((5*x + 3)*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/275*sqrt(55)*(3*sqrt(55)*sqrt(-2*x + 1) - log((sqrt(55)*(5*x -
 8) + 55*sqrt(-2*x + 1))/(5*x + 3)))
```

Sympy [A] time = 3.58038, size = 78, normalized size = 1.9

$$-\frac{3\sqrt{-2x+1}}{5}+\frac{2\left(\begin{cases}-\frac{\sqrt{55}\operatorname{acoth}\left(\frac{\sqrt{55}}{5\sqrt{-2x+1}}\right)}{55} & \text{for}\ \frac{1}{-2x+1}>\frac{5}{11}\\ -\frac{\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}}{5\sqrt{-2x+1}}\right)}{55} & \text{for}\ \frac{1}{-2x+1}<\frac{5}{11}\end{cases}\right)}{5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)/(3+5*x)/(1-2*x)**(1/2),x)
```

```
[Out] -3*sqrt(-2*x + 1)/5 + 2*Piecewise((-sqrt(55)*acoth(sqrt(55)/(5*sq
rt(-2*x + 1)))/55, 1/(-2*x + 1) > 5/11), (-sqrt(55)*atanh(sqrt(55
)/(5*sqrt(-2*x + 1)))/55, 1/(-2*x + 1) < 5/11))/5
```

GIAC/XCAS [A] time = 0.214903, size = 66, normalized size = 1.61

$$\frac{1}{275}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{3}{5}\sqrt{-2x+1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)/((5*x + 3)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 1/275*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(
55) + 5*sqrt(-2*x + 1))) - 3/5*sqrt(-2*x + 1)
```

3.2024 $\int \frac{1}{\sqrt{1-2x}(3+5x)} dx$

Optimal. Leaf size=25

$$-\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{\sqrt{55}}$$

```
[Out] (-2*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/Sqrt[55]
```

Rubi [A] time = 0.0265375, antiderivative size = 25, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 17, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.118

$$-\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 - 2*x]*(3 + 5*x)),x]

[Out] (-2*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/Sqrt[55]
```

Rubi in Sympy [A] time = 3.06754, size = 26, normalized size = 1.04

$$-\frac{2\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{55}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(3+5*x)/(1-2*x)**(1/2),x)

[Out] -2*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/55
```

Mathematica [A] time = 0.0112023, size = 25, normalized size = 1.

$$-\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 - 2*x]*(3 + 5*x)),x]

[Out] (-2*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/Sqrt[55]
```

Maple [A] time = 0.005, size = 19, normalized size = 0.8

$$-\frac{2\sqrt{55}}{55}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int(1/(3+5*x)/(1-2*x)^(1/2),x)
```

```
[Out] -2/55*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.4794, size = 49, normalized size = 1.96

$$\frac{1}{55}\,\sqrt{55}\log\left(-\frac{\sqrt{55}-5\,\sqrt{-2\,x+1}}{\sqrt{55}+5\,\sqrt{-2\,x+1}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(1/((5*x + 3)*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 1/55*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sq
rt(-2*x + 1)))
```

Fricas [A] time = 0.22675, size = 45, normalized size = 1.8

$$\frac{1}{55}\,\sqrt{55}\log\left(\frac{\sqrt{55}(5\,x-8)+55\,\sqrt{-2\,x+1}}{5\,x+3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(1/((5*x + 3)*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] 1/55*sqrt(55)*log((sqrt(55)*(5*x - 8) + 55*sqrt(-2*x + 1))/(5*x +
 3))
```

Sympy [A] time = 1.74909, size = 63, normalized size = 2.52

$$\begin{cases} -\frac{2\sqrt{55}\operatorname{acosh}\left(\frac{\sqrt{110}}{10\sqrt{x+\frac{3}{5}}}\right)}{55} & \text{for}\ \frac{11\left|\frac{1}{x+\frac{3}{5}}\right|}{10}>1\\ \frac{2\sqrt{55}i\operatorname{asin}\left(\frac{\sqrt{110}}{10\sqrt{x+\frac{3}{5}}}\right)}{55} & \text{otherwise}\end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(1/(3+5*x)/(1-2*x)**(1/2),x)
```

```
[Out] Piecewise((-2*sqrt(55)*acosh(sqrt(110)/(10*sqrt(x + 3/5)))/55, 11
*Abs(1/(x + 3/5))/10 > 1), (2*sqrt(55)*I*asin(sqrt(110)/(10*sqrt(
x + 3/5)))/55, True))
```

GIAC/XCAS [A] time = 0.224098, size = 54, normalized size = 2.16

$$-\frac{1}{55}\,\sqrt{55}\ln\left(\frac{1}{5}\,\sqrt{55}+\sqrt{-2\,x+1}\right)+\frac{1}{55}\,\sqrt{55}\ln\left(\left|-\frac{1}{5}\,\sqrt{55}+\sqrt{-2\,x+1}\right|\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(1/((5*x + 3)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] -1/55*sqrt(55)*ln(1/5*sqrt(55) + sqrt(-2*x + 1)) + 1/55*sqrt(55)*
ln(abs(-1/5*sqrt(55) + sqrt(-2*x + 1)))
```

3.2025 $\int \frac{1}{\sqrt{1-2x}(2+3x)(3+5x)}\,dx$

Optimal. Leaf size=55

$$2\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-2\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] 2*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]] - 2*Sqrt[5/11]*ArcTa
nh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Rubi [A] time = 0.0800213, antiderivative size = 55, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$2\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-2\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 - 2*x]*(2 + 3*x)*(3 + 5*x)),x]
```

```
[Out] 2*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]] - 2*Sqrt[5/11]*ArcTa
nh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Rubi in Sympy [A] time = 6.35821, size = 49, normalized size = 0.89

$$\frac{2\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{7}-\frac{2\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{11}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(2+3*x)/(3+5*x)/(1-2*x)**(1/2),x)
```

```
[Out] 2*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/7 - 2*sqrt(55)*atanh(
sqrt(55)*sqrt(-2*x + 1)/11)/11
```

Mathematica [A] time = 0.0448507, size = 55, normalized size = 1.

$$2\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-2\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 - 2*x]*(2 + 3*x)*(3 + 5*x)),x]
```

```
[Out] 2*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]] - 2*Sqrt[5/11]*ArcTa
nh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Maple [A] time = 0.013, size = 38, normalized size = 0.7

$$\frac{2\sqrt{21}}{7}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)-\frac{2\sqrt{55}}{11}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int(1/(2+3*x)/(3+5*x)/(1-2*x)^(1/2),x)
```

```
[Out] 2/7*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)-2/11*arctanh(1/1
1*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.50539, size = 99, normalized size = 1.8

$$\frac{1}{11}\,\sqrt{55}\log\left(-\frac{\sqrt{55}-5\,\sqrt{-2\,x+1}}{\sqrt{55}+5\,\sqrt{-2\,x+1}}\right)-\frac{1}{7}\,\sqrt{21}\log\left(-\frac{\sqrt{21}-3\,\sqrt{-2\,x+1}}{\sqrt{21}+3\,\sqrt{-2\,x+1}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(3*x + 2)*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 1/11*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sq
rt(-2*x + 1))) - 1/7*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/
(sqrt(21) + 3*sqrt(-2*x + 1)))
```

Fricas [A] time = 0.224545, size = 115, normalized size = 2.09

$$\frac{1}{77}\,\sqrt{11}\sqrt{7}\left(\sqrt{7}\sqrt{5}\log\left(\frac{\sqrt{11}(5\,x-8)+11\,\sqrt{5}\sqrt{-2\,x+1}}{5\,x+3}\right)+\sqrt{11}\sqrt{3}\log\left(\frac{\sqrt{7}(3\,x-5)-7\,\sqrt{3}\sqrt{-2\,x+1}}{3\,x+2}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(3*x + 2)*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] 1/77*sqrt(11)*sqrt(7)*(sqrt(7)*sqrt(5)*log((sqrt(11)*(5*x - 8) +
11*sqrt(5)*sqrt(-2*x + 1))/(5*x + 3)) + sqrt(11)*sqrt(3)*log((sqr
t(7)*(3*x - 5) - 7*sqrt(3)*sqrt(-2*x + 1))/(3*x + 2)))
```

Sympy [A] time = 8.30647, size = 131, normalized size = 2.38

$$-6\left(\begin{cases}-\frac{\sqrt{21}\operatorname{acoth}\left(\frac{\sqrt{21}}{3\sqrt{-2x+1}}\right)}{21} & \text{for}\ \frac{1}{-2x+1}>\frac{3}{7}\\ -\frac{\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}}{3\sqrt{-2x+1}}\right)}{21} & \text{for}\ \frac{1}{-2x+1}<\frac{3}{7}\end{cases}\right)+10\left(\begin{cases}-\frac{\sqrt{55}\operatorname{acoth}\left(\frac{\sqrt{55}}{5\sqrt{-2x+1}}\right)}{55} & \text{for}\ \frac{1}{-2x+1}>\frac{5}{11}\\ -\frac{\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}}{5\sqrt{-2x+1}}\right)}{55} & \text{for}\ \frac{1}{-2x+1}<\frac{5}{11}\end{cases}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(1/(2+3*x)/(3+5*x)/(1-2*x)**(1/2),x)
```

```
[Out] -6*Piecewise((-sqrt(21)*acoth(sqrt(21)/(3*sqrt(-2*x + 1)))/21, 1/
(-2*x + 1) > 3/7), (-sqrt(21)*atanh(sqrt(21)/(3*sqrt(-2*x + 1)))/
21, 1/(-2*x + 1) < 3/7)) + 10*Piecewise((-sqrt(55)*acoth(sqrt(55)
/(5*sqrt(-2*x + 1)))/55, 1/(-2*x + 1) > 5/11), (-sqrt(55)*atanh(s
qrt(55)/(5*sqrt(-2*x + 1)))/55, 1/(-2*x + 1) < 5/11))
```

GIAC/XCAS [A] time = 0.216553, size = 107, normalized size = 1.95

$$\frac{1}{11}\,\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)-\frac{1}{7}\,\sqrt{21}\ln\left(\frac{\left|-2\,\sqrt{21}+6\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{21}+3\,\sqrt{-2\,x+1}\right)}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)*(3*x + 2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 1/11*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(5
5) + 5*sqrt(-2*x + 1))) - 1/7*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6
*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1)))
```

3.2026 $\int \frac{1}{\sqrt{1-2x}(2+3x)^2(3+5x)}\,dx$

Optimal. Leaf size=77

$$\frac{3\sqrt{1-2x}}{7(3x+2)}+\frac{72}{7}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-10\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (3*Sqrt[1 - 2*x])/(7*(2 + 3*x)) + (72*Sqrt[3/7]*ArcTanh[Sqrt[3/7]
*Sqrt[1 - 2*x]])/7 - 10*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*
x]]
```

Rubi [A] time = 0.142999, antiderivative size = 77, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$\frac{3\sqrt{1-2x}}{7(3x+2)}+\frac{72}{7}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-10\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 - 2*x]*(2 + 3*x)^2*(3 + 5*x)),x]
```

```
[Out] (3*Sqrt[1 - 2*x])/(7*(2 + 3*x)) + (72*Sqrt[3/7]*ArcTanh[Sqrt[3/7]
*Sqrt[1 - 2*x]])/7 - 10*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*
x]]
```

Rubi in Sympy [A] time = 14.2518, size = 65, normalized size = 0.84

$$\frac{3\sqrt{-2x+1}}{7\,(3x+2)}+\frac{72\sqrt{21}\,\mathrm{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{49}-\frac{10\sqrt{55}\,\mathrm{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{11}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(2+3*x)**2/(3+5*x)/(1-2*x)**(1/2),x)
```

```
[Out] 3*sqrt(-2*x + 1)/(7*(3*x + 2)) + 72*sqrt(21)*atanh(sqrt(21)*sqrt(
-2*x + 1)/7)/49 - 10*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/1
1
```

Mathematica [A] time = 0.137786, size = 77, normalized size = 1.

$$\frac{3\sqrt{1-2x}}{7(3x+2)}+\frac{72}{7}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-10\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 - 2*x]*(2 + 3*x)^2*(3 + 5*x)),x]
```

```
[Out] (3*Sqrt[1 - 2*x])/(7*(2 + 3*x)) + (72*Sqrt[3/7]*ArcTanh[Sqrt[3/7]
*Sqrt[1 - 2*x]])/7 - 10*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*
x]]
```

Maple [A] time = 0.016, size = 54, normalized size = 0.7

$$-\frac{2}{7}\sqrt{1-2x}\left(-\frac{4}{3}-2x\right)^{-1}+\frac{72\sqrt{21}}{49}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)-\frac{10\sqrt{55}}{11}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(2+3*x)^2/(3+5*x)/(1-2*x)^(1/2),x)
```

```
[Out] -2/7*(1-2*x)^(1/2)/(-4/3-2*x)+72/49*arctanh(1/7*21^(1/2)*(1-2*x)^
(1/2))*21^(1/2)-10/11*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/
2)
```

Maxima [A] time = 1.51472, size = 120, normalized size = 1.56

$$\frac{5}{11}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{36}{49}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{3\sqrt{-2x+1}}{7(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)*(3*x + 2)^2*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 5/11*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sq
rt(-2*x + 1))) - 36/49*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1)
)/(sqrt(21) + 3*sqrt(-2*x + 1))) + 3/7*sqrt(-2*x + 1)/(3*x + 2)
```

Fricas [A] time = 0.221918, size = 161, normalized size = 2.09

$$\frac{\sqrt{11}\sqrt{7}\left(35\sqrt{7}\sqrt{5}(3x+2)\log\left(\frac{\sqrt{11}(5x-8)+11\sqrt{5}\sqrt{-2x+1}}{5x+3}\right)+36\sqrt{11}\sqrt{3}(3x+2)\log\left(\frac{\sqrt{7}(3x-5)-7\sqrt{3}\sqrt{-2x+1}}{3x+2}\right)+3\sqrt{11}\sqrt{7}\sqrt{-2x+1}\right)}{539(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)*(3*x + 2)^2*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] 1/539*sqrt(11)*sqrt(7)*(35*sqrt(7)*sqrt(5)*(3*x + 2)*log((sqrt(11
)*(5*x - 8) + 11*sqrt(5)*sqrt(-2*x + 1))/(5*x + 3)) + 36*sqrt(11)
*sqrt(3)*(3*x + 2)*log((sqrt(7)*(3*x - 5) - 7*sqrt(3)*sqrt(-2*x +
 1))/(3*x + 2)) + 3*sqrt(11)*sqrt(7)*sqrt(-2*x + 1))/(3*x + 2)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(2+3*x)**2/(3+5*x)/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.216304, size = 128, normalized size = 1.66

$$\frac{5}{11}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{36}{49}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{3\sqrt{-2x+1}}{7(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(3*x + 2)^2*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 5/11*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(5
5) + 5*sqrt(-2*x + 1))) - 36/49*sqrt(21)*ln(1/2*abs(-2*sqrt(21) +
 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 3/7*sqrt(-2*x
 + 1)/(3*x + 2)
```

3.2027 $\int \frac{1}{\sqrt{1-2x}(2+3x)^3(3+5x)}\,dx$

Optimal. Leaf size=97

$$\frac{219\sqrt{1-2x}}{98(3x+2)}+\frac{3\sqrt{1-2x}}{14(3x+2)^2}+\frac{2523}{49}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-50\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (3*Sqrt[1 - 2*x])/(14*(2 + 3*x)^2) + (219*Sqrt[1 - 2*x])/(98*(2 +
 3*x)) + (2523*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/49 - 5
0*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Rubi [A] time = 0.201161, antiderivative size = 97, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{219\sqrt{1-2x}}{98(3x+2)}+\frac{3\sqrt{1-2x}}{14(3x+2)^2}+\frac{2523}{49}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-50\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 - 2*x]*(2 + 3*x)^3*(3 + 5*x)),x]
```

```
[Out] (3*Sqrt[1 - 2*x])/(14*(2 + 3*x)^2) + (219*Sqrt[1 - 2*x])/(98*(2 +
 3*x)) + (2523*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/49 - 5
0*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Rubi in Sympy [A] time = 20.8522, size = 83, normalized size = 0.86

$$\frac{219\sqrt{-2x+1}}{98\,(3x+2)}+\frac{3\sqrt{-2x+1}}{14\,(3x+2)^2}+\frac{2523\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{343}-\frac{50\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{11}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(2+3*x)**3/(3+5*x)/(1-2*x)**(1/2),x)
```

```
[Out] 219*sqrt(-2*x + 1)/(98*(3*x + 2)) + 3*sqrt(-2*x + 1)/(14*(3*x + 2
)**2) + 2523*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/343 - 50*s
qrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/11
```

Mathematica [A] time = 0.154241, size = 82, normalized size = 0.85

$$\frac{9\sqrt{1-2x}(73x+51)}{98(3x+2)^2}+\frac{2523}{49}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-50\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 - 2*x]*(2 + 3*x)^3*(3 + 5*x)),x]
```

```
[Out] (9*Sqrt[1 - 2*x]*(51 + 73*x))/(98*(2 + 3*x)^2) + (2523*Sqrt[3/7]*
ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/49 - 50*Sqrt[5/11]*ArcTanh[Sqrt
[5/11]*Sqrt[1 - 2*x]]
```

Maple [A] time = 0.016, size = 66, normalized size = 0.7

$$-162\frac{1}{\left(-4-6x\right)^{2}}\left(\frac{73\,\left(1-2\,x\right)^{3/2}}{882}-\frac{25\sqrt{1-2\,x}}{126}\right)+\frac{2523\sqrt{21}}{343}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)-\frac{50\sqrt{55}}{11}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int(1/(2+3*x)^3/(3+5*x)/(1-2*x)^(1/2),x)
```

```
[Out] -162*(73/882*(1-2*x)^(3/2)-25/126*(1-2*x)^(1/2))/(-4-6*x)^2+2523/
343*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)-50/11*arctanh(1/
11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.48074, size = 149, normalized size = 1.54

$$\frac{25}{11}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2\,x+1}}{\sqrt{55}+5\sqrt{-2\,x+1}}\right)-\frac{2523}{686}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2\,x+1}}{\sqrt{21}+3\sqrt{-2\,x+1}}\right)-\frac{9\left(73\left(-2\,x+1\right)^{\frac{3}{2}}-175\sqrt{-2\,x+1}\right)}{49\left(9\left(2\,x-1\right)^{2}+84\,x+7\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(3*x + 2)^3*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 25/11*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*s
qrt(-2*x + 1))) - 2523/686*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x
+ 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 9/49*(73*(-2*x + 1)^(3/2)
- 175*sqrt(-2*x + 1))/(9*(2*x - 1)^2 + 84*x + 7)
```

Fricas [A] time = 0.222315, size = 188, normalized size = 1.94

$$\frac{\sqrt{11}\sqrt{7}\left(2450\sqrt{7}\sqrt{5}\left(9\,x^{2}+12\,x+4\right)\log\left(\frac{\sqrt{11}(5\,x-8)+11\sqrt{5}\sqrt{-2\,x+1}}{5\,x+3}\right)+2523\sqrt{11}\sqrt{3}\left(9\,x^{2}+12\,x+4\right)\log\left(\frac{\sqrt{7}(3\,x-5)-7\sqrt{3}\sqrt{-2\,x+1}}{3\,x+2}\right)\right.}{7546\left(9\,x^{2}+12\,x+4\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(3*x + 2)^3*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] 1/7546*sqrt(11)*sqrt(7)*(2450*sqrt(7)*sqrt(5)*(9*x^2 + 12*x + 4)*
log((sqrt(11)*(5*x - 8) + 11*sqrt(5)*sqrt(-2*x + 1))/(5*x + 3)) +
 2523*sqrt(11)*sqrt(3)*(9*x^2 + 12*x + 4)*log((sqrt(7)*(3*x - 5)
- 7*sqrt(3)*sqrt(-2*x + 1))/(3*x + 2)) + 9*sqrt(11)*sqrt(7)*(73*x
 + 51)*sqrt(-2*x + 1))/(9*x^2 + 12*x + 4)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(1/(2+3*x)**3/(3+5*x)/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.216804, size = 144, normalized size = 1.48

$$\frac{25}{11}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{2523}{686}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{9\left(73(-2x+1)^{\frac{3}{2}}-175\sqrt{-2x+1}\right)}{196(3x+2)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)*(3*x + 2)^3*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 25/11*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(
55) + 5*sqrt(-2*x + 1))) - 2523/686*sqrt(21)*ln(1/2*abs(-2*sqrt(2
1) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 9/196*(73
*(-2*x + 1)^(3/2) - 175*sqrt(-2*x + 1))/(3*x + 2)^2
```

3.2028 $\int \frac{1}{\sqrt{1-2x}(2+3x)^4(3+5x)}\,dx$

Optimal. Leaf size=117

$$\frac{3840\sqrt{1-2x}}{343(3x+2)}+\frac{55\sqrt{1-2x}}{49(3x+2)^2}+\frac{\sqrt{1-2x}}{7(3x+2)^3}+\frac{88310}{343}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-250\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] Sqrt[1 - 2*x]/(7*(2 + 3*x)^3) + (55*Sqrt[1 - 2*x])/(49*(2 + 3*x)^
2) + (3840*Sqrt[1 - 2*x])/(343*(2 + 3*x)) + (88310*Sqrt[3/7]*ArcT
anh[Sqrt[3/7]*Sqrt[1 - 2*x]])/343 - 250*Sqrt[5/11]*ArcTanh[Sqrt[5
/11]*Sqrt[1 - 2*x]]
```

Rubi [A] time = 0.261473, antiderivative size = 117, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{3840\sqrt{1-2x}}{343(3x+2)}+\frac{55\sqrt{1-2x}}{49(3x+2)^2}+\frac{\sqrt{1-2x}}{7(3x+2)^3}+\frac{88310}{343}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-250\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 - 2*x]*(2 + 3*x)^4*(3 + 5*x)),x]
```

```
[Out] Sqrt[1 - 2*x]/(7*(2 + 3*x)^3) + (55*Sqrt[1 - 2*x])/(49*(2 + 3*x)^
2) + (3840*Sqrt[1 - 2*x])/(343*(2 + 3*x)) + (88310*Sqrt[3/7]*ArcT
anh[Sqrt[3/7]*Sqrt[1 - 2*x]])/343 - 250*Sqrt[5/11]*ArcTanh[Sqrt[5
/11]*Sqrt[1 - 2*x]]
```

Rubi in Sympy [A] time = 27.7662, size = 100, normalized size = 0.85

$$\frac{3840\sqrt{-2x+1}}{343\,(3x+2)}+\frac{55\sqrt{-2x+1}}{49\,(3x+2)^2}+\frac{\sqrt{-2x+1}}{7\,(3x+2)^3}+\frac{88310\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{2401}-\frac{250\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{11}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(2+3*x)**4/(3+5*x)/(1-2*x)**(1/2),x)
```

```
[Out] 3840*sqrt(-2*x + 1)/(343*(3*x + 2)) + 55*sqrt(-2*x + 1)/(49*(3*x
+ 2)**2) + sqrt(-2*x + 1)/(7*(3*x + 2)**3) + 88310*sqrt(21)*atanh
(sqrt(21)*sqrt(-2*x + 1)/7)/2401 - 250*sqrt(55)*atanh(sqrt(55)*sq
rt(-2*x + 1)/11)/11
```

Mathematica [A] time = 0.177671, size = 87, normalized size = 0.74

$$\frac{3\sqrt{1-2x}\left(11520x^2+15745x+5393\right)}{343(3x+2)^3}+\frac{88310}{343}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-250\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 - 2*x]*(2 + 3*x)^4*(3 + 5*x)),x]
```

```
[Out] (3*Sqrt[1 - 2*x]*(5393 + 15745*x + 11520*x^2))/(343*(2 + 3*x)^3)
+ (88310*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/343 - 250*Sq
rt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Maple [A] time = 0.017, size = 75, normalized size = 0.6

$$-162\frac{1}{(-4-6x)^3}\left(\frac{1280\,(1-2x)^{5/2}}{1029}-\frac{7790\,(1-2x)^{3/2}}{1323}+\frac{1318\sqrt{1-2x}}{189}\right)+\frac{88310\sqrt{21}}{2401}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)-\frac{250\sqrt{55}}{11}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(2+3*x)^4/(3+5*x)/(1-2*x)^(1/2),x)
```

```
[Out] -162*(1280/1029*(1-2*x)^(5/2)-7790/1323*(1-2*x)^(3/2)+1318/189*(1
-2*x)^(1/2))/(-4-6*x)^3+88310/2401*arctanh(1/7*21^(1/2)*(1-2*x)^(
1/2))*21^(1/2)-250/11*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/
2)
```

Maxima [A] time = 1.49577, size = 173, normalized size = 1.48

$$\frac{125}{11}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{44155}{2401}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{12\left(5760\,(-2x+1)^{\frac{5}{2}}-27265\,(-2x+1)^{\frac{3}{2}}+32291\sqrt{-2x+1}\right)}{343\left(27\,(2x-1)^3+189\,(2x-1)^2+882x-98\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(3*x + 2)^4*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 125/11*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*
sqrt(-2*x + 1))) - 44155/2401*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2
*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 12/343*(5760*(-2*x + 1)
^(5/2) - 27265*(-2*x + 1)^(3/2) + 32291*sqrt(-2*x + 1))/(27*(2*x
- 1)^3 + 189*(2*x - 1)^2 + 882*x - 98)
```

Fricas [A] time = 0.230609, size = 215, normalized size = 1.84

$$\frac{\sqrt{11}\sqrt{7}\left(42875\sqrt{7}\sqrt{5}\left(27x^3+54x^2+36x+8\right)\log\left(\frac{\sqrt{11}(5x-8)+11\sqrt{5}\sqrt{-2x+1}}{5x+3}\right)+44155\sqrt{11}\sqrt{3}\left(27x^3+54x^2+36x+8\right)\log\left(\sqrt{\right.}\right.}{26411\left(27x^3+54x^2+36x+8\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(3*x + 2)^4*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] 1/26411*sqrt(11)*sqrt(7)*(42875*sqrt(7)*sqrt(5)*(27*x^3 + 54*x^2
+ 36*x + 8)*log((sqrt(11)*(5*x - 8) + 11*sqrt(5)*sqrt(-2*x + 1))/
(5*x + 3)) + 44155*sqrt(11)*sqrt(3)*(27*x^3 + 54*x^2 + 36*x + 8)*
log((sqrt(7)*(3*x - 5) - 7*sqrt(3)*sqrt(-2*x + 1))/(3*x + 2)) + 3
*sqrt(11)*sqrt(7)*(11520*x^2 + 15745*x + 5393)*sqrt(-2*x + 1))/(2
7*x^3 + 54*x^2 + 36*x + 8)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(2+3*x)**4/(3+5*x)/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.265351, size = 166, normalized size = 1.42

$$\frac{125}{11}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{44155}{2401}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{3\left(5760(2x-1)^2\sqrt{-2x+1}-27265(-2x+1)^{\frac{3}{2}}+32291\sqrt{-2x+1}\right)}{686(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)*(3*x + 2)^4*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 125/11*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt
(55) + 5*sqrt(-2*x + 1))) - 44155/2401*sqrt(21)*ln(1/2*abs(-2*sqr
t(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 3/686*
(5760*(2*x - 1)^2*sqrt(-2*x + 1) - 27265*(-2*x + 1)^(3/2) + 32291
*sqrt(-2*x + 1))/(3*x + 2)^3
```

3.2029 $\int \frac{1}{\sqrt{1-2x}(2+3x)^5(3+5x)}\,dx$

Optimal. Leaf size=137

$$\frac{3135\sqrt{1-2x}}{56(3x+2)}+\frac{45\sqrt{1-2x}}{8(3x+2)^2}+\frac{3\sqrt{1-2x}}{4(3x+2)^3}+\frac{3\sqrt{1-2x}}{28(3x+2)^4}+\frac{36045}{28}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-1250\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (3*Sqrt[1 - 2*x])/(28*(2 + 3*x)^4) + (3*Sqrt[1 - 2*x])/(4*(2 + 3*
x)^3) + (45*Sqrt[1 - 2*x])/(8*(2 + 3*x)^2) + (3135*Sqrt[1 - 2*x])
/(56*(2 + 3*x)) + (36045*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x
]])/28 - 1250*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Rubi [A] time = 0.329373, antiderivative size = 137, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{3135\sqrt{1-2x}}{56(3x+2)}+\frac{45\sqrt{1-2x}}{8(3x+2)^2}+\frac{3\sqrt{1-2x}}{4(3x+2)^3}+\frac{3\sqrt{1-2x}}{28(3x+2)^4}+\frac{36045}{28}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-1250\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 - 2*x]*(2 + 3*x)^5*(3 + 5*x)),x]
```

```
[Out] (3*Sqrt[1 - 2*x])/(28*(2 + 3*x)^4) + (3*Sqrt[1 - 2*x])/(4*(2 + 3*
x)^3) + (45*Sqrt[1 - 2*x])/(8*(2 + 3*x)^2) + (3135*Sqrt[1 - 2*x])
/(56*(2 + 3*x)) + (36045*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x
]])/28 - 1250*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Rubi in Sympy [A] time = 34.6293, size = 121, normalized size = 0.88

$$\frac{3135\sqrt{-2x+1}}{56\,(3x+2)}+\frac{45\sqrt{-2x+1}}{8\,(3x+2)^2}+\frac{3\sqrt{-2x+1}}{4\,(3x+2)^3}+\frac{3\sqrt{-2x+1}}{28\,(3x+2)^4}+\frac{36045\sqrt{21}\,\mathrm{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{196}-\frac{1250\sqrt{55}\,\mathrm{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{11}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(2+3*x)**5/(3+5*x)/(1-2*x)**(1/2),x)
```

```
[Out] 3135*sqrt(-2*x + 1)/(56*(3*x + 2)) + 45*sqrt(-2*x + 1)/(8*(3*x +
2)**2) + 3*sqrt(-2*x + 1)/(4*(3*x + 2)**3) + 3*sqrt(-2*x + 1)/(28
*(3*x + 2)**4) + 36045*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/
196 - 1250*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/11
```

Mathematica [A] time = 0.167286, size = 92, normalized size = 0.67

$$\frac{3\sqrt{1-2x}\left(28215x^3+57375x^2+38922x+8810\right)}{56(3x+2)^4}+\frac{36045}{28}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-1250\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 - 2*x]*(2 + 3*x)^5*(3 + 5*x)),x]
```

```
[Out] (3*Sqrt[1 - 2*x]*(8810 + 38922*x + 57375*x^2 + 28215*x^3))/(56*(2
 + 3*x)^4) + (36045*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/2
8 - 1250*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
```

Maple [A] time = 0.019, size = 84, normalized size = 0.6

$$-486\frac{1}{(-4-6x)^4}\left(\frac{1045\,(1-2x)^{7/2}}{168}-\frac{1055\,(1-2x)^{5/2}}{24}+\frac{22373\,(1-2x)^{3/2}}{216}-\frac{369133\sqrt{1-2x}}{4536}\right)+\frac{36045\sqrt{21}}{196}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)-\frac{1250\sqrt{55}}{11}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(2+3*x)^5/(3+5*x)/(1-2*x)^(1/2),x)
```

```
[Out] -486*(1045/168*(1-2*x)^(7/2)-1055/24*(1-2*x)^(5/2)+22373/216*(1-2
*x)^(3/2)-369133/4536*(1-2*x)^(1/2))/(-4-6*x)^4+36045/196*arctanh
(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)-1250/11*arctanh(1/11*55^(1/
2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.5022, size = 197, normalized size = 1.44

$$\frac{625}{11}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{36045}{392}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{3\left(28215\,(-2x+1)^{\frac{7}{2}}-199395\,(-2x+1)^{\frac{5}{2}}+469833\,(-2x+1)^{\frac{3}{2}}-369133\sqrt{-2x+1}\right)}{28\left(81\,(2x-1)^4+756\,(2x-1)^3+2646\,(2x-1)^2+8232\,x-1715\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(3*x + 2)^5*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 625/11*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*
sqrt(-2*x + 1))) - 36045/392*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*
x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 3/28*(28215*(-2*x + 1)^(
7/2) - 199395*(-2*x + 1)^(5/2) + 469833*(-2*x + 1)^(3/2) - 369133
*sqrt(-2*x + 1))/(81*(2*x - 1)^4 + 756*(2*x - 1)^3 + 2646*(2*x -
1)^2 + 8232*x - 1715)
```

Fricas [A] time = 0.223605, size = 242, normalized size = 1.77

$$\frac{\sqrt{11}\sqrt{7}\left(35000\sqrt{7}\sqrt{5}\left(81x^4+216x^3+216x^2+96x+16\right)\log\left(\frac{\sqrt{11}(5x-8)+11\sqrt{5}\sqrt{-2x+1}}{5x+3}\right)+36045\sqrt{11}\sqrt{3}\left(81x^4+216x^3+216\right.\right.}{4312\left(81x^4+216x^3+216x^2\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(3*x + 2)^5*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] 1/4312*sqrt(11)*sqrt(7)*(35000*sqrt(7)*sqrt(5)*(81*x^4 + 216*x^3
+ 216*x^2 + 96*x + 16)*log((sqrt(11)*(5*x - 8) + 11*sqrt(5)*sqrt(
-2*x + 1))/(5*x + 3)) + 36045*sqrt(11)*sqrt(3)*(81*x^4 + 216*x^3
+ 216*x^2 + 96*x + 16)*log((sqrt(7)*(3*x - 5) - 7*sqrt(3)*sqrt(-2
*x + 1))/(3*x + 2)) + 3*sqrt(11)*sqrt(7)*(28215*x^3 + 57375*x^2 +
 38922*x + 8810)*sqrt(-2*x + 1))/(81*x^4 + 216*x^3 + 216*x^2 + 96
```

```
*x + 16)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(2+3*x)**5/(3+5*x)/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.238248, size = 188, normalized size = 1.37

$$\frac{625}{11}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{36045}{392}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{3\left(28215\,(2x-1)^3\sqrt{-2x+1}+199395\,(2x-1)^2\sqrt{-2x+1}-469833\,(-2x+1)^{\frac{3}{2}}+369133\sqrt{-2x+1}\right)}{448\,(3x+2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(3*x + 2)^5*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 625/11*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt
(55) + 5*sqrt(-2*x + 1))) - 36045/392*sqrt(21)*ln(1/2*abs(-2*sqrt
(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 3/448*(
28215*(2*x - 1)^3*sqrt(-2*x + 1) + 199395*(2*x - 1)^2*sqrt(-2*x +
 1) - 469833*(-2*x + 1)^(3/2) + 369133*sqrt(-2*x + 1))/(3*x + 2)^
4
```

3.2030 $\int \frac{(2+3x)^6}{\sqrt{1-2x}(3+5x)^2}\,dx$

Optimal. Leaf size=133

$$-\frac{\sqrt{1-2x}(3x+2)^5}{55(5x+3)}-\frac{8}{275}\sqrt{1-2x}(3x+2)^4-\frac{1717\sqrt{1-2x}(3x+2)^3}{9625}-\frac{26352\sqrt{1-2x}(3x+2)^2}{34375}-\frac{3\sqrt{1-2x}(615875x+1847824)}{171875}-\frac{398\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{171875\sqrt{55}}$$

```
[Out] (-26352*Sqrt[1 - 2*x]*(2 + 3*x)^2)/34375 - (1717*Sqrt[1 - 2*x]*(2
 + 3*x)^3)/9625 - (8*Sqrt[1 - 2*x]*(2 + 3*x)^4)/275 - (Sqrt[1 - 2
*x]*(2 + 3*x)^5)/(55*(3 + 5*x)) - (3*Sqrt[1 - 2*x]*(1847824 + 615
875*x))/171875 - (398*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(171875*
Sqrt[55])
```

Rubi [A] time = 0.28194, antiderivative size = 133, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$-\frac{\sqrt{1-2x}(3x+2)^5}{55(5x+3)}-\frac{8}{275}\sqrt{1-2x}(3x+2)^4-\frac{1717\sqrt{1-2x}(3x+2)^3}{9625}-\frac{26352\sqrt{1-2x}(3x+2)^2}{34375}-\frac{3\sqrt{1-2x}(615875x+1847824)}{171875}-\frac{398\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{171875\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^6/(Sqrt[1 - 2*x]*(3 + 5*x)^2),x]
```

```
[Out] (-26352*Sqrt[1 - 2*x]*(2 + 3*x)^2)/34375 - (1717*Sqrt[1 - 2*x]*(2
 + 3*x)^3)/9625 - (8*Sqrt[1 - 2*x]*(2 + 3*x)^4)/275 - (Sqrt[1 - 2
*x]*(2 + 3*x)^5)/(55*(3 + 5*x)) - (3*Sqrt[1 - 2*x]*(1847824 + 615
875*x))/171875 - (398*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(171875*
Sqrt[55])
```

Rubi in Sympy [A] time = 33.008, size = 117, normalized size = 0.88

$$-\frac{\sqrt{-2x+1}\,(3x+2)^5}{55\,(5x+3)}-\frac{8\sqrt{-2x+1}\,(3x+2)^4}{275}-\frac{1717\sqrt{-2x+1}\,(3x+2)^3}{9625}-\frac{26352\sqrt{-2x+1}\,(3x+2)^2}{34375}-\frac{\sqrt{-2x+1}\,(1746005625x+5238581040)}{162421875}-\frac{398\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{9453125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**6/(3+5*x)**2/(1-2*x)**(1/2),x)
```

```
[Out] -sqrt(-2*x + 1)*(3*x + 2)**5/(55*(5*x + 3)) - 8*sqrt(-2*x + 1)*(3
*x + 2)**4/275 - 1717*sqrt(-2*x + 1)*(3*x + 2)**3/9625 - 26352*sq
rt(-2*x + 1)*(3*x + 2)**2/34375 - sqrt(-2*x + 1)*(1746005625*x +
5238581040)/162421875 - 398*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1
)/11)/9453125
```

Mathematica [A] time = 0.131079, size = 73, normalized size = 0.55

$$\frac{-\frac{55\sqrt{1-2x}\left(19490625x^5+92998125x^4+200942775x^3+273540465x^2+334366065x+135011752\right)}{5x+3}-2786\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{66171875}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^6/(Sqrt[1 - 2*x]*(3 + 5*x)^2),x]
```

```
[Out] ((-55*Sqrt[1 - 2*x]*(135011752 + 334366065*x + 273540465*x^2 + 20
0942775*x^3 + 92998125*x^4 + 19490625*x^5))/(3 + 5*x) - 2786*Sqrt
[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/66171875
```

Maple [A] time = 0.016, size = 81, normalized size = 0.6

$$-\frac{81}{400}(1-2x)^{\frac{9}{2}}+\frac{2187}{875}(1-2x)^{\frac{7}{2}}-\frac{315171}{25000}(1-2x)^{\frac{5}{2}}+\frac{105228}{3125}(1-2x)^{\frac{3}{2}}-\frac{607689}{10000}\sqrt{1-2x}+\frac{2}{859375}\sqrt{1-2x}\left(-\frac{6}{5}-2x\right)^{-1}-\frac{398\sqrt{55}}{9453125}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^6/(3+5*x)^2/(1-2*x)^(1/2),x)
```

```
[Out] -81/400*(1-2*x)^(9/2)+2187/875*(1-2*x)^(7/2)-315171/25000*(1-2*x)
^(5/2)+105228/3125*(1-2*x)^(3/2)-607689/10000*(1-2*x)^(1/2)+2/859
375*(1-2*x)^(1/2)/(-6/5-2*x)-398/9453125*arctanh(1/11*55^(1/2)*(1
-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.49439, size = 132, normalized size = 0.99

$$-\frac{81}{400}(-2x+1)^{\frac{9}{2}}+\frac{2187}{875}(-2x+1)^{\frac{7}{2}}-\frac{315171}{25000}(-2x+1)^{\frac{5}{2}}+\frac{105228}{3125}(-2x+1)^{\frac{3}{2}}+\frac{199}{9453125}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{607689}{10000}\sqrt{-2x+1}-\frac{\sqrt{-2x+1}}{171875(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^6/((5*x + 3)^2*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] -81/400*(-2*x + 1)^(9/2) + 2187/875*(-2*x + 1)^(7/2) - 315171/250
00*(-2*x + 1)^(5/2) + 105228/3125*(-2*x + 1)^(3/2) + 199/9453125*
sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2
*x + 1))) - 607689/10000*sqrt(-2*x + 1) - 1/171875*sqrt(-2*x + 1)
/(5*x + 3)
```

Fricas [A] time = 0.217784, size = 113, normalized size = 0.85

$$-\frac{\sqrt{55}\left(\sqrt{55}\left(19490625\,x^5+92998125\,x^4+200942775\,x^3+273540465\,x^2+334366065\,x+135011752\right)\sqrt{-2\,x+1}-1393\,(5\,x}{66171875\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^6/((5*x + 3)^2*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/66171875*sqrt(55)*(sqrt(55)*(19490625*x^5 + 92998125*x^4 + 200
942775*x^3 + 273540465*x^2 + 334366065*x + 135011752)*sqrt(-2*x +
 1) - 1393*(5*x + 3)*log((sqrt(55)*(5*x - 8) + 55*sqrt(-2*x + 1))
/(5*x + 3)))/(5*x + 3)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**6/(3+5*x)**2/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.222229, size = 165, normalized size = 1.24

$$-\frac{81}{400}(2x-1)^4\sqrt{-2x+1}-\frac{2187}{875}(2x-1)^3\sqrt{-2x+1}-\frac{315171}{25000}(2x-1)^2\sqrt{-2x+1}+\frac{105228}{3125}(-2x+1)^{\frac{3}{2}}+\frac{199}{9453125}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{607689}{10000}\sqrt{-2x+1}-\frac{\sqrt{-2x+1}}{171875(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^6/((5*x + 3)^2*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] -81/400*(2*x - 1)^4*sqrt(-2*x + 1) - 2187/875*(2*x - 1)^3*sqrt(-2
*x + 1) - 315171/25000*(2*x - 1)^2*sqrt(-2*x + 1) + 105228/3125*(
-2*x + 1)^(3/2) + 199/9453125*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 1
0*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) - 607689/10000*s
qrt(-2*x + 1) - 1/171875*sqrt(-2*x + 1)/(5*x + 3)
```

3.2031 $\int \frac{(2+3x)^5}{\sqrt{1-2x}(3+5x)^2} \, dx$

Optimal. Leaf size=113

$$-\frac{\sqrt{1-2x}(3x+2)^4}{55(5x+3)}-\frac{78\sqrt{1-2x}(3x+2)^3}{1925}-\frac{1668\sqrt{1-2x}(3x+2)^2}{6875}-\frac{6\sqrt{1-2x}(19875x+59708)}{34375}-\frac{332\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{34375\sqrt{55}}$$

```
[Out] (-1668*Sqrt[1 - 2*x]*(2 + 3*x)^2)/6875 - (78*Sqrt[1 - 2*x]*(2 + 3
*x)^3)/1925 - (Sqrt[1 - 2*x]*(2 + 3*x)^4)/(55*(3 + 5*x)) - (6*Sqr
t[1 - 2*x]*(59708 + 19875*x))/34375 - (332*ArcTanh[Sqrt[5/11]*Sqr
t[1 - 2*x]])/(34375*Sqrt[55])
```

Rubi [A] time = 0.224328, antiderivative size = 113, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$-\frac{\sqrt{1-2x}(3x+2)^4}{55(5x+3)}-\frac{78\sqrt{1-2x}(3x+2)^3}{1925}-\frac{1668\sqrt{1-2x}(3x+2)^2}{6875}-\frac{6\sqrt{1-2x}(19875x+59708)}{34375}-\frac{332\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{34375\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^5/(Sqrt[1 - 2*x]*(3 + 5*x)^2),x]
```

```
[Out] (-1668*Sqrt[1 - 2*x]*(2 + 3*x)^2)/6875 - (78*Sqrt[1 - 2*x]*(2 + 3
*x)^3)/1925 - (Sqrt[1 - 2*x]*(2 + 3*x)^4)/(55*(3 + 5*x)) - (6*Sqr
t[1 - 2*x]*(59708 + 19875*x))/34375 - (332*ArcTanh[Sqrt[5/11]*Sqr
t[1 - 2*x]])/(34375*Sqrt[55])
```

Rubi in Sympy [A] time = 25.5487, size = 99, normalized size = 0.88

$$-\frac{\sqrt{-2x+1}\,(3x+2)^4}{55\,(5x+3)}-\frac{78\sqrt{-2x+1}\,(3x+2)^3}{1925}-\frac{1668\sqrt{-2x+1}\,(3x+2)^2}{6875}-\frac{\sqrt{-2x+1}\,(12521250x+37616040)}{3609375}-\frac{332\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{1890625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**5/(3+5*x)**2/(1-2*x)**(1/2),x)
```

```
[Out] -sqrt(-2*x + 1)*(3*x + 2)**4/(55*(5*x + 3)) - 78*sqrt(-2*x + 1)*(
3*x + 2)**3/1925 - 1668*sqrt(-2*x + 1)*(3*x + 2)**2/6875 - sqrt(-
2*x + 1)*(12521250*x + 37616040)/3609375 - 332*sqrt(55)*atanh(sqr
t(55)*sqrt(-2*x + 1)/11)/1890625
```

Mathematica [A] time = 0.112031, size = 68, normalized size = 0.6

$$\frac{-\frac{55\sqrt{1-2x}(1670625x^4+6994350x^3+13532310x^2+20175210x+8527768)}{5x+3}-2324\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{13234375}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^5/(Sqrt[1 - 2*x]*(3 + 5*x)^2),x]
```

```
[Out] ((-55*Sqrt[1 - 2*x]*(8527768 + 20175210*x + 13532310*x^2 + 699435
0*x^3 + 1670625*x^4))/(3 + 5*x) - 2324*Sqrt[55]*ArcTanh[Sqrt[5/11
]*Sqrt[1 - 2*x]])/13234375
```

Maple [A] time = 0.018, size = 72, normalized size = 0.6

$$\frac{243}{1400}(1-2x)^{\frac{7}{2}} - \frac{8829}{5000}(1-2x)^{\frac{5}{2}} + \frac{35703}{5000}(1-2x)^{\frac{3}{2}} - \frac{434043}{25000}\sqrt{1-2x} + \frac{2}{171875}\sqrt{1-2x}\left(-\frac{6}{5}-2x\right)^{-1} - \frac{332\sqrt{55}}{1890625}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^5/(3+5*x)^2/(1-2*x)^(1/2),x)
```

```
[Out] 243/1400*(1-2*x)^(7/2)-8829/5000*(1-2*x)^(5/2)+35703/5000*(1-2*x)
^(3/2)-434043/25000*(1-2*x)^(1/2)+2/171875*(1-2*x)^(1/2)/(-6/5-2*
x)-332/1890625*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.51409, size = 120, normalized size = 1.06

$$\frac{243}{1400}(-2x+1)^{\frac{7}{2}} - \frac{8829}{5000}(-2x+1)^{\frac{5}{2}} + \frac{35703}{5000}(-2x+1)^{\frac{3}{2}} + \frac{166}{1890625}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right) - \frac{434043}{25000}\sqrt{-2x+1} - \frac{\sqrt{-2x+1}}{34375(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/((5*x + 3)^2*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 243/1400*(-2*x + 1)^(7/2) - 8829/5000*(-2*x + 1)^(5/2) + 35703/50
00*(-2*x + 1)^(3/2) + 166/1890625*sqrt(55)*log(-(sqrt(55) - 5*sqr
t(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) - 434043/25000*sqrt(-
2*x + 1) - 1/34375*sqrt(-2*x + 1)/(5*x + 3)
```

Fricas [A] time = 0.24125, size = 107, normalized size = 0.95

$$-\frac{\sqrt{55}\left(\sqrt{55}\left(1670625x^4 + 6994350x^3 + 13532310x^2 + 20175210x + 8527768\right)\sqrt{-2x+1} - 1162(5x+3)\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{\cdot}}{5x+3}\right.\right.}{13234375(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/((5*x + 3)^2*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/13234375*sqrt(55)*(sqrt(55)*(1670625*x^4 + 6994350*x^3 + 13532
310*x^2 + 20175210*x + 8527768)*sqrt(-2*x + 1) - 1162*(5*x + 3)*l
og((sqrt(55)*(5*x - 8) + 55*sqrt(-2*x + 1))/(5*x + 3)))/(5*x + 3)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**5/(3+5*x)**2/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.213421, size = 143, normalized size = 1.27

$$-\frac{243}{1400}\,(2\,x-1)^{3}\sqrt{-2\,x+1}-\frac{8829}{5000}\,(2\,x-1)^{2}\sqrt{-2\,x+1}+\frac{35703}{5000}\,(-2\,x+1)^{\frac{3}{2}}+\frac{166}{1890625}\,\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)-\frac{434043}{25000}\,\sqrt{-2\,x+1}-\frac{\sqrt{-2\,x+1}}{34375\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/((5*x + 3)^2*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] -243/1400*(2*x - 1)^3*sqrt(-2*x + 1) - 8829/5000*(2*x - 1)^2*sqrt
(-2*x + 1) + 35703/5000*(-2*x + 1)^(3/2) + 166/1890625*sqrt(55)*l
n(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*
x + 1))) - 434043/25000*sqrt(-2*x + 1) - 1/34375*sqrt(-2*x + 1)/(
5*x + 3)
```

3.2032 $\int \frac{(2+3x)^4}{\sqrt{1-2x}(3+5x)^2} dx$

Optimal. Leaf size=93

$$-\frac{\sqrt{1-2x}(3x+2)^3}{55(5x+3)}-\frac{84\sqrt{1-2x}(3x+2)^2}{1375}-\frac{21\sqrt{1-2x}(375x+1144)}{6875}-\frac{266\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{6875\sqrt{55}}$$

```
[Out] (-84*Sqrt[1 - 2*x]*(2 + 3*x)^2)/1375 - (Sqrt[1 - 2*x]*(2 + 3*x)^3
)/(55*(3 + 5*x)) - (21*Sqrt[1 - 2*x]*(1144 + 375*x))/6875 - (266*
ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(6875*Sqrt[55])
```

Rubi [A] time = 0.161259, antiderivative size = 93, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$-\frac{\sqrt{1-2x}(3x+2)^3}{55(5x+3)}-\frac{84\sqrt{1-2x}(3x+2)^2}{1375}-\frac{21\sqrt{1-2x}(375x+1144)}{6875}-\frac{266\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{6875\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^4/(Sqrt[1 - 2*x]*(3 + 5*x)^2),x]
```

```
[Out] (-84*Sqrt[1 - 2*x]*(2 + 3*x)^2)/1375 - (Sqrt[1 - 2*x]*(2 + 3*x)^3
)/(55*(3 + 5*x)) - (21*Sqrt[1 - 2*x]*(1144 + 375*x))/6875 - (266*
ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(6875*Sqrt[55])
```

Rubi in Sympy [A] time = 18.9843, size = 80, normalized size = 0.86

$$-\frac{\sqrt{-2x+1}\,(3x+2)^3}{55\,(5x+3)}-\frac{84\sqrt{-2x+1}\,(3x+2)^2}{1375}-\frac{\sqrt{-2x+1}\,(118125x+360360)}{103125}-\frac{266\sqrt{55}\,\mathrm{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{378125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4/(3+5*x)**2/(1-2*x)**(1/2),x)
```

```
[Out] -sqrt(-2*x + 1)*(3*x + 2)**3/(55*(5*x + 3)) - 84*sqrt(-2*x + 1)*(
3*x + 2)**2/1375 - sqrt(-2*x + 1)*(118125*x + 360360)/103125 - 26
6*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/378125
```

Mathematica [A] time = 0.113201, size = 63, normalized size = 0.68

$$\frac{-\frac{55\sqrt{1-2x}(22275x^3+82665x^2+171765x+78112)}{5x+3}-266\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{378125}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^4/(Sqrt[1 - 2*x]*(3 + 5*x)^2),x]
```

```
[Out] ((-55*Sqrt[1 - 2*x]*(78112 + 171765*x + 82665*x^2 + 22275*x^3))/(
3 + 5*x) - 266*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/378125
```

Maple [A] time = 0.016, size = 63, normalized size = 0.7

$$-\frac{81}{500}(1-2x)^{\frac{5}{2}}+\frac{333}{250}(1-2x)^{\frac{3}{2}}-\frac{12393}{2500}\sqrt{1-2x}+\frac{2}{34375}\sqrt{1-2x}\left(-\frac{6}{5}-2x\right)^{-1}-\frac{266\sqrt{55}}{378125}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4/(3+5*x)^2/(1-2*x)^(1/2),x)
```

```
[Out] -81/500*(1-2*x)^(5/2)+333/250*(1-2*x)^(3/2)-12393/2500*(1-2*x)^(1
/2)+2/34375*(1-2*x)^(1/2)/(-6/5-2*x)-266/378125*arctanh(1/11*55^(
1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.49908, size = 108, normalized size = 1.16

$$-\frac{81}{500}(-2x+1)^{\frac{5}{2}}+\frac{333}{250}(-2x+1)^{\frac{3}{2}}+\frac{133}{378125}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{12393}{2500}\sqrt{-2x+1}-\frac{\sqrt{-2x+1}}{6875(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^4/((5*x + 3)^2*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] -81/500*(-2*x + 1)^(5/2) + 333/250*(-2*x + 1)^(3/2) + 133/378125*
sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2
*x + 1))) - 12393/2500*sqrt(-2*x + 1) - 1/6875*sqrt(-2*x + 1)/(5*
x + 3)
```

Fricas [A] time = 0.251424, size = 100, normalized size = 1.08

$$-\frac{\sqrt{55}\left(\sqrt{55}\left(22275x^3+82665x^2+171765x+78112\right)\sqrt{-2x+1}-133(5x+3)\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{-2x+1}}{5x+3}\right)\right)}{378125(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^4/((5*x + 3)^2*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/378125*sqrt(55)*(sqrt(55)*(22275*x^3 + 82665*x^2 + 171765*x +
78112)*sqrt(-2*x + 1) - 133*(5*x + 3)*log((sqrt(55)*(5*x - 8) + 5
5*sqrt(-2*x + 1))/(5*x + 3)))/(5*x + 3)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4/(3+5*x)**2/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.214161, size = 122, normalized size = 1.31

$$-\frac{81}{500}(2x-1)^{2}\sqrt{-2x+1}+\frac{333}{250}(-2x+1)^{\frac{3}{2}}+\frac{133}{378125}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{12393}{2500}\sqrt{-2x+1}-\frac{\sqrt{-2x+1}}{6875(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^4/((5*x + 3)^2*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] -81/500*(2*x - 1)^2*sqrt(-2*x + 1) + 333/250*(-2*x + 1)^(3/2) + 1
33/378125*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(s
qrt(55) + 5*sqrt(-2*x + 1))) - 12393/2500*sqrt(-2*x + 1) - 1/6875
*sqrt(-2*x + 1)/(5*x + 3)
```

3.2033 $\int \frac{(2+3x)^3}{\sqrt{1-2x}(3+5x)^2}\,dx$

Optimal. Leaf size=73

$$-\frac{\sqrt{1-2x}(3x+2)^2}{55(5x+3)}-\frac{6}{55}\sqrt{1-2x}(3x+11)-\frac{8\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{55\sqrt{55}}$$

```
[Out] (-6*Sqrt[1 - 2*x]*(11 + 3*x))/55 - (Sqrt[1 - 2*x]*(2 + 3*x)^2)/(5
5*(3 + 5*x)) - (8*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(55*Sqrt[55]
)
```

Rubi [A] time = 0.106922, antiderivative size = 73, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$-\frac{\sqrt{1-2x}(3x+2)^2}{55(5x+3)}-\frac{6}{55}\sqrt{1-2x}(3x+11)-\frac{8\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{55\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In] Int[(2 + 3*x)^3/(Sqrt[1 - 2*x]*(3 + 5*x)^2),x]
```

```
[Out] (-6*Sqrt[1 - 2*x]*(11 + 3*x))/55 - (Sqrt[1 - 2*x]*(2 + 3*x)^2)/(5
5*(3 + 5*x)) - (8*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(55*Sqrt[55]
)
```

Rubi in Sympy [A] time = 11.814, size = 61, normalized size = 0.84

$$-\frac{\sqrt{-2x+1}\,(3x+2)^2}{55\,(5x+3)}-\frac{\sqrt{-2x+1}\,(1350x+4950)}{4125}-\frac{8\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{3025}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**3/(3+5*x)**2/(1-2*x)**(1/2),x)
```

```
[Out] -sqrt(-2*x + 1)*(3*x + 2)**2/(55*(5*x + 3)) - sqrt(-2*x + 1)*(135
0*x + 4950)/4125 - 8*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/3
025
```

Mathematica [A] time = 0.101784, size = 58, normalized size = 0.79

$$-\frac{\sqrt{1-2x}\left(99x^2+396x+202\right)}{55(5x+3)}-\frac{8\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{55\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In] Integrate[(2 + 3*x)^3/(Sqrt[1 - 2*x]*(3 + 5*x)^2),x]
```

```
[Out] -(Sqrt[1 - 2*x]*(202 + 396*x + 99*x^2))/(55*(3 + 5*x)) - (8*ArcTa
nh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(55*Sqrt[55])
```

Maple [A] time = 0.016, size = 54, normalized size = 0.7

$$\frac{9}{50}(1-2x)^{\frac{3}{2}}-\frac{351}{250}\sqrt{1-2x}+\frac{2}{6875}\sqrt{1-2x}\left(-\frac{6}{5}-2x\right)^{-1}-\frac{8\sqrt{55}}{3025}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3/(3+5*x)^2/(1-2*x)^(1/2),x)
```

```
[Out] 9/50*(1-2*x)^(3/2)-351/250*(1-2*x)^(1/2)+2/6875*(1-2*x)^(1/2)/(-6
/5-2*x)-8/3025*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.48865, size = 96, normalized size = 1.32

$$\frac{9}{50}(-2x+1)^{\frac{3}{2}}+\frac{4}{3025}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{351}{250}\sqrt{-2x+1}-\frac{\sqrt{-2x+1}}{1375(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3/((5*x + 3)^2*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 9/50*(-2*x + 1)^(3/2) + 4/3025*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-
2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) - 351/250*sqrt(-2*x + 1)
 - 1/1375*sqrt(-2*x + 1)/(5*x + 3)
```

Fricas [A] time = 0.251243, size = 93, normalized size = 1.27

$$-\frac{\sqrt{55}\left(\sqrt{55}\left(99x^2+396x+202\right)\sqrt{-2x+1}-4(5x+3)\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{-2x+1}}{5x+3}\right)\right)}{3025(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3/((5*x + 3)^2*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/3025*sqrt(55)*(sqrt(55)*(99*x^2 + 396*x + 202)*sqrt(-2*x + 1)
- 4*(5*x + 3)*log((sqrt(55)*(5*x - 8) + 55*sqrt(-2*x + 1))/(5*x +
 3)))/(5*x + 3)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3/(3+5*x)**2/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.212993, size = 100, normalized size = 1.37

$$\frac{9}{50}(-2x+1)^{\frac{3}{2}}+\frac{4}{3025}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{351}{250}\sqrt{-2x+1}-\frac{\sqrt{-2x+1}}{1375(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^3/((5*x + 3)^2*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 9/50*(-2*x + 1)^(3/2) + 4/3025*sqrt(55)*ln(1/2*abs(-2*sqrt(55) +
10*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) - 351/250*sqrt(
-2*x + 1) - 1/1375*sqrt(-2*x + 1)/(5*x + 3)
```

3.2034 $\int \frac{(2+3x)^2}{\sqrt{1-2x}(3+5x)^2} dx$

Optimal. Leaf size=61

$$-\frac{9}{25}\sqrt{1-2x}-\frac{\sqrt{1-2x}}{275(5x+3)}-\frac{134\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{275\sqrt{55}}$$

```
[Out] (-9*Sqrt[1 - 2*x])/25 - Sqrt[1 - 2*x]/(275*(3 + 5*x)) - (134*ArcT
anh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(275*Sqrt[55])
```

Rubi [A] time = 0.0798838, antiderivative size = 61, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$-\frac{9}{25}\sqrt{1-2x}-\frac{\sqrt{1-2x}}{275(5x+3)}-\frac{134\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{275\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^2/(Sqrt[1 - 2*x]*(3 + 5*x)^2),x]
```

```
[Out] (-9*Sqrt[1 - 2*x])/25 - Sqrt[1 - 2*x]/(275*(3 + 5*x)) - (134*ArcT
anh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(275*Sqrt[55])
```

Rubi in Sympy [A] time = 7.73213, size = 51, normalized size = 0.84

$$-\frac{9\sqrt{-2x+1}}{25}-\frac{\sqrt{-2x+1}}{275\,(5x+3)}-\frac{134\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{15125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2/(3+5*x)**2/(1-2*x)**(1/2),x)
```

```
[Out] -9*sqrt(-2*x + 1)/25 - sqrt(-2*x + 1)/(275*(5*x + 3)) - 134*sqrt(
55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/15125
```

Mathematica [A] time = 0.0941835, size = 53, normalized size = 0.87

$$-\frac{\sqrt{1-2x}(495x+298)}{275(5x+3)}-\frac{134\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{275\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^2/(Sqrt[1 - 2*x]*(3 + 5*x)^2),x]
```

```
[Out] -(Sqrt[1 - 2*x]*(298 + 495*x))/(275*(3 + 5*x)) - (134*ArcTanh[Sqr
t[5/11]*Sqrt[1 - 2*x]])/(275*Sqrt[55])
```

Maple [A] time = 0.016, size = 45, normalized size = 0.7

$$-\frac{9}{25}\sqrt{1-2\,x}+\frac{2}{1375}\sqrt{1-2\,x}\left(-\frac{6}{5}-2\,x\right)^{-1}-\frac{134\,\sqrt{55}}{15125}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2/(3+5*x)^2/(1-2*x)^(1/2),x)
```

```
[Out] -9/25*(1-2*x)^(1/2)+2/1375*(1-2*x)^(1/2)/(-6/5-2*x)-134/15125*arc
tanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.4988, size = 84, normalized size = 1.38

$$\frac{67}{15125}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{9}{25}\sqrt{-2x+1}-\frac{\sqrt{-2x+1}}{275(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2/((5*x + 3)^2*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 67/15125*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) +
5*sqrt(-2*x + 1))) - 9/25*sqrt(-2*x + 1) - 1/275*sqrt(-2*x + 1)/(
5*x + 3)
```

Fricas [A] time = 0.238598, size = 86, normalized size = 1.41

$$-\frac{\sqrt{55}\left(\sqrt{55}(495x+298)\sqrt{-2x+1}-67(5x+3)\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{-2x+1}}{5x+3}\right)\right)}{15125(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2/((5*x + 3)^2*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/15125*sqrt(55)*(sqrt(55)*(495*x + 298)*sqrt(-2*x + 1) - 67*(5*
x + 3)*log((sqrt(55)*(5*x - 8) + 55*sqrt(-2*x + 1))/(5*x + 3)))/(
5*x + 3)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2/(3+5*x)**2/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.215002, size = 88, normalized size = 1.44

$$\frac{67}{15125}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{9}{25}\sqrt{-2x+1}-\frac{\sqrt{-2x+1}}{275(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2/((5*x + 3)^2*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 67/15125*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sq
rt(55) + 5*sqrt(-2*x + 1))) - 9/25*sqrt(-2*x + 1) - 1/275*sqrt(-2
*x + 1)/(5*x + 3)
```

3.2035 $\int \frac{2+3x}{\sqrt{1-2x}(3+5x)^2}\,dx$

Optimal. Leaf size=48

$$-\frac{\sqrt{1-2x}}{55(5x+3)}-\frac{68\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{55\sqrt{55}}$$

```
[Out] -Sqrt[1 - 2*x]/(55*(3 + 5*x)) - (68*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2
*x]])/(55*Sqrt[55])
```

Rubi [A] time = 0.0518987, antiderivative size = 48, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.136

$$-\frac{\sqrt{1-2x}}{55(5x+3)}-\frac{68\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{55\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)/(Sqrt[1 - 2*x]*(3 + 5*x)^2),x]
```

```
[Out] -Sqrt[1 - 2*x]/(55*(3 + 5*x)) - (68*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2
*x]])/(55*Sqrt[55])
```

Rubi in Sympy [A] time = 5.35974, size = 39, normalized size = 0.81

$$-\frac{\sqrt{-2x+1}}{55\,(5x+3)}-\frac{68\sqrt{55}\,\mathrm{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{3025}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)/(3+5*x)**2/(1-2*x)**(1/2),x)
```

```
[Out] -sqrt(-2*x + 1)/(55*(5*x + 3)) - 68*sqrt(55)*atanh(sqrt(55)*sqrt(
-2*x + 1)/11)/3025
```

Mathematica [A] time = 0.0723926, size = 48, normalized size = 1.

$$-\frac{\sqrt{1-2x}}{55(5x+3)}-\frac{68\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{55\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)/(Sqrt[1 - 2*x]*(3 + 5*x)^2),x]
```

```
[Out] -Sqrt[1 - 2*x]/(55*(3 + 5*x)) - (68*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2
*x]])/(55*Sqrt[55])
```

Maple [A] time = 0.015, size = 36, normalized size = 0.8

$$\frac{2}{275}\sqrt{1-2\,x}\left(-\frac{6}{5}-2\,x\right)^{-1}-\frac{68\,\sqrt{55}}{3025}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)/(3+5*x)^2/(1-2*x)^(1/2),x)
```

```
[Out] 2/275*(1-2*x)^(1/2)/(-6/5-2*x)-68/3025*arctanh(1/11*55^(1/2)*(1-2
*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.49468, size = 72, normalized size = 1.5

$$\frac{34}{3025}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{\sqrt{-2x+1}}{55(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)/((5*x + 3)^2*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 34/3025*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5
*sqrt(-2*x + 1))) - 1/55*sqrt(-2*x + 1)/(5*x + 3)
```

Fricas [A] time = 0.227967, size = 81, normalized size = 1.69

$$\frac{\sqrt{55}\left(34(5x+3)\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{-2x+1}}{5x+3}\right)-\sqrt{55}\sqrt{-2x+1}\right)}{3025(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)/((5*x + 3)^2*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] 1/3025*sqrt(55)*(34*(5*x + 3)*log((sqrt(55)*(5*x - 8) + 55*sqrt(-
2*x + 1))/(5*x + 3)) - sqrt(55)*sqrt(-2*x + 1))/(5*x + 3)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)/(3+5*x)**2/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.21872, size = 76, normalized size = 1.58

$$\frac{34}{3025}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{\sqrt{-2x+1}}{55(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)/((5*x + 3)^2*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 34/3025*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqr
t(55) + 5*sqrt(-2*x + 1))) - 1/55*sqrt(-2*x + 1)/(5*x + 3)
```

3.2036 $\int \frac{1}{\sqrt{1-2x}(3+5x)^2} dx$

Optimal. Leaf size=48

$$-\frac{\sqrt{1-2x}}{11(5x+3)}-\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{11\sqrt{55}}$$

```
[Out] -Sqrt[1 - 2*x]/(11*(3 + 5*x)) - (2*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*
x]])/(11*Sqrt[55])
```

Rubi [A] time = 0.0419926, antiderivative size = 48, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 17, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.176

$$-\frac{\sqrt{1-2x}}{11(5x+3)}-\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{11\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 - 2*x]*(3 + 5*x)^2),x]
```

```
[Out] -Sqrt[1 - 2*x]/(11*(3 + 5*x)) - (2*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*
x]])/(11*Sqrt[55])
```

Rubi in Sympy [A] time = 4.51915, size = 39, normalized size = 0.81

$$-\frac{\sqrt{-2x+1}}{11\,(5x+3)}-\frac{2\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{605}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(3+5*x)**2/(1-2*x)**(1/2),x)
```

```
[Out] -sqrt(-2*x + 1)/(11*(5*x + 3)) - 2*sqrt(55)*atanh(sqrt(55)*sqrt(-
2*x + 1)/11)/605
```

Mathematica [A] time = 0.0638548, size = 46, normalized size = 0.96

$$-\frac{\sqrt{1-2x}}{55x+33}-\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{11\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 - 2*x]*(3 + 5*x)^2),x]
```

```
[Out] -(Sqrt[1 - 2*x]/(33 + 55*x)) - (2*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x
]])/(11*Sqrt[55])
```

Maple [A] time = 0.01, size = 36, normalized size = 0.8

$$\frac{2}{-66-110\,x}\sqrt{1-2\,x}-\frac{2\,\sqrt{55}}{605}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(3+5*x)^2/(1-2*x)^(1/2),x)
```

```
[Out] 2/11*(1-2*x)^(1/2)/(-6-10*x)-2/605*arctanh(1/11*55^(1/2)*(1-2*x)^
(1/2))*55^(1/2)
```

Maxima [A] time = 1.50446, size = 72, normalized size = 1.5

$$\frac{1}{605}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{\sqrt{-2x+1}}{11(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^2*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 1/605*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*s
qrt(-2*x + 1))) - 1/11*sqrt(-2*x + 1)/(5*x + 3)
```

Fricas [A] time = 0.230038, size = 80, normalized size = 1.67

$$\frac{\sqrt{55}\left((5x+3)\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{-2x+1}}{5x+3}\right)-\sqrt{55}\sqrt{-2x+1}\right)}{605(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^2*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] 1/605*sqrt(55)*((5*x + 3)*log((sqrt(55)*(5*x - 8) + 55*sqrt(-2*x
+ 1))/(5*x + 3)) - sqrt(55)*sqrt(-2*x + 1))/(5*x + 3)
```

Sympy [A] time = 3.13578, size = 173, normalized size = 3.6

$$\begin{cases} -\frac{2\sqrt{55}\operatorname{acosh}\left(\frac{\sqrt{110}}{10\sqrt{x+\frac{3}{5}}}\right)}{605}+\frac{\sqrt{2}}{55\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}\sqrt{x+\frac{3}{5}}}-\frac{\sqrt{2}}{50\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)^{\frac{3}{2}}} & \text{for}\ \frac{11\left|\frac{1}{x+\frac{3}{5}}\right|}{10}>1 \\ \frac{2\sqrt{55}i\operatorname{asin}\left(\frac{\sqrt{110}}{10\sqrt{x+\frac{3}{5}}}\right)}{605}-\frac{\sqrt{2}i}{55\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}\sqrt{x+\frac{3}{5}}}+\frac{\sqrt{2}i}{50\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)^{\frac{3}{2}}} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(3+5*x)**2/(1-2*x)**(1/2),x)
```

```
[Out] Piecewise((-2*sqrt(55)*acosh(sqrt(110)/(10*sqrt(x + 3/5)))/605 +
sqrt(2)/(55*sqrt(-1 + 11/(10*(x + 3/5)))*sqrt(x + 3/5)) - sqrt(2)
/(50*sqrt(-1 + 11/(10*(x + 3/5)))*(x + 3/5)**(3/2)), 11*Abs(1/(x
+ 3/5))/10 > 1), (2*sqrt(55)*I*asin(sqrt(110)/(10*sqrt(x + 3/5)))
/605 - sqrt(2)*I/(55*sqrt(1 - 11/(10*(x + 3/5)))*sqrt(x + 3/5)) +
 sqrt(2)*I/(50*sqrt(1 - 11/(10*(x + 3/5)))*(x + 3/5)**(3/2)), Tru
e))
```

GIAC/XCAS [A] time = 0.210147, size = 76, normalized size = 1.58

$$\frac{1}{605}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{\sqrt{-2x+1}}{11(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^2*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 1/605*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(
55) + 5*sqrt(-2*x + 1))) - 1/11*sqrt(-2*x + 1)/(5*x + 3)
```

3.2037 $\int \frac{1}{\sqrt{1-2x}(2+3x)(3+5x)^2} dx$

Optimal. Leaf size=77

$$-\frac{5\sqrt{1-2x}}{11(5x+3)}-6\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+\frac{64}{11}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (-5*Sqrt[1 - 2*x])/(11*(3 + 5*x)) - 6*Sqrt[3/7]*ArcTanh[Sqrt[3/7]
*Sqrt[1 - 2*x]] + (64*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]
])/11
```

Rubi [A] time = 0.141106, antiderivative size = 77, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$-\frac{5\sqrt{1-2x}}{11(5x+3)}-6\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+\frac{64}{11}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 - 2*x]*(2 + 3*x)*(3 + 5*x)^2),x]
```

```
[Out] (-5*Sqrt[1 - 2*x])/(11*(3 + 5*x)) - 6*Sqrt[3/7]*ArcTanh[Sqrt[3/7]
*Sqrt[1 - 2*x]] + (64*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]
])/11
```

Rubi in Sympy [A] time = 14.3255, size = 65, normalized size = 0.84

$$-\frac{5\sqrt{-2x+1}}{11\,(5x+3)}-\frac{6\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{7}+\frac{64\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{121}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(2+3*x)/(3+5*x)**2/(1-2*x)**(1/2),x)
```

```
[Out] -5*sqrt(-2*x + 1)/(11*(5*x + 3)) - 6*sqrt(21)*atanh(sqrt(21)*sqrt
(-2*x + 1)/7)/7 + 64*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/1
21
```

Mathematica [A] time = 0.151109, size = 75, normalized size = 0.97

$$-\frac{5\sqrt{1-2x}}{55x+33}-6\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+\frac{64}{11}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 - 2*x]*(2 + 3*x)*(3 + 5*x)^2),x]
```

```
[Out] (-5*Sqrt[1 - 2*x])/(33 + 55*x) - 6*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sq
rt[1 - 2*x]] + (64*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/
11
```

Maple [A] time = 0.017, size = 54, normalized size = 0.7

$$-\frac{6\sqrt{21}}{7}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)+\frac{2}{11}\sqrt{1-2x}\left(-\frac{6}{5}-2x\right)^{-1}+\frac{64\sqrt{55}}{121}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(2+3*x)/(3+5*x)^2/(1-2*x)^(1/2),x)
```

```
[Out] -6/7*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)+2/11*(1-2*x)^(1
/2)/(-6/5-2*x)+64/121*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/
2)
```

Maxima [A] time = 1.50127, size = 120, normalized size = 1.56

$$-\frac{32}{121}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{3}{7}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{5\sqrt{-2x+1}}{11(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^2*(3*x + 2)*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] -32/121*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5
*sqrt(-2*x + 1))) + 3/7*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1
))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 5/11*sqrt(-2*x + 1)/(5*x + 3)
```

Fricas [A] time = 0.22316, size = 161, normalized size = 2.09

$$\frac{\sqrt{11}\sqrt{7}\left(32\sqrt{7}\sqrt{5}(5x+3)\log\left(\frac{\sqrt{11}(5x-8)-11\sqrt{5}\sqrt{-2x+1}}{5x+3}\right)+33\sqrt{11}\sqrt{3}(5x+3)\log\left(\frac{\sqrt{7}(3x-5)+7\sqrt{3}\sqrt{-2x+1}}{3x+2}\right)-5\sqrt{11}\sqrt{7}\sqrt{-2x+1}\right)}{847(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^2*(3*x + 2)*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] 1/847*sqrt(11)*sqrt(7)*(32*sqrt(7)*sqrt(5)*(5*x + 3)*log((sqrt(11
)*(5*x - 8) - 11*sqrt(5)*sqrt(-2*x + 1))/(5*x + 3)) + 33*sqrt(11)
*sqrt(3)*(5*x + 3)*log((sqrt(7)*(3*x - 5) + 7*sqrt(3)*sqrt(-2*x +
 1))/(3*x + 2)) - 5*sqrt(11)*sqrt(7)*sqrt(-2*x + 1))/(5*x + 3)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(2+3*x)/(3+5*x)**2/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.21248, size = 128, normalized size = 1.66

$$-\frac{32}{121}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{3}{7}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{5\sqrt{-2x+1}}{11(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^2*(3*x + 2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] -32/121*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqr
t(55) + 5*sqrt(-2*x + 1))) + 3/7*sqrt(21)*ln(1/2*abs(-2*sqrt(21)
+ 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 5/11*sqrt(-2
*x + 1)/(5*x + 3)
```

3.2038 $\int \frac{1}{\sqrt{1-2x}(2+3x)^2(3+5x)^2} dx$

Optimal. Leaf size=106

$$-\frac{340\sqrt{1-2x}}{77(5x+3)}+\frac{3\sqrt{1-2x}}{7(3x+2)(5x+3)}-\frac{426}{7}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+\frac{650}{11}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (-340*Sqrt[1 - 2*x])/(77*(3 + 5*x)) + (3*Sqrt[1 - 2*x])/(7*(2 + 3
*x)*(3 + 5*x)) - (426*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])
/7 + (650*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/11
```

Rubi [A] time = 0.201302, antiderivative size = 106, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$-\frac{340\sqrt{1-2x}}{77(5x+3)}+\frac{3\sqrt{1-2x}}{7(3x+2)(5x+3)}-\frac{426}{7}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+\frac{650}{11}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 - 2*x]*(2 + 3*x)^2*(3 + 5*x)^2),x]
```

```
[Out] (-340*Sqrt[1 - 2*x])/(77*(3 + 5*x)) + (3*Sqrt[1 - 2*x])/(7*(2 + 3
*x)*(3 + 5*x)) - (426*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])
/7 + (650*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/11
```

Rubi in Sympy [A] time = 20.8829, size = 87, normalized size = 0.82

$$-\frac{204\sqrt{-2x+1}}{77(3x+2)}-\frac{5\sqrt{-2x+1}}{11(3x+2)(5x+3)}-\frac{426\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{49}+\frac{650\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{121}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(2+3*x)**2/(3+5*x)**2/(1-2*x)**(1/2),x)
```

```
[Out] -204*sqrt(-2*x + 1)/(77*(3*x + 2)) - 5*sqrt(-2*x + 1)/(11*(3*x +
2)*(5*x + 3)) - 426*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/49
+ 650*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/121
```

Mathematica [A] time = 0.177719, size = 91, normalized size = 0.86

$$-\frac{\sqrt{1-2x}(1020x+647)}{77(3x+2)(5x+3)}-\frac{426}{7}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+\frac{650}{11}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 - 2*x]*(2 + 3*x)^2*(3 + 5*x)^2),x]
```

```
[Out] -(Sqrt[1 - 2*x]*(647 + 1020*x))/(77*(2 + 3*x)*(3 + 5*x)) - (426*S
qrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/7 + (650*Sqrt[5/11]*Ar
cTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/11
```

Maple [A] time = 0.019, size = 70, normalized size = 0.7

$$\frac{6}{7}\sqrt{1-2x}\left(-\frac{4}{3}-2x\right)^{-1}-\frac{426\sqrt{21}}{49}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)+\frac{10}{11}\sqrt{1-2x}\left(-\frac{6}{5}-2x\right)^{-1}+\frac{650\sqrt{55}}{121}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(2+3*x)^2/(3+5*x)^2/(1-2*x)^(1/2),x)
```

```
[Out] 6/7*(1-2*x)^(1/2)/(-4/3-2*x)-426/49*arctanh(1/7*21^(1/2)*(1-2*x)^
(1/2))*21^(1/2)+10/11*(1-2*x)^(1/2)/(-6/5-2*x)+650/121*arctanh(1/
11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.51178, size = 149, normalized size = 1.41

$$-\frac{325}{121}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{213}{49}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{4\left(510(-2x+1)^{\frac{3}{2}}-1157\sqrt{-2x+1}\right)}{77\left(15(2x-1)^2+136x+9\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^2*(3*x + 2)^2*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] -325/121*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) +
5*sqrt(-2*x + 1))) + 213/49*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x
 + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 4/77*(510*(-2*x + 1)^(3/2
) - 1157*sqrt(-2*x + 1))/(15*(2*x - 1)^2 + 136*x + 9)
```

Fricas [A] time = 0.225291, size = 188, normalized size = 1.77

$$\frac{\sqrt{11}\sqrt{7}\left(2275\sqrt{7}\sqrt{5}\left(15x^2+19x+6\right)\log\left(\frac{\sqrt{11}(5x-8)-11\sqrt{5}\sqrt{-2x+1}}{5x+3}\right)+2343\sqrt{11}\sqrt{3}\left(15x^2+19x+6\right)\log\left(\frac{\sqrt{7}(3x-5)+7\sqrt{3}\sqrt{-2x+1}}{3x+2}\right.\right.}{5929\left(15x^2+19x+6\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^2*(3*x + 2)^2*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] 1/5929*sqrt(11)*sqrt(7)*(2275*sqrt(7)*sqrt(5)*(15*x^2 + 19*x + 6)
*log((sqrt(11)*(5*x - 8) - 11*sqrt(5)*sqrt(-2*x + 1))/(5*x + 3))
+ 2343*sqrt(11)*sqrt(3)*(15*x^2 + 19*x + 6)*log((sqrt(7)*(3*x - 5
) + 7*sqrt(3)*sqrt(-2*x + 1))/(3*x + 2)) - sqrt(11)*sqrt(7)*(1020
*x + 647)*sqrt(-2*x + 1))/(15*x^2 + 19*x + 6)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(2+3*x)**2/(3+5*x)**2/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.215047, size = 157, normalized size = 1.48

$$-\frac{325}{121}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{213}{49}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{4\left(510(-2x+1)^{\frac{3}{2}}-1157\sqrt{-2x+1}\right)}{77\left(15(2x-1)^2+136x+9\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^2*(3*x + 2)^2*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] -325/121*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sq
rt(55) + 5*sqrt(-2*x + 1))) + 213/49*sqrt(21)*ln(1/2*abs(-2*sqrt(
21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 4/77*(51
0*(-2*x + 1)^(3/2) - 1157*sqrt(-2*x + 1))/(15*(2*x - 1)^2 + 136*x
 + 9)
```

3.2039 $\int \frac{1}{\sqrt{1-2x}(2+3x)^3(3+5x)^2}\,dx$

Optimal. Leaf size=133

$$-\frac{35845\sqrt{1-2x}}{1078(5x+3)}+\frac{162\sqrt{1-2x}}{49(3x+2)(5x+3)}+\frac{3\sqrt{1-2x}}{14(3x+2)^2(5x+3)}-\frac{22479}{49}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+\frac{4900}{11}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (-35845*Sqrt[1 - 2*x])/(1078*(3 + 5*x)) + (3*Sqrt[1 - 2*x])/(14*(
2 + 3*x)^2*(3 + 5*x)) + (162*Sqrt[1 - 2*x])/(49*(2 + 3*x)*(3 + 5*
x)) - (22479*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/49 + (49
00*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/11
```

Rubi [A] time = 0.262432, antiderivative size = 133, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$-\frac{35845\sqrt{1-2x}}{1078(5x+3)}+\frac{162\sqrt{1-2x}}{49(3x+2)(5x+3)}+\frac{3\sqrt{1-2x}}{14(3x+2)^2(5x+3)}-\frac{22479}{49}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+\frac{4900}{11}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 - 2*x]*(2 + 3*x)^3*(3 + 5*x)^2),x]
```

```
[Out] (-35845*Sqrt[1 - 2*x])/(1078*(3 + 5*x)) + (3*Sqrt[1 - 2*x])/(14*(
2 + 3*x)^2*(3 + 5*x)) + (162*Sqrt[1 - 2*x])/(49*(2 + 3*x)*(3 + 5*
x)) - (22479*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/49 + (49
00*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/11
```

Rubi in Sympy [A] time = 27.8159, size = 107, normalized size = 0.8

$$-\frac{21507\sqrt{-2x+1}}{1078\,(3x+2)}-\frac{309\sqrt{-2x+1}}{154\,(3x+2)^2}-\frac{5\sqrt{-2x+1}}{11\,(3x+2)^2\,(5x+3)}-\frac{22479\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{343}+\frac{4900\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{121}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(2+3*x)**3/(3+5*x)**2/(1-2*x)**(1/2),x)
```

```
[Out] -21507*sqrt(-2*x + 1)/(1078*(3*x + 2)) - 309*sqrt(-2*x + 1)/(154*
(3*x + 2)**2) - 5*sqrt(-2*x + 1)/(11*(3*x + 2)**2*(5*x + 3)) - 22
479*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/343 + 4900*sqrt(55)
*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/121
```

Mathematica [A] time = 0.190927, size = 96, normalized size = 0.72

$$-\frac{\sqrt{1-2x}\left(322605x^2+419448x+136021\right)}{1078(3x+2)^2(5x+3)}-\frac{22479}{49}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+\frac{4900}{11}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 - 2*x]*(2 + 3*x)^3*(3 + 5*x)^2),x]
```

```
[Out] -(Sqrt[1 - 2*x]*(136021 + 419448*x + 322605*x^2))/(1078*(2 + 3*x)
^2*(3 + 5*x)) - (22479*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]]
)/49 + (4900*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/11
```

Maple [A] time = 0.02, size = 82, normalized size = 0.6

$$486 \frac{1}{(-4-6x)^2}\left(\frac{143\,(1-2x)^{3/2}}{882}-\frac{145\sqrt{1-2x}}{378}\right)-\frac{22479\sqrt{21}}{343}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)+\frac{50}{11}\sqrt{1-2x}\left(-\frac{6}{5}-2x\right)^{-1}+\frac{4900\sqrt{55}}{121}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(2+3*x)^3/(3+5*x)^2/(1-2*x)^(1/2),x)
```

```
[Out] 486*(143/882*(1-2*x)^(3/2)-145/378*(1-2*x)^(1/2))/(-4-6*x)^2-2247
9/343*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)+50/11*(1-2*x)^
(1/2)/(-6/5-2*x)+4900/121*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55
^(1/2)
```

Maxima [A] time = 1.49444, size = 173, normalized size = 1.3

$$-\frac{2450}{121}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{22479}{686}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{322605\,(-2x+1)^{\frac{5}{2}}-1484106\,(-2x+1)^{\frac{3}{2}}+1705585\sqrt{-2x+1}}{539\left(45\,(2x-1)^3+309\,(2x-1)^2+1414x-168\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^2*(3*x + 2)^3*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] -2450/121*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) +
 5*sqrt(-2*x + 1))) + 22479/686*sqrt(21)*log(-(sqrt(21) - 3*sqrt(
-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 1/539*(322605*(-2*x +
 1)^(5/2) - 1484106*(-2*x + 1)^(3/2) + 1705585*sqrt(-2*x + 1))/(4
5*(2*x - 1)^3 + 309*(2*x - 1)^2 + 1414*x - 168)
```

Fricas [A] time = 0.220337, size = 215, normalized size = 1.62

$$\frac{\sqrt{11}\sqrt{7}\left(240100\sqrt{7}\sqrt{5}\left(45x^3+87x^2+56x+12\right)\log\left(\frac{\sqrt{11}(5x-8)-11\sqrt{5}\sqrt{-2x+1}}{5x+3}\right)+247269\sqrt{11}\sqrt{3}\left(45x^3+87x^2+56x+12\right)\mathrm{lo}\right.}{83006\left(45x^3+87x^2+56x+12\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^2*(3*x + 2)^3*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] 1/83006*sqrt(11)*sqrt(7)*(240100*sqrt(7)*sqrt(5)*(45*x^3 + 87*x^2
 + 56*x + 12)*log((sqrt(11)*(5*x - 8) - 11*sqrt(5)*sqrt(-2*x + 1)
)/(5*x + 3)) + 247269*sqrt(11)*sqrt(3)*(45*x^3 + 87*x^2 + 56*x +
12)*log((sqrt(7)*(3*x - 5) + 7*sqrt(3)*sqrt(-2*x + 1))/(3*x + 2))
 - sqrt(11)*sqrt(7)*(322605*x^2 + 419448*x + 136021)*sqrt(-2*x +
1))/(45*x^3 + 87*x^2 + 56*x + 12)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(2+3*x)**3/(3+5*x)**2/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.220785, size = 166, normalized size = 1.25

$$-\frac{2450}{121}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{22479}{686}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{125\sqrt{-2x+1}}{11(5x+3)}+\frac{9\left(429(-2x+1)^{\frac{3}{2}}-1015\sqrt{-2x+1}\right)}{196(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^2*(3*x + 2)^3*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] -2450/121*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(s
qrt(55) + 5*sqrt(-2*x + 1))) + 22479/686*sqrt(21)*ln(1/2*abs(-2*s
qrt(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 125/
11*sqrt(-2*x + 1)/(5*x + 3) + 9/196*(429*(-2*x + 1)^(3/2) - 1015*
sqrt(-2*x + 1))/(3*x + 2)^2
```

3.2040 $\int \frac{1}{\sqrt{1-2x}(2+3x)^4(3+5x)^2} dx$

Optimal. Leaf size=160

$$-\frac{1676975\sqrt{1-2x}}{7546(5x+3)}+\frac{7585\sqrt{1-2x}}{343(3x+2)(5x+3)}+\frac{145\sqrt{1-2x}}{98(3x+2)^2(5x+3)}+\frac{\sqrt{1-2x}}{7(3x+2)^3(5x+3)}-\frac{1051695}{343}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+\frac{32750}{11}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (-1676975*Sqrt[1 - 2*x])/(7546*(3 + 5*x)) + Sqrt[1 - 2*x]/(7*(2 +
 3*x)^3*(3 + 5*x)) + (145*Sqrt[1 - 2*x])/(98*(2 + 3*x)^2*(3 + 5*x
)) + (7585*Sqrt[1 - 2*x])/(343*(2 + 3*x)*(3 + 5*x)) - (1051695*Sq
rt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/343 + (32750*Sqrt[5/11]
*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/11
```

Rubi [A] time = 0.331328, antiderivative size = 160, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.208$

$$-\frac{1676975\sqrt{1-2x}}{7546(5x+3)}+\frac{7585\sqrt{1-2x}}{343(3x+2)(5x+3)}+\frac{145\sqrt{1-2x}}{98(3x+2)^2(5x+3)}+\frac{\sqrt{1-2x}}{7(3x+2)^3(5x+3)}-\frac{1051695}{343}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+\frac{32750}{11}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 - 2*x]*(2 + 3*x)^4*(3 + 5*x)^2),x]
```

```
[Out] (-1676975*Sqrt[1 - 2*x])/(7546*(3 + 5*x)) + Sqrt[1 - 2*x]/(7*(2 +
 3*x)^3*(3 + 5*x)) + (145*Sqrt[1 - 2*x])/(98*(2 + 3*x)^2*(3 + 5*x
)) + (7585*Sqrt[1 - 2*x])/(343*(2 + 3*x)*(3 + 5*x)) - (1051695*Sq
rt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/343 + (32750*Sqrt[5/11]
*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/11
```

Rubi in Sympy [A] time = 36.2403, size = 126, normalized size = 0.79

$$-\frac{1006185\sqrt{-2x+1}}{7546\,(3x+2)}-\frac{14445\sqrt{-2x+1}}{1078\,(3x+2)^2}-\frac{138\sqrt{-2x+1}}{77\,(3x+2)^3}-\frac{5\sqrt{-2x+1}}{11\,(3x+2)^3\,(5x+3)}-\frac{1051695\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{2401}+\frac{32750\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{121}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(2+3*x)**4/(3+5*x)**2/(1-2*x)**(1/2),x)
```

```
[Out] -1006185*sqrt(-2*x + 1)/(7546*(3*x + 2)) - 14445*sqrt(-2*x + 1)/(
1078*(3*x + 2)**2) - 138*sqrt(-2*x + 1)/(77*(3*x + 2)**3) - 5*sqr
t(-2*x + 1)/(11*(3*x + 2)**3*(5*x + 3)) - 1051695*sqrt(21)*atanh(
sqrt(21)*sqrt(-2*x + 1)/7)/2401 + 32750*sqrt(55)*atanh(sqrt(55)*s
qrt(-2*x + 1)/11)/121
```

Mathematica [A] time = 0.164622, size = 101, normalized size = 0.63

$$-\frac{\sqrt{1-2x}\left(45278325x^3+89054820x^2+58335165x+12724912\right)}{7546(3x+2)^3(5x+3)}-\frac{1051695}{343}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+\frac{32750}{11}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 - 2*x]*(2 + 3*x)^4*(3 + 5*x)^2),x]
```

```
[Out] -(Sqrt[1 - 2*x]*(12724912 + 58335165*x + 89054820*x^2 + 45278325*
x^3))/(7546*(2 + 3*x)^3*(3 + 5*x)) - (1051695*Sqrt[3/7]*ArcTanh[S
qrt[3/7]*Sqrt[1 - 2*x]])/343 + (32750*Sqrt[5/11]*ArcTanh[Sqrt[5/1
1]*Sqrt[1 - 2*x]])/11
```

Maple [A] time = 0.021, size = 91, normalized size = 0.6

$$972\,\frac{1}{(-4-6\,x)^3}\left(\frac{7565\,(1-2\,x)^{5/2}}{4116}-\frac{11455\,(1-2\,x)^{3/2}}{1323}+\frac{7711\,\sqrt{1-2\,x}}{756}\right)-\frac{1051695\,\sqrt{21}}{2401}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)+\frac{250}{11}\sqrt{1-2\,x}\left(-\frac{6}{5}-2\,x\right)^{-1}+\frac{32750\,\sqrt{55}}{121}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(2+3*x)^4/(3+5*x)^2/(1-2*x)^(1/2),x)
```

```
[Out] 972*(7565/4116*(1-2*x)^(5/2)-11455/1323*(1-2*x)^(3/2)+7711/756*(1
-2*x)^(1/2))/(-4-6*x)^3-1051695/2401*arctanh(1/7*21^(1/2)*(1-2*x)
^(1/2))*21^(1/2)+250/11*(1-2*x)^(1/2)/(-6/5-2*x)+32750/121*arctan
h(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.50284, size = 197, normalized size = 1.23

$$-\frac{16375}{121}\,\sqrt{55}\log\left(-\frac{\sqrt{55}-5\,\sqrt{-2\,x+1}}{\sqrt{55}+5\,\sqrt{-2\,x+1}}\right)+\frac{1051695}{4802}\,\sqrt{21}\log\left(-\frac{\sqrt{21}-3\,\sqrt{-2\,x+1}}{\sqrt{21}+3\,\sqrt{-2\,x+1}}\right)+\frac{45278325\,(-2\,x+1)^{\frac{7}{2}}-313944615\,(-2\,x+1)^{\frac{5}{2}}+725394915\,(-2\,x+1)^{\frac{3}{2}}-558527921\,\sqrt{-2\,x+1}}{3773\,\left(135\,(2\,x-1)^4+1242\,(2\,x-1)^3+4284\,(2\,x-1)^2+13132\,x-2793\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^2*(3*x + 2)^4*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] -16375/121*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55)
+ 5*sqrt(-2*x + 1))) + 1051695/4802*sqrt(21)*log(-(sqrt(21) - 3*s
qrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 1/3773*(45278325*
(-2*x + 1)^(7/2) - 313944615*(-2*x + 1)^(5/2) + 725394915*(-2*x +
 1)^(3/2) - 558527921*sqrt(-2*x + 1))/(135*(2*x - 1)^4 + 1242*(2*
x - 1)^3 + 4284*(2*x - 1)^2 + 13132*x - 2793)
```

Fricas [A] time = 0.220915, size = 242, normalized size = 1.51

$$\frac{\sqrt{11}\sqrt{7}\left(11233250\,\sqrt{7}\sqrt{5}\left(135\,x^4+351\,x^3+342\,x^2+148\,x+24\right)\log\left(\frac{\sqrt{11}(5\,x-8)-11\,\sqrt{5}\sqrt{-2\,x+1}}{5\,x+3}\right)+11568645\,\sqrt{11}\sqrt{3}\left(135\,x^4+35\right.}{581042\,(135\,x^4+35}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^2*(3*x + 2)^4*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] 1/581042*sqrt(11)*sqrt(7)*(11233250*sqrt(7)*sqrt(5)*(135*x^4 + 35
1*x^3 + 342*x^2 + 148*x + 24)*log((sqrt(11)*(5*x - 8) - 11*sqrt(5
)*sqrt(-2*x + 1))/(5*x + 3)) + 11568645*sqrt(11)*sqrt(3)*(135*x^4
 + 351*x^3 + 342*x^2 + 148*x + 24)*log((sqrt(7)*(3*x - 5) + 7*sqr
t(3)*sqrt(-2*x + 1))/(3*x + 2)) - sqrt(11)*sqrt(7)*(45278325*x^3
+ 89054820*x^2 + 58335165*x + 12724912)*sqrt(-2*x + 1))/(135*x^4
+ 351*x^3 + 342*x^2 + 148*x + 24)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(2+3*x)**4/(3+5*x)**2/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.220194, size = 188, normalized size = 1.18

$$-\frac{16375}{121}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{1051695}{4802}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{625\sqrt{-2x+1}}{11(5x+3)}-\frac{9\left(68085(2x-1)^2\sqrt{-2x+1}-320740(-2x+1)^{\frac{3}{2}}+377839\sqrt{-2x+1}\right)}{2744(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^2*(3*x + 2)^4*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] -16375/121*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(
sqrt(55) + 5*sqrt(-2*x + 1))) + 1051695/4802*sqrt(21)*ln(1/2*abs(
-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) -
625/11*sqrt(-2*x + 1)/(5*x + 3) - 9/2744*(68085*(2*x - 1)^2*sqrt(
-2*x + 1) - 320740*(-2*x + 1)^(3/2) + 377839*sqrt(-2*x + 1))/(3*x
 + 2)^3
```

3.2041 $\int \frac{(2+3x)^6}{\sqrt{1-2x}(3+5x)^3}\,dx$

Optimal. Leaf size=140

$$-\frac{\sqrt{1-2x}(3x+2)^5}{110(5x+3)^2}-\frac{117\sqrt{1-2x}(3x+2)^4}{3025(5x+3)}-\frac{927\sqrt{1-2x}(3x+2)^3}{211750}-\frac{56556\sqrt{1-2x}(3x+2)^2}{378125}-\frac{9\sqrt{1-2x}(934875x+2815648)}{3781250}-\frac{33069\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1890625\sqrt{55}}$$

```
[Out] (-56556*Sqrt[1 - 2*x]*(2 + 3*x)^2)/378125 - (927*Sqrt[1 - 2*x]*(2
 + 3*x)^3)/211750 - (Sqrt[1 - 2*x]*(2 + 3*x)^5)/(110*(3 + 5*x)^2)
 - (117*Sqrt[1 - 2*x]*(2 + 3*x)^4)/(3025*(3 + 5*x)) - (9*Sqrt[1 -
 2*x]*(2815648 + 934875*x))/3781250 - (33069*ArcTanh[Sqrt[5/11]*S
qrt[1 - 2*x]])/(1890625*Sqrt[55])
```

Rubi [A] time = 0.283717, antiderivative size = 140, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$-\frac{\sqrt{1-2x}(3x+2)^5}{110(5x+3)^2}-\frac{117\sqrt{1-2x}(3x+2)^4}{3025(5x+3)}-\frac{927\sqrt{1-2x}(3x+2)^3}{211750}-\frac{56556\sqrt{1-2x}(3x+2)^2}{378125}-\frac{9\sqrt{1-2x}(934875x+2815648)}{3781250}-\frac{33069\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1890625\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^6/(Sqrt[1 - 2*x]*(3 + 5*x)^3),x]
```


```
[Out] (-56556*Sqrt[1 - 2*x]*(2 + 3*x)^2)/378125 - (927*Sqrt[1 - 2*x]*(2
 + 3*x)^3)/211750 - (Sqrt[1 - 2*x]*(2 + 3*x)^5)/(110*(3 + 5*x)^2)
 - (117*Sqrt[1 - 2*x]*(2 + 3*x)^4)/(3025*(3 + 5*x)) - (9*Sqrt[1 -
 2*x]*(2815648 + 934875*x))/3781250 - (33069*ArcTanh[Sqrt[5/11]*S
qrt[1 - 2*x]])/(1890625*Sqrt[55])
```

Rubi in Sympy [A] time = 33.1343, size = 124, normalized size = 0.89

$$-\frac{\sqrt{-2x+1}\,(3x+2)^5}{110\,(5x+3)^2}-\frac{117\sqrt{-2x+1}\,(3x+2)^4}{3025\,(5x+3)}-\frac{927\sqrt{-2x+1}\,(3x+2)^3}{211750}-\frac{56556\sqrt{-2x+1}\,(3x+2)^2}{378125}-\frac{\sqrt{-2x+1}\,(883456875x+2660787360)}{397031250}-\frac{33069\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{103984375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**6/(3+5*x)**3/(1-2*x)**(1/2),x)
```

```
[Out] -sqrt(-2*x + 1)*(3*x + 2)**5/(110*(5*x + 3)**2) - 117*sqrt(-2*x +
 1)*(3*x + 2)**4/(3025*(5*x + 3)) - 927*sqrt(-2*x + 1)*(3*x + 2)*
*3/211750 - 56556*sqrt(-2*x + 1)*(3*x + 2)**2/378125 - sqrt(-2*x
+ 1)*(883456875*x + 2660787360)/397031250 - 33069*sqrt(55)*atanh(
sqrt(55)*sqrt(-2*x + 1)/11)/103984375
```

Mathematica [A] time = 0.14224, size = 73, normalized size = 0.52

$$-\frac{\frac{55\sqrt{1-2x}\left(551306250x^5+2690374500x^4+6078090150x^3+9876010320x^2+7254126105x+1804176536\right)}{(5x+3)^2}-462966\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1455781250}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^6/(Sqrt[1 - 2*x]*(3 + 5*x)^3),x]
```

```
[Out] ((-55*Sqrt[1 - 2*x]*(1804176536 + 7254126105*x + 9876010320*x^2 +
 6078090150*x^3 + 2690374500*x^4 + 551306250*x^5))/(3 + 5*x)^2 -
462966*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/1455781250
```

Maple [A] time = 0.017, size = 84, normalized size = 0.6

$$\frac{729}{7000}(1-2x)^{\frac{7}{2}}-\frac{26973}{25000}(1-2x)^{\frac{5}{2}}+\frac{111213}{25000}(1-2x)^{\frac{3}{2}}-\frac{276183}{25000}\sqrt{1-2x}+\frac{2}{125(-6-10x)^2}\left(\frac{399}{6050}(1-2x)^{\frac{3}{2}}-\frac{401}{2750}\sqrt{1-2x}\right)-\frac{33069\sqrt{55}}{103984375}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^6/(3+5*x)^3/(1-2*x)^(1/2),x)
```

```
[Out] 729/7000*(1-2*x)^(7/2)-26973/25000*(1-2*x)^(5/2)+111213/25000*(1-
2*x)^(3/2)-276183/25000*(1-2*x)^(1/2)+2/125*(399/6050*(1-2*x)^(3/
2)-401/2750*(1-2*x)^(1/2))/(-6-10*x)^2-33069/103984375*arctanh(1/
11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.50547, size = 149, normalized size = 1.06

$$\frac{729}{7000}(-2x+1)^{\frac{7}{2}}-\frac{26973}{25000}(-2x+1)^{\frac{5}{2}}+\frac{111213}{25000}(-2x+1)^{\frac{3}{2}}+\frac{33069}{207968750}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{276183}{25000}\sqrt{-2x+1}+\frac{1995(-2x+1)^{\frac{3}{2}}-4411\sqrt{-2x+1}}{1890625\left(25(2x-1)^2+220x+11\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^6/((5*x + 3)^3*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 729/7000*(-2*x + 1)^(7/2) - 26973/25000*(-2*x + 1)^(5/2) + 111213
/25000*(-2*x + 1)^(3/2) + 33069/207968750*sqrt(55)*log(-(sqrt(55)
 - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) - 276183/2500
0*sqrt(-2*x + 1) + 1/1890625*(1995*(-2*x + 1)^(3/2) - 4411*sqrt(-
2*x + 1))/(25*(2*x - 1)^2 + 220*x + 11)
```

Fricas [A] time = 0.218382, size = 127, normalized size = 0.91

$$-\frac{\sqrt{55}\left(\sqrt{55}\left(551306250\,x^5+2690374500\,x^4+6078090150\,x^3+9876010320\,x^2+7254126105\,x+1804176536\right)\sqrt{-2x+1}-2\right.}{1455781250\left(25x^2+30x+9\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^6/((5*x + 3)^3*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/1455781250*sqrt(55)*(sqrt(55)*(551306250*x^5 + 2690374500*x^4
+ 6078090150*x^3 + 9876010320*x^2 + 7254126105*x + 1804176536)*sq
rt(-2*x + 1) - 231483*(25*x^2 + 30*x + 9)*log((sqrt(55)*(5*x - 8)
 + 55*sqrt(-2*x + 1))/(5*x + 3)))/(25*x^2 + 30*x + 9)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**6/(3+5*x)**3/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.217377, size = 159, normalized size = 1.14

$$-\frac{729}{7000}\,(2\,x-1)^{3}\sqrt{-2\,x+1}-\frac{26973}{25000}\,(2\,x-1)^{2}\sqrt{-2\,x+1}+\frac{111213}{25000}\,(-2\,x+1)^{\frac{3}{2}}+\frac{33069}{207968750}\,\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)-\frac{276183}{25000}\,\sqrt{-2\,x+1}+\frac{1995\,(-2\,x+1)^{\frac{3}{2}}-4411\,\sqrt{-2\,x+1}}{7562500\,(5\,x+3)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^6/((5*x + 3)^3*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] -729/7000*(2*x - 1)^3*sqrt(-2*x + 1) - 26973/25000*(2*x - 1)^2*sq
rt(-2*x + 1) + 111213/25000*(-2*x + 1)^(3/2) + 33069/207968750*sq
rt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(55) + 5*
sqrt(-2*x + 1))) - 276183/25000*sqrt(-2*x + 1) + 1/7562500*(1995*
(-2*x + 1)^(3/2) - 4411*sqrt(-2*x + 1))/(5*x + 3)^2
```

3.2042 $\int \frac{(2+3x)^5}{\sqrt{1-2x}(3+5x)^3} dx$

Optimal. Leaf size=120

$$-\frac{\sqrt{1-2x}(3x+2)^4}{110(5x+3)^2}-\frac{201\sqrt{1-2x}(3x+2)^3}{6050(5x+3)}-\frac{1512\sqrt{1-2x}(3x+2)^2}{75625}-\frac{189\sqrt{1-2x}(2875x+8976)}{756250}-\frac{22113\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{378125\sqrt{55}}$$

```
[Out] (-1512*Sqrt[1 - 2*x]*(2 + 3*x)^2)/75625 - (Sqrt[1 - 2*x]*(2 + 3*x
)^4)/(110*(3 + 5*x)^2) - (201*Sqrt[1 - 2*x]*(2 + 3*x)^3)/(6050*(3
 + 5*x)) - (189*Sqrt[1 - 2*x]*(8976 + 2875*x))/756250 - (22113*Ar
cTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(378125*Sqrt[55])
```

Rubi [A] time = 0.222784, antiderivative size = 120, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$-\frac{\sqrt{1-2x}(3x+2)^4}{110(5x+3)^2}-\frac{201\sqrt{1-2x}(3x+2)^3}{6050(5x+3)}-\frac{1512\sqrt{1-2x}(3x+2)^2}{75625}-\frac{189\sqrt{1-2x}(2875x+8976)}{756250}-\frac{22113\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{378125\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^5/(Sqrt[1 - 2*x]*(3 + 5*x)^3),x]
```

```
[Out] (-1512*Sqrt[1 - 2*x]*(2 + 3*x)^2)/75625 - (Sqrt[1 - 2*x]*(2 + 3*x
)^4)/(110*(3 + 5*x)^2) - (201*Sqrt[1 - 2*x]*(2 + 3*x)^3)/(6050*(3
 + 5*x)) - (189*Sqrt[1 - 2*x]*(8976 + 2875*x))/756250 - (22113*Ar
cTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(378125*Sqrt[55])
```

Rubi in Sympy [A] time = 26.118, size = 105, normalized size = 0.88

$$-\frac{\sqrt{-2x+1}\,(3x+2)^4}{110\,(5x+3)^2}-\frac{201\sqrt{-2x+1}\,(3x+2)^3}{6050\,(5x+3)}-\frac{1512\sqrt{-2x+1}\,(3x+2)^2}{75625}-\frac{\sqrt{-2x+1}\,(8150625x+25446960)}{11343750}-\frac{22113\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{20796875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**5/(3+5*x)**3/(1-2*x)**(1/2),x)
```

```
[Out] -sqrt(-2*x + 1)*(3*x + 2)**4/(110*(5*x + 3)**2) - 201*sqrt(-2*x +
 1)*(3*x + 2)**3/(6050*(5*x + 3)) - 1512*sqrt(-2*x + 1)*(3*x + 2)
**2/75625 - sqrt(-2*x + 1)*(8150625*x + 25446960)/11343750 - 2211
3*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/20796875
```

Mathematica [A] time = 0.124935, size = 68, normalized size = 0.57

$$\frac{-\frac{55\sqrt{1-2x}(7350750x^4+32506650x^3+76970520x^2+63610155x+16525496)}{(5x+3)^2}-44226\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{41593750}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^5/(Sqrt[1 - 2*x]*(3 + 5*x)^3),x]
```

```
[Out] ((-55*Sqrt[1 - 2*x]*(16525496 + 63610155*x + 76970520*x^2 + 32506
650*x^3 + 7350750*x^4))/(3 + 5*x)^2 - 44226*Sqrt[55]*ArcTanh[Sqrt
[5/11]*Sqrt[1 - 2*x]])/41593750
```

Maple [A] time = 0.019, size = 75, normalized size = 0.6

$$-\frac{243}{2500}(1-2x)^{\frac{5}{2}}+\frac{513}{625}(1-2x)^{\frac{3}{2}}-\frac{39393}{12500}\sqrt{1-2x}+\frac{4}{125(-6-10x)^2}\left(\frac{333}{2420}(1-2x)^{\frac{3}{2}}-\frac{67}{220}\sqrt{1-2x}\right)-\frac{22113\sqrt{55}}{20796875}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^5/(3+5*x)^3/(1-2*x)^(1/2),x)
```

```
[Out] -243/2500*(1-2*x)^(5/2)+513/625*(1-2*x)^(3/2)-39393/12500*(1-2*x)
^(1/2)+4/125*(333/2420*(1-2*x)^(3/2)-67/220*(1-2*x)^(1/2))/(-6-10
*x)^2-22113/20796875*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2
)
```

Maxima [A] time = 1.50301, size = 136, normalized size = 1.13

$$-\frac{243}{2500}(-2x+1)^{\frac{5}{2}}+\frac{513}{625}(-2x+1)^{\frac{3}{2}}+\frac{22113}{41593750}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{39393}{12500}\sqrt{-2x+1}+\frac{333(-2x+1)^{\frac{3}{2}}-737\sqrt{-2x+1}}{75625\left(25(2x-1)^2+220x+11\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/((5*x + 3)^3*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] -243/2500*(-2*x + 1)^(5/2) + 513/625*(-2*x + 1)^(3/2) + 22113/415
93750*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*s
qrt(-2*x + 1))) - 39393/12500*sqrt(-2*x + 1) + 1/75625*(333*(-2*x
 + 1)^(3/2) - 737*sqrt(-2*x + 1))/(25*(2*x - 1)^2 + 220*x + 11)
```

Fricas [A] time = 0.222752, size = 120, normalized size = 1.

$$-\frac{\sqrt{55}\left(\sqrt{55}\left(7350750x^4+32506650x^3+76970520x^2+63610155x+16525496\right)\sqrt{-2x+1}-22113\left(25x^2+30x+9\right)\log\left(\right.\right.}{41593750\left(25x^2+30x+9\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/((5*x + 3)^3*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/41593750*sqrt(55)*(sqrt(55)*(7350750*x^4 + 32506650*x^3 + 7697
0520*x^2 + 63610155*x + 16525496)*sqrt(-2*x + 1) - 22113*(25*x^2
+ 30*x + 9)*log((sqrt(55)*(5*x - 8) + 55*sqrt(-2*x + 1))/(5*x + 3
)))/(25*x^2 + 30*x + 9)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((2+3*x)**5/(3+5*x)**3/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.226931, size = 138, normalized size = 1.15

$$-\frac{243}{2500}\,(2\,x-1)^{2}\sqrt{-2\,x+1}+\frac{513}{625}\,(-2\,x+1)^{\frac{3}{2}}+\frac{22113}{41593750}\,\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)-\frac{39393}{12500}\,\sqrt{-2\,x+1}+\frac{333\,(-2\,x+1)^{\frac{3}{2}}-737\,\sqrt{-2\,x+1}}{302500\,(5\,x+3)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/((5*x + 3)^3*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] -243/2500*(2*x - 1)^2*sqrt(-2*x + 1) + 513/625*(-2*x + 1)^(3/2) +
 22113/41593750*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x +
1))/(sqrt(55) + 5*sqrt(-2*x + 1))) - 39393/12500*sqrt(-2*x + 1) +
 1/302500*(333*(-2*x + 1)^(3/2) - 737*sqrt(-2*x + 1))/(5*x + 3)^2
```

3.2043 $\int \frac{(2+3x)^4}{\sqrt{1-2x}(3+5x)^3} dx$

Optimal. Leaf size=100

$$-\frac{\sqrt{1-2x}(3x+2)^3}{110(5x+3)^2}-\frac{84\sqrt{1-2x}(3x+2)^2}{3025(5x+3)}-\frac{63\sqrt{1-2x}(75x+352)}{30250}-\frac{2667\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{15125\sqrt{55}}$$

```
[Out] -(Sqrt[1 - 2*x]*(2 + 3*x)^3)/(110*(3 + 5*x)^2) - (84*Sqrt[1 - 2*x
]*(2 + 3*x)^2)/(3025*(3 + 5*x)) - (63*Sqrt[1 - 2*x]*(352 + 75*x))
/30250 - (2667*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(15125*Sqrt[55]
)
```

Rubi [A] time = 0.166347, antiderivative size = 100, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$-\frac{\sqrt{1-2x}(3x+2)^3}{110(5x+3)^2}-\frac{84\sqrt{1-2x}(3x+2)^2}{3025(5x+3)}-\frac{63\sqrt{1-2x}(75x+352)}{30250}-\frac{2667\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{15125\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^4/(Sqrt[1 - 2*x]*(3 + 5*x)^3),x]
```

```
[Out] -(Sqrt[1 - 2*x]*(2 + 3*x)^3)/(110*(3 + 5*x)^2) - (84*Sqrt[1 - 2*x
]*(2 + 3*x)^2)/(3025*(3 + 5*x)) - (63*Sqrt[1 - 2*x]*(352 + 75*x))
/30250 - (2667*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(15125*Sqrt[55]
)
```

Rubi in Sympy [A] time = 18.332, size = 87, normalized size = 0.87

$$-\frac{\sqrt{-2x+1}\,(3x+2)^3}{110\,(5x+3)^2}-\frac{84\sqrt{-2x+1}\,(3x+2)^2}{3025\,(5x+3)}-\frac{\sqrt{-2x+1}\,(70875x+332640)}{453750}-\frac{2667\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{831875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4/(3+5*x)**3/(1-2*x)**(1/2),x)
```

```
[Out] -sqrt(-2*x + 1)*(3*x + 2)**3/(110*(5*x + 3)**2) - 84*sqrt(-2*x +
1)*(3*x + 2)**2/(3025*(5*x + 3)) - sqrt(-2*x + 1)*(70875*x + 3326
40)/453750 - 2667*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/8318
75
```

Mathematica [A] time = 0.11369, size = 63, normalized size = 0.63

$$\frac{-\frac{55\sqrt{1-2x}(163350x^3+784080x^2+764745x+211864)}{(5x+3)^2}-5334\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1663750}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^4/(Sqrt[1 - 2*x]*(3 + 5*x)^3),x]
```

```
[Out] ((-55*Sqrt[1 - 2*x]*(211864 + 764745*x + 784080*x^2 + 163350*x^3)
)/(3 + 5*x)^2 - 5334*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/
```

```
1663750
```

Maple [A] time = 0.018, size = 66, normalized size = 0.7

$$\frac{27}{250}(1-2x)^{\frac{3}{2}}-\frac{1107}{1250}\sqrt{1-2x}+\frac{4}{25(-6-10x)^2}\left(\frac{267}{2420}(1-2x)^{\frac{3}{2}}-\frac{269}{1100}\sqrt{1-2x}\right) -\frac{2667\sqrt{55}}{831875}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4/(3+5*x)^3/(1-2*x)^(1/2),x)
```

```
[Out] 27/250*(1-2*x)^(3/2)-1107/1250*(1-2*x)^(1/2)+4/25*(267/2420*(1-2*
x)^(3/2)-269/1100*(1-2*x)^(1/2))/(-6-10*x)^2-2667/831875*arctanh(
1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.50245, size = 124, normalized size = 1.24

$$\frac{27}{250}(-2x+1)^{\frac{3}{2}}+\frac{2667}{1663750}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right) -\frac{1107}{1250}\sqrt{-2x+1}+\frac{1335(-2x+1)^{\frac{3}{2}}-2959\sqrt{-2x+1}}{75625\left(25(2x-1)^2+220x+11\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4/((5*x + 3)^3*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 27/250*(-2*x + 1)^(3/2) + 2667/1663750*sqrt(55)*log(-(sqrt(55) -
5*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) - 1107/1250*sqrt
(-2*x + 1) + 1/75625*(1335*(-2*x + 1)^(3/2) - 2959*sqrt(-2*x + 1)
)/(25*(2*x - 1)^2 + 220*x + 11)
```

Fricas [A] time = 0.248498, size = 113, normalized size = 1.13

$$-\frac{\sqrt{55}\left(\sqrt{55}\left(163350x^3+784080x^2+764745x+211864\right)\sqrt{-2x+1}-2667\left(25x^2+30x+9\right)\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{-2x+1}}{5x+3}\right)\right)}{1663750\left(25x^2+30x+9\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4/((5*x + 3)^3*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/1663750*sqrt(55)*(sqrt(55)*(163350*x^3 + 784080*x^2 + 764745*x
 + 211864)*sqrt(-2*x + 1) - 2667*(25*x^2 + 30*x + 9)*log((sqrt(55
)*(5*x - 8) + 55*sqrt(-2*x + 1))/(5*x + 3)))/(25*x^2 + 30*x + 9)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4/(3+5*x)**3/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.230878, size = 116, normalized size = 1.16

$$\frac{27}{250}\,(-2\,x+1)^{\frac{3}{2}}+\frac{2667}{1663750}\,\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\,\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)-\frac{1107}{1250}\,\sqrt{-2\,x+1}+\frac{1335\,(-2\,x+1)^{\frac{3}{2}}-2959\,\sqrt{-2\,x+1}}{302500\,(5\,x+3)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^4/((5*x + 3)^3*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 27/250*(-2*x + 1)^(3/2) + 2667/1663750*sqrt(55)*ln(1/2*abs(-2*sqr
t(55) + 10*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) - 1107/
1250*sqrt(-2*x + 1) + 1/302500*(1335*(-2*x + 1)^(3/2) - 2959*sqrt
(-2*x + 1))/(5*x + 3)^2
```

3.2044 $\int \frac{(2+3x)^3}{\sqrt{1-2x}(3+5x)^3} dx$

Optimal. Leaf size=80

$$-\frac{\sqrt{1-2x}(3x+2)^2}{110(5x+3)^2}-\frac{9\sqrt{1-2x}(715x+432)}{6050(5x+3)}-\frac{1347\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{3025\sqrt{55}}$$

```
[Out] -(Sqrt[1 - 2*x]*(2 + 3*x)^2)/(110*(3 + 5*x)^2) - (9*Sqrt[1 - 2*x]
*(432 + 715*x))/(6050*(3 + 5*x)) - (1347*ArcTanh[Sqrt[5/11]*Sqrt[
1 - 2*x]])/(3025*Sqrt[55])
```

Rubi [A] time = 0.111022, antiderivative size = 80, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$-\frac{\sqrt{1-2x}(3x+2)^2}{110(5x+3)^2}-\frac{9\sqrt{1-2x}(715x+432)}{6050(5x+3)}-\frac{1347\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{3025\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^3/(Sqrt[1 - 2*x]*(3 + 5*x)^3),x]
```

```
[Out] -(Sqrt[1 - 2*x]*(2 + 3*x)^2)/(110*(3 + 5*x)^2) - (9*Sqrt[1 - 2*x]
*(432 + 715*x))/(6050*(3 + 5*x)) - (1347*ArcTanh[Sqrt[5/11]*Sqrt[
1 - 2*x]])/(3025*Sqrt[55])
```

Rubi in Sympy [A] time = 12.6084, size = 68, normalized size = 0.85

$$-\frac{\sqrt{-2x+1}\,(3x+2)^2}{110\,(5x+3)^2}-\frac{\sqrt{-2x+1}\,(32175x+19440)}{30250\,(5x+3)}-\frac{1347\sqrt{55}\,\mathrm{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{166375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3/(3+5*x)**3/(1-2*x)**(1/2),x)
```

```
[Out] -sqrt(-2*x + 1)*(3*x + 2)**2/(110*(5*x + 3)**2) - sqrt(-2*x + 1)*
(32175*x + 19440)/(30250*(5*x + 3)) - 1347*sqrt(55)*atanh(sqrt(55
)*sqrt(-2*x + 1)/11)/166375
```

Mathematica [A] time = 0.102432, size = 58, normalized size = 0.72

$$\frac{-\frac{55\sqrt{1-2x}(32670x^2+39405x+11884)}{(5x+3)^2}-2694\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{332750}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^3/(Sqrt[1 - 2*x]*(3 + 5*x)^3),x]
```

```
[Out] ((-55*Sqrt[1 - 2*x]*(11884 + 39405*x + 32670*x^2))/(3 + 5*x)^2 -
2694*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/332750
```

Maple [A] time = 0.017, size = 57, normalized size = 0.7

$$-\frac{27}{125}\sqrt{1-2x}+\frac{2}{5\left(-6-10x\right)^{2}}\left(\frac{201}{1210}\left(1-2x\right)^{\frac{3}{2}}-\frac{203}{550}\sqrt{1-2x}\right)-\frac{1347\sqrt{55}}{166375}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3/(3+5*x)^3/(1-2*x)^(1/2),x)
```

```
[Out] -27/125*(1-2*x)^(1/2)+2/5*(201/1210*(1-2*x)^(3/2)-203/550*(1-2*x)
^(1/2))/(-6-10*x)^2-1347/166375*arctanh(1/11*55^(1/2)*(1-2*x)^(1/
2))*55^(1/2)
```

Maxima [A] time = 1.50548, size = 112, normalized size = 1.4

$$\frac{1347}{332750}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{27}{125}\sqrt{-2x+1}+\frac{1005\left(-2x+1\right)^{\frac{3}{2}}-2233\sqrt{-2x+1}}{15125\left(25\left(2x-1\right)^{2}+220x+11\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^3/((5*x + 3)^3*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 1347/332750*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55)
 + 5*sqrt(-2*x + 1))) - 27/125*sqrt(-2*x + 1) + 1/15125*(1005*(-2
*x + 1)^(3/2) - 2233*sqrt(-2*x + 1))/(25*(2*x - 1)^2 + 220*x + 11
)
```

Fricas [A] time = 0.243604, size = 107, normalized size = 1.34

$$-\frac{\sqrt{55}\left(\sqrt{55}\left(32670x^{2}+39405x+11884\right)\sqrt{-2x+1}-1347\left(25x^{2}+30x+9\right)\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{-2x+1}}{5x+3}\right)\right)}{332750\left(25x^{2}+30x+9\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^3/((5*x + 3)^3*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/332750*sqrt(55)*(sqrt(55)*(32670*x^2 + 39405*x + 11884)*sqrt(-
2*x + 1) - 1347*(25*x^2 + 30*x + 9)*log((sqrt(55)*(5*x - 8) + 55*
sqrt(-2*x + 1))/(5*x + 3)))/(25*x^2 + 30*x + 9)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3/(3+5*x)**3/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.228553, size = 104, normalized size = 1.3

$$\frac{1347}{332750}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{27}{125}\sqrt{-2x+1}+\frac{1005\left(-2x+1\right)^{\frac{3}{2}}-2233\sqrt{-2x+1}}{60500\left(5x+3\right)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3/((5*x + 3)^3*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 1347/332750*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/
(sqrt(55) + 5*sqrt(-2*x + 1))) - 27/125*sqrt(-2*x + 1) + 1/60500*
(1005*(-2*x + 1)^(3/2) - 2233*sqrt(-2*x + 1))/(5*x + 3)^2
```

3.2045 $\int \frac{(2+3x)^2}{\sqrt{1-2x}(3+5x)^3}\,dx$

Optimal. Leaf size=68

$$-\frac{27\sqrt{1-2x}}{1210(5x+3)}-\frac{\sqrt{1-2x}}{550(5x+3)^2}-\frac{2313\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{3025\sqrt{55}}$$

```
[Out] -Sqrt[1 - 2*x]/(550*(3 + 5*x)^2) - (27*Sqrt[1 - 2*x])/(1210*(3 +
5*x)) - (2313*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(3025*Sqrt[55])
```

Rubi [A] time = 0.0899744, antiderivative size = 68, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$-\frac{27\sqrt{1-2x}}{1210(5x+3)}-\frac{\sqrt{1-2x}}{550(5x+3)^2}-\frac{2313\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{3025\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^2/(Sqrt[1 - 2*x]*(3 + 5*x)^3),x]
```

```
[Out] -Sqrt[1 - 2*x]/(550*(3 + 5*x)^2) - (27*Sqrt[1 - 2*x])/(1210*(3 +
5*x)) - (2313*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(3025*Sqrt[55])
```

Rubi in Sympy [A] time = 8.41899, size = 58, normalized size = 0.85

$$-\frac{27\sqrt{-2x+1}}{1210\,(5x+3)}-\frac{\sqrt{-2x+1}}{550\,(5x+3)^2}-\frac{2313\sqrt{55}\,\mathrm{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{166375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2/(3+5*x)**3/(1-2*x)**(1/2),x)
```

```
[Out] -27*sqrt(-2*x + 1)/(1210*(5*x + 3)) - sqrt(-2*x + 1)/(550*(5*x +
3)**2) - 2313*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/166375
```

Mathematica [A] time = 0.0887703, size = 53, normalized size = 0.78

$$\frac{-\frac{55\sqrt{1-2x}(675x+416)}{(5x+3)^2}-4626\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{332750}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^2/(Sqrt[1 - 2*x]*(3 + 5*x)^3),x]
```

```
[Out] ((-55*Sqrt[1 - 2*x]*(416 + 675*x))/(3 + 5*x)^2 - 4626*Sqrt[55]*Ar
cTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/332750
```

Maple [A] time = 0.016, size = 48, normalized size = 0.7

$$50\,\frac{1}{(-6-10\,x)^2}\left(\frac{27\,(1-2\,x)^{3/2}}{6050}-\frac{137\,\sqrt{1-2\,x}}{13750}\right)-\frac{2313\,\sqrt{55}}{166375}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2/(3+5*x)^3/(1-2*x)^(1/2),x)
```

```
[Out] 50*(27/6050*(1-2*x)^(3/2)-137/13750*(1-2*x)^(1/2))/(-6-10*x)^2-23
13/166375*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.49961, size = 100, normalized size = 1.47

$$\frac{2313}{332750}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{675(-2x+1)^{\frac{3}{2}}-1507\sqrt{-2x+1}}{3025\left(25(2x-1)^2+220x+11\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2/((5*x + 3)^3*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 2313/332750*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55)
 + 5*sqrt(-2*x + 1))) + 1/3025*(675*(-2*x + 1)^(3/2) - 1507*sqrt(
-2*x + 1))/(25*(2*x - 1)^2 + 220*x + 11)
```

Fricas [A] time = 0.237017, size = 100, normalized size = 1.47

$$-\frac{\sqrt{55}\left(\sqrt{55}(675x+416)\sqrt{-2x+1}-2313\left(25x^2+30x+9\right)\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{-2x+1}}{5x+3}\right)\right)}{332750\left(25x^2+30x+9\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2/((5*x + 3)^3*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/332750*sqrt(55)*(sqrt(55)*(675*x + 416)*sqrt(-2*x + 1) - 2313*
(25*x^2 + 30*x + 9)*log((sqrt(55)*(5*x - 8) + 55*sqrt(-2*x + 1))/
(5*x + 3)))/(25*x^2 + 30*x + 9)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2/(3+5*x)**3/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.22575, size = 92, normalized size = 1.35

$$\frac{2313}{332750}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{675(-2x+1)^{\frac{3}{2}}-1507\sqrt{-2x+1}}{12100(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2/((5*x + 3)^3*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 2313/332750*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/
(sqrt(55) + 5*sqrt(-2*x + 1))) + 1/12100*(675*(-2*x + 1)^(3/2) -
1507*sqrt(-2*x + 1))/(5*x + 3)^2
```

3.2046 $\int \frac{2+3x}{\sqrt{1-2x}(3+5x)^3} \, dx$

Optimal. Leaf size=68

$$-\frac{69\sqrt{1-2x}}{1210(5x+3)}-\frac{\sqrt{1-2x}}{110(5x+3)^2}-\frac{69\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{605\sqrt{55}}$$

```
[Out] -Sqrt[1 - 2*x]/(110*(3 + 5*x)^2) - (69*Sqrt[1 - 2*x])/(1210*(3 + 
5*x)) - (69*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(605*Sqrt[55])
```

Rubi [A] time = 0.0714474, antiderivative size = 68, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{69\sqrt{1-2x}}{1210(5x+3)}-\frac{\sqrt{1-2x}}{110(5x+3)^2}-\frac{69\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{605\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)/(Sqrt[1 - 2*x]*(3 + 5*x)^3),x]
```

```
[Out] -Sqrt[1 - 2*x]/(110*(3 + 5*x)^2) - (69*Sqrt[1 - 2*x])/(1210*(3 + 
5*x)) - (69*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(605*Sqrt[55])
```

Rubi in Sympy [A] time = 6.99129, size = 58, normalized size = 0.85

$$-\frac{69\sqrt{-2x+1}}{1210\,(5x+3)}-\frac{\sqrt{-2x+1}}{110\,(5x+3)^2}-\frac{69\sqrt{55}\,\text{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{33275}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)/(3+5*x)**3/(1-2*x)**(1/2),x)
```

```
[Out] -69*sqrt(-2*x + 1)/(1210*(5*x + 3)) - sqrt(-2*x + 1)/(110*(5*x + 
3)**2) - 69*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/33275
```

Mathematica [A] time = 0.0982949, size = 53, normalized size = 0.78

$$-\frac{\sqrt{1-2x}(345x+218)}{1210(5x+3)^2}-\frac{69\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{605\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)/(Sqrt[1 - 2*x]*(3 + 5*x)^3),x]
```

```
[Out] -(Sqrt[1 - 2*x]*(218 + 345*x))/(1210*(3 + 5*x)^2) - (69*ArcTanh[S
qrt[5/11]*Sqrt[1 - 2*x]])/(605*Sqrt[55])
```

Maple [A] time = 0.013, size = 48, normalized size = 0.7

$$-100\,\frac{1}{(-6-10\,x)^2}\left(-\frac{69\,(1-2\,x)^{3/2}}{12100}+\frac{71\,\sqrt{1-2\,x}}{5500}\right)-\frac{69\,\sqrt{55}}{33275}\text{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)/(3+5*x)^3/(1-2*x)^(1/2),x)
```

```
[Out] -100*(-69/12100*(1-2*x)^(3/2)+71/5500*(1-2*x)^(1/2))/(-6-10*x)^2-
69/33275*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.50782, size = 100, normalized size = 1.47

$$\frac{69}{66550}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{345\,(-2x+1)^{\frac{3}{2}}-781\sqrt{-2x+1}}{605\left(25\,(2x-1)^2+220\,x+11\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)/((5*x + 3)^3*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 69/66550*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) +
5*sqrt(-2*x + 1))) + 1/605*(345*(-2*x + 1)^(3/2) - 781*sqrt(-2*x
+ 1))/(25*(2*x - 1)^2 + 220*x + 11)
```

Fricas [A] time = 0.226754, size = 100, normalized size = 1.47

$$-\frac{\sqrt{55}\left(\sqrt{55}(345\,x+218)\sqrt{-2x+1}-69\left(25\,x^2+30\,x+9\right)\log\left(\frac{\sqrt{55}(5\,x-8)+55\sqrt{-2\,x+1}}{5\,x+3}\right)\right)}{66550\,(25\,x^2+30\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)/((5*x + 3)^3*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/66550*sqrt(55)*(sqrt(55)*(345*x + 218)*sqrt(-2*x + 1) - 69*(25
*x^2 + 30*x + 9)*log((sqrt(55)*(5*x - 8) + 55*sqrt(-2*x + 1))/(5*
x + 3)))/(25*x^2 + 30*x + 9)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)/(3+5*x)**3/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.232515, size = 92, normalized size = 1.35

$$\frac{69}{66550}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{345\,(-2x+1)^{\frac{3}{2}}-781\sqrt{-2x+1}}{2420\,(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)/((5*x + 3)^3*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 69/66550*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sq
rt(55) + 5*sqrt(-2*x + 1))) + 1/2420*(345*(-2*x + 1)^(3/2) - 781*
sqrt(-2*x + 1))/(5*x + 3)^2
```

3.2047 $\int \frac{1}{\sqrt{1-2x}(3+5x)^3}\,dx$

Optimal. Leaf size=68

$$-\frac{3\sqrt{1-2x}}{242(5x+3)}-\frac{\sqrt{1-2x}}{22(5x+3)^2}-\frac{3\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{121\sqrt{55}}$$

```
[Out] -Sqrt[1 - 2*x]/(22*(3 + 5*x)^2) - (3*Sqrt[1 - 2*x])/(242*(3 + 5*x
)) - (3*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(121*Sqrt[55])
```

Rubi [A] time = 0.0598688, antiderivative size = 68, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 17, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.176

$$-\frac{3\sqrt{1-2x}}{242(5x+3)}-\frac{\sqrt{1-2x}}{22(5x+3)^2}-\frac{3\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{121\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 - 2*x]*(3 + 5*x)^3),x]
```

```
[Out] -Sqrt[1 - 2*x]/(22*(3 + 5*x)^2) - (3*Sqrt[1 - 2*x])/(242*(3 + 5*x
)) - (3*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(121*Sqrt[55])
```

Rubi in Sympy [A] time = 6.09774, size = 58, normalized size = 0.85

$$-\frac{3\sqrt{-2x+1}}{242\,(5x+3)}-\frac{\sqrt{-2x+1}}{22\,(5x+3)^2}-\frac{3\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{6655}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(3+5*x)**3/(1-2*x)**(1/2),x)
```

```
[Out] -3*sqrt(-2*x + 1)/(242*(5*x + 3)) - sqrt(-2*x + 1)/(22*(5*x + 3)*
*2) - 3*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/6655
```

Mathematica [A] time = 0.0775396, size = 53, normalized size = 0.78

$$-\frac{5\sqrt{1-2x}(3x+4)}{242(5x+3)^2}-\frac{3\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{121\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 - 2*x]*(3 + 5*x)^3),x]
```

```
[Out] (-5*Sqrt[1 - 2*x]*(4 + 3*x))/(242*(3 + 5*x)^2) - (3*ArcTanh[Sqrt[
5/11]*Sqrt[1 - 2*x]])/(121*Sqrt[55])
```

Maple [A] time = 0.009, size = 52, normalized size = 0.8

$$-\frac{2}{11\,(-6-10\,x)^2}\sqrt{1-2\,x}+\frac{3}{-726-1210\,x}\sqrt{1-2\,x}-\frac{3\,\sqrt{55}}{6655}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(3+5*x)^3/(1-2*x)^(1/2),x)
```

```
[Out] -2/11*(1-2*x)^(1/2)/(-6-10*x)^2+3/121*(1-2*x)^(1/2)/(-6-10*x)-3/6
655*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.51663, size = 100, normalized size = 1.47

$$\frac{3}{13310}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{5\left(3(-2x+1)^{\frac{3}{2}}-11\sqrt{-2x+1}\right)}{121\left(25(2x-1)^2+220x+11\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^3*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 3/13310*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5
*sqrt(-2*x + 1))) + 5/121*(3*(-2*x + 1)^(3/2) - 11*sqrt(-2*x + 1)
)/(25*(2*x - 1)^2 + 220*x + 11)
```

Fricas [A] time = 0.21916, size = 101, normalized size = 1.49

$$-\frac{\sqrt{55}\left(5\sqrt{55}(3x+4)\sqrt{-2x+1}-3\left(25x^2+30x+9\right)\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{-2x+1}}{5x+3}\right)\right)}{13310\left(25x^2+30x+9\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^3*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/13310*sqrt(55)*(5*sqrt(55)*(3*x + 4)*sqrt(-2*x + 1) - 3*(25*x^
2 + 30*x + 9)*log((sqrt(55)*(5*x - 8) + 55*sqrt(-2*x + 1))/(5*x +
 3)))/(25*x^2 + 30*x + 9)
```

Sympy [A] time = 5.10855, size = 233, normalized size = 3.43

$$\begin{cases} -\frac{3\sqrt{55}\operatorname{acosh}\left(\frac{\sqrt{110}}{10\sqrt{x+\frac{3}{5}}}\right)}{6655}+\frac{3\sqrt{2}}{1210\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}\sqrt{x+\frac{3}{5}}}-\frac{\sqrt{2}}{1100\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}-\frac{\sqrt{2}}{500\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)^{\frac{5}{2}}} & \text{for}\ \frac{11\left|\frac{1}{x+\frac{3}{5}}\right|}{10}>1 \\ \frac{3\sqrt{55}i\operatorname{asin}\left(\frac{\sqrt{110}}{10\sqrt{x+\frac{3}{5}}}\right)}{6655}-\frac{3\sqrt{2}i}{1210\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}\sqrt{x+\frac{3}{5}}}+\frac{\sqrt{2}i}{1100\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}+\frac{\sqrt{2}i}{500\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)^{\frac{5}{2}}} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(3+5*x)**3/(1-2*x)**(1/2),x)
```

```
[Out] Piecewise((-3*sqrt(55)*acosh(sqrt(110)/(10*sqrt(x + 3/5)))/6655 +
 3*sqrt(2)/(1210*sqrt(-1 + 11/(10*(x + 3/5)))*sqrt(x + 3/5)) - sq
rt(2)/(1100*sqrt(-1 + 11/(10*(x + 3/5)))*(x + 3/5)**(3/2)) - sqrt
(2)/(500*sqrt(-1 + 11/(10*(x + 3/5)))*(x + 3/5)**(5/2)), 11*Abs(1
/(x + 3/5))/10 > 1), (3*sqrt(55)*I*asin(sqrt(110)/(10*sqrt(x + 3/
5)))/6655 - 3*sqrt(2)*I/(1210*sqrt(1 - 11/(10*(x + 3/5)))*sqrt(x
+ 3/5)) + sqrt(2)*I/(1100*sqrt(1 - 11/(10*(x + 3/5)))*(x + 3/5)**
(3/2)) + sqrt(2)*I/(500*sqrt(1 - 11/(10*(x + 3/5)))*(x + 3/5)**(5
/2)), True))
```

GIAC/XCAS [A] time = 0.218386, size = 92, normalized size = 1.35

$$\frac{3}{13310}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{5\left(3\left(-2x+1\right)^{\frac{3}{2}}-11\sqrt{-2x+1}\right)}{484\left(5x+3\right)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^3*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 3/13310*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqr
t(55) + 5*sqrt(-2*x + 1))) + 5/484*(3*(-2*x + 1)^(3/2) - 11*sqrt(
-2*x + 1))/(5*x + 3)^2
```

3.2048 $\int \frac{1}{\sqrt{1-2x}(2+3x)(3+5x)^3} \, dx$

Optimal. Leaf size=97

$$\frac{315\sqrt{1-2x}}{242(5x+3)} - \frac{5\sqrt{1-2x}}{22(5x+3)^2} + 18\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right) - \frac{2115}{121}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (-5*Sqrt[1 - 2*x])/(22*(3 + 5*x)^2) + (315*Sqrt[1 - 2*x])/(242*(3
 + 5*x)) + 18*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]] - (2115*
Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/121
```

Rubi [A] time = 0.204904, antiderivative size = 97, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{315\sqrt{1-2x}}{242(5x+3)} - \frac{5\sqrt{1-2x}}{22(5x+3)^2} + 18\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right) - \frac{2115}{121}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 - 2*x]*(2 + 3*x)*(3 + 5*x)^3),x]
```

```
[Out] (-5*Sqrt[1 - 2*x])/(22*(3 + 5*x)^2) + (315*Sqrt[1 - 2*x])/(242*(3
 + 5*x)) + 18*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]] - (2115*
Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/121
```

Rubi in Sympy [A] time = 20.5248, size = 83, normalized size = 0.86

$$\frac{315\sqrt{-2x+1}}{242\,(5x+3)} - \frac{5\sqrt{-2x+1}}{22\,(5x+3)^2} + \frac{18\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{7} - \frac{2115\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{1331}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(2+3*x)/(3+5*x)**3/(1-2*x)**(1/2),x)
```

```
[Out] 315*sqrt(-2*x + 1)/(242*(5*x + 3)) - 5*sqrt(-2*x + 1)/(22*(5*x +
3)**2) + 18*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/7 - 2115*sq
rt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/1331
```

Mathematica [A] time = 0.233871, size = 81, normalized size = 0.84

$$18\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right) + \frac{5\left(\frac{11\sqrt{1-2x}(315x+178)}{(5x+3)^2} - 846\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)\right)}{2662}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 - 2*x]*(2 + 3*x)*(3 + 5*x)^3),x]
```

```
[Out] 18*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]] + (5*((11*Sqrt[1 -
2*x]*(178 + 315*x))/(3 + 5*x)^2 - 846*Sqrt[55]*ArcTanh[Sqrt[5/11]
*Sqrt[1 - 2*x]]))/2662
```

Maple [A] time = 0.018, size = 66, normalized size = 0.7

$$\frac{18\sqrt{21}}{7}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)+250\frac{1}{(-6-10x)^2}\left(-\frac{63\,(1-2x)^{3/2}}{1210}+\frac{61\sqrt{1-2x}}{550}\right)-\frac{2115\sqrt{55}}{1331}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(2+3*x)/(3+5*x)^3/(1-2*x)^(1/2),x)
```

```
[Out] 18/7*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)+250*(-63/1210*(
1-2*x)^(3/2)+61/550*(1-2*x)^(1/2))/(-6-10*x)^2-2115/1331*arctanh(
1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.4894, size = 149, normalized size = 1.54

$$\frac{2115}{2662}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{9}{7}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{5\left(315\,(-2x+1)^{\frac{3}{2}}-671\sqrt{-2x+1}\right)}{121\left(25\,(2x-1)^2+220x+11\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^3*(3*x + 2)*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 2115/2662*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) +
 5*sqrt(-2*x + 1))) - 9/7*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x +
 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 5/121*(315*(-2*x + 1)^(3/2)
 - 671*sqrt(-2*x + 1))/(25*(2*x - 1)^2 + 220*x + 11)
```

Fricas [A] time = 0.229124, size = 188, normalized size = 1.94

$$\frac{\sqrt{11}\sqrt{7}\left(2115\sqrt{7}\sqrt{5}\left(25x^2+30x+9\right)\log\left(\frac{\sqrt{11}(5x-8)+11\sqrt{5}\sqrt{-2x+1}}{5x+3}\right)+2178\sqrt{11}\sqrt{3}\left(25x^2+30x+9\right)\log\left(\frac{\sqrt{7}(3x-5)-7\sqrt{3}\sqrt{-2x+1}}{3x+2}\right.\right.}{18634\left(25x^2+30x+9\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^3*(3*x + 2)*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] 1/18634*sqrt(11)*sqrt(7)*(2115*sqrt(7)*sqrt(5)*(25*x^2 + 30*x + 9
)*log((sqrt(11)*(5*x - 8) + 11*sqrt(5)*sqrt(-2*x + 1))/(5*x + 3))
 + 2178*sqrt(11)*sqrt(3)*(25*x^2 + 30*x + 9)*log((sqrt(7)*(3*x -
5) - 7*sqrt(3)*sqrt(-2*x + 1))/(3*x + 2)) + 5*sqrt(11)*sqrt(7)*(3
15*x + 178)*sqrt(-2*x + 1))/(25*x^2 + 30*x + 9)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(2+3*x)/(3+5*x)**3/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.272268, size = 144, normalized size = 1.48

$$\frac{2115}{2662}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{9}{7}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{5\left(315(-2x+1)^{\frac{3}{2}}-671\sqrt{-2x+1}\right)}{484(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^3*(3*x + 2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 2115/2662*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(s
qrt(55) + 5*sqrt(-2*x + 1))) - 9/7*sqrt(21)*ln(1/2*abs(-2*sqrt(21
) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 5/484*(315
*(-2*x + 1)^(3/2) - 671*sqrt(-2*x + 1))/(5*x + 3)^2
```

3.2049 $\int \frac{1}{\sqrt{1-2x}(2+3x)^2(3+5x)^3}\,dx$

Optimal. Leaf size=126

$$\frac{33465\sqrt{1-2x}}{1694(5x+3)}-\frac{505\sqrt{1-2x}}{154(5x+3)^2}+\frac{3\sqrt{1-2x}}{7(3x+2)(5x+3)^2}+\frac{1908}{7}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{32025}{121}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (-505*Sqrt[1 - 2*x])/(154*(3 + 5*x)^2) + (3*Sqrt[1 - 2*x])/(7*(2
+ 3*x)*(3 + 5*x)^2) + (33465*Sqrt[1 - 2*x])/(1694*(3 + 5*x)) + (1
908*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/7 - (32025*Sqrt[5
/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/121
```

Rubi [A] time = 0.26613, antiderivative size = 126, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{33465\sqrt{1-2x}}{1694(5x+3)}-\frac{505\sqrt{1-2x}}{154(5x+3)^2}+\frac{3\sqrt{1-2x}}{7(3x+2)(5x+3)^2}+\frac{1908}{7}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{32025}{121}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 - 2*x]*(2 + 3*x)^2*(3 + 5*x)^3),x]
```

```
[Out] (-505*Sqrt[1 - 2*x])/(154*(3 + 5*x)^2) + (3*Sqrt[1 - 2*x])/(7*(2
+ 3*x)*(3 + 5*x)^2) + (33465*Sqrt[1 - 2*x])/(1694*(3 + 5*x)) + (1
908*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/7 - (32025*Sqrt[5
/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/121
```

Rubi in Sympy [A] time = 27.6392, size = 110, normalized size = 0.87

$$\frac{20079\sqrt{-2x+1}}{1694\,(3x+2)}+\frac{240\sqrt{-2x+1}}{121\,(3x+2)\,(5x+3)}-\frac{5\sqrt{-2x+1}}{22\,(3x+2)\,(5x+3)^2}+\frac{1908\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{49}-\frac{32025\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{1331}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(2+3*x)**2/(3+5*x)**3/(1-2*x)**(1/2),x)
```

```
[Out] 20079*sqrt(-2*x + 1)/(1694*(3*x + 2)) + 240*sqrt(-2*x + 1)/(121*(
3*x + 2)*(5*x + 3)) - 5*sqrt(-2*x + 1)/(22*(3*x + 2)*(5*x + 3)**2
) + 1908*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/49 - 32025*sqr
t(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/1331
```

Mathematica [A] time = 0.237878, size = 95, normalized size = 0.75

$$\frac{\frac{11\sqrt{1-2x}(501975x^2+619170x+190406)}{(3x+2)(5x+3)^2}-448350\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{18634}+\frac{1908}{7}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 - 2*x]*(2 + 3*x)^2*(3 + 5*x)^3),x]
```

```
[Out] (1908*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/7 + ((11*Sqrt[1
 - 2*x]*(190406 + 619170*x + 501975*x^2))/((2 + 3*x)*(3 + 5*x)^2)
 - 448350*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/18634
```

Maple [A] time = 0.02, size = 82, normalized size = 0.7

$$-\frac{18}{7}\sqrt{1-2\,x}\left(-\frac{4}{3}-2\,x\right)^{-1}+\frac{1908\,\sqrt{21}}{49}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)+1250\,\frac{1}{\left(-6-10\,x\right)^{2}}\left(-\frac{129\,\left(1-2\,x\right)^{3/2}}{1210}+\frac{127\,\sqrt{1-2\,x}}{550}\right)-\frac{32025\,\sqrt{55}}{1331}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(2+3*x)^2/(3+5*x)^3/(1-2*x)^(1/2),x)
```

```
[Out] -18/7*(1-2*x)^(1/2)/(-4/3-2*x)+1908/49*arctanh(1/7*21^(1/2)*(1-2*
x)^(1/2))*21^(1/2)+1250*(-129/1210*(1-2*x)^(3/2)+127/550*(1-2*x)^
(1/2))/(-6-10*x)^2-32025/1331*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2)
)*55^(1/2)
```

Maxima [A] time = 1.50091, size = 173, normalized size = 1.37

$$\frac{32025}{2662}\,\sqrt{55}\log\left(-\frac{\sqrt{55}-5\,\sqrt{-2\,x+1}}{\sqrt{55}+5\,\sqrt{-2\,x+1}}\right)-\frac{954}{49}\,\sqrt{21}\log\left(-\frac{\sqrt{21}-3\,\sqrt{-2\,x+1}}{\sqrt{21}+3\,\sqrt{-2\,x+1}}\right)+\frac{501975\,(-2\,x+1)^{\frac{5}{2}}-2242290\,(-2\,x+1)^{\frac{3}{2}}+2501939\,\sqrt{-2\,x+1}}{847\,\left(75\,(2\,x-1)^{3}+505\,(2\,x-1)^{2}+2266\,x-286\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^3*(3*x + 2)^2*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 32025/2662*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55)
+ 5*sqrt(-2*x + 1))) - 954/49*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2
*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 1/847*(501975*(-2*x + 1
)^(5/2) - 2242290*(-2*x + 1)^(3/2) + 2501939*sqrt(-2*x + 1))/(75*
(2*x - 1)^3 + 505*(2*x - 1)^2 + 2266*x - 286)
```

Fricas [A] time = 0.220382, size = 213, normalized size = 1.69

$$\frac{\sqrt{11}\sqrt{7}\left(224175\,\sqrt{7}\sqrt{5}\left(75\,x^{3}+140\,x^{2}+87\,x+18\right)\log\left(\frac{\sqrt{11}(5\,x-8)+11\,\sqrt{5}\sqrt{-2\,x+1}}{5\,x+3}\right)+230868\,\sqrt{11}\sqrt{3}\left(75\,x^{3}+140\,x^{2}+87\,x+18\right)\right.}{130438\,(75\,x^{3}+140\,x^{2}+87\,x+18)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^3*(3*x + 2)^2*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] 1/130438*sqrt(11)*sqrt(7)*(224175*sqrt(7)*sqrt(5)*(75*x^3 + 140*x
^2 + 87*x + 18)*log((sqrt(11)*(5*x - 8) + 11*sqrt(5)*sqrt(-2*x +
1))/(5*x + 3)) + 230868*sqrt(11)*sqrt(3)*(75*x^3 + 140*x^2 + 87*x
 + 18)*log((sqrt(7)*(3*x - 5) - 7*sqrt(3)*sqrt(-2*x + 1))/(3*x +
2)) + sqrt(11)*sqrt(7)*(501975*x^2 + 619170*x + 190406)*sqrt(-2*x
 + 1))/(75*x^3 + 140*x^2 + 87*x + 18)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(2+3*x)**2/(3+5*x)**3/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.234148, size = 166, normalized size = 1.32

$$\frac{32025}{2662}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{954}{49}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{27\sqrt{-2x+1}}{7(3x+2)}-\frac{25\left(645(-2x+1)^{\frac{3}{2}}-1397\sqrt{-2x+1}\right)}{484(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^3*(3*x + 2)^2*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 32025/2662*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(
sqrt(55) + 5*sqrt(-2*x + 1))) - 954/49*sqrt(21)*ln(1/2*abs(-2*sqr
t(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 27/7*s
qrt(-2*x + 1)/(3*x + 2) - 25/484*(645*(-2*x + 1)^(3/2) - 1397*sqr
t(-2*x + 1))/(5*x + 3)^2
```

3.2050 $\int \frac{1}{\sqrt{1-2x}(2+3x)^3(3+5x)^3}\,dx$

Optimal. Leaf size=153

$$\frac{1177080\sqrt{1-2x}}{5929(5x+3)}-\frac{35495\sqrt{1-2x}}{1078(5x+3)^2}+\frac{429\sqrt{1-2x}}{98(3x+2)(5x+3)^2}+\frac{3\sqrt{1-2x}}{14(3x+2)^2(5x+3)^2}+\frac{134217}{49}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{321825}{121}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (-35495*Sqrt[1 - 2*x])/(1078*(3 + 5*x)^2) + (3*Sqrt[1 - 2*x])/(14
*(2 + 3*x)^2*(3 + 5*x)^2) + (429*Sqrt[1 - 2*x])/(98*(2 + 3*x)*(3
+ 5*x)^2) + (1177080*Sqrt[1 - 2*x])/(5929*(3 + 5*x)) + (134217*Sq
rt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/49 - (321825*Sqrt[5/11]
*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/121
```

Rubi [A] time = 0.332625, antiderivative size = 153, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.208$

$$\frac{1177080\sqrt{1-2x}}{5929(5x+3)}-\frac{35495\sqrt{1-2x}}{1078(5x+3)^2}+\frac{429\sqrt{1-2x}}{98(3x+2)(5x+3)^2}+\frac{3\sqrt{1-2x}}{14(3x+2)^2(5x+3)^2}+\frac{134217}{49}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{321825}{121}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 - 2*x]*(2 + 3*x)^3*(3 + 5*x)^3),x]
```

```
[Out] (-35495*Sqrt[1 - 2*x])/(1078*(3 + 5*x)^2) + (3*Sqrt[1 - 2*x])/(14
*(2 + 3*x)^2*(3 + 5*x)^2) + (429*Sqrt[1 - 2*x])/(98*(2 + 3*x)*(3
+ 5*x)^2) + (1177080*Sqrt[1 - 2*x])/(5929*(3 + 5*x)) + (134217*Sq
rt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/49 - (321825*Sqrt[5/11]
*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/121
```

Rubi in Sympy [A] time = 34.9273, size = 133, normalized size = 0.87

$$\frac{706248\sqrt{-2x+1}}{5929\,(3x+2)}+\frac{20277\sqrt{-2x+1}}{1694\,(3x+2)^2}+\frac{645\sqrt{-2x+1}}{242\,(3x+2)^2\,(5x+3)}-\frac{5\sqrt{-2x+1}}{22\,(3x+2)^2\,(5x+3)^2}+\frac{134217\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{343}-\frac{321825\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{1331}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(2+3*x)**3/(3+5*x)**3/(1-2*x)**(1/2),x)
```

```
[Out] 706248*sqrt(-2*x + 1)/(5929*(3*x + 2)) + 20277*sqrt(-2*x + 1)/(16
94*(3*x + 2)**2) + 645*sqrt(-2*x + 1)/(242*(3*x + 2)**2*(5*x + 3)
) - 5*sqrt(-2*x + 1)/(22*(3*x + 2)**2*(5*x + 3)**2) + 134217*sqrt
(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/343 - 321825*sqrt(55)*atanh
(sqrt(55)*sqrt(-2*x + 1)/11)/1331
```

Mathematica [A] time = 0.159226, size = 101, normalized size = 0.66

$$\frac{\sqrt{1-2x}\left(105937200x^3+201297915x^2+127303347x+26794499\right)}{11858(3x+2)^2(5x+3)^2}+\frac{134217}{49}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{321825}{121}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 - 2*x]*(2 + 3*x)^3*(3 + 5*x)^3),x]
```

```
[Out] (Sqrt[1 - 2*x]*(26794499 + 127303347*x + 201297915*x^2 + 10593720
0*x^3))/(11858*(2 + 3*x)^2*(3 + 5*x)^2) + (134217*Sqrt[3/7]*ArcTa
nh[Sqrt[3/7]*Sqrt[1 - 2*x]])/49 - (321825*Sqrt[5/11]*ArcTanh[Sqrt
[5/11]*Sqrt[1 - 2*x]])/121
```

Maple [A] time = 0.022, size = 94, normalized size = 0.6

$$-972\frac{1}{(-4-6x)^2}\left(\frac{71(1-2x)^{3/2}}{196}-\frac{215\sqrt{1-2x}}{252}\right)+\frac{134217\sqrt{21}}{343}\mathrm{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)+62500\frac{1}{(-6-10x)^2}\left(-\frac{39(1-2x)^{3/2}}{2420}+\frac{193\sqrt{1-2x}}{5500}\right)-\frac{321825\sqrt{55}}{1331}\mathrm{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(2+3*x)^3/(3+5*x)^3/(1-2*x)^(1/2),x)
```

```
[Out] -972*(71/196*(1-2*x)^(3/2)-215/252*(1-2*x)^(1/2))/(-4-6*x)^2+1342
17/343*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)+62500*(-39/24
20*(1-2*x)^(3/2)+193/5500*(1-2*x)^(1/2))/(-6-10*x)^2-321825/1331*
arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.50778, size = 197, normalized size = 1.29

$$\frac{321825}{2662}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{134217}{686}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{2\left(52968600(-2x+1)^{\frac{7}{2}}-360203715(-2x+1)^{\frac{5}{2}}+816108324(-2x+1)^{\frac{3}{2}}-616051205\sqrt{-2x+1}\right)}{5929\left(225(2x-1)^4+2040(2x-1)^3+6934(2x-1)^2+20944x-4543\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^3*(3*x + 2)^3*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 321825/2662*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55)
 + 5*sqrt(-2*x + 1))) - 134217/686*sqrt(21)*log(-(sqrt(21) - 3*sq
rt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 2/5929*(52968600*(
-2*x + 1)^(7/2) - 360203715*(-2*x + 1)^(5/2) + 816108324*(-2*x +
1)^(3/2) - 616051205*sqrt(-2*x + 1))/(225*(2*x - 1)^4 + 2040*(2*x
 - 1)^3 + 6934*(2*x - 1)^2 + 20944*x - 4543)
```

Fricas [A] time = 0.249351, size = 240, normalized size = 1.57

$$\frac{\sqrt{11}\sqrt{7}\left(15769425\sqrt{7}\sqrt{5}\left(225x^4+570x^3+541x^2+228x+36\right)\log\left(\frac{\sqrt{11}(5x-8)+11\sqrt{5}\sqrt{-2x+1}}{5x+3}\right)+16240257\sqrt{11}\sqrt{3}\left(225x^4+57\right.}{913066\left(225x^4+\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^3*(3*x + 2)^3*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] 1/913066*sqrt(11)*sqrt(7)*(15769425*sqrt(7)*sqrt(5)*(225*x^4 + 57
0*x^3 + 541*x^2 + 228*x + 36)*log((sqrt(11)*(5*x - 8) + 11*sqrt(5
)*sqrt(-2*x + 1))/(5*x + 3)) + 16240257*sqrt(11)*sqrt(3)*(225*x^4
```

```
 + 570*x^3 + 541*x^2 + 228*x + 36)*log((sqrt(7)*(3*x - 5) - 7*sqr
t(3)*sqrt(-2*x + 1))/(3*x + 2)) + sqrt(11)*sqrt(7)*(105937200*x^3
 + 201297915*x^2 + 127303347*x + 26794499)*sqrt(-2*x + 1))/(225*x
^4 + 570*x^3 + 541*x^2 + 228*x + 36)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(2+3*x)**3/(3+5*x)**3/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.24664, size = 200, normalized size = 1.31

$$\frac{321825}{2662}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{134217}{686}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{2\left(52968600\,(2x-1)^3\sqrt{-2x+1}+360203715\,(2x-1)^2\sqrt{-2x+1}-816108324\,(-2x+1)^{\frac{3}{2}}+616051205\sqrt{-2x+1}\right)}{5929\left(15\,(2x-1)^2+136\,x+9\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^3*(3*x + 2)^3*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 321825/2662*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/
(sqrt(55) + 5*sqrt(-2*x + 1))) - 134217/686*sqrt(21)*ln(1/2*abs(-
2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 2
/5929*(52968600*(2*x - 1)^3*sqrt(-2*x + 1) + 360203715*(2*x - 1)^
2*sqrt(-2*x + 1) - 816108324*(-2*x + 1)^(3/2) + 616051205*sqrt(-2
*x + 1))/(15*(2*x - 1)^2 + 136*x + 9)^2
```

3.2051 $\int \frac{1}{\sqrt{1-2x}(2+3x)^4(3+5x)^3} dx$

Optimal. Leaf size=180

$$\frac{137735775\sqrt{1-2x}}{83006(5x+3)} - \frac{2076675\sqrt{1-2x}}{7546(5x+3)^2} + \frac{12555\sqrt{1-2x}}{343(3x+2)(5x+3)^2} + \frac{90\sqrt{1-2x}}{49(3x+2)^2(5x+3)^2} + \frac{\sqrt{1-2x}}{7(3x+2)^3(5x+3)^2} + \frac{7852680}{343}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right) - \frac{2689875}{121}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] (-2076675*Sqrt[1 - 2*x])/(7546*(3 + 5*x)^2) + Sqrt[1 - 2*x]/(7*(2
 + 3*x)^3*(3 + 5*x)^2) + (90*Sqrt[1 - 2*x])/(49*(2 + 3*x)^2*(3 +
5*x)^2) + (12555*Sqrt[1 - 2*x])/(343*(2 + 3*x)*(3 + 5*x)^2) + (13
7735775*Sqrt[1 - 2*x])/(83006*(3 + 5*x)) + (7852680*Sqrt[3/7]*Arc
Tanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/343 - (2689875*Sqrt[5/11]*ArcTanh[
Sqrt[5/11]*Sqrt[1 - 2*x]])/121
```

Rubi [A] time = 0.401716, antiderivative size = 180, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{137735775\sqrt{1-2x}}{83006(5x+3)} - \frac{2076675\sqrt{1-2x}}{7546(5x+3)^2} + \frac{12555\sqrt{1-2x}}{343(3x+2)(5x+3)^2} + \frac{90\sqrt{1-2x}}{49(3x+2)^2(5x+3)^2} + \frac{\sqrt{1-2x}}{7(3x+2)^3(5x+3)^2} + \frac{7852680}{343}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right) - \frac{2689875}{121}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 - 2*x]*(2 + 3*x)^4*(3 + 5*x)^3),x]
```

```
[Out] (-2076675*Sqrt[1 - 2*x])/(7546*(3 + 5*x)^2) + Sqrt[1 - 2*x]/(7*(2
 + 3*x)^3*(3 + 5*x)^2) + (90*Sqrt[1 - 2*x])/(49*(2 + 3*x)^2*(3 +
5*x)^2) + (12555*Sqrt[1 - 2*x])/(343*(2 + 3*x)*(3 + 5*x)^2) + (13
7735775*Sqrt[1 - 2*x])/(83006*(3 + 5*x)) + (7852680*Sqrt[3/7]*Arc
Tanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/343 - (2689875*Sqrt[5/11]*ArcTanh[
Sqrt[5/11]*Sqrt[1 - 2*x]])/121
```

Rubi in Sympy [A] time = 45.839, size = 151, normalized size = 0.84

$$\frac{82641465\sqrt{-2x+1}}{83006\,(3x+2)} + \frac{593190\sqrt{-2x+1}}{5929\,(3x+2)^2} + \frac{22653\sqrt{-2x+1}}{1694\,(3x+2)^3} + \frac{405\sqrt{-2x+1}}{121\,(3x+2)^3\,(5x+3)} - \frac{5\sqrt{-2x+1}}{22\,(3x+2)^3\,(5x+3)^2} + \frac{7852680\sqrt{21}\,\mathrm{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{2401} - \frac{2689875\sqrt{55}\,\mathrm{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{1331}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(2+3*x)**4/(3+5*x)**3/(1-2*x)**(1/2),x)
```

```
[Out] 82641465*sqrt(-2*x + 1)/(83006*(3*x + 2)) + 593190*sqrt(-2*x + 1)
/(5929*(3*x + 2)**2) + 22653*sqrt(-2*x + 1)/(1694*(3*x + 2)**3) +
 405*sqrt(-2*x + 1)/(121*(3*x + 2)**3*(5*x + 3)) - 5*sqrt(-2*x +
1)/(22*(3*x + 2)**3*(5*x + 3)**2) + 7852680*sqrt(21)*atanh(sqrt(2
1)*sqrt(-2*x + 1)/7)/2401 - 2689875*sqrt(55)*atanh(sqrt(55)*sqrt(
-2*x + 1)/11)/1331
```

Mathematica [A] time = 0.175722, size = 106, normalized size = 0.59

$$\frac{\sqrt{1-2x}\left(18594329625x^4+47728484550x^3+45899434890x^2+19599448500x+3135381218\right)}{83006(3x+2)^3(5x+3)^2}+\frac{7852680}{343}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{2689875}{121}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 - 2*x]*(2 + 3*x)^4*(3 + 5*x)^3),x]
```

```
[Out] (Sqrt[1 - 2*x]*(3135381218 + 19599448500*x + 45899434890*x^2 + 47
728484550*x^3 + 18594329625*x^4))/(83006*(2 + 3*x)^3*(3 + 5*x)^2)
 + (7852680*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/343 - (26
89875*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/121
```

Maple [A] time = 0.021, size = 103, normalized size = 0.6

$$-2916\,\frac{1}{(-4-6\,x)^3}\left(\frac{3755\,(1-2\,x)^{5/2}}{1029}-\frac{22690\,(1-2\,x)^{3/2}}{1323}+\frac{3809\,\sqrt{1-2\,x}}{189}\right)+\frac{7852680\,\sqrt{21}}{2401}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)+312500\,\frac{1}{(-6-10\,x)^2}\left(-\frac{261\,(1-2\,x)^{3/2}}{12100}+\frac{259\,\sqrt{1-2\,x}}{5500}\right)-\frac{2689875\,\sqrt{55}}{1331}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(2+3*x)^4/(3+5*x)^3/(1-2*x)^(1/2),x)
```

```
[Out] -2916*(3755/1029*(1-2*x)^(5/2)-22690/1323*(1-2*x)^(3/2)+3809/189*
(1-2*x)^(1/2))/(-4-6*x)^3+7852680/2401*arctanh(1/7*21^(1/2)*(1-2*
x)^(1/2))*21^(1/2)+312500*(-261/12100*(1-2*x)^(3/2)+259/5500*(1-2
*x)^(1/2))/(-6-10*x)^2-2689875/1331*arctanh(1/11*55^(1/2)*(1-2*x)
^(1/2))*55^(1/2)
```

Maxima [A] time = 1.51158, size = 221, normalized size = 1.23

$$\frac{2689875}{2662}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2\,x+1}}{\sqrt{55}+5\sqrt{-2\,x+1}}\right)-\frac{3926340}{2401}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2\,x+1}}{\sqrt{21}+3\sqrt{-2\,x+1}}\right)+\frac{18594329625\,(-2\,x+1)^{\frac{9}{2}}-169834287600\,(-2\,x+1)^{\frac{7}{2}}+581534624610\,(-2\,x+1)^{\frac{5}{2}}-884739292920\,(-2\,x+1)^{\frac{3}{2}}+50461072}{41503\left(675\,(2\,x-1)^5+7695\,(2\,x-1)^4+35082\,(2\,x-1)^3+79954\,(2\,x-1)^2+182182\,x-49588\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^3*(3*x + 2)^4*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 2689875/2662*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55
) + 5*sqrt(-2*x + 1))) - 3926340/2401*sqrt(21)*log(-(sqrt(21) - 3
*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 1/41503*(185943
29625*(-2*x + 1)^(9/2) - 169834287600*(-2*x + 1)^(7/2) + 58153462
4610*(-2*x + 1)^(5/2) - 884739292920*(-2*x + 1)^(3/2) + 504610725
773*sqrt(-2*x + 1))/(675*(2*x - 1)^5 + 7695*(2*x - 1)^4 + 35082*(
2*x - 1)^3 + 79954*(2*x - 1)^2 + 182182*x - 49588)
```

Fricas [A] time = 0.258246, size = 267, normalized size = 1.48

$$\frac{\sqrt{11}\sqrt{7}\left(922627125\,\sqrt{7}\sqrt{5}\left(675\,x^5+2160\,x^4+2763\,x^3+1766\,x^2+564\,x+72\right)\log\left(\frac{\sqrt{11}(5\,x-8)+11\,\sqrt{5}\sqrt{-2\,x+1}}{5\,x+3}\right)+950174280\,\sqrt{11}\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^3*(3*x + 2)^4*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] 1/6391462*sqrt(11)*sqrt(7)*(922627125*sqrt(7)*sqrt(5)*(675*x^5 +
2160*x^4 + 2763*x^3 + 1766*x^2 + 564*x + 72)*log((sqrt(11)*(5*x -
 8) + 11*sqrt(5)*sqrt(-2*x + 1))/(5*x + 3)) + 950174280*sqrt(11)*
sqrt(3)*(675*x^5 + 2160*x^4 + 2763*x^3 + 1766*x^2 + 564*x + 72)*l
og((sqrt(7)*(3*x - 5) - 7*sqrt(3)*sqrt(-2*x + 1))/(3*x + 2)) + sq
rt(11)*sqrt(7)*(18594329625*x^4 + 47728484550*x^3 + 45899434890*x
^2 + 19599448500*x + 3135381218)*sqrt(-2*x + 1))/(675*x^5 + 2160*
x^4 + 2763*x^3 + 1766*x^2 + 564*x + 72)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(2+3*x)**4/(3+5*x)**3/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.231134, size = 204, normalized size = 1.13

$$\frac{2689875}{2662}\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)-\frac{3926340}{2401}\sqrt{21}\ln\left(\frac{\left|-2\,\sqrt{21}+6\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{21}+3\,\sqrt{-2\,x+1}\right)}\right)-\frac{625\left(1305\,(-2\,x+1)^{\frac{3}{2}}-2849\,\sqrt{-2\,x+1}\right)}{484\,(5\,x+3)^2}+\frac{27\left(33795\,(2\,x-1)^2\sqrt{-2\,x+1}-158830\,(-2\,x+1)^{\frac{3}{2}}+186641\,\sqrt{-2\,x+1}\right)}{686\,(3\,x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^3*(3*x + 2)^4*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 2689875/2662*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))
/(sqrt(55) + 5*sqrt(-2*x + 1))) - 3926340/2401*sqrt(21)*ln(1/2*ab
s(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1)))
- 625/484*(1305*(-2*x + 1)^(3/2) - 2849*sqrt(-2*x + 1))/(5*x + 3)
^2 + 27/686*(33795*(2*x - 1)^2*sqrt(-2*x + 1) - 158830*(-2*x + 1)
^(3/2) + 186641*sqrt(-2*x + 1))/(3*x + 2)^3
```

3.2052 $\int \frac{(2+3x)^7(3+5x)}{(1-2x)^{3/2}}\,dx$

Optimal. Leaf size=118

$$-\frac{729}{256}(1-2x)^{15/2}+\frac{101331(1-2x)^{13/2}}{1664}-\frac{821583(1-2x)^{11/2}}{1408}+\frac{422919}{128}(1-2x)^{9/2}-\frac{787185}{64}(1-2x)^{7/2}+\frac{4084101}{128}(1-2x)^{5/2}-\frac{7882483}{128}(1-2x)^{3/2}+\frac{15647317}{128}\sqrt{1-2x}+\frac{9058973}{256\sqrt{1-2x}}$$

```
[Out] 9058973/(256*Sqrt[1 - 2*x]) + (15647317*Sqrt[1 - 2*x])/128 - (788
2483*(1 - 2*x)^(3/2))/128 + (4084101*(1 - 2*x)^(5/2))/128 - (7871
85*(1 - 2*x)^(7/2))/64 + (422919*(1 - 2*x)^(9/2))/128 - (821583*(
1 - 2*x)^(11/2))/1408 + (101331*(1 - 2*x)^(13/2))/1664 - (729*(1
- 2*x)^(15/2))/256
```

Rubi [A] time = 0.0829428, antiderivative size = 118, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{729}{256}(1-2x)^{15/2}+\frac{101331(1-2x)^{13/2}}{1664}-\frac{821583(1-2x)^{11/2}}{1408}+\frac{422919}{128}(1-2x)^{9/2}-\frac{787185}{64}(1-2x)^{7/2}+\frac{4084101}{128}(1-2x)^{5/2}-\frac{7882483}{128}(1-2x)^{3/2}+\frac{15647317}{128}\sqrt{1-2x}+\frac{9058973}{256\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^7*(3 + 5*x))/(1 - 2*x)^(3/2),x]
```

```
[Out] 9058973/(256*Sqrt[1 - 2*x]) + (15647317*Sqrt[1 - 2*x])/128 - (788
2483*(1 - 2*x)^(3/2))/128 + (4084101*(1 - 2*x)^(5/2))/128 - (7871
85*(1 - 2*x)^(7/2))/64 + (422919*(1 - 2*x)^(9/2))/128 - (821583*(
1 - 2*x)^(11/2))/1408 + (101331*(1 - 2*x)^(13/2))/1664 - (729*(1
- 2*x)^(15/2))/256
```

Rubi in Sympy [A] time = 12.5871, size = 105, normalized size = 0.89

$$-\frac{729(-2x+1)^{\frac{15}{2}}}{256}+\frac{101331(-2x+1)^{\frac{13}{2}}}{1664}-\frac{821583(-2x+1)^{\frac{11}{2}}}{1408}+\frac{422919(-2x+1)^{\frac{9}{2}}}{128}-\frac{787185(-2x+1)^{\frac{7}{2}}}{64}+\frac{4084101(-2x+1)^{\frac{5}{2}}}{128}-\frac{7882483(-2x+1)^{\frac{3}{2}}}{128}+\frac{15647317\sqrt{-2x+1}}{128}+\frac{9058973}{256\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**7*(3+5*x)/(1-2*x)**(3/2),x)
```

```
[Out] -729*(-2*x + 1)**(15/2)/256 + 101331*(-2*x + 1)**(13/2)/1664 - 82
1583*(-2*x + 1)**(11/2)/1408 + 422919*(-2*x + 1)**(9/2)/128 - 787
185*(-2*x + 1)**(7/2)/64 + 4084101*(-2*x + 1)**(5/2)/128 - 788248
3*(-2*x + 1)**(3/2)/128 + 15647317*sqrt(-2*x + 1)/128 + 9058973/(
256*sqrt(-2*x + 1))
```

Mathematica [A] time = 0.0579659, size = 53, normalized size = 0.45

$$-\frac{104247x^8+697653x^7+2168775x^6+4220622x^5+5949090x^4+6921432x^3+8106616x^2+16881328x-16936240}{143\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^7*(3 + 5*x))/(1 - 2*x)^(3/2),x]
```

```
[Out] -(-16936240 + 16881328*x + 8106616*x^2 + 6921432*x^3 + 5949090*x^
4 + 4220622*x^5 + 2168775*x^6 + 697653*x^7 + 104247*x^8)/(143*Sqr
t[1 - 2*x])
```

Maple [A] time = 0.005, size = 50, normalized size = 0.4

$$-\frac{104247\,x^8+697653\,x^7+2168775\,x^6+4220622\,x^5+5949090\,x^4+6921432\,x^3+8106616\,x^2+16881328\,x-16936240}{143}\frac{1}{\sqrt{1-}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^7*(3+5*x)/(1-2*x)^(3/2),x)
```

```
[Out] -1/143*(104247*x^8+697653*x^7+2168775*x^6+4220622*x^5+5949090*x^4
+6921432*x^3+8106616*x^2+16881328*x-16936240)/(1-2*x)^(1/2)
```

Maxima [A] time = 1.37361, size = 111, normalized size = 0.94

$$-\frac{729}{256}\,(-2\,x+1)^{\frac{15}{2}}+\frac{101331}{1664}\,(-2\,x+1)^{\frac{13}{2}}-\frac{821583}{1408}\,(-2\,x+1)^{\frac{11}{2}}+\frac{422919}{128}\,(-2\,x+1)^{\frac{9}{2}}-\frac{787185}{64}\,(-2\,x+1)^{\frac{7}{2}}+\frac{4084101}{128}\,(-2\,x+1)^{\frac{5}{2}}-\frac{7882483}{128}\,(-2\,x+1)^{\frac{3}{2}}+\frac{15647317}{128}\,\sqrt{-2\,x+1}+\frac{9058973}{256\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^7/(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] -729/256*(-2*x + 1)^(15/2) + 101331/1664*(-2*x + 1)^(13/2) - 8215
83/1408*(-2*x + 1)^(11/2) + 422919/128*(-2*x + 1)^(9/2) - 787185/
64*(-2*x + 1)^(7/2) + 4084101/128*(-2*x + 1)^(5/2) - 7882483/128*
(-2*x + 1)^(3/2) + 15647317/128*sqrt(-2*x + 1) + 9058973/256/sqrt
(-2*x + 1)
```

Fricas [A] time = 0.231421, size = 66, normalized size = 0.56

$$-\frac{104247\,x^8+697653\,x^7+2168775\,x^6+4220622\,x^5+5949090\,x^4+6921432\,x^3+8106616\,x^2+16881328\,x-16936240}{143\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^7/(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/143*(104247*x^8 + 697653*x^7 + 2168775*x^6 + 4220622*x^5 + 594
9090*x^4 + 6921432*x^3 + 8106616*x^2 + 16881328*x - 16936240)/sqr
t(-2*x + 1)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^7\,(5x+3)}{(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**7*(3+5*x)/(1-2*x)**(3/2),x)
```

```
[Out] Integral((3*x + 2)**7*(5*x + 3)/(-2*x + 1)**(3/2), x)
```

GIAC/XCAS [A] time = 0.21127, size = 167, normalized size = 1.42

$$\frac{729}{256}(2x-1)^7\sqrt{-2x+1}+\frac{101331}{1664}(2x-1)^6\sqrt{-2x+1}+\frac{821583}{1408}(2x-1)^5\sqrt{-2x+1}+\frac{422919}{128}(2x-1)^4\sqrt{-2x+1}+\frac{787185}{64}(2x-1)^3\sqrt{-2x+1}+\frac{4084101}{128}(2x-1)^2\sqrt{-2x+1}-\frac{7882483}{128}(-2x+1)^{\frac{3}{2}}+\frac{15647317}{128}\sqrt{-2x+1}+\frac{9058973}{256\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^7/(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] 729/256*(2*x - 1)^7*sqrt(-2*x + 1) + 101331/1664*(2*x - 1)^6*sqrt
(-2*x + 1) + 821583/1408*(2*x - 1)^5*sqrt(-2*x + 1) + 422919/128*
(2*x - 1)^4*sqrt(-2*x + 1) + 787185/64*(2*x - 1)^3*sqrt(-2*x + 1)
 + 4084101/128*(2*x - 1)^2*sqrt(-2*x + 1) - 7882483/128*(-2*x + 1
)^(3/2) + 15647317/128*sqrt(-2*x + 1) + 9058973/256/sqrt(-2*x + 1
)
```

3.2053 $\int \frac{(2+3x)^6(3+5x)}{(1-2x)^{3/2}} dx$

Optimal. Leaf size=105

$$\frac{3645(1-2x)^{13/2}}{1664}-\frac{59049(1-2x)^{11/2}}{1408}+\frac{45549}{128}(1-2x)^{9/2}-\frac{225855}{128}(1-2x)^{7/2}+\frac{731619}{128}(1-2x)^{5/2}-\frac{1692705}{128}(1-2x)^{3/2}+\frac{3916031}{128}\sqrt{1-2x}+\frac{1294139}{128\sqrt{1-2x}}$$

```
[Out] 1294139/(128*Sqrt[1 - 2*x]) + (3916031*Sqrt[1 - 2*x])/128 - (1692
705*(1 - 2*x)^(3/2))/128 + (731619*(1 - 2*x)^(5/2))/128 - (225855
*(1 - 2*x)^(7/2))/128 + (45549*(1 - 2*x)^(9/2))/128 - (59049*(1 -
 2*x)^(11/2))/1408 + (3645*(1 - 2*x)^(13/2))/1664
```

Rubi [A] time = 0.0771053, antiderivative size = 105, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{3645(1-2x)^{13/2}}{1664}-\frac{59049(1-2x)^{11/2}}{1408}+\frac{45549}{128}(1-2x)^{9/2}-\frac{225855}{128}(1-2x)^{7/2}+\frac{731619}{128}(1-2x)^{5/2}-\frac{1692705}{128}(1-2x)^{3/2}+\frac{3916031}{128}\sqrt{1-2x}+\frac{1294139}{128\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^6*(3 + 5*x))/(1 - 2*x)^(3/2),x]
```

```
[Out] 1294139/(128*Sqrt[1 - 2*x]) + (3916031*Sqrt[1 - 2*x])/128 - (1692
705*(1 - 2*x)^(3/2))/128 + (731619*(1 - 2*x)^(5/2))/128 - (225855
*(1 - 2*x)^(7/2))/128 + (45549*(1 - 2*x)^(9/2))/128 - (59049*(1 -
 2*x)^(11/2))/1408 + (3645*(1 - 2*x)^(13/2))/1664
```

Rubi in Sympy [A] time = 11.1194, size = 94, normalized size = 0.9

$$\frac{3645\left(-2x+1\right)^{\frac{13}{2}}}{1664}-\frac{59049\left(-2x+1\right)^{\frac{11}{2}}}{1408}+\frac{45549\left(-2x+1\right)^{\frac{9}{2}}}{128}-\frac{225855\left(-2x+1\right)^{\frac{7}{2}}}{128}+\frac{731619\left(-2x+1\right)^{\frac{5}{2}}}{128}-\frac{1692705\left(-2x+1\right)^{\frac{3}{2}}}{128}+\frac{3916031\sqrt{-2x+1}}{128}+\frac{1294139}{128\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**6*(3+5*x)/(1-2*x)**(3/2),x)
```

```
[Out] 3645*(-2*x + 1)**(13/2)/1664 - 59049*(-2*x + 1)**(11/2)/1408 + 45
549*(-2*x + 1)**(9/2)/128 - 225855*(-2*x + 1)**(7/2)/128 + 731619
*(-2*x + 1)**(5/2)/128 - 1692705*(-2*x + 1)**(3/2)/128 + 3916031*
sqrt(-2*x + 1)/128 + 1294139/(128*sqrt(-2*x + 1))
```

Mathematica [A] time = 0.032668, size = 48, normalized size = 0.46

$$\frac{-40095x^7-243486x^6-687420x^5-1230120x^4-1663632x^3-2109792x^2-4512448x+4539904}{143\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^6*(3 + 5*x))/(1 - 2*x)^(3/2),x]
```

```
[Out] (4539904 - 4512448*x - 2109792*x^2 - 1663632*x^3 - 1230120*x^4 -
687420*x^5 - 243486*x^6 - 40095*x^7)/(143*Sqrt[1 - 2*x])
```

Maple [A] time = 0.004, size = 45, normalized size = 0.4

$$-\frac{40095 x^7 + 243486 x^6 + 687420 x^5 + 1230120 x^4 + 1663632 x^3 + 2109792 x^2 + 4512448 x - 4539904}{143} \frac{1}{\sqrt{1-2x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((2+3*x)^6*(3+5*x)/(1-2*x)^(3/2),x)
```

```
[Out] -1/143*(40095*x^7+243486*x^6+687420*x^5+1230120*x^4+1663632*x^3+2
109792*x^2+4512448*x-4539904)/(1-2*x)^(1/2)
```

Maxima [A] time = 1.35339, size = 99, normalized size = 0.94

$$\frac{3645}{1664}(-2x+1)^{\frac{13}{2}} - \frac{59049}{1408}(-2x+1)^{\frac{11}{2}} + \frac{45549}{128}(-2x+1)^{\frac{9}{2}} - \frac{225855}{128}(-2x+1)^{\frac{7}{2}} + \frac{731619}{128}(-2x+1)^{\frac{5}{2}} - \frac{1692705}{128}(-2x+1)^{\frac{3}{2}} + \frac{3916031}{128}\sqrt{-2x+1} + \frac{1294139}{128\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(3*x + 2)^6/(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] 3645/1664*(-2*x + 1)^(13/2) - 59049/1408*(-2*x + 1)^(11/2) + 4554
9/128*(-2*x + 1)^(9/2) - 225855/128*(-2*x + 1)^(7/2) + 731619/128
*(-2*x + 1)^(5/2) - 1692705/128*(-2*x + 1)^(3/2) + 3916031/128*sq
rt(-2*x + 1) + 1294139/128/sqrt(-2*x + 1)
```

Fricas [A] time = 0.240006, size = 59, normalized size = 0.56

$$-\frac{40095 x^7 + 243486 x^6 + 687420 x^5 + 1230120 x^4 + 1663632 x^3 + 2109792 x^2 + 4512448 x - 4539904}{143\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(3*x + 2)^6/(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/143*(40095*x^7 + 243486*x^6 + 687420*x^5 + 1230120*x^4 + 16636
32*x^3 + 2109792*x^2 + 4512448*x - 4539904)/sqrt(-2*x + 1)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^6 (5x+3)}{(-2x+1)^{\frac{3}{2}}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2+3*x)**6*(3+5*x)/(1-2*x)**(3/2),x)
```

```
[Out] Integral((3*x + 2)**6*(5*x + 3)/(-2*x + 1)**(3/2), x)
```

GIAC/XCAS [A] time = 0.212199, size = 146, normalized size = 1.39

$$\frac{3645}{1664}\,(2\,x-1)^{6}\sqrt{-2\,x+1}+\frac{59049}{1408}\,(2\,x-1)^{5}\sqrt{-2\,x+1}+\frac{45549}{128}\,(2\,x-1)^{4}\sqrt{-2\,x+1}+\frac{225855}{128}\,(2\,x-1)^{3}\sqrt{-2\,x+1}+\frac{731619}{128}\,(2\,x-1)^{2}\sqrt{-2\,x+1}-\frac{1692705}{128}\,(-2\,x+1)^{\frac{3}{2}}+\frac{3916031}{128}\,\sqrt{-2\,x+1}+\frac{1294139}{128\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(3*x + 2)^6/(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] 3645/1664*(2*x - 1)^6*sqrt(-2*x + 1) + 59049/1408*(2*x - 1)^5*sqr
t(-2*x + 1) + 45549/128*(2*x - 1)^4*sqrt(-2*x + 1) + 225855/128*(
2*x - 1)^3*sqrt(-2*x + 1) + 731619/128*(2*x - 1)^2*sqrt(-2*x + 1)
 - 1692705/128*(-2*x + 1)^(3/2) + 3916031/128*sqrt(-2*x + 1) + 12
94139/128/sqrt(-2*x + 1)
```

3.2054 $\int \frac{(2+3x)^5(3+5x)}{(1-2x)^{3/2}}\,dx$

Optimal. Leaf size=92

$$-\frac{1215}{704}(1-2x)^{11/2}+\frac{117}{4}(1-2x)^{9/2}-\frac{13905}{64}(1-2x)^{7/2}+\frac{7497}{8}(1-2x)^{5/2}-\frac{173215}{64}(1-2x)^{3/2}+\frac{60025}{8}\sqrt{1-2x}+\frac{184877}{64\sqrt{1-2x}}$$

```
[Out] 184877/(64*Sqrt[1 - 2*x]) + (60025*Sqrt[1 - 2*x])/8 - (173215*(1
- 2*x)^(3/2))/64 + (7497*(1 - 2*x)^(5/2))/8 - (13905*(1 - 2*x)^(7
/2))/64 + (117*(1 - 2*x)^(9/2))/4 - (1215*(1 - 2*x)^(11/2))/704
```

Rubi [A] time = 0.0723808, antiderivative size = 92, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{1215}{704}(1-2x)^{11/2}+\frac{117}{4}(1-2x)^{9/2}-\frac{13905}{64}(1-2x)^{7/2}+\frac{7497}{8}(1-2x)^{5/2}-\frac{173215}{64}(1-2x)^{3/2}+\frac{60025}{8}\sqrt{1-2x}+\frac{184877}{64\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In] Int[((2 + 3*x)^5*(3 + 5*x))/(1 - 2*x)^(3/2),x]
```

```
[Out] 184877/(64*Sqrt[1 - 2*x]) + (60025*Sqrt[1 - 2*x])/8 - (173215*(1
- 2*x)^(3/2))/64 + (7497*(1 - 2*x)^(5/2))/8 - (13905*(1 - 2*x)^(7
/2))/64 + (117*(1 - 2*x)^(9/2))/4 - (1215*(1 - 2*x)^(11/2))/704
```

Rubi in Sympy [A] time = 10.5424, size = 82, normalized size = 0.89

$$-\frac{1215(-2x+1)^{\frac{11}{2}}}{704}+\frac{117(-2x+1)^{\frac{9}{2}}}{4}-\frac{13905(-2x+1)^{\frac{7}{2}}}{64}+\frac{7497(-2x+1)^{\frac{5}{2}}}{8}-\frac{173215(-2x+1)^{\frac{3}{2}}}{64}+\frac{60025\sqrt{-2x+1}}{8}+\frac{184877}{64\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**5*(3+5*x)/(1-2*x)**(3/2),x)
```

```
[Out] -1215*(-2*x + 1)**(11/2)/704 + 117*(-2*x + 1)**(9/2)/4 - 13905*(-
2*x + 1)**(7/2)/64 + 7497*(-2*x + 1)**(5/2)/8 - 173215*(-2*x + 1)
**(3/2)/64 + 60025*sqrt(-2*x + 1)/8 + 184877/(64*sqrt(-2*x + 1))
```

Mathematica [A] time = 0.0445528, size = 47, normalized size = 0.51

$$\frac{\sqrt{1-2x}\left(1215x^6+6651x^5+17055x^4+28692x^3+41012x^2+91704x-92760\right)}{22x-11}$$

Antiderivative was successfully verified.

```
[In] Integrate[((2 + 3*x)^5*(3 + 5*x))/(1 - 2*x)^(3/2),x]
```

```
[Out] (Sqrt[1 - 2*x]*(-92760 + 91704*x + 41012*x^2 + 28692*x^3 + 17055*
x^4 + 6651*x^5 + 1215*x^6))/(-11 + 22*x)
```

Maple [A] time = 0.006, size = 40, normalized size = 0.4

$$-\frac{1215x^{6}+6651x^{5}+17055x^{4}+28692x^{3}+41012x^{2}+91704x-92760}{11}\frac{1}{\sqrt{1-2x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^5*(3+5*x)/(1-2*x)^(3/2),x)
```

```
[Out] -1/11*(1215*x^6+6651*x^5+17055*x^4+28692*x^3+41012*x^2+91704*x-92
760)/(1-2*x)^(1/2)
```

Maxima [A] time = 1.35549, size = 86, normalized size = 0.93

$$-\frac{1215}{704}(-2x+1)^{\frac{11}{2}}+\frac{117}{4}(-2x+1)^{\frac{9}{2}}-\frac{13905}{64}(-2x+1)^{\frac{7}{2}}+\frac{7497}{8}(-2x+1)^{\frac{5}{2}}-\frac{173215}{64}(-2x+1)^{\frac{3}{2}}+\frac{60025}{8}\sqrt{-2x+1}+\frac{184877}{64\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^5/(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] -1215/704*(-2*x + 1)^(11/2) + 117/4*(-2*x + 1)^(9/2) - 13905/64*(
-2*x + 1)^(7/2) + 7497/8*(-2*x + 1)^(5/2) - 173215/64*(-2*x + 1)^
(3/2) + 60025/8*sqrt(-2*x + 1) + 184877/64/sqrt(-2*x + 1)
```

Fricas [A] time = 0.222261, size = 53, normalized size = 0.58

$$-\frac{1215x^{6}+6651x^{5}+17055x^{4}+28692x^{3}+41012x^{2}+91704x-92760}{11\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^5/(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/11*(1215*x^6 + 6651*x^5 + 17055*x^4 + 28692*x^3 + 41012*x^2 +
91704*x - 92760)/sqrt(-2*x + 1)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(3x+2)^{5}(5x+3)}{(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**5*(3+5*x)/(1-2*x)**(3/2),x)
```

```
[Out] Integral((3*x + 2)**5*(5*x + 3)/(-2*x + 1)**(3/2), x)
```

GIAC/XCAS [A] time = 0.2114, size = 124, normalized size = 1.35

$$\frac{1215}{704}(2x-1)^{5}\sqrt{-2x+1}+\frac{117}{4}(2x-1)^{4}\sqrt{-2x+1}+\frac{13905}{64}(2x-1)^{3}\sqrt{-2x+1}+\frac{7497}{8}(2x-1)^{2}\sqrt{-2x+1}-\frac{173215}{64}(-2x+1)^{\frac{3}{2}}+\frac{60025}{8}\sqrt{-2x+1}+\frac{184877}{64\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(3*x + 2)^5/(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] 1215/704*(2*x - 1)^5*sqrt(-2*x + 1) + 117/4*(2*x - 1)^4*sqrt(-2*x
 + 1) + 13905/64*(2*x - 1)^3*sqrt(-2*x + 1) + 7497/8*(2*x - 1)^2*
sqrt(-2*x + 1) - 173215/64*(-2*x + 1)^(3/2) + 60025/8*sqrt(-2*x +
 1) + 184877/64/sqrt(-2*x + 1)
```

3.2055 $\int \frac{(2+3x)^4(3+5x)}{(1-2x)^{3/2}}\,dx$

Optimal. Leaf size=79

$$\frac{45}{32}(1-2x)^{9/2}-\frac{4671}{224}(1-2x)^{7/2}+\frac{10773}{80}(1-2x)^{5/2}-\frac{8281}{16}(1-2x)^{3/2}+\frac{57281}{32}\sqrt{1-2x}+\frac{26411}{32\sqrt{1-2x}}$$

```
[Out] 26411/(32*Sqrt[1 - 2*x]) + (57281*Sqrt[1 - 2*x])/32 - (8281*(1 -
2*x)^(3/2))/16 + (10773*(1 - 2*x)^(5/2))/80 - (4671*(1 - 2*x)^(7/
2))/224 + (45*(1 - 2*x)^(9/2))/32
```

Rubi [A] time = 0.0661437, antiderivative size = 79, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{45}{32}(1-2x)^{9/2}-\frac{4671}{224}(1-2x)^{7/2}+\frac{10773}{80}(1-2x)^{5/2}-\frac{8281}{16}(1-2x)^{3/2}+\frac{57281}{32}\sqrt{1-2x}+\frac{26411}{32\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^4*(3 + 5*x))/(1 - 2*x)^(3/2),x]
```

```
[Out] 26411/(32*Sqrt[1 - 2*x]) + (57281*Sqrt[1 - 2*x])/32 - (8281*(1 -
2*x)^(3/2))/16 + (10773*(1 - 2*x)^(5/2))/80 - (4671*(1 - 2*x)^(7/
2))/224 + (45*(1 - 2*x)^(9/2))/32
```

Rubi in Sympy [A] time = 9.80702, size = 70, normalized size = 0.89

$$\frac{45\,(-2x+1)^{\frac{9}{2}}}{32}-\frac{4671\,(-2x+1)^{\frac{7}{2}}}{224}+\frac{10773\,(-2x+1)^{\frac{5}{2}}}{80}-\frac{8281\,(-2x+1)^{\frac{3}{2}}}{16}+\frac{57281\sqrt{-2x+1}}{32}+\frac{26411}{32\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4*(3+5*x)/(1-2*x)**(3/2),x)
```

```
[Out] 45*(-2*x + 1)**(9/2)/32 - 4671*(-2*x + 1)**(7/2)/224 + 10773*(-2*
x + 1)**(5/2)/80 - 8281*(-2*x + 1)**(3/2)/16 + 57281*sqrt(-2*x +
1)/32 + 26411/(32*sqrt(-2*x + 1))
```

Mathematica [A] time = 0.0292912, size = 38, normalized size = 0.48

$$\frac{-1575x^5-7740x^4-18288x^3-31448x^2-75776x+77456}{35\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^4*(3 + 5*x))/(1 - 2*x)^(3/2),x]
```

```
[Out] (77456 - 75776*x - 31448*x^2 - 18288*x^3 - 7740*x^4 - 1575*x^5)/(
35*Sqrt[1 - 2*x])
```

Maple [A] time = 0.006, size = 35, normalized size = 0.4

$$-\frac{1575\,x^5+7740\,x^4+18288\,x^3+31448\,x^2+75776\,x-77456}{35}\frac{1}{\sqrt{1-2\,x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((2+3*x)^4*(3+5*x)/(1-2*x)^(3/2),x)
```

```
[Out] -1/35*(1575*x^5+7740*x^4+18288*x^3+31448*x^2+75776*x-77456)/(1-2*
x)^(1/2)
```

Maxima [A] time = 1.36427, size = 74, normalized size = 0.94

$$\frac{45}{32}\,(-2\,x+1)^{\frac{9}{2}}-\frac{4671}{224}\,(-2\,x+1)^{\frac{7}{2}}+\frac{10773}{80}\,(-2\,x+1)^{\frac{5}{2}}-\frac{8281}{16}\,(-2\,x+1)^{\frac{3}{2}}+\frac{57281}{32}\,\sqrt{-2\,x+1}+\frac{26411}{32\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^4/(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] 45/32*(-2*x + 1)^(9/2) - 4671/224*(-2*x + 1)^(7/2) + 10773/80*(-2
*x + 1)^(5/2) - 8281/16*(-2*x + 1)^(3/2) + 57281/32*sqrt(-2*x + 1
) + 26411/32/sqrt(-2*x + 1)
```

Fricas [A] time = 0.20716, size = 46, normalized size = 0.58

$$-\frac{1575\,x^{5}+7740\,x^{4}+18288\,x^{3}+31448\,x^{2}+75776\,x-77456}{35\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^4/(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/35*(1575*x^5 + 7740*x^4 + 18288*x^3 + 31448*x^2 + 75776*x - 77
456)/sqrt(-2*x + 1)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{4}\,(5x+3)}{(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((2+3*x)**4*(3+5*x)/(1-2*x)**(3/2),x)
```

```
[Out] Integral((3*x + 2)**4*(5*x + 3)/(-2*x + 1)**(3/2), x)
```

GIAC/XCAS [A] time = 0.212148, size = 103, normalized size = 1.3

$$\frac{45}{32}\,(2\,x-1)^{4}\sqrt{-2\,x+1}+\frac{4671}{224}\,(2\,x-1)^{3}\sqrt{-2\,x+1}+\frac{10773}{80}\,(2\,x-1)^{2}\sqrt{-2\,x+1}-\frac{8281}{16}\,(-2\,x+1)^{\frac{3}{2}}+\frac{57281}{32}\,\sqrt{-2\,x+1}+\frac{26411}{32\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^4/(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] 45/32*(2*x - 1)^4*sqrt(-2*x + 1) + 4671/224*(2*x - 1)^3*sqrt(-2*x
 + 1) + 10773/80*(2*x - 1)^2*sqrt(-2*x + 1) - 8281/16*(-2*x + 1)^
(3/2) + 57281/32*sqrt(-2*x + 1) + 26411/32/sqrt(-2*x + 1)
```

3.2056 $\int \frac{(2+3x)^3(3+5x)}{(1-2x)^{3/2}}\,dx$

Optimal. Leaf size=66

$$-\frac{135}{112}(1-2x)^{7/2}+\frac{621}{40}(1-2x)^{5/2}-\frac{357}{4}(1-2x)^{3/2}+\frac{3283}{8}\sqrt{1-2x}+\frac{3773}{16\sqrt{1-2x}}$$

```
[Out] 3773/(16*Sqrt[1 - 2*x]) + (3283*Sqrt[1 - 2*x])/8 - (357*(1 - 2*x)
^(3/2))/4 + (621*(1 - 2*x)^(5/2))/40 - (135*(1 - 2*x)^(7/2))/112
```

Rubi [A] time = 0.0590695, antiderivative size = 66, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{135}{112}(1-2x)^{7/2}+\frac{621}{40}(1-2x)^{5/2}-\frac{357}{4}(1-2x)^{3/2}+\frac{3283}{8}\sqrt{1-2x}+\frac{3773}{16\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^3*(3 + 5*x))/(1 - 2*x)^(3/2),x]
```

```
[Out] 3773/(16*Sqrt[1 - 2*x]) + (3283*Sqrt[1 - 2*x])/8 - (357*(1 - 2*x)
^(3/2))/4 + (621*(1 - 2*x)^(5/2))/40 - (135*(1 - 2*x)^(7/2))/112
```

Rubi in Sympy [A] time = 8.20089, size = 58, normalized size = 0.88

$$-\frac{135\,(-2x+1)^{\frac{7}{2}}}{112}+\frac{621\,(-2x+1)^{\frac{5}{2}}}{40}-\frac{357\,(-2x+1)^{\frac{3}{2}}}{4}+\frac{3283\sqrt{-2x+1}}{8}+\frac{3773}{16\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3*(3+5*x)/(1-2*x)**(3/2),x)
```

```
[Out] -135*(-2*x + 1)**(7/2)/112 + 621*(-2*x + 1)**(5/2)/40 - 357*(-2*x
 + 1)**(3/2)/4 + 3283*sqrt(-2*x + 1)/8 + 3773/(16*sqrt(-2*x + 1))
```

Mathematica [A] time = 0.038557, size = 37, normalized size = 0.56

$$\frac{\sqrt{1-2x}\left(675x^4+2997x^3+6987x^2+19154x-19994\right)}{70x-35}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^3*(3 + 5*x))/(1 - 2*x)^(3/2),x]
```

```
[Out] (Sqrt[1 - 2*x]*(-19994 + 19154*x + 6987*x^2 + 2997*x^3 + 675*x^4)
)/(-35 + 70*x)
```

Maple [A] time = 0.006, size = 30, normalized size = 0.5

$$-\frac{675\,x^4+2997\,x^3+6987\,x^2+19154\,x-19994}{35}\frac{1}{\sqrt{1-2\,x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3*(3+5*x)/(1-2*x)^(3/2),x)
```

```
[Out] -1/35*(675*x^4+2997*x^3+6987*x^2+19154*x-19994)/(1-2*x)^(1/2)
```

Maxima [A] time = 1.3357, size = 62, normalized size = 0.94

$$-\frac{135}{112}\left(-2\,x+1\right)^{\frac{7}{2}}+\frac{621}{40}\left(-2\,x+1\right)^{\frac{5}{2}}-\frac{357}{4}\left(-2\,x+1\right)^{\frac{3}{2}}+\frac{3283}{8}\sqrt{-2\,x+1}+\frac{3773}{16\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(3*x + 2)^3/(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] -135/112*(-2*x + 1)^(7/2) + 621/40*(-2*x + 1)^(5/2) - 357/4*(-2*x
 + 1)^(3/2) + 3283/8*sqrt(-2*x + 1) + 3773/16/sqrt(-2*x + 1)
```

Fricas [A] time = 0.211663, size = 39, normalized size = 0.59

$$-\frac{675\,x^{4}+2997\,x^{3}+6987\,x^{2}+19154\,x-19994}{35\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(3*x + 2)^3/(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/35*(675*x^4 + 2997*x^3 + 6987*x^2 + 19154*x - 19994)/sqrt(-2*x
 + 1)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(3x+2)^{3}(5x+3)}{(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3*(3+5*x)/(1-2*x)**(3/2),x)
```

```
[Out] Integral((3*x + 2)**3*(5*x + 3)/(-2*x + 1)**(3/2), x)
```

GIAC/XCAS [A] time = 0.210035, size = 81, normalized size = 1.23

$$\frac{135}{112}\left(2\,x-1\right)^{3}\sqrt{-2\,x+1}+\frac{621}{40}\left(2\,x-1\right)^{2}\sqrt{-2\,x+1}-\frac{357}{4}\left(-2\,x+1\right)^{\frac{3}{2}}+\frac{3283}{8}\sqrt{-2\,x+1}+\frac{3773}{16\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(3*x + 2)^3/(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] 135/112*(2*x - 1)^3*sqrt(-2*x + 1) + 621/40*(2*x - 1)^2*sqrt(-2*x
 + 1) - 357/4*(-2*x + 1)^(3/2) + 3283/8*sqrt(-2*x + 1) + 3773/16/
sqrt(-2*x + 1)
```

3.2057 $\int \frac{(2+3x)^2(3+5x)}{(1-2x)^{3/2}} dx$

Optimal. Leaf size=53

$$\frac{9}{8}(1-2x)^{5/2}-\frac{103}{8}(1-2x)^{3/2}+\frac{707}{8}\sqrt{1-2x}+\frac{539}{8\sqrt{1-2x}}$$

```
[Out] 539/(8*Sqrt[1 - 2*x]) + (707*Sqrt[1 - 2*x])/8 - (103*(1 - 2*x)^(3
/2))/8 + (9*(1 - 2*x)^(5/2))/8
```

Rubi [A] time = 0.0536013, antiderivative size = 53, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{9}{8}(1-2x)^{5/2}-\frac{103}{8}(1-2x)^{3/2}+\frac{707}{8}\sqrt{1-2x}+\frac{539}{8\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^2*(3 + 5*x))/(1 - 2*x)^(3/2),x]
```

```
[Out] 539/(8*Sqrt[1 - 2*x]) + (707*Sqrt[1 - 2*x])/8 - (103*(1 - 2*x)^(3
/2))/8 + (9*(1 - 2*x)^(5/2))/8
```

Rubi in Sympy [A] time = 7.33099, size = 46, normalized size = 0.87

$$\frac{9(-2x+1)^{\frac{5}{2}}}{8}-\frac{103(-2x+1)^{\frac{3}{2}}}{8}+\frac{707\sqrt{-2x+1}}{8}+\frac{539}{8\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2*(3+5*x)/(1-2*x)**(3/2),x)
```

```
[Out] 9*(-2*x + 1)**(5/2)/8 - 103*(-2*x + 1)**(3/2)/8 + 707*sqrt(-2*x +
 1)/8 + 539/(8*sqrt(-2*x + 1))
```

Mathematica [A] time = 0.0379074, size = 25, normalized size = 0.47

$$\frac{-9x^3-38x^2-132x+144}{\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^2*(3 + 5*x))/(1 - 2*x)^(3/2),x]
```

```
[Out] (144 - 132*x - 38*x^2 - 9*x^3)/Sqrt[1 - 2*x]
```

Maple [A] time = 0.006, size = 25, normalized size = 0.5

$$-(9x^3+38x^2+132x-144)\frac{1}{\sqrt{1-2x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2*(3+5*x)/(1-2*x)^(3/2),x)
```

```
[Out] -(9*x^3+38*x^2+132*x-144)/(1-2*x)^(1/2)
```

Maxima [A] time = 1.34059, size = 50, normalized size = 0.94

$$\frac{9}{8}\,(-2\,x+1)^{\frac{5}{2}}-\frac{103}{8}\,(-2\,x+1)^{\frac{3}{2}}+\frac{707}{8}\,\sqrt{-2\,x+1}+\frac{539}{8\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(3*x + 2)^2/(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] 9/8*(-2*x + 1)^(5/2) - 103/8*(-2*x + 1)^(3/2) + 707/8*sqrt(-2*x +
 1) + 539/8/sqrt(-2*x + 1)
```

Fricas [A] time = 0.255252, size = 32, normalized size = 0.6

$$-\frac{9\,x^3+38\,x^2+132\,x-144}{\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(3*x + 2)^2/(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -(9*x^3 + 38*x^2 + 132*x - 144)/sqrt(-2*x + 1)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(3x+2)^2\,(5x+3)}{(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2*(3+5*x)/(1-2*x)**(3/2),x)
```

```
[Out] Integral((3*x + 2)**2*(5*x + 3)/(-2*x + 1)**(3/2), x)
```

GIAC/XCAS [A] time = 0.209103, size = 59, normalized size = 1.11

$$\frac{9}{8}\,(2\,x-1)^2\sqrt{-2\,x+1}-\frac{103}{8}\,(-2\,x+1)^{\frac{3}{2}}+\frac{707}{8}\,\sqrt{-2\,x+1}+\frac{539}{8\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(3*x + 2)^2/(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] 9/8*(2*x - 1)^2*sqrt(-2*x + 1) - 103/8*(-2*x + 1)^(3/2) + 707/8*s
qrt(-2*x + 1) + 539/8/sqrt(-2*x + 1)
```

3.2058 $\int \frac{(2+3x)(3+5x)}{(1-2x)^{3/2}}\,dx$

Optimal. Leaf size=38

$$-\frac{5}{4}(1-2x)^{3/2}+17\sqrt{1-2x}+\frac{77}{4\sqrt{1-2x}}$$

```
[Out] 77/(4*Sqrt[1 - 2*x]) + 17*Sqrt[1 - 2*x] - (5*(1 - 2*x)^(3/2))/4
```

Rubi [A] time = 0.0391016, antiderivative size = 38, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{5}{4}(1-2x)^{3/2}+17\sqrt{1-2x}+\frac{77}{4\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)*(3 + 5*x))/(1 - 2*x)^(3/2),x]
```

```
[Out] 77/(4*Sqrt[1 - 2*x]) + 17*Sqrt[1 - 2*x] - (5*(1 - 2*x)^(3/2))/4
```

Rubi in Sympy [A] time = 5.95551, size = 32, normalized size = 0.84

$$-\frac{5\left(-2x+1\right)^{\frac{3}{2}}}{4}+17\sqrt{-2x+1}+\frac{77}{4\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)*(3+5*x)/(1-2*x)**(3/2),x)
```

```
[Out] -5*(-2*x + 1)**(3/2)/4 + 17*sqrt(-2*x + 1) + 77/(4*sqrt(-2*x + 1)
)
```

Mathematica [A] time = 0.0101844, size = 20, normalized size = 0.53

$$\frac{-5x^2-29x+35}{\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)*(3 + 5*x))/(1 - 2*x)^(3/2),x]
```

```
[Out] (35 - 29*x - 5*x^2)/Sqrt[1 - 2*x]
```

Maple [A] time = 0.004, size = 20, normalized size = 0.5

$$-(5x^2+29x-35)\frac{1}{\sqrt{1-2x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)*(3+5*x)/(1-2*x)^(3/2),x)
```

```
[Out] -(5*x^2+29*x-35)/(1-2*x)^(1/2)
```

Maxima [A] time = 1.33205, size = 38, normalized size = 1.

$$-\frac{5}{4}\left(-2x+1\right)^{\frac{3}{2}}+17\sqrt{-2x+1}+\frac{77}{4\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(3*x + 2)/(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] -5/4*(-2*x + 1)^(3/2) + 17*sqrt(-2*x + 1) + 77/4/sqrt(-2*x + 1)
```

Fricas [A] time = 0.237529, size = 26, normalized size = 0.68

$$-\frac{5x^2+29x-35}{\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(3*x + 2)/(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -(5*x^2 + 29*x - 35)/sqrt(-2*x + 1)
```

Sympy [A] time = 4.84898, size = 160, normalized size = 4.21

$$-\frac{19x}{\sqrt{-2x+1}}+15\left(\begin{cases}\frac{ix^2\sqrt{2x-1}}{6x-3}+\frac{2ix\sqrt{2x-1}}{6x-3}-\frac{4x}{6x-3}-\frac{2i\sqrt{2x-1}}{6x-3}+\frac{2}{6x-3} & \text{for } 2|x|>1\\ \frac{x^2\sqrt{-2x+1}}{6x-3}+\frac{2x\sqrt{-2x+1}}{6x-3}-\frac{4x}{6x-3}-\frac{2\sqrt{-2x+1}}{6x-3}+\frac{2}{6x-3} & \text{otherwise}\end{cases}\right)+\frac{25}{\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)*(3+5*x)/(1-2*x)**(3/2),x)
```

```
[Out] -19*x/sqrt(-2*x + 1) + 15*Piecewise((I*x**2*sqrt(2*x - 1)/(6*x -
3) + 2*I*x*sqrt(2*x - 1)/(6*x - 3) - 4*x/(6*x - 3) - 2*I*sqrt(2*x
 - 1)/(6*x - 3) + 2/(6*x - 3), 2*Abs(x) > 1), (x**2*sqrt(-2*x + 1
)/(6*x - 3) + 2*x*sqrt(-2*x + 1)/(6*x - 3) - 4*x/(6*x - 3) - 2*sq
rt(-2*x + 1)/(6*x - 3) + 2/(6*x - 3), True)) + 25/sqrt(-2*x + 1)
```

GIAC/XCAS [A] time = 0.214442, size = 38, normalized size = 1.

$$-\frac{5}{4}\left(-2x+1\right)^{\frac{3}{2}}+17\sqrt{-2x+1}+\frac{77}{4\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)/(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] -5/4*(-2*x + 1)^(3/2) + 17*sqrt(-2*x + 1) + 77/4/sqrt(-2*x + 1)
```

3.2059 $\int \frac{3+5x}{(1-2x)^{3/2}} dx$

Optimal. Leaf size=27

$$\frac{5}{2}\sqrt{1-2x}+\frac{11}{2\sqrt{1-2x}}$$

```
[Out] 11/(2*Sqrt[1 - 2*x]) + (5*Sqrt[1 - 2*x])/2
```

Rubi [A] time = 0.0223937, antiderivative size = 27, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.067

$$\frac{5}{2}\sqrt{1-2x}+\frac{11}{2\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In] Int[(3 + 5*x)/(1 - 2*x)^(3/2),x]

[Out] 11/(2*Sqrt[1 - 2*x]) + (5*Sqrt[1 - 2*x])/2
```

Rubi in Sympy [A] time = 3.91019, size = 22, normalized size = 0.81

$$\frac{5\sqrt{-2x+1}}{2}+\frac{11}{2\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((3+5*x)/(1-2*x)**(3/2),x)

[Out] 5*sqrt(-2*x + 1)/2 + 11/(2*sqrt(-2*x + 1))
```

Mathematica [A] time = 0.00675004, size = 15, normalized size = 0.56

$$\frac{8-5x}{\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In] Integrate[(3 + 5*x)/(1 - 2*x)^(3/2),x]

[Out] (8 - 5*x)/Sqrt[1 - 2*x]
```

Maple [A] time = 0.004, size = 15, normalized size = 0.6

$$-(-8+5x)\frac{1}{\sqrt{1-2x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((3+5*x)/(1-2*x)^(3/2),x)

[Out] -(-8+5*x)/(1-2*x)^(1/2)
```

Maxima [A] time = 1.33933, size = 26, normalized size = 0.96

$$\frac{5}{2}\sqrt{-2x+1}+\frac{11}{2\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] 5/2*sqrt(-2*x + 1) + 11/2/sqrt(-2*x + 1)
```

Fricas [A] time = 0.219632, size = 19, normalized size = 0.7

$$-\frac{5x-8}{\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -(5*x - 8)/sqrt(-2*x + 1)
```

Sympy [A] time = 0.682001, size = 20, normalized size = 0.74

$$-\frac{5x}{\sqrt{-2x+1}}+\frac{8}{\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)/(1-2*x)**(3/2),x)
```

```
[Out] -5*x/sqrt(-2*x + 1) + 8/sqrt(-2*x + 1)
```

GIAC/XCAS [A] time = 0.228574, size = 26, normalized size = 0.96

$$\frac{5}{2}\sqrt{-2x+1}+\frac{11}{2\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] 5/2*sqrt(-2*x + 1) + 11/2/sqrt(-2*x + 1)
```

3.2060 $\int \frac{3+5x}{(1-2x)^{3/2}(2+3x)} \, dx$

Optimal. Leaf size=41

$$\frac{11}{7\sqrt{1-2x}}+\frac{2\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{7\sqrt{21}}$$

```
[Out] 11/(7*Sqrt[1 - 2*x]) + (2*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(7*Sq
rt[21])
```

Rubi [A] time = 0.0502511, antiderivative size = 41, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.136

$$\frac{11}{7\sqrt{1-2x}}+\frac{2\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{7\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In] Int[(3 + 5*x)/((1 - 2*x)^(3/2)*(2 + 3*x)),x]
```

```
[Out] 11/(7*Sqrt[1 - 2*x]) + (2*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(7*Sq
rt[21])
```

Rubi in Sympy [A] time = 5.47729, size = 36, normalized size = 0.88

$$\frac{2\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{147}+\frac{11}{7\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((3+5*x)/(1-2*x)**(3/2)/(2+3*x),x)
```

```
[Out] 2*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/147 + 11/(7*sqrt(-2*x
 + 1))
```

Mathematica [A] time = 0.0626907, size = 41, normalized size = 1.

$$\frac{11}{7\sqrt{1-2x}}+\frac{2\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{7\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In] Integrate[(3 + 5*x)/((1 - 2*x)^(3/2)*(2 + 3*x)),x]
```

```
[Out] 11/(7*Sqrt[1 - 2*x]) + (2*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(7*Sq
rt[21])
```

Maple [A] time = 0.011, size = 29, normalized size = 0.7

$$\frac{2\sqrt{21}}{147}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)+\frac{11}{7}\frac{1}{\sqrt{1-2x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)/(1-2*x)^(3/2)/(2+3*x),x)
```

```
[Out] 2/147*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)+11/7/(1-2*x)^(
1/2)
```

Maxima [A] time = 1.50929, size = 62, normalized size = 1.51

$$-\frac{1}{147}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{11}{7\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/((3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] -1/147*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21) + 3*
sqrt(-2*x + 1))) + 11/7/sqrt(-2*x + 1)
```

Fricas [A] time = 0.229048, size = 73, normalized size = 1.78

$$\frac{\sqrt{21}\left(\sqrt{-2x+1}\log\left(\frac{\sqrt{21}(3x-5)-21\sqrt{-2x+1}}{3x+2}\right)+11\sqrt{21}\right)}{147\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/((3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/147*sqrt(21)*(sqrt(-2*x + 1)*log((sqrt(21)*(3*x - 5) - 21*sqrt(
-2*x + 1))/(3*x + 2)) + 11*sqrt(21))/sqrt(-2*x + 1)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{5x+3}{(-2x+1)^{\frac{3}{2}}(3x+2)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)/(1-2*x)**(3/2)/(2+3*x),x)
```

```
[Out] Integral((5*x + 3)/((-2*x + 1)**(3/2)*(3*x + 2)), x)
```

GIAC/XCAS [A] time = 0.231853, size = 66, normalized size = 1.61

$$-\frac{1}{147}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{11}{7\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/((3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] -1/147*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqrt(
21) + 3*sqrt(-2*x + 1))) + 11/7/sqrt(-2*x + 1)
```

3.2061 $\int \frac{3+5x}{(1-2x)^{3/2}(2+3x)^2}\,dx$

Optimal. Leaf size=61

$$\frac{64}{147\sqrt{1-2x}}+\frac{1}{21\sqrt{1-2x}(3x+2)}-\frac{64\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{49\sqrt{21}}$$

```
[Out] 64/(147*Sqrt[1 - 2*x]) + 1/(21*Sqrt[1 - 2*x]*(2 + 3*x)) - (64*Arc
Tanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(49*Sqrt[21])
```

Rubi [A] time = 0.0656541, antiderivative size = 61, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$\frac{64}{147\sqrt{1-2x}}+\frac{1}{21\sqrt{1-2x}(3x+2)}-\frac{64\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{49\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)/((1 - 2*x)^(3/2)*(2 + 3*x)^2),x]
```

```
[Out] 64/(147*Sqrt[1 - 2*x]) + 1/(21*Sqrt[1 - 2*x]*(2 + 3*x)) - (64*Arc
Tanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(49*Sqrt[21])
```

Rubi in Sympy [A] time = 7.28895, size = 53, normalized size = 0.87

$$-\frac{64\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{1029}+\frac{64}{147\sqrt{-2x+1}}+\frac{1}{21\sqrt{-2x+1}\,(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)/(1-2*x)**(3/2)/(2+3*x)**2,x)
```

```
[Out] -64*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/1029 + 64/(147*sqrt
(-2*x + 1)) + 1/(21*sqrt(-2*x + 1)*(3*x + 2))
```

Mathematica [A] time = 0.106126, size = 56, normalized size = 0.92

$$-\frac{\sqrt{1-2x}(64x+45)}{49\left(6x^2+x-2\right)}-\frac{64\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{49\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)/((1 - 2*x)^(3/2)*(2 + 3*x)^2),x]
```

```
[Out] -(Sqrt[1 - 2*x]*(45 + 64*x))/(49*(-2 + x + 6*x^2)) - (64*ArcTanh[
Sqrt[3/7]*Sqrt[1 - 2*x]])/(49*Sqrt[21])
```

Maple [A] time = 0.016, size = 45, normalized size = 0.7

$$\frac{22}{49}\frac{1}{\sqrt{1-2\,x}}-\frac{2}{147}\sqrt{1-2\,x}\left(-\frac{4}{3}-2\,x\right)^{-1}-\frac{64\,\sqrt{21}}{1029}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)/(1-2*x)^(3/2)/(2+3*x)^2,x)
```

```
[Out] 22/49/(1-2*x)^(1/2)-2/147*(1-2*x)^(1/2)/(-4/3-2*x)-64/1029*arctan
h(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.50596, size = 88, normalized size = 1.44

$$\frac{32}{1029}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{2(64x+45)}{49\left(3(-2x+1)^{\frac{3}{2}}-7\sqrt{-2x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)/((3*x + 2)^2*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 32/1029*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21) + 3
*sqrt(-2*x + 1))) - 2/49*(64*x + 45)/(3*(-2*x + 1)^(3/2) - 7*sqrt
(-2*x + 1))
```

Fricas [A] time = 0.226826, size = 96, normalized size = 1.57

$$\frac{\sqrt{21}\left(32(3x+2)\sqrt{-2x+1}\log\left(\frac{\sqrt{21}(3x-5)+21\sqrt{-2x+1}}{3x+2}\right)+\sqrt{21}(64x+45)\right)}{1029(3x+2)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)/((3*x + 2)^2*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/1029*sqrt(21)*(32*(3*x + 2)*sqrt(-2*x + 1)*log((sqrt(21)*(3*x -
 5) + 21*sqrt(-2*x + 1))/(3*x + 2)) + sqrt(21)*(64*x + 45))/((3*x
 + 2)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)/(1-2*x)**(3/2)/(2+3*x)**2,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.227776, size = 92, normalized size = 1.51

$$\frac{32}{1029}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{2(64x+45)}{49\left(3(-2x+1)^{\frac{3}{2}}-7\sqrt{-2x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)/((3*x + 2)^2*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 32/1029*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqrt
(21) + 3*sqrt(-2*x + 1))) - 2/49*(64*x + 45)/(3*(-2*x + 1)^(3/2)
- 7*sqrt(-2*x + 1))
```

3.2062 $\int \frac{3+5x}{(1-2x)^{3/2}(2+3x)^3}\,dx$

Optimal. Leaf size=90

$$-\frac{195\sqrt{1-2x}}{686(3x+2)}+\frac{65}{147\sqrt{1-2x}(3x+2)}+\frac{1}{42\sqrt{1-2x}(3x+2)^2}-\frac{65}{343}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

```
[Out] 1/(42*Sqrt[1 - 2*x]*(2 + 3*x)^2) + 65/(147*Sqrt[1 - 2*x]*(2 + 3*x
)) - (195*Sqrt[1 - 2*x])/(686*(2 + 3*x)) - (65*Sqrt[3/7]*ArcTanh[
Sqrt[3/7]*Sqrt[1 - 2*x]])/343
```

Rubi [A] time = 0.0930501, antiderivative size = 90, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{195\sqrt{1-2x}}{686(3x+2)}+\frac{65}{147\sqrt{1-2x}(3x+2)}+\frac{1}{42\sqrt{1-2x}(3x+2)^2}-\frac{65}{343}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In] Int[(3 + 5*x)/((1 - 2*x)^(3/2)*(2 + 3*x)^3),x]
```

```
[Out] 1/(42*Sqrt[1 - 2*x]*(2 + 3*x)^2) + 65/(147*Sqrt[1 - 2*x]*(2 + 3*x
)) - (195*Sqrt[1 - 2*x])/(686*(2 + 3*x)) - (65*Sqrt[3/7]*ArcTanh[
Sqrt[3/7]*Sqrt[1 - 2*x]])/343
```

Rubi in Sympy [A] time = 9.04876, size = 71, normalized size = 0.79

$$-\frac{65\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{2401}+\frac{65}{343\sqrt{-2x+1}}-\frac{65}{294\sqrt{-2x+1}\,(3x+2)}+\frac{1}{42\sqrt{-2x+1}\,(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((3+5*x)/(1-2*x)**(3/2)/(2+3*x)**3,x)
```

```
[Out] -65*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/2401 + 65/(343*sqrt
(-2*x + 1)) - 65/(294*sqrt(-2*x + 1)*(3*x + 2)) + 1/(42*sqrt(-2*x
 + 1)*(3*x + 2)**2)
```

Mathematica [A] time = 0.128049, size = 58, normalized size = 0.64

$$\frac{\frac{7(1170x^2+1105x+233)}{\sqrt{1-2x}(3x+2)^2}-130\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{4802}$$

Antiderivative was successfully verified.

```
[In] Integrate[(3 + 5*x)/((1 - 2*x)^(3/2)*(2 + 3*x)^3),x]
```

```
[Out] ((7*(233 + 1105*x + 1170*x^2))/(Sqrt[1 - 2*x]*(2 + 3*x)^2) - 130*
Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/4802
```

Maple [A] time = 0.017, size = 57, normalized size = 0.6

$$\frac{44}{343}\frac{1}{\sqrt{1-2x}}+\frac{36}{343\,(-4-6x)^2}\left(\frac{21}{4}(1-2x)^{\frac{3}{2}}-\frac{427}{36}\sqrt{1-2x}\right)-\frac{65\sqrt{21}}{2401}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)/(1-2*x)^(3/2)/(2+3*x)^3,x)
```

```
[Out] 44/343/(1-2*x)^(1/2)+36/343*(21/4*(1-2*x)^(3/2)-427/36*(1-2*x)^(1
/2))/(-4-6*x)^2-65/2401*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1
/2)
```

Maxima [A] time = 1.50589, size = 112, normalized size = 1.24

$$\frac{65}{4802}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{585(2x-1)^2+4550x-119}{343\left(9(-2x+1)^{\frac{5}{2}}-42(-2x+1)^{\frac{3}{2}}+49\sqrt{-2x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)/((3*x + 2)^3*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 65/4802*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21) + 3
*sqrt(-2*x + 1))) + 1/343*(585*(2*x - 1)^2 + 4550*x - 119)/(9*(-2
*x + 1)^(5/2) - 42*(-2*x + 1)^(3/2) + 49*sqrt(-2*x + 1))
```

Fricas [A] time = 0.223657, size = 124, normalized size = 1.38

$$\frac{\sqrt{7}\left(65\sqrt{3}(9x^2+12x+4)\sqrt{-2x+1}\log\left(\frac{\sqrt{7}(3x-5)+7\sqrt{3}\sqrt{-2x+1}}{3x+2}\right)+\sqrt{7}(1170x^2+1105x+233)\right)}{4802(9x^2+12x+4)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)/((3*x + 2)^3*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/4802*sqrt(7)*(65*sqrt(3)*(9*x^2 + 12*x + 4)*sqrt(-2*x + 1)*log(
(sqrt(7)*(3*x - 5) + 7*sqrt(3)*sqrt(-2*x + 1))/(3*x + 2)) + sqrt(
7)*(1170*x^2 + 1105*x + 233))/((9*x^2 + 12*x + 4)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)/(1-2*x)**(3/2)/(2+3*x)**3,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.226303, size = 104, normalized size = 1.16

$$\frac{65}{4802}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{44}{343\sqrt{-2x+1}}+\frac{27(-2x+1)^{\frac{3}{2}}-61\sqrt{-2x+1}}{196(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)/((3*x + 2)^3*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 65/4802*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqrt
(21) + 3*sqrt(-2*x + 1))) + 44/343/sqrt(-2*x + 1) + 1/196*(27*(-2
*x + 1)^(3/2) - 61*sqrt(-2*x + 1))/(3*x + 2)^2
```

3.2063 $\int \frac{3+5x}{(1-2x)^{3/2}(2+3x)^4}\,dx$

Optimal. Leaf size=108

$$-\frac{5\sqrt{1-2x}}{49(3x+2)}-\frac{5\sqrt{1-2x}}{21(3x+2)^2}+\frac{4}{9\sqrt{1-2x}(3x+2)^2}+\frac{1}{63\sqrt{1-2x}(3x+2)^3}-\frac{10\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{49\sqrt{21}}$$

```
[Out] 1/(63*Sqrt[1 - 2*x]*(2 + 3*x)^3) + 4/(9*Sqrt[1 - 2*x]*(2 + 3*x)^2
) - (5*Sqrt[1 - 2*x])/(21*(2 + 3*x)^2) - (5*Sqrt[1 - 2*x])/(49*(2
 + 3*x)) - (10*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(49*Sqrt[21])
```

Rubi [A] time = 0.114875, antiderivative size = 108, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{5\sqrt{1-2x}}{49(3x+2)}-\frac{5\sqrt{1-2x}}{21(3x+2)^2}+\frac{4}{9\sqrt{1-2x}(3x+2)^2}+\frac{1}{63\sqrt{1-2x}(3x+2)^3}-\frac{10\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{49\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)/((1 - 2*x)^(3/2)*(2 + 3*x)^4),x]
```

```
[Out] 1/(63*Sqrt[1 - 2*x]*(2 + 3*x)^3) + 4/(9*Sqrt[1 - 2*x]*(2 + 3*x)^2
) - (5*Sqrt[1 - 2*x])/(21*(2 + 3*x)^2) - (5*Sqrt[1 - 2*x])/(49*(2
 + 3*x)) - (10*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(49*Sqrt[21])
```

Rubi in Sympy [A] time = 11.6641, size = 94, normalized size = 0.87

$$-\frac{5\sqrt{-2x+1}}{49\,(3x+2)}-\frac{10\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{1029}+\frac{10}{63\sqrt{-2x+1}\,(3x+2)}-\frac{1}{9\sqrt{-2x+1}\,(3x+2)^2}+\frac{1}{63\sqrt{-2x+1}\,(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)/(1-2*x)**(3/2)/(2+3*x)**4,x)
```

```
[Out] -5*sqrt(-2*x + 1)/(49*(3*x + 2)) - 10*sqrt(21)*atanh(sqrt(21)*sqr
t(-2*x + 1)/7)/1029 + 10/(63*sqrt(-2*x + 1)*(3*x + 2)) - 1/(9*sqr
t(-2*x + 1)*(3*x + 2)**2) + 1/(63*sqrt(-2*x + 1)*(3*x + 2)**3)
```

Mathematica [A] time = 0.129925, size = 63, normalized size = 0.58

$$\frac{90x^3+145x^2+57x+1}{49\sqrt{1-2x}(3x+2)^3}-\frac{10\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{49\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)/((1 - 2*x)^(3/2)*(2 + 3*x)^4),x]
```

```
[Out] (1 + 57*x + 145*x^2 + 90*x^3)/(49*Sqrt[1 - 2*x]*(2 + 3*x)^3) - (1
0*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(49*Sqrt[21])
```

Maple [A] time = 0.019, size = 66, normalized size = 0.6

$$\frac{88}{2401}\frac{1}{\sqrt{1-2x}}+\frac{216}{2401\,(-4-6x)^3}\left(\frac{113}{12}(1-2x)^{\frac{5}{2}}-\frac{1351}{27}(1-2x)^{\frac{3}{2}}+\frac{7007}{108}\sqrt{1-2x}\right)-\frac{10\sqrt{21}}{1029}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)/(1-2*x)^(3/2)/(2+3*x)^4,x)
```

```
[Out] 88/2401/(1-2*x)^(1/2)+216/2401*(113/12*(1-2*x)^(5/2)-1351/27*(1-2
*x)^(3/2)+7007/108*(1-2*x)^(1/2))/(-4-6*x)^3-10/1029*arctanh(1/7*
21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.5195, size = 136, normalized size = 1.26

$$\frac{5}{1029}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{2\left(45(2x-1)^3+280(2x-1)^2+1078x-231\right)}{49\left(27(-2x+1)^{\frac{7}{2}}-189(-2x+1)^{\frac{5}{2}}+441(-2x+1)^{\frac{3}{2}}-343\sqrt{-2x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/((3*x + 2)^4*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 5/1029*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21) + 3*
sqrt(-2*x + 1))) - 2/49*(45*(2*x - 1)^3 + 280*(2*x - 1)^2 + 1078*
x - 231)/(27*(-2*x + 1)^(7/2) - 189*(-2*x + 1)^(5/2) + 441*(-2*x
+ 1)^(3/2) - 343*sqrt(-2*x + 1))
```

Fricas [A] time = 0.224417, size = 136, normalized size = 1.26

$$\frac{\sqrt{21}\left(5\left(27x^3+54x^2+36x+8\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{21}(3x-5)+21\sqrt{-2x+1}}{3x+2}\right)+\sqrt{21}\left(90x^3+145x^2+57x+1\right)\right)}{1029\left(27x^3+54x^2+36x+8\right)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/((3*x + 2)^4*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/1029*sqrt(21)*(5*(27*x^3 + 54*x^2 + 36*x + 8)*sqrt(-2*x + 1)*lo
g((sqrt(21)*(3*x - 5) + 21*sqrt(-2*x + 1))/(3*x + 2)) + sqrt(21)*
(90*x^3 + 145*x^2 + 57*x + 1))/((27*x^3 + 54*x^2 + 36*x + 8)*sqrt
(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)/(1-2*x)**(3/2)/(2+3*x)**4,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.220105, size = 126, normalized size = 1.17

$$\frac{5}{1029}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{88}{2401\sqrt{-2x+1}}-\frac{1017(2x-1)^2\sqrt{-2x+1}-5404(-2x+1)^{\frac{3}{2}}+7007\sqrt{-2x+1}}{9604(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)/((3*x + 2)^4*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 5/1029*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqrt(
21) + 3*sqrt(-2*x + 1))) + 88/2401/sqrt(-2*x + 1) - 1/9604*(1017*
(2*x - 1)^2*sqrt(-2*x + 1) - 5404*(-2*x + 1)^(3/2) + 7007*sqrt(-2
*x + 1))/(3*x + 2)^3
```

3.2064 $\int \frac{3+5x}{(1-2x)^{3/2}(2+3x)^5}\,dx$

Optimal. Leaf size=128

$$-\frac{655\sqrt{1-2x}}{19208(3x+2)}-\frac{655\sqrt{1-2x}}{8232(3x+2)^2}-\frac{131\sqrt{1-2x}}{588(3x+2)^3}+\frac{131}{294\sqrt{1-2x}(3x+2)^3}+\frac{1}{84\sqrt{1-2x}(3x+2)^4}-\frac{655\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{9604\sqrt{21}}$$

```
[Out] 1/(84*Sqrt[1 - 2*x]*(2 + 3*x)^4) + 131/(294*Sqrt[1 - 2*x]*(2 + 3*
x)^3) - (131*Sqrt[1 - 2*x])/(588*(2 + 3*x)^3) - (655*Sqrt[1 - 2*x
])/(8232*(2 + 3*x)^2) - (655*Sqrt[1 - 2*x])/(19208*(2 + 3*x)) - (
655*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(9604*Sqrt[21])
```

Rubi [A] time = 0.140805, antiderivative size = 128, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{655\sqrt{1-2x}}{19208(3x+2)}-\frac{655\sqrt{1-2x}}{8232(3x+2)^2}-\frac{131\sqrt{1-2x}}{588(3x+2)^3}+\frac{131}{294\sqrt{1-2x}(3x+2)^3}+\frac{1}{84\sqrt{1-2x}(3x+2)^4}-\frac{655\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{9604\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)/((1 - 2*x)^(3/2)*(2 + 3*x)^5),x]
```

```
[Out] 1/(84*Sqrt[1 - 2*x]*(2 + 3*x)^4) + 131/(294*Sqrt[1 - 2*x]*(2 + 3*
x)^3) - (131*Sqrt[1 - 2*x])/(588*(2 + 3*x)^3) - (655*Sqrt[1 - 2*x
])/(8232*(2 + 3*x)^2) - (655*Sqrt[1 - 2*x])/(19208*(2 + 3*x)) - (
655*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(9604*Sqrt[21])
```

Rubi in Sympy [A] time = 13.837, size = 114, normalized size = 0.89

$$-\frac{655\sqrt{-2x+1}}{19208\,(3x+2)}-\frac{655\sqrt{-2x+1}}{8232\,(3x+2)^2}-\frac{655\sqrt{21}\,\mathrm{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{201684}+\frac{131}{882\sqrt{-2x+1}\,(3x+2)^2}-\frac{131}{1764\sqrt{-2x+1}\,(3x+2)^3}+\frac{1}{84\sqrt{-2x+1}\,(3x+2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)/(1-2*x)**(3/2)/(2+3*x)**5,x)
```

```
[Out] -655*sqrt(-2*x + 1)/(19208*(3*x + 2)) - 655*sqrt(-2*x + 1)/(8232*
(3*x + 2)**2) - 655*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/201
684 + 131/(882*sqrt(-2*x + 1)*(3*x + 2)**2) - 131/(1764*sqrt(-2*x
 + 1)*(3*x + 2)**3) + 1/(84*sqrt(-2*x + 1)*(3*x + 2)**4)
```

Mathematica [A] time = 0.177045, size = 68, normalized size = 0.53

$$\frac{\frac{21(35370x^4+80565x^3+60391x^2+10742x-2566)}{\sqrt{1-2x}(3x+2)^4}-1310\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{403368}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)/((1 - 2*x)^(3/2)*(2 + 3*x)^5),x]
```

```
[Out] ((21*(-2566 + 10742*x + 60391*x^2 + 80565*x^3 + 35370*x^4))/(Sqrt
[1 - 2*x]*(2 + 3*x)^4) - 1310*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 -
 2*x]])/403368
```

Maple [A] time = 0.019, size = 75, normalized size = 0.6

$$\frac{176}{16807}\frac{1}{\sqrt{1-2\,x}}+\frac{1296}{16807\,(-4-6\,x)^{4}}\left(\frac{2473}{192}\,(1-2\,x)^{\frac{7}{2}}-\frac{175637}{1728}\,(1-2\,x)^{\frac{5}{2}}+\frac{1417325}{5184}\,(1-2\,x)^{\frac{3}{2}}-\frac{142345}{576}\sqrt{1-2\,x}\right)-\frac{655\,\sqrt{21}}{201684}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)/(1-2*x)^(3/2)/(2+3*x)^5,x)
```

```
[Out] 176/16807/(1-2*x)^(1/2)+1296/16807*(2473/192*(1-2*x)^(7/2)-175637
/1728*(1-2*x)^(5/2)+1417325/5184*(1-2*x)^(3/2)-142345/576*(1-2*x)
^(1/2))/(-4-6*x)^4-655/201684*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))
*21^(1/2)
```

Maxima [A] time = 1.57874, size = 161, normalized size = 1.26

$$\frac{655}{403368}\,\sqrt{21}\log\left(-\frac{\sqrt{21}-3\,\sqrt{-2\,x+1}}{\sqrt{21}+3\,\sqrt{-2\,x+1}}\right)+\frac{17685\,(2\,x-1)^{4}+151305\,(2\,x-1)^{3}+468587\,(2\,x-1)^{2}+1193934\,x-355495}{9604\left(81\,(-2\,x+1)^{\frac{9}{2}}-756\,(-2\,x+1)^{\frac{7}{2}}+2646\,(-2\,x+1)^{\frac{5}{2}}-4116\,(-2\,x+1)^{\frac{3}{2}}+2401\,\sqrt{-2\,x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/((3*x + 2)^5*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 655/403368*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21)
+ 3*sqrt(-2*x + 1))) + 1/9604*(17685*(2*x - 1)^4 + 151305*(2*x -
1)^3 + 468587*(2*x - 1)^2 + 1193934*x - 355495)/(81*(-2*x + 1)^(9
/2) - 756*(-2*x + 1)^(7/2) + 2646*(-2*x + 1)^(5/2) - 4116*(-2*x +
 1)^(3/2) + 2401*sqrt(-2*x + 1))
```

Fricas [A] time = 0.255312, size = 157, normalized size = 1.23

$$\frac{\sqrt{21}\left(655\,(81\,x^{4}+216\,x^{3}+216\,x^{2}+96\,x+16)\,\sqrt{-2\,x+1}\log\left(\frac{\sqrt{21}(3\,x-5)+21\,\sqrt{-2\,x+1}}{3\,x+2}\right)+\sqrt{21}(35370\,x^{4}+80565\,x^{3}+60391\,x^{2}+\right.}{403368\,(81\,x^{4}+216\,x^{3}+216\,x^{2}+96\,x+16)\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/((3*x + 2)^5*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/403368*sqrt(21)*(655*(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16)*s
qrt(-2*x + 1)*log((sqrt(21)*(3*x - 5) + 21*sqrt(-2*x + 1))/(3*x +
 2)) + sqrt(21)*(35370*x^4 + 80565*x^3 + 60391*x^2 + 10742*x - 25
66))/((81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)/(1-2*x)**(3/2)/(2+3*x)**5,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.215566, size = 147, normalized size = 1.15

$$\frac{655}{403368}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{176}{16807\sqrt{-2x+1}}-\frac{66771(2x-1)^3\sqrt{-2x+1}+526911(2x-1)^2\sqrt{-2x+1}-1417325(-2x+1)^{\frac{3}{2}}+1281105\sqrt{-2x+1}}{1075648(3x+2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/((3*x + 2)^5*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 655/403368*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(s
qrt(21) + 3*sqrt(-2*x + 1))) + 176/16807/sqrt(-2*x + 1) - 1/10756
48*(66771*(2*x - 1)^3*sqrt(-2*x + 1) + 526911*(2*x - 1)^2*sqrt(-2
*x + 1) - 1417325*(-2*x + 1)^(3/2) + 1281105*sqrt(-2*x + 1))/(3*x
 + 2)^4
```

3.2065 $\int \frac{3+5x}{(1-2x)^{3/2}(2+3x)^6}\,dx$

Optimal. Leaf size=150

$$-\frac{369\sqrt{1-2x}}{33614(3x+2)}-\frac{123\sqrt{1-2x}}{4802(3x+2)^2}-\frac{123\sqrt{1-2x}}{1715(3x+2)^3}-\frac{369\sqrt{1-2x}}{1715(3x+2)^4}+\frac{328}{735\sqrt{1-2x}(3x+2)^4}+\frac{1}{105\sqrt{1-2x}(3x+2)^5}-\frac{123\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{16807}$$

```
[Out] 1/(105*Sqrt[1 - 2*x]*(2 + 3*x)^5) + 328/(735*Sqrt[1 - 2*x]*(2 + 3
*x)^4) - (369*Sqrt[1 - 2*x])/(1715*(2 + 3*x)^4) - (123*Sqrt[1 - 2
*x])/(1715*(2 + 3*x)^3) - (123*Sqrt[1 - 2*x])/(4802*(2 + 3*x)^2)
- (369*Sqrt[1 - 2*x])/(33614*(2 + 3*x)) - (123*Sqrt[3/7]*ArcTanh[
Sqrt[3/7]*Sqrt[1 - 2*x]])/16807
```

Rubi [A] time = 0.164618, antiderivative size = 150, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{369\sqrt{1-2x}}{33614(3x+2)}-\frac{123\sqrt{1-2x}}{4802(3x+2)^2}-\frac{123\sqrt{1-2x}}{1715(3x+2)^3}-\frac{369\sqrt{1-2x}}{1715(3x+2)^4}+\frac{328}{735\sqrt{1-2x}(3x+2)^4}+\frac{1}{105\sqrt{1-2x}(3x+2)^5}-\frac{123\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{16807}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)/((1 - 2*x)^(3/2)*(2 + 3*x)^6),x]
```

```
[Out] 1/(105*Sqrt[1 - 2*x]*(2 + 3*x)^5) + 328/(735*Sqrt[1 - 2*x]*(2 + 3
*x)^4) - (369*Sqrt[1 - 2*x])/(1715*(2 + 3*x)^4) - (123*Sqrt[1 - 2
*x])/(1715*(2 + 3*x)^3) - (123*Sqrt[1 - 2*x])/(4802*(2 + 3*x)^2)
- (369*Sqrt[1 - 2*x])/(33614*(2 + 3*x)) - (123*Sqrt[3/7]*ArcTanh[
Sqrt[3/7]*Sqrt[1 - 2*x]])/16807
```

Rubi in Sympy [A] time = 16.7619, size = 133, normalized size = 0.89

$$-\frac{369\sqrt{-2x+1}}{33614\,(3x+2)}-\frac{123\sqrt{-2x+1}}{4802\,(3x+2)^2}-\frac{123\sqrt{-2x+1}}{1715\,(3x+2)^3}-\frac{123\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{117649}+\frac{246}{1715\sqrt{-2x+1}\,(3x+2)^3}-\frac{41}{735\sqrt{-2x+1}\,(3x+2)^4}+\frac{1}{105\sqrt{-2x+1}\,(3x+2)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)/(1-2*x)**(3/2)/(2+3*x)**6,x)
```

```
[Out] -369*sqrt(-2*x + 1)/(33614*(3*x + 2)) - 123*sqrt(-2*x + 1)/(4802*
(3*x + 2)**2) - 123*sqrt(-2*x + 1)/(1715*(3*x + 2)**3) - 123*sqrt
(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/117649 + 246/(1715*sqrt(-2*
x + 1)*(3*x + 2)**3) - 41/(735*sqrt(-2*x + 1)*(3*x + 2)**4) + 1/(
105*sqrt(-2*x + 1)*(3*x + 2)**5)
```

Mathematica [A] time = 0.123837, size = 73, normalized size = 0.49

$$\frac{\frac{7\left(298890x^5+880065x^4+964197x^3+430992x^2+8774x-32894\right)}{\sqrt{1-2x}(3x+2)^5}-1230\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{1176490}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)/((1 - 2*x)^(3/2)*(2 + 3*x)^6),x]
```

```
[Out] ((7*(-32894 + 8774*x + 430992*x^2 + 964197*x^3 + 880065*x^4 + 298
890*x^5))/(Sqrt[1 - 2*x]*(2 + 3*x)^5) - 1230*Sqrt[21]*ArcTanh[Sqr
t[3/7]*Sqrt[1 - 2*x]])/1176490
```

Maple [A] time = 0.02, size = 84, normalized size = 0.6

$$\frac{352}{117649}\frac{1}{\sqrt{1-2x}}+\frac{7776}{117649\,(-4-6x)^{5}}\left(\frac{509}{32}(1-2x)^{\frac{9}{2}}-\frac{7903}{48}(1-2x)^{\frac{7}{2}}+\frac{29302}{45}(1-2x)^{\frac{5}{2}}-\frac{169099}{144}(1-2x)^{\frac{3}{2}}+\frac{6321833}{7776}\sqrt{1-2x}\right)-\frac{123\sqrt{21}}{117649}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)/(1-2*x)^(3/2)/(2+3*x)^6,x)
```

```
[Out] 352/117649/(1-2*x)^(1/2)+7776/117649*(509/32*(1-2*x)^(9/2)-7903/4
8*(1-2*x)^(7/2)+29302/45*(1-2*x)^(5/2)-169099/144*(1-2*x)^(3/2)+6
321833/7776*(1-2*x)^(1/2))/(-4-6*x)^5-123/117649*arctanh(1/7*21^(
1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.50043, size = 185, normalized size = 1.23

$$\frac{123}{235298}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{149445\,(2x-1)^{5}+1627290\,(2x-1)^{4}+6943104\,(2x-1)^{3}+14283990\,(2x-1)^{2}+27141590\,x-9345035}{84035\left(243\,(-2x+1)^{\frac{11}{2}}-2835\,(-2x+1)^{\frac{9}{2}}+13230\,(-2x+1)^{\frac{7}{2}}-30870\,(-2x+1)^{\frac{5}{2}}+36015\,(-2x+1)^{\frac{3}{2}}-16807\sqrt{-2x+}\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/((3*x + 2)^6*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 123/235298*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21)
+ 3*sqrt(-2*x + 1))) - 1/84035*(149445*(2*x - 1)^5 + 1627290*(2*x
 - 1)^4 + 6943104*(2*x - 1)^3 + 14283990*(2*x - 1)^2 + 27141590*x
 - 9345035)/(243*(-2*x + 1)^(11/2) - 2835*(-2*x + 1)^(9/2) + 1323
0*(-2*x + 1)^(7/2) - 30870*(-2*x + 1)^(5/2) + 36015*(-2*x + 1)^(3
/2) - 16807*sqrt(-2*x + 1))
```

Fricas [A] time = 0.240928, size = 185, normalized size = 1.23

$$\frac{\sqrt{7}\left(615\sqrt{3}\left(243x^{5}+810x^{4}+1080x^{3}+720x^{2}+240x+32\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{7}(3x-5)+7\sqrt{3}\sqrt{-2x+1}}{3x+2}\right)+\sqrt{7}\left(298890x^{5}+880065\right.\right.}{1176490\left(243x^{5}+810x^{4}+1080x^{3}+720x^{2}+240x+32\right)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/((3*x + 2)^6*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/1176490*sqrt(7)*(615*sqrt(3)*(243*x^5 + 810*x^4 + 1080*x^3 + 72
0*x^2 + 240*x + 32)*sqrt(-2*x + 1)*log((sqrt(7)*(3*x - 5) + 7*sqr
```

```
t(3)*sqrt(-2*x + 1))/(3*x + 2)) + sqrt(7)*(298890*x^5 + 880065*x^
4 + 964197*x^3 + 430992*x^2 + 8774*x - 32894))/((243*x^5 + 810*x^
4 + 1080*x^3 + 720*x^2 + 240*x + 32)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)/(1-2*x)**(3/2)/(2+3*x)**6,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.220778, size = 169, normalized size = 1.13

$$\frac{123}{235298}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{352}{117649\sqrt{-2x+1}}-\frac{618435(2x-1)^4\sqrt{-2x+1}+6401430(2x-1)^3\sqrt{-2x+1}+25316928(2x-1)^2\sqrt{-2x+1}-45656730(-2x+1)^{\frac{3}{2}}+3160}{18823840(3x+2)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)/((3*x + 2)^6*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 123/235298*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(s
qrt(21) + 3*sqrt(-2*x + 1))) + 352/117649/sqrt(-2*x + 1) - 1/1882
3840*(618435*(2*x - 1)^4*sqrt(-2*x + 1) + 6401430*(2*x - 1)^3*sqr
t(-2*x + 1) + 25316928*(2*x - 1)^2*sqrt(-2*x + 1) - 45656730*(-2*
x + 1)^(3/2) + 31609165*sqrt(-2*x + 1))/(3*x + 2)^5
```

3.2066 $\int \frac{(2+3x)^5(3+5x)^2}{(1-2x)^{3/2}}\,dx$

Optimal. Leaf size=105

$$\frac{6075(1-2x)^{13/2}}{1664}-\frac{97605(1-2x)^{11/2}}{1408}+\frac{74667}{128}(1-2x)^{9/2}-\frac{367155}{128}(1-2x)^{7/2}+\frac{1179381}{128}(1-2x)^{5/2}-\frac{8117095}{384}(1-2x)^{3/2}+\frac{6206585}{128}\sqrt{1-2x}+\frac{2033647}{128\sqrt{1-2x}}$$

```
[Out] 2033647/(128*Sqrt[1 - 2*x]) + (6206585*Sqrt[1 - 2*x])/128 - (8117
095*(1 - 2*x)^(3/2))/384 + (1179381*(1 - 2*x)^(5/2))/128 - (36715
5*(1 - 2*x)^(7/2))/128 + (74667*(1 - 2*x)^(9/2))/128 - (97605*(1
- 2*x)^(11/2))/1408 + (6075*(1 - 2*x)^(13/2))/1664
```

Rubi [A] time = 0.082826, antiderivative size = 105, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.042

$$\frac{6075(1-2x)^{13/2}}{1664}-\frac{97605(1-2x)^{11/2}}{1408}+\frac{74667}{128}(1-2x)^{9/2}-\frac{367155}{128}(1-2x)^{7/2}+\frac{1179381}{128}(1-2x)^{5/2}-\frac{8117095}{384}(1-2x)^{3/2}+\frac{6206585}{128}\sqrt{1-2x}+\frac{2033647}{128\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^5*(3 + 5*x)^2)/(1 - 2*x)^(3/2),x]
```

```
[Out] 2033647/(128*Sqrt[1 - 2*x]) + (6206585*Sqrt[1 - 2*x])/128 - (8117
095*(1 - 2*x)^(3/2))/384 + (1179381*(1 - 2*x)^(5/2))/128 - (36715
5*(1 - 2*x)^(7/2))/128 + (74667*(1 - 2*x)^(9/2))/128 - (97605*(1
- 2*x)^(11/2))/1408 + (6075*(1 - 2*x)^(13/2))/1664
```

Rubi in Sympy [A] time = 12.1802, size = 94, normalized size = 0.9

$$\frac{6075\,(-2x+1)^{\frac{13}{2}}}{1664}-\frac{97605\,(-2x+1)^{\frac{11}{2}}}{1408}+\frac{74667\,(-2x+1)^{\frac{9}{2}}}{128}-\frac{367155\,(-2x+1)^{\frac{7}{2}}}{128}+\frac{1179381\,(-2x+1)^{\frac{5}{2}}}{128}-\frac{8117095\,(-2x+1)^{\frac{3}{2}}}{384}+\frac{6206585\sqrt{-2x+1}}{128}+\frac{2033647}{128\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**5*(3+5*x)**2/(1-2*x)**(3/2),x)
```

```
[Out] 6075*(-2*x + 1)**(13/2)/1664 - 97605*(-2*x + 1)**(11/2)/1408 + 74
667*(-2*x + 1)**(9/2)/128 - 367155*(-2*x + 1)**(7/2)/128 + 117938
1*(-2*x + 1)**(5/2)/128 - 8117095*(-2*x + 1)**(3/2)/384 + 6206585
*sqrt(-2*x + 1)/128 + 2033647/(128*sqrt(-2*x + 1))
```

Mathematica [A] time = 0.062804, size = 48, normalized size = 0.46

$$\frac{-200475x^7-1201635x^6-3350637x^5-5928885x^4-7945164x^3-10015804x^2-21370088x+21493640}{429\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^5*(3 + 5*x)^2)/(1 - 2*x)^(3/2),x]
```

```
[Out] (21493640 - 21370088*x - 10015804*x^2 - 7945164*x^3 - 5928885*x^4
 - 3350637*x^5 - 1201635*x^6 - 200475*x^7)/(429*Sqrt[1 - 2*x])
```

Maple [A] time = 0.007, size = 45, normalized size = 0.4

$$-\frac{200475\,x^{7}+1201635\,x^{6}+3350637\,x^{5}+5928885\,x^{4}+7945164\,x^{3}+10015804\,x^{2}+21370088\,x-21493640}{429}\frac{1}{\sqrt{1-2\,x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^5*(3+5*x)^2/(1-2*x)^(3/2),x)
```

```
[Out] -1/429*(200475*x^7+1201635*x^6+3350637*x^5+5928885*x^4+7945164*x^
3+10015804*x^2+21370088*x-21493640)/(1-2*x)^(1/2)
```

Maxima [A] time = 1.34644, size = 99, normalized size = 0.94

$$\frac{6075}{1664}\,(-2\,x+1)^{\frac{13}{2}}-\frac{97605}{1408}\,(-2\,x+1)^{\frac{11}{2}}+\frac{74667}{128}\,(-2\,x+1)^{\frac{9}{2}}-\frac{367155}{128}\,(-2\,x+1)^{\frac{7}{2}}+\frac{1179381}{128}\,(-2\,x+1)^{\frac{5}{2}}-\frac{8117095}{384}\,(-2\,x+1)^{\frac{3}{2}}+\frac{6206585}{128}\,\sqrt{-2\,x+1}+\frac{2033647}{128\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^5/(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] 6075/1664*(-2*x + 1)^(13/2) - 97605/1408*(-2*x + 1)^(11/2) + 7466
7/128*(-2*x + 1)^(9/2) - 367155/128*(-2*x + 1)^(7/2) + 1179381/12
8*(-2*x + 1)^(5/2) - 8117095/384*(-2*x + 1)^(3/2) + 6206585/128*s
qrt(-2*x + 1) + 2033647/128/sqrt(-2*x + 1)
```

Fricas [A] time = 0.220073, size = 59, normalized size = 0.56

$$-\frac{200475\,x^{7}+1201635\,x^{6}+3350637\,x^{5}+5928885\,x^{4}+7945164\,x^{3}+10015804\,x^{2}+21370088\,x-21493640}{429\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^5/(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/429*(200475*x^7 + 1201635*x^6 + 3350637*x^5 + 5928885*x^4 + 79
45164*x^3 + 10015804*x^2 + 21370088*x - 21493640)/sqrt(-2*x + 1)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{5}\,(5x+3)^{2}}{(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**5*(3+5*x)**2/(1-2*x)**(3/2),x)
```

```
[Out] Integral((3*x + 2)**5*(5*x + 3)**2/(-2*x + 1)**(3/2), x)
```

GIAC/XCAS [A] time = 0.210878, size = 146, normalized size = 1.39

$$\frac{6075}{1664}(2x-1)^6\sqrt{-2x+1}+\frac{97605}{1408}(2x-1)^5\sqrt{-2x+1}+\frac{74667}{128}(2x-1)^4\sqrt{-2x+1}+\frac{367155}{128}(2x-1)^3\sqrt{-2x+1}+\frac{1179381}{128}(2x-1)^2\sqrt{-2x+1}-\frac{8117095}{384}(-2x+1)^{\frac{3}{2}}+\frac{6206585}{128}\sqrt{-2x+1}+\frac{2033647}{128\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(3*x + 2)^5/(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] 6075/1664*(2*x - 1)^6*sqrt(-2*x + 1) + 97605/1408*(2*x - 1)^5*sqr
t(-2*x + 1) + 74667/128*(2*x - 1)^4*sqrt(-2*x + 1) + 367155/128*(
2*x - 1)^3*sqrt(-2*x + 1) + 1179381/128*(2*x - 1)^2*sqrt(-2*x + 1
) - 8117095/384*(-2*x + 1)^(3/2) + 6206585/128*sqrt(-2*x + 1) + 2
033647/128/sqrt(-2*x + 1)
```

3.2067 $\int \frac{(2+3x)^4(3+5x)^2}{(1-2x)^{3/2}}\,dx$

Optimal. Leaf size=92

$$-\frac{2025}{704}(1-2x)^{11/2}+\frac{1545}{32}(1-2x)^{9/2}-\frac{159111}{448}(1-2x)^{7/2}+\frac{121359}{80}(1-2x)^{5/2}-\frac{832951}{192}(1-2x)^{3/2}+\frac{381073}{32}\sqrt{1-2x}+\frac{290521}{64\sqrt{1-2x}}$$

```
[Out] 290521/(64*Sqrt[1 - 2*x]) + (381073*Sqrt[1 - 2*x])/32 - (832951*(
1 - 2*x)^(3/2))/192 + (121359*(1 - 2*x)^(5/2))/80 - (159111*(1 -
2*x)^(7/2))/448 + (1545*(1 - 2*x)^(9/2))/32 - (2025*(1 - 2*x)^(11
/2))/704
```

Rubi [A] time = 0.0782221, antiderivative size = 92, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.042

$$-\frac{2025}{704}(1-2x)^{11/2}+\frac{1545}{32}(1-2x)^{9/2}-\frac{159111}{448}(1-2x)^{7/2}+\frac{121359}{80}(1-2x)^{5/2}-\frac{832951}{192}(1-2x)^{3/2}+\frac{381073}{32}\sqrt{1-2x}+\frac{290521}{64\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^4*(3 + 5*x)^2)/(1 - 2*x)^(3/2),x]
```

```
[Out] 290521/(64*Sqrt[1 - 2*x]) + (381073*Sqrt[1 - 2*x])/32 - (832951*(
1 - 2*x)^(3/2))/192 + (121359*(1 - 2*x)^(5/2))/80 - (159111*(1 -
2*x)^(7/2))/448 + (1545*(1 - 2*x)^(9/2))/32 - (2025*(1 - 2*x)^(11
/2))/704
```

Rubi in Sympy [A] time = 10.7827, size = 82, normalized size = 0.89

$$-\frac{2025\left(-2x+1\right)^{\frac{11}{2}}}{704}+\frac{1545\left(-2x+1\right)^{\frac{9}{2}}}{32}-\frac{159111\left(-2x+1\right)^{\frac{7}{2}}}{448}+\frac{121359\left(-2x+1\right)^{\frac{5}{2}}}{80}-\frac{832951\left(-2x+1\right)^{\frac{3}{2}}}{192}+\frac{381073\sqrt{-2x+1}}{32}+\frac{290521}{64\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4*(3+5*x)**2/(1-2*x)**(3/2),x)
```

```
[Out] -2025*(-2*x + 1)**(11/2)/704 + 1545*(-2*x + 1)**(9/2)/32 - 159111
*(-2*x + 1)**(7/2)/448 + 121359*(-2*x + 1)**(5/2)/80 - 832951*(-2
*x + 1)**(3/2)/192 + 381073*sqrt(-2*x + 1)/32 + 290521/(64*sqrt(-
2*x + 1))
```

Mathematica [A] time = 0.0562684, size = 43, normalized size = 0.47

$$\frac{-212625x^6-1146600x^5-2899485x^4-4819932x^3-6831172x^2-15214664x+15380984}{1155\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^4*(3 + 5*x)^2)/(1 - 2*x)^(3/2),x]
```

```
[Out] (15380984 - 15214664*x - 6831172*x^2 - 4819932*x^3 - 2899485*x^4
- 1146600*x^5 - 212625*x^6)/(1155*Sqrt[1 - 2*x])
```

Maple [A] time = 0.006, size = 40, normalized size = 0.4

$$-\frac{212625\,x^{6}+1146600\,x^{5}+2899485\,x^{4}+4819932\,x^{3}+6831172\,x^{2}+15214664\,x-15380984}{1155}\frac{1}{\sqrt{1-2\,x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((2+3*x)^4*(3+5*x)^2/(1-2*x)^(3/2),x)
```

```
[Out] -1/1155*(212625*x^6+1146600*x^5+2899485*x^4+4819932*x^3+6831172*x
^2+15214664*x-15380984)/(1-2*x)^(1/2)
```

Maxima [A] time = 1.34377, size = 86, normalized size = 0.93

$$-\frac{2025}{704}\,(-2\,x+1)^{\frac{11}{2}}+\frac{1545}{32}\,(-2\,x+1)^{\frac{9}{2}}-\frac{159111}{448}\,(-2\,x+1)^{\frac{7}{2}}+\frac{121359}{80}\,(-2\,x+1)^{\frac{5}{2}}-\frac{832951}{192}\,(-2\,x+1)^{\frac{3}{2}}+\frac{381073}{32}\,\sqrt{-2\,x+1}+\frac{290521}{64\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(3*x + 2)^4/(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] -2025/704*(-2*x + 1)^(11/2) + 1545/32*(-2*x + 1)^(9/2) - 159111/4
48*(-2*x + 1)^(7/2) + 121359/80*(-2*x + 1)^(5/2) - 832951/192*(-2
*x + 1)^(3/2) + 381073/32*sqrt(-2*x + 1) + 290521/64/sqrt(-2*x +
1)
```

Fricas [A] time = 0.22042, size = 53, normalized size = 0.58

$$-\frac{212625\,x^{6}+1146600\,x^{5}+2899485\,x^{4}+4819932\,x^{3}+6831172\,x^{2}+15214664\,x-15380984}{1155\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(3*x + 2)^4/(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/1155*(212625*x^6 + 1146600*x^5 + 2899485*x^4 + 4819932*x^3 + 6
831172*x^2 + 15214664*x - 15380984)/sqrt(-2*x + 1)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{4}\,(5x+3)^{2}}{(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2+3*x)**4*(3+5*x)**2/(1-2*x)**(3/2),x)
```

```
[Out] Integral((3*x + 2)**4*(5*x + 3)**2/(-2*x + 1)**(3/2), x)
```

GIAC/XCAS [A] time = 0.210351, size = 124, normalized size = 1.35

$$\frac{2025}{704}\,(2\,x-1)^5\sqrt{-2\,x+1}+\frac{1545}{32}\,(2\,x-1)^4\sqrt{-2\,x+1}+\frac{159111}{448}\,(2\,x-1)^3\sqrt{-2\,x+1}+\frac{121359}{80}\,(2\,x-1)^2\sqrt{-2\,x+1}-\frac{832951}{192}\,(-2\,x+1)^{\frac{3}{2}}+\frac{381073}{32}\,\sqrt{-2\,x+1}+\frac{290521}{64\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(3*x + 2)^4/(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] 2025/704*(2*x - 1)^5*sqrt(-2*x + 1) + 1545/32*(2*x - 1)^4*sqrt(-2
*x + 1) + 159111/448*(2*x - 1)^3*sqrt(-2*x + 1) + 121359/80*(2*x
- 1)^2*sqrt(-2*x + 1) - 832951/192*(-2*x + 1)^(3/2) + 381073/32*s
qrt(-2*x + 1) + 290521/64/sqrt(-2*x + 1)
```

3.2068 $\int \frac{(2+3x)^3(3+5x)^2}{(1-2x)^{3/2}}\,dx$

Optimal. Leaf size=79

$$\frac{75}{32}(1-2x)^{9/2}-\frac{7695}{224}(1-2x)^{7/2}+\frac{17541}{80}(1-2x)^{5/2}-\frac{39977}{48}(1-2x)^{3/2}+\frac{91091}{32}\sqrt{1-2x}+\frac{41503}{32\sqrt{1-2x}}$$

```
[Out] 41503/(32*Sqrt[1 - 2*x]) + (91091*Sqrt[1 - 2*x])/32 - (39977*(1 -
 2*x)^(3/2))/48 + (17541*(1 - 2*x)^(5/2))/80 - (7695*(1 - 2*x)^(7
/2))/224 + (75*(1 - 2*x)^(9/2))/32
```

Rubi [A] time = 0.0708148, antiderivative size = 79, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.042

$$\frac{75}{32}(1-2x)^{9/2}-\frac{7695}{224}(1-2x)^{7/2}+\frac{17541}{80}(1-2x)^{5/2}-\frac{39977}{48}(1-2x)^{3/2}+\frac{91091}{32}\sqrt{1-2x}+\frac{41503}{32\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^3*(3 + 5*x)^2)/(1 - 2*x)^(3/2),x]
```

```
[Out] 41503/(32*Sqrt[1 - 2*x]) + (91091*Sqrt[1 - 2*x])/32 - (39977*(1 -
 2*x)^(3/2))/48 + (17541*(1 - 2*x)^(5/2))/80 - (7695*(1 - 2*x)^(7
/2))/224 + (75*(1 - 2*x)^(9/2))/32
```

Rubi in Sympy [A] time = 10.1163, size = 70, normalized size = 0.89

$$\frac{75(-2x+1)^{\frac{9}{2}}}{32}-\frac{7695(-2x+1)^{\frac{7}{2}}}{224}+\frac{17541(-2x+1)^{\frac{5}{2}}}{80}-\frac{39977(-2x+1)^{\frac{3}{2}}}{48}+\frac{91091\sqrt{-2x+1}}{32}+\frac{41503}{32\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3*(3+5*x)**2/(1-2*x)**(3/2),x)
```

```
[Out] 75*(-2*x + 1)**(9/2)/32 - 7695*(-2*x + 1)**(7/2)/224 + 17541*(-2*
x + 1)**(5/2)/80 - 39977*(-2*x + 1)**(3/2)/48 + 91091*sqrt(-2*x +
 1)/32 + 41503/(32*sqrt(-2*x + 1))
```

Mathematica [A] time = 0.0504687, size = 38, normalized size = 0.48

$$\frac{-7875x^5-38025x^4-88443x^3-150253x^2-359726x+367286}{105\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^3*(3 + 5*x)^2)/(1 - 2*x)^(3/2),x]
```

```
[Out] (367286 - 359726*x - 150253*x^2 - 88443*x^3 - 38025*x^4 - 7875*x^
5)/(105*Sqrt[1 - 2*x])
```

Maple [A] time = 0.006, size = 35, normalized size = 0.4

$$-\frac{7875\,x^5+38025\,x^4+88443\,x^3+150253\,x^2+359726\,x-367286}{105}\frac{1}{\sqrt{1-2\,x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3*(3+5*x)^2/(1-2*x)^(3/2),x)
```

```
[Out] -1/105*(7875*x^5+38025*x^4+88443*x^3+150253*x^2+359726*x-367286)/
(1-2*x)^(1/2)
```

Maxima [A] time = 1.35021, size = 74, normalized size = 0.94

$$\frac{75}{32}\,(-2\,x+1)^{\frac{9}{2}}-\frac{7695}{224}\,(-2\,x+1)^{\frac{7}{2}}+\frac{17541}{80}\,(-2\,x+1)^{\frac{5}{2}}-\frac{39977}{48}\,(-2\,x+1)^{\frac{3}{2}}+\frac{91091}{32}\,\sqrt{-2\,x+1}+\frac{41503}{32\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(3*x + 2)^3/(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] 75/32*(-2*x + 1)^(9/2) - 7695/224*(-2*x + 1)^(7/2) + 17541/80*(-2
*x + 1)^(5/2) - 39977/48*(-2*x + 1)^(3/2) + 91091/32*sqrt(-2*x +
1) + 41503/32/sqrt(-2*x + 1)
```

Fricas [A] time = 0.207585, size = 46, normalized size = 0.58

$$-\frac{7875\,x^{5}+38025\,x^{4}+88443\,x^{3}+150253\,x^{2}+359726\,x-367286}{105\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(3*x + 2)^3/(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/105*(7875*x^5 + 38025*x^4 + 88443*x^3 + 150253*x^2 + 359726*x
- 367286)/sqrt(-2*x + 1)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{3}\,(5x+3)^{2}}{(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3*(3+5*x)**2/(1-2*x)**(3/2),x)
```

```
[Out] Integral((3*x + 2)**3*(5*x + 3)**2/(-2*x + 1)**(3/2), x)
```

GIAC/XCAS [A] time = 0.21052, size = 103, normalized size = 1.3

$$\frac{75}{32}\,(2\,x-1)^{4}\sqrt{-2\,x+1}+\frac{7695}{224}\,(2\,x-1)^{3}\sqrt{-2\,x+1}+\frac{17541}{80}\,(2\,x-1)^{2}\sqrt{-2\,x+1}-\frac{39977}{48}\,(-2\,x+1)^{\frac{3}{2}}+\frac{91091}{32}\,\sqrt{-2\,x+1}+\frac{41503}{32\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(3*x + 2)^3/(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] 75/32*(2*x - 1)^4*sqrt(-2*x + 1) + 7695/224*(2*x - 1)^3*sqrt(-2*x
 + 1) + 17541/80*(2*x - 1)^2*sqrt(-2*x + 1) - 39977/48*(-2*x + 1)
^(3/2) + 91091/32*sqrt(-2*x + 1) + 41503/32/sqrt(-2*x + 1)
```

3.2069 $\int \frac{(2+3x)^2(3+5x)^2}{(1-2x)^{3/2}}\,dx$

Optimal. Leaf size=66

$$-\frac{225}{112}(1-2x)^{7/2}+\frac{51}{2}(1-2x)^{5/2}-\frac{3467}{24}(1-2x)^{3/2}+\frac{1309}{2}\sqrt{1-2x}+\frac{5929}{16\sqrt{1-2x}}$$

```
[Out] 5929/(16*Sqrt[1 - 2*x]) + (1309*Sqrt[1 - 2*x])/2 - (3467*(1 - 2*x
)^(3/2))/24 + (51*(1 - 2*x)^(5/2))/2 - (225*(1 - 2*x)^(7/2))/112
```

Rubi [A] time = 0.0619145, antiderivative size = 66, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.042

$$-\frac{225}{112}(1-2x)^{7/2}+\frac{51}{2}(1-2x)^{5/2}-\frac{3467}{24}(1-2x)^{3/2}+\frac{1309}{2}\sqrt{1-2x}+\frac{5929}{16\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^2*(3 + 5*x)^2)/(1 - 2*x)^(3/2),x]
```

```
[Out] 5929/(16*Sqrt[1 - 2*x]) + (1309*Sqrt[1 - 2*x])/2 - (3467*(1 - 2*x
)^(3/2))/24 + (51*(1 - 2*x)^(5/2))/2 - (225*(1 - 2*x)^(7/2))/112
```

Rubi in Sympy [A] time = 8.84576, size = 58, normalized size = 0.88

$$-\frac{225(-2x+1)^{\frac{7}{2}}}{112}+\frac{51(-2x+1)^{\frac{5}{2}}}{2}-\frac{3467(-2x+1)^{\frac{3}{2}}}{24}+\frac{1309\sqrt{-2x+1}}{2}+\frac{5929}{16\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2*(3+5*x)**2/(1-2*x)**(3/2),x)
```

```
[Out] -225*(-2*x + 1)**(7/2)/112 + 51*(-2*x + 1)**(5/2)/2 - 3467*(-2*x
+ 1)**(3/2)/24 + 1309*sqrt(-2*x + 1)/2 + 5929/(16*sqrt(-2*x + 1))
```

Mathematica [A] time = 0.0502549, size = 33, normalized size = 0.5

$$\frac{-675x^4-2934x^3-6721x^2-18230x+18986}{21\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^2*(3 + 5*x)^2)/(1 - 2*x)^(3/2),x]
```

```
[Out] (18986 - 18230*x - 6721*x^2 - 2934*x^3 - 675*x^4)/(21*Sqrt[1 - 2*
x])
```

Maple [A] time = 0.006, size = 30, normalized size = 0.5

$$-\frac{675\,x^4+2934\,x^3+6721\,x^2+18230\,x-18986}{21}\frac{1}{\sqrt{1-2\,x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2*(3+5*x)^2/(1-2*x)^(3/2),x)
```

```
[Out] -1/21*(675*x^4+2934*x^3+6721*x^2+18230*x-18986)/(1-2*x)^(1/2)
```

Maxima [A] time = 1.34079, size = 62, normalized size = 0.94

$$-\frac{225}{112}\left(-2\,x+1\right)^{\frac{7}{2}}+\frac{51}{2}\left(-2\,x+1\right)^{\frac{5}{2}}-\frac{3467}{24}\left(-2\,x+1\right)^{\frac{3}{2}}+\frac{1309}{2}\sqrt{-2\,x+1}+\frac{5929}{16\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^2/(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] -225/112*(-2*x + 1)^(7/2) + 51/2*(-2*x + 1)^(5/2) - 3467/24*(-2*x
 + 1)^(3/2) + 1309/2*sqrt(-2*x + 1) + 5929/16/sqrt(-2*x + 1)
```

Fricas [A] time = 0.216797, size = 39, normalized size = 0.59

$$-\frac{675\,x^{4}+2934\,x^{3}+6721\,x^{2}+18230\,x-18986}{21\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^2/(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/21*(675*x^4 + 2934*x^3 + 6721*x^2 + 18230*x - 18986)/sqrt(-2*x
 + 1)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(3x+2)^{2}(5x+3)^{2}}{(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2*(3+5*x)**2/(1-2*x)**(3/2),x)
```

```
[Out] Integral((3*x + 2)**2*(5*x + 3)**2/(-2*x + 1)**(3/2), x)
```

GIAC/XCAS [A] time = 0.216828, size = 81, normalized size = 1.23

$$\frac{225}{112}\left(2\,x-1\right)^{3}\sqrt{-2\,x+1}+\frac{51}{2}\left(2\,x-1\right)^{2}\sqrt{-2\,x+1}-\frac{3467}{24}\left(-2\,x+1\right)^{\frac{3}{2}}+\frac{1309}{2}\sqrt{-2\,x+1}+\frac{5929}{16\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^2/(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] 225/112*(2*x - 1)^3*sqrt(-2*x + 1) + 51/2*(2*x - 1)^2*sqrt(-2*x +
 1) - 3467/24*(-2*x + 1)^(3/2) + 1309/2*sqrt(-2*x + 1) + 5929/16/
sqrt(-2*x + 1)
```

3.2070 $\int \frac{(2+3x)(3+5x)^2}{(1-2x)^{3/2}}\,dx$

Optimal. Leaf size=53

$$\frac{15}{8}(1-2x)^{5/2}-\frac{505}{24}(1-2x)^{3/2}+\frac{1133}{8}\sqrt{1-2x}+\frac{847}{8\sqrt{1-2x}}$$

```
[Out] 847/(8*Sqrt[1 - 2*x]) + (1133*Sqrt[1 - 2*x])/8 - (505*(1 - 2*x)^(
3/2))/24 + (15*(1 - 2*x)^(5/2))/8
```

Rubi [A] time = 0.0522967, antiderivative size = 53, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{15}{8}(1-2x)^{5/2}-\frac{505}{24}(1-2x)^{3/2}+\frac{1133}{8}\sqrt{1-2x}+\frac{847}{8\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)*(3 + 5*x)^2)/(1 - 2*x)^(3/2),x]
```

```
[Out] 847/(8*Sqrt[1 - 2*x]) + (1133*Sqrt[1 - 2*x])/8 - (505*(1 - 2*x)^(
3/2))/24 + (15*(1 - 2*x)^(5/2))/8
```

Rubi in Sympy [A] time = 7.31127, size = 46, normalized size = 0.87

$$\frac{15\left(-2x+1\right)^{\frac{5}{2}}}{8}-\frac{505\left(-2x+1\right)^{\frac{3}{2}}}{24}+\frac{1133\sqrt{-2x+1}}{8}+\frac{847}{8\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)*(3+5*x)**2/(1-2*x)**(3/2),x)
```

```
[Out] 15*(-2*x + 1)**(5/2)/8 - 505*(-2*x + 1)**(3/2)/24 + 1133*sqrt(-2*
x + 1)/8 + 847/(8*sqrt(-2*x + 1))
```

Mathematica [A] time = 0.0362685, size = 32, normalized size = 0.6

$$\frac{\sqrt{1-2x}\left(45x^3+185x^2+631x-685\right)}{6x-3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)*(3 + 5*x)^2)/(1 - 2*x)^(3/2),x]
```

```
[Out] (Sqrt[1 - 2*x]*(-685 + 631*x + 185*x^2 + 45*x^3))/(-3 + 6*x)
```

Maple [A] time = 0.004, size = 25, normalized size = 0.5

$$-\frac{45\,x^3+185\,x^2+631\,x-685}{3}\frac{1}{\sqrt{1-2\,x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)*(3+5*x)^2/(1-2*x)^(3/2),x)
```

```
[Out] -1/3*(45*x^3+185*x^2+631*x-685)/(1-2*x)^(1/2)
```

Maxima [A] time = 1.34432, size = 50, normalized size = 0.94

$$\frac{15}{8}\left(-2\,x+1\right)^{\frac{5}{2}}-\frac{505}{24}\left(-2\,x+1\right)^{\frac{3}{2}}+\frac{1133}{8}\,\sqrt{-2\,x+1}+\frac{847}{8\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(3*x + 2)/(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] 15/8*(-2*x + 1)^(5/2) - 505/24*(-2*x + 1)^(3/2) + 1133/8*sqrt(-2*
x + 1) + 847/8/sqrt(-2*x + 1)
```

Fricas [A] time = 0.227893, size = 32, normalized size = 0.6

$$-\frac{45\,x^{3}+185\,x^{2}+631\,x-685}{3\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(3*x + 2)/(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/3*(45*x^3 + 185*x^2 + 631*x - 685)/sqrt(-2*x + 1)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(3x+2)\,(5x+3)^{2}}{(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)*(3+5*x)**2/(1-2*x)**(3/2),x)
```

```
[Out] Integral((3*x + 2)*(5*x + 3)**2/(-2*x + 1)**(3/2), x)
```

GIAC/XCAS [A] time = 0.213014, size = 59, normalized size = 1.11

$$\frac{15}{8}\,(2\,x-1)^{2}\sqrt{-2\,x+1}-\frac{505}{24}\,(-2\,x+1)^{\frac{3}{2}}+\frac{1133}{8}\,\sqrt{-2\,x+1}+\frac{847}{8\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(3*x + 2)/(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] 15/8*(2*x - 1)^2*sqrt(-2*x + 1) - 505/24*(-2*x + 1)^(3/2) + 1133/
8*sqrt(-2*x + 1) + 847/8/sqrt(-2*x + 1)
```

3.2071 $\int \frac{(3+5x)^2}{(1-2x)^{3/2}}\,dx$

Optimal. Leaf size=40

$$-\frac{25}{12}(1-2x)^{3/2}+\frac{55}{2}\sqrt{1-2x}+\frac{121}{4\sqrt{1-2x}}$$

```
[Out] 121/(4*Sqrt[1 - 2*x]) + (55*Sqrt[1 - 2*x])/2 - (25*(1 - 2*x)^(3/2
))/12
```

Rubi [A] time = 0.0281371, antiderivative size = 40, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 17, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.059

$$-\frac{25}{12}(1-2x)^{3/2}+\frac{55}{2}\sqrt{1-2x}+\frac{121}{4\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^2/(1 - 2*x)^(3/2),x]
```

```
[Out] 121/(4*Sqrt[1 - 2*x]) + (55*Sqrt[1 - 2*x])/2 - (25*(1 - 2*x)^(3/2
))/12
```

Rubi in Sympy [A] time = 5.04754, size = 34, normalized size = 0.85

$$-\frac{25\left(-2x+1\right)^{\frac{3}{2}}}{12}+\frac{55\sqrt{-2x+1}}{2}+\frac{121}{4\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**2/(1-2*x)**(3/2),x)
```

```
[Out] -25*(-2*x + 1)**(3/2)/12 + 55*sqrt(-2*x + 1)/2 + 121/(4*sqrt(-2*x
 + 1))
```

Mathematica [A] time = 0.0258466, size = 27, normalized size = 0.68

$$\frac{\sqrt{1-2x}\left(25x^2+140x-167\right)}{6x-3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^2/(1 - 2*x)^(3/2),x]
```

```
[Out] (Sqrt[1 - 2*x]*(-167 + 140*x + 25*x^2))/(-3 + 6*x)
```

Maple [A] time = 0.004, size = 20, normalized size = 0.5

$$-\frac{25\,x^2+140\,x-167}{3}\frac{1}{\sqrt{1-2\,x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^2/(1-2*x)^(3/2),x)
```

```
[Out] -1/3*(25*x^2+140*x-167)/(1-2*x)^(1/2)
```

Maxima [A] time = 1.34777, size = 38, normalized size = 0.95

$$-\frac{25}{12}\,(-2\,x+1)^{\frac{3}{2}}+\frac{55}{2}\,\sqrt{-2\,x+1}+\frac{121}{4\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2/(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] -25/12*(-2*x + 1)^(3/2) + 55/2*sqrt(-2*x + 1) + 121/4/sqrt(-2*x +
 1)
```

Fricas [A] time = 0.241737, size = 26, normalized size = 0.65

$$-\frac{25\,x^2+140\,x-167}{3\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2/(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/3*(25*x^2 + 140*x - 167)/sqrt(-2*x + 1)
```

Sympy [A] time = 2.20332, size = 352, normalized size = 8.8

$$\begin{cases} \frac{25\sqrt{55}i\left(x+\frac{3}{5}\right)^{2}\sqrt{10x-5}}{30\sqrt{11}\left(x+\frac{3}{5}\right)-33\sqrt{11}}+\frac{110\sqrt{55}i\left(x+\frac{3}{5}\right)\sqrt{10x-5}}{30\sqrt{11}\left(x+\frac{3}{5}\right)-33\sqrt{11}}-\frac{2420\sqrt{5}\left(x+\frac{3}{5}\right)}{30\sqrt{11}\left(x+\frac{3}{5}\right)-33\sqrt{11}}-\frac{242\sqrt{55}i\sqrt{10x-5}}{30\sqrt{11}\left(x+\frac{3}{5}\right)-33\sqrt{11}}+\frac{2662\sqrt{5}}{30\sqrt{11}\left(x+\frac{3}{5}\right)-33\sqrt{11}} & \text{for}\: \frac{10\left|x+\frac{3}{5}\right|}{11}>1 \\ \frac{25\sqrt{55}\sqrt{-10x+5}\left(x+\frac{3}{5}\right)^{2}}{30\sqrt{11}\left(x+\frac{3}{5}\right)-33\sqrt{11}}+\frac{110\sqrt{55}\sqrt{-10x+5}\left(x+\frac{3}{5}\right)}{30\sqrt{11}\left(x+\frac{3}{5}\right)-33\sqrt{11}}-\frac{242\sqrt{55}\sqrt{-10x+5}}{30\sqrt{11}\left(x+\frac{3}{5}\right)-33\sqrt{11}}-\frac{2420\sqrt{5}\left(x+\frac{3}{5}\right)}{30\sqrt{11}\left(x+\frac{3}{5}\right)-33\sqrt{11}}+\frac{2662\sqrt{5}}{30\sqrt{11}\left(x+\frac{3}{5}\right)-33\sqrt{11}} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2/(1-2*x)**(3/2),x)
```

```
[Out] Piecewise((25*sqrt(55)*I*(x + 3/5)**2*sqrt(10*x - 5)/(30*sqrt(11)
*(x + 3/5) - 33*sqrt(11)) + 110*sqrt(55)*I*(x + 3/5)*sqrt(10*x -
5)/(30*sqrt(11)*(x + 3/5) - 33*sqrt(11)) - 2420*sqrt(5)*(x + 3/5)
/(30*sqrt(11)*(x + 3/5) - 33*sqrt(11)) - 242*sqrt(55)*I*sqrt(10*x
 - 5)/(30*sqrt(11)*(x + 3/5) - 33*sqrt(11)) + 2662*sqrt(5)/(30*sq
rt(11)*(x + 3/5) - 33*sqrt(11)), 10*Abs(x + 3/5)/11 > 1), (25*sqr
t(55)*sqrt(-10*x + 5)*(x + 3/5)**2/(30*sqrt(11)*(x + 3/5) - 33*sq
rt(11)) + 110*sqrt(55)*sqrt(-10*x + 5)*(x + 3/5)/(30*sqrt(11)*(x
+ 3/5) - 33*sqrt(11)) - 242*sqrt(55)*sqrt(-10*x + 5)/(30*sqrt(11)
*(x + 3/5) - 33*sqrt(11)) - 2420*sqrt(5)*(x + 3/5)/(30*sqrt(11)*(
x + 3/5) - 33*sqrt(11)) + 2662*sqrt(5)/(30*sqrt(11)*(x + 3/5) - 3
3*sqrt(11)), True))
```

GIAC/XCAS [A] time = 0.211795, size = 38, normalized size = 0.95

$$-\frac{25}{12}\,(-2\,x+1)^{\frac{3}{2}}+\frac{55}{2}\,\sqrt{-2\,x+1}+\frac{121}{4\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2/(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] -25/12*(-2*x + 1)^(3/2) + 55/2*sqrt(-2*x + 1) + 121/4/sqrt(-2*x +
 1)
```

3.2072 $\int \frac{(3+5x)^2}{(1-2x)^{3/2}(2+3x)} \, dx$

Optimal. Leaf size=54

$$\frac{25}{6}\sqrt{1-2x} + \frac{121}{14\sqrt{1-2x}} - \frac{2\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{21\sqrt{21}}$$

```
[Out] 121/(14*Sqrt[1 - 2*x]) + (25*Sqrt[1 - 2*x])/6 - (2*ArcTanh[Sqrt[3
/7]*Sqrt[1 - 2*x]])/(21*Sqrt[21])
```

Rubi [A] time = 0.0888791, antiderivative size = 54, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$\frac{25}{6}\sqrt{1-2x} + \frac{121}{14\sqrt{1-2x}} - \frac{2\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{21\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^2/((1 - 2*x)^(3/2)*(2 + 3*x)),x]
```

```
[Out] 121/(14*Sqrt[1 - 2*x]) + (25*Sqrt[1 - 2*x])/6 - (2*ArcTanh[Sqrt[3
/7]*Sqrt[1 - 2*x]])/(21*Sqrt[21])
```

Rubi in Sympy [A] time = 9.8332, size = 48, normalized size = 0.89

$$\frac{25\sqrt{-2x+1}}{6} - \frac{2\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{441} + \frac{121}{14\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**2/(1-2*x)**(3/2)/(2+3*x),x)
```

```
[Out] 25*sqrt(-2*x + 1)/6 - 2*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)
/441 + 121/(14*sqrt(-2*x + 1))
```

Mathematica [A] time = 0.0958874, size = 50, normalized size = 0.93

$$\frac{\sqrt{1-2x}(175x-269)}{42x-21} - \frac{2\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{21\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^2/((1 - 2*x)^(3/2)*(2 + 3*x)),x]
```

```
[Out] (Sqrt[1 - 2*x]*(-269 + 175*x))/(-21 + 42*x) - (2*ArcTanh[Sqrt[3/7
]*Sqrt[1 - 2*x]])/(21*Sqrt[21])
```

Maple [A] time = 0.015, size = 38, normalized size = 0.7

$$-\frac{2\sqrt{21}}{441} Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right) + \frac{121}{14}\frac{1}{\sqrt{1-2x}} + \frac{25}{6}\sqrt{1-2x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^2/(1-2*x)^(3/2)/(2+3*x),x)
```

```
[Out] -2/441*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)+121/14/(1-2*x
)^(1/2)+25/6*(1-2*x)^(1/2)
```

Maxima [A] time = 1.50665, size = 74, normalized size = 1.37

$$\frac{1}{441}\,\sqrt{21}\log\left(-\frac{\sqrt{21}-3\,\sqrt{-2\,x+1}}{\sqrt{21}+3\,\sqrt{-2\,x+1}}\right)+\frac{25}{6}\,\sqrt{-2\,x+1}+\frac{121}{14\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2/((3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 1/441*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21) + 3*s
qrt(-2*x + 1))) + 25/6*sqrt(-2*x + 1) + 121/14/sqrt(-2*x + 1)
```

Fricas [A] time = 0.238919, size = 80, normalized size = 1.48

$$-\frac{\sqrt{21}\left(\sqrt{21}(175\,x-269)-\sqrt{-2\,x+1}\log\left(\frac{\sqrt{21}(3\,x-5)+21\,\sqrt{-2\,x+1}}{3\,x+2}\right)\right)}{441\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2/((3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] -1/441*sqrt(21)*(sqrt(21)*(175*x - 269) - sqrt(-2*x + 1)*log((sqr
t(21)*(3*x - 5) + 21*sqrt(-2*x + 1))/(3*x + 2)))/sqrt(-2*x + 1)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(5x+3)^2}{(-2x+1)^{\frac{3}{2}}\,(3x+2)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2/(1-2*x)**(3/2)/(2+3*x),x)
```

```
[Out] Integral((5*x + 3)**2/((-2*x + 1)**(3/2)*(3*x + 2)), x)
```

GIAC/XCAS [A] time = 0.214678, size = 78, normalized size = 1.44

$$\frac{1}{441}\,\sqrt{21}\ln\left(\frac{\left|-2\,\sqrt{21}+6\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{21}+3\,\sqrt{-2\,x+1}\right)}\right)+\frac{25}{6}\,\sqrt{-2\,x+1}+\frac{121}{14\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2/((3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 1/441*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqrt(2
1) + 3*sqrt(-2*x + 1))) + 25/6*sqrt(-2*x + 1) + 121/14/sqrt(-2*x
+ 1)
```

3.2073 $\int \frac{(3+5x)^2}{(1-2x)^{3/2}(2+3x)^2} dx$

Optimal. Leaf size=68

$$-\frac{1091\sqrt{1-2x}}{294(3x+2)}+\frac{121}{14\sqrt{1-2x}(3x+2)}+\frac{134\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{147\sqrt{21}}$$

```
[Out] 121/(14*Sqrt[1 - 2*x]*(2 + 3*x)) - (1091*Sqrt[1 - 2*x])/(294*(2 +
 3*x)) + (134*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(147*Sqrt[21])
```

Rubi [A] time = 0.0943732, antiderivative size = 68, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$-\frac{1091\sqrt{1-2x}}{294(3x+2)}+\frac{121}{14\sqrt{1-2x}(3x+2)}+\frac{134\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{147\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^2/((1 - 2*x)^(3/2)*(2 + 3*x)^2),x]
```

```
[Out] 121/(14*Sqrt[1 - 2*x]*(2 + 3*x)) - (1091*Sqrt[1 - 2*x])/(294*(2 +
 3*x)) + (134*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(147*Sqrt[21])
```

Rubi in Sympy [A] time = 8.18631, size = 56, normalized size = 0.82

$$-\frac{1091\sqrt{-2x+1}}{294\,(3x+2)}+\frac{134\sqrt{21}\,\text{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{3087}+\frac{121}{14\sqrt{-2x+1}\,(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**2/(1-2*x)**(3/2)/(2+3*x)**2,x)
```

```
[Out] -1091*sqrt(-2*x + 1)/(294*(3*x + 2)) + 134*sqrt(21)*atanh(sqrt(21
)*sqrt(-2*x + 1)/7)/3087 + 121/(14*sqrt(-2*x + 1)*(3*x + 2))
```

Mathematica [A] time = 0.108928, size = 56, normalized size = 0.82

$$\frac{134\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{21\sqrt{1-2x}(1091x+725)}{6x^2+x-2}}{3087}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^2/((1 - 2*x)^(3/2)*(2 + 3*x)^2),x]
```

```
[Out] ((-21*Sqrt[1 - 2*x]*(725 + 1091*x))/(-2 + x + 6*x^2) + 134*Sqrt[2
1]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/3087
```

Maple [A] time = 0.019, size = 45, normalized size = 0.7

$$\frac{121}{49}\frac{1}{\sqrt{1-2\,x}}+\frac{2}{441}\sqrt{1-2\,x}\left(-\frac{4}{3}-2\,x\right)^{-1}+\frac{134\,\sqrt{21}}{3087}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^2/(1-2*x)^(3/2)/(2+3*x)^2,x)
```

```
[Out] 121/49/(1-2*x)^(1/2)+2/441*(1-2*x)^(1/2)/(-4/3-2*x)+134/3087*arct
anh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.50351, size = 88, normalized size = 1.29

$$-\frac{67}{3087}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{2(1091x+725)}{147\left(3(-2x+1)^{\frac{3}{2}}-7\sqrt{-2x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2/((3*x + 2)^2*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] -67/3087*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21) +
3*sqrt(-2*x + 1))) - 2/147*(1091*x + 725)/(3*(-2*x + 1)^(3/2) - 7
*sqrt(-2*x + 1))
```

Fricas [A] time = 0.230505, size = 96, normalized size = 1.41

$$\frac{\sqrt{21}\left(67(3x+2)\sqrt{-2x+1}\log\left(\frac{\sqrt{21}(3x-5)-21\sqrt{-2x+1}}{3x+2}\right)+\sqrt{21}(1091x+725)\right)}{3087(3x+2)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2/((3*x + 2)^2*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/3087*sqrt(21)*(67*(3*x + 2)*sqrt(-2*x + 1)*log((sqrt(21)*(3*x -
 5) - 21*sqrt(-2*x + 1))/(3*x + 2)) + sqrt(21)*(1091*x + 725))/((
3*x + 2)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2/(1-2*x)**(3/2)/(2+3*x)**2,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.221127, size = 92, normalized size = 1.35

$$-\frac{67}{3087}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{2(1091x+725)}{147\left(3(-2x+1)^{\frac{3}{2}}-7\sqrt{-2x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2/((3*x + 2)^2*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] -67/3087*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqr
t(21) + 3*sqrt(-2*x + 1))) - 2/147*(1091*x + 725)/(3*(-2*x + 1)^(
3/2) - 7*sqrt(-2*x + 1))
```

3.2074 $\int \frac{(3+5x)^2}{(1-2x)^{3/2}(2+3x)^3}\,dx$

Optimal. Leaf size=88

$$-\frac{2045\sqrt{1-2x}}{2058(3x+2)}-\frac{545\sqrt{1-2x}}{147(3x+2)^2}+\frac{121}{14\sqrt{1-2x}(3x+2)^2}-\frac{2045\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{1029\sqrt{21}}$$

```
[Out] 121/(14*Sqrt[1 - 2*x]*(2 + 3*x)^2) - (545*Sqrt[1 - 2*x])/(147*(2
+ 3*x)^2) - (2045*Sqrt[1 - 2*x])/(2058*(2 + 3*x)) - (2045*ArcTanh
[Sqrt[3/7]*Sqrt[1 - 2*x]])/(1029*Sqrt[21])
```

Rubi [A] time = 0.113319, antiderivative size = 88, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.208$

$$-\frac{2045\sqrt{1-2x}}{2058(3x+2)}-\frac{545\sqrt{1-2x}}{147(3x+2)^2}+\frac{121}{14\sqrt{1-2x}(3x+2)^2}-\frac{2045\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{1029\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^2/((1 - 2*x)^(3/2)*(2 + 3*x)^3),x]
```

```
[Out] 121/(14*Sqrt[1 - 2*x]*(2 + 3*x)^2) - (545*Sqrt[1 - 2*x])/(147*(2
+ 3*x)^2) - (2045*Sqrt[1 - 2*x])/(2058*(2 + 3*x)) - (2045*ArcTanh
[Sqrt[3/7]*Sqrt[1 - 2*x]])/(1029*Sqrt[21])
```

Rubi in Sympy [A] time = 9.79878, size = 76, normalized size = 0.86

$$-\frac{2045\sqrt{-2x+1}}{2058\,(3x+2)}-\frac{545\sqrt{-2x+1}}{147\,(3x+2)^2}-\frac{2045\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21609}+\frac{121}{14\sqrt{-2x+1}\,(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**2/(1-2*x)**(3/2)/(2+3*x)**3,x)
```

```
[Out] -2045*sqrt(-2*x + 1)/(2058*(3*x + 2)) - 545*sqrt(-2*x + 1)/(147*(
3*x + 2)**2) - 2045*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/216
09 + 121/(14*sqrt(-2*x + 1)*(3*x + 2)**2)
```

Mathematica [A] time = 0.142642, size = 58, normalized size = 0.66

$$\frac{\frac{21(12270x^2+17305x+6067)}{\sqrt{1-2x}(3x+2)^2}-4090\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{43218}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^2/((1 - 2*x)^(3/2)*(2 + 3*x)^3),x]
```

```
[Out] ((21*(6067 + 17305*x + 12270*x^2))/(Sqrt[1 - 2*x]*(2 + 3*x)^2) -
4090*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/43218
```

Maple [A] time = 0.019, size = 57, normalized size = 0.7

$$\frac{242}{343}\frac{1}{\sqrt{1-2\,x}}+\frac{18}{343\,\left(-4-6\,x\right)^{2}}\left(-\frac{133}{18}\left(1-2\,x\right)^{\frac{3}{2}}+\frac{917}{54}\sqrt{1-2\,x}\right)-\frac{2045\,\sqrt{21}}{21609}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^2/(1-2*x)^(3/2)/(2+3*x)^3,x)
```

```
[Out] 242/343/(1-2*x)^(1/2)+18/343*(-133/18*(1-2*x)^(3/2)+917/54*(1-2*x
)^(1/2))/(-4-6*x)^2-2045/21609*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2)
)*21^(1/2)
```

Maxima [A] time = 1.50191, size = 112, normalized size = 1.27

$$\frac{2045}{43218}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\,\sqrt{-2\,x+1}}{\sqrt{21}+3\,\sqrt{-2\,x+1}}\right)+\frac{6135\,(2\,x-1)^{2}+59150\,x+5999}{1029\left(9\,(-2\,x+1)^{\frac{5}{2}}-42\,(-2\,x+1)^{\frac{3}{2}}+49\,\sqrt{-2\,x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2/((3*x + 2)^3*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 2045/43218*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21)
+ 3*sqrt(-2*x + 1))) + 1/1029*(6135*(2*x - 1)^2 + 59150*x + 5999)
/(9*(-2*x + 1)^(5/2) - 42*(-2*x + 1)^(3/2) + 49*sqrt(-2*x + 1))
```

Fricas [A] time = 0.227382, size = 116, normalized size = 1.32

$$\frac{\sqrt{21}\left(2045\,\left(9\,x^{2}+12\,x+4\right)\sqrt{-2\,x+1}\log\left(\frac{\sqrt{21}(3\,x-5)+21\,\sqrt{-2\,x+1}}{3\,x+2}\right)+\sqrt{21}\left(12270\,x^{2}+17305\,x+6067\right)\right)}{43218\,(9\,x^{2}+12\,x+4)\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2/((3*x + 2)^3*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/43218*sqrt(21)*(2045*(9*x^2 + 12*x + 4)*sqrt(-2*x + 1)*log((sqr
t(21)*(3*x - 5) + 21*sqrt(-2*x + 1))/(3*x + 2)) + sqrt(21)*(12270
*x^2 + 17305*x + 6067))/((9*x^2 + 12*x + 4)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2/(1-2*x)**(3/2)/(2+3*x)**3,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.26548, size = 104, normalized size = 1.18

$$\frac{2045}{43218}\sqrt{21}\ln\left(\frac{\left|-2\,\sqrt{21}+6\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{21}+3\,\sqrt{-2\,x+1}\right)}\right)+\frac{242}{343\,\sqrt{-2\,x+1}}-\frac{57\,(-2\,x+1)^{\frac{3}{2}}-131\,\sqrt{-2\,x+1}}{588\,(3\,x+2)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2/((3*x + 2)^3*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 2045/43218*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(s
qrt(21) + 3*sqrt(-2*x + 1))) + 242/343/sqrt(-2*x + 1) - 1/588*(57
*(-2*x + 1)^(3/2) - 131*sqrt(-2*x + 1))/(3*x + 2)^2
```

3.2075 $\int \frac{(3+5x)^2}{(1-2x)^{3/2}(2+3x)^4} \, dx$

Optimal. Leaf size=108

$$-\frac{905\sqrt{1-2x}}{2058(3x+2)}-\frac{905\sqrt{1-2x}}{882(3x+2)^2}-\frac{467\sqrt{1-2x}}{126(3x+2)^3}+\frac{121}{14\sqrt{1-2x}(3x+2)^3}-\frac{905\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{1029\sqrt{21}}$$

```
[Out] 121/(14*Sqrt[1 - 2*x]*(2 + 3*x)^3) - (467*Sqrt[1 - 2*x])/(126*(2
+ 3*x)^3) - (905*Sqrt[1 - 2*x])/(882*(2 + 3*x)^2) - (905*Sqrt[1 -
 2*x])/(2058*(2 + 3*x)) - (905*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/
(1029*Sqrt[21])
```

Rubi [A] time = 0.136938, antiderivative size = 108, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$-\frac{905\sqrt{1-2x}}{2058(3x+2)}-\frac{905\sqrt{1-2x}}{882(3x+2)^2}-\frac{467\sqrt{1-2x}}{126(3x+2)^3}+\frac{121}{14\sqrt{1-2x}(3x+2)^3}-\frac{905\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{1029\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^2/((1 - 2*x)^(3/2)*(2 + 3*x)^4),x]
```

```
[Out] 121/(14*Sqrt[1 - 2*x]*(2 + 3*x)^3) - (467*Sqrt[1 - 2*x])/(126*(2
+ 3*x)^3) - (905*Sqrt[1 - 2*x])/(882*(2 + 3*x)^2) - (905*Sqrt[1 -
 2*x])/(2058*(2 + 3*x)) - (905*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/
(1029*Sqrt[21])
```

Rubi in Sympy [A] time = 11.7242, size = 95, normalized size = 0.88

$$-\frac{905\sqrt{-2x+1}}{2058\,(3x+2)}-\frac{905\sqrt{-2x+1}}{882\,(3x+2)^2}-\frac{467\sqrt{-2x+1}}{126\,(3x+2)^3}-\frac{905\sqrt{21}\,\mathrm{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21609}+\frac{121}{14\sqrt{-2x+1}\,(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**2/(1-2*x)**(3/2)/(2+3*x)**4,x)
```

```
[Out] -905*sqrt(-2*x + 1)/(2058*(3*x + 2)) - 905*sqrt(-2*x + 1)/(882*(3
*x + 2)**2) - 467*sqrt(-2*x + 1)/(126*(3*x + 2)**3) - 905*sqrt(21
)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/21609 + 121/(14*sqrt(-2*x + 1)
*(3*x + 2)**3)
```

Mathematica [A] time = 0.159688, size = 63, normalized size = 0.58

$$\frac{\frac{21(16290x^3+26245x^2+13747x+2316)}{\sqrt{1-2x}(3x+2)^3}-1810\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{43218}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^2/((1 - 2*x)^(3/2)*(2 + 3*x)^4),x]
```

```
[Out] ((21*(2316 + 13747*x + 26245*x^2 + 16290*x^3))/(Sqrt[1 - 2*x]*(2
+ 3*x)^3) - 1810*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/43218
```

Maple [A] time = 0.02, size = 66, normalized size = 0.6

$$\frac{484}{2401}\frac{1}{\sqrt{1-2x}}+\frac{108}{2401\left(-4-6x\right)^{3}}\left(\frac{1979}{36}\left(1-2x\right)^{\frac{5}{2}}-\frac{20083}{81}\left(1-2x\right)^{\frac{3}{2}}+\frac{90601}{324}\sqrt{1-2x}\right)-\frac{905\sqrt{21}}{21609}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^2/(1-2*x)^(3/2)/(2+3*x)^4,x)
```

```
[Out] 484/2401/(1-2*x)^(1/2)+108/2401*(1979/36*(1-2*x)^(5/2)-20083/81*(
1-2*x)^(3/2)+90601/324*(1-2*x)^(1/2))/(-4-6*x)^3-905/21609*arctan
h(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.50706, size = 136, normalized size = 1.26

$$\frac{905}{43218}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{8145\left(2x-1\right)^{3}+50680\left(2x-1\right)^{2}+208838x-33271}{1029\left(27\left(-2x+1\right)^{\frac{7}{2}}-189\left(-2x+1\right)^{\frac{5}{2}}+441\left(-2x+1\right)^{\frac{3}{2}}-343\sqrt{-2x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2/((3*x + 2)^4*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 905/43218*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21) +
 3*sqrt(-2*x + 1))) - 1/1029*(8145*(2*x - 1)^3 + 50680*(2*x - 1)^
2 + 208838*x - 33271)/(27*(-2*x + 1)^(7/2) - 189*(-2*x + 1)^(5/2)
 + 441*(-2*x + 1)^(3/2) - 343*sqrt(-2*x + 1))
```

Fricas [A] time = 0.226696, size = 136, normalized size = 1.26

$$\frac{\sqrt{21}\left(905\left(27x^{3}+54x^{2}+36x+8\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{21}(3x-5)+21\sqrt{-2x+1}}{3x+2}\right)+\sqrt{21}\left(16290x^{3}+26245x^{2}+13747x+2316\right)\right)}{43218\left(27x^{3}+54x^{2}+36x+8\right)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2/((3*x + 2)^4*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/43218*sqrt(21)*(905*(27*x^3 + 54*x^2 + 36*x + 8)*sqrt(-2*x + 1)
*log((sqrt(21)*(3*x - 5) + 21*sqrt(-2*x + 1))/(3*x + 2)) + sqrt(2
1)*(16290*x^3 + 26245*x^2 + 13747*x + 2316))/((27*x^3 + 54*x^2 +
36*x + 8)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2/(1-2*x)**(3/2)/(2+3*x)**4,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.228173, size = 126, normalized size = 1.17

$$\frac{905}{43218}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{484}{2401\sqrt{-2x+1}}-\frac{17811(2x-1)^2\sqrt{-2x+1}-80332(-2x+1)^{\frac{3}{2}}+90601\sqrt{-2x+1}}{57624(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2/((3*x + 2)^4*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 905/43218*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sq
rt(21) + 3*sqrt(-2*x + 1))) + 484/2401/sqrt(-2*x + 1) - 1/57624*(
17811*(2*x - 1)^2*sqrt(-2*x + 1) - 80332*(-2*x + 1)^(3/2) + 90601
*sqrt(-2*x + 1))/(3*x + 2)^3
```

3.2076 $\int \frac{(3+5x)^2}{(1-2x)^{3/2}(2+3x)^5}\,dx$

Optimal. Leaf size=128

$$-\frac{9145\sqrt{1-2x}}{57624(3x+2)}-\frac{9145\sqrt{1-2x}}{24696(3x+2)^2}-\frac{1829\sqrt{1-2x}}{1764(3x+2)^3}-\frac{2179\sqrt{1-2x}}{588(3x+2)^4}+\frac{121}{14\sqrt{1-2x}(3x+2)^4}-\frac{9145\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{28812\sqrt{21}}$$

```
[Out] 121/(14*Sqrt[1 - 2*x]*(2 + 3*x)^4) - (2179*Sqrt[1 - 2*x])/(588*(2
 + 3*x)^4) - (1829*Sqrt[1 - 2*x])/(1764*(2 + 3*x)^3) - (9145*Sqrt
[1 - 2*x])/(24696*(2 + 3*x)^2) - (9145*Sqrt[1 - 2*x])/(57624*(2 +
 3*x)) - (9145*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(28812*Sqrt[21])
```

Rubi [A] time = 0.157534, antiderivative size = 128, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$-\frac{9145\sqrt{1-2x}}{57624(3x+2)}-\frac{9145\sqrt{1-2x}}{24696(3x+2)^2}-\frac{1829\sqrt{1-2x}}{1764(3x+2)^3}-\frac{2179\sqrt{1-2x}}{588(3x+2)^4}+\frac{121}{14\sqrt{1-2x}(3x+2)^4}-\frac{9145\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{28812\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^2/((1 - 2*x)^(3/2)*(2 + 3*x)^5),x]
```

```
[Out] 121/(14*Sqrt[1 - 2*x]*(2 + 3*x)^4) - (2179*Sqrt[1 - 2*x])/(588*(2
 + 3*x)^4) - (1829*Sqrt[1 - 2*x])/(1764*(2 + 3*x)^3) - (9145*Sqrt
[1 - 2*x])/(24696*(2 + 3*x)^2) - (9145*Sqrt[1 - 2*x])/(57624*(2 +
 3*x)) - (9145*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(28812*Sqrt[21])
```

Rubi in Sympy [A] time = 13.6688, size = 114, normalized size = 0.89

$$-\frac{9145\sqrt{-2x+1}}{57624\,(3x+2)}-\frac{9145\sqrt{-2x+1}}{24696\,(3x+2)^2}-\frac{1829\sqrt{-2x+1}}{1764\,(3x+2)^3}-\frac{2179\sqrt{-2x+1}}{588\,(3x+2)^4}-\frac{9145\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{605052}+\frac{121}{14\sqrt{-2x+1}\,(3x+2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**2/(1-2*x)**(3/2)/(2+3*x)**5,x)
```

```
[Out] -9145*sqrt(-2*x + 1)/(57624*(3*x + 2)) - 9145*sqrt(-2*x + 1)/(246
96*(3*x + 2)**2) - 1829*sqrt(-2*x + 1)/(1764*(3*x + 2)**3) - 2179
*sqrt(-2*x + 1)/(588*(3*x + 2)**4) - 9145*sqrt(21)*atanh(sqrt(21)
*sqrt(-2*x + 1)/7)/605052 + 121/(14*sqrt(-2*x + 1)*(3*x + 2)**4)
```

Mathematica [A] time = 0.176661, size = 68, normalized size = 0.53

$$\frac{\frac{21\left(493830x^4+1124835x^3+843169x^2+218578x+6486\right)}{\sqrt{1-2x}(3x+2)^4}-18290\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{1210104}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^2/((1 - 2*x)^(3/2)*(2 + 3*x)^5),x]
```

```
[Out] ((21*(6486 + 218578*x + 843169*x^2 + 1124835*x^3 + 493830*x^4))/(
Sqrt[1 - 2*x]*(2 + 3*x)^4) - 18290*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqr
t[1 - 2*x]])/1210104
```

Maple [A] time = 0.02, size = 75, normalized size = 0.6

$$\frac{968}{16807}\frac{1}{\sqrt{1-2x}}+\frac{648}{16807\,(-4-6x)^4}\left(\frac{29167}{288}(1-2x)^{\frac{7}{2}}-\frac{2001923}{2592}(1-2x)^{\frac{5}{2}}+\frac{15060395}{7776}(1-2x)^{\frac{3}{2}}-\frac{12452615}{7776}\sqrt{1-2x}\right)-\frac{9145\sqrt{21}}{605052}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^2/(1-2*x)^(3/2)/(2+3*x)^5,x)
```

```
[Out] 968/16807/(1-2*x)^(1/2)+648/16807*(29167/288*(1-2*x)^(7/2)-200192
3/2592*(1-2*x)^(5/2)+15060395/7776*(1-2*x)^(3/2)-12452615/7776*(1
-2*x)^(1/2))/(-4-6*x)^4-9145/605052*arctanh(1/7*21^(1/2)*(1-2*x)^
(1/2))*21^(1/2)
```

Maxima [A] time = 1.50552, size = 161, normalized size = 1.26

$$\frac{9145}{1210104}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{246915\,(2x-1)^4+2112495\,(2x-1)^3+6542333\,(2x-1)^2+17218306\,x-4624865}{28812\left(81\,(-2x+1)^{\frac{9}{2}}-756\,(-2x+1)^{\frac{7}{2}}+2646\,(-2x+1)^{\frac{5}{2}}-4116\,(-2x+1)^{\frac{3}{2}}+2401\sqrt{-2x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2/((3*x + 2)^5*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 9145/1210104*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21
) + 3*sqrt(-2*x + 1))) + 1/28812*(246915*(2*x - 1)^4 + 2112495*(2
*x - 1)^3 + 6542333*(2*x - 1)^2 + 17218306*x - 4624865)/(81*(-2*x
 + 1)^(9/2) - 756*(-2*x + 1)^(7/2) + 2646*(-2*x + 1)^(5/2) - 4116
*(-2*x + 1)^(3/2) + 2401*sqrt(-2*x + 1))
```

Fricas [A] time = 0.224804, size = 157, normalized size = 1.23

$$\frac{\sqrt{21}\left(9145\left(81x^4+216x^3+216x^2+96x+16\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{21}(3x-5)+21\sqrt{-2x+1}}{3x+2}\right)+\sqrt{21}\left(493830x^4+1124835x^3+84316\right.\right.}{1210104\left(81x^4+216x^3+216x^2+96x+16\right)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2/((3*x + 2)^5*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/1210104*sqrt(21)*(9145*(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16)
*sqrt(-2*x + 1)*log((sqrt(21)*(3*x - 5) + 21*sqrt(-2*x + 1))/(3*x
 + 2)) + sqrt(21)*(493830*x^4 + 1124835*x^3 + 843169*x^2 + 218578
*x + 6486))/((81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16)*sqrt(-2*x +
 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2/(1-2*x)**(3/2)/(2+3*x)**5,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.223905, size = 147, normalized size = 1.15

$$\frac{9145}{1210104}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{968}{16807\sqrt{-2x+1}} - \frac{787509(2x-1)^3\sqrt{-2x+1}+6005769(2x-1)^2\sqrt{-2x+1}-15060395(-2x+1)^{\frac{3}{2}}+12452615\sqrt{-2x+1}}{3226944(3x+2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2/((3*x + 2)^5*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 9145/1210104*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/
(sqrt(21) + 3*sqrt(-2*x + 1))) + 968/16807/sqrt(-2*x + 1) - 1/322
6944*(787509*(2*x - 1)^3*sqrt(-2*x + 1) + 6005769*(2*x - 1)^2*sqr
t(-2*x + 1) - 15060395*(-2*x + 1)^(3/2) + 12452615*sqrt(-2*x + 1)
)/(3*x + 2)^4
```

3.2077 $\int \frac{(2+3x)^4(3+5x)^3}{(1-2x)^{3/2}}\,dx$

Optimal. Leaf size=105

$$\frac{10125(1-2x)^{13/2}}{1664}-\frac{161325(1-2x)^{11/2}}{1408}+\frac{122385}{128}(1-2x)^{9/2}-\frac{4177401}{896}(1-2x)^{7/2}+\frac{9504551}{640}(1-2x)^{5/2}-\frac{4324397}{128}(1-2x)^{3/2}+\frac{9836211}{128}\sqrt{1-2x}+\frac{3195731}{128\sqrt{1-2x}}$$

```
[Out] 3195731/(128*Sqrt[1 - 2*x]) + (9836211*Sqrt[1 - 2*x])/128 - (4324
397*(1 - 2*x)^(3/2))/128 + (9504551*(1 - 2*x)^(5/2))/640 - (41774
01*(1 - 2*x)^(7/2))/896 + (122385*(1 - 2*x)^(9/2))/128 - (161325*
(1 - 2*x)^(11/2))/1408 + (10125*(1 - 2*x)^(13/2))/1664
```

Rubi [A] time = 0.0852819, antiderivative size = 105, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.042

$$\frac{10125(1-2x)^{13/2}}{1664}-\frac{161325(1-2x)^{11/2}}{1408}+\frac{122385}{128}(1-2x)^{9/2}-\frac{4177401}{896}(1-2x)^{7/2}+\frac{9504551}{640}(1-2x)^{5/2}-\frac{4324397}{128}(1-2x)^{3/2}+\frac{9836211}{128}\sqrt{1-2x}+\frac{3195731}{128\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^4*(3 + 5*x)^3)/(1 - 2*x)^(3/2),x]
```


```
[Out] 3195731/(128*Sqrt[1 - 2*x]) + (9836211*Sqrt[1 - 2*x])/128 - (4324
397*(1 - 2*x)^(3/2))/128 + (9504551*(1 - 2*x)^(5/2))/640 - (41774
01*(1 - 2*x)^(7/2))/896 + (122385*(1 - 2*x)^(9/2))/128 - (161325*
(1 - 2*x)^(11/2))/1408 + (10125*(1 - 2*x)^(13/2))/1664
```

Rubi in Sympy [A] time = 10.9968, size = 94, normalized size = 0.9

$$\frac{10125\,(-2x+1)^{\frac{13}{2}}}{1664}-\frac{161325\,(-2x+1)^{\frac{11}{2}}}{1408}+\frac{122385\,(-2x+1)^{\frac{9}{2}}}{128}-\frac{4177401\,(-2x+1)^{\frac{7}{2}}}{896}+\frac{9504551\,(-2x+1)^{\frac{5}{2}}}{640}-\frac{4324397\,(-2x+1)^{\frac{3}{2}}}{128}+\frac{9836211\sqrt{-2x+1}}{128}+\frac{3195731}{128\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4*(3+5*x)**3/(1-2*x)**(3/2),x)
```

```
[Out] 10125*(-2*x + 1)**(13/2)/1664 - 161325*(-2*x + 1)**(11/2)/1408 +
122385*(-2*x + 1)**(9/2)/128 - 4177401*(-2*x + 1)**(7/2)/896 + 95
04551*(-2*x + 1)**(5/2)/640 - 4324397*(-2*x + 1)**(3/2)/128 + 983
6211*sqrt(-2*x + 1)/128 + 3195731/(128*sqrt(-2*x + 1))
```

Mathematica [A] time = 0.0605779, size = 48, normalized size = 0.46

$$\frac{-3898125x^7-23058000x^6-63495075x^5-111095730x^4-147527176x^3-184884496x^2-393552752x+395714912}{5005\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^4*(3 + 5*x)^3)/(1 - 2*x)^(3/2),x]
```

```
[Out] (395714912 - 393552752*x - 184884496*x^2 - 147527176*x^3 - 111095
730*x^4 - 63495075*x^5 - 23058000*x^6 - 3898125*x^7)/(5005*Sqrt[1
 - 2*x])
```

Maple [A] time = 0.007, size = 45, normalized size = 0.4

$$-\frac{\frac{3898125 x^7+23058000 x^6+63495075 x^5+111095730 x^4+147527176 x^3+184884496 x^2+393552752 x-395714912}{5005}}{\sqrt{1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4*(3+5*x)^3/(1-2*x)^(3/2),x)
```

```
[Out] -1/5005*(3898125*x^7+23058000*x^6+63495075*x^5+111095730*x^4+1475
27176*x^3+184884496*x^2+393552752*x-395714912)/(1-2*x)^(1/2)
```

Maxima [A] time = 1.34537, size = 99, normalized size = 0.94

$$\frac{10125}{1664}(-2x+1)^{\frac{13}{2}}-\frac{161325}{1408}(-2x+1)^{\frac{11}{2}}+\frac{122385}{128}(-2x+1)^{\frac{9}{2}}-\frac{4177401}{896}(-2x+1)^{\frac{7}{2}}+\frac{9504551}{640}(-2x+1)^{\frac{5}{2}}-\frac{4324397}{128}(-2x+1)^{\frac{3}{2}}+\frac{9836211}{128}\sqrt{-2x+1}+\frac{3195731}{128\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^4/(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] 10125/1664*(-2*x + 1)^(13/2) - 161325/1408*(-2*x + 1)^(11/2) + 12
2385/128*(-2*x + 1)^(9/2) - 4177401/896*(-2*x + 1)^(7/2) + 950455
1/640*(-2*x + 1)^(5/2) - 4324397/128*(-2*x + 1)^(3/2) + 9836211/1
28*sqrt(-2*x + 1) + 3195731/128/sqrt(-2*x + 1)
```

Fricas [A] time = 0.212273, size = 59, normalized size = 0.56

$$-\frac{3898125 x^7+23058000 x^6+63495075 x^5+111095730 x^4+147527176 x^3+184884496 x^2+393552752 x-395714912}{5005\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^4/(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/5005*(3898125*x^7 + 23058000*x^6 + 63495075*x^5 + 111095730*x^
4 + 147527176*x^3 + 184884496*x^2 + 393552752*x - 395714912)/sqrt
(-2*x + 1)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^4 (5x+3)^3}{(-2x+1)^{\frac{3}{2}}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4*(3+5*x)**3/(1-2*x)**(3/2),x)
```

```
[Out] Integral((3*x + 2)**4*(5*x + 3)**3/(-2*x + 1)**(3/2), x)
```

GIAC/XCAS [A] time = 0.212557, size = 146, normalized size = 1.39

$$\frac{10125}{1664}\,(2\,x-1)^{6}\sqrt{-2\,x+1}+\frac{161325}{1408}\,(2\,x-1)^{5}\sqrt{-2\,x+1}+\frac{122385}{128}\,(2\,x-1)^{4}\sqrt{-2\,x+1}+\frac{4177401}{896}\,(2\,x-1)^{3}\sqrt{-2\,x+1}+\frac{9504551}{640}\,(2\,x-1)^{2}\sqrt{-2\,x+1}-\frac{4324397}{128}\,(-2\,x+1)^{\frac{3}{2}}+\frac{9836211}{128}\,\sqrt{-2\,x+1}+\frac{3195731}{128\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3*(3*x + 2)^4/(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] 10125/1664*(2*x - 1)^6*sqrt(-2*x + 1) + 161325/1408*(2*x - 1)^5*s
qrt(-2*x + 1) + 122385/128*(2*x - 1)^4*sqrt(-2*x + 1) + 4177401/8
96*(2*x - 1)^3*sqrt(-2*x + 1) + 9504551/640*(2*x - 1)^2*sqrt(-2*x
 + 1) - 4324397/128*(-2*x + 1)^(3/2) + 9836211/128*sqrt(-2*x + 1)
 + 3195731/128/sqrt(-2*x + 1)
```

3.2078 $\int \frac{(2+3x)^3(3+5x)^3}{(1-2x)^{3/2}} dx$

Optimal. Leaf size=92

$$-\frac{3375}{704}(1-2x)^{11/2}+\frac{1275}{16}(1-2x)^{9/2}-\frac{260055}{448}(1-2x)^{7/2}+\frac{98209}{40}(1-2x)^{5/2}-\frac{444983}{64}(1-2x)^{3/2}+\frac{302379}{16}\sqrt{1-2x}+\frac{456533}{64\sqrt{1-2x}}$$

```
[Out] 456533/(64*Sqrt[1 - 2*x]) + (302379*Sqrt[1 - 2*x])/16 - (444983*(
1 - 2*x)^(3/2))/64 + (98209*(1 - 2*x)^(5/2))/40 - (260055*(1 - 2*
x)^(7/2))/448 + (1275*(1 - 2*x)^(9/2))/16 - (3375*(1 - 2*x)^(11/2
))/704
```

Rubi [A] time = 0.0748616, antiderivative size = 92, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.042

$$-\frac{3375}{704}(1-2x)^{11/2}+\frac{1275}{16}(1-2x)^{9/2}-\frac{260055}{448}(1-2x)^{7/2}+\frac{98209}{40}(1-2x)^{5/2}-\frac{444983}{64}(1-2x)^{3/2}+\frac{302379}{16}\sqrt{1-2x}+\frac{456533}{64\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^3*(3 + 5*x)^3)/(1 - 2*x)^(3/2),x]
```

```
[Out] 456533/(64*Sqrt[1 - 2*x]) + (302379*Sqrt[1 - 2*x])/16 - (444983*(
1 - 2*x)^(3/2))/64 + (98209*(1 - 2*x)^(5/2))/40 - (260055*(1 - 2*
x)^(7/2))/448 + (1275*(1 - 2*x)^(9/2))/16 - (3375*(1 - 2*x)^(11/2
))/704
```

Rubi in Sympy [A] time = 10.1847, size = 82, normalized size = 0.89

$$-\frac{3375\left(-2x+1\right)^{\frac{11}{2}}}{704}+\frac{1275\left(-2x+1\right)^{\frac{9}{2}}}{16}-\frac{260055\left(-2x+1\right)^{\frac{7}{2}}}{448}+\frac{98209\left(-2x+1\right)^{\frac{5}{2}}}{40}-\frac{444983\left(-2x+1\right)^{\frac{3}{2}}}{64}+\frac{302379\sqrt{-2x+1}}{16}+\frac{456533}{64\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3*(3+5*x)**3/(1-2*x)**(3/2),x)
```

```
[Out] -3375*(-2*x + 1)**(11/2)/704 + 1275*(-2*x + 1)**(9/2)/16 - 260055
*(-2*x + 1)**(7/2)/448 + 98209*(-2*x + 1)**(5/2)/40 - 444983*(-2*
x + 1)**(3/2)/64 + 302379*sqrt(-2*x + 1)/16 + 456533/(64*sqrt(-2*
x + 1))
```

Mathematica [A] time = 0.0552937, size = 43, normalized size = 0.47

$$\frac{-118125x^6-627375x^5-1564350x^4-2569643x^3-3611453x^2-8012926x+8096086}{385\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^3*(3 + 5*x)^3)/(1 - 2*x)^(3/2),x]
```

```
[Out] (8096086 - 8012926*x - 3611453*x^2 - 2569643*x^3 - 1564350*x^4 -
627375*x^5 - 118125*x^6)/(385*Sqrt[1 - 2*x])
```

Maple [A] time = 0.006, size = 40, normalized size = 0.4

$$-\frac{118125\,x^{6}+627375\,x^{5}+1564350\,x^{4}+2569643\,x^{3}+3611453\,x^{2}+8012926\,x-8096086}{385}\frac{1}{\sqrt{1-2\,x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3*(3+5*x)^3/(1-2*x)^(3/2),x)
```

```
[Out] -1/385*(118125*x^6+627375*x^5+1564350*x^4+2569643*x^3+3611453*x^2
+8012926*x-8096086)/(1-2*x)^(1/2)
```

Maxima [A] time = 1.34886, size = 86, normalized size = 0.93

$$-\frac{3375}{704}\,(-2\,x+1)^{\frac{11}{2}}+\frac{1275}{16}\,(-2\,x+1)^{\frac{9}{2}}-\frac{260055}{448}\,(-2\,x+1)^{\frac{7}{2}}+\frac{98209}{40}\,(-2\,x+1)^{\frac{5}{2}}-\frac{444983}{64}\,(-2\,x+1)^{\frac{3}{2}}+\frac{302379}{16}\,\sqrt{-2\,x+1}+\frac{456533}{64\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^3/(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] -3375/704*(-2*x + 1)^(11/2) + 1275/16*(-2*x + 1)^(9/2) - 260055/4
48*(-2*x + 1)^(7/2) + 98209/40*(-2*x + 1)^(5/2) - 444983/64*(-2*x
 + 1)^(3/2) + 302379/16*sqrt(-2*x + 1) + 456533/64/sqrt(-2*x + 1)
```

Fricas [A] time = 0.219676, size = 53, normalized size = 0.58

$$-\frac{118125\,x^{6}+627375\,x^{5}+1564350\,x^{4}+2569643\,x^{3}+3611453\,x^{2}+8012926\,x-8096086}{385\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^3/(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/385*(118125*x^6 + 627375*x^5 + 1564350*x^4 + 2569643*x^3 + 361
1453*x^2 + 8012926*x - 8096086)/sqrt(-2*x + 1)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{3}\,(5x+3)^{3}}{(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3*(3+5*x)**3/(1-2*x)**(3/2),x)
```

```
[Out] Integral((3*x + 2)**3*(5*x + 3)**3/(-2*x + 1)**(3/2), x)
```

GIAC/XCAS [A] time = 0.213132, size = 124, normalized size = 1.35

$$\frac{3375}{704}\,(2\,x-1)^5\sqrt{-2\,x+1}+\frac{1275}{16}\,(2\,x-1)^4\sqrt{-2\,x+1}+\frac{260055}{448}\,(2\,x-1)^3\sqrt{-2\,x+1}+\frac{98209}{40}\,(2\,x-1)^2\sqrt{-2\,x+1}-\frac{444983}{64}\,(-2\,x+1)^{\frac{3}{2}}+\frac{302379}{16}\,\sqrt{-2\,x+1}+\frac{456533}{64\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^3/(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] 3375/704*(2*x - 1)^5*sqrt(-2*x + 1) + 1275/16*(2*x - 1)^4*sqrt(-2
*x + 1) + 260055/448*(2*x - 1)^3*sqrt(-2*x + 1) + 98209/40*(2*x -
 1)^2*sqrt(-2*x + 1) - 444983/64*(-2*x + 1)^(3/2) + 302379/16*sqr
t(-2*x + 1) + 456533/64/sqrt(-2*x + 1)
```

3.2079 $\int \frac{(2+3x)^2(3+5x)^3}{(1-2x)^{3/2}}\,dx$

Optimal. Leaf size=79

$$\frac{125}{32}(1-2x)^{9/2}-\frac{12675}{224}(1-2x)^{7/2}+\frac{5711}{16}(1-2x)^{5/2}-\frac{21439}{16}(1-2x)^{3/2}+\frac{144837}{32}\sqrt{1-2x}+\frac{65219}{32\sqrt{1-2x}}$$

```
[Out] 65219/(32*Sqrt[1 - 2*x]) + (144837*Sqrt[1 - 2*x])/32 - (21439*(1
- 2*x)^(3/2))/16 + (5711*(1 - 2*x)^(5/2))/16 - (12675*(1 - 2*x)^(
7/2))/224 + (125*(1 - 2*x)^(9/2))/32
```

Rubi [A] time = 0.0707924, antiderivative size = 79, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.042

$$\frac{125}{32}(1-2x)^{9/2}-\frac{12675}{224}(1-2x)^{7/2}+\frac{5711}{16}(1-2x)^{5/2}-\frac{21439}{16}(1-2x)^{3/2}+\frac{144837}{32}\sqrt{1-2x}+\frac{65219}{32\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^2*(3 + 5*x)^3)/(1 - 2*x)^(3/2),x]
```

```
[Out] 65219/(32*Sqrt[1 - 2*x]) + (144837*Sqrt[1 - 2*x])/32 - (21439*(1
- 2*x)^(3/2))/16 + (5711*(1 - 2*x)^(5/2))/16 - (12675*(1 - 2*x)^(
7/2))/224 + (125*(1 - 2*x)^(9/2))/32
```

Rubi in Sympy [A] time = 9.31857, size = 70, normalized size = 0.89

$$\frac{125\,(-2x+1)^{\frac{9}{2}}}{32}-\frac{12675\,(-2x+1)^{\frac{7}{2}}}{224}+\frac{5711\,(-2x+1)^{\frac{5}{2}}}{16}-\frac{21439\,(-2x+1)^{\frac{3}{2}}}{16}+\frac{144837\sqrt{-2x+1}}{32}+\frac{65219}{32\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2*(3+5*x)**3/(1-2*x)**(3/2),x)
```

```
[Out] 125*(-2*x + 1)**(9/2)/32 - 12675*(-2*x + 1)**(7/2)/224 + 5711*(-2
*x + 1)**(5/2)/16 - 21439*(-2*x + 1)**(3/2)/16 + 144837*sqrt(-2*x
 + 1)/32 + 65219/(32*sqrt(-2*x + 1))
```

Mathematica [A] time = 0.0513531, size = 38, normalized size = 0.48

$$\frac{-875x^5-4150x^4-9501x^3-15948x^2-37944x+38700}{7\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^2*(3 + 5*x)^3)/(1 - 2*x)^(3/2),x]
```

```
[Out] (38700 - 37944*x - 15948*x^2 - 9501*x^3 - 4150*x^4 - 875*x^5)/(7*
Sqrt[1 - 2*x])
```

Maple [A] time = 0.006, size = 35, normalized size = 0.4

$$-\frac{875\,x^5+4150\,x^4+9501\,x^3+15948\,x^2+37944\,x-38700}{7}\frac{1}{\sqrt{1-2\,x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2*(3+5*x)^3/(1-2*x)^(3/2),x)
```

```
[Out] -1/7*(875*x^5+4150*x^4+9501*x^3+15948*x^2+37944*x-38700)/(1-2*x)^
(1/2)
```

Maxima [A] time = 1.34642, size = 74, normalized size = 0.94

$$\frac{125}{32}\,(-2\,x+1)^{\frac{9}{2}}-\frac{12675}{224}\,(-2\,x+1)^{\frac{7}{2}}+\frac{5711}{16}\,(-2\,x+1)^{\frac{5}{2}}-\frac{21439}{16}\,(-2\,x+1)^{\frac{3}{2}}+\frac{144837}{32}\,\sqrt{-2\,x+1}+\frac{65219}{32\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3*(3*x + 2)^2/(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] 125/32*(-2*x + 1)^(9/2) - 12675/224*(-2*x + 1)^(7/2) + 5711/16*(-
2*x + 1)^(5/2) - 21439/16*(-2*x + 1)^(3/2) + 144837/32*sqrt(-2*x
+ 1) + 65219/32/sqrt(-2*x + 1)
```

Fricas [A] time = 0.216668, size = 46, normalized size = 0.58

$$-\frac{875\,x^5+4150\,x^4+9501\,x^3+15948\,x^2+37944\,x-38700}{7\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3*(3*x + 2)^2/(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/7*(875*x^5 + 4150*x^4 + 9501*x^3 + 15948*x^2 + 37944*x - 38700
)/sqrt(-2*x + 1)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(3x+2)^2\,(5x+3)^3}{(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2*(3+5*x)**3/(1-2*x)**(3/2),x)
```

```
[Out] Integral((3*x + 2)**2*(5*x + 3)**3/(-2*x + 1)**(3/2), x)
```

GIAC/XCAS [A] time = 0.216887, size = 103, normalized size = 1.3

$$\frac{125}{32}\,(2\,x-1)^4\sqrt{-2\,x+1}+\frac{12675}{224}\,(2\,x-1)^3\sqrt{-2\,x+1}+\frac{5711}{16}\,(2\,x-1)^2\sqrt{-2\,x+1}-\frac{21439}{16}\,(-2\,x+1)^{\frac{3}{2}}+\frac{144837}{32}\,\sqrt{-2\,x+1}+\frac{65219}{32\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3*(3*x + 2)^2/(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] 125/32*(2*x - 1)^4*sqrt(-2*x + 1) + 12675/224*(2*x - 1)^3*sqrt(-2
*x + 1) + 5711/16*(2*x - 1)^2*sqrt(-2*x + 1) - 21439/16*(-2*x + 1
)^(3/2) + 144837/32*sqrt(-2*x + 1) + 65219/32/sqrt(-2*x + 1)
```

3.2080 $\int \frac{(2+3x)(3+5x)^3}{(1-2x)^{3/2}}\,dx$

Optimal. Leaf size=66

$$-\frac{375}{112}(1-2x)^{7/2}+\frac{335}{8}(1-2x)^{5/2}-\frac{935}{4}(1-2x)^{3/2}+\frac{8349}{8}\sqrt{1-2x}+\frac{9317}{16\sqrt{1-2x}}$$

```
[Out] 9317/(16*Sqrt[1 - 2*x]) + (8349*Sqrt[1 - 2*x])/8 - (935*(1 - 2*x)
^(3/2))/4 + (335*(1 - 2*x)^(5/2))/8 - (375*(1 - 2*x)^(7/2))/112
```

Rubi [A] time = 0.0552953, antiderivative size = 66, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{375}{112}(1-2x)^{7/2}+\frac{335}{8}(1-2x)^{5/2}-\frac{935}{4}(1-2x)^{3/2}+\frac{8349}{8}\sqrt{1-2x}+\frac{9317}{16\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In] Int[((2 + 3*x)*(3 + 5*x)^3)/(1 - 2*x)^(3/2),x]
```

```
[Out] 9317/(16*Sqrt[1 - 2*x]) + (8349*Sqrt[1 - 2*x])/8 - (935*(1 - 2*x)
^(3/2))/4 + (335*(1 - 2*x)^(5/2))/8 - (375*(1 - 2*x)^(7/2))/112
```

Rubi in Sympy [A] time = 7.88011, size = 58, normalized size = 0.88

$$-\frac{375(-2x+1)^{\frac{7}{2}}}{112}+\frac{335(-2x+1)^{\frac{5}{2}}}{8}-\frac{935(-2x+1)^{\frac{3}{2}}}{4}+\frac{8349\sqrt{-2x+1}}{8}+\frac{9317}{16\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)*(3+5*x)**3/(1-2*x)**(3/2),x)
```

```
[Out] -375*(-2*x + 1)**(7/2)/112 + 335*(-2*x + 1)**(5/2)/8 - 935*(-2*x
+ 1)**(3/2)/4 + 8349*sqrt(-2*x + 1)/8 + 9317/(16*sqrt(-2*x + 1))
```

Mathematica [A] time = 0.0380085, size = 37, normalized size = 0.56

$$\frac{\sqrt{1-2x}\left(375x^4+1595x^3+3590x^2+9637x-10015\right)}{14x-7}$$

Antiderivative was successfully verified.

```
[In] Integrate[((2 + 3*x)*(3 + 5*x)^3)/(1 - 2*x)^(3/2),x]
```

```
[Out] (Sqrt[1 - 2*x]*(-10015 + 9637*x + 3590*x^2 + 1595*x^3 + 375*x^4))
/(-7 + 14*x)
```

Maple [A] time = 0.006, size = 30, normalized size = 0.5

$$-\frac{375\,x^4+1595\,x^3+3590\,x^2+9637\,x-10015}{7}\frac{1}{\sqrt{1-2\,x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)*(3+5*x)^3/(1-2*x)^(3/2),x)
```

```
[Out] -1/7*(375*x^4+1595*x^3+3590*x^2+9637*x-10015)/(1-2*x)^(1/2)
```

Maxima [A] time = 1.34358, size = 62, normalized size = 0.94

$$-\frac{375}{112}\,(-2\,x+1)^{\frac{7}{2}}+\frac{335}{8}\,(-2\,x+1)^{\frac{5}{2}}-\frac{935}{4}\,(-2\,x+1)^{\frac{3}{2}}+\frac{8349}{8}\,\sqrt{-2\,x+1}+\frac{9317}{16\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)/(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] -375/112*(-2*x + 1)^(7/2) + 335/8*(-2*x + 1)^(5/2) - 935/4*(-2*x
+ 1)^(3/2) + 8349/8*sqrt(-2*x + 1) + 9317/16/sqrt(-2*x + 1)
```

Fricas [A] time = 0.213207, size = 39, normalized size = 0.59

$$-\frac{375\,x^4+1595\,x^3+3590\,x^2+9637\,x-10015}{7\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)/(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/7*(375*x^4 + 1595*x^3 + 3590*x^2 + 9637*x - 10015)/sqrt(-2*x +
 1)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)\,(5x+3)^3}{(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)*(3+5*x)**3/(1-2*x)**(3/2),x)
```

```
[Out] Integral((3*x + 2)*(5*x + 3)**3/(-2*x + 1)**(3/2), x)
```

GIAC/XCAS [A] time = 0.223334, size = 81, normalized size = 1.23

$$\frac{375}{112}\,(2\,x-1)^3\sqrt{-2\,x+1}+\frac{335}{8}\,(2\,x-1)^2\sqrt{-2\,x+1}-\frac{935}{4}\,(-2\,x+1)^{\frac{3}{2}}+\frac{8349}{8}\,\sqrt{-2\,x+1}+\frac{9317}{16\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)/(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] 375/112*(2*x - 1)^3*sqrt(-2*x + 1) + 335/8*(2*x - 1)^2*sqrt(-2*x
+ 1) - 935/4*(-2*x + 1)^(3/2) + 8349/8*sqrt(-2*x + 1) + 9317/16/s
qrt(-2*x + 1)
```

3.2081 $\int \frac{(3+5x)^3}{(1-2x)^{3/2}}\,dx$

Optimal. Leaf size=53

$$\frac{25}{8}(1-2x)^{5/2}-\frac{275}{8}(1-2x)^{3/2}+\frac{1815}{8}\sqrt{1-2x}+\frac{1331}{8\sqrt{1-2x}}$$

```
[Out] 1331/(8*Sqrt[1 - 2*x]) + (1815*Sqrt[1 - 2*x])/8 - (275*(1 - 2*x)^
(3/2))/8 + (25*(1 - 2*x)^(5/2))/8
```

Rubi [A] time = 0.0340452, antiderivative size = 53, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 17, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.059

$$\frac{25}{8}(1-2x)^{5/2}-\frac{275}{8}(1-2x)^{3/2}+\frac{1815}{8}\sqrt{1-2x}+\frac{1331}{8\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^3/(1 - 2*x)^(3/2),x]
```

```
[Out] 1331/(8*Sqrt[1 - 2*x]) + (1815*Sqrt[1 - 2*x])/8 - (275*(1 - 2*x)^
(3/2))/8 + (25*(1 - 2*x)^(5/2))/8
```

Rubi in Sympy [A] time = 5.87251, size = 46, normalized size = 0.87

$$\frac{25(-2x+1)^{\frac{5}{2}}}{8}-\frac{275(-2x+1)^{\frac{3}{2}}}{8}+\frac{1815\sqrt{-2x+1}}{8}+\frac{1331}{8\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**3/(1-2*x)**(3/2),x)
```

```
[Out] 25*(-2*x + 1)**(5/2)/8 - 275*(-2*x + 1)**(3/2)/8 + 1815*sqrt(-2*x
 + 1)/8 + 1331/(8*sqrt(-2*x + 1))
```

Mathematica [A] time = 0.0309894, size = 25, normalized size = 0.47

$$\frac{-25x^3-100x^2-335x+362}{\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^3/(1 - 2*x)^(3/2),x]
```

```
[Out] (362 - 335*x - 100*x^2 - 25*x^3)/Sqrt[1 - 2*x]
```

Maple [A] time = 0.004, size = 25, normalized size = 0.5

$$-(25\,x^3+100\,x^2+335\,x-362)\frac{1}{\sqrt{1-2\,x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3/(1-2*x)^(3/2),x)

[Out] -(25*x^3+100*x^2+335*x-362)/(1-2*x)^(1/2)
```

Maxima [A] time = 1.3444, size = 50, normalized size = 0.94

$$\frac{25}{8}\,(-2\,x+1)^{\frac{5}{2}}-\frac{275}{8}\,(-2\,x+1)^{\frac{3}{2}}+\frac{1815}{8}\,\sqrt{-2\,x+1}+\frac{1331}{8\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/(-2*x + 1)^(3/2),x, algorithm="maxima")

[Out] 25/8*(-2*x + 1)^(5/2) - 275/8*(-2*x + 1)^(3/2) + 1815/8*sqrt(-2*x
 + 1) + 1331/8/sqrt(-2*x + 1)
```

Fricas [A] time = 0.217145, size = 32, normalized size = 0.6

$$-\frac{25\,x^3+100\,x^2+335\,x-362}{\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/(-2*x + 1)^(3/2),x, algorithm="fricas")

[Out] -(25*x^3 + 100*x^2 + 335*x - 362)/sqrt(-2*x + 1)
```

Sympy [A] time = 3.38117, size = 435, normalized size = 8.21

$$\begin{cases} \frac{125\sqrt{55}i\left(x+\frac{3}{5}\right)^{3}\sqrt{10x-5}}{50\sqrt{11}\left(x+\frac{3}{5}\right)-55\sqrt{11}}+\frac{275\sqrt{55}i\left(x+\frac{3}{5}\right)^{2}\sqrt{10x-5}}{50\sqrt{11}\left(x+\frac{3}{5}\right)-55\sqrt{11}}+\frac{1210\sqrt{55}i\left(x+\frac{3}{5}\right)\sqrt{10x-5}}{50\sqrt{11}\left(x+\frac{3}{5}\right)-55\sqrt{11}}-\frac{26620\sqrt{5}\left(x+\frac{3}{5}\right)}{50\sqrt{11}\left(x+\frac{3}{5}\right)-55\sqrt{11}}-\frac{2662\sqrt{55}i\sqrt{10x-5}}{50\sqrt{11}\left(x+\frac{3}{5}\right)-55\sqrt{11}}+\frac{29282\sqrt{5}}{50\sqrt{11}\left(x+\frac{3}{5}\right)-55\sqrt{11}} \\ \frac{125\sqrt{55}\sqrt{-10x+5}\left(x+\frac{3}{5}\right)^{3}}{50\sqrt{11}\left(x+\frac{3}{5}\right)-55\sqrt{11}}+\frac{275\sqrt{55}\sqrt{-10x+5}\left(x+\frac{3}{5}\right)^{2}}{50\sqrt{11}\left(x+\frac{3}{5}\right)-55\sqrt{11}}+\frac{1210\sqrt{55}\sqrt{-10x+5}\left(x+\frac{3}{5}\right)}{50\sqrt{11}\left(x+\frac{3}{5}\right)-55\sqrt{11}}-\frac{2662\sqrt{55}\sqrt{-10x+5}}{50\sqrt{11}\left(x+\frac{3}{5}\right)-55\sqrt{11}}-\frac{26620\sqrt{5}\left(x+\frac{3}{5}\right)}{50\sqrt{11}\left(x+\frac{3}{5}\right)-55\sqrt{11}}+\frac{29282\sqrt{5}}{50\sqrt{11}\left(x+\frac{3}{5}\right)-55\sqrt{11}} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3/(1-2*x)**(3/2),x)

[Out] Piecewise((125*sqrt(55)*I*(x + 3/5)**3*sqrt(10*x - 5)/(50*sqrt(11
)*(x + 3/5) - 55*sqrt(11)) + 275*sqrt(55)*I*(x + 3/5)**2*sqrt(10*
x - 5)/(50*sqrt(11)*(x + 3/5) - 55*sqrt(11)) + 1210*sqrt(55)*I*(x
 + 3/5)*sqrt(10*x - 5)/(50*sqrt(11)*(x + 3/5) - 55*sqrt(11)) - 26
620*sqrt(5)*(x + 3/5)/(50*sqrt(11)*(x + 3/5) - 55*sqrt(11)) - 266
2*sqrt(55)*I*sqrt(10*x - 5)/(50*sqrt(11)*(x + 3/5) - 55*sqrt(11))
 + 29282*sqrt(5)/(50*sqrt(11)*(x + 3/5) - 55*sqrt(11)), 10*Abs(x
+ 3/5)/11 > 1), (125*sqrt(55)*sqrt(-10*x + 5)*(x + 3/5)**3/(50*sq
rt(11)*(x + 3/5) - 55*sqrt(11)) + 275*sqrt(55)*sqrt(-10*x + 5)*(x
 + 3/5)**2/(50*sqrt(11)*(x + 3/5) - 55*sqrt(11)) + 1210*sqrt(55)*
sqrt(-10*x + 5)*(x + 3/5)/(50*sqrt(11)*(x + 3/5) - 55*sqrt(11)) -
 2662*sqrt(55)*sqrt(-10*x + 5)/(50*sqrt(11)*(x + 3/5) - 55*sqrt(1
1)) - 26620*sqrt(5)*(x + 3/5)/(50*sqrt(11)*(x + 3/5) - 55*sqrt(11
)) + 29282*sqrt(5)/(50*sqrt(11)*(x + 3/5) - 55*sqrt(11)), True))
```

GIAC/XCAS [A] time = 0.221699, size = 59, normalized size = 1.11

$$\frac{25}{8}\,(2\,x-1)^2\sqrt{-2\,x+1}-\frac{275}{8}\,(-2\,x+1)^{\frac{3}{2}}+\frac{1815}{8}\,\sqrt{-2\,x+1}+\frac{1331}{8\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] 25/8*(2*x - 1)^2*sqrt(-2*x + 1) - 275/8*(-2*x + 1)^(3/2) + 1815/8
*sqrt(-2*x + 1) + 1331/8/sqrt(-2*x + 1)
```

3.2082 $\int \frac{(3+5x)^3}{(1-2x)^{3/2}(2+3x)}\,dx$

Optimal. Leaf size=67

$$-\frac{125}{36}(1-2x)^{3/2}+\frac{400}{9}\sqrt{1-2x}+\frac{1331}{28\sqrt{1-2x}}+\frac{2\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{63\sqrt{21}}$$

```
[Out] 1331/(28*Sqrt[1 - 2*x]) + (400*Sqrt[1 - 2*x])/9 - (125*(1 - 2*x)^
(3/2))/36 + (2*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(63*Sqrt[21])
```

Rubi [A] time = 0.105687, antiderivative size = 67, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$-\frac{125}{36}(1-2x)^{3/2}+\frac{400}{9}\sqrt{1-2x}+\frac{1331}{28\sqrt{1-2x}}+\frac{2\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{63\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In] Int[(3 + 5*x)^3/((1 - 2*x)^(3/2)*(2 + 3*x)),x]
```

```
[Out] 1331/(28*Sqrt[1 - 2*x]) + (400*Sqrt[1 - 2*x])/9 - (125*(1 - 2*x)^
(3/2))/36 + (2*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(63*Sqrt[21])
```

Rubi in Sympy [A] time = 10.3349, size = 60, normalized size = 0.9

$$-\frac{125(-2x+1)^{\frac{3}{2}}}{36}+\frac{400\sqrt{-2x+1}}{9}+\frac{2\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{1323}+\frac{1331}{28\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((3+5*x)**3/(1-2*x)**(3/2)/(2+3*x),x)
```

```
[Out] -125*(-2*x + 1)**(3/2)/36 + 400*sqrt(-2*x + 1)/9 + 2*sqrt(21)*ata
nh(sqrt(21)*sqrt(-2*x + 1)/7)/1323 + 1331/(28*sqrt(-2*x + 1))
```

Mathematica [A] time = 0.134441, size = 51, normalized size = 0.76

$$\frac{-875x^2-4725x+5576}{63\sqrt{1-2x}}+\frac{2\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{63\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In] Integrate[(3 + 5*x)^3/((1 - 2*x)^(3/2)*(2 + 3*x)),x]
```

```
[Out] (5576 - 4725*x - 875*x^2)/(63*Sqrt[1 - 2*x]) + (2*ArcTanh[Sqrt[3/
7]*Sqrt[1 - 2*x]])/(63*Sqrt[21])
```

Maple [A] time = 0.012, size = 47, normalized size = 0.7

$$-\frac{125}{36}(1-2x)^{\frac{3}{2}}+\frac{2\sqrt{21}}{1323}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)+\frac{1331}{28}\frac{1}{\sqrt{1-2x}}+\frac{400}{9}\sqrt{1-2x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3/(1-2*x)^(3/2)/(2+3*x),x)
```

```
[Out] -125/36*(1-2*x)^(3/2)+2/1323*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*
21^(1/2)+1331/28/(1-2*x)^(1/2)+400/9*(1-2*x)^(1/2)
```

Maxima [A] time = 1.49876, size = 86, normalized size = 1.28

$$-\frac{125}{36}\,(-2\,x+1)^{\frac{3}{2}}-\frac{1}{1323}\,\sqrt{21}\log\left(-\frac{\sqrt{21}-3\,\sqrt{-2\,x+1}}{\sqrt{21}+3\,\sqrt{-2\,x+1}}\right)+\frac{400}{9}\,\sqrt{-2\,x+1}+\frac{1331}{28\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3/((3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] -125/36*(-2*x + 1)^(3/2) - 1/1323*sqrt(21)*log(-(sqrt(21) - 3*sqr
t(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 400/9*sqrt(-2*x + 1
) + 1331/28/sqrt(-2*x + 1)
```

Fricas [A] time = 0.232017, size = 86, normalized size = 1.28

$$-\frac{\sqrt{21}\left(\sqrt{21}\left(875\,x^{2}+4725\,x-5576\right)-\sqrt{-2\,x+1}\log\left(\frac{\sqrt{21}(3\,x-5)-21\,\sqrt{-2\,x+1}}{3\,x+2}\right)\right)}{1323\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3/((3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] -1/1323*sqrt(21)*(sqrt(21)*(875*x^2 + 4725*x - 5576) - sqrt(-2*x
+ 1)*log((sqrt(21)*(3*x - 5) - 21*sqrt(-2*x + 1))/(3*x + 2)))/sqr
t(-2*x + 1)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(5x+3)^{3}}{(-2x+1)^{\frac{3}{2}}\,(3x+2)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3/(1-2*x)**(3/2)/(2+3*x),x)
```

```
[Out] Integral((5*x + 3)**3/((-2*x + 1)**(3/2)*(3*x + 2)), x)
```

GIAC/XCAS [A] time = 0.230682, size = 90, normalized size = 1.34

$$-\frac{125}{36}\,(-2\,x+1)^{\frac{3}{2}}-\frac{1}{1323}\,\sqrt{21}\ln\left(\frac{\left|-2\,\sqrt{21}+6\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{21}+3\,\sqrt{-2\,x+1}\right)}\right)+\frac{400}{9}\,\sqrt{-2\,x+1}+\frac{1331}{28\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3/((3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] -125/36*(-2*x + 1)^(3/2) - 1/1323*sqrt(21)*ln(1/2*abs(-2*sqrt(21)
 + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 400/9*sqrt(
-2*x + 1) + 1331/28/sqrt(-2*x + 1)
```

3.2083 $\int \frac{(3+5x)^3}{(1-2x)^{3/2}(2+3x)^2}\,dx$

Optimal. Leaf size=80

$$\frac{11(5x+3)^2}{7\sqrt{1-2x}(3x+2)}+\frac{2\sqrt{1-2x}(2975x+1978)}{147(3x+2)}-\frac{68\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{147\sqrt{21}}$$

```
[Out] (11*(3 + 5*x)^2)/(7*Sqrt[1 - 2*x]*(2 + 3*x)) + (2*Sqrt[1 - 2*x]*(
1978 + 2975*x))/(147*(2 + 3*x)) - (68*ArcTanh[Sqrt[3/7]*Sqrt[1 -
2*x]])/(147*Sqrt[21])
```

Rubi [A] time = 0.112864, antiderivative size = 80, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$\frac{11(5x+3)^2}{7\sqrt{1-2x}(3x+2)}+\frac{2\sqrt{1-2x}(2975x+1978)}{147(3x+2)}-\frac{68\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{147\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In] Int[(3 + 5*x)^3/((1 - 2*x)^(3/2)*(2 + 3*x)^2),x]
```

```
[Out] (11*(3 + 5*x)^2)/(7*Sqrt[1 - 2*x]*(2 + 3*x)) + (2*Sqrt[1 - 2*x]*(
1978 + 2975*x))/(147*(2 + 3*x)) - (68*ArcTanh[Sqrt[3/7]*Sqrt[1 -
2*x]])/(147*Sqrt[21])
```

Rubi in Sympy [A] time = 12.3411, size = 66, normalized size = 0.82

$$\frac{\sqrt{-2x+1}\,(17850x+11868)}{441\,(3x+2)}-\frac{68\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{3087}+\frac{11\,(5x+3)^2}{7\sqrt{-2x+1}\,(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((3+5*x)**3/(1-2*x)**(3/2)/(2+3*x)**2,x)
```

```
[Out] sqrt(-2*x + 1)*(17850*x + 11868)/(441*(3*x + 2)) - 68*sqrt(21)*at
anh(sqrt(21)*sqrt(-2*x + 1)/7)/3087 + 11*(5*x + 3)**2/(7*sqrt(-2*
x + 1)*(3*x + 2))
```

Mathematica [A] time = 0.124862, size = 61, normalized size = 0.76

$$\frac{\frac{21\sqrt{1-2x}(6125x^2-4968x-6035)}{6x^2+x-2}-68\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{3087}$$

Antiderivative was successfully verified.

```
[In] Integrate[(3 + 5*x)^3/((1 - 2*x)^(3/2)*(2 + 3*x)^2),x]
```

```
[Out] ((21*Sqrt[1 - 2*x]*(-6035 - 4968*x + 6125*x^2))/(-2 + x + 6*x^2)
- 68*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/3087
```

Maple [A] time = 0.02, size = 54, normalized size = 0.7

$$\frac{125}{18}\sqrt{1-2x}+\frac{1331}{98}\frac{1}{\sqrt{1-2x}}-\frac{2}{1323}\sqrt{1-2x}\left(-\frac{4}{3}-2x\right)^{-1}-\frac{68\sqrt{21}}{3087}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3/(1-2*x)^(3/2)/(2+3*x)^2,x)
```

```
[Out] 125/18*(1-2*x)^(1/2)+1331/98/(1-2*x)^(1/2)-2/1323*(1-2*x)^(1/2)/(
-4/3-2*x)-68/3087*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.49557, size = 100, normalized size = 1.25

$$\frac{34}{3087}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{125}{18}\sqrt{-2x+1}-\frac{35933x+23960}{441\left(3(-2x+1)^{\frac{3}{2}}-7\sqrt{-2x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)^2*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 34/3087*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21) + 3
*sqrt(-2*x + 1))) + 125/18*sqrt(-2*x + 1) - 1/441*(35933*x + 2396
0)/(3*(-2*x + 1)^(3/2) - 7*sqrt(-2*x + 1))
```

Fricas [A] time = 0.247056, size = 104, normalized size = 1.3

$$\frac{\sqrt{21}\left(34(3x+2)\sqrt{-2x+1}\log\left(\frac{\sqrt{21}(3x-5)+21\sqrt{-2x+1}}{3x+2}\right)-\sqrt{21}\left(6125x^2-4968x-6035\right)\right)}{3087(3x+2)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)^2*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/3087*sqrt(21)*(34*(3*x + 2)*sqrt(-2*x + 1)*log((sqrt(21)*(3*x -
 5) + 21*sqrt(-2*x + 1))/(3*x + 2)) - sqrt(21)*(6125*x^2 - 4968*x
 - 6035))/((3*x + 2)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3/(1-2*x)**(3/2)/(2+3*x)**2,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.243656, size = 104, normalized size = 1.3

$$\frac{34}{3087}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{125}{18}\sqrt{-2x+1}-\frac{35933x+23960}{441\left(3(-2x+1)^{\frac{3}{2}}-7\sqrt{-2x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3/((3*x + 2)^2*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 34/3087*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqrt
(21) + 3*sqrt(-2*x + 1))) + 125/18*sqrt(-2*x + 1) - 1/441*(35933*
x + 23960)/(3*(-2*x + 1)^(3/2) - 7*sqrt(-2*x + 1))
```

3.2084 $\int \frac{(3+5x)^3}{(1-2x)^{3/2}(2+3x)^3}\,dx$

Optimal. Leaf size=80

$$\frac{11(5x+3)^2}{7\sqrt{1-2x}(3x+2)^2}+\frac{5\sqrt{1-2x}(857x+541)}{2058(3x+2)^2}+\frac{2245\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{1029\sqrt{21}}$$

```
[Out] (11*(3 + 5*x)^2)/(7*Sqrt[1 - 2*x]*(2 + 3*x)^2) + (5*Sqrt[1 - 2*x]
*(541 + 857*x))/(2058*(2 + 3*x)^2) + (2245*ArcTanh[Sqrt[3/7]*Sqrt
[1 - 2*x]])/(1029*Sqrt[21])
```

Rubi [A] time = 0.114531, antiderivative size = 80, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$\frac{11(5x+3)^2}{7\sqrt{1-2x}(3x+2)^2}+\frac{5\sqrt{1-2x}(857x+541)}{2058(3x+2)^2}+\frac{2245\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{1029\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^3/((1 - 2*x)^(3/2)*(2 + 3*x)^3),x]
```

```
[Out] (11*(3 + 5*x)^2)/(7*Sqrt[1 - 2*x]*(2 + 3*x)^2) + (5*Sqrt[1 - 2*x]
*(541 + 857*x))/(2058*(2 + 3*x)^2) + (2245*ArcTanh[Sqrt[3/7]*Sqrt
[1 - 2*x]])/(1029*Sqrt[21])
```

Rubi in Sympy [A] time = 12.1769, size = 71, normalized size = 0.89

$$\frac{\sqrt{-2x+1}\,(12855x+8115)}{6174\,(3x+2)^2}+\frac{2245\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21609}+\frac{11\,(5x+3)^2}{7\sqrt{-2x+1}\,(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**3/(1-2*x)**(3/2)/(2+3*x)**3,x)
```

```
[Out] sqrt(-2*x + 1)*(12855*x + 8115)/(6174*(3*x + 2)**2) + 2245*sqrt(2
1)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/21609 + 11*(5*x + 3)**2/(7*sq
rt(-2*x + 1)*(3*x + 2)**2)
```

Mathematica [A] time = 0.134666, size = 58, normalized size = 0.72

$$\frac{\frac{21(72280x^2+95895x+31811)}{\sqrt{1-2x}(3x+2)^2}+4490\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{43218}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^3/((1 - 2*x)^(3/2)*(2 + 3*x)^3),x]
```

```
[Out] ((21*(31811 + 95895*x + 72280*x^2))/(Sqrt[1 - 2*x]*(2 + 3*x)^2) +
 4490*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/43218
```

Maple [A] time = 0.019, size = 57, normalized size = 0.7

$$\frac{1331}{343}\frac{1}{\sqrt{1-2x}}-\frac{18}{343\,(-4-6x)^{2}}\left(-\frac{203}{54}(1-2x)^{\frac{3}{2}}+\frac{469}{54}\sqrt{1-2x}\right)+\frac{2245\sqrt{21}}{21609}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3/(1-2*x)^(3/2)/(2+3*x)^3,x)
```

```
[Out] 1331/343/(1-2*x)^(1/2)-18/343*(-203/54*(1-2*x)^(3/2)+469/54*(1-2*
x)^(1/2))/(-4-6*x)^2+2245/21609*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2
))*21^(1/2)
```

Maxima [A] time = 1.49392, size = 112, normalized size = 1.4

$$-\frac{2245}{43218}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{2\left(18070\,(2x-1)^{2}+168175\,x+13741\right)}{1029\left(9\,(-2x+1)^{\frac{5}{2}}-42\,(-2x+1)^{\frac{3}{2}}+49\sqrt{-2x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3/((3*x + 2)^3*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] -2245/43218*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21)
 + 3*sqrt(-2*x + 1))) + 2/1029*(18070*(2*x - 1)^2 + 168175*x + 13
741)/(9*(-2*x + 1)^(5/2) - 42*(-2*x + 1)^(3/2) + 49*sqrt(-2*x + 1
))
```

Fricas [A] time = 0.240312, size = 116, normalized size = 1.45

$$\frac{\sqrt{21}\left(2245\left(9x^{2}+12x+4\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{21}(3x-5)-21\sqrt{-2x+1}}{3x+2}\right)+\sqrt{21}\left(72280\,x^{2}+95895\,x+31811\right)\right)}{43218\,(9x^{2}+12x+4)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3/((3*x + 2)^3*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/43218*sqrt(21)*(2245*(9*x^2 + 12*x + 4)*sqrt(-2*x + 1)*log((sqr
t(21)*(3*x - 5) - 21*sqrt(-2*x + 1))/(3*x + 2)) + sqrt(21)*(72280
*x^2 + 95895*x + 31811))/((9*x^2 + 12*x + 4)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3/(1-2*x)**(3/2)/(2+3*x)**3,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.238825, size = 104, normalized size = 1.3

$$-\frac{2245}{43218}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{1331}{343\sqrt{-2x+1}}+\frac{29\,(-2x+1)^{\frac{3}{2}}-67\sqrt{-2x+1}}{588\,(3x+2)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3/((3*x + 2)^3*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] -2245/43218*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(
sqrt(21) + 3*sqrt(-2*x + 1))) + 1331/343/sqrt(-2*x + 1) + 1/588*(
29*(-2*x + 1)^(3/2) - 67*sqrt(-2*x + 1))/(3*x + 2)^2
```

3.2085 $\int \frac{(3+5x)^3}{(1-2x)^{3/2}(2+3x)^4} \, dx$

Optimal. Leaf size=100

$$\frac{11(5x+3)^2}{7\sqrt{1-2x}(3x+2)^3}+\frac{2\sqrt{1-2x}(470x+297)}{441(3x+2)^3}-\frac{4660\sqrt{1-2x}}{3087(3x+2)}-\frac{9320\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{3087\sqrt{21}}$$

```
[Out] (-4660*Sqrt[1 - 2*x])/(3087*(2 + 3*x)) + (11*(3 + 5*x)^2)/(7*Sqrt
[1 - 2*x]*(2 + 3*x)^3) + (2*Sqrt[1 - 2*x]*(297 + 470*x))/(441*(2
+ 3*x)^3) - (9320*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(3087*Sqrt[21
])
```

Rubi [A] time = 0.133371, antiderivative size = 100, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{11(5x+3)^2}{7\sqrt{1-2x}(3x+2)^3}+\frac{2\sqrt{1-2x}(470x+297)}{441(3x+2)^3}-\frac{4660\sqrt{1-2x}}{3087(3x+2)}-\frac{9320\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{3087\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^3/((1 - 2*x)^(3/2)*(2 + 3*x)^4),x]
```

```
[Out] (-4660*Sqrt[1 - 2*x])/(3087*(2 + 3*x)) + (11*(3 + 5*x)^2)/(7*Sqrt
[1 - 2*x]*(2 + 3*x)^3) + (2*Sqrt[1 - 2*x]*(297 + 470*x))/(441*(2
+ 3*x)^3) - (9320*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(3087*Sqrt[21
])
```

Rubi in Sympy [A] time = 13.9115, size = 87, normalized size = 0.87

$$-\frac{4660\sqrt{-2x+1}}{3087(3x+2)}+\frac{\sqrt{-2x+1}(39480x+24948)}{18522(3x+2)^3}-\frac{9320\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{64827}+\frac{11(5x+3)^2}{7\sqrt{-2x+1}(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**3/(1-2*x)**(3/2)/(2+3*x)**4,x)
```

```
[Out] -4660*sqrt(-2*x + 1)/(3087*(3*x + 2)) + sqrt(-2*x + 1)*(39480*x +
 24948)/(18522*(3*x + 2)**3) - 9320*sqrt(21)*atanh(sqrt(21)*sqrt(
-2*x + 1)/7)/64827 + 11*(5*x + 3)**2/(7*sqrt(-2*x + 1)*(3*x + 2)*
*3)
```

Mathematica [A] time = 0.161347, size = 63, normalized size = 0.63

$$\frac{\frac{21(83880x^3+178015x^2+125154x+29177)}{\sqrt{1-2x}(3x+2)^3}-9320\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{64827}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^3/((1 - 2*x)^(3/2)*(2 + 3*x)^4),x]
```

```
[Out] ((21*(29177 + 125154*x + 178015*x^2 + 83880*x^3))/(Sqrt[1 - 2*x]*
(2 + 3*x)^3) - 9320*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/64
```

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Maple [A] time = 0.02, size = 66, normalized size = 0.7

$$\frac{2662}{2401}\frac{1}{\sqrt{1-2x}}+\frac{54}{2401\left(-4-6x\right)^{3}}\left(-\frac{3317}{27}\left(1-2x\right)^{\frac{5}{2}}+\frac{137186}{243}\left(1-2x\right)^{\frac{3}{2}}-\frac{157633}{243}\sqrt{1-2x}\right)-\frac{9320\sqrt{21}}{64827}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3/(1-2*x)^(3/2)/(2+3*x)^4,x)
```

```
[Out] 2662/2401/(1-2*x)^(1/2)+54/2401*(-3317/27*(1-2*x)^(5/2)+137186/24
3*(1-2*x)^(3/2)-157633/243*(1-2*x)^(1/2))/(-4-6*x)^3-9320/64827*a
rctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.48082, size = 136, normalized size = 1.36

$$\frac{4660}{64827}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{2\left(41940\left(2x-1\right)^{3}+303835\left(2x-1\right)^{2}+1464316x-145187\right)}{3087\left(27\left(-2x+1\right)^{\frac{7}{2}}-189\left(-2x+1\right)^{\frac{5}{2}}+441\left(-2x+1\right)^{\frac{3}{2}}-343\sqrt{-2x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)^4*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 4660/64827*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21)
+ 3*sqrt(-2*x + 1))) - 2/3087*(41940*(2*x - 1)^3 + 303835*(2*x -
1)^2 + 1464316*x - 145187)/(27*(-2*x + 1)^(7/2) - 189*(-2*x + 1)^
(5/2) + 441*(-2*x + 1)^(3/2) - 343*sqrt(-2*x + 1))
```

Fricas [A] time = 0.224021, size = 136, normalized size = 1.36

$$\frac{\sqrt{21}\left(4660\left(27x^{3}+54x^{2}+36x+8\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{21}(3x-5)+21\sqrt{-2x+1}}{3x+2}\right)+\sqrt{21}\left(83880x^{3}+178015x^{2}+125154x+29177\right)\right)}{64827\left(27x^{3}+54x^{2}+36x+8\right)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)^4*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/64827*sqrt(21)*(4660*(27*x^3 + 54*x^2 + 36*x + 8)*sqrt(-2*x + 1
)*log((sqrt(21)*(3*x - 5) + 21*sqrt(-2*x + 1))/(3*x + 2)) + sqrt(
21)*(83880*x^3 + 178015*x^2 + 125154*x + 29177))/((27*x^3 + 54*x^
2 + 36*x + 8)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3/(1-2*x)**(3/2)/(2+3*x)**4,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.232806, size = 126, normalized size = 1.26

$$\frac{4660}{64827}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{2662}{2401\sqrt{-2x+1}}+\frac{29853\,(2x-1)^2\sqrt{-2x+1}-137186\,(-2x+1)^{\frac{3}{2}}+157633\sqrt{-2x+1}}{86436\,(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)^4*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 4660/64827*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(s
qrt(21) + 3*sqrt(-2*x + 1))) + 2662/2401/sqrt(-2*x + 1) + 1/86436
*(29853*(2*x - 1)^2*sqrt(-2*x + 1) - 137186*(-2*x + 1)^(3/2) + 15
7633*sqrt(-2*x + 1))/(3*x + 2)^3
```

3.2086 $\int \frac{(3+5x)^3}{(1-2x)^{3/2}(2+3x)^5}\,dx$

Optimal. Leaf size=120

$$\frac{11(5x+3)^2}{7\sqrt{1-2x}(3x+2)^4}+\frac{\sqrt{1-2x}(3789x+2395)}{1764(3x+2)^4}-\frac{39185\sqrt{1-2x}}{57624(3x+2)}-\frac{39185\sqrt{1-2x}}{24696(3x+2)^2}-\frac{39185\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{28812\sqrt{21}}$$

```
[Out] (-39185*Sqrt[1 - 2*x])/(24696*(2 + 3*x)^2) - (39185*Sqrt[1 - 2*x]
)/(57624*(2 + 3*x)) + (11*(3 + 5*x)^2)/(7*Sqrt[1 - 2*x]*(2 + 3*x)
^4) + (Sqrt[1 - 2*x]*(2395 + 3789*x))/(1764*(2 + 3*x)^4) - (39185
*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(28812*Sqrt[21])
```

Rubi [A] time = 0.157384, antiderivative size = 120, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{11(5x+3)^2}{7\sqrt{1-2x}(3x+2)^4}+\frac{\sqrt{1-2x}(3789x+2395)}{1764(3x+2)^4}-\frac{39185\sqrt{1-2x}}{57624(3x+2)}-\frac{39185\sqrt{1-2x}}{24696(3x+2)^2}-\frac{39185\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{28812\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^3/((1 - 2*x)^(3/2)*(2 + 3*x)^5),x]
```

```
[Out] (-39185*Sqrt[1 - 2*x])/(24696*(2 + 3*x)^2) - (39185*Sqrt[1 - 2*x]
)/(57624*(2 + 3*x)) + (11*(3 + 5*x)^2)/(7*Sqrt[1 - 2*x]*(2 + 3*x)
^4) + (Sqrt[1 - 2*x]*(2395 + 3789*x))/(1764*(2 + 3*x)^4) - (39185
*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(28812*Sqrt[21])
```

Rubi in Sympy [A] time = 15.8774, size = 105, normalized size = 0.88

$$-\frac{39185\sqrt{-2x+1}}{57624\,(3x+2)}-\frac{39185\sqrt{-2x+1}}{24696\,(3x+2)^2}+\frac{\sqrt{-2x+1}\,(79569x+50295)}{37044\,(3x+2)^4}-\frac{39185\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{605052}+\frac{11\,(5x+3)^2}{7\sqrt{-2x+1}\,(3x+2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**3/(1-2*x)**(3/2)/(2+3*x)**5,x)
```

```
[Out] -39185*sqrt(-2*x + 1)/(57624*(3*x + 2)) - 39185*sqrt(-2*x + 1)/(2
4696*(3*x + 2)**2) + sqrt(-2*x + 1)*(79569*x + 50295)/(37044*(3*x
 + 2)**4) - 39185*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/60505
2 + 11*(5*x + 3)**2/(7*sqrt(-2*x + 1)*(3*x + 2)**4)
```

Mathematica [A] time = 0.17323, size = 68, normalized size = 0.57

$$\frac{\frac{21\left(2115990x^4+4819755x^3+4093057x^2+1534434x+213998\right)}{\sqrt{1-2x}(3x+2)^4}-78370\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{1210104}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^3/((1 - 2*x)^(3/2)*(2 + 3*x)^5),x]
```

```
[Out] ((21*(213998 + 1534434*x + 4093057*x^2 + 4819755*x^3 + 2115990*x^
4))/(Sqrt[1 - 2*x]*(2 + 3*x)^4) - 78370*Sqrt[21]*ArcTanh[Sqrt[3/7
]*Sqrt[1 - 2*x]])/1210104
```

Maple [A] time = 0.02, size = 75, normalized size = 0.6

$$\frac{5324}{16807}\frac{1}{\sqrt{1-2x}} + \frac{324}{16807\,(-4-6x)^4}\left(\frac{82631}{144}(1-2x)^{\frac{7}{2}} - \frac{5020939}{1296}(1-2x)^{\frac{5}{2}} + \frac{33905795}{3888}(1-2x)^{\frac{3}{2}} - \frac{25445455}{3888}\sqrt{1-2x}\right) - \frac{39185\sqrt{21}}{605052}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3/(1-2*x)^(3/2)/(2+3*x)^5,x)
```

```
[Out] 5324/16807/(1-2*x)^(1/2)+324/16807*(82631/144*(1-2*x)^(7/2)-50209
39/1296*(1-2*x)^(5/2)+33905795/3888*(1-2*x)^(3/2)-25445455/3888*(
1-2*x)^(1/2))/(-4-6*x)^4-39185/605052*arctanh(1/7*21^(1/2)*(1-2*x
)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.49407, size = 161, normalized size = 1.34

$$\frac{39185}{1210104}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right) + \frac{1057995(2x-1)^4 + 9051735(2x-1)^3 + 28993349(2x-1)^2 + 82402418x - 19287625}{28812\left(81(-2x+1)^{\frac{9}{2}} - 756(-2x+1)^{\frac{7}{2}} + 2646(-2x+1)^{\frac{5}{2}} - 4116(-2x+1)^{\frac{3}{2}} + 2401\sqrt{-2x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)^5*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 39185/1210104*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(2
1) + 3*sqrt(-2*x + 1))) + 1/28812*(1057995*(2*x - 1)^4 + 9051735*
(2*x - 1)^3 + 28993349*(2*x - 1)^2 + 82402418*x - 19287625)/(81*(
-2*x + 1)^(9/2) - 756*(-2*x + 1)^(7/2) + 2646*(-2*x + 1)^(5/2) -
4116*(-2*x + 1)^(3/2) + 2401*sqrt(-2*x + 1))
```

Fricas [A] time = 0.218555, size = 157, normalized size = 1.31

$$\frac{\sqrt{21}\left(39185\left(81x^4 + 216x^3 + 216x^2 + 96x + 16\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{21}(3x-5)+21\sqrt{-2x+1}}{3x+2}\right) + \sqrt{21}\left(2115990x^4 + 4819755x^3 + 409\right.\right.}{1210104\left(81x^4 + 216x^3 + 216x^2 + 96x + 16\right)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)^5*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/1210104*sqrt(21)*(39185*(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16
)*sqrt(-2*x + 1)*log((sqrt(21)*(3*x - 5) + 21*sqrt(-2*x + 1))/(3*
x + 2)) + sqrt(21)*(2115990*x^4 + 4819755*x^3 + 4093057*x^2 + 153
```

```
4434*x + 213998))/((81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16)*sqrt(
-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3/(1-2*x)**(3/2)/(2+3*x)**5,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.219484, size = 147, normalized size = 1.22

$$\frac{39185}{1210104}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{5324}{16807\sqrt{-2x+1}}-\frac{2231037(2x-1)^3\sqrt{-2x+1}+15062817(2x-1)^2\sqrt{-2x+1}-33905795(-2x+1)^{\frac{3}{2}}+25445455\sqrt{-2x+1}}{3226944(3x+2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)^5*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 39185/1210104*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))
/(sqrt(21) + 3*sqrt(-2*x + 1))) + 5324/16807/sqrt(-2*x + 1) - 1/3
226944*(2231037*(2*x - 1)^3*sqrt(-2*x + 1) + 15062817*(2*x - 1)^2
*sqrt(-2*x + 1) - 33905795*(-2*x + 1)^(3/2) + 25445455*sqrt(-2*x
+ 1))/(3*x + 2)^4
```

3.2087 $\int \frac{(2+3x)^6}{(1-2x)^{3/2}(3+5x)}\,dx$

Optimal. Leaf size=106

$$\frac{81}{160}(1-2x)^{9/2}-\frac{43011(1-2x)^{7/2}}{5600}+\frac{507627(1-2x)^{5/2}}{10000}-\frac{1997451(1-2x)^{3/2}}{10000}+\frac{70752609\sqrt{1-2x}}{100000}+\frac{117649}{352\sqrt{1-2x}}-\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{34375\sqrt{55}}$$

```
[Out] 117649/(352*Sqrt[1 - 2*x]) + (70752609*Sqrt[1 - 2*x])/100000 - (1
997451*(1 - 2*x)^(3/2))/10000 + (507627*(1 - 2*x)^(5/2))/10000 -
(43011*(1 - 2*x)^(7/2))/5600 + (81*(1 - 2*x)^(9/2))/160 - (2*ArcT
anh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(34375*Sqrt[55])
```

Rubi [A] time = 0.218816, antiderivative size = 106, normalized size of antiderivative = 1., number of steps used = 12, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$\frac{81}{160}(1-2x)^{9/2}-\frac{43011(1-2x)^{7/2}}{5600}+\frac{507627(1-2x)^{5/2}}{10000}-\frac{1997451(1-2x)^{3/2}}{10000}+\frac{70752609\sqrt{1-2x}}{100000}+\frac{117649}{352\sqrt{1-2x}}-\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{34375\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^6/((1 - 2*x)^(3/2)*(3 + 5*x)),x]
```

```
[Out] 117649/(352*Sqrt[1 - 2*x]) + (70752609*Sqrt[1 - 2*x])/100000 - (1
997451*(1 - 2*x)^(3/2))/10000 + (507627*(1 - 2*x)^(5/2))/10000 -
(43011*(1 - 2*x)^(7/2))/5600 + (81*(1 - 2*x)^(9/2))/160 - (2*ArcT
anh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(34375*Sqrt[55])
```

Rubi in Sympy [A] time = 18.2067, size = 95, normalized size = 0.9

$$\frac{81\left(-2x+1\right)^{\frac{9}{2}}}{160}-\frac{43011\left(-2x+1\right)^{\frac{7}{2}}}{5600}+\frac{507627\left(-2x+1\right)^{\frac{5}{2}}}{10000}-\frac{1997451\left(-2x+1\right)^{\frac{3}{2}}}{10000}+\frac{70752609\sqrt{-2x+1}}{100000}-\frac{2\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{1890625}+\frac{117649}{352\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**6/(1-2*x)**(3/2)/(3+5*x),x)
```

```
[Out] 81*(-2*x + 1)**(9/2)/160 - 43011*(-2*x + 1)**(7/2)/5600 + 507627*
(-2*x + 1)**(5/2)/10000 - 1997451*(-2*x + 1)**(3/2)/10000 + 70752
609*sqrt(-2*x + 1)/100000 - 2*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x +
 1)/11)/1890625 + 117649/(352*sqrt(-2*x + 1))
```

Mathematica [A] time = 0.179148, size = 66, normalized size = 0.62

$$\frac{-\frac{55\left(3898125x^5+19824750x^4+48323385x^3+85159800x^2+207964053x-213097384\right)}{\sqrt{1-2x}}-14\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{13234375}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^6/((1 - 2*x)^(3/2)*(3 + 5*x)),x]
```

```
[Out] ((-55*(-213097384 + 207964053*x + 85159800*x^2 + 48323385*x^3 + 1
9824750*x^4 + 3898125*x^5))/Sqrt[1 - 2*x] - 14*Sqrt[55]*ArcTanh[S
qrt[5/11]*Sqrt[1 - 2*x]])/13234375
```

Maple [A] time = 0.013, size = 74, normalized size = 0.7

$$-\frac{1997451}{10000}(1-2x)^{\frac{3}{2}}+\frac{507627}{10000}(1-2x)^{\frac{5}{2}}-\frac{43011}{5600}(1-2x)^{\frac{7}{2}}+\frac{81}{160}(1-2x)^{\frac{9}{2}}-\frac{2\sqrt{55}}{1890625}\mathrm{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)+\frac{117649}{352}\frac{1}{\sqrt{1-2x}}+\frac{70752609}{100000}\sqrt{1-2x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^6/(1-2*x)^(3/2)/(3+5*x),x)
```

```
[Out] -1997451/10000*(1-2*x)^(3/2)+507627/10000*(1-2*x)^(5/2)-43011/560
0*(1-2*x)^(7/2)+81/160*(1-2*x)^(9/2)-2/1890625*arctanh(1/11*55^(1
/2)*(1-2*x)^(1/2))*55^(1/2)+117649/352/(1-2*x)^(1/2)+70752609/100
000*(1-2*x)^(1/2)
```

Maxima [A] time = 1.49526, size = 123, normalized size = 1.16

$$\frac{81}{160}(-2x+1)^{\frac{9}{2}}-\frac{43011}{5600}(-2x+1)^{\frac{7}{2}}+\frac{507627}{10000}(-2x+1)^{\frac{5}{2}}-\frac{1997451}{10000}(-2x+1)^{\frac{3}{2}}+\frac{1}{1890625}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{70752609}{100000}\sqrt{-2x+1}+\frac{117649}{352\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^6/((5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 81/160*(-2*x + 1)^(9/2) - 43011/5600*(-2*x + 1)^(7/2) + 507627/10
000*(-2*x + 1)^(5/2) - 1997451/10000*(-2*x + 1)^(3/2) + 1/1890625
*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-
2*x + 1))) + 70752609/100000*sqrt(-2*x + 1) + 117649/352/sqrt(-2*
x + 1)
```

Fricas [A] time = 0.237373, size = 107, normalized size = 1.01

$$-\frac{\sqrt{55}\left(\sqrt{55}\left(3898125x^5+19824750x^4+48323385x^3+85159800x^2+207964053x-213097384\right)-7\sqrt{-2x+1}\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{-2x+1}}{5x+3}\right)\right)}{13234375\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^6/((5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] -1/13234375*sqrt(55)*(sqrt(55)*(3898125*x^5 + 19824750*x^4 + 4832
3385*x^3 + 85159800*x^2 + 207964053*x - 213097384) - 7*sqrt(-2*x
+ 1)*log((sqrt(55)*(5*x - 8) + 55*sqrt(-2*x + 1))/(5*x + 3)))/sqr
t(-2*x + 1)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(3x+2)^6}{(-2x+1)^{\frac{3}{2}}(5x+3)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**6/(1-2*x)**(3/2)/(3+5*x),x)
```

```
[Out] Integral((3*x + 2)**6/((-2*x + 1)**(3/2)*(5*x + 3)), x)
```

GIAC/XCAS [A] time = 0.218476, size = 155, normalized size = 1.46

$$\frac{81}{160}\,(2\,x-1)^{4}\sqrt{-2\,x+1}+\frac{43011}{5600}\,(2\,x-1)^{3}\sqrt{-2\,x+1}+\frac{507627}{10000}\,(2\,x-1)^{2}\sqrt{-2\,x+1}-\frac{1997451}{10000}\,(-2\,x+1)^{\frac{3}{2}}+\frac{1}{1890625}\,\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)+\frac{70752609}{100000}\,\sqrt{-2\,x+1}+\frac{117649}{352\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^6/((5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 81/160*(2*x - 1)^4*sqrt(-2*x + 1) + 43011/5600*(2*x - 1)^3*sqrt(-
2*x + 1) + 507627/10000*(2*x - 1)^2*sqrt(-2*x + 1) - 1997451/1000
0*(-2*x + 1)^(3/2) + 1/1890625*sqrt(55)*ln(1/2*abs(-2*sqrt(55) +
10*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) + 70752609/1000
00*sqrt(-2*x + 1) + 117649/352/sqrt(-2*x + 1)
```

3.2088 $\int \frac{(2+3x)^5}{(1-2x)^{3/2}(3+5x)}\,dx$

Optimal. Leaf size=93

$$-\frac{243}{560}(1-2x)^{7/2}+\frac{5751(1-2x)^{5/2}}{1000}-\frac{17019}{500}(1-2x)^{3/2}+\frac{806121\sqrt{1-2x}}{5000}+\frac{16807}{176\sqrt{1-2x}}-\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{6875\sqrt{55}}$$

```
[Out] 16807/(176*Sqrt[1 - 2*x]) + (806121*Sqrt[1 - 2*x])/5000 - (17019*
(1 - 2*x)^(3/2))/500 + (5751*(1 - 2*x)^(5/2))/1000 - (243*(1 - 2*
x)^(7/2))/560 - (2*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(6875*Sqrt[
55])
```

Rubi [A] time = 0.173828, antiderivative size = 93, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$-\frac{243}{560}(1-2x)^{7/2}+\frac{5751(1-2x)^{5/2}}{1000}-\frac{17019}{500}(1-2x)^{3/2}+\frac{806121\sqrt{1-2x}}{5000}+\frac{16807}{176\sqrt{1-2x}}-\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{6875\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^5/((1 - 2*x)^(3/2)*(3 + 5*x)),x]
```

```
[Out] 16807/(176*Sqrt[1 - 2*x]) + (806121*Sqrt[1 - 2*x])/5000 - (17019*
(1 - 2*x)^(3/2))/500 + (5751*(1 - 2*x)^(5/2))/1000 - (243*(1 - 2*
x)^(7/2))/560 - (2*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(6875*Sqrt[
55])
```

Rubi in Sympy [A] time = 15.0141, size = 83, normalized size = 0.89

$$-\frac{243(-2x+1)^{\frac{7}{2}}}{560}+\frac{5751(-2x+1)^{\frac{5}{2}}}{1000}-\frac{17019(-2x+1)^{\frac{3}{2}}}{500}+\frac{806121\sqrt{-2x+1}}{5000}-\frac{2\sqrt{55}\,\mathrm{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{378125}+\frac{16807}{176\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**5/(1-2*x)**(3/2)/(3+5*x),x)
```

```
[Out] -243*(-2*x + 1)**(7/2)/560 + 5751*(-2*x + 1)**(5/2)/1000 - 17019*
(-2*x + 1)**(3/2)/500 + 806121*sqrt(-2*x + 1)/5000 - 2*sqrt(55)*a
tanh(sqrt(55)*sqrt(-2*x + 1)/11)/378125 + 16807/(176*sqrt(-2*x +
1))
```

Mathematica [A] time = 0.146645, size = 61, normalized size = 0.66

$$-\frac{334125x^4+1545885x^3+3732300x^2+10459053x-10972384}{48125\sqrt{1-2x}}-\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{6875\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^5/((1 - 2*x)^(3/2)*(3 + 5*x)),x]
```

```
[Out] -(-10972384 + 10459053*x + 3732300*x^2 + 1545885*x^3 + 334125*x^4
)/(48125*Sqrt[1 - 2*x]) - (2*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(
6875*Sqrt[55])
```

Maple [A] time = 0.013, size = 65, normalized size = 0.7

$$-\frac{17019}{500}(1-2x)^{\frac{3}{2}}+\frac{5751}{1000}(1-2x)^{\frac{5}{2}}-\frac{243}{560}(1-2x)^{\frac{7}{2}}-\frac{2\sqrt{55}}{378125}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)+\frac{16807}{176}\frac{1}{\sqrt{1-2x}}+\frac{806121}{5000}\sqrt{1-2x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^5/(1-2*x)^(3/2)/(3+5*x),x)
```

```
[Out] -17019/500*(1-2*x)^(3/2)+5751/1000*(1-2*x)^(5/2)-243/560*(1-2*x)^
(7/2)-2/378125*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)+1680
7/176/(1-2*x)^(1/2)+806121/5000*(1-2*x)^(1/2)
```

Maxima [A] time = 1.49929, size = 111, normalized size = 1.19

$$-\frac{243}{560}(-2x+1)^{\frac{7}{2}}+\frac{5751}{1000}(-2x+1)^{\frac{5}{2}}-\frac{17019}{500}(-2x+1)^{\frac{3}{2}}+\frac{1}{378125}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{806121}{5000}\sqrt{-2x+1}+\frac{16807}{176\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/((5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] -243/560*(-2*x + 1)^(7/2) + 5751/1000*(-2*x + 1)^(5/2) - 17019/50
0*(-2*x + 1)^(3/2) + 1/378125*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2
*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) + 806121/5000*sqrt(-2*x +
 1) + 16807/176/sqrt(-2*x + 1)
```

Fricas [A] time = 0.245988, size = 100, normalized size = 1.08

$$-\frac{\sqrt{55}\left(\sqrt{55}\left(334125\,x^4+1545885\,x^3+3732300\,x^2+10459053\,x-10972384\right)-7\sqrt{-2x+1}\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{-2x+1}}{5x+3}\right)\right)}{2646875\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/((5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] -1/2646875*sqrt(55)*(sqrt(55)*(334125*x^4 + 1545885*x^3 + 3732300
*x^2 + 10459053*x - 10972384) - 7*sqrt(-2*x + 1)*log((sqrt(55)*(5
*x - 8) + 55*sqrt(-2*x + 1))/(5*x + 3)))/sqrt(-2*x + 1)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(3x+2)^5}{(-2x+1)^{\frac{3}{2}}(5x+3)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**5/(1-2*x)**(3/2)/(3+5*x),x)
```

```
[Out] Integral((3*x + 2)**5/((-2*x + 1)**(3/2)*(5*x + 3)), x)
```

GIAC/XCAS [A] time = 0.215486, size = 134, normalized size = 1.44

$$\frac{243}{560}\,(2\,x-1)^3\sqrt{-2\,x+1}+\frac{5751}{1000}\,(2\,x-1)^2\sqrt{-2\,x+1}-\frac{17019}{500}\,(-2\,x+1)^{\frac{3}{2}}+\frac{1}{378125}\,\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)+\frac{806121}{5000}\,\sqrt{-2\,x+1}+\frac{16807}{176\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/((5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 243/560*(2*x - 1)^3*sqrt(-2*x + 1) + 5751/1000*(2*x - 1)^2*sqrt(-
2*x + 1) - 17019/500*(-2*x + 1)^(3/2) + 1/378125*sqrt(55)*ln(1/2*
abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1)
)) + 806121/5000*sqrt(-2*x + 1) + 16807/176/sqrt(-2*x + 1)
```

3.2089 $\int \frac{(2+3x)^4}{(1-2x)^{3/2}(3+5x)}\,dx$

Optimal. Leaf size=80

$$\frac{81}{200}(1-2x)^{5/2}-\frac{963}{200}(1-2x)^{3/2}+\frac{34371\sqrt{1-2x}}{1000}+\frac{2401}{88\sqrt{1-2x}}-\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1375\sqrt{55}}$$

```
[Out] 2401/(88*Sqrt[1 - 2*x]) + (34371*Sqrt[1 - 2*x])/1000 - (963*(1 -
2*x)^(3/2))/200 + (81*(1 - 2*x)^(5/2))/200 - (2*ArcTanh[Sqrt[5/11
]*Sqrt[1 - 2*x]])/(1375*Sqrt[55])
```

Rubi [A] time = 0.137858, antiderivative size = 80, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$\frac{81}{200}(1-2x)^{5/2}-\frac{963}{200}(1-2x)^{3/2}+\frac{34371\sqrt{1-2x}}{1000}+\frac{2401}{88\sqrt{1-2x}}-\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1375\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^4/((1 - 2*x)^(3/2)*(3 + 5*x)),x]
```

```
[Out] 2401/(88*Sqrt[1 - 2*x]) + (34371*Sqrt[1 - 2*x])/1000 - (963*(1 -
2*x)^(3/2))/200 + (81*(1 - 2*x)^(5/2))/200 - (2*ArcTanh[Sqrt[5/11
]*Sqrt[1 - 2*x]])/(1375*Sqrt[55])
```

Rubi in Sympy [A] time = 12.6817, size = 71, normalized size = 0.89

$$\frac{81\left(-2x+1\right)^{\frac{5}{2}}}{200}-\frac{963\left(-2x+1\right)^{\frac{3}{2}}}{200}+\frac{34371\sqrt{-2x+1}}{1000}-\frac{2\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{75625}+\frac{2401}{88\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4/(1-2*x)**(3/2)/(3+5*x),x)
```

```
[Out] 81*(-2*x + 1)**(5/2)/200 - 963*(-2*x + 1)**(3/2)/200 + 34371*sqrt
(-2*x + 1)/1000 - 2*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/75
625 + 2401/(88*sqrt(-2*x + 1))
```

Mathematica [A] time = 0.131266, size = 56, normalized size = 0.7

$$\frac{-\frac{55(4455x^3+19800x^2+71379x-78712)}{\sqrt{1-2x}}-2\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{75625}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^4/((1 - 2*x)^(3/2)*(3 + 5*x)),x]
```

```
[Out] ((-55*(-78712 + 71379*x + 19800*x^2 + 4455*x^3))/Sqrt[1 - 2*x] -
2*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/75625
```

Maple [A] time = 0.013, size = 56, normalized size = 0.7

$$-\frac{963}{200}(1-2x)^{\frac{3}{2}}+\frac{81}{200}(1-2x)^{\frac{5}{2}}-\frac{2\sqrt{55}}{75625}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)+\frac{2401}{88}\frac{1}{\sqrt{1-2x}}+\frac{34371}{1000}\sqrt{1-2x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4/(1-2*x)^(3/2)/(3+5*x),x)
```

```
[Out] -963/200*(1-2*x)^(3/2)+81/200*(1-2*x)^(5/2)-2/75625*arctanh(1/11*
55^(1/2)*(1-2*x)^(1/2))*55^(1/2)+2401/88/(1-2*x)^(1/2)+34371/1000
*(1-2*x)^(1/2)
```

Maxima [A] time = 1.53585, size = 99, normalized size = 1.24

$$\frac{81}{200}(-2x+1)^{\frac{5}{2}}-\frac{963}{200}(-2x+1)^{\frac{3}{2}}+\frac{1}{75625}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{34371}{1000}\sqrt{-2x+1}+\frac{2401}{88\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4/((5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 81/200*(-2*x + 1)^(5/2) - 963/200*(-2*x + 1)^(3/2) + 1/75625*sqrt
(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x +
 1))) + 34371/1000*sqrt(-2*x + 1) + 2401/88/sqrt(-2*x + 1)
```

Fricas [A] time = 0.227271, size = 93, normalized size = 1.16

$$-\frac{\sqrt{55}\left(\sqrt{55}\left(4455x^3+19800x^2+71379x-78712\right)-\sqrt{-2x+1}\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{-2x+1}}{5x+3}\right)\right)}{75625\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4/((5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] -1/75625*sqrt(55)*(sqrt(55)*(4455*x^3 + 19800*x^2 + 71379*x - 787
12) - sqrt(-2*x + 1)*log((sqrt(55)*(5*x - 8) + 55*sqrt(-2*x + 1))
/(5*x + 3)))/sqrt(-2*x + 1)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(3x+2)^4}{(-2x+1)^{\frac{3}{2}}(5x+3)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4/(1-2*x)**(3/2)/(3+5*x),x)
```

```
[Out] Integral((3*x + 2)**4/((-2*x + 1)**(3/2)*(5*x + 3)), x)
```

GIAC/XCAS [A] time = 0.212809, size = 112, normalized size = 1.4

$$\frac{81}{200}\,(2\,x-1)^2\sqrt{-2\,x+1}-\frac{963}{200}\,(-2\,x+1)^{\frac{3}{2}}+\frac{1}{75625}\,\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)+\frac{34371}{1000}\,\sqrt{-2\,x+1}+\frac{2401}{88\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^4/((5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 81/200*(2*x - 1)^2*sqrt(-2*x + 1) - 963/200*(-2*x + 1)^(3/2) + 1/
75625*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(
55) + 5*sqrt(-2*x + 1))) + 34371/1000*sqrt(-2*x + 1) + 2401/88/sq
rt(-2*x + 1)
```

3.2090 $\int \frac{(2+3x)^3}{(1-2x)^{3/2}(3+5x)}\,dx$

Optimal. Leaf size=67

$$-\frac{9}{20}(1-2x)^{3/2}+\frac{162}{25}\sqrt{1-2x}+\frac{343}{44\sqrt{1-2x}}-\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{275\sqrt{55}}$$

```
[Out] 343/(44*Sqrt[1 - 2*x]) + (162*Sqrt[1 - 2*x])/25 - (9*(1 - 2*x)^(3
/2))/20 - (2*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(275*Sqrt[55])
```

Rubi [A] time = 0.104242, antiderivative size = 67, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$-\frac{9}{20}(1-2x)^{3/2}+\frac{162}{25}\sqrt{1-2x}+\frac{343}{44\sqrt{1-2x}}-\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{275\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^3/((1 - 2*x)^(3/2)*(3 + 5*x)),x]
```

```
[Out] 343/(44*Sqrt[1 - 2*x]) + (162*Sqrt[1 - 2*x])/25 - (9*(1 - 2*x)^(3
/2))/20 - (2*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(275*Sqrt[55])
```

Rubi in Sympy [A] time = 10.4715, size = 60, normalized size = 0.9

$$-\frac{9(-2x+1)^{\frac{3}{2}}}{20}+\frac{162\sqrt{-2x+1}}{25}-\frac{2\sqrt{55}\,\mathrm{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{15125}+\frac{343}{44\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3/(1-2*x)**(3/2)/(3+5*x),x)
```

```
[Out] -9*(-2*x + 1)**(3/2)/20 + 162*sqrt(-2*x + 1)/25 - 2*sqrt(55)*atan
h(sqrt(55)*sqrt(-2*x + 1)/11)/15125 + 343/(44*sqrt(-2*x + 1))
```

Mathematica [A] time = 0.10644, size = 51, normalized size = 0.76

$$\frac{-495x^2-3069x+3802}{275\sqrt{1-2x}}-\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{275\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^3/((1 - 2*x)^(3/2)*(3 + 5*x)),x]
```

```
[Out] (3802 - 3069*x - 495*x^2)/(275*Sqrt[1 - 2*x]) - (2*ArcTanh[Sqrt[5
/11]*Sqrt[1 - 2*x]])/(275*Sqrt[55])
```

Maple [A] time = 0.013, size = 47, normalized size = 0.7

$$-\frac{9}{20}(1-2x)^{\frac{3}{2}}-\frac{2\sqrt{55}}{15125}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)+\frac{343}{44}\frac{1}{\sqrt{1-2x}}+\frac{162}{25}\sqrt{1-2x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3/(1-2*x)^(3/2)/(3+5*x),x)
```

```
[Out] -9/20*(1-2*x)^(3/2)-2/15125*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*
55^(1/2)+343/44/(1-2*x)^(1/2)+162/25*(1-2*x)^(1/2)
```

Maxima [A] time = 1.51147, size = 86, normalized size = 1.28

$$-\frac{9}{20}\left(-2x+1\right)^{\frac{3}{2}}+\frac{1}{15125}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{162}{25}\sqrt{-2x+1}+\frac{343}{44\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3/((5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] -9/20*(-2*x + 1)^(3/2) + 1/15125*sqrt(55)*log(-(sqrt(55) - 5*sqrt
(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) + 162/25*sqrt(-2*x + 1
) + 343/44/sqrt(-2*x + 1)
```

Fricas [A] time = 0.22726, size = 86, normalized size = 1.28

$$-\frac{\sqrt{55}\left(\sqrt{55}\left(495x^2+3069x-3802\right)-\sqrt{-2x+1}\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{-2x+1}}{5x+3}\right)\right)}{15125\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3/((5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] -1/15125*sqrt(55)*(sqrt(55)*(495*x^2 + 3069*x - 3802) - sqrt(-2*x
 + 1)*log((sqrt(55)*(5*x - 8) + 55*sqrt(-2*x + 1))/(5*x + 3)))/sq
rt(-2*x + 1)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(3x+2)^3}{(-2x+1)^{\frac{3}{2}}(5x+3)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3/(1-2*x)**(3/2)/(3+5*x),x)
```

```
[Out] Integral((3*x + 2)**3/((-2*x + 1)**(3/2)*(5*x + 3)), x)
```

GIAC/XCAS [A] time = 0.244043, size = 90, normalized size = 1.34

$$-\frac{9}{20}\left(-2x+1\right)^{\frac{3}{2}}+\frac{1}{15125}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{162}{25}\sqrt{-2x+1}+\frac{343}{44\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3/((5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] -9/20*(-2*x + 1)^(3/2) + 1/15125*sqrt(55)*ln(1/2*abs(-2*sqrt(55)
+ 10*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) + 162/25*sqrt
(-2*x + 1) + 343/44/sqrt(-2*x + 1)
```

3.2091 $\int \frac{(2+3x)^2}{(1-2x)^{3/2}(3+5x)}\,dx$

Optimal. Leaf size=54

$$\frac{9}{10}\sqrt{1-2x}+\frac{49}{22\sqrt{1-2x}}-\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{55\sqrt{55}}$$

```
[Out] 49/(22*Sqrt[1 - 2*x]) + (9*Sqrt[1 - 2*x])/10 - (2*ArcTanh[Sqrt[5/
11]*Sqrt[1 - 2*x]])/(55*Sqrt[55])
```

Rubi [A] time = 0.0835943, antiderivative size = 54, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$\frac{9}{10}\sqrt{1-2x}+\frac{49}{22\sqrt{1-2x}}-\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{55\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^2/((1 - 2*x)^(3/2)*(3 + 5*x)),x]
```

```
[Out] 49/(22*Sqrt[1 - 2*x]) + (9*Sqrt[1 - 2*x])/10 - (2*ArcTanh[Sqrt[5/
11]*Sqrt[1 - 2*x]])/(55*Sqrt[55])
```

Rubi in Sympy [A] time = 10.1355, size = 48, normalized size = 0.89

$$\frac{9\sqrt{-2x+1}}{10}-\frac{2\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{3025}+\frac{49}{22\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2/(1-2*x)**(3/2)/(3+5*x),x)
```

```
[Out] 9*sqrt(-2*x + 1)/10 - 2*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11
)/3025 + 49/(22*sqrt(-2*x + 1))
```

Mathematica [A] time = 0.0929973, size = 46, normalized size = 0.85

$$\frac{172-99x}{55\sqrt{1-2x}}-\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{55\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^2/((1 - 2*x)^(3/2)*(3 + 5*x)),x]
```

```
[Out] (172 - 99*x)/(55*Sqrt[1 - 2*x]) - (2*ArcTanh[Sqrt[5/11]*Sqrt[1 -
2*x]])/(55*Sqrt[55])
```

Maple [A] time = 0.013, size = 38, normalized size = 0.7

$$-\frac{2\sqrt{55}}{3025}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)+\frac{49}{22}\frac{1}{\sqrt{1-2x}}+\frac{9}{10}\sqrt{1-2x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2/(1-2*x)^(3/2)/(3+5*x),x)
```

```
[Out] -2/3025*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)+49/22/(1-2*
x)^(1/2)+9/10*(1-2*x)^(1/2)
```

Maxima [A] time = 1.51252, size = 74, normalized size = 1.37

$$\frac{1}{3025}\,\sqrt{55}\log\left(-\frac{\sqrt{55}-5\,\sqrt{-2\,x+1}}{\sqrt{55}+5\,\sqrt{-2\,x+1}}\right)+\frac{9}{10}\,\sqrt{-2\,x+1}+\frac{49}{22\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2/((5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 1/3025*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*
sqrt(-2*x + 1))) + 9/10*sqrt(-2*x + 1) + 49/22/sqrt(-2*x + 1)
```

Fricas [A] time = 0.242635, size = 80, normalized size = 1.48

$$-\frac{\sqrt{55}\left(\sqrt{55}(99\,x-172)-\sqrt{-2\,x+1}\log\left(\frac{\sqrt{55}(5\,x-8)+55\,\sqrt{-2\,x+1}}{5\,x+3}\right)\right)}{3025\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2/((5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] -1/3025*sqrt(55)*(sqrt(55)*(99*x - 172) - sqrt(-2*x + 1)*log((sqr
t(55)*(5*x - 8) + 55*sqrt(-2*x + 1))/(5*x + 3)))/sqrt(-2*x + 1)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(3x+2)^2}{(-2x+1)^{\frac{3}{2}}\,(5x+3)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2/(1-2*x)**(3/2)/(3+5*x),x)
```

```
[Out] Integral((3*x + 2)**2/((-2*x + 1)**(3/2)*(5*x + 3)), x)
```

GIAC/XCAS [A] time = 0.246726, size = 78, normalized size = 1.44

$$\frac{1}{3025}\,\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)+\frac{9}{10}\,\sqrt{-2\,x+1}+\frac{49}{22\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2/((5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 1/3025*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt
(55) + 5*sqrt(-2*x + 1))) + 9/10*sqrt(-2*x + 1) + 49/22/sqrt(-2*x
 + 1)
```

3.2092 $\int \frac{2+3x}{(1-2x)^{3/2}(3+5x)}\,dx$

Optimal. Leaf size=41

$$\frac{7}{11\sqrt{1-2x}}-\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{11\sqrt{55}}$$

```
[Out] 7/(11*Sqrt[1 - 2*x]) - (2*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(11*
Sqrt[55])
```

Rubi [A] time = 0.0515368, antiderivative size = 41, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.136

$$\frac{7}{11\sqrt{1-2x}}-\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{11\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)/((1 - 2*x)^(3/2)*(3 + 5*x)),x]
```

```
[Out] 7/(11*Sqrt[1 - 2*x]) - (2*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(11*
Sqrt[55])
```

Rubi in Sympy [A] time = 5.37215, size = 36, normalized size = 0.88

$$-\frac{2\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{605}+\frac{7}{11\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)/(1-2*x)**(3/2)/(3+5*x),x)
```

```
[Out] -2*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/605 + 7/(11*sqrt(-2
*x + 1))
```

Mathematica [A] time = 0.0464046, size = 41, normalized size = 1.

$$\frac{7}{11\sqrt{1-2x}}-\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{11\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)/((1 - 2*x)^(3/2)*(3 + 5*x)),x]
```

```
[Out] 7/(11*Sqrt[1 - 2*x]) - (2*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(11*
Sqrt[55])
```

Maple [A] time = 0.011, size = 29, normalized size = 0.7

$$-\frac{2\sqrt{55}}{605}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2\,x}\right)+\frac{7}{11}\frac{1}{\sqrt{1-2\,x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)/(1-2*x)^(3/2)/(3+5*x),x)
```

```
[Out] -2/605*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)+7/11/(1-2*x)
^(1/2)
```

Maxima [A] time = 1.49624, size = 62, normalized size = 1.51

$$\frac{1}{605}\,\sqrt{55}\log\left(-\frac{\sqrt{55}-5\,\sqrt{-2\,x+1}}{\sqrt{55}+5\,\sqrt{-2\,x+1}}\right)+\frac{7}{11\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)/((5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 1/605*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*s
qrt(-2*x + 1))) + 7/11/sqrt(-2*x + 1)
```

Fricas [A] time = 0.238801, size = 73, normalized size = 1.78

$$\frac{\sqrt{55}\left(\sqrt{-2\,x+1}\log\left(\frac{\sqrt{55}(5\,x-8)+55\,\sqrt{-2\,x+1}}{5\,x+3}\right)+7\,\sqrt{55}\right)}{605\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)/((5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/605*sqrt(55)*(sqrt(-2*x + 1)*log((sqrt(55)*(5*x - 8) + 55*sqrt(
-2*x + 1))/(5*x + 3)) + 7*sqrt(55))/sqrt(-2*x + 1)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{3x+2}{(-2x+1)^{\frac{3}{2}}\,(5x+3)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)/(1-2*x)**(3/2)/(3+5*x),x)
```

```
[Out] Integral((3*x + 2)/((-2*x + 1)**(3/2)*(5*x + 3)), x)
```

GIAC/XCAS [A] time = 0.216894, size = 66, normalized size = 1.61

$$\frac{1}{605}\,\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)+\frac{7}{11\,\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)/((5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 1/605*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(
55) + 5*sqrt(-2*x + 1))) + 7/11/sqrt(-2*x + 1)
```

3.2093 $\int \frac{1}{(1-2x)^{3/2}(3+5x)}\,dx$

Optimal. Leaf size=43

$$\frac{2}{11\sqrt{1-2x}}-\frac{2}{11}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] 2/(11*Sqrt[1 - 2*x]) - (2*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 -
2*x]])/11
```

Rubi [A] time = 0.0397083, antiderivative size = 43, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 17, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.176

$$\frac{2}{11\sqrt{1-2x}}-\frac{2}{11}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(3/2)*(3 + 5*x)),x]
```

```
[Out] 2/(11*Sqrt[1 - 2*x]) - (2*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 -
2*x]])/11
```

Rubi in Sympy [A] time = 4.30472, size = 36, normalized size = 0.84

$$-\frac{2\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{121}+\frac{2}{11\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(3/2)/(3+5*x),x)
```

```
[Out] -2*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/121 + 2/(11*sqrt(-2
*x + 1))
```

Mathematica [A] time = 0.0557951, size = 41, normalized size = 0.95

$$\frac{1}{121}\left(\frac{22}{\sqrt{1-2x}}-2\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(3/2)*(3 + 5*x)),x]
```

```
[Out] (22/Sqrt[1 - 2*x] - 2*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])
/121
```

Maple [A] time = 0.008, size = 29, normalized size = 0.7

$$-\frac{2\sqrt{55}}{121}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)+\frac{2}{11}\frac{1}{\sqrt{1-2x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(3/2)/(3+5*x),x)
```

```
[Out] -2/121*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)+2/11/(1-2*x)
^(1/2)
```

Maxima [A] time = 1.50677, size = 62, normalized size = 1.44

$$\frac{1}{121}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{2}{11\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 1/121*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*s
qrt(-2*x + 1))) + 2/11/sqrt(-2*x + 1)
```

Fricas [A] time = 0.231363, size = 81, normalized size = 1.88

$$\frac{\sqrt{11}\left(\sqrt{5}\sqrt{-2x+1}\log\left(\frac{\sqrt{11}(5x-8)+11\sqrt{5}\sqrt{-2x+1}}{5x+3}\right)+2\sqrt{11}\right)}{121\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/121*sqrt(11)*(sqrt(5)*sqrt(-2*x + 1)*log((sqrt(11)*(5*x - 8) +
11*sqrt(5)*sqrt(-2*x + 1))/(5*x + 3)) + 2*sqrt(11))/sqrt(-2*x + 1
)
```

Sympy [A] time = 2.68139, size = 830, normalized size = 19.3

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(3/2)/(3+5*x),x)
```

```
[Out] Piecewise((20*sqrt(5)*I*(x + 3/5)*asin(sqrt(110)/(10*sqrt(x + 3/5
)))/(110*sqrt(11)*(x + 3/5) - 121*sqrt(11)) - 10*sqrt(5)*(x + 3/5
)*log(110)/(110*sqrt(11)*(x + 3/5) - 121*sqrt(11)) - 10*sqrt(5)*(
x + 3/5)*log(11)/(110*sqrt(11)*(x + 3/5) - 121*sqrt(11)) - 20*sqr
t(5)*(x + 3/5)*log(2)/(110*sqrt(11)*(x + 3/5) - 121*sqrt(11)) + 1
0*sqrt(5)*(x + 3/5)*log(10)/(110*sqrt(11)*(x + 3/5) - 121*sqrt(11
)) + 20*sqrt(5)*(x + 3/5)*log(22)/(110*sqrt(11)*(x + 3/5) - 121*s
qrt(11)) - 2*sqrt(55)*I*sqrt(10*x - 5)/(110*sqrt(11)*(x + 3/5) -
121*sqrt(11)) - 22*sqrt(5)*I*asin(sqrt(110)/(10*sqrt(x + 3/5)))/(
110*sqrt(11)*(x + 3/5) - 121*sqrt(11)) - 22*sqrt(5)*log(22)/(110*
sqrt(11)*(x + 3/5) - 121*sqrt(11)) - 11*sqrt(5)*log(10)/(110*sqrt
(11)*(x + 3/5) - 121*sqrt(11)) + 22*sqrt(5)*log(2)/(110*sqrt(11)*
(x + 3/5) - 121*sqrt(11)) + 11*sqrt(5)*log(11)/(110*sqrt(11)*(x +
 3/5) - 121*sqrt(11)) + 11*sqrt(5)*log(110)/(110*sqrt(11)*(x + 3/
5) - 121*sqrt(11)), 10*Abs(x + 3/5)/11 > 1), (-2*sqrt(55)*sqrt(-1
0*x + 5)/(110*sqrt(11)*(x + 3/5) - 121*sqrt(11)) + 10*sqrt(5)*(x
+ 3/5)*log(x + 3/5)/(110*sqrt(11)*(x + 3/5) - 121*sqrt(11)) - 20*
sqrt(5)*(x + 3/5)*log(sqrt(-10*x/11 + 5/11) + 1)/(110*sqrt(11)*(x
 + 3/5) - 121*sqrt(11)) - 10*sqrt(5)*(x + 3/5)*log(11)/(110*sqrt(
11)*(x + 3/5) - 121*sqrt(11)) + 10*sqrt(5)*(x + 3/5)*log(10)/(110
```

```
*sqrt(11)*(x + 3/5) - 121*sqrt(11)) + 10*sqrt(5)*I*pi*(x + 3/5)/(
110*sqrt(11)*(x + 3/5) - 121*sqrt(11)) - 11*sqrt(5)*log(x + 3/5)/
(110*sqrt(11)*(x + 3/5) - 121*sqrt(11)) + 22*sqrt(5)*log(sqrt(-10
*x/11 + 5/11) + 1)/(110*sqrt(11)*(x + 3/5) - 121*sqrt(11)) - 11*s
qrt(5)*log(10)/(110*sqrt(11)*(x + 3/5) - 121*sqrt(11)) + 11*sqrt(
5)*log(11)/(110*sqrt(11)*(x + 3/5) - 121*sqrt(11)) - 11*sqrt(5)*I
*pi/(110*sqrt(11)*(x + 3/5) - 121*sqrt(11)), True))
```

GIAC/XCAS [A] time = 0.217001, size = 66, normalized size = 1.53

$$\frac{1}{121}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{2}{11\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 1/121*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(
55) + 5*sqrt(-2*x + 1))) + 2/11/sqrt(-2*x + 1)
```

3.2094 $\int \frac{1}{(1-2x)^{3/2}(2+3x)(3+5x)}\,dx$

Optimal. Leaf size=72

$$\frac{4}{77\sqrt{1-2x}}+\frac{6}{7}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{10}{11}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] 4/(77*Sqrt[1 - 2*x]) + (6*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*
x]])/7 - (10*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/11
```

Rubi [A] time = 0.135894, antiderivative size = 72, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$\frac{4}{77\sqrt{1-2x}}+\frac{6}{7}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{10}{11}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(3/2)*(2 + 3*x)*(3 + 5*x)),x]
```

```
[Out] 4/(77*Sqrt[1 - 2*x]) + (6*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*
x]])/7 - (10*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/11
```

Rubi in Sympy [A] time = 13.7817, size = 61, normalized size = 0.85

$$\frac{6\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{49}-\frac{10\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{121}+\frac{4}{77\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(3/2)/(2+3*x)/(3+5*x),x)
```

```
[Out] 6*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/49 - 10*sqrt(55)*atan
h(sqrt(55)*sqrt(-2*x + 1)/11)/121 + 4/(77*sqrt(-2*x + 1))
```

Mathematica [A] time = 0.21356, size = 71, normalized size = 0.99

$$\frac{6}{7}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+\frac{1}{847}\left(\frac{44}{\sqrt{1-2x}}-70\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(3/2)*(2 + 3*x)*(3 + 5*x)),x]
```

```
[Out] (6*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/7 + (44/Sqrt[1 - 2
*x] - 70*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/847
```

Maple [A] time = 0.016, size = 47, normalized size = 0.7

$$\frac{6\sqrt{21}}{49}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)-\frac{10\sqrt{55}}{121}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)+\frac{4}{77}\frac{1}{\sqrt{1-2x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(3/2)/(2+3*x)/(3+5*x),x)
```

```
[Out] 6/49*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)-10/121*arctanh(
1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)+4/77/(1-2*x)^(1/2)
```

Maxima [A] time = 1.50403, size = 111, normalized size = 1.54

$$\frac{5}{121}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{3}{49}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{4}{77\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)*(3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 5/121*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*s
qrt(-2*x + 1))) - 3/49*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1)
)/(sqrt(21) + 3*sqrt(-2*x + 1))) + 4/77/sqrt(-2*x + 1)
```

Fricas [A] time = 0.239555, size = 157, normalized size = 2.18

$$\frac{\sqrt{11}\sqrt{7}\left(35\sqrt{7}\sqrt{5}\sqrt{-2x+1}\log\left(\frac{\sqrt{11}(5x-8)+11\sqrt{5}\sqrt{-2x+1}}{5x+3}\right)+33\sqrt{11}\sqrt{3}\sqrt{-2x+1}\log\left(\frac{\sqrt{7}(3x-5)-7\sqrt{3}\sqrt{-2x+1}}{3x+2}\right)+4\sqrt{11}\sqrt{7}\right)}{5929\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)*(3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/5929*sqrt(11)*sqrt(7)*(35*sqrt(7)*sqrt(5)*sqrt(-2*x + 1)*log((s
qrt(11)*(5*x - 8) + 11*sqrt(5)*sqrt(-2*x + 1))/(5*x + 3)) + 33*sq
rt(11)*sqrt(3)*sqrt(-2*x + 1)*log((sqrt(7)*(3*x - 5) - 7*sqrt(3)*
sqrt(-2*x + 1))/(3*x + 2)) + 4*sqrt(11)*sqrt(7))/sqrt(-2*x + 1)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(-2x+1)^{\frac{3}{2}}(3x+2)(5x+3)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(3/2)/(2+3*x)/(3+5*x),x)
```

```
[Out] Integral(1/((-2*x + 1)**(3/2)*(3*x + 2)*(5*x + 3)), x)
```

GIAC/XCAS [A] time = 0.219971, size = 119, normalized size = 1.65

$$\frac{5}{121}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{3}{49}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{4}{77\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)*(3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 5/121*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(
55) + 5*sqrt(-2*x + 1))) - 3/49*sqrt(21)*ln(1/2*abs(-2*sqrt(21) +
 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 4/77/sqrt(-2*
x + 1)
```

3.2095 $\int \frac{1}{(1-2x)^{3/2}(2+3x)^2(3+5x)}\,dx$

Optimal. Leaf size=92

$$-\frac{58}{539\sqrt{1-2x}}+\frac{3}{7\sqrt{1-2x}(3x+2)}+\frac{228}{49}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{50}{11}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] -58/(539*Sqrt[1 - 2*x]) + 3/(7*Sqrt[1 - 2*x]*(2 + 3*x)) + (228*Sq
rt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/49 - (50*Sqrt[5/11]*Arc
Tanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/11
```

Rubi [A] time = 0.209692, antiderivative size = 92, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$-\frac{58}{539\sqrt{1-2x}}+\frac{3}{7\sqrt{1-2x}(3x+2)}+\frac{228}{49}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{50}{11}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(3/2)*(2 + 3*x)^2*(3 + 5*x)),x]
```

```
[Out] -58/(539*Sqrt[1 - 2*x]) + 3/(7*Sqrt[1 - 2*x]*(2 + 3*x)) + (228*Sq
rt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/49 - (50*Sqrt[5/11]*Arc
Tanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/11
```

Rubi in Sympy [A] time = 21.3741, size = 78, normalized size = 0.85

$$\frac{228\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{343}-\frac{50\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{121}-\frac{58}{539\sqrt{-2x+1}}+\frac{3}{7\sqrt{-2x+1}\,(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(3/2)/(2+3*x)**2/(3+5*x),x)
```

```
[Out] 228*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/343 - 50*sqrt(55)*a
tanh(sqrt(55)*sqrt(-2*x + 1)/11)/121 - 58/(539*sqrt(-2*x + 1)) +
3/(7*sqrt(-2*x + 1)*(3*x + 2))
```

Mathematica [A] time = 0.184179, size = 87, normalized size = 0.95

$$\frac{\sqrt{1-2x}(174x-115)}{539\,(6x^2+x-2)}+\frac{228}{49}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{50}{11}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(3/2)*(2 + 3*x)^2*(3 + 5*x)),x]
```

```
[Out] (Sqrt[1 - 2*x]*(-115 + 174*x))/(539*(-2 + x + 6*x^2)) + (228*Sqrt
[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/49 - (50*Sqrt[5/11]*ArcTa
nh[Sqrt[5/11]*Sqrt[1 - 2*x]])/11
```

Maple [A] time = 0.019, size = 63, normalized size = 0.7

$$\frac{8}{539}\frac{1}{\sqrt{1-2x}}-\frac{6}{49}\sqrt{1-2x}\left(-\frac{4}{3}-2x\right)^{-1}+\frac{228\sqrt{21}}{343}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)-\frac{50\sqrt{55}}{121}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(3/2)/(2+3*x)^2/(3+5*x),x)
```

```
[Out] 8/539/(1-2*x)^(1/2)-6/49*(1-2*x)^(1/2)/(-4/3-2*x)+228/343*arctanh
(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)-50/121*arctanh(1/11*55^(1/2
)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.48222, size = 136, normalized size = 1.48

$$\frac{25}{121}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{114}{343}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{2(174x-115)}{539\left(3(-2x+1)^{\frac{3}{2}}-7\sqrt{-2x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(3*x + 2)^2*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 25/121*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*
sqrt(-2*x + 1))) - 114/343*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x
+ 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 2/539*(174*x - 115)/(3*(-2
*x + 1)^(3/2) - 7*sqrt(-2*x + 1))
```

Fricas [A] time = 0.241068, size = 186, normalized size = 2.02

$$\frac{\sqrt{11}\sqrt{7}\left(1225\sqrt{7}\sqrt{5}(3x+2)\sqrt{-2x+1}\log\left(\frac{\sqrt{11}(5x-8)+11\sqrt{5}\sqrt{-2x+1}}{5x+3}\right)+1254\sqrt{11}\sqrt{3}(3x+2)\sqrt{-2x+1}\log\left(\frac{\sqrt{7}(3x-5)-7\sqrt{3}\sqrt{-2x+}}{3x+2}\right.\right.}{41503(3x+2)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(3*x + 2)^2*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/41503*sqrt(11)*sqrt(7)*(1225*sqrt(7)*sqrt(5)*(3*x + 2)*sqrt(-2*
x + 1)*log((sqrt(11)*(5*x - 8) + 11*sqrt(5)*sqrt(-2*x + 1))/(5*x
+ 3)) + 1254*sqrt(11)*sqrt(3)*(3*x + 2)*sqrt(-2*x + 1)*log((sqrt(
7)*(3*x - 5) - 7*sqrt(3)*sqrt(-2*x + 1))/(3*x + 2)) - sqrt(11)*sq
rt(7)*(174*x - 115))/((3*x + 2)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(3/2)/(2+3*x)**2/(3+5*x),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.226798, size = 144, normalized size = 1.57

$$\frac{25}{121}\,\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)-\frac{114}{343}\,\sqrt{21}\ln\left(\frac{\left|-2\,\sqrt{21}+6\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{21}+3\,\sqrt{-2\,x+1}\right)}\right)+\frac{2\,(174\,x-115)}{539\left(3\,(-2\,x+1)^{\frac{3}{2}}-7\,\sqrt{-2\,x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)*(3*x + 2)^2*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 25/121*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt
(55) + 5*sqrt(-2*x + 1))) - 114/343*sqrt(21)*ln(1/2*abs(-2*sqrt(2
1) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 2/539*(17
4*x - 115)/(3*(-2*x + 1)^(3/2) - 7*sqrt(-2*x + 1))
```

3.2096 $\int \frac{1}{(1-2x)^{3/2}(2+3x)^3(3+5x)}\,dx$

Optimal. Leaf size=112

$$-\frac{2525}{3773\sqrt{1-2x}}+\frac{225}{98\sqrt{1-2x}(3x+2)}+\frac{3}{14\sqrt{1-2x}(3x+2)^2}+\frac{8025}{343}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{250}{11}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] -2525/(3773*Sqrt[1 - 2*x]) + 3/(14*Sqrt[1 - 2*x]*(2 + 3*x)^2) + 2
25/(98*Sqrt[1 - 2*x]*(2 + 3*x)) + (8025*Sqrt[3/7]*ArcTanh[Sqrt[3/
7]*Sqrt[1 - 2*x]])/343 - (250*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[
1 - 2*x]])/11
```

Rubi [A] time = 0.272724, antiderivative size = 112, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$-\frac{2525}{3773\sqrt{1-2x}}+\frac{225}{98\sqrt{1-2x}(3x+2)}+\frac{3}{14\sqrt{1-2x}(3x+2)^2}+\frac{8025}{343}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{250}{11}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(3/2)*(2 + 3*x)^3*(3 + 5*x)),x]
```

```
[Out] -2525/(3773*Sqrt[1 - 2*x]) + 3/(14*Sqrt[1 - 2*x]*(2 + 3*x)^2) + 2
25/(98*Sqrt[1 - 2*x]*(2 + 3*x)) + (8025*Sqrt[3/7]*ArcTanh[Sqrt[3/
7]*Sqrt[1 - 2*x]])/343 - (250*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[
1 - 2*x]])/11
```

Rubi in Sympy [A] time = 27.7415, size = 97, normalized size = 0.87

$$\frac{8025\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{2401}-\frac{250\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{121}-\frac{2525}{3773\sqrt{-2x+1}}+\frac{225}{98\sqrt{-2x+1}\,(3x+2)}+\frac{3}{14\sqrt{-2x+1}\,(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(3/2)/(2+3*x)**3/(3+5*x),x)
```

```
[Out] 8025*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/2401 - 250*sqrt(55
)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/121 - 2525/(3773*sqrt(-2*x +
1)) + 225/(98*sqrt(-2*x + 1)*(3*x + 2)) + 3/(14*sqrt(-2*x + 1)*(3
*x + 2)**2)
```

Mathematica [A] time = 0.199676, size = 89, normalized size = 0.79

$$\frac{-45450x^2-8625x+16067}{7546\sqrt{1-2x}(3x+2)^2}+\frac{8025}{343}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{250}{11}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(3/2)*(2 + 3*x)^3*(3 + 5*x)),x]
```

```
[Out] (16067 - 8625*x - 45450*x^2)/(7546*Sqrt[1 - 2*x]*(2 + 3*x)^2) + (
8025*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/343 - (250*Sqrt[
5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/11
```

Maple [A] time = 0.022, size = 75, normalized size = 0.7

$$\frac{16}{3773}\frac{1}{\sqrt{1-2x}}-\frac{486}{343\,(-4-6x)^2}\left(\frac{77}{18}(1-2x)^{\frac{3}{2}}-\frac{553}{54}\sqrt{1-2x}\right)+\frac{8025\sqrt{21}}{2401}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)-\frac{250\sqrt{55}}{121}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(3/2)/(2+3*x)^3/(3+5*x),x)
```

```
[Out] 16/3773/(1-2*x)^(1/2)-486/343*(77/18*(1-2*x)^(3/2)-553/54*(1-2*x)
^(1/2))/(-4-6*x)^2+8025/2401*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*
21^(1/2)-250/121*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.49997, size = 161, normalized size = 1.44

$$\frac{125}{121}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{8025}{4802}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{22725\,(2x-1)^2+108150\,x-54859}{3773\left(9\,(-2x+1)^{\frac{5}{2}}-42\,(-2x+1)^{\frac{3}{2}}+49\sqrt{-2x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(3*x + 2)^3*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 125/121*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5
*sqrt(-2*x + 1))) - 8025/4802*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2
*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 1/3773*(22725*(2*x - 1)
^2 + 108150*x - 54859)/(9*(-2*x + 1)^(5/2) - 42*(-2*x + 1)^(3/2)
+ 49*sqrt(-2*x + 1))
```

Fricas [A] time = 0.23973, size = 213, normalized size = 1.9

$$\frac{\sqrt{11}\sqrt{7}\left(85750\sqrt{7}\sqrt{5}\left(9x^2+12x+4\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{11}(5x-8)+11\sqrt{5}\sqrt{-2x+1}}{5x+3}\right)+88275\sqrt{11}\sqrt{3}\left(9x^2+12x+4\right)\sqrt{-2x+1}\log\left(\right.\right.}{581042\left(9x^2+12x+4\right)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(3*x + 2)^3*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/581042*sqrt(11)*sqrt(7)*(85750*sqrt(7)*sqrt(5)*(9*x^2 + 12*x +
4)*sqrt(-2*x + 1)*log((sqrt(11)*(5*x - 8) + 11*sqrt(5)*sqrt(-2*x
+ 1))/(5*x + 3)) + 88275*sqrt(11)*sqrt(3)*(9*x^2 + 12*x + 4)*sqrt
(-2*x + 1)*log((sqrt(7)*(3*x - 5) - 7*sqrt(3)*sqrt(-2*x + 1))/(3*
x + 2)) - sqrt(11)*sqrt(7)*(45450*x^2 + 8625*x - 16067))/((9*x^2
+ 12*x + 4)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(3/2)/(2+3*x)**3/(3+5*x),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.250107, size = 157, normalized size = 1.4

$$\frac{125}{121}\,\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\,\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)-\frac{8025}{4802}\,\sqrt{21}\ln\left(\frac{\left|-2\,\sqrt{21}+6\,\sqrt{-2\,x+1}\right|}{2\,\left(\sqrt{21}+3\,\sqrt{-2\,x+1}\right)}\right)+\frac{16}{3773\,\sqrt{-2\,x+1}}-\frac{9\,\left(33\,(-2\,x+1)^{\frac{3}{2}}-79\,\sqrt{-2\,x+1}\right)}{196\,(3\,x+2)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(3*x + 2)^3*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 125/121*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqr
t(55) + 5*sqrt(-2*x + 1))) - 8025/4802*sqrt(21)*ln(1/2*abs(-2*sqr
t(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 16/377
3/sqrt(-2*x + 1) - 9/196*(33*(-2*x + 1)^(3/2) - 79*sqrt(-2*x + 1)
)/(3*x + 2)^2
```

3.2097 $\int \frac{1}{(1-2x)^{3/2}(2+3x)^4(3+5x)}\,dx$

Optimal. Leaf size=132

$$-\frac{12790}{3773\sqrt{1-2x}}+\frac{565}{49\sqrt{1-2x}(3x+2)}+\frac{8}{7\sqrt{1-2x}(3x+2)^2}+\frac{1}{7\sqrt{1-2x}(3x+2)^3}+\frac{40140}{343}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{1250}{11}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] -12790/(3773*Sqrt[1 - 2*x]) + 1/(7*Sqrt[1 - 2*x]*(2 + 3*x)^3) + 8
/(7*Sqrt[1 - 2*x]*(2 + 3*x)^2) + 565/(49*Sqrt[1 - 2*x]*(2 + 3*x))
 + (40140*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/343 - (1250
*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/11
```

Rubi [A] time = 0.350243, antiderivative size = 132, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$-\frac{12790}{3773\sqrt{1-2x}}+\frac{565}{49\sqrt{1-2x}(3x+2)}+\frac{8}{7\sqrt{1-2x}(3x+2)^2}+\frac{1}{7\sqrt{1-2x}(3x+2)^3}+\frac{40140}{343}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{1250}{11}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(3/2)*(2 + 3*x)^4*(3 + 5*x)),x]
```

```
[Out] -12790/(3773*Sqrt[1 - 2*x]) + 1/(7*Sqrt[1 - 2*x]*(2 + 3*x)^3) + 8
/(7*Sqrt[1 - 2*x]*(2 + 3*x)^2) + 565/(49*Sqrt[1 - 2*x]*(2 + 3*x))
 + (40140*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/343 - (1250
*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/11
```

Rubi in Sympy [A] time = 34.3174, size = 116, normalized size = 0.88

$$\frac{40140\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{2401}-\frac{1250\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{121}-\frac{12790}{3773\sqrt{-2x+1}}+\frac{565}{49\sqrt{-2x+1}\,(3x+2)}+\frac{8}{7\sqrt{-2x+1}\,(3x+2)^2}+\frac{1}{7\sqrt{-2x+1}\,(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(3/2)/(2+3*x)**4/(3+5*x),x)
```

```
[Out] 40140*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/2401 - 1250*sqrt(
55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/121 - 12790/(3773*sqrt(-2*x
 + 1)) + 565/(49*sqrt(-2*x + 1)*(3*x + 2)) + 8/(7*sqrt(-2*x + 1)*
(3*x + 2)**2) + 1/(7*sqrt(-2*x + 1)*(3*x + 2)**3)
```

Mathematica [A] time = 0.17226, size = 94, normalized size = 0.71

$$\frac{-345330x^3-299115x^2+74556x+80863}{3773\sqrt{1-2x}(3x+2)^3}+\frac{40140}{343}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{1250}{11}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(3/2)*(2 + 3*x)^4*(3 + 5*x)),x]
```

```
[Out] (80863 + 74556*x - 299115*x^2 - 345330*x^3)/(3773*Sqrt[1 - 2*x]*(
2 + 3*x)^3) + (40140*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/
343 - (1250*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/11
```

Maple [A] time = 0.021, size = 84, normalized size = 0.6

$$\frac{32}{26411}\frac{1}{\sqrt{1-2x}}-\frac{486}{2401\,(-4-6x)^3}\left(\frac{1357}{3}(1-2x)^{\frac{5}{2}}-\frac{57806}{27}(1-2x)^{\frac{3}{2}}+\frac{68453}{27}\sqrt{1-2x}\right)+\frac{40140\sqrt{21}}{2401}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)-\frac{1250\sqrt{55}}{121}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(3/2)/(2+3*x)^4/(3+5*x),x)
```

```
[Out] 32/26411/(1-2*x)^(1/2)-486/2401*(1357/3*(1-2*x)^(5/2)-57806/27*(1
-2*x)^(3/2)+68453/27*(1-2*x)^(1/2))/(-4-6*x)^3+40140/2401*arctanh
(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)-1250/121*arctanh(1/11*55^(1
/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.5193, size = 185, normalized size = 1.4

$$\frac{625}{121}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{20070}{2401}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{2\left(172665\,(2x-1)^3+817110\,(2x-1)^2+1934226\,x-967897\right)}{3773\left(27\,(-2x+1)^{\frac{7}{2}}-189\,(-2x+1)^{\frac{5}{2}}+441\,(-2x+1)^{\frac{3}{2}}-343\sqrt{-2x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(3*x + 2)^4*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 625/121*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5
*sqrt(-2*x + 1))) - 20070/2401*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-
2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 2/3773*(172665*(2*x -
1)^3 + 817110*(2*x - 1)^2 + 1934226*x - 967897)/(27*(-2*x + 1)^(7
/2) - 189*(-2*x + 1)^(5/2) + 441*(-2*x + 1)^(3/2) - 343*sqrt(-2*x
 + 1))
```

Fricas [A] time = 0.267547, size = 240, normalized size = 1.82

$$\frac{\sqrt{11}\sqrt{7}\Big(214375\sqrt{7}\sqrt{5}\left(27x^3+54x^2+36x+8\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{11}(5x-8)+11\sqrt{5}\sqrt{-2x+1}}{5x+3}\right)+220770\sqrt{11}\sqrt{3}\left(27x^3+54x^2+36x\right.}{290521\left(27x^3+54x^2+36x+8\right)\sqrt{}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(3*x + 2)^4*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/290521*sqrt(11)*sqrt(7)*(214375*sqrt(7)*sqrt(5)*(27*x^3 + 54*x^
2 + 36*x + 8)*sqrt(-2*x + 1)*log((sqrt(11)*(5*x - 8) + 11*sqrt(5)
*sqrt(-2*x + 1))/(5*x + 3)) + 220770*sqrt(11)*sqrt(3)*(27*x^3 + 5
4*x^2 + 36*x + 8)*sqrt(-2*x + 1)*log((sqrt(7)*(3*x - 5) - 7*sqrt(
3)*sqrt(-2*x + 1))/(3*x + 2)) - sqrt(11)*sqrt(7)*(345330*x^3 + 29
9115*x^2 - 74556*x - 80863))/((27*x^3 + 54*x^2 + 36*x + 8)*sqrt(-
```

```
2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(3/2)/(2+3*x)**4/(3+5*x),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.234571, size = 178, normalized size = 1.35

$$\frac{625}{121}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{20070}{2401}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{32}{26411\sqrt{-2x+1}}+\frac{9\left(12213(2x-1)^2\sqrt{-2x+1}-57806(-2x+1)^{\frac{3}{2}}+68453\sqrt{-2x+1}\right)}{9604(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)*(3*x + 2)^4*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 625/121*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqr
t(55) + 5*sqrt(-2*x + 1))) - 20070/2401*sqrt(21)*ln(1/2*abs(-2*sq
rt(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 32/26
411/sqrt(-2*x + 1) + 9/9604*(12213*(2*x - 1)^2*sqrt(-2*x + 1) - 5
7806*(-2*x + 1)^(3/2) + 68453*sqrt(-2*x + 1))/(3*x + 2)^3
```

3.2098 $\int \frac{(2+3x)^6}{(1-2x)^{3/2}(3+5x)^2} dx$

Optimal. Leaf size=140

$$\frac{7(3x+2)^5}{11\sqrt{1-2x}(5x+3)}-\frac{36\sqrt{1-2x}(3x+2)^4}{605(5x+3)}+\frac{14517\sqrt{1-2x}(3x+2)^3}{21175}+\frac{217152\sqrt{1-2x}(3x+2)^2}{75625}+\frac{9\sqrt{1-2x}(1688625x+5065808)}{378125}-\frac{402\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{378125\sqrt{55}}$$

```
[Out] (217152*Sqrt[1 - 2*x]*(2 + 3*x)^2)/75625 + (14517*Sqrt[1 - 2*x]*(
2 + 3*x)^3)/21175 - (36*Sqrt[1 - 2*x]*(2 + 3*x)^4)/(605*(3 + 5*x)
) + (7*(2 + 3*x)^5)/(11*Sqrt[1 - 2*x]*(3 + 5*x)) + (9*Sqrt[1 - 2*
x]*(5065808 + 1688625*x))/378125 - (402*ArcTanh[Sqrt[5/11]*Sqrt[1
 - 2*x]])/(378125*Sqrt[55])
```

Rubi [A] time = 0.282254, antiderivative size = 140, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$\frac{7(3x+2)^5}{11\sqrt{1-2x}(5x+3)}-\frac{36\sqrt{1-2x}(3x+2)^4}{605(5x+3)}+\frac{14517\sqrt{1-2x}(3x+2)^3}{21175}+\frac{217152\sqrt{1-2x}(3x+2)^2}{75625}+\frac{9\sqrt{1-2x}(1688625x+5065808)}{378125}-\frac{402\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{378125\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^6/((1 - 2*x)^(3/2)*(3 + 5*x)^2),x]
```

```
[Out] (217152*Sqrt[1 - 2*x]*(2 + 3*x)^2)/75625 + (14517*Sqrt[1 - 2*x]*(
2 + 3*x)^3)/21175 - (36*Sqrt[1 - 2*x]*(2 + 3*x)^4)/(605*(3 + 5*x)
) + (7*(2 + 3*x)^5)/(11*Sqrt[1 - 2*x]*(3 + 5*x)) + (9*Sqrt[1 - 2*
x]*(5065808 + 1688625*x))/378125 - (402*ArcTanh[Sqrt[5/11]*Sqrt[1
 - 2*x]])/(378125*Sqrt[55])
```

Rubi in Sympy [A] time = 32.8866, size = 122, normalized size = 0.87

$$-\frac{36\sqrt{-2x+1}\,(3x+2)^4}{605\,(5x+3)}+\frac{14517\sqrt{-2x+1}\,(3x+2)^3}{21175}+\frac{217152\sqrt{-2x+1}\,(3x+2)^2}{75625}+\frac{\sqrt{-2x+1}\,(1595750625x+4787188560)}{39703125}-\frac{402\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{20796875}+\frac{7\,(3x+2)^5}{11\sqrt{-2x+1}\,(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**6/(1-2*x)**(3/2)/(3+5*x)**2,x)
```

```
[Out] -36*sqrt(-2*x + 1)*(3*x + 2)**4/(605*(5*x + 3)) + 14517*sqrt(-2*x
 + 1)*(3*x + 2)**3/21175 + 217152*sqrt(-2*x + 1)*(3*x + 2)**2/756
25 + sqrt(-2*x + 1)*(1595750625*x + 4787188560)/39703125 - 402*sq
rt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/20796875 + 7*(3*x + 2)**
5/(11*sqrt(-2*x + 1)*(5*x + 3))
```

Mathematica [A] time = 0.156136, size = 76, normalized size = 0.54

$$\frac{\frac{55\sqrt{1-2x}(55130625x^5+293294925x^4+795400155x^3+2195407665x^2-818846961x-1143572552)}{10x^2+x-3}-2814\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{145578125}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^6/((1 - 2*x)^(3/2)*(3 + 5*x)^2),x]
```

```
[Out] ((55*Sqrt[1 - 2*x]*(-1143572552 - 818846961*x + 2195407665*x^2 +
795400155*x^3 + 293294925*x^4 + 55130625*x^5))/(-3 + x + 10*x^2)
- 2814*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/145578125
```

Maple [A] time = 0.021, size = 81, normalized size = 0.6

$$-\frac{729}{2800}(1-2x)^{\frac{7}{2}}+\frac{2187}{625}(1-2x)^{\frac{5}{2}}-\frac{105057}{5000}(1-2x)^{\frac{3}{2}}+\frac{315684}{3125}\sqrt{1-2x}+\frac{117649}{1936}\frac{1}{\sqrt{1-2x}}+\frac{2}{1890625}\sqrt{1-2x}\left(-\frac{6}{5}-2x\right)^{-1}-\frac{402\sqrt{55}}{20796875}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^6/(1-2*x)^(3/2)/(3+5*x)^2,x)
```

```
[Out] -729/2800*(1-2*x)^(7/2)+2187/625*(1-2*x)^(5/2)-105057/5000*(1-2*x
)^(3/2)+315684/3125*(1-2*x)^(1/2)+117649/1936/(1-2*x)^(1/2)+2/189
0625*(1-2*x)^(1/2)/(-6/5-2*x)-402/20796875*arctanh(1/11*55^(1/2)*
(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.49929, size = 136, normalized size = 0.97

$$-\frac{729}{2800}(-2x+1)^{\frac{7}{2}}+\frac{2187}{625}(-2x+1)^{\frac{5}{2}}-\frac{105057}{5000}(-2x+1)^{\frac{3}{2}}+\frac{201}{20796875}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{315684}{3125}\sqrt{-2x+1}-\frac{1838265657x+1102959359}{3025000\left(5(-2x+1)^{\frac{3}{2}}-11\sqrt{-2x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^6/((5*x + 3)^2*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] -729/2800*(-2*x + 1)^(7/2) + 2187/625*(-2*x + 1)^(5/2) - 105057/5
000*(-2*x + 1)^(3/2) + 201/20796875*sqrt(55)*log(-(sqrt(55) - 5*s
qrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) + 315684/3125*sqrt(
-2*x + 1) - 1/3025000*(1838265657*x + 1102959359)/(5*(-2*x + 1)^(
3/2) - 11*sqrt(-2*x + 1))
```

Fricas [A] time = 0.27582, size = 124, normalized size = 0.89

$$\frac{\sqrt{55}\left(1407(5x+3)\sqrt{-2x+1}\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{-2x+1}}{5x+3}\right)-\sqrt{55}(55130625x^5+293294925x^4+795400155x^3+2195407665x\right.}{145578125(5x+3)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^6/((5*x + 3)^2*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/145578125*sqrt(55)*(1407*(5*x + 3)*sqrt(-2*x + 1)*log((sqrt(55)
*(5*x - 8) + 55*sqrt(-2*x + 1))/(5*x + 3)) - sqrt(55)*(55130625*x
^5 + 293294925*x^4 + 795400155*x^3 + 2195407665*x^2 - 818846961*x
 - 1143572552))/((5*x + 3)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**6/(1-2*x)**(3/2)/(3+5*x)**2,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.222525, size = 159, normalized size = 1.14

$$\frac{729}{2800}\,(2\,x-1)^{3}\sqrt{-2\,x+1}+\frac{2187}{625}\,(2\,x-1)^{2}\sqrt{-2\,x+1}-\frac{105057}{5000}\,(-2\,x+1)^{\frac{3}{2}}+\frac{201}{20796875}\,\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\,\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)+\frac{315684}{3125}\,\sqrt{-2\,x+1}-\frac{1838265657\,x+1102959359}{3025000\,\left(5\,(-2\,x+1)^{\frac{3}{2}}-11\,\sqrt{-2\,x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^6/((5*x + 3)^2*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 729/2800*(2*x - 1)^3*sqrt(-2*x + 1) + 2187/625*(2*x - 1)^2*sqrt(-
2*x + 1) - 105057/5000*(-2*x + 1)^(3/2) + 201/20796875*sqrt(55)*l
n(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*
x + 1))) + 315684/3125*sqrt(-2*x + 1) - 1/3025000*(1838265657*x +
 1102959359)/(5*(-2*x + 1)^(3/2) - 11*sqrt(-2*x + 1))
```

3.2099 $\int \frac{(2+3x)^5}{(1-2x)^{3/2}(3+5x)^2}\,dx$

Optimal. Leaf size=120

$$\frac{7(3x+2)^4}{11\sqrt{1-2x}(5x+3)}-\frac{36\sqrt{1-2x}(3x+2)^3}{605(5x+3)}+\frac{10836\sqrt{1-2x}(3x+2)^2}{15125}+\frac{504\sqrt{1-2x}(1500x+4499)}{75625}-\frac{336\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{75625\sqrt{55}}$$

```
[Out] (10836*Sqrt[1 - 2*x]*(2 + 3*x)^2)/15125 - (36*Sqrt[1 - 2*x]*(2 +
3*x)^3)/(605*(3 + 5*x)) + (7*(2 + 3*x)^4)/(11*Sqrt[1 - 2*x]*(3 +
5*x)) + (504*Sqrt[1 - 2*x]*(4499 + 1500*x))/75625 - (336*ArcTanh[
Sqrt[5/11]*Sqrt[1 - 2*x]])/(75625*Sqrt[55])
```

Rubi [A] time = 0.22589, antiderivative size = 120, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$\frac{7(3x+2)^4}{11\sqrt{1-2x}(5x+3)}-\frac{36\sqrt{1-2x}(3x+2)^3}{605(5x+3)}+\frac{10836\sqrt{1-2x}(3x+2)^2}{15125}+\frac{504\sqrt{1-2x}(1500x+4499)}{75625}-\frac{336\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{75625\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^5/((1 - 2*x)^(3/2)*(3 + 5*x)^2),x]
```


```
[Out] (10836*Sqrt[1 - 2*x]*(2 + 3*x)^2)/15125 - (36*Sqrt[1 - 2*x]*(2 +
3*x)^3)/(605*(3 + 5*x)) + (7*(2 + 3*x)^4)/(11*Sqrt[1 - 2*x]*(3 +
5*x)) + (504*Sqrt[1 - 2*x]*(4499 + 1500*x))/75625 - (336*ArcTanh[
Sqrt[5/11]*Sqrt[1 - 2*x]])/(75625*Sqrt[55])
```

Rubi in Sympy [A] time = 25.5445, size = 104, normalized size = 0.87

$$-\frac{36\sqrt{-2x+1}\,(3x+2)^3}{605\,(5x+3)}+\frac{10836\sqrt{-2x+1}\,(3x+2)^2}{15125}+\frac{\sqrt{-2x+1}\,(11340000x+34012440)}{1134375}-\frac{336\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{4159375}+\frac{7\,(3x+2)^4}{11\sqrt{-2x+1}\,(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**5/(1-2*x)**(3/2)/(3+5*x)**2,x)
```

```
[Out] -36*sqrt(-2*x + 1)*(3*x + 2)**3/(605*(5*x + 3)) + 10836*sqrt(-2*x
 + 1)*(3*x + 2)**2/15125 + sqrt(-2*x + 1)*(11340000*x + 34012440)
/1134375 - 336*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/4159375
 + 7*(3*x + 2)**4/(11*sqrt(-2*x + 1)*(5*x + 3))
```

Mathematica [A] time = 0.137113, size = 71, normalized size = 0.59

$$\frac{\frac{55\sqrt{1-2x}(735075x^4+3789720x^3+14309460x^2-6264264x-8186648)}{10x^2+x-3}-336\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{4159375}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^5/((1 - 2*x)^(3/2)*(3 + 5*x)^2),x]
```

```
[Out] ((55*Sqrt[1 - 2*x]*(-8186648 - 6264264*x + 14309460*x^2 + 3789720
*x^3 + 735075*x^4))/(-3 + x + 10*x^2) - 336*Sqrt[55]*ArcTanh[Sqrt
[5/11]*Sqrt[1 - 2*x]])/4159375
```

Maple [A] time = 0.02, size = 72, normalized size = 0.6

$$\frac{243}{1000}(1-2x)^{\frac{5}{2}}-\frac{2943}{1000}(1-2x)^{\frac{3}{2}}+\frac{107109}{5000}\sqrt{1-2x}+\frac{16807}{968}\frac{1}{\sqrt{1-2x}}+\frac{2}{378125}\sqrt{1-2x}\left(-\frac{6}{5}-2x\right)^{-1}-\frac{336\sqrt{55}}{4159375}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^5/(1-2*x)^(3/2)/(3+5*x)^2,x)
```

```
[Out] 243/1000*(1-2*x)^(5/2)-2943/1000*(1-2*x)^(3/2)+107109/5000*(1-2*x
)^(1/2)+16807/968/(1-2*x)^(1/2)+2/378125*(1-2*x)^(1/2)/(-6/5-2*x)
-336/4159375*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.51051, size = 124, normalized size = 1.03

$$\frac{243}{1000}(-2x+1)^{\frac{5}{2}}-\frac{2943}{1000}(-2x+1)^{\frac{3}{2}}+\frac{168}{4159375}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{107109}{5000}\sqrt{-2x+1}-\frac{52521891x+31513117}{302500\left(5(-2x+1)^{\frac{3}{2}}-11\sqrt{-2x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/((5*x + 3)^2*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 243/1000*(-2*x + 1)^(5/2) - 2943/1000*(-2*x + 1)^(3/2) + 168/4159
375*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sqr
t(-2*x + 1))) + 107109/5000*sqrt(-2*x + 1) - 1/302500*(52521891*x
 + 31513117)/(5*(-2*x + 1)^(3/2) - 11*sqrt(-2*x + 1))
```

Fricas [A] time = 0.253281, size = 117, normalized size = 0.98

$$\frac{\sqrt{55}\left(168(5x+3)\sqrt{-2x+1}\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{-2x+1}}{5x+3}\right)-\sqrt{55}(735075x^4+3789720x^3+14309460x^2-6264264x-818664\right.}{4159375(5x+3)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/((5*x + 3)^2*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/4159375*sqrt(55)*(168*(5*x + 3)*sqrt(-2*x + 1)*log((sqrt(55)*(5
*x - 8) + 55*sqrt(-2*x + 1))/(5*x + 3)) - sqrt(55)*(735075*x^4 +
3789720*x^3 + 14309460*x^2 - 6264264*x - 8186648))/((5*x + 3)*sqr
t(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**5/(1-2*x)**(3/2)/(3+5*x)**2,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.221179, size = 138, normalized size = 1.15

$$\frac{243}{1000}\,(2\,x-1)^2\sqrt{-2\,x+1}-\frac{2943}{1000}\,(-2\,x+1)^{\frac{3}{2}}+\frac{168}{4159375}\,\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)+\frac{107109}{5000}\,\sqrt{-2\,x+1}-\frac{52521891\,x+31513117}{302500\left(5\,(-2\,x+1)^{\frac{3}{2}}-11\,\sqrt{-2\,x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/((5*x + 3)^2*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 243/1000*(2*x - 1)^2*sqrt(-2*x + 1) - 2943/1000*(-2*x + 1)^(3/2)
+ 168/4159375*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1)
)/(sqrt(55) + 5*sqrt(-2*x + 1))) + 107109/5000*sqrt(-2*x + 1) - 1
/302500*(52521891*x + 31513117)/(5*(-2*x + 1)^(3/2) - 11*sqrt(-2*
x + 1))
```

3.2100 $\int \frac{(2+3x)^4}{(1-2x)^{3/2}(3+5x)^2} \, dx$

Optimal. Leaf size=100

$$\frac{7(3x+2)^3}{11\sqrt{1-2x}(5x+3)}-\frac{36\sqrt{1-2x}(3x+2)^2}{605(5x+3)}+\frac{27\sqrt{1-2x}(265x+792)}{3025}-\frac{54\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{3025\sqrt{55}}$$

```
[Out] (-36*Sqrt[1 - 2*x]*(2 + 3*x)^2)/(605*(3 + 5*x)) + (7*(2 + 3*x)^3)
/(11*Sqrt[1 - 2*x]*(3 + 5*x)) + (27*Sqrt[1 - 2*x]*(792 + 265*x))/
3025 - (54*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(3025*Sqrt[55])
```

Rubi [A] time = 0.168531, antiderivative size = 100, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.208$

$$\frac{7(3x+2)^3}{11\sqrt{1-2x}(5x+3)}-\frac{36\sqrt{1-2x}(3x+2)^2}{605(5x+3)}+\frac{27\sqrt{1-2x}(265x+792)}{3025}-\frac{54\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{3025\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^4/((1 - 2*x)^(3/2)*(3 + 5*x)^2),x]
```

```
[Out] (-36*Sqrt[1 - 2*x]*(2 + 3*x)^2)/(605*(3 + 5*x)) + (7*(2 + 3*x)^3)
/(11*Sqrt[1 - 2*x]*(3 + 5*x)) + (27*Sqrt[1 - 2*x]*(792 + 265*x))/
3025 - (54*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(3025*Sqrt[55])
```

Rubi in Sympy [A] time = 18.2623, size = 85, normalized size = 0.85

$$-\frac{36\sqrt{-2x+1}\,(3x+2)^2}{605\,(5x+3)}+\frac{\sqrt{-2x+1}\,(107325x+320760)}{45375}-\frac{54\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{166375}+\frac{7\,(3x+2)^3}{11\sqrt{-2x+1}\,(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4/(1-2*x)**(3/2)/(3+5*x)**2,x)
```

```
[Out] -36*sqrt(-2*x + 1)*(3*x + 2)**2/(605*(5*x + 3)) + sqrt(-2*x + 1)*
(107325*x + 320760)/45375 - 54*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x
+ 1)/11)/166375 + 7*(3*x + 2)**3/(11*sqrt(-2*x + 1)*(5*x + 3))
```

Mathematica [A] time = 0.118535, size = 66, normalized size = 0.66

$$\frac{\frac{55\sqrt{1-2x}(16335x^3+114345x^2-68661x-78832)}{10x^2+x-3}-54\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{166375}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^4/((1 - 2*x)^(3/2)*(3 + 5*x)^2),x]
```

```
[Out] ((55*Sqrt[1 - 2*x]*(-78832 - 68661*x + 114345*x^2 + 16335*x^3))/(
-3 + x + 10*x^2) - 54*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])
/166375
```

Maple [A] time = 0.019, size = 63, normalized size = 0.6

$$-\frac{27}{100}(1-2x)^{\frac{3}{2}}+\frac{999}{250}\sqrt{1-2x}+\frac{2401}{484}\frac{1}{\sqrt{1-2x}}+\frac{2}{75625}\sqrt{1-2x}\left(-\frac{6}{5}-2x\right)^{-1}-\frac{54\sqrt{55}}{166375}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4/(1-2*x)^(3/2)/(3+5*x)^2,x)
```

```
[Out] -27/100*(1-2*x)^(3/2)+999/250*(1-2*x)^(1/2)+2401/484/(1-2*x)^(1/2
)+2/75625*(1-2*x)^(1/2)/(-6/5-2*x)-54/166375*arctanh(1/11*55^(1/2
)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.49778, size = 112, normalized size = 1.12

$$-\frac{27}{100}(-2x+1)^{\frac{3}{2}}+\frac{27}{166375}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{999}{250}\sqrt{-2x+1}-\frac{1500633x+900371}{30250\left(5(-2x+1)^{\frac{3}{2}}-11\sqrt{-2x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^4/((5*x + 3)^2*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] -27/100*(-2*x + 1)^(3/2) + 27/166375*sqrt(55)*log(-(sqrt(55) - 5*
sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) + 999/250*sqrt(-2*
x + 1) - 1/30250*(1500633*x + 900371)/(5*(-2*x + 1)^(3/2) - 11*sq
rt(-2*x + 1))
```

Fricas [A] time = 0.248313, size = 111, normalized size = 1.11

$$\frac{\sqrt{55}\left(27(5x+3)\sqrt{-2x+1}\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{-2x+1}}{5x+3}\right)-\sqrt{55}\left(16335x^3+114345x^2-68661x-78832\right)\right)}{166375(5x+3)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^4/((5*x + 3)^2*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/166375*sqrt(55)*(27*(5*x + 3)*sqrt(-2*x + 1)*log((sqrt(55)*(5*x
 - 8) + 55*sqrt(-2*x + 1))/(5*x + 3)) - sqrt(55)*(16335*x^3 + 114
345*x^2 - 68661*x - 78832))/((5*x + 3)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4/(1-2*x)**(3/2)/(3+5*x)**2,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.222137, size = 116, normalized size = 1.16

$$-\frac{27}{100}\,(-2\,x+1)^{\frac{3}{2}}+\frac{27}{166375}\,\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\,\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)+\frac{999}{250}\,\sqrt{-2\,x+1}-\frac{1500633\,x+900371}{30250\,\left(5\,(-2\,x+1)^{\frac{3}{2}}-11\,\sqrt{-2\,x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^4/((5*x + 3)^2*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] -27/100*(-2*x + 1)^(3/2) + 27/166375*sqrt(55)*ln(1/2*abs(-2*sqrt(
55) + 10*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) + 999/250
*sqrt(-2*x + 1) - 1/30250*(1500633*x + 900371)/(5*(-2*x + 1)^(3/2
) - 11*sqrt(-2*x + 1))
```

3.2101 $\int \frac{(2+3x)^3}{(1-2x)^{3/2}(3+5x)^2}\,dx$

Optimal. Leaf size=80

$$\frac{7(3x+2)^2}{11\sqrt{1-2x}(5x+3)}+\frac{18\sqrt{1-2x}(935x+559)}{3025(5x+3)}-\frac{204\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{3025\sqrt{55}}$$

```
[Out] (7*(2 + 3*x)^2)/(11*Sqrt[1 - 2*x]*(3 + 5*x)) + (18*Sqrt[1 - 2*x]*
(559 + 935*x))/(3025*(3 + 5*x)) - (204*ArcTanh[Sqrt[5/11]*Sqrt[1
- 2*x]])/(3025*Sqrt[55])
```

Rubi [A] time = 0.11436, antiderivative size = 80, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$\frac{7(3x+2)^2}{11\sqrt{1-2x}(5x+3)}+\frac{18\sqrt{1-2x}(935x+559)}{3025(5x+3)}-\frac{204\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{3025\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^3/((1 - 2*x)^(3/2)*(3 + 5*x)^2),x]
```

```
[Out] (7*(2 + 3*x)^2)/(11*Sqrt[1 - 2*x]*(3 + 5*x)) + (18*Sqrt[1 - 2*x]*
(559 + 935*x))/(3025*(3 + 5*x)) - (204*ArcTanh[Sqrt[5/11]*Sqrt[1
- 2*x]])/(3025*Sqrt[55])
```

Rubi in Sympy [A] time = 12.1199, size = 66, normalized size = 0.82

$$\frac{\sqrt{-2x+1}\,(16830x+10062)}{3025\,(5x+3)}-\frac{204\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{166375}+\frac{7\,(3x+2)^2}{11\sqrt{-2x+1}\,(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3/(1-2*x)**(3/2)/(3+5*x)**2,x)
```

```
[Out] sqrt(-2*x + 1)*(16830*x + 10062)/(3025*(5*x + 3)) - 204*sqrt(55)*
atanh(sqrt(55)*sqrt(-2*x + 1)/11)/166375 + 7*(3*x + 2)**2/(11*sqr
t(-2*x + 1)*(5*x + 3))
```

Mathematica [A] time = 0.114532, size = 61, normalized size = 0.76

$$\frac{\frac{55\sqrt{1-2x}(16335x^2-19806x-17762)}{10x^2+x-3}-204\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{166375}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^3/((1 - 2*x)^(3/2)*(3 + 5*x)^2),x]
```

```
[Out] ((55*Sqrt[1 - 2*x]*(-17762 - 19806*x + 16335*x^2))/(-3 + x + 10*x
^2) - 204*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/166375
```

Maple [A] time = 0.02, size = 54, normalized size = 0.7

$$\frac{27}{50}\sqrt{1-2x}+\frac{343}{242}\frac{1}{\sqrt{1-2x}}+\frac{2}{15125}\sqrt{1-2x}\left(-\frac{6}{5}-2x\right)^{-1}-\frac{204\sqrt{55}}{166375}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3/(1-2*x)^(3/2)/(3+5*x)^2,x)
```

```
[Out] 27/50*(1-2*x)^(1/2)+343/242/(1-2*x)^(1/2)+2/15125*(1-2*x)^(1/2)/(
-6/5-2*x)-204/166375*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2
)
```

Maxima [A] time = 1.51587, size = 100, normalized size = 1.25

$$\frac{102}{166375}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{27}{50}\sqrt{-2x+1}-\frac{42879x+25723}{3025\left(5(-2x+1)^{\frac{3}{2}}-11\sqrt{-2x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3/((5*x + 3)^2*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 102/166375*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55)
+ 5*sqrt(-2*x + 1))) + 27/50*sqrt(-2*x + 1) - 1/3025*(42879*x + 2
5723)/(5*(-2*x + 1)^(3/2) - 11*sqrt(-2*x + 1))
```

Fricas [A] time = 0.215287, size = 104, normalized size = 1.3

$$\frac{\sqrt{55}\left(102(5x+3)\sqrt{-2x+1}\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{-2x+1}}{5x+3}\right)-\sqrt{55}\left(16335x^2-19806x-17762\right)\right)}{166375(5x+3)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3/((5*x + 3)^2*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/166375*sqrt(55)*(102*(5*x + 3)*sqrt(-2*x + 1)*log((sqrt(55)*(5*
x - 8) + 55*sqrt(-2*x + 1))/(5*x + 3)) - sqrt(55)*(16335*x^2 - 19
806*x - 17762))/((5*x + 3)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3/(1-2*x)**(3/2)/(3+5*x)**2,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.250223, size = 104, normalized size = 1.3

$$\frac{102}{166375}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{27}{50}\sqrt{-2x+1}-\frac{42879x+25723}{3025\left(5(-2x+1)^{\frac{3}{2}}-11\sqrt{-2x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3/((5*x + 3)^2*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 102/166375*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(
sqrt(55) + 5*sqrt(-2*x + 1))) + 27/50*sqrt(-2*x + 1) - 1/3025*(42
879*x + 25723)/(5*(-2*x + 1)^(3/2) - 11*sqrt(-2*x + 1))
```

3.2102 $\int \frac{(2+3x)^2}{(1-2x)^{3/2}(3+5x)^2}\,dx$

Optimal. Leaf size=68

$$-\frac{1227\sqrt{1-2x}}{1210(5x+3)}+\frac{49}{22\sqrt{1-2x}(5x+3)}-\frac{138\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{605\sqrt{55}}$$

```
[Out] 49/(22*Sqrt[1 - 2*x]*(3 + 5*x)) - (1227*Sqrt[1 - 2*x])/(1210*(3 +
 5*x)) - (138*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(605*Sqrt[55])
```

Rubi [A] time = 0.0936686, antiderivative size = 68, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$-\frac{1227\sqrt{1-2x}}{1210(5x+3)}+\frac{49}{22\sqrt{1-2x}(5x+3)}-\frac{138\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{605\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^2/((1 - 2*x)^(3/2)*(3 + 5*x)^2),x]
```

```
[Out] 49/(22*Sqrt[1 - 2*x]*(3 + 5*x)) - (1227*Sqrt[1 - 2*x])/(1210*(3 +
 5*x)) - (138*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(605*Sqrt[55])
```

Rubi in Sympy [A] time = 8.41024, size = 53, normalized size = 0.78

$$-\frac{138\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{33275}+\frac{1227}{3025\sqrt{-2x+1}}-\frac{1}{275\sqrt{-2x+1}\,(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2/(1-2*x)**(3/2)/(3+5*x)**2,x)
```

```
[Out] -138*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/33275 + 1227/(302
5*sqrt(-2*x + 1)) - 1/(275*sqrt(-2*x + 1)*(5*x + 3))
```

Mathematica [A] time = 0.106869, size = 56, normalized size = 0.82

$$-\frac{\sqrt{1-2x}(1227x+734)}{605\left(10x^2+x-3\right)}-\frac{138\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{605\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^2/((1 - 2*x)^(3/2)*(3 + 5*x)^2),x]
```

```
[Out] -(Sqrt[1 - 2*x]*(734 + 1227*x))/(605*(-3 + x + 10*x^2)) - (138*Ar
cTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(605*Sqrt[55])
```

Maple [A] time = 0.019, size = 45, normalized size = 0.7

$$\frac{49}{121}\frac{1}{\sqrt{1-2\,x}}+\frac{2}{3025}\sqrt{1-2\,x}\left(-\frac{6}{5}-2\,x\right)^{-1}-\frac{138\,\sqrt{55}}{33275}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2/(1-2*x)^(3/2)/(3+5*x)^2,x)
```

```
[Out] 49/121/(1-2*x)^(1/2)+2/3025*(1-2*x)^(1/2)/(-6/5-2*x)-138/33275*ar
ctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.50358, size = 88, normalized size = 1.29

$$\frac{69}{33275}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{2(1227x+734)}{605\left(5(-2x+1)^{\frac{3}{2}}-11\sqrt{-2x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2/((5*x + 3)^2*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 69/33275*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) +
5*sqrt(-2*x + 1))) - 2/605*(1227*x + 734)/(5*(-2*x + 1)^(3/2) - 1
1*sqrt(-2*x + 1))
```

Fricas [A] time = 0.216766, size = 96, normalized size = 1.41

$$\frac{\sqrt{55}\left(69(5x+3)\sqrt{-2x+1}\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{-2x+1}}{5x+3}\right)+\sqrt{55}(1227x+734)\right)}{33275(5x+3)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2/((5*x + 3)^2*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/33275*sqrt(55)*(69*(5*x + 3)*sqrt(-2*x + 1)*log((sqrt(55)*(5*x
- 8) + 55*sqrt(-2*x + 1))/(5*x + 3)) + sqrt(55)*(1227*x + 734))/(
(5*x + 3)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2/(1-2*x)**(3/2)/(3+5*x)**2,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.222694, size = 92, normalized size = 1.35

$$\frac{69}{33275}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{2(1227x+734)}{605\left(5(-2x+1)^{\frac{3}{2}}-11\sqrt{-2x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2/((5*x + 3)^2*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 69/33275*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sq
rt(55) + 5*sqrt(-2*x + 1))) - 2/605*(1227*x + 734)/(5*(-2*x + 1)^
(3/2) - 11*sqrt(-2*x + 1))
```

3.2103 $\int \frac{2+3x}{(1-2x)^{3/2}(3+5x)^2} dx$

Optimal. Leaf size=61

$$\frac{72}{605\sqrt{1-2x}}-\frac{1}{55\sqrt{1-2x}(5x+3)}-\frac{72\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{121\sqrt{55}}$$

```
[Out] 72/(605*Sqrt[1 - 2*x]) - 1/(55*Sqrt[1 - 2*x]*(3 + 5*x)) - (72*Arc
Tanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(121*Sqrt[55])
```

Rubi [A] time = 0.071361, antiderivative size = 61, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$\frac{72}{605\sqrt{1-2x}}-\frac{1}{55\sqrt{1-2x}(5x+3)}-\frac{72\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{121\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In] Int[(2 + 3*x)/((1 - 2*x)^(3/2)*(3 + 5*x)^2),x]
```

```
[Out] 72/(605*Sqrt[1 - 2*x]) - 1/(55*Sqrt[1 - 2*x]*(3 + 5*x)) - (72*Arc
Tanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(121*Sqrt[55])
```

Rubi in Sympy [A] time = 6.8008, size = 53, normalized size = 0.87

$$-\frac{72\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{6655}+\frac{72}{605\sqrt{-2x+1}}-\frac{1}{55\sqrt{-2x+1}\,(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)/(1-2*x)**(3/2)/(3+5*x)**2,x)
```

```
[Out] -72*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/6655 + 72/(605*sqr
t(-2*x + 1)) - 1/(55*sqrt(-2*x + 1)*(5*x + 3))
```

Mathematica [A] time = 0.0991048, size = 56, normalized size = 0.92

$$\frac{-\frac{55\sqrt{1-2x}(72x+41)}{10x^2+x-3}-72\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{6655}$$

Antiderivative was successfully verified.

```
[In] Integrate[(2 + 3*x)/((1 - 2*x)^(3/2)*(3 + 5*x)^2),x]
```

```
[Out] ((-55*Sqrt[1 - 2*x]*(41 + 72*x))/(-3 + x + 10*x^2) - 72*Sqrt[55]*
ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/6655
```

Maple [A] time = 0.017, size = 45, normalized size = 0.7

$$\frac{14}{121}\frac{1}{\sqrt{1-2x}}+\frac{2}{605}\sqrt{1-2x}\left(-\frac{6}{5}-2x\right)^{-1}-\frac{72\sqrt{55}}{6655}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)/(1-2*x)^(3/2)/(3+5*x)^2,x)
```

```
[Out] 14/121/(1-2*x)^(1/2)+2/605*(1-2*x)^(1/2)/(-6/5-2*x)-72/6655*arcta
nh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.513, size = 88, normalized size = 1.44

$$\frac{36}{6655}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{2(72x+41)}{121\left(5(-2x+1)^{\frac{3}{2}}-11\sqrt{-2x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)/((5*x + 3)^2*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 36/6655*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5
*sqrt(-2*x + 1))) - 2/121*(72*x + 41)/(5*(-2*x + 1)^(3/2) - 11*sq
rt(-2*x + 1))
```

Fricas [A] time = 0.214842, size = 96, normalized size = 1.57

$$\frac{\sqrt{55}\left(36(5x+3)\sqrt{-2x+1}\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{-2x+1}}{5x+3}\right)+\sqrt{55}(72x+41)\right)}{6655(5x+3)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)/((5*x + 3)^2*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/6655*sqrt(55)*(36*(5*x + 3)*sqrt(-2*x + 1)*log((sqrt(55)*(5*x -
 8) + 55*sqrt(-2*x + 1))/(5*x + 3)) + sqrt(55)*(72*x + 41))/((5*x
 + 3)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)/(1-2*x)**(3/2)/(3+5*x)**2,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.218006, size = 92, normalized size = 1.51

$$\frac{36}{6655}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{2(72x+41)}{121\left(5(-2x+1)^{\frac{3}{2}}-11\sqrt{-2x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)/((5*x + 3)^2*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 36/6655*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqr
t(55) + 5*sqrt(-2*x + 1))) - 2/121*(72*x + 41)/(5*(-2*x + 1)^(3/2
) - 11*sqrt(-2*x + 1))
```

3.2104 $\int \frac{1}{(1-2x)^{3/2}(3+5x)^2}\,dx$

Optimal. Leaf size=70

$$-\frac{15\sqrt{1-2x}}{121(5x+3)}+\frac{2}{11\sqrt{1-2x}(5x+3)}-\frac{6}{121}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] 2/(11*Sqrt[1 - 2*x]*(3 + 5*x)) - (15*Sqrt[1 - 2*x])/(121*(3 + 5*x
)) - (6*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/121
```

Rubi [A] time = 0.0609609, antiderivative size = 70, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 17, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.176

$$-\frac{15\sqrt{1-2x}}{121(5x+3)}+\frac{2}{11\sqrt{1-2x}(5x+3)}-\frac{6}{121}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In] Int[1/((1 - 2*x)^(3/2)*(3 + 5*x)^2),x]
```

```
[Out] 2/(11*Sqrt[1 - 2*x]*(3 + 5*x)) - (15*Sqrt[1 - 2*x])/(121*(3 + 5*x
)) - (6*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/121
```

Rubi in Sympy [A] time = 5.93499, size = 56, normalized size = 0.8

$$-\frac{15\sqrt{-2x+1}}{121\,(5x+3)}-\frac{6\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{1331}+\frac{2}{11\sqrt{-2x+1}\,(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(1/(1-2*x)**(3/2)/(3+5*x)**2,x)
```

```
[Out] -15*sqrt(-2*x + 1)/(121*(5*x + 3)) - 6*sqrt(55)*atanh(sqrt(55)*sq
rt(-2*x + 1)/11)/1331 + 2/(11*sqrt(-2*x + 1)*(5*x + 3))
```

Mathematica [A] time = 0.0863881, size = 56, normalized size = 0.8

$$\frac{-\frac{11\sqrt{1-2x}(30x+7)}{10x^2+x-3}-6\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1331}$$

Antiderivative was successfully verified.

```
[In] Integrate[1/((1 - 2*x)^(3/2)*(3 + 5*x)^2),x]
```

```
[Out] ((-11*Sqrt[1 - 2*x]*(7 + 30*x))/(-3 + x + 10*x^2) - 6*Sqrt[55]*Ar
cTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/1331
```

Maple [A] time = 0.015, size = 45, normalized size = 0.6

$$\frac{4}{121}\frac{1}{\sqrt{1-2\,x}}+\frac{2}{121}\sqrt{1-2\,x}\left(-\frac{6}{5}-2\,x\right)^{-1}-\frac{6\,\sqrt{55}}{1331}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(3/2)/(3+5*x)^2,x)
```

```
[Out] 4/121/(1-2*x)^(1/2)+2/121*(1-2*x)^(1/2)/(-6/5-2*x)-6/1331*arctanh
(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.52113, size = 88, normalized size = 1.26

$$\frac{3}{1331}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{2(30x+7)}{121\left(5(-2x+1)^{\frac{3}{2}}-11\sqrt{-2x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^2*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 3/1331*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*
sqrt(-2*x + 1))) - 2/121*(30*x + 7)/(5*(-2*x + 1)^(3/2) - 11*sqrt
(-2*x + 1))
```

Fricas [A] time = 0.250521, size = 104, normalized size = 1.49

$$\frac{\sqrt{11}\left(3\sqrt{5}(5x+3)\sqrt{-2x+1}\log\left(\frac{\sqrt{11}(5x-8)+11\sqrt{5}\sqrt{-2x+1}}{5x+3}\right)+\sqrt{11}(30x+7)\right)}{1331(5x+3)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^2*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/1331*sqrt(11)*(3*sqrt(5)*(5*x + 3)*sqrt(-2*x + 1)*log((sqrt(11)
*(5*x - 8) + 11*sqrt(5)*sqrt(-2*x + 1))/(5*x + 3)) + sqrt(11)*(30
*x + 7))/((5*x + 3)*sqrt(-2*x + 1))
```

Sympy [A] time = 4.32505, size = 177, normalized size = 2.53

$$\begin{cases} -\frac{6\sqrt{55}\operatorname{acosh}\left(\frac{\sqrt{110}}{10\sqrt{x+\frac{3}{5}}}\right)}{1331}+\frac{3\sqrt{2}}{121\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}\sqrt{x+\frac{3}{5}}}-\frac{\sqrt{2}}{110\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)^{\frac{3}{2}}} & \text{for}\ \frac{11\left|\frac{1}{x+\frac{3}{5}}\right|}{10}>1 \\ \frac{6\sqrt{55}i\operatorname{asin}\left(\frac{\sqrt{110}}{10\sqrt{x+\frac{3}{5}}}\right)}{1331}-\frac{3\sqrt{2}i}{121\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}\sqrt{x+\frac{3}{5}}}+\frac{\sqrt{2}i}{110\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)^{\frac{3}{2}}} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(3/2)/(3+5*x)**2,x)
```

```
[Out] Piecewise((-6*sqrt(55)*acosh(sqrt(110)/(10*sqrt(x + 3/5)))/1331 +
 3*sqrt(2)/(121*sqrt(-1 + 11/(10*(x + 3/5)))*sqrt(x + 3/5)) - sqr
t(2)/(110*sqrt(-1 + 11/(10*(x + 3/5)))*(x + 3/5)**(3/2)), 11*Abs(
1/(x + 3/5))/10 > 1), (6*sqrt(55)*I*asin(sqrt(110)/(10*sqrt(x + 3
/5)))/1331 - 3*sqrt(2)*I/(121*sqrt(1 - 11/(10*(x + 3/5)))*sqrt(x
+ 3/5)) + sqrt(2)*I/(110*sqrt(1 - 11/(10*(x + 3/5)))*(x + 3/5)**(
3/2)), True))
```

GIAC/XCAS [A] time = 0.217487, size = 92, normalized size = 1.31

$$\frac{3}{1331}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{2(30x+7)}{121\left(5(-2x+1)^{\frac{3}{2}}-11\sqrt{-2x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^2*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 3/1331*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt
(55) + 5*sqrt(-2*x + 1))) - 2/121*(30*x + 7)/(5*(-2*x + 1)^(3/2)
- 11*sqrt(-2*x + 1))
```

3.2105 $\int \frac{1}{(1-2x)^{3/2}(2+3x)(3+5x)^2}\,dx$

Optimal. Leaf size=92

$$\frac{78}{847\sqrt{1-2x}}-\frac{5}{11\sqrt{1-2x}(5x+3)}-\frac{18}{7}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+\frac{300}{121}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] 78/(847*Sqrt[1 - 2*x]) - 5/(11*Sqrt[1 - 2*x]*(3 + 5*x)) - (18*Sqr
t[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/7 + (300*Sqrt[5/11]*ArcT
anh[Sqrt[5/11]*Sqrt[1 - 2*x]])/121
```

Rubi [A] time = 0.210876, antiderivative size = 92, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{78}{847\sqrt{1-2x}}-\frac{5}{11\sqrt{1-2x}(5x+3)}-\frac{18}{7}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+\frac{300}{121}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(3/2)*(2 + 3*x)*(3 + 5*x)^2),x]
```

```
[Out] 78/(847*Sqrt[1 - 2*x]) - 5/(11*Sqrt[1 - 2*x]*(3 + 5*x)) - (18*Sqr
t[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/7 + (300*Sqrt[5/11]*ArcT
anh[Sqrt[5/11]*Sqrt[1 - 2*x]])/121
```

Rubi in Sympy [A] time = 21.5036, size = 78, normalized size = 0.85

$$-\frac{18\sqrt{21}\,\text{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{49}+\frac{300\sqrt{55}\,\text{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{1331}+\frac{78}{847\sqrt{-2x+1}}-\frac{5}{11\sqrt{-2x+1}\,(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(3/2)/(2+3*x)/(3+5*x)**2,x)
```

```
[Out] -18*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/49 + 300*sqrt(55)*a
tanh(sqrt(55)*sqrt(-2*x + 1)/11)/1331 + 78/(847*sqrt(-2*x + 1)) -
 5/(11*sqrt(-2*x + 1)*(5*x + 3))
```

Mathematica [A] time = 0.251795, size = 86, normalized size = 0.93

$$\frac{\frac{11\sqrt{1-2x}(151-390x)}{10x^2+x-3}+2100\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{9317}-\frac{18}{7}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(3/2)*(2 + 3*x)*(3 + 5*x)^2),x]
```

```
[Out] (-18*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/7 + ((11*(151 -
390*x)*Sqrt[1 - 2*x])/(-3 + x + 10*x^2) + 2100*Sqrt[55]*ArcTanh[S
qrt[5/11]*Sqrt[1 - 2*x]])/9317
```

Maple [A] time = 0.02, size = 63, normalized size = 0.7

$$\frac{8}{847}\frac{1}{\sqrt{1-2x}}-\frac{18\sqrt{21}}{49}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)+\frac{10}{121}\sqrt{1-2x}\left(-\frac{6}{5}-2x\right)^{-1}+\frac{300\sqrt{55}}{1331}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int(1/(1-2*x)^(3/2)/(2+3*x)/(3+5*x)^2,x)
```

```
[Out] 8/847/(1-2*x)^(1/2)-18/49*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^
(1/2)+10/121*(1-2*x)^(1/2)/(-6/5-2*x)+300/1331*arctanh(1/11*55^(1
/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.50086, size = 136, normalized size = 1.48

$$-\frac{150}{1331}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{9}{49}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{2(390x-151)}{847\left(5(-2x+1)^{\frac{3}{2}}-11\sqrt{-2x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^2*(3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] -150/1331*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) +
 5*sqrt(-2*x + 1))) + 9/49*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x
+ 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 2/847*(390*x - 151)/(5*(-2
*x + 1)^(3/2) - 11*sqrt(-2*x + 1))
```

Fricas [A] time = 0.242311, size = 185, normalized size = 2.01

$$\frac{\sqrt{11}\sqrt{7}\left(1050\sqrt{7}\sqrt{5}(5x+3)\sqrt{-2x+1}\log\left(\frac{\sqrt{11}(5x-8)-11\sqrt{5}\sqrt{-2x+1}}{5x+3}\right)+1089\sqrt{11}\sqrt{3}(5x+3)\sqrt{-2x+1}\log\left(\frac{\sqrt{7}(3x-5)+7\sqrt{3}\sqrt{-2x+1}}{3x+2}\right)\right.}{65219(5x+3)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^2*(3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/65219*sqrt(11)*sqrt(7)*(1050*sqrt(7)*sqrt(5)*(5*x + 3)*sqrt(-2*
x + 1)*log((sqrt(11)*(5*x - 8) - 11*sqrt(5)*sqrt(-2*x + 1))/(5*x
+ 3)) + 1089*sqrt(11)*sqrt(3)*(5*x + 3)*sqrt(-2*x + 1)*log((sqrt(
7)*(3*x - 5) + 7*sqrt(3)*sqrt(-2*x + 1))/(3*x + 2)) + sqrt(11)*sq
rt(7)*(390*x - 151))/((5*x + 3)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(1/(1-2*x)**(3/2)/(2+3*x)/(3+5*x)**2,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.221161, size = 144, normalized size = 1.57

$$-\frac{150}{1331}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{9}{49}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{2(390x-151)}{847\left(5(-2x+1)^{\frac{3}{2}}-11\sqrt{-2x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^2*(3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] -150/1331*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(s
qrt(55) + 5*sqrt(-2*x + 1))) + 9/49*sqrt(21)*ln(1/2*abs(-2*sqrt(2
1) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 2/847*(39
0*x - 151)/(5*(-2*x + 1)^(3/2) - 11*sqrt(-2*x + 1))
```

3.2106 $\int \frac{1}{(1-2x)^{3/2}(2+3x)^2(3+5x)^2}\,dx$

Optimal. Leaf size=119

$$\frac{4644}{5929\sqrt{1-2x}}-\frac{340}{77\sqrt{1-2x}(5x+3)}+\frac{3}{7\sqrt{1-2x}(3x+2)(5x+3)}-\frac{1314}{49}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+\frac{3150}{121}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] 4644/(5929*Sqrt[1 - 2*x]) - 340/(77*Sqrt[1 - 2*x]*(3 + 5*x)) + 3/
(7*Sqrt[1 - 2*x]*(2 + 3*x)*(3 + 5*x)) - (1314*Sqrt[3/7]*ArcTanh[S
qrt[3/7]*Sqrt[1 - 2*x]])/49 + (3150*Sqrt[5/11]*ArcTanh[Sqrt[5/11]
*Sqrt[1 - 2*x]])/121
```

Rubi [A] time = 0.280965, antiderivative size = 119, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$\frac{4644}{5929\sqrt{1-2x}}-\frac{340}{77\sqrt{1-2x}(5x+3)}+\frac{3}{7\sqrt{1-2x}(3x+2)(5x+3)}-\frac{1314}{49}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+\frac{3150}{121}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(3/2)*(2 + 3*x)^2*(3 + 5*x)^2),x]
```

```
[Out] 4644/(5929*Sqrt[1 - 2*x]) - 340/(77*Sqrt[1 - 2*x]*(3 + 5*x)) + 3/
(7*Sqrt[1 - 2*x]*(2 + 3*x)*(3 + 5*x)) - (1314*Sqrt[3/7]*ArcTanh[S
qrt[3/7]*Sqrt[1 - 2*x]])/49 + (3150*Sqrt[5/11]*ArcTanh[Sqrt[5/11]
*Sqrt[1 - 2*x]])/121
```

Rubi in Sympy [A] time = 28.2827, size = 100, normalized size = 0.84

$$-\frac{1314\sqrt{21}\,\mathrm{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{343}+\frac{3150\sqrt{55}\,\mathrm{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{1331}+\frac{4644}{5929\sqrt{-2x+1}}-\frac{204}{77\sqrt{-2x+1}\,(3x+2)}-\frac{5}{11\sqrt{-2x+1}\,(3x+2)\,(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(3/2)/(2+3*x)**2/(3+5*x)**2,x)
```

```
[Out] -1314*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/343 + 3150*sqrt(5
5)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/1331 + 4644/(5929*sqrt(-2*x
+ 1)) - 204/(77*sqrt(-2*x + 1)*(3*x + 2)) - 5/(11*sqrt(-2*x + 1)*
(3*x + 2)*(5*x + 3))
```

Mathematica [A] time = 0.312086, size = 96, normalized size = 0.81

$$\frac{69660x^2+9696x-21955}{5929\sqrt{1-2x}(3x+2)(5x+3)}-\frac{1314}{49}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+\frac{3150}{121}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(3/2)*(2 + 3*x)^2*(3 + 5*x)^2),x]
```

```
[Out] (-21955 + 9696*x + 69660*x^2)/(5929*Sqrt[1 - 2*x]*(2 + 3*x)*(3 +
5*x)) - (1314*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/49 + (3
150*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/121
```

Maple [A] time = 0.023, size = 79, normalized size = 0.7

$$\frac{16}{5929}\frac{1}{\sqrt{1-2x}}+\frac{18}{49}\sqrt{1-2x}\left(-\frac{4}{3}-2x\right)^{-1}-\frac{1314\sqrt{21}}{343}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)+\frac{50}{121}\sqrt{1-2x}\left(-\frac{6}{5}-2x\right)^{-1}+\frac{3150\sqrt{55}}{1331}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(1/(1-2*x)^(3/2)/(2+3*x)^2/(3+5*x)^2,x)
```

```
[Out] 16/5929/(1-2*x)^(1/2)+18/49*(1-2*x)^(1/2)/(-4/3-2*x)-1314/343*arc
tanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)+50/121*(1-2*x)^(1/2)/(-
6/5-2*x)+3150/1331*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.49537, size = 161, normalized size = 1.35

$$-\frac{1575}{1331}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{657}{343}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{4\left(17415(2x-1)^2+79356x-39370\right)}{5929\left(15(-2x+1)^{\frac{5}{2}}-68(-2x+1)^{\frac{3}{2}}+77\sqrt{-2x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^2*(3*x + 2)^2*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] -1575/1331*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55)
+ 5*sqrt(-2*x + 1))) + 657/343*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-
2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 4/5929*(17415*(2*x - 1
)^2 + 79356*x - 39370)/(15*(-2*x + 1)^(5/2) - 68*(-2*x + 1)^(3/2)
 + 77*sqrt(-2*x + 1))
```

Fricas [A] time = 0.242777, size = 212, normalized size = 1.78

$$\frac{\sqrt{11}\sqrt{7}\left(77175\sqrt{7}\sqrt{5}\left(15x^2+19x+6\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{11}(5x-8)-11\sqrt{5}\sqrt{-2x+1}}{5x+3}\right)+79497\sqrt{11}\sqrt{3}\left(15x^2+19x+6\right)\sqrt{-2x+1}\,\mathrm{lo}\right.}{456533\left(15x^2+19x+6\right)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^2*(3*x + 2)^2*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/456533*sqrt(11)*sqrt(7)*(77175*sqrt(7)*sqrt(5)*(15*x^2 + 19*x +
 6)*sqrt(-2*x + 1)*log((sqrt(11)*(5*x - 8) - 11*sqrt(5)*sqrt(-2*x
 + 1))/(5*x + 3)) + 79497*sqrt(11)*sqrt(3)*(15*x^2 + 19*x + 6)*sq
rt(-2*x + 1)*log((sqrt(7)*(3*x - 5) + 7*sqrt(3)*sqrt(-2*x + 1))/(
3*x + 2)) + sqrt(11)*sqrt(7)*(69660*x^2 + 9696*x - 21955))/((15*x
^2 + 19*x + 6)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(3/2)/(2+3*x)**2/(3+5*x)**2,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.221376, size = 178, normalized size = 1.5

$$-\frac{1575}{1331}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{657}{343}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{4\left(17415\,(2x-1)^2+79356\,x-39370\right)}{5929\left(15\,(2x-1)^2\sqrt{-2x+1}-68\,(-2x+1)^{\frac{3}{2}}+77\sqrt{-2x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^2*(3*x + 2)^2*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] -1575/1331*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(
sqrt(55) + 5*sqrt(-2*x + 1))) + 657/343*sqrt(21)*ln(1/2*abs(-2*sq
rt(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 4/592
9*(17415*(2*x - 1)^2 + 79356*x - 39370)/(15*(2*x - 1)^2*sqrt(-2*x
 + 1) - 68*(-2*x + 1)^(3/2) + 77*sqrt(-2*x + 1))
```

3.2107 $\int \frac{1}{(1-2x)^{3/2}(2+3x)^3(3+5x)^2}\,dx$

Optimal. Leaf size=146

$$\frac{245865}{41503\sqrt{1-2x}}-\frac{36175}{1078\sqrt{1-2x}(5x+3)}+\frac{165}{49\sqrt{1-2x}(3x+2)(5x+3)}+\frac{3}{14\sqrt{1-2x}(3x+2)^2(5x+3)}-\frac{70065}{343}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+\frac{24000}{121}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] 245865/(41503*Sqrt[1 - 2*x]) - 36175/(1078*Sqrt[1 - 2*x]*(3 + 5*x
)) + 3/(14*Sqrt[1 - 2*x]*(2 + 3*x)^2*(3 + 5*x)) + 165/(49*Sqrt[1
- 2*x]*(2 + 3*x)*(3 + 5*x)) - (70065*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*
Sqrt[1 - 2*x]])/343 + (24000*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1
 - 2*x]])/121
```

Rubi [A] time = 0.357459, antiderivative size = 146, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.25$

$$\frac{245865}{41503\sqrt{1-2x}}-\frac{36175}{1078\sqrt{1-2x}(5x+3)}+\frac{165}{49\sqrt{1-2x}(3x+2)(5x+3)}+\frac{3}{14\sqrt{1-2x}(3x+2)^2(5x+3)}-\frac{70065}{343}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+\frac{24000}{121}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(3/2)*(2 + 3*x)^3*(3 + 5*x)^2),x]
```

```
[Out] 245865/(41503*Sqrt[1 - 2*x]) - 36175/(1078*Sqrt[1 - 2*x]*(3 + 5*x
)) + 3/(14*Sqrt[1 - 2*x]*(2 + 3*x)^2*(3 + 5*x)) + 165/(49*Sqrt[1
- 2*x]*(2 + 3*x)*(3 + 5*x)) - (70065*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*
Sqrt[1 - 2*x]])/343 + (24000*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1
 - 2*x]])/121
```

Rubi in Sympy [A] time = 34.9193, size = 121, normalized size = 0.83

$$-\frac{70065\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{2401}+\frac{24000\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{1331}+\frac{245865}{41503\sqrt{-2x+1}}-\frac{21705}{1078\sqrt{-2x+1}\,(3x+2)}-\frac{309}{154\sqrt{-2x+1}\,(3x+2)^2}-\frac{5}{11\sqrt{-2x+1}\,(3x+2)^2\,(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(3/2)/(2+3*x)**3/(3+5*x)**2,x)
```

```
[Out] -70065*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/2401 + 24000*sqr
t(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/1331 + 245865/(41503*sqrt
(-2*x + 1)) - 21705/(1078*sqrt(-2*x + 1)*(3*x + 2)) - 309/(154*sq
rt(-2*x + 1)*(3*x + 2)**2) - 5/(11*sqrt(-2*x + 1)*(3*x + 2)**2*(5
*x + 3))
```

Mathematica [A] time = 0.171697, size = 104, normalized size = 0.71

$$\frac{\sqrt{1-2x}\left(-22127850x^3-17711235x^2+5050290x+4664333\right)}{83006(3x+2)^2\left(10x^2+x-3\right)}-\frac{70065}{343}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+\frac{24000}{121}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(3/2)*(2 + 3*x)^3*(3 + 5*x)^2),x]
```

```
[Out] (Sqrt[1 - 2*x]*(4664333 + 5050290*x - 17711235*x^2 - 22127850*x^3
))/(83006*(2 + 3*x)^2*(-3 + x + 10*x^2)) - (70065*Sqrt[3/7]*ArcTa
nh[Sqrt[3/7]*Sqrt[1 - 2*x]])/343 + (24000*Sqrt[5/11]*ArcTanh[Sqrt
[5/11]*Sqrt[1 - 2*x]])/121
```

Maple [A] time = 0.024, size = 91, normalized size = 0.6

$$\frac{32}{41503}\frac{1}{\sqrt{1-2x}}+\frac{486}{343\,(-4-6x)^2}\left(\frac{49}{2}(1-2x)^{\frac{3}{2}}-\frac{1043}{18}\sqrt{1-2x}\right)-\frac{70065\sqrt{21}}{2401}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)+\frac{250}{121}\sqrt{1-2x}\left(-\frac{6}{5}-2x\right)^{-1}+\frac{24000\sqrt{55}}{1331}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(3/2)/(2+3*x)^3/(3+5*x)^2,x)
```

```
[Out] 32/41503/(1-2*x)^(1/2)+486/343*(49/2*(1-2*x)^(3/2)-1043/18*(1-2*x
)^(1/2))/(-4-6*x)^2-70065/2401*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2)
)*21^(1/2)+250/121*(1-2*x)^(1/2)/(-6/5-2*x)+24000/1331*arctanh(1/
11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.49674, size = 185, normalized size = 1.27

$$-\frac{12000}{1331}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{70065}{4802}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{11063925\,(2x-1)^3+50903010\,(2x-1)^2+117027330\,x-58496417}{41503\left(45\,(-2x+1)^{\frac{7}{2}}-309\,(-2x+1)^{\frac{5}{2}}+707\,(-2x+1)^{\frac{3}{2}}-539\sqrt{-2x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^2*(3*x + 2)^3*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] -12000/1331*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55)
 + 5*sqrt(-2*x + 1))) + 70065/4802*sqrt(21)*log(-(sqrt(21) - 3*sq
rt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 1/41503*(11063925*
(2*x - 1)^3 + 50903010*(2*x - 1)^2 + 117027330*x - 58496417)/(45*
(-2*x + 1)^(7/2) - 309*(-2*x + 1)^(5/2) + 707*(-2*x + 1)^(3/2) -
539*sqrt(-2*x + 1))
```

Fricas [A] time = 0.239975, size = 239, normalized size = 1.64

$$\frac{\sqrt{11}\sqrt{7}\left(8232000\sqrt{7}\sqrt{5}\left(45x^3+87x^2+56x+12\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{11}(5x-8)-11\sqrt{5}\sqrt{-2x+1}}{5x+3}\right)+8477865\sqrt{11}\sqrt{3}\left(45x^3+87x^2+\right.}{6391462\left(45x^3+87x^2+56\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^2*(3*x + 2)^3*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/6391462*sqrt(11)*sqrt(7)*(8232000*sqrt(7)*sqrt(5)*(45*x^3 + 87*
x^2 + 56*x + 12)*sqrt(-2*x + 1)*log((sqrt(11)*(5*x - 8) - 11*sqrt
(5)*sqrt(-2*x + 1))/(5*x + 3)) + 8477865*sqrt(11)*sqrt(3)*(45*x^3
 + 87*x^2 + 56*x + 12)*sqrt(-2*x + 1)*log((sqrt(7)*(3*x - 5) + 7*
sqrt(3)*sqrt(-2*x + 1))/(3*x + 2)) + sqrt(11)*sqrt(7)*(22127850*x
^3 + 17711235*x^2 - 5050290*x - 4664333))/((45*x^3 + 87*x^2 + 56*
x + 12)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(3/2)/(2+3*x)**3/(3+5*x)**2,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.260598, size = 182, normalized size = 1.25

$$-\frac{12000}{1331}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{70065}{4802}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{2\,(428910\,x-214279)}{41503\left(5\,(-2\,x+1)^{\frac{3}{2}}-11\sqrt{-2\,x+1}\right)}+\frac{27\left(63\,(-2\,x+1)^{\frac{3}{2}}-149\sqrt{-2\,x+1}\right)}{196\,(3\,x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^2*(3*x + 2)^3*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] -12000/1331*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/
(sqrt(55) + 5*sqrt(-2*x + 1))) + 70065/4802*sqrt(21)*ln(1/2*abs(-
2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 2
/41503*(428910*x - 214279)/(5*(-2*x + 1)^(3/2) - 11*sqrt(-2*x + 1
)) + 27/196*(63*(-2*x + 1)^(3/2) - 149*sqrt(-2*x + 1))/(3*x + 2)^
2
```

3.2108 $\int \frac{(2+3x)^6}{(1-2x)^{3/2}(3+5x)^3} dx$

Optimal. Leaf size=147

$$\frac{7(3x+2)^5}{11\sqrt{1-2x}(5x+3)^2}-\frac{71\sqrt{1-2x}(3x+2)^4}{1210(5x+3)^2}-\frac{2721\sqrt{1-2x}(3x+2)^3}{66550(5x+3)}+\frac{377748\sqrt{1-2x}(3x+2)^2}{831875}+\frac{63\sqrt{1-2x}(831375x+2492512)}{8318750}-\frac{33873\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{4159375\sqrt{55}}$$

```
[Out] (377748*Sqrt[1 - 2*x]*(2 + 3*x)^2)/831875 - (71*Sqrt[1 - 2*x]*(2
+ 3*x)^4)/(1210*(3 + 5*x)^2) + (7*(2 + 3*x)^5)/(11*Sqrt[1 - 2*x]*
(3 + 5*x)^2) - (2721*Sqrt[1 - 2*x]*(2 + 3*x)^3)/(66550*(3 + 5*x))
 + (63*Sqrt[1 - 2*x]*(2492512 + 831375*x))/8318750 - (33873*ArcTa
nh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(4159375*Sqrt[55])
```

Rubi [A] time = 0.286171, antiderivative size = 147, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$\frac{7(3x+2)^5}{11\sqrt{1-2x}(5x+3)^2}-\frac{71\sqrt{1-2x}(3x+2)^4}{1210(5x+3)^2}-\frac{2721\sqrt{1-2x}(3x+2)^3}{66550(5x+3)}+\frac{377748\sqrt{1-2x}(3x+2)^2}{831875}+\frac{63\sqrt{1-2x}(831375x+2492512)}{8318750}-\frac{33873\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{4159375\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^6/((1 - 2*x)^(3/2)*(3 + 5*x)^3),x]
```

```
[Out] (377748*Sqrt[1 - 2*x]*(2 + 3*x)^2)/831875 - (71*Sqrt[1 - 2*x]*(2
+ 3*x)^4)/(1210*(3 + 5*x)^2) + (7*(2 + 3*x)^5)/(11*Sqrt[1 - 2*x]*
(3 + 5*x)^2) - (2721*Sqrt[1 - 2*x]*(2 + 3*x)^3)/(66550*(3 + 5*x))
 + (63*Sqrt[1 - 2*x]*(2492512 + 831375*x))/8318750 - (33873*ArcTa
nh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(4159375*Sqrt[55])
```

Rubi in Sympy [A] time = 32.9209, size = 131, normalized size = 0.89

$$-\frac{71\sqrt{-2x+1}\,(3x+2)^4}{1210\,(5x+3)^2}-\frac{2721\sqrt{-2x+1}\,(3x+2)^3}{66550\,(5x+3)}+\frac{377748\sqrt{-2x+1}\,(3x+2)^2}{831875}+\frac{\sqrt{-2x+1}\,(785649375x+2355423840)}{124781250}-\frac{33873\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{228765625}+\frac{7\,(3x+2)^5}{11\sqrt{-2x+1}\,(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**6/(1-2*x)**(3/2)/(3+5*x)**3,x)
```

```
[Out] -71*sqrt(-2*x + 1)*(3*x + 2)**4/(1210*(5*x + 3)**2) - 2721*sqrt(-
2*x + 1)*(3*x + 2)**3/(66550*(5*x + 3)) + 377748*sqrt(-2*x + 1)*(
3*x + 2)**2/831875 + sqrt(-2*x + 1)*(785649375*x + 2355423840)/12
4781250 - 33873*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/228765
625 + 7*(3*x + 2)**5/(11*sqrt(-2*x + 1)*(5*x + 3)**2)
```

Mathematica [A] time = 0.21866, size = 73, normalized size = 0.5

$$\frac{-\frac{55\left(242574750x^5+1423105200x^4+5682717810x^3+762244410x^2-4150263077x-1702670584\right)}{\sqrt{1-2x}(5x+3)^2}-67746\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{457531250}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^6/((1 - 2*x)^(3/2)*(3 + 5*x)^3),x]
```

```
[Out] ((-55*(-1702670584 - 4150263077*x + 762244410*x^2 + 5682717810*x^
3 + 1423105200*x^4 + 242574750*x^5))/(Sqrt[1 - 2*x]*(3 + 5*x)^2)
- 67746*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/457531250
```

Maple [A] time = 0.02, size = 84, normalized size = 0.6

$$\frac{729}{5000}(1-2x)^{\frac{5}{2}}-\frac{8991}{5000}(1-2x)^{\frac{3}{2}}+\frac{333639}{25000}\sqrt{1-2x}+\frac{117649}{10648}\frac{1}{\sqrt{1-2x}}+\frac{2}{166375(-6-10x)^2}\left(\frac{403}{10}(1-2x)^{\frac{3}{2}}-\frac{891}{10}\sqrt{1-2x}\right)-\frac{33873\sqrt{55}}{228765625}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^6/(1-2*x)^(3/2)/(3+5*x)^3,x)
```

```
[Out] 729/5000*(1-2*x)^(5/2)-8991/5000*(1-2*x)^(3/2)+333639/25000*(1-2*
x)^(1/2)+117649/10648/(1-2*x)^(1/2)+2/166375*(403/10*(1-2*x)^(3/2
)-891/10*(1-2*x)^(1/2))/(-6-10*x)^2-33873/228765625*arctanh(1/11*
55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.51133, size = 149, normalized size = 1.01

$$\frac{729}{5000}(-2x+1)^{\frac{5}{2}}-\frac{8991}{5000}(-2x+1)^{\frac{3}{2}}+\frac{33873}{457531250}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{333639}{25000}\sqrt{-2x+1}+\frac{1838268849(2x-1)^2+16176751756x+808829747}{6655000\left(25(-2x+1)^{\frac{5}{2}}-110(-2x+1)^{\frac{3}{2}}+121\sqrt{-2x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^6/((5*x + 3)^3*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 729/5000*(-2*x + 1)^(5/2) - 8991/5000*(-2*x + 1)^(3/2) + 33873/45
7531250*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5
*sqrt(-2*x + 1))) + 333639/25000*sqrt(-2*x + 1) + 1/6655000*(1838
268849*(2*x - 1)^2 + 16176751756*x + 808829747)/(25*(-2*x + 1)^(5
/2) - 110*(-2*x + 1)^(3/2) + 121*sqrt(-2*x + 1))
```

Fricas [A] time = 0.239535, size = 138, normalized size = 0.94

$$\frac{\sqrt{55}\left(33873\left(25x^2+30x+9\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{-2x+1}}{5x+3}\right)-\sqrt{55}\left(242574750x^5+1423105200x^4+5682717810x^3+\right.\right.}{457531250\left(25x^2+30x+9\right)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^6/((5*x + 3)^3*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/457531250*sqrt(55)*(33873*(25*x^2 + 30*x + 9)*sqrt(-2*x + 1)*lo
g((sqrt(55)*(5*x - 8) + 55*sqrt(-2*x + 1))/(5*x + 3)) - sqrt(55)*
(242574750*x^5 + 1423105200*x^4 + 5682717810*x^3 + 762244410*x^2
- 4150263077*x - 1702670584))/((25*x^2 + 30*x + 9)*sqrt(-2*x + 1)
)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**6/(1-2*x)**(3/2)/(3+5*x)**3,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.232537, size = 150, normalized size = 1.02

$$\frac{729}{5000}(2x-1)^2\sqrt{-2x+1}-\frac{8991}{5000}(-2x+1)^{\frac{3}{2}}+\frac{33873}{457531250}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{333639}{25000}\sqrt{-2x+1}+\frac{117649}{10648\sqrt{-2x+1}}+\frac{403(-2x+1)^{\frac{3}{2}}-891\sqrt{-2x+1}}{3327500(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^6/((5*x + 3)^3*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 729/5000*(2*x - 1)^2*sqrt(-2*x + 1) - 8991/5000*(-2*x + 1)^(3/2)
+ 33873/457531250*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x
+ 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) + 333639/25000*sqrt(-2*x + 1
) + 117649/10648/sqrt(-2*x + 1) + 1/3327500*(403*(-2*x + 1)^(3/2)
 - 891*sqrt(-2*x + 1))/(5*x + 3)^2
```

3.2109 $\int \frac{(2+3x)^5}{(1-2x)^{3/2}(3+5x)^3}\,dx$

Optimal. Leaf size=127

$$\frac{7(3x+2)^4}{11\sqrt{1-2x}(5x+3)^2}-\frac{71\sqrt{1-2x}(3x+2)^3}{1210(5x+3)^2}-\frac{1344\sqrt{1-2x}(3x+2)^2}{33275(5x+3)}+\frac{441\sqrt{1-2x}(1125x+3344)}{332750}-\frac{4557\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{166375\sqrt{55}}$$

```
[Out] (-71*Sqrt[1 - 2*x]*(2 + 3*x)^3)/(1210*(3 + 5*x)^2) + (7*(2 + 3*x)
^4)/(11*Sqrt[1 - 2*x]*(3 + 5*x)^2) - (1344*Sqrt[1 - 2*x]*(2 + 3*x
)^2)/(33275*(3 + 5*x)) + (441*Sqrt[1 - 2*x]*(3344 + 1125*x))/3327
50 - (4557*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(166375*Sqrt[55])
```

Rubi [A] time = 0.224547, antiderivative size = 127, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{7(3x+2)^4}{11\sqrt{1-2x}(5x+3)^2}-\frac{71\sqrt{1-2x}(3x+2)^3}{1210(5x+3)^2}-\frac{1344\sqrt{1-2x}(3x+2)^2}{33275(5x+3)}+\frac{441\sqrt{1-2x}(1125x+3344)}{332750}-\frac{4557\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{166375\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In] Int[(2 + 3*x)^5/((1 - 2*x)^(3/2)*(3 + 5*x)^3),x]
```

```
[Out] (-71*Sqrt[1 - 2*x]*(2 + 3*x)^3)/(1210*(3 + 5*x)^2) + (7*(2 + 3*x)
^4)/(11*Sqrt[1 - 2*x]*(3 + 5*x)^2) - (1344*Sqrt[1 - 2*x]*(2 + 3*x
)^2)/(33275*(3 + 5*x)) + (441*Sqrt[1 - 2*x]*(3344 + 1125*x))/3327
50 - (4557*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(166375*Sqrt[55])
```

Rubi in Sympy [A] time = 25.2885, size = 112, normalized size = 0.88

$$-\frac{71\sqrt{-2x+1}\,(3x+2)^3}{1210\,(5x+3)^2}-\frac{1344\sqrt{-2x+1}\,(3x+2)^2}{33275\,(5x+3)}+\frac{\sqrt{-2x+1}\,(7441875x+22120560)}{4991250}-\frac{4557\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{9150625}+\frac{7\,(3x+2)^4}{11\sqrt{-2x+1}\,(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**5/(1-2*x)**(3/2)/(3+5*x)**3,x)
```

```
[Out] -71*sqrt(-2*x + 1)*(3*x + 2)**3/(1210*(5*x + 3)**2) - 1344*sqrt(-
2*x + 1)*(3*x + 2)**2/(33275*(5*x + 3)) + sqrt(-2*x + 1)*(7441875
*x + 22120560)/4991250 - 4557*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x +
 1)/11)/9150625 + 7*(3*x + 2)**4/(11*sqrt(-2*x + 1)*(5*x + 3)**2)
```

Mathematica [A] time = 0.191047, size = 68, normalized size = 0.54

$$\frac{-\frac{55\left(5390550x^4+42046290x^3-764310x^2-41668993x-16342856\right)}{\sqrt{1-2x}(5x+3)^2}-9114\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{18301250}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^5/((1 - 2*x)^(3/2)*(3 + 5*x)^3),x]
```

```
[Out] ((-55*(-16342856 - 41668993*x - 764310*x^2 + 42046290*x^3 + 53905
50*x^4))/(Sqrt[1 - 2*x]*(3 + 5*x)^2) - 9114*Sqrt[55]*ArcTanh[Sqrt
[5/11]*Sqrt[1 - 2*x]])/18301250
```

Maple [A] time = 0.02, size = 75, normalized size = 0.6

$$-\frac{81}{500}(1-2x)^{\frac{3}{2}}+\frac{1539}{625}\sqrt{1-2x}+\frac{16807}{5324}\frac{1}{\sqrt{1-2x}}+\frac{4}{33275(-6-10x)^2}\left(\frac{337}{20}(1-2x)^{\frac{3}{2}}-\frac{3729}{100}\sqrt{1-2x}\right)-\frac{4557\sqrt{55}}{9150625}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^5/(1-2*x)^(3/2)/(3+5*x)^3,x)
```

```
[Out] -81/500*(1-2*x)^(3/2)+1539/625*(1-2*x)^(1/2)+16807/5324/(1-2*x)^(
1/2)+4/33275*(337/20*(1-2*x)^(3/2)-3729/100*(1-2*x)^(1/2))/(-6-10
*x)^2-4557/9150625*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.51364, size = 136, normalized size = 1.07

$$-\frac{81}{500}(-2x+1)^{\frac{3}{2}}+\frac{4557}{18301250}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{1539}{625}\sqrt{-2x+1}+\frac{262616115(2x-1)^2+2310992332x+115533209}{3327500\left(25(-2x+1)^{\frac{5}{2}}-110(-2x+1)^{\frac{3}{2}}+121\sqrt{-2x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/((5*x + 3)^3*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] -81/500*(-2*x + 1)^(3/2) + 4557/18301250*sqrt(55)*log(-(sqrt(55)
- 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) + 1539/625*sqr
t(-2*x + 1) + 1/3327500*(262616115*(2*x - 1)^2 + 2310992332*x + 1
15533209)/(25*(-2*x + 1)^(5/2) - 110*(-2*x + 1)^(3/2) + 121*sqrt(
-2*x + 1))
```

Fricas [A] time = 0.249558, size = 131, normalized size = 1.03

$$\frac{\sqrt{55}\left(4557\left(25x^2+30x+9\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{-2x+1}}{5x+3}\right)-\sqrt{55}\left(5390550x^4+42046290x^3-764310x^2-41668993\right.\right.}{18301250\left(25x^2+30x+9\right)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/((5*x + 3)^3*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/18301250*sqrt(55)*(4557*(25*x^2 + 30*x + 9)*sqrt(-2*x + 1)*log(
(sqrt(55)*(5*x - 8) + 55*sqrt(-2*x + 1))/(5*x + 3)) - sqrt(55)*(5
390550*x^4 + 42046290*x^3 - 764310*x^2 - 41668993*x - 16342856))/
((25*x^2 + 30*x + 9)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**5/(1-2*x)**(3/2)/(3+5*x)**3,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.221981, size = 128, normalized size = 1.01

$$-\frac{81}{500}\left(-2x+1\right)^{\frac{3}{2}}+\frac{4557}{18301250}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{1539}{625}\sqrt{-2x+1}+\frac{16807}{5324\sqrt{-2x+1}}+\frac{1685\left(-2x+1\right)^{\frac{3}{2}}-3729\sqrt{-2x+1}}{3327500\left(5x+3\right)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/((5*x + 3)^3*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] -81/500*(-2*x + 1)^(3/2) + 4557/18301250*sqrt(55)*ln(1/2*abs(-2*s
qrt(55) + 10*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) + 153
9/625*sqrt(-2*x + 1) + 16807/5324/sqrt(-2*x + 1) + 1/3327500*(168
5*(-2*x + 1)^(3/2) - 3729*sqrt(-2*x + 1))/(5*x + 3)^2
```

3.2110 $\int \frac{(2+3x)^4}{(1-2x)^{3/2}(3+5x)^3} dx$

Optimal. Leaf size=107

$$\frac{7(3x+2)^3}{11\sqrt{1-2x}(5x+3)^2}-\frac{71\sqrt{1-2x}(3x+2)^2}{1210(5x+3)^2}+\frac{9\sqrt{1-2x}(5093x+3044)}{13310(5x+3)}-\frac{111\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1331\sqrt{55}}$$

```
[Out] (-71*Sqrt[1 - 2*x]*(2 + 3*x)^2)/(1210*(3 + 5*x)^2) + (7*(2 + 3*x)
^3)/(11*Sqrt[1 - 2*x]*(3 + 5*x)^2) + (9*Sqrt[1 - 2*x]*(3044 + 509
3*x))/(13310*(3 + 5*x)) - (111*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])
/(1331*Sqrt[55])
```

Rubi [A] time = 0.172062, antiderivative size = 107, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{7(3x+2)^3}{11\sqrt{1-2x}(5x+3)^2}-\frac{71\sqrt{1-2x}(3x+2)^2}{1210(5x+3)^2}+\frac{9\sqrt{1-2x}(5093x+3044)}{13310(5x+3)}-\frac{111\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1331\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In] Int[(2 + 3*x)^4/((1 - 2*x)^(3/2)*(3 + 5*x)^3),x]
```

```
[Out] (-71*Sqrt[1 - 2*x]*(2 + 3*x)^2)/(1210*(3 + 5*x)^2) + (7*(2 + 3*x)
^3)/(11*Sqrt[1 - 2*x]*(3 + 5*x)^2) + (9*Sqrt[1 - 2*x]*(3044 + 509
3*x))/(13310*(3 + 5*x)) - (111*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])
/(1331*Sqrt[55])
```

Rubi in Sympy [A] time = 19.1288, size = 94, normalized size = 0.88

$$-\frac{71\sqrt{-2x+1}\,(3x+2)^2}{1210\,(5x+3)^2}+\frac{\sqrt{-2x+1}\,(1145925x+684900)}{332750\,(5x+3)}-\frac{111\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{73205}+\frac{7\,(3x+2)^3}{11\sqrt{-2x+1}\,(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**4/(1-2*x)**(3/2)/(3+5*x)**3,x)
```

```
[Out] -71*sqrt(-2*x + 1)*(3*x + 2)**2/(1210*(5*x + 3)**2) + sqrt(-2*x +
 1)*(1145925*x + 684900)/(332750*(5*x + 3)) - 111*sqrt(55)*atanh(
sqrt(55)*sqrt(-2*x + 1)/11)/73205 + 7*(3*x + 2)**3/(11*sqrt(-2*x
+ 1)*(5*x + 3)**2)
```

Mathematica [A] time = 0.186293, size = 63, normalized size = 0.59

$$\frac{\frac{11(-215622x^3+149298x^2+411911x+146824)}{\sqrt{1-2x}(5x+3)^2}-222\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{146410}$$

Antiderivative was successfully verified.

```
[In] Integrate[(2 + 3*x)^4/((1 - 2*x)^(3/2)*(3 + 5*x)^3),x]
```

```
[Out] ((11*(146824 + 411911*x + 149298*x^2 - 215622*x^3))/(Sqrt[1 - 2*x
]*(3 + 5*x)^2) - 222*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/
146410
```

Maple [A] time = 0.02, size = 66, normalized size = 0.6

$$\frac{81}{250}\sqrt{1-2x}+\frac{2401}{2662}\frac{1}{\sqrt{1-2x}}+\frac{4}{6655\,(-6-10\,x)^2}\left(\frac{271}{20}\,(1-2\,x)^{\frac{3}{2}}-\frac{3003}{100}\sqrt{1-2\,x}\right)-\frac{111\,\sqrt{55}}{73205}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((2+3*x)^4/(1-2*x)^(3/2)/(3+5*x)^3,x)
```

```
[Out] 81/250*(1-2*x)^(1/2)+2401/2662/(1-2*x)^(1/2)+4/6655*(271/20*(1-2*
x)^(3/2)-3003/100*(1-2*x)^(1/2))/(-6-10*x)^2-111/73205*arctanh(1/
11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.50872, size = 124, normalized size = 1.16

$$\frac{111}{146410}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{81}{250}\sqrt{-2x+1}+\frac{7505835\,(2\,x-1)^2+66039512\,x+3295369}{332750\left(25\,(-2\,x+1)^{\frac{5}{2}}-110\,(-2\,x+1)^{\frac{3}{2}}+121\,\sqrt{-2\,x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^4/((5*x + 3)^3*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 111/146410*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55)
+ 5*sqrt(-2*x + 1))) + 81/250*sqrt(-2*x + 1) + 1/332750*(7505835*
(2*x - 1)^2 + 66039512*x + 3295369)/(25*(-2*x + 1)^(5/2) - 110*(-
2*x + 1)^(3/2) + 121*sqrt(-2*x + 1))
```

Fricas [A] time = 0.224368, size = 124, normalized size = 1.16

$$\frac{\sqrt{55}\left(555\,(25\,x^2+30\,x+9)\sqrt{-2\,x+1}\log\left(\frac{\sqrt{55}(5\,x-8)+55\,\sqrt{-2\,x+1}}{5\,x+3}\right)-\sqrt{55}\left(215622\,x^3-149298\,x^2-411911\,x-146824\right)\right)}{732050\,(25\,x^2+30\,x+9)\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^4/((5*x + 3)^3*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/732050*sqrt(55)*(555*(25*x^2 + 30*x + 9)*sqrt(-2*x + 1)*log((sq
rt(55)*(5*x - 8) + 55*sqrt(-2*x + 1))/(5*x + 3)) - sqrt(55)*(2156
22*x^3 - 149298*x^2 - 411911*x - 146824))/((25*x^2 + 30*x + 9)*sq
rt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4/(1-2*x)**(3/2)/(3+5*x)**3,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.21966, size = 116, normalized size = 1.08

$$\frac{111}{146410}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{81}{250}\sqrt{-2x+1}+\frac{2401}{2662\sqrt{-2x+1}}+\frac{1355(-2x+1)^{\frac{3}{2}}-3003\sqrt{-2x+1}}{665500(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4/((5*x + 3)^3*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 111/146410*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(
sqrt(55) + 5*sqrt(-2*x + 1))) + 81/250*sqrt(-2*x + 1) + 2401/2662
/sqrt(-2*x + 1) + 1/665500*(1355*(-2*x + 1)^(3/2) - 3003*sqrt(-2*
x + 1))/(5*x + 3)^2
```

3.2111 $\int \frac{(2+3x)^3}{(1-2x)^{3/2}(3+5x)^3}\,dx$

Optimal. Leaf size=80

$$\frac{7(3x+2)^2}{11\sqrt{1-2x}(5x+3)^2}-\frac{\sqrt{1-2x}(24825x+15676)}{66550(5x+3)^2}-\frac{7143\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{33275\sqrt{55}}$$

```
[Out] (7*(2 + 3*x)^2)/(11*Sqrt[1 - 2*x]*(3 + 5*x)^2) - (Sqrt[1 - 2*x]*(
15676 + 24825*x))/(66550*(3 + 5*x)^2) - (7143*ArcTanh[Sqrt[5/11]*
Sqrt[1 - 2*x]])/(33275*Sqrt[55])
```

Rubi [A] time = 0.110009, antiderivative size = 80, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$\frac{7(3x+2)^2}{11\sqrt{1-2x}(5x+3)^2}-\frac{\sqrt{1-2x}(24825x+15676)}{66550(5x+3)^2}-\frac{7143\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{33275\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In] Int[(2 + 3*x)^3/((1 - 2*x)^(3/2)*(3 + 5*x)^3),x]
```

```
[Out] (7*(2 + 3*x)^2)/(11*Sqrt[1 - 2*x]*(3 + 5*x)^2) - (Sqrt[1 - 2*x]*(
15676 + 24825*x))/(66550*(3 + 5*x)^2) - (7143*ArcTanh[Sqrt[5/11]*
Sqrt[1 - 2*x]])/(33275*Sqrt[55])
```

Rubi in Sympy [A] time = 11.8903, size = 71, normalized size = 0.89

$$-\frac{\sqrt{-2x+1}\,(24825x+15676)}{66550\,(5x+3)^2}-\frac{7143\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{1830125}+\frac{7\,(3x+2)^2}{11\sqrt{-2x+1}\,(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**3/(1-2*x)**(3/2)/(3+5*x)**3,x)
```

```
[Out] -sqrt(-2*x + 1)*(24825*x + 15676)/(66550*(5*x + 3)**2) - 7143*sqr
t(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/1830125 + 7*(3*x + 2)**2/
(11*sqrt(-2*x + 1)*(5*x + 3)**2)
```

Mathematica [A] time = 0.127547, size = 58, normalized size = 0.72

$$\frac{\frac{55(430800x^2+514727x+153724)}{\sqrt{1-2x}(5x+3)^2}-14286\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{3660250}$$

Antiderivative was successfully verified.

```
[In] Integrate[(2 + 3*x)^3/((1 - 2*x)^(3/2)*(3 + 5*x)^3),x]
```

```
[Out] ((55*(153724 + 514727*x + 430800*x^2))/(Sqrt[1 - 2*x]*(3 + 5*x)^2
) - 14286*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/3660250
```

Maple [A] time = 0.02, size = 57, normalized size = 0.7

$$\frac{343}{1331}\frac{1}{\sqrt{1-2x}}+\frac{50}{1331\,(-6-10\,x)^{2}}\left(\frac{41}{50}\,(1-2\,x)^{\frac{3}{2}}-\frac{2277}{1250}\sqrt{1-2\,x}\right)-\frac{7143\,\sqrt{55}}{1830125}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3/(1-2*x)^(3/2)/(3+5*x)^3,x)
```

```
[Out] 343/1331/(1-2*x)^(1/2)+50/1331*(41/50*(1-2*x)^(3/2)-2277/1250*(1-
2*x)^(1/2))/(-6-10*x)^2-7143/1830125*arctanh(1/11*55^(1/2)*(1-2*x
)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.50857, size = 112, normalized size = 1.4

$$\frac{7143}{3660250}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\,\sqrt{-2\,x+1}}{\sqrt{55}+5\,\sqrt{-2\,x+1}}\right)+\frac{2\,\left(107700\,(2\,x-1)^{2}+945527\,x+46024\right)}{33275\,\left(25\,(-2\,x+1)^{\frac{5}{2}}-110\,(-2\,x+1)^{\frac{3}{2}}+121\,\sqrt{-2\,x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^3/((5*x + 3)^3*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 7143/3660250*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55
) + 5*sqrt(-2*x + 1))) + 2/33275*(107700*(2*x - 1)^2 + 945527*x +
 46024)/(25*(-2*x + 1)^(5/2) - 110*(-2*x + 1)^(3/2) + 121*sqrt(-2
*x + 1))
```

Fricas [A] time = 0.222368, size = 116, normalized size = 1.45

$$\frac{\sqrt{55}\left(7143\,(25\,x^{2}+30\,x+9)\,\sqrt{-2\,x+1}\log\left(\frac{\sqrt{55}(5\,x-8)+55\,\sqrt{-2\,x+1}}{5\,x+3}\right)+\sqrt{55}\left(430800\,x^{2}+514727\,x+153724\right)\right)}{3660250\,(25\,x^{2}+30\,x+9)\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^3/((5*x + 3)^3*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/3660250*sqrt(55)*(7143*(25*x^2 + 30*x + 9)*sqrt(-2*x + 1)*log((
sqrt(55)*(5*x - 8) + 55*sqrt(-2*x + 1))/(5*x + 3)) + sqrt(55)*(43
0800*x^2 + 514727*x + 153724))/((25*x^2 + 30*x + 9)*sqrt(-2*x + 1
))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3/(1-2*x)**(3/2)/(3+5*x)**3,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.22034, size = 104, normalized size = 1.3

$$\frac{7143}{3660250}\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)+\frac{343}{1331\,\sqrt{-2\,x+1}}+\frac{1025\,(-2\,x+1)^{\frac{3}{2}}-2277\,\sqrt{-2\,x+1}}{133100\,(5\,x+3)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3/((5*x + 3)^3*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 7143/3660250*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))
/(sqrt(55) + 5*sqrt(-2*x + 1))) + 343/1331/sqrt(-2*x + 1) + 1/133
100*(1025*(-2*x + 1)^(3/2) - 2277*sqrt(-2*x + 1))/(5*x + 3)^2
```

3.2112 $\int \frac{(2+3x)^2}{(1-2x)^{3/2}(3+5x)^3}\,dx$

Optimal. Leaf size=88

$$-\frac{2589\sqrt{1-2x}}{13310(5x+3)}-\frac{613\sqrt{1-2x}}{605(5x+3)^2}+\frac{49}{22\sqrt{1-2x}(5x+3)^2}-\frac{2589\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{6655\sqrt{55}}$$

```
[Out] 49/(22*Sqrt[1 - 2*x]*(3 + 5*x)^2) - (613*Sqrt[1 - 2*x])/(605*(3 +
 5*x)^2) - (2589*Sqrt[1 - 2*x])/(13310*(3 + 5*x)) - (2589*ArcTanh
[Sqrt[5/11]*Sqrt[1 - 2*x]])/(6655*Sqrt[55])
```

Rubi [A] time = 0.113158, antiderivative size = 88, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$-\frac{2589\sqrt{1-2x}}{13310(5x+3)}-\frac{613\sqrt{1-2x}}{605(5x+3)^2}+\frac{49}{22\sqrt{1-2x}(5x+3)^2}-\frac{2589\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{6655\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^2/((1 - 2*x)^(3/2)*(3 + 5*x)^3),x]
```

```
[Out] 49/(22*Sqrt[1 - 2*x]*(3 + 5*x)^2) - (613*Sqrt[1 - 2*x])/(605*(3 +
 5*x)^2) - (2589*Sqrt[1 - 2*x])/(13310*(3 + 5*x)) - (2589*ArcTanh
[Sqrt[5/11]*Sqrt[1 - 2*x]])/(6655*Sqrt[55])
```

Rubi in Sympy [A] time = 9.76342, size = 71, normalized size = 0.81

$$-\frac{2589\sqrt{55}\,\mathrm{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{366025}+\frac{2589}{33275\sqrt{-2x+1}}-\frac{137}{6050\sqrt{-2x+1}\,(5x+3)}-\frac{1}{550\sqrt{-2x+1}\,(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2/(1-2*x)**(3/2)/(3+5*x)**3,x)
```

```
[Out] -2589*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/366025 + 2589/(3
3275*sqrt(-2*x + 1)) - 137/(6050*sqrt(-2*x + 1)*(5*x + 3)) - 1/(5
50*sqrt(-2*x + 1)*(5*x + 3)**2)
```

Mathematica [A] time = 0.129668, size = 58, normalized size = 0.66

$$\frac{\frac{55(25890x^2+29561x+8392)}{\sqrt{1-2x}(5x+3)^2}-5178\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{732050}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^2/((1 - 2*x)^(3/2)*(3 + 5*x)^3),x]
```

```
[Out] ((55*(8392 + 29561*x + 25890*x^2))/(Sqrt[1 - 2*x]*(3 + 5*x)^2) -
5178*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/732050
```

Maple [A] time = 0.019, size = 57, normalized size = 0.7

$$\frac{98}{1331}\frac{1}{\sqrt{1-2x}}+\frac{50}{1331\left(-6-10x\right)^{2}}\left(\frac{139}{50}\left(1-2x\right)^{\frac{3}{2}}-\frac{1551}{250}\sqrt{1-2x}\right)-\frac{2589\sqrt{55}}{366025}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2/(1-2*x)^(3/2)/(3+5*x)^3,x)
```

```
[Out] 98/1331/(1-2*x)^(1/2)+50/1331*(139/50*(1-2*x)^(3/2)-1551/250*(1-2
*x)^(1/2))/(-6-10*x)^2-2589/366025*arctanh(1/11*55^(1/2)*(1-2*x)^
(1/2))*55^(1/2)
```

Maxima [A] time = 1.49349, size = 112, normalized size = 1.27

$$\frac{2589}{732050}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{12945\left(2x-1\right)^{2}+110902x+3839}{6655\left(25\left(-2x+1\right)^{\frac{5}{2}}-110\left(-2x+1\right)^{\frac{3}{2}}+121\sqrt{-2x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2/((5*x + 3)^3*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 2589/732050*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55)
 + 5*sqrt(-2*x + 1))) + 1/6655*(12945*(2*x - 1)^2 + 110902*x + 38
39)/(25*(-2*x + 1)^(5/2) - 110*(-2*x + 1)^(3/2) + 121*sqrt(-2*x +
 1))
```

Fricas [A] time = 0.224875, size = 116, normalized size = 1.32

$$\frac{\sqrt{55}\left(2589\left(25x^{2}+30x+9\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{-2x+1}}{5x+3}\right)+\sqrt{55}\left(25890x^{2}+29561x+8392\right)\right)}{732050\left(25x^{2}+30x+9\right)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2/((5*x + 3)^3*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/732050*sqrt(55)*(2589*(25*x^2 + 30*x + 9)*sqrt(-2*x + 1)*log((s
qrt(55)*(5*x - 8) + 55*sqrt(-2*x + 1))/(5*x + 3)) + sqrt(55)*(258
90*x^2 + 29561*x + 8392))/((25*x^2 + 30*x + 9)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2/(1-2*x)**(3/2)/(3+5*x)**3,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.244751, size = 104, normalized size = 1.18

$$\frac{2589}{732050}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{98}{1331\sqrt{-2x+1}}+\frac{695\left(-2x+1\right)^{\frac{3}{2}}-1551\sqrt{-2x+1}}{26620\left(5x+3\right)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2/((5*x + 3)^3*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 2589/732050*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/
(sqrt(55) + 5*sqrt(-2*x + 1))) + 98/1331/sqrt(-2*x + 1) + 1/26620
*(695*(-2*x + 1)^(3/2) - 1551*sqrt(-2*x + 1))/(5*x + 3)^2
```

3.2113 $\int \frac{2+3x}{(1-2x)^{3/2}(3+5x)^3}\,dx$

Optimal. Leaf size=88

$$-\frac{213\sqrt{1-2x}}{2662(5x+3)}+\frac{71}{605\sqrt{1-2x}(5x+3)}-\frac{1}{110\sqrt{1-2x}(5x+3)^2}-\frac{213\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1331\sqrt{55}}$$

```
[Out] -1/(110*Sqrt[1 - 2*x]*(3 + 5*x)^2) + 71/(605*Sqrt[1 - 2*x]*(3 + 5
*x)) - (213*Sqrt[1 - 2*x])/(2662*(3 + 5*x)) - (213*ArcTanh[Sqrt[5
/11]*Sqrt[1 - 2*x]])/(1331*Sqrt[55])
```

Rubi [A] time = 0.092413, antiderivative size = 88, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{213\sqrt{1-2x}}{2662(5x+3)}+\frac{71}{605\sqrt{1-2x}(5x+3)}-\frac{1}{110\sqrt{1-2x}(5x+3)^2}-\frac{213\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1331\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)/((1 - 2*x)^(3/2)*(3 + 5*x)^3),x]
```

```
[Out] -1/(110*Sqrt[1 - 2*x]*(3 + 5*x)^2) + 71/(605*Sqrt[1 - 2*x]*(3 + 5
*x)) - (213*Sqrt[1 - 2*x])/(2662*(3 + 5*x)) - (213*ArcTanh[Sqrt[5
/11]*Sqrt[1 - 2*x]])/(1331*Sqrt[55])
```

Rubi in Sympy [A] time = 8.53077, size = 71, normalized size = 0.81

$$-\frac{213\sqrt{55}\,\mathrm{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{73205}+\frac{213}{6655\sqrt{-2x+1}}-\frac{71}{1210\sqrt{-2x+1}\,(5x+3)}-\frac{1}{110\sqrt{-2x+1}\,(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)/(1-2*x)**(3/2)/(3+5*x)**3,x)
```

```
[Out] -213*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/73205 + 213/(6655
*sqrt(-2*x + 1)) - 71/(1210*sqrt(-2*x + 1)*(5*x + 3)) - 1/(110*sq
rt(-2*x + 1)*(5*x + 3)**2)
```

Mathematica [A] time = 0.131311, size = 58, normalized size = 0.66

$$\frac{\frac{55(2130x^2+1775x+274)}{\sqrt{1-2x}(5x+3)^2}-426\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{146410}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)/((1 - 2*x)^(3/2)*(3 + 5*x)^3),x]
```

```
[Out] ((55*(274 + 1775*x + 2130*x^2))/(Sqrt[1 - 2*x]*(3 + 5*x)^2) - 426
*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/146410
```

Maple [A] time = 0.017, size = 57, normalized size = 0.7

$$\frac{28}{1331}\frac{1}{\sqrt{1-2x}}+\frac{100}{1331\,(-6-10\,x)^2}\left(\frac{73}{20}\,(1-2\,x)^{\frac{3}{2}}-\frac{33}{4}\sqrt{1-2\,x}\right)-\frac{213\sqrt{55}}{73205}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)/(1-2*x)^(3/2)/(3+5*x)^3,x)
```

```
[Out] 28/1331/(1-2*x)^(1/2)+100/1331*(73/20*(1-2*x)^(3/2)-33/4*(1-2*x)^
(1/2))/(-6-10*x)^2-213/73205*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))
*55^(1/2)
```

Maxima [A] time = 1.4936, size = 112, normalized size = 1.27

$$\frac{213}{146410}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2\,x+1}}{\sqrt{55}+5\sqrt{-2\,x+1}}\right)+\frac{1065\,(2\,x-1)^2+7810\,x-517}{1331\left(25\,(-2\,x+1)^{\frac{5}{2}}-110\,(-2\,x+1)^{\frac{3}{2}}+121\sqrt{-2\,x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)/((5*x + 3)^3*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 213/146410*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55)
+ 5*sqrt(-2*x + 1))) + 1/1331*(1065*(2*x - 1)^2 + 7810*x - 517)/(
25*(-2*x + 1)^(5/2) - 110*(-2*x + 1)^(3/2) + 121*sqrt(-2*x + 1))
```

Fricas [A] time = 0.220922, size = 116, normalized size = 1.32

$$\frac{\sqrt{55}\left(213\,(25\,x^2+30\,x+9)\sqrt{-2\,x+1}\log\left(\frac{\sqrt{55}(5\,x-8)+55\sqrt{-2\,x+1}}{5\,x+3}\right)+\sqrt{55}(2130\,x^2+1775\,x+274)\right)}{146410\,(25\,x^2+30\,x+9)\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)/((5*x + 3)^3*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/146410*sqrt(55)*(213*(25*x^2 + 30*x + 9)*sqrt(-2*x + 1)*log((sq
rt(55)*(5*x - 8) + 55*sqrt(-2*x + 1))/(5*x + 3)) + sqrt(55)*(2130
*x^2 + 1775*x + 274))/((25*x^2 + 30*x + 9)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)/(1-2*x)**(3/2)/(3+5*x)**3,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.222317, size = 104, normalized size = 1.18

$$\frac{213}{146410}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2\,x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2\,x+1}\right)}\right)+\frac{28}{1331\sqrt{-2\,x+1}}+\frac{5\left(73\,(-2\,x+1)^{\frac{3}{2}}-165\sqrt{-2\,x+1}\right)}{5324\,(5\,x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)/((5*x + 3)^3*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 213/146410*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(
sqrt(55) + 5*sqrt(-2*x + 1))) + 28/1331/sqrt(-2*x + 1) + 5/5324*(
73*(-2*x + 1)^(3/2) - 165*sqrt(-2*x + 1))/(5*x + 3)^2
```

3.2114 $\int \frac{1}{(1-2x)^{3/2}(3+5x)^3} \, dx$

Optimal. Leaf size=90

$$-\frac{75\sqrt{1-2x}}{2662(5x+3)}-\frac{25\sqrt{1-2x}}{242(5x+3)^2}+\frac{2}{11\sqrt{1-2x}(5x+3)^2}-\frac{15\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1331}$$

```
[Out] 2/(11*Sqrt[1 - 2*x]*(3 + 5*x)^2) - (25*Sqrt[1 - 2*x])/(242*(3 + 5
*x)^2) - (75*Sqrt[1 - 2*x])/(2662*(3 + 5*x)) - (15*Sqrt[5/11]*Arc
Tanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/1331
```

Rubi [A] time = 0.0799638, antiderivative size = 90, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 17, $\frac{\text{number of rules}}{\text{integrand size}} = 0.176$

$$-\frac{75\sqrt{1-2x}}{2662(5x+3)}-\frac{25\sqrt{1-2x}}{242(5x+3)^2}+\frac{2}{11\sqrt{1-2x}(5x+3)^2}-\frac{15\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1331}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(3/2)*(3 + 5*x)^3),x]
```

```
[Out] 2/(11*Sqrt[1 - 2*x]*(3 + 5*x)^2) - (25*Sqrt[1 - 2*x])/(242*(3 + 5
*x)^2) - (75*Sqrt[1 - 2*x])/(2662*(3 + 5*x)) - (15*Sqrt[5/11]*Arc
Tanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/1331
```

Rubi in Sympy [A] time = 7.76296, size = 76, normalized size = 0.84

$$-\frac{75\sqrt{-2x+1}}{2662\,(5x+3)}-\frac{25\sqrt{-2x+1}}{242\,(5x+3)^2}-\frac{15\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{14641}+\frac{2}{11\sqrt{-2x+1}\,(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(3/2)/(3+5*x)**3,x)
```

```
[Out] -75*sqrt(-2*x + 1)/(2662*(5*x + 3)) - 25*sqrt(-2*x + 1)/(242*(5*x
 + 3)**2) - 15*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/14641 +
 2/(11*sqrt(-2*x + 1)*(5*x + 3)**2)
```

Mathematica [A] time = 0.113239, size = 58, normalized size = 0.64

$$\frac{\frac{11(750x^2+625x-16)}{\sqrt{1-2x}(5x+3)^2}-30\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{29282}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(3/2)*(3 + 5*x)^3),x]
```

```
[Out] ((11*(-16 + 625*x + 750*x^2))/(Sqrt[1 - 2*x]*(3 + 5*x)^2) - 30*Sq
rt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/29282
```

Maple [A] time = 0.017, size = 57, normalized size = 0.6

$$\frac{8}{1331}\frac{1}{\sqrt{1-2x}}+\frac{1000}{1331\,(-6-10\,x)^2}\left(\frac{7}{40}(1-2\,x)^{\frac{3}{2}}-\frac{99}{200}\sqrt{1-2\,x}\right)-\frac{15\sqrt{55}}{14641}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2\,x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(3/2)/(3+5*x)^3,x)
```

```
[Out] 8/1331/(1-2*x)^(1/2)+1000/1331*(7/40*(1-2*x)^(3/2)-99/200*(1-2*x)
^(1/2))/(-6-10*x)^2-15/14641*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))
*55^(1/2)
```

Maxima [A] time = 1.49476, size = 112, normalized size = 1.24

$$\frac{15}{29282}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2\,x+1}}{\sqrt{55}+5\sqrt{-2\,x+1}}\right)+\frac{375\,(2\,x-1)^2+2750\,x-407}{1331\left(25\,(-2\,x+1)^{\frac{5}{2}}-110\,(-2\,x+1)^{\frac{3}{2}}+121\sqrt{-2\,x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^3*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 15/29282*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) +
5*sqrt(-2*x + 1))) + 1/1331*(375*(2*x - 1)^2 + 2750*x - 407)/(25*
(-2*x + 1)^(5/2) - 110*(-2*x + 1)^(3/2) + 121*sqrt(-2*x + 1))
```

Fricas [A] time = 0.22237, size = 124, normalized size = 1.38

$$\frac{\sqrt{11}\left(15\sqrt{5}\left(25\,x^2+30\,x+9\right)\sqrt{-2\,x+1}\log\left(\frac{\sqrt{11}(5\,x-8)+11\sqrt{5}\sqrt{-2\,x+1}}{5\,x+3}\right)+\sqrt{11}\left(750\,x^2+625\,x-16\right)\right)}{29282\,(25\,x^2+30\,x+9)\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^3*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/29282*sqrt(11)*(15*sqrt(5)*(25*x^2 + 30*x + 9)*sqrt(-2*x + 1)*l
og((sqrt(11)*(5*x - 8) + 11*sqrt(5)*sqrt(-2*x + 1))/(5*x + 3)) +
sqrt(11)*(750*x^2 + 625*x - 16))/((25*x^2 + 30*x + 9)*sqrt(-2*x +
 1))
```

Sympy [A] time = 6.83444, size = 233, normalized size = 2.59

$$\begin{cases} -\frac{15\sqrt{55}\operatorname{acosh}\left(\frac{\sqrt{110}}{10\sqrt{x+\frac{3}{5}}}\right)}{14641}+\frac{15\sqrt{2}}{2662\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}\sqrt{x+\frac{3}{5}}}-\frac{\sqrt{2}}{484\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}-\frac{\sqrt{2}}{1100\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)^{\frac{5}{2}}} & \text{for}\ \frac{11\left|\frac{1}{x+\frac{3}{5}}\right|}{10}>1 \\ \frac{15\sqrt{55}i\operatorname{asin}\left(\frac{\sqrt{110}}{10\sqrt{x+\frac{3}{5}}}\right)}{14641}-\frac{15\sqrt{2}i}{2662\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}\sqrt{x+\frac{3}{5}}}+\frac{\sqrt{2}i}{484\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}+\frac{\sqrt{2}i}{1100\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)^{\frac{5}{2}}} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(3/2)/(3+5*x)**3,x)
```

```
[Out] Piecewise((-15*sqrt(55)*acosh(sqrt(110)/(10*sqrt(x + 3/5)))/14641
 + 15*sqrt(2)/(2662*sqrt(-1 + 11/(10*(x + 3/5)))*sqrt(x + 3/5)) -
```

```
 sqrt(2)/(484*sqrt(-1 + 11/(10*(x + 3/5)))*(x + 3/5)**(3/2)) - sq
rt(2)/(1100*sqrt(-1 + 11/(10*(x + 3/5)))*(x + 3/5)**(5/2)), 11*Ab
s(1/(x + 3/5))/10 > 1), (15*sqrt(55)*I*asin(sqrt(110)/(10*sqrt(x
+ 3/5)))/14641 - 15*sqrt(2)*I/(2662*sqrt(1 - 11/(10*(x + 3/5)))*s
qrt(x + 3/5)) + sqrt(2)*I/(484*sqrt(1 - 11/(10*(x + 3/5)))*(x + 3
/5)**(3/2)) + sqrt(2)*I/(1100*sqrt(1 - 11/(10*(x + 3/5)))*(x + 3/
5)**(5/2)), True))
```

GIAC/XCAS [A] time = 0.222277, size = 104, normalized size = 1.16

$$\frac{15}{29282}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{8}{1331\sqrt{-2x+1}}+\frac{5\left(35(-2x+1)^{\frac{3}{2}}-99\sqrt{-2x+1}\right)}{5324(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^3*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 15/29282*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sq
rt(55) + 5*sqrt(-2*x + 1))) + 8/1331/sqrt(-2*x + 1) + 5/5324*(35*
(-2*x + 1)^(3/2) - 99*sqrt(-2*x + 1))/(5*x + 3)^2
```

3.2115 $\int \frac{1}{(1-2x)^{3/2}(2+3x)(3+5x)^3} \, dx$

Optimal. Leaf size=112

$$-\frac{2049}{9317\sqrt{1-2x}}+\frac{305}{242\sqrt{1-2x}(5x+3)}-\frac{5}{22\sqrt{1-2x}(5x+3)^2}+\frac{54}{7}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{9975\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1331}$$

```
[Out] -2049/(9317*Sqrt[1 - 2*x]) - 5/(22*Sqrt[1 - 2*x]*(3 + 5*x)^2) + 3
05/(242*Sqrt[1 - 2*x]*(3 + 5*x)) + (54*Sqrt[3/7]*ArcTanh[Sqrt[3/7
]*Sqrt[1 - 2*x]])/7 - (9975*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1
- 2*x]])/1331
```

Rubi [A] time = 0.280695, antiderivative size = 112, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$-\frac{2049}{9317\sqrt{1-2x}}+\frac{305}{242\sqrt{1-2x}(5x+3)}-\frac{5}{22\sqrt{1-2x}(5x+3)^2}+\frac{54}{7}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{9975\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1331}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(3/2)*(2 + 3*x)*(3 + 5*x)^3),x]
```

```
[Out] -2049/(9317*Sqrt[1 - 2*x]) - 5/(22*Sqrt[1 - 2*x]*(3 + 5*x)^2) + 3
05/(242*Sqrt[1 - 2*x]*(3 + 5*x)) + (54*Sqrt[3/7]*ArcTanh[Sqrt[3/7
]*Sqrt[1 - 2*x]])/7 - (9975*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1
- 2*x]])/1331
```

Rubi in Sympy [A] time = 27.9507, size = 97, normalized size = 0.87

$$\frac{54\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{49}-\frac{9975\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{14641}-\frac{2049}{9317\sqrt{-2x+1}}+\frac{305}{242\sqrt{-2x+1}\,(5x+3)}-\frac{5}{22\sqrt{-2x+1}\,(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(3/2)/(2+3*x)/(3+5*x)**3,x)
```

```
[Out] 54*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/49 - 9975*sqrt(55)*a
tanh(sqrt(55)*sqrt(-2*x + 1)/11)/14641 - 2049/(9317*sqrt(-2*x + 1
)) + 305/(242*sqrt(-2*x + 1)*(5*x + 3)) - 5/(22*sqrt(-2*x + 1)*(5
*x + 3)**2)
```

Mathematica [A] time = 0.39825, size = 88, normalized size = 0.79

$$\frac{-\frac{11(102450x^2+5515x-29338)}{\sqrt{1-2x}(5x+3)^2}-139650\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{204974}+\frac{54}{7}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(3/2)*(2 + 3*x)*(3 + 5*x)^3),x]
```

```
[Out] (54*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/7 + ((-11*(-29338
 + 5515*x + 102450*x^2))/(Sqrt[1 - 2*x]*(3 + 5*x)^2) - 139650*Sqr
t[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/204974
```

Maple [A] time = 0.02, size = 75, normalized size = 0.7

$$\frac{16}{9317}\frac{1}{\sqrt{1-2x}}+\frac{54\sqrt{21}}{49}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)+\frac{1250}{1331\left(-6-10x\right)^{2}}\left(-\frac{59}{10}\left(1-2x\right)^{\frac{3}{2}}+\frac{627}{50}\sqrt{1-2x}\right)-\frac{9975\sqrt{55}}{14641}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(3/2)/(2+3*x)/(3+5*x)^3,x)
```

```
[Out] 16/9317/(1-2*x)^(1/2)+54/49*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*2
1^(1/2)+1250/1331*(-59/10*(1-2*x)^(3/2)+627/50*(1-2*x)^(1/2))/(-6
-10*x)^2-9975/14641*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.50306, size = 161, normalized size = 1.44

$$\frac{9975}{29282}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{27}{49}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{51225\left(2x-1\right)^{2}+215930x-109901}{9317\left(25\left(-2x+1\right)^{\frac{5}{2}}-110\left(-2x+1\right)^{\frac{3}{2}}+121\sqrt{-2x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^3*(3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 9975/29282*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55)
+ 5*sqrt(-2*x + 1))) - 27/49*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*
x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 1/9317*(51225*(2*x - 1)^
2 + 215930*x - 109901)/(25*(-2*x + 1)^(5/2) - 110*(-2*x + 1)^(3/2
) + 121*sqrt(-2*x + 1))
```

Fricas [A] time = 0.243497, size = 213, normalized size = 1.9

$$\frac{\sqrt{11}\sqrt{7}\left(69825\sqrt{7}\sqrt{5}\left(25x^{2}+30x+9\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{11}(5x-8)+11\sqrt{5}\sqrt{-2x+1}}{5x+3}\right)+71874\sqrt{11}\sqrt{3}\left(25x^{2}+30x+9\right)\sqrt{-2x+1}\,\mathrm{lo}\right.}{1434818\left(25x^{2}+30x+9\right)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^3*(3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/1434818*sqrt(11)*sqrt(7)*(69825*sqrt(7)*sqrt(5)*(25*x^2 + 30*x
+ 9)*sqrt(-2*x + 1)*log((sqrt(11)*(5*x - 8) + 11*sqrt(5)*sqrt(-2*
x + 1))/(5*x + 3)) + 71874*sqrt(11)*sqrt(3)*(25*x^2 + 30*x + 9)*s
qrt(-2*x + 1)*log((sqrt(7)*(3*x - 5) - 7*sqrt(3)*sqrt(-2*x + 1))/
(3*x + 2)) - sqrt(11)*sqrt(7)*(102450*x^2 + 5515*x - 29338))/((25
*x^2 + 30*x + 9)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(3/2)/(2+3*x)/(3+5*x)**3,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.227042, size = 157, normalized size = 1.4

$$\frac{9975}{29282}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{27}{49}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{16}{9317\sqrt{-2x+1}}-\frac{25\left(295(-2x+1)^{\frac{3}{2}}-627\sqrt{-2x+1}\right)}{5324(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^3*(3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 9975/29282*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(
sqrt(55) + 5*sqrt(-2*x + 1))) - 27/49*sqrt(21)*ln(1/2*abs(-2*sqrt
(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 16/9317
/sqrt(-2*x + 1) - 25/5324*(295*(-2*x + 1)^(3/2) - 627*sqrt(-2*x +
 1))/(5*x + 3)^2
```

3.2116 $\int \frac{1}{(1-2x)^{3/2}(2+3x)^2(3+5x)^3}\,dx$

Optimal. Leaf size=139

$$-\frac{224967}{65219\sqrt{1-2x}}+\frac{33115}{1694\sqrt{1-2x}(5x+3)}-\frac{505}{154\sqrt{1-2x}(5x+3)^2}+\frac{3}{7\sqrt{1-2x}(3x+2)(5x+3)^2}+\frac{5832}{49}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{153825\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1331}$$

```
[Out] -224967/(65219*Sqrt[1 - 2*x]) - 505/(154*Sqrt[1 - 2*x]*(3 + 5*x)^
2) + 3/(7*Sqrt[1 - 2*x]*(2 + 3*x)*(3 + 5*x)^2) + 33115/(1694*Sqrt
[1 - 2*x]*(3 + 5*x)) + (5832*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 -
 2*x]])/49 - (153825*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
)/1331
```

Rubi [A] time = 0.35156, antiderivative size = 139, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$-\frac{224967}{65219\sqrt{1-2x}}+\frac{33115}{1694\sqrt{1-2x}(5x+3)}-\frac{505}{154\sqrt{1-2x}(5x+3)^2}+\frac{3}{7\sqrt{1-2x}(3x+2)(5x+3)^2}+\frac{5832}{49}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{153825\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1331}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(3/2)*(2 + 3*x)^2*(3 + 5*x)^3),x]
```

```
[Out] -224967/(65219*Sqrt[1 - 2*x]) - 505/(154*Sqrt[1 - 2*x]*(3 + 5*x)^
2) + 3/(7*Sqrt[1 - 2*x]*(2 + 3*x)*(3 + 5*x)^2) + 33115/(1694*Sqrt
[1 - 2*x]*(3 + 5*x)) + (5832*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 -
 2*x]])/49 - (153825*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
)/1331
```

Rubi in Sympy [A] time = 35.2166, size = 124, normalized size = 0.89

$$\frac{5832\sqrt{21}\,\mathrm{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{343}-\frac{153825\sqrt{55}\,\mathrm{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{14641}-\frac{224967}{65219\sqrt{-2x+1}}+\frac{19869}{1694\sqrt{-2x+1}\,(3x+2)}+\frac{235}{121\sqrt{-2x+1}\,(3x+2)\,(5x+3)}-\frac{5}{22\sqrt{-2x+1}\,(3x+2)\,(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(3/2)/(2+3*x)**2/(3+5*x)**3,x)
```

```
[Out] 5832*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/343 - 153825*sqrt(
55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/14641 - 224967/(65219*sqrt(
-2*x + 1)) + 19869/(1694*sqrt(-2*x + 1)*(3*x + 2)) + 235/(121*sqr
t(-2*x + 1)*(3*x + 2)*(5*x + 3)) - 5/(22*sqrt(-2*x + 1)*(3*x + 2)
*(5*x + 3)**2)
```

Mathematica [A] time = 0.21929, size = 103, normalized size = 0.74

$$\frac{\frac{11\sqrt{1-2x}(33745050x^3+24742935x^2-8019782x-6400750)}{(5x+3)^2(6x^2+x-2)}-15074850\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1434818}+\frac{5832}{49}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(3/2)*(2 + 3*x)^2*(3 + 5*x)^3),x]
```

```
[Out] (5832*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/49 + ((11*Sqrt[
1 - 2*x]*(-6400750 - 8019782*x + 24742935*x^2 + 33745050*x^3))/((
3 + 5*x)^2*(-2 + x + 6*x^2)) - 15074850*Sqrt[55]*ArcTanh[Sqrt[5/1
1]*Sqrt[1 - 2*x]])/1434818
```

Maple [A] time = 0.024, size = 91, normalized size = 0.7

$$\frac{32}{65219}\frac{1}{\sqrt{1-2x}}-\frac{54}{49}\sqrt{1-2x}\left(-\frac{4}{3}-2x\right)^{-1}+\frac{5832\sqrt{21}}{343}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)+\frac{31250}{1331(-6-10x)^2}\left(-\frac{5}{2}(1-2x)^{\frac{3}{2}}+\frac{1353}{250}\sqrt{1-2x}\right)-\frac{153825\sqrt{55}}{14641}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(3/2)/(2+3*x)^2/(3+5*x)^3,x)
```

```
[Out] 32/65219/(1-2*x)^(1/2)-54/49*(1-2*x)^(1/2)/(-4/3-2*x)+5832/343*ar
ctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)+31250/1331*(-5/2*(1-2*
x)^(3/2)+1353/250*(1-2*x)^(1/2))/(-6-10*x)^2-153825/14641*arctanh
(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.49121, size = 185, normalized size = 1.33

$$\frac{153825}{29282}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{2916}{343}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{16872525(2x-1)^3+75360510(2x-1)^2+168127762x-84090985}{65219\left(75(-2x+1)^{\frac{7}{2}}-505(-2x+1)^{\frac{5}{2}}+1133(-2x+1)^{\frac{3}{2}}-847\sqrt{-2x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^3*(3*x + 2)^2*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 153825/29282*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55
) + 5*sqrt(-2*x + 1))) - 2916/343*sqrt(21)*log(-(sqrt(21) - 3*sqr
t(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 1/65219*(16872525*(
2*x - 1)^3 + 75360510*(2*x - 1)^2 + 168127762*x - 84090985)/(75*(
-2*x + 1)^(7/2) - 505*(-2*x + 1)^(5/2) + 1133*(-2*x + 1)^(3/2) -
847*sqrt(-2*x + 1))
```

Fricas [A] time = 0.249305, size = 240, normalized size = 1.73

$$\frac{\sqrt{11}\sqrt{7}\left(7537425\sqrt{7}\sqrt{5}\left(75x^3+140x^2+87x+18\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{11}(5x-8)+11\sqrt{5}\sqrt{-2x+1}}{5x+3}\right)+7762392\sqrt{11}\sqrt{3}\left(75x^3+140x^2\right.\right.}{10043726\left(75x^3+140x^2+8\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^3*(3*x + 2)^2*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/10043726*sqrt(11)*sqrt(7)*(7537425*sqrt(7)*sqrt(5)*(75*x^3 + 14
0*x^2 + 87*x + 18)*sqrt(-2*x + 1)*log((sqrt(11)*(5*x - 8) + 11*sq
rt(5)*sqrt(-2*x + 1))/(5*x + 3)) + 7762392*sqrt(11)*sqrt(3)*(75*x
^3 + 140*x^2 + 87*x + 18)*sqrt(-2*x + 1)*log((sqrt(7)*(3*x - 5) -
 7*sqrt(3)*sqrt(-2*x + 1))/(3*x + 2)) - sqrt(11)*sqrt(7)*(3374505
0*x^3 + 24742935*x^2 - 8019782*x - 6400750))/((75*x^3 + 140*x^2 +
 87*x + 18)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(3/2)/(2+3*x)**2/(3+5*x)**3,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.2271, size = 182, normalized size = 1.31

$$\frac{153825}{29282}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{2916}{343}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{2\,(215526\,x-107875)}{65219\left(3\,(-2\,x+1)^{\frac{3}{2}}-7\sqrt{-2\,x+1}\right)}-\frac{125\left(625\,(-2\,x+1)^{\frac{3}{2}}-1353\sqrt{-2\,x+1}\right)}{5324\,(5\,x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^3*(3*x + 2)^2*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 153825/29282*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))
/(sqrt(55) + 5*sqrt(-2*x + 1))) - 2916/343*sqrt(21)*ln(1/2*abs(-2
*sqrt(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 2/
65219*(215526*x - 107875)/(3*(-2*x + 1)^(3/2) - 7*sqrt(-2*x + 1))
 - 125/5324*(625*(-2*x + 1)^(3/2) - 1353*sqrt(-2*x + 1))/(5*x + 3
)^2
```

3.2117 $\int \frac{1}{(1-2x)^{3/2}(2+3x)^3(3+5x)^3}\,dx$

Optimal. Leaf size=166

$$-\frac{15987390}{456533\sqrt{1-2x}}+\frac{1176400}{5929\sqrt{1-2x}(5x+3)}-\frac{35825}{1078\sqrt{1-2x}(5x+3)^2}+\frac{435}{98\sqrt{1-2x}(3x+2)(5x+3)^2}+\frac{3}{14\sqrt{1-2x}(3x+2)^2(5x+3)^2}+\frac{414315}{343}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{1561125\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1331}$$

```
[Out] -15987390/(456533*Sqrt[1 - 2*x]) - 35825/(1078*Sqrt[1 - 2*x]*(3 +
 5*x)^2) + 3/(14*Sqrt[1 - 2*x]*(2 + 3*x)^2*(3 + 5*x)^2) + 435/(98
*Sqrt[1 - 2*x]*(2 + 3*x)*(3 + 5*x)^2) + 1176400/(5929*Sqrt[1 - 2*
x]*(3 + 5*x)) + (414315*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]
])/343 - (1561125*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/1
331
```

Rubi [A] time = 0.428784, antiderivative size = 166, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$-\frac{15987390}{456533\sqrt{1-2x}}+\frac{1176400}{5929\sqrt{1-2x}(5x+3)}-\frac{35825}{1078\sqrt{1-2x}(5x+3)^2}+\frac{435}{98\sqrt{1-2x}(3x+2)(5x+3)^2}+\frac{3}{14\sqrt{1-2x}(3x+2)^2(5x+3)^2}+\frac{414315}{343}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{1561125\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1331}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(3/2)*(2 + 3*x)^3*(3 + 5*x)^3),x]
```


```
[Out] -15987390/(456533*Sqrt[1 - 2*x]) - 35825/(1078*Sqrt[1 - 2*x]*(3 +
 5*x)^2) + 3/(14*Sqrt[1 - 2*x]*(2 + 3*x)^2*(3 + 5*x)^2) + 435/(98
*Sqrt[1 - 2*x]*(2 + 3*x)*(3 + 5*x)^2) + 1176400/(5929*Sqrt[1 - 2*
x]*(3 + 5*x)) + (414315*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]
])/343 - (1561125*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/1
331
```

Rubi in Sympy [A] time = 42.7566, size = 146, normalized size = 0.88

$$\frac{414315\sqrt{21}\,\mathrm{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{2401}-\frac{1561125\sqrt{55}\,\mathrm{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{14641}-\frac{15987390}{456533\sqrt{-2x+1}}+\frac{705840}{5929\sqrt{-2x+1}\,(3x+2)}+\frac{20067}{1694\sqrt{-2x+1}\,(3x+2)^2}+\frac{635}{242\sqrt{-2x+1}\,(3x+2)^2\,(5x+3)}-\frac{5}{22\sqrt{-2x+1}\,(3x+2)^2\,(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(3/2)/(2+3*x)**3/(3+5*x)**3,x)
```

```
[Out] 414315*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/2401 - 1561125*s
qrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/14641 - 15987390/(45653
3*sqrt(-2*x + 1)) + 705840/(5929*sqrt(-2*x + 1)*(3*x + 2)) + 2006
7/(1694*sqrt(-2*x + 1)*(3*x + 2)**2) + 635/(242*sqrt(-2*x + 1)*(3
```

```
*x + 2)**2*(5*x + 3)) - 5/(22*sqrt(-2*x + 1)*(3*x + 2)**2*(5*x +
3)**2)
```

Mathematica [A] time = 0.199375, size = 106, normalized size = 0.64

$$\frac{-7194325500x^4 - 10073172600x^3 - 1810042755x^2 + 2503057145x + 909821467}{913066\sqrt{1-2x}(3x+2)^2(5x+3)^2} + \frac{414315}{343}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right) - \frac{1561125\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1331}$$

Antiderivative was successfully verified.

```
[In] Integrate[1/((1 - 2*x)^(3/2)*(2 + 3*x)^3*(3 + 5*x)^3),x]
```

```
[Out] (909821467 + 2503057145*x - 1810042755*x^2 - 10073172600*x^3 - 71
94325500*x^4)/(913066*Sqrt[1 - 2*x]*(2 + 3*x)^2*(3 + 5*x)^2) + (4
14315*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/343 - (1561125*
Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/1331
```

Maple [A] time = 0.024, size = 103, normalized size = 0.6

$$\frac{64}{456533}\frac{1}{\sqrt{1-2x}} - \frac{8748}{343(-4-6x)^2}\left(\frac{217}{36}(1-2x)^{\frac{3}{2}} - \frac{511}{36}\sqrt{1-2x}\right) + \frac{414315\sqrt{21}}{2401}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right) + \frac{312500}{1331(-6-10x)^2}\left(-\frac{191}{100}(1-2x)^{\frac{3}{2}} + \frac{2079}{500}\sqrt{1-2x}\right) - \frac{1561125\sqrt{55}}{14641}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(1/(1-2*x)^(3/2)/(2+3*x)^3/(3+5*x)^3,x)
```

```
[Out] 64/456533/(1-2*x)^(1/2)-8748/343*(217/36*(1-2*x)^(3/2)-511/36*(1-
2*x)^(1/2))/(-4-6*x)^2+414315/2401*arctanh(1/7*21^(1/2)*(1-2*x)^(
1/2))*21^(1/2)+312500/1331*(-191/100*(1-2*x)^(3/2)+2079/500*(1-2*
x)^(1/2))/(-6-10*x)^2-1561125/14641*arctanh(1/11*55^(1/2)*(1-2*x)
^(1/2))*55^(1/2)
```

Maxima [A] time = 1.4962, size = 209, normalized size = 1.26

$$\frac{1561125}{29282}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right) - \frac{414315}{4802}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right) - \frac{2\left(1798581375(2x-1)^4 + 12230911800(2x-1)^3 + 27711289905(2x-1)^2 + 41836111240x - 20918245348\right)}{456533\left(225(-2x+1)^{\frac{9}{2}} - 2040(-2x+1)^{\frac{7}{2}} + 6934(-2x+1)^{\frac{5}{2}} - 10472(-2x+1)^{\frac{3}{2}} + 5929\sqrt{-2x+1}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^3*(3*x + 2)^3*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 1561125/29282*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(5
5) + 5*sqrt(-2*x + 1))) - 414315/4802*sqrt(21)*log(-(sqrt(21) - 3
*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 2/456533*(17985
81375*(2*x - 1)^4 + 12230911800*(2*x - 1)^3 + 27711289905*(2*x -
1)^2 + 41836111240*x - 20918245348)/(225*(-2*x + 1)^(9/2) - 2040*
```

```
(-2*x + 1)^(7/2) + 6934*(-2*x + 1)^(5/2) - 10472*(-2*x + 1)^(3/2)
 + 5929*sqrt(-2*x + 1))
```

Fricas [A] time = 0.233762, size = 267, normalized size = 1.61

$$\frac{\sqrt{11}\sqrt{7}\left(535465875\,\sqrt{7}\sqrt{5}\left(225\,x^4+570\,x^3+541\,x^2+228\,x+36\right)\sqrt{-2\,x+1}\log\left(\frac{\sqrt{11}(5\,x-8)+11\,\sqrt{5}\sqrt{-2\,x+1}}{5\,x+3}\right)+551453265\,\sqrt{11}\sqrt{3}\right.}{70306\ldots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^3*(3*x + 2)^3*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/70306082*sqrt(11)*sqrt(7)*(535465875*sqrt(7)*sqrt(5)*(225*x^4 +
 570*x^3 + 541*x^2 + 228*x + 36)*sqrt(-2*x + 1)*log((sqrt(11)*(5*
x - 8) + 11*sqrt(5)*sqrt(-2*x + 1))/(5*x + 3)) + 551453265*sqrt(1
1)*sqrt(3)*(225*x^4 + 570*x^3 + 541*x^2 + 228*x + 36)*sqrt(-2*x +
 1)*log((sqrt(7)*(3*x - 5) - 7*sqrt(3)*sqrt(-2*x + 1))/(3*x + 2))
 - sqrt(11)*sqrt(7)*(7194325500*x^4 + 10073172600*x^3 + 181004275
5*x^2 - 2503057145*x - 909821467))/((225*x^4 + 570*x^3 + 541*x^2
+ 228*x + 36)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(1-2*x)**(3/2)/(2+3*x)**3/(3+5*x)**3,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.241922, size = 212, normalized size = 1.28

$$\frac{1561125}{29282}\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)-\frac{414315}{4802}\sqrt{21}\ln\left(\frac{\left|-2\,\sqrt{21}+6\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{21}+3\,\sqrt{-2\,x+1}\right)}\right)+\frac{64}{456533\,\sqrt{-2\,x+1}}+\frac{2\left(256941225\,(2\,x-1)^3\sqrt{-2\,x+1}+1747282440\,(2\,x-1)^2\sqrt{-2\,x+1}-3958787399\,(-2\,x+1)^{\frac{3}{2}}+2988341532\,\sqrt{-2\,x+1}\right)}{65219\left(15\,(2\,x-1)^2+136\,x+9\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^3*(3*x + 2)^3*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 1561125/29282*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1)
)/(sqrt(55) + 5*sqrt(-2*x + 1))) - 414315/4802*sqrt(21)*ln(1/2*ab
s(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1)))
+ 64/456533/sqrt(-2*x + 1) + 2/65219*(256941225*(2*x - 1)^3*sqrt(
-2*x + 1) + 1747282440*(2*x - 1)^2*sqrt(-2*x + 1) - 3958787399*(-
2*x + 1)^(3/2) + 2988341532*sqrt(-2*x + 1))/(15*(2*x - 1)^2 + 136
*x + 9)^2
```

3.2118 $\int \frac{(2+3x)^5(3+5x)}{(1-2x)^{5/2}}\,dx$

Optimal. Leaf size=92

$$-\frac{135}{64}(1-2x)^{9/2}+\frac{1053}{28}(1-2x)^{7/2}-\frac{19467}{64}(1-2x)^{5/2}+\frac{12495}{8}(1-2x)^{3/2}-\frac{519645}{64}\sqrt{1-2x}-\frac{60025}{8\sqrt{1-2x}}+\frac{184877}{192(1-2x)^{3/2}}$$

```
[Out] 184877/(192*(1 - 2*x)^(3/2)) - 60025/(8*Sqrt[1 - 2*x]) - (519645*
Sqrt[1 - 2*x])/64 + (12495*(1 - 2*x)^(3/2))/8 - (19467*(1 - 2*x)^
(5/2))/64 + (1053*(1 - 2*x)^(7/2))/28 - (135*(1 - 2*x)^(9/2))/64
```

Rubi [A] time = 0.0706612, antiderivative size = 92, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{135}{64}(1-2x)^{9/2}+\frac{1053}{28}(1-2x)^{7/2}-\frac{19467}{64}(1-2x)^{5/2}+\frac{12495}{8}(1-2x)^{3/2}-\frac{519645}{64}\sqrt{1-2x}-\frac{60025}{8\sqrt{1-2x}}+\frac{184877}{192(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^5*(3 + 5*x))/(1 - 2*x)^(5/2),x]
```

```
[Out] 184877/(192*(1 - 2*x)^(3/2)) - 60025/(8*Sqrt[1 - 2*x]) - (519645*
Sqrt[1 - 2*x])/64 + (12495*(1 - 2*x)^(3/2))/8 - (19467*(1 - 2*x)^
(5/2))/64 + (1053*(1 - 2*x)^(7/2))/28 - (135*(1 - 2*x)^(9/2))/64
```

Rubi in Sympy [A] time = 9.99841, size = 82, normalized size = 0.89

$$-\frac{135\left(-2x+1\right)^{\frac{9}{2}}}{64}+\frac{1053\left(-2x+1\right)^{\frac{7}{2}}}{28}-\frac{19467\left(-2x+1\right)^{\frac{5}{2}}}{64}+\frac{12495\left(-2x+1\right)^{\frac{3}{2}}}{8}-\frac{519645\sqrt{-2x+1}}{64}-\frac{60025}{8\sqrt{-2x+1}}+\frac{184877}{192\left(-2x+1\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**5*(3+5*x)/(1-2*x)**(5/2),x)
```

```
[Out] -135*(-2*x + 1)**(9/2)/64 + 1053*(-2*x + 1)**(7/2)/28 - 19467*(-2
*x + 1)**(5/2)/64 + 12495*(-2*x + 1)**(3/2)/8 - 519645*sqrt(-2*x
+ 1)/64 - 60025/(8*sqrt(-2*x + 1)) + 184877/(192*(-2*x + 1)**(3/2
))
```

Mathematica [A] time = 0.056574, size = 43, normalized size = 0.47

$$-\frac{2835x^6+16767x^5+49653x^4+114084x^3+412812x^2-844104x+280696}{21(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^5*(3 + 5*x))/(1 - 2*x)^(5/2),x]
```

```
[Out] -(280696 - 844104*x + 412812*x^2 + 114084*x^3 + 49653*x^4 + 16767
*x^5 + 2835*x^6)/(21*(1 - 2*x)^(3/2))
```

Maple [A] time = 0.006, size = 40, normalized size = 0.4

$$-\frac{2835\,x^{6}+16767\,x^{5}+49653\,x^{4}+114084\,x^{3}+412812\,x^{2}-844104\,x+280696}{21}\left(1-2\,x\right)^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^5*(3+5*x)/(1-2*x)^(5/2),x)
```

```
[Out] -1/21*(2835*x^6+16767*x^5+49653*x^4+114084*x^3+412812*x^2-844104*
x+280696)/(1-2*x)^(3/2)
```

Maxima [A] time = 1.35582, size = 81, normalized size = 0.88

$$-\frac{135}{64}\left(-2\,x+1\right)^{\frac{9}{2}}+\frac{1053}{28}\left(-2\,x+1\right)^{\frac{7}{2}}-\frac{19467}{64}\left(-2\,x+1\right)^{\frac{5}{2}}+\frac{12495}{8}\left(-2\,x+1\right)^{\frac{3}{2}}-\frac{519645}{64}\sqrt{-2\,x+1}+\frac{2401\left(1200\,x-523\right)}{192\left(-2\,x+1\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^5/(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] -135/64*(-2*x + 1)^(9/2) + 1053/28*(-2*x + 1)^(7/2) - 19467/64*(-
2*x + 1)^(5/2) + 12495/8*(-2*x + 1)^(3/2) - 519645/64*sqrt(-2*x +
 1) + 2401/192*(1200*x - 523)/(-2*x + 1)^(3/2)
```

Fricas [A] time = 0.22106, size = 62, normalized size = 0.67

$$\frac{2835\,x^{6}+16767\,x^{5}+49653\,x^{4}+114084\,x^{3}+412812\,x^{2}-844104\,x+280696}{21\left(2\,x-1\right)\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^5/(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/21*(2835*x^6 + 16767*x^5 + 49653*x^4 + 114084*x^3 + 412812*x^2
- 844104*x + 280696)/((2*x - 1)*sqrt(-2*x + 1))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{\left(3x+2\right)^{5}\left(5x+3\right)}{\left(-2x+1\right)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**5*(3+5*x)/(1-2*x)**(5/2),x)
```

```
[Out] Integral((3*x + 2)**5*(5*x + 3)/(-2*x + 1)**(5/2), x)
```

GIAC/XCAS [A] time = 0.230077, size = 119, normalized size = 1.29

$$-\frac{135}{64}\left(2\,x-1\right)^{4}\sqrt{-2\,x+1}-\frac{1053}{28}\left(2\,x-1\right)^{3}\sqrt{-2\,x+1}-\frac{19467}{64}\left(2\,x-1\right)^{2}\sqrt{-2\,x+1}+\frac{12495}{8}\left(-2\,x+1\right)^{\frac{3}{2}}-\frac{519645}{64}\sqrt{-2\,x+1}-\frac{2401\left(1200\,x-523\right)}{192\left(2\,x-1\right)\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(3*x + 2)^5/(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] -135/64*(2*x - 1)^4*sqrt(-2*x + 1) - 1053/28*(2*x - 1)^3*sqrt(-2*
x + 1) - 19467/64*(2*x - 1)^2*sqrt(-2*x + 1) + 12495/8*(-2*x + 1)
^(3/2) - 519645/64*sqrt(-2*x + 1) - 2401/192*(1200*x - 523)/((2*x
 - 1)*sqrt(-2*x + 1))
```

3.2119 $\int \frac{(2+3x)^4(3+5x)}{(1-2x)^{5/2}}\,dx$

Optimal. Leaf size=79

$$\frac{405}{224}(1-2x)^{7/2}-\frac{4671}{160}(1-2x)^{5/2}+\frac{3591}{16}(1-2x)^{3/2}-\frac{24843}{16}\sqrt{1-2x}-\frac{57281}{32\sqrt{1-2x}}+\frac{26411}{96(1-2x)^{3/2}}$$

```
[Out] 26411/(96*(1 - 2*x)^(3/2)) - 57281/(32*Sqrt[1 - 2*x]) - (24843*Sq
rt[1 - 2*x])/16 + (3591*(1 - 2*x)^(3/2))/16 - (4671*(1 - 2*x)^(5/
2))/160 + (405*(1 - 2*x)^(7/2))/224
```

Rubi [A] time = 0.0657786, antiderivative size = 79, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{405}{224}(1-2x)^{7/2}-\frac{4671}{160}(1-2x)^{5/2}+\frac{3591}{16}(1-2x)^{3/2}-\frac{24843}{16}\sqrt{1-2x}-\frac{57281}{32\sqrt{1-2x}}+\frac{26411}{96(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In] Int[((2 + 3*x)^4*(3 + 5*x))/(1 - 2*x)^(5/2),x]
```

```
[Out] 26411/(96*(1 - 2*x)^(3/2)) - 57281/(32*Sqrt[1 - 2*x]) - (24843*Sq
rt[1 - 2*x])/16 + (3591*(1 - 2*x)^(3/2))/16 - (4671*(1 - 2*x)^(5/
2))/160 + (405*(1 - 2*x)^(7/2))/224
```

Rubi in Sympy [A] time = 8.97972, size = 70, normalized size = 0.89

$$\frac{405\,(-2x+1)^{\frac{7}{2}}}{224}-\frac{4671\,(-2x+1)^{\frac{5}{2}}}{160}+\frac{3591\,(-2x+1)^{\frac{3}{2}}}{16}-\frac{24843\sqrt{-2x+1}}{16}-\frac{57281}{32\sqrt{-2x+1}}+\frac{26411}{96\,(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**4*(3+5*x)/(1-2*x)**(5/2),x)
```

```
[Out] 405*(-2*x + 1)**(7/2)/224 - 4671*(-2*x + 1)**(5/2)/160 + 3591*(-2
*x + 1)**(3/2)/16 - 24843*sqrt(-2*x + 1)/16 - 57281/(32*sqrt(-2*x
 + 1)) + 26411/(96*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.0291159, size = 38, normalized size = 0.48

$$-\frac{6075x^5+33858x^4+105624x^3+435312x^2-909264x+301408}{105(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In] Integrate[((2 + 3*x)^4*(3 + 5*x))/(1 - 2*x)^(5/2),x]
```

```
[Out] -(301408 - 909264*x + 435312*x^2 + 105624*x^3 + 33858*x^4 + 6075*
x^5)/(105*(1 - 2*x)^(3/2))
```

Maple [A] time = 0.006, size = 35, normalized size = 0.4

$$-\frac{6075\,x^5+33858\,x^4+105624\,x^3+435312\,x^2-909264\,x+301408}{105}(1-2\,x)^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4*(3+5*x)/(1-2*x)^(5/2),x)
```

```
[Out] -1/105*(6075*x^5+33858*x^4+105624*x^3+435312*x^2-909264*x+301408)
/(1-2*x)^(3/2)
```

Maxima [A] time = 1.34824, size = 69, normalized size = 0.87

$$\frac{405}{224}\,(-2\,x+1)^{\frac{7}{2}}-\frac{4671}{160}\,(-2\,x+1)^{\frac{5}{2}}+\frac{3591}{16}\,(-2\,x+1)^{\frac{3}{2}}-\frac{24843}{16}\,\sqrt{-2\,x+1}+\frac{343\,(501\,x-212)}{48\,(-2\,x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^4/(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] 405/224*(-2*x + 1)^(7/2) - 4671/160*(-2*x + 1)^(5/2) + 3591/16*(-
2*x + 1)^(3/2) - 24843/16*sqrt(-2*x + 1) + 343/48*(501*x - 212)/(
-2*x + 1)^(3/2)
```

Fricas [A] time = 0.230323, size = 55, normalized size = 0.7

$$\frac{6075\,x^5+33858\,x^4+105624\,x^3+435312\,x^2-909264\,x+301408}{105\,(2\,x-1)\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^4/(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/105*(6075*x^5 + 33858*x^4 + 105624*x^3 + 435312*x^2 - 909264*x
+ 301408)/((2*x - 1)*sqrt(-2*x + 1))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^4\,(5x+3)}{(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4*(3+5*x)/(1-2*x)**(5/2),x)
```

```
[Out] Integral((3*x + 2)**4*(5*x + 3)/(-2*x + 1)**(5/2), x)
```

GIAC/XCAS [A] time = 0.21538, size = 97, normalized size = 1.23

$$-\frac{405}{224}\,(2\,x-1)^3\sqrt{-2\,x+1}-\frac{4671}{160}\,(2\,x-1)^2\sqrt{-2\,x+1}+\frac{3591}{16}\,(-2\,x+1)^{\frac{3}{2}}-\frac{24843}{16}\,\sqrt{-2\,x+1}-\frac{343\,(501\,x-212)}{48\,(2\,x-1)\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^4/(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] -405/224*(2*x - 1)^3*sqrt(-2*x + 1) - 4671/160*(2*x - 1)^2*sqrt(-
2*x + 1) + 3591/16*(-2*x + 1)^(3/2) - 24843/16*sqrt(-2*x + 1) - 3
43/48*(501*x - 212)/((2*x - 1)*sqrt(-2*x + 1))
```

3.2120 $\int \frac{(2+3x)^3(3+5x)}{(1-2x)^{5/2}}\,dx$

Optimal. Leaf size=66

$$-\frac{27}{16}(1-2x)^{5/2}+\frac{207}{8}(1-2x)^{3/2}-\frac{1071}{4}\sqrt{1-2x}-\frac{3283}{8\sqrt{1-2x}}+\frac{3773}{48(1-2x)^{3/2}}$$

```
[Out] 3773/(48*(1 - 2*x)^(3/2)) - 3283/(8*Sqrt[1 - 2*x]) - (1071*Sqrt[1
 - 2*x])/4 + (207*(1 - 2*x)^(3/2))/8 - (27*(1 - 2*x)^(5/2))/16
```

Rubi [A] time = 0.0551939, antiderivative size = 66, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{27}{16}(1-2x)^{5/2}+\frac{207}{8}(1-2x)^{3/2}-\frac{1071}{4}\sqrt{1-2x}-\frac{3283}{8\sqrt{1-2x}}+\frac{3773}{48(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^3*(3 + 5*x))/(1 - 2*x)^(5/2),x]
```

```
[Out] 3773/(48*(1 - 2*x)^(3/2)) - 3283/(8*Sqrt[1 - 2*x]) - (1071*Sqrt[1
 - 2*x])/4 + (207*(1 - 2*x)^(3/2))/8 - (27*(1 - 2*x)^(5/2))/16
```

Rubi in Sympy [A] time = 7.95968, size = 58, normalized size = 0.88

$$-\frac{27\left(-2x+1\right)^{\frac{5}{2}}}{16}+\frac{207\left(-2x+1\right)^{\frac{3}{2}}}{8}-\frac{1071\sqrt{-2x+1}}{4}-\frac{3283}{8\sqrt{-2x+1}}+\frac{3773}{48\left(-2x+1\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3*(3+5*x)/(1-2*x)**(5/2),x)
```

```
[Out] -27*(-2*x + 1)**(5/2)/16 + 207*(-2*x + 1)**(3/2)/8 - 1071*sqrt(-2
*x + 1)/4 - 3283/(8*sqrt(-2*x + 1)) + 3773/(48*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.0459921, size = 33, normalized size = 0.5

$$-\frac{81x^4+459x^3+2403x^2-5250x+1726}{3(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^3*(3 + 5*x))/(1 - 2*x)^(5/2),x]
```

```
[Out] -(1726 - 5250*x + 2403*x^2 + 459*x^3 + 81*x^4)/(3*(1 - 2*x)^(3/2)
)
```

Maple [A] time = 0.006, size = 30, normalized size = 0.5

$$-\frac{81\,x^4+459\,x^3+2403\,x^2-5250\,x+1726}{3}\left(1-2\,x\right)^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3*(3+5*x)/(1-2*x)^(5/2),x)
```

```
[Out] -1/3*(81*x^4+459*x^3+2403*x^2-5250*x+1726)/(1-2*x)^(3/2)
```

Maxima [A] time = 1.35342, size = 57, normalized size = 0.86

$$-\frac{27}{16}(-2x+1)^{\frac{5}{2}}+\frac{207}{8}(-2x+1)^{\frac{3}{2}}-\frac{1071}{4}\sqrt{-2x+1}+\frac{49(804x-325)}{48(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^3/(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] -27/16*(-2*x + 1)^(5/2) + 207/8*(-2*x + 1)^(3/2) - 1071/4*sqrt(-2
*x + 1) + 49/48*(804*x - 325)/(-2*x + 1)^(3/2)
```

Fricas [A] time = 0.222977, size = 49, normalized size = 0.74

$$\frac{81x^4+459x^3+2403x^2-5250x+1726}{3(2x-1)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^3/(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/3*(81*x^4 + 459*x^3 + 2403*x^2 - 5250*x + 1726)/((2*x - 1)*sqrt
(-2*x + 1))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^3(5x+3)}{(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3*(3+5*x)/(1-2*x)**(5/2),x)
```

```
[Out] Integral((3*x + 2)**3*(5*x + 3)/(-2*x + 1)**(5/2), x)
```

GIAC/XCAS [A] time = 0.212248, size = 76, normalized size = 1.15

$$-\frac{27}{16}(2x-1)^2\sqrt{-2x+1}+\frac{207}{8}(-2x+1)^{\frac{3}{2}}-\frac{1071}{4}\sqrt{-2x+1}-\frac{49(804x-325)}{48(2x-1)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^3/(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] -27/16*(2*x - 1)^2*sqrt(-2*x + 1) + 207/8*(-2*x + 1)^(3/2) - 1071
/4*sqrt(-2*x + 1) - 49/48*(804*x - 325)/((2*x - 1)*sqrt(-2*x + 1)
)
```

3.2121 $\int \frac{(2+3x)^2(3+5x)}{(1-2x)^{5/2}}\,dx$

Optimal. Leaf size=53

$$\frac{15}{8}(1-2x)^{3/2}-\frac{309}{8}\sqrt{1-2x}-\frac{707}{8\sqrt{1-2x}}+\frac{539}{24(1-2x)^{3/2}}$$

```
[Out] 539/(24*(1 - 2*x)^(3/2)) - 707/(8*Sqrt[1 - 2*x]) - (309*Sqrt[1 -
2*x])/8 + (15*(1 - 2*x)^(3/2))/8
```

Rubi [A] time = 0.0537984, antiderivative size = 53, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$\frac{15}{8}(1-2x)^{3/2}-\frac{309}{8}\sqrt{1-2x}-\frac{707}{8\sqrt{1-2x}}+\frac{539}{24(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^2*(3 + 5*x))/(1 - 2*x)^(5/2),x]
```

```
[Out] 539/(24*(1 - 2*x)^(3/2)) - 707/(8*Sqrt[1 - 2*x]) - (309*Sqrt[1 -
2*x])/8 + (15*(1 - 2*x)^(3/2))/8
```

Rubi in Sympy [A] time = 7.23615, size = 46, normalized size = 0.87

$$\frac{15\,(-2x+1)^{\frac{3}{2}}}{8}-\frac{309\sqrt{-2x+1}}{8}-\frac{707}{8\sqrt{-2x+1}}+\frac{539}{24\,(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2*(3+5*x)/(1-2*x)**(5/2),x)
```

```
[Out] 15*(-2*x + 1)**(3/2)/8 - 309*sqrt(-2*x + 1)/8 - 707/(8*sqrt(-2*x
+ 1)) + 539/(24*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.0397672, size = 28, normalized size = 0.53

$$-\frac{45x^3+396x^2-960x+308}{3(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^2*(3 + 5*x))/(1 - 2*x)^(5/2),x]
```

```
[Out] -(308 - 960*x + 396*x^2 + 45*x^3)/(3*(1 - 2*x)^(3/2))
```

Maple [A] time = 0.006, size = 25, normalized size = 0.5

$$-\frac{45\,x^3+396\,x^2-960\,x+308}{3}(1-2\,x)^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2*(3+5*x)/(1-2*x)^(5/2),x)
```

```
[Out] -1/3*(45*x^3+396*x^2-960*x+308)/(1-2*x)^(3/2)
```

Maxima [A] time = 1.34887, size = 45, normalized size = 0.85

$$\frac{15}{8}\,(-2\,x+1)^{\frac{3}{2}}-\frac{309}{8}\,\sqrt{-2\,x+1}+\frac{7\,(303\,x-113)}{12\,(-2\,x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^2/(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] 15/8*(-2*x + 1)^(3/2) - 309/8*sqrt(-2*x + 1) + 7/12*(303*x - 113)
/(-2*x + 1)^(3/2)
```

Fricas [A] time = 0.215588, size = 42, normalized size = 0.79

$$\frac{45\,x^3+396\,x^2-960\,x+308}{3\,(2\,x-1)\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^2/(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/3*(45*x^3 + 396*x^2 - 960*x + 308)/((2*x - 1)*sqrt(-2*x + 1))
```

Sympy [A] time = 1.20602, size = 102, normalized size = 1.92

$$\frac{45x^3}{6x\sqrt{-2x+1}-3\sqrt{-2x+1}}+\frac{396x^2}{6x\sqrt{-2x+1}-3\sqrt{-2x+1}}-\frac{960x}{6x\sqrt{-2x+1}-3\sqrt{-2x+1}}+\frac{308}{6x\sqrt{-2x+1}-3\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2*(3+5*x)/(1-2*x)**(5/2),x)
```

```
[Out] 45*x**3/(6*x*sqrt(-2*x + 1) - 3*sqrt(-2*x + 1)) + 396*x**2/(6*x*s
qrt(-2*x + 1) - 3*sqrt(-2*x + 1)) - 960*x/(6*x*sqrt(-2*x + 1) - 3
*sqrt(-2*x + 1)) + 308/(6*x*sqrt(-2*x + 1) - 3*sqrt(-2*x + 1))
```

GIAC/XCAS [A] time = 0.21489, size = 54, normalized size = 1.02

$$\frac{15}{8}\,(-2\,x+1)^{\frac{3}{2}}-\frac{309}{8}\,\sqrt{-2\,x+1}-\frac{7\,(303\,x-113)}{12\,(2\,x-1)\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)^2/(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] 15/8*(-2*x + 1)^(3/2) - 309/8*sqrt(-2*x + 1) - 7/12*(303*x - 113)
/((2*x - 1)*sqrt(-2*x + 1))
```

3.2122 $\int \frac{(2+3x)(3+5x)}{(1-2x)^{5/2}}\,dx$

Optimal. Leaf size=38

$$-\frac{15}{4}\sqrt{1-2x}-\frac{17}{\sqrt{1-2x}}+\frac{77}{12(1-2x)^{3/2}}$$

```
[Out] 77/(12*(1 - 2*x)^(3/2)) - 17/Sqrt[1 - 2*x] - (15*Sqrt[1 - 2*x])/4
```

Rubi [A] time = 0.0399739, antiderivative size = 38, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{15}{4}\sqrt{1-2x}-\frac{17}{\sqrt{1-2x}}+\frac{77}{12(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)*(3 + 5*x))/(1 - 2*x)^(5/2),x]

[Out] 77/(12*(1 - 2*x)^(3/2)) - 17/Sqrt[1 - 2*x] - (15*Sqrt[1 - 2*x])/4
```

Rubi in Sympy [A] time = 5.82606, size = 32, normalized size = 0.84

$$-\frac{15\sqrt{-2x+1}}{4}-\frac{17}{\sqrt{-2x+1}}+\frac{77}{12\left(-2x+1\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)*(3+5*x)/(1-2*x)**(5/2),x)

[Out] -15*sqrt(-2*x + 1)/4 - 17/sqrt(-2*x + 1) + 77/(12*(-2*x + 1)**(3/
2))
```

Mathematica [A] time = 0.0111421, size = 23, normalized size = 0.61

$$-\frac{45x^2-147x+43}{3(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)*(3 + 5*x))/(1 - 2*x)^(5/2),x]

[Out] -(43 - 147*x + 45*x^2)/(3*(1 - 2*x)^(3/2))
```

Maple [A] time = 0.003, size = 20, normalized size = 0.5

$$-\frac{45\,x^2-147\,x+43}{3}\left(1-2\,x\right)^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)*(3+5*x)/(1-2*x)^(5/2),x)
```

```
[Out] -1/3*(45*x^2-147*x+43)/(1-2*x)^(3/2)
```

Maxima [A] time = 1.33948, size = 32, normalized size = 0.84

$$-\frac{15}{4}\sqrt{-2x+1}+\frac{408x-127}{12(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(3*x + 2)/(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] -15/4*sqrt(-2*x + 1) + 1/12*(408*x - 127)/(-2*x + 1)^(3/2)
```

Fricas [A] time = 0.211577, size = 35, normalized size = 0.92

$$\frac{45x^2-147x+43}{3(2x-1)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)*(3*x + 2)/(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/3*(45*x^2 - 147*x + 43)/((2*x - 1)*sqrt(-2*x + 1))
```

Sympy [A] time = 1.13503, size = 75, normalized size = 1.97

$$\frac{45x^2}{6x\sqrt{-2x+1}-3\sqrt{-2x+1}}-\frac{147x}{6x\sqrt{-2x+1}-3\sqrt{-2x+1}}+\frac{43}{6x\sqrt{-2x+1}-3\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)*(3+5*x)/(1-2*x)**(5/2),x)
```

```
[Out] 45*x**2/(6*x*sqrt(-2*x + 1) - 3*sqrt(-2*x + 1)) - 147*x/(6*x*sqrt
(-2*x + 1) - 3*sqrt(-2*x + 1)) + 43/(6*x*sqrt(-2*x + 1) - 3*sqrt(
-2*x + 1))
```

GIAC/XCAS [A] time = 0.208689, size = 42, normalized size = 1.11

$$-\frac{15}{4}\sqrt{-2x+1}-\frac{408x-127}{12(2x-1)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)*(3*x + 2)/(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] -15/4*sqrt(-2*x + 1) - 1/12*(408*x - 127)/((2*x - 1)*sqrt(-2*x +
1))
```

3.2123 $\int \frac{3+5x}{(1-2x)^{5/2}} dx$

Optimal. Leaf size=27

$$\frac{11}{6(1-2x)^{3/2}} - \frac{5}{2\sqrt{1-2x}}$$

```
[Out] 11/(6*(1 - 2*x)^(3/2)) - 5/(2*Sqrt[1 - 2*x])
```

Rubi [A] time = 0.0220561, antiderivative size = 27, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}} = 0.067$

$$\frac{11}{6(1-2x)^{3/2}} - \frac{5}{2\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)/(1 - 2*x)^(5/2),x]

[Out] 11/(6*(1 - 2*x)^(3/2)) - 5/(2*Sqrt[1 - 2*x])
```

Rubi in Sympy [A] time = 3.90308, size = 22, normalized size = 0.81

$$-\frac{5}{2\sqrt{-2x+1}} + \frac{11}{6\left(-2x+1\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)/(1-2*x)**(5/2),x)

[Out] -5/(2*sqrt(-2*x + 1)) + 11/(6*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.0086389, size = 18, normalized size = 0.67

$$\frac{15x-2}{3(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)/(1 - 2*x)^(5/2),x]

[Out] (-2 + 15*x)/(3*(1 - 2*x)^(3/2))
```

Maple [A] time = 0.004, size = 15, normalized size = 0.6

$$\frac{-2+15\,x}{3}\left(1-2\,x\right)^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)/(1-2*x)^(5/2),x)

[Out] 1/3*(-2+15*x)/(1-2*x)^(3/2)
```

Maxima [A] time = 1.33921, size = 19, normalized size = 0.7

$$\frac{15\,x-2}{3\,(-2\,x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] 1/3*(15*x - 2)/(-2*x + 1)^(3/2)
```

Fricas [A] time = 0.21014, size = 28, normalized size = 1.04

$$-\frac{15\,x-2}{3\,(2\,x-1)\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] -1/3*(15*x - 2)/((2*x - 1)*sqrt(-2*x + 1))
```

Sympy [A] time = 1.04829, size = 48, normalized size = 1.78

$$-\frac{15x}{6x\sqrt{-2x+1}-3\sqrt{-2x+1}}+\frac{2}{6x\sqrt{-2x+1}-3\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)/(1-2*x)**(5/2),x)
```

```
[Out] -15*x/(6*x*sqrt(-2*x + 1) - 3*sqrt(-2*x + 1)) + 2/(6*x*sqrt(-2*x
+ 1) - 3*sqrt(-2*x + 1))
```

GIAC/XCAS [A] time = 0.221604, size = 28, normalized size = 1.04

$$-\frac{15\,x-2}{3\,(2\,x-1)\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] -1/3*(15*x - 2)/((2*x - 1)*sqrt(-2*x + 1))
```

3.2124 $\int \frac{3+5x}{(1-2x)^{5/2}(2+3x)}\,dx$

Optimal. Leaf size=56

$$-\frac{2}{49\sqrt{1-2x}}+\frac{11}{21(1-2x)^{3/2}}+\frac{2}{49}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

```
[Out] 11/(21*(1 - 2*x)^(3/2)) - 2/(49*Sqrt[1 - 2*x]) + (2*Sqrt[3/7]*Arc
Tanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/49
```

Rubi [A] time = 0.0688882, antiderivative size = 56, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{2}{49\sqrt{1-2x}}+\frac{11}{21(1-2x)^{3/2}}+\frac{2}{49}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)/((1 - 2*x)^(5/2)*(2 + 3*x)),x]
```

```
[Out] 11/(21*(1 - 2*x)^(3/2)) - 2/(49*Sqrt[1 - 2*x]) + (2*Sqrt[3/7]*Arc
Tanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/49
```

Rubi in Sympy [A] time = 6.87967, size = 48, normalized size = 0.86

$$\frac{2\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{343}-\frac{2}{49\sqrt{-2x+1}}+\frac{11}{21\left(-2x+1\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)/(1-2*x)**(5/2)/(2+3*x),x)
```

```
[Out] 2*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/343 - 2/(49*sqrt(-2*x
 + 1)) + 11/(21*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.107154, size = 52, normalized size = 0.93

$$\frac{84x-6\sqrt{21-42x}(2x-1)\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+497}{1029(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)/((1 - 2*x)^(5/2)*(2 + 3*x)),x]
```

```
[Out] (497 + 84*x - 6*Sqrt[21 - 42*x]*(-1 + 2*x)*ArcTanh[Sqrt[3/7]*Sqrt
[1 - 2*x]])/(1029*(1 - 2*x)^(3/2))
```

Maple [A] time = 0.013, size = 38, normalized size = 0.7

$$\frac{11}{21}\left(1-2\,x\right)^{-\frac{3}{2}}+\frac{2\,\sqrt{21}}{343}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)-\frac{2}{49}\frac{1}{\sqrt{1-2\,x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)/(1-2*x)^(5/2)/(2+3*x),x)
```

```
[Out] 11/21/(1-2*x)^(3/2)+2/343*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^
(1/2)-2/49/(1-2*x)^(1/2)
```

Maxima [A] time = 1.50041, size = 69, normalized size = 1.23

$$-\frac{1}{343}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{12x+71}{147\,(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)/((3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] -1/343*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21) + 3*
sqrt(-2*x + 1))) + 1/147*(12*x + 71)/(-2*x + 1)^(3/2)
```

Fricas [A] time = 0.21312, size = 105, normalized size = 1.88

$$\frac{\sqrt{7}\left(3\sqrt{3}(2x-1)\sqrt{-2x+1}\log\left(\frac{\sqrt{7}(3x-5)-7\sqrt{3}\sqrt{-2x+1}}{3x+2}\right)-\sqrt{7}(12x+71)\right)}{1029\,(2x-1)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)/((3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/1029*sqrt(7)*(3*sqrt(3)*(2*x - 1)*sqrt(-2*x + 1)*log((sqrt(7)*(
3*x - 5) - 7*sqrt(3)*sqrt(-2*x + 1))/(3*x + 2)) - sqrt(7)*(12*x +
 71))/((2*x - 1)*sqrt(-2*x + 1))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{5x+3}{(-2x+1)^{\frac{5}{2}}\,(3x+2)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)/(1-2*x)**(5/2)/(2+3*x),x)
```

```
[Out] Integral((5*x + 3)/((-2*x + 1)**(5/2)*(3*x + 2)), x)
```

GIAC/XCAS [A] time = 0.251697, size = 82, normalized size = 1.46

$$-\frac{1}{343}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{12x+71}{147\,(2x-1)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)/((3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] -1/343*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqrt(
21) + 3*sqrt(-2*x + 1))) - 1/147*(12*x + 71)/((2*x - 1)*sqrt(-2*x
 + 1))
```

3.2125 $\int \frac{3+5x}{(1-2x)^{5/2}(2+3x)^2}\,dx$

Optimal. Leaf size=76

$$\frac{60}{343\sqrt{1-2x}}+\frac{1}{21(1-2x)^{3/2}(3x+2)}+\frac{20}{147(1-2x)^{3/2}}-\frac{60}{343}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

```
[Out] 20/(147*(1 - 2*x)^(3/2)) + 60/(343*Sqrt[1 - 2*x]) + 1/(21*(1 - 2*
x)^(3/2)*(2 + 3*x)) - (60*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*
x]])/343
```

Rubi [A] time = 0.0871042, antiderivative size = 76, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$\frac{60}{343\sqrt{1-2x}}+\frac{1}{21(1-2x)^{3/2}(3x+2)}+\frac{20}{147(1-2x)^{3/2}}-\frac{60}{343}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In] Int[(3 + 5*x)/((1 - 2*x)^(5/2)*(2 + 3*x)^2),x]
```

```
[Out] 20/(147*(1 - 2*x)^(3/2)) + 60/(343*Sqrt[1 - 2*x]) + 1/(21*(1 - 2*
x)^(3/2)*(2 + 3*x)) - (60*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*
x]])/343
```

Rubi in Sympy [A] time = 8.37323, size = 65, normalized size = 0.86

$$-\frac{60\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{2401}+\frac{60}{343\sqrt{-2x+1}}+\frac{20}{147\,(-2x+1)^{\frac{3}{2}}}+\frac{1}{21\,(-2x+1)^{\frac{3}{2}}\,(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((3+5*x)/(1-2*x)**(5/2)/(2+3*x)**2,x)
```

```
[Out] -60*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/2401 + 60/(343*sqrt
(-2*x + 1)) + 20/(147*(-2*x + 1)**(3/2)) + 1/(21*(-2*x + 1)**(3/2
)*(3*x + 2))
```

Mathematica [A] time = 0.116484, size = 58, normalized size = 0.76

$$\frac{\frac{7(-1080x^2+240x+689)}{(1-2x)^{3/2}(3x+2)}-180\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{7203}$$

Antiderivative was successfully verified.

```
[In] Integrate[(3 + 5*x)/((1 - 2*x)^(5/2)*(2 + 3*x)^2),x]
```

```
[Out] ((7*(689 + 240*x - 1080*x^2))/((1 - 2*x)^(3/2)*(2 + 3*x)) - 180*S
qrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/7203
```

Maple [A] time = 0.018, size = 54, normalized size = 0.7

$$\frac{22}{147}(1-2x)^{-\frac{3}{2}}+\frac{62}{343}\frac{1}{\sqrt{1-2x}}-\frac{2}{343}\sqrt{1-2x}\left(-\frac{4}{3}-2x\right)^{-1}-\frac{60\sqrt{21}}{2401}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)/(1-2*x)^(5/2)/(2+3*x)^2,x)
```

```
[Out] 22/147/(1-2*x)^(3/2)+62/343/(1-2*x)^(1/2)-2/343*(1-2*x)^(1/2)/(-4
/3-2*x)-60/2401*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.4917, size = 100, normalized size = 1.32

$$\frac{30}{2401}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{2\left(270\,(2x-1)^2+840\,x-959\right)}{1029\left(3\,(-2x+1)^{\frac{5}{2}}-7\,(-2x+1)^{\frac{3}{2}}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)/((3*x + 2)^2*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 30/2401*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21) + 3
*sqrt(-2*x + 1))) + 2/1029*(270*(2*x - 1)^2 + 840*x - 959)/(3*(-2
*x + 1)^(5/2) - 7*(-2*x + 1)^(3/2))
```

Fricas [A] time = 0.2222, size = 119, normalized size = 1.57

$$\frac{\sqrt{7}\left(90\sqrt{3}\left(6x^2+x-2\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{7}(3x-5)+7\sqrt{3}\sqrt{-2x+1}}{3x+2}\right)+\sqrt{7}\left(1080x^2-240x-689\right)\right)}{7203\left(6x^2+x-2\right)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)/((3*x + 2)^2*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/7203*sqrt(7)*(90*sqrt(3)*(6*x^2 + x - 2)*sqrt(-2*x + 1)*log((sq
rt(7)*(3*x - 5) + 7*sqrt(3)*sqrt(-2*x + 1))/(3*x + 2)) + sqrt(7)*
(1080*x^2 - 240*x - 689))/((6*x^2 + x - 2)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)/(1-2*x)**(5/2)/(2+3*x)**2,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.244749, size = 104, normalized size = 1.37

$$\frac{30}{2401}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{4\,(93x-85)}{1029\,(2x-1)\sqrt{-2x+1}}+\frac{3\sqrt{-2x+1}}{343\,(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)/((3*x + 2)^2*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 30/2401*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqrt
(21) + 3*sqrt(-2*x + 1))) + 4/1029*(93*x - 85)/((2*x - 1)*sqrt(-2
*x + 1)) + 3/343*sqrt(-2*x + 1)/(3*x + 2)
```

3.2126 $\int \frac{3+5x}{(1-2x)^{5/2}(2+3x)^3}\,dx$

Optimal. Leaf size=96

$$\frac{45}{343\sqrt{1-2x}}-\frac{3}{14(1-2x)^{3/2}(3x+2)}+\frac{5}{49(1-2x)^{3/2}}+\frac{1}{42(1-2x)^{3/2}(3x+2)^2}-\frac{45}{343}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

```
[Out] 5/(49*(1 - 2*x)^(3/2)) + 45/(343*Sqrt[1 - 2*x]) + 1/(42*(1 - 2*x)
^(3/2)*(2 + 3*x)^2) - 3/(14*(1 - 2*x)^(3/2)*(2 + 3*x)) - (45*Sqrt
[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/343
```

Rubi [A] time = 0.106526, antiderivative size = 96, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$\frac{45}{343\sqrt{1-2x}}-\frac{3}{14(1-2x)^{3/2}(3x+2)}+\frac{5}{49(1-2x)^{3/2}}+\frac{1}{42(1-2x)^{3/2}(3x+2)^2}-\frac{45}{343}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)/((1 - 2*x)^(5/2)*(2 + 3*x)^3),x]
```

```
[Out] 5/(49*(1 - 2*x)^(3/2)) + 45/(343*Sqrt[1 - 2*x]) + 1/(42*(1 - 2*x)
^(3/2)*(2 + 3*x)^2) - 3/(14*(1 - 2*x)^(3/2)*(2 + 3*x)) - (45*Sqrt
[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/343
```

Rubi in Sympy [A] time = 10.2509, size = 83, normalized size = 0.86

$$-\frac{45\sqrt{21}\,\text{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{2401}+\frac{45}{343\sqrt{-2x+1}}+\frac{5}{49\left(-2x+1\right)^{\frac{3}{2}}}-\frac{3}{14\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)}+\frac{1}{42\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)/(1-2*x)**(5/2)/(2+3*x)**3,x)
```

```
[Out] -45*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/2401 + 45/(343*sqrt
(-2*x + 1)) + 5/(49*(-2*x + 1)**(3/2)) - 3/(14*(-2*x + 1)**(3/2)*
(3*x + 2)) + 1/(42*(-2*x + 1)**(3/2)*(3*x + 2)**2)
```

Mathematica [A] time = 0.124331, size = 66, normalized size = 0.69

$$\frac{\frac{7\sqrt{1-2x}\left(-4860x^3-2160x^2+2277x+1087\right)}{\left(6x^2+x-2\right)^2}-270\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{14406}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)/((1 - 2*x)^(5/2)*(2 + 3*x)^3),x]
```

```
[Out] ((7*Sqrt[1 - 2*x]*(1087 + 2277*x - 2160*x^2 - 4860*x^3))/(-2 + x
+ 6*x^2)^2 - 270*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/14406
```

Maple [A] time = 0.02, size = 66, normalized size = 0.7

$$\frac{44}{1029}(1-2x)^{-\frac{3}{2}}+\frac{256}{2401}\frac{1}{\sqrt{1-2x}}+\frac{324}{2401(-4-6x)^2}\left(\frac{59}{36}(1-2x)^{\frac{3}{2}}-\frac{133}{36}\sqrt{1-2x}\right)-\frac{45\sqrt{21}}{2401}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)/(1-2*x)^(5/2)/(2+3*x)^3,x)
```

```
[Out] 44/1029/(1-2*x)^(3/2)+256/2401/(1-2*x)^(1/2)+324/2401*(59/36*(1-2
*x)^(3/2)-133/36*(1-2*x)^(1/2))/(-4-6*x)^2-45/2401*arctanh(1/7*21
^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.50197, size = 124, normalized size = 1.29

$$\frac{45}{4802}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{1215(2x-1)^3+4725(2x-1)^2+7056x-5684}{1029\left(9(-2x+1)^{\frac{7}{2}}-42(-2x+1)^{\frac{5}{2}}+49(-2x+1)^{\frac{3}{2}}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)/((3*x + 2)^3*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 45/4802*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21) + 3
*sqrt(-2*x + 1))) - 1/1029*(1215*(2*x - 1)^3 + 4725*(2*x - 1)^2 +
 7056*x - 5684)/(9*(-2*x + 1)^(7/2) - 42*(-2*x + 1)^(5/2) + 49*(-
2*x + 1)^(3/2))
```

Fricas [A] time = 0.2176, size = 144, normalized size = 1.5

$$\frac{\sqrt{7}\left(135\sqrt{3}\left(18x^3+15x^2-4x-4\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{7}(3x-5)+7\sqrt{3}\sqrt{-2x+1}}{3x+2}\right)+\sqrt{7}\left(4860x^3+2160x^2-2277x-1087\right)\right)}{14406\left(18x^3+15x^2-4x-4\right)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)/((3*x + 2)^3*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/14406*sqrt(7)*(135*sqrt(3)*(18*x^3 + 15*x^2 - 4*x - 4)*sqrt(-2*
x + 1)*log((sqrt(7)*(3*x - 5) + 7*sqrt(3)*sqrt(-2*x + 1))/(3*x +
2)) + sqrt(7)*(4860*x^3 + 2160*x^2 - 2277*x - 1087))/((18*x^3 + 1
5*x^2 - 4*x - 4)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)/(1-2*x)**(5/2)/(2+3*x)**3,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.234125, size = 120, normalized size = 1.25

$$\frac{45}{4802}\,\sqrt{21}\ln\left(\frac{\left|-2\,\sqrt{21}+6\,\sqrt{-2\,x+1}\right|}{2\,\left(\sqrt{21}+3\,\sqrt{-2\,x+1}\right)}\right)+\frac{4\,(384\,x-269)}{7203\,(2\,x-1)\sqrt{-2\,x+1}}+\frac{9\,\left(59\,(-2\,x+1)^{\frac{3}{2}}-133\,\sqrt{-2\,x+1}\right)}{9604\,(3\,x+2)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)/((3*x + 2)^3*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 45/4802*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqrt
(21) + 3*sqrt(-2*x + 1))) + 4/7203*(384*x - 269)/((2*x - 1)*sqrt(
-2*x + 1)) + 9/9604*(59*(-2*x + 1)^(3/2) - 133*sqrt(-2*x + 1))/(3
*x + 2)^2
```

3.2127 $\int \frac{3+5x}{(1-2x)^{5/2}(2+3x)^4} dx$

Optimal. Leaf size=130

$$-\frac{240\sqrt{1-2x}}{2401(3x+2)}-\frac{80\sqrt{1-2x}}{343(3x+2)^2}+\frac{64}{147\sqrt{1-2x}(3x+2)^2}+\frac{64}{441(1-2x)^{3/2}(3x+2)^2}+\frac{1}{63(1-2x)^{3/2}(3x+2)^3}-\frac{160\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{2401}$$

```
[Out] 1/(63*(1 - 2*x)^(3/2)*(2 + 3*x)^3) + 64/(441*(1 - 2*x)^(3/2)*(2 +
 3*x)^2) + 64/(147*Sqrt[1 - 2*x]*(2 + 3*x)^2) - (80*Sqrt[1 - 2*x]
)/(343*(2 + 3*x)^2) - (240*Sqrt[1 - 2*x])/(2401*(2 + 3*x)) - (160
*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/2401
```

Rubi [A] time = 0.128117, antiderivative size = 130, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{240\sqrt{1-2x}}{2401(3x+2)}-\frac{80\sqrt{1-2x}}{343(3x+2)^2}+\frac{64}{147\sqrt{1-2x}(3x+2)^2}+\frac{64}{441(1-2x)^{3/2}(3x+2)^2}+\frac{1}{63(1-2x)^{3/2}(3x+2)^3}-\frac{160\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{2401}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)/((1 - 2*x)^(5/2)*(2 + 3*x)^4),x]
```

```
[Out] 1/(63*(1 - 2*x)^(3/2)*(2 + 3*x)^3) + 64/(441*(1 - 2*x)^(3/2)*(2 +
 3*x)^2) + 64/(147*Sqrt[1 - 2*x]*(2 + 3*x)^2) - (80*Sqrt[1 - 2*x]
)/(343*(2 + 3*x)^2) - (240*Sqrt[1 - 2*x])/(2401*(2 + 3*x)) - (160
*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/2401
```

Rubi in Sympy [A] time = 12.2645, size = 102, normalized size = 0.78

$$-\frac{160\sqrt{21}\,\text{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{16807}+\frac{160}{2401\sqrt{-2x+1}}+\frac{160}{3087\left(-2x+1\right)^{\frac{3}{2}}}-\frac{16}{147\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)}-\frac{16}{147\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{2}}+\frac{1}{63\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)/(1-2*x)**(5/2)/(2+3*x)**4,x)
```

```
[Out] -160*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/16807 + 160/(2401*
sqrt(-2*x + 1)) + 160/(3087*(-2*x + 1)**(3/2)) - 16/(147*(-2*x +
1)**(3/2)*(3*x + 2)) - 16/(147*(-2*x + 1)**(3/2)*(3*x + 2)**2) +
1/(63*(-2*x + 1)**(3/2)*(3*x + 2)**3)
```

Mathematica [A] time = 0.155191, size = 68, normalized size = 0.52

$$\frac{\frac{7(-25920x^4-28800x^3+4464x^2+11280x+2237)}{(1-2x)^{3/2}(3x+2)^3}-480\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{50421}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)/((1 - 2*x)^(5/2)*(2 + 3*x)^4),x]
```

```
[Out] ((7*(2237 + 11280*x + 4464*x^2 - 28800*x^3 - 25920*x^4))/((1 - 2*
x)^(3/2)*(2 + 3*x)^3) - 480*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2
*x]])/50421
```

Maple [A] time = 0.02, size = 75, normalized size = 0.6

$$\frac{88}{7203}\left(1-2x\right)^{-\frac{3}{2}}+\frac{776}{16807}\frac{1}{\sqrt{1-2x}}+\frac{648}{16807\left(-4-6x\right)^{3}}\left(\frac{43}{3}\left(1-2x\right)^{\frac{5}{2}}-\frac{1960}{27}\left(1-2x\right)^{\frac{3}{2}}+\frac{2450}{27}\sqrt{1-2x}\right)-\frac{160\sqrt{21}}{16807}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)/(1-2*x)^(5/2)/(2+3*x)^4,x)
```

```
[Out] 88/7203/(1-2*x)^(3/2)+776/16807/(1-2*x)^(1/2)+648/16807*(43/3*(1-
2*x)^(5/2)-1960/27*(1-2*x)^(3/2)+2450/27*(1-2*x)^(1/2))/(-4-6*x)^
3-160/16807*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.49705, size = 149, normalized size = 1.15

$$\frac{80}{16807}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{8\left(1620\left(2x-1\right)^{4}+10080\left(2x-1\right)^{3}+19404\left(2x-1\right)^{2}+18816x-13181\right)}{7203\left(27\left(-2x+1\right)^{\frac{9}{2}}-189\left(-2x+1\right)^{\frac{7}{2}}+441\left(-2x+1\right)^{\frac{5}{2}}-343\left(-2x+1\right)^{\frac{3}{2}}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/((3*x + 2)^4*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 80/16807*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21) +
3*sqrt(-2*x + 1))) + 8/7203*(1620*(2*x - 1)^4 + 10080*(2*x - 1)^3
 + 19404*(2*x - 1)^2 + 18816*x - 13181)/(27*(-2*x + 1)^(9/2) - 18
9*(-2*x + 1)^(7/2) + 441*(-2*x + 1)^(5/2) - 343*(-2*x + 1)^(3/2))
```

Fricas [A] time = 0.220115, size = 165, normalized size = 1.27

$$\frac{\sqrt{7}\left(240\sqrt{3}\left(54x^{4}+81x^{3}+18x^{2}-20x-8\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{7}(3x-5)+7\sqrt{3}\sqrt{-2x+1}}{3x+2}\right)+\sqrt{7}\left(25920x^{4}+28800x^{3}-4464x^{2}-11\right.}{50421\left(54x^{4}+81x^{3}+18x^{2}-20x-8\right)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/((3*x + 2)^4*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/50421*sqrt(7)*(240*sqrt(3)*(54*x^4 + 81*x^3 + 18*x^2 - 20*x - 8
)*sqrt(-2*x + 1)*log((sqrt(7)*(3*x - 5) + 7*sqrt(3)*sqrt(-2*x + 1
))/(3*x + 2)) + sqrt(7)*(25920*x^4 + 28800*x^3 - 4464*x^2 - 11280
*x - 2237))/((54*x^4 + 81*x^3 + 18*x^2 - 20*x - 8)*sqrt(-2*x + 1)
)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)/(1-2*x)**(5/2)/(2+3*x)**4,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.238239, size = 128, normalized size = 0.98

$$\frac{80}{16807}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{8\left(1620(2x-1)^4+10080(2x-1)^3+19404(2x-1)^2+18816x-13181\right)}{7203\left(3(-2x+1)^{\frac{3}{2}}-7\sqrt{-2x+1}\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/((3*x + 2)^4*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 80/16807*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqr
t(21) + 3*sqrt(-2*x + 1))) + 8/7203*(1620*(2*x - 1)^4 + 10080*(2*
x - 1)^3 + 19404*(2*x - 1)^2 + 18816*x - 13181)/(3*(-2*x + 1)^(3/
2) - 7*sqrt(-2*x + 1))^3
```

3.2128 $\int \frac{3+5x}{(1-2x)^{5/2}(2+3x)^5}\,dx$

Optimal. Leaf size=150

$$-\frac{5805\sqrt{1-2x}}{134456(3x+2)}-\frac{1935\sqrt{1-2x}}{19208(3x+2)^2}-\frac{387\sqrt{1-2x}}{1372(3x+2)^3}+\frac{387}{686\sqrt{1-2x}(3x+2)^3}+\frac{43}{294(1-2x)^{3/2}(3x+2)^3}+\frac{1}{84(1-2x)^{3/2}(3x+2)^4}-\frac{1935\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{67228}$$

```
[Out] 1/(84*(1 - 2*x)^(3/2)*(2 + 3*x)^4) + 43/(294*(1 - 2*x)^(3/2)*(2 +
 3*x)^3) + 387/(686*Sqrt[1 - 2*x]*(2 + 3*x)^3) - (387*Sqrt[1 - 2*
x])/(1372*(2 + 3*x)^3) - (1935*Sqrt[1 - 2*x])/(19208*(2 + 3*x)^2)
 - (5805*Sqrt[1 - 2*x])/(134456*(2 + 3*x)) - (1935*Sqrt[3/7]*ArcT
anh[Sqrt[3/7]*Sqrt[1 - 2*x]])/67228
```

Rubi [A] time = 0.163779, antiderivative size = 150, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{5805\sqrt{1-2x}}{134456(3x+2)}-\frac{1935\sqrt{1-2x}}{19208(3x+2)^2}-\frac{387\sqrt{1-2x}}{1372(3x+2)^3}+\frac{387}{686\sqrt{1-2x}(3x+2)^3}+\frac{43}{294(1-2x)^{3/2}(3x+2)^3}+\frac{1}{84(1-2x)^{3/2}(3x+2)^4}-\frac{1935\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{67228}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)/((1 - 2*x)^(5/2)*(2 + 3*x)^5),x]
```

```
[Out] 1/(84*(1 - 2*x)^(3/2)*(2 + 3*x)^4) + 43/(294*(1 - 2*x)^(3/2)*(2 +
 3*x)^3) + 387/(686*Sqrt[1 - 2*x]*(2 + 3*x)^3) - (387*Sqrt[1 - 2*
x])/(1372*(2 + 3*x)^3) - (1935*Sqrt[1 - 2*x])/(19208*(2 + 3*x)^2)
 - (5805*Sqrt[1 - 2*x])/(134456*(2 + 3*x)) - (1935*Sqrt[3/7]*ArcT
anh[Sqrt[3/7]*Sqrt[1 - 2*x]])/67228
```

Rubi in Sympy [A] time = 14.7344, size = 133, normalized size = 0.89

$$-\frac{5805\sqrt{-2x+1}}{134456\,(3x+2)}-\frac{1935\sqrt{-2x+1}}{19208\,(3x+2)^2}-\frac{1935\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{470596}+\frac{129}{686\sqrt{-2x+1}\,(3x+2)^2}+\frac{43}{686\,(-2x+1)^{\frac{3}{2}}\,(3x+2)^2}-\frac{43}{588\,(-2x+1)^{\frac{3}{2}}\,(3x+2)^3}+\frac{1}{84\,(-2x+1)^{\frac{3}{2}}\,(3x+2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)/(1-2*x)**(5/2)/(2+3*x)**5,x)
```

```
[Out] -5805*sqrt(-2*x + 1)/(134456*(3*x + 2)) - 1935*sqrt(-2*x + 1)/(19
208*(3*x + 2)**2) - 1935*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7
)/470596 + 129/(686*sqrt(-2*x + 1)*(3*x + 2)**2) + 43/(686*(-2*x
+ 1)**(3/2)*(3*x + 2)**2) - 43/(588*(-2*x + 1)**(3/2)*(3*x + 2)**
3) + 1/(84*(-2*x + 1)**(3/2)*(3*x + 2)**4)
```

Mathematica [A] time = 0.182707, size = 73, normalized size = 0.49

$$\frac{-\frac{7\left(1880820x^5+3343680x^4+1069281x^3-1034451x^2-611202x-48490\right)}{(1-2x)^{3/2}(3x+2)^4}-11610\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{2823576}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)/((1 - 2*x)^(5/2)*(2 + 3*x)^5),x]
```

```
[Out] ((-7*(-48490 - 611202*x - 1034451*x^2 + 1069281*x^3 + 3343680*x^4
 + 1880820*x^5))/((1 - 2*x)^(3/2)*(2 + 3*x)^4) - 11610*Sqrt[21]*A
rcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/2823576
```

Maple [A] time = 0.022, size = 84, normalized size = 0.6

$$\frac{176}{50421}(1-2x)^{-\frac{3}{2}}+\frac{2080}{117649}\frac{1}{\sqrt{1-2x}}+\frac{3888}{117649(-4-6x)^4}\left(\frac{5225}{192}(1-2x)^{\frac{7}{2}}-\frac{119623}{576}(1-2x)^{\frac{5}{2}}+\frac{921935}{1728}(1-2x)^{\frac{3}{2}}-\frac{2378705}{5184}\sqrt{1-2x}\right)-\frac{1935\sqrt{21}}{470596}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)/(1-2*x)^(5/2)/(2+3*x)^5,x)
```

```
[Out] 176/50421/(1-2*x)^(3/2)+2080/117649/(1-2*x)^(1/2)+3888/117649*(52
25/192*(1-2*x)^(7/2)-119623/576*(1-2*x)^(5/2)+921935/1728*(1-2*x)
^(3/2)-2378705/5184*(1-2*x)^(1/2))/(-4-6*x)^4-1935/470596*arctanh
(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.50868, size = 173, normalized size = 1.15

$$\frac{1935}{941192}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{470205(2x-1)^5+4022865(2x-1)^4+12458691(2x-1)^3+15872031(2x-1)^2+11327232x-7353920}{201684\left(81(-2x+1)^{\frac{11}{2}}-756(-2x+1)^{\frac{9}{2}}+2646(-2x+1)^{\frac{7}{2}}-4116(-2x+1)^{\frac{5}{2}}+2401(-2x+1)^{\frac{3}{2}}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/((3*x + 2)^5*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 1935/941192*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21)
 + 3*sqrt(-2*x + 1))) - 1/201684*(470205*(2*x - 1)^5 + 4022865*(2
*x - 1)^4 + 12458691*(2*x - 1)^3 + 15872031*(2*x - 1)^2 + 1132723
2*x - 7353920)/(81*(-2*x + 1)^(11/2) - 756*(-2*x + 1)^(9/2) + 264
6*(-2*x + 1)^(7/2) - 4116*(-2*x + 1)^(5/2) + 2401*(-2*x + 1)^(3/2
))
```

Fricas [A] time = 0.219016, size = 185, normalized size = 1.23

$$\frac{\sqrt{7}\left(5805\sqrt{3}\left(162x^5+351x^4+216x^3-24x^2-64x-16\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{7}(3x-5)+7\sqrt{3}\sqrt{-2x+1}}{3x+2}\right)+\sqrt{7}\left(1880820x^5+334368\right.\right.}{2823576\left(162x^5+351x^4+216x^3-24x^2-64x-16\right)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/((3*x + 2)^5*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/2823576*sqrt(7)*(5805*sqrt(3)*(162*x^5 + 351*x^4 + 216*x^3 - 24
*x^2 - 64*x - 16)*sqrt(-2*x + 1)*log((sqrt(7)*(3*x - 5) + 7*sqrt(
```

```
3)*sqrt(-2*x + 1))/(3*x + 2)) + sqrt(7)*(1880820*x^5 + 3343680*x^
4 + 1069281*x^3 - 1034451*x^2 - 611202*x - 48490))/((162*x^5 + 35
1*x^4 + 216*x^3 - 24*x^2 - 64*x - 16)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)/(1-2*x)**(5/2)/(2+3*x)**5,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.230776, size = 163, normalized size = 1.09

$$\frac{1935}{941192}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{16\,(780\,x-467)}{352947\,(2\,x-1)\sqrt{-2\,x+1}}-\frac{3\left(141075\,(2\,x-1)^{3}\sqrt{-2\,x+1}+1076607\,(2\,x-1)^{2}\sqrt{-2\,x+1}-2765805\,(-2\,x+1)^{\frac{3}{2}}+2378705\,\sqrt{-2\,x+1}\right)}{7529536\,(3\,x+2)^{4}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)/((3*x + 2)^5*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 1935/941192*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(
sqrt(21) + 3*sqrt(-2*x + 1))) + 16/352947*(780*x - 467)/((2*x - 1
)*sqrt(-2*x + 1)) - 3/7529536*(141075*(2*x - 1)^3*sqrt(-2*x + 1)
+ 1076607*(2*x - 1)^2*sqrt(-2*x + 1) - 2765805*(-2*x + 1)^(3/2) +
 2378705*sqrt(-2*x + 1))/(3*x + 2)^4
```

3.2129 $\int \frac{(2+3x)^5(3+5x)^2}{(1-2x)^{5/2}}\,dx$

Optimal. Leaf size=105

$$\frac{6075(1-2x)^{11/2}}{1408}-\frac{10845}{128}(1-2x)^{9/2}+\frac{672003}{896}(1-2x)^{7/2}-\frac{514017}{128}(1-2x)^{5/2}+\frac{1965635}{128}(1-2x)^{3/2}-\frac{8117095}{128}\sqrt{1-2x}-\frac{6206585}{128\sqrt{1-2x}}+\frac{2033647}{384(1-2x)^{3/2}}$$

```
[Out] 2033647/(384*(1 - 2*x)^(3/2)) - 6206585/(128*Sqrt[1 - 2*x]) - (81
17095*Sqrt[1 - 2*x])/128 + (1965635*(1 - 2*x)^(3/2))/128 - (51401
7*(1 - 2*x)^(5/2))/128 + (672003*(1 - 2*x)^(7/2))/896 - (10845*(1
 - 2*x)^(9/2))/128 + (6075*(1 - 2*x)^(11/2))/1408
```

Rubi [A] time = 0.0881256, antiderivative size = 105, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.042

$$\frac{6075(1-2x)^{11/2}}{1408}-\frac{10845}{128}(1-2x)^{9/2}+\frac{672003}{896}(1-2x)^{7/2}-\frac{514017}{128}(1-2x)^{5/2}+\frac{1965635}{128}(1-2x)^{3/2}-\frac{8117095}{128}\sqrt{1-2x}-\frac{6206585}{128\sqrt{1-2x}}+\frac{2033647}{384(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^5*(3 + 5*x)^2)/(1 - 2*x)^(5/2),x]
```

```
[Out] 2033647/(384*(1 - 2*x)^(3/2)) - 6206585/(128*Sqrt[1 - 2*x]) - (81
17095*Sqrt[1 - 2*x])/128 + (1965635*(1 - 2*x)^(3/2))/128 - (51401
7*(1 - 2*x)^(5/2))/128 + (672003*(1 - 2*x)^(7/2))/896 - (10845*(1
 - 2*x)^(9/2))/128 + (6075*(1 - 2*x)^(11/2))/1408
```

Rubi in Sympy [A] time = 11.4424, size = 94, normalized size = 0.9

$$\frac{6075\left(-2x+1\right)^{\frac{11}{2}}}{1408}-\frac{10845\left(-2x+1\right)^{\frac{9}{2}}}{128}+\frac{672003\left(-2x+1\right)^{\frac{7}{2}}}{896}-\frac{514017\left(-2x+1\right)^{\frac{5}{2}}}{128}+\frac{1965635\left(-2x+1\right)^{\frac{3}{2}}}{128}-\frac{8117095\sqrt{-2x+1}}{128}-\frac{6206585}{128\sqrt{-2x+1}}+\frac{2033647}{384\left(-2x+1\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**5*(3+5*x)**2/(1-2*x)**(5/2),x)
```

```
[Out] 6075*(-2*x + 1)**(11/2)/1408 - 10845*(-2*x + 1)**(9/2)/128 + 6720
03*(-2*x + 1)**(7/2)/896 - 514017*(-2*x + 1)**(5/2)/128 + 1965635
*(-2*x + 1)**(3/2)/128 - 8117095*sqrt(-2*x + 1)/128 - 6206585/(12
8*sqrt(-2*x + 1)) + 2033647/(384*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.0622242, size = 48, normalized size = 0.46

$$-\frac{127575x^7+806085x^6+2456001x^5+5121279x^4+9702012x^3+32450916x^2-65622552x+21852008}{231(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^5*(3 + 5*x)^2)/(1 - 2*x)^(5/2),x]
```

```
[Out] -(21852008 - 65622552*x + 32450916*x^2 + 9702012*x^3 + 5121279*x^
4 + 2456001*x^5 + 806085*x^6 + 127575*x^7)/(231*(1 - 2*x)^(3/2))
```

Maple [A] time = 0.006, size = 45, normalized size = 0.4

$$-\frac{127575 x^7 + 806085 x^6 + 2456001 x^5 + 5121279 x^4 + 9702012 x^3 + 32450916 x^2 - 65622552 x + 21852008}{231} (1-2x)^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^5*(3+5*x)^2/(1-2*x)^(5/2),x)
```

```
[Out] -1/231*(127575*x^7+806085*x^6+2456001*x^5+5121279*x^4+9702012*x^3
+32450916*x^2-65622552*x+21852008)/(1-2*x)^(3/2)
```

Maxima [A] time = 1.34761, size = 93, normalized size = 0.89

$$\frac{6075}{1408} (-2x+1)^{\frac{11}{2}} - \frac{10845}{128} (-2x+1)^{\frac{9}{2}} + \frac{672003}{896} (-2x+1)^{\frac{7}{2}} - \frac{514017}{128} (-2x+1)^{\frac{5}{2}} + \frac{1965635}{128} (-2x+1)^{\frac{3}{2}} - \frac{8117095}{128} \sqrt{-2x+1} + \frac{26411 (705 x - 314)}{192 (-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^5/(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] 6075/1408*(-2*x + 1)^(11/2) - 10845/128*(-2*x + 1)^(9/2) + 672003
/896*(-2*x + 1)^(7/2) - 514017/128*(-2*x + 1)^(5/2) + 1965635/128
*(-2*x + 1)^(3/2) - 8117095/128*sqrt(-2*x + 1) + 26411/192*(705*x
 - 314)/(-2*x + 1)^(3/2)
```

Fricas [A] time = 0.216641, size = 69, normalized size = 0.66

$$\frac{127575 x^7 + 806085 x^6 + 2456001 x^5 + 5121279 x^4 + 9702012 x^3 + 32450916 x^2 - 65622552 x + 21852008}{231 (2x-1)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^5/(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/231*(127575*x^7 + 806085*x^6 + 2456001*x^5 + 5121279*x^4 + 9702
012*x^3 + 32450916*x^2 - 65622552*x + 21852008)/((2*x - 1)*sqrt(-
2*x + 1))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^5 (5x+3)^2}{(-2x+1)^{\frac{5}{2}}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**5*(3+5*x)**2/(1-2*x)**(5/2),x)
```

```
[Out] Integral((3*x + 2)**5*(5*x + 3)**2/(-2*x + 1)**(5/2), x)
```

GIAC/XCAS [A] time = 0.21211, size = 140, normalized size = 1.33

$$-\frac{6075}{1408}\,(2\,x-1)^5\sqrt{-2\,x+1}-\frac{10845}{128}\,(2\,x-1)^4\sqrt{-2\,x+1}-\frac{672003}{896}\,(2\,x-1)^3\sqrt{-2\,x+1}-\frac{514017}{128}\,(2\,x-1)^2\sqrt{-2\,x+1}+\frac{1965635}{128}\,(-2\,x+1)^{\frac{3}{2}}-\frac{8117095}{128}\,\sqrt{-2\,x+1}-\frac{26411\,(705\,x-314)}{192\,(2\,x-1)\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(3*x + 2)^5/(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] -6075/1408*(2*x - 1)^5*sqrt(-2*x + 1) - 10845/128*(2*x - 1)^4*sqr
t(-2*x + 1) - 672003/896*(2*x - 1)^3*sqrt(-2*x + 1) - 514017/128*
(2*x - 1)^2*sqrt(-2*x + 1) + 1965635/128*(-2*x + 1)^(3/2) - 81170
95/128*sqrt(-2*x + 1) - 26411/192*(705*x - 314)/((2*x - 1)*sqrt(-
2*x + 1))
```

3.2130 $\int \frac{(2+3x)^4(3+5x)^2}{(1-2x)^{5/2}}\,dx$

Optimal. Leaf size=92

$$-\frac{225}{64}(1-2x)^{9/2}+\frac{13905}{224}(1-2x)^{7/2}-\frac{159111}{320}(1-2x)^{5/2}+\frac{40453}{16}(1-2x)^{3/2}-\frac{832951}{64}\sqrt{1-2x}-\frac{381073}{32\sqrt{1-2x}}+\frac{290521}{192(1-2x)^{3/2}}$$

```
[Out] 290521/(192*(1 - 2*x)^(3/2)) - 381073/(32*Sqrt[1 - 2*x]) - (83295
1*Sqrt[1 - 2*x])/64 + (40453*(1 - 2*x)^(3/2))/16 - (159111*(1 - 2
*x)^(5/2))/320 + (13905*(1 - 2*x)^(7/2))/224 - (225*(1 - 2*x)^(9/
2))/64
```

Rubi [A] time = 0.0808667, antiderivative size = 92, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.042

$$-\frac{225}{64}(1-2x)^{9/2}+\frac{13905}{224}(1-2x)^{7/2}-\frac{159111}{320}(1-2x)^{5/2}+\frac{40453}{16}(1-2x)^{3/2}-\frac{832951}{64}\sqrt{1-2x}-\frac{381073}{32\sqrt{1-2x}}+\frac{290521}{192(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^4*(3 + 5*x)^2)/(1 - 2*x)^(5/2),x]
```

```
[Out] 290521/(192*(1 - 2*x)^(3/2)) - 381073/(32*Sqrt[1 - 2*x]) - (83295
1*Sqrt[1 - 2*x])/64 + (40453*(1 - 2*x)^(3/2))/16 - (159111*(1 - 2
*x)^(5/2))/320 + (13905*(1 - 2*x)^(7/2))/224 - (225*(1 - 2*x)^(9/
2))/64
```

Rubi in Sympy [A] time = 10.613, size = 82, normalized size = 0.89

$$-\frac{225(-2x+1)^{\frac{9}{2}}}{64}+\frac{13905(-2x+1)^{\frac{7}{2}}}{224}-\frac{159111(-2x+1)^{\frac{5}{2}}}{320}+\frac{40453(-2x+1)^{\frac{3}{2}}}{16}-\frac{832951\sqrt{-2x+1}}{64}-\frac{381073}{32\sqrt{-2x+1}}+\frac{290521}{192(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4*(3+5*x)**2/(1-2*x)**(5/2),x)
```

```
[Out] -225*(-2*x + 1)**(9/2)/64 + 13905*(-2*x + 1)**(7/2)/224 - 159111*
(-2*x + 1)**(5/2)/320 + 40453*(-2*x + 1)**(3/2)/16 - 832951*sqrt(
-2*x + 1)/64 - 381073/(32*sqrt(-2*x + 1)) + 290521/(192*(-2*x + 1
)**(3/2))
```

Mathematica [A] time = 0.0563055, size = 43, normalized size = 0.47

$$-\frac{23625x^6+137700x^5+402489x^4+915492x^3+3294996x^2-6731112x+2238664}{105(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^4*(3 + 5*x)^2)/(1 - 2*x)^(5/2),x]
```

```
[Out] -(2238664 - 6731112*x + 3294996*x^2 + 915492*x^3 + 402489*x^4 + 1
37700*x^5 + 23625*x^6)/(105*(1 - 2*x)^(3/2))
```

Maple [A] time = 0.006, size = 40, normalized size = 0.4

$$-\frac{23625 x^6+137700 x^5+402489 x^4+915492 x^3+3294996 x^2-6731112 x+2238664}{105}(1-2 x)^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4*(3+5*x)^2/(1-2*x)^(5/2),x)
```

```
[Out] -1/105*(23625*x^6+137700*x^5+402489*x^4+915492*x^3+3294996*x^2-67
31112*x+2238664)/(1-2*x)^(3/2)
```

Maxima [A] time = 1.35192, size = 81, normalized size = 0.88

$$-\frac{225}{64}(-2 x+1)^{\frac{9}{2}}+\frac{13905}{224}(-2 x+1)^{\frac{7}{2}}-\frac{159111}{320}(-2 x+1)^{\frac{5}{2}}+\frac{40453}{16}(-2 x+1)^{\frac{3}{2}}-\frac{832951}{64}\sqrt{-2 x+1}+\frac{3773(1212 x-529)}{192(-2 x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^4/(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] -225/64*(-2*x + 1)^(9/2) + 13905/224*(-2*x + 1)^(7/2) - 159111/32
0*(-2*x + 1)^(5/2) + 40453/16*(-2*x + 1)^(3/2) - 832951/64*sqrt(-
2*x + 1) + 3773/192*(1212*x - 529)/(-2*x + 1)^(3/2)
```

Fricas [A] time = 0.219461, size = 62, normalized size = 0.67

$$\frac{23625 x^6+137700 x^5+402489 x^4+915492 x^3+3294996 x^2-6731112 x+2238664}{105(2 x-1)\sqrt{-2 x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^4/(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/105*(23625*x^6 + 137700*x^5 + 402489*x^4 + 915492*x^3 + 3294996
*x^2 - 6731112*x + 2238664)/((2*x - 1)*sqrt(-2*x + 1))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^4(5x+3)^2}{(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4*(3+5*x)**2/(1-2*x)**(5/2),x)
```

```
[Out] Integral((3*x + 2)**4*(5*x + 3)**2/(-2*x + 1)**(5/2), x)
```

GIAC/XCAS [A] time = 0.211987, size = 119, normalized size = 1.29

$$-\frac{225}{64}\,(2\,x-1)^4\sqrt{-2\,x+1}-\frac{13905}{224}\,(2\,x-1)^3\sqrt{-2\,x+1}-\frac{159111}{320}\,(2\,x-1)^2\sqrt{-2\,x+1}+\frac{40453}{16}\,(-2\,x+1)^{\frac{3}{2}}-\frac{832951}{64}\,\sqrt{-2\,x+1}-\frac{3773\,(1212\,x-529)}{192\,(2\,x-1)\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(3*x + 2)^4/(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] -225/64*(2*x - 1)^4*sqrt(-2*x + 1) - 13905/224*(2*x - 1)^3*sqrt(-
2*x + 1) - 159111/320*(2*x - 1)^2*sqrt(-2*x + 1) + 40453/16*(-2*x
 + 1)^(3/2) - 832951/64*sqrt(-2*x + 1) - 3773/192*(1212*x - 529)/
((2*x - 1)*sqrt(-2*x + 1))
```

3.2131 $\int \frac{(2+3x)^3(3+5x)^2}{(1-2x)^{5/2}}\,dx$

Optimal. Leaf size=79

$$\frac{675}{224}(1-2x)^{7/2}-\frac{1539}{32}(1-2x)^{5/2}+\frac{5847}{16}(1-2x)^{3/2}-\frac{39977}{16}\sqrt{1-2x}-\frac{91091}{32\sqrt{1-2x}}+\frac{41503}{96(1-2x)^{3/2}}$$

```
[Out] 41503/(96*(1 - 2*x)^(3/2)) - 91091/(32*Sqrt[1 - 2*x]) - (39977*Sq
rt[1 - 2*x])/16 + (5847*(1 - 2*x)^(3/2))/16 - (1539*(1 - 2*x)^(5/
2))/32 + (675*(1 - 2*x)^(7/2))/224
```

Rubi [A] time = 0.0748367, antiderivative size = 79, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.042

$$\frac{675}{224}(1-2x)^{7/2}-\frac{1539}{32}(1-2x)^{5/2}+\frac{5847}{16}(1-2x)^{3/2}-\frac{39977}{16}\sqrt{1-2x}-\frac{91091}{32\sqrt{1-2x}}+\frac{41503}{96(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^3*(3 + 5*x)^2)/(1 - 2*x)^(5/2),x]
```

```
[Out] 41503/(96*(1 - 2*x)^(3/2)) - 91091/(32*Sqrt[1 - 2*x]) - (39977*Sq
rt[1 - 2*x])/16 + (5847*(1 - 2*x)^(3/2))/16 - (1539*(1 - 2*x)^(5/
2))/32 + (675*(1 - 2*x)^(7/2))/224
```

Rubi in Sympy [A] time = 9.31587, size = 70, normalized size = 0.89

$$\frac{675\left(-2x+1\right)^{\frac{7}{2}}}{224}-\frac{1539\left(-2x+1\right)^{\frac{5}{2}}}{32}+\frac{5847\left(-2x+1\right)^{\frac{3}{2}}}{16}-\frac{39977\sqrt{-2x+1}}{16}-\frac{91091}{32\sqrt{-2x+1}}+\frac{41503}{96\left(-2x+1\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3*(3+5*x)**2/(1-2*x)**(5/2),x)
```

```
[Out] 675*(-2*x + 1)**(7/2)/224 - 1539*(-2*x + 1)**(5/2)/32 + 5847*(-2*
x + 1)**(3/2)/16 - 39977*sqrt(-2*x + 1)/16 - 91091/(32*sqrt(-2*x
+ 1)) + 41503/(96*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.053928, size = 38, normalized size = 0.48

$$-\frac{2025x^5+11097x^4+34137x^3+139497x^2-290838x+96442}{21(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^3*(3 + 5*x)^2)/(1 - 2*x)^(5/2),x]
```

```
[Out] -(96442 - 290838*x + 139497*x^2 + 34137*x^3 + 11097*x^4 + 2025*x^
5)/(21*(1 - 2*x)^(3/2))
```

Maple [A] time = 0.006, size = 35, normalized size = 0.4

$$-\frac{2025\,x^5+11097\,x^4+34137\,x^3+139497\,x^2-290838\,x+96442}{21}(1-2\,x)^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((2+3*x)^3*(3+5*x)^2/(1-2*x)^(5/2),x)
```

```
[Out] -1/21*(2025*x^5+11097*x^4+34137*x^3+139497*x^2-290838*x+96442)/(1
-2*x)^(3/2)
```

Maxima [A] time = 1.33919, size = 69, normalized size = 0.87

$$\frac{675}{224}\,(-2\,x+1)^{\frac{7}{2}} - \frac{1539}{32}\,(-2\,x+1)^{\frac{5}{2}} + \frac{5847}{16}\,(-2\,x+1)^{\frac{3}{2}} - \frac{39977}{16}\,\sqrt{-2\,x+1} + \frac{539\,(507\,x-215)}{48\,(-2\,x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(3*x + 2)^3/(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] 675/224*(-2*x + 1)^(7/2) - 1539/32*(-2*x + 1)^(5/2) + 5847/16*(-2
*x + 1)^(3/2) - 39977/16*sqrt(-2*x + 1) + 539/48*(507*x - 215)/(-
2*x + 1)^(3/2)
```

Fricas [A] time = 0.213025, size = 55, normalized size = 0.7

$$\frac{2025\,x^5 + 11097\,x^4 + 34137\,x^3 + 139497\,x^2 - 290838\,x + 96442}{21\,(2\,x-1)\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(3*x + 2)^3/(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/21*(2025*x^5 + 11097*x^4 + 34137*x^3 + 139497*x^2 - 290838*x +
96442)/((2*x - 1)*sqrt(-2*x + 1))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^3\,(5x+3)^2}{(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((2+3*x)**3*(3+5*x)**2/(1-2*x)**(5/2),x)
```

```
[Out] Integral((3*x + 2)**3*(5*x + 3)**2/(-2*x + 1)**(5/2), x)
```

GIAC/XCAS [A] time = 0.211535, size = 97, normalized size = 1.23

$$-\frac{675}{224}\,(2\,x-1)^3\sqrt{-2\,x+1} - \frac{1539}{32}\,(2\,x-1)^2\sqrt{-2\,x+1} + \frac{5847}{16}\,(-2\,x+1)^{\frac{3}{2}} - \frac{39977}{16}\,\sqrt{-2\,x+1} - \frac{539\,(507\,x-215)}{48\,(2\,x-1)\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2*(3*x + 2)^3/(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] -675/224*(2*x - 1)^3*sqrt(-2*x + 1) - 1539/32*(2*x - 1)^2*sqrt(-2
*x + 1) + 5847/16*(-2*x + 1)^(3/2) - 39977/16*sqrt(-2*x + 1) - 53
9/48*(507*x - 215)/((2*x - 1)*sqrt(-2*x + 1))
```

3.2132 $\int \frac{(2+3x)^2(3+5x)^2}{(1-2x)^{5/2}}\,dx$

Optimal. Leaf size=66

$$-\frac{45}{16}(1-2x)^{5/2}+\frac{85}{2}(1-2x)^{3/2}-\frac{3467}{8}\sqrt{1-2x}-\frac{1309}{2\sqrt{1-2x}}+\frac{5929}{48(1-2x)^{3/2}}$$

```
[Out] 5929/(48*(1 - 2*x)^(3/2)) - 1309/(2*Sqrt[1 - 2*x]) - (3467*Sqrt[1
 - 2*x])/8 + (85*(1 - 2*x)^(3/2))/2 - (45*(1 - 2*x)^(5/2))/16
```

Rubi [A] time = 0.0684319, antiderivative size = 66, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.042

$$-\frac{45}{16}(1-2x)^{5/2}+\frac{85}{2}(1-2x)^{3/2}-\frac{3467}{8}\sqrt{1-2x}-\frac{1309}{2\sqrt{1-2x}}+\frac{5929}{48(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^2*(3 + 5*x)^2)/(1 - 2*x)^(5/2),x]
```

```
[Out] 5929/(48*(1 - 2*x)^(3/2)) - 1309/(2*Sqrt[1 - 2*x]) - (3467*Sqrt[1
 - 2*x])/8 + (85*(1 - 2*x)^(3/2))/2 - (45*(1 - 2*x)^(5/2))/16
```

Rubi in Sympy [A] time = 8.44317, size = 58, normalized size = 0.88

$$-\frac{45\left(-2x+1\right)^{\frac{5}{2}}}{16}+\frac{85\left(-2x+1\right)^{\frac{3}{2}}}{2}-\frac{3467\sqrt{-2x+1}}{8}-\frac{1309}{2\sqrt{-2x+1}}+\frac{5929}{48\left(-2x+1\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2*(3+5*x)**2/(1-2*x)**(5/2),x)
```

```
[Out] -45*(-2*x + 1)**(5/2)/16 + 85*(-2*x + 1)**(3/2)/2 - 3467*sqrt(-2*
x + 1)/8 - 1309/(2*sqrt(-2*x + 1)) + 5929/(48*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.0497516, size = 33, normalized size = 0.5

$$-\frac{135x^4+750x^3+3873x^2-8430x+2774}{3(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^2*(3 + 5*x)^2)/(1 - 2*x)^(5/2),x]
```

```
[Out] -(2774 - 8430*x + 3873*x^2 + 750*x^3 + 135*x^4)/(3*(1 - 2*x)^(3/2
))
```

Maple [A] time = 0.006, size = 30, normalized size = 0.5

$$-\frac{135\,x^4+750\,x^3+3873\,x^2-8430\,x+2774}{3}\left(1-2\,x\right)^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2*(3+5*x)^2/(1-2*x)^(5/2),x)
```

```
[Out] -1/3*(135*x^4+750*x^3+3873*x^2-8430*x+2774)/(1-2*x)^(3/2)
```

Maxima [A] time = 1.33777, size = 57, normalized size = 0.86

$$-\frac{45}{16}(-2x+1)^{\frac{5}{2}}+\frac{85}{2}(-2x+1)^{\frac{3}{2}}-\frac{3467}{8}\sqrt{-2x+1}+\frac{77(816x-331)}{48(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^2/(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] -45/16*(-2*x + 1)^(5/2) + 85/2*(-2*x + 1)^(3/2) - 3467/8*sqrt(-2*
x + 1) + 77/48*(816*x - 331)/(-2*x + 1)^(3/2)
```

Fricas [A] time = 0.20808, size = 49, normalized size = 0.74

$$\frac{135x^4+750x^3+3873x^2-8430x+2774}{3(2x-1)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^2/(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/3*(135*x^4 + 750*x^3 + 3873*x^2 - 8430*x + 2774)/((2*x - 1)*sqr
t(-2*x + 1))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(3x+2)^2(5x+3)^2}{(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2*(3+5*x)**2/(1-2*x)**(5/2),x)
```

```
[Out] Integral((3*x + 2)**2*(5*x + 3)**2/(-2*x + 1)**(5/2), x)
```

GIAC/XCAS [A] time = 0.212353, size = 76, normalized size = 1.15

$$-\frac{45}{16}(2x-1)^2\sqrt{-2x+1}+\frac{85}{2}(-2x+1)^{\frac{3}{2}}-\frac{3467}{8}\sqrt{-2x+1}-\frac{77(816x-331)}{48(2x-1)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)^2/(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] -45/16*(2*x - 1)^2*sqrt(-2*x + 1) + 85/2*(-2*x + 1)^(3/2) - 3467/
8*sqrt(-2*x + 1) - 77/48*(816*x - 331)/((2*x - 1)*sqrt(-2*x + 1))
```

3.2133 $\int \frac{(2+3x)(3+5x)^2}{(1-2x)^{5/2}} dx$

Optimal. Leaf size=53

$$\frac{25}{8}(1-2x)^{3/2}-\frac{505}{8}\sqrt{1-2x}-\frac{1133}{8\sqrt{1-2x}}+\frac{847}{24(1-2x)^{3/2}}$$

```
[Out] 847/(24*(1 - 2*x)^(3/2)) - 1133/(8*Sqrt[1 - 2*x]) - (505*Sqrt[1 -
 2*x])/8 + (25*(1 - 2*x)^(3/2))/8
```

Rubi [A] time = 0.0535463, antiderivative size = 53, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.045$

$$\frac{25}{8}(1-2x)^{3/2}-\frac{505}{8}\sqrt{1-2x}-\frac{1133}{8\sqrt{1-2x}}+\frac{847}{24(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)*(3 + 5*x)^2)/(1 - 2*x)^(5/2),x]
```

```
[Out] 847/(24*(1 - 2*x)^(3/2)) - 1133/(8*Sqrt[1 - 2*x]) - (505*Sqrt[1 -
 2*x])/8 + (25*(1 - 2*x)^(3/2))/8
```

Rubi in Sympy [A] time = 7.07097, size = 46, normalized size = 0.87

$$\frac{25\,(-2x+1)^{\frac{3}{2}}}{8}-\frac{505\sqrt{-2x+1}}{8}-\frac{1133}{8\sqrt{-2x+1}}+\frac{847}{24\,(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)*(3+5*x)**2/(1-2*x)**(5/2),x)
```

```
[Out] 25*(-2*x + 1)**(3/2)/8 - 505*sqrt(-2*x + 1)/8 - 1133/(8*sqrt(-2*x
 + 1)) + 847/(24*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.0433295, size = 28, normalized size = 0.53

$$-\frac{75x^3+645x^2-1551x+499}{3(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)*(3 + 5*x)^2)/(1 - 2*x)^(5/2),x]
```

```
[Out] -(499 - 1551*x + 645*x^2 + 75*x^3)/(3*(1 - 2*x)^(3/2))
```

Maple [A] time = 0.004, size = 25, normalized size = 0.5

$$-\frac{75\,x^3+645\,x^2-1551\,x+499}{3}(1-2\,x)^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)*(3+5*x)^2/(1-2*x)^(5/2),x)
```

```
[Out] -1/3*(75*x^3+645*x^2-1551*x+499)/(1-2*x)^(3/2)
```

Maxima [A] time = 1.3326, size = 45, normalized size = 0.85

$$\frac{25}{8}\,{\left(-2\,x+1\right)}^{\frac{3}{2}}-\frac{505}{8}\,\sqrt{-2\,x+1}+\frac{11\,{\left(309\,x-116\right)}}{12\,{\left(-2\,x+1\right)}^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)/(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] 25/8*(-2*x + 1)^(3/2) - 505/8*sqrt(-2*x + 1) + 11/12*(309*x - 116
)/(-2*x + 1)^(3/2)
```

Fricas [A] time = 0.205161, size = 42, normalized size = 0.79

$$\frac{75\,x^{3}+645\,x^{2}-1551\,x+499}{3\,{\left(2\,x-1\right)}\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)/(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/3*(75*x^3 + 645*x^2 - 1551*x + 499)/((2*x - 1)*sqrt(-2*x + 1))
```

Sympy [A] time = 1.20071, size = 102, normalized size = 1.92

$$\frac{75x^{3}}{6x\sqrt{-2x+1}-3\sqrt{-2x+1}}+\frac{645x^{2}}{6x\sqrt{-2x+1}-3\sqrt{-2x+1}}-\frac{1551x}{6x\sqrt{-2x+1}-3\sqrt{-2x+1}}+\frac{499}{6x\sqrt{-2x+1}-3\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)*(3+5*x)**2/(1-2*x)**(5/2),x)
```

```
[Out] 75*x**3/(6*x*sqrt(-2*x + 1) - 3*sqrt(-2*x + 1)) + 645*x**2/(6*x*s
qrt(-2*x + 1) - 3*sqrt(-2*x + 1)) - 1551*x/(6*x*sqrt(-2*x + 1) -
3*sqrt(-2*x + 1)) + 499/(6*x*sqrt(-2*x + 1) - 3*sqrt(-2*x + 1))
```

GIAC/XCAS [A] time = 0.209978, size = 54, normalized size = 1.02

$$\frac{25}{8}\,{\left(-2\,x+1\right)}^{\frac{3}{2}}-\frac{505}{8}\,\sqrt{-2\,x+1}-\frac{11\,{\left(309\,x-116\right)}}{12\,{\left(2\,x-1\right)}\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2*(3*x + 2)/(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] 25/8*(-2*x + 1)^(3/2) - 505/8*sqrt(-2*x + 1) - 11/12*(309*x - 116
)/((2*x - 1)*sqrt(-2*x + 1))
```

3.2134 $\int \frac{(3+5x)^2}{(1-2x)^{5/2}}\,dx$

Optimal. Leaf size=40

$$-\frac{25}{4}\sqrt{1-2x}-\frac{55}{2\sqrt{1-2x}}+\frac{121}{12(1-2x)^{3/2}}$$

```
[Out] 121/(12*(1 - 2*x)^(3/2)) - 55/(2*Sqrt[1 - 2*x]) - (25*Sqrt[1 - 2*
x])/4
```

Rubi [A] time = 0.0297779, antiderivative size = 40, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 17, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.059

$$-\frac{25}{4}\sqrt{1-2x}-\frac{55}{2\sqrt{1-2x}}+\frac{121}{12(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^2/(1 - 2*x)^(5/2),x]
```

```
[Out] 121/(12*(1 - 2*x)^(3/2)) - 55/(2*Sqrt[1 - 2*x]) - (25*Sqrt[1 - 2*
x])/4
```

Rubi in Sympy [A] time = 5.1189, size = 34, normalized size = 0.85

$$-\frac{25\sqrt{-2x+1}}{4}-\frac{55}{2\sqrt{-2x+1}}+\frac{121}{12\left(-2x+1\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**2/(1-2*x)**(5/2),x)
```

```
[Out] -25*sqrt(-2*x + 1)/4 - 55/(2*sqrt(-2*x + 1)) + 121/(12*(-2*x + 1)
**(3/2))
```

Mathematica [A] time = 0.0285201, size = 23, normalized size = 0.57

$$\frac{-75x^2+240x-71}{3(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^2/(1 - 2*x)^(5/2),x]
```

```
[Out] (-71 + 240*x - 75*x^2)/(3*(1 - 2*x)^(3/2))
```

Maple [A] time = 0.004, size = 20, normalized size = 0.5

$$-\frac{75\,x^2-240\,x+71}{3}\left(1-2\,x\right)^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^2/(1-2*x)^(5/2),x)
```

```
[Out] -1/3*(75*x^2-240*x+71)/(1-2*x)^(3/2)
```

Maxima [A] time = 1.33272, size = 32, normalized size = 0.8

$$-\frac{25}{4}\sqrt{-2x+1}+\frac{11(60x-19)}{12(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2/(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] -25/4*sqrt(-2*x + 1) + 11/12*(60*x - 19)/(-2*x + 1)^(3/2)
```

Fricas [A] time = 0.21317, size = 35, normalized size = 0.88

$$\frac{75x^2-240x+71}{3(2x-1)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2/(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/3*(75*x^2 - 240*x + 71)/((2*x - 1)*sqrt(-2*x + 1))
```

Sympy [A] time = 1.11617, size = 75, normalized size = 1.88

$$\frac{75x^2}{6x\sqrt{-2x+1}-3\sqrt{-2x+1}}-\frac{240x}{6x\sqrt{-2x+1}-3\sqrt{-2x+1}}+\frac{71}{6x\sqrt{-2x+1}-3\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2/(1-2*x)**(5/2),x)
```

```
[Out] 75*x**2/(6*x*sqrt(-2*x + 1) - 3*sqrt(-2*x + 1)) - 240*x/(6*x*sqrt
(-2*x + 1) - 3*sqrt(-2*x + 1)) + 71/(6*x*sqrt(-2*x + 1) - 3*sqrt(
-2*x + 1))
```

GIAC/XCAS [A] time = 0.209473, size = 42, normalized size = 1.05

$$-\frac{25}{4}\sqrt{-2x+1}-\frac{11(60x-19)}{12(2x-1)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2/(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] -25/4*sqrt(-2*x + 1) - 11/12*(60*x - 19)/((2*x - 1)*sqrt(-2*x + 1
))
```

3.2135 $\int \frac{(3+5x)^2}{(1-2x)^{5/2}(2+3x)}\,dx$

Optimal. Leaf size=54

$$-\frac{407}{98\sqrt{1-2x}}+\frac{121}{42(1-2x)^{3/2}}-\frac{2\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{49\sqrt{21}}$$

```
[Out] 121/(42*(1 - 2*x)^(3/2)) - 407/(98*Sqrt[1 - 2*x]) - (2*ArcTanh[Sq
rt[3/7]*Sqrt[1 - 2*x]])/(49*Sqrt[21])
```

Rubi [A] time = 0.0882123, antiderivative size = 54, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$-\frac{407}{98\sqrt{1-2x}}+\frac{121}{42(1-2x)^{3/2}}-\frac{2\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{49\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^2/((1 - 2*x)^(5/2)*(2 + 3*x)),x]
```

```
[Out] 121/(42*(1 - 2*x)^(3/2)) - 407/(98*Sqrt[1 - 2*x]) - (2*ArcTanh[Sq
rt[3/7]*Sqrt[1 - 2*x]])/(49*Sqrt[21])
```

Rubi in Sympy [A] time = 11.8814, size = 48, normalized size = 0.89

$$-\frac{2\sqrt{21}\,\mathrm{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{1029}-\frac{407}{98\sqrt{-2x+1}}+\frac{121}{42\left(-2x+1\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**2/(1-2*x)**(5/2)/(2+3*x),x)
```

```
[Out] -2*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/1029 - 407/(98*sqrt(
-2*x + 1)) + 121/(42*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.130435, size = 46, normalized size = 0.85

$$\frac{\frac{77(111x-17)}{(1-2x)^{3/2}}-2\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{1029}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^2/((1 - 2*x)^(5/2)*(2 + 3*x)),x]
```

```
[Out] ((77*(-17 + 111*x))/(1 - 2*x)^(3/2) - 2*Sqrt[21]*ArcTanh[Sqrt[3/7
]*Sqrt[1 - 2*x]])/1029
```

Maple [A] time = 0.014, size = 38, normalized size = 0.7

$$\frac{121}{42}\left(1-2\,x\right)^{-\frac{3}{2}}-\frac{2\,\sqrt{21}}{1029}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)-\frac{407}{98}\frac{1}{\sqrt{1-2\,x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^2/(1-2*x)^(5/2)/(2+3*x),x)
```

```
[Out] 121/42/(1-2*x)^(3/2)-2/1029*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*2
1^(1/2)-407/98/(1-2*x)^(1/2)
```

Maxima [A] time = 1.4747, size = 69, normalized size = 1.28

$$\frac{1}{1029}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{11(111x-17)}{147(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2/((3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 1/1029*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21) + 3*
sqrt(-2*x + 1))) + 11/147*(111*x - 17)/(-2*x + 1)^(3/2)
```

Fricas [A] time = 0.226288, size = 97, normalized size = 1.8

$$\frac{\sqrt{21}\left(3(2x-1)\sqrt{-2x+1}\log\left(\frac{\sqrt{21}(3x-5)+21\sqrt{-2x+1}}{3x+2}\right)-11\sqrt{21}(111x-17)\right)}{3087(2x-1)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2/((3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/3087*sqrt(21)*(3*(2*x - 1)*sqrt(-2*x + 1)*log((sqrt(21)*(3*x -
5) + 21*sqrt(-2*x + 1))/(3*x + 2)) - 11*sqrt(21)*(111*x - 17))/((
2*x - 1)*sqrt(-2*x + 1))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(5x+3)^2}{(-2x+1)^{\frac{5}{2}}(3x+2)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2/(1-2*x)**(5/2)/(2+3*x),x)
```

```
[Out] Integral((5*x + 3)**2/((-2*x + 1)**(5/2)*(3*x + 2)), x)
```

GIAC/XCAS [A] time = 0.213598, size = 82, normalized size = 1.52

$$\frac{1}{1029}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{11(111x-17)}{147(2x-1)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2/((3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 1/1029*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqrt(
21) + 3*sqrt(-2*x + 1))) - 11/147*(111*x - 17)/((2*x - 1)*sqrt(-2
*x + 1))
```

3.2136 $\int \frac{(3+5x)^2}{(1-2x)^{5/2}(2+3x)^2}\,dx$

Optimal. Leaf size=81

$$-\frac{130}{1029\sqrt{1-2x}}-\frac{365}{294\sqrt{1-2x}(3x+2)}+\frac{121}{42(1-2x)^{3/2}(3x+2)}+\frac{130\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{343\sqrt{21}}$$

```
[Out] -130/(1029*Sqrt[1 - 2*x]) + 121/(42*(1 - 2*x)^(3/2)*(2 + 3*x)) -
365/(294*Sqrt[1 - 2*x]*(2 + 3*x)) + (130*ArcTanh[Sqrt[3/7]*Sqrt[1
 - 2*x]])/(343*Sqrt[21])
```

Rubi [A] time = 0.11372, antiderivative size = 81, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$-\frac{130}{1029\sqrt{1-2x}}-\frac{365}{294\sqrt{1-2x}(3x+2)}+\frac{121}{42(1-2x)^{3/2}(3x+2)}+\frac{130\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{343\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^2/((1 - 2*x)^(5/2)*(2 + 3*x)^2),x]
```

```
[Out] -130/(1029*Sqrt[1 - 2*x]) + 121/(42*(1 - 2*x)^(3/2)*(2 + 3*x)) -
365/(294*Sqrt[1 - 2*x]*(2 + 3*x)) + (130*ArcTanh[Sqrt[3/7]*Sqrt[1
 - 2*x]])/(343*Sqrt[21])
```

Rubi in Sympy [A] time = 10.1901, size = 70, normalized size = 0.86

$$\frac{130\sqrt{21}\,\text{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{7203}-\frac{130}{1029\sqrt{-2x+1}}-\frac{365}{294\sqrt{-2x+1}\,(3x+2)}+\frac{121}{42\,(-2x+1)^{\frac{3}{2}}\,(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**2/(1-2*x)**(5/2)/(2+3*x)**2,x)
```

```
[Out] 130*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/7203 - 130/(1029*sq
rt(-2*x + 1)) - 365/(294*sqrt(-2*x + 1)*(3*x + 2)) + 121/(42*(-2*
x + 1)**(3/2)*(3*x + 2))
```

Mathematica [A] time = 0.11575, size = 58, normalized size = 0.72

$$\frac{\frac{7(780x^2+2685x+1427)}{(1-2x)^{3/2}(3x+2)}+130\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{7203}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^2/((1 - 2*x)^(5/2)*(2 + 3*x)^2),x]
```

```
[Out] ((7*(1427 + 2685*x + 780*x^2))/((1 - 2*x)^(3/2)*(2 + 3*x)) + 130*
Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/7203
```

Maple [A] time = 0.02, size = 54, normalized size = 0.7

$$\frac{121}{147}(1-2x)^{-\frac{3}{2}}-\frac{44}{343}\frac{1}{\sqrt{1-2x}}+\frac{2}{1029}\sqrt{1-2x}\left(-\frac{4}{3}-2x\right)^{-1}+\frac{130\sqrt{21}}{7203}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^2/(1-2*x)^(5/2)/(2+3*x)^2,x)
```

```
[Out] 121/147/(1-2*x)^(3/2)-44/343/(1-2*x)^(1/2)+2/1029*(1-2*x)^(1/2)/(
-4/3-2*x)+130/7203*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.48775, size = 100, normalized size = 1.23

$$-\frac{65}{7203}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{2\left(195(2x-1)^2+3465x+1232\right)}{1029\left(3(-2x+1)^{\frac{5}{2}}-7(-2x+1)^{\frac{3}{2}}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2/((3*x + 2)^2*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] -65/7203*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21) +
3*sqrt(-2*x + 1))) - 2/1029*(195*(2*x - 1)^2 + 3465*x + 1232)/(3*
(-2*x + 1)^(5/2) - 7*(-2*x + 1)^(3/2))
```

Fricas [A] time = 0.223683, size = 112, normalized size = 1.38

$$\frac{\sqrt{21}\left(195\left(6x^2+x-2\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{21}(3x-5)-21\sqrt{-2x+1}}{3x+2}\right)-\sqrt{21}\left(780x^2+2685x+1427\right)\right)}{21609\left(6x^2+x-2\right)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2/((3*x + 2)^2*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/21609*sqrt(21)*(195*(6*x^2 + x - 2)*sqrt(-2*x + 1)*log((sqrt(21
)*(3*x - 5) - 21*sqrt(-2*x + 1))/(3*x + 2)) - sqrt(21)*(780*x^2 +
 2685*x + 1427))/((6*x^2 + x - 2)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2/(1-2*x)**(5/2)/(2+3*x)**2,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.217961, size = 104, normalized size = 1.28

$$-\frac{65}{7203}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{11(24x+65)}{1029(2x-1)\sqrt{-2x+1}}-\frac{\sqrt{-2x+1}}{343(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2/((3*x + 2)^2*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] -65/7203*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqr
t(21) + 3*sqrt(-2*x + 1))) - 11/1029*(24*x + 65)/((2*x - 1)*sqrt(
-2*x + 1)) - 1/343*sqrt(-2*x + 1)/(3*x + 2)
```

3.2137 $\int \frac{(3+5x)^2}{(1-2x)^{5/2}(2+3x)^3}\,dx$

Optimal. Leaf size=110

$$-\frac{255\sqrt{1-2x}}{686(3x+2)}+\frac{85}{147\sqrt{1-2x}(3x+2)}-\frac{26}{21\sqrt{1-2x}(3x+2)^2}+\frac{121}{42(1-2x)^{3/2}(3x+2)^2}-\frac{85}{343}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

```
[Out] 121/(42*(1 - 2*x)^(3/2)*(2 + 3*x)^2) - 26/(21*Sqrt[1 - 2*x]*(2 +
3*x)^2) + 85/(147*Sqrt[1 - 2*x]*(2 + 3*x)) - (255*Sqrt[1 - 2*x])/
(686*(2 + 3*x)) - (85*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])
/343
```

Rubi [A] time = 0.137569, antiderivative size = 110, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$-\frac{255\sqrt{1-2x}}{686(3x+2)}+\frac{85}{147\sqrt{1-2x}(3x+2)}-\frac{26}{21\sqrt{1-2x}(3x+2)^2}+\frac{121}{42(1-2x)^{3/2}(3x+2)^2}-\frac{85}{343}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^2/((1 - 2*x)^(5/2)*(2 + 3*x)^3),x]
```


```
[Out] 121/(42*(1 - 2*x)^(3/2)*(2 + 3*x)^2) - 26/(21*Sqrt[1 - 2*x]*(2 +
3*x)^2) + 85/(147*Sqrt[1 - 2*x]*(2 + 3*x)) - (255*Sqrt[1 - 2*x])/
(686*(2 + 3*x)) - (85*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])
/343
```

Rubi in Sympy [A] time = 12.3693, size = 94, normalized size = 0.85

$$-\frac{255\sqrt{-2x+1}}{686\,(3x+2)}-\frac{85\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{2401}+\frac{85}{147\sqrt{-2x+1}\,(3x+2)}-\frac{26}{21\sqrt{-2x+1}\,(3x+2)^2}+\frac{121}{42\,(-2x+1)^{\frac{3}{2}}\,(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**2/(1-2*x)**(5/2)/(2+3*x)**3,x)
```

```
[Out] -255*sqrt(-2*x + 1)/(686*(3*x + 2)) - 85*sqrt(21)*atanh(sqrt(21)*
sqrt(-2*x + 1)/7)/2401 + 85/(147*sqrt(-2*x + 1)*(3*x + 2)) - 26/(
21*sqrt(-2*x + 1)*(3*x + 2)**2) + 121/(42*(-2*x + 1)**(3/2)*(3*x
+ 2)**2)
```

Mathematica [A] time = 0.132816, size = 66, normalized size = 0.6

$$\frac{-\frac{7\sqrt{1-2x}\left(9180x^3+4080x^2-7731x-4231\right)}{\left(6x^2+x-2\right)^2}-510\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{14406}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^2/((1 - 2*x)^(5/2)*(2 + 3*x)^3),x]
```

```
[Out] ((-7*Sqrt[1 - 2*x]*(-4231 - 7731*x + 4080*x^2 + 9180*x^3))/(-2 +
x + 6*x^2)^2 - 510*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/144
06
```

Maple [A] time = 0.02, size = 66, normalized size = 0.6

$$\frac{242}{1029}(1-2x)^{-\frac{3}{2}}+\frac{638}{2401}\frac{1}{\sqrt{1-2x}}+\frac{18}{2401(-4-6x)^2}\left(-\frac{43}{2}(1-2x)^{\frac{3}{2}}+\frac{889}{18}\sqrt{1-2x}\right)-\frac{85\sqrt{21}}{2401}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^2/(1-2*x)^(5/2)/(2+3*x)^3,x)
```

```
[Out] 242/1029/(1-2*x)^(3/2)+638/2401/(1-2*x)^(1/2)+18/2401*(-43/2*(1-2
*x)^(3/2)+889/18*(1-2*x)^(1/2))/(-4-6*x)^2-85/2401*arctanh(1/7*21
^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.51348, size = 124, normalized size = 1.13

$$\frac{85}{4802}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{2295(2x-1)^3+8925(2x-1)^2+6468x-15092}{1029\left(9(-2x+1)^{\frac{7}{2}}-42(-2x+1)^{\frac{5}{2}}+49(-2x+1)^{\frac{3}{2}}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2/((3*x + 2)^3*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 85/4802*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21) + 3
*sqrt(-2*x + 1))) - 1/1029*(2295*(2*x - 1)^3 + 8925*(2*x - 1)^2 +
 6468*x - 15092)/(9*(-2*x + 1)^(7/2) - 42*(-2*x + 1)^(5/2) + 49*(
-2*x + 1)^(3/2))
```

Fricas [A] time = 0.221709, size = 144, normalized size = 1.31

$$\frac{\sqrt{7}\left(255\sqrt{3}\left(18x^3+15x^2-4x-4\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{7}(3x-5)+7\sqrt{3}\sqrt{-2x+1}}{3x+2}\right)+\sqrt{7}\left(9180x^3+4080x^2-7731x-4231\right)\right)}{14406\left(18x^3+15x^2-4x-4\right)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2/((3*x + 2)^3*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/14406*sqrt(7)*(255*sqrt(3)*(18*x^3 + 15*x^2 - 4*x - 4)*sqrt(-2*
x + 1)*log((sqrt(7)*(3*x - 5) + 7*sqrt(3)*sqrt(-2*x + 1))/(3*x +
2)) + sqrt(7)*(9180*x^3 + 4080*x^2 - 7731*x - 4231))/((18*x^3 + 1
5*x^2 - 4*x - 4)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2/(1-2*x)**(5/2)/(2+3*x)**3,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.215663, size = 120, normalized size = 1.09

$$\frac{85}{4802}\,\sqrt{21}\ln\left(\frac{\left|-2\,\sqrt{21}+6\,\sqrt{-2\,x+1}\right|}{2\,\left(\sqrt{21}+3\,\sqrt{-2\,x+1}\right)}\right)+\frac{44\,(87\,x-82)}{7203\,(2\,x-1)\sqrt{-2\,x+1}}-\frac{387\,(-2\,x+1)^{\frac{3}{2}}-889\,\sqrt{-2\,x+1}}{9604\,(3\,x+2)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2/((3*x + 2)^3*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 85/4802*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqrt
(21) + 3*sqrt(-2*x + 1))) + 44/7203*(87*x - 82)/((2*x - 1)*sqrt(-
2*x + 1)) - 1/9604*(387*(-2*x + 1)^(3/2) - 889*sqrt(-2*x + 1))/(3
*x + 2)^2
```

3.2138 $\int \frac{(3+5x)^2}{(1-2x)^{5/2}(2+3x)^4}\,dx$

Optimal. Leaf size=128

$$-\frac{1415\sqrt{1-2x}}{4802(3x+2)}-\frac{1415\sqrt{1-2x}}{2058(3x+2)^2}+\frac{566}{441\sqrt{1-2x}(3x+2)^2}-\frac{1091}{882\sqrt{1-2x}(3x+2)^3}+\frac{121}{42(1-2x)^{3/2}(3x+2)^3}-\frac{1415\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{2401\sqrt{21}}$$

```
[Out] 121/(42*(1 - 2*x)^(3/2)*(2 + 3*x)^3) - 1091/(882*Sqrt[1 - 2*x]*(2
 + 3*x)^3) + 566/(441*Sqrt[1 - 2*x]*(2 + 3*x)^2) - (1415*Sqrt[1 -
 2*x])/(2058*(2 + 3*x)^2) - (1415*Sqrt[1 - 2*x])/(4802*(2 + 3*x))
 - (1415*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(2401*Sqrt[21])
```

Rubi [A] time = 0.159669, antiderivative size = 128, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$-\frac{1415\sqrt{1-2x}}{4802(3x+2)}-\frac{1415\sqrt{1-2x}}{2058(3x+2)^2}+\frac{566}{441\sqrt{1-2x}(3x+2)^2}-\frac{1091}{882\sqrt{1-2x}(3x+2)^3}+\frac{121}{42(1-2x)^{3/2}(3x+2)^3}-\frac{1415\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{2401\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^2/((1 - 2*x)^(5/2)*(2 + 3*x)^4),x]
```

```
[Out] 121/(42*(1 - 2*x)^(3/2)*(2 + 3*x)^3) - 1091/(882*Sqrt[1 - 2*x]*(2
 + 3*x)^3) + 566/(441*Sqrt[1 - 2*x]*(2 + 3*x)^2) - (1415*Sqrt[1 -
 2*x])/(2058*(2 + 3*x)^2) - (1415*Sqrt[1 - 2*x])/(4802*(2 + 3*x))
 - (1415*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(2401*Sqrt[21])
```

Rubi in Sympy [A] time = 14.3617, size = 114, normalized size = 0.89

$$-\frac{1415\sqrt{-2x+1}}{4802\,(3x+2)}-\frac{1415\sqrt{-2x+1}}{2058\,(3x+2)^2}-\frac{1415\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{50421}+\frac{566}{441\sqrt{-2x+1}\,(3x+2)^2}-\frac{1091}{882\sqrt{-2x+1}\,(3x+2)^3}+\frac{121}{42\,(-2x+1)^{\frac{3}{2}}\,(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**2/(1-2*x)**(5/2)/(2+3*x)**4,x)
```

```
[Out] -1415*sqrt(-2*x + 1)/(4802*(3*x + 2)) - 1415*sqrt(-2*x + 1)/(2058
*(3*x + 2)**2) - 1415*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/5
0421 + 566/(441*sqrt(-2*x + 1)*(3*x + 2)**2) - 1091/(882*sqrt(-2*
x + 1)*(3*x + 2)**3) + 121/(42*(-2*x + 1)**(3/2)*(3*x + 2)**3)
```

Mathematica [A] time = 0.161477, size = 68, normalized size = 0.53

$$\frac{-\frac{7\left(152820x^4+169800x^3-26319x^2-83655x-23872\right)}{(1-2x)^{3/2}(3x+2)^3}-2830\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{100842}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^2/((1 - 2*x)^(5/2)*(2 + 3*x)^4),x]
```

```
[Out] ((-7*(-23872 - 83655*x - 26319*x^2 + 169800*x^3 + 152820*x^4))/((
1 - 2*x)^(3/2)*(2 + 3*x)^3) - 2830*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqr
t[1 - 2*x]])/100842
```

Maple [A] time = 0.022, size = 75, normalized size = 0.6

$$\frac{484}{7203}(1-2x)^{-\frac{3}{2}}+\frac{2728}{16807}\frac{1}{\sqrt{1-2x}}+\frac{108}{16807(-4-6x)^3}\left(\frac{1721}{12}(1-2x)^{\frac{5}{2}}-\frac{17395}{27}(1-2x)^{\frac{3}{2}}+\frac{78155}{108}\sqrt{1-2x}\right)-\frac{1415\sqrt{21}}{50421}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^2/(1-2*x)^(5/2)/(2+3*x)^4,x)
```

```
[Out] 484/7203/(1-2*x)^(3/2)+2728/16807/(1-2*x)^(1/2)+108/16807*(1721/1
2*(1-2*x)^(5/2)-17395/27*(1-2*x)^(3/2)+78155/108*(1-2*x)^(1/2))/(
-4-6*x)^3-1415/50421*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.48803, size = 149, normalized size = 1.16

$$\frac{1415}{100842}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{38205(2x-1)^4+237720(2x-1)^3+457611(2x-1)^2+375144x-353584}{7203\left(27(-2x+1)^{\frac{9}{2}}-189(-2x+1)^{\frac{7}{2}}+441(-2x+1)^{\frac{5}{2}}-343(-2x+1)^{\frac{3}{2}}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2/((3*x + 2)^4*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 1415/100842*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21)
 + 3*sqrt(-2*x + 1))) + 1/7203*(38205*(2*x - 1)^4 + 237720*(2*x -
 1)^3 + 457611*(2*x - 1)^2 + 375144*x - 353584)/(27*(-2*x + 1)^(9
/2) - 189*(-2*x + 1)^(7/2) + 441*(-2*x + 1)^(5/2) - 343*(-2*x + 1
)^(3/2))
```

Fricas [A] time = 0.215118, size = 157, normalized size = 1.23

$$\frac{\sqrt{21}\left(4245\left(54x^4+81x^3+18x^2-20x-8\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{21}(3x-5)+21\sqrt{-2x+1}}{3x+2}\right)+\sqrt{21}\left(152820x^4+169800x^3-26319x^2-\right.\right.}{302526\left(54x^4+81x^3+18x^2-20x-8\right)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2/((3*x + 2)^4*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/302526*sqrt(21)*(4245*(54*x^4 + 81*x^3 + 18*x^2 - 20*x - 8)*sqr
t(-2*x + 1)*log((sqrt(21)*(3*x - 5) + 21*sqrt(-2*x + 1))/(3*x + 2
)) + sqrt(21)*(152820*x^4 + 169800*x^3 - 26319*x^2 - 83655*x - 23
872))/((54*x^4 + 81*x^3 + 18*x^2 - 20*x - 8)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2/(1-2*x)**(5/2)/(2+3*x)**4,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.213834, size = 128, normalized size = 1.

$$\frac{1415}{100842}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{38205\,(2x-1)^4+237720\,(2x-1)^3+457611\,(2x-1)^2+375144\,x-353584}{7203\left(3\,(-2x+1)^{\frac{3}{2}}-7\sqrt{-2x+1}\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2/((3*x + 2)^4*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 1415/100842*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(
sqrt(21) + 3*sqrt(-2*x + 1))) + 1/7203*(38205*(2*x - 1)^4 + 23772
0*(2*x - 1)^3 + 457611*(2*x - 1)^2 + 375144*x - 353584)/(3*(-2*x
+ 1)^(3/2) - 7*sqrt(-2*x + 1))^3
```

3.2139 $\int \frac{(3+5x)^2}{(1-2x)^{5/2}(2+3x)^5}\,dx$

Optimal. Leaf size=148

$$-\frac{20465\sqrt{1-2x}}{134456(3x+2)}-\frac{20465\sqrt{1-2x}}{57624(3x+2)^2}-\frac{4093\sqrt{1-2x}}{4116(3x+2)^3}+\frac{4093}{2058\sqrt{1-2x}(3x+2)^3}-\frac{727}{588\sqrt{1-2x}(3x+2)^4}+\frac{121}{42(1-2x)^{3/2}(3x+2)^4}-\frac{20465\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{67228\sqrt{21}}$$

```
[Out] 121/(42*(1 - 2*x)^(3/2)*(2 + 3*x)^4) - 727/(588*Sqrt[1 - 2*x]*(2
+ 3*x)^4) + 4093/(2058*Sqrt[1 - 2*x]*(2 + 3*x)^3) - (4093*Sqrt[1
- 2*x])/(4116*(2 + 3*x)^3) - (20465*Sqrt[1 - 2*x])/(57624*(2 + 3*
x)^2) - (20465*Sqrt[1 - 2*x])/(134456*(2 + 3*x)) - (20465*ArcTanh
[Sqrt[3/7]*Sqrt[1 - 2*x]])/(67228*Sqrt[21])
```

Rubi [A] time = 0.189457, antiderivative size = 148, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$-\frac{20465\sqrt{1-2x}}{134456(3x+2)}-\frac{20465\sqrt{1-2x}}{57624(3x+2)^2}-\frac{4093\sqrt{1-2x}}{4116(3x+2)^3}+\frac{4093}{2058\sqrt{1-2x}(3x+2)^3}-\frac{727}{588\sqrt{1-2x}(3x+2)^4}+\frac{121}{42(1-2x)^{3/2}(3x+2)^4}-\frac{20465\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{67228\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^2/((1 - 2*x)^(5/2)*(2 + 3*x)^5),x]
```

```
[Out] 121/(42*(1 - 2*x)^(3/2)*(2 + 3*x)^4) - 727/(588*Sqrt[1 - 2*x]*(2
+ 3*x)^4) + 4093/(2058*Sqrt[1 - 2*x]*(2 + 3*x)^3) - (4093*Sqrt[1
- 2*x])/(4116*(2 + 3*x)^3) - (20465*Sqrt[1 - 2*x])/(57624*(2 + 3*
x)^2) - (20465*Sqrt[1 - 2*x])/(134456*(2 + 3*x)) - (20465*ArcTanh
[Sqrt[3/7]*Sqrt[1 - 2*x]])/(67228*Sqrt[21])
```

Rubi in Sympy [A] time = 16.323, size = 133, normalized size = 0.9

$$-\frac{20465\sqrt{-2x+1}}{134456\,(3x+2)}-\frac{20465\sqrt{-2x+1}}{57624\,(3x+2)^2}-\frac{4093\sqrt{-2x+1}}{4116\,(3x+2)^3}-\frac{20465\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{1411788}+\frac{4093}{2058\sqrt{-2x+1}\,(3x+2)^3}-\frac{727}{588\sqrt{-2x+1}\,(3x+2)^4}+\frac{121}{42\,(-2x+1)^{\frac{3}{2}}\,(3x+2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**2/(1-2*x)**(5/2)/(2+3*x)**5,x)
```

```
[Out] -20465*sqrt(-2*x + 1)/(134456*(3*x + 2)) - 20465*sqrt(-2*x + 1)/(
57624*(3*x + 2)**2) - 4093*sqrt(-2*x + 1)/(4116*(3*x + 2)**3) - 2
0465*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/1411788 + 4093/(20
58*sqrt(-2*x + 1)*(3*x + 2)**3) - 727/(588*sqrt(-2*x + 1)*(3*x +
2)**4) + 121/(42*(-2*x + 1)**(3/2)*(3*x + 2)**4)
```

Mathematica [A] time = 0.191161, size = 73, normalized size = 0.49

$$\frac{-\frac{7\left(6630660x^5+11787840x^4+3769653x^3-3646863x^2-2528226x-401410\right)}{(1-2x)^{3/2}(3x+2)^4}-40930\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{2823576}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^2/((1 - 2*x)^(5/2)*(2 + 3*x)^5),x]
```

```
[Out] ((-7*(-401410 - 2528226*x - 3646863*x^2 + 3769653*x^3 + 11787840*
x^4 + 6630660*x^5))/((1 - 2*x)^(3/2)*(2 + 3*x)^4) - 40930*Sqrt[21
]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/2823576
```

Maple [A] time = 0.024, size = 84, normalized size = 0.6

$$\frac{968}{50421}(1-2x)^{-\frac{3}{2}}+\frac{8360}{117649}\frac{1}{\sqrt{1-2x}}+\frac{648}{117649(-4-6x)^4}\left(\frac{42935}{96}(1-2x)^{\frac{7}{2}}-\frac{2847691}{864}(1-2x)^{\frac{5}{2}}+\frac{20832595}{2592}(1-2x)^{\frac{3}{2}}-\frac{5609765}{864}\sqrt{1-2x}\right)-\frac{20465\sqrt{21}}{1411788}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^2/(1-2*x)^(5/2)/(2+3*x)^5,x)
```

```
[Out] 968/50421/(1-2*x)^(3/2)+8360/117649/(1-2*x)^(1/2)+648/117649*(429
35/96*(1-2*x)^(7/2)-2847691/864*(1-2*x)^(5/2)+20832595/2592*(1-2*
x)^(3/2)-5609765/864*(1-2*x)^(1/2))/(-4-6*x)^4-20465/1411788*arct
anh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.49474, size = 173, normalized size = 1.17

$$\frac{20465}{2823576}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{1657665(2x-1)^5+14182245(2x-1)^4+43921983(2x-1)^3+55955403(2x-1)^2+36945216x-27769280}{201684\left(81(-2x+1)^{\frac{11}{2}}-756(-2x+1)^{\frac{9}{2}}+2646(-2x+1)^{\frac{7}{2}}-4116(-2x+1)^{\frac{5}{2}}+2401(-2x+1)^{\frac{3}{2}}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2/((3*x + 2)^5*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 20465/2823576*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(2
1) + 3*sqrt(-2*x + 1))) - 1/201684*(1657665*(2*x - 1)^5 + 1418224
5*(2*x - 1)^4 + 43921983*(2*x - 1)^3 + 55955403*(2*x - 1)^2 + 369
45216*x - 27769280)/(81*(-2*x + 1)^(11/2) - 756*(-2*x + 1)^(9/2)
+ 2646*(-2*x + 1)^(7/2) - 4116*(-2*x + 1)^(5/2) + 2401*(-2*x + 1)
^(3/2))
```

Fricas [A] time = 0.218124, size = 177, normalized size = 1.2

$$\frac{\sqrt{21}\left(61395\left(162x^5+351x^4+216x^3-24x^2-64x-16\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{21}(3x-5)+21\sqrt{-2x+1}}{3x+2}\right)+\sqrt{21}\left(6630660x^5+1178784\right.\right.}{8470728\left(162x^5+351x^4+216x^3-24x^2-64x-16\right)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^2/((3*x + 2)^5*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/8470728*sqrt(21)*(61395*(162*x^5 + 351*x^4 + 216*x^3 - 24*x^2 -
 64*x - 16)*sqrt(-2*x + 1)*log((sqrt(21)*(3*x - 5) + 21*sqrt(-2*x
```

```
 + 1))/(3*x + 2)) + sqrt(21)*(6630660*x^5 + 11787840*x^4 + 376965
3*x^3 - 3646863*x^2 - 2528226*x - 401410))/((162*x^5 + 351*x^4 +
216*x^3 - 24*x^2 - 64*x - 16)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**2/(1-2*x)**(5/2)/(2+3*x)**5,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.219062, size = 163, normalized size = 1.1

$$\frac{20465}{2823576}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{176\,(285\,x-181)}{352947\,(2\,x-1)\sqrt{-2\,x+1}}-\frac{1159245\,(2\,x-1)^{3}\sqrt{-2\,x+1}+8543073\,(2\,x-1)^{2}\sqrt{-2\,x+1}-20832595\,(-2\,x+1)^{\frac{3}{2}}+16829295\,\sqrt{-2\,x+1}}{7529536\,(3\,x+2)^{4}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^2/((3*x + 2)^5*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 20465/2823576*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))
/(sqrt(21) + 3*sqrt(-2*x + 1))) + 176/352947*(285*x - 181)/((2*x
- 1)*sqrt(-2*x + 1)) - 1/7529536*(1159245*(2*x - 1)^3*sqrt(-2*x +
 1) + 8543073*(2*x - 1)^2*sqrt(-2*x + 1) - 20832595*(-2*x + 1)^(3
/2) + 16829295*sqrt(-2*x + 1))/(3*x + 2)^4
```

3.2140 $\int \frac{(2+3x)^5(3+5x)^3}{(1-2x)^{5/2}}\,dx$

Optimal. Leaf size=118

$$-\frac{30375(1-2x)^{13/2}}{3328}+\frac{277425(1-2x)^{11/2}}{1408}-\frac{246315}{128}(1-2x)^{9/2}+\frac{10121229}{896}(1-2x)^{7/2}-\frac{2887773}{64}(1-2x)^{5/2}+\frac{52725715}{384}(1-2x)^{3/2}-\frac{60160485}{128}\sqrt{1-2x}-\frac{39220335}{128\sqrt{1-2x}}+\frac{22370117}{768(1-2x)^{3/2}}$$

```
[Out] 22370117/(768*(1 - 2*x)^(3/2)) - 39220335/(128*Sqrt[1 - 2*x]) - (
60160485*Sqrt[1 - 2*x])/128 + (52725715*(1 - 2*x)^(3/2))/384 - (2
887773*(1 - 2*x)^(5/2))/64 + (10121229*(1 - 2*x)^(7/2))/896 - (24
6315*(1 - 2*x)^(9/2))/128 + (277425*(1 - 2*x)^(11/2))/1408 - (303
75*(1 - 2*x)^(13/2))/3328
```

Rubi [A] time = 0.0914841, antiderivative size = 118, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.042

$$-\frac{30375(1-2x)^{13/2}}{3328}+\frac{277425(1-2x)^{11/2}}{1408}-\frac{246315}{128}(1-2x)^{9/2}+\frac{10121229}{896}(1-2x)^{7/2}-\frac{2887773}{64}(1-2x)^{5/2}+\frac{52725715}{384}(1-2x)^{3/2}-\frac{60160485}{128}\sqrt{1-2x}-\frac{39220335}{128\sqrt{1-2x}}+\frac{22370117}{768(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^5*(3 + 5*x)^3)/(1 - 2*x)^(5/2),x]
```

```
[Out] 22370117/(768*(1 - 2*x)^(3/2)) - 39220335/(128*Sqrt[1 - 2*x]) - (
60160485*Sqrt[1 - 2*x])/128 + (52725715*(1 - 2*x)^(3/2))/384 - (2
887773*(1 - 2*x)^(5/2))/64 + (10121229*(1 - 2*x)^(7/2))/896 - (24
6315*(1 - 2*x)^(9/2))/128 + (277425*(1 - 2*x)^(11/2))/1408 - (303
75*(1 - 2*x)^(13/2))/3328
```

Rubi in Sympy [A] time = 12.398, size = 105, normalized size = 0.89

$$-\frac{30375\left(-2x+1\right)^{\frac{13}{2}}}{3328}+\frac{277425\left(-2x+1\right)^{\frac{11}{2}}}{1408}-\frac{246315\left(-2x+1\right)^{\frac{9}{2}}}{128}+\frac{10121229\left(-2x+1\right)^{\frac{7}{2}}}{896}-\frac{2887773\left(-2x+1\right)^{\frac{5}{2}}}{64}+\frac{52725715\left(-2x+1\right)^{\frac{3}{2}}}{384}-\frac{60160485\sqrt{-2x+1}}{128}-\frac{39220335}{128\sqrt{-2x+1}}+\frac{22370117}{768\left(-2x+1\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**5*(3+5*x)**3/(1-2*x)**(5/2),x)
```

```
[Out] -30375*(-2*x + 1)**(13/2)/3328 + 277425*(-2*x + 1)**(11/2)/1408 -
 246315*(-2*x + 1)**(9/2)/128 + 10121229*(-2*x + 1)**(7/2)/896 -
2887773*(-2*x + 1)**(5/2)/64 + 52725715*(-2*x + 1)**(3/2)/384 - 6
0160485*sqrt(-2*x + 1)/128 - 39220335/(128*sqrt(-2*x + 1)) + 2237
0117/(768*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.0659168, size = 53, normalized size = 0.45

$$-\frac{7016625x^8+47670525x^7+153878760x^6+324478899x^5+540496701x^4+905206628x^3+2892917004x^2-5818266408x\ \cdots}{3003(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^5*(3 + 5*x)^3)/(1 - 2*x)^(5/2),x]
```

```
[Out] -(1938557272 - 5818266408*x + 2892917004*x^2 + 905206628*x^3 + 54
0496701*x^4 + 324478899*x^5 + 153878760*x^6 + 47670525*x^7 + 7016
625*x^8)/(3003*(1 - 2*x)^(3/2))
```

Maple [A] time = 0.006, size = 50, normalized size = 0.4

$$-\frac{7016625\,x^8+47670525\,x^7+153878760\,x^6+324478899\,x^5+540496701\,x^4+905206628\,x^3+2892917004\,x^2-5818266408}{3003}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^5*(3+5*x)^3/(1-2*x)^(5/2),x)
```

```
[Out] -1/3003*(7016625*x^8+47670525*x^7+153878760*x^6+324478899*x^5+540
496701*x^4+905206628*x^3+2892917004*x^2-5818266408*x+1938557272)/
(1-2*x)^(3/2)
```

Maxima [A] time = 1.33201, size = 105, normalized size = 0.89

$$-\frac{30375}{3328}\,(-2\,x+1)^{\frac{13}{2}}+\frac{277425}{1408}\,(-2\,x+1)^{\frac{11}{2}}-\frac{246315}{128}\,(-2\,x+1)^{\frac{9}{2}}+\frac{10121229}{896}\,(-2\,x+1)^{\frac{7}{2}}-\frac{2887773}{64}\,(-2\,x+1)^{\frac{5}{2}}+\frac{52725715}{384}\,(-2\,x+1)^{\frac{3}{2}}-\frac{60160485}{128}\,\sqrt{-2\,x+1}+\frac{290521\,(1620\,x-733)}{768\,(-2\,x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^5/(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] -30375/3328*(-2*x + 1)^(13/2) + 277425/1408*(-2*x + 1)^(11/2) - 2
46315/128*(-2*x + 1)^(9/2) + 10121229/896*(-2*x + 1)^(7/2) - 2887
773/64*(-2*x + 1)^(5/2) + 52725715/384*(-2*x + 1)^(3/2) - 6016048
5/128*sqrt(-2*x + 1) + 290521/768*(1620*x - 733)/(-2*x + 1)^(3/2)
```

Fricas [A] time = 0.211623, size = 76, normalized size = 0.64

$$\frac{7016625\,x^8+47670525\,x^7+153878760\,x^6+324478899\,x^5+540496701\,x^4+905206628\,x^3+2892917004\,x^2-5818266408\,x}{3003\,(2\,x-1)\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^5/(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/3003*(7016625*x^8 + 47670525*x^7 + 153878760*x^6 + 324478899*x^
5 + 540496701*x^4 + 905206628*x^3 + 2892917004*x^2 - 5818266408*x
 + 1938557272)/((2*x - 1)*sqrt(-2*x + 1))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^5\,(5x+3)^3}{(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**5*(3+5*x)**3/(1-2*x)**(5/2),x)
```

```
[Out] Integral((3*x + 2)**5*(5*x + 3)**3/(-2*x + 1)**(5/2), x)
```

GIAC/XCAS [A] time = 0.216024, size = 162, normalized size = 1.37

$$-\frac{30375}{3328}(2x-1)^6\sqrt{-2x+1}-\frac{277425}{1408}(2x-1)^5\sqrt{-2x+1}-\frac{246315}{128}(2x-1)^4\sqrt{-2x+1}-\frac{10121229}{896}(2x-1)^3\sqrt{-2x+1}-\frac{2887773}{64}(2x-1)^2\sqrt{-2x+1}+\frac{52725715}{384}(-2x+1)^{\frac{3}{2}}-\frac{60160485}{128}\sqrt{-2x+1}-\frac{290521(1620x-733)}{768(2x-1)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3*(3*x + 2)^5/(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] -30375/3328*(2*x - 1)^6*sqrt(-2*x + 1) - 277425/1408*(2*x - 1)^5*
sqrt(-2*x + 1) - 246315/128*(2*x - 1)^4*sqrt(-2*x + 1) - 10121229
/896*(2*x - 1)^3*sqrt(-2*x + 1) - 2887773/64*(2*x - 1)^2*sqrt(-2*
x + 1) + 52725715/384*(-2*x + 1)^(3/2) - 60160485/128*sqrt(-2*x +
 1) - 290521/768*(1620*x - 733)/((2*x - 1)*sqrt(-2*x + 1))
```

3.2141 $\int \frac{(2+3x)^4(3+5x)^3}{(1-2x)^{5/2}}\,dx$

Optimal. Leaf size=105

$$\frac{10125(1-2x)^{11/2}}{1408}-\frac{17925}{128}(1-2x)^{9/2}+\frac{1101465}{896}(1-2x)^{7/2}-\frac{4177401}{640}(1-2x)^{5/2}+\frac{9504551}{384}(1-2x)^{3/2}-\frac{12973191}{128}\sqrt{1-2x}-\frac{9836211}{128\sqrt{1-2x}}+\frac{3195731}{384(1-2x)^{3/2}}$$

```
[Out] 3195731/(384*(1 - 2*x)^(3/2)) - 9836211/(128*Sqrt[1 - 2*x]) - (12
973191*Sqrt[1 - 2*x])/128 + (9504551*(1 - 2*x)^(3/2))/384 - (4177
401*(1 - 2*x)^(5/2))/640 + (1101465*(1 - 2*x)^(7/2))/896 - (17925
*(1 - 2*x)^(9/2))/128 + (10125*(1 - 2*x)^(11/2))/1408
```

Rubi [A] time = 0.0857993, antiderivative size = 105, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.042$

$$\frac{10125(1-2x)^{11/2}}{1408}-\frac{17925}{128}(1-2x)^{9/2}+\frac{1101465}{896}(1-2x)^{7/2}-\frac{4177401}{640}(1-2x)^{5/2}+\frac{9504551}{384}(1-2x)^{3/2}-\frac{12973191}{128}\sqrt{1-2x}-\frac{9836211}{128\sqrt{1-2x}}+\frac{3195731}{384(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^4*(3 + 5*x)^3)/(1 - 2*x)^(5/2),x]
```

```
[Out] 3195731/(384*(1 - 2*x)^(3/2)) - 9836211/(128*Sqrt[1 - 2*x]) - (12
973191*Sqrt[1 - 2*x])/128 + (9504551*(1 - 2*x)^(3/2))/384 - (4177
401*(1 - 2*x)^(5/2))/640 + (1101465*(1 - 2*x)^(7/2))/896 - (17925
*(1 - 2*x)^(9/2))/128 + (10125*(1 - 2*x)^(11/2))/1408
```

Rubi in Sympy [A] time = 11.3437, size = 94, normalized size = 0.9

$$\frac{10125\,(-2x+1)^{\frac{11}{2}}}{1408}-\frac{17925\,(-2x+1)^{\frac{9}{2}}}{128}+\frac{1101465\,(-2x+1)^{\frac{7}{2}}}{896}-\frac{4177401\,(-2x+1)^{\frac{5}{2}}}{640}+\frac{9504551\,(-2x+1)^{\frac{3}{2}}}{384}-\frac{12973191\sqrt{-2x+1}}{128}-\frac{9836211}{128\sqrt{-2x+1}}+\frac{3195731}{384\,(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4*(3+5*x)**3/(1-2*x)**(5/2),x)
```

```
[Out] 10125*(-2*x + 1)**(11/2)/1408 - 17925*(-2*x + 1)**(9/2)/128 + 110
1465*(-2*x + 1)**(7/2)/896 - 4177401*(-2*x + 1)**(5/2)/640 + 9504
551*(-2*x + 1)**(3/2)/384 - 12973191*sqrt(-2*x + 1)/128 - 9836211
/(128*sqrt(-2*x + 1)) + 3195731/(384*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.0611024, size = 48, normalized size = 0.46

$$-\frac{1063125x^7+6630750x^6+19961775x^5+41201532x^4+77493296x^3+258342648x^2-522173856x+173891632}{1155(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^4*(3 + 5*x)^3)/(1 - 2*x)^(5/2),x]
```

```
[Out] -(173891632 - 522173856*x + 258342648*x^2 + 77493296*x^3 + 412015
32*x^4 + 19961775*x^5 + 6630750*x^6 + 1063125*x^7)/(1155*(1 - 2*x
)^(3/2))
```

Maple [A] time = 0.006, size = 45, normalized size = 0.4

$$-\frac{1063125\,x^{7}+6630750\,x^{6}+19961775\,x^{5}+41201532\,x^{4}+77493296\,x^{3}+258342648\,x^{2}-522173856\,x+173891632}{1155}(1-2x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4*(3+5*x)^3/(1-2*x)^(5/2),x)
```

```
[Out] -1/1155*(1063125*x^7+6630750*x^6+19961775*x^5+41201532*x^4+774932
96*x^3+258342648*x^2-522173856*x+173891632)/(1-2*x)^(3/2)
```

Maxima [A] time = 1.32226, size = 93, normalized size = 0.89

$$\frac{10125}{1408}\,(-2\,x+1)^{\frac{11}{2}}-\frac{17925}{128}\,(-2\,x+1)^{\frac{9}{2}}+\frac{1101465}{896}\,(-2\,x+1)^{\frac{7}{2}}-\frac{4177401}{640}\,(-2\,x+1)^{\frac{5}{2}}+\frac{9504551}{384}\,(-2\,x+1)^{\frac{3}{2}}-\frac{12973191}{128}\,\sqrt{-2\,x+1}+\frac{41503\,(711\,x-317)}{192\,(-2\,x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^4/(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] 10125/1408*(-2*x + 1)^(11/2) - 17925/128*(-2*x + 1)^(9/2) + 11014
65/896*(-2*x + 1)^(7/2) - 4177401/640*(-2*x + 1)^(5/2) + 9504551/
384*(-2*x + 1)^(3/2) - 12973191/128*sqrt(-2*x + 1) + 41503/192*(7
11*x - 317)/(-2*x + 1)^(3/2)
```

Fricas [A] time = 0.211545, size = 69, normalized size = 0.66

$$\frac{1063125\,x^{7}+6630750\,x^{6}+19961775\,x^{5}+41201532\,x^{4}+77493296\,x^{3}+258342648\,x^{2}-522173856\,x+173891632}{1155\,(2\,x-1)\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^4/(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/1155*(1063125*x^7 + 6630750*x^6 + 19961775*x^5 + 41201532*x^4 +
 77493296*x^3 + 258342648*x^2 - 522173856*x + 173891632)/((2*x -
1)*sqrt(-2*x + 1))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{4}\,(5x+3)^{3}}{(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4*(3+5*x)**3/(1-2*x)**(5/2),x)
```

```
[Out] Integral((3*x + 2)**4*(5*x + 3)**3/(-2*x + 1)**(5/2), x)
```

GIAC/XCAS [A] time = 0.248106, size = 140, normalized size = 1.33

$$-\frac{10125}{1408}(2x-1)^5\sqrt{-2x+1}-\frac{17925}{128}(2x-1)^4\sqrt{-2x+1}-\frac{1101465}{896}(2x-1)^3\sqrt{-2x+1}-\frac{4177401}{640}(2x-1)^2\sqrt{-2x+1}+\frac{9504551}{384}(-2x+1)^{\frac{3}{2}}-\frac{12973191}{128}\sqrt{-2x+1}-\frac{41503(711x-317)}{192(2x-1)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3*(3*x + 2)^4/(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] -10125/1408*(2*x - 1)^5*sqrt(-2*x + 1) - 17925/128*(2*x - 1)^4*sq
rt(-2*x + 1) - 1101465/896*(2*x - 1)^3*sqrt(-2*x + 1) - 4177401/6
40*(2*x - 1)^2*sqrt(-2*x + 1) + 9504551/384*(-2*x + 1)^(3/2) - 12
973191/128*sqrt(-2*x + 1) - 41503/192*(711*x - 317)/((2*x - 1)*sq
rt(-2*x + 1))
```

3.2142 $\int \frac{(2+3x)^3(3+5x)^3}{(1-2x)^{5/2}}\,dx$

Optimal. Leaf size=92

$$-\frac{375}{64}(1-2x)^{9/2}+\frac{11475}{112}(1-2x)^{7/2}-\frac{52011}{64}(1-2x)^{5/2}+\frac{98209}{24}(1-2x)^{3/2}-\frac{1334949}{64}\sqrt{1-2x}-\frac{302379}{16\sqrt{1-2x}}+\frac{456533}{192(1-2x)^{3/2}}$$

```
[Out] 456533/(192*(1 - 2*x)^(3/2)) - 302379/(16*Sqrt[1 - 2*x]) - (13349
49*Sqrt[1 - 2*x])/64 + (98209*(1 - 2*x)^(3/2))/24 - (52011*(1 - 2
*x)^(5/2))/64 + (11475*(1 - 2*x)^(7/2))/112 - (375*(1 - 2*x)^(9/2
))/64
```

Rubi [A] time = 0.0793596, antiderivative size = 92, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.042$

$$-\frac{375}{64}(1-2x)^{9/2}+\frac{11475}{112}(1-2x)^{7/2}-\frac{52011}{64}(1-2x)^{5/2}+\frac{98209}{24}(1-2x)^{3/2}-\frac{1334949}{64}\sqrt{1-2x}-\frac{302379}{16\sqrt{1-2x}}+\frac{456533}{192(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^3*(3 + 5*x)^3)/(1 - 2*x)^(5/2),x]
```

```
[Out] 456533/(192*(1 - 2*x)^(3/2)) - 302379/(16*Sqrt[1 - 2*x]) - (13349
49*Sqrt[1 - 2*x])/64 + (98209*(1 - 2*x)^(3/2))/24 - (52011*(1 - 2
*x)^(5/2))/64 + (11475*(1 - 2*x)^(7/2))/112 - (375*(1 - 2*x)^(9/2
))/64
```

Rubi in Sympy [A] time = 10.2849, size = 82, normalized size = 0.89

$$-\frac{375\left(-2x+1\right)^{\frac{9}{2}}}{64}+\frac{11475\left(-2x+1\right)^{\frac{7}{2}}}{112}-\frac{52011\left(-2x+1\right)^{\frac{5}{2}}}{64}+\frac{98209\left(-2x+1\right)^{\frac{3}{2}}}{24}-\frac{1334949\sqrt{-2x+1}}{64}-\frac{302379}{16\sqrt{-2x+1}}+\frac{456533}{192\left(-2x+1\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3*(3+5*x)**3/(1-2*x)**(5/2),x)
```

```
[Out] -375*(-2*x + 1)**(9/2)/64 + 11475*(-2*x + 1)**(7/2)/112 - 52011*(
-2*x + 1)**(5/2)/64 + 98209*(-2*x + 1)**(3/2)/24 - 1334949*sqrt(-
2*x + 1)/64 - 302379/(16*sqrt(-2*x + 1)) + 456533/(192*(-2*x + 1)
**(3/2))
```

Mathematica [A] time = 0.0551084, size = 43, normalized size = 0.47

$$-\frac{7875x^6+45225x^5+130464x^4+293785x^3+1051833x^2-2146758x+714074}{21(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^3*(3 + 5*x)^3)/(1 - 2*x)^(5/2),x]
```

```
[Out] -(714074 - 2146758*x + 1051833*x^2 + 293785*x^3 + 130464*x^4 + 45
225*x^5 + 7875*x^6)/(21*(1 - 2*x)^(3/2))
```

Maple [A] time = 0.006, size = 40, normalized size = 0.4

$$-\frac{7875\,x^{6}+45225\,x^{5}+130464\,x^{4}+293785\,x^{3}+1051833\,x^{2}-2146758\,x+714074}{21}(1-2\,x)^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3*(3+5*x)^3/(1-2*x)^(5/2),x)
```

```
[Out] -1/21*(7875*x^6+45225*x^5+130464*x^4+293785*x^3+1051833*x^2-21467
58*x+714074)/(1-2*x)^(3/2)
```

Maxima [A] time = 1.33184, size = 81, normalized size = 0.88

$$-\frac{375}{64}(-2\,x+1)^{\frac{9}{2}}+\frac{11475}{112}(-2\,x+1)^{\frac{7}{2}}-\frac{52011}{64}(-2\,x+1)^{\frac{5}{2}}+\frac{98209}{24}(-2\,x+1)^{\frac{3}{2}}-\frac{1334949}{64}\sqrt{-2\,x+1}+\frac{5929\,(1224\,x-535)}{192\,(-2\,x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^3/(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] -375/64*(-2*x + 1)^(9/2) + 11475/112*(-2*x + 1)^(7/2) - 52011/64*
(-2*x + 1)^(5/2) + 98209/24*(-2*x + 1)^(3/2) - 1334949/64*sqrt(-2
*x + 1) + 5929/192*(1224*x - 535)/(-2*x + 1)^(3/2)
```

Fricas [A] time = 0.214212, size = 62, normalized size = 0.67

$$\frac{7875\,x^{6}+45225\,x^{5}+130464\,x^{4}+293785\,x^{3}+1051833\,x^{2}-2146758\,x+714074}{21\,(2\,x-1)\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)^3/(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/21*(7875*x^6 + 45225*x^5 + 130464*x^4 + 293785*x^3 + 1051833*x^
2 - 2146758*x + 714074)/((2*x - 1)*sqrt(-2*x + 1))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(3x+2)^{3}\,(5x+3)^{3}}{(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3*(3+5*x)**3/(1-2*x)**(5/2),x)
```

```
[Out] Integral((3*x + 2)**3*(5*x + 3)**3/(-2*x + 1)**(5/2), x)
```

GIAC/XCAS [A] time = 0.217623, size = 119, normalized size = 1.29

$$-\frac{375}{64}\,(2\,x-1)^4\sqrt{-2\,x+1}-\frac{11475}{112}\,(2\,x-1)^3\sqrt{-2\,x+1}-\frac{52011}{64}\,(2\,x-1)^2\sqrt{-2\,x+1}+\frac{98209}{24}\,(-2\,x+1)^{\frac{3}{2}}-\frac{1334949}{64}\,\sqrt{-2\,x+1}-\frac{5929\,(1224\,x-535)}{192\,(2\,x-1)\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3*(3*x + 2)^3/(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] -375/64*(2*x - 1)^4*sqrt(-2*x + 1) - 11475/112*(2*x - 1)^3*sqrt(-
2*x + 1) - 52011/64*(2*x - 1)^2*sqrt(-2*x + 1) + 98209/24*(-2*x +
 1)^(3/2) - 1334949/64*sqrt(-2*x + 1) - 5929/192*(1224*x - 535)/(
(2*x - 1)*sqrt(-2*x + 1))
```

3.2143 $\int \frac{(2+3x)^2(3+5x)^3}{(1-2x)^{5/2}}\,dx$

Optimal. Leaf size=79

$$\frac{1125}{224}(1-2x)^{7/2}-\frac{2535}{32}(1-2x)^{5/2}+\frac{28555}{48}(1-2x)^{3/2}-\frac{64317}{16}\sqrt{1-2x}-\frac{144837}{32\sqrt{1-2x}}+\frac{65219}{96(1-2x)^{3/2}}$$

```
[Out] 65219/(96*(1 - 2*x)^(3/2)) - 144837/(32*Sqrt[1 - 2*x]) - (64317*S
qrt[1 - 2*x])/16 + (28555*(1 - 2*x)^(3/2))/48 - (2535*(1 - 2*x)^(
5/2))/32 + (1125*(1 - 2*x)^(7/2))/224
```

Rubi [A] time = 0.0735289, antiderivative size = 79, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.042

$$\frac{1125}{224}(1-2x)^{7/2}-\frac{2535}{32}(1-2x)^{5/2}+\frac{28555}{48}(1-2x)^{3/2}-\frac{64317}{16}\sqrt{1-2x}-\frac{144837}{32\sqrt{1-2x}}+\frac{65219}{96(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^2*(3 + 5*x)^3)/(1 - 2*x)^(5/2),x]
```

```
[Out] 65219/(96*(1 - 2*x)^(3/2)) - 144837/(32*Sqrt[1 - 2*x]) - (64317*S
qrt[1 - 2*x])/16 + (28555*(1 - 2*x)^(3/2))/48 - (2535*(1 - 2*x)^(
5/2))/32 + (1125*(1 - 2*x)^(7/2))/224
```

Rubi in Sympy [A] time = 9.65914, size = 70, normalized size = 0.89

$$\frac{1125\left(-2x+1\right)^{\frac{7}{2}}}{224}-\frac{2535\left(-2x+1\right)^{\frac{5}{2}}}{32}+\frac{28555\left(-2x+1\right)^{\frac{3}{2}}}{48}-\frac{64317\sqrt{-2x+1}}{16}-\frac{144837}{32\sqrt{-2x+1}}+\frac{65219}{96\left(-2x+1\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2*(3+5*x)**3/(1-2*x)**(5/2),x)
```

```
[Out] 1125*(-2*x + 1)**(7/2)/224 - 2535*(-2*x + 1)**(5/2)/32 + 28555*(-
2*x + 1)**(3/2)/48 - 64317*sqrt(-2*x + 1)/16 - 144837/(32*sqrt(-2
*x + 1)) + 65219/(96*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.0542563, size = 38, normalized size = 0.48

$$-\frac{3375x^5+18180x^4+55145x^3+223458x^2-465060x+154264}{21(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^2*(3 + 5*x)^3)/(1 - 2*x)^(5/2),x]
```

```
[Out] -(154264 - 465060*x + 223458*x^2 + 55145*x^3 + 18180*x^4 + 3375*x
^5)/(21*(1 - 2*x)^(3/2))
```

Maple [A] time = 0.006, size = 35, normalized size = 0.4

$$-\frac{3375\,x^5+18180\,x^4+55145\,x^3+223458\,x^2-465060\,x+154264}{21}\left(1-2\,x\right)^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2*(3+5*x)^3/(1-2*x)^(5/2),x)
```

```
[Out] -1/21*(3375*x^5+18180*x^4+55145*x^3+223458*x^2-465060*x+154264)/(
1-2*x)^(3/2)
```

Maxima [A] time = 1.36983, size = 69, normalized size = 0.87

$$\frac{1125}{224}\,(-2\,x+1)^{\frac{7}{2}}-\frac{2535}{32}\,(-2\,x+1)^{\frac{5}{2}}+\frac{28555}{48}\,(-2\,x+1)^{\frac{3}{2}}-\frac{64317}{16}\,\sqrt{-2\,x+1}+\frac{847\,(513\,x-218)}{48\,(-2\,x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3*(3*x + 2)^2/(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] 1125/224*(-2*x + 1)^(7/2) - 2535/32*(-2*x + 1)^(5/2) + 28555/48*(
-2*x + 1)^(3/2) - 64317/16*sqrt(-2*x + 1) + 847/48*(513*x - 218)/
(-2*x + 1)^(3/2)
```

Fricas [A] time = 0.214403, size = 55, normalized size = 0.7

$$\frac{3375\,x^5+18180\,x^4+55145\,x^3+223458\,x^2-465060\,x+154264}{21\,(2\,x-1)\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3*(3*x + 2)^2/(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/21*(3375*x^5 + 18180*x^4 + 55145*x^3 + 223458*x^2 - 465060*x +
154264)/((2*x - 1)*sqrt(-2*x + 1))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^2\,(5x+3)^3}{(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2*(3+5*x)**3/(1-2*x)**(5/2),x)
```

```
[Out] Integral((3*x + 2)**2*(5*x + 3)**3/(-2*x + 1)**(5/2), x)
```

GIAC/XCAS [A] time = 0.216948, size = 97, normalized size = 1.23

$$-\frac{1125}{224}\,(2\,x-1)^3\sqrt{-2\,x+1}-\frac{2535}{32}\,(2\,x-1)^2\sqrt{-2\,x+1}+\frac{28555}{48}\,(-2\,x+1)^{\frac{3}{2}}-\frac{64317}{16}\,\sqrt{-2\,x+1}-\frac{847\,(513\,x-218)}{48\,(2\,x-1)\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3*(3*x + 2)^2/(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] -1125/224*(2*x - 1)^3*sqrt(-2*x + 1) - 2535/32*(2*x - 1)^2*sqrt(-
2*x + 1) + 28555/48*(-2*x + 1)^(3/2) - 64317/16*sqrt(-2*x + 1) -
847/48*(513*x - 218)/((2*x - 1)*sqrt(-2*x + 1))
```

3.2144 $\int \frac{(2+3x)(3+5x)^3}{(1-2x)^{5/2}}\,dx$

Optimal. Leaf size=66

$$-\frac{75}{16}(1-2x)^{5/2}+\frac{1675}{24}(1-2x)^{3/2}-\frac{2805}{4}\sqrt{1-2x}-\frac{8349}{8\sqrt{1-2x}}+\frac{9317}{48(1-2x)^{3/2}}$$

```
[Out] 9317/(48*(1 - 2*x)^(3/2)) - 8349/(8*Sqrt[1 - 2*x]) - (2805*Sqrt[1
 - 2*x])/4 + (1675*(1 - 2*x)^(3/2))/24 - (75*(1 - 2*x)^(5/2))/16
```

Rubi [A] time = 0.0593476, antiderivative size = 66, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-\frac{75}{16}(1-2x)^{5/2}+\frac{1675}{24}(1-2x)^{3/2}-\frac{2805}{4}\sqrt{1-2x}-\frac{8349}{8\sqrt{1-2x}}+\frac{9317}{48(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)*(3 + 5*x)^3)/(1 - 2*x)^(5/2),x]
```

```
[Out] 9317/(48*(1 - 2*x)^(3/2)) - 8349/(8*Sqrt[1 - 2*x]) - (2805*Sqrt[1
 - 2*x])/4 + (1675*(1 - 2*x)^(3/2))/24 - (75*(1 - 2*x)^(5/2))/16
```

Rubi in Sympy [A] time = 8.08477, size = 58, normalized size = 0.88

$$-\frac{75\,(-2x+1)^{\frac{5}{2}}}{16}+\frac{1675\,(-2x+1)^{\frac{3}{2}}}{24}-\frac{2805\sqrt{-2x+1}}{4}-\frac{8349}{8\sqrt{-2x+1}}+\frac{9317}{48\,(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)*(3+5*x)**3/(1-2*x)**(5/2),x)
```

```
[Out] -75*(-2*x + 1)**(5/2)/16 + 1675*(-2*x + 1)**(3/2)/24 - 2805*sqrt(
-2*x + 1)/4 - 8349/(8*sqrt(-2*x + 1)) + 9317/(48*(-2*x + 1)**(3/2
))
```

Mathematica [A] time = 0.0448725, size = 33, normalized size = 0.5

$$-\frac{225x^4+1225x^3+6240x^2-13533x+4457}{3(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)*(3 + 5*x)^3)/(1 - 2*x)^(5/2),x]
```

```
[Out] -(4457 - 13533*x + 6240*x^2 + 1225*x^3 + 225*x^4)/(3*(1 - 2*x)^(3
/2))
```

Maple [A] time = 0.005, size = 30, normalized size = 0.5

$$-\frac{225\,x^4+1225\,x^3+6240\,x^2-13533\,x+4457}{3}(1-2\,x)^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)*(3+5*x)^3/(1-2*x)^(5/2),x)
```

```
[Out] -1/3*(225*x^4+1225*x^3+6240*x^2-13533*x+4457)/(1-2*x)^(3/2)
```

Maxima [A] time = 1.36182, size = 57, normalized size = 0.86

$$-\frac{75}{16}\left(-2x+1\right)^{\frac{5}{2}}+\frac{1675}{24}\left(-2x+1\right)^{\frac{3}{2}}-\frac{2805}{4}\sqrt{-2x+1}+\frac{121\left(828x-337\right)}{48\left(-2x+1\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)/(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] -75/16*(-2*x + 1)^(5/2) + 1675/24*(-2*x + 1)^(3/2) - 2805/4*sqrt(
-2*x + 1) + 121/48*(828*x - 337)/(-2*x + 1)^(3/2)
```

Fricas [A] time = 0.212817, size = 49, normalized size = 0.74

$$\frac{225x^4+1225x^3+6240x^2-13533x+4457}{3\left(2x-1\right)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)/(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/3*(225*x^4 + 1225*x^3 + 6240*x^2 - 13533*x + 4457)/((2*x - 1)*s
qrt(-2*x + 1))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(3x+2)(5x+3)^3}{(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)*(3+5*x)**3/(1-2*x)**(5/2),x)
```

```
[Out] Integral((3*x + 2)*(5*x + 3)**3/(-2*x + 1)**(5/2), x)
```

GIAC/XCAS [A] time = 0.214628, size = 76, normalized size = 1.15

$$-\frac{75}{16}\left(2x-1\right)^2\sqrt{-2x+1}+\frac{1675}{24}\left(-2x+1\right)^{\frac{3}{2}}-\frac{2805}{4}\sqrt{-2x+1}-\frac{121\left(828x-337\right)}{48\left(2x-1\right)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3*(3*x + 2)/(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] -75/16*(2*x - 1)^2*sqrt(-2*x + 1) + 1675/24*(-2*x + 1)^(3/2) - 28
05/4*sqrt(-2*x + 1) - 121/48*(828*x - 337)/((2*x - 1)*sqrt(-2*x +
 1))
```

3.2145 $\int \frac{(3+5x)^3}{(1-2x)^{5/2}}\,dx$

Optimal. Leaf size=53

$$\frac{125}{24}(1-2x)^{3/2}-\frac{825}{8}\sqrt{1-2x}-\frac{1815}{8\sqrt{1-2x}}+\frac{1331}{24(1-2x)^{3/2}}$$

```
[Out] 1331/(24*(1 - 2*x)^(3/2)) - 1815/(8*Sqrt[1 - 2*x]) - (825*Sqrt[1
- 2*x])/8 + (125*(1 - 2*x)^(3/2))/24
```

Rubi [A] time = 0.0360355, antiderivative size = 53, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 17, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.059

$$\frac{125}{24}(1-2x)^{3/2}-\frac{825}{8}\sqrt{1-2x}-\frac{1815}{8\sqrt{1-2x}}+\frac{1331}{24(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^3/(1 - 2*x)^(5/2),x]
```

```
[Out] 1331/(24*(1 - 2*x)^(3/2)) - 1815/(8*Sqrt[1 - 2*x]) - (825*Sqrt[1
- 2*x])/8 + (125*(1 - 2*x)^(3/2))/24
```

Rubi in Sympy [A] time = 6.11743, size = 46, normalized size = 0.87

$$\frac{125\,(-2x+1)^{\frac{3}{2}}}{24}-\frac{825\sqrt{-2x+1}}{8}-\frac{1815}{8\sqrt{-2x+1}}+\frac{1331}{24\,(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**3/(1-2*x)**(5/2),x)
```

```
[Out] 125*(-2*x + 1)**(3/2)/24 - 825*sqrt(-2*x + 1)/8 - 1815/(8*sqrt(-2
*x + 1)) + 1331/(24*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.0307891, size = 28, normalized size = 0.53

$$-\frac{125x^3+1050x^2-2505x+808}{3(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^3/(1 - 2*x)^(5/2),x]
```

```
[Out] -(808 - 2505*x + 1050*x^2 + 125*x^3)/(3*(1 - 2*x)^(3/2))
```

Maple [A] time = 0.005, size = 25, normalized size = 0.5

$$-\frac{125\,x^3+1050\,x^2-2505\,x+808}{3}(1-2\,x)^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3/(1-2*x)^(5/2),x)
```

```
[Out] -1/3*(125*x^3+1050*x^2-2505*x+808)/(1-2*x)^(3/2)
```

Maxima [A] time = 1.34315, size = 45, normalized size = 0.85

$$\frac{125}{24}\,(-2\,x+1)^{\frac{3}{2}}-\frac{825}{8}\,\sqrt{-2\,x+1}+\frac{121\,(45\,x-17)}{12\,(-2\,x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] 125/24*(-2*x + 1)^(3/2) - 825/8*sqrt(-2*x + 1) + 121/12*(45*x - 1
7)/(-2*x + 1)^(3/2)
```

Fricas [A] time = 0.211852, size = 42, normalized size = 0.79

$$\frac{125\,x^{3}+1050\,x^{2}-2505\,x+808}{3\,(2\,x-1)\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/3*(125*x^3 + 1050*x^2 - 2505*x + 808)/((2*x - 1)*sqrt(-2*x + 1)
)
```

Sympy [A] time = 1.151, size = 102, normalized size = 1.92

$$\frac{125x^{3}}{6x\sqrt{-2x+1}-3\sqrt{-2x+1}}+\frac{1050x^{2}}{6x\sqrt{-2x+1}-3\sqrt{-2x+1}}-\frac{2505x}{6x\sqrt{-2x+1}-3\sqrt{-2x+1}}+\frac{808}{6x\sqrt{-2x+1}-3\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3/(1-2*x)**(5/2),x)
```

```
[Out] 125*x**3/(6*x*sqrt(-2*x + 1) - 3*sqrt(-2*x + 1)) + 1050*x**2/(6*x
*sqrt(-2*x + 1) - 3*sqrt(-2*x + 1)) - 2505*x/(6*x*sqrt(-2*x + 1)
- 3*sqrt(-2*x + 1)) + 808/(6*x*sqrt(-2*x + 1) - 3*sqrt(-2*x + 1))
```

GIAC/XCAS [A] time = 0.212442, size = 54, normalized size = 1.02

$$\frac{125}{24}\,(-2\,x+1)^{\frac{3}{2}}-\frac{825}{8}\,\sqrt{-2\,x+1}-\frac{121\,(45\,x-17)}{12\,(2\,x-1)\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] 125/24*(-2*x + 1)^(3/2) - 825/8*sqrt(-2*x + 1) - 121/12*(45*x - 1
7)/((2*x - 1)*sqrt(-2*x + 1))
```

3.2146 $\int \frac{(3+5x)^3}{(1-2x)^{5/2}(2+3x)}\,dx$

Optimal. Leaf size=67

$$-\frac{125}{12}\sqrt{1-2x}-\frac{2178}{49\sqrt{1-2x}}+\frac{1331}{84(1-2x)^{3/2}}+\frac{2\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{147\sqrt{21}}$$

```
[Out] 1331/(84*(1 - 2*x)^(3/2)) - 2178/(49*Sqrt[1 - 2*x]) - (125*Sqrt[1
 - 2*x])/12 + (2*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(147*Sqrt[21])
```

Rubi [A] time = 0.0986792, antiderivative size = 67, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$-\frac{125}{12}\sqrt{1-2x}-\frac{2178}{49\sqrt{1-2x}}+\frac{1331}{84(1-2x)^{3/2}}+\frac{2\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{147\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In] Int[(3 + 5*x)^3/((1 - 2*x)^(5/2)*(2 + 3*x)),x]
```

```
[Out] 1331/(84*(1 - 2*x)^(3/2)) - 2178/(49*Sqrt[1 - 2*x]) - (125*Sqrt[1
 - 2*x])/12 + (2*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(147*Sqrt[21])
```

Rubi in Sympy [A] time = 11.931, size = 60, normalized size = 0.9

$$-\frac{125\sqrt{-2x+1}}{12}+\frac{2\sqrt{21}\,\mathrm{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{3087}-\frac{2178}{49\sqrt{-2x+1}}+\frac{1331}{84\,(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((3+5*x)**3/(1-2*x)**(5/2)/(2+3*x),x)
```

```
[Out] -125*sqrt(-2*x + 1)/12 + 2*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)
/7)/3087 - 2178/(49*sqrt(-2*x + 1)) + 1331/(84*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.155796, size = 51, normalized size = 0.76

$$\frac{2\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{21(6125x^2-19193x+5736)}{(1-2x)^{3/2}}}{3087}$$

Antiderivative was successfully verified.

```
[In] Integrate[(3 + 5*x)^3/((1 - 2*x)^(5/2)*(2 + 3*x)),x]
```

```
[Out] ((-21*(5736 - 19193*x + 6125*x^2))/(1 - 2*x)^(3/2) + 2*Sqrt[21]*A
rcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/3087
```

Maple [A] time = 0.016, size = 47, normalized size = 0.7

$$\frac{1331}{84}(1-2x)^{-\frac{3}{2}}+\frac{2\sqrt{21}}{3087}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)-\frac{2178}{49}\frac{1}{\sqrt{1-2x}}-\frac{125}{12}\sqrt{1-2x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3/(1-2*x)^(5/2)/(2+3*x),x)
```

```
[Out] 1331/84/(1-2*x)^(3/2)+2/3087*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*
21^(1/2)-2178/49/(1-2*x)^(1/2)-125/12*(1-2*x)^(1/2)
```

Maxima [A] time = 1.47948, size = 81, normalized size = 1.21

$$-\frac{1}{3087}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{125}{12}\sqrt{-2x+1}+\frac{121(432x-139)}{588(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3/((3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] -1/3087*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21) + 3
*sqrt(-2*x + 1))) - 125/12*sqrt(-2*x + 1) + 121/588*(432*x - 139)
/(-2*x + 1)^(3/2)
```

Fricas [A] time = 0.224706, size = 101, normalized size = 1.51

$$\frac{\sqrt{21}\left((2x-1)\sqrt{-2x+1}\log\left(\frac{\sqrt{21}(3x-5)-21\sqrt{-2x+1}}{3x+2}\right)+\sqrt{21}\left(6125x^2-19193x+5736\right)\right)}{3087(2x-1)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3/((3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/3087*sqrt(21)*((2*x - 1)*sqrt(-2*x + 1)*log((sqrt(21)*(3*x - 5)
 - 21*sqrt(-2*x + 1))/(3*x + 2)) + sqrt(21)*(6125*x^2 - 19193*x +
 5736))/((2*x - 1)*sqrt(-2*x + 1))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(5x+3)^3}{(-2x+1)^{\frac{5}{2}}(3x+2)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3/(1-2*x)**(5/2)/(2+3*x),x)
```

```
[Out] Integral((5*x + 3)**3/((-2*x + 1)**(5/2)*(3*x + 2)), x)
```

GIAC/XCAS [A] time = 0.217101, size = 95, normalized size = 1.42

$$-\frac{1}{3087}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{125}{12}\sqrt{-2x+1}-\frac{121(432x-139)}{588(2x-1)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3/((3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] -1/3087*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqrt
(21) + 3*sqrt(-2*x + 1))) - 125/12*sqrt(-2*x + 1) - 121/588*(432*
x - 139)/((2*x - 1)*sqrt(-2*x + 1))
```

3.2147 $\int \frac{(3+5x)^3}{(1-2x)^{5/2}(2+3x)^2}\,dx$

Optimal. Leaf size=80

$$\frac{11(5x+3)^2}{21(1-2x)^{3/2}(3x+2)}-\frac{10(1450x+969)}{1029\sqrt{1-2x}(3x+2)}-\frac{200\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{1029\sqrt{21}}$$

```
[Out] (11*(3 + 5*x)^2)/(21*(1 - 2*x)^(3/2)*(2 + 3*x)) - (10*(969 + 1450
*x))/(1029*Sqrt[1 - 2*x]*(2 + 3*x)) - (200*ArcTanh[Sqrt[3/7]*Sqrt
[1 - 2*x]])/(1029*Sqrt[21])
```

Rubi [A] time = 0.119727, antiderivative size = 80, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$\frac{11(5x+3)^2}{21(1-2x)^{3/2}(3x+2)}-\frac{10(1450x+969)}{1029\sqrt{1-2x}(3x+2)}-\frac{200\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{1029\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^3/((1 - 2*x)^(5/2)*(2 + 3*x)^2),x]
```

```
[Out] (11*(3 + 5*x)^2)/(21*(1 - 2*x)^(3/2)*(2 + 3*x)) - (10*(969 + 1450
*x))/(1029*Sqrt[1 - 2*x]*(2 + 3*x)) - (200*ArcTanh[Sqrt[3/7]*Sqrt
[1 - 2*x]])/(1029*Sqrt[21])
```

Rubi in Sympy [A] time = 12.9208, size = 68, normalized size = 0.85

$$-\frac{200\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21609}-\frac{43500x+29070}{3087\sqrt{-2x+1}\,(3x+2)}+\frac{11\,(5x+3)^2}{21\,(-2x+1)^{\frac{3}{2}}\,(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**3/(1-2*x)**(5/2)/(2+3*x)**2,x)
```

```
[Out] -200*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/21609 - (43500*x +
 29070)/(3087*sqrt(-2*x + 1)*(3*x + 2)) + 11*(5*x + 3)**2/(21*(-2
*x + 1)**(3/2)*(3*x + 2))
```

Mathematica [A] time = 0.125909, size = 58, normalized size = 0.72

$$\frac{\frac{21(42475x^2+21050x-4839)}{(1-2x)^{3/2}(3x+2)}-200\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{21609}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^3/((1 - 2*x)^(5/2)*(2 + 3*x)^2),x]
```

```
[Out] ((21*(-4839 + 21050*x + 42475*x^2))/((1 - 2*x)^(3/2)*(2 + 3*x)) -
 200*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/21609
```

Maple [A] time = 0.022, size = 54, normalized size = 0.7

$$\frac{1331}{294}(1-2x)^{-\frac{3}{2}}-\frac{4719}{686}\frac{1}{\sqrt{1-2x}}-\frac{2}{3087}\sqrt{1-2x}\left(-\frac{4}{3}-2x\right)^{-1}-\frac{200\sqrt{21}}{21609}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3/(1-2*x)^(5/2)/(2+3*x)^2,x)
```

```
[Out] 1331/294/(1-2*x)^(3/2)-4719/686/(1-2*x)^(1/2)-2/3087*(1-2*x)^(1/2
)/(-4/3-2*x)-200/21609*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/
2)
```

Maxima [A] time = 1.49368, size = 100, normalized size = 1.25

$$\frac{100}{21609}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{42475(2x-1)^2+254100x-61831}{2058\left(3(-2x+1)^{\frac{5}{2}}-7(-2x+1)^{\frac{3}{2}}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3/((3*x + 2)^2*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 100/21609*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21) +
 3*sqrt(-2*x + 1))) - 1/2058*(42475*(2*x - 1)^2 + 254100*x - 6183
1)/(3*(-2*x + 1)^(5/2) - 7*(-2*x + 1)^(3/2))
```

Fricas [A] time = 0.215973, size = 112, normalized size = 1.4

$$\frac{\sqrt{21}\left(100\left(6x^2+x-2\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{21}(3x-5)+21\sqrt{-2x+1}}{3x+2}\right)-\sqrt{21}\left(42475x^2+21050x-4839\right)\right)}{21609\left(6x^2+x-2\right)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3/((3*x + 2)^2*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/21609*sqrt(21)*(100*(6*x^2 + x - 2)*sqrt(-2*x + 1)*log((sqrt(21
)*(3*x - 5) + 21*sqrt(-2*x + 1))/(3*x + 2)) - sqrt(21)*(42475*x^2
 + 21050*x - 4839))/((6*x^2 + x - 2)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3/(1-2*x)**(5/2)/(2+3*x)**2,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.219024, size = 104, normalized size = 1.3

$$\frac{100}{21609}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{121(117x-20)}{1029(2x-1)\sqrt{-2x+1}}+\frac{\sqrt{-2x+1}}{1029(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)^2*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 100/21609*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sq
rt(21) + 3*sqrt(-2*x + 1))) - 121/1029*(117*x - 20)/((2*x - 1)*sq
rt(-2*x + 1)) + 1/1029*sqrt(-2*x + 1)/(3*x + 2)
```

3.2148 $\int \frac{(3+5x)^3}{(1-2x)^{5/2}(2+3x)^3}\,dx$

Optimal. Leaf size=100

$$\frac{11(5x+3)^2}{21(1-2x)^{3/2}(3x+2)^2}-\frac{720x+487}{294\sqrt{1-2x}(3x+2)^2}+\frac{905\sqrt{1-2x}}{2058(3x+2)}+\frac{905\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{1029\sqrt{21}}$$

```
[Out] (905*Sqrt[1 - 2*x])/(2058*(2 + 3*x)) + (11*(3 + 5*x)^2)/(21*(1 -
2*x)^(3/2)*(2 + 3*x)^2) - (487 + 720*x)/(294*Sqrt[1 - 2*x]*(2 + 3
*x)^2) + (905*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(1029*Sqrt[21])
```

Rubi [A] time = 0.141183, antiderivative size = 100, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.208$

$$\frac{11(5x+3)^2}{21(1-2x)^{3/2}(3x+2)^2}-\frac{720x+487}{294\sqrt{1-2x}(3x+2)^2}+\frac{905\sqrt{1-2x}}{2058(3x+2)}+\frac{905\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{1029\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^3/((1 - 2*x)^(5/2)*(2 + 3*x)^3),x]
```

```
[Out] (905*Sqrt[1 - 2*x])/(2058*(2 + 3*x)) + (11*(3 + 5*x)^2)/(21*(1 -
2*x)^(3/2)*(2 + 3*x)^2) - (487 + 720*x)/(294*Sqrt[1 - 2*x]*(2 + 3
*x)^2) + (905*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(1029*Sqrt[21])
```

Rubi in Sympy [A] time = 14.0894, size = 87, normalized size = 0.87

$$\frac{905\sqrt{-2x+1}}{2058\,(3x+2)}+\frac{905\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{21609}-\frac{15120x+10227}{6174\sqrt{-2x+1}\,(3x+2)^2}+\frac{11\,(5x+3)^2}{21\,(-2x+1)^{\frac{3}{2}}\,(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**3/(1-2*x)**(5/2)/(2+3*x)**3,x)
```

```
[Out] 905*sqrt(-2*x + 1)/(2058*(3*x + 2)) + 905*sqrt(21)*atanh(sqrt(21)
*sqrt(-2*x + 1)/7)/21609 - (15120*x + 10227)/(6174*sqrt(-2*x + 1)
*(3*x + 2)**2) + 11*(5*x + 3)**2/(21*(-2*x + 1)**(3/2)*(3*x + 2)*
*2)
```

Mathematica [A] time = 0.131074, size = 66, normalized size = 0.66

$$\frac{\frac{21\sqrt{1-2x}\left(10860x^3+33410x^2+29593x+8103\right)}{\left(6x^2+x-2\right)^2}+1810\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{43218}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^3/((1 - 2*x)^(5/2)*(2 + 3*x)^3),x]
```

```
[Out] ((21*Sqrt[1 - 2*x]*(8103 + 29593*x + 33410*x^2 + 10860*x^3))/(-2
+ x + 6*x^2)^2 + 1810*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/
43218
```

Maple [A] time = 0.021, size = 66, normalized size = 0.7

$$\frac{1331}{1029}(1-2x)^{-\frac{3}{2}}-\frac{726}{2401}\frac{1}{\sqrt{1-2x}}-\frac{18}{2401(-4-6x)^2}\left(-\frac{199}{18}(1-2x)^{\frac{3}{2}}+\frac{1379}{54}\sqrt{1-2x}\right)+\frac{905\sqrt{21}}{21609}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3/(1-2*x)^(5/2)/(2+3*x)^3,x)
```

```
[Out] 1331/1029/(1-2*x)^(3/2)-726/2401/(1-2*x)^(1/2)-18/2401*(-199/18*(
1-2*x)^(3/2)+1379/54*(1-2*x)^(1/2))/(-4-6*x)^2+905/21609*arctanh(
1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.51275, size = 124, normalized size = 1.24

$$-\frac{905}{43218}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{2715(2x-1)^3+24850(2x-1)^2+142296x-5929}{1029\left(9(-2x+1)^{\frac{7}{2}}-42(-2x+1)^{\frac{5}{2}}+49(-2x+1)^{\frac{3}{2}}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3/((3*x + 2)^3*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] -905/43218*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21)
+ 3*sqrt(-2*x + 1))) + 1/1029*(2715*(2*x - 1)^3 + 24850*(2*x - 1)
^2 + 142296*x - 5929)/(9*(-2*x + 1)^(7/2) - 42*(-2*x + 1)^(5/2) +
 49*(-2*x + 1)^(3/2))
```

Fricas [A] time = 0.210863, size = 138, normalized size = 1.38

$$\frac{\sqrt{21}\left(905\left(18x^3+15x^2-4x-4\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{21}(3x-5)-21\sqrt{-2x+1}}{3x+2}\right)-\sqrt{21}\left(10860x^3+33410x^2+29593x+8103\right)\right)}{43218\left(18x^3+15x^2-4x-4\right)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3/((3*x + 2)^3*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/43218*sqrt(21)*(905*(18*x^3 + 15*x^2 - 4*x - 4)*sqrt(-2*x + 1)*
log((sqrt(21)*(3*x - 5) - 21*sqrt(-2*x + 1))/(3*x + 2)) - sqrt(21
)*(10860*x^3 + 33410*x^2 + 29593*x + 8103))/((18*x^3 + 15*x^2 - 4
*x - 4)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3/(1-2*x)**(5/2)/(2+3*x)**3,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.229446, size = 120, normalized size = 1.2

$$-\frac{905}{43218}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{121\,(36\,x+59)}{7203\,(2\,x-1)\sqrt{-2\,x+1}}+\frac{597\,(-2\,x+1)^{\frac{3}{2}}-1379\,\sqrt{-2\,x+1}}{28812\,(3\,x+2)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3/((3*x + 2)^3*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] -905/43218*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(s
qrt(21) + 3*sqrt(-2*x + 1))) - 121/7203*(36*x + 59)/((2*x - 1)*sq
rt(-2*x + 1)) + 1/28812*(597*(-2*x + 1)^(3/2) - 1379*sqrt(-2*x +
1))/(3*x + 2)^2
```

3.2149 $\int \frac{(3+5x)^3}{(1-2x)^{5/2}(2+3x)^4}\,dx$

Optimal. Leaf size=120

$$\frac{11(5x+3)^2}{21(1-2x)^{3/2}(3x+2)^3}+\frac{2(2027x+1346)}{441\sqrt{1-2x}(3x+2)^3}-\frac{3755\sqrt{1-2x}}{7203(3x+2)}-\frac{3755\sqrt{1-2x}}{3087(3x+2)^2}-\frac{7510\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{7203\sqrt{21}}$$

```
[Out] (-3755*Sqrt[1 - 2*x])/(3087*(2 + 3*x)^2) - (3755*Sqrt[1 - 2*x])/(
7203*(2 + 3*x)) + (11*(3 + 5*x)^2)/(21*(1 - 2*x)^(3/2)*(2 + 3*x)^
3) + (2*(1346 + 2027*x))/(441*Sqrt[1 - 2*x]*(2 + 3*x)^3) - (7510*
ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(7203*Sqrt[21])
```

Rubi [A] time = 0.161502, antiderivative size = 120, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{11(5x+3)^2}{21(1-2x)^{3/2}(3x+2)^3}+\frac{2(2027x+1346)}{441\sqrt{1-2x}(3x+2)^3}-\frac{3755\sqrt{1-2x}}{7203(3x+2)}-\frac{3755\sqrt{1-2x}}{3087(3x+2)^2}-\frac{7510\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{7203\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^3/((1 - 2*x)^(5/2)*(2 + 3*x)^4),x]
```


```
[Out] (-3755*Sqrt[1 - 2*x])/(3087*(2 + 3*x)^2) - (3755*Sqrt[1 - 2*x])/(
7203*(2 + 3*x)) + (11*(3 + 5*x)^2)/(21*(1 - 2*x)^(3/2)*(2 + 3*x)^
3) + (2*(1346 + 2027*x))/(441*Sqrt[1 - 2*x]*(2 + 3*x)^3) - (7510*
ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/(7203*Sqrt[21])
```

Rubi in Sympy [A] time = 16.4618, size = 105, normalized size = 0.88

$$-\frac{3755\sqrt{-2x+1}}{7203\,(3x+2)}-\frac{3755\sqrt{-2x+1}}{3087\,(3x+2)^2}-\frac{7510\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{151263}+\frac{85134x+56532}{9261\sqrt{-2x+1}\,(3x+2)^3}+\frac{11\,(5x+3)^2}{21\,(-2x+1)^{\frac{3}{2}}\,(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**3/(1-2*x)**(5/2)/(2+3*x)**4,x)
```

```
[Out] -3755*sqrt(-2*x + 1)/(7203*(3*x + 2)) - 3755*sqrt(-2*x + 1)/(3087
*(3*x + 2)**2) - 7510*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/1
51263 + (85134*x + 56532)/(9261*sqrt(-2*x + 1)*(3*x + 2)**3) + 11
*(5*x + 3)**2/(21*(-2*x + 1)**(3/2)*(3*x + 2)**3)
```

Mathematica [A] time = 0.164386, size = 68, normalized size = 0.57

$$\frac{-\frac{21(135180x^4+150200x^3-83306x^2-150295x-45383)}{(1-2x)^{3/2}(3x+2)^3}-7510\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{151263}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^3/((1 - 2*x)^(5/2)*(2 + 3*x)^4),x]
```

```
[Out] ((-21*(-45383 - 150295*x - 83306*x^2 + 150200*x^3 + 135180*x^4))/
((1 - 2*x)^(3/2)*(2 + 3*x)^3) - 7510*Sqrt[21]*ArcTanh[Sqrt[3/7]*S
qrt[1 - 2*x]])/151263
```

Maple [A] time = 0.022, size = 75, normalized size = 0.6

$$\frac{2662}{7203}(1-2x)^{-\frac{3}{2}}+\frac{6534}{16807}\frac{1}{\sqrt{1-2x}}+\frac{54}{16807(-4-6x)^3}\left(-\frac{3118}{9}(1-2x)^{\frac{5}{2}}+\frac{128870}{81}(1-2x)^{\frac{3}{2}}-\frac{147980}{81}\sqrt{1-2x}\right)-\frac{7510\sqrt{21}}{151263}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3/(1-2*x)^(5/2)/(2+3*x)^4,x)
```

```
[Out] 2662/7203/(1-2*x)^(3/2)+6534/16807/(1-2*x)^(1/2)+54/16807*(-3118/
9*(1-2*x)^(5/2)+128870/81*(1-2*x)^(3/2)-147980/81*(1-2*x)^(1/2))/
(-4-6*x)^3-7510/151263*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/
2)
```

Maxima [A] time = 1.59782, size = 149, normalized size = 1.24

$$\frac{3755}{151263}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{2\left(33795(2x-1)^4+210280(2x-1)^3+344764(2x-1)^2-213444x-349811\right)}{7203\left(27(-2x+1)^{\frac{9}{2}}-189(-2x+1)^{\frac{7}{2}}+441(-2x+1)^{\frac{5}{2}}-343(-2x+1)^{\frac{3}{2}}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)^4*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 3755/151263*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(21)
 + 3*sqrt(-2*x + 1))) + 2/7203*(33795*(2*x - 1)^4 + 210280*(2*x -
 1)^3 + 344764*(2*x - 1)^2 - 213444*x - 349811)/(27*(-2*x + 1)^(9
/2) - 189*(-2*x + 1)^(7/2) + 441*(-2*x + 1)^(5/2) - 343*(-2*x + 1
)^(3/2))
```

Fricas [A] time = 0.221438, size = 157, normalized size = 1.31

$$\frac{\sqrt{21}\left(3755\left(54x^4+81x^3+18x^2-20x-8\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{21}(3x-5)+21\sqrt{-2x+1}}{3x+2}\right)+\sqrt{21}\left(135180x^4+150200x^3-83306x^2-\right.\right.}{151263\left(54x^4+81x^3+18x^2-20x-8\right)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)^4*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/151263*sqrt(21)*(3755*(54*x^4 + 81*x^3 + 18*x^2 - 20*x - 8)*sqr
t(-2*x + 1)*log((sqrt(21)*(3*x - 5) + 21*sqrt(-2*x + 1))/(3*x + 2
)) + sqrt(21)*(135180*x^4 + 150200*x^3 - 83306*x^2 - 150295*x - 4
5383))/((54*x^4 + 81*x^3 + 18*x^2 - 20*x - 8)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3/(1-2*x)**(5/2)/(2+3*x)**4,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.221481, size = 128, normalized size = 1.07

$$\frac{3755}{151263}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{2\left(33795\,(2x-1)^4+210280\,(2x-1)^3+344764\,(2x-1)^2-213444\,x-349811\right)}{7203\left(3\,(-2x+1)^{\frac{3}{2}}-7\sqrt{-2x+1}\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)^4*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 3755/151263*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(
sqrt(21) + 3*sqrt(-2*x + 1))) + 2/7203*(33795*(2*x - 1)^4 + 21028
0*(2*x - 1)^3 + 344764*(2*x - 1)^2 - 213444*x - 349811)/(3*(-2*x
+ 1)^(3/2) - 7*sqrt(-2*x + 1))^3
```

3.2150 $\int \frac{(3+5x)^3}{(1-2x)^{5/2}(2+3x)^5}\,dx$

Optimal. Leaf size=140

$$\frac{11(5x+3)^2}{21(1-2x)^{3/2}(3x+2)^4}+\frac{85754x+57069}{4116\sqrt{1-2x}(3x+2)^4}-\frac{177635\sqrt{1-2x}}{403368(3x+2)}-\frac{177635\sqrt{1-2x}}{172872(3x+2)^2}-\frac{35527\sqrt{1-2x}}{12348(3x+2)^3}-\frac{177635\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{201684\sqrt{21}}$$

```
[Out] (-35527*Sqrt[1 - 2*x])/(12348*(2 + 3*x)^3) - (177635*Sqrt[1 - 2*x
])/(172872*(2 + 3*x)^2) - (177635*Sqrt[1 - 2*x])/(403368*(2 + 3*x
)) + (11*(3 + 5*x)^2)/(21*(1 - 2*x)^(3/2)*(2 + 3*x)^4) + (57069 +
 85754*x)/(4116*Sqrt[1 - 2*x]*(2 + 3*x)^4) - (177635*ArcTanh[Sqrt
[3/7]*Sqrt[1 - 2*x]])/(201684*Sqrt[21])
```

Rubi [A] time = 0.183674, antiderivative size = 140, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{11(5x+3)^2}{21(1-2x)^{3/2}(3x+2)^4}+\frac{85754x+57069}{4116\sqrt{1-2x}(3x+2)^4}-\frac{177635\sqrt{1-2x}}{403368(3x+2)}-\frac{177635\sqrt{1-2x}}{172872(3x+2)^2}-\frac{35527\sqrt{1-2x}}{12348(3x+2)^3}-\frac{177635\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{201684\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^3/((1 - 2*x)^(5/2)*(2 + 3*x)^5),x]
```

```
[Out] (-35527*Sqrt[1 - 2*x])/(12348*(2 + 3*x)^3) - (177635*Sqrt[1 - 2*x
])/(172872*(2 + 3*x)^2) - (177635*Sqrt[1 - 2*x])/(403368*(2 + 3*x
)) + (11*(3 + 5*x)^2)/(21*(1 - 2*x)^(3/2)*(2 + 3*x)^4) + (57069 +
 85754*x)/(4116*Sqrt[1 - 2*x]*(2 + 3*x)^4) - (177635*ArcTanh[Sqrt
[3/7]*Sqrt[1 - 2*x]])/(201684*Sqrt[21])
```

Rubi in Sympy [A] time = 17.9389, size = 124, normalized size = 0.89

$$-\frac{177635\sqrt{-2x+1}}{403368\,(3x+2)}-\frac{177635\sqrt{-2x+1}}{172872\,(3x+2)^2}-\frac{35527\sqrt{-2x+1}}{12348\,(3x+2)^3}-\frac{177635\sqrt{21}\,\mathrm{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{4235364}+\frac{257262x+171207}{12348\sqrt{-2x+1}\,(3x+2)^4}+\frac{11\,(5x+3)^2}{21\,(-2x+1)^{\frac{3}{2}}\,(3x+2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**3/(1-2*x)**(5/2)/(2+3*x)**5,x)
```

```
[Out] -177635*sqrt(-2*x + 1)/(403368*(3*x + 2)) - 177635*sqrt(-2*x + 1)
/(172872*(3*x + 2)**2) - 35527*sqrt(-2*x + 1)/(12348*(3*x + 2)**3
) - 177635*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/4235364 + (2
57262*x + 171207)/(12348*sqrt(-2*x + 1)*(3*x + 2)**4) + 11*(5*x +
 3)**2/(21*(-2*x + 1)**(3/2)*(3*x + 2)**4)
```

Mathematica [A] time = 0.185884, size = 73, normalized size = 0.52

$$\frac{-\frac{21(19184580x^5+34105920x^4+10906789x^3-12952519x^2-10307138x-2094250)}{(1-2x)^{3/2}(3x+2)^4}-355270\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{8470728}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^3/((1 - 2*x)^(5/2)*(2 + 3*x)^5),x]
```

```
[Out] ((-21*(-2094250 - 10307138*x - 12952519*x^2 + 10906789*x^3 + 3410
5920*x^4 + 19184580*x^5))/((1 - 2*x)^(3/2)*(2 + 3*x)^4) - 355270*
Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/8470728
```

Maple [A] time = 0.023, size = 84, normalized size = 0.6

$$\frac{5324}{50421}(1-2x)^{-\frac{3}{2}}+\frac{29040}{117649}\frac{1}{\sqrt{1-2x}}+\frac{324}{117649(-4-6x)^4}\left(\frac{198005}{144}(1-2x)^{\frac{7}{2}}-\frac{11953249}{1296}(1-2x)^{\frac{5}{2}}+\frac{80180905}{3888}(1-2x)^{\frac{3}{2}}-\frac{59762605}{3888}\sqrt{1-2x}\right)-\frac{177635\sqrt{21}}{4235364}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3/(1-2*x)^(5/2)/(2+3*x)^5,x)
```

```
[Out] 5324/50421/(1-2*x)^(3/2)+29040/117649/(1-2*x)^(1/2)+324/117649*(1
98005/144*(1-2*x)^(7/2)-11953249/1296*(1-2*x)^(5/2)+80180905/3888
*(1-2*x)^(3/2)-59762605/3888*(1-2*x)^(1/2))/(-4-6*x)^4-177635/423
5364*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
```

Maxima [A] time = 1.49755, size = 173, normalized size = 1.24

$$\frac{177635}{8470728}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{4796145(2x-1)^5+41033685(2x-1)^4+127080079(2x-1)^3+157094539(2x-1)^2+63748608x-83006000}{201684\left(81(-2x+1)^{\frac{11}{2}}-756(-2x+1)^{\frac{9}{2}}+2646(-2x+1)^{\frac{7}{2}}-4116(-2x+1)^{\frac{5}{2}}+2401(-2x+1)^{\frac{3}{2}}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)^5*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 177635/8470728*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(
21) + 3*sqrt(-2*x + 1))) - 1/201684*(4796145*(2*x - 1)^5 + 410336
85*(2*x - 1)^4 + 127080079*(2*x - 1)^3 + 157094539*(2*x - 1)^2 +
63748608*x - 83006000)/(81*(-2*x + 1)^(11/2) - 756*(-2*x + 1)^(9/
2) + 2646*(-2*x + 1)^(7/2) - 4116*(-2*x + 1)^(5/2) + 2401*(-2*x +
 1)^(3/2))
```

Fricas [A] time = 0.225934, size = 177, normalized size = 1.26

$$\frac{\sqrt{21}\left(177635\left(162x^5+351x^4+216x^3-24x^2-64x-16\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{21}(3x-5)+21\sqrt{-2x+1}}{3x+2}\right)+\sqrt{21}\left(19184580x^5+3410\right.\right.}{8470728\left(162x^5+351x^4+216x^3-24x^2-64x-16\right)\sqrt{-2x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)^5*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/8470728*sqrt(21)*(177635*(162*x^5 + 351*x^4 + 216*x^3 - 24*x^2
- 64*x - 16)*sqrt(-2*x + 1)*log((sqrt(21)*(3*x - 5) + 21*sqrt(-2*
```

```
x + 1))/(3*x + 2)) + sqrt(21)*(19184580*x^5 + 34105920*x^4 + 1090
6789*x^3 - 12952519*x^2 - 10307138*x - 2094250))/((162*x^5 + 351*
x^4 + 216*x^3 - 24*x^2 - 64*x - 16)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3/(1-2*x)**(5/2)/(2+3*x)**5,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.221569, size = 163, normalized size = 1.16

$$\frac{177635}{8470728}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{484\,(360\,x-257)}{352947\,(2\,x-1)\sqrt{-2\,x+1}}-\frac{5346135\,(2\,x-1)^{3}\sqrt{-2\,x+1}+35859747\,(2\,x-1)^{2}\sqrt{-2\,x+1}-80180905\,(-2\,x+1)^{\frac{3}{2}}+59762605\,\sqrt{-2\,x+1}}{22588608\,(3\,x+2)^{4}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)^5*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 177635/8470728*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1)
)/(sqrt(21) + 3*sqrt(-2*x + 1))) + 484/352947*(360*x - 257)/((2*x
 - 1)*sqrt(-2*x + 1)) - 1/22588608*(5346135*(2*x - 1)^3*sqrt(-2*x
 + 1) + 35859747*(2*x - 1)^2*sqrt(-2*x + 1) - 80180905*(-2*x + 1)
^(3/2) + 59762605*sqrt(-2*x + 1))/(3*x + 2)^4
```

3.2151 $\int \frac{(3+5x)^3}{(1-2x)^{5/2}(2+3x)^6}\,dx$

Optimal. Leaf size=160

$$\frac{11(5x+3)^2}{21(1-2x)^{3/2}(3x+2)^5}+\frac{2(83544x+55633)}{5145\sqrt{1-2x}(3x+2)^5}-\frac{81737\sqrt{1-2x}}{352947(3x+2)}-\frac{81737\sqrt{1-2x}}{151263(3x+2)^2}-\frac{163474\sqrt{1-2x}}{108045(3x+2)^3}-\frac{163474\sqrt{1-2x}}{36015(3x+2)^4}-\frac{163474\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{352947\sqrt{21}}$$

```
[Out] (-163474*Sqrt[1 - 2*x])/(36015*(2 + 3*x)^4) - (163474*Sqrt[1 - 2*
x])/(108045*(2 + 3*x)^3) - (81737*Sqrt[1 - 2*x])/(151263*(2 + 3*x
)^2) - (81737*Sqrt[1 - 2*x])/(352947*(2 + 3*x)) + (11*(3 + 5*x)^2
)/(21*(1 - 2*x)^(3/2)*(2 + 3*x)^5) + (2*(55633 + 83544*x))/(5145*
Sqrt[1 - 2*x]*(2 + 3*x)^5) - (163474*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2
*x]])/(352947*Sqrt[21])
```

Rubi [A] time = 0.21142, antiderivative size = 160, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.208$

$$\frac{11(5x+3)^2}{21(1-2x)^{3/2}(3x+2)^5}+\frac{2(83544x+55633)}{5145\sqrt{1-2x}(3x+2)^5}-\frac{81737\sqrt{1-2x}}{352947(3x+2)}-\frac{81737\sqrt{1-2x}}{151263(3x+2)^2}-\frac{163474\sqrt{1-2x}}{108045(3x+2)^3}-\frac{163474\sqrt{1-2x}}{36015(3x+2)^4}-\frac{163474\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{352947\sqrt{21}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^3/((1 - 2*x)^(5/2)*(2 + 3*x)^6),x]
```

```
[Out] (-163474*Sqrt[1 - 2*x])/(36015*(2 + 3*x)^4) - (163474*Sqrt[1 - 2*
x])/(108045*(2 + 3*x)^3) - (81737*Sqrt[1 - 2*x])/(151263*(2 + 3*x
)^2) - (81737*Sqrt[1 - 2*x])/(352947*(2 + 3*x)) + (11*(3 + 5*x)^2
)/(21*(1 - 2*x)^(3/2)*(2 + 3*x)^5) + (2*(55633 + 83544*x))/(5145*
Sqrt[1 - 2*x]*(2 + 3*x)^5) - (163474*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2
*x]])/(352947*Sqrt[21])
```

Rubi in Sympy [A] time = 20.4585, size = 143, normalized size = 0.89

$$-\frac{81737\sqrt{-2x+1}}{352947\,(3x+2)}-\frac{81737\sqrt{-2x+1}}{151263\,(3x+2)^2}-\frac{163474\sqrt{-2x+1}}{108045\,(3x+2)^3}-\frac{163474\sqrt{-2x+1}}{36015\,(3x+2)^4}-\frac{163474\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{7411887}+\frac{501264x+333798}{15435\sqrt{-2x+1}\,(3x+2)^5}+\frac{11\,(5x+3)^2}{21\,(-2x+1)^{\frac{3}{2}}\,(3x+2)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**3/(1-2*x)**(5/2)/(2+3*x)**6,x)
```

```
[Out] -81737*sqrt(-2*x + 1)/(352947*(3*x + 2)) - 81737*sqrt(-2*x + 1)/(
151263*(3*x + 2)**2) - 163474*sqrt(-2*x + 1)/(108045*(3*x + 2)**3
) - 163474*sqrt(-2*x + 1)/(36015*(3*x + 2)**4) - 163474*sqrt(21)*
atanh(sqrt(21)*sqrt(-2*x + 1)/7)/7411887 + (501264*x + 333798)/(1
5435*sqrt(-2*x + 1)*(3*x + 2)**5) + 11*(5*x + 3)**2/(21*(-2*x + 1
)**(3/2)*(3*x + 2)**5)
```

Mathematica [A] time = 0.174617, size = 78, normalized size = 0.49

$$\frac{\frac{21(-132413940x^6-323678520x^5-232214817x^4+22641149x^3+99751837x^2+42553376x+5615203)}{(1-2x)^{3/2}(3x+2)^5}-817370\sqrt{21}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{37059435}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^3/((1 - 2*x)^(5/2)*(2 + 3*x)^6),x]
```

```
[Out] ((21*(5615203 + 42553376*x + 99751837*x^2 + 22641149*x^3 - 232214
817*x^4 - 323678520*x^5 - 132413940*x^6))/((1 - 2*x)^(3/2)*(2 + 3
*x)^5) - 817370*Sqrt[21]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/370594
35
```

Maple [A] time = 0.024, size = 93, normalized size = 0.6

$$\frac{10648}{352947}(1-2x)^{-\frac{3}{2}}+\frac{90024}{823543}\frac{1}{\sqrt{1-2x}}+\frac{1944}{823543(-4-6x)^5}\left(\frac{167051}{36}(1-2x)^{\frac{9}{2}}-\frac{7270739}{162}(1-2x)^{\frac{7}{2}}+\frac{196782187}{1215}(1-2x)^{\frac{5}{2}}-\frac{377074649}{1458}(1-2x)^{\frac{3}{2}}+\frac{44987296}{2916}\right.$$
$$-\frac{163474\sqrt{21}}{7411887}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^3/(1-2*x)^(5/2)/(2+3*x)^6,x)
```

```
[Out] 10648/352947/(1-2*x)^(3/2)+90024/823543/(1-2*x)^(1/2)+1944/823543
*(167051/36*(1-2*x)^(9/2)-7270739/162*(1-2*x)^(7/2)+196782187/121
5*(1-2*x)^(5/2)-377074649/1458*(1-2*x)^(3/2)+449872969/2916*(1-2*
x)^(1/2))/(-4-6*x)^5-163474/7411887*arctanh(1/7*21^(1/2)*(1-2*x)^
(1/2))*21^(1/2)
```

Maxima [A] time = 1.50531, size = 197, normalized size = 1.23

$$\frac{81737}{7411887}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{2\left(33103485(2x-1)^6+360460170(2x-1)^5+1537963392(2x-1)^4+3164039270(2x-1)^3+2973379535(2x-1)^2+1\right.}{1764735\left(243(-2x+1)^{\frac{13}{2}}-2835(-2x+1)^{\frac{11}{2}}+13230(-2x+1)^{\frac{9}{2}}-30870(-2x+1)^{\frac{7}{2}}+36015(-2x+1)^{\frac{5}{2}}-1\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^3/((3*x + 2)^6*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 81737/7411887*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x + 1))/(sqrt(2
1) + 3*sqrt(-2*x + 1))) + 2/1764735*(33103485*(2*x - 1)^6 + 36046
0170*(2*x - 1)^5 + 1537963392*(2*x - 1)^4 + 3164039270*(2*x - 1)^
3 + 2973379535*(2*x - 1)^2 + 1324775760*x - 1109790220)/(243*(-2*
x + 1)^(13/2) - 2835*(-2*x + 1)^(11/2) + 13230*(-2*x + 1)^(9/2) -
 30870*(-2*x + 1)^(7/2) + 36015*(-2*x + 1)^(5/2) - 16807*(-2*x +
1)^(3/2))
```

Fricas [A] time = 0.222523, size = 197, normalized size = 1.23

$$\frac{\sqrt{21}\left(408685\left(486x^6+1377x^5+1350x^4+360x^3-240x^2-176x-32\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{21}(3x-5)+21\sqrt{-2x+1}}{3x+2}\right)+\sqrt{21}(13241\right.}{37059435\left(486x^6+1377x^5+1350x^4+360x^3-240\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3/((3*x + 2)^6*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/37059435*sqrt(21)*(408685*(486*x^6 + 1377*x^5 + 1350*x^4 + 360*
x^3 - 240*x^2 - 176*x - 32)*sqrt(-2*x + 1)*log((sqrt(21)*(3*x - 5
) + 21*sqrt(-2*x + 1))/(3*x + 2)) + sqrt(21)*(132413940*x^6 + 323
678520*x^5 + 232214817*x^4 - 22641149*x^3 - 99751837*x^2 - 425533
76*x - 5615203))/((486*x^6 + 1377*x^5 + 1350*x^4 + 360*x^3 - 240*
x^2 - 176*x - 32)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**3/(1-2*x)**(5/2)/(2+3*x)**6,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.225394, size = 185, normalized size = 1.16

$$\frac{81737}{7411887}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{1936\,(279\,x-178)}{2470629\,(2\,x-1)\sqrt{-2\,x+1}}$$
$$-\frac{67655655\,(2\,x-1)^4\sqrt{-2\,x+1}+654366510\,(2\,x-1)^3\sqrt{-2\,x+1}+2361386244\,(2\,x-1)^2\sqrt{-2\,x+1}-3770746490\,(-2\,x+1}{197650320\,(3\,x+2)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^3/((3*x + 2)^6*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 81737/7411887*sqrt(21)*ln(1/2*abs(-2*sqrt(21) + 6*sqrt(-2*x + 1))
/(sqrt(21) + 3*sqrt(-2*x + 1))) + 1936/2470629*(279*x - 178)/((2*
x - 1)*sqrt(-2*x + 1)) - 1/197650320*(67655655*(2*x - 1)^4*sqrt(-
2*x + 1) + 654366510*(2*x - 1)^3*sqrt(-2*x + 1) + 2361386244*(2*x
 - 1)^2*sqrt(-2*x + 1) - 3770746490*(-2*x + 1)^(3/2) + 2249364845
*sqrt(-2*x + 1))/(3*x + 2)^5
```

3.2152 $\int \frac{(2+3x)^6}{(1-2x)^{5/2}(3+5x)}\,dx$

Optimal. Leaf size=106

$$\frac{729(1-2x)^{7/2}}{1120}-\frac{43011(1-2x)^{5/2}}{4000}+\frac{169209(1-2x)^{3/2}}{2000}-\frac{5992353\sqrt{1-2x}}{10000}-\frac{2739541}{3872\sqrt{1-2x}}+\frac{117649}{1056(1-2x)^{3/2}}-\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{75625\sqrt{55}}$$

```
[Out] 117649/(1056*(1 - 2*x)^(3/2)) - 2739541/(3872*Sqrt[1 - 2*x]) - (5
992353*Sqrt[1 - 2*x])/10000 + (169209*(1 - 2*x)^(3/2))/2000 - (43
011*(1 - 2*x)^(5/2))/4000 + (729*(1 - 2*x)^(7/2))/1120 - (2*ArcTa
nh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(75625*Sqrt[55])
```

Rubi [A] time = 0.194148, antiderivative size = 106, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$\frac{729(1-2x)^{7/2}}{1120}-\frac{43011(1-2x)^{5/2}}{4000}+\frac{169209(1-2x)^{3/2}}{2000}-\frac{5992353\sqrt{1-2x}}{10000}-\frac{2739541}{3872\sqrt{1-2x}}+\frac{117649}{1056(1-2x)^{3/2}}-\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{75625\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^6/((1 - 2*x)^(5/2)*(3 + 5*x)),x]
```

```
[Out] 117649/(1056*(1 - 2*x)^(3/2)) - 2739541/(3872*Sqrt[1 - 2*x]) - (5
992353*Sqrt[1 - 2*x])/10000 + (169209*(1 - 2*x)^(3/2))/2000 - (43
011*(1 - 2*x)^(5/2))/4000 + (729*(1 - 2*x)^(7/2))/1120 - (2*ArcTa
nh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(75625*Sqrt[55])
```

Rubi in Sympy [A] time = 16.9086, size = 95, normalized size = 0.9

$$\frac{729\,(-2x+1)^{\frac{7}{2}}}{1120}-\frac{43011\,(-2x+1)^{\frac{5}{2}}}{4000}+\frac{169209\,(-2x+1)^{\frac{3}{2}}}{2000}-\frac{5992353\sqrt{-2x+1}}{10000}-\frac{2\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{4159375}-\frac{2739541}{3872\sqrt{-2x+1}}+\frac{117649}{1056\,(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**6/(1-2*x)**(5/2)/(3+5*x),x)
```

```
[Out] 729*(-2*x + 1)**(7/2)/1120 - 43011*(-2*x + 1)**(5/2)/4000 + 16920
9*(-2*x + 1)**(3/2)/2000 - 5992353*sqrt(-2*x + 1)/10000 - 2*sqrt(
55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/4159375 - 2739541/(3872*sqr
t(-2*x + 1)) + 117649/(1056*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.188278, size = 66, normalized size = 0.62

$$\frac{-\frac{55(33078375x^5+190531440x^4+611141355x^3+2562785082x^2-5374023537x+1780047848)}{(1-2x)^{3/2}}-42\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{87346875}$$

Antiderivative was successfully verified.

```
[In]   Integrate[(2 + 3*x)^6/((1 - 2*x)^(5/2)*(3 + 5*x)),x]
```

```
[Out] ((-55*(1780047848 - 5374023537*x + 2562785082*x^2 + 611141355*x^3
 + 190531440*x^4 + 33078375*x^5))/(1 - 2*x)^(3/2) - 42*Sqrt[55]*A
rcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/87346875
```

Maple [A] time = 0.017, size = 74, normalized size = 0.7

$$\frac{117649}{1056}(1-2x)^{-\frac{3}{2}}+\frac{169209}{2000}(1-2x)^{\frac{3}{2}}-\frac{43011}{4000}(1-2x)^{\frac{5}{2}}+\frac{729}{1120}(1-2x)^{\frac{7}{2}} -\frac{2\sqrt{55}}{4159375}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)-\frac{2739541}{3872}\frac{1}{\sqrt{1-2x}}-\frac{5992353}{10000}\sqrt{1-2x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((2+3*x)^6/(1-2*x)^(5/2)/(3+5*x),x)
```

```
[Out] 117649/1056/(1-2*x)^(3/2)+169209/2000*(1-2*x)^(3/2)-43011/4000*(1
-2*x)^(5/2)+729/1120*(1-2*x)^(7/2)-2/4159375*arctanh(1/11*55^(1/2
)*(1-2*x)^(1/2))*55^(1/2)-2739541/3872/(1-2*x)^(1/2)-5992353/1000
0*(1-2*x)^(1/2)
```

Maxima [A] time = 1.5082, size = 117, normalized size = 1.1

$$\frac{729}{1120}(-2x+1)^{\frac{7}{2}}-\frac{43011}{4000}(-2x+1)^{\frac{5}{2}}+\frac{169209}{2000}(-2x+1)^{\frac{3}{2}} +\frac{1}{4159375}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{5992353}{10000}\sqrt{-2x+1}+\frac{16807(489x-206)}{5808(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^6/((5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 729/1120*(-2*x + 1)^(7/2) - 43011/4000*(-2*x + 1)^(5/2) + 169209/
2000*(-2*x + 1)^(3/2) + 1/4159375*sqrt(55)*log(-(sqrt(55) - 5*sqr
t(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) - 5992353/10000*sqrt(
-2*x + 1) + 16807/5808*(489*x - 206)/(-2*x + 1)^(3/2)
```

Fricas [A] time = 0.221144, size = 123, normalized size = 1.16

$$\frac{\sqrt{55}\left(21(2x-1)\sqrt{-2x+1}\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{-2x+1}}{5x+3}\right)+\sqrt{55}(33078375x^5+190531440x^4+611141355x^3+2562785082x^2-\right.}{87346875(2x-1)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^6/((5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/87346875*sqrt(55)*(21*(2*x - 1)*sqrt(-2*x + 1)*log((sqrt(55)*(5
*x - 8) + 55*sqrt(-2*x + 1))/(5*x + 3)) + sqrt(55)*(33078375*x^5
+ 190531440*x^4 + 611141355*x^3 + 2562785082*x^2 - 5374023537*x +
 1780047848))/((2*x - 1)*sqrt(-2*x + 1))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(3x+2)^6}{(-2x+1)^{\frac{5}{2}}(5x+3)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**6/(1-2*x)**(5/2)/(3+5*x),x)
```

```
[Out] Integral((3*x + 2)**6/((-2*x + 1)**(5/2)*(5*x + 3)), x)
```

GIAC/XCAS [A] time = 0.218038, size = 150, normalized size = 1.42

$$-\frac{729}{1120}(2x-1)^3\sqrt{-2x+1}-\frac{43011}{4000}(2x-1)^2\sqrt{-2x+1}+\frac{169209}{2000}(-2x+1)^{\frac{3}{2}}+\frac{1}{4159375}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{5992353}{10000}\sqrt{-2x+1}-\frac{16807(489x-206)}{5808(2x-1)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^6/((5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] -729/1120*(2*x - 1)^3*sqrt(-2*x + 1) - 43011/4000*(2*x - 1)^2*sqr
t(-2*x + 1) + 169209/2000*(-2*x + 1)^(3/2) + 1/4159375*sqrt(55)*l
n(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*
x + 1))) - 5992353/10000*sqrt(-2*x + 1) - 16807/5808*(489*x - 206
)/((2*x - 1)*sqrt(-2*x + 1))
```

3.2153 $\int \frac{(2+3x)^5}{(1-2x)^{5/2}(3+5x)}\,dx$

Optimal. Leaf size=93

$$-\frac{243}{400}(1-2x)^{5/2}+\frac{1917}{200}(1-2x)^{3/2}-\frac{51057}{500}\sqrt{1-2x}-\frac{156065}{968\sqrt{1-2x}}+\frac{16807}{528(1-2x)^{3/2}}-\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{15125\sqrt{55}}$$

```
[Out] 16807/(528*(1 - 2*x)^(3/2)) - 156065/(968*Sqrt[1 - 2*x]) - (51057
*Sqrt[1 - 2*x])/500 + (1917*(1 - 2*x)^(3/2))/200 - (243*(1 - 2*x)
^(5/2))/400 - (2*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(15125*Sqrt[5
5])
```

Rubi [A] time = 0.152038, antiderivative size = 93, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$-\frac{243}{400}(1-2x)^{5/2}+\frac{1917}{200}(1-2x)^{3/2}-\frac{51057}{500}\sqrt{1-2x}-\frac{156065}{968\sqrt{1-2x}}+\frac{16807}{528(1-2x)^{3/2}}-\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{15125\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^5/((1 - 2*x)^(5/2)*(3 + 5*x)),x]
```

```
[Out] 16807/(528*(1 - 2*x)^(3/2)) - 156065/(968*Sqrt[1 - 2*x]) - (51057
*Sqrt[1 - 2*x])/500 + (1917*(1 - 2*x)^(3/2))/200 - (243*(1 - 2*x)
^(5/2))/400 - (2*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(15125*Sqrt[5
5])
```

Rubi in Sympy [A] time = 14.23, size = 83, normalized size = 0.89

$$-\frac{243\left(-2x+1\right)^{\frac{5}{2}}}{400}+\frac{1917\left(-2x+1\right)^{\frac{3}{2}}}{200}-\frac{51057\sqrt{-2x+1}}{500}-\frac{2\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{831875}-\frac{156065}{968\sqrt{-2x+1}}+\frac{16807}{528\left(-2x+1\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**5/(1-2*x)**(5/2)/(3+5*x),x)
```

```
[Out] -243*(-2*x + 1)**(5/2)/400 + 1917*(-2*x + 1)**(3/2)/200 - 51057*s
qrt(-2*x + 1)/500 - 2*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/
831875 - 156065/(968*sqrt(-2*x + 1)) + 16807/(528*(-2*x + 1)**(3/
2))
```

Mathematica [A] time = 0.154653, size = 61, normalized size = 0.66

$$\frac{-\frac{55\left(441045x^4+2597265x^3+13976226x^2-30775791x+10097264\right)}{(1-2x)^{3/2}}-6\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{2495625}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^5/((1 - 2*x)^(5/2)*(3 + 5*x)),x]
```

```
[Out] ((-55*(10097264 - 30775791*x + 13976226*x^2 + 2597265*x^3 + 44104
5*x^4))/(1 - 2*x)^(3/2) - 6*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 -
2*x]])/2495625
```

Maple [A] time = 0.016, size = 65, normalized size = 0.7

$$\frac{16807}{528}(1-2x)^{-\frac{3}{2}}+\frac{1917}{200}(1-2x)^{\frac{3}{2}}-\frac{243}{400}(1-2x)^{\frac{5}{2}} -\frac{2\sqrt{55}}{831875}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)-\frac{156065}{968}\frac{1}{\sqrt{1-2x}}-\frac{51057}{500}\sqrt{1-2x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^5/(1-2*x)^(5/2)/(3+5*x),x)
```

```
[Out] 16807/528/(1-2*x)^(3/2)+1917/200*(1-2*x)^(3/2)-243/400*(1-2*x)^(5
/2)-2/831875*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)-156065
/968/(1-2*x)^(1/2)-51057/500*(1-2*x)^(1/2)
```

Maxima [A] time = 1.48581, size = 105, normalized size = 1.13

$$-\frac{243}{400}(-2x+1)^{\frac{5}{2}}+\frac{1917}{200}(-2x+1)^{\frac{3}{2}}+\frac{1}{831875}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right) -\frac{51057}{500}\sqrt{-2x+1}+\frac{2401(780x-313)}{5808(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/((5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] -243/400*(-2*x + 1)^(5/2) + 1917/200*(-2*x + 1)^(3/2) + 1/831875*
sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2
*x + 1))) - 51057/500*sqrt(-2*x + 1) + 2401/5808*(780*x - 313)/(-
2*x + 1)^(3/2)
```

Fricas [A] time = 0.216562, size = 116, normalized size = 1.25

$$\frac{\sqrt{55}\left(3(2x-1)\sqrt{-2x+1}\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{-2x+1}}{5x+3}\right)+\sqrt{55}(441045x^4+2597265x^3+13976226x^2-30775791x+1009726\right.}{2495625(2x-1)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/((5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/2495625*sqrt(55)*(3*(2*x - 1)*sqrt(-2*x + 1)*log((sqrt(55)*(5*x
 - 8) + 55*sqrt(-2*x + 1))/(5*x + 3)) + sqrt(55)*(441045*x^4 + 25
97265*x^3 + 13976226*x^2 - 30775791*x + 10097264))/((2*x - 1)*sqr
t(-2*x + 1))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(3x+2)^5}{(-2x+1)^{\frac{5}{2}}(5x+3)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**5/(1-2*x)**(5/2)/(3+5*x),x)
```

```
[Out] Integral((3*x + 2)**5/((-2*x + 1)**(5/2)*(5*x + 3)), x)
```

GIAC/XCAS [A] time = 0.217719, size = 128, normalized size = 1.38

$$-\frac{243}{400}(2x-1)^2\sqrt{-2x+1}+\frac{1917}{200}(-2x+1)^{\frac{3}{2}}+\frac{1}{831875}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{51057}{500}\sqrt{-2x+1}-\frac{2401(780x-313)}{5808(2x-1)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/((5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] -243/400*(2*x - 1)^2*sqrt(-2*x + 1) + 1917/200*(-2*x + 1)^(3/2) +
 1/831875*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(s
qrt(55) + 5*sqrt(-2*x + 1))) - 51057/500*sqrt(-2*x + 1) - 2401/58
08*(780*x - 313)/((2*x - 1)*sqrt(-2*x + 1))
```

3.2154 $\int \frac{(2+3x)^4}{(1-2x)^{5/2}(3+5x)}\,dx$

Optimal. Leaf size=80

$$\frac{27}{40}(1-2x)^{3/2}-\frac{2889}{200}\sqrt{1-2x}-\frac{33271}{968\sqrt{1-2x}}+\frac{2401}{264(1-2x)^{3/2}}-\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{3025\sqrt{55}}$$

```
[Out] 2401/(264*(1 - 2*x)^(3/2)) - 33271/(968*Sqrt[1 - 2*x]) - (2889*Sq
rt[1 - 2*x])/200 + (27*(1 - 2*x)^(3/2))/40 - (2*ArcTanh[Sqrt[5/11
]*Sqrt[1 - 2*x]])/(3025*Sqrt[55])
```

Rubi [A] time = 0.118381, antiderivative size = 80, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$\frac{27}{40}(1-2x)^{3/2}-\frac{2889}{200}\sqrt{1-2x}-\frac{33271}{968\sqrt{1-2x}}+\frac{2401}{264(1-2x)^{3/2}}-\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{3025\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^4/((1 - 2*x)^(5/2)*(3 + 5*x)),x]
```

```
[Out] 2401/(264*(1 - 2*x)^(3/2)) - 33271/(968*Sqrt[1 - 2*x]) - (2889*Sq
rt[1 - 2*x])/200 + (27*(1 - 2*x)^(3/2))/40 - (2*ArcTanh[Sqrt[5/11
]*Sqrt[1 - 2*x]])/(3025*Sqrt[55])
```

Rubi in Sympy [A] time = 12.1933, size = 71, normalized size = 0.89

$$\frac{27\left(-2x+1\right)^{\frac{3}{2}}}{40}-\frac{2889\sqrt{-2x+1}}{200}-\frac{2\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{166375}-\frac{33271}{968\sqrt{-2x+1}}+\frac{2401}{264\left(-2x+1\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4/(1-2*x)**(5/2)/(3+5*x),x)
```

```
[Out] 27*(-2*x + 1)**(3/2)/40 - 2889*sqrt(-2*x + 1)/200 - 2*sqrt(55)*at
anh(sqrt(55)*sqrt(-2*x + 1)/11)/166375 - 33271/(968*sqrt(-2*x + 1
)) + 2401/(264*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.15108, size = 56, normalized size = 0.7

$$\frac{-\frac{55(49005x^3+450846x^2-1111431x+354344)}{(1-2x)^{3/2}}-6\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{499125}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^4/((1 - 2*x)^(5/2)*(3 + 5*x)),x]
```

```
[Out] ((-55*(354344 - 1111431*x + 450846*x^2 + 49005*x^3))/(1 - 2*x)^(3
/2) - 6*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/499125
```

Maple [A] time = 0.016, size = 56, normalized size = 0.7

$$\frac{2401}{264}(1-2x)^{-\frac{3}{2}}+\frac{27}{40}(1-2x)^{\frac{3}{2}}-\frac{2\sqrt{55}}{166375}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)-\frac{33271}{968}\frac{1}{\sqrt{1-2x}}-\frac{2889}{200}\sqrt{1-2x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4/(1-2*x)^(5/2)/(3+5*x),x)
```

```
[Out] 2401/264/(1-2*x)^(3/2)+27/40*(1-2*x)^(3/2)-2/166375*arctanh(1/11*
55^(1/2)*(1-2*x)^(1/2))*55^(1/2)-33271/968/(1-2*x)^(1/2)-2889/200
*(1-2*x)^(1/2)
```

Maxima [A] time = 1.49253, size = 93, normalized size = 1.16

$$\frac{27}{40}(-2x+1)^{\frac{3}{2}}+\frac{1}{166375}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{2889}{200}\sqrt{-2x+1}+\frac{343(291x-107)}{1452(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^4/((5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 27/40*(-2*x + 1)^(3/2) + 1/166375*sqrt(55)*log(-(sqrt(55) - 5*sqr
t(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) - 2889/200*sqrt(-2*x
+ 1) + 343/1452*(291*x - 107)/(-2*x + 1)^(3/2)
```

Fricas [A] time = 0.2233, size = 109, normalized size = 1.36

$$\frac{\sqrt{55}\left(3(2x-1)\sqrt{-2x+1}\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{-2x+1}}{5x+3}\right)+\sqrt{55}\left(49005x^3+450846x^2-1111431x+354344\right)\right)}{499125(2x-1)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^4/((5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/499125*sqrt(55)*(3*(2*x - 1)*sqrt(-2*x + 1)*log((sqrt(55)*(5*x
- 8) + 55*sqrt(-2*x + 1))/(5*x + 3)) + sqrt(55)*(49005*x^3 + 4508
46*x^2 - 1111431*x + 354344))/((2*x - 1)*sqrt(-2*x + 1))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(3x+2)^4}{(-2x+1)^{\frac{5}{2}}(5x+3)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4/(1-2*x)**(5/2)/(3+5*x),x)
```

```
[Out] Integral((3*x + 2)**4/((-2*x + 1)**(5/2)*(5*x + 3)), x)
```

GIAC/XCAS [A] time = 0.224883, size = 107, normalized size = 1.34

$$\frac{27}{40}(-2x+1)^{\frac{3}{2}}+\frac{1}{166375}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{2889}{200}\sqrt{-2x+1}-\frac{343(291x-107)}{1452(2x-1)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^4/((5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 27/40*(-2*x + 1)^(3/2) + 1/166375*sqrt(55)*ln(1/2*abs(-2*sqrt(55)
 + 10*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) - 2889/200*s
qrt(-2*x + 1) - 343/1452*(291*x - 107)/((2*x - 1)*sqrt(-2*x + 1))
```

3.2155 $\int \frac{(2+3x)^3}{(1-2x)^{5/2}(3+5x)}\,dx$

Optimal. Leaf size=67

$$-\frac{27}{20}\sqrt{1-2x}-\frac{784}{121\sqrt{1-2x}}+\frac{343}{132(1-2x)^{3/2}}-\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{605\sqrt{55}}$$

```
[Out] 343/(132*(1 - 2*x)^(3/2)) - 784/(121*Sqrt[1 - 2*x]) - (27*Sqrt[1
- 2*x])/20 - (2*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(605*Sqrt[55])
```

Rubi [A] time = 0.0966134, antiderivative size = 67, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$-\frac{27}{20}\sqrt{1-2x}-\frac{784}{121\sqrt{1-2x}}+\frac{343}{132(1-2x)^{3/2}}-\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{605\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^3/((1 - 2*x)^(5/2)*(3 + 5*x)),x]
```

```
[Out] 343/(132*(1 - 2*x)^(3/2)) - 784/(121*Sqrt[1 - 2*x]) - (27*Sqrt[1
- 2*x])/20 - (2*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(605*Sqrt[55])
```

Rubi in Sympy [A] time = 11.5398, size = 60, normalized size = 0.9

$$-\frac{27\sqrt{-2x+1}}{20}-\frac{2\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{33275}-\frac{784}{121\sqrt{-2x+1}}+\frac{343}{132\left(-2x+1\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3/(1-2*x)**(5/2)/(3+5*x),x)
```

```
[Out] -27*sqrt(-2*x + 1)/20 - 2*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/
11)/33275 - 784/(121*sqrt(-2*x + 1)) + 343/(132*(-2*x + 1)**(3/2)
)
```

Mathematica [A] time = 0.120755, size = 51, normalized size = 0.76

$$\frac{-\frac{55(9801x^2-33321x+9494)}{(1-2x)^{3/2}}-6\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{99825}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^3/((1 - 2*x)^(5/2)*(3 + 5*x)),x]
```

```
[Out] ((-55*(9494 - 33321*x + 9801*x^2))/(1 - 2*x)^(3/2) - 6*Sqrt[55]*A
rcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/99825
```

Maple [A] time = 0.016, size = 47, normalized size = 0.7

$$\frac{343}{132}\left(1-2\,x\right)^{-\frac{3}{2}}-\frac{2\,\sqrt{55}}{33275}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2\,x}\right)-\frac{784}{121}\frac{1}{\sqrt{1-2\,x}}-\frac{27}{20}\sqrt{1-2\,x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3/(1-2*x)^(5/2)/(3+5*x),x)
```

```
[Out] 343/132/(1-2*x)^(3/2)-2/33275*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2)
)*55^(1/2)-784/121/(1-2*x)^(1/2)-27/20*(1-2*x)^(1/2)
```

Maxima [A] time = 1.50606, size = 81, normalized size = 1.21

$$\frac{1}{33275}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{27}{20}\sqrt{-2x+1}+\frac{49\,(384\,x-115)}{1452\,(-2\,x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3/((5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 1/33275*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5
*sqrt(-2*x + 1))) - 27/20*sqrt(-2*x + 1) + 49/1452*(384*x - 115)/
(-2*x + 1)^(3/2)
```

Fricas [A] time = 0.22711, size = 103, normalized size = 1.54

$$\frac{\sqrt{55}\left(3\,(2\,x-1)\sqrt{-2\,x+1}\log\left(\frac{\sqrt{55}(5\,x-8)+55\,\sqrt{-2\,x+1}}{5\,x+3}\right)+\sqrt{55}\left(9801\,x^{2}-33321\,x+9494\right)\right)}{99825\,(2\,x-1)\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3/((5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/99825*sqrt(55)*(3*(2*x - 1)*sqrt(-2*x + 1)*log((sqrt(55)*(5*x -
 8) + 55*sqrt(-2*x + 1))/(5*x + 3)) + sqrt(55)*(9801*x^2 - 33321*
x + 9494))/((2*x - 1)*sqrt(-2*x + 1))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(3x+2)^{3}}{(-2x+1)^{\frac{5}{2}}\,(5x+3)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3/(1-2*x)**(5/2)/(3+5*x),x)
```

```
[Out] Integral((3*x + 2)**3/((-2*x + 1)**(5/2)*(5*x + 3)), x)
```

GIAC/XCAS [A] time = 0.221199, size = 95, normalized size = 1.42

$$\frac{1}{33275}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2\,x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2\,x+1}\right)}\right)-\frac{27}{20}\sqrt{-2\,x+1}-\frac{49\,(384\,x-115)}{1452\,(2\,x-1)\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3/((5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 1/33275*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqr
t(55) + 5*sqrt(-2*x + 1))) - 27/20*sqrt(-2*x + 1) - 49/1452*(384*
x - 115)/((2*x - 1)*sqrt(-2*x + 1))
```

3.2156 $\int \frac{(2+3x)^2}{(1-2x)^{5/2}(3+5x)}\,dx$

Optimal. Leaf size=54

$$-\frac{217}{242\sqrt{1-2x}}+\frac{49}{66(1-2x)^{3/2}}-\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{121\sqrt{55}}$$

```
[Out] 49/(66*(1 - 2*x)^(3/2)) - 217/(242*Sqrt[1 - 2*x]) - (2*ArcTanh[Sq
rt[5/11]*Sqrt[1 - 2*x]])/(121*Sqrt[55])
```

Rubi [A] time = 0.0874245, antiderivative size = 54, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$-\frac{217}{242\sqrt{1-2x}}+\frac{49}{66(1-2x)^{3/2}}-\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{121\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^2/((1 - 2*x)^(5/2)*(3 + 5*x)),x]
```

```
[Out] 49/(66*(1 - 2*x)^(3/2)) - 217/(242*Sqrt[1 - 2*x]) - (2*ArcTanh[Sq
rt[5/11]*Sqrt[1 - 2*x]])/(121*Sqrt[55])
```

Rubi in Sympy [A] time = 11.3302, size = 48, normalized size = 0.89

$$-\frac{2\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{6655}-\frac{217}{242\sqrt{-2x+1}}+\frac{49}{66\left(-2x+1\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2/(1-2*x)**(5/2)/(3+5*x),x)
```

```
[Out] -2*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/6655 - 217/(242*sqr
t(-2*x + 1)) + 49/(66*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.094914, size = 46, normalized size = 0.85

$$\frac{7(93x-8)}{363(1-2x)^{3/2}}-\frac{2\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{121\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^2/((1 - 2*x)^(5/2)*(3 + 5*x)),x]
```

```
[Out] (7*(-8 + 93*x))/(363*(1 - 2*x)^(3/2)) - (2*ArcTanh[Sqrt[5/11]*Sqr
t[1 - 2*x]])/(121*Sqrt[55])
```

Maple [A] time = 0.015, size = 38, normalized size = 0.7

$$\frac{49}{66}(1-2x)^{-\frac{3}{2}}-\frac{2\sqrt{55}}{6655}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)-\frac{217}{242}\frac{1}{\sqrt{1-2x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2/(1-2*x)^(5/2)/(3+5*x),x)
```

```
[Out] 49/66/(1-2*x)^(3/2)-2/6655*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*5
5^(1/2)-217/242/(1-2*x)^(1/2)
```

Maxima [A] time = 1.50084, size = 69, normalized size = 1.28

$$\frac{1}{6655}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{7(93x-8)}{363(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2/((5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 1/6655*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*
sqrt(-2*x + 1))) + 7/363*(93*x - 8)/(-2*x + 1)^(3/2)
```

Fricas [A] time = 0.222642, size = 97, normalized size = 1.8

$$\frac{\sqrt{55}\left(3(2x-1)\sqrt{-2x+1}\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{-2x+1}}{5x+3}\right)-7\sqrt{55}(93x-8)\right)}{19965(2x-1)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2/((5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/19965*sqrt(55)*(3*(2*x - 1)*sqrt(-2*x + 1)*log((sqrt(55)*(5*x -
 8) + 55*sqrt(-2*x + 1))/(5*x + 3)) - 7*sqrt(55)*(93*x - 8))/((2*
x - 1)*sqrt(-2*x + 1))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(3x+2)^2}{(-2x+1)^{\frac{5}{2}}(5x+3)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2/(1-2*x)**(5/2)/(3+5*x),x)
```

```
[Out] Integral((3*x + 2)**2/((-2*x + 1)**(5/2)*(5*x + 3)), x)
```

GIAC/XCAS [A] time = 0.21117, size = 82, normalized size = 1.52

$$\frac{1}{6655}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{7(93x-8)}{363(2x-1)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2/((5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 1/6655*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt
(55) + 5*sqrt(-2*x + 1))) - 7/363*(93*x - 8)/((2*x - 1)*sqrt(-2*x
 + 1))
```

3.2157 $\int \frac{2+3x}{(1-2x)^{5/2}(3+5x)} dx$

Optimal. Leaf size=56

$$\frac{2}{121\sqrt{1-2x}}+\frac{7}{33(1-2x)^{3/2}}-\frac{2}{121}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] 7/(33*(1 - 2*x)^(3/2)) + 2/(121*Sqrt[1 - 2*x]) - (2*Sqrt[5/11]*Ar
cTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/121
```

Rubi [A] time = 0.0695774, antiderivative size = 56, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$\frac{2}{121\sqrt{1-2x}}+\frac{7}{33(1-2x)^{3/2}}-\frac{2}{121}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)/((1 - 2*x)^(5/2)*(3 + 5*x)),x]
```

```
[Out] 7/(33*(1 - 2*x)^(3/2)) + 2/(121*Sqrt[1 - 2*x]) - (2*Sqrt[5/11]*Ar
cTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/121
```

Rubi in Sympy [A] time = 6.81272, size = 48, normalized size = 0.86

$$-\frac{2\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{1331}+\frac{2}{121\sqrt{-2x+1}}+\frac{7}{33\left(-2x+1\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)/(1-2*x)**(5/2)/(3+5*x),x)
```

```
[Out] -2*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/1331 + 2/(121*sqrt(
-2*x + 1)) + 7/(33*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.0780064, size = 52, normalized size = 0.93

$$-\frac{132x+6\sqrt{55}(1-2x)^{3/2}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)-913}{3993(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)/((1 - 2*x)^(5/2)*(3 + 5*x)),x]
```

```
[Out] -(-913 + 132*x + 6*Sqrt[55]*(1 - 2*x)^(3/2)*ArcTanh[Sqrt[5/11]*Sq
rt[1 - 2*x]])/(3993*(1 - 2*x)^(3/2))
```

Maple [A] time = 0.013, size = 38, normalized size = 0.7

$$\frac{7}{33}\left(1-2x\right)^{-\frac{3}{2}}-\frac{2\sqrt{55}}{1331}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)+\frac{2}{121}\frac{1}{\sqrt{1-2x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)/(1-2*x)^(5/2)/(3+5*x),x)
```

```
[Out] 7/33/(1-2*x)^(3/2)-2/1331*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55
^(1/2)+2/121/(1-2*x)^(1/2)
```

Maxima [A] time = 1.50383, size = 69, normalized size = 1.23

$$\frac{1}{1331}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{12x-83}{363(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)/((5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 1/1331*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*
sqrt(-2*x + 1))) - 1/363*(12*x - 83)/(-2*x + 1)^(3/2)
```

Fricas [A] time = 0.250135, size = 104, normalized size = 1.86

$$\frac{\sqrt{11}\left(3\sqrt{5}(2x-1)\sqrt{-2x+1}\log\left(\frac{\sqrt{11}(5x-8)+11\sqrt{5}\sqrt{-2x+1}}{5x+3}\right)+\sqrt{11}(12x-83)\right)}{3993(2x-1)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)/((5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/3993*sqrt(11)*(3*sqrt(5)*(2*x - 1)*sqrt(-2*x + 1)*log((sqrt(11)
*(5*x - 8) + 11*sqrt(5)*sqrt(-2*x + 1))/(5*x + 3)) + sqrt(11)*(12
*x - 83))/((2*x - 1)*sqrt(-2*x + 1))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{3x+2}{(-2x+1)^{\frac{5}{2}}(5x+3)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)/(1-2*x)**(5/2)/(3+5*x),x)
```

```
[Out] Integral((3*x + 2)/((-2*x + 1)**(5/2)*(5*x + 3)), x)
```

GIAC/XCAS [A] time = 0.22136, size = 82, normalized size = 1.46

$$\frac{1}{1331}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{12x-83}{363(2x-1)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)/((5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 1/1331*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt
(55) + 5*sqrt(-2*x + 1))) + 1/363*(12*x - 83)/((2*x - 1)*sqrt(-2*
x + 1))
```

3.2158 $\int \frac{1}{(1-2x)^{5/2}(3+5x)}\,dx$

Optimal. Leaf size=56

$$\frac{10}{121\sqrt{1-2x}}+\frac{2}{33(1-2x)^{3/2}}-\frac{10}{121}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] 2/(33*(1 - 2*x)^(3/2)) + 10/(121*Sqrt[1 - 2*x]) - (10*Sqrt[5/11]*
ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/121
```

Rubi [A] time = 0.0567042, antiderivative size = 56, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 17, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.176

$$\frac{10}{121\sqrt{1-2x}}+\frac{2}{33(1-2x)^{3/2}}-\frac{10}{121}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(5/2)*(3 + 5*x)),x]
```

```
[Out] 2/(33*(1 - 2*x)^(3/2)) + 10/(121*Sqrt[1 - 2*x]) - (10*Sqrt[5/11]*
ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/121
```

Rubi in Sympy [A] time = 5.80181, size = 48, normalized size = 0.86

$$-\frac{10\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{1331}+\frac{10}{121\sqrt{-2x+1}}+\frac{2}{33\left(-2x+1\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(5/2)/(3+5*x),x)
```

```
[Out] -10*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/1331 + 10/(121*sqr
t(-2*x + 1)) + 2/(33*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.0674819, size = 52, normalized size = 0.93

$$-\frac{2\left(330x+15\sqrt{55}(1-2x)^{3/2}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)-286\right)}{3993(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(5/2)*(3 + 5*x)),x]
```

```
[Out] (-2*(-286 + 330*x + 15*Sqrt[55]*(1 - 2*x)^(3/2)*ArcTanh[Sqrt[5/11
]*Sqrt[1 - 2*x]]))/(3993*(1 - 2*x)^(3/2))
```

Maple [A] time = 0.012, size = 38, normalized size = 0.7

$$\frac{2}{33}\left(1-2\,x\right)^{-\frac{3}{2}}-\frac{10\,\sqrt{55}}{1331}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2\,x}\right)+\frac{10}{121}\frac{1}{\sqrt{1-2\,x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(5/2)/(3+5*x),x)
```

```
[Out] 2/33/(1-2*x)^(3/2)-10/1331*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*5
5^(1/2)+10/121/(1-2*x)^(1/2)
```

Maxima [A] time = 1.50324, size = 69, normalized size = 1.23

$$\frac{5}{1331}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{4(15x-13)}{363(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 5/1331*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*
sqrt(-2*x + 1))) - 4/363*(15*x - 13)/(-2*x + 1)^(3/2)
```

Fricas [A] time = 0.245354, size = 105, normalized size = 1.88

$$\frac{\sqrt{11}\left(15\sqrt{5}(2x-1)\sqrt{-2x+1}\log\left(\frac{\sqrt{11}(5x-8)+11\sqrt{5}\sqrt{-2x+1}}{5x+3}\right)+4\sqrt{11}(15x-13)\right)}{3993(2x-1)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/3993*sqrt(11)*(15*sqrt(5)*(2*x - 1)*sqrt(-2*x + 1)*log((sqrt(11
)*(5*x - 8) + 11*sqrt(5)*sqrt(-2*x + 1))/(5*x + 3)) + 4*sqrt(11)*
(15*x - 13))/((2*x - 1)*sqrt(-2*x + 1))
```

Sympy [A] time = 4.1449, size = 1836, normalized size = 32.79

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(5/2)/(3+5*x),x)
```

```
[Out] Piecewise((3000*sqrt(5)*I*(x + 3/5)**2*asin(sqrt(110)/(10*sqrt(x
+ 3/5)))/(36300*sqrt(11)*(x + 3/5)**2 - 79860*sqrt(11)*(x + 3/5)
+ 43923*sqrt(11)) - 1500*sqrt(5)*(x + 3/5)**2*log(110)/(36300*sqr
t(11)*(x + 3/5)**2 - 79860*sqrt(11)*(x + 3/5) + 43923*sqrt(11)) -
 1500*sqrt(5)*(x + 3/5)**2*log(11)/(36300*sqrt(11)*(x + 3/5)**2 -
 79860*sqrt(11)*(x + 3/5) + 43923*sqrt(11)) - 3000*sqrt(5)*(x + 3
/5)**2*log(2)/(36300*sqrt(11)*(x + 3/5)**2 - 79860*sqrt(11)*(x +
3/5) + 43923*sqrt(11)) + 1500*sqrt(5)*(x + 3/5)**2*log(10)/(36300
*sqrt(11)*(x + 3/5)**2 - 79860*sqrt(11)*(x + 3/5) + 43923*sqrt(11
)) + 3000*sqrt(5)*(x + 3/5)**2*log(22)/(36300*sqrt(11)*(x + 3/5)*
*2 - 79860*sqrt(11)*(x + 3/5) + 43923*sqrt(11)) - 300*sqrt(55)*I*
(x + 3/5)*sqrt(10*x - 5)/(36300*sqrt(11)*(x + 3/5)**2 - 79860*sqr
t(11)*(x + 3/5) + 43923*sqrt(11)) - 6600*sqrt(5)*I*(x + 3/5)*asin
(sqrt(110)/(10*sqrt(x + 3/5)))/(36300*sqrt(11)*(x + 3/5)**2 - 798
60*sqrt(11)*(x + 3/5) + 43923*sqrt(11)) - 6600*sqrt(5)*(x + 3/5)*
log(22)/(36300*sqrt(11)*(x + 3/5)**2 - 79860*sqrt(11)*(x + 3/5) +
 43923*sqrt(11)) - 3300*sqrt(5)*(x + 3/5)*log(10)/(36300*sqrt(11)
*(x + 3/5)**2 - 79860*sqrt(11)*(x + 3/5) + 43923*sqrt(11)) + 6600
```

```
*sqrt(5)*(x + 3/5)*log(2)/(36300*sqrt(11)*(x + 3/5)**2 - 79860*sq
rt(11)*(x + 3/5) + 43923*sqrt(11)) + 3300*sqrt(5)*(x + 3/5)*log(1
1)/(36300*sqrt(11)*(x + 3/5)**2 - 79860*sqrt(11)*(x + 3/5) + 4392
3*sqrt(11)) + 3300*sqrt(5)*(x + 3/5)*log(110)/(36300*sqrt(11)*(x
+ 3/5)**2 - 79860*sqrt(11)*(x + 3/5) + 43923*sqrt(11)) + 440*sqrt
(55)*I*sqrt(10*x - 5)/(36300*sqrt(11)*(x + 3/5)**2 - 79860*sqrt(1
1)*(x + 3/5) + 43923*sqrt(11)) + 3630*sqrt(5)*I*asin(sqrt(110)/(1
0*sqrt(x + 3/5)))/(36300*sqrt(11)*(x + 3/5)**2 - 79860*sqrt(11)*(
x + 3/5) + 43923*sqrt(11)) - 1815*sqrt(5)*log(110)/(36300*sqrt(11
)*(x + 3/5)**2 - 79860*sqrt(11)*(x + 3/5) + 43923*sqrt(11)) - 181
5*sqrt(5)*log(11)/(36300*sqrt(11)*(x + 3/5)**2 - 79860*sqrt(11)*(
x + 3/5) + 43923*sqrt(11)) - 3630*sqrt(5)*log(2)/(36300*sqrt(11)*
(x + 3/5)**2 - 79860*sqrt(11)*(x + 3/5) + 43923*sqrt(11)) + 1815*
sqrt(5)*log(10)/(36300*sqrt(11)*(x + 3/5)**2 - 79860*sqrt(11)*(x
+ 3/5) + 43923*sqrt(11)) + 3630*sqrt(5)*log(22)/(36300*sqrt(11)*(
x + 3/5)**2 - 79860*sqrt(11)*(x + 3/5) + 43923*sqrt(11)), 10*Abs(
x + 3/5)/11 > 1), (-300*sqrt(55)*sqrt(-10*x + 5)*(x + 3/5)/(36300
*sqrt(11)*(x + 3/5)**2 - 79860*sqrt(11)*(x + 3/5) + 43923*sqrt(11
)) + 440*sqrt(55)*sqrt(-10*x + 5)/(36300*sqrt(11)*(x + 3/5)**2 -
79860*sqrt(11)*(x + 3/5) + 43923*sqrt(11)) + 1500*sqrt(5)*(x + 3/
5)**2*log(x + 3/5)/(36300*sqrt(11)*(x + 3/5)**2 - 79860*sqrt(11)*
(x + 3/5) + 43923*sqrt(11)) - 3000*sqrt(5)*(x + 3/5)**2*log(sqrt(
-10*x/11 + 5/11) + 1)/(36300*sqrt(11)*(x + 3/5)**2 - 79860*sqrt(1
1)*(x + 3/5) + 43923*sqrt(11)) - 1500*sqrt(5)*(x + 3/5)**2*log(11
)/(36300*sqrt(11)*(x + 3/5)**2 - 79860*sqrt(11)*(x + 3/5) + 43923
*sqrt(11)) + 1500*sqrt(5)*(x + 3/5)**2*log(10)/(36300*sqrt(11)*(x
 + 3/5)**2 - 79860*sqrt(11)*(x + 3/5) + 43923*sqrt(11)) + 1500*sq
rt(5)*I*pi*(x + 3/5)**2/(36300*sqrt(11)*(x + 3/5)**2 - 79860*sqrt
(11)*(x + 3/5) + 43923*sqrt(11)) - 3300*sqrt(5)*(x + 3/5)*log(x +
 3/5)/(36300*sqrt(11)*(x + 3/5)**2 - 79860*sqrt(11)*(x + 3/5) + 4
3923*sqrt(11)) + 6600*sqrt(5)*(x + 3/5)*log(sqrt(-10*x/11 + 5/11)
 + 1)/(36300*sqrt(11)*(x + 3/5)**2 - 79860*sqrt(11)*(x + 3/5) + 4
3923*sqrt(11)) - 3300*sqrt(5)*(x + 3/5)*log(10)/(36300*sqrt(11)*(
x + 3/5)**2 - 79860*sqrt(11)*(x + 3/5) + 43923*sqrt(11)) + 3300*s
qrt(5)*(x + 3/5)*log(11)/(36300*sqrt(11)*(x + 3/5)**2 - 79860*sqr
t(11)*(x + 3/5) + 43923*sqrt(11)) - 3300*sqrt(5)*I*pi*(x + 3/5)/(
36300*sqrt(11)*(x + 3/5)**2 - 79860*sqrt(11)*(x + 3/5) + 43923*sq
rt(11)) + 1815*sqrt(5)*log(x + 3/5)/(36300*sqrt(11)*(x + 3/5)**2
- 79860*sqrt(11)*(x + 3/5) + 43923*sqrt(11)) - 3630*sqrt(5)*log(s
qrt(-10*x/11 + 5/11) + 1)/(36300*sqrt(11)*(x + 3/5)**2 - 79860*sq
rt(11)*(x + 3/5) + 43923*sqrt(11)) - 1815*sqrt(5)*log(11)/(36300*
sqrt(11)*(x + 3/5)**2 - 79860*sqrt(11)*(x + 3/5) + 43923*sqrt(11)
) + 1815*sqrt(5)*log(10)/(36300*sqrt(11)*(x + 3/5)**2 - 79860*sqr
t(11)*(x + 3/5) + 43923*sqrt(11)) + 1815*sqrt(5)*I*pi/(36300*sqrt
(11)*(x + 3/5)**2 - 79860*sqrt(11)*(x + 3/5) + 43923*sqrt(11)), T
rue))
```

GIAC/XCAS [A] time = 0.214574, size = 82, normalized size = 1.46

$$\frac{5}{1331}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{4(15x-13)}{363(2x-1)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 5/1331*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt
(55) + 5*sqrt(-2*x + 1))) + 4/363*(15*x - 13)/((2*x - 1)*sqrt(-2*
x + 1))
```

3.2159 $\int \frac{1}{(1-2x)^{5/2}(2+3x)(3+5x)}\,dx$

Optimal. Leaf size=85

$$\frac{272}{5929\sqrt{1-2x}}+\frac{4}{231(1-2x)^{3/2}}+\frac{18}{49}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{50}{121}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] 4/(231*(1 - 2*x)^(3/2)) + 272/(5929*Sqrt[1 - 2*x]) + (18*Sqrt[3/7
]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/49 - (50*Sqrt[5/11]*ArcTanh[S
qrt[5/11]*Sqrt[1 - 2*x]])/121
```

Rubi [A] time = 0.206412, antiderivative size = 85, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{272}{5929\sqrt{1-2x}}+\frac{4}{231(1-2x)^{3/2}}+\frac{18}{49}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{50}{121}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(5/2)*(2 + 3*x)*(3 + 5*x)),x]
```

```
[Out] 4/(231*(1 - 2*x)^(3/2)) + 272/(5929*Sqrt[1 - 2*x]) + (18*Sqrt[3/7
]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/49 - (50*Sqrt[5/11]*ArcTanh[S
qrt[5/11]*Sqrt[1 - 2*x]])/121
```

Rubi in Sympy [A] time = 21.229, size = 73, normalized size = 0.86

$$\frac{18\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{343}-\frac{50\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{1331}+\frac{272}{5929\sqrt{-2x+1}}+\frac{4}{231\left(-2x+1\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(5/2)/(2+3*x)/(3+5*x),x)
```

```
[Out] 18*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/343 - 50*sqrt(55)*at
anh(sqrt(55)*sqrt(-2*x + 1)/11)/1331 + 272/(5929*sqrt(-2*x + 1))
+ 4/(231*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.205592, size = 77, normalized size = 0.91

$$-\frac{4(408x-281)}{17787(1-2x)^{3/2}}+\frac{18}{49}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{50}{121}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(5/2)*(2 + 3*x)*(3 + 5*x)),x]
```

```
[Out] (-4*(-281 + 408*x))/(17787*(1 - 2*x)^(3/2)) + (18*Sqrt[3/7]*ArcTa
nh[Sqrt[3/7]*Sqrt[1 - 2*x]])/49 - (50*Sqrt[5/11]*ArcTanh[Sqrt[5/1
1]*Sqrt[1 - 2*x]])/121
```

Maple [A] time = 0.019, size = 56, normalized size = 0.7

$$\frac{4}{231}\left(1-2\,x\right)^{-\frac{3}{2}}+\frac{18\,\sqrt{21}}{343}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2\,x}\right)-\frac{50\,\sqrt{55}}{1331}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2\,x}\right)+\frac{272}{5929}\frac{1}{\sqrt{1-2\,x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(5/2)/(2+3*x)/(3+5*x),x)
```

```
[Out] 4/231/(1-2*x)^(3/2)+18/343*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21
^(1/2)-50/1331*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)+272/
5929/(1-2*x)^(1/2)
```

Maxima [A] time = 1.50284, size = 117, normalized size = 1.38

$$\frac{25}{1331}\,\sqrt{55}\log\left(-\frac{\sqrt{55}-5\,\sqrt{-2\,x+1}}{\sqrt{55}+5\,\sqrt{-2\,x+1}}\right)-\frac{9}{343}\,\sqrt{21}\log\left(-\frac{\sqrt{21}-3\,\sqrt{-2\,x+1}}{\sqrt{21}+3\,\sqrt{-2\,x+1}}\right)-\frac{4\,(408\,x-281)}{17787\,(-2\,x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 25/1331*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5
*sqrt(-2*x + 1))) - 9/343*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2*x +
 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 4/17787*(408*x - 281)/(-2*x
 + 1)^(3/2)
```

Fricas [A] time = 0.235983, size = 186, normalized size = 2.19

$$\frac{\sqrt{11}\sqrt{7}\Big(3675\,\sqrt{7}\sqrt{5}(2\,x-1)\sqrt{-2\,x+1}\log\left(\frac{\sqrt{11}(5\,x-8)+11\,\sqrt{5}\sqrt{-2\,x+1}}{5\,x+3}\right)+3267\,\sqrt{11}\sqrt{3}(2\,x-1)\sqrt{-2\,x+1}\log\left(\frac{\sqrt{7}(3\,x-5)-7\,\sqrt{3}\sqrt{-2\,x+}}{3\,x+2}\right.}{1369599\,(2\,x-1)\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/1369599*sqrt(11)*sqrt(7)*(3675*sqrt(7)*sqrt(5)*(2*x - 1)*sqrt(-
2*x + 1)*log((sqrt(11)*(5*x - 8) + 11*sqrt(5)*sqrt(-2*x + 1))/(5*
x + 3)) + 3267*sqrt(11)*sqrt(3)*(2*x - 1)*sqrt(-2*x + 1)*log((sqr
t(7)*(3*x - 5) - 7*sqrt(3)*sqrt(-2*x + 1))/(3*x + 2)) + 4*sqrt(11
)*sqrt(7)*(408*x - 281))/((2*x - 1)*sqrt(-2*x + 1))
```

Sympy [A] time = 12.2338, size = 105, normalized size = 1.24

$$-\frac{50\sqrt{55}i\,\operatorname{atan}\left(\frac{\sqrt{110}\sqrt{x-\frac{1}{2}}}{11}\right)}{1331}+\frac{18\sqrt{21}i\,\operatorname{atan}\left(\frac{\sqrt{42}\sqrt{x-\frac{1}{2}}}{7}\right)}{343}-\frac{136\sqrt{2}i}{5929\sqrt{x-\frac{1}{2}}}+\frac{\sqrt{2}i}{231\left(x-\frac{1}{2}\right)^{\frac{3}{2}}}+\frac{\sqrt{2}i}{20\left(x-\frac{1}{2}\right)^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(5/2)/(2+3*x)/(3+5*x),x)
```

```
[Out] -50*sqrt(55)*I*atan(sqrt(110)*sqrt(x - 1/2)/11)/1331 + 18*sqrt(21
)*I*atan(sqrt(42)*sqrt(x - 1/2)/7)/343 - 136*sqrt(2)*I/(5929*sqrt
```

```
(x - 1/2)) + sqrt(2)*I/(231*(x - 1/2)**(3/2)) + sqrt(2)*I/(20*(x
- 1/2)**(5/2))
```

GIAC/XCAS [A] time = 0.217937, size = 135, normalized size = 1.59

$$\frac{25}{1331}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{9}{343}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{4\,(408\,x-281)}{17787\,(2\,x-1)\sqrt{-2\,x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)*(3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 25/1331*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sqr
t(55) + 5*sqrt(-2*x + 1))) - 9/343*sqrt(21)*ln(1/2*abs(-2*sqrt(21
) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 4/17787*(4
08*x - 281)/((2*x - 1)*sqrt(-2*x + 1))
```

3.2160 $\int \frac{1}{(1-2x)^{5/2}(2+3x)^2(3+5x)}\,dx$

Optimal. Leaf size=105

$$-\frac{1370}{41503\sqrt{1-2x}}+\frac{3}{7(1-2x)^{3/2}(3x+2)}-\frac{190}{1617(1-2x)^{3/2}}+\frac{720}{343}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{250}{121}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] -190/(1617*(1 - 2*x)^(3/2)) - 1370/(41503*Sqrt[1 - 2*x]) + 3/(7*(
1 - 2*x)^(3/2)*(2 + 3*x)) + (720*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt
[1 - 2*x]])/343 - (250*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x
]])/121
```

Rubi [A] time = 0.281731, antiderivative size = 105, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$-\frac{1370}{41503\sqrt{1-2x}}+\frac{3}{7(1-2x)^{3/2}(3x+2)}-\frac{190}{1617(1-2x)^{3/2}}+\frac{720}{343}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{250}{121}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(5/2)*(2 + 3*x)^2*(3 + 5*x)),x]
```

```
[Out] -190/(1617*(1 - 2*x)^(3/2)) - 1370/(41503*Sqrt[1 - 2*x]) + 3/(7*(
1 - 2*x)^(3/2)*(2 + 3*x)) + (720*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt
[1 - 2*x]])/343 - (250*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x
]])/121
```

Rubi in Sympy [A] time = 28.6037, size = 90, normalized size = 0.86

$$\frac{720\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{2401}-\frac{250\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{1331}-\frac{1370}{41503\sqrt{-2x+1}}-\frac{190}{1617\left(-2x+1\right)^{\frac{3}{2}}}+\frac{3}{7\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(5/2)/(2+3*x)**2/(3+5*x),x)
```

```
[Out] 720*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/2401 - 250*sqrt(55)
*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/1331 - 1370/(41503*sqrt(-2*x +
 1)) - 190/(1617*(-2*x + 1)**(3/2)) + 3/(7*(-2*x + 1)**(3/2)*(3*x
 + 2))
```

Mathematica [A] time = 0.282215, size = 105, normalized size = 1.

$$\frac{11\left(24660x^2-39780x+15881\right)+257250\sqrt{55}\sqrt{1-2x}\left(6x^2+x-2\right)\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1369599(1-2x)^{3/2}(3x+2)}+\frac{720}{343}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(5/2)*(2 + 3*x)^2*(3 + 5*x)),x]
```

```
[Out] (720*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/343 + (11*(15881
 - 39780*x + 24660*x^2) + 257250*Sqrt[55]*Sqrt[1 - 2*x]*(-2 + x +
 6*x^2)*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(1369599*(1 - 2*x)^(3/
2)*(2 + 3*x))
```

Maple [A] time = 0.022, size = 72, normalized size = 0.7

$$\frac{8}{1617}(1-2x)^{-\frac{3}{2}}+\frac{808}{41503}\frac{1}{\sqrt{1-2x}}-\frac{18}{343}\sqrt{1-2x}\left(-\frac{4}{3}-2x\right)^{-1}+\frac{720\sqrt{21}}{2401}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)-\frac{250\sqrt{55}}{1331}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(5/2)/(2+3*x)^2/(3+5*x),x)
```

```
[Out] 8/1617/(1-2*x)^(3/2)+808/41503/(1-2*x)^(1/2)-18/343*(1-2*x)^(1/2)
/(-4/3-2*x)+720/2401*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)
-250/1331*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.507, size = 149, normalized size = 1.42

$$\frac{125}{1331}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{360}{2401}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{2\left(6165(2x-1)^2-15120x+9716\right)}{124509\left(3(-2x+1)^{\frac{5}{2}}-7(-2x+1)^{\frac{3}{2}}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(3*x + 2)^2*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 125/1331*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) +
5*sqrt(-2*x + 1))) - 360/2401*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2
*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 2/124509*(6165*(2*x - 1
)^2 - 15120*x + 9716)/(3*(-2*x + 1)^(5/2) - 7*(-2*x + 1)^(3/2))
```

Fricas [A] time = 0.229615, size = 205, normalized size = 1.95

$$\frac{\sqrt{11}\sqrt{7}\left(128625\sqrt{7}\sqrt{5}\left(6x^2+x-2\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{11}(5x-8)+11\sqrt{5}\sqrt{-2x+1}}{5x+3}\right)+130680\sqrt{11}\sqrt{3}\left(6x^2+x-2\right)\sqrt{-2x+1}\log\left(\sqrt{7}\right.\right.}{9587193\left(6x^2+x-2\right)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(3*x + 2)^2*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/9587193*sqrt(11)*sqrt(7)*(128625*sqrt(7)*sqrt(5)*(6*x^2 + x - 2
)*sqrt(-2*x + 1)*log((sqrt(11)*(5*x - 8) + 11*sqrt(5)*sqrt(-2*x +
 1))/(5*x + 3)) + 130680*sqrt(11)*sqrt(3)*(6*x^2 + x - 2)*sqrt(-2
*x + 1)*log((sqrt(7)*(3*x - 5) - 7*sqrt(3)*sqrt(-2*x + 1))/(3*x +
 2)) - sqrt(11)*sqrt(7)*(24660*x^2 - 39780*x + 15881))/((6*x^2 +
```

```
x - 2)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(5/2)/(2+3*x)**2/(3+5*x),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.217633, size = 157, normalized size = 1.5

$$\frac{125}{1331}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{360}{2401}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{16\,(303x-190)}{124509\,(2x-1)\sqrt{-2x+1}}+\frac{27\sqrt{-2x+1}}{343\,(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(3*x + 2)^2*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 125/1331*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sq
rt(55) + 5*sqrt(-2*x + 1))) - 360/2401*sqrt(21)*ln(1/2*abs(-2*sqr
t(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 16/124
509*(303*x - 190)/((2*x - 1)*sqrt(-2*x + 1)) + 27/343*sqrt(-2*x +
 1)/(3*x + 2)
```

3.2161 $\int \frac{1}{(1-2x)^{5/2}(2+3x)^3(3+5x)}\,dx$

Optimal. Leaf size=125

$$-\frac{12295}{41503\sqrt{1-2x}}+\frac{33}{14(1-2x)^{3/2}(3x+2)}-\frac{1115}{1617(1-2x)^{3/2}}+\frac{3}{14(1-2x)^{3/2}(3x+2)^2}+\frac{3645}{343}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{1250}{121}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] -1115/(1617*(1 - 2*x)^(3/2)) - 12295/(41503*Sqrt[1 - 2*x]) + 3/(1
4*(1 - 2*x)^(3/2)*(2 + 3*x)^2) + 33/(14*(1 - 2*x)^(3/2)*(2 + 3*x)
) + (3645*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/343 - (1250
*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/121
```

Rubi [A] time = 0.351474, antiderivative size = 125, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$-\frac{12295}{41503\sqrt{1-2x}}+\frac{33}{14(1-2x)^{3/2}(3x+2)}-\frac{1115}{1617(1-2x)^{3/2}}+\frac{3}{14(1-2x)^{3/2}(3x+2)^2}+\frac{3645}{343}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{1250}{121}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(5/2)*(2 + 3*x)^3*(3 + 5*x)),x]
```

```
[Out] -1115/(1617*(1 - 2*x)^(3/2)) - 12295/(41503*Sqrt[1 - 2*x]) + 3/(1
4*(1 - 2*x)^(3/2)*(2 + 3*x)^2) + 33/(14*(1 - 2*x)^(3/2)*(2 + 3*x)
) + (3645*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/343 - (1250
*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/121
```

Rubi in Sympy [A] time = 35.6632, size = 109, normalized size = 0.87

$$\frac{3645\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{2401}-\frac{1250\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{1331}-\frac{12295}{41503\sqrt{-2x+1}}-\frac{1115}{1617\,(-2x+1)^{\frac{3}{2}}}+\frac{33}{14\,(-2x+1)^{\frac{3}{2}}\,(3x+2)}+\frac{3}{14\,(-2x+1)^{\frac{3}{2}}\,(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(5/2)/(2+3*x)**3/(3+5*x),x)
```

```
[Out] 3645*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/2401 - 1250*sqrt(5
5)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/1331 - 12295/(41503*sqrt(-2*
x + 1)) - 1115/(1617*(-2*x + 1)**(3/2)) + 33/(14*(-2*x + 1)**(3/2
)*(3*x + 2)) + 3/(14*(-2*x + 1)**(3/2)*(3*x + 2)**2)
```

Mathematica [A] time = 0.166521, size = 97, normalized size = 0.78

$$\frac{\sqrt{1-2x}\left(1327860x^3-438840x^2-594687x+245383\right)}{249018\left(6x^2+x-2\right)^2}+\frac{3645}{343}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{1250}{121}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(5/2)*(2 + 3*x)^3*(3 + 5*x)),x]
```

```
[Out] (Sqrt[1 - 2*x]*(245383 - 594687*x - 438840*x^2 + 1327860*x^3))/(2
49018*(-2 + x + 6*x^2)^2) + (3645*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqr
t[1 - 2*x]])/343 - (1250*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2
*x]])/121
```

Maple [A] time = 0.023, size = 84, normalized size = 0.7

$$\frac{16}{11319}(1-2x)^{-\frac{3}{2}}+\frac{2144}{290521}\frac{1}{\sqrt{1-2x}}-\frac{486}{2401(-4-6x)^2}\left(\frac{27}{2}(1-2x)^{\frac{3}{2}}-\frac{581}{18}\sqrt{1-2x}\right)+\frac{3645\sqrt{21}}{2401}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)-\frac{1250\sqrt{55}}{1331}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(5/2)/(2+3*x)^3/(3+5*x),x)
```

```
[Out] 16/11319/(1-2*x)^(3/2)+2144/290521/(1-2*x)^(1/2)-486/2401*(27/2*(
1-2*x)^(3/2)-581/18*(1-2*x)^(1/2))/(-4-6*x)^2+3645/2401*arctanh(1
/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)-1250/1331*arctanh(1/11*55^(1/
2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.503, size = 173, normalized size = 1.38

$$\frac{625}{1331}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{3645}{4802}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{331965(2x-1)^3+776475(2x-1)^2-75264x+46256}{124509\left(9(-2x+1)^{\frac{7}{2}}-42(-2x+1)^{\frac{5}{2}}+49(-2x+1)^{\frac{3}{2}}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(3*x + 2)^3*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 625/1331*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) +
5*sqrt(-2*x + 1))) - 3645/4802*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-
2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 1/124509*(331965*(2*x
- 1)^3 + 776475*(2*x - 1)^2 - 75264*x + 46256)/(9*(-2*x + 1)^(7/2
) - 42*(-2*x + 1)^(5/2) + 49*(-2*x + 1)^(3/2))
```

Fricas [A] time = 0.230846, size = 240, normalized size = 1.92

$$\frac{\sqrt{11}\sqrt{7}\left(1286250\sqrt{7}\sqrt{5}\left(18x^3+15x^2-4x-4\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{11}(5x-8)+11\sqrt{5}\sqrt{-2x+1}}{5x+3}\right)+1323135\sqrt{11}\sqrt{3}\left(18x^3+15x^2-4\right.\right.}{19174386\left(18x^3+15x^2-4x-4\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(3*x + 2)^3*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/19174386*sqrt(11)*sqrt(7)*(1286250*sqrt(7)*sqrt(5)*(18*x^3 + 15
*x^2 - 4*x - 4)*sqrt(-2*x + 1)*log((sqrt(11)*(5*x - 8) + 11*sqrt(
5)*sqrt(-2*x + 1))/(5*x + 3)) + 1323135*sqrt(11)*sqrt(3)*(18*x^3
+ 15*x^2 - 4*x - 4)*sqrt(-2*x + 1)*log((sqrt(7)*(3*x - 5) - 7*sqr
t(3)*sqrt(-2*x + 1))/(3*x + 2)) - sqrt(11)*sqrt(7)*(1327860*x^3 -
 438840*x^2 - 594687*x + 245383))/((18*x^3 + 15*x^2 - 4*x - 4)*sq
```

```
rt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(5/2)/(2+3*x)**3/(3+5*x),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.239316, size = 173, normalized size = 1.38

$$\frac{625}{1331}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{3645}{4802}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{16\,(804\,x-479)}{871563\,(2\,x-1)\sqrt{-2\,x+1}}-\frac{27\left(243\,(-2\,x+1)^{\frac{3}{2}}-581\sqrt{-2\,x+1}\right)}{9604\,(3\,x+2)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(3*x + 2)^3*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 625/1331*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sq
rt(55) + 5*sqrt(-2*x + 1))) - 3645/4802*sqrt(21)*ln(1/2*abs(-2*sq
rt(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 16/87
1563*(804*x - 479)/((2*x - 1)*sqrt(-2*x + 1)) - 27/9604*(243*(-2*
x + 1)^(3/2) - 581*sqrt(-2*x + 1))/(3*x + 2)^2
```

3.2162 $\int \frac{1}{(1-2x)^{5/2}(2+3x)^4(3+5x)}\,dx$

Optimal. Leaf size=145

$$-\frac{446660}{290521\sqrt{1-2x}}+\frac{582}{49(1-2x)^{3/2}(3x+2)}-\frac{39520}{11319(1-2x)^{3/2}}+\frac{57}{49(1-2x)^{3/2}(3x+2)^2}+\frac{1}{7(1-2x)^{3/2}(3x+2)^3}+\frac{127710\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{2401}-\frac{6250}{121}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

```
[Out] -39520/(11319*(1 - 2*x)^(3/2)) - 446660/(290521*Sqrt[1 - 2*x]) +
1/(7*(1 - 2*x)^(3/2)*(2 + 3*x)^3) + 57/(49*(1 - 2*x)^(3/2)*(2 + 3
*x)^2) + 582/(49*(1 - 2*x)^(3/2)*(2 + 3*x)) + (127710*Sqrt[3/7]*A
rcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/2401 - (6250*Sqrt[5/11]*ArcTanh[
Sqrt[5/11]*Sqrt[1 - 2*x]])/121
```

Rubi [A] time = 0.422088, antiderivative size = 145, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$-\frac{446660}{290521\sqrt{1-2x}}+\frac{582}{49(1-2x)^{3/2}(3x+2)}-\frac{39520}{11319(1-2x)^{3/2}}+\frac{57}{49(1-2x)^{3/2}(3x+2)^2}+\frac{1}{7(1-2x)^{3/2}(3x+2)^3}+\frac{127710\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{2401}-\frac{6250}{121}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(5/2)*(2 + 3*x)^4*(3 + 5*x)),x]
```

```
[Out] -39520/(11319*(1 - 2*x)^(3/2)) - 446660/(290521*Sqrt[1 - 2*x]) +
1/(7*(1 - 2*x)^(3/2)*(2 + 3*x)^3) + 57/(49*(1 - 2*x)^(3/2)*(2 + 3
*x)^2) + 582/(49*(1 - 2*x)^(3/2)*(2 + 3*x)) + (127710*Sqrt[3/7]*A
rcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/2401 - (6250*Sqrt[5/11]*ArcTanh[
Sqrt[5/11]*Sqrt[1 - 2*x]])/121
```

Rubi in Sympy [A] time = 41.5166, size = 128, normalized size = 0.88

$$\frac{127710\sqrt{21}\,\text{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{16807}-\frac{6250\sqrt{55}\,\text{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{1331}-\frac{446660}{290521\sqrt{-2x+1}}-\frac{39520}{11319\left(-2x+1\right)^{\frac{3}{2}}}+\frac{582}{49\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)}+\frac{57}{49\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{2}}+\frac{1}{7\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(5/2)/(2+3*x)**4/(3+5*x),x)
```

```
[Out] 127710*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/16807 - 6250*sqr
t(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/1331 - 446660/(290521*sqr
t(-2*x + 1)) - 39520/(11319*(-2*x + 1)**(3/2)) + 582/(49*(-2*x +
1)**(3/2)*(3*x + 2)) + 57/(49*(-2*x + 1)**(3/2)*(3*x + 2)**2) + 1
/(7*(-2*x + 1)**(3/2)*(3*x + 2)**3)
```

Mathematica [A] time = 0.219707, size = 99, normalized size = 0.68

$$\frac{72358920x^4+26376300x^3-47036214x^2-9083055x+8496203}{871563(1-2x)^{3/2}(3x+2)^3}+\frac{127710\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)}{2401}-\frac{6250}{121}\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(5/2)*(2 + 3*x)^4*(3 + 5*x)),x]
```

```
[Out] (8496203 - 9083055*x - 47036214*x^2 + 26376300*x^3 + 72358920*x^4
)/(871563*(1 - 2*x)^(3/2)*(2 + 3*x)^3) + (127710*Sqrt[3/7]*ArcTan
h[Sqrt[3/7]*Sqrt[1 - 2*x]])/2401 - (6250*Sqrt[5/11]*ArcTanh[Sqrt[
5/11]*Sqrt[1 - 2*x]])/121
```

Maple [A] time = 0.024, size = 93, normalized size = 0.6

$$\frac{32}{79233}(1-2x)^{-\frac{3}{2}}+\frac{5344}{2033647}\frac{1}{\sqrt{1-2x}}-\frac{1458}{16807(-4-6x)^3}\left(\frac{1438}{3}(1-2x)^{\frac{5}{2}}-\frac{61250}{27}(1-2x)^{\frac{3}{2}}+\frac{72520}{27}\sqrt{1-2x}\right)+\frac{127710\sqrt{21}}{16807}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)-\frac{6250\sqrt{55}}{1331}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(5/2)/(2+3*x)^4/(3+5*x),x)
```

```
[Out] 32/79233/(1-2*x)^(3/2)+5344/2033647/(1-2*x)^(1/2)-1458/16807*(143
8/3*(1-2*x)^(5/2)-61250/27*(1-2*x)^(3/2)+72520/27*(1-2*x)^(1/2))/
(-4-6*x)^3+127710/16807*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1
/2)-6250/1331*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.50279, size = 197, normalized size = 1.36

$$\frac{3125}{1331}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{63855}{16807}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{4\left(9044865(2x-1)^4+42773535(2x-1)^3+50533308(2x-1)^2-315168x+187768\right)}{871563\left(27(-2x+1)^{\frac{9}{2}}-189(-2x+1)^{\frac{7}{2}}+441(-2x+1)^{\frac{5}{2}}-343(-2x+1)^{\frac{3}{2}}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)*(3*x + 2)^4*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 3125/1331*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) +
 5*sqrt(-2*x + 1))) - 63855/16807*sqrt(21)*log(-(sqrt(21) - 3*sqr
t(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 4/871563*(9044865*(
2*x - 1)^4 + 42773535*(2*x - 1)^3 + 50533308*(2*x - 1)^2 - 315168
*x + 187768)/(27*(-2*x + 1)^(9/2) - 189*(-2*x + 1)^(7/2) + 441*(-
2*x + 1)^(5/2) - 343*(-2*x + 1)^(3/2))
```

Fricas [A] time = 0.227926, size = 267, normalized size = 1.84

$$\frac{\sqrt{11}\sqrt{7}\left(22509375\sqrt{7}\sqrt{5}\left(54x^4+81x^3+18x^2-20x-8\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{11}(5x-8)+11\sqrt{5}\sqrt{-2x+1}}{5x+3}\right)+23179365\sqrt{11}\sqrt{3}(54x^4\cdots\right.}{67110351(54x^4\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)*(3*x + 2)^4*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/67110351*sqrt(11)*sqrt(7)*(22509375*sqrt(7)*sqrt(5)*(54*x^4 + 8
1*x^3 + 18*x^2 - 20*x - 8)*sqrt(-2*x + 1)*log((sqrt(11)*(5*x - 8)
 + 11*sqrt(5)*sqrt(-2*x + 1))/(5*x + 3)) + 23179365*sqrt(11)*sqrt
(3)*(54*x^4 + 81*x^3 + 18*x^2 - 20*x - 8)*sqrt(-2*x + 1)*log((sqr
t(7)*(3*x - 5) - 7*sqrt(3)*sqrt(-2*x + 1))/(3*x + 2)) - sqrt(11)*
sqrt(7)*(72358920*x^4 + 26376300*x^3 - 47036214*x^2 - 9083055*x +
 8496203))/((54*x^4 + 81*x^3 + 18*x^2 - 20*x - 8)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(5/2)/(2+3*x)**4/(3+5*x),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.221383, size = 181, normalized size = 1.25

$$\frac{3125}{1331}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{63855}{16807}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)-\frac{4\left(9044865\,(2x-1)^4+42773535\,(2x-1)^3+50533308\,(2x-1)^2-315168\,x+187768\right)}{871563\left(3\,(-2x+1)^{\frac{3}{2}}-7\sqrt{-2x+1}\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)*(3*x + 2)^4*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 3125/1331*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(s
qrt(55) + 5*sqrt(-2*x + 1))) - 63855/16807*sqrt(21)*ln(1/2*abs(-2
*sqrt(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 4/
871563*(9044865*(2*x - 1)^4 + 42773535*(2*x - 1)^3 + 50533308*(2*
x - 1)^2 - 315168*x + 187768)/(3*(-2*x + 1)^(3/2) - 7*sqrt(-2*x +
 1))^3
```

3.2163 $\int \frac{(2+3x)^6}{(1-2x)^{5/2}(3+5x)^2}\,dx$

Optimal. Leaf size=140

$$\frac{7(3x+2)^5}{33(1-2x)^{3/2}(5x+3)}-\frac{38(3x+2)^4}{1815\sqrt{1-2x}(5x+3)}-\frac{10283(3x+2)^3}{6655\sqrt{1-2x}}-\frac{463344\sqrt{1-2x}(3x+2)^2}{166375}-\frac{21\sqrt{1-2x}(1544625x+4633904)}{831875}-\frac{406\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{831875\sqrt{55}}$$

```
[Out] (-463344*Sqrt[1 - 2*x]*(2 + 3*x)^2)/166375 - (10283*(2 + 3*x)^3)/
(6655*Sqrt[1 - 2*x]) - (38*(2 + 3*x)^4)/(1815*Sqrt[1 - 2*x]*(3 +
5*x)) + (7*(2 + 3*x)^5)/(33*(1 - 2*x)^(3/2)*(3 + 5*x)) - (21*Sqrt
[1 - 2*x]*(4633904 + 1544625*x))/831875 - (406*ArcTanh[Sqrt[5/11]
*Sqrt[1 - 2*x]])/(831875*Sqrt[55])
```

Rubi [A] time = 0.298803, antiderivative size = 140, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 7, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.292

$$\frac{7(3x+2)^5}{33(1-2x)^{3/2}(5x+3)}-\frac{38(3x+2)^4}{1815\sqrt{1-2x}(5x+3)}-\frac{10283(3x+2)^3}{6655\sqrt{1-2x}}-\frac{463344\sqrt{1-2x}(3x+2)^2}{166375}-\frac{21\sqrt{1-2x}(1544625x+4633904)}{831875}-\frac{406\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{831875\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^6/((1 - 2*x)^(5/2)*(3 + 5*x)^2),x]
```

```
[Out] (-463344*Sqrt[1 - 2*x]*(2 + 3*x)^2)/166375 - (10283*(2 + 3*x)^3)/
(6655*Sqrt[1 - 2*x]) - (38*(2 + 3*x)^4)/(1815*Sqrt[1 - 2*x]*(3 +
5*x)) + (7*(2 + 3*x)^5)/(33*(1 - 2*x)^(3/2)*(3 + 5*x)) - (21*Sqrt
[1 - 2*x]*(4633904 + 1544625*x))/831875 - (406*ArcTanh[Sqrt[5/11]
*Sqrt[1 - 2*x]])/(831875*Sqrt[55])
```

Rubi in Sympy [A] time = 32.3527, size = 124, normalized size = 0.89

$$-\frac{463344\sqrt{-2x+1}\,(3x+2)^2}{166375}-\frac{\sqrt{-2x+1}\,(1459670625x+4379039280)}{37434375}-\frac{406\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{45753125}-\frac{38\,(3x+2)^4}{1815\sqrt{-2x+1}\,(5x+3)}-\frac{10283\,(3x+2)^3}{6655\sqrt{-2x+1}}+\frac{7\,(3x+2)^5}{33\,(-2x+1)^{\frac{3}{2}}\,(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**6/(1-2*x)**(5/2)/(3+5*x)**2,x)
```

```
[Out] -463344*sqrt(-2*x + 1)*(3*x + 2)**2/166375 - sqrt(-2*x + 1)*(1459
670625*x + 4379039280)/37434375 - 406*sqrt(55)*atanh(sqrt(55)*sqr
t(-2*x + 1)/11)/45753125 - 38*(3*x + 2)**4/(1815*sqrt(-2*x + 1)*(
5*x + 3)) - 10283*(3*x + 2)**3/(6655*sqrt(-2*x + 1)) + 7*(3*x + 2
)**5/(33*(-2*x + 1)**(3/2)*(5*x + 3))
```

Mathematica [A] time = 0.203423, size = 73, normalized size = 0.52

$$\frac{-\frac{55\left(72772425x^5+480298005x^4+2644064775x^3-3837745731x^2-1434109759x+1035652776\right)}{(1-2x)^{3/2}(5x+3)}-1218\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{137259375}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^6/((1 - 2*x)^(5/2)*(3 + 5*x)^2),x]
```

```
[Out] ((-55*(1035652776 - 1434109759*x - 3837745731*x^2 + 2644064775*x^
3 + 480298005*x^4 + 72772425*x^5))/((1 - 2*x)^(3/2)*(3 + 5*x)) -
1218*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/137259375
```

Maple [A] time = 0.021, size = 81, normalized size = 0.6

$$-\frac{729}{2000}(1-2x)^{\frac{5}{2}}+\frac{729}{125}(1-2x)^{\frac{3}{2}}-\frac{315171}{5000}\sqrt{1-2x}+\frac{117649}{5808}(1-2x)^{-\frac{3}{2}}-\frac{134456}{1331}\frac{1}{\sqrt{1-2x}}+\frac{2}{4159375}\sqrt{1-2x}\left(-\frac{6}{5}-2x\right)^{-1}-\frac{406\sqrt{55}}{45753125}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^6/(1-2*x)^(5/2)/(3+5*x)^2,x)
```

```
[Out] -729/2000*(1-2*x)^(5/2)+729/125*(1-2*x)^(3/2)-315171/5000*(1-2*x)
^(1/2)+117649/5808/(1-2*x)^(3/2)-134456/1331/(1-2*x)^(1/2)+2/4159
375*(1-2*x)^(1/2)/(-6/5-2*x)-406/45753125*arctanh(1/11*55^(1/2)*(
1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.49008, size = 136, normalized size = 0.97

$$-\frac{729}{2000}(-2x+1)^{\frac{5}{2}}+\frac{729}{125}(-2x+1)^{\frac{3}{2}}+\frac{203}{45753125}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{315171}{5000}\sqrt{-2x+1}-\frac{10084199952(2x-1)^2+48414664375x-19758729375}{19965000\left(5(-2x+1)^{\frac{5}{2}}-11(-2x+1)^{\frac{3}{2}}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^6/((5*x + 3)^2*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] -729/2000*(-2*x + 1)^(5/2) + 729/125*(-2*x + 1)^(3/2) + 203/45753
125*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sqr
t(-2*x + 1))) - 315171/5000*sqrt(-2*x + 1) - 1/19965000*(10084199
952*(2*x - 1)^2 + 48414664375*x - 19758729375)/(5*(-2*x + 1)^(5/2
) - 11*(-2*x + 1)^(3/2))
```

Fricas [A] time = 0.221909, size = 131, normalized size = 0.94

$$\frac{\sqrt{55}\left(609\left(10x^2+x-3\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{-2x+1}}{5x+3}\right)+\sqrt{55}\left(72772425x^5+480298005x^4+2644064775x^3-38377\right.\right.}{137259375\left(10x^2+x-3\right)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^6/((5*x + 3)^2*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/137259375*sqrt(55)*(609*(10*x^2 + x - 3)*sqrt(-2*x + 1)*log((sq
rt(55)*(5*x - 8) + 55*sqrt(-2*x + 1))/(5*x + 3)) + sqrt(55)*(7277
2425*x^5 + 480298005*x^4 + 2644064775*x^3 - 3837745731*x^2 - 1434
109759*x + 1035652776))/((10*x^2 + x - 3)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**6/(1-2*x)**(5/2)/(3+5*x)**2,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.226249, size = 150, normalized size = 1.07

$$-\frac{729}{2000}\,(2\,x-1)^2\sqrt{-2\,x+1}+\frac{729}{125}\,(-2\,x+1)^{\frac{3}{2}}+\frac{203}{45753125}\,\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\,\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)-\frac{315171}{5000}\,\sqrt{-2\,x+1}-\frac{16807\,(768\,x-307)}{63888\,(2\,x-1)\sqrt{-2\,x+1}}-\frac{\sqrt{-2\,x+1}}{831875\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^6/((5*x + 3)^2*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] -729/2000*(2*x - 1)^2*sqrt(-2*x + 1) + 729/125*(-2*x + 1)^(3/2) +
 203/45753125*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1)
)/(sqrt(55) + 5*sqrt(-2*x + 1))) - 315171/5000*sqrt(-2*x + 1) - 1
6807/63888*(768*x - 307)/((2*x - 1)*sqrt(-2*x + 1)) - 1/831875*sq
rt(-2*x + 1)/(5*x + 3)
```

3.2164 $\int \frac{(2+3x)^5}{(1-2x)^{5/2}(3+5x)^2}\,dx$

Optimal. Leaf size=120

$$\frac{7(3x+2)^4}{33(1-2x)^{3/2}(5x+3)}-\frac{38(3x+2)^3}{1815\sqrt{1-2x}(5x+3)}-\frac{7588(3x+2)^2}{6655\sqrt{1-2x}}-\frac{6\sqrt{1-2x}(38025x+114092)}{33275}-\frac{68\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{33275\sqrt{55}}$$

```
[Out] (-7588*(2 + 3*x)^2)/(6655*Sqrt[1 - 2*x]) - (38*(2 + 3*x)^3)/(1815
*Sqrt[1 - 2*x]*(3 + 5*x)) + (7*(2 + 3*x)^4)/(33*(1 - 2*x)^(3/2)*(
3 + 5*x)) - (6*Sqrt[1 - 2*x]*(114092 + 38025*x))/33275 - (68*ArcT
anh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(33275*Sqrt[55])
```

Rubi [A] time = 0.239789, antiderivative size = 120, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$\frac{7(3x+2)^4}{33(1-2x)^{3/2}(5x+3)}-\frac{38(3x+2)^3}{1815\sqrt{1-2x}(5x+3)}-\frac{7588(3x+2)^2}{6655\sqrt{1-2x}}-\frac{6\sqrt{1-2x}(38025x+114092)}{33275}-\frac{68\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{33275\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^5/((1 - 2*x)^(5/2)*(3 + 5*x)^2),x]
```

```
[Out] (-7588*(2 + 3*x)^2)/(6655*Sqrt[1 - 2*x]) - (38*(2 + 3*x)^3)/(1815
*Sqrt[1 - 2*x]*(3 + 5*x)) + (7*(2 + 3*x)^4)/(33*(1 - 2*x)^(3/2)*(
3 + 5*x)) - (6*Sqrt[1 - 2*x]*(114092 + 38025*x))/33275 - (68*ArcT
anh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(33275*Sqrt[55])
```

Rubi in Sympy [A] time = 25.1485, size = 105, normalized size = 0.88

$$-\frac{\sqrt{-2x+1}\,(10266750x+30804840)}{1497375}-\frac{68\sqrt{55}\,\mathrm{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{1830125}-\frac{38\,(3x+2)^3}{1815\sqrt{-2x+1}\,(5x+3)}-\frac{7588\,(3x+2)^2}{6655\sqrt{-2x+1}}+\frac{7\,(3x+2)^4}{33\,(-2x+1)^{\frac{3}{2}}\,(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**5/(1-2*x)**(5/2)/(3+5*x)**2,x)
```

```
[Out] -sqrt(-2*x + 1)*(10266750*x + 30804840)/1497375 - 68*sqrt(55)*ata
nh(sqrt(55)*sqrt(-2*x + 1)/11)/1830125 - 38*(3*x + 2)**3/(1815*sq
rt(-2*x + 1)*(5*x + 3)) - 7588*(3*x + 2)**2/(6655*sqrt(-2*x + 1))
 + 7*(3*x + 2)**4/(33*(-2*x + 1)**(3/2)*(5*x + 3))
```

Mathematica [A] time = 0.172076, size = 68, normalized size = 0.57

$$\frac{-\frac{55\left(1617165x^4+16171650x^3-28677318x^2-10671002x+7204728\right)}{(1-2x)^{3/2}(5x+3)}-204\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{5490375}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^5/((1 - 2*x)^(5/2)*(3 + 5*x)^2),x]
```

```
[Out] ((-55*(7204728 - 10671002*x - 28677318*x^2 + 16171650*x^3 + 16171
65*x^4))/((1 - 2*x)^(3/2)*(3 + 5*x)) - 204*Sqrt[55]*ArcTanh[Sqrt[
5/11]*Sqrt[1 - 2*x]])/5490375
```

Maple [A]   time = 0.021, size = 72, normalized size = 0.6

$$\frac{81}{200}(1-2x)^{\frac{3}{2}}-\frac{8829}{1000}\sqrt{1-2x}+\frac{16807}{2904}(1-2x)^{-\frac{3}{2}}-\frac{228095}{10648}\frac{1}{\sqrt{1-2x}}+\frac{2}{831875}\sqrt{1-2x}\left(-\frac{6}{5}-2x\right)^{-1}-\frac{68\sqrt{55}}{1830125}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^5/(1-2*x)^(5/2)/(3+5*x)^2,x)
```

```
[Out] 81/200*(1-2*x)^(3/2)-8829/1000*(1-2*x)^(1/2)+16807/2904/(1-2*x)^(
3/2)-228095/10648/(1-2*x)^(1/2)+2/831875*(1-2*x)^(1/2)/(-6/5-2*x)
-68/1830125*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A]   time = 1.50984, size = 124, normalized size = 1.03

$$\frac{81}{200}(-2x+1)^{\frac{3}{2}}+\frac{34}{1830125}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{8829}{1000}\sqrt{-2x+1}-\frac{427678077(2x-1)^2+2112880000x-802234125}{3993000\left(5(-2x+1)^{\frac{5}{2}}-11(-2x+1)^{\frac{3}{2}}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/((5*x + 3)^2*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 81/200*(-2*x + 1)^(3/2) + 34/1830125*sqrt(55)*log(-(sqrt(55) - 5*
sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) - 8829/1000*sqrt(-
2*x + 1) - 1/3993000*(427678077*(2*x - 1)^2 + 2112880000*x - 8022
34125)/(5*(-2*x + 1)^(5/2) - 11*(-2*x + 1)^(3/2))
```

Fricas [A]   time = 0.219455, size = 124, normalized size = 1.03

$$\frac{\sqrt{55}\left(102\left(10x^2+x-3\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{-2x+1}}{5x+3}\right)+\sqrt{55}\left(1617165x^4+16171650x^3-28677318x^2-10671002x\right.\right.}{5490375\left(10x^2+x-3\right)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/((5*x + 3)^2*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/5490375*sqrt(55)*(102*(10*x^2 + x - 3)*sqrt(-2*x + 1)*log((sqrt
(55)*(5*x - 8) + 55*sqrt(-2*x + 1))/(5*x + 3)) + sqrt(55)*(161716
5*x^4 + 16171650*x^3 - 28677318*x^2 - 10671002*x + 7204728))/((10
*x^2 + x - 3)*sqrt(-2*x + 1))
```

Sympy [F(-2)]   time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**5/(1-2*x)**(5/2)/(3+5*x)**2,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.217242, size = 128, normalized size = 1.07

$$\frac{81}{200} \, {\left(-2 \, x + 1\right)}^{\frac{3}{2}} + \frac{34}{1830125} \, \sqrt{55} \ln\left(\frac{{\left| -2 \, \sqrt{55} + 10 \, \sqrt{-2 \, x + 1} \right|}}{2 \, {\left(\sqrt{55} + 5 \, \sqrt{-2 \, x + 1}\right)}}\right) - \frac{8829}{1000} \, \sqrt{-2 \, x + 1} - \frac{2401 \, {\left(285 \, x - 104\right)}}{15972 \, {\left(2 \, x - 1\right)} \sqrt{-2 \, x + 1}} - \frac{\sqrt{-2 \, x + 1}}{166375 \, {\left(5 \, x + 3\right)}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/((5*x + 3)^2*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 81/200*(-2*x + 1)^(3/2) + 34/1830125*sqrt(55)*ln(1/2*abs(-2*sqrt(
55) + 10*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) - 8829/10
00*sqrt(-2*x + 1) - 2401/15972*(285*x - 104)/((2*x - 1)*sqrt(-2*x
 + 1)) - 1/166375*sqrt(-2*x + 1)/(5*x + 3)
```

3.2165 $\int \frac{(2+3x)^4}{(1-2x)^{5/2}(3+5x)^2}\,dx$

Optimal. Leaf size=100

$$\frac{7(3x+2)^3}{33(1-2x)^{3/2}(5x+3)}-\frac{38(3x+2)^2}{1815\sqrt{1-2x}(5x+3)}-\frac{3(40912-24739x)}{33275\sqrt{1-2x}}-\frac{274\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{33275\sqrt{55}}$$

```
[Out] (-3*(40912 - 24739*x))/(33275*Sqrt[1 - 2*x]) - (38*(2 + 3*x)^2)/(
1815*Sqrt[1 - 2*x]*(3 + 5*x)) + (7*(2 + 3*x)^3)/(33*(1 - 2*x)^(3/
2)*(3 + 5*x)) - (274*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(33275*Sq
rt[55])
```

Rubi [A] time = 0.179053, antiderivative size = 100, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{7(3x+2)^3}{33(1-2x)^{3/2}(5x+3)}-\frac{38(3x+2)^2}{1815\sqrt{1-2x}(5x+3)}-\frac{3(40912-24739x)}{33275\sqrt{1-2x}}-\frac{274\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{33275\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^4/((1 - 2*x)^(5/2)*(3 + 5*x)^2),x]
```

```
[Out] (-3*(40912 - 24739*x))/(33275*Sqrt[1 - 2*x]) - (38*(2 + 3*x)^2)/(
1815*Sqrt[1 - 2*x]*(3 + 5*x)) + (7*(2 + 3*x)^3)/(33*(1 - 2*x)^(3/
2)*(3 + 5*x)) - (274*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(33275*Sq
rt[55])
```

Rubi in Sympy [A] time = 18.8154, size = 87, normalized size = 0.87

$$-\frac{-222651x+368208}{99825\sqrt{-2x+1}}-\frac{274\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{1830125}-\frac{38\,(3x+2)^2}{1815\sqrt{-2x+1}\,(5x+3)}+\frac{7\,(3x+2)^3}{33\,(-2x+1)^{\frac{3}{2}}\,(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4/(1-2*x)**(5/2)/(3+5*x)**2,x)
```

```
[Out] -(-222651*x + 368208)/(99825*sqrt(-2*x + 1)) - 274*sqrt(55)*atanh
(sqrt(55)*sqrt(-2*x + 1)/11)/1830125 - 38*(3*x + 2)**2/(1815*sqrt
(-2*x + 1)*(5*x + 3)) + 7*(3*x + 2)**3/(33*(-2*x + 1)**(3/2)*(5*x
 + 3))
```

Mathematica [A] time = 0.161337, size = 63, normalized size = 0.63

$$\frac{-\frac{55(1617165x^3-4634229x^2-1790101x+943584)}{(1-2x)^{3/2}(5x+3)}-822\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{5490375}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^4/((1 - 2*x)^(5/2)*(3 + 5*x)^2),x]
```

```
[Out] ((-55*(943584 - 1790101*x - 4634229*x^2 + 1617165*x^3))/((1 - 2*x
)^(3/2)*(3 + 5*x)) - 822*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x
```

```
]])/5490375
```

Maple [A] time = 0.02, size = 63, normalized size = 0.6

$$-\frac{81}{100}\sqrt{1-2x}+\frac{2401}{1452}(1-2x)^{-\frac{3}{2}}-\frac{10633}{2662}\frac{1}{\sqrt{1-2x}}+\frac{2}{166375}\sqrt{1-2x}\left(-\frac{6}{5}-2x\right)^{-1}-\frac{274\sqrt{55}}{1830125}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4/(1-2*x)^(5/2)/(3+5*x)^2,x)
```

```
[Out] -81/100*(1-2*x)^(1/2)+2401/1452/(1-2*x)^(3/2)-10633/2662/(1-2*x)^
(1/2)+2/166375*(1-2*x)^(1/2)/(-6/5-2*x)-274/1830125*arctanh(1/11*
55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.49654, size = 112, normalized size = 1.12

$$\frac{137}{1830125}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{81}{100}\sqrt{-2x+1}-\frac{3987363(2x-1)^2+20845825x-6791400}{199650\left(5(-2x+1)^{\frac{5}{2}}-11(-2x+1)^{\frac{3}{2}}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4/((5*x + 3)^2*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 137/1830125*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55)
 + 5*sqrt(-2*x + 1))) - 81/100*sqrt(-2*x + 1) - 1/199650*(3987363
*(2*x - 1)^2 + 20845825*x - 6791400)/(5*(-2*x + 1)^(5/2) - 11*(-2
*x + 1)^(3/2))
```

Fricas [A] time = 0.219369, size = 117, normalized size = 1.17

$$\frac{\sqrt{55}\left(411\left(10x^2+x-3\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{-2x+1}}{5x+3}\right)+\sqrt{55}\left(1617165x^3-4634229x^2-1790101x+943584\right)\right)}{5490375\left(10x^2+x-3\right)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4/((5*x + 3)^2*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/5490375*sqrt(55)*(411*(10*x^2 + x - 3)*sqrt(-2*x + 1)*log((sqrt
(55)*(5*x - 8) + 55*sqrt(-2*x + 1))/(5*x + 3)) + sqrt(55)*(161716
5*x^3 - 4634229*x^2 - 1790101*x + 943584))/((10*x^2 + x - 3)*sqrt
(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4/(1-2*x)**(5/2)/(3+5*x)**2,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.214994, size = 116, normalized size = 1.16

$$\frac{137}{1830125}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{81}{100}\sqrt{-2x+1}-\frac{343\,(372\,x-109)}{15972\,(2\,x-1)\sqrt{-2\,x+1}}-\frac{\sqrt{-2\,x+1}}{33275\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^4/((5*x + 3)^2*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 137/1830125*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/
(sqrt(55) + 5*sqrt(-2*x + 1))) - 81/100*sqrt(-2*x + 1) - 343/1597
2*(372*x - 109)/((2*x - 1)*sqrt(-2*x + 1)) - 1/33275*sqrt(-2*x +
1)/(5*x + 3)
```

3.2166 $\int \frac{(2+3x)^3}{(1-2x)^{5/2}(3+5x)^2}\,dx$

Optimal. Leaf size=80

$$\frac{7(3x+2)^2}{33(1-2x)^{3/2}(5x+3)}-\frac{2(17112x+10309)}{19965\sqrt{1-2x}(5x+3)}-\frac{208\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{6655\sqrt{55}}$$

```
[Out] (7*(2 + 3*x)^2)/(33*(1 - 2*x)^(3/2)*(3 + 5*x)) - (2*(10309 + 1711
2*x))/(19965*Sqrt[1 - 2*x]*(3 + 5*x)) - (208*ArcTanh[Sqrt[5/11]*S
qrt[1 - 2*x]])/(6655*Sqrt[55])
```

Rubi [A] time = 0.116965, antiderivative size = 80, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$\frac{7(3x+2)^2}{33(1-2x)^{3/2}(5x+3)}-\frac{2(17112x+10309)}{19965\sqrt{1-2x}(5x+3)}-\frac{208\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{6655\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^3/((1 - 2*x)^(5/2)*(3 + 5*x)^2),x]
```

```
[Out] (7*(2 + 3*x)^2)/(33*(1 - 2*x)^(3/2)*(3 + 5*x)) - (2*(10309 + 1711
2*x))/(19965*Sqrt[1 - 2*x]*(3 + 5*x)) - (208*ArcTanh[Sqrt[5/11]*S
qrt[1 - 2*x]])/(6655*Sqrt[55])
```

Rubi in Sympy [A] time = 12.0764, size = 68, normalized size = 0.85

$$-\frac{208\sqrt{55}\,\mathrm{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{366025}-\frac{34224x+20618}{19965\sqrt{-2x+1}\,(5x+3)}+\frac{7\,(3x+2)^2}{33\,(-2x+1)^{\frac{3}{2}}\,(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3/(1-2*x)**(5/2)/(3+5*x)**2,x)
```

```
[Out] -208*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/366025 - (34224*x
 + 20618)/(19965*sqrt(-2*x + 1)*(5*x + 3)) + 7*(3*x + 2)**2/(33*(
-2*x + 1)**(3/2)*(5*x + 3))
```

Mathematica [A] time = 0.117237, size = 58, normalized size = 0.72

$$\frac{\frac{55\left(106563x^2+57832x-3678\right)}{(1-2x)^{3/2}(5x+3)}-624\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1098075}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^3/((1 - 2*x)^(5/2)*(3 + 5*x)^2),x]
```

```
[Out] ((55*(-3678 + 57832*x + 106563*x^2))/((1 - 2*x)^(3/2)*(3 + 5*x))
- 624*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/1098075
```

Maple [A] time = 0.022, size = 54, normalized size = 0.7

$$\frac{343}{726}(1-2x)^{-\frac{3}{2}}-\frac{1421}{2662}\frac{1}{\sqrt{1-2x}}+\frac{2}{33275}\sqrt{1-2x}\left(-\frac{6}{5}-2x\right)^{-1}-\frac{208\sqrt{55}}{366025}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3/(1-2*x)^(5/2)/(3+5*x)^2,x)
```

```
[Out] 343/726/(1-2*x)^(3/2)-1421/2662/(1-2*x)^(1/2)+2/33275*(1-2*x)^(1/
2)/(-6/5-2*x)-208/366025*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^
(1/2)
```

Maxima [A] time = 1.51114, size = 100, normalized size = 1.25

$$\frac{104}{366025}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{106563(2x-1)^2+657580x-121275}{39930\left(5(-2x+1)^{\frac{5}{2}}-11(-2x+1)^{\frac{3}{2}}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3/((5*x + 3)^2*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 104/366025*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55)
+ 5*sqrt(-2*x + 1))) - 1/39930*(106563*(2*x - 1)^2 + 657580*x - 1
21275)/(5*(-2*x + 1)^(5/2) - 11*(-2*x + 1)^(3/2))
```

Fricas [A] time = 0.221745, size = 112, normalized size = 1.4

$$\frac{\sqrt{55}\left(312\left(10x^2+x-3\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{-2x+1}}{5x+3}\right)-\sqrt{55}\left(106563x^2+57832x-3678\right)\right)}{1098075\left(10x^2+x-3\right)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3/((5*x + 3)^2*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/1098075*sqrt(55)*(312*(10*x^2 + x - 3)*sqrt(-2*x + 1)*log((sqrt
(55)*(5*x - 8) + 55*sqrt(-2*x + 1))/(5*x + 3)) - sqrt(55)*(106563
*x^2 + 57832*x - 3678))/((10*x^2 + x - 3)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3/(1-2*x)**(5/2)/(3+5*x)**2,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.214726, size = 104, normalized size = 1.3

$$\frac{104}{366025}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{49(87x-5)}{3993(2x-1)\sqrt{-2x+1}}-\frac{\sqrt{-2x+1}}{6655(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^3/((5*x + 3)^2*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 104/366025*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(
sqrt(55) + 5*sqrt(-2*x + 1))) - 49/3993*(87*x - 5)/((2*x - 1)*sqr
t(-2*x + 1)) - 1/6655*sqrt(-2*x + 1)/(5*x + 3)
```

3.2167 $\int \frac{(2+3x)^2}{(1-2x)^{5/2}(3+5x)^2} dx$

Optimal. Leaf size=81

$$\frac{142}{6655\sqrt{1-2x}}-\frac{1231}{3630\sqrt{1-2x}(5x+3)}+\frac{49}{66(1-2x)^{3/2}(5x+3)}-\frac{142\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1331\sqrt{55}}$$

```
[Out] 142/(6655*Sqrt[1 - 2*x]) + 49/(66*(1 - 2*x)^(3/2)*(3 + 5*x)) - 12
31/(3630*Sqrt[1 - 2*x]*(3 + 5*x)) - (142*ArcTanh[Sqrt[5/11]*Sqrt[
1 - 2*x]])/(1331*Sqrt[55])
```

Rubi [A] time = 0.111732, antiderivative size = 81, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{142}{6655\sqrt{1-2x}}-\frac{1231}{3630\sqrt{1-2x}(5x+3)}+\frac{49}{66(1-2x)^{3/2}(5x+3)}-\frac{142\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1331\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^2/((1 - 2*x)^(5/2)*(3 + 5*x)^2),x]
```

```
[Out] 142/(6655*Sqrt[1 - 2*x]) + 49/(66*(1 - 2*x)^(3/2)*(3 + 5*x)) - 12
31/(3630*Sqrt[1 - 2*x]*(3 + 5*x)) - (142*ArcTanh[Sqrt[5/11]*Sqrt[
1 - 2*x]])/(1331*Sqrt[55])
```

Rubi in Sympy [A] time = 9.71349, size = 65, normalized size = 0.8

$$-\frac{142\sqrt{55}\,\mathrm{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{73205}+\frac{142}{6655\sqrt{-2x+1}}+\frac{1231}{9075\,(-2x+1)^{\frac{3}{2}}}-\frac{1}{275\,(-2x+1)^{\frac{3}{2}}\,(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2/(1-2*x)**(5/2)/(3+5*x)**2,x)
```

```
[Out] -142*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/73205 + 142/(6655
*sqrt(-2*x + 1)) + 1231/(9075*(-2*x + 1)**(3/2)) - 1/(275*(-2*x +
 1)**(3/2)*(5*x + 3))
```

Mathematica [A] time = 0.112496, size = 58, normalized size = 0.72

$$\frac{-\frac{55(852x^2-2623x-1866)}{(1-2x)^{3/2}(5x+3)}-426\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{219615}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^2/((1 - 2*x)^(5/2)*(3 + 5*x)^2),x]
```

```
[Out] ((-55*(-1866 - 2623*x + 852*x^2))/((1 - 2*x)^(3/2)*(3 + 5*x)) - 4
26*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/219615
```

Maple [A] time = 0.02, size = 54, normalized size = 0.7

$$\frac{49}{363}(1-2x)^{-\frac{3}{2}}+\frac{28}{1331}\frac{1}{\sqrt{1-2x}}+\frac{2}{6655}\sqrt{1-2x}\left(-\frac{6}{5}-2x\right)^{-1}-\frac{142\sqrt{55}}{73205}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2/(1-2*x)^(5/2)/(3+5*x)^2,x)
```

```
[Out] 49/363/(1-2*x)^(3/2)+28/1331/(1-2*x)^(1/2)+2/6655*(1-2*x)^(1/2)/(
-6/5-2*x)-142/73205*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.49302, size = 100, normalized size = 1.23

$$\frac{71}{73205}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{2\left(213(2x-1)^2-1771x-2079\right)}{3993\left(5(-2x+1)^{\frac{5}{2}}-11(-2x+1)^{\frac{3}{2}}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2/((5*x + 3)^2*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 71/73205*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) +
5*sqrt(-2*x + 1))) + 2/3993*(213*(2*x - 1)^2 - 1771*x - 2079)/(5*
(-2*x + 1)^(5/2) - 11*(-2*x + 1)^(3/2))
```

Fricas [A] time = 0.220206, size = 111, normalized size = 1.37

$$\frac{\sqrt{55}\left(213\left(10x^2+x-3\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{-2x+1}}{5x+3}\right)+\sqrt{55}\left(852x^2-2623x-1866\right)\right)}{219615\left(10x^2+x-3\right)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2/((5*x + 3)^2*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/219615*sqrt(55)*(213*(10*x^2 + x - 3)*sqrt(-2*x + 1)*log((sqrt(
55)*(5*x - 8) + 55*sqrt(-2*x + 1))/(5*x + 3)) + sqrt(55)*(852*x^2
 - 2623*x - 1866))/((10*x^2 + x - 3)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2/(1-2*x)**(5/2)/(3+5*x)**2,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.221482, size = 104, normalized size = 1.28

$$\frac{71}{73205}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{7(24x-89)}{3993(2x-1)\sqrt{-2x+1}}-\frac{\sqrt{-2x+1}}{1331(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2/((5*x + 3)^2*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 71/73205*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sq
rt(55) + 5*sqrt(-2*x + 1))) + 7/3993*(24*x - 89)/((2*x - 1)*sqrt(
-2*x + 1)) - 1/1331*sqrt(-2*x + 1)/(5*x + 3)
```

3.2168 $\int \frac{2+3x}{(1-2x)^{5/2}(3+5x)^2}\,dx$

Optimal. Leaf size=76

$$\frac{76}{1331\sqrt{1-2x}}-\frac{1}{55(1-2x)^{3/2}(5x+3)}+\frac{76}{1815(1-2x)^{3/2}}-\frac{76\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1331}$$

```
[Out] 76/(1815*(1 - 2*x)^(3/2)) + 76/(1331*Sqrt[1 - 2*x]) - 1/(55*(1 -
2*x)^(3/2)*(3 + 5*x)) - (76*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1
- 2*x]])/1331
```

Rubi [A] time = 0.0875819, antiderivative size = 76, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$\frac{76}{1331\sqrt{1-2x}}-\frac{1}{55(1-2x)^{3/2}(5x+3)}+\frac{76}{1815(1-2x)^{3/2}}-\frac{76\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1331}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)/((1 - 2*x)^(5/2)*(3 + 5*x)^2),x]
```

```
[Out] 76/(1815*(1 - 2*x)^(3/2)) + 76/(1331*Sqrt[1 - 2*x]) - 1/(55*(1 -
2*x)^(3/2)*(3 + 5*x)) - (76*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1
- 2*x]])/1331
```

Rubi in Sympy [A] time = 8.29191, size = 65, normalized size = 0.86

$$-\frac{76\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{14641}+\frac{76}{1331\sqrt{-2x+1}}+\frac{76}{1815\left(-2x+1\right)^{\frac{3}{2}}}-\frac{1}{55\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)/(1-2*x)**(5/2)/(3+5*x)**2,x)
```

```
[Out] -76*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/14641 + 76/(1331*s
qrt(-2*x + 1)) + 76/(1815*(-2*x + 1)**(3/2)) - 1/(55*(-2*x + 1)**
(3/2)*(5*x + 3))
```

Mathematica [A] time = 0.111674, size = 58, normalized size = 0.76

$$\frac{\frac{11(-2280x^2+608x+1113)}{(1-2x)^{3/2}(5x+3)}-228\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{43923}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)/((1 - 2*x)^(5/2)*(3 + 5*x)^2),x]
```

```
[Out] ((11*(1113 + 608*x - 2280*x^2))/((1 - 2*x)^(3/2)*(3 + 5*x)) - 228
*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/43923
```

Maple [A] time = 0.019, size = 54, normalized size = 0.7

$$\frac{14}{363}(1-2x)^{-\frac{3}{2}}+\frac{74}{1331}\frac{1}{\sqrt{1-2x}}+\frac{2}{1331}\sqrt{1-2x}\left(-\frac{6}{5}-2x\right)^{-1}-\frac{76\sqrt{55}}{14641}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)/(1-2*x)^(5/2)/(3+5*x)^2,x)
```

```
[Out] 14/363/(1-2*x)^(3/2)+74/1331/(1-2*x)^(1/2)+2/1331*(1-2*x)^(1/2)/(
-6/5-2*x)-76/14641*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.49684, size = 100, normalized size = 1.32

$$\frac{38}{14641}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{2\left(570(2x-1)^2+1672x-1683\right)}{3993\left(5(-2x+1)^{\frac{5}{2}}-11(-2x+1)^{\frac{3}{2}}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)/((5*x + 3)^2*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 38/14641*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) +
5*sqrt(-2*x + 1))) + 2/3993*(570*(2*x - 1)^2 + 1672*x - 1683)/(5*
(-2*x + 1)^(5/2) - 11*(-2*x + 1)^(3/2))
```

Fricas [A] time = 0.214208, size = 119, normalized size = 1.57

$$\frac{\sqrt{11}\left(114\sqrt{5}\left(10x^2+x-3\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{11}(5x-8)+11\sqrt{5}\sqrt{-2x+1}}{5x+3}\right)+\sqrt{11}\left(2280x^2-608x-1113\right)\right)}{43923\left(10x^2+x-3\right)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)/((5*x + 3)^2*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/43923*sqrt(11)*(114*sqrt(5)*(10*x^2 + x - 3)*sqrt(-2*x + 1)*log
((sqrt(11)*(5*x - 8) + 11*sqrt(5)*sqrt(-2*x + 1))/(5*x + 3)) + sq
rt(11)*(2280*x^2 - 608*x - 1113))/((10*x^2 + x - 3)*sqrt(-2*x + 1
))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)/(1-2*x)**(5/2)/(3+5*x)**2,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.222182, size = 104, normalized size = 1.37

$$\frac{38}{14641}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{4(111x-94)}{3993(2x-1)\sqrt{-2x+1}}-\frac{5\sqrt{-2x+1}}{1331(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)/((5*x + 3)^2*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 38/14641*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sq
rt(55) + 5*sqrt(-2*x + 1))) + 4/3993*(111*x - 94)/((2*x - 1)*sqrt
(-2*x + 1)) - 5/1331*sqrt(-2*x + 1)/(5*x + 3)
```

3.2169 $\int \frac{1}{(1-2x)^{5/2}(3+5x)^2} dx$

Optimal. Leaf size=76

$$\frac{50}{1331\sqrt{1-2x}} - \frac{1}{11(1-2x)^{3/2}(5x+3)} + \frac{10}{363(1-2x)^{3/2}} - \frac{50\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1331}$$

```
[Out] 10/(363*(1 - 2*x)^(3/2)) + 50/(1331*Sqrt[1 - 2*x]) - 1/(11*(1 - 2
*x)^(3/2)*(3 + 5*x)) - (50*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 -
 2*x]])/1331
```

Rubi [A] time = 0.0764427, antiderivative size = 76, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 17, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.235

$$\frac{50}{1331\sqrt{1-2x}} - \frac{1}{11(1-2x)^{3/2}(5x+3)} + \frac{10}{363(1-2x)^{3/2}} - \frac{50\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1331}$$

Antiderivative was successfully verified.

```
[In] Int[1/((1 - 2*x)^(5/2)*(3 + 5*x)^2),x]
```

```
[Out] 10/(363*(1 - 2*x)^(3/2)) + 50/(1331*Sqrt[1 - 2*x]) - 1/(11*(1 - 2
*x)^(3/2)*(3 + 5*x)) - (50*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 -
 2*x]])/1331
```

Rubi in Sympy [A] time = 7.34245, size = 65, normalized size = 0.86

$$-\frac{50\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{14641} + \frac{50}{1331\sqrt{-2x+1}} + \frac{10}{363\,(-2x+1)^{\frac{3}{2}}} - \frac{1}{11\,(-2x+1)^{\frac{3}{2}}\,(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(1/(1-2*x)**(5/2)/(3+5*x)**2,x)
```

```
[Out] -50*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/14641 + 50/(1331*s
qrt(-2*x + 1)) + 10/(363*(-2*x + 1)**(3/2)) - 1/(11*(-2*x + 1)**(
3/2)*(5*x + 3))
```

Mathematica [A] time = 0.107769, size = 58, normalized size = 0.76

$$\frac{\frac{11(-1500x^2+400x+417)}{(1-2x)^{3/2}(5x+3)} - 150\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{43923}$$

Antiderivative was successfully verified.

```
[In] Integrate[1/((1 - 2*x)^(5/2)*(3 + 5*x)^2),x]
```

```
[Out] ((11*(417 + 400*x - 1500*x^2))/((1 - 2*x)^(3/2)*(3 + 5*x)) - 150*
Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/43923
```

Maple [A] time = 0.016, size = 54, normalized size = 0.7

$$\frac{4}{363}(1-2x)^{-\frac{3}{2}}+\frac{40}{1331}\frac{1}{\sqrt{1-2x}}+\frac{10}{1331}\sqrt{1-2x}\left(-\frac{6}{5}-2x\right)^{-1}-\frac{50\sqrt{55}}{14641}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(5/2)/(3+5*x)^2,x)
```

```
[Out] 4/363/(1-2*x)^(3/2)+40/1331/(1-2*x)^(1/2)+10/1331*(1-2*x)^(1/2)/(
-6/5-2*x)-50/14641*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.49686, size = 100, normalized size = 1.32

$$\frac{25}{14641}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{2\left(375(2x-1)^2+1100x-792\right)}{3993\left(5(-2x+1)^{\frac{5}{2}}-11(-2x+1)^{\frac{3}{2}}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^2*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 25/14641*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55) +
5*sqrt(-2*x + 1))) + 2/3993*(375*(2*x - 1)^2 + 1100*x - 792)/(5*(
-2*x + 1)^(5/2) - 11*(-2*x + 1)^(3/2))
```

Fricas [A] time = 0.216574, size = 119, normalized size = 1.57

$$\frac{\sqrt{11}\left(75\sqrt{5}\left(10x^2+x-3\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{11}(5x-8)+11\sqrt{5}\sqrt{-2x+1}}{5x+3}\right)+\sqrt{11}\left(1500x^2-400x-417\right)\right)}{43923\left(10x^2+x-3\right)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^2*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/43923*sqrt(11)*(75*sqrt(5)*(10*x^2 + x - 3)*sqrt(-2*x + 1)*log(
(sqrt(11)*(5*x - 8) + 11*sqrt(5)*sqrt(-2*x + 1))/(5*x + 3)) + sqr
t(11)*(1500*x^2 - 400*x - 417))/((10*x^2 + x - 3)*sqrt(-2*x + 1))
```

Sympy [A] time = 6.87046, size = 2286, normalized size = 30.08

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(5/2)/(3+5*x)**2,x)
```

```
[Out] Piecewise((15000*sqrt(5)*I*(x + 3/5)**3*asin(sqrt(110)/(10*sqrt(x
 + 3/5)))/(399300*sqrt(11)*(x + 3/5)**3 - 878460*sqrt(11)*(x + 3/
5)**2 + 483153*sqrt(11)*(x + 3/5)) - 7500*sqrt(5)*(x + 3/5)**3*lo
g(110)/(399300*sqrt(11)*(x + 3/5)**3 - 878460*sqrt(11)*(x + 3/5)*
*2 + 483153*sqrt(11)*(x + 3/5)) - 7500*sqrt(5)*(x + 3/5)**3*log(1
1)/(399300*sqrt(11)*(x + 3/5)**3 - 878460*sqrt(11)*(x + 3/5)**2 +
 483153*sqrt(11)*(x + 3/5)) - 15000*sqrt(5)*(x + 3/5)**3*log(2)/(
399300*sqrt(11)*(x + 3/5)**3 - 878460*sqrt(11)*(x + 3/5)**2 + 483
153*sqrt(11)*(x + 3/5)) + 7500*sqrt(5)*(x + 3/5)**3*log(10)/(3993
```

```
00*sqrt(11)*(x + 3/5)**3 - 878460*sqrt(11)*(x + 3/5)**2 + 483153*
sqrt(11)*(x + 3/5)) + 15000*sqrt(5)*(x + 3/5)**3*log(22)/(399300*
sqrt(11)*(x + 3/5)**3 - 878460*sqrt(11)*(x + 3/5)**2 + 483153*sqr
t(11)*(x + 3/5)) - 1500*sqrt(55)*I*(x + 3/5)**2*sqrt(10*x - 5)/(3
99300*sqrt(11)*(x + 3/5)**3 - 878460*sqrt(11)*(x + 3/5)**2 + 4831
53*sqrt(11)*(x + 3/5)) - 33000*sqrt(5)*I*(x + 3/5)**2*asin(sqrt(1
10)/(10*sqrt(x + 3/5)))/(399300*sqrt(11)*(x + 3/5)**3 - 878460*sq
rt(11)*(x + 3/5)**2 + 483153*sqrt(11)*(x + 3/5)) - 33000*sqrt(5)*
(x + 3/5)**2*log(22)/(399300*sqrt(11)*(x + 3/5)**3 - 878460*sqrt(
11)*(x + 3/5)**2 + 483153*sqrt(11)*(x + 3/5)) - 16500*sqrt(5)*(x
+ 3/5)**2*log(10)/(399300*sqrt(11)*(x + 3/5)**3 - 878460*sqrt(11)
*(x + 3/5)**2 + 483153*sqrt(11)*(x + 3/5)) + 33000*sqrt(5)*(x + 3
/5)**2*log(2)/(399300*sqrt(11)*(x + 3/5)**3 - 878460*sqrt(11)*(x
+ 3/5)**2 + 483153*sqrt(11)*(x + 3/5)) + 16500*sqrt(5)*(x + 3/5)*
*2*log(11)/(399300*sqrt(11)*(x + 3/5)**3 - 878460*sqrt(11)*(x + 3
/5)**2 + 483153*sqrt(11)*(x + 3/5)) + 16500*sqrt(5)*(x + 3/5)**2*
log(110)/(399300*sqrt(11)*(x + 3/5)**3 - 878460*sqrt(11)*(x + 3/5
)**2 + 483153*sqrt(11)*(x + 3/5)) + 2200*sqrt(55)*I*(x + 3/5)*sqr
t(10*x - 5)/(399300*sqrt(11)*(x + 3/5)**3 - 878460*sqrt(11)*(x +
3/5)**2 + 483153*sqrt(11)*(x + 3/5)) + 18150*sqrt(5)*I*(x + 3/5)*
asin(sqrt(110)/(10*sqrt(x + 3/5)))/(399300*sqrt(11)*(x + 3/5)**3
- 878460*sqrt(11)*(x + 3/5)**2 + 483153*sqrt(11)*(x + 3/5)) - 907
5*sqrt(5)*(x + 3/5)*log(110)/(399300*sqrt(11)*(x + 3/5)**3 - 8784
60*sqrt(11)*(x + 3/5)**2 + 483153*sqrt(11)*(x + 3/5)) - 9075*sqrt
(5)*(x + 3/5)*log(11)/(399300*sqrt(11)*(x + 3/5)**3 - 878460*sqrt
(11)*(x + 3/5)**2 + 483153*sqrt(11)*(x + 3/5)) - 18150*sqrt(5)*(x
 + 3/5)*log(2)/(399300*sqrt(11)*(x + 3/5)**3 - 878460*sqrt(11)*(x
 + 3/5)**2 + 483153*sqrt(11)*(x + 3/5)) + 9075*sqrt(5)*(x + 3/5)*
log(10)/(399300*sqrt(11)*(x + 3/5)**3 - 878460*sqrt(11)*(x + 3/5)
**2 + 483153*sqrt(11)*(x + 3/5)) + 18150*sqrt(5)*(x + 3/5)*log(22
)/(399300*sqrt(11)*(x + 3/5)**3 - 878460*sqrt(11)*(x + 3/5)**2 +
483153*sqrt(11)*(x + 3/5)) - 363*sqrt(55)*I*sqrt(10*x - 5)/(39930
0*sqrt(11)*(x + 3/5)**3 - 878460*sqrt(11)*(x + 3/5)**2 + 483153*s
qrt(11)*(x + 3/5)), 10*Abs(x + 3/5)/11 > 1), (-1500*sqrt(55)*sqrt
(-10*x + 5)*(x + 3/5)**2/(399300*sqrt(11)*(x + 3/5)**3 - 878460*s
qrt(11)*(x + 3/5)**2 + 483153*sqrt(11)*(x + 3/5)) + 2200*sqrt(55)
*sqrt(-10*x + 5)*(x + 3/5)/(399300*sqrt(11)*(x + 3/5)**3 - 878460
*sqrt(11)*(x + 3/5)**2 + 483153*sqrt(11)*(x + 3/5)) - 363*sqrt(55
)*sqrt(-10*x + 5)/(399300*sqrt(11)*(x + 3/5)**3 - 878460*sqrt(11)
*(x + 3/5)**2 + 483153*sqrt(11)*(x + 3/5)) + 7500*sqrt(5)*(x + 3/
5)**3*log(x + 3/5)/(399300*sqrt(11)*(x + 3/5)**3 - 878460*sqrt(11
)*(x + 3/5)**2 + 483153*sqrt(11)*(x + 3/5)) - 15000*sqrt(5)*(x +
3/5)**3*log(sqrt(-10*x/11 + 5/11) + 1)/(399300*sqrt(11)*(x + 3/5)
**3 - 878460*sqrt(11)*(x + 3/5)**2 + 483153*sqrt(11)*(x + 3/5)) -
 7500*sqrt(5)*(x + 3/5)**3*log(11)/(399300*sqrt(11)*(x + 3/5)**3
- 878460*sqrt(11)*(x + 3/5)**2 + 483153*sqrt(11)*(x + 3/5)) + 750
0*sqrt(5)*(x + 3/5)**3*log(10)/(399300*sqrt(11)*(x + 3/5)**3 - 87
8460*sqrt(11)*(x + 3/5)**2 + 483153*sqrt(11)*(x + 3/5)) + 7500*sq
rt(5)*I*pi*(x + 3/5)**3/(399300*sqrt(11)*(x + 3/5)**3 - 878460*sq
rt(11)*(x + 3/5)**2 + 483153*sqrt(11)*(x + 3/5)) - 16500*sqrt(5)*
(x + 3/5)**2*log(x + 3/5)/(399300*sqrt(11)*(x + 3/5)**3 - 878460*
sqrt(11)*(x + 3/5)**2 + 483153*sqrt(11)*(x + 3/5)) + 33000*sqrt(5
)*(x + 3/5)**2*log(sqrt(-10*x/11 + 5/11) + 1)/(399300*sqrt(11)*(x
 + 3/5)**3 - 878460*sqrt(11)*(x + 3/5)**2 + 483153*sqrt(11)*(x +
3/5)) - 16500*sqrt(5)*(x + 3/5)**2*log(10)/(399300*sqrt(11)*(x +
3/5)**3 - 878460*sqrt(11)*(x + 3/5)**2 + 483153*sqrt(11)*(x + 3/5
)) + 16500*sqrt(5)*(x + 3/5)**2*log(11)/(399300*sqrt(11)*(x + 3/5
)**3 - 878460*sqrt(11)*(x + 3/5)**2 + 483153*sqrt(11)*(x + 3/5))
- 16500*sqrt(5)*I*pi*(x + 3/5)**2/(399300*sqrt(11)*(x + 3/5)**3 -
 878460*sqrt(11)*(x + 3/5)**2 + 483153*sqrt(11)*(x + 3/5)) + 9075
*sqrt(5)*(x + 3/5)*log(x + 3/5)/(399300*sqrt(11)*(x + 3/5)**3 - 8
78460*sqrt(11)*(x + 3/5)**2 + 483153*sqrt(11)*(x + 3/5)) - 18150*
sqrt(5)*(x + 3/5)*log(sqrt(-10*x/11 + 5/11) + 1)/(399300*sqrt(11)
*(x + 3/5)**3 - 878460*sqrt(11)*(x + 3/5)**2 + 483153*sqrt(11)*(x
 + 3/5)) - 9075*sqrt(5)*(x + 3/5)*log(11)/(399300*sqrt(11)*(x + 3
/5)**3 - 878460*sqrt(11)*(x + 3/5)**2 + 483153*sqrt(11)*(x + 3/5)
) + 9075*sqrt(5)*(x + 3/5)*log(10)/(399300*sqrt(11)*(x + 3/5)**3
- 878460*sqrt(11)*(x + 3/5)**2 + 483153*sqrt(11)*(x + 3/5)) + 907
5*sqrt(5)*I*pi*(x + 3/5)/(399300*sqrt(11)*(x + 3/5)**3 - 878460*s
qrt(11)*(x + 3/5)**2 + 483153*sqrt(11)*(x + 3/5)), True))
```

GIAC/XCAS [A] time = 0.214339, size = 104, normalized size = 1.37

$$\frac{25}{14641}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{4(60x-41)}{3993(2x-1)\sqrt{-2x+1}}-\frac{25\sqrt{-2x+1}}{1331(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^2*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 25/14641*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(sq
rt(55) + 5*sqrt(-2*x + 1))) + 4/3993*(60*x - 41)/((2*x - 1)*sqrt(
-2*x + 1)) - 25/1331*sqrt(-2*x + 1)/(5*x + 3)
```

3.2170 $\int \frac{1}{(1-2x)^{5/2}(2+3x)(3+5x)^2}\,dx$

Optimal. Leaf size=105

$$\frac{3274}{65219\sqrt{1-2x}}-\frac{5}{11(1-2x)^{3/2}(5x+3)}+\frac{218}{2541(1-2x)^{3/2}}-\frac{54}{49}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+\frac{1400\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1331}$$

```
[Out] 218/(2541*(1 - 2*x)^(3/2)) + 3274/(65219*Sqrt[1 - 2*x]) - 5/(11*(
1 - 2*x)^(3/2)*(3 + 5*x)) - (54*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[
1 - 2*x]])/49 + (1400*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]
])/1331
```

Rubi [A] time = 0.278468, antiderivative size = 105, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{3274}{65219\sqrt{1-2x}}-\frac{5}{11(1-2x)^{3/2}(5x+3)}+\frac{218}{2541(1-2x)^{3/2}}-\frac{54}{49}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+\frac{1400\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1331}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(5/2)*(2 + 3*x)*(3 + 5*x)^2),x]
```

```
[Out] 218/(2541*(1 - 2*x)^(3/2)) + 3274/(65219*Sqrt[1 - 2*x]) - 5/(11*(
1 - 2*x)^(3/2)*(3 + 5*x)) - (54*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[
1 - 2*x]])/49 + (1400*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]
])/1331
```

Rubi in Sympy [A] time = 27.9169, size = 90, normalized size = 0.86

$$-\frac{54\sqrt{21}\,\text{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{343}+\frac{1400\sqrt{55}\,\text{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{14641}+\frac{3274}{65219\sqrt{-2x+1}}+\frac{218}{2541\left(-2x+1\right)^{\frac{3}{2}}}-\frac{5}{11\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(5/2)/(2+3*x)/(3+5*x)**2,x)
```

```
[Out] -54*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/343 + 1400*sqrt(55)
*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/14641 + 3274/(65219*sqrt(-2*x
+ 1)) + 218/(2541*(-2*x + 1)**(3/2)) - 5/(11*(-2*x + 1)**(3/2)*(5
*x + 3))
```

Mathematica [A] time = 0.244139, size = 88, normalized size = 0.84

$$\frac{205800\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)-\frac{11\left(98220x^2-74108x+9111\right)}{(1-2x)^{3/2}(5x+3)}}{2152227}-\frac{54}{49}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(5/2)*(2 + 3*x)*(3 + 5*x)^2),x]
```

```
[Out] (-54*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/49 + ((-11*(9111
 - 74108*x + 98220*x^2))/((1 - 2*x)^(3/2)*(3 + 5*x)) + 205800*Sqr
t[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/2152227
```

Maple [A] time = 0.021, size = 72, normalized size = 0.7

$$\frac{8}{2541}(1-2x)^{-\frac{3}{2}}+\frac{824}{65219}\frac{1}{\sqrt{1-2x}}-\frac{54\sqrt{21}}{343}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)+\frac{50}{1331}\sqrt{1-2x}\left(-\frac{6}{5}-2x\right)^{-1}+\frac{1400\sqrt{55}}{14641}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(5/2)/(2+3*x)/(3+5*x)^2,x)
```

```
[Out] 8/2541/(1-2*x)^(3/2)+824/65219/(1-2*x)^(1/2)-54/343*arctanh(1/7*2
1^(1/2)*(1-2*x)^(1/2))*21^(1/2)+50/1331*(1-2*x)^(1/2)/(-6/5-2*x)+
1400/14641*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.50781, size = 149, normalized size = 1.42

$$-\frac{700}{14641}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{27}{343}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{2\left(24555(2x-1)^2+24112x-15444\right)}{195657\left(5(-2x+1)^{\frac{5}{2}}-11(-2x+1)^{\frac{3}{2}}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^2*(3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] -700/14641*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55)
+ 5*sqrt(-2*x + 1))) + 27/343*sqrt(21)*log(-(sqrt(21) - 3*sqrt(-2
*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 2/195657*(24555*(2*x -
1)^2 + 24112*x - 15444)/(5*(-2*x + 1)^(5/2) - 11*(-2*x + 1)^(3/2)
)
```

Fricas [A] time = 0.240011, size = 204, normalized size = 1.94

$$\frac{\sqrt{11}\sqrt{7}\left(102900\sqrt{7}\sqrt{5}\left(10x^2+x-3\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{11}(5x-8)-11\sqrt{5}\sqrt{-2x+1}}{5x+3}\right)+107811\sqrt{11}\sqrt{3}\left(10x^2+x-3\right)\sqrt{-2x+1}\log\left(\right.\right.}{15065589\left(10x^2+x-3\right)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^2*(3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/15065589*sqrt(11)*sqrt(7)*(102900*sqrt(7)*sqrt(5)*(10*x^2 + x -
 3)*sqrt(-2*x + 1)*log((sqrt(11)*(5*x - 8) - 11*sqrt(5)*sqrt(-2*x
 + 1))/(5*x + 3)) + 107811*sqrt(11)*sqrt(3)*(10*x^2 + x - 3)*sqrt
(-2*x + 1)*log((sqrt(7)*(3*x - 5) + 7*sqrt(3)*sqrt(-2*x + 1))/(3*
x + 2)) + sqrt(11)*sqrt(7)*(98220*x^2 - 74108*x + 9111))/((10*x^2
 + x - 3)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(5/2)/(2+3*x)/(3+5*x)**2,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.220283, size = 157, normalized size = 1.5

$$-\frac{700}{14641}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{27}{343}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{16\,(309\,x-193)}{195657\,(2\,x-1)\sqrt{-2\,x+1}}-\frac{125\sqrt{-2\,x+1}}{1331\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^2*(3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] -700/14641*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(
sqrt(55) + 5*sqrt(-2*x + 1))) + 27/343*sqrt(21)*ln(1/2*abs(-2*sqr
t(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 16/195
657*(309*x - 193)/((2*x - 1)*sqrt(-2*x + 1)) - 125/1331*sqrt(-2*x
 + 1)/(5*x + 3)
```

3.2171 $\int \frac{1}{(1-2x)^{5/2}(2+3x)^2(3+5x)^2}\,dx$

Optimal. Leaf size=132

$$\frac{159800}{456533\sqrt{1-2x}}+\frac{3}{7(1-2x)^{3/2}(3x+2)(5x+3)}-\frac{340}{77(1-2x)^{3/2}(5x+3)}+\frac{13900}{17787(1-2x)^{3/2}}-\frac{4050}{343}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+\frac{15250\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1331}$$

```
[Out] 13900/(17787*(1 - 2*x)^(3/2)) + 159800/(456533*Sqrt[1 - 2*x]) - 3
40/(77*(1 - 2*x)^(3/2)*(3 + 5*x)) + 3/(7*(1 - 2*x)^(3/2)*(2 + 3*x
)*(3 + 5*x)) - (4050*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/
343 + (15250*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/1331
```

Rubi [A] time = 0.344383, antiderivative size = 132, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$\frac{159800}{456533\sqrt{1-2x}}+\frac{3}{7(1-2x)^{3/2}(3x+2)(5x+3)}-\frac{340}{77(1-2x)^{3/2}(5x+3)}+\frac{13900}{17787(1-2x)^{3/2}}-\frac{4050}{343}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+\frac{15250\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1331}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(5/2)*(2 + 3*x)^2*(3 + 5*x)^2),x]
```

```
[Out] 13900/(17787*(1 - 2*x)^(3/2)) + 159800/(456533*Sqrt[1 - 2*x]) - 3
40/(77*(1 - 2*x)^(3/2)*(3 + 5*x)) + 3/(7*(1 - 2*x)^(3/2)*(2 + 3*x
)*(3 + 5*x)) - (4050*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/
343 + (15250*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/1331
```

Rubi in Sympy [A] time = 34.7321, size = 112, normalized size = 0.85

$$-\frac{4050\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{2401}+\frac{15250\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{14641}+\frac{159800}{456533\sqrt{-2x+1}}+\frac{13900}{17787\left(-2x+1\right)^{\frac{3}{2}}}-\frac{204}{77\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)}-\frac{5}{11\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)\left(5x+3\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(5/2)/(2+3*x)**2/(3+5*x)**2,x)
```

```
[Out] -4050*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/2401 + 15250*sqrt
(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/14641 + 159800/(456533*sqr
t(-2*x + 1)) + 13900/(17787*(-2*x + 1)**(3/2)) - 204/(77*(-2*x +
1)**(3/2)*(3*x + 2)) - 5/(11*(-2*x + 1)**(3/2)*(3*x + 2)*(5*x + 3
))
```

Mathematica [A] time = 0.181032, size = 101, normalized size = 0.77

$$\frac{-14382000x^3+5028300x^2+5548760x-2209989}{1369599(1-2x)^{3/2}(3x+2)(5x+3)}-\frac{4050}{343}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+\frac{15250\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1331}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(5/2)*(2 + 3*x)^2*(3 + 5*x)^2),x]
```

```
[Out] (-2209989 + 5548760*x + 5028300*x^2 - 14382000*x^3)/(1369599*(1 -
 2*x)^(3/2)*(2 + 3*x)*(3 + 5*x)) - (4050*Sqrt[3/7]*ArcTanh[Sqrt[3
/7]*Sqrt[1 - 2*x]])/343 + (15250*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sq
rt[1 - 2*x]])/1331
```

Maple [A] time = 0.026, size = 88, normalized size = 0.7

$$\frac{16}{17787}(1-2x)^{-\frac{3}{2}}+\frac{2176}{456533}\frac{1}{\sqrt{1-2x}}+\frac{54}{343}\sqrt{1-2x}\left(-\frac{4}{3}-2x\right)^{-1}-\frac{4050\sqrt{21}}{2401}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)+\frac{250}{1331}\sqrt{1-2x}\left(-\frac{6}{5}-2x\right)^{-1}+\frac{15250\sqrt{55}}{14641}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(5/2)/(2+3*x)^2/(3+5*x)^2,x)
```

```
[Out] 16/17787/(1-2*x)^(3/2)+2176/456533/(1-2*x)^(1/2)+54/343*(1-2*x)^(
1/2)/(-4/3-2*x)-4050/2401*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^
(1/2)+250/1331*(1-2*x)^(1/2)/(-6/5-2*x)+15250/14641*arctanh(1/11*
55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.51464, size = 173, normalized size = 1.31

$$-\frac{7625}{14641}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{2025}{2401}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{4\left(1797750(2x-1)^3+4136175(2x-1)^2+209440x-128436\right)}{1369599\left(15(-2x+1)^{\frac{7}{2}}-68(-2x+1)^{\frac{5}{2}}+77(-2x+1)^{\frac{3}{2}}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^2*(3*x + 2)^2*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] -7625/14641*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55)
 + 5*sqrt(-2*x + 1))) + 2025/2401*sqrt(21)*log(-(sqrt(21) - 3*sqr
t(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 4/1369599*(1797750*
(2*x - 1)^3 + 4136175*(2*x - 1)^2 + 209440*x - 128436)/(15*(-2*x
+ 1)^(7/2) - 68*(-2*x + 1)^(5/2) + 77*(-2*x + 1)^(3/2))
```

Fricas [A] time = 0.23213, size = 239, normalized size = 1.81

$$\frac{\sqrt{11}\sqrt{7}\left(7846125\sqrt{7}\sqrt{5}\left(30x^3+23x^2-7x-6\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{11}(5x-8)-11\sqrt{5}\sqrt{-2x+1}}{5x+3}\right)+8085825\sqrt{11}\sqrt{3}\left(30x^3+23x^2-7\right.\right.}{105459123\left(30x^3+23x^2-7x\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^2*(3*x + 2)^2*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/105459123*sqrt(11)*sqrt(7)*(7846125*sqrt(7)*sqrt(5)*(30*x^3 + 2
3*x^2 - 7*x - 6)*sqrt(-2*x + 1)*log((sqrt(11)*(5*x - 8) - 11*sqrt
```

```
(5)*sqrt(-2*x + 1))/(5*x + 3)) + 8085825*sqrt(11)*sqrt(3)*(30*x^3
 + 23*x^2 - 7*x - 6)*sqrt(-2*x + 1)*log((sqrt(7)*(3*x - 5) + 7*sq
rt(3)*sqrt(-2*x + 1))/(3*x + 2)) + sqrt(11)*sqrt(7)*(14382000*x^3
 - 5028300*x^2 - 5548760*x + 2209989))/((30*x^3 + 23*x^2 - 7*x -
6)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(5/2)/(2+3*x)**2/(3+5*x)**2,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.21977, size = 185, normalized size = 1.4

$$-\frac{7625}{14641}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{2025}{2401}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{4\left(591090\,(-2x+1)^{\frac{3}{2}}-1343273\sqrt{-2x+1}\right)}{456533\left(15\,(2x-1)^2+136x+9\right)}+\frac{16\,(816x-485)}{1369599\,(2x-1)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^2*(3*x + 2)^2*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] -7625/14641*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/
(sqrt(55) + 5*sqrt(-2*x + 1))) + 2025/2401*sqrt(21)*ln(1/2*abs(-2
*sqrt(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 4/
456533*(591090*(-2*x + 1)^(3/2) - 1343273*sqrt(-2*x + 1))/(15*(2*
x - 1)^2 + 136*x + 9) + 16/1369599*(816*x - 485)/((2*x - 1)*sqrt(
-2*x + 1))
```

3.2172 $\int \frac{1}{(1-2x)^{5/2}(2+3x)^3(3+5x)^2}\,dx$

Optimal. Leaf size=159

$$\frac{172105}{65219\sqrt{1-2x}}+\frac{24}{7(1-2x)^{3/2}(3x+2)(5x+3)}-\frac{745}{22(1-2x)^{3/2}(5x+3)}+\frac{3}{14(1-2x)^{3/2}(3x+2)^2(5x+3)}+\frac{15185}{2541(1-2x)^{3/2}}-\frac{4455}{49}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+\frac{117500\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1331}$$

```
[Out] 15185/(2541*(1 - 2*x)^(3/2)) + 172105/(65219*Sqrt[1 - 2*x]) - 745
/(22*(1 - 2*x)^(3/2)*(3 + 5*x)) + 3/(14*(1 - 2*x)^(3/2)*(2 + 3*x)
^2*(3 + 5*x)) + 24/(7*(1 - 2*x)^(3/2)*(2 + 3*x)*(3 + 5*x)) - (445
5*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/49 + (117500*Sqrt[5
/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/1331
```

Rubi [A] time = 0.423756, antiderivative size = 159, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.25$

$$\frac{172105}{65219\sqrt{1-2x}}+\frac{24}{7(1-2x)^{3/2}(3x+2)(5x+3)}-\frac{745}{22(1-2x)^{3/2}(5x+3)}+\frac{3}{14(1-2x)^{3/2}(3x+2)^2(5x+3)}+\frac{15185}{2541(1-2x)^{3/2}}-\frac{4455}{49}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)+\frac{117500\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1331}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(5/2)*(2 + 3*x)^3*(3 + 5*x)^2),x]
```

```
[Out] 15185/(2541*(1 - 2*x)^(3/2)) + 172105/(65219*Sqrt[1 - 2*x]) - 745
/(22*(1 - 2*x)^(3/2)*(3 + 5*x)) + 3/(14*(1 - 2*x)^(3/2)*(2 + 3*x)
^2*(3 + 5*x)) + 24/(7*(1 - 2*x)^(3/2)*(2 + 3*x)*(3 + 5*x)) - (445
5*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/49 + (117500*Sqrt[5
/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/1331
```

Rubi in Sympy [A] time = 41.9065, size = 133, normalized size = 0.84

$$-\frac{4455\sqrt{21}\,\mathrm{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{343}+\frac{117500\sqrt{55}\,\mathrm{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{14641}+\frac{172105}{65219\sqrt{-2x+1}}+\frac{15185}{2541\left(-2x+1\right)^{\frac{3}{2}}}-\frac{447}{22\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)}-\frac{309}{154\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{2}}-\frac{5}{11\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{2}\left(5x+3\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(5/2)/(2+3*x)**3/(3+5*x)**2,x)
```

```
[Out] -4455*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/343 + 117500*sqrt
(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/14641 + 172105/(65219*sqrt
(-2*x + 1)) + 15185/(2541*(-2*x + 1)**(3/2)) - 447/(22*(-2*x + 1)
**(3/2)*(3*x + 2)) - 309/(154*(-2*x + 1)**(3/2)*(3*x + 2)**2) - 5
/(11*(-2*x + 1)**(3/2)*(3*x + 2)**2*(5*x + 3))
```

Mathematica [A] time = 0.249426, size = 108, normalized size = 0.68

$$\frac{34545000\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)-\frac{11\sqrt{1-2x}(92936700x^4+27977220x^3-58371045x^2-9008764x+9784671)}{(5x+3)(6x^2+x-2)^2}}{4304454}-\frac{4455}{49}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(5/2)*(2 + 3*x)^3*(3 + 5*x)^2),x]
```

```
[Out] (-4455*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/49 + ((-11*Sqr
t[1 - 2*x]*(9784671 - 9008764*x - 58371045*x^2 + 27977220*x^3 + 9
2936700*x^4))/((3 + 5*x)*(-2 + x + 6*x^2)^2) + 34545000*Sqrt[55]*
ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/4304454
```

Maple [A] time = 0.027, size = 100, normalized size = 0.6

$$\frac{32}{124509}(1-2x)^{-\frac{3}{2}}+\frac{5408}{3195731}\frac{1}{\sqrt{1-2x}}+\frac{4374}{2401(-4-6x)^2}\left(\frac{151}{18}(1-2x)^{\frac{3}{2}}-\frac{119}{6}\sqrt{1-2x}\right)-\frac{4455\sqrt{21}}{343}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)+\frac{1250}{1331}\sqrt{1-2x}\left(-\frac{6}{5}-2x\right)^{-1}+\frac{117500\sqrt{55}}{14641}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(5/2)/(2+3*x)^3/(3+5*x)^2,x)
```

```
[Out] 32/124509/(1-2*x)^(3/2)+5408/3195731/(1-2*x)^(1/2)+4374/2401*(151
/18*(1-2*x)^(3/2)-119/6*(1-2*x)^(1/2))/(-4-6*x)^2-4455/343*arctan
h(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)+1250/1331*(1-2*x)^(1/2)/(-
6/5-2*x)+117500/14641*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/
2)
```

Maxima [A] time = 1.50622, size = 197, normalized size = 1.24

$$-\frac{58750}{14641}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{4455}{686}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{23234175(2x-1)^4+106925310(2x-1)^3+122999835(2x-1)^2+285824x-170016}{195657\left(45(-2x+1)^{\frac{9}{2}}-309(-2x+1)^{\frac{7}{2}}+707(-2x+1)^{\frac{5}{2}}-539(-2x+1)^{\frac{3}{2}}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^2*(3*x + 2)^3*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] -58750/14641*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55
) + 5*sqrt(-2*x + 1))) + 4455/686*sqrt(21)*log(-(sqrt(21) - 3*sqr
t(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 1/195657*(23234175*
(2*x - 1)^4 + 106925310*(2*x - 1)^3 + 122999835*(2*x - 1)^2 + 285
824*x - 170016)/(45*(-2*x + 1)^(9/2) - 309*(-2*x + 1)^(7/2) + 707
*(-2*x + 1)^(5/2) - 539*(-2*x + 1)^(3/2))
```

Fricas [A] time = 0.226455, size = 266, normalized size = 1.67

$$\frac{\sqrt{11}\sqrt{7}\left(17272500\,\sqrt{7}\sqrt{5}\left(90\,x^4+129\,x^3+25\,x^2-32\,x-12\right)\sqrt{-2\,x+1}\log\left(\frac{\sqrt{11}(5\,x-8)-11\,\sqrt{5}\sqrt{-2\,x+1}}{5\,x+3}\right)+17788815\,\sqrt{11}\sqrt{3}\left(90\,x\right.\right.}{30131178\,(90\,x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^2*(3*x + 2)^3*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/30131178*sqrt(11)*sqrt(7)*(17272500*sqrt(7)*sqrt(5)*(90*x^4 + 1
29*x^3 + 25*x^2 - 32*x - 12)*sqrt(-2*x + 1)*log((sqrt(11)*(5*x -
8) - 11*sqrt(5)*sqrt(-2*x + 1))/(5*x + 3)) + 17788815*sqrt(11)*sq
rt(3)*(90*x^4 + 129*x^3 + 25*x^2 - 32*x - 12)*sqrt(-2*x + 1)*log(
(sqrt(7)*(3*x - 5) + 7*sqrt(3)*sqrt(-2*x + 1))/(3*x + 2)) + sqrt(
11)*sqrt(7)*(92936700*x^4 + 27977220*x^3 - 58371045*x^2 - 9008764
*x + 9784671))/((90*x^4 + 129*x^3 + 25*x^2 - 32*x - 12)*sqrt(-2*x
 + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(5/2)/(2+3*x)**3/(3+5*x)**2,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.230385, size = 194, normalized size = 1.22

$$-\frac{58750}{14641}\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)+\frac{4455}{686}\sqrt{21}\ln\left(\frac{\left|-2\,\sqrt{21}+6\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{21}+3\,\sqrt{-2\,x+1}\right)}\right)$$
$$+\frac{64\,(507\,x-292)}{9587193\,(2\,x-1)\sqrt{-2\,x+1}}-\frac{3125\,\sqrt{-2\,x+1}}{1331\,(5\,x+3)}+\frac{243\left(151\,(-2\,x+1)^{\frac{3}{2}}-357\,\sqrt{-2\,x+1}\right)}{9604\,(3\,x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^2*(3*x + 2)^3*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] -58750/14641*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))
/(sqrt(55) + 5*sqrt(-2*x + 1))) + 4455/686*sqrt(21)*ln(1/2*abs(-2
*sqrt(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 64
/9587193*(507*x - 292)/((2*x - 1)*sqrt(-2*x + 1)) - 3125/1331*sqr
t(-2*x + 1)/(5*x + 3) + 243/9604*(151*(-2*x + 1)^(3/2) - 357*sqrt
(-2*x + 1))/(3*x + 2)^2
```

3.2173 $\int \frac{(2+3x)^6}{(1-2x)^{5/2}(3+5x)^3}\,dx$

Optimal. Leaf size=147

$$\frac{7(3x+2)^5}{33(1-2x)^{3/2}(5x+3)^2}-\frac{73(3x+2)^4}{3630\sqrt{1-2x}(5x+3)^2}-\frac{3269(3x+2)^3}{199650\sqrt{1-2x}(5x+3)}-\frac{256172(3x+2)^2}{366025\sqrt{1-2x}}-\frac{21\sqrt{1-2x}(736875x+2211616)}{3660250}-\frac{6937\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1830125\sqrt{55}}$$

```
[Out] (-256172*(2 + 3*x)^2)/(366025*Sqrt[1 - 2*x]) - (73*(2 + 3*x)^4)/(
3630*Sqrt[1 - 2*x]*(3 + 5*x)^2) + (7*(2 + 3*x)^5)/(33*(1 - 2*x)^(
3/2)*(3 + 5*x)^2) - (3269*(2 + 3*x)^3)/(199650*Sqrt[1 - 2*x]*(3 +
 5*x)) - (21*Sqrt[1 - 2*x]*(2211616 + 736875*x))/3660250 - (6937*
ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(1830125*Sqrt[55])
```

Rubi [A] time = 0.307643, antiderivative size = 147, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$\frac{7(3x+2)^5}{33(1-2x)^{3/2}(5x+3)^2}-\frac{73(3x+2)^4}{3630\sqrt{1-2x}(5x+3)^2}-\frac{3269(3x+2)^3}{199650\sqrt{1-2x}(5x+3)}-\frac{256172(3x+2)^2}{366025\sqrt{1-2x}}-\frac{21\sqrt{1-2x}(736875x+2211616)}{3660250}-\frac{6937\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1830125\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^6/((1 - 2*x)^(5/2)*(3 + 5*x)^3),x]
```

```
[Out] (-256172*(2 + 3*x)^2)/(366025*Sqrt[1 - 2*x]) - (73*(2 + 3*x)^4)/(
3630*Sqrt[1 - 2*x]*(3 + 5*x)^2) + (7*(2 + 3*x)^5)/(33*(1 - 2*x)^(
3/2)*(3 + 5*x)^2) - (3269*(2 + 3*x)^3)/(199650*Sqrt[1 - 2*x]*(3 +
 5*x)) - (21*Sqrt[1 - 2*x]*(2211616 + 736875*x))/3660250 - (6937*
ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(1830125*Sqrt[55])
```

Rubi in Sympy [A] time = 32.0532, size = 133, normalized size = 0.9

$$-\frac{\sqrt{-2x+1}\,(696346875x+2089977120)}{164711250}-\frac{6937\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{100656875}-\frac{73\,(3x+2)^4}{3630\sqrt{-2x+1}\,(5x+3)^2}-\frac{3269\,(3x+2)^3}{199650\sqrt{-2x+1}\,(5x+3)}-\frac{256172\,(3x+2)^2}{366025\sqrt{-2x+1}}+\frac{7\,(3x+2)^5}{33\,(-2x+1)^{\frac{3}{2}}\,(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**6/(1-2*x)**(5/2)/(3+5*x)**3,x)
```

```
[Out] -sqrt(-2*x + 1)*(696346875*x + 2089977120)/164711250 - 6937*sqrt(
55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/100656875 - 73*(3*x + 2)**4
/(3630*sqrt(-2*x + 1)*(5*x + 3)**2) - 3269*(3*x + 2)**3/(199650*s
qrt(-2*x + 1)*(5*x + 3)) - 256172*(3*x + 2)**2/(366025*sqrt(-2*x
+ 1)) + 7*(3*x + 2)**5/(33*(-2*x + 1)**(3/2)*(5*x + 3)**2)
```

Mathematica [A] time = 0.148009, size = 76, normalized size = 0.52

$$\frac{-\frac{55\sqrt{1-2x}\left(533664450x^5+5763576060x^4-6510290070x^3-9509366452x^2+253794537x+1463964312\right)}{(10x^2+x-3)^2}-41622\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{603941250}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^6/((1 - 2*x)^(5/2)*(3 + 5*x)^3),x]
```

```
[Out] ((-55*Sqrt[1 - 2*x]*(1463964312 + 253794537*x - 9509366452*x^2 -
6510290070*x^3 + 5763576060*x^4 + 533664450*x^5))/(-3 + x + 10*x^
2)^2 - 41622*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/60394125
0
```

Maple [A] time = 0.023, size = 84, normalized size = 0.6

$$\frac{243}{1000}(1-2x)^{\frac{3}{2}} - \frac{26973}{5000}\sqrt{1-2x} + \frac{117649}{31944}(1-2x)^{-\frac{3}{2}} - \frac{1563051}{117128}\frac{1}{\sqrt{1-2x}} + \frac{2}{366025\,(-6-10x)^2}\left(\frac{407}{10}(1-2x)^{\frac{3}{2}} - \frac{4499}{50}\sqrt{1-2x}\right) - \frac{6937\sqrt{55}}{100656875}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^6/(1-2*x)^(5/2)/(3+5*x)^3,x)
```

```
[Out] 243/1000*(1-2*x)^(3/2)-26973/5000*(1-2*x)^(1/2)+117649/31944/(1-2
*x)^(3/2)-1563051/117128/(1-2*x)^(1/2)+2/366025*(407/10*(1-2*x)^(
3/2)-4499/50*(1-2*x)^(1/2))/(-6-10*x)^2-6937/100656875*arctanh(1/
11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.51909, size = 149, normalized size = 1.01

$$\frac{243}{1000}(-2x+1)^{\frac{3}{2}} + \frac{6937}{201313750}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right) - \frac{26973}{5000}\sqrt{-2x+1} + \frac{73267966785\,(2x-1)^3 + 342600082649\,(2x-1)^2 + 887178503750\,x - 345719990000}{219615000\left(25\,(-2x+1)^{\frac{7}{2}} - 110\,(-2x+1)^{\frac{5}{2}} + 121\,(-2x+1)^{\frac{3}{2}}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^6/((5*x + 3)^3*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 243/1000*(-2*x + 1)^(3/2) + 6937/201313750*sqrt(55)*log(-(sqrt(55
) - 5*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) - 26973/5000
*sqrt(-2*x + 1) + 1/219615000*(73267966785*(2*x - 1)^3 + 34260008
2649*(2*x - 1)^2 + 887178503750*x - 345719990000)/(25*(-2*x + 1)^
(7/2) - 110*(-2*x + 1)^(5/2) + 121*(-2*x + 1)^(3/2))
```

Fricas [A] time = 0.221216, size = 150, normalized size = 1.02

$$\frac{\sqrt{55}\left(20811\left(50x^3+35x^2-12x-9\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{-2x+1}}{5x+3}\right) + \sqrt{55}\left(533664450x^5 + 5763576060x^4 - 6510290\right.\right.}{603941250\left(50x^3+35x^2-12x-9\right)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^6/((5*x + 3)^3*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/603941250*sqrt(55)*(20811*(50*x^3 + 35*x^2 - 12*x - 9)*sqrt(-2*
x + 1)*log((sqrt(55)*(5*x - 8) + 55*sqrt(-2*x + 1))/(5*x + 3)) +
sqrt(55)*(533664450*x^5 + 5763576060*x^4 - 6510290070*x^3 - 95093
66452*x^2 + 253794537*x + 1463964312))/((50*x^3 + 35*x^2 - 12*x -
 9)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**6/(1-2*x)**(5/2)/(3+5*x)**3,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.217143, size = 144, normalized size = 0.98

$$\frac{243}{1000}\left(-2x+1\right)^{\frac{3}{2}}+\frac{6937}{201313750}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{26973}{5000}\sqrt{-2x+1}-\frac{16807\left(279x-101\right)}{175692\left(2x-1\right)\sqrt{-2x+1}}+\frac{185\left(-2x+1\right)^{\frac{3}{2}}-409\sqrt{-2x+1}}{3327500\left(5x+3\right)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^6/((5*x + 3)^3*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 243/1000*(-2*x + 1)^(3/2) + 6937/201313750*sqrt(55)*ln(1/2*abs(-2
*sqrt(55) + 10*sqrt(-2*x + 1))/(sqrt(55) + 5*sqrt(-2*x + 1))) - 2
6973/5000*sqrt(-2*x + 1) - 16807/175692*(279*x - 101)/((2*x - 1)*
sqrt(-2*x + 1)) + 1/3327500*(185*(-2*x + 1)^(3/2) - 409*sqrt(-2*x
 + 1))/(5*x + 3)^2
```

3.2174 $\int \frac{(2+3x)^5}{(1-2x)^{5/2}(3+5x)^3} \, dx$

Optimal. Leaf size=127

$$\frac{7(3x+2)^4}{33(1-2x)^{3/2}(5x+3)^2}-\frac{73(3x+2)^3}{3630\sqrt{1-2x}(5x+3)^2}-\frac{317(3x+2)^2}{19965\sqrt{1-2x}(5x+3)}-\frac{3(544568-333311x)}{732050\sqrt{1-2x}}-\frac{4693\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{366025\sqrt{55}}$$

```
[Out] (-3*(544568 - 333311*x))/(732050*Sqrt[1 - 2*x]) - (73*(2 + 3*x)^3
)/(3630*Sqrt[1 - 2*x]*(3 + 5*x)^2) + (7*(2 + 3*x)^4)/(33*(1 - 2*x
)^(3/2)*(3 + 5*x)^2) - (317*(2 + 3*x)^2)/(19965*Sqrt[1 - 2*x]*(3
+ 5*x)) - (4693*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(366025*Sqrt[5
5])
```

Rubi [A] time = 0.247256, antiderivative size = 127, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{7(3x+2)^4}{33(1-2x)^{3/2}(5x+3)^2}-\frac{73(3x+2)^3}{3630\sqrt{1-2x}(5x+3)^2}-\frac{317(3x+2)^2}{19965\sqrt{1-2x}(5x+3)}-\frac{3(544568-333311x)}{732050\sqrt{1-2x}}-\frac{4693\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{366025\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^5/((1 - 2*x)^(5/2)*(3 + 5*x)^3),x]
```

```
[Out] (-3*(544568 - 333311*x))/(732050*Sqrt[1 - 2*x]) - (73*(2 + 3*x)^3
)/(3630*Sqrt[1 - 2*x]*(3 + 5*x)^2) + (7*(2 + 3*x)^4)/(33*(1 - 2*x
)^(3/2)*(3 + 5*x)^2) - (317*(2 + 3*x)^2)/(19965*Sqrt[1 - 2*x]*(3
+ 5*x)) - (4693*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(366025*Sqrt[5
5])
```

Rubi in Sympy [A] time = 25.1236, size = 114, normalized size = 0.9

$$-\frac{-14998995x+24505560}{10980750\sqrt{-2x+1}}-\frac{4693\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{20131375}-\frac{73\,(3x+2)^3}{3630\sqrt{-2x+1}\,(5x+3)^2}-\frac{317\,(3x+2)^2}{19965\sqrt{-2x+1}\,(5x+3)}+\frac{7\,(3x+2)^4}{33\,(-2x+1)^{\frac{3}{2}}\,(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**5/(1-2*x)**(5/2)/(3+5*x)**3,x)
```

```
[Out] -(-14998995*x + 24505560)/(10980750*sqrt(-2*x + 1)) - 4693*sqrt(5
5)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/20131375 - 73*(3*x + 2)**3/(
3630*sqrt(-2*x + 1)*(5*x + 3)**2) - 317*(3*x + 2)**2/(19965*sqrt(
-2*x + 1)*(5*x + 3)) + 7*(3*x + 2)**4/(33*(-2*x + 1)**(3/2)*(5*x
+ 3)**2)
```

Mathematica [A] time = 0.124153, size = 71, normalized size = 0.56

$$\frac{-\frac{55\sqrt{1-2x}\left(106732890x^4-248761830x^3-309826828x^2-10907307x+37428168\right)}{\left(10x^2+x-3\right)^2}-28158\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{120788250}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^5/((1 - 2*x)^(5/2)*(3 + 5*x)^3),x]
```

```
[Out] ((-55*Sqrt[1 - 2*x]*(37428168 - 10907307*x - 309826828*x^2 - 2487
61830*x^3 + 106732890*x^4))/(-3 + x + 10*x^2)^2 - 28158*Sqrt[55]*
ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/120788250
```

Maple [A] time = 0.023, size = 75, normalized size = 0.6

$$-\frac{243}{500}\sqrt{1-2x}+\frac{16807}{15972}(1-2x)^{-\frac{3}{2}}-\frac{36015}{14641}\frac{1}{\sqrt{1-2x}}+\frac{4}{73205\,(-6-10x)^2}\left(\frac{341}{20}(1-2x)^{\frac{3}{2}}-\frac{3773}{100}\sqrt{1-2x}\right)-\frac{4693\sqrt{55}}{20131375}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^5/(1-2*x)^(5/2)/(3+5*x)^3,x)
```

```
[Out] -243/500*(1-2*x)^(1/2)+16807/15972/(1-2*x)^(3/2)-36015/14641/(1-2
*x)^(1/2)+4/73205*(341/20*(1-2*x)^(3/2)-3773/100*(1-2*x)^(1/2))/(
-6-10*x)^2-4693/20131375*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^
(1/2)
```

Maxima [A] time = 1.51615, size = 136, normalized size = 1.07

$$\frac{4693}{40262750}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{243}{500}\sqrt{-2x+1}+\frac{1350542040\,(2x-1)^3+6520170349\,(2x-1)^2+18157562500\,x-6282516625}{21961500\left(25\,(-2x+1)^{\frac{7}{2}}-110\,(-2x+1)^{\frac{5}{2}}+121\,(-2x+1)^{\frac{3}{2}}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/((5*x + 3)^3*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 4693/40262750*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(5
5) + 5*sqrt(-2*x + 1))) - 243/500*sqrt(-2*x + 1) + 1/21961500*(13
50542040*(2*x - 1)^3 + 6520170349*(2*x - 1)^2 + 18157562500*x - 6
282516625)/(25*(-2*x + 1)^(7/2) - 110*(-2*x + 1)^(5/2) + 121*(-2*
x + 1)^(3/2))
```

Fricas [A] time = 0.229432, size = 143, normalized size = 1.13

$$\frac{\sqrt{55}\left(14079\left(50x^3+35x^2-12x-9\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{-2x+1}}{5x+3}\right)+\sqrt{55}\left(106732890x^4-248761830x^3-30982682\right.\right.}{120788250\,(50x^3+35x^2-12x-9)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/((5*x + 3)^3*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/120788250*sqrt(55)*(14079*(50*x^3 + 35*x^2 - 12*x - 9)*sqrt(-2*
x + 1)*log((sqrt(55)*(5*x - 8) + 55*sqrt(-2*x + 1))/(5*x + 3)) +
sqrt(55)*(106732890*x^4 - 248761830*x^3 - 309826828*x^2 - 1090730
7*x + 37428168))/((50*x^3 + 35*x^2 - 12*x - 9)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**5/(1-2*x)**(5/2)/(3+5*x)**3,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.216835, size = 132, normalized size = 1.04

$$\frac{4693}{40262750}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{243}{500}\sqrt{-2x+1}-\frac{2401\,(360\,x-103)}{175692\,(2\,x-1)\sqrt{-2\,x+1}}+\frac{155\,(-2\,x+1)^{\frac{3}{2}}-343\sqrt{-2\,x+1}}{665500\,(5\,x+3)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/((5*x + 3)^3*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 4693/40262750*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1)
)/(sqrt(55) + 5*sqrt(-2*x + 1))) - 243/500*sqrt(-2*x + 1) - 2401/
175692*(360*x - 103)/((2*x - 1)*sqrt(-2*x + 1)) + 1/665500*(155*(
-2*x + 1)^(3/2) - 343*sqrt(-2*x + 1))/(5*x + 3)^2
```

3.2175 $\int \frac{(2+3x)^4}{(1-2x)^{5/2}(3+5x)^3}\,dx$

Optimal. Leaf size=107

$$\frac{7(3x+2)^3}{33(1-2x)^{3/2}(5x+3)^2}-\frac{73(3x+2)^2}{3630\sqrt{1-2x}(5x+3)^2}-\frac{2133933x+1287116}{2196150\sqrt{1-2x}(5x+3)}-\frac{14423\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{366025\sqrt{55}}$$

```
[Out] (-73*(2 + 3*x)^2)/(3630*Sqrt[1 - 2*x]*(3 + 5*x)^2) + (7*(2 + 3*x)
^3)/(33*(1 - 2*x)^(3/2)*(3 + 5*x)^2) - (1287116 + 2133933*x)/(219
6150*Sqrt[1 - 2*x]*(3 + 5*x)) - (14423*ArcTanh[Sqrt[5/11]*Sqrt[1
- 2*x]])/(366025*Sqrt[55])
```

Rubi [A] time = 0.18054, antiderivative size = 107, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{7(3x+2)^3}{33(1-2x)^{3/2}(5x+3)^2}-\frac{73(3x+2)^2}{3630\sqrt{1-2x}(5x+3)^2}-\frac{2133933x+1287116}{2196150\sqrt{1-2x}(5x+3)}-\frac{14423\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{366025\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^4/((1 - 2*x)^(5/2)*(3 + 5*x)^3),x]
```

```
[Out] (-73*(2 + 3*x)^2)/(3630*Sqrt[1 - 2*x]*(3 + 5*x)^2) + (7*(2 + 3*x)
^3)/(33*(1 - 2*x)^(3/2)*(3 + 5*x)^2) - (1287116 + 2133933*x)/(219
6150*Sqrt[1 - 2*x]*(3 + 5*x)) - (14423*ArcTanh[Sqrt[5/11]*Sqrt[1
- 2*x]])/(366025*Sqrt[55])
```

Rubi in Sympy [A] time = 19.2301, size = 95, normalized size = 0.89

$$-\frac{14423\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{20131375}-\frac{73\left(3x+2\right)^{2}}{3630\sqrt{-2x+1}\left(5x+3\right)^{2}}-\frac{2133933x+1287116}{2196150\sqrt{-2x+1}\left(5x+3\right)}+\frac{7\left(3x+2\right)^{3}}{33\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4/(1-2*x)**(5/2)/(3+5*x)**3,x)
```

```
[Out] -14423*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/20131375 - 73*(
3*x + 2)**2/(3630*sqrt(-2*x + 1)*(5*x + 3)**2) - (2133933*x + 128
7116)/(2196150*sqrt(-2*x + 1)*(5*x + 3)) + 7*(3*x + 2)**3/(33*(-2
*x + 1)**(3/2)*(5*x + 3)**2)
```

Mathematica [A] time = 0.118551, size = 66, normalized size = 0.62

$$\frac{\frac{55\sqrt{1-2x}\left(34712250x^3+40823468x^2+11479257x-311208\right)}{\left(10x^2+x-3\right)^2}-86538\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{120788250}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^4/((1 - 2*x)^(5/2)*(3 + 5*x)^3),x]
```

```
[Out] ((55*Sqrt[1 - 2*x]*(-311208 + 11479257*x + 40823468*x^2 + 3471225
0*x^3))/(-3 + x + 10*x^2)^2 - 86538*Sqrt[55]*ArcTanh[Sqrt[5/11]*S
qrt[1 - 2*x]])/120788250
```

Maple [A] time = 0.023, size = 66, normalized size = 0.6

$$\frac{2401}{7986}(1-2x)^{-\frac{3}{2}}-\frac{9261}{29282}\frac{1}{\sqrt{1-2x}}+\frac{100}{14641\,(-6-10x)^2}\left(\frac{11}{20}(1-2x)^{\frac{3}{2}}-\frac{3047}{2500}\sqrt{1-2x}\right)-\frac{14423\sqrt{55}}{20131375}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((2+3*x)^4/(1-2*x)^(5/2)/(3+5*x)^3,x)
```

```
[Out] 2401/7986/(1-2*x)^(3/2)-9261/29282/(1-2*x)^(1/2)+100/14641*(11/20
*(1-2*x)^(3/2)-3047/2500*(1-2*x)^(1/2))/(-6-10*x)^2-14423/2013137
5*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.51396, size = 124, normalized size = 1.16

$$\frac{14423}{40262750}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)+\frac{17356125\,(2x-1)^3+92891843\,(2x-1)^2+313347650\,x-76780550}{2196150\left(25\,(-2x+1)^{\frac{7}{2}}-110\,(-2x+1)^{\frac{5}{2}}+121\,(-2x+1)^{\frac{3}{2}}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^4/((5*x + 3)^3*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 14423/40262750*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(
55) + 5*sqrt(-2*x + 1))) + 1/2196150*(17356125*(2*x - 1)^3 + 9289
1843*(2*x - 1)^2 + 313347650*x - 76780550)/(25*(-2*x + 1)^(7/2) -
 110*(-2*x + 1)^(5/2) + 121*(-2*x + 1)^(3/2))
```

Fricas [A] time = 0.22077, size = 138, normalized size = 1.29

$$\frac{\sqrt{55}\left(43269\left(50x^3+35x^2-12x-9\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{-2x+1}}{5x+3}\right)-\sqrt{55}\left(34712250x^3+40823468x^2+11479257x\right.\right.}{120788250\,(50x^3+35x^2-12x-9)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^4/((5*x + 3)^3*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/120788250*sqrt(55)*(43269*(50*x^3 + 35*x^2 - 12*x - 9)*sqrt(-2*
x + 1)*log((sqrt(55)*(5*x - 8) + 55*sqrt(-2*x + 1))/(5*x + 3)) -
sqrt(55)*(34712250*x^3 + 40823468*x^2 + 11479257*x - 311208))/((5
0*x^3 + 35*x^2 - 12*x - 9)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4/(1-2*x)**(5/2)/(3+5*x)**3,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.215695, size = 120, normalized size = 1.12

$$\frac{14423}{40262750}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{343(81x-2)}{43923(2x-1)\sqrt{-2x+1}}+\frac{125(-2x+1)^{\frac{3}{2}}-277\sqrt{-2x+1}}{133100(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4/((5*x + 3)^3*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 14423/40262750*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1
))/(sqrt(55) + 5*sqrt(-2*x + 1))) - 343/43923*(81*x - 2)/((2*x -
1)*sqrt(-2*x + 1)) + 1/133100*(125*(-2*x + 1)^(3/2) - 277*sqrt(-2
*x + 1))/(5*x + 3)^2
```

3.2176 $\int \frac{(2+3x)^3}{(1-2x)^{5/2}(3+5x)^3} \, dx$

Optimal. Leaf size=100

$$\frac{7(3x+2)^2}{33(1-2x)^{3/2}(5x+3)^2}+\frac{17296x+10217}{39930\sqrt{1-2x}(5x+3)^2}-\frac{7559\sqrt{1-2x}}{146410(5x+3)}-\frac{7559\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{73205\sqrt{55}}$$

```
[Out] (7*(2 + 3*x)^2)/(33*(1 - 2*x)^(3/2)*(3 + 5*x)^2) - (7559*Sqrt[1 -
 2*x])/(146410*(3 + 5*x)) + (10217 + 17296*x)/(39930*Sqrt[1 - 2*x
]*(3 + 5*x)^2) - (7559*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(73205*
Sqrt[55])
```

Rubi [A] time = 0.136685, antiderivative size = 100, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{7(3x+2)^2}{33(1-2x)^{3/2}(5x+3)^2}+\frac{17296x+10217}{39930\sqrt{1-2x}(5x+3)^2}-\frac{7559\sqrt{1-2x}}{146410(5x+3)}-\frac{7559\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{73205\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^3/((1 - 2*x)^(5/2)*(3 + 5*x)^3),x]
```

```
[Out] (7*(2 + 3*x)^2)/(33*(1 - 2*x)^(3/2)*(3 + 5*x)^2) - (7559*Sqrt[1 -
 2*x])/(146410*(3 + 5*x)) + (10217 + 17296*x)/(39930*Sqrt[1 - 2*x
]*(3 + 5*x)^2) - (7559*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/(73205*
Sqrt[55])
```

Rubi in Sympy [A] time = 13.8433, size = 87, normalized size = 0.87

$$-\frac{7559\sqrt{-2x+1}}{146410\,(5x+3)}-\frac{7559\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{4026275}+\frac{17296x+10217}{39930\sqrt{-2x+1}\,(5x+3)^2}+\frac{7\,(3x+2)^2}{33\,(-2x+1)^{\frac{3}{2}}\,(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3/(1-2*x)**(5/2)/(3+5*x)**3,x)
```

```
[Out] -7559*sqrt(-2*x + 1)/(146410*(5*x + 3)) - 7559*sqrt(55)*atanh(sqr
t(55)*sqrt(-2*x + 1)/11)/4026275 + (17296*x + 10217)/(39930*sqrt(
-2*x + 1)*(5*x + 3)**2) + 7*(3*x + 2)**2/(33*(-2*x + 1)**(3/2)*(5
*x + 3)**2)
```

Mathematica [A] time = 0.121823, size = 66, normalized size = 0.66

$$\frac{-\frac{55\sqrt{1-2x}\left(453540x^3-639434x^2-1242261x-417036\right)}{\left(10x^2+x-3\right)^2}-45354\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{24157650}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^3/((1 - 2*x)^(5/2)*(3 + 5*x)^3),x]
```

```
[Out] ((-55*Sqrt[1 - 2*x]*(-417036 - 1242261*x - 639434*x^2 + 453540*x^
3))/(-3 + x + 10*x^2)^2 - 45354*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[
```

```
1 - 2*x]])/24157650
```

Maple [A] time = 0.022, size = 66, normalized size = 0.7

$$\frac{343}{3993}(1-2x)^{-\frac{3}{2}}+\frac{294}{14641}\frac{1}{\sqrt{1-2x}}+\frac{50}{14641(-6-10x)^2}\left(\frac{209}{50}(1-2x)^{\frac{3}{2}}-\frac{2321}{250}\sqrt{1-2x}\right)-\frac{7559\sqrt{55}}{4026275}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3/(1-2*x)^(5/2)/(3+5*x)^3,x)
```

```
[Out] 343/3993/(1-2*x)^(3/2)+294/14641/(1-2*x)^(1/2)+50/14641*(209/50*(
1-2*x)^(3/2)-2321/250*(1-2*x)^(1/2))/(-6-10*x)^2-7559/4026275*arc
tanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.49465, size = 124, normalized size = 1.24

$$\frac{7559}{8052550}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{113385(2x-1)^3+20438(2x-1)^2-3083080x-741125}{219615\left(25(-2x+1)^{\frac{7}{2}}-110(-2x+1)^{\frac{5}{2}}+121(-2x+1)^{\frac{3}{2}}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3/((5*x + 3)^3*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 7559/8052550*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55
) + 5*sqrt(-2*x + 1))) - 1/219615*(113385*(2*x - 1)^3 + 20438*(2*
x - 1)^2 - 3083080*x - 741125)/(25*(-2*x + 1)^(7/2) - 110*(-2*x +
 1)^(5/2) + 121*(-2*x + 1)^(3/2))
```

Fricas [A] time = 0.222287, size = 136, normalized size = 1.36

$$\frac{\sqrt{55}\left(22677\left(50x^3+35x^2-12x-9\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{-2x+1}}{5x+3}\right)+\sqrt{55}\left(453540x^3-639434x^2-1242261x-417\right.\right.}{24157650\left(50x^3+35x^2-12x-9\right)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3/((5*x + 3)^3*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/24157650*sqrt(55)*(22677*(50*x^3 + 35*x^2 - 12*x - 9)*sqrt(-2*x
 + 1)*log((sqrt(55)*(5*x - 8) + 55*sqrt(-2*x + 1))/(5*x + 3)) + s
qrt(55)*(453540*x^3 - 639434*x^2 - 1242261*x - 417036))/((50*x^3
+ 35*x^2 - 12*x - 9)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3/(1-2*x)**(5/2)/(3+5*x)**3,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.22761, size = 120, normalized size = 1.2

$$\frac{7559}{8052550}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{49(36x-95)}{43923(2x-1)\sqrt{-2x+1}}+\frac{95(-2x+1)^{\frac{3}{2}}-211\sqrt{-2x+1}}{26620(5x+3)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^3/((5*x + 3)^3*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 7559/8052550*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))
/(sqrt(55) + 5*sqrt(-2*x + 1))) + 49/43923*(36*x - 95)/((2*x - 1)
*sqrt(-2*x + 1)) + 1/26620*(95*(-2*x + 1)^(3/2) - 211*sqrt(-2*x +
 1))/(5*x + 3)^2
```

3.2177 $\int \frac{(2+3x)^2}{(1-2x)^{5/2}(3+5x)^3} dx$

Optimal. Leaf size=108

$$-\frac{2873\sqrt{1-2x}}{29282(5x+3)}+\frac{2873}{19965\sqrt{1-2x}(5x+3)}-\frac{614}{1815\sqrt{1-2x}(5x+3)^2}+\frac{49}{66(1-2x)^{3/2}(5x+3)^2}-\frac{2873\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{14641\sqrt{55}}$$

```
[Out] 49/(66*(1 - 2*x)^(3/2)*(3 + 5*x)^2) - 614/(1815*Sqrt[1 - 2*x]*(3
+ 5*x)^2) + 2873/(19965*Sqrt[1 - 2*x]*(3 + 5*x)) - (2873*Sqrt[1 -
 2*x])/(29282*(3 + 5*x)) - (2873*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]
])/(14641*Sqrt[55])
```

Rubi [A] time = 0.136952, antiderivative size = 108, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$-\frac{2873\sqrt{1-2x}}{29282(5x+3)}+\frac{2873}{19965\sqrt{1-2x}(5x+3)}-\frac{614}{1815\sqrt{1-2x}(5x+3)^2}+\frac{49}{66(1-2x)^{3/2}(5x+3)^2}-\frac{2873\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{14641\sqrt{55}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^2/((1 - 2*x)^(5/2)*(3 + 5*x)^3),x]
```

```
[Out] 49/(66*(1 - 2*x)^(3/2)*(3 + 5*x)^2) - 614/(1815*Sqrt[1 - 2*x]*(3
+ 5*x)^2) + 2873/(19965*Sqrt[1 - 2*x]*(3 + 5*x)) - (2873*Sqrt[1 -
 2*x])/(29282*(3 + 5*x)) - (2873*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]
])/(14641*Sqrt[55])
```

Rubi in Sympy [A] time = 11.318, size = 83, normalized size = 0.77

$$-\frac{2873\sqrt{55}\,\text{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{805255}+\frac{2873}{73205\sqrt{-2x+1}}+\frac{2873}{99825\left(-2x+1\right)^{\frac{3}{2}}}-\frac{139}{6050\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)}-\frac{1}{550\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2/(1-2*x)**(5/2)/(3+5*x)**3,x)
```

```
[Out] -2873*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/805255 + 2873/(7
3205*sqrt(-2*x + 1)) + 2873/(99825*(-2*x + 1)**(3/2)) - 139/(6050
*(-2*x + 1)**(3/2)*(5*x + 3)) - 1/(550*(-2*x + 1)**(3/2)*(5*x + 3
)**2)
```

Mathematica [A] time = 0.113802, size = 66, normalized size = 0.61

$$\frac{-\frac{55\sqrt{1-2x}\left(172380x^3+57460x^2-107127x-47568\right)}{\left(10x^2+x-3\right)^2}-17238\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{4831530}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^2/((1 - 2*x)^(5/2)*(3 + 5*x)^3),x]
```

```
[Out] ((-55*Sqrt[1 - 2*x]*(-47568 - 107127*x + 57460*x^2 + 172380*x^3))
/(-3 + x + 10*x^2)^2 - 17238*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 -
 2*x]])/4831530
```

Maple [A] time = 0.021, size = 66, normalized size = 0.6

$$\frac{98}{3993}\left(1-2x\right)^{-\frac{3}{2}}+\frac{546}{14641}\frac{1}{\sqrt{1-2x}}+\frac{50}{14641\left(-6-10x\right)^{2}}\left(\frac{143}{10}\left(1-2x\right)^{\frac{3}{2}}-\frac{319}{10}\sqrt{1-2x}\right)-\frac{2873\sqrt{55}}{805255}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2/(1-2*x)^(5/2)/(3+5*x)^3,x)
```

```
[Out] 98/3993/(1-2*x)^(3/2)+546/14641/(1-2*x)^(1/2)+50/14641*(143/10*(1
-2*x)^(3/2)-319/10*(1-2*x)^(1/2))/(-6-10*x)^2-2873/805255*arctanh
(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.50409, size = 124, normalized size = 1.15

$$\frac{2873}{1610510}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{43095\left(2x-1\right)^{3}+158015\left(2x-1\right)^{2}+159236x-210056}{43923\left(25\left(-2x+1\right)^{\frac{7}{2}}-110\left(-2x+1\right)^{\frac{5}{2}}+121\left(-2x+1\right)^{\frac{3}{2}}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2/((5*x + 3)^3*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 2873/1610510*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55
) + 5*sqrt(-2*x + 1))) - 1/43923*(43095*(2*x - 1)^3 + 158015*(2*x
 - 1)^2 + 159236*x - 210056)/(25*(-2*x + 1)^(7/2) - 110*(-2*x + 1
)^(5/2) + 121*(-2*x + 1)^(3/2))
```

Fricas [A] time = 0.212277, size = 136, normalized size = 1.26

$$\frac{\sqrt{55}\left(8619\left(50x^{3}+35x^{2}-12x-9\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{55}(5x-8)+55\sqrt{-2x+1}}{5x+3}\right)+\sqrt{55}\left(172380x^{3}+57460x^{2}-107127x-47568\right)\right)}{4831530\left(50x^{3}+35x^{2}-12x-9\right)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2/((5*x + 3)^3*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/4831530*sqrt(55)*(8619*(50*x^3 + 35*x^2 - 12*x - 9)*sqrt(-2*x +
 1)*log((sqrt(55)*(5*x - 8) + 55*sqrt(-2*x + 1))/(5*x + 3)) + sqr
t(55)*(172380*x^3 + 57460*x^2 - 107127*x - 47568))/((50*x^3 + 35*
x^2 - 12*x - 9)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2/(1-2*x)**(5/2)/(3+5*x)**3,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.229237, size = 120, normalized size = 1.11

$$\frac{2873}{1610510}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)+\frac{28(117x-97)}{43923(2x-1)\sqrt{-2x+1}}+\frac{5\left(13(-2x+1)^{\frac{3}{2}}-29\sqrt{-2x+1}\right)}{5324(5x+3)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2/((5*x + 3)^3*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 2873/1610510*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))
/(sqrt(55) + 5*sqrt(-2*x + 1))) + 28/43923*(117*x - 97)/((2*x - 1
)*sqrt(-2*x + 1)) + 5/5324*(13*(-2*x + 1)^(3/2) - 29*sqrt(-2*x +
1))/(5*x + 3)^2
```

3.2178 $\int \frac{2+3x}{(1-2x)^{5/2}(3+5x)^3}\,dx$

Optimal. Leaf size=96

$$\frac{365}{14641\sqrt{1-2x}}-\frac{73}{1210(1-2x)^{3/2}(5x+3)}+\frac{73}{3993(1-2x)^{3/2}}-\frac{1}{110(1-2x)^{3/2}(5x+3)^2}-\frac{365\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{14641}$$

```
[Out] 73/(3993*(1 - 2*x)^(3/2)) + 365/(14641*Sqrt[1 - 2*x]) - 1/(110*(1
 - 2*x)^(3/2)*(3 + 5*x)^2) - 73/(1210*(1 - 2*x)^(3/2)*(3 + 5*x))
- (365*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/14641
```

Rubi [A] time = 0.106192, antiderivative size = 96, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.227

$$\frac{365}{14641\sqrt{1-2x}}-\frac{73}{1210(1-2x)^{3/2}(5x+3)}+\frac{73}{3993(1-2x)^{3/2}}-\frac{1}{110(1-2x)^{3/2}(5x+3)^2}-\frac{365\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{14641}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)/((1 - 2*x)^(5/2)*(3 + 5*x)^3),x]
```

```
[Out] 73/(3993*(1 - 2*x)^(3/2)) + 365/(14641*Sqrt[1 - 2*x]) - 1/(110*(1
 - 2*x)^(3/2)*(3 + 5*x)^2) - 73/(1210*(1 - 2*x)^(3/2)*(3 + 5*x))
- (365*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/14641
```

Rubi in Sympy [A] time = 10.0831, size = 83, normalized size = 0.86

$$-\frac{365\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{161051}+\frac{365}{14641\sqrt{-2x+1}}+\frac{73}{3993\,(-2x+1)^{\frac{3}{2}}}-\frac{73}{1210\,(-2x+1)^{\frac{3}{2}}\,(5x+3)}-\frac{1}{110\,(-2x+1)^{\frac{3}{2}}\,(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)/(1-2*x)**(5/2)/(3+5*x)**3,x)
```

```
[Out] -365*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/161051 + 365/(146
41*sqrt(-2*x + 1)) + 73/(3993*(-2*x + 1)**(3/2)) - 73/(1210*(-2*x
 + 1)**(3/2)*(5*x + 3)) - 1/(110*(-2*x + 1)**(3/2)*(5*x + 3)**2)
```

Mathematica [A] time = 0.122551, size = 66, normalized size = 0.69

$$\frac{\frac{11\sqrt{1-2x}\left(-109500x^3-36500x^2+47961x+17466\right)}{\left(10x^2+x-3\right)^2}-2190\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{966306}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)/((1 - 2*x)^(5/2)*(3 + 5*x)^3),x]
```

```
[Out] ((11*Sqrt[1 - 2*x]*(17466 + 47961*x - 36500*x^2 - 109500*x^3))/(-
3 + x + 10*x^2)^2 - 2190*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x
]])/966306
```

Maple [A] time = 0.02, size = 66, normalized size = 0.7

$$\frac{28}{3993}(1-2x)^{-\frac{3}{2}}+\frac{288}{14641}\frac{1}{\sqrt{1-2x}}+\frac{500}{14641\,(-6-10x)^2}\left(\frac{77}{20}(1-2x)^{\frac{3}{2}}-\frac{869}{100}\sqrt{1-2x}\right)\\-\frac{365\sqrt{55}}{161051}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)/(1-2*x)^(5/2)/(3+5*x)^3,x)
```

```
[Out] 28/3993/(1-2*x)^(3/2)+288/14641/(1-2*x)^(1/2)+500/14641*(77/20*(1
-2*x)^(3/2)-869/100*(1-2*x)^(1/2))/(-6-10*x)^2-365/161051*arctanh
(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.49373, size = 124, normalized size = 1.29

$$\frac{365}{322102}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{27375\,(2x-1)^3+100375\,(2x-1)^2+141328\,x-107932}{43923\left(25\,(-2x+1)^{\frac{7}{2}}-110\,(-2x+1)^{\frac{5}{2}}+121\,(-2x+1)^{\frac{3}{2}}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)/((5*x + 3)^3*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 365/322102*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55)
+ 5*sqrt(-2*x + 1))) - 1/43923*(27375*(2*x - 1)^3 + 100375*(2*x -
 1)^2 + 141328*x - 107932)/(25*(-2*x + 1)^(7/2) - 110*(-2*x + 1)^
(5/2) + 121*(-2*x + 1)^(3/2))
```

Fricas [A] time = 0.227733, size = 144, normalized size = 1.5

$$\frac{\sqrt{11}\left(1095\sqrt{5}\left(50x^3+35x^2-12x-9\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{11}(5x-8)+11\sqrt{5}\sqrt{-2x+1}}{5x+3}\right)+\sqrt{11}\left(109500x^3+36500x^2-47961x-174\right.\right.}{966306\left(50x^3+35x^2-12x-9\right)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)/((5*x + 3)^3*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/966306*sqrt(11)*(1095*sqrt(5)*(50*x^3 + 35*x^2 - 12*x - 9)*sqrt
(-2*x + 1)*log((sqrt(11)*(5*x - 8) + 11*sqrt(5)*sqrt(-2*x + 1))/(
5*x + 3)) + sqrt(11)*(109500*x^3 + 36500*x^2 - 47961*x - 17466))/
((50*x^3 + 35*x^2 - 12*x - 9)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)/(1-2*x)**(5/2)/(3+5*x)**3,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.245379, size = 120, normalized size = 1.25

$$\frac{365}{322102}\,\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\,\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)+\frac{4\,(432\,x-293)}{43923\,(2\,x-1)\sqrt{-2\,x+1}}+\frac{5\,\left(35\,(-2\,x+1)^{\frac{3}{2}}-79\,\sqrt{-2\,x+1}\right)}{5324\,(5\,x+3)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)/((5*x + 3)^3*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 365/322102*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(
sqrt(55) + 5*sqrt(-2*x + 1))) + 4/43923*(432*x - 293)/((2*x - 1)*
sqrt(-2*x + 1)) + 5/5324*(35*(-2*x + 1)^(3/2) - 79*sqrt(-2*x + 1)
)/(5*x + 3)^2
```

3.2179 $\int \frac{1}{(1-2x)^{5/2}(3+5x)^3}\,dx$

Optimal. Leaf size=110

$$-\frac{875\sqrt{1-2x}}{29282(5x+3)}-\frac{875\sqrt{1-2x}}{7986(5x+3)^2}+\frac{70}{363\sqrt{1-2x}(5x+3)^2}+\frac{2}{33(1-2x)^{3/2}(5x+3)^2}-\frac{175\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{14641}$$

```
[Out] 2/(33*(1 - 2*x)^(3/2)*(3 + 5*x)^2) + 70/(363*Sqrt[1 - 2*x]*(3 + 5
*x)^2) - (875*Sqrt[1 - 2*x])/(7986*(3 + 5*x)^2) - (875*Sqrt[1 - 2
*x])/(29282*(3 + 5*x)) - (175*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[
1 - 2*x]])/14641
```

Rubi [A] time = 0.102783, antiderivative size = 110, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 3, integrand size = 17, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.176

$$-\frac{875\sqrt{1-2x}}{29282(5x+3)}-\frac{875\sqrt{1-2x}}{7986(5x+3)^2}+\frac{70}{363\sqrt{1-2x}(5x+3)^2}+\frac{2}{33(1-2x)^{3/2}(5x+3)^2}-\frac{175\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{14641}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(5/2)*(3 + 5*x)^3),x]
```

```
[Out] 2/(33*(1 - 2*x)^(3/2)*(3 + 5*x)^2) + 70/(363*Sqrt[1 - 2*x]*(3 + 5
*x)^2) - (875*Sqrt[1 - 2*x])/(7986*(3 + 5*x)^2) - (875*Sqrt[1 - 2
*x])/(29282*(3 + 5*x)) - (175*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[
1 - 2*x]])/14641
```

Rubi in Sympy [A] time = 9.529, size = 95, normalized size = 0.86

$$-\frac{875\sqrt{-2x+1}}{29282\,(5x+3)}-\frac{875\sqrt{-2x+1}}{7986\,(5x+3)^2}-\frac{175\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{161051}+\frac{70}{363\sqrt{-2x+1}\,(5x+3)^2}+\frac{2}{33\,(-2x+1)^{\frac{3}{2}}\,(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(5/2)/(3+5*x)**3,x)
```

```
[Out] -875*sqrt(-2*x + 1)/(29282*(5*x + 3)) - 875*sqrt(-2*x + 1)/(7986*
(5*x + 3)**2) - 175*sqrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/16
1051 + 70/(363*sqrt(-2*x + 1)*(5*x + 3)**2) + 2/(33*(-2*x + 1)**(
3/2)*(5*x + 3)**2)
```

Mathematica [A] time = 0.104046, size = 66, normalized size = 0.6

$$\frac{\frac{11\sqrt{1-2x}(-52500x^3-17500x^2+22995x+4764)}{(10x^2+x-3)^2}-1050\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{966306}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(5/2)*(3 + 5*x)^3),x]
```

```
[Out] ((11*Sqrt[1 - 2*x]*(4764 + 22995*x - 17500*x^2 - 52500*x^3))/(-3
+ x + 10*x^2)^2 - 1050*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]]
)/966306
```

Maple [A] time = 0.019, size = 66, normalized size = 0.6

$$\frac{8}{3993}(1-2x)^{-\frac{3}{2}}+\frac{120}{14641}\frac{1}{\sqrt{1-2x}}+\frac{5000}{14641(-6-10x)^2}\left(\frac{11}{40}(1-2x)^{\frac{3}{2}}-\frac{143}{200}\sqrt{1-2x}\right)-\frac{175\sqrt{55}}{161051}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(5/2)/(3+5*x)^3,x)
```

```
[Out] 8/3993/(1-2*x)^(3/2)+120/14641/(1-2*x)^(1/2)+5000/14641*(11/40*(1
-2*x)^(3/2)-143/200*(1-2*x)^(1/2))/(-6-10*x)^2-175/161051*arctanh
(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.48717, size = 124, normalized size = 1.13

$$\frac{175}{322102}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{13125(2x-1)^3+48125(2x-1)^2+67760x-44528}{43923\left(25(-2x+1)^{\frac{7}{2}}-110(-2x+1)^{\frac{5}{2}}+121(-2x+1)^{\frac{3}{2}}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^3*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 175/322102*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55)
+ 5*sqrt(-2*x + 1))) - 1/43923*(13125*(2*x - 1)^3 + 48125*(2*x -
1)^2 + 67760*x - 44528)/(25*(-2*x + 1)^(7/2) - 110*(-2*x + 1)^(5/
2) + 121*(-2*x + 1)^(3/2))
```

Fricas [A] time = 0.218779, size = 144, normalized size = 1.31

$$\frac{\sqrt{11}\left(525\sqrt{5}\left(50x^3+35x^2-12x-9\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{11}(5x-8)+11\sqrt{5}\sqrt{-2x+1}}{5x+3}\right)+\sqrt{11}\left(52500x^3+17500x^2-22995x-4764\right)\right)}{966306\left(50x^3+35x^2-12x-9\right)\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^3*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/966306*sqrt(11)*(525*sqrt(5)*(50*x^3 + 35*x^2 - 12*x - 9)*sqrt(
-2*x + 1)*log((sqrt(11)*(5*x - 8) + 11*sqrt(5)*sqrt(-2*x + 1))/(5
*x + 3)) + sqrt(11)*(52500*x^3 + 17500*x^2 - 22995*x - 4764))/((5
0*x^3 + 35*x^2 - 12*x - 9)*sqrt(-2*x + 1))
```

Sympy [A] time = 10.1048, size = 984, normalized size = 8.95

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(5/2)/(3+5*x)**3,x)
```

```
[Out] Piecewise((-105000*sqrt(55)*sqrt(-1 + 11/(10*(x + 3/5)))*(x + 3/5
)**(155/2)*acosh(sqrt(110)/(10*sqrt(x + 3/5)))/(96630600*sqrt(-1
+ 11/(10*(x + 3/5)))*(x + 3/5)**(155/2) - 106293660*sqrt(-1 + 11/
(10*(x + 3/5)))*(x + 3/5)**(153/2)) + 52500*sqrt(55)*I*pi*sqrt(-1
 + 11/(10*(x + 3/5)))*(x + 3/5)**(155/2)/(96630600*sqrt(-1 + 11/(
10*(x + 3/5)))*(x + 3/5)**(155/2) - 106293660*sqrt(-1 + 11/(10*(x
 + 3/5)))*(x + 3/5)**(153/2)) + 115500*sqrt(55)*sqrt(-1 + 11/(10*
(x + 3/5)))*(x + 3/5)**(153/2)*acosh(sqrt(110)/(10*sqrt(x + 3/5))
)/(96630600*sqrt(-1 + 11/(10*(x + 3/5)))*(x + 3/5)**(155/2) - 106
293660*sqrt(-1 + 11/(10*(x + 3/5)))*(x + 3/5)**(153/2)) - 57750*s
qrt(55)*I*pi*sqrt(-1 + 11/(10*(x + 3/5)))*(x + 3/5)**(153/2)/(966
30600*sqrt(-1 + 11/(10*(x + 3/5)))*(x + 3/5)**(155/2) - 106293660
*sqrt(-1 + 11/(10*(x + 3/5)))*(x + 3/5)**(153/2)) + 577500*sqrt(2
)*(x + 3/5)**77/(96630600*sqrt(-1 + 11/(10*(x + 3/5)))*(x + 3/5)*
*(155/2) - 106293660*sqrt(-1 + 11/(10*(x + 3/5)))*(x + 3/5)**(153
/2)) - 847000*sqrt(2)*(x + 3/5)**76/(96630600*sqrt(-1 + 11/(10*(x
 + 3/5)))*(x + 3/5)**(155/2) - 106293660*sqrt(-1 + 11/(10*(x + 3/
5)))*(x + 3/5)**(153/2)) + 139755*sqrt(2)*(x + 3/5)**75/(96630600
*sqrt(-1 + 11/(10*(x + 3/5)))*(x + 3/5)**(155/2) - 106293660*sqrt
(-1 + 11/(10*(x + 3/5)))*(x + 3/5)**(153/2)) + 43923*sqrt(2)*(x +
 3/5)**74/(96630600*sqrt(-1 + 11/(10*(x + 3/5)))*(x + 3/5)**(155/
2) - 106293660*sqrt(-1 + 11/(10*(x + 3/5)))*(x + 3/5)**(153/2)),
11*Abs(1/(x + 3/5))/10 > 1), (105000*sqrt(55)*I*sqrt(1 - 11/(10*(
x + 3/5)))*(x + 3/5)**(155/2)*asin(sqrt(110)/(10*sqrt(x + 3/5)))/
(96630600*sqrt(1 - 11/(10*(x + 3/5)))*(x + 3/5)**(155/2) - 106293
660*sqrt(1 - 11/(10*(x + 3/5)))*(x + 3/5)**(153/2)) - 115500*sqrt
(55)*I*sqrt(1 - 11/(10*(x + 3/5)))*(x + 3/5)**(153/2)*asin(sqrt(1
10)/(10*sqrt(x + 3/5)))/(96630600*sqrt(1 - 11/(10*(x + 3/5)))*(x
+ 3/5)**(155/2) - 106293660*sqrt(1 - 11/(10*(x + 3/5)))*(x + 3/5)
**(153/2)) - 577500*sqrt(2)*I*(x + 3/5)**77/(96630600*sqrt(1 - 11
/(10*(x + 3/5)))*(x + 3/5)**(155/2) - 106293660*sqrt(1 - 11/(10*(
x + 3/5)))*(x + 3/5)**(153/2)) + 847000*sqrt(2)*I*(x + 3/5)**76/(
96630600*sqrt(1 - 11/(10*(x + 3/5)))*(x + 3/5)**(155/2) - 1062936
60*sqrt(1 - 11/(10*(x + 3/5)))*(x + 3/5)**(153/2)) - 139755*sqrt(
2)*I*(x + 3/5)**75/(96630600*sqrt(1 - 11/(10*(x + 3/5)))*(x + 3/5
)**(155/2) - 106293660*sqrt(1 - 11/(10*(x + 3/5)))*(x + 3/5)**(15
3/2)) - 43923*sqrt(2)*I*(x + 3/5)**74/(96630600*sqrt(1 - 11/(10*(
x + 3/5)))*(x + 3/5)**(155/2) - 106293660*sqrt(1 - 11/(10*(x + 3/
5)))*(x + 3/5)**(153/2)), True))
```

GIAC/XCAS [A] time = 0.23622, size = 120, normalized size = 1.09

$$\frac{175}{322102}\,\sqrt{55}\ln\left(\frac{\left|-2\,\sqrt{55}+10\,\sqrt{-2\,x+1}\right|}{2\left(\sqrt{55}+5\,\sqrt{-2\,x+1}\right)}\right)+\frac{16\,(45\,x-28)}{43923\,(2\,x-1)\sqrt{-2\,x+1}}+\frac{25\left(5\,(-2\,x+1)^{\frac{3}{2}}-13\,\sqrt{-2\,x+1}\right)}{5324\,(5\,x+3)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^3*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 175/322102*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))/(
sqrt(55) + 5*sqrt(-2*x + 1))) + 16/43923*(45*x - 28)/((2*x - 1)*s
qrt(-2*x + 1)) + 25/5324*(5*(-2*x + 1)^(3/2) - 13*sqrt(-2*x + 1))
/(5*x + 3)^2
```

3.2180 $\int \frac{1}{(1-2x)^{5/2}(2+3x)(3+5x)^3}\,dx$

Optimal. Leaf size=125

$$-\frac{65167}{717409\sqrt{1-2x}}+\frac{295}{242(1-2x)^{3/2}(5x+3)}-\frac{5969}{27951(1-2x)^{3/2}}-\frac{5}{22(1-2x)^{3/2}(5x+3)^2}+\frac{162}{49}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{47075\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{14641}$$

```
[Out] -5969/(27951*(1 - 2*x)^(3/2)) - 65167/(717409*Sqrt[1 - 2*x]) - 5/
(22*(1 - 2*x)^(3/2)*(3 + 5*x)^2) + 295/(242*(1 - 2*x)^(3/2)*(3 +
5*x)) + (162*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/49 - (47
075*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/14641
```

Rubi [A] time = 0.345555, antiderivative size = 125, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$-\frac{65167}{717409\sqrt{1-2x}}+\frac{295}{242(1-2x)^{3/2}(5x+3)}-\frac{5969}{27951(1-2x)^{3/2}}-\frac{5}{22(1-2x)^{3/2}(5x+3)^2}+\frac{162}{49}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{47075\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{14641}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(5/2)*(2 + 3*x)*(3 + 5*x)^3),x]
```

```
[Out] -5969/(27951*(1 - 2*x)^(3/2)) - 65167/(717409*Sqrt[1 - 2*x]) - 5/
(22*(1 - 2*x)^(3/2)*(3 + 5*x)^2) + 295/(242*(1 - 2*x)^(3/2)*(3 +
5*x)) + (162*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/49 - (47
075*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/14641
```

Rubi in Sympy [A] time = 34.5479, size = 109, normalized size = 0.87

$$\frac{162\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{343}-\frac{47075\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{161051}-\frac{65167}{717409\sqrt{-2x+1}}-\frac{5969}{27951\left(-2x+1\right)^{\frac{3}{2}}}+\frac{295}{242\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)}-\frac{5}{22\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(5/2)/(2+3*x)/(3+5*x)**3,x)
```

```
[Out] 162*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/343 - 47075*sqrt(55
)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/161051 - 65167/(717409*sqrt(-
2*x + 1)) - 5969/(27951*(-2*x + 1)**(3/2)) + 295/(242*(-2*x + 1)*
*(3/2)*(5*x + 3)) - 5/(22*(-2*x + 1)**(3/2)*(5*x + 3)**2)
```

Mathematica [A] time = 0.203798, size = 96, normalized size = 0.77

$$\frac{\frac{11\sqrt{1-2x}\left(19550100x^3-9295580x^2-6032979x+2971158\right)}{\left(10x^2+x-3\right)^2}-13840050\sqrt{55}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{47348994}+\frac{162}{49}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(5/2)*(2 + 3*x)*(3 + 5*x)^3),x]
```

```
[Out] (162*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/49 + ((11*Sqrt[1
 - 2*x]*(2971158 - 6032979*x - 9295580*x^2 + 19550100*x^3))/(-3 +
 x + 10*x^2)^2 - 13840050*Sqrt[55]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*
x]])/47348994
```

Maple [A] time = 0.023, size = 84, normalized size = 0.7

$$\frac{16}{27951}(1-2x)^{-\frac{3}{2}}+\frac{2208}{717409}\frac{1}{\sqrt{1-2x}}+\frac{162\sqrt{21}}{343}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)+\frac{31250}{14641(-6-10x)^2}\left(-\frac{11}{10}(1-2x)^{\frac{3}{2}}+\frac{583}{250}\sqrt{1-2x}\right)-\frac{47075\sqrt{55}}{161051}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(5/2)/(2+3*x)/(3+5*x)^3,x)
```

```
[Out] 16/27951/(1-2*x)^(3/2)+2208/717409/(1-2*x)^(1/2)+162/343*arctanh(
1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)+31250/14641*(-11/10*(1-2*x)^
(3/2)+583/250*(1-2*x)^(1/2))/(-6-10*x)^2-47075/161051*arctanh(1/1
1*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.51123, size = 173, normalized size = 1.38

$$\frac{47075}{322102}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{81}{343}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{4887525(2x-1)^3+10014785(2x-1)^2-1331968x+815056}{2152227\left(25(-2x+1)^{\frac{7}{2}}-110(-2x+1)^{\frac{5}{2}}+121(-2x+1)^{\frac{3}{2}}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^3*(3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 47075/322102*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(55
) + 5*sqrt(-2*x + 1))) - 81/343*sqrt(21)*log(-(sqrt(21) - 3*sqrt(
-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 1/2152227*(4887525*(2
*x - 1)^3 + 10014785*(2*x - 1)^2 - 1331968*x + 815056)/(25*(-2*x
+ 1)^(7/2) - 110*(-2*x + 1)^(5/2) + 121*(-2*x + 1)^(3/2))
```

Fricas [A] time = 0.234863, size = 240, normalized size = 1.92

$$\frac{\sqrt{11}\sqrt{7}\left(6920025\sqrt{7}\sqrt{5}\left(50x^3+35x^2-12x-9\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{11}(5x-8)+11\sqrt{5}\sqrt{-2x+1}}{5x+3}\right)+7115526\sqrt{11}\sqrt{3}\left(50x^3+35x^2-1\right.}{331442958\left(50x^3+35x^2-12\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^3*(3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/331442958*sqrt(11)*sqrt(7)*(6920025*sqrt(7)*sqrt(5)*(50*x^3 + 3
5*x^2 - 12*x - 9)*sqrt(-2*x + 1)*log((sqrt(11)*(5*x - 8) + 11*sqr
t(5)*sqrt(-2*x + 1))/(5*x + 3)) + 7115526*sqrt(11)*sqrt(3)*(50*x^
3 + 35*x^2 - 12*x - 9)*sqrt(-2*x + 1)*log((sqrt(7)*(3*x - 5) - 7*
```

```
sqrt(3)*sqrt(-2*x + 1))/(3*x + 2)) - sqrt(11)*sqrt(7)*(19550100*x
^3 - 9295580*x^2 - 6032979*x + 2971158))/((50*x^3 + 35*x^2 - 12*x
 - 9)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(5/2)/(2+3*x)/(3+5*x)**3,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.225096, size = 173, normalized size = 1.38

$$\frac{47075}{322102}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{81}{343}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{16(828x-491)}{2152227(2x-1)\sqrt{-2x+1}}-\frac{125\left(25(-2x+1)^{\frac{3}{2}}-53\sqrt{-2x+1}\right)}{5324(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^3*(3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 47075/322102*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1))
/(sqrt(55) + 5*sqrt(-2*x + 1))) - 81/343*sqrt(21)*ln(1/2*abs(-2*s
qrt(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 16/2
152227*(828*x - 491)/((2*x - 1)*sqrt(-2*x + 1)) - 125/5324*(25*(-
2*x + 1)^(3/2) - 53*sqrt(-2*x + 1))/(5*x + 3)^2
```

3.2181 $\int \frac{1}{(1-2x)^{5/2}(2+3x)^2(3+5x)^3}\,dx$

Optimal. Leaf size=152

$$-\frac{7554245}{5021863\sqrt{1-2x}}+\frac{32765}{1694(1-2x)^{3/2}(5x+3)}-\frac{667615}{195657(1-2x)^{3/2}}+\frac{3}{7(1-2x)^{3/2}(3x+2)(5x+3)^2}-\frac{505}{154(1-2x)^{3/2}(5x+3)^2}+\frac{17820}{343}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{738625\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{14641}$$

```
[Out] -667615/(195657*(1 - 2*x)^(3/2)) - 7554245/(5021863*Sqrt[1 - 2*x]
) - 505/(154*(1 - 2*x)^(3/2)*(3 + 5*x)^2) + 3/(7*(1 - 2*x)^(3/2)*
(2 + 3*x)*(3 + 5*x)^2) + 32765/(1694*(1 - 2*x)^(3/2)*(3 + 5*x)) +
 (17820*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/343 - (738625
*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/14641
```

Rubi [A] time = 0.419194, antiderivative size = 152, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$-\frac{7554245}{5021863\sqrt{1-2x}}+\frac{32765}{1694(1-2x)^{3/2}(5x+3)}-\frac{667615}{195657(1-2x)^{3/2}}+\frac{3}{7(1-2x)^{3/2}(3x+2)(5x+3)^2}-\frac{505}{154(1-2x)^{3/2}(5x+3)^2}+\frac{17820}{343}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{738625\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{14641}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(5/2)*(2 + 3*x)^2*(3 + 5*x)^3),x]
```


```
[Out] -667615/(195657*(1 - 2*x)^(3/2)) - 7554245/(5021863*Sqrt[1 - 2*x]
) - 505/(154*(1 - 2*x)^(3/2)*(3 + 5*x)^2) + 3/(7*(1 - 2*x)^(3/2)*
(2 + 3*x)*(3 + 5*x)^2) + 32765/(1694*(1 - 2*x)^(3/2)*(3 + 5*x)) +
 (17820*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/343 - (738625
*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/14641
```

Rubi in Sympy [A] time = 42.8693, size = 136, normalized size = 0.89

$$\frac{17820\sqrt{21}\,\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{2401}-\frac{738625\sqrt{55}\,\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{161051}-\frac{7554245}{5021863\sqrt{-2x+1}}-\frac{667615}{195657\left(-2x+1\right)^{\frac{3}{2}}}+\frac{19659}{1694\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)}+\frac{230}{121\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)\left(5x+3\right)}-\frac{5}{22\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)\left(5x+3\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(5/2)/(2+3*x)**2/(3+5*x)**3,x)
```

```
[Out] 17820*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/2401 - 738625*sqr
t(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/161051 - 7554245/(5021863
*sqrt(-2*x + 1)) - 667615/(195657*(-2*x + 1)**(3/2)) + 19659/(169
4*(-2*x + 1)**(3/2)*(3*x + 2)) + 230/(121*(-2*x + 1)**(3/2)*(3*x
+ 2)*(5*x + 3)) - 5/(22*(-2*x + 1)**(3/2)*(3*x + 2)*(5*x + 3)**2)
```

Mathematica [A] time = 0.174466, size = 109, normalized size = 0.72

$$\frac{\sqrt{1-2x}\left(6798820500x^4+1580768100x^3-4110847595x^2-479695050x+645558882\right)}{30131178(3x+2)\left(10x^2+x-3\right)^2}+\frac{17820}{343}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{738625\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{14641}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(5/2)*(2 + 3*x)^2*(3 + 5*x)^3),x]
```

```
[Out] (Sqrt[1 - 2*x]*(645558882 - 479695050*x - 4110847595*x^2 + 158076
8100*x^3 + 6798820500*x^4))/(30131178*(2 + 3*x)*(-3 + x + 10*x^2)
^2) + (17820*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/343 - (7
38625*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/14641
```

Maple [A] time = 0.026, size = 100, normalized size = 0.7

$$\frac{32}{195657}(1-2x)^{-\frac{3}{2}}+\frac{5472}{5021863}\frac{1}{\sqrt{1-2x}}-\frac{162}{343}\sqrt{1-2x}\left(-\frac{4}{3}-2x\right)^{-1}+\frac{17820\sqrt{21}}{2401}\mathit{Artanh}\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)+\frac{156250}{14641(-6-10x)^2}\left(-\frac{121}{50}(1-2x)^{\frac{3}{2}}+\frac{1309}{250}\sqrt{1-2x}\right)-\frac{738625\sqrt{55}}{161051}\mathit{Artanh}\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(5/2)/(2+3*x)^2/(3+5*x)^3,x)
```

```
[Out] 32/195657/(1-2*x)^(3/2)+5472/5021863/(1-2*x)^(1/2)-162/343*(1-2*x
)^(1/2)/(-4/3-2*x)+17820/2401*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))
*21^(1/2)+156250/14641*(-121/50*(1-2*x)^(3/2)+1309/250*(1-2*x)^(1
/2))/(-6-10*x)^2-738625/161051*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2
))*55^(1/2)
```

Maxima [A] time = 1.52025, size = 197, normalized size = 1.3

$$\frac{738625}{322102}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{8910}{2401}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)-\frac{1699705125(2x-1)^4+7589204550(2x-1)^3+8458535305(2x-1)^2-22225280x+13199648}{15065589\left(75(-2x+1)^{\frac{9}{2}}-505(-2x+1)^{\frac{7}{2}}+1133(-2x+1)^{\frac{5}{2}}-847(-2x+1)^{\frac{3}{2}}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^3*(3*x + 2)^2*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 738625/322102*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(5
5) + 5*sqrt(-2*x + 1))) - 8910/2401*sqrt(21)*log(-(sqrt(21) - 3*s
qrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) - 1/15065589*(16997
05125*(2*x - 1)^4 + 7589204550*(2*x - 1)^3 + 8458535305*(2*x - 1)
^2 - 22225280*x + 13199648)/(75*(-2*x + 1)^(9/2) - 505*(-2*x + 1)
^(7/2) + 1133*(-2*x + 1)^(5/2) - 847*(-2*x + 1)^(3/2))
```

Fricas [A] time = 0.230678, size = 267, normalized size = 1.76

$$\frac{\sqrt{11}\sqrt{7}\left(760045125\sqrt{7}\sqrt{5}\left(150x^4+205x^3+34x^2-51x-18\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{11}(5x-8)+11\sqrt{5}\sqrt{-2x+1}}{5x+3}\right)+782707860\sqrt{11}\sqrt{3}(\cdots\right.}{23201007\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^3*(3*x + 2)^2*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/2320100706*sqrt(11)*sqrt(7)*(760045125*sqrt(7)*sqrt(5)*(150*x^4
 + 205*x^3 + 34*x^2 - 51*x - 18)*sqrt(-2*x + 1)*log((sqrt(11)*(5*
x - 8) + 11*sqrt(5)*sqrt(-2*x + 1))/(5*x + 3)) + 782707860*sqrt(1
1)*sqrt(3)*(150*x^4 + 205*x^3 + 34*x^2 - 51*x - 18)*sqrt(-2*x + 1
)*log((sqrt(7)*(3*x - 5) - 7*sqrt(3)*sqrt(-2*x + 1))/(3*x + 2)) -
 sqrt(11)*sqrt(7)*(6798820500*x^4 + 1580768100*x^3 - 4110847595*x
^2 - 479695050*x + 645558882))/((150*x^4 + 205*x^3 + 34*x^2 - 51*
x - 18)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(5/2)/(2+3*x)**2/(3+5*x)**3,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.221015, size = 194, normalized size = 1.28

$$\frac{738625}{322102}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{8910}{2401}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{64(513x-295)}{15065589(2x-1)\sqrt{-2x+1}}+\frac{243\sqrt{-2x+1}}{343(3x+2)}-\frac{625\left(55(-2x+1)^{\frac{3}{2}}-119\sqrt{-2x+1}\right)}{5324(5x+3)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^3*(3*x + 2)^2*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 738625/322102*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1)
)/(sqrt(55) + 5*sqrt(-2*x + 1))) - 8910/2401*sqrt(21)*ln(1/2*abs(
-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) +
64/15065589*(513*x - 295)/((2*x - 1)*sqrt(-2*x + 1)) + 243/343*sq
rt(-2*x + 1)/(3*x + 2) - 625/5324*(55*(-2*x + 1)^(3/2) - 119*sqrt
(-2*x + 1))/(5*x + 3)^2
```

3.2182 $\int \frac{1}{(1-2x)^{5/2}(2+3x)^3(3+5x)^3}\,dx$

Optimal. Leaf size=179

$$-\frac{77527480}{5021863\sqrt{1-2x}}+\frac{167960}{847(1-2x)^{3/2}(5x+3)}-\frac{6845810}{195657(1-2x)^{3/2}}+\frac{9}{2(1-2x)^{3/2}(3x+2)(5x+3)^2}-\frac{5165}{154(1-2x)^{3/2}(5x+3)^2}+\frac{3}{14(1-2x)^{3/2}(3x+2)^2(5x+3)^2}+\frac{182655}{343}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{7570625\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{14641}$$

```
[Out] -6845810/(195657*(1 - 2*x)^(3/2)) - 77527480/(5021863*Sqrt[1 - 2*
x]) - 5165/(154*(1 - 2*x)^(3/2)*(3 + 5*x)^2) + 3/(14*(1 - 2*x)^(3
/2)*(2 + 3*x)^2*(3 + 5*x)^2) + 9/(2*(1 - 2*x)^(3/2)*(2 + 3*x)*(3
+ 5*x)^2) + 167960/(847*(1 - 2*x)^(3/2)*(3 + 5*x)) + (182655*Sqrt
[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/343 - (7570625*Sqrt[5/11]
*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/14641
```

Rubi [A] time = 0.485601, antiderivative size = 179, normalized size of antiderivative = 1., number of steps used = 11, number of rules used = 6, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.25

$$-\frac{77527480}{5021863\sqrt{1-2x}}+\frac{167960}{847(1-2x)^{3/2}(5x+3)}-\frac{6845810}{195657(1-2x)^{3/2}}+\frac{9}{2(1-2x)^{3/2}(3x+2)(5x+3)^2}-\frac{5165}{154(1-2x)^{3/2}(5x+3)^2}+\frac{3}{14(1-2x)^{3/2}(3x+2)^2(5x+3)^2}+\frac{182655}{343}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{7570625\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{14641}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(5/2)*(2 + 3*x)^3*(3 + 5*x)^3),x]
```


```
[Out] -6845810/(195657*(1 - 2*x)^(3/2)) - 77527480/(5021863*Sqrt[1 - 2*
x]) - 5165/(154*(1 - 2*x)^(3/2)*(3 + 5*x)^2) + 3/(14*(1 - 2*x)^(3
/2)*(2 + 3*x)^2*(3 + 5*x)^2) + 9/(2*(1 - 2*x)^(3/2)*(2 + 3*x)*(3
+ 5*x)^2) + 167960/(847*(1 - 2*x)^(3/2)*(3 + 5*x)) + (182655*Sqrt
[3/7]*ArcTanh[Sqrt[3/7]*Sqrt[1 - 2*x]])/343 - (7570625*Sqrt[5/11]
*ArcTanh[Sqrt[5/11]*Sqrt[1 - 2*x]])/14641
```

Rubi in Sympy [A] time = 50.5649, size = 158, normalized size = 0.88

$$\frac{182655\sqrt{21}\operatorname{atanh}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)}{2401}-\frac{7570625\sqrt{55}\operatorname{atanh}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{161051}-\frac{77527480}{5021863\sqrt{-2x+1}}-\frac{6845810}{195657\left(-2x+1\right)^{\frac{3}{2}}}+\frac{100776}{847\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)}+\frac{19857}{1694\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{2}}+\frac{625}{242\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{2}\left(5x+3\right)}-\frac{5}{22\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{2}\left(5x+3\right)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(5/2)/(2+3*x)**3/(3+5*x)**3,x)
```

```
[Out] 182655*sqrt(21)*atanh(sqrt(21)*sqrt(-2*x + 1)/7)/2401 - 7570625*s
qrt(55)*atanh(sqrt(55)*sqrt(-2*x + 1)/11)/161051 - 77527480/(5021
863*sqrt(-2*x + 1)) - 6845810/(195657*(-2*x + 1)**(3/2)) + 100776
/(847*(-2*x + 1)**(3/2)*(3*x + 2)) + 19857/(1694*(-2*x + 1)**(3/2
```

```
)*(3*x + 2)**2) + 625/(242*(-2*x + 1)**(3/2)*(3*x + 2)**2*(5*x +
3)) - 5/(22*(-2*x + 1)**(3/2)*(3*x + 2)**2*(5*x + 3)**2)
```

Mathematica [A] time = 0.253301, size = 111, normalized size = 0.62

$$\frac{209324196000x^5+188418548700x^4-93885376440x^3-99160158305x^2+9944654283x+13236365823}{30131178(1-2x)^{3/2}(3x+2)^2(5x+3)^2}+\frac{182655}{343}\sqrt{\frac{3}{7}}\tanh^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)-\frac{7570625\sqrt{\frac{5}{11}}\tanh^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{14641}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(5/2)*(2 + 3*x)^3*(3 + 5*x)^3),x]
```

```
[Out] (13236365823 + 9944654283*x - 99160158305*x^2 - 93885376440*x^3 +
 188418548700*x^4 + 209324196000*x^5)/(30131178*(1 - 2*x)^(3/2)*(
2 + 3*x)^2*(3 + 5*x)^2) + (182655*Sqrt[3/7]*ArcTanh[Sqrt[3/7]*Sqr
t[1 - 2*x]])/343 - (7570625*Sqrt[5/11]*ArcTanh[Sqrt[5/11]*Sqrt[1
- 2*x]])/14641
```

Maple [A] time = 0.027, size = 112, normalized size = 0.6

$$\frac{64}{1369599}(1-2x)^{-\frac{3}{2}}+\frac{13056}{35153041}\frac{1}{\sqrt{1-2x}}-\frac{26244}{2401(-4-6x)^2}\left(\frac{221}{36}(1-2x)^{\frac{3}{2}}-\frac{1561}{108}\sqrt{1-2x}\right)+\frac{182655\sqrt{21}}{2401}Artanh\left(\frac{\sqrt{21}}{7}\sqrt{1-2x}\right)+\frac{312500}{14641(-6-10x)^2}\left(-\frac{187}{20}(1-2x)^{\frac{3}{2}}+\frac{407}{20}\sqrt{1-2x}\right)-\frac{7570625\sqrt{55}}{161051}Artanh\left(\frac{\sqrt{55}}{11}\sqrt{1-2x}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(5/2)/(2+3*x)^3/(3+5*x)^3,x)
```

```
[Out] 64/1369599/(1-2*x)^(3/2)+13056/35153041/(1-2*x)^(1/2)-26244/2401*
(221/36*(1-2*x)^(3/2)-1561/108*(1-2*x)^(1/2))/(-4-6*x)^2+182655/2
401*arctanh(1/7*21^(1/2)*(1-2*x)^(1/2))*21^(1/2)+312500/14641*(-1
87/20*(1-2*x)^(3/2)+407/20*(1-2*x)^(1/2))/(-6-10*x)^2-7570625/161
051*arctanh(1/11*55^(1/2)*(1-2*x)^(1/2))*55^(1/2)
```

Maxima [A] time = 1.48088, size = 221, normalized size = 1.23

$$\frac{7570625}{322102}\sqrt{55}\log\left(-\frac{\sqrt{55}-5\sqrt{-2x+1}}{\sqrt{55}+5\sqrt{-2x+1}}\right)-\frac{182655}{4802}\sqrt{21}\log\left(-\frac{\sqrt{21}-3\sqrt{-2x+1}}{\sqrt{21}+3\sqrt{-2x+1}}\right)+\frac{2\left(26165524500(2x-1)^5+177932259675(2x-1)^4+403131105480(2x-1)^3+304294845085(2x-1)^2-25803008x+\right.}{15065589\left(225(-2x+1)^{\frac{11}{2}}-2040(-2x+1)^{\frac{9}{2}}+6934(-2x+1)^{\frac{7}{2}}-10472(-2x+1)^{\frac{5}{2}}+5929(-2x+1)^{\frac{3}{2}}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^3*(3*x + 2)^3*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 7570625/322102*sqrt(55)*log(-(sqrt(55) - 5*sqrt(-2*x + 1))/(sqrt(
55) + 5*sqrt(-2*x + 1))) - 182655/4802*sqrt(21)*log(-(sqrt(21) -
3*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1))) + 2/15065589*(26
165524500*(2*x - 1)^5 + 177932259675*(2*x - 1)^4 + 403131105480*(
```

```
2*x - 1)^3 + 304294845085*(2*x - 1)^2 - 25803008*x + 14988512)/(2
25*(-2*x + 1)^(11/2) - 2040*(-2*x + 1)^(9/2) + 6934*(-2*x + 1)^(7
/2) - 10472*(-2*x + 1)^(5/2) + 5929*(-2*x + 1)^(3/2))
```

Fricas [A] time = 0.225709, size = 294, normalized size = 1.64

$$\frac{\sqrt{11}\sqrt{7}\left(7790173125\sqrt{7}\sqrt{5}\left(450x^5+915x^4+512x^3-85x^2-156x-36\right)\sqrt{-2x+1}\log\left(\frac{\sqrt{11}(5x-8)+11\sqrt{5}\sqrt{-2x+1}}{5x+3}\right)+8022755\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^3*(3*x + 2)^3*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/2320100706*sqrt(11)*sqrt(7)*(7790173125*sqrt(7)*sqrt(5)*(450*x^
5 + 915*x^4 + 512*x^3 - 85*x^2 - 156*x - 36)*sqrt(-2*x + 1)*log((
sqrt(11)*(5*x - 8) + 11*sqrt(5)*sqrt(-2*x + 1))/(5*x + 3)) + 8022
755565*sqrt(11)*sqrt(3)*(450*x^5 + 915*x^4 + 512*x^3 - 85*x^2 - 1
56*x - 36)*sqrt(-2*x + 1)*log((sqrt(7)*(3*x - 5) - 7*sqrt(3)*sqrt
(-2*x + 1))/(3*x + 2)) - sqrt(11)*sqrt(7)*(209324196000*x^5 + 188
418548700*x^4 - 93885376440*x^3 - 99160158305*x^2 + 9944654283*x
+ 13236365823))/((450*x^5 + 915*x^4 + 512*x^3 - 85*x^2 - 156*x -
36)*sqrt(-2*x + 1))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(1-2*x)**(5/2)/(2+3*x)**3/(3+5*x)**3,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.21895, size = 228, normalized size = 1.27

$$\frac{7570625}{322102}\sqrt{55}\ln\left(\frac{\left|-2\sqrt{55}+10\sqrt{-2x+1}\right|}{2\left(\sqrt{55}+5\sqrt{-2x+1}\right)}\right)-\frac{182655}{4802}\sqrt{21}\ln\left(\frac{\left|-2\sqrt{21}+6\sqrt{-2x+1}\right|}{2\left(\sqrt{21}+3\sqrt{-2x+1}\right)}\right)+\frac{64(1224x-689)}{105459123(2x-1)\sqrt{-2x+1}}+\frac{2\left(5550396300(2x-1)^3\sqrt{-2x+1}+37744400445(2x-1)^2\sqrt{-2x+1}-85516621432(-2x+1)^{\frac{3}{2}}+64553088299\sqrt{-2x+\right.}{3195731\left(15(2x-1)^2+136x+9\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^3*(3*x + 2)^3*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 7570625/322102*sqrt(55)*ln(1/2*abs(-2*sqrt(55) + 10*sqrt(-2*x + 1
))/(sqrt(55) + 5*sqrt(-2*x + 1))) - 182655/4802*sqrt(21)*ln(1/2*a
bs(-2*sqrt(21) + 6*sqrt(-2*x + 1))/(sqrt(21) + 3*sqrt(-2*x + 1)))
 + 64/105459123*(1224*x - 689)/((2*x - 1)*sqrt(-2*x + 1)) + 2/319
5731*(5550396300*(2*x - 1)^3*sqrt(-2*x + 1) + 37744400445*(2*x -
1)^2*sqrt(-2*x + 1) - 85516621432*(-2*x + 1)^(3/2) + 64553088299*
sqrt(-2*x + 1))/(15*(2*x - 1)^2 + 136*x + 9)^2
```

3.2183 $\int \sqrt{a+bx}(A+Bx)(d+ex)^{5/2}\,dx$

Optimal. Leaf size=304

$$\frac{(bd-ae)^4(7aBe-10Abe+3bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{128b^{9/2}e^{5/2}}-\frac{\sqrt{a+bx}\sqrt{d+ex}(bd-ae)^3(7aBe-10Abe+3bBd)}{128b^4e^2}-\frac{(a+bx)^{3/2}\sqrt{d+ex}(bd-ae)^2(7aBe-10Abe+3bBd)}{64b^4e}-\frac{(a+bx)^{3/2}(d+ex)^{3/2}(bd-ae)(7aBe-10Abe+3bBd)}{48b^3e}-\frac{(a+bx)^{3/2}(d+ex)^{5/2}(7aBe-10Abe+3bBd)}{40b^2e}+\frac{B(a+bx)^{3/2}(d+ex)^{7/2}}{5be}$$

```
[Out] -((b*d - a*e)^3*(3*b*B*d - 10*A*b*e + 7*a*B*e)*Sqrt[a + b*x]*Sqrt
[d + e*x])/(128*b^4*e^2) - ((b*d - a*e)^2*(3*b*B*d - 10*A*b*e + 7
*a*B*e)*(a + b*x)^(3/2)*Sqrt[d + e*x])/(64*b^4*e) - ((b*d - a*e)*
(3*b*B*d - 10*A*b*e + 7*a*B*e)*(a + b*x)^(3/2)*(d + e*x)^(3/2))/(
48*b^3*e) - ((3*b*B*d - 10*A*b*e + 7*a*B*e)*(a + b*x)^(3/2)*(d +
e*x)^(5/2))/(40*b^2*e) + (B*(a + b*x)^(3/2)*(d + e*x)^(7/2))/(5*b
*e) + ((b*d - a*e)^4*(3*b*B*d - 10*A*b*e + 7*a*B*e)*ArcTanh[(Sqrt
[e]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[d + e*x])])/(128*b^(9/2)*e^(5/2)
)
```

Rubi [A] time = 0.681626, antiderivative size = 304, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$\frac{(bd-ae)^4(7aBe-10Abe+3bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{128b^{9/2}e^{5/2}}-\frac{\sqrt{a+bx}\sqrt{d+ex}(bd-ae)^3(7aBe-10Abe+3bBd)}{128b^4e^2}-\frac{(a+bx)^{3/2}\sqrt{d+ex}(bd-ae)^2(7aBe-10Abe+3bBd)}{64b^4e}-\frac{(a+bx)^{3/2}(d+ex)^{3/2}(bd-ae)(7aBe-10Abe+3bBd)}{48b^3e}-\frac{(a+bx)^{3/2}(d+ex)^{5/2}(7aBe-10Abe+3bBd)}{40b^2e}+\frac{B(a+bx)^{3/2}(d+ex)^{7/2}}{5be}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[a + b*x]*(A + B*x)*(d + e*x)^(5/2),x]
```

```
[Out] -((b*d - a*e)^3*(3*b*B*d - 10*A*b*e + 7*a*B*e)*Sqrt[a + b*x]*Sqrt
[d + e*x])/(128*b^4*e^2) - ((b*d - a*e)^2*(3*b*B*d - 10*A*b*e + 7
*a*B*e)*(a + b*x)^(3/2)*Sqrt[d + e*x])/(64*b^4*e) - ((b*d - a*e)*
(3*b*B*d - 10*A*b*e + 7*a*B*e)*(a + b*x)^(3/2)*(d + e*x)^(3/2))/(
48*b^3*e) - ((3*b*B*d - 10*A*b*e + 7*a*B*e)*(a + b*x)^(3/2)*(d +
e*x)^(5/2))/(40*b^2*e) + (B*(a + b*x)^(3/2)*(d + e*x)^(7/2))/(5*b
*e) + ((b*d - a*e)^4*(3*b*B*d - 10*A*b*e + 7*a*B*e)*ArcTanh[(Sqrt
[e]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[d + e*x])])/(128*b^(9/2)*e^(5/2)
)
```

Rubi in Sympy [A] time = 56.5868, size = 298, normalized size = 0.98

$$\frac{B(a+bx)^{\frac{3}{2}}(d+ex)^{\frac{7}{2}}}{5be}+\frac{\sqrt{a+bx}\,(d+ex)^{\frac{7}{2}}(10Abe-7Bae-3Bbd)}{40be^2}+\frac{\sqrt{a+bx}\,(d+ex)^{\frac{5}{2}}(ae-bd)(10Abe-7Bae-3Bbd)}{240b^2e^2}-\frac{\sqrt{a+bx}\,(d+ex)^{\frac{3}{2}}(ae-bd)^2(10Abe-7Bae-3Bbd)}{192b^3e^2}+\frac{\sqrt{a+bx}\sqrt{d+ex}\,(ae-bd)^3(10Abe-7Bae-3Bbd)}{128b^4e^2}-\frac{(ae-bd)^4(10Abe-7Bae-3Bbd)\,\mathrm{atanh}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{128b^{\frac{9}{2}}e^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(e*x+d)**(5/2)*(b*x+a)**(1/2),x)
```

```
[Out] B*(a + b*x)**(3/2)*(d + e*x)**(7/2)/(5*b*e) + sqrt(a + b*x)*(d +
e*x)**(7/2)*(10*A*b*e - 7*B*a*e - 3*B*b*d)/(40*b*e**2) + sqrt(a +
 b*x)*(d + e*x)**(5/2)*(a*e - b*d)*(10*A*b*e - 7*B*a*e - 3*B*b*d)
/(240*b**2*e**2) - sqrt(a + b*x)*(d + e*x)**(3/2)*(a*e - b*d)**2*
(10*A*b*e - 7*B*a*e - 3*B*b*d)/(192*b**3*e**2) + sqrt(a + b*x)*sq
rt(d + e*x)*(a*e - b*d)**3*(10*A*b*e - 7*B*a*e - 3*B*b*d)/(128*b*
*4*e**2) - (a*e - b*d)**4*(10*A*b*e - 7*B*a*e - 3*B*b*d)*atanh(sq
rt(e)*sqrt(a + b*x)/(sqrt(b)*sqrt(d + e*x)))/(128*b**(9/2)*e**(5/
2))
```

Mathematica [A] time = 0.484386, size = 335, normalized size = 1.1

$$\frac{\sqrt{a+bx}\sqrt{d+ex}\left(-105a^4Be^4+10a^3be^3(15Ae+34Bd+7Bex)-2a^2b^2e^2\left(25Ae(11d+2ex)+B\left(173d^2+111dex+28e^2x^2\right)\right)\right.}{}$$

$$+\frac{(bd-ae)^4(7aBe-10Abe+3bBd)\log\left(2\sqrt{b}\sqrt{e}\sqrt{a+bx}\sqrt{d+ex}+ae+bd+2bex\right)}{256b^{9/2}e^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[a + b*x]*(A + B*x)*(d + e*x)^(5/2),x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[d + e*x]*(-105*a^4*B*e^4 + 10*a^3*b*e^3*(34*B
*d + 15*A*e + 7*B*e*x) - 2*a^2*b^2*e^2*(25*A*e*(11*d + 2*e*x) + B
*(173*d^2 + 111*d*e*x + 28*e^2*x^2)) + 2*a*b^3*e*(5*A*e*(73*d^2 +
 36*d*e*x + 8*e^2*x^2) + B*(30*d^3 + 109*d^2*e*x + 88*d*e^2*x^2 +
 24*e^3*x^3)) + b^4*(10*A*e*(15*d^3 + 118*d^2*e*x + 136*d*e^2*x^2
 + 48*e^3*x^3) + B*(-45*d^4 + 30*d^3*e*x + 744*d^2*e^2*x^2 + 1008
*d*e^3*x^3 + 384*e^4*x^4))))/(1920*b^4*e^2) + ((b*d - a*e)^4*(3*b
*B*d - 10*A*b*e + 7*a*B*e)*Log[b*d + a*e + 2*b*e*x + 2*Sqrt[b]*Sq
rt[e]*Sqrt[a + b*x]*Sqrt[d + e*x]])/(256*b^(9/2)*e^(5/2))
```

Maple [B] time = 0.038, size = 1631, normalized size = 5.4

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(e*x+d)^(5/2)*(b*x+a)^(1/2),x)
```

```
[Out] -1/3840*(e*x+d)^(1/2)*(b*x+a)^(1/2)*(-960*A*x^3*b^4*e^4*(b*e)^(1/
2)*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)-120*(b*e*x^2+a*e*x+b*d*x+a*d)^
(1/2)*a*d^3*B*b^3*(b*e)^(1/2)*e-96*B*x^3*a*b^3*e^4*(b*e)^(1/2)*(b
```

```
*e*x^2+a*e*x+b*d*x+a*d)^(1/2)-2016*B*x^3*b^4*d*e^3*(b*e)^(1/2)*(b
*e*x^2+a*e*x+b*d*x+a*d)^(1/2)-160*A*x^2*a*b^3*e^4*(b*e)^(1/2)*(b*
e*x^2+a*e*x+b*d*x+a*d)^(1/2)-2720*A*x^2*b^4*d*e^3*(b*e)^(1/2)*(b*
e*x^2+a*e*x+b*d*x+a*d)^(1/2)+112*B*x^2*a^2*b^2*e^4*(b*e)^(1/2)*(b
*e*x^2+a*e*x+b*d*x+a*d)^(1/2)-1488*B*x^2*b^4*d^2*e^2*(b*e)^(1/2)*
(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)-436*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/
2)*x*a*d^2*B*b^3*(b*e)^(1/2)*e^2-45*b^5*ln(1/2*(2*b*x*e+2*(b*e*x^
2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*d^5*B-
105*e^5*B*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)
^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^5+1100*e^3*(b*e*x^2+a*e*x+b*d*x+a*
d)^(1/2)*a^2*d*A*b^2*(b*e)^(1/2)+200*(b*e*x^2+a*e*x+b*d*x+a*d)^(1
/2)*x*a^2*e^4*A*b^2*(b*e)^(1/2)-2360*d^2*A*(b*e*x^2+a*e*x+b*d*x+a
*d)^(1/2)*x*b^4*(b*e)^(1/2)*e^2-140*e^4*B*(b*e*x^2+a*e*x+b*d*x+a*
d)^(1/2)*x*a^3*b*(b*e)^(1/2)-60*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*x
*d^3*B*b^4*(b*e)^(1/2)*e+150*e^5*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x
+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^4*A*b+444*(
b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*x*a^2*d*e^3*B*b^2*(b*e)^(1/2)-720*
e^3*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*x*a*d*A*b^3*(b*e)^(1/2)-352*B
*x^2*a*b^3*d*e^3*(b*e)^(1/2)*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)+150*
d^4*A*b^5*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)
^(1/2)+a*e+b*d)/(b*e)^(1/2))*e+210*e^4*B*(b*e*x^2+a*e*x+b*d*x+a*d
)^(1/2)*a^4*(b*e)^(1/2)+90*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*d^4*B*
b^4*(b*e)^(1/2)-768*B*x^4*b^4*e^4*(b*e)^(1/2)*(b*e*x^2+a*e*x+b*d*
x+a*d)^(1/2)-600*a^3*d*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d
)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*e^4*A*b^2+900*d^2*A*e^3
*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*
e+b*d)/(b*e)^(1/2))*a^2*b^3-600*d^3*A*ln(1/2*(2*b*x*e+2*(b*e*x^2+
a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a*b^4*e^
2+375*e^4*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)
^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^4*d*B*b-450*a^3*d^2*ln(1/2*(2*b*x*
e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1
/2))*e^3*B*b^2+150*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1
/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^2*d^3*B*b^3*e^2+75*a*d^4*
ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e
+b*d)/(b*e)^(1/2))*B*b^4*e-300*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*a^
3*e^4*A*b*(b*e)^(1/2)-300*d^3*A*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*b
^4*(b*e)^(1/2)*e+692*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*a^2*d^2*B*b^
2*(b*e)^(1/2)*e^2-1460*d^2*A*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*a*b^
3*(b*e)^(1/2)*e^2-680*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*a^3*d*e^3*B
*b*(b*e)^(1/2))/(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)/b^4/(b*e)^(1/2)/e
^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*sqrt(b*x + a)*(e*x + d)^(5/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.295755, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*sqrt(b*x + a)*(e*x + d)^(5/2),x, algorithm="fricas")
```

```
[Out] [1/7680*(4*(384*B*b^4*e^4*x^4 - 45*B*b^4*d^4 + 30*(2*B*a*b^3 + 5*
A*b^4)*d^3*e - 2*(173*B*a^2*b^2 - 365*A*a*b^3)*d^2*e^2 + 10*(34*B
*a^3*b - 55*A*a^2*b^2)*d*e^3 - 15*(7*B*a^4 - 10*A*a^3*b)*e^4 + 48
*(21*B*b^4*d*e^3 + (B*a*b^3 + 10*A*b^4)*e^4)*x^3 + 8*(93*B*b^4*d^
2*e^2 + 2*(11*B*a*b^3 + 85*A*b^4)*d*e^3 - (7*B*a^2*b^2 - 10*A*a*b
```

```
^3)*e^4)*x^2 + 2*(15*B*b^4*d^3*e + (109*B*a*b^3 + 590*A*b^4)*d^2*
e^2 - 3*(37*B*a^2*b^2 - 60*A*a*b^3)*d*e^3 + 5*(7*B*a^3*b - 10*A*a
^2*b^2)*e^4)*x)*sqrt(b*e)*sqrt(b*x + a)*sqrt(e*x + d) - 15*(3*B*b
^5*d^5 - 5*(B*a*b^4 + 2*A*b^5)*d^4*e - 10*(B*a^2*b^3 - 4*A*a*b^4)
*d^3*e^2 + 30*(B*a^3*b^2 - 2*A*a^2*b^3)*d^2*e^3 - 5*(5*B*a^4*b -
8*A*a^3*b^2)*d*e^4 + (7*B*a^5 - 10*A*a^4*b)*e^5)*log(-4*(2*b^2*e^
2*x + b^2*d*e + a*b*e^2)*sqrt(b*x + a)*sqrt(e*x + d) + (8*b^2*e^2
*x^2 + b^2*d^2 + 6*a*b*d*e + a^2*e^2 + 8*(b^2*d*e + a*b*e^2)*x)*s
qrt(b*e)))/(sqrt(b*e)*b^4*e^2), 1/3840*(2*(384*B*b^4*e^4*x^4 - 45
*B*b^4*d^4 + 30*(2*B*a*b^3 + 5*A*b^4)*d^3*e - 2*(173*B*a^2*b^2 -
365*A*a*b^3)*d^2*e^2 + 10*(34*B*a^3*b - 55*A*a^2*b^2)*d*e^3 - 15*
(7*B*a^4 - 10*A*a^3*b)*e^4 + 48*(21*B*b^4*d*e^3 + (B*a*b^3 + 10*A
*b^4)*e^4)*x^3 + 8*(93*B*b^4*d^2*e^2 + 2*(11*B*a*b^3 + 85*A*b^4)*
d*e^3 - (7*B*a^2*b^2 - 10*A*a*b^3)*e^4)*x^2 + 2*(15*B*b^4*d^3*e +
 (109*B*a*b^3 + 590*A*b^4)*d^2*e^2 - 3*(37*B*a^2*b^2 - 60*A*a*b^3
)*d*e^3 + 5*(7*B*a^3*b - 10*A*a^2*b^2)*e^4)*x)*sqrt(-b*e)*sqrt(b*
x + a)*sqrt(e*x + d) + 15*(3*B*b^5*d^5 - 5*(B*a*b^4 + 2*A*b^5)*d^
4*e - 10*(B*a^2*b^3 - 4*A*a*b^4)*d^3*e^2 + 30*(B*a^3*b^2 - 2*A*a^
2*b^3)*d^2*e^3 - 5*(5*B*a^4*b - 8*A*a^3*b^2)*d*e^4 + (7*B*a^5 - 1
0*A*a^4*b)*e^5)*arctan(1/2*(2*b*e*x + b*d + a*e)*sqrt(-b*e)/(sqrt
(b*x + a)*sqrt(e*x + d)*b*e)))/(sqrt(-b*e)*b^4*e^2)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(e*x+d)**(5/2)*(b*x+a)**(1/2),x)

[Out] Timed out
```

GIAC/XCAS [A] time = 0.36242, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*sqrt(b*x + a)*(e*x + d)^(5/2),x, algorithm="giac")

[Out] Done
```

3.2184 $\int \sqrt{a+bx}(A+Bx)(d+ex)^{3/2}\,dx$

Optimal. Leaf size=250

$$\frac{(bd-ae)^3(5aBe-8Abe+3bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{64b^{7/2}e^{5/2}} - \frac{\sqrt{a+bx}\sqrt{d+ex}(bd-ae)^2(5aBe-8Abe+3bBd)}{64b^3e^2} - \frac{(a+bx)^{3/2}\sqrt{d+ex}(bd-ae)(5aBe-8Abe+3bBd)}{32b^3e} - \frac{(a+bx)^{3/2}(d+ex)^{3/2}(5aBe-8Abe+3bBd)}{24b^2e} + \frac{B(a+bx)^{3/2}(d+ex)^{5/2}}{4be}$$

```
[Out] -((b*d - a*e)^2*(3*b*B*d - 8*A*b*e + 5*a*B*e)*Sqrt[a + b*x]*Sqrt[
d + e*x])/(64*b^3*e^2) - ((b*d - a*e)*(3*b*B*d - 8*A*b*e + 5*a*B*
e)*(a + b*x)^(3/2)*Sqrt[d + e*x])/(32*b^3*e) - ((3*b*B*d - 8*A*b*
e + 5*a*B*e)*(a + b*x)^(3/2)*(d + e*x)^(3/2))/(24*b^2*e) + (B*(a
+ b*x)^(3/2)*(d + e*x)^(5/2))/(4*b*e) + ((b*d - a*e)^3*(3*b*B*d -
 8*A*b*e + 5*a*B*e)*ArcTanh[(Sqrt[e]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt
[d + e*x])])/(64*b^(7/2)*e^(5/2))
```

Rubi [A] time = 0.512281, antiderivative size = 250, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$\frac{(bd-ae)^3(5aBe-8Abe+3bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{64b^{7/2}e^{5/2}} - \frac{\sqrt{a+bx}\sqrt{d+ex}(bd-ae)^2(5aBe-8Abe+3bBd)}{64b^3e^2} - \frac{(a+bx)^{3/2}\sqrt{d+ex}(bd-ae)(5aBe-8Abe+3bBd)}{32b^3e} - \frac{(a+bx)^{3/2}(d+ex)^{3/2}(5aBe-8Abe+3bBd)}{24b^2e} + \frac{B(a+bx)^{3/2}(d+ex)^{5/2}}{4be}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[a + b*x]*(A + B*x)*(d + e*x)^(3/2),x]
```

```
[Out] -((b*d - a*e)^2*(3*b*B*d - 8*A*b*e + 5*a*B*e)*Sqrt[a + b*x]*Sqrt[
d + e*x])/(64*b^3*e^2) - ((b*d - a*e)*(3*b*B*d - 8*A*b*e + 5*a*B*
e)*(a + b*x)^(3/2)*Sqrt[d + e*x])/(32*b^3*e) - ((3*b*B*d - 8*A*b*
e + 5*a*B*e)*(a + b*x)^(3/2)*(d + e*x)^(3/2))/(24*b^2*e) + (B*(a
+ b*x)^(3/2)*(d + e*x)^(5/2))/(4*b*e) + ((b*d - a*e)^3*(3*b*B*d -
 8*A*b*e + 5*a*B*e)*ArcTanh[(Sqrt[e]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt
[d + e*x])])/(64*b^(7/2)*e^(5/2))
```

Rubi in Sympy [A] time = 42.3028, size = 243, normalized size = 0.97

$$\frac{B(a+bx)^{\frac{3}{2}}(d+ex)^{\frac{5}{2}}}{4be} + \frac{\sqrt{a+bx}\,(d+ex)^{\frac{5}{2}}\,(8Abe-5Bae-3Bbd)}{24be^2} + \frac{\sqrt{a+bx}\,(d+ex)^{\frac{3}{2}}\,(ae-bd)\,(8Abe-5Bae-3Bbd)}{96b^2e^2} - \frac{\sqrt{a+bx}\sqrt{d+ex}\,(ae-bd)^2\,(8Abe-5Bae-3Bbd)}{64b^3e^2} + \frac{(ae-bd)^3\,(8Abe-5Bae-3Bbd)\,\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{e}\sqrt{a+bx}}\right)}{64b^{\frac{7}{2}}e^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(e*x+d)**(3/2)*(b*x+a)**(1/2),x)
```

```
[Out] B*(a + b*x)**(3/2)*(d + e*x)**(5/2)/(4*b*e) + sqrt(a + b*x)*(d +
e*x)**(5/2)*(8*A*b*e - 5*B*a*e - 3*B*b*d)/(24*b*e**2) + sqrt(a +
b*x)*(d + e*x)**(3/2)*(a*e - b*d)*(8*A*b*e - 5*B*a*e - 3*B*b*d)/(
96*b**2*e**2) - sqrt(a + b*x)*sqrt(d + e*x)*(a*e - b*d)**2*(8*A*b
*e - 5*B*a*e - 3*B*b*d)/(64*b**3*e**2) + (a*e - b*d)**3*(8*A*b*e
- 5*B*a*e - 3*B*b*d)*atanh(sqrt(b)*sqrt(d + e*x)/(sqrt(e)*sqrt(a
+ b*x)))/(64*b**(7/2)*e**(5/2))
```

Mathematica [A] time = 0.361099, size = 248, normalized size = 0.99

$$\frac{3(bd-ae)^3(5aBe-8Abe+3bBd)\log\left(2\sqrt{b}\sqrt{e}\sqrt{a+bx}\sqrt{d+ex}+ae+bd+2bex\right)-2\sqrt{b}\sqrt{e}\sqrt{a+bx}\sqrt{d+ex}\left(-15a^3Be^3+a\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[a + b*x]*(A + B*x)*(d + e*x)^(3/2),x]
```

```
[Out] (-2*Sqrt[b]*Sqrt[e]*Sqrt[a + b*x]*Sqrt[d + e*x]*(-15*a^3*B*e^3 +
a^2*b*e^2*(31*B*d + 24*A*e + 10*B*e*x) - a*b^2*e*(16*A*e*(4*d + e
*x) + B*(9*d^2 + 20*d*e*x + 8*e^2*x^2)) + b^3*(-8*A*e*(3*d^2 + 14
*d*e*x + 8*e^2*x^2) + B*(9*d^3 - 6*d^2*e*x - 72*d*e^2*x^2 - 48*e^
3*x^3))) + 3*(b*d - a*e)^3*(3*b*B*d - 8*A*b*e + 5*a*B*e)*Log[b*d
+ a*e + 2*b*e*x + 2*Sqrt[b]*Sqrt[e]*Sqrt[a + b*x]*Sqrt[d + e*x]])
/(384*b^(7/2)*e^(5/2))
```

Maple [B] time = 0.023, size = 1150, normalized size = 4.6

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(e*x+d)^(3/2)*(b*x+a)^(1/2),x)
```

```
[Out] 1/384*(e*x+d)^(1/2)*(b*x+a)^(1/2)*(48*d^2*A*(b*e*x^2+a*e*x+b*d*x+
a*d)^(1/2)*b^3*e*(b*e)^(1/2)+40*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*x
*a*d*B*b^2*e^2*(b*e)^(1/2)-15*e^4*B*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*
e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^4+9*b^4*
ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e
+b*d)/(b*e)^(1/2))*d^4*B-18*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*d^3*B
*b^3*(b*e)^(1/2)-72*d*A*e^3*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*
x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^2*b^2+72*d^2*A*l
n(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+
b*d)/(b*e)^(1/2))*a*b^3*e^2+36*e^3*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e
*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^3*d*B*b-1
8*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a
*e+b*d)/(b*e)^(1/2))*a^2*d^2*B*b^2*e^2-12*ln(1/2*(2*b*x*e+2*(b*e*
x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a*d^
3*B*b^3*e-48*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*a^2*A*e^3*b*(b*e)^(1
/2)+96*B*x^3*b^3*e^3*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+
128*A*x^2*b^3*e^3*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+30*
e^3*B*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*a^3*(b*e)^(1/2)-24*d^3*A*b^
4*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a
*e+b*d)/(b*e)^(1/2))*e+24*e^4*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*
d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^3*A*b-20*e^3*B
*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*x*a^2*b*(b*e)^(1/2)+12*(b*e*x^2+
a*e*x+b*d*x+a*d)^(1/2)*x*d^2*B*b^3*e*(b*e)^(1/2)-62*(b*e*x^2+a*e*
x+b*d*x+a*d)^(1/2)*a^2*d*B*b*e^2*(b*e)^(1/2)+18*(b*e*x^2+a*e*x+b*
d*x+a*d)^(1/2)*a*d^2*B*b^2*e*(b*e)^(1/2)+32*(b*e*x^2+a*e*x+b*d*x+
a*d)^(1/2)*x*a*A*e^3*b^2*(b*e)^(1/2)+224*d*A*(b*e*x^2+a*e*x+b*d*x
+a*d)^(1/2)*x*b^3*e^2*(b*e)^(1/2)+16*B*x^2*a*b^2*e^3*(b*e*x^2+a*e
*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+144*B*x^2*b^3*d*e^2*(b*e*x^2+a*e*
x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+128*A*a*b^2*d*e^2*(b*e*x^2+a*e*x+b
```

```
*d*x+a*d)^(1/2)*(b*e)^(1/2))/(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)/b^3/
e^2/(b*e)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*sqrt(b*x + a)*(e*x + d)^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.283945, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*sqrt(b*x + a)*(e*x + d)^(3/2),x, algorithm="fricas")
```

```
[Out] [1/768*(4*(48*B*b^3*e^3*x^3 - 9*B*b^3*d^3 + 3*(3*B*a*b^2 + 8*A*b^
3)*d^2*e - (31*B*a^2*b - 64*A*a*b^2)*d*e^2 + 3*(5*B*a^3 - 8*A*a^2
*b)*e^3 + 8*(9*B*b^3*d*e^2 + (B*a*b^2 + 8*A*b^3)*e^3)*x^2 + 2*(3*
B*b^3*d^2*e + 2*(5*B*a*b^2 + 28*A*b^3)*d*e^2 - (5*B*a^2*b - 8*A*a
*b^2)*e^3)*x)*sqrt(b*e)*sqrt(b*x + a)*sqrt(e*x + d) + 3*(3*B*b^4*
d^4 - 4*(B*a*b^3 + 2*A*b^4)*d^3*e - 6*(B*a^2*b^2 - 4*A*a*b^3)*d^2
*e^2 + 12*(B*a^3*b - 2*A*a^2*b^2)*d*e^3 - (5*B*a^4 - 8*A*a^3*b)*e
^4)*log(4*(2*b^2*e^2*x + b^2*d*e + a*b*e^2)*sqrt(b*x + a)*sqrt(e*
x + d) + (8*b^2*e^2*x^2 + b^2*d^2 + 6*a*b*d*e + a^2*e^2 + 8*(b^2*
d*e + a*b*e^2)*x)*sqrt(b*e)))/(sqrt(b*e)*b^3*e^2), 1/384*(2*(48*B
*b^3*e^3*x^3 - 9*B*b^3*d^3 + 3*(3*B*a*b^2 + 8*A*b^3)*d^2*e - (31*
B*a^2*b - 64*A*a*b^2)*d*e^2 + 3*(5*B*a^3 - 8*A*a^2*b)*e^3 + 8*(9*
B*b^3*d*e^2 + (B*a*b^2 + 8*A*b^3)*e^3)*x^2 + 2*(3*B*b^3*d^2*e + 2
*(5*B*a*b^2 + 28*A*b^3)*d*e^2 - (5*B*a^2*b - 8*A*a*b^2)*e^3)*x)*s
qrt(-b*e)*sqrt(b*x + a)*sqrt(e*x + d) + 3*(3*B*b^4*d^4 - 4*(B*a*b
^3 + 2*A*b^4)*d^3*e - 6*(B*a^2*b^2 - 4*A*a*b^3)*d^2*e^2 + 12*(B*a
^3*b - 2*A*a^2*b^2)*d*e^3 - (5*B*a^4 - 8*A*a^3*b)*e^4)*arctan(1/2
*(2*b*e*x + b*d + a*e)*sqrt(-b*e)/(sqrt(b*x + a)*sqrt(e*x + d)*b*
e)))/(sqrt(-b*e)*b^3*e^2)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(e*x+d)**(3/2)*(b*x+a)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.311694, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*sqrt(b*x + a)*(e*x + d)^(3/2),x, algorithm="giac")

[Out] Done
```

3.2185 $\int \sqrt{a+bx}(A+Bx)\sqrt{d+ex}\,dx$

Optimal. Leaf size=196

$$-\frac{(bd-ae)^2(2Abe-B(ae+bd))\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{8b^{5/2}e^{5/2}}+\frac{\sqrt{a+bx}\sqrt{d+ex}(bd-ae)(2Abe-B(ae+bd))}{8b^2e^2}+\frac{(a+bx)^{3/2}\sqrt{d+ex}(2Abe-B(ae+bd))}{4b^2e}+\frac{B(a+bx)^{3/2}(d+ex)^{3/2}}{3be}$$

```
[Out] ((b*d - a*e)*(2*A*b*e - B*(b*d + a*e))*Sqrt[a + b*x]*Sqrt[d + e*x
])/(8*b^2*e^2) + ((2*A*b*e - B*(b*d + a*e))*(a + b*x)^(3/2)*Sqrt[
d + e*x])/(4*b^2*e) + (B*(a + b*x)^(3/2)*(d + e*x)^(3/2))/(3*b*e)
 - ((b*d - a*e)^2*(2*A*b*e - B*(b*d + a*e))*ArcTanh[(Sqrt[e]*Sqrt
[a + b*x])/(Sqrt[b]*Sqrt[d + e*x])])/(8*b^(5/2)*e^(5/2))
```

Rubi [A] time = 0.393722, antiderivative size = 196, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$-\frac{(bd-ae)^2(2Abe-B(ae+bd))\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{8b^{5/2}e^{5/2}}+\frac{\sqrt{a+bx}\sqrt{d+ex}(bd-ae)(2Abe-B(ae+bd))}{8b^2e^2}+\frac{(a+bx)^{3/2}\sqrt{d+ex}(2Abe-B(ae+bd))}{4b^2e}+\frac{B(a+bx)^{3/2}(d+ex)^{3/2}}{3be}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[a + b*x]*(A + B*x)*Sqrt[d + e*x],x]
```

```
[Out] ((b*d - a*e)*(2*A*b*e - B*(b*d + a*e))*Sqrt[a + b*x]*Sqrt[d + e*x
])/(8*b^2*e^2) + ((2*A*b*e - B*(b*d + a*e))*(a + b*x)^(3/2)*Sqrt[
d + e*x])/(4*b^2*e) + (B*(a + b*x)^(3/2)*(d + e*x)^(3/2))/(3*b*e)
 - ((b*d - a*e)^2*(2*A*b*e - B*(b*d + a*e))*ArcTanh[(Sqrt[e]*Sqrt
[a + b*x])/(Sqrt[b]*Sqrt[d + e*x])])/(8*b^(5/2)*e^(5/2))
```

Rubi in Sympy [A] time = 29.3348, size = 175, normalized size = 0.89

$$\frac{B\left(a+bx\right)^{\frac{3}{2}}\left(d+ex\right)^{\frac{3}{2}}}{3be}-\frac{\sqrt{a+bx}\left(d+ex\right)^{\frac{3}{2}}\left(-Abe+\frac{B(ae+bd)}{2}\right)}{2be^2}+\frac{\sqrt{a+bx}\sqrt{d+ex}\left(ae-bd\right)\left(2Abe-Bae-Bbd\right)}{8b^2e^2}+\frac{\left(ae-bd\right)^2\left(-Abe+\frac{B(ae+bd)}{2}\right)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{e}\sqrt{a+bx}}\right)}{4b^{\frac{5}{2}}e^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(b*x+a)**(1/2)*(e*x+d)**(1/2),x)
```

```
[Out] B*(a + b*x)**(3/2)*(d + e*x)**(3/2)/(3*b*e) - sqrt(a + b*x)*(d +
e*x)**(3/2)*(-A*b*e + B*(a*e + b*d)/2)/(2*b*e**2) + sqrt(a + b*x)
*sqrt(d + e*x)*(a*e - b*d)*(2*A*b*e - B*a*e - B*b*d)/(8*b**2*e**2
) + (a*e - b*d)**2*(-A*b*e + B*(a*e + b*d)/2)*atanh(sqrt(b)*sqrt(
d + e*x)/(sqrt(e)*sqrt(a + b*x)))/(4*b**(5/2)*e**(5/2))
```

Mathematica [A] time = 0.197005, size = 173, normalized size = 0.88

$$\frac{\sqrt{a+bx}\sqrt{d+ex}\left(-3a^2Be^2+2abe(3Ae+B(d+ex))+b^2\left(6Ae(d+2ex)+B\left(-3d^2+2dex+8e^2x^2\right)\right)\right)}{24b^2e^2}+\frac{(bd-ae)^2(aBe-2Abe+bBd)\log\left(2\sqrt{b}\sqrt{e}\sqrt{a+bx}\sqrt{d+ex}+ae+bd+2bex\right)}{16b^{5/2}e^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[a + b*x]*(A + B*x)*Sqrt[d + e*x],x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[d + e*x]*(-3*a^2*B*e^2 + 2*a*b*e*(3*A*e + B*(
d + e*x)) + b^2*(6*A*e*(d + 2*e*x) + B*(-3*d^2 + 2*d*e*x + 8*e^2*
x^2))))/(24*b^2*e^2) + ((b*d - a*e)^2*(b*B*d - 2*A*b*e + a*B*e)*L
og[b*d + a*e + 2*b*e*x + 2*Sqrt[b]*Sqrt[e]*Sqrt[a + b*x]*Sqrt[d +
 e*x]])/(16*b^(5/2)*e^(5/2))
```

Maple [B] time = 0.019, size = 755, normalized size = 3.9

$$-\frac{1}{48\,b^2e^2}\sqrt{bx+a}\sqrt{ex+d}\left(-16\,Bx^2b^2e^2\sqrt{bex^2+aex+bdx+ad}\sqrt{be}+6\,Ae^3\ln\left(1/2\,\frac{2\,bxe+2\,\sqrt{bex^2+aex+bdx+ad}\sqrt{be}}{\sqrt{be}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(b*x+a)^(1/2)*(e*x+d)^(1/2),x)
```

```
[Out] -1/48*(b*x+a)^(1/2)*(e*x+d)^(1/2)*(-16*B*x^2*b^2*e^2*(b*e*x^2+a*e
*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+6*A*e^3*ln(1/2*(2*b*x*e+2*(b*e*x^
2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^2*b-
12*A*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2
)+a*e+b*d)/(b*e)^(1/2))*a*d*b^2*e^2+6*A*b^3*ln(1/2*(2*b*x*e+2*(b*
e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*d^
2*e-24*A*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*x*b^2*e^2*(b*e)^(1/2)-3*
B*e^3*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/
2)+a*e+b*d)/(b*e)^(1/2))*a^3+3*B*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x
+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^2*d*b*e^2+3
*B*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+
a*e+b*d)/(b*e)^(1/2))*a*d^2*b^2*e-3*B*b^3*ln(1/2*(2*b*x*e+2*(b*e*
x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*d^3-
4*B*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*x*a*b*e^2*(b*e)^(1/2)-4*B*(b*
e*x^2+a*e*x+b*d*x+a*d)^(1/2)*x*d*b^2*e*(b*e)^(1/2)-12*A*(b*e*x^2+
a*e*x+b*d*x+a*d)^(1/2)*a*b*e^2*(b*e)^(1/2)-12*A*(b*e*x^2+a*e*x+b*
d*x+a*d)^(1/2)*d*b^2*e*(b*e)^(1/2)+6*B*(b*e*x^2+a*e*x+b*d*x+a*d)^
(1/2)*a^2*e^2*(b*e)^(1/2)-4*B*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*a*d
*b*e*(b*e)^(1/2)+6*B*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*d^2*b^2*(b*e
)^(1/2))/(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)/b^2/e^2/(b*e)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)*sqrt(e*x + d),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.261356, size = 1, normalized size = 0.01

$$\left[\frac{4\left(8\,Bb^2e^2x^2-3\,Bb^2d^2+2\left(Bab+3\,Ab^2\right)de-3\left(Ba^2-2\,Aab\right)e^2+2\left(Bb^2de+\left(Bab+6\,Ab^2\right)e^2\right)x\right)\sqrt{be}\sqrt{bx+a}\sqrt{ex+d}-}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)*sqrt(e*x + d),x, algorithm="fricas")
```

```
[Out] [1/96*(4*(8*B*b^2*e^2*x^2 - 3*B*b^2*d^2 + 2*(B*a*b + 3*A*b^2)*d*e
 - 3*(B*a^2 - 2*A*a*b)*e^2 + 2*(B*b^2*d*e + (B*a*b + 6*A*b^2)*e^2
)*x)*sqrt(b*e)*sqrt(b*x + a)*sqrt(e*x + d) - 3*(B*b^3*d^3 - (B*a*
b^2 + 2*A*b^3)*d^2*e - (B*a^2*b - 4*A*a*b^2)*d*e^2 + (B*a^3 - 2*A
*a^2*b)*e^3)*log(-4*(2*b^2*e^2*x + b^2*d*e + a*b*e^2)*sqrt(b*x +
a)*sqrt(e*x + d) + (8*b^2*e^2*x^2 + b^2*d^2 + 6*a*b*d*e + a^2*e^2
 + 8*(b^2*d*e + a*b*e^2)*x)*sqrt(b*e)))/(sqrt(b*e)*b^2*e^2), 1/48
*(2*(8*B*b^2*e^2*x^2 - 3*B*b^2*d^2 + 2*(B*a*b + 3*A*b^2)*d*e - 3*
(B*a^2 - 2*A*a*b)*e^2 + 2*(B*b^2*d*e + (B*a*b + 6*A*b^2)*e^2)*x)*
sqrt(-b*e)*sqrt(b*x + a)*sqrt(e*x + d) + 3*(B*b^3*d^3 - (B*a*b^2
+ 2*A*b^3)*d^2*e - (B*a^2*b - 4*A*a*b^2)*d*e^2 + (B*a^3 - 2*A*a^2
*b)*e^3)*arctan(1/2*(2*b*e*x + b*d + a*e)*sqrt(-b*e)/(sqrt(b*x +
a)*sqrt(e*x + d)*b*e)))/(sqrt(-b*e)*b^2*e^2)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int (A+Bx)\sqrt{a+bx}\sqrt{d+ex}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(b*x+a)**(1/2)*(e*x+d)**(1/2),x)
```

```
[Out] Integral((A + B*x)*sqrt(a + b*x)*sqrt(d + e*x), x)
```

GIAC/XCAS [A] time = 0.257982, size = 439, normalized size = 2.24

$$\frac{\frac{20\left(\sqrt{b^2d+(bx+a)be-abe}\sqrt{bx+a}\left(\frac{2(bx+a)e^{(-2)}}{b^4}+\frac{\left(bde-ae^2\right)e^{(-4)}}{b^4}\right)+\frac{\left(b^2d^2-2\,abde+a^2e^2\right)e^{\left(-\frac{7}{2}\right)}\ln\left(\left|-\sqrt{bx+a}\sqrt{b}e^{\frac{1}{2}}+\sqrt{b^2d+(bx+a)be-abe}\right|\right)}{b^{\frac{7}{2}}}\right)A|b|}{b^2}+\left(\sqrt{b^2d+(bx+a)be-\right.}{192}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)*sqrt(e*x + d),x, algorithm="giac")
```

```
[Out] 1/1920*(20*(sqrt(b^2*d + (b*x + a)*b*e - a*b*e)*sqrt(b*x + a)*(2*
(b*x + a)*e^(-2)/b^4 + (b*d*e - a*e^2)*e^(-4)/b^4) + (b^2*d^2 - 2
*a*b*d*e + a^2*e^2)*e^(-7/2)*ln(abs(-sqrt(b*x + a)*sqrt(b)*e^(1/2
) + sqrt(b^2*d + (b*x + a)*b*e - a*b*e)))/b^(7/2))*A*abs(b)/b^2 +
 (sqrt(b^2*d + (b*x + a)*b*e - a*b*e)*sqrt(b*x + a)*(2*(b*x + a)*
(4*(b*x + a)*e^(-2)/b^6 + (b*d*e^3 - 7*a*e^4)*e^(-6)/b^6) - 3*(b^
2*d^2*e^2 - a^2*e^4)*e^(-6)/b^6) - 3*(b^3*d^3 - a*b^2*d^2*e - a^2
*b*d*e^2 + a^3*e^3)*e^(-9/2)*ln(abs(-sqrt(b*x + a)*sqrt(b)*e^(1/2
) + sqrt(b^2*d + (b*x + a)*b*e - a*b*e)))/b^(11/2))*B*abs(b)/b^3)
/b
```

3.2186 $\int \frac{\sqrt{a+bx}(A+Bx)}{\sqrt{d+ex}}\,dx$

Optimal. Leaf size=140

$$\frac{(bd-ae)(aBe-4Abe+3bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{4b^{3/2}e^{5/2}}-\frac{\sqrt{a+bx}\sqrt{d+ex}(aBe-4Abe+3bBd)}{4be^2}+\frac{B(a+bx)^{3/2}\sqrt{d+ex}}{2be}$$

```
[Out] -((3*b*B*d - 4*A*b*e + a*B*e)*Sqrt[a + b*x]*Sqrt[d + e*x])/(4*b*e
^2) + (B*(a + b*x)^(3/2)*Sqrt[d + e*x])/(2*b*e) + ((b*d - a*e)*(3
*b*B*d - 4*A*b*e + a*B*e)*ArcTanh[(Sqrt[e]*Sqrt[a + b*x])/(Sqrt[b
]*Sqrt[d + e*x])])/(4*b^(3/2)*e^(5/2))
```

Rubi [A] time = 0.272019, antiderivative size = 140, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$\frac{(bd-ae)(aBe-4Abe+3bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{4b^{3/2}e^{5/2}}-\frac{\sqrt{a+bx}\sqrt{d+ex}(aBe-4Abe+3bBd)}{4be^2}+\frac{B(a+bx)^{3/2}\sqrt{d+ex}}{2be}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[a + b*x]*(A + B*x))/Sqrt[d + e*x],x]
```

```
[Out] -((3*b*B*d - 4*A*b*e + a*B*e)*Sqrt[a + b*x]*Sqrt[d + e*x])/(4*b*e
^2) + (B*(a + b*x)^(3/2)*Sqrt[d + e*x])/(2*b*e) + ((b*d - a*e)*(3
*b*B*d - 4*A*b*e + a*B*e)*ArcTanh[(Sqrt[e]*Sqrt[a + b*x])/(Sqrt[b
]*Sqrt[d + e*x])])/(4*b^(3/2)*e^(5/2))
```

Rubi in Sympy [A] time = 18.2487, size = 131, normalized size = 0.94

$$\frac{B\left(a+bx\right)^{\frac{3}{2}}\sqrt{d+ex}}{2be}+\frac{\sqrt{a+bx}\sqrt{d+ex}\left(4Abe-Bae-3Bbd\right)}{4be^2}+\frac{\left(ae-bd\right)\left(4Abe-Bae-3Bbd\right)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{e}\sqrt{a+bx}}\right)}{4b^{\frac{3}{2}}e^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(b*x+a)**(1/2)/(e*x+d)**(1/2),x)
```

```
[Out] B*(a + b*x)**(3/2)*sqrt(d + e*x)/(2*b*e) + sqrt(a + b*x)*sqrt(d +
 e*x)*(4*A*b*e - B*a*e - 3*B*b*d)/(4*b*e**2) + (a*e - b*d)*(4*A*b
*e - B*a*e - 3*B*b*d)*atanh(sqrt(b)*sqrt(d + e*x)/(sqrt(e)*sqrt(a
 + b*x)))/(4*b**(3/2)*e**(5/2))
```

Mathematica [A] time = 0.122692, size = 130, normalized size = 0.93

$$\frac{(bd-ae)(aBe-4Abe+3bBd)\log\left(2\sqrt{b}\sqrt{e}\sqrt{a+bx}\sqrt{d+ex}+ae+bd+2bex\right)}{8b^{3/2}e^{5/2}}+\frac{\sqrt{a+bx}\sqrt{d+ex}(aBe+b(4Ae-3Bd+2Bex))}{4be^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[a + b*x]*(A + B*x))/Sqrt[d + e*x],x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[d + e*x]*(a*B*e + b*(-3*B*d + 4*A*e + 2*B*e*x
)))/(4*b*e^2) + ((b*d - a*e)*(3*b*B*d - 4*A*b*e + a*B*e)*Log[b*d
+ a*e + 2*b*e*x + 2*Sqrt[b]*Sqrt[e]*Sqrt[a + b*x]*Sqrt[d + e*x]])
/(8*b^(3/2)*e^(5/2))
```

Maple [B] time = 0.028, size = 376, normalized size = 2.7

$$\frac{1}{8\,e^{2}b}\sqrt{bx+a}\sqrt{ex+d}\left(4\,\ln\left(1/2\,\frac{2\,bxe+2\,\sqrt{(bx+a)\,(ex+d)}\sqrt{be}+ae+bd}{\sqrt{be}}\right)aAe^{2}b-4\,\ln\left(1/2\,\frac{2\,bxe+2\,\sqrt{(bx+a)\,(ex+d}}{\sqrt{be}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(b*x+a)^(1/2)/(e*x+d)^(1/2),x)
```

```
[Out] 1/8*(b*x+a)^(1/2)*(e*x+d)^(1/2)*(4*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*
x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a*A*e^2*b-4*ln(1/2*
(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/
2))*b^2*d*A*e-B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(
1/2)+a*e+b*d)/(b*e)^(1/2))*a^2*e^2-2*ln(1/2*(2*b*x*e+2*((b*x+a)*(
e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a*B*d*e*b+3*ln(1/
2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(
1/2))*b^2*d^2*B+4*B*((b*x+a)*(e*x+d))^(1/2)*x*e*b*(b*e)^(1/2)+8*(
(b*x+a)*(e*x+d))^(1/2)*A*e*b*(b*e)^(1/2)-6*((b*x+a)*(e*x+d))^(1/2
)*B*d*b*(b*e)^(1/2)+2*B*((b*x+a)*(e*x+d))^(1/2)*a*e*(b*e)^(1/2))/
((b*x+a)*(e*x+d))^(1/2)/e^2/b/(b*e)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/sqrt(e*x + d),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.436242, size = 1, normalized size = 0.01

$$\left[\frac{4\,(2\,Bbex-3\,Bbd+(Ba+4\,Ab)e)\sqrt{be}\sqrt{bx+a}\sqrt{ex+d}+\left(3\,Bb^{2}d^{2}-2\,\left(Bab+2\,Ab^{2}\right)de-\left(Ba^{2}-4\,Aab\right)e^{2}\right)\log\left(4\,\left(2\,b^{2}e^{2}x\right.\right.}{16\,\sqrt{be}be^{2}}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/sqrt(e*x + d),x, algorithm="fricas")
```

```
[Out] [1/16*(4*(2*B*b*e*x - 3*B*b*d + (B*a + 4*A*b)*e)*sqrt(b*e)*sqrt(b
*x + a)*sqrt(e*x + d) + (3*B*b^2*d^2 - 2*(B*a*b + 2*A*b^2)*d*e -
(B*a^2 - 4*A*a*b)*e^2)*log(4*(2*b^2*e^2*x + b^2*d*e + a*b*e^2)*sq
rt(b*x + a)*sqrt(e*x + d) + (8*b^2*e^2*x^2 + b^2*d^2 + 6*a*b*d*e
+ a^2*e^2 + 8*(b^2*d*e + a*b*e^2)*x)*sqrt(b*e)))/(sqrt(b*e)*b*e^2
), 1/8*(2*(2*B*b*e*x - 3*B*b*d + (B*a + 4*A*b)*e)*sqrt(-b*e)*sqrt
(b*x + a)*sqrt(e*x + d) + (3*B*b^2*d^2 - 2*(B*a*b + 2*A*b^2)*d*e
- (B*a^2 - 4*A*a*b)*e^2)*arctan(1/2*(2*b*e*x + b*d + a*e)*sqrt(-b
*e)/(sqrt(b*x + a)*sqrt(e*x + d)*b*e)))/(sqrt(-b*e)*b*e^2)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(b*x+a)**(1/2)/(e*x+d)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.232362, size = 236, normalized size = 1.69

$$\frac{\left(\sqrt{b^2d+(bx+a)be-abe}\sqrt{bx+a}\left(\frac{2(bx+a)Be^{(-1)}}{b^2}-\frac{\left(3Bb^3de+Bab^2e^2-4Ab^3e^2\right)e^{(-3)}}{b^4}\right)-\frac{\left(3Bb^2d^2-2Babde-4Ab^2de-Ba^2e^2+4Aabe^2\right)e^{\left(-\frac{5}{2}\right)}}{b^{\frac{3}{2}}}\right.}{4|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/sqrt(e*x + d),x, algorithm="giac")
```

```
[Out] 1/4*(sqrt(b^2*d + (b*x + a)*b*e - a*b*e)*sqrt(b*x + a)*(2*(b*x +
a)*B*e^(-1)/b^2 - (3*B*b^3*d*e + B*a*b^2*e^2 - 4*A*b^3*e^2)*e^(-3
)/b^4) - (3*B*b^2*d^2 - 2*B*a*b*d*e - 4*A*b^2*d*e - B*a^2*e^2 + 4
*A*a*b*e^2)*e^(-5/2)*ln(abs(-sqrt(b*x + a)*sqrt(b)*e^(1/2) + sqrt
(b^2*d + (b*x + a)*b*e - a*b*e)))/b^(3/2))*b/abs(b)
```

3.2187 $\int \frac{\sqrt{a+bx}(A+Bx)}{(d+ex)^{3/2}}\,dx$

Optimal. Leaf size=148

$$-\frac{(-aBe-2Abe+3bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{\sqrt{b}e^{5/2}}+\frac{\sqrt{a+bx}\sqrt{d+ex}(-aBe-2Abe+3bBd)}{e^2(bd-ae)}-\frac{2(a+bx)^{3/2}(Bd-Ae)}{e\sqrt{d+ex}(bd-ae)}$$

```
[Out] (-2*(B*d - A*e)*(a + b*x)^(3/2))/(e*(b*d - a*e)*Sqrt[d + e*x]) +
((3*b*B*d - 2*A*b*e - a*B*e)*Sqrt[a + b*x]*Sqrt[d + e*x])/(e^2*(b
*d - a*e)) - ((3*b*B*d - 2*A*b*e - a*B*e)*ArcTanh[(Sqrt[e]*Sqrt[a
 + b*x])/(Sqrt[b]*Sqrt[d + e*x])])/(Sqrt[b]*e^(5/2))
```

Rubi [A] time = 0.303695, antiderivative size = 148, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$-\frac{(-aBe-2Abe+3bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{\sqrt{b}e^{5/2}}+\frac{\sqrt{a+bx}\sqrt{d+ex}(-aBe-2Abe+3bBd)}{e^2(bd-ae)}-\frac{2(a+bx)^{3/2}(Bd-Ae)}{e\sqrt{d+ex}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[a + b*x]*(A + B*x))/(d + e*x)^(3/2),x]
```

```
[Out] (-2*(B*d - A*e)*(a + b*x)^(3/2))/(e*(b*d - a*e)*Sqrt[d + e*x]) +
((3*b*B*d - 2*A*b*e - a*B*e)*Sqrt[a + b*x]*Sqrt[d + e*x])/(e^2*(b
*d - a*e)) - ((3*b*B*d - 2*A*b*e - a*B*e)*ArcTanh[(Sqrt[e]*Sqrt[a
 + b*x])/(Sqrt[b]*Sqrt[d + e*x])])/(Sqrt[b]*e^(5/2))
```

Rubi in Sympy [A] time = 25.832, size = 136, normalized size = 0.92

$$-\frac{2(a+bx)^{\frac{3}{2}}(Ae-Bd)}{e\sqrt{d+ex}\,(ae-bd)}+\frac{2\sqrt{a+bx}\sqrt{d+ex}\left(Abe+\frac{B(ae-3bd)}{2}\right)}{e^2(ae-bd)}+\frac{2\left(Abe+\frac{B(ae-3bd)}{2}\right)\operatorname{atanh}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{\sqrt{b}e^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(b*x+a)**(1/2)/(e*x+d)**(3/2),x)
```

```
[Out] -2*(a + b*x)**(3/2)*(A*e - B*d)/(e*sqrt(d + e*x)*(a*e - b*d)) + 2
*sqrt(a + b*x)*sqrt(d + e*x)*(A*b*e + B*(a*e - 3*b*d)/2)/(e**2*(a
*e - b*d)) + 2*(A*b*e + B*(a*e - 3*b*d)/2)*atanh(sqrt(e)*sqrt(a +
 b*x)/(sqrt(b)*sqrt(d + e*x)))/(sqrt(b)*e**(5/2))
```

Mathematica [A] time = 0.123756, size = 108, normalized size = 0.73

$$\frac{(aBe+2Abe-3bBd)\log\left(2\sqrt{b}\sqrt{e}\sqrt{a+bx}\sqrt{d+ex}+ae+bd+2bex\right)}{2\sqrt{b}e^{5/2}}+\frac{\sqrt{a+bx}(-2Ae+3Bd+Bex)}{e^2\sqrt{d+ex}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[a + b*x]*(A + B*x))/(d + e*x)^(3/2),x]
```

```
[Out] (Sqrt[a + b*x]*(3*B*d - 2*A*e + B*e*x))/(e^2*Sqrt[d + e*x]) + ((-
3*b*B*d + 2*A*b*e + a*B*e)*Log[b*d + a*e + 2*b*e*x + 2*Sqrt[b]*Sq
rt[e]*Sqrt[a + b*x]*Sqrt[d + e*x]])/(2*Sqrt[b]*e^(5/2))
```

Maple [B] time = 0.039, size = 386, normalized size = 2.6

$$\frac{1}{2\,e^{2}}\sqrt{bx+a}\left(2\,A\ln\left(1/2\,\frac{2\,bxe+2\,\sqrt{(bx+a)\,(ex+d)}\sqrt{be}+ae+bd}{\sqrt{be}}\right)xbe^{2}+B\ln\left(\frac{1}{2}\left(2\,bxe+2\,\sqrt{(bx+a)\,(ex+d)}\sqrt{be}+ae\right.\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(b*x+a)^(1/2)/(e*x+d)^(3/2),x)
```

```
[Out] 1/2*(b*x+a)^(1/2)*(2*A*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*
(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x*b*e^2+B*ln(1/2*(2*b*x*e+2*((b
*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x*a*e^2-3*
B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/
(b*e)^(1/2))*x*b*d*e+2*A*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2
)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*b*d*e+B*ln(1/2*(2*b*x*e+2*((b
*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a*d*e-3*B*
ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b
*e)^(1/2))*b*d^2+2*B*x*e*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)-4*A*
e*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+6*B*d*((b*x+a)*(e*x+d))^(1/
2)*(b*e)^(1/2))/(b*e)^(1/2)/((b*x+a)*(e*x+d))^(1/2)/e^2/(e*x+d)^(
1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/(e*x + d)^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.593956, size = 1, normalized size = 0.01

$$\left[\frac{4\,(Bex+3\,Bd-2\,Ae)\sqrt{be}\sqrt{bx+a}\sqrt{ex+d}-\left(3\,Bbd^{2}-(Ba+2\,Ab)de+\left(3\,Bbde-(Ba+2\,Ab)e^{2}\right)x\right)\log\left(4\,\left(2\,b^{2}e^{2}x+b^{2}de\right.\right.}{4\,(e^{3}x+de^{2})\sqrt{be}}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/(e*x + d)^(3/2),x, algorithm="fricas")
```

```
[Out] [1/4*(4*(B*e*x + 3*B*d - 2*A*e)*sqrt(b*e)*sqrt(b*x + a)*sqrt(e*x
+ d) - (3*B*b*d^2 - (B*a + 2*A*b)*d*e + (3*B*b*d*e - (B*a + 2*A*b
)*e^2)*x)*log(4*(2*b^2*e^2*x + b^2*d*e + a*b*e^2)*sqrt(b*x + a)*s
qrt(e*x + d) + (8*b^2*e^2*x^2 + b^2*d^2 + 6*a*b*d*e + a^2*e^2 + 8
*(b^2*d*e + a*b*e^2)*x)*sqrt(b*e)))/((e^3*x + d*e^2)*sqrt(b*e)),
1/2*(2*(B*e*x + 3*B*d - 2*A*e)*sqrt(-b*e)*sqrt(b*x + a)*sqrt(e*x
+ d) - (3*B*b*d^2 - (B*a + 2*A*b)*d*e + (3*B*b*d*e - (B*a + 2*A*b
)*e^2)*x)*arctan(1/2*(2*b*e*x + b*d + a*e)*sqrt(-b*e)/(sqrt(b*x +
 a)*sqrt(e*x + d)*b*e)))/((e^3*x + d*e^2)*sqrt(-b*e))]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(A+Bx)\sqrt{a+bx}}{(d+ex)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(b*x+a)**(1/2)/(e*x+d)**(3/2),x)
```

```
[Out] Integral((A + B*x)*sqrt(a + b*x)/(d + e*x)**(3/2), x)
```

GIAC/XCAS [A] time = 0.241987, size = 274, normalized size = 1.85

$$\frac{\left(3\,Bbd|b| - Ba|b|e - 2\,Ab|b|e\right)\sqrt{b}e^{\frac{1}{2}}\ln\left(\left|-\sqrt{bx+a}\sqrt{b}e^{\frac{1}{2}} + \sqrt{b^2d + (bx+a)be - abe}\right|\right)}{32\left(b^6de^4 - ab^5e^5\right)} + \frac{\left(\frac{(bx+a)Bb|b|e^2}{b^6de^4 - ab^5e^5} + \frac{3\,Bb^2d|b|e - Bab|b|e^2 - 2\,Ab^2|b|e^2}{b^6de^4 - ab^5e^5}\right)\sqrt{bx+a}}{32\sqrt{b^2d + (bx+a)be - abe}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/(e*x + d)^(3/2),x, algorithm="giac")
```

```
[Out] 1/32*(3*B*b*d*abs(b) - B*a*abs(b)*e - 2*A*b*abs(b)*e)*sqrt(b)*e^(
1/2)*ln(abs(-sqrt(b*x + a)*sqrt(b)*e^(1/2) + sqrt(b^2*d + (b*x +
a)*b*e - a*b*e)))/(b^6*d*e^4 - a*b^5*e^5) + 1/32*((b*x + a)*B*b*a
bs(b)*e^2/(b^6*d*e^4 - a*b^5*e^5) + (3*B*b^2*d*abs(b)*e - B*a*b*a
bs(b)*e^2 - 2*A*b^2*abs(b)*e^2)/(b^6*d*e^4 - a*b^5*e^5))*sqrt(b*x
 + a)/sqrt(b^2*d + (b*x + a)*b*e - a*b*e)
```

3.2188 $\int \frac{\sqrt{a+bx}(A+Bx)}{(d+ex)^{5/2}} \, dx$

Optimal. Leaf size=111

$$-\frac{2(a+bx)^{3/2}(Bd-Ae)}{3e(d+ex)^{3/2}(bd-ae)}+\frac{2\sqrt{b}B\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{e^{5/2}}-\frac{2B\sqrt{a+bx}}{e^2\sqrt{d+ex}}$$

```
[Out] (-2*(B*d - A*e)*(a + b*x)^(3/2))/(3*e*(b*d - a*e)*(d + e*x)^(3/2)
) - (2*B*Sqrt[a + b*x])/(e^2*Sqrt[d + e*x]) + (2*Sqrt[b]*B*ArcTan
h[(Sqrt[e]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[d + e*x])])/e^(5/2)
```

Rubi [A] time = 0.169078, antiderivative size = 111, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$-\frac{2(a+bx)^{3/2}(Bd-Ae)}{3e(d+ex)^{3/2}(bd-ae)}+\frac{2\sqrt{b}B\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{e^{5/2}}-\frac{2B\sqrt{a+bx}}{e^2\sqrt{d+ex}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[a + b*x]*(A + B*x))/(d + e*x)^(5/2),x]
```

```
[Out] (-2*(B*d - A*e)*(a + b*x)^(3/2))/(3*e*(b*d - a*e)*(d + e*x)^(3/2)
) - (2*B*Sqrt[a + b*x])/(e^2*Sqrt[d + e*x]) + (2*Sqrt[b]*B*ArcTan
h[(Sqrt[e]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[d + e*x])])/e^(5/2)
```

Rubi in Sympy [A] time = 16.3609, size = 100, normalized size = 0.9

$$\frac{2B\sqrt{b}\operatorname{atanh}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{e^{\frac{5}{2}}}-\frac{2B\sqrt{a+bx}}{e^2\sqrt{d+ex}}-\frac{2\left(a+bx\right)^{\frac{3}{2}}\left(Ae-Bd\right)}{3e\left(d+ex\right)^{\frac{3}{2}}\left(ae-bd\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(b*x+a)**(1/2)/(e*x+d)**(5/2),x)
```

```
[Out] 2*B*sqrt(b)*atanh(sqrt(e)*sqrt(a + b*x)/(sqrt(b)*sqrt(d + e*x)))/
e**(5/2) - 2*B*sqrt(a + b*x)/(e**2*sqrt(d + e*x)) - 2*(a + b*x)**
(3/2)*(A*e - B*d)/(3*e*(d + e*x)**(3/2)*(a*e - b*d))
```

Mathematica [A] time = 0.181198, size = 128, normalized size = 1.15

$$\frac{\sqrt{b}B\log\left(2\sqrt{b}\sqrt{e}\sqrt{a+bx}\sqrt{d+ex}+ae+bd+2bex\right)}{e^{5/2}}-\frac{2\sqrt{a+bx}\left(ae(Ae+2Bd+3Bex)+Abe^2x-bBd(3d+4ex)\right)}{3e^2(d+ex)^{3/2}(ae-bd)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[a + b*x]*(A + B*x))/(d + e*x)^(5/2),x]
```

```
[Out] (-2*Sqrt[a + b*x]*(A*b*e^2*x - b*B*d*(3*d + 4*e*x) + a*e*(2*B*d +
 A*e + 3*B*e*x)))/(3*e^2*(-(b*d) + a*e)*(d + e*x)^(3/2)) + (Sqrt[
b]*B*Log[b*d + a*e + 2*b*e*x + 2*Sqrt[b]*Sqrt[e]*Sqrt[a + b*x]*Sq
```

```
rt[d + e*x]])/e^(5/2)
```

Maple [B] time = 0.036, size = 503, normalized size = 4.5

$$-\frac{1}{(3\,ae-3\,bd)\,e^2}\left(-3\,B\ln\left(1/2\,\frac{2\,bxe+2\,\sqrt{(bx+a)\,(ex+d)}\sqrt{be}+ae+bd}{\sqrt{be}}\right)x^2abe^3+3\,B\ln\left(1/2\,\frac{2\,bxe+2\,\sqrt{(bx+a)\,(ex+d)}}{\sqrt{be}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(b*x+a)^(1/2)/(e*x+d)^(5/2),x)
```

```
[Out] -1/3*(-3*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+
a*e+b*d)/(b*e)^(1/2))*x^2*a*b*e^3+3*B*ln(1/2*(2*b*x*e+2*((b*x+a)*
(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x^2*b^2*d*e^2-6*
B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/
(b*e)^(1/2))*x*a*b*d*e^2+6*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^
(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x*b^2*d^2*e+2*A*x*b*e^2*(
(b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)-3*B*ln(1/2*(2*b*x*e+2*((b*x+a)
*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a*b*d^2*e+3*B*l
n(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*
e)^(1/2))*b^2*d^3+6*B*x*a*e^2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)
-8*B*x*b*d*e*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+2*A*a*e^2*((b*x+
a)*(e*x+d))^(1/2)*(b*e)^(1/2)+4*B*a*d*e*((b*x+a)*(e*x+d))^(1/2)*(
b*e)^(1/2)-6*B*b*d^2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2))*(b*x+a)
^(1/2)/(b*e)^(1/2)/(a*e-b*d)/((b*x+a)*(e*x+d))^(1/2)/e^2/(e*x+d)^
(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/(e*x + d)^(5/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.560818, size = 1, normalized size = 0.01

$$\left[\frac{3\left(Bbd^3-Bad^2e+\left(Bbde^2-Bae^3\right)x^2+2\left(Bbd^2e-Bade^2\right)x\right)\sqrt{\frac{b}{e}}\log\left(8\,b^2e^2x^2+b^2d^2+6\,abde+a^2e^2+4\left(2\,be^2x+bde+\right.\right.}{6\left(bd^3e^2-ad^2e^3+\left(bde^4-\right.\right.}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/(e*x + d)^(5/2),x, algorithm="fricas")
```

```
[Out] [1/6*(3*(B*b*d^3 - B*a*d^2*e + (B*b*d*e^2 - B*a*e^3)*x^2 + 2*(B*b
*d^2*e - B*a*d*e^2)*x)*sqrt(b/e)*log(8*b^2*e^2*x^2 + b^2*d^2 + 6*
a*b*d*e + a^2*e^2 + 4*(2*b*e^2*x + b*d*e + a*e^2)*sqrt(b*x + a)*s
qrt(e*x + d)*sqrt(b/e) + 8*(b^2*d*e + a*b*e^2)*x) - 4*(3*B*b*d^2
- 2*B*a*d*e - A*a*e^2 + (4*B*b*d*e - (3*B*a + A*b)*e^2)*x)*sqrt(b
*x + a)*sqrt(e*x + d))/(b*d^3*e^2 - a*d^2*e^3 + (b*d*e^4 - a*e^5)
*x^2 + 2*(b*d^2*e^3 - a*d*e^4)*x), 1/3*(3*(B*b*d^3 - B*a*d^2*e +
(B*b*d*e^2 - B*a*e^3)*x^2 + 2*(B*b*d^2*e - B*a*d*e^2)*x)*sqrt(-b/
e)*arctan(1/2*(2*b*e*x + b*d + a*e)/(sqrt(b*x + a)*sqrt(e*x + d)*
e*sqrt(-b/e))) - 2*(3*B*b*d^2 - 2*B*a*d*e - A*a*e^2 + (4*B*b*d*e
```

```
- (3*B*a + A*b)*e^2)*x)*sqrt(b*x + a)*sqrt(e*x + d))/(b*d^3*e^2 -
 a*d^2*e^3 + (b*d*e^4 - a*e^5)*x^2 + 2*(b*d^2*e^3 - a*d*e^4)*x)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x+A)*(b*x+a)**(1/2)/(e*x+d)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.253881, size = 324, normalized size = 2.92

$$\frac{B\sqrt{b}|b|e^{\frac{1}{2}}\ln\left(\left|-\sqrt{bx+a}\sqrt{b}e^{\frac{1}{2}}+\sqrt{b^2d+(bx+a)be-abe}\right|\right)}{16\left(b^6de^4-ab^5e^5\right)}+\frac{\sqrt{bx+a}\left(\frac{\left(4\,Bb^4d|b|e^2-3\,Bab^3|b|e^3-Ab^4|b|e^3\right)(bx+a)}{b^8d^2e^4-2\,ab^7de^5+a^2b^6e^6}+\frac{3\left(Bb^5d^2|b|e-2\,Bab^4d|b|e^2+Ba^2b^3|b|e^3\right)}{b^8d^2e^4-2\,ab^7de^5+a^2b^6e^6}\right)}{48\left(b^2d+(bx+a)be-abe\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*sqrt(b*x + a)/(e*x + d)^(5/2),x, algorithm="giac")
```

```
[Out] 1/16*B*sqrt(b)*abs(b)*e^(1/2)*ln(abs(-sqrt(b*x + a)*sqrt(b)*e^(1/
2) + sqrt(b^2*d + (b*x + a)*b*e - a*b*e)))/(b^6*d*e^4 - a*b^5*e^5
) + 1/48*sqrt(b*x + a)*((4*B*b^4*d*abs(b)*e^2 - 3*B*a*b^3*abs(b)*
e^3 - A*b^4*abs(b)*e^3)*(b*x + a)/(b^8*d^2*e^4 - 2*a*b^7*d*e^5 +
a^2*b^6*e^6) + 3*(B*b^5*d^2*abs(b)*e - 2*B*a*b^4*d*abs(b)*e^2 + B
*a^2*b^3*abs(b)*e^3)/(b^8*d^2*e^4 - 2*a*b^7*d*e^5 + a^2*b^6*e^6))
/(b^2*d + (b*x + a)*b*e - a*b*e)^(3/2)
```

3.2189 $\int \frac{\sqrt{a+bx}(A+Bx)}{(d+ex)^{7/2}}\,dx$

Optimal. Leaf size=95

$$\frac{2(a+bx)^{3/2}(-5aBe+2Abe+3bBd)}{15e(d+ex)^{3/2}(bd-ae)^2}-\frac{2(a+bx)^{3/2}(Bd-Ae)}{5e(d+ex)^{5/2}(bd-ae)}$$

```
[Out] (-2*(B*d - A*e)*(a + b*x)^(3/2))/(5*e*(b*d - a*e)*(d + e*x)^(5/2)
) + (2*(3*b*B*d + 2*A*b*e - 5*a*B*e)*(a + b*x)^(3/2))/(15*e*(b*d
- a*e)^2*(d + e*x)^(3/2))
```

Rubi [A] time = 0.166895, antiderivative size = 95, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.083

$$\frac{2(a+bx)^{3/2}(-5aBe+2Abe+3bBd)}{15e(d+ex)^{3/2}(bd-ae)^2}-\frac{2(a+bx)^{3/2}(Bd-Ae)}{5e(d+ex)^{5/2}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[a + b*x]*(A + B*x))/(d + e*x)^(7/2),x]
```

```
[Out] (-2*(B*d - A*e)*(a + b*x)^(3/2))/(5*e*(b*d - a*e)*(d + e*x)^(5/2)
) + (2*(3*b*B*d + 2*A*b*e - 5*a*B*e)*(a + b*x)^(3/2))/(15*e*(b*d
- a*e)^2*(d + e*x)^(3/2))
```

Rubi in Sympy [A] time = 12.5278, size = 85, normalized size = 0.89

$$-\frac{4\left(a+bx\right)^{\frac{3}{2}}\left(-Abe+\frac{B(5ae-3bd)}{2}\right)}{15e\left(d+ex\right)^{\frac{3}{2}}\left(ae-bd\right)^{2}}-\frac{2\left(a+bx\right)^{\frac{3}{2}}\left(Ae-Bd\right)}{5e\left(d+ex\right)^{\frac{5}{2}}\left(ae-bd\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(b*x+a)**(1/2)/(e*x+d)**(7/2),x)
```

```
[Out] -4*(a + b*x)**(3/2)*(-A*b*e + B*(5*a*e - 3*b*d)/2)/(15*e*(d + e*x
)**(3/2)*(a*e - b*d)**2) - 2*(a + b*x)**(3/2)*(A*e - B*d)/(5*e*(d
 + e*x)**(5/2)*(a*e - b*d))
```

Mathematica [A] time = 0.152472, size = 66, normalized size = 0.69

$$\frac{2(a+bx)^{3/2}(A(-3ae+5bd+2bex)+B(-2ad-5aex+3bdx))}{15(d+ex)^{5/2}(bd-ae)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[a + b*x]*(A + B*x))/(d + e*x)^(7/2),x]
```

```
[Out] (2*(a + b*x)^(3/2)*(B*(-2*a*d + 3*b*d*x - 5*a*e*x) + A*(5*b*d - 3
*a*e + 2*b*e*x)))/(15*(b*d - a*e)^2*(d + e*x)^(5/2))
```

Maple [A] time = 0.011, size = 74, normalized size = 0.8

$$-\frac{-4\,Abex+10\,Baex-6\,Bbdx+6\,Aae-10\,Abd+4\,Bad}{15\,a^2e^2-30\,bead+15\,b^2d^2}\left(bx+a\right)^{\frac{3}{2}}\left(ex+d\right)^{-\frac{5}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(b*x+a)^(1/2)/(e*x+d)^(7/2),x)
```

```
[Out] -2/15*(b*x+a)^(3/2)*(-2*A*b*e*x+5*B*a*e*x-3*B*b*d*x+3*A*a*e-5*A*b
*d+2*B*a*d)/(e*x+d)^(5/2)/(a^2*e^2-2*a*b*d*e+b^2*d^2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*sqrt(b*x + a)/(e*x + d)^(7/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.531964, size = 298, normalized size = 3.14

$$-\frac{2\left(3\,Aa^2e-\left(3\,Bb^2d-\left(5\,Bab-2\,Ab^2\right)e\right)x^2+\left(2\,Ba^2-5\,Aab\right)d-\left(\left(Bab+5\,Ab^2\right)d-\left(5\,Ba^2+Aab\right)e\right)x\right)\sqrt{bx+a}\sqrt{ex+}}{15\left(b^2d^5-2\,abd^4e+a^2d^3e^2+(b^2d^2e^3-2\,abde^4+a^2e^5)x^3+3\left(b^2d^3e^2-2\,abd^2e^3+a^2de^4\right)x^2+3\left(b^2d^4e-2\,abd^3e^2+a^2d^2e\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*sqrt(b*x + a)/(e*x + d)^(7/2),x, algorithm="fricas")
```

```
[Out] -2/15*(3*A*a^2*e - (3*B*b^2*d - (5*B*a*b - 2*A*b^2)*e)*x^2 + (2*B
*a^2 - 5*A*a*b)*d - ((B*a*b + 5*A*b^2)*d - (5*B*a^2 + A*a*b)*e)*x
)*sqrt(b*x + a)*sqrt(e*x + d)/(b^2*d^5 - 2*a*b*d^4*e + a^2*d^3*e^
2 + (b^2*d^2*e^3 - 2*a*b*d*e^4 + a^2*e^5)*x^3 + 3*(b^2*d^3*e^2 -
2*a*b*d^2*e^3 + a^2*d*e^4)*x^2 + 3*(b^2*d^4*e - 2*a*b*d^3*e^2 + a
^2*d^2*e^3)*x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(b*x+a)**(1/2)/(e*x+d)**(7/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.25549, size = 281, normalized size = 2.96

$$-\frac{(bx+a)^{\frac{3}{2}}\left(\frac{\left(3\,Bb^6d|b|e^2-5\,Bab^5|b|e^3+2\,Ab^6|b|e^3\right)(bx+a)}{b^{12}d^3e^6-3\,ab^{11}d^2e^7+3\,a^2b^{10}de^8-a^3b^9e^9}-\frac{5\left(Bab^6d|b|e^2-Ab^7d|b|e^2-Ba^2b^5|b|e^3+Aab^6|b|e^3\right)}{b^{12}d^3e^6-3\,ab^{11}d^2e^7+3\,a^2b^{10}de^8-a^3b^9e^9}\right)}{960\left(b^2d+(bx+a)be-abe\right)^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*sqrt(b*x + a)/(e*x + d)^(7/2),x, algorithm="giac")
```

```
[Out] -1/960*(b*x + a)^(3/2)*((3*B*b^6*d*abs(b)*e^2 - 5*B*a*b^5*abs(b)*
e^3 + 2*A*b^6*abs(b)*e^3)*(b*x + a)/(b^12*d^3*e^6 - 3*a*b^11*d^2*
```

```
e^7 + 3*a^2*b^10*d*e^8 - a^3*b^9*e^9) - 5*(B*a*b^6*d*abs(b)*e^2 -
 A*b^7*d*abs(b)*e^2 - B*a^2*b^5*abs(b)*e^3 + A*a*b^6*abs(b)*e^3)/
(b^12*d^3*e^6 - 3*a*b^11*d^2*e^7 + 3*a^2*b^10*d*e^8 - a^3*b^9*e^9
))/(b^2*d + (b*x + a)*b*e - a*b*e)^(5/2)
```

3.2190 $\int \frac{\sqrt{a+bx}(A+Bx)}{(d+ex)^{9/2}}\,dx$

Optimal. Leaf size=147

$$\frac{4b(a+bx)^{3/2}(-7aBe+4Abe+3bBd)}{105e(d+ex)^{3/2}(bd-ae)^3}+\frac{2(a+bx)^{3/2}(-7aBe+4Abe+3bBd)}{35e(d+ex)^{5/2}(bd-ae)^2}-\frac{2(a+bx)^{3/2}(Bd-Ae)}{7e(d+ex)^{7/2}(bd-ae)}$$

```
[Out] (-2*(B*d - A*e)*(a + b*x)^(3/2))/(7*e*(b*d - a*e)*(d + e*x)^(7/2)
) + (2*(3*b*B*d + 4*A*b*e - 7*a*B*e)*(a + b*x)^(3/2))/(35*e*(b*d
- a*e)^2*(d + e*x)^(5/2)) + (4*b*(3*b*B*d + 4*A*b*e - 7*a*B*e)*(a
 + b*x)^(3/2))/(105*e*(b*d - a*e)^3*(d + e*x)^(3/2))
```

Rubi [A] time = 0.267357, antiderivative size = 147, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$\frac{4b(a+bx)^{3/2}(-7aBe+4Abe+3bBd)}{105e(d+ex)^{3/2}(bd-ae)^3}+\frac{2(a+bx)^{3/2}(-7aBe+4Abe+3bBd)}{35e(d+ex)^{5/2}(bd-ae)^2}-\frac{2(a+bx)^{3/2}(Bd-Ae)}{7e(d+ex)^{7/2}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[a + b*x]*(A + B*x))/(d + e*x)^(9/2),x]
```

```
[Out] (-2*(B*d - A*e)*(a + b*x)^(3/2))/(7*e*(b*d - a*e)*(d + e*x)^(7/2)
) + (2*(3*b*B*d + 4*A*b*e - 7*a*B*e)*(a + b*x)^(3/2))/(35*e*(b*d
- a*e)^2*(d + e*x)^(5/2)) + (4*b*(3*b*B*d + 4*A*b*e - 7*a*B*e)*(a
 + b*x)^(3/2))/(105*e*(b*d - a*e)^3*(d + e*x)^(3/2))
```

Rubi in Sympy [A] time = 24.397, size = 138, normalized size = 0.94

$$-\frac{4b\left(a+bx\right)^{\frac{3}{2}}\left(4Abe-7Bae+3Bbd\right)}{105e\left(d+ex\right)^{\frac{3}{2}}\left(ae-bd\right)^{3}}+\frac{2\left(a+bx\right)^{\frac{3}{2}}\left(4Abe-7Bae+3Bbd\right)}{35e\left(d+ex\right)^{\frac{5}{2}}\left(ae-bd\right)^{2}}-\frac{2\left(a+bx\right)^{\frac{3}{2}}\left(Ae-Bd\right)}{7e\left(d+ex\right)^{\frac{7}{2}}\left(ae-bd\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(b*x+a)**(1/2)/(e*x+d)**(9/2),x)
```

```
[Out] -4*b*(a + b*x)**(3/2)*(4*A*b*e - 7*B*a*e + 3*B*b*d)/(105*e*(d + e
*x)**(3/2)*(a*e - b*d)**3) + 2*(a + b*x)**(3/2)*(4*A*b*e - 7*B*a*
e + 3*B*b*d)/(35*e*(d + e*x)**(5/2)*(a*e - b*d)**2) - 2*(a + b*x)
**(3/2)*(A*e - B*d)/(7*e*(d + e*x)**(7/2)*(a*e - b*d))
```

Mathematica [A] time = 0.241897, size = 135, normalized size = 0.92

$$\frac{2(a+bx)^{3/2}\left(A\left(15a^2e^2-6abe(7d+2ex)+b^2\left(35d^2+28dex+8e^2x^2\right)\right)+B\left(3a^2e(2d+7ex)-2ab\left(7d^2+29dex+7e^2x^2\right)+\right.\right.}{105(d+ex)^{7/2}(bd-ae)^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[a + b*x]*(A + B*x))/(d + e*x)^(9/2),x]
```

```
[Out] (2*(a + b*x)^(3/2)*(B*(3*b^2*d*x*(7*d + 2*e*x) + 3*a^2*e*(2*d + 7
*e*x) - 2*a*b*(7*d^2 + 29*d*e*x + 7*e^2*x^2)) + A*(15*a^2*e^2 - 6
*a*b*e*(7*d + 2*e*x) + b^2*(35*d^2 + 28*d*e*x + 8*e^2*x^2))))/(10
5*(b*d - a*e)^3*(d + e*x)^(7/2))
```

Maple [A] time = 0.011, size = 177, normalized size = 1.2

$$-\frac{16 Ab^2e^2x^2 - 28 Babe^2x^2 + 12 Bb^2dex^2 - 24 Aabe^2x + 56 Ab^2dex + 42 Ba^2e^2x - 116 Babdex + 42 Bb^2d^2x + 30 Aa^2e^2 - 84}{105 a^3e^3 - 315 a^2bde^2 + 315 ab^2d^2e - 105 b^3d^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(b*x+a)^(1/2)/(e*x+d)^(9/2),x)
```

```
[Out] -2/105*(b*x+a)^(3/2)*(8*A*b^2*e^2*x^2-14*B*a*b*e^2*x^2+6*B*b^2*d*
e*x^2-12*A*a*b*e^2*x+28*A*b^2*d*e*x+21*B*a^2*e^2*x-58*B*a*b*d*e*x
+21*B*b^2*d^2*x+15*A*a^2*e^2-42*A*a*b*d*e+35*A*b^2*d^2+6*B*a^2*d*
e-14*B*a*b*d^2)/(e*x+d)^(7/2)/(a^3*e^3-3*a^2*b*d*e^2+3*a*b^2*d^2*
e-b^3*d^3)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/(e*x + d)^(9/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.963663, size = 594, normalized size = 4.04

$$\frac{2\left(15 Aa^3e^2 + 2\left(3 Bb^3de - \left(7 Bab^2 - 4 Ab^3\right)e^2\right)x^3 - 7\left(2 Ba^2b - 5 Aab^2\right)d^2 + 6\left(Ba^3 - 7 Aa^2b\right)de + \left(21 Bb^3d^2 - 4\left(13 Bab^2\right.\right.\right.}{105\left(b^3d^7 - 3 ab^2d^6e + 3 a^2bd^5e^2 - a^3d^4e^3 + (b^3d^3e^4 - 3 ab^2d^2e^5 + 3 a^2bde^6 - a^3e^7)x^4 + 4(b^3d^4e^3 - 3 ab^2d^3e^4 +\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/(e*x + d)^(9/2),x, algorithm="fricas")
```

```
[Out] 2/105*(15*A*a^3*e^2 + 2*(3*B*b^3*d*e - (7*B*a*b^2 - 4*A*b^3)*e^2)
*x^3 - 7*(2*B*a^2*b - 5*A*a*b^2)*d^2 + 6*(B*a^3 - 7*A*a^2*b)*d*e
+ (21*B*b^3*d^2 - 4*(13*B*a*b^2 - 7*A*b^3)*d*e + (7*B*a^2*b - 4*A
*a*b^2)*e^2)*x^2 + (7*(B*a*b^2 + 5*A*b^3)*d^2 - 2*(26*B*a^2*b + 7
*A*a*b^2)*d*e + 3*(7*B*a^3 + A*a^2*b)*e^2)*x)*sqrt(b*x + a)*sqrt(
e*x + d)/(b^3*d^7 - 3*a*b^2*d^6*e + 3*a^2*b*d^5*e^2 - a^3*d^4*e^3
 + (b^3*d^3*e^4 - 3*a*b^2*d^2*e^5 + 3*a^2*b*d*e^6 - a^3*e^7)*x^4
+ 4*(b^3*d^4*e^3 - 3*a*b^2*d^3*e^4 + 3*a^2*b*d^2*e^5 - a^3*d*e^6)
*x^3 + 6*(b^3*d^5*e^2 - 3*a*b^2*d^4*e^3 + 3*a^2*b*d^3*e^4 - a^3*d
^2*e^5)*x^2 + 4*(b^3*d^6*e - 3*a*b^2*d^5*e^2 + 3*a^2*b*d^4*e^3 -
a^3*d^3*e^4)*x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(b*x+a)**(1/2)/(e*x+d)**(9/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.283433, size = 528, normalized size = 3.59

$$-\frac{\left((bx+a)\left(\frac{2\left(3\,Bb^8d|b|e^4-7\,Bab^7|b|e^5+4\,Ab^8|b|e^5\right)(bx+a)}{b^{16}d^4e^8-4\,ab^{15}d^3e^9+6\,a^2b^{14}d^2e^{10}-4\,a^3b^{13}de^{11}+a^4b^{12}e^{12}}+\frac{7\left(3\,Bb^9d^2|b|e^3-10\,Bab^8d|b|e^4+4\,Ab^9d|b|e^4+7\,Ba^2b^7|b|e^5-4\,Aab^8|b|e^5\right)}{b^{16}d^4e^8-4\,ab^{15}d^3e^9+6\,a^2b^{14}d^2e^{10}-4\,a^3b^{13}de^{11}+a^4b^{12}e^{12}}\right)-\cdots}{80640\left(b^2d+(bx+a)be-abe\right)^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*sqrt(b*x + a)/(e*x + d)^(9/2),x, algorithm="giac")
```

```
[Out] -1/80640*((b*x + a)*(2*(3*B*b^8*d*abs(b)*e^4 - 7*B*a*b^7*abs(b)*e
^5 + 4*A*b^8*abs(b)*e^5)*(b*x + a)/(b^16*d^4*e^8 - 4*a*b^15*d^3*e
^9 + 6*a^2*b^14*d^2*e^10 - 4*a^3*b^13*d*e^11 + a^4*b^12*e^12) + 7
*(3*B*b^9*d^2*abs(b)*e^3 - 10*B*a*b^8*d*abs(b)*e^4 + 4*A*b^9*d*ab
s(b)*e^4 + 7*B*a^2*b^7*abs(b)*e^5 - 4*A*a*b^8*abs(b)*e^5)/(b^16*d
^4*e^8 - 4*a*b^15*d^3*e^9 + 6*a^2*b^14*d^2*e^10 - 4*a^3*b^13*d*e^
11 + a^4*b^12*e^12)) - 35*(B*a*b^9*d^2*abs(b)*e^3 - A*b^10*d^2*ab
s(b)*e^3 - 2*B*a^2*b^8*d*abs(b)*e^4 + 2*A*a*b^9*d*abs(b)*e^4 + B*
a^3*b^7*abs(b)*e^5 - A*a^2*b^8*abs(b)*e^5)/(b^16*d^4*e^8 - 4*a*b^
15*d^3*e^9 + 6*a^2*b^14*d^2*e^10 - 4*a^3*b^13*d*e^11 + a^4*b^12*e
^12))*(b*x + a)^(3/2)/(b^2*d + (b*x + a)*b*e - a*b*e)^(7/2)
```

3.2191 $\int \frac{\sqrt{a+bx}(A+Bx)}{(d+ex)^{11/2}}\,dx$

Optimal. Leaf size=198

$$\frac{16b^2(a+bx)^{3/2}(-3aBe+2Abe+bBd)}{315e(d+ex)^{3/2}(bd-ae)^4}+\frac{8b(a+bx)^{3/2}(-3aBe+2Abe+bBd)}{105e(d+ex)^{5/2}(bd-ae)^3}+\frac{2(a+bx)^{3/2}(-3aBe+2Abe+bBd)}{21e(d+ex)^{7/2}(bd-ae)^2}-\frac{2(a+bx)^{3/2}(Bd-Ae)}{9e(d+ex)^{9/2}(bd-ae)}$$

```
[Out] (-2*(B*d - A*e)*(a + b*x)^(3/2))/(9*e*(b*d - a*e)*(d + e*x)^(9/2)
) + (2*(b*B*d + 2*A*b*e - 3*a*B*e)*(a + b*x)^(3/2))/(21*e*(b*d -
a*e)^2*(d + e*x)^(7/2)) + (8*b*(b*B*d + 2*A*b*e - 3*a*B*e)*(a + b
*x)^(3/2))/(105*e*(b*d - a*e)^3*(d + e*x)^(5/2)) + (16*b^2*(b*B*d
 + 2*A*b*e - 3*a*B*e)*(a + b*x)^(3/2))/(315*e*(b*d - a*e)^4*(d +
e*x)^(3/2))
```

Rubi [A] time = 0.351453, antiderivative size = 198, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$\frac{16b^2(a+bx)^{3/2}(-3aBe+2Abe+bBd)}{315e(d+ex)^{3/2}(bd-ae)^4}+\frac{8b(a+bx)^{3/2}(-3aBe+2Abe+bBd)}{105e(d+ex)^{5/2}(bd-ae)^3}+\frac{2(a+bx)^{3/2}(-3aBe+2Abe+bBd)}{21e(d+ex)^{7/2}(bd-ae)^2}-\frac{2(a+bx)^{3/2}(Bd-Ae)}{9e(d+ex)^{9/2}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[a + b*x]*(A + B*x))/(d + e*x)^(11/2),x]
```

```
[Out] (-2*(B*d - A*e)*(a + b*x)^(3/2))/(9*e*(b*d - a*e)*(d + e*x)^(9/2)
) + (2*(b*B*d + 2*A*b*e - 3*a*B*e)*(a + b*x)^(3/2))/(21*e*(b*d -
a*e)^2*(d + e*x)^(7/2)) + (8*b*(b*B*d + 2*A*b*e - 3*a*B*e)*(a + b
*x)^(3/2))/(105*e*(b*d - a*e)^3*(d + e*x)^(5/2)) + (16*b^2*(b*B*d
 + 2*A*b*e - 3*a*B*e)*(a + b*x)^(3/2))/(315*e*(b*d - a*e)^4*(d +
e*x)^(3/2))
```

Rubi in Sympy [A] time = 34.6386, size = 185, normalized size = 0.93

$$-\frac{32b^2(a+bx)^{\frac{3}{2}}\left(-Abe+\frac{B(3ae-bd)}{2}\right)}{315e(d+ex)^{\frac{3}{2}}(ae-bd)^4}-\frac{8b(a+bx)^{\frac{3}{2}}(2Abe-3Bae+Bbd)}{105e(d+ex)^{\frac{5}{2}}(ae-bd)^3}-\frac{4(a+bx)^{\frac{3}{2}}\left(-Abe+\frac{B(3ae-bd)}{2}\right)}{21e(d+ex)^{\frac{7}{2}}(ae-bd)^2}-\frac{2(a+bx)^{\frac{3}{2}}(Ae-Bd)}{9e(d+ex)^{\frac{9}{2}}(ae-bd)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(b*x+a)**(1/2)/(e*x+d)**(11/2),x)
```

```
[Out] -32*b**2*(a + b*x)**(3/2)*(-A*b*e + B*(3*a*e - b*d)/2)/(315*e*(d
+ e*x)**(3/2)*(a*e - b*d)**4) - 8*b*(a + b*x)**(3/2)*(2*A*b*e - 3
*B*a*e + B*b*d)/(105*e*(d + e*x)**(5/2)*(a*e - b*d)**3) - 4*(a +
b*x)**(3/2)*(-A*b*e + B*(3*a*e - b*d)/2)/(21*e*(d + e*x)**(7/2)*(
a*e - b*d)**2) - 2*(a + b*x)**(3/2)*(A*e - B*d)/(9*e*(d + e*x)**(
9/2)*(a*e - b*d))
```

Mathematica [A] time = 0.449448, size = 177, normalized size = 0.89

$$\frac{2\sqrt{a+bx}\left(\frac{8b^3(d+ex)^4(-3aBe+2Abe+bBd)}{(bd-ae)^4}+\frac{4b^2(d+ex)^3(-3aBe+2Abe+bBd)}{(bd-ae)^3}+\frac{3b(d+ex)^2(-3aBe+2Abe+bBd)}{(bd-ae)^2}-\frac{5(d+ex)(9aBe+Abe-10bBd)}{ae-bd}+3\right.}{315e^2(d+ex)^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[a + b*x]*(A + B*x))/(d + e*x)^(11/2),x]
```

```
[Out] (2*Sqrt[a + b*x]*(35*(B*d - A*e) - (5*(-10*b*B*d + A*b*e + 9*a*B*
e)*(d + e*x))/(-(b*d) + a*e) + (3*b*(b*B*d + 2*A*b*e - 3*a*B*e)*(
d + e*x)^2)/(b*d - a*e)^2 + (4*b^2*(b*B*d + 2*A*b*e - 3*a*B*e)*(d
 + e*x)^3)/(b*d - a*e)^3 + (8*b^3*(b*B*d + 2*A*b*e - 3*a*B*e)*(d
+ e*x)^4)/(b*d - a*e)^4))/(315*e^2*(d + e*x)^(9/2))
```

Maple [A] time = 0.014, size = 322, normalized size = 1.6

$$-\frac{-32\,Ab^3e^3x^3+48\,Bab^2e^3x^3-16\,Bb^3de^2x^3+48\,Aab^2e^3x^2-144\,Ab^3de^2x^2-72\,Ba^2be^3x^2+240\,Bab^2de^2x^2-72\,Bb^3d^2ex^2}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(b*x+a)^(1/2)/(e*x+d)^(11/2),x)
```

```
[Out] -2/315*(b*x+a)^(3/2)*(-16*A*b^3*e^3*x^3+24*B*a*b^2*e^3*x^3-8*B*b^
3*d*e^2*x^3+24*A*a*b^2*e^3*x^2-72*A*b^3*d*e^2*x^2-36*B*a^2*b*e^3*
x^2+120*B*a*b^2*d*e^2*x^2-36*B*b^3*d^2*e*x^2-30*A*a^2*b*e^3*x+108
*A*a*b^2*d*e^2*x-126*A*b^3*d^2*e*x+45*B*a^3*e^3*x-177*B*a^2*b*d*e
^2*x+243*B*a*b^2*d^2*e*x-63*B*b^3*d^3*x+35*A*a^3*e^3-135*A*a^2*b*
d*e^2+189*A*a*b^2*d^2*e-105*A*b^3*d^3+10*B*a^3*d*e^2-36*B*a^2*b*d
^2*e+42*B*a*b^2*d^3)/(e*x+d)^(9/2)/(a^4*e^4-4*a^3*b*d*e^3+6*a^2*b
^2*d^2*e^2-4*a*b^3*d^3*e+b^4*d^4)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/(e*x + d)^(11/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 2.50234, size = 959, normalized size = 4.84

$$-\frac{2\left(35\,Aa^4e^3-8\left(Bb^4de^2-\left(3\,Bab^3-2\,Ab^4\right)e^3\right)x^4+21\left(2\,Ba^2b^2-5\,Aab^3\right)d^3-9\left(4\,Ba^3b-21\,Aa^2b^2\right)d^2e+5\left(2\,Ba^4-27\,A\right.\right.}{315\left(b^4d^9-4\,ab^3d^8e+6\,a^2b^2d^7e^2-4\,a^3bd^6e^3+a^4d^5e^4+\left(b^4d^4e^5-4\,ab^3d^3e^6+6\,a^2b^2d^2e^7\right.\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/(e*x + d)^(11/2),x, algorithm="fricas")
```

```
[Out] -2/315*(35*A*a^4*e^3 - 8*(B*b^4*d*e^2 - (3*B*a*b^3 - 2*A*b^4)*e^3
)*x^4 + 21*(2*B*a^2*b^2 - 5*A*a*b^3)*d^3 - 9*(4*B*a^3*b - 21*A*a^
2*b^2)*d^2*e + 5*(2*B*a^4 - 27*A*a^3*b)*d*e^2 - 4*(9*B*b^4*d^2*e
- 2*(14*B*a*b^3 - 9*A*b^4)*d*e^2 + (3*B*a^2*b^2 - 2*A*a*b^3)*e^3)
*x^3 - 3*(21*B*b^4*d^3 - 3*(23*B*a*b^3 - 14*A*b^4)*d^2*e + (19*B*
a^2*b^2 - 12*A*a*b^3)*d*e^2 - (3*B*a^3*b - 2*A*a^2*b^2)*e^3)*x^2
- (21*(B*a*b^3 + 5*A*b^4)*d^3 - 9*(23*B*a^2*b^2 + 7*A*a*b^3)*d^2*
e + (167*B*a^3*b + 27*A*a^2*b^2)*d*e^2 - 5*(9*B*a^4 + A*a^3*b)*e^
3)*x)*sqrt(b*x + a)*sqrt(e*x + d)/(b^4*d^9 - 4*a*b^3*d^8*e + 6*a^
2*b^2*d^7*e^2 - 4*a^3*b*d^6*e^3 + a^4*d^5*e^4 + (b^4*d^4*e^5 - 4*
a*b^3*d^3*e^6 + 6*a^2*b^2*d^2*e^7 - 4*a^3*b*d*e^8 + a^4*e^9)*x^5
+ 5*(b^4*d^5*e^4 - 4*a*b^3*d^4*e^5 + 6*a^2*b^2*d^3*e^6 - 4*a^3*b*
```

```
d^2*e^7 + a^4*d*e^8)*x^4 + 10*(b^4*d^6*e^3 - 4*a*b^3*d^5*e^4 + 6*
a^2*b^2*d^4*e^5 - 4*a^3*b*d^3*e^6 + a^4*d^2*e^7)*x^3 + 10*(b^4*d^
7*e^2 - 4*a*b^3*d^6*e^3 + 6*a^2*b^2*d^5*e^4 - 4*a^3*b*d^4*e^5 + a
^4*d^3*e^6)*x^2 + 5*(b^4*d^8*e - 4*a*b^3*d^7*e^2 + 6*a^2*b^2*d^6*
e^3 - 4*a^3*b*d^5*e^4 + a^4*d^4*e^5)*x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(b*x+a)**(1/2)/(e*x+d)**(11/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.331064, size = 857, normalized size = 4.33

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*sqrt(b*x + a)/(e*x + d)^(11/2),x, algorithm="giac")
```

```
[Out] -1/322560*((4*(b*x + a)*(2*(B*b^10*d*abs(b)*e^6 - 3*B*a*b^9*abs(b
)*e^7 + 2*A*b^10*abs(b)*e^7)*(b*x + a)/(b^20*d^5*e^10 - 5*a*b^19*
d^4*e^11 + 10*a^2*b^18*d^3*e^12 - 10*a^3*b^17*d^2*e^13 + 5*a^4*b^
16*d*e^14 - a^5*b^15*e^15) + 9*(B*b^11*d^2*abs(b)*e^5 - 4*B*a*b^1
0*d*abs(b)*e^6 + 2*A*b^11*d*abs(b)*e^6 + 3*B*a^2*b^9*abs(b)*e^7 -
 2*A*a*b^10*abs(b)*e^7)/(b^20*d^5*e^10 - 5*a*b^19*d^4*e^11 + 10*a
^2*b^18*d^3*e^12 - 10*a^3*b^17*d^2*e^13 + 5*a^4*b^16*d*e^14 - a^5
*b^15*e^15)) + 63*(B*b^12*d^3*abs(b)*e^4 - 5*B*a*b^11*d^2*abs(b)*
e^5 + 2*A*b^12*d^2*abs(b)*e^5 + 7*B*a^2*b^10*d*abs(b)*e^6 - 4*A*a
*b^11*d*abs(b)*e^6 - 3*B*a^3*b^9*abs(b)*e^7 + 2*A*a^2*b^10*abs(b)
*e^7)/(b^20*d^5*e^10 - 5*a*b^19*d^4*e^11 + 10*a^2*b^18*d^3*e^12 -
 10*a^3*b^17*d^2*e^13 + 5*a^4*b^16*d*e^14 - a^5*b^15*e^15))*(b*x
+ a) - 105*(B*a*b^12*d^3*abs(b)*e^4 - A*b^13*d^3*abs(b)*e^4 - 3*B
*a^2*b^11*d^2*abs(b)*e^5 + 3*A*a*b^12*d^2*abs(b)*e^5 + 3*B*a^3*b^
10*d*abs(b)*e^6 - 3*A*a^2*b^11*d*abs(b)*e^6 - B*a^4*b^9*abs(b)*e^
7 + A*a^3*b^10*abs(b)*e^7)/(b^20*d^5*e^10 - 5*a*b^19*d^4*e^11 + 1
0*a^2*b^18*d^3*e^12 - 10*a^3*b^17*d^2*e^13 + 5*a^4*b^16*d*e^14 -
a^5*b^15*e^15))*(b*x + a)^(3/2)/(b^2*d + (b*x + a)*b*e - a*b*e)^(
9/2)
```

3.2192 $\int \frac{\sqrt{a+bx}(A+Bx)}{(d+ex)^{13/2}}\,dx$

Optimal. Leaf size=255

$$\frac{32b^3(a+bx)^{3/2}(-11aBe+8Abe+3bBd)}{3465e(d+ex)^{3/2}(bd-ae)^5}+\frac{16b^2(a+bx)^{3/2}(-11aBe+8Abe+3bBd)}{1155e(d+ex)^{5/2}(bd-ae)^4}+\frac{4b(a+bx)^{3/2}(-11aBe+8Abe+3bBd)}{231e(d+ex)^{7/2}(bd-ae)^3}+\frac{2(a+bx)^{3/2}(-11aBe+8Abe+3bBd)}{99e(d+ex)^{9/2}(bd-ae)^2}-\frac{2(a+bx)^{3/2}(Bd-Ae)}{11e(d+ex)^{11/2}(bd-ae)}$$

```
[Out] (-2*(B*d - A*e)*(a + b*x)^(3/2))/(11*e*(b*d - a*e)*(d + e*x)^(11/
2)) + (2*(3*b*B*d + 8*A*b*e - 11*a*B*e)*(a + b*x)^(3/2))/(99*e*(b
*d - a*e)^2*(d + e*x)^(9/2)) + (4*b*(3*b*B*d + 8*A*b*e - 11*a*B*e
)*(a + b*x)^(3/2))/(231*e*(b*d - a*e)^3*(d + e*x)^(7/2)) + (16*b^
2*(3*b*B*d + 8*A*b*e - 11*a*B*e)*(a + b*x)^(3/2))/(1155*e*(b*d -
a*e)^4*(d + e*x)^(5/2)) + (32*b^3*(3*b*B*d + 8*A*b*e - 11*a*B*e)*
(a + b*x)^(3/2))/(3465*e*(b*d - a*e)^5*(d + e*x)^(3/2))
```

Rubi [A] time = 0.466685, antiderivative size = 255, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.125$

$$\frac{32b^3(a+bx)^{3/2}(-11aBe+8Abe+3bBd)}{3465e(d+ex)^{3/2}(bd-ae)^5}+\frac{16b^2(a+bx)^{3/2}(-11aBe+8Abe+3bBd)}{1155e(d+ex)^{5/2}(bd-ae)^4}+\frac{4b(a+bx)^{3/2}(-11aBe+8Abe+3bBd)}{231e(d+ex)^{7/2}(bd-ae)^3}+\frac{2(a+bx)^{3/2}(-11aBe+8Abe+3bBd)}{99e(d+ex)^{9/2}(bd-ae)^2}-\frac{2(a+bx)^{3/2}(Bd-Ae)}{11e(d+ex)^{11/2}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[a + b*x]*(A + B*x))/(d + e*x)^(13/2),x]
```

```
[Out] (-2*(B*d - A*e)*(a + b*x)^(3/2))/(11*e*(b*d - a*e)*(d + e*x)^(11/
2)) + (2*(3*b*B*d + 8*A*b*e - 11*a*B*e)*(a + b*x)^(3/2))/(99*e*(b
*d - a*e)^2*(d + e*x)^(9/2)) + (4*b*(3*b*B*d + 8*A*b*e - 11*a*B*e
)*(a + b*x)^(3/2))/(231*e*(b*d - a*e)^3*(d + e*x)^(7/2)) + (16*b^
2*(3*b*B*d + 8*A*b*e - 11*a*B*e)*(a + b*x)^(3/2))/(1155*e*(b*d -
a*e)^4*(d + e*x)^(5/2)) + (32*b^3*(3*b*B*d + 8*A*b*e - 11*a*B*e)*
(a + b*x)^(3/2))/(3465*e*(b*d - a*e)^5*(d + e*x)^(3/2))
```

Rubi in Sympy [A] time = 50.8173, size = 246, normalized size = 0.96

$$-\frac{32b^3\left(a+bx\right)^{\frac{3}{2}}\left(8Abe-11Bae+3Bbd\right)}{3465e\left(d+ex\right)^{\frac{3}{2}}\left(ae-bd\right)^5}+\frac{16b^2\left(a+bx\right)^{\frac{3}{2}}\left(8Abe-11Bae+3Bbd\right)}{1155e\left(d+ex\right)^{\frac{5}{2}}\left(ae-bd\right)^4}-\frac{4b\left(a+bx\right)^{\frac{3}{2}}\left(8Abe-11Bae+3Bbd\right)}{231e\left(d+ex\right)^{\frac{7}{2}}\left(ae-bd\right)^3}+\frac{2\left(a+bx\right)^{\frac{3}{2}}\left(8Abe-11Bae+3Bbd\right)}{99e\left(d+ex\right)^{\frac{9}{2}}\left(ae-bd\right)^2}-\frac{2\left(a+bx\right)^{\frac{3}{2}}\left(Ae-Bd\right)}{11e\left(d+ex\right)^{\frac{11}{2}}\left(ae-bd\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(b*x+a)**(1/2)/(e*x+d)**(13/2),x)
```

```
[Out] -32*b**3*(a + b*x)**(3/2)*(8*A*b*e - 11*B*a*e + 3*B*b*d)/(3465*e*
(d + e*x)**(3/2)*(a*e - b*d)**5) + 16*b**2*(a + b*x)**(3/2)*(8*A*
b*e - 11*B*a*e + 3*B*b*d)/(1155*e*(d + e*x)**(5/2)*(a*e - b*d)**4
```

```
) - 4*b*(a + b*x)**(3/2)*(8*A*b*e - 11*B*a*e + 3*B*b*d)/(231*e*(d
 + e*x)**(7/2)*(a*e - b*d)**3) + 2*(a + b*x)**(3/2)*(8*A*b*e - 11
*B*a*e + 3*B*b*d)/(99*e*(d + e*x)**(9/2)*(a*e - b*d)**2) - 2*(a +
 b*x)**(3/2)*(A*e - B*d)/(11*e*(d + e*x)**(11/2)*(a*e - b*d))
```

Mathematica [A] time = 0.409761, size = 218, normalized size = 0.85

$$\frac{2\sqrt{a+bx}\left(\frac{16b^4(d+ex)^5(-11aBe+8Abe+3bBd)}{(bd-ae)^5}+\frac{8b^3(d+ex)^4(-11aBe+8Abe+3bBd)}{(bd-ae)^4}+\frac{6b^2(d+ex)^3(-11aBe+8Abe+3bBd)}{(bd-ae)^3}+\frac{5b(d+ex)^2(-11aBe+8Abe}{(bd-ae)^2}\right.}{3465e^2(d+ex)^{11/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[a + b*x]*(A + B*x))/(d + e*x)^(13/2),x]
```

```
[Out] (2*Sqrt[a + b*x]*(315*(B*d - A*e) - (35*(-12*b*B*d + A*b*e + 11*a
*B*e)*(d + e*x))/(-(b*d) + a*e) + (5*b*(3*b*B*d + 8*A*b*e - 11*a*
B*e)*(d + e*x)^2)/(b*d - a*e)^2 + (6*b^2*(3*b*B*d + 8*A*b*e - 11*
a*B*e)*(d + e*x)^3)/(b*d - a*e)^3 + (8*b^3*(3*b*B*d + 8*A*b*e - 1
1*a*B*e)*(d + e*x)^4)/(b*d - a*e)^4 + (16*b^4*(3*b*B*d + 8*A*b*e
- 11*a*B*e)*(d + e*x)^5)/(b*d - a*e)^5))/(3465*e^2*(d + e*x)^(11/
2))
```

Maple [B] time = 0.017, size = 505, normalized size = 2.

$$-\frac{256\,Ab^4e^4x^4-352\,Bab^3e^4x^4+96\,Bb^4de^3x^4-384\,Aab^3e^4x^3+1408\,Ab^4de^3x^3+528\,Ba^2b^2e^4x^3-2080\,Bab^3de^3x^3+528\,Bb}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(b*x+a)^(1/2)/(e*x+d)^(13/2),x)
```

```
[Out] -2/3465*(b*x+a)^(3/2)*(128*A*b^4*e^4*x^4-176*B*a*b^3*e^4*x^4+48*B
*b^4*d*e^3*x^4-192*A*a*b^3*e^4*x^3+704*A*b^4*d*e^3*x^3+264*B*a^2*
b^2*e^4*x^3-1040*B*a*b^3*d*e^3*x^3+264*B*b^4*d^2*e^2*x^3+240*A*a^
2*b^2*e^4*x^2-1056*A*a*b^3*d*e^3*x^2+1584*A*b^4*d^2*e^2*x^2-330*B
*a^3*b*e^4*x^2+1542*B*a^2*b^2*d*e^3*x^2-2574*B*a*b^3*d^2*e^2*x^2+
594*B*b^4*d^3*e*x^2-280*A*a^3*b*e^4*x+1320*A*a^2*b^2*d*e^3*x-2376
*A*a*b^3*d^2*e^2*x+1848*A*b^4*d^3*e*x+385*B*a^4*e^4*x-1920*B*a^3*
b*d*e^3*x+3762*B*a^2*b^2*d^2*e^2*x-3432*B*a*b^3*d^3*e*x+693*B*b^4
*d^4*x+315*A*a^4*e^4-1540*A*a^3*b*d*e^3+2970*A*a^2*b^2*d^2*e^2-27
72*A*a*b^3*d^3*e+1155*A*b^4*d^4+70*B*a^4*d*e^3-330*B*a^3*b*d^2*e^
2+594*B*a^2*b^2*d^3*e-462*B*a*b^3*d^4)/(e*x+d)^(11/2)/(a^5*e^5-5*
a^4*b*d*e^4+10*a^3*b^2*d^2*e^3-10*a^2*b^3*d^3*e^2+5*a*b^4*d^4*e-b
^5*d^5)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/(e*x + d)^(13/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 6.02967, size = 1411, normalized size = 5.53

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/(e*x + d)^(13/2),x, algorithm="fricas")
```

```
[Out] 2/3465*(315*A*a^5*e^4 + 16*(3*B*b^5*d*e^3 - (11*B*a*b^4 - 8*A*b^5
)*e^4)*x^5 - 231*(2*B*a^2*b^3 - 5*A*a*b^4)*d^4 + 198*(3*B*a^3*b^2
 - 14*A*a^2*b^3)*d^3*e - 330*(B*a^4*b - 9*A*a^3*b^2)*d^2*e^2 + 70
*(B*a^5 - 22*A*a^4*b)*d*e^3 + 8*(33*B*b^5*d^2*e^2 - 4*(31*B*a*b^4
 - 22*A*b^5)*d*e^3 + (11*B*a^2*b^3 - 8*A*a*b^4)*e^4)*x^4 + 2*(297
*B*b^5*d^3*e - 33*(35*B*a*b^4 - 24*A*b^5)*d^2*e^2 + (251*B*a^2*b^
3 - 176*A*a*b^4)*d*e^3 - 3*(11*B*a^3*b^2 - 8*A*a^2*b^3)*e^4)*x^3
+ (693*B*b^5*d^4 - 66*(43*B*a*b^4 - 28*A*b^5)*d^3*e + 396*(3*B*a^
2*b^3 - 2*A*a*b^4)*d^2*e^2 - 6*(63*B*a^3*b^2 - 44*A*a^2*b^3)*d*e^
3 + 5*(11*B*a^4*b - 8*A*a^3*b^2)*e^4)*x^2 + (231*(B*a*b^4 + 5*A*b
^5)*d^4 - 66*(43*B*a^2*b^3 + 14*A*a*b^4)*d^3*e + 66*(52*B*a^3*b^2
 + 9*A*a^2*b^3)*d^2*e^2 - 10*(185*B*a^4*b + 22*A*a^3*b^2)*d*e^3 +
 35*(11*B*a^5 + A*a^4*b)*e^4)*x)*sqrt(b*x + a)*sqrt(e*x + d)/(b^5
*d^11 - 5*a*b^4*d^10*e + 10*a^2*b^3*d^9*e^2 - 10*a^3*b^2*d^8*e^3
+ 5*a^4*b*d^7*e^4 - a^5*d^6*e^5 + (b^5*d^5*e^6 - 5*a*b^4*d^4*e^7
+ 10*a^2*b^3*d^3*e^8 - 10*a^3*b^2*d^2*e^9 + 5*a^4*b*d*e^10 - a^5*
e^11)*x^6 + 6*(b^5*d^6*e^5 - 5*a*b^4*d^5*e^6 + 10*a^2*b^3*d^4*e^7
 - 10*a^3*b^2*d^3*e^8 + 5*a^4*b*d^2*e^9 - a^5*d*e^10)*x^5 + 15*(b
^5*d^7*e^4 - 5*a*b^4*d^6*e^5 + 10*a^2*b^3*d^5*e^6 - 10*a^3*b^2*d^
4*e^7 + 5*a^4*b*d^3*e^8 - a^5*d^2*e^9)*x^4 + 20*(b^5*d^8*e^3 - 5*
a*b^4*d^7*e^4 + 10*a^2*b^3*d^6*e^5 - 10*a^3*b^2*d^5*e^6 + 5*a^4*b
*d^4*e^7 - a^5*d^3*e^8)*x^3 + 15*(b^5*d^9*e^2 - 5*a*b^4*d^8*e^3 +
 10*a^2*b^3*d^7*e^4 - 10*a^3*b^2*d^6*e^5 + 5*a^4*b*d^5*e^6 - a^5*
d^4*e^7)*x^2 + 6*(b^5*d^10*e - 5*a*b^4*d^9*e^2 + 10*a^2*b^3*d^8*e
^3 - 10*a^3*b^2*d^7*e^4 + 5*a^4*b*d^6*e^5 - a^5*d^5*e^6)*x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(b*x+a)**(1/2)/(e*x+d)**(13/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.401902, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/(e*x + d)^(13/2),x, algorithm="giac")
```

```
[Out] Done
```

3.2193 $\int \frac{\sqrt{a+bx}(A+Bx)}{(d+ex)^{15/2}}\,dx$

Optimal. Leaf size=309

$$\frac{256b^4(a+bx)^{3/2}(-13aBe+10Abe+3bBd)}{45045e(d+ex)^{3/2}(bd-ae)^6}+\frac{128b^3(a+bx)^{3/2}(-13aBe+10Abe+3bBd)}{15015e(d+ex)^{5/2}(bd-ae)^5}+\frac{32b^2(a+bx)^{3/2}(-13aBe+10Abe+3bBd)}{3003e(d+ex)^{7/2}(bd-ae)^4}+\frac{16b(a+bx)^{3/2}(-13aBe+10Abe+3bBd)}{1287e(d+ex)^{9/2}(bd-ae)^3}+\frac{2(a+bx)^{3/2}(-13aBe+10Abe+3bBd)}{143e(d+ex)^{11/2}(bd-ae)^2}-\frac{2(a+bx)^{3/2}(Bd-Ae)}{13e(d+ex)^{13/2}(bd-ae)}$$

```
[Out] (-2*(B*d - A*e)*(a + b*x)^(3/2))/(13*e*(b*d - a*e)*(d + e*x)^(13/
2)) + (2*(3*b*B*d + 10*A*b*e - 13*a*B*e)*(a + b*x)^(3/2))/(143*e*
(b*d - a*e)^2*(d + e*x)^(11/2)) + (16*b*(3*b*B*d + 10*A*b*e - 13*
a*B*e)*(a + b*x)^(3/2))/(1287*e*(b*d - a*e)^3*(d + e*x)^(9/2)) +
(32*b^2*(3*b*B*d + 10*A*b*e - 13*a*B*e)*(a + b*x)^(3/2))/(3003*e*
(b*d - a*e)^4*(d + e*x)^(7/2)) + (128*b^3*(3*b*B*d + 10*A*b*e - 1
3*a*B*e)*(a + b*x)^(3/2))/(15015*e*(b*d - a*e)^5*(d + e*x)^(5/2))
 + (256*b^4*(3*b*B*d + 10*A*b*e - 13*a*B*e)*(a + b*x)^(3/2))/(450
45*e*(b*d - a*e)^6*(d + e*x)^(3/2))
```

Rubi [A] time = 0.577748, antiderivative size = 309, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.125$

$$\frac{256b^4(a+bx)^{3/2}(-13aBe+10Abe+3bBd)}{45045e(d+ex)^{3/2}(bd-ae)^6}+\frac{128b^3(a+bx)^{3/2}(-13aBe+10Abe+3bBd)}{15015e(d+ex)^{5/2}(bd-ae)^5}+\frac{32b^2(a+bx)^{3/2}(-13aBe+10Abe+3bBd)}{3003e(d+ex)^{7/2}(bd-ae)^4}+\frac{16b(a+bx)^{3/2}(-13aBe+10Abe+3bBd)}{1287e(d+ex)^{9/2}(bd-ae)^3}+\frac{2(a+bx)^{3/2}(-13aBe+10Abe+3bBd)}{143e(d+ex)^{11/2}(bd-ae)^2}-\frac{2(a+bx)^{3/2}(Bd-Ae)}{13e(d+ex)^{13/2}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[a + b*x]*(A + B*x))/(d + e*x)^(15/2),x]
```


```
[Out] (-2*(B*d - A*e)*(a + b*x)^(3/2))/(13*e*(b*d - a*e)*(d + e*x)^(13/
2)) + (2*(3*b*B*d + 10*A*b*e - 13*a*B*e)*(a + b*x)^(3/2))/(143*e*
(b*d - a*e)^2*(d + e*x)^(11/2)) + (16*b*(3*b*B*d + 10*A*b*e - 13*
a*B*e)*(a + b*x)^(3/2))/(1287*e*(b*d - a*e)^3*(d + e*x)^(9/2)) +
(32*b^2*(3*b*B*d + 10*A*b*e - 13*a*B*e)*(a + b*x)^(3/2))/(3003*e*
(b*d - a*e)^4*(d + e*x)^(7/2)) + (128*b^3*(3*b*B*d + 10*A*b*e - 1
3*a*B*e)*(a + b*x)^(3/2))/(15015*e*(b*d - a*e)^5*(d + e*x)^(5/2))
 + (256*b^4*(3*b*B*d + 10*A*b*e - 13*a*B*e)*(a + b*x)^(3/2))/(450
45*e*(b*d - a*e)^6*(d + e*x)^(3/2))
```

Rubi in Sympy [A] time = 67.6272, size = 301, normalized size = 0.97

$$\frac{256b^4\left(a+bx\right)^{\frac{3}{2}}\left(10Abe-13Bae+3Bbd\right)}{45045e\left(d+ex\right)^{\frac{3}{2}}\left(ae-bd\right)^6}-\frac{128b^3\left(a+bx\right)^{\frac{3}{2}}\left(10Abe-13Bae+3Bbd\right)}{15015e\left(d+ex\right)^{\frac{5}{2}}\left(ae-bd\right)^5}+\frac{32b^2\left(a+bx\right)^{\frac{3}{2}}\left(10Abe-13Bae+3Bbd\right)}{3003e\left(d+ex\right)^{\frac{7}{2}}\left(ae-bd\right)^4}-\frac{16b\left(a+bx\right)^{\frac{3}{2}}\left(10Abe-13Bae+3Bbd\right)}{1287e\left(d+ex\right)^{\frac{9}{2}}\left(ae-bd\right)^3}+\frac{2\left(a+bx\right)^{\frac{3}{2}}\left(10Abe-13Bae+3Bbd\right)}{143e\left(d+ex\right)^{\frac{11}{2}}\left(ae-bd\right)^2}-\frac{2\left(a+bx\right)^{\frac{3}{2}}\left(Ae-Bd\right)}{13e\left(d+ex\right)^{\frac{13}{2}}\left(ae-bd\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(b*x+a)**(1/2)/(e*x+d)**(15/2),x)
```

```
[Out] 256*b**4*(a + b*x)**(3/2)*(10*A*b*e - 13*B*a*e + 3*B*b*d)/(45045*
e*(d + e*x)**(3/2)*(a*e - b*d)**6) - 128*b**3*(a + b*x)**(3/2)*(1
0*A*b*e - 13*B*a*e + 3*B*b*d)/(15015*e*(d + e*x)**(5/2)*(a*e - b*
d)**5) + 32*b**2*(a + b*x)**(3/2)*(10*A*b*e - 13*B*a*e + 3*B*b*d)
/(3003*e*(d + e*x)**(7/2)*(a*e - b*d)**4) - 16*b*(a + b*x)**(3/2)
*(10*A*b*e - 13*B*a*e + 3*B*b*d)/(1287*e*(d + e*x)**(9/2)*(a*e -
b*d)**3) + 2*(a + b*x)**(3/2)*(10*A*b*e - 13*B*a*e + 3*B*b*d)/(14
3*e*(d + e*x)**(11/2)*(a*e - b*d)**2) - 2*(a + b*x)**(3/2)*(A*e -
 B*d)/(13*e*(d + e*x)**(13/2)*(a*e - b*d))
```

Mathematica [A] time = 0.528408, size = 256, normalized size = 0.83

$$\frac{2\sqrt{a+bx}\left(\frac{128b^5(d+ex)^6(-13aBe+10Abe+3bBd)}{(bd-ae)^6}+\frac{64b^4(d+ex)^5(-13aBe+10Abe+3bBd)}{(bd-ae)^5}+\frac{48b^3(d+ex)^4(-13aBe+10Abe+3bBd)}{(bd-ae)^4}+\frac{40b^2(d+ex)^3(-13a\ldots}{(bd-\ldots}\right.}{45045e^2(d+ex)^{13/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[a + b*x]*(A + B*x))/(d + e*x)^(15/2),x]
```

```
[Out] (2*Sqrt[a + b*x]*(3465*(B*d - A*e) - (315*(-14*b*B*d + A*b*e + 13
*a*B*e)*(d + e*x))/(-(b*d) + a*e) + (35*b*(3*b*B*d + 10*A*b*e - 1
3*a*B*e)*(d + e*x)^2)/(b*d - a*e)^2 + (40*b^2*(3*b*B*d + 10*A*b*e
 - 13*a*B*e)*(d + e*x)^3)/(b*d - a*e)^3 + (48*b^3*(3*b*B*d + 10*A
*b*e - 13*a*B*e)*(d + e*x)^4)/(b*d - a*e)^4 + (64*b^4*(3*b*B*d +
10*A*b*e - 13*a*B*e)*(d + e*x)^5)/(b*d - a*e)^5 + (128*b^5*(3*b*B
*d + 10*A*b*e - 13*a*B*e)*(d + e*x)^6)/(b*d - a*e)^6))/(45045*e^2
*(d + e*x)^(13/2))
```

Maple [B] time = 0.019, size = 722, normalized size = 2.3

$$-\frac{-2560\,Ab^5e^5x^5+3328\,Bab^4e^5x^5-768\,Bb^5de^4x^5+3840\,Aab^4e^5x^4-16640\,Ab^5de^4x^4-4992\,Ba^2b^3e^5x^4+22784\,Bab^4de^4x\ldots}{\ldots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(b*x+a)^(1/2)/(e*x+d)^(15/2),x)
```

```
[Out] -2/45045*(b*x+a)^(3/2)*(-1280*A*b^5*e^5*x^5+1664*B*a*b^4*e^5*x^5-
384*B*b^5*d*e^4*x^5+1920*A*a*b^4*e^5*x^4-8320*A*b^5*d*e^4*x^4-249
6*B*a^2*b^3*e^5*x^4+11392*B*a*b^4*d*e^4*x^4-2496*B*b^5*d^2*e^3*x^
4-2400*A*a^2*b^3*e^5*x^3+12480*A*a*b^4*d*e^4*x^3-22880*A*b^5*d^2*
e^3*x^3+3120*B*a^3*b^2*e^5*x^3-16944*B*a^2*b^3*d*e^4*x^3+33488*B*
a*b^4*d^2*e^3*x^3-6864*B*b^5*d^3*e^2*x^3+2800*A*a^3*b^2*e^5*x^2-1
5600*A*a^2*b^3*d*e^4*x^2+34320*A*a*b^4*d^2*e^3*x^2-34320*A*b^5*d^
3*e^2*x^2-3640*B*a^4*b*e^5*x^2+21120*B*a^3*b^2*d*e^4*x^2-49296*B*
a^2*b^3*d^2*e^3*x^2+54912*B*a*b^4*d^3*e^2*x^2-10296*B*b^5*d^4*e*x
^2-3150*A*a^4*b*e^5*x+18200*A*a^3*b^2*d*e^4*x-42900*A*a^2*b^3*d^2
*e^3*x+51480*A*a*b^4*d^3*e^2*x-30030*A*b^5*d^4*e*x+4095*B*a^5*e^5
*x-24605*B*a^4*b*d*e^4*x+61230*B*a^3*b^2*d^2*e^3*x-79794*B*a^2*b^
3*d^3*e^2*x+54483*B*a*b^4*d^4*e*x-9009*B*b^5*d^5*x+3465*A*a^5*e^5
-20475*A*a^4*b*d*e^4+50050*A*a^3*b^2*d^2*e^3-64350*A*a^2*b^3*d^3*
e^2+45045*A*a*b^4*d^4*e-15015*A*b^5*d^5+630*B*a^5*d*e^4-3640*B*a^
4*b*d^2*e^3+8580*B*a^3*b^2*d^3*e^2-10296*B*a^2*b^3*d^4*e+6006*B*a
*b^4*d^5)/(e*x+d)^(13/2)/(a^6*e^6-6*a^5*b*d*e^5+15*a^4*b^2*d^2*e^
4-20*a^3*b^3*d^3*e^3+15*a^2*b^4*d^4*e^2-6*a*b^5*d^5*e+b^6*d^6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*sqrt(b*x + a)/(e*x + d)^(15/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 14.5667, size = 1926, normalized size = 6.23

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*sqrt(b*x + a)/(e*x + d)^(15/2),x, algorithm="fricas")
```

```
[Out] -2/45045*(3465*A*a^6*e^5 - 128*(3*B*b^6*d*e^4 - (13*B*a*b^5 - 10*
A*b^6)*e^5)*x^6 + 3003*(2*B*a^2*b^4 - 5*A*a*b^5)*d^5 - 1287*(8*B*
a^3*b^3 - 35*A*a^2*b^4)*d^4*e + 4290*(2*B*a^4*b^2 - 15*A*a^3*b^3)
*d^3*e^2 - 910*(4*B*a^5*b - 55*A*a^4*b^2)*d^2*e^3 + 315*(2*B*a^6
- 65*A*a^5*b)*d*e^4 - 64*(39*B*b^6*d^2*e^3 - 2*(86*B*a*b^5 - 65*A
*b^6)*d*e^4 + (13*B*a^2*b^4 - 10*A*a*b^5)*e^5)*x^5 - 16*(429*B*b^
6*d^3*e^2 - 13*(149*B*a*b^5 - 110*A*b^6)*d^2*e^3 + (347*B*a^2*b^4
 - 260*A*a*b^5)*d*e^4 - 3*(13*B*a^3*b^3 - 10*A*a^2*b^4)*e^5)*x^4
- 8*(1287*B*b^6*d^4*e - 858*(7*B*a*b^5 - 5*A*b^6)*d^3*e^2 + 26*(7
6*B*a^2*b^4 - 55*A*a*b^5)*d^2*e^3 - 6*(87*B*a^3*b^3 - 65*A*a^2*b^
4)*d*e^4 + 5*(13*B*a^4*b^2 - 10*A*a^3*b^3)*e^5)*x^3 - (9009*B*b^6
*d^5 - 429*(103*B*a*b^5 - 70*A*b^6)*d^4*e + 858*(29*B*a^2*b^4 - 2
0*A*a*b^5)*d^3*e^2 - 78*(153*B*a^3*b^3 - 110*A*a^2*b^4)*d^2*e^3 +
 5*(697*B*a^4*b^2 - 520*A*a^3*b^3)*d*e^4 - 35*(13*B*a^5*b - 10*A*
a^4*b^2)*e^5)*x^2 - (3003*(B*a*b^5 + 5*A*b^6)*d^5 - 429*(103*B*a^
2*b^4 + 35*A*a*b^5)*d^4*e + 858*(83*B*a^3*b^3 + 15*A*a^2*b^4)*d^3
*e^2 - 130*(443*B*a^4*b^2 + 55*A*a^3*b^3)*d^2*e^3 + 175*(137*B*a^
5*b + 13*A*a^4*b^2)*d*e^4 - 315*(13*B*a^6 + A*a^5*b)*e^5)*x)*sqrt
(b*x + a)*sqrt(e*x + d)/(b^6*d^13 - 6*a*b^5*d^12*e + 15*a^2*b^4*d
^11*e^2 - 20*a^3*b^3*d^10*e^3 + 15*a^4*b^2*d^9*e^4 - 6*a^5*b*d^8*
e^5 + a^6*d^7*e^6 + (b^6*d^6*e^7 - 6*a*b^5*d^5*e^8 + 15*a^2*b^4*d
^4*e^9 - 20*a^3*b^3*d^3*e^10 + 15*a^4*b^2*d^2*e^11 - 6*a^5*b*d*e^
12 + a^6*e^13)*x^7 + 7*(b^6*d^7*e^6 - 6*a*b^5*d^6*e^7 + 15*a^2*b^
4*d^5*e^8 - 20*a^3*b^3*d^4*e^9 + 15*a^4*b^2*d^3*e^10 - 6*a^5*b*d^
2*e^11 + a^6*d*e^12)*x^6 + 21*(b^6*d^8*e^5 - 6*a*b^5*d^7*e^6 + 15
*a^2*b^4*d^6*e^7 - 20*a^3*b^3*d^5*e^8 + 15*a^4*b^2*d^4*e^9 - 6*a^
5*b*d^3*e^10 + a^6*d^2*e^11)*x^5 + 35*(b^6*d^9*e^4 - 6*a*b^5*d^8*
e^5 + 15*a^2*b^4*d^7*e^6 - 20*a^3*b^3*d^6*e^7 + 15*a^4*b^2*d^5*e^
8 - 6*a^5*b*d^4*e^9 + a^6*d^3*e^10)*x^4 + 35*(b^6*d^10*e^3 - 6*a*
b^5*d^9*e^4 + 15*a^2*b^4*d^8*e^5 - 20*a^3*b^3*d^7*e^6 + 15*a^4*b^
2*d^6*e^7 - 6*a^5*b*d^5*e^8 + a^6*d^4*e^9)*x^3 + 21*(b^6*d^11*e^2
 - 6*a*b^5*d^10*e^3 + 15*a^2*b^4*d^9*e^4 - 20*a^3*b^3*d^8*e^5 + 1
5*a^4*b^2*d^7*e^6 - 6*a^5*b*d^6*e^7 + a^6*d^5*e^8)*x^2 + 7*(b^6*d
^12*e - 6*a*b^5*d^11*e^2 + 15*a^2*b^4*d^10*e^3 - 20*a^3*b^3*d^9*e
^4 + 15*a^4*b^2*d^8*e^5 - 6*a^5*b*d^7*e^6 + a^6*d^6*e^7)*x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x+A)*(b*x+a)**(1/2)/(e*x+d)**(15/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.523678, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(b*x + a)/(e*x + d)^(15/2),x, algorithm="giac")
```

```
[Out] Done
```

3.2194 $\int (a+bx)^{3/2}(A+Bx)(d+ex)^{5/2}\,dx$

Optimal. Leaf size=358

$$-\frac{(bd-ae)^5(7aBe-12Abe+5bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{512b^{9/2}e^{7/2}}+\frac{\sqrt{a+bx}\sqrt{d+ex}(bd-ae)^4(7aBe-12Abe+5bBd)}{512b^4e^3}-\frac{(a+bx)^{3/2}\sqrt{d+ex}(bd-ae)^3(7aBe-12Abe+5bBd)}{768b^4e^2}-\frac{(a+bx)^{5/2}\sqrt{d+ex}(bd-ae)^2(7aBe-12Abe+5bBd)}{192b^4e}-\frac{(a+bx)^{5/2}(d+ex)^{3/2}(bd-ae)(7aBe-12Abe+5bBd)}{96b^3e}-\frac{(a+bx)^{5/2}(d+ex)^{5/2}(7aBe-12Abe+5bBd)}{60b^2e}+\frac{B(a+bx)^{5/2}(d+ex)^{7/2}}{6be}$$

```
[Out] ((b*d - a*e)^4*(5*b*B*d - 12*A*b*e + 7*a*B*e)*Sqrt[a + b*x]*Sqrt[
d + e*x])/(512*b^4*e^3) - ((b*d - a*e)^3*(5*b*B*d - 12*A*b*e + 7*
a*B*e)*(a + b*x)^(3/2)*Sqrt[d + e*x])/(768*b^4*e^2) - ((b*d - a*e
)^2*(5*b*B*d - 12*A*b*e + 7*a*B*e)*(a + b*x)^(5/2)*Sqrt[d + e*x])
/(192*b^4*e) - ((b*d - a*e)*(5*b*B*d - 12*A*b*e + 7*a*B*e)*(a + b
*x)^(5/2)*(d + e*x)^(3/2))/(96*b^3*e) - ((5*b*B*d - 12*A*b*e + 7*
a*B*e)*(a + b*x)^(5/2)*(d + e*x)^(5/2))/(60*b^2*e) + (B*(a + b*x)
^(5/2)*(d + e*x)^(7/2))/(6*b*e) - ((b*d - a*e)^5*(5*b*B*d - 12*A*
b*e + 7*a*B*e)*ArcTanh[(Sqrt[e]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[d +
e*x])])/(512*b^(9/2)*e^(7/2))
```

Rubi [A] time = 0.814931, antiderivative size = 358, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$-\frac{(bd-ae)^5(7aBe-12Abe+5bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{512b^{9/2}e^{7/2}}+\frac{\sqrt{a+bx}\sqrt{d+ex}(bd-ae)^4(7aBe-12Abe+5bBd)}{512b^4e^3}-\frac{(a+bx)^{3/2}\sqrt{d+ex}(bd-ae)^3(7aBe-12Abe+5bBd)}{768b^4e^2}-\frac{(a+bx)^{5/2}\sqrt{d+ex}(bd-ae)^2(7aBe-12Abe+5bBd)}{192b^4e}-\frac{(a+bx)^{5/2}(d+ex)^{3/2}(bd-ae)(7aBe-12Abe+5bBd)}{96b^3e}-\frac{(a+bx)^{5/2}(d+ex)^{5/2}(7aBe-12Abe+5bBd)}{60b^2e}+\frac{B(a+bx)^{5/2}(d+ex)^{7/2}}{6be}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(3/2)*(A + B*x)*(d + e*x)^(5/2),x]
```


```
[Out] ((b*d - a*e)^4*(5*b*B*d - 12*A*b*e + 7*a*B*e)*Sqrt[a + b*x]*Sqrt[
d + e*x])/(512*b^4*e^3) - ((b*d - a*e)^3*(5*b*B*d - 12*A*b*e + 7*
a*B*e)*(a + b*x)^(3/2)*Sqrt[d + e*x])/(768*b^4*e^2) - ((b*d - a*e
)^2*(5*b*B*d - 12*A*b*e + 7*a*B*e)*(a + b*x)^(5/2)*Sqrt[d + e*x])
/(192*b^4*e) - ((b*d - a*e)*(5*b*B*d - 12*A*b*e + 7*a*B*e)*(a + b
*x)^(5/2)*(d + e*x)^(3/2))/(96*b^3*e) - ((5*b*B*d - 12*A*b*e + 7*
a*B*e)*(a + b*x)^(5/2)*(d + e*x)^(5/2))/(60*b^2*e) + (B*(a + b*x)
^(5/2)*(d + e*x)^(7/2))/(6*b*e) - ((b*d - a*e)^5*(5*b*B*d - 12*A*
b*e + 7*a*B*e)*ArcTanh[(Sqrt[e]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[d +
e*x])])/(512*b^(9/2)*e^(7/2))
```

Rubi in Sympy [A] time = 75.2077, size = 350, normalized size = 0.98

$$\frac{B(a+bx)^{\frac{5}{2}}(d+ex)^{\frac{7}{2}}}{6be}+\frac{(a+bx)^{\frac{3}{2}}(d+ex)^{\frac{7}{2}}(12Abe-7Bae-5Bbd)}{60be^2}+\frac{\sqrt{a+bx}(d+ex)^{\frac{7}{2}}(ae-bd)(12Abe-7Bae-5Bbd)}{160be^3}+\frac{\sqrt{a+bx}(d+ex)^{\frac{5}{2}}(ae-bd)^2(12Abe-7Bae-5Bbd)}{960b^2e^3}-\frac{\sqrt{a+bx}(d+ex)^{\frac{3}{2}}(ae-bd)^3(12Abe-7Bae-5Bbd)}{768b^3e^3}+\frac{\sqrt{a+bx}\sqrt{d+ex}(ae-bd)^4(12Abe-7Bae-5Bbd)}{512b^4e^3}-\frac{(ae-bd)^5(12Abe-7Bae-5Bbd)\operatorname{atanh}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{512b^{\frac{9}{2}}e^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(B*x+A)*(e*x+d)**(5/2),x)
```

```
[Out] B*(a + b*x)**(5/2)*(d + e*x)**(7/2)/(6*b*e) + (a + b*x)**(3/2)*(d
 + e*x)**(7/2)*(12*A*b*e - 7*B*a*e - 5*B*b*d)/(60*b*e**2) + sqrt(
a + b*x)*(d + e*x)**(7/2)*(a*e - b*d)*(12*A*b*e - 7*B*a*e - 5*B*b
*d)/(160*b*e**3) + sqrt(a + b*x)*(d + e*x)**(5/2)*(a*e - b*d)**2*
(12*A*b*e - 7*B*a*e - 5*B*b*d)/(960*b**2*e**3) - sqrt(a + b*x)*(d
 + e*x)**(3/2)*(a*e - b*d)**3*(12*A*b*e - 7*B*a*e - 5*B*b*d)/(768
*b**3*e**3) + sqrt(a + b*x)*sqrt(d + e*x)*(a*e - b*d)**4*(12*A*b*
e - 7*B*a*e - 5*B*b*d)/(512*b**4*e**3) - (a*e - b*d)**5*(12*A*b*e
 - 7*B*a*e - 5*B*b*d)*atanh(sqrt(e)*sqrt(a + b*x)/(sqrt(b)*sqrt(d
 + e*x)))/(512*b**(9/2)*e**(7/2))
```

Mathematica [A] time = 0.739197, size = 445, normalized size = 1.24

$$\frac{\sqrt{a+bx}\sqrt{d+ex}\left(-105a^5Be^5+5a^4be^4(36Ae+83Bd+14Bex)-2a^3b^2e^3\left(60Ae(7d+ex)+B\left(273d^2+136dex+28e^2x^2\right)\right)+\right.}{}$$

$$+\frac{(bd-ae)^5(-7aBe+12Abe-5bBd)\log\left(2\sqrt{b}\sqrt{e}\sqrt{a+bx}\sqrt{d+ex}+ae+bd+2bex\right)}{1024b^{9/2}e^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(3/2)*(A + B*x)*(d + e*x)^(5/2),x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[d + e*x]*(-105*a^5*B*e^5 + 5*a^4*b*e^4*(83*B*
d + 36*A*e + 14*B*e*x) - 2*a^3*b^2*e^3*(60*A*e*(7*d + e*x) + B*(2
73*d^2 + 136*d*e*x + 28*e^2*x^2)) + 6*a^2*b^3*e^2*(4*A*e*(64*d^2
+ 23*d*e*x + 4*e^2*x^2) + B*(25*d^3 + 58*d^2*e*x + 36*d*e^2*x^2 +
 8*e^3*x^3)) + a*b^4*e*(24*A*e*(35*d^3 + 233*d^2*e*x + 256*d*e^2*
x^2 + 88*e^3*x^3) + B*(-245*d^4 + 160*d^3*e*x + 3384*d^2*e^2*x^2
+ 4448*d*e^3*x^3 + 1664*e^4*x^4)) + b^5*(12*A*e*(-15*d^4 + 10*d^3
*e*x + 248*d^2*e^2*x^2 + 336*d*e^3*x^3 + 128*e^4*x^4) + 5*B*(15*d
^5 - 10*d^4*e*x + 8*d^3*e^2*x^2 + 432*d^2*e^3*x^3 + 640*d*e^4*x^4
 + 256*e^5*x^5))))/(7680*b^4*e^3) + ((b*d - a*e)^5*(-5*b*B*d + 12
*A*b*e - 7*a*B*e)*Log[b*d + a*e + 2*b*e*x + 2*Sqrt[b]*Sqrt[e]*Sqr
t[a + b*x]*Sqrt[d + e*x]])/(1024*b^(9/2)*e^(7/2))
```

Maple [B] time = 0.033, size = 2198, normalized size = 6.1

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(B*x+A)*(e*x+d)^(5/2),x)
```

```
[Out] -1/15360*(b*x+a)^(1/2)*(e*x+d)^(1/2)*(900*ln(1/2*(2*b*x*e+2*(b*e*
x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*d^4*
a*b^5*A*e^2-105*e^6*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(
1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^6*B+75*b^6*ln(1/2*(2*b*x
*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(
1/2))*d^6*B+240*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*x*a^3*e^5*A*b^2*(
b*e)^(1/2)-240*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*x*d^3*b^5*A*(b*e)^
(1/2)*e^2-140*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*x*a^4*B*e^5*b*(b*e)
^(1/2)-696*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*x*a^2*d^2*B*b^3*(b*e)^
(1/2)*e^3+180*e^6*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/
2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^5*A*b-675*ln(1/2*(2*b*x*e+
2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2
))*a^4*d^2*B*e^4*b^2+300*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a
*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^3*d^3*B*b^3*e^3+225
*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*
e+b*d)/(b*e)^(1/2))*a^2*d^4*B*b^4*e^2-270*b^5*ln(1/2*(2*b*x*e+2*(
b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*
d^5*B*a*e-360*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*a^4*e^5*A*b*(b*e)^(
1/2)+360*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*d^4*b^5*A*(b*e)^(1/2)*e+
544*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*x*a^3*B*d*e^4*b^2*(b*e)^(1/2)
-11184*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*x*a*d^2*A*b^4*(b*e)^(1/2)*
e^3-1104*e^4*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*x*a^2*d*A*b^3*(b*e)^
(1/2)-320*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*x*d^3*B*a*b^4*(b*e)^(1/
2)*e^2-8896*B*x^3*a*b^4*d*e^4*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*
e)^(1/2)-12288*A*x^2*a*b^4*d*e^4*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*
(b*e)^(1/2)-432*B*x^2*a^2*b^3*d*e^4*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/
2)*(b*e)^(1/2)-6768*B*x^2*a*b^4*d^2*e^3*(b*e*x^2+a*e*x+b*d*x+a*d)
^(1/2)*(b*e)^(1/2)+450*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d
)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^5*d*B*e^5*b-2560*B*x^
5*b^5*e^5*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)-3072*A*x^4*
b^5*e^5*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)-900*ln(1/2*(2
*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*
e)^(1/2))*a^4*d*e^5*A*b^2+1800*e^4*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e
*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^3*d^2*A*b
^3-1800*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(
1/2)+a*e+b*d)/(b*e)^(1/2))*a^2*d^3*A*b^4*e^3-6400*B*x^4*b^5*d*e^4
*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)-4224*A*x^3*a*b^4*e^5
*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)-8064*A*x^3*b^5*d*e^4
*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)-96*B*x^3*a^2*b^3*e^5
*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)-4320*B*x^3*b^5*d^2*e
^3*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)-192*A*x^2*a^2*b^3*
e^5*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)-5952*A*x^2*b^5*d^
2*e^3*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+112*B*x^2*a^3*b
^2*e^5*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)-80*B*x^2*b^5*d
^3*e^2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)-3072*A*a^2*b^3
*d^2*e^3*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)-3328*B*x^4*a
*b^4*e^5*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+100*(b*e*x^2
+a*e*x+b*d*x+a*d)^(1/2)*x*d^4*B*b^5*(b*e)^(1/2)*e+1680*e^4*(b*e*x
^2+a*e*x+b*d*x+a*d)^(1/2)*a^3*d*A*b^2*(b*e)^(1/2)-1680*(b*e*x^2+a
*e*x+b*d*x+a*d)^(1/2)*a*d^3*A*b^4*(b*e)^(1/2)*e^2-830*e^4*(b*e*x^
2+a*e*x+b*d*x+a*d)^(1/2)*a^4*d*B*b*(b*e)^(1/2)+1092*(b*e*x^2+a*e*
x+b*d*x+a*d)^(1/2)*a^3*d^2*B*b^2*(b*e)^(1/2)*e^3-300*(b*e*x^2+a*e
*x+b*d*x+a*d)^(1/2)*a^2*d^3*B*b^3*(b*e)^(1/2)*e^2+490*(b*e*x^2+a*
e*x+b*d*x+a*d)^(1/2)*a*d^4*B*b^4*(b*e)^(1/2)*e-180*b^6*ln(1/2*(2*
b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e
)^(1/2))*d^5*A*e+210*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*a^5*B*e^5*(b
*e)^(1/2)-150*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*d^5*B*b^5*(b*e)^(1/
2))/(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)/b^4/(b*e)^(1/2)/e^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(3/2)*(e*x + d)^(5/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.347556, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(3/2)*(e*x + d)^(5/2),x, algorithm="fricas")
```

```
[Out] [1/30720*(4*(1280*B*b^5*e^5*x^5 + 75*B*b^5*d^5 - 5*(49*B*a*b^4 +
36*A*b^5)*d^4*e + 30*(5*B*a^2*b^3 + 28*A*a*b^4)*d^3*e^2 - 6*(91*B
*a^3*b^2 - 256*A*a^2*b^3)*d^2*e^3 + 5*(83*B*a^4*b - 168*A*a^3*b^2
)*d*e^4 - 15*(7*B*a^5 - 12*A*a^4*b)*e^5 + 128*(25*B*b^5*d*e^4 + (
13*B*a*b^4 + 12*A*b^5)*e^5)*x^4 + 16*(135*B*b^5*d^2*e^3 + 2*(139*
B*a*b^4 + 126*A*b^5)*d*e^4 + 3*(B*a^2*b^3 + 44*A*a*b^4)*e^5)*x^3
+ 8*(5*B*b^5*d^3*e^2 + 3*(141*B*a*b^4 + 124*A*b^5)*d^2*e^3 + 3*(9
*B*a^2*b^3 + 256*A*a*b^4)*d*e^4 - (7*B*a^3*b^2 - 12*A*a^2*b^3)*e^
5)*x^2 - 2*(25*B*b^5*d^4*e - 20*(4*B*a*b^4 + 3*A*b^5)*d^3*e^2 - 6
*(29*B*a^2*b^3 + 466*A*a*b^4)*d^2*e^3 + 4*(34*B*a^3*b^2 - 69*A*a^
2*b^3)*d*e^4 - 5*(7*B*a^4*b - 12*A*a^3*b^2)*e^5)*x)*sqrt(b*e)*sqr
t(b*x + a)*sqrt(e*x + d) + 15*(5*B*b^6*d^6 - 6*(3*B*a*b^5 + 2*A*b
^6)*d^5*e + 15*(B*a^2*b^4 + 4*A*a*b^5)*d^4*e^2 + 20*(B*a^3*b^3 -
6*A*a^2*b^4)*d^3*e^3 - 15*(3*B*a^4*b^2 - 8*A*a^3*b^3)*d^2*e^4 + 3
0*(B*a^5*b - 2*A*a^4*b^2)*d*e^5 - (7*B*a^6 - 12*A*a^5*b)*e^6)*log
(-4*(2*b^2*e^2*x + b^2*d*e + a*b*e^2)*sqrt(b*x + a)*sqrt(e*x + d)
 + (8*b^2*e^2*x^2 + b^2*d^2 + 6*a*b*d*e + a^2*e^2 + 8*(b^2*d*e +
a*b*e^2)*x)*sqrt(b*e)))/(sqrt(b*e)*b^4*e^3), 1/15360*(2*(1280*B*b
^5*e^5*x^5 + 75*B*b^5*d^5 - 5*(49*B*a*b^4 + 36*A*b^5)*d^4*e + 30*
(5*B*a^2*b^3 + 28*A*a*b^4)*d^3*e^2 - 6*(91*B*a^3*b^2 - 256*A*a^2*
b^3)*d^2*e^3 + 5*(83*B*a^4*b - 168*A*a^3*b^2)*d*e^4 - 15*(7*B*a^5
 - 12*A*a^4*b)*e^5 + 128*(25*B*b^5*d*e^4 + (13*B*a*b^4 + 12*A*b^5
)*e^5)*x^4 + 16*(135*B*b^5*d^2*e^3 + 2*(139*B*a*b^4 + 126*A*b^5)*
d*e^4 + 3*(B*a^2*b^3 + 44*A*a*b^4)*e^5)*x^3 + 8*(5*B*b^5*d^3*e^2
+ 3*(141*B*a*b^4 + 124*A*b^5)*d^2*e^3 + 3*(9*B*a^2*b^3 + 256*A*a*
b^4)*d*e^4 - (7*B*a^3*b^2 - 12*A*a^2*b^3)*e^5)*x^2 - 2*(25*B*b^5*
d^4*e - 20*(4*B*a*b^4 + 3*A*b^5)*d^3*e^2 - 6*(29*B*a^2*b^3 + 466*
A*a*b^4)*d^2*e^3 + 4*(34*B*a^3*b^2 - 69*A*a^2*b^3)*d*e^4 - 5*(7*B
*a^4*b - 12*A*a^3*b^2)*e^5)*x)*sqrt(-b*e)*sqrt(b*x + a)*sqrt(e*x
+ d) - 15*(5*B*b^6*d^6 - 6*(3*B*a*b^5 + 2*A*b^6)*d^5*e + 15*(B*a^
2*b^4 + 4*A*a*b^5)*d^4*e^2 + 20*(B*a^3*b^3 - 6*A*a^2*b^4)*d^3*e^3
 - 15*(3*B*a^4*b^2 - 8*A*a^3*b^3)*d^2*e^4 + 30*(B*a^5*b - 2*A*a^4
*b^2)*d*e^5 - (7*B*a^6 - 12*A*a^5*b)*e^6)*arctan(1/2*(2*b*e*x + b
*d + a*e)*sqrt(-b*e)/(sqrt(b*x + a)*sqrt(e*x + d)*b*e)))/(sqrt(-b
*e)*b^4*e^3)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)*(B*x+A)*(e*x+d)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.529233, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(3/2)*(e*x + d)^(5/2),x, algorithm="giac")
```

```
[Out] Done
```

3.2195 $\int (a+bx)^{3/2}(A+Bx)(d+ex)^{3/2}\,dx$

Optimal. Leaf size=304

$$\frac{3(bd-ae)^4(2Abe-B(ae+bd))\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{128b^{7/2}e^{7/2}} - \frac{3\sqrt{a+bx}\sqrt{d+ex}(bd-ae)^3(2Abe-B(ae+bd))}{128b^3e^3} + \frac{(a+bx)^{3/2}\sqrt{d+ex}(bd-ae)^2(2Abe-B(ae+bd))}{64b^3e^2} + \frac{(a+bx)^{5/2}\sqrt{d+ex}(bd-ae)(2Abe-B(ae+bd))}{16b^3e} + \frac{(a+bx)^{5/2}(d+ex)^{3/2}(2Abe-B(ae+bd))}{8b^2e} + \frac{B(a+bx)^{5/2}(d+ex)^{5/2}}{5be}$$

```
[Out] (-3*(b*d - a*e)^3*(2*A*b*e - B*(b*d + a*e))*Sqrt[a + b*x]*Sqrt[d
+ e*x])/(128*b^3*e^3) + ((b*d - a*e)^2*(2*A*b*e - B*(b*d + a*e))*
(a + b*x)^(3/2)*Sqrt[d + e*x])/(64*b^3*e^2) + ((b*d - a*e)*(2*A*b
*e - B*(b*d + a*e))*(a + b*x)^(5/2)*Sqrt[d + e*x])/(16*b^3*e) + (
(2*A*b*e - B*(b*d + a*e))*(a + b*x)^(5/2)*(d + e*x)^(3/2))/(8*b^2
*e) + (B*(a + b*x)^(5/2)*(d + e*x)^(5/2))/(5*b*e) + (3*(b*d - a*e
)^4*(2*A*b*e - B*(b*d + a*e))*ArcTanh[(Sqrt[e]*Sqrt[a + b*x])/(Sq
rt[b]*Sqrt[d + e*x])])/(128*b^(7/2)*e^(7/2))
```

Rubi [A] time = 0.636911, antiderivative size = 304, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$\frac{3(bd-ae)^4(2Abe-B(ae+bd))\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{128b^{7/2}e^{7/2}} - \frac{3\sqrt{a+bx}\sqrt{d+ex}(bd-ae)^3(2Abe-B(ae+bd))}{128b^3e^3} + \frac{(a+bx)^{3/2}\sqrt{d+ex}(bd-ae)^2(2Abe-B(ae+bd))}{64b^3e^2} + \frac{(a+bx)^{5/2}\sqrt{d+ex}(bd-ae)(2Abe-B(ae+bd))}{16b^3e} + \frac{(a+bx)^{5/2}(d+ex)^{3/2}(2Abe-B(ae+bd))}{8b^2e} + \frac{B(a+bx)^{5/2}(d+ex)^{5/2}}{5be}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(3/2)*(A + B*x)*(d + e*x)^(3/2),x]
```


```
[Out] (-3*(b*d - a*e)^3*(2*A*b*e - B*(b*d + a*e))*Sqrt[a + b*x]*Sqrt[d
+ e*x])/(128*b^3*e^3) + ((b*d - a*e)^2*(2*A*b*e - B*(b*d + a*e))*
(a + b*x)^(3/2)*Sqrt[d + e*x])/(64*b^3*e^2) + ((b*d - a*e)*(2*A*b
*e - B*(b*d + a*e))*(a + b*x)^(5/2)*Sqrt[d + e*x])/(16*b^3*e) + (
(2*A*b*e - B*(b*d + a*e))*(a + b*x)^(5/2)*(d + e*x)^(3/2))/(8*b^2
*e) + (B*(a + b*x)^(5/2)*(d + e*x)^(5/2))/(5*b*e) + (3*(b*d - a*e
)^4*(2*A*b*e - B*(b*d + a*e))*ArcTanh[(Sqrt[e]*Sqrt[a + b*x])/(Sq
rt[b]*Sqrt[d + e*x])])/(128*b^(7/2)*e^(7/2))
```

Rubi in Sympy [A] time = 56.8905, size = 275, normalized size = 0.9

$$\frac{B(a+bx)^{\frac{5}{2}}(d+ex)^{\frac{5}{2}}}{5be}-\frac{(a+bx)^{\frac{3}{2}}(d+ex)^{\frac{5}{2}}\left(-Abe+\frac{B(ae+bd)}{2}\right)}{4be^2}+\frac{\sqrt{a+bx}\,(d+ex)^{\frac{5}{2}}(ae-bd)(2Abe-Bae-Bbd)}{16be^3}-\frac{\sqrt{a+bx}\,(d+ex)^{\frac{3}{2}}(ae-bd)^2\left(-Abe+\frac{B(ae+bd)}{2}\right)}{32b^2e^3}+\frac{3\sqrt{a+bx}\sqrt{d+ex}\,(ae-bd)^3\left(-Abe+\frac{B(ae+bd)}{2}\right)}{64b^3e^3}-\frac{3(ae-bd)^4\left(-Abe+\frac{B(ae+bd)}{2}\right)\operatorname{atanh}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{64b^{\frac{7}{2}}e^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(B*x+A)*(e*x+d)**(3/2),x)
```

```
[Out] B*(a + b*x)**(5/2)*(d + e*x)**(5/2)/(5*b*e) - (a + b*x)**(3/2)*(d
 + e*x)**(5/2)*(-A*b*e + B*(a*e + b*d)/2)/(4*b*e**2) + sqrt(a + b
*x)*(d + e*x)**(5/2)*(a*e - b*d)*(2*A*b*e - B*a*e - B*b*d)/(16*b*
e**3) - sqrt(a + b*x)*(d + e*x)**(3/2)*(a*e - b*d)**2*(-A*b*e + B
*(a*e + b*d)/2)/(32*b**2*e**3) + 3*sqrt(a + b*x)*sqrt(d + e*x)*(a
*e - b*d)**3*(-A*b*e + B*(a*e + b*d)/2)/(64*b**3*e**3) - 3*(a*e -
 b*d)**4*(-A*b*e + B*(a*e + b*d)/2)*atanh(sqrt(e)*sqrt(a + b*x)/(
sqrt(b)*sqrt(d + e*x)))/(64*b**(7/2)*e**(7/2))
```

Mathematica [A] time = 0.538166, size = 332, normalized size = 1.09

$$\sqrt{a+bx}\sqrt{d+ex}\left(15a^4Be^4-10a^3be^3(3Ae+4Bd+Bex)+2a^2b^2e^2\left(5Ae(11d+2ex)+B\left(9d^2+13dex+4e^2x^2\right)\right)+2ab^3e\left(5A\right.\right.$$

$$-\frac{3(bd-ae)^4(aBe-2Abe+bBd)\log\left(2\sqrt{b}\sqrt{e}\sqrt{a+bx}\sqrt{d+ex}+ae+bd+2bex\right)}{256b^{7/2}e^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(3/2)*(A + B*x)*(d + e*x)^(3/2),x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[d + e*x]*(15*a^4*B*e^4 - 10*a^3*b*e^3*(4*B*d
+ 3*A*e + B*e*x) + 2*a^2*b^2*e^2*(5*A*e*(11*d + 2*e*x) + B*(9*d^2
 + 13*d*e*x + 4*e^2*x^2)) + 2*a*b^3*e*(5*A*e*(11*d^2 + 44*d*e*x +
 24*e^2*x^2) + B*(-20*d^3 + 13*d^2*e*x + 136*d*e^2*x^2 + 88*e^3*x
^3)) + b^4*(10*A*e*(-3*d^3 + 2*d^2*e*x + 24*d*e^2*x^2 + 16*e^3*x^
3) + B*(15*d^4 - 10*d^3*e*x + 8*d^2*e^2*x^2 + 176*d*e^3*x^3 + 128
*e^4*x^4))))/(640*b^3*e^3) - (3*(b*d - a*e)^4*(b*B*d - 2*A*b*e +
a*B*e)*Log[b*d + a*e + 2*b*e*x + 2*Sqrt[b]*Sqrt[e]*Sqrt[a + b*x]*
Sqrt[d + e*x]])/(256*b^(7/2)*e^(7/2))
```

Maple [B] time = 0.024, size = 1631, normalized size = 5.4

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(B*x+A)*(e*x+d)^(3/2),x)
```

```
[Out] 1/1280*(b*x+a)^(1/2)*(e*x+d)^(1/2)*(320*A*x^3*b^4*e^4*(b*e)^(1/2)
*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)-80*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/
```

```
2)*a*d^3*B*b^3*(b*e)^(1/2)*e+352*B*x^3*a*b^3*e^4*(b*e)^(1/2)*(b*e
*x^2+a*e*x+b*d*x+a*d)^(1/2)+352*B*x^3*b^4*d*e^3*(b*e)^(1/2)*(b*e*
x^2+a*e*x+b*d*x+a*d)^(1/2)+480*A*x^2*a*b^3*e^4*(b*e)^(1/2)*(b*e*x
^2+a*e*x+b*d*x+a*d)^(1/2)+480*A*x^2*b^4*d*e^3*(b*e)^(1/2)*(b*e*x^
2+a*e*x+b*d*x+a*d)^(1/2)+16*B*x^2*a^2*b^2*e^4*(b*e)^(1/2)*(b*e*x^
2+a*e*x+b*d*x+a*d)^(1/2)+16*B*x^2*b^4*d^2*e^2*(b*e)^(1/2)*(b*e*x^
2+a*e*x+b*d*x+a*d)^(1/2)+52*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*x*a*d
^2*B*b^3*(b*e)^(1/2)*e^2-15*b^5*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+
b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*d^5*B-15*e^5*B
*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*
e+b*d)/(b*e)^(1/2))*a^5+220*e^3*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*a
^2*d*A*b^2*(b*e)^(1/2)+40*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*x*a^2*e
^4*A*b^2*(b*e)^(1/2)+40*d^2*A*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*x*b
^4*(b*e)^(1/2)*e^2-20*e^4*B*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*x*a^3
*b*(b*e)^(1/2)-20*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*x*d^3*B*b^4*(b*
e)^(1/2)*e+30*e^5*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/
2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^4*A*b+52*(b*e*x^2+a*e*x+b*
d*x+a*d)^(1/2)*x*a^2*d*e^3*B*b^2*(b*e)^(1/2)+880*e^3*(b*e*x^2+a*e
*x+b*d*x+a*d)^(1/2)*x*a*d*A*b^3*(b*e)^(1/2)+544*B*x^2*a*b^3*d*e^3
*(b*e)^(1/2)*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)+30*d^4*A*b^5*ln(1/2*
(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(
b*e)^(1/2))*e+30*e^4*B*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*a^4*(b*e)^
(1/2)+30*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*d^4*B*b^4*(b*e)^(1/2)+25
6*B*x^4*b^4*e^4*(b*e)^(1/2)*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)-120*a
^3*d*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2
)+a*e+b*d)/(b*e)^(1/2))*e^4*A*b^2+180*d^2*A*e^3*ln(1/2*(2*b*x*e+2
*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2)
)*a^2*b^3-120*d^3*A*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(
1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a*b^4*e^2+45*e^4*ln(1/2*(2
*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*
e)^(1/2))*a^4*d*B*b-30*a^3*d^2*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b
*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*e^3*B*b^2-30*ln
(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b
*d)/(b*e)^(1/2))*a^2*d^3*B*b^3*e^2+45*a*d^4*ln(1/2*(2*b*x*e+2*(b*
e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*B*
b^4*e-60*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*a^3*e^4*A*b*(b*e)^(1/2)-
60*d^3*A*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*b^4*(b*e)^(1/2)*e+36*(b*
e*x^2+a*e*x+b*d*x+a*d)^(1/2)*a^2*d^2*B*b^2*(b*e)^(1/2)*e^2+220*d^
2*A*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*a*b^3*(b*e)^(1/2)*e^2-80*(b*e
*x^2+a*e*x+b*d*x+a*d)^(1/2)*a^3*d*e^3*B*b*(b*e)^(1/2))/(b*e*x^2+a
*e*x+b*d*x+a*d)^(1/2)/e^3/b^3/(b*e)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(3/2)*(e*x + d)^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.304649, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(3/2)*(e*x + d)^(3/2),x, algorithm="fricas")
```

```
[Out] [1/2560*(4*(128*B*b^4*e^4*x^4 + 15*B*b^4*d^4 - 10*(4*B*a*b^3 + 3*
A*b^4)*d^3*e + 2*(9*B*a^2*b^2 + 55*A*a*b^3)*d^2*e^2 - 10*(4*B*a^3
*b - 11*A*a^2*b^2)*d*e^3 + 15*(B*a^4 - 2*A*a^3*b)*e^4 + 16*(11*B*
b^4*d*e^3 + (11*B*a*b^3 + 10*A*b^4)*e^4)*x^3 + 8*(B*b^4*d^2*e^2 +
 2*(17*B*a*b^3 + 15*A*b^4)*d*e^3 + (B*a^2*b^2 + 30*A*a*b^3)*e^4)*
```

```
x^2 - 2*(5*B*b^4*d^3*e - (13*B*a*b^3 + 10*A*b^4)*d^2*e^2 - (13*B*
a^2*b^2 + 220*A*a*b^3)*d*e^3 + 5*(B*a^3*b - 2*A*a^2*b^2)*e^4)*x)*
sqrt(b*e)*sqrt(b*x + a)*sqrt(e*x + d) + 15*(B*b^5*d^5 - (3*B*a*b^
4 + 2*A*b^5)*d^4*e + 2*(B*a^2*b^3 + 4*A*a*b^4)*d^3*e^2 + 2*(B*a^3
*b^2 - 6*A*a^2*b^3)*d^2*e^3 - (3*B*a^4*b - 8*A*a^3*b^2)*d*e^4 + (
B*a^5 - 2*A*a^4*b)*e^5)*log(-4*(2*b^2*e^2*x + b^2*d*e + a*b*e^2)*
sqrt(b*x + a)*sqrt(e*x + d) + (8*b^2*e^2*x^2 + b^2*d^2 + 6*a*b*d*
e + a^2*e^2 + 8*(b^2*d*e + a*b*e^2)*x)*sqrt(b*e)))/(sqrt(b*e)*b^3
*e^3), 1/1280*(2*(128*B*b^4*e^4*x^4 + 15*B*b^4*d^4 - 10*(4*B*a*b^
3 + 3*A*b^4)*d^3*e + 2*(9*B*a^2*b^2 + 55*A*a*b^3)*d^2*e^2 - 10*(4
*B*a^3*b - 11*A*a^2*b^2)*d*e^3 + 15*(B*a^4 - 2*A*a^3*b)*e^4 + 16*
(11*B*b^4*d*e^3 + (11*B*a*b^3 + 10*A*b^4)*e^4)*x^3 + 8*(B*b^4*d^2
*e^2 + 2*(17*B*a*b^3 + 15*A*b^4)*d*e^3 + (B*a^2*b^2 + 30*A*a*b^3)
*e^4)*x^2 - 2*(5*B*b^4*d^3*e - (13*B*a*b^3 + 10*A*b^4)*d^2*e^2 -
(13*B*a^2*b^2 + 220*A*a*b^3)*d*e^3 + 5*(B*a^3*b - 2*A*a^2*b^2)*e^
4)*x)*sqrt(-b*e)*sqrt(b*x + a)*sqrt(e*x + d) - 15*(B*b^5*d^5 - (3
*B*a*b^4 + 2*A*b^5)*d^4*e + 2*(B*a^2*b^3 + 4*A*a*b^4)*d^3*e^2 + 2
*(B*a^3*b^2 - 6*A*a^2*b^3)*d^2*e^3 - (3*B*a^4*b - 8*A*a^3*b^2)*d*
e^4 + (B*a^5 - 2*A*a^4*b)*e^5)*arctan(1/2*(2*b*e*x + b*d + a*e)*s
qrt(-b*e)/(sqrt(b*x + a)*sqrt(e*x + d)*b*e)))/(sqrt(-b*e)*b^3*e^3
)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int (A + Bx)(a + bx)^{\frac{3}{2}} (d + ex)^{\frac{3}{2}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)*(B*x+A)*(e*x+d)**(3/2),x)

[Out] Integral((A + B*x)*(a + b*x)**(3/2)*(d + e*x)**(3/2), x)
```

GIAC/XCAS [A] time = 0.406087, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)*(e*x + d)^(3/2),x, algorithm="giac")

[Out] Done
```

3.2196 $\int (a+bx)^{3/2}(A+Bx)\sqrt{d+ex}\,dx$

Optimal. Leaf size=250

$$-\frac{(bd-ae)^3(3aBe-8Abe+5bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{64b^{5/2}e^{7/2}}+\frac{\sqrt{a+bx}\sqrt{d+ex}(bd-ae)^2(3aBe-8Abe+5bBd)}{64b^2e^3}-\frac{(a+bx)^{3/2}\sqrt{d+ex}(bd-ae)(3aBe-8Abe+5bBd)}{96b^2e^2}-\frac{(a+bx)^{5/2}\sqrt{d+ex}(3aBe-8Abe+5bBd)}{24b^2e}+\frac{B(a+bx)^{5/2}(d+ex)^{3/2}}{4be}$$

```
[Out] ((b*d - a*e)^2*(5*b*B*d - 8*A*b*e + 3*a*B*e)*Sqrt[a + b*x]*Sqrt[d
 + e*x])/(64*b^2*e^3) - ((b*d - a*e)*(5*b*B*d - 8*A*b*e + 3*a*B*e
)*(a + b*x)^(3/2)*Sqrt[d + e*x])/(96*b^2*e^2) - ((5*b*B*d - 8*A*b
*e + 3*a*B*e)*(a + b*x)^(5/2)*Sqrt[d + e*x])/(24*b^2*e) + (B*(a +
 b*x)^(5/2)*(d + e*x)^(3/2))/(4*b*e) - ((b*d - a*e)^3*(5*b*B*d -
8*A*b*e + 3*a*B*e)*ArcTanh[(Sqrt[e]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[
d + e*x])])/(64*b^(5/2)*e^(7/2))
```

Rubi [A] time = 0.500813, antiderivative size = 250, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$-\frac{(bd-ae)^3(3aBe-8Abe+5bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{64b^{5/2}e^{7/2}}+\frac{\sqrt{a+bx}\sqrt{d+ex}(bd-ae)^2(3aBe-8Abe+5bBd)}{64b^2e^3}-\frac{(a+bx)^{3/2}\sqrt{d+ex}(bd-ae)(3aBe-8Abe+5bBd)}{96b^2e^2}-\frac{(a+bx)^{5/2}\sqrt{d+ex}(3aBe-8Abe+5bBd)}{24b^2e}+\frac{B(a+bx)^{5/2}(d+ex)^{3/2}}{4be}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(3/2)*(A + B*x)*Sqrt[d + e*x],x]
```

```
[Out] ((b*d - a*e)^2*(5*b*B*d - 8*A*b*e + 3*a*B*e)*Sqrt[a + b*x]*Sqrt[d
 + e*x])/(64*b^2*e^3) - ((b*d - a*e)*(5*b*B*d - 8*A*b*e + 3*a*B*e
)*(a + b*x)^(3/2)*Sqrt[d + e*x])/(96*b^2*e^2) - ((5*b*B*d - 8*A*b
*e + 3*a*B*e)*(a + b*x)^(5/2)*Sqrt[d + e*x])/(24*b^2*e) + (B*(a +
 b*x)^(5/2)*(d + e*x)^(3/2))/(4*b*e) - ((b*d - a*e)^3*(5*b*B*d -
8*A*b*e + 3*a*B*e)*ArcTanh[(Sqrt[e]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[
d + e*x])])/(64*b^(5/2)*e^(7/2))
```

Rubi in Sympy [A] time = 42.0466, size = 241, normalized size = 0.96

$$\frac{B(a+bx)^{\frac{5}{2}}(d+ex)^{\frac{3}{2}}}{4be}+\frac{(a+bx)^{\frac{3}{2}}(d+ex)^{\frac{3}{2}}(8Abe-3Bae-5Bbd)}{24be^2}+\frac{\sqrt{a+bx}\,(d+ex)^{\frac{3}{2}}(ae-bd)(8Abe-3Bae-5Bbd)}{32be^3}+\frac{\sqrt{a+bx}\sqrt{d+ex}\,(ae-bd)^2(8Abe-3Bae-5Bbd)}{64b^2e^3}-\frac{(ae-bd)^3(8Abe-3Bae-5Bbd)\,\mathrm{atanh}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{64b^{\frac{5}{2}}e^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(B*x+A)*(e*x+d)**(1/2),x)
```

```
[Out] B*(a + b*x)**(5/2)*(d + e*x)**(3/2)/(4*b*e) + (a + b*x)**(3/2)*(d
 + e*x)**(3/2)*(8*A*b*e - 3*B*a*e - 5*B*b*d)/(24*b*e**2) + sqrt(a
 + b*x)*(d + e*x)**(3/2)*(a*e - b*d)*(8*A*b*e - 3*B*a*e - 5*B*b*d
)/(32*b*e**3) + sqrt(a + b*x)*sqrt(d + e*x)*(a*e - b*d)**2*(8*A*b
*e - 3*B*a*e - 5*B*b*d)/(64*b**2*e**3) - (a*e - b*d)**3*(8*A*b*e
- 3*B*a*e - 5*B*b*d)*atanh(sqrt(e)*sqrt(a + b*x)/(sqrt(b)*sqrt(d
+ e*x)))/(64*b**(5/2)*e**(7/2))
```

Mathematica [A] time = 0.355982, size = 249, normalized size = 1.

$$2\sqrt{b}\sqrt{e}\sqrt{a+bx}\sqrt{d+ex}\left(-9a^3Be^3+3a^2be^2(8Ae+3Bd+2Bex)+ab^2e\left(16Ae(4d+7ex)+B\left(-31d^2+20dex+72e^2x^2\right)\right)+b$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(3/2)*(A + B*x)*Sqrt[d + e*x],x]
```

```
[Out] (2*Sqrt[b]*Sqrt[e]*Sqrt[a + b*x]*Sqrt[d + e*x]*(-9*a^3*B*e^3 + 3*
a^2*b*e^2*(3*B*d + 8*A*e + 2*B*e*x) + a*b^2*e*(16*A*e*(4*d + 7*e*
x) + B*(-31*d^2 + 20*d*e*x + 72*e^2*x^2)) + b^3*(8*A*e*(-3*d^2 +
2*d*e*x + 8*e^2*x^2) + B*(15*d^3 - 10*d^2*e*x + 8*d*e^2*x^2 + 48*
e^3*x^3))) - 3*(b*d - a*e)^3*(5*b*B*d - 8*A*b*e + 3*a*B*e)*Log[b*
d + a*e + 2*b*e*x + 2*Sqrt[b]*Sqrt[e]*Sqrt[a + b*x]*Sqrt[d + e*x]
])/(384*b^(5/2)*e^(7/2))
```

Maple [B] time = 0.021, size = 1150, normalized size = 4.6

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(B*x+A)*(e*x+d)^(1/2),x)
```

```
[Out] -1/384*(b*x+a)^(1/2)*(e*x+d)^(1/2)*(48*d^2*A*(b*e*x^2+a*e*x+b*d*x
+a*d)^(1/2)*b^3*e*(b*e)^(1/2)-40*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*
x*a*d*B*b^2*e^2*(b*e)^(1/2)-9*e^4*B*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*
e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^4+15*b^4
*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*
e+b*d)/(b*e)^(1/2))*d^4*B-30*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*d^3*
B*b^3*(b*e)^(1/2)-72*d*A*e^3*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d
*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^2*b^2+72*d^2*A*
ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e
+b*d)/(b*e)^(1/2))*a*b^3*e^2+12*e^3*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*
e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^3*d*B*b+
18*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+
a*e+b*d)/(b*e)^(1/2))*a^2*d^2*B*b^2*e^2-36*ln(1/2*(2*b*x*e+2*(b*e
*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a*d
^3*B*b^3*e-48*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*a^2*A*e^3*b*(b*e)^(
1/2)-96*B*x^3*b^3*e^3*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)
-128*A*x^2*b^3*e^3*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+18
*e^3*B*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*a^3*(b*e)^(1/2)-24*d^3*A*b
^4*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+
a*e+b*d)/(b*e)^(1/2))*e+24*e^4*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b
*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^3*A*b-12*e^3*
B*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*x*a^2*b*(b*e)^(1/2)+20*(b*e*x^2
+a*e*x+b*d*x+a*d)^(1/2)*x*d^2*B*b^3*e*(b*e)^(1/2)-18*(b*e*x^2+a*e
*x+b*d*x+a*d)^(1/2)*a^2*d*B*b*e^2*(b*e)^(1/2)+62*(b*e*x^2+a*e*x+b
*d*x+a*d)^(1/2)*a*d^2*B*b^2*e*(b*e)^(1/2)-224*(b*e*x^2+a*e*x+b*d*
x+a*d)^(1/2)*x*a*A*e^3*b^2*(b*e)^(1/2)-32*d*A*(b*e*x^2+a*e*x+b*d*
x+a*d)^(1/2)*x*b^3*e^2*(b*e)^(1/2)-144*B*x^2*a*b^2*e^3*(b*e*x^2+a
*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)-16*B*x^2*b^3*d*e^2*(b*e*x^2+a*e
*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)-128*A*a*b^2*d*e^2*(b*e*x^2+a*e*x+
```

```
b*d*x+a*d)^(1/2)*(b*e)^(1/2))/(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)/b^2
/(b*e)^(1/2)/e^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(3/2)*sqrt(e*x + d),x, algorithm="maxima")

[Out] Exception raised: ValueError
```

Fricas [A] time = 0.271801, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(3/2)*sqrt(e*x + d),x, algorithm="fricas")

[Out] [1/768*(4*(48*B*b^3*e^3*x^3 + 15*B*b^3*d^3 - (31*B*a*b^2 + 24*A*b
^3)*d^2*e + (9*B*a^2*b + 64*A*a*b^2)*d*e^2 - 3*(3*B*a^3 - 8*A*a^2
*b)*e^3 + 8*(B*b^3*d*e^2 + (9*B*a*b^2 + 8*A*b^3)*e^3)*x^2 - 2*(5*
B*b^3*d^2*e - 2*(5*B*a*b^2 + 4*A*b^3)*d*e^2 - (3*B*a^2*b + 56*A*a
*b^2)*e^3)*x)*sqrt(b*e)*sqrt(b*x + a)*sqrt(e*x + d) + 3*(5*B*b^4*
d^4 - 4*(3*B*a*b^3 + 2*A*b^4)*d^3*e + 6*(B*a^2*b^2 + 4*A*a*b^3)*d
^2*e^2 + 4*(B*a^3*b - 6*A*a^2*b^2)*d*e^3 - (3*B*a^4 - 8*A*a^3*b)*
e^4)*log(-4*(2*b^2*e^2*x + b^2*d*e + a*b*e^2)*sqrt(b*x + a)*sqrt(
e*x + d) + (8*b^2*e^2*x^2 + b^2*d^2 + 6*a*b*d*e + a^2*e^2 + 8*(b^
2*d*e + a*b*e^2)*x)*sqrt(b*e)))/(sqrt(b*e)*b^2*e^3), 1/384*(2*(48
*B*b^3*e^3*x^3 + 15*B*b^3*d^3 - (31*B*a*b^2 + 24*A*b^3)*d^2*e + (
9*B*a^2*b + 64*A*a*b^2)*d*e^2 - 3*(3*B*a^3 - 8*A*a^2*b)*e^3 + 8*(
B*b^3*d*e^2 + (9*B*a*b^2 + 8*A*b^3)*e^3)*x^2 - 2*(5*B*b^3*d^2*e -
 2*(5*B*a*b^2 + 4*A*b^3)*d*e^2 - (3*B*a^2*b + 56*A*a*b^2)*e^3)*x)
*sqrt(-b*e)*sqrt(b*x + a)*sqrt(e*x + d) - 3*(5*B*b^4*d^4 - 4*(3*B
*a*b^3 + 2*A*b^4)*d^3*e + 6*(B*a^2*b^2 + 4*A*a*b^3)*d^2*e^2 + 4*(
B*a^3*b - 6*A*a^2*b^2)*d*e^3 - (3*B*a^4 - 8*A*a^3*b)*e^4)*arctan(
1/2*(2*b*e*x + b*d + a*e)*sqrt(-b*e)/(sqrt(b*x + a)*sqrt(e*x + d)
*b*e)))/(sqrt(-b*e)*b^2*e^3)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)*(B*x+A)*(e*x+d)**(1/2),x)

[Out] Timed out
```

GIAC/XCAS [A] time = 0.30049, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(3/2)*sqrt(e*x + d),x, algorithm="giac")
```

```
[Out] Done
```

3.2197 $\int \frac{(a+bx)^{3/2}(A+Bx)}{\sqrt{d+ex}}\,dx$

Optimal. Leaf size=193

$$-\frac{(bd-ae)^2(aBe-6Abe+5bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{8b^{3/2}e^{7/2}}+\frac{\sqrt{a+bx}\sqrt{d+ex}(bd-ae)(aBe-6Abe+5bBd)}{8be^3}-\frac{(a+bx)^{3/2}\sqrt{d+ex}(aBe-6Abe+5bBd)}{12be^2}+\frac{B(a+bx)^{5/2}\sqrt{d+ex}}{3be}$$

```
[Out] ((b*d - a*e)*(5*b*B*d - 6*A*b*e + a*B*e)*Sqrt[a + b*x]*Sqrt[d + e
*x])/(8*b*e^3) - ((5*b*B*d - 6*A*b*e + a*B*e)*(a + b*x)^(3/2)*Sqr
t[d + e*x])/(12*b*e^2) + (B*(a + b*x)^(5/2)*Sqrt[d + e*x])/(3*b*e
) - ((b*d - a*e)^2*(5*b*B*d - 6*A*b*e + a*B*e)*ArcTanh[(Sqrt[e]*S
qrt[a + b*x])/(Sqrt[b]*Sqrt[d + e*x])])/(8*b^(3/2)*e^(7/2))
```

Rubi [A] time = 0.385366, antiderivative size = 193, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$-\frac{(bd-ae)^2(aBe-6Abe+5bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{8b^{3/2}e^{7/2}}+\frac{\sqrt{a+bx}\sqrt{d+ex}(bd-ae)(aBe-6Abe+5bBd)}{8be^3}-\frac{(a+bx)^{3/2}\sqrt{d+ex}(aBe-6Abe+5bBd)}{12be^2}+\frac{B(a+bx)^{5/2}\sqrt{d+ex}}{3be}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(3/2)*(A + B*x))/Sqrt[d + e*x],x]
```

```
[Out] ((b*d - a*e)*(5*b*B*d - 6*A*b*e + a*B*e)*Sqrt[a + b*x]*Sqrt[d + e
*x])/(8*b*e^3) - ((5*b*B*d - 6*A*b*e + a*B*e)*(a + b*x)^(3/2)*Sqr
t[d + e*x])/(12*b*e^2) + (B*(a + b*x)^(5/2)*Sqrt[d + e*x])/(3*b*e
) - ((b*d - a*e)^2*(5*b*B*d - 6*A*b*e + a*B*e)*ArcTanh[(Sqrt[e]*S
qrt[a + b*x])/(Sqrt[b]*Sqrt[d + e*x])])/(8*b^(3/2)*e^(7/2))
```

Rubi in Sympy [A] time = 29.2749, size = 182, normalized size = 0.94

$$\frac{B(a+bx)^{\frac{5}{2}}\sqrt{d+ex}}{3be}+\frac{(a+bx)^{\frac{3}{2}}\sqrt{d+ex}\,(6Abe-Bae-5Bbd)}{12be^2}+\frac{\sqrt{a+bx}\sqrt{d+ex}\,(ae-bd)\,(6Abe-Bae-5Bbd)}{8be^3}+\frac{(ae-bd)^2\,(6Abe-Bae-5Bbd)\operatorname{atanh}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{8b^{\frac{3}{2}}e^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(B*x+A)/(e*x+d)**(1/2),x)
```

```
[Out] B*(a + b*x)**(5/2)*sqrt(d + e*x)/(3*b*e) + (a + b*x)**(3/2)*sqrt(
d + e*x)*(6*A*b*e - B*a*e - 5*B*b*d)/(12*b*e**2) + sqrt(a + b*x)*
sqrt(d + e*x)*(a*e - b*d)*(6*A*b*e - B*a*e - 5*B*b*d)/(8*b*e**3)
+ (a*e - b*d)**2*(6*A*b*e - B*a*e - 5*B*b*d)*atanh(sqrt(e)*sqrt(a
 + b*x)/(sqrt(b)*sqrt(d + e*x)))/(8*b**(3/2)*e**(7/2))
```

Mathematica [A] time = 0.232473, size = 178, normalized size = 0.92

$$\frac{\sqrt{a+bx}\sqrt{d+ex}\left(3a^2Be^2+2abe(15Ae-11Bd+7Bex)+b^2\left(6Ae(2ex-3d)+B\left(15d^2-10dex+8e^2x^2\right)\right)\right)}{24be^3}-\frac{(bd-ae)^2(aBe-6Abe+5bBd)\log\left(2\sqrt{b}\sqrt{e}\sqrt{a+bx}\sqrt{d+ex}+ae+bd+2bex\right)}{16b^{3/2}e^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(3/2)*(A + B*x))/Sqrt[d + e*x],x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[d + e*x]*(3*a^2*B*e^2 + 2*a*b*e*(-11*B*d + 15
*A*e + 7*B*e*x) + b^2*(6*A*e*(-3*d + 2*e*x) + B*(15*d^2 - 10*d*e*
x + 8*e^2*x^2))))/(24*b*e^3) - ((b*d - a*e)^2*(5*b*B*d - 6*A*b*e
+ a*B*e)*Log[b*d + a*e + 2*b*e*x + 2*Sqrt[b]*Sqrt[e]*Sqrt[a + b*x
]*Sqrt[d + e*x]])/(16*b^(3/2)*e^(7/2))
```

Maple [B] time = 0.033, size = 636, normalized size = 3.3

$$\frac{1}{48\,e^3b}\sqrt{bx+a}\sqrt{ex+d}\left(16\,Bx^2b^2e^2\sqrt{(bx+a)\,(ex+d)}\sqrt{be}+18\,\ln\left(1/2\,\frac{2\,bxe+2\,\sqrt{(bx+a)\,(ex+d)}\sqrt{be}+ae+bd}{\sqrt{be}}\right)a^2Ae^3b$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(B*x+A)/(e*x+d)^(1/2),x)
```

```
[Out] 1/48*(b*x+a)^(1/2)*(e*x+d)^(1/2)*(16*B*x^2*b^2*e^2*((b*x+a)*(e*x+
d))^(1/2)*(b*e)^(1/2)+18*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2
)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^2*A*e^3*b-36*ln(1/2*(2*b*x*
e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a*A
*b^2*d*e^2+18*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/
2)+a*e+b*d)/(b*e)^(1/2))*b^3*d^2*A*e+24*A*((b*x+a)*(e*x+d))^(1/2)
*x*b^2*e^2*(b*e)^(1/2)-3*B*e^3*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d)
)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^3-9*ln(1/2*(2*b*x*e+2
*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^2*B*
d*e^2*b+27*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+
a*e+b*d)/(b*e)^(1/2))*a*B*b^2*d^2*e-15*ln(1/2*(2*b*x*e+2*((b*x+a)
*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*b^3*d^3*B+28*B*
((b*x+a)*(e*x+d))^(1/2)*x*a*b*e^2*(b*e)^(1/2)-20*B*((b*x+a)*(e*x+
d))^(1/2)*x*d*b^2*e*(b*e)^(1/2)+60*((b*x+a)*(e*x+d))^(1/2)*A*a*e^
2*(b*e)^(1/2)*b-36*((b*x+a)*(e*x+d))^(1/2)*A*b^2*d*e*(b*e)^(1/2)+
6*B*((b*x+a)*(e*x+d))^(1/2)*a^2*e^2*(b*e)^(1/2)-44*((b*x+a)*(e*x+
d))^(1/2)*B*a*d*e*(b*e)^(1/2)*b+30*((b*x+a)*(e*x+d))^(1/2)*B*b^2*
d^2*(b*e)^(1/2))/((b*x+a)*(e*x+d))^(1/2)/e^3/(b*e)^(1/2)/b
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/sqrt(e*x + d),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.530251, size = 1, normalized size = 0.01

$$\left[\frac{4\left(8\,Bb^2e^2x^2+15\,Bb^2d^2-2\left(11\,Bab+9\,Ab^2\right)de+3\left(Ba^2+10\,Aab\right)e^2-2\left(5\,Bb^2de-\left(7\,Bab+6\,Ab^2\right)e^2\right)x\right)\sqrt{be}\sqrt{bx+a}\sqrt{\cdot}}{\cdot}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/sqrt(e*x + d),x, algorithm="fricas")
```

```
[Out] [1/96*(4*(8*B*b^2*e^2*x^2 + 15*B*b^2*d^2 - 2*(11*B*a*b + 9*A*b^2)
*d*e + 3*(B*a^2 + 10*A*a*b)*e^2 - 2*(5*B*b^2*d*e - (7*B*a*b + 6*A
*b^2)*e^2)*x)*sqrt(b*e)*sqrt(b*x + a)*sqrt(e*x + d) - 3*(5*B*b^3*
d^3 - 3*(3*B*a*b^2 + 2*A*b^3)*d^2*e + 3*(B*a^2*b + 4*A*a*b^2)*d*e
^2 + (B*a^3 - 6*A*a^2*b)*e^3)*log(4*(2*b^2*e^2*x + b^2*d*e + a*b*
e^2)*sqrt(b*x + a)*sqrt(e*x + d) + (8*b^2*e^2*x^2 + b^2*d^2 + 6*a
*b*d*e + a^2*e^2 + 8*(b^2*d*e + a*b*e^2)*x)*sqrt(b*e)))/(sqrt(b*e
)*b*e^3), 1/48*(2*(8*B*b^2*e^2*x^2 + 15*B*b^2*d^2 - 2*(11*B*a*b +
 9*A*b^2)*d*e + 3*(B*a^2 + 10*A*a*b)*e^2 - 2*(5*B*b^2*d*e - (7*B*
a*b + 6*A*b^2)*e^2)*x)*sqrt(-b*e)*sqrt(b*x + a)*sqrt(e*x + d) - 3
*(5*B*b^3*d^3 - 3*(3*B*a*b^2 + 2*A*b^3)*d^2*e + 3*(B*a^2*b + 4*A*
a*b^2)*d*e^2 + (B*a^3 - 6*A*a^2*b)*e^3)*arctan(1/2*(2*b*e*x + b*d
 + a*e)*sqrt(-b*e)/(sqrt(b*x + a)*sqrt(e*x + d)*b*e)))/(sqrt(-b*e
)*b*e^3)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(A+Bx)\,(a+bx)^{\frac{3}{2}}}{\sqrt{d+ex}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)*(B*x+A)/(e*x+d)**(1/2),x)
```

```
[Out] Integral((A + B*x)*(a + b*x)**(3/2)/sqrt(d + e*x), x)
```

GIAC/XCAS [A] time = 0.236843, size = 362, normalized size = 1.88

$$\frac{\left(\sqrt{b^2d+(bx+a)be-abe}\sqrt{bx+a}\left(2\,(bx+a)\left(\frac{4\,(bx+a)Be^{(-1)}}{b^2}-\frac{\left(5\,Bb^3de^3+Bab^2e^4-6\,Ab^3e^4\right)e^{(-5)}}{b^4}\right)+\frac{3\left(5\,Bb^4d^2e^2-4\,Bab^3de^3-6\,Ab^4de^3-B\right.}{b^4}\right.}{2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/sqrt(e*x + d),x, algorithm="giac")
```

```
[Out] 1/24*(sqrt(b^2*d + (b*x + a)*b*e - a*b*e)*sqrt(b*x + a)*(2*(b*x +
 a)*(4*(b*x + a)*B*e^(-1)/b^2 - (5*B*b^3*d*e^3 + B*a*b^2*e^4 - 6*
A*b^3*e^4)*e^(-5)/b^4) + 3*(5*B*b^4*d^2*e^2 - 4*B*a*b^3*d*e^3 - 6
*A*b^4*d*e^3 - B*a^2*b^2*e^4 + 6*A*a*b^3*e^4)*e^(-5)/b^4) + 3*(5*
B*b^3*d^3 - 9*B*a*b^2*d^2*e - 6*A*b^3*d^2*e + 3*B*a^2*b*d*e^2 + 1
2*A*a*b^2*d*e^2 + B*a^3*e^3 - 6*A*a^2*b*e^3)*e^(-7/2)*ln(abs(-sqr
t(b*x + a)*sqrt(b)*e^(1/2) + sqrt(b^2*d + (b*x + a)*b*e - a*b*e))
)/b^(3/2))*b/abs(b)
```

3.2198 $\int \frac{(a+bx)^{3/2}(A+Bx)}{(d+ex)^{3/2}}\,dx$

Optimal. Leaf size=202

$$\frac{3(bd-ae)(-aBe-4Abe+5bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{4\sqrt{b}e^{7/2}}-\frac{3\sqrt{a+bx}\sqrt{d+ex}(-aBe-4Abe+5bBd)}{4e^3}+\frac{(a+bx)^{3/2}\sqrt{d+ex}(-aBe-4Abe+5bBd)}{2e^2(bd-ae)}-\frac{2(a+bx)^{5/2}(Bd-Ae)}{e\sqrt{d+ex}(bd-ae)}$$

```
[Out] (-2*(B*d - A*e)*(a + b*x)^(5/2))/(e*(b*d - a*e)*Sqrt[d + e*x]) -
(3*(5*b*B*d - 4*A*b*e - a*B*e)*Sqrt[a + b*x]*Sqrt[d + e*x])/(4*e^
3) + ((5*b*B*d - 4*A*b*e - a*B*e)*(a + b*x)^(3/2)*Sqrt[d + e*x])/
(2*e^2*(b*d - a*e)) + (3*(b*d - a*e)*(5*b*B*d - 4*A*b*e - a*B*e)*
ArcTanh[(Sqrt[e]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[d + e*x])])/(4*Sqrt
[b]*e^(7/2))
```

Rubi [A] time = 0.414398, antiderivative size = 202, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$\frac{3(bd-ae)(-aBe-4Abe+5bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{4\sqrt{b}e^{7/2}}-\frac{3\sqrt{a+bx}\sqrt{d+ex}(-aBe-4Abe+5bBd)}{4e^3}+\frac{(a+bx)^{3/2}\sqrt{d+ex}(-aBe-4Abe+5bBd)}{2e^2(bd-ae)}-\frac{2(a+bx)^{5/2}(Bd-Ae)}{e\sqrt{d+ex}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(3/2)*(A + B*x))/(d + e*x)^(3/2),x]
```

```
[Out] (-2*(B*d - A*e)*(a + b*x)^(5/2))/(e*(b*d - a*e)*Sqrt[d + e*x]) -
(3*(5*b*B*d - 4*A*b*e - a*B*e)*Sqrt[a + b*x]*Sqrt[d + e*x])/(4*e^
3) + ((5*b*B*d - 4*A*b*e - a*B*e)*(a + b*x)^(3/2)*Sqrt[d + e*x])/
(2*e^2*(b*d - a*e)) + (3*(b*d - a*e)*(5*b*B*d - 4*A*b*e - a*B*e)*
ArcTanh[(Sqrt[e]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[d + e*x])])/(4*Sqrt
[b]*e^(7/2))
```

Rubi in Sympy [A] time = 37.5317, size = 190, normalized size = 0.94

$$-\frac{2\,(a+bx)^{\frac{5}{2}}\,(Ae-Bd)}{e\sqrt{d+ex}\,(ae-bd)}+\frac{(a+bx)^{\frac{3}{2}}\,\sqrt{d+ex}\,(4Abe+Bae-5Bbd)}{2e^2\,(ae-bd)}+\frac{3\sqrt{a+bx}\sqrt{d+ex}\,(4Abe+Bae-5Bbd)}{4e^3}+\frac{3\,(ae-bd)\,(4Abe+Bae-5Bbd)\,\text{atanh}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{4\sqrt{b}e^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(B*x+A)/(e*x+d)**(3/2),x)
```

```
[Out] -2*(a + b*x)**(5/2)*(A*e - B*d)/(e*sqrt(d + e*x)*(a*e - b*d)) + (
a + b*x)**(3/2)*sqrt(d + e*x)*(4*A*b*e + B*a*e - 5*B*b*d)/(2*e**2
*(a*e - b*d)) + 3*sqrt(a + b*x)*sqrt(d + e*x)*(4*A*b*e + B*a*e -
5*B*b*d)/(4*e**3) + 3*(a*e - b*d)*(4*A*b*e + B*a*e - 5*B*b*d)*ata
nh(sqrt(e)*sqrt(a + b*x)/(sqrt(b)*sqrt(d + e*x)))/(4*sqrt(b)*e**(
7/2))
```

Mathematica [A] time = 0.260112, size = 158, normalized size = 0.78

$$\frac{\sqrt{a+bx}\left(ae(-8Ae+13Bd+5Bex)+4Abe(3d+ex)+bB\left(-15d^2-5dex+2e^2x^2\right)\right)}{4e^3\sqrt{d+ex}}+\frac{3(ae-bd)(aBe+4Abe-5bBd)\log\left(2\sqrt{b}\sqrt{e}\sqrt{a+bx}\sqrt{d+ex}+ae+bd+2bex\right)}{8\sqrt{b}e^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(3/2)*(A + B*x))/(d + e*x)^(3/2),x]
```

```
[Out] (Sqrt[a + b*x]*(4*A*b*e*(3*d + e*x) + a*e*(13*B*d - 8*A*e + 5*B*e
*x) + b*B*(-15*d^2 - 5*d*e*x + 2*e^2*x^2)))/(4*e^3*Sqrt[d + e*x])
 + (3*(-(b*d) + a*e)*(-5*b*B*d + 4*A*b*e + a*B*e)*Log[b*d + a*e +
 2*b*e*x + 2*Sqrt[b]*Sqrt[e]*Sqrt[a + b*x]*Sqrt[d + e*x]])/(8*Sqr
t[b]*e^(7/2))
```

Maple [B] time = 0.033, size = 740, normalized size = 3.7

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(B*x+A)/(e*x+d)^(3/2),x)
```

```
[Out] 1/8*(b*x+a)^(1/2)*(12*A*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)
*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x*a*b*e^3-12*A*ln(1/2*(2*b*x*e
+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x*b^
2*d*e^2+3*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)
+a*e+b*d)/(b*e)^(1/2))*x*a^2*e^3-18*B*ln(1/2*(2*b*x*e+2*((b*x+a)*
(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x*a*b*d*e^2+15*B
*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(
b*e)^(1/2))*x*b^2*d^2*e+4*B*x^2*b*e^2*((b*x+a)*(e*x+d))^(1/2)*(b*
e)^(1/2)+12*A*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/
2)+a*e+b*d)/(b*e)^(1/2))*a*b*d*e^2-12*A*ln(1/2*(2*b*x*e+2*((b*x+a
)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*b^2*d^2*e+8*A*
x*b*e^2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+3*B*ln(1/2*(2*b*x*e+2
*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^2*d*
e^2-18*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*
e+b*d)/(b*e)^(1/2))*a*b*d^2*e+15*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*
x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*b^2*d^3+10*B*x*a*e^
2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)-10*B*x*b*d*e*((b*x+a)*(e*x+
d))^(1/2)*(b*e)^(1/2)-16*A*a*e^2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1
/2)+24*A*b*d*e*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+26*B*a*d*e*((b
*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)-30*B*b*d^2*((b*x+a)*(e*x+d))^(1/
2)*(b*e)^(1/2))/((b*x+a)*(e*x+d))^(1/2)/(b*e)^(1/2)/(e*x+d)^(1/2)
/e^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(3/2)/(e*x + d)^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.756915, size = 1, normalized size = 0.

$$\left[\frac{4\left(2\,Bbe^{2}x^{2}-15\,Bbd^{2}-8\,Aae^{2}+(13\,Ba+12\,Ab)de-\left(5\,Bbde-(5\,Ba+4\,Ab)e^{2}\right)x\right)\sqrt{be}\sqrt{bx+a}\sqrt{ex+d}+3\left(5\,Bb^{2}d^{3}-2\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(3/2)/(e*x + d)^(3/2),x, algorithm="fricas")
```

```
[Out] [1/16*(4*(2*B*b*e^2*x^2 - 15*B*b*d^2 - 8*A*a*e^2 + (13*B*a + 12*A
*b)*d*e - (5*B*b*d*e - (5*B*a + 4*A*b)*e^2)*x)*sqrt(b*e)*sqrt(b*x
 + a)*sqrt(e*x + d) + 3*(5*B*b^2*d^3 - 2*(3*B*a*b + 2*A*b^2)*d^2*
e + (B*a^2 + 4*A*a*b)*d*e^2 + (5*B*b^2*d^2*e - 2*(3*B*a*b + 2*A*b
^2)*d*e^2 + (B*a^2 + 4*A*a*b)*e^3)*x)*log(4*(2*b^2*e^2*x + b^2*d*
e + a*b*e^2)*sqrt(b*x + a)*sqrt(e*x + d) + (8*b^2*e^2*x^2 + b^2*d
^2 + 6*a*b*d*e + a^2*e^2 + 8*(b^2*d*e + a*b*e^2)*x)*sqrt(b*e)))/(
(e^4*x + d*e^3)*sqrt(b*e)), 1/8*(2*(2*B*b*e^2*x^2 - 15*B*b*d^2 -
8*A*a*e^2 + (13*B*a + 12*A*b)*d*e - (5*B*b*d*e - (5*B*a + 4*A*b)*
e^2)*x)*sqrt(-b*e)*sqrt(b*x + a)*sqrt(e*x + d) + 3*(5*B*b^2*d^3 -
 2*(3*B*a*b + 2*A*b^2)*d^2*e + (B*a^2 + 4*A*a*b)*d*e^2 + (5*B*b^2
*d^2*e - 2*(3*B*a*b + 2*A*b^2)*d*e^2 + (B*a^2 + 4*A*a*b)*e^3)*x)*
arctan(1/2*(2*b*e*x + b*d + a*e)*sqrt(-b*e)/(sqrt(b*x + a)*sqrt(e
*x + d)*b*e)))/((e^4*x + d*e^3)*sqrt(-b*e))]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(A+Bx)\,(a+bx)^{\frac{3}{2}}}{(d+ex)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)*(B*x+A)/(e*x+d)**(3/2),x)
```

```
[Out] Integral((A + B*x)*(a + b*x)**(3/2)/(d + e*x)**(3/2), x)
```

GIAC/XCAS [A] time = 0.253373, size = 367, normalized size = 1.82

$$\frac{\left(\left(\frac{2\,(bx+a)Bb|b|e^{4}}{b^{8}de^{6}-ab^{7}e^{7}}-\frac{5\,Bb^{2}d|b|e^{3}-Bab|b|e^{4}-4\,Ab^{2}|b|e^{4}}{b^{8}de^{6}-ab^{7}e^{7}}\right)(bx+a)-\frac{3\left(5\,Bb^{3}d^{2}|b|e^{2}-6\,Bab^{2}d|b|e^{3}-4\,Ab^{3}d|b|e^{3}+Ba^{2}b|b|e^{4}+4\,Aab^{2}|b|e^{4}\right)}{b^{8}de^{6}-ab^{7}e^{7}}\right)\sqrt{bx}}{1536\,\sqrt{b^{2}d+(bx+a)be-abe}}$$

$$-\frac{(5\,Bbd|b|-Ba|b|e-4\,Ab|b|e)e^{\left(-\frac{9}{2}\right)}\ln\left(\left|-\sqrt{bx+a}\sqrt{b}e^{\frac{1}{2}}+\sqrt{b^{2}d+(bx+a)be-abe}\right|\right)}{512\,b^{\frac{13}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(3/2)/(e*x + d)^(3/2),x, algorithm="giac")
```

```
[Out] 1/1536*((2*(b*x + a)*B*b*abs(b)*e^4/(b^8*d*e^6 - a*b^7*e^7) - (5*
B*b^2*d*abs(b)*e^3 - B*a*b*abs(b)*e^4 - 4*A*b^2*abs(b)*e^4)/(b^8*
d*e^6 - a*b^7*e^7))*(b*x + a) - 3*(5*B*b^3*d^2*abs(b)*e^2 - 6*B*a
*b^2*d*abs(b)*e^3 - 4*A*b^3*d*abs(b)*e^3 + B*a^2*b*abs(b)*e^4 + 4
*A*a*b^2*abs(b)*e^4)/(b^8*d*e^6 - a*b^7*e^7))*sqrt(b*x + a)/sqrt(
b^2*d + (b*x + a)*b*e - a*b*e) - 1/512*(5*B*b*d*abs(b) - B*a*abs(
b)*e - 4*A*b*abs(b)*e)*e^(-9/2)*ln(abs(-sqrt(b*x + a)*sqrt(b)*e^(
1/2) + sqrt(b^2*d + (b*x + a)*b*e - a*b*e)))/b^(13/2)
```

3.2199 $\int \frac{(a+bx)^{3/2}(A+Bx)}{(d+ex)^{5/2}}\,dx$

Optimal. Leaf size=202

$$-\frac{\sqrt{b}(-3aBe-2Abe+5bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{e^{7/2}}+\frac{b\sqrt{a+bx}\sqrt{d+ex}(-3aBe-2Abe+5bBd)}{e^3(bd-ae)}-\frac{2(a+bx)^{3/2}(-3aBe-2Abe+5bBd)}{3e^2\sqrt{d+ex}(bd-ae)}-\frac{2(a+bx)^{5/2}(Bd-Ae)}{3e(d+ex)^{3/2}(bd-ae)}$$

```
[Out] (-2*(B*d - A*e)*(a + b*x)^(5/2))/(3*e*(b*d - a*e)*(d + e*x)^(3/2)
) - (2*(5*b*B*d - 2*A*b*e - 3*a*B*e)*(a + b*x)^(3/2))/(3*e^2*(b*d
 - a*e)*Sqrt[d + e*x]) + (b*(5*b*B*d - 2*A*b*e - 3*a*B*e)*Sqrt[a
+ b*x]*Sqrt[d + e*x])/(e^3*(b*d - a*e)) - (Sqrt[b]*(5*b*B*d - 2*A
*b*e - 3*a*B*e)*ArcTanh[(Sqrt[e]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[d +
 e*x])])/e^(7/2)
```

Rubi [A] time = 0.383194, antiderivative size = 202, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$-\frac{\sqrt{b}(-3aBe-2Abe+5bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{e^{7/2}}+\frac{b\sqrt{a+bx}\sqrt{d+ex}(-3aBe-2Abe+5bBd)}{e^3(bd-ae)}-\frac{2(a+bx)^{3/2}(-3aBe-2Abe+5bBd)}{3e^2\sqrt{d+ex}(bd-ae)}-\frac{2(a+bx)^{5/2}(Bd-Ae)}{3e(d+ex)^{3/2}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(3/2)*(A + B*x))/(d + e*x)^(5/2),x]
```

```
[Out] (-2*(B*d - A*e)*(a + b*x)^(5/2))/(3*e*(b*d - a*e)*(d + e*x)^(3/2)
) - (2*(5*b*B*d - 2*A*b*e - 3*a*B*e)*(a + b*x)^(3/2))/(3*e^2*(b*d
 - a*e)*Sqrt[d + e*x]) + (b*(5*b*B*d - 2*A*b*e - 3*a*B*e)*Sqrt[a
+ b*x]*Sqrt[d + e*x])/(e^3*(b*d - a*e)) - (Sqrt[b]*(5*b*B*d - 2*A
*b*e - 3*a*B*e)*ArcTanh[(Sqrt[e]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[d +
 e*x])])/e^(7/2)
```

Rubi in Sympy [A] time = 35.9896, size = 192, normalized size = 0.95

$$\frac{2\sqrt{b}\left(Abe+\frac{B(3ae-5bd)}{2}\right)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{e}\sqrt{a+bx}}\right)}{e^{\frac{7}{2}}}+\frac{b\sqrt{a+bx}\sqrt{d+ex}\,(2Abe+3Bae-5Bbd)}{e^3\,(ae-bd)}-\frac{2\,(a+bx)^{\frac{5}{2}}\,(Ae-Bd)}{3e\,(d+ex)^{\frac{3}{2}}\,(ae-bd)}-\frac{4\,(a+bx)^{\frac{3}{2}}\left(Abe+\frac{B(3ae-5bd)}{2}\right)}{3e^2\sqrt{d+ex}\,(ae-bd)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(B*x+A)/(e*x+d)**(5/2),x)
```

```
[Out] 2*sqrt(b)*(A*b*e + B*(3*a*e - 5*b*d)/2)*atanh(sqrt(b)*sqrt(d + e*
x)/(sqrt(e)*sqrt(a + b*x)))/e**(7/2) + b*sqrt(a + b*x)*sqrt(d + e
*x)*(2*A*b*e + 3*B*a*e - 5*B*b*d)/(e**3*(a*e - b*d)) - 2*(a + b*x
)**(5/2)*(A*e - B*d)/(3*e*(d + e*x)**(3/2)*(a*e - b*d)) - 4*(a +
b*x)**(3/2)*(A*b*e + B*(3*a*e - 5*b*d)/2)/(3*e**2*sqrt(d + e*x)*(
a*e - b*d))
```

Mathematica [A] time = 0.295369, size = 152, normalized size = 0.75

$$\frac{\sqrt{a+bx}\left(-2ae(Ae+2Bd+3Bex)-2Abe(3d+4ex)+bB\left(15d^2+20dex+3e^2x^2\right)\right)}{3e^3(d+ex)^{3/2}}+\frac{\sqrt{b}(3aBe+2Abe-5bBd)\log\left(2\sqrt{b}\sqrt{e}\sqrt{a+bx}\sqrt{d+ex}+ae+bd+2bex\right)}{2e^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(3/2)*(A + B*x))/(d + e*x)^(5/2),x]
```

```
[Out] (Sqrt[a + b*x]*(-2*A*b*e*(3*d + 4*e*x) - 2*a*e*(2*B*d + A*e + 3*B
*e*x) + b*B*(15*d^2 + 20*d*e*x + 3*e^2*x^2)))/(3*e^3*(d + e*x)^(3
/2)) + (Sqrt[b]*(-5*b*B*d + 2*A*b*e + 3*a*B*e)*Log[b*d + a*e + 2*
b*e*x + 2*Sqrt[b]*Sqrt[e]*Sqrt[a + b*x]*Sqrt[d + e*x]])/(2*e^(7/2
))
```

Maple [B] time = 0.034, size = 698, normalized size = 3.5

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(B*x+A)/(e*x+d)^(5/2),x)
```

```
[Out] 1/6*(b*x+a)^(1/2)*(6*A*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*
(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x^2*b^2*e^3+9*B*ln(1/2*(2*b*x*e
+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x^2*
a*b*e^3-15*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2
)+a*e+b*d)/(b*e)^(1/2))*x^2*b^2*d*e^2+12*A*ln(1/2*(2*b*x*e+2*((b*
x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x*b^2*d*e^2
+18*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b
*d)/(b*e)^(1/2))*x*a*b*d*e^2-30*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x
+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x*b^2*d^2*e+6*B*x^2*
b*e^2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+6*A*ln(1/2*(2*b*x*e+2*(
(b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*b^2*d^2*
e-16*A*x*b*e^2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+9*B*ln(1/2*(2*
b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))
*a*b*d^2*e-15*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(
1/2)+a*e+b*d)/(b*e)^(1/2))*b^2*d^3-12*B*x*a*e^2*((b*x+a)*(e*x+d))
^(1/2)*(b*e)^(1/2)+40*B*x*b*d*e*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/
2)-4*A*a*e^2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)-12*A*b*d*e*((b*x
+a)*(e*x+d))^(1/2)*(b*e)^(1/2)-8*B*a*d*e*((b*x+a)*(e*x+d))^(1/2)*
(b*e)^(1/2)+30*B*b*d^2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2))/(b*e)
^(1/2)/((b*x+a)*(e*x+d))^(1/2)/e^3/(e*x+d)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/(e*x + d)^(5/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.848446, size = 1, normalized size = 0.

$$\left[-\frac{3\left(5\,Bbd^{3}-(3\,Ba+2\,Ab)d^{2}e+\left(5\,Bbde^{2}-(3\,Ba+2\,Ab)e^{3}\right)x^{2}+2\left(5\,Bbd^{2}e-(3\,Ba+2\,Ab)de^{2}\right)x\right)\sqrt{\frac{b}{e}}\log\left(8\,b^{2}e^{2}x^{2}+b^{2}d\right.}{}\right.$$

$$-\frac{3\left(5\,Bbd^{3}-(3\,Ba+2\,Ab)d^{2}e+\left(5\,Bbde^{2}-(3\,Ba+2\,Ab)e^{3}\right)x^{2}+2\left(5\,Bbd^{2}e-(3\,Ba+2\,Ab)de^{2}\right)x\right)\sqrt{-\frac{b}{e}}\arctan\left(\frac{2\,bex+b}{2\,\sqrt{bx+a}\sqrt{ex}}\right.}{6\left(e^{5}x^{2}+2\,de^{4}x\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(3/2)/(e*x + d)^(5/2),x, algorithm="fricas")
```

```
[Out] [-1/12*(3*(5*B*b*d^3 - (3*B*a + 2*A*b)*d^2*e + (5*B*b*d*e^2 - (3*
B*a + 2*A*b)*e^3)*x^2 + 2*(5*B*b*d^2*e - (3*B*a + 2*A*b)*d*e^2)*x
)*sqrt(b/e)*log(8*b^2*e^2*x^2 + b^2*d^2 + 6*a*b*d*e + a^2*e^2 + 4
*(2*b*e^2*x + b*d*e + a*e^2)*sqrt(b*x + a)*sqrt(e*x + d)*sqrt(b/e
) + 8*(b^2*d*e + a*b*e^2)*x) - 4*(3*B*b*e^2*x^2 + 15*B*b*d^2 - 2*
A*a*e^2 - 2*(2*B*a + 3*A*b)*d*e + 2*(10*B*b*d*e - (3*B*a + 4*A*b)
*e^2)*x)*sqrt(b*x + a)*sqrt(e*x + d))/(e^5*x^2 + 2*d*e^4*x + d^2*
e^3), -1/6*(3*(5*B*b*d^3 - (3*B*a + 2*A*b)*d^2*e + (5*B*b*d*e^2 -
 (3*B*a + 2*A*b)*e^3)*x^2 + 2*(5*B*b*d^2*e - (3*B*a + 2*A*b)*d*e^
2)*x)*sqrt(-b/e)*arctan(1/2*(2*b*e*x + b*d + a*e)/(sqrt(b*x + a)*
sqrt(e*x + d)*e*sqrt(-b/e))) - 2*(3*B*b*e^2*x^2 + 15*B*b*d^2 - 2*
A*a*e^2 - 2*(2*B*a + 3*A*b)*d*e + 2*(10*B*b*d*e - (3*B*a + 4*A*b)
*e^2)*x)*sqrt(b*x + a)*sqrt(e*x + d))/(e^5*x^2 + 2*d*e^4*x + d^2*
e^3)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**(3/2)*(B*x+A)/(e*x+d)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.265444, size = 475, normalized size = 2.35

$$\frac{(5\,Bbd|b|-3\,Ba|b|e-2\,Ab|b|e)e^{\left(-\frac{7}{2}\right)}\ln\left(\left|-\sqrt{bx+a}\sqrt{b}e^{\frac{1}{2}}+\sqrt{b^{2}d+(bx+a)be-abe}\right|\right)}{\sqrt{b}}$$

$$+\frac{\left((bx+a)\left(\frac{3\left(Bb^{5}d|b|e^{4}-Bab^{4}|b|e^{5}\right)(bx+a)}{b^{4}de^{5}-ab^{3}e^{6}}+\frac{4\left(5\,Bb^{6}d^{2}|b|e^{3}-8\,Bab^{5}d|b|e^{4}-2\,Ab^{6}d|b|e^{4}+3\,Ba^{2}b^{4}|b|e^{5}+2\,Aab^{5}|b|e^{5}\right)}{b^{4}de^{5}-ab^{3}e^{6}}\right)+\frac{3\left(5\,Bb^{7}d^{3}|b|e^{2}-13\,Ba\right.}{}\right.}{3\left(b^{2}d+(bx+a)be-abe\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(3/2)/(e*x + d)^(5/2),x, algorithm="giac")
```

```
[Out] (5*B*b*d*abs(b) - 3*B*a*abs(b)*e - 2*A*b*abs(b)*e)*e^(-7/2)*ln(ab
s(-sqrt(b*x + a)*sqrt(b)*e^(1/2) + sqrt(b^2*d + (b*x + a)*b*e - a
*b*e)))/sqrt(b) + 1/3*((b*x + a)*(3*(B*b^5*d*abs(b)*e^4 - B*a*b^4
*abs(b)*e^5)*(b*x + a)/(b^4*d*e^5 - a*b^3*e^6) + 4*(5*B*b^6*d^2*a
bs(b)*e^3 - 8*B*a*b^5*d*abs(b)*e^4 - 2*A*b^6*d*abs(b)*e^4 + 3*B*a
^2*b^4*abs(b)*e^5 + 2*A*a*b^5*abs(b)*e^5)/(b^4*d*e^5 - a*b^3*e^6)
```

```
) + 3*(5*B*b^7*d^3*abs(b)*e^2 - 13*B*a*b^6*d^2*abs(b)*e^3 - 2*A*b
^7*d^2*abs(b)*e^3 + 11*B*a^2*b^5*d*abs(b)*e^4 + 4*A*a*b^6*d*abs(b
)*e^4 - 3*B*a^3*b^4*abs(b)*e^5 - 2*A*a^2*b^5*abs(b)*e^5)/(b^4*d*e
^5 - a*b^3*e^6))*sqrt(b*x + a)/(b^2*d + (b*x + a)*b*e - a*b*e)^(3
/2)
```

3.2200 $\int \frac{(a+bx)^{3/2}(A+Bx)}{(d+ex)^{7/2}}\,dx$

Optimal. Leaf size=138

$$-\frac{2(a+bx)^{5/2}(Bd-Ae)}{5e(d+ex)^{5/2}(bd-ae)}+\frac{2b^{3/2}B\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{e^{7/2}}-\frac{2bB\sqrt{a+bx}}{e^3\sqrt{d+ex}}-\frac{2B(a+bx)^{3/2}}{3e^2(d+ex)^{3/2}}$$

```
[Out] (-2*(B*d - A*e)*(a + b*x)^(5/2))/(5*e*(b*d - a*e)*(d + e*x)^(5/2
) - (2*B*(a + b*x)^(3/2))/(3*e^2*(d + e*x)^(3/2)) - (2*b*B*Sqrt[a
 + b*x])/(e^3*Sqrt[d + e*x]) + (2*b^(3/2)*B*ArcTanh[(Sqrt[e]*Sqrt
[a + b*x])/(Sqrt[b]*Sqrt[d + e*x])])/e^(7/2)
```

Rubi [A] time = 0.218117, antiderivative size = 138, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$-\frac{2(a+bx)^{5/2}(Bd-Ae)}{5e(d+ex)^{5/2}(bd-ae)}+\frac{2b^{3/2}B\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{e^{7/2}}-\frac{2bB\sqrt{a+bx}}{e^3\sqrt{d+ex}}-\frac{2B(a+bx)^{3/2}}{3e^2(d+ex)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(3/2)*(A + B*x))/(d + e*x)^(7/2),x]
```

```
[Out] (-2*(B*d - A*e)*(a + b*x)^(5/2))/(5*e*(b*d - a*e)*(d + e*x)^(5/2
) - (2*B*(a + b*x)^(3/2))/(3*e^2*(d + e*x)^(3/2)) - (2*b*B*Sqrt[a
 + b*x])/(e^3*Sqrt[d + e*x]) + (2*b^(3/2)*B*ArcTanh[(Sqrt[e]*Sqrt
[a + b*x])/(Sqrt[b]*Sqrt[d + e*x])])/e^(7/2)
```

Rubi in Sympy [A] time = 21.7614, size = 128, normalized size = 0.93

$$\frac{2Bb^{\frac{3}{2}}\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{e}\sqrt{a+bx}}\right)}{e^{\frac{7}{2}}}-\frac{2Bb\sqrt{a+bx}}{e^3\sqrt{d+ex}}-\frac{2B\left(a+bx\right)^{\frac{3}{2}}}{3e^2\left(d+ex\right)^{\frac{3}{2}}}-\frac{2\left(a+bx\right)^{\frac{5}{2}}\left(Ae-Bd\right)}{5e\left(d+ex\right)^{\frac{5}{2}}\left(ae-bd\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(B*x+A)/(e*x+d)**(7/2),x)
```

```
[Out] 2*B*b**(3/2)*atanh(sqrt(b)*sqrt(d + e*x)/(sqrt(e)*sqrt(a + b*x)))
/e**(7/2) - 2*B*b*sqrt(a + b*x)/(e**3*sqrt(d + e*x)) - 2*B*(a + b
*x)**(3/2)/(3*e**2*(d + e*x)**(3/2)) - 2*(a + b*x)**(5/2)*(A*e -
B*d)/(5*e*(d + e*x)**(5/2)*(a*e - b*d))
```

Mathematica [A] time = 0.484164, size = 158, normalized size = 1.14

$$\frac{2\sqrt{a+bx}\left(-\frac{b(d+ex)^2(20aBe+3Abe-23bBd)}{ae-bd}+(d+ex)(-5aBe-6Abe+11bBd)-3(bd-ae)(Bd-Ae)\right)}{15e^3(d+ex)^{5/2}}+\frac{b^{3/2}B\log\left(2\sqrt{b}\sqrt{e}\sqrt{a+bx}\sqrt{d+ex}+ae+bd+2bex\right)}{e^{7/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(3/2)*(A + B*x))/(d + e*x)^(7/2),x]
```

```
[Out] (2*Sqrt[a + b*x]*(-3*(b*d - a*e)*(B*d - A*e) + (11*b*B*d - 6*A*b*
e - 5*a*B*e)*(d + e*x) - (b*(-23*b*B*d + 3*A*b*e + 20*a*B*e)*(d +
 e*x)^2)/(-(b*d) + a*e)))/(15*e^3*(d + e*x)^(5/2)) + (b^(3/2)*B*L
og[b*d + a*e + 2*b*e*x + 2*Sqrt[b]*Sqrt[e]*Sqrt[a + b*x]*Sqrt[d +
 e*x]])/e^(7/2)
```

Maple [B] time = 0.036, size = 780, normalized size = 5.7

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(B*x+A)/(e*x+d)^(7/2),x)
```

```
[Out] -1/15*(b*x+a)^(1/2)*(-15*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1
/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x^3*a*b^2*e^4+15*B*ln(1/2*(
2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2
))*x^3*b^3*d*e^3-45*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(
b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x^2*a*b^2*d*e^3+45*B*ln(1/2*(2*b
*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*
x^2*b^3*d^2*e^2+6*A*x^2*b^2*e^3*(b*e)^(1/2)*((b*x+a)*(e*x+d))^(1/
2)-45*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e
+b*d)/(b*e)^(1/2))*x*a*b^2*d^2*e^2+45*B*ln(1/2*(2*b*x*e+2*((b*x+a
)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x*b^3*d^3*e+40
*B*x^2*a*b*e^3*(b*e)^(1/2)*((b*x+a)*(e*x+d))^(1/2)-46*B*x^2*b^2*d
*e^2*(b*e)^(1/2)*((b*x+a)*(e*x+d))^(1/2)+12*A*x*a*b*e^3*(b*e)^(1/
2)*((b*x+a)*(e*x+d))^(1/2)-15*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d
))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a*b^2*d^3*e+15*B*ln(1/
2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(
1/2))*b^3*d^4+10*B*x*a^2*e^3*(b*e)^(1/2)*((b*x+a)*(e*x+d))^(1/2)+
48*B*x*a*b*d*e^2*(b*e)^(1/2)*((b*x+a)*(e*x+d))^(1/2)-70*B*x*b^2*d
^2*e*(b*e)^(1/2)*((b*x+a)*(e*x+d))^(1/2)+6*A*a^2*e^3*(b*e)^(1/2)*
((b*x+a)*(e*x+d))^(1/2)+4*B*a^2*d*e^2*(b*e)^(1/2)*((b*x+a)*(e*x+d
))^(1/2)+20*B*a*b*d^2*e*(b*e)^(1/2)*((b*x+a)*(e*x+d))^(1/2)-30*B*
b^2*d^3*(b*e)^(1/2)*((b*x+a)*(e*x+d))^(1/2))/((b*x+a)*(e*x+d))^(1
/2)/(a*e-b*d)/(b*e)^(1/2)/(e*x+d)^(5/2)/e^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/(e*x + d)^(7/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.870137, size = 1, normalized size = 0.01

$$\left[\frac{15\left(Bb^2d^4 - Babd^3e + \left(Bb^2de^3 - Babe^4\right)x^3 + 3\left(Bb^2d^2e^2 - Babde^3\right)x^2 + 3\left(Bb^2d^3e - Babd^2e^2\right)x\right)\sqrt{\frac{b}{e}}\log\left(8\,b^2e^2x^2 + b^2d^2\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/(e*x + d)^(7/2),x, algorithm="fricas")
```

```
[Out] [1/30*(15*(B*b^2*d^4 - B*a*b*d^3*e + (B*b^2*d*e^3 - B*a*b*e^4)*x^
3 + 3*(B*b^2*d^2*e^2 - B*a*b*d*e^3)*x^2 + 3*(B*b^2*d^3*e - B*a*b*
```

```
d^2*e^2)*x)*sqrt(b/e)*log(8*b^2*e^2*x^2 + b^2*d^2 + 6*a*b*d*e + a
^2*e^2 + 4*(2*b*e^2*x + b*d*e + a*e^2)*sqrt(b*x + a)*sqrt(e*x + d
)*sqrt(b/e) + 8*(b^2*d*e + a*b*e^2)*x) - 4*(15*B*b^2*d^3 - 10*B*a
*b*d^2*e - 2*B*a^2*d*e^2 - 3*A*a^2*e^3 + (23*B*b^2*d*e^2 - (20*B*
a*b + 3*A*b^2)*e^3)*x^2 + (35*B*b^2*d^2*e - 24*B*a*b*d*e^2 - (5*B
*a^2 + 6*A*a*b)*e^3)*x)*sqrt(b*x + a)*sqrt(e*x + d))/(b*d^4*e^3 -
 a*d^3*e^4 + (b*d*e^6 - a*e^7)*x^3 + 3*(b*d^2*e^5 - a*d*e^6)*x^2
+ 3*(b*d^3*e^4 - a*d^2*e^5)*x), 1/15*(15*(B*b^2*d^4 - B*a*b*d^3*e
 + (B*b^2*d*e^3 - B*a*b*e^4)*x^3 + 3*(B*b^2*d^2*e^2 - B*a*b*d*e^3
)*x^2 + 3*(B*b^2*d^3*e - B*a*b*d^2*e^2)*x)*sqrt(-b/e)*arctan(1/2*
(2*b*e*x + b*d + a*e)/(sqrt(b*x + a)*sqrt(e*x + d)*e*sqrt(-b/e)))
 - 2*(15*B*b^2*d^3 - 10*B*a*b*d^2*e - 2*B*a^2*d*e^2 - 3*A*a^2*e^3
 + (23*B*b^2*d*e^2 - (20*B*a*b + 3*A*b^2)*e^3)*x^2 + (35*B*b^2*d^
2*e - 24*B*a*b*d*e^2 - (5*B*a^2 + 6*A*a*b)*e^3)*x)*sqrt(b*x + a)*
sqrt(e*x + d))/(b*d^4*e^3 - a*d^3*e^4 + (b*d*e^6 - a*e^7)*x^3 + 3
*(b*d^2*e^5 - a*d*e^6)*x^2 + 3*(b*d^3*e^4 - a*d^2*e^5)*x)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)*(B*x+A)/(e*x+d)**(7/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.285742, size = 587, normalized size = 4.25

$$\frac{B\sqrt{b}|b|e^{\frac{1}{2}}\ln\left(\left|-\sqrt{bx+a}\sqrt{b}e^{\frac{1}{2}} + \sqrt{b^2d + (bx+a)be - abe}\right|\right)}{64\left(b^8de^5 - ab^7e^6\right)} + \frac{\left((bx+a)\left(\frac{\left(23\,Bb^7d^2|b|e^4 - 43\,Bab^6d|b|e^5 - 3\,Ab^7d|b|e^5 + 20\,Ba^2b^5|b|e^6 + 3\,Aab^6|b|e^6\right)(bx+a)}{b^{12}d^3e^6 - 3\,ab^{11}d^2e^7 + 3\,a^2b^{10}de^8 - a^3b^9e^9} + \frac{35\left(Bb^8d^3|b|e^3 - 3\,Bab^7d^2|b|e^4 + 3\,Ba^2b^6d|b|e^5 - Ba^3b\right.}{b^{12}d^3e^6 - 3\,ab^{11}d^2e^7 + 3\,a^2b^{10}de^8 - a^3b^9e^9}\right.\right.}{960\left(b^2d + (bx+a)be - abe\right)^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/(e*x + d)^(7/2),x, algorithm="giac")
```

```
[Out] 1/64*B*sqrt(b)*abs(b)*e^(1/2)*ln(abs(-sqrt(b*x + a)*sqrt(b)*e^(1/
2) + sqrt(b^2*d + (b*x + a)*b*e - a*b*e)))/(b^8*d*e^5 - a*b^7*e^6
) + 1/960*((b*x + a)*((23*B*b^7*d^2*abs(b)*e^4 - 43*B*a*b^6*d*abs
(b)*e^5 - 3*A*b^7*d*abs(b)*e^5 + 20*B*a^2*b^5*abs(b)*e^6 + 3*A*a*
b^6*abs(b)*e^6)*(b*x + a)/(b^12*d^3*e^6 - 3*a*b^11*d^2*e^7 + 3*a^
2*b^10*d*e^8 - a^3*b^9*e^9) + 35*(B*b^8*d^3*abs(b)*e^3 - 3*B*a*b^
7*d^2*abs(b)*e^4 + 3*B*a^2*b^6*d*abs(b)*e^5 - B*a^3*b^5*abs(b)*e^
6)/(b^12*d^3*e^6 - 3*a*b^11*d^2*e^7 + 3*a^2*b^10*d*e^8 - a^3*b^9*
e^9)) + 15*(B*b^9*d^4*abs(b)*e^2 - 4*B*a*b^8*d^3*abs(b)*e^3 + 6*B
*a^2*b^7*d^2*abs(b)*e^4 - 4*B*a^3*b^6*d*abs(b)*e^5 + B*a^4*b^5*ab
s(b)*e^6)/(b^12*d^3*e^6 - 3*a*b^11*d^2*e^7 + 3*a^2*b^10*d*e^8 - a
^3*b^9*e^9))*sqrt(b*x + a)/(b^2*d + (b*x + a)*b*e - a*b*e)^(5/2)
```

3.2201 $\int \frac{(a+bx)^{3/2}(A+Bx)}{(d+ex)^{9/2}}\,dx$

Optimal. Leaf size=95

$$\frac{2(a+bx)^{5/2}(-7aBe+2Abe+5bBd)}{35e(d+ex)^{5/2}(bd-ae)^2}-\frac{2(a+bx)^{5/2}(Bd-Ae)}{7e(d+ex)^{7/2}(bd-ae)}$$

```
[Out] (-2*(B*d - A*e)*(a + b*x)^(5/2))/(7*e*(b*d - a*e)*(d + e*x)^(7/2)
) + (2*(5*b*B*d + 2*A*b*e - 7*a*B*e)*(a + b*x)^(5/2))/(35*e*(b*d
- a*e)^2*(d + e*x)^(5/2))
```

Rubi [A] time = 0.164274, antiderivative size = 95, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.083

$$\frac{2(a+bx)^{5/2}(-7aBe+2Abe+5bBd)}{35e(d+ex)^{5/2}(bd-ae)^2}-\frac{2(a+bx)^{5/2}(Bd-Ae)}{7e(d+ex)^{7/2}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(3/2)*(A + B*x))/(d + e*x)^(9/2),x]
```

```
[Out] (-2*(B*d - A*e)*(a + b*x)^(5/2))/(7*e*(b*d - a*e)*(d + e*x)^(7/2)
) + (2*(5*b*B*d + 2*A*b*e - 7*a*B*e)*(a + b*x)^(5/2))/(35*e*(b*d
- a*e)^2*(d + e*x)^(5/2))
```

Rubi in Sympy [A] time = 12.5274, size = 85, normalized size = 0.89

$$-\frac{4\left(a+bx\right)^{\frac{5}{2}}\left(-Abe+\frac{B(7ae-5bd)}{2}\right)}{35e\left(d+ex\right)^{\frac{5}{2}}\left(ae-bd\right)^{2}}-\frac{2\left(a+bx\right)^{\frac{5}{2}}\left(Ae-Bd\right)}{7e\left(d+ex\right)^{\frac{7}{2}}\left(ae-bd\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(B*x+A)/(e*x+d)**(9/2),x)
```

```
[Out] -4*(a + b*x)**(5/2)*(-A*b*e + B*(7*a*e - 5*b*d)/2)/(35*e*(d + e*x
)**(5/2)*(a*e - b*d)**2) - 2*(a + b*x)**(5/2)*(A*e - B*d)/(7*e*(d
 + e*x)**(7/2)*(a*e - b*d))
```

Mathematica [A] time = 0.233728, size = 66, normalized size = 0.69

$$\frac{2(a+bx)^{5/2}(A(-5ae+7bd+2bex)+B(-2ad-7aex+5bdx))}{35(d+ex)^{7/2}(bd-ae)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(3/2)*(A + B*x))/(d + e*x)^(9/2),x]
```

```
[Out] (2*(a + b*x)^(5/2)*(B*(-2*a*d + 5*b*d*x - 7*a*e*x) + A*(7*b*d - 5
*a*e + 2*b*e*x)))/(35*(b*d - a*e)^2*(d + e*x)^(7/2))
```

Maple [A] time = 0.01, size = 74, normalized size = 0.8

$$-\frac{-4\,Abex+14\,Baex-10\,Bbdx+10\,Aae-14\,Abd+4\,Bad}{35\,a^2e^2-70\,bead+35\,b^2d^2}\left(bx+a\right)^{\frac{5}{2}}\left(ex+d\right)^{-\frac{7}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(B*x+A)/(e*x+d)^(9/2),x)
```

```
[Out] -2/35*(b*x+a)^(5/2)*(-2*A*b*e*x+7*B*a*e*x-5*B*b*d*x+5*A*a*e-7*A*b
*d+2*B*a*d)/(e*x+d)^(7/2)/(a^2*e^2-2*a*b*d*e+b^2*d^2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(3/2)/(e*x + d)^(9/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.954306, size = 413, normalized size = 4.35

$$-\frac{2\left(5\,Aa^3e-\left(5\,Bb^3d-\left(7\,Bab^2-2\,Ab^3\right)e\right)x^3-\left(\left(8\,Bab^2+7\,Ab^3\right)d-\left(14\,Ba^2b+Aab^2\right)e\right)x^2+\left(2\,Ba^3-7\,Aa^2b\right)d-\left(\left(Ba^2b\right.\right.\right.}{35\,(b^2d^6-2\,abd^5e+a^2d^4e^2+(b^2d^2e^4-2\,abde^5+a^2e^6)x^4+4\,(b^2d^3e^3-2\,abd^2e^4+a^2de^5)x^3+6\,(b^2d^4e^2-2\,abd^3e}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(3/2)/(e*x + d)^(9/2),x, algorithm="fricas")
```

```
[Out] -2/35*(5*A*a^3*e - (5*B*b^3*d - (7*B*a*b^2 - 2*A*b^3)*e)*x^3 - ((
8*B*a*b^2 + 7*A*b^3)*d - (14*B*a^2*b + A*a*b^2)*e)*x^2 + (2*B*a^3
 - 7*A*a^2*b)*d - ((B*a^2*b + 14*A*a*b^2)*d - (7*B*a^3 + 8*A*a^2*
b)*e)*x)*sqrt(b*x + a)*sqrt(e*x + d)/(b^2*d^6 - 2*a*b*d^5*e + a^2
*d^4*e^2 + (b^2*d^2*e^4 - 2*a*b*d*e^5 + a^2*e^6)*x^4 + 4*(b^2*d^3
*e^3 - 2*a*b*d^2*e^4 + a^2*d*e^5)*x^3 + 6*(b^2*d^4*e^2 - 2*a*b*d^
3*e^3 + a^2*d^2*e^4)*x^2 + 4*(b^2*d^5*e - 2*a*b*d^4*e^2 + a^2*d^3
*e^3)*x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)*(B*x+A)/(e*x+d)**(9/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.289965, size = 394, normalized size = 4.15

$$-\frac{(bx+a)^{\frac{5}{2}}\left(\frac{\left(5\,Bb^9d^2|b|e^3-12\,Bab^8d|b|e^4+2\,Ab^9d|b|e^4+7\,Ba^2b^7|b|e^5-2\,Aab^8|b|e^5\right)(bx+a)}{b^{16}d^4e^8-4\,ab^{15}d^3e^9+6\,a^2b^{14}d^2e^{10}-4\,a^3b^{13}de^{11}+a^4b^{12}e^{12}}-\frac{7\left(Bab^9d^2|b|e^3-Ab^{10}d^2|b|e^3-2\,Ba^2b^8d|b|e^4+2\,Aab^9\right.}{b^{16}d^4e^8-4\,ab^{15}d^3e^9+6\,a^2b^{14}d^2e^{10}-4\,a^3}\right.}{26880\,(b^2d+(bx+a)be-abe)^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(3/2)/(e*x + d)^(9/2),x, algorithm="giac")
```

```
[Out] -1/26880*(b*x + a)^(5/2)*((5*B*b^9*d^2*abs(b)*e^3 - 12*B*a*b^8*d*
abs(b)*e^4 + 2*A*b^9*d*abs(b)*e^4 + 7*B*a^2*b^7*abs(b)*e^5 - 2*A*
a*b^8*abs(b)*e^5)*(b*x + a)/(b^16*d^4*e^8 - 4*a*b^15*d^3*e^9 + 6*
a^2*b^14*d^2*e^10 - 4*a^3*b^13*d*e^11 + a^4*b^12*e^12) - 7*(B*a*b
^9*d^2*abs(b)*e^3 - A*b^10*d^2*abs(b)*e^3 - 2*B*a^2*b^8*d*abs(b)*
e^4 + 2*A*a*b^9*d*abs(b)*e^4 + B*a^3*b^7*abs(b)*e^5 - A*a^2*b^8*a
bs(b)*e^5)/(b^16*d^4*e^8 - 4*a*b^15*d^3*e^9 + 6*a^2*b^14*d^2*e^10
 - 4*a^3*b^13*d*e^11 + a^4*b^12*e^12))/(b^2*d + (b*x + a)*b*e - a
*b*e)^(7/2)
```

3.2202 $\int \frac{(a+bx)^{3/2}(A+Bx)}{(d+ex)^{11/2}}\,dx$

Optimal. Leaf size=147

$$\frac{4b(a+bx)^{5/2}(-9aBe+4Abe+5bBd)}{315e(d+ex)^{5/2}(bd-ae)^3}+\frac{2(a+bx)^{5/2}(-9aBe+4Abe+5bBd)}{63e(d+ex)^{7/2}(bd-ae)^2}-\frac{2(a+bx)^{5/2}(Bd-Ae)}{9e(d+ex)^{9/2}(bd-ae)}$$

```
[Out] (-2*(B*d - A*e)*(a + b*x)^(5/2))/(9*e*(b*d - a*e)*(d + e*x)^(9/2)
) + (2*(5*b*B*d + 4*A*b*e - 9*a*B*e)*(a + b*x)^(5/2))/(63*e*(b*d
- a*e)^2*(d + e*x)^(7/2)) + (4*b*(5*b*B*d + 4*A*b*e - 9*a*B*e)*(a
 + b*x)^(5/2))/(315*e*(b*d - a*e)^3*(d + e*x)^(5/2))
```

Rubi [A] time = 0.269045, antiderivative size = 147, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$\frac{4b(a+bx)^{5/2}(-9aBe+4Abe+5bBd)}{315e(d+ex)^{5/2}(bd-ae)^3}+\frac{2(a+bx)^{5/2}(-9aBe+4Abe+5bBd)}{63e(d+ex)^{7/2}(bd-ae)^2}-\frac{2(a+bx)^{5/2}(Bd-Ae)}{9e(d+ex)^{9/2}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(3/2)*(A + B*x))/(d + e*x)^(11/2),x]
```

```
[Out] (-2*(B*d - A*e)*(a + b*x)^(5/2))/(9*e*(b*d - a*e)*(d + e*x)^(9/2)
) + (2*(5*b*B*d + 4*A*b*e - 9*a*B*e)*(a + b*x)^(5/2))/(63*e*(b*d
- a*e)^2*(d + e*x)^(7/2)) + (4*b*(5*b*B*d + 4*A*b*e - 9*a*B*e)*(a
 + b*x)^(5/2))/(315*e*(b*d - a*e)^3*(d + e*x)^(5/2))
```

Rubi in Sympy [A] time = 24.6885, size = 138, normalized size = 0.94

$$-\frac{4b\left(a+bx\right)^{\frac{5}{2}}\left(4Abe-9Bae+5Bbd\right)}{315e\left(d+ex\right)^{\frac{5}{2}}\left(ae-bd\right)^{3}}+\frac{2\left(a+bx\right)^{\frac{5}{2}}\left(4Abe-9Bae+5Bbd\right)}{63e\left(d+ex\right)^{\frac{7}{2}}\left(ae-bd\right)^{2}}-\frac{2\left(a+bx\right)^{\frac{5}{2}}\left(Ae-Bd\right)}{9e\left(d+ex\right)^{\frac{9}{2}}\left(ae-bd\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(B*x+A)/(e*x+d)**(11/2),x)
```

```
[Out] -4*b*(a + b*x)**(5/2)*(4*A*b*e - 9*B*a*e + 5*B*b*d)/(315*e*(d + e
*x)**(5/2)*(a*e - b*d)**3) + 2*(a + b*x)**(5/2)*(4*A*b*e - 9*B*a*
e + 5*B*b*d)/(63*e*(d + e*x)**(7/2)*(a*e - b*d)**2) - 2*(a + b*x)
**(5/2)*(A*e - B*d)/(9*e*(d + e*x)**(9/2)*(a*e - b*d))
```

Mathematica [A] time = 0.313032, size = 135, normalized size = 0.92

$$\frac{2(a+bx)^{5/2}\left(A\left(35a^2e^2-10abe(9d+2ex)+b^2\left(63d^2+36dex+8e^2x^2\right)\right)+B\left(5a^2e(2d+9ex)-2ab\left(9d^2+53dex+9e^2x^2\right)\right)\right)}{315(d+ex)^{9/2}(bd-ae)^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(3/2)*(A + B*x))/(d + e*x)^(11/2),x]
```

```
[Out] (2*(a + b*x)^(5/2)*(A*(35*a^2*e^2 - 10*a*b*e*(9*d + 2*e*x) + b^2*
(63*d^2 + 36*d*e*x + 8*e^2*x^2)) + B*(5*b^2*d*x*(9*d + 2*e*x) + 5
*a^2*e*(2*d + 9*e*x) - 2*a*b*(9*d^2 + 53*d*e*x + 9*e^2*x^2))))/(3
15*(b*d - a*e)^3*(d + e*x)^(9/2))
```

Maple [A] time = 0.011, size = 177, normalized size = 1.2

$$-\frac{16 Ab^2e^2x^2 - 36 Babe^2x^2 + 20 Bb^2dex^2 - 40 Aabe^2x + 72 Ab^2dex + 90 Ba^2e^2x - 212 Babdex + 90 Bb^2d^2x + 70 Aa^2e^2 - 18}{315 a^3e^3 - 945 a^2bde^2 + 945 ab^2d^2e - 315 b^3d^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(B*x+A)/(e*x+d)^(11/2),x)
```

```
[Out] -2/315*(b*x+a)^(5/2)*(8*A*b^2*e^2*x^2-18*B*a*b*e^2*x^2+10*B*b^2*d
*e*x^2-20*A*a*b*e^2*x+36*A*b^2*d*e*x+45*B*a^2*e^2*x-106*B*a*b*d*e
*x+45*B*b^2*d^2*x+35*A*a^2*e^2-90*A*a*b*d*e+63*A*b^2*d^2+10*B*a^2
*d*e-18*B*a*b*d^2)/(e*x+d)^(9/2)/(a^3*e^3-3*a^2*b*d*e^2+3*a*b^2*d
^2*e-b^3*d^3)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(3/2)/(e*x + d)^(11/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 2.46947, size = 765, normalized size = 5.2

$$\frac{2\left(35 Aa^4e^2 + 2\left(5 Bb^4de - \left(9 Bab^3 - 4 Ab^4\right)e^2\right)x^4 + \left(45 Bb^4d^2 - 2\left(43 Bab^3 - 18 Ab^4\right)de + \left(9 Ba^2b^2 - 4 Aab^3\right)e^2\right)x^3 - 9\left(2\right.}{315\left(b^3d^8 - 3 ab^2d^7e + 3 a^2bd^6e^2 - a^3d^5e^3 + (b^3d^3e^5 - 3 ab^2d^2e^6 + 3 a^2bde^7 - a^3e^8)x^5 + 5\left(\right.\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(3/2)/(e*x + d)^(11/2),x, algorithm="fricas")
```

```
[Out] 2/315*(35*A*a^4*e^2 + 2*(5*B*b^4*d*e - (9*B*a*b^3 - 4*A*b^4)*e^2)
*x^4 + (45*B*b^4*d^2 - 2*(43*B*a*b^3 - 18*A*b^4)*d*e + (9*B*a^2*b
^2 - 4*A*a*b^3)*e^2)*x^3 - 9*(2*B*a^3*b - 7*A*a^2*b^2)*d^2 + 10*(
B*a^4 - 9*A*a^3*b)*d*e + 3*(3*(8*B*a*b^3 + 7*A*b^4)*d^2 - 2*(32*B
*a^2*b^2 + 3*A*a*b^3)*d*e + (24*B*a^3*b + A*a^2*b^2)*e^2)*x^2 + (
9*(B*a^2*b^2 + 14*A*a*b^3)*d^2 - 2*(43*B*a^3*b + 72*A*a^2*b^2)*d*
e + 5*(9*B*a^4 + 10*A*a^3*b)*e^2)*x)*sqrt(b*x + a)*sqrt(e*x + d)/
(b^3*d^8 - 3*a*b^2*d^7*e + 3*a^2*b*d^6*e^2 - a^3*d^5*e^3 + (b^3*d
^3*e^5 - 3*a*b^2*d^2*e^6 + 3*a^2*b*d*e^7 - a^3*e^8)*x^5 + 5*(b^3*
d^4*e^4 - 3*a*b^2*d^3*e^5 + 3*a^2*b*d^2*e^6 - a^3*d*e^7)*x^4 + 10
*(b^3*d^5*e^3 - 3*a*b^2*d^4*e^4 + 3*a^2*b*d^3*e^5 - a^3*d^2*e^6)*
x^3 + 10*(b^3*d^6*e^2 - 3*a*b^2*d^5*e^3 + 3*a^2*b*d^4*e^4 - a^3*d
^3*e^5)*x^2 + 5*(b^3*d^7*e - 3*a*b^2*d^6*e^2 + 3*a^2*b*d^5*e^3 -
a^3*d^4*e^4)*x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)*(B*x+A)/(e*x+d)**(11/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.342676, size = 709, normalized size = 4.82

$$-\frac{\left((bx+a)\left(\frac{2\left(5\,Bb^{11}d^{2}|b|e^{5}-14\,Bab^{10}d|b|e^{6}+4\,Ab^{11}d|b|e^{6}+9\,Ba^{2}b^{9}|b|e^{7}-4\,Aab^{10}|b|e^{7}\right)(bx+a)}{b^{20}d^{5}e^{10}-5\,ab^{19}d^{4}e^{11}+10\,a^{2}b^{18}d^{3}e^{12}-10\,a^{3}b^{17}d^{2}e^{13}+5\,a^{4}b^{16}de^{14}-a^{5}b^{15}e^{15}}+\frac{9\left(5\,Bb^{12}d^{3}|b|e^{4}-19\,Bab^{11}d^{2}|b|e^{5}+4\,Ab^{12}d^{2}|b|e^{5}\cdots\right.}{b^{20}d^{5}e^{10}-5\,ab^{19}d^{4}e^{11}+10\,a^{2}b^{1}\cdots}\right.\right.}{\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(3/2)/(e*x + d)^(11/2),x, algorithm="giac")
```

```
[Out] -1/322560*((b*x + a)*(2*(5*B*b^11*d^2*abs(b)*e^5 - 14*B*a*b^10*d*
abs(b)*e^6 + 4*A*b^11*d*abs(b)*e^6 + 9*B*a^2*b^9*abs(b)*e^7 - 4*A
*a*b^10*abs(b)*e^7)*(b*x + a)/(b^20*d^5*e^10 - 5*a*b^19*d^4*e^11
+ 10*a^2*b^18*d^3*e^12 - 10*a^3*b^17*d^2*e^13 + 5*a^4*b^16*d*e^14
 - a^5*b^15*e^15) + 9*(5*B*b^12*d^3*abs(b)*e^4 - 19*B*a*b^11*d^2*
abs(b)*e^5 + 4*A*b^12*d^2*abs(b)*e^5 + 23*B*a^2*b^10*d*abs(b)*e^6
 - 8*A*a*b^11*d*abs(b)*e^6 - 9*B*a^3*b^9*abs(b)*e^7 + 4*A*a^2*b^1
0*abs(b)*e^7)/(b^20*d^5*e^10 - 5*a*b^19*d^4*e^11 + 10*a^2*b^18*d^
3*e^12 - 10*a^3*b^17*d^2*e^13 + 5*a^4*b^16*d*e^14 - a^5*b^15*e^15
)) - 63*(B*a*b^12*d^3*abs(b)*e^4 - A*b^13*d^3*abs(b)*e^4 - 3*B*a^
2*b^11*d^2*abs(b)*e^5 + 3*A*a*b^12*d^2*abs(b)*e^5 + 3*B*a^3*b^10*
d*abs(b)*e^6 - 3*A*a^2*b^11*d*abs(b)*e^6 - B*a^4*b^9*abs(b)*e^7 +
 A*a^3*b^10*abs(b)*e^7)/(b^20*d^5*e^10 - 5*a*b^19*d^4*e^11 + 10*a
^2*b^18*d^3*e^12 - 10*a^3*b^17*d^2*e^13 + 5*a^4*b^16*d*e^14 - a^5
*b^15*e^15))*(b*x + a)^(5/2)/(b^2*d + (b*x + a)*b*e - a*b*e)^(9/2
)
```

3.2203 $\int \frac{(a+bx)^{3/2}(A+Bx)}{(d+ex)^{13/2}}\,dx$

Optimal. Leaf size=201

$$\frac{16b^2(a+bx)^{5/2}(-11aBe+6Abe+5bBd)}{3465e(d+ex)^{5/2}(bd-ae)^4}+\frac{8b(a+bx)^{5/2}(-11aBe+6Abe+5bBd)}{693e(d+ex)^{7/2}(bd-ae)^3}+\frac{2(a+bx)^{5/2}(-11aBe+6Abe+5bBd)}{99e(d+ex)^{9/2}(bd-ae)^2}-\frac{2(a+bx)^{5/2}(Bd-Ae)}{11e(d+ex)^{11/2}(bd-ae)}$$

```
[Out] (-2*(B*d - A*e)*(a + b*x)^(5/2))/(11*e*(b*d - a*e)*(d + e*x)^(11/
2)) + (2*(5*b*B*d + 6*A*b*e - 11*a*B*e)*(a + b*x)^(5/2))/(99*e*(b
*d - a*e)^2*(d + e*x)^(9/2)) + (8*b*(5*b*B*d + 6*A*b*e - 11*a*B*e
)*(a + b*x)^(5/2))/(693*e*(b*d - a*e)^3*(d + e*x)^(7/2)) + (16*b^
2*(5*b*B*d + 6*A*b*e - 11*a*B*e)*(a + b*x)^(5/2))/(3465*e*(b*d -
a*e)^4*(d + e*x)^(5/2))
```

Rubi [A] time = 0.366159, antiderivative size = 201, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$\frac{16b^2(a+bx)^{5/2}(-11aBe+6Abe+5bBd)}{3465e(d+ex)^{5/2}(bd-ae)^4}+\frac{8b(a+bx)^{5/2}(-11aBe+6Abe+5bBd)}{693e(d+ex)^{7/2}(bd-ae)^3}+\frac{2(a+bx)^{5/2}(-11aBe+6Abe+5bBd)}{99e(d+ex)^{9/2}(bd-ae)^2}-\frac{2(a+bx)^{5/2}(Bd-Ae)}{11e(d+ex)^{11/2}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(3/2)*(A + B*x))/(d + e*x)^(13/2),x]
```

```
[Out] (-2*(B*d - A*e)*(a + b*x)^(5/2))/(11*e*(b*d - a*e)*(d + e*x)^(11/
2)) + (2*(5*b*B*d + 6*A*b*e - 11*a*B*e)*(a + b*x)^(5/2))/(99*e*(b
*d - a*e)^2*(d + e*x)^(9/2)) + (8*b*(5*b*B*d + 6*A*b*e - 11*a*B*e
)*(a + b*x)^(5/2))/(693*e*(b*d - a*e)^3*(d + e*x)^(7/2)) + (16*b^
2*(5*b*B*d + 6*A*b*e - 11*a*B*e)*(a + b*x)^(5/2))/(3465*e*(b*d -
a*e)^4*(d + e*x)^(5/2))
```

Rubi in Sympy [A] time = 37.3252, size = 192, normalized size = 0.96

$$\frac{16b^2\left(a+bx\right)^{\frac{5}{2}}\left(6Abe-11Bae+5Bbd\right)}{3465e\left(d+ex\right)^{\frac{5}{2}}\left(ae-bd\right)^4}-\frac{8b\left(a+bx\right)^{\frac{5}{2}}\left(6Abe-11Bae+5Bbd\right)}{693e\left(d+ex\right)^{\frac{7}{2}}\left(ae-bd\right)^3}+\frac{2\left(a+bx\right)^{\frac{5}{2}}\left(6Abe-11Bae+5Bbd\right)}{99e\left(d+ex\right)^{\frac{9}{2}}\left(ae-bd\right)^2}-\frac{2\left(a+bx\right)^{\frac{5}{2}}\left(Ae-Bd\right)}{11e\left(d+ex\right)^{\frac{11}{2}}\left(ae-bd\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(B*x+A)/(e*x+d)**(13/2),x)
```

```
[Out] 16*b**2*(a + b*x)**(5/2)*(6*A*b*e - 11*B*a*e + 5*B*b*d)/(3465*e*(
d + e*x)**(5/2)*(a*e - b*d)**4) - 8*b*(a + b*x)**(5/2)*(6*A*b*e -
 11*B*a*e + 5*B*b*d)/(693*e*(d + e*x)**(7/2)*(a*e - b*d)**3) + 2*
(a + b*x)**(5/2)*(6*A*b*e - 11*B*a*e + 5*B*b*d)/(99*e*(d + e*x)**
(9/2)*(a*e - b*d)**2) - 2*(a + b*x)**(5/2)*(A*e - B*d)/(11*e*(d +
 e*x)**(11/2)*(a*e - b*d))
```

Mathematica [A] time = 0.431784, size = 217, normalized size = 1.08

$$\frac{2\sqrt{a+bx}\left(\frac{8b^4(d+ex)^5(-11aBe+6Abe+5bBd)}{(bd-ae)^4}+\frac{4b^3(d+ex)^4(-11aBe+6Abe+5bBd)}{(bd-ae)^3}+\frac{3b^2(d+ex)^3(-11aBe+6Abe+5bBd)}{(bd-ae)^2}-\frac{5b(d+ex)^2(110aBe+3Abe-}{ae-bd}\right.}{3465e^3(d+ex)^{11/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(3/2)*(A + B*x))/(d + e*x)^(13/2),x]
```

```
[Out] (2*Sqrt[a + b*x]*(-315*(b*d - a*e)*(B*d - A*e) + 35*(23*b*B*d - 1
2*A*b*e - 11*a*B*e)*(d + e*x) - (5*b*(-113*b*B*d + 3*A*b*e + 110*
a*B*e)*(d + e*x)^2)/(-(b*d) + a*e) + (3*b^2*(5*b*B*d + 6*A*b*e -
11*a*B*e)*(d + e*x)^3)/(b*d - a*e)^2 + (4*b^3*(5*b*B*d + 6*A*b*e
- 11*a*B*e)*(d + e*x)^4)/(b*d - a*e)^3 + (8*b^4*(5*b*B*d + 6*A*b*
e - 11*a*B*e)*(d + e*x)^5)/(b*d - a*e)^4))/(3465*e^3*(d + e*x)^(1
1/2))
```

Maple [A] time = 0.014, size = 322, normalized size = 1.6

$$-\frac{-96\,Ab^{3}e^{3}x^{3}+176\,Bab^{2}e^{3}x^{3}-80\,Bb^{3}de^{2}x^{3}+240\,Aab^{2}e^{3}x^{2}-528\,Ab^{3}de^{2}x^{2}-440\,Ba^{2}be^{3}x^{2}+1168\,Bab^{2}de^{2}x^{2}-440\,Bb^{3}}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(B*x+A)/(e*x+d)^(13/2),x)
```

```
[Out] -2/3465*(b*x+a)^(5/2)*(-48*A*b^3*e^3*x^3+88*B*a*b^2*e^3*x^3-40*B*
b^3*d*e^2*x^3+120*A*a*b^2*e^3*x^2-264*A*b^3*d*e^2*x^2-220*B*a^2*b
*e^3*x^2+584*B*a*b^2*d*e^2*x^2-220*B*b^3*d^2*e*x^2-210*A*a^2*b*e^
3*x+660*A*a*b^2*d*e^2*x-594*A*b^3*d^2*e*x+385*B*a^3*e^3*x-1385*B*
a^2*b*d*e^2*x+1639*B*a*b^2*d^2*e*x-495*B*b^3*d^3*x+315*A*a^3*e^3-
1155*A*a^2*b*d*e^2+1485*A*a*b^2*d^2*e-693*A*b^3*d^3+70*B*a^3*d*e^
2-220*B*a^2*b*d^2*e+198*B*a*b^2*d^3)/(e*x+d)^(11/2)/(a^4*e^4-4*a^
3*b*d*e^3+6*a^2*b^2*d^2*e^2-4*a*b^3*d^3*e+b^4*d^4)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/(e*x + d)^(13/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 6.09255, size = 1188, normalized size = 5.91

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/(e*x + d)^(13/2),x, algorithm="fricas")
```

```
[Out] -2/3465*(315*A*a^5*e^3 - 8*(5*B*b^5*d*e^2 - (11*B*a*b^4 - 6*A*b^5
)*e^3)*x^5 - 4*(55*B*b^5*d^2*e - 6*(21*B*a*b^4 - 11*A*b^5)*d*e^2
+ (11*B*a^2*b^3 - 6*A*a*b^4)*e^3)*x^4 + 99*(2*B*a^3*b^2 - 7*A*a^2
*b^3)*d^3 - 55*(4*B*a^4*b - 27*A*a^3*b^2)*d^2*e + 35*(2*B*a^5 - 3
3*A*a^4*b)*d*e^2 - (495*B*b^5*d^3 - 11*(109*B*a*b^4 - 54*A*b^5)*d
^2*e + (257*B*a^2*b^3 - 132*A*a*b^4)*d*e^2 - 3*(11*B*a^3*b^2 - 6*
A*a^2*b^3)*e^3)*x^3 - (99*(8*B*a*b^4 + 7*A*b^5)*d^3 - 33*(86*B*a^
2*b^3 + 9*A*a*b^4)*d^2*e + (2116*B*a^3*b^2 + 99*A*a^2*b^3)*d*e^2
- 5*(110*B*a^4*b + 3*A*a^3*b^2)*e^3)*x^2 - (99*(B*a^2*b^3 + 14*A*
a*b^4)*d^3 - 11*(109*B*a^3*b^2 + 216*A*a^2*b^3)*d^2*e + 15*(83*B*
a^4*b + 110*A*a^3*b^2)*d*e^2 - 35*(11*B*a^5 + 12*A*a^4*b)*e^3)*x)
```

```
*sqrt(b*x + a)*sqrt(e*x + d)/(b^4*d^10 - 4*a*b^3*d^9*e + 6*a^2*b^
2*d^8*e^2 - 4*a^3*b*d^7*e^3 + a^4*d^6*e^4 + (b^4*d^4*e^6 - 4*a*b^
3*d^3*e^7 + 6*a^2*b^2*d^2*e^8 - 4*a^3*b*d*e^9 + a^4*e^10)*x^6 + 6
*(b^4*d^5*e^5 - 4*a*b^3*d^4*e^6 + 6*a^2*b^2*d^3*e^7 - 4*a^3*b*d^2
*e^8 + a^4*d*e^9)*x^5 + 15*(b^4*d^6*e^4 - 4*a*b^3*d^5*e^5 + 6*a^2
*b^2*d^4*e^6 - 4*a^3*b*d^3*e^7 + a^4*d^2*e^8)*x^4 + 20*(b^4*d^7*e
^3 - 4*a*b^3*d^6*e^4 + 6*a^2*b^2*d^5*e^5 - 4*a^3*b*d^4*e^6 + a^4*
d^3*e^7)*x^3 + 15*(b^4*d^8*e^2 - 4*a*b^3*d^7*e^3 + 6*a^2*b^2*d^6*
e^4 - 4*a^3*b*d^5*e^5 + a^4*d^4*e^6)*x^2 + 6*(b^4*d^9*e - 4*a*b^3
*d^8*e^2 + 6*a^2*b^2*d^7*e^3 - 4*a^3*b*d^6*e^4 + a^4*d^5*e^5)*x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(3/2)*(B*x+A)/(e*x+d)**(13/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.410804, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(3/2)/(e*x + d)^(13/2),x, algorithm="giac")
```

```
[Out] Done
```

3.2204 $\int \frac{(a+bx)^{3/2}(A+Bx)}{(d+ex)^{15/2}}\,dx$

Optimal. Leaf size=255

$$\frac{32b^3(a+bx)^{5/2}(-13aBe+8Abe+5bBd)}{15015e(d+ex)^{5/2}(bd-ae)^5}+\frac{16b^2(a+bx)^{5/2}(-13aBe+8Abe+5bBd)}{3003e(d+ex)^{7/2}(bd-ae)^4}+\frac{4b(a+bx)^{5/2}(-13aBe+8Abe+5bBd)}{429e(d+ex)^{9/2}(bd-ae)^3}+\frac{2(a+bx)^{5/2}(-13aBe+8Abe+5bBd)}{143e(d+ex)^{11/2}(bd-ae)^2}-\frac{2(a+bx)^{5/2}(Bd-Ae)}{13e(d+ex)^{13/2}(bd-ae)}$$

```
[Out] (-2*(B*d - A*e)*(a + b*x)^(5/2))/(13*e*(b*d - a*e)*(d + e*x)^(13/
2)) + (2*(5*b*B*d + 8*A*b*e - 13*a*B*e)*(a + b*x)^(5/2))/(143*e*(
b*d - a*e)^2*(d + e*x)^(11/2)) + (4*b*(5*b*B*d + 8*A*b*e - 13*a*B
*e)*(a + b*x)^(5/2))/(429*e*(b*d - a*e)^3*(d + e*x)^(9/2)) + (16*
b^2*(5*b*B*d + 8*A*b*e - 13*a*B*e)*(a + b*x)^(5/2))/(3003*e*(b*d
- a*e)^4*(d + e*x)^(7/2)) + (32*b^3*(5*b*B*d + 8*A*b*e - 13*a*B*e
)*(a + b*x)^(5/2))/(15015*e*(b*d - a*e)^5*(d + e*x)^(5/2))
```

Rubi [A] time = 0.449307, antiderivative size = 255, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.125$

$$\frac{32b^3(a+bx)^{5/2}(-13aBe+8Abe+5bBd)}{15015e(d+ex)^{5/2}(bd-ae)^5}+\frac{16b^2(a+bx)^{5/2}(-13aBe+8Abe+5bBd)}{3003e(d+ex)^{7/2}(bd-ae)^4}+\frac{4b(a+bx)^{5/2}(-13aBe+8Abe+5bBd)}{429e(d+ex)^{9/2}(bd-ae)^3}+\frac{2(a+bx)^{5/2}(-13aBe+8Abe+5bBd)}{143e(d+ex)^{11/2}(bd-ae)^2}-\frac{2(a+bx)^{5/2}(Bd-Ae)}{13e(d+ex)^{13/2}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(3/2)*(A + B*x))/(d + e*x)^(15/2),x]
```

```
[Out] (-2*(B*d - A*e)*(a + b*x)^(5/2))/(13*e*(b*d - a*e)*(d + e*x)^(13/
2)) + (2*(5*b*B*d + 8*A*b*e - 13*a*B*e)*(a + b*x)^(5/2))/(143*e*(
b*d - a*e)^2*(d + e*x)^(11/2)) + (4*b*(5*b*B*d + 8*A*b*e - 13*a*B
*e)*(a + b*x)^(5/2))/(429*e*(b*d - a*e)^3*(d + e*x)^(9/2)) + (16*
b^2*(5*b*B*d + 8*A*b*e - 13*a*B*e)*(a + b*x)^(5/2))/(3003*e*(b*d
- a*e)^4*(d + e*x)^(7/2)) + (32*b^3*(5*b*B*d + 8*A*b*e - 13*a*B*e
)*(a + b*x)^(5/2))/(15015*e*(b*d - a*e)^5*(d + e*x)^(5/2))
```

Rubi in Sympy [A] time = 50.9976, size = 246, normalized size = 0.96

$$-\frac{32b^3\left(a+bx\right)^{\frac{5}{2}}\left(8Abe-13Bae+5Bbd\right)}{15015e\left(d+ex\right)^{\frac{5}{2}}\left(ae-bd\right)^5}+\frac{16b^2\left(a+bx\right)^{\frac{5}{2}}\left(8Abe-13Bae+5Bbd\right)}{3003e\left(d+ex\right)^{\frac{7}{2}}\left(ae-bd\right)^4}-\frac{4b\left(a+bx\right)^{\frac{5}{2}}\left(8Abe-13Bae+5Bbd\right)}{429e\left(d+ex\right)^{\frac{9}{2}}\left(ae-bd\right)^3}+\frac{2\left(a+bx\right)^{\frac{5}{2}}\left(8Abe-13Bae+5Bbd\right)}{143e\left(d+ex\right)^{\frac{11}{2}}\left(ae-bd\right)^2}-\frac{2\left(a+bx\right)^{\frac{5}{2}}\left(Ae-Bd\right)}{13e\left(d+ex\right)^{\frac{13}{2}}\left(ae-bd\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(B*x+A)/(e*x+d)**(15/2),x)
```

```
[Out] -32*b**3*(a + b*x)**(5/2)*(8*A*b*e - 13*B*a*e + 5*B*b*d)/(15015*e
*(d + e*x)**(5/2)*(a*e - b*d)**5) + 16*b**2*(a + b*x)**(5/2)*(8*A
*b*e - 13*B*a*e + 5*B*b*d)/(3003*e*(d + e*x)**(7/2)*(a*e - b*d)**
```

```
4) - 4*b*(a + b*x)**(5/2)*(8*A*b*e - 13*B*a*e + 5*B*b*d)/(429*e*(
d + e*x)**(9/2)*(a*e - b*d)**3) + 2*(a + b*x)**(5/2)*(8*A*b*e - 1
3*B*a*e + 5*B*b*d)/(143*e*(d + e*x)**(11/2)*(a*e - b*d)**2) - 2*(
a + b*x)**(5/2)*(A*e - B*d)/(13*e*(d + e*x)**(13/2)*(a*e - b*d))
```

Mathematica [A] time = 0.54001, size = 254, normalized size = 1.

$$\frac{2\sqrt{a+bx}\left(\frac{16b^5(d+ex)^6(-13aBe+8Abe+5bBd)}{(bd-ae)^5}+\frac{8b^4(d+ex)^5(-13aBe+8Abe+5bBd)}{(bd-ae)^4}+\frac{6b^3(d+ex)^4(-13aBe+8Abe+5bBd)}{(bd-ae)^3}+\frac{5b^2(d+ex)^3(-13aBe+8Ab}{(bd-ae)^2}\right.}{15015e^3(d+ex)^{13/}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(3/2)*(A + B*x))/(d + e*x)^(15/2),x]
```

```
[Out] (2*Sqrt[a + b*x]*(-1155*(b*d - a*e)*(B*d - A*e) + 105*(27*b*B*d -
 14*A*b*e - 13*a*B*e)*(d + e*x) - (35*b*(-53*b*B*d + A*b*e + 52*a
*B*e)*(d + e*x)^2)/(-(b*d) + a*e) + (5*b^2*(5*b*B*d + 8*A*b*e - 1
3*a*B*e)*(d + e*x)^3)/(b*d - a*e)^2 + (6*b^3*(5*b*B*d + 8*A*b*e -
 13*a*B*e)*(d + e*x)^4)/(b*d - a*e)^3 + (8*b^4*(5*b*B*d + 8*A*b*e
 - 13*a*B*e)*(d + e*x)^5)/(b*d - a*e)^4 + (16*b^5*(5*b*B*d + 8*A*
b*e - 13*a*B*e)*(d + e*x)^6)/(b*d - a*e)^5))/(15015*e^3*(d + e*x)
^(13/2))
```

Maple [B] time = 0.017, size = 505, normalized size = 2.

$$-\frac{256\,Ab^4e^4x^4-416\,Bab^3e^4x^4+160\,Bb^4de^3x^4-640\,Aab^3e^4x^3+1664\,Ab^4de^3x^3+1040\,Ba^2b^2e^4x^3-3104\,Bab^3de^3x^3+104}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(B*x+A)/(e*x+d)^(15/2),x)
```

```
[Out] -2/15015*(b*x+a)^(5/2)*(128*A*b^4*e^4*x^4-208*B*a*b^3*e^4*x^4+80*
B*b^4*d*e^3*x^4-320*A*a*b^3*e^4*x^3+832*A*b^4*d*e^3*x^3+520*B*a^2
*b^2*e^4*x^3-1552*B*a*b^3*d*e^3*x^3+520*B*b^4*d^2*e^2*x^3+560*A*a
^2*b^2*e^4*x^2-2080*A*a*b^3*d*e^3*x^2+2288*A*b^4*d^2*e^2*x^2-910*
B*a^3*b*e^4*x^2+3730*B*a^2*b^2*d*e^3*x^2-5018*B*a*b^3*d^2*e^2*x^2
+1430*B*b^4*d^3*e*x^2-840*A*a^3*b*e^4*x+3640*A*a^2*b^2*d*e^3*x-57
20*A*a*b^3*d^2*e^2*x+3432*A*b^4*d^3*e*x+1365*B*a^4*e^4*x-6440*B*a
^3*b*d*e^3*x+11570*B*a^2*b^2*d^2*e^2*x-9152*B*a*b^3*d^3*e*x+2145*
B*b^4*d^4*x+1155*A*a^4*e^4-5460*A*a^3*b*d*e^3+10010*A*a^2*b^2*d^2
*e^2-8580*A*a*b^3*d^3*e+3003*A*b^4*d^4+210*B*a^4*d*e^3-910*B*a^3*
b*d^2*e^2+1430*B*a^2*b^2*d^3*e-858*B*a*b^3*d^4)/(e*x+d)^(13/2)/(a
^5*e^5-5*a^4*b*d*e^4+10*a^3*b^2*d^2*e^3-10*a^2*b^3*d^3*e^2+5*a*b^
4*d^4*e-b^5*d^5)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(3/2)/(e*x + d)^(15/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 14.3208, size = 1690, normalized size = 6.63

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(3/2)/(e*x + d)^(15/2),x, algorithm="fricas")
```

```
[Out] 2/15015*(1155*A*a^6*e^4 + 16*(5*B*b^6*d*e^3 - (13*B*a*b^5 - 8*A*b
^6)*e^4)*x^6 + 8*(65*B*b^6*d^2*e^2 - 2*(87*B*a*b^5 - 52*A*b^6)*d*
e^3 + (13*B*a^2*b^4 - 8*A*a*b^5)*e^4)*x^5 - 429*(2*B*a^3*b^3 - 7*
A*a^2*b^4)*d^4 + 1430*(B*a^4*b^2 - 6*A*a^3*b^3)*d^3*e - 910*(B*a^
5*b - 11*A*a^4*b^2)*d^2*e^2 + 210*(B*a^6 - 26*A*a^5*b)*d*e^3 + 2*
(715*B*b^6*d^3*e - 13*(153*B*a*b^5 - 88*A*b^6)*d^2*e^2 + (353*B*a
^2*b^4 - 208*A*a*b^5)*d*e^3 - 3*(13*B*a^3*b^3 - 8*A*a^2*b^4)*e^4)
*x^4 + (2145*B*b^6*d^4 - 572*(11*B*a*b^5 - 6*A*b^6)*d^3*e + 26*(7
9*B*a^2*b^4 - 44*A*a*b^5)*d^2*e^2 - 4*(133*B*a^3*b^3 - 78*A*a^2*b
^4)*d*e^3 + 5*(13*B*a^4*b^2 - 8*A*a^3*b^3)*e^4)*x^3 + (429*(8*B*a
*b^5 + 7*A*b^6)*d^4 - 1716*(9*B*a^2*b^4 + A*a*b^5)*d^3*e + 26*(66
2*B*a^3*b^3 + 33*A*a^2*b^4)*d^2*e^2 - 20*(447*B*a^4*b^2 + 13*A*a^
3*b^3)*d*e^3 + 35*(52*B*a^5*b + A*a^4*b^2)*e^4)*x^2 + (429*(B*a^2
*b^4 + 14*A*a*b^5)*d^4 - 572*(11*B*a^3*b^3 + 24*A*a^2*b^4)*d^3*e
+ 650*(15*B*a^4*b^2 + 22*A*a^3*b^3)*d^2*e^2 - 140*(43*B*a^5*b + 5
2*A*a^4*b^2)*d*e^3 + 105*(13*B*a^6 + 14*A*a^5*b)*e^4)*x)*sqrt(b*x
 + a)*sqrt(e*x + d)/(b^5*d^12 - 5*a*b^4*d^11*e + 10*a^2*b^3*d^10*
e^2 - 10*a^3*b^2*d^9*e^3 + 5*a^4*b*d^8*e^4 - a^5*d^7*e^5 + (b^5*d
^5*e^7 - 5*a*b^4*d^4*e^8 + 10*a^2*b^3*d^3*e^9 - 10*a^3*b^2*d^2*e^
10 + 5*a^4*b*d*e^11 - a^5*e^12)*x^7 + 7*(b^5*d^6*e^6 - 5*a*b^4*d^
5*e^7 + 10*a^2*b^3*d^4*e^8 - 10*a^3*b^2*d^3*e^9 + 5*a^4*b*d^2*e^1
0 - a^5*d*e^11)*x^6 + 21*(b^5*d^7*e^5 - 5*a*b^4*d^6*e^6 + 10*a^2*
b^3*d^5*e^7 - 10*a^3*b^2*d^4*e^8 + 5*a^4*b*d^3*e^9 - a^5*d^2*e^10
)*x^5 + 35*(b^5*d^8*e^4 - 5*a*b^4*d^7*e^5 + 10*a^2*b^3*d^6*e^6 -
10*a^3*b^2*d^5*e^7 + 5*a^4*b*d^4*e^8 - a^5*d^3*e^9)*x^4 + 35*(b^5
*d^9*e^3 - 5*a*b^4*d^8*e^4 + 10*a^2*b^3*d^7*e^5 - 10*a^3*b^2*d^6*
e^6 + 5*a^4*b*d^5*e^7 - a^5*d^4*e^8)*x^3 + 21*(b^5*d^10*e^2 - 5*a
*b^4*d^9*e^3 + 10*a^2*b^3*d^8*e^4 - 10*a^3*b^2*d^7*e^5 + 5*a^4*b*
d^6*e^6 - a^5*d^5*e^7)*x^2 + 7*(b^5*d^11*e - 5*a*b^4*d^10*e^2 + 1
0*a^2*b^3*d^9*e^3 - 10*a^3*b^2*d^8*e^4 + 5*a^4*b*d^7*e^5 - a^5*d^
6*e^6)*x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**(3/2)*(B*x+A)/(e*x+d)**(15/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.535647, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(3/2)/(e*x + d)^(15/2),x, algorithm="giac")
```

```
[Out] Done
```

3.2205 $\int \frac{(a+bx)^{3/2}(A+Bx)}{(d+ex)^{17/2}}\,dx$

Optimal. Leaf size=304

$$\frac{256b^4(a+bx)^{5/2}(-3aBe+2Abe+bBd)}{45045e(d+ex)^{5/2}(bd-ae)^6}+\frac{128b^3(a+bx)^{5/2}(-3aBe+2Abe+bBd)}{9009e(d+ex)^{7/2}(bd-ae)^5}+\frac{32b^2(a+bx)^{5/2}(-3aBe+2Abe+bBd)}{1287e(d+ex)^{9/2}(bd-ae)^4}+\frac{16b(a+bx)^{5/2}(-3aBe+2Abe+bBd)}{429e(d+ex)^{11/2}(bd-ae)^3}+\frac{2(a+bx)^{5/2}(-3aBe+2Abe+bBd)}{39e(d+ex)^{13/2}(bd-ae)^2}-\frac{2(a+bx)^{5/2}(Bd-Ae)}{15e(d+ex)^{15/2}(bd-ae)}$$

```
[Out] (-2*(B*d - A*e)*(a + b*x)^(5/2))/(15*e*(b*d - a*e)*(d + e*x)^(15/
2)) + (2*(b*B*d + 2*A*b*e - 3*a*B*e)*(a + b*x)^(5/2))/(39*e*(b*d
- a*e)^2*(d + e*x)^(13/2)) + (16*b*(b*B*d + 2*A*b*e - 3*a*B*e)*(a
 + b*x)^(5/2))/(429*e*(b*d - a*e)^3*(d + e*x)^(11/2)) + (32*b^2*(
b*B*d + 2*A*b*e - 3*a*B*e)*(a + b*x)^(5/2))/(1287*e*(b*d - a*e)^4
*(d + e*x)^(9/2)) + (128*b^3*(b*B*d + 2*A*b*e - 3*a*B*e)*(a + b*x
)^(5/2))/(9009*e*(b*d - a*e)^5*(d + e*x)^(7/2)) + (256*b^4*(b*B*d
 + 2*A*b*e - 3*a*B*e)*(a + b*x)^(5/2))/(45045*e*(b*d - a*e)^6*(d
+ e*x)^(5/2))
```

Rubi [A] time = 0.579331, antiderivative size = 304, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.125$

$$\frac{256b^4(a+bx)^{5/2}(-3aBe+2Abe+bBd)}{45045e(d+ex)^{5/2}(bd-ae)^6}+\frac{128b^3(a+bx)^{5/2}(-3aBe+2Abe+bBd)}{9009e(d+ex)^{7/2}(bd-ae)^5}+\frac{32b^2(a+bx)^{5/2}(-3aBe+2Abe+bBd)}{1287e(d+ex)^{9/2}(bd-ae)^4}+\frac{16b(a+bx)^{5/2}(-3aBe+2Abe+bBd)}{429e(d+ex)^{11/2}(bd-ae)^3}+\frac{2(a+bx)^{5/2}(-3aBe+2Abe+bBd)}{39e(d+ex)^{13/2}(bd-ae)^2}-\frac{2(a+bx)^{5/2}(Bd-Ae)}{15e(d+ex)^{15/2}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(3/2)*(A + B*x))/(d + e*x)^(17/2),x]
```


```
[Out] (-2*(B*d - A*e)*(a + b*x)^(5/2))/(15*e*(b*d - a*e)*(d + e*x)^(15/
2)) + (2*(b*B*d + 2*A*b*e - 3*a*B*e)*(a + b*x)^(5/2))/(39*e*(b*d
- a*e)^2*(d + e*x)^(13/2)) + (16*b*(b*B*d + 2*A*b*e - 3*a*B*e)*(a
 + b*x)^(5/2))/(429*e*(b*d - a*e)^3*(d + e*x)^(11/2)) + (32*b^2*(
b*B*d + 2*A*b*e - 3*a*B*e)*(a + b*x)^(5/2))/(1287*e*(b*d - a*e)^4
*(d + e*x)^(9/2)) + (128*b^3*(b*B*d + 2*A*b*e - 3*a*B*e)*(a + b*x
)^(5/2))/(9009*e*(b*d - a*e)^5*(d + e*x)^(7/2)) + (256*b^4*(b*B*d
 + 2*A*b*e - 3*a*B*e)*(a + b*x)^(5/2))/(45045*e*(b*d - a*e)^6*(d
+ e*x)^(5/2))
```

Rubi in Sympy [A] time = 64.4818, size = 286, normalized size = 0.94

$$-\frac{512b^4\left(a+bx\right)^{\frac{5}{2}}\left(-Abe+\frac{B(3ae-bd)}{2}\right)}{45045e\left(d+ex\right)^{\frac{5}{2}}\left(ae-bd\right)^6}+\frac{256b^3\left(a+bx\right)^{\frac{5}{2}}\left(-Abe+\frac{B(3ae-bd)}{2}\right)}{9009e\left(d+ex\right)^{\frac{7}{2}}\left(ae-bd\right)^5}-\frac{64b^2\left(a+bx\right)^{\frac{5}{2}}\left(-Abe+\frac{B(3ae-bd)}{2}\right)}{1287e\left(d+ex\right)^{\frac{9}{2}}\left(ae-bd\right)^4}-\frac{16b\left(a+bx\right)^{\frac{5}{2}}\left(2Abe-3Bae+Bbd\right)}{429e\left(d+ex\right)^{\frac{11}{2}}\left(ae-bd\right)^3}-\frac{4\left(a+bx\right)^{\frac{5}{2}}\left(-Abe+\frac{B(3ae-bd)}{2}\right)}{39e\left(d+ex\right)^{\frac{13}{2}}\left(ae-bd\right)^2}-\frac{2\left(a+bx\right)^{\frac{5}{2}}\left(Ae-Bd\right)}{15e\left(d+ex\right)^{\frac{15}{2}}\left(ae-bd\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(3/2)*(B*x+A)/(e*x+d)**(17/2),x)
```

```
[Out] -512*b**4*(a + b*x)**(5/2)*(-A*b*e + B*(3*a*e - b*d)/2)/(45045*e*
(d + e*x)**(5/2)*(a*e - b*d)**6) + 256*b**3*(a + b*x)**(5/2)*(-A*
b*e + B*(3*a*e - b*d)/2)/(9009*e*(d + e*x)**(7/2)*(a*e - b*d)**5)
 - 64*b**2*(a + b*x)**(5/2)*(-A*b*e + B*(3*a*e - b*d)/2)/(1287*e*
(d + e*x)**(9/2)*(a*e - b*d)**4) - 16*b*(a + b*x)**(5/2)*(2*A*b*e
 - 3*B*a*e + B*b*d)/(429*e*(d + e*x)**(11/2)*(a*e - b*d)**3) - 4*
(a + b*x)**(5/2)*(-A*b*e + B*(3*a*e - b*d)/2)/(39*e*(d + e*x)**(1
3/2)*(a*e - b*d)**2) - 2*(a + b*x)**(5/2)*(A*e - B*d)/(15*e*(d +
e*x)**(15/2)*(a*e - b*d))
```

Mathematica [A] time = 0.67981, size = 287, normalized size = 0.94

$$\frac{2\sqrt{a+bx}\left(\frac{128b^6(d+ex)^7(-3aBe+2Abe+bBd)}{(bd-ae)^6}+\frac{64b^5(d+ex)^6(-3aBe+2Abe+bBd)}{(bd-ae)^5}+\frac{48b^4(d+ex)^5(-3aBe+2Abe+bBd)}{(bd-ae)^4}+\frac{40b^3(d+ex)^4(-3aBe+2Abe+b}{(bd-ae)^3}\right.}{45045}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(3/2)*(A + B*x))/(d + e*x)^(17/2),x]
```

```
[Out] (2*Sqrt[a + b*x]*(-3003*(b*d - a*e)*(B*d - A*e) + 231*(31*b*B*d -
 16*A*b*e - 15*a*B*e)*(d + e*x) - (63*b*(-71*b*B*d + A*b*e + 70*a
*B*e)*(d + e*x)^2)/(-(b*d) + a*e) + (35*b^2*(b*B*d + 2*A*b*e - 3*
a*B*e)*(d + e*x)^3)/(b*d - a*e)^2 + (40*b^3*(b*B*d + 2*A*b*e - 3*
a*B*e)*(d + e*x)^4)/(b*d - a*e)^3 + (48*b^4*(b*B*d + 2*A*b*e - 3*
a*B*e)*(d + e*x)^5)/(b*d - a*e)^4 + (64*b^5*(b*B*d + 2*A*b*e - 3*
a*B*e)*(d + e*x)^6)/(b*d - a*e)^5 + (128*b^6*(b*B*d + 2*A*b*e - 3
*a*B*e)*(d + e*x)^7)/(b*d - a*e)^6))/(45045*e^3*(d + e*x)^(15/2))
```

Maple [B] time = 0.018, size = 722, normalized size = 2.4

$$-\frac{-512\,Ab^5e^5x^5+768\,Bab^4e^5x^5-256\,Bb^5de^4x^5+1280\,Aab^4e^5x^4-3840\,Ab^5de^4x^4-1920\,Ba^2b^3e^5x^4+6400\,Bab^4de^4x^4-1}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(3/2)*(B*x+A)/(e*x+d)^(17/2),x)
```

```
[Out] -2/45045*(b*x+a)^(5/2)*(-256*A*b^5*e^5*x^5+384*B*a*b^4*e^5*x^5-12
8*B*b^5*d*e^4*x^5+640*A*a*b^4*e^5*x^4-1920*A*b^5*d*e^4*x^4-960*B*
a^2*b^3*e^5*x^4+3200*B*a*b^4*d*e^4*x^4-960*B*b^5*d^2*e^3*x^4-1120
*A*a^2*b^3*e^5*x^3+4800*A*a*b^4*d*e^4*x^3-6240*A*b^5*d^2*e^3*x^3+
1680*B*a^3*b^2*e^5*x^3-7760*B*a^2*b^3*d*e^4*x^3+11760*B*a*b^4*d^2
*e^3*x^3-3120*B*b^5*d^3*e^2*x^3+1680*A*a^3*b^2*e^5*x^2-8400*A*a^2
*b^3*d*e^4*x^2+15600*A*a*b^4*d^2*e^3*x^2-11440*A*b^5*d^3*e^2*x^2-
2520*B*a^4*b*e^5*x^2+13440*B*a^3*b^2*d*e^4*x^2-27600*B*a^2*b^3*d^
2*e^3*x^2+24960*B*a*b^4*d^3*e^2*x^2-5720*B*b^5*d^4*e*x^2-2310*A*a
^4*b*e^5*x+12600*A*a^3*b^2*d*e^4*x-27300*A*a^2*b^3*d^2*e^3*x+2860
0*A*a*b^4*d^3*e^2*x-12870*A*b^5*d^4*e*x+3465*B*a^5*e^5*x-20055*B*
a^4*b*d*e^4*x+47250*B*a^3*b^2*d^2*e^3*x-56550*B*a^2*b^3*d^3*e^2*x
+33605*B*a*b^4*d^4*e*x-6435*B*b^5*d^5*x+3003*A*a^5*e^5-17325*A*a^
4*b*d*e^4+40950*A*a^3*b^2*d^2*e^3-50050*A*a^2*b^3*d^3*e^2+32175*A
*a*b^4*d^4*e-9009*A*b^5*d^5+462*B*a^5*d*e^4-2520*B*a^4*b*d^2*e^3+
5460*B*a^3*b^2*d^3*e^2-5720*B*a^2*b^3*d^4*e+2574*B*a*b^4*d^5)/(e*
x+d)^(15/2)/(a^6*e^6-6*a^5*b*d*e^5+15*a^4*b^2*d^2*e^4-20*a^3*b^3*
d^3*e^3+15*a^2*b^4*d^4*e^2-6*a*b^5*d^5*e+b^6*d^6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(3/2)/(e*x + d)^(17/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 30.843, size = 2260, normalized size = 7.43

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(3/2)/(e*x + d)^(17/2),x, algorithm="fricas")
```

```
[Out] -2/45045*(3003*A*a^7*e^5 - 128*(B*b^7*d*e^4 - (3*B*a*b^6 - 2*A*b^
7)*e^5)*x^7 - 64*(15*B*b^7*d^2*e^3 - 2*(23*B*a*b^6 - 15*A*b^7)*d*
e^4 + (3*B*a^2*b^5 - 2*A*a*b^6)*e^5)*x^6 + 1287*(2*B*a^3*b^4 - 7*
A*a^2*b^5)*d^5 - 715*(8*B*a^4*b^3 - 45*A*a^3*b^4)*d^4*e + 910*(6*
B*a^5*b^2 - 55*A*a^4*b^3)*d^3*e^2 - 630*(4*B*a^6*b - 65*A*a^5*b^2
)*d^2*e^3 + 231*(2*B*a^7 - 75*A*a^6*b)*d*e^4 - 48*(65*B*b^7*d^3*e
^2 - 5*(41*B*a*b^6 - 26*A*b^7)*d^2*e^3 + (31*B*a^2*b^5 - 20*A*a*b
^6)*d*e^4 - (3*B*a^3*b^4 - 2*A*a^2*b^5)*e^5)*x^5 - 40*(143*B*b^7*
d^4*e - 26*(18*B*a*b^6 - 11*A*b^7)*d^3*e^2 + 6*(21*B*a^2*b^5 - 13
*A*a*b^6)*d^2*e^3 - 2*(14*B*a^3*b^4 - 9*A*a^2*b^5)*d*e^4 + (3*B*a
^4*b^3 - 2*A*a^3*b^4)*e^5)*x^4 - 5*(1287*B*b^7*d^5 - 143*(31*B*a*
b^6 - 18*A*b^7)*d^4*e + 26*(75*B*a^2*b^5 - 44*A*a*b^6)*d^3*e^2 -
6*(127*B*a^3*b^4 - 78*A*a^2*b^5)*d^2*e^3 + (187*B*a^4*b^3 - 120*A
*a^3*b^4)*d*e^4 - 7*(3*B*a^5*b^2 - 2*A*a^4*b^3)*e^5)*x^3 - 3*(429
*(8*B*a*b^6 + 7*A*b^7)*d^5 - 715*(26*B*a^2*b^5 + 3*A*a*b^6)*d^4*e
 + 130*(212*B*a^3*b^4 + 11*A*a^2*b^5)*d^3*e^2 - 10*(2146*B*a^4*b^
3 + 65*A*a^3*b^4)*d^2*e^3 + 7*(1248*B*a^5*b^2 + 25*A*a^4*b^3)*d*e
^4 - 21*(70*B*a^6*b + A*a^5*b^2)*e^5)*x^2 - (1287*(B*a^2*b^5 + 14
*A*a*b^6)*d^5 - 715*(31*B*a^3*b^4 + 72*A*a^2*b^5)*d^4*e + 130*(35
1*B*a^4*b^3 + 550*A*a^3*b^4)*d^3*e^2 - 210*(201*B*a^5*b^2 + 260*A
*a^4*b^3)*d^2*e^3 + 21*(911*B*a^6*b + 1050*A*a^5*b^2)*d*e^4 - 231
*(15*B*a^7 + 16*A*a^6*b)*e^5)*x)*sqrt(b*x + a)*sqrt(e*x + d)/(b^6
*d^14 - 6*a*b^5*d^13*e + 15*a^2*b^4*d^12*e^2 - 20*a^3*b^3*d^11*e^
3 + 15*a^4*b^2*d^10*e^4 - 6*a^5*b*d^9*e^5 + a^6*d^8*e^6 + (b^6*d^
6*e^8 - 6*a*b^5*d^5*e^9 + 15*a^2*b^4*d^4*e^10 - 20*a^3*b^3*d^3*e^
11 + 15*a^4*b^2*d^2*e^12 - 6*a^5*b*d*e^13 + a^6*e^14)*x^8 + 8*(b^
6*d^7*e^7 - 6*a*b^5*d^6*e^8 + 15*a^2*b^4*d^5*e^9 - 20*a^3*b^3*d^4
*e^10 + 15*a^4*b^2*d^3*e^11 - 6*a^5*b*d^2*e^12 + a^6*d*e^13)*x^7
+ 28*(b^6*d^8*e^6 - 6*a*b^5*d^7*e^7 + 15*a^2*b^4*d^6*e^8 - 20*a^3
*b^3*d^5*e^9 + 15*a^4*b^2*d^4*e^10 - 6*a^5*b*d^3*e^11 + a^6*d^2*e
^12)*x^6 + 56*(b^6*d^9*e^5 - 6*a*b^5*d^8*e^6 + 15*a^2*b^4*d^7*e^7
 - 20*a^3*b^3*d^6*e^8 + 15*a^4*b^2*d^5*e^9 - 6*a^5*b*d^4*e^10 + a
^6*d^3*e^11)*x^5 + 70*(b^6*d^10*e^4 - 6*a*b^5*d^9*e^5 + 15*a^2*b^
4*d^8*e^6 - 20*a^3*b^3*d^7*e^7 + 15*a^4*b^2*d^6*e^8 - 6*a^5*b*d^5
*e^9 + a^6*d^4*e^10)*x^4 + 56*(b^6*d^11*e^3 - 6*a*b^5*d^10*e^4 +
15*a^2*b^4*d^9*e^5 - 20*a^3*b^3*d^8*e^6 + 15*a^4*b^2*d^7*e^7 - 6*
a^5*b*d^6*e^8 + a^6*d^5*e^9)*x^3 + 28*(b^6*d^12*e^2 - 6*a*b^5*d^1
1*e^3 + 15*a^2*b^4*d^10*e^4 - 20*a^3*b^3*d^9*e^5 + 15*a^4*b^2*d^8
*e^6 - 6*a^5*b*d^7*e^7 + a^6*d^6*e^8)*x^2 + 8*(b^6*d^13*e - 6*a*b
^5*d^12*e^2 + 15*a^2*b^4*d^11*e^3 - 20*a^3*b^3*d^10*e^4 + 15*a^4*
b^2*d^9*e^5 - 6*a^5*b*d^8*e^6 + a^6*d^7*e^7)*x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**(3/2)*(B*x+A)/(e*x+d)**(17/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.698724, size = 1, normalized size = 0.

$$Done$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(3/2)/(e*x + d)^(17/2),x, algorithm="giac")

[Out] Done
```

3.2206 $\int (a+bx)^{5/2}(A+Bx)(d+ex)^{5/2}\,dx$

Optimal. Leaf size=412

$$-\frac{5(bd-ae)^6(2Abe-B(ae+bd))\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{1024b^{9/2}e^{9/2}}+\frac{5\sqrt{a+bx}\sqrt{d+ex}(bd-ae)^5(2Abe-B(ae+bd))}{1024b^4e^4}-\frac{5(a+bx)^{3/2}\sqrt{d+ex}(bd-ae)^4(2Abe-B(ae+bd))}{1536b^4e^3}+\frac{(a+bx)^{5/2}\sqrt{d+ex}(bd-ae)^3(2Abe-B(ae+bd))}{384b^4e^2}+\frac{(a+bx)^{7/2}\sqrt{d+ex}(bd-ae)^2(2Abe-B(ae+bd))}{64b^4e}+\frac{(a+bx)^{7/2}(d+ex)^{3/2}(bd-ae)(2Abe-B(ae+bd))}{24b^3e}+\frac{(a+bx)^{7/2}(d+ex)^{5/2}(2Abe-B(ae+bd))}{12b^2e}+\frac{B(a+bx)^{7/2}(d+ex)^{7/2}}{7be}$$

```
[Out] (5*(b*d - a*e)^5*(2*A*b*e - B*(b*d + a*e))*Sqrt[a + b*x]*Sqrt[d +
 e*x])/(1024*b^4*e^4) - (5*(b*d - a*e)^4*(2*A*b*e - B*(b*d + a*e)
)*(a + b*x)^(3/2)*Sqrt[d + e*x])/(1536*b^4*e^3) + ((b*d - a*e)^3*
(2*A*b*e - B*(b*d + a*e))*(a + b*x)^(5/2)*Sqrt[d + e*x])/(384*b^4
*e^2) + ((b*d - a*e)^2*(2*A*b*e - B*(b*d + a*e))*(a + b*x)^(7/2)*
Sqrt[d + e*x])/(64*b^4*e) + ((b*d - a*e)*(2*A*b*e - B*(b*d + a*e)
)*(a + b*x)^(7/2)*(d + e*x)^(3/2))/(24*b^3*e) + ((2*A*b*e - B*(b*
d + a*e))*(a + b*x)^(7/2)*(d + e*x)^(5/2))/(12*b^2*e) + (B*(a + b
*x)^(7/2)*(d + e*x)^(7/2))/(7*b*e) - (5*(b*d - a*e)^6*(2*A*b*e -
B*(b*d + a*e))*ArcTanh[(Sqrt[e]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[d +
e*x])])/(1024*b^(9/2)*e^(9/2))
```

Rubi [A] time = 0.964434, antiderivative size = 412, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$-\frac{5(bd-ae)^6(2Abe-B(ae+bd))\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{1024b^{9/2}e^{9/2}}+\frac{5\sqrt{a+bx}\sqrt{d+ex}(bd-ae)^5(2Abe-B(ae+bd))}{1024b^4e^4}-\frac{5(a+bx)^{3/2}\sqrt{d+ex}(bd-ae)^4(2Abe-B(ae+bd))}{1536b^4e^3}+\frac{(a+bx)^{5/2}\sqrt{d+ex}(bd-ae)^3(2Abe-B(ae+bd))}{384b^4e^2}+\frac{(a+bx)^{7/2}\sqrt{d+ex}(bd-ae)^2(2Abe-B(ae+bd))}{64b^4e}+\frac{(a+bx)^{7/2}(d+ex)^{3/2}(bd-ae)(2Abe-B(ae+bd))}{24b^3e}+\frac{(a+bx)^{7/2}(d+ex)^{5/2}(2Abe-B(ae+bd))}{12b^2e}+\frac{B(a+bx)^{7/2}(d+ex)^{7/2}}{7be}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(5/2)*(A + B*x)*(d + e*x)^(5/2),x]
```


```
[Out] (5*(b*d - a*e)^5*(2*A*b*e - B*(b*d + a*e))*Sqrt[a + b*x]*Sqrt[d +
 e*x])/(1024*b^4*e^4) - (5*(b*d - a*e)^4*(2*A*b*e - B*(b*d + a*e)
)*(a + b*x)^(3/2)*Sqrt[d + e*x])/(1536*b^4*e^3) + ((b*d - a*e)^3*
(2*A*b*e - B*(b*d + a*e))*(a + b*x)^(5/2)*Sqrt[d + e*x])/(384*b^4
*e^2) + ((b*d - a*e)^2*(2*A*b*e - B*(b*d + a*e))*(a + b*x)^(7/2)*
Sqrt[d + e*x])/(64*b^4*e) + ((b*d - a*e)*(2*A*b*e - B*(b*d + a*e)
)*(a + b*x)^(7/2)*(d + e*x)^(3/2))/(24*b^3*e) + ((2*A*b*e - B*(b*
d + a*e))*(a + b*x)^(7/2)*(d + e*x)^(5/2))/(12*b^2*e) + (B*(a + b
*x)^(7/2)*(d + e*x)^(7/2))/(7*b*e) - (5*(b*d - a*e)^6*(2*A*b*e -
```

```
B*(b*d + a*e))*ArcTanh[(Sqrt[e]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[d +
e*x])])/(1024*b^(9/2)*e^(9/2))
```

Rubi in Sympy [A] time = 96.3893, size = 377, normalized size = 0.92

$$\frac{B(a+bx)^{\frac{7}{2}}(d+ex)^{\frac{7}{2}}}{7be}-\frac{(a+bx)^{\frac{5}{2}}(d+ex)^{\frac{7}{2}}\left(-Abe+\frac{B(ae+bd)}{2}\right)}{6be^2}+\frac{(a+bx)^{\frac{3}{2}}(d+ex)^{\frac{7}{2}}(ae-bd)(2Abe-Bae-Bbd)}{24be^3}-\frac{(a+bx)^{\frac{3}{2}}(d+ex)^{\frac{5}{2}}(ae-bd)^2\left(-Abe+\frac{B(ae+bd)}{2}\right)}{32b^2e^3}+\frac{5(a+bx)^{\frac{3}{2}}(d+ex)^{\frac{3}{2}}(ae-bd)^3\left(-Abe+\frac{B(ae+bd)}{2}\right)}{192b^3e^3}-\frac{5(a+bx)^{\frac{3}{2}}\sqrt{d+ex}(ae-bd)^4\left(-Abe+\frac{B(ae+bd)}{2}\right)}{256b^4e^3}+\frac{5\sqrt{a+bx}\sqrt{d+ex}(ae-bd)^5\left(-Abe+\frac{B(ae+bd)}{2}\right)}{512b^4e^4}+\frac{5(ae-bd)^6\left(-Abe+\frac{B(ae+bd)}{2}\right)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{e}\sqrt{a+bx}}\right)}{512b^{\frac{9}{2}}e^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(B*x+A)*(e*x+d)**(5/2),x)
```

```
[Out] B*(a + b*x)**(7/2)*(d + e*x)**(7/2)/(7*b*e) - (a + b*x)**(5/2)*(d
 + e*x)**(7/2)*(-A*b*e + B*(a*e + b*d)/2)/(6*b*e**2) + (a + b*x)*
*(3/2)*(d + e*x)**(7/2)*(a*e - b*d)*(2*A*b*e - B*a*e - B*b*d)/(24
*b*e**3) - (a + b*x)**(3/2)*(d + e*x)**(5/2)*(a*e - b*d)**2*(-A*b
*e + B*(a*e + b*d)/2)/(32*b**2*e**3) + 5*(a + b*x)**(3/2)*(d + e*
x)**(3/2)*(a*e - b*d)**3*(-A*b*e + B*(a*e + b*d)/2)/(192*b**3*e**
3) - 5*(a + b*x)**(3/2)*sqrt(d + e*x)*(a*e - b*d)**4*(-A*b*e + B*
(a*e + b*d)/2)/(256*b**4*e**3) + 5*sqrt(a + b*x)*sqrt(d + e*x)*(a
*e - b*d)**5*(-A*b*e + B*(a*e + b*d)/2)/(512*b**4*e**4) + 5*(a*e
- b*d)**6*(-A*b*e + B*(a*e + b*d)/2)*atanh(sqrt(b)*sqrt(d + e*x)/
(sqrt(e)*sqrt(a + b*x)))/(512*b**(9/2)*e**(9/2))
```

Mathematica [A] time = 1.25709, size = 575, normalized size = 1.4

$$\frac{\sqrt{a+bx}\sqrt{d+ex}\left(-105a^6Be^6+70a^5be^5(3Ae+7Bd+Bex)-7a^4b^2e^4\left(10Ae(17d+2ex)+B\left(113d^2+46dex+8e^2x^2\right)\right)+4a^3\right.}{}$$

$$+\frac{5(bd-ae)^6(aBe-2Abe+bBd)\log\left(2\sqrt{b}\sqrt{e}\sqrt{a+bx}\sqrt{d+ex}+ae+bd+2bex\right)}{2048b^{9/2}e^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(5/2)*(A + B*x)*(d + e*x)^(5/2),x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[d + e*x]*(-105*a^6*B*e^6 + 70*a^5*b*e^5*(7*B*
d + 3*A*e + B*e*x) - 7*a^4*b^2*e^4*(10*A*e*(17*d + 2*e*x) + B*(11
3*d^2 + 46*d*e*x + 8*e^2*x^2)) + 4*a^3*b^3*e^3*(7*A*e*(99*d^2 + 2
8*d*e*x + 4*e^2*x^2) + B*(75*d^3 + 127*d^2*e*x + 64*d*e^2*x^2 + 1
2*e^3*x^3)) + a^2*b^4*e^2*(84*A*e*(33*d^3 + 198*d^2*e*x + 212*d*e
^2*x^2 + 72*e^3*x^3) + B*(-791*d^4 + 508*d^3*e*x + 9840*d^2*e^2*x
^2 + 12752*d*e^3*x^3 + 4736*e^4*x^4)) + 2*a*b^5*e*(7*A*e*(-85*d^4
 + 56*d^3*e*x + 1272*d^2*e^2*x^2 + 1696*d*e^3*x^3 + 640*e^4*x^4)
+ B*(245*d^5 - 161*d^4*e*x + 128*d^3*e^2*x^2 + 6376*d^2*e^3*x^3 +
 9344*d*e^4*x^4 + 3712*e^5*x^5)) + b^6*(14*A*e*(15*d^5 - 10*d^4*e
*x + 8*d^3*e^2*x^2 + 432*d^2*e^3*x^3 + 640*d*e^4*x^4 + 256*e^5*x^
```

```
5) + B*(-105*d^6 + 70*d^5*e*x - 56*d^4*e^2*x^2 + 48*d^3*e^3*x^3 +
 4736*d^2*e^4*x^4 + 7424*d*e^5*x^5 + 3072*e^6*x^6))))/(21504*b^4*
e^4) + (5*(b*d - a*e)^6*(b*B*d - 2*A*b*e + a*B*e)*Log[b*d + a*e +
 2*b*e*x + 2*Sqrt[b]*Sqrt[e]*Sqrt[a + b*x]*Sqrt[d + e*x]])/(2048*
b^(9/2)*e^(9/2))
```

Maple [B] time = 0.041, size = 2851, normalized size = 6.9

output too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(B*x+A)*(e*x+d)^(5/2),x)
```

```
[Out] -1/43008*(b*x+a)^(1/2)*(e*x+d)^(1/2)*(-1260*ln(1/2*(2*b*x*e+2*(b*
e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^
5*d*e^6*A*b^2+644*b^5*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*x*d^4*a*B*e
^2*(b*e)^(1/2)-1016*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*x*d^3*a^2*B*e
^3*b^4*(b*e)^(1/2)-1016*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*x*a^3*d^2
*B*e^4*b^3*(b*e)^(1/2)+644*e^5*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*x*
a^4*d*B*b^2*(b*e)^(1/2)-1568*b^5*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*
x*d^3*a*A*e^3*(b*e)^(1/2)-1568*e^5*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2
)*x*a^3*d*A*b^3*(b*e)^(1/2)-33264*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)
*x*a^2*d^2*A*e^4*b^4*(b*e)^(1/2)+210*e^7*ln(1/2*(2*b*x*e+2*(b*e*x
^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^6*A
*b+210*b^7*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e
)^(1/2)+a*e+b*d)/(b*e)^(1/2))*d^6*A*e+210*(b*e*x^2+a*e*x+b*d*x+a*
d)^(1/2)*a^6*B*e^6*(b*e)^(1/2)+210*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2
)*d^6*B*b^6*(b*e)^(1/2)-6144*B*x^6*b^6*e^6*(b*e)^(1/2)*(b*e*x^2+a
*e*x+b*d*x+a*d)^(1/2)-7168*A*x^5*b^6*e^6*(b*e)^(1/2)*(b*e*x^2+a*e
*x+b*d*x+a*d)^(1/2)+3150*e^5*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d
*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^4*d^2*A*b^3-420
0*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a
*e+b*d)/(b*e)^(1/2))*a^3*d^3*A*e^4*b^4+3150*b^5*ln(1/2*(2*b*x*e+2
*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2)
)*d^4*a^2*A*e^3-1260*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^
(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*d^5*a*b^6*A*e^2+525*ln(1/
2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)
/(b*e)^(1/2))*a^6*d*B*e^6*b-945*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+
b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^5*d^2*B*e^5*
b^2+525*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(
1/2)+a*e+b*d)/(b*e)^(1/2))*a^4*d^3*B*e^4*b^3+525*ln(1/2*(2*b*x*e+
2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2
))*a^3*d^4*B*e^3*b^4-945*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a
*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*d^5*a^2*B*b^5*e^2+525
*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*
e+b*d)/(b*e)^(1/2))*d^6*a*B*b^6*e-420*(b*e*x^2+a*e*x+b*d*x+a*d)^(
1/2)*a^5*e^6*A*b*(b*e)^(1/2)-420*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*
d^5*b^6*A*e*(b*e)^(1/2)-105*e^7*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+
b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^7*B-105*b^7*
ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e
+b*d)/(b*e)^(1/2))*d^7*B-37376*B*x^4*a*b^5*d*e^5*(b*e)^(1/2)*(b*e
*x^2+a*e*x+b*d*x+a*d)^(1/2)-47488*A*x^3*a*b^5*d*e^5*(b*e)^(1/2)*(
b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)-25504*B*x^3*a^2*b^4*d*e^5*(b*e)^(1
/2)*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)-25504*B*x^3*a*b^5*d^2*e^4*(b*
e)^(1/2)*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)-35616*A*x^2*a^2*b^4*d*e^
5*(b*e)^(1/2)*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)-35616*A*x^2*a*b^5*d
^2*e^4*(b*e)^(1/2)*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)-512*B*x^2*a^3*
b^3*d*e^5*(b*e)^(1/2)*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)-19680*B*x^2
*a^2*b^4*d^2*e^4*(b*e)^(1/2)*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)-512*
B*x^2*a*b^5*d^3*e^3*(b*e)^(1/2)*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)+1
12*B*x^2*b^6*d^4*e^2*(b*e)^(1/2)*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)-
14848*B*x^5*a*b^5*e^6*(b*e)^(1/2)*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)
-14848*B*x^5*b^6*d*e^5*(b*e)^(1/2)*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2
)+280*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*x*a^4*e^6*A*b^2*(b*e)^(1/2)
+280*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*x*d^4*b^6*A*e^2*(b*e)^(1/2)-
140*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*x*a^5*B*e^6*b*(b*e)^(1/2)-140
*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*x*d^5*B*b^6*e*(b*e)^(1/2)+2380*e
^5*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*a^4*d*A*b^2*(b*e)^(1/2)-5544*(
b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*a^3*d^2*A*e^4*b^3*(b*e)^(1/2)-5544
```

```
*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*a^2*d^3*A*e^3*b^4*(b*e)^(1/2)+23
80*b^5*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*d^4*a*A*e^2*(b*e)^(1/2)-98
0*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*a^5*B*d*e^5*b*(b*e)^(1/2)+1582*
(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*a^4*d^2*B*e^4*b^2*(b*e)^(1/2)-600
*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*a^3*d^3*B*e^3*b^3*(b*e)^(1/2)+15
82*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*d^4*a^2*B*e^2*b^4*(b*e)^(1/2)-
980*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*d^5*B*a*b^5*e*(b*e)^(1/2)-179
20*A*x^4*a*b^5*e^6*(b*e)^(1/2)*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)-17
920*A*x^4*b^6*d*e^5*(b*e)^(1/2)*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)-9
472*B*x^4*a^2*b^4*e^6*(b*e)^(1/2)*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)
-9472*B*x^4*b^6*d^2*e^4*(b*e)^(1/2)*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/
2)-12096*A*x^3*a^2*b^4*e^6*(b*e)^(1/2)*(b*e*x^2+a*e*x+b*d*x+a*d)^
(1/2)-12096*A*x^3*b^6*d^2*e^4*(b*e)^(1/2)*(b*e*x^2+a*e*x+b*d*x+a*
d)^(1/2)-96*B*x^3*a^3*b^3*e^6*(b*e)^(1/2)*(b*e*x^2+a*e*x+b*d*x+a*
d)^(1/2)-96*B*x^3*b^6*d^3*e^3*(b*e)^(1/2)*(b*e*x^2+a*e*x+b*d*x+a*
d)^(1/2)-224*A*x^2*a^3*b^3*e^6*(b*e)^(1/2)*(b*e*x^2+a*e*x+b*d*x+a
*d)^(1/2)-224*A*x^2*b^6*d^3*e^3*(b*e)^(1/2)*(b*e*x^2+a*e*x+b*d*x+
a*d)^(1/2)+112*B*x^2*a^4*b^2*e^6*(b*e)^(1/2)*(b*e*x^2+a*e*x+b*d*x
+a*d)^(1/2))/(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)/e^4/b^4/(b*e)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(5/2)*(e*x + d)^(5/2),x, algorithm="maxima")

[Out] Exception raised: ValueError
```

Fricas [A] time = 0.381798, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(5/2)*(e*x + d)^(5/2),x, algorithm="fricas")

[Out] [1/86016*(4*(3072*B*b^6*e^6*x^6 - 105*B*b^6*d^6 + 70*(7*B*a*b^5 +
 3*A*b^6)*d^5*e - 7*(113*B*a^2*b^4 + 170*A*a*b^5)*d^4*e^2 + 12*(2
5*B*a^3*b^3 + 231*A*a^2*b^4)*d^3*e^3 - 7*(113*B*a^4*b^2 - 396*A*a
^3*b^3)*d^2*e^4 + 70*(7*B*a^5*b - 17*A*a^4*b^2)*d*e^5 - 105*(B*a^
6 - 2*A*a^5*b)*e^6 + 256*(29*B*b^6*d*e^5 + (29*B*a*b^5 + 14*A*b^6
)*e^6)*x^5 + 128*(37*B*b^6*d^2*e^4 + 2*(73*B*a*b^5 + 35*A*b^6)*d*
e^5 + (37*B*a^2*b^4 + 70*A*a*b^5)*e^6)*x^4 + 16*(3*B*b^6*d^3*e^3
+ (797*B*a*b^5 + 378*A*b^6)*d^2*e^4 + (797*B*a^2*b^4 + 1484*A*a*b
^5)*d*e^5 + 3*(B*a^3*b^3 + 126*A*a^2*b^4)*e^6)*x^3 - 8*(7*B*b^6*d
^4*e^2 - 2*(16*B*a*b^5 + 7*A*b^6)*d^3*e^3 - 6*(205*B*a^2*b^4 + 37
1*A*a*b^5)*d^2*e^4 - 2*(16*B*a^3*b^3 + 1113*A*a^2*b^4)*d*e^5 + 7*
(B*a^4*b^2 - 2*A*a^3*b^3)*e^6)*x^2 + 2*(35*B*b^6*d^5*e - 7*(23*B*
a*b^5 + 10*A*b^6)*d^4*e^2 + 2*(127*B*a^2*b^4 + 196*A*a*b^5)*d^3*e
^3 + 2*(127*B*a^3*b^3 + 4158*A*a^2*b^4)*d^2*e^4 - 7*(23*B*a^4*b^2
 - 56*A*a^3*b^3)*d*e^5 + 35*(B*a^5*b - 2*A*a^4*b^2)*e^6)*x)*sqrt(
b*e)*sqrt(b*x + a)*sqrt(e*x + d) + 105*(B*b^7*d^7 - (5*B*a*b^6 +
2*A*b^7)*d^6*e + 3*(3*B*a^2*b^5 + 4*A*a*b^6)*d^5*e^2 - 5*(B*a^3*b
^4 + 6*A*a^2*b^5)*d^4*e^3 - 5*(B*a^4*b^3 - 8*A*a^3*b^4)*d^3*e^4 +
 3*(3*B*a^5*b^2 - 10*A*a^4*b^3)*d^2*e^5 - (5*B*a^6*b - 12*A*a^5*b
^2)*d*e^6 + (B*a^7 - 2*A*a^6*b)*e^7)*log(4*(2*b^2*e^2*x + b^2*d*e
 + a*b*e^2)*sqrt(b*x + a)*sqrt(e*x + d) + (8*b^2*e^2*x^2 + b^2*d^
2 + 6*a*b*d*e + a^2*e^2 + 8*(b^2*d*e + a*b*e^2)*x)*sqrt(b*e)))/(s
qrt(b*e)*b^4*e^4), 1/43008*(2*(3072*B*b^6*e^6*x^6 - 105*B*b^6*d^6
 + 70*(7*B*a*b^5 + 3*A*b^6)*d^5*e - 7*(113*B*a^2*b^4 + 170*A*a*b^
5)*d^4*e^2 + 12*(25*B*a^3*b^3 + 231*A*a^2*b^4)*d^3*e^3 - 7*(113*B
*a^4*b^2 - 396*A*a^3*b^3)*d^2*e^4 + 70*(7*B*a^5*b - 17*A*a^4*b^2)
*d*e^5 - 105*(B*a^6 - 2*A*a^5*b)*e^6 + 256*(29*B*b^6*d*e^5 + (29*
```

```
B*a*b^5 + 14*A*b^6)*e^6)*x^5 + 128*(37*B*b^6*d^2*e^4 + 2*(73*B*a*
b^5 + 35*A*b^6)*d*e^5 + (37*B*a^2*b^4 + 70*A*a*b^5)*e^6)*x^4 + 16
*(3*B*b^6*d^3*e^3 + (797*B*a*b^5 + 378*A*b^6)*d^2*e^4 + (797*B*a^
2*b^4 + 1484*A*a*b^5)*d*e^5 + 3*(B*a^3*b^3 + 126*A*a^2*b^4)*e^6)*
x^3 - 8*(7*B*b^6*d^4*e^2 - 2*(16*B*a*b^5 + 7*A*b^6)*d^3*e^3 - 6*(
205*B*a^2*b^4 + 371*A*a*b^5)*d^2*e^4 - 2*(16*B*a^3*b^3 + 1113*A*a
^2*b^4)*d*e^5 + 7*(B*a^4*b^2 - 2*A*a^3*b^3)*e^6)*x^2 + 2*(35*B*b^
6*d^5*e - 7*(23*B*a*b^5 + 10*A*b^6)*d^4*e^2 + 2*(127*B*a^2*b^4 +
196*A*a*b^5)*d^3*e^3 + 2*(127*B*a^3*b^3 + 4158*A*a^2*b^4)*d^2*e^4
 - 7*(23*B*a^4*b^2 - 56*A*a^3*b^3)*d*e^5 + 35*(B*a^5*b - 2*A*a^4*
b^2)*e^6)*x)*sqrt(-b*e)*sqrt(b*x + a)*sqrt(e*x + d) + 105*(B*b^7*
d^7 - (5*B*a*b^6 + 2*A*b^7)*d^6*e + 3*(3*B*a^2*b^5 + 4*A*a*b^6)*d
^5*e^2 - 5*(B*a^3*b^4 + 6*A*a^2*b^5)*d^4*e^3 - 5*(B*a^4*b^3 - 8*A
*a^3*b^4)*d^3*e^4 + 3*(3*B*a^5*b^2 - 10*A*a^4*b^3)*d^2*e^5 - (5*B
*a^6*b - 12*A*a^5*b^2)*d*e^6 + (B*a^7 - 2*A*a^6*b)*e^7)*arctan(1/
2*(2*b*e*x + b*d + a*e)*sqrt(-b*e)/(sqrt(b*x + a)*sqrt(e*x + d)*b
*e)))/(sqrt(-b*e)*b^4*e^4)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(B*x+A)*(e*x+d)**(5/2),x)

[Out] Timed out
```

GIAC/XCAS [A] time = 0.734489, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)*(e*x + d)^(5/2),x, algorithm="giac")

[Out] Done
```

3.2207 $\int (a+bx)^{5/2}(A+Bx)(d+ex)^{3/2}\,dx$

Optimal. Leaf size=358

$$\frac{(bd-ae)^5(5aBe-12Abe+7bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{512b^{7/2}e^{9/2}} - \frac{\sqrt{a+bx}\sqrt{d+ex}(bd-ae)^4(5aBe-12Abe+7bBd)}{512b^3e^4} + \frac{(a+bx)^{3/2}\sqrt{d+ex}(bd-ae)^3(5aBe-12Abe+7bBd)}{768b^3e^3} - \frac{(a+bx)^{5/2}\sqrt{d+ex}(bd-ae)^2(5aBe-12Abe+7bBd)}{960b^3e^2} - \frac{(a+bx)^{7/2}\sqrt{d+ex}(bd-ae)(5aBe-12Abe+7bBd)}{160b^3e} - \frac{(a+bx)^{7/2}(d+ex)^{3/2}(5aBe-12Abe+7bBd)}{60b^2e} + \frac{B(a+bx)^{7/2}(d+ex)^{5/2}}{6be}$$

```
[Out] -((b*d - a*e)^4*(7*b*B*d - 12*A*b*e + 5*a*B*e)*Sqrt[a + b*x]*Sqrt
[d + e*x])/(512*b^3*e^4) + ((b*d - a*e)^3*(7*b*B*d - 12*A*b*e + 5
*a*B*e)*(a + b*x)^(3/2)*Sqrt[d + e*x])/(768*b^3*e^3) - ((b*d - a*
e)^2*(7*b*B*d - 12*A*b*e + 5*a*B*e)*(a + b*x)^(5/2)*Sqrt[d + e*x]
)/(960*b^3*e^2) - ((b*d - a*e)*(7*b*B*d - 12*A*b*e + 5*a*B*e)*(a
+ b*x)^(7/2)*Sqrt[d + e*x])/(160*b^3*e) - ((7*b*B*d - 12*A*b*e +
5*a*B*e)*(a + b*x)^(7/2)*(d + e*x)^(3/2))/(60*b^2*e) + (B*(a + b*
x)^(7/2)*(d + e*x)^(5/2))/(6*b*e) + ((b*d - a*e)^5*(7*b*B*d - 12*
A*b*e + 5*a*B*e)*ArcTanh[(Sqrt[e]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[d
+ e*x])])/(512*b^(7/2)*e^(9/2))
```

Rubi [A] time = 0.776741, antiderivative size = 358, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$\frac{(bd-ae)^5(5aBe-12Abe+7bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{512b^{7/2}e^{9/2}} - \frac{\sqrt{a+bx}\sqrt{d+ex}(bd-ae)^4(5aBe-12Abe+7bBd)}{512b^3e^4} + \frac{(a+bx)^{3/2}\sqrt{d+ex}(bd-ae)^3(5aBe-12Abe+7bBd)}{768b^3e^3} - \frac{(a+bx)^{5/2}\sqrt{d+ex}(bd-ae)^2(5aBe-12Abe+7bBd)}{960b^3e^2} - \frac{(a+bx)^{7/2}\sqrt{d+ex}(bd-ae)(5aBe-12Abe+7bBd)}{160b^3e} - \frac{(a+bx)^{7/2}(d+ex)^{3/2}(5aBe-12Abe+7bBd)}{60b^2e} + \frac{B(a+bx)^{7/2}(d+ex)^{5/2}}{6be}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(5/2)*(A + B*x)*(d + e*x)^(3/2),x]
```


```
[Out] -((b*d - a*e)^4*(7*b*B*d - 12*A*b*e + 5*a*B*e)*Sqrt[a + b*x]*Sqrt
[d + e*x])/(512*b^3*e^4) + ((b*d - a*e)^3*(7*b*B*d - 12*A*b*e + 5
*a*B*e)*(a + b*x)^(3/2)*Sqrt[d + e*x])/(768*b^3*e^3) - ((b*d - a*
e)^2*(7*b*B*d - 12*A*b*e + 5*a*B*e)*(a + b*x)^(5/2)*Sqrt[d + e*x]
)/(960*b^3*e^2) - ((b*d - a*e)*(7*b*B*d - 12*A*b*e + 5*a*B*e)*(a
+ b*x)^(7/2)*Sqrt[d + e*x])/(160*b^3*e) - ((7*b*B*d - 12*A*b*e +
5*a*B*e)*(a + b*x)^(7/2)*(d + e*x)^(3/2))/(60*b^2*e) + (B*(a + b*
x)^(7/2)*(d + e*x)^(5/2))/(6*b*e) + ((b*d - a*e)^5*(7*b*B*d - 12*
A*b*e + 5*a*B*e)*ArcTanh[(Sqrt[e]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[d
+ e*x])])/(512*b^(7/2)*e^(9/2))
```

Rubi in Sympy [A] time = 76.3101, size = 350, normalized size = 0.98

$$\frac{B(a+bx)^{\frac{7}{2}}(d+ex)^{\frac{5}{2}}}{6be}+\frac{(a+bx)^{\frac{5}{2}}(d+ex)^{\frac{5}{2}}(12Abe-5Bae-7Bbd)}{60be^2}+\frac{(a+bx)^{\frac{3}{2}}(d+ex)^{\frac{5}{2}}(ae-bd)(12Abe-5Bae-7Bbd)}{96be^3}+\frac{(a+bx)^{\frac{3}{2}}(d+ex)^{\frac{3}{2}}(ae-bd)^2(12Abe-5Bae-7Bbd)}{192b^2e^3}-\frac{(a+bx)^{\frac{3}{2}}\sqrt{d+ex}(ae-bd)^3(12Abe-5Bae-7Bbd)}{256b^3e^3}+\frac{\sqrt{a+bx}\sqrt{d+ex}(ae-bd)^4(12Abe-5Bae-7Bbd)}{512b^3e^4}+\frac{(ae-bd)^5(12Abe-5Bae-7Bbd)\operatorname{atanh}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{512b^{\frac{7}{2}}e^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(B*x+A)*(e*x+d)**(3/2),x)
```

```
[Out] B*(a + b*x)**(7/2)*(d + e*x)**(5/2)/(6*b*e) + (a + b*x)**(5/2)*(d
 + e*x)**(5/2)*(12*A*b*e - 5*B*a*e - 7*B*b*d)/(60*b*e**2) + (a +
b*x)**(3/2)*(d + e*x)**(5/2)*(a*e - b*d)*(12*A*b*e - 5*B*a*e - 7*
B*b*d)/(96*b*e**3) + (a + b*x)**(3/2)*(d + e*x)**(3/2)*(a*e - b*d
)**2*(12*A*b*e - 5*B*a*e - 7*B*b*d)/(192*b**2*e**3) - (a + b*x)**
(3/2)*sqrt(d + e*x)*(a*e - b*d)**3*(12*A*b*e - 5*B*a*e - 7*B*b*d)
/(256*b**3*e**3) + sqrt(a + b*x)*sqrt(d + e*x)*(a*e - b*d)**4*(12
*A*b*e - 5*B*a*e - 7*B*b*d)/(512*b**3*e**4) + (a*e - b*d)**5*(12*
A*b*e - 5*B*a*e - 7*B*b*d)*atanh(sqrt(e)*sqrt(a + b*x)/(sqrt(b)*s
qrt(d + e*x)))/(512*b**(7/2)*e**(9/2))
```

Mathematica [A] time = 0.632926, size = 444, normalized size = 1.24

$$\frac{\sqrt{a+bx}\sqrt{d+ex}\left(75a^5Be^5-5a^4be^4(36Ae+49Bd+10Bex)+10a^3b^2e^3\left(12Ae(7d+ex)+B\left(15d^2+16dex+4e^2x^2\right)\right)+6a^2b\cdots\right.}{\cdots}+\frac{(bd-ae)^5(5aBe-12Abe+7bBd)\log\left(2\sqrt{b}\sqrt{e}\sqrt{a+bx}\sqrt{d+ex}+ae+bd+2bex\right)}{1024b^{7/2}e^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(5/2)*(A + B*x)*(d + e*x)^(3/2),x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[d + e*x]*(75*a^5*B*e^5 - 5*a^4*b*e^4*(49*B*d
+ 36*A*e + 10*B*e*x) + 10*a^3*b^2*e^3*(12*A*e*(7*d + e*x) + B*(15
*d^2 + 16*d*e*x + 4*e^2*x^2)) + 6*a^2*b^3*e^2*(4*A*e*(64*d^2 + 23
3*d*e*x + 124*e^2*x^2) + B*(-91*d^3 + 58*d^2*e*x + 564*d*e^2*x^2
+ 360*e^3*x^3)) + a*b^4*e*(24*A*e*(-35*d^3 + 23*d^2*e*x + 256*d*e
^2*x^2 + 168*e^3*x^3) + B*(415*d^4 - 272*d^3*e*x + 216*d^2*e^2*x^
2 + 4448*d*e^3*x^3 + 3200*e^4*x^4)) + b^5*(12*A*e*(15*d^4 - 10*d^
3*e*x + 8*d^2*e^2*x^2 + 176*d*e^3*x^3 + 128*e^4*x^4) + B*(-105*d^
5 + 70*d^4*e*x - 56*d^3*e^2*x^2 + 48*d^2*e^3*x^3 + 1664*d*e^4*x^4
 + 1280*e^5*x^5))))/(7680*b^3*e^4) + ((b*d - a*e)^5*(7*b*B*d - 12
*A*b*e + 5*a*B*e)*Log[b*d + a*e + 2*b*e*x + 2*Sqrt[b]*Sqrt[e]*Sqr
t[a + b*x]*Sqrt[d + e*x]])/(1024*b^(7/2)*e^(9/2))
```

Maple [B] time = 0.032, size = 2198, normalized size = 6.1

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(B*x+A)*(e*x+d)^(3/2),x)
```

```
[Out] 1/15360*(b*x+a)^(1/2)*(e*x+d)^(1/2)*(900*ln(1/2*(2*b*x*e+2*(b*e*x
^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*d^4*a
*b^5*A*e^2-75*e^6*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/
2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^6*B+105*b^6*ln(1/2*(2*b*x*
e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1
/2))*d^6*B+240*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*x*a^3*e^5*A*b^2*(b
*e)^(1/2)-240*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*x*d^3*b^5*A*(b*e)^(
1/2)*e^2-100*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*x*a^4*B*e^5*b*(b*e)^
(1/2)+696*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*x*a^2*d^2*B*b^3*(b*e)^(
1/2)*e^3+180*e^6*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2
)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^5*A*b-225*ln(1/2*(2*b*x*e+2
*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2)
)*a^4*d^2*B*e^4*b^2-300*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*
d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^3*d^3*B*b^3*e^3+675*
ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e
+b*d)/(b*e)^(1/2))*a^2*d^4*B*b^4*e^2-450*b^5*ln(1/2*(2*b*x*e+2*(b
*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*d
^5*B*a*e-360*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*a^4*e^5*A*b*(b*e)^(1
/2)+360*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*d^4*b^5*A*(b*e)^(1/2)*e+3
20*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*x*a^3*B*d*e^4*b^2*(b*e)^(1/2)+
1104*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*x*a*d^2*A*b^4*(b*e)^(1/2)*e^
3+11184*e^4*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*x*a^2*d*A*b^3*(b*e)^(
1/2)-544*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*x*d^3*B*a*b^4*(b*e)^(1/2
)*e^2+8896*B*x^3*a*b^4*d*e^4*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e
)^(1/2)+12288*A*x^2*a*b^4*d*e^4*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(
b*e)^(1/2)+6768*B*x^2*a^2*b^3*d*e^4*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/
2)*(b*e)^(1/2)+432*B*x^2*a*b^4*d^2*e^3*(b*e*x^2+a*e*x+b*d*x+a*d)^
(1/2)*(b*e)^(1/2)+270*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)
^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^5*d*B*e^5*b+2560*B*x^5
*b^5*e^5*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+3072*A*x^4*b
^5*e^5*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)-900*ln(1/2*(2*
b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e
)^(1/2))*a^4*d*e^5*A*b^2+1800*e^4*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*
x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^3*d^2*A*b^
3-1800*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1
/2)+a*e+b*d)/(b*e)^(1/2))*a^2*d^3*A*b^4*e^3+3328*B*x^4*b^5*d*e^4*
(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+8064*A*x^3*a*b^4*e^5*
(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+4224*A*x^3*b^5*d*e^4*
(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+4320*B*x^3*a^2*b^3*e^
5*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+96*B*x^3*b^5*d^2*e^
3*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+5952*A*x^2*a^2*b^3*
e^5*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+192*A*x^2*b^5*d^2
*e^3*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+80*B*x^2*a^3*b^2
*e^5*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)-112*B*x^2*b^5*d^
3*e^2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+3072*A*a^2*b^3*
d^2*e^3*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+6400*B*x^4*a*
b^4*e^5*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+140*(b*e*x^2+
a*e*x+b*d*x+a*d)^(1/2)*x*d^4*B*b^5*(b*e)^(1/2)*e+1680*e^4*(b*e*x^
2+a*e*x+b*d*x+a*d)^(1/2)*a^3*d*A*b^2*(b*e)^(1/2)-1680*(b*e*x^2+a*
e*x+b*d*x+a*d)^(1/2)*a*d^3*A*b^4*(b*e)^(1/2)*e^2-490*e^4*(b*e*x^2
+a*e*x+b*d*x+a*d)^(1/2)*a^4*d*B*b*(b*e)^(1/2)+300*(b*e*x^2+a*e*x+
b*d*x+a*d)^(1/2)*a^3*d^2*B*b^2*(b*e)^(1/2)*e^3-1092*(b*e*x^2+a*e*
x+b*d*x+a*d)^(1/2)*a^2*d^3*B*b^3*(b*e)^(1/2)*e^2+830*(b*e*x^2+a*e
*x+b*d*x+a*d)^(1/2)*a*d^4*B*b^4*(b*e)^(1/2)*e-180*b^6*ln(1/2*(2*b
*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)
^(1/2))*d^5*A*e+150*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*a^5*B*e^5*(b*
e)^(1/2)-210*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*d^5*B*b^5*(b*e)^(1/2
))/(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)/e^4/b^3/(b*e)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(5/2)*(e*x + d)^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.338787, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)*(e*x + d)^(3/2),x, algorithm="fricas")
```

```
[Out] [1/30720*(4*(1280*B*b^5*e^5*x^5 - 105*B*b^5*d^5 + 5*(83*B*a*b^4 +
 36*A*b^5)*d^4*e - 42*(13*B*a^2*b^3 + 20*A*a*b^4)*d^3*e^2 + 6*(25
*B*a^3*b^2 + 256*A*a^2*b^3)*d^2*e^3 - 35*(7*B*a^4*b - 24*A*a^3*b^
2)*d*e^4 + 15*(5*B*a^5 - 12*A*a^4*b)*e^5 + 128*(13*B*b^5*d*e^4 +
(25*B*a*b^4 + 12*A*b^5)*e^5)*x^4 + 16*(3*B*b^5*d^2*e^3 + 2*(139*B
*a*b^4 + 66*A*b^5)*d*e^4 + 9*(15*B*a^2*b^3 + 28*A*a*b^4)*e^5)*x^3
 - 8*(7*B*b^5*d^3*e^2 - 3*(9*B*a*b^4 + 4*A*b^5)*d^2*e^3 - 3*(141*
B*a^2*b^3 + 256*A*a*b^4)*d*e^4 - (5*B*a^3*b^2 + 372*A*a^2*b^3)*e^
5)*x^2 + 2*(35*B*b^5*d^4*e - 4*(34*B*a*b^4 + 15*A*b^5)*d^3*e^2 +
6*(29*B*a^2*b^3 + 46*A*a*b^4)*d^2*e^3 + 4*(20*B*a^3*b^2 + 699*A*a
^2*b^3)*d*e^4 - 5*(5*B*a^4*b - 12*A*a^3*b^2)*e^5)*x)*sqrt(b*e)*sq
rt(b*x + a)*sqrt(e*x + d) + 15*(7*B*b^6*d^6 - 6*(5*B*a*b^5 + 2*A*
b^6)*d^5*e + 15*(3*B*a^2*b^4 + 4*A*a*b^5)*d^4*e^2 - 20*(B*a^3*b^3
 + 6*A*a^2*b^4)*d^3*e^3 - 15*(B*a^4*b^2 - 8*A*a^3*b^3)*d^2*e^4 +
6*(3*B*a^5*b - 10*A*a^4*b^2)*d*e^5 - (5*B*a^6 - 12*A*a^5*b)*e^6)*
log(4*(2*b^2*e^2*x + b^2*d*e + a*b*e^2)*sqrt(b*x + a)*sqrt(e*x +
d) + (8*b^2*e^2*x^2 + b^2*d^2 + 6*a*b*d*e + a^2*e^2 + 8*(b^2*d*e
+ a*b*e^2)*x)*sqrt(b*e)))/(sqrt(b*e)*b^3*e^4), 1/15360*(2*(1280*B
*b^5*e^5*x^5 - 105*B*b^5*d^5 + 5*(83*B*a*b^4 + 36*A*b^5)*d^4*e -
42*(13*B*a^2*b^3 + 20*A*a*b^4)*d^3*e^2 + 6*(25*B*a^3*b^2 + 256*A*
a^2*b^3)*d^2*e^3 - 35*(7*B*a^4*b - 24*A*a^3*b^2)*d*e^4 + 15*(5*B*
a^5 - 12*A*a^4*b)*e^5 + 128*(13*B*b^5*d*e^4 + (25*B*a*b^4 + 12*A*
b^5)*e^5)*x^4 + 16*(3*B*b^5*d^2*e^3 + 2*(139*B*a*b^4 + 66*A*b^5)*
d*e^4 + 9*(15*B*a^2*b^3 + 28*A*a*b^4)*e^5)*x^3 - 8*(7*B*b^5*d^3*e
^2 - 3*(9*B*a*b^4 + 4*A*b^5)*d^2*e^3 - 3*(141*B*a^2*b^3 + 256*A*a
*b^4)*d*e^4 - (5*B*a^3*b^2 + 372*A*a^2*b^3)*e^5)*x^2 + 2*(35*B*b^
5*d^4*e - 4*(34*B*a*b^4 + 15*A*b^5)*d^3*e^2 + 6*(29*B*a^2*b^3 + 4
6*A*a*b^4)*d^2*e^3 + 4*(20*B*a^3*b^2 + 699*A*a^2*b^3)*d*e^4 - 5*(
5*B*a^4*b - 12*A*a^3*b^2)*e^5)*x)*sqrt(-b*e)*sqrt(b*x + a)*sqrt(e
*x + d) + 15*(7*B*b^6*d^6 - 6*(5*B*a*b^5 + 2*A*b^6)*d^5*e + 15*(3
*B*a^2*b^4 + 4*A*a*b^5)*d^4*e^2 - 20*(B*a^3*b^3 + 6*A*a^2*b^4)*d^
3*e^3 - 15*(B*a^4*b^2 - 8*A*a^3*b^3)*d^2*e^4 + 6*(3*B*a^5*b - 10*
A*a^4*b^2)*d*e^5 - (5*B*a^6 - 12*A*a^5*b)*e^6)*arctan(1/2*(2*b*e*
x + b*d + a*e)*sqrt(-b*e)/(sqrt(b*x + a)*sqrt(e*x + d)*b*e)))/(sq
rt(-b*e)*b^3*e^4)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(B*x+A)*(e*x+d)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.52859, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)*(e*x + d)^(3/2),x, algorithm="giac")
```

```
[Out] Done
```

3.2208 $\int (a+bx)^{5/2}(A+Bx)\sqrt{d+ex}\,dx$

Optimal. Leaf size=304

$$\frac{(bd-ae)^4(3aBe-10Abe+7bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{128b^{5/2}e^{9/2}} - \frac{\sqrt{a+bx}\sqrt{d+ex}(bd-ae)^3(3aBe-10Abe+7bBd)}{128b^2e^4} + \frac{(a+bx)^{3/2}\sqrt{d+ex}(bd-ae)^2(3aBe-10Abe+7bBd)}{192b^2e^3} - \frac{(a+bx)^{5/2}\sqrt{d+ex}(bd-ae)(3aBe-10Abe+7bBd)}{240b^2e^2} - \frac{(a+bx)^{7/2}\sqrt{d+ex}(3aBe-10Abe+7bBd)}{40b^2e} + \frac{B(a+bx)^{7/2}(d+ex)^{3/2}}{5be}$$

```
[Out] -((b*d - a*e)^3*(7*b*B*d - 10*A*b*e + 3*a*B*e)*Sqrt[a + b*x]*Sqrt
[d + e*x])/(128*b^2*e^4) + ((b*d - a*e)^2*(7*b*B*d - 10*A*b*e + 3
*a*B*e)*(a + b*x)^(3/2)*Sqrt[d + e*x])/(192*b^2*e^3) - ((b*d - a*
e)*(7*b*B*d - 10*A*b*e + 3*a*B*e)*(a + b*x)^(5/2)*Sqrt[d + e*x])/
(240*b^2*e^2) - ((7*b*B*d - 10*A*b*e + 3*a*B*e)*(a + b*x)^(7/2)*S
qrt[d + e*x])/(40*b^2*e) + (B*(a + b*x)^(7/2)*(d + e*x)^(3/2))/(5
*b*e) + ((b*d - a*e)^4*(7*b*B*d - 10*A*b*e + 3*a*B*e)*ArcTanh[(Sq
rt[e]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[d + e*x])])/(128*b^(5/2)*e^(9/
2))
```

Rubi [A] time = 0.64136, antiderivative size = 304, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$\frac{(bd-ae)^4(3aBe-10Abe+7bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{128b^{5/2}e^{9/2}} - \frac{\sqrt{a+bx}\sqrt{d+ex}(bd-ae)^3(3aBe-10Abe+7bBd)}{128b^2e^4} + \frac{(a+bx)^{3/2}\sqrt{d+ex}(bd-ae)^2(3aBe-10Abe+7bBd)}{192b^2e^3} - \frac{(a+bx)^{5/2}\sqrt{d+ex}(bd-ae)(3aBe-10Abe+7bBd)}{240b^2e^2} - \frac{(a+bx)^{7/2}\sqrt{d+ex}(3aBe-10Abe+7bBd)}{40b^2e} + \frac{B(a+bx)^{7/2}(d+ex)^{3/2}}{5be}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(5/2)*(A + B*x)*Sqrt[d + e*x],x]
```


```
[Out] -((b*d - a*e)^3*(7*b*B*d - 10*A*b*e + 3*a*B*e)*Sqrt[a + b*x]*Sqrt
[d + e*x])/(128*b^2*e^4) + ((b*d - a*e)^2*(7*b*B*d - 10*A*b*e + 3
*a*B*e)*(a + b*x)^(3/2)*Sqrt[d + e*x])/(192*b^2*e^3) - ((b*d - a*
e)*(7*b*B*d - 10*A*b*e + 3*a*B*e)*(a + b*x)^(5/2)*Sqrt[d + e*x])/
(240*b^2*e^2) - ((7*b*B*d - 10*A*b*e + 3*a*B*e)*(a + b*x)^(7/2)*S
qrt[d + e*x])/(40*b^2*e) + (B*(a + b*x)^(7/2)*(d + e*x)^(3/2))/(5
*b*e) + ((b*d - a*e)^4*(7*b*B*d - 10*A*b*e + 3*a*B*e)*ArcTanh[(Sq
rt[e]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[d + e*x])])/(128*b^(5/2)*e^(9/
2))
```

Rubi in Sympy [A] time = 57.9929, size = 296, normalized size = 0.97

$$\frac{B\left(a+bx\right)^{\frac{7}{2}}\left(d+ex\right)^{\frac{3}{2}}}{5be}+\frac{\left(a+bx\right)^{\frac{5}{2}}\left(d+ex\right)^{\frac{3}{2}}\left(10Abe-3Bae-7Bbd\right)}{40be^{2}}+\frac{\left(a+bx\right)^{\frac{3}{2}}\left(d+ex\right)^{\frac{3}{2}}\left(ae-bd\right)\left(10Abe-3Bae-7Bbd\right)}{48be^{3}}+\frac{\left(a+bx\right)^{\frac{3}{2}}\sqrt{d+ex}\left(ae-bd\right)^{2}\left(10Abe-3Bae-7Bbd\right)}{64b^{2}e^{3}}-\frac{\sqrt{a+bx}\sqrt{d+ex}\left(ae-bd\right)^{3}\left(10Abe-3Bae-7Bbd\right)}{128b^{2}e^{4}}-\frac{\left(ae-bd\right)^{4}\left(10Abe-3Bae-7Bbd\right)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{e}\sqrt{a+bx}}\right)}{128b^{\frac{5}{2}}e^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(B*x+A)*(e*x+d)**(1/2),x)
```

```
[Out] B*(a + b*x)**(7/2)*(d + e*x)**(3/2)/(5*b*e) + (a + b*x)**(5/2)*(d
 + e*x)**(3/2)*(10*A*b*e - 3*B*a*e - 7*B*b*d)/(40*b*e**2) + (a +
b*x)**(3/2)*(d + e*x)**(3/2)*(a*e - b*d)*(10*A*b*e - 3*B*a*e - 7*
B*b*d)/(48*b*e**3) + (a + b*x)**(3/2)*sqrt(d + e*x)*(a*e - b*d)**
2*(10*A*b*e - 3*B*a*e - 7*B*b*d)/(64*b**2*e**3) - sqrt(a + b*x)*s
qrt(d + e*x)*(a*e - b*d)**3*(10*A*b*e - 3*B*a*e - 7*B*b*d)/(128*b
**2*e**4) - (a*e - b*d)**4*(10*A*b*e - 3*B*a*e - 7*B*b*d)*atanh(s
qrt(b)*sqrt(d + e*x)/(sqrt(e)*sqrt(a + b*x)))/(128*b**(5/2)*e**(9
/2))
```

Mathematica [A] time = 0.510838, size = 334, normalized size = 1.1

$$\frac{\sqrt{a+bx}\sqrt{d+ex}\left(-45a^4Be^4+30a^3be^3(5Ae+2Bd+Bex)+2a^2b^2e^2\left(5Ae(73d+118ex)+B\left(-173d^2+109dex+372e^2x^2\right)\right)\cdots\right.}{}$$

$$+\frac{(bd-ae)^4(3aBe-10Abe+7bBd)\log\left(2\sqrt{b}\sqrt{e}\sqrt{a+bx}\sqrt{d+ex}+ae+bd+2bex\right)}{256b^{5/2}e^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(5/2)*(A + B*x)*Sqrt[d + e*x],x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[d + e*x]*(-45*a^4*B*e^4 + 30*a^3*b*e^3*(2*B*d
 + 5*A*e + B*e*x) + 2*a^2*b^2*e^2*(5*A*e*(73*d + 118*e*x) + B*(-1
73*d^2 + 109*d*e*x + 372*e^2*x^2)) + 2*a*b^3*e*(5*A*e*(-55*d^2 +
36*d*e*x + 136*e^2*x^2) + B*(170*d^3 - 111*d^2*e*x + 88*d*e^2*x^2
 + 504*e^3*x^3)) + b^4*(10*A*e*(15*d^3 - 10*d^2*e*x + 8*d*e^2*x^2
 + 48*e^3*x^3) + B*(-105*d^4 + 70*d^3*e*x - 56*d^2*e^2*x^2 + 48*d
*e^3*x^3 + 384*e^4*x^4))))/(1920*b^2*e^4) + ((b*d - a*e)^4*(7*b*B
*d - 10*A*b*e + 3*a*B*e)*Log[b*d + a*e + 2*b*e*x + 2*Sqrt[b]*Sqrt
[e]*Sqrt[a + b*x]*Sqrt[d + e*x]])/(256*b^(5/2)*e^(9/2))
```

Maple [B] time = 0.027, size = 1631, normalized size = 5.4

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(B*x+A)*(e*x+d)^(1/2),x)
```

```
[Out] -1/3840*(b*x+a)^(1/2)*(e*x+d)^(1/2)*(-960*A*x^3*b^4*e^4*(b*e)^(1/
2)*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)-680*(b*e*x^2+a*e*x+b*d*x+a*d)^
(1/2)*a*d^3*B*b^3*(b*e)^(1/2)*e-2016*B*x^3*a*b^3*e^4*(b*e)^(1/2)*
```

```
(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)-96*B*x^3*b^4*d*e^3*(b*e)^(1/2)*(b
*e*x^2+a*e*x+b*d*x+a*d)^(1/2)-2720*A*x^2*a*b^3*e^4*(b*e)^(1/2)*(b
*e*x^2+a*e*x+b*d*x+a*d)^(1/2)-160*A*x^2*b^4*d*e^3*(b*e)^(1/2)*(b*
e*x^2+a*e*x+b*d*x+a*d)^(1/2)-1488*B*x^2*a^2*b^2*e^4*(b*e)^(1/2)*(
b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)+112*B*x^2*b^4*d^2*e^2*(b*e)^(1/2)*
(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)+444*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/
2)*x*a*d^2*B*b^3*(b*e)^(1/2)*e^2-105*b^5*ln(1/2*(2*b*x*e+2*(b*e*x
^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*d^5*B
-45*e^5*B*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)
^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^5-1460*e^3*(b*e*x^2+a*e*x+b*d*x+a*
d)^(1/2)*a^2*d*A*b^2*(b*e)^(1/2)-2360*(b*e*x^2+a*e*x+b*d*x+a*d)^(
1/2)*x*a^2*e^4*A*b^2*(b*e)^(1/2)+200*d^2*A*(b*e*x^2+a*e*x+b*d*x+a
*d)^(1/2)*x*b^4*(b*e)^(1/2)*e^2-60*e^4*B*(b*e*x^2+a*e*x+b*d*x+a*d
)^(1/2)*x*a^3*b*(b*e)^(1/2)-140*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*x
*d^3*B*b^4*(b*e)^(1/2)*e+150*e^5*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x
+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^4*A*b-436*(
b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*x*a^2*d*e^3*B*b^2*(b*e)^(1/2)-720*
e^3*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*x*a*d*A*b^3*(b*e)^(1/2)-352*B
*x^2*a*b^3*d*e^3*(b*e)^(1/2)*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)+150*
d^4*A*b^5*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)
^(1/2)+a*e+b*d)/(b*e)^(1/2))*e+90*e^4*B*(b*e*x^2+a*e*x+b*d*x+a*d)
^(1/2)*a^4*(b*e)^(1/2)+210*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*d^4*B*
b^4*(b*e)^(1/2)-768*B*x^4*b^4*e^4*(b*e)^(1/2)*(b*e*x^2+a*e*x+b*d*
x+a*d)^(1/2)-600*a^3*d*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d
)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*e^4*A*b^2+900*d^2*A*e^3
*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*
e+b*d)/(b*e)^(1/2))*a^2*b^3-600*d^3*A*ln(1/2*(2*b*x*e+2*(b*e*x^2+
a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a*b^4*e^
2+75*e^4*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^
(1/2)+a*e+b*d)/(b*e)^(1/2))*a^4*d*B*b+150*a^3*d^2*ln(1/2*(2*b*x*e
+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/
2))*e^3*B*b^2-450*ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/
2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^2*d^3*B*b^3*e^2+375*a*d^4*
ln(1/2*(2*b*x*e+2*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*(b*e)^(1/2)+a*e
+b*d)/(b*e)^(1/2))*B*b^4*e-300*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*a^
3*e^4*A*b*(b*e)^(1/2)-300*d^3*A*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*b
^4*(b*e)^(1/2)*e+692*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*a^2*d^2*B*b^
2*(b*e)^(1/2)*e^2+1100*d^2*A*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*a*b^
3*(b*e)^(1/2)*e^2-120*(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)*a^3*d*e^3*B
*b*(b*e)^(1/2))/(b*e*x^2+a*e*x+b*d*x+a*d)^(1/2)/(b*e)^(1/2)/e^4/b
^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(5/2)*sqrt(e*x + d),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.294942, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(5/2)*sqrt(e*x + d),x, algorithm="fricas")
```

```
[Out] [1/7680*(4*(384*B*b^4*e^4*x^4 - 105*B*b^4*d^4 + 10*(34*B*a*b^3 +
15*A*b^4)*d^3*e - 2*(173*B*a^2*b^2 + 275*A*a*b^3)*d^2*e^2 + 10*(6
*B*a^3*b + 73*A*a^2*b^2)*d*e^3 - 15*(3*B*a^4 - 10*A*a^3*b)*e^4 +
48*(B*b^4*d*e^3 + (21*B*a*b^3 + 10*A*b^4)*e^4)*x^3 - 8*(7*B*b^4*d
^2*e^2 - 2*(11*B*a*b^3 + 5*A*b^4)*d*e^3 - (93*B*a^2*b^2 + 170*A*a
```

```
*b^3)*e^4)*x^2 + 2*(35*B*b^4*d^3*e - (111*B*a*b^3 + 50*A*b^4)*d^2
*e^2 + (109*B*a^2*b^2 + 180*A*a*b^3)*d*e^3 + 5*(3*B*a^3*b + 118*A
*a^2*b^2)*e^4)*x)*sqrt(b*e)*sqrt(b*x + a)*sqrt(e*x + d) - 15*(7*B
*b^5*d^5 - 5*(5*B*a*b^4 + 2*A*b^5)*d^4*e + 10*(3*B*a^2*b^3 + 4*A*
a*b^4)*d^3*e^2 - 10*(B*a^3*b^2 + 6*A*a^2*b^3)*d^2*e^3 - 5*(B*a^4*
b - 8*A*a^3*b^2)*d*e^4 + (3*B*a^5 - 10*A*a^4*b)*e^5)*log(-4*(2*b^
2*e^2*x + b^2*d*e + a*b*e^2)*sqrt(b*x + a)*sqrt(e*x + d) + (8*b^2
*e^2*x^2 + b^2*d^2 + 6*a*b*d*e + a^2*e^2 + 8*(b^2*d*e + a*b*e^2)*
x)*sqrt(b*e)))/(sqrt(b*e)*b^2*e^4), 1/3840*(2*(384*B*b^4*e^4*x^4
- 105*B*b^4*d^4 + 10*(34*B*a*b^3 + 15*A*b^4)*d^3*e - 2*(173*B*a^2
*b^2 + 275*A*a*b^3)*d^2*e^2 + 10*(6*B*a^3*b + 73*A*a^2*b^2)*d*e^3
 - 15*(3*B*a^4 - 10*A*a^3*b)*e^4 + 48*(B*b^4*d*e^3 + (21*B*a*b^3
+ 10*A*b^4)*e^4)*x^3 - 8*(7*B*b^4*d^2*e^2 - 2*(11*B*a*b^3 + 5*A*b
^4)*d*e^3 - (93*B*a^2*b^2 + 170*A*a*b^3)*e^4)*x^2 + 2*(35*B*b^4*d
^3*e - (111*B*a*b^3 + 50*A*b^4)*d^2*e^2 + (109*B*a^2*b^2 + 180*A*
a*b^3)*d*e^3 + 5*(3*B*a^3*b + 118*A*a^2*b^2)*e^4)*x)*sqrt(-b*e)*s
qrt(b*x + a)*sqrt(e*x + d) + 15*(7*B*b^5*d^5 - 5*(5*B*a*b^4 + 2*A
*b^5)*d^4*e + 10*(3*B*a^2*b^3 + 4*A*a*b^4)*d^3*e^2 - 10*(B*a^3*b^
2 + 6*A*a^2*b^3)*d^2*e^3 - 5*(B*a^4*b - 8*A*a^3*b^2)*d*e^4 + (3*B
*a^5 - 10*A*a^4*b)*e^5)*arctan(1/2*(2*b*e*x + b*d + a*e)*sqrt(-b*
e)/(sqrt(b*x + a)*sqrt(e*x + d)*b*e)))/(sqrt(-b*e)*b^2*e^4)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(B*x+A)*(e*x+d)**(1/2),x)

[Out] Timed out
```

GIAC/XCAS [A] time = 0.358789, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(5/2)*sqrt(e*x + d),x, algorithm="giac")

[Out] Done
```

3.2209 $\int \frac{(a+bx)^{5/2}(A+Bx)}{\sqrt{d+ex}}\,dx$

Optimal. Leaf size=246

$$\frac{5(bd-ae)^3(aBe-8Abe+7bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{64b^{3/2}e^{9/2}} - \frac{5\sqrt{a+bx}\sqrt{d+ex}(bd-ae)^2(aBe-8Abe+7bBd)}{64be^4} + \frac{5(a+bx)^{3/2}\sqrt{d+ex}(bd-ae)(aBe-8Abe+7bBd)}{96be^3} - \frac{(a+bx)^{5/2}\sqrt{d+ex}(aBe-8Abe+7bBd)}{24be^2} + \frac{B(a+bx)^{7/2}\sqrt{d+ex}}{4be}$$

```
[Out] (-5*(b*d - a*e)^2*(7*b*B*d - 8*A*b*e + a*B*e)*Sqrt[a + b*x]*Sqrt[
d + e*x])/(64*b*e^4) + (5*(b*d - a*e)*(7*b*B*d - 8*A*b*e + a*B*e)
*(a + b*x)^(3/2)*Sqrt[d + e*x])/(96*b*e^3) - ((7*b*B*d - 8*A*b*e
+ a*B*e)*(a + b*x)^(5/2)*Sqrt[d + e*x])/(24*b*e^2) + (B*(a + b*x)
^(7/2)*Sqrt[d + e*x])/(4*b*e) + (5*(b*d - a*e)^3*(7*b*B*d - 8*A*b
*e + a*B*e)*ArcTanh[(Sqrt[e]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[d + e*x
])])/(64*b^(3/2)*e^(9/2))
```

Rubi [A] time = 0.504183, antiderivative size = 246, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$\frac{5(bd-ae)^3(aBe-8Abe+7bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{64b^{3/2}e^{9/2}} - \frac{5\sqrt{a+bx}\sqrt{d+ex}(bd-ae)^2(aBe-8Abe+7bBd)}{64be^4} + \frac{5(a+bx)^{3/2}\sqrt{d+ex}(bd-ae)(aBe-8Abe+7bBd)}{96be^3} - \frac{(a+bx)^{5/2}\sqrt{d+ex}(aBe-8Abe+7bBd)}{24be^2} + \frac{B(a+bx)^{7/2}\sqrt{d+ex}}{4be}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(5/2)*(A + B*x))/Sqrt[d + e*x],x]
```

```
[Out] (-5*(b*d - a*e)^2*(7*b*B*d - 8*A*b*e + a*B*e)*Sqrt[a + b*x]*Sqrt[
d + e*x])/(64*b*e^4) + (5*(b*d - a*e)*(7*b*B*d - 8*A*b*e + a*B*e)
*(a + b*x)^(3/2)*Sqrt[d + e*x])/(96*b*e^3) - ((7*b*B*d - 8*A*b*e
+ a*B*e)*(a + b*x)^(5/2)*Sqrt[d + e*x])/(24*b*e^2) + (B*(a + b*x)
^(7/2)*Sqrt[d + e*x])/(4*b*e) + (5*(b*d - a*e)^3*(7*b*B*d - 8*A*b
*e + a*B*e)*ArcTanh[(Sqrt[e]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[d + e*x
])])/(64*b^(3/2)*e^(9/2))
```

Rubi in Sympy [A] time = 40.4961, size = 238, normalized size = 0.97

$$\frac{B(a+bx)^{\frac{7}{2}}\sqrt{d+ex}}{4be} + \frac{(a+bx)^{\frac{5}{2}}\sqrt{d+ex}\,(8Abe-Bae-7Bbd)}{24be^2} + \frac{5(a+bx)^{\frac{3}{2}}\sqrt{d+ex}\,(ae-bd)\,(8Abe-Bae-7Bbd)}{96be^3} + \frac{5\sqrt{a+bx}\sqrt{d+ex}\,(ae-bd)^2\,(8Abe-Bae-7Bbd)}{64be^4} + \frac{5(ae-bd)^3\,(8Abe-Bae-7Bbd)\,\mathrm{atanh}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{e}\sqrt{a+bx}}\right)}{64b^{\frac{3}{2}}e^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(B*x+A)/(e*x+d)**(1/2),x)
```

```
[Out] B*(a + b*x)**(7/2)*sqrt(d + e*x)/(4*b*e) + (a + b*x)**(5/2)*sqrt(
d + e*x)*(8*A*b*e - B*a*e - 7*B*b*d)/(24*b*e**2) + 5*(a + b*x)**(
3/2)*sqrt(d + e*x)*(a*e - b*d)*(8*A*b*e - B*a*e - 7*B*b*d)/(96*b*
e**3) + 5*sqrt(a + b*x)*sqrt(d + e*x)*(a*e - b*d)**2*(8*A*b*e - B
*a*e - 7*B*b*d)/(64*b*e**4) + 5*(a*e - b*d)**3*(8*A*b*e - B*a*e -
 7*B*b*d)*atanh(sqrt(b)*sqrt(d + e*x)/(sqrt(e)*sqrt(a + b*x)))/(6
4*b**(3/2)*e**(9/2))
```

Mathematica [A] time = 0.355073, size = 243, normalized size = 0.99

$$\frac{\sqrt{a+bx}\sqrt{d+ex}\left(15a^3Be^3+a^2be^2(264Ae-191Bd+118Bex)+ab^2e\left(16Ae(13ex-20d)+B\left(265d^2-172dex+136e^2x^2\right)\right)\right.}{192be^4}$$

$$+\frac{5(bd-ae)^3(aBe-8Abe+7bBd)\log\left(2\sqrt{b}\sqrt{e}\sqrt{a+bx}\sqrt{d+ex}+ae+bd+2bex\right)}{128b^{3/2}e^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(5/2)*(A + B*x))/Sqrt[d + e*x],x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[d + e*x]*(15*a^3*B*e^3 + a^2*b*e^2*(-191*B*d
+ 264*A*e + 118*B*e*x) + a*b^2*e*(16*A*e*(-20*d + 13*e*x) + B*(26
5*d^2 - 172*d*e*x + 136*e^2*x^2)) + b^3*(8*A*e*(15*d^2 - 10*d*e*x
 + 8*e^2*x^2) + B*(-105*d^3 + 70*d^2*e*x - 56*d*e^2*x^2 + 48*e^3*
x^3))))/(192*b*e^4) + (5*(b*d - a*e)^3*(7*b*B*d - 8*A*b*e + a*B*e
)*Log[b*d + a*e + 2*b*e*x + 2*Sqrt[b]*Sqrt[e]*Sqrt[a + b*x]*Sqrt[
d + e*x]])/(128*b^(3/2)*e^(9/2))
```

Maple [B] time = 0.036, size = 968, normalized size = 3.9

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(B*x+A)/(e*x+d)^(1/2),x)
```

```
[Out] 1/384*(b*x+a)^(1/2)*(e*x+d)^(1/2)*(-15*e^4*B*ln(1/2*(2*b*x*e+2*((
b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^4+105*l
n(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*
e)^(1/2))*b^4*d^4*B-360*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)
*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^2*A*b^2*d*e^3-344*((b*x+a)*(
e*x+d))^(1/2)*x*a*d*B*b^2*e^2*(b*e)^(1/2)-120*ln(1/2*(2*b*x*e+2*(
(b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*b^4*d^3*
A*e-210*((b*x+a)*(e*x+d))^(1/2)*B*b^3*d^3*(b*e)^(1/2)+120*ln(1/2*
(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/
2))*a^3*A*e^4*b+30*e^3*B*((b*x+a)*(e*x+d))^(1/2)*a^3*(b*e)^(1/2)+
360*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d
)/(b*e)^(1/2))*a*A*b^3*d^2*e^2-60*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x
+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^3*B*d*e^3*b+270*ln
(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e
)^(1/2))*a^2*B*b^2*d^2*e^2-300*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d)
)^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a*B*b^3*d^3*e+528*((b*x
+a)*(e*x+d))^(1/2)*A*a^2*e^3*(b*e)^(1/2)*b+240*((b*x+a)*(e*x+d))^
(1/2)*A*b^3*d^2*e*(b*e)^(1/2)+96*B*x^3*b^3*e^3*(b*e)^(1/2)*((b*x+
a)*(e*x+d))^(1/2)+128*A*x^2*b^3*e^3*(b*e)^(1/2)*((b*x+a)*(e*x+d))
^(1/2)+236*e^3*B*((b*x+a)*(e*x+d))^(1/2)*x*a^2*b*(b*e)^(1/2)+140*
((b*x+a)*(e*x+d))^(1/2)*x*d^2*B*b^3*e*(b*e)^(1/2)+416*((b*x+a)*(e
*x+d))^(1/2)*x*a*A*e^3*b^2*(b*e)^(1/2)-160*d*A*((b*x+a)*(e*x+d))^
(1/2)*x*b^3*e^2*(b*e)^(1/2)+272*B*x^2*a*b^2*e^3*(b*e)^(1/2)*((b*x
+a)*(e*x+d))^(1/2)-112*B*x^2*b^3*d*e^2*(b*e)^(1/2)*((b*x+a)*(e*x+
d))^(1/2)-640*((b*x+a)*(e*x+d))^(1/2)*A*a*b^2*d*e^2*(b*e)^(1/2)-3
82*((b*x+a)*(e*x+d))^(1/2)*B*a^2*d*e^2*(b*e)^(1/2)*b+530*((b*x+a)
```

```
*(e*x+d))^(1/2)*B*a*b^2*d^2*e*(b*e)^(1/2))/((b*x+a)*(e*x+d))^(1/2
)/e^4/(b*e)^(1/2)/b
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(5/2)/sqrt(e*x + d),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.620194, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(5/2)/sqrt(e*x + d),x, algorithm="fricas")
```

```
[Out] [1/768*(4*(48*B*b^3*e^3*x^3 - 105*B*b^3*d^3 + 5*(53*B*a*b^2 + 24*
A*b^3)*d^2*e - (191*B*a^2*b + 320*A*a*b^2)*d*e^2 + 3*(5*B*a^3 + 8
8*A*a^2*b)*e^3 - 8*(7*B*b^3*d*e^2 - (17*B*a*b^2 + 8*A*b^3)*e^3)*x
^2 + 2*(35*B*b^3*d^2*e - 2*(43*B*a*b^2 + 20*A*b^3)*d*e^2 + (59*B*
a^2*b + 104*A*a*b^2)*e^3)*x)*sqrt(b*e)*sqrt(b*x + a)*sqrt(e*x + d
) - 15*(7*B*b^4*d^4 - 4*(5*B*a*b^3 + 2*A*b^4)*d^3*e + 6*(3*B*a^2*
b^2 + 4*A*a*b^3)*d^2*e^2 - 4*(B*a^3*b + 6*A*a^2*b^2)*d*e^3 - (B*a
^4 - 8*A*a^3*b)*e^4)*log(-4*(2*b^2*e^2*x + b^2*d*e + a*b*e^2)*sqr
t(b*x + a)*sqrt(e*x + d) + (8*b^2*e^2*x^2 + b^2*d^2 + 6*a*b*d*e +
 a^2*e^2 + 8*(b^2*d*e + a*b*e^2)*x)*sqrt(b*e)))/(sqrt(b*e)*b*e^4)
, 1/384*(2*(48*B*b^3*e^3*x^3 - 105*B*b^3*d^3 + 5*(53*B*a*b^2 + 24
*A*b^3)*d^2*e - (191*B*a^2*b + 320*A*a*b^2)*d*e^2 + 3*(5*B*a^3 +
88*A*a^2*b)*e^3 - 8*(7*B*b^3*d*e^2 - (17*B*a*b^2 + 8*A*b^3)*e^3)*
x^2 + 2*(35*B*b^3*d^2*e - 2*(43*B*a*b^2 + 20*A*b^3)*d*e^2 + (59*B
*a^2*b + 104*A*a*b^2)*e^3)*x)*sqrt(-b*e)*sqrt(b*x + a)*sqrt(e*x +
 d) + 15*(7*B*b^4*d^4 - 4*(5*B*a*b^3 + 2*A*b^4)*d^3*e + 6*(3*B*a^
2*b^2 + 4*A*a*b^3)*d^2*e^2 - 4*(B*a^3*b + 6*A*a^2*b^2)*d*e^3 - (B
*a^4 - 8*A*a^3*b)*e^4)*arctan(1/2*(2*b*e*x + b*d + a*e)*sqrt(-b*e
)/(sqrt(b*x + a)*sqrt(e*x + d)*b*e)))/(sqrt(-b*e)*b*e^4)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(B*x+A)/(e*x+d)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.246939, size = 527, normalized size = 2.14

$$\Bigg(\sqrt{b^2 d + (bx+a)be - abe}\Bigg(2(bx+a)\Bigg(4(bx+a)\Bigg(\frac{6(bx+a)Be^{(-1)}}{b^2} - \frac{(7Bb^3de^5 + Bab^2e^6 - 8Ab^3e^6)e^{(-7)}}{b^4}\Bigg) + \frac{5(7Bb^4d^2e^4 - 6Bab^3de^5 - 8Ab^4de^5}{b^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(5/2)/sqrt(e*x + d),x, algorithm="giac")
```

```
[Out] 1/192*(sqrt(b^2*d + (b*x + a)*b*e - a*b*e)*(2*(b*x + a)*(4*(b*x +
 a)*(6*(b*x + a)*B*e^(-1)/b^2 - (7*B*b^3*d*e^5 + B*a*b^2*e^6 - 8*
A*b^3*e^6)*e^(-7)/b^4) + 5*(7*B*b^4*d^2*e^4 - 6*B*a*b^3*d*e^5 - 8
*A*b^4*d*e^5 - B*a^2*b^2*e^6 + 8*A*a*b^3*e^6)*e^(-7)/b^4) - 15*(7
*B*b^5*d^3*e^3 - 13*B*a*b^4*d^2*e^4 - 8*A*b^5*d^2*e^4 + 5*B*a^2*b
^3*d*e^5 + 16*A*a*b^4*d*e^5 + B*a^3*b^2*e^6 - 8*A*a^2*b^3*e^6)*e^
(-7)/b^4)*sqrt(b*x + a) - 15*(7*B*b^4*d^4 - 20*B*a*b^3*d^3*e - 8*
A*b^4*d^3*e + 18*B*a^2*b^2*d^2*e^2 + 24*A*a*b^3*d^2*e^2 - 4*B*a^3
*b*d*e^3 - 24*A*a^2*b^2*d*e^3 - B*a^4*e^4 + 8*A*a^3*b*e^4)*e^(-9/
2)*ln(abs(-sqrt(b*x + a)*sqrt(b)*e^(1/2) + sqrt(b^2*d + (b*x + a)
*b*e - a*b*e)))/b^(3/2))*b/abs(b)
```

3.2210 $\int \frac{(a+bx)^{5/2}(A+Bx)}{(d+ex)^{3/2}}\,dx$

Optimal. Leaf size=253

$$-\frac{5(bd-ae)^2(-aBe-6Abe+7bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{8\sqrt{b}e^{9/2}}+\frac{5\sqrt{a+bx}\sqrt{d+ex}(bd-ae)(-aBe-6Abe+7bBd)}{8e^4}-\frac{5(a+bx)^{3/2}\sqrt{d+ex}(-aBe-6Abe+7bBd)}{12e^3}+\frac{(a+bx)^{5/2}\sqrt{d+ex}(-aBe-6Abe+7bBd)}{3e^2(bd-ae)}-\frac{2(a+bx)^{7/2}(Bd-Ae)}{e\sqrt{d+ex}(bd-ae)}$$

```
[Out] (-2*(B*d - A*e)*(a + b*x)^(7/2))/(e*(b*d - a*e)*Sqrt[d + e*x]) +
(5*(b*d - a*e)*(7*b*B*d - 6*A*b*e - a*B*e)*Sqrt[a + b*x]*Sqrt[d +
 e*x])/(8*e^4) - (5*(7*b*B*d - 6*A*b*e - a*B*e)*(a + b*x)^(3/2)*S
qrt[d + e*x])/(12*e^3) + ((7*b*B*d - 6*A*b*e - a*B*e)*(a + b*x)^(
5/2)*Sqrt[d + e*x])/(3*e^2*(b*d - a*e)) - (5*(b*d - a*e)^2*(7*b*B
*d - 6*A*b*e - a*B*e)*ArcTanh[(Sqrt[e]*Sqrt[a + b*x])/(Sqrt[b]*Sq
rt[d + e*x])])/(8*Sqrt[b]*e^(9/2))
```

Rubi [A] time = 0.532623, antiderivative size = 253, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$-\frac{5(bd-ae)^2(-aBe-6Abe+7bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{8\sqrt{b}e^{9/2}}+\frac{5\sqrt{a+bx}\sqrt{d+ex}(bd-ae)(-aBe-6Abe+7bBd)}{8e^4}-\frac{5(a+bx)^{3/2}\sqrt{d+ex}(-aBe-6Abe+7bBd)}{12e^3}+\frac{(a+bx)^{5/2}\sqrt{d+ex}(-aBe-6Abe+7bBd)}{3e^2(bd-ae)}-\frac{2(a+bx)^{7/2}(Bd-Ae)}{e\sqrt{d+ex}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(5/2)*(A + B*x))/(d + e*x)^(3/2),x]
```


```
[Out] (-2*(B*d - A*e)*(a + b*x)^(7/2))/(e*(b*d - a*e)*Sqrt[d + e*x]) +
(5*(b*d - a*e)*(7*b*B*d - 6*A*b*e - a*B*e)*Sqrt[a + b*x]*Sqrt[d +
 e*x])/(8*e^4) - (5*(7*b*B*d - 6*A*b*e - a*B*e)*(a + b*x)^(3/2)*S
qrt[d + e*x])/(12*e^3) + ((7*b*B*d - 6*A*b*e - a*B*e)*(a + b*x)^(
5/2)*Sqrt[d + e*x])/(3*e^2*(b*d - a*e)) - (5*(b*d - a*e)^2*(7*b*B
*d - 6*A*b*e - a*B*e)*ArcTanh[(Sqrt[e]*Sqrt[a + b*x])/(Sqrt[b]*Sq
rt[d + e*x])])/(8*Sqrt[b]*e^(9/2))
```

Rubi in Sympy [A] time = 50.4226, size = 241, normalized size = 0.95

$$-\frac{2\,(a+bx)^{\frac{7}{2}}\,(Ae-Bd)}{e\sqrt{d+ex}\,(ae-bd)}+\frac{(a+bx)^{\frac{5}{2}}\,\sqrt{d+ex}\,(6Abe+Bae-7Bbd)}{3e^2\,(ae-bd)}+\frac{5\,(a+bx)^{\frac{3}{2}}\,\sqrt{d+ex}\,(6Abe+Bae-7Bbd)}{12e^3}+\frac{5\sqrt{a+bx}\sqrt{d+ex}\,(ae-bd)\,(6Abe+Bae-7Bbd)}{8e^4}+\frac{5\,(ae-bd)^2\,(6Abe+Bae-7Bbd)\,\mathrm{atanh}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{8\sqrt{b}e^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(B*x+A)/(e*x+d)**(3/2),x)
```

```
[Out] -2*(a + b*x)**(7/2)*(A*e - B*d)/(e*sqrt(d + e*x)*(a*e - b*d)) + (
a + b*x)**(5/2)*sqrt(d + e*x)*(6*A*b*e + B*a*e - 7*B*b*d)/(3*e**2
```

```
*(a*e - b*d)) + 5*(a + b*x)**(3/2)*sqrt(d + e*x)*(6*A*b*e + B*a*e
 - 7*B*b*d)/(12*e**3) + 5*sqrt(a + b*x)*sqrt(d + e*x)*(a*e - b*d)
*(6*A*b*e + B*a*e - 7*B*b*d)/(8*e**4) + 5*(a*e - b*d)**2*(6*A*b*e
 + B*a*e - 7*B*b*d)*atanh(sqrt(e)*sqrt(a + b*x)/(sqrt(b)*sqrt(d +
 e*x)))/(8*sqrt(b)*e**(9/2))
```

Mathematica [A] time = 0.430037, size = 230, normalized size = 0.91

$$\frac{\sqrt{a+bx}\,(3a^2e^2(-16Ae+27Bd+11Bex)+2abe\,(3Ae(25d+9ex)+B\,(-95d^2-34dex+13e^2x^2))+b^2\,(6Ae\,(-15d^2-5dex}{24e^4\sqrt{d+ex}}+\frac{5(bd-ae)^2(aBe+6Abe-7bBd)\log\left(2\sqrt{b}\sqrt{e}\sqrt{a+bx}\sqrt{d+ex}+ae+bd+2bex\right)}{16\sqrt{b}e^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(5/2)*(A + B*x))/(d + e*x)^(3/2),x]
```

```
[Out] (Sqrt[a + b*x]*(3*a^2*e^2*(27*B*d - 16*A*e + 11*B*e*x) + 2*a*b*e*
(3*A*e*(25*d + 9*e*x) + B*(-95*d^2 - 34*d*e*x + 13*e^2*x^2)) + b^
2*(6*A*e*(-15*d^2 - 5*d*e*x + 2*e^2*x^2) + B*(105*d^3 + 35*d^2*e*
x - 14*d*e^2*x^2 + 8*e^3*x^3))))/(24*e^4*Sqrt[d + e*x]) + (5*(b*d
 - a*e)^2*(-7*b*B*d + 6*A*b*e + a*B*e)*Log[b*d + a*e + 2*b*e*x +
2*Sqrt[b]*Sqrt[e]*Sqrt[a + b*x]*Sqrt[d + e*x]])/(16*Sqrt[b]*e^(9/
2))
```

Maple [B] time = 0.046, size = 1184, normalized size = 4.7

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(B*x+A)/(e*x+d)^(3/2),x)
```

```
[Out] 1/48*(b*x+a)^(1/2)*(24*A*x^2*b^2*e^3*(b*e)^(1/2)*((b*x+a)*(e*x+d)
)^(1/2)-105*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/
2)+a*e+b*d)/(b*e)^(1/2))*x*b^3*d^3*e+225*B*ln(1/2*(2*b*x*e+2*((b*
x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a*b^2*d^3*e
+66*B*x*a^2*e^3*(b*e)^(1/2)*((b*x+a)*(e*x+d))^(1/2)+162*B*a^2*d*e
^2*(b*e)^(1/2)*((b*x+a)*(e*x+d))^(1/2)+210*B*b^2*d^3*(b*e)^(1/2)*
((b*x+a)*(e*x+d))^(1/2)+225*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))
^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x*a*b^2*d^2*e^2+52*B*x^2
*a*b*e^3*(b*e)^(1/2)*((b*x+a)*(e*x+d))^(1/2)-28*B*x^2*b^2*d*e^2*(
b*e)^(1/2)*((b*x+a)*(e*x+d))^(1/2)+108*A*x*a*b*e^3*(b*e)^(1/2)*((
b*x+a)*(e*x+d))^(1/2)+70*B*x*b^2*d^2*e*(b*e)^(1/2)*((b*x+a)*(e*x+
d))^(1/2)-380*B*a*b*d^2*e*(b*e)^(1/2)*((b*x+a)*(e*x+d))^(1/2)-136
*B*x*a*b*d*e^2*(b*e)^(1/2)*((b*x+a)*(e*x+d))^(1/2)-105*B*ln(1/2*(
2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2
))*b^3*d^4-96*A*a^2*e^3*(b*e)^(1/2)*((b*x+a)*(e*x+d))^(1/2)-180*A
*b^2*d^2*e*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+90*A*ln(1/2*(2*b*x
*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x*
a^2*b*e^4+90*A*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1
/2)+a*e+b*d)/(b*e)^(1/2))*x*b^3*d^2*e^2+90*A*ln(1/2*(2*b*x*e+2*((
b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^2*b*d*e
^3-180*A*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*
e+b*d)/(b*e)^(1/2))*a*b^2*d^2*e^2-135*B*ln(1/2*(2*b*x*e+2*((b*x+a
)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^2*b*d^2*e^2+
16*B*x^3*b^2*e^3*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)-60*A*x*b^2*d
*e^2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+300*A*a*b*d*e^2*((b*x+a)
*(e*x+d))^(1/2)*(b*e)^(1/2)-180*A*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x
+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x*a*b^2*d*e^3-135*B*
ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b
*e)^(1/2))*x*a^2*b*d*e^3+15*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))
^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x*a^3*e^4+90*A*ln(1/2*(2
```

```
*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2)
)*b^3*d^3*e+15*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^
(1/2)+a*e+b*d)/(b*e)^(1/2))*a^3*d*e^3)/((b*x+a)*(e*x+d))^(1/2)/(b
*e)^(1/2)/(e*x+d)^(1/2)/e^4
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(5/2)/(e*x + d)^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 1.01544, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(5/2)/(e*x + d)^(3/2),x, algorithm="fricas")
```

```
[Out] [1/96*(4*(8*B*b^2*e^3*x^3 + 105*B*b^2*d^3 - 48*A*a^2*e^3 - 10*(19
*B*a*b + 9*A*b^2)*d^2*e + 3*(27*B*a^2 + 50*A*a*b)*d*e^2 - 2*(7*B*
b^2*d*e^2 - (13*B*a*b + 6*A*b^2)*e^3)*x^2 + (35*B*b^2*d^2*e - 2*(
34*B*a*b + 15*A*b^2)*d*e^2 + 3*(11*B*a^2 + 18*A*a*b)*e^3)*x)*sqrt
(b*e)*sqrt(b*x + a)*sqrt(e*x + d) - 15*(7*B*b^3*d^4 - 3*(5*B*a*b^
2 + 2*A*b^3)*d^3*e + 3*(3*B*a^2*b + 4*A*a*b^2)*d^2*e^2 - (B*a^3 +
 6*A*a^2*b)*d*e^3 + (7*B*b^3*d^3*e - 3*(5*B*a*b^2 + 2*A*b^3)*d^2*
e^2 + 3*(3*B*a^2*b + 4*A*a*b^2)*d*e^3 - (B*a^3 + 6*A*a^2*b)*e^4)*
x)*log(4*(2*b^2*e^2*x + b^2*d*e + a*b*e^2)*sqrt(b*x + a)*sqrt(e*x
 + d) + (8*b^2*e^2*x^2 + b^2*d^2 + 6*a*b*d*e + a^2*e^2 + 8*(b^2*d
*e + a*b*e^2)*x)*sqrt(b*e)))/((e^5*x + d*e^4)*sqrt(b*e)), 1/48*(2
*(8*B*b^2*e^3*x^3 + 105*B*b^2*d^3 - 48*A*a^2*e^3 - 10*(19*B*a*b +
 9*A*b^2)*d^2*e + 3*(27*B*a^2 + 50*A*a*b)*d*e^2 - 2*(7*B*b^2*d*e^
2 - (13*B*a*b + 6*A*b^2)*e^3)*x^2 + (35*B*b^2*d^2*e - 2*(34*B*a*b
 + 15*A*b^2)*d*e^2 + 3*(11*B*a^2 + 18*A*a*b)*e^3)*x)*sqrt(-b*e)*s
qrt(b*x + a)*sqrt(e*x + d) - 15*(7*B*b^3*d^4 - 3*(5*B*a*b^2 + 2*A
*b^3)*d^3*e + 3*(3*B*a^2*b + 4*A*a*b^2)*d^2*e^2 - (B*a^3 + 6*A*a^
2*b)*d*e^3 + (7*B*b^3*d^3*e - 3*(5*B*a*b^2 + 2*A*b^3)*d^2*e^2 + 3
*(3*B*a^2*b + 4*A*a*b^2)*d*e^3 - (B*a^3 + 6*A*a^2*b)*e^4)*x)*arct
an(1/2*(2*b*e*x + b*d + a*e)*sqrt(-b*e)/(sqrt(b*x + a)*sqrt(e*x +
 d)*b*e)))/((e^5*x + d*e^4)*sqrt(-b*e))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(B*x+A)/(e*x+d)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.265439, size = 564, normalized size = 2.23

$$\frac{\left(\left(2\left(\frac{4(bx+a)Bb|b|e^6}{b^{10}de^8-ab^9e^9} - \frac{7Bb^2d|b|e^5-Bab|b|e^6-6Ab^2|b|e^6}{b^{10}de^8-ab^9e^9}\right)(bx+a) + \frac{5(7Bb^3d^2|b|e^4-8Bab^2d|b|e^5-6Ab^3d|b|e^5+Ba^2b|b|e^6+6Aab^2|b|e^6)}{b^{10}de^8-ab^9e^9}\right)(b\right.}{184320\sqrt{b^2d+(bx+a)b}}$$

$$+\frac{(7Bb^2d^2|b| - 8Babd|b|e - 6Ab^2d|b|e + Ba^2|b|e^2 + 6Aab|b|e^2)e^{\left(-\frac{11}{2}\right)}\ln\left(\left|-\sqrt{bx+a}\sqrt{b}e^{\frac{1}{2}} + \sqrt{b^2d+(bx+a)be-abe}\right|\right)}{12288\,b^{\frac{17}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(5/2)/(e*x + d)^(3/2),x, algorithm="giac")
```

```
[Out] 1/184320*((2*(4*(b*x + a)*B*b*abs(b)*e^6/(b^10*d*e^8 - a*b^9*e^9)
 - (7*B*b^2*d*abs(b)*e^5 - B*a*b*abs(b)*e^6 - 6*A*b^2*abs(b)*e^6)
/(b^10*d*e^8 - a*b^9*e^9))*(b*x + a) + 5*(7*B*b^3*d^2*abs(b)*e^4
- 8*B*a*b^2*d*abs(b)*e^5 - 6*A*b^3*d*abs(b)*e^5 + B*a^2*b*abs(b)*
e^6 + 6*A*a*b^2*abs(b)*e^6)/(b^10*d*e^8 - a*b^9*e^9))*(b*x + a) +
 15*(7*B*b^4*d^3*abs(b)*e^3 - 15*B*a*b^3*d^2*abs(b)*e^4 - 6*A*b^4
*d^2*abs(b)*e^4 + 9*B*a^2*b^2*d*abs(b)*e^5 + 12*A*a*b^3*d*abs(b)*
e^5 - B*a^3*b*abs(b)*e^6 - 6*A*a^2*b^2*abs(b)*e^6)/(b^10*d*e^8 -
a*b^9*e^9))*sqrt(b*x + a)/sqrt(b^2*d + (b*x + a)*b*e - a*b*e) + 1
/12288*(7*B*b^2*d^2*abs(b) - 8*B*a*b*d*abs(b)*e - 6*A*b^2*d*abs(b
)*e + B*a^2*abs(b)*e^2 + 6*A*a*b*abs(b)*e^2)*e^(-11/2)*ln(abs(-sq
rt(b*x + a)*sqrt(b)*e^(1/2) + sqrt(b^2*d + (b*x + a)*b*e - a*b*e)
))/b^(17/2)
```

3.2211 $\int \frac{(a+bx)^{5/2}(A+Bx)}{(d+ex)^{5/2}}\,dx$

Optimal. Leaf size=257

$$\frac{5\sqrt{b}(bd-ae)(-3aBe-4Abe+7bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{4e^{9/2}} - \frac{5b\sqrt{a+bx}\sqrt{d+ex}(-3aBe-4Abe+7bBd)}{4e^4} + \frac{5b(a+bx)^{3/2}\sqrt{d+ex}(-3aBe-4Abe+7bBd)}{6e^3(bd-ae)} - \frac{2(a+bx)^{5/2}(-3aBe-4Abe+7bBd)}{3e^2\sqrt{d+ex}(bd-ae)} - \frac{2(a+bx)^{7/2}(Bd-Ae)}{3e(d+ex)^{3/2}(bd-ae)}$$

```
[Out] (-2*(B*d - A*e)*(a + b*x)^(7/2))/(3*e*(b*d - a*e)*(d + e*x)^(3/2)
) - (2*(7*b*B*d - 4*A*b*e - 3*a*B*e)*(a + b*x)^(5/2))/(3*e^2*(b*d
 - a*e)*Sqrt[d + e*x]) - (5*b*(7*b*B*d - 4*A*b*e - 3*a*B*e)*Sqrt[
a + b*x]*Sqrt[d + e*x])/(4*e^4) + (5*b*(7*b*B*d - 4*A*b*e - 3*a*B
*e)*(a + b*x)^(3/2)*Sqrt[d + e*x])/(6*e^3*(b*d - a*e)) + (5*Sqrt[
b]*(b*d - a*e)*(7*b*B*d - 4*A*b*e - 3*a*B*e)*ArcTanh[(Sqrt[e]*Sqr
t[a + b*x])/(Sqrt[b]*Sqrt[d + e*x])])/(4*e^(9/2))
```

Rubi [A] time = 0.508585, antiderivative size = 257, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.208$

$$\frac{5\sqrt{b}(bd-ae)(-3aBe-4Abe+7bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{4e^{9/2}} - \frac{5b\sqrt{a+bx}\sqrt{d+ex}(-3aBe-4Abe+7bBd)}{4e^4} + \frac{5b(a+bx)^{3/2}\sqrt{d+ex}(-3aBe-4Abe+7bBd)}{6e^3(bd-ae)} - \frac{2(a+bx)^{5/2}(-3aBe-4Abe+7bBd)}{3e^2\sqrt{d+ex}(bd-ae)} - \frac{2(a+bx)^{7/2}(Bd-Ae)}{3e(d+ex)^{3/2}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(5/2)*(A + B*x))/(d + e*x)^(5/2),x]
```

```
[Out] (-2*(B*d - A*e)*(a + b*x)^(7/2))/(3*e*(b*d - a*e)*(d + e*x)^(3/2)
) - (2*(7*b*B*d - 4*A*b*e - 3*a*B*e)*(a + b*x)^(5/2))/(3*e^2*(b*d
 - a*e)*Sqrt[d + e*x]) - (5*b*(7*b*B*d - 4*A*b*e - 3*a*B*e)*Sqrt[
a + b*x]*Sqrt[d + e*x])/(4*e^4) + (5*b*(7*b*B*d - 4*A*b*e - 3*a*B
*e)*(a + b*x)^(3/2)*Sqrt[d + e*x])/(6*e^3*(b*d - a*e)) + (5*Sqrt[
b]*(b*d - a*e)*(7*b*B*d - 4*A*b*e - 3*a*B*e)*ArcTanh[(Sqrt[e]*Sqr
t[a + b*x])/(Sqrt[b]*Sqrt[d + e*x])])/(4*e^(9/2))
```

Rubi in Sympy [A] time = 50.2489, size = 253, normalized size = 0.98

$$\frac{5\sqrt{b}\,(ae-bd)\,(4Abe+3Bae-7Bbd)\,\mathrm{atanh}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{4e^{\frac{9}{2}}} + \frac{5b\,(a+bx)^{\frac{3}{2}}\sqrt{d+ex}\,(4Abe+3Bae-7Bbd)}{6e^3\,(ae-bd)} + \frac{5b\sqrt{a+bx}\sqrt{d+ex}\,(4Abe+3Bae-7Bbd)}{4e^4} - \frac{2\,(a+bx)^{\frac{7}{2}}\,(Ae-Bd)}{3e\,(d+ex)^{\frac{3}{2}}\,(ae-bd)} - \frac{2\,(a+bx)^{\frac{5}{2}}\,(4Abe+3Bae-7Bbd)}{3e^2\sqrt{d+ex}\,(ae-bd)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(B*x+A)/(e*x+d)**(5/2),x)
```

```
[Out] 5*sqrt(b)*(a*e - b*d)*(4*A*b*e + 3*B*a*e - 7*B*b*d)*atanh(sqrt(e)
*sqrt(a + b*x)/(sqrt(b)*sqrt(d + e*x)))/(4*e**(9/2)) + 5*b*(a + b
```

```
*x)**(3/2)*sqrt(d + e*x)*(4*A*b*e + 3*B*a*e - 7*B*b*d)/(6*e**3*(a
*e - b*d)) + 5*b*sqrt(a + b*x)*sqrt(d + e*x)*(4*A*b*e + 3*B*a*e -
 7*B*b*d)/(4*e**4) - 2*(a + b*x)**(7/2)*(A*e - B*d)/(3*e*(d + e*x
)**(3/2)*(a*e - b*d)) - 2*(a + b*x)**(5/2)*(4*A*b*e + 3*B*a*e - 7
*B*b*d)/(3*e**2*sqrt(d + e*x)*(a*e - b*d))
```

Mathematica [A] time = 0.569231, size = 228, normalized size = 0.89

$$-\frac{\sqrt{a+bx}\left(8a^2e^2(Ae+2Bd+3Bex)+abe\left(8Ae(5d+7ex)-B\left(115d^2+158dex+27e^2x^2\right)\right)+b^2\left(B\left(105d^3+140d^2ex+21d\right.\right.\right.}{12e^4(d+ex)^{3/2}}$$

$$-\frac{5\sqrt{b}(bd-ae)(3aBe+4Abe-7bBd)\log\left(2\sqrt{b}\sqrt{e}\sqrt{a+bx}\sqrt{d+ex}+ae+bd+2bex\right)}{8e^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(5/2)*(A + B*x))/(d + e*x)^(5/2),x]
```

```
[Out] -(Sqrt[a + b*x]*(8*a^2*e^2*(2*B*d + A*e + 3*B*e*x) + a*b*e*(8*A*e
*(5*d + 7*e*x) - B*(115*d^2 + 158*d*e*x + 27*e^2*x^2)) + b^2*(-4*
A*e*(15*d^2 + 20*d*e*x + 3*e^2*x^2) + B*(105*d^3 + 140*d^2*e*x +
21*d*e^2*x^2 - 6*e^3*x^3))))/(12*e^4*(d + e*x)^(3/2)) - (5*Sqrt[b
]*(b*d - a*e)*(-7*b*B*d + 4*A*b*e + 3*a*B*e)*Log[b*d + a*e + 2*b*
e*x + 2*Sqrt[b]*Sqrt[e]*Sqrt[a + b*x]*Sqrt[d + e*x]])/(8*e^(9/2))
```

Maple [B] time = 0.038, size = 1250, normalized size = 4.9

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(B*x+A)/(e*x+d)^(5/2),x)
```

```
[Out] 1/24*(b*x+a)^(1/2)*(105*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/
2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x^2*b^3*d^2*e^2+24*A*x^2*b^2
*e^3*(b*e)^(1/2)*((b*x+a)*(e*x+d))^(1/2)+210*B*ln(1/2*(2*b*x*e+2*
((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x*b^3*d
^3*e-150*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+
a*e+b*d)/(b*e)^(1/2))*a*b^2*d^3*e-48*B*x*a^2*e^3*(b*e)^(1/2)*((b*
x+a)*(e*x+d))^(1/2)-32*B*a^2*d*e^2*(b*e)^(1/2)*((b*x+a)*(e*x+d))^
(1/2)-210*B*b^2*d^3*(b*e)^(1/2)*((b*x+a)*(e*x+d))^(1/2)-150*B*ln(
1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)
^(1/2))*x^2*a*b^2*d*e^3-300*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))
^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x*a*b^2*d^2*e^2+54*B*x^2
*a*b*e^3*(b*e)^(1/2)*((b*x+a)*(e*x+d))^(1/2)-42*B*x^2*b^2*d*e^2*(
b*e)^(1/2)*((b*x+a)*(e*x+d))^(1/2)-112*A*x*a*b*e^3*(b*e)^(1/2)*((
b*x+a)*(e*x+d))^(1/2)-280*B*x*b^2*d^2*e*(b*e)^(1/2)*((b*x+a)*(e*x
+d))^(1/2)+230*B*a*b*d^2*e*(b*e)^(1/2)*((b*x+a)*(e*x+d))^(1/2)+31
6*B*x*a*b*d*e^2*(b*e)^(1/2)*((b*x+a)*(e*x+d))^(1/2)+105*B*ln(1/2*
(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/
2))*b^3*d^4-16*A*a^2*e^3*(b*e)^(1/2)*((b*x+a)*(e*x+d))^(1/2)+120*
A*b^2*d^2*e*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)-120*A*ln(1/2*(2*b
*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*
x*b^3*d^2*e^2+60*A*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e
)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a*b^2*d^2*e^2+45*B*ln(1/2*(2*b*x*e+
2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^2*b
*d^2*e^2+12*B*x^3*b^2*e^3*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)-60*
A*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/
(b*e)^(1/2))*x^2*b^3*d*e^3+45*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d
))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x^2*a^2*b*e^4+60*A*ln(
1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)
^(1/2))*x^2*a*b^2*e^4+160*A*x*b^2*d*e^2*((b*x+a)*(e*x+d))^(1/2)*(
b*e)^(1/2)-80*A*a*b*d*e^2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+120
*A*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)
/(b*e)^(1/2))*x*a*b^2*d*e^3+90*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+
```

```
d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x*a^2*b*d*e^3-60*A*ln
(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e
)^(1/2))*b^3*d^3*e)/((b*x+a)*(e*x+d))^(1/2)/(b*e)^(1/2)/(e*x+d)^(
3/2)/e^4
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(5/2)/(e*x + d)^(5/2),x, algorithm="maxima")

[Out] Exception raised: ValueError
```

Fricas [A] time = 1.12278, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(5/2)/(e*x + d)^(5/2),x, algorithm="fricas")

[Out] [1/48*(15*(7*B*b^2*d^4 - 2*(5*B*a*b + 2*A*b^2)*d^3*e + (3*B*a^2 +
 4*A*a*b)*d^2*e^2 + (7*B*b^2*d^2*e^2 - 2*(5*B*a*b + 2*A*b^2)*d*e^
3 + (3*B*a^2 + 4*A*a*b)*e^4)*x^2 + 2*(7*B*b^2*d^3*e - 2*(5*B*a*b
+ 2*A*b^2)*d^2*e^2 + (3*B*a^2 + 4*A*a*b)*d*e^3)*x)*sqrt(b/e)*log(
8*b^2*e^2*x^2 + b^2*d^2 + 6*a*b*d*e + a^2*e^2 + 4*(2*b*e^2*x + b*
d*e + a*e^2)*sqrt(b*x + a)*sqrt(e*x + d)*sqrt(b/e) + 8*(b^2*d*e +
 a*b*e^2)*x) + 4*(6*B*b^2*e^3*x^3 - 105*B*b^2*d^3 - 8*A*a^2*e^3 +
 5*(23*B*a*b + 12*A*b^2)*d^2*e - 8*(2*B*a^2 + 5*A*a*b)*d*e^2 - 3*
(7*B*b^2*d*e^2 - (9*B*a*b + 4*A*b^2)*e^3)*x^2 - 2*(70*B*b^2*d^2*e
 - (79*B*a*b + 40*A*b^2)*d*e^2 + 4*(3*B*a^2 + 7*A*a*b)*e^3)*x)*sq
rt(b*x + a)*sqrt(e*x + d))/(e^6*x^2 + 2*d*e^5*x + d^2*e^4), 1/24*
(15*(7*B*b^2*d^4 - 2*(5*B*a*b + 2*A*b^2)*d^3*e + (3*B*a^2 + 4*A*a
*b)*d^2*e^2 + (7*B*b^2*d^2*e^2 - 2*(5*B*a*b + 2*A*b^2)*d*e^3 + (3
*B*a^2 + 4*A*a*b)*e^4)*x^2 + 2*(7*B*b^2*d^3*e - 2*(5*B*a*b + 2*A*
b^2)*d^2*e^2 + (3*B*a^2 + 4*A*a*b)*d*e^3)*x)*sqrt(-b/e)*arctan(1/
2*(2*b*e*x + b*d + a*e)/(sqrt(b*x + a)*sqrt(e*x + d)*e*sqrt(-b/e)
)) + 2*(6*B*b^2*e^3*x^3 - 105*B*b^2*d^3 - 8*A*a^2*e^3 + 5*(23*B*a
*b + 12*A*b^2)*d^2*e - 8*(2*B*a^2 + 5*A*a*b)*d*e^2 - 3*(7*B*b^2*d
*e^2 - (9*B*a*b + 4*A*b^2)*e^3)*x^2 - 2*(70*B*b^2*d^2*e - (79*B*a
*b + 40*A*b^2)*d*e^2 + 4*(3*B*a^2 + 7*A*a*b)*e^3)*x)*sqrt(b*x + a
)*sqrt(e*x + d))/(e^6*x^2 + 2*d*e^5*x + d^2*e^4)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(B*x+A)/(e*x+d)**(5/2),x)

[Out] Timed out
```

GIAC/XCAS [A] time = 0.293697, size = 721, normalized size = 2.81

$$-\frac{5\left(7\,Bb^{2}d^{2}|b| - 10\,Babd|b|e - 4\,Ab^{2}d|b|e + 3\,Ba^{2}|b|e^{2} + 4\,Aab|b|e^{2}\right)e^{\left(-\frac{9}{2}\right)}\ln\left(\left|-\sqrt{bx+a}\sqrt{b}e^{\frac{1}{2}} + \sqrt{b^{2}d + (bx+a)be - abe}\right|\right)}{4\sqrt{b}}$$

$$+\frac{\left(\left(3\,(bx+a)\left(\frac{2\left(Bb^{5}d|b|e^{6} - Bab^{4}|b|e^{7}\right)(bx+a)}{b^{4}de^{7} - ab^{3}e^{8}} - \frac{7\,Bb^{6}d^{2}|b|e^{5} - 10\,Bab^{5}d|b|e^{6} - 4\,Ab^{6}d|b|e^{6} + 3\,Ba^{2}b^{4}|b|e^{7} + 4\,Aab^{5}|b|e^{7}}{b^{4}de^{7} - ab^{3}e^{8}}\right) - \frac{20\left(7\,Bb^{7}d^{3}|b|e^{4} - 17\,\ldots\right.}{\ldots}\right.\right.}{\ldots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(5/2)/(e*x + d)^(5/2),x, algorithm="giac")
```

```
[Out] -5/4*(7*B*b^2*d^2*abs(b) - 10*B*a*b*d*abs(b)*e - 4*A*b^2*d*abs(b)
*e + 3*B*a^2*abs(b)*e^2 + 4*A*a*b*abs(b)*e^2)*e^(-9/2)*ln(abs(-sq
rt(b*x + a)*sqrt(b)*e^(1/2) + sqrt(b^2*d + (b*x + a)*b*e - a*b*e)
))/sqrt(b) + 1/12*((3*(b*x + a)*(2*(B*b^5*d*abs(b)*e^6 - B*a*b^4*
abs(b)*e^7)*(b*x + a)/(b^4*d*e^7 - a*b^3*e^8) - (7*B*b^6*d^2*abs(
b)*e^5 - 10*B*a*b^5*d*abs(b)*e^6 - 4*A*b^6*d*abs(b)*e^6 + 3*B*a^2
*b^4*abs(b)*e^7 + 4*A*a*b^5*abs(b)*e^7)/(b^4*d*e^7 - a*b^3*e^8))
- 20*(7*B*b^7*d^3*abs(b)*e^4 - 17*B*a*b^6*d^2*abs(b)*e^5 - 4*A*b^
7*d^2*abs(b)*e^5 + 13*B*a^2*b^5*d*abs(b)*e^6 + 8*A*a*b^6*d*abs(b)
*e^6 - 3*B*a^3*b^4*abs(b)*e^7 - 4*A*a^2*b^5*abs(b)*e^7)/(b^4*d*e^
7 - a*b^3*e^8))*(b*x + a) - 15*(7*B*b^8*d^4*abs(b)*e^3 - 24*B*a*b
^7*d^3*abs(b)*e^4 - 4*A*b^8*d^3*abs(b)*e^4 + 30*B*a^2*b^6*d^2*abs
(b)*e^5 + 12*A*a*b^7*d^2*abs(b)*e^5 - 16*B*a^3*b^5*d*abs(b)*e^6 -
 12*A*a^2*b^6*d*abs(b)*e^6 + 3*B*a^4*b^4*abs(b)*e^7 + 4*A*a^3*b^5
*abs(b)*e^7)/(b^4*d*e^7 - a*b^3*e^8))*sqrt(b*x + a)/(b^2*d + (b*x
 + a)*b*e - a*b*e)^(3/2)
```

3.2212 $\int \frac{(a+bx)^{5/2}(A+Bx)}{(d+ex)^{7/2}} dx$

Optimal. Leaf size=256

$$-\frac{b^{3/2}(-5aBe-2Abe+7bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{e^{9/2}}+\frac{b^2\sqrt{a+bx}\sqrt{d+ex}(-5aBe-2Abe+7bBd)}{e^4(bd-ae)}-\frac{2b(a+bx)^{3/2}(-5aBe-2Abe+7bBd)}{3e^3\sqrt{d+ex}(bd-ae)}-\frac{2(a+bx)^{5/2}(-5aBe-2Abe+7bBd)}{15e^2(d+ex)^{3/2}(bd-ae)}-\frac{2(a+bx)^{7/2}(Bd-Ae)}{5e(d+ex)^{5/2}(bd-ae)}$$

```
[Out] (-2*(B*d - A*e)*(a + b*x)^(7/2))/(5*e*(b*d - a*e)*(d + e*x)^(5/2)
) - (2*(7*b*B*d - 2*A*b*e - 5*a*B*e)*(a + b*x)^(5/2))/(15*e^2*(b*
d - a*e)*(d + e*x)^(3/2)) - (2*b*(7*b*B*d - 2*A*b*e - 5*a*B*e)*(a
 + b*x)^(3/2))/(3*e^3*(b*d - a*e)*Sqrt[d + e*x]) + (b^2*(7*b*B*d
- 2*A*b*e - 5*a*B*e)*Sqrt[a + b*x]*Sqrt[d + e*x])/(e^4*(b*d - a*e
)) - (b^(3/2)*(7*b*B*d - 2*A*b*e - 5*a*B*e)*ArcTanh[(Sqrt[e]*Sqrt
[a + b*x])/(Sqrt[b]*Sqrt[d + e*x])])/e^(9/2)
```

Rubi [A] time = 0.490669, antiderivative size = 256, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$-\frac{b^{3/2}(-5aBe-2Abe+7bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{e^{9/2}}+\frac{b^2\sqrt{a+bx}\sqrt{d+ex}(-5aBe-2Abe+7bBd)}{e^4(bd-ae)}-\frac{2b(a+bx)^{3/2}(-5aBe-2Abe+7bBd)}{3e^3\sqrt{d+ex}(bd-ae)}-\frac{2(a+bx)^{5/2}(-5aBe-2Abe+7bBd)}{15e^2(d+ex)^{3/2}(bd-ae)}-\frac{2(a+bx)^{7/2}(Bd-Ae)}{5e(d+ex)^{5/2}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(5/2)*(A + B*x))/(d + e*x)^(7/2),x]
```

```
[Out] (-2*(B*d - A*e)*(a + b*x)^(7/2))/(5*e*(b*d - a*e)*(d + e*x)^(5/2)
) - (2*(7*b*B*d - 2*A*b*e - 5*a*B*e)*(a + b*x)^(5/2))/(15*e^2*(b*
d - a*e)*(d + e*x)^(3/2)) - (2*b*(7*b*B*d - 2*A*b*e - 5*a*B*e)*(a
 + b*x)^(3/2))/(3*e^3*(b*d - a*e)*Sqrt[d + e*x]) + (b^2*(7*b*B*d
- 2*A*b*e - 5*a*B*e)*Sqrt[a + b*x]*Sqrt[d + e*x])/(e^4*(b*d - a*e
)) - (b^(3/2)*(7*b*B*d - 2*A*b*e - 5*a*B*e)*ArcTanh[(Sqrt[e]*Sqrt
[a + b*x])/(Sqrt[b]*Sqrt[d + e*x])])/e^(9/2)
```

Rubi in Sympy [A] time = 46.2664, size = 246, normalized size = 0.96

$$\frac{2b^{\frac{3}{2}}\left(Abe+\frac{B(5ae-7bd)}{2}\right)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{e}\sqrt{a+bx}}\right)}{e^{\frac{9}{2}}}+\frac{2b^2\sqrt{a+bx}\sqrt{d+ex}\left(Abe+\frac{B(5ae-7bd)}{2}\right)}{e^4(ae-bd)}-\frac{2b(a+bx)^{\frac{3}{2}}(2Abe+5Bae-7Bbd)}{3e^3\sqrt{d+ex}(ae-bd)}-\frac{2(a+bx)^{\frac{7}{2}}(Ae-Bd)}{5e(d+ex)^{\frac{5}{2}}(ae-bd)}-\frac{4(a+bx)^{\frac{5}{2}}\left(Abe+\frac{B(5ae-7bd)}{2}\right)}{15e^2(d+ex)^{\frac{3}{2}}(ae-bd)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(B*x+A)/(e*x+d)**(7/2),x)
```

```
[Out] 2*b**(3/2)*(A*b*e + B*(5*a*e - 7*b*d)/2)*atanh(sqrt(b)*sqrt(d + e
*x)/(sqrt(e)*sqrt(a + b*x)))/e**(9/2) + 2*b**2*sqrt(a + b*x)*sqrt
(d + e*x)*(A*b*e + B*(5*a*e - 7*b*d)/2)/(e**4*(a*e - b*d)) - 2*b*
(a + b*x)**(3/2)*(2*A*b*e + 5*B*a*e - 7*B*b*d)/(3*e**3*sqrt(d + e
```

```
*x)*(a*e - b*d)) - 2*(a + b*x)**(7/2)*(A*e - B*d)/(5*e*(d + e*x)*
*(5/2)*(a*e - b*d)) - 4*(a + b*x)**(5/2)*(A*b*e + B*(5*a*e - 7*b*
d)/2)/(15*e**2*(d + e*x)**(3/2)*(a*e - b*d))
```

Mathematica [A] time = 0.510478, size = 190, normalized size = 0.74

$$\frac{b^{3/2}(5aBe + 2Abe - 7bBd)\log\left(2\sqrt{b}\sqrt{e}\sqrt{a + bx}\sqrt{d + ex} + ae + bd + 2bex\right)}{2e^{9/2}} + \frac{\sqrt{a + bx}\left(2b(d + ex)^2(-35aBe - 23Abe + 58bBd) - 2(d + ex)(bd - ae)(-5aBe - 11Abe + 16bBd) + 6(bd - ae)^2(Bd - Ae) + \right.}{15e^4(d + ex)^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(5/2)*(A + B*x))/(d + e*x)^(7/2),x]
```

```
[Out] (Sqrt[a + b*x]*(6*(b*d - a*e)^2*(B*d - A*e) - 2*(b*d - a*e)*(16*b
*B*d - 11*A*b*e - 5*a*B*e)*(d + e*x) + 2*b*(58*b*B*d - 23*A*b*e -
 35*a*B*e)*(d + e*x)^2 + 15*b^2*B*(d + e*x)^3))/(15*e^4*(d + e*x)
^(5/2)) + (b^(3/2)*(-7*b*B*d + 2*A*b*e + 5*a*B*e)*Log[b*d + a*e +
 2*b*e*x + 2*Sqrt[b]*Sqrt[e]*Sqrt[a + b*x]*Sqrt[d + e*x]])/(2*e^(
9/2))
```

Maple [B] time = 0.037, size = 1092, normalized size = 4.3

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(B*x+A)/(e*x+d)^(7/2),x)
```

```
[Out] 1/30*(-105*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2
)+a*e+b*d)/(b*e)^(1/2))*x^3*b^3*d*e^3-315*B*ln(1/2*(2*b*x*e+2*((b
*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x^2*b^3*d^
2*e^2-92*A*x^2*b^2*e^3*(b*e)^(1/2)*((b*x+a)*(e*x+d))^(1/2)-315*B*
ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b
*e)^(1/2))*x*b^3*d^3*e+75*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(
1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a*b^2*d^3*e-20*B*x*a^2*e^3
*(b*e)^(1/2)*((b*x+a)*(e*x+d))^(1/2)-8*B*a^2*d*e^2*(b*e)^(1/2)*((
b*x+a)*(e*x+d))^(1/2)+210*B*b^2*d^3*(b*e)^(1/2)*((b*x+a)*(e*x+d))
^(1/2)+30*A*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)
+a*e+b*d)/(b*e)^(1/2))*x^3*b^3*e^4+75*B*ln(1/2*(2*b*x*e+2*((b*x+a
)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x^3*a*b^2*e^4+
225*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b
*d)/(b*e)^(1/2))*x^2*a*b^2*d*e^3+225*B*ln(1/2*(2*b*x*e+2*((b*x+a)
*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x*a*b^2*d^2*e^2
-140*B*x^2*a*b*e^3*(b*e)^(1/2)*((b*x+a)*(e*x+d))^(1/2)+322*B*x^2*
b^2*d*e^2*(b*e)^(1/2)*((b*x+a)*(e*x+d))^(1/2)-44*A*x*a*b*e^3*(b*e
)^(1/2)*((b*x+a)*(e*x+d))^(1/2)+490*B*x*b^2*d^2*e*(b*e)^(1/2)*((b
*x+a)*(e*x+d))^(1/2)-80*B*a*b*d^2*e*(b*e)^(1/2)*((b*x+a)*(e*x+d))
^(1/2)-196*B*x*a*b*d*e^2*(b*e)^(1/2)*((b*x+a)*(e*x+d))^(1/2)-105*
B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/
(b*e)^(1/2))*b^3*d^4-12*A*a^2*e^3*(b*e)^(1/2)*((b*x+a)*(e*x+d))^(
1/2)-60*A*b^2*d^2*e*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+90*A*ln(1
/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^
(1/2))*x*b^3*d^2*e^2+30*B*x^3*b^2*e^3*((b*x+a)*(e*x+d))^(1/2)*(b*
e)^(1/2)+90*A*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/
2)+a*e+b*d)/(b*e)^(1/2))*x^2*b^3*d*e^3-140*A*x*b^2*d*e^2*((b*x+a)
*(e*x+d))^(1/2)*(b*e)^(1/2)-20*A*a*b*d*e^2*((b*x+a)*(e*x+d))^(1/2
)*(b*e)^(1/2)+30*A*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e
)^(1/2)+a*e+b*d)/(b*e)^(1/2))*b^3*d^3*e)*(b*x+a)^(1/2)/((b*x+a)*(
e*x+d))^(1/2)/(b*e)^(1/2)/(e*x+d)^(5/2)/e^4
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(5/2)/(e*x + d)^(7/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 1.31493, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(5/2)/(e*x + d)^(7/2),x, algorithm="fricas")
```

```
[Out] [-1/60*(15*(7*B*b^2*d^4 - (5*B*a*b + 2*A*b^2)*d^3*e + (7*B*b^2*d*
e^3 - (5*B*a*b + 2*A*b^2)*e^4)*x^3 + 3*(7*B*b^2*d^2*e^2 - (5*B*a*
b + 2*A*b^2)*d*e^3)*x^2 + 3*(7*B*b^2*d^3*e - (5*B*a*b + 2*A*b^2)*
d^2*e^2)*x)*sqrt(b/e)*log(8*b^2*e^2*x^2 + b^2*d^2 + 6*a*b*d*e + a
^2*e^2 + 4*(2*b*e^2*x + b*d*e + a*e^2)*sqrt(b*x + a)*sqrt(e*x + d
)*sqrt(b/e) + 8*(b^2*d*e + a*b*e^2)*x) - 4*(15*B*b^2*e^3*x^3 + 10
5*B*b^2*d^3 - 6*A*a^2*e^3 - 10*(4*B*a*b + 3*A*b^2)*d^2*e - 2*(2*B
*a^2 + 5*A*a*b)*d*e^2 + (161*B*b^2*d*e^2 - 2*(35*B*a*b + 23*A*b^2
)*e^3)*x^2 + (245*B*b^2*d^2*e - 14*(7*B*a*b + 5*A*b^2)*d*e^2 - 2*
(5*B*a^2 + 11*A*a*b)*e^3)*x)*sqrt(b*x + a)*sqrt(e*x + d))/(e^7*x^
3 + 3*d*e^6*x^2 + 3*d^2*e^5*x + d^3*e^4), -1/30*(15*(7*B*b^2*d^4
- (5*B*a*b + 2*A*b^2)*d^3*e + (7*B*b^2*d*e^3 - (5*B*a*b + 2*A*b^2
)*e^4)*x^3 + 3*(7*B*b^2*d^2*e^2 - (5*B*a*b + 2*A*b^2)*d*e^3)*x^2
+ 3*(7*B*b^2*d^3*e - (5*B*a*b + 2*A*b^2)*d^2*e^2)*x)*sqrt(-b/e)*a
rctan(1/2*(2*b*e*x + b*d + a*e)/(sqrt(b*x + a)*sqrt(e*x + d)*e*sq
rt(-b/e))) - 2*(15*B*b^2*e^3*x^3 + 105*B*b^2*d^3 - 6*A*a^2*e^3 -
10*(4*B*a*b + 3*A*b^2)*d^2*e - 2*(2*B*a^2 + 5*A*a*b)*d*e^2 + (161
*B*b^2*d*e^2 - 2*(35*B*a*b + 23*A*b^2)*e^3)*x^2 + (245*B*b^2*d^2*
e - 14*(7*B*a*b + 5*A*b^2)*d*e^2 - 2*(5*B*a^2 + 11*A*a*b)*e^3)*x)
*sqrt(b*x + a)*sqrt(e*x + d))/(e^7*x^3 + 3*d*e^6*x^2 + 3*d^2*e^5*
x + d^3*e^4)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(B*x+A)/(e*x+d)**(7/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.307483, size = 902, normalized size = 3.52

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(5/2)/(e*x + d)^(7/2),x, algorithm="giac")
```

```
[Out] (7*B*b^2*d*abs(b) - 5*B*a*b*abs(b)*e - 2*A*b^2*abs(b)*e)*e^(-9/2)
*ln(abs(-sqrt(b*x + a)*sqrt(b)*e^(1/2) + sqrt(b^2*d + (b*x + a)*b
*e - a*b*e)))/sqrt(b) + 1/15*(((b*x + a)*(15*(B*b^9*d^2*abs(b)*e^
6 - 2*B*a*b^8*d*abs(b)*e^7 + B*a^2*b^7*abs(b)*e^8)*(b*x + a)/(b^6
*d^2*e^7 - 2*a*b^5*d*e^8 + a^2*b^4*e^9) + 23*(7*B*b^10*d^3*abs(b)
*e^5 - 19*B*a*b^9*d^2*abs(b)*e^6 - 2*A*b^10*d^2*abs(b)*e^6 + 17*B
*a^2*b^8*d*abs(b)*e^7 + 4*A*a*b^9*d*abs(b)*e^7 - 5*B*a^3*b^7*abs(
b)*e^8 - 2*A*a^2*b^8*abs(b)*e^8)/(b^6*d^2*e^7 - 2*a*b^5*d*e^8 + a
^2*b^4*e^9)) + 35*(7*B*b^11*d^4*abs(b)*e^4 - 26*B*a*b^10*d^3*abs(
b)*e^5 - 2*A*b^11*d^3*abs(b)*e^5 + 36*B*a^2*b^9*d^2*abs(b)*e^6 +
6*A*a*b^10*d^2*abs(b)*e^6 - 22*B*a^3*b^8*d*abs(b)*e^7 - 6*A*a^2*b
^9*d*abs(b)*e^7 + 5*B*a^4*b^7*abs(b)*e^8 + 2*A*a^3*b^8*abs(b)*e^8
)/(b^6*d^2*e^7 - 2*a*b^5*d*e^8 + a^2*b^4*e^9))*(b*x + a) + 15*(7*
B*b^12*d^5*abs(b)*e^3 - 33*B*a*b^11*d^4*abs(b)*e^4 - 2*A*b^12*d^4
*abs(b)*e^4 + 62*B*a^2*b^10*d^3*abs(b)*e^5 + 8*A*a*b^11*d^3*abs(b
)*e^5 - 58*B*a^3*b^9*d^2*abs(b)*e^6 - 12*A*a^2*b^10*d^2*abs(b)*e^
6 + 27*B*a^4*b^8*d*abs(b)*e^7 + 8*A*a^3*b^9*d*abs(b)*e^7 - 5*B*a^
5*b^7*abs(b)*e^8 - 2*A*a^4*b^8*abs(b)*e^8)/(b^6*d^2*e^7 - 2*a*b^5
*d*e^8 + a^2*b^4*e^9))*sqrt(b*x + a)/(b^2*d + (b*x + a)*b*e - a*b
*e)^(5/2)
```

3.2213 $\int \frac{(a+bx)^{5/2}(A+Bx)}{(d+ex)^{9/2}}\,dx$

Optimal. Leaf size=167

$$-\frac{2(a+bx)^{7/2}(Bd-Ae)}{7e(d+ex)^{7/2}(bd-ae)}+\frac{2b^{5/2}B\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{e^{9/2}}-\frac{2b^2B\sqrt{a+bx}}{e^4\sqrt{d+ex}}-\frac{2bB(a+bx)^{3/2}}{3e^3(d+ex)^{3/2}}-\frac{2B(a+bx)^{5/2}}{5e^2(d+ex)^{5/2}}$$

```
[Out] (-2*(B*d - A*e)*(a + b*x)^(7/2))/(7*e*(b*d - a*e)*(d + e*x)^(7/2)
) - (2*B*(a + b*x)^(5/2))/(5*e^2*(d + e*x)^(5/2)) - (2*b*B*(a + b
*x)^(3/2))/(3*e^3*(d + e*x)^(3/2)) - (2*b^2*B*Sqrt[a + b*x])/(e^4
*Sqrt[d + e*x]) + (2*b^(5/2)*B*ArcTanh[(Sqrt[e]*Sqrt[a + b*x])/(S
qrt[b]*Sqrt[d + e*x])])/e^(9/2)
```

Rubi [A] time = 0.266501, antiderivative size = 167, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$-\frac{2(a+bx)^{7/2}(Bd-Ae)}{7e(d+ex)^{7/2}(bd-ae)}+\frac{2b^{5/2}B\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{e^{9/2}}-\frac{2b^2B\sqrt{a+bx}}{e^4\sqrt{d+ex}}-\frac{2bB(a+bx)^{3/2}}{3e^3(d+ex)^{3/2}}-\frac{2B(a+bx)^{5/2}}{5e^2(d+ex)^{5/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(5/2)*(A + B*x))/(d + e*x)^(9/2),x]
```

```
[Out] (-2*(B*d - A*e)*(a + b*x)^(7/2))/(7*e*(b*d - a*e)*(d + e*x)^(7/2)
) - (2*B*(a + b*x)^(5/2))/(5*e^2*(d + e*x)^(5/2)) - (2*b*B*(a + b
*x)^(3/2))/(3*e^3*(d + e*x)^(3/2)) - (2*b^2*B*Sqrt[a + b*x])/(e^4
*Sqrt[d + e*x]) + (2*b^(5/2)*B*ArcTanh[(Sqrt[e]*Sqrt[a + b*x])/(S
qrt[b]*Sqrt[d + e*x])])/e^(9/2)
```

Rubi in Sympy [A] time = 27.841, size = 156, normalized size = 0.93

$$\frac{2Bb^{\frac{5}{2}}\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{e}\sqrt{a+bx}}\right)}{e^{\frac{9}{2}}}-\frac{2Bb^2\sqrt{a+bx}}{e^4\sqrt{d+ex}}-\frac{2Bb\,(a+bx)^{\frac{3}{2}}}{3e^3\,(d+ex)^{\frac{3}{2}}}-\frac{2B\,(a+bx)^{\frac{5}{2}}}{5e^2\,(d+ex)^{\frac{5}{2}}}-\frac{2\,(a+bx)^{\frac{7}{2}}\,(Ae-Bd)}{7e\,(d+ex)^{\frac{7}{2}}\,(ae-bd)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(B*x+A)/(e*x+d)**(9/2),x)
```

```
[Out] 2*B*b**(5/2)*atanh(sqrt(b)*sqrt(d + e*x)/(sqrt(e)*sqrt(a + b*x)))
/e**(9/2) - 2*B*b**2*sqrt(a + b*x)/(e**4*sqrt(d + e*x)) - 2*B*b*(
a + b*x)**(3/2)/(3*e**3*(d + e*x)**(3/2)) - 2*B*(a + b*x)**(5/2)/
(5*e**2*(d + e*x)**(5/2)) - 2*(a + b*x)**(7/2)*(A*e - B*d)/(7*e*(
d + e*x)**(7/2)*(a*e - b*d))
```

Mathematica [A] time = 0.643495, size = 196, normalized size = 1.17

$$\frac{2\sqrt{a+bx}\left(-\frac{b^2(d+ex)^3(161aBe+15Abe-176bBd)}{ae-bd}+b(d+ex)^2(-77aBe-45Abe+122bBd)-3(d+ex)(ae-bd)(7aBe+15Abe-2\right.}{105e^4(d+ex)^{7/2}}$$

$$+\frac{b^{5/2}B\log\left(2\sqrt{b}\sqrt{e}\sqrt{a+bx}\sqrt{d+ex}+ae+bd+2bex\right)}{e^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(5/2)*(A + B*x))/(d + e*x)^(9/2),x]
```

```
[Out] (2*Sqrt[a + b*x]*(15*(b*d - a*e)^2*(B*d - A*e) - 3*(-(b*d) + a*e)
*(-22*b*B*d + 15*A*b*e + 7*a*B*e)*(d + e*x) + b*(122*b*B*d - 45*A
*b*e - 77*a*B*e)*(d + e*x)^2 - (b^2*(-176*b*B*d + 15*A*b*e + 161*
a*B*e)*(d + e*x)^3)/(-(b*d) + a*e)))/(105*e^4*(d + e*x)^(7/2)) +
(b^(5/2)*B*Log[b*d + a*e + 2*b*e*x + 2*Sqrt[b]*Sqrt[e]*Sqrt[a + b
*x]*Sqrt[d + e*x]])/e^(9/2)
```

Maple [B] time = 0.04, size = 1089, normalized size = 6.5

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(B*x+A)/(e*x+d)^(9/2),x)
```

```
[Out] -1/105*(b*x+a)^(1/2)*(30*A*x^3*b^3*e^4*((b*x+a)*(e*x+d))^(1/2)*(b
*e)^(1/2)+568*B*x^2*a*b^2*d*e^3*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/
2)+322*B*x^3*a*b^2*e^4*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)-352*B*
x^3*b^3*d*e^3*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+90*A*x^2*a*b^2*
e^4*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+154*B*x^2*a^2*b*e^4*((b*x
+a)*(e*x+d))^(1/2)*(b*e)^(1/2)-812*B*x^2*b^3*d^2*e^2*((b*x+a)*(e*
x+d))^(1/2)*(b*e)^(1/2)+90*A*x*a^2*b*e^4*((b*x+a)*(e*x+d))^(1/2)*
(b*e)^(1/2)-700*B*x*b^3*d^3*e*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)
+28*B*a^2*b*d^2*e^2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+140*B*a*b
^2*d^3*e*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)-420*B*ln(1/2*(2*b*x*
e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x^3
*a*b^3*d*e^4-630*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e
)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x^2*a*b^3*d^2*e^3-420*B*ln(1/2*(2*b
*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*
x*a*b^3*d^3*e^2+30*A*a^3*e^4*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+
105*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b
*d)/(b*e)^(1/2))*b^4*d^5+42*B*x*a^3*e^4*((b*x+a)*(e*x+d))^(1/2)*(
b*e)^(1/2)+12*B*a^3*d*e^3*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)-105
*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)
/(b*e)^(1/2))*x^4*a*b^3*e^5+105*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x
+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x^4*b^4*d*e^4+420*B*
ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b
*e)^(1/2))*x^3*b^4*d^2*e^3+630*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+
d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x^2*b^4*d^3*e^2+420*B
*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(
b*e)^(1/2))*x*b^4*d^4*e-105*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))
^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a*b^3*d^4*e-210*B*b^3*d^
4*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+92*B*x*a^2*b*d*e^3*((b*x+a)
*(e*x+d))^(1/2)*(b*e)^(1/2)+476*B*x*a*b^2*d^2*e^2*((b*x+a)*(e*x+d
))^(1/2)*(b*e)^(1/2))/((b*x+a)*(e*x+d))^(1/2)/(a*e-b*d)/(b*e)^(1/
2)/(e*x+d)^(7/2)/e^4
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(5/2)/(e*x + d)^(9/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 1.74188, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(5/2)/(e*x + d)^(9/2),x, algorithm="fricas")
```

```
[Out] [1/210*(105*(B*b^3*d^5 - B*a*b^2*d^4*e + (B*b^3*d*e^4 - B*a*b^2*e
^5)*x^4 + 4*(B*b^3*d^2*e^3 - B*a*b^2*d*e^4)*x^3 + 6*(B*b^3*d^3*e^
2 - B*a*b^2*d^2*e^3)*x^2 + 4*(B*b^3*d^4*e - B*a*b^2*d^3*e^2)*x)*s
qrt(b/e)*log(8*b^2*e^2*x^2 + b^2*d^2 + 6*a*b*d*e + a^2*e^2 + 4*(2
*b*e^2*x + b*d*e + a*e^2)*sqrt(b*x + a)*sqrt(e*x + d)*sqrt(b/e) +
 8*(b^2*d*e + a*b*e^2)*x) - 4*(105*B*b^3*d^4 - 70*B*a*b^2*d^3*e -
 14*B*a^2*b*d^2*e^2 - 6*B*a^3*d*e^3 - 15*A*a^3*e^4 + (176*B*b^3*d
*e^3 - (161*B*a*b^2 + 15*A*b^3)*e^4)*x^3 + (406*B*b^3*d^2*e^2 - 2
84*B*a*b^2*d*e^3 - (77*B*a^2*b + 45*A*a*b^2)*e^4)*x^2 + (350*B*b^
3*d^3*e - 238*B*a*b^2*d^2*e^2 - 46*B*a^2*b*d*e^3 - 3*(7*B*a^3 + 1
5*A*a^2*b)*e^4)*x)*sqrt(b*x + a)*sqrt(e*x + d))/(b*d^5*e^4 - a*d^
4*e^5 + (b*d*e^8 - a*e^9)*x^4 + 4*(b*d^2*e^7 - a*d*e^8)*x^3 + 6*(
b*d^3*e^6 - a*d^2*e^7)*x^2 + 4*(b*d^4*e^5 - a*d^3*e^6)*x), 1/105*
(105*(B*b^3*d^5 - B*a*b^2*d^4*e + (B*b^3*d*e^4 - B*a*b^2*e^5)*x^4
 + 4*(B*b^3*d^2*e^3 - B*a*b^2*d*e^4)*x^3 + 6*(B*b^3*d^3*e^2 - B*a
*b^2*d^2*e^3)*x^2 + 4*(B*b^3*d^4*e - B*a*b^2*d^3*e^2)*x)*sqrt(-b/
e)*arctan(1/2*(2*b*e*x + b*d + a*e)/(sqrt(b*x + a)*sqrt(e*x + d)*
e*sqrt(-b/e))) - 2*(105*B*b^3*d^4 - 70*B*a*b^2*d^3*e - 14*B*a^2*b
*d^2*e^2 - 6*B*a^3*d*e^3 - 15*A*a^3*e^4 + (176*B*b^3*d*e^3 - (161
*B*a*b^2 + 15*A*b^3)*e^4)*x^3 + (406*B*b^3*d^2*e^2 - 284*B*a*b^2*
d*e^3 - (77*B*a^2*b + 45*A*a*b^2)*e^4)*x^2 + (350*B*b^3*d^3*e - 2
38*B*a*b^2*d^2*e^2 - 46*B*a^2*b*d*e^3 - 3*(7*B*a^3 + 15*A*a^2*b)*
e^4)*x)*sqrt(b*x + a)*sqrt(e*x + d))/(b*d^5*e^4 - a*d^4*e^5 + (b*
d*e^8 - a*e^9)*x^4 + 4*(b*d^2*e^7 - a*d*e^8)*x^3 + 6*(b*d^3*e^6 -
 a*d^2*e^7)*x^2 + 4*(b*d^4*e^5 - a*d^3*e^6)*x)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**(5/2)*(B*x+A)/(e*x+d)**(9/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.3382, size = 946, normalized size = 5.66

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(5/2)/(e*x + d)^(9/2),x, algorithm="giac")
```

```
[Out] 1/768*B*sqrt(b)*abs(b)*e^(1/2)*ln(abs(-sqrt(b*x + a)*sqrt(b)*e^(1
/2) + sqrt(b^2*d + (b*x + a)*b*e - a*b*e)))/(b^10*d*e^6 - a*b^9*e
^7) + 1/80640*(((b*x + a)*((176*B*b^10*d^3*abs(b)*e^6 - 513*B*a*b
^9*d^2*abs(b)*e^7 - 15*A*b^10*d^2*abs(b)*e^7 + 498*B*a^2*b^8*d*ab
s(b)*e^8 + 30*A*a*b^9*d*abs(b)*e^8 - 161*B*a^3*b^7*abs(b)*e^9 - 1
5*A*a^2*b^8*abs(b)*e^9)*(b*x + a)/(b^16*d^4*e^8 - 4*a*b^15*d^3*e^
9 + 6*a^2*b^14*d^2*e^10 - 4*a^3*b^13*d*e^11 + a^4*b^12*e^12) + 40
6*(B*b^11*d^4*abs(b)*e^5 - 4*B*a*b^10*d^3*abs(b)*e^6 + 6*B*a^2*b^
9*d^2*abs(b)*e^7 - 4*B*a^3*b^8*d*abs(b)*e^8 + B*a^4*b^7*abs(b)*e^
9)/(b^16*d^4*e^8 - 4*a*b^15*d^3*e^9 + 6*a^2*b^14*d^2*e^10 - 4*a^3
*b^13*d*e^11 + a^4*b^12*e^12)) + 350*(B*b^12*d^5*abs(b)*e^4 - 5*B
*a*b^11*d^4*abs(b)*e^5 + 10*B*a^2*b^10*d^3*abs(b)*e^6 - 10*B*a^3*
b^9*d^2*abs(b)*e^7 + 5*B*a^4*b^8*d*abs(b)*e^8 - B*a^5*b^7*abs(b)*
e^9)/(b^16*d^4*e^8 - 4*a*b^15*d^3*e^9 + 6*a^2*b^14*d^2*e^10 - 4*a
^3*b^13*d*e^11 + a^4*b^12*e^12))*(b*x + a) + 105*(B*b^13*d^6*abs(
b)*e^3 - 6*B*a*b^12*d^5*abs(b)*e^4 + 15*B*a^2*b^11*d^4*abs(b)*e^5
 - 20*B*a^3*b^10*d^3*abs(b)*e^6 + 15*B*a^4*b^9*d^2*abs(b)*e^7 - 6
*B*a^5*b^8*d*abs(b)*e^8 + B*a^6*b^7*abs(b)*e^9)/(b^16*d^4*e^8 - 4
```

```
*a*b^15*d^3*e^9 + 6*a^2*b^14*d^2*e^10 - 4*a^3*b^13*d*e^11 + a^4*b
^12*e^12))*sqrt(b*x + a)/(b^2*d + (b*x + a)*b*e - a*b*e)^(7/2)
```

3.2214 $\int \frac{(a+bx)^{5/2}(A+Bx)}{(d+ex)^{11/2}}\,dx$

Optimal. Leaf size=95

$$\frac{2(a+bx)^{7/2}(-9aBe+2Abe+7bBd)}{63e(d+ex)^{7/2}(bd-ae)^2}-\frac{2(a+bx)^{7/2}(Bd-Ae)}{9e(d+ex)^{9/2}(bd-ae)}$$

```
[Out] (-2*(B*d - A*e)*(a + b*x)^(7/2))/(9*e*(b*d - a*e)*(d + e*x)^(9/2)
) + (2*(7*b*B*d + 2*A*b*e - 9*a*B*e)*(a + b*x)^(7/2))/(63*e*(b*d
- a*e)^2*(d + e*x)^(7/2))
```

Rubi [A] time = 0.172819, antiderivative size = 95, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.083$

$$\frac{2(a+bx)^{7/2}(-9aBe+2Abe+7bBd)}{63e(d+ex)^{7/2}(bd-ae)^2}-\frac{2(a+bx)^{7/2}(Bd-Ae)}{9e(d+ex)^{9/2}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(5/2)*(A + B*x))/(d + e*x)^(11/2),x]
```

```
[Out] (-2*(B*d - A*e)*(a + b*x)^(7/2))/(9*e*(b*d - a*e)*(d + e*x)^(9/2)
) + (2*(7*b*B*d + 2*A*b*e - 9*a*B*e)*(a + b*x)^(7/2))/(63*e*(b*d
- a*e)^2*(d + e*x)^(7/2))
```

Rubi in Sympy [A] time = 12.3986, size = 85, normalized size = 0.89

$$-\frac{4\left(a+bx\right)^{\frac{7}{2}}\left(-Abe+\frac{B(9ae-7bd)}{2}\right)}{63e\left(d+ex\right)^{\frac{7}{2}}\left(ae-bd\right)^{2}}-\frac{2\left(a+bx\right)^{\frac{7}{2}}\left(Ae-Bd\right)}{9e\left(d+ex\right)^{\frac{9}{2}}\left(ae-bd\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(B*x+A)/(e*x+d)**(11/2),x)
```

```
[Out] -4*(a + b*x)**(7/2)*(-A*b*e + B*(9*a*e - 7*b*d)/2)/(63*e*(d + e*x
)**(7/2)*(a*e - b*d)**2) - 2*(a + b*x)**(7/2)*(A*e - B*d)/(9*e*(d
 + e*x)**(9/2)*(a*e - b*d))
```

Mathematica [A] time = 0.34326, size = 66, normalized size = 0.69

$$\frac{2(a+bx)^{7/2}(A(-7ae+9bd+2bex)+B(-2ad-9aex+7bdx))}{63(d+ex)^{9/2}(bd-ae)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(5/2)*(A + B*x))/(d + e*x)^(11/2),x]
```

```
[Out] (2*(a + b*x)^(7/2)*(B*(-2*a*d + 7*b*d*x - 9*a*e*x) + A*(9*b*d - 7
*a*e + 2*b*e*x)))/(63*(b*d - a*e)^2*(d + e*x)^(9/2))
```

Maple [A] time = 0.01, size = 74, normalized size = 0.8

$$-\frac{-4\,Abex+18\,Baex-14\,Bbdx+14\,Aae-18\,Abd+4\,Bad}{63\,a^2e^2-126\,bead+63\,b^2d^2}\left(bx+a\right)^{\frac{7}{2}}\left(ex+d\right)^{-\frac{9}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(B*x+A)/(e*x+d)^(11/2),x)
```

```
[Out] -2/63*(b*x+a)^(7/2)*(-2*A*b*e*x+9*B*a*e*x-7*B*b*d*x+7*A*a*e-9*A*b
*d+2*B*a*d)/(e*x+d)^(9/2)/(a^2*e^2-2*a*b*d*e+b^2*d^2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(5/2)/(e*x + d)^(11/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 2.4393, size = 528, normalized size = 5.56

$$-\frac{2\left(7\,Aa^4e-\left(7\,Bb^4d-\left(9\,Bab^3-2\,Ab^4\right)e\right)x^4-\left(\left(19\,Bab^3+9\,Ab^4\right)d-\left(27\,Ba^2b^2+Aab^3\right)e\right)x^3-3\left(\left(5\,Ba^2b^2+9\,Aab^3\right)d-\cdots\right.\right.}{63\left(b^2d^7-2\,abd^6e+a^2d^5e^2+(b^2d^2e^5-2\,abde^6+a^2e^7)x^5+5\,(b^2d^3e^4-2\,abd^2e^5+a^2de^6)x^4+10\,(b^2d^4e^3\cdots\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(5/2)/(e*x + d)^(11/2),x, algorithm="fricas")
```

```
[Out] -2/63*(7*A*a^4*e - (7*B*b^4*d - (9*B*a*b^3 - 2*A*b^4)*e)*x^4 - ((
19*B*a*b^3 + 9*A*b^4)*d - (27*B*a^2*b^2 + A*a*b^3)*e)*x^3 - 3*((5
*B*a^2*b^2 + 9*A*a*b^3)*d - (9*B*a^3*b + 5*A*a^2*b^2)*e)*x^2 + (2
*B*a^4 - 9*A*a^3*b)*d - ((B*a^3*b + 27*A*a^2*b^2)*d - (9*B*a^4 +
19*A*a^3*b)*e)*x)*sqrt(b*x + a)*sqrt(e*x + d)/(b^2*d^7 - 2*a*b*d^
6*e + a^2*d^5*e^2 + (b^2*d^2*e^5 - 2*a*b*d*e^6 + a^2*e^7)*x^5 + 5
*(b^2*d^3*e^4 - 2*a*b*d^2*e^5 + a^2*d*e^6)*x^4 + 10*(b^2*d^4*e^3
- 2*a*b*d^3*e^4 + a^2*d^2*e^5)*x^3 + 10*(b^2*d^5*e^2 - 2*a*b*d^4*
e^3 + a^2*d^3*e^4)*x^2 + 5*(b^2*d^6*e - 2*a*b*d^5*e^2 + a^2*d^4*e
^3)*x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(B*x+A)/(e*x+d)**(11/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.358746, size = 518, normalized size = 5.45

$$-\frac{(bx+a)^{\frac{7}{2}}\left(\frac{\left(7\,Bb^{12}d^3|b|e^4-23\,Bab^{11}d^2|b|e^5+2\,Ab^{12}d^2|b|e^5+25\,Ba^2b^{10}d|b|e^6-4\,Aab^{11}d|b|e^6-9\,Ba^3b^9|b|e^7+2\,Aa^2b^{10}|b|e^7\right)(bx+a)}{b^{20}d^5e^{10}-5\,ab^{19}d^4e^{11}+10\,a^2b^{18}d^3e^{12}-10\,a^3b^{17}d^2e^{13}+5\,a^4b^{16}de^{14}-a^5b^{15}e^{15}}-\frac{9\left(Bab^{12}d^3|b|\cdots\right.}{\cdots}\right.}{64512\,(b^2d+(bx+a)be-abe)\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(5/2)/(e*x + d)^(11/2),x, algorithm="giac")
```

```
[Out] -1/64512*(b*x + a)^(7/2)*((7*B*b^12*d^3*abs(b)*e^4 - 23*B*a*b^11*
d^2*abs(b)*e^5 + 2*A*b^12*d^2*abs(b)*e^5 + 25*B*a^2*b^10*d*abs(b)
*e^6 - 4*A*a*b^11*d*abs(b)*e^6 - 9*B*a^3*b^9*abs(b)*e^7 + 2*A*a^2
*b^10*abs(b)*e^7)*(b*x + a)/(b^20*d^5*e^10 - 5*a*b^19*d^4*e^11 +
10*a^2*b^18*d^3*e^12 - 10*a^3*b^17*d^2*e^13 + 5*a^4*b^16*d*e^14 -
 a^5*b^15*e^15) - 9*(B*a*b^12*d^3*abs(b)*e^4 - A*b^13*d^3*abs(b)*
e^4 - 3*B*a^2*b^11*d^2*abs(b)*e^5 + 3*A*a*b^12*d^2*abs(b)*e^5 + 3
*B*a^3*b^10*d*abs(b)*e^6 - 3*A*a^2*b^11*d*abs(b)*e^6 - B*a^4*b^9*
abs(b)*e^7 + A*a^3*b^10*abs(b)*e^7)/(b^20*d^5*e^10 - 5*a*b^19*d^4
*e^11 + 10*a^2*b^18*d^3*e^12 - 10*a^3*b^17*d^2*e^13 + 5*a^4*b^16*
d*e^14 - a^5*b^15*e^15))/(b^2*d + (b*x + a)*b*e - a*b*e)^(9/2)
```

3.2215 $\int \frac{(a+bx)^{5/2}(A+Bx)}{(d+ex)^{13/2}}\,dx$

Optimal. Leaf size=147

$$\frac{4b(a+bx)^{7/2}(-11aBe+4Abe+7bBd)}{693e(d+ex)^{7/2}(bd-ae)^3}+\frac{2(a+bx)^{7/2}(-11aBe+4Abe+7bBd)}{99e(d+ex)^{9/2}(bd-ae)^2}-\frac{2(a+bx)^{7/2}(Bd-Ae)}{11e(d+ex)^{11/2}(bd-ae)}$$

```
[Out] (-2*(B*d - A*e)*(a + b*x)^(7/2))/(11*e*(b*d - a*e)*(d + e*x)^(11/
2)) + (2*(7*b*B*d + 4*A*b*e - 11*a*B*e)*(a + b*x)^(7/2))/(99*e*(b
*d - a*e)^2*(d + e*x)^(9/2)) + (4*b*(7*b*B*d + 4*A*b*e - 11*a*B*e
)*(a + b*x)^(7/2))/(693*e*(b*d - a*e)^3*(d + e*x)^(7/2))
```

Rubi [A] time = 0.268184, antiderivative size = 147, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$\frac{4b(a+bx)^{7/2}(-11aBe+4Abe+7bBd)}{693e(d+ex)^{7/2}(bd-ae)^3}+\frac{2(a+bx)^{7/2}(-11aBe+4Abe+7bBd)}{99e(d+ex)^{9/2}(bd-ae)^2}-\frac{2(a+bx)^{7/2}(Bd-Ae)}{11e(d+ex)^{11/2}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(5/2)*(A + B*x))/(d + e*x)^(13/2),x]
```

```
[Out] (-2*(B*d - A*e)*(a + b*x)^(7/2))/(11*e*(b*d - a*e)*(d + e*x)^(11/
2)) + (2*(7*b*B*d + 4*A*b*e - 11*a*B*e)*(a + b*x)^(7/2))/(99*e*(b
*d - a*e)^2*(d + e*x)^(9/2)) + (4*b*(7*b*B*d + 4*A*b*e - 11*a*B*e
)*(a + b*x)^(7/2))/(693*e*(b*d - a*e)^3*(d + e*x)^(7/2))
```

Rubi in Sympy [A] time = 25.0861, size = 138, normalized size = 0.94

$$-\frac{4b\,(a+bx)^{\frac{7}{2}}\,(4Abe-11Bae+7Bbd)}{693e\,(d+ex)^{\frac{7}{2}}\,(ae-bd)^3}+\frac{2\,(a+bx)^{\frac{7}{2}}\,(4Abe-11Bae+7Bbd)}{99e\,(d+ex)^{\frac{9}{2}}\,(ae-bd)^2}-\frac{2\,(a+bx)^{\frac{7}{2}}\,(Ae-Bd)}{11e\,(d+ex)^{\frac{11}{2}}\,(ae-bd)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(B*x+A)/(e*x+d)**(13/2),x)
```

```
[Out] -4*b*(a + b*x)**(7/2)*(4*A*b*e - 11*B*a*e + 7*B*b*d)/(693*e*(d +
e*x)**(7/2)*(a*e - b*d)**3) + 2*(a + b*x)**(7/2)*(4*A*b*e - 11*B*
a*e + 7*B*b*d)/(99*e*(d + e*x)**(9/2)*(a*e - b*d)**2) - 2*(a + b*
x)**(7/2)*(A*e - B*d)/(11*e*(d + e*x)**(11/2)*(a*e - b*d))
```

Mathematica [A] time = 0.417297, size = 135, normalized size = 0.92

$$\frac{2(a+bx)^{7/2}\left(A\left(63a^2e^2-14abe(11d+2ex)+b^2\left(99d^2+44dex+8e^2x^2\right)\right)+B\left(7a^2e(2d+11ex)-2ab\left(11d^2+85dex+11e^2\right.\right.\right.}{693(d+ex)^{11/2}(bd-ae)^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(5/2)*(A + B*x))/(d + e*x)^(13/2),x]
```

```
[Out] (2*(a + b*x)^(7/2)*(A*(63*a^2*e^2 - 14*a*b*e*(11*d + 2*e*x) + b^2
*(99*d^2 + 44*d*e*x + 8*e^2*x^2)) + B*(7*b^2*d*x*(11*d + 2*e*x) +
 7*a^2*e*(2*d + 11*e*x) - 2*a*b*(11*d^2 + 85*d*e*x + 11*e^2*x^2))
))/(693*(b*d - a*e)^3*(d + e*x)^(11/2))
```

Maple [A] time = 0.011, size = 177, normalized size = 1.2

$$-\frac{16\,A b^{2} e^{2} x^{2}-44\,B a b e^{2} x^{2}+28\,B b^{2} d e x^{2}-56\,A a b e^{2} x+88\,A b^{2} d e x+154\,B a^{2} e^{2} x-340\,B a b d e x+154\,B b^{2} d^{2} x+126\,A a^{2} e^{2} -}{693\,a^{3} e^{3}-2079\,a^{2} b d e^{2}+2079\,a b^{2} d^{2} e-693\,b^{3} d^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(B*x+A)/(e*x+d)^(13/2),x)
```

```
[Out] -2/693*(b*x+a)^(7/2)*(8*A*b^2*e^2*x^2-22*B*a*b*e^2*x^2+14*B*b^2*d
*e*x^2-28*A*a*b*e^2*x+44*A*b^2*d*e*x+77*B*a^2*e^2*x-170*B*a*b*d*e
*x+77*B*b^2*d^2*x+63*A*a^2*e^2-154*A*a*b*d*e+99*A*b^2*d^2+14*B*a^
2*d*e-22*B*a*b*d^2)/(e*x+d)^(11/2)/(a^3*e^3-3*a^2*b*d*e^2+3*a*b^2
*d^2*e-b^3*d^3)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(5/2)/(e*x + d)^(13/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 5.90702, size = 936, normalized size = 6.37

$$\frac{2\left(63\,A a^{5} e^{2}+2\left(7\,B b^{5} d e-\left(11\,B a b^{4}-4\,A b^{5}\right) e^{2}\right) x^{5}+\left(77\,B b^{5} d^{2}-4\left(32\,B a b^{4}-11\,A b^{5}\right) d e+\left(11\,B a^{2} b^{3}-4\,A a b^{4}\right) e^{2}\right) x^{4}+(1}{693\left(b^{3} d^{9}-3\,a b^{2} d^{8} e+3\,a^{2} b d^{7} e^{2}-a^{3} d^{6} e^{3}+\left(b^{3} d^{3} e^{6}-3\,a b^{2} d^{2}\right.\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(5/2)/(e*x + d)^(13/2),x, algorithm="fricas")
```

```
[Out] 2/693*(63*A*a^5*e^2 + 2*(7*B*b^5*d*e - (11*B*a*b^4 - 4*A*b^5)*e^2
)*x^5 + (77*B*b^5*d^2 - 4*(32*B*a*b^4 - 11*A*b^5)*d*e + (11*B*a^2
*b^3 - 4*A*a*b^4)*e^2)*x^4 + (11*(19*B*a*b^4 + 9*A*b^5)*d^2 - 2*(
227*B*a^2*b^3 + 11*A*a*b^4)*d*e + 3*(55*B*a^3*b^2 + A*a^2*b^3)*e^
2)*x^3 - 11*(2*B*a^4*b - 9*A*a^3*b^2)*d^2 + 14*(B*a^5 - 11*A*a^4*
b)*d*e + (33*(5*B*a^2*b^3 + 9*A*a*b^4)*d^2 - 2*(227*B*a^3*b^2 + 1
65*A*a^2*b^3)*d*e + (209*B*a^4*b + 113*A*a^3*b^2)*e^2)*x^2 + (11*
(B*a^3*b^2 + 27*A*a^2*b^3)*d^2 - 2*(64*B*a^4*b + 209*A*a^3*b^2)*d
*e + 7*(11*B*a^5 + 23*A*a^4*b)*e^2)*x)*sqrt(b*x + a)*sqrt(e*x + d
)/(b^3*d^9 - 3*a*b^2*d^8*e + 3*a^2*b*d^7*e^2 - a^3*d^6*e^3 + (b^3
*d^3*e^6 - 3*a*b^2*d^2*e^7 + 3*a^2*b*d*e^8 - a^3*e^9)*x^6 + 6*(b^
3*d^4*e^5 - 3*a*b^2*d^3*e^6 + 3*a^2*b*d^2*e^7 - a^3*d*e^8)*x^5 +
15*(b^3*d^5*e^4 - 3*a*b^2*d^4*e^5 + 3*a^2*b*d^3*e^6 - a^3*d^2*e^7
)*x^4 + 20*(b^3*d^6*e^3 - 3*a*b^2*d^5*e^4 + 3*a^2*b*d^4*e^5 - a^3
*d^3*e^6)*x^3 + 15*(b^3*d^7*e^2 - 3*a*b^2*d^6*e^3 + 3*a^2*b*d^5*e
^4 - a^3*d^4*e^5)*x^2 + 6*(b^3*d^8*e - 3*a*b^2*d^7*e^2 + 3*a^2*b*
d^6*e^3 - a^3*d^5*e^4)*x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(B*x+A)/(e*x+d)**(13/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.441619, size = 887, normalized size = 6.03

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(5/2)/(e*x + d)^(13/2),x, algorithm="giac")
```

```
[Out] -1/2838528*((b*x + a)*(2*(7*B*b^14*d^3*abs(b)*e^6 - 25*B*a*b^13*d
^2*abs(b)*e^7 + 4*A*b^14*d^2*abs(b)*e^7 + 29*B*a^2*b^12*d*abs(b)*
e^8 - 8*A*a*b^13*d*abs(b)*e^8 - 11*B*a^3*b^11*abs(b)*e^9 + 4*A*a^
2*b^12*abs(b)*e^9)*(b*x + a)/(b^24*d^6*e^12 - 6*a*b^23*d^5*e^13 +
 15*a^2*b^22*d^4*e^14 - 20*a^3*b^21*d^3*e^15 + 15*a^4*b^20*d^2*e^
16 - 6*a^5*b^19*d*e^17 + a^6*b^18*e^18) + 11*(7*B*b^15*d^4*abs(b)
*e^5 - 32*B*a*b^14*d^3*abs(b)*e^6 + 4*A*b^15*d^3*abs(b)*e^6 + 54*
B*a^2*b^13*d^2*abs(b)*e^7 - 12*A*a*b^14*d^2*abs(b)*e^7 - 40*B*a^3
*b^12*d*abs(b)*e^8 + 12*A*a^2*b^13*d*abs(b)*e^8 + 11*B*a^4*b^11*a
bs(b)*e^9 - 4*A*a^3*b^12*abs(b)*e^9)/(b^24*d^6*e^12 - 6*a*b^23*d^
5*e^13 + 15*a^2*b^22*d^4*e^14 - 20*a^3*b^21*d^3*e^15 + 15*a^4*b^2
0*d^2*e^16 - 6*a^5*b^19*d*e^17 + a^6*b^18*e^18)) - 99*(B*a*b^15*d
^4*abs(b)*e^5 - A*b^16*d^4*abs(b)*e^5 - 4*B*a^2*b^14*d^3*abs(b)*e
^6 + 4*A*a*b^15*d^3*abs(b)*e^6 + 6*B*a^3*b^13*d^2*abs(b)*e^7 - 6*
A*a^2*b^14*d^2*abs(b)*e^7 - 4*B*a^4*b^12*d*abs(b)*e^8 + 4*A*a^3*b
^13*d*abs(b)*e^8 + B*a^5*b^11*abs(b)*e^9 - A*a^4*b^12*abs(b)*e^9)
/(b^24*d^6*e^12 - 6*a*b^23*d^5*e^13 + 15*a^2*b^22*d^4*e^14 - 20*a
^3*b^21*d^3*e^15 + 15*a^4*b^20*d^2*e^16 - 6*a^5*b^19*d*e^17 + a^6
*b^18*e^18))*(b*x + a)^(7/2)/(b^2*d + (b*x + a)*b*e - a*b*e)^(11/
2)
```

3.2216 $\int \frac{(a+bx)^{5/2}(A+Bx)}{(d+ex)^{15/2}}\,dx$

Optimal. Leaf size=201

$$\frac{16b^2(a+bx)^{7/2}(-13aBe+6Abe+7bBd)}{9009e(d+ex)^{7/2}(bd-ae)^4}+\frac{8b(a+bx)^{7/2}(-13aBe+6Abe+7bBd)}{1287e(d+ex)^{9/2}(bd-ae)^3}+\frac{2(a+bx)^{7/2}(-13aBe+6Abe+7bBd)}{143e(d+ex)^{11/2}(bd-ae)^2}-\frac{2(a+bx)^{7/2}(Bd-Ae)}{13e(d+ex)^{13/2}(bd-ae)}$$

```
[Out] (-2*(B*d - A*e)*(a + b*x)^(7/2))/(13*e*(b*d - a*e)*(d + e*x)^(13/
2)) + (2*(7*b*B*d + 6*A*b*e - 13*a*B*e)*(a + b*x)^(7/2))/(143*e*(
b*d - a*e)^2*(d + e*x)^(11/2)) + (8*b*(7*b*B*d + 6*A*b*e - 13*a*B
*e)*(a + b*x)^(7/2))/(1287*e*(b*d - a*e)^3*(d + e*x)^(9/2)) + (16
*b^2*(7*b*B*d + 6*A*b*e - 13*a*B*e)*(a + b*x)^(7/2))/(9009*e*(b*d
 - a*e)^4*(d + e*x)^(7/2))
```

Rubi [A] time = 0.364228, antiderivative size = 201, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$\frac{16b^2(a+bx)^{7/2}(-13aBe+6Abe+7bBd)}{9009e(d+ex)^{7/2}(bd-ae)^4}+\frac{8b(a+bx)^{7/2}(-13aBe+6Abe+7bBd)}{1287e(d+ex)^{9/2}(bd-ae)^3}+\frac{2(a+bx)^{7/2}(-13aBe+6Abe+7bBd)}{143e(d+ex)^{11/2}(bd-ae)^2}-\frac{2(a+bx)^{7/2}(Bd-Ae)}{13e(d+ex)^{13/2}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(5/2)*(A + B*x))/(d + e*x)^(15/2),x]
```

```
[Out] (-2*(B*d - A*e)*(a + b*x)^(7/2))/(13*e*(b*d - a*e)*(d + e*x)^(13/
2)) + (2*(7*b*B*d + 6*A*b*e - 13*a*B*e)*(a + b*x)^(7/2))/(143*e*(
b*d - a*e)^2*(d + e*x)^(11/2)) + (8*b*(7*b*B*d + 6*A*b*e - 13*a*B
*e)*(a + b*x)^(7/2))/(1287*e*(b*d - a*e)^3*(d + e*x)^(9/2)) + (16
*b^2*(7*b*B*d + 6*A*b*e - 13*a*B*e)*(a + b*x)^(7/2))/(9009*e*(b*d
 - a*e)^4*(d + e*x)^(7/2))
```

Rubi in Sympy [A] time = 36.1463, size = 192, normalized size = 0.96

$$\frac{16b^2\left(a+bx\right)^{\frac{7}{2}}\left(6Abe-13Bae+7Bbd\right)}{9009e\left(d+ex\right)^{\frac{7}{2}}\left(ae-bd\right)^4}-\frac{8b\left(a+bx\right)^{\frac{7}{2}}\left(6Abe-13Bae+7Bbd\right)}{1287e\left(d+ex\right)^{\frac{9}{2}}\left(ae-bd\right)^3}+\frac{2\left(a+bx\right)^{\frac{7}{2}}\left(6Abe-13Bae+7Bbd\right)}{143e\left(d+ex\right)^{\frac{11}{2}}\left(ae-bd\right)^2}-\frac{2\left(a+bx\right)^{\frac{7}{2}}\left(Ae-Bd\right)}{13e\left(d+ex\right)^{\frac{13}{2}}\left(ae-bd\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(B*x+A)/(e*x+d)**(15/2),x)
```

```
[Out] 16*b**2*(a + b*x)**(7/2)*(6*A*b*e - 13*B*a*e + 7*B*b*d)/(9009*e*(
d + e*x)**(7/2)*(a*e - b*d)**4) - 8*b*(a + b*x)**(7/2)*(6*A*b*e -
 13*B*a*e + 7*B*b*d)/(1287*e*(d + e*x)**(9/2)*(a*e - b*d)**3) + 2
*(a + b*x)**(7/2)*(6*A*b*e - 13*B*a*e + 7*B*b*d)/(143*e*(d + e*x)
**(11/2)*(a*e - b*d)**2) - 2*(a + b*x)**(7/2)*(A*e - B*d)/(13*e*(
d + e*x)**(13/2)*(a*e - b*d))
```

Mathematica [A] time = 0.62586, size = 255, normalized size = 1.27

$$\frac{2\sqrt{a+bx}\left(\frac{8b^5(d+ex)^6(-13aBe+6Abe+7bBd)}{(bd-ae)^4}+\frac{4b^4(d+ex)^5(-13aBe+6Abe+7bBd)}{(bd-ae)^3}+\frac{3b^3(d+ex)^4(-13aBe+6Abe+7bBd)}{(bd-ae)^2}-\frac{b^2(d+ex)^3(1469aBe+15Ab}{ae-bd}\right.}{9009e}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(5/2)*(A + B*x))/(d + e*x)^(15/2),x]
```

```
[Out] (2*Sqrt[a + b*x]*(693*(b*d - a*e)^2*(B*d - A*e) - 63*(-(b*d) + a*
e)*(-40*b*B*d + 27*A*b*e + 13*a*B*e)*(d + e*x) + 7*b*(458*b*B*d -
 159*A*b*e - 299*a*B*e)*(d + e*x)^2 - (b^2*(-1484*b*B*d + 15*A*b*
e + 1469*a*B*e)*(d + e*x)^3)/(-(b*d) + a*e) + (3*b^3*(7*b*B*d + 6
*A*b*e - 13*a*B*e)*(d + e*x)^4)/(b*d - a*e)^2 + (4*b^4*(7*b*B*d +
 6*A*b*e - 13*a*B*e)*(d + e*x)^5)/(b*d - a*e)^3 + (8*b^5*(7*b*B*d
 + 6*A*b*e - 13*a*B*e)*(d + e*x)^6)/(b*d - a*e)^4))/(9009*e^4*(d
+ e*x)^(13/2))
```

Maple [A] time = 0.013, size = 322, normalized size = 1.6

$$-\frac{-96\,Ab^3e^3x^3+208\,Bab^2e^3x^3-112\,Bb^3de^2x^3+336\,Aab^2e^3x^2-624\,Ab^3de^2x^2-728\,Ba^2be^3x^2+1744\,Bab^2de^2x^2-728\,Bb}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(B*x+A)/(e*x+d)^(15/2),x)
```

```
[Out] -2/9009*(b*x+a)^(7/2)*(-48*A*b^3*e^3*x^3+104*B*a*b^2*e^3*x^3-56*B
*b^3*d*e^2*x^3+168*A*a*b^2*e^3*x^2-312*A*b^3*d*e^2*x^2-364*B*a^2*
b*e^3*x^2+872*B*a*b^2*d*e^2*x^2-364*B*b^3*d^2*e*x^2-378*A*a^2*b*e
^3*x+1092*A*a*b^2*d*e^2*x-858*A*b^3*d^2*e*x+819*B*a^3*e^3*x-2807*
B*a^2*b*d*e^2*x+3133*B*a*b^2*d^2*e*x-1001*B*b^3*d^3*x+693*A*a^3*e
^3-2457*A*a^2*b*d*e^2+3003*A*a*b^2*d^2*e-1287*A*b^3*d^3+126*B*a^3
*d*e^2-364*B*a^2*b*d^2*e+286*B*a*b^2*d^3)/(e*x+d)^(13/2)/(a^4*e^4
-4*a^3*b*d*e^3+6*a^2*b^2*d^2*e^2-4*a*b^3*d^3*e+b^4*d^4)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/(e*x + d)^(15/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 14.6447, size = 1413, normalized size = 7.03

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/(e*x + d)^(15/2),x, algorithm="fricas")
```

```
[Out] -2/9009*(693*A*a^6*e^3 - 8*(7*B*b^6*d*e^2 - (13*B*a*b^5 - 6*A*b^6
)*e^3)*x^6 - 4*(91*B*b^6*d^2*e - 2*(88*B*a*b^5 - 39*A*b^6)*d*e^2
+ (13*B*a^2*b^4 - 6*A*a*b^5)*e^3)*x^5 - (1001*B*b^6*d^3 - 13*(157
*B*a*b^5 - 66*A*b^6)*d^2*e + (359*B*a^2*b^4 - 156*A*a*b^5)*d*e^2
- 3*(13*B*a^3*b^3 - 6*A*a^2*b^4)*e^3)*x^4 + 143*(2*B*a^4*b^2 - 9*
A*a^3*b^3)*d^3 - 91*(4*B*a^5*b - 33*A*a^4*b^2)*d^2*e + 63*(2*B*a^
6 - 39*A*a^5*b)*d*e^2 - (143*(19*B*a*b^5 + 9*A*b^6)*d^3 - 13*(611
*B*a^2*b^4 + 33*A*a*b^5)*d^2*e + (5735*B*a^3*b^3 + 117*A*a^2*b^4)
*d*e^2 - (1469*B*a^4*b^2 + 15*A*a^3*b^3)*e^3)*x^3 - (429*(5*B*a^2
*b^4 + 9*A*a*b^5)*d^3 - 13*(611*B*a^3*b^3 + 495*A*a^2*b^4)*d^2*e
```

```
+ (7171*B*a^4*b^2 + 4407*A*a^3*b^3)*d*e^2 - 7*(299*B*a^5*b + 159*
A*a^4*b^2)*e^3)*x^2 - (143*(B*a^3*b^3 + 27*A*a^2*b^4)*d^3 - 13*(1
57*B*a^4*b^2 + 627*A*a^3*b^3)*d^2*e + 7*(347*B*a^5*b + 897*A*a^4*
b^2)*d*e^2 - 63*(13*B*a^6 + 27*A*a^5*b)*e^3)*x)*sqrt(b*x + a)*sqr
t(e*x + d)/(b^4*d^11 - 4*a*b^3*d^10*e + 6*a^2*b^2*d^9*e^2 - 4*a^3
*b*d^8*e^3 + a^4*d^7*e^4 + (b^4*d^4*e^7 - 4*a*b^3*d^3*e^8 + 6*a^2
*b^2*d^2*e^9 - 4*a^3*b*d*e^10 + a^4*e^11)*x^7 + 7*(b^4*d^5*e^6 -
4*a*b^3*d^4*e^7 + 6*a^2*b^2*d^3*e^8 - 4*a^3*b*d^2*e^9 + a^4*d*e^1
0)*x^6 + 21*(b^4*d^6*e^5 - 4*a*b^3*d^5*e^6 + 6*a^2*b^2*d^4*e^7 -
4*a^3*b*d^3*e^8 + a^4*d^2*e^9)*x^5 + 35*(b^4*d^7*e^4 - 4*a*b^3*d^
6*e^5 + 6*a^2*b^2*d^5*e^6 - 4*a^3*b*d^4*e^7 + a^4*d^3*e^8)*x^4 +
35*(b^4*d^8*e^3 - 4*a*b^3*d^7*e^4 + 6*a^2*b^2*d^6*e^5 - 4*a^3*b*d
^5*e^6 + a^4*d^4*e^7)*x^3 + 21*(b^4*d^9*e^2 - 4*a*b^3*d^8*e^3 + 6
*a^2*b^2*d^7*e^4 - 4*a^3*b*d^6*e^5 + a^4*d^5*e^6)*x^2 + 7*(b^4*d^
10*e - 4*a*b^3*d^9*e^2 + 6*a^2*b^2*d^8*e^3 - 4*a^3*b*d^7*e^4 + a^
4*d^6*e^5)*x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(B*x+A)/(e*x+d)**(15/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.572231, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(5/2)/(e*x + d)^(15/2),x, algorithm="giac")
```

```
[Out] Done
```

3.2217 $\int \frac{(a+bx)^{5/2}(A+Bx)}{(d+ex)^{17/2}}\,dx$

Optimal. Leaf size=255

$$\frac{32b^3(a+bx)^{7/2}(-15aBe+8Abe+7bBd)}{45045e(d+ex)^{7/2}(bd-ae)^5}+\frac{16b^2(a+bx)^{7/2}(-15aBe+8Abe+7bBd)}{6435e(d+ex)^{9/2}(bd-ae)^4}+\frac{4b(a+bx)^{7/2}(-15aBe+8Abe+7bBd)}{715e(d+ex)^{11/2}(bd-ae)^3}+\frac{2(a+bx)^{7/2}(-15aBe+8Abe+7bBd)}{195e(d+ex)^{13/2}(bd-ae)^2}-\frac{2(a+bx)^{7/2}(Bd-Ae)}{15e(d+ex)^{15/2}(bd-ae)}$$

```
[Out] (-2*(B*d - A*e)*(a + b*x)^(7/2))/(15*e*(b*d - a*e)*(d + e*x)^(15/
2)) + (2*(7*b*B*d + 8*A*b*e - 15*a*B*e)*(a + b*x)^(7/2))/(195*e*(
b*d - a*e)^2*(d + e*x)^(13/2)) + (4*b*(7*b*B*d + 8*A*b*e - 15*a*B
*e)*(a + b*x)^(7/2))/(715*e*(b*d - a*e)^3*(d + e*x)^(11/2)) + (16
*b^2*(7*b*B*d + 8*A*b*e - 15*a*B*e)*(a + b*x)^(7/2))/(6435*e*(b*d
 - a*e)^4*(d + e*x)^(9/2)) + (32*b^3*(7*b*B*d + 8*A*b*e - 15*a*B*
e)*(a + b*x)^(7/2))/(45045*e*(b*d - a*e)^5*(d + e*x)^(7/2))
```

Rubi [A] time = 0.469568, antiderivative size = 255, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$\frac{32b^3(a+bx)^{7/2}(-15aBe+8Abe+7bBd)}{45045e(d+ex)^{7/2}(bd-ae)^5}+\frac{16b^2(a+bx)^{7/2}(-15aBe+8Abe+7bBd)}{6435e(d+ex)^{9/2}(bd-ae)^4}+\frac{4b(a+bx)^{7/2}(-15aBe+8Abe+7bBd)}{715e(d+ex)^{11/2}(bd-ae)^3}+\frac{2(a+bx)^{7/2}(-15aBe+8Abe+7bBd)}{195e(d+ex)^{13/2}(bd-ae)^2}-\frac{2(a+bx)^{7/2}(Bd-Ae)}{15e(d+ex)^{15/2}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(5/2)*(A + B*x))/(d + e*x)^(17/2),x]
```

```
[Out] (-2*(B*d - A*e)*(a + b*x)^(7/2))/(15*e*(b*d - a*e)*(d + e*x)^(15/
2)) + (2*(7*b*B*d + 8*A*b*e - 15*a*B*e)*(a + b*x)^(7/2))/(195*e*(
b*d - a*e)^2*(d + e*x)^(13/2)) + (4*b*(7*b*B*d + 8*A*b*e - 15*a*B
*e)*(a + b*x)^(7/2))/(715*e*(b*d - a*e)^3*(d + e*x)^(11/2)) + (16
*b^2*(7*b*B*d + 8*A*b*e - 15*a*B*e)*(a + b*x)^(7/2))/(6435*e*(b*d
 - a*e)^4*(d + e*x)^(9/2)) + (32*b^3*(7*b*B*d + 8*A*b*e - 15*a*B*
e)*(a + b*x)^(7/2))/(45045*e*(b*d - a*e)^5*(d + e*x)^(7/2))
```

Rubi in Sympy [A] time = 50.7058, size = 246, normalized size = 0.96

$$-\frac{32b^3\left(a+bx\right)^{\frac{7}{2}}\left(8Abe-15Bae+7Bbd\right)}{45045e\left(d+ex\right)^{\frac{7}{2}}\left(ae-bd\right)^5}+\frac{16b^2\left(a+bx\right)^{\frac{7}{2}}\left(8Abe-15Bae+7Bbd\right)}{6435e\left(d+ex\right)^{\frac{9}{2}}\left(ae-bd\right)^4}-\frac{4b\left(a+bx\right)^{\frac{7}{2}}\left(8Abe-15Bae+7Bbd\right)}{715e\left(d+ex\right)^{\frac{11}{2}}\left(ae-bd\right)^3}+\frac{2\left(a+bx\right)^{\frac{7}{2}}\left(8Abe-15Bae+7Bbd\right)}{195e\left(d+ex\right)^{\frac{13}{2}}\left(ae-bd\right)^2}-\frac{2\left(a+bx\right)^{\frac{7}{2}}\left(Ae-Bd\right)}{15e\left(d+ex\right)^{\frac{15}{2}}\left(ae-bd\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(B*x+A)/(e*x+d)**(17/2),x)
```

```
[Out] -32*b**3*(a + b*x)**(7/2)*(8*A*b*e - 15*B*a*e + 7*B*b*d)/(45045*e
*(d + e*x)**(7/2)*(a*e - b*d)**5) + 16*b**2*(a + b*x)**(7/2)*(8*A
*b*e - 15*B*a*e + 7*B*b*d)/(6435*e*(d + e*x)**(9/2)*(a*e - b*d)**
```

```
4) - 4*b*(a + b*x)**(7/2)*(8*A*b*e - 15*B*a*e + 7*B*b*d)/(715*e*(
d + e*x)**(11/2)*(a*e - b*d)**3) + 2*(a + b*x)**(7/2)*(8*A*b*e -
15*B*a*e + 7*B*b*d)/(195*e*(d + e*x)**(13/2)*(a*e - b*d)**2) - 2*
(a + b*x)**(7/2)*(A*e - B*d)/(15*e*(d + e*x)**(15/2)*(a*e - b*d))
```

Mathematica [A] time = 0.732623, size = 292, normalized size = 1.15

$$2\sqrt{a+bx}\left(\frac{16b^6(d+ex)^7(-15aBe+8Abe+7bBd)}{(bd-ae)^5}+\frac{8b^5(d+ex)^6(-15aBe+8Abe+7bBd)}{(bd-ae)^4}+\frac{6b^4(d+ex)^5(-15aBe+8Abe+7bBd)}{(bd-ae)^3}+\frac{5b^3(d+ex)^4(-15aBe+8Ab}{(bd-ae)^2}\right.$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(5/2)*(A + B*x))/(d + e*x)^(17/2),x]
```

```
[Out] (2*Sqrt[a + b*x]*(3003*(b*d - a*e)^2*(B*d - A*e) - 231*(-(b*d) +
a*e)*(-46*b*B*d + 31*A*b*e + 15*a*B*e)*(d + e*x) + 63*b*(206*b*B*
d - 71*A*b*e - 135*a*B*e)*(d + e*x)^2 - (35*b^2*(-160*b*B*d + A*b
*e + 159*a*B*e)*(d + e*x)^3)/(-(b*d) + a*e) + (5*b^3*(7*b*B*d + 8
*A*b*e - 15*a*B*e)*(d + e*x)^4)/(b*d - a*e)^2 + (6*b^4*(7*b*B*d +
 8*A*b*e - 15*a*B*e)*(d + e*x)^5)/(b*d - a*e)^3 + (8*b^5*(7*b*B*d
 + 8*A*b*e - 15*a*B*e)*(d + e*x)^6)/(b*d - a*e)^4 + (16*b^6*(7*b*
B*d + 8*A*b*e - 15*a*B*e)*(d + e*x)^7)/(b*d - a*e)^5))/(45045*e^4
*(d + e*x)^(15/2))
```

Maple [B] time = 0.015, size = 505, normalized size = 2.

$$-\frac{256\,Ab^4e^4x^4-480\,Bab^3e^4x^4+224\,Bb^4de^3x^4-896\,Aab^3e^4x^3+1920\,Ab^4de^3x^3+1680\,Ba^2b^2e^4x^3-4384\,Bab^3de^3x^3+168}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(B*x+A)/(e*x+d)^(17/2),x)
```

```
[Out] -2/45045*(b*x+a)^(7/2)*(128*A*b^4*e^4*x^4-240*B*a*b^3*e^4*x^4+112
*B*b^4*d*e^3*x^4-448*A*a*b^3*e^4*x^3+960*A*b^4*d*e^3*x^3+840*B*a^
2*b^2*e^4*x^3-2192*B*a*b^3*d*e^3*x^3+840*B*b^4*d^2*e^2*x^3+1008*A
*a^2*b^2*e^4*x^2-3360*A*a*b^3*d*e^3*x^2+3120*A*b^4*d^2*e^2*x^2-18
90*B*a^3*b*e^4*x^2+7182*B*a^2*b^2*d*e^3*x^2-8790*B*a*b^3*d^2*e^2*
x^2+2730*B*b^4*d^3*e*x^2-1848*A*a^3*b*e^4*x+7560*A*a^2*b^2*d*e^3*
x-10920*A*a*b^3*d^2*e^2*x+5720*A*b^4*d^3*e*x+3465*B*a^4*e^4*x-157
92*B*a^3*b*d*e^3*x+27090*B*a^2*b^2*d^2*e^2*x-20280*B*a*b^3*d^3*e*
x+5005*B*b^4*d^4*x+3003*A*a^4*e^4-13860*A*a^3*b*d*e^3+24570*A*a^2
*b^2*d^2*e^2-20020*A*a*b^3*d^3*e+6435*A*b^4*d^4+462*B*a^4*d*e^3-1
890*B*a^3*b*d^2*e^2+2730*B*a^2*b^2*d^3*e-1430*B*a*b^3*d^4)/(e*x+d
)^(15/2)/(a^5*e^5-5*a^4*b*d*e^4+10*a^3*b^2*d^2*e^3-10*a^2*b^3*d^3
*e^2+5*a*b^4*d^4*e-b^5*d^5)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^(5/2)/(e*x + d)^(17/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 32.7565, size = 1978, normalized size = 7.76

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(5/2)/(e*x + d)^(17/2),x, algorithm="fricas")
```

```
[Out] 2/45045*(3003*A*a^7*e^4 + 16*(7*B*b^7*d*e^3 - (15*B*a*b^6 - 8*A*b
^7)*e^4)*x^7 + 8*(105*B*b^7*d^2*e^2 - 8*(29*B*a*b^6 - 15*A*b^7)*d
*e^3 + (15*B*a^2*b^5 - 8*A*a*b^6)*e^4)*x^6 + 6*(455*B*b^7*d^3*e -
 5*(209*B*a*b^6 - 104*A*b^7)*d^2*e^2 + (157*B*a^2*b^5 - 80*A*a*b^
6)*d*e^3 - (15*B*a^3*b^4 - 8*A*a^2*b^5)*e^4)*x^5 - 715*(2*B*a^4*b
^3 - 9*A*a^3*b^4)*d^4 + 910*(3*B*a^5*b^2 - 22*A*a^4*b^3)*d^3*e -
1890*(B*a^6*b - 13*A*a^5*b^2)*d^2*e^2 + 462*(B*a^7 - 30*A*a^6*b)*
d*e^3 + 5*(1001*B*b^7*d^4 - 26*(93*B*a*b^6 - 44*A*b^7)*d^3*e + 24
*(27*B*a^2*b^5 - 13*A*a*b^6)*d^2*e^2 - 2*(71*B*a^3*b^4 - 36*A*a^2
*b^5)*d*e^3 + (15*B*a^4*b^3 - 8*A*a^3*b^4)*e^4)*x^4 + 5*(143*(19*
B*a*b^6 + 9*A*b^7)*d^4 - 52*(192*B*a^2*b^5 + 11*A*a*b^6)*d^3*e +
6*(1795*B*a^3*b^4 + 39*A*a^2*b^5)*d^2*e^2 - 4*(1378*B*a^4*b^3 + 1
5*A*a^3*b^4)*d*e^3 + 7*(159*B*a^5*b^2 + A*a^4*b^3)*e^4)*x^3 + 3*(
715*(5*B*a^2*b^5 + 9*A*a*b^6)*d^4 - 260*(64*B*a^3*b^4 + 55*A*a^2*
b^5)*d^3*e + 10*(2227*B*a^4*b^3 + 1469*A*a^3*b^4)*d^2*e^2 - 28*(4
62*B*a^5*b^2 + 265*A*a^4*b^3)*d*e^3 + 21*(135*B*a^6*b + 71*A*a^5*
b^2)*e^4)*x^2 + (715*(B*a^3*b^4 + 27*A*a^2*b^5)*d^4 - 130*(93*B*a
^4*b^3 + 418*A*a^3*b^4)*d^3*e + 210*(102*B*a^5*b^2 + 299*A*a^4*b^
3)*d^2*e^2 - 42*(343*B*a^6*b + 810*A*a^5*b^2)*d*e^3 + 231*(15*B*a
^7 + 31*A*a^6*b)*e^4)*x)*sqrt(b*x + a)*sqrt(e*x + d)/(b^5*d^13 -
5*a*b^4*d^12*e + 10*a^2*b^3*d^11*e^2 - 10*a^3*b^2*d^10*e^3 + 5*a^
4*b*d^9*e^4 - a^5*d^8*e^5 + (b^5*d^5*e^8 - 5*a*b^4*d^4*e^9 + 10*a
^2*b^3*d^3*e^10 - 10*a^3*b^2*d^2*e^11 + 5*a^4*b*d*e^12 - a^5*e^13
)*x^8 + 8*(b^5*d^6*e^7 - 5*a*b^4*d^5*e^8 + 10*a^2*b^3*d^4*e^9 - 1
0*a^3*b^2*d^3*e^10 + 5*a^4*b*d^2*e^11 - a^5*d*e^12)*x^7 + 28*(b^5
*d^7*e^6 - 5*a*b^4*d^6*e^7 + 10*a^2*b^3*d^5*e^8 - 10*a^3*b^2*d^4*
e^9 + 5*a^4*b*d^3*e^10 - a^5*d^2*e^11)*x^6 + 56*(b^5*d^8*e^5 - 5*
a*b^4*d^7*e^6 + 10*a^2*b^3*d^6*e^7 - 10*a^3*b^2*d^5*e^8 + 5*a^4*b
*d^4*e^9 - a^5*d^3*e^10)*x^5 + 70*(b^5*d^9*e^4 - 5*a*b^4*d^8*e^5
+ 10*a^2*b^3*d^7*e^6 - 10*a^3*b^2*d^6*e^7 + 5*a^4*b*d^5*e^8 - a^5
*d^4*e^9)*x^4 + 56*(b^5*d^10*e^3 - 5*a*b^4*d^9*e^4 + 10*a^2*b^3*d
^8*e^5 - 10*a^3*b^2*d^7*e^6 + 5*a^4*b*d^6*e^7 - a^5*d^5*e^8)*x^3
+ 28*(b^5*d^11*e^2 - 5*a*b^4*d^10*e^3 + 10*a^2*b^3*d^9*e^4 - 10*a
^3*b^2*d^8*e^5 + 5*a^4*b*d^7*e^6 - a^5*d^6*e^7)*x^2 + 8*(b^5*d^12
*e - 5*a*b^4*d^11*e^2 + 10*a^2*b^3*d^10*e^3 - 10*a^3*b^2*d^9*e^4
+ 5*a^4*b*d^8*e^5 - a^5*d^7*e^6)*x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**(5/2)*(B*x+A)/(e*x+d)**(17/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.750125, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(5/2)/(e*x + d)^(17/2),x, algorithm="giac")
```

```
[Out] Done
```

3.2218 $\int \frac{(a+bx)^{5/2}(A+Bx)}{(d+ex)^{19/2}}\,dx$

Optimal. Leaf size=309

$$\frac{256b^4(a+bx)^{7/2}(-17aBe+10Abe+7bBd)}{765765e(d+ex)^{7/2}(bd-ae)^6}+\frac{128b^3(a+bx)^{7/2}(-17aBe+10Abe+7bBd)}{109395e(d+ex)^{9/2}(bd-ae)^5}+\frac{32b^2(a+bx)^{7/2}(-17aBe+10Abe+7bBd)}{12155e(d+ex)^{11/2}(bd-ae)^4}+\frac{16b(a+bx)^{7/2}(-17aBe+10Abe+7bBd)}{3315e(d+ex)^{13/2}(bd-ae)^3}+\frac{2(a+bx)^{7/2}(-17aBe+10Abe+7bBd)}{255e(d+ex)^{15/2}(bd-ae)^2}-\frac{2(a+bx)^{7/2}(Bd-Ae)}{17e(d+ex)^{17/2}(bd-ae)}$$

```
[Out] (-2*(B*d - A*e)*(a + b*x)^(7/2))/(17*e*(b*d - a*e)*(d + e*x)^(17/
2)) + (2*(7*b*B*d + 10*A*b*e - 17*a*B*e)*(a + b*x)^(7/2))/(255*e*
(b*d - a*e)^2*(d + e*x)^(15/2)) + (16*b*(7*b*B*d + 10*A*b*e - 17*
a*B*e)*(a + b*x)^(7/2))/(3315*e*(b*d - a*e)^3*(d + e*x)^(13/2)) +
 (32*b^2*(7*b*B*d + 10*A*b*e - 17*a*B*e)*(a + b*x)^(7/2))/(12155*
e*(b*d - a*e)^4*(d + e*x)^(11/2)) + (128*b^3*(7*b*B*d + 10*A*b*e
- 17*a*B*e)*(a + b*x)^(7/2))/(109395*e*(b*d - a*e)^5*(d + e*x)^(9
/2)) + (256*b^4*(7*b*B*d + 10*A*b*e - 17*a*B*e)*(a + b*x)^(7/2))/
(765765*e*(b*d - a*e)^6*(d + e*x)^(7/2))
```

Rubi [A] time = 0.584694, antiderivative size = 309, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.125$

$$\frac{256b^4(a+bx)^{7/2}(-17aBe+10Abe+7bBd)}{765765e(d+ex)^{7/2}(bd-ae)^6}+\frac{128b^3(a+bx)^{7/2}(-17aBe+10Abe+7bBd)}{109395e(d+ex)^{9/2}(bd-ae)^5}+\frac{32b^2(a+bx)^{7/2}(-17aBe+10Abe+7bBd)}{12155e(d+ex)^{11/2}(bd-ae)^4}+\frac{16b(a+bx)^{7/2}(-17aBe+10Abe+7bBd)}{3315e(d+ex)^{13/2}(bd-ae)^3}+\frac{2(a+bx)^{7/2}(-17aBe+10Abe+7bBd)}{255e(d+ex)^{15/2}(bd-ae)^2}-\frac{2(a+bx)^{7/2}(Bd-Ae)}{17e(d+ex)^{17/2}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(5/2)*(A + B*x))/(d + e*x)^(19/2),x]
```

```
[Out] (-2*(B*d - A*e)*(a + b*x)^(7/2))/(17*e*(b*d - a*e)*(d + e*x)^(17/
2)) + (2*(7*b*B*d + 10*A*b*e - 17*a*B*e)*(a + b*x)^(7/2))/(255*e*
(b*d - a*e)^2*(d + e*x)^(15/2)) + (16*b*(7*b*B*d + 10*A*b*e - 17*
a*B*e)*(a + b*x)^(7/2))/(3315*e*(b*d - a*e)^3*(d + e*x)^(13/2)) +
 (32*b^2*(7*b*B*d + 10*A*b*e - 17*a*B*e)*(a + b*x)^(7/2))/(12155*
e*(b*d - a*e)^4*(d + e*x)^(11/2)) + (128*b^3*(7*b*B*d + 10*A*b*e
- 17*a*B*e)*(a + b*x)^(7/2))/(109395*e*(b*d - a*e)^5*(d + e*x)^(9
/2)) + (256*b^4*(7*b*B*d + 10*A*b*e - 17*a*B*e)*(a + b*x)^(7/2))/
(765765*e*(b*d - a*e)^6*(d + e*x)^(7/2))
```

Rubi in Sympy [A] time = 67.1479, size = 301, normalized size = 0.97

$$\frac{256b^4\left(a+bx\right)^{\frac{7}{2}}\left(10Abe-17Bae+7Bbd\right)}{765765e\left(d+ex\right)^{\frac{7}{2}}\left(ae-bd\right)^6}-\frac{128b^3\left(a+bx\right)^{\frac{7}{2}}\left(10Abe-17Bae+7Bbd\right)}{109395e\left(d+ex\right)^{\frac{9}{2}}\left(ae-bd\right)^5}+\frac{32b^2\left(a+bx\right)^{\frac{7}{2}}\left(10Abe-17Bae+7Bbd\right)}{12155e\left(d+ex\right)^{\frac{11}{2}}\left(ae-bd\right)^4}-\frac{16b\left(a+bx\right)^{\frac{7}{2}}\left(10Abe-17Bae+7Bbd\right)}{3315e\left(d+ex\right)^{\frac{13}{2}}\left(ae-bd\right)^3}+\frac{2\left(a+bx\right)^{\frac{7}{2}}\left(10Abe-17Bae+7Bbd\right)}{255e\left(d+ex\right)^{\frac{15}{2}}\left(ae-bd\right)^2}-\frac{2\left(a+bx\right)^{\frac{7}{2}}\left(Ae-Bd\right)}{17e\left(d+ex\right)^{\frac{17}{2}}\left(ae-bd\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(5/2)*(B*x+A)/(e*x+d)**(19/2),x)
```

```
[Out] 256*b**4*(a + b*x)**(7/2)*(10*A*b*e - 17*B*a*e + 7*B*b*d)/(765765
*e*(d + e*x)**(7/2)*(a*e - b*d)**6) - 128*b**3*(a + b*x)**(7/2)*(
10*A*b*e - 17*B*a*e + 7*B*b*d)/(109395*e*(d + e*x)**(9/2)*(a*e -
b*d)**5) + 32*b**2*(a + b*x)**(7/2)*(10*A*b*e - 17*B*a*e + 7*B*b*
d)/(12155*e*(d + e*x)**(11/2)*(a*e - b*d)**4) - 16*b*(a + b*x)**(
7/2)*(10*A*b*e - 17*B*a*e + 7*B*b*d)/(3315*e*(d + e*x)**(13/2)*(a
*e - b*d)**3) + 2*(a + b*x)**(7/2)*(10*A*b*e - 17*B*a*e + 7*B*b*d
)/(255*e*(d + e*x)**(15/2)*(a*e - b*d)**2) - 2*(a + b*x)**(7/2)*(
A*e - B*d)/(17*e*(d + e*x)**(17/2)*(a*e - b*d))
```

Mathematica [A] time = 0.877125, size = 331, normalized size = 1.07

$$2\sqrt{a+bx}\left(\frac{128b^7(d+ex)^8(-17aBe+10Abe+7bBd)}{(bd-ae)^6}+\frac{64b^6(d+ex)^7(-17aBe+10Abe+7bBd)}{(bd-ae)^5}+\frac{48b^5(d+ex)^6(-17aBe+10Abe+7bBd)}{(bd-ae)^4}+\frac{40b^4(d+ex)^5(-17a\ldots}{(bd-\ldots}\right.$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(5/2)*(A + B*x))/(d + e*x)^(19/2),x]
```

```
[Out] (2*Sqrt[a + b*x]*(45045*(b*d - a*e)^2*(B*d - A*e) - 3003*(-(b*d)
+ a*e)*(-52*b*B*d + 35*A*b*e + 17*a*B*e)*(d + e*x) + 231*b*(802*b
*B*d - 275*A*b*e - 527*a*B*e)*(d + e*x)^2 - (63*b^2*(-1212*b*B*d
+ 5*A*b*e + 1207*a*B*e)*(d + e*x)^3)/(-(b*d) + a*e) + (35*b^3*(7*
b*B*d + 10*A*b*e - 17*a*B*e)*(d + e*x)^4)/(b*d - a*e)^2 + (40*b^4
*(7*b*B*d + 10*A*b*e - 17*a*B*e)*(d + e*x)^5)/(b*d - a*e)^3 + (48
*b^5*(7*b*B*d + 10*A*b*e - 17*a*B*e)*(d + e*x)^6)/(b*d - a*e)^4 +
 (64*b^6*(7*b*B*d + 10*A*b*e - 17*a*B*e)*(d + e*x)^7)/(b*d - a*e)
^5 + (128*b^7*(7*b*B*d + 10*A*b*e - 17*a*B*e)*(d + e*x)^8)/(b*d -
 a*e)^6))/(765765*e^4*(d + e*x)^(17/2))
```

Maple [B] time = 0.017, size = 722, normalized size = 2.3

$$-\frac{-2560\,Ab^5e^5x^5+4352\,Bab^4e^5x^5-1792\,Bb^5de^4x^5+8960\,Aab^4e^5x^4-21760\,Ab^5de^4x^4-15232\,Ba^2b^3e^5x^4+43264\,Bab^4de\ldots}{\ldots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(5/2)*(B*x+A)/(e*x+d)^(19/2),x)
```

```
[Out] -2/765765*(b*x+a)^(7/2)*(-1280*A*b^5*e^5*x^5+2176*B*a*b^4*e^5*x^5
-896*B*b^5*d*e^4*x^5+4480*A*a*b^4*e^5*x^4-10880*A*b^5*d*e^4*x^4-7
616*B*a^2*b^3*e^5*x^4+21632*B*a*b^4*d*e^4*x^4-7616*B*b^5*d^2*e^3*
x^4-10080*A*a^2*b^3*e^5*x^3+38080*A*a*b^4*d*e^4*x^3-40800*A*b^5*d
^2*e^3*x^3+17136*B*a^3*b^2*e^5*x^3-71792*B*a^2*b^3*d*e^4*x^3+9601
6*B*a*b^4*d^2*e^3*x^3-28560*B*b^5*d^3*e^2*x^3+18480*A*a^3*b^2*e^5
*x^2-85680*A*a^2*b^3*d*e^4*x^2+142800*A*a*b^4*d^2*e^3*x^2-88400*A
*b^5*d^3*e^2*x^2-31416*B*a^4*b*e^5*x^2+158592*B*a^3*b^2*d*e^4*x^2
-302736*B*a^2*b^3*d^2*e^3*x^2+250240*B*a*b^4*d^3*e^2*x^2-61880*B*
b^5*d^4*e*x^2-30030*A*a^4*b*e^5*x+157080*A*a^3*b^2*d*e^4*x-321300
*A*a^2*b^3*d^2*e^3*x+309400*A*a*b^4*d^3*e^2*x-121550*A*b^5*d^4*e*
x+51051*B*a^5*e^5*x-288057*B*a^4*b*d*e^4*x+656166*B*a^3*b^2*d^2*e
^3*x-750890*B*a^2*b^3*d^3*e^2*x+423215*B*a*b^4*d^4*e*x-85085*B*b^
5*d^5*x+45045*A*a^5*e^5-255255*A*a^4*b*d*e^4+589050*A*a^3*b^2*d^2
*e^3-696150*A*a^2*b^3*d^3*e^2+425425*A*a*b^4*d^4*e-109395*A*b^5*d
^5+6006*B*a^5*d*e^4-31416*B*a^4*b*d^2*e^3+64260*B*a^3*b^2*d^3*e^2
-61880*B*a^2*b^3*d^4*e+24310*B*a*b^4*d^5)/(e*x+d)^(17/2)/(a^6*e^6
-6*a^5*b*d*e^5+15*a^4*b^2*d^2*e^4-20*a^3*b^3*d^3*e^3+15*a^2*b^4*d
^4*e^2-6*a*b^5*d^5*e+b^6*d^6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(5/2)/(e*x + d)^(19/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 68.8735, size = 2603, normalized size = 8.42

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(5/2)/(e*x + d)^(19/2),x, algorithm="fricas")
```

```
[Out] -2/765765*(45045*A*a^8*e^5 - 128*(7*B*b^8*d*e^4 - (17*B*a*b^7 - 1
0*A*b^8)*e^5)*x^8 - 64*(119*B*b^8*d^2*e^3 - 2*(148*B*a*b^7 - 85*A
*b^8)*d*e^4 + (17*B*a^2*b^6 - 10*A*a*b^7)*e^5)*x^7 - 16*(1785*B*b
^8*d^3*e^2 - 17*(269*B*a*b^7 - 150*A*b^8)*d^2*e^3 + (599*B*a^2*b^
6 - 340*A*a*b^7)*d*e^4 - 3*(17*B*a^3*b^5 - 10*A*a^2*b^6)*e^5)*x^6
 + 12155*(2*B*a^4*b^4 - 9*A*a^3*b^5)*d^5 - 7735*(8*B*a^5*b^3 - 55
*A*a^4*b^4)*d^4*e + 10710*(6*B*a^6*b^2 - 65*A*a^5*b^3)*d^3*e^2 -
7854*(4*B*a^7*b - 75*A*a^6*b^2)*d^2*e^3 + 3003*(2*B*a^8 - 85*A*a^
7*b)*d*e^4 - 8*(7735*B*b^8*d^4*e - 170*(121*B*a*b^7 - 65*A*b^8)*d
^3*e^2 + 102*(46*B*a^2*b^6 - 25*A*a*b^7)*d^2*e^3 - 2*(451*B*a^3*b
^5 - 255*A*a^2*b^6)*d*e^4 + 5*(17*B*a^4*b^4 - 10*A*a^3*b^5)*e^5)*
x^5 - 5*(17017*B*b^8*d^5 - 1105*(43*B*a*b^7 - 22*A*b^8)*d^4*e + 1
70*(101*B*a^2*b^6 - 52*A*a*b^7)*d^3*e^2 - 34*(167*B*a^3*b^5 - 90*
A*a^2*b^6)*d^2*e^3 + 5*(241*B*a^4*b^4 - 136*A*a^3*b^5)*d*e^4 - 7*
(17*B*a^5*b^3 - 10*A*a^4*b^4)*e^5)*x^4 - (12155*(19*B*a*b^7 + 9*A
*b^8)*d^5 - 5525*(185*B*a^2*b^6 + 11*A*a*b^7)*d^4*e + 2550*(575*B
*a^3*b^5 + 13*A*a^2*b^6)*d^3*e^2 - 170*(6617*B*a^4*b^4 + 75*A*a^3
*b^5)*d^2*e^3 + 7*(64883*B*a^5*b^3 + 425*A*a^4*b^4)*d*e^4 - 63*(1
207*B*a^6*b^2 + 5*A*a^5*b^3)*e^5)*x^3 - (36465*(5*B*a^2*b^6 + 9*A
*a*b^7)*d^5 - 27625*(37*B*a^3*b^5 + 33*A*a^2*b^6)*d^4*e + 850*(21
29*B*a^4*b^4 + 1469*A*a^3*b^5)*d^3*e^2 - 714*(2201*B*a^5*b^3 + 13
25*A*a^4*b^4)*d^2*e^3 + 21*(32741*B*a^6*b^2 + 18105*A*a^5*b^3)*d*
e^4 - 231*(527*B*a^7*b + 275*A*a^6*b^2)*e^5)*x^2 - (12155*(B*a^3*
b^5 + 27*A*a^2*b^6)*d^5 - 5525*(43*B*a^4*b^4 + 209*A*a^3*b^5)*d^4
*e + 1190*(469*B*a^5*b^3 + 1495*A*a^4*b^4)*d^3*e^2 - 714*(787*B*a
^6*b^2 + 2025*A*a^5*b^3)*d^2*e^3 + 231*(1169*B*a^7*b + 2635*A*a^6
*b^2)*d*e^4 - 3003*(17*B*a^8 + 35*A*a^7*b)*e^5)*x)*sqrt(b*x + a)*
sqrt(e*x + d)/(b^6*d^15 - 6*a*b^5*d^14*e + 15*a^2*b^4*d^13*e^2 -
20*a^3*b^3*d^12*e^3 + 15*a^4*b^2*d^11*e^4 - 6*a^5*b*d^10*e^5 + a^
6*d^9*e^6 + (b^6*d^6*e^9 - 6*a*b^5*d^5*e^10 + 15*a^2*b^4*d^4*e^11
 - 20*a^3*b^3*d^3*e^12 + 15*a^4*b^2*d^2*e^13 - 6*a^5*b*d*e^14 + a
^6*e^15)*x^9 + 9*(b^6*d^7*e^8 - 6*a*b^5*d^6*e^9 + 15*a^2*b^4*d^5*
e^10 - 20*a^3*b^3*d^4*e^11 + 15*a^4*b^2*d^3*e^12 - 6*a^5*b*d^2*e^
13 + a^6*d*e^14)*x^8 + 36*(b^6*d^8*e^7 - 6*a*b^5*d^7*e^8 + 15*a^2
*b^4*d^6*e^9 - 20*a^3*b^3*d^5*e^10 + 15*a^4*b^2*d^4*e^11 - 6*a^5*
b*d^3*e^12 + a^6*d^2*e^13)*x^7 + 84*(b^6*d^9*e^6 - 6*a*b^5*d^8*e^
7 + 15*a^2*b^4*d^7*e^8 - 20*a^3*b^3*d^6*e^9 + 15*a^4*b^2*d^5*e^10
 - 6*a^5*b*d^4*e^11 + a^6*d^3*e^12)*x^6 + 126*(b^6*d^10*e^5 - 6*a
*b^5*d^9*e^6 + 15*a^2*b^4*d^8*e^7 - 20*a^3*b^3*d^7*e^8 + 15*a^4*b
^2*d^6*e^9 - 6*a^5*b*d^5*e^10 + a^6*d^4*e^11)*x^5 + 126*(b^6*d^11
*e^4 - 6*a*b^5*d^10*e^5 + 15*a^2*b^4*d^9*e^6 - 20*a^3*b^3*d^8*e^7
 + 15*a^4*b^2*d^7*e^8 - 6*a^5*b*d^6*e^9 + a^6*d^5*e^10)*x^4 + 84*
(b^6*d^12*e^3 - 6*a*b^5*d^11*e^4 + 15*a^2*b^4*d^10*e^5 - 20*a^3*b
^3*d^9*e^6 + 15*a^4*b^2*d^8*e^7 - 6*a^5*b*d^7*e^8 + a^6*d^6*e^9)*
x^3 + 36*(b^6*d^13*e^2 - 6*a*b^5*d^12*e^3 + 15*a^2*b^4*d^11*e^4 -
 20*a^3*b^3*d^10*e^5 + 15*a^4*b^2*d^9*e^6 - 6*a^5*b*d^8*e^7 + a^6
*d^7*e^8)*x^2 + 9*(b^6*d^14*e - 6*a*b^5*d^13*e^2 + 15*a^2*b^4*d^1
2*e^3 - 20*a^3*b^3*d^11*e^4 + 15*a^4*b^2*d^10*e^5 - 6*a^5*b*d^9*e
^6 + a^6*d^8*e^7)*x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(5/2)*(B*x+A)/(e*x+d)**(19/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 1.01832, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(b*x + a)^(5/2)/(e*x + d)^(19/2),x, algorithm="giac")
```

```
[Out] Done
```

3.2219 $\int \frac{(A+Bx)(d+ex)^{5/2}}{\sqrt{a+bx}}\,dx$

Optimal. Leaf size=246

$$-\frac{5(bd-ae)^3(7aBe-8Abe+bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{64b^{9/2}e^{3/2}}-\frac{5\sqrt{a+bx}\sqrt{d+ex}(bd-ae)^2(7aBe-8Abe+bBd)}{64b^4e}-\frac{5\sqrt{a+bx}(d+ex)^{3/2}(bd-ae)(7aBe-8Abe+bBd)}{96b^3e}-\frac{\sqrt{a+bx}(d+ex)^{5/2}(7aBe-8Abe+bBd)}{24b^2e}+\frac{B\sqrt{a+bx}(d+ex)^{7/2}}{4be}$$

```
[Out] (-5*(b*d - a*e)^2*(b*B*d - 8*A*b*e + 7*a*B*e)*Sqrt[a + b*x]*Sqrt[
d + e*x])/(64*b^4*e) - (5*(b*d - a*e)*(b*B*d - 8*A*b*e + 7*a*B*e)
*Sqrt[a + b*x]*(d + e*x)^(3/2))/(96*b^3*e) - ((b*B*d - 8*A*b*e +
7*a*B*e)*Sqrt[a + b*x]*(d + e*x)^(5/2))/(24*b^2*e) + (B*Sqrt[a +
b*x]*(d + e*x)^(7/2))/(4*b*e) - (5*(b*d - a*e)^3*(b*B*d - 8*A*b*e
 + 7*a*B*e)*ArcTanh[(Sqrt[e]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[d + e*x
])])/(64*b^(9/2)*e^(3/2))
```

Rubi [A] time = 0.522734, antiderivative size = 246, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$-\frac{5(bd-ae)^3(7aBe-8Abe+bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{64b^{9/2}e^{3/2}}-\frac{5\sqrt{a+bx}\sqrt{d+ex}(bd-ae)^2(7aBe-8Abe+bBd)}{64b^4e}-\frac{5\sqrt{a+bx}(d+ex)^{3/2}(bd-ae)(7aBe-8Abe+bBd)}{96b^3e}-\frac{\sqrt{a+bx}(d+ex)^{5/2}(7aBe-8Abe+bBd)}{24b^2e}+\frac{B\sqrt{a+bx}(d+ex)^{7/2}}{4be}$$

Antiderivative was successfully verified.

```
[In]  Int[((A + B*x)*(d + e*x)^(5/2))/Sqrt[a + b*x],x]
```

```
[Out] (-5*(b*d - a*e)^2*(b*B*d - 8*A*b*e + 7*a*B*e)*Sqrt[a + b*x]*Sqrt[
d + e*x])/(64*b^4*e) - (5*(b*d - a*e)*(b*B*d - 8*A*b*e + 7*a*B*e)
*Sqrt[a + b*x]*(d + e*x)^(3/2))/(96*b^3*e) - ((b*B*d - 8*A*b*e +
7*a*B*e)*Sqrt[a + b*x]*(d + e*x)^(5/2))/(24*b^2*e) + (B*Sqrt[a +
b*x]*(d + e*x)^(7/2))/(4*b*e) - (5*(b*d - a*e)^3*(b*B*d - 8*A*b*e
 + 7*a*B*e)*ArcTanh[(Sqrt[e]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[d + e*x
])])/(64*b^(9/2)*e^(3/2))
```

Rubi in Sympy [A] time = 40.617, size = 238, normalized size = 0.97

$$\frac{B\sqrt{a+bx}\,(d+ex)^{\frac{7}{2}}}{4be}+\frac{\sqrt{a+bx}\,(d+ex)^{\frac{5}{2}}\,(8Abe-7Bae-Bbd)}{24b^2e}-\frac{5\sqrt{a+bx}\,(d+ex)^{\frac{3}{2}}\,(ae-bd)\,(8Abe-7Bae-Bbd)}{96b^3e}+\frac{5\sqrt{a+bx}\sqrt{d+ex}\,(ae-bd)^2\,(8Abe-7Bae-Bbd)}{64b^4e}-\frac{5\,(ae-bd)^3\,(8Abe-7Bae-Bbd)\,\mathrm{atanh}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{64b^{\frac{9}{2}}e^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(e*x+d)**(5/2)/(b*x+a)**(1/2),x)
```

```
[Out] B*sqrt(a + b*x)*(d + e*x)**(7/2)/(4*b*e) + sqrt(a + b*x)*(d + e*x
)**(5/2)*(8*A*b*e - 7*B*a*e - B*b*d)/(24*b**2*e) - 5*sqrt(a + b*x
)*(d + e*x)**(3/2)*(a*e - b*d)*(8*A*b*e - 7*B*a*e - B*b*d)/(96*b*
*3*e) + 5*sqrt(a + b*x)*sqrt(d + e*x)*(a*e - b*d)**2*(8*A*b*e - 7
*B*a*e - B*b*d)/(64*b**4*e) - 5*(a*e - b*d)**3*(8*A*b*e - 7*B*a*e
 - B*b*d)*atanh(sqrt(e)*sqrt(a + b*x)/(sqrt(b)*sqrt(d + e*x)))/(6
4*b**(9/2)*e**(3/2))
```

Mathematica [A] time = 0.411643, size = 244, normalized size = 0.99

$$\frac{\sqrt{a+bx}\sqrt{d+ex}\left(-105a^3Be^3+5a^2be^2(24Ae+53Bd+14Bex)-ab^2e\left(80Ae(4d+ex)+B\left(191d^2+172dex+56e^2x^2\right)\right)+b^3\right.}{192b^4e}$$

$$-\frac{5(bd-ae)^3(7aBe-8Abe+bBd)\log\left(2\sqrt{b}\sqrt{e}\sqrt{a+bx}\sqrt{d+ex}+ae+bd+2bex\right)}{128b^{9/2}e^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((A + B*x)*(d + e*x)^(5/2))/Sqrt[a + b*x],x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[d + e*x]*(-105*a^3*B*e^3 + 5*a^2*b*e^2*(53*B*
d + 24*A*e + 14*B*e*x) - a*b^2*e*(80*A*e*(4*d + e*x) + B*(191*d^2
 + 172*d*e*x + 56*e^2*x^2)) + b^3*(8*A*e*(33*d^2 + 26*d*e*x + 8*e
^2*x^2) + B*(15*d^3 + 118*d^2*e*x + 136*d*e^2*x^2 + 48*e^3*x^3)))
)/(192*b^4*e) - (5*(b*d - a*e)^3*(b*B*d - 8*A*b*e + 7*a*B*e)*Log[
b*d + a*e + 2*b*e*x + 2*Sqrt[b]*Sqrt[e]*Sqrt[a + b*x]*Sqrt[d + e*
x]])/(128*b^(9/2)*e^(3/2))
```

Maple [B] time = 0.036, size = 968, normalized size = 3.9

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(e*x+d)^(5/2)/(b*x+a)^(1/2),x)
```

```
[Out] -1/384*(e*x+d)^(1/2)*(b*x+a)^(1/2)*(-105*e^4*B*ln(1/2*(2*b*x*e+2*
((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^4+15*
ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b
*e)^(1/2))*b^4*d^4*B-360*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2
)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^2*A*b^2*d*e^3+344*((b*x+a)*
(e*x+d))^(1/2)*x*a*d*B*b^2*e^2*(b*e)^(1/2)-120*ln(1/2*(2*b*x*e+2*
((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*b^4*d^3
*A*e-30*((b*x+a)*(e*x+d))^(1/2)*B*b^3*d^3*(b*e)^(1/2)+120*ln(1/2*
(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/
2))*a^3*A*e^4*b+210*e^3*B*((b*x+a)*(e*x+d))^(1/2)*a^3*(b*e)^(1/2)
+360*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*
d)/(b*e)^(1/2))*a*A*b^3*d^2*e^2+300*ln(1/2*(2*b*x*e+2*((b*x+a)*(e
*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^3*B*d*e^3*b-270*
ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b
*e)^(1/2))*a^2*B*b^2*d^2*e^2+60*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d
))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a*B*b^3*d^3*e-240*((b*
x+a)*(e*x+d))^(1/2)*A*a^2*e^3*(b*e)^(1/2)*b-528*((b*x+a)*(e*x+d))
^(1/2)*A*b^3*d^2*e*(b*e)^(1/2)-96*B*x^3*b^3*e^3*(b*e)^(1/2)*((b*x
+a)*(e*x+d))^(1/2)-128*A*x^2*b^3*e^3*(b*e)^(1/2)*((b*x+a)*(e*x+d)
)^(1/2)-140*e^3*B*((b*x+a)*(e*x+d))^(1/2)*x*a^2*b*(b*e)^(1/2)-236
*((b*x+a)*(e*x+d))^(1/2)*x*d^2*B*b^3*e*(b*e)^(1/2)+160*((b*x+a)*(
e*x+d))^(1/2)*x*a*A*e^3*b^2*(b*e)^(1/2)-416*d*A*((b*x+a)*(e*x+d))
^(1/2)*x*b^3*e^2*(b*e)^(1/2)+112*B*x^2*a*b^2*e^3*(b*e)^(1/2)*((b*
x+a)*(e*x+d))^(1/2)-272*B*x^2*b^3*d*e^2*(b*e)^(1/2)*((b*x+a)*(e*x
+d))^(1/2)+640*((b*x+a)*(e*x+d))^(1/2)*A*a*b^2*d*e^2*(b*e)^(1/2)-
530*((b*x+a)*(e*x+d))^(1/2)*B*a^2*d*e^2*(b*e)^(1/2)*b+382*((b*x+a
```

```
)*(e*x+d))^(1/2)*B*a*b^2*d^2*e*(b*e)^(1/2))/((b*x+a)*(e*x+d))^(1/
2)/b^4/(b*e)^(1/2)/e
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^(5/2)/sqrt(b*x + a),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.627192, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^(5/2)/sqrt(b*x + a),x, algorithm="fricas")
```

```
[Out] [1/768*(4*(48*B*b^3*e^3*x^3 + 15*B*b^3*d^3 - (191*B*a*b^2 - 264*A
*b^3)*d^2*e + 5*(53*B*a^2*b - 64*A*a*b^2)*d*e^2 - 15*(7*B*a^3 - 8
*A*a^2*b)*e^3 + 8*(17*B*b^3*d*e^2 - (7*B*a*b^2 - 8*A*b^3)*e^3)*x^
2 + 2*(59*B*b^3*d^2*e - 2*(43*B*a*b^2 - 52*A*b^3)*d*e^2 + 5*(7*B*
a^2*b - 8*A*a*b^2)*e^3)*x)*sqrt(b*e)*sqrt(b*x + a)*sqrt(e*x + d)
- 15*(B*b^4*d^4 + 4*(B*a*b^3 - 2*A*b^4)*d^3*e - 6*(3*B*a^2*b^2 -
4*A*a*b^3)*d^2*e^2 + 4*(5*B*a^3*b - 6*A*a^2*b^2)*d*e^3 - (7*B*a^4
 - 8*A*a^3*b)*e^4)*log(4*(2*b^2*e^2*x + b^2*d*e + a*b*e^2)*sqrt(b
*x + a)*sqrt(e*x + d) + (8*b^2*e^2*x^2 + b^2*d^2 + 6*a*b*d*e + a^
2*e^2 + 8*(b^2*d*e + a*b*e^2)*x)*sqrt(b*e)))/(sqrt(b*e)*b^4*e), 1
/384*(2*(48*B*b^3*e^3*x^3 + 15*B*b^3*d^3 - (191*B*a*b^2 - 264*A*b
^3)*d^2*e + 5*(53*B*a^2*b - 64*A*a*b^2)*d*e^2 - 15*(7*B*a^3 - 8*A
*a^2*b)*e^3 + 8*(17*B*b^3*d*e^2 - (7*B*a*b^2 - 8*A*b^3)*e^3)*x^2
+ 2*(59*B*b^3*d^2*e - 2*(43*B*a*b^2 - 52*A*b^3)*d*e^2 + 5*(7*B*a^
2*b - 8*A*a*b^2)*e^3)*x)*sqrt(-b*e)*sqrt(b*x + a)*sqrt(e*x + d) -
 15*(B*b^4*d^4 + 4*(B*a*b^3 - 2*A*b^4)*d^3*e - 6*(3*B*a^2*b^2 - 4
*A*a*b^3)*d^2*e^2 + 4*(5*B*a^3*b - 6*A*a^2*b^2)*d*e^3 - (7*B*a^4
- 8*A*a^3*b)*e^4)*arctan(1/2*(2*b*e*x + b*d + a*e)*sqrt(-b*e)/(sq
rt(b*x + a)*sqrt(e*x + d)*b*e)))/(sqrt(-b*e)*b^4*e)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(e*x+d)**(5/2)/(b*x+a)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.368254, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^(5/2)/sqrt(b*x + a),x, algorithm="giac")

[Out] Done
```

3.2220 $\int \frac{(A+Bx)(d+ex)^{3/2}}{\sqrt{a+bx}}\,dx$

Optimal. Leaf size=193

$$-\frac{(bd-ae)^2(5aBe-6Abe+bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{8b^{7/2}e^{3/2}}-\frac{\sqrt{a+bx}\sqrt{d+ex}(bd-ae)(5aBe-6Abe+bBd)}{8b^3e}-\frac{\sqrt{a+bx}(d+ex)^{3/2}(5aBe-6Abe+bBd)}{12b^2e}+\frac{B\sqrt{a+bx}(d+ex)^{5/2}}{3be}$$

```
[Out] -((b*d - a*e)*(b*B*d - 6*A*b*e + 5*a*B*e)*Sqrt[a + b*x]*Sqrt[d +
e*x])/(8*b^3*e) - ((b*B*d - 6*A*b*e + 5*a*B*e)*Sqrt[a + b*x]*(d +
 e*x)^(3/2))/(12*b^2*e) + (B*Sqrt[a + b*x]*(d + e*x)^(5/2))/(3*b*
e) - ((b*d - a*e)^2*(b*B*d - 6*A*b*e + 5*a*B*e)*ArcTanh[(Sqrt[e]*
Sqrt[a + b*x])/(Sqrt[b]*Sqrt[d + e*x])])/(8*b^(7/2)*e^(3/2))
```

Rubi [A] time = 0.393761, antiderivative size = 193, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$-\frac{(bd-ae)^2(5aBe-6Abe+bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{8b^{7/2}e^{3/2}}-\frac{\sqrt{a+bx}\sqrt{d+ex}(bd-ae)(5aBe-6Abe+bBd)}{8b^3e}-\frac{\sqrt{a+bx}(d+ex)^{3/2}(5aBe-6Abe+bBd)}{12b^2e}+\frac{B\sqrt{a+bx}(d+ex)^{5/2}}{3be}$$

Antiderivative was successfully verified.

```
[In]  Int[((A + B*x)*(d + e*x)^(3/2))/Sqrt[a + b*x],x]
```

```
[Out] -((b*d - a*e)*(b*B*d - 6*A*b*e + 5*a*B*e)*Sqrt[a + b*x]*Sqrt[d +
e*x])/(8*b^3*e) - ((b*B*d - 6*A*b*e + 5*a*B*e)*Sqrt[a + b*x]*(d +
 e*x)^(3/2))/(12*b^2*e) + (B*Sqrt[a + b*x]*(d + e*x)^(5/2))/(3*b*
e) - ((b*d - a*e)^2*(b*B*d - 6*A*b*e + 5*a*B*e)*ArcTanh[(Sqrt[e]*
Sqrt[a + b*x])/(Sqrt[b]*Sqrt[d + e*x])])/(8*b^(7/2)*e^(3/2))
```

Rubi in Sympy [A] time = 28.9301, size = 182, normalized size = 0.94

$$\frac{B\sqrt{a+bx}\,(d+ex)^{\frac{5}{2}}}{3be}+\frac{\sqrt{a+bx}\,(d+ex)^{\frac{3}{2}}\,(6Abe-5Bae-Bbd)}{12b^2e}-\frac{\sqrt{a+bx}\sqrt{d+ex}\,(ae-bd)\,(6Abe-5Bae-Bbd)}{8b^3e}+\frac{(ae-bd)^2\,(6Abe-5Bae-Bbd)\,\text{atanh}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{e}\sqrt{a+bx}}\right)}{8b^{\frac{7}{2}}e^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(e*x+d)**(3/2)/(b*x+a)**(1/2),x)
```

```
[Out] B*sqrt(a + b*x)*(d + e*x)**(5/2)/(3*b*e) + sqrt(a + b*x)*(d + e*x
)**(3/2)*(6*A*b*e - 5*B*a*e - B*b*d)/(12*b**2*e) - sqrt(a + b*x)*
sqrt(d + e*x)*(a*e - b*d)*(6*A*b*e - 5*B*a*e - B*b*d)/(8*b**3*e)
+ (a*e - b*d)**2*(6*A*b*e - 5*B*a*e - B*b*d)*atanh(sqrt(b)*sqrt(d
 + e*x)/(sqrt(e)*sqrt(a + b*x)))/(8*b**(7/2)*e**(3/2))
```

Mathematica [A] time = 0.266014, size = 178, normalized size = 0.92

$$\frac{\sqrt{a+bx}\sqrt{d+ex}\left(15a^2Be^2-2abe(9Ae+11Bd+5Bex)+b^2\left(6Ae(5d+2ex)+B\left(3d^2+14dex+8e^2x^2\right)\right)\right)}{24b^3e}-\frac{(bd-ae)^2(5aBe-6Abe+bBd)\log\left(2\sqrt{b}\sqrt{e}\sqrt{a+bx}\sqrt{d+ex}+ae+bd+2bex\right)}{16b^{7/2}e^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((A + B*x)*(d + e*x)^(3/2))/Sqrt[a + b*x],x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[d + e*x]*(15*a^2*B*e^2 - 2*a*b*e*(11*B*d + 9*
A*e + 5*B*e*x) + b^2*(6*A*e*(5*d + 2*e*x) + B*(3*d^2 + 14*d*e*x +
 8*e^2*x^2))))/(24*b^3*e) - ((b*d - a*e)^2*(b*B*d - 6*A*b*e + 5*a
*B*e)*Log[b*d + a*e + 2*b*e*x + 2*Sqrt[b]*Sqrt[e]*Sqrt[a + b*x]*S
qrt[d + e*x]])/(16*b^(7/2)*e^(3/2))
```

Maple [B] time = 0.031, size = 636, normalized size = 3.3

$$\frac{1}{48\,b^3e}\sqrt{ex+d}\sqrt{bx+a}\left(16\,Bx^2b^2e^2\sqrt{(bx+a)(ex+d)}\sqrt{be}+18\,\ln\left(1/2\,\frac{2\,bxe+2\,\sqrt{(bx+a)(ex+d)}\sqrt{be}+ae+bd}{\sqrt{be}}\right)a^2Ae^3b$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(e*x+d)^(3/2)/(b*x+a)^(1/2),x)
```

```
[Out] 1/48*(e*x+d)^(1/2)*(b*x+a)^(1/2)*(16*B*x^2*b^2*e^2*((b*x+a)*(e*x+
d))^(1/2)*(b*e)^(1/2)+18*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2
)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^2*A*e^3*b-36*ln(1/2*(2*b*x*
e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a*A
*b^2*d*e^2+18*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/
2)+a*e+b*d)/(b*e)^(1/2))*b^3*d^2*A*e+24*A*((b*x+a)*(e*x+d))^(1/2)
*x*b^2*e^2*(b*e)^(1/2)-15*B*e^3*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d
))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^3+27*ln(1/2*(2*b*x*e
+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^2*
B*d*e^2*b-9*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)
+a*e+b*d)/(b*e)^(1/2))*a*B*b^2*d^2*e-3*ln(1/2*(2*b*x*e+2*((b*x+a)
*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*b^3*d^3*B-20*B*
((b*x+a)*(e*x+d))^(1/2)*x*a*b*e^2*(b*e)^(1/2)+28*B*((b*x+a)*(e*x+
d))^(1/2)*x*d*b^2*e*(b*e)^(1/2)-36*((b*x+a)*(e*x+d))^(1/2)*A*a*e^
2*(b*e)^(1/2)*b+60*((b*x+a)*(e*x+d))^(1/2)*A*b^2*d*e*(b*e)^(1/2)+
30*B*((b*x+a)*(e*x+d))^(1/2)*a^2*e^2*(b*e)^(1/2)-44*((b*x+a)*(e*x
+d))^(1/2)*B*a*d*e*(b*e)^(1/2)*b+6*((b*x+a)*(e*x+d))^(1/2)*B*b^2*
d^2*(b*e)^(1/2))/((b*x+a)*(e*x+d))^(1/2)/b^3/(b*e)^(1/2)/e
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^(3/2)/sqrt(b*x + a),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.520614, size = 1, normalized size = 0.01

$$\left[\frac{4\left(8\,Bb^2e^2x^2+3\,Bb^2d^2-2\left(11\,Bab-15\,Ab^2\right)de+3\left(5\,Ba^2-6\,Aab\right)e^2+2\left(7\,Bb^2de-\left(5\,Bab-6\,Ab^2\right)e^2\right)x\right)\sqrt{be}\sqrt{bx+a}\sqrt{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(e*x + d)^(3/2)/sqrt(b*x + a),x, algorithm="fricas")
```

```
[Out] [1/96*(4*(8*B*b^2*e^2*x^2 + 3*B*b^2*d^2 - 2*(11*B*a*b - 15*A*b^2)
*d*e + 3*(5*B*a^2 - 6*A*a*b)*e^2 + 2*(7*B*b^2*d*e - (5*B*a*b - 6*
A*b^2)*e^2)*x)*sqrt(b*e)*sqrt(b*x + a)*sqrt(e*x + d) - 3*(B*b^3*d
^3 + 3*(B*a*b^2 - 2*A*b^3)*d^2*e - 3*(3*B*a^2*b - 4*A*a*b^2)*d*e^
2 + (5*B*a^3 - 6*A*a^2*b)*e^3)*log(4*(2*b^2*e^2*x + b^2*d*e + a*b
*e^2)*sqrt(b*x + a)*sqrt(e*x + d) + (8*b^2*e^2*x^2 + b^2*d^2 + 6*
a*b*d*e + a^2*e^2 + 8*(b^2*d*e + a*b*e^2)*x)*sqrt(b*e)))/(sqrt(b*
e)*b^3*e), 1/48*(2*(8*B*b^2*e^2*x^2 + 3*B*b^2*d^2 - 2*(11*B*a*b -
 15*A*b^2)*d*e + 3*(5*B*a^2 - 6*A*a*b)*e^2 + 2*(7*B*b^2*d*e - (5*
B*a*b - 6*A*b^2)*e^2)*x)*sqrt(-b*e)*sqrt(b*x + a)*sqrt(e*x + d) -
 3*(B*b^3*d^3 + 3*(B*a*b^2 - 2*A*b^3)*d^2*e - 3*(3*B*a^2*b - 4*A*
a*b^2)*d*e^2 + (5*B*a^3 - 6*A*a^2*b)*e^3)*arctan(1/2*(2*b*e*x + b
*d + a*e)*sqrt(-b*e)/(sqrt(b*x + a)*sqrt(e*x + d)*b*e)))/(sqrt(-b
*e)*b^3*e)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(A + Bx)(d + ex)^{\frac{3}{2}}}{\sqrt{a + bx}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(e*x+d)**(3/2)/(b*x+a)**(1/2),x)
```

```
[Out] Integral((A + B*x)*(d + e*x)**(3/2)/sqrt(a + b*x), x)
```

GIAC/XCAS [A] time = 0.296499, size = 790, normalized size = 4.09

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(e*x + d)^(3/2)/sqrt(b*x + a),x, algorithm="giac")
```

```
[Out] -1/48*(48*((b^2*d - a*b*e)*e^(-1/2)*ln(abs(-sqrt(b*x + a)*sqrt(b)
*e^(1/2) + sqrt(b^2*d + (b*x + a)*b*e - a*b*e)))/sqrt(b) - sqrt(b
^2*d + (b*x + a)*b*e - a*b*e)*sqrt(b*x + a))*A*d*abs(b)/b^2 - 2*(
sqrt(b^2*d + (b*x + a)*b*e - a*b*e)*sqrt(b*x + a)*(2*(b*x + a)*(4
*(b*x + a)/b^2 + (b^6*d*e^3 - 13*a*b^5*e^4)*e^(-4)/b^7) - 3*(b^7*
d^2*e^2 + 2*a*b^6*d*e^3 - 11*a^2*b^5*e^4)*e^(-4)/b^7) - 3*(b^3*d^
3 + a*b^2*d^2*e + 3*a^2*b*d*e^2 - 5*a^3*e^3)*e^(-5/2)*ln(abs(-sqr
t(b*x + a)*sqrt(b)*e^(1/2) + sqrt(b^2*d + (b*x + a)*b*e - a*b*e))
)/b^(3/2))*B*abs(b)*e/b^2 - (sqrt(b^2*d + (b*x + a)*b*e - a*b*e)*
sqrt(b*x + a)*(2*(b*x + a)*e^(-2)/b^4 + (b*d*e - 5*a*e^2)*e^(-4)/
b^4) + (b^2*d^2 + 2*a*b*d*e - 3*a^2*e^2)*e^(-7/2)*ln(abs(-sqrt(b*
x + a)*sqrt(b)*e^(1/2) + sqrt(b^2*d + (b*x + a)*b*e - a*b*e)))/b^
(7/2))*B*d*abs(b)/b^3 - (sqrt(b^2*d + (b*x + a)*b*e - a*b*e)*sqrt
(b*x + a)*(2*(b*x + a)*e^(-2)/b^4 + (b*d*e - 5*a*e^2)*e^(-4)/b^4)
 + (b^2*d^2 + 2*a*b*d*e - 3*a^2*e^2)*e^(-7/2)*ln(abs(-sqrt(b*x +
a)*sqrt(b)*e^(1/2) + sqrt(b^2*d + (b*x + a)*b*e - a*b*e)))/b^(7/2
))*A*abs(b)*e/b^3)/b
```

3.2221 $\int \frac{(A+Bx)\sqrt{d+ex}}{\sqrt{a+bx}}\,dx$

Optimal. Leaf size=140

$$-\frac{(bd-ae)(3aBe-4Abe+bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{4b^{5/2}e^{3/2}}-\frac{\sqrt{a+bx}\sqrt{d+ex}(3aBe-4Abe+bBd)}{4b^2e}+\frac{B\sqrt{a+bx}(d+ex)^{3/2}}{2be}$$

```
[Out] -((b*B*d - 4*A*b*e + 3*a*B*e)*Sqrt[a + b*x]*Sqrt[d + e*x])/(4*b^2
*e) + (B*Sqrt[a + b*x]*(d + e*x)^(3/2))/(2*b*e) - ((b*d - a*e)*(b
*B*d - 4*A*b*e + 3*a*B*e)*ArcTanh[(Sqrt[e]*Sqrt[a + b*x])/(Sqrt[b
]*Sqrt[d + e*x])])/(4*b^(5/2)*e^(3/2))
```

Rubi [A] time = 0.274312, antiderivative size = 140, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$-\frac{(bd-ae)(3aBe-4Abe+bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{4b^{5/2}e^{3/2}}-\frac{\sqrt{a+bx}\sqrt{d+ex}(3aBe-4Abe+bBd)}{4b^2e}+\frac{B\sqrt{a+bx}(d+ex)^{3/2}}{2be}$$

Antiderivative was successfully verified.

```
[In]  Int[((A + B*x)*Sqrt[d + e*x])/Sqrt[a + b*x],x]
```

```
[Out] -((b*B*d - 4*A*b*e + 3*a*B*e)*Sqrt[a + b*x]*Sqrt[d + e*x])/(4*b^2
*e) + (B*Sqrt[a + b*x]*(d + e*x)^(3/2))/(2*b*e) - ((b*d - a*e)*(b
*B*d - 4*A*b*e + 3*a*B*e)*ArcTanh[(Sqrt[e]*Sqrt[a + b*x])/(Sqrt[b
]*Sqrt[d + e*x])])/(4*b^(5/2)*e^(3/2))
```

Rubi in Sympy [A] time = 18.7734, size = 131, normalized size = 0.94

$$\frac{B\sqrt{a+bx}\,(d+ex)^{\frac{3}{2}}}{2be}+\frac{\sqrt{a+bx}\sqrt{d+ex}\,(4Abe-3Bae-Bbd)}{4b^2e}-\frac{(ae-bd)\,(4Abe-3Bae-Bbd)\operatorname{atanh}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{4b^{\frac{5}{2}}e^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(e*x+d)**(1/2)/(b*x+a)**(1/2),x)
```

```
[Out] B*sqrt(a + b*x)*(d + e*x)**(3/2)/(2*b*e) + sqrt(a + b*x)*sqrt(d +
 e*x)*(4*A*b*e - 3*B*a*e - B*b*d)/(4*b**2*e) - (a*e - b*d)*(4*A*b
*e - 3*B*a*e - B*b*d)*atanh(sqrt(e)*sqrt(a + b*x)/(sqrt(b)*sqrt(d
 + e*x)))/(4*b**(5/2)*e**(3/2))
```

Mathematica [A] time = 0.131295, size = 129, normalized size = 0.92

$$\frac{\sqrt{a+bx}\sqrt{d+ex}(-3aBe+4Abe+bB(d+2ex))}{4b^2e}-\frac{(bd-ae)(3aBe-4Abe+bBd)\log\left(2\sqrt{b}\sqrt{e}\sqrt{a+bx}\sqrt{d+ex}+ae+bd+2bex\right)}{8b^{5/2}e^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((A + B*x)*Sqrt[d + e*x])/Sqrt[a + b*x],x]
```

```
[Out] (Sqrt[a + b*x]*Sqrt[d + e*x]*(4*A*b*e - 3*a*B*e + b*B*(d + 2*e*x)
))/(4*b^2*e) - ((b*d - a*e)*(b*B*d - 4*A*b*e + 3*a*B*e)*Log[b*d +
 a*e + 2*b*e*x + 2*Sqrt[b]*Sqrt[e]*Sqrt[a + b*x]*Sqrt[d + e*x]])/
(8*b^(5/2)*e^(3/2))
```

Maple [B] time = 0.025, size = 375, normalized size = 2.7

$$-\frac{1}{8\,b^2e}\sqrt{ex+d}\sqrt{bx+a}\left(4\,\ln\left(1/2\,\frac{2\,bxe+2\,\sqrt{(bx+a)(ex+d)}\sqrt{be}+ae+bd}{\sqrt{be}}\right)aAe^2b-4\,\ln\left(1/2\,\frac{2\,bxe+2\,\sqrt{(bx+a)(ex+}}{\sqrt{be}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(e*x+d)^(1/2)/(b*x+a)^(1/2),x)
```

```
[Out] -1/8*(e*x+d)^(1/2)*(b*x+a)^(1/2)*(4*ln(1/2*(2*b*x*e+2*((b*x+a)*(e
*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a*A*e^2*b-4*ln(1/2
*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1
/2))*b^2*d*A*e-3*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e
)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^2*e^2+2*ln(1/2*(2*b*x*e+2*((b*x+a
)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a*B*d*e*b+ln(1
/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^
(1/2))*b^2*d^2*B-4*B*((b*x+a)*(e*x+d))^(1/2)*x*e*b*(b*e)^(1/2)-8*
((b*x+a)*(e*x+d))^(1/2)*A*e*b*(b*e)^(1/2)+6*B*((b*x+a)*(e*x+d))^(
1/2)*a*e*(b*e)^(1/2)-2*((b*x+a)*(e*x+d))^(1/2)*B*d*b*(b*e)^(1/2))
/((b*x+a)*(e*x+d))^(1/2)/b^2/e/(b*e)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(e*x + d)/sqrt(b*x + a),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.429015, size = 1, normalized size = 0.01

$$\left[\frac{4\,(2\,Bbex+Bbd-(3\,Ba-4\,Ab)e)\sqrt{be}\sqrt{bx+a}\sqrt{ex+d}+\left(Bb^2d^2+2\,\left(Bab-2\,Ab^2\right)de-\left(3\,Ba^2-4\,Aab\right)e^2\right)\log\left(-4\,(2\,b^2e\right.}{16\,\sqrt{be}b^2e}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(e*x + d)/sqrt(b*x + a),x, algorithm="fricas")
```

```
[Out] [1/16*(4*(2*B*b*e*x + B*b*d - (3*B*a - 4*A*b)*e)*sqrt(b*e)*sqrt(b
*x + a)*sqrt(e*x + d) + (B*b^2*d^2 + 2*(B*a*b - 2*A*b^2)*d*e - (3
*B*a^2 - 4*A*a*b)*e^2)*log(-4*(2*b^2*e^2*x + b^2*d*e + a*b*e^2)*s
qrt(b*x + a)*sqrt(e*x + d) + (8*b^2*e^2*x^2 + b^2*d^2 + 6*a*b*d*e
 + a^2*e^2 + 8*(b^2*d*e + a*b*e^2)*x)*sqrt(b*e)))/(sqrt(b*e)*b^2*
e), 1/8*(2*(2*B*b*e*x + B*b*d - (3*B*a - 4*A*b)*e)*sqrt(-b*e)*sqr
t(b*x + a)*sqrt(e*x + d) - (B*b^2*d^2 + 2*(B*a*b - 2*A*b^2)*d*e -
 (3*B*a^2 - 4*A*a*b)*e^2)*arctan(1/2*(2*b*e*x + b*d + a*e)*sqrt(-
b*e)/(sqrt(b*x + a)*sqrt(e*x + d)*b*e)))/(sqrt(-b*e)*b^2*e)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(e*x+d)**(1/2)/(b*x+a)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.250857, size = 328, normalized size = 2.34

$$-\frac{\frac{48\left(\frac{\left(b^2d-abe\right)e^{\left(-\frac{1}{2}\right)}\ln\left(\left|-\sqrt{bx+a}\sqrt{b}e^{\frac{1}{2}}+\sqrt{b^2d+(bx+a)be-abe}\right|\right)}{\sqrt{b}}-\sqrt{b^2d+(bx+a)be-abe}\sqrt{bx+a}\right)A|b|}{b^2}-\left(\sqrt{b^2d+(bx+a)be-abe}\sqrt{bx+a}\left(\frac{2(bx+a)e^{(-2)}}{b^4}+\frac{\left(bde-5ae^2\right)}{b^4}\right.\right.}{48b}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(e*x + d)/sqrt(b*x + a),x, algorithm="giac")
```

```
[Out] -1/48*(48*((b^2*d - a*b*e)*e^(-1/2)*ln(abs(-sqrt(b*x + a)*sqrt(b)
*e^(1/2) + sqrt(b^2*d + (b*x + a)*b*e - a*b*e)))/sqrt(b) - sqrt(b
^2*d + (b*x + a)*b*e - a*b*e)*sqrt(b*x + a))*A*abs(b)/b^2 - (sqrt
(b^2*d + (b*x + a)*b*e - a*b*e)*sqrt(b*x + a)*(2*(b*x + a)*e^(-2)
/b^4 + (b*d*e - 5*a*e^2)*e^(-4)/b^4) + (b^2*d^2 + 2*a*b*d*e - 3*a
^2*e^2)*e^(-7/2)*ln(abs(-sqrt(b*x + a)*sqrt(b)*e^(1/2) + sqrt(b^2
*d + (b*x + a)*b*e - a*b*e)))/b^(7/2))*B*abs(b)/b^3)/b
```

3.2222 $\int \frac{A+Bx}{\sqrt{a+bx}\sqrt{d+ex}}\,dx$

Optimal. Leaf size=84

$$\frac{(2Abe-B(ae+bd))\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{b^{3/2}e^{3/2}}+\frac{B\sqrt{a+bx}\sqrt{d+ex}}{be}$$

```
[Out] (B*Sqrt[a + b*x]*Sqrt[d + e*x])/(b*e) + ((2*A*b*e - B*(b*d + a*e)
)*ArcTanh[(Sqrt[e]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[d + e*x])])/(b^(3
/2)*e^(3/2))
```

Rubi [A] time = 0.163738, antiderivative size = 84, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$\frac{(2Abe-B(ae+bd))\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{b^{3/2}e^{3/2}}+\frac{B\sqrt{a+bx}\sqrt{d+ex}}{be}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(Sqrt[a + b*x]*Sqrt[d + e*x]),x]
```

```
[Out] (B*Sqrt[a + b*x]*Sqrt[d + e*x])/(b*e) + ((2*A*b*e - B*(b*d + a*e)
)*ArcTanh[(Sqrt[e]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[d + e*x])])/(b^(3
/2)*e^(3/2))
```

Rubi in Sympy [A] time = 12.1138, size = 76, normalized size = 0.9

$$\frac{B\sqrt{a+bx}\sqrt{d+ex}}{be}-\frac{2\left(-Abe+\frac{B(ae+bd)}{2}\right)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{e}\sqrt{a+bx}}\right)}{b^{\frac{3}{2}}e^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(b*x+a)**(1/2)/(e*x+d)**(1/2),x)
```

```
[Out] B*sqrt(a + b*x)*sqrt(d + e*x)/(b*e) - 2*(-A*b*e + B*(a*e + b*d)/2
)*atanh(sqrt(b)*sqrt(d + e*x)/(sqrt(e)*sqrt(a + b*x)))/(b**(3/2)*
e**(3/2))
```

Mathematica [A] time = 0.132936, size = 100, normalized size = 1.19

$$\frac{(-aBe+2Abe-bBd)\log\left(2\sqrt{b}\sqrt{e}\sqrt{a+bx}\sqrt{d+ex}+ae+bd+2bex\right)}{2b^{3/2}e^{3/2}}+\frac{B\sqrt{a+bx}\sqrt{d+ex}}{be}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(Sqrt[a + b*x]*Sqrt[d + e*x]),x]
```

```
[Out] (B*Sqrt[a + b*x]*Sqrt[d + e*x])/(b*e) + ((-(b*B*d) + 2*A*b*e - a*
B*e)*Log[b*d + a*e + 2*b*e*x + 2*Sqrt[b]*Sqrt[e]*Sqrt[a + b*x]*Sq
rt[d + e*x]])/(2*b^(3/2)*e^(3/2))
```

Maple [B] time = 0.029, size = 198, normalized size = 2.4

$$\frac{1}{2\,be}\left(2\,A\ln\left(1/2\,\frac{2\,bxe+2\,\sqrt{(bx+a)\,(ex+d)}\sqrt{be}+ae+bd}{\sqrt{be}}\right)be-B\ln\left(\frac{1}{2}\left(2\,bxe+2\,\sqrt{(bx+a)\,(ex+d)}\sqrt{be}+ae+bd\right)\frac{1}{\sqrt{be}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(b*x+a)^(1/2)/(e*x+d)^(1/2),x)
```

```
[Out] 1/2*(2*A*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*
e+b*d)/(b*e)^(1/2))*b*e-B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/
2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a*e-B*ln(1/2*(2*b*x*e+2*((b*
x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*b*d+2*B*((b
*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2))*(b*x+a)^(1/2)*(e*x+d)^(1/2)/e/(
b*e)^(1/2)/b/((b*x+a)*(e*x+d))^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*sqrt(e*x + d)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.446397, size = 1, normalized size = 0.01

$$\left[\frac{4\,\sqrt{be}\sqrt{bx+a}\sqrt{ex+d}B-(Bbd+(Ba-2\,Ab)e)\log\left(4\left(2\,b^2e^2x+b^2de+abe^2\right)\sqrt{bx+a}\sqrt{ex+d}+\left(8\,b^2e^2x^2+b^2d^2+6\,abde\right.\right.}{4\,\sqrt{be}be}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*sqrt(e*x + d)),x, algorithm="fricas")
```

```
[Out] [1/4*(4*sqrt(b*e)*sqrt(b*x + a)*sqrt(e*x + d)*B - (B*b*d + (B*a -
 2*A*b)*e)*log(4*(2*b^2*e^2*x + b^2*d*e + a*b*e^2)*sqrt(b*x + a)*
sqrt(e*x + d) + (8*b^2*e^2*x^2 + b^2*d^2 + 6*a*b*d*e + a^2*e^2 +
8*(b^2*d*e + a*b*e^2)*x)*sqrt(b*e)))/(sqrt(b*e)*b*e), 1/2*(2*sqrt
(-b*e)*sqrt(b*x + a)*sqrt(e*x + d)*B - (B*b*d + (B*a - 2*A*b)*e)*
arctan(1/2*(2*b*e*x + b*d + a*e)*sqrt(-b*e)/(sqrt(b*x + a)*sqrt(e
*x + d)*b*e)))/(sqrt(-b*e)*b*e)]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{A+Bx}{\sqrt{a+bx}\sqrt{d+ex}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(b*x+a)**(1/2)/(e*x+d)**(1/2),x)
```

```
[Out] Integral((A + B*x)/(sqrt(a + b*x)*sqrt(d + e*x)), x)
```

GIAC/XCAS [A] time = 0.230052, size = 143, normalized size = 1.7

$$\frac{\left(\frac{(Bbd+Bae-2\,Abe)e^{\left(-\frac{3}{2}\right)}\ln\left(\left|-\sqrt{bx+a}\sqrt{b}e^{\frac{1}{2}}+\sqrt{b^2d+(bx+a)be-abe}\right|\right)}{b^{\frac{3}{2}}}+\frac{\sqrt{b^2d+(bx+a)be-abe}\sqrt{bx+a}Be^{(-1)}}{b^2}\right)b}{|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/(sqrt(b*x + a)*sqrt(e*x + d)),x, algorithm="giac")
```

```
[Out] ((B*b*d + B*a*e - 2*A*b*e)*e^(-3/2)*ln(abs(-sqrt(b*x + a)*sqrt(b)
*e^(1/2) + sqrt(b^2*d + (b*x + a)*b*e - a*b*e)))/b^(3/2) + sqrt(b
^2*d + (b*x + a)*b*e - a*b*e)*sqrt(b*x + a)*B*e^(-1)/b^2)*b/abs(b
)
```

3.2223 $\int \frac{A+Bx}{\sqrt{a+bx}(d+ex)^{3/2}}\,dx$

Optimal. Leaf size=85

$$\frac{2B\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{\sqrt{b}e^{3/2}}-\frac{2\sqrt{a+bx}(Bd-Ae)}{e\sqrt{d+ex}(bd-ae)}$$

```
[Out] (-2*(B*d - A*e)*Sqrt[a + b*x])/(e*(b*d - a*e)*Sqrt[d + e*x]) + (2
*B*ArcTanh[(Sqrt[e]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[d + e*x])])/(Sqr
t[b]*e^(3/2))
```

Rubi [A] time = 0.134716, antiderivative size = 85, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$\frac{2B\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{\sqrt{b}e^{3/2}}-\frac{2\sqrt{a+bx}(Bd-Ae)}{e\sqrt{d+ex}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(Sqrt[a + b*x]*(d + e*x)^(3/2)),x]
```

```
[Out] (-2*(B*d - A*e)*Sqrt[a + b*x])/(e*(b*d - a*e)*Sqrt[d + e*x]) + (2
*B*ArcTanh[(Sqrt[e]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[d + e*x])])/(Sqr
t[b]*e^(3/2))
```

Rubi in Sympy [A] time = 11.6122, size = 75, normalized size = 0.88

$$\frac{2B\,\text{atanh}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{\sqrt{b}e^{\frac{3}{2}}}-\frac{2\sqrt{a+bx}\,(Ae-Bd)}{e\sqrt{d+ex}\,(ae-bd)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(e*x+d)**(3/2)/(b*x+a)**(1/2),x)
```

```
[Out] 2*B*atanh(sqrt(e)*sqrt(a + b*x)/(sqrt(b)*sqrt(d + e*x)))/(sqrt(b)
*e**(3/2)) - 2*sqrt(a + b*x)*(A*e - B*d)/(e*sqrt(d + e*x)*(a*e -
b*d))
```

Mathematica [A] time = 0.157968, size = 97, normalized size = 1.14

$$\frac{B\log\left(2\sqrt{b}\sqrt{e}\sqrt{a+bx}\sqrt{d+ex}+ae+bd+2bex\right)}{\sqrt{b}e^{3/2}}-\frac{2\sqrt{a+bx}(Ae-Bd)}{e\sqrt{d+ex}(ae-bd)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(Sqrt[a + b*x]*(d + e*x)^(3/2)),x]
```

```
[Out] (-2*(-(B*d) + A*e)*Sqrt[a + b*x])/(e*(-(b*d) + a*e)*Sqrt[d + e*x]
) + (B*Log[b*d + a*e + 2*b*e*x + 2*Sqrt[b]*Sqrt[e]*Sqrt[a + b*x]*
Sqrt[d + e*x]])/(Sqrt[b]*e^(3/2))
```

Maple [B] time = 0.036, size = 278, normalized size = 3.3

$$\frac{1}{e(ae-bd)}\left(B\ln\left(\frac{1}{2}\left(2bxe+2\sqrt{(bx+a)(ex+d)}\sqrt{be}+ae+bd\right)\frac{1}{\sqrt{be}}\right)xae^2-B\ln\left(\frac{1}{2}\left(2bxe+2\sqrt{(bx+a)(ex+d)}\sqrt{be}+\right.\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(e*x+d)^(3/2)/(b*x+a)^(1/2),x)
```

```
[Out] (B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)
/(b*e)^(1/2))*x*a*e^2-B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)
*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x*b*d*e+B*ln(1/2*(2*b*x*e+2*((
b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a*d*e-B*l
n(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*
e)^(1/2))*b*d^2-2*A*e*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+2*B*d*(
(b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2))*(b*x+a)^(1/2)/(b*e)^(1/2)/(a*
e-b*d)/((b*x+a)*(e*x+d))^(1/2)/e/(e*x+d)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*(e*x + d)^(3/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.507909, size = 1, normalized size = 0.01

$$\left[-\frac{4(Bd-Ae)\sqrt{be}\sqrt{bx+a}\sqrt{ex+d}-\left(Bbd^2-Bade+\left(Bbde-Bae^2\right)x\right)\log\left(4\left(2b^2e^2x+b^2de+abe^2\right)\sqrt{bx+a}\sqrt{ex+d}+\right.}{2(bd^2e-ade^2+(bde^2-ae^3)x)\sqrt{be}}\right.$$
$$\left.-\frac{2(Bd-Ae)\sqrt{-be}\sqrt{bx+a}\sqrt{ex+d}-\left(Bbd^2-Bade+\left(Bbde-Bae^2\right)x\right)\arctan\left(\frac{(2bex+bd+ae)\sqrt{-be}}{2\sqrt{bx+a}\sqrt{ex+d}be}\right)}{(bd^2e-ade^2+(bde^2-ae^3)x)\sqrt{-be}}\right]$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*(e*x + d)^(3/2)),x, algorithm="fricas")
```

```
[Out] [-1/2*(4*(B*d - A*e)*sqrt(b*e)*sqrt(b*x + a)*sqrt(e*x + d) - (B*b
*d^2 - B*a*d*e + (B*b*d*e - B*a*e^2)*x)*log(4*(2*b^2*e^2*x + b^2*
d*e + a*b*e^2)*sqrt(b*x + a)*sqrt(e*x + d) + (8*b^2*e^2*x^2 + b^2
*d^2 + 6*a*b*d*e + a^2*e^2 + 8*(b^2*d*e + a*b*e^2)*x)*sqrt(b*e)))
/((b*d^2*e - a*d*e^2 + (b*d*e^2 - a*e^3)*x)*sqrt(b*e)), -(2*(B*d
- A*e)*sqrt(-b*e)*sqrt(b*x + a)*sqrt(e*x + d) - (B*b*d^2 - B*a*d*
e + (B*b*d*e - B*a*e^2)*x)*arctan(1/2*(2*b*e*x + b*d + a*e)*sqrt(
-b*e)/(sqrt(b*x + a)*sqrt(e*x + d)*b*e)))/((b*d^2*e - a*d*e^2 + (
b*d*e^2 - a*e^3)*x)*sqrt(-b*e))]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{A+Bx}{\sqrt{a+bx}\,(d+ex)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(e*x+d)**(3/2)/(b*x+a)**(1/2),x)
```

```
[Out] Integral((A + B*x)/(sqrt(a + b*x)*(d + e*x)**(3/2)), x)
```

GIAC/XCAS [A] time = 0.236359, size = 162, normalized size = 1.91

$$-\frac{2\,B|b|e^{\left(-\frac{3}{2}\right)}\ln\left(\left|-\sqrt{bx+a}\sqrt{b}e^{\frac{1}{2}}+\sqrt{b^2d+(bx+a)be-abe}\right|\right)}{b^{\frac{3}{2}}}-\frac{2\left(Bb^2d|b|-Ab^2|b|e\right)\sqrt{bx+a}}{(b^3de-ab^2e^2)\sqrt{b^2d+(bx+a)be-abe}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/(sqrt(b*x + a)*(e*x + d)^(3/2)),x, algorithm="giac")
```

```
[Out] -2*B*abs(b)*e^(-3/2)*ln(abs(-sqrt(b*x + a)*sqrt(b)*e^(1/2) + sqrt
(b^2*d + (b*x + a)*b*e - a*b*e)))/b^(3/2) - 2*(B*b^2*d*abs(b) - A
*b^2*abs(b)*e)*sqrt(b*x + a)/((b^3*d*e - a*b^2*e^2)*sqrt(b^2*d +
(b*x + a)*b*e - a*b*e))
```

3.2224 $\int \frac{A+Bx}{\sqrt{a+bx}(d+ex)^{5/2}}\,dx$

Optimal. Leaf size=94

$$\frac{2\sqrt{a+bx}(-3aBe+2Abe+bBd)}{3e\sqrt{d+ex}(bd-ae)^2}-\frac{2\sqrt{a+bx}(Bd-Ae)}{3e(d+ex)^{3/2}(bd-ae)}$$

```
[Out] (-2*(B*d - A*e)*Sqrt[a + b*x])/(3*e*(b*d - a*e)*(d + e*x)^(3/2))
+ (2*(b*B*d + 2*A*b*e - 3*a*B*e)*Sqrt[a + b*x])/(3*e*(b*d - a*e)^
2*Sqrt[d + e*x])
```

Rubi [A] time = 0.168818, antiderivative size = 94, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.083

$$\frac{2\sqrt{a+bx}(-3aBe+2Abe+bBd)}{3e\sqrt{d+ex}(bd-ae)^2}-\frac{2\sqrt{a+bx}(Bd-Ae)}{3e(d+ex)^{3/2}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(Sqrt[a + b*x]*(d + e*x)^(5/2)),x]
```

```
[Out] (-2*(B*d - A*e)*Sqrt[a + b*x])/(3*e*(b*d - a*e)*(d + e*x)^(3/2))
+ (2*(b*B*d + 2*A*b*e - 3*a*B*e)*Sqrt[a + b*x])/(3*e*(b*d - a*e)^
2*Sqrt[d + e*x])
```

Rubi in Sympy [A] time = 12.4328, size = 83, normalized size = 0.88

$$-\frac{4\sqrt{a+bx}\left(-Abe+\frac{B(3ae-bd)}{2}\right)}{3e\sqrt{d+ex}\,(ae-bd)^2}-\frac{2\sqrt{a+bx}\,(Ae-Bd)}{3e\,(d+ex)^{\frac{3}{2}}\,(ae-bd)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(e*x+d)**(5/2)/(b*x+a)**(1/2),x)
```

```
[Out] -4*sqrt(a + b*x)*(-A*b*e + B*(3*a*e - b*d)/2)/(3*e*sqrt(d + e*x)*
(a*e - b*d)**2) - 2*sqrt(a + b*x)*(A*e - B*d)/(3*e*(d + e*x)**(3/
2)*(a*e - b*d))
```

Mathematica [A] time = 0.12656, size = 65, normalized size = 0.69

$$\frac{2\sqrt{a+bx}(A(-ae+3bd+2bex)+B(-2ad-3aex+bdx))}{3(d+ex)^{3/2}(bd-ae)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(Sqrt[a + b*x]*(d + e*x)^(5/2)),x]
```

```
[Out] (2*Sqrt[a + b*x]*(B*(-2*a*d + b*d*x - 3*a*e*x) + A*(3*b*d - a*e +
 2*b*e*x)))/(3*(b*d - a*e)^2*(d + e*x)^(3/2))
```

Maple [A] time = 0.01, size = 73, normalized size = 0.8

$$-\frac{-4\,Abex+6\,Baex-2\,Bbdx+2\,Aae-6\,Abd+4\,Bad}{3\,a^2e^2-6\,bead+3\,b^2d^2}\sqrt{bx+a}\,(ex+d)^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(e*x+d)^(5/2)/(b*x+a)^(1/2),x)
```

```
[Out] -2/3*(b*x+a)^(1/2)*(-2*A*b*e*x+3*B*a*e*x-B*b*d*x+A*a*e-3*A*b*d+2*
B*a*d)/(e*x+d)^(3/2)/(a^2*e^2-2*a*b*d*e+b^2*d^2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/(sqrt(b*x + a)*(e*x + d)^(5/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.45801, size = 189, normalized size = 2.01

$$-\frac{2\,(Aae + (2\,Ba - 3\,Ab)d - (Bbd - (3\,Ba - 2\,Ab)e)x)\sqrt{bx + a}\sqrt{ex + d}}{3\,(b^2d^4 - 2\,abd^3e + a^2d^2e^2 + (b^2d^2e^2 - 2\,abde^3 + a^2e^4)x^2 + 2\,(b^2d^3e - 2\,abd^2e^2 + a^2de^3)x)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/(sqrt(b*x + a)*(e*x + d)^(5/2)),x, algorithm="fricas")
```

```
[Out] -2/3*(A*a*e + (2*B*a - 3*A*b)*d - (B*b*d - (3*B*a - 2*A*b)*e)*x)*
sqrt(b*x + a)*sqrt(e*x + d)/(b^2*d^4 - 2*a*b*d^3*e + a^2*d^2*e^2
+ (b^2*d^2*e^2 - 2*a*b*d*e^3 + a^2*e^4)*x^2 + 2*(b^2*d^3*e - 2*a*
b*d^2*e^2 + a^2*d*e^3)*x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{A + Bx}{\sqrt{a + bx}\,(d + ex)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(e*x+d)**(5/2)/(b*x+a)**(1/2),x)
```

```
[Out] Integral((A + B*x)/(sqrt(a + b*x)*(d + e*x)**(5/2)), x)
```

GIAC/XCAS [A] time = 0.236492, size = 242, normalized size = 2.57

$$-\frac{\sqrt{bx + a}\left(\frac{(Bb^4d|b|e - 3\,Bab^3|b|e^2 + 2\,Ab^4|b|e^2)(bx + a)}{b^8d^2e^4 - 2\,ab^7de^5 + a^2b^6e^6} - \frac{3\,(Bab^4d|b|e - Ab^5d|b|e - Ba^2b^3|b|e^2 + Aab^4|b|e^2)}{b^8d^2e^4 - 2\,ab^7de^5 + a^2b^6e^6}\right)}{48\,(b^2d + (bx + a)be - abe)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/(sqrt(b*x + a)*(e*x + d)^(5/2)),x, algorithm="giac")
```

```
[Out] -1/48*sqrt(b*x + a)*((B*b^4*d*abs(b)*e - 3*B*a*b^3*abs(b)*e^2 + 2
*A*b^4*abs(b)*e^2)*(b*x + a)/(b^8*d^2*e^4 - 2*a*b^7*d*e^5 + a^2*b
```

```
^6*e^6) - 3*(B*a*b^4*d*abs(b)*e - A*b^5*d*abs(b)*e - B*a^2*b^3*ab
s(b)*e^2 + A*a*b^4*abs(b)*e^2)/(b^8*d^2*e^4 - 2*a*b^7*d*e^5 + a^2
*b^6*e^6))/(b^2*d + (b*x + a)*b*e - a*b*e)^(3/2)
```

3.2225 $\int \frac{A+Bx}{\sqrt{a+bx}(d+ex)^{7/2}}\,dx$

Optimal. Leaf size=145

$$-\frac{2\sqrt{a+bx}(Bd-Ae)}{5e(d+ex)^{5/2}(bd-ae)}+\frac{4b\sqrt{a+bx}(-5aBe+4Abe+bBd)}{15e\sqrt{d+ex}(bd-ae)^3}+\frac{2\sqrt{a+bx}(-5aBe+4Abe+bBd)}{15e(d+ex)^{3/2}(bd-ae)^2}$$

```
[Out] (-2*(B*d - A*e)*Sqrt[a + b*x])/(5*e*(b*d - a*e)*(d + e*x)^(5/2))
+ (2*(b*B*d + 4*A*b*e - 5*a*B*e)*Sqrt[a + b*x])/(15*e*(b*d - a*e)
^2*(d + e*x)^(3/2)) + (4*b*(b*B*d + 4*A*b*e - 5*a*B*e)*Sqrt[a + b
*x])/(15*e*(b*d - a*e)^3*Sqrt[d + e*x])
```

Rubi [A] time = 0.268115, antiderivative size = 145, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$-\frac{2\sqrt{a+bx}(Bd-Ae)}{5e(d+ex)^{5/2}(bd-ae)}+\frac{4b\sqrt{a+bx}(-5aBe+4Abe+bBd)}{15e\sqrt{d+ex}(bd-ae)^3}+\frac{2\sqrt{a+bx}(-5aBe+4Abe+bBd)}{15e(d+ex)^{3/2}(bd-ae)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(Sqrt[a + b*x]*(d + e*x)^(7/2)),x]
```

```
[Out] (-2*(B*d - A*e)*Sqrt[a + b*x])/(5*e*(b*d - a*e)*(d + e*x)^(5/2))
+ (2*(b*B*d + 4*A*b*e - 5*a*B*e)*Sqrt[a + b*x])/(15*e*(b*d - a*e)
^2*(d + e*x)^(3/2)) + (4*b*(b*B*d + 4*A*b*e - 5*a*B*e)*Sqrt[a + b
*x])/(15*e*(b*d - a*e)^3*Sqrt[d + e*x])
```

Rubi in Sympy [A] time = 24.4646, size = 134, normalized size = 0.92

$$-\frac{4b\sqrt{a+bx}\,(4Abe-5Bae+Bbd)}{15e\sqrt{d+ex}\,(ae-bd)^3}+\frac{2\sqrt{a+bx}\,(4Abe-5Bae+Bbd)}{15e\,(d+ex)^{\frac{3}{2}}\,(ae-bd)^2}-\frac{2\sqrt{a+bx}\,(Ae-Bd)}{5e\,(d+ex)^{\frac{5}{2}}\,(ae-bd)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(e*x+d)**(7/2)/(b*x+a)**(1/2),x)
```

```
[Out] -4*b*sqrt(a + b*x)*(4*A*b*e - 5*B*a*e + B*b*d)/(15*e*sqrt(d + e*x
)*(a*e - b*d)**3) + 2*sqrt(a + b*x)*(4*A*b*e - 5*B*a*e + B*b*d)/(
15*e*(d + e*x)**(3/2)*(a*e - b*d)**2) - 2*sqrt(a + b*x)*(A*e - B*
d)/(5*e*(d + e*x)**(5/2)*(a*e - b*d))
```

Mathematica [A] time = 0.208749, size = 131, normalized size = 0.9

$$\sqrt{a+bx}\sqrt{d+ex}\left(-\frac{2(Ae-Bd)}{5e(d+ex)^3(ae-bd)}-\frac{4b(-5aBe+4Abe+bBd)}{15e(d+ex)(ae-bd)^3}+\frac{2(-5aBe+4Abe+bBd)}{15e(d+ex)^2(ae-bd)^2}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(Sqrt[a + b*x]*(d + e*x)^(7/2)),x]
```

```
[Out] Sqrt[a + b*x]*Sqrt[d + e*x]*((-2*(-(B*d) + A*e))/(5*e*(-(b*d) + a
*e)*(d + e*x)^3) + (2*(b*B*d + 4*A*b*e - 5*a*B*e))/(15*e*(-(b*d)
+ a*e)^2*(d + e*x)^2) - (4*b*(b*B*d + 4*A*b*e - 5*a*B*e))/(15*e*(
-(b*d) + a*e)^3*(d + e*x)))
```

Maple [A] time = 0.013, size = 177, normalized size = 1.2

$$-\frac{16\,Ab^{2}e^{2}x^{2}-20\,Babe^{2}x^{2}+4\,Bb^{2}dex^{2}-8\,Aabe^{2}x+40\,Ab^{2}dex+10\,Ba^{2}e^{2}x-52\,Babdex+10\,Bb^{2}d^{2}x+6\,Aa^{2}e^{2}-20\,Aab}{15\,a^{3}e^{3}-45\,a^{2}bde^{2}+45\,ab^{2}d^{2}e-15\,b^{3}d^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(e*x+d)^(7/2)/(b*x+a)^(1/2),x)
```

```
[Out] -2/15*(b*x+a)^(1/2)*(8*A*b^2*e^2*x^2-10*B*a*b*e^2*x^2+2*B*b^2*d*e
*x^2-4*A*a*b*e^2*x+20*A*b^2*d*e*x+5*B*a^2*e^2*x-26*B*a*b*d*e*x+5*
B*b^2*d^2*x+3*A*a^2*e^2-10*A*a*b*d*e+15*A*b^2*d^2+2*B*a^2*d*e-10*
B*a*b*d^2)/(e*x+d)^(5/2)/(a^3*e^3-3*a^2*b*d*e^2+3*a*b^2*d^2*e-b^3
*d^3)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/(sqrt(b*x + a)*(e*x + d)^(7/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.646446, size = 427, normalized size = 2.94

$$\frac{2\left(3\,Aa^{2}e^{2}-5\left(2\,Bab-3\,Ab^{2}\right)d^{2}+2\left(Ba^{2}-5\,Aab\right)de+2\left(Bb^{2}de-\left(5\,Bab-4\,Ab^{2}\right)e^{2}\right)x^{2}+\left(5\,Bb^{2}d^{2}-2\left(13\,Bab-1\right.\right.}{15\left(b^{3}d^{6}-3\,ab^{2}d^{5}e+3\,a^{2}bd^{4}e^{2}-a^{3}d^{3}e^{3}+\left(b^{3}d^{3}e^{3}-3\,ab^{2}d^{2}e^{4}+3\,a^{2}bde^{5}-a^{3}e^{6}\right)x^{3}+3\left(b^{3}d^{4}e^{2}-3\,ab^{2}d^{3}e^{3}+3\,a^{2}bd^{2}e^{4}-\right.\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/(sqrt(b*x + a)*(e*x + d)^(7/2)),x, algorithm="fricas")
```

```
[Out] 2/15*(3*A*a^2*e^2 - 5*(2*B*a*b - 3*A*b^2)*d^2 + 2*(B*a^2 - 5*A*a*
b)*d*e + 2*(B*b^2*d*e - (5*B*a*b - 4*A*b^2)*e^2)*x^2 + (5*B*b^2*d
^2 - 2*(13*B*a*b - 10*A*b^2)*d*e + (5*B*a^2 - 4*A*a*b)*e^2)*x)*sq
rt(b*x + a)*sqrt(e*x + d)/(b^3*d^6 - 3*a*b^2*d^5*e + 3*a^2*b*d^4*
e^2 - a^3*d^3*e^3 + (b^3*d^3*e^3 - 3*a*b^2*d^2*e^4 + 3*a^2*b*d*e^
5 - a^3*e^6)*x^3 + 3*(b^3*d^4*e^2 - 3*a*b^2*d^3*e^3 + 3*a^2*b*d^2
*e^4 - a^3*d*e^5)*x^2 + 3*(b^3*d^5*e - 3*a*b^2*d^4*e^2 + 3*a^2*b*
d^3*e^3 - a^3*d^2*e^4)*x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(e*x+d)**(7/2)/(b*x+a)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.263141, size = 477, normalized size = 3.29

$$-\frac{\left((bx+a)\left(\frac{2\left(Bb^{6}d|b|e^{3}-5\,Bab^{5}|b|e^{4}+4\,Ab^{6}|b|e^{4}\right)(bx+a)}{b^{12}d^{3}e^{6}-3\,ab^{11}d^{2}e^{7}+3\,a^{2}b^{10}de^{8}-a^{3}b^{9}e^{9}}+\frac{5\left(Bb^{7}d^{2}|b|e^{2}-6\,Bab^{6}d|b|e^{3}+4\,Ab^{7}d|b|e^{3}+5\,Ba^{2}b^{5}|b|e^{4}-4\,Aab^{6}|b|e^{4}\right)}{b^{12}d^{3}e^{6}-3\,ab^{11}d^{2}e^{7}+3\,a^{2}b^{10}de^{8}-a^{3}b^{9}e^{9}}\right)-\frac{15\left(Bab^{7}d\right.}{}\right.}{960\left(b^{2}d+(bx+a)be-abe\right)^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/(sqrt(b*x + a)*(e*x + d)^(7/2)),x, algorithm="giac")
```

```
[Out] -1/960*((b*x + a)*(2*(B*b^6*d*abs(b)*e^3 - 5*B*a*b^5*abs(b)*e^4 +
 4*A*b^6*abs(b)*e^4)*(b*x + a)/(b^12*d^3*e^6 - 3*a*b^11*d^2*e^7 +
 3*a^2*b^10*d*e^8 - a^3*b^9*e^9) + 5*(B*b^7*d^2*abs(b)*e^2 - 6*B*
a*b^6*d*abs(b)*e^3 + 4*A*b^7*d*abs(b)*e^3 + 5*B*a^2*b^5*abs(b)*e^
4 - 4*A*a*b^6*abs(b)*e^4)/(b^12*d^3*e^6 - 3*a*b^11*d^2*e^7 + 3*a^
2*b^10*d*e^8 - a^3*b^9*e^9)) - 15*(B*a*b^7*d^2*abs(b)*e^2 - A*b^8
*d^2*abs(b)*e^2 - 2*B*a^2*b^6*d*abs(b)*e^3 + 2*A*a*b^7*d*abs(b)*e
^3 + B*a^3*b^5*abs(b)*e^4 - A*a^2*b^6*abs(b)*e^4)/(b^12*d^3*e^6 -
 3*a*b^11*d^2*e^7 + 3*a^2*b^10*d*e^8 - a^3*b^9*e^9))*sqrt(b*x + a
)/(b^2*d + (b*x + a)*b*e - a*b*e)^(5/2)
```

3.2226 $\int \frac{A+Bx}{\sqrt{a+bx}(d+ex)^{9/2}}\,dx$

Optimal. Leaf size=198

$$\frac{16b^2\sqrt{a+bx}(-7aBe+6Abe+bBd)}{105e\sqrt{d+ex}(bd-ae)^4}+\frac{8b\sqrt{a+bx}(-7aBe+6Abe+bBd)}{105e(d+ex)^{3/2}(bd-ae)^3}+\frac{2\sqrt{a+bx}(-7aBe+6Abe+bBd)}{35e(d+ex)^{5/2}(bd-ae)^2}-\frac{2\sqrt{a+bx}(Bd-Ae)}{7e(d+ex)^{7/2}(bd-ae)}$$

```
[Out] (-2*(B*d - A*e)*Sqrt[a + b*x])/(7*e*(b*d - a*e)*(d + e*x)^(7/2))
+ (2*(b*B*d + 6*A*b*e - 7*a*B*e)*Sqrt[a + b*x])/(35*e*(b*d - a*e)
^2*(d + e*x)^(5/2)) + (8*b*(b*B*d + 6*A*b*e - 7*a*B*e)*Sqrt[a + b
*x])/(105*e*(b*d - a*e)^3*(d + e*x)^(3/2)) + (16*b^2*(b*B*d + 6*A
*b*e - 7*a*B*e)*Sqrt[a + b*x])/(105*e*(b*d - a*e)^4*Sqrt[d + e*x]
)
```

Rubi [A] time = 0.364643, antiderivative size = 198, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$\frac{16b^2\sqrt{a+bx}(-7aBe+6Abe+bBd)}{105e\sqrt{d+ex}(bd-ae)^4}+\frac{8b\sqrt{a+bx}(-7aBe+6Abe+bBd)}{105e(d+ex)^{3/2}(bd-ae)^3}+\frac{2\sqrt{a+bx}(-7aBe+6Abe+bBd)}{35e(d+ex)^{5/2}(bd-ae)^2}-\frac{2\sqrt{a+bx}(Bd-Ae)}{7e(d+ex)^{7/2}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(Sqrt[a + b*x]*(d + e*x)^(9/2)),x]
```

```
[Out] (-2*(B*d - A*e)*Sqrt[a + b*x])/(7*e*(b*d - a*e)*(d + e*x)^(7/2))
+ (2*(b*B*d + 6*A*b*e - 7*a*B*e)*Sqrt[a + b*x])/(35*e*(b*d - a*e)
^2*(d + e*x)^(5/2)) + (8*b*(b*B*d + 6*A*b*e - 7*a*B*e)*Sqrt[a + b
*x])/(105*e*(b*d - a*e)^3*(d + e*x)^(3/2)) + (16*b^2*(b*B*d + 6*A
*b*e - 7*a*B*e)*Sqrt[a + b*x])/(105*e*(b*d - a*e)^4*Sqrt[d + e*x]
)
```

Rubi in Sympy [A] time = 36.4267, size = 187, normalized size = 0.94

$$\frac{16b^2\sqrt{a+bx}\,(6Abe-7Bae+Bbd)}{105e\sqrt{d+ex}\,(ae-bd)^4}-\frac{8b\sqrt{a+bx}\,(6Abe-7Bae+Bbd)}{105e\,(d+ex)^{\frac{3}{2}}\,(ae-bd)^3}+\frac{2\sqrt{a+bx}\,(6Abe-7Bae+Bbd)}{35e\,(d+ex)^{\frac{5}{2}}\,(ae-bd)^2}-\frac{2\sqrt{a+bx}\,(Ae-Bd)}{7e\,(d+ex)^{\frac{7}{2}}\,(ae-bd)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(e*x+d)**(9/2)/(b*x+a)**(1/2),x)
```

```
[Out] 16*b**2*sqrt(a + b*x)*(6*A*b*e - 7*B*a*e + B*b*d)/(105*e*sqrt(d +
 e*x)*(a*e - b*d)**4) - 8*b*sqrt(a + b*x)*(6*A*b*e - 7*B*a*e + B*
b*d)/(105*e*(d + e*x)**(3/2)*(a*e - b*d)**3) + 2*sqrt(a + b*x)*(6
*A*b*e - 7*B*a*e + B*b*d)/(35*e*(d + e*x)**(5/2)*(a*e - b*d)**2)
- 2*sqrt(a + b*x)*(A*e - B*d)/(7*e*(d + e*x)**(7/2)*(a*e - b*d))
```

Mathematica [A] time = 0.499984, size = 148, normalized size = 0.75

$$\frac{2\sqrt{a+bx}\left(8b^2(d+ex)^3(-7aBe+6Abe+bBd)+3(d+ex)(bd-ae)^2(-7aBe+6Abe+bBd)+4b(d+ex)^2(bd-ae)(-7aBe+\right.}{105e(d+ex)^{7/2}(bd-ae)^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(Sqrt[a + b*x]*(d + e*x)^(9/2)),x]
```

```
[Out] (2*Sqrt[a + b*x]*(-15*(b*d - a*e)^3*(B*d - A*e) + 3*(b*d - a*e)^2
*(b*B*d + 6*A*b*e - 7*a*B*e)*(d + e*x) + 4*b*(b*d - a*e)*(b*B*d +
 6*A*b*e - 7*a*B*e)*(d + e*x)^2 + 8*b^2*(b*B*d + 6*A*b*e - 7*a*B*
e)*(d + e*x)^3))/(105*e*(b*d - a*e)^4*(d + e*x)^(7/2))
```

Maple [A] time = 0.013, size = 322, normalized size = 1.6

$$-\frac{-96\,Ab^3e^3x^3+112\,Bab^2e^3x^3-16\,Bb^3de^2x^3+48\,Aab^2e^3x^2-336\,Ab^3de^2x^2-56\,Ba^2be^3x^2+400\,Bab^2de^2x^2-56\,Bb^3d^2ex}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(e*x+d)^(9/2)/(b*x+a)^(1/2),x)
```

```
[Out] -2/105*(b*x+a)^(1/2)*(-48*A*b^3*e^3*x^3+56*B*a*b^2*e^3*x^3-8*B*b^
3*d*e^2*x^3+24*A*a*b^2*e^3*x^2-168*A*b^3*d*e^2*x^2-28*B*a^2*b*e^3
*x^2+200*B*a*b^2*d*e^2*x^2-28*B*b^3*d^2*e*x^2-18*A*a^2*b*e^3*x+84
*A*a*b^2*d*e^2*x-210*A*b^3*d^2*e*x+21*B*a^3*e^3*x-101*B*a^2*b*d*e
^2*x+259*B*a*b^2*d^2*e*x-35*B*b^3*d^3*x+15*A*a^3*e^3-63*A*a^2*b*d
*e^2+105*A*a*b^2*d^2*e-105*A*b^3*d^3+6*B*a^3*d*e^2-28*B*a^2*b*d^2
*e+70*B*a*b^2*d^3)/(e*x+d)^(7/2)/(a^4*e^4-4*a^3*b*d*e^3+6*a^2*b^2
*d^2*e^2-4*a*b^3*d^3*e+b^4*d^4)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*(e*x + d)^(9/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 1.09473, size = 738, normalized size = 3.73

$$-\frac{2\left(15\,Aa^3e^3+35\left(2\,Bab^2-3\,Ab^3\right)d^3-7\left(4\,Ba^2b-15\,Aab^2\right)d^2e+3\left(2\,Ba^3-21\,Aa^2b\right)de^2-8\left(Bb^3de^2-\left(7\,Bab^2-6\,Ab^3\right)\right.\right.}{105\left(b^4d^8-4\,ab^3d^7e+6\,a^2b^2d^6e^2-4\,a^3bd^5e^3+a^4d^4e^4+\left(b^4d^4e^4-4\,ab^3d^3e^5+6\,a^2b^2d^2e^6-4\,a^3bde^7+a^4e^8\right)x^4+4\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*(e*x + d)^(9/2)),x, algorithm="fricas")
```

```
[Out] -2/105*(15*A*a^3*e^3 + 35*(2*B*a*b^2 - 3*A*b^3)*d^3 - 7*(4*B*a^2*
b - 15*A*a*b^2)*d^2*e + 3*(2*B*a^3 - 21*A*a^2*b)*d*e^2 - 8*(B*b^3
*d*e^2 - (7*B*a*b^2 - 6*A*b^3)*e^3)*x^3 - 4*(7*B*b^3*d^2*e - 2*(2
5*B*a*b^2 - 21*A*b^3)*d*e^2 + (7*B*a^2*b - 6*A*a*b^2)*e^3)*x^2 -
(35*B*b^3*d^3 - 7*(37*B*a*b^2 - 30*A*b^3)*d^2*e + (101*B*a^2*b -
84*A*a*b^2)*d*e^2 - 3*(7*B*a^3 - 6*A*a^2*b)*e^3)*x)*sqrt(b*x + a)
*sqrt(e*x + d)/(b^4*d^8 - 4*a*b^3*d^7*e + 6*a^2*b^2*d^6*e^2 - 4*a
^3*b*d^5*e^3 + a^4*d^4*e^4 + (b^4*d^4*e^4 - 4*a*b^3*d^3*e^5 + 6*a
^2*b^2*d^2*e^6 - 4*a^3*b*d*e^7 + a^4*e^8)*x^4 + 4*(b^4*d^5*e^3 -
4*a*b^3*d^4*e^4 + 6*a^2*b^2*d^3*e^5 - 4*a^3*b*d^2*e^6 + a^4*d*e^7
)*x^3 + 6*(b^4*d^6*e^2 - 4*a*b^3*d^5*e^3 + 6*a^2*b^2*d^4*e^4 - 4*
a^3*b*d^3*e^5 + a^4*d^2*e^6)*x^2 + 4*(b^4*d^7*e - 4*a*b^3*d^6*e^2
 + 6*a^2*b^2*d^5*e^3 - 4*a^3*b*d^4*e^4 + a^4*d^3*e^5)*x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(e*x+d)**(9/2)/(b*x+a)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.288498, size = 782, normalized size = 3.95

$$-\frac{\left(\left(4\,(bx+a)\left(\frac{2\,\left(Bb^{8}d|b|e^{5}-7\,Bab^{7}|b|e^{6}+6\,Ab^{8}|b|e^{6}\right)(bx+a)}{b^{16}d^{4}e^{8}-4\,ab^{15}d^{3}e^{9}+6\,a^{2}b^{14}d^{2}e^{10}-4\,a^{3}b^{13}de^{11}+a^{4}b^{12}e^{12}}+\frac{7\,\left(Bb^{9}d^{2}|b|e^{4}-8\,Bab^{8}d|b|e^{5}+6\,Ab^{9}d|b|e^{5}+7\,Ba^{2}b^{7}|b|e^{6}-6\,Aab^{8}|b|e^{6}\right)}{b^{16}d^{4}e^{8}-4\,ab^{15}d^{3}e^{9}+6\,a^{2}b^{14}d^{2}e^{10}-4\,a^{3}b^{13}de^{11}+a^{4}b^{12}e^{12}}\right)}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/(sqrt(b*x + a)*(e*x + d)^(9/2)),x, algorithm="giac")
```

```
[Out] -1/80640*((4*(b*x + a)*(2*(B*b^8*d*abs(b)*e^5 - 7*B*a*b^7*abs(b)*
e^6 + 6*A*b^8*abs(b)*e^6)*(b*x + a)/(b^16*d^4*e^8 - 4*a*b^15*d^3*
e^9 + 6*a^2*b^14*d^2*e^10 - 4*a^3*b^13*d*e^11 + a^4*b^12*e^12) +
7*(B*b^9*d^2*abs(b)*e^4 - 8*B*a*b^8*d*abs(b)*e^5 + 6*A*b^9*d*abs(
b)*e^5 + 7*B*a^2*b^7*abs(b)*e^6 - 6*A*a*b^8*abs(b)*e^6)/(b^16*d^4
*e^8 - 4*a*b^15*d^3*e^9 + 6*a^2*b^14*d^2*e^10 - 4*a^3*b^13*d*e^11
 + a^4*b^12*e^12)) + 35*(B*b^10*d^3*abs(b)*e^3 - 9*B*a*b^9*d^2*ab
s(b)*e^4 + 6*A*b^10*d^2*abs(b)*e^4 + 15*B*a^2*b^8*d*abs(b)*e^5 -
12*A*a*b^9*d*abs(b)*e^5 - 7*B*a^3*b^7*abs(b)*e^6 + 6*A*a^2*b^8*ab
s(b)*e^6)/(b^16*d^4*e^8 - 4*a*b^15*d^3*e^9 + 6*a^2*b^14*d^2*e^10
- 4*a^3*b^13*d*e^11 + a^4*b^12*e^12))*(b*x + a) - 105*(B*a*b^10*d
^3*abs(b)*e^3 - A*b^11*d^3*abs(b)*e^3 - 3*B*a^2*b^9*d^2*abs(b)*e^
4 + 3*A*a*b^10*d^2*abs(b)*e^4 + 3*B*a^3*b^8*d*abs(b)*e^5 - 3*A*a*a^
2*b^9*d*abs(b)*e^5 - B*a^4*b^7*abs(b)*e^6 + A*a^3*b^8*abs(b)*e^6)
/(b^16*d^4*e^8 - 4*a*b^15*d^3*e^9 + 6*a^2*b^14*d^2*e^10 - 4*a^3*b
^13*d*e^11 + a^4*b^12*e^12))*sqrt(b*x + a)/(b^2*d + (b*x + a)*b*e
 - a*b*e)^(7/2)
```

3.2227 $\int \frac{A+Bx}{\sqrt{a+bx}(d+ex)^{11/2}} dx$

Optimal. Leaf size=251

$$\frac{32b^3\sqrt{a+bx}(-9aBe+8Abe+bBd)}{315e\sqrt{d+ex}(bd-ae)^5}+\frac{16b^2\sqrt{a+bx}(-9aBe+8Abe+bBd)}{315e(d+ex)^{3/2}(bd-ae)^4}+\frac{4b\sqrt{a+bx}(-9aBe+8Abe+bBd)}{105e(d+ex)^{5/2}(bd-ae)^3}+\frac{2\sqrt{a+bx}(-9aBe+8Abe+bBd)}{63e(d+ex)^{7/2}(bd-ae)^2}-\frac{2\sqrt{a+bx}(Bd-Ae)}{9e(d+ex)^{9/2}(bd-ae)}$$

```
[Out] (-2*(B*d - A*e)*Sqrt[a + b*x])/(9*e*(b*d - a*e)*(d + e*x)^(9/2))
+ (2*(b*B*d + 8*A*b*e - 9*a*B*e)*Sqrt[a + b*x])/(63*e*(b*d - a*e)
^2*(d + e*x)^(7/2)) + (4*b*(b*B*d + 8*A*b*e - 9*a*B*e)*Sqrt[a + b
*x])/(105*e*(b*d - a*e)^3*(d + e*x)^(5/2)) + (16*b^2*(b*B*d + 8*A
*b*e - 9*a*B*e)*Sqrt[a + b*x])/(315*e*(b*d - a*e)^4*(d + e*x)^(3/
2)) + (32*b^3*(b*B*d + 8*A*b*e - 9*a*B*e)*Sqrt[a + b*x])/(315*e*(
b*d - a*e)^5*Sqrt[d + e*x])
```

Rubi [A] time = 0.441817, antiderivative size = 251, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$\frac{32b^3\sqrt{a+bx}(-9aBe+8Abe+bBd)}{315e\sqrt{d+ex}(bd-ae)^5}+\frac{16b^2\sqrt{a+bx}(-9aBe+8Abe+bBd)}{315e(d+ex)^{3/2}(bd-ae)^4}+\frac{4b\sqrt{a+bx}(-9aBe+8Abe+bBd)}{105e(d+ex)^{5/2}(bd-ae)^3}+\frac{2\sqrt{a+bx}(-9aBe+8Abe+bBd)}{63e(d+ex)^{7/2}(bd-ae)^2}-\frac{2\sqrt{a+bx}(Bd-Ae)}{9e(d+ex)^{9/2}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/(Sqrt[a + b*x]*(d + e*x)^(11/2)),x]
```

```
[Out] (-2*(B*d - A*e)*Sqrt[a + b*x])/(9*e*(b*d - a*e)*(d + e*x)^(9/2))
+ (2*(b*B*d + 8*A*b*e - 9*a*B*e)*Sqrt[a + b*x])/(63*e*(b*d - a*e)
^2*(d + e*x)^(7/2)) + (4*b*(b*B*d + 8*A*b*e - 9*a*B*e)*Sqrt[a + b
*x])/(105*e*(b*d - a*e)^3*(d + e*x)^(5/2)) + (16*b^2*(b*B*d + 8*A
*b*e - 9*a*B*e)*Sqrt[a + b*x])/(315*e*(b*d - a*e)^4*(d + e*x)^(3/
2)) + (32*b^3*(b*B*d + 8*A*b*e - 9*a*B*e)*Sqrt[a + b*x])/(315*e*(
b*d - a*e)^5*Sqrt[d + e*x])
```

Rubi in Sympy [A] time = 50.4658, size = 240, normalized size = 0.96

$$-\frac{32b^3\sqrt{a+bx}\,(8Abe-9Bae+Bbd)}{315e\sqrt{d+ex}\,(ae-bd)^5}+\frac{16b^2\sqrt{a+bx}\,(8Abe-9Bae+Bbd)}{315e\,(d+ex)^{\frac{3}{2}}\,(ae-bd)^4}-\frac{4b\sqrt{a+bx}\,(8Abe-9Bae+Bbd)}{105e\,(d+ex)^{\frac{5}{2}}\,(ae-bd)^3}+\frac{2\sqrt{a+bx}\,(8Abe-9Bae+Bbd)}{63e\,(d+ex)^{\frac{7}{2}}\,(ae-bd)^2}-\frac{2\sqrt{a+bx}\,(Ae-Bd)}{9e\,(d+ex)^{\frac{9}{2}}\,(ae-bd)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(e*x+d)**(11/2)/(b*x+a)**(1/2),x)
```

```
[Out] -32*b**3*sqrt(a + b*x)*(8*A*b*e - 9*B*a*e + B*b*d)/(315*e*sqrt(d
+ e*x)*(a*e - b*d)**5) + 16*b**2*sqrt(a + b*x)*(8*A*b*e - 9*B*a*e
 + B*b*d)/(315*e*(d + e*x)**(3/2)*(a*e - b*d)**4) - 4*b*sqrt(a +
b*x)*(8*A*b*e - 9*B*a*e + B*b*d)/(105*e*(d + e*x)**(5/2)*(a*e - b
*d)**3) + 2*sqrt(a + b*x)*(8*A*b*e - 9*B*a*e + B*b*d)/(63*e*(d +
e*x)**(7/2)*(a*e - b*d)**2) - 2*sqrt(a + b*x)*(A*e - B*d)/(9*e*(d
 + e*x)**(9/2)*(a*e - b*d))
```

Mathematica [A] time = 0.32935, size = 185, normalized size = 0.74

$$\frac{2\sqrt{a+bx}\left(-16b^3(d+ex)^4(-9aBe+8Abe+bBd)+8b^2(d+ex)^3(ae-bd)(-9aBe+8Abe+bBd)-6b(d+ex)^2(bd-ae)^2(-9\right.}{315e(d+ex)^{9/2}(ae-bd)^5}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/(Sqrt[a + b*x]*(d + e*x)^(11/2)),x]
```

```
[Out] (2*Sqrt[a + b*x]*(35*(b*d - a*e)^4*(B*d - A*e) + 5*(-(b*d) + a*e)
^3*(b*B*d + 8*A*b*e - 9*a*B*e)*(d + e*x) - 6*b*(b*d - a*e)^2*(b*B
*d + 8*A*b*e - 9*a*B*e)*(d + e*x)^2 + 8*b^2*(-(b*d) + a*e)*(b*B*d
 + 8*A*b*e - 9*a*B*e)*(d + e*x)^3 - 16*b^3*(b*B*d + 8*A*b*e - 9*a
*B*e)*(d + e*x)^4))/(315*e*(-(b*d) + a*e)^5*(d + e*x)^(9/2))
```

Maple [B] time = 0.017, size = 505, normalized size = 2.

$$-\frac{256\,Ab^4e^4x^4-288\,Bab^3e^4x^4+32\,Bb^4de^3x^4-128\,Aab^3e^4x^3+1152\,Ab^4de^3x^3+144\,Ba^2b^2e^4x^3-1312\,Bab^3de^3x^3+144\,Bb}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(e*x+d)^(11/2)/(b*x+a)^(1/2),x)
```

```
[Out] -2/315*(b*x+a)^(1/2)*(128*A*b^4*e^4*x^4-144*B*a*b^3*e^4*x^4+16*B*
b^4*d*e^3*x^4-64*A*a*b^3*e^4*x^3+576*A*b^4*d*e^3*x^3+72*B*a^2*b^2
*e^4*x^3-656*B*a*b^3*d*e^3*x^3+72*B*b^4*d^2*e^2*x^3+48*A*a^2*b^2*
e^4*x^2-288*A*a*b^3*d*e^3*x^2+1008*A*b^4*d^2*e^2*x^2-54*B*a^3*b*e
^4*x^2+330*B*a^2*b^2*d*e^3*x^2-1170*B*a*b^3*d^2*e^2*x^2+126*B*b^4
*d^3*e*x^2-40*A*a^3*b*e^4*x+216*A*a^2*b^2*d*e^3*x-504*A*a*b^3*d^2
*e^2*x+840*A*b^4*d^3*e*x+45*B*a^4*e^4*x-248*B*a^3*b*d*e^3*x+594*B
*a^2*b^2*d^2*e^2*x-1008*B*a*b^3*d^3*e*x+105*B*b^4*d^4*x+35*A*a^4*
e^4-180*A*a^3*b*d*e^3+378*A*a^2*b^2*d^2*e^2-420*A*a*b^3*d^3*e+315
*A*b^4*d^4+10*B*a^4*d*e^3-54*B*a^3*b*d^2*e^2+126*B*a^2*b^2*d^3*e-
210*B*a*b^3*d^4)/(e*x+d)^(9/2)/(a^5*e^5-5*a^4*b*d*e^4+10*a^3*b^2*
d^2*e^3-10*a^2*b^3*d^3*e^2+5*a*b^4*d^4*e-b^5*d^5)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*(e*x + d)^(11/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 2.61028, size = 1133, normalized size = 4.51

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*(e*x + d)^(11/2)),x, algorithm="fricas")
```

```
[Out] 2/315*(35*A*a^4*e^4 - 105*(2*B*a*b^3 - 3*A*b^4)*d^4 + 42*(3*B*a^2
*b^2 - 10*A*a*b^3)*d^3*e - 54*(B*a^3*b - 7*A*a^2*b^2)*d^2*e^2 + 1
0*(B*a^4 - 18*A*a^3*b)*d*e^3 + 16*(B*b^4*d*e^3 - (9*B*a*b^3 - 8*A
```

```
*b^4)*e^4)*x^4 + 8*(9*B*b^4*d^2*e^2 - 2*(41*B*a*b^3 - 36*A*b^4)*d
*e^3 + (9*B*a^2*b^2 - 8*A*a*b^3)*e^4)*x^3 + 6*(21*B*b^4*d^3*e - 3
*(65*B*a*b^3 - 56*A*b^4)*d^2*e^2 + (55*B*a^2*b^2 - 48*A*a*b^3)*d*
e^3 - (9*B*a^3*b - 8*A*a^2*b^2)*e^4)*x^2 + (105*B*b^4*d^4 - 168*(
6*B*a*b^3 - 5*A*b^4)*d^3*e + 18*(33*B*a^2*b^2 - 28*A*a*b^3)*d^2*e
^2 - 8*(31*B*a^3*b - 27*A*a^2*b^2)*d*e^3 + 5*(9*B*a^4 - 8*A*a^3*b
)*e^4)*x)*sqrt(b*x + a)*sqrt(e*x + d)/(b^5*d^10 - 5*a*b^4*d^9*e +
 10*a^2*b^3*d^8*e^2 - 10*a^3*b^2*d^7*e^3 + 5*a^4*b*d^6*e^4 - a^5*
d^5*e^5 + (b^5*d^5*e^5 - 5*a*b^4*d^4*e^6 + 10*a^2*b^3*d^3*e^7 - 1
0*a^3*b^2*d^2*e^8 + 5*a^4*b*d*e^9 - a^5*e^10)*x^5 + 5*(b^5*d^6*e^
4 - 5*a*b^4*d^5*e^5 + 10*a^2*b^3*d^4*e^6 - 10*a^3*b^2*d^3*e^7 + 5
*a^4*b*d^2*e^8 - a^5*d*e^9)*x^4 + 10*(b^5*d^7*e^3 - 5*a*b^4*d^6*e
^4 + 10*a^2*b^3*d^5*e^5 - 10*a^3*b^2*d^4*e^6 + 5*a^4*b*d^3*e^7 -
a^5*d^2*e^8)*x^3 + 10*(b^5*d^8*e^2 - 5*a*b^4*d^7*e^3 + 10*a^2*b^3
*d^6*e^4 - 10*a^3*b^2*d^5*e^5 + 5*a^4*b*d^4*e^6 - a^5*d^3*e^7)*x^
2 + 5*(b^5*d^9*e - 5*a*b^4*d^8*e^2 + 10*a^2*b^3*d^7*e^3 - 10*a^3*
b^2*d^6*e^4 + 5*a^4*b*d^5*e^5 - a^5*d^4*e^6)*x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(e*x+d)**(11/2)/(b*x+a)**(1/2),x)

[Out] Timed out
```

GIAC/XCAS [A] time = 0.336046, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/(sqrt(b*x + a)*(e*x + d)^(11/2)),x, algorithm="giac")

[Out] Done
```

3.2228 $\int \frac{(A+Bx)(d+ex)^{5/2}}{(a+bx)^{3/2}} dx$

Optimal. Leaf size=249

$$\frac{5(bd-ae)^2(-7aBe+6Abe+bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{8b^{9/2}\sqrt{e}} + \frac{5\sqrt{a+bx}\sqrt{d+ex}(bd-ae)(-7aBe+6Abe+bBd)}{8b^4} + \frac{5\sqrt{a+bx}(d+ex)^{3/2}(-7aBe+6Abe+bBd)}{12b^3} + \frac{\sqrt{a+bx}(d+ex)^{5/2}(-7aBe+6Abe+bBd)}{3b^2(bd-ae)} - \frac{2(d+ex)^{7/2}(Ab-aB)}{b\sqrt{a+bx}(bd-ae)}$$

```
[Out] (5*(b*d - a*e)*(b*B*d + 6*A*b*e - 7*a*B*e)*Sqrt[a + b*x]*Sqrt[d +
 e*x])/(8*b^4) + (5*(b*B*d + 6*A*b*e - 7*a*B*e)*Sqrt[a + b*x]*(d
+ e*x)^(3/2))/(12*b^3) + ((b*B*d + 6*A*b*e - 7*a*B*e)*Sqrt[a + b*
x]*(d + e*x)^(5/2))/(3*b^2*(b*d - a*e)) - (2*(A*b - a*B)*(d + e*x
)^(7/2))/(b*(b*d - a*e)*Sqrt[a + b*x]) + (5*(b*d - a*e)^2*(b*B*d
+ 6*A*b*e - 7*a*B*e)*ArcTanh[(Sqrt[e]*Sqrt[a + b*x])/(Sqrt[b]*Sqr
t[d + e*x])])/(8*b^(9/2)*Sqrt[e])
```

Rubi [A] time = 0.518447, antiderivative size = 249, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$\frac{5(bd-ae)^2(-7aBe+6Abe+bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{8b^{9/2}\sqrt{e}} + \frac{5\sqrt{a+bx}\sqrt{d+ex}(bd-ae)(-7aBe+6Abe+bBd)}{8b^4} + \frac{5\sqrt{a+bx}(d+ex)^{3/2}(-7aBe+6Abe+bBd)}{12b^3} + \frac{\sqrt{a+bx}(d+ex)^{5/2}(-7aBe+6Abe+bBd)}{3b^2(bd-ae)} - \frac{2(d+ex)^{7/2}(Ab-aB)}{b\sqrt{a+bx}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[((A + B*x)*(d + e*x)^(5/2))/(a + b*x)^(3/2),x]
```

```
[Out] (5*(b*d - a*e)*(b*B*d + 6*A*b*e - 7*a*B*e)*Sqrt[a + b*x]*Sqrt[d +
 e*x])/(8*b^4) + (5*(b*B*d + 6*A*b*e - 7*a*B*e)*Sqrt[a + b*x]*(d
+ e*x)^(3/2))/(12*b^3) + ((b*B*d + 6*A*b*e - 7*a*B*e)*Sqrt[a + b*
x]*(d + e*x)^(5/2))/(3*b^2*(b*d - a*e)) - (2*(A*b - a*B)*(d + e*x
)^(7/2))/(b*(b*d - a*e)*Sqrt[a + b*x]) + (5*(b*d - a*e)^2*(b*B*d
+ 6*A*b*e - 7*a*B*e)*ArcTanh[(Sqrt[e]*Sqrt[a + b*x])/(Sqrt[b]*Sqr
t[d + e*x])])/(8*b^(9/2)*Sqrt[e])
```

Rubi in Sympy [A] time = 50.0028, size = 241, normalized size = 0.97

$$\frac{2(d+ex)^{\frac{7}{2}}(Ab-Ba)}{b\sqrt{a+bx}(ae-bd)} - \frac{\sqrt{a+bx}(d+ex)^{\frac{5}{2}}(6Abe-7Bae+Bbd)}{3b^2(ae-bd)} + \frac{5\sqrt{a+bx}(d+ex)^{\frac{3}{2}}(6Abe-7Bae+Bbd)}{12b^3} - \frac{5\sqrt{a+bx}\sqrt{d+ex}(ae-bd)(6Abe-7Bae+Bbd)}{8b^4} + \frac{5(ae-bd)^2(6Abe-7Bae+Bbd)\operatorname{atanh}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{8b^{\frac{9}{2}}\sqrt{e}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(e*x+d)**(5/2)/(b*x+a)**(3/2),x)
```

```
[Out] 2*(d + e*x)**(7/2)*(A*b - B*a)/(b*sqrt(a + b*x)*(a*e - b*d)) - sq
rt(a + b*x)*(d + e*x)**(5/2)*(6*A*b*e - 7*B*a*e + B*b*d)/(3*b**2*
```

```
(a*e - b*d)) + 5*sqrt(a + b*x)*(d + e*x)**(3/2)*(6*A*b*e - 7*B*a*
e + B*b*d)/(12*b**3) - 5*sqrt(a + b*x)*sqrt(d + e*x)*(a*e - b*d)*
(6*A*b*e - 7*B*a*e + B*b*d)/(8*b**4) + 5*(a*e - b*d)**2*(6*A*b*e
- 7*B*a*e + B*b*d)*atanh(sqrt(e)*sqrt(a + b*x)/(sqrt(b)*sqrt(d +
e*x)))/(8*b**(9/2)*sqrt(e))
```

Mathematica [A] time = 0.473828, size = 231, normalized size = 0.93

$$\frac{\sqrt{d+ex}\left(B\left(105a^3e^2+5a^2be(7ex-38d)+ab^2\left(81d^2-68dex-14e^2x^2\right)+b^3x\left(33d^2+26dex+8e^2x^2\right)\right)-6Ab\left(15a^2e^2+5\right.\right.}{24b^4\sqrt{a+bx}}$$

$$+\frac{5(bd-ae)^2(-7aBe+6Abe+bBd)\log\left(2\sqrt{b}\sqrt{e}\sqrt{a+bx}\sqrt{d+ex}+ae+bd+2bex\right)}{16b^{9/2}\sqrt{e}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((A + B*x)*(d + e*x)^(5/2))/(a + b*x)^(3/2),x]
```

```
[Out] (Sqrt[d + e*x]*(-6*A*b*(15*a^2*e^2 + 5*a*b*e*(-5*d + e*x) + b^2*(
8*d^2 - 9*d*e*x - 2*e^2*x^2)) + B*(105*a^3*e^2 + 5*a^2*b*e*(-38*d
 + 7*e*x) + a*b^2*(81*d^2 - 68*d*e*x - 14*e^2*x^2) + b^3*x*(33*d^
2 + 26*d*e*x + 8*e^2*x^2))))/(24*b^4*Sqrt[a + b*x]) + (5*(b*d - a
*e)^2*(b*B*d + 6*A*b*e - 7*a*B*e)*Log[b*d + a*e + 2*b*e*x + 2*Sqr
t[b]*Sqrt[e]*Sqrt[a + b*x]*Sqrt[d + e*x]])/(16*b^(9/2)*Sqrt[e])
```

Maple [B] time = 0.049, size = 1184, normalized size = 4.8

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(e*x+d)^(5/2)/(b*x+a)^(3/2),x)
```

```
[Out] 1/48*(e*x+d)^(1/2)*(-105*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1
/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^4*e^3-136*B*x*a*b^2*d*e*(
(b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+24*A*x^2*b^3*e^2*((b*x+a)*(e*x
+d))^(1/2)*(b*e)^(1/2)+66*B*x*b^3*d^2*((b*x+a)*(e*x+d))^(1/2)*(b*
e)^(1/2)-180*A*a^2*b*e^2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+162*
B*a*b^2*d^2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+90*A*ln(1/2*(2*b*
x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x
*a^2*b^2*e^3+90*A*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)
^(1/2)+a*e+b*d)/(b*e)^(1/2))*x*b^4*d^2*e-105*B*ln(1/2*(2*b*x*e+2*
((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x*a^3*b
*e^3-180*A*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+
a*e+b*d)/(b*e)^(1/2))*a^2*b^2*d*e^2+90*A*ln(1/2*(2*b*x*e+2*((b*x+
a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a*b^3*d^2*e+2
25*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*
d)/(b*e)^(1/2))*a^3*b*d*e^2-135*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x
+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^2*b^2*d^2*e+16*B*x
^3*b^3*e^2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)-96*A*b^3*d^2*((b*x
+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+210*B*a^3*e^2*((b*x+a)*(e*x+d))^(1
/2)*(b*e)^(1/2)+15*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b
*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x*b^4*d^3+90*A*ln(1/2*(2*b*x*e+2*
((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^3*b*e
^3+15*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e
+b*d)/(b*e)^(1/2))*a*b^3*d^3-28*B*x^2*a*b^2*e^2*((b*x+a)*(e*x+d))
^(1/2)*(b*e)^(1/2)+52*B*x^2*b^3*d*e*((b*x+a)*(e*x+d))^(1/2)*(b*e)
^(1/2)-60*A*x*a*b^2*e^2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+108*A
*x*b^3*d*e*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+70*B*x*a^2*b*e^2*(
(b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+300*A*a*b^2*d*e*((b*x+a)*(e*x+
d))^(1/2)*(b*e)^(1/2)-380*B*a^2*b*d*e*((b*x+a)*(e*x+d))^(1/2)*(b*
e)^(1/2)-180*A*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1
/2)+a*e+b*d)/(b*e)^(1/2))*x*a*b^3*d*e^2+225*B*ln(1/2*(2*b*x*e+2*(
(b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x*a^2*b^
```

```
2*d*e^2-135*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/
2)+a*e+b*d)/(b*e)^(1/2))*x*a*b^3*d^2*e)/((b*x+a)*(e*x+d))^(1/2)/(
b*e)^(1/2)/(b*x+a)^(1/2)/b^4
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(e*x + d)^(5/2)/(b*x + a)^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 1.01547, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(e*x + d)^(5/2)/(b*x + a)^(3/2),x, algorithm="fricas")
```

```
[Out] [1/96*(4*(8*B*b^3*e^2*x^3 + 3*(27*B*a*b^2 - 16*A*b^3)*d^2 - 10*(1
9*B*a^2*b - 15*A*a*b^2)*d*e + 15*(7*B*a^3 - 6*A*a^2*b)*e^2 + 2*(1
3*B*b^3*d*e - (7*B*a*b^2 - 6*A*b^3)*e^2)*x^2 + (33*B*b^3*d^2 - 2*
(34*B*a*b^2 - 27*A*b^3)*d*e + 5*(7*B*a^2*b - 6*A*a*b^2)*e^2)*x)*s
qrt(b*e)*sqrt(b*x + a)*sqrt(e*x + d) - 15*(B*a*b^3*d^3 - 3*(3*B*a
^2*b^2 - 2*A*a*b^3)*d^2*e + 3*(5*B*a^3*b - 4*A*a^2*b^2)*d*e^2 - (
7*B*a^4 - 6*A*a^3*b)*e^3 + (B*b^4*d^3 - 3*(3*B*a*b^3 - 2*A*b^4)*d
^2*e + 3*(5*B*a^2*b^2 - 4*A*a*b^3)*d*e^2 - (7*B*a^3*b - 6*A*a^2*b
^2)*e^3)*x)*log(-4*(2*b^2*e^2*x + b^2*d*e + a*b*e^2)*sqrt(b*x + a
)*sqrt(e*x + d) + (8*b^2*e^2*x^2 + b^2*d^2 + 6*a*b*d*e + a^2*e^2
+ 8*(b^2*d*e + a*b*e^2)*x)*sqrt(b*e)))/((b^5*x + a*b^4)*sqrt(b*e)
), 1/48*(2*(8*B*b^3*e^2*x^3 + 3*(27*B*a*b^2 - 16*A*b^3)*d^2 - 10*
(19*B*a^2*b - 15*A*a*b^2)*d*e + 15*(7*B*a^3 - 6*A*a^2*b)*e^2 + 2*
(13*B*b^3*d*e - (7*B*a*b^2 - 6*A*b^3)*e^2)*x^2 + (33*B*b^3*d^2 -
2*(34*B*a*b^2 - 27*A*b^3)*d*e + 5*(7*B*a^2*b - 6*A*a*b^2)*e^2)*x)
*sqrt(-b*e)*sqrt(b*x + a)*sqrt(e*x + d) + 15*(B*a*b^3*d^3 - 3*(3*
B*a^2*b^2 - 2*A*a*b^3)*d^2*e + 3*(5*B*a^3*b - 4*A*a^2*b^2)*d*e^2
- (7*B*a^4 - 6*A*a^3*b)*e^3 + (B*b^4*d^3 - 3*(3*B*a*b^3 - 2*A*b^4
)*d^2*e + 3*(5*B*a^2*b^2 - 4*A*a*b^3)*d*e^2 - (7*B*a^3*b - 6*A*a^
2*b^2)*e^3)*x)*arctan(1/2*(2*b*e*x + b*d + a*e)*sqrt(-b*e)/(sqrt(
b*x + a)*sqrt(e*x + d)*b*e)))/((b^5*x + a*b^4)*sqrt(-b*e))]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x+A)*(e*x+d)**(5/2)/(b*x+a)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.658943, size = 4, normalized size = 0.02

$$sage_0 x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^(5/2)/(b*x + a)^(3/2),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.2229 $\int \frac{(A+Bx)(d+ex)^{3/2}}{(a+bx)^{3/2}} \, dx$

Optimal. Leaf size=199

$$\frac{3(bd-ae)(-5aBe+4Abe+bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{4b^{7/2}\sqrt{e}}+\frac{3\sqrt{a+bx}\sqrt{d+ex}(-5aBe+4Abe+bBd)}{4b^3}+\frac{\sqrt{a+bx}(d+ex)^{3/2}(-5aBe+4Abe+bBd)}{2b^2(bd-ae)}-\frac{2(d+ex)^{5/2}(Ab-aB)}{b\sqrt{a+bx}(bd-ae)}$$

```
[Out] (3*(b*B*d + 4*A*b*e - 5*a*B*e)*Sqrt[a + b*x]*Sqrt[d + e*x])/(4*b^
3) + ((b*B*d + 4*A*b*e - 5*a*B*e)*Sqrt[a + b*x]*(d + e*x)^(3/2))/
(2*b^2*(b*d - a*e)) - (2*(A*b - a*B)*(d + e*x)^(5/2))/(b*(b*d - a
*e)*Sqrt[a + b*x]) + (3*(b*d - a*e)*(b*B*d + 4*A*b*e - 5*a*B*e)*A
rcTanh[(Sqrt[e]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[d + e*x])])/(4*b^(7/
2)*Sqrt[e])
```

Rubi [A] time = 0.394206, antiderivative size = 199, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$\frac{3(bd-ae)(-5aBe+4Abe+bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{4b^{7/2}\sqrt{e}}+\frac{3\sqrt{a+bx}\sqrt{d+ex}(-5aBe+4Abe+bBd)}{4b^3}+\frac{\sqrt{a+bx}(d+ex)^{3/2}(-5aBe+4Abe+bBd)}{2b^2(bd-ae)}-\frac{2(d+ex)^{5/2}(Ab-aB)}{b\sqrt{a+bx}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[((A + B*x)*(d + e*x)^(3/2))/(a + b*x)^(3/2),x]
```

```
[Out] (3*(b*B*d + 4*A*b*e - 5*a*B*e)*Sqrt[a + b*x]*Sqrt[d + e*x])/(4*b^
3) + ((b*B*d + 4*A*b*e - 5*a*B*e)*Sqrt[a + b*x]*(d + e*x)^(3/2))/
(2*b^2*(b*d - a*e)) - (2*(A*b - a*B)*(d + e*x)^(5/2))/(b*(b*d - a
*e)*Sqrt[a + b*x]) + (3*(b*d - a*e)*(b*B*d + 4*A*b*e - 5*a*B*e)*A
rcTanh[(Sqrt[e]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[d + e*x])])/(4*b^(7/
2)*Sqrt[e])
```

Rubi in Sympy [A] time = 37.1938, size = 190, normalized size = 0.95

$$\frac{2(d+ex)^{\frac{5}{2}}(Ab-Ba)}{b\sqrt{a+bx}(ae-bd)}-\frac{\sqrt{a+bx}(d+ex)^{\frac{3}{2}}(4Abe-5Bae+Bbd)}{2b^2(ae-bd)}+\frac{3\sqrt{a+bx}\sqrt{d+ex}(4Abe-5Bae+Bbd)}{4b^3}-\frac{3(ae-bd)(4Abe-5Bae+Bbd)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{e}\sqrt{a+bx}}\right)}{4b^{\frac{7}{2}}\sqrt{e}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(e*x+d)**(3/2)/(b*x+a)**(3/2),x)
```

```
[Out] 2*(d + e*x)**(5/2)*(A*b - B*a)/(b*sqrt(a + b*x)*(a*e - b*d)) - sq
rt(a + b*x)*(d + e*x)**(3/2)*(4*A*b*e - 5*B*a*e + B*b*d)/(2*b**2*
(a*e - b*d)) + 3*sqrt(a + b*x)*sqrt(d + e*x)*(4*A*b*e - 5*B*a*e +
 B*b*d)/(4*b**3) - 3*(a*e - b*d)*(4*A*b*e - 5*B*a*e + B*b*d)*atan
h(sqrt(b)*sqrt(d + e*x)/(sqrt(e)*sqrt(a + b*x)))/(4*b**(7/2)*sqrt
(e))
```

Mathematica [A] time = 0.256384, size = 157, normalized size = 0.79

$$\frac{\sqrt{d+ex}\left(B\left(-15a^2e+ab(13d-5ex)+b^2x(5d+2ex)\right)+4Ab(3ae-2bd+bex)\right)}{4b^3\sqrt{a+bx}}+\frac{3(bd-ae)(-5aBe+4Abe+bBd)\log\left(2\sqrt{b}\sqrt{e}\sqrt{a+bx}\sqrt{d+ex}+ae+bd+2bex\right)}{8b^{7/2}\sqrt{e}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((A + B*x)*(d + e*x)^(3/2))/(a + b*x)^(3/2),x]
```

```
[Out] (Sqrt[d + e*x]*(4*A*b*(-2*b*d + 3*a*e + b*e*x) + B*(-15*a^2*e + a
*b*(13*d - 5*e*x) + b^2*x*(5*d + 2*e*x))))/(4*b^3*Sqrt[a + b*x])
+ (3*(b*d - a*e)*(b*B*d + 4*A*b*e - 5*a*B*e)*Log[b*d + a*e + 2*b*
e*x + 2*Sqrt[b]*Sqrt[e]*Sqrt[a + b*x]*Sqrt[d + e*x]])/(8*b^(7/2)*
Sqrt[e])
```

Maple [B] time = 0.033, size = 740, normalized size = 3.7

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(e*x+d)^(3/2)/(b*x+a)^(3/2),x)
```

```
[Out] -1/8*(e*x+d)^(1/2)*(12*A*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2
)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x*a*b^2*e^2-12*A*ln(1/2*(2*b*
x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x
*b^3*d*e-15*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/
2)+a*e+b*d)/(b*e)^(1/2))*x*a^2*b*e^2+18*B*ln(1/2*(2*b*x*e+2*((b*x
+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x*a*b^2*d*e-
3*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d
)/(b*e)^(1/2))*x*b^3*d^2-4*B*x^2*b^2*e*((b*x+a)*(e*x+d))^(1/2)*(b
*e)^(1/2)+12*A*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1
/2)+a*e+b*d)/(b*e)^(1/2))*a^2*b*e^2-12*A*ln(1/2*(2*b*x*e+2*((b*x+
a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a*b^2*d*e-8*A
*x*b^2*e*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)-15*B*ln(1/2*(2*b*x*e
+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^3*
e^2+18*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*
e+b*d)/(b*e)^(1/2))*a^2*b*d*e-3*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x
+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a*b^2*d^2+10*B*x*a*b
*e*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)-10*B*x*b^2*d*((b*x+a)*(e*x
+d))^(1/2)*(b*e)^(1/2)-24*A*a*b*e*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(
1/2)+16*A*b^2*d*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+30*B*a^2*e*((
b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)-26*B*a*b*d*((b*x+a)*(e*x+d))^(1
/2)*(b*e)^(1/2))/((b*x+a)*(e*x+d))^(1/2)/(b*e)^(1/2)/(b*x+a)^(1/2
)/b^3
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^(3/2)/(b*x + a)^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.733484, size = 1, normalized size = 0.01

$$\left[\frac{4\left(2\,Bb^2ex^2+\left(13\,Bab-8\,Ab^2\right)d-3\left(5\,Ba^2-4\,Aab\right)e+\left(5\,Bb^2d-\left(5\,Bab-4\,Ab^2\right)e\right)x\right)\sqrt{be}\sqrt{bx+a}\sqrt{ex+d}+3\left(Bab^2d^2\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(e*x + d)^(3/2)/(b*x + a)^(3/2),x, algorithm="fricas")
```

```
[Out] [1/16*(4*(2*B*b^2*e*x^2 + (13*B*a*b - 8*A*b^2)*d - 3*(5*B*a^2 - 4
*A*a*b)*e + (5*B*b^2*d - (5*B*a*b - 4*A*b^2)*e)*x)*sqrt(b*e)*sqrt
(b*x + a)*sqrt(e*x + d) + 3*(B*a*b^2*d^2 - 2*(3*B*a^2*b - 2*A*a*b
^2)*d*e + (5*B*a^3 - 4*A*a^2*b)*e^2 + (B*b^3*d^2 - 2*(3*B*a*b^2 -
 2*A*b^3)*d*e + (5*B*a^2*b - 4*A*a*b^2)*e^2)*x)*log(4*(2*b^2*e^2*
x + b^2*d*e + a*b*e^2)*sqrt(b*x + a)*sqrt(e*x + d) + (8*b^2*e^2*x
^2 + b^2*d^2 + 6*a*b*d*e + a^2*e^2 + 8*(b^2*d*e + a*b*e^2)*x)*sqr
t(b*e)))/((b^4*x + a*b^3)*sqrt(b*e)), 1/8*(2*(2*B*b^2*e*x^2 + (13
*B*a*b - 8*A*b^2)*d - 3*(5*B*a^2 - 4*A*a*b)*e + (5*B*b^2*d - (5*B
*a*b - 4*A*b^2)*e)*x)*sqrt(-b*e)*sqrt(b*x + a)*sqrt(e*x + d) + 3*
(B*a*b^2*d^2 - 2*(3*B*a^2*b - 2*A*a*b^2)*d*e + (5*B*a^3 - 4*A*a^2
*b)*e^2 + (B*b^3*d^2 - 2*(3*B*a*b^2 - 2*A*b^3)*d*e + (5*B*a^2*b -
 4*A*a*b^2)*e^2)*x)*arctan(1/2*(2*b*e*x + b*d + a*e)*sqrt(-b*e)/(
sqrt(b*x + a)*sqrt(e*x + d)*b*e)))/((b^4*x + a*b^3)*sqrt(-b*e))]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(A+Bx)\,(d+ex)^{\frac{3}{2}}}{(a+bx)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x+A)*(e*x+d)**(3/2)/(b*x+a)**(3/2),x)
```

```
[Out] Integral((A + B*x)*(d + e*x)**(3/2)/(a + b*x)**(3/2), x)
```

GIAC/XCAS [A] time = 0.587874, size = 4, normalized size = 0.02

$$sage_0x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(e*x + d)^(3/2)/(b*x + a)^(3/2),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.2230 $\int \frac{(A+Bx)\sqrt{d+ex}}{(a+bx)^{3/2}}\,dx$

Optimal. Leaf size=145

$$\frac{(-3aBe+2Abe+bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{b^{5/2}\sqrt{e}}+\frac{\sqrt{a+bx}\sqrt{d+ex}(-3aBe+2Abe+bBd)}{b^2(bd-ae)}-\frac{2(d+ex)^{3/2}(Ab-aB)}{b\sqrt{a+bx}(bd-ae)}$$

```
[Out] ((b*B*d + 2*A*b*e - 3*a*B*e)*Sqrt[a + b*x]*Sqrt[d + e*x])/(b^2*(b
*d - a*e)) - (2*(A*b - a*B)*(d + e*x)^(3/2))/(b*(b*d - a*e)*Sqrt[
a + b*x]) + ((b*B*d + 2*A*b*e - 3*a*B*e)*ArcTanh[(Sqrt[e]*Sqrt[a
+ b*x])/(Sqrt[b]*Sqrt[d + e*x])])/(b^(5/2)*Sqrt[e])
```

Rubi [A] time = 0.279715, antiderivative size = 145, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$\frac{(-3aBe+2Abe+bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{b^{5/2}\sqrt{e}}+\frac{\sqrt{a+bx}\sqrt{d+ex}(-3aBe+2Abe+bBd)}{b^2(bd-ae)}-\frac{2(d+ex)^{3/2}(Ab-aB)}{b\sqrt{a+bx}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[((A + B*x)*Sqrt[d + e*x])/(a + b*x)^(3/2),x]
```

```
[Out] ((b*B*d + 2*A*b*e - 3*a*B*e)*Sqrt[a + b*x]*Sqrt[d + e*x])/(b^2*(b
*d - a*e)) - (2*(A*b - a*B)*(d + e*x)^(3/2))/(b*(b*d - a*e)*Sqrt[
a + b*x]) + ((b*B*d + 2*A*b*e - 3*a*B*e)*ArcTanh[(Sqrt[e]*Sqrt[a
+ b*x])/(Sqrt[b]*Sqrt[d + e*x])])/(b^(5/2)*Sqrt[e])
```

Rubi in Sympy [A] time = 28.0043, size = 136, normalized size = 0.94

$$\frac{2\,(d+ex)^{\frac{3}{2}}\,(Ab-Ba)}{b\sqrt{a+bx}\,(ae-bd)}-\frac{\sqrt{a+bx}\sqrt{d+ex}\,(2Abe-3Bae+Bbd)}{b^2\,(ae-bd)}+\frac{(2Abe-3Bae+Bbd)\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{e}\sqrt{a+bx}}\right)}{b^{\frac{5}{2}}\sqrt{e}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(e*x+d)**(1/2)/(b*x+a)**(3/2),x)
```

```
[Out] 2*(d + e*x)**(3/2)*(A*b - B*a)/(b*sqrt(a + b*x)*(a*e - b*d)) - sq
rt(a + b*x)*sqrt(d + e*x)*(2*A*b*e - 3*B*a*e + B*b*d)/(b**2*(a*e
- b*d)) + (2*A*b*e - 3*B*a*e + B*b*d)*atanh(sqrt(b)*sqrt(d + e*x)
/(sqrt(e)*sqrt(a + b*x)))/(b**(5/2)*sqrt(e))
```

Mathematica [A] time = 0.122778, size = 108, normalized size = 0.74

$$\frac{(-3aBe+2Abe+bBd)\log\left(2\sqrt{b}\sqrt{e}\sqrt{a+bx}\sqrt{d+ex}+ae+bd+2bex\right)}{2b^{5/2}\sqrt{e}}+\frac{\sqrt{d+ex}(3aB-2Ab+bBx)}{b^2\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((A + B*x)*Sqrt[d + e*x])/(a + b*x)^(3/2),x]
```

```
[Out] ((-2*A*b + 3*a*B + b*B*x)*Sqrt[d + e*x])/(b^2*Sqrt[a + b*x]) + ((
b*B*d + 2*A*b*e - 3*a*B*e)*Log[b*d + a*e + 2*b*e*x + 2*Sqrt[b]*Sq
rt[e]*Sqrt[a + b*x]*Sqrt[d + e*x]])/(2*b^(5/2)*Sqrt[e])
```

Maple [B] time = 0.032, size = 386, normalized size = 2.7

$$\frac{1}{2b^2}\sqrt{ex+d}\left(2A\ln\left(1/2\frac{2bxe+2\sqrt{(bx+a)(ex+d)}\sqrt{be}+ae+bd}{\sqrt{be}}\right)xb^2e-3B\ln\left(1/2\frac{2bxe+2\sqrt{(bx+a)(ex+d)}\sqrt{be}+\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(e*x+d)^(1/2)/(b*x+a)^(3/2),x)
```

```
[Out] 1/2*(e*x+d)^(1/2)*(2*A*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*
(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x*b^2*e-3*B*ln(1/2*(2*b*x*e+2*(
(b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x*a*b*e+
B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/
(b*e)^(1/2))*x*b^2*d+2*A*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2
)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a*b*e-3*B*ln(1/2*(2*b*x*e+2*(
(b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^2*e+B*
ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b
*e)^(1/2))*a*b*d+2*B*x*b*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)-4*A*
b*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+6*B*a*((b*x+a)*(e*x+d))^(1/
2)*(b*e)^(1/2))/(b*e)^(1/2)/((b*x+a)*(e*x+d))^(1/2)/b^2/(b*x+a)^(
1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(e*x + d)/(b*x + a)^(3/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.584124, size = 1, normalized size = 0.01

$$\left[\frac{4(Bbx+3Ba-2Ab)\sqrt{be}\sqrt{bx+a}\sqrt{ex+d}+\left(Babd-\left(3Ba^2-2Aab\right)e+\left(Bb^2d-\left(3Bab-2Ab^2\right)e\right)x\right)\log\left(4\left(2b^2e^2x+b\right.\right.}{4(b^3x+ab^2)\sqrt{be}}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(e*x + d)/(b*x + a)^(3/2),x, algorithm="fricas")
```

```
[Out] [1/4*(4*(B*b*x + 3*B*a - 2*A*b)*sqrt(b*e)*sqrt(b*x + a)*sqrt(e*x
+ d) + (B*a*b*d - (3*B*a^2 - 2*A*a*b)*e + (B*b^2*d - (3*B*a*b - 2
*A*b^2)*e)*x)*log(4*(2*b^2*e^2*x + b^2*d*e + a*b*e^2)*sqrt(b*x +
a)*sqrt(e*x + d) + (8*b^2*e^2*x^2 + b^2*d^2 + 6*a*b*d*e + a^2*e^2
 + 8*(b^2*d*e + a*b*e^2)*x)*sqrt(b*e)))/((b^3*x + a*b^2)*sqrt(b*e
)), 1/2*(2*(B*b*x + 3*B*a - 2*A*b)*sqrt(-b*e)*sqrt(b*x + a)*sqrt(
e*x + d) + (B*a*b*d - (3*B*a^2 - 2*A*a*b)*e + (B*b^2*d - (3*B*a*b
 - 2*A*b^2)*e)*x)*arctan(1/2*(2*b*e*x + b*d + a*e)*sqrt(-b*e)/(sq
rt(b*x + a)*sqrt(e*x + d)*b*e)))/((b^3*x + a*b^2)*sqrt(-b*e))]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(A+Bx)\sqrt{d+ex}}{(a+bx)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(e*x+d)**(1/2)/(b*x+a)**(3/2),x)
```

```
[Out] Integral((A + B*x)*sqrt(d + e*x)/(a + b*x)**(3/2), x)
```

GIAC/XCAS [A] time = 0.544686, size = 4, normalized size = 0.03

$$sage_0 x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*sqrt(e*x + d)/(b*x + a)^(3/2),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.2231 $\int \frac{A+Bx}{(a+bx)^{3/2}\sqrt{d+ex}}\,dx$

Optimal. Leaf size=85

$$\frac{2B\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{b^{3/2}\sqrt{e}}-\frac{2\sqrt{d+ex}(Ab-aB)}{b\sqrt{a+bx}(bd-ae)}$$

```
[Out] (-2*(A*b - a*B)*Sqrt[d + e*x])/(b*(b*d - a*e)*Sqrt[a + b*x]) + (2
*B*ArcTanh[(Sqrt[e]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[d + e*x])])/(b^(
3/2)*Sqrt[e])
```

Rubi [A] time = 0.122113, antiderivative size = 85, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$\frac{2B\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{b^{3/2}\sqrt{e}}-\frac{2\sqrt{d+ex}(Ab-aB)}{b\sqrt{a+bx}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/((a + b*x)^(3/2)*Sqrt[d + e*x]),x]
```

```
[Out] (-2*(A*b - a*B)*Sqrt[d + e*x])/(b*(b*d - a*e)*Sqrt[a + b*x]) + (2
*B*ArcTanh[(Sqrt[e]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[d + e*x])])/(b^(
3/2)*Sqrt[e])
```

Rubi in Sympy [A] time = 11.7586, size = 75, normalized size = 0.88

$$\frac{2B\,\mathrm{atanh}\left(\frac{\sqrt{b}\sqrt{d+ex}}{\sqrt{e}\sqrt{a+bx}}\right)}{b^{\frac{3}{2}}\sqrt{e}}+\frac{2\sqrt{d+ex}\,(Ab-Ba)}{b\sqrt{a+bx}\,(ae-bd)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(b*x+a)**(3/2)/(e*x+d)**(1/2),x)
```

```
[Out] 2*B*atanh(sqrt(b)*sqrt(d + e*x)/(sqrt(e)*sqrt(a + b*x)))/(b**(3/2
)*sqrt(e)) + 2*sqrt(d + e*x)*(A*b - B*a)/(b*sqrt(a + b*x)*(a*e -
b*d))
```

Mathematica [A] time = 0.165158, size = 97, normalized size = 1.14

$$\frac{B\log\left(2\sqrt{b}\sqrt{e}\sqrt{a+bx}\sqrt{d+ex}+ae+bd+2bex\right)}{b^{3/2}\sqrt{e}}-\frac{2\sqrt{d+ex}(Ab-aB)}{b\sqrt{a+bx}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/((a + b*x)^(3/2)*Sqrt[d + e*x]),x]
```

```
[Out] (-2*(A*b - a*B)*Sqrt[d + e*x])/(b*(b*d - a*e)*Sqrt[a + b*x]) + (B
*Log[b*d + a*e + 2*b*e*x + 2*Sqrt[b]*Sqrt[e]*Sqrt[a + b*x]*Sqrt[d
 + e*x]])/(b^(3/2)*Sqrt[e])
```

Maple [B] time = 0.034, size = 278, normalized size = 3.3

$$\frac{1}{(ae-bd)\,b}\sqrt{ex+d}\left(B\ln\left(\frac{1}{2}\left(2\,bxe+2\,\sqrt{(bx+a)\,(ex+d)}\sqrt{be}+ae+bd\right)\frac{1}{\sqrt{be}}\right)xabe-B\ln\left(\frac{1}{2}\left(2\,bxe+2\,\sqrt{(bx+a)\,(ex+d)}\right.\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(b*x+a)^(3/2)/(e*x+d)^(1/2),x)
```

```
[Out] (e*x+d)^(1/2)*(B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^
(1/2)+a*e+b*d)/(b*e)^(1/2))*x*a*b*e-B*ln(1/2*(2*b*x*e+2*((b*x+a)*
(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x*b^2*d+B*ln(1/2
*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1
/2))*a^2*e-B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2
)+a*e+b*d)/(b*e)^(1/2))*a*b*d+2*A*b*((b*x+a)*(e*x+d))^(1/2)*(b*e)
^(1/2)-2*B*a*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2))/(b*e)^(1/2)/(a*
e-b*d)/((b*x+a)*(e*x+d))^(1/2)/b/(b*x+a)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(3/2)*sqrt(e*x + d)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.512629, size = 1, normalized size = 0.01

$$\left[\frac{4\,(Ba-Ab)\sqrt{be}\sqrt{bx+a}\sqrt{ex+d}+\left(Babd-Ba^2e+\left(Bb^2d-Babe\right)x\right)\log\left(4\left(2\,b^2e^2x+b^2de+abe^2\right)\sqrt{bx+a}\sqrt{ex+d}+(8\,b\right.}{2\,(ab^2d-a^2be+(b^3d-ab^2e)x)\sqrt{be}}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(3/2)*sqrt(e*x + d)),x, algorithm="fricas")
```

```
[Out] [1/2*(4*(B*a - A*b)*sqrt(b*e)*sqrt(b*x + a)*sqrt(e*x + d) + (B*a*
b*d - B*a^2*e + (B*b^2*d - B*a*b*e)*x)*log(4*(2*b^2*e^2*x + b^2*d
*e + a*b*e^2)*sqrt(b*x + a)*sqrt(e*x + d) + (8*b^2*e^2*x^2 + b^2*
d^2 + 6*a*b*d*e + a^2*e^2 + 8*(b^2*d*e + a*b*e^2)*x)*sqrt(b*e)))/
((a*b^2*d - a^2*b*e + (b^3*d - a*b^2*e)*x)*sqrt(b*e)), (2*(B*a -
A*b)*sqrt(-b*e)*sqrt(b*x + a)*sqrt(e*x + d) + (B*a*b*d - B*a^2*e
+ (B*b^2*d - B*a*b*e)*x)*arctan(1/2*(2*b*e*x + b*d + a*e)*sqrt(-b
*e)/(sqrt(b*x + a)*sqrt(e*x + d)*b*e)))/((a*b^2*d - a^2*b*e + (b^
3*d - a*b^2*e)*x)*sqrt(-b*e))]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{A+Bx}{(a+bx)^{\frac{3}{2}}\sqrt{d+ex}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(b*x+a)**(3/2)/(e*x+d)**(1/2),x)
```

```
[Out] Integral((A + B*x)/((a + b*x)**(3/2)*sqrt(d + e*x)), x)
```

GIAC/XCAS [A] time = 0.544814, size = 4, normalized size = 0.05

$$sage_0x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/((b*x + a)^(3/2)*sqrt(e*x + d)),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.2232 $\int \frac{A+Bx}{(a+bx)^{3/2}(d+ex)^{3/2}}\,dx$

Optimal. Leaf size=89

$$\frac{2\sqrt{d+ex}(aBe-2Abe+bBd)}{e\sqrt{a+bx}(bd-ae)^2}-\frac{2(Bd-Ae)}{e\sqrt{a+bx}\sqrt{d+ex}(bd-ae)}$$

```
[Out] (-2*(B*d - A*e))/(e*(b*d - a*e)*Sqrt[a + b*x]*Sqrt[d + e*x]) + (2
*(b*B*d - 2*A*b*e + a*B*e)*Sqrt[d + e*x])/(e*(b*d - a*e)^2*Sqrt[a
 + b*x])
```

Rubi [A] time = 0.178216, antiderivative size = 89, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.083$

$$\frac{2\sqrt{d+ex}(aBe-2Abe+bBd)}{e\sqrt{a+bx}(bd-ae)^2}-\frac{2(Bd-Ae)}{e\sqrt{a+bx}\sqrt{d+ex}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/((a + b*x)^(3/2)*(d + e*x)^(3/2)),x]
```

```
[Out] (-2*(B*d - A*e))/(e*(b*d - a*e)*Sqrt[a + b*x]*Sqrt[d + e*x]) + (2
*(b*B*d - 2*A*b*e + a*B*e)*Sqrt[d + e*x])/(e*(b*d - a*e)^2*Sqrt[a
 + b*x])
```

Rubi in Sympy [A] time = 14.0069, size = 78, normalized size = 0.88

$$\frac{4\sqrt{a+bx}\left(-Abe+\frac{B(ae+bd)}{2}\right)}{b\sqrt{d+ex}\,(ae-bd)^2}+\frac{2\,(Ab-Ba)}{b\sqrt{a+bx}\sqrt{d+ex}\,(ae-bd)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(b*x+a)**(3/2)/(e*x+d)**(3/2),x)
```

```
[Out] 4*sqrt(a + b*x)*(-A*b*e + B*(a*e + b*d)/2)/(b*sqrt(d + e*x)*(a*e
- b*d)**2) + 2*(A*b - B*a)/(b*sqrt(a + b*x)*sqrt(d + e*x)*(a*e -
b*d))
```

Mathematica [A] time = 0.130139, size = 61, normalized size = 0.69

$$\frac{2B(2ad+aex+bdx)-2A(ae+b(d+2ex))}{\sqrt{a+bx}\sqrt{d+ex}(bd-ae)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/((a + b*x)^(3/2)*(d + e*x)^(3/2)),x]
```

```
[Out] (2*B*(2*a*d + b*d*x + a*e*x) - 2*A*(a*e + b*(d + 2*e*x)))/((b*d -
 a*e)^2*Sqrt[a + b*x]*Sqrt[d + e*x])
```

Maple [A] time = 0.01, size = 72, normalized size = 0.8

$$-2\,\frac{2\,Abex-Baex-Bbdx+Aae+Abd-2\,Bad}{\sqrt{bx+a}\sqrt{ex+d}\,(a^2e^2-2\,bead+b^2d^2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(b*x+a)^(3/2)/(e*x+d)^(3/2),x)
```

```
[Out] -2*(2*A*b*e*x-B*a*e*x-B*b*d*x+A*a*e+A*b*d-2*B*a*d)/(b*x+a)^(1/2)/
(e*x+d)^(1/2)/(a^2*e^2-2*a*b*d*e+b^2*d^2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/((b*x + a)^(3/2)*(e*x + d)^(3/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.481613, size = 200, normalized size = 2.25

$$-\frac{2\,(Aae-(2\,Ba-Ab)d-(Bbd+(Ba-2\,Ab)e)x)\sqrt{bx+a}\sqrt{ex+d}}{ab^2d^3-2\,a^2bd^2e+a^3de^2+(b^3d^2e-2\,ab^2de^2+a^2be^3)x^2+(b^3d^3-ab^2d^2e-a^2bde^2+a^3e^3)x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/((b*x + a)^(3/2)*(e*x + d)^(3/2)),x, algorithm="fricas")
```

```
[Out] -2*(A*a*e - (2*B*a - A*b)*d - (B*b*d + (B*a - 2*A*b)*e)*x)*sqrt(b
*x + a)*sqrt(e*x + d)/(a*b^2*d^3 - 2*a^2*b*d^2*e + a^3*d*e^2 + (b
^3*d^2*e - 2*a*b^2*d*e^2 + a^2*b*e^3)*x^2 + (b^3*d^3 - a*b^2*d^2*
e - a^2*b*d*e^2 + a^3*e^3)*x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{A+Bx}{(a+bx)^{\frac{3}{2}}\,(d+ex)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(b*x+a)**(3/2)/(e*x+d)**(3/2),x)
```

```
[Out] Integral((A + B*x)/((a + b*x)**(3/2)*(d + e*x)**(3/2)), x)
```

GIAC/XCAS [A] time = 0.258091, size = 227, normalized size = 2.55

$$\frac{2\left(Bb^2d-Ab^2e\right)\sqrt{bx+a}}{(b^2d^2|b|-2\,abd|b|e+a^2|b|e^2)\sqrt{b^2d+(bx+a)be-abe}}+\frac{4\left(Bab^{\frac{3}{2}}e^{\frac{1}{2}}-Ab^{\frac{5}{2}}e^{\frac{1}{2}}\right)}{\left(b^2d-abe-\left(\sqrt{bx+a}\sqrt{b}e^{\frac{1}{2}}-\sqrt{b^2d+(bx+a)be-abe}\right)^2\right)(bd|b|-a|b|e)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/((b*x + a)^(3/2)*(e*x + d)^(3/2)),x, algorithm="giac")
```

```
[Out] 2*(B*b^2*d - A*b^2*e)*sqrt(b*x + a)/((b^2*d^2*abs(b) - 2*a*b*d*ab
s(b)*e + a^2*abs(b)*e^2)*sqrt(b^2*d + (b*x + a)*b*e - a*b*e)) + 4
*(B*a*b^(3/2)*e^(1/2) - A*b^(5/2)*e^(1/2))/((b^2*d - a*b*e - (sqr
t(b*x + a)*sqrt(b)*e^(1/2) - sqrt(b^2*d + (b*x + a)*b*e - a*b*e))
^2)*(b*d*abs(b) - a*abs(b)*e))
```

3.2233 $\int \frac{A+Bx}{(a+bx)^{3/2}(d+ex)^{5/2}}\,dx$

Optimal. Leaf size=139

$$-\frac{2(Ab-aB)}{b\sqrt{a+bx}(d+ex)^{3/2}(bd-ae)}+\frac{4\sqrt{a+bx}(3aBe-4Abe+bBd)}{3\sqrt{d+ex}(bd-ae)^3}+\frac{2\sqrt{a+bx}(3aBe-4Abe+bBd)}{3b(d+ex)^{3/2}(bd-ae)^2}$$

```
[Out] (-2*(A*b - a*B))/(b*(b*d - a*e)*Sqrt[a + b*x]*(d + e*x)^(3/2)) +
(2*(b*B*d - 4*A*b*e + 3*a*B*e)*Sqrt[a + b*x])/(3*b*(b*d - a*e)^2*
(d + e*x)^(3/2)) + (4*(b*B*d - 4*A*b*e + 3*a*B*e)*Sqrt[a + b*x])/
(3*(b*d - a*e)^3*Sqrt[d + e*x])
```

Rubi [A] time = 0.257098, antiderivative size = 139, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$-\frac{2(Ab-aB)}{b\sqrt{a+bx}(d+ex)^{3/2}(bd-ae)}+\frac{4\sqrt{a+bx}(3aBe-4Abe+bBd)}{3\sqrt{d+ex}(bd-ae)^3}+\frac{2\sqrt{a+bx}(3aBe-4Abe+bBd)}{3b(d+ex)^{3/2}(bd-ae)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/((a + b*x)^(3/2)*(d + e*x)^(5/2)),x]
```

```
[Out] (-2*(A*b - a*B))/(b*(b*d - a*e)*Sqrt[a + b*x]*(d + e*x)^(3/2)) +
(2*(b*B*d - 4*A*b*e + 3*a*B*e)*Sqrt[a + b*x])/(3*b*(b*d - a*e)^2*
(d + e*x)^(3/2)) + (4*(b*B*d - 4*A*b*e + 3*a*B*e)*Sqrt[a + b*x])/
(3*(b*d - a*e)^3*Sqrt[d + e*x])
```

Rubi in Sympy [A] time = 25.7412, size = 131, normalized size = 0.94

$$\frac{4\sqrt{a+bx}\,(4Abe-3Bae-Bbd)}{3\sqrt{d+ex}\,(ae-bd)^3}-\frac{2\sqrt{a+bx}\,(4Abe-3Bae-Bbd)}{3b\,(d+ex)^{\frac{3}{2}}\,(ae-bd)^2}+\frac{2\,(Ab-Ba)}{b\sqrt{a+bx}\,(d+ex)^{\frac{3}{2}}\,(ae-bd)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(b*x+a)**(3/2)/(e*x+d)**(5/2),x)
```

```
[Out] 4*sqrt(a + b*x)*(4*A*b*e - 3*B*a*e - B*b*d)/(3*sqrt(d + e*x)*(a*e
 - b*d)**3) - 2*sqrt(a + b*x)*(4*A*b*e - 3*B*a*e - B*b*d)/(3*b*(d
 + e*x)**(3/2)*(a*e - b*d)**2) + 2*(A*b - B*a)/(b*sqrt(a + b*x)*(
d + e*x)**(3/2)*(a*e - b*d))
```

Mathematica [A] time = 0.438901, size = 99, normalized size = 0.71

$$\frac{2\sqrt{a+bx}\sqrt{d+ex}\left(\frac{3aBe-5Abe+2bBd}{d+ex}+\frac{(bd-ae)(Bd-Ae)}{(d+ex)^2}-\frac{3b(Ab-aB)}{a+bx}\right)}{3(bd-ae)^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/((a + b*x)^(3/2)*(d + e*x)^(5/2)),x]
```

```
[Out] (2*Sqrt[a + b*x]*Sqrt[d + e*x]*((-3*b*(A*b - a*B))/(a + b*x) + ((
b*d - a*e)*(B*d - A*e))/(d + e*x)^2 + (2*b*B*d - 5*A*b*e + 3*a*B*
e)/(d + e*x)))/(3*(b*d - a*e)^3)
```

Maple [A] time = 0.012, size = 176, normalized size = 1.3

$$-\frac{-16 Ab^2e^2x^2 + 12 Babe^2x^2 + 4 Bb^2dex^2 - 8 Aabe^2x - 24 Ab^2dex + 6 Ba^2e^2x + 20 Babdex + 6 Bb^2d^2x + 2 Aa^2e^2 - 12 Aabd}{3 a^3e^3 - 9 a^2bde^2 + 9 ab^2d^2e - 3 b^3d^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(b*x+a)^(3/2)/(e*x+d)^(5/2),x)
```

```
[Out] -2/3*(-8*A*b^2*e^2*x^2+6*B*a*b*e^2*x^2+2*B*b^2*d*e*x^2-4*A*a*b*e^
2*x-12*A*b^2*d*e*x+3*B*a^2*e^2*x+10*B*a*b*d*e*x+3*B*b^2*d^2*x+A*a
^2*e^2-6*A*a*b*d*e-3*A*b^2*d^2+2*B*a^2*d*e+6*B*a*b*d^2)/(b*x+a)^(
1/2)/(e*x+d)^(3/2)/(a^3*e^3-3*a^2*b*d*e^2+3*a*b^2*d^2*e-b^3*d^3)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/((b*x + a)^(3/2)*(e*x + d)^(5/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.678851, size = 454, normalized size = 3.27

$$\frac{2 \left(Aa^2e^2 + 3 \left(2 Bab - Ab^2\right) d^2 + 2 \left(Ba^2 - 3 Aab\right) de + 2 \left(Bb^2de + \left(3 Bab - 4 Ab^2\right) e^2\right) x^2 + \left(3 Bb^2d^2 + 2 (5\right.}{3 (ab^3d^5 - 3 a^2b^2d^4e + 3 a^3bd^3e^2 - a^4d^2e^3 + (b^4d^3e^2 - 3 ab^3d^2e^3 + 3 a^2b^2de^4 - a^3be^5)x^3 + (2 b^4d^4e - 5 ab^3d^3e^2 + 3 a^2b^2d^2e^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/((b*x + a)^(3/2)*(e*x + d)^(5/2)),x, algorithm="fricas")
```

```
[Out] 2/3*(A*a^2*e^2 + 3*(2*B*a*b - A*b^2)*d^2 + 2*(B*a^2 - 3*A*a*b)*d*
e + 2*(B*b^2*d*e + (3*B*a*b - 4*A*b^2)*e^2)*x^2 + (3*B*b^2*d^2 +
2*(5*B*a*b - 6*A*b^2)*d*e + (3*B*a^2 - 4*A*a*b)*e^2)*x)*sqrt(b*x
+ a)*sqrt(e*x + d)/(a*b^3*d^5 - 3*a^2*b^2*d^4*e + 3*a^3*b*d^3*e^2
 - a^4*d^2*e^3 + (b^4*d^3*e^2 - 3*a*b^3*d^2*e^3 + 3*a^2*b^2*d*e^4
 - a^3*b*e^5)*x^3 + (2*b^4*d^4*e - 5*a*b^3*d^3*e^2 + 3*a^2*b^2*d^
2*e^3 + a^3*b*d*e^4 - a^4*e^5)*x^2 + (b^4*d^5 - a*b^3*d^4*e - 3*a
^2*b^2*d^3*e^2 + 5*a^3*b*d^2*e^3 - 2*a^4*d*e^4)*x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{A + Bx}{\left(a + bx\right)^{\frac{3}{2}} \left(d + ex\right)^{\frac{5}{2}}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(b*x+a)**(3/2)/(e*x+d)**(5/2),x)
```

```
[Out] Integral((A + B*x)/((a + b*x)**(3/2)*(d + e*x)**(5/2)), x)
```

GIAC/XCAS [A] time = 0.324066, size = 551, normalized size = 3.96

$$-\frac{\sqrt{bx+a}\left(\frac{\left(2\,Bb^{6}d^{3}|b|e^{2}-Bab^{5}d^{2}|b|e^{3}-5\,Ab^{6}d^{2}|b|e^{3}-4\,Ba^{2}b^{4}d|b|e^{4}+10\,Aab^{5}d|b|e^{4}+3\,Ba^{3}b^{3}|b|e^{5}-5\,Aa^{2}b^{4}|b|e^{5}\right)(bx+a)}{b^{8}d^{2}e^{4}-2\,ab^{7}de^{5}+a^{2}b^{6}e^{6}}+\frac{3\left(Bb^{7}d^{4}|b|e-2\,Bab^{6}d^{3}\cdots\right.}{\cdots}\right)}{48\left(b^{2}d+(bx+a)be-abe\right)^{\frac{3}{2}}}+\frac{4\left(Bab^{\frac{5}{2}}e^{\frac{1}{2}}-Ab^{\frac{7}{2}}e^{\frac{1}{2}}\right)}{\left(b^{2}d^{2}|b|-2\,abd|b|e+a^{2}|b|e^{2}\right)\left(b^{2}d-abe-\left(\sqrt{bx+a}\sqrt{b}e^{\frac{1}{2}}-\sqrt{b^{2}d+(bx+a)be-abe}\right)^{2}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/((b*x + a)^(3/2)*(e*x + d)^(5/2)),x, algorithm="giac")
```

```
[Out] -1/48*sqrt(b*x + a)*((2*B*b^6*d^3*abs(b)*e^2 - B*a*b^5*d^2*abs(b)
*e^3 - 5*A*b^6*d^2*abs(b)*e^3 - 4*B*a^2*b^4*d*abs(b)*e^4 + 10*A*a
*b^5*d*abs(b)*e^4 + 3*B*a^3*b^3*abs(b)*e^5 - 5*A*a^2*b^4*abs(b)*e
^5)*(b*x + a)/(b^8*d^2*e^4 - 2*a*b^7*d*e^5 + a^2*b^6*e^6) + 3*(B*
b^7*d^4*abs(b)*e - 2*B*a*b^6*d^3*abs(b)*e^2 - 2*A*b^7*d^3*abs(b)*
e^2 + 6*A*a*b^6*d^2*abs(b)*e^3 + 2*B*a^3*b^4*d*abs(b)*e^4 - 6*A*a
^2*b^5*d*abs(b)*e^4 - B*a^4*b^3*abs(b)*e^5 + 2*A*a^3*b^4*abs(b)*e
^5)/(b^8*d^2*e^4 - 2*a*b^7*d*e^5 + a^2*b^6*e^6))/(b^2*d + (b*x +
a)*b*e - a*b*e)^(3/2) + 4*(B*a*b^(5/2)*e^(1/2) - A*b^(7/2)*e^(1/2
))/((b^2*d^2*abs(b) - 2*a*b*d*abs(b)*e + a^2*abs(b)*e^2)*(b^2*d -
 a*b*e - (sqrt(b*x + a)*sqrt(b)*e^(1/2) - sqrt(b^2*d + (b*x + a)*
b*e - a*b*e))^2))
```

3.2234 $\int \frac{A+Bx}{(a+bx)^{3/2}(d+ex)^{7/2}}\,dx$

Optimal. Leaf size=187

$$-\frac{2(Ab-aB)}{b\sqrt{a+bx}(d+ex)^{5/2}(bd-ae)}+\frac{16b\sqrt{a+bx}(5aBe-6Abe+bBd)}{15\sqrt{d+ex}(bd-ae)^4}+\frac{8\sqrt{a+bx}(5aBe-6Abe+bBd)}{15(d+ex)^{3/2}(bd-ae)^3}+\frac{2\sqrt{a+bx}(5aBe-6Abe+bBd)}{5b(d+ex)^{5/2}(bd-ae)^2}$$

```
[Out] (-2*(A*b - a*B))/(b*(b*d - a*e)*Sqrt[a + b*x]*(d + e*x)^(5/2)) +
(2*(b*B*d - 6*A*b*e + 5*a*B*e)*Sqrt[a + b*x])/(5*b*(b*d - a*e)^2*
(d + e*x)^(5/2)) + (8*(b*B*d - 6*A*b*e + 5*a*B*e)*Sqrt[a + b*x])/
(15*(b*d - a*e)^3*(d + e*x)^(3/2)) + (16*b*(b*B*d - 6*A*b*e + 5*a
*B*e)*Sqrt[a + b*x])/(15*(b*d - a*e)^4*Sqrt[d + e*x])
```

Rubi [A] time = 0.338952, antiderivative size = 187, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.125$

$$-\frac{2(Ab-aB)}{b\sqrt{a+bx}(d+ex)^{5/2}(bd-ae)}+\frac{16b\sqrt{a+bx}(5aBe-6Abe+bBd)}{15\sqrt{d+ex}(bd-ae)^4}+\frac{8\sqrt{a+bx}(5aBe-6Abe+bBd)}{15(d+ex)^{3/2}(bd-ae)^3}+\frac{2\sqrt{a+bx}(5aBe-6Abe+bBd)}{5b(d+ex)^{5/2}(bd-ae)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/((a + b*x)^(3/2)*(d + e*x)^(7/2)),x]
```

```
[Out] (-2*(A*b - a*B))/(b*(b*d - a*e)*Sqrt[a + b*x]*(d + e*x)^(5/2)) +
(2*(b*B*d - 6*A*b*e + 5*a*B*e)*Sqrt[a + b*x])/(5*b*(b*d - a*e)^2*
(d + e*x)^(5/2)) + (8*(b*B*d - 6*A*b*e + 5*a*B*e)*Sqrt[a + b*x])/
(15*(b*d - a*e)^3*(d + e*x)^(3/2)) + (16*b*(b*B*d - 6*A*b*e + 5*a
*B*e)*Sqrt[a + b*x])/(15*(b*d - a*e)^4*Sqrt[d + e*x])
```

Rubi in Sympy [A] time = 37.0173, size = 180, normalized size = 0.96

$$-\frac{16b\sqrt{a+bx}\,(6Abe-5Bae-Bbd)}{15\sqrt{d+ex}\,(ae-bd)^4}+\frac{8\sqrt{a+bx}\,(6Abe-5Bae-Bbd)}{15\,(d+ex)^{\frac{3}{2}}\,(ae-bd)^3}-\frac{2\sqrt{a+bx}\,(6Abe-5Bae-Bbd)}{5b\,(d+ex)^{\frac{5}{2}}\,(ae-bd)^2}+\frac{2\,(Ab-Ba)}{b\sqrt{a+bx}\,(d+ex)^{\frac{5}{2}}\,(ae-bd)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(b*x+a)**(3/2)/(e*x+d)**(7/2),x)
```

```
[Out] -16*b*sqrt(a + b*x)*(6*A*b*e - 5*B*a*e - B*b*d)/(15*sqrt(d + e*x)
*(a*e - b*d)**4) + 8*sqrt(a + b*x)*(6*A*b*e - 5*B*a*e - B*b*d)/(1
5*(d + e*x)**(3/2)*(a*e - b*d)**3) - 2*sqrt(a + b*x)*(6*A*b*e - 5
*B*a*e - B*b*d)/(5*b*(d + e*x)**(5/2)*(a*e - b*d)**2) + 2*(A*b -
B*a)/(b*sqrt(a + b*x)*(d + e*x)**(5/2)*(a*e - b*d))
```

Mathematica [A] time = 0.474398, size = 137, normalized size = 0.73

$$\frac{2\sqrt{a+bx}\sqrt{d+ex}\left(-\frac{15b^2(Ab-aB)}{a+bx}+\frac{b(25aBe-33Abe+8bBd)}{d+ex}+\frac{(bd-ae)(5aBe-9Abe+4bBd)}{(d+ex)^2}+\frac{3(bd-ae)^2(Bd-Ae)}{(d+ex)^3}\right)}{15(bd-ae)^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/((a + b*x)^(3/2)*(d + e*x)^(7/2)),x]
```

```
[Out] (2*Sqrt[a + b*x]*Sqrt[d + e*x]*((-15*b^2*(A*b - a*B))/(a + b*x) +
 (3*(b*d - a*e)^2*(B*d - A*e))/(d + e*x)^3 + ((b*d - a*e)*(4*b*B*
d - 9*A*b*e + 5*a*B*e))/(d + e*x)^2 + (b*(8*b*B*d - 33*A*b*e + 25
*a*B*e))/(d + e*x)))/(15*(b*d - a*e)^4)
```

Maple [A] time = 0.014, size = 322, normalized size = 1.7

$$-\frac{96\,Ab^3e^3x^3 - 80\,Bab^2e^3x^3 - 16\,Bb^3de^2x^3 + 48\,Aab^2e^3x^2 + 240\,Ab^3de^2x^2 - 40\,Ba^2be^3x^2 - 208\,Bab^2de^2x^2 - 40\,Bb^3d^2ex^2 -}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(b*x+a)^(3/2)/(e*x+d)^(7/2),x)
```

```
[Out] -2/15*(48*A*b^3*e^3*x^3-40*B*a*b^2*e^3*x^3-8*B*b^3*d*e^2*x^3+24*A
*a*b^2*e^3*x^2+120*A*b^3*d*e^2*x^2-20*B*a^2*b*e^3*x^2-104*B*a*b^2
*d*e^2*x^2-20*B*b^3*d^2*e*x^2-6*A*a^2*b*e^3*x+60*A*a*b^2*d*e^2*x+
90*A*b^3*d^2*e*x+5*B*a^3*e^3*x-49*B*a^2*b*d*e^2*x-85*B*a*b^2*d^2*
e*x-15*B*b^3*d^3*x+3*A*a^3*e^3-15*A*a^2*b*d*e^2+45*A*a*b^2*d^2*e+
15*A*b^3*d^3+2*B*a^3*d*e^2-20*B*a^2*b*d^2*e-30*B*a*b^2*d^3)/(b*x+
a)^(1/2)/(e*x+d)^(5/2)/(a^4*e^4-4*a^3*b*d*e^3+6*a^2*b^2*d^2*e^2-4
*a*b^3*d^3*e+b^4*d^4)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(3/2)*(e*x + d)^(7/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 1.19508, size = 787, normalized size = 4.21

$$-\frac{2\left(3\,Aa^3e^3 - 15\left(2\,Bab^2 - Ab^3\right)d^3 - 5\left(4\,Ba^2b - 9\,Aab^2\right)d^2e + \left(2\,Ba^3 - 15\,Aa^2b\right)de^2 - 8\left(Bb^3de^2 + \left(5\,Ba\right.\right.\right.}{15\left(ab^4d^7 - 4\,a^2b^3d^6e + 6\,a^3b^2d^5e^2 - 4\,a^4bd^4e^3 + a^5d^3e^4 + (b^5d^4e^3 - 4\,ab^4d^3e^4 + 6\,a^2b^3d^2e^5 - 4\,a^3b^2de^6 + a^4be^7)x^4 + (3\,b^5\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(3/2)*(e*x + d)^(7/2)),x, algorithm="fricas")
```

```
[Out] -2/15*(3*A*a^3*e^3 - 15*(2*B*a*b^2 - A*b^3)*d^3 - 5*(4*B*a^2*b -
9*A*a*b^2)*d^2*e + (2*B*a^3 - 15*A*a^2*b)*d*e^2 - 8*(B*b^3*d*e^2
+ (5*B*a*b^2 - 6*A*b^3)*e^3)*x^3 - 4*(5*B*b^3*d^2*e + 2*(13*B*a*b
^2 - 15*A*b^3)*d*e^2 + (5*B*a^2*b - 6*A*a*b^2)*e^3)*x^2 - (15*B*b
^3*d^3 + 5*(17*B*a*b^2 - 18*A*b^3)*d^2*e + (49*B*a^2*b - 60*A*a*b
^2)*d*e^2 - (5*B*a^3 - 6*A*a^2*b)*e^3)*x)*sqrt(b*x + a)*sqrt(e*x
+ d)/(a*b^4*d^7 - 4*a^2*b^3*d^6*e + 6*a^3*b^2*d^5*e^2 - 4*a^4*b*d
^4*e^3 + a^5*d^3*e^4 + (b^5*d^4*e^3 - 4*a*b^4*d^3*e^4 + 6*a^2*b^3
*d^2*e^5 - 4*a^3*b^2*d*e^6 + a^4*b*e^7)*x^4 + (3*b^5*d^5*e^2 - 11
*a*b^4*d^4*e^3 + 14*a^2*b^3*d^3*e^4 - 6*a^3*b^2*d^2*e^5 - a^4*b*d
*e^6 + a^5*e^7)*x^3 + 3*(b^5*d^6*e - 3*a*b^4*d^5*e^2 + 2*a^2*b^3*
d^4*e^3 + 2*a^3*b^2*d^3*e^4 - 3*a^4*b*d^2*e^5 + a^5*d*e^6)*x^2 +
(b^5*d^7 - a*b^4*d^6*e - 6*a^2*b^3*d^5*e^2 + 14*a^3*b^2*d^4*e^3 -
 11*a^4*b*d^3*e^4 + 3*a^5*d^2*e^5)*x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(b*x+a)**(3/2)/(e*x+d)**(7/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.455715, size = 1, normalized size = 0.01

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/((b*x + a)^(3/2)*(e*x + d)^(7/2)),x, algorithm="giac")
```

```
[Out] Done
```

3.2235 $\int \frac{A+Bx}{(a+bx)^{3/2}(d+ex)^{9/2}}\,dx$

Optimal. Leaf size=237

$$\frac{32b^2\sqrt{a+bx}(7aBe-8Abe+bBd)}{35\sqrt{d+ex}(bd-ae)^5}+\frac{16b\sqrt{a+bx}(7aBe-8Abe+bBd)}{35(d+ex)^{3/2}(bd-ae)^4}+\frac{12\sqrt{a+bx}(7aBe-8Abe+bBd)}{35(d+ex)^{5/2}(bd-ae)^3}+\frac{2\sqrt{a+bx}(7aBe-8Abe+bBd)}{7b(d+ex)^{7/2}(bd-ae)^2}-\frac{2(Ab-aB)}{b\sqrt{a+bx}(d+ex)^{7/2}(bd-ae)}$$

```
[Out] (-2*(A*b - a*B))/(b*(b*d - a*e)*Sqrt[a + b*x]*(d + e*x)^(7/2)) +
(2*(b*B*d - 8*A*b*e + 7*a*B*e)*Sqrt[a + b*x])/(7*b*(b*d - a*e)^2*
(d + e*x)^(7/2)) + (12*(b*B*d - 8*A*b*e + 7*a*B*e)*Sqrt[a + b*x])
/(35*(b*d - a*e)^3*(d + e*x)^(5/2)) + (16*b*(b*B*d - 8*A*b*e + 7*
a*B*e)*Sqrt[a + b*x])/(35*(b*d - a*e)^4*(d + e*x)^(3/2)) + (32*b^
2*(b*B*d - 8*A*b*e + 7*a*B*e)*Sqrt[a + b*x])/(35*(b*d - a*e)^5*Sq
rt[d + e*x])
```

Rubi [A] time = 0.448499, antiderivative size = 237, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.125$

$$\frac{32b^2\sqrt{a+bx}(7aBe-8Abe+bBd)}{35\sqrt{d+ex}(bd-ae)^5}+\frac{16b\sqrt{a+bx}(7aBe-8Abe+bBd)}{35(d+ex)^{3/2}(bd-ae)^4}+\frac{12\sqrt{a+bx}(7aBe-8Abe+bBd)}{35(d+ex)^{5/2}(bd-ae)^3}+\frac{2\sqrt{a+bx}(7aBe-8Abe+bBd)}{7b(d+ex)^{7/2}(bd-ae)^2}-\frac{2(Ab-aB)}{b\sqrt{a+bx}(d+ex)^{7/2}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/((a + b*x)^(3/2)*(d + e*x)^(9/2)),x]
```

```
[Out] (-2*(A*b - a*B))/(b*(b*d - a*e)*Sqrt[a + b*x]*(d + e*x)^(7/2)) +
(2*(b*B*d - 8*A*b*e + 7*a*B*e)*Sqrt[a + b*x])/(7*b*(b*d - a*e)^2*
(d + e*x)^(7/2)) + (12*(b*B*d - 8*A*b*e + 7*a*B*e)*Sqrt[a + b*x])
/(35*(b*d - a*e)^3*(d + e*x)^(5/2)) + (16*b*(b*B*d - 8*A*b*e + 7*
a*B*e)*Sqrt[a + b*x])/(35*(b*d - a*e)^4*(d + e*x)^(3/2)) + (32*b^
2*(b*B*d - 8*A*b*e + 7*a*B*e)*Sqrt[a + b*x])/(35*(b*d - a*e)^5*Sq
rt[d + e*x])
```

Rubi in Sympy [A] time = 49.8565, size = 231, normalized size = 0.97

$$\frac{32b^2\sqrt{a+bx}\,(8Abe-7Bae-Bbd)}{35\sqrt{d+ex}\,(ae-bd)^5}-\frac{16b\sqrt{a+bx}\,(8Abe-7Bae-Bbd)}{35\,(d+ex)^{\frac{3}{2}}\,(ae-bd)^4}+\frac{12\sqrt{a+bx}\,(8Abe-7Bae-Bbd)}{35\,(d+ex)^{\frac{5}{2}}\,(ae-bd)^3}-\frac{2\sqrt{a+bx}\,(8Abe-7Bae-Bbd)}{7b\,(d+ex)^{\frac{7}{2}}\,(ae-bd)^2}+\frac{2\,(Ab-Ba)}{b\sqrt{a+bx}\,(d+ex)^{\frac{7}{2}}\,(ae-bd)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(b*x+a)**(3/2)/(e*x+d)**(9/2),x)
```

```
[Out] 32*b**2*sqrt(a + b*x)*(8*A*b*e - 7*B*a*e - B*b*d)/(35*sqrt(d + e*
x)*(a*e - b*d)**5) - 16*b*sqrt(a + b*x)*(8*A*b*e - 7*B*a*e - B*b*
d)/(35*(d + e*x)**(3/2)*(a*e - b*d)**4) + 12*sqrt(a + b*x)*(8*A*b
*e - 7*B*a*e - B*b*d)/(35*(d + e*x)**(5/2)*(a*e - b*d)**3) - 2*sq
rt(a + b*x)*(8*A*b*e - 7*B*a*e - B*b*d)/(7*b*(d + e*x)**(7/2)*(a*
e - b*d)**2) + 2*(A*b - B*a)/(b*sqrt(a + b*x)*(d + e*x)**(7/2)*(a
*e - b*d))
```

Mathematica [A] time = 0.454577, size = 174, normalized size = 0.73

$$\frac{2\sqrt{a+bx}\sqrt{d+ex}\left(-\frac{35b^3(Ab-aB)}{a+bx}+\frac{b^2(77aBe-93Abe+16bBd)}{d+ex}+\frac{b(bd-ae)(21aBe-29Abe+8bBd)}{(d+ex)^2}+\frac{(bd-ae)^2(7aBe-13Abe+6bBd)}{(d+ex)^3}+\frac{5(bd-ae)^3}{(d+e}\right.}{35(bd-ae)^5}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/((a + b*x)^(3/2)*(d + e*x)^(9/2)),x]
```

```
[Out] (2*Sqrt[a + b*x]*Sqrt[d + e*x]*((-35*b^3*(A*b - a*B))/(a + b*x) +
 (5*(b*d - a*e)^3*(B*d - A*e))/(d + e*x)^4 + ((b*d - a*e)^2*(6*b*
B*d - 13*A*b*e + 7*a*B*e))/(d + e*x)^3 + (b*(b*d - a*e)*(8*b*B*d
- 29*A*b*e + 21*a*B*e))/(d + e*x)^2 + (b^2*(16*b*B*d - 93*A*b*e +
 77*a*B*e))/(d + e*x)))/(35*(b*d - a*e)^5)
```

Maple [B] time = 0.018, size = 505, normalized size = 2.1

$$-\frac{-256\,Ab^4e^4x^4+224\,Bab^3e^4x^4+32\,Bb^4de^3x^4-128\,Aab^3e^4x^3-896\,Ab^4de^3x^3+112\,Ba^2b^2e^4x^3+800\,Bab^3de^3x^3+112\,Bb^4}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(b*x+a)^(3/2)/(e*x+d)^(9/2),x)
```

```
[Out] -2/35*(-128*A*b^4*e^4*x^4+112*B*a*b^3*e^4*x^4+16*B*b^4*d*e^3*x^4-
64*A*a*b^3*e^4*x^3-448*A*b^4*d*e^3*x^3+56*B*a^2*b^2*e^4*x^3+400*B
*a*b^3*d*e^3*x^3+56*B*b^4*d^2*e^2*x^3+16*A*a^2*b^2*e^4*x^2-224*A*
a*b^3*d*e^3*x^2-560*A*b^4*d^2*e^2*x^2-14*B*a^3*b*e^4*x^2+194*B*a^
2*b^2*d*e^3*x^2+518*B*a*b^3*d^2*e^2*x^2+70*B*b^4*d^3*e*x^2-8*A*a^
3*b*e^4*x+56*A*a^2*b^2*d*e^3*x-280*A*a*b^3*d^2*e^2*x-280*A*b^4*d^
3*e*x+7*B*a^4*e^4*x-48*B*a^3*b*d*e^3*x+238*B*a^2*b^2*d^2*e^2*x+28
0*B*a*b^3*d^3*e*x+35*B*b^4*d^4*x+5*A*a^4*e^4-28*A*a^3*b*d*e^3+70*
A*a^2*b^2*d^2*e^2-140*A*a*b^3*d^3*e-35*A*b^4*d^4+2*B*a^4*d*e^3-14
*B*a^3*b*d^2*e^2+70*B*a^2*b^2*d^3*e+70*B*a*b^3*d^4)/(b*x+a)^(1/2)
/(e*x+d)^(7/2)/(a^5*e^5-5*a^4*b*d*e^4+10*a^3*b^2*d^2*e^3-10*a^2*b
^3*d^3*e^2+5*a*b^4*d^4*e-b^5*d^5)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(3/2)*(e*x + d)^(9/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 2.36355, size = 1197, normalized size = 5.05

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(3/2)*(e*x + d)^(9/2)),x, algorithm="fricas")
```

```
[Out] 2/35*(5*A*a^4*e^4 + 35*(2*B*a*b^3 - A*b^4)*d^4 + 70*(B*a^2*b^2 -
2*A*a*b^3)*d^3*e - 14*(B*a^3*b - 5*A*a^2*b^2)*d^2*e^2 + 2*(B*a^4
```

```
- 14*A*a^3*b)*d*e^3 + 16*(B*b^4*d*e^3 + (7*B*a*b^3 - 8*A*b^4)*e^4
)*x^4 + 8*(7*B*b^4*d^2*e^2 + 2*(25*B*a*b^3 - 28*A*b^4)*d*e^3 + (7
*B*a^2*b^2 - 8*A*a*b^3)*e^4)*x^3 + 2*(35*B*b^4*d^3*e + 7*(37*B*a*
b^3 - 40*A*b^4)*d^2*e^2 + (97*B*a^2*b^2 - 112*A*a*b^3)*d*e^3 - (7
*B*a^3*b - 8*A*a^2*b^2)*e^4)*x^2 + (35*B*b^4*d^4 + 280*(B*a*b^3 -
 A*b^4)*d^3*e + 14*(17*B*a^2*b^2 - 20*A*a*b^3)*d^2*e^2 - 8*(6*B*a
^3*b - 7*A*a^2*b^2)*d*e^3 + (7*B*a^4 - 8*A*a^3*b)*e^4)*x)*sqrt(b*
x + a)*sqrt(e*x + d)/(a*b^5*d^9 - 5*a^2*b^4*d^8*e + 10*a^3*b^3*d^
7*e^2 - 10*a^4*b^2*d^6*e^3 + 5*a^5*b*d^5*e^4 - a^6*d^4*e^5 + (b^6
*d^5*e^4 - 5*a*b^5*d^4*e^5 + 10*a^2*b^4*d^3*e^6 - 10*a^3*b^3*d^2*
e^7 + 5*a^4*b^2*d*e^8 - a^5*b*e^9)*x^5 + (4*b^6*d^6*e^3 - 19*a*b^
5*d^5*e^4 + 35*a^2*b^4*d^4*e^5 - 30*a^3*b^3*d^3*e^6 + 10*a^4*b^2*
d^2*e^7 + a^5*b*d*e^8 - a^6*e^9)*x^4 + 2*(3*b^6*d^7*e^2 - 13*a*b^
5*d^6*e^3 + 20*a^2*b^4*d^5*e^4 - 10*a^3*b^3*d^4*e^5 - 5*a^4*b^2*d
^3*e^6 + 7*a^5*b*d^2*e^7 - 2*a^6*d*e^8)*x^3 + 2*(2*b^6*d^8*e - 7*
a*b^5*d^7*e^2 + 5*a^2*b^4*d^6*e^3 + 10*a^3*b^3*d^5*e^4 - 20*a^4*b
^2*d^4*e^5 + 13*a^5*b*d^3*e^6 - 3*a^6*d^2*e^7)*x^2 + (b^6*d^9 - a
*b^5*d^8*e - 10*a^2*b^4*d^7*e^2 + 30*a^3*b^3*d^6*e^3 - 35*a^4*b^2
*d^5*e^4 + 19*a^5*b*d^4*e^5 - 4*a^6*d^3*e^6)*x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(b*x+a)**(3/2)/(e*x+d)**(9/2),x)

[Out] Timed out
```

GIAC/XCAS [A] time = 0.900563, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(3/2)*(e*x + d)^(9/2)),x, algorithm="giac")

[Out] Done
```

3.2236 $\int \frac{(A+Bx)(d+ex)^{7/2}}{(a+bx)^{5/2}} dx$

Optimal. Leaf size=302

$$\frac{35\sqrt{e}(bd-ae)^2(-3aBe+2Abe+bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{8b^{11/2}}+\frac{35e\sqrt{a+bx}\sqrt{d+ex}(bd-ae)(-3aBe+2Abe+bBd)}{8b^5}+\frac{35e\sqrt{a+bx}(d+ex)^{3/2}(-3aBe+2Abe+bBd)}{12b^4}+\frac{7e\sqrt{a+bx}(d+ex)^{5/2}(-3aBe+2Abe+bBd)}{3b^3(bd-ae)}-\frac{2(d+ex)^{7/2}(-3aBe+2Abe+bBd)}{b^2\sqrt{a+bx}(bd-ae)}-\frac{2(d+ex)^{9/2}(Ab-aB)}{3b(a+bx)^{3/2}(bd-ae)}$$

```
[Out] (35*e*(b*d - a*e)*(b*B*d + 2*A*b*e - 3*a*B*e)*Sqrt[a + b*x]*Sqrt[
d + e*x])/(8*b^5) + (35*e*(b*B*d + 2*A*b*e - 3*a*B*e)*Sqrt[a + b*
x]*(d + e*x)^(3/2))/(12*b^4) + (7*e*(b*B*d + 2*A*b*e - 3*a*B*e)*S
qrt[a + b*x]*(d + e*x)^(5/2))/(3*b^3*(b*d - a*e)) - (2*(b*B*d + 2
*A*b*e - 3*a*B*e)*(d + e*x)^(7/2))/(b^2*(b*d - a*e)*Sqrt[a + b*x]
) - (2*(A*b - a*B)*(d + e*x)^(9/2))/(3*b*(b*d - a*e)*(a + b*x)^(3
/2)) + (35*Sqrt[e]*(b*d - a*e)^2*(b*B*d + 2*A*b*e - 3*a*B*e)*ArcT
anh[(Sqrt[e]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[d + e*x])])/(8*b^(11/2)
)
```

Rubi [A] time = 0.634484, antiderivative size = 302, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{35\sqrt{e}(bd-ae)^2(-3aBe+2Abe+bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{8b^{11/2}}+\frac{35e\sqrt{a+bx}\sqrt{d+ex}(bd-ae)(-3aBe+2Abe+bBd)}{8b^5}+\frac{35e\sqrt{a+bx}(d+ex)^{3/2}(-3aBe+2Abe+bBd)}{12b^4}+\frac{7e\sqrt{a+bx}(d+ex)^{5/2}(-3aBe+2Abe+bBd)}{3b^3(bd-ae)}-\frac{2(d+ex)^{7/2}(-3aBe+2Abe+bBd)}{b^2\sqrt{a+bx}(bd-ae)}-\frac{2(d+ex)^{9/2}(Ab-aB)}{3b(a+bx)^{3/2}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[((A + B*x)*(d + e*x)^(7/2))/(a + b*x)^(5/2),x]
```


```
[Out] (35*e*(b*d - a*e)*(b*B*d + 2*A*b*e - 3*a*B*e)*Sqrt[a + b*x]*Sqrt[
d + e*x])/(8*b^5) + (35*e*(b*B*d + 2*A*b*e - 3*a*B*e)*Sqrt[a + b*
x]*(d + e*x)^(3/2))/(12*b^4) + (7*e*(b*B*d + 2*A*b*e - 3*a*B*e)*S
qrt[a + b*x]*(d + e*x)^(5/2))/(3*b^3*(b*d - a*e)) - (2*(b*B*d + 2
*A*b*e - 3*a*B*e)*(d + e*x)^(7/2))/(b^2*(b*d - a*e)*Sqrt[a + b*x]
) - (2*(A*b - a*B)*(d + e*x)^(9/2))/(3*b*(b*d - a*e)*(a + b*x)^(3
/2)) + (35*Sqrt[e]*(b*d - a*e)^2*(b*B*d + 2*A*b*e - 3*a*B*e)*ArcT
anh[(Sqrt[e]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[d + e*x])])/(8*b^(11/2)
)
```

Rubi in Sympy [A] time = 63.837, size = 298, normalized size = 0.99

$$\frac{2\left(d+ex\right)^{\frac{9}{2}}\left(Ab-Ba\right)}{3b\left(a+bx\right)^{\frac{3}{2}}\left(ae-bd\right)}+\frac{2\left(d+ex\right)^{\frac{7}{2}}\left(2Abe-3Bae+Bbd\right)}{b^{2}\sqrt{a+bx}\left(ae-bd\right)}-\frac{7e\sqrt{a+bx}\left(d+ex\right)^{\frac{5}{2}}\left(2Abe-3Bae+Bbd\right)}{3b^{3}\left(ae-bd\right)}+\frac{35e\sqrt{a+bx}\left(d+ex\right)^{\frac{3}{2}}\left(2Abe-3Bae+Bbd\right)}{12b^{4}}-\frac{35e\sqrt{a+bx}\sqrt{d+ex}\left(ae-bd\right)\left(2Abe-3Bae+Bbd\right)}{8b^{5}}+\frac{35\sqrt{e}\left(ae-bd\right)^{2}\left(2Abe-3Bae+Bbd\right)\operatorname{atanh}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{8b^{\frac{11}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(e*x+d)**(7/2)/(b*x+a)**(5/2),x)
```

```
[Out] 2*(d + e*x)**(9/2)*(A*b - B*a)/(3*b*(a + b*x)**(3/2)*(a*e - b*d))
 + 2*(d + e*x)**(7/2)*(2*A*b*e - 3*B*a*e + B*b*d)/(b**2*sqrt(a +
b*x)*(a*e - b*d)) - 7*e*sqrt(a + b*x)*(d + e*x)**(5/2)*(2*A*b*e -
 3*B*a*e + B*b*d)/(3*b**3*(a*e - b*d)) + 35*e*sqrt(a + b*x)*(d +
e*x)**(3/2)*(2*A*b*e - 3*B*a*e + B*b*d)/(12*b**4) - 35*e*sqrt(a +
 b*x)*sqrt(d + e*x)*(a*e - b*d)*(2*A*b*e - 3*B*a*e + B*b*d)/(8*b*
*5) + 35*sqrt(e)*(a*e - b*d)**2*(2*A*b*e - 3*B*a*e + B*b*d)*atanh
(sqrt(e)*sqrt(a + b*x)/(sqrt(b)*sqrt(d + e*x)))/(8*b**(11/2))
```

Mathematica [A] time = 0.992664, size = 326, normalized size = 1.08

$$\sqrt{d+ex}\left(B\left(315a^{4}e^{3}+210a^{3}be^{2}(2ex-3d)+7a^{2}b^{2}e\left(49d^{2}-122dex+9e^{2}x^{2}\right)-2ab^{3}\left(16d^{3}-239d^{2}ex+69de^{2}x^{2}+9e^{3}x^{3}\right)\right.\right.$$

$$+\frac{35\sqrt{e}(bd-ae)^{2}(-3aBe+2Abe+bBd)\log\left(2\sqrt{b}\sqrt{e}\sqrt{a+bx}\sqrt{d+ex}+ae+bd+2bex\right)}{16b^{11/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((A + B*x)*(d + e*x)^(7/2))/(a + b*x)^(5/2),x]
```

```
[Out] (Sqrt[d + e*x]*(-2*A*b*(105*a^3*e^3 + 35*a^2*b*e^2*(-5*d + 4*e*x)
 + 7*a*b^2*e*(8*d^2 - 34*d*e*x + 3*e^2*x^2) + b^3*(8*d^3 + 80*d^2
*e*x - 39*d*e^2*x^2 - 6*e^3*x^3)) + B*(315*a^4*e^3 + 210*a^3*b*e^
2*(-3*d + 2*e*x) + 7*a^2*b^2*e*(49*d^2 - 122*d*e*x + 9*e^2*x^2) +
 b^4*x*(-48*d^3 + 87*d^2*e*x + 38*d*e^2*x^2 + 8*e^3*x^3) - 2*a*b^
3*(16*d^3 - 239*d^2*e*x + 69*d*e^2*x^2 + 9*e^3*x^3))))/(24*b^5*(a
 + b*x)^(3/2)) + (35*Sqrt[e]*(b*d - a*e)^2*(b*B*d + 2*A*b*e - 3*a
*B*e)*Log[b*d + a*e + 2*b*e*x + 2*Sqrt[b]*Sqrt[e]*Sqrt[a + b*x]*S
qrt[d + e*x]])/(16*b^(11/2))
```

Maple [B] time = 0.057, size = 1882, normalized size = 6.2

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(e*x+d)^(7/2)/(b*x+a)^(5/2),x)
```

```
[Out] 1/48*(e*x+d)^(1/2)*(-276*B*x^2*a*b^3*d*e^2*((b*x+a)*(e*x+d))^(1/2
)*(b*e)^(1/2)-32*A*b^4*d^3*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+95
2*A*x*a*b^3*d*e^2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)-1708*B*x*a^
2*b^2*d*e^2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+956*B*x*a*b^3*d^2
*e*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+210*A*ln(1/2*(2*b*x*e+2*((
```

```
b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^2*b^3*d
^2*e^2+735*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2
)+a*e+b*d)/(b*e)^(1/2))*a^4*b*d*e^3-525*B*ln(1/2*(2*b*x*e+2*((b*x
+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^3*b^2*d^2*
e^2+105*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a
*e+b*d)/(b*e)^(1/2))*a^2*b^3*d^3*e+16*B*x^4*b^4*e^3*((b*x+a)*(e*x
+d))^(1/2)*(b*e)^(1/2)+24*A*x^3*b^4*e^3*((b*x+a)*(e*x+d))^(1/2)*(
b*e)^(1/2)-96*B*x*b^4*d^3*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)-420
*A*a^3*b*e^3*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)-64*B*a*b^3*d^3*(
(b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+210*A*ln(1/2*(2*b*x*e+2*((b*x+
a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x^2*a^2*b^3*e
^4+210*A*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*
e+b*d)/(b*e)^(1/2))*x^2*b^5*d^2*e^2-315*B*ln(1/2*(2*b*x*e+2*((b*x
+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x^2*a^3*b^2*
e^4+105*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a
*e+b*d)/(b*e)^(1/2))*x^2*b^5*d^3*e-315*B*ln(1/2*(2*b*x*e+2*((b*x+
a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^5*e^4+630*B
*a^4*e^3*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+210*A*ln(1/2*(2*b*x*
e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^4
*b*e^4+420*A*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2
)+a*e+b*d)/(b*e)^(1/2))*x*a^3*b^2*e^4-630*B*ln(1/2*(2*b*x*e+2*((b
*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x*a^4*b*e^
4-420*A*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e
+b*d)/(b*e)^(1/2))*a^3*b^2*d*e^3-36*B*x^3*a*b^3*e^3*((b*x+a)*(e*x
+d))^(1/2)*(b*e)^(1/2)+76*B*x^3*b^4*d*e^2*((b*x+a)*(e*x+d))^(1/2)
*(b*e)^(1/2)-84*A*x^2*a*b^3*e^3*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/
2)+156*A*x^2*b^4*d*e^2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+126*B*
x^2*a^2*b^2*e^3*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+174*B*x^2*b^4
*d^2*e*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)-560*A*x*a^2*b^2*e^3*((
b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)-320*A*x*b^4*d^2*e*((b*x+a)*(e*x
+d))^(1/2)*(b*e)^(1/2)+840*B*x*a^3*b*e^3*((b*x+a)*(e*x+d))^(1/2)*
(b*e)^(1/2)+700*A*a^2*b^2*d*e^2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/
2)-224*A*a*b^3*d^2*e*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)-1260*B*a
^3*b*d*e^2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+686*B*a^2*b^2*d^2*
e*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)-420*A*ln(1/2*(2*b*x*e+2*((b
*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x^2*a*b^4*
d*e^3+735*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)
+a*e+b*d)/(b*e)^(1/2))*x^2*a^2*b^3*d*e^3-525*B*ln(1/2*(2*b*x*e+2*
((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x^2*a*b
^4*d^2*e^2-840*A*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^
(1/2)+a*e+b*d)/(b*e)^(1/2))*x*a^2*b^3*d*e^3+420*A*ln(1/2*(2*b*x*e
+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x*a*
b^4*d^2*e^2+1470*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e
)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x*a^3*b^2*d*e^3-1050*B*ln(1/2*(2*b*
x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x
*a^2*b^3*d^2*e^2+210*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*
(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x*a*b^4*d^3*e)/((b*x+a)*(e*x+d)
)^(1/2)/(b*e)^(1/2)/(b*x+a)^(3/2)/b^5
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(e*x + d)^(7/2)/(b*x + a)^(5/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 1.79211, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(e*x + d)^(7/2)/(b*x + a)^(5/2),x, algorithm="fricas")
```

```
[Out] [-1/96*(105*(B*a^2*b^3*d^3 - (5*B*a^3*b^2 - 2*A*a^2*b^3)*d^2*e +
(7*B*a^4*b - 4*A*a^3*b^2)*d*e^2 - (3*B*a^5 - 2*A*a^4*b)*e^3 + (B*
b^5*d^3 - (5*B*a*b^4 - 2*A*b^5)*d^2*e + (7*B*a^2*b^3 - 4*A*a*b^4)
*d*e^2 - (3*B*a^3*b^2 - 2*A*a^2*b^3)*e^3)*x^2 + 2*(B*a*b^4*d^3 -
(5*B*a^2*b^3 - 2*A*a*b^4)*d^2*e + (7*B*a^3*b^2 - 4*A*a^2*b^3)*d*e
^2 - (3*B*a^4*b - 2*A*a^3*b^2)*e^3)*x)*sqrt(e/b)*log(8*b^2*e^2*x^
2 + b^2*d^2 + 6*a*b*d*e + a^2*e^2 - 4*(2*b^2*e*x + b^2*d + a*b*e)
*sqrt(b*x + a)*sqrt(e*x + d)*sqrt(e/b) + 8*(b^2*d*e + a*b*e^2)*x)
 - 4*(8*B*b^4*e^3*x^4 - 16*(2*B*a*b^3 + A*b^4)*d^3 + 7*(49*B*a^2*
b^2 - 16*A*a*b^3)*d^2*e - 70*(9*B*a^3*b - 5*A*a^2*b^2)*d*e^2 + 10
5*(3*B*a^4 - 2*A*a^3*b)*e^3 + 2*(19*B*b^4*d*e^2 - 3*(3*B*a*b^3 -
2*A*b^4)*e^3)*x^3 + 3*(29*B*b^4*d^2*e - 2*(23*B*a*b^3 - 13*A*b^4)
*d*e^2 + 7*(3*B*a^2*b^2 - 2*A*a*b^3)*e^3)*x^2 - 2*(24*B*b^4*d^3 -
 (239*B*a*b^3 - 80*A*b^4)*d^2*e + 7*(61*B*a^2*b^2 - 34*A*a*b^3)*d
*e^2 - 70*(3*B*a^3*b - 2*A*a^2*b^2)*e^3)*x)*sqrt(b*x + a)*sqrt(e*
x + d))/(b^7*x^2 + 2*a*b^6*x + a^2*b^5), 1/48*(105*(B*a^2*b^3*d^3
 - (5*B*a^3*b^2 - 2*A*a^2*b^3)*d^2*e + (7*B*a^4*b - 4*A*a^3*b^2)*
d*e^2 - (3*B*a^5 - 2*A*a^4*b)*e^3 + (B*b^5*d^3 - (5*B*a*b^4 - 2*A
*b^5)*d^2*e + (7*B*a^2*b^3 - 4*A*a*b^4)*d*e^2 - (3*B*a^3*b^2 - 2*
A*a^2*b^3)*e^3)*x^2 + 2*(B*a*b^4*d^3 - (5*B*a^2*b^3 - 2*A*a*b^4)*
d^2*e + (7*B*a^3*b^2 - 4*A*a^2*b^3)*d*e^2 - (3*B*a^4*b - 2*A*a^3*
b^2)*e^3)*x)*sqrt(-e/b)*arctan(1/2*(2*b*e*x + b*d + a*e)/(sqrt(b*
x + a)*sqrt(e*x + d)*b*sqrt(-e/b))) + 2*(8*B*b^4*e^3*x^4 - 16*(2*
B*a*b^3 + A*b^4)*d^3 + 7*(49*B*a^2*b^2 - 16*A*a*b^3)*d^2*e - 70*(
9*B*a^3*b - 5*A*a^2*b^2)*d*e^2 + 105*(3*B*a^4 - 2*A*a^3*b)*e^3 +
2*(19*B*b^4*d*e^2 - 3*(3*B*a*b^3 - 2*A*b^4)*e^3)*x^3 + 3*(29*B*b^
4*d^2*e - 2*(23*B*a*b^3 - 13*A*b^4)*d*e^2 + 7*(3*B*a^2*b^2 - 2*A*
a*b^3)*e^3)*x^2 - 2*(24*B*b^4*d^3 - (239*B*a*b^3 - 80*A*b^4)*d^2*
e + 7*(61*B*a^2*b^2 - 34*A*a*b^3)*d*e^2 - 70*(3*B*a^3*b - 2*A*a^2
*b^2)*e^3)*x)*sqrt(b*x + a)*sqrt(e*x + d))/(b^7*x^2 + 2*a*b^6*x +
 a^2*b^5)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(e*x+d)**(7/2)/(b*x+a)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.730737, size = 4, normalized size = 0.01

$$sage_0 x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^(7/2)/(b*x + a)^(5/2),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.2237 $\int \frac{(A+Bx)(d+ex)^{5/2}}{(a+bx)^{5/2}}\,dx$

Optimal. Leaf size=257

$$\frac{5\sqrt{e}(bd-ae)(-7aBe+4Abe+3bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{4b^{9/2}} + \frac{5e\sqrt{a+bx}\sqrt{d+ex}(-7aBe+4Abe+3bBd)}{4b^4} + \frac{5e\sqrt{a+bx}(d+ex)^{3/2}(-7aBe+4Abe+3bBd)}{6b^3(bd-ae)} - \frac{2(d+ex)^{5/2}(-7aBe+4Abe+3bBd)}{3b^2\sqrt{a+bx}(bd-ae)} - \frac{2(d+ex)^{7/2}(Ab-aB)}{3b(a+bx)^{3/2}(bd-ae)}$$

```
[Out] (5*e*(3*b*B*d + 4*A*b*e - 7*a*B*e)*Sqrt[a + b*x]*Sqrt[d + e*x])/(
4*b^4) + (5*e*(3*b*B*d + 4*A*b*e - 7*a*B*e)*Sqrt[a + b*x]*(d + e*
x)^(3/2))/(6*b^3*(b*d - a*e)) - (2*(3*b*B*d + 4*A*b*e - 7*a*B*e)*
(d + e*x)^(5/2))/(3*b^2*(b*d - a*e)*Sqrt[a + b*x]) - (2*(A*b - a*
B)*(d + e*x)^(7/2))/(3*b*(b*d - a*e)*(a + b*x)^(3/2)) + (5*Sqrt[e
]*(b*d - a*e)*(3*b*B*d + 4*A*b*e - 7*a*B*e)*ArcTanh[(Sqrt[e]*Sqrt
[a + b*x])/(Sqrt[b]*Sqrt[d + e*x])])/(4*b^(9/2))
```

Rubi [A] time = 0.515561, antiderivative size = 257, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.208$

$$\frac{5\sqrt{e}(bd-ae)(-7aBe+4Abe+3bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{4b^{9/2}} + \frac{5e\sqrt{a+bx}\sqrt{d+ex}(-7aBe+4Abe+3bBd)}{4b^4} + \frac{5e\sqrt{a+bx}(d+ex)^{3/2}(-7aBe+4Abe+3bBd)}{6b^3(bd-ae)} - \frac{2(d+ex)^{5/2}(-7aBe+4Abe+3bBd)}{3b^2\sqrt{a+bx}(bd-ae)} - \frac{2(d+ex)^{7/2}(Ab-aB)}{3b(a+bx)^{3/2}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[((A + B*x)*(d + e*x)^(5/2))/(a + b*x)^(5/2),x]
```

```
[Out] (5*e*(3*b*B*d + 4*A*b*e - 7*a*B*e)*Sqrt[a + b*x]*Sqrt[d + e*x])/(
4*b^4) + (5*e*(3*b*B*d + 4*A*b*e - 7*a*B*e)*Sqrt[a + b*x]*(d + e*
x)^(3/2))/(6*b^3*(b*d - a*e)) - (2*(3*b*B*d + 4*A*b*e - 7*a*B*e)*
(d + e*x)^(5/2))/(3*b^2*(b*d - a*e)*Sqrt[a + b*x]) - (2*(A*b - a*
B)*(d + e*x)^(7/2))/(3*b*(b*d - a*e)*(a + b*x)^(3/2)) + (5*Sqrt[e
]*(b*d - a*e)*(3*b*B*d + 4*A*b*e - 7*a*B*e)*ArcTanh[(Sqrt[e]*Sqrt
[a + b*x])/(Sqrt[b]*Sqrt[d + e*x])])/(4*b^(9/2))
```

Rubi in Sympy [A] time = 49.0083, size = 253, normalized size = 0.98

$$\frac{2\,(d+ex)^{\frac{7}{2}}\,(Ab-Ba)}{3b\,(a+bx)^{\frac{3}{2}}\,(ae-bd)} + \frac{2\,(d+ex)^{\frac{5}{2}}\,(4Abe-7Bae+3Bbd)}{3b^2\sqrt{a+bx}\,(ae-bd)} - \frac{5e\sqrt{a+bx}\,(d+ex)^{\frac{3}{2}}\,(4Abe-7Bae+3Bbd)}{6b^3\,(ae-bd)} + \frac{5e\sqrt{a+bx}\sqrt{d+ex}\,(4Abe-7Bae+3Bbd)}{4b^4} - \frac{5\sqrt{e}\,(ae-bd)\,(4Abe-7Bae+3Bbd)\,\operatorname{atanh}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{4b^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(e*x+d)**(5/2)/(b*x+a)**(5/2),x)
```

```
[Out] 2*(d + e*x)**(7/2)*(A*b - B*a)/(3*b*(a + b*x)**(3/2)*(a*e - b*d))
 + 2*(d + e*x)**(5/2)*(4*A*b*e - 7*B*a*e + 3*B*b*d)/(3*b**2*sqrt(
```

```
a + b*x)*(a*e - b*d)) - 5*e*sqrt(a + b*x)*(d + e*x)**(3/2)*(4*A*b
*e - 7*B*a*e + 3*B*b*d)/(6*b**3*(a*e - b*d)) + 5*e*sqrt(a + b*x)*
sqrt(d + e*x)*(4*A*b*e - 7*B*a*e + 3*B*b*d)/(4*b**4) - 5*sqrt(e)*
(a*e - b*d)*(4*A*b*e - 7*B*a*e + 3*B*b*d)*atanh(sqrt(e)*sqrt(a +
b*x)/(sqrt(b)*sqrt(d + e*x)))/(4*b**(9/2))
```

Mathematica [A] time = 0.571996, size = 230, normalized size = 0.89

$$\frac{\sqrt{d+ex}\left(4Ab\left(15a^2e^2-10abe(d-2ex)+b^2\left(-2d^2-14dex+3e^2x^2\right)\right)+B\left(-105a^3e^2+5a^2be(23d-28ex)+ab^2\left(-16d^2+\right.\right.\right.}{12b^4(a+bx)^{3/2}}$$
$$+\frac{5\sqrt{e}(bd-ae)(-7aBe+4Abe+3bBd)\log\left(2\sqrt{b}\sqrt{e}\sqrt{a+bx}\sqrt{d+ex}+ae+bd+2bex\right)}{8b^{9/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((A + B*x)*(d + e*x)^(5/2))/(a + b*x)^(5/2),x]
```

```
[Out] (Sqrt[d + e*x]*(B*(-105*a^3*e^2 + 5*a^2*b*e*(23*d - 28*e*x) + a*b
^2*(-16*d^2 + 158*d*e*x - 21*e^2*x^2) + 3*b^3*x*(-8*d^2 + 9*d*e*x
 + 2*e^2*x^2)) + 4*A*b*(15*a^2*e^2 - 10*a*b*e*(d - 2*e*x) + b^2*(
-2*d^2 - 14*d*e*x + 3*e^2*x^2))))/(12*b^4*(a + b*x)^(3/2)) + (5*S
qrt[e]*(b*d - a*e)*(3*b*B*d + 4*A*b*e - 7*a*B*e)*Log[b*d + a*e +
2*b*e*x + 2*Sqrt[b]*Sqrt[e]*Sqrt[a + b*x]*Sqrt[d + e*x]])/(8*b^(9
/2))
```

Maple [B] time = 0.04, size = 1250, normalized size = 4.9

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(e*x+d)^(5/2)/(b*x+a)^(5/2),x)
```

```
[Out] -1/24*(e*x+d)^(1/2)*(-105*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(
1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^4*e^3-316*B*x*a*b^2*d*e*
((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)-24*A*x^2*b^3*e^2*((b*x+a)*(e*
x+d))^(1/2)*(b*e)^(1/2)+48*B*x*b^3*d^2*((b*x+a)*(e*x+d))^(1/2)*(b
*e)^(1/2)-120*A*a^2*b*e^2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+32*
B*a*b^2*d^2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+120*A*ln(1/2*(2*b
*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*
x*a^2*b^2*e^3-210*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*
e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x*a^3*b*e^3-60*A*ln(1/2*(2*b*x*e+2
*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^2*b^
2*d*e^2+150*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/
2)+a*e+b*d)/(b*e)^(1/2))*a^3*b*d*e^2-45*B*ln(1/2*(2*b*x*e+2*((b*x
+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^2*b^2*d^2*
e-12*B*x^3*b^3*e^2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+16*A*b^3*d
^2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+210*B*a^3*e^2*((b*x+a)*(e*
x+d))^(1/2)*(b*e)^(1/2)+60*A*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^
(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^3*b*e^3+60*A*ln(1/2*(2*
b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))
*x^2*a*b^3*e^3-60*A*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*
e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x^2*b^4*d*e^2-105*B*ln(1/2*(2*b*x*
e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x^2
*a^2*b^2*e^3-45*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)
^(1/2)+a*e+b*d)/(b*e)^(1/2))*x^2*b^4*d^2*e+150*B*ln(1/2*(2*b*x*e+
2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x^2*a
*b^3*d*e^2+42*B*x^2*a*b^2*e^2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)
-54*B*x^2*b^3*d*e*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)-160*A*x*a*b
^2*e^2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+112*A*x*b^3*d*e*((b*x+
a)*(e*x+d))^(1/2)*(b*e)^(1/2)+280*B*x*a^2*b*e^2*((b*x+a)*(e*x+d))
^(1/2)*(b*e)^(1/2)+80*A*a*b^2*d*e*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(
1/2)-230*B*a^2*b*d*e*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)-120*A*ln
(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e
```

```
)^(1/2))*x*a*b^3*d*e^2+300*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^
(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x*a^2*b^2*d*e^2-90*B*ln(1
/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^
(1/2))*x*a*b^3*d^2*e)/((b*x+a)*(e*x+d))^(1/2)/(b*e)^(1/2)/(b*x+a)
^(3/2)/b^4
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(e*x + d)^(5/2)/(b*x + a)^(5/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 1.14401, size = 1, normalized size = 0.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(e*x + d)^(5/2)/(b*x + a)^(5/2),x, algorithm="fricas")
```

```
[Out] [1/48*(15*(3*B*a^2*b^2*d^2 - 2*(5*B*a^3*b - 2*A*a^2*b^2)*d*e + (7
*B*a^4 - 4*A*a^3*b)*e^2 + (3*B*b^4*d^2 - 2*(5*B*a*b^3 - 2*A*b^4)*
d*e + (7*B*a^2*b^2 - 4*A*a*b^3)*e^2)*x^2 + 2*(3*B*a*b^3*d^2 - 2*(
5*B*a^2*b^2 - 2*A*a*b^3)*d*e + (7*B*a^3*b - 4*A*a^2*b^2)*e^2)*x)*
sqrt(e/b)*log(8*b^2*e^2*x^2 + b^2*d^2 + 6*a*b*d*e + a^2*e^2 + 4*(
2*b^2*e*x + b^2*d + a*b*e)*sqrt(b*x + a)*sqrt(e*x + d)*sqrt(e/b)
+ 8*(b^2*d*e + a*b*e^2)*x) + 4*(6*B*b^3*e^2*x^3 - 8*(2*B*a*b^2 +
A*b^3)*d^2 + 5*(23*B*a^2*b - 8*A*a*b^2)*d*e - 15*(7*B*a^3 - 4*A*a
^2*b)*e^2 + 3*(9*B*b^3*d*e - (7*B*a*b^2 - 4*A*b^3)*e^2)*x^2 - 2*(
12*B*b^3*d^2 - (79*B*a*b^2 - 28*A*b^3)*d*e + 10*(7*B*a^2*b - 4*A*
a*b^2)*e^2)*x)*sqrt(b*x + a)*sqrt(e*x + d))/(b^6*x^2 + 2*a*b^5*x
+ a^2*b^4), 1/24*(15*(3*B*a^2*b^2*d^2 - 2*(5*B*a^3*b - 2*A*a^2*b^
2)*d*e + (7*B*a^4 - 4*A*a^3*b)*e^2 + (3*B*b^4*d^2 - 2*(5*B*a*b^3
- 2*A*b^4)*d*e + (7*B*a^2*b^2 - 4*A*a*b^3)*e^2)*x^2 + 2*(3*B*a*b^
3*d^2 - 2*(5*B*a^2*b^2 - 2*A*a*b^3)*d*e + (7*B*a^3*b - 4*A*a^2*b^
2)*e^2)*x)*sqrt(-e/b)*arctan(1/2*(2*b*e*x + b*d + a*e)/(sqrt(b*x
+ a)*sqrt(e*x + d)*b*sqrt(-e/b))) + 2*(6*B*b^3*e^2*x^3 - 8*(2*B*a
*b^2 + A*b^3)*d^2 + 5*(23*B*a^2*b - 8*A*a*b^2)*d*e - 15*(7*B*a^3
- 4*A*a^2*b)*e^2 + 3*(9*B*b^3*d*e - (7*B*a*b^2 - 4*A*b^3)*e^2)*x^
2 - 2*(12*B*b^3*d^2 - (79*B*a*b^2 - 28*A*b^3)*d*e + 10*(7*B*a^2*b
 - 4*A*a*b^2)*e^2)*x)*sqrt(b*x + a)*sqrt(e*x + d))/(b^6*x^2 + 2*a
*b^5*x + a^2*b^4)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(e*x+d)**(5/2)/(b*x+a)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.664108, size = 4, normalized size = 0.02

$$sage_0 x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^(5/2)/(b*x + a)^(5/2),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.2238 $\int \frac{(A+Bx)(d+ex)^{3/2}}{(a+bx)^{5/2}}\,dx$

Optimal. Leaf size=201

$$\frac{\sqrt{e}(-5aBe+2Abe+3bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{b^{7/2}}+\frac{e\sqrt{a+bx}\sqrt{d+ex}(-5aBe+2Abe+3bBd)}{b^3(bd-ae)}-\frac{2(d+ex)^{3/2}(-5aBe+2Abe+3bBd)}{3b^2\sqrt{a+bx}(bd-ae)}-\frac{2(d+ex)^{5/2}(Ab-aB)}{3b(a+bx)^{3/2}(bd-ae)}$$

```
[Out] (e*(3*b*B*d + 2*A*b*e - 5*a*B*e)*Sqrt[a + b*x]*Sqrt[d + e*x])/(b^
3*(b*d - a*e)) - (2*(3*b*B*d + 2*A*b*e - 5*a*B*e)*(d + e*x)^(3/2)
)/(3*b^2*(b*d - a*e)*Sqrt[a + b*x]) - (2*(A*b - a*B)*(d + e*x)^(5
/2))/(3*b*(b*d - a*e)*(a + b*x)^(3/2)) + (Sqrt[e]*(3*b*B*d + 2*A*
b*e - 5*a*B*e)*ArcTanh[(Sqrt[e]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[d +
e*x])])/b^(7/2)
```

Rubi [A] time = 0.395576, antiderivative size = 201, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{\sqrt{e}(-5aBe+2Abe+3bBd)\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{b^{7/2}}+\frac{e\sqrt{a+bx}\sqrt{d+ex}(-5aBe+2Abe+3bBd)}{b^3(bd-ae)}-\frac{2(d+ex)^{3/2}(-5aBe+2Abe+3bBd)}{3b^2\sqrt{a+bx}(bd-ae)}-\frac{2(d+ex)^{5/2}(Ab-aB)}{3b(a+bx)^{3/2}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[((A + B*x)*(d + e*x)^(3/2))/(a + b*x)^(5/2),x]
```

```
[Out] (e*(3*b*B*d + 2*A*b*e - 5*a*B*e)*Sqrt[a + b*x]*Sqrt[d + e*x])/(b^
3*(b*d - a*e)) - (2*(3*b*B*d + 2*A*b*e - 5*a*B*e)*(d + e*x)^(3/2)
)/(3*b^2*(b*d - a*e)*Sqrt[a + b*x]) - (2*(A*b - a*B)*(d + e*x)^(5
/2))/(3*b*(b*d - a*e)*(a + b*x)^(3/2)) + (Sqrt[e]*(3*b*B*d + 2*A*
b*e - 5*a*B*e)*ArcTanh[(Sqrt[e]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[d +
e*x])])/b^(7/2)
```

Rubi in Sympy [A] time = 37.7, size = 194, normalized size = 0.97

$$\frac{2\,(d+ex)^{\frac{5}{2}}\,(Ab-Ba)}{3b\,(a+bx)^{\frac{3}{2}}\,(ae-bd)}+\frac{2\,(d+ex)^{\frac{3}{2}}\,(2Abe-5Bae+3Bbd)}{3b^2\sqrt{a+bx}\,(ae-bd)}-\frac{e\sqrt{a+bx}\sqrt{d+ex}\,(2Abe-5Bae+3Bbd)}{b^3\,(ae-bd)}+\frac{\sqrt{e}\,(2Abe-5Bae+3Bbd)\,\mathrm{atanh}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{b^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(e*x+d)**(3/2)/(b*x+a)**(5/2),x)
```

```
[Out] 2*(d + e*x)**(5/2)*(A*b - B*a)/(3*b*(a + b*x)**(3/2)*(a*e - b*d))
 + 2*(d + e*x)**(3/2)*(2*A*b*e - 5*B*a*e + 3*B*b*d)/(3*b**2*sqrt(
a + b*x)*(a*e - b*d)) - e*sqrt(a + b*x)*sqrt(d + e*x)*(2*A*b*e -
5*B*a*e + 3*B*b*d)/(b**3*(a*e - b*d)) + sqrt(e)*(2*A*b*e - 5*B*a*
e + 3*B*b*d)*atanh(sqrt(e)*sqrt(a + b*x)/(sqrt(b)*sqrt(d + e*x)))
/b**(7/2)
```

Mathematica [A] time = 0.296008, size = 149, normalized size = 0.74

$$\frac{\sqrt{e}(-5aBe+2Abe+3bBd)\log\left(2\sqrt{b}\sqrt{e}\sqrt{a+bx}\sqrt{d+ex}+ae+bd+2bex\right)}{2b^{7/2}} - \frac{\sqrt{d+ex}\left(B\left(-15a^2e+4ab(d-5ex)-3b^2x(ex-2d)\right)+2Ab(3ae+b(d+4ex))\right)}{3b^3(a+bx)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((A + B*x)*(d + e*x)^(3/2))/(a + b*x)^(5/2),x]
```

```
[Out] -(Sqrt[d + e*x]*(B*(-15*a^2*e + 4*a*b*(d - 5*e*x) - 3*b^2*x*(-2*d
 + e*x)) + 2*A*b*(3*a*e + b*(d + 4*e*x))))/(3*b^3*(a + b*x)^(3/2)
) + (Sqrt[e]*(3*b*B*d + 2*A*b*e - 5*a*B*e)*Log[b*d + a*e + 2*b*e*
x + 2*Sqrt[b]*Sqrt[e]*Sqrt[a + b*x]*Sqrt[d + e*x]])/(2*b^(7/2))
```

Maple [B] time = 0.033, size = 698, normalized size = 3.5

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(e*x+d)^(3/2)/(b*x+a)^(5/2),x)
```

```
[Out] 1/6*(e*x+d)^(1/2)*(6*A*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*
(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x^2*b^3*e^2-15*B*ln(1/2*(2*b*x*
e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x^2
*a*b^2*e^2+9*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1
/2)+a*e+b*d)/(b*e)^(1/2))*x^2*b^3*d*e+12*A*ln(1/2*(2*b*x*e+2*((b*
x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x*a*b^2*e^2
-30*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b
*d)/(b*e)^(1/2))*x*a^2*b*e^2+18*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x
+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x*a*b^2*d*e+6*B*x^2*
b^2*e*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+6*A*ln(1/2*(2*b*x*e+2*(
(b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^2*b*e^
2-16*A*x*b^2*e*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)-15*B*ln(1/2*(2
*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2)
)*a^3*e^2+9*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/
2)+a*e+b*d)/(b*e)^(1/2))*a^2*b*d*e+40*B*x*a*b*e*((b*x+a)*(e*x+d))
^(1/2)*(b*e)^(1/2)-12*B*x*b^2*d*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/
2)-12*A*a*b*e*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)-4*A*b^2*d*((b*x
+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+30*B*a^2*e*((b*x+a)*(e*x+d))^(1/2)
*(b*e)^(1/2)-8*B*a*b*d*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2))/(b*e)
^(1/2)/((b*x+a)*(e*x+d))^(1/2)/b^3/(b*x+a)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^(3/2)/(b*x + a)^(5/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.833445, size = 1, normalized size = 0.

$$\left[\frac{3\left(3\,Ba^2bd + \left(3\,Bb^3d - \left(5\,Bab^2 - 2\,Ab^3\right)e\right)x^2 - \left(5\,Ba^3 - 2\,Aa^2b\right)e + 2\left(3\,Bab^2d - \left(5\,Ba^2b - 2\,Aab^2\right)e\right)x\right)\sqrt{\frac{e}{b}}\log\left(8\,b^2e^2x^2 \cdots\right.}{\cdots}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(e*x + d)^(3/2)/(b*x + a)^(5/2),x, algorithm="fricas")
```

```
[Out] [1/12*(3*(3*B*a^2*b*d + (3*B*b^3*d - (5*B*a*b^2 - 2*A*b^3)*e)*x^2
 - (5*B*a^3 - 2*A*a^2*b)*e + 2*(3*B*a*b^2*d - (5*B*a^2*b - 2*A*a*
b^2)*e)*x)*sqrt(e/b)*log(8*b^2*e^2*x^2 + b^2*d^2 + 6*a*b*d*e + a^
2*e^2 + 4*(2*b^2*e*x + b^2*d + a*b*e)*sqrt(b*x + a)*sqrt(e*x + d)
*sqrt(e/b) + 8*(b^2*d*e + a*b*e^2)*x) + 4*(3*B*b^2*e*x^2 - 2*(2*B
*a*b + A*b^2)*d + 3*(5*B*a^2 - 2*A*a*b)*e - 2*(3*B*b^2*d - 2*(5*B
*a*b - 2*A*b^2)*e)*x)*sqrt(b*x + a)*sqrt(e*x + d))/(b^5*x^2 + 2*a
*b^4*x + a^2*b^3), 1/6*(3*(3*B*a^2*b*d + (3*B*b^3*d - (5*B*a*b^2
- 2*A*b^3)*e)*x^2 - (5*B*a^3 - 2*A*a^2*b)*e + 2*(3*B*a*b^2*d - (5
*B*a^2*b - 2*A*a*b^2)*e)*x)*sqrt(-e/b)*arctan(1/2*(2*b*e*x + b*d
+ a*e)/(sqrt(b*x + a)*sqrt(e*x + d)*b*sqrt(-e/b))) + 2*(3*B*b^2*e
*x^2 - 2*(2*B*a*b + A*b^2)*d + 3*(5*B*a^2 - 2*A*a*b)*e - 2*(3*B*b
^2*d - 2*(5*B*a*b - 2*A*b^2)*e)*x)*sqrt(b*x + a)*sqrt(e*x + d))/(
b^5*x^2 + 2*a*b^4*x + a^2*b^3)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(e*x+d)**(3/2)/(b*x+a)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.633909, size = 4, normalized size = 0.02

$$sage_0x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)*(e*x + d)^(3/2)/(b*x + a)^(5/2),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.2239 $\int \frac{(A+Bx)\sqrt{d+ex}}{(a+bx)^{5/2}}\,dx$

Optimal. Leaf size=111

$$-\frac{2(d+ex)^{3/2}(Ab-aB)}{3b(a+bx)^{3/2}(bd-ae)}+\frac{2B\sqrt{e}\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{b^{5/2}}-\frac{2B\sqrt{d+ex}}{b^2\sqrt{a+bx}}$$

```
[Out] (-2*B*Sqrt[d + e*x])/(b^2*Sqrt[a + b*x]) - (2*(A*b - a*B)*(d + e*
x)^(3/2))/(3*b*(b*d - a*e)*(a + b*x)^(3/2)) + (2*B*Sqrt[e]*ArcTan
h[(Sqrt[e]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[d + e*x])])/b^(5/2)
```

Rubi [A] time = 0.166819, antiderivative size = 111, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$-\frac{2(d+ex)^{3/2}(Ab-aB)}{3b(a+bx)^{3/2}(bd-ae)}+\frac{2B\sqrt{e}\tanh^{-1}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{b^{5/2}}-\frac{2B\sqrt{d+ex}}{b^2\sqrt{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Int[((A + B*x)*Sqrt[d + e*x])/(a + b*x)^(5/2),x]
```

```
[Out] (-2*B*Sqrt[d + e*x])/(b^2*Sqrt[a + b*x]) - (2*(A*b - a*B)*(d + e*
x)^(3/2))/(3*b*(b*d - a*e)*(a + b*x)^(3/2)) + (2*B*Sqrt[e]*ArcTan
h[(Sqrt[e]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[d + e*x])])/b^(5/2)
```

Rubi in Sympy [A] time = 16.5122, size = 100, normalized size = 0.9

$$-\frac{2B\sqrt{d+ex}}{b^2\sqrt{a+bx}}+\frac{2B\sqrt{e}\,\operatorname{atanh}\left(\frac{\sqrt{e}\sqrt{a+bx}}{\sqrt{b}\sqrt{d+ex}}\right)}{b^{\frac{5}{2}}}+\frac{2\,(d+ex)^{\frac{3}{2}}\,(Ab-Ba)}{3b\,(a+bx)^{\frac{3}{2}}\,(ae-bd)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(e*x+d)**(1/2)/(b*x+a)**(5/2),x)
```

```
[Out] -2*B*sqrt(d + e*x)/(b**2*sqrt(a + b*x)) + 2*B*sqrt(e)*atanh(sqrt(
e)*sqrt(a + b*x)/(sqrt(b)*sqrt(d + e*x)))/b**(5/2) + 2*(d + e*x)*
*(3/2)*(A*b - B*a)/(3*b*(a + b*x)**(3/2)*(a*e - b*d))
```

Mathematica [A] time = 0.189448, size = 128, normalized size = 1.15

$$\frac{B\sqrt{e}\log\left(2\sqrt{b}\sqrt{e}\sqrt{a+bx}\sqrt{d+ex}+ae+bd+2bex\right)}{b^{5/2}}-\frac{2\sqrt{d+ex}\left(B\left(-3a^2e+2ab(d-2ex)+3b^2dx\right)+Ab^2(d+ex)\right)}{3b^2(a+bx)^{3/2}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((A + B*x)*Sqrt[d + e*x])/(a + b*x)^(5/2),x]
```

```
[Out] (-2*Sqrt[d + e*x]*(A*b^2*(d + e*x) + B*(-3*a^2*e + 3*b^2*d*x + 2*
a*b*(d - 2*e*x))))/(3*b^2*(b*d - a*e)*(a + b*x)^(3/2)) + (B*Sqrt[
e]*Log[b*d + a*e + 2*b*e*x + 2*Sqrt[b]*Sqrt[e]*Sqrt[a + b*x]*Sqrt
```

```
[d + e*x]])/b^(5/2)
```

Maple [B] time = 0.032, size = 503, normalized size = 4.5

$$\frac{1}{(3\,ae-3\,bd)\,b^2}\left(3\,B\ln\left(1/2\,\frac{2\,bxe+2\,\sqrt{(bx+a)\,(ex+d)}\sqrt{be}+ae+bd}{\sqrt{be}}\right)x^2ab^2e^2-3\,B\ln\left(1/2\,\frac{2\,bxe+2\,\sqrt{(bx+a)\,(ex+d)}}{\sqrt{be}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(e*x+d)^(1/2)/(b*x+a)^(5/2),x)
```

```
[Out] 1/3*(3*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*
e+b*d)/(b*e)^(1/2))*x^2*a*b^2*e^2-3*B*ln(1/2*(2*b*x*e+2*((b*x+a)*
(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x^2*b^3*d*e+6*B*
ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b
*e)^(1/2))*x*a^2*b*e^2-6*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1
/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*x*a*b^2*d*e+2*A*x*b^2*e*((b
*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+3*B*ln(1/2*(2*b*x*e+2*((b*x+a)*(
e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(1/2))*a^3*e^2-3*B*ln(1/
2*(2*b*x*e+2*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+a*e+b*d)/(b*e)^(
1/2))*a^2*b*d*e-8*B*x*a*b*e*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+6
*B*x*b^2*d*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2)+2*A*b^2*d*((b*x+a)
*(e*x+d))^(1/2)*(b*e)^(1/2)-6*B*a^2*e*((b*x+a)*(e*x+d))^(1/2)*(b*
e)^(1/2)+4*B*a*b*d*((b*x+a)*(e*x+d))^(1/2)*(b*e)^(1/2))*(e*x+d)^(
1/2)/(b*e)^(1/2)/(a*e-b*d)/((b*x+a)*(e*x+d))^(1/2)/b^2/(b*x+a)^(3
/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(e*x + d)/(b*x + a)^(5/2),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.573645, size = 1, normalized size = 0.01

$$\left[\frac{3\left(Ba^2bd-Ba^3e+\left(Bb^3d-Bab^2e\right)x^2+2\left(Bab^2d-Ba^2be\right)x\right)\sqrt{\frac{e}{b}}\log\left(8\,b^2e^2x^2+b^2d^2+6\,abde+a^2e^2+4\left(2\,b^2ex+b^2d+\right.\right.}{6\left(a^2b^3d-a^3b^2e+\left(b^5d-\right.\right.}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(e*x + d)/(b*x + a)^(5/2),x, algorithm="fricas")
```

```
[Out] [1/6*(3*(B*a^2*b*d - B*a^3*e + (B*b^3*d - B*a*b^2*e)*x^2 + 2*(B*a
*b^2*d - B*a^2*b*e)*x)*sqrt(e/b)*log(8*b^2*e^2*x^2 + b^2*d^2 + 6*
a*b*d*e + a^2*e^2 + 4*(2*b^2*e*x + b^2*d + a*b*e)*sqrt(b*x + a)*s
qrt(e*x + d)*sqrt(e/b) + 8*(b^2*d*e + a*b*e^2)*x) + 4*(3*B*a^2*e
- (2*B*a*b + A*b^2)*d - (3*B*b^2*d - (4*B*a*b - A*b^2)*e)*x)*sqrt
(b*x + a)*sqrt(e*x + d))/(a^2*b^3*d - a^3*b^2*e + (b^5*d - a*b^4*
e)*x^2 + 2*(a*b^4*d - a^2*b^3*e)*x), 1/3*(3*(B*a^2*b*d - B*a^3*e
+ (B*b^3*d - B*a*b^2*e)*x^2 + 2*(B*a*b^2*d - B*a^2*b*e)*x)*sqrt(-
e/b)*arctan(1/2*(2*b*e*x + b*d + a*e)/(sqrt(b*x + a)*sqrt(e*x + d
)*b*sqrt(-e/b))) + 2*(3*B*a^2*e - (2*B*a*b + A*b^2)*d - (3*B*b^2*
```

```
d - (4*B*a*b - A*b^2)*e)*x)*sqrt(b*x + a)*sqrt(e*x + d))/(a^2*b^3
*d - a^3*b^2*e + (b^5*d - a*b^4*e)*x^2 + 2*(a*b^4*d - a^2*b^3*e)*
x)]
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(e*x+d)**(1/2)/(b*x+a)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.578963, size = 4, normalized size = 0.04

$$sage_0 x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*sqrt(e*x + d)/(b*x + a)^(5/2),x, algorithm="giac")
```

```
[Out] sage0*x
```

3.2240 $\int \frac{A+Bx}{(a+bx)^{5/2}\sqrt{d+ex}}\,dx$

Optimal. Leaf size=95

$$-\frac{2\sqrt{d+ex}(Ab-aB)}{3b(a+bx)^{3/2}(bd-ae)}-\frac{2\sqrt{d+ex}(-aBe-2Abe+3bBd)}{3b\sqrt{a+bx}(bd-ae)^2}$$

```
[Out] (-2*(A*b - a*B)*Sqrt[d + e*x])/(3*b*(b*d - a*e)*(a + b*x)^(3/2))
- (2*(3*b*B*d - 2*A*b*e - a*B*e)*Sqrt[d + e*x])/(3*b*(b*d - a*e)^
2*Sqrt[a + b*x])
```

Rubi [A] time = 0.166848, antiderivative size = 95, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.083

$$-\frac{2\sqrt{d+ex}(Ab-aB)}{3b(a+bx)^{3/2}(bd-ae)}-\frac{2\sqrt{d+ex}(-aBe-2Abe+3bBd)}{3b\sqrt{a+bx}(bd-ae)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/((a + b*x)^(5/2)*Sqrt[d + e*x]),x]
```

```
[Out] (-2*(A*b - a*B)*Sqrt[d + e*x])/(3*b*(b*d - a*e)*(a + b*x)^(3/2))
- (2*(3*b*B*d - 2*A*b*e - a*B*e)*Sqrt[d + e*x])/(3*b*(b*d - a*e)^
2*Sqrt[a + b*x])
```

Rubi in Sympy [A] time = 13.4704, size = 83, normalized size = 0.87

$$\frac{2\sqrt{d+ex}\,(2Abe+Bae-3Bbd)}{3b\sqrt{a+bx}\,(ae-bd)^2}+\frac{2\sqrt{d+ex}\,(Ab-Ba)}{3b\,(a+bx)^{\frac{3}{2}}\,(ae-bd)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(b*x+a)**(5/2)/(e*x+d)**(1/2),x)
```

```
[Out] 2*sqrt(d + e*x)*(2*A*b*e + B*a*e - 3*B*b*d)/(3*b*sqrt(a + b*x)*(a
*e - b*d)**2) + 2*sqrt(d + e*x)*(A*b - B*a)/(3*b*(a + b*x)**(3/2)
*(a*e - b*d))
```

Mathematica [A] time = 0.130946, size = 65, normalized size = 0.68

$$\frac{2\sqrt{d+ex}(A(3ae-bd+2bex)+B(-2ad+aex-3bdx))}{3(a+bx)^{3/2}(bd-ae)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/((a + b*x)^(5/2)*Sqrt[d + e*x]),x]
```

```
[Out] (2*Sqrt[d + e*x]*(B*(-2*a*d - 3*b*d*x + a*e*x) + A*(-(b*d) + 3*a*
e + 2*b*e*x)))/(3*(b*d - a*e)^2*(a + b*x)^(3/2))
```

Maple [A] time = 0.01, size = 73, normalized size = 0.8

$$\frac{4\,Abex+2\,Baex-6\,Bbdx+6\,Aae-2\,Abd-4\,Bad}{3\,a^2e^2-6\,bead+3\,b^2d^2}\sqrt{ex+d}\,(bx+a)^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(b*x+a)^(5/2)/(e*x+d)^(1/2),x)
```

```
[Out] 2/3*(e*x+d)^(1/2)*(2*A*b*e*x+B*a*e*x-3*B*b*d*x+3*A*a*e-A*b*d-2*B*
a*d)/(b*x+a)^(3/2)/(a^2*e^2-2*a*b*d*e+b^2*d^2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/((b*x + a)^(5/2)*sqrt(e*x + d)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.464886, size = 190, normalized size = 2.

$$\frac{2\,(3\,Aae-(2\,Ba+Ab)d-(3\,Bbd-(Ba+2\,Ab)e)x)\sqrt{bx+a}\sqrt{ex+d}}{3\,(a^2b^2d^2-2\,a^3bde+a^4e^2+(b^4d^2-2\,ab^3de+a^2b^2e^2)x^2+2\,(ab^3d^2-2\,a^2b^2de+a^3be^2)x)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/((b*x + a)^(5/2)*sqrt(e*x + d)),x, algorithm="fricas")
```

```
[Out] 2/3*(3*A*a*e - (2*B*a + A*b)*d - (3*B*b*d - (B*a + 2*A*b)*e)*x)*s
qrt(b*x + a)*sqrt(e*x + d)/(a^2*b^2*d^2 - 2*a^3*b*d*e + a^4*e^2 +
 (b^4*d^2 - 2*a*b^3*d*e + a^2*b^2*e^2)*x^2 + 2*(a*b^3*d^2 - 2*a^2
*b^2*d*e + a^3*b*e^2)*x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{A+Bx}{(a+bx)^{\frac{5}{2}}\sqrt{d+ex}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(b*x+a)**(5/2)/(e*x+d)**(1/2),x)
```

```
[Out] Integral((A + B*x)/((a + b*x)**(5/2)*sqrt(d + e*x)), x)
```

GIAC/XCAS [A] time = 0.255452, size = 352, normalized size = 3.71

$$-\frac{4\left(3\,Bb^{\frac{9}{2}}d^2e^{\frac{1}{2}}-4\,Bab^{\frac{7}{2}}de^{\frac{3}{2}}-2\,Ab^{\frac{9}{2}}de^{\frac{3}{2}}-6\left(\sqrt{bx+a}\sqrt{b}e^{\frac{1}{2}}-\sqrt{b^2d+(bx+a)be-abe}\right)^2Bb^{\frac{5}{2}}de^{\frac{1}{2}}+Ba^2b^{\frac{5}{2}}e^{\frac{5}{2}}+2\,Aab^{\frac{7}{2}}e^{\frac{5}{2}}+\right.}{3\left(b^2d-abe-\left(\sqrt{bx+a}\sqrt{b}e^{\frac{1}{2}}-\sqrt{b^2d\right.\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/((b*x + a)^(5/2)*sqrt(e*x + d)),x, algorithm="giac")
```

```
[Out] -4/3*(3*B*b^(9/2)*d^2*e^(1/2) - 4*B*a*b^(7/2)*d*e^(3/2) - 2*A*b^(
9/2)*d*e^(3/2) - 6*(sqrt(b*x + a)*sqrt(b)*e^(1/2) - sqrt(b^2*d +
(b*x + a)*b*e - a*b*e))^2*B*b^(5/2)*d*e^(1/2) + B*a^2*b^(5/2)*e^(
5/2) + 2*A*a*b^(7/2)*e^(5/2) + 6*(sqrt(b*x + a)*sqrt(b)*e^(1/2) -
 sqrt(b^2*d + (b*x + a)*b*e - a*b*e))^2*A*b^(5/2)*e^(3/2) + 3*(sq
rt(b*x + a)*sqrt(b)*e^(1/2) - sqrt(b^2*d + (b*x + a)*b*e - a*b*e)
)^4*B*sqrt(b)*e^(1/2))/((b^2*d - a*b*e - (sqrt(b*x + a)*sqrt(b)*e
^(1/2) - sqrt(b^2*d + (b*x + a)*b*e - a*b*e))^2)^3*abs(b))
```

3.2241 $\int \frac{A+Bx}{(a+bx)^{5/2}(d+ex)^{3/2}} \, dx$

Optimal. Leaf size=139

$$-\frac{2(Bd-Ae)}{e(a+bx)^{3/2}\sqrt{d+ex}(bd-ae)}-\frac{4\sqrt{d+ex}(aBe-4Abe+3bBd)}{3\sqrt{a+bx}(bd-ae)^3}+\frac{2\sqrt{d+ex}(aBe-4Abe+3bBd)}{3e(a+bx)^{3/2}(bd-ae)^2}$$

```
[Out] (-2*(B*d - A*e))/(e*(b*d - a*e)*(a + b*x)^(3/2)*Sqrt[d + e*x]) +
(2*(3*b*B*d - 4*A*b*e + a*B*e)*Sqrt[d + e*x])/(3*e*(b*d - a*e)^2*
(a + b*x)^(3/2)) - (4*(3*b*B*d - 4*A*b*e + a*B*e)*Sqrt[d + e*x])/
(3*(b*d - a*e)^3*Sqrt[a + b*x])
```

Rubi [A] time = 0.270384, antiderivative size = 139, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.125$

$$-\frac{2(Bd-Ae)}{e(a+bx)^{3/2}\sqrt{d+ex}(bd-ae)}-\frac{4\sqrt{d+ex}(aBe-4Abe+3bBd)}{3\sqrt{a+bx}(bd-ae)^3}+\frac{2\sqrt{d+ex}(aBe-4Abe+3bBd)}{3e(a+bx)^{3/2}(bd-ae)^2}$$

Antiderivative was successfully verified.

```
[In] Int[(A + B*x)/((a + b*x)^(5/2)*(d + e*x)^(3/2)),x]
```

```
[Out] (-2*(B*d - A*e))/(e*(b*d - a*e)*(a + b*x)^(3/2)*Sqrt[d + e*x]) +
(2*(3*b*B*d - 4*A*b*e + a*B*e)*Sqrt[d + e*x])/(3*e*(b*d - a*e)^2*
(a + b*x)^(3/2)) - (4*(3*b*B*d - 4*A*b*e + a*B*e)*Sqrt[d + e*x])/
(3*(b*d - a*e)^3*Sqrt[a + b*x])
```

Rubi in Sympy [A] time = 25.5774, size = 133, normalized size = 0.96

$$-\frac{4\sqrt{d+ex}\,(4Abe-Bae-3Bbd)}{3\sqrt{a+bx}\,(ae-bd)^3}-\frac{2\sqrt{d+ex}\,(4Abe-Bae-3Bbd)}{3e\,(a+bx)^{\frac{3}{2}}\,(ae-bd)^2}-\frac{2\,(Ae-Bd)}{e\,(a+bx)^{\frac{3}{2}}\,\sqrt{d+ex}\,(ae-bd)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((B*x+A)/(b*x+a)**(5/2)/(e*x+d)**(3/2),x)
```

```
[Out] -4*sqrt(d + e*x)*(4*A*b*e - B*a*e - 3*B*b*d)/(3*sqrt(a + b*x)*(a*
e - b*d)**3) - 2*sqrt(d + e*x)*(4*A*b*e - B*a*e - 3*B*b*d)/(3*e*(
a + b*x)**(3/2)*(a*e - b*d)**2) - 2*(A*e - B*d)/(e*(a + b*x)**(3/
2)*sqrt(d + e*x)*(a*e - b*d))
```

Mathematica [A] time = 0.474624, size = 100, normalized size = 0.72

$$\frac{2\sqrt{a+bx}\sqrt{d+ex}\left(-\frac{(Ab-aB)(bd-ae)}{(a+bx)^2}+\frac{-2aBe+5Abe-3bBd}{a+bx}+\frac{3e(Ae-Bd)}{d+ex}\right)}{3(bd-ae)^3}$$

Antiderivative was successfully verified.

```
[In] Integrate[(A + B*x)/((a + b*x)^(5/2)*(d + e*x)^(3/2)),x]
```

```
[Out] (2*Sqrt[a + b*x]*Sqrt[d + e*x]*(-(((A*b - a*B)*(b*d - a*e))/(a +
b*x)^2) + (-3*b*B*d + 5*A*b*e - 2*a*B*e)/(a + b*x) + (3*e*(-(B*d)
 + A*e))/(d + e*x)))/(3*(b*d - a*e)^3)
```

Maple [A] time = 0.01, size = 177, normalized size = 1.3

$$-\frac{16\,Ab^{2}e^{2}x^{2}-4\,Babe^{2}x^{2}-12\,Bb^{2}dex^{2}+24\,Aabe^{2}x+8\,Ab^{2}dex-6\,Ba^{2}e^{2}x-20\,Babdex-6\,Bb^{2}d^{2}x+6\,Aa^{2}e^{2}+12\,Aabde}{3\,a^{3}e^{3}-9\,a^{2}bde^{2}+9\,ab^{2}d^{2}e-3\,b^{3}d^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(b*x+a)^(5/2)/(e*x+d)^(3/2),x)
```

```
[Out] -2/3*(8*A*b^2*e^2*x^2-2*B*a*b*e^2*x^2-6*B*b^2*d*e*x^2+12*A*a*b*e^
2*x+4*A*b^2*d*e*x-3*B*a^2*e^2*x-10*B*a*b*d*e*x-3*B*b^2*d^2*x+3*A*
a^2*e^2+6*A*a*b*d*e-A*b^2*d^2-6*B*a^2*d*e-2*B*a*b*d^2)/(b*x+a)^(3
/2)/(e*x+d)^(1/2)/(a^3*e^3-3*a^2*b*d*e^2+3*a*b^2*d^2*e-b^3*d^3)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(5/2)*(e*x + d)^(3/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.673711, size = 455, normalized size = 3.27

$$\frac{2\left(3\,Aa^{2}e^{2}-\left(2\,Bab+Ab^{2}\right)d^{2}-6\left(Ba^{2}-Aab\right)de-2\left(3\,Bb^{2}de+\left(Bab-4\,Ab^{2}\right)e^{2}\right)x^{2}-\left(3\,Bb^{2}d^{2}+2\,(5\right.}{3\left(a^{2}b^{3}d^{4}-3\,a^{3}b^{2}d^{3}e+3\,a^{4}bd^{2}e^{2}-a^{5}de^{3}+(b^{5}d^{3}e-3\,ab^{4}d^{2}e^{2}+3\,a^{2}b^{3}de^{3}-a^{3}b^{2}e^{4})x^{3}+(b^{5}d^{4}-ab^{4}d^{3}e-3\,a^{2}b^{3}d^{2}e^{2}+5\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(5/2)*(e*x + d)^(3/2)),x, algorithm="fricas")
```

```
[Out] 2/3*(3*A*a^2*e^2 - (2*B*a*b + A*b^2)*d^2 - 6*(B*a^2 - A*a*b)*d*e
- 2*(3*B*b^2*d*e + (B*a*b - 4*A*b^2)*e^2)*x^2 - (3*B*b^2*d^2 + 2*
(5*B*a*b - 2*A*b^2)*d*e + 3*(B*a^2 - 4*A*a*b)*e^2)*x)*sqrt(b*x +
a)*sqrt(e*x + d)/(a^2*b^3*d^4 - 3*a^3*b^2*d^3*e + 3*a^4*b*d^2*e^2
 - a^5*d*e^3 + (b^5*d^3*e - 3*a*b^4*d^2*e^2 + 3*a^2*b^3*d*e^3 - a
^3*b^2*e^4)*x^3 + (b^5*d^4 - a*b^4*d^3*e - 3*a^2*b^3*d^2*e^2 + 5*
a^3*b^2*d*e^3 - 2*a^4*b*e^4)*x^2 + (2*a*b^4*d^4 - 5*a^2*b^3*d^3*e
 + 3*a^3*b^2*d^2*e^2 + a^4*b*d*e^3 - a^5*e^4)*x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{A+Bx}{(a+bx)^{\frac{5}{2}}\,(d+ex)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(b*x+a)**(5/2)/(e*x+d)**(3/2),x)
```

```
[Out] Integral((A + B*x)/((a + b*x)**(5/2)*(d + e*x)**(3/2)), x)
```

GIAC/XCAS [A] time = 0.413303, size = 763, normalized size = 5.49

$$-\frac{2\left(Bb^2de - Ab^2e^2\right)\sqrt{bx+a}}{\left(b^3d^3|b| - 3\,ab^2d^2|b|e + 3\,a^2bd|b|e^2 - a^3|b|e^3\right)\sqrt{b^2d + (bx+a)be - abe}} - \frac{4\left(3\,Bb^{\frac{13}{2}}d^3e^{\frac{1}{2}} - 4\,Bab^{\frac{11}{2}}d^2e^{\frac{3}{2}} - 5\,Ab^{\frac{13}{2}}d^2e^{\frac{3}{2}} - 6\left(\sqrt{bx+a}\sqrt{b}e^{\frac{1}{2}} - \sqrt{b^2d + (bx+a)be - abe}\right)^2 Bb^{\frac{9}{2}}d^2e^{\frac{1}{2}} - Ba^2b^{\frac{9}{2}}de^{\frac{5}{2}} + 10\,A\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/((b*x + a)^(5/2)*(e*x + d)^(3/2)),x, algorithm="giac")
```

```
[Out] -2*(B*b^2*d*e - A*b^2*e^2)*sqrt(b*x + a)/((b^3*d^3*abs(b) - 3*a*b
^2*d^2*abs(b)*e + 3*a^2*b*d*abs(b)*e^2 - a^3*abs(b)*e^3)*sqrt(b^2
*d + (b*x + a)*b*e - a*b*e)) - 4/3*(3*B*b^(13/2)*d^3*e^(1/2) - 4*
B*a*b^(11/2)*d^2*e^(3/2) - 5*A*b^(13/2)*d^2*e^(3/2) - 6*(sqrt(b*x
 + a)*sqrt(b)*e^(1/2) - sqrt(b^2*d + (b*x + a)*b*e - a*b*e))^2*B*
b^(9/2)*d^2*e^(1/2) - B*a^2*b^(9/2)*d*e^(5/2) + 10*A*a*b^(11/2)*d
*e^(5/2) + 12*(sqrt(b*x + a)*sqrt(b)*e^(1/2) - sqrt(b^2*d + (b*x
+ a)*b*e - a*b*e))^2*A*b^(9/2)*d*e^(3/2) + 3*(sqrt(b*x + a)*sqrt(
b)*e^(1/2) - sqrt(b^2*d + (b*x + a)*b*e - a*b*e))^4*B*b^(5/2)*d*e
^(1/2) + 2*B*a^3*b^(7/2)*e^(7/2) - 5*A*a^2*b^(9/2)*e^(7/2) + 6*(s
qrt(b*x + a)*sqrt(b)*e^(1/2) - sqrt(b^2*d + (b*x + a)*b*e - a*b*e
))^2*B*a^2*b^(5/2)*e^(5/2) - 12*(sqrt(b*x + a)*sqrt(b)*e^(1/2) -
sqrt(b^2*d + (b*x + a)*b*e - a*b*e))^2*A*a*b^(7/2)*e^(5/2) - 3*(s
qrt(b*x + a)*sqrt(b)*e^(1/2) - sqrt(b^2*d + (b*x + a)*b*e - a*b*e
))^4*A*b^(5/2)*e^(3/2))/((b^2*d^2*abs(b) - 2*a*b*d*abs(b)*e + a^2
*abs(b)*e^2)*(b^2*d - a*b*e - (sqrt(b*x + a)*sqrt(b)*e^(1/2) - sq
rt(b^2*d + (b*x + a)*b*e - a*b*e))^2)^3)
```

3.2242 $\int \frac{A+Bx}{(a+bx)^{5/2}(d+ex)^{5/2}}\,dx$

Optimal. Leaf size=186

$$-\frac{2(Bd-Ae)}{3e(a+bx)^{3/2}(d+ex)^{3/2}(bd-ae)}-\frac{16e\sqrt{a+bx}(aBe-2Abe+bBd)}{3\sqrt{d+ex}(bd-ae)^4}-\frac{8(aBe-2Abe+bBd)}{3\sqrt{a+bx}\sqrt{d+ex}(bd-ae)^3}+\frac{2(aBe-2Abe+bBd)}{3e(a+bx)^{3/2}\sqrt{d+ex}(bd-ae)^2}$$

```
[Out] (-2*(B*d - A*e))/(3*e*(b*d - a*e)*(a + b*x)^(3/2)*(d + e*x)^(3/2)
) + (2*(b*B*d - 2*A*b*e + a*B*e))/(3*e*(b*d - a*e)^2*(a + b*x)^(3
/2)*Sqrt[d + e*x]) - (8*(b*B*d - 2*A*b*e + a*B*e))/(3*(b*d - a*e)
^3*Sqrt[a + b*x]*Sqrt[d + e*x]) - (16*e*(b*B*d - 2*A*b*e + a*B*e)
*Sqrt[a + b*x])/(3*(b*d - a*e)^4*Sqrt[d + e*x])
```

Rubi [A] time = 0.351836, antiderivative size = 186, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$-\frac{2(Bd-Ae)}{3e(a+bx)^{3/2}(d+ex)^{3/2}(bd-ae)}-\frac{16e\sqrt{a+bx}(aBe-2Abe+bBd)}{3\sqrt{d+ex}(bd-ae)^4}-\frac{8(aBe-2Abe+bBd)}{3\sqrt{a+bx}\sqrt{d+ex}(bd-ae)^3}+\frac{2(aBe-2Abe+bBd)}{3e(a+bx)^{3/2}\sqrt{d+ex}(bd-ae)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/((a + b*x)^(5/2)*(d + e*x)^(5/2)),x]
```


```
[Out] (-2*(B*d - A*e))/(3*e*(b*d - a*e)*(a + b*x)^(3/2)*(d + e*x)^(3/2)
) + (2*(b*B*d - 2*A*b*e + a*B*e))/(3*e*(b*d - a*e)^2*(a + b*x)^(3
/2)*Sqrt[d + e*x]) - (8*(b*B*d - 2*A*b*e + a*B*e))/(3*(b*d - a*e)
^3*Sqrt[a + b*x]*Sqrt[d + e*x]) - (16*e*(b*B*d - 2*A*b*e + a*B*e)
*Sqrt[a + b*x])/(3*(b*d - a*e)^4*Sqrt[d + e*x])
```

Rubi in Sympy [A] time = 33.8214, size = 177, normalized size = 0.95

$$\frac{16e\sqrt{a+bx}\,(2Abe-Bae-Bbd)}{3\sqrt{d+ex}\,(ae-bd)^4}-\frac{8e\sqrt{a+bx}\,(2Abe-Bae-Bbd)}{3b\,(d+ex)^{\frac{3}{2}}\,(ae-bd)^3}-\frac{4\left(-Abe+\frac{B(ae+bd)}{2}\right)}{b\sqrt{a+bx}\,(d+ex)^{\frac{3}{2}}\,(ae-bd)^2}+\frac{2\,(Ab-Ba)}{3b\,(a+bx)^{\frac{3}{2}}\,(d+ex)^{\frac{3}{2}}\,(ae-bd)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(b*x+a)**(5/2)/(e*x+d)**(5/2),x)
```

```
[Out] 16*e*sqrt(a + b*x)*(2*A*b*e - B*a*e - B*b*d)/(3*sqrt(d + e*x)*(a*
e - b*d)**4) - 8*e*sqrt(a + b*x)*(2*A*b*e - B*a*e - B*b*d)/(3*b*(
d + e*x)**(3/2)*(a*e - b*d)**3) - 4*(-A*b*e + B*(a*e + b*d)/2)/(b
*sqrt(a + b*x)*(d + e*x)**(3/2)*(a*e - b*d)**2) + 2*(A*b - B*a)/(
3*b*(a + b*x)**(3/2)*(d + e*x)**(3/2)*(a*e - b*d))
```

Mathematica [A] time = 0.593051, size = 135, normalized size = 0.73

$$\frac{2\sqrt{a+bx}\sqrt{d+ex}\left(-\frac{b(Ab-aB)(bd-ae)}{(a+bx)^2}+\frac{e(bd-ae)(Ae-Bd)}{(d+ex)^2}-\frac{b(5aBe-8Abe+3bBd)}{a+bx}+\frac{e(-3aBe+8Abe-5bBd)}{d+ex}\right)}{3(bd-ae)^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/((a + b*x)^(5/2)*(d + e*x)^(5/2)),x]
```

```
[Out] (2*Sqrt[a + b*x]*Sqrt[d + e*x]*(-((b*(A*b - a*B)*(b*d - a*e))/(a
+ b*x)^2) - (b*(3*b*B*d - 8*A*b*e + 5*a*B*e))/(a + b*x) + (e*(b*d
 - a*e)*(-(B*d) + A*e))/(d + e*x)^2 + (e*(-5*b*B*d + 8*A*b*e - 3*
a*B*e))/(d + e*x)))/(3*(b*d - a*e)^4)
```

Maple [A] time = 0.013, size = 320, normalized size = 1.7

$$-\frac{-32\,Ab^3e^3x^3+16\,Bab^2e^3x^3+16\,Bb^3de^2x^3-48\,Aab^2e^3x^2-48\,Ab^3de^2x^2+24\,Ba^2be^3x^2+48\,Bab^2de^2x^2+24\,Bb^3d^2ex^2-}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(b*x+a)^(5/2)/(e*x+d)^(5/2),x)
```

```
[Out] -2/3*(-16*A*b^3*e^3*x^3+8*B*a*b^2*e^3*x^3+8*B*b^3*d*e^2*x^3-24*A*
a*b^2*e^3*x^2-24*A*b^3*d*e^2*x^2+12*B*a^2*b*e^3*x^2+24*B*a*b^2*d*
e^2*x^2+12*B*b^3*d^2*e*x^2-6*A*a^2*b*e^3*x-36*A*a*b^2*d*e^2*x-6*A
*b^3*d^2*e*x+3*B*a^3*e^3*x+21*B*a^2*b*d*e^2*x+21*B*a*b^2*d^2*e*x+
3*B*b^3*d^3*x+A*a^3*e^3-9*A*a^2*b*d*e^2-9*A*a*b^2*d^2*e+A*b^3*d^3
+2*B*a^3*d*e^2+12*B*a^2*b*d^2*e+2*B*a*b^2*d^3)/(b*x+a)^(3/2)/(e*x
+d)^(3/2)/(a^4*e^4-4*a^3*b*d*e^3+6*a^2*b^2*d^2*e^2-4*a*b^3*d^3*e+
b^4*d^4)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(5/2)*(e*x + d)^(5/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 1.11949, size = 763, normalized size = 4.1

$$-\frac{2\left(Aa^3e^3+\left(2\,Bab^2+Ab^3\right)d^3+3\left(4\,Ba^2b-3\,Aab^2\right)d^2e+\left(2\,Ba^3-9\,Aa^2b\right)de^2+8\left(Bb^3de^2+\left(Bab^2\right.\right.\right.}{3\left(a^2b^4d^6-4\,a^3b^3d^5e+6\,a^4b^2d^4e^2-4\,a^5bd^3e^3+a^6d^2e^4+\left(b^6d^4e^2-4\,ab^5d^3e^3+6\,a^2b^4d^2e^4-4\,a^3b^3de^5+a^4b^2e^6\right)x^4+2\left(b\right.\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(5/2)*(e*x + d)^(5/2)),x, algorithm="fricas")
```

```
[Out] -2/3*(A*a^3*e^3 + (2*B*a*b^2 + A*b^3)*d^3 + 3*(4*B*a^2*b - 3*A*a*
b^2)*d^2*e + (2*B*a^3 - 9*A*a^2*b)*d*e^2 + 8*(B*b^3*d*e^2 + (B*a*
b^2 - 2*A*b^3)*e^3)*x^3 + 12*(B*b^3*d^2*e + 2*(B*a*b^2 - A*b^3)*d
*e^2 + (B*a^2*b - 2*A*a*b^2)*e^3)*x^2 + 3*(B*b^3*d^3 + (7*B*a*b^2
 - 2*A*b^3)*d^2*e + (7*B*a^2*b - 12*A*a*b^2)*d*e^2 + (B*a^3 - 2*A
*a^2*b)*e^3)*x)*sqrt(b*x + a)*sqrt(e*x + d)/(a^2*b^4*d^6 - 4*a^3*
b^3*d^5*e + 6*a^4*b^2*d^4*e^2 - 4*a^5*b*d^3*e^3 + a^6*d^2*e^4 + (
b^6*d^4*e^2 - 4*a*b^5*d^3*e^3 + 6*a^2*b^4*d^2*e^4 - 4*a^3*b^3*d*e
^5 + a^4*b^2*e^6)*x^4 + 2*(b^6*d^5*e - 3*a*b^5*d^4*e^2 + 2*a^2*b^
4*d^3*e^3 + 2*a^3*b^3*d^2*e^4 - 3*a^4*b^2*d*e^5 + a^5*b*e^6)*x^3
+ (b^6*d^6 - 9*a^2*b^4*d^4*e^2 + 16*a^3*b^3*d^3*e^3 - 9*a^4*b^2*d
^2*e^4 + a^6*e^6)*x^2 + 2*(a*b^5*d^6 - 3*a^2*b^4*d^5*e + 2*a^3*b^
3*d^4*e^2 + 2*a^4*b^2*d^3*e^3 - 3*a^5*b*d^2*e^4 + a^6*d*e^5)*x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(b*x+a)**(5/2)/(e*x+d)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.70033, size = 1, normalized size = 0.01

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/((b*x + a)^(5/2)*(e*x + d)^(5/2)),x, algorithm="giac")
```

```
[Out] Done
```

3.2243 $\int \frac{A+Bx}{(a+bx)^{5/2}(d+ex)^{7/2}}\,dx$

Optimal. Leaf size=246

$$-\frac{2(Ab-aB)}{3b(a+bx)^{3/2}(d+ex)^{5/2}(bd-ae)}-\frac{32be\sqrt{a+bx}(5aBe-8Abe+3bBd)}{15\sqrt{d+ex}(bd-ae)^5}-\frac{16e\sqrt{a+bx}(5aBe-8Abe+3bBd)}{15(d+ex)^{3/2}(bd-ae)^4}-\frac{4e\sqrt{a+bx}(5aBe-8Abe+3bBd)}{5b(d+ex)^{5/2}(bd-ae)^3}-\frac{2(5aBe-8Abe+3bBd)}{3b\sqrt{a+bx}(d+ex)^{5/2}(bd-ae)^2}$$

```
[Out] (-2*(A*b - a*B))/(3*b*(b*d - a*e)*(a + b*x)^(3/2)*(d + e*x)^(5/2)
) - (2*(3*b*B*d - 8*A*b*e + 5*a*B*e))/(3*b*(b*d - a*e)^2*Sqrt[a +
 b*x]*(d + e*x)^(5/2)) - (4*e*(3*b*B*d - 8*A*b*e + 5*a*B*e)*Sqrt[
a + b*x])/(5*b*(b*d - a*e)^3*(d + e*x)^(5/2)) - (16*e*(3*b*B*d -
8*A*b*e + 5*a*B*e)*Sqrt[a + b*x])/(15*(b*d - a*e)^4*(d + e*x)^(3/
2)) - (32*b*e*(3*b*B*d - 8*A*b*e + 5*a*B*e)*Sqrt[a + b*x])/(15*(b
*d - a*e)^5*Sqrt[d + e*x])
```

Rubi [A] time = 0.478994, antiderivative size = 246, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.125$

$$-\frac{2(Ab-aB)}{3b(a+bx)^{3/2}(d+ex)^{5/2}(bd-ae)}-\frac{32be\sqrt{a+bx}(5aBe-8Abe+3bBd)}{15\sqrt{d+ex}(bd-ae)^5}-\frac{16e\sqrt{a+bx}(5aBe-8Abe+3bBd)}{15(d+ex)^{3/2}(bd-ae)^4}-\frac{4e\sqrt{a+bx}(5aBe-8Abe+3bBd)}{5b(d+ex)^{5/2}(bd-ae)^3}-\frac{2(5aBe-8Abe+3bBd)}{3b\sqrt{a+bx}(d+ex)^{5/2}(bd-ae)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/((a + b*x)^(5/2)*(d + e*x)^(7/2)),x]
```


```
[Out] (-2*(A*b - a*B))/(3*b*(b*d - a*e)*(a + b*x)^(3/2)*(d + e*x)^(5/2)
) - (2*(3*b*B*d - 8*A*b*e + 5*a*B*e))/(3*b*(b*d - a*e)^2*Sqrt[a +
 b*x]*(d + e*x)^(5/2)) - (4*e*(3*b*B*d - 8*A*b*e + 5*a*B*e)*Sqrt[
a + b*x])/(5*b*(b*d - a*e)^3*(d + e*x)^(5/2)) - (16*e*(3*b*B*d -
8*A*b*e + 5*a*B*e)*Sqrt[a + b*x])/(15*(b*d - a*e)^4*(d + e*x)^(3/
2)) - (32*b*e*(3*b*B*d - 8*A*b*e + 5*a*B*e)*Sqrt[a + b*x])/(15*(b
*d - a*e)^5*Sqrt[d + e*x])
```

Rubi in Sympy [A] time = 48.6957, size = 241, normalized size = 0.98

$$-\frac{32be\sqrt{a+bx}\,(8Abe-5Bae-3Bbd)}{15\sqrt{d+ex}\,(ae-bd)^5}+\frac{16e\sqrt{a+bx}\,(8Abe-5Bae-3Bbd)}{15\,(d+ex)^{\frac{3}{2}}\,(ae-bd)^4}-\frac{4e\sqrt{a+bx}\,(8Abe-5Bae-3Bbd)}{5b\,(d+ex)^{\frac{5}{2}}\,(ae-bd)^3}+\frac{2\,(8Abe-5Bae-3Bbd)}{3b\sqrt{a+bx}\,(d+ex)^{\frac{5}{2}}\,(ae-bd)^2}+\frac{2\,(Ab-Ba)}{3b\,(a+bx)^{\frac{3}{2}}\,(d+ex)^{\frac{5}{2}}\,(ae-bd)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(b*x+a)**(5/2)/(e*x+d)**(7/2),x)
```

```
[Out] -32*b*e*sqrt(a + b*x)*(8*A*b*e - 5*B*a*e - 3*B*b*d)/(15*sqrt(d +
e*x)*(a*e - b*d)**5) + 16*e*sqrt(a + b*x)*(8*A*b*e - 5*B*a*e - 3*
B*b*d)/(15*(d + e*x)**(3/2)*(a*e - b*d)**4) - 4*e*sqrt(a + b*x)*(
```

```
8*A*b*e - 5*B*a*e - 3*B*b*d)/(5*b*(d + e*x)**(5/2)*(a*e - b*d)**3
) + 2*(8*A*b*e - 5*B*a*e - 3*B*b*d)/(3*b*sqrt(a + b*x)*(d + e*x)*
*(5/2)*(a*e - b*d)**2) + 2*(A*b - B*a)/(3*b*(a + b*x)**(3/2)*(d +
 e*x)**(5/2)*(a*e - b*d))
```

Mathematica [A] time = 0.511272, size = 176, normalized size = 0.72

$$\frac{2\sqrt{a+bx}\sqrt{d+ex}\left(-\frac{5b^2(8aBe-11Abe+3bBd)}{a+bx}-\frac{5b^2(Ab-aB)(bd-ae)}{(a+bx)^2}+\frac{be(-40aBe+73Abe-33bBd)}{d+ex}+\frac{e(bd-ae)(-5aBe+14Abe-9bBd)}{(d+ex)^2}+\frac{3e(bd\cdots}{}\right.}{15(bd-ae)^5}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/((a + b*x)^(5/2)*(d + e*x)^(7/2)),x]
```

```
[Out] (2*Sqrt[a + b*x]*Sqrt[d + e*x]*((-5*b^2*(A*b - a*B)*(b*d - a*e))/
(a + b*x)^2 - (5*b^2*(3*b*B*d - 11*A*b*e + 8*a*B*e))/(a + b*x) +
(3*e*(b*d - a*e)^2*(-(B*d) + A*e))/(d + e*x)^3 + (e*(b*d - a*e)*(
-9*b*B*d + 14*A*b*e - 5*a*B*e))/(d + e*x)^2 + (b*e*(-33*b*B*d + 7
3*A*b*e - 40*a*B*e))/(d + e*x)))/(15*(b*d - a*e)^5)
```

Maple [B] time = 0.017, size = 505, normalized size = 2.1

$$-\frac{256\,Ab^4e^4x^4-160\,Bab^3e^4x^4-96\,Bb^4de^3x^4+384\,Aab^3e^4x^3+640\,Ab^4de^3x^3-240\,Ba^2b^2e^4x^3-544\,Bab^3de^3x^3-240\,Bb^4\cdots}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(b*x+a)^(5/2)/(e*x+d)^(7/2),x)
```

```
[Out] -2/15*(128*A*b^4*e^4*x^4-80*B*a*b^3*e^4*x^4-48*B*b^4*d*e^3*x^4+19
2*A*a*b^3*e^4*x^3+320*A*b^4*d*e^3*x^3-120*B*a^2*b^2*e^4*x^3-272*B
*a*b^3*d*e^3*x^3-120*B*b^4*d^2*e^2*x^3+48*A*a^2*b^2*e^4*x^2+480*A
*a*b^3*d*e^3*x^2+240*A*b^4*d^2*e^2*x^2-30*B*a^3*b*e^4*x^2-318*B*a
^2*b^2*d*e^3*x^2-330*B*a*b^3*d^2*e^2*x^2-90*B*b^4*d^3*e*x^2-8*A*a
^3*b*e^4*x+120*A*a^2*b^2*d*e^3*x+360*A*a*b^3*d^2*e^2*x+40*A*b^4*d
^3*e*x+5*B*a^4*e^4*x-72*B*a^3*b*d*e^3*x-270*B*a^2*b^2*d^2*e^2*x-1
60*B*a*b^3*d^3*e*x-15*B*b^4*d^4*x+3*A*a^4*e^4-20*A*a^3*b*d*e^3+90
*A*a^2*b^2*d^2*e^2+60*A*a*b^3*d^3*e-5*A*b^4*d^4+2*B*a^4*d*e^3-30*
B*a^3*b*d^2*e^2-90*B*a^2*b^2*d^3*e-10*B*a*b^3*d^4)/(b*x+a)^(3/2)/
(e*x+d)^(5/2)/(a^5*e^5-5*a^4*b*d*e^4+10*a^3*b^2*d^2*e^3-10*a^2*b^
3*d^3*e^2+5*a*b^4*d^4*e-b^5*d^5)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(5/2)*(e*x + d)^(7/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 2.59262, size = 1237, normalized size = 5.03

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/((b*x + a)^(5/2)*(e*x + d)^(7/2)),x, algorithm="fricas")
```

```
[Out] 2/15*(3*A*a^4*e^4 - 5*(2*B*a*b^3 + A*b^4)*d^4 - 30*(3*B*a^2*b^2 -
 2*A*a*b^3)*d^3*e - 30*(B*a^3*b - 3*A*a^2*b^2)*d^2*e^2 + 2*(B*a^4
 - 10*A*a^3*b)*d*e^3 - 16*(3*B*b^4*d*e^3 + (5*B*a*b^3 - 8*A*b^4)*
e^4)*x^4 - 8*(15*B*b^4*d^2*e^2 + 2*(17*B*a*b^3 - 20*A*b^4)*d*e^3
+ 3*(5*B*a^2*b^2 - 8*A*a*b^3)*e^4)*x^3 - 6*(15*B*b^4*d^3*e + 5*(1
1*B*a*b^3 - 8*A*b^4)*d^2*e^2 + (53*B*a^2*b^2 - 80*A*a*b^3)*d*e^3
+ (5*B*a^3*b - 8*A*a^2*b^2)*e^4)*x^2 - (15*B*b^4*d^4 + 40*(4*B*a*
b^3 - A*b^4)*d^3*e + 90*(3*B*a^2*b^2 - 4*A*a*b^3)*d^2*e^2 + 24*(3
*B*a^3*b - 5*A*a^2*b^2)*d*e^3 - (5*B*a^4 - 8*A*a^3*b)*e^4)*x)*sqr
t(b*x + a)*sqrt(e*x + d)/(a^2*b^5*d^8 - 5*a^3*b^4*d^7*e + 10*a^4*
b^3*d^6*e^2 - 10*a^5*b^2*d^5*e^3 + 5*a^6*b*d^4*e^4 - a^7*d^3*e^5
+ (b^7*d^5*e^3 - 5*a*b^6*d^4*e^4 + 10*a^2*b^5*d^3*e^5 - 10*a^3*b^
4*d^2*e^6 + 5*a^4*b^3*d*e^7 - a^5*b^2*e^8)*x^5 + (3*b^7*d^6*e^2 -
 13*a*b^6*d^5*e^3 + 20*a^2*b^5*d^4*e^4 - 10*a^3*b^4*d^3*e^5 - 5*a
^4*b^3*d^2*e^6 + 7*a^5*b^2*d*e^7 - 2*a^6*b*e^8)*x^4 + (3*b^7*d^7*
e - 9*a*b^6*d^6*e^2 + a^2*b^5*d^5*e^3 + 25*a^3*b^4*d^4*e^4 - 35*a
^4*b^3*d^3*e^5 + 17*a^5*b^2*d^2*e^6 - a^6*b*d*e^7 - a^7*e^8)*x^3
+ (b^7*d^8 + a*b^6*d^7*e - 17*a^2*b^5*d^6*e^2 + 35*a^3*b^4*d^5*e^
3 - 25*a^4*b^3*d^4*e^4 - a^5*b^2*d^3*e^5 + 9*a^6*b*d^2*e^6 - 3*a^
7*d*e^7)*x^2 + (2*a*b^6*d^8 - 7*a^2*b^5*d^7*e + 5*a^3*b^4*d^6*e^2
 + 10*a^4*b^3*d^5*e^3 - 20*a^5*b^2*d^4*e^4 + 13*a^6*b*d^3*e^5 - 3
*a^7*d^2*e^6)*x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x+A)/(b*x+a)**(5/2)/(e*x+d)**(7/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 1.31823, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/((b*x + a)^(5/2)*(e*x + d)^(7/2)),x, algorithm="giac")
```

```
[Out] Done
```

3.2244 $\int \frac{A+Bx}{(a+bx)^{5/2}(d+ex)^{9/2}}\,dx$

Optimal. Leaf size=298

$$-\frac{256b^2e\sqrt{a+bx}(7aBe-10Abe+3bBd)}{105\sqrt{d+ex}(bd-ae)^6}-\frac{128be\sqrt{a+bx}(7aBe-10Abe+3bBd)}{105(d+ex)^{3/2}(bd-ae)^5}-\frac{32e\sqrt{a+bx}(7aBe-10Abe+3bBd)}{35(d+ex)^{5/2}(bd-ae)^4}-\frac{16e\sqrt{a+bx}(7aBe-10Abe+3bBd)}{21b(d+ex)^{7/2}(bd-ae)^3}-\frac{2(7aBe-10Abe+3bBd)}{3b\sqrt{a+bx}(d+ex)^{7/2}(bd-ae)^2}-\frac{2(Ab-aB)}{3b(a+bx)^{3/2}(d+ex)^{7/2}(bd-ae)}$$

```
[Out] (-2*(A*b - a*B))/(3*b*(b*d - a*e)*(a + b*x)^(3/2)*(d + e*x)^(7/2)
) - (2*(3*b*B*d - 10*A*b*e + 7*a*B*e))/(3*b*(b*d - a*e)^2*Sqrt[a
+ b*x]*(d + e*x)^(7/2)) - (16*e*(3*b*B*d - 10*A*b*e + 7*a*B*e)*Sq
rt[a + b*x])/(21*b*(b*d - a*e)^3*(d + e*x)^(7/2)) - (32*e*(3*b*B*
d - 10*A*b*e + 7*a*B*e)*Sqrt[a + b*x])/(35*(b*d - a*e)^4*(d + e*x
)^(5/2)) - (128*b*e*(3*b*B*d - 10*A*b*e + 7*a*B*e)*Sqrt[a + b*x])
/(105*(b*d - a*e)^5*(d + e*x)^(3/2)) - (256*b^2*e*(3*b*B*d - 10*A
*b*e + 7*a*B*e)*Sqrt[a + b*x])/(105*(b*d - a*e)^6*Sqrt[d + e*x])
```

Rubi [A] time = 0.574721, antiderivative size = 298, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.125$

$$-\frac{256b^2e\sqrt{a+bx}(7aBe-10Abe+3bBd)}{105\sqrt{d+ex}(bd-ae)^6}-\frac{128be\sqrt{a+bx}(7aBe-10Abe+3bBd)}{105(d+ex)^{3/2}(bd-ae)^5}-\frac{32e\sqrt{a+bx}(7aBe-10Abe+3bBd)}{35(d+ex)^{5/2}(bd-ae)^4}-\frac{16e\sqrt{a+bx}(7aBe-10Abe+3bBd)}{21b(d+ex)^{7/2}(bd-ae)^3}-\frac{2(7aBe-10Abe+3bBd)}{3b\sqrt{a+bx}(d+ex)^{7/2}(bd-ae)^2}-\frac{2(Ab-aB)}{3b(a+bx)^{3/2}(d+ex)^{7/2}(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)/((a + b*x)^(5/2)*(d + e*x)^(9/2)),x]
```

```
[Out] (-2*(A*b - a*B))/(3*b*(b*d - a*e)*(a + b*x)^(3/2)*(d + e*x)^(7/2)
) - (2*(3*b*B*d - 10*A*b*e + 7*a*B*e))/(3*b*(b*d - a*e)^2*Sqrt[a
+ b*x]*(d + e*x)^(7/2)) - (16*e*(3*b*B*d - 10*A*b*e + 7*a*B*e)*Sq
rt[a + b*x])/(21*b*(b*d - a*e)^3*(d + e*x)^(7/2)) - (32*e*(3*b*B*
d - 10*A*b*e + 7*a*B*e)*Sqrt[a + b*x])/(35*(b*d - a*e)^4*(d + e*x
)^(5/2)) - (128*b*e*(3*b*B*d - 10*A*b*e + 7*a*B*e)*Sqrt[a + b*x])
/(105*(b*d - a*e)^5*(d + e*x)^(3/2)) - (256*b^2*e*(3*b*B*d - 10*A
*b*e + 7*a*B*e)*Sqrt[a + b*x])/(105*(b*d - a*e)^6*Sqrt[d + e*x])
```

Rubi in Sympy [A] time = 64.2006, size = 296, normalized size = 0.99

$$\frac{256b^2e\sqrt{a+bx}\,(10Abe-7Bae-3Bbd)}{105\sqrt{d+ex}\,(ae-bd)^6}-\frac{128be\sqrt{a+bx}\,(10Abe-7Bae-3Bbd)}{105\,(d+ex)^{\frac{3}{2}}\,(ae-bd)^5}+\frac{32e\sqrt{a+bx}\,(10Abe-7Bae-3Bbd)}{35\,(d+ex)^{\frac{5}{2}}\,(ae-bd)^4}-\frac{16e\sqrt{a+bx}\,(10Abe-7Bae-3Bbd)}{21b\,(d+ex)^{\frac{7}{2}}\,(ae-bd)^3}+\frac{2\,(10Abe-7Bae-3Bbd)}{3b\sqrt{a+bx}\,(d+ex)^{\frac{7}{2}}\,(ae-bd)^2}+\frac{2\,(Ab-Ba)}{3b\,(a+bx)^{\frac{3}{2}}\,(d+ex)^{\frac{7}{2}}\,(ae-bd)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)/(b*x+a)**(5/2)/(e*x+d)**(9/2),x)
```

```
[Out] 256*b**2*e*sqrt(a + b*x)*(10*A*b*e - 7*B*a*e - 3*B*b*d)/(105*sqrt
(d + e*x)*(a*e - b*d)**6) - 128*b*e*sqrt(a + b*x)*(10*A*b*e - 7*B
```

```
*a*e - 3*B*b*d)/(105*(d + e*x)**(3/2)*(a*e - b*d)**5) + 32*e*sqrt
(a + b*x)*(10*A*b*e - 7*B*a*e - 3*B*b*d)/(35*(d + e*x)**(5/2)*(a*
e - b*d)**4) - 16*e*sqrt(a + b*x)*(10*A*b*e - 7*B*a*e - 3*B*b*d)/
(21*b*(d + e*x)**(7/2)*(a*e - b*d)**3) + 2*(10*A*b*e - 7*B*a*e -
3*B*b*d)/(3*b*sqrt(a + b*x)*(d + e*x)**(7/2)*(a*e - b*d)**2) + 2*
(A*b - B*a)/(3*b*(a + b*x)**(3/2)*(d + e*x)**(7/2)*(a*e - b*d))
```

Mathematica [A] time = 0.735889, size = 215, normalized size = 0.72

$$\frac{2\sqrt{a+bx}\sqrt{d+ex}\left(-\frac{35b^3(11aBe-14Abe+3bBd)}{a+bx}-\frac{35b^3(Ab-aB)(bd-ae)}{(a+bx)^2}+\frac{b^2e(-511aBe+790Abe-279bBd)}{d+ex}+\frac{be(bd-ae)(-98aBe+185Abe-87bB}{(d+ex)^2}\right.}{105(bd-ae)^6}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)/((a + b*x)^(5/2)*(d + e*x)^(9/2)),x]
```

```
[Out] (2*Sqrt[a + b*x]*Sqrt[d + e*x]*((-35*b^3*(A*b - a*B)*(b*d - a*e))
/(a + b*x)^2 - (35*b^3*(3*b*B*d - 14*A*b*e + 11*a*B*e))/(a + b*x)
 + (15*e*(b*d - a*e)^3*(-(B*d) + A*e))/(d + e*x)^4 + (3*e*(b*d -
a*e)^2*(-13*b*B*d + 20*A*b*e - 7*a*B*e))/(d + e*x)^3 + (b*e*(b*d
- a*e)*(-87*b*B*d + 185*A*b*e - 98*a*B*e))/(d + e*x)^2 + (b^2*e*(
-279*b*B*d + 790*A*b*e - 511*a*B*e))/(d + e*x)))/(105*(b*d - a*e)
^6)
```

Maple [B] time = 0.019, size = 722, normalized size = 2.4

$$-\frac{-2560\,Ab^5e^5x^5+1792\,Bab^4e^5x^5+768\,Bb^5de^4x^5-3840\,Aab^4e^5x^4-8960\,Ab^5de^4x^4+2688\,Ba^2b^3e^5x^4+7424\,Bab^4de^4x^4+}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)/(b*x+a)^(5/2)/(e*x+d)^(9/2),x)
```

```
[Out] -2/105*(-1280*A*b^5*e^5*x^5+896*B*a*b^4*e^5*x^5+384*B*b^5*d*e^4*x
^5-1920*A*a*b^4*e^5*x^4-4480*A*b^5*d*e^4*x^4+1344*B*a^2*b^3*e^5*x
^4+3712*B*a*b^4*d*e^4*x^4+1344*B*b^5*d^2*e^3*x^4-480*A*a^2*b^3*e^
5*x^3-6720*A*a*b^4*d*e^4*x^3-5600*A*b^5*d^2*e^3*x^3+336*B*a^3*b^2
*e^5*x^3+4848*B*a^2*b^3*d*e^4*x^3+5936*B*a*b^4*d^2*e^3*x^3+1680*B
*b^5*d^3*e^2*x^3+80*A*a^3*b^2*e^5*x^2-1680*A*a^2*b^3*d*e^4*x^2-84
00*A*a*b^4*d^2*e^3*x^2-2800*A*b^5*d^3*e^2*x^2-56*B*a^4*b*e^5*x^2+
1152*B*a^3*b^2*d*e^4*x^2+6384*B*a^2*b^3*d^2*e^3*x^2+4480*B*a*b^4*
d^3*e^2*x^2+840*B*b^5*d^4*e*x^2-30*A*a^4*b*e^5*x+280*A*a^3*b^2*d*
e^4*x-2100*A*a^2*b^3*d^2*e^3*x-4200*A*a*b^4*d^3*e^2*x-350*A*b^5*d
^4*e*x+21*B*a^5*e^5*x-187*B*a^4*b*d*e^4*x+1386*B*a^3*b^2*d^2*e^3*
x+3570*B*a^2*b^3*d^3*e^2*x+1505*B*a*b^4*d^4*e*x+105*B*b^5*d^5*x+1
5*A*a^5*e^5-105*A*a^4*b*d*e^4+350*A*a^3*b^2*d^2*e^3-1050*A*a^2*b^
3*d^3*e^2-525*A*a*b^4*d^4*e+35*A*b^5*d^5+6*B*a^5*d*e^4-56*B*a^4*b
*d^2*e^3+420*B*a^3*b^2*d^3*e^2+840*B*a^2*b^3*d^4*e+70*B*a*b^4*d^5
)/(b*x+a)^(3/2)/(e*x+d)^(7/2)/(a^6*e^6-6*a^5*b*d*e^5+15*a^4*b^2*d
^2*e^4-20*a^3*b^3*d^3*e^3+15*a^2*b^4*d^4*e^2-6*a*b^5*d^5*e+b^6*d^
6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)/((b*x + a)^(5/2)*(e*x + d)^(9/2)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 7.61097, size = 1742, normalized size = 5.85

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/((b*x + a)^(5/2)*(e*x + d)^(9/2)),x, algorithm="fricas")
```

```
[Out] -2/105*(15*A*a^5*e^5 + 35*(2*B*a*b^4 + A*b^5)*d^5 + 105*(8*B*a^2*
b^3 - 5*A*a*b^4)*d^4*e + 210*(2*B*a^3*b^2 - 5*A*a^2*b^3)*d^3*e^2
- 14*(4*B*a^4*b - 25*A*a^3*b^2)*d^2*e^3 + 3*(2*B*a^5 - 35*A*a^4*b
)*d*e^4 + 128*(3*B*b^5*d*e^4 + (7*B*a*b^4 - 10*A*b^5)*e^5)*x^5 +
64*(21*B*b^5*d^2*e^3 + 2*(29*B*a*b^4 - 35*A*b^5)*d*e^4 + 3*(7*B*a
^2*b^3 - 10*A*a*b^4)*e^5)*x^4 + 16*(105*B*b^5*d^3*e^2 + 7*(53*B*a
*b^4 - 50*A*b^5)*d^2*e^3 + 3*(101*B*a^2*b^3 - 140*A*a*b^4)*d*e^4
+ 3*(7*B*a^3*b^2 - 10*A*a^2*b^3)*e^5)*x^3 + 8*(105*B*b^5*d^4*e +
70*(8*B*a*b^4 - 5*A*b^5)*d^3*e^2 + 42*(19*B*a^2*b^3 - 25*A*a*b^4)
*d^2*e^3 + 6*(24*B*a^3*b^2 - 35*A*a^2*b^3)*d*e^4 - (7*B*a^4*b - 1
0*A*a^3*b^2)*e^5)*x^2 + (105*B*b^5*d^5 + 35*(43*B*a*b^4 - 10*A*b^
5)*d^4*e + 210*(17*B*a^2*b^3 - 20*A*a*b^4)*d^3*e^2 + 42*(33*B*a^3
*b^2 - 50*A*a^2*b^3)*d^2*e^3 - (187*B*a^4*b - 280*A*a^3*b^2)*d*e^
4 + 3*(7*B*a^5 - 10*A*a^4*b)*e^5)*x)*sqrt(b*x + a)*sqrt(e*x + d)/
(a^2*b^6*d^10 - 6*a^3*b^5*d^9*e + 15*a^4*b^4*d^8*e^2 - 20*a^5*b^3
*d^7*e^3 + 15*a^6*b^2*d^6*e^4 - 6*a^7*b*d^5*e^5 + a^8*d^4*e^6 + (
b^8*d^6*e^4 - 6*a*b^7*d^5*e^5 + 15*a^2*b^6*d^4*e^6 - 20*a^3*b^5*d
^3*e^7 + 15*a^4*b^4*d^2*e^8 - 6*a^5*b^3*d*e^9 + a^6*b^2*e^10)*x^6
 + 2*(2*b^8*d^7*e^3 - 11*a*b^7*d^6*e^4 + 24*a^2*b^6*d^5*e^5 - 25*
a^3*b^5*d^4*e^6 + 10*a^4*b^4*d^3*e^7 + 3*a^5*b^3*d^2*e^8 - 4*a^6*
b^2*d*e^9 + a^7*b*e^10)*x^5 + (6*b^8*d^8*e^2 - 28*a*b^7*d^7*e^3 +
 43*a^2*b^6*d^6*e^4 - 6*a^3*b^5*d^5*e^5 - 55*a^4*b^4*d^4*e^6 + 64
*a^5*b^3*d^3*e^7 - 27*a^6*b^2*d^2*e^8 + 2*a^7*b*d*e^9 + a^8*e^10)
*x^4 + 4*(b^8*d^9*e - 3*a*b^7*d^8*e^2 - 2*a^2*b^6*d^7*e^3 + 19*a^
3*b^5*d^6*e^4 - 30*a^4*b^4*d^5*e^5 + 19*a^5*b^3*d^4*e^6 - 2*a^6*b
^2*d^3*e^7 - 3*a^7*b*d^2*e^8 + a^8*d*e^9)*x^3 + (b^8*d^10 + 2*a*b
^7*d^9*e - 27*a^2*b^6*d^8*e^2 + 64*a^3*b^5*d^7*e^3 - 55*a^4*b^4*d
^6*e^4 - 6*a^5*b^3*d^5*e^5 + 43*a^6*b^2*d^4*e^6 - 28*a^7*b*d^3*e^
7 + 6*a^8*d^2*e^8)*x^2 + 2*(a*b^7*d^10 - 4*a^2*b^6*d^9*e + 3*a^3*
b^5*d^8*e^2 + 10*a^4*b^4*d^7*e^3 - 25*a^5*b^3*d^6*e^4 + 24*a^6*b^
2*d^5*e^5 - 11*a^7*b*d^4*e^6 + 2*a^8*d^3*e^7)*x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)/(b*x+a)**(5/2)/(e*x+d)**(9/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 2.65207, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((B*x + A)/((b*x + a)^(5/2)*(e*x + d)^(9/2)),x, algorithm="giac")
```

```
[Out] Done
```

3.2245 $\int \sqrt{1-2x}(2+3x)^4\sqrt{3+5x}\,dx$

Optimal. Leaf size=157

$$-\frac{1}{20}(1-2x)^{3/2}(5x+3)^{3/2}(3x+2)^3-\frac{333(1-2x)^{3/2}(5x+3)^{3/2}(3x+2)^2}{2000}-\frac{7(1-2x)^{3/2}(5x+3)^{3/2}(140652x+231223)}{640000}-\frac{34069301(1-2x)^{3/2}\sqrt{5x+3}}{5120000}+\frac{374762311\sqrt{1-2x}\sqrt{5x+3}}{51200000}+\frac{4122385421\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{51200000\sqrt{10}}$$

```
[Out] (374762311*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/51200000 - (34069301*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/5120000 - (333*(1 - 2*x)^(3/2)*(2 + 3*x)^2*(3 + 5*x)^(3/2))/2000 - ((1 - 2*x)^(3/2)*(2 + 3*x)^3*(3 + 5*x)^(3/2))/20 - (7*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)*(231223 + 140652*x))/640000 + (4122385421*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(51200000*Sqrt[10])
```

Rubi [A] time = 0.230687, antiderivative size = 157, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$-\frac{1}{20}(1-2x)^{3/2}(5x+3)^{3/2}(3x+2)^3-\frac{333(1-2x)^{3/2}(5x+3)^{3/2}(3x+2)^2}{2000}-\frac{7(1-2x)^{3/2}(5x+3)^{3/2}(140652x+231223)}{640000}-\frac{34069301(1-2x)^{3/2}\sqrt{5x+3}}{5120000}+\frac{374762311\sqrt{1-2x}\sqrt{5x+3}}{51200000}+\frac{4122385421\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{51200000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]*(2 + 3*x)^4*Sqrt[3 + 5*x],x]
```

```
[Out] (374762311*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/51200000 - (34069301*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/5120000 - (333*(1 - 2*x)^(3/2)*(2 + 3*x)^2*(3 + 5*x)^(3/2))/2000 - ((1 - 2*x)^(3/2)*(2 + 3*x)^3*(3 + 5*x)^(3/2))/20 - (7*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)*(231223 + 140652*x))/640000 + (4122385421*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(51200000*Sqrt[10])
```

Rubi in Sympy [A] time = 22.1848, size = 144, normalized size = 0.92

$$-\frac{(-2x+1)^{\frac{3}{2}}(3x+2)^3(5x+3)^{\frac{3}{2}}}{20}-\frac{333(-2x+1)^{\frac{3}{2}}(3x+2)^2(5x+3)^{\frac{3}{2}}}{2000}-\frac{(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{3}{2}}\left(\frac{11076345x}{2}+\frac{72835245}{8}\right)}{3600000}+\frac{34069301\sqrt{-2x+1}(5x+3)^{\frac{3}{2}}}{12800000}-\frac{374762311\sqrt{-2x+1}\sqrt{5x+3}}{51200000}+\frac{4122385421\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{512000000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4*(1-2*x)**(1/2)*(3+5*x)**(1/2),x)
```

```
[Out] -(-2*x + 1)**(3/2)*(3*x + 2)**3*(5*x + 3)**(3/2)/20 - 333*(-2*x + 1)**(3/2)*(3*x + 2)**2*(5*x + 3)**(3/2)/2000 - (-2*x + 1)**(3/2)*(5*x + 3)**(3/2)*(11076345*x/2 + 72835245/8)/3600000 + 34069301*sqrt(-2*x + 1)*(5*x + 3)**(3/2)/12800000 - 374762311*sqrt(-2*x + 1)*sqrt(5*x + 3)/51200000 + 4122385421*sqrt(10)*asin(sqrt(22)*sqr
```

```
t(5*x + 3)/11)/512000000
```

Mathematica [A] time = 0.135338, size = 75, normalized size = 0.48

$$\frac{10\sqrt{1-2x}\sqrt{5x+3}\left(691200000x^5+2218752000x^4+2739830400x^3+1468973920x^2+45781940x-518122939\right)-4122385}{512000000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]*(2 + 3*x)^4*Sqrt[3 + 5*x],x]
```

```
[Out] (10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(-518122939 + 45781940*x + 146897
3920*x^2 + 2739830400*x^3 + 2218752000*x^4 + 691200000*x^5) - 412
2385421*Sqrt[10]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/512000000
```

Maple [A] time = 0.024, size = 138, normalized size = 0.9

$$\frac{1}{1024000000}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(13824000000\,x^5\sqrt{-10\,x^2-x+3}+44375040000\,x^4\sqrt{-10\,x^2-x+3}+54796608000\,x^3\sqrt{-10\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4*(1-2*x)^(1/2)*(3+5*x)^(1/2),x)
```

```
[Out] 1/1024000000*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(13824000000*x^5*(-10*x^
2-x+3)^(1/2)+44375040000*x^4*(-10*x^2-x+3)^(1/2)+54796608000*x^3*
(-10*x^2-x+3)^(1/2)+29379478400*x^2*(-10*x^2-x+3)^(1/2)+412238542
1*10^(1/2)*arcsin(20/11*x+1/11)+915638800*x*(-10*x^2-x+3)^(1/2)-1
0362458780*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.5053, size = 140, normalized size = 0.89

$$-\frac{27}{20}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x^3-\frac{8397}{2000}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x^2-\frac{853821}{160000}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x-\frac{2300801}{640000}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}+\frac{34069301}{2560000}\sqrt{-10\,x^2-x+3x}-\frac{4122385421}{1024000000}\sqrt{10}\arcsin\left(-\frac{20}{11}\,x-\frac{1}{11}\right)+\frac{34069301}{51200000}\sqrt{-10\,x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^4*sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] -27/20*(-10*x^2 - x + 3)^(3/2)*x^3 - 8397/2000*(-10*x^2 - x + 3)^
(3/2)*x^2 - 853821/160000*(-10*x^2 - x + 3)^(3/2)*x - 2300801/640
000*(-10*x^2 - x + 3)^(3/2) + 34069301/2560000*sqrt(-10*x^2 - x +
 3)*x - 4122385421/1024000000*sqrt(10)*arcsin(-20/11*x - 1/11) +
34069301/51200000*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.220717, size = 104, normalized size = 0.66

$$\frac{1}{1024000000}\sqrt{10}\left(2\sqrt{10}\left(691200000\,x^5+2218752000\,x^4+2739830400\,x^3+1468973920\,x^2+45781940\,x-518122939\right)\sqrt{5\,x}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(3*x + 2)^4*sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] 1/1024000000*sqrt(10)*(2*sqrt(10)*(691200000*x^5 + 2218752000*x^4
 + 2739830400*x^3 + 1468973920*x^2 + 45781940*x - 518122939)*sqrt
(5*x + 3)*sqrt(-2*x + 1) + 4122385421*arctan(1/20*sqrt(10)*(20*x
+ 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2+3*x)**4*(1-2*x)**(1/2)*(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.277797, size = 427, normalized size = 2.72

$$\frac{27}{2560000000}\sqrt{5}\Big(2\,(4\,(8\,(4\,(16\,(100\,x-239)(5\,x+3)+27999)(5\,x+3)-318159)(5\,x+3)+3237255)(5\,x+3)-2656665)\sqrt{5\,x}$$
$$+\frac{9}{8000000}\sqrt{5}\Big(2\,(4\,(8\,(12\,(80\,x-143)(5\,x+3)+9773)(5\,x+3)-136405)(5\,x+3)+60555)\sqrt{5\,x+3}\sqrt{-10\,x+5}-666105\,\sqrt{2}$$
$$+\frac{9}{80000}\sqrt{5}\left(2\,(4\,(8\,(60\,x-71)(5\,x+3)+2179)(5\,x+3)-4125)\sqrt{5\,x+3}\sqrt{-10\,x+5}+45375\,\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5\,x+3}\right)\right)$$
$$+\frac{1}{250}\sqrt{5}\left(2\,(4\,(40\,x-23)(5\,x+3)+33)\sqrt{5\,x+3}\sqrt{-10\,x+5}-363\,\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5\,x+3}\right)\right)$$
$$+\frac{1}{25}\sqrt{5}\left(2\,(20\,x+1)\sqrt{5\,x+3}\sqrt{-10\,x+5}+121\,\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5\,x+3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(3*x + 2)^4*sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] 27/2560000000*sqrt(5)*(2*(4*(8*(4*(16*(100*x - 239)*(5*x + 3) + 2
7999)*(5*x + 3) - 318159)*(5*x + 3) + 3237255)*(5*x + 3) - 265666
5)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 29223315*sqrt(2)*arcsin(1/11*s
qrt(22)*sqrt(5*x + 3))) + 9/8000000*sqrt(5)*(2*(4*(8*(12*(80*x -
143)*(5*x + 3) + 9773)*(5*x + 3) - 136405)*(5*x + 3) + 60555)*sqr
t(5*x + 3)*sqrt(-10*x + 5) - 666105*sqrt(2)*arcsin(1/11*sqrt(22)*
sqrt(5*x + 3))) + 9/80000*sqrt(5)*(2*(4*(8*(60*x - 71)*(5*x + 3)
+ 2179)*(5*x + 3) - 4125)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 45375*s
qrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 1/250*sqrt(5)*(2*(4
*(40*x - 23)*(5*x + 3) + 33)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 363*
sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 1/25*sqrt(5)*(2*(2
0*x + 1)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 121*sqrt(2)*arcsin(1/11*
sqrt(22)*sqrt(5*x + 3)))
```

3.2246 $\int \sqrt{1-2x}(2+3x)^3\sqrt{3+5x}\,dx$

Optimal. Leaf size=128

$$-\frac{3}{50}(1-2x)^{3/2}(5x+3)^{3/2}(3x+2)^2-\frac{21(1-2x)^{3/2}(5x+3)^{3/2}(444x+731)}{16000}-\frac{323491(1-2x)^{3/2}\sqrt{5x+3}}{128000}+\frac{3558401\sqrt{1-2x}\sqrt{5x+3}}{1280000}+\frac{39142411\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{1280000\sqrt{10}}$$

```
[Out] (3558401*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/1280000 - (323491*(1 - 2*x)
^(3/2)*Sqrt[3 + 5*x])/128000 - (3*(1 - 2*x)^(3/2)*(2 + 3*x)^2*(3
+ 5*x)^(3/2))/50 - (21*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)*(731 + 444
*x))/16000 + (39142411*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(1280000
*Sqrt[10])
```

Rubi [A] time = 0.158578, antiderivative size = 128, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.192$

$$-\frac{3}{50}(1-2x)^{3/2}(5x+3)^{3/2}(3x+2)^2-\frac{21(1-2x)^{3/2}(5x+3)^{3/2}(444x+731)}{16000}-\frac{323491(1-2x)^{3/2}\sqrt{5x+3}}{128000}+\frac{3558401\sqrt{1-2x}\sqrt{5x+3}}{1280000}+\frac{39142411\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{1280000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]*(2 + 3*x)^3*Sqrt[3 + 5*x],x]
```

```
[Out] (3558401*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/1280000 - (323491*(1 - 2*x)
^(3/2)*Sqrt[3 + 5*x])/128000 - (3*(1 - 2*x)^(3/2)*(2 + 3*x)^2*(3
+ 5*x)^(3/2))/50 - (21*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)*(731 + 444
*x))/16000 + (39142411*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(1280000
*Sqrt[10])
```

Rubi in Sympy [A] time = 14.7547, size = 117, normalized size = 0.91

$$-\frac{3\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{2}\left(5x+3\right)^{\frac{3}{2}}}{50}-\frac{\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{3}{2}}\left(34965x+\frac{230265}{4}\right)}{60000}+\frac{323491\sqrt{-2x+1}\left(5x+3\right)^{\frac{3}{2}}}{320000}-\frac{3558401\sqrt{-2x+1}\sqrt{5x+3}}{1280000}+\frac{39142411\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{12800000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3*(1-2*x)**(1/2)*(3+5*x)**(1/2),x)
```

```
[Out] -3*(-2*x + 1)**(3/2)*(3*x + 2)**2*(5*x + 3)**(3/2)/50 - (-2*x + 1
)**(3/2)*(5*x + 3)**(3/2)*(34965*x + 230265/4)/60000 + 323491*sqr
t(-2*x + 1)*(5*x + 3)**(3/2)/320000 - 3558401*sqrt(-2*x + 1)*sqrt
(5*x + 3)/1280000 + 39142411*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)
/11)/12800000
```

Mathematica [A] time = 0.108311, size = 70, normalized size = 0.55

$$\frac{10\sqrt{1-2x}\sqrt{5x+3}\left(6912000x^4+17366400x^3+14946720x^2+3002540x-4282349\right)-39142411\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{12800000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]*(2 + 3*x)^3*Sqrt[3 + 5*x],x]
```

```
[Out] (10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(-4282349 + 3002540*x + 14946720*
x^2 + 17366400*x^3 + 6912000*x^4) - 39142411*Sqrt[10]*ArcSin[Sqrt
[5/11]*Sqrt[1 - 2*x]])/12800000
```

Maple [A] time = 0.013, size = 121, normalized size = 1.

$$\frac{1}{25600000}\sqrt{1-2x}\sqrt{3+5x}\left(138240000\,x^4\sqrt{-10\,x^2-x+3}+347328000\,x^3\sqrt{-10\,x^2-x+3}+298934400\,x^2\sqrt{-10\,x^2-x+3}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3*(1-2*x)^(1/2)*(3+5*x)^(1/2),x)
```

```
[Out] 1/25600000*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(138240000*x^4*(-10*x^2-x+
3)^(1/2)+347328000*x^3*(-10*x^2-x+3)^(1/2)+298934400*x^2*(-10*x^2
-x+3)^(1/2)+39142411*10^(1/2)*arcsin(20/11*x+1/11)+60050800*x*(-1
0*x^2-x+3)^(1/2)-85646980*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2
)
```

Maxima [A] time = 1.49733, size = 117, normalized size = 0.91

$$-\frac{27}{50}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x^2-\frac{5211}{4000}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x-\frac{19191}{16000}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}+\frac{323491}{64000}\sqrt{-10\,x^2-x+3}x-\frac{39142411}{25600000}\sqrt{10}\arcsin\left(-\frac{20}{11}x-\frac{1}{11}\right)+\frac{323491}{1280000}\sqrt{-10\,x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^3*sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] -27/50*(-10*x^2 - x + 3)^(3/2)*x^2 - 5211/4000*(-10*x^2 - x + 3)^
(3/2)*x - 19191/16000*(-10*x^2 - x + 3)^(3/2) + 323491/64000*sqrt
(-10*x^2 - x + 3)*x - 39142411/25600000*sqrt(10)*arcsin(-20/11*x
- 1/11) + 323491/1280000*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.221817, size = 97, normalized size = 0.76

$$\frac{1}{25600000}\sqrt{10}\left(2\sqrt{10}\left(6912000\,x^4+17366400\,x^3+14946720\,x^2+3002540\,x-4282349\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+39142411\,\mathrm{arc}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^3*sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] 1/25600000*sqrt(10)*(2*sqrt(10)*(6912000*x^4 + 17366400*x^3 + 149
46720*x^2 + 3002540*x - 4282349)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 3
9142411*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x
+ 1))))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3*(1-2*x)**(1/2)*(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.275267, size = 317, normalized size = 2.48

$$\frac{9}{64000000}\sqrt{5}\left(2\left(4\left(8\left(12\left(80x-143\right)(5x+3)+9773\right)(5x+3)-136405\right)(5x+3)+60555\right)\sqrt{5x+3}\sqrt{-10x+5}-666105\sqrt{2}\right.$$
$$+\frac{9}{320000}\sqrt{5}\left(2\left(4\left(8\left(60x-71\right)(5x+3)+2179\right)(5x+3)-4125\right)\sqrt{5x+3}\sqrt{-10x+5}+45375\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$
$$+\frac{3}{2000}\sqrt{5}\left(2\left(4\left(40x-23\right)(5x+3)+33\right)\sqrt{5x+3}\sqrt{-10x+5}-363\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$
$$+\frac{1}{50}\sqrt{5}\left(2\left(20x+1\right)\sqrt{5x+3}\sqrt{-10x+5}+121\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(3*x + 2)^3*sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] 9/64000000*sqrt(5)*(2*(4*(8*(12*(80*x - 143)*(5*x + 3) + 9773)*(5
*x + 3) - 136405)*(5*x + 3) + 60555)*sqrt(5*x + 3)*sqrt(-10*x + 5
) - 666105*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 9/32000
0*sqrt(5)*(2*(4*(8*(60*x - 71)*(5*x + 3) + 2179)*(5*x + 3) - 4125
)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 45375*sqrt(2)*arcsin(1/11*sqrt(
22)*sqrt(5*x + 3))) + 3/2000*sqrt(5)*(2*(4*(40*x - 23)*(5*x + 3)
+ 33)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 363*sqrt(2)*arcsin(1/11*sqr
t(22)*sqrt(5*x + 3))) + 1/50*sqrt(5)*(2*(20*x + 1)*sqrt(5*x + 3)*
sqrt(-10*x + 5) + 121*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))
)
```

3.2247 $\int \sqrt{1-2x}(2+3x)^2\sqrt{3+5x}\,dx$

Optimal. Leaf size=121

$$-\frac{3}{40}(3x+2)(5x+3)^{3/2}(1-2x)^{3/2} -\frac{37}{160}(5x+3)^{3/2}(1-2x)^{3/2}-\frac{1313\sqrt{5x+3}(1-2x)^{3/2}}{1280}+\frac{14443\sqrt{5x+3}\sqrt{1-2x}}{12800}+\frac{158873\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{12800\sqrt{10}}$$

```
[Out] (14443*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/12800 - (1313*(1 - 2*x)^(3/2)
*Sqrt[3 + 5*x])/1280 - (37*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/160 -
 (3*(1 - 2*x)^(3/2)*(2 + 3*x)*(3 + 5*x)^(3/2))/40 + (158873*ArcSi
n[Sqrt[2/11]*Sqrt[3 + 5*x]])/(12800*Sqrt[10])
```

Rubi [A] time = 0.137332, antiderivative size = 121, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$-\frac{3}{40}(3x+2)(5x+3)^{3/2}(1-2x)^{3/2} -\frac{37}{160}(5x+3)^{3/2}(1-2x)^{3/2}-\frac{1313\sqrt{5x+3}(1-2x)^{3/2}}{1280}+\frac{14443\sqrt{5x+3}\sqrt{1-2x}}{12800}+\frac{158873\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{12800\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]*(2 + 3*x)^2*Sqrt[3 + 5*x],x]
```

```
[Out] (14443*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/12800 - (1313*(1 - 2*x)^(3/2)
*Sqrt[3 + 5*x])/1280 - (37*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/160 -
 (3*(1 - 2*x)^(3/2)*(2 + 3*x)*(3 + 5*x)^(3/2))/40 + (158873*ArcSi
n[Sqrt[2/11]*Sqrt[3 + 5*x]])/(12800*Sqrt[10])
```

Rubi in Sympy [A] time = 11.0918, size = 109, normalized size = 0.9

$$-\frac{(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{3}{2}}(9x+6)}{40}-\frac{37(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{3}{2}}}{160}+\frac{1313\sqrt{-2x+1}(5x+3)^{\frac{3}{2}}}{3200} -\frac{14443\sqrt{-2x+1}\sqrt{5x+3}}{12800}+\frac{158873\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{128000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2*(1-2*x)**(1/2)*(3+5*x)**(1/2),x)
```

```
[Out] -(-2*x + 1)**(3/2)*(5*x + 3)**(3/2)*(9*x + 6)/40 - 37*(-2*x + 1)*
*(3/2)*(5*x + 3)**(3/2)/160 + 1313*sqrt(-2*x + 1)*(5*x + 3)**(3/2
)/3200 - 14443*sqrt(-2*x + 1)*sqrt(5*x + 3)/12800 + 158873*sqrt(1
0)*asin(sqrt(22)*sqrt(5*x + 3)/11)/128000
```

Mathematica [A] time = 0.100339, size = 65, normalized size = 0.54

$$\frac{10\sqrt{1-2x}\sqrt{5x+3}\left(28800x^3+51680x^2+22500x-13327\right)-158873\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{128000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]*(2 + 3*x)^2*Sqrt[3 + 5*x],x]
```

```
[Out] (10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(-13327 + 22500*x + 51680*x^2 + 2
8800*x^3) - 158873*Sqrt[10]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/128
000
```

Maple [A] time = 0.013, size = 104, normalized size = 0.9

$$\frac{1}{256000}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(576000\,x^3\sqrt{-10\,x^2-x+3}+1033600\,x^2\sqrt{-10\,x^2-x+3}+158873\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)+45$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2*(1-2*x)^(1/2)*(3+5*x)^(1/2),x)
```

```
[Out] 1/256000*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(576000*x^3*(-10*x^2-x+3)^(1
/2)+1033600*x^2*(-10*x^2-x+3)^(1/2)+158873*10^(1/2)*arcsin(20/11*
x+1/11)+450000*x*(-10*x^2-x+3)^(1/2)-266540*(-10*x^2-x+3)^(1/2))/
(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.50142, size = 95, normalized size = 0.79

$$-\frac{9}{40}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x-\frac{61}{160}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}+\frac{1313}{640}\sqrt{-10\,x^2-x+3}x-\frac{158873}{256000}\sqrt{10}\arcsin\left(-\frac{20}{11}x-\frac{1}{11}\right)+\frac{1313}{12800}\sqrt{-10\,x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^2*sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] -9/40*(-10*x^2 - x + 3)^(3/2)*x - 61/160*(-10*x^2 - x + 3)^(3/2)
+ 1313/640*sqrt(-10*x^2 - x + 3)*x - 158873/256000*sqrt(10)*arcsi
n(-20/11*x - 1/11) + 1313/12800*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.218289, size = 90, normalized size = 0.74

$$\frac{1}{256000}\sqrt{10}\left(2\sqrt{10}\left(28800\,x^3+51680\,x^2+22500\,x-13327\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+158873\,\arctan\left(\frac{\sqrt{10}(20\,x+1)}{20\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^2*sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] 1/256000*sqrt(10)*(2*sqrt(10)*(28800*x^3 + 51680*x^2 + 22500*x -
13327)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 158873*arctan(1/20*sqrt(10)
*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [A] time = 114.398, size = 314, normalized size = 2.6

$$-\frac{49\sqrt{2}\left(\begin{cases}\frac{121\sqrt{5}\left(-\frac{\sqrt{5}\sqrt{-2x+1}\sqrt{10x+6}(20x+1)}{121}+\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\right)}{200} & \text{for } x\leq\frac{1}{2}\wedge x>-\frac{3}{5}\end{cases}\right)}{8}+\frac{21\sqrt{2}\left(\begin{cases}\frac{1331\sqrt{5}\left(-\frac{5\sqrt{5}(-2x+1)^{\frac{3}{2}}(10x+6)^{\frac{3}{2}}}{7986}-\frac{\sqrt{5}\sqrt{-2x+1}\sqrt{10x+6}(20x+1)}{1936}+\frac{\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{16}\right)}{125} & \text{for } x\leq\frac{1}{2}\wedge x>-\frac{3}{5}\end{cases}\right)}{4}-\frac{9\sqrt{2}\left(\begin{cases}\frac{14641\sqrt{5}\left(-\frac{5\sqrt{5}(-2x+1)^{\frac{3}{2}}(10x+6)^{\frac{3}{2}}}{7986}-\frac{\sqrt{5}\sqrt{-2x+1}\sqrt{10x+6}(20x+1)}{3872}-\frac{\sqrt{5}\sqrt{-2x+1}\sqrt{10x+6}\left(12100x-2000(-2x+1)^{3}+6600(-2x+1)^{2}-4719\right)}{1874048}+\frac{5\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{128}\right)}{625} & \text{for } x\leq\frac{1}{2}\wedge\end{cases}\right)}{8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2*(1-2*x)**(1/2)*(3+5*x)**(1/2),x)
```

```
[Out] -49*sqrt(2)*Piecewise((121*sqrt(5)*(-sqrt(5)*sqrt(-2*x + 1)*sqrt(
10*x + 6)*(20*x + 1)/121 + asin(sqrt(55)*sqrt(-2*x + 1)/11))/200,
 (x <= 1/2) & (x > -3/5)))/8 + 21*sqrt(2)*Piecewise((1331*sqrt(5)
*(-5*sqrt(5)*(-2*x + 1)**(3/2)*(10*x + 6)**(3/2)/7986 - sqrt(5)*s
qrt(-2*x + 1)*sqrt(10*x + 6)*(20*x + 1)/1936 + asin(sqrt(55)*sqrt
(-2*x + 1)/11)/16)/125, (x <= 1/2) & (x > -3/5)))/4 - 9*sqrt(2)*P
iecewise((14641*sqrt(5)*(-5*sqrt(5)*(-2*x + 1)**(3/2)*(10*x + 6)*
*(3/2)/7986 - sqrt(5)*sqrt(-2*x + 1)*sqrt(10*x + 6)*(20*x + 1)/38
72 - sqrt(5)*sqrt(-2*x + 1)*sqrt(10*x + 6)*(12100*x - 2000*(-2*x
+ 1)**3 + 6600*(-2*x + 1)**2 - 4719)/1874048 + 5*asin(sqrt(55)*sq
rt(-2*x + 1)/11)/128)/625, (x <= 1/2) & (x > -3/5)))/8
```

GIAC/XCAS [A] time = 0.255179, size = 220, normalized size = 1.82

$$\frac{3}{640000}\sqrt{5}\left(2\left(4\left(8\left(60x-71\right)(5x+3)+2179\right)(5x+3)-4125\right)\sqrt{5x+3}\sqrt{-10x+5}+45375\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)+\frac{1}{2000}\sqrt{5}\left(2\left(4\left(40x-23\right)(5x+3)+33\right)\sqrt{5x+3}\sqrt{-10x+5}-363\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)+\frac{1}{100}\sqrt{5}\left(2\left(20x+1\right)\sqrt{5x+3}\sqrt{-10x+5}+121\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^2*sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] 3/640000*sqrt(5)*(2*(4*(8*(60*x - 71)*(5*x + 3) + 2179)*(5*x + 3)
 - 4125)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 45375*sqrt(2)*arcsin(1/1
1*sqrt(22)*sqrt(5*x + 3))) + 1/2000*sqrt(5)*(2*(4*(40*x - 23)*(5*
x + 3) + 33)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 363*sqrt(2)*arcsin(1
/11*sqrt(22)*sqrt(5*x + 3))) + 1/100*sqrt(5)*(2*(20*x + 1)*sqrt(5
*x + 3)*sqrt(-10*x + 5) + 121*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5
*x + 3)))
```

3.2248 $\int \sqrt{1-2x}(2+3x)\sqrt{3+5x}\,dx$

Optimal. Leaf size=94

$$-\frac{1}{10}(5x+3)^{3/2}(1-2x)^{3/2}-\frac{37}{80}\sqrt{5x+3}(1-2x)^{3/2}+\frac{407}{800}\sqrt{5x+3}\sqrt{1-2x}+\frac{4477\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{800\sqrt{10}}$$

```
[Out] (407*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/800 - (37*(1 - 2*x)^(3/2)*Sqrt[
3 + 5*x])/80 - ((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/10 + (4477*ArcSi
n[Sqrt[2/11]*Sqrt[3 + 5*x]])/(800*Sqrt[10])
```

Rubi [A] time = 0.0947242, antiderivative size = 94, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$-\frac{1}{10}(5x+3)^{3/2}(1-2x)^{3/2}-\frac{37}{80}\sqrt{5x+3}(1-2x)^{3/2}+\frac{407}{800}\sqrt{5x+3}\sqrt{1-2x}+\frac{4477\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{800\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]*(2 + 3*x)*Sqrt[3 + 5*x],x]
```

```
[Out] (407*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/800 - (37*(1 - 2*x)^(3/2)*Sqrt[
3 + 5*x])/80 - ((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/10 + (4477*ArcSi
n[Sqrt[2/11]*Sqrt[3 + 5*x]])/(800*Sqrt[10])
```

Rubi in Sympy [A] time = 8.17229, size = 83, normalized size = 0.88

$$-\frac{(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{3}{2}}}{10}+\frac{37\sqrt{-2x+1}(5x+3)^{\frac{3}{2}}}{200}-\frac{407\sqrt{-2x+1}\sqrt{5x+3}}{800}+\frac{4477\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{8000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)*(1-2*x)**(1/2)*(3+5*x)**(1/2),x)
```

```
[Out] -(-2*x + 1)**(3/2)*(5*x + 3)**(3/2)/10 + 37*sqrt(-2*x + 1)*(5*x +
 3)**(3/2)/200 - 407*sqrt(-2*x + 1)*sqrt(5*x + 3)/800 + 4477*sqrt
(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/8000
```

Mathematica [A] time = 0.0800933, size = 60, normalized size = 0.64

$$\frac{10\sqrt{1-2x}\sqrt{5x+3}\left(800x^2+820x-203\right)-4477\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{8000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]*(2 + 3*x)*Sqrt[3 + 5*x],x]
```

```
[Out] (10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(-203 + 820*x + 800*x^2) - 4477*S
qrt[10]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/8000
```

Maple [A] time = 0.011, size = 87, normalized size = 0.9

$$\frac{1}{16000}\sqrt{1-2x}\sqrt{3+5x}\left(16000x^2\sqrt{-10x^2-x+3}+4477\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)+16400x\sqrt{-10x^2-x+3}-4060\sqrt{-1}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)*(1-2*x)^(1/2)*(3+5*x)^(1/2),x)
```

```
[Out] 1/16000*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(16000*x^2*(-10*x^2-x+3)^(1/2
)+4477*10^(1/2)*arcsin(20/11*x+1/11)+16400*x*(-10*x^2-x+3)^(1/2)-
4060*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.47948, size = 74, normalized size = 0.79

$$-\frac{1}{10}\left(-10x^2-x+3\right)^{\frac{3}{2}}+\frac{37}{40}\sqrt{-10x^2-x+3}x-\frac{4477}{16000}\sqrt{10}\arcsin\left(-\frac{20}{11}x-\frac{1}{11}\right)+\frac{37}{800}\sqrt{-10x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)*sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] -1/10*(-10*x^2 - x + 3)^(3/2) + 37/40*sqrt(-10*x^2 - x + 3)*x - 4
477/16000*sqrt(10)*arcsin(-20/11*x - 1/11) + 37/800*sqrt(-10*x^2
- x + 3)
```

Fricas [A] time = 0.217308, size = 84, normalized size = 0.89

$$\frac{1}{16000}\sqrt{10}\left(2\sqrt{10}\left(800x^2+820x-203\right)\sqrt{5x+3}\sqrt{-2x+1}+4477\arctan\left(\frac{\sqrt{10}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)*sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] 1/16000*sqrt(10)*(2*sqrt(10)*(800*x^2 + 820*x - 203)*sqrt(5*x + 3
)*sqrt(-2*x + 1) + 4477*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x
 + 3)*sqrt(-2*x + 1))))
```

Sympy [A] time = 48.6547, size = 168, normalized size = 1.79

$$-\frac{7\sqrt{2}\left(\begin{cases}\frac{121\sqrt{5}\left(-\frac{\sqrt{5}\sqrt{-2x+1}\sqrt{10x+6}(20x+1)}{121}+\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\right)}{200} & \text{for}\ x\le\frac{1}{2}\wedge x>-\frac{3}{5}\end{cases}\right)}{4}+\frac{3\sqrt{2}\left(\begin{cases}\frac{1331\sqrt{5}\left(-\frac{5\sqrt{5}(-2x+1)^{\frac{3}{2}}(10x+6)^{\frac{3}{2}}}{7986}-\frac{\sqrt{5}\sqrt{-2x+1}\sqrt{10x+6}(20x+1)}{1936}+\frac{\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{16}\right)}{125} & \text{for}\ x\le\frac{1}{2}\wedge x>-\frac{3}{5}\end{cases}\right)}{4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)*(1-2*x)**(1/2)*(3+5*x)**(1/2),x)
```

```
[Out] -7*sqrt(2)*Piecewise((121*sqrt(5)*(-sqrt(5)*sqrt(-2*x + 1)*sqrt(1
0*x + 6)*(20*x + 1)/121 + asin(sqrt(55)*sqrt(-2*x + 1)/11))/200,
(x <= 1/2) & (x > -3/5)))/4 + 3*sqrt(2)*Piecewise((1331*sqrt(5)*(
```

```
-5*sqrt(5)*(-2*x + 1)**(3/2)*(10*x + 6)**(3/2)/7986 - sqrt(5)*sqr
t(-2*x + 1)*sqrt(10*x + 6)*(20*x + 1)/1936 + asin(sqrt(55)*sqrt(-
2*x + 1)/11)/16)/125, (x <= 1/2) & (x > -3/5)))/4
```

GIAC/XCAS [A] time = 0.260515, size = 135, normalized size = 1.44

$$\frac{1}{8000}\sqrt{5}\left(2\left(4\left(40x-23\right)\left(5x+3\right)+33\right)\sqrt{5x+3}\sqrt{-10x+5}-363\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)+\frac{1}{200}\sqrt{5}\left(2\left(20x+1\right)\sqrt{5x+3}\sqrt{-10x+5}+121\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(3*x + 2)*sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] 1/8000*sqrt(5)*(2*(4*(40*x - 23)*(5*x + 3) + 33)*sqrt(5*x + 3)*sq
rt(-10*x + 5) - 363*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)))
+ 1/200*sqrt(5)*(2*(20*x + 1)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 121
*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)))
```

3.2249 $\int \sqrt{1-2x}\sqrt{3+5x}\,dx$

Optimal. Leaf size=72

$$-\frac{1}{4}\sqrt{5x+3}(1-2x)^{3/2}+\frac{11}{40}\sqrt{5x+3}\sqrt{1-2x}+\frac{121\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{40\sqrt{10}}$$

```
[Out] (11*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/40 - ((1 - 2*x)^(3/2)*Sqrt[3 + 5
*x])/4 + (121*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(40*Sqrt[10])
```

Rubi [A] time = 0.0628127, antiderivative size = 72, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.158

$$-\frac{1}{4}\sqrt{5x+3}(1-2x)^{3/2}+\frac{11}{40}\sqrt{5x+3}\sqrt{1-2x}+\frac{121\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{40\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]*Sqrt[3 + 5*x],x]
```

```
[Out] (11*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/40 - ((1 - 2*x)^(3/2)*Sqrt[3 + 5
*x])/4 + (121*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(40*Sqrt[10])
```

Rubi in Sympy [A] time = 6.47012, size = 63, normalized size = 0.88

$$\frac{\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{10}-\frac{11\sqrt{-2x+1}\sqrt{5x+3}}{40}+\frac{121\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{400}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)*(3+5*x)**(1/2),x)
```

```
[Out] sqrt(-2*x + 1)*(5*x + 3)**(3/2)/10 - 11*sqrt(-2*x + 1)*sqrt(5*x +
 3)/40 + 121*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/400
```

Mathematica [A] time = 0.0419034, size = 55, normalized size = 0.76

$$\frac{1}{400}\left(10\sqrt{1-2x}\sqrt{5x+3}(20x+1)-121\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]*Sqrt[3 + 5*x],x]
```

```
[Out] (10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(1 + 20*x) - 121*Sqrt[10]*ArcSin[
Sqrt[5/11]*Sqrt[1 - 2*x]])/400
```

Maple [A] time = 0.008, size = 72, normalized size = 1.

$$\frac{1}{10}(3+5x)^{\frac{3}{2}}\sqrt{1-2x}-\frac{11}{40}\sqrt{1-2x}\sqrt{3+5x}+\frac{121\sqrt{10}}{800}\sqrt{(1-2x)(3+5x)}\arcsin\left(\frac{20x}{11}+\frac{1}{11}\right)\frac{1}{\sqrt{1-2x}}\frac{1}{\sqrt{3+5x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((1-2*x)^(1/2)*(3+5*x)^(1/2),x)
```

```
[Out] 1/10*(3+5*x)^(3/2)*(1-2*x)^(1/2)-11/40*(1-2*x)^(1/2)*(3+5*x)^(1/2
)+121/800*((1-2*x)*(3+5*x))^(1/2)/(3+5*x)^(1/2)/(1-2*x)^(1/2)*10^
(1/2)*arcsin(20/11*x+1/11)
```

Maxima [A] time = 1.50114, size = 55, normalized size = 0.76

$$\frac{1}{2}\sqrt{-10\,x^{2}-x+3}x-\frac{121}{800}\sqrt{10}\arcsin\left(-\frac{20}{11}\,x-\frac{1}{11}\right)+\frac{1}{40}\sqrt{-10\,x^{2}-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(sqrt(5*x + 3)*sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] 1/2*sqrt(-10*x^2 - x + 3)*x - 121/800*sqrt(10)*arcsin(-20/11*x -
1/11) + 1/40*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.214407, size = 77, normalized size = 1.07

$$\frac{1}{800}\sqrt{10}\left(2\sqrt{10}(20\,x+1)\sqrt{5\,x+3}\sqrt{-2\,x+1}+121\,\arctan\left(\frac{\sqrt{10}(20\,x+1)}{20\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(sqrt(5*x + 3)*sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] 1/800*sqrt(10)*(2*sqrt(10)*(20*x + 1)*sqrt(5*x + 3)*sqrt(-2*x + 1
) + 121*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x
+ 1))))
```

Sympy [A] time = 4.33179, size = 184, normalized size = 2.56

$$\begin{cases} \frac{5i\left(x+\frac{3}{5}\right)^{\frac{5}{2}}}{\sqrt{10x-5}}-\frac{33i\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}{4\sqrt{10x-5}}+\frac{121i\sqrt{x+\frac{3}{5}}}{40\sqrt{10x-5}}-\frac{121\sqrt{10}i\operatorname{acosh}\left(\frac{\sqrt{110}\sqrt{x+\frac{3}{5}}}{11}\right)}{400} & \text{for}\ \frac{10\left|x+\frac{3}{5}\right|}{11}>1 \\ \frac{121\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{110}\sqrt{x+\frac{3}{5}}}{11}\right)}{400}-\frac{5\left(x+\frac{3}{5}\right)^{\frac{5}{2}}}{\sqrt{-10x+5}}+\frac{33\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}{4\sqrt{-10x+5}}-\frac{121\sqrt{x+\frac{3}{5}}}{40\sqrt{-10x+5}} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((1-2*x)**(1/2)*(3+5*x)**(1/2),x)
```

```
[Out] Piecewise((5*I*(x + 3/5)**(5/2)/sqrt(10*x - 5) - 33*I*(x + 3/5)**
(3/2)/(4*sqrt(10*x - 5)) + 121*I*sqrt(x + 3/5)/(40*sqrt(10*x - 5)
) - 121*sqrt(10)*I*acosh(sqrt(110)*sqrt(x + 3/5)/11)/400, 10*Abs(
x + 3/5)/11 > 1), (121*sqrt(10)*asin(sqrt(110)*sqrt(x + 3/5)/11)/
400 - 5*(x + 3/5)**(5/2)/sqrt(-10*x + 5) + 33*(x + 3/5)**(3/2)/(4
*sqrt(-10*x + 5)) - 121*sqrt(x + 3/5)/(40*sqrt(-10*x + 5)), True)
)
```

GIAC/XCAS [A] time = 0.244136, size = 61, normalized size = 0.85

$$\frac{1}{400}\sqrt{5}\left(2\,(20\,x+1)\sqrt{5\,x+3}\sqrt{-10\,x+5}+121\,\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5\,x+3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] 1/400*sqrt(5)*(2*(20*x + 1)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 121*s
qrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)))
```

3.2250 $\int \frac{\sqrt{1-2x}\sqrt{3+5x}}{2+3x}\,dx$

Optimal. Leaf size=84

$$\frac{1}{3}\sqrt{1-2x}\sqrt{5x+3}+\frac{37\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{9\sqrt{10}}+\frac{2}{9}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

```
[Out] (Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/3 + (37*ArcSin[Sqrt[2/11]*Sqrt[3 +
5*x]])/(9*Sqrt[10]) + (2*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sq
rt[3 + 5*x])])/9
```

Rubi [A] time = 0.169727, antiderivative size = 84, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$\frac{1}{3}\sqrt{1-2x}\sqrt{5x+3}+\frac{37\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{9\sqrt{10}}+\frac{2}{9}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2 + 3*x),x]
```

```
[Out] (Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/3 + (37*ArcSin[Sqrt[2/11]*Sqrt[3 +
5*x]])/(9*Sqrt[10]) + (2*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sq
rt[3 + 5*x])])/9
```

Rubi in Sympy [A] time = 16.0836, size = 76, normalized size = 0.9

$$\frac{\sqrt{-2x+1}\sqrt{5x+3}}{3}+\frac{37\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{90}+\frac{2\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)*(3+5*x)**(1/2)/(2+3*x),x)
```

```
[Out] sqrt(-2*x + 1)*sqrt(5*x + 3)/3 + 37*sqrt(10)*asin(sqrt(22)*sqrt(5
*x + 3)/11)/90 + 2*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*
x + 3)))/9
```

Mathematica [A] time = 0.137265, size = 95, normalized size = 1.13

$$\frac{1}{180}\left(60\sqrt{1-2x}\sqrt{5x+3}+20\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)+37\sqrt{10}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2 + 3*x),x]
```

```
[Out] (60*Sqrt[1 - 2*x]*Sqrt[3 + 5*x] + 20*Sqrt[7]*ArcTan[(-20 - 37*x)/
(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])] + 37*Sqrt[10]*ArcTan[(1 + 20*x)
/(2*Sqrt[1 - 2*x]*Sqrt[30 + 50*x])])/180
```

Maple [A] time = 0.015, size = 83, normalized size = 1.

$$\frac{1}{180}\sqrt{1-2x}\sqrt{3+5x}\left(37\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)-20\sqrt{7}\arctan\left(1/14\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)+60\sqrt{-10x^2-x+3}\right)\frac{1}{\sqrt{-10x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)*(3+5*x)^(1/2)/(2+3*x),x)
```

```
[Out] 1/180*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(37*10^(1/2)*arcsin(20/11*x+1/1
1)-20*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+
60*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.51106, size = 73, normalized size = 0.87

$$\frac{37}{180}\sqrt{10}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)-\frac{1}{9}\sqrt{7}\arcsin\left(\frac{37x}{11|3x+2|}+\frac{20}{11|3x+2|}\right)+\frac{1}{3}\sqrt{-10x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*sqrt(-2*x + 1)/(3*x + 2),x, algorithm="maxima")
```

```
[Out] 37/180*sqrt(10)*arcsin(20/11*x + 1/11) - 1/9*sqrt(7)*arcsin(37/11
*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) + 1/3*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.230264, size = 115, normalized size = 1.37

$$-\frac{1}{180}\sqrt{10}\left(2\sqrt{10}\sqrt{7}\arctan\left(\frac{\sqrt{7}(37x+20)}{14\sqrt{5x+3}\sqrt{-2x+1}}\right)-6\sqrt{10}\sqrt{5x+3}\sqrt{-2x+1}-37\arctan\left(\frac{\sqrt{10}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*sqrt(-2*x + 1)/(3*x + 2),x, algorithm="fricas")
```

```
[Out] -1/180*sqrt(10)*(2*sqrt(10)*sqrt(7)*arctan(1/14*sqrt(7)*(37*x + 2
0)/(sqrt(5*x + 3)*sqrt(-2*x + 1))) - 6*sqrt(10)*sqrt(5*x + 3)*sqr
t(-2*x + 1) - 37*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*s
qrt(-2*x + 1))))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{\sqrt{-2x+1}\sqrt{5x+3}}{3x+2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)*(3+5*x)**(1/2)/(2+3*x),x)
```

```
[Out] Integral(sqrt(-2*x + 1)*sqrt(5*x + 3)/(3*x + 2), x)
```

GIAC/XCAS [A] time = 0.260388, size = 219, normalized size = 2.61

$$-\frac{1}{180}\sqrt{5}\left(2\sqrt{70}\sqrt{2}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-37\sqrt{2}\left(\pi+2\arctan\left(-\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\right.}{5x+3}\right.}{4\left(\sqrt{2}\sqrt{-10x+5}\right.}\right.\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*sqrt(-2*x + 1)/(3*x + 2),x, algorithm="giac")
```

```
[Out] -1/180*sqrt(5)*(2*sqrt(70)*sqrt(2)*(pi + 2*arctan(-1/140*sqrt(70)
*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3)
- 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 37*sqrt(2)*(pi + 2*
arctan(-1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2
/(5*x + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 12*sqrt(
5*x + 3)*sqrt(-10*x + 5))
```

3.2251 $\int \frac{\sqrt{1-2x}\sqrt{3+5x}}{(2+3x)^2}\,dx$

Optimal. Leaf size=91

$$-\frac{\sqrt{1-2x}\sqrt{5x+3}}{3(3x+2)}-\frac{2}{9}\sqrt{10}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{37\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{9\sqrt{7}}$$

```
[Out] -(Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(3*(2 + 3*x)) - (2*Sqrt[10]*ArcSin
[Sqrt[2/11]*Sqrt[3 + 5*x]])/9 - (37*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]
*Sqrt[3 + 5*x])])/(9*Sqrt[7])
```

Rubi [A] time = 0.1726, antiderivative size = 91, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$-\frac{\sqrt{1-2x}\sqrt{5x+3}}{3(3x+2)}-\frac{2}{9}\sqrt{10}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{37\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{9\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2 + 3*x)^2,x]
```

```
[Out] -(Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(3*(2 + 3*x)) - (2*Sqrt[10]*ArcSin
[Sqrt[2/11]*Sqrt[3 + 5*x]])/9 - (37*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]
*Sqrt[3 + 5*x])])/(9*Sqrt[7])
```

Rubi in Sympy [A] time = 16.0242, size = 82, normalized size = 0.9

$$-\frac{\sqrt{-2x+1}\sqrt{5x+3}}{3\,(3x+2)}-\frac{2\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{9}-\frac{37\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{63}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)*(3+5*x)**(1/2)/(2+3*x)**2,x)
```

```
[Out] -sqrt(-2*x + 1)*sqrt(5*x + 3)/(3*(3*x + 2)) - 2*sqrt(10)*asin(sqr
t(22)*sqrt(5*x + 3)/11)/9 - 37*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1
)/(7*sqrt(5*x + 3)))/63
```

Mathematica [A] time = 0.169653, size = 102, normalized size = 1.12

$$-\frac{\sqrt{1-2x}\sqrt{5x+3}}{9x+6}-\frac{37\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{18\sqrt{7}}-\frac{1}{9}\sqrt{10}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2 + 3*x)^2,x]
```

```
[Out] -((Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(6 + 9*x)) - (37*ArcTan[(-20 - 37
*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/(18*Sqrt[7]) - (Sqrt[10]*A
rcTan[(1 + 20*x)/(2*Sqrt[1 - 2*x]*Sqrt[30 + 50*x])])/9
```

Maple [A] time = 0.016, size = 131, normalized size = 1.4

$$-\frac{1}{252+378x}\sqrt{1-2x}\sqrt{3+5x}\left(42\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)x-111\sqrt{7}\arctan\left(1/14\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)x+28\sqrt{10}\arcsin\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)*(3+5*x)^(1/2)/(2+3*x)^2,x)
```

```
[Out] -1/126*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(42*10^(1/2)*arcsin(20/11*x+1/
11)*x-111*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/
2))*x+28*10^(1/2)*arcsin(20/11*x+1/11)-74*7^(1/2)*arctan(1/14*(37
*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+42*(-10*x^2-x+3)^(1/2))/(-10*
x^2-x+3)^(1/2)/(2+3*x)
```

Maxima [A] time = 1.5002, size = 82, normalized size = 0.9

$$-\frac{1}{9}\sqrt{10}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)+\frac{37}{126}\sqrt{7}\arcsin\left(\frac{37x}{11|3x+2|}+\frac{20}{11|3x+2|}\right)-\frac{\sqrt{-10x^2-x+3}}{3(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^2,x, algorithm="maxima")
```

```
[Out] -1/9*sqrt(10)*arcsin(20/11*x + 1/11) + 37/126*sqrt(7)*arcsin(37/1
1*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) - 1/3*sqrt(-10*x^2 - x + 3
)/(3*x + 2)
```

Fricas [A] time = 0.234118, size = 138, normalized size = 1.52

$$-\frac{\sqrt{7}\left(2\sqrt{10}\sqrt{7}(3x+2)\arctan\left(\frac{\sqrt{10}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)-37(3x+2)\arctan\left(\frac{\sqrt{7}(37x+20)}{14\sqrt{5x+3}\sqrt{-2x+1}}\right)+6\sqrt{7}\sqrt{5x+3}\sqrt{-2x+1}\right)}{126(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^2,x, algorithm="fricas")
```

```
[Out] -1/126*sqrt(7)*(2*sqrt(10)*sqrt(7)*(3*x + 2)*arctan(1/20*sqrt(10)
*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))) - 37*(3*x + 2)*arctan
(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))) + 6*sqr
t(7)*sqrt(5*x + 3)*sqrt(-2*x + 1))/(3*x + 2)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{\sqrt{-2x+1}\sqrt{5x+3}}{(3x+2)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)*(3+5*x)**(1/2)/(2+3*x)**2,x)
```

```
[Out] Integral(sqrt(-2*x + 1)*sqrt(5*x + 3)/(3*x + 2)**2, x)
```

GIAC/XCAS [A] time = 0.296462, size = 358, normalized size = 3.93

$$\frac{1}{1260}\sqrt{5}\left(37\sqrt{70}\sqrt{2}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-140\sqrt{2}\left(\pi+2\arctan\left(-\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+\cdots}\right.}{5x+\cdots}\right.}{4\left(\sqrt{2}\sqrt{-10x+\cdots}\right.}\right.\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^2,x, algorithm="giac")
```

```
[Out] 1/1260*sqrt(5)*(37*sqrt(70)*sqrt(2)*(pi + 2*arctan(-1/140*sqrt(70
)*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3)
 - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 140*sqrt(2)*(pi +
2*arctan(-1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))
^2/(5*x + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 9240*s
qrt(2)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sq
rt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))/(((sqrt(2)*sqrt
(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*
sqrt(-10*x + 5) - sqrt(22)))^2 + 280))
```

3.2252 $\int \frac{\sqrt{1-2x}\sqrt{3+5x}}{(2+3x)^3}\,dx$

Optimal. Leaf size=93

$$\frac{\sqrt{1-2x}(5x+3)^{3/2}}{2(3x+2)^2}-\frac{11\sqrt{1-2x}\sqrt{5x+3}}{28(3x+2)}-\frac{121\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{28\sqrt{7}}$$

```
[Out] (-11*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(28*(2 + 3*x)) + (Sqrt[1 - 2*x]
*(3 + 5*x)^(3/2))/(2*(2 + 3*x)^2) - (121*ArcTan[Sqrt[1 - 2*x]/(Sq
rt[7]*Sqrt[3 + 5*x])])/(28*Sqrt[7])
```

Rubi [A] time = 0.127195, antiderivative size = 93, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.115

$$\frac{\sqrt{1-2x}(5x+3)^{3/2}}{2(3x+2)^2}-\frac{11\sqrt{1-2x}\sqrt{5x+3}}{28(3x+2)}-\frac{121\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{28\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2 + 3*x)^3,x]
```

```
[Out] (-11*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(28*(2 + 3*x)) + (Sqrt[1 - 2*x]
*(3 + 5*x)^(3/2))/(2*(2 + 3*x)^2) - (121*ArcTan[Sqrt[1 - 2*x]/(Sq
rt[7]*Sqrt[3 + 5*x])])/(28*Sqrt[7])
```

Rubi in Sympy [A] time = 10.3472, size = 82, normalized size = 0.88

$$-\frac{11\sqrt{-2x+1}\sqrt{5x+3}}{28\,(3x+2)}+\frac{\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{2\,(3x+2)^2}-\frac{121\sqrt{7}\,\text{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{196}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)*(3+5*x)**(1/2)/(2+3*x)**3,x)
```

```
[Out] -11*sqrt(-2*x + 1)*sqrt(5*x + 3)/(28*(3*x + 2)) + sqrt(-2*x + 1)*
(5*x + 3)**(3/2)/(2*(3*x + 2)**2) - 121*sqrt(7)*atan(sqrt(7)*sqrt
(-2*x + 1)/(7*sqrt(5*x + 3)))/196
```

Mathematica [A] time = 0.0638836, size = 72, normalized size = 0.77

$$\frac{\sqrt{1-2x}\sqrt{5x+3}(37x+20)}{28(3x+2)^2}-\frac{121\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{56\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2 + 3*x)^3,x]
```

```
[Out] (Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(20 + 37*x))/(28*(2 + 3*x)^2) - (121
*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/(56*Sqrt[
7])
```

Maple [B] time = 0.016, size = 154, normalized size = 1.7

$$\frac{1}{392\,(2+3\,x)^{2}}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(1089\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^{2}-x+3}}\right)x^{2}+1452\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^{2}-x+3}}\right)x+\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)*(3+5*x)^(1/2)/(2+3*x)^3,x)
```

```
[Out] 1/392*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(1089*7^(1/2)*arctan(1/14*(37*x
+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+1452*7^(1/2)*arctan(1/14*(3
7*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+484*7^(1/2)*arctan(1/14*(3
7*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+518*x*(-10*x^2-x+3)^(1/2)+28
0*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)^2
```

Maxima [A] time = 1.52067, size = 122, normalized size = 1.31

$$\frac{121}{392}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{5}{21}\sqrt{-10\,x^{2}-x+3}+\frac{3\,\left(-10\,x^{2}-x+3\right)^{\frac{3}{2}}}{14\,(9\,x^{2}+12\,x+4)}-\frac{37\,\sqrt{-10\,x^{2}-x+3}}{84\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^3,x, algorithm="maxima")
```

```
[Out] 121/392*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2))
 + 5/21*sqrt(-10*x^2 - x + 3) + 3/14*(-10*x^2 - x + 3)^(3/2)/(9*x
^2 + 12*x + 4) - 37/84*sqrt(-10*x^2 - x + 3)/(3*x + 2)
```

Fricas [A] time = 0.232829, size = 107, normalized size = 1.15

$$\frac{\sqrt{7}\left(2\,\sqrt{7}(37\,x+20)\sqrt{5\,x+3}\sqrt{-2\,x+1}+121\,\left(9\,x^{2}+12\,x+4\right)\,\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)}{392\,(9\,x^{2}+12\,x+4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^3,x, algorithm="fricas")
```

```
[Out] 1/392*sqrt(7)*(2*sqrt(7)*(37*x + 20)*sqrt(5*x + 3)*sqrt(-2*x + 1)
 + 121*(9*x^2 + 12*x + 4)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5
*x + 3)*sqrt(-2*x + 1))))/(9*x^2 + 12*x + 4)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{\sqrt{-2x+1}\sqrt{5x+3}}{(3x+2)^{3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)*(3+5*x)**(1/2)/(2+3*x)**3,x)
```

```
[Out] Integral(sqrt(-2*x + 1)*sqrt(5*x + 3)/(3*x + 2)**3, x)
```

GIAC/XCAS [A] time = 0.301972, size = 343, normalized size = 3.69

$$\frac{121}{3920}\sqrt{5}\left(\sqrt{70}\sqrt{2}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{280\sqrt{2}\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3-\right.}{\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5}}{\sqrt{2}\sqrt{-10}}\right.\right.}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^3,x, algorithm="giac")
```

```
[Out] 121/3920*sqrt(5)*(sqrt(70)*sqrt(2)*(pi + 2*arctan(-1/140*sqrt(70)
*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3)
- 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 280*sqrt(2)*(((sqrt
(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(
sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 - 280*(sqrt(2)*sqrt(-10*x
+ 5) - sqrt(22))/sqrt(5*x + 3) + 1120*sqrt(5*x + 3)/(sqrt(2)*sqrt
(-10*x + 5) - sqrt(22)))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/s
qrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22
)))^2 + 280)^2)
```

3.2253 $\int \frac{\sqrt{1-2x}\sqrt{3+5x}}{(2+3x)^4}\,dx$

Optimal. Leaf size=122

$$\frac{37\sqrt{1-2x}(5x+3)^{3/2}}{28(3x+2)^2}+\frac{(1-2x)^{3/2}(5x+3)^{3/2}}{7(3x+2)^3}-\frac{407\sqrt{1-2x}\sqrt{5x+3}}{392(3x+2)}-\frac{4477\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{392\sqrt{7}}$$

```
[Out] (-407*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(392*(2 + 3*x)) + ((1 - 2*x)^(
3/2)*(3 + 5*x)^(3/2))/(7*(2 + 3*x)^3) + (37*Sqrt[1 - 2*x]*(3 + 5*
x)^(3/2))/(28*(2 + 3*x)^2) - (4477*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*
Sqrt[3 + 5*x])])/(392*Sqrt[7])
```

Rubi [A] time = 0.166629, antiderivative size = 122, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$\frac{37\sqrt{1-2x}(5x+3)^{3/2}}{28(3x+2)^2}+\frac{(1-2x)^{3/2}(5x+3)^{3/2}}{7(3x+2)^3}-\frac{407\sqrt{1-2x}\sqrt{5x+3}}{392(3x+2)}-\frac{4477\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{392\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2 + 3*x)^4,x]
```

```
[Out] (-407*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(392*(2 + 3*x)) + ((1 - 2*x)^(
3/2)*(3 + 5*x)^(3/2))/(7*(2 + 3*x)^3) + (37*Sqrt[1 - 2*x]*(3 + 5*
x)^(3/2))/(28*(2 + 3*x)^2) - (4477*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*
Sqrt[3 + 5*x])])/(392*Sqrt[7])
```

Rubi in Sympy [A] time = 12.9723, size = 109, normalized size = 0.89

$$-\frac{37\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{196\left(3x+2\right)^{2}}+\frac{\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{3}{2}}}{7\left(3x+2\right)^{3}}+\frac{407\sqrt{-2x+1}\sqrt{5x+3}}{392\left(3x+2\right)}-\frac{4477\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{2744}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)*(3+5*x)**(1/2)/(2+3*x)**4,x)
```

```
[Out] -37*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/(196*(3*x + 2)**2) + (-2*x +
1)**(3/2)*(5*x + 3)**(3/2)/(7*(3*x + 2)**3) + 407*sqrt(-2*x + 1)*
sqrt(5*x + 3)/(392*(3*x + 2)) - 4477*sqrt(7)*atan(sqrt(7)*sqrt(-2
*x + 1)/(7*sqrt(5*x + 3)))/2744
```

Mathematica [A] time = 0.0792384, size = 77, normalized size = 0.63

$$\frac{\frac{14\sqrt{1-2x}\sqrt{5x+3}(3547x^2+4902x+1648)}{(3x+2)^3}-4477\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{5488}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2 + 3*x)^4,x]
```

```
[Out] ((14*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(1648 + 4902*x + 3547*x^2))/(2 +
 3*x)^3 - 4477*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt
[3 + 5*x])])/5488
```

Maple [B] time = 0.019, size = 202, normalized size = 1.7

$$\frac{1}{5488\,(2+3\,x)^3}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(120879\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^3+241758\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)*(3+5*x)^(1/2)/(2+3*x)^4,x)
```

```
[Out] 1/5488*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(120879*7^(1/2)*arctan(1/14*(3
7*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+241758*7^(1/2)*arctan(1/
14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+161172*7^(1/2)*arct
an(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+49658*x^2*(-10*x
^2-x+3)^(1/2)+35816*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^
2-x+3)^(1/2))+68628*x*(-10*x^2-x+3)^(1/2)+23072*(-10*x^2-x+3)^(1/
2))/(-10*x^2-x+3)^(1/2)/(2+3*x)^3
```

Maxima [A] time = 1.50239, size = 163, normalized size = 1.34

$$\frac{4477}{5488}\,\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{185}{294}\,\sqrt{-10\,x^2-x+3}+\frac{\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{7\,(27\,x^3+54\,x^2+36\,x+8)}+\frac{111\,\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{196\,(9\,x^2+12\,x+4)}-\frac{1369\,\sqrt{-10\,x^2-x+3}}{1176\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^4,x, algorithm="maxima")
```

```
[Out] 4477/5488*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2
)) + 185/294*sqrt(-10*x^2 - x + 3) + 1/7*(-10*x^2 - x + 3)^(3/2)/
(27*x^3 + 54*x^2 + 36*x + 8) + 111/196*(-10*x^2 - x + 3)^(3/2)/(9
*x^2 + 12*x + 4) - 1369/1176*sqrt(-10*x^2 - x + 3)/(3*x + 2)
```

Fricas [A] time = 0.225871, size = 127, normalized size = 1.04

$$\frac{\sqrt{7}\left(2\,\sqrt{7}\left(3547\,x^2+4902\,x+1648\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+4477\,\left(27\,x^3+54\,x^2+36\,x+8\right)\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)}{5488\,(27\,x^3+54\,x^2+36\,x+8)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^4,x, algorithm="fricas")
```

```
[Out] 1/5488*sqrt(7)*(2*sqrt(7)*(3547*x^2 + 4902*x + 1648)*sqrt(5*x + 3
)*sqrt(-2*x + 1) + 4477*(27*x^3 + 54*x^2 + 36*x + 8)*arctan(1/14*
sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(27*x^3 + 54
*x^2 + 36*x + 8)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{\sqrt{-2x+1}\sqrt{5x+3}}{(3x+2)^4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)*(3+5*x)**(1/2)/(2+3*x)**4,x)
```

```
[Out] Integral(sqrt(-2*x + 1)*sqrt(5*x + 3)/(3*x + 2)**4, x)
```

GIAC/XCAS [A] time = 0.336566, size = 425, normalized size = 3.48

$$\frac{121}{54880}\sqrt{5}\left(37\sqrt{70}\sqrt{2}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{280\sqrt{2}\left(37\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{2}}\right.\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^4,x, algorithm="giac")
```

```
[Out] 121/54880*sqrt(5)*(37*sqrt(70)*sqrt(2)*(pi + 2*arctan(-1/140*sqrt
(70)*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x +
 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 280*sqrt(2)*(37
*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x
 + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 - 24640*((sqrt(2)*s
qrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(
2)*sqrt(-10*x + 5) - sqrt(22)))^3 - 2900800*(sqrt(2)*sqrt(-10*x +
 5) - sqrt(22))/sqrt(5*x + 3) + 11603200*sqrt(5*x + 3)/(sqrt(2)*s
qrt(-10*x + 5) - sqrt(22)))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22)
)/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt
(22)))^2 + 280)^3)
```

3.2254 $\int \frac{\sqrt{1-2x}\sqrt{3+5x}}{(2+3x)^5}\,dx$

Optimal. Leaf size=151

$$\frac{625115\sqrt{1-2x}\sqrt{5x+3}}{197568(3x+2)}+\frac{6005\sqrt{1-2x}\sqrt{5x+3}}{14112(3x+2)^2}+\frac{37\sqrt{1-2x}\sqrt{5x+3}}{504(3x+2)^3}-\frac{\sqrt{1-2x}\sqrt{5x+3}}{12(3x+2)^4}-\frac{794365\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{21952\sqrt{7}}$$

```
[Out] -(Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(12*(2 + 3*x)^4) + (37*Sqrt[1 - 2*
x]*Sqrt[3 + 5*x])/(504*(2 + 3*x)^3) + (6005*Sqrt[1 - 2*x]*Sqrt[3
+ 5*x])/(14112*(2 + 3*x)^2) + (625115*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]
)/(197568*(2 + 3*x)) - (794365*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt
[3 + 5*x])])/(21952*Sqrt[7])
```

Rubi [A] time = 0.295652, antiderivative size = 151, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$\frac{625115\sqrt{1-2x}\sqrt{5x+3}}{197568(3x+2)}+\frac{6005\sqrt{1-2x}\sqrt{5x+3}}{14112(3x+2)^2}+\frac{37\sqrt{1-2x}\sqrt{5x+3}}{504(3x+2)^3}-\frac{\sqrt{1-2x}\sqrt{5x+3}}{12(3x+2)^4}-\frac{794365\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{21952\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2 + 3*x)^5,x]
```

```
[Out] -(Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(12*(2 + 3*x)^4) + (37*Sqrt[1 - 2*
x]*Sqrt[3 + 5*x])/(504*(2 + 3*x)^3) + (6005*Sqrt[1 - 2*x]*Sqrt[3
+ 5*x])/(14112*(2 + 3*x)^2) + (625115*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]
)/(197568*(2 + 3*x)) - (794365*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt
[3 + 5*x])])/(21952*Sqrt[7])
```

Rubi in Sympy [A] time = 28.4386, size = 136, normalized size = 0.9

$$\frac{625115\sqrt{-2x+1}\sqrt{5x+3}}{197568\,(3x+2)}+\frac{6005\sqrt{-2x+1}\sqrt{5x+3}}{14112\,(3x+2)^2}+\frac{37\sqrt{-2x+1}\sqrt{5x+3}}{504\,(3x+2)^3}-\frac{\sqrt{-2x+1}\sqrt{5x+3}}{12\,(3x+2)^4}-\frac{794365\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{153664}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)*(3+5*x)**(1/2)/(2+3*x)**5,x)
```

```
[Out] 625115*sqrt(-2*x + 1)*sqrt(5*x + 3)/(197568*(3*x + 2)) + 6005*sqr
t(-2*x + 1)*sqrt(5*x + 3)/(14112*(3*x + 2)**2) + 37*sqrt(-2*x + 1
)*sqrt(5*x + 3)/(504*(3*x + 2)**3) - sqrt(-2*x + 1)*sqrt(5*x + 3)
/(12*(3*x + 2)**4) - 794365*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(
7*sqrt(5*x + 3)))/153664
```

Mathematica [A] time = 0.115399, size = 82, normalized size = 0.54

$$\frac{\frac{126\sqrt{1-2x}\sqrt{5x+3}\left(1875345x^3+3834760x^2+2617388x+594416\right)}{(3x+2)^4}-7149285\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{2765952}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2 + 3*x)^5,x]
```

```
[Out] ((126*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(594416 + 2617388*x + 3834760*x
^2 + 1875345*x^3))/(2 + 3*x)^4 - 7149285*Sqrt[7]*ArcTan[(-20 - 37
*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/2765952
```

Maple [B] time = 0.019, size = 250, normalized size = 1.7

$$\frac{1}{307328\,(2+3\,x)^4}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(64343565\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^4+171582840\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+\cdots}{\sqrt{-10\,x^2\cdots}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)*(3+5*x)^(1/2)/(2+3*x)^5,x)
```

```
[Out] 1/307328*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(64343565*7^(1/2)*arctan(1/1
4*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^4+171582840*7^(1/2)*ar
ctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+171582840*7^
(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+2625
4830*x^3*(-10*x^2-x+3)^(1/2)+76259040*7^(1/2)*arctan(1/14*(37*x+2
0)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+53686640*x^2*(-10*x^2-x+3)^(1/2
)+12709840*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1
/2))+36643432*x*(-10*x^2-x+3)^(1/2)+8321824*(-10*x^2-x+3)^(1/2))/
(-10*x^2-x+3)^(1/2)/(2+3*x)^4
```

Maxima [A] time = 1.5358, size = 212, normalized size = 1.4

$$\frac{794365}{307328}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{32825}{16464}\sqrt{-10\,x^2-x+3}+\frac{3\,(-10\,x^2-x+3)^{\frac{3}{2}}}{28\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}+\frac{185\,(-10\,x^2-x+3)^{\frac{3}{2}}}{392\,(27\,x^3+54\,x^2+36\,x+8)}+\frac{19695\,(-10\,x^2-x+3)^{\frac{3}{2}}}{10976\,(9\,x^2+12\,x+4)}-\frac{242905\,\sqrt{-10\,x^2-x+3}}{65856\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^5,x, algorithm="maxima")
```

```
[Out] 794365/307328*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x
 + 2)) + 32825/16464*sqrt(-10*x^2 - x + 3) + 3/28*(-10*x^2 - x +
3)^(3/2)/(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16) + 185/392*(-10*
x^2 - x + 3)^(3/2)/(27*x^3 + 54*x^2 + 36*x + 8) + 19695/10976*(-1
0*x^2 - x + 3)^(3/2)/(9*x^2 + 12*x + 4) - 242905/65856*sqrt(-10*x
^2 - x + 3)/(3*x + 2)
```

Fricas [A] time = 0.222035, size = 147, normalized size = 0.97

$$\frac{\sqrt{7}\left(2\,\sqrt{7}(1875345\,x^3+3834760\,x^2+2617388\,x+594416)\sqrt{5\,x+3}\sqrt{-2\,x+1}+794365\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)\cdots\right.}{307328\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^5,x, algorithm="fricas")
```

```
[Out] 1/307328*sqrt(7)*(2*sqrt(7)*(1875345*x^3 + 3834760*x^2 + 2617388*
x + 594416)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 794365*(81*x^4 + 216*x
^3 + 216*x^2 + 96*x + 16)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5
*x + 3)*sqrt(-2*x + 1))))/(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16
)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{-2x+1}\sqrt{5x+3}}{(3x+2)^5}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)*(3+5*x)**(1/2)/(2+3*x)**5,x)
```

```
[Out] Integral(sqrt(-2*x + 1)*sqrt(5*x + 3)/(3*x + 2)**5, x)
```

GIAC/XCAS [A] time = 0.401375, size = 504, normalized size = 3.34

$$\frac{121}{614656}\sqrt{5}\left(1313\sqrt{70}\sqrt{2}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{280\sqrt{2}\left(1313\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5}}{\sqrt{2}\sqrt{-10}}\right.\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^5,x, algorithm="giac")
```

```
[Out] 121/614656*sqrt(5)*(1313*sqrt(70)*sqrt(2)*(pi + 2*arctan(-1/140*s
qrt(70)*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*
x + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 280*sqrt(2)*
(1313*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqr
t(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^7 - 1578920*((sq
rt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)
/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 - 374767680*((sqrt(2)*sq
rt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2
)*sqrt(-10*x + 5) - sqrt(22)))^3 - 28822976000*(sqrt(2)*sqrt(-10*
x + 5) - sqrt(22))/sqrt(5*x + 3) + 115291904000*sqrt(5*x + 3)/(sq
rt(2)*sqrt(-10*x + 5) - sqrt(22)))/(((sqrt(2)*sqrt(-10*x + 5) - s
qrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5)
 - sqrt(22)))^2 + 280)^4)
```

3.2255 $\int \frac{\sqrt{1-2x}\sqrt{3+5x}}{(2+3x)^6}\,dx$

Optimal. Leaf size=180

$$\frac{1466281\sqrt{1-2x}\sqrt{5x+3}}{131712(3x+2)}+\frac{14023\sqrt{1-2x}\sqrt{5x+3}}{9408(3x+2)^2}+\frac{403\sqrt{1-2x}\sqrt{5x+3}}{1680(3x+2)^3}+\frac{37\sqrt{1-2x}\sqrt{5x+3}}{840(3x+2)^4}-\frac{\sqrt{1-2x}\sqrt{5x+3}}{15(3x+2)^5}-\frac{5591773\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{43904\sqrt{7}}$$

```
[Out] -(Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(15*(2 + 3*x)^5) + (37*Sqrt[1 - 2*
x]*Sqrt[3 + 5*x])/(840*(2 + 3*x)^4) + (403*Sqrt[1 - 2*x]*Sqrt[3 +
 5*x])/(1680*(2 + 3*x)^3) + (14023*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(
9408*(2 + 3*x)^2) + (1466281*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(131712
*(2 + 3*x)) - (5591773*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x
])])/(43904*Sqrt[7])
```

Rubi [A] time = 0.37009, antiderivative size = 180, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$\frac{1466281\sqrt{1-2x}\sqrt{5x+3}}{131712(3x+2)}+\frac{14023\sqrt{1-2x}\sqrt{5x+3}}{9408(3x+2)^2}+\frac{403\sqrt{1-2x}\sqrt{5x+3}}{1680(3x+2)^3}+\frac{37\sqrt{1-2x}\sqrt{5x+3}}{840(3x+2)^4}-\frac{\sqrt{1-2x}\sqrt{5x+3}}{15(3x+2)^5}-\frac{5591773\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{43904\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2 + 3*x)^6,x]
```

```
[Out] -(Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(15*(2 + 3*x)^5) + (37*Sqrt[1 - 2*
x]*Sqrt[3 + 5*x])/(840*(2 + 3*x)^4) + (403*Sqrt[1 - 2*x]*Sqrt[3 +
 5*x])/(1680*(2 + 3*x)^3) + (14023*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(
9408*(2 + 3*x)^2) + (1466281*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(131712
*(2 + 3*x)) - (5591773*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x
])])/(43904*Sqrt[7])
```

Rubi in Sympy [A] time = 35.1247, size = 163, normalized size = 0.91

$$\frac{1466281\sqrt{-2x+1}\sqrt{5x+3}}{131712\,(3x+2)}+\frac{14023\sqrt{-2x+1}\sqrt{5x+3}}{9408\,(3x+2)^2}+\frac{403\sqrt{-2x+1}\sqrt{5x+3}}{1680\,(3x+2)^3}+\frac{37\sqrt{-2x+1}\sqrt{5x+3}}{840\,(3x+2)^4}-\frac{\sqrt{-2x+1}\sqrt{5x+3}}{15\,(3x+2)^5}-\frac{5591773\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{307328}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)*(3+5*x)**(1/2)/(2+3*x)**6,x)
```

```
[Out] 1466281*sqrt(-2*x + 1)*sqrt(5*x + 3)/(131712*(3*x + 2)) + 14023*s
qrt(-2*x + 1)*sqrt(5*x + 3)/(9408*(3*x + 2)**2) + 403*sqrt(-2*x +
 1)*sqrt(5*x + 3)/(1680*(3*x + 2)**3) + 37*sqrt(-2*x + 1)*sqrt(5*
x + 3)/(840*(3*x + 2)**4) - sqrt(-2*x + 1)*sqrt(5*x + 3)/(15*(3*x
 + 2)**5) - 5591773*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5
*x + 3)))/307328
```

Mathematica [A] time = 0.119201, size = 87, normalized size = 0.48

$$\frac{\frac{42\sqrt{1-2x}\sqrt{5x+3}\left(197947935x^4+536695650x^3+546004068x^2+247045192x+41933792\right)}{(3x+2)^5}-83876595\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{9219840}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2 + 3*x)^6,x]
```

```
[Out] ((42*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(41933792 + 247045192*x + 546004
068*x^2 + 536695650*x^3 + 197947935*x^4))/(2 + 3*x)^5 - 83876595*
Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/92
19840
```

Maple [B] time = 0.02, size = 298, normalized size = 1.7

$$\frac{1}{3073280\,(2+3x)^5}\sqrt{1-2x}\sqrt{3+5x}\left(6794004195\sqrt{7}\arctan\left(1/14\,\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)x^5+22646680650\sqrt{7}\arctan\left(1/14\,\frac{(}{\sqrt{}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)*(3+5*x)^(1/2)/(2+3*x)^6,x)
```

```
[Out] 1/3073280*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(6794004195*7^(1/2)*arctan(
1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^5+22646680650*7^(1/
2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^4+3019557
4200*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x
^3+2771271090*x^4*(-10*x^2-x+3)^(1/2)+20130382800*7^(1/2)*arctan(
1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+7513739100*x^3*(-
10*x^2-x+3)^(1/2)+6710127600*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2
)/(-10*x^2-x+3)^(1/2))*x+7644056952*x^2*(-10*x^2-x+3)^(1/2)+89468
3680*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+3
458632688*x*(-10*x^2-x+3)^(1/2)+587073088*(-10*x^2-x+3)^(1/2))/(-
10*x^2-x+3)^(1/2)/(2+3*x)^5
```

Maxima [A] time = 1.52604, size = 267, normalized size = 1.48

$$\frac{5591773}{614656}\sqrt{7}\arcsin\left(\frac{37x}{11\,|3x+2|}+\frac{20}{11\,|3x+2|}\right)+\frac{231065}{32928}\sqrt{-10x^2-x+3}+\frac{3\left(-10x^2-x+3\right)^{\frac{3}{2}}}{35\,(243x^5+810x^4+1080x^3+720x^2+240x+32)}+\frac{111\left(-10x^2-x+3\right)^{\frac{3}{2}}}{280\,(81x^4+216x^3+216x^2+96x+16)}+\frac{1305\left(-10x^2-x+3\right)^{\frac{3}{2}}}{784\,(27x^3+54x^2+36x+8)}+\frac{138639\left(-10x^2-x+3\right)^{\frac{3}{2}}}{21952\,(9x^2+12x+4)}-\frac{1709881\sqrt{-10x^2-x+3}}{131712\,(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^6,x, algorithm="maxima")
```

```
[Out] 5591773/614656*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*
x + 2)) + 231065/32928*sqrt(-10*x^2 - x + 3) + 3/35*(-10*x^2 - x
+ 3)^(3/2)/(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)
+ 111/280*(-10*x^2 - x + 3)^(3/2)/(81*x^4 + 216*x^3 + 216*x^2 + 9
6*x + 16) + 1305/784*(-10*x^2 - x + 3)^(3/2)/(27*x^3 + 54*x^2 + 3
6*x + 8) + 138639/21952*(-10*x^2 - x + 3)^(3/2)/(9*x^2 + 12*x + 4
) - 1709881/131712*sqrt(-10*x^2 - x + 3)/(3*x + 2)
```

Fricas [A] time = 0.233808, size = 167, normalized size = 0.93

$$\frac{\sqrt{7}\left(2\sqrt{7}\left(197947935x^4+536695650x^3+546004068x^2+247045192x+41933792\right)\sqrt{5x+3}\sqrt{-2x+1}+27958865\left(243x^5\right.\right.}{3073280\,(243x^5+810x^4+1080x^3+720x^2+240x+32}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^6,x, algorithm="fricas")
```

```
[Out] 1/3073280*sqrt(7)*(2*sqrt(7)*(197947935*x^4 + 536695650*x^3 + 546
004068*x^2 + 247045192*x + 41933792)*sqrt(5*x + 3)*sqrt(-2*x + 1)
 + 27958865*(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)
*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))
/(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{-2x+1}\sqrt{5x+3}}{(3x+2)^6}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(1/2)*(3+5*x)**(1/2)/(2+3*x)**6,x)
```

```
[Out] Integral(sqrt(-2*x + 1)*sqrt(5*x + 3)/(3*x + 2)**6, x)
```

GIAC/XCAS [A] time = 0.501274, size = 582, normalized size = 3.23

$$\frac{121}{6146560}\sqrt{5}\left(46213\sqrt{70}\sqrt{2}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{280\sqrt{2}\left(46213\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{\sqrt{2}\cdots}{}\right.\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^6,x, algorithm="giac")
```

```
[Out] 121/6146560*sqrt(5)*(46213*sqrt(70)*sqrt(2)*(pi + 2*arctan(-1/140
*sqrt(70)*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(
5*x + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 280*sqrt(2
)*(46213*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*
sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^9 - 85961680*
((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x
+ 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^7 - 30665564160*((sqrt
(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(
sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 - 4732042112000*((sqrt(2)*
sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt
(2)*sqrt(-10*x + 5) - sqrt(22)))^3 - 284050977280000*(sqrt(2)*sqr
t(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) + 1136203909120000*sqrt(5*
x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))/(((sqrt(2)*sqrt(-10*
x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(
-10*x + 5) - sqrt(22)))^2 + 280)^5)
```

3.2256 $\int \frac{\sqrt{1-2x}\sqrt{3+5x}}{(2+3x)^7}\,dx$

Optimal. Leaf size=209

$$\frac{463266973\sqrt{1-2x}\sqrt{5x+3}}{11063808(3x+2)}+\frac{4429459\sqrt{1-2x}\sqrt{5x+3}}{790272(3x+2)^2}+\frac{126799\sqrt{1-2x}\sqrt{5x+3}}{141120(3x+2)^3}+\frac{10921\sqrt{1-2x}\sqrt{5x+3}}{70560(3x+2)^4}+\frac{37\sqrt{1-2x}\sqrt{5x+3}}{1260(3x+2)^5}-\frac{\sqrt{1-2x}\sqrt{5x+3}}{18(3x+2)^6}-\frac{588912203\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{1229312\sqrt{7}}$$

```
[Out] -(Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(18*(2 + 3*x)^6) + (37*Sqrt[1 - 2*
x]*Sqrt[3 + 5*x])/(1260*(2 + 3*x)^5) + (10921*Sqrt[1 - 2*x]*Sqrt[
3 + 5*x])/(70560*(2 + 3*x)^4) + (126799*Sqrt[1 - 2*x]*Sqrt[3 + 5*
x])/(141120*(2 + 3*x)^3) + (4429459*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/
(790272*(2 + 3*x)^2) + (463266973*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(1
1063808*(2 + 3*x)) - (588912203*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqr
t[3 + 5*x])])/(1229312*Sqrt[7])
```

Rubi [A] time = 0.450174, antiderivative size = 209, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.192$

$$\frac{463266973\sqrt{1-2x}\sqrt{5x+3}}{11063808(3x+2)}+\frac{4429459\sqrt{1-2x}\sqrt{5x+3}}{790272(3x+2)^2}+\frac{126799\sqrt{1-2x}\sqrt{5x+3}}{141120(3x+2)^3}+\frac{10921\sqrt{1-2x}\sqrt{5x+3}}{70560(3x+2)^4}+\frac{37\sqrt{1-2x}\sqrt{5x+3}}{1260(3x+2)^5}-\frac{\sqrt{1-2x}\sqrt{5x+3}}{18(3x+2)^6}-\frac{588912203\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{1229312\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2 + 3*x)^7,x]
```

```
[Out] -(Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(18*(2 + 3*x)^6) + (37*Sqrt[1 - 2*
x]*Sqrt[3 + 5*x])/(1260*(2 + 3*x)^5) + (10921*Sqrt[1 - 2*x]*Sqrt[
3 + 5*x])/(70560*(2 + 3*x)^4) + (126799*Sqrt[1 - 2*x]*Sqrt[3 + 5*
x])/(141120*(2 + 3*x)^3) + (4429459*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/
(790272*(2 + 3*x)^2) + (463266973*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(1
1063808*(2 + 3*x)) - (588912203*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqr
t[3 + 5*x])])/(1229312*Sqrt[7])
```

Rubi in Sympy [A] time = 43.5276, size = 190, normalized size = 0.91

$$\frac{463266973\sqrt{-2x+1}\sqrt{5x+3}}{11063808\,(3x+2)}+\frac{4429459\sqrt{-2x+1}\sqrt{5x+3}}{790272\,(3x+2)^2}+\frac{126799\sqrt{-2x+1}\sqrt{5x+3}}{141120\,(3x+2)^3}+\frac{10921\sqrt{-2x+1}\sqrt{5x+3}}{70560\,(3x+2)^4}+\frac{37\sqrt{-2x+1}\sqrt{5x+3}}{1260\,(3x+2)^5}-\frac{\sqrt{-2x+1}\sqrt{5x+3}}{18\,(3x+2)^6}-\frac{588912203\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{8605184}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)*(3+5*x)**(1/2)/(2+3*x)**7,x)
```

```
[Out] 463266973*sqrt(-2*x + 1)*sqrt(5*x + 3)/(11063808*(3*x + 2)) + 442
9459*sqrt(-2*x + 1)*sqrt(5*x + 3)/(790272*(3*x + 2)**2) + 126799*
sqrt(-2*x + 1)*sqrt(5*x + 3)/(141120*(3*x + 2)**3) + 10921*sqrt(-
2*x + 1)*sqrt(5*x + 3)/(70560*(3*x + 2)**4) + 37*sqrt(-2*x + 1)*s
qrt(5*x + 3)/(1260*(3*x + 2)**5) - sqrt(-2*x + 1)*sqrt(5*x + 3)/(
18*(3*x + 2)**6) - 588912203*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/
(7*sqrt(5*x + 3)))/8605184
```

Mathematica [A] time = 0.12971, size = 92, normalized size = 0.44

$$\frac{\frac{126\sqrt{1-2x}\sqrt{5x+3}(62541041355x^5+211260697020x^4+285550790544x^3+193055073632x^2+65287037520x+8835086144)}{(3x+2)^6} - 26501049135\sqrt{7}\tan^{-1}\left(\frac{-37x-}{2\sqrt{7-14x}}\right.}{774466560}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2 + 3*x)^7,x]
```

```
[Out] ((126*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(8835086144 + 65287037520*x + 1
93055073632*x^2 + 285550790544*x^3 + 211260697020*x^4 + 625410413
55*x^5))/(2 + 3*x)^6 - 26501049135*Sqrt[7]*ArcTan[(-20 - 37*x)/(2
*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/774466560
```

Maple [B] time = 0.023, size = 346, normalized size = 1.7

$$\frac{1}{86051840\,(2+3\,x)^6}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(2146584979935\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^6+8586339919740\,\sqrt{7}\arctan\left(\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)*(3+5*x)^(1/2)/(2+3*x)^7,x)
```

```
[Out] 1/86051840*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2146584979935*7^(1/2)*arc
tan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^6+8586339919740
*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^5+1
4310566532900*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)
^(1/2))*x^4+875574578970*x^5*(-10*x^2-x+3)^(1/2)+12720503584800*7
^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+295
7649758280*x^4*(-10*x^2-x+3)^(1/2)+6360251792400*7^(1/2)*arctan(1
/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+3997711067616*x^3*
(-10*x^2-x+3)^(1/2)+1696067144640*7^(1/2)*arctan(1/14*(37*x+20)*7
^(1/2)/(-10*x^2-x+3)^(1/2))*x+2702771030848*x^2*(-10*x^2-x+3)^(1/
2)+188451904960*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+
3)^(1/2))+914018525280*x*(-10*x^2-x+3)^(1/2)+123691206016*(-10*x^
2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)^6
```

Maxima [A] time = 1.52078, size = 329, normalized size = 1.57

$$\frac{588912203}{17210368}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{24335215}{921984}\sqrt{-10\,x^2-x+3}$$
$$+\frac{\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{14\,(729\,x^6+2916\,x^5+4860\,x^4+4320\,x^3+2160\,x^2+576\,x+64)}$$
$$+\frac{333\,\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{980\,(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240\,x+32)}$$
$$+\frac{11721\,\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{7840\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}+\frac{137455\,\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{21952\,(27\,x^3+54\,x^2+36\,x+8)}$$
$$+\frac{14601129\,\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{614656\,(9\,x^2+12\,x+4)}-\frac{180080591\,\sqrt{-10\,x^2-x+3}}{3687936\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^7,x, algorithm="maxima")
```

```
[Out] 588912203/17210368*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/ab
s(3*x + 2)) + 24335215/921984*sqrt(-10*x^2 - x + 3) + 1/14*(-10*x
^2 - x + 3)^(3/2)/(729*x^6 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 216
```

```
0*x^2 + 576*x + 64) + 333/980*(-10*x^2 - x + 3)^(3/2)/(243*x^5 +
810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32) + 11721/7840*(-10*x^2
- x + 3)^(3/2)/(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16) + 137455/
21952*(-10*x^2 - x + 3)^(3/2)/(27*x^3 + 54*x^2 + 36*x + 8) + 1460
1129/614656*(-10*x^2 - x + 3)^(3/2)/(9*x^2 + 12*x + 4) - 18008059
1/3687936*sqrt(-10*x^2 - x + 3)/(3*x + 2)
```

Fricas [A] time = 0.23489, size = 188, normalized size = 0.9

$$\frac{\sqrt{7}\left(2\sqrt{7}\left(62541041355\,x^5+211260697020\,x^4+285550790544\,x^3+193055073632\,x^2+65287037520\,x+8835086144\right)\sqrt{5\,x}\right.}{86051840\,(729\,x^6+2916\,x^5+4860\,x^4+}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^7,x, algorithm="fricas")
```

```
[Out] 1/86051840*sqrt(7)*(2*sqrt(7)*(62541041355*x^5 + 211260697020*x^4
 + 285550790544*x^3 + 193055073632*x^2 + 65287037520*x + 88350861
44)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 2944561015*(729*x^6 + 2916*x^5
 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64)*arctan(1/14*sqrt(
7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(729*x^6 + 2916*x
^5 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{-2x+1}\sqrt{5x+3}}{(3x+2)^7}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)*(3+5*x)**(1/2)/(2+3*x)**7,x)
```

```
[Out] Integral(sqrt(-2*x + 1)*sqrt(5*x + 3)/(3*x + 2)**7, x)
```

GIAC/XCAS [A] time = 0.615711, size = 660, normalized size = 3.16

$$\frac{121}{172103680}\sqrt{5}\left(4867043\sqrt{70}\sqrt{2}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)-\frac{280\sqrt{2}\left(4867043\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{2}}{\sqrt{5\,x+3}}\right.\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^7,x, algorithm="giac")
```

```
[Out] 121/172103680*sqrt(5)*(4867043*sqrt(70)*sqrt(2)*(pi + 2*arctan(-1
/140*sqrt(70)*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))
^2/(5*x + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 280*sq
rt(2)*(4867043*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3
) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^11 - 12
766158440*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4
*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^9 - 60761750
20160*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqr
t(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^7 - 140955537748
4800*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt
(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 - 1695167781708
80000*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqr
```

```
t(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 - 837636011018
2400000*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) + 3350
5440440729600000*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22
)))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt
(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)^6)
```

3.2257 $\int \sqrt{1-2x}(2+3x)^4(3+5x)^{3/2}\,dx$

Optimal. Leaf size=179

$$-\frac{3}{70}(1-2x)^{3/2}(5x+3)^{5/2}(3x+2)^3-\frac{403(1-2x)^{3/2}(5x+3)^{5/2}(3x+2)^2}{2800}-\frac{52760369(1-2x)^{3/2}(5x+3)^{3/2}}{7680000}-\frac{(1-2x)^{3/2}(5x+3)^{5/2}(874608x+1480103)}{640000}-\frac{580364059(1-2x)^{3/2}\sqrt{5x+3}}{20480000}+\frac{6384004649\sqrt{1-2x}\sqrt{5x+3}}{204800000}+\frac{70224051139\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{204800000\sqrt{10}}$$

```
[Out] (6384004649*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/204800000 - (580364059*(
1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/20480000 - (52760369*(1 - 2*x)^(3/2
)*(3 + 5*x)^(3/2))/7680000 - (403*(1 - 2*x)^(3/2)*(2 + 3*x)^2*(3
+ 5*x)^(5/2))/2800 - (3*(1 - 2*x)^(3/2)*(2 + 3*x)^3*(3 + 5*x)^(5/
2))/70 - ((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2)*(1480103 + 874608*x))/6
40000 + (70224051139*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(204800000
*Sqrt[10])
```

Rubi [A] time = 0.252496, antiderivative size = 179, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.231$

$$-\frac{3}{70}(1-2x)^{3/2}(5x+3)^{5/2}(3x+2)^3-\frac{403(1-2x)^{3/2}(5x+3)^{5/2}(3x+2)^2}{2800}-\frac{52760369(1-2x)^{3/2}(5x+3)^{3/2}}{7680000}-\frac{(1-2x)^{3/2}(5x+3)^{5/2}(874608x+1480103)}{640000}-\frac{580364059(1-2x)^{3/2}\sqrt{5x+3}}{20480000}+\frac{6384004649\sqrt{1-2x}\sqrt{5x+3}}{204800000}+\frac{70224051139\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{204800000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]*(2 + 3*x)^4*(3 + 5*x)^(3/2),x]
```


```
[Out] (6384004649*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/204800000 - (580364059*(
1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/20480000 - (52760369*(1 - 2*x)^(3/2
)*(3 + 5*x)^(3/2))/7680000 - (403*(1 - 2*x)^(3/2)*(2 + 3*x)^2*(3
+ 5*x)^(5/2))/2800 - (3*(1 - 2*x)^(3/2)*(2 + 3*x)^3*(3 + 5*x)^(5/
2))/70 - ((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2)*(1480103 + 874608*x))/6
40000 + (70224051139*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(204800000
*Sqrt[10])
```

Rubi in Sympy [A] time = 24.0542, size = 165, normalized size = 0.92

$$-\frac{3\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{3}\left(5x+3\right)^{\frac{5}{2}}}{70}-\frac{403\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{2}\left(5x+3\right)^{\frac{5}{2}}}{2800}-\frac{\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{5}{2}}\left(11479230x+\frac{155410815}{8}\right)}{8400000}+\frac{52760369\sqrt{-2x+1}\left(5x+3\right)^{\frac{5}{2}}}{19200000}-\frac{580364059\sqrt{-2x+1}\left(5x+3\right)^{\frac{3}{2}}}{153600000}-\frac{6384004649\sqrt{-2x+1}\sqrt{5x+3}}{204800000}+\frac{70224051139\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{2048000000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4*(3+5*x)**(3/2)*(1-2*x)**(1/2),x)
```

```
[Out] -3*(-2*x + 1)**(3/2)*(3*x + 2)**3*(5*x + 3)**(5/2)/70 - 403*(-2*x
 + 1)**(3/2)*(3*x + 2)**2*(5*x + 3)**(5/2)/2800 - (-2*x + 1)**(3/
2)*(5*x + 3)**(5/2)*(11479230*x + 155410815/8)/8400000 + 52760369
*sqrt(-2*x + 1)*(5*x + 3)**(5/2)/19200000 - 580364059*sqrt(-2*x +
 1)*(5*x + 3)**(3/2)/153600000 - 6384004649*sqrt(-2*x + 1)*sqrt(5
*x + 3)/204800000 + 70224051139*sqrt(10)*asin(sqrt(22)*sqrt(5*x +
 3)/11)/2048000000
```

Mathematica [A] time = 0.150524, size = 80, normalized size = 0.45

$$\frac{10\sqrt{1-2x}\sqrt{5x+3}\,(248832000000x^6+950400000000x^5+1480681728000x^4+1161696585600x^3+402838062880x^2-7293}{43008000000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]*(2 + 3*x)^4*(3 + 5*x)^(3/2),x]
```

```
[Out] (10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(-201521732121 - 72932734340*x +
402838062880*x^2 + 1161696585600*x^3 + 1480681728000*x^4 + 950400
000000*x^5 + 248832000000*x^6) - 1474705073919*Sqrt[10]*ArcSin[Sq
rt[5/11]*Sqrt[1 - 2*x]])/43008000000
```

Maple [A] time = 0.016, size = 155, normalized size = 0.9

$$\frac{1}{86016000000}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(4976640000000\,x^6\sqrt{-10\,x^2-x+3}+19008000000000\,x^5\sqrt{-10\,x^2-x+3}+2961363456000\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4*(3+5*x)^(3/2)*(1-2*x)^(1/2),x)
```

```
[Out] 1/86016000000*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(4976640000000*x^6*(-10
*x^2-x+3)^(1/2)+19008000000000*x^5*(-10*x^2-x+3)^(1/2)+2961363456
0000*x^4*(-10*x^2-x+3)^(1/2)+23233931712000*x^3*(-10*x^2-x+3)^(1/
2)+8056761257600*x^2*(-10*x^2-x+3)^(1/2)+1474705073919*10^(1/2)*a
rcsin(20/11*x+1/11)-1458654686800*x*(-10*x^2-x+3)^(1/2)-403043464
2420*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.49661, size = 163, normalized size = 0.91

$$-\frac{81}{14}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x^4-\frac{12051}{560}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x^3-\frac{1904661}{56000}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x^2-\frac{134695173}{4480000}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x-\frac{890455739}{53760000}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}+\frac{580364059}{10240000}\sqrt{-10\,x^2-x+3}x-\frac{70224051139}{4096000000}\sqrt{10}\arcsin\left(-\frac{20}{11}x-\frac{1}{11}\right)+\frac{580364059}{204800000}\sqrt{-10\,x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)^4*sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] -81/14*(-10*x^2 - x + 3)^(3/2)*x^4 - 12051/560*(-10*x^2 - x + 3)^
(3/2)*x^3 - 1904661/56000*(-10*x^2 - x + 3)^(3/2)*x^2 - 134695173
/4480000*(-10*x^2 - x + 3)^(3/2)*x - 890455739/53760000*(-10*x^2
- x + 3)^(3/2) + 580364059/10240000*sqrt(-10*x^2 - x + 3)*x - 702
24051139/4096000000*sqrt(10)*arcsin(-20/11*x - 1/11) + 580364059/
```

```
204800000*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.234322, size = 111, normalized size = 0.62

$$\frac{1}{86016000000}\sqrt{10}\left(2\sqrt{10}\left(248832000000\,x^6 + 950400000000\,x^5 + 1480681728000\,x^4 + 1161696585600\,x^3 + 402838062880\,x\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(3*x + 2)^4*sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] 1/86016000000*sqrt(10)*(2*sqrt(10)*(248832000000*x^6 + 9504000000
00*x^5 + 1480681728000*x^4 + 1161696585600*x^3 + 402838062880*x^2
 - 72932734340*x - 201521732121)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 1
474705073919*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(
-2*x + 1))))
```

Sympy [A] time = 76.3984, size = 925, normalized size = 5.17

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2+3*x)**4*(3+5*x)**(3/2)*(1-2*x)**(1/2),x)
```

```
[Out] -26411*sqrt(2)*Piecewise((121*sqrt(5)*(-sqrt(5)*sqrt(-2*x + 1)*sq
rt(10*x + 6)*(20*x + 1)/121 + asin(sqrt(55)*sqrt(-2*x + 1)/11))/2
00, (x <= 1/2) & (x > -3/5)))/64 + 57281*sqrt(2)*Piecewise((1331*
sqrt(5)*(-5*sqrt(5)*(-2*x + 1)**(3/2)*(10*x + 6)**(3/2)/7986 - sq
rt(5)*sqrt(-2*x + 1)*sqrt(10*x + 6)*(20*x + 1)/1936 + asin(sqrt(5
5)*sqrt(-2*x + 1)/11)/16)/125, (x <= 1/2) & (x > -3/5)))/64 - 248
43*sqrt(2)*Piecewise((14641*sqrt(5)*(-5*sqrt(5)*(-2*x + 1)**(3/2)
*(10*x + 6)**(3/2)/7986 - sqrt(5)*sqrt(-2*x + 1)*sqrt(10*x + 6)*(
20*x + 1)/3872 - sqrt(5)*sqrt(-2*x + 1)*sqrt(10*x + 6)*(12100*x -
 2000*(-2*x + 1)**3 + 6600*(-2*x + 1)**2 - 4719)/1874048 + 5*asin
(sqrt(55)*sqrt(-2*x + 1)/11)/128)/625, (x <= 1/2) & (x > -3/5)))/
32 + 10773*sqrt(2)*Piecewise((161051*sqrt(5)*(5*sqrt(5)*(-2*x + 1
)**(5/2)*(10*x + 6)**(5/2)/322102 - 5*sqrt(5)*(-2*x + 1)**(3/2)*(
10*x + 6)**(3/2)/7986 - sqrt(5)*sqrt(-2*x + 1)*sqrt(10*x + 6)*(20
*x + 1)/7744 - 3*sqrt(5)*sqrt(-2*x + 1)*sqrt(10*x + 6)*(12100*x -
 2000*(-2*x + 1)**3 + 6600*(-2*x + 1)**2 - 4719)/3748096 + 7*asin
(sqrt(55)*sqrt(-2*x + 1)/11)/256)/3125, (x <= 1/2) & (x > -3/5)))
/32 - 4671*sqrt(2)*Piecewise((1771561*sqrt(5)*(5*sqrt(5)*(-2*x +
1)**(5/2)*(10*x + 6)**(5/2)/161051 + 5*sqrt(5)*(-2*x + 1)**(3/2)*
(10*x + 6)**(3/2)*(20*x + 1)**3/170069856 - 5*sqrt(5)*(-2*x + 1)*
*(3/2)*(10*x + 6)**(3/2)/7986 - sqrt(5)*sqrt(-2*x + 1)*sqrt(10*x
+ 6)*(20*x + 1)/15488 - 13*sqrt(5)*sqrt(-2*x + 1)*sqrt(10*x + 6)*
(12100*x - 2000*(-2*x + 1)**3 + 6600*(-2*x + 1)**2 - 4719)/149923
84 + 21*asin(sqrt(55)*sqrt(-2*x + 1)/11)/1024)/15625, (x <= 1/2)
& (x > -3/5)))/64 + 405*sqrt(2)*Piecewise((19487171*sqrt(5)*(-125
*sqrt(5)*(-2*x + 1)**(7/2)*(10*x + 6)**(7/2)/272820394 + 15*sqrt(
5)*(-2*x + 1)**(5/2)*(10*x + 6)**(5/2)/322102 + 25*sqrt(5)*(-2*x
+ 1)**(3/2)*(10*x + 6)**(3/2)*(20*x + 1)**3/340139712 - 5*sqrt(5)
*(-2*x + 1)**(3/2)*(10*x + 6)**(3/2)/7986 - sqrt(5)*sqrt(-2*x + 1
)*sqrt(10*x + 6)*(20*x + 1)/30976 - 25*sqrt(5)*sqrt(-2*x + 1)*sqr
t(10*x + 6)*(12100*x - 2000*(-2*x + 1)**3 + 6600*(-2*x + 1)**2 -
4719)/29984768 + 33*asin(sqrt(55)*sqrt(-2*x + 1)/11)/2048)/78125,
 (x <= 1/2) & (x > -3/5)))/64
```

GIAC/XCAS [A] time = 0.297389, size = 548, normalized size = 3.06

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(3*x + 2)^4*sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] 27/71680000000*sqrt(5)*(2*(4*(8*(4*(16*(20*(120*x - 359)*(5*x + 3
) + 63769)*(5*x + 3) - 3968469)*(5*x + 3) + 33617829)*(5*x + 3) -
 276044685)*(5*x + 3) + 87356115)*sqrt(5*x + 3)*sqrt(-10*x + 5) -
 960917265*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 441/256
0000000*sqrt(5)*(2*(4*(8*(4*(16*(100*x - 239)*(5*x + 3) + 27999)*
(5*x + 3) - 318159)*(5*x + 3) + 3237255)*(5*x + 3) - 2656665)*sqr
t(5*x + 3)*sqrt(-10*x + 5) + 29223315*sqrt(2)*arcsin(1/11*sqrt(22
)*sqrt(5*x + 3))) + 9/1000000*sqrt(5)*(2*(4*(8*(12*(80*x - 143)*(
5*x + 3) + 9773)*(5*x + 3) - 136405)*(5*x + 3) + 60555)*sqrt(5*x
+ 3)*sqrt(-10*x + 5) - 666105*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5
*x + 3))) + 47/80000*sqrt(5)*(2*(4*(8*(60*x - 71)*(5*x + 3) + 217
9)*(5*x + 3) - 4125)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 45375*sqrt(2
)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 23/1500*sqrt(5)*(2*(4*(4
0*x - 23)*(5*x + 3) + 33)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 363*sqr
t(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 3/25*sqrt(5)*(2*(20*x
 + 1)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 121*sqrt(2)*arcsin(1/11*sqr
t(22)*sqrt(5*x + 3)))
```

3.2258 $\int \sqrt{1-2x}(2+3x)^3(3+5x)^{3/2}\,dx$

Optimal. Leaf size=150

$$-\frac{1}{20}(1-2x)^{3/2}(3x+2)^2(5x+3)^{5/2}-\frac{7(1-2x)^{3/2}(2256x+3821)(5x+3)^{5/2}}{32000}-\frac{953981(1-2x)^{3/2}(5x+3)^{3/2}}{384000}-\frac{10493791(1-2x)^{3/2}\sqrt{5x+3}}{1024000}+\frac{115431701\sqrt{1-2x}\sqrt{5x+3}}{10240000}+\frac{1269748711\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{10240000\sqrt{10}}$$

```
[Out] (115431701*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/10240000 - (10493791*(1 -
 2*x)^(3/2)*Sqrt[3 + 5*x])/1024000 - (953981*(1 - 2*x)^(3/2)*(3 +
 5*x)^(3/2))/384000 - ((1 - 2*x)^(3/2)*(2 + 3*x)^2*(3 + 5*x)^(5/2
))/20 - (7*(1 - 2*x)^(3/2)*(3 + 5*x)^(5/2)*(3821 + 2256*x))/32000
 + (1269748711*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(10240000*Sqrt[1
0])
```

Rubi [A] time = 0.18408, antiderivative size = 150, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$-\frac{1}{20}(1-2x)^{3/2}(3x+2)^2(5x+3)^{5/2}-\frac{7(1-2x)^{3/2}(2256x+3821)(5x+3)^{5/2}}{32000}-\frac{953981(1-2x)^{3/2}(5x+3)^{3/2}}{384000}-\frac{10493791(1-2x)^{3/2}\sqrt{5x+3}}{1024000}+\frac{115431701\sqrt{1-2x}\sqrt{5x+3}}{10240000}+\frac{1269748711\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{10240000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]*(2 + 3*x)^3*(3 + 5*x)^(3/2),x]
```

```
[Out] (115431701*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/10240000 - (10493791*(1 -
 2*x)^(3/2)*Sqrt[3 + 5*x])/1024000 - (953981*(1 - 2*x)^(3/2)*(3 +
 5*x)^(3/2))/384000 - ((1 - 2*x)^(3/2)*(2 + 3*x)^2*(3 + 5*x)^(5/2
))/20 - (7*(1 - 2*x)^(3/2)*(3 + 5*x)^(5/2)*(3821 + 2256*x))/32000
 + (1269748711*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(10240000*Sqrt[1
0])
```

Rubi in Sympy [A] time = 16.525, size = 136, normalized size = 0.91

$$-\frac{(-2x+1)^{\frac{3}{2}}(3x+2)^2(5x+3)^{\frac{5}{2}}}{20}-\frac{(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{5}{2}}\left(59220x+\frac{401205}{4}\right)}{120000}+\frac{953981\sqrt{-2x+1}(5x+3)^{\frac{5}{2}}}{960000}-\frac{10493791\sqrt{-2x+1}(5x+3)^{\frac{3}{2}}}{7680000}-\frac{115431701\sqrt{-2x+1}\sqrt{5x+3}}{10240000}+\frac{1269748711\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{102400000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3*(3+5*x)**(3/2)*(1-2*x)**(1/2),x)
```

```
[Out] -(-2*x + 1)**(3/2)*(3*x + 2)**2*(5*x + 3)**(5/2)/20 - (-2*x + 1)*
*(3/2)*(5*x + 3)**(5/2)*(59220*x + 401205/4)/120000 + 953981*sqrt
(-2*x + 1)*(5*x + 3)**(5/2)/960000 - 10493791*sqrt(-2*x + 1)*(5*x
 + 3)**(3/2)/7680000 - 115431701*sqrt(-2*x + 1)*sqrt(5*x + 3)/102
40000 + 1269748711*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/10240
```

0000

Mathematica [A] time = 0.119117, size = 75, normalized size = 0.5

$$\frac{10\sqrt{1-2x}\sqrt{5x+3}\left(691200000x^5+2163456000x^4+2600899200x^3+1349400160x^2+21761620x-483864147\right)-3809246}{307200000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]*(2 + 3*x)^3*(3 + 5*x)^(3/2),x]
```

```
[Out] (10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(-483864147 + 21761620*x + 134940
0160*x^2 + 2600899200*x^3 + 2163456000*x^4 + 691200000*x^5) - 380
9246133*Sqrt[10]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/307200000
```

Maple [A] time = 0.013, size = 138, normalized size = 0.9

$$\frac{1}{614400000}\sqrt{1-2x}\sqrt{3+5x}\left(13824000000x^5\sqrt{-10x^2-x+3}+43269120000x^4\sqrt{-10x^2-x+3}+52017984000x^3\sqrt{-10x\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3*(3+5*x)^(3/2)*(1-2*x)^(1/2),x)
```

```
[Out] 1/614400000*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(13824000000*x^5*(-10*x^2
-x+3)^(1/2)+43269120000*x^4*(-10*x^2-x+3)^(1/2)+52017984000*x^3*(
-10*x^2-x+3)^(1/2)+26988003200*x^2*(-10*x^2-x+3)^(1/2)+3809246133
*10^(1/2)*arcsin(20/11*x+1/11)+435232400*x*(-10*x^2-x+3)^(1/2)-96
77282940*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.49218, size = 140, normalized size = 0.93

$$-\frac{9}{4}\left(-10x^2-x+3\right)^{\frac{3}{2}}x^3-\frac{2727}{400}\left(-10x^2-x+3\right)^{\frac{3}{2}}x^2-\frac{270711}{32000}\left(-10x^2-x+3\right)^{\frac{3}{2}}x-\frac{2147273}{384000}\left(-10x^2-x+3\right)^{\frac{3}{2}}+\frac{10493791}{512000}\sqrt{-10x^2-x+3}x-\frac{1269748711}{204800000}\sqrt{10}\arcsin\left(-\frac{20}{11}x-\frac{1}{11}\right)+\frac{10493791}{10240000}\sqrt{-10x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)^3*sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] -9/4*(-10*x^2 - x + 3)^(3/2)*x^3 - 2727/400*(-10*x^2 - x + 3)^(3/
2)*x^2 - 270711/32000*(-10*x^2 - x + 3)^(3/2)*x - 2147273/384000*
(-10*x^2 - x + 3)^(3/2) + 10493791/512000*sqrt(-10*x^2 - x + 3)*x
 - 1269748711/204800000*sqrt(10)*arcsin(-20/11*x - 1/11) + 104937
91/10240000*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.221153, size = 104, normalized size = 0.69

$$\frac{1}{614400000}\sqrt{10}\left(2\sqrt{10}\left(691200000x^5+2163456000x^4+2600899200x^3+1349400160x^2+21761620x-483864147\right)\sqrt{5x\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(3*x + 2)^3*sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] 1/614400000*sqrt(10)*(2*sqrt(10)*(691200000*x^5 + 2163456000*x^4
+ 2600899200*x^3 + 1349400160*x^2 + 21761620*x - 483864147)*sqrt(
5*x + 3)*sqrt(-2*x + 1) + 3809246133*arctan(1/20*sqrt(10)*(20*x +
 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [A] time = 48.1956, size = 694, normalized size = 4.63

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3*(3+5*x)**(3/2)*(1-2*x)**(1/2),x)
```

```
[Out] -3773*sqrt(2)*Piecewise((121*sqrt(5)*(-sqrt(5)*sqrt(-2*x + 1)*sqr
t(10*x + 6)*(20*x + 1)/121 + asin(sqrt(55)*sqrt(-2*x + 1)/11))/20
0, (x <= 1/2) & (x > -3/5)))/32 + 3283*sqrt(2)*Piecewise((1331*sq
rt(5)*(-5*sqrt(5)*(-2*x + 1)**(3/2)*(10*x + 6)**(3/2)/7986 - sqrt
(5)*sqrt(-2*x + 1)*sqrt(10*x + 6)*(20*x + 1)/1936 + asin(sqrt(55)
*sqrt(-2*x + 1)/11)/16)/125, (x <= 1/2) & (x > -3/5)))/16 - 1071*
sqrt(2)*Piecewise((14641*sqrt(5)*(-5*sqrt(5)*(-2*x + 1)**(3/2)*(1
0*x + 6)**(3/2)/7986 - sqrt(5)*sqrt(-2*x + 1)*sqrt(10*x + 6)*(20*
x + 1)/3872 - sqrt(5)*sqrt(-2*x + 1)*sqrt(10*x + 6)*(12100*x - 20
00*(-2*x + 1)**3 + 6600*(-2*x + 1)**2 - 4719)/1874048 + 5*asin(sq
rt(55)*sqrt(-2*x + 1)/11)/128)/625, (x <= 1/2) & (x > -3/5)))/8 +
 621*sqrt(2)*Piecewise((161051*sqrt(5)*(5*sqrt(5)*(-2*x + 1)**(5/
2)*(10*x + 6)**(5/2)/322102 - 5*sqrt(5)*(-2*x + 1)**(3/2)*(10*x +
 6)**(3/2)/7986 - sqrt(5)*sqrt(-2*x + 1)*sqrt(10*x + 6)*(20*x + 1
)/7744 - 3*sqrt(5)*sqrt(-2*x + 1)*sqrt(10*x + 6)*(12100*x - 2000*
(-2*x + 1)**3 + 6600*(-2*x + 1)**2 - 4719)/3748096 + 7*asin(sqrt(
55)*sqrt(-2*x + 1)/11)/256)/3125, (x <= 1/2) & (x > -3/5)))/16 -
135*sqrt(2)*Piecewise((1771561*sqrt(5)*(5*sqrt(5)*(-2*x + 1)**(5/
2)*(10*x + 6)**(5/2)/161051 + 5*sqrt(5)*(-2*x + 1)**(3/2)*(10*x +
 6)**(3/2)*(20*x + 1)**3/170069856 - 5*sqrt(5)*(-2*x + 1)**(3/2)*
(10*x + 6)**(3/2)/7986 - sqrt(5)*sqrt(-2*x + 1)*sqrt(10*x + 6)*(2
0*x + 1)/15488 - 13*sqrt(5)*sqrt(-2*x + 1)*sqrt(10*x + 6)*(12100*
x - 2000*(-2*x + 1)**3 + 6600*(-2*x + 1)**2 - 4719)/14992384 + 21
*asin(sqrt(55)*sqrt(-2*x + 1)/11)/1024)/15625, (x <= 1/2) & (x >
-3/5)))/32
```

GIAC/XCAS [A] time = 0.267317, size = 427, normalized size = 2.85

$$\frac{9}{512000000}\sqrt{5}\Big(2\,(4\,(8\,(4\,(16\,(100\,x - 239)(5\,x + 3) + 27999)(5\,x + 3) - 318159)(5\,x + 3) + 3237255)(5\,x + 3) - 2656665)\sqrt{5\,x}$$
$$+\frac{117}{64000000}\sqrt{5}\Big(2\,(4\,(8\,(12\,(80\,x - 143)(5\,x + 3) + 9773)(5\,x + 3) - 136405)(5\,x + 3) + 60555)\sqrt{5\,x + 3}\sqrt{-10\,x + 5} - 666105\,\sqrt{2}$$
$$+\frac{57}{320000}\sqrt{5}\left(2\,(4\,(8\,(60\,x - 71)(5\,x + 3) + 2179)(5\,x + 3) - 4125)\sqrt{5\,x + 3}\sqrt{-10\,x + 5} + 45375\,\sqrt{2}\arcsin\left(\frac{1}{11}\,\sqrt{22}\sqrt{5\,x + 3}\right)\right)$$
$$+\frac{37}{6000}\sqrt{5}\left(2\,(4\,(40\,x - 23)(5\,x + 3) + 33)\sqrt{5\,x + 3}\sqrt{-10\,x + 5} - 363\,\sqrt{2}\arcsin\left(\frac{1}{11}\,\sqrt{22}\sqrt{5\,x + 3}\right)\right)$$
$$+\frac{3}{50}\sqrt{5}\left(2\,(20\,x + 1)\sqrt{5\,x + 3}\sqrt{-10\,x + 5} + 121\,\sqrt{2}\arcsin\left(\frac{1}{11}\,\sqrt{22}\sqrt{5\,x + 3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(3*x + 2)^3*sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] 9/512000000*sqrt(5)*(2*(4*(8*(4*(16*(100*x - 239)*(5*x + 3) + 279
99)*(5*x + 3) - 318159)*(5*x + 3) + 3237255)*(5*x + 3) - 2656665)
*sqrt(5*x + 3)*sqrt(-10*x + 5) + 29223315*sqrt(2)*arcsin(1/11*sqr
t(22)*sqrt(5*x + 3))) + 117/64000000*sqrt(5)*(2*(4*(8*(12*(80*x -
```

```
 143)*(5*x + 3) + 9773)*(5*x + 3) - 136405)*(5*x + 3) + 60555)*sq
rt(5*x + 3)*sqrt(-10*x + 5) - 666105*sqrt(2)*arcsin(1/11*sqrt(22)
*sqrt(5*x + 3))) + 57/320000*sqrt(5)*(2*(4*(8*(60*x - 71)*(5*x +
3) + 2179)*(5*x + 3) - 4125)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 4537
5*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 37/6000*sqrt(5)*
(2*(4*(40*x - 23)*(5*x + 3) + 33)*sqrt(5*x + 3)*sqrt(-10*x + 5) -
 363*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 3/50*sqrt(5)*
(2*(20*x + 1)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 121*sqrt(2)*arcsin(
1/11*sqrt(22)*sqrt(5*x + 3)))
```

3.2259 $\int \sqrt{1-2x}(2+3x)^2(3+5x)^{3/2}\,dx$

Optimal. Leaf size=143

$$-\frac{153}{800}(1-2x)^{3/2}(5x+3)^{5/2}$$

$$-\frac{3}{50}(1-2x)^{3/2}(3x+2)(5x+3)^{5/2}-\frac{9007(1-2x)^{3/2}(5x+3)^{3/2}}{9600}-\frac{99077(1-2x)^{3/2}\sqrt{5x+3}}{25600}+\frac{1089847\sqrt{1-2x}\sqrt{5x+3}}{256000}+\frac{119883}{}$$

```
[Out] (1089847*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/256000 - (99077*(1 - 2*x)^(
3/2)*Sqrt[3 + 5*x])/25600 - (9007*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)
)/9600 - (153*(1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/800 - (3*(1 - 2*x)
^(3/2)*(2 + 3*x)*(3 + 5*x)^(5/2))/50 + (11988317*ArcSin[Sqrt[2/11
]*Sqrt[3 + 5*x]])/(256000*Sqrt[10])
```

Rubi [A] time = 0.162697, antiderivative size = 143, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.192$

$$-\frac{153}{800}(1-2x)^{3/2}(5x+3)^{5/2}$$

$$-\frac{3}{50}(1-2x)^{3/2}(3x+2)(5x+3)^{5/2}-\frac{9007(1-2x)^{3/2}(5x+3)^{3/2}}{9600}-\frac{99077(1-2x)^{3/2}\sqrt{5x+3}}{25600}+\frac{1089847\sqrt{1-2x}\sqrt{5x+3}}{256000}+\frac{119883}{}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]*(2 + 3*x)^2*(3 + 5*x)^(3/2),x]
```

```
[Out] (1089847*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/256000 - (99077*(1 - 2*x)^(
3/2)*Sqrt[3 + 5*x])/25600 - (9007*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)
)/9600 - (153*(1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/800 - (3*(1 - 2*x)
^(3/2)*(2 + 3*x)*(3 + 5*x)^(5/2))/50 + (11988317*ArcSin[Sqrt[2/11
]*Sqrt[3 + 5*x]])/(256000*Sqrt[10])
```

Rubi in Sympy [A] time = 13.2975, size = 129, normalized size = 0.9

$$-\frac{(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{5}{2}}(9x+6)}{50}-\frac{153(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{5}{2}}}{800}+\frac{9007\sqrt{-2x+1}(5x+3)^{\frac{5}{2}}}{24000}-\frac{99077\sqrt{-2x+1}(5x+3)^{\frac{3}{2}}}{192000}-\frac{1089847\sqrt{-2x+1}\sqrt{5x+3}}{256000}+\frac{11988317\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{2560000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2*(3+5*x)**(3/2)*(1-2*x)**(1/2),x)
```

```
[Out] -(-2*x + 1)**(3/2)*(5*x + 3)**(5/2)*(9*x + 6)/50 - 153*(-2*x + 1)
**(3/2)*(5*x + 3)**(5/2)/800 + 9007*sqrt(-2*x + 1)*(5*x + 3)**(5/
2)/24000 - 99077*sqrt(-2*x + 1)*(5*x + 3)**(3/2)/192000 - 1089847
*sqrt(-2*x + 1)*sqrt(5*x + 3)/256000 + 11988317*sqrt(10)*asin(sqr
t(22)*sqrt(5*x + 3)/11)/2560000
```

Mathematica [A] time = 0.102934, size = 70, normalized size = 0.49

$$\frac{10\sqrt{1-2x}\sqrt{5x+3}\left(6912000x^4+16790400x^3+13913120x^2+2552540x-4015809\right)-35964951\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{7680000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]*(2 + 3*x)^2*(3 + 5*x)^(3/2),x]
```

```
[Out] (10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(-4015809 + 2552540*x + 13913120*
x^2 + 16790400*x^3 + 6912000*x^4) - 35964951*Sqrt[10]*ArcSin[Sqrt
[5/11]*Sqrt[1 - 2*x]])/7680000
```

Maple [A] time = 0.013, size = 121, normalized size = 0.9

$$\frac{1}{15360000}\sqrt{1-2x}\sqrt{3+5x}\left(138240000\,x^4\sqrt{-10\,x^2-x+3}+335808000\,x^3\sqrt{-10\,x^2-x+3}+278262400\,x^2\sqrt{-10\,x^2-x+3}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2*(3+5*x)^(3/2)*(1-2*x)^(1/2),x)
```

```
[Out] 1/15360000*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(138240000*x^4*(-10*x^2-x+
3)^(1/2)+335808000*x^3*(-10*x^2-x+3)^(1/2)+278262400*x^2*(-10*x^2
-x+3)^(1/2)+35964951*10^(1/2)*arcsin(20/11*x+1/11)+51050800*x*(-1
0*x^2-x+3)^(1/2)-80316180*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2
)
```

Maxima [A] time = 1.50137, size = 117, normalized size = 0.82

$$-\frac{9}{10}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x^2-\frac{1677}{800}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x-\frac{17971}{9600}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}+\frac{99077}{12800}\sqrt{-10\,x^2-x+3}x-\frac{11988317}{5120000}\sqrt{10}\arcsin\left(-\frac{20}{11}x-\frac{1}{11}\right)+\frac{99077}{256000}\sqrt{-10\,x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)^2*sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] -9/10*(-10*x^2 - x + 3)^(3/2)*x^2 - 1677/800*(-10*x^2 - x + 3)^(3
/2)*x - 17971/9600*(-10*x^2 - x + 3)^(3/2) + 99077/12800*sqrt(-10
*x^2 - x + 3)*x - 11988317/5120000*sqrt(10)*arcsin(-20/11*x - 1/1
1) + 99077/256000*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.218071, size = 97, normalized size = 0.68

$$\frac{1}{15360000}\sqrt{10}\left(2\sqrt{10}\left(6912000\,x^4+16790400\,x^3+13913120\,x^2+2552540\,x-4015809\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+35964951\,\mathrm{arc}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)^2*sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] 1/15360000*sqrt(10)*(2*sqrt(10)*(6912000*x^4 + 16790400*x^3 + 139
13120*x^2 + 2552540*x - 4015809)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 3
5964951*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x
+ 1))))
```

Sympy [A] time = 30.3169, size = 488, normalized size = 3.41

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2*(3+5*x)**(3/2)*(1-2*x)**(1/2),x)
```

```
[Out] -539*sqrt(2)*Piecewise((121*sqrt(5)*(-sqrt(5)*sqrt(-2*x + 1)*sqrt
(10*x + 6)*(20*x + 1)/121 + asin(sqrt(55)*sqrt(-2*x + 1)/11))/200
, (x <= 1/2) & (x > -3/5)))/16 + 707*sqrt(2)*Piecewise((1331*sqrt
(5)*(-5*sqrt(5)*(-2*x + 1)**(3/2)*(10*x + 6)**(3/2)/7986 - sqrt(5
)*sqrt(-2*x + 1)*sqrt(10*x + 6)*(20*x + 1)/1936 + asin(sqrt(55)*s
qrt(-2*x + 1)/11)/16)/125, (x <= 1/2) & (x > -3/5)))/16 - 309*sqr
t(2)*Piecewise((14641*sqrt(5)*(-5*sqrt(5)*(-2*x + 1)**(3/2)*(10*x
 + 6)**(3/2)/7986 - sqrt(5)*sqrt(-2*x + 1)*sqrt(10*x + 6)*(20*x +
 1)/3872 - sqrt(5)*sqrt(-2*x + 1)*sqrt(10*x + 6)*(12100*x - 2000*
(-2*x + 1)**3 + 6600*(-2*x + 1)**2 - 4719)/1874048 + 5*asin(sqrt(
55)*sqrt(-2*x + 1)/11)/128)/625, (x <= 1/2) & (x > -3/5)))/16 + 4
5*sqrt(2)*Piecewise((161051*sqrt(5)*(5*sqrt(5)*(-2*x + 1)**(5/2)*
(10*x + 6)**(5/2)/322102 - 5*sqrt(5)*(-2*x + 1)**(3/2)*(10*x + 6)
**(3/2)/7986 - sqrt(5)*sqrt(-2*x + 1)*sqrt(10*x + 6)*(20*x + 1)/7
744 - 3*sqrt(5)*sqrt(-2*x + 1)*sqrt(10*x + 6)*(12100*x - 2000*(-2
*x + 1)**3 + 6600*(-2*x + 1)**2 - 4719)/3748096 + 7*asin(sqrt(55)
*sqrt(-2*x + 1)/11)/256)/3125, (x <= 1/2) & (x > -3/5)))/16
```

GIAC/XCAS [A] time = 0.255463, size = 317, normalized size = 2.22

$$\frac{3}{12800000}\sqrt{5}\left(2\left(4\left(8\left(12\left(80x-143\right)\left(5x+3\right)+9773\right)\left(5x+3\right)-136405\right)\left(5x+3\right)+60555\right)\sqrt{5x+3}\sqrt{-10x+5}-666105\sqrt{2}\right.$$
$$+\frac{29}{640000}\sqrt{5}\left(2\left(4\left(8\left(60x-71\right)\left(5x+3\right)+2179\right)\left(5x+3\right)-4125\right)\sqrt{5x+3}\sqrt{-10x+5}+45375\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$
$$+\frac{7}{3000}\sqrt{5}\left(2\left(4\left(40x-23\right)\left(5x+3\right)+33\right)\sqrt{5x+3}\sqrt{-10x+5}-363\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$
$$+\frac{3}{100}\sqrt{5}\left(2\left(20x+1\right)\sqrt{5x+3}\sqrt{-10x+5}+121\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)^2*sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] 3/12800000*sqrt(5)*(2*(4*(8*(12*(80*x - 143)*(5*x + 3) + 9773)*(5
*x + 3) - 136405)*(5*x + 3) + 60555)*sqrt(5*x + 3)*sqrt(-10*x + 5
) - 666105*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 29/6400
00*sqrt(5)*(2*(4*(8*(60*x - 71)*(5*x + 3) + 2179)*(5*x + 3) - 412
5)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 45375*sqrt(2)*arcsin(1/11*sqrt
(22)*sqrt(5*x + 3))) + 7/3000*sqrt(5)*(2*(4*(40*x - 23)*(5*x + 3)
 + 33)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 363*sqrt(2)*arcsin(1/11*sq
rt(22)*sqrt(5*x + 3))) + 3/100*sqrt(5)*(2*(20*x + 1)*sqrt(5*x + 3
)*sqrt(-10*x + 5) + 121*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3
)))
```

3.2260 $\int \sqrt{1-2x}(2+3x)(3+5x)^{3/2}\,dx$

Optimal. Leaf size=116

$$-\frac{3}{40}(1-2x)^{3/2}(5x+3)^{5/2}-\frac{181}{480}(1-2x)^{3/2}(5x+3)^{3/2}-\frac{1991(1-2x)^{3/2}\sqrt{5x+3}}{1280}+\frac{21901\sqrt{1-2x}\sqrt{5x+3}}{12800}+\frac{240911\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{12800\sqrt{10}}$$

```
[Out] (21901*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/12800 - (1991*(1 - 2*x)^(3/2)
*Sqrt[3 + 5*x])/1280 - (181*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/480
- (3*(1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/40 + (240911*ArcSin[Sqrt[2/
11]*Sqrt[3 + 5*x]])/(12800*Sqrt[10])
```

Rubi [A] time = 0.112885, antiderivative size = 116, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$-\frac{3}{40}(1-2x)^{3/2}(5x+3)^{5/2}-\frac{181}{480}(1-2x)^{3/2}(5x+3)^{3/2}-\frac{1991(1-2x)^{3/2}\sqrt{5x+3}}{1280}+\frac{21901\sqrt{1-2x}\sqrt{5x+3}}{12800}+\frac{240911\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{12800\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]*(2 + 3*x)*(3 + 5*x)^(3/2),x]
```

```
[Out] (21901*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/12800 - (1991*(1 - 2*x)^(3/2)
*Sqrt[3 + 5*x])/1280 - (181*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/480
- (3*(1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/40 + (240911*ArcSin[Sqrt[2/
11]*Sqrt[3 + 5*x]])/(12800*Sqrt[10])
```

Rubi in Sympy [A] time = 10.1193, size = 105, normalized size = 0.91

$$-\frac{3(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{5}{2}}}{40}+\frac{181\sqrt{-2x+1}\,(5x+3)^{\frac{5}{2}}}{1200}-\frac{1991\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{9600}-\frac{21901\sqrt{-2x+1}\sqrt{5x+3}}{12800}+\frac{240911\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{128000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)*(3+5*x)**(3/2)*(1-2*x)**(1/2),x)
```

```
[Out] -3*(-2*x + 1)**(3/2)*(5*x + 3)**(5/2)/40 + 181*sqrt(-2*x + 1)*(5*
x + 3)**(5/2)/1200 - 1991*sqrt(-2*x + 1)*(5*x + 3)**(3/2)/9600 -
21901*sqrt(-2*x + 1)*sqrt(5*x + 3)/12800 + 240911*sqrt(10)*asin(s
qrt(22)*sqrt(5*x + 3)/11)/128000
```

Mathematica [A] time = 0.0734003, size = 65, normalized size = 0.56

$$\frac{10\sqrt{1-2x}\sqrt{5x+3}\left(144000x^3+245600x^2+99380x-63387\right)-722733\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{384000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]*(2 + 3*x)*(3 + 5*x)^(3/2),x]
```

```
[Out] (10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(-63387 + 99380*x + 245600*x^2 +
144000*x^3) - 722733*Sqrt[10]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/3
84000
```

Maple [A] time = 0.011, size = 104, normalized size = 0.9

$$\frac{1}{768000}\sqrt{1-2x}\sqrt{3+5x}\left(2880000\,x^3\sqrt{-10\,x^2-x+3}+4912000\,x^2\sqrt{-10\,x^2-x+3}+722733\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)+$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)*(3+5*x)^(3/2)*(1-2*x)^(1/2),x)
```

```
[Out] 1/768000*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2880000*x^3*(-10*x^2-x+3)^(
1/2)+4912000*x^2*(-10*x^2-x+3)^(1/2)+722733*10^(1/2)*arcsin(20/11
*x+1/11)+1987600*x*(-10*x^2-x+3)^(1/2)-1267740*(-10*x^2-x+3)^(1/2
))/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.50413, size = 95, normalized size = 0.82

$$-\frac{3}{8}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x-\frac{289}{480}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}+\frac{1991}{640}\sqrt{-10\,x^2-x+3}x$$
$$-\frac{240911}{256000}\sqrt{10}\arcsin\left(-\frac{20}{11}x-\frac{1}{11}\right)+\frac{1991}{12800}\sqrt{-10\,x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)*sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] -3/8*(-10*x^2 - x + 3)^(3/2)*x - 289/480*(-10*x^2 - x + 3)^(3/2)
+ 1991/640*sqrt(-10*x^2 - x + 3)*x - 240911/256000*sqrt(10)*arcsi
n(-20/11*x - 1/11) + 1991/12800*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.215719, size = 90, normalized size = 0.78

$$\frac{1}{768000}\sqrt{10}\left(2\sqrt{10}\left(144000\,x^3+245600\,x^2+99380\,x-63387\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+722733\,\arctan\left(\frac{\sqrt{10}(20\,x+1)}{20\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)*sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] 1/768000*sqrt(10)*(2*sqrt(10)*(144000*x^3 + 245600*x^2 + 99380*x
- 63387)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 722733*arctan(1/20*sqrt(1
0)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [A] time = 20.2819, size = 314, normalized size = 2.71

$$-\frac{77\sqrt{2}\left(\begin{cases}\frac{121\sqrt{5}\left(-\frac{\sqrt{5}\sqrt{-2x+1}\sqrt{10x+6}(20x+1)}{121}+\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\right)}{200} & \text{for } x\leq\frac{1}{2}\wedge x>-\frac{3}{5}\end{cases}\right)}{8}+\frac{17\sqrt{2}\left(\begin{cases}\frac{1331\sqrt{5}\left(-\frac{5\sqrt{5}(-2x+1)^{\frac{3}{2}}(10x+6)^{\frac{3}{2}}}{7986}-\frac{\sqrt{5}\sqrt{-2x+1}\sqrt{10x+6}(20x+1)}{1936}+\frac{\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{16}\right)}{125} & \text{for } x\leq\frac{1}{2}\wedge x>-\frac{3}{5}\end{cases}\right)}{2}-\frac{15\sqrt{2}\left(\begin{cases}\frac{14641\sqrt{5}\left(-\frac{5\sqrt{5}(-2x+1)^{\frac{3}{2}}(10x+6)^{\frac{3}{2}}}{7986}-\frac{\sqrt{5}\sqrt{-2x+1}\sqrt{10x+6}(20x+1)}{3872}-\frac{\sqrt{5}\sqrt{-2x+1}\sqrt{10x+6}\left(12100x-2000(-2x+1)^3+6600(-2x+1)^2-4719\right)}{1874048}+\frac{5\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{128}\right)}{625} & \text{for } x\leq\frac{1}{2}\wedge\end{cases}\right)}{8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)*(3+5*x)**(3/2)*(1-2*x)**(1/2),x)
```

```
[Out] -77*sqrt(2)*Piecewise((121*sqrt(5)*(-sqrt(5)*sqrt(-2*x + 1)*sqrt(
10*x + 6)*(20*x + 1)/121 + asin(sqrt(55)*sqrt(-2*x + 1)/11))/200,
 (x <= 1/2) & (x > -3/5)))/8 + 17*sqrt(2)*Piecewise((1331*sqrt(5)
*(-5*sqrt(5)*(-2*x + 1)**(3/2)*(10*x + 6)**(3/2)/7986 - sqrt(5)*s
qrt(-2*x + 1)*sqrt(10*x + 6)*(20*x + 1)/1936 + asin(sqrt(55)*sqrt
(-2*x + 1)/11)/16)/125, (x <= 1/2) & (x > -3/5)))/2 - 15*sqrt(2)*
Piecewise((14641*sqrt(5)*(-5*sqrt(5)*(-2*x + 1)**(3/2)*(10*x + 6)
**(3/2)/7986 - sqrt(5)*sqrt(-2*x + 1)*sqrt(10*x + 6)*(20*x + 1)/3
872 - sqrt(5)*sqrt(-2*x + 1)*sqrt(10*x + 6)*(12100*x - 2000*(-2*x
 + 1)**3 + 6600*(-2*x + 1)**2 - 4719)/1874048 + 5*asin(sqrt(55)*s
qrt(-2*x + 1)/11)/128)/625, (x <= 1/2) & (x > -3/5)))/8
```

GIAC/XCAS [A] time = 0.264221, size = 220, normalized size = 1.9

$$\frac{1}{128000}\sqrt{5}\left(2\left(4\left(8\left(60x-71\right)\left(5x+3\right)+2179\right)\left(5x+3\right)-4125\right)\sqrt{5x+3}\sqrt{-10x+5}+45375\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)+\frac{19}{24000}\sqrt{5}\left(2\left(4\left(40x-23\right)\left(5x+3\right)+33\right)\sqrt{5x+3}\sqrt{-10x+5}-363\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)+\frac{3}{200}\sqrt{5}\left(2\left(20x+1\right)\sqrt{5x+3}\sqrt{-10x+5}+121\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)*sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] 1/128000*sqrt(5)*(2*(4*(8*(60*x - 71)*(5*x + 3) + 2179)*(5*x + 3)
 - 4125)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 45375*sqrt(2)*arcsin(1/1
1*sqrt(22)*sqrt(5*x + 3))) + 19/24000*sqrt(5)*(2*(4*(40*x - 23)*(
5*x + 3) + 33)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 363*sqrt(2)*arcsin
(1/11*sqrt(22)*sqrt(5*x + 3))) + 3/200*sqrt(5)*(2*(20*x + 1)*sqrt
(5*x + 3)*sqrt(-10*x + 5) + 121*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt
(5*x + 3)))
```

3.2261 $\int \sqrt{1-2x}(3+5x)^{3/2}\,dx$

Optimal. Leaf size=94

$$-\frac{1}{6}(5x+3)^{3/2}(1-2x)^{3/2}-\frac{11}{16}\sqrt{5x+3}(1-2x)^{3/2}+\frac{121}{160}\sqrt{5x+3}\sqrt{1-2x}+\frac{1331\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{160\sqrt{10}}$$

```
[Out] (121*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/160 - (11*(1 - 2*x)^(3/2)*Sqrt[
3 + 5*x])/16 - ((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/6 + (1331*ArcSin
[Sqrt[2/11]*Sqrt[3 + 5*x]])/(160*Sqrt[10])
```

Rubi [A] time = 0.0807909, antiderivative size = 94, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.158

$$-\frac{1}{6}(5x+3)^{3/2}(1-2x)^{3/2}-\frac{11}{16}\sqrt{5x+3}(1-2x)^{3/2}+\frac{121}{160}\sqrt{5x+3}\sqrt{1-2x}+\frac{1331\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{160\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]*(3 + 5*x)^(3/2),x]
```

```
[Out] (121*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/160 - (11*(1 - 2*x)^(3/2)*Sqrt[
3 + 5*x])/16 - ((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/6 + (1331*ArcSin
[Sqrt[2/11]*Sqrt[3 + 5*x]])/(160*Sqrt[10])
```

Rubi in Sympy [A] time = 7.84473, size = 83, normalized size = 0.88

$$\frac{\sqrt{-2x+1}\,(5x+3)^{\frac{5}{2}}}{15}-\frac{11\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{120}-\frac{121\sqrt{-2x+1}\sqrt{5x+3}}{160}+\frac{1331\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{1600}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(3/2)*(1-2*x)**(1/2),x)
```

```
[Out] sqrt(-2*x + 1)*(5*x + 3)**(5/2)/15 - 11*sqrt(-2*x + 1)*(5*x + 3)*
*(3/2)/120 - 121*sqrt(-2*x + 1)*sqrt(5*x + 3)/160 + 1331*sqrt(10)
*asin(sqrt(22)*sqrt(5*x + 3)/11)/1600
```

Mathematica [A] time = 0.0534176, size = 60, normalized size = 0.64

$$\frac{10\sqrt{1-2x}\sqrt{5x+3}\left(800x^2+740x-207\right)-3993\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{4800}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]*(3 + 5*x)^(3/2),x]
```

```
[Out] (10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(-207 + 740*x + 800*x^2) - 3993*S
qrt[10]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/4800
```

Maple [A] time = 0.006, size = 88, normalized size = 0.9

$$\frac{1}{15}(3+5x)^{\frac{5}{2}}\sqrt{1-2x}-\frac{11}{120}(3+5x)^{\frac{3}{2}}\sqrt{1-2x}-\frac{121}{160}\sqrt{1-2x}\sqrt{3+5x}+\frac{1331\sqrt{10}}{3200}\sqrt{(1-2x)(3+5x)}\arcsin\left(\frac{20x}{11}+\frac{1}{11}\right)\frac{1}{\sqrt{1-2x}}\frac{1}{\sqrt{3+5x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(3/2)*(1-2*x)^(1/2),x)
```

```
[Out] 1/15*(3+5*x)^(5/2)*(1-2*x)^(1/2)-11/120*(3+5*x)^(3/2)*(1-2*x)^(1/
2)-121/160*(1-2*x)^(1/2)*(3+5*x)^(1/2)+1331/3200*((1-2*x)*(3+5*x)
)^(1/2)/(3+5*x)^(1/2)/(1-2*x)^(1/2)*10^(1/2)*arcsin(20/11*x+1/11)
```

Maxima [A] time = 1.49514, size = 74, normalized size = 0.79

$$-\frac{1}{6}\left(-10x^2-x+3\right)^{\frac{3}{2}}+\frac{11}{8}\sqrt{-10x^2-x+3}x-\frac{1331}{3200}\sqrt{10}\arcsin\left(-\frac{20}{11}x-\frac{1}{11}\right)+\frac{11}{160}\sqrt{-10x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] -1/6*(-10*x^2 - x + 3)^(3/2) + 11/8*sqrt(-10*x^2 - x + 3)*x - 133
1/3200*sqrt(10)*arcsin(-20/11*x - 1/11) + 11/160*sqrt(-10*x^2 - x
 + 3)
```

Fricas [A] time = 0.220013, size = 84, normalized size = 0.89

$$\frac{1}{9600}\sqrt{10}\left(2\sqrt{10}\left(800x^2+740x-207\right)\sqrt{5x+3}\sqrt{-2x+1}+3993\arctan\left(\frac{\sqrt{10}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] 1/9600*sqrt(10)*(2*sqrt(10)*(800*x^2 + 740*x - 207)*sqrt(5*x + 3)
*sqrt(-2*x + 1) + 3993*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x
+ 3)*sqrt(-2*x + 1))))
```

Sympy [A] time = 9.29593, size = 230, normalized size = 2.45

$$\begin{cases} \frac{50i\left(x+\frac{3}{5}\right)^{\frac{7}{2}}}{3\sqrt{10x-5}}-\frac{275i\left(x+\frac{3}{5}\right)^{\frac{5}{2}}}{12\sqrt{10x-5}}-\frac{121i\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}{48\sqrt{10x-5}}+\frac{1331i\sqrt{x+\frac{3}{5}}}{160\sqrt{10x-5}}-\frac{1331\sqrt{10}i\operatorname{acosh}\left(\frac{\sqrt{110}\sqrt{x+\frac{3}{5}}}{11}\right)}{1600} & \text{for}\ \frac{10\left|x+\frac{3}{5}\right|}{11}>1 \\ \frac{1331\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{110}\sqrt{x+\frac{3}{5}}}{11}\right)}{1600}-\frac{50\left(x+\frac{3}{5}\right)^{\frac{7}{2}}}{3\sqrt{-10x+5}}+\frac{275\left(x+\frac{3}{5}\right)^{\frac{5}{2}}}{12\sqrt{-10x+5}}+\frac{121\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}{48\sqrt{-10x+5}}-\frac{1331\sqrt{x+\frac{3}{5}}}{160\sqrt{-10x+5}} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(3/2)*(1-2*x)**(1/2),x)
```

```
[Out] Piecewise((50*I*(x + 3/5)**(7/2)/(3*sqrt(10*x - 5)) - 275*I*(x +
3/5)**(5/2)/(12*sqrt(10*x - 5)) - 121*I*(x + 3/5)**(3/2)/(48*sqrt
(10*x - 5)) + 1331*I*sqrt(x + 3/5)/(160*sqrt(10*x - 5)) - 1331*sq
```

```
rt(10)*I*acosh(sqrt(110)*sqrt(x + 3/5)/11)/1600, 10*Abs(x + 3/5)/
11 > 1), (1331*sqrt(10)*asin(sqrt(110)*sqrt(x + 3/5)/11)/1600 - 5
0*(x + 3/5)**(7/2)/(3*sqrt(-10*x + 5)) + 275*(x + 3/5)**(5/2)/(12
*sqrt(-10*x + 5)) + 121*(x + 3/5)**(3/2)/(48*sqrt(-10*x + 5)) - 1
331*sqrt(x + 3/5)/(160*sqrt(-10*x + 5)), True))
```

GIAC/XCAS [A] time = 0.234394, size = 135, normalized size = 1.44

$$\frac{1}{4800}\sqrt{5}\left(2\left(4\left(40x-23\right)\left(5x+3\right)+33\right)\sqrt{5x+3}\sqrt{-10x+5}-363\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)+\frac{3}{400}\sqrt{5}\left(2\left(20x+1\right)\sqrt{5x+3}\sqrt{-10x+5}+121\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] 1/4800*sqrt(5)*(2*(4*(40*x - 23)*(5*x + 3) + 33)*sqrt(5*x + 3)*sq
rt(-10*x + 5) - 363*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)))
+ 3/400*sqrt(5)*(2*(20*x + 1)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 121
*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)))
```

3.2262 $\int \frac{\sqrt{1-2x}(3+5x)^{3/2}}{2+3x}\,dx$

Optimal. Leaf size=106

$$\frac{1}{6}\sqrt{1-2x}(5x+3)^{3/2}-\frac{41}{72}\sqrt{1-2x}\sqrt{5x+3}+\frac{793\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{216\sqrt{10}}-\frac{2}{27}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

```
[Out] (-41*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/72 + (Sqrt[1 - 2*x]*(3 + 5*x)^(
3/2))/6 + (793*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(216*Sqrt[10]) -
 (2*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/27
```

Rubi [A] time = 0.23443, antiderivative size = 106, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 7, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.269$

$$\frac{1}{6}\sqrt{1-2x}(5x+3)^{3/2}-\frac{41}{72}\sqrt{1-2x}\sqrt{5x+3}+\frac{793\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{216\sqrt{10}}-\frac{2}{27}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(2 + 3*x),x]
```

```
[Out] (-41*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/72 + (Sqrt[1 - 2*x]*(3 + 5*x)^(
3/2))/6 + (793*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(216*Sqrt[10]) -
 (2*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/27
```

Rubi in Sympy [A] time = 22.689, size = 97, normalized size = 0.92

$$\frac{\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{6}-\frac{41\sqrt{-2x+1}\sqrt{5x+3}}{72}+\frac{793\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{2160}-\frac{2\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{27}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(3/2)*(1-2*x)**(1/2)/(2+3*x),x)
```

```
[Out] sqrt(-2*x + 1)*(5*x + 3)**(3/2)/6 - 41*sqrt(-2*x + 1)*sqrt(5*x +
3)/72 + 793*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/2160 - 2*sqr
t(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/27
```

Mathematica [A] time = 0.141606, size = 100, normalized size = 0.94

$$\frac{300\sqrt{1-2x}\sqrt{5x+3}(12x-1)-160\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)+793\sqrt{10}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)}{4320}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(2 + 3*x),x]
```

```
[Out] (300*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(-1 + 12*x) - 160*Sqrt[7]*ArcTan
[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])] + 793*Sqrt[10]*Ar
cTan[(1 + 20*x)/(2*Sqrt[1 - 2*x]*Sqrt[30 + 50*x])])/4320
```

Maple [A] time = 0.013, size = 98, normalized size = 0.9

$$\frac{1}{4320}\sqrt{1-2x}\sqrt{3+5x}\left(160\sqrt{7}\arctan\left(1/14\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)+793\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)+3600x\sqrt{-10x^2-x+3}-$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(3/2)*(1-2*x)^(1/2)/(2+3*x),x)
```

```
[Out] 1/4320*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(160*7^(1/2)*arctan(1/14*(37*x
+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+793*10^(1/2)*arcsin(20/11*x+1/1
1)+3600*x*(-10*x^2-x+3)^(1/2)-300*(-10*x^2-x+3)^(1/2))/(-10*x^2-x
+3)^(1/2)
```

Maxima [A] time = 1.48795, size = 93, normalized size = 0.88

$$\frac{5}{6}\sqrt{-10x^2-x+3}x+\frac{793}{4320}\sqrt{10}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)+\frac{1}{27}\sqrt{7}\arcsin\left(\frac{37x}{11|3x+2|}+\frac{20}{11|3x+2|}\right)-\frac{5}{72}\sqrt{-10x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/(3*x + 2),x, algorithm="maxima")
```

```
[Out] 5/6*sqrt(-10*x^2 - x + 3)*x + 793/4320*sqrt(10)*arcsin(20/11*x +
1/11) + 1/27*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x
+ 2)) - 5/72*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.231911, size = 122, normalized size = 1.15

$$\frac{1}{4320}\sqrt{10}\left(30\sqrt{10}(12x-1)\sqrt{5x+3}\sqrt{-2x+1}+16\sqrt{10}\sqrt{7}\arctan\left(\frac{\sqrt{7}(37x+20)}{14\sqrt{5x+3}\sqrt{-2x+1}}\right)+793\arctan\left(\frac{\sqrt{10}(20x+1}{20\sqrt{5x+3}\sqrt{-2}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/(3*x + 2),x, algorithm="fricas")
```

```
[Out] 1/4320*sqrt(10)*(30*sqrt(10)*(12*x - 1)*sqrt(5*x + 3)*sqrt(-2*x +
 1) + 16*sqrt(10)*sqrt(7)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5
*x + 3)*sqrt(-2*x + 1))) + 793*arctan(1/20*sqrt(10)*(20*x + 1)/(s
qrt(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{3x+2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(3/2)*(1-2*x)**(1/2)/(2+3*x),x)
```

```
[Out] Integral(sqrt(-2*x + 1)*(5*x + 3)**(3/2)/(3*x + 2), x)
```

GIAC/XCAS [A] time = 0.294094, size = 234, normalized size = 2.21

$$\frac{1}{270}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)+\frac{1}{360}\left(12\sqrt{5}(5x+3)-41\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}+\frac{793}{4320}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{4\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/(3*x + 2),x, algorithm="giac")
```

```
[Out] 1/270*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x +
 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqrt(
2)*sqrt(-10*x + 5) - sqrt(22)))) + 1/360*(12*sqrt(5)*(5*x + 3) -
41*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5) + 793/4320*sqrt(10)*(pi
 + 2*arctan(-1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(2
2))^2/(5*x + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))
```

3.2263 $\int \frac{\sqrt{1-2x}(3+5x)^{3/2}}{(2+3x)^2}\,dx$

Optimal. Leaf size=115

$$-\frac{\sqrt{1-2x}(5x+3)^{3/2}}{3(3x+2)}+\frac{10}{9}\sqrt{1-2x}\sqrt{5x+3}+\frac{41}{27}\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)+\frac{107\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{27\sqrt{7}}$$

```
[Out] (10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/9 - (Sqrt[1 - 2*x]*(3 + 5*x)^(3/
2))/(3*(2 + 3*x)) + (41*Sqrt[5/2]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]
])/27 + (107*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(27*S
qrt[7])
```

Rubi [A] time = 0.236141, antiderivative size = 115, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 7, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.269

$$-\frac{\sqrt{1-2x}(5x+3)^{3/2}}{3(3x+2)}+\frac{10}{9}\sqrt{1-2x}\sqrt{5x+3}+\frac{41}{27}\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)+\frac{107\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{27\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(2 + 3*x)^2,x]
```

```
[Out] (10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/9 - (Sqrt[1 - 2*x]*(3 + 5*x)^(3/
2))/(3*(2 + 3*x)) + (41*Sqrt[5/2]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]
])/27 + (107*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(27*S
qrt[7])
```

Rubi in Sympy [A] time = 23.3148, size = 100, normalized size = 0.87

$$\frac{10\sqrt{-2x+1}\sqrt{5x+3}}{9}-\frac{\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{3\,(3x+2)}+\frac{41\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{54}+\frac{107\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{189}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(3/2)*(1-2*x)**(1/2)/(2+3*x)**2,x)
```

```
[Out] 10*sqrt(-2*x + 1)*sqrt(5*x + 3)/9 - sqrt(-2*x + 1)*(5*x + 3)**(3/
2)/(3*(3*x + 2)) + 41*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/54
 + 107*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/189
```

Mathematica [A] time = 0.226645, size = 107, normalized size = 0.93

$$\frac{1}{756}\left(\frac{84\sqrt{1-2x}\sqrt{5x+3}(15x+11)}{3x+2}+214\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)+287\sqrt{10}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(2 + 3*x)^2,x]
```

```
[Out] ((84*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(11 + 15*x))/(2 + 3*x) + 214*Sqr
t[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])] + 287*
```

```
Sqrt[10]*ArcTan[(1 + 20*x)/(2*Sqrt[1 - 2*x]*Sqrt[30 + 50*x])])/75
6
```

Maple [A] time = 0.016, size = 146, normalized size = 1.3

$$-\frac{1}{1512+2268\,x}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(642\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x-861\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x+428\,\sqrt{7}\mathrm{arc}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(3/2)*(1-2*x)^(1/2)/(2+3*x)^2,x)
```

```
[Out] -1/756*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(642*7^(1/2)*arctan(1/14*(37*x
+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x-861*10^(1/2)*arcsin(20/11*x+1
/11)*x+428*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1
/2))-574*10^(1/2)*arcsin(20/11*x+1/11)-1260*x*(-10*x^2-x+3)^(1/2)
-924*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)
```

Maxima [A] time = 1.51733, size = 101, normalized size = 0.88

$$\frac{41}{108}\sqrt{10}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)-\frac{107}{378}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{5}{9}\sqrt{-10\,x^2-x+3}+\frac{\sqrt{-10\,x^2-x+3}}{9\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/(3*x + 2)^2,x, algorithm="maxima")
```

```
[Out] 41/108*sqrt(10)*arcsin(20/11*x + 1/11) - 107/378*sqrt(7)*arcsin(3
7/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) + 5/9*sqrt(-10*x^2 - x
+ 3) + 1/9*sqrt(-10*x^2 - x + 3)/(3*x + 2)
```

Fricas [A] time = 0.233769, size = 161, normalized size = 1.4

$$\frac{\sqrt{7}\sqrt{2}\left(6\,\sqrt{7}\sqrt{2}(15\,x+11)\sqrt{5\,x+3}\sqrt{-2\,x+1}+41\,\sqrt{7}\sqrt{5}(3\,x+2)\arctan\left(\frac{\sqrt{5}\sqrt{2}(20\,x+1)}{20\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)-107\,\sqrt{2}(3\,x+2)\arctan\left(\frac{\sqrt{7}(37}{14\,\sqrt{5\,x+3}}\right.\right.}{756\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/(3*x + 2)^2,x, algorithm="fricas")
```

```
[Out] 1/756*sqrt(7)*sqrt(2)*(6*sqrt(7)*sqrt(2)*(15*x + 11)*sqrt(5*x + 3
)*sqrt(-2*x + 1) + 41*sqrt(7)*sqrt(5)*(3*x + 2)*arctan(1/20*sqrt(
5)*sqrt(2)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))) - 107*sqrt(
2)*(3*x + 2)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(
-2*x + 1))))/(3*x + 2)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{(3x+2)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(3/2)*(1-2*x)**(1/2)/(2+3*x)**2,x)
```

```
[Out] Integral(sqrt(-2*x + 1)*(5*x + 3)**(3/2)/(3*x + 2)**2, x)
```

GIAC/XCAS [A] time = 0.325645, size = 377, normalized size = 3.28

$$-\frac{107}{3780}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)+\frac{41}{108}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{4\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)+\frac{1}{9}\sqrt{5}\sqrt{5x+3}\sqrt{-10x+5}+\frac{22\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)}{9\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/(3*x + 2)^2,x, algorithm="giac")
```

```
[Out] -107/3780*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5
*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(s
qrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 41/108*sqrt(10)*(pi + 2*ar
ctan(-1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(
5*x + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 1/9*sqrt(5
)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 22/9*sqrt(10)*((sqrt(2)*sqrt(-1
0*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqr
t(-10*x + 5) - sqrt(22)))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/
sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(2
2)))^2 + 280)
```

3.2264 $\int \frac{\sqrt{1-2x}(3+5x)^{3/2}}{(2+3x)^3} dx$

Optimal. Leaf size=120

$$-\frac{\sqrt{1-2x}(5x+3)^{3/2}}{6(3x+2)^2}-\frac{107\sqrt{1-2x}\sqrt{5x+3}}{252(3x+2)}-\frac{10}{27}\sqrt{10}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{4091\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{756\sqrt{7}}$$

```
[Out] (-107*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(252*(2 + 3*x)) - (Sqrt[1 - 2*
x]*(3 + 5*x)^(3/2))/(6*(2 + 3*x)^2) - (10*Sqrt[10]*ArcSin[Sqrt[2/
11]*Sqrt[3 + 5*x]])/27 - (4091*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt
[3 + 5*x])])/(756*Sqrt[7])
```

Rubi [A] time = 0.240807, antiderivative size = 120, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 7, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.269$

$$-\frac{\sqrt{1-2x}(5x+3)^{3/2}}{6(3x+2)^2}-\frac{107\sqrt{1-2x}\sqrt{5x+3}}{252(3x+2)}-\frac{10}{27}\sqrt{10}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{4091\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{756\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(2 + 3*x)^3,x]
```

```
[Out] (-107*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(252*(2 + 3*x)) - (Sqrt[1 - 2*
x]*(3 + 5*x)^(3/2))/(6*(2 + 3*x)^2) - (10*Sqrt[10]*ArcSin[Sqrt[2/
11]*Sqrt[3 + 5*x]])/27 - (4091*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt
[3 + 5*x])])/(756*Sqrt[7])
```

Rubi in Sympy [A] time = 22.7076, size = 109, normalized size = 0.91

$$-\frac{107\sqrt{-2x+1}\sqrt{5x+3}}{252\,(3x+2)}-\frac{\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{6\,(3x+2)^2}-\frac{10\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{27}-\frac{4091\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{5292}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(3/2)*(1-2*x)**(1/2)/(2+3*x)**3,x)
```

```
[Out] -107*sqrt(-2*x + 1)*sqrt(5*x + 3)/(252*(3*x + 2)) - sqrt(-2*x + 1
)*(5*x + 3)**(3/2)/(6*(3*x + 2)**2) - 10*sqrt(10)*asin(sqrt(22)*s
qrt(5*x + 3)/11)/27 - 4091*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7
*sqrt(5*x + 3)))/5292
```

Mathematica [A] time = 0.187447, size = 107, normalized size = 0.89

$$\frac{-\frac{42\sqrt{1-2x}\sqrt{5x+3}(531x+340)}{(3x+2)^2}-4091\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)-1960\sqrt{10}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)}{10584}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(2 + 3*x)^3,x]
```

```
[Out] ((-42*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(340 + 531*x))/(2 + 3*x)^2 - 40
91*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])]
- 1960*Sqrt[10]*ArcTan[(1 + 20*x)/(2*Sqrt[1 - 2*x]*Sqrt[30 + 50*x
```

```
])])/10584
```

Maple [B] time = 0.016, size = 191, normalized size = 1.6

$$\frac{1}{10584\,(2+3x)^2}\sqrt{1-2x}\sqrt{3+5x}\left(36819\sqrt{7}\arctan\left(1/14\,\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)x^2-17640\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)x^2+490$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(3/2)*(1-2*x)^(1/2)/(2+3*x)^3,x)
```

```
[Out] 1/10584*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(36819*7^(1/2)*arctan(1/14*(3
7*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2-17640*10^(1/2)*arcsin(20
/11*x+1/11)*x^2+49092*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*
x^2-x+3)^(1/2))*x-23520*10^(1/2)*arcsin(20/11*x+1/11)*x+16364*7^(
1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))-7840*10^(
1/2)*arcsin(20/11*x+1/11)-22302*x*(-10*x^2-x+3)^(1/2)-14280*(-10*
x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)^2
```

Maxima [A] time = 1.50862, size = 136, normalized size = 1.13

$$-\frac{5}{27}\sqrt{10}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)+\frac{4091}{10584}\sqrt{7}\arcsin\left(\frac{37x}{11\,|3x+2|}+\frac{20}{11\,|3x+2|}\right)-\frac{5}{63}\sqrt{-10x^2-x+3}-\frac{\left(-10x^2-x+3\right)^{\frac{3}{2}}}{14\left(9x^2+12x+4\right)}-\frac{103\sqrt{-10x^2-x+3}}{252\,(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/(3*x + 2)^3,x, algorithm="maxima")
```

```
[Out] -5/27*sqrt(10)*arcsin(20/11*x + 1/11) + 4091/10584*sqrt(7)*arcsin
(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) - 5/63*sqrt(-10*x^2 -
 x + 3) - 1/14*(-10*x^2 - x + 3)^(3/2)/(9*x^2 + 12*x + 4) - 103/2
52*sqrt(-10*x^2 - x + 3)/(3*x + 2)
```

Fricas [A] time = 0.232248, size = 165, normalized size = 1.38

$$-\frac{\sqrt{7}\left(280\sqrt{10}\sqrt{7}\left(9x^2+12x+4\right)\arctan\left(\frac{\sqrt{10}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)+6\sqrt{7}(531x+340)\sqrt{5x+3}\sqrt{-2x+1}-4091\left(9x^2+12x+4\right)a}{10584\left(9x^2+12x+4\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/(3*x + 2)^3,x, algorithm="fricas")
```

```
[Out] -1/10584*sqrt(7)*(280*sqrt(10)*sqrt(7)*(9*x^2 + 12*x + 4)*arctan(
1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))) + 6*sqrt
(7)*(531*x + 340)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 4091*(9*x^2 + 12
*x + 4)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x
+ 1))))/(9*x^2 + 12*x + 4)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(3/2)*(1-2*x)**(1/2)/(2+3*x)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.33591, size = 437, normalized size = 3.64

$$\frac{4091}{105840}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^{2}}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{5}{27}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^{2}}{5x+3}-4\right)}{4\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{11\left(107\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^{3}+48440\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)\right)}{126\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^{2}+280\right)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/(3*x + 2)^3,x, algorithm="giac")
```

```
[Out] 4091/105840*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt
(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 5/27*sqrt(10)*(pi + 2*ar
ctan(-1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(
5*x + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 11/126*(10
7*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) -
4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 48440*s
qrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*s
qrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sq
rt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2
)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)^2
```

3.2265 $\int \frac{\sqrt{1-2x}(3+5x)^{3/2}}{(2+3x)^4}\,dx$

Optimal. Leaf size=122

$$\frac{\sqrt{1-2x}(5x+3)^{5/2}}{3(3x+2)^3}-\frac{11\sqrt{1-2x}(5x+3)^{3/2}}{84(3x+2)^2}-\frac{121\sqrt{1-2x}\sqrt{5x+3}}{392(3x+2)}-\frac{1331\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{392\sqrt{7}}$$

```
[Out] (-121*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(392*(2 + 3*x)) - (11*Sqrt[1 -
 2*x]*(3 + 5*x)^(3/2))/(84*(2 + 3*x)^2) + (Sqrt[1 - 2*x]*(3 + 5*x
)^(5/2))/(3*(2 + 3*x)^3) - (1331*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sq
rt[3 + 5*x])])/(392*Sqrt[7])
```

Rubi [A] time = 0.171935, antiderivative size = 122, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.115

$$\frac{\sqrt{1-2x}(5x+3)^{5/2}}{3(3x+2)^3}-\frac{11\sqrt{1-2x}(5x+3)^{3/2}}{84(3x+2)^2}-\frac{121\sqrt{1-2x}\sqrt{5x+3}}{392(3x+2)}-\frac{1331\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{392\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(2 + 3*x)^4,x]
```

```
[Out] (-121*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(392*(2 + 3*x)) - (11*Sqrt[1 -
 2*x]*(3 + 5*x)^(3/2))/(84*(2 + 3*x)^2) + (Sqrt[1 - 2*x]*(3 + 5*x
)^(5/2))/(3*(2 + 3*x)^3) - (1331*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sq
rt[3 + 5*x])])/(392*Sqrt[7])
```

Rubi in Sympy [A] time = 13.6648, size = 109, normalized size = 0.89

$$-\frac{121\sqrt{-2x+1}\sqrt{5x+3}}{392\,(3x+2)}-\frac{11\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{84\,(3x+2)^2}+\frac{\sqrt{-2x+1}\,(5x+3)^{\frac{5}{2}}}{3\,(3x+2)^3}-\frac{1331\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{2744}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(3/2)*(1-2*x)**(1/2)/(2+3*x)**4,x)
```

```
[Out] -121*sqrt(-2*x + 1)*sqrt(5*x + 3)/(392*(3*x + 2)) - 11*sqrt(-2*x
+ 1)*(5*x + 3)**(3/2)/(84*(3*x + 2)**2) + sqrt(-2*x + 1)*(5*x + 3
)**(5/2)/(3*(3*x + 2)**3) - 1331*sqrt(7)*atan(sqrt(7)*sqrt(-2*x +
 1)/(7*sqrt(5*x + 3)))/2744
```

Mathematica [A] time = 0.0953837, size = 77, normalized size = 0.63

$$\frac{\frac{14\sqrt{1-2x}\sqrt{5x+3}(4223x^2+4478x+1152)}{(3x+2)^3}-3993\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{16464}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(2 + 3*x)^4,x]
```

```
[Out] ((14*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(1152 + 4478*x + 4223*x^2))/(2 +
 3*x)^3 - 3993*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt
[3 + 5*x])])/16464
```

Maple [B] time = 0.017, size = 202, normalized size = 1.7

$$\frac{1}{16464\,(2+3\,x)^3}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(107811\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^3+215622\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(3/2)*(1-2*x)^(1/2)/(2+3*x)^4,x)
```

```
[Out] 1/16464*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(107811*7^(1/2)*arctan(1/14*(
37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+215622*7^(1/2)*arctan(1
/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+143748*7^(1/2)*arc
tan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+59122*x^2*(-10*
x^2-x+3)^(1/2)+31944*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x
^2-x+3)^(1/2))+62692*x*(-10*x^2-x+3)^(1/2)+16128*(-10*x^2-x+3)^(1
/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)^3
```

Maxima [A] time = 1.50034, size = 163, normalized size = 1.34

$$\frac{1331}{5488}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{55}{294}\sqrt{-10\,x^2-x+3}$$
$$-\frac{\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{21\,(27\,x^3+54\,x^2+36\,x+8)}+\frac{33\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{196\,(9\,x^2+12\,x+4)}-\frac{407\sqrt{-10\,x^2-x+3}}{1176\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/(3*x + 2)^4,x, algorithm="maxima")
```

```
[Out] 1331/5488*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2
)) + 55/294*sqrt(-10*x^2 - x + 3) - 1/21*(-10*x^2 - x + 3)^(3/2)/
(27*x^3 + 54*x^2 + 36*x + 8) + 33/196*(-10*x^2 - x + 3)^(3/2)/(9*
x^2 + 12*x + 4) - 407/1176*sqrt(-10*x^2 - x + 3)/(3*x + 2)
```

Fricas [A] time = 0.222715, size = 127, normalized size = 1.04

$$\frac{\sqrt{7}\left(2\,\sqrt{7}\left(4223\,x^2+4478\,x+1152\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+3993\left(27\,x^3+54\,x^2+36\,x+8\right)\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)}{16464\,(27\,x^3+54\,x^2+36\,x+8)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/(3*x + 2)^4,x, algorithm="fricas")
```

```
[Out] 1/16464*sqrt(7)*(2*sqrt(7)*(4223*x^2 + 4478*x + 1152)*sqrt(5*x +
3)*sqrt(-2*x + 1) + 3993*(27*x^3 + 54*x^2 + 36*x + 8)*arctan(1/14
*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(27*x^3 + 5
4*x^2 + 36*x + 8)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(3/2)*(1-2*x)**(1/2)/(2+3*x)**4,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.353877, size = 429, normalized size = 3.52

$$\frac{1331}{54880}\sqrt{70}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3} - 4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right) - \frac{1331\left(3\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}} - \frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^5 + 2240\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}} - \frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3 - 235200\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}}{\sqrt{5x+3}}\right.\right.}{588\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}} - \frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2 + 280\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/(3*x + 2)^4,x, algorithm="giac")
```

```
[Out] 1331/54880*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(
5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(
sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 1331/588*(3*sqrt(10)*((sq
rt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)
/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 + 2240*sqrt(10)*((sqrt(2
)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sq
rt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 - 235200*sqrt(10)*((sqrt(2)*
sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt
(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) - sq
rt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5)
- sqrt(22)))^2 + 280)^3
```

3.2266 $\int \frac{\sqrt{1-2x}(3+5x)^{3/2}}{(2+3x)^5} dx$

Optimal. Leaf size=151

$$\frac{115\sqrt{1-2x}(5x+3)^{5/2}}{168(3x+2)^3}+\frac{3(1-2x)^{3/2}(5x+3)^{5/2}}{28(3x+2)^4}-\frac{1265\sqrt{1-2x}(5x+3)^{3/2}}{4704(3x+2)^2}-\frac{13915\sqrt{1-2x}\sqrt{5x+3}}{21952(3x+2)}-\frac{153065\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{21952\sqrt{7}}$$

```
[Out] (-13915*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(21952*(2 + 3*x)) - (1265*Sq
rt[1 - 2*x]*(3 + 5*x)^(3/2))/(4704*(2 + 3*x)^2) + (3*(1 - 2*x)^(3
/2)*(3 + 5*x)^(5/2))/(28*(2 + 3*x)^4) + (115*Sqrt[1 - 2*x]*(3 + 5
*x)^(5/2))/(168*(2 + 3*x)^3) - (153065*ArcTan[Sqrt[1 - 2*x]/(Sqrt
[7]*Sqrt[3 + 5*x])])/(21952*Sqrt[7])
```

Rubi [A] time = 0.214296, antiderivative size = 151, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$\frac{115\sqrt{1-2x}(5x+3)^{5/2}}{168(3x+2)^3}+\frac{3(1-2x)^{3/2}(5x+3)^{5/2}}{28(3x+2)^4}-\frac{1265\sqrt{1-2x}(5x+3)^{3/2}}{4704(3x+2)^2}-\frac{13915\sqrt{1-2x}\sqrt{5x+3}}{21952(3x+2)}-\frac{153065\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{21952\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(2 + 3*x)^5,x]
```

```
[Out] (-13915*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(21952*(2 + 3*x)) - (1265*Sq
rt[1 - 2*x]*(3 + 5*x)^(3/2))/(4704*(2 + 3*x)^2) + (3*(1 - 2*x)^(3
/2)*(3 + 5*x)^(5/2))/(28*(2 + 3*x)^4) + (115*Sqrt[1 - 2*x]*(3 + 5
*x)^(5/2))/(168*(2 + 3*x)^3) - (153065*ArcTan[Sqrt[1 - 2*x]/(Sqrt
[7]*Sqrt[3 + 5*x])])/(21952*Sqrt[7])
```

Rubi in Sympy [A] time = 16.6636, size = 138, normalized size = 0.91

$$-\frac{1265\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{10976\left(3x+2\right)^{2}}-\frac{115\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{3}{2}}}{1176\left(3x+2\right)^{3}}+\frac{3\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{5}{2}}}{28\left(3x+2\right)^{4}}+\frac{13915\sqrt{-2x+1}\sqrt{5x+3}}{21952\left(3x+2\right)}-\frac{153065\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{153664}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(3/2)*(1-2*x)**(1/2)/(2+3*x)**5,x)
```

```
[Out] -1265*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/(10976*(3*x + 2)**2) - 115*
(-2*x + 1)**(3/2)*(5*x + 3)**(3/2)/(1176*(3*x + 2)**3) + 3*(-2*x
+ 1)**(3/2)*(5*x + 3)**(5/2)/(28*(3*x + 2)**4) + 13915*sqrt(-2*x
+ 1)*sqrt(5*x + 3)/(21952*(3*x + 2)) - 153065*sqrt(7)*atan(sqrt(7
)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/153664
```

Mathematica [A] time = 0.107597, size = 82, normalized size = 0.54

$$\frac{\frac{126\sqrt{1-2x}\sqrt{5x+3}\left(1104135x^3+2269240x^2+1512052x+328464\right)}{(3x+2)^4}-4132755\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{8297856}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(2 + 3*x)^5,x]
```

```
[Out] ((126*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(328464 + 1512052*x + 2269240*x
^2 + 1104135*x^3))/(2 + 3*x)^4 - 4132755*Sqrt[7]*ArcTan[(-20 - 37
*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/8297856
```

Maple [B] time = 0.017, size = 250, normalized size = 1.7

$$\frac{1}{921984\,(2+3\,x)^4}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(37194795\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^4+99186120\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+2}{\sqrt{-10\,x^2}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(3/2)*(1-2*x)^(1/2)/(2+3*x)^5,x)
```

```
[Out] 1/921984*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(37194795*7^(1/2)*arctan(1/1
4*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^4+99186120*7^(1/2)*arc
tan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+99186120*7^(1
/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+154578
90*x^3*(-10*x^2-x+3)^(1/2)+44082720*7^(1/2)*arctan(1/14*(37*x+20)
*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+31769360*x^2*(-10*x^2-x+3)^(1/2)+
7347120*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2)
)+21168728*x*(-10*x^2-x+3)^(1/2)+4598496*(-10*x^2-x+3)^(1/2))/(-1
0*x^2-x+3)^(1/2)/(2+3*x)^4
```

Maxima [A] time = 1.51442, size = 212, normalized size = 1.4

$$\frac{153065}{307328}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{6325}{16464}\sqrt{-10\,x^2-x+3}-\frac{\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{28\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}+\frac{95\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{1176\,(27\,x^3+54\,x^2+36\,x+8)}+\frac{3795\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{10976\,(9\,x^2+12\,x+4)}-\frac{46805\sqrt{-10\,x^2-x+3}}{65856\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/(3*x + 2)^5,x, algorithm="maxima")
```

```
[Out] 153065/307328*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x
 + 2)) + 6325/16464*sqrt(-10*x^2 - x + 3) - 1/28*(-10*x^2 - x + 3
)^(3/2)/(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16) + 95/1176*(-10*x
^2 - x + 3)^(3/2)/(27*x^3 + 54*x^2 + 36*x + 8) + 3795/10976*(-10*
x^2 - x + 3)^(3/2)/(9*x^2 + 12*x + 4) - 46805/65856*sqrt(-10*x^2
- x + 3)/(3*x + 2)
```

Fricas [A] time = 0.222446, size = 147, normalized size = 0.97

$$\frac{\sqrt{7}\left(2\,\sqrt{7}\left(1104135\,x^3+2269240\,x^2+1512052\,x+328464\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+459195\left(81\,x^4+216\,x^3+216\,x^2+96\,x+16\right)\right.}{921984\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/(3*x + 2)^5,x, algorithm="fricas")
```

```
[Out] 1/921984*sqrt(7)*(2*sqrt(7)*(1104135*x^3 + 2269240*x^2 + 1512052*
x + 328464)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 459195*(81*x^4 + 216*x
^3 + 216*x^2 + 96*x + 16)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5
*x + 3)*sqrt(-2*x + 1))))/(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16
)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(3/2)*(1-2*x)**(1/2)/(2+3*x)**5,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.404095, size = 512, normalized size = 3.39

$$\frac{30613}{614656}\sqrt{70}\sqrt{10}\left(\pi+2\,\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)$$

$$-\frac{6655\left(69\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^7+70840\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^5-15821120\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-1}}{\sqrt{}}\right.\right.}{32928\left(\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^2+\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/(3*x + 2)^5,x, algorithm="giac")
```

```
[Out] 30613/614656*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqr
t(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)
/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 6655/32928*(69*sqrt(10)
*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x
 + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^7 + 70840*sqrt(10)*((
sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x +
3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 - 15821120*sqrt(10)*((
sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x +
3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 - 1514688000*sqrt(10)*
((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x
+ 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x
 + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-
10*x + 5) - sqrt(22)))^2 + 280)^4
```

3.2267 $\int \frac{\sqrt{1-2x}(3+5x)^{3/2}}{(2+3x)^6}\,dx$

Optimal. Leaf size=180

$$-\frac{\sqrt{1-2x}(5x+3)^{3/2}}{15(3x+2)^5}+\frac{1852307\sqrt{1-2x}\sqrt{5x+3}}{1185408(3x+2)}+\frac{17981\sqrt{1-2x}\sqrt{5x+3}}{84672(3x+2)^2}+\frac{641\sqrt{1-2x}\sqrt{5x+3}}{15120(3x+2)^3}-\frac{107\sqrt{1-2x}\sqrt{5x+3}}{2520(3x+2)^4}-\frac{783959\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{43904\sqrt{7}}$$

```
[Out] (-107*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2520*(2 + 3*x)^4) + (641*Sqrt
[1 - 2*x]*Sqrt[3 + 5*x])/(15120*(2 + 3*x)^3) + (17981*Sqrt[1 - 2*
x]*Sqrt[3 + 5*x])/(84672*(2 + 3*x)^2) + (1852307*Sqrt[1 - 2*x]*Sq
rt[3 + 5*x])/(1185408*(2 + 3*x)) - (Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)
)/(15*(2 + 3*x)^5) - (783959*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3
 + 5*x])])/(43904*Sqrt[7])
```

Rubi [A] time = 0.367994, antiderivative size = 180, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$-\frac{\sqrt{1-2x}(5x+3)^{3/2}}{15(3x+2)^5}+\frac{1852307\sqrt{1-2x}\sqrt{5x+3}}{1185408(3x+2)}+\frac{17981\sqrt{1-2x}\sqrt{5x+3}}{84672(3x+2)^2}+\frac{641\sqrt{1-2x}\sqrt{5x+3}}{15120(3x+2)^3}-\frac{107\sqrt{1-2x}\sqrt{5x+3}}{2520(3x+2)^4}-\frac{783959\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{43904\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In] Int[(Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(2 + 3*x)^6,x]
```

```
[Out] (-107*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2520*(2 + 3*x)^4) + (641*Sqrt
[1 - 2*x]*Sqrt[3 + 5*x])/(15120*(2 + 3*x)^3) + (17981*Sqrt[1 - 2*
x]*Sqrt[3 + 5*x])/(84672*(2 + 3*x)^2) + (1852307*Sqrt[1 - 2*x]*Sq
rt[3 + 5*x])/(1185408*(2 + 3*x)) - (Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)
)/(15*(2 + 3*x)^5) - (783959*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3
 + 5*x])])/(43904*Sqrt[7])
```

Rubi in Sympy [A] time = 35.8922, size = 163, normalized size = 0.91

$$\frac{1852307\sqrt{-2x+1}\sqrt{5x+3}}{1185408\,(3x+2)}+\frac{17981\sqrt{-2x+1}\sqrt{5x+3}}{84672\,(3x+2)^2}+\frac{641\sqrt{-2x+1}\sqrt{5x+3}}{15120\,(3x+2)^3}-\frac{107\sqrt{-2x+1}\sqrt{5x+3}}{2520\,(3x+2)^4}-\frac{\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{15\,(3x+2)^5}-\frac{783959\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{307328}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((3+5*x)**(3/2)*(1-2*x)**(1/2)/(2+3*x)**6,x)
```

```
[Out] 1852307*sqrt(-2*x + 1)*sqrt(5*x + 3)/(1185408*(3*x + 2)) + 17981*
sqrt(-2*x + 1)*sqrt(5*x + 3)/(84672*(3*x + 2)**2) + 641*sqrt(-2*x
 + 1)*sqrt(5*x + 3)/(15120*(3*x + 2)**3) - 107*sqrt(-2*x + 1)*sqr
t(5*x + 3)/(2520*(3*x + 2)**4) - sqrt(-2*x + 1)*(5*x + 3)**(3/2)/
(15*(3*x + 2)**5) - 783959*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7
*sqrt(5*x + 3)))/307328
```

Mathematica [A] time = 0.107858, size = 87, normalized size = 0.48

$$\frac{\frac{14\sqrt{1-2x}\sqrt{5x+3}(83353815x^4+226052850x^3+230080132x^2+103856008x+17507808)}{(3x+2)^5}-11759385\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{9219840}$$

Antiderivative was successfully verified.

```
[In]   Integrate[(Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(2 + 3*x)^6,x]
```

```
[Out] ((14*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(17507808 + 103856008*x + 230080
132*x^2 + 226052850*x^3 + 83353815*x^4))/(2 + 3*x)^5 - 11759385*S
qrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/921
9840
```

Maple [B] time = 0.018, size = 298, normalized size = 1.7

$$\frac{1}{9219840\,(2+3x)^5}\sqrt{1-2x}\sqrt{3+5x}\left(2857530555\sqrt{7}\arctan\left(1/14\,\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)x^5+9525101850\sqrt{7}\arctan\left(1/14\,\frac{(3}{\sqrt{-}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((3+5*x)^(3/2)*(1-2*x)^(1/2)/(2+3*x)^6,x)
```

```
[Out] 1/9219840*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2857530555*7^(1/2)*arctan(
1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^5+9525101850*7^(1/2
)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^4+12700135
800*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^
3+1166953410*x^4*(-10*x^2-x+3)^(1/2)+8466757200*7^(1/2)*arctan(1/
14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+3164739900*x^3*(-10
*x^2-x+3)^(1/2)+2822252400*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/
(-10*x^2-x+3)^(1/2))*x+3221121848*x^2*(-10*x^2-x+3)^(1/2)+3763003
20*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+145
3984112*x*(-10*x^2-x+3)^(1/2)+245109312*(-10*x^2-x+3)^(1/2))/(-10
*x^2-x+3)^(1/2)/(2+3*x)^5
```

Maxima [A] time = 1.5123, size = 267, normalized size = 1.48

$$\frac{783959}{614656}\sqrt{7}\arcsin\left(\frac{37x}{11\,|3x+2|}+\frac{20}{11\,|3x+2|}\right)+\frac{32395}{32928}\sqrt{-10x^2-x+3}-\frac{(-10x^2-x+3)^{\frac{3}{2}}}{35\,(243x^5+810x^4+1080x^3+720x^2+240x+32)}+\frac{13\,(-10x^2-x+3)^{\frac{3}{2}}}{280\,(81x^4+216x^3+216x^2+96x+16)}+\frac{545\,(-10x^2-x+3)^{\frac{3}{2}}}{2352\,(27x^3+54x^2+36x+8)}+\frac{19437\,(-10x^2-x+3)^{\frac{3}{2}}}{21952\,(9x^2+12x+4)}-\frac{239723\sqrt{-10x^2-x+3}}{131712\,(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/(3*x + 2)^6,x, algorithm="maxima")
```

```
[Out] 783959/614656*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x
 + 2)) + 32395/32928*sqrt(-10*x^2 - x + 3) - 1/35*(-10*x^2 - x +
3)^(3/2)/(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32) +
13/280*(-10*x^2 - x + 3)^(3/2)/(81*x^4 + 216*x^3 + 216*x^2 + 96*x
 + 16) + 545/2352*(-10*x^2 - x + 3)^(3/2)/(27*x^3 + 54*x^2 + 36*x
 + 8) + 19437/21952*(-10*x^2 - x + 3)^(3/2)/(9*x^2 + 12*x + 4) -
239723/131712*sqrt(-10*x^2 - x + 3)/(3*x + 2)
```

Fricas [A] time = 0.225077, size = 167, normalized size = 0.93

$$\frac{\sqrt{7}\left(2\sqrt{7}(83353815x^4+226052850x^3+230080132x^2+103856008x+17507808)\sqrt{5x+3}\sqrt{-2x+1}+11759385\,(243x^5+\right.}{9219840\,(243x^5+810x^4+1080x^3+720x^2+240x+32)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/(3*x + 2)^6,x, algorithm="fricas")
```

```
[Out] 1/9219840*sqrt(7)*(2*sqrt(7)*(83353815*x^4 + 226052850*x^3 + 2300
80132*x^2 + 103856008*x + 17507808)*sqrt(5*x + 3)*sqrt(-2*x + 1)
+ 11759385*(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)*
arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/
(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3+5*x)**(3/2)*(1-2*x)**(1/2)/(2+3*x)**6,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.465361, size = 594, normalized size = 3.3

$$\frac{783959}{6146560}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)$$

$$-\frac{1331\left(1767\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^9+2308880\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^7-925245440\sqrt{10}\left(\cdots\right.\right.}{65856\left(\left(\cdots\right.\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/(3*x + 2)^6,x, algorithm="giac")
```

```
[Out] 783959/6146560*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*s
qrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) -
4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 1331/65856*(1767*sqrt
(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt
(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^9 + 2308880*sqrt(
10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(
5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^7 - 925245440*sqrt
(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt
(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 - 177804928000*
sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*
sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 - 108609715
20000*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3
) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqr
t(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)^5
```

3.2268 $\int \frac{\sqrt{1-2x}(3+5x)^{3/2}}{(2+3x)^7} dx$

Optimal. Leaf size=209

$$-\frac{\sqrt{1-2x}(5x+3)^{3/2}}{18(3x+2)^6}+\frac{152571047\sqrt{1-2x}\sqrt{5x+3}}{33191424(3x+2)}+\frac{1460201\sqrt{1-2x}\sqrt{5x+3}}{2370816(3x+2)^2}+\frac{42461\sqrt{1-2x}\sqrt{5x+3}}{423360(3x+2)^3}+\frac{4619\sqrt{1-2x}\sqrt{5x+3}}{211680(3x+2)^4}-\frac{107\sqrt{1-2x}\sqrt{5x+3}}{3780(3x+2)^5}-\frac{64645339\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{1229312\sqrt{7}}$$

```
[Out] (-107*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(3780*(2 + 3*x)^5) + (4619*Sqr
t[1 - 2*x]*Sqrt[3 + 5*x])/(211680*(2 + 3*x)^4) + (42461*Sqrt[1 -
2*x]*Sqrt[3 + 5*x])/(423360*(2 + 3*x)^3) + (1460201*Sqrt[1 - 2*x]
*Sqrt[3 + 5*x])/(2370816*(2 + 3*x)^2) + (152571047*Sqrt[1 - 2*x]*
Sqrt[3 + 5*x])/(33191424*(2 + 3*x)) - (Sqrt[1 - 2*x]*(3 + 5*x)^(3
/2))/(18*(2 + 3*x)^6) - (64645339*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*S
qrt[3 + 5*x])])/(1229312*Sqrt[7])
```

Rubi [A] time = 0.439464, antiderivative size = 209, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$-\frac{\sqrt{1-2x}(5x+3)^{3/2}}{18(3x+2)^6}+\frac{152571047\sqrt{1-2x}\sqrt{5x+3}}{33191424(3x+2)}+\frac{1460201\sqrt{1-2x}\sqrt{5x+3}}{2370816(3x+2)^2}+\frac{42461\sqrt{1-2x}\sqrt{5x+3}}{423360(3x+2)^3}+\frac{4619\sqrt{1-2x}\sqrt{5x+3}}{211680(3x+2)^4}-\frac{107\sqrt{1-2x}\sqrt{5x+3}}{3780(3x+2)^5}-\frac{64645339\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{1229312\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(2 + 3*x)^7,x]
```

```
[Out] (-107*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(3780*(2 + 3*x)^5) + (4619*Sqr
t[1 - 2*x]*Sqrt[3 + 5*x])/(211680*(2 + 3*x)^4) + (42461*Sqrt[1 -
2*x]*Sqrt[3 + 5*x])/(423360*(2 + 3*x)^3) + (1460201*Sqrt[1 - 2*x]
*Sqrt[3 + 5*x])/(2370816*(2 + 3*x)^2) + (152571047*Sqrt[1 - 2*x]*
Sqrt[3 + 5*x])/(33191424*(2 + 3*x)) - (Sqrt[1 - 2*x]*(3 + 5*x)^(3
/2))/(18*(2 + 3*x)^6) - (64645339*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*S
qrt[3 + 5*x])])/(1229312*Sqrt[7])
```

Rubi in Sympy [A] time = 43.6324, size = 190, normalized size = 0.91

$$\frac{152571047\sqrt{-2x+1}\sqrt{5x+3}}{33191424\,(3x+2)}+\frac{1460201\sqrt{-2x+1}\sqrt{5x+3}}{2370816\,(3x+2)^2}+\frac{42461\sqrt{-2x+1}\sqrt{5x+3}}{423360\,(3x+2)^3}+\frac{4619\sqrt{-2x+1}\sqrt{5x+3}}{211680\,(3x+2)^4}-\frac{107\sqrt{-2x+1}\sqrt{5x+3}}{3780\,(3x+2)^5}-\frac{\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{18\,(3x+2)^6}-\frac{64645339\sqrt{7}\,\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{8605184}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(3/2)*(1-2*x)**(1/2)/(2+3*x)**7,x)
```

```
[Out] 152571047*sqrt(-2*x + 1)*sqrt(5*x + 3)/(33191424*(3*x + 2)) + 146
0201*sqrt(-2*x + 1)*sqrt(5*x + 3)/(2370816*(3*x + 2)**2) + 42461*
sqrt(-2*x + 1)*sqrt(5*x + 3)/(423360*(3*x + 2)**3) + 4619*sqrt(-2
*x + 1)*sqrt(5*x + 3)/(211680*(3*x + 2)**4) - 107*sqrt(-2*x + 1)*
sqrt(5*x + 3)/(3780*(3*x + 2)**5) - sqrt(-2*x + 1)*(5*x + 3)**(3/
2)/(18*(3*x + 2)**6) - 64645339*sqrt(7)*atan(sqrt(7)*sqrt(-2*x +
1)/(7*sqrt(5*x + 3)))/8605184
```

Mathematica [A] time = 0.14822, size = 92, normalized size = 0.44

$$\frac{\frac{126\sqrt{1-2x}\sqrt{5x+3}(20597091345x^5+69576897780x^4+94045700016x^3+63585046048x^2+21497808880x+2906375616)}{(3x+2)^6}-8727120765\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+}}\right.}{2323399680}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(2 + 3*x)^7,x]
```

```
[Out] ((126*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(2906375616 + 21497808880*x + 6
3585046048*x^2 + 94045700016*x^3 + 69576897780*x^4 + 20597091345*
x^5))/(2 + 3*x)^6 - 8727120765*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqr
t[7 - 14*x]*Sqrt[3 + 5*x])])/2323399680
```

Maple [B] time = 0.019, size = 346, normalized size = 1.7

$$\frac{1}{258155520\,(2+3\,x)^6}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(706896781965\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^6+2827587127860\,\sqrt{7}\arctan\left(\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(3/2)*(1-2*x)^(1/2)/(2+3*x)^7,x)
```

```
[Out] 1/258155520*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(706896781965*7^(1/2)*arc
tan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^6+2827587127860
*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^5+4
712645213100*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^
(1/2))*x^4+288359278830*x^5*(-10*x^2-x+3)^(1/2)+4189017967200*7^(
1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+97407
6568920*x^4*(-10*x^2-x+3)^(1/2)+2094508983600*7^(1/2)*arctan(1/14
*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+1316639800224*x^3*(-1
0*x^2-x+3)^(1/2)+558535728960*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/
2)/(-10*x^2-x+3)^(1/2))*x+890190644672*x^2*(-10*x^2-x+3)^(1/2)+62
059525440*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/
2))+300969324320*x*(-10*x^2-x+3)^(1/2)+40689258624*(-10*x^2-x+3)^
(1/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)^6
```

Maxima [A] time = 1.55462, size = 329, normalized size = 1.57

$$\begin{aligned}&\frac{64645339}{17210368}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{2671295}{921984}\sqrt{-10\,x^2-x+3}\\&-\frac{\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{42\,(729\,x^6+2916\,x^5+4860\,x^4+4320\,x^3+2160\,x^2+576\,x+64)}\\&+\frac{29\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{980\,(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240\,x+32)}\\&+\frac{1273\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{7840\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}+\frac{45245\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{65856\,(27\,x^3+54\,x^2+36\,x+8)}\\&+\frac{1602777\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{614656\,(9\,x^2+12\,x+4)}-\frac{19767583\sqrt{-10\,x^2-x+3}}{3687936\,(3\,x+2)}\end{aligned}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/(3*x + 2)^7,x, algorithm="maxima")
```

```
[Out] 64645339/17210368*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs
(3*x + 2)) + 2671295/921984*sqrt(-10*x^2 - x + 3) - 1/42*(-10*x^2
 - x + 3)^(3/2)/(729*x^6 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 2160*
```

```
x^2 + 576*x + 64) + 29/980*(-10*x^2 - x + 3)^(3/2)/(243*x^5 + 810
*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32) + 1273/7840*(-10*x^2 - x
+ 3)^(3/2)/(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16) + 45245/65856
*(-10*x^2 - x + 3)^(3/2)/(27*x^3 + 54*x^2 + 36*x + 8) + 1602777/6
14656*(-10*x^2 - x + 3)^(3/2)/(9*x^2 + 12*x + 4) - 19767583/36879
36*sqrt(-10*x^2 - x + 3)/(3*x + 2)
```

Fricas [A] time = 0.225185, size = 188, normalized size = 0.9

$$\frac{\sqrt{7}\left(2\sqrt{7}\left(20597091345\,x^5+69576897780\,x^4+94045700016\,x^3+63585046048\,x^2+21497808880\,x+2906375616\right)\sqrt{5\,x+3}\cdots\right.}{258155520\left(729\,x^6+2916\,x^5+4860\,x^4+4\cdots\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/(3*x + 2)^7,x, algorithm="fricas")
```

```
[Out] 1/258155520*sqrt(7)*(2*sqrt(7)*(20597091345*x^5 + 69576897780*x^4
 + 94045700016*x^3 + 63585046048*x^2 + 21497808880*x + 2906375616
)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 969680085*(729*x^6 + 2916*x^5 +
4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64)*arctan(1/14*sqrt(7)*
(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(729*x^6 + 2916*x^5
+ 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(3/2)*(1-2*x)**(1/2)/(2+3*x)**7,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.548883, size = 676, normalized size = 3.23

$$\frac{64645339}{172103680}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)$$
$$-\frac{1331\left(145707\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^{11}+231188440\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^{9}-144245619\cdots\right.}{\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/(3*x + 2)^7,x, algorithm="giac")
```

```
[Out] 64645339/172103680*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(7
0)*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3
) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 1331/1843968*(145
707*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3)
- 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^11 + 2311
88440*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3
) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^9 - 144
245619840*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x
```

```
 + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^7 -
 41365512115200*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sq
rt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)
))^5 - 5067855403520000*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt
(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) -
sqrt(22)))^3 - 250767109017600000*sqrt(10)*((sqrt(2)*sqrt(-10*x +
 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10
*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt
(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))
^2 + 280)^6
```

3.2269 $\int \sqrt{1-2x}(2+3x)^4(3+5x)^{5/2}\,dx$

Optimal. Leaf size=201

$$-\frac{3}{80}(1-2x)^{3/2}(3x+2)^3(5x+3)^{7/2}-\frac{1419(1-2x)^{3/2}(3x+2)^2(5x+3)^{7/2}}{11200}-\frac{3(1-2x)^{3/2}(522420x+899099)(5x+3)^{7/2}}{1280000}-\frac{135817609(1-2x)^{3/2}(5x+3)^{5/2}}{20480000}-\frac{1493993699(1-2x)^{3/2}(5x+3)^{3/2}}{49152000}-\frac{16433930689(1-2x)^{3/2}\sqrt{5x+3}}{131072000}+\frac{180773237579\sqrt{1-2x}\sqrt{5x+3}}{1310720000}+\frac{1988505613369\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{1310720000\sqrt{10}}$$

```
[Out] (180773237579*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/1310720000 - (16433930
689*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/131072000 - (1493993699*(1 - 2
*x)^(3/2)*(3 + 5*x)^(3/2))/49152000 - (135817609*(1 - 2*x)^(3/2)*
(3 + 5*x)^(5/2))/20480000 - (1419*(1 - 2*x)^(3/2)*(2 + 3*x)^2*(3
+ 5*x)^(7/2))/11200 - (3*(1 - 2*x)^(3/2)*(2 + 3*x)^3*(3 + 5*x)^(7
/2))/80 - (3*(1 - 2*x)^(3/2)*(3 + 5*x)^(7/2)*(899099 + 522420*x))
/1280000 + (1988505613369*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(1310
720000*Sqrt[10])
```

Rubi [A] time = 0.276063, antiderivative size = 201, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$-\frac{3}{80}(1-2x)^{3/2}(3x+2)^3(5x+3)^{7/2}-\frac{1419(1-2x)^{3/2}(3x+2)^2(5x+3)^{7/2}}{11200}-\frac{3(1-2x)^{3/2}(522420x+899099)(5x+3)^{7/2}}{1280000}-\frac{135817609(1-2x)^{3/2}(5x+3)^{5/2}}{20480000}-\frac{1493993699(1-2x)^{3/2}(5x+3)^{3/2}}{49152000}-\frac{16433930689(1-2x)^{3/2}\sqrt{5x+3}}{131072000}+\frac{180773237579\sqrt{1-2x}\sqrt{5x+3}}{1310720000}+\frac{1988505613369\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{1310720000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]*(2 + 3*x)^4*(3 + 5*x)^(5/2),x]
```


```
[Out] (180773237579*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/1310720000 - (16433930
689*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/131072000 - (1493993699*(1 - 2
*x)^(3/2)*(3 + 5*x)^(3/2))/49152000 - (135817609*(1 - 2*x)^(3/2)*
(3 + 5*x)^(5/2))/20480000 - (1419*(1 - 2*x)^(3/2)*(2 + 3*x)^2*(3
+ 5*x)^(7/2))/11200 - (3*(1 - 2*x)^(3/2)*(2 + 3*x)^3*(3 + 5*x)^(7
/2))/80 - (3*(1 - 2*x)^(3/2)*(3 + 5*x)^(7/2)*(899099 + 522420*x))
/1280000 + (1988505613369*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(1310
720000*Sqrt[10])
```

Rubi in Sympy [A] time = 26.9205, size = 187, normalized size = 0.93

$$-\frac{3\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{3}\left(5x+3\right)^{\frac{7}{2}}}{80}-\frac{1419\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{2}\left(5x+3\right)^{\frac{7}{2}}}{11200}-\frac{\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{7}{2}}\left(\frac{41140575x}{2}+\frac{283216185}{8}\right)}{16800000}+\frac{135817609\sqrt{-2x+1}\left(5x+3\right)^{\frac{7}{2}}}{51200000}-\frac{1493993699\sqrt{-2x+1}\left(5x+3\right)^{\frac{5}{2}}}{614400000}-\frac{16433930689\sqrt{-2x+1}\left(5x+3\right)^{\frac{3}{2}}}{983040000}-\frac{180773237579\sqrt{-2x+1}\sqrt{5x+3}}{1310720000}+\frac{1988505613369\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{13107200000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4*(3+5*x)**(5/2)*(1-2*x)**(1/2),x)
```

```
[Out] -3*(-2*x + 1)**(3/2)*(3*x + 2)**3*(5*x + 3)**(7/2)/80 - 1419*(-2*
x + 1)**(3/2)*(3*x + 2)**2*(5*x + 3)**(7/2)/11200 - (-2*x + 1)**(
3/2)*(5*x + 3)**(7/2)*(41140575*x/2 + 283216185/8)/16800000 + 135
817609*sqrt(-2*x + 1)*(5*x + 3)**(7/2)/51200000 - 1493993699*sqrt
(-2*x + 1)*(5*x + 3)**(5/2)/614400000 - 16433930689*sqrt(-2*x + 1
)*(5*x + 3)**(3/2)/983040000 - 180773237579*sqrt(-2*x + 1)*sqrt(5
*x + 3)/1310720000 + 1988505613369*sqrt(10)*asin(sqrt(22)*sqrt(5*
x + 3)/11)/13107200000
```

Mathematica [A] time = 0.160535, size = 85, normalized size = 0.42

$$\frac{10\sqrt{1-2x}\sqrt{5x+3}\left(6967296000000x^7+30838579200000x^6+57746856960000x^5+58346097408000x^4+32457421737600x\right.}{275251200000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]*(2 + 3*x)^4*(3 + 5*x)^(5/2),x]
```

```
[Out] (10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(-5973304472091 - 3991703112140*x
 + 6882844528480*x^2 + 32457421737600*x^3 + 58346097408000*x^4 +
57746856960000*x^5 + 30838579200000*x^6 + 6967296000000*x^7) - 41
758617880749*Sqrt[10]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/275251200
000
```

Maple [A] time = 0.017, size = 172, normalized size = 0.9

$$\frac{1}{550502400000}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(139345920000000\,x^7\sqrt{-10\,x^2-x+3}+616771584000000\,x^6\sqrt{-10\,x^2-x+3}+115493713\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4*(3+5*x)^(5/2)*(1-2*x)^(1/2),x)
```

```
[Out] 1/550502400000*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(139345920000000*x^7*(
-10*x^2-x+3)^(1/2)+616771584000000*x^6*(-10*x^2-x+3)^(1/2)+115493
7139200000*x^5*(-10*x^2-x+3)^(1/2)+1166921948160000*x^4*(-10*x^2-
x+3)^(1/2)+649148434752000*x^3*(-10*x^2-x+3)^(1/2)+13765689056960
0*x^2*(-10*x^2-x+3)^(1/2)+41758617880749*10^(1/2)*arcsin(20/11*x+
1/11)-79834062242800*x*(-10*x^2-x+3)^(1/2)-119466089441820*(-10*x
^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.48985, size = 186, normalized size = 0.93

$$-\frac{405}{16}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x^5-\frac{49059}{448}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x^4-\frac{739881}{3584}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x^3$$
$$-\frac{80346831}{358400}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x^2-\frac{4513921183}{28672000}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x$$
$$-\frac{26326737569}{344064000}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}+\frac{16433930689}{65536000}\sqrt{-10\,x^2-x+3}x$$
$$-\frac{1988505613369}{26214400000}\sqrt{10}\arcsin\left(-\frac{20}{11}x-\frac{1}{11}\right)+\frac{16433930689}{1310720000}\sqrt{-10\,x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(3*x + 2)^4*sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] -405/16*(-10*x^2 - x + 3)^(3/2)*x^5 - 49059/448*(-10*x^2 - x + 3)
^(3/2)*x^4 - 739881/3584*(-10*x^2 - x + 3)^(3/2)*x^3 - 80346831/3
58400*(-10*x^2 - x + 3)^(3/2)*x^2 - 4513921183/28672000*(-10*x^2
- x + 3)^(3/2)*x - 26326737569/344064000*(-10*x^2 - x + 3)^(3/2)
+ 16433930689/65536000*sqrt(-10*x^2 - x + 3)*x - 1988505613369/26
214400000*sqrt(10)*arcsin(-20/11*x - 1/11) + 16433930689/13107200
00*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.219694, size = 117, normalized size = 0.58

$$\frac{1}{550502400000}\sqrt{10}\left(2\sqrt{10}\left(6967296000000\,x^{7}+30838579200000\,x^{6}+57746856960000\,x^{5}+58346097408000\,x^{4}+32457421\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(3*x + 2)^4*sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] 1/550502400000*sqrt(10)*(2*sqrt(10)*(6967296000000*x^7 + 30838579
200000*x^6 + 57746856960000*x^5 + 58346097408000*x^4 + 3245742173
7600*x^3 + 6882844528480*x^2 - 3991703112140*x - 5973304472091)*s
qrt(5*x + 3)*sqrt(-2*x + 1) + 41758617880749*arctan(1/20*sqrt(10)
*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4*(3+5*x)**(5/2)*(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.276704, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(3*x + 2)^4*sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] Done
```

3.2270 $\int \sqrt{1-2x}(2+3x)^3(3+5x)^{5/2}\,dx$

Optimal. Leaf size=172

$$-\frac{3}{70}(1-2x)^{3/2}(3x+2)^2(5x+3)^{7/2}-\frac{3(1-2x)^{3/2}(1140x+1963)(5x+3)^{7/2}}{8000}-\frac{296633(1-2x)^{3/2}(5x+3)^{5/2}}{128000}-\frac{3262963(1-2x)^{3/2}(5x+3)^{3/2}}{307200}-\frac{35892593(1-2x)^{3/2}\sqrt{5x+3}}{819200}+\frac{394818523\sqrt{1-2x}\sqrt{5x+3}}{8192000}+\frac{4343003753\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{8192000\sqrt{10}}$$

```
[Out] (394818523*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/8192000 - (35892593*(1 -
2*x)^(3/2)*Sqrt[3 + 5*x])/819200 - (3262963*(1 - 2*x)^(3/2)*(3 +
5*x)^(3/2))/307200 - (296633*(1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/128
000 - (3*(1 - 2*x)^(3/2)*(2 + 3*x)^2*(3 + 5*x)^(7/2))/70 - (3*(1
- 2*x)^(3/2)*(3 + 5*x)^(7/2)*(1963 + 1140*x))/8000 + (4343003753*
ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(8192000*Sqrt[10])
```

Rubi [A] time = 0.206583, antiderivative size = 172, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$-\frac{3}{70}(1-2x)^{3/2}(3x+2)^2(5x+3)^{7/2}-\frac{3(1-2x)^{3/2}(1140x+1963)(5x+3)^{7/2}}{8000}-\frac{296633(1-2x)^{3/2}(5x+3)^{5/2}}{128000}-\frac{3262963(1-2x)^{3/2}(5x+3)^{3/2}}{307200}-\frac{35892593(1-2x)^{3/2}\sqrt{5x+3}}{819200}+\frac{394818523\sqrt{1-2x}\sqrt{5x+3}}{8192000}+\frac{4343003753\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{8192000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]*(2 + 3*x)^3*(3 + 5*x)^(5/2),x]
```


```
[Out] (394818523*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/8192000 - (35892593*(1 -
2*x)^(3/2)*Sqrt[3 + 5*x])/819200 - (3262963*(1 - 2*x)^(3/2)*(3 +
5*x)^(3/2))/307200 - (296633*(1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/128
000 - (3*(1 - 2*x)^(3/2)*(2 + 3*x)^2*(3 + 5*x)^(7/2))/70 - (3*(1
- 2*x)^(3/2)*(3 + 5*x)^(7/2)*(1963 + 1140*x))/8000 + (4343003753*
ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(8192000*Sqrt[10])
```

Rubi in Sympy [A] time = 19.2492, size = 158, normalized size = 0.92

$$-\frac{3\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{2}\left(5x+3\right)^{\frac{7}{2}}}{70}-\frac{\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{7}{2}}\left(89775x+\frac{618345}{4}\right)}{210000}+\frac{296633\sqrt{-2x+1}\left(5x+3\right)^{\frac{7}{2}}}{320000}-\frac{3262963\sqrt{-2x+1}\left(5x+3\right)^{\frac{5}{2}}}{3840000}-\frac{35892593\sqrt{-2x+1}\left(5x+3\right)^{\frac{3}{2}}}{6144000}-\frac{394818523\sqrt{-2x+1}\sqrt{5x+3}}{8192000}+\frac{4343003753\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{81920000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3*(3+5*x)**(5/2)*(1-2*x)**(1/2),x)
```

```
[Out] -3*(-2*x + 1)**(3/2)*(3*x + 2)**2*(5*x + 3)**(7/2)/70 - (-2*x + 1
)**(3/2)*(5*x + 3)**(7/2)*(89775*x + 618345/4)/210000 + 296633*sq
rt(-2*x + 1)*(5*x + 3)**(7/2)/320000 - 3262963*sqrt(-2*x + 1)*(5*
x + 3)**(5/2)/3840000 - 35892593*sqrt(-2*x + 1)*(5*x + 3)**(3/2)/
6144000 - 394818523*sqrt(-2*x + 1)*sqrt(5*x + 3)/8192000 + 434300
```

```
3753*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/81920000
```

Mathematica [A] time = 0.13993, size = 80, normalized size = 0.47

$$\frac{10\sqrt{1-2x}\sqrt{5x+3}\left(16588800000x^6+62069760000x^5+94673664000x^4+72591427200x^3+24336990560x^2-4902803980x\right.}{1720320000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]*(2 + 3*x)^3*(3 + 5*x)^(5/2),x]
```

```
[Out] (10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(-12531569067 - 4902803980*x + 24
336990560*x^2 + 72591427200*x^3 + 94673664000*x^4 + 62069760000*x
^5 + 16588800000*x^6) - 91203078813*Sqrt[10]*ArcSin[Sqrt[5/11]*Sq
rt[1 - 2*x]])/1720320000
```

Maple [A] time = 0.015, size = 155, normalized size = 0.9

$$\frac{1}{3440640000}\sqrt{1-2x}\sqrt{3+5x}\left(331776000000x^6\sqrt{-10x^2-x+3}+1241395200000x^5\sqrt{-10x^2-x+3}+1893473280000x^4\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3*(3+5*x)^(5/2)*(1-2*x)^(1/2),x)
```

```
[Out] 1/3440640000*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(331776000000*x^6*(-10*x
^2-x+3)^(1/2)+1241395200000*x^5*(-10*x^2-x+3)^(1/2)+1893473280000
*x^4*(-10*x^2-x+3)^(1/2)+1451828544000*x^3*(-10*x^2-x+3)^(1/2)+48
6739811200*x^2*(-10*x^2-x+3)^(1/2)+91203078813*10^(1/2)*arcsin(20
/11*x+1/11)-98056079600*x*(-10*x^2-x+3)^(1/2)-250631381340*(-10*x
^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.49205, size = 163, normalized size = 0.95

$$-\frac{135}{14}\left(-10x^2-x+3\right)^{\frac{3}{2}}x^4-\frac{3933}{112}\left(-10x^2-x+3\right)^{\frac{3}{2}}x^3-\frac{121887}{2240}\left(-10x^2-x+3\right)^{\frac{3}{2}}x^2-\frac{8474351}{179200}\left(-10x^2-x+3\right)^{\frac{3}{2}}x-\frac{55355473}{2150400}\left(-10x^2-x+3\right)^{\frac{3}{2}}+\frac{35892593}{409600}\sqrt{-10x^2-x+3}x-\frac{4343003753}{163840000}\sqrt{10}\arcsin\left(-\frac{20}{11}x-\frac{1}{11}\right)+\frac{35892593}{8192000}\sqrt{-10x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)^3*sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] -135/14*(-10*x^2 - x + 3)^(3/2)*x^4 - 3933/112*(-10*x^2 - x + 3)^
(3/2)*x^3 - 121887/2240*(-10*x^2 - x + 3)^(3/2)*x^2 - 8474351/179
200*(-10*x^2 - x + 3)^(3/2)*x - 55355473/2150400*(-10*x^2 - x + 3
)^(3/2) + 35892593/409600*sqrt(-10*x^2 - x + 3)*x - 4343003753/16
3840000*sqrt(10)*arcsin(-20/11*x - 1/11) + 35892593/8192000*sqrt(
-10*x^2 - x + 3)
```

Fricas [A] time = 0.219394, size = 111, normalized size = 0.65

$$\frac{1}{3440640000}\sqrt{10}\left(2\sqrt{10}\left(16588800000x^6+62069760000x^5+94673664000x^4+72591427200x^3+24336990560x^2-49028\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)^3*sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] 1/3440640000*sqrt(10)*(2*sqrt(10)*(16588800000*x^6 + 62069760000*
x^5 + 94673664000*x^4 + 72591427200*x^3 + 24336990560*x^2 - 49028
03980*x - 12531569067)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 91203078813
*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3*(3+5*x)**(5/2)*(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.278815, size = 548, normalized size = 3.19

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)^3*sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] 9/14336000000*sqrt(5)*(2*(4*(8*(4*(16*(20*(120*x - 359)*(5*x + 3)
 + 63769)*(5*x + 3) - 3968469)*(5*x + 3) + 33617829)*(5*x + 3) -
276044685)*(5*x + 3) + 87356115)*sqrt(5*x + 3)*sqrt(-10*x + 5) -
960917265*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 9/320000
00*sqrt(5)*(2*(4*(8*(4*(16*(100*x - 239)*(5*x + 3) + 27999)*(5*x
+ 3) - 318159)*(5*x + 3) + 3237255)*(5*x + 3) - 2656665)*sqrt(5*x
 + 3)*sqrt(-10*x + 5) + 29223315*sqrt(2)*arcsin(1/11*sqrt(22)*sqr
t(5*x + 3))) + 921/64000000*sqrt(5)*(2*(4*(8*(12*(80*x - 143)*(5*
x + 3) + 9773)*(5*x + 3) - 136405)*(5*x + 3) + 60555)*sqrt(5*x +
3)*sqrt(-10*x + 5) - 666105*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x
 + 3))) + 883/960000*sqrt(5)*(2*(4*(8*(60*x - 71)*(5*x + 3) + 217
9)*(5*x + 3) - 4125)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 45375*sqrt(2
)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 47/2000*sqrt(5)*(2*(4*(4
0*x - 23)*(5*x + 3) + 33)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 363*sqr
t(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 9/50*sqrt(5)*(2*(20*x
 + 1)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 121*sqrt(2)*arcsin(1/11*sqr
t(22)*sqrt(5*x + 3)))
```

3.2271 $\int \sqrt{1-2x}(2+3x)^2(3+5x)^{5/2}\,dx$

Optimal. Leaf size=165

$$-\frac{13}{80}(1-2x)^{3/2}(5x+3)^{7/2}$$

$$-\frac{1}{20}(1-2x)^{3/2}(3x+2)(5x+3)^{7/2}-\frac{1069(1-2x)^{3/2}(5x+3)^{5/2}}{1280}-\frac{11759(1-2x)^{3/2}(5x+3)^{3/2}}{3072}-\frac{129349(1-2x)^{3/2}\sqrt{5x+3}}{8192}+\frac{14}{}$$

```
[Out] (1422839*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/81920 - (129349*(1 - 2*x)^(
3/2)*Sqrt[3 + 5*x])/8192 - (11759*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)
)/3072 - (1069*(1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/1280 - (13*(1 - 2
*x)^(3/2)*(3 + 5*x)^(7/2))/80 - ((1 - 2*x)^(3/2)*(2 + 3*x)*(3 + 5
*x)^(7/2))/20 + (15651229*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(8192
0*Sqrt[10])
```

Rubi [A] time = 0.194294, antiderivative size = 165, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.192$

$$-\frac{13}{80}(1-2x)^{3/2}(5x+3)^{7/2}$$

$$-\frac{1}{20}(1-2x)^{3/2}(3x+2)(5x+3)^{7/2}-\frac{1069(1-2x)^{3/2}(5x+3)^{5/2}}{1280}-\frac{11759(1-2x)^{3/2}(5x+3)^{3/2}}{3072}-\frac{129349(1-2x)^{3/2}\sqrt{5x+3}}{8192}+\frac{14}{}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]*(2 + 3*x)^2*(3 + 5*x)^(5/2),x]
```


```
[Out] (1422839*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/81920 - (129349*(1 - 2*x)^(
3/2)*Sqrt[3 + 5*x])/8192 - (11759*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)
)/3072 - (1069*(1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/1280 - (13*(1 - 2
*x)^(3/2)*(3 + 5*x)^(7/2))/80 - ((1 - 2*x)^(3/2)*(2 + 3*x)*(3 + 5
*x)^(7/2))/20 + (15651229*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(8192
0*Sqrt[10])
```

Rubi in Sympy [A] time = 15.2061, size = 150, normalized size = 0.91

$$-\frac{(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{7}{2}}(9x+6)}{60}-\frac{13(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{7}{2}}}{80}+\frac{1069\sqrt{-2x+1}(5x+3)^{\frac{7}{2}}}{3200}-\frac{11759\sqrt{-2x+1}(5x+3)^{\frac{5}{2}}}{38400}-\frac{129349\sqrt{-2x+1}(5x+3)^{\frac{3}{2}}}{61440}-\frac{1422839\sqrt{-2x+1}\sqrt{5x+3}}{81920}+\frac{15651229\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{819200}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2*(3+5*x)**(5/2)*(1-2*x)**(1/2),x)
```

```
[Out] -(-2*x + 1)**(3/2)*(5*x + 3)**(7/2)*(9*x + 6)/60 - 13*(-2*x + 1)*
*(3/2)*(5*x + 3)**(7/2)/80 + 1069*sqrt(-2*x + 1)*(5*x + 3)**(7/2)
/3200 - 11759*sqrt(-2*x + 1)*(5*x + 3)**(5/2)/38400 - 129349*sqrt
(-2*x + 1)*(5*x + 3)**(3/2)/61440 - 1422839*sqrt(-2*x + 1)*sqrt(5
*x + 3)/81920 + 15651229*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)
/819200
```

Mathematica [A] time = 0.113877, size = 75, normalized size = 0.45

$$\frac{10\sqrt{1-2x}\sqrt{5x+3}\left(9216000x^5+28108800x^4+32887680x^3+16507936x^2+17884x-6023169\right)-46953687\sqrt{10}\sin^{-1}\left(\sqrt{\right.}{2457600}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]*(2 + 3*x)^2*(3 + 5*x)^(5/2),x]
```

```
[Out] (10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(-6023169 + 17884*x + 16507936*x^
2 + 32887680*x^3 + 28108800*x^4 + 9216000*x^5) - 46953687*Sqrt[10
]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/2457600
```

Maple [A] time = 0.013, size = 138, normalized size = 0.8

$$\frac{1}{4915200}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(184320000\,x^5\sqrt{-10\,x^2-x+3}+562176000\,x^4\sqrt{-10\,x^2-x+3}+657753600\,x^3\sqrt{-10\,x^2-x+3}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2*(3+5*x)^(5/2)*(1-2*x)^(1/2),x)
```

```
[Out] 1/4915200*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(184320000*x^5*(-10*x^2-x+3
)^(1/2)+562176000*x^4*(-10*x^2-x+3)^(1/2)+657753600*x^3*(-10*x^2-
x+3)^(1/2)+330158720*x^2*(-10*x^2-x+3)^(1/2)+46953687*10^(1/2)*ar
csin(20/11*x+1/11)+357680*x*(-10*x^2-x+3)^(1/2)-120463380*(-10*x^
2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.50612, size = 140, normalized size = 0.85

$$-\frac{15}{4}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x^3-\frac{177}{16}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x^2-\frac{17153}{1280}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x-\frac{133567}{15360}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}+\frac{129349}{4096}\sqrt{-10\,x^2-x+3}x-\frac{15651229}{1638400}\sqrt{10}\arcsin\left(-\frac{20}{11}x-\frac{1}{11}\right)+\frac{129349}{81920}\sqrt{-10\,x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)^2*sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] -15/4*(-10*x^2 - x + 3)^(3/2)*x^3 - 177/16*(-10*x^2 - x + 3)^(3/2
)*x^2 - 17153/1280*(-10*x^2 - x + 3)^(3/2)*x - 133567/15360*(-10*
x^2 - x + 3)^(3/2) + 129349/4096*sqrt(-10*x^2 - x + 3)*x - 156512
29/1638400*sqrt(10)*arcsin(-20/11*x - 1/11) + 129349/81920*sqrt(-
10*x^2 - x + 3)
```

Fricas [A] time = 0.217268, size = 104, normalized size = 0.63

$$\frac{1}{4915200}\sqrt{10}\left(2\sqrt{10}\left(9216000\,x^5+28108800\,x^4+32887680\,x^3+16507936\,x^2+17884\,x-6023169\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+46\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)^2*sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] 1/4915200*sqrt(10)*(2*sqrt(10)*(9216000*x^5 + 28108800*x^4 + 3288
7680*x^3 + 16507936*x^2 + 17884*x - 6023169)*sqrt(5*x + 3)*sqrt(-
2*x + 1) + 46953687*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3
)*sqrt(-2*x + 1))))
```

Sympy [A] time = 166.953, size = 694, normalized size = 4.21

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2*(3+5*x)**(5/2)*(1-2*x)**(1/2),x)
```

```
[Out] -5929*sqrt(2)*Piecewise((121*sqrt(5)*(-sqrt(5)*sqrt(-2*x + 1)*sqr
t(10*x + 6)*(20*x + 1)/121 + asin(sqrt(55)*sqrt(-2*x + 1)/11))/20
0, (x <= 1/2) & (x > -3/5)))/32 + 1309*sqrt(2)*Piecewise((1331*sq
rt(5)*(-5*sqrt(5)*(-2*x + 1)**(3/2)*(10*x + 6)**(3/2)/7986 - sqrt
(5)*sqrt(-2*x + 1)*sqrt(10*x + 6)*(20*x + 1)/1936 + asin(sqrt(55)
*sqrt(-2*x + 1)/11)/16)/125, (x <= 1/2) & (x > -3/5)))/4 - 3467*s
qrt(2)*Piecewise((14641*sqrt(5)*(-5*sqrt(5)*(-2*x + 1)**(3/2)*(10
*x + 6)**(3/2)/7986 - sqrt(5)*sqrt(-2*x + 1)*sqrt(10*x + 6)*(20*x
 + 1)/3872 - sqrt(5)*sqrt(-2*x + 1)*sqrt(10*x + 6)*(12100*x - 200
0*(-2*x + 1)**3 + 6600*(-2*x + 1)**2 - 4719)/1874048 + 5*asin(sqr
t(55)*sqrt(-2*x + 1)/11)/128)/625, (x <= 1/2) & (x > -3/5)))/16 +
 255*sqrt(2)*Piecewise((161051*sqrt(5)*(5*sqrt(5)*(-2*x + 1)**(5/
2)*(10*x + 6)**(5/2)/322102 - 5*sqrt(5)*(-2*x + 1)**(3/2)*(10*x +
 6)**(3/2)/7986 - sqrt(5)*sqrt(-2*x + 1)*sqrt(10*x + 6)*(20*x + 1
)/7744 - 3*sqrt(5)*sqrt(-2*x + 1)*sqrt(10*x + 6)*(12100*x - 2000*
(-2*x + 1)**3 + 6600*(-2*x + 1)**2 - 4719)/3748096 + 7*asin(sqrt(
55)*sqrt(-2*x + 1)/11)/256)/3125, (x <= 1/2) & (x > -3/5)))/4 - 2
25*sqrt(2)*Piecewise((1771561*sqrt(5)*(5*sqrt(5)*(-2*x + 1)**(5/2
)*(10*x + 6)**(5/2)/161051 + 5*sqrt(5)*(-2*x + 1)**(3/2)*(10*x +
6)**(3/2)*(20*x + 1)**3/170069856 - 5*sqrt(5)*(-2*x + 1)**(3/2)*(
10*x + 6)**(3/2)/7986 - sqrt(5)*sqrt(-2*x + 1)*sqrt(10*x + 6)*(20
*x + 1)/15488 - 13*sqrt(5)*sqrt(-2*x + 1)*sqrt(10*x + 6)*(12100*x
 - 2000*(-2*x + 1)**3 + 6600*(-2*x + 1)**2 - 4719)/14992384 + 21*
asin(sqrt(55)*sqrt(-2*x + 1)/11)/1024)/15625, (x <= 1/2) & (x > -
3/5)))/32
```

GIAC/XCAS [A] time = 0.272583, size = 427, normalized size = 2.59

$$\frac{3}{102400000}\sqrt{5}\Big(2\,(4\,(8\,(4\,(16\,(100\,x-239)(5\,x+3)+27999)(5\,x+3)-318159)(5\,x+3)+3237255)(5\,x+3)-2656665)\sqrt{5\,x}$$
$$+\frac{19}{6400000}\sqrt{5}\Big(2\,(4\,(8\,(12\,(80\,x-143)(5\,x+3)+9773)(5\,x+3)-136405)(5\,x+3)+60555)\sqrt{5\,x+3}\sqrt{-10\,x+5}-666105\,\sqrt{2}$$
$$+\frac{541}{1920000}\sqrt{5}\left(2\,(4\,(8\,(60\,x-71)(5\,x+3)+2179)(5\,x+3)-4125)\sqrt{5\,x+3}\sqrt{-10\,x+5}+45375\,\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5\,x+3}\right)\right)$$
$$+\frac{19}{2000}\sqrt{5}\left(2\,(4\,(40\,x-23)(5\,x+3)+33)\sqrt{5\,x+3}\sqrt{-10\,x+5}-363\,\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5\,x+3}\right)\right)$$
$$+\frac{9}{100}\sqrt{5}\left(2\,(20\,x+1)\sqrt{5\,x+3}\sqrt{-10\,x+5}+121\,\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5\,x+3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)^2*sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] 3/102400000*sqrt(5)*(2*(4*(8*(4*(16*(100*x - 239)*(5*x + 3) + 279
99)*(5*x + 3) - 318159)*(5*x + 3) + 3237255)*(5*x + 3) - 2656665)
*sqrt(5*x + 3)*sqrt(-10*x + 5) + 29223315*sqrt(2)*arcsin(1/11*sqr
t(22)*sqrt(5*x + 3))) + 19/6400000*sqrt(5)*(2*(4*(8*(12*(80*x - 1
43)*(5*x + 3) + 9773)*(5*x + 3) - 136405)*(5*x + 3) + 60555)*sqrt
(5*x + 3)*sqrt(-10*x + 5) - 666105*sqrt(2)*arcsin(1/11*sqrt(22)*s
qrt(5*x + 3))) + 541/1920000*sqrt(5)*(2*(4*(8*(60*x - 71)*(5*x +
```

```
3) + 2179)*(5*x + 3) - 4125)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 4537
5*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 19/2000*sqrt(5)*
(2*(4*(40*x - 23)*(5*x + 3) + 33)*sqrt(5*x + 3)*sqrt(-10*x + 5) -
 363*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 9/100*sqrt(5)
*(2*(20*x + 1)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 121*sqrt(2)*arcsin
(1/11*sqrt(22)*sqrt(5*x + 3)))
```

3.2272 $\int \sqrt{1-2x}(2+3x)(3+5x)^{5/2}\,dx$

Optimal. Leaf size=138

$$-\frac{3}{50}(1-2x)^{3/2}(5x+3)^{7/2}$$
$$-\frac{251}{800}(1-2x)^{3/2}(5x+3)^{5/2}-\frac{2761(1-2x)^{3/2}(5x+3)^{3/2}}{1920}-\frac{30371(1-2x)^{3/2}\sqrt{5x+3}}{5120}+\frac{334081\sqrt{1-2x}\sqrt{5x+3}}{51200}+\frac{3674891\sin^{-1}}{512}$$

```
[Out] (334081*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/51200 - (30371*(1 - 2*x)^(3/
2)*Sqrt[3 + 5*x])/5120 - (2761*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/1
920 - (251*(1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/800 - (3*(1 - 2*x)^(3
/2)*(3 + 5*x)^(7/2))/50 + (3674891*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x
]])/(51200*Sqrt[10])
```

Rubi [A] time = 0.142083, antiderivative size = 138, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$-\frac{3}{50}(1-2x)^{3/2}(5x+3)^{7/2}$$
$$-\frac{251}{800}(1-2x)^{3/2}(5x+3)^{5/2}-\frac{2761(1-2x)^{3/2}(5x+3)^{3/2}}{1920}-\frac{30371(1-2x)^{3/2}\sqrt{5x+3}}{5120}+\frac{334081\sqrt{1-2x}\sqrt{5x+3}}{51200}+\frac{3674891\sin^{-1}}{512}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]*(2 + 3*x)*(3 + 5*x)^(5/2),x]
```

```
[Out] (334081*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/51200 - (30371*(1 - 2*x)^(3/
2)*Sqrt[3 + 5*x])/5120 - (2761*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/1
920 - (251*(1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/800 - (3*(1 - 2*x)^(3
/2)*(3 + 5*x)^(7/2))/50 + (3674891*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x
]])/(51200*Sqrt[10])
```

Rubi in Sympy [A] time = 12.2577, size = 126, normalized size = 0.91

$$-\frac{3(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{7}{2}}}{50}+\frac{251\sqrt{-2x+1}(5x+3)^{\frac{7}{2}}}{2000}-\frac{2761\sqrt{-2x+1}(5x+3)^{\frac{5}{2}}}{24000}-\frac{30371\sqrt{-2x+1}(5x+3)^{\frac{3}{2}}}{38400}-\frac{334081\sqrt{-2x+1}\sqrt{5x+3}}{51200}+\frac{3674891\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{512000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)*(3+5*x)**(5/2)*(1-2*x)**(1/2),x)
```

```
[Out] -3*(-2*x + 1)**(3/2)*(5*x + 3)**(7/2)/50 + 251*sqrt(-2*x + 1)*(5*
x + 3)**(7/2)/2000 - 2761*sqrt(-2*x + 1)*(5*x + 3)**(5/2)/24000 -
 30371*sqrt(-2*x + 1)*(5*x + 3)**(3/2)/38400 - 334081*sqrt(-2*x +
 1)*sqrt(5*x + 3)/51200 + 3674891*sqrt(10)*asin(sqrt(22)*sqrt(5*x
 + 3)/11)/512000
```

Mathematica [A] time = 0.114028, size = 70, normalized size = 0.51

$$\frac{10\sqrt{1-2x}\sqrt{5x+3}\left(2304000x^4+5404800x^3+4310240x^2+718340x-1254087\right)-11024673\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1536000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]*(2 + 3*x)*(3 + 5*x)^(5/2),x]
```

```
[Out] (10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(-1254087 + 718340*x + 4310240*x^
2 + 5404800*x^3 + 2304000*x^4) - 11024673*Sqrt[10]*ArcSin[Sqrt[5/
11]*Sqrt[1 - 2*x]])/1536000
```

Maple [A] time = 0.011, size = 121, normalized size = 0.9

$$\frac{1}{3072000}\sqrt{1-2x}\sqrt{3+5x}\left(46080000x^4\sqrt{-10x^2-x+3}+108096000x^3\sqrt{-10x^2-x+3}+86204800x^2\sqrt{-10x^2-x+3}+\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)*(3+5*x)^(5/2)*(1-2*x)^(1/2),x)
```

```
[Out] 1/3072000*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(46080000*x^4*(-10*x^2-x+3)
^(1/2)+108096000*x^3*(-10*x^2-x+3)^(1/2)+86204800*x^2*(-10*x^2-x+
3)^(1/2)+11024673*10^(1/2)*arcsin(20/11*x+1/11)+14366800*x*(-10*x
^2-x+3)^(1/2)-25081740*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.49448, size = 117, normalized size = 0.85

$$-\frac{3}{2}\left(-10x^2-x+3\right)^{\frac{3}{2}}x^2-\frac{539}{160}\left(-10x^2-x+3\right)^{\frac{3}{2}}x-\frac{1121}{384}\left(-10x^2-x+3\right)^{\frac{3}{2}}+\frac{30371}{2560}\sqrt{-10x^2-x+3}x-\frac{3674891}{1024000}\sqrt{10}\arcsin\left(-\frac{20}{11}x-\frac{1}{11}\right)+\frac{30371}{51200}\sqrt{-10x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)*sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] -3/2*(-10*x^2 - x + 3)^(3/2)*x^2 - 539/160*(-10*x^2 - x + 3)^(3/2
)*x - 1121/384*(-10*x^2 - x + 3)^(3/2) + 30371/2560*sqrt(-10*x^2
- x + 3)*x - 3674891/1024000*sqrt(10)*arcsin(-20/11*x - 1/11) + 3
0371/51200*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.219048, size = 97, normalized size = 0.7

$$\frac{1}{3072000}\sqrt{10}\left(2\sqrt{10}\left(2304000x^4+5404800x^3+4310240x^2+718340x-1254087\right)\sqrt{5x+3}\sqrt{-2x+1}+11024673\arctan\left(\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)*sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] 1/3072000*sqrt(10)*(2*sqrt(10)*(2304000*x^4 + 5404800*x^3 + 43102
40*x^2 + 718340*x - 1254087)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 11024
673*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1)
)))
```

Sympy [A] time = 118.613, size = 488, normalized size = 3.54

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)*(3+5*x)**(5/2)*(1-2*x)**(1/2),x)
```

```
[Out] -847*sqrt(2)*Piecewise((121*sqrt(5)*(-sqrt(5)*sqrt(-2*x + 1)*sqrt
(10*x + 6)*(20*x + 1)/121 + asin(sqrt(55)*sqrt(-2*x + 1)/11))/200
, (x <= 1/2) & (x > -3/5)))/16 + 1133*sqrt(2)*Piecewise((1331*sqr
t(5)*(-5*sqrt(5)*(-2*x + 1)**(3/2)*(10*x + 6)**(3/2)/7986 - sqrt(
5)*sqrt(-2*x + 1)*sqrt(10*x + 6)*(20*x + 1)/1936 + asin(sqrt(55)*
sqrt(-2*x + 1)/11)/16)/125, (x <= 1/2) & (x > -3/5)))/16 - 505*sq
rt(2)*Piecewise((14641*sqrt(5)*(-5*sqrt(5)*(-2*x + 1)**(3/2)*(10*
x + 6)**(3/2)/7986 - sqrt(5)*sqrt(-2*x + 1)*sqrt(10*x + 6)*(20*x
+ 1)/3872 - sqrt(5)*sqrt(-2*x + 1)*sqrt(10*x + 6)*(12100*x - 2000
*(-2*x + 1)**3 + 6600*(-2*x + 1)**2 - 4719)/1874048 + 5*asin(sqrt
(55)*sqrt(-2*x + 1)/11)/128)/625, (x <= 1/2) & (x > -3/5)))/16 +
75*sqrt(2)*Piecewise((161051*sqrt(5)*(5*sqrt(5)*(-2*x + 1)**(5/2)
*(10*x + 6)**(5/2)/322102 - 5*sqrt(5)*(-2*x + 1)**(3/2)*(10*x + 6
)**(3/2)/7986 - sqrt(5)*sqrt(-2*x + 1)*sqrt(10*x + 6)*(20*x + 1)/
7744 - 3*sqrt(5)*sqrt(-2*x + 1)*sqrt(10*x + 6)*(12100*x - 2000*(-
2*x + 1)**3 + 6600*(-2*x + 1)**2 - 4719)/3748096 + 7*asin(sqrt(55
)*sqrt(-2*x + 1)/11)/256)/3125, (x <= 1/2) & (x > -3/5)))/16
```

GIAC/XCAS [A] time = 0.264859, size = 317, normalized size = 2.3

$$\frac{1}{2560000}\sqrt{5}\left(2\left(4\left(8\left(12\left(80x-143\right)\left(5x+3\right)+9773\right)\left(5x+3\right)-136405\right)\left(5x+3\right)+60555\right)\sqrt{5x+3}\sqrt{-10x+5}-666105\sqrt{2}\,\mathrm{a}\right.$$
$$+\frac{7}{96000}\sqrt{5}\left(2\left(4\left(8\left(60x-71\right)\left(5x+3\right)+2179\right)\left(5x+3\right)-4125\right)\sqrt{5x+3}\sqrt{-10x+5}+45375\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$
$$+\frac{29}{8000}\sqrt{5}\left(2\left(4\left(40x-23\right)\left(5x+3\right)+33\right)\sqrt{5x+3}\sqrt{-10x+5}-363\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$
$$+\frac{9}{200}\sqrt{5}\left(2\left(20x+1\right)\sqrt{5x+3}\sqrt{-10x+5}+121\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)*sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] 1/2560000*sqrt(5)*(2*(4*(8*(12*(80*x - 143)*(5*x + 3) + 9773)*(5*
x + 3) - 136405)*(5*x + 3) + 60555)*sqrt(5*x + 3)*sqrt(-10*x + 5)
 - 666105*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 7/96000*
sqrt(5)*(2*(4*(8*(60*x - 71)*(5*x + 3) + 2179)*(5*x + 3) - 4125)*
sqrt(5*x + 3)*sqrt(-10*x + 5) + 45375*sqrt(2)*arcsin(1/11*sqrt(22
)*sqrt(5*x + 3))) + 29/8000*sqrt(5)*(2*(4*(40*x - 23)*(5*x + 3) +
 33)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 363*sqrt(2)*arcsin(1/11*sqrt
(22)*sqrt(5*x + 3))) + 9/200*sqrt(5)*(2*(20*x + 1)*sqrt(5*x + 3)*
sqrt(-10*x + 5) + 121*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))
)
```

3.2273 $\int \sqrt{1-2x}(3+5x)^{5/2}\,dx$

Optimal. Leaf size=116

$$-\frac{1}{8}(1-2x)^{3/2}(5x+3)^{5/2}$$
$$-\frac{55}{96}(1-2x)^{3/2}(5x+3)^{3/2}-\frac{605}{256}(1-2x)^{3/2}\sqrt{5x+3}+\frac{1331}{512}\sqrt{1-2x}\sqrt{5x+3}+\frac{14641\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{512\sqrt{10}}$$

```
[Out] (1331*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/512 - (605*(1 - 2*x)^(3/2)*Sqr
t[3 + 5*x])/256 - (55*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/96 - ((1 -
 2*x)^(3/2)*(3 + 5*x)^(5/2))/8 + (14641*ArcSin[Sqrt[2/11]*Sqrt[3
+ 5*x]])/(512*Sqrt[10])
```

Rubi [A] time = 0.102331, antiderivative size = 116, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 3, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.158

$$-\frac{1}{8}(1-2x)^{3/2}(5x+3)^{5/2}$$
$$-\frac{55}{96}(1-2x)^{3/2}(5x+3)^{3/2}-\frac{605}{256}(1-2x)^{3/2}\sqrt{5x+3}+\frac{1331}{512}\sqrt{1-2x}\sqrt{5x+3}+\frac{14641\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{512\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]*(3 + 5*x)^(5/2),x]
```

```
[Out] (1331*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/512 - (605*(1 - 2*x)^(3/2)*Sqr
t[3 + 5*x])/256 - (55*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/96 - ((1 -
 2*x)^(3/2)*(3 + 5*x)^(5/2))/8 + (14641*ArcSin[Sqrt[2/11]*Sqrt[3
+ 5*x]])/(512*Sqrt[10])
```

Rubi in Sympy [A] time = 9.76436, size = 104, normalized size = 0.9

$$\frac{\sqrt{-2x+1}\,(5x+3)^{\frac{7}{2}}}{20}-\frac{11\sqrt{-2x+1}\,(5x+3)^{\frac{5}{2}}}{240}-\frac{121\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{384}-\frac{1331\sqrt{-2x+1}\sqrt{5x+3}}{512}+\frac{14641\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{5120}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)*(1-2*x)**(1/2),x)
```

```
[Out] sqrt(-2*x + 1)*(5*x + 3)**(7/2)/20 - 11*sqrt(-2*x + 1)*(5*x + 3)*
*(5/2)/240 - 121*sqrt(-2*x + 1)*(5*x + 3)**(3/2)/384 - 1331*sqrt(
-2*x + 1)*sqrt(5*x + 3)/512 + 14641*sqrt(10)*asin(sqrt(22)*sqrt(5
*x + 3)/11)/5120
```

Mathematica [A] time = 0.0728457, size = 65, normalized size = 0.56

$$\frac{10\sqrt{1-2x}\sqrt{5x+3}\left(9600x^3+15520x^2+5836x-4005\right)-43923\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{15360}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]*(3 + 5*x)^(5/2),x]
```

```
[Out] (10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(-4005 + 5836*x + 15520*x^2 + 960
0*x^3) - 43923*Sqrt[10]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/15360
```

Maple [A] time = 0.008, size = 104, normalized size = 0.9

$$\frac{1}{20}(3+5x)^{\frac{7}{2}}\sqrt{1-2x}-\frac{11}{240}(3+5x)^{\frac{5}{2}}\sqrt{1-2x}-\frac{121}{384}(3+5x)^{\frac{3}{2}}\sqrt{1-2x}-\frac{1331}{512}\sqrt{1-2x}\sqrt{3+5x}+\frac{14641\sqrt{10}}{10240}\sqrt{(1-2x)(3+5x)}\arcsin\left(\frac{20x}{11}+\frac{1}{11}\right)\frac{1}{\sqrt{1-2x}}\frac{1}{\sqrt{3+5x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)*(1-2*x)^(1/2),x)
```

```
[Out] 1/20*(3+5*x)^(7/2)*(1-2*x)^(1/2)-11/240*(3+5*x)^(5/2)*(1-2*x)^(1/
2)-121/384*(3+5*x)^(3/2)*(1-2*x)^(1/2)-1331/512*(1-2*x)^(1/2)*(3+
5*x)^(1/2)+14641/10240*((1-2*x)*(3+5*x))^(1/2)/(3+5*x)^(1/2)/(1-2
*x)^(1/2)*10^(1/2)*arcsin(20/11*x+1/11)
```

Maxima [A] time = 1.48436, size = 95, normalized size = 0.82

$$-\frac{5}{8}\left(-10x^2-x+3\right)^{\frac{3}{2}}x-\frac{91}{96}\left(-10x^2-x+3\right)^{\frac{3}{2}}+\frac{605}{128}\sqrt{-10x^2-x+3}x-\frac{14641}{10240}\sqrt{10}\arcsin\left(-\frac{20}{11}x-\frac{1}{11}\right)+\frac{121}{512}\sqrt{-10x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] -5/8*(-10*x^2 - x + 3)^(3/2)*x - 91/96*(-10*x^2 - x + 3)^(3/2) +
605/128*sqrt(-10*x^2 - x + 3)*x - 14641/10240*sqrt(10)*arcsin(-20
/11*x - 1/11) + 121/512*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.217327, size = 90, normalized size = 0.78

$$\frac{1}{30720}\sqrt{10}\left(2\sqrt{10}\left(9600x^3+15520x^2+5836x-4005\right)\sqrt{5x+3}\sqrt{-2x+1}+43923\arctan\left(\frac{\sqrt{10}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] 1/30720*sqrt(10)*(2*sqrt(10)*(9600*x^3 + 15520*x^2 + 5836*x - 400
5)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 43923*arctan(1/20*sqrt(10)*(20*
x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [A] time = 37.5278, size = 272, normalized size = 2.34

$$\begin{cases}\frac{125i\left(x+\frac{3}{5}\right)^{\frac{9}{2}}}{2\sqrt{10x-5}}-\frac{1925i\left(x+\frac{3}{5}\right)^{\frac{7}{2}}}{24\sqrt{10x-5}}-\frac{605i\left(x+\frac{3}{5}\right)^{\frac{5}{2}}}{192\sqrt{10x-5}}-\frac{6655i\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}{768\sqrt{10x-5}}+\frac{14641i\sqrt{x+\frac{3}{5}}}{512\sqrt{10x-5}}-\frac{14641\sqrt{10}i\,\operatorname{acosh}\left(\frac{\sqrt{110}\sqrt{x+\frac{3}{5}}}{11}\right)}{5120} & \text{for}\ \frac{10\left|x+\frac{3}{5}\right|}{11}>1\\ \frac{14641\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{110}\sqrt{x+\frac{3}{5}}}{11}\right)}{5120}-\frac{125\left(x+\frac{3}{5}\right)^{\frac{9}{2}}}{2\sqrt{-10x+5}}+\frac{1925\left(x+\frac{3}{5}\right)^{\frac{7}{2}}}{24\sqrt{-10x+5}}+\frac{605\left(x+\frac{3}{5}\right)^{\frac{5}{2}}}{192\sqrt{-10x+5}}+\frac{6655\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}{768\sqrt{-10x+5}}-\frac{14641\sqrt{x+\frac{3}{5}}}{512\sqrt{-10x+5}} & \text{otherwise}\end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(5/2)*(1-2*x)**(1/2),x)
```

```
[Out] Piecewise((125*I*(x + 3/5)**(9/2)/(2*sqrt(10*x - 5)) - 1925*I*(x
+ 3/5)**(7/2)/(24*sqrt(10*x - 5)) - 605*I*(x + 3/5)**(5/2)/(192*s
qrt(10*x - 5)) - 6655*I*(x + 3/5)**(3/2)/(768*sqrt(10*x - 5)) + 1
4641*I*sqrt(x + 3/5)/(512*sqrt(10*x - 5)) - 14641*sqrt(10)*I*acos
h(sqrt(110)*sqrt(x + 3/5)/11)/5120, 10*Abs(x + 3/5)/11 > 1), (146
41*sqrt(10)*asin(sqrt(110)*sqrt(x + 3/5)/11)/5120 - 125*(x + 3/5)
**(9/2)/(2*sqrt(-10*x + 5)) + 1925*(x + 3/5)**(7/2)/(24*sqrt(-10*
x + 5)) + 605*(x + 3/5)**(5/2)/(192*sqrt(-10*x + 5)) + 6655*(x +
3/5)**(3/2)/(768*sqrt(-10*x + 5)) - 14641*sqrt(x + 3/5)/(512*sqrt
(-10*x + 5)), True))
```

GIAC/XCAS [A] time = 0.245229, size = 220, normalized size = 1.9

$$\frac{1}{76800}\sqrt{5}\left(2\,(4\,(8\,(60\,x-71)(5\,x+3)+2179)(5\,x+3)-4125)\sqrt{5\,x+3}\sqrt{-10\,x+5}+45375\,\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5\,x+3}\right)\right)+\frac{1}{800}\sqrt{5}\left(2\,(4\,(40\,x-23)(5\,x+3)+33)\sqrt{5\,x+3}\sqrt{-10\,x+5}-363\,\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5\,x+3}\right)\right)+\frac{9}{400}\sqrt{5}\left(2\,(20\,x+1)\sqrt{5\,x+3}\sqrt{-10\,x+5}+121\,\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5\,x+3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] 1/76800*sqrt(5)*(2*(4*(8*(60*x - 71)*(5*x + 3) + 2179)*(5*x + 3)
- 4125)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 45375*sqrt(2)*arcsin(1/11
*sqrt(22)*sqrt(5*x + 3))) + 1/800*sqrt(5)*(2*(4*(40*x - 23)*(5*x
+ 3) + 33)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 363*sqrt(2)*arcsin(1/1
1*sqrt(22)*sqrt(5*x + 3))) + 9/400*sqrt(5)*(2*(20*x + 1)*sqrt(5*x
 + 3)*sqrt(-10*x + 5) + 121*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x
 + 3)))
```

3.2274 $\int \frac{\sqrt{1-2x}(3+5x)^{5/2}}{2+3x}\,dx$

Optimal. Leaf size=130

$$\frac{1}{9}\sqrt{1-2x}(5x+3)^{5/2}-\frac{5}{24}\sqrt{1-2x}(5x+3)^{3/2}-\frac{925}{864}\sqrt{1-2x}\sqrt{5x+3}+\frac{6553\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{2592}+\frac{2}{81}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

```
[Out] (-925*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/864 - (5*Sqrt[1 - 2*x]*(3 + 5*
x)^(3/2))/24 + (Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/9 + (6553*Sqrt[5/2
]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/2592 + (2*Sqrt[7]*ArcTan[Sqrt
[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/81
```

Rubi [A] time = 0.30971, antiderivative size = 130, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 7, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.269$

$$\frac{1}{9}\sqrt{1-2x}(5x+3)^{5/2}-\frac{5}{24}\sqrt{1-2x}(5x+3)^{3/2}-\frac{925}{864}\sqrt{1-2x}\sqrt{5x+3}+\frac{6553\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{2592}+\frac{2}{81}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(2 + 3*x),x]
```

```
[Out] (-925*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/864 - (5*Sqrt[1 - 2*x]*(3 + 5*
x)^(3/2))/24 + (Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/9 + (6553*Sqrt[5/2
]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/2592 + (2*Sqrt[7]*ArcTan[Sqrt
[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/81
```

Rubi in Sympy [A] time = 30.3891, size = 117, normalized size = 0.9

$$\frac{\sqrt{-2x+1}\,(5x+3)^{\frac{5}{2}}}{9}-\frac{5\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{24}-\frac{925\sqrt{-2x+1}\sqrt{5x+3}}{864}+\frac{6553\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{5184}+\frac{2\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{81}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)*(1-2*x)**(1/2)/(2+3*x),x)
```

```
[Out] sqrt(-2*x + 1)*(5*x + 3)**(5/2)/9 - 5*sqrt(-2*x + 1)*(5*x + 3)**(
3/2)/24 - 925*sqrt(-2*x + 1)*sqrt(5*x + 3)/864 + 6553*sqrt(10)*as
in(sqrt(22)*sqrt(5*x + 3)/11)/5184 + 2*sqrt(7)*atan(sqrt(7)*sqrt(
-2*x + 1)/(7*sqrt(5*x + 3)))/81
```

Mathematica [A] time = 0.166796, size = 105, normalized size = 0.81

$$\frac{12\sqrt{1-2x}\sqrt{5x+3}\left(2400x^2+1980x-601\right)+128\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)+6553\sqrt{10}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)}{10368}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(2 + 3*x),x]
```

```
[Out] (12*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(-601 + 1980*x + 2400*x^2) + 128*
Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])] + 6
553*Sqrt[10]*ArcTan[(1 + 20*x)/(2*Sqrt[1 - 2*x]*Sqrt[30 + 50*x])]
)/10368
```

Maple [A] time = 0.013, size = 115, normalized size = 0.9

$$-\frac{1}{10368}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(-28800\,x^{2}\sqrt{-10\,x^{2}-x+3}+128\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^{2}-x+3}}\right)-6553\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)*(1-2*x)^(1/2)/(2+3*x),x)
```

```
[Out] -1/10368*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(-28800*x^2*(-10*x^2-x+3)^(1
/2)+128*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2)
)-6553*10^(1/2)*arcsin(20/11*x+1/11)-23760*x*(-10*x^2-x+3)^(1/2)+
7212*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.51101, size = 112, normalized size = 0.86

$$-\frac{5}{18}\left(-10\,x^{2}-x+3\right)^{\frac{3}{2}}+\frac{145}{72}\sqrt{-10\,x^{2}-x+3}x+\frac{6553}{10368}\sqrt{10}\arcsin\left(\frac{20}{11}\,x+\frac{1}{11}\right)-\frac{1}{81}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{119}{864}\sqrt{-10\,x^{2}-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2),x, algorithm="maxima")
```

```
[Out] -5/18*(-10*x^2 - x + 3)^(3/2) + 145/72*sqrt(-10*x^2 - x + 3)*x +
6553/10368*sqrt(10)*arcsin(20/11*x + 1/11) - 1/81*sqrt(7)*arcsin(
37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) + 119/864*sqrt(-10*x^2
 - x + 3)
```

Fricas [A] time = 0.227346, size = 136, normalized size = 1.05

$$\frac{1}{10368}\sqrt{2}\left(6\,\sqrt{2}\left(2400\,x^{2}+1980\,x-601\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-64\,\sqrt{7}\sqrt{2}\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)+6553\,\sqrt{5}\arctan\left(\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2),x, algorithm="fricas")
```

```
[Out] 1/10368*sqrt(2)*(6*sqrt(2)*(2400*x^2 + 1980*x - 601)*sqrt(5*x + 3
)*sqrt(-2*x + 1) - 64*sqrt(7)*sqrt(2)*arctan(1/14*sqrt(7)*(37*x +
 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))) + 6553*sqrt(5)*arctan(1/20*s
qrt(5)*sqrt(2)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{\sqrt{-2x+1}\,(5x+3)^{\frac{5}{2}}}{3x+2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(5/2)*(1-2*x)**(1/2)/(2+3*x),x)
```

```
[Out] Integral(sqrt(-2*x + 1)*(5*x + 3)**(5/2)/(3*x + 2), x)
```

GIAC/XCAS [A] time = 0.290215, size = 251, normalized size = 1.93

$$-\frac{1}{810}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)+\frac{1}{4320}\left(12\left(8\sqrt{5}(5x+3)-15\sqrt{5}\right)(5x+3)-925\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}+\frac{6553}{10368}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{4\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2),x, algorithm="giac")
```

```
[Out] -1/810*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x
+ 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqrt
(2)*sqrt(-10*x + 5) - sqrt(22)))) + 1/4320*(12*(8*sqrt(5)*(5*x +
3) - 15*sqrt(5))*(5*x + 3) - 925*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*
x + 5) + 6553/10368*sqrt(10)*(pi + 2*arctan(-1/4*sqrt(5*x + 3)*((
sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqrt(2)*sqr
t(-10*x + 5) - sqrt(22))))
```

3.2275 $\int \frac{\sqrt{1-2x}(3+5x)^{5/2}}{(2+3x)^2} dx$

Optimal. Leaf size=137

$$-\frac{\sqrt{1-2x}(5x+3)^{5/2}}{3(3x+2)}+\frac{5}{6}\sqrt{1-2x}(5x+3)^{3/2}-\frac{95}{72}\sqrt{1-2x}\sqrt{5x+3}+\frac{155}{216}\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{59\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{27\sqrt{7}}$$

```
[Out] (-95*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/72 + (5*Sqrt[1 - 2*x]*(3 + 5*x)
^(3/2))/6 - (Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(3*(2 + 3*x)) + (155*
Sqrt[5/2]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/216 - (59*ArcTan[Sqrt
[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(27*Sqrt[7])
```

Rubi [A] time = 0.305133, antiderivative size = 137, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 7, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.269

$$-\frac{\sqrt{1-2x}(5x+3)^{5/2}}{3(3x+2)}+\frac{5}{6}\sqrt{1-2x}(5x+3)^{3/2}-\frac{95}{72}\sqrt{1-2x}\sqrt{5x+3}+\frac{155}{216}\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{59\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{27\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(2 + 3*x)^2,x]
```

```
[Out] (-95*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/72 + (5*Sqrt[1 - 2*x]*(3 + 5*x)
^(3/2))/6 - (Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(3*(2 + 3*x)) + (155*
Sqrt[5/2]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/216 - (59*ArcTan[Sqrt
[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(27*Sqrt[7])
```

Rubi in Sympy [A] time = 30.9433, size = 121, normalized size = 0.88

$$\frac{5\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{6}-\frac{95\sqrt{-2x+1}\sqrt{5x+3}}{72}-\frac{\sqrt{-2x+1}\,(5x+3)^{\frac{5}{2}}}{3\,(3x+2)}+\frac{155\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{432}-\frac{59\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{189}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)*(1-2*x)**(1/2)/(2+3*x)**2,x)
```

```
[Out] 5*sqrt(-2*x + 1)*(5*x + 3)**(3/2)/6 - 95*sqrt(-2*x + 1)*sqrt(5*x
+ 3)/72 - sqrt(-2*x + 1)*(5*x + 3)**(5/2)/(3*(3*x + 2)) + 155*sqr
t(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/432 - 59*sqrt(7)*atan(sqrt(
7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/189
```

Mathematica [A] time = 0.220677, size = 112, normalized size = 0.82

$$\frac{\frac{84\sqrt{1-2x}\sqrt{5x+3}(300x^2+135x-46)}{3x+2}-944\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)+1085\sqrt{10}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)}{6048}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(2 + 3*x)^2,x]
```

```
[Out] ((84*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(-46 + 135*x + 300*x^2))/(2 + 3*
x) - 944*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5
*x])] + 1085*Sqrt[10]*ArcTan[(1 + 20*x)/(2*Sqrt[1 - 2*x]*Sqrt[30
+ 50*x])])/6048
```

Maple [A] time = 0.019, size = 163, normalized size = 1.2

$$\frac{1}{12096+18144\,x}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(2832\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x+3255\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x+25200\,x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)*(1-2*x)^(1/2)/(2+3*x)^2,x)
```

```
[Out] 1/6048*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2832*7^(1/2)*arctan(1/14*(37*
x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+3255*10^(1/2)*arcsin(20/11*x
+1/11)*x+25200*x^2*(-10*x^2-x+3)^(1/2)+1888*7^(1/2)*arctan(1/14*(
37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+2170*10^(1/2)*arcsin(20/11*
x+1/11)+11340*x*(-10*x^2-x+3)^(1/2)-3864*(-10*x^2-x+3)^(1/2))/(-1
0*x^2-x+3)^(1/2)/(2+3*x)
```

Maxima [A] time = 1.48584, size = 122, normalized size = 0.89

$$\frac{25}{18}\sqrt{-10\,x^2-x+3}x+\frac{155}{864}\sqrt{10}\arcsin\left(\frac{20}{11}\,x+\frac{1}{11}\right)+\frac{59}{378}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)-\frac{65}{216}\sqrt{-10\,x^2-x+3}-\frac{\sqrt{-10\,x^2-x+3}}{27\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^2,x, algorithm="maxima")
```

```
[Out] 25/18*sqrt(-10*x^2 - x + 3)*x + 155/864*sqrt(10)*arcsin(20/11*x +
 1/11) + 59/378*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3
*x + 2)) - 65/216*sqrt(-10*x^2 - x + 3) - 1/27*sqrt(-10*x^2 - x +
 3)/(3*x + 2)
```

Fricas [A] time = 0.229127, size = 167, normalized size = 1.22

$$\frac{\sqrt{7}\sqrt{2}\left(6\,\sqrt{7}\sqrt{2}\left(300\,x^2+135\,x-46\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+155\,\sqrt{7}\sqrt{5}(3\,x+2)\arctan\left(\frac{\sqrt{5}\sqrt{2}(20\,x+1)}{20\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)+472\,\sqrt{2}(3\,x+2)\,\mathrm{arct}\right.}{6048\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^2,x, algorithm="fricas")
```

```
[Out] 1/6048*sqrt(7)*sqrt(2)*(6*sqrt(7)*sqrt(2)*(300*x^2 + 135*x - 46)*
sqrt(5*x + 3)*sqrt(-2*x + 1) + 155*sqrt(7)*sqrt(5)*(3*x + 2)*arct
an(1/20*sqrt(5)*sqrt(2)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))
) + 472*sqrt(2)*(3*x + 2)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5
*x + 3)*sqrt(-2*x + 1))))/(3*x + 2)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(5/2)*(1-2*x)**(1/2)/(2+3*x)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.354057, size = 394, normalized size = 2.88

$$\frac{59}{3780}\sqrt{70}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3} - 4\right)}{140\left(\sqrt{2}\sqrt{-10x+5} - \sqrt{22}\right)}\right)\right) + \frac{1}{216}\left(12\sqrt{5}(5x+3) - 49\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5} + \frac{155}{864}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3} - 4\right)}{4\left(\sqrt{2}\sqrt{-10x+5} - \sqrt{22}\right)}\right)\right) - \frac{22\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}} - \frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)}{27\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}} - \frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2 + 280\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^2,x, algorithm="giac")
```

```
[Out] 59/3780*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x
 + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqr
t(2)*sqrt(-10*x + 5) - sqrt(22)))) + 1/216*(12*sqrt(5)*(5*x + 3)
- 49*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5) + 155/864*sqrt(10)*(p
i + 2*arctan(-1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(
22))^2/(5*x + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 22
/27*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3)
- 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))/(((sqrt(2
)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sq
rt(2)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)
```

3.2276 $\int \frac{\sqrt{1-2x}(3+5x)^{5/2}}{(2+3x)^3}\,dx$

Optimal. Leaf size=144

$$-\frac{\sqrt{1-2x}(5x+3)^{5/2}}{6(3x+2)^2}-\frac{59\sqrt{1-2x}(5x+3)^{3/2}}{84(3x+2)}+\frac{215}{84}\sqrt{1-2x}\sqrt{5x+3}+\frac{25}{9}\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)+\frac{2119\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{252\sqrt{7}}$$

```
[Out] (215*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/84 - (59*Sqrt[1 - 2*x]*(3 + 5*x
)^(3/2))/(84*(2 + 3*x)) - (Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(6*(2 +
 3*x)^2) + (25*Sqrt[5/2]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/9 + (2
119*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(252*Sqrt[7])
```

Rubi [A] time = 0.306367, antiderivative size = 144, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 8, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.308

$$-\frac{\sqrt{1-2x}(5x+3)^{5/2}}{6(3x+2)^2}-\frac{59\sqrt{1-2x}(5x+3)^{3/2}}{84(3x+2)}+\frac{215}{84}\sqrt{1-2x}\sqrt{5x+3}+\frac{25}{9}\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)+\frac{2119\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{252\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(2 + 3*x)^3,x]
```

```
[Out] (215*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/84 - (59*Sqrt[1 - 2*x]*(3 + 5*x
)^(3/2))/(84*(2 + 3*x)) - (Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(6*(2 +
 3*x)^2) + (25*Sqrt[5/2]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/9 + (2
119*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(252*Sqrt[7])
```

Rubi in Sympy [A] time = 30.0313, size = 128, normalized size = 0.89

$$\frac{215\sqrt{-2x+1}\sqrt{5x+3}}{84}-\frac{59\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{84\,(3x+2)}-\frac{\sqrt{-2x+1}\,(5x+3)^{\frac{5}{2}}}{6\,(3x+2)^2}+\frac{25\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{18}+\frac{2119\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{1764}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)*(1-2*x)**(1/2)/(2+3*x)**3,x)
```

```
[Out] 215*sqrt(-2*x + 1)*sqrt(5*x + 3)/84 - 59*sqrt(-2*x + 1)*(5*x + 3)
**(3/2)/(84*(3*x + 2)) - sqrt(-2*x + 1)*(5*x + 3)**(5/2)/(6*(3*x
+ 2)**2) + 25*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/18 + 2119*
sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/1764
```

Mathematica [A] time = 0.164312, size = 112, normalized size = 0.78

$$\frac{\frac{42\sqrt{1-2x}\sqrt{5x+3}(700x^2+1039x+380)}{(3x+2)^2}+2119\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)+2450\sqrt{10}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)}{3528}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(2 + 3*x)^3,x]
```

```
[Out] ((42*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(380 + 1039*x + 700*x^2))/(2 + 3
*x)^2 + 2119*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3
 + 5*x])] + 2450*Sqrt[10]*ArcTan[(1 + 20*x)/(2*Sqrt[1 - 2*x]*Sqrt
[30 + 50*x])])/3528
```

Maple [A] time = 0.017, size = 208, normalized size = 1.4

$$-\frac{1}{3528\,(2+3\,x)^2}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(19071\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^2-22050\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x^2+25$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)*(1-2*x)^(1/2)/(2+3*x)^3,x)
```

```
[Out] -1/3528*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(19071*7^(1/2)*arctan(1/14*(3
7*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2-22050*10^(1/2)*arcsin(20
/11*x+1/11)*x^2+25428*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*
x^2-x+3)^(1/2))*x-29400*10^(1/2)*arcsin(20/11*x+1/11)*x-29400*x^2
*(-10*x^2-x+3)^(1/2)+8476*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(
-10*x^2-x+3)^(1/2))-9800*10^(1/2)*arcsin(20/11*x+1/11)-43638*x*(-
10*x^2-x+3)^(1/2)-15960*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)/
(2+3*x)^2
```

Maxima [A] time = 1.50636, size = 136, normalized size = 0.94

$$\frac{25}{36}\sqrt{10}\arcsin\left(\frac{20}{11}\,x+\frac{1}{11}\right)-\frac{2119}{3528}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{20}{21}\sqrt{-10\,x^2-x+3}+\frac{\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{42\left(9\,x^2+12\,x+4\right)}+\frac{9\sqrt{-10\,x^2-x+3}}{28\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^3,x, algorithm="maxima")
```

```
[Out] 25/36*sqrt(10)*arcsin(20/11*x + 1/11) - 2119/3528*sqrt(7)*arcsin(
37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) + 20/21*sqrt(-10*x^2 -
 x + 3) + 1/42*(-10*x^2 - x + 3)^(3/2)/(9*x^2 + 12*x + 4) + 9/28*
sqrt(-10*x^2 - x + 3)/(3*x + 2)
```

Fricas [A] time = 0.22886, size = 188, normalized size = 1.31

$$\frac{\sqrt{7}\sqrt{2}\left(6\,\sqrt{7}\sqrt{2}\left(700\,x^2+1039\,x+380\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+700\,\sqrt{7}\sqrt{5}\left(9\,x^2+12\,x+4\right)\arctan\left(\frac{\sqrt{5}\sqrt{2}(20\,x+1)}{20\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)-2119\,\sqrt{2}(}{7056\left(9\,x^2+12\,x+4\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^3,x, algorithm="fricas")
```

```
[Out] 1/7056*sqrt(7)*sqrt(2)*(6*sqrt(7)*sqrt(2)*(700*x^2 + 1039*x + 380
)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 700*sqrt(7)*sqrt(5)*(9*x^2 + 12*
x + 4)*arctan(1/20*sqrt(5)*sqrt(2)*(20*x + 1)/(sqrt(5*x + 3)*sqrt
(-2*x + 1))) - 2119*sqrt(2)*(9*x^2 + 12*x + 4)*arctan(1/14*sqrt(7
)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(9*x^2 + 12*x + 4)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(5/2)*(1-2*x)**(1/2)/(2+3*x)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.385649, size = 463, normalized size = 3.22

$$-\frac{2119}{35280}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)+\frac{25}{36}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{4\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)+\frac{5}{27}\sqrt{5}\sqrt{5x+3}\sqrt{-10x+5}+\frac{11\left(247\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3+87640\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)\right)}{378\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^3,x, algorithm="giac")
```

```
[Out] -2119/35280*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt
(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 25/36*sqrt(10)*(pi + 2*a
rctan(-1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/
(5*x + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 5/27*sqrt
(5)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 11/378*(247*sqrt(10)*((sqrt(2
)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sq
rt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 87640*sqrt(10)*((sqrt(2)*s
qrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(
2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) - sqr
t(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) -
 sqrt(22)))^2 + 280)^2
```

3.2277 $\int \frac{\sqrt{1-2x}(3+5x)^{5/2}}{(2+3x)^4} \, dx$

Optimal. Leaf size=149

$$-\frac{\sqrt{1-2x}(5x+3)^{5/2}}{9(3x+2)^3}-\frac{59\sqrt{1-2x}(5x+3)^{3/2}}{252(3x+2)^2}-\frac{6401\sqrt{1-2x}\sqrt{5x+3}}{10584(3x+2)}-\frac{50}{81}\sqrt{10}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{250433\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{31752\sqrt{7}}$$

```
[Out] (-6401*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(10584*(2 + 3*x)) - (59*Sqrt[
1 - 2*x]*(3 + 5*x)^(3/2))/(252*(2 + 3*x)^2) - (Sqrt[1 - 2*x]*(3 +
 5*x)^(5/2))/(9*(2 + 3*x)^3) - (50*Sqrt[10]*ArcSin[Sqrt[2/11]*Sqr
t[3 + 5*x]])/81 - (250433*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 +
5*x])])/(31752*Sqrt[7])
```

Rubi [A] time = 0.312666, antiderivative size = 149, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 7, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.269$

$$-\frac{\sqrt{1-2x}(5x+3)^{5/2}}{9(3x+2)^3}-\frac{59\sqrt{1-2x}(5x+3)^{3/2}}{252(3x+2)^2}-\frac{6401\sqrt{1-2x}\sqrt{5x+3}}{10584(3x+2)}-\frac{50}{81}\sqrt{10}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{250433\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{31752\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(2 + 3*x)^4,x]
```

```
[Out] (-6401*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(10584*(2 + 3*x)) - (59*Sqrt[
1 - 2*x]*(3 + 5*x)^(3/2))/(252*(2 + 3*x)^2) - (Sqrt[1 - 2*x]*(3 +
 5*x)^(5/2))/(9*(2 + 3*x)^3) - (50*Sqrt[10]*ArcSin[Sqrt[2/11]*Sqr
t[3 + 5*x]])/81 - (250433*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 +
5*x])])/(31752*Sqrt[7])
```

Rubi in Sympy [A] time = 29.6264, size = 136, normalized size = 0.91

$$-\frac{6401\sqrt{-2x+1}\sqrt{5x+3}}{10584\,(3x+2)}-\frac{59\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{252\,(3x+2)^2}-\frac{\sqrt{-2x+1}\,(5x+3)^{\frac{5}{2}}}{9\,(3x+2)^3}-\frac{50\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{81}-\frac{250433\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{222264}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)*(1-2*x)**(1/2)/(2+3*x)**4,x)
```

```
[Out] -6401*sqrt(-2*x + 1)*sqrt(5*x + 3)/(10584*(3*x + 2)) - 59*sqrt(-2
*x + 1)*(5*x + 3)**(3/2)/(252*(3*x + 2)**2) - sqrt(-2*x + 1)*(5*x
 + 3)**(5/2)/(9*(3*x + 2)**3) - 50*sqrt(10)*asin(sqrt(22)*sqrt(5*
x + 3)/11)/81 - 250433*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqr
t(5*x + 3)))/222264
```

Mathematica [A] time = 0.183951, size = 112, normalized size = 0.75

$$\frac{-\frac{42\sqrt{1-2x}\sqrt{5x+3}(124179x^2+159174x+51056)}{(3x+2)^3}-250433\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)-137200\sqrt{10}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)}{444528}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(2 + 3*x)^4,x]
```

```
[Out] ((-42*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(51056 + 159174*x + 124179*x^2)
)/(2 + 3*x)^3 - 250433*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14
*x]*Sqrt[3 + 5*x])] - 137200*Sqrt[10]*ArcTan[(1 + 20*x)/(2*Sqrt[1
 - 2*x]*Sqrt[30 + 50*x])])/444528
```

Maple [B] time = 0.019, size = 253, normalized size = 1.7

$$\frac{1}{444528\,(2+3\,x)^3}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(6761691\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^3-3704400\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x^3$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)*(1-2*x)^(1/2)/(2+3*x)^4,x)
```

```
[Out] 1/444528*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(6761691*7^(1/2)*arctan(1/14
*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3-3704400*10^(1/2)*arcs
in(20/11*x+1/11)*x^3+13523382*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/
2)/(-10*x^2-x+3)^(1/2))*x^2-7408800*10^(1/2)*arcsin(20/11*x+1/11)
*x^2+9015588*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^
(1/2))*x-4939200*10^(1/2)*arcsin(20/11*x+1/11)*x-5215518*x^2*(-10
*x^2-x+3)^(1/2)+2003464*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-1
0*x^2-x+3)^(1/2))-1097600*10^(1/2)*arcsin(20/11*x+1/11)-6685308*x
*(-10*x^2-x+3)^(1/2)-2144352*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(
1/2)/(2+3*x)^3
```

Maxima [A] time = 1.56994, size = 178, normalized size = 1.19

$$-\frac{25}{81}\sqrt{10}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)+\frac{250433}{444528}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)-\frac{515}{2646}\sqrt{-10\,x^2-x+3}$$
$$+\frac{\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{63\,(27\,x^3+54\,x^2+36\,x+8)}-\frac{103\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{588\,(9\,x^2+12\,x+4)}-\frac{5989\sqrt{-10\,x^2-x+3}}{10584\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^4,x, algorithm="maxima")
```

```
[Out] -25/81*sqrt(10)*arcsin(20/11*x + 1/11) + 250433/444528*sqrt(7)*ar
csin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) - 515/2646*sqrt(-
10*x^2 - x + 3) + 1/63*(-10*x^2 - x + 3)^(3/2)/(27*x^3 + 54*x^2 +
 36*x + 8) - 103/588*(-10*x^2 - x + 3)^(3/2)/(9*x^2 + 12*x + 4) -
 5989/10584*sqrt(-10*x^2 - x + 3)/(3*x + 2)
```

Fricas [A] time = 0.233752, size = 192, normalized size = 1.29

$$-\frac{\sqrt{7}\left(19600\,\sqrt{10}\sqrt{7}\left(27\,x^3+54\,x^2+36\,x+8\right)\arctan\left(\frac{\sqrt{10}(20\,x+1)}{20\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)+6\,\sqrt{7}\left(124179\,x^2+159174\,x+51056\right)\sqrt{5\,x+3}\sqrt{-2}\right.}{444528\,(27\,x^3+54\,x^2+36\,x+8)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^4,x, algorithm="fricas")
```

```
[Out] -1/444528*sqrt(7)*(19600*sqrt(10)*sqrt(7)*(27*x^3 + 54*x^2 + 36*x
 + 8)*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x +
```

```
1))) + 6*sqrt(7)*(124179*x^2 + 159174*x + 51056)*sqrt(5*x + 3)*sq
rt(-2*x + 1) - 250433*(27*x^3 + 54*x^2 + 36*x + 8)*arctan(1/14*sq
rt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(27*x^3 + 54*x
^2 + 36*x + 8)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(5/2)*(1-2*x)**(1/2)/(2+3*x)**4,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.398965, size = 520, normalized size = 3.49

$$\frac{250433}{4445280}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{25}{81}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{4\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{11\left(6401\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^5+4674880\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3+1034801600\sqrt{10}\left(\cdots\right.}{5292\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^4,x, algorithm="giac")
```

```
[Out] 250433/4445280*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*s
qrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) -
4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 25/81*sqrt(10)*(pi +
2*arctan(-1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))
^2/(5*x + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 11/529
2*(6401*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x +
 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 + 4
674880*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x +
3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 10
34801600*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x
+ 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((
sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x +
3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)^3
```

3.2278 $\int \frac{\sqrt{1-2x}(3+5x)^{5/2}}{(2+3x)^5}\,dx$

Optimal. Leaf size=151

$$\frac{\sqrt{1-2x}(5x+3)^{7/2}}{4(3x+2)^4}-\frac{11\sqrt{1-2x}(5x+3)^{5/2}}{168(3x+2)^3}-\frac{605\sqrt{1-2x}(5x+3)^{3/2}}{4704(3x+2)^2}-\frac{6655\sqrt{1-2x}\sqrt{5x+3}}{21952(3x+2)}-\frac{73205\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{21952\sqrt{7}}$$

```
[Out] (-6655*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(21952*(2 + 3*x)) - (605*Sqrt
[1 - 2*x]*(3 + 5*x)^(3/2))/(4704*(2 + 3*x)^2) - (11*Sqrt[1 - 2*x]
*(3 + 5*x)^(5/2))/(168*(2 + 3*x)^3) + (Sqrt[1 - 2*x]*(3 + 5*x)^(7
/2))/(4*(2 + 3*x)^4) - (73205*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[
3 + 5*x])])/(21952*Sqrt[7])
```

Rubi [A] time = 0.220904, antiderivative size = 151, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.115

$$\frac{\sqrt{1-2x}(5x+3)^{7/2}}{4(3x+2)^4}-\frac{11\sqrt{1-2x}(5x+3)^{5/2}}{168(3x+2)^3}-\frac{605\sqrt{1-2x}(5x+3)^{3/2}}{4704(3x+2)^2}-\frac{6655\sqrt{1-2x}\sqrt{5x+3}}{21952(3x+2)}-\frac{73205\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{21952\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(2 + 3*x)^5,x]
```

```
[Out] (-6655*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(21952*(2 + 3*x)) - (605*Sqrt
[1 - 2*x]*(3 + 5*x)^(3/2))/(4704*(2 + 3*x)^2) - (11*Sqrt[1 - 2*x]
*(3 + 5*x)^(5/2))/(168*(2 + 3*x)^3) + (Sqrt[1 - 2*x]*(3 + 5*x)^(7
/2))/(4*(2 + 3*x)^4) - (73205*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[
3 + 5*x])])/(21952*Sqrt[7])
```

Rubi in Sympy [A] time = 17.1048, size = 136, normalized size = 0.9

$$-\frac{6655\sqrt{-2x+1}\sqrt{5x+3}}{21952\,(3x+2)}-\frac{605\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{4704\,(3x+2)^2}-\frac{11\sqrt{-2x+1}\,(5x+3)^{\frac{5}{2}}}{168\,(3x+2)^3}+\frac{\sqrt{-2x+1}\,(5x+3)^{\frac{7}{2}}}{4\,(3x+2)^4}-\frac{73205\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{153664}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)*(1-2*x)**(1/2)/(2+3*x)**5,x)
```

```
[Out] -6655*sqrt(-2*x + 1)*sqrt(5*x + 3)/(21952*(3*x + 2)) - 605*sqrt(-
2*x + 1)*(5*x + 3)**(3/2)/(4704*(3*x + 2)**2) - 11*sqrt(-2*x + 1)
*(5*x + 3)**(5/2)/(168*(3*x + 2)**3) + sqrt(-2*x + 1)*(5*x + 3)**
(7/2)/(4*(3*x + 2)**4) - 73205*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1
)/(7*sqrt(5*x + 3)))/153664
```

Mathematica [A] time = 0.125978, size = 82, normalized size = 0.54

$$\frac{\frac{14\sqrt{1-2x}\sqrt{5x+3}(814395x^3+1285720x^2+654436x+105552)}{(3x+2)^4}-219615\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{921984}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(2 + 3*x)^5,x]
```

```
[Out] ((14*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(105552 + 654436*x + 1285720*x^2
 + 814395*x^3))/(2 + 3*x)^4 - 219615*Sqrt[7]*ArcTan[(-20 - 37*x)/
(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/921984
```

Maple [B] time = 0.017, size = 250, normalized size = 1.7

$$\frac{1}{921984\,(2+3\,x)^4}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(17788815\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^4+47436840\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+2}{\sqrt{-10\,x^2}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)*(1-2*x)^(1/2)/(2+3*x)^5,x)
```

```
[Out] 1/921984*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(17788815*7^(1/2)*arctan(1/1
4*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^4+47436840*7^(1/2)*arc
tan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+47436840*7^(1
/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+114015
30*x^3*(-10*x^2-x+3)^(1/2)+21083040*7^(1/2)*arctan(1/14*(37*x+20)
*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+18000080*x^2*(-10*x^2-x+3)^(1/2)+
3513840*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2)
)+9162104*x*(-10*x^2-x+3)^(1/2)+1477728*(-10*x^2-x+3)^(1/2))/(-10
*x^2-x+3)^(1/2)/(2+3*x)^4
```

Maxima [A] time = 1.53154, size = 212, normalized size = 1.4

$$\frac{73205}{307328}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{3025}{16464}\sqrt{-10\,x^2-x+3}+\frac{\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{84\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}-\frac{125\,\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{1176\,(27\,x^3+54\,x^2+36\,x+8)}+\frac{1815\,\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{10976\,(9\,x^2+12\,x+4)}-\frac{22385\,\sqrt{-10\,x^2-x+3}}{65856\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^5,x, algorithm="maxima")
```

```
[Out] 73205/307328*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x
+ 2)) + 3025/16464*sqrt(-10*x^2 - x + 3) + 1/84*(-10*x^2 - x + 3)
^(3/2)/(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16) - 125/1176*(-10*x
^2 - x + 3)^(3/2)/(27*x^3 + 54*x^2 + 36*x + 8) + 1815/10976*(-10*
x^2 - x + 3)^(3/2)/(9*x^2 + 12*x + 4) - 22385/65856*sqrt(-10*x^2
- x + 3)/(3*x + 2)
```

Fricas [A] time = 0.223365, size = 147, normalized size = 0.97

$$\frac{\sqrt{7}\left(2\,\sqrt{7}(814395\,x^3+1285720\,x^2+654436\,x+105552)\sqrt{5\,x+3}\sqrt{-2\,x+1}+219615\,\left(81\,x^4+216\,x^3+216\,x^2+96\,x+16\right)\,\mathrm{a}\right.}{921984\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^5,x, algorithm="fricas")
```

```
[Out] 1/921984*sqrt(7)*(2*sqrt(7)*(814395*x^3 + 1285720*x^2 + 654436*x
+ 105552)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 219615*(81*x^4 + 216*x^3
 + 216*x^2 + 96*x + 16)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x
 + 3)*sqrt(-2*x + 1))))/(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(5/2)*(1-2*x)**(1/2)/(2+3*x)**5,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.413823, size = 512, normalized size = 3.39

$$\frac{14641}{614656}\sqrt{70}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3} - 4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right) - \frac{73205\left(3\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}} - \frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^7 + 3080\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}} - \frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^5 + 1144640\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x}}{\sqrt{5x}}\right.\right.}{32928\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}} - \frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2 + 2\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^5,x, algorithm="giac")
```

```
[Out] 14641/614656*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqr
t(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)
/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 73205/32928*(3*sqrt(10)
*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x
 + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^7 + 3080*sqrt(10)*((s
qrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3
)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 + 1144640*sqrt(10)*((sq
rt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)
/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 - 65856000*sqrt(10)*((sq
rt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)
/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5
) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x
 + 5) - sqrt(22)))^2 + 280)^4
```

3.2279 $\int \frac{\sqrt{1-2x}(3+5x)^{5/2}}{(2+3x)^6} dx$

Optimal. Leaf size=180

$$\frac{17\sqrt{1-2x}(5x+3)^{7/2}}{40(3x+2)^4}+\frac{3(1-2x)^{3/2}(5x+3)^{7/2}}{35(3x+2)^5}-\frac{187\sqrt{1-2x}(5x+3)^{5/2}}{1680(3x+2)^3}-\frac{2057\sqrt{1-2x}(5x+3)^{3/2}}{9408(3x+2)^2}-\frac{22627\sqrt{1-2x}\sqrt{5x+3}}{43904(3x+2)}-\frac{248897\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{43904\sqrt{7}}$$

```
[Out] (-22627*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(43904*(2 + 3*x)) - (2057*Sq
rt[1 - 2*x]*(3 + 5*x)^(3/2))/(9408*(2 + 3*x)^2) - (187*Sqrt[1 - 2
*x]*(3 + 5*x)^(5/2))/(1680*(2 + 3*x)^3) + (3*(1 - 2*x)^(3/2)*(3 +
 5*x)^(7/2))/(35*(2 + 3*x)^5) + (17*Sqrt[1 - 2*x]*(3 + 5*x)^(7/2)
)/(40*(2 + 3*x)^4) - (248897*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3
 + 5*x])])/(43904*Sqrt[7])
```

Rubi [A] time = 0.269122, antiderivative size = 180, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$\frac{17\sqrt{1-2x}(5x+3)^{7/2}}{40(3x+2)^4}+\frac{3(1-2x)^{3/2}(5x+3)^{7/2}}{35(3x+2)^5}-\frac{187\sqrt{1-2x}(5x+3)^{5/2}}{1680(3x+2)^3}-\frac{2057\sqrt{1-2x}(5x+3)^{3/2}}{9408(3x+2)^2}-\frac{22627\sqrt{1-2x}\sqrt{5x+3}}{43904(3x+2)}-\frac{248897\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{43904\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(2 + 3*x)^6,x]
```


```
[Out] (-22627*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(43904*(2 + 3*x)) - (2057*Sq
rt[1 - 2*x]*(3 + 5*x)^(3/2))/(9408*(2 + 3*x)^2) - (187*Sqrt[1 - 2
*x]*(3 + 5*x)^(5/2))/(1680*(2 + 3*x)^3) + (3*(1 - 2*x)^(3/2)*(3 +
 5*x)^(7/2))/(35*(2 + 3*x)^5) + (17*Sqrt[1 - 2*x]*(3 + 5*x)^(7/2)
)/(40*(2 + 3*x)^4) - (248897*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3
 + 5*x])])/(43904*Sqrt[7])
```

Rubi in Sympy [A] time = 20.5952, size = 165, normalized size = 0.92

$$-\frac{187\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{3}{2}}}{2352\left(3x+2\right)^{3}}-\frac{17\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{5}{2}}}{280\left(3x+2\right)^{4}}+\frac{3\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{7}{2}}}{35\left(3x+2\right)^{5}}-\frac{22627\sqrt{-2x+1}\sqrt{5x+3}}{43904\left(3x+2\right)}+\frac{2057\sqrt{-2x+1}\left(5x+3\right)^{\frac{3}{2}}}{3136\left(3x+2\right)^{2}}-\frac{248897\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{307328}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)*(1-2*x)**(1/2)/(2+3*x)**6,x)
```

```
[Out] -187*(-2*x + 1)**(3/2)*(5*x + 3)**(3/2)/(2352*(3*x + 2)**3) - 17*
(-2*x + 1)**(3/2)*(5*x + 3)**(5/2)/(280*(3*x + 2)**4) + 3*(-2*x +
 1)**(3/2)*(5*x + 3)**(7/2)/(35*(3*x + 2)**5) - 22627*sqrt(-2*x +
 1)*sqrt(5*x + 3)/(43904*(3*x + 2)) + 2057*sqrt(-2*x + 1)*(5*x +
3)**(3/2)/(3136*(3*x + 2)**2) - 248897*sqrt(7)*atan(sqrt(7)*sqrt(
-2*x + 1)/(7*sqrt(5*x + 3)))/307328
```

Mathematica [A] time = 0.150064, size = 87, normalized size = 0.48

$$\frac{\frac{14\sqrt{1-2x}\sqrt{5x+3}(27422145x^4+74915550x^3+74550556x^2+32206264x+5112864)}{(3x+2)^5}-3733455\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{9219840}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(2 + 3*x)^6,x]
```

```
[Out] ((14*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(5112864 + 32206264*x + 74550556
*x^2 + 74915550*x^3 + 27422145*x^4))/(2 + 3*x)^5 - 3733455*Sqrt[7
]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/9219840
```

Maple [B] time = 0.017, size = 298, normalized size = 1.7

$$\frac{1}{9219840\ (2+3\,x)^{5}}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(907229565\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^{2}-x+3}}\right)x^{5}+3024098550\,\sqrt{7}\arctan\left(1/14\,\frac{(37}{\sqrt{-1}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)*(1-2*x)^(1/2)/(2+3*x)^6,x)
```

```
[Out] 1/9219840*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(907229565*7^(1/2)*arctan(1
/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^5+3024098550*7^(1/2)
*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^4+403213140
0*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+
383910030*x^4*(-10*x^2-x+3)^(1/2)+2688087600*7^(1/2)*arctan(1/14*
(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+1048817700*x^3*(-10*x^
2-x+3)^(1/2)+896029200*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10
*x^2-x+3)^(1/2))*x+1043707784*x^2*(-10*x^2-x+3)^(1/2)+119470560*7
^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+4508876
96*x*(-10*x^2-x+3)^(1/2)+71580096*(-10*x^2-x+3)^(1/2))/(-10*x^2-x
+3)^(1/2)/(2+3*x)^5
```

Maxima [A] time = 1.51486, size = 267, normalized size = 1.48

$$\frac{248897}{614656}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{10285}{32928}\sqrt{-10\,x^{2}-x+3}+\frac{\left(-10\,x^{2}-x+3\right)^{\frac{3}{2}}}{105\,(243\,x^{5}+810\,x^{4}+1080\,x^{3}+720\,x^{2}+240\,x+32)}-\frac{3\left(-10\,x^{2}-x+3\right)^{\frac{3}{2}}}{40\,(81\,x^{4}+216\,x^{3}+216\,x^{2}+96\,x+16)}+\frac{45\left(-10\,x^{2}-x+3\right)^{\frac{3}{2}}}{784\,(27\,x^{3}+54\,x^{2}+36\,x+8)}+\frac{6171\left(-10\,x^{2}-x+3\right)^{\frac{3}{2}}}{21952\,(9\,x^{2}+12\,x+4)}-\frac{76109\sqrt{-10\,x^{2}-x+3}}{131712\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^6,x, algorithm="maxima")
```

```
[Out] 248897/614656*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x
 + 2)) + 10285/32928*sqrt(-10*x^2 - x + 3) + 1/105*(-10*x^2 - x +
 3)^(3/2)/(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32) -
 3/40*(-10*x^2 - x + 3)^(3/2)/(81*x^4 + 216*x^3 + 216*x^2 + 96*x
+ 16) + 45/784*(-10*x^2 - x + 3)^(3/2)/(27*x^3 + 54*x^2 + 36*x +
8) + 6171/21952*(-10*x^2 - x + 3)^(3/2)/(9*x^2 + 12*x + 4) - 7610
9/131712*sqrt(-10*x^2 - x + 3)/(3*x + 2)
```

Fricas [A] time = 0.22268, size = 167, normalized size = 0.93

$$\frac{\sqrt{7}\left(2\,\sqrt{7}\left(27422145\,x^{4}+74915550\,x^{3}+74550556\,x^{2}+32206264\,x+5112864\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+3733455\,\left(243\,x^{5}+810\,x\right.\right.}{9219840\,(243\,x^{5}+810\,x^{4}+1080\,x^{3}+720\,x^{2}+240\,x+32)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^6,x, algorithm="fricas")
```

```
[Out] 1/9219840*sqrt(7)*(2*sqrt(7)*(27422145*x^4 + 74915550*x^3 + 74550
556*x^2 + 32206264*x + 5112864)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 37
33455*(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)*arcta
n(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(243*
x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3+5*x)**(5/2)*(1-2*x)**(1/2)/(2+3*x)**6,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.485157, size = 594, normalized size = 3.3

$$\frac{248897}{6146560}\sqrt{70}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)$$
$$-\frac{14641\left(51\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^9+66640\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^7+34119680\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-}\cdots\right.\right.}{65856\left(\left(\frac{\sqrt{2}\sqrt{-10}\cdots}{\sqrt{5}\cdots}\right.\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^6,x, algorithm="giac")
```

```
[Out] 248897/6146560*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*s
qrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) -
4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 14641/65856*(51*sqrt(
10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(
5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^9 + 66640*sqrt(10)
*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x
 + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^7 + 34119680*sqrt(10)
*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x
 + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 - 3618944000*sqrt(1
0)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5
*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 - 313474560000*sq
rt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sq
rt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqr
t(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)
*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)^5
```

3.2280 $\int \frac{\sqrt{1-2x}(3+5x)^{5/2}}{(2+3x)^7}\,dx$

Optimal. Leaf size=209

$$-\frac{\sqrt{1-2x}(5x+3)^{5/2}}{18(3x+2)^6}-\frac{59\sqrt{1-2x}(5x+3)^{3/2}}{1260(3x+2)^5}+\frac{106751933\sqrt{1-2x}\sqrt{5x+3}}{99574272(3x+2)}+\frac{1057139\sqrt{1-2x}\sqrt{5x+3}}{7112448(3x+2)^2}+\frac{47279\sqrt{1-2x}\sqrt{5x+3}}{1270080(3x+2)^3}-\frac{6533\sqrt{1-2x}\sqrt{5x+3}}{211680(3x+2)^4}-\frac{15036307\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{1229312\sqrt{7}}$$

```
[Out] (-6533*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(211680*(2 + 3*x)^4) + (47279
*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(1270080*(2 + 3*x)^3) + (1057139*Sq
rt[1 - 2*x]*Sqrt[3 + 5*x])/(7112448*(2 + 3*x)^2) + (106751933*Sqr
t[1 - 2*x]*Sqrt[3 + 5*x])/(99574272*(2 + 3*x)) - (59*Sqrt[1 - 2*x
]*(3 + 5*x)^(3/2))/(1260*(2 + 3*x)^5) - (Sqrt[1 - 2*x]*(3 + 5*x)^
(5/2))/(18*(2 + 3*x)^6) - (15036307*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]
*Sqrt[3 + 5*x])])/(1229312*Sqrt[7])
```

Rubi [A] time = 0.453585, antiderivative size = 209, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$-\frac{\sqrt{1-2x}(5x+3)^{5/2}}{18(3x+2)^6}-\frac{59\sqrt{1-2x}(5x+3)^{3/2}}{1260(3x+2)^5}+\frac{106751933\sqrt{1-2x}\sqrt{5x+3}}{99574272(3x+2)}+\frac{1057139\sqrt{1-2x}\sqrt{5x+3}}{7112448(3x+2)^2}+\frac{47279\sqrt{1-2x}\sqrt{5x+3}}{1270080(3x+2)^3}-\frac{6533\sqrt{1-2x}\sqrt{5x+3}}{211680(3x+2)^4}-\frac{15036307\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{1229312\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(2 + 3*x)^7,x]
```

```
[Out] (-6533*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(211680*(2 + 3*x)^4) + (47279
*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(1270080*(2 + 3*x)^3) + (1057139*Sq
rt[1 - 2*x]*Sqrt[3 + 5*x])/(7112448*(2 + 3*x)^2) + (106751933*Sqr
t[1 - 2*x]*Sqrt[3 + 5*x])/(99574272*(2 + 3*x)) - (59*Sqrt[1 - 2*x
]*(3 + 5*x)^(3/2))/(1260*(2 + 3*x)^5) - (Sqrt[1 - 2*x]*(3 + 5*x)^
(5/2))/(18*(2 + 3*x)^6) - (15036307*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]
*Sqrt[3 + 5*x])])/(1229312*Sqrt[7])
```

Rubi in Sympy [A] time = 43.8665, size = 190, normalized size = 0.91

$$\frac{106751933\sqrt{-2x+1}\sqrt{5x+3}}{99574272\,(3x+2)}+\frac{1057139\sqrt{-2x+1}\sqrt{5x+3}}{7112448\,(3x+2)^2}+\frac{47279\sqrt{-2x+1}\sqrt{5x+3}}{1270080\,(3x+2)^3}-\frac{6533\sqrt{-2x+1}\sqrt{5x+3}}{211680\,(3x+2)^4}-\frac{59\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{1260\,(3x+2)^5}-\frac{\sqrt{-2x+1}\,(5x+3)^{\frac{5}{2}}}{18\,(3x+2)^6}-\frac{15036307\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{8605184}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)*(1-2*x)**(1/2)/(2+3*x)**7,x)
```

```
[Out] 106751933*sqrt(-2*x + 1)*sqrt(5*x + 3)/(99574272*(3*x + 2)) + 105
7139*sqrt(-2*x + 1)*sqrt(5*x + 3)/(7112448*(3*x + 2)**2) + 47279*
```

```
sqrt(-2*x + 1)*sqrt(5*x + 3)/(1270080*(3*x + 2)**3) - 6533*sqrt(-
2*x + 1)*sqrt(5*x + 3)/(211680*(3*x + 2)**4) - 59*sqrt(-2*x + 1)*
(5*x + 3)**(3/2)/(1260*(3*x + 2)**5) - sqrt(-2*x + 1)*(5*x + 3)**
(5/2)/(18*(3*x + 2)**6) - 15036307*sqrt(7)*atan(sqrt(7)*sqrt(-2*x
 + 1)/(7*sqrt(5*x + 3)))/8605184
```

Mathematica [A] time = 0.132509, size = 92, normalized size = 0.44

$$\frac{\frac{378\sqrt{1-2x}\sqrt{5x+3}\left(4803836985x^5+16234789140x^4+21960917808x^3+14818971424x^2+4978384240x+665270208\right)}{(3x+2)^6}-6089704335\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{6970199040}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(2 + 3*x)^7,x]
```

```
[Out] ((378*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(665270208 + 4978384240*x + 148
18971424*x^2 + 21960917808*x^3 + 16234789140*x^4 + 4803836985*x^5
))/(2 + 3*x)^6 - 6089704335*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7
 - 14*x]*Sqrt[3 + 5*x])])/6970199040
```

Maple [B] time = 0.02, size = 346, normalized size = 1.7

$$\frac{1}{258155520\,(2+3\,x)^6}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(164422017045\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^6+657688068180\,\sqrt{7}\arctan\left(1\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)*(1-2*x)^(1/2)/(2+3*x)^7,x)
```

```
[Out] 1/258155520*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(164422017045*7^(1/2)*arc
tan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^6+657688068180*
7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^5+10
96146780300*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(
1/2))*x^4+67253717790*x^5*(-10*x^2-x+3)^(1/2)+974352693600*7^(1/2
)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+22728704
7960*x^4*(-10*x^2-x+3)^(1/2)+487176346800*7^(1/2)*arctan(1/14*(37
*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+307452849312*x^3*(-10*x^2
-x+3)^(1/2)+129913692480*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-
10*x^2-x+3)^(1/2))*x+207465599936*x^2*(-10*x^2-x+3)^(1/2)+1443485
4720*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+6
9697379360*x*(-10*x^2-x+3)^(1/2)+9313782912*(-10*x^2-x+3)^(1/2))/
(-10*x^2-x+3)^(1/2)/(2+3*x)^6
```

Maxima [A] time = 1.505, size = 329, normalized size = 1.57

$$\begin{aligned}&\frac{15036307}{17210368}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{621335}{921984}\sqrt{-10\,x^2-x+3}\\&+\frac{\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{126\,(729\,x^6+2916\,x^5+4860\,x^4+4320\,x^3+2160\,x^2+576\,x+64)}\\&-\frac{169\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{2940\,(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240\,x+32)}\\&+\frac{547\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{23520\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}+\frac{31055\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{197568\,(27\,x^3+54\,x^2+36\,x+8)}\\&+\frac{372801\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{614656\,(9\,x^2+12\,x+4)}-\frac{4597879\sqrt{-10\,x^2-x+3}}{3687936\,(3\,x+2)}\end{aligned}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^7,x, algorithm="maxima")
```

```
[Out] 15036307/17210368*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs
(3*x + 2)) + 621335/921984*sqrt(-10*x^2 - x + 3) + 1/126*(-10*x^2
 - x + 3)^(3/2)/(729*x^6 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 2160*
x^2 + 576*x + 64) - 169/2940*(-10*x^2 - x + 3)^(3/2)/(243*x^5 + 8
10*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32) + 547/23520*(-10*x^2 -
x + 3)^(3/2)/(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16) + 31055/197
568*(-10*x^2 - x + 3)^(3/2)/(27*x^3 + 54*x^2 + 36*x + 8) + 372801
/614656*(-10*x^2 - x + 3)^(3/2)/(9*x^2 + 12*x + 4) - 4597879/3687
936*sqrt(-10*x^2 - x + 3)/(3*x + 2)
```

Fricas [A] time = 0.223307, size = 188, normalized size = 0.9

$$\frac{\sqrt{7}\left(2\sqrt{7}\left(4803836985\,x^5 + 16234789140\,x^4 + 21960917808\,x^3 + 14818971424\,x^2 + 4978384240\,x + 665270208\right)\sqrt{5\,x+3}\sqrt{-2 \cdots}\right.}{258155520\,(729\,x^6 + 2916\,x^5 + 4860\,x^4 + 43 \cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^7,x, algorithm="fricas")
```

```
[Out] 1/258155520*sqrt(7)*(2*sqrt(7)*(4803836985*x^5 + 16234789140*x^4
+ 21960917808*x^3 + 14818971424*x^2 + 4978384240*x + 665270208)*s
qrt(5*x + 3)*sqrt(-2*x + 1) + 225544605*(729*x^6 + 2916*x^5 + 486
0*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64)*arctan(1/14*sqrt(7)*(37
*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(729*x^6 + 2916*x^5 + 4
860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(5/2)*(1-2*x)**(1/2)/(2+3*x)**7,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.600638, size = 676, normalized size = 3.23

$$\frac{15036307}{172103680}\sqrt{70}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3} - 4\right)}{140\left(\sqrt{2}\sqrt{-10\,x+5} - \sqrt{22}\right)}\right)\right)$$

$$-\frac{14641\left(3081\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}} - \frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^{11} + 4888520\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}} - \frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^9 + 3188465280\sqrt{\cdots}\right.}{\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^7,x, algorithm="giac")
```

```
[Out] 15036307/172103680*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(7
0)*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3
) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 14641/1843968*(30
```

```
81*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) -
 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^11 + 48885
20*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) -
 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^9 + 318846
5280*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3)
 - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^7 - 5999
03001600*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x
+ 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 -
103716175360000*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sq
rt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)
))^3 - 5302514380800000*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt
(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) -
sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3)
- 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)^
6
```

3.2281 $\int \frac{\sqrt{1-2x}(3+5x)^{5/2}}{(2+3x)^8} dx$

Optimal. Leaf size=238

$$-\frac{\sqrt{1-2x}(5x+3)^{5/2}}{21(3x+2)^7}-\frac{59\sqrt{1-2x}(5x+3)^{3/2}}{1764(3x+2)^6}+\frac{8818415317\sqrt{1-2x}\sqrt{5x+3}}{3252759552(3x+2)}+\frac{84539611\sqrt{1-2x}\sqrt{5x+3}}{232339968(3x+2)^2}+\frac{2524471\sqrt{1-2x}\sqrt{5x+3}}{41489280(3x+2)^3}+\frac{369409\sqrt{1-2x}\sqrt{5x+3}}{20744640(3x+2)^4}-\frac{6577\sqrt{1-2x}\sqrt{5x+3}}{370440(3x+2)^5}-\frac{3735929329\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{120472576\sqrt{7}}$$

```
[Out] (-6577*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(370440*(2 + 3*x)^5) + (36940
9*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(20744640*(2 + 3*x)^4) + (2524471*
Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(41489280*(2 + 3*x)^3) + (84539611*S
qrt[1 - 2*x]*Sqrt[3 + 5*x])/(232339968*(2 + 3*x)^2) + (8818415317
*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(3252759552*(2 + 3*x)) - (59*Sqrt[1
 - 2*x]*(3 + 5*x)^(3/2))/(1764*(2 + 3*x)^6) - (Sqrt[1 - 2*x]*(3 +
 5*x)^(5/2))/(21*(2 + 3*x)^7) - (3735929329*ArcTan[Sqrt[1 - 2*x]/
(Sqrt[7]*Sqrt[3 + 5*x])])/(120472576*Sqrt[7])
```

Rubi [A] time = 0.530673, antiderivative size = 238, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$-\frac{\sqrt{1-2x}(5x+3)^{5/2}}{21(3x+2)^7}-\frac{59\sqrt{1-2x}(5x+3)^{3/2}}{1764(3x+2)^6}+\frac{8818415317\sqrt{1-2x}\sqrt{5x+3}}{3252759552(3x+2)}+\frac{84539611\sqrt{1-2x}\sqrt{5x+3}}{232339968(3x+2)^2}+\frac{2524471\sqrt{1-2x}\sqrt{5x+3}}{41489280(3x+2)^3}+\frac{369409\sqrt{1-2x}\sqrt{5x+3}}{20744640(3x+2)^4}-\frac{6577\sqrt{1-2x}\sqrt{5x+3}}{370440(3x+2)^5}-\frac{3735929329\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{120472576\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(2 + 3*x)^8,x]
```



```
[Out] (-6577*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(370440*(2 + 3*x)^5) + (36940
9*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(20744640*(2 + 3*x)^4) + (2524471*
Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(41489280*(2 + 3*x)^3) + (84539611*S
qrt[1 - 2*x]*Sqrt[3 + 5*x])/(232339968*(2 + 3*x)^2) + (8818415317
*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(3252759552*(2 + 3*x)) - (59*Sqrt[1
 - 2*x]*(3 + 5*x)^(3/2))/(1764*(2 + 3*x)^6) - (Sqrt[1 - 2*x]*(3 +
 5*x)^(5/2))/(21*(2 + 3*x)^7) - (3735929329*ArcTan[Sqrt[1 - 2*x]/
(Sqrt[7]*Sqrt[3 + 5*x])])/(120472576*Sqrt[7])
```

Rubi in Sympy [A] time = 52.7782, size = 218, normalized size = 0.92

$$\frac{8818415317\sqrt{-2x+1}\sqrt{5x+3}}{3252759552\,(3x+2)}+\frac{84539611\sqrt{-2x+1}\sqrt{5x+3}}{232339968\,(3x+2)^2}+\frac{2524471\sqrt{-2x+1}\sqrt{5x+3}}{41489280\,(3x+2)^3}+\frac{369409\sqrt{-2x+1}\sqrt{5x+3}}{20744640\,(3x+2)^4}-\frac{6577\sqrt{-2x+1}\sqrt{5x+3}}{370440\,(3x+2)^5}-\frac{59\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{1764\,(3x+2)^6}-\frac{\sqrt{-2x+1}\,(5x+3)^{\frac{5}{2}}}{21\,(3x+2)^7}-\frac{3735929329\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{843308032}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)*(1-2*x)**(1/2)/(2+3*x)**8,x)
```

```
[Out] 8818415317*sqrt(-2*x + 1)*sqrt(5*x + 3)/(3252759552*(3*x + 2)) +
84539611*sqrt(-2*x + 1)*sqrt(5*x + 3)/(232339968*(3*x + 2)**2) +
2524471*sqrt(-2*x + 1)*sqrt(5*x + 3)/(41489280*(3*x + 2)**3) + 36
9409*sqrt(-2*x + 1)*sqrt(5*x + 3)/(20744640*(3*x + 2)**4) - 6577*
sqrt(-2*x + 1)*sqrt(5*x + 3)/(370440*(3*x + 2)**5) - 59*sqrt(-2*x
 + 1)*(5*x + 3)**(3/2)/(1764*(3*x + 2)**6) - sqrt(-2*x + 1)*(5*x
+ 3)**(5/2)/(21*(3*x + 2)**7) - 3735929329*sqrt(7)*atan(sqrt(7)*s
qrt(-2*x + 1)/(7*sqrt(5*x + 3)))/843308032
```

Mathematica [A] time = 0.144603, size = 97, normalized size = 0.41

$$\frac{\frac{378\sqrt{1-2x}\sqrt{5x+3}\left(3571458203385x^6+14445612678330x^5+24351227238888x^4+21898948566336x^3+11077661454896x^2+2987299350368x+335335888512\right)}{(3x+2)^7}-15130}{683079505920}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(2 + 3*x)^8,x]
```

```
[Out] ((378*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(335335888512 + 2987299350368*x
 + 11077661454896*x^2 + 21898948566336*x^3 + 24351227238888*x^4 +
 14445612678330*x^5 + 3571458203385*x^6))/(2 + 3*x)^7 - 151305137
8245*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])
])/683079505920
```

Maple [B] time = 0.033, size = 394, normalized size = 1.7

$$\frac{1}{25299240960\,(2+3\,x)^7}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(122557161637845\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^7+571933420976610\,\sqrt{7}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)*(1-2*x)^(1/2)/(2+3*x)^8,x)
```

```
[Out] 1/25299240960*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(122557161637845*7^(1/2
)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^7+57193342
0976610*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2)
)*x^6+1143866841953220*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10
*x^2-x+3)^(1/2))*x^5+50000414847390*x^6*(-10*x^2-x+3)^(1/2)+12709
63157725800*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(
1/2))*x^4+202238577496620*x^5*(-10*x^2-x+3)^(1/2)+847308771817200
*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+3
40917181344432*x^4*(-10*x^2-x+3)^(1/2)+338923508726880*7^(1/2)*ar
ctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+306585279928
704*x^3*(-10*x^2-x+3)^(1/2)+75316335272640*7^(1/2)*arctan(1/14*(3
7*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+155087260368544*x^2*(-10*x
^2-x+3)^(1/2)+7172984311680*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)
/(-10*x^2-x+3)^(1/2))+41822190905152*x*(-10*x^2-x+3)^(1/2)+469470
2439168*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)^7
```

Maxima [A] time = 1.5307, size = 398, normalized size = 1.67

$$\frac{3735929329}{1686616064}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{154377245}{90354432}\sqrt{-10\,x^2-x+3}+\frac{\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{147\,(2187\,x^7+10206\,x^6+20412\,x^5+22680\,x^4+15120\,x^3+6048\,x^2+1344\,x+128)}-\frac{191\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{4116\,(729\,x^6+2916\,x^5+4860\,x^4+4320\,x^3+2160\,x^2+576\,x+64)}+\frac{919\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{96040\,(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240\,x+32)}+\frac{72203\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{768320\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}+\frac{2612695\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{6453888\,(27\,x^3+54\,x^2+36\,x+8)}+\frac{92626347\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{60236288\,(9\,x^2+12\,x+4)}-\frac{1142391613\sqrt{-10\,x^2-x+3}}{361417728\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^8,x, algorithm="maxima")
```

```
[Out] 3735929329/1686616064*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11
/abs(3*x + 2)) + 154377245/90354432*sqrt(-10*x^2 - x + 3) + 1/147
*(-10*x^2 - x + 3)^(3/2)/(2187*x^7 + 10206*x^6 + 20412*x^5 + 2268
0*x^4 + 15120*x^3 + 6048*x^2 + 1344*x + 128) - 191/4116*(-10*x^2
- x + 3)^(3/2)/(729*x^6 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 2160*x
^2 + 576*x + 64) + 919/96040*(-10*x^2 - x + 3)^(3/2)/(243*x^5 + 8
10*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32) + 72203/768320*(-10*x^2
 - x + 3)^(3/2)/(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16) + 261269
5/6453888*(-10*x^2 - x + 3)^(3/2)/(27*x^3 + 54*x^2 + 36*x + 8) +
92626347/60236288*(-10*x^2 - x + 3)^(3/2)/(9*x^2 + 12*x + 4) - 11
42391613/361417728*sqrt(-10*x^2 - x + 3)/(3*x + 2)
```

Fricas [A] time = 0.229504, size = 208, normalized size = 0.87

$$\frac{\sqrt{7}\Big(2\sqrt{7}(3571458203385\,x^6+14445612678330\,x^5+24351227238888\,x^4+21898948566336\,x^3+11077661454896\,x^2+2987}{25299240960\,(2187\,x^7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^8,x, algorithm="fricas")
```

```
[Out] 1/25299240960*sqrt(7)*(2*sqrt(7)*(3571458203385*x^6 + 14445612678
330*x^5 + 24351227238888*x^4 + 21898948566336*x^3 + 1107766145489
6*x^2 + 2987299350368*x + 335335888512)*sqrt(5*x + 3)*sqrt(-2*x +
 1) + 56038939935*(2187*x^7 + 10206*x^6 + 20412*x^5 + 22680*x^4 +
 15120*x^3 + 6048*x^2 + 1344*x + 128)*arctan(1/14*sqrt(7)*(37*x +
 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(2187*x^7 + 10206*x^6 + 204
12*x^5 + 22680*x^4 + 15120*x^3 + 6048*x^2 + 1344*x + 128)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3+5*x)**(5/2)*(1-2*x)**(1/2)/(2+3*x)**8,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.717447, size = 759, normalized size = 3.19

$$\frac{3735929329}{16866160640}\,\sqrt{70}\sqrt{10}\left(\pi+2\,\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{2}}{5\,x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)$$

$$-\frac{14641\left(765507\,\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^{13}+1428946400\,\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^{11}+113229\cdots}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^8,x, algorithm="giac")
```

```
[Out] 3735929329/16866160640*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sq
rt(70)*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x
 + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 14641/1807088
64*(765507*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*
x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^13
 + 1428946400*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt
(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))
^11 + 1132297127360*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22)
)/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt
(22)))^9 - 334448649830400*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - s
qrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5)
 - sqrt(22)))^7 - 85378328229376000*sqrt(10)*((sqrt(2)*sqrt(-10*x
 + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-
10*x + 5) - sqrt(22)))^5 - 8754907317452800000*sqrt(10)*((sqrt(2)
*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqr
t(2)*sqrt(-10*x + 5) - sqrt(22)))^3 - 368890400944128000000*sqrt(
10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(
5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-
10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sq
rt(-10*x + 5) - sqrt(22)))^2 + 280)^7
```

3.2282 $\int \frac{\sqrt{a+bx}}{\sqrt{c+dx}(e+fx)}\,dx$

Optimal. Leaf size=119

$$\frac{2\sqrt{b}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{d}f}-\frac{2\sqrt{be-af}\tanh^{-1}\left(\frac{\sqrt{a+bx}\sqrt{de-cf}}{\sqrt{c+dx}\sqrt{be-af}}\right)}{f\sqrt{de-cf}}$$

```
[Out] (2*Sqrt[b]*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x]
)])/(Sqrt[d]*f) - (2*Sqrt[b*e - a*f]*ArcTanh[(Sqrt[d*e - c*f]*Sqr
t[a + b*x])/(Sqrt[b*e - a*f]*Sqrt[c + d*x])])/(f*Sqrt[d*e - c*f])
```

Rubi [A] time = 0.317495, antiderivative size = 119, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$\frac{2\sqrt{b}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{d}f}-\frac{2\sqrt{be-af}\tanh^{-1}\left(\frac{\sqrt{a+bx}\sqrt{de-cf}}{\sqrt{c+dx}\sqrt{be-af}}\right)}{f\sqrt{de-cf}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[a + b*x]/(Sqrt[c + d*x]*(e + f*x)),x]
```

```
[Out] (2*Sqrt[b]*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x]
)])/(Sqrt[d]*f) - (2*Sqrt[b*e - a*f]*ArcTanh[(Sqrt[d*e - c*f]*Sqr
t[a + b*x])/(Sqrt[b*e - a*f]*Sqrt[c + d*x])])/(f*Sqrt[d*e - c*f])
```

Rubi in Sympy [A] time = 26.9616, size = 104, normalized size = 0.87

$$\frac{2\sqrt{b}\operatorname{atanh}\left(\frac{\sqrt{b}\sqrt{c+dx}}{\sqrt{d}\sqrt{a+bx}}\right)}{\sqrt{d}f}-\frac{2\sqrt{af-be}\operatorname{atanh}\left(\frac{\sqrt{a+bx}\sqrt{cf-de}}{\sqrt{c+dx}\sqrt{af-be}}\right)}{f\sqrt{cf-de}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/2)/(f*x+e)/(d*x+c)**(1/2),x)
```

```
[Out] 2*sqrt(b)*atanh(sqrt(b)*sqrt(c + d*x)/(sqrt(d)*sqrt(a + b*x)))/(s
qrt(d)*f) - 2*sqrt(a*f - b*e)*atanh(sqrt(a + b*x)*sqrt(c*f - d*e)
/(sqrt(c + d*x)*sqrt(a*f - b*e)))/(f*sqrt(c*f - d*e))
```

Mathematica [A] time = 0.39837, size = 193, normalized size = 1.62

$$\frac{-\frac{\sqrt{be-af}\log(e+fx)}{\sqrt{de-cf}}+\frac{\sqrt{be-af}\log\left(2\sqrt{a+bx}\sqrt{c+dx}\sqrt{be-af}\sqrt{de-cf}+2acf-ade+adfx-bce+bcfx-2bdex\right)}{\sqrt{de-cf}}+\frac{\sqrt{b}\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2b\right.}{\sqrt{d}}}{f}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[a + b*x]/(Sqrt[c + d*x]*(e + f*x)),x]
```

```
[Out] (-((Sqrt[b*e - a*f]*Log[e + f*x])/Sqrt[d*e - c*f]) + (Sqrt[b]*Log
[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d
*x]])/Sqrt[d] + (Sqrt[b*e - a*f]*Log[-(b*c*e) - a*d*e + 2*a*c*f -
 2*b*d*e*x + b*c*f*x + a*d*f*x + 2*Sqrt[b*e - a*f]*Sqrt[d*e - c*f
```

```
]*Sqrt[a + b*x]*Sqrt[c + d*x]])/Sqrt[d*e - c*f])/f
```

Maple [B] time = 0.064, size = 300, normalized size = 2.5

$$\frac{1}{f^2}\left(\ln\left(\frac{1}{2}\left(2\,bdx+2\,\sqrt{(bx+a)\,(dx+c)}\sqrt{bd}+ad+bc\right)\frac{1}{\sqrt{bd}}\right)bf\sqrt{\frac{(cf-de)\,(af-be)}{f^2}}-\ln\left(\frac{1}{fx+e}\left(adfx+bcfx-2\,bd\right.\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/2)/(f*x+e)/(d*x+c)^(1/2),x)
```

```
[Out] (ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(
b*d)^(1/2))*b*f*((c*f-d*e)*(a*f-b*e)/f^2)^(1/2)-ln((a*d*f*x+b*c*f
*x-2*b*d*e*x+2*((b*x+a)*(d*x+c))^(1/2)*((c*f-d*e)*(a*f-b*e)/f^2)^
(1/2)*f+2*a*c*f-a*d*e-b*c*e)/(f*x+e))*a*f*(b*d)^(1/2)+ln((a*d*f*x
+b*c*f*x-2*b*d*e*x+2*((b*x+a)*(d*x+c))^(1/2)*((c*f-d*e)*(a*f-b*e)
/f^2)^(1/2)*f+2*a*c*f-a*d*e-b*c*e)/(f*x+e))*b*e*(b*d)^(1/2))*(d*x
+c)^(1/2)*(b*x+a)^(1/2)/((c*f-d*e)*(a*f-b*e)/f^2)^(1/2)/f^2/((b*x
+a)*(d*x+c))^(1/2)/(b*d)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/(sqrt(d*x + c)*(f*x + e)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 5.75318, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/(sqrt(d*x + c)*(f*x + e)),x, algorithm="fricas")
```

```
[Out] [1/2*(sqrt(b/d)*log(8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2
 + 4*(2*b*d^2*x + b*c*d + a*d^2)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt
(b/d) + 8*(b^2*c*d + a*b*d^2)*x) + sqrt((b*e - a*f)/(d*e - c*f))*
log((8*a^2*c^2*f^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*e^2 - 8*(a*b
*c^2 + a^2*c*d)*e*f + (8*b^2*d^2*e^2 - 8*(b^2*c*d + a*b*d^2)*e*f
+ (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*f^2)*x^2 - 4*(2*a*c^2*f^2 + (b*
c*d + a*d^2)*e^2 - (b*c^2 + 3*a*c*d)*e*f + (2*b*d^2*e^2 - (3*b*c*
d + a*d^2)*e*f + (b*c^2 + a*c*d)*f^2)*x)*sqrt(b*x + a)*sqrt(d*x +
 c)*sqrt((b*e - a*f)/(d*e - c*f)) + 2*(4*(b^2*c*d + a*b*d^2)*e^2
- (3*b^2*c^2 + 10*a*b*c*d + 3*a^2*d^2)*e*f + 4*(a*b*c^2 + a^2*c*d
)*f^2)*x)/(f^2*x^2 + 2*e*f*x + e^2)))/f, 1/2*(2*sqrt(-b/d)*arctan
(1/2*(2*b*d*x + b*c + a*d)/(sqrt(b*x + a)*sqrt(d*x + c)*d*sqrt(-b
/d))) + sqrt((b*e - a*f)/(d*e - c*f))*log((8*a^2*c^2*f^2 + (b^2*c
^2 + 6*a*b*c*d + a^2*d^2)*e^2 - 8*(a*b*c^2 + a^2*c*d)*e*f + (8*b^
2*d^2*e^2 - 8*(b^2*c*d + a*b*d^2)*e*f + (b^2*c^2 + 6*a*b*c*d + a^
2*d^2)*f^2)*x^2 - 4*(2*a*c^2*f^2 + (b*c*d + a*d^2)*e^2 - (b*c^2 +
 3*a*c*d)*e*f + (2*b*d^2*e^2 - (3*b*c*d + a*d^2)*e*f + (b*c^2 + a
*c*d)*f^2)*x)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt((b*e - a*f)/(d*e -
 c*f)) + 2*(4*(b^2*c*d + a*b*d^2)*e^2 - (3*b^2*c^2 + 10*a*b*c*d +
 3*a^2*d^2)*e*f + 4*(a*b*c^2 + a^2*c*d)*f^2)*x)/(f^2*x^2 + 2*e*f*
x + e^2)))/f, -1/2*(2*sqrt(-(b*e - a*f)/(d*e - c*f))*arctan(-1/2*
```

```
(2*a*c*f - (b*c + a*d)*e - (2*b*d*e - (b*c + a*d)*f)*x)/((d*e - c
*f)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(-(b*e - a*f)/(d*e - c*f))))
- sqrt(b/d)*log(8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2 + 4
*(2*b*d^2*x + b*c*d + a*d^2)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(b/d
) + 8*(b^2*c*d + a*b*d^2)*x))/f, -(sqrt(-(b*e - a*f)/(d*e - c*f))
*arctan(-1/2*(2*a*c*f - (b*c + a*d)*e - (2*b*d*e - (b*c + a*d)*f)
*x)/((d*e - c*f)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(-(b*e - a*f)/(d
*e - c*f)))) - sqrt(-b/d)*arctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(
b*x + a)*sqrt(d*x + c)*d*sqrt(-b/d))))/f]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{a+bx}}{\sqrt{c+dx}\,(e+fx)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(1/2)/(f*x+e)/(d*x+c)**(1/2),x)
```

```
[Out] Integral(sqrt(a + b*x)/(sqrt(c + d*x)*(e + f*x)), x)
```

GIAC/XCAS [A] time = 0.283105, size = 328, normalized size = 2.76

$$-\frac{\sqrt{bd}b\ln\left(\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2\right)}{df|b|}-\frac{2\left(\sqrt{bd}ab^2f-\sqrt{bd}b^3e\right)\arctan\left(-\frac{b^2cf+abdf-2\,b^2de-\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2f}{2\sqrt{-abcdf^2+b^2cdfe+abd^2fe-b^2d^2e^2}b}\right)}{\sqrt{-abcdf^2+b^2cdfe+abd^2fe-b^2d^2e^2}bf|b|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)/(sqrt(d*x + c)*(f*x + e)),x, algorithm="giac")
```

```
[Out] -sqrt(b*d)*b*ln((sqrt(b*d)*sqrt(b*x + a) - sqrt(b^2*c + (b*x + a)
*b*d - a*b*d))^2)/(d*f*abs(b)) - 2*(sqrt(b*d)*a*b^2*f - sqrt(b*d)
*b^3*e)*arctan(-1/2*(b^2*c*f + a*b*d*f - 2*b^2*d*e - (sqrt(b*d)*s
qrt(b*x + a) - sqrt(b^2*c + (b*x + a)*b*d - a*b*d))^2*f)/(sqrt(-a
*b*c*d*f^2 + b^2*c*d*f*e + a*b*d^2*f*e - b^2*d^2*e^2)*b))/(sqrt(-
a*b*c*d*f^2 + b^2*c*d*f*e + a*b*d^2*f*e - b^2*d^2*e^2)*b*f*abs(b)
)
```

3.2283 $\int \frac{\sqrt{c+dx}}{\sqrt{a+bx}(e+fx)}\,dx$

Optimal. Leaf size=119

$$\frac{2\sqrt{d}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{b}f}-\frac{2\sqrt{de-cf}\tanh^{-1}\left(\frac{\sqrt{a+bx}\sqrt{de-cf}}{\sqrt{c+dx}\sqrt{be-af}}\right)}{f\sqrt{be-af}}$$

```
[Out] (2*Sqrt[d]*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x]
)])/(Sqrt[b]*f) - (2*Sqrt[d*e - c*f]*ArcTanh[(Sqrt[d*e - c*f]*Sqr
t[a + b*x])/(Sqrt[b*e - a*f]*Sqrt[c + d*x])])/(f*Sqrt[b*e - a*f])
```

Rubi [A] time = 0.248899, antiderivative size = 119, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$\frac{2\sqrt{d}\tanh^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{b}f}-\frac{2\sqrt{de-cf}\tanh^{-1}\left(\frac{\sqrt{a+bx}\sqrt{de-cf}}{\sqrt{c+dx}\sqrt{be-af}}\right)}{f\sqrt{be-af}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[c + d*x]/(Sqrt[a + b*x]*(e + f*x)),x]
```

```
[Out] (2*Sqrt[d]*ArcTanh[(Sqrt[d]*Sqrt[a + b*x])/(Sqrt[b]*Sqrt[c + d*x]
)])/(Sqrt[b]*f) - (2*Sqrt[d*e - c*f]*ArcTanh[(Sqrt[d*e - c*f]*Sqr
t[a + b*x])/(Sqrt[b*e - a*f]*Sqrt[c + d*x])])/(f*Sqrt[b*e - a*f])
```

Rubi in Sympy [A] time = 27.0143, size = 104, normalized size = 0.87

$$-\frac{2\sqrt{cf-de}\operatorname{atanh}\left(\frac{\sqrt{a+bx}\sqrt{cf-de}}{\sqrt{c+dx}\sqrt{af-be}}\right)}{f\sqrt{af-be}}+\frac{2\sqrt{d}\operatorname{atanh}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{b}\sqrt{c+dx}}\right)}{\sqrt{b}f}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(1/2)/(f*x+e)/(b*x+a)**(1/2),x)
```

```
[Out] -2*sqrt(c*f - d*e)*atanh(sqrt(a + b*x)*sqrt(c*f - d*e)/(sqrt(c +
d*x)*sqrt(a*f - b*e)))/(f*sqrt(a*f - b*e)) + 2*sqrt(d)*atanh(sqrt
(d)*sqrt(a + b*x)/(sqrt(b)*sqrt(c + d*x)))/(sqrt(b)*f)
```

Mathematica [A] time = 0.246668, size = 193, normalized size = 1.62

$$\frac{-\frac{\sqrt{de-cf}\log(e+fx)}{\sqrt{be-af}}+\frac{\sqrt{de-cf}\log\left(2\sqrt{a+bx}\sqrt{c+dx}\sqrt{be-af}\sqrt{de-cf}+2acf-ade+adfx-bce+bcfx-2bdex\right)}{\sqrt{be-af}}+\frac{\sqrt{d}\log\left(2\sqrt{b}\sqrt{d}\sqrt{a+bx}\sqrt{c+dx}+ad+bc+2b\right.}{\sqrt{b}}}{f}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[c + d*x]/(Sqrt[a + b*x]*(e + f*x)),x]
```

```
[Out] (-((Sqrt[d*e - c*f]*Log[e + f*x])/Sqrt[b*e - a*f]) + (Sqrt[d]*Log
[b*c + a*d + 2*b*d*x + 2*Sqrt[b]*Sqrt[d]*Sqrt[a + b*x]*Sqrt[c + d
*x]])/Sqrt[b] + (Sqrt[d*e - c*f]*Log[-(b*c*e) - a*d*e + 2*a*c*f -
 2*b*d*e*x + b*c*f*x + a*d*f*x + 2*Sqrt[b*e - a*f]*Sqrt[d*e - c*f
```

```
]*Sqrt[a + b*x]*Sqrt[c + d*x]])/Sqrt[b*e - a*f])/f
```

Maple [B] time = 0.034, size = 300, normalized size = 2.5

$$\frac{1}{f^2}\left(\ln\left(\frac{1}{2}\left(2\,bdx+2\,\sqrt{(bx+a)\,(dx+c)}\sqrt{bd}+ad+bc\right)\frac{1}{\sqrt{bd}}\right)df\sqrt{\frac{(cf-de)\,(af-be)}{f^2}}-\ln\left(\frac{1}{fx+e}\left(adfx+bcfx-2\,bd\right.\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(1/2)/(f*x+e)/(b*x+a)^(1/2),x)
```

```
[Out] (ln(1/2*(2*b*d*x+2*((b*x+a)*(d*x+c))^(1/2)*(b*d)^(1/2)+a*d+b*c)/(
b*d)^(1/2))*d*f*((c*f-d*e)*(a*f-b*e)/f^2)^(1/2)-ln((a*d*f*x+b*c*f
*x-2*b*d*e*x+2*((b*x+a)*(d*x+c))^(1/2)*((c*f-d*e)*(a*f-b*e)/f^2)^
(1/2)*f+2*a*c*f-a*d*e-b*c*e)/(f*x+e))*c*f*(b*d)^(1/2)+ln((a*d*f*x
+b*c*f*x-2*b*d*e*x+2*((b*x+a)*(d*x+c))^(1/2)*((c*f-d*e)*(a*f-b*e)
/f^2)^(1/2)*f+2*a*c*f-a*d*e-b*c*e)/(f*x+e))*d*e*(b*d)^(1/2))*(b*x
+a)^(1/2)*(d*x+c)^(1/2)/((c*f-d*e)*(a*f-b*e)/f^2)^(1/2)/f^2/((b*x
+a)*(d*x+c))^(1/2)/(b*d)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(d*x + c)/(sqrt(b*x + a)*(f*x + e)),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 5.77307, size = 1, normalized size = 0.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(d*x + c)/(sqrt(b*x + a)*(f*x + e)),x, algorithm="fricas")
```

```
[Out] [1/2*(sqrt(d/b)*log(8*b^2*d^2*x^2 + b^2*c^2 + 6*a*b*c*d + a^2*d^2
 + 4*(2*b^2*d*x + b^2*c + a*b*d)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt
(d/b) + 8*(b^2*c*d + a*b*d^2)*x) + sqrt((d*e - c*f)/(b*e - a*f))*
log((8*a^2*c^2*f^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*e^2 - 8*(a*b
*c^2 + a^2*c*d)*e*f + (8*b^2*d^2*e^2 - 8*(b^2*c*d + a*b*d^2)*e*f
+ (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*f^2)*x^2 - 4*(2*a^2*c*f^2 + (b^
2*c + a*b*d)*e^2 - (3*a*b*c + a^2*d)*e*f + (2*b^2*d*e^2 - (b^2*c
+ 3*a*b*d)*e*f + (a*b*c + a^2*d)*f^2)*x)*sqrt(b*x + a)*sqrt(d*x +
 c)*sqrt((d*e - c*f)/(b*e - a*f)) + 2*(4*(b^2*c*d + a*b*d^2)*e^2
- (3*b^2*c^2 + 10*a*b*c*d + 3*a^2*d^2)*e*f + 4*(a*b*c^2 + a^2*c*d
)*f^2)*x)/(f^2*x^2 + 2*e*f*x + e^2)))/f, -1/2*(2*sqrt(-(d*e - c*f
)/(b*e - a*f))*arctan(-1/2*(2*a*c*f - (b*c + a*d)*e - (2*b*d*e -
(b*c + a*d)*f)*x)/((b*e - a*f)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(-
(d*e - c*f)/(b*e - a*f)))) - sqrt(d/b)*log(8*b^2*d^2*x^2 + b^2*c^
2 + 6*a*b*c*d + a^2*d^2 + 4*(2*b^2*d*x + b^2*c + a*b*d)*sqrt(b*x
+ a)*sqrt(d*x + c)*sqrt(d/b) + 8*(b^2*c*d + a*b*d^2)*x))/f, 1/2*(
2*sqrt(-d/b)*arctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(b*x + a)*sqrt
(d*x + c)*b*sqrt(-d/b))) + sqrt((d*e - c*f)/(b*e - a*f))*log((8*a
^2*c^2*f^2 + (b^2*c^2 + 6*a*b*c*d + a^2*d^2)*e^2 - 8*(a*b*c^2 + a
^2*c*d)*e*f + (8*b^2*d^2*e^2 - 8*(b^2*c*d + a*b*d^2)*e*f + (b^2*c
^2 + 6*a*b*c*d + a^2*d^2)*f^2)*x^2 - 4*(2*a^2*c*f^2 + (b^2*c + a*
```

```
b*d)*e^2 - (3*a*b*c + a^2*d)*e*f + (2*b^2*d*e^2 - (b^2*c + 3*a*b*
d)*e*f + (a*b*c + a^2*d)*f^2)*x)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt
((d*e - c*f)/(b*e - a*f)) + 2*(4*(b^2*c*d + a*b*d^2)*e^2 - (3*b^2
*c^2 + 10*a*b*c*d + 3*a^2*d^2)*e*f + 4*(a*b*c^2 + a^2*c*d)*f^2)*x
)/(f^2*x^2 + 2*e*f*x + e^2)))/f, -(sqrt(-(d*e - c*f)/(b*e - a*f))
*arctan(-1/2*(2*a*c*f - (b*c + a*d)*e - (2*b*d*e - (b*c + a*d)*f)
*x)/((b*e - a*f)*sqrt(b*x + a)*sqrt(d*x + c)*sqrt(-(d*e - c*f)/(b
*e - a*f)))) - sqrt(-d/b)*arctan(1/2*(2*b*d*x + b*c + a*d)/(sqrt(
b*x + a)*sqrt(d*x + c)*b*sqrt(-d/b))))/f]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{c+dx}}{\sqrt{a+bx}\,(e+fx)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(1/2)/(f*x+e)/(b*x+a)**(1/2),x)
```

```
[Out] Integral(sqrt(c + d*x)/(sqrt(a + b*x)*(e + f*x)), x)
```

GIAC/XCAS [A] time = 0.265072, size = 321, normalized size = 2.7

$$-\frac{\left(\frac{\sqrt{bd}\ln\left(\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2\right)}{f}+\frac{2\left(\sqrt{bd}b^2cf-\sqrt{bd}b^2de\right)\arctan\left(-\frac{b^2cf+abdf-2b^2de-\left(\sqrt{bd}\sqrt{bx+a}-\sqrt{b^2c+(bx+a)bd-abd}\right)^2f}{2\sqrt{-abcdf^2+b^2cdfe+abd^2fe-b^2d^2e^2}b}\right)}{\sqrt{-abcdf^2+b^2cdfe+abd^2fe-b^2d^2e^2}bf}\right)|b|}{b^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(d*x + c)/(sqrt(b*x + a)*(f*x + e)),x, algorithm="giac")
```

```
[Out] -(sqrt(b*d)*ln((sqrt(b*d)*sqrt(b*x + a) - sqrt(b^2*c + (b*x + a)*
b*d - a*b*d))^2)/f + 2*(sqrt(b*d)*b^2*c*f - sqrt(b*d)*b^2*d*e)*ar
ctan(-1/2*(b^2*c*f + a*b*d*f - 2*b^2*d*e - (sqrt(b*d)*sqrt(b*x +
a) - sqrt(b^2*c + (b*x + a)*b*d - a*b*d))^2*f)/(sqrt(-a*b*c*d*f^2
 + b^2*c*d*f*e + a*b*d^2*f*e - b^2*d^2*e^2)*b))/(sqrt(-a*b*c*d*f^
2 + b^2*c*d*f*e + a*b*d^2*f*e - b^2*d^2*e^2)*b*f))*abs(b)/b^2
```

3.2284 $\int \frac{\sqrt{1-2x}(2+3x)^3}{\sqrt{3+5x}}\,dx$

Optimal. Leaf size=106

$$-\frac{3}{40}(1-2x)^{3/2}\sqrt{5x+3}(3x+2)^2-\frac{21(1-2x)^{3/2}\sqrt{5x+3}(216x+335)}{6400}+\frac{47761\sqrt{1-2x}\sqrt{5x+3}}{64000}+\frac{525371\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{64000\sqrt{10}}$$

```
[Out] (47761*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/64000 - (3*(1 - 2*x)^(3/2)*(2
 + 3*x)^2*Sqrt[3 + 5*x])/40 - (21*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x]*(
335 + 216*x))/6400 + (525371*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(6
4000*Sqrt[10])
```

Rubi [A] time = 0.134832, antiderivative size = 106, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$-\frac{3}{40}(1-2x)^{3/2}\sqrt{5x+3}(3x+2)^2-\frac{21(1-2x)^{3/2}\sqrt{5x+3}(216x+335)}{6400}+\frac{47761\sqrt{1-2x}\sqrt{5x+3}}{64000}+\frac{525371\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{64000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(2 + 3*x)^3)/Sqrt[3 + 5*x],x]
```

```
[Out] (47761*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/64000 - (3*(1 - 2*x)^(3/2)*(2
 + 3*x)^2*Sqrt[3 + 5*x])/40 - (21*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x]*(
335 + 216*x))/6400 + (525371*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(6
4000*Sqrt[10])
```

Rubi in Sympy [A] time = 13.3783, size = 97, normalized size = 0.92

$$-\frac{3\,(-2x+1)^{\frac{3}{2}}\,(3x+2)^2\,\sqrt{5x+3}}{40}-\frac{(-2x+1)^{\frac{3}{2}}\,\sqrt{5x+3}\,\left(17010x+\frac{105525}{4}\right)}{24000}+\frac{47761\sqrt{-2x+1}\sqrt{5x+3}}{64000}+\frac{525371\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{640000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3*(1-2*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] -3*(-2*x + 1)**(3/2)*(3*x + 2)**2*sqrt(5*x + 3)/40 - (-2*x + 1)**
(3/2)*sqrt(5*x + 3)*(17010*x + 105525/4)/24000 + 47761*sqrt(-2*x
+ 1)*sqrt(5*x + 3)/64000 + 525371*sqrt(10)*asin(sqrt(22)*sqrt(5*x
 + 3)/11)/640000
```

Mathematica [A] time = 0.121001, size = 65, normalized size = 0.61

$$\frac{10\sqrt{1-2x}\sqrt{5x+3}\left(86400x^3+162720x^2+76140x-41789\right)-525371\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{640000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(2 + 3*x)^3)/Sqrt[3 + 5*x],x]
```

```
[Out] (10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(-41789 + 76140*x + 162720*x^2 +
86400*x^3) - 525371*Sqrt[10]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/64
0000
```

Maple [A] time = 0.016, size = 104, normalized size = 1.

$$\frac{1}{1280000}\sqrt{1-2x}\sqrt{3+5x}\left(1728000x^3\sqrt{-10x^2-x+3}+3254400x^2\sqrt{-10x^2-x+3}+525371\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)+\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3*(1-2*x)^(1/2)/(3+5*x)^(1/2),x)
```

```
[Out] 1/1280000*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(1728000*x^3*(-10*x^2-x+3)^
(1/2)+3254400*x^2*(-10*x^2-x+3)^(1/2)+525371*10^(1/2)*arcsin(20/1
1*x+1/11)+1522800*x*(-10*x^2-x+3)^(1/2)-835780*(-10*x^2-x+3)^(1/2
))/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.50913, size = 99, normalized size = 0.93

$$-\frac{27}{200}\left(-10x^2-x+3\right)^{\frac{3}{2}}x+\frac{525371}{1280000}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)-\frac{963}{4000}\left(-10x^2-x+3\right)^{\frac{3}{2}}+\frac{21663}{16000}\sqrt{-10x^2-x+3}x+\frac{887}{12800}\sqrt{-10x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*sqrt(-2*x + 1)/sqrt(5*x + 3),x, algorithm="maxima")
```

```
[Out] -27/200*(-10*x^2 - x + 3)^(3/2)*x + 525371/1280000*sqrt(5)*sqrt(2
)*arcsin(20/11*x + 1/11) - 963/4000*(-10*x^2 - x + 3)^(3/2) + 216
63/16000*sqrt(-10*x^2 - x + 3)*x + 887/12800*sqrt(-10*x^2 - x + 3
)
```

Fricas [A] time = 0.22177, size = 90, normalized size = 0.85

$$\frac{1}{1280000}\sqrt{10}\left(2\sqrt{10}\left(86400x^3+162720x^2+76140x-41789\right)\sqrt{5x+3}\sqrt{-2x+1}+525371\arctan\left(\frac{\sqrt{10}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*sqrt(-2*x + 1)/sqrt(5*x + 3),x, algorithm="fricas")
```

```
[Out] 1/1280000*sqrt(10)*(2*sqrt(10)*(86400*x^3 + 162720*x^2 + 76140*x
- 41789)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 525371*arctan(1/20*sqrt(1
0)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [A] time = 15.4911, size = 462, normalized size = 4.36

$$-\frac{343\sqrt{2}\left(\begin{cases}\frac{11\sqrt{5}\left(-\frac{\sqrt{5}\sqrt{-2x+1}\sqrt{10x+6}}{22}+\frac{\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{2}\right)}{25} & \text{for } x\le\frac{1}{2}\wedge x>-\frac{3}{5}\end{cases}\right)}{8}$$
$$+\frac{441\sqrt{2}\left(\begin{cases}\frac{121\sqrt{5}\left(\frac{\sqrt{5}\sqrt{-2x+1}\sqrt{10x+6}(20x+1)}{968}-\frac{\sqrt{5}\sqrt{-2x+1}\sqrt{10x+6}}{22}+\frac{3\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{8}\right)}{125} & \text{for } x\le\frac{1}{2}\wedge x>-\frac{3}{5}\end{cases}\right)}{8}$$
$$-\frac{189\sqrt{2}\left(\begin{cases}\frac{1331\sqrt{5}\left(\frac{5\sqrt{5}(-2x+1)^{\frac{3}{2}}(10x+6)^{\frac{3}{2}}}{7986}+\frac{3\sqrt{5}\sqrt{-2x+1}\sqrt{10x+6}(20x+1)}{1936}-\frac{\sqrt{5}\sqrt{-2x+1}\sqrt{10x+6}}{22}+\frac{5\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{16}\right)}{625} & \text{for } x\le\frac{1}{2}\wedge x>-\frac{3}{5}\end{cases}\right)}{8}$$
$$+\frac{27\sqrt{2}\left(\begin{cases}\frac{14641\sqrt{5}\left(\frac{5\sqrt{5}(-2x+1)^{\frac{3}{2}}(10x+6)^{\frac{3}{2}}}{3993}+\frac{7\sqrt{5}\sqrt{-2x+1}\sqrt{10x+6}(20x+1)}{3872}+\frac{\sqrt{5}\sqrt{-2x+1}\sqrt{10x+6}\left(12100x-2000(-2x+1)^{3}+6600(-2x+1)^{2}-4719\right)}{1874048}-\frac{\sqrt{5}\sqrt{-2x+1}\sqrt{10x+6}}{22}+\frac{35\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{128}\right)}{3125}\end{cases}\right)}{8}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3*(1-2*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] -343*sqrt(2)*Piecewise((11*sqrt(5)*(-sqrt(5)*sqrt(-2*x + 1)*sqrt(
10*x + 6)/22 + asin(sqrt(55)*sqrt(-2*x + 1)/11)/2)/25, (x <= 1/2)
 & (x > -3/5)))/8 + 441*sqrt(2)*Piecewise((121*sqrt(5)*(sqrt(5)*s
qrt(-2*x + 1)*sqrt(10*x + 6)*(20*x + 1)/968 - sqrt(5)*sqrt(-2*x +
 1)*sqrt(10*x + 6)/22 + 3*asin(sqrt(55)*sqrt(-2*x + 1)/11)/8)/125
, (x <= 1/2) & (x > -3/5)))/8 - 189*sqrt(2)*Piecewise((1331*sqrt(
5)*(5*sqrt(5)*(-2*x + 1)**(3/2)*(10*x + 6)**(3/2)/7986 + 3*sqrt(5
)*sqrt(-2*x + 1)*sqrt(10*x + 6)*(20*x + 1)/1936 - sqrt(5)*sqrt(-2
*x + 1)*sqrt(10*x + 6)/22 + 5*asin(sqrt(55)*sqrt(-2*x + 1)/11)/16
)/625, (x <= 1/2) & (x > -3/5)))/8 + 27*sqrt(2)*Piecewise((14641*
sqrt(5)*(5*sqrt(5)*(-2*x + 1)**(3/2)*(10*x + 6)**(3/2)/3993 + 7*s
qrt(5)*sqrt(-2*x + 1)*sqrt(10*x + 6)*(20*x + 1)/3872 + sqrt(5)*sq
rt(-2*x + 1)*sqrt(10*x + 6)*(12100*x - 2000*(-2*x + 1)**3 + 6600*
(-2*x + 1)**2 - 4719)/1874048 - sqrt(5)*sqrt(-2*x + 1)*sqrt(10*x
+ 6)/22 + 35*asin(sqrt(55)*sqrt(-2*x + 1)/11)/128)/3125, (x <= 1/
2) & (x > -3/5)))/8
```

GIAC/XCAS [A] time = 0.248749, size = 274, normalized size = 2.58

$$\frac{9}{3200000}\sqrt{5}\left(2\left(4\left(8\left(60x-119\right)(5x+3)+6163\right)(5x+3)-66189\right)\sqrt{5x+3}\sqrt{-10x+5}-184305\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$
$$+\frac{9}{20000}\sqrt{5}\left(2\left(4\left(40x-59\right)(5x+3)+1293\right)\sqrt{5x+3}\sqrt{-10x+5}+4785\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$
$$+\frac{9}{500}\sqrt{5}\left(2\left(20x-23\right)\sqrt{5x+3}\sqrt{-10x+5}-143\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$
$$+\frac{4}{25}\sqrt{5}\left(11\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)+2\sqrt{5x+3}\sqrt{-10x+5}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*sqrt(-2*x + 1)/sqrt(5*x + 3),x, algorithm="giac")
```

```
[Out] 9/3200000*sqrt(5)*(2*(4*(8*(60*x - 119)*(5*x + 3) + 6163)*(5*x +
3) - 66189)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 184305*sqrt(2)*arcsin
(1/11*sqrt(22)*sqrt(5*x + 3))) + 9/20000*sqrt(5)*(2*(4*(40*x - 59
)*(5*x + 3) + 1293)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 4785*sqrt(2)*
arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 9/500*sqrt(5)*(2*(20*x - 2
3)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 143*sqrt(2)*arcsin(1/11*sqrt(2
2)*sqrt(5*x + 3))) + 4/25*sqrt(5)*(11*sqrt(2)*arcsin(1/11*sqrt(22
)*sqrt(5*x + 3)) + 2*sqrt(5*x + 3)*sqrt(-10*x + 5))
```

3.2285 $\int \frac{\sqrt{1-2x}(2+3x)^2}{\sqrt{3+5x}}\,dx$

Optimal. Leaf size=99

$$-\frac{1}{10}(3x+2)\sqrt{5x+3}(1-2x)^{3/2}-\frac{23}{80}\sqrt{5x+3}(1-2x)^{3/2}+\frac{277}{800}\sqrt{5x+3}\sqrt{1-2x}+\frac{3047\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{800\sqrt{10}}$$

```
[Out] (277*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/800 - (23*(1 - 2*x)^(3/2)*Sqrt[
3 + 5*x])/80 - ((1 - 2*x)^(3/2)*(2 + 3*x)*Sqrt[3 + 5*x])/10 + (30
47*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(800*Sqrt[10])
```

Rubi [A] time = 0.116456, antiderivative size = 99, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$-\frac{1}{10}(3x+2)\sqrt{5x+3}(1-2x)^{3/2}-\frac{23}{80}\sqrt{5x+3}(1-2x)^{3/2}+\frac{277}{800}\sqrt{5x+3}\sqrt{1-2x}+\frac{3047\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{800\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(2 + 3*x)^2)/Sqrt[3 + 5*x],x]
```

```
[Out] (277*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/800 - (23*(1 - 2*x)^(3/2)*Sqrt[
3 + 5*x])/80 - ((1 - 2*x)^(3/2)*(2 + 3*x)*Sqrt[3 + 5*x])/10 + (30
47*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(800*Sqrt[10])
```

Rubi in Sympy [A] time = 9.33415, size = 88, normalized size = 0.89

$$-\frac{(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}\,(9x+6)}{30}-\frac{23\,(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{80}+\frac{277\sqrt{-2x+1}\sqrt{5x+3}}{800}+\frac{3047\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{8000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2*(1-2*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] -(-2*x + 1)**(3/2)*sqrt(5*x + 3)*(9*x + 6)/30 - 23*(-2*x + 1)**(3
/2)*sqrt(5*x + 3)/80 + 277*sqrt(-2*x + 1)*sqrt(5*x + 3)/800 + 304
7*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/8000
```

Mathematica [A] time = 0.0855087, size = 60, normalized size = 0.61

$$\frac{10\sqrt{1-2x}\sqrt{5x+3}\left(480x^2+540x-113\right)-3047\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{8000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(2 + 3*x)^2)/Sqrt[3 + 5*x],x]
```

```
[Out] (10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(-113 + 540*x + 480*x^2) - 3047*S
qrt[10]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/8000
```

Maple [A] time = 0.015, size = 87, normalized size = 0.9

$$\frac{1}{16000}\sqrt{1-2x}\sqrt{3+5x}\left(9600x^2\sqrt{-10x^2-x+3}+3047\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)+10800x\sqrt{-10x^2-x+3}-2260\sqrt{-10$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((2+3*x)^2*(1-2*x)^(1/2)/(3+5*x)^(1/2),x)
```

```
[Out] 1/16000*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(9600*x^2*(-10*x^2-x+3)^(1/2)
+3047*10^(1/2)*arcsin(20/11*x+1/11)+10800*x*(-10*x^2-x+3)^(1/2)-2
260*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.5062, size = 78, normalized size = 0.79

$$\frac{3047}{16000}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)-\frac{3}{50}\left(-10x^2-x+3\right)^{\frac{3}{2}}+\frac{123}{200}\sqrt{-10x^2-x+3}x+\frac{31}{800}\sqrt{-10x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((3*x + 2)^2*sqrt(-2*x + 1)/sqrt(5*x + 3),x, algorithm="maxima")
```

```
[Out] 3047/16000*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) - 3/50*(-10*x^2
 - x + 3)^(3/2) + 123/200*sqrt(-10*x^2 - x + 3)*x + 31/800*sqrt(-
10*x^2 - x + 3)
```

Fricas [A] time = 0.214987, size = 84, normalized size = 0.85

$$\frac{1}{16000}\sqrt{10}\left(2\sqrt{10}\left(480x^2+540x-113\right)\sqrt{5x+3}\sqrt{-2x+1}+3047\arctan\left(\frac{\sqrt{10}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((3*x + 2)^2*sqrt(-2*x + 1)/sqrt(5*x + 3),x, algorithm="fricas")
```

```
[Out] 1/16000*sqrt(10)*(2*sqrt(10)*(480*x^2 + 540*x - 113)*sqrt(5*x + 3
)*sqrt(-2*x + 1) + 3047*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x
 + 3)*sqrt(-2*x + 1))))
```

Sympy [A] time = 10.9095, size = 291, normalized size = 2.94

$$-\frac{49\sqrt{2}\left(\begin{cases}\frac{11\sqrt{5}\left(-\frac{\sqrt{5}\sqrt{-2x+1}\sqrt{10x+6}}{22}+\frac{\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{2}\right)}{25} & \text{for}\: x \leq \frac{1}{2} \wedge x > -\frac{3}{5}\end{cases}\right)}{4}+\frac{21\sqrt{2}\left(\begin{cases}\frac{121\sqrt{5}\left(\frac{\sqrt{5}\sqrt{-2x+1}\sqrt{10x+6}(20x+1)}{968}-\frac{\sqrt{5}\sqrt{-2x+1}\sqrt{10x+6}}{22}+\frac{3\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{8}\right)}{125} & \text{for}\: x \leq \frac{1}{2} \wedge x > -\frac{3}{5}\end{cases}\right)}{2}-\frac{9\sqrt{2}\left(\begin{cases}\frac{1331\sqrt{5}\left(\frac{5\sqrt{5}(-2x+1)^{\frac{3}{2}}(10x+6)^{\frac{3}{2}}}{7986}+\frac{3\sqrt{5}\sqrt{-2x+1}\sqrt{10x+6}(20x+1)}{1936}-\frac{\sqrt{5}\sqrt{-2x+1}\sqrt{10x+6}}{22}+\frac{5\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{16}\right)}{625} & \text{for}\: x \leq \frac{1}{2} \wedge x > -\frac{3}{5}\end{cases}\right)}{4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((2+3*x)**2*(1-2*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] -49*sqrt(2)*Piecewise((11*sqrt(5)*(-sqrt(5)*sqrt(-2*x + 1)*sqrt(1
0*x + 6)/22 + asin(sqrt(55)*sqrt(-2*x + 1)/11)/2)/25, (x <= 1/2)
& (x > -3/5)))/4 + 21*sqrt(2)*Piecewise((121*sqrt(5)*(sqrt(5)*sqr
t(-2*x + 1)*sqrt(10*x + 6)*(20*x + 1)/968 - sqrt(5)*sqrt(-2*x + 1
)*sqrt(10*x + 6)/22 + 3*asin(sqrt(55)*sqrt(-2*x + 1)/11)/8)/125,
(x <= 1/2) & (x > -3/5)))/2 - 9*sqrt(2)*Piecewise((1331*sqrt(5)*(
5*sqrt(5)*(-2*x + 1)**(3/2)*(10*x + 6)**(3/2)/7986 + 3*sqrt(5)*sq
rt(-2*x + 1)*sqrt(10*x + 6)*(20*x + 1)/1936 - sqrt(5)*sqrt(-2*x +
 1)*sqrt(10*x + 6)/22 + 5*asin(sqrt(55)*sqrt(-2*x + 1)/11)/16)/62
5, (x <= 1/2) & (x > -3/5)))/4
```

GIAC/XCAS [A] time = 0.242749, size = 189, normalized size = 1.91

$$\frac{3}{40000}\sqrt{5}\left(2\left(4\left(40x-59\right)\left(5x+3\right)+1293\right)\sqrt{5x+3}\sqrt{-10x+5}+4785\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$
$$+\frac{3}{500}\sqrt{5}\left(2\left(20x-23\right)\sqrt{5x+3}\sqrt{-10x+5}-143\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$
$$+\frac{2}{25}\sqrt{5}\left(11\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)+2\sqrt{5x+3}\sqrt{-10x+5}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2*sqrt(-2*x + 1)/sqrt(5*x + 3),x, algorithm="giac")
```

```
[Out] 3/40000*sqrt(5)*(2*(4*(40*x - 59)*(5*x + 3) + 1293)*sqrt(5*x + 3)
*sqrt(-10*x + 5) + 4785*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3
))) + 3/500*sqrt(5)*(2*(20*x - 23)*sqrt(5*x + 3)*sqrt(-10*x + 5)
- 143*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 2/25*sqrt(5)
*(11*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) + 2*sqrt(5*x + 3
)*sqrt(-10*x + 5))
```

3.2286 $\int \frac{\sqrt{1-2x}(2+3x)}{\sqrt{3+5x}}\,dx$

Optimal. Leaf size=72

$$-\frac{3}{20}\sqrt{5x+3}(1-2x)^{3/2}+\frac{41}{200}\sqrt{5x+3}\sqrt{1-2x}+\frac{451\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{200\sqrt{10}}$$

```
[Out] (41*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/200 - (3*(1 - 2*x)^(3/2)*Sqrt[3
+ 5*x])/20 + (451*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(200*Sqrt[10]
)
```

Rubi [A] time = 0.0729696, antiderivative size = 72, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$-\frac{3}{20}\sqrt{5x+3}(1-2x)^{3/2}+\frac{41}{200}\sqrt{5x+3}\sqrt{1-2x}+\frac{451\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{200\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In] Int[(Sqrt[1 - 2*x]*(2 + 3*x))/Sqrt[3 + 5*x],x]
```

```
[Out] (41*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/200 - (3*(1 - 2*x)^(3/2)*Sqrt[3
+ 5*x])/20 + (451*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(200*Sqrt[10]
)
```

Rubi in Sympy [A] time = 6.66826, size = 65, normalized size = 0.9

$$-\frac{3(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{20}+\frac{41\sqrt{-2x+1}\sqrt{5x+3}}{200}+\frac{451\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{2000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)*(1-2*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] -3*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/20 + 41*sqrt(-2*x + 1)*sqrt(5*
x + 3)/200 + 451*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/2000
```

Mathematica [A] time = 0.053352, size = 55, normalized size = 0.76

$$\frac{10\sqrt{1-2x}\sqrt{5x+3}(60x+11)-451\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{2000}$$

Antiderivative was successfully verified.

```
[In] Integrate[(Sqrt[1 - 2*x]*(2 + 3*x))/Sqrt[3 + 5*x],x]
```

```
[Out] (10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(11 + 60*x) - 451*Sqrt[10]*ArcSin
[Sqrt[5/11]*Sqrt[1 - 2*x]])/2000
```

Maple [A] time = 0.013, size = 70, normalized size = 1.

$$\frac{1}{4000}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(451\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)+1200\,x\sqrt{-10\,x^2-x+3}+220\,\sqrt{-10\,x^2-x+3}\right)\frac{1}{\sqrt{-10\,x^2-x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)*(1-2*x)^(1/2)/(3+5*x)^(1/2),x)
```

```
[Out] 1/4000*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(451*10^(1/2)*arcsin(20/11*x+1
/11)+1200*x*(-10*x^2-x+3)^(1/2)+220*(-10*x^2-x+3)^(1/2))/(-10*x^2
-x+3)^(1/2)
```

Maxima [A] time = 1.49121, size = 59, normalized size = 0.82

$$\frac{451}{4000}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)+\frac{3}{10}\sqrt{-10\,x^2-x+3}x+\frac{11}{200}\sqrt{-10\,x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)*sqrt(-2*x + 1)/sqrt(5*x + 3),x, algorithm="maxima")
```

```
[Out] 451/4000*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) + 3/10*sqrt(-10*x
^2 - x + 3)*x + 11/200*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.222086, size = 77, normalized size = 1.07

$$\frac{1}{4000}\sqrt{10}\left(2\sqrt{10}(60\,x+11)\sqrt{5\,x+3}\sqrt{-2\,x+1}+451\,\arctan\left(\frac{\sqrt{10}(20\,x+1)}{20\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)*sqrt(-2*x + 1)/sqrt(5*x + 3),x, algorithm="fricas")
```

```
[Out] 1/4000*sqrt(10)*(2*sqrt(10)*(60*x + 11)*sqrt(5*x + 3)*sqrt(-2*x +
 1) + 451*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*
x + 1))))
```

Sympy [A] time = 7.79481, size = 165, normalized size = 2.29

$$-\frac{7\sqrt{2}\left(\begin{cases}\frac{11\sqrt{5}\left(-\frac{\sqrt{5}\sqrt{-2x+1}\sqrt{10x+6}}{22}+\frac{\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{2}\right)}{25} & \text{for}\ x\le\frac{1}{2}\wedge x>-\frac{3}{5}\end{cases}\right)}{2}+\frac{3\sqrt{2}\left(\begin{cases}\frac{121\sqrt{5}\left(\frac{\sqrt{5}\sqrt{-2x+1}\sqrt{10x+6}(20x+1)}{968}-\frac{\sqrt{5}\sqrt{-2x+1}\sqrt{10x+6}}{22}+\frac{3\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{8}\right)}{125} & \text{for}\ x\le\frac{1}{2}\wedge x>-\frac{3}{5}\end{cases}\right)}{2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)*(1-2*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] -7*sqrt(2)*Piecewise((11*sqrt(5)*(-sqrt(5)*sqrt(-2*x + 1)*sqrt(10
*x + 6)/22 + asin(sqrt(55)*sqrt(-2*x + 1)/11)/2)/25, (x <= 1/2) &
 (x > -3/5)))/2 + 3*sqrt(2)*Piecewise((121*sqrt(5)*(sqrt(5)*sqrt(
```

```
-2*x + 1)*sqrt(10*x + 6)*(20*x + 1)/968 - sqrt(5)*sqrt(-2*x + 1)*
sqrt(10*x + 6)/22 + 3*asin(sqrt(55)*sqrt(-2*x + 1)/11)/8)/125, (x
 <= 1/2) & (x > -3/5)))/2
```

GIAC/XCAS [A] time = 0.230619, size = 116, normalized size = 1.61

$$\frac{3}{2000}\sqrt{5}\left(2\,(20\,x-23)\sqrt{5\,x+3}\sqrt{-10\,x+5}-143\,\sqrt{2}\arcsin\left(\frac{1}{11}\,\sqrt{22}\sqrt{5\,x+3}\right)\right)+\frac{1}{25}\,\sqrt{5}\left(11\,\sqrt{2}\arcsin\left(\frac{1}{11}\,\sqrt{22}\sqrt{5\,x+3}\right)+2\,\sqrt{5\,x+3}\sqrt{-10\,x+5}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)*sqrt(-2*x + 1)/sqrt(5*x + 3),x, algorithm="giac")
```

```
[Out] 3/2000*sqrt(5)*(2*(20*x - 23)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 143
*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 1/25*sqrt(5)*(11*
sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) + 2*sqrt(5*x + 3)*sqr
t(-10*x + 5))
```

3.2287 $\int \frac{\sqrt{1-2x}}{\sqrt{3+5x}}\,dx$

Optimal. Leaf size=50

$$\frac{1}{5}\sqrt{1-2x}\sqrt{5x+3}+\frac{11\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{5\sqrt{10}}$$

```
[Out] (Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/5 + (11*ArcSin[Sqrt[2/11]*Sqrt[3 +
5*x]])/(5*Sqrt[10])
```

Rubi [A] time = 0.043501, antiderivative size = 50, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.158

$$\frac{1}{5}\sqrt{1-2x}\sqrt{5x+3}+\frac{11\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{5\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In] Int[Sqrt[1 - 2*x]/Sqrt[3 + 5*x],x]
```

```
[Out] (Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/5 + (11*ArcSin[Sqrt[2/11]*Sqrt[3 +
5*x]])/(5*Sqrt[10])
```

Rubi in Sympy [A] time = 4.61384, size = 42, normalized size = 0.84

$$\frac{\sqrt{-2x+1}\sqrt{5x+3}}{5}+\frac{11\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{50}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] sqrt(-2*x + 1)*sqrt(5*x + 3)/5 + 11*sqrt(10)*asin(sqrt(22)*sqrt(5
*x + 3)/11)/50
```

Mathematica [A] time = 0.036887, size = 50, normalized size = 1.

$$\frac{1}{5}\sqrt{1-2x}\sqrt{5x+3}-\frac{11\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{5\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In] Integrate[Sqrt[1 - 2*x]/Sqrt[3 + 5*x],x]
```

```
[Out] (Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/5 - (11*ArcSin[Sqrt[5/11]*Sqrt[1 -
2*x]])/(5*Sqrt[10])
```

Maple [A] time = 0.005, size = 56, normalized size = 1.1

$$\frac{1}{5}\sqrt{1-2\,x}\sqrt{3+5\,x}+\frac{11\,\sqrt{10}}{100}\sqrt{(1-2\,x)(3+5\,x)}\arcsin\left(\frac{20\,x}{11}+\frac{1}{11}\right)\frac{1}{\sqrt{1-2\,x}}\frac{1}{\sqrt{3+5\,x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((1-2*x)^(1/2)/(3+5*x)^(1/2),x)
```

```
[Out] 1/5*(1-2*x)^(1/2)*(3+5*x)^(1/2)+11/100*((1-2*x)*(3+5*x))^(1/2)/(3
+5*x)^(1/2)/(1-2*x)^(1/2)*10^(1/2)*arcsin(20/11*x+1/11)
```

Maxima [A] time = 1.4932, size = 39, normalized size = 0.78

$$\frac{11}{100}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)+\frac{1}{5}\sqrt{-10x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(sqrt(-2*x + 1)/sqrt(5*x + 3),x, algorithm="maxima")
```

```
[Out] 11/100*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) + 1/5*sqrt(-10*x^2
- x + 3)
```

Fricas [A] time = 0.218952, size = 70, normalized size = 1.4

$$\frac{1}{100}\sqrt{10}\left(2\sqrt{10}\sqrt{5x+3}\sqrt{-2x+1}+11\arctan\left(\frac{\sqrt{10}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(sqrt(-2*x + 1)/sqrt(5*x + 3),x, algorithm="fricas")
```

```
[Out] 1/100*sqrt(10)*(2*sqrt(10)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 11*arct
an(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [A] time = 2.7498, size = 141, normalized size = 2.82

$$\begin{cases} \frac{2i\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}{\sqrt{10x-5}}-\frac{11i\sqrt{x+\frac{3}{5}}}{5\sqrt{10x-5}}-\frac{11\sqrt{10}i\operatorname{acosh}\left(\frac{\sqrt{110}\sqrt{x+\frac{3}{5}}}{11}\right)}{50} & \text{for}\ \frac{10\left|x+\frac{3}{5}\right|}{11}>1 \\ \frac{11\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{110}\sqrt{x+\frac{3}{5}}}{11}\right)}{50}-\frac{2\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}{\sqrt{-10x+5}}+\frac{11\sqrt{x+\frac{3}{5}}}{5\sqrt{-10x+5}} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((1-2*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] Piecewise((2*I*(x + 3/5)**(3/2)/sqrt(10*x - 5) - 11*I*sqrt(x + 3/
5)/(5*sqrt(10*x - 5)) - 11*sqrt(10)*I*acosh(sqrt(110)*sqrt(x + 3/
5)/11)/50, 10*Abs(x + 3/5)/11 > 1), (11*sqrt(10)*asin(sqrt(110)*s
qrt(x + 3/5)/11)/50 - 2*(x + 3/5)**(3/2)/sqrt(-10*x + 5) + 11*sqr
t(x + 3/5)/(5*sqrt(-10*x + 5)), True))
```

GIAC/XCAS [A] time = 0.221138, size = 54, normalized size = 1.08

$$\frac{1}{50}\sqrt{5}\left(11\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)+2\sqrt{5x+3}\sqrt{-10x+5}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/sqrt(5*x + 3),x, algorithm="giac")
```

```
[Out] 1/50*sqrt(5)*(11*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) + 2*
sqrt(5*x + 3)*sqrt(-10*x + 5))
```

3.2288 $\int \frac{\sqrt{1-2x}}{(2+3x)\sqrt{3+5x}}\,dx$

Optimal. Leaf size=64

$$-\frac{2}{3}\sqrt{\frac{2}{5}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{2}{3}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

```
[Out] (-2*Sqrt[2/5]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/3 - (2*Sqrt[7]*Ar
cTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/3
```

Rubi [A] time = 0.103909, antiderivative size = 64, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$-\frac{2}{3}\sqrt{\frac{2}{5}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{2}{3}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]/((2 + 3*x)*Sqrt[3 + 5*x]),x]
```

```
[Out] (-2*Sqrt[2/5]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/3 - (2*Sqrt[7]*Ar
cTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/3
```

Rubi in Sympy [A] time = 8.66709, size = 60, normalized size = 0.94

$$-\frac{2\sqrt{10}\,\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{15}-\frac{2\sqrt{7}\,\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)/(2+3*x)/(3+5*x)**(1/2),x)
```

```
[Out] -2*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/15 - 2*sqrt(7)*atan(s
qrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/3
```

Mathematica [A] time = 0.109432, size = 75, normalized size = 1.17

$$\frac{1}{15}\left(-5\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)-\sqrt{10}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]/((2 + 3*x)*Sqrt[3 + 5*x]),x]
```

```
[Out] (-5*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])]
 - Sqrt[10]*ArcTan[(1 + 20*x)/(2*Sqrt[1 - 2*x]*Sqrt[30 + 50*x])])
/15
```

Maple [A] time = 0.017, size = 69, normalized size = 1.1

$$\frac{1}{15}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(5\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^{2}-x+3}}\right)-\sqrt{10}\arcsin\left(\frac{20\,x}{11}+\frac{1}{11}\right)\right)\frac{1}{\sqrt{-10\,x^{2}-x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)/(2+3*x)/(3+5*x)^(1/2),x)
```

```
[Out] 1/15*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(5*7^(1/2)*arctan(1/14*(37*x+20)
*7^(1/2)/(-10*x^2-x+3)^(1/2))-10^(1/2)*arcsin(20/11*x+1/11))/(-10
*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.50698, size = 54, normalized size = 0.84

$$-\frac{1}{15}\sqrt{10}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)+\frac{1}{3}\sqrt{7}\arcsin\left(\frac{37x}{11|3x+2|}+\frac{20}{11|3x+2|}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/(sqrt(5*x + 3)*(3*x + 2)),x, algorithm="maxima")
```

```
[Out] -1/15*sqrt(10)*arcsin(20/11*x + 1/11) + 1/3*sqrt(7)*arcsin(37/11*
x/abs(3*x + 2) + 20/11/abs(3*x + 2))
```

Fricas [A] time = 0.22881, size = 96, normalized size = 1.5

$$\frac{1}{15}\sqrt{5}\left(\sqrt{7}\sqrt{5}\arctan\left(\frac{\sqrt{7}(37x+20)}{14\sqrt{5x+3}\sqrt{-2x+1}}\right)-\sqrt{2}\arctan\left(\frac{\sqrt{5}\sqrt{2}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/(sqrt(5*x + 3)*(3*x + 2)),x, algorithm="fricas")
```

```
[Out] 1/15*sqrt(5)*(sqrt(7)*sqrt(5)*arctan(1/14*sqrt(7)*(37*x + 20)/(sq
rt(5*x + 3)*sqrt(-2*x + 1))) - sqrt(2)*arctan(1/20*sqrt(5)*sqrt(2
)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{\sqrt{-2x+1}}{(3x+2)\sqrt{5x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)/(2+3*x)/(3+5*x)**(1/2),x)
```

```
[Out] Integral(sqrt(-2*x + 1)/((3*x + 2)*sqrt(5*x + 3)), x)
```

GIAC/XCAS [A] time = 0.24191, size = 196, normalized size = 3.06

$$\frac{1}{30}\sqrt{5}\left(\sqrt{70}\sqrt{2}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-2\sqrt{2}\left(\pi+2\arctan\left(-\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}\right.}{4\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right.}\right.\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/(sqrt(5*x + 3)*(3*x + 2)),x, algorithm="giac")
```

```
[Out] 1/30*sqrt(5)*(sqrt(70)*sqrt(2)*(pi + 2*arctan(-1/140*sqrt(70)*sqr
t(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)
/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 2*sqrt(2)*(pi + 2*arcta
n(-1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x
 + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))))
```

3.2289 $\int \frac{\sqrt{1-2x}}{(2+3x)^2\sqrt{3+5x}}\,dx$

Optimal. Leaf size=59

$$\frac{\sqrt{1-2x}\sqrt{5x+3}}{3x+2}-\frac{11\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{\sqrt{7}}$$

```
[Out] (Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2 + 3*x) - (11*ArcTan[Sqrt[1 - 2*x
]/(Sqrt[7]*Sqrt[3 + 5*x])])/Sqrt[7]
```

Rubi [A] time = 0.089528, antiderivative size = 59, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.115

$$\frac{\sqrt{1-2x}\sqrt{5x+3}}{3x+2}-\frac{11\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]/((2 + 3*x)^2*Sqrt[3 + 5*x]),x]
```

```
[Out] (Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2 + 3*x) - (11*ArcTan[Sqrt[1 - 2*x
]/(Sqrt[7]*Sqrt[3 + 5*x])])/Sqrt[7]
```

Rubi in Sympy [A] time = 7.51199, size = 54, normalized size = 0.92

$$\frac{\sqrt{-2x+1}\sqrt{5x+3}}{3x+2}-\frac{11\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)/(2+3*x)**2/(3+5*x)**(1/2),x)
```

```
[Out] sqrt(-2*x + 1)*sqrt(5*x + 3)/(3*x + 2) - 11*sqrt(7)*atan(sqrt(7)*
sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/7
```

Mathematica [A] time = 0.0598595, size = 69, normalized size = 1.17

$$\frac{14\sqrt{1-2x}\sqrt{5x+3}-11\sqrt{7}(3x+2)\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{42x+28}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]/((2 + 3*x)^2*Sqrt[3 + 5*x]),x]
```

```
[Out] (14*Sqrt[1 - 2*x]*Sqrt[3 + 5*x] - 11*Sqrt[7]*(2 + 3*x)*ArcTan[(-2
0 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/(28 + 42*x)
```

Maple [B] time = 0.017, size = 108, normalized size = 1.8

$$\frac{1}{28+42\,x}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(33\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x+22\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)+14\,\sqrt{-10\,x^2}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)/(2+3*x)^2/(3+5*x)^(1/2),x)
```

```
[Out] 1/14*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(33*7^(1/2)*arctan(1/14*(37*x+20
)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+22*7^(1/2)*arctan(1/14*(37*x+20)
*7^(1/2)/(-10*x^2-x+3)^(1/2))+14*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+
3)^(1/2)/(2+3*x)
```

Maxima [A] time = 1.50694, size = 66, normalized size = 1.12

$$\frac{11}{14}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{\sqrt{-10\,x^2-x+3}}{3\,x+2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/(sqrt(5*x + 3)*(3*x + 2)^2),x, algorithm="maxima")
```

```
[Out] 11/14*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) +
 sqrt(-10*x^2 - x + 3)/(3*x + 2)
```

Fricas [A] time = 0.222975, size = 86, normalized size = 1.46

$$\frac{\sqrt{7}\left(11\,(3\,x+2)\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)+2\,\sqrt{7}\sqrt{5\,x+3}\sqrt{-2\,x+1}\right)}{14\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/(sqrt(5*x + 3)*(3*x + 2)^2),x, algorithm="fricas")
```

```
[Out] 1/14*sqrt(7)*(11*(3*x + 2)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(
5*x + 3)*sqrt(-2*x + 1))) + 2*sqrt(7)*sqrt(5*x + 3)*sqrt(-2*x + 1
))/(3*x + 2)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{-2x+1}}{(3x+2)^2\,\sqrt{5x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)/(2+3*x)**2/(3+5*x)**(1/2),x)
```

```
[Out] Integral(sqrt(-2*x + 1)/((3*x + 2)**2*sqrt(5*x + 3)), x)
```

GIAC/XCAS [A] time = 0.252248, size = 266, normalized size = 4.51

$$\frac{11}{140}\sqrt{5}\left(\sqrt{70}\sqrt{2}\left(\pi+2\,\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)\right)+\frac{280\,\sqrt{2}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)}{\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^2+280}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/(sqrt(5*x + 3)*(3*x + 2)^2),x, algorithm="giac")
```

```
[Out] 11/140*sqrt(5)*(sqrt(70)*sqrt(2)*(pi + 2*arctan(-1/140*sqrt(70)*s
qrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) -
4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 280*sqrt(2)*((sqrt(2)
*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqr
t(2)*sqrt(-10*x + 5) - sqrt(22)))/(((sqrt(2)*sqrt(-10*x + 5) - sq
rt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5)
- sqrt(22)))^2 + 280))
```

3.2290 $\int \frac{\sqrt{1-2x}}{(2+3x)^3\sqrt{3+5x}}\,dx$

Optimal. Leaf size=93

$$\frac{3\sqrt{5x+3}(1-2x)^{3/2}}{14(3x+2)^2}+\frac{107\sqrt{5x+3}\sqrt{1-2x}}{28(3x+2)}-\frac{1177\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{28\sqrt{7}}$$

```
[Out] (3*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(14*(2 + 3*x)^2) + (107*Sqrt[1
- 2*x]*Sqrt[3 + 5*x])/(28*(2 + 3*x)) - (1177*ArcTan[Sqrt[1 - 2*x]
/(Sqrt[7]*Sqrt[3 + 5*x])])/(28*Sqrt[7])
```

Rubi [A] time = 0.125185, antiderivative size = 93, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$\frac{3\sqrt{5x+3}(1-2x)^{3/2}}{14(3x+2)^2}+\frac{107\sqrt{5x+3}\sqrt{1-2x}}{28(3x+2)}-\frac{1177\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{28\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]/((2 + 3*x)^3*Sqrt[3 + 5*x]),x]
```

```
[Out] (3*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(14*(2 + 3*x)^2) + (107*Sqrt[1
- 2*x]*Sqrt[3 + 5*x])/(28*(2 + 3*x)) - (1177*ArcTan[Sqrt[1 - 2*x]
/(Sqrt[7]*Sqrt[3 + 5*x])])/(28*Sqrt[7])
```

Rubi in Sympy [A] time = 10.1662, size = 83, normalized size = 0.89

$$\frac{3\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{14\left(3x+2\right)^2}+\frac{107\sqrt{-2x+1}\sqrt{5x+3}}{28\left(3x+2\right)}-\frac{1177\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{196}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)/(2+3*x)**3/(3+5*x)**(1/2),x)
```

```
[Out] 3*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/(14*(3*x + 2)**2) + 107*sqrt(-2
*x + 1)*sqrt(5*x + 3)/(28*(3*x + 2)) - 1177*sqrt(7)*atan(sqrt(7)*
sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/196
```

Mathematica [A] time = 0.0674659, size = 72, normalized size = 0.77

$$\frac{\sqrt{1-2x}\sqrt{5x+3}(309x+220)}{28(3x+2)^2}-\frac{1177\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{56\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]/((2 + 3*x)^3*Sqrt[3 + 5*x]),x]
```

```
[Out] (Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(220 + 309*x))/(28*(2 + 3*x)^2) - (1
177*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/(56*Sq
rt[7])
```

Maple [B] time = 0.019, size = 154, normalized size = 1.7

$$\frac{1}{392\,(2+3\,x)^2}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(10593\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^2+14124\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)/(2+3*x)^3/(3+5*x)^(1/2),x)
```

```
[Out] 1/392*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(10593*7^(1/2)*arctan(1/14*(37*
x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+14124*7^(1/2)*arctan(1/14*
(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+4708*7^(1/2)*arctan(1/14
*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+4326*x*(-10*x^2-x+3)^(1/2
)+3080*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)^2
```

Maxima [A] time = 1.49978, size = 103, normalized size = 1.11

$$\frac{1177}{392}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{\sqrt{-10\,x^2-x+3}}{2\,(9\,x^2+12\,x+4)}+\frac{103\,\sqrt{-10\,x^2-x+3}}{28\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/(sqrt(5*x + 3)*(3*x + 2)^3),x, algorithm="maxima")
```

```
[Out] 1177/392*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)
) + 1/2*sqrt(-10*x^2 - x + 3)/(9*x^2 + 12*x + 4) + 103/28*sqrt(-1
0*x^2 - x + 3)/(3*x + 2)
```

Fricas [A] time = 0.228697, size = 107, normalized size = 1.15

$$\frac{\sqrt{7}\left(2\,\sqrt{7}(309\,x+220)\sqrt{5\,x+3}\sqrt{-2\,x+1}+1177\,\left(9\,x^2+12\,x+4\right)\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)}{392\,(9\,x^2+12\,x+4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/(sqrt(5*x + 3)*(3*x + 2)^3),x, algorithm="fricas")
```

```
[Out] 1/392*sqrt(7)*(2*sqrt(7)*(309*x + 220)*sqrt(5*x + 3)*sqrt(-2*x +
1) + 1177*(9*x^2 + 12*x + 4)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqr
t(5*x + 3)*sqrt(-2*x + 1))))/(9*x^2 + 12*x + 4)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)/(2+3*x)**3/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.283803, size = 347, normalized size = 3.73

$$\frac{11}{3920}\sqrt{5}\left(107\sqrt{70}\sqrt{2}\left(\pi + 2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3} - 4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)\right) + \frac{280\sqrt{2}\left(173\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}} - \frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\cdots}\right.\right.}{\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}} - \cdots\right.\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/(sqrt(5*x + 3)*(3*x + 2)^3),x, algorithm="giac")
```

```
[Out] 11/3920*sqrt(5)*(107*sqrt(70)*sqrt(2)*(pi + 2*arctan(-1/140*sqrt(
70)*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x +
3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 280*sqrt(2)*(173
*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x
 + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 29960*(sqrt(2)*sq
rt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 119840*sqrt(5*x + 3)/(s
qrt(2)*sqrt(-10*x + 5) - sqrt(22)))/(((sqrt(2)*sqrt(-10*x + 5) -
sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5
) - sqrt(22)))^2 + 280)^2)
```

3.2291 $\int \frac{\sqrt{1-2x}}{(2+3x)^4\sqrt{3+5x}}\,dx$

Optimal. Leaf size=122

$$\frac{18083\sqrt{1-2x}\sqrt{5x+3}}{1176(3x+2)}+\frac{173\sqrt{1-2x}\sqrt{5x+3}}{84(3x+2)^2}+\frac{\sqrt{1-2x}\sqrt{5x+3}}{3(3x+2)^3}-\frac{68959\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{392\sqrt{7}}$$

```
[Out] (Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(3*(2 + 3*x)^3) + (173*Sqrt[1 - 2*x
]*Sqrt[3 + 5*x])/(84*(2 + 3*x)^2) + (18083*Sqrt[1 - 2*x]*Sqrt[3 +
 5*x])/(1176*(2 + 3*x)) - (68959*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sq
rt[3 + 5*x])])/(392*Sqrt[7])
```

Rubi [A] time = 0.227188, antiderivative size = 122, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$\frac{18083\sqrt{1-2x}\sqrt{5x+3}}{1176(3x+2)}+\frac{173\sqrt{1-2x}\sqrt{5x+3}}{84(3x+2)^2}+\frac{\sqrt{1-2x}\sqrt{5x+3}}{3(3x+2)^3}-\frac{68959\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{392\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]/((2 + 3*x)^4*Sqrt[3 + 5*x]),x]
```

```
[Out] (Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(3*(2 + 3*x)^3) + (173*Sqrt[1 - 2*x
]*Sqrt[3 + 5*x])/(84*(2 + 3*x)^2) + (18083*Sqrt[1 - 2*x]*Sqrt[3 +
 5*x])/(1176*(2 + 3*x)) - (68959*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sq
rt[3 + 5*x])])/(392*Sqrt[7])
```

Rubi in Sympy [A] time = 22.6189, size = 109, normalized size = 0.89

$$\frac{18083\sqrt{-2x+1}\sqrt{5x+3}}{1176\,(3x+2)}+\frac{173\sqrt{-2x+1}\sqrt{5x+3}}{84\,(3x+2)^2}+\frac{\sqrt{-2x+1}\sqrt{5x+3}}{3\,(3x+2)^3}-\frac{68959\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{2744}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)/(2+3*x)**4/(3+5*x)**(1/2),x)
```

```
[Out] 18083*sqrt(-2*x + 1)*sqrt(5*x + 3)/(1176*(3*x + 2)) + 173*sqrt(-2
*x + 1)*sqrt(5*x + 3)/(84*(3*x + 2)**2) + sqrt(-2*x + 1)*sqrt(5*x
 + 3)/(3*(3*x + 2)**3) - 68959*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1
)/(7*sqrt(5*x + 3)))/2744
```

Mathematica [A] time = 0.0863561, size = 77, normalized size = 0.63

$$\frac{\frac{14\sqrt{1-2x}\sqrt{5x+3}(54249x^2+74754x+25856)}{(3x+2)^3}-68959\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{5488}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]/((2 + 3*x)^4*Sqrt[3 + 5*x]),x]
```

```
[Out] ((14*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(25856 + 74754*x + 54249*x^2))/(
2 + 3*x)^3 - 68959*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*
Sqrt[3 + 5*x])])/5488
```

Maple [B] time = 0.02, size = 202, normalized size = 1.7

$$\frac{1}{5488\,(2+3\,x)^{3}}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(1861893\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^{2}-x+3}}\right)x^{3}+3723786\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^{2}-x+3}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)/(2+3*x)^4/(3+5*x)^(1/2),x)
```

```
[Out] 1/5488*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(1861893*7^(1/2)*arctan(1/14*(
37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+3723786*7^(1/2)*arctan(
1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+2482524*7^(1/2)*a
rctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+759486*x^2*(-
10*x^2-x+3)^(1/2)+551672*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-
10*x^2-x+3)^(1/2))+1046556*x*(-10*x^2-x+3)^(1/2)+361984*(-10*x^2-
x+3)^(1/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)^3
```

Maxima [A] time = 1.49859, size = 144, normalized size = 1.18

$$\frac{68959}{5488}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{\sqrt{-10\,x^{2}-x+3}}{3\,(27\,x^{3}+54\,x^{2}+36\,x+8)}+\frac{173\,\sqrt{-10\,x^{2}-x+3}}{84\,(9\,x^{2}+12\,x+4)}+\frac{18083\,\sqrt{-10\,x^{2}-x+3}}{1176\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/(sqrt(5*x + 3)*(3*x + 2)^4),x, algorithm="maxima")
```

```
[Out] 68959/5488*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x +
2)) + 1/3*sqrt(-10*x^2 - x + 3)/(27*x^3 + 54*x^2 + 36*x + 8) + 17
3/84*sqrt(-10*x^2 - x + 3)/(9*x^2 + 12*x + 4) + 18083/1176*sqrt(-
10*x^2 - x + 3)/(3*x + 2)
```

Fricas [A] time = 0.221107, size = 127, normalized size = 1.04

$$\frac{\sqrt{7}\left(2\,\sqrt{7}(54249\,x^{2}+74754\,x+25856)\,\sqrt{5\,x+3}\sqrt{-2\,x+1}+68959\,(27\,x^{3}+54\,x^{2}+36\,x+8)\,\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)}{5488\,(27\,x^{3}+54\,x^{2}+36\,x+8)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/(sqrt(5*x + 3)*(3*x + 2)^4),x, algorithm="fricas")
```

```
[Out] 1/5488*sqrt(7)*(2*sqrt(7)*(54249*x^2 + 74754*x + 25856)*sqrt(5*x
+ 3)*sqrt(-2*x + 1) + 68959*(27*x^3 + 54*x^2 + 36*x + 8)*arctan(1
/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(27*x^3
+ 54*x^2 + 36*x + 8)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)/(2+3*x)**4/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.330176, size = 425, normalized size = 3.48

$$\frac{11}{54880}\sqrt{5}\left(6269\sqrt{70}\sqrt{2}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)\right)+\frac{280\sqrt{2}\left(13331\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5}}{\sqrt{2}\sqrt{-10}}\right.\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/(sqrt(5*x + 3)*(3*x + 2)^4),x, algorithm="giac")
```

```
[Out] 11/54880*sqrt(5)*(6269*sqrt(70)*sqrt(2)*(pi + 2*arctan(-1/140*sqr
t(70)*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x
+ 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 280*sqrt(2)*(1
3331*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt
(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 + 4674880*((sqr
t(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 491489600*(sqrt(2)*sqrt
(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 1965958400*sqrt(5*x + 3)/
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))/(((sqrt(2)*sqrt(-10*x + 5)
- sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x +
 5) - sqrt(22)))^2 + 280)^3)
```

3.2292 $\int \frac{\sqrt{1-2x}}{(2+3x)^5\sqrt{3+5x}}\,dx$

Optimal. Leaf size=151

$$\frac{1479375\sqrt{1-2x}\sqrt{5x+3}}{21952(3x+2)}+\frac{14145\sqrt{1-2x}\sqrt{5x+3}}{1568(3x+2)^2}+\frac{81\sqrt{1-2x}\sqrt{5x+3}}{56(3x+2)^3}+\frac{\sqrt{1-2x}\sqrt{5x+3}}{4(3x+2)^4}-\frac{16925425\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{21952\sqrt{7}}$$

```
[Out] (Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(4*(2 + 3*x)^4) + (81*Sqrt[1 - 2*x]
*Sqrt[3 + 5*x])/(56*(2 + 3*x)^3) + (14145*Sqrt[1 - 2*x]*Sqrt[3 +
5*x])/(1568*(2 + 3*x)^2) + (1479375*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/
(21952*(2 + 3*x)) - (16925425*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[
3 + 5*x])])/(21952*Sqrt[7])
```

Rubi [A] time = 0.296856, antiderivative size = 151, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.192$

$$\frac{1479375\sqrt{1-2x}\sqrt{5x+3}}{21952(3x+2)}+\frac{14145\sqrt{1-2x}\sqrt{5x+3}}{1568(3x+2)^2}+\frac{81\sqrt{1-2x}\sqrt{5x+3}}{56(3x+2)^3}+\frac{\sqrt{1-2x}\sqrt{5x+3}}{4(3x+2)^4}-\frac{16925425\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{21952\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]/((2 + 3*x)^5*Sqrt[3 + 5*x]),x]
```

```
[Out] (Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(4*(2 + 3*x)^4) + (81*Sqrt[1 - 2*x]
*Sqrt[3 + 5*x])/(56*(2 + 3*x)^3) + (14145*Sqrt[1 - 2*x]*Sqrt[3 +
5*x])/(1568*(2 + 3*x)^2) + (1479375*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/
(21952*(2 + 3*x)) - (16925425*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[
3 + 5*x])])/(21952*Sqrt[7])
```

Rubi in Sympy [A] time = 28.4997, size = 136, normalized size = 0.9

$$\frac{1479375\sqrt{-2x+1}\sqrt{5x+3}}{21952\left(3x+2\right)}+\frac{14145\sqrt{-2x+1}\sqrt{5x+3}}{1568\left(3x+2\right)^2}+\frac{81\sqrt{-2x+1}\sqrt{5x+3}}{56\left(3x+2\right)^3}+\frac{\sqrt{-2x+1}\sqrt{5x+3}}{4\left(3x+2\right)^4}-\frac{16925425\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{153664}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)/(2+3*x)**5/(3+5*x)**(1/2),x)
```

```
[Out] 1479375*sqrt(-2*x + 1)*sqrt(5*x + 3)/(21952*(3*x + 2)) + 14145*sq
rt(-2*x + 1)*sqrt(5*x + 3)/(1568*(3*x + 2)**2) + 81*sqrt(-2*x + 1
)*sqrt(5*x + 3)/(56*(3*x + 2)**3) + sqrt(-2*x + 1)*sqrt(5*x + 3)/
(4*(3*x + 2)**4) - 16925425*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(
7*sqrt(5*x + 3)))/153664
```

Mathematica [A] time = 0.109283, size = 82, normalized size = 0.54

$$\frac{\frac{14\sqrt{1-2x}\sqrt{5x+3}\left(39943125x^3+81668520x^2+55729116x+12696112\right)}{(3x+2)^4}-16925425\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{307328}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]/((2 + 3*x)^5*Sqrt[3 + 5*x]),x]
```

```
[Out] ((14*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(12696112 + 55729116*x + 8166852
0*x^2 + 39943125*x^3))/(2 + 3*x)^4 - 16925425*Sqrt[7]*ArcTan[(-20
 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/307328
```

Maple [B] time = 0.02, size = 250, normalized size = 1.7

$$\frac{1}{307328\,(2+3\,x)^4}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(1370959425\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^4+3655891800\,\sqrt{7}\arctan\left(1/14\,\frac{(37}{\sqrt{-1}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)/(2+3*x)^5/(3+5*x)^(1/2),x)
```

```
[Out] 1/307328*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(1370959425*7^(1/2)*arctan(1
/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^4+3655891800*7^(1/2)
*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+365589180
0*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+
559203750*x^3*(-10*x^2-x+3)^(1/2)+1624840800*7^(1/2)*arctan(1/14*
(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+1143359280*x^2*(-10*x^2-
x+3)^(1/2)+270806800*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x
^2-x+3)^(1/2))+780207624*x*(-10*x^2-x+3)^(1/2)+177745568*(-10*x^2
-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)^4
```

Maxima [A] time = 1.51629, size = 193, normalized size = 1.28

$$\frac{16925425}{307328}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{\sqrt{-10\,x^2-x+3}}{4\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}$$
$$+\frac{81\,\sqrt{-10\,x^2-x+3}}{56\,(27\,x^3+54\,x^2+36\,x+8)}+\frac{14145\,\sqrt{-10\,x^2-x+3}}{1568\,(9\,x^2+12\,x+4)}+\frac{1479375\,\sqrt{-10\,x^2-x+3}}{21952\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/(sqrt(5*x + 3)*(3*x + 2)^5),x, algorithm="maxima")
```

```
[Out] 16925425/307328*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3
*x + 2)) + 1/4*sqrt(-10*x^2 - x + 3)/(81*x^4 + 216*x^3 + 216*x^2
+ 96*x + 16) + 81/56*sqrt(-10*x^2 - x + 3)/(27*x^3 + 54*x^2 + 36*
x + 8) + 14145/1568*sqrt(-10*x^2 - x + 3)/(9*x^2 + 12*x + 4) + 14
79375/21952*sqrt(-10*x^2 - x + 3)/(3*x + 2)
```

Fricas [A] time = 0.22616, size = 147, normalized size = 0.97

$$\frac{\sqrt{7}\left(2\,\sqrt{7}(39943125\,x^3+81668520\,x^2+55729116\,x+12696112)\,\sqrt{5\,x+3}\sqrt{-2\,x+1}+16925425\,(81\,x^4+216\,x^3+216\,x^2+9\right.}{307328\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/(sqrt(5*x + 3)*(3*x + 2)^5),x, algorithm="fricas")
```

```
[Out] 1/307328*sqrt(7)*(2*sqrt(7)*(39943125*x^3 + 81668520*x^2 + 557291
16*x + 12696112)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 16925425*(81*x^4
+ 216*x^3 + 216*x^2 + 96*x + 16)*arctan(1/14*sqrt(7)*(37*x + 20)/
(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(81*x^4 + 216*x^3 + 216*x^2 + 96
```

```
*x + 16)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)/(2+3*x)**5/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.407318, size = 504, normalized size = 3.34

$$\frac{55}{614656}\sqrt{5}\left(61547\sqrt{70}\sqrt{2}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)+\frac{280\sqrt{2}\left(157973\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{}{\sqrt{2}\sqrt{}}\right.\right.}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/(sqrt(5*x + 3)*(3*x + 2)^5),x, algorithm="giac")
```

```
[Out] 55/614656*sqrt(5)*(61547*sqrt(70)*sqrt(2)*(pi + 2*arctan(-1/140*s
qrt(70)*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*
x + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 280*sqrt(2)*
(157973*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*s
qrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^7 + 83743800*(
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x +
 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 + 17691640512*((sqrt(
2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(s
qrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 1351079744000*(sqrt(2)*sq
rt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 5404318976000*sqrt(5*x
+ 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))/(((sqrt(2)*sqrt(-10*x
+ 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-1
0*x + 5) - sqrt(22)))^2 + 280)^4)
```

3.2293 $\int \frac{\sqrt{1-2x}(2+3x)^3}{(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=113

$$-\frac{2\sqrt{1-2x}(3x+2)^3}{5\sqrt{5x+3}}+\frac{7}{25}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^2-\frac{7(73-60x)\sqrt{1-2x}\sqrt{5x+3}}{4000}+\frac{10409\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{4000\sqrt{10}}$$

```
[Out] (-2*Sqrt[1 - 2*x]*(2 + 3*x)^3)/(5*Sqrt[3 + 5*x]) - (7*(73 - 60*x)
*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/4000 + (7*Sqrt[1 - 2*x]*(2 + 3*x)^2
*Sqrt[3 + 5*x])/25 + (10409*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(40
00*Sqrt[10])
```

Rubi [A] time = 0.17946, antiderivative size = 113, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$-\frac{2\sqrt{1-2x}(3x+2)^3}{5\sqrt{5x+3}}+\frac{7}{25}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^2-\frac{7(73-60x)\sqrt{1-2x}\sqrt{5x+3}}{4000}+\frac{10409\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{4000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(2 + 3*x)^3)/(3 + 5*x)^(3/2),x]
```

```
[Out] (-2*Sqrt[1 - 2*x]*(2 + 3*x)^3)/(5*Sqrt[3 + 5*x]) - (7*(73 - 60*x)
*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/4000 + (7*Sqrt[1 - 2*x]*(2 + 3*x)^2
*Sqrt[3 + 5*x])/25 + (10409*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(40
00*Sqrt[10])
```

Rubi in Sympy [A] time = 19.2844, size = 104, normalized size = 0.92

$$-\frac{\left(-1575x+\frac{7665}{4}\right)\sqrt{-2x+1}\sqrt{5x+3}}{15000}-\frac{2\sqrt{-2x+1}\,(3x+2)^3}{5\sqrt{5x+3}}+\frac{7\sqrt{-2x+1}\,(3x+2)^2\,\sqrt{5x+3}}{25}+\frac{10409\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{40000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3*(1-2*x)**(1/2)/(3+5*x)**(3/2),x)
```

```
[Out] -(-1575*x + 7665/4)*sqrt(-2*x + 1)*sqrt(5*x + 3)/15000 - 2*sqrt(-
2*x + 1)*(3*x + 2)**3/(5*sqrt(5*x + 3)) + 7*sqrt(-2*x + 1)*(3*x +
 2)**2*sqrt(5*x + 3)/25 + 10409*sqrt(10)*asin(sqrt(22)*sqrt(5*x +
 3)/11)/40000
```

Mathematica [A] time = 0.17307, size = 65, normalized size = 0.58

$$\frac{\frac{10\sqrt{1-2x}(7200x^3+13140x^2+3825x-893)}{\sqrt{5x+3}}-10409\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{40000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(2 + 3*x)^3)/(3 + 5*x)^(3/2),x]
```

```
[Out] ((10*Sqrt[1 - 2*x]*(-893 + 3825*x + 13140*x^2 + 7200*x^3))/Sqrt[3
 + 5*x] - 10409*Sqrt[10]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/40000
```

Maple [A] time = 0.02, size = 116, normalized size = 1.

$$\frac{1}{80000}\left(144000\,x^3\sqrt{-10\,x^2-x+3}+52045\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x+262800\,x^2\sqrt{-10\,x^2-x+3}+31227\,\sqrt{10}\arcsin\left(\frac{20}{1}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3*(1-2*x)^(1/2)/(3+5*x)^(3/2),x)
```

```
[Out] 1/80000*(144000*x^3*(-10*x^2-x+3)^(1/2)+52045*10^(1/2)*arcsin(20/
11*x+1/11)*x+262800*x^2*(-10*x^2-x+3)^(1/2)+31227*10^(1/2)*arcsin
(20/11*x+1/11)+76500*x*(-10*x^2-x+3)^(1/2)-17860*(-10*x^2-x+3)^(1
/2))*(1-2*x)^(1/2)/(-10*x^2-x+3)^(1/2)/(3+5*x)^(1/2)
```

Maxima [A] time = 1.51098, size = 107, normalized size = 0.95

$$\frac{10409}{80000}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)-\frac{9}{250}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}+\frac{81}{200}\sqrt{-10\,x^2-x+3}x+\frac{693}{20000}\sqrt{-10\,x^2-x+3}-\frac{2\sqrt{-10\,x^2-x+3}}{625\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*sqrt(-2*x + 1)/(5*x + 3)^(3/2),x, algorithm="maxima")
```

```
[Out] 10409/80000*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) - 9/250*(-10*x
^2 - x + 3)^(3/2) + 81/200*sqrt(-10*x^2 - x + 3)*x + 693/20000*sq
rt(-10*x^2 - x + 3) - 2/625*sqrt(-10*x^2 - x + 3)/(5*x + 3)
```

Fricas [A] time = 0.224102, size = 107, normalized size = 0.95

$$\frac{\sqrt{10}\left(2\sqrt{10}\left(7200\,x^3+13140\,x^2+3825\,x-893\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+10409\,(5\,x+3)\arctan\left(\frac{\sqrt{10}(20\,x+1)}{20\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)}{80000\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*sqrt(-2*x + 1)/(5*x + 3)^(3/2),x, algorithm="fricas")
```

```
[Out] 1/80000*sqrt(10)*(2*sqrt(10)*(7200*x^3 + 13140*x^2 + 3825*x - 893
)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 10409*(5*x + 3)*arctan(1/20*sqrt
(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(5*x + 3)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3*(1-2*x)**(1/2)/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.298086, size = 165, normalized size = 1.46

$$\frac{9}{100000}\left(4\left(8\sqrt{5}(5x+3)+\sqrt{5}\right)(5x+3)-463\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}+\frac{10409}{40000}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)-\frac{\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}{6250\sqrt{5x+3}}+\frac{2\sqrt{10}\sqrt{5x+3}}{3125\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^3*sqrt(-2*x + 1)/(5*x + 3)^(3/2),x, algorithm="giac")
```

```
[Out] 9/100000*(4*(8*sqrt(5)*(5*x + 3) + sqrt(5))*(5*x + 3) - 463*sqrt(
5))*sqrt(5*x + 3)*sqrt(-10*x + 5) + 10409/40000*sqrt(10)*arcsin(1
/11*sqrt(22)*sqrt(5*x + 3)) - 1/6250*sqrt(10)*(sqrt(2)*sqrt(-10*x
 + 5) - sqrt(22))/sqrt(5*x + 3) + 2/3125*sqrt(10)*sqrt(5*x + 3)/(
sqrt(2)*sqrt(-10*x + 5) - sqrt(22))
```

3.2294 $\int \frac{\sqrt{1-2x}(2+3x)^2}{(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=94

$$-\frac{9}{100}\sqrt{5x+3}(1-2x)^{3/2}-\frac{2(1-2x)^{3/2}}{275\sqrt{5x+3}}+\frac{317\sqrt{5x+3}\sqrt{1-2x}}{2200}+\frac{317\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{200\sqrt{10}}$$

```
[Out] (-2*(1 - 2*x)^(3/2))/(275*Sqrt[3 + 5*x]) + (317*Sqrt[1 - 2*x]*Sqr
t[3 + 5*x])/2200 - (9*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/100 + (317*A
rcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(200*Sqrt[10])
```

Rubi [A] time = 0.114583, antiderivative size = 94, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$-\frac{9}{100}\sqrt{5x+3}(1-2x)^{3/2}-\frac{2(1-2x)^{3/2}}{275\sqrt{5x+3}}+\frac{317\sqrt{5x+3}\sqrt{1-2x}}{2200}+\frac{317\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{200\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(2 + 3*x)^2)/(3 + 5*x)^(3/2),x]
```

```
[Out] (-2*(1 - 2*x)^(3/2))/(275*Sqrt[3 + 5*x]) + (317*Sqrt[1 - 2*x]*Sqr
t[3 + 5*x])/2200 - (9*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/100 + (317*A
rcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(200*Sqrt[10])
```

Rubi in Sympy [A] time = 9.71293, size = 85, normalized size = 0.9

$$-\frac{9\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{100}-\frac{2\left(-2x+1\right)^{\frac{3}{2}}}{275\sqrt{5x+3}}+\frac{317\sqrt{-2x+1}\sqrt{5x+3}}{2200}+\frac{317\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{2000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2*(1-2*x)**(1/2)/(3+5*x)**(3/2),x)
```

```
[Out] -9*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/100 - 2*(-2*x + 1)**(3/2)/(275
*sqrt(5*x + 3)) + 317*sqrt(-2*x + 1)*sqrt(5*x + 3)/2200 + 317*sqr
t(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/2000
```

Mathematica [A] time = 0.138073, size = 60, normalized size = 0.64

$$\frac{\frac{10\sqrt{1-2x}\left(180x^2+165x+31\right)}{\sqrt{5x+3}}-317\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{2000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(2 + 3*x)^2)/(3 + 5*x)^(3/2),x]
```

```
[Out] ((10*Sqrt[1 - 2*x]*(31 + 165*x + 180*x^2))/Sqrt[3 + 5*x] - 317*Sq
rt[10]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/2000
```

Maple [A] time = 0.019, size = 99, normalized size = 1.1

$$\frac{1}{4000}\left(1585\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)x+3600x^2\sqrt{-10x^2-x+3}+951\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)+3300x\sqrt{-10x^2-x+\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2*(1-2*x)^(1/2)/(3+5*x)^(3/2),x)
```

```
[Out] 1/4000*(1585*10^(1/2)*arcsin(20/11*x+1/11)*x+3600*x^2*(-10*x^2-x+
3)^(1/2)+951*10^(1/2)*arcsin(20/11*x+1/11)+3300*x*(-10*x^2-x+3)^(
1/2)+620*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)/(-10*x^2-x+3)^(1/2)/(
3+5*x)^(1/2)
```

Maxima [A] time = 1.51334, size = 88, normalized size = 0.94

$$\frac{317}{4000}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)+\frac{9}{50}\sqrt{-10x^2-x+3}x+\frac{57}{1000}\sqrt{-10x^2-x+3}-\frac{2\sqrt{-10x^2-x+3}}{125(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*sqrt(-2*x + 1)/(5*x + 3)^(3/2),x, algorithm="maxima")
```

```
[Out] 317/4000*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) + 9/50*sqrt(-10*x
^2 - x + 3)*x + 57/1000*sqrt(-10*x^2 - x + 3) - 2/125*sqrt(-10*x^
2 - x + 3)/(5*x + 3)
```

Fricas [A] time = 0.217571, size = 100, normalized size = 1.06

$$\frac{\sqrt{10}\left(2\sqrt{10}\left(180x^2+165x+31\right)\sqrt{5x+3}\sqrt{-2x+1}+317(5x+3)\arctan\left(\frac{\sqrt{10}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)}{4000(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*sqrt(-2*x + 1)/(5*x + 3)^(3/2),x, algorithm="fricas")
```

```
[Out] 1/4000*sqrt(10)*(2*sqrt(10)*(180*x^2 + 165*x + 31)*sqrt(5*x + 3)*
sqrt(-2*x + 1) + 317*(5*x + 3)*arctan(1/20*sqrt(10)*(20*x + 1)/(s
qrt(5*x + 3)*sqrt(-2*x + 1))))/(5*x + 3)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{\sqrt{-2x+1}\,(3x+2)^2}{(5x+3)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2*(1-2*x)**(1/2)/(3+5*x)**(3/2),x)
```

```
[Out] Integral(sqrt(-2*x + 1)*(3*x + 2)**2/(5*x + 3)**(3/2), x)
```

GIAC/XCAS [A] time = 0.270085, size = 150, normalized size = 1.6

$$\frac{3}{5000}\left(12\sqrt{5}(5x+3)-17\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}+\frac{317}{2000}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)-\frac{\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}{1250\sqrt{5x+3}}+\frac{2\sqrt{10}\sqrt{5x+3}}{625\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2*sqrt(-2*x + 1)/(5*x + 3)^(3/2),x, algorithm="giac")
```

```
[Out] 3/5000*(12*sqrt(5)*(5*x + 3) - 17*sqrt(5))*sqrt(5*x + 3)*sqrt(-10
*x + 5) + 317/2000*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) -
 1/1250*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x +
3) + 2/625*sqrt(10)*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt
(22))
```

3.2295 $\int \frac{\sqrt{1-2x}(2+3x)}{(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=72

$$-\frac{2(1-2x)^{3/2}}{55\sqrt{5x+3}}+\frac{29}{275}\sqrt{5x+3}\sqrt{1-2x}+\frac{29\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{25\sqrt{10}}$$

```
[Out] (-2*(1 - 2*x)^(3/2))/(55*Sqrt[3 + 5*x]) + (29*Sqrt[1 - 2*x]*Sqrt[
3 + 5*x])/275 + (29*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(25*Sqrt[10
])
```

Rubi [A] time = 0.0759131, antiderivative size = 72, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$-\frac{2(1-2x)^{3/2}}{55\sqrt{5x+3}}+\frac{29}{275}\sqrt{5x+3}\sqrt{1-2x}+\frac{29\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{25\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In] Int[(Sqrt[1 - 2*x]*(2 + 3*x))/(3 + 5*x)^(3/2),x]
```

```
[Out] (-2*(1 - 2*x)^(3/2))/(55*Sqrt[3 + 5*x]) + (29*Sqrt[1 - 2*x]*Sqrt[
3 + 5*x])/275 + (29*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(25*Sqrt[10
])
```

Rubi in Sympy [A] time = 7.12049, size = 65, normalized size = 0.9

$$-\frac{2(-2x+1)^{\frac{3}{2}}}{55\sqrt{5x+3}}+\frac{29\sqrt{-2x+1}\sqrt{5x+3}}{275}+\frac{29\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{250}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)*(1-2*x)**(1/2)/(3+5*x)**(3/2),x)
```

```
[Out] -2*(-2*x + 1)**(3/2)/(55*sqrt(5*x + 3)) + 29*sqrt(-2*x + 1)*sqrt(
5*x + 3)/275 + 29*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/250
```

Mathematica [A] time = 0.101911, size = 55, normalized size = 0.76

$$\frac{\sqrt{1-2x}(15x+7)}{25\sqrt{5x+3}}-\frac{29\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{25\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In] Integrate[(Sqrt[1 - 2*x]*(2 + 3*x))/(3 + 5*x)^(3/2),x]
```

```
[Out] (Sqrt[1 - 2*x]*(7 + 15*x))/(25*Sqrt[3 + 5*x]) - (29*ArcSin[Sqrt[5
/11]*Sqrt[1 - 2*x]])/(25*Sqrt[10])
```

Maple [A] time = 0.015, size = 82, normalized size = 1.1

$$\frac{1}{500}\left(145\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)x+87\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)+300x\sqrt{-10x^2-x+3}+140\sqrt{-10x^2-x+3}\right)\sqrt{1-$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)*(1-2*x)^(1/2)/(3+5*x)^(3/2),x)
```

```
[Out] 1/500*(145*10^(1/2)*arcsin(20/11*x+1/11)*x+87*10^(1/2)*arcsin(20/
11*x+1/11)+300*x*(-10*x^2-x+3)^(1/2)+140*(-10*x^2-x+3)^(1/2))*(1-
2*x)^(1/2)/(-10*x^2-x+3)^(1/2)/(3+5*x)^(1/2)
```

Maxima [A] time = 1.50721, size = 68, normalized size = 0.94

$$\frac{29}{500}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)+\frac{3}{25}\sqrt{-10x^2-x+3}-\frac{2\sqrt{-10x^2-x+3}}{25(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)*sqrt(-2*x + 1)/(5*x + 3)^(3/2),x, algorithm="maxima")
```

```
[Out] 29/500*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) + 3/25*sqrt(-10*x^2
 - x + 3) - 2/25*sqrt(-10*x^2 - x + 3)/(5*x + 3)
```

Fricas [A] time = 0.218924, size = 93, normalized size = 1.29

$$\frac{\sqrt{10}\left(2\sqrt{10}(15x+7)\sqrt{5x+3}\sqrt{-2x+1}+29(5x+3)\arctan\left(\frac{\sqrt{10}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)}{500(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)*sqrt(-2*x + 1)/(5*x + 3)^(3/2),x, algorithm="fricas")
```

```
[Out] 1/500*sqrt(10)*(2*sqrt(10)*(15*x + 7)*sqrt(5*x + 3)*sqrt(-2*x + 1
) + 29*(5*x + 3)*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*s
qrt(-2*x + 1))))/(5*x + 3)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{\sqrt{-2x+1}\,(3x+2)}{(5x+3)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)*(1-2*x)**(1/2)/(3+5*x)**(3/2),x)
```

```
[Out] Integral(sqrt(-2*x + 1)*(3*x + 2)/(5*x + 3)**(3/2), x)
```

GIAC/XCAS [A] time = 0.249004, size = 132, normalized size = 1.83

$$\frac{3}{125}\sqrt{5}\sqrt{5x+3}\sqrt{-10x+5}+\frac{29}{250}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)-\frac{\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}{250\sqrt{5x+3}}+\frac{2\sqrt{10}\sqrt{5x+3}}{125\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)*sqrt(-2*x + 1)/(5*x + 3)^(3/2),x, algorithm="giac")
```

```
[Out] 3/125*sqrt(5)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 29/250*sqrt(10)*arc
sin(1/11*sqrt(22)*sqrt(5*x + 3)) - 1/250*sqrt(10)*(sqrt(2)*sqrt(-
10*x + 5) - sqrt(22))/sqrt(5*x + 3) + 2/125*sqrt(10)*sqrt(5*x + 3
)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))
```

3.2296 $\int \frac{\sqrt{1-2x}}{(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=52

$$-\frac{2\sqrt{1-2x}}{5\sqrt{5x+3}}-\frac{2}{5}\sqrt{\frac{2}{5}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)$$

```
[Out] (-2*Sqrt[1 - 2*x])/(5*Sqrt[3 + 5*x]) - (2*Sqrt[2/5]*ArcSin[Sqrt[2
/11]*Sqrt[3 + 5*x]])/5
```

Rubi [A] time = 0.0446696, antiderivative size = 52, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.158

$$-\frac{2\sqrt{1-2x}}{5\sqrt{5x+3}}-\frac{2}{5}\sqrt{\frac{2}{5}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]/(3 + 5*x)^(3/2),x]
```

```
[Out] (-2*Sqrt[1 - 2*x])/(5*Sqrt[3 + 5*x]) - (2*Sqrt[2/5]*ArcSin[Sqrt[2
/11]*Sqrt[3 + 5*x]])/5
```

Rubi in Sympy [A] time = 5.21063, size = 46, normalized size = 0.88

$$-\frac{2\sqrt{-2x+1}}{5\sqrt{5x+3}}-\frac{2\sqrt{10}\,\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{25}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)/(3+5*x)**(3/2),x)
```

```
[Out] -2*sqrt(-2*x + 1)/(5*sqrt(5*x + 3)) - 2*sqrt(10)*asin(sqrt(22)*sq
rt(5*x + 3)/11)/25
```

Mathematica [A] time = 0.0868619, size = 49, normalized size = 0.94

$$\frac{2}{25}\left(\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)-\frac{5\sqrt{1-2x}}{\sqrt{5x+3}}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]/(3 + 5*x)^(3/2),x]
```

```
[Out] (2*((-5*Sqrt[1 - 2*x])/Sqrt[3 + 5*x] + Sqrt[10]*ArcSin[Sqrt[5/11]
*Sqrt[1 - 2*x]]))/25
```

Maple [F] time = 0.049, size = 0, normalized size = 0.

$$\int 1\sqrt{1-2\,x}\,(3+5\,x)^{-\frac{3}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((1-2*x)^(1/2)/(3+5*x)^(3/2),x)
```

```
[Out] int((1-2*x)^(1/2)/(3+5*x)^(3/2),x)
```

Maxima [A] time = 1.50837, size = 49, normalized size = 0.94

$$-\frac{1}{25}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)-\frac{2\sqrt{-10x^2-x+3}}{5(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(sqrt(-2*x + 1)/(5*x + 3)^(3/2),x, algorithm="maxima")
```

```
[Out] -1/25*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) - 2/5*sqrt(-10*x^2 -
 x + 3)/(5*x + 3)
```

Fricas [A] time = 0.217918, size = 93, normalized size = 1.79

$$-\frac{\sqrt{5}\left(\sqrt{2}(5x+3)\arctan\left(\frac{\sqrt{5}\sqrt{2}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)+2\sqrt{5}\sqrt{5x+3}\sqrt{-2x+1}\right)}{25(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(sqrt(-2*x + 1)/(5*x + 3)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/25*sqrt(5)*(sqrt(2)*(5*x + 3)*arctan(1/20*sqrt(5)*sqrt(2)*(20*
x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))) + 2*sqrt(5)*sqrt(5*x + 3)*
sqrt(-2*x + 1))/(5*x + 3)
```

Sympy [A] time = 2.70376, size = 153, normalized size = 2.94

$$\begin{cases} -\frac{2\sqrt{10}\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}}{25}-\frac{\sqrt{10}i\log\left(\frac{1}{x+\frac{3}{5}}\right)}{25}-\frac{\sqrt{10}i\log\left(x+\frac{3}{5}\right)}{25}-\frac{2\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{110}\sqrt{x+\frac{3}{5}}}{11}\right)}{25} & \text{for}\ \frac{11\left|\frac{1}{x+\frac{3}{5}}\right|}{10}>1 \\ -\frac{2\sqrt{10}i\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}}{25}-\frac{\sqrt{10}i\log\left(\frac{1}{x+\frac{3}{5}}\right)}{25}+\frac{2\sqrt{10}i\log\left(\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}+1\right)}{25} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((1-2*x)**(1/2)/(3+5*x)**(3/2),x)
```

```
[Out] Piecewise((-2*sqrt(10)*sqrt(-1 + 11/(10*(x + 3/5)))/25 - sqrt(10)
*I*log(1/(x + 3/5))/25 - sqrt(10)*I*log(x + 3/5)/25 - 2*sqrt(10)*
asin(sqrt(110)*sqrt(x + 3/5)/11)/25, 11*Abs(1/(x + 3/5))/10 > 1),
 (-2*sqrt(10)*I*sqrt(1 - 11/(10*(x + 3/5)))/25 - sqrt(10)*I*log(1
/(x + 3/5))/25 + 2*sqrt(10)*I*log(sqrt(1 - 11/(10*(x + 3/5))) + 1
)/25, True))
```

GIAC/XCAS [A] time = 0.227145, size = 112, normalized size = 2.15

$$-\frac{1}{50}\sqrt{5}\left(4\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)+\frac{\sqrt{2}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}{\sqrt{5x+3}}-\frac{4\sqrt{2}\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/(5*x + 3)^(3/2),x, algorithm="giac")
```

```
[Out] -1/50*sqrt(5)*(4*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) + sq
rt(2)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt
(2)*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))
```

3.2297 $\int \frac{\sqrt{1-2x}}{(2+3x)(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=53

$$2\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)-\frac{2\sqrt{1-2x}}{\sqrt{5x+3}}$$

```
[Out] (-2*Sqrt[1 - 2*x])/Sqrt[3 + 5*x] + 2*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]
/(Sqrt[7]*Sqrt[3 + 5*x])]
```

Rubi [A] time = 0.0823963, antiderivative size = 53, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.115

$$2\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)-\frac{2\sqrt{1-2x}}{\sqrt{5x+3}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]/((2 + 3*x)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-2*Sqrt[1 - 2*x])/Sqrt[3 + 5*x] + 2*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]
/(Sqrt[7]*Sqrt[3 + 5*x])]
```

Rubi in Sympy [A] time = 7.48982, size = 49, normalized size = 0.92

$$-\frac{2\sqrt{-2x+1}}{\sqrt{5x+3}}+2\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)/(2+3*x)/(3+5*x)**(3/2),x)
```

```
[Out] -2*sqrt(-2*x + 1)/sqrt(5*x + 3) + 2*sqrt(7)*atan(sqrt(7)*sqrt(-2*
x + 1)/(7*sqrt(5*x + 3)))
```

Mathematica [A] time = 0.066337, size = 55, normalized size = 1.04

$$\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)-\frac{2\sqrt{1-2x}}{\sqrt{5x+3}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]/((2 + 3*x)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-2*Sqrt[1 - 2*x])/Sqrt[3 + 5*x] + Sqrt[7]*ArcTan[(-20 - 37*x)/(2
*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])]
```

Maple [B] time = 0.019, size = 100, normalized size = 1.9

$$1\left(-5\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x-3\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)-2\sqrt{-10\,x^2-x+3}\right)\sqrt{1-2\,x}\frac{1}{\sqrt{-10\,x^2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)/(2+3*x)/(3+5*x)^(3/2),x)
```

```
[Out] (-5*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x-
3*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))-2*(-
10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)/(-10*x^2-x+3)^(1/2)/(3+5*x)^(1/2
)
```

Maxima [A] time = 1.50648, size = 78, normalized size = 1.47

$$-\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{4\,x}{\sqrt{-10\,x^2-x+3}}-\frac{2}{\sqrt{-10\,x^2-x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/((5*x + 3)^(3/2)*(3*x + 2)),x, algorithm="maxima")
```

```
[Out] -sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) + 4*x/
sqrt(-10*x^2 - x + 3) - 2/sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.217067, size = 81, normalized size = 1.53

$$-\frac{\sqrt{7}(5\,x+3)\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)+2\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}{5\,x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/((5*x + 3)^(3/2)*(3*x + 2)),x, algorithm="fricas")
```

```
[Out] -(sqrt(7)*(5*x + 3)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3
)*sqrt(-2*x + 1))) + 2*sqrt(5*x + 3)*sqrt(-2*x + 1))/(5*x + 3)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{\sqrt{-2x+1}}{(3x+2)\,(5x+3)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)/(2+3*x)/(3+5*x)**(3/2),x)
```

```
[Out] Integral(sqrt(-2*x + 1)/((3*x + 2)*(5*x + 3)**(3/2)), x)
```

GIAC/XCAS [A] time = 0.23499, size = 184, normalized size = 3.47

$$-\frac{1}{10}\sqrt{5}\left(\sqrt{70}\sqrt{2}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)\right)+\sqrt{2}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{}}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/((5*x + 3)^(3/2)*(3*x + 2)),x, algorithm="giac")
```

```
[Out] -1/10*sqrt(5)*(sqrt(70)*sqrt(2)*(pi + 2*arctan(-1/140*sqrt(70)*sq
rt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4
)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + sqrt(2)*((sqrt(2)*sqrt
(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*
sqrt(-10*x + 5) - sqrt(22))))
```

3.2298 $\int \frac{\sqrt{1-2x}}{(2+3x)^2(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=84

$$\frac{3(1-2x)^{3/2}}{7(3x+2)\sqrt{5x+3}}-\frac{103\sqrt{1-2x}}{7\sqrt{5x+3}}+\frac{103\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{\sqrt{7}}$$

```
[Out] (-103*Sqrt[1 - 2*x])/(7*Sqrt[3 + 5*x]) + (3*(1 - 2*x)^(3/2))/(7*(
2 + 3*x)*Sqrt[3 + 5*x]) + (103*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt
[3 + 5*x])])/Sqrt[7]
```

Rubi [A] time = 0.122437, antiderivative size = 84, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$\frac{3(1-2x)^{3/2}}{7(3x+2)\sqrt{5x+3}}-\frac{103\sqrt{1-2x}}{7\sqrt{5x+3}}+\frac{103\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]/((2 + 3*x)^2*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-103*Sqrt[1 - 2*x])/(7*Sqrt[3 + 5*x]) + (3*(1 - 2*x)^(3/2))/(7*(
2 + 3*x)*Sqrt[3 + 5*x]) + (103*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt
[3 + 5*x])])/Sqrt[7]
```

Rubi in Sympy [A] time = 10.1469, size = 82, normalized size = 0.98

$$-\frac{10\,(-2x+1)^{\frac{3}{2}}}{11\,(3x+2)\,\sqrt{5x+3}}-\frac{103\sqrt{-2x+1}\sqrt{5x+3}}{11\,(3x+2)}+\frac{103\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)/(2+3*x)**2/(3+5*x)**(3/2),x)
```

```
[Out] -10*(-2*x + 1)**(3/2)/(11*(3*x + 2)*sqrt(5*x + 3)) - 103*sqrt(-2*
x + 1)*sqrt(5*x + 3)/(11*(3*x + 2)) + 103*sqrt(7)*atan(sqrt(7)*sq
rt(-2*x + 1)/(7*sqrt(5*x + 3)))/7
```

Mathematica [A] time = 0.0940225, size = 70, normalized size = 0.83

$$\frac{103\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{2\sqrt{7}}-\frac{\sqrt{1-2x}(45x+29)}{(3x+2)\sqrt{5x+3}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]/((2 + 3*x)^2*(3 + 5*x)^(3/2)),x]
```

```
[Out] -((Sqrt[1 - 2*x]*(29 + 45*x))/((2 + 3*x)*Sqrt[3 + 5*x])) + (103*A
rcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/(2*Sqrt[7])
```

Maple [B] time = 0.021, size = 154, normalized size = 1.8

$$-\frac{1}{28+42\,x}\left(1545\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^2+1957\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x+618\,\sqrt{7}\arctan\left(1/14\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)/(2+3*x)^2/(3+5*x)^(3/2),x)
```

```
[Out] -1/14*(1545*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(
1/2))*x^2+1957*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3
)^(1/2))*x+618*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3
)^(1/2))+630*x*(-10*x^2-x+3)^(1/2)+406*(-10*x^2-x+3)^(1/2))*(1-2*
x)^(1/2)/(2+3*x)/(-10*x^2-x+3)^(1/2)/(3+5*x)^(1/2)
```

Maxima [A] time = 1.50582, size = 124, normalized size = 1.48

$$-\frac{103}{14}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{30\,x}{\sqrt{-10\,x^2-x+3}}-\frac{47}{3\,\sqrt{-10\,x^2-x+3}}+\frac{7}{3\left(3\,\sqrt{-10\,x^2-x+3}x+2\,\sqrt{-10\,x^2-x+3}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/((5*x + 3)^(3/2)*(3*x + 2)^2),x, algorithm="maxima")
```

```
[Out] -103/14*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2))
 + 30*x/sqrt(-10*x^2 - x + 3) - 47/3/sqrt(-10*x^2 - x + 3) + 7/3/
(3*sqrt(-10*x^2 - x + 3)*x + 2*sqrt(-10*x^2 - x + 3))
```

Fricas [A] time = 0.222111, size = 107, normalized size = 1.27

$$-\frac{\sqrt{7}\left(2\,\sqrt{7}(45\,x+29)\sqrt{5\,x+3}\sqrt{-2\,x+1}+103\left(15\,x^2+19\,x+6\right)\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)}{14\left(15\,x^2+19\,x+6\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/((5*x + 3)^(3/2)*(3*x + 2)^2),x, algorithm="fricas")
```

```
[Out] -1/14*sqrt(7)*(2*sqrt(7)*(45*x + 29)*sqrt(5*x + 3)*sqrt(-2*x + 1)
 + 103*(15*x^2 + 19*x + 6)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(
5*x + 3)*sqrt(-2*x + 1))))/(15*x^2 + 19*x + 6)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)/(2+3*x)**2/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.253921, size = 347, normalized size = 4.13

$$-\frac{1}{140}\sqrt{5}\left(103\sqrt{70}\sqrt{2}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)+70\sqrt{2}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5}}{\sqrt{2}\sqrt{-10x}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/((5*x + 3)^(3/2)*(3*x + 2)^2),x, algorithm="giac")
```

```
[Out] -1/140*sqrt(5)*(103*sqrt(70)*sqrt(2)*(pi + 2*arctan(-1/140*sqrt(7
0)*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3
) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 70*sqrt(2)*((sqrt
(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(
sqrt(2)*sqrt(-10*x + 5) - sqrt(22))) + 9240*sqrt(2)*((sqrt(2)*sqr
t(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)
*sqrt(-10*x + 5) - sqrt(22)))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(2
2))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sq
rt(22)))^2 + 280))
```

3.2299 $\int \frac{\sqrt{1-2x}}{(2+3x)^3(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=115

$$-\frac{2615\sqrt{1-2x}}{28\sqrt{5x+3}}+\frac{173\sqrt{1-2x}}{28(3x+2)\sqrt{5x+3}}+\frac{\sqrt{1-2x}}{2(3x+2)^2\sqrt{5x+3}}+\frac{17951\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{28\sqrt{7}}$$

```
[Out] (-2615*Sqrt[1 - 2*x])/(28*Sqrt[3 + 5*x]) + Sqrt[1 - 2*x]/(2*(2 +
3*x)^2*Sqrt[3 + 5*x]) + (173*Sqrt[1 - 2*x])/(28*(2 + 3*x)*Sqrt[3
+ 5*x]) + (17951*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(
28*Sqrt[7])
```

Rubi [A] time = 0.234062, antiderivative size = 115, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$-\frac{2615\sqrt{1-2x}}{28\sqrt{5x+3}}+\frac{173\sqrt{1-2x}}{28(3x+2)\sqrt{5x+3}}+\frac{\sqrt{1-2x}}{2(3x+2)^2\sqrt{5x+3}}+\frac{17951\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{28\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]/((2 + 3*x)^3*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-2615*Sqrt[1 - 2*x])/(28*Sqrt[3 + 5*x]) + Sqrt[1 - 2*x]/(2*(2 +
3*x)^2*Sqrt[3 + 5*x]) + (173*Sqrt[1 - 2*x])/(28*(2 + 3*x)*Sqrt[3
+ 5*x]) + (17951*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(
28*Sqrt[7])
```

Rubi in Sympy [A] time = 21.5785, size = 104, normalized size = 0.9

$$-\frac{2615\sqrt{-2x+1}}{28\sqrt{5x+3}}+\frac{173\sqrt{-2x+1}}{28\left(3x+2\right)\sqrt{5x+3}}+\frac{\sqrt{-2x+1}}{2\left(3x+2\right)^2\sqrt{5x+3}}+\frac{17951\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{196}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)/(2+3*x)**3/(3+5*x)**(3/2),x)
```

```
[Out] -2615*sqrt(-2*x + 1)/(28*sqrt(5*x + 3)) + 173*sqrt(-2*x + 1)/(28*
(3*x + 2)*sqrt(5*x + 3)) + sqrt(-2*x + 1)/(2*(3*x + 2)**2*sqrt(5*
x + 3)) + 17951*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x +
 3)))/196
```

Mathematica [A] time = 0.0866831, size = 77, normalized size = 0.67

$$\frac{17951\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{56\sqrt{7}}-\frac{\sqrt{1-2x}\left(23535x^2+30861x+10100\right)}{28(3x+2)^2\sqrt{5x+3}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]/((2 + 3*x)^3*(3 + 5*x)^(3/2)),x]
```

```
[Out] -(Sqrt[1 - 2*x]*(10100 + 30861*x + 23535*x^2))/(28*(2 + 3*x)^2*Sq
rt[3 + 5*x]) + (17951*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[
3 + 5*x])])/(56*Sqrt[7])
```

Maple [B] time = 0.02, size = 202, normalized size = 1.8

$$-\frac{1}{392\left(2+3x\right)^{2}}\left(807795\sqrt{7}\arctan\left(1/14\frac{\left(37x+20\right)\sqrt{7}}{\sqrt{-10x^{2}-x+3}}\right)x^{3}+1561737\sqrt{7}\arctan\left(1/14\frac{\left(37x+20\right)\sqrt{7}}{\sqrt{-10x^{2}-x+3}}\right)x^{2}+1005256$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)/(2+3*x)^3/(3+5*x)^(3/2),x)
```

```
[Out] -1/392*(807795*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3
)^(1/2))*x^3+1561737*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x
^2-x+3)^(1/2))*x^2+1005256*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/
(-10*x^2-x+3)^(1/2))*x+329490*x^2*(-10*x^2-x+3)^(1/2)+215412*7^(1
/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+432054*x*(
-10*x^2-x+3)^(1/2)+141400*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)/(2+3
*x)^2/(-10*x^2-x+3)^(1/2)/(3+5*x)^(1/2)
```

Maxima [A] time = 1.51499, size = 193, normalized size = 1.68

$$-\frac{17951}{392}\sqrt{7}\arcsin\left(\frac{37x}{11\left|3x+2\right|}+\frac{20}{11\left|3x+2\right|}\right)+\frac{2615x}{14\sqrt{-10x^{2}-x+3}}-\frac{8191}{84\sqrt{-10x^{2}-x+3}}+\frac{7}{6\left(9\sqrt{-10x^{2}-x+3}x^{2}+12\sqrt{-10x^{2}-x+3}x+4\sqrt{-10x^{2}-x+3}\right)}+\frac{169}{12\left(3\sqrt{-10x^{2}-x+3}x+2\sqrt{-10x^{2}-x+3}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/((5*x + 3)^(3/2)*(3*x + 2)^3),x, algorithm="maxima")
```

```
[Out] -17951/392*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x +
2)) + 2615/14*x/sqrt(-10*x^2 - x + 3) - 8191/84/sqrt(-10*x^2 - x
+ 3) + 7/6/(9*sqrt(-10*x^2 - x + 3)*x^2 + 12*sqrt(-10*x^2 - x + 3
)*x + 4*sqrt(-10*x^2 - x + 3)) + 169/12/(3*sqrt(-10*x^2 - x + 3)*
x + 2*sqrt(-10*x^2 - x + 3))
```

Fricas [A] time = 0.222791, size = 127, normalized size = 1.1

$$-\frac{\sqrt{7}\left(2\sqrt{7}\left(23535x^{2}+30861x+10100\right)\sqrt{5x+3}\sqrt{-2x+1}+17951\left(45x^{3}+87x^{2}+56x+12\right)\arctan\left(\frac{\sqrt{7}(37x+20)}{14\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)}{392\left(45x^{3}+87x^{2}+56x+12\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/((5*x + 3)^(3/2)*(3*x + 2)^3),x, algorithm="fricas")
```

```
[Out] -1/392*sqrt(7)*(2*sqrt(7)*(23535*x^2 + 30861*x + 10100)*sqrt(5*x
+ 3)*sqrt(-2*x + 1) + 17951*(45*x^3 + 87*x^2 + 56*x + 12)*arctan(
1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(45*x^3
 + 87*x^2 + 56*x + 12)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)/(2+3*x)**3/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.293188, size = 427, normalized size = 3.71

$$-\frac{1}{3920}\sqrt{5}\left(17951\sqrt{70}\sqrt{2}\left(\pi + 2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3} - 4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right) + 9800\sqrt{2}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}} - \frac{}{\sqrt{2}\sqrt{}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/((5*x + 3)^(3/2)*(3*x + 2)^3),x, algorithm="giac")
```

```
[Out] -1/3920*sqrt(5)*(17951*sqrt(70)*sqrt(2)*(pi + 2*arctan(-1/140*sqr
t(70)*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x
+ 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 9800*sqrt(2)*(
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x +
 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))) + 9240*sqrt(2)*(313*((s
qrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3
)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 69160*(sqrt(2)*sqrt(-
10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 276640*sqrt(5*x + 3)/(sqrt(
2)*sqrt(-10*x + 5) - sqrt(22)))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt
(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) -
sqrt(22)))^2 + 280)^2)
```

3.2300 $\int \frac{\sqrt{1-2x}}{(2+3x)^4(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=144

$$-\frac{639565\sqrt{1-2x}}{1176\sqrt{5x+3}}+\frac{14101\sqrt{1-2x}}{392(3x+2)\sqrt{5x+3}}+\frac{81\sqrt{1-2x}}{28(3x+2)^2\sqrt{5x+3}}+\frac{\sqrt{1-2x}}{3(3x+2)^3\sqrt{5x+3}}+\frac{1463447\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{392\sqrt{7}}$$

```
[Out] (-639565*Sqrt[1 - 2*x])/(1176*Sqrt[3 + 5*x]) + Sqrt[1 - 2*x]/(3*(
2 + 3*x)^3*Sqrt[3 + 5*x]) + (81*Sqrt[1 - 2*x])/(28*(2 + 3*x)^2*Sq
rt[3 + 5*x]) + (14101*Sqrt[1 - 2*x])/(392*(2 + 3*x)*Sqrt[3 + 5*x]
) + (1463447*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(392*
Sqrt[7])
```

Rubi [A] time = 0.309476, antiderivative size = 144, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$-\frac{639565\sqrt{1-2x}}{1176\sqrt{5x+3}}+\frac{14101\sqrt{1-2x}}{392(3x+2)\sqrt{5x+3}}+\frac{81\sqrt{1-2x}}{28(3x+2)^2\sqrt{5x+3}}+\frac{\sqrt{1-2x}}{3(3x+2)^3\sqrt{5x+3}}+\frac{1463447\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{392\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]/((2 + 3*x)^4*(3 + 5*x)^(3/2)),x]
```



```
[Out] (-639565*Sqrt[1 - 2*x])/(1176*Sqrt[3 + 5*x]) + Sqrt[1 - 2*x]/(3*(
2 + 3*x)^3*Sqrt[3 + 5*x]) + (81*Sqrt[1 - 2*x])/(28*(2 + 3*x)^2*Sq
rt[3 + 5*x]) + (14101*Sqrt[1 - 2*x])/(392*(2 + 3*x)*Sqrt[3 + 5*x]
) + (1463447*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(392*
Sqrt[7])
```

Rubi in Sympy [A] time = 28.877, size = 131, normalized size = 0.91

$$-\frac{639565\sqrt{-2x+1}}{1176\sqrt{5x+3}}+\frac{14101\sqrt{-2x+1}}{392\,(3x+2)\,\sqrt{5x+3}}+\frac{81\sqrt{-2x+1}}{28\,(3x+2)^2\,\sqrt{5x+3}}+\frac{\sqrt{-2x+1}}{3\,(3x+2)^3\,\sqrt{5x+3}}+\frac{1463447\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{2744}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)/(2+3*x)**4/(3+5*x)**(3/2),x)
```

```
[Out] -639565*sqrt(-2*x + 1)/(1176*sqrt(5*x + 3)) + 14101*sqrt(-2*x + 1
)/(392*(3*x + 2)*sqrt(5*x + 3)) + 81*sqrt(-2*x + 1)/(28*(3*x + 2)
**2*sqrt(5*x + 3)) + sqrt(-2*x + 1)/(3*(3*x + 2)**3*sqrt(5*x + 3)
) + 1463447*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3))
)/2744
```

Mathematica [A] time = 0.105584, size = 82, normalized size = 0.57

$$\frac{1463447\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)-\frac{14\sqrt{1-2x}\left(5756085x^3+11385261x^2+7502166x+1646704\right)}{(3x+2)^3\sqrt{5x+3}}}{5488}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]/((2 + 3*x)^4*(3 + 5*x)^(3/2)),x]
```

```
[Out] ((-14*Sqrt[1 - 2*x]*(1646704 + 7502166*x + 11385261*x^2 + 5756085
*x^3))/((2 + 3*x)^3*Sqrt[3 + 5*x]) + 1463447*Sqrt[7]*ArcTan[(-20
- 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/5488
```

Maple [B] time = 0.022, size = 250, normalized size = 1.7

$$-\frac{1}{5488\,(2+3\,x)^3}\left(197565345\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^4+513669897\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^3+5\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)/(2+3*x)^4/(3+5*x)^(3/2),x)
```

```
[Out] -1/5488*(197565345*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2
-x+3)^(1/2))*x^4+513669897*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/
(-10*x^2-x+3)^(1/2))*x^3+500498874*7^(1/2)*arctan(1/14*(37*x+20)*
7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+80585190*x^3*(-10*x^2-x+3)^(1/2)
+216590156*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1
/2))*x+159393654*x^2*(-10*x^2-x+3)^(1/2)+35122728*7^(1/2)*arctan(
1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+105030324*x*(-10*x^2-
x+3)^(1/2)+23053856*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)/(2+3*x)^3/
(-10*x^2-x+3)^(1/2)/(3+5*x)^(1/2)
```

Maxima [A] time = 1.51741, size = 285, normalized size = 1.98

$$-\frac{1463447}{5488}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{639565\,x}{588\,\sqrt{-10\,x^2-x+3}}-\frac{222589}{392\,\sqrt{-10\,x^2-x+3}}$$
$$+\frac{7}{9\left(27\,\sqrt{-10\,x^2-x+3}x^3+54\,\sqrt{-10\,x^2-x+3}x^2+36\,\sqrt{-10\,x^2-x+3}x+8\,\sqrt{-10\,x^2-x+3}\right)}$$
$$+\frac{235}{36\left(9\,\sqrt{-10\,x^2-x+3}x^2+12\,\sqrt{-10\,x^2-x+3}x+4\,\sqrt{-10\,x^2-x+3}\right)}$$
$$+\frac{13777}{168\left(3\,\sqrt{-10\,x^2-x+3}x+2\,\sqrt{-10\,x^2-x+3}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/((5*x + 3)^(3/2)*(3*x + 2)^4),x, algorithm="maxima")
```

```
[Out] -1463447/5488*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x
 + 2)) + 639565/588*x/sqrt(-10*x^2 - x + 3) - 222589/392/sqrt(-10
*x^2 - x + 3) + 7/9/(27*sqrt(-10*x^2 - x + 3)*x^3 + 54*sqrt(-10*x
^2 - x + 3)*x^2 + 36*sqrt(-10*x^2 - x + 3)*x + 8*sqrt(-10*x^2 - x
 + 3)) + 235/36/(9*sqrt(-10*x^2 - x + 3)*x^2 + 12*sqrt(-10*x^2 -
x + 3)*x + 4*sqrt(-10*x^2 - x + 3)) + 13777/168/(3*sqrt(-10*x^2 -
 x + 3)*x + 2*sqrt(-10*x^2 - x + 3))
```

Fricas [A] time = 0.224344, size = 147, normalized size = 1.02

$$-\frac{\sqrt{7}\left(2\,\sqrt{7}\left(5756085\,x^3+11385261\,x^2+7502166\,x+1646704\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+1463447\,\left(135\,x^4+351\,x^3+342\,x^2+148\right.\right.}{5488\,\left(135\,x^4+351\,x^3+342\,x^2+148\,x+24\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/((5*x + 3)^(3/2)*(3*x + 2)^4),x, algorithm="fricas")
```

```
[Out] -1/5488*sqrt(7)*(2*sqrt(7)*(5756085*x^3 + 11385261*x^2 + 7502166*
x + 1646704)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 1463447*(135*x^4 + 35
1*x^3 + 342*x^2 + 148*x + 24)*arctan(1/14*sqrt(7)*(37*x + 20)/(sq
rt(5*x + 3)*sqrt(-2*x + 1))))/(135*x^4 + 351*x^3 + 342*x^2 + 148*
x + 24)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(1/2)/(2+3*x)**4/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.346987, size = 505, normalized size = 3.51

$$-\frac{1}{54880}\sqrt{5}\left(1463447\sqrt{70}\sqrt{2}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)+686000\sqrt{2}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/((5*x + 3)^(3/2)*(3*x + 2)^4),x, algorithm="giac")
```

```
[Out] -1/54880*sqrt(5)*(1463447*sqrt(70)*sqrt(2)*(pi + 2*arctan(-1/140*
sqrt(70)*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5
*x + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 686000*sqrt
(2)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(
5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))) + 27720*sqrt(2)*(1
1747*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt
(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 + 5216960*((sqr
t(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 615675200*(sqrt(2)*sqrt
(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 2462700800*sqrt(5*x + 3)/
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))/(((sqrt(2)*sqrt(-10*x + 5)
- sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x +
 5) - sqrt(22)))^2 + 280)^3)
```

3.2301 $\int \frac{\sqrt{1-2x}(2+3x)^4}{(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=142

$$-\frac{2\sqrt{1-2x}(3x+2)^4}{15(5x+3)^{3/2}}-\frac{524\sqrt{1-2x}(3x+2)^3}{825\sqrt{5x+3}}+\frac{623\sqrt{1-2x}\sqrt{5x+3}(3x+2)^2}{1375}+\frac{7\sqrt{1-2x}\sqrt{5x+3}(8940x+2563)}{220000}+\frac{35511\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{20000\sqrt{10}}$$

```
[Out] (-2*Sqrt[1 - 2*x]*(2 + 3*x)^4)/(15*(3 + 5*x)^(3/2)) - (524*Sqrt[1
 - 2*x]*(2 + 3*x)^3)/(825*Sqrt[3 + 5*x]) + (623*Sqrt[1 - 2*x]*(2
+ 3*x)^2*Sqrt[3 + 5*x])/1375 + (7*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(25
63 + 8940*x))/220000 + (35511*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(
20000*Sqrt[10])
```

Rubi [A] time = 0.26437, antiderivative size = 142, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$-\frac{2\sqrt{1-2x}(3x+2)^4}{15(5x+3)^{3/2}}-\frac{524\sqrt{1-2x}(3x+2)^3}{825\sqrt{5x+3}}+\frac{623\sqrt{1-2x}\sqrt{5x+3}(3x+2)^2}{1375}+\frac{7\sqrt{1-2x}\sqrt{5x+3}(8940x+2563)}{220000}+\frac{35511\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{20000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(2 + 3*x)^4)/(3 + 5*x)^(5/2),x]
```

```
[Out] (-2*Sqrt[1 - 2*x]*(2 + 3*x)^4)/(15*(3 + 5*x)^(3/2)) - (524*Sqrt[1
 - 2*x]*(2 + 3*x)^3)/(825*Sqrt[3 + 5*x]) + (623*Sqrt[1 - 2*x]*(2
+ 3*x)^2*Sqrt[3 + 5*x])/1375 + (7*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(25
63 + 8940*x))/220000 + (35511*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(
20000*Sqrt[10])
```

Rubi in Sympy [A] time = 26.781, size = 133, normalized size = 0.94

$$-\frac{2\sqrt{-2x+1}\,(3x+2)^4}{15\,(5x+3)^{\frac{3}{2}}}-\frac{524\sqrt{-2x+1}\,(3x+2)^3}{825\sqrt{5x+3}}+\frac{623\sqrt{-2x+1}\,(3x+2)^2\sqrt{5x+3}}{1375}+\frac{\sqrt{-2x+1}\sqrt{5x+3}\left(\frac{704025x}{2}+\frac{807345}{8}\right)}{1237500}+\frac{35511\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{200000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4*(1-2*x)**(1/2)/(3+5*x)**(5/2),x)
```

```
[Out] -2*sqrt(-2*x + 1)*(3*x + 2)**4/(15*(5*x + 3)**(3/2)) - 524*sqrt(-
2*x + 1)*(3*x + 2)**3/(825*sqrt(5*x + 3)) + 623*sqrt(-2*x + 1)*(3
*x + 2)**2*sqrt(5*x + 3)/1375 + sqrt(-2*x + 1)*sqrt(5*x + 3)*(704
025*x/2 + 807345/8)/1237500 + 35511*sqrt(10)*asin(sqrt(22)*sqrt(5
*x + 3)/11)/200000
```

Mathematica [A] time = 0.210641, size = 70, normalized size = 0.49

$$\frac{\frac{10\sqrt{1-2x}(3564000x^4+8999100x^3+6384015x^2+995870x-218953)}{(5x+3)^{3/2}}-1171863\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{6600000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(2 + 3*x)^4)/(3 + 5*x)^(5/2),x]
```

```
[Out] ((10*Sqrt[1 - 2*x]*(-218953 + 995870*x + 6384015*x^2 + 8999100*x^
3 + 3564000*x^4))/(3 + 5*x)^(3/2) - 1171863*Sqrt[10]*ArcSin[Sqrt[
5/11]*Sqrt[1 - 2*x]])/6600000
```

Maple [A] time = 0.021, size = 147, normalized size = 1.

$$\frac{1}{13200000}\left(71280000\,x^4\sqrt{-10\,x^2-x+3}+29296575\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x^2+179982000\,x^3\sqrt{-10\,x^2-x+3}+351558$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4*(1-2*x)^(1/2)/(3+5*x)^(5/2),x)
```

```
[Out] 1/13200000*(71280000*x^4*(-10*x^2-x+3)^(1/2)+29296575*10^(1/2)*ar
csin(20/11*x+1/11)*x^2+179982000*x^3*(-10*x^2-x+3)^(1/2)+35155890
*10^(1/2)*arcsin(20/11*x+1/11)*x+127680300*x^2*(-10*x^2-x+3)^(1/2
)+10546767*10^(1/2)*arcsin(20/11*x+1/11)+19917400*x*(-10*x^2-x+3)
^(1/2)-4379060*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)/(-10*x^2-x+3)^(
1/2)/(3+5*x)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4*sqrt(-2*x + 1)/(5*x + 3)^(5/2),x, algorithm="maxima")
```

```
[Out] Timed out
```

Fricas [A] time = 0.222463, size = 127, normalized size = 0.89

$$\frac{\sqrt{10}\left(2\,\sqrt{10}\left(3564000\,x^4+8999100\,x^3+6384015\,x^2+995870\,x-218953\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+1171863\,\left(25\,x^2+30\,x+9\right)\,\mathrm{a}}{13200000\,(25\,x^2+30\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4*sqrt(-2*x + 1)/(5*x + 3)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/13200000*sqrt(10)*(2*sqrt(10)*(3564000*x^4 + 8999100*x^3 + 6384
015*x^2 + 995870*x - 218953)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 11718
63*(25*x^2 + 30*x + 9)*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x
+ 3)*sqrt(-2*x + 1))))/(25*x^2 + 30*x + 9)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4*(1-2*x)**(1/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.315704, size = 255, normalized size = 1.8

$$\frac{27}{500000}\left(4\left(8\sqrt{5}(5x+3)+5\sqrt{5}\right)(5x+3)-475\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5} - \frac{\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^{3}}{8250000\,(5x+3)^{\frac{3}{2}}} + \frac{35511}{200000}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right) - \frac{263\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}{687500\sqrt{5x+3}} + \frac{\left(\frac{789\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^{2}}{5x+3}+4\sqrt{10}\right)(5x+3)^{\frac{3}{2}}}{515625\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^4*sqrt(-2*x + 1)/(5*x + 3)^(5/2),x, algorithm="giac")
```

```
[Out] 27/500000*(4*(8*sqrt(5)*(5*x + 3) + 5*sqrt(5))*(5*x + 3) - 475*sq
rt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5) - 1/8250000*sqrt(10)*(sqrt(2
)*sqrt(-10*x + 5) - sqrt(22))^3/(5*x + 3)^(3/2) + 35511/200000*sq
rt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) - 263/687500*sqrt(10)*
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) + 1/515625*(78
9*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) + 4*s
qrt(10))*(5*x + 3)^(3/2)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^3
```

3.2302 $\int \frac{\sqrt{1-2x}(2+3x)^3}{(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=113

$$-\frac{2\sqrt{1-2x}(3x+2)^3}{15(5x+3)^{3/2}}-\frac{392\sqrt{1-2x}(3x+2)^2}{825\sqrt{5x+3}}+\frac{7\sqrt{1-2x}\sqrt{5x+3}(1740x+1243)}{11000}+\frac{1071\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{1000\sqrt{10}}$$

```
[Out] (-2*Sqrt[1 - 2*x]*(2 + 3*x)^3)/(15*(3 + 5*x)^(3/2)) - (392*Sqrt[1
 - 2*x]*(2 + 3*x)^2)/(825*Sqrt[3 + 5*x]) + (7*Sqrt[1 - 2*x]*Sqrt[
3 + 5*x]*(1243 + 1740*x))/11000 + (1071*ArcSin[Sqrt[2/11]*Sqrt[3
+ 5*x]])/(1000*Sqrt[10])
```

Rubi [A] time = 0.191253, antiderivative size = 113, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$-\frac{2\sqrt{1-2x}(3x+2)^3}{15(5x+3)^{3/2}}-\frac{392\sqrt{1-2x}(3x+2)^2}{825\sqrt{5x+3}}+\frac{7\sqrt{1-2x}\sqrt{5x+3}(1740x+1243)}{11000}+\frac{1071\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{1000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(2 + 3*x)^3)/(3 + 5*x)^(5/2),x]
```


```
[Out] (-2*Sqrt[1 - 2*x]*(2 + 3*x)^3)/(15*(3 + 5*x)^(3/2)) - (392*Sqrt[1
 - 2*x]*(2 + 3*x)^2)/(825*Sqrt[3 + 5*x]) + (7*Sqrt[1 - 2*x]*Sqrt[
3 + 5*x]*(1243 + 1740*x))/11000 + (1071*ArcSin[Sqrt[2/11]*Sqrt[3
+ 5*x]])/(1000*Sqrt[10])
```

Rubi in Sympy [A] time = 19.0309, size = 104, normalized size = 0.92

$$-\frac{2\sqrt{-2x+1}\,(3x+2)^3}{15\,(5x+3)^{\frac{3}{2}}}-\frac{392\sqrt{-2x+1}\,(3x+2)^2}{825\sqrt{5x+3}}+\frac{\sqrt{-2x+1}\sqrt{5x+3}\left(45675x+\frac{130515}{4}\right)}{41250}+\frac{1071\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{10000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3*(1-2*x)**(1/2)/(3+5*x)**(5/2),x)
```

```
[Out] -2*sqrt(-2*x + 1)*(3*x + 2)**3/(15*(5*x + 3)**(3/2)) - 392*sqrt(-
2*x + 1)*(3*x + 2)**2/(825*sqrt(5*x + 3)) + sqrt(-2*x + 1)*sqrt(5
*x + 3)*(45675*x + 130515/4)/41250 + 1071*sqrt(10)*asin(sqrt(22)*
sqrt(5*x + 3)/11)/10000
```

Mathematica [A] time = 0.174709, size = 65, normalized size = 0.58

$$\frac{\frac{10\sqrt{1-2x}(89100x^3+147015x^2+75470x+11567)}{(5x+3)^{3/2}}-35343\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{330000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(2 + 3*x)^3)/(3 + 5*x)^(5/2),x]
```

```
[Out] ((10*Sqrt[1 - 2*x]*(11567 + 75470*x + 147015*x^2 + 89100*x^3))/(3
 + 5*x)^(3/2) - 35343*Sqrt[10]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/
330000
```

Maple [A] time = 0.018, size = 130, normalized size = 1.2

$$\frac{1}{660000}\left(883575\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)x^2+1782000x^3\sqrt{-10x^2-x+3}+1060290\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)x+29403\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3*(1-2*x)^(1/2)/(3+5*x)^(5/2),x)
```

```
[Out] 1/660000*(883575*10^(1/2)*arcsin(20/11*x+1/11)*x^2+1782000*x^3*(-
10*x^2-x+3)^(1/2)+1060290*10^(1/2)*arcsin(20/11*x+1/11)*x+2940300
*x^2*(-10*x^2-x+3)^(1/2)+318087*10^(1/2)*arcsin(20/11*x+1/11)+150
9400*x*(-10*x^2-x+3)^(1/2)+231340*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1
/2)/(-10*x^2-x+3)^(1/2)/(3+5*x)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^3*sqrt(-2*x + 1)/(5*x + 3)^(5/2),x, algorithm="maxima")
```

```
[Out] Timed out
```

Fricas [A] time = 0.221162, size = 120, normalized size = 1.06

$$\frac{\sqrt{10}\left(2\sqrt{10}\left(89100x^3+147015x^2+75470x+11567\right)\sqrt{5x+3}\sqrt{-2x+1}+35343\left(25x^2+30x+9\right)\arctan\left(\frac{\sqrt{10}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)\right.}{660000\left(25x^2+30x+9\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^3*sqrt(-2*x + 1)/(5*x + 3)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/660000*sqrt(10)*(2*sqrt(10)*(89100*x^3 + 147015*x^2 + 75470*x +
 11567)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 35343*(25*x^2 + 30*x + 9)*
arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/
(25*x^2 + 30*x + 9)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3*(1-2*x)**(1/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.297112, size = 238, normalized size = 2.11

$$\frac{27}{25000}\left(4\sqrt{5}(5x+3)-3\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}-\frac{\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^{3}}{1650000\,(5x+3)^{\frac{3}{2}}}+\frac{1071}{10000}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)-\frac{197\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}{137500\sqrt{5x+3}}+\frac{\left(\frac{591\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^{2}}{5x+3}+4\sqrt{10}\right)(5x+3)^{\frac{3}{2}}}{103125\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^3*sqrt(-2*x + 1)/(5*x + 3)^(5/2),x, algorithm="giac")
```

```
[Out] 27/25000*(4*sqrt(5)*(5*x + 3) - 3*sqrt(5))*sqrt(5*x + 3)*sqrt(-10
*x + 5) - 1/1650000*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))
^3/(5*x + 3)^(3/2) + 1071/10000*sqrt(10)*arcsin(1/11*sqrt(22)*sqr
t(5*x + 3)) - 197/137500*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt
(22))/sqrt(5*x + 3) + 1/103125*(591*sqrt(10)*(sqrt(2)*sqrt(-10*x
+ 5) - sqrt(22))^2/(5*x + 3) + 4*sqrt(10))*(5*x + 3)^(3/2)/(sqrt(
2)*sqrt(-10*x + 5) - sqrt(22))^3
```

3.2303 $\int \frac{\sqrt{1-2x}(2+3x)^2}{(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=94

$$-\frac{12(1-2x)^{3/2}}{275\sqrt{5x+3}}-\frac{2(1-2x)^{3/2}}{825(5x+3)^{3/2}}+\frac{3}{55}\sqrt{5x+3}\sqrt{1-2x}+\frac{3\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{5\sqrt{10}}$$

```
[Out] (-2*(1 - 2*x)^(3/2))/(825*(3 + 5*x)^(3/2)) - (12*(1 - 2*x)^(3/2))
/(275*Sqrt[3 + 5*x]) + (3*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/55 + (3*Ar
cSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(5*Sqrt[10])
```

Rubi [A] time = 0.117089, antiderivative size = 94, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.192$

$$-\frac{12(1-2x)^{3/2}}{275\sqrt{5x+3}}-\frac{2(1-2x)^{3/2}}{825(5x+3)^{3/2}}+\frac{3}{55}\sqrt{5x+3}\sqrt{1-2x}+\frac{3\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{5\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(2 + 3*x)^2)/(3 + 5*x)^(5/2),x]
```

```
[Out] (-2*(1 - 2*x)^(3/2))/(825*(3 + 5*x)^(3/2)) - (12*(1 - 2*x)^(3/2))
/(275*Sqrt[3 + 5*x]) + (3*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/55 + (3*Ar
cSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(5*Sqrt[10])
```

Rubi in Sympy [A] time = 10.6196, size = 85, normalized size = 0.9

$$-\frac{12\left(-2x+1\right)^{\frac{3}{2}}}{275\sqrt{5x+3}}-\frac{2\left(-2x+1\right)^{\frac{3}{2}}}{825\left(5x+3\right)^{\frac{3}{2}}}+\frac{3\sqrt{-2x+1}\sqrt{5x+3}}{55}+\frac{3\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{50}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2*(1-2*x)**(1/2)/(3+5*x)**(5/2),x)
```

```
[Out] -12*(-2*x + 1)**(3/2)/(275*sqrt(5*x + 3)) - 2*(-2*x + 1)**(3/2)/(
825*(5*x + 3)**(3/2)) + 3*sqrt(-2*x + 1)*sqrt(5*x + 3)/55 + 3*sqr
t(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/50
```

Mathematica [A] time = 0.148167, size = 60, normalized size = 0.64

$$\frac{\sqrt{1-2x}\left(297x^2+278x+59\right)}{165(5x+3)^{3/2}}-\frac{3\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{5\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(2 + 3*x)^2)/(3 + 5*x)^(5/2),x]
```

```
[Out] (Sqrt[1 - 2*x]*(59 + 278*x + 297*x^2))/(165*(3 + 5*x)^(3/2)) - (3
*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/(5*Sqrt[10])
```

Maple [A] time = 0.016, size = 113, normalized size = 1.2

$$\frac{1}{3300}\left(2475\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)x^2+2970\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)x+5940x^2\sqrt{-10x^2-x+3}+891\sqrt{10}\arcsin\left(\frac{2}{}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2*(1-2*x)^(1/2)/(3+5*x)^(5/2),x)
```

```
[Out] 1/3300*(2475*10^(1/2)*arcsin(20/11*x+1/11)*x^2+2970*10^(1/2)*arcs
in(20/11*x+1/11)*x+5940*x^2*(-10*x^2-x+3)^(1/2)+891*10^(1/2)*arcs
in(20/11*x+1/11)+5560*x*(-10*x^2-x+3)^(1/2)+1180*(-10*x^2-x+3)^(1
/2))*(1-2*x)^(1/2)/(-10*x^2-x+3)^(1/2)/(3+5*x)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*sqrt(-2*x + 1)/(5*x + 3)^(5/2),x, algorithm="maxima")
```

```
[Out] Timed out
```

Fricas [A] time = 0.223124, size = 113, normalized size = 1.2

$$\frac{\sqrt{10}\left(2\sqrt{10}\left(297x^2+278x+59\right)\sqrt{5x+3}\sqrt{-2x+1}+99\left(25x^2+30x+9\right)\arctan\left(\frac{\sqrt{10}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)}{3300\left(25x^2+30x+9\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*sqrt(-2*x + 1)/(5*x + 3)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/3300*sqrt(10)*(2*sqrt(10)*(297*x^2 + 278*x + 59)*sqrt(5*x + 3)*
sqrt(-2*x + 1) + 99*(25*x^2 + 30*x + 9)*arctan(1/20*sqrt(10)*(20*
x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(25*x^2 + 30*x + 9)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2*(1-2*x)**(1/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.287414, size = 220, normalized size = 2.34

$$-\frac{\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^3}{330000\,(5x+3)^{\frac{3}{2}}}+\frac{9}{625}\sqrt{5}\sqrt{5x+3}\sqrt{-10x+5}+\frac{3}{50}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)$$
$$-\frac{131\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}{27500\sqrt{5x+3}}+\frac{\left(\frac{393\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}+4\sqrt{10}\right)(5x+3)^{\frac{3}{2}}}{20625\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2*sqrt(-2*x + 1)/(5*x + 3)^(5/2),x, algorithm="giac")
```

```
[Out] -1/330000*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^3/(5*x +
3)^(3/2) + 9/625*sqrt(5)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 3/50*sqr
t(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) - 131/27500*sqrt(10)*(s
qrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) + 1/20625*(393*s
qrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) + 4*sqrt
(10))*(5*x + 3)^(3/2)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^3
```

3.2304 $\int \frac{\sqrt{1-2x}(2+3x)}{(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=74

$$-\frac{2(1-2x)^{3/2}}{165(5x+3)^{3/2}}-\frac{6\sqrt{1-2x}}{25\sqrt{5x+3}}-\frac{6}{25}\sqrt{\frac{2}{5}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)$$

```
[Out] (-2*(1 - 2*x)^(3/2))/(165*(3 + 5*x)^(3/2)) - (6*Sqrt[1 - 2*x])/(2
5*Sqrt[3 + 5*x]) - (6*Sqrt[2/5]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])
/25
```

Rubi [A] time = 0.0738079, antiderivative size = 74, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$-\frac{2(1-2x)^{3/2}}{165(5x+3)^{3/2}}-\frac{6\sqrt{1-2x}}{25\sqrt{5x+3}}-\frac{6}{25}\sqrt{\frac{2}{5}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(2 + 3*x))/(3 + 5*x)^(5/2),x]
```

```
[Out] (-2*(1 - 2*x)^(3/2))/(165*(3 + 5*x)^(3/2)) - (6*Sqrt[1 - 2*x])/(2
5*Sqrt[3 + 5*x]) - (6*Sqrt[2/5]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])
/25
```

Rubi in Sympy [A] time = 7.43451, size = 66, normalized size = 0.89

$$-\frac{2\left(-2x+1\right)^{\frac{3}{2}}}{165\left(5x+3\right)^{\frac{3}{2}}}-\frac{6\sqrt{-2x+1}}{25\sqrt{5x+3}}-\frac{6\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)*(1-2*x)**(1/2)/(3+5*x)**(5/2),x)
```

```
[Out] -2*(-2*x + 1)**(3/2)/(165*(5*x + 3)**(3/2)) - 6*sqrt(-2*x + 1)/(2
5*sqrt(5*x + 3)) - 6*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/125
```

Mathematica [A] time = 0.124624, size = 57, normalized size = 0.77

$$\frac{6}{25}\sqrt{\frac{2}{5}}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)-\frac{2\sqrt{1-2x}(485x+302)}{825(5x+3)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(2 + 3*x))/(3 + 5*x)^(5/2),x]
```

```
[Out] (-2*Sqrt[1 - 2*x]*(302 + 485*x))/(825*(3 + 5*x)^(3/2)) + (6*Sqrt[
2/5]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/25
```

Maple [A] time = 0.015, size = 96, normalized size = 1.3

$$-\frac{1}{4125}\left(2475\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)x^2+2970\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)x+891\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)+4850x\sqrt{-}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((2+3*x)*(1-2*x)^(1/2)/(3+5*x)^(5/2),x)
```

```
[Out] -1/4125*(2475*10^(1/2)*arcsin(20/11*x+1/11)*x^2+2970*10^(1/2)*arc
sin(20/11*x+1/11)*x+891*10^(1/2)*arcsin(20/11*x+1/11)+4850*x*(-10
*x^2-x+3)^(1/2)+3020*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)/(-10*x^2-
x+3)^(1/2)/(3+5*x)^(3/2)
```

Maxima [A] time = 1.60761, size = 65, normalized size = 0.88

$$-\frac{4\sqrt{-10\,x^2-x+3}}{15\,(25\,x^2+30\,x+9)}+\frac{8\sqrt{-10\,x^2-x+3}}{165\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)*sqrt(-2*x + 1)/(5*x + 3)^(5/2),x, algorithm="maxima")
```

```
[Out] -4/15*sqrt(-10*x^2 - x + 3)/(25*x^2 + 30*x + 9) + 8/165*sqrt(-10*
x^2 - x + 3)/(5*x + 3)
```

Fricas [A] time = 0.216955, size = 115, normalized size = 1.55

$$-\frac{\sqrt{5}\left(2\sqrt{5}(485\,x+302)\sqrt{5\,x+3}\sqrt{-2\,x+1}+99\sqrt{2}\left(25\,x^2+30\,x+9\right)\arctan\left(\frac{\sqrt{5}\sqrt{2}(20\,x+1)}{20\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)}{4125\,(25\,x^2+30\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)*sqrt(-2*x + 1)/(5*x + 3)^(5/2),x, algorithm="fricas")
```

```
[Out] -1/4125*sqrt(5)*(2*sqrt(5)*(485*x + 302)*sqrt(5*x + 3)*sqrt(-2*x
+ 1) + 99*sqrt(2)*(25*x^2 + 30*x + 9)*arctan(1/20*sqrt(5)*sqrt(2)
*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(25*x^2 + 30*x + 9)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{\sqrt{-2x+1}\,(3x+2)}{(5x+3)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((2+3*x)*(1-2*x)**(1/2)/(3+5*x)**(5/2),x)
```

```
[Out] Integral(sqrt(-2*x + 1)*(3*x + 2)/(5*x + 3)**(5/2), x)
```

GIAC/XCAS [A] time = 0.277727, size = 194, normalized size = 2.62

$$-\frac{\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^3}{66000\,(5\,x+3)^{\frac{3}{2}}}-\frac{6}{125}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5\,x+3}\right)$$
$$-\frac{13\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}{1100\sqrt{5\,x+3}}+\frac{\left(\frac{195\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3}+4\sqrt{10}\right)(5\,x+3)^{\frac{3}{2}}}{4125\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)*sqrt(-2*x + 1)/(5*x + 3)^(5/2),x, algorithm="giac")
```

```
[Out] -1/66000*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^3/(5*x + 3
)^(3/2) - 6/125*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) - 13
/1100*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3)
 + 1/4125*(195*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5
*x + 3) + 4*sqrt(10))*(5*x + 3)^(3/2)/(sqrt(2)*sqrt(-10*x + 5) -
sqrt(22))^3
```

3.2305 $\int \frac{\sqrt{1-2x}}{(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=22

$$-\frac{2(1-2x)^{3/2}}{33(5x+3)^{3/2}}$$

```
[Out] (-2*(1 - 2*x)^(3/2))/(33*(3 + 5*x)^(3/2))
```

Rubi [A] time = 0.0158401, antiderivative size = 22, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.053

$$-\frac{2(1-2x)^{3/2}}{33(5x+3)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]/(3 + 5*x)^(5/2),x]

[Out] (-2*(1 - 2*x)^(3/2))/(33*(3 + 5*x)^(3/2))
```

Rubi in Sympy [A] time = 2.84319, size = 20, normalized size = 0.91

$$-\frac{2\left(-2x+1\right)^{\frac{3}{2}}}{33\left(5x+3\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)/(3+5*x)**(5/2),x)

[Out] -2*(-2*x + 1)**(3/2)/(33*(5*x + 3)**(3/2))
```

Mathematica [A] time = 0.0297559, size = 22, normalized size = 1.

$$-\frac{2(1-2x)^{3/2}}{33(5x+3)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]/(3 + 5*x)^(5/2),x]

[Out] (-2*(1 - 2*x)^(3/2))/(33*(3 + 5*x)^(3/2))
```

Maple [A] time = 0.004, size = 17, normalized size = 0.8

$$-\frac{2}{33}\left(1-2\,x\right)^{\frac{3}{2}}\left(3+5\,x\right)^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)/(3+5*x)^(5/2),x)
```

```
[Out] -2/33*(1-2*x)^(3/2)/(3+5*x)^(3/2)
```

Maxima [A] time = 1.50095, size = 65, normalized size = 2.95

$$-\frac{2\sqrt{-10x^2-x+3}}{15(25x^2+30x+9)}+\frac{4\sqrt{-10x^2-x+3}}{165(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/(5*x + 3)^(5/2),x, algorithm="maxima")
```

```
[Out] -2/15*sqrt(-10*x^2 - x + 3)/(25*x^2 + 30*x + 9) + 4/165*sqrt(-10*
x^2 - x + 3)/(5*x + 3)
```

Fricas [A] time = 0.213066, size = 45, normalized size = 2.05

$$\frac{2\sqrt{5x+3}(2x-1)\sqrt{-2x+1}}{33(25x^2+30x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/(5*x + 3)^(5/2),x, algorithm="fricas")
```

```
[Out] 2/33*sqrt(5*x + 3)*(2*x - 1)*sqrt(-2*x + 1)/(25*x^2 + 30*x + 9)
```

Sympy [A] time = 5.09661, size = 100, normalized size = 4.55

$$\begin{cases}\frac{4\sqrt{10}\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}}{825}-\frac{2\sqrt{10}\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}}{375\left(x+\frac{3}{5}\right)} & \text{for } \frac{11\left|\frac{1}{x+\frac{3}{5}}\right|}{10}>1\\ \frac{4\sqrt{10}i\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}}{825}-\frac{2\sqrt{10}i\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}}{375\left(x+\frac{3}{5}\right)} & \text{otherwise}\end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)/(3+5*x)**(5/2),x)
```

```
[Out] Piecewise((4*sqrt(10)*sqrt(-1 + 11/(10*(x + 3/5)))/825 - 2*sqrt(1
0)*sqrt(-1 + 11/(10*(x + 3/5)))/(375*(x + 3/5)), 11*Abs(1/(x + 3/
5))/10 > 1), (4*sqrt(10)*I*sqrt(1 - 11/(10*(x + 3/5)))/825 - 2*sq
rt(10)*I*sqrt(1 - 11/(10*(x + 3/5)))/(375*(x + 3/5)), True))
```

GIAC/XCAS [A] time = 0.234299, size = 176, normalized size = 8.

$$-\frac{1}{13200}\sqrt{5}\left(\frac{\sqrt{2}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^3}{(5x+3)^{\frac{3}{2}}}-\frac{12\sqrt{2}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}{\sqrt{5x+3}}+\frac{16\left(\frac{3\sqrt{2}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\sqrt{2}\right)(5x+3)^{\frac{3}{2}}}{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/(5*x + 3)^(5/2),x, algorithm="giac")
```

```
[Out] -1/13200*sqrt(5)*(sqrt(2)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^3/
(5*x + 3)^(3/2) - 12*sqrt(2)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))
/sqrt(5*x + 3) + 16*(3*sqrt(2)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22
))^2/(5*x + 3) - 4*sqrt(2))*(5*x + 3)^(3/2)/(sqrt(2)*sqrt(-10*x +
 5) - sqrt(22))^3)
```

3.2306 $\int \frac{\sqrt{1-2x}}{(2+3x)(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=75

$$-\frac{10(1-2x)^{3/2}}{33(5x+3)^{3/2}}+\frac{6\sqrt{1-2x}}{\sqrt{5x+3}}-6\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

```
[Out] (-10*(1 - 2*x)^(3/2))/(33*(3 + 5*x)^(3/2)) + (6*Sqrt[1 - 2*x])/Sq
rt[3 + 5*x] - 6*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*
x])]
```

Rubi [A] time = 0.121871, antiderivative size = 75, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$-\frac{10(1-2x)^{3/2}}{33(5x+3)^{3/2}}+\frac{6\sqrt{1-2x}}{\sqrt{5x+3}}-6\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]/((2 + 3*x)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (-10*(1 - 2*x)^(3/2))/(33*(3 + 5*x)^(3/2)) + (6*Sqrt[1 - 2*x])/Sq
rt[3 + 5*x] - 6*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*
x])]
```

Rubi in Sympy [A] time = 10.0923, size = 70, normalized size = 0.93

$$-\frac{10\left(-2x+1\right)^{\frac{3}{2}}}{33\left(5x+3\right)^{\frac{3}{2}}}+\frac{6\sqrt{-2x+1}}{\sqrt{5x+3}}-6\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)/(2+3*x)/(3+5*x)**(5/2),x)
```

```
[Out] -10*(-2*x + 1)**(3/2)/(33*(5*x + 3)**(3/2)) + 6*sqrt(-2*x + 1)/sq
rt(5*x + 3) - 6*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x +
 3)))
```

Mathematica [A] time = 0.110884, size = 63, normalized size = 0.84

$$\frac{2\sqrt{1-2x}(505x+292)}{33(5x+3)^{3/2}}-3\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]/((2 + 3*x)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (2*Sqrt[1 - 2*x]*(292 + 505*x))/(33*(3 + 5*x)^(3/2)) - 3*Sqrt[7]*
ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])]
```

Maple [B] time = 0.02, size = 147, normalized size = 2.

$$\frac{1}{33}\left(2475\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^2+2970\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x+891\sqrt{7}\arctan\left(1/14\,\frac{(37\,x\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)/(2+3*x)/(3+5*x)^(5/2),x)
```

```
[Out] 1/33*(2475*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1
/2))*x^2+2970*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)
^(1/2))*x+891*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)
^(1/2))+1010*x*(-10*x^2-x+3)^(1/2)+584*(-10*x^2-x+3)^(1/2))*(1-2*
x)^(1/2)/(-10*x^2-x+3)^(1/2)/(3+5*x)^(3/2)
```

Maxima [A] time = 1.51638, size = 117, normalized size = 1.56

$$3\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)-\frac{404\,x}{33\,\sqrt{-10\,x^2-x+3}}+\frac{1054}{165\,\sqrt{-10\,x^2-x+3}}+\frac{44\,x}{15\,(-10\,x^2-x+3)^{\frac{3}{2}}}-\frac{22}{15\,(-10\,x^2-x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/((5*x + 3)^(5/2)*(3*x + 2)),x, algorithm="maxima")
```

```
[Out] 3*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) - 404
/33*x/sqrt(-10*x^2 - x + 3) + 1054/165/sqrt(-10*x^2 - x + 3) + 44
/15*x/(-10*x^2 - x + 3)^(3/2) - 22/15/(-10*x^2 - x + 3)^(3/2)
```

Fricas [A] time = 0.219398, size = 103, normalized size = 1.37

$$\frac{99\sqrt{7}\left(25\,x^2+30\,x+9\right)\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)+2\,(505\,x+292)\sqrt{5\,x+3}\sqrt{-2\,x+1}}{33\,(25\,x^2+30\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/((5*x + 3)^(5/2)*(3*x + 2)),x, algorithm="fricas")
```

```
[Out] 1/33*(99*sqrt(7)*(25*x^2 + 30*x + 9)*arctan(1/14*sqrt(7)*(37*x +
20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))) + 2*(505*x + 292)*sqrt(5*x +
3)*sqrt(-2*x + 1))/(25*x^2 + 30*x + 9)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)/(2+3*x)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.254334, size = 267, normalized size = 3.56

$$-\frac{1}{2640}\sqrt{5}\left(\sqrt{2}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^3-792\,\sqrt{70}\sqrt{2}\left(\pi+2\,\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{\cdots}\right.}{5\,x+3}\right.}{140\left(\sqrt{2}\sqrt{-10\,x+5}-\cdots\right.}\right.\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/((5*x + 3)^(5/2)*(3*x + 2)),x, algorithm="giac")
```

```
[Out] -1/2640*sqrt(5)*(sqrt(2)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sq
rt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)
))^3 - 792*sqrt(70)*sqrt(2)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5
*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(s
qrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 792*sqrt(2)*((sqrt(2)*sqrt
(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*
sqrt(-10*x + 5) - sqrt(22))))
```

3.2307 $\int \frac{\sqrt{1-2x}}{(2+3x)^2(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=103

$$\frac{2495\sqrt{1-2x}}{33\sqrt{5x+3}}-\frac{25\sqrt{1-2x}}{3(5x+3)^{3/2}}+\frac{\sqrt{1-2x}}{(3x+2)(5x+3)^{3/2}}-\frac{519\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{\sqrt{7}}$$

```
[Out] (-25*Sqrt[1 - 2*x])/(3*(3 + 5*x)^(3/2)) + Sqrt[1 - 2*x]/((2 + 3*x
)*(3 + 5*x)^(3/2)) + (2495*Sqrt[1 - 2*x])/(33*Sqrt[3 + 5*x]) - (5
19*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/Sqrt[7]
```

Rubi [A] time = 0.225076, antiderivative size = 103, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$\frac{2495\sqrt{1-2x}}{33\sqrt{5x+3}}-\frac{25\sqrt{1-2x}}{3(5x+3)^{3/2}}+\frac{\sqrt{1-2x}}{(3x+2)(5x+3)^{3/2}}-\frac{519\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In] Int[Sqrt[1 - 2*x]/((2 + 3*x)^2*(3 + 5*x)^(5/2)),x]
```

```
[Out] (-25*Sqrt[1 - 2*x])/(3*(3 + 5*x)^(3/2)) + Sqrt[1 - 2*x]/((2 + 3*x
)*(3 + 5*x)^(3/2)) + (2495*Sqrt[1 - 2*x])/(33*Sqrt[3 + 5*x]) - (5
19*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/Sqrt[7]
```

Rubi in Sympy [A] time = 21.3321, size = 95, normalized size = 0.92

$$\frac{2495\sqrt{-2x+1}}{33\sqrt{5x+3}}-\frac{25\sqrt{-2x+1}}{3\,(5x+3)^{\frac{3}{2}}}+\frac{\sqrt{-2x+1}}{(3x+2)\,(5x+3)^{\frac{3}{2}}}-\frac{519\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**(1/2)/(2+3*x)**2/(3+5*x)**(5/2),x)
```

```
[Out] 2495*sqrt(-2*x + 1)/(33*sqrt(5*x + 3)) - 25*sqrt(-2*x + 1)/(3*(5*
x + 3)**(3/2)) + sqrt(-2*x + 1)/((3*x + 2)*(5*x + 3)**(3/2)) - 51
9*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/7
```

Mathematica [A] time = 0.0918607, size = 77, normalized size = 0.75

$$\frac{\sqrt{1-2x}\left(37425x^2+46580x+14453\right)}{33(3x+2)(5x+3)^{3/2}}-\frac{519\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{2\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In] Integrate[Sqrt[1 - 2*x]/((2 + 3*x)^2*(3 + 5*x)^(5/2)),x]
```

```
[Out] (Sqrt[1 - 2*x]*(14453 + 46580*x + 37425*x^2))/(33*(2 + 3*x)*(3 +
5*x)^(3/2)) - (519*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 +
 5*x])])/(2*Sqrt[7])
```

Maple [B] time = 0.02, size = 202, normalized size = 2.

$$\frac{1}{924+1386\,x}\left(1284525\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^3+2397780\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^2+1490049\,\sqrt{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)/(2+3*x)^2/(3+5*x)^(5/2),x)
```

```
[Out] 1/462*(1284525*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3
)^(1/2))*x^3+2397780*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x
^2-x+3)^(1/2))*x^2+1490049*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/
(-10*x^2-x+3)^(1/2))*x+523950*x^2*(-10*x^2-x+3)^(1/2)+308286*7^(1
/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+652120*x*(
-10*x^2-x+3)^(1/2)+202342*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)/(2+3
*x)/(-10*x^2-x+3)^(1/2)/(3+5*x)^(3/2)
```

Maxima [A] time = 1.50547, size = 163, normalized size = 1.58

$$\frac{519}{14}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)-\frac{4990\,x}{33\,\sqrt{-10\,x^2-x+3}}+\frac{2605}{33\,\sqrt{-10\,x^2-x+3}}+\frac{38\,x}{(-10\,x^2-x+3)^{\frac{3}{2}}}+\frac{49}{9\left(3\,(-10\,x^2-x+3)^{\frac{3}{2}}x+2\,(-10\,x^2-x+3)^{\frac{3}{2}}\right)}-\frac{185}{9\,(-10\,x^2-x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/((5*x + 3)^(5/2)*(3*x + 2)^2),x, algorithm="maxima")
```

```
[Out] 519/14*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2))
- 4990/33*x/sqrt(-10*x^2 - x + 3) + 2605/33/sqrt(-10*x^2 - x + 3)
 + 38*x/(-10*x^2 - x + 3)^(3/2) + 49/9/(3*(-10*x^2 - x + 3)^(3/2)
*x + 2*(-10*x^2 - x + 3)^(3/2)) - 185/9/(-10*x^2 - x + 3)^(3/2)
```

Fricas [A] time = 0.220467, size = 127, normalized size = 1.23

$$\frac{\sqrt{7}\left(2\,\sqrt{7}\left(37425\,x^2+46580\,x+14453\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+17127\left(75\,x^3+140\,x^2+87\,x+18\right)\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)}{462\,(75\,x^3+140\,x^2+87\,x+18)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/((5*x + 3)^(5/2)*(3*x + 2)^2),x, algorithm="fricas")
```

```
[Out] 1/462*sqrt(7)*(2*sqrt(7)*(37425*x^2 + 46580*x + 14453)*sqrt(5*x +
 3)*sqrt(-2*x + 1) + 17127*(75*x^3 + 140*x^2 + 87*x + 18)*arctan(
1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(75*x^3
 + 140*x^2 + 87*x + 18)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)/(2+3*x)**2/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.307327, size = 429, normalized size = 4.17

$$-\frac{1}{18480}\sqrt{5}\left(35\sqrt{2}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^{3}-68508\sqrt{70}\sqrt{2}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-1\cdots}\right.}{5\cdots}\right.}{140\left(\sqrt{2}\sqrt{-10x\cdots}\right.}\right.\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/((5*x + 3)^(5/2)*(3*x + 2)^2),x, algorithm="giac")
```

```
[Out] -1/18480*sqrt(5)*(35*sqrt(2)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22)
)/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt
(22)))^3 - 68508*sqrt(70)*sqrt(2)*(pi + 2*arctan(-1/140*sqrt(70)*
sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) -
 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 55440*sqrt(2)*((sqrt
(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(
sqrt(2)*sqrt(-10*x + 5) - sqrt(22))) - 3659040*sqrt(2)*((sqrt(2)*
sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt
(2)*sqrt(-10*x + 5) - sqrt(22)))/(((sqrt(2)*sqrt(-10*x + 5) - sqr
t(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) -
 sqrt(22)))^2 + 280))
```

3.2308 $\int \frac{\sqrt{1-2x}}{(2+3x)^3(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=137

$$\frac{608185\sqrt{1-2x}}{924\sqrt{5x+3}}-\frac{6095\sqrt{1-2x}}{84(5x+3)^{3/2}}+\frac{243\sqrt{1-2x}}{28(3x+2)(5x+3)^{3/2}}+\frac{\sqrt{1-2x}}{2(3x+2)^2(5x+3)^{3/2}}-\frac{126513\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{28\sqrt{7}}$$

```
[Out] (-6095*Sqrt[1 - 2*x])/(84*(3 + 5*x)^(3/2)) + Sqrt[1 - 2*x]/(2*(2
+ 3*x)^2*(3 + 5*x)^(3/2)) + (243*Sqrt[1 - 2*x])/(28*(2 + 3*x)*(3
+ 5*x)^(3/2)) + (608185*Sqrt[1 - 2*x])/(924*Sqrt[3 + 5*x]) - (126
513*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(28*Sqrt[7])
```

Rubi [A] time = 0.312318, antiderivative size = 137, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$\frac{608185\sqrt{1-2x}}{924\sqrt{5x+3}}-\frac{6095\sqrt{1-2x}}{84(5x+3)^{3/2}}+\frac{243\sqrt{1-2x}}{28(3x+2)(5x+3)^{3/2}}+\frac{\sqrt{1-2x}}{2(3x+2)^2(5x+3)^{3/2}}-\frac{126513\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{28\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]/((2 + 3*x)^3*(3 + 5*x)^(5/2)),x]
```

```
[Out] (-6095*Sqrt[1 - 2*x])/(84*(3 + 5*x)^(3/2)) + Sqrt[1 - 2*x]/(2*(2
+ 3*x)^2*(3 + 5*x)^(3/2)) + (243*Sqrt[1 - 2*x])/(28*(2 + 3*x)*(3
+ 5*x)^(3/2)) + (608185*Sqrt[1 - 2*x])/(924*Sqrt[3 + 5*x]) - (126
513*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(28*Sqrt[7])
```

Rubi in Sympy [A] time = 28.9184, size = 124, normalized size = 0.91

$$\frac{608185\sqrt{-2x+1}}{924\sqrt{5x+3}}-\frac{6095\sqrt{-2x+1}}{84\,(5x+3)^{\frac{3}{2}}}+\frac{243\sqrt{-2x+1}}{28\,(3x+2)\,(5x+3)^{\frac{3}{2}}}+\frac{\sqrt{-2x+1}}{2\,(3x+2)^2\,(5x+3)^{\frac{3}{2}}}-\frac{126513\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{196}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)/(2+3*x)**3/(3+5*x)**(5/2),x)
```

```
[Out] 608185*sqrt(-2*x + 1)/(924*sqrt(5*x + 3)) - 6095*sqrt(-2*x + 1)/(
84*(5*x + 3)**(3/2)) + 243*sqrt(-2*x + 1)/(28*(3*x + 2)*(5*x + 3)
**(3/2)) + sqrt(-2*x + 1)/(2*(3*x + 2)**2*(5*x + 3)**(3/2)) - 126
513*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/196
```

Mathematica [A] time = 0.10392, size = 82, normalized size = 0.6

$$\frac{\sqrt{1-2x}\left(27368325x^3+52308690x^2+33277877x+7046540\right)}{924(3x+2)^2(5x+3)^{3/2}}-\frac{126513\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{56\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]/((2 + 3*x)^3*(3 + 5*x)^(5/2)),x]
```

```
[Out] (Sqrt[1 - 2*x]*(7046540 + 33277877*x + 52308690*x^2 + 27368325*x^
3))/(924*(2 + 3*x)^2*(3 + 5*x)^(3/2)) - (126513*ArcTan[(-20 - 37*
```

```
x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/(56*Sqrt[7])
```

Maple [B] time = 0.022, size = 250, normalized size = 1.8

$$\frac{1}{12936\,(2+3x)^2}\left(939359025\sqrt{7}\arctan\left(1/14\,\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)x^4+2379709530\sqrt{7}\arctan\left(1/14\,\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)x^3+2\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)/(2+3*x)^3/(3+5*x)^(5/2),x)
```

```
[Out] 1/12936*(939359025*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2
-x+3)^(1/2))*x^4+2379709530*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)
/(-10*x^2-x+3)^(1/2))*x^3+2258636589*7^(1/2)*arctan(1/14*(37*x+20
)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+383156550*x^3*(-10*x^2-x+3)^(1
/2)+951883812*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)
^(1/2))*x+732321660*x^2*(-10*x^2-x+3)^(1/2)+150297444*7^(1/2)*arc
tan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+465890278*x*(-10*
x^2-x+3)^(1/2)+98651560*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)/(2+3*x
)^2/(-10*x^2-x+3)^(1/2)/(3+5*x)^(3/2)
```

Maxima [A] time = 1.51463, size = 232, normalized size = 1.69

$$\frac{126513}{392}\sqrt{7}\arcsin\left(\frac{37x}{11\,|3x+2|}+\frac{20}{11\,|3x+2|}\right)-\frac{608185x}{462\sqrt{-10x^2-x+3}}+\frac{635003}{924\sqrt{-10x^2-x+3}}+\frac{1985x}{6\,(-10x^2-x+3)^{\frac{3}{2}}}+\frac{49}{18\left(9\,(-10x^2-x+3)^{\frac{3}{2}}x^2+12\,(-10x^2-x+3)^{\frac{3}{2}}x+4\,(-10x^2-x+3)^{\frac{3}{2}}\right)}+\frac{1645}{36\left(3\,(-10x^2-x+3)^{\frac{3}{2}}x+2\,(-10x^2-x+3)^{\frac{3}{2}}\right)}-\frac{6433}{36\,(-10x^2-x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/((5*x + 3)^(5/2)*(3*x + 2)^3),x, algorithm="maxima")
```

```
[Out] 126513/392*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x +
2)) - 608185/462*x/sqrt(-10*x^2 - x + 3) + 635003/924/sqrt(-10*x^
2 - x + 3) + 1985/6*x/(-10*x^2 - x + 3)^(3/2) + 49/18/(9*(-10*x^2
 - x + 3)^(3/2)*x^2 + 12*(-10*x^2 - x + 3)^(3/2)*x + 4*(-10*x^2 -
 x + 3)^(3/2)) + 1645/36/(3*(-10*x^2 - x + 3)^(3/2)*x + 2*(-10*x^
2 - x + 3)^(3/2)) - 6433/36/(-10*x^2 - x + 3)^(3/2)
```

Fricas [A] time = 0.221316, size = 147, normalized size = 1.07

$$\frac{\sqrt{7}\left(2\sqrt{7}\left(27368325x^3+52308690x^2+33277877x+7046540\right)\sqrt{5x+3}\sqrt{-2x+1}+4174929\left(225x^4+570x^3+541x^2+22\right.\right.}{12936\,(225x^4+570x^3+541x^2+228x+36)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/((5*x + 3)^(5/2)*(3*x + 2)^3),x, algorithm="fricas")
```

```
[Out] 1/12936*sqrt(7)*(2*sqrt(7)*(27368325*x^3 + 52308690*x^2 + 3327787
7*x + 7046540)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 4174929*(225*x^4 +
570*x^3 + 541*x^2 + 228*x + 36)*arctan(1/14*sqrt(7)*(37*x + 20)/(
sqrt(5*x + 3)*sqrt(-2*x + 1))))/(225*x^4 + 570*x^3 + 541*x^2 + 22
8*x + 36)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)/(2+3*x)**3/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.364322, size = 509, normalized size = 3.72

$$-\frac{1}{129360}\sqrt{5}\left(1225\sqrt{2}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3-4174929\sqrt{70}\sqrt{2}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\right.}{140\left(\sqrt{2}\sqrt{-}\right.}\right.\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/((5*x + 3)^(5/2)*(3*x + 2)^3),x, algorithm="giac")
```

```
[Out] -1/129360*sqrt(5)*(1225*sqrt(2)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(
22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - s
qrt(22)))^3 - 4174929*sqrt(70)*sqrt(2)*(pi + 2*arctan(-1/140*sqrt
(70)*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x +
 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 2910600*sqrt(2)
*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x
 + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))) - 2744280*sqrt(2)*(15
1*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*
x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 36120*(sqrt(2)*s
qrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 144480*sqrt(5*x + 3)/(
sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))/(((sqrt(2)*sqrt(-10*x + 5) -
 sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x +
5) - sqrt(22)))^2 + 280)^2)
```

3.2309 $\int \frac{\sqrt{1-2x}}{(2+3x)^4(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=166

$$\frac{63678595\sqrt{1-2x}}{12936\sqrt{5x+3}}-\frac{638165\sqrt{1-2x}}{1176(5x+3)^{3/2}}+\frac{25441\sqrt{1-2x}}{392(3x+2)(5x+3)^{3/2}}+\frac{313\sqrt{1-2x}}{84(3x+2)^2(5x+3)^{3/2}}+\frac{\sqrt{1-2x}}{3(3x+2)^3(5x+3)^{3/2}}-\frac{13246251\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{392\sqrt{7}}$$

```
[Out] (-638165*Sqrt[1 - 2*x])/(1176*(3 + 5*x)^(3/2)) + Sqrt[1 - 2*x]/(3
*(2 + 3*x)^3*(3 + 5*x)^(3/2)) + (313*Sqrt[1 - 2*x])/(84*(2 + 3*x)
^2*(3 + 5*x)^(3/2)) + (25441*Sqrt[1 - 2*x])/(392*(2 + 3*x)*(3 + 5
*x)^(3/2)) + (63678595*Sqrt[1 - 2*x])/(12936*Sqrt[3 + 5*x]) - (13
246251*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(392*Sqrt[7
])
```

Rubi [A] time = 0.391021, antiderivative size = 166, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$\frac{63678595\sqrt{1-2x}}{12936\sqrt{5x+3}}-\frac{638165\sqrt{1-2x}}{1176(5x+3)^{3/2}}+\frac{25441\sqrt{1-2x}}{392(3x+2)(5x+3)^{3/2}}+\frac{313\sqrt{1-2x}}{84(3x+2)^2(5x+3)^{3/2}}+\frac{\sqrt{1-2x}}{3(3x+2)^3(5x+3)^{3/2}}-\frac{13246251\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{392\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]/((2 + 3*x)^4*(3 + 5*x)^(5/2)),x]
```

```
[Out] (-638165*Sqrt[1 - 2*x])/(1176*(3 + 5*x)^(3/2)) + Sqrt[1 - 2*x]/(3
*(2 + 3*x)^3*(3 + 5*x)^(3/2)) + (313*Sqrt[1 - 2*x])/(84*(2 + 3*x)
^2*(3 + 5*x)^(3/2)) + (25441*Sqrt[1 - 2*x])/(392*(2 + 3*x)*(3 + 5
*x)^(3/2)) + (63678595*Sqrt[1 - 2*x])/(12936*Sqrt[3 + 5*x]) - (13
246251*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(392*Sqrt[7
])
```

Rubi in Sympy [A] time = 37.4506, size = 151, normalized size = 0.91

$$\frac{63678595\sqrt{-2x+1}}{12936\sqrt{5x+3}}-\frac{638165\sqrt{-2x+1}}{1176\,(5x+3)^{\frac{3}{2}}}+\frac{25441\sqrt{-2x+1}}{392\,(3x+2)\,(5x+3)^{\frac{3}{2}}}+\frac{313\sqrt{-2x+1}}{84\,(3x+2)^2\,(5x+3)^{\frac{3}{2}}}+\frac{\sqrt{-2x+1}}{3\,(3x+2)^3\,(5x+3)^{\frac{3}{2}}}-\frac{13246251\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{2744}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)/(2+3*x)**4/(3+5*x)**(5/2),x)
```

```
[Out] 63678595*sqrt(-2*x + 1)/(12936*sqrt(5*x + 3)) - 638165*sqrt(-2*x
+ 1)/(1176*(5*x + 3)**(3/2)) + 25441*sqrt(-2*x + 1)/(392*(3*x + 2
)*(5*x + 3)**(3/2)) + 313*sqrt(-2*x + 1)/(84*(3*x + 2)**2*(5*x +
3)**(3/2)) + sqrt(-2*x + 1)/(3*(3*x + 2)**3*(5*x + 3)**(3/2)) - 1
3246251*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/27
44
```

Mathematica [A] time = 0.113586, size = 87, normalized size = 0.52

$$\frac{\sqrt{1-2x}\left(8596610325x^4+22161651840x^3+21406565457x^2+9181937962x+1475586688\right)}{12936(3x+2)^3(5x+3)^{3/2}} - \frac{13246251\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{784\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]/((2 + 3*x)^4*(3 + 5*x)^(5/2)),x]
```

```
[Out] (Sqrt[1 - 2*x]*(1475586688 + 9181937962*x + 21406565457*x^2 + 221
61651840*x^3 + 8596610325*x^4))/(12936*(2 + 3*x)^3*(3 + 5*x)^(3/2
)) - (13246251*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x
]])])/(784*Sqrt[7])
```

Maple [B] time = 0.022, size = 298, normalized size = 1.8

$$\frac{1}{181104\,(2+3\,x)^3}\left(295060241025\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^5+944192771280\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)/(2+3*x)^4/(3+5*x)^(5/2),x)
```

```
[Out] 1/181104*(295060241025*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10
*x^2-x+3)^(1/2))*x^5+944192771280*7^(1/2)*arctan(1/14*(37*x+20)*7
^(1/2)/(-10*x^2-x+3)^(1/2))*x^4+1207779919929*7^(1/2)*arctan(1/14
*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+120352544550*x^4*(-10
*x^2-x+3)^(1/2)+771965015778*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2
)/(-10*x^2-x+3)^(1/2))*x^2+310263125760*x^3*(-10*x^2-x+3)^(1/2)+2
46539223612*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(
1/2))*x+299691916398*x^2*(-10*x^2-x+3)^(1/2)+31473092376*7^(1/2)*
arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+128547131468*x
*(-10*x^2-x+3)^(1/2)+20658213632*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/
2)/(2+3*x)^3/(-10*x^2-x+3)^(1/2)/(3+5*x)^(3/2)
```

Maxima [A] time = 1.51906, size = 324, normalized size = 1.95

$$\frac{13246251}{5488}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right) - \frac{63678595\,x}{6468\,\sqrt{-10\,x^2-x+3}} + \frac{66486521}{12936\,\sqrt{-10\,x^2-x+3}} + \frac{207835\,x}{84\,(-10\,x^2-x+3)^{\frac{3}{2}}} + \frac{49}{27\left(27\,(-10\,x^2-x+3)^{\frac{3}{2}}x^3+54\,(-10\,x^2-x+3)^{\frac{3}{2}}x^2+36\,(-10\,x^2-x+3)^{\frac{3}{2}}x+8\,(-10\,x^2-x+3)^{\frac{3}{2}}\right)} + \frac{77}{4\left(9\,(-10\,x^2-x+3)^{\frac{3}{2}}x^2+12\,(-10\,x^2-x+3)^{\frac{3}{2}}x+4\,(-10\,x^2-x+3)^{\frac{3}{2}}\right)} + \frac{24617}{72\left(3\,(-10\,x^2-x+3)^{\frac{3}{2}}x+2\,(-10\,x^2-x+3)^{\frac{3}{2}}\right)} - \frac{2020657}{1512\,(-10\,x^2-x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/((5*x + 3)^(5/2)*(3*x + 2)^4),x, algorithm="maxima")
```

```
[Out] 13246251/5488*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x
 + 2)) - 63678595/6468*x/sqrt(-10*x^2 - x + 3) + 66486521/12936/s
qrt(-10*x^2 - x + 3) + 207835/84*x/(-10*x^2 - x + 3)^(3/2) + 49/2
```

```
7/(27*(-10*x^2 - x + 3)^(3/2)*x^3 + 54*(-10*x^2 - x + 3)^(3/2)*x^
2 + 36*(-10*x^2 - x + 3)^(3/2)*x + 8*(-10*x^2 - x + 3)^(3/2)) + 7
7/4/(9*(-10*x^2 - x + 3)^(3/2)*x^2 + 12*(-10*x^2 - x + 3)^(3/2)*x
 + 4*(-10*x^2 - x + 3)^(3/2)) + 24617/72/(3*(-10*x^2 - x + 3)^(3/
2)*x + 2*(-10*x^2 - x + 3)^(3/2)) - 2020657/1512/(-10*x^2 - x + 3
)^(3/2)
```

Fricas [A] time = 0.227515, size = 167, normalized size = 1.01

$$\frac{\sqrt{7}\left(2\sqrt{7}\left(8596610325\,x^4 + 22161651840\,x^3 + 21406565457\,x^2 + 9181937962\,x + 1475586688\right)\sqrt{5\,x+3}\sqrt{-2\,x+1} + 4371262\right.}{181104\left(675\,x^5 + 2160\,x^4 + 2763\,x^3 + 1766\,x^2 + 564\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/((5*x + 3)^(5/2)*(3*x + 2)^4),x, algorithm="fricas")
```

```
[Out] 1/181104*sqrt(7)*(2*sqrt(7)*(8596610325*x^4 + 22161651840*x^3 + 2
1406565457*x^2 + 9181937962*x + 1475586688)*sqrt(5*x + 3)*sqrt(-2
*x + 1) + 437126283*(675*x^5 + 2160*x^4 + 2763*x^3 + 1766*x^2 + 5
64*x + 72)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2
*x + 1))))/(675*x^5 + 2160*x^4 + 2763*x^3 + 1766*x^2 + 564*x + 72
)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(1/2)/(2+3*x)**4/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.458562, size = 587, normalized size = 3.54

$$-\frac{1}{1811040}\sqrt{5}\left(85750\sqrt{2}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}} - \frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^3 - 437126283\sqrt{70}\sqrt{2}\left(\pi + 2\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+}}{140\,(}\right.\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/((5*x + 3)^(5/2)*(3*x + 2)^4),x, algorithm="giac")
```

```
[Out] -1/1811040*sqrt(5)*(85750*sqrt(2)*((sqrt(2)*sqrt(-10*x + 5) - sqr
t(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) -
 sqrt(22)))^3 - 437126283*sqrt(70)*sqrt(2)*(pi + 2*arctan(-1/140*
sqrt(70)*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5
*x + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 271656000*s
qrt(2)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sq
rt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))) - 2744280*sqrt(
2)*(22317*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4
*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 + 10704960
*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x
 + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 1323627200*(sqrt(
2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 5294508800*sqrt(5*
x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))/(((sqrt(2)*sqrt(-10*
x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(
-10*x + 5) - sqrt(22)))^2 + 280)^3)
```

3.2310 $\int (1-2x)^{3/2}(2+3x)^3\sqrt{3+5x}\,dx$

Optimal. Leaf size=150

$$-\frac{1}{20}(3x+2)^2(5x+3)^{3/2}(1-2x)^{5/2}-\frac{(5x+3)^{3/2}(63120x+88987)(1-2x)^{5/2}}{160000}-\frac{339983\sqrt{5x+3}(1-2x)^{5/2}}{384000}+\frac{3739813\sqrt{5x+3}(1-2x)^{3/2}}{7680000}+\frac{41137943\sqrt{5x+3}\sqrt{1-2x}}{25600000}+\frac{452517373\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{25600000\sqrt{10}}$$

```
[Out] (41137943*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/25600000 + (3739813*(1 - 2
*x)^(3/2)*Sqrt[3 + 5*x])/7680000 - (339983*(1 - 2*x)^(5/2)*Sqrt[3
 + 5*x])/384000 - ((1 - 2*x)^(5/2)*(2 + 3*x)^2*(3 + 5*x)^(3/2))/2
0 - ((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2)*(88987 + 63120*x))/160000 +
(452517373*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(25600000*Sqrt[10])
```

Rubi [A] time = 0.183798, antiderivative size = 150, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.192$

$$-\frac{1}{20}(3x+2)^2(5x+3)^{3/2}(1-2x)^{5/2}-\frac{(5x+3)^{3/2}(63120x+88987)(1-2x)^{5/2}}{160000}-\frac{339983\sqrt{5x+3}(1-2x)^{5/2}}{384000}+\frac{3739813\sqrt{5x+3}(1-2x)^{3/2}}{7680000}+\frac{41137943\sqrt{5x+3}\sqrt{1-2x}}{25600000}+\frac{452517373\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{25600000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)*(2 + 3*x)^3*Sqrt[3 + 5*x],x]
```

```
[Out] (41137943*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/25600000 + (3739813*(1 - 2
*x)^(3/2)*Sqrt[3 + 5*x])/7680000 - (339983*(1 - 2*x)^(5/2)*Sqrt[3
 + 5*x])/384000 - ((1 - 2*x)^(5/2)*(2 + 3*x)^2*(3 + 5*x)^(3/2))/2
0 - ((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2)*(88987 + 63120*x))/160000 +
(452517373*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(25600000*Sqrt[10])
```

Rubi in Sympy [A] time = 17.8714, size = 136, normalized size = 0.91

$$-\frac{(-2x+1)^{\frac{5}{2}}(3x+2)^2(5x+3)^{\frac{3}{2}}}{20}-\frac{(-2x+1)^{\frac{5}{2}}(5x+3)^{\frac{3}{2}}\left(47340x+\frac{266961}{4}\right)}{120000}+\frac{339983(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{3}{2}}}{960000}+\frac{3739813\sqrt{-2x+1}(5x+3)^{\frac{3}{2}}}{6400000}-\frac{41137943\sqrt{-2x+1}\sqrt{5x+3}}{25600000}+\frac{452517373\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{256000000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)**3*(3+5*x)**(1/2),x)
```

```
[Out] -(-2*x + 1)**(5/2)*(3*x + 2)**2*(5*x + 3)**(3/2)/20 - (-2*x + 1)*
*(5/2)*(5*x + 3)**(3/2)*(47340*x + 266961/4)/120000 + 339983*(-2*
x + 1)**(3/2)*(5*x + 3)**(3/2)/960000 + 3739813*sqrt(-2*x + 1)*(5
*x + 3)**(3/2)/6400000 - 41137943*sqrt(-2*x + 1)*sqrt(5*x + 3)/25
600000 + 452517373*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/25600
0000
```

Mathematica [A] time = 0.13018, size = 75, normalized size = 0.5

$$\frac{-10\sqrt{1-2x}\sqrt{5x+3}\left(691200000x^5+1251072000x^4+308534400x^3-623566880x^2-374573660x+81405921\right)-13575521}{768000000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)*(2 + 3*x)^3*Sqrt[3 + 5*x],x]
```

```
[Out] (-10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(81405921 - 374573660*x - 623566
880*x^2 + 308534400*x^3 + 1251072000*x^4 + 691200000*x^5) - 13575
52119*Sqrt[10]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/768000000
```

Maple [A] time = 0.014, size = 138, normalized size = 0.9

$$\frac{1}{1536000000}\sqrt{1-2x}\sqrt{3+5x}\left(-13824000000x^5\sqrt{-10x^2-x+3}-25021440000x^4\sqrt{-10x^2-x+3}-6170688000x^3\sqrt{-10}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^3*(3+5*x)^(1/2),x)
```

```
[Out] 1/1536000000*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(-13824000000*x^5*(-10*x
^2-x+3)^(1/2)-25021440000*x^4*(-10*x^2-x+3)^(1/2)-6170688000*x^3*
(-10*x^2-x+3)^(1/2)+12471337600*x^2*(-10*x^2-x+3)^(1/2)+135755211
9*10^(1/2)*arcsin(20/11*x+1/11)+7491473200*x*(-10*x^2-x+3)^(1/2)-
1628118420*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.50404, size = 140, normalized size = 0.93

$$\begin{aligned}&\frac{9}{10}\left(-10x^2-x+3\right)^{\frac{3}{2}}x^3+\frac{1539}{1000}\left(-10x^2-x+3\right)^{\frac{3}{2}}x^2+\frac{41427}{80000}\left(-10x^2-x+3\right)^{\frac{3}{2}}x\\&-\frac{385939}{960000}\left(-10x^2-x+3\right)^{\frac{3}{2}}+\frac{3739813}{1280000}\sqrt{-10x^2-x+3x}\\&-\frac{452517373}{512000000}\sqrt{10}\arcsin\left(-\frac{20}{11}x-\frac{1}{11}\right)+\frac{3739813}{25600000}\sqrt{-10x^2-x+3}\end{aligned}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^3*(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] 9/10*(-10*x^2 - x + 3)^(3/2)*x^3 + 1539/1000*(-10*x^2 - x + 3)^(3
/2)*x^2 + 41427/80000*(-10*x^2 - x + 3)^(3/2)*x - 385939/960000*(
-10*x^2 - x + 3)^(3/2) + 3739813/1280000*sqrt(-10*x^2 - x + 3)*x
- 452517373/512000000*sqrt(10)*arcsin(-20/11*x - 1/11) + 3739813/
25600000*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.220429, size = 104, normalized size = 0.69

$$-\frac{1}{1536000000}\sqrt{10}\left(2\sqrt{10}\left(691200000x^5+1251072000x^4+308534400x^3-623566880x^2-374573660x+81405921\right)\sqrt{5x}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^3*(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/1536000000*sqrt(10)*(2*sqrt(10)*(691200000*x^5 + 1251072000*x^
4 + 308534400*x^3 - 623566880*x^2 - 374573660*x + 81405921)*sqrt(
5*x + 3)*sqrt(-2*x + 1) - 1357552119*arctan(1/20*sqrt(10)*(20*x +
 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [A] time = 49.1937, size = 695, normalized size = 4.63

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)**3*(3+5*x)**(1/2),x)
```

```
[Out] 22*sqrt(5)*Piecewise((121*sqrt(2)*(-sqrt(2)*(-20*x - 1)*sqrt(-10*
x + 5)*sqrt(5*x + 3)/121 + asin(sqrt(22)*sqrt(5*x + 3)/11))/32, (
x >= -3/5) & (x < 1/2)))/15625 + 194*sqrt(5)*Piecewise((1331*sqrt
(2)*(-sqrt(2)*(-20*x - 1)*sqrt(-10*x + 5)*sqrt(5*x + 3)/1936 - sq
rt(2)*(-10*x + 5)**(3/2)*(5*x + 3)**(3/2)/3993 + asin(sqrt(22)*sq
rt(5*x + 3)/11)/16)/8, (x >= -3/5) & (x < 1/2)))/15625 + 558*sqrt
(5)*Piecewise((14641*sqrt(2)*(-sqrt(2)*(-20*x - 1)*sqrt(-10*x + 5
)*sqrt(5*x + 3)/3872 - sqrt(2)*(-10*x + 5)**(3/2)*(5*x + 3)**(3/2
)/3993 - sqrt(2)*sqrt(-10*x + 5)*sqrt(5*x + 3)*(-12100*x - 128*(5
*x + 3)**3 + 1056*(5*x + 3)**2 - 5929)/1874048 + 5*asin(sqrt(22)*
sqrt(5*x + 3)/11)/128)/16, (x >= -3/5) & (x < 1/2)))/15625 + 486*
sqrt(5)*Piecewise((161051*sqrt(2)*(-sqrt(2)*(-20*x - 1)*sqrt(-10*
x + 5)*sqrt(5*x + 3)/7744 + 2*sqrt(2)*(-10*x + 5)**(5/2)*(5*x + 3
)**(5/2)/805255 - sqrt(2)*(-10*x + 5)**(3/2)*(5*x + 3)**(3/2)/399
3 - 3*sqrt(2)*sqrt(-10*x + 5)*sqrt(5*x + 3)*(-12100*x - 128*(5*x
+ 3)**3 + 1056*(5*x + 3)**2 - 5929)/3748096 + 7*asin(sqrt(22)*sqr
t(5*x + 3)/11)/256)/32, (x >= -3/5) & (x < 1/2)))/15625 - 108*sqr
t(5)*Piecewise((1771561*sqrt(2)*(sqrt(2)*(-20*x - 1)**3*(-10*x +
5)**(3/2)*(5*x + 3)**(3/2)/85034928 - sqrt(2)*(-20*x - 1)*sqrt(-1
0*x + 5)*sqrt(5*x + 3)/15488 + 4*sqrt(2)*(-10*x + 5)**(5/2)*(5*x
+ 3)**(5/2)/805255 - sqrt(2)*(-10*x + 5)**(3/2)*(5*x + 3)**(3/2)/
3993 - 13*sqrt(2)*sqrt(-10*x + 5)*sqrt(5*x + 3)*(-12100*x - 128*(
5*x + 3)**3 + 1056*(5*x + 3)**2 - 5929)/14992384 + 21*asin(sqrt(2
2)*sqrt(5*x + 3)/11)/1024)/64, (x >= -3/5) & (x < 1/2)))/15625
```

GIAC/XCAS [A] time = 0.270168, size = 427, normalized size = 2.85

$$-\frac{9}{1280000000}\sqrt{5}\Big(2\,(4\,(8\,(4\,(16\,(100\,x-239)(5\,x+3)+27999)(5\,x+3)-318159)(5\,x+3)+3237255)(5\,x+3)-2656665)\sqrt{5}$$
$$-\frac{27}{64000000}\sqrt{5}\Big(2\,(4\,(8\,(12\,(80\,x-143)(5\,x+3)+9773)(5\,x+3)-136405)(5\,x+3)+60555)\sqrt{5\,x+3}\sqrt{-10\,x+5}-666105\,\sqrt{}$$
$$-\frac{3}{320000}\sqrt{5}\left(2\,(4\,(8\,(60\,x-71)(5\,x+3)+2179)(5\,x+3)-4125)\sqrt{5\,x+3}\sqrt{-10\,x+5}+45375\,\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5\,x+3}\right)\right)$$
$$+\frac{1}{1200}\sqrt{5}\left(2\,(4\,(40\,x-23)(5\,x+3)+33)\sqrt{5\,x+3}\sqrt{-10\,x+5}-363\,\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5\,x+3}\right)\right)$$
$$+\frac{1}{50}\sqrt{5}\left(2\,(20\,x+1)\sqrt{5\,x+3}\sqrt{-10\,x+5}+121\,\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5\,x+3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(3*x + 2)^3*(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] -9/1280000000*sqrt(5)*(2*(4*(8*(4*(16*(100*x - 239)*(5*x + 3) + 2
7999)*(5*x + 3) - 318159)*(5*x + 3) + 3237255)*(5*x + 3) - 265666
5)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 29223315*sqrt(2)*arcsin(1/11*s
qrt(22)*sqrt(5*x + 3))) - 27/64000000*sqrt(5)*(2*(4*(8*(12*(80*x
- 143)*(5*x + 3) + 9773)*(5*x + 3) - 136405)*(5*x + 3) + 60555)*s
qrt(5*x + 3)*sqrt(-10*x + 5) - 666105*sqrt(2)*arcsin(1/11*sqrt(22
)*sqrt(5*x + 3))) - 3/320000*sqrt(5)*(2*(4*(8*(60*x - 71)*(5*x +
3) + 2179)*(5*x + 3) - 4125)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 4537
```

```
5*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 1/1200*sqrt(5)*(
2*(4*(40*x - 23)*(5*x + 3) + 33)*sqrt(5*x + 3)*sqrt(-10*x + 5) -
363*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 1/50*sqrt(5)*(
2*(20*x + 1)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 121*sqrt(2)*arcsin(1
/11*sqrt(22)*sqrt(5*x + 3)))
```

3.2311 $\int (1-2x)^{3/2}(2+3x)^2\sqrt{3+5x}\,dx$

Optimal. Leaf size=143

$$-\frac{3}{50}(3x+2)(5x+3)^{3/2}(1-2x)^{5/2}-\frac{567(5x+3)^{3/2}(1-2x)^{5/2}}{4000}-\frac{4123\sqrt{5x+3}(1-2x)^{5/2}}{9600}+\frac{45353\sqrt{5x+3}(1-2x)^{3/2}}{192000}+\frac{498883\sqrt{5x+3}\sqrt{1-2x}}{640000}+\frac{5487713\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{640000\sqrt{10}}$$

```
[Out] (498883*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/640000 + (45353*(1 - 2*x)^(3
/2)*Sqrt[3 + 5*x])/192000 - (4123*(1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/
9600 - (567*(1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/4000 - (3*(1 - 2*x)^
(5/2)*(2 + 3*x)*(3 + 5*x)^(3/2))/50 + (5487713*ArcSin[Sqrt[2/11]*
Sqrt[3 + 5*x]])/(640000*Sqrt[10])
```

Rubi [A] time = 0.1656, antiderivative size = 143, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$-\frac{3}{50}(3x+2)(5x+3)^{3/2}(1-2x)^{5/2}-\frac{567(5x+3)^{3/2}(1-2x)^{5/2}}{4000}-\frac{4123\sqrt{5x+3}(1-2x)^{5/2}}{9600}+\frac{45353\sqrt{5x+3}(1-2x)^{3/2}}{192000}+\frac{498883\sqrt{5x+3}\sqrt{1-2x}}{640000}+\frac{5487713\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{640000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)*(2 + 3*x)^2*Sqrt[3 + 5*x],x]
```

```
[Out] (498883*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/640000 + (45353*(1 - 2*x)^(3
/2)*Sqrt[3 + 5*x])/192000 - (4123*(1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/
9600 - (567*(1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/4000 - (3*(1 - 2*x)^
(5/2)*(2 + 3*x)*(3 + 5*x)^(3/2))/50 + (5487713*ArcSin[Sqrt[2/11]*
Sqrt[3 + 5*x]])/(640000*Sqrt[10])
```

Rubi in Sympy [A] time = 14.1562, size = 129, normalized size = 0.9

$$-\frac{(-2x+1)^{\frac{5}{2}}(5x+3)^{\frac{3}{2}}(9x+6)}{50}-\frac{567(-2x+1)^{\frac{5}{2}}(5x+3)^{\frac{3}{2}}}{4000}+\frac{4123(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{3}{2}}}{24000}-\frac{45353(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{64000}+\frac{498883\sqrt{-2x+1}\sqrt{5x+3}}{640000}+\frac{5487713\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{6400000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)**2*(3+5*x)**(1/2),x)
```

```
[Out] -(-2*x + 1)**(5/2)*(5*x + 3)**(3/2)*(9*x + 6)/50 - 567*(-2*x + 1)
**(5/2)*(5*x + 3)**(3/2)/4000 + 4123*(-2*x + 1)**(3/2)*(5*x + 3)*
*(3/2)/24000 - 45353*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/64000 + 4988
83*sqrt(-2*x + 1)*sqrt(5*x + 3)/640000 + 5487713*sqrt(10)*asin(sq
rt(22)*sqrt(5*x + 3)/11)/6400000
```

Mathematica [A] time = 0.110383, size = 70, normalized size = 0.49

$$\frac{-10\sqrt{1-2x}\sqrt{5x+3}\left(6912000x^4+7286400x^3-3141280x^2-4872460x+382101\right)-16463139\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{19200000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)*(2 + 3*x)^2*Sqrt[3 + 5*x],x]
```

```
[Out] (-10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(382101 - 4872460*x - 3141280*x^
2 + 7286400*x^3 + 6912000*x^4) - 16463139*Sqrt[10]*ArcSin[Sqrt[5/
11]*Sqrt[1 - 2*x]])/19200000
```

Maple [A] time = 0.013, size = 121, normalized size = 0.9

$$\frac{1}{38400000}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(-138240000\,x^{4}\sqrt{-10\,x^{2}-x+3}-145728000\,x^{3}\sqrt{-10\,x^{2}-x+3}+62825600\,x^{2}\sqrt{-10\,x^{2}-x+\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^2*(3+5*x)^(1/2),x)
```

```
[Out] 1/38400000*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(-138240000*x^4*(-10*x^2-x
+3)^(1/2)-145728000*x^3*(-10*x^2-x+3)^(1/2)+62825600*x^2*(-10*x^2
-x+3)^(1/2)+16463139*10^(1/2)*arcsin(20/11*x+1/11)+97449200*x*(-1
0*x^2-x+3)^(1/2)-7642020*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)
```

Maple [A] time = 1.49271, size = 117, normalized size = 0.82

$$\frac{9}{25}\left(-10\,x^{2}-x+3\right)^{\frac{3}{2}}x^{2}+\frac{687}{2000}\left(-10\,x^{2}-x+3\right)^{\frac{3}{2}}x-\frac{2159}{24000}\left(-10\,x^{2}-x+3\right)^{\frac{3}{2}}+\frac{45353}{32000}\sqrt{-10\,x^{2}-x+3}x-\frac{5487713}{12800000}\sqrt{10}\arcsin\left(-\frac{20}{11}\,x-\frac{1}{11}\right)+\frac{45353}{640000}\sqrt{-10\,x^{2}-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^2*(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] 9/25*(-10*x^2 - x + 3)^(3/2)*x^2 + 687/2000*(-10*x^2 - x + 3)^(3/
2)*x - 2159/24000*(-10*x^2 - x + 3)^(3/2) + 45353/32000*sqrt(-10*
x^2 - x + 3)*x - 5487713/12800000*sqrt(10)*arcsin(-20/11*x - 1/11
) + 45353/640000*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.224981, size = 97, normalized size = 0.68

$$-\frac{1}{38400000}\sqrt{10}\left(2\sqrt{10}\left(6912000\,x^{4}+7286400\,x^{3}-3141280\,x^{2}-4872460\,x+382101\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-16463139\,\mathrm{arcta}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^2*(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/38400000*sqrt(10)*(2*sqrt(10)*(6912000*x^4 + 7286400*x^3 - 314
1280*x^2 - 4872460*x + 382101)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 164
63139*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x +
1))))
```

Sympy [A] time = 30.8409, size = 490, normalized size = 3.43

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)**2*(3+5*x)**(1/2),x)
```

```
[Out] 22*sqrt(5)*Piecewise((121*sqrt(2)*(-sqrt(2)*(-20*x - 1)*sqrt(-10*
x + 5)*sqrt(5*x + 3)/121 + asin(sqrt(22)*sqrt(5*x + 3)/11))/32, (
x >= -3/5) & (x < 1/2)))/3125 + 128*sqrt(5)*Piecewise((1331*sqrt(
2)*(-sqrt(2)*(-20*x - 1)*sqrt(-10*x + 5)*sqrt(5*x + 3)/1936 - sqr
t(2)*(-10*x + 5)**(3/2)*(5*x + 3)**(3/2)/3993 + asin(sqrt(22)*sqr
t(5*x + 3)/11)/16)/8, (x >= -3/5) & (x < 1/2)))/3125 + 174*sqrt(5
)*Piecewise((14641*sqrt(2)*(-sqrt(2)*(-20*x - 1)*sqrt(-10*x + 5)*
sqrt(5*x + 3)/3872 - sqrt(2)*(-10*x + 5)**(3/2)*(5*x + 3)**(3/2)/
3993 - sqrt(2)*sqrt(-10*x + 5)*sqrt(5*x + 3)*(-12100*x - 128*(5*x
 + 3)**3 + 1056*(5*x + 3)**2 - 5929)/1874048 + 5*asin(sqrt(22)*sq
rt(5*x + 3)/11)/128)/16, (x >= -3/5) & (x < 1/2)))/3125 - 36*sqrt
(5)*Piecewise((161051*sqrt(2)*(-sqrt(2)*(-20*x - 1)*sqrt(-10*x +
5)*sqrt(5*x + 3)/7744 + 2*sqrt(2)*(-10*x + 5)**(5/2)*(5*x + 3)**(
5/2)/805255 - sqrt(2)*(-10*x + 5)**(3/2)*(5*x + 3)**(3/2)/3993 -
3*sqrt(2)*sqrt(-10*x + 5)*sqrt(5*x + 3)*(-12100*x - 128*(5*x + 3)
**3 + 1056*(5*x + 3)**2 - 5929)/3748096 + 7*asin(sqrt(22)*sqrt(5*
x + 3)/11)/256)/32, (x >= -3/5) & (x < 1/2)))/3125
```

GIAC/XCAS [A] time = 0.253068, size = 317, normalized size = 2.22

$$-\frac{3}{32000000}\sqrt{5}\Big(2\,(4\,(8\,(12\,(80\,x-143)(5\,x+3)+9773)(5\,x+3)-136405)(5\,x+3)+60555)\sqrt{5\,x+3}\sqrt{-10\,x+5}-666105\,\sqrt{\ldots}$$
$$-\frac{1}{128000}\sqrt{5}\left(2\,(4\,(8\,(60\,x-71)(5\,x+3)+2179)(5\,x+3)-4125)\sqrt{5\,x+3}\sqrt{-10\,x+5}+45375\,\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5\,x+3}\right)\right)$$
$$+\frac{1}{6000}\sqrt{5}\left(2\,(4\,(40\,x-23)(5\,x+3)+33)\sqrt{5\,x+3}\sqrt{-10\,x+5}-363\,\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5\,x+3}\right)\right)$$
$$+\frac{1}{100}\sqrt{5}\left(2\,(20\,x+1)\sqrt{5\,x+3}\sqrt{-10\,x+5}+121\,\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5\,x+3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^2*(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] -3/32000000*sqrt(5)*(2*(4*(8*(12*(80*x - 143)*(5*x + 3) + 9773)*(
5*x + 3) - 136405)*(5*x + 3) + 60555)*sqrt(5*x + 3)*sqrt(-10*x +
5) - 666105*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) - 1/1280
00*sqrt(5)*(2*(4*(8*(60*x - 71)*(5*x + 3) + 2179)*(5*x + 3) - 412
5)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 45375*sqrt(2)*arcsin(1/11*sqrt
(22)*sqrt(5*x + 3))) + 1/6000*sqrt(5)*(2*(4*(40*x - 23)*(5*x + 3)
 + 33)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 363*sqrt(2)*arcsin(1/11*sq
rt(22)*sqrt(5*x + 3))) + 1/100*sqrt(5)*(2*(20*x + 1)*sqrt(5*x + 3
)*sqrt(-10*x + 5) + 121*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3
)))
```

3.2312 $\int (1-2x)^{3/2}(2+3x)\sqrt{3+5x}\,dx$

Optimal. Leaf size=116

$$-\frac{3}{40}(5x+3)^{3/2}(1-2x)^{5/2}-\frac{23}{96}\sqrt{5x+3}(1-2x)^{5/2}+\frac{253\sqrt{5x+3}(1-2x)^{3/2}}{1920}+\frac{2783\sqrt{5x+3}\sqrt{1-2x}}{6400}+\frac{30613\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{6400\sqrt{10}}$$

```
[Out] (2783*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/6400 + (253*(1 - 2*x)^(3/2)*Sq
rt[3 + 5*x])/1920 - (23*(1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/96 - (3*(1
 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/40 + (30613*ArcSin[Sqrt[2/11]*Sqrt
[3 + 5*x]])/(6400*Sqrt[10])
```

Rubi [A] time = 0.116326, antiderivative size = 116, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$-\frac{3}{40}(5x+3)^{3/2}(1-2x)^{5/2}-\frac{23}{96}\sqrt{5x+3}(1-2x)^{5/2}+\frac{253\sqrt{5x+3}(1-2x)^{3/2}}{1920}+\frac{2783\sqrt{5x+3}\sqrt{1-2x}}{6400}+\frac{30613\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{6400\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)*(2 + 3*x)*Sqrt[3 + 5*x],x]
```

```
[Out] (2783*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/6400 + (253*(1 - 2*x)^(3/2)*Sq
rt[3 + 5*x])/1920 - (23*(1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/96 - (3*(1
 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/40 + (30613*ArcSin[Sqrt[2/11]*Sqrt
[3 + 5*x]])/(6400*Sqrt[10])
```

Rubi in Sympy [A] time = 10.3678, size = 105, normalized size = 0.91

$$-\frac{3(-2x+1)^{\frac{5}{2}}(5x+3)^{\frac{3}{2}}}{40}+\frac{23(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{3}{2}}}{240}+\frac{253\sqrt{-2x+1}(5x+3)^{\frac{3}{2}}}{1600}-\frac{2783\sqrt{-2x+1}\sqrt{5x+3}}{6400}+\frac{30613\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{64000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)*(3+5*x)**(1/2),x)
```

```
[Out] -3*(-2*x + 1)**(5/2)*(5*x + 3)**(3/2)/40 + 23*(-2*x + 1)**(3/2)*(
5*x + 3)**(3/2)/240 + 253*sqrt(-2*x + 1)*(5*x + 3)**(3/2)/1600 -
2783*sqrt(-2*x + 1)*sqrt(5*x + 3)/6400 + 30613*sqrt(10)*asin(sqrt
(22)*sqrt(5*x + 3)/11)/64000
```

Mathematica [A] time = 0.0676921, size = 65, normalized size = 0.56

$$\frac{10\sqrt{1-2x}\sqrt{5x+3}\left(-28800x^3-6880x^2+23420x+1959\right)-91839\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{192000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)*(2 + 3*x)*Sqrt[3 + 5*x],x]
```

```
[Out] (10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(1959 + 23420*x - 6880*x^2 - 2880
0*x^3) - 91839*Sqrt[10]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/192000
```

Maple [A] time = 0.012, size = 104, normalized size = 0.9

$$\frac{1}{384000}\sqrt{1-2x}\sqrt{3+5x}\left(-576000x^3\sqrt{-10x^2-x+3}-137600x^2\sqrt{-10x^2-x+3}+91839\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)+46$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)*(3+5*x)^(1/2),x)
```

```
[Out] 1/384000*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(-576000*x^3*(-10*x^2-x+3)^(
1/2)-137600*x^2*(-10*x^2-x+3)^(1/2)+91839*10^(1/2)*arcsin(20/11*x
+1/11)+468400*x*(-10*x^2-x+3)^(1/2)+39180*(-10*x^2-x+3)^(1/2))/(-
10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.47856, size = 95, normalized size = 0.82

$$\frac{3}{20}\left(-10x^2-x+3\right)^{\frac{3}{2}}x+\frac{1}{48}\left(-10x^2-x+3\right)^{\frac{3}{2}}+\frac{253}{320}\sqrt{-10x^2-x+3}x-\frac{30613}{128000}\sqrt{10}\arcsin\left(-\frac{20}{11}x-\frac{1}{11}\right)+\frac{253}{6400}\sqrt{-10x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)*(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] 3/20*(-10*x^2 - x + 3)^(3/2)*x + 1/48*(-10*x^2 - x + 3)^(3/2) + 2
53/320*sqrt(-10*x^2 - x + 3)*x - 30613/128000*sqrt(10)*arcsin(-20
/11*x - 1/11) + 253/6400*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.218486, size = 90, normalized size = 0.78

$$-\frac{1}{384000}\sqrt{10}\left(2\sqrt{10}\left(28800x^3+6880x^2-23420x-1959\right)\sqrt{5x+3}\sqrt{-2x+1}-91839\arctan\left(\frac{\sqrt{10}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)*(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/384000*sqrt(10)*(2*sqrt(10)*(28800*x^3 + 6880*x^2 - 23420*x -
1959)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 91839*arctan(1/20*sqrt(10)*(
20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [A] time = 20.4458, size = 316, normalized size = 2.72

$$\frac{22\sqrt{5}\left(\begin{cases}\frac{121\sqrt{2}\left(-\frac{\sqrt{2}(-20x-1)\sqrt{-10x+5}\sqrt{5x+3}}{121}+\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)\right)}{32} & \text{for}\: x \geq -\frac{3}{5} \wedge x < \frac{1}{2}\end{cases}\right)}{625} + \frac{62\sqrt{5}\left(\begin{cases}\frac{1331\sqrt{2}\left(-\frac{\sqrt{2}(-20x-1)\sqrt{-10x+5}\sqrt{5x+3}}{1936}-\frac{\sqrt{2}(-10x+5)^{\frac{3}{2}}(5x+3)^{\frac{3}{2}}}{3993}+\frac{\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{16}\right)}{8} & \text{for}\: x \geq -\frac{3}{5} \wedge x < \frac{1}{2}\end{cases}\right)}{625} - \frac{12\sqrt{5}\left(\begin{cases}\frac{14641\sqrt{2}\left(-\frac{\sqrt{2}(-20x-1)\sqrt{-10x+5}\sqrt{5x+3}}{3872}-\frac{\sqrt{2}(-10x+5)^{\frac{3}{2}}(5x+3)^{\frac{3}{2}}}{3993}-\frac{\sqrt{2}\sqrt{-10x+5}\sqrt{5x+3}\left(-12100x-128(5x+3)^{3}+1056(5x+3)^{2}-5929\right)}{1874048}+\frac{5\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{128}\right)}{16} & \text{for}\: x \geq -\frac{3}{5} \wedge\end{cases}\right)}{625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)*(3+5*x)**(1/2),x)
```

```
[Out] 22*sqrt(5)*Piecewise((121*sqrt(2)*(-sqrt(2)*(-20*x - 1)*sqrt(-10*
x + 5)*sqrt(5*x + 3)/121 + asin(sqrt(22)*sqrt(5*x + 3)/11))/32, (
x >= -3/5) & (x < 1/2)))/625 + 62*sqrt(5)*Piecewise((1331*sqrt(2)
*(-sqrt(2)*(-20*x - 1)*sqrt(-10*x + 5)*sqrt(5*x + 3)/1936 - sqrt(
2)*(-10*x + 5)**(3/2)*(5*x + 3)**(3/2)/3993 + asin(sqrt(22)*sqrt(
5*x + 3)/11)/16)/8, (x >= -3/5) & (x < 1/2)))/625 - 12*sqrt(5)*Pi
ecewise((14641*sqrt(2)*(-sqrt(2)*(-20*x - 1)*sqrt(-10*x + 5)*sqrt
(5*x + 3)/3872 - sqrt(2)*(-10*x + 5)**(3/2)*(5*x + 3)**(3/2)/3993
 - sqrt(2)*sqrt(-10*x + 5)*sqrt(5*x + 3)*(-12100*x - 128*(5*x + 3
)**3 + 1056*(5*x + 3)**2 - 5929)/1874048 + 5*asin(sqrt(22)*sqrt(5
*x + 3)/11)/128)/16, (x >= -3/5) & (x < 1/2)))/625
```

GIAC/XCAS [A] time = 0.238411, size = 220, normalized size = 1.9

$$-\frac{1}{320000}\sqrt{5}\left(2\left(4\left(8\left(60x-71\right)(5x+3)+2179\right)(5x+3)-4125\right)\sqrt{5x+3}\sqrt{-10x+5}+45375\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right) - \frac{1}{24000}\sqrt{5}\left(2\left(4\left(40x-23\right)(5x+3)+33\right)\sqrt{5x+3}\sqrt{-10x+5}-363\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right) + \frac{1}{200}\sqrt{5}\left(2\left(20x+1\right)\sqrt{5x+3}\sqrt{-10x+5}+121\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)*(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] -1/320000*sqrt(5)*(2*(4*(8*(60*x - 71)*(5*x + 3) + 2179)*(5*x + 3
) - 4125)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 45375*sqrt(2)*arcsin(1/
11*sqrt(22)*sqrt(5*x + 3))) - 1/24000*sqrt(5)*(2*(4*(40*x - 23)*(
5*x + 3) + 33)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 363*sqrt(2)*arcsin
(1/11*sqrt(22)*sqrt(5*x + 3))) + 1/200*sqrt(5)*(2*(20*x + 1)*sqrt
(5*x + 3)*sqrt(-10*x + 5) + 121*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt
(5*x + 3)))
```

3.2313 $\int (1-2x)^{3/2}\sqrt{3+5x}\,dx$

Optimal. Leaf size=94

$$-\frac{1}{6}\sqrt{5x+3}(1-2x)^{5/2}+\frac{11}{120}\sqrt{5x+3}(1-2x)^{3/2}+\frac{121}{400}\sqrt{5x+3}\sqrt{1-2x}+\frac{1331\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{400\sqrt{10}}$$

```
[Out] (121*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/400 + (11*(1 - 2*x)^(3/2)*Sqrt[
3 + 5*x])/120 - ((1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/6 + (1331*ArcSin[
Sqrt[2/11]*Sqrt[3 + 5*x]])/(400*Sqrt[10])
```

Rubi [A] time = 0.084448, antiderivative size = 94, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.158

$$-\frac{1}{6}\sqrt{5x+3}(1-2x)^{5/2}+\frac{11}{120}\sqrt{5x+3}(1-2x)^{3/2}+\frac{121}{400}\sqrt{5x+3}\sqrt{1-2x}+\frac{1331\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{400\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)*Sqrt[3 + 5*x],x]
```

```
[Out] (121*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/400 + (11*(1 - 2*x)^(3/2)*Sqrt[
3 + 5*x])/120 - ((1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/6 + (1331*ArcSin[
Sqrt[2/11]*Sqrt[3 + 5*x]])/(400*Sqrt[10])
```

Rubi in Sympy [A] time = 8.08384, size = 83, normalized size = 0.88

$$\frac{(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{3}{2}}}{15}+\frac{11\sqrt{-2x+1}(5x+3)^{\frac{3}{2}}}{100}-\frac{121\sqrt{-2x+1}\sqrt{5x+3}}{400}+\frac{1331\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{4000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(1/2),x)
```

```
[Out] (-2*x + 1)**(3/2)*(5*x + 3)**(3/2)/15 + 11*sqrt(-2*x + 1)*(5*x +
3)**(3/2)/100 - 121*sqrt(-2*x + 1)*sqrt(5*x + 3)/400 + 1331*sqrt(
10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/4000
```

Mathematica [A] time = 0.0795919, size = 60, normalized size = 0.64

$$\frac{10\sqrt{1-2x}\sqrt{5x+3}\left(-800x^2+580x+273\right)-3993\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{12000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)*Sqrt[3 + 5*x],x]
```

```
[Out] (10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(273 + 580*x - 800*x^2) - 3993*Sq
rt[10]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/12000
```

Maple [A] time = 0.005, size = 88, normalized size = 0.9

$$\frac{1}{15}(1-2x)^{\frac{3}{2}}(3+5x)^{\frac{3}{2}}+\frac{11}{100}(3+5x)^{\frac{3}{2}}\sqrt{1-2x}-\frac{121}{400}\sqrt{1-2x}\sqrt{3+5x}+\frac{1331\sqrt{10}}{8000}\sqrt{(1-2x)(3+5x)}\arcsin\left(\frac{20x}{11}+\frac{1}{11}\right)\frac{1}{\sqrt{1-2x}}\frac{1}{\sqrt{3+5x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^(1/2),x)
```

```
[Out] 1/15*(1-2*x)^(3/2)*(3+5*x)^(3/2)+11/100*(3+5*x)^(3/2)*(1-2*x)^(1/
2)-121/400*(1-2*x)^(1/2)*(3+5*x)^(1/2)+1331/8000*((1-2*x)*(3+5*x)
)^(1/2)/(3+5*x)^(1/2)/(1-2*x)^(1/2)*10^(1/2)*arcsin(20/11*x+1/11)
```

Maxima [A] time = 1.50415, size = 74, normalized size = 0.79

$$\frac{1}{15}\left(-10x^2-x+3\right)^{\frac{3}{2}}+\frac{11}{20}\sqrt{-10x^2-x+3}x-\frac{1331}{8000}\sqrt{10}\arcsin\left(-\frac{20}{11}x-\frac{1}{11}\right)+\frac{11}{400}\sqrt{-10x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] 1/15*(-10*x^2 - x + 3)^(3/2) + 11/20*sqrt(-10*x^2 - x + 3)*x - 13
31/8000*sqrt(10)*arcsin(-20/11*x - 1/11) + 11/400*sqrt(-10*x^2 -
x + 3)
```

Fricas [A] time = 0.216999, size = 84, normalized size = 0.89

$$-\frac{1}{24000}\sqrt{10}\left(2\sqrt{10}\left(800x^2-580x-273\right)\sqrt{5x+3}\sqrt{-2x+1}-3993\arctan\left(\frac{\sqrt{10}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/24000*sqrt(10)*(2*sqrt(10)*(800*x^2 - 580*x - 273)*sqrt(5*x +
3)*sqrt(-2*x + 1) - 3993*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*
x + 3)*sqrt(-2*x + 1))))
```

Sympy [A] time = 9.01193, size = 230, normalized size = 2.45

$$\begin{cases} -\frac{20i\left(x+\frac{3}{5}\right)^{\frac{7}{2}}}{3\sqrt{10x-5}}+\frac{121i\left(x+\frac{3}{5}\right)^{\frac{5}{2}}}{6\sqrt{10x-5}}-\frac{2057i\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}{120\sqrt{10x-5}}+\frac{1331i\sqrt{x+\frac{3}{5}}}{400\sqrt{10x-5}}-\frac{1331\sqrt{10}i\operatorname{acosh}\left(\frac{\sqrt{110}\sqrt{x+\frac{3}{5}}}{11}\right)}{4000} & \text{for}\ \frac{10\left|x+\frac{3}{5}\right|}{11}>1 \\ \frac{1331\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{110}\sqrt{x+\frac{3}{5}}}{11}\right)}{4000}+\frac{20\left(x+\frac{3}{5}\right)^{\frac{7}{2}}}{3\sqrt{-10x+5}}-\frac{121\left(x+\frac{3}{5}\right)^{\frac{5}{2}}}{6\sqrt{-10x+5}}+\frac{2057\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}{120\sqrt{-10x+5}}-\frac{1331\sqrt{x+\frac{3}{5}}}{400\sqrt{-10x+5}} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**(1/2),x)
```

```
[Out] Piecewise((-20*I*(x + 3/5)**(7/2)/(3*sqrt(10*x - 5)) + 121*I*(x +
 3/5)**(5/2)/(6*sqrt(10*x - 5)) - 2057*I*(x + 3/5)**(3/2)/(120*sq
rt(10*x - 5)) + 1331*I*sqrt(x + 3/5)/(400*sqrt(10*x - 5)) - 1331*
```

```
sqrt(10)*I*acosh(sqrt(110)*sqrt(x + 3/5)/11)/4000, 10*Abs(x + 3/5
)/11 > 1), (1331*sqrt(10)*asin(sqrt(110)*sqrt(x + 3/5)/11)/4000 +
 20*(x + 3/5)**(7/2)/(3*sqrt(-10*x + 5)) - 121*(x + 3/5)**(5/2)/(
6*sqrt(-10*x + 5)) + 2057*(x + 3/5)**(3/2)/(120*sqrt(-10*x + 5))
- 1331*sqrt(x + 3/5)/(400*sqrt(-10*x + 5)), True))
```

GIAC/XCAS [A] time = 0.224231, size = 135, normalized size = 1.44

$$-\frac{1}{12000}\sqrt{5}\left(2\left(4\left(40x-23\right)(5x+3)+33\right)\sqrt{5x+3}\sqrt{-10x+5}-363\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$
$$+\frac{1}{400}\sqrt{5}\left(2\left(20x+1\right)\sqrt{5x+3}\sqrt{-10x+5}+121\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] -1/12000*sqrt(5)*(2*(4*(40*x - 23)*(5*x + 3) + 33)*sqrt(5*x + 3)*
sqrt(-10*x + 5) - 363*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))
) + 1/400*sqrt(5)*(2*(20*x + 1)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 1
21*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)))
```

3.2314 $\int \frac{(1-2x)^{3/2}\sqrt{3+5x}}{2+3x}\,dx$

Optimal. Leaf size=106

$$\frac{1}{6}\sqrt{5x+3}(1-2x)^{3/2}+\frac{107}{180}\sqrt{5x+3}\sqrt{1-2x}+\frac{4091\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{540\sqrt{10}}+\frac{14}{27}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

```
[Out] (107*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/180 + ((1 - 2*x)^(3/2)*Sqrt[3 +
 5*x])/6 + (4091*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(540*Sqrt[10])
 + (14*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/27
```

Rubi [A] time = 0.237023, antiderivative size = 106, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 7, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.269$

$$\frac{1}{6}\sqrt{5x+3}(1-2x)^{3/2}+\frac{107}{180}\sqrt{5x+3}\sqrt{1-2x}+\frac{4091\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{540\sqrt{10}}+\frac{14}{27}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(2 + 3*x),x]
```

```
[Out] (107*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/180 + ((1 - 2*x)^(3/2)*Sqrt[3 +
 5*x])/6 + (4091*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(540*Sqrt[10])
 + (14*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/27
```

Rubi in Sympy [A] time = 23.4516, size = 97, normalized size = 0.92

$$\frac{(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{6}+\frac{107\sqrt{-2x+1}\sqrt{5x+3}}{180}+\frac{4091\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{5400}+\frac{14\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{27}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(1/2)/(2+3*x),x)
```

```
[Out] (-2*x + 1)**(3/2)*sqrt(5*x + 3)/6 + 107*sqrt(-2*x + 1)*sqrt(5*x +
 3)/180 + 4091*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/5400 + 14
*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/27
```

Mathematica [A] time = 0.157991, size = 100, normalized size = 0.94

$$\frac{60\sqrt{1-2x}\sqrt{5x+3}(137-60x)+2800\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)+4091\sqrt{10}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)}{10800}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(2 + 3*x),x]
```

```
[Out] (60*(137 - 60*x)*Sqrt[1 - 2*x]*Sqrt[3 + 5*x] + 2800*Sqrt[7]*ArcTa
n[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])] + 4091*Sqrt[10]*
ArcTan[(1 + 20*x)/(2*Sqrt[1 - 2*x]*Sqrt[30 + 50*x])])/10800
```

Maple [A] time = 0.013, size = 98, normalized size = 0.9

$$-\frac{1}{10800}\sqrt{1-2x}\sqrt{3+5x}\left(2800\sqrt{7}\arctan\left(1/14\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)-4091\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)+3600x\sqrt{-10x^2-x}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^(1/2)/(2+3*x),x)
```

```
[Out] -1/10800*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2800*7^(1/2)*arctan(1/14*(3
7*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))-4091*10^(1/2)*arcsin(20/11*x
+1/11)+3600*x*(-10*x^2-x+3)^(1/2)-8220*(-10*x^2-x+3)^(1/2))/(-10*
x^2-x+3)^(1/2)
```

Maxima [A] time = 1.50075, size = 93, normalized size = 0.88

$$-\frac{1}{3}\sqrt{-10x^2-x+3}x+\frac{4091}{10800}\sqrt{10}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)-\frac{7}{27}\sqrt{7}\arcsin\left(\frac{37x}{11|3x+2|}+\frac{20}{11|3x+2|}\right)+\frac{137}{180}\sqrt{-10x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2),x, algorithm="maxima")
```

```
[Out] -1/3*sqrt(-10*x^2 - x + 3)*x + 4091/10800*sqrt(10)*arcsin(20/11*x
 + 1/11) - 7/27*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3
*x + 2)) + 137/180*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.230471, size = 122, normalized size = 1.15

$$-\frac{1}{10800}\sqrt{10}\left(6\sqrt{10}(60x-137)\sqrt{5x+3}\sqrt{-2x+1}+280\sqrt{10}\sqrt{7}\arctan\left(\frac{\sqrt{7}(37x+20)}{14\sqrt{5x+3}\sqrt{-2x+1}}\right)-4091\arctan\left(\frac{\sqrt{10}(2}{20\sqrt{5x+}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2),x, algorithm="fricas")
```

```
[Out] -1/10800*sqrt(10)*(6*sqrt(10)*(60*x - 137)*sqrt(5*x + 3)*sqrt(-2*
x + 1) + 280*sqrt(10)*sqrt(7)*arctan(1/14*sqrt(7)*(37*x + 20)/(sq
rt(5*x + 3)*sqrt(-2*x + 1))) - 4091*arctan(1/20*sqrt(10)*(20*x +
1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{3x+2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**(1/2)/(2+3*x),x)
```

```
[Out] Integral((-2*x + 1)**(3/2)*sqrt(5*x + 3)/(3*x + 2), x)
```

GIAC/XCAS [A] time = 0.282784, size = 234, normalized size = 2.21

$$-\frac{7}{270}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{1}{900}\left(12\sqrt{5}(5x+3)-173\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}+\frac{4091}{10800}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{4\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2),x, algorithm="giac")
```

```
[Out] -7/270*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x
+ 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqrt
(2)*sqrt(-10*x + 5) - sqrt(22)))) - 1/900*(12*sqrt(5)*(5*x + 3) -
 173*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5) + 4091/10800*sqrt(10)
*(pi + 2*arctan(-1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sq
rt(22))^2/(5*x + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))
```

3.2315 $\int \frac{(1-2x)^{3/2}\sqrt{3+5x}}{(2+3x)^2} dx$

Optimal. Leaf size=115

$$-\frac{\sqrt{5x+3}(1-2x)^{3/2}}{3(3x+2)}-\frac{4}{9}\sqrt{5x+3}\sqrt{1-2x}-\frac{107}{27}\sqrt{\frac{2}{5}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{41}{27}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

```
[Out] (-4*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/9 - ((1 - 2*x)^(3/2)*Sqrt[3 + 5*
x])/(3*(2 + 3*x)) - (107*Sqrt[2/5]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x
]])/27 - (41*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])
])/27
```

Rubi [A] time = 0.239718, antiderivative size = 115, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 7, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.269

$$-\frac{\sqrt{5x+3}(1-2x)^{3/2}}{3(3x+2)}-\frac{4}{9}\sqrt{5x+3}\sqrt{1-2x}-\frac{107}{27}\sqrt{\frac{2}{5}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{41}{27}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(2 + 3*x)^2,x]
```

```
[Out] (-4*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/9 - ((1 - 2*x)^(3/2)*Sqrt[3 + 5*
x])/(3*(2 + 3*x)) - (107*Sqrt[2/5]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x
]])/27 - (41*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])
])/27
```

Rubi in Sympy [A] time = 23.5506, size = 102, normalized size = 0.89

$$-\frac{(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{3(3x+2)}-\frac{4\sqrt{-2x+1}\sqrt{5x+3}}{9}-\frac{107\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{135}-\frac{41\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{27}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(1/2)/(2+3*x)**2,x)
```

```
[Out] -(-2*x + 1)**(3/2)*sqrt(5*x + 3)/(3*(3*x + 2)) - 4*sqrt(-2*x + 1)
*sqrt(5*x + 3)/9 - 107*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/1
35 - 41*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/27
```

Mathematica [A] time = 0.143666, size = 107, normalized size = 0.93

$$\frac{1}{270}\left(-\frac{30\sqrt{1-2x}\sqrt{5x+3}(6x+11)}{3x+2}-205\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)-107\sqrt{10}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(2 + 3*x)^2,x]
```

```
[Out] ((-30*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(11 + 6*x))/(2 + 3*x) - 205*Sqr
t[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])] - 107*
Sqrt[10]*ArcTan[(1 + 20*x)/(2*Sqrt[1 - 2*x]*Sqrt[30 + 50*x])])/27
```

0

Maple [A] time = 0.017, size = 146, normalized size = 1.3

$$\frac{1}{540+810x}\sqrt{1-2x}\sqrt{3+5x}\left(615\sqrt{7}\arctan\left(1/14\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)x-321\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)x+410\sqrt{7}\arctan\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^(1/2)/(2+3*x)^2,x)
```

```
[Out] 1/270*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(615*7^(1/2)*arctan(1/14*(37*x+
20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x-321*10^(1/2)*arcsin(20/11*x+1/
11)*x+410*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/
2))-214*10^(1/2)*arcsin(20/11*x+1/11)-180*x*(-10*x^2-x+3)^(1/2)-3
30*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)
```

Maxima [A] time = 1.50251, size = 101, normalized size = 0.88

$$-\frac{107}{270}\sqrt{10}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)+\frac{41}{54}\sqrt{7}\arcsin\left(\frac{37x}{11|3x+2|}+\frac{20}{11|3x+2|}\right)-\frac{2}{9}\sqrt{-10x^2-x+3}-\frac{7\sqrt{-10x^2-x+3}}{9(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^2,x, algorithm="maxima")
```

```
[Out] -107/270*sqrt(10)*arcsin(20/11*x + 1/11) + 41/54*sqrt(7)*arcsin(3
7/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) - 2/9*sqrt(-10*x^2 - x
+ 3) - 7/9*sqrt(-10*x^2 - x + 3)/(3*x + 2)
```

Fricas [A] time = 0.229258, size = 153, normalized size = 1.33

$$\frac{\sqrt{5}\left(41\sqrt{7}\sqrt{5}(3x+2)\arctan\left(\frac{\sqrt{7}(37x+20)}{14\sqrt{5x+3}\sqrt{-2x+1}}\right)-6\sqrt{5}(6x+11)\sqrt{5x+3}\sqrt{-2x+1}-107\sqrt{2}(3x+2)\arctan\left(\frac{\sqrt{5}\sqrt{2}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right.\right.}{270(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^2,x, algorithm="fricas")
```

```
[Out] 1/270*sqrt(5)*(41*sqrt(7)*sqrt(5)*(3*x + 2)*arctan(1/14*sqrt(7)*(
37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))) - 6*sqrt(5)*(6*x + 11)
*sqrt(5*x + 3)*sqrt(-2*x + 1) - 107*sqrt(2)*(3*x + 2)*arctan(1/20
*sqrt(5)*sqrt(2)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(3*x
 + 2)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{(3x+2)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**(1/2)/(2+3*x)**2,x)
```

```
[Out] Integral((-2*x + 1)**(3/2)*sqrt(5*x + 3)/(3*x + 2)**2, x)
```

GIAC/XCAS [A] time = 0.317401, size = 377, normalized size = 3.28

$$\frac{41}{540}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^{2}}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{107}{270}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^{2}}{5x+3}-4\right)}{4\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{2}{45}\sqrt{5}\sqrt{5x+3}\sqrt{-10x+5}-\frac{154\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)}{9\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^{2}+280\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^2,x, algorithm="giac")
```

```
[Out] 41/540*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x
+ 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqrt
(2)*sqrt(-10*x + 5) - sqrt(22)))) - 107/270*sqrt(10)*(pi + 2*arct
an(-1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*
x + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 2/45*sqrt(5)
*sqrt(5*x + 3)*sqrt(-10*x + 5) - 154/9*sqrt(10)*((sqrt(2)*sqrt(-1
0*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqr
t(-10*x + 5) - sqrt(22)))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/
sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(2
2)))^2 + 280)
```

3.2316 $\int \frac{(1-2x)^{3/2}\sqrt{3+5x}}{(2+3x)^3}\,dx$

Optimal. Leaf size=120

$$-\frac{\sqrt{5x+3}(1-2x)^{3/2}}{6(3x+2)^2}+\frac{41\sqrt{5x+3}\sqrt{1-2x}}{36(3x+2)}+\frac{4}{27}\sqrt{10}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{793\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{108\sqrt{7}}$$

```
[Out] -((1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(6*(2 + 3*x)^2) + (41*Sqrt[1 - 2
*x]*Sqrt[3 + 5*x])/(36*(2 + 3*x)) + (4*Sqrt[10]*ArcSin[Sqrt[2/11]
*Sqrt[3 + 5*x]])/27 - (793*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 +
 5*x])])/(108*Sqrt[7])
```

Rubi [A] time = 0.238451, antiderivative size = 120, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 7, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.269

$$-\frac{\sqrt{5x+3}(1-2x)^{3/2}}{6(3x+2)^2}+\frac{41\sqrt{5x+3}\sqrt{1-2x}}{36(3x+2)}+\frac{4}{27}\sqrt{10}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{793\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{108\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(2 + 3*x)^3,x]
```

```
[Out] -((1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(6*(2 + 3*x)^2) + (41*Sqrt[1 - 2
*x]*Sqrt[3 + 5*x])/(36*(2 + 3*x)) + (4*Sqrt[10]*ArcSin[Sqrt[2/11]
*Sqrt[3 + 5*x]])/27 - (793*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 +
 5*x])])/(108*Sqrt[7])
```

Rubi in Sympy [A] time = 23.0922, size = 107, normalized size = 0.89

$$-\frac{(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{6\,(3x+2)^2}+\frac{41\sqrt{-2x+1}\sqrt{5x+3}}{36\,(3x+2)}+\frac{4\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{27}-\frac{793\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{756}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(1/2)/(2+3*x)**3,x)
```

```
[Out] -(-2*x + 1)**(3/2)*sqrt(5*x + 3)/(6*(3*x + 2)**2) + 41*sqrt(-2*x
+ 1)*sqrt(5*x + 3)/(36*(3*x + 2)) + 4*sqrt(10)*asin(sqrt(22)*sqrt
(5*x + 3)/11)/27 - 793*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqr
t(5*x + 3)))/756
```

Mathematica [A] time = 0.145377, size = 107, normalized size = 0.89

$$\frac{\frac{42\sqrt{1-2x}\sqrt{5x+3}(135x+76)}{(3x+2)^2}-793\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)+112\sqrt{10}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)}{1512}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(2 + 3*x)^3,x]
```

```
[Out] ((42*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(76 + 135*x))/(2 + 3*x)^2 - 793*
Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])] + 1
12*Sqrt[10]*ArcTan[(1 + 20*x)/(2*Sqrt[1 - 2*x]*Sqrt[30 + 50*x])])
```

```
/1512
```

Maple [B] time = 0.017, size = 191, normalized size = 1.6

$$\frac{1}{1512\,(2+3\,x)^2}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(7137\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^2+1008\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x^2+9516\,\sqrt{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^(1/2)/(2+3*x)^3,x)
```

```
[Out] 1/1512*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(7137*7^(1/2)*arctan(1/14*(37*
x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+1008*10^(1/2)*arcsin(20/11
*x+1/11)*x^2+9516*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-
x+3)^(1/2))*x+1344*10^(1/2)*arcsin(20/11*x+1/11)*x+3172*7^(1/2)*a
rctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+448*10^(1/2)*ar
csin(20/11*x+1/11)+5670*x*(-10*x^2-x+3)^(1/2)+3192*(-10*x^2-x+3)^
(1/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)^2
```

Maxima [A] time = 1.52243, size = 136, normalized size = 1.13

$$\frac{2}{27}\sqrt{10}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)+\frac{793}{1512}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{5}{9}\sqrt{-10\,x^2-x+3}+\frac{\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{2\,(9\,x^2+12\,x+4)}-\frac{29\,\sqrt{-10\,x^2-x+3}}{36\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^3,x, algorithm="maxima")
```

```
[Out] 2/27*sqrt(10)*arcsin(20/11*x + 1/11) + 793/1512*sqrt(7)*arcsin(37
/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) + 5/9*sqrt(-10*x^2 - x +
 3) + 1/2*(-10*x^2 - x + 3)^(3/2)/(9*x^2 + 12*x + 4) - 29/36*sqrt
(-10*x^2 - x + 3)/(3*x + 2)
```

Fricas [A] time = 0.229103, size = 165, normalized size = 1.38

$$\frac{\sqrt{7}\left(16\,\sqrt{10}\sqrt{7}\left(9\,x^2+12\,x+4\right)\arctan\left(\frac{\sqrt{10}(20\,x+1)}{20\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)+6\,\sqrt{7}(135\,x+76)\sqrt{5\,x+3}\sqrt{-2\,x+1}+793\,\left(9\,x^2+12\,x+4\right)\operatorname{arctar}\right.}{1512\,(9\,x^2+12\,x+4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^3,x, algorithm="fricas")
```

```
[Out] 1/1512*sqrt(7)*(16*sqrt(10)*sqrt(7)*(9*x^2 + 12*x + 4)*arctan(1/2
0*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))) + 6*sqrt(7)
*(135*x + 76)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 793*(9*x^2 + 12*x +
4)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))
))/(9*x^2 + 12*x + 4)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**(1/2)/(2+3*x)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.324861, size = 437, normalized size = 3.64

$$\frac{793}{15120}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)+\frac{2}{27}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{4\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{55\left(5\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3-2296\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)\right)}{18\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^3,x, algorithm="giac")
```

```
[Out] 793/15120*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5
*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(s
qrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 2/27*sqrt(10)*(pi + 2*arct
an(-1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*
x + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 55/18*(5*sqr
t(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqr
t(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 - 2296*sqrt(10
)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*
x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10
*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt
(-10*x + 5) - sqrt(22)))^2 + 280)^2
```

3.2317 $\int \frac{(1-2x)^{3/2}\sqrt{3+5x}}{(2+3x)^4}\,dx$

Optimal. Leaf size=122

$$\frac{11\sqrt{1-2x}(5x+3)^{3/2}}{4(3x+2)^2}+\frac{(1-2x)^{3/2}(5x+3)^{3/2}}{3(3x+2)^3}-\frac{121\sqrt{1-2x}\sqrt{5x+3}}{56(3x+2)}-\frac{1331\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{56\sqrt{7}}$$

```
[Out] (-121*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(56*(2 + 3*x)) + ((1 - 2*x)^(3
/2)*(3 + 5*x)^(3/2))/(3*(2 + 3*x)^3) + (11*Sqrt[1 - 2*x]*(3 + 5*x
)^(3/2))/(4*(2 + 3*x)^2) - (1331*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sq
rt[3 + 5*x])])/(56*Sqrt[7])
```

Rubi [A] time = 0.167274, antiderivative size = 122, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.115

$$\frac{11\sqrt{1-2x}(5x+3)^{3/2}}{4(3x+2)^2}+\frac{(1-2x)^{3/2}(5x+3)^{3/2}}{3(3x+2)^3}-\frac{121\sqrt{1-2x}\sqrt{5x+3}}{56(3x+2)}-\frac{1331\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{56\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(2 + 3*x)^4,x]
```


```
[Out] (-121*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(56*(2 + 3*x)) + ((1 - 2*x)^(3
/2)*(3 + 5*x)^(3/2))/(3*(2 + 3*x)^3) + (11*Sqrt[1 - 2*x]*(3 + 5*x
)^(3/2))/(4*(2 + 3*x)^2) - (1331*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sq
rt[3 + 5*x])])/(56*Sqrt[7])
```

Rubi in Sympy [A] time = 13.9689, size = 109, normalized size = 0.89

$$-\frac{11\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{28\left(3x+2\right)^{2}}+\frac{\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{3}{2}}}{3\left(3x+2\right)^{3}}+\frac{121\sqrt{-2x+1}\sqrt{5x+3}}{56\left(3x+2\right)}-\frac{1331\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{392}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(1/2)/(2+3*x)**4,x)
```

```
[Out] -11*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/(28*(3*x + 2)**2) + (-2*x + 1
)**(3/2)*(5*x + 3)**(3/2)/(3*(3*x + 2)**3) + 121*sqrt(-2*x + 1)*s
qrt(5*x + 3)/(56*(3*x + 2)) - 1331*sqrt(7)*atan(sqrt(7)*sqrt(-2*x
 + 1)/(7*sqrt(5*x + 3)))/392
```

Mathematica [A] time = 0.0857225, size = 77, normalized size = 0.63

$$\frac{\frac{14\sqrt{1-2x}\sqrt{5x+3}(3103x^2+4366x+1488)}{(3x+2)^3}-3993\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{2352}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(2 + 3*x)^4,x]
```

```
[Out] ((14*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(1488 + 4366*x + 3103*x^2))/(2 +
 3*x)^3 - 3993*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt
[3 + 5*x])])/2352
```

Maple [B] time = 0.017, size = 202, normalized size = 1.7

$$\frac{1}{2352\,(2+3\,x)^{3}}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(107811\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^{2}-x+3}}\right)x^{3}+215622\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^{2}-x+3}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^(1/2)/(2+3*x)^4,x)
```

```
[Out] 1/2352*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(107811*7^(1/2)*arctan(1/14*(3
7*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+215622*7^(1/2)*arctan(1/
14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+143748*7^(1/2)*arct
an(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+43442*x^2*(-10*x
^2-x+3)^(1/2)+31944*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^
2-x+3)^(1/2))+61124*x*(-10*x^2-x+3)^(1/2)+20832*(-10*x^2-x+3)^(1/
2))/(-10*x^2-x+3)^(1/2)/(2+3*x)^3
```

Maxima [A] time = 1.51189, size = 163, normalized size = 1.34

$$\frac{1331}{784}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{55}{42}\sqrt{-10\,x^{2}-x+3}+\frac{\left(-10\,x^{2}-x+3\right)^{\frac{3}{2}}}{3\,(27\,x^{3}+54\,x^{2}+36\,x+8)}+\frac{33\,\left(-10\,x^{2}-x+3\right)^{\frac{3}{2}}}{28\,(9\,x^{2}+12\,x+4)}-\frac{407\,\sqrt{-10\,x^{2}-x+3}}{168\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^4,x, algorithm="maxima")
```

```
[Out] 1331/784*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)
) + 55/42*sqrt(-10*x^2 - x + 3) + 1/3*(-10*x^2 - x + 3)^(3/2)/(27
*x^3 + 54*x^2 + 36*x + 8) + 33/28*(-10*x^2 - x + 3)^(3/2)/(9*x^2
+ 12*x + 4) - 407/168*sqrt(-10*x^2 - x + 3)/(3*x + 2)
```

Fricas [A] time = 0.220988, size = 127, normalized size = 1.04

$$\frac{\sqrt{7}\left(2\,\sqrt{7}\left(3103\,x^{2}+4366\,x+1488\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+3993\,\left(27\,x^{3}+54\,x^{2}+36\,x+8\right)\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)}{2352\,(27\,x^{3}+54\,x^{2}+36\,x+8)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^4,x, algorithm="fricas")
```

```
[Out] 1/2352*sqrt(7)*(2*sqrt(7)*(3103*x^2 + 4366*x + 1488)*sqrt(5*x + 3
)*sqrt(-2*x + 1) + 3993*(27*x^3 + 54*x^2 + 36*x + 8)*arctan(1/14*
sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(27*x^3 + 54
*x^2 + 36*x + 8)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**(1/2)/(2+3*x)**4,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.330857, size = 429, normalized size = 3.52

$$\frac{1331}{7840}\sqrt{70}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)$$

$$-\frac{1331\left(3\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^5-2240\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3-235200\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)\right)}{84\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^4,x, algorithm="giac")
```

```
[Out] 1331/7840*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5
*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(s
qrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 1331/84*(3*sqrt(10)*((sqrt
(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(
sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 - 2240*sqrt(10)*((sqrt(2)*
sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt
(2)*sqrt(-10*x + 5) - sqrt(22)))^3 - 235200*sqrt(10)*((sqrt(2)*sq
rt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2
)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt
(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) -
sqrt(22)))^2 + 280)^3
```

3.2318 $\int \frac{(1-2x)^{3/2}\sqrt{3+5x}}{(2+3x)^5} dx$

Optimal. Leaf size=151

$$\frac{3(5x+3)^{3/2}(1-2x)^{5/2}}{28(3x+2)^4}+\frac{181(5x+3)^{3/2}(1-2x)^{3/2}}{168(3x+2)^3}+\frac{1991(5x+3)^{3/2}\sqrt{1-2x}}{224(3x+2)^2}-\frac{21901\sqrt{5x+3}\sqrt{1-2x}}{3136(3x+2)}-\frac{240911\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{3136\sqrt{7}}$$

```
[Out] (-21901*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(3136*(2 + 3*x)) + (3*(1 - 2
*x)^(5/2)*(3 + 5*x)^(3/2))/(28*(2 + 3*x)^4) + (181*(1 - 2*x)^(3/2
)*(3 + 5*x)^(3/2))/(168*(2 + 3*x)^3) + (1991*Sqrt[1 - 2*x]*(3 + 5
*x)^(3/2))/(224*(2 + 3*x)^2) - (240911*ArcTan[Sqrt[1 - 2*x]/(Sqrt
[7]*Sqrt[3 + 5*x])])/(3136*Sqrt[7])
```

Rubi [A] time = 0.213009, antiderivative size = 151, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$\frac{3(5x+3)^{3/2}(1-2x)^{5/2}}{28(3x+2)^4}+\frac{181(5x+3)^{3/2}(1-2x)^{3/2}}{168(3x+2)^3}+\frac{1991(5x+3)^{3/2}\sqrt{1-2x}}{224(3x+2)^2}-\frac{21901\sqrt{5x+3}\sqrt{1-2x}}{3136(3x+2)}-\frac{240911\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{3136\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(2 + 3*x)^5,x]
```


```
[Out] (-21901*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(3136*(2 + 3*x)) + (3*(1 - 2
*x)^(5/2)*(3 + 5*x)^(3/2))/(28*(2 + 3*x)^4) + (181*(1 - 2*x)^(3/2
)*(3 + 5*x)^(3/2))/(168*(2 + 3*x)^3) + (1991*Sqrt[1 - 2*x]*(3 + 5
*x)^(3/2))/(224*(2 + 3*x)^2) - (240911*ArcTan[Sqrt[1 - 2*x]/(Sqrt
[7]*Sqrt[3 + 5*x])])/(3136*Sqrt[7])
```

Rubi in Sympy [A] time = 16.8534, size = 138, normalized size = 0.91

$$-\frac{181\left(-2x+1\right)^{\frac{5}{2}}\sqrt{5x+3}}{1176\left(3x+2\right)^{3}}+\frac{3\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{3}{2}}}{28\left(3x+2\right)^{4}}+\frac{1991\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{4704\left(3x+2\right)^{2}}+\frac{21901\sqrt{-2x+1}\sqrt{5x+3}}{3136\left(3x+2\right)}-\frac{240911\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{21952}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(1/2)/(2+3*x)**5,x)
```

```
[Out] -181*(-2*x + 1)**(5/2)*sqrt(5*x + 3)/(1176*(3*x + 2)**3) + 3*(-2*
x + 1)**(5/2)*(5*x + 3)**(3/2)/(28*(3*x + 2)**4) + 1991*(-2*x + 1
)**(3/2)*sqrt(5*x + 3)/(4704*(3*x + 2)**2) + 21901*sqrt(-2*x + 1)
*sqrt(5*x + 3)/(3136*(3*x + 2)) - 240911*sqrt(7)*atan(sqrt(7)*sqr
t(-2*x + 1)/(7*sqrt(5*x + 3)))/21952
```

Mathematica [A] time = 0.0917673, size = 82, normalized size = 0.54

$$\frac{\frac{14\sqrt{1-2x}\sqrt{5x+3}\left(1705089x^3+3485960x^2+2381420x+541680\right)}{(3x+2)^4}-722733\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{131712}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(2 + 3*x)^5,x]
```

```
[Out] ((14*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(541680 + 2381420*x + 3485960*x^
2 + 1705089*x^3))/(2 + 3*x)^4 - 722733*Sqrt[7]*ArcTan[(-20 - 37*x
)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/131712
```

Maple [B] time = 0.019, size = 250, normalized size = 1.7

$$\frac{1}{131712\,(2+3\,x)^4}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(58541373\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^4+156110328\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+}{\sqrt{-10\,x^2}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^(1/2)/(2+3*x)^5,x)
```

```
[Out] 1/131712*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(58541373*7^(1/2)*arctan(1/1
4*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^4+156110328*7^(1/2)*ar
ctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+156110328*7^
(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+2387
1246*x^3*(-10*x^2-x+3)^(1/2)+69382368*7^(1/2)*arctan(1/14*(37*x+2
0)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+48803440*x^2*(-10*x^2-x+3)^(1/2
)+11563728*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1
/2))+33339880*x*(-10*x^2-x+3)^(1/2)+7583520*(-10*x^2-x+3)^(1/2))/
(-10*x^2-x+3)^(1/2)/(2+3*x)^4
```

Maxima [A] time = 1.51879, size = 212, normalized size = 1.4

$$\frac{240911}{43904}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{9955}{2352}\sqrt{-10\,x^2-x+3}+\frac{\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{4\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}+\frac{169\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{168\,(27\,x^3+54\,x^2+36\,x+8)}+\frac{5973\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{1568\,(9\,x^2+12\,x+4)}-\frac{73667\sqrt{-10\,x^2-x+3}}{9408\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^5,x, algorithm="maxima")
```

```
[Out] 240911/43904*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x
+ 2)) + 9955/2352*sqrt(-10*x^2 - x + 3) + 1/4*(-10*x^2 - x + 3)^(
3/2)/(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16) + 169/168*(-10*x^2
- x + 3)^(3/2)/(27*x^3 + 54*x^2 + 36*x + 8) + 5973/1568*(-10*x^2
- x + 3)^(3/2)/(9*x^2 + 12*x + 4) - 73667/9408*sqrt(-10*x^2 - x +
 3)/(3*x + 2)
```

Fricas [A] time = 0.226024, size = 147, normalized size = 0.97

$$\frac{\sqrt{7}\left(2\sqrt{7}\left(1705089\,x^3+3485960\,x^2+2381420\,x+541680\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+722733\left(81\,x^4+216\,x^3+216\,x^2+96\,x+16\right)\right.}{131712\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^5,x, algorithm="fricas")
```

```
[Out] 1/131712*sqrt(7)*(2*sqrt(7)*(1705089*x^3 + 3485960*x^2 + 2381420*
x + 541680)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 722733*(81*x^4 + 216*x
^3 + 216*x^2 + 96*x + 16)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5
*x + 3)*sqrt(-2*x + 1))))/(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16
)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**(1/2)/(2+3*x)**5,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.390501, size = 512, normalized size = 3.39

$$\frac{240911}{439040}\sqrt{70}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)$$

$$-\frac{1331\left(543\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^7-696920\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^5-156094400\sqrt{10}\left(\cdots\right.}{4704\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2\cdots\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^5,x, algorithm="giac")
```

```
[Out] 240911/439040*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sq
rt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4
)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 1331/4704*(543*sqrt(10
)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*
x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^7 - 696920*sqrt(10)*
((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x
+ 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 - 156094400*sqrt(10)
*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x
 + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 - 11919936000*sqrt(
10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(
5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-
10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sq
rt(-10*x + 5) - sqrt(22)))^2 + 280)^4
```

3.2319 $\int \frac{(1-2x)^{3/2}\sqrt{3+5x}}{(2+3x)^6}\,dx$

Optimal. Leaf size=180

$$-\frac{\sqrt{5x+3}(1-2x)^{3/2}}{15(3x+2)^5}+\frac{28291441\sqrt{5x+3}\sqrt{1-2x}}{1185408(3x+2)}+\frac{270463\sqrt{5x+3}\sqrt{1-2x}}{84672(3x+2)^2}+\frac{7723\sqrt{5x+3}\sqrt{1-2x}}{15120(3x+2)^3}+\frac{41\sqrt{5x+3}\sqrt{1-2x}}{360(3x+2)^4}-\frac{11988317\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{43904\sqrt{7}}$$

```
[Out] -((1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(15*(2 + 3*x)^5) + (41*Sqrt[1 -
2*x]*Sqrt[3 + 5*x])/(360*(2 + 3*x)^4) + (7723*Sqrt[1 - 2*x]*Sqrt[
3 + 5*x])/(15120*(2 + 3*x)^3) + (270463*Sqrt[1 - 2*x]*Sqrt[3 + 5*
x])/(84672*(2 + 3*x)^2) + (28291441*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/
(1185408*(2 + 3*x)) - (11988317*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqr
t[3 + 5*x])])/(43904*Sqrt[7])
```

Rubi [A] time = 0.370248, antiderivative size = 180, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$-\frac{\sqrt{5x+3}(1-2x)^{3/2}}{15(3x+2)^5}+\frac{28291441\sqrt{5x+3}\sqrt{1-2x}}{1185408(3x+2)}+\frac{270463\sqrt{5x+3}\sqrt{1-2x}}{84672(3x+2)^2}+\frac{7723\sqrt{5x+3}\sqrt{1-2x}}{15120(3x+2)^3}+\frac{41\sqrt{5x+3}\sqrt{1-2x}}{360(3x+2)^4}-\frac{11988317\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{43904\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(2 + 3*x)^6,x]
```

```
[Out] -((1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(15*(2 + 3*x)^5) + (41*Sqrt[1 -
2*x]*Sqrt[3 + 5*x])/(360*(2 + 3*x)^4) + (7723*Sqrt[1 - 2*x]*Sqrt[
3 + 5*x])/(15120*(2 + 3*x)^3) + (270463*Sqrt[1 - 2*x]*Sqrt[3 + 5*
x])/(84672*(2 + 3*x)^2) + (28291441*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/
(1185408*(2 + 3*x)) - (11988317*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqr
t[3 + 5*x])])/(43904*Sqrt[7])
```

Rubi in Sympy [A] time = 36.7183, size = 163, normalized size = 0.91

$$-\frac{(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{15\,(3x+2)^5}+\frac{28291441\sqrt{-2x+1}\sqrt{5x+3}}{1185408\,(3x+2)}+\frac{270463\sqrt{-2x+1}\sqrt{5x+3}}{84672\,(3x+2)^2}+\frac{7723\sqrt{-2x+1}\sqrt{5x+3}}{15120\,(3x+2)^3}+\frac{41\sqrt{-2x+1}\sqrt{5x+3}}{360\,(3x+2)^4}-\frac{11988317\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{307328}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(1/2)/(2+3*x)**6,x)
```

```
[Out] -(-2*x + 1)**(3/2)*sqrt(5*x + 3)/(15*(3*x + 2)**5) + 28291441*sqr
t(-2*x + 1)*sqrt(5*x + 3)/(1185408*(3*x + 2)) + 270463*sqrt(-2*x
+ 1)*sqrt(5*x + 3)/(84672*(3*x + 2)**2) + 7723*sqrt(-2*x + 1)*sqr
t(5*x + 3)/(15120*(3*x + 2)**3) + 41*sqrt(-2*x + 1)*sqrt(5*x + 3)
/(360*(3*x + 2)**4) - 11988317*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1
)/(7*sqrt(5*x + 3)))/307328
```

Mathematica [A] time = 0.101566, size = 87, normalized size = 0.48

$$\frac{\frac{14\sqrt{1-2x}\sqrt{5x+3}\left(1273114845x^4+3451770150x^3+3511594796x^2+1588955864x+269759904\right)}{(3x+2)^5}-179824755\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{9219840}$$

Antiderivative was successfully verified.

```
[In]   Integrate[((1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(2 + 3*x)^6,x]
```

```
[Out] ((14*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(269759904 + 1588955864*x + 3511
594796*x^2 + 3451770150*x^3 + 1273114845*x^4))/(2 + 3*x)^5 - 1798
24755*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x]
)])/9219840
```

Maple [B] time = 0.017, size = 298, normalized size = 1.7

$$\frac{1}{9219840\,(2+3x)^5}\sqrt{1-2x}\sqrt{3+5x}\left(43697415465\sqrt{7}\arctan\left(1/14\,\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)x^5+145658051550\sqrt{7}\arctan\left(1/14\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((1-2*x)^(3/2)*(3+5*x)^(1/2)/(2+3*x)^6,x)
```

```
[Out] 1/9219840*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(43697415465*7^(1/2)*arctan
(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^5+145658051550*7^(
1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^4+19421
0735400*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2)
)*x^3+17823607830*x^4*(-10*x^2-x+3)^(1/2)+129473823600*7^(1/2)*ar
ctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+48324782100*
x^3*(-10*x^2-x+3)^(1/2)+43157941200*7^(1/2)*arctan(1/14*(37*x+20)
*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+49162327144*x^2*(-10*x^2-x+3)^(1/
2)+5754392160*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)
^(1/2))+22245382096*x*(-10*x^2-x+3)^(1/2)+3776638656*(-10*x^2-x+3
)^(1/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)^5
```

Maxima [A] time = 1.51668, size = 267, normalized size = 1.48

$$\frac{11988317}{614656}\sqrt{7}\arcsin\left(\frac{37x}{11|3x+2|}+\frac{20}{11|3x+2|}\right)+\frac{495385}{32928}\sqrt{-10x^2-x+3}+\frac{\left(-10x^2-x+3\right)^{\frac{3}{2}}}{5\left(243x^5+810x^4+1080x^3+720x^2+240x+32\right)}+\frac{239\left(-10x^2-x+3\right)^{\frac{3}{2}}}{280\left(81x^4+216x^3+216x^2+96x+16\right)}+\frac{8395\left(-10x^2-x+3\right)^{\frac{3}{2}}}{2352\left(27x^3+54x^2+36x+8\right)}+\frac{297231\left(-10x^2-x+3\right)^{\frac{3}{2}}}{21952\left(9x^2+12x+4\right)}-\frac{3665849\sqrt{-10x^2-x+3}}{131712\,(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^6,x, algorithm="maxima")
```

```
[Out] 11988317/614656*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3
*x + 2)) + 495385/32928*sqrt(-10*x^2 - x + 3) + 1/5*(-10*x^2 - x
+ 3)^(3/2)/(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)
+ 239/280*(-10*x^2 - x + 3)^(3/2)/(81*x^4 + 216*x^3 + 216*x^2 + 9
6*x + 16) + 8395/2352*(-10*x^2 - x + 3)^(3/2)/(27*x^3 + 54*x^2 +
36*x + 8) + 297231/21952*(-10*x^2 - x + 3)^(3/2)/(9*x^2 + 12*x +
4) - 3665849/131712*sqrt(-10*x^2 - x + 3)/(3*x + 2)
```

Fricas [A] time = 0.221963, size = 167, normalized size = 0.93

$$\frac{\sqrt{7}\left(2\sqrt{7}\left(1273114845x^4+3451770150x^3+3511594796x^2+1588955864x+269759904\right)\sqrt{5x+3}\sqrt{-2x+1}+179824755\,(\right.}{9219840\left(243x^5+810x^4+1080x^3+720x^2+240x\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^6,x, algorithm="fricas")
```

```
[Out] 1/9219840*sqrt(7)*(2*sqrt(7)*(1273114845*x^4 + 3451770150*x^3 + 3
511594796*x^2 + 1588955864*x + 269759904)*sqrt(5*x + 3)*sqrt(-2*x
 + 1) + 179824755*(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x
 + 32)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x +
 1))))/(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**(1/2)/(2+3*x)**6,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.459314, size = 594, normalized size = 3.3

$$\frac{11988317}{6146560}\sqrt{70}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right) - \frac{1331\left(27021\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^9 - 52500560\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^7 - 18029240320}{65856}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^6,x, algorithm="giac")
```

```
[Out] 11988317/6146560*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)
*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3)
- 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 1331/65856*(27021*s
qrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*s
qrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^9 - 52500560*s
qrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*s
qrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^7 - 1802924032
0*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) -
4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 - 2768103
296000*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x +
3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 - 16
6086197760000*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt
(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))
)/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5
*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)^5
```

3.2320 $\int (1-2x)^{3/2}(2+3x)^3(3+5x)^{3/2}\,dx$

Optimal. Leaf size=172

$$-\frac{3}{70}(3x+2)^2(5x+3)^{5/2}(1-2x)^{5/2}-\frac{141599(5x+3)^{3/2}(1-2x)^{5/2}}{128000}-\frac{3(5x+3)^{5/2}(33300x+49829)(1-2x)^{5/2}}{280000}-\frac{1557589\sqrt{5x+3}(1-2x)^{5/2}}{512000}+\frac{17133479\sqrt{5x+3}(1-2x)^{3/2}}{10240000}+\frac{565404807\sqrt{5x+3}\sqrt{1-2x}}{102400000}+\frac{6219452877\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{102400000\sqrt{10}}$$

```
[Out] (565404807*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/102400000 + (17133479*(1
- 2*x)^(3/2)*Sqrt[3 + 5*x])/10240000 - (1557589*(1 - 2*x)^(5/2)*S
qrt[3 + 5*x])/512000 - (141599*(1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/1
28000 - (3*(1 - 2*x)^(5/2)*(2 + 3*x)^2*(3 + 5*x)^(5/2))/70 - (3*(
1 - 2*x)^(5/2)*(3 + 5*x)^(5/2)*(49829 + 33300*x))/280000 + (62194
52877*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(102400000*Sqrt[10])
```

Rubi [A] time = 0.211975, antiderivative size = 172, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.192$

$$-\frac{3}{70}(3x+2)^2(5x+3)^{5/2}(1-2x)^{5/2}-\frac{141599(5x+3)^{3/2}(1-2x)^{5/2}}{128000}-\frac{3(5x+3)^{5/2}(33300x+49829)(1-2x)^{5/2}}{280000}-\frac{1557589\sqrt{5x+3}(1-2x)^{5/2}}{512000}+\frac{17133479\sqrt{5x+3}(1-2x)^{3/2}}{10240000}+\frac{565404807\sqrt{5x+3}\sqrt{1-2x}}{102400000}+\frac{6219452877\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{102400000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)*(2 + 3*x)^3*(3 + 5*x)^(3/2),x]
```

```
[Out] (565404807*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/102400000 + (17133479*(1
- 2*x)^(3/2)*Sqrt[3 + 5*x])/10240000 - (1557589*(1 - 2*x)^(5/2)*S
qrt[3 + 5*x])/512000 - (141599*(1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/1
28000 - (3*(1 - 2*x)^(5/2)*(2 + 3*x)^2*(3 + 5*x)^(5/2))/70 - (3*(
1 - 2*x)^(5/2)*(3 + 5*x)^(5/2)*(49829 + 33300*x))/280000 + (62194
52877*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(102400000*Sqrt[10])
```

Rubi in Sympy [A] time = 19.3634, size = 158, normalized size = 0.92

$$-\frac{3\left(-2x+1\right)^{\frac{5}{2}}\left(3x+2\right)^{2}\left(5x+3\right)^{\frac{5}{2}}}{70}-\frac{\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{5}{2}}\left(74925x+\frac{448461}{4}\right)}{210000}+\frac{141599\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{5}{2}}}{320000}+\frac{1557589\sqrt{-2x+1}\left(5x+3\right)^{\frac{5}{2}}}{3200000}-\frac{17133479\sqrt{-2x+1}\left(5x+3\right)^{\frac{3}{2}}}{25600000}-\frac{565404807\sqrt{-2x+1}\sqrt{5x+3}}{102400000}+\frac{6219452877\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{1024000000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)**3*(3+5*x)**(3/2),x)
```

```
[Out] -3*(-2*x + 1)**(5/2)*(3*x + 2)**2*(5*x + 3)**(5/2)/70 - (-2*x + 1
)**(5/2)*(5*x + 3)**(5/2)*(74925*x + 448461/4)/210000 + 141599*(-
2*x + 1)**(3/2)*(5*x + 3)**(5/2)/320000 + 1557589*sqrt(-2*x + 1)*
(5*x + 3)**(5/2)/3200000 - 17133479*sqrt(-2*x + 1)*(5*x + 3)**(3/
2)/25600000 - 565404807*sqrt(-2*x + 1)*sqrt(5*x + 3)/102400000 +
```

```
6219452877*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/1024000000
```

Mathematica [A] time = 0.144569, size = 80, normalized size = 0.47

$$-\frac{10\sqrt{1-2x}\sqrt{5x+3}\left(27648000000x^6+67968000000x^5+46732032000x^4-12527113600x^3-28707557280x^2-928843646\right.}{7168000000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)*(2 + 3*x)^3*(3 + 5*x)^(3/2),x]
```

```
[Out] (-10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(3952411101 - 9288436460*x - 287
07557280*x^2 - 12527113600*x^3 + 46732032000*x^4 + 67968000000*x^
5 + 27648000000*x^6) - 43536170139*Sqrt[10]*ArcSin[Sqrt[5/11]*Sqr
t[1 - 2*x]])/7168000000
```

Maple [A] time = 0.014, size = 155, normalized size = 0.9

$$\frac{1}{14336000000}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(-552960000000\,x^6\sqrt{-10\,x^2-x+3}-1359360000000\,x^5\sqrt{-10\,x^2-x+3}-934640640000\,x\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^3*(3+5*x)^(3/2),x)
```

```
[Out] 1/14336000000*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(-552960000000*x^6*(-10
*x^2-x+3)^(1/2)-1359360000000*x^5*(-10*x^2-x+3)^(1/2)-93464064000
0*x^4*(-10*x^2-x+3)^(1/2)+250542272000*x^3*(-10*x^2-x+3)^(1/2)+57
4151145600*x^2*(-10*x^2-x+3)^(1/2)+43536170139*10^(1/2)*arcsin(20
/11*x+1/11)+185768729200*x*(-10*x^2-x+3)^(1/2)-79048222020*(-10*x
^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.5078, size = 157, normalized size = 0.91

$$-\frac{27}{70}\left(-10\,x^2-x+3\right)^{\frac{5}{2}}x^2-\frac{2439}{2800}\left(-10\,x^2-x+3\right)^{\frac{5}{2}}x-\frac{197487}{280000}\left(-10\,x^2-x+3\right)^{\frac{5}{2}}+\frac{141599}{64000}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x+\frac{141599}{1280000}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}+\frac{51400437}{5120000}\sqrt{-10\,x^2-x+3}x-\frac{6219452877}{2048000000}\sqrt{10}\arcsin\left(-\frac{20}{11}x-\frac{1}{11}\right)+\frac{51400437}{102400000}\sqrt{-10\,x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)^3*(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] -27/70*(-10*x^2 - x + 3)^(5/2)*x^2 - 2439/2800*(-10*x^2 - x + 3)^
(5/2)*x - 197487/280000*(-10*x^2 - x + 3)^(5/2) + 141599/64000*(-
10*x^2 - x + 3)^(3/2)*x + 141599/1280000*(-10*x^2 - x + 3)^(3/2)
+ 51400437/5120000*sqrt(-10*x^2 - x + 3)*x - 6219452877/204800000
0*sqrt(10)*arcsin(-20/11*x - 1/11) + 51400437/102400000*sqrt(-10*
x^2 - x + 3)
```

Fricas [A] time = 0.225127, size = 111, normalized size = 0.65

$$-\frac{1}{14336000000}\sqrt{10}\left(2\sqrt{10}\left(27648000000\,x^6+67968000000\,x^5+46732032000\,x^4-12527113600\,x^3-28707557280\,x^2-92\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(3*x + 2)^3*(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/14336000000*sqrt(10)*(2*sqrt(10)*(27648000000*x^6 + 6796800000
0*x^5 + 46732032000*x^4 - 12527113600*x^3 - 28707557280*x^2 - 928
8436460*x + 3952411101)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 4353617013
9*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1)))
)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(3/2)*(2+3*x)**3*(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.275537, size = 548, normalized size = 3.19

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(3*x + 2)^3*(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] -9/35840000000*sqrt(5)*(2*(4*(8*(4*(16*(20*(120*x - 359)*(5*x + 3
) + 63769)*(5*x + 3) - 3968469)*(5*x + 3) + 33617829)*(5*x + 3) -
 276044685)*(5*x + 3) + 87356115)*sqrt(5*x + 3)*sqrt(-10*x + 5) -
 960917265*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) - 189/256
0000000*sqrt(5)*(2*(4*(8*(4*(16*(100*x - 239)*(5*x + 3) + 27999)*
(5*x + 3) - 318159)*(5*x + 3) + 3237255)*(5*x + 3) - 2656665)*sqr
t(5*x + 3)*sqrt(-10*x + 5) + 29223315*sqrt(2)*arcsin(1/11*sqrt(22
)*sqrt(5*x + 3))) - 111/64000000*sqrt(5)*(2*(4*(8*(12*(80*x - 143
)*(5*x + 3) + 9773)*(5*x + 3) - 136405)*(5*x + 3) + 60555)*sqrt(5
*x + 3)*sqrt(-10*x + 5) - 666105*sqrt(2)*arcsin(1/11*sqrt(22)*sqr
t(5*x + 3))) + 23/960000*sqrt(5)*(2*(4*(8*(60*x - 71)*(5*x + 3) +
 2179)*(5*x + 3) - 4125)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 45375*sq
rt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 1/240*sqrt(5)*(2*(4*
(40*x - 23)*(5*x + 3) + 33)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 363*s
qrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 3/50*sqrt(5)*(2*(20
*x + 1)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 121*sqrt(2)*arcsin(1/11*s
qrt(22)*sqrt(5*x + 3)))
```

3.2321 $\int(1-2x)^{3/2}(2+3x)^2(3+5x)^{3/2}\,dx$

Optimal. Leaf size=165

$$-\frac{1}{20}(3x+2)(5x+3)^{5/2}(1-2x)^{5/2}-\frac{259(5x+3)^{5/2}(1-2x)^{5/2}}{2000}-\frac{3101(5x+3)^{3/2}(1-2x)^{5/2}}{6400}-\frac{34111\sqrt{5x+3}(1-2x)^{5/2}}{25600}+\frac{375221\sqrt{5x+3}(1-2x)^{3/2}}{512000}+\frac{12382293\sqrt{5x+3}\sqrt{1-2x}}{5120000}+\frac{136205223\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{5120000\sqrt{10}}$$

```
[Out] (12382293*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/5120000 + (375221*(1 - 2*x
)^(3/2)*Sqrt[3 + 5*x])/512000 - (34111*(1 - 2*x)^(5/2)*Sqrt[3 + 5
*x])/25600 - (3101*(1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/6400 - (259*(
1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/2000 - ((1 - 2*x)^(5/2)*(2 + 3*x)
*(3 + 5*x)^(5/2))/20 + (136205223*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]
])/(5120000*Sqrt[10])
```

Rubi [A] time = 0.19511, antiderivative size = 165, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$-\frac{1}{20}(3x+2)(5x+3)^{5/2}(1-2x)^{5/2}-\frac{259(5x+3)^{5/2}(1-2x)^{5/2}}{2000}-\frac{3101(5x+3)^{3/2}(1-2x)^{5/2}}{6400}-\frac{34111\sqrt{5x+3}(1-2x)^{5/2}}{25600}+\frac{375221\sqrt{5x+3}(1-2x)^{3/2}}{512000}+\frac{12382293\sqrt{5x+3}\sqrt{1-2x}}{5120000}+\frac{136205223\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{5120000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)*(2 + 3*x)^2*(3 + 5*x)^(3/2),x]
```

```
[Out] (12382293*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/5120000 + (375221*(1 - 2*x
)^(3/2)*Sqrt[3 + 5*x])/512000 - (34111*(1 - 2*x)^(5/2)*Sqrt[3 + 5
*x])/25600 - (3101*(1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/6400 - (259*(
1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/2000 - ((1 - 2*x)^(5/2)*(2 + 3*x)
*(3 + 5*x)^(5/2))/20 + (136205223*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]
])/(5120000*Sqrt[10])
```

Rubi in Sympy [A] time = 15.6421, size = 150, normalized size = 0.91

$$-\frac{(-2x+1)^{\frac{5}{2}}(5x+3)^{\frac{5}{2}}(9x+6)}{60}-\frac{259(-2x+1)^{\frac{5}{2}}(5x+3)^{\frac{5}{2}}}{2000}+\frac{3101(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{5}{2}}}{16000}-\frac{34111(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{3}{2}}}{64000}-\frac{1125663(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{512000}+\frac{12382293\sqrt{-2x+1}\sqrt{5x+3}}{5120000}+\frac{136205223\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{51200000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)**2*(3+5*x)**(3/2),x)
```

```
[Out] -(-2*x + 1)**(5/2)*(5*x + 3)**(5/2)*(9*x + 6)/60 - 259*(-2*x + 1)
**(5/2)*(5*x + 3)**(5/2)/2000 + 3101*(-2*x + 1)**(3/2)*(5*x + 3)*
*(5/2)/16000 - 34111*(-2*x + 1)**(3/2)*(5*x + 3)**(3/2)/64000 - 1
125663*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/512000 + 12382293*sqrt(-2*
x + 1)*sqrt(5*x + 3)/5120000 + 136205223*sqrt(10)*asin(sqrt(22)*s
```

```
qrt(5*x + 3)/11)/51200000
```

Mathematica [A] time = 0.121773, size = 75, normalized size = 0.45

$$\frac{-10\sqrt{1-2x}\sqrt{5x+3}\left(76800000x^5+132864000x^4+27804800x^3-66492960x^2-37288220x+8705457\right)-136205223\sqrt{10}\,\mathrm{s}}{51200000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)*(2 + 3*x)^2*(3 + 5*x)^(3/2),x]
```

```
[Out] (-10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(8705457 - 37288220*x - 66492960
*x^2 + 27804800*x^3 + 132864000*x^4 + 76800000*x^5) - 136205223*S
qrt[10]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/51200000
```

Maple [A] time = 0.012, size = 138, normalized size = 0.8

$$\frac{1}{102400000}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(-1536000000\,x^5\sqrt{-10\,x^2-x+3}-2657280000\,x^4\sqrt{-10\,x^2-x+3}-556096000\,x^3\sqrt{-10\,x^2-}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^2*(3+5*x)^(3/2),x)
```

```
[Out] 1/102400000*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(-1536000000*x^5*(-10*x^2
-x+3)^(1/2)-2657280000*x^4*(-10*x^2-x+3)^(1/2)-556096000*x^3*(-10
*x^2-x+3)^(1/2)+1329859200*x^2*(-10*x^2-x+3)^(1/2)+136205223*10^(
1/2)*arcsin(20/11*x+1/11)+745764400*x*(-10*x^2-x+3)^(1/2)-1741091
40*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.50457, size = 134, normalized size = 0.81

$$-\frac{3}{20}\left(-10\,x^2-x+3\right)^{\frac{5}{2}}x-\frac{459}{2000}\left(-10\,x^2-x+3\right)^{\frac{5}{2}}+\frac{3101}{3200}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x+\frac{3101}{64000}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}+\frac{1125663}{256000}\sqrt{-10\,x^2-x+3}x-\frac{136205223}{102400000}\sqrt{10}\arcsin\left(-\frac{20}{11}\,x-\frac{1}{11}\right)+\frac{1125663}{5120000}\sqrt{-10\,x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)^2*(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] -3/20*(-10*x^2 - x + 3)^(5/2)*x - 459/2000*(-10*x^2 - x + 3)^(5/2
) + 3101/3200*(-10*x^2 - x + 3)^(3/2)*x + 3101/64000*(-10*x^2 - x
 + 3)^(3/2) + 1125663/256000*sqrt(-10*x^2 - x + 3)*x - 136205223/
102400000*sqrt(10)*arcsin(-20/11*x - 1/11) + 1125663/5120000*sqrt
(-10*x^2 - x + 3)
```

Fricas [A] time = 0.222, size = 104, normalized size = 0.63

$$-\frac{1}{102400000}\sqrt{10}\left(2\sqrt{10}\left(76800000\,x^5+132864000\,x^4+27804800\,x^3-66492960\,x^2-37288220\,x+8705457\right)\sqrt{5\,x+3}\sqrt{-2}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(3*x + 2)^2*(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/102400000*sqrt(10)*(2*sqrt(10)*(76800000*x^5 + 132864000*x^4 +
 27804800*x^3 - 66492960*x^2 - 37288220*x + 8705457)*sqrt(5*x + 3
)*sqrt(-2*x + 1) - 136205223*arctan(1/20*sqrt(10)*(20*x + 1)/(sqr
t(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(3/2)*(2+3*x)**2*(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.257455, size = 427, normalized size = 2.59

$$-\frac{3}{256000000}\sqrt{5}\Big(2\,(4\,(8\,(4\,(16\,(100\,x-239)(5\,x+3)+27999)(5\,x+3)-318159)(5\,x+3)+3237255)(5\,x+3)-2656665)\sqrt{5\,\cdots}$$
$$-\frac{43}{64000000}\sqrt{5}\Big(2\,(4\,(8\,(12\,(80\,x-143)(5\,x+3)+9773)(5\,x+3)-136405)(5\,x+3)+60555)\sqrt{5\,x+3}\sqrt{-10\,x+5}-666105\,\sqrt{\cdots}$$
$$-\frac{1}{76800}\sqrt{5}\left(2\,(4\,(8\,(60\,x-71)(5\,x+3)+2179)(5\,x+3)-4125)\sqrt{5\,x+3}\sqrt{-10\,x+5}+45375\,\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5\,x+3}\right)\right)$$
$$+\frac{1}{750}\sqrt{5}\left(2\,(4\,(40\,x-23)(5\,x+3)+33)\sqrt{5\,x+3}\sqrt{-10\,x+5}-363\,\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5\,x+3}\right)\right)$$
$$+\frac{3}{100}\sqrt{5}\left(2\,(20\,x+1)\sqrt{5\,x+3}\sqrt{-10\,x+5}+121\,\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5\,x+3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(3*x + 2)^2*(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] -3/256000000*sqrt(5)*(2*(4*(8*(4*(16*(100*x - 239)*(5*x + 3) + 27
999)*(5*x + 3) - 318159)*(5*x + 3) + 3237255)*(5*x + 3) - 2656665
)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 29223315*sqrt(2)*arcsin(1/11*sq
rt(22)*sqrt(5*x + 3))) - 43/64000000*sqrt(5)*(2*(4*(8*(12*(80*x -
 143)*(5*x + 3) + 9773)*(5*x + 3) - 136405)*(5*x + 3) + 60555)*sq
rt(5*x + 3)*sqrt(-10*x + 5) - 666105*sqrt(2)*arcsin(1/11*sqrt(22)
*sqrt(5*x + 3))) - 1/76800*sqrt(5)*(2*(4*(8*(60*x - 71)*(5*x + 3)
 + 2179)*(5*x + 3) - 4125)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 45375*
sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 1/750*sqrt(5)*(2*(
4*(40*x - 23)*(5*x + 3) + 33)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 363
*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 3/100*sqrt(5)*(2*
(20*x + 1)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 121*sqrt(2)*arcsin(1/1
1*sqrt(22)*sqrt(5*x + 3)))
```

3.2322 $\int (1-2x)^{3/2}(2+3x)(3+5x)^{3/2}\,dx$

Optimal. Leaf size=138

$$-\frac{3}{50}(5x+3)^{5/2}(1-2x)^{5/2}$$
$$-\frac{37}{160}(5x+3)^{3/2}(1-2x)^{5/2}-\frac{407}{640}\sqrt{5x+3}(1-2x)^{5/2}+\frac{4477\sqrt{5x+3}(1-2x)^{3/2}}{12800}+\frac{147741\sqrt{5x+3}\sqrt{1-2x}}{128000}+\frac{1625151\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{128000\sqrt{10}}$$

```
[Out] (147741*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/128000 + (4477*(1 - 2*x)^(3/
2)*Sqrt[3 + 5*x])/12800 - (407*(1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/640
 - (37*(1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/160 - (3*(1 - 2*x)^(5/2)*
(3 + 5*x)^(5/2))/50 + (1625151*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/
(128000*Sqrt[10])
```

Rubi [A] time = 0.144122, antiderivative size = 138, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$-\frac{3}{50}(5x+3)^{5/2}(1-2x)^{5/2}$$
$$-\frac{37}{160}(5x+3)^{3/2}(1-2x)^{5/2}-\frac{407}{640}\sqrt{5x+3}(1-2x)^{5/2}+\frac{4477\sqrt{5x+3}(1-2x)^{3/2}}{12800}+\frac{147741\sqrt{5x+3}\sqrt{1-2x}}{128000}+\frac{1625151\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{128000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)*(2 + 3*x)*(3 + 5*x)^(3/2),x]
```

```
[Out] (147741*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/128000 + (4477*(1 - 2*x)^(3/
2)*Sqrt[3 + 5*x])/12800 - (407*(1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/640
 - (37*(1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/160 - (3*(1 - 2*x)^(5/2)*
(3 + 5*x)^(5/2))/50 + (1625151*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/
(128000*Sqrt[10])
```

Rubi in Sympy [A] time = 12.532, size = 126, normalized size = 0.91

$$-\frac{3(-2x+1)^{\frac{5}{2}}(5x+3)^{\frac{5}{2}}}{50}+\frac{37(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{5}{2}}}{400}+\frac{407\sqrt{-2x+1}(5x+3)^{\frac{5}{2}}}{4000}-\frac{4477\sqrt{-2x+1}(5x+3)^{\frac{3}{2}}}{32000}-\frac{147741\sqrt{-2x+1}\sqrt{5x+3}}{128000}+\frac{1625151\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{1280000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)*(3+5*x)**(3/2),x)
```

```
[Out] -3*(-2*x + 1)**(5/2)*(5*x + 3)**(5/2)/50 + 37*(-2*x + 1)**(3/2)*(
5*x + 3)**(5/2)/400 + 407*sqrt(-2*x + 1)*(5*x + 3)**(5/2)/4000 -
4477*sqrt(-2*x + 1)*(5*x + 3)**(3/2)/32000 - 147741*sqrt(-2*x + 1
)*sqrt(5*x + 3)/128000 + 1625151*sqrt(10)*asin(sqrt(22)*sqrt(5*x
+ 3)/11)/1280000
```

Mathematica [A] time = 0.084432, size = 70, normalized size = 0.51

$$\frac{-10\sqrt{1-2x}\sqrt{5x+3}\left(768000x^4+745600x^3-364320x^2-489340x+46809\right)-1625151\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1280000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)*(2 + 3*x)*(3 + 5*x)^(3/2),x]
```

```
[Out] (-10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(46809 - 489340*x - 364320*x^2 +
 745600*x^3 + 768000*x^4) - 1625151*Sqrt[10]*ArcSin[Sqrt[5/11]*Sq
rt[1 - 2*x]])/1280000
```

Maple [A] time = 0.012, size = 121, normalized size = 0.9

$$\frac{1}{2560000}\sqrt{1-2x}\sqrt{3+5x}\Big(-15360000x^4\sqrt{-10x^2-x+3}-14912000x^3\sqrt{-10x^2-x+3}+7286400x^2\sqrt{-10x^2-x+3}+1$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)*(3+5*x)^(3/2),x)
```

```
[Out] 1/2560000*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(-15360000*x^4*(-10*x^2-x+3
)^(1/2)-14912000*x^3*(-10*x^2-x+3)^(1/2)+7286400*x^2*(-10*x^2-x+3
)^(1/2)+1625151*10^(1/2)*arcsin(20/11*x+1/11)+9786800*x*(-10*x^2-
x+3)^(1/2)-936180*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.49318, size = 113, normalized size = 0.82

$$-\frac{3}{50}\left(-10x^2-x+3\right)^{\frac{5}{2}}+\frac{37}{80}\left(-10x^2-x+3\right)^{\frac{3}{2}}x+\frac{37}{1600}\left(-10x^2-x+3\right)^{\frac{3}{2}}+\frac{13431}{6400}\sqrt{-10x^2-x+3}x-\frac{1625151}{2560000}\sqrt{10}\arcsin\left(-\frac{20}{11}x-\frac{1}{11}\right)+\frac{13431}{128000}\sqrt{-10x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)*(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] -3/50*(-10*x^2 - x + 3)^(5/2) + 37/80*(-10*x^2 - x + 3)^(3/2)*x +
 37/1600*(-10*x^2 - x + 3)^(3/2) + 13431/6400*sqrt(-10*x^2 - x +
3)*x - 1625151/2560000*sqrt(10)*arcsin(-20/11*x - 1/11) + 13431/1
28000*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.219688, size = 97, normalized size = 0.7

$$-\frac{1}{2560000}\sqrt{10}\Big(2\sqrt{10}\left(768000x^4+745600x^3-364320x^2-489340x+46809\right)\sqrt{5x+3}\sqrt{-2x+1}-1625151\arctan\Big(\frac{}{20\sqrt{}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)*(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/2560000*sqrt(10)*(2*sqrt(10)*(768000*x^4 + 745600*x^3 - 364320
*x^2 - 489340*x + 46809)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 1625151*a
rctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)*(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.244911, size = 317, normalized size = 2.3

$$-\frac{1}{6400000}\sqrt{5}\left(2\left(4\left(8\left(12\left(80x-143\right)(5x+3)+9773\right)(5x+3)-136405\right)(5x+3)+60555\right)\sqrt{5x+3}\sqrt{-10x+5}-666105\sqrt{2}\right.$$
$$-\frac{23}{1920000}\sqrt{5}\left(2\left(4\left(8\left(60x-71\right)(5x+3)+2179\right)(5x+3)-4125\right)\sqrt{5x+3}\sqrt{-10x+5}+45375\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right.$$
$$+\frac{7}{24000}\sqrt{5}\left(2\left(4\left(40x-23\right)(5x+3)+33\right)\sqrt{5x+3}\sqrt{-10x+5}-363\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$
$$+\frac{3}{200}\sqrt{5}\left(2\left(20x+1\right)\sqrt{5x+3}\sqrt{-10x+5}+121\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)*(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] -1/6400000*sqrt(5)*(2*(4*(8*(12*(80*x - 143)*(5*x + 3) + 9773)*(5
*x + 3) - 136405)*(5*x + 3) + 60555)*sqrt(5*x + 3)*sqrt(-10*x + 5
) - 666105*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) - 23/1920
000*sqrt(5)*(2*(4*(8*(60*x - 71)*(5*x + 3) + 2179)*(5*x + 3) - 41
25)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 45375*sqrt(2)*arcsin(1/11*sqr
t(22)*sqrt(5*x + 3))) + 7/24000*sqrt(5)*(2*(4*(40*x - 23)*(5*x +
3) + 33)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 363*sqrt(2)*arcsin(1/11*
sqrt(22)*sqrt(5*x + 3))) + 3/200*sqrt(5)*(2*(20*x + 1)*sqrt(5*x +
 3)*sqrt(-10*x + 5) + 121*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x +
 3)))
```

3.2323 $\int (1-2x)^{3/2}(3+5x)^{3/2}\,dx$

Optimal. Leaf size=116

$$-\frac{1}{8}(5x+3)^{3/2}(1-2x)^{5/2}-\frac{11}{32}\sqrt{5x+3}(1-2x)^{5/2}+\frac{121}{640}\sqrt{5x+3}(1-2x)^{3/2}+\frac{3993\sqrt{5x+3}\sqrt{1-2x}}{6400}+\frac{43923\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{6400\sqrt{10}}$$

```
[Out] (3993*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/6400 + (121*(1 - 2*x)^(3/2)*Sq
rt[3 + 5*x])/640 - (11*(1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/32 - ((1 -
2*x)^(5/2)*(3 + 5*x)^(3/2))/8 + (43923*ArcSin[Sqrt[2/11]*Sqrt[3 +
 5*x]])/(6400*Sqrt[10])
```

Rubi [A] time = 0.107428, antiderivative size = 116, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 3, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.158

$$-\frac{1}{8}(5x+3)^{3/2}(1-2x)^{5/2}-\frac{11}{32}\sqrt{5x+3}(1-2x)^{5/2}+\frac{121}{640}\sqrt{5x+3}(1-2x)^{3/2}+\frac{3993\sqrt{5x+3}\sqrt{1-2x}}{6400}+\frac{43923\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{6400\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2),x]
```

```
[Out] (3993*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/6400 + (121*(1 - 2*x)^(3/2)*Sq
rt[3 + 5*x])/640 - (11*(1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/32 - ((1 -
2*x)^(5/2)*(3 + 5*x)^(3/2))/8 + (43923*ArcSin[Sqrt[2/11]*Sqrt[3 +
 5*x]])/(6400*Sqrt[10])
```

Rubi in Sympy [A] time = 10.0096, size = 104, normalized size = 0.9

$$\frac{(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{5}{2}}}{20}+\frac{11\sqrt{-2x+1}\,(5x+3)^{\frac{5}{2}}}{200}-\frac{121\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{1600}-\frac{3993\sqrt{-2x+1}\sqrt{5x+3}}{6400}+\frac{43923\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{64000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(3/2),x)
```

```
[Out] (-2*x + 1)**(3/2)*(5*x + 3)**(5/2)/20 + 11*sqrt(-2*x + 1)*(5*x +
3)**(5/2)/200 - 121*sqrt(-2*x + 1)*(5*x + 3)**(3/2)/1600 - 3993*s
qrt(-2*x + 1)*sqrt(5*x + 3)/6400 + 43923*sqrt(10)*asin(sqrt(22)*s
qrt(5*x + 3)/11)/64000
```

Mathematica [A] time = 0.0988443, size = 65, normalized size = 0.56

$$\frac{10\sqrt{1-2x}\sqrt{5x+3}\left(-16000x^3-2400x^2+11980x+603\right)-43923\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{64000}$$

Antiderivative was successfully verified.

```
[In]   Integrate[(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2),x]
```

```
[Out] (10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(603 + 11980*x - 2400*x^2 - 16000
*x^3) - 43923*Sqrt[10]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/64000
```

Maple [A]   time = 0.006, size = 104, normalized size = 0.9

$$\frac{1}{20}(1-2x)^{\frac{3}{2}}(3+5x)^{\frac{5}{2}}+\frac{11}{200}(3+5x)^{\frac{5}{2}}\sqrt{1-2x}-\frac{121}{1600}(3+5x)^{\frac{3}{2}}\sqrt{1-2x} -\frac{3993}{6400}\sqrt{1-2x}\sqrt{3+5x}+\frac{43923\sqrt{10}}{128000}\sqrt{(1-2x)(3+5x)}\arcsin\left(\frac{20x}{11}+\frac{1}{11}\right)\frac{1}{\sqrt{1-2x}}\frac{1}{\sqrt{3+5x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((1-2*x)^(3/2)*(3+5*x)^(3/2),x)
```

```
[Out] 1/20*(1-2*x)^(3/2)*(3+5*x)^(5/2)+11/200*(3+5*x)^(5/2)*(1-2*x)^(1/
2)-121/1600*(3+5*x)^(3/2)*(1-2*x)^(1/2)-3993/6400*(1-2*x)^(1/2)*(
3+5*x)^(1/2)+43923/128000*((1-2*x)*(3+5*x))^(1/2)/(3+5*x)^(1/2)/(
1-2*x)^(1/2)*10^(1/2)*arcsin(20/11*x+1/11)
```

Maxima [A]   time = 1.507, size = 95, normalized size = 0.82

$$\frac{1}{4}\left(-10x^2-x+3\right)^{\frac{3}{2}}x+\frac{1}{80}\left(-10x^2-x+3\right)^{\frac{3}{2}}+\frac{363}{320}\sqrt{-10x^2-x+3}x -\frac{43923}{128000}\sqrt{10}\arcsin\left(-\frac{20}{11}x-\frac{1}{11}\right)+\frac{363}{6400}\sqrt{-10x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] 1/4*(-10*x^2 - x + 3)^(3/2)*x + 1/80*(-10*x^2 - x + 3)^(3/2) + 36
3/320*sqrt(-10*x^2 - x + 3)*x - 43923/128000*sqrt(10)*arcsin(-20/
11*x - 1/11) + 363/6400*sqrt(-10*x^2 - x + 3)
```

Fricas [A]   time = 0.217772, size = 90, normalized size = 0.78

$$-\frac{1}{128000}\sqrt{10}\left(2\sqrt{10}\left(16000x^3+2400x^2-11980x-603\right)\sqrt{5x+3}\sqrt{-2x+1}-43923\arctan\left(\frac{\sqrt{10}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/128000*sqrt(10)*(2*sqrt(10)*(16000*x^3 + 2400*x^2 - 11980*x -
603)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 43923*arctan(1/20*sqrt(10)*(2
0*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [A]   time = 17.827, size = 269, normalized size = 2.32

$$\begin{cases} -\frac{25i\left(x+\frac{3}{5}\right)^{\frac{9}{2}}}{\sqrt{10x-5}}+\frac{275i\left(x+\frac{3}{5}\right)^{\frac{7}{2}}}{4\sqrt{10x-5}}-\frac{1573i\left(x+\frac{3}{5}\right)^{\frac{5}{2}}}{32\sqrt{10x-5}}-\frac{1331i\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}{640\sqrt{10x-5}}+\frac{43923i\sqrt{x+\frac{3}{5}}}{6400\sqrt{10x-5}}-\frac{43923\sqrt{10}i\operatorname{acosh}\left(\frac{\sqrt{110}\sqrt{x+\frac{3}{5}}}{11}\right)}{64000} & \text{for}\ \frac{10\left|x+\frac{3}{5}\right|}{11}>1 \\ \frac{43923\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{110}\sqrt{x+\frac{3}{5}}}{11}\right)}{64000}+\frac{25\left(x+\frac{3}{5}\right)^{\frac{9}{2}}}{\sqrt{-10x+5}}-\frac{275\left(x+\frac{3}{5}\right)^{\frac{7}{2}}}{4\sqrt{-10x+5}}+\frac{1573\left(x+\frac{3}{5}\right)^{\frac{5}{2}}}{32\sqrt{-10x+5}}+\frac{1331\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}{640\sqrt{-10x+5}}-\frac{43923\sqrt{x+\frac{3}{5}}}{6400\sqrt{-10x+5}} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**(3/2),x)
```

```
[Out] Piecewise((-25*I*(x + 3/5)**(9/2)/sqrt(10*x - 5) + 275*I*(x + 3/5
)**(7/2)/(4*sqrt(10*x - 5)) - 1573*I*(x + 3/5)**(5/2)/(32*sqrt(10
*x - 5)) - 1331*I*(x + 3/5)**(3/2)/(640*sqrt(10*x - 5)) + 43923*I
*sqrt(x + 3/5)/(6400*sqrt(10*x - 5)) - 43923*sqrt(10)*I*acosh(sqr
t(110)*sqrt(x + 3/5)/11)/64000, 10*Abs(x + 3/5)/11 > 1), (43923*s
qrt(10)*asin(sqrt(110)*sqrt(x + 3/5)/11)/64000 + 25*(x + 3/5)**(9
/2)/sqrt(-10*x + 5) - 275*(x + 3/5)**(7/2)/(4*sqrt(-10*x + 5)) +
1573*(x + 3/5)**(5/2)/(32*sqrt(-10*x + 5)) + 1331*(x + 3/5)**(3/2
)/(640*sqrt(-10*x + 5)) - 43923*sqrt(x + 3/5)/(6400*sqrt(-10*x +
5)), True))
```

GIAC/XCAS [A] time = 0.243228, size = 220, normalized size = 1.9

$$-\frac{1}{192000}\sqrt{5}\left(2\,(4\,(8\,(60\,x-71)(5\,x+3)+2179)(5\,x+3)-4125)\sqrt{5\,x+3}\sqrt{-10\,x+5}+45375\,\sqrt{2}\arcsin\left(\frac{1}{11}\,\sqrt{22}\sqrt{5\,x+3}\right)\right)$$
$$-\frac{1}{24000}\sqrt{5}\left(2\,(4\,(40\,x-23)(5\,x+3)+33)\sqrt{5\,x+3}\sqrt{-10\,x+5}-363\,\sqrt{2}\arcsin\left(\frac{1}{11}\,\sqrt{22}\sqrt{5\,x+3}\right)\right)$$
$$+\frac{3}{400}\sqrt{5}\left(2\,(20\,x+1)\sqrt{5\,x+3}\sqrt{-10\,x+5}+121\,\sqrt{2}\arcsin\left(\frac{1}{11}\,\sqrt{22}\sqrt{5\,x+3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] -1/192000*sqrt(5)*(2*(4*(8*(60*x - 71)*(5*x + 3) + 2179)*(5*x + 3
) - 4125)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 45375*sqrt(2)*arcsin(1/
11*sqrt(22)*sqrt(5*x + 3))) - 1/24000*sqrt(5)*(2*(4*(40*x - 23)*(
5*x + 3) + 33)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 363*sqrt(2)*arcsin
(1/11*sqrt(22)*sqrt(5*x + 3))) + 3/400*sqrt(5)*(2*(20*x + 1)*sqrt
(5*x + 3)*sqrt(-10*x + 5) + 121*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt
(5*x + 3)))
```

3.2324 $\int \frac{(1-2x)^{3/2}(3+5x)^{3/2}}{2+3x}\,dx$

Optimal. Leaf size=128

$$\frac{1}{9}(1-2x)^{3/2}(5x+3)^{3/2}+\frac{37}{180}\sqrt{1-2x}(5x+3)^{3/2}-\frac{1781\sqrt{1-2x}\sqrt{5x+3}}{2160}+\frac{19573\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{6480\sqrt{10}}-\frac{14}{81}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

```
[Out] (-1781*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/2160 + (37*Sqrt[1 - 2*x]*(3 +
 5*x)^(3/2))/180 + ((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/9 + (19573*A
rcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(6480*Sqrt[10]) - (14*Sqrt[7]*Ar
cTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/81
```

Rubi [A] time = 0.29737, antiderivative size = 128, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 7, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.269

$$\frac{1}{9}(1-2x)^{3/2}(5x+3)^{3/2}+\frac{37}{180}\sqrt{1-2x}(5x+3)^{3/2}-\frac{1781\sqrt{1-2x}\sqrt{5x+3}}{2160}+\frac{19573\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{6480\sqrt{10}}-\frac{14}{81}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/(2 + 3*x),x]
```

```
[Out] (-1781*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/2160 + (37*Sqrt[1 - 2*x]*(3 +
 5*x)^(3/2))/180 + ((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/9 + (19573*A
rcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(6480*Sqrt[10]) - (14*Sqrt[7]*Ar
cTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/81
```

Rubi in Sympy [A] time = 30.0641, size = 117, normalized size = 0.91

$$\frac{(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{3}{2}}}{9}-\frac{37(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{72}+\frac{661\sqrt{-2x+1}\sqrt{5x+3}}{2160}+\frac{19573\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{64800}-\frac{14\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{81}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(3/2)/(2+3*x),x)
```

```
[Out] (-2*x + 1)**(3/2)*(5*x + 3)**(3/2)/9 - 37*(-2*x + 1)**(3/2)*sqrt(
5*x + 3)/72 + 661*sqrt(-2*x + 1)*sqrt(5*x + 3)/2160 + 19573*sqrt(
10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/64800 - 14*sqrt(7)*atan(sqrt(
7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/81
```

Mathematica [A] time = 0.183909, size = 105, normalized size = 0.82

$$\frac{-60\sqrt{1-2x}\sqrt{5x+3}\left(2400x^2-1980x-271\right)-11200\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)+19573\sqrt{10}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)}{129600}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/(2 + 3*x),x]
```

```
[Out] (-60*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(-271 - 1980*x + 2400*x^2) - 112
00*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])]
+ 19573*Sqrt[10]*ArcTan[(1 + 20*x)/(2*Sqrt[1 - 2*x]*Sqrt[30 + 50*
x])])/129600
```

Maple [A] time = 0.017, size = 115, normalized size = 0.9

$$\frac{1}{129600}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(-144000\,x^2\sqrt{-10\,x^2-x+3}+11200\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)+19573\,\sqrt{10}\arcsin\left(\frac{20}{11}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^(3/2)/(2+3*x),x)
```

```
[Out] 1/129600*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(-144000*x^2*(-10*x^2-x+3)^(
1/2)+11200*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1
/2))+19573*10^(1/2)*arcsin(20/11*x+1/11)+118800*x*(-10*x^2-x+3)^(
1/2)+16260*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.51288, size = 112, normalized size = 0.88

$$\frac{1}{9}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}+\frac{37}{36}\sqrt{-10\,x^2-x+3}x+\frac{19573}{129600}\sqrt{10}\arcsin\left(\frac{20}{11}\,x+\frac{1}{11}\right)+\frac{7}{81}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)-\frac{449}{2160}\sqrt{-10\,x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2),x, algorithm="maxima")
```

```
[Out] 1/9*(-10*x^2 - x + 3)^(3/2) + 37/36*sqrt(-10*x^2 - x + 3)*x + 195
73/129600*sqrt(10)*arcsin(20/11*x + 1/11) + 7/81*sqrt(7)*arcsin(3
7/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) - 449/2160*sqrt(-10*x^2
 - x + 3)
```

Fricas [A] time = 0.231854, size = 128, normalized size = 1.

$$-\frac{1}{129600}\sqrt{10}\left(6\sqrt{10}\left(2400\,x^2-1980\,x-271\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-1120\,\sqrt{10}\sqrt{7}\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)-19573\text{ a}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2),x, algorithm="fricas")
```

```
[Out] -1/129600*sqrt(10)*(6*sqrt(10)*(2400*x^2 - 1980*x - 271)*sqrt(5*x
 + 3)*sqrt(-2*x + 1) - 1120*sqrt(10)*sqrt(7)*arctan(1/14*sqrt(7)*
(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))) - 19573*arctan(1/20*s
qrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(-2x+1)^{\frac{3}{2}}\,(5x+3)^{\frac{3}{2}}}{3x+2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**(3/2)/(2+3*x),x)
```

```
[Out] Integral((-2*x + 1)**(3/2)*(5*x + 3)**(3/2)/(3*x + 2), x)
```

GIAC/XCAS [A] time = 0.286202, size = 251, normalized size = 1.96

$$\frac{7}{810}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right) - \frac{1}{10800}\left(12\left(8\sqrt{5}(5x+3)-81\sqrt{5}\right)(5x+3)+1781\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5} + \frac{19573}{129600}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{4\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2),x, algorithm="giac")
```

```
[Out] 7/810*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x +
 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqrt(
2)*sqrt(-10*x + 5) - sqrt(22)))) - 1/10800*(12*(8*sqrt(5)*(5*x +
3) - 81*sqrt(5))*(5*x + 3) + 1781*sqrt(5))*sqrt(5*x + 3)*sqrt(-10
*x + 5) + 19573/129600*sqrt(10)*(pi + 2*arctan(-1/4*sqrt(5*x + 3)
*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqrt(2)*
sqrt(-10*x + 5) - sqrt(22))))
```

3.2325 $\int \frac{(1-2x)^{3/2}(3+5x)^{3/2}}{(2+3x)^2} dx$

Optimal. Leaf size=135

$$-\frac{1}{3}\sqrt{1-2x}(5x+3)^{3/2}-\frac{(1-2x)^{3/2}(5x+3)^{3/2}}{3(3x+2)}+\frac{107}{36}\sqrt{1-2x}\sqrt{5x+3}+\frac{1649\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{108\sqrt{10}}+\frac{37}{27}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

```
[Out] (107*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/36 - (Sqrt[1 - 2*x]*(3 + 5*x)^(
3/2))/3 - ((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/(3*(2 + 3*x)) + (1649
*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(108*Sqrt[10]) + (37*Sqrt[7]*A
rcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/27
```

Rubi [A] time = 0.30064, antiderivative size = 135, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 7, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.269

$$-\frac{1}{3}\sqrt{1-2x}(5x+3)^{3/2}-\frac{(1-2x)^{3/2}(5x+3)^{3/2}}{3(3x+2)}+\frac{107}{36}\sqrt{1-2x}\sqrt{5x+3}+\frac{1649\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{108\sqrt{10}}+\frac{37}{27}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^2,x]
```

```
[Out] (107*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/36 - (Sqrt[1 - 2*x]*(3 + 5*x)^(
3/2))/3 - ((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/(3*(2 + 3*x)) + (1649
*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(108*Sqrt[10]) + (37*Sqrt[7]*A
rcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/27
```

Rubi in Sympy [A] time = 30.1971, size = 119, normalized size = 0.88

$$-\frac{(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{3}{2}}}{3(3x+2)}-\frac{\sqrt{-2x+1}(5x+3)^{\frac{3}{2}}}{3}+\frac{107\sqrt{-2x+1}\sqrt{5x+3}}{36}+\frac{1649\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{1080}+\frac{37\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{27}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(3/2)/(2+3*x)**2,x)
```

```
[Out] -(-2*x + 1)**(3/2)*(5*x + 3)**(3/2)/(3*(3*x + 2)) - sqrt(-2*x + 1
)*(5*x + 3)**(3/2)/3 + 107*sqrt(-2*x + 1)*sqrt(5*x + 3)/36 + 1649
*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/1080 + 37*sqrt(7)*atan(
sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/27
```

Mathematica [A] time = 0.170447, size = 112, normalized size = 0.83

$$\frac{\frac{60\sqrt{1-2x}\sqrt{5x+3}(-60x^2+105x+106)}{3x+2}+1480\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)+1649\sqrt{10}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)}{2160}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^2,x]
```

```
[Out] ((60*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(106 + 105*x - 60*x^2))/(2 + 3*x
) + 1480*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5
*x])] + 1649*Sqrt[10]*ArcTan[(1 + 20*x)/(2*Sqrt[1 - 2*x]*Sqrt[30
+ 50*x])])/2160
```

Maple [A] time = 0.017, size = 163, normalized size = 1.2

$$-\frac{1}{4320+6480\,x}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(4440\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x-4947\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x+3600\,x^{2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^(3/2)/(2+3*x)^2,x)
```

```
[Out] -1/2160*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(4440*7^(1/2)*arctan(1/14*(37
*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x-4947*10^(1/2)*arcsin(20/11*
x+1/11)*x+3600*x^2*(-10*x^2-x+3)^(1/2)+2960*7^(1/2)*arctan(1/14*(
37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))-3298*10^(1/2)*arcsin(20/11*
x+1/11)-6300*x*(-10*x^2-x+3)^(1/2)-6360*(-10*x^2-x+3)^(1/2))/(-10
*x^2-x+3)^(1/2)/(2+3*x)
```

Maxima [A] time = 1.51663, size = 122, normalized size = 0.9

$$-\frac{5}{3}\sqrt{-10\,x^2-x+3}x+\frac{1649}{2160}\sqrt{10}\arcsin\left(\frac{20}{11}\,x+\frac{1}{11}\right)$$
$$-\frac{37}{54}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{71}{36}\sqrt{-10\,x^2-x+3}-\frac{\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{3\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^2,x, algorithm="maxima")
```

```
[Out] -5/3*sqrt(-10*x^2 - x + 3)*x + 1649/2160*sqrt(10)*arcsin(20/11*x
+ 1/11) - 37/54*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3
*x + 2)) + 71/36*sqrt(-10*x^2 - x + 3) - 1/3*(-10*x^2 - x + 3)^(3
/2)/(3*x + 2)
```

Fricas [A] time = 0.234974, size = 151, normalized size = 1.12

$$-\frac{\sqrt{10}\left(148\,\sqrt{10}\sqrt{7}(3\,x+2)\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)+6\,\sqrt{10}\left(60\,x^2-105\,x-106\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-1649\,(3\,x+2)\arctan}{2160\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^2,x, algorithm="fricas")
```

```
[Out] -1/2160*sqrt(10)*(148*sqrt(10)*sqrt(7)*(3*x + 2)*arctan(1/14*sqrt
(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))) + 6*sqrt(10)*(60*
x^2 - 105*x - 106)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 1649*(3*x + 2)*
arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/
(3*x + 2)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{3}{2}}}{(3x+2)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**(3/2)/(2+3*x)**2,x)
```

```
[Out] Integral((-2*x + 1)**(3/2)*(5*x + 3)**(3/2)/(3*x + 2)**2, x)
```

GIAC/XCAS [A] time = 0.35477, size = 394, normalized size = 2.92

$$-\frac{37}{540}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{1}{540}\left(12\sqrt{5}(5x+3)-181\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}+\frac{1649}{2160}\sqrt{10}\left(\pi-2\arctan\left(\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{4\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)+\frac{154\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)}{27\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^2,x, algorithm="giac")
```

```
[Out] -37/540*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x
 + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqr
t(2)*sqrt(-10*x + 5) - sqrt(22)))) - 1/540*(12*sqrt(5)*(5*x + 3)
- 181*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5) + 1649/2160*sqrt(10)
*(pi - 2*arctan(1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqr
t(22))^2/(5*x + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) +
154/27*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x +
3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))/(((sqr
t(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)
```

3.2326 $\int \frac{(1-2x)^{3/2}(3+5x)^{3/2}}{(2+3x)^3}\,dx$

Optimal. Leaf size=142

$$\frac{37\sqrt{1-2x}(5x+3)^{3/2}}{12(3x+2)}-\frac{(1-2x)^{3/2}(5x+3)^{3/2}}{6(3x+2)^2}-\frac{205}{36}\sqrt{1-2x}\sqrt{5x+3}-\frac{37}{27}\sqrt{10}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{1649\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{108\sqrt{7}}$$

```
[Out] (-205*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/36 - ((1 - 2*x)^(3/2)*(3 + 5*x
)^(3/2))/(6*(2 + 3*x)^2) + (37*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(12
*(2 + 3*x)) - (37*Sqrt[10]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/27 -
 (1649*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(108*Sqrt[7
])
```

Rubi [A] time = 0.303902, antiderivative size = 142, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 8, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.308

$$\frac{37\sqrt{1-2x}(5x+3)^{3/2}}{12(3x+2)}-\frac{(1-2x)^{3/2}(5x+3)^{3/2}}{6(3x+2)^2}-\frac{205}{36}\sqrt{1-2x}\sqrt{5x+3}-\frac{37}{27}\sqrt{10}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{1649\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{108\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^3,x]
```

```
[Out] (-205*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/36 - ((1 - 2*x)^(3/2)*(3 + 5*x
)^(3/2))/(6*(2 + 3*x)^2) + (37*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(12
*(2 + 3*x)) - (37*Sqrt[10]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/27 -
 (1649*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(108*Sqrt[7
])
```

Rubi in Sympy [A] time = 29.6318, size = 129, normalized size = 0.91

$$-\frac{37\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{84\left(3x+2\right)}-\frac{\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{3}{2}}}{6\left(3x+2\right)^{2}}-\frac{107\sqrt{-2x+1}\sqrt{5x+3}}{126}-\frac{37\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{27}-\frac{1649\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{756}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(3/2)/(2+3*x)**3,x)
```

```
[Out] -37*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/(84*(3*x + 2)) - (-2*x + 1)**
(3/2)*(5*x + 3)**(3/2)/(6*(3*x + 2)**2) - 107*sqrt(-2*x + 1)*sqrt
(5*x + 3)/126 - 37*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/27 -
1649*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/756
```

Mathematica [A] time = 0.175083, size = 112, normalized size = 0.79

$$\frac{-\frac{42\sqrt{1-2x}\sqrt{5x+3}\left(120x^2+345x+172\right)}{(3x+2)^2}-1649\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)-1036\sqrt{10}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)}{1512}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^3,x]
```

```
[Out] ((-42*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(172 + 345*x + 120*x^2))/(2 + 3
*x)^2 - 1649*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3
 + 5*x])] - 1036*Sqrt[10]*ArcTan[(1 + 20*x)/(2*Sqrt[1 - 2*x]*Sqrt
[30 + 50*x])])/1512
```

Maple [A] time = 0.017, size = 208, normalized size = 1.5

$$\frac{1}{1512\,(2+3\,x)^{2}}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(14841\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^{2}-x+3}}\right)x^{2}-9324\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x^{2}+19788$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^(3/2)/(2+3*x)^3,x)
```

```
[Out] 1/1512*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(14841*7^(1/2)*arctan(1/14*(37
*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2-9324*10^(1/2)*arcsin(20/1
1*x+1/11)*x^2+19788*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^
2-x+3)^(1/2))*x-12432*10^(1/2)*arcsin(20/11*x+1/11)*x-5040*x^2*(-
10*x^2-x+3)^(1/2)+6596*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10
*x^2-x+3)^(1/2))-4144*10^(1/2)*arcsin(20/11*x+1/11)-14490*x*(-10*
x^2-x+3)^(1/2)-7224*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)/(2+3
*x)^2
```

Maxima [A] time = 1.52703, size = 176, normalized size = 1.24

$$\frac{5}{21}\left(-10\,x^{2}-x+3\right)^{\frac{3}{2}}+\frac{3\left(-10\,x^{2}-x+3\right)^{\frac{5}{2}}}{14\,(9\,x^{2}+12\,x+4)}+\frac{185}{42}\sqrt{-10\,x^{2}-x+3}x-\frac{37}{54}\sqrt{10}\arcsin\left(\frac{20}{11}\,x+\frac{1}{11}\right)+\frac{1649}{1512}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)-\frac{769}{252}\sqrt{-10\,x^{2}-x+3}+\frac{37\left(-10\,x^{2}-x+3\right)^{\frac{3}{2}}}{84\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^3,x, algorithm="maxima")
```

```
[Out] 5/21*(-10*x^2 - x + 3)^(3/2) + 3/14*(-10*x^2 - x + 3)^(5/2)/(9*x^
2 + 12*x + 4) + 185/42*sqrt(-10*x^2 - x + 3)*x - 37/54*sqrt(10)*a
rcsin(20/11*x + 1/11) + 1649/1512*sqrt(7)*arcsin(37/11*x/abs(3*x
+ 2) + 20/11/abs(3*x + 2)) - 769/252*sqrt(-10*x^2 - x + 3) + 37/8
4*(-10*x^2 - x + 3)^(3/2)/(3*x + 2)
```

Fricas [A] time = 0.232256, size = 171, normalized size = 1.2

$$-\frac{\sqrt{7}\left(148\,\sqrt{10}\sqrt{7}\left(9\,x^{2}+12\,x+4\right)\arctan\left(\frac{\sqrt{10}(20\,x+1)}{20\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)+6\,\sqrt{7}\left(120\,x^{2}+345\,x+172\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-1649\,\left(9\,x^{2}+\right.}{1512\,(9\,x^{2}+12\,x+4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^3,x, algorithm="fricas")
```

```
[Out] -1/1512*sqrt(7)*(148*sqrt(10)*sqrt(7)*(9*x^2 + 12*x + 4)*arctan(1
/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))) + 6*sqrt(
7)*(120*x^2 + 345*x + 172)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 1649*(9
*x^2 + 12*x + 4)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*s
```

```
qrt(-2*x + 1))))/(9*x^2 + 12*x + 4)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{3}{2}}}{(3x+2)^{3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**(3/2)/(2+3*x)**3,x)
```

```
[Out] Integral((-2*x + 1)**(3/2)*(5*x + 3)**(3/2)/(3*x + 2)**3, x)
```

GIAC/XCAS [A] time = 0.393753, size = 463, normalized size = 3.26

$$\frac{1649}{15120}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^{2}}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{37}{54}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^{2}}{5x+3}-4\right)}{4\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{2}{27}\sqrt{5}\sqrt{5x+3}\sqrt{-10x+5}-\frac{55\left(23\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^{3}+10136\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)\right)}{54\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^{2}+280\right)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^3,x, algorithm="giac")
```

```
[Out] 1649/15120*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(
5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(
sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 37/54*sqrt(10)*(pi + 2*ar
ctan(-1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(
5*x + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 2/27*sqrt(
5)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 55/54*(23*sqrt(10)*((sqrt(2)*s
qrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(
2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 10136*sqrt(10)*((sqrt(2)*sqrt
(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*
sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(2
2))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sq
rt(22)))^2 + 280)^2
```

3.2327 $\int \frac{(1-2x)^{3/2}(3+5x)^{3/2}}{(2+3x)^4}\,dx$

Optimal. Leaf size=149

$$\frac{37\sqrt{1-2x}(5x+3)^{3/2}}{36(3x+2)^2}-\frac{(1-2x)^{3/2}(5x+3)^{3/2}}{9(3x+2)^3}-\frac{661\sqrt{1-2x}\sqrt{5x+3}}{1512(3x+2)}+\frac{20}{81}\sqrt{10}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{19573\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{4536\sqrt{7}}$$

```
[Out] (-661*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(1512*(2 + 3*x)) - ((1 - 2*x)^
(3/2)*(3 + 5*x)^(3/2))/(9*(2 + 3*x)^3) + (37*Sqrt[1 - 2*x]*(3 + 5
*x)^(3/2))/(36*(2 + 3*x)^2) + (20*Sqrt[10]*ArcSin[Sqrt[2/11]*Sqrt
[3 + 5*x]])/81 - (19573*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*
x])])/(4536*Sqrt[7])
```

Rubi [A] time = 0.305559, antiderivative size = 149, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 7, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.269$

$$\frac{37\sqrt{1-2x}(5x+3)^{3/2}}{36(3x+2)^2}-\frac{(1-2x)^{3/2}(5x+3)^{3/2}}{9(3x+2)^3}-\frac{661\sqrt{1-2x}\sqrt{5x+3}}{1512(3x+2)}+\frac{20}{81}\sqrt{10}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{19573\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{4536\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^4,x]
```

```
[Out] (-661*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(1512*(2 + 3*x)) - ((1 - 2*x)^
(3/2)*(3 + 5*x)^(3/2))/(9*(2 + 3*x)^3) + (37*Sqrt[1 - 2*x]*(3 + 5
*x)^(3/2))/(36*(2 + 3*x)^2) + (20*Sqrt[10]*ArcSin[Sqrt[2/11]*Sqrt
[3 + 5*x]])/81 - (19573*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*
x])])/(4536*Sqrt[7])
```

Rubi in Sympy [A] time = 29.6123, size = 134, normalized size = 0.9

$$-\frac{37\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{252\left(3x+2\right)^2}-\frac{\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{3}{2}}}{9\left(3x+2\right)^3}+\frac{1781\sqrt{-2x+1}\sqrt{5x+3}}{1512\left(3x+2\right)}+\frac{20\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{81}-\frac{19573\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{31752}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(3/2)/(2+3*x)**4,x)
```

```
[Out] -37*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/(252*(3*x + 2)**2) - (-2*x +
1)**(3/2)*(5*x + 3)**(3/2)/(9*(3*x + 2)**3) + 1781*sqrt(-2*x + 1)
*sqrt(5*x + 3)/(1512*(3*x + 2)) + 20*sqrt(10)*asin(sqrt(22)*sqrt(
5*x + 3)/11)/81 - 19573*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sq
rt(5*x + 3)))/31752
```

Mathematica [A] time = 0.184632, size = 112, normalized size = 0.75

$$\frac{\frac{42\sqrt{1-2x}\sqrt{5x+3}(19041x^2+21762x+6176)}{(3x+2)^3}-19573\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)+7840\sqrt{10}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)}{63504}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^4,x]
```

```
[Out] ((42*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(6176 + 21762*x + 19041*x^2))/(2
 + 3*x)^3 - 19573*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*S
qrt[3 + 5*x])] + 7840*Sqrt[10]*ArcTan[(1 + 20*x)/(2*Sqrt[1 - 2*x]
*Sqrt[30 + 50*x])])/63504
```

Maple [B] time = 0.017, size = 253, normalized size = 1.7

$$\frac{1}{63504\,(2+3\,x)^3}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(528471\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^3+211680\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x^3+1$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^(3/2)/(2+3*x)^4,x)
```

```
[Out] 1/63504*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(528471*7^(1/2)*arctan(1/14*(
37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+211680*10^(1/2)*arcsin(
20/11*x+1/11)*x^3+1056942*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(
-10*x^2-x+3)^(1/2))*x^2+423360*10^(1/2)*arcsin(20/11*x+1/11)*x^2+
704628*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))
*x+282240*10^(1/2)*arcsin(20/11*x+1/11)*x+799722*x^2*(-10*x^2-x+3
)^(1/2)+156584*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3
)^(1/2))+62720*10^(1/2)*arcsin(20/11*x+1/11)+914004*x*(-10*x^2-x+
3)^(1/2)+259392*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)^
3
```

Maxima [A] time = 1.49036, size = 217, normalized size = 1.46

$$\frac{185}{882}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}+\frac{\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{7\,(27\,x^3+54\,x^2+36\,x+8)}+\frac{37\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{196\,(9\,x^2+12\,x+4)}+\frac{4045}{1764}\sqrt{-10\,x^2-x+3}x+\frac{10}{81}\sqrt{10}\arcsin\left(\frac{20}{11}\,x+\frac{1}{11}\right)+\frac{19573}{63504}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)-\frac{8573}{10584}\sqrt{-10\,x^2-x+3}+\frac{83\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{1176\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^4,x, algorithm="maxima")
```

```
[Out] 185/882*(-10*x^2 - x + 3)^(3/2) + 1/7*(-10*x^2 - x + 3)^(5/2)/(27
*x^3 + 54*x^2 + 36*x + 8) + 37/196*(-10*x^2 - x + 3)^(5/2)/(9*x^2
 + 12*x + 4) + 4045/1764*sqrt(-10*x^2 - x + 3)*x + 10/81*sqrt(10)
*arcsin(20/11*x + 1/11) + 19573/63504*sqrt(7)*arcsin(37/11*x/abs(
3*x + 2) + 20/11/abs(3*x + 2)) - 8573/10584*sqrt(-10*x^2 - x + 3)
 + 83/1176*(-10*x^2 - x + 3)^(3/2)/(3*x + 2)
```

Fricas [A] time = 0.232917, size = 192, normalized size = 1.29

$$\frac{\sqrt{7}\left(1120\,\sqrt{10}\sqrt{7}\left(27\,x^3+54\,x^2+36\,x+8\right)\arctan\left(\frac{\sqrt{10}(20\,x+1)}{20\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)+6\,\sqrt{7}\left(19041\,x^2+21762\,x+6176\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+\right.}{63504\,(27\,x^3+54\,x^2+36\,x+8)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^4,x, algorithm="fricas")
```

```
[Out] 1/63504*sqrt(7)*(1120*sqrt(10)*sqrt(7)*(27*x^3 + 54*x^2 + 36*x +
8)*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))
) + 6*sqrt(7)*(19041*x^2 + 21762*x + 6176)*sqrt(5*x + 3)*sqrt(-2*
x + 1) + 19573*(27*x^3 + 54*x^2 + 36*x + 8)*arctan(1/14*sqrt(7)*(
37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(27*x^3 + 54*x^2 + 36
*x + 8)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**(3/2)/(2+3*x)**4,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.395137, size = 520, normalized size = 3.49

$$\frac{19573}{635040}\sqrt{70}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right) + \frac{10}{81}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{4\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right) - \frac{11\left(661\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^5 + 499520\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3 - 139630400\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-}\right.\right.}{756\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^4,x, algorithm="giac")
```

```
[Out] 19573/635040*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqr
t(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)
/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 10/81*sqrt(10)*(pi + 2*
arctan(-1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2
/(5*x + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 11/756*(
661*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3)
- 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 + 49952
0*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) -
4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 - 1396304
00*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) -
 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2
)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sq
rt(2)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)^3
```

3.2328 $\int \frac{(1-2x)^{3/2}(3+5x)^{3/2}}{(2+3x)^5}\,dx$

Optimal. Leaf size=151

$$\frac{11\sqrt{1-2x}(5x+3)^{5/2}}{8(3x+2)^3}+\frac{(1-2x)^{3/2}(5x+3)^{5/2}}{4(3x+2)^4}-\frac{121\sqrt{1-2x}(5x+3)^{3/2}}{224(3x+2)^2}-\frac{3993\sqrt{1-2x}\sqrt{5x+3}}{3136(3x+2)}-\frac{43923\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{3136\sqrt{7}}$$

```
[Out] (-3993*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(3136*(2 + 3*x)) - (121*Sqrt[
1 - 2*x]*(3 + 5*x)^(3/2))/(224*(2 + 3*x)^2) + ((1 - 2*x)^(3/2)*(3
 + 5*x)^(5/2))/(4*(2 + 3*x)^4) + (11*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2
))/(8*(2 + 3*x)^3) - (43923*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3
+ 5*x])])/(3136*Sqrt[7])
```

Rubi [A] time = 0.216138, antiderivative size = 151, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.115

$$\frac{11\sqrt{1-2x}(5x+3)^{5/2}}{8(3x+2)^3}+\frac{(1-2x)^{3/2}(5x+3)^{5/2}}{4(3x+2)^4}-\frac{121\sqrt{1-2x}(5x+3)^{3/2}}{224(3x+2)^2}-\frac{3993\sqrt{1-2x}\sqrt{5x+3}}{3136(3x+2)}-\frac{43923\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{3136\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^5,x]
```

```
[Out] (-3993*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(3136*(2 + 3*x)) - (121*Sqrt[
1 - 2*x]*(3 + 5*x)^(3/2))/(224*(2 + 3*x)^2) + ((1 - 2*x)^(3/2)*(3
 + 5*x)^(5/2))/(4*(2 + 3*x)^4) + (11*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2
))/(8*(2 + 3*x)^3) - (43923*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3
+ 5*x])])/(3136*Sqrt[7])
```

Rubi in Sympy [A] time = 17.1334, size = 136, normalized size = 0.9

$$-\frac{363\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{1568\left(3x+2\right)^2}-\frac{11\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{3}{2}}}{56\left(3x+2\right)^3}+\frac{\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{5}{2}}}{4\left(3x+2\right)^4}+\frac{3993\sqrt{-2x+1}\sqrt{5x+3}}{3136\left(3x+2\right)}-\frac{43923\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{21952}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(3/2)/(2+3*x)**5,x)
```

```
[Out] -363*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/(1568*(3*x + 2)**2) - 11*(-2
*x + 1)**(3/2)*(5*x + 3)**(3/2)/(56*(3*x + 2)**3) + (-2*x + 1)**(
3/2)*(5*x + 3)**(5/2)/(4*(3*x + 2)**4) + 3993*sqrt(-2*x + 1)*sqrt
(5*x + 3)/(3136*(3*x + 2)) - 43923*sqrt(7)*atan(sqrt(7)*sqrt(-2*x
 + 1)/(7*sqrt(5*x + 3)))/21952
```

Mathematica [A] time = 0.101496, size = 82, normalized size = 0.54

$$\frac{\frac{14\sqrt{1-2x}\sqrt{5x+3}\left(100159x^3+213240x^2+145940x+32400\right)}{(3x+2)^4}-43923\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{43904}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^5,x]
```

```
[Out] ((14*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(32400 + 145940*x + 213240*x^2 +
 100159*x^3))/(2 + 3*x)^4 - 43923*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*
Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/43904
```

Maple [B] time = 0.018, size = 250, normalized size = 1.7

$$\frac{1}{43904\,(2+3\,x)^4}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(3557763\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^4+9487368\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)}{\sqrt{-10\,x^2-x}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^(3/2)/(2+3*x)^5,x)
```

```
[Out] 1/43904*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(3557763*7^(1/2)*arctan(1/14*
(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^4+9487368*7^(1/2)*arctan
(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+9487368*7^(1/2)*
arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+1402226*x^
3*(-10*x^2-x+3)^(1/2)+4216608*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/
2)/(-10*x^2-x+3)^(1/2))*x+2985360*x^2*(-10*x^2-x+3)^(1/2)+702768*
7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+204316
0*x*(-10*x^2-x+3)^(1/2)+453600*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)
^(1/2)/(2+3*x)^4
```

Maxima [A] time = 1.50695, size = 251, normalized size = 1.66

$$\frac{8245}{16464}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}+\frac{3\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{28\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}+\frac{111\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{392\,(27\,x^3+54\,x^2+36\,x+8)}+\frac{4947\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{10976\,(9\,x^2+12\,x+4)}+\frac{67155}{10976}\sqrt{-10\,x^2-x+3x}+\frac{43923}{43904}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)-\frac{59169}{21952}\sqrt{-10\,x^2-x+3}+\frac{19573\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{65856\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^5,x, algorithm="maxima")
```

```
[Out] 8245/16464*(-10*x^2 - x + 3)^(3/2) + 3/28*(-10*x^2 - x + 3)^(5/2)
/(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16) + 111/392*(-10*x^2 - x
+ 3)^(5/2)/(27*x^3 + 54*x^2 + 36*x + 8) + 4947/10976*(-10*x^2 - x
 + 3)^(5/2)/(9*x^2 + 12*x + 4) + 67155/10976*sqrt(-10*x^2 - x + 3
)*x + 43923/43904*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs
(3*x + 2)) - 59169/21952*sqrt(-10*x^2 - x + 3) + 19573/65856*(-10
*x^2 - x + 3)^(3/2)/(3*x + 2)
```

Fricas [A] time = 0.222612, size = 147, normalized size = 0.97

$$\frac{\sqrt{7}\left(2\,\sqrt{7}\left(100159\,x^3+213240\,x^2+145940\,x+32400\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+43923\,\left(81\,x^4+216\,x^3+216\,x^2+96\,x+16\right)\mathrm{arcta}\right.}{43904\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^5,x, algorithm="fricas")
```

```
[Out] 1/43904*sqrt(7)*(2*sqrt(7)*(100159*x^3 + 213240*x^2 + 145940*x +
32400)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 43923*(81*x^4 + 216*x^3 + 2
16*x^2 + 96*x + 16)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3
)*sqrt(-2*x + 1))))/(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(3/2)*(3+5*x)**(3/2)/(2+3*x)**5,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.41175, size = 512, normalized size = 3.39

$$\frac{43923}{439040}\sqrt{70}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)$$

$$-\frac{14641\left(3\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^7+3080\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^5-862400\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+}}{\sqrt{5x+}}\right.\right.}{1568\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+28\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^5,x, algorithm="giac")
```

```
[Out] 43923/439040*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqr
t(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)
/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 14641/1568*(3*sqrt(10)*
((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x
+ 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^7 + 3080*sqrt(10)*((sq
rt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)
/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 - 862400*sqrt(10)*((sqrt
(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(
sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 - 65856000*sqrt(10)*((sqrt
(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(
sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5)
- sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x +
 5) - sqrt(22)))^2 + 280)^4
```

3.2329 $\int \frac{(1-2x)^{3/2}(3+5x)^{3/2}}{(2+3x)^6}\,dx$

Optimal. Leaf size=180

$$\frac{407\sqrt{1-2x}(5x+3)^{5/2}}{112(3x+2)^3}+\frac{37(1-2x)^{3/2}(5x+3)^{5/2}}{56(3x+2)^4}+\frac{3(1-2x)^{5/2}(5x+3)^{5/2}}{35(3x+2)^5}-\frac{4477\sqrt{1-2x}(5x+3)^{3/2}}{3136(3x+2)^2}-\frac{147741\sqrt{1-2x}\sqrt{5x+3}}{43904(3x+2)}-\frac{1625151\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{43904\sqrt{7}}$$

```
[Out] (-147741*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(43904*(2 + 3*x)) - (4477*S
qrt[1 - 2*x]*(3 + 5*x)^(3/2))/(3136*(2 + 3*x)^2) + (3*(1 - 2*x)^(
5/2)*(3 + 5*x)^(5/2))/(35*(2 + 3*x)^5) + (37*(1 - 2*x)^(3/2)*(3 +
 5*x)^(5/2))/(56*(2 + 3*x)^4) + (407*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2
))/(112*(2 + 3*x)^3) - (1625151*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqr
t[3 + 5*x])])/(43904*Sqrt[7])
```

Rubi [A] time = 0.270748, antiderivative size = 180, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.154$

$$\frac{407\sqrt{1-2x}(5x+3)^{5/2}}{112(3x+2)^3}+\frac{37(1-2x)^{3/2}(5x+3)^{5/2}}{56(3x+2)^4}+\frac{3(1-2x)^{5/2}(5x+3)^{5/2}}{35(3x+2)^5}-\frac{4477\sqrt{1-2x}(5x+3)^{3/2}}{3136(3x+2)^2}-\frac{147741\sqrt{1-2x}\sqrt{5x+3}}{43904(3x+2)}-\frac{1625151\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{43904\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^6,x]
```

```
[Out] (-147741*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(43904*(2 + 3*x)) - (4477*S
qrt[1 - 2*x]*(3 + 5*x)^(3/2))/(3136*(2 + 3*x)^2) + (3*(1 - 2*x)^(
5/2)*(3 + 5*x)^(5/2))/(35*(2 + 3*x)^5) + (37*(1 - 2*x)^(3/2)*(3 +
 5*x)^(5/2))/(56*(2 + 3*x)^4) + (407*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2
))/(112*(2 + 3*x)^3) - (1625151*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqr
t[3 + 5*x])])/(43904*Sqrt[7])
```

Rubi in Sympy [A] time = 20.1933, size = 165, normalized size = 0.92

$$-\frac{407\left(-2x+1\right)^{\frac{5}{2}}\sqrt{5x+3}}{5488\left(3x+2\right)^{3}}-\frac{37\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{3}{2}}}{392\left(3x+2\right)^{4}}+\frac{3\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{5}{2}}}{35\left(3x+2\right)^{5}}+\frac{4477\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{21952\left(3x+2\right)^{2}}+\frac{147741\sqrt{-2x+1}\sqrt{5x+3}}{43904\left(3x+2\right)}-\frac{1625151\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{307328}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(3/2)/(2+3*x)**6,x)
```

```
[Out] -407*(-2*x + 1)**(5/2)*sqrt(5*x + 3)/(5488*(3*x + 2)**3) - 37*(-2
*x + 1)**(5/2)*(5*x + 3)**(3/2)/(392*(3*x + 2)**4) + 3*(-2*x + 1)
**(5/2)*(5*x + 3)**(5/2)/(35*(3*x + 2)**5) + 4477*(-2*x + 1)**(3/
2)*sqrt(5*x + 3)/(21952*(3*x + 2)**2) + 147741*sqrt(-2*x + 1)*sqr
t(5*x + 3)/(43904*(3*x + 2)) - 1625151*sqrt(7)*atan(sqrt(7)*sqrt(
-2*x + 1)/(7*sqrt(5*x + 3)))/307328
```

Mathematica [A] time = 0.142323, size = 87, normalized size = 0.48

$$\frac{\frac{14\sqrt{1-2x}\sqrt{5x+3}\left(57469845x^4+155783350x^3+158785356x^2+71866904x+12157344\right)}{(3x+2)^5}-8125755\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{3073280}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^6,x]
```

```
[Out] ((14*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(12157344 + 71866904*x + 1587853
56*x^2 + 155783350*x^3 + 57469845*x^4))/(2 + 3*x)^5 - 8125755*Sqr
t[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/30732
80
```

Maple [B] time = 0.018, size = 298, normalized size = 1.7

$$\frac{1}{3073280\,(2+3\,x)^5}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(1974558465\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^5+6581861550\,\sqrt{7}\arctan\left(1/14\,\frac{(3}{\sqrt{-}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^(3/2)/(2+3*x)^6,x)
```

```
[Out] 1/3073280*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(1974558465*7^(1/2)*arctan(
1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^5+6581861550*7^(1/2
)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^4+87758154
00*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3
+804577830*x^4*(-10*x^2-x+3)^(1/2)+5850543600*7^(1/2)*arctan(1/14
*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+2180966900*x^3*(-10*x
^2-x+3)^(1/2)+1950181200*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-
10*x^2-x+3)^(1/2))*x+2222994984*x^2*(-10*x^2-x+3)^(1/2)+260024160
*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+10061
36656*x*(-10*x^2-x+3)^(1/2)+170202816*(-10*x^2-x+3)^(1/2))/(-10*x
^2-x+3)^(1/2)/(2+3*x)^5
```

Maxima [A] time = 1.51948, size = 306, normalized size = 1.7

$$\frac{305065}{230496}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}+\frac{3\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{35\,(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240\,x+32)}+\frac{111\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{392\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}+\frac{4107\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{5488\,(27\,x^3+54\,x^2+36\,x+8)}+\frac{183039\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{153664\,(9\,x^2+12\,x+4)}+\frac{2484735}{153664}\sqrt{-10\,x^2-x+3}x+\frac{1625151}{614656}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)-\frac{2189253}{307328}\sqrt{-10\,x^2-x+3}+\frac{724201\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{921984\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^6,x, algorithm="maxima")
```

```
[Out] 305065/230496*(-10*x^2 - x + 3)^(3/2) + 3/35*(-10*x^2 - x + 3)^(5
/2)/(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32) + 111/3
92*(-10*x^2 - x + 3)^(5/2)/(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 1
6) + 4107/5488*(-10*x^2 - x + 3)^(5/2)/(27*x^3 + 54*x^2 + 36*x +
8) + 183039/153664*(-10*x^2 - x + 3)^(5/2)/(9*x^2 + 12*x + 4) + 2
484735/153664*sqrt(-10*x^2 - x + 3)*x + 1625151/614656*sqrt(7)*ar
csin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) - 2189253/307328*
sqrt(-10*x^2 - x + 3) + 724201/921984*(-10*x^2 - x + 3)^(3/2)/(3*
x + 2)
```

Fricas [A] time = 0.225397, size = 167, normalized size = 0.93

$$\frac{\sqrt{7}\left(2\sqrt{7}\left(57469845\,x^4+155783350\,x^3+158785356\,x^2+71866904\,x+12157344\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+8125755\,\left(243\,x^5+8\right.\right.}{3073280\,(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240\,x+32)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^6,x, algorithm="fricas")
```

```
[Out] 1/3073280*sqrt(7)*(2*sqrt(7)*(57469845*x^4 + 155783350*x^3 + 1587
85356*x^2 + 71866904*x + 12157344)*sqrt(5*x + 3)*sqrt(-2*x + 1) +
 8125755*(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)*ar
ctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(2
43*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(3/2)*(3+5*x)**(3/2)/(2+3*x)**6,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.490935, size = 594, normalized size = 3.3

$$\frac{1625151}{6146560}\sqrt{70}\sqrt{10}\left(\pi+2\,\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3}-4\right)}{140\,\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)$$

$$-\frac{14641\left(111\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^9+145040\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^7-66232320\sqrt{10}\left(\ldots\right.\right.}{21952\left(\left(\ldots\right.\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^6,x, algorithm="giac")
```

```
[Out] 1625151/6146560*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*
sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) -
 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 14641/21952*(111*sqr
t(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqr
t(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^9 + 145040*sqrt(
10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(
5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^7 - 66232320*sqrt(
10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(
5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 - 11371136000*sq
rt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sq
rt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 - 68226816000
0*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) -
4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)
*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqr
t(2)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)^5
```

3.2330 $\int \frac{(1-2x)^{3/2}(3+5x)^{3/2}}{(2+3x)^7} \, dx$

Optimal. Leaf size=209

$$\frac{37\sqrt{1-2x}(5x+3)^{3/2}}{180(3x+2)^5}-\frac{(1-2x)^{3/2}(5x+3)^{3/2}}{18(3x+2)^6}+\frac{137752591\sqrt{1-2x}\sqrt{5x+3}}{14224896(3x+2)}+\frac{1316353\sqrt{1-2x}\sqrt{5x+3}}{1016064(3x+2)^2}+\frac{37333\sqrt{1-2x}\sqrt{5x+3}}{181440(3x+2)^3}-\frac{7591\sqrt{1-2x}\sqrt{5x+3}}{30240(3x+2)^4}-\frac{19457889\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{175616\sqrt{7}}$$

```
[Out] (-7591*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(30240*(2 + 3*x)^4) + (37333*
Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(181440*(2 + 3*x)^3) + (1316353*Sqrt
[1 - 2*x]*Sqrt[3 + 5*x])/(1016064*(2 + 3*x)^2) + (137752591*Sqrt[
1 - 2*x]*Sqrt[3 + 5*x])/(14224896*(2 + 3*x)) - ((1 - 2*x)^(3/2)*(
3 + 5*x)^(3/2))/(18*(2 + 3*x)^6) + (37*Sqrt[1 - 2*x]*(3 + 5*x)^(3
/2))/(180*(2 + 3*x)^5) - (19457889*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*
Sqrt[3 + 5*x])])/(175616*Sqrt[7])
```

Rubi [A] time = 0.445394, antiderivative size = 209, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.231$

$$\frac{37\sqrt{1-2x}(5x+3)^{3/2}}{180(3x+2)^5}-\frac{(1-2x)^{3/2}(5x+3)^{3/2}}{18(3x+2)^6}+\frac{137752591\sqrt{1-2x}\sqrt{5x+3}}{14224896(3x+2)}+\frac{1316353\sqrt{1-2x}\sqrt{5x+3}}{1016064(3x+2)^2}+\frac{37333\sqrt{1-2x}\sqrt{5x+3}}{181440(3x+2)^3}-\frac{7591\sqrt{1-2x}\sqrt{5x+3}}{30240(3x+2)^4}-\frac{19457889\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{175616\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^7,x]
```

```
[Out] (-7591*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(30240*(2 + 3*x)^4) + (37333*
Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(181440*(2 + 3*x)^3) + (1316353*Sqrt
[1 - 2*x]*Sqrt[3 + 5*x])/(1016064*(2 + 3*x)^2) + (137752591*Sqrt[
1 - 2*x]*Sqrt[3 + 5*x])/(14224896*(2 + 3*x)) - ((1 - 2*x)^(3/2)*(
3 + 5*x)^(3/2))/(18*(2 + 3*x)^6) + (37*Sqrt[1 - 2*x]*(3 + 5*x)^(3
/2))/(180*(2 + 3*x)^5) - (19457889*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*
Sqrt[3 + 5*x])])/(175616*Sqrt[7])
```

Rubi in Sympy [A] time = 43.9276, size = 190, normalized size = 0.91

$$-\frac{37\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{1260\left(3x+2\right)^{5}}-\frac{\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{3}{2}}}{18\left(3x+2\right)^{6}}+\frac{137752591\sqrt{-2x+1}\sqrt{5x+3}}{14224896\left(3x+2\right)}+\frac{1316353\sqrt{-2x+1}\sqrt{5x+3}}{1016064\left(3x+2\right)^{2}}+\frac{37333\sqrt{-2x+1}\sqrt{5x+3}}{181440\left(3x+2\right)^{3}}+\frac{311\sqrt{-2x+1}\sqrt{5x+3}}{4320\left(3x+2\right)^{4}}-\frac{19457889\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{1229312}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(3/2)/(2+3*x)**7,x)
```

```
[Out] -37*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/(1260*(3*x + 2)**5) - (-2*x +
 1)**(3/2)*(5*x + 3)**(3/2)/(18*(3*x + 2)**6) + 137752591*sqrt(-2
```

```
*x + 1)*sqrt(5*x + 3)/(14224896*(3*x + 2)) + 1316353*sqrt(-2*x +
1)*sqrt(5*x + 3)/(1016064*(3*x + 2)**2) + 37333*sqrt(-2*x + 1)*sq
rt(5*x + 3)/(181440*(3*x + 2)**3) + 311*sqrt(-2*x + 1)*sqrt(5*x +
 3)/(4320*(3*x + 2)**4) - 19457889*sqrt(7)*atan(sqrt(7)*sqrt(-2*x
 + 1)/(7*sqrt(5*x + 3)))/1229312
```

Mathematica [A] time = 0.137596, size = 92, normalized size = 0.44

$$\frac{\frac{14\sqrt{1-2x}\sqrt{5x+3}(2066288865x^5+6979774260x^4+9434103472x^3+6379024416x^2+2157325040x+291805632)}{(3x+2)^6}-97289445\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{12293120}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^7,x]
```

```
[Out] ((14*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(291805632 + 2157325040*x + 6379
024416*x^2 + 9434103472*x^3 + 6979774260*x^4 + 2066288865*x^5))/(
2 + 3*x)^6 - 97289445*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*
x]*Sqrt[3 + 5*x]])])/12293120
```

Maple [B] time = 0.02, size = 346, normalized size = 1.7

$$\frac{1}{12293120\,(2+3\,x)^6}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(70924005405\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^6+283696021620\,\sqrt{7}\arctan\left(1/1\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^(3/2)/(2+3*x)^7,x)
```

```
[Out] 1/12293120*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(70924005405*7^(1/2)*arcta
n(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^6+283696021620*7^
(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^5+4728
26702700*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2
))*x^4+28928044110*x^5*(-10*x^2-x+3)^(1/2)+420290402400*7^(1/2)*a
rctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+97716839640
*x^4*(-10*x^2-x+3)^(1/2)+210145201200*7^(1/2)*arctan(1/14*(37*x+2
0)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+132077448608*x^3*(-10*x^2-x+3
)^(1/2)+56038720320*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^
2-x+3)^(1/2))*x+89306341824*x^2*(-10*x^2-x+3)^(1/2)+6226524480*7^
(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+30202550
560*x*(-10*x^2-x+3)^(1/2)+4085278848*(-10*x^2-x+3)^(1/2))/(-10*x^
2-x+3)^(1/2)/(2+3*x)^6
```

Maxima [A] time = 1.51457, size = 369, normalized size = 1.77

$$\begin{aligned}&\frac{3652535}{921984}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}+\frac{\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{14\,(729\,x^6+2916\,x^5+4860\,x^4+4320\,x^3+2160\,x^2+576\,x+64)}\\&+\frac{37\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{140\,(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240\,x+32)}\\&+\frac{1329\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{1568\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}+\frac{49173\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{21952\,(27\,x^3+54\,x^2+36\,x+8)}\\&+\frac{2191521\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{614656\,(9\,x^2+12\,x+4)}+\frac{29749665}{614656}\sqrt{-10\,x^2-x+3}x\\&+\frac{19457889}{2458624}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)\\&-\frac{26211867}{1229312}\sqrt{-10\,x^2-x+3}+\frac{8670839\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{3687936\,(3\,x+2)}\end{aligned}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^7,x, algorithm="maxima")
```

```
[Out] 3652535/921984*(-10*x^2 - x + 3)^(3/2) + 1/14*(-10*x^2 - x + 3)^(
5/2)/(729*x^6 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x
 + 64) + 37/140*(-10*x^2 - x + 3)^(5/2)/(243*x^5 + 810*x^4 + 1080
*x^3 + 720*x^2 + 240*x + 32) + 1329/1568*(-10*x^2 - x + 3)^(5/2)/
(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16) + 49173/21952*(-10*x^2 -
 x + 3)^(5/2)/(27*x^3 + 54*x^2 + 36*x + 8) + 2191521/614656*(-10*
x^2 - x + 3)^(5/2)/(9*x^2 + 12*x + 4) + 29749665/614656*sqrt(-10*
x^2 - x + 3)*x + 19457889/2458624*sqrt(7)*arcsin(37/11*x/abs(3*x
+ 2) + 20/11/abs(3*x + 2)) - 26211867/1229312*sqrt(-10*x^2 - x +
3) + 8670839/3687936*(-10*x^2 - x + 3)^(3/2)/(3*x + 2)
```

Fricas [A] time = 0.228916, size = 188, normalized size = 0.9

$$\frac{\sqrt{7}\Big(2\sqrt{7}\left(2066288865\,x^{5} + 6979774260\,x^{4} + 9434103472\,x^{3} + 6379024416\,x^{2} + 2157325040\,x + 291805632\right)\sqrt{5\,x + 3}\sqrt{-2\,x \cdots}}{12293120\left(729\,x^{6} + 2916\,x^{5} + 4860\,x^{4} + 4320 \cdots\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^7,x, algorithm="fricas")
```

```
[Out] 1/12293120*sqrt(7)*(2*sqrt(7)*(2066288865*x^5 + 6979774260*x^4 +
9434103472*x^3 + 6379024416*x^2 + 2157325040*x + 291805632)*sqrt(
5*x + 3)*sqrt(-2*x + 1) + 97289445*(729*x^6 + 2916*x^5 + 4860*x^4
 + 4320*x^3 + 2160*x^2 + 576*x + 64)*arctan(1/14*sqrt(7)*(37*x +
20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(729*x^6 + 2916*x^5 + 4860*x
^4 + 4320*x^3 + 2160*x^2 + 576*x + 64)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**(3/2)/(2+3*x)**7,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.598949, size = 676, normalized size = 3.23

$$\frac{19457889}{24586240}\sqrt{70}\sqrt{10}\left(\pi + 2\,\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x + 3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{2}}{5\,x+3} - 4\right)}{140\left(\sqrt{2}\sqrt{-10\,x + 5} - \sqrt{22}\right)}\right)\right) - \frac{14641\left(1329\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}} - \frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^{11} + 2108680\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}} - \frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^{9} - 1434500480\sqrt{\cdots}\right.}{\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^7,x, algorithm="giac")
```

```
[Out] 19457889/24586240*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70
)*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3)
 - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 14641/87808*(1329*
sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*
sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^11 + 2108680*
sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*
sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^9 - 143450048
0*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) -
4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^7 - 3825305
34400*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3
) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 - 462
89743360000*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5
*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3
 - 2287257907200000*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22)
)/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt
(22))))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*
sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)^6
```

3.2331 $\int \frac{(1-2x)^{3/2}(3+5x)^{3/2}}{(2+3x)^8}\,dx$

Optimal. Leaf size=238

$$\frac{37\sqrt{1-2x}(5x+3)^{3/2}}{252(3x+2)^6}-\frac{(1-2x)^{3/2}(5x+3)^{3/2}}{21(3x+2)^7}+\frac{14677525921\sqrt{1-2x}\sqrt{5x+3}}{464679936(3x+2)}+\frac{140331343\sqrt{1-2x}\sqrt{5x+3}}{33191424(3x+2)^2}+\frac{4014523\sqrt{1-2x}\sqrt{5x+3}}{5927040(3x+2)^3}+\frac{341917\sqrt{1-2x}\sqrt{5x+3}}{2963520(3x+2)^4}-\frac{9901\sqrt{1-2x}\sqrt{5x+3}}{52920(3x+2)^5}-\frac{6219452877\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{17210368\sqrt{7}}$$

```
[Out] (-9901*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(52920*(2 + 3*x)^5) + (341917
*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2963520*(2 + 3*x)^4) + (4014523*Sq
rt[1 - 2*x]*Sqrt[3 + 5*x])/(5927040*(2 + 3*x)^3) + (140331343*Sqr
t[1 - 2*x]*Sqrt[3 + 5*x])/(33191424*(2 + 3*x)^2) + (14677525921*S
qrt[1 - 2*x]*Sqrt[3 + 5*x])/(464679936*(2 + 3*x)) - ((1 - 2*x)^(3
/2)*(3 + 5*x)^(3/2))/(21*(2 + 3*x)^7) + (37*Sqrt[1 - 2*x]*(3 + 5*
x)^(3/2))/(252*(2 + 3*x)^6) - (6219452877*ArcTan[Sqrt[1 - 2*x]/(S
qrt[7]*Sqrt[3 + 5*x])])/(17210368*Sqrt[7])
```

Rubi [A] time = 0.520051, antiderivative size = 238, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$\frac{37\sqrt{1-2x}(5x+3)^{3/2}}{252(3x+2)^6}-\frac{(1-2x)^{3/2}(5x+3)^{3/2}}{21(3x+2)^7}+\frac{14677525921\sqrt{1-2x}\sqrt{5x+3}}{464679936(3x+2)}+\frac{140331343\sqrt{1-2x}\sqrt{5x+3}}{33191424(3x+2)^2}+\frac{4014523\sqrt{1-2x}\sqrt{5x+3}}{5927040(3x+2)^3}+\frac{341917\sqrt{1-2x}\sqrt{5x+3}}{2963520(3x+2)^4}-\frac{9901\sqrt{1-2x}\sqrt{5x+3}}{52920(3x+2)^5}-\frac{6219452877\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{17210368\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^8,x]
```


```
[Out] (-9901*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(52920*(2 + 3*x)^5) + (341917
*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2963520*(2 + 3*x)^4) + (4014523*Sq
rt[1 - 2*x]*Sqrt[3 + 5*x])/(5927040*(2 + 3*x)^3) + (140331343*Sqr
t[1 - 2*x]*Sqrt[3 + 5*x])/(33191424*(2 + 3*x)^2) + (14677525921*S
qrt[1 - 2*x]*Sqrt[3 + 5*x])/(464679936*(2 + 3*x)) - ((1 - 2*x)^(3
/2)*(3 + 5*x)^(3/2))/(21*(2 + 3*x)^7) + (37*Sqrt[1 - 2*x]*(3 + 5*
x)^(3/2))/(252*(2 + 3*x)^6) - (6219452877*ArcTan[Sqrt[1 - 2*x]/(S
qrt[7]*Sqrt[3 + 5*x])])/(17210368*Sqrt[7])
```

Rubi in Sympy [A] time = 52.6712, size = 218, normalized size = 0.92

$$-\frac{37\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{1764\left(3x+2\right)^{6}}-\frac{\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{3}{2}}}{21\left(3x+2\right)^{7}}+\frac{14677525921\sqrt{-2x+1}\sqrt{5x+3}}{464679936\left(3x+2\right)}+\frac{140331343\sqrt{-2x+1}\sqrt{5x+3}}{33191424\left(3x+2\right)^{2}}+\frac{4014523\sqrt{-2x+1}\sqrt{5x+3}}{5927040\left(3x+2\right)^{3}}+\frac{341917\sqrt{-2x+1}\sqrt{5x+3}}{2963520\left(3x+2\right)^{4}}+\frac{2309\sqrt{-2x+1}\sqrt{5x+3}}{52920\left(3x+2\right)^{5}}-\frac{6219452877\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{120472576}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(3/2)/(2+3*x)**8,x)
```

```
[Out] -37*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/(1764*(3*x + 2)**6) - (-2*x +
 1)**(3/2)*(5*x + 3)**(3/2)/(21*(3*x + 2)**7) + 14677525921*sqrt(
-2*x + 1)*sqrt(5*x + 3)/(464679936*(3*x + 2)) + 140331343*sqrt(-2
*x + 1)*sqrt(5*x + 3)/(33191424*(3*x + 2)**2) + 4014523*sqrt(-2*x
 + 1)*sqrt(5*x + 3)/(5927040*(3*x + 2)**3) + 341917*sqrt(-2*x + 1
)*sqrt(5*x + 3)/(2963520*(3*x + 2)**4) + 2309*sqrt(-2*x + 1)*sqrt
(5*x + 3)/(52920*(3*x + 2)**5) - 6219452877*sqrt(7)*atan(sqrt(7)*
sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/120472576
```

Mathematica [A] time = 0.156905, size = 121, normalized size = 0.51

$$\frac{\frac{42\sqrt{1-2x}\sqrt{5x+3}\left(73387629605(3x+2)^6+9823194010(3x+2)^5+1573693016(3x+2)^4+268062928(3x+2)^3+256794496(3x+2)^2-568556800(3x+2)+86051840\right)}{(3x+2)^7}-251887\ldots}{97582786560}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^8,x]
```

```
[Out] ((42*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(86051840 - 568556800*(2 + 3*x)
+ 256794496*(2 + 3*x)^2 + 268062928*(2 + 3*x)^3 + 1573693016*(2 +
 3*x)^4 + 9823194010*(2 + 3*x)^5 + 73387629605*(2 + 3*x)^6))/(2 +
 3*x)^7 - 2518878415185*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 1
4*x]*Sqrt[3 + 5*x])])/97582786560
```

Maple [B] time = 0.018, size = 394, normalized size = 1.7

$$\frac{1}{1204725760\,(2+3\,x)^7}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(68009717209995\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^7+317378680313310\,\sqrt{7}\,\mathrm{arc}\ldots\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^(3/2)/(2+3*x)^8,x)
```

```
[Out] 1/1204725760*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(68009717209995*7^(1/2)*
arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^7+3173786803
13310*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*
x^6+634757360626620*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^
2-x+3)^(1/2))*x^5+27740523990690*x^6*(-10*x^2-x+3)^(1/2)+70528595
6251800*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2)
)*x^4+112199818408020*x^5*(-10*x^2-x+3)^(1/2)+470190637501200*7^(
1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+18912
8663195472*x^4*(-10*x^2-x+3)^(1/2)+188076255000480*7^(1/2)*arctan
(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+170069285459584*
x^3*(-10*x^2-x+3)^(1/2)+41794723333440*7^(1/2)*arctan(1/14*(37*x+
20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+86046428675424*x^2*(-10*x^2-x+
3)^(1/2)+3980449841280*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10
*x^2-x+3)^(1/2))+23224932823232*x*(-10*x^2-x+3)^(1/2)+26125297390
08*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)^7
```

Maxima [A] time = 1.54285, size = 437, normalized size = 1.84

$$\frac{1167483755}{90354432}\left(-10x^2-x+3\right)^{\frac{3}{2}}+\frac{3\left(-10x^2-x+3\right)^{\frac{5}{2}}}{49\left(2187x^7+10206x^6+20412x^5+22680x^4+15120x^3+6048x^2+1344x+128\right)}+\frac{333\left(-10x^2-x+3\right)^{\frac{5}{2}}}{1372\left(729x^6+2916x^5+4860x^4+4320x^3+2160x^2+576x+64\right)}+\frac{11841\left(-10x^2-x+3\right)^{\frac{5}{2}}}{13720\left(243x^5+810x^4+1080x^3+720x^2+240x+32\right)}+\frac{424797\left(-10x^2-x+3\right)^{\frac{5}{2}}}{153664\left(81x^4+216x^3+216x^2+96x+16\right)}+\frac{15717489\left(-10x^2-x+3\right)^{\frac{5}{2}}}{2151296\left(27x^3+54x^2+36x+8\right)}+\frac{700490253\left(-10x^2-x+3\right)^{\frac{5}{2}}}{60236288\left(9x^2+12x+4\right)}+\frac{9509080845}{60236288}\sqrt{-10x^2-x+3x}+\frac{6219452877}{240945152}\sqrt{7}\arcsin\left(\frac{37x}{11|3x+2|}+\frac{20}{11|3x+2|}\right)-\frac{8378271231}{120472576}\sqrt{-10x^2-x+3}+\frac{2771517227\left(-10x^2-x+3\right)^{\frac{3}{2}}}{361417728(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^8,x, algorithm="maxima")
```

```
[Out] 1167483755/90354432*(-10*x^2 - x + 3)^(3/2) + 3/49*(-10*x^2 - x +
 3)^(5/2)/(2187*x^7 + 10206*x^6 + 20412*x^5 + 22680*x^4 + 15120*x
^3 + 6048*x^2 + 1344*x + 128) + 333/1372*(-10*x^2 - x + 3)^(5/2)/
(729*x^6 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64
) + 11841/13720*(-10*x^2 - x + 3)^(5/2)/(243*x^5 + 810*x^4 + 1080
*x^3 + 720*x^2 + 240*x + 32) + 424797/153664*(-10*x^2 - x + 3)^(5
/2)/(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16) + 15717489/2151296*(
-10*x^2 - x + 3)^(5/2)/(27*x^3 + 54*x^2 + 36*x + 8) + 700490253/6
0236288*(-10*x^2 - x + 3)^(5/2)/(9*x^2 + 12*x + 4) + 9509080845/6
0236288*sqrt(-10*x^2 - x + 3)*x + 6219452877/240945152*sqrt(7)*ar
csin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) - 8378271231/1204
72576*sqrt(-10*x^2 - x + 3) + 2771517227/361417728*(-10*x^2 - x +
 3)^(3/2)/(3*x + 2)
```

Fricas [A] time = 0.23272, size = 208, normalized size = 0.87

$$\frac{\sqrt{7}\left(2\sqrt{7}\left(1981465999335x^6+8014272743430x^5+13509190228248x^4+12147806104256x^3+6146173476816x^2+165892\right.\right.}{1204725760\left(2187x^7+\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^8,x, algorithm="fricas")
```

```
[Out] 1/1204725760*sqrt(7)*(2*sqrt(7)*(1981465999335*x^6 + 801427274343
0*x^5 + 13509190228248*x^4 + 12147806104256*x^3 + 6146173476816*x
^2 + 1658923773088*x + 186609267072)*sqrt(5*x + 3)*sqrt(-2*x + 1)
 + 31097264385*(2187*x^7 + 10206*x^6 + 20412*x^5 + 22680*x^4 + 15
120*x^3 + 6048*x^2 + 1344*x + 128)*arctan(1/14*sqrt(7)*(37*x + 20
)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(2187*x^7 + 10206*x^6 + 20412*
x^5 + 22680*x^4 + 15120*x^3 + 6048*x^2 + 1344*x + 128)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**(3/2)/(2+3*x)**8,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A]   time = 0.698365, size = 759, normalized size = 3.19

$$\frac{6219452877}{2409451520}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^{2}}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)$$

$$-\frac{14641\left(424797\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^{13}+792954400\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^{11}-7484923\cdots\right.}{\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^8,x, algorithm="giac")
```

```
[Out] 6219452877/2409451520*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqr
t(70)*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x
+ 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 14641/8605184*
(424797*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x +
 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^13 +
792954400*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x
 + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^11
- 748492373440*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqr
t(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))
)^9 - 270037116518400*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(2
2))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sq
rt(22)))^7 - 49241484970496000*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5)
 - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x
+ 5) - sqrt(22)))^5 - 4873941796864000000*sqrt(10)*((sqrt(2)*sqrt
(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*
sqrt(-10*x + 5) - sqrt(22)))^3 - 204705555468288000000*sqrt(10)*(
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x +
 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x
+ 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-1
0*x + 5) - sqrt(22)))^2 + 280)^7
```

3.2332 $\int (1-2x)^{3/2}(2+3x)^3(3+5x)^{5/2}\,dx$

Optimal. Leaf size=194

$$-\frac{3}{80}(1-2x)^{5/2}(3x+2)^2(5x+3)^{7/2}-\frac{9(1-2x)^{5/2}(16120x+25043)(5x+3)^{7/2}}{448000}-\frac{306029(1-2x)^{5/2}(5x+3)^{5/2}}{256000}-\frac{3366319(1-2x)^{5/2}(5x+3)^{3/2}}{819200}-\frac{37029509(1-2x)^{5/2}\sqrt{5x+3}}{3276800}+\frac{407324599(1-2x)^{3/2}\sqrt{5x+3}}{65536000}+\frac{13441711767\sqrt{1-2x}\sqrt{5x+3}}{655360000}+\frac{147858829437\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{655360000\sqrt{10}}$$

```
[Out] (13441711767*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/655360000 + (407324599*
(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/65536000 - (37029509*(1 - 2*x)^(5/
2)*Sqrt[3 + 5*x])/3276800 - (3366319*(1 - 2*x)^(5/2)*(3 + 5*x)^(3
/2))/819200 - (306029*(1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/256000 - (
3*(1 - 2*x)^(5/2)*(2 + 3*x)^2*(3 + 5*x)^(7/2))/80 - (9*(1 - 2*x)^
(5/2)*(3 + 5*x)^(7/2)*(25043 + 16120*x))/448000 + (147858829437*A
rcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(655360000*Sqrt[10])
```

Rubi [A] time = 0.244404, antiderivative size = 194, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.192$

$$-\frac{3}{80}(1-2x)^{5/2}(3x+2)^2(5x+3)^{7/2}-\frac{9(1-2x)^{5/2}(16120x+25043)(5x+3)^{7/2}}{448000}-\frac{306029(1-2x)^{5/2}(5x+3)^{5/2}}{256000}-\frac{3366319(1-2x)^{5/2}(5x+3)^{3/2}}{819200}-\frac{37029509(1-2x)^{5/2}\sqrt{5x+3}}{3276800}+\frac{407324599(1-2x)^{3/2}\sqrt{5x+3}}{65536000}+\frac{13441711767\sqrt{1-2x}\sqrt{5x+3}}{655360000}+\frac{147858829437\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{655360000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)*(2 + 3*x)^3*(3 + 5*x)^(5/2),x]
```


```
[Out] (13441711767*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/655360000 + (407324599*
(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/65536000 - (37029509*(1 - 2*x)^(5/
2)*Sqrt[3 + 5*x])/3276800 - (3366319*(1 - 2*x)^(5/2)*(3 + 5*x)^(3
/2))/819200 - (306029*(1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/256000 - (
3*(1 - 2*x)^(5/2)*(2 + 3*x)^2*(3 + 5*x)^(7/2))/80 - (9*(1 - 2*x)^
(5/2)*(3 + 5*x)^(7/2)*(25043 + 16120*x))/448000 + (147858829437*A
rcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(655360000*Sqrt[10])
```

Rubi in Sympy [A] time = 21.1402, size = 178, normalized size = 0.92

$$-\frac{3(-2x+1)^{\frac{5}{2}}(3x+2)^2(5x+3)^{\frac{7}{2}}}{80}-\frac{(-2x+1)^{\frac{5}{2}}(5x+3)^{\frac{7}{2}}\left(108810x+\frac{676161}{4}\right)}{336000}+\frac{306029(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{7}{2}}}{640000}+\frac{10098957\sqrt{-2x+1}(5x+3)^{\frac{7}{2}}}{25600000}-\frac{37029509\sqrt{-2x+1}(5x+3)^{\frac{5}{2}}}{102400000}-\frac{407324599\sqrt{-2x+1}(5x+3)^{\frac{3}{2}}}{163840000}-\frac{13441711767\sqrt{-2x+1}\sqrt{5x+3}}{655360000}+\frac{147858829437\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{6553600000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)**3*(3+5*x)**(5/2),x)
```

```
[Out] -3*(-2*x + 1)**(5/2)*(3*x + 2)**2*(5*x + 3)**(7/2)/80 - (-2*x + 1
)**(5/2)*(5*x + 3)**(7/2)*(108810*x + 676161/4)/336000 + 306029*(
-2*x + 1)**(3/2)*(5*x + 3)**(7/2)/640000 + 10098957*sqrt(-2*x + 1
)*(5*x + 3)**(7/2)/25600000 - 37029509*sqrt(-2*x + 1)*(5*x + 3)**
(5/2)/102400000 - 407324599*sqrt(-2*x + 1)*(5*x + 3)**(3/2)/16384
0000 - 13441711767*sqrt(-2*x + 1)*sqrt(5*x + 3)/655360000 + 14785
8829437*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/6553600000
```

Mathematica [A] time = 0.153072, size = 85, normalized size = 0.44

$$\frac{-10\sqrt{1-2x}\sqrt{5x+3}\left(774144000000x^7+2394316800000x^6+2554199040000x^5+592093952000x^4-910419721600x^3-74\right.}{45875200000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)*(2 + 3*x)^3*(3 + 5*x)^(5/2),x]
```

```
[Out] (-10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(116041578381 - 138459209260*x -
 749541131680*x^2 - 910419721600*x^3 + 592093952000*x^4 + 2554199
040000*x^5 + 2394316800000*x^6 + 774144000000*x^7) - 103501180605
9*Sqrt[10]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/45875200000
```

Maple [A] time = 0.016, size = 172, normalized size = 0.9

$$\frac{1}{91750400000}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(-15482880000000\,x^7\sqrt{-10\,x^2-x+3}-47886336000000\,x^6\sqrt{-10\,x^2-x+3}-5108398080\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^3*(3+5*x)^(5/2),x)
```

```
[Out] 1/91750400000*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(-15482880000000*x^7*(-
10*x^2-x+3)^(1/2)-47886336000000*x^6*(-10*x^2-x+3)^(1/2)-51083980
800000*x^5*(-10*x^2-x+3)^(1/2)-11841879040000*x^4*(-10*x^2-x+3)^(
1/2)+18208394432000*x^3*(-10*x^2-x+3)^(1/2)+14990822633600*x^2*(-
10*x^2-x+3)^(1/2)+1035011806059*10^(1/2)*arcsin(20/11*x+1/11)+276
9184185200*x*(-10*x^2-x+3)^(1/2)-2320831567620*(-10*x^2-x+3)^(1/2
))/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.51418, size = 180, normalized size = 0.93

$$\begin{aligned}&-\frac{27}{16}\left(-10\,x^2-x+3\right)^{\frac{5}{2}}x^3-\frac{2187}{448}\left(-10\,x^2-x+3\right)^{\frac{5}{2}}x^2-\frac{100119}{17920}\left(-10\,x^2-x+3\right)^{\frac{5}{2}}x\\&-\frac{5653247}{1792000}\left(-10\,x^2-x+3\right)^{\frac{5}{2}}+\frac{3366319}{409600}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x\\&+\frac{3366319}{8192000}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}+\frac{1221973797}{32768000}\sqrt{-10\,x^2-x+3x}\\&-\frac{147858829437}{13107200000}\sqrt{10}\arcsin\left(-\frac{20}{11}x-\frac{1}{11}\right)+\frac{1221973797}{655360000}\sqrt{-10\,x^2-x+3}\end{aligned}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)^3*(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] -27/16*(-10*x^2 - x + 3)^(5/2)*x^3 - 2187/448*(-10*x^2 - x + 3)^(
5/2)*x^2 - 100119/17920*(-10*x^2 - x + 3)^(5/2)*x - 5653247/17920
```

```
00*(-10*x^2 - x + 3)^(5/2) + 3366319/409600*(-10*x^2 - x + 3)^(3/
2)*x + 3366319/8192000*(-10*x^2 - x + 3)^(3/2) + 1221973797/32768
000*sqrt(-10*x^2 - x + 3)*x - 147858829437/13107200000*sqrt(10)*a
rcsin(-20/11*x - 1/11) + 1221973797/655360000*sqrt(-10*x^2 - x +
3)
```

Fricas [A] time = 0.222881, size = 117, normalized size = 0.6

$$-\frac{1}{91750400000}\sqrt{10}\left(2\sqrt{10}(774144000000\,x^7 + 2394316800000\,x^6 + 2554199040000\,x^5 + 592093952000\,x^4 - 910419721600\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(3*x + 2)^3*(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/91750400000*sqrt(10)*(2*sqrt(10)*(774144000000*x^7 + 239431680
0000*x^6 + 2554199040000*x^5 + 592093952000*x^4 - 910419721600*x^
3 - 749541131680*x^2 - 138459209260*x + 116041578381)*sqrt(5*x +
3)*sqrt(-2*x + 1) - 1035011806059*arctan(1/20*sqrt(10)*(20*x + 1)
/(sqrt(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)**3*(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.275045, size = 1, normalized size = 0.01

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(3*x + 2)^3*(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] Done
```

3.2333 $\int (1-2x)^{3/2}(2+3x)^2(3+5x)^{5/2}\,dx$

Optimal. Leaf size=187

$$-\frac{47}{400}(1-2x)^{5/2}(5x+3)^{7/2}$$

$$-\frac{3}{70}(1-2x)^{5/2}(3x+2)(5x+3)^{7/2}-\frac{783(1-2x)^{5/2}(5x+3)^{5/2}}{1600}-\frac{8613(1-2x)^{5/2}(5x+3)^{3/2}}{5120}-\frac{94743(1-2x)^{5/2}\sqrt{5x+3}}{20480}+\frac{10421}{}$$

```
[Out] (34391709*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/4096000 + (1042173*(1 - 2*
x)^(3/2)*Sqrt[3 + 5*x])/409600 - (94743*(1 - 2*x)^(5/2)*Sqrt[3 +
5*x])/20480 - (8613*(1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/5120 - (783*
(1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/1600 - (47*(1 - 2*x)^(5/2)*(3 +
5*x)^(7/2))/400 - (3*(1 - 2*x)^(5/2)*(2 + 3*x)*(3 + 5*x)^(7/2))/7
0 + (378308799*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(4096000*Sqrt[10
])
```

Rubi [A] time = 0.221702, antiderivative size = 187, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.192$

$$-\frac{47}{400}(1-2x)^{5/2}(5x+3)^{7/2}$$

$$-\frac{3}{70}(1-2x)^{5/2}(3x+2)(5x+3)^{7/2}-\frac{783(1-2x)^{5/2}(5x+3)^{5/2}}{1600}-\frac{8613(1-2x)^{5/2}(5x+3)^{3/2}}{5120}-\frac{94743(1-2x)^{5/2}\sqrt{5x+3}}{20480}+\frac{10421}{}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)*(2 + 3*x)^2*(3 + 5*x)^(5/2),x]
```

```
[Out] (34391709*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/4096000 + (1042173*(1 - 2*
x)^(3/2)*Sqrt[3 + 5*x])/409600 - (94743*(1 - 2*x)^(5/2)*Sqrt[3 +
5*x])/20480 - (8613*(1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/5120 - (783*
(1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/1600 - (47*(1 - 2*x)^(5/2)*(3 +
5*x)^(7/2))/400 - (3*(1 - 2*x)^(5/2)*(2 + 3*x)*(3 + 5*x)^(7/2))/7
0 + (378308799*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(4096000*Sqrt[10
])
```

Rubi in Sympy [A] time = 17.5526, size = 170, normalized size = 0.91

$$-\frac{(-2x+1)^{\frac{5}{2}}(5x+3)^{\frac{7}{2}}(9x+6)}{70}-\frac{47(-2x+1)^{\frac{5}{2}}(5x+3)^{\frac{7}{2}}}{400}+\frac{783(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{7}{2}}}{4000}-\frac{25839(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{5}{2}}}{64000}-\frac{94743(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{3}{2}}}{51200}-\frac{3126519(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{409600}+\frac{34391709\sqrt{-2x+1}\sqrt{5x+3}}{4096000}+\frac{378308799\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{40960000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)**2*(3+5*x)**(5/2),x)
```

```
[Out] -(-2*x + 1)**(5/2)*(5*x + 3)**(7/2)*(9*x + 6)/70 - 47*(-2*x + 1)*
*(5/2)*(5*x + 3)**(7/2)/400 + 783*(-2*x + 1)**(3/2)*(5*x + 3)**(7
/2)/4000 - 25839*(-2*x + 1)**(3/2)*(5*x + 3)**(5/2)/64000 - 94743
*(-2*x + 1)**(3/2)*(5*x + 3)**(3/2)/51200 - 3126519*(-2*x + 1)**(
3/2)*sqrt(5*x + 3)/409600 + 34391709*sqrt(-2*x + 1)*sqrt(5*x + 3)
/4096000 + 378308799*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/409
60000
```

Mathematica [A] time = 0.132873, size = 80, normalized size = 0.43

$$\frac{-10\sqrt{1-2x}\sqrt{5x+3}\,(1843200000x^6+4387840000x^5+2867456000x^4-887043200x^3-1789716960x^2-549624420x+247}{286720000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)*(2 + 3*x)^2*(3 + 5*x)^(5/2),x]
```

```
[Out] (-10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(247243887 - 549624420*x - 17897
16960*x^2 - 887043200*x^3 + 2867456000*x^4 + 4387840000*x^5 + 184
3200000*x^6) - 2648161593*Sqrt[10]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x
]])/286720000
```

Maple [A] time = 0.014, size = 155, normalized size = 0.8

$$\frac{1}{573440000}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(-36864000000\,x^6\sqrt{-10\,x^2-x+3}-87756800000\,x^5\sqrt{-10\,x^2-x+3}-57349120000\,x^4\sqrt{-10\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^2*(3+5*x)^(5/2),x)
```

```
[Out] 1/573440000*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(-36864000000*x^6*(-10*x^
2-x+3)^(1/2)-87756800000*x^5*(-10*x^2-x+3)^(1/2)-57349120000*x^4*
(-10*x^2-x+3)^(1/2)+17740864000*x^3*(-10*x^2-x+3)^(1/2)+357943392
00*x^2*(-10*x^2-x+3)^(1/2)+2648161593*10^(1/2)*arcsin(20/11*x+1/1
1)+10992488400*x*(-10*x^2-x+3)^(1/2)-4944877740*(-10*x^2-x+3)^(1/
2))/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.50493, size = 157, normalized size = 0.84

$$-\frac{9}{14}\left(-10\,x^2-x+3\right)^{\frac{5}{2}}x^2-\frac{157}{112}\left(-10\,x^2-x+3\right)^{\frac{5}{2}}x-\frac{12309}{11200}\left(-10\,x^2-x+3\right)^{\frac{5}{2}}+\frac{8613}{2560}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x+\frac{8613}{51200}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}+\frac{3126519}{204800}\sqrt{-10\,x^2-x+3x}-\frac{378308799}{81920000}\sqrt{10}\arcsin\left(-\frac{20}{11}x-\frac{1}{11}\right)+\frac{3126519}{4096000}\sqrt{-10\,x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)^2*(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] -9/14*(-10*x^2 - x + 3)^(5/2)*x^2 - 157/112*(-10*x^2 - x + 3)^(5/
2)*x - 12309/11200*(-10*x^2 - x + 3)^(5/2) + 8613/2560*(-10*x^2 -
 x + 3)^(3/2)*x + 8613/51200*(-10*x^2 - x + 3)^(3/2) + 3126519/20
4800*sqrt(-10*x^2 - x + 3)*x - 378308799/81920000*sqrt(10)*arcsin
(-20/11*x - 1/11) + 3126519/4096000*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.217464, size = 111, normalized size = 0.59

$$-\frac{1}{573440000}\sqrt{10}\left(2\sqrt{10}\left(1843200000\,x^6+4387840000\,x^5+2867456000\,x^4-887043200\,x^3-1789716960\,x^2-549624420\,x\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(3*x + 2)^2*(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/573440000*sqrt(10)*(2*sqrt(10)*(1843200000*x^6 + 4387840000*x^
5 + 2867456000*x^4 - 887043200*x^3 - 1789716960*x^2 - 549624420*x
 + 247243887)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 2648161593*arctan(1/
20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(3/2)*(2+3*x)**2*(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.272355, size = 548, normalized size = 2.93

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(3*x + 2)^2*(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] -3/7168000000*sqrt(5)*(2*(4*(8*(4*(16*(20*(120*x - 359)*(5*x + 3)
 + 63769)*(5*x + 3) - 3968469)*(5*x + 3) + 33617829)*(5*x + 3) -
276044685)*(5*x + 3) + 87356115)*sqrt(5*x + 3)*sqrt(-10*x + 5) -
960917265*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) - 61/51200
0000*sqrt(5)*(2*(4*(8*(4*(16*(100*x - 239)*(5*x + 3) + 27999)*(5*
x + 3) - 318159)*(5*x + 3) + 3237255)*(5*x + 3) - 2656665)*sqrt(5
*x + 3)*sqrt(-10*x + 5) + 29223315*sqrt(2)*arcsin(1/11*sqrt(22)*s
qrt(5*x + 3))) - 1/375000*sqrt(5)*(2*(4*(8*(12*(80*x - 143)*(5*x
+ 3) + 9773)*(5*x + 3) - 136405)*(5*x + 3) + 60555)*sqrt(5*x + 3)
*sqrt(-10*x + 5) - 666105*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x +
 3))) + 17/384000*sqrt(5)*(2*(4*(8*(60*x - 71)*(5*x + 3) + 2179)*
(5*x + 3) - 4125)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 45375*sqrt(2)*a
rcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 13/2000*sqrt(5)*(2*(4*(40*x
 - 23)*(5*x + 3) + 33)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 363*sqrt(2
)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 9/100*sqrt(5)*(2*(20*x +
 1)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 121*sqrt(2)*arcsin(1/11*sqrt(
22)*sqrt(5*x + 3)))
```

3.2334 $\int (1-2x)^{3/2}(2+3x)(3+5x)^{5/2}\,dx$

Optimal. Leaf size=160

$$-\frac{1}{20}(1-2x)^{5/2}(5x+3)^{7/2}$$

$$-\frac{17}{80}(1-2x)^{5/2}(5x+3)^{5/2}-\frac{187}{256}(1-2x)^{5/2}(5x+3)^{3/2}-\frac{2057(1-2x)^{5/2}\sqrt{5x+3}}{1024}+\frac{22627(1-2x)^{3/2}\sqrt{5x+3}}{20480}+\frac{746691\sqrt{1-2x}\sqrt{5}}{204800}$$

```
[Out] (746691*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/204800 + (22627*(1 - 2*x)^(3
/2)*Sqrt[3 + 5*x])/20480 - (2057*(1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/1
024 - (187*(1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/256 - (17*(1 - 2*x)^(
5/2)*(3 + 5*x)^(5/2))/80 - ((1 - 2*x)^(5/2)*(3 + 5*x)^(7/2))/20 +
 (8213601*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(204800*Sqrt[10])
```

Rubi [A] time = 0.168638, antiderivative size = 160, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$-\frac{1}{20}(1-2x)^{5/2}(5x+3)^{7/2}$$

$$-\frac{17}{80}(1-2x)^{5/2}(5x+3)^{5/2}-\frac{187}{256}(1-2x)^{5/2}(5x+3)^{3/2}-\frac{2057(1-2x)^{5/2}\sqrt{5x+3}}{1024}+\frac{22627(1-2x)^{3/2}\sqrt{5x+3}}{20480}+\frac{746691\sqrt{1-2x}\sqrt{5}}{204800}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)*(2 + 3*x)*(3 + 5*x)^(5/2),x]
```

```
[Out] (746691*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/204800 + (22627*(1 - 2*x)^(3
/2)*Sqrt[3 + 5*x])/20480 - (2057*(1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/1
024 - (187*(1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/256 - (17*(1 - 2*x)^(
5/2)*(3 + 5*x)^(5/2))/80 - ((1 - 2*x)^(5/2)*(3 + 5*x)^(7/2))/20 +
 (8213601*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(204800*Sqrt[10])
```

Rubi in Sympy [A] time = 14.2216, size = 144, normalized size = 0.9

$$-\frac{(-2x+1)^{\frac{5}{2}}(5x+3)^{\frac{7}{2}}}{20}+\frac{17(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{7}{2}}}{200}+\frac{561\sqrt{-2x+1}(5x+3)^{\frac{7}{2}}}{8000}-\frac{2057\sqrt{-2x+1}(5x+3)^{\frac{5}{2}}}{32000}-\frac{22627\sqrt{-2x+1}(5x+3)^{\frac{3}{2}}}{51200}-\frac{746691\sqrt{-2x+1}\sqrt{5x+3}}{204800}+\frac{8213601\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{2048000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)*(3+5*x)**(5/2),x)
```

```
[Out] -(-2*x + 1)**(5/2)*(5*x + 3)**(7/2)/20 + 17*(-2*x + 1)**(3/2)*(5*
x + 3)**(7/2)/200 + 561*sqrt(-2*x + 1)*(5*x + 3)**(7/2)/8000 - 20
57*sqrt(-2*x + 1)*(5*x + 3)**(5/2)/32000 - 22627*sqrt(-2*x + 1)*(
5*x + 3)**(3/2)/51200 - 746691*sqrt(-2*x + 1)*sqrt(5*x + 3)/20480
0 + 8213601*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/2048000
```

Mathematica [A] time = 0.101311, size = 75, normalized size = 0.47

$$\frac{-10\sqrt{1-2x}\sqrt{5x+3}\left(5120000x^5+8448000x^4+1456000x^3-4238560x^2-2224900x+555399\right)-8213601\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\right.}{2048000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)*(2 + 3*x)*(3 + 5*x)^(5/2),x]
```

```
[Out] (-10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(555399 - 2224900*x - 4238560*x^
2 + 1456000*x^3 + 8448000*x^4 + 5120000*x^5) - 8213601*Sqrt[10]*A
rcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/2048000
```

Maple [A] time = 0.011, size = 138, normalized size = 0.9

$$\frac{1}{4096000}\sqrt{1-2x}\sqrt{3+5x}\left(-102400000\,x^5\sqrt{-10\,x^2-x+3}-168960000\,x^4\sqrt{-10\,x^2-x+3}-29120000\,x^3\sqrt{-10\,x^2-x+3}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)*(3+5*x)^(5/2),x)
```

```
[Out] 1/4096000*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(-102400000*x^5*(-10*x^2-x+
3)^(1/2)-168960000*x^4*(-10*x^2-x+3)^(1/2)-29120000*x^3*(-10*x^2-
x+3)^(1/2)+84771200*x^2*(-10*x^2-x+3)^(1/2)+8213601*10^(1/2)*arcs
in(20/11*x+1/11)+44498000*x*(-10*x^2-x+3)^(1/2)-11107980*(-10*x^2
-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.50926, size = 134, normalized size = 0.84

$$-\frac{1}{4}\left(-10\,x^2-x+3\right)^{\frac{5}{2}}x-\frac{29}{80}\left(-10\,x^2-x+3\right)^{\frac{5}{2}}+\frac{187}{128}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x+\frac{187}{2560}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}+\frac{67881}{10240}\sqrt{-10\,x^2-x+3}x-\frac{8213601}{4096000}\sqrt{10}\arcsin\left(-\frac{20}{11}x-\frac{1}{11}\right)+\frac{67881}{204800}\sqrt{-10\,x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)*(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] -1/4*(-10*x^2 - x + 3)^(5/2)*x - 29/80*(-10*x^2 - x + 3)^(5/2) +
187/128*(-10*x^2 - x + 3)^(3/2)*x + 187/2560*(-10*x^2 - x + 3)^(3
/2) + 67881/10240*sqrt(-10*x^2 - x + 3)*x - 8213601/4096000*sqrt(
10)*arcsin(-20/11*x - 1/11) + 67881/204800*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.222223, size = 104, normalized size = 0.65

$$-\frac{1}{4096000}\sqrt{10}\left(2\sqrt{10}\left(5120000\,x^5+8448000\,x^4+1456000\,x^3-4238560\,x^2-2224900\,x+555399\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-82\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)*(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/4096000*sqrt(10)*(2*sqrt(10)*(5120000*x^5 + 8448000*x^4 + 1456
000*x^3 - 4238560*x^2 - 2224900*x + 555399)*sqrt(5*x + 3)*sqrt(-2
*x + 1) - 8213601*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*
sqrt(-2*x + 1))))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)*(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.256429, size = 427, normalized size = 2.67

$$-\frac{1}{51200000}\sqrt{5}\left(2(4(8(4(16(100x-239)(5x+3)+27999)(5x+3)-318159)(5x+3)+3237255)(5x+3)-2656665)\sqrt{5x\right.$$
$$-\frac{41}{38400000}\sqrt{5}\left(2(4(8(12(80x-143)(5x+3)+9773)(5x+3)-136405)(5x+3)+60555)\sqrt{5x+3}\sqrt{-10x+5}-666105\sqrt{\right.$$
$$-\frac{17}{960000}\sqrt{5}\left(2(4(8(60x-71)(5x+3)+2179)(5x+3)-4125)\sqrt{5x+3}\sqrt{-10x+5}+45375\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$
$$+\frac{17}{8000}\sqrt{5}\left(2(4(40x-23)(5x+3)+33)\sqrt{5x+3}\sqrt{-10x+5}-363\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$
$$+\frac{9}{200}\sqrt{5}\left(2(20x+1)\sqrt{5x+3}\sqrt{-10x+5}+121\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)*(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] -1/51200000*sqrt(5)*(2*(4*(8*(4*(16*(100*x - 239)*(5*x + 3) + 279
99)*(5*x + 3) - 318159)*(5*x + 3) + 3237255)*(5*x + 3) - 2656665)
*sqrt(5*x + 3)*sqrt(-10*x + 5) + 29223315*sqrt(2)*arcsin(1/11*sqr
t(22)*sqrt(5*x + 3))) - 41/38400000*sqrt(5)*(2*(4*(8*(12*(80*x -
143)*(5*x + 3) + 9773)*(5*x + 3) - 136405)*(5*x + 3) + 60555)*sqr
t(5*x + 3)*sqrt(-10*x + 5) - 666105*sqrt(2)*arcsin(1/11*sqrt(22)*
sqrt(5*x + 3))) - 17/960000*sqrt(5)*(2*(4*(8*(60*x - 71)*(5*x + 3
) + 2179)*(5*x + 3) - 4125)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 45375
*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 17/8000*sqrt(5)*(
2*(4*(40*x - 23)*(5*x + 3) + 33)*sqrt(5*x + 3)*sqrt(-10*x + 5) -
363*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 9/200*sqrt(5)*
(2*(20*x + 1)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 121*sqrt(2)*arcsin(
1/11*sqrt(22)*sqrt(5*x + 3)))
```

3.2335 $\int (1-2x)^{3/2}(3+5x)^{5/2}\,dx$

Optimal. Leaf size=138

$$-\frac{1}{10}(5x+3)^{5/2}(1-2x)^{5/2}$$
$$-\frac{11}{32}(5x+3)^{3/2}(1-2x)^{5/2}-\frac{121}{128}\sqrt{5x+3}(1-2x)^{5/2}+\frac{1331\sqrt{5x+3}(1-2x)^{3/2}}{2560}+\frac{43923\sqrt{5x+3}\sqrt{1-2x}}{25600}+\frac{483153\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{25600\sqrt{10}}$$

```
[Out] (43923*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/25600 + (1331*(1 - 2*x)^(3/2)
*Sqrt[3 + 5*x])/2560 - (121*(1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/128 -
(11*(1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/32 - ((1 - 2*x)^(5/2)*(3 + 5
*x)^(5/2))/10 + (483153*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(25600*
Sqrt[10])
```

Rubi [A] time = 0.131163, antiderivative size = 138, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 3, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}} = 0.158$

$$-\frac{1}{10}(5x+3)^{5/2}(1-2x)^{5/2}$$
$$-\frac{11}{32}(5x+3)^{3/2}(1-2x)^{5/2}-\frac{121}{128}\sqrt{5x+3}(1-2x)^{5/2}+\frac{1331\sqrt{5x+3}(1-2x)^{3/2}}{2560}+\frac{43923\sqrt{5x+3}\sqrt{1-2x}}{25600}+\frac{483153\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{25600\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)*(3 + 5*x)^(5/2),x]
```

```
[Out] (43923*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/25600 + (1331*(1 - 2*x)^(3/2)
*Sqrt[3 + 5*x])/2560 - (121*(1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/128 -
(11*(1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/32 - ((1 - 2*x)^(5/2)*(3 + 5
*x)^(5/2))/10 + (483153*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(25600*
Sqrt[10])
```

Rubi in Sympy [A] time = 11.7412, size = 124, normalized size = 0.9

$$\frac{(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{7}{2}}}{25}+\frac{33\sqrt{-2x+1}\,(5x+3)^{\frac{7}{2}}}{1000}-\frac{121\sqrt{-2x+1}\,(5x+3)^{\frac{5}{2}}}{4000}-\frac{1331\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{6400}-\frac{43923\sqrt{-2x+1}\sqrt{5x+3}}{25600}+\frac{483153\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{256000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(5/2),x)
```

```
[Out] (-2*x + 1)**(3/2)*(5*x + 3)**(7/2)/25 + 33*sqrt(-2*x + 1)*(5*x +
3)**(7/2)/1000 - 121*sqrt(-2*x + 1)*(5*x + 3)**(5/2)/4000 - 1331*
sqrt(-2*x + 1)*(5*x + 3)**(3/2)/6400 - 43923*sqrt(-2*x + 1)*sqrt(
5*x + 3)/25600 + 483153*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/
256000
```

Mathematica [A] time = 0.107415, size = 70, normalized size = 0.51

$$\frac{-10\sqrt{1-2x}\sqrt{5x+3}\left(256000x^4+227200x^3-124640x^2-147140x+16407\right)-483153\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{256000}$$

Antiderivative was successfully verified.

```
[In]   Integrate[(1 - 2*x)^(3/2)*(3 + 5*x)^(5/2),x]
```

```
[Out] (-10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(16407 - 147140*x - 124640*x^2 +
 227200*x^3 + 256000*x^4) - 483153*Sqrt[10]*ArcSin[Sqrt[5/11]*Sqr
t[1 - 2*x]])/256000
```

Maple [A] time = 0.007, size = 120, normalized size = 0.9

$$\frac{1}{25}(1-2x)^{\frac{3}{2}}(3+5x)^{\frac{7}{2}}+\frac{33}{1000}(3+5x)^{\frac{7}{2}}\sqrt{1-2x}-\frac{121}{4000}(3+5x)^{\frac{5}{2}}\sqrt{1-2x} -\frac{1331}{6400}(3+5x)^{\frac{3}{2}}\sqrt{1-2x}-\frac{43923}{25600}\sqrt{1-2x}\sqrt{3+5x} +\frac{483153\sqrt{10}}{512000}\sqrt{(1-2x)(3+5x)}\arcsin\left(\frac{20x}{11}+\frac{1}{11}\right)\frac{1}{\sqrt{1-2x}}\frac{1}{\sqrt{3+5x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((1-2*x)^(3/2)*(3+5*x)^(5/2),x)
```

```
[Out] 1/25*(1-2*x)^(3/2)*(3+5*x)^(7/2)+33/1000*(3+5*x)^(7/2)*(1-2*x)^(1
/2)-121/4000*(3+5*x)^(5/2)*(1-2*x)^(1/2)-1331/6400*(3+5*x)^(3/2)*
(1-2*x)^(1/2)-43923/25600*(1-2*x)^(1/2)*(3+5*x)^(1/2)+483153/5120
00*((1-2*x)*(3+5*x))^(1/2)/(3+5*x)^(1/2)/(1-2*x)^(1/2)*10^(1/2)*a
rcsin(20/11*x+1/11)
```

Maxima [A] time = 1.50077, size = 113, normalized size = 0.82

$$-\frac{1}{10}\left(-10x^2-x+3\right)^{\frac{5}{2}}+\frac{11}{16}\left(-10x^2-x+3\right)^{\frac{3}{2}}x+\frac{11}{320}\left(-10x^2-x+3\right)^{\frac{3}{2}} +\frac{3993}{1280}\sqrt{-10x^2-x+3}x-\frac{483153}{512000}\sqrt{10}\arcsin\left(-\frac{20}{11}x-\frac{1}{11}\right)+\frac{3993}{25600}\sqrt{-10x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] -1/10*(-10*x^2 - x + 3)^(5/2) + 11/16*(-10*x^2 - x + 3)^(3/2)*x +
 11/320*(-10*x^2 - x + 3)^(3/2) + 3993/1280*sqrt(-10*x^2 - x + 3)
*x - 483153/512000*sqrt(10)*arcsin(-20/11*x - 1/11) + 3993/25600*
sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.217055, size = 97, normalized size = 0.7

$$-\frac{1}{512000}\sqrt{10}\left(2\sqrt{10}\left(256000x^4+227200x^3-124640x^2-147140x+16407\right)\sqrt{5x+3}\sqrt{-2x+1}-483153\arctan\left(\frac{\sqrt{1}}{20\sqrt{5x}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/512000*sqrt(10)*(2*sqrt(10)*(256000*x^4 + 227200*x^3 - 124640*
x^2 - 147140*x + 16407)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 483153*arc
tan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [A] time = 147.195, size = 311, normalized size = 2.25

$$\begin{cases} -\frac{100i\left(x+\frac{3}{5}\right)^{\frac{11}{2}}}{\sqrt{10x-5}} + \frac{1045i\left(x+\frac{3}{5}\right)^{\frac{9}{2}}}{4\sqrt{10x-5}} - \frac{2783i\left(x+\frac{3}{5}\right)^{\frac{7}{2}}}{16\sqrt{10x-5}} - \frac{1331i\left(x+\frac{3}{5}\right)^{\frac{5}{2}}}{640\sqrt{10x-5}} - \frac{14641i\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}{2560\sqrt{10x-5}} + \frac{483153i\sqrt{x+\frac{3}{5}}}{25600\sqrt{10x-5}} - \frac{483153\sqrt{10}i\operatorname{acosh}\left(\frac{\sqrt{110}\sqrt{x+\frac{3}{5}}}{11}\right)}{256000} & \text{for } \frac{10\left|x+\frac{3}{5}\right|}{11} \\ \frac{483153\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{110}\sqrt{x+\frac{3}{5}}}{11}\right)}{256000} + \frac{100\left(x+\frac{3}{5}\right)^{\frac{11}{2}}}{\sqrt{-10x+5}} - \frac{1045\left(x+\frac{3}{5}\right)^{\frac{9}{2}}}{4\sqrt{-10x+5}} + \frac{2783\left(x+\frac{3}{5}\right)^{\frac{7}{2}}}{16\sqrt{-10x+5}} + \frac{1331\left(x+\frac{3}{5}\right)^{\frac{5}{2}}}{640\sqrt{-10x+5}} + \frac{14641\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}{2560\sqrt{-10x+5}} - \frac{483153\sqrt{x+\frac{3}{5}}}{25600\sqrt{-10x+5}} & \text{otherwis} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**(5/2),x)
```

```
[Out] Piecewise((-100*I*(x + 3/5)**(11/2)/sqrt(10*x - 5) + 1045*I*(x +
3/5)**(9/2)/(4*sqrt(10*x - 5)) - 2783*I*(x + 3/5)**(7/2)/(16*sqrt
(10*x - 5)) - 1331*I*(x + 3/5)**(5/2)/(640*sqrt(10*x - 5)) - 1464
1*I*(x + 3/5)**(3/2)/(2560*sqrt(10*x - 5)) + 483153*I*sqrt(x + 3/
5)/(25600*sqrt(10*x - 5)) - 483153*sqrt(10)*I*acosh(sqrt(110)*sqr
t(x + 3/5)/11)/256000, 10*Abs(x + 3/5)/11 > 1), (483153*sqrt(10)*
asin(sqrt(110)*sqrt(x + 3/5)/11)/256000 + 100*(x + 3/5)**(11/2)/s
qrt(-10*x + 5) - 1045*(x + 3/5)**(9/2)/(4*sqrt(-10*x + 5)) + 2783
*(x + 3/5)**(7/2)/(16*sqrt(-10*x + 5)) + 1331*(x + 3/5)**(5/2)/(6
40*sqrt(-10*x + 5)) + 14641*(x + 3/5)**(3/2)/(2560*sqrt(-10*x + 5
)) - 483153*sqrt(x + 3/5)/(25600*sqrt(-10*x + 5)), True))
```

GIAC/XCAS [A] time = 0.249129, size = 317, normalized size = 2.3

$$-\frac{1}{3840000}\sqrt{5}\left(2\left(4\left(8\left(12\left(80x-143\right)(5x+3)+9773\right)(5x+3)-136405\right)(5x+3)+60555\right)\sqrt{5x+3}\sqrt{-10x+5}-666105\sqrt{2}\right.$$
$$-\frac{7}{384000}\sqrt{5}\left(2\left(4\left(8\left(60x-71\right)(5x+3)+2179\right)(5x+3)-4125\right)\sqrt{5x+3}\sqrt{-10x+5}+45375\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$
$$+\frac{1}{2000}\sqrt{5}\left(2\left(4\left(40x-23\right)(5x+3)+33\right)\sqrt{5x+3}\sqrt{-10x+5}-363\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$
$$+\frac{9}{400}\sqrt{5}\left(2\left(20x+1\right)\sqrt{5x+3}\sqrt{-10x+5}+121\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] -1/3840000*sqrt(5)*(2*(4*(8*(12*(80*x - 143)*(5*x + 3) + 9773)*(5
*x + 3) - 136405)*(5*x + 3) + 60555)*sqrt(5*x + 3)*sqrt(-10*x + 5
) - 666105*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) - 7/38400
0*sqrt(5)*(2*(4*(8*(60*x - 71)*(5*x + 3) + 2179)*(5*x + 3) - 4125
)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 45375*sqrt(2)*arcsin(1/11*sqrt(
22)*sqrt(5*x + 3))) + 1/2000*sqrt(5)*(2*(4*(40*x - 23)*(5*x + 3)
+ 33)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 363*sqrt(2)*arcsin(1/11*sqr
t(22)*sqrt(5*x + 3))) + 9/400*sqrt(5)*(2*(20*x + 1)*sqrt(5*x + 3)
*sqrt(-10*x + 5) + 121*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)
))
```

3.2336 $\int \frac{(1-2x)^{3/2}(3+5x)^{5/2}}{2+3x} dx$

Optimal. Leaf size=150

$$\frac{1}{12}(1-2x)^{3/2}(5x+3)^{5/2}+\frac{23}{216}\sqrt{1-2x}(5x+3)^{5/2}-\frac{53}{192}\sqrt{1-2x}(5x+3)^{3/2}-\frac{15863\sqrt{1-2x}\sqrt{5x+3}}{20736}+\frac{648919\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{62208\sqrt{10}}+\frac{14}{243}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

```
[Out] (-15863*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/20736 - (53*Sqrt[1 - 2*x]*(3
 + 5*x)^(3/2))/192 + (23*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/216 + ((1
 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/12 + (648919*ArcSin[Sqrt[2/11]*Sqr
t[3 + 5*x]])/(62208*Sqrt[10]) + (14*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]/
(Sqrt[7]*Sqrt[3 + 5*x])])/243
```

Rubi [A] time = 0.369633, antiderivative size = 150, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 7, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.269

$$\frac{1}{12}(1-2x)^{3/2}(5x+3)^{5/2}+\frac{23}{216}\sqrt{1-2x}(5x+3)^{5/2}-\frac{53}{192}\sqrt{1-2x}(5x+3)^{3/2}-\frac{15863\sqrt{1-2x}\sqrt{5x+3}}{20736}+\frac{648919\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{62208\sqrt{10}}+\frac{14}{243}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(2 + 3*x),x]
```

```
[Out] (-15863*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/20736 - (53*Sqrt[1 - 2*x]*(3
 + 5*x)^(3/2))/192 + (23*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/216 + ((1
 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/12 + (648919*ArcSin[Sqrt[2/11]*Sqr
t[3 + 5*x]])/(62208*Sqrt[10]) + (14*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]/
(Sqrt[7]*Sqrt[3 + 5*x])])/243
```

Rubi in Sympy [A] time = 37.7146, size = 138, normalized size = 0.92

$$\frac{(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{5}{2}}}{12}-\frac{115(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{3}{2}}}{432}+\frac{535\sqrt{-2x+1}(5x+3)^{\frac{3}{2}}}{1728}-\frac{15863\sqrt{-2x+1}\sqrt{5x+3}}{20736}+\frac{648919\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{622080}+\frac{14\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{243}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(5/2)/(2+3*x),x)
```

```
[Out] (-2*x + 1)**(3/2)*(5*x + 3)**(5/2)/12 - 115*(-2*x + 1)**(3/2)*(5*
x + 3)**(3/2)/432 + 535*sqrt(-2*x + 1)*(5*x + 3)**(3/2)/1728 - 15
863*sqrt(-2*x + 1)*sqrt(5*x + 3)/20736 + 648919*sqrt(10)*asin(sqr
t(22)*sqrt(5*x + 3)/11)/622080 + 14*sqrt(7)*atan(sqrt(7)*sqrt(-2*
x + 1)/(7*sqrt(5*x + 3)))/243
```

Mathematica [A] time = 0.209729, size = 110, normalized size = 0.73

$$\frac{-60\sqrt{1-2x}\sqrt{5x+3}\left(86400x^3+5280x^2-58356x-2389\right)+35840\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)+648919\sqrt{10}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50}}\right.}{1244160}$$

Antiderivative was successfully verified.

```
[In]   Integrate[((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(2 + 3*x),x]
```

```
[Out] (-60*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(-2389 - 58356*x + 5280*x^2 + 86
400*x^3) + 35840*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sq
rt[3 + 5*x])] + 648919*Sqrt[10]*ArcTan[(1 + 20*x)/(2*Sqrt[1 - 2*x
]*Sqrt[30 + 50*x])])/1244160
```

Maple [A] time = 0.013, size = 132, normalized size = 0.9

$$\frac{1}{1244160}\sqrt{1-2x}\sqrt{3+5x}\left(-5184000x^3\sqrt{-10x^2-x+3}-316800x^2\sqrt{-10x^2-x+3}+648919\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((1-2*x)^(3/2)*(3+5*x)^(5/2)/(2+3*x),x)
```

```
[Out] 1/1244160*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(-5184000*x^3*(-10*x^2-x+3)
^(1/2)-316800*x^2*(-10*x^2-x+3)^(1/2)+648919*10^(1/2)*arcsin(20/1
1*x+1/11)-35840*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+
3)^(1/2))+3501360*x*(-10*x^2-x+3)^(1/2)+143340*(-10*x^2-x+3)^(1/2
))/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.50027, size = 132, normalized size = 0.88

$$\frac{5}{12}\left(-10x^2-x+3\right)^{\frac{3}{2}}x-\frac{7}{432}\left(-10x^2-x+3\right)^{\frac{3}{2}}+\frac{2675}{1728}\sqrt{-10x^2-x+3}x+\frac{648919}{1244160}\sqrt{10}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)-\frac{7}{243}\sqrt{7}\arcsin\left(\frac{37x}{11|3x+2|}+\frac{20}{11|3x+2|}\right)+\frac{3397}{20736}\sqrt{-10x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2),x, algorithm="maxima")
```

```
[Out] 5/12*(-10*x^2 - x + 3)^(3/2)*x - 7/432*(-10*x^2 - x + 3)^(3/2) +
2675/1728*sqrt(-10*x^2 - x + 3)*x + 648919/1244160*sqrt(10)*arcsi
n(20/11*x + 1/11) - 7/243*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 2
0/11/abs(3*x + 2)) + 3397/20736*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.238215, size = 135, normalized size = 0.9

$$-\frac{1}{1244160}\sqrt{10}\left(6\sqrt{10}\left(86400x^3+5280x^2-58356x-2389\right)\sqrt{5x+3}\sqrt{-2x+1}+3584\sqrt{10}\sqrt{7}\arctan\left(\frac{\sqrt{7}(37x+20)}{14\sqrt{5x+3}\sqrt{-2x+}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2),x, algorithm="fricas")
```

```
[Out] -1/1244160*sqrt(10)*(6*sqrt(10)*(86400*x^3 + 5280*x^2 - 58356*x -
 2389)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 3584*sqrt(10)*sqrt(7)*arcta
n(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))) - 6489
19*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))
))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**(5/2)/(2+3*x),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.30653, size = 269, normalized size = 1.79

$$-\frac{7}{2430}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{1}{518400}\left(12\left(8\left(36\sqrt{5}(5x+3)-313\sqrt{5}\right)(5x+3)+2385\sqrt{5}\right)(5x+3)+79315\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}+\frac{648919}{1244160}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{4\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2),x, algorithm="giac")
```

```
[Out] -7/2430*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x
 + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqr
t(2)*sqrt(-10*x + 5) - sqrt(22)))) - 1/518400*(12*(8*(36*sqrt(5)*
(5*x + 3) - 313*sqrt(5))*(5*x + 3) + 2385*sqrt(5))*(5*x + 3) + 79
315*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5) + 648919/1244160*sqrt(
10)*(pi + 2*arctan(-1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) -
 sqrt(22))^2/(5*x + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))
)
```

3.2337 $\int \frac{(1-2x)^{3/2}(3+5x)^{5/2}}{(2+3x)^2}\,dx$

Optimal. Leaf size=159

$$-\frac{8}{27}\sqrt{1-2x}(5x+3)^{5/2}-\frac{(1-2x)^{3/2}(5x+3)^{5/2}}{3(3x+2)}+\frac{25}{12}\sqrt{1-2x}(5x+3)^{3/2}-\frac{3065\sqrt{1-2x}\sqrt{5x+3}}{1296}-\frac{43\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{3888}-\frac{181}{243}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

```
[Out] (-3065*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/1296 + (25*Sqrt[1 - 2*x]*(3 +
 5*x)^(3/2))/12 - (8*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/27 - ((1 - 2*
x)^(3/2)*(3 + 5*x)^(5/2))/(3*(2 + 3*x)) - (43*Sqrt[5/2]*ArcSin[Sq
rt[2/11]*Sqrt[3 + 5*x]])/3888 - (181*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]
/(Sqrt[7]*Sqrt[3 + 5*x])])/243
```

Rubi [A] time = 0.378629, antiderivative size = 159, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 7, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.269

$$-\frac{8}{27}\sqrt{1-2x}(5x+3)^{5/2}-\frac{(1-2x)^{3/2}(5x+3)^{5/2}}{3(3x+2)}+\frac{25}{12}\sqrt{1-2x}(5x+3)^{3/2}-\frac{3065\sqrt{1-2x}\sqrt{5x+3}}{1296}-\frac{43\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{3888}-\frac{181}{243}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^2,x]
```

```
[Out] (-3065*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/1296 + (25*Sqrt[1 - 2*x]*(3 +
 5*x)^(3/2))/12 - (8*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/27 - ((1 - 2*
x)^(3/2)*(3 + 5*x)^(5/2))/(3*(2 + 3*x)) - (43*Sqrt[5/2]*ArcSin[Sq
rt[2/11]*Sqrt[3 + 5*x]])/3888 - (181*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]
/(Sqrt[7]*Sqrt[3 + 5*x])])/243
```

Rubi in Sympy [A] time = 37.6565, size = 141, normalized size = 0.89

$$-\frac{(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{5}{2}}}{3(3x+2)}-\frac{8\sqrt{-2x+1}(5x+3)^{\frac{5}{2}}}{27}+\frac{25\sqrt{-2x+1}(5x+3)^{\frac{3}{2}}}{12}-\frac{3065\sqrt{-2x+1}\sqrt{5x+3}}{1296}-\frac{43\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{7776}-\frac{181\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{243}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(5/2)/(2+3*x)**2,x)
```

```
[Out] -(-2*x + 1)**(3/2)*(5*x + 3)**(5/2)/(3*(3*x + 2)) - 8*sqrt(-2*x +
 1)*(5*x + 3)**(5/2)/27 + 25*sqrt(-2*x + 1)*(5*x + 3)**(3/2)/12 -
 3065*sqrt(-2*x + 1)*sqrt(5*x + 3)/1296 - 43*sqrt(10)*asin(sqrt(2
2)*sqrt(5*x + 3)/11)/7776 - 181*sqrt(7)*atan(sqrt(7)*sqrt(-2*x +
1)/(7*sqrt(5*x + 3)))/243
```

Mathematica [A] time = 0.209881, size = 117, normalized size = 0.74

$$\frac{\frac{12\sqrt{1-2x}\sqrt{5x+3}(-7200x^3+1860x^2+3513x-730)}{3x+2}-5792\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)-43\sqrt{10}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)}{15552}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^2,x]
```

```
[Out] ((12*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(-730 + 3513*x + 1860*x^2 - 7200
*x^3))/(2 + 3*x) - 5792*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 1
4*x]*Sqrt[3 + 5*x])] - 43*Sqrt[10]*ArcTan[(1 + 20*x)/(2*Sqrt[1 -
2*x]*Sqrt[30 + 50*x])])/15552
```

Maple [A] time = 0.018, size = 180, normalized size = 1.1

$$\frac{1}{31104+46656\,x}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(-86400\,x^{3}\sqrt{-10\,x^{2}-x+3}+17376\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^{2}-x+3}}\right)x-129\,\sqrt{10}\,\mathrm{arcs}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^(5/2)/(2+3*x)^2,x)
```

```
[Out] 1/15552*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(-86400*x^3*(-10*x^2-x+3)^(1/
2)+17376*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2
))*x-129*10^(1/2)*arcsin(20/11*x+1/11)*x+22320*x^2*(-10*x^2-x+3)^
(1/2)+11584*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(
1/2))-86*10^(1/2)*arcsin(20/11*x+1/11)+42156*x*(-10*x^2-x+3)^(1/2
)-8760*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)
```

Maxima [A] time = 1.50101, size = 140, normalized size = 0.88

$$\frac{5}{27}\left(-10\,x^{2}-x+3\right)^{\frac{3}{2}}+\frac{245}{108}\,\sqrt{-10\,x^{2}-x+3}x-\frac{43}{15552}\,\sqrt{10}\arcsin\left(\frac{20}{11}\,x+\frac{1}{11}\right)+\frac{181}{486}\,\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)-\frac{1301}{1296}\,\sqrt{-10\,x^{2}-x+3}+\frac{\left(-10\,x^{2}-x+3\right)^{\frac{3}{2}}}{9\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^2,x, algorithm="maxima")
```

```
[Out] 5/27*(-10*x^2 - x + 3)^(3/2) + 245/108*sqrt(-10*x^2 - x + 3)*x -
43/15552*sqrt(10)*arcsin(20/11*x + 1/11) + 181/486*sqrt(7)*arcsin
(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) - 1301/1296*sqrt(-10*
x^2 - x + 3) + 1/9*(-10*x^2 - x + 3)^(3/2)/(3*x + 2)
```

Fricas [A] time = 0.233743, size = 166, normalized size = 1.04

$$\frac{\sqrt{2}\left(2896\,\sqrt{7}\sqrt{2}(3\,x+2)\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)-6\,\sqrt{2}\left(7200\,x^{3}-1860\,x^{2}-3513\,x+730\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-43\,\sqrt{5}(3\,x\right.}{15552\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^2,x, algorithm="fricas")
```

```
[Out] 1/15552*sqrt(2)*(2896*sqrt(7)*sqrt(2)*(3*x + 2)*arctan(1/14*sqrt(
7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))) - 6*sqrt(2)*(7200*
x^3 - 1860*x^2 - 3513*x + 730)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 43*
sqrt(5)*(3*x + 2)*arctan(1/20*sqrt(5)*sqrt(2)*(20*x + 1)/(sqrt(5*
x + 3)*sqrt(-2*x + 1))))/(3*x + 2)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**(5/2)/(2+3*x)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.396441, size = 412, normalized size = 2.59

$$\frac{181}{4860}\sqrt{70}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right) - \frac{1}{2160}\left(4\left(8\sqrt{5}(5x+3)-85\sqrt{5}\right)(5x+3)+835\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5} - \frac{43}{15552}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{4\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right) - \frac{154\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)}{81\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^2,x, algorithm="giac")
```

```
[Out] 181/4860*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*
x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sq
rt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 1/2160*(4*(8*sqrt(5)*(5*x +
 3) - 85*sqrt(5))*(5*x + 3) + 835*sqrt(5))*sqrt(5*x + 3)*sqrt(-10
*x + 5) - 43/15552*sqrt(10)*(pi + 2*arctan(-1/4*sqrt(5*x + 3)*((s
qrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqrt(2)*sqrt
(-10*x + 5) - sqrt(22)))) - 154/81*sqrt(10)*((sqrt(2)*sqrt(-10*x
+ 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-1
0*x + 5) - sqrt(22)))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt
(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))
^2 + 280)
```

3.2338 $\int \frac{(1-2x)^{3/2}(3+5x)^{5/2}}{(2+3x)^3} dx$

Optimal. Leaf size=166

$$\frac{181\sqrt{1-2x}(5x+3)^{5/2}}{36(3x+2)} - \frac{(1-2x)^{3/2}(5x+3)^{5/2}}{6(3x+2)^2} - \frac{35}{4}\sqrt{1-2x}(5x+3)^{3/2} + \frac{185}{27}\sqrt{1-2x}\sqrt{5x+3} + \frac{1945}{324}\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right) + \frac{6829\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{324\sqrt{7}}$$

```
[Out] (185*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/27 - (35*Sqrt[1 - 2*x]*(3 + 5*x
)^(3/2))/4 - ((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(6*(2 + 3*x)^2) +
(181*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(36*(2 + 3*x)) + (1945*Sqrt[5
/2]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/324 + (6829*ArcTan[Sqrt[1 -
 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(324*Sqrt[7])
```

Rubi [A] time = 0.379811, antiderivative size = 166, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 8, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.308

$$\frac{181\sqrt{1-2x}(5x+3)^{5/2}}{36(3x+2)} - \frac{(1-2x)^{3/2}(5x+3)^{5/2}}{6(3x+2)^2} - \frac{35}{4}\sqrt{1-2x}(5x+3)^{3/2} + \frac{185}{27}\sqrt{1-2x}\sqrt{5x+3} + \frac{1945}{324}\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right) + \frac{6829\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{324\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^3,x]
```

```
[Out] (185*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/27 - (35*Sqrt[1 - 2*x]*(3 + 5*x
)^(3/2))/4 - ((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(6*(2 + 3*x)^2) +
(181*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(36*(2 + 3*x)) + (1945*Sqrt[5
/2]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/324 + (6829*ArcTan[Sqrt[1 -
 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(324*Sqrt[7])
```

Rubi in Sympy [A] time = 36.9443, size = 148, normalized size = 0.89

$$-\frac{181\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{3}{2}}}{252\left(3x+2\right)} - \frac{\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{5}{2}}}{6\left(3x+2\right)^{2}} - \frac{107\sqrt{-2x+1}\left(5x+3\right)^{\frac{3}{2}}}{126} + \frac{185\sqrt{-2x+1}\sqrt{5x+3}}{27} + \frac{1945\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{648} + \frac{6829\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{2268}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(5/2)/(2+3*x)**3,x)
```

```
[Out] -181*(-2*x + 1)**(3/2)*(5*x + 3)**(3/2)/(252*(3*x + 2)) - (-2*x +
 1)**(3/2)*(5*x + 3)**(5/2)/(6*(3*x + 2)**2) - 107*sqrt(-2*x + 1)
*(5*x + 3)**(3/2)/126 + 185*sqrt(-2*x + 1)*sqrt(5*x + 3)/27 + 194
5*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/648 + 6829*sqrt(7)*ata
n(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/2268
```

Mathematica [A] time = 0.225719, size = 117, normalized size = 0.7

$$\frac{\frac{84\sqrt{1-2x}\sqrt{5x+3}\left(-900x^3+1095x^2+2985x+1232\right)}{(3x+2)^2} + 13658\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right) + 13615\sqrt{10}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)}{9072}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^3,x]
```

```
[Out] ((84*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(1232 + 2985*x + 1095*x^2 - 900*
x^3))/(2 + 3*x)^2 + 13658*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 -
 14*x]*Sqrt[3 + 5*x])] + 13615*Sqrt[10]*ArcTan[(1 + 20*x)/(2*Sqrt
[1 - 2*x]*Sqrt[30 + 50*x])])/9072
```

Maple [A] time = 0.019, size = 225, normalized size = 1.4

$$-\frac{1}{9072\,(2+3\,x)^2}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(122922\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^2-122535\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x^2+$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^(5/2)/(2+3*x)^3,x)
```

```
[Out] -1/9072*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(122922*7^(1/2)*arctan(1/14*(
37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2-122535*10^(1/2)*arcsin(
20/11*x+1/11)*x^2+75600*x^3*(-10*x^2-x+3)^(1/2)+163896*7^(1/2)*ar
ctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x-163380*10^(1/2
)*arcsin(20/11*x+1/11)*x-91980*x^2*(-10*x^2-x+3)^(1/2)+54632*7^(1
/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))-54460*10^(
1/2)*arcsin(20/11*x+1/11)-250740*x*(-10*x^2-x+3)^(1/2)-103488*(-1
0*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)^2
```

Maxima [A] time = 1.50483, size = 176, normalized size = 1.06

$$-\frac{5}{63}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}-\frac{\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{14\,(9\,x^2+12\,x+4)}-\frac{535}{126}\sqrt{-10\,x^2-x+3}x+\frac{1945}{1296}\sqrt{10}\arcsin\left(\frac{20}{11}\,x+\frac{1}{11}\right)$$
$$-\frac{6829}{4536}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{1627}{378}\sqrt{-10\,x^2-x+3}-\frac{59\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{84\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^3,x, algorithm="maxima")
```

```
[Out] -5/63*(-10*x^2 - x + 3)^(3/2) - 1/14*(-10*x^2 - x + 3)^(5/2)/(9*x
^2 + 12*x + 4) - 535/126*sqrt(-10*x^2 - x + 3)*x + 1945/1296*sqrt
(10)*arcsin(20/11*x + 1/11) - 6829/4536*sqrt(7)*arcsin(37/11*x/ab
s(3*x + 2) + 20/11/abs(3*x + 2)) + 1627/378*sqrt(-10*x^2 - x + 3)
 - 59/84*(-10*x^2 - x + 3)^(3/2)/(3*x + 2)
```

Fricas [A] time = 0.232979, size = 194, normalized size = 1.17

$$-\frac{\sqrt{7}\sqrt{2}\left(6\,\sqrt{7}\sqrt{2}\left(900\,x^3-1095\,x^2-2985\,x-1232\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-1945\,\sqrt{7}\sqrt{5}\left(9\,x^2+12\,x+4\right)\arctan\left(\frac{\sqrt{5}\sqrt{2}(20\,x+1)}{20\,\sqrt{5\,x+3}\sqrt{-2\,x}}\right.\right.}{9072\,(9\,x^2+12\,x+4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^3,x, algorithm="fricas")
```

```
[Out] -1/9072*sqrt(7)*sqrt(2)*(6*sqrt(7)*sqrt(2)*(900*x^3 - 1095*x^2 -
2985*x - 1232)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 1945*sqrt(7)*sqrt(5
)*(9*x^2 + 12*x + 4)*arctan(1/20*sqrt(5)*sqrt(2)*(20*x + 1)/(sqrt
(5*x + 3)*sqrt(-2*x + 1))) + 6829*sqrt(2)*(9*x^2 + 12*x + 4)*arct
```

```
an(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(9*x
^2 + 12*x + 4)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(3/2)*(3+5*x)**(5/2)/(2+3*x)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.456067, size = 481, normalized size = 2.9

$$-\frac{6829}{45360}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{1}{108}\left(4\sqrt{5}(5x+3)-63\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}+\frac{1945}{1296}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{4\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)+\frac{55\left(17\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3+5992\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)\right)}{54\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^3,x, algorithm="giac")
```

```
[Out] -6829/45360*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt
(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 1/108*(4*sqrt(5)*(5*x +
3) - 63*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5) + 1945/1296*sqrt(1
0)*(pi + 2*arctan(-1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) -
sqrt(22))^2/(5*x + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))
 + 55/54*(17*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(
5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^
3 + 5992*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x
+ 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((
sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x +
3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)^2
```

3.2339 $\int \frac{(1-2x)^{3/2}(3+5x)^{5/2}}{(2+3x)^4} dx$

Optimal. Leaf size=171

$$\frac{181\sqrt{1-2x}(5x+3)^{5/2}}{108(3x+2)^2}-\frac{(1-2x)^{3/2}(5x+3)^{5/2}}{9(3x+2)^3}+\frac{331\sqrt{1-2x}(5x+3)^{3/2}}{168(3x+2)}-\frac{39745\sqrt{1-2x}\sqrt{5x+3}}{4536}-\frac{575}{243}\sqrt{10}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{326717\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{13608\sqrt{7}}$$

```
[Out] (-39745*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/4536 + (331*Sqrt[1 - 2*x]*(3
 + 5*x)^(3/2))/(168*(2 + 3*x)) - ((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2)
)/(9*(2 + 3*x)^3) + (181*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(108*(2 +
 3*x)^2) - (575*Sqrt[10]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/243 -
(326717*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(13608*Sqr
t[7])
```

Rubi [A] time = 0.38295, antiderivative size = 171, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 8, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.308

$$\frac{181\sqrt{1-2x}(5x+3)^{5/2}}{108(3x+2)^2}-\frac{(1-2x)^{3/2}(5x+3)^{5/2}}{9(3x+2)^3}+\frac{331\sqrt{1-2x}(5x+3)^{3/2}}{168(3x+2)}-\frac{39745\sqrt{1-2x}\sqrt{5x+3}}{4536}-\frac{575}{243}\sqrt{10}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{326717\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{13608\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^4,x]
```

```
[Out] (-39745*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/4536 + (331*Sqrt[1 - 2*x]*(3
 + 5*x)^(3/2))/(168*(2 + 3*x)) - ((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2)
)/(9*(2 + 3*x)^3) + (181*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(108*(2 +
 3*x)^2) - (575*Sqrt[10]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/243 -
(326717*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(13608*Sqr
t[7])
```

Rubi in Sympy [A] time = 36.6133, size = 156, normalized size = 0.91

$$-\frac{6961\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{10584\left(3x+2\right)}-\frac{181\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{3}{2}}}{756\left(3x+2\right)^{2}}-\frac{\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{5}{2}}}{9\left(3x+2\right)^{3}}-\frac{24251\sqrt{-2x+1}\sqrt{5x+3}}{15876}-\frac{575\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{243}-\frac{326717\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{95256}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(5/2)/(2+3*x)**4,x)
```

```
[Out] -6961*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/(10584*(3*x + 2)) - 181*(-2
*x + 1)**(3/2)*(5*x + 3)**(3/2)/(756*(3*x + 2)**2) - (-2*x + 1)**
(3/2)*(5*x + 3)**(5/2)/(9*(3*x + 2)**3) - 24251*sqrt(-2*x + 1)*sq
rt(5*x + 3)/15876 - 575*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/
243 - 326717*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)
))/95256
```

Mathematica [A] time = 0.237735, size = 117, normalized size = 0.68

$$\frac{-\frac{42\sqrt{1-2x}\sqrt{5x+3}(75600x^3+286791x^2+275022x+78416)}{(3x+2)^3}-326717\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)-225400\sqrt{10}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)}{190512}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^4,x]
```

```
[Out] ((-42*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(78416 + 275022*x + 286791*x^2
+ 75600*x^3))/(2 + 3*x)^3 - 326717*Sqrt[7]*ArcTan[(-20 - 37*x)/(2
*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])] - 225400*Sqrt[10]*ArcTan[(1 + 20*
x)/(2*Sqrt[1 - 2*x]*Sqrt[30 + 50*x])])/190512
```

Maple [B] time = 0.018, size = 270, normalized size = 1.6

$$\frac{1}{190512\,(2+3\,x)^3}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(8821359\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^3-6085800\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x^3$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^(5/2)/(2+3*x)^4,x)
```

```
[Out] 1/190512*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(8821359*7^(1/2)*arctan(1/14
*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3-6085800*10^(1/2)*arcs
in(20/11*x+1/11)*x^3+17642718*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/
2)/(-10*x^2-x+3)^(1/2))*x^2-12171600*10^(1/2)*arcsin(20/11*x+1/11
)*x^2-3175200*x^3*(-10*x^2-x+3)^(1/2)+11761812*7^(1/2)*arctan(1/1
4*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x-8114400*10^(1/2)*arcsi
n(20/11*x+1/11)*x-12045222*x^2*(-10*x^2-x+3)^(1/2)+2613736*7^(1/2
)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))-1803200*10^(
1/2)*arcsin(20/11*x+1/11)-11550924*x*(-10*x^2-x+3)^(1/2)-3293472*
(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)^3
```

Maxima [A] time = 1.54101, size = 217, normalized size = 1.27

$$\frac{865}{2646}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}-\frac{\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{21\,(27\,x^3+54\,x^2+36\,x+8)}+\frac{173\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{588\,(9\,x^2+12\,x+4)}+\frac{34805}{5292}\sqrt{-10\,x^2-x+3}x-\frac{575}{486}\sqrt{10}\arcsin\left(\frac{20}{11}\,x+\frac{1}{11}\right)+\frac{326717}{190512}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)-\frac{152917}{31752}\sqrt{-10\,x^2-x+3}+\frac{2507\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{3528\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^4,x, algorithm="maxima")
```

```
[Out] 865/2646*(-10*x^2 - x + 3)^(3/2) - 1/21*(-10*x^2 - x + 3)^(5/2)/(
27*x^3 + 54*x^2 + 36*x + 8) + 173/588*(-10*x^2 - x + 3)^(5/2)/(9*
x^2 + 12*x + 4) + 34805/5292*sqrt(-10*x^2 - x + 3)*x - 575/486*sq
rt(10)*arcsin(20/11*x + 1/11) + 326717/190512*sqrt(7)*arcsin(37/1
1*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) - 152917/31752*sqrt(-10*x^
2 - x + 3) + 2507/3528*(-10*x^2 - x + 3)^(3/2)/(3*x + 2)
```

Fricas [A] time = 0.232188, size = 198, normalized size = 1.16

$$-\frac{\sqrt{7}\left(32200\,\sqrt{10}\sqrt{7}\left(27\,x^3+54\,x^2+36\,x+8\right)\arctan\left(\frac{\sqrt{10}(20\,x+1)}{20\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)+6\,\sqrt{7}\left(75600\,x^3+286791\,x^2+275022\,x+78416\right)\sqrt{5}\right.}{190512\,(27\,x^3+54\,x^2+36\,x+8)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^4,x, algorithm="fricas")
```

```
[Out] -1/190512*sqrt(7)*(32200*sqrt(10)*sqrt(7)*(27*x^3 + 54*x^2 + 36*x
 + 8)*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x +
1))) + 6*sqrt(7)*(75600*x^3 + 286791*x^2 + 275022*x + 78416)*sqrt
(5*x + 3)*sqrt(-2*x + 1) - 326717*(27*x^3 + 54*x^2 + 36*x + 8)*ar
ctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(2
7*x^3 + 54*x^2 + 36*x + 8)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**(5/2)/(2+3*x)**4,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.502517, size = 545, normalized size = 3.19

$$\frac{326717}{1905120}\sqrt{70}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)$$
$$-\frac{575}{486}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{4\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right) - \frac{10}{81}\sqrt{5}\sqrt{5x+3}\sqrt{-10x+5}$$
$$-\frac{11\left(2463\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^5 + 1767360\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3 + 377652800\sqrt{10}\left(\sqrt{2}\right.}{756\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^4,x, algorithm="giac")
```

```
[Out] 326717/1905120*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*s
qrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) -
4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 575/486*sqrt(10)*(pi
+ 2*arctan(-1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22
))^2/(5*x + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 10/8
1*sqrt(5)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 11/756*(2463*sqrt(10)*(
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x +
 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 + 1767360*sqrt(10)*((
sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x +
3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 377652800*sqrt(10)*(
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x +
 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x
+ 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-1
0*x + 5) - sqrt(22)))^2 + 280)^3
```

3.2340 $\int \frac{(1-2x)^{3/2}(3+5x)^{5/2}}{(2+3x)^5} dx$

Optimal. Leaf size=178

$$\frac{181\sqrt{1-2x}(5x+3)^{5/2}}{216(3x+2)^3}-\frac{(1-2x)^{3/2}(5x+3)^{5/2}}{12(3x+2)^4}-\frac{871\sqrt{1-2x}(5x+3)^{3/2}}{6048(3x+2)^2}-\frac{77269\sqrt{1-2x}\sqrt{5x+3}}{254016(3x+2)}+\frac{100}{243}\sqrt{10}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{1922677\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{762048\sqrt{7}}$$

```
[Out] (-77269*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(254016*(2 + 3*x)) - (871*Sq
rt[1 - 2*x]*(3 + 5*x)^(3/2))/(6048*(2 + 3*x)^2) - ((1 - 2*x)^(3/2
)*(3 + 5*x)^(5/2))/(12*(2 + 3*x)^4) + (181*Sqrt[1 - 2*x]*(3 + 5*x
)^(5/2))/(216*(2 + 3*x)^3) + (100*Sqrt[10]*ArcSin[Sqrt[2/11]*Sqrt
[3 + 5*x]])/243 - (1922677*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 +
 5*x])])/(762048*Sqrt[7])
```

Rubi [A] time = 0.386115, antiderivative size = 178, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 7, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.269

$$\frac{181\sqrt{1-2x}(5x+3)^{5/2}}{216(3x+2)^3}-\frac{(1-2x)^{3/2}(5x+3)^{5/2}}{12(3x+2)^4}-\frac{871\sqrt{1-2x}(5x+3)^{3/2}}{6048(3x+2)^2}-\frac{77269\sqrt{1-2x}\sqrt{5x+3}}{254016(3x+2)}+\frac{100}{243}\sqrt{10}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{1922677\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{762048\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^5,x]
```

```
[Out] (-77269*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(254016*(2 + 3*x)) - (871*Sq
rt[1 - 2*x]*(3 + 5*x)^(3/2))/(6048*(2 + 3*x)^2) - ((1 - 2*x)^(3/2
)*(3 + 5*x)^(5/2))/(12*(2 + 3*x)^4) + (181*Sqrt[1 - 2*x]*(3 + 5*x
)^(5/2))/(216*(2 + 3*x)^3) + (100*Sqrt[10]*ArcSin[Sqrt[2/11]*Sqrt
[3 + 5*x]])/243 - (1922677*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 +
 5*x])])/(762048*Sqrt[7])
```

Rubi in Sympy [A] time = 36.8071, size = 162, normalized size = 0.91

$$-\frac{7093\,(-2x+1)^{\frac{3}{2}}\,\sqrt{5x+3}}{42336\,(3x+2)^2}-\frac{181\,(-2x+1)^{\frac{3}{2}}\,(5x+3)^{\frac{3}{2}}}{1512\,(3x+2)^3}-\frac{(-2x+1)^{\frac{3}{2}}\,(5x+3)^{\frac{5}{2}}}{12\,(3x+2)^4}+\frac{390869\sqrt{-2x+1}\sqrt{5x+3}}{254016\,(3x+2)}+\frac{100\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{243}-\frac{1922677\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{5334336}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(5/2)/(2+3*x)**5,x)
```

```
[Out] -7093*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/(42336*(3*x + 2)**2) - 181*
(-2*x + 1)**(3/2)*(5*x + 3)**(3/2)/(1512*(3*x + 2)**3) - (-2*x +
1)**(3/2)*(5*x + 3)**(5/2)/(12*(3*x + 2)**4) + 390869*sqrt(-2*x +
 1)*sqrt(5*x + 3)/(254016*(3*x + 2)) + 100*sqrt(10)*asin(sqrt(22)
*sqrt(5*x + 3)/11)/243 - 1922677*sqrt(7)*atan(sqrt(7)*sqrt(-2*x +
 1)/(7*sqrt(5*x + 3)))/5334336
```

Mathematica [A] time = 0.245049, size = 117, normalized size = 0.66

$$\frac{\frac{42\sqrt{1-2x}\sqrt{5x+3}(13290147x^3+23185560x^2+13434180x+2583760)}{(3x+2)^4} - 1922677\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right) + 2195200\sqrt{10}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)}{10668672}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^5,x]
```

```
[Out] ((42*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(2583760 + 13434180*x + 23185560
*x^2 + 13290147*x^3))/(2 + 3*x)^4 - 1922677*Sqrt[7]*ArcTan[(-20 -
 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])] + 2195200*Sqrt[10]*ArcTa
n[(1 + 20*x)/(2*Sqrt[1 - 2*x]*Sqrt[30 + 50*x])])/10668672
```

Maple [B] time = 0.018, size = 315, normalized size = 1.8

$$\frac{1}{10668672\,(2+3\,x)^4}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(155736837\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^4+177811200\,\arcsin\left(\frac{20\,x}{11}+1/11\right)\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^(5/2)/(2+3*x)^5,x)
```

```
[Out] 1/10668672*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(155736837*7^(1/2)*arctan(
1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^4+177811200*arcsin(
20/11*x+1/11)*10^(1/2)*x^4+415298232*7^(1/2)*arctan(1/14*(37*x+20
)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+474163200*10^(1/2)*arcsin(20/1
1*x+1/11)*x^3+415298232*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-1
0*x^2-x+3)^(1/2))*x^2+474163200*10^(1/2)*arcsin(20/11*x+1/11)*x^2
+558186174*x^3*(-10*x^2-x+3)^(1/2)+184576992*7^(1/2)*arctan(1/14*
(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+210739200*10^(1/2)*arcsi
n(20/11*x+1/11)*x+973793520*x^2*(-10*x^2-x+3)^(1/2)+30762832*7^(1
/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+35123200*1
0^(1/2)*arcsin(20/11*x+1/11)+564235560*x*(-10*x^2-x+3)^(1/2)+1085
17920*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)^4
```

Maxima [A] time = 1.51684, size = 266, normalized size = 1.49

$$\begin{aligned}
&\frac{27065}{148176}\left(-10\,x^2-x+3\right)^{\frac{3}{2}} - \frac{\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{28\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)} \\
&+ \frac{169\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{1176\,(27\,x^3+54\,x^2+36\,x+8)} + \frac{5413\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{32928\,(9\,x^2+12\,x+4)} + \frac{528205}{296352}\sqrt{-10\,x^2-x+3}x \\
&+ \frac{50}{243}\sqrt{10}\arcsin\left(\frac{20}{11}\,x+\frac{1}{11}\right) + \frac{1922677}{10668672}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right) \\
&- \frac{802877}{1778112}\sqrt{-10\,x^2-x+3} + \frac{3667\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{197568\,(3\,x+2)}
\end{aligned}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^5,x, algorithm="maxima")
```

```
[Out] 27065/148176*(-10*x^2 - x + 3)^(3/2) - 1/28*(-10*x^2 - x + 3)^(5/
2)/(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16) + 169/1176*(-10*x^2 -
 x + 3)^(5/2)/(27*x^3 + 54*x^2 + 36*x + 8) + 5413/32928*(-10*x^2
- x + 3)^(5/2)/(9*x^2 + 12*x + 4) + 528205/296352*sqrt(-10*x^2 -
x + 3)*x + 50/243*sqrt(10)*arcsin(20/11*x + 1/11) + 1922677/10668
672*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) - 8
02877/1778112*sqrt(-10*x^2 - x + 3) + 3667/197568*(-10*x^2 - x +
3)^(3/2)/(3*x + 2)
```

Fricas [A] time = 0.235769, size = 219, normalized size = 1.23

$$\frac{\sqrt{7}\left(313600\,\sqrt{10}\sqrt{7}\left(81\,x^4+216\,x^3+216\,x^2+96\,x+16\right)\arctan\left(\frac{\sqrt{10}(20\,x+1)}{20\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)+6\,\sqrt{7}\left(13290147\,x^3+23185560\,x^2+1343\right.}{10668672\,(81\,x^4+216\,x^3+2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^5,x, algorithm="fricas")
```

```
[Out] 1/10668672*sqrt(7)*(313600*sqrt(10)*sqrt(7)*(81*x^4 + 216*x^3 + 2
16*x^2 + 96*x + 16)*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3
)*sqrt(-2*x + 1))) + 6*sqrt(7)*(13290147*x^3 + 23185560*x^2 + 134
34180*x + 2583760)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 1922677*(81*x^4
 + 216*x^3 + 216*x^2 + 96*x + 16)*arctan(1/14*sqrt(7)*(37*x + 20)
/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(81*x^4 + 216*x^3 + 216*x^2 + 9
6*x + 16)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**(5/2)/(2+3*x)**5,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.495242, size = 602, normalized size = 3.38

$$\frac{1922677}{106686720}\sqrt{70}\sqrt{10}\left(\pi+2\,\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)$$

$$+\frac{50}{243}\sqrt{10}\left(\pi+2\,\arctan\left(-\frac{\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3}-4\right)}{4\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)$$

$$-\frac{11\left(77269\,\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^7+81002040\,\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^5+31057924800\,\sqrt{1}\right.}{127008\left(\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\right.\right.\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^5,x, algorithm="giac")
```

```
[Out] 1922677/106686720*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70
)*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3)
 - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 50/243*sqrt(10)*(p
i + 2*arctan(-1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(
22))^2/(5*x + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 11
/127008*(77269*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqr
t(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))
)^7 + 81002040*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqr
t(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))
```

```
)^5 + 31057924800*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/
sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(2
2)))^3 - 8580356288000*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(
22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - s
qrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) -
 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)^4
```

3.2341 $\int \frac{(1-2x)^{3/2}(3+5x)^{5/2}}{(2+3x)^6} dx$

Optimal. Leaf size=180

$$\frac{33\sqrt{1-2x}(5x+3)^{7/2}}{40(3x+2)^4}+\frac{(1-2x)^{3/2}(5x+3)^{7/2}}{5(3x+2)^5}-\frac{121\sqrt{1-2x}(5x+3)^{5/2}}{560(3x+2)^3}-\frac{1331\sqrt{1-2x}(5x+3)^{3/2}}{3136(3x+2)^2}-\frac{43923\sqrt{1-2x}\sqrt{5x+3}}{43904(3x+2)}-\frac{483153\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{43904\sqrt{7}}$$

```
[Out] (-43923*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(43904*(2 + 3*x)) - (1331*Sq
rt[1 - 2*x]*(3 + 5*x)^(3/2))/(3136*(2 + 3*x)^2) - (121*Sqrt[1 - 2
*x]*(3 + 5*x)^(5/2))/(560*(2 + 3*x)^3) + ((1 - 2*x)^(3/2)*(3 + 5*
x)^(7/2))/(5*(2 + 3*x)^5) + (33*Sqrt[1 - 2*x]*(3 + 5*x)^(7/2))/(4
0*(2 + 3*x)^4) - (483153*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5
*x])])/(43904*Sqrt[7])
```

Rubi [A] time = 0.264159, antiderivative size = 180, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.115

$$\frac{33\sqrt{1-2x}(5x+3)^{7/2}}{40(3x+2)^4}+\frac{(1-2x)^{3/2}(5x+3)^{7/2}}{5(3x+2)^5}-\frac{121\sqrt{1-2x}(5x+3)^{5/2}}{560(3x+2)^3}-\frac{1331\sqrt{1-2x}(5x+3)^{3/2}}{3136(3x+2)^2}-\frac{43923\sqrt{1-2x}\sqrt{5x+3}}{43904(3x+2)}-\frac{483153\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{43904\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^6,x]
```

```
[Out] (-43923*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(43904*(2 + 3*x)) - (1331*Sq
rt[1 - 2*x]*(3 + 5*x)^(3/2))/(3136*(2 + 3*x)^2) - (121*Sqrt[1 - 2
*x]*(3 + 5*x)^(5/2))/(560*(2 + 3*x)^3) + ((1 - 2*x)^(3/2)*(3 + 5*
x)^(7/2))/(5*(2 + 3*x)^5) + (33*Sqrt[1 - 2*x]*(3 + 5*x)^(7/2))/(4
0*(2 + 3*x)^4) - (483153*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5
*x])])/(43904*Sqrt[7])
```

Rubi in Sympy [A] time = 21.5528, size = 163, normalized size = 0.91

$$-\frac{3993\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{21952\left(3x+2\right)^{2}}-\frac{121\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{3}{2}}}{784\left(3x+2\right)^{3}}-\frac{33\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{5}{2}}}{280\left(3x+2\right)^{4}}+\frac{\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{7}{2}}}{5\left(3x+2\right)^{5}}+\frac{43923\sqrt{-2x+1}\sqrt{5x+3}}{43904\left(3x+2\right)}-\frac{483153\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{307328}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(5/2)/(2+3*x)**6,x)
```

```
[Out] -3993*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/(21952*(3*x + 2)**2) - 121*
(-2*x + 1)**(3/2)*(5*x + 3)**(3/2)/(784*(3*x + 2)**3) - 33*(-2*x
+ 1)**(3/2)*(5*x + 3)**(5/2)/(280*(3*x + 2)**4) + (-2*x + 1)**(3/
2)*(5*x + 3)**(7/2)/(5*(3*x + 2)**5) + 43923*sqrt(-2*x + 1)*sqrt(
5*x + 3)/(43904*(3*x + 2)) - 483153*sqrt(7)*atan(sqrt(7)*sqrt(-2*
x + 1)/(7*sqrt(5*x + 3)))/307328
```

Mathematica [A] time = 0.10962, size = 87, normalized size = 0.48

$$\frac{\frac{14\sqrt{1-2x}\sqrt{5x+3}\left(15899035x^4+46076650x^3+47906548x^2+21437032x+3507552\right)}{(3x+2)^5}-2415765\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{3073280}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^6,x]
```

```
[Out] ((14*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(3507552 + 21437032*x + 47906548
*x^2 + 46076650*x^3 + 15899035*x^4))/(2 + 3*x)^5 - 2415765*Sqrt[7
]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/3073280
```

Maple [B] time = 0.019, size = 298, normalized size = 1.7

$$\frac{1}{3073280\,(2+3\,x)^5}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(587030895\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^5+1956769650\,\sqrt{7}\arctan\left(1/14\,\frac{(37}{\sqrt{-1}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^(5/2)/(2+3*x)^6,x)
```

```
[Out] 1/3073280*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(587030895*7^(1/2)*arctan(1
/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^5+1956769650*7^(1/2)
*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^4+260902620
0*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+
222586490*x^4*(-10*x^2-x+3)^(1/2)+1739350800*7^(1/2)*arctan(1/14*
(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+645073100*x^3*(-10*x^2
-x+3)^(1/2)+579783600*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*
x^2-x+3)^(1/2))*x+670691672*x^2*(-10*x^2-x+3)^(1/2)+77304480*7^(1
/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+300118448*
x*(-10*x^2-x+3)^(1/2)+49105728*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)
^(1/2)/(2+3*x)^5
```

Maxima [A] time = 1.52674, size = 306, normalized size = 1.7

$$\begin{aligned}&\frac{90695}{230496}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}-\frac{\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{35\,(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240\,x+32)}\\&+\frac{33\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{392\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}+\frac{1221\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{5488\,(27\,x^3+54\,x^2+36\,x+8)}\\&+\frac{54417\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{153664\,(9\,x^2+12\,x+4)}+\frac{738705}{153664}\sqrt{-10\,x^2-x+3}x\\&+\frac{483153}{614656}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)\\&-\frac{650859}{307328}\sqrt{-10\,x^2-x+3}+\frac{215303\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{921984\,(3\,x+2)}\end{aligned}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^6,x, algorithm="maxima")
```

```
[Out] 90695/230496*(-10*x^2 - x + 3)^(3/2) - 1/35*(-10*x^2 - x + 3)^(5/
2)/(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32) + 33/392
*(-10*x^2 - x + 3)^(5/2)/(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16)
 + 1221/5488*(-10*x^2 - x + 3)^(5/2)/(27*x^3 + 54*x^2 + 36*x + 8)
 + 54417/153664*(-10*x^2 - x + 3)^(5/2)/(9*x^2 + 12*x + 4) + 7387
05/153664*sqrt(-10*x^2 - x + 3)*x + 483153/614656*sqrt(7)*arcsin(
37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) - 650859/307328*sqrt(-
10*x^2 - x + 3) + 215303/921984*(-10*x^2 - x + 3)^(3/2)/(3*x + 2)
```

Fricas [A] time = 0.223267, size = 167, normalized size = 0.93

$$\frac{\sqrt{7}\left(2\sqrt{7}\left(15899035x^4 + 46076650x^3 + 47906548x^2 + 21437032x + 3507552\right)\sqrt{5x+3}\sqrt{-2x+1} + 2415765\left(243x^5 + 810x\right.\right.}{3073280\left(243x^5 + 810x^4 + 1080x^3 + 720x^2 + 240x + 32\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^6,x, algorithm="fricas")
```

```
[Out] 1/3073280*sqrt(7)*(2*sqrt(7)*(15899035*x^4 + 46076650*x^3 + 47906
548*x^2 + 21437032*x + 3507552)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 24
15765*(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)*arcta
n(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(243*
x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**(5/2)/(2+3*x)**6,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.501264, size = 594, normalized size = 3.3

$$\frac{483153}{6146560}\sqrt{70}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3} - 4\right)}{140\left(\sqrt{2}\sqrt{-10x+5} - \sqrt{22}\right)}\right)\right)$$

$$-\frac{161051\left(3\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}} - \frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^9 + 3920\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}} - \frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^7 + 2007040\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10}}{\sqrt{5}}\right.\right.}{21952\left(\left(\frac{\sqrt{2}\sqrt{-10x+}}{\sqrt{5x+}}\right.\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^6,x, algorithm="giac")
```

```
[Out] 483153/6146560*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*s
qrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) -
4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 161051/21952*(3*sqrt(
10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(
5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^9 + 3920*sqrt(10)*
((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x
+ 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^7 + 2007040*sqrt(10)*(
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x +
 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 - 307328000*sqrt(10)*
((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x
+ 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 - 18439680000*sqrt(1
0)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5
*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-1
0*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqr
t(-10*x + 5) - sqrt(22)))^2 + 280)^5
```

3.2342 $\int \frac{(1-2x)^{3/2}(3+5x)^{5/2}}{(2+3x)^7}\,dx$

Optimal. Leaf size=209

$$\frac{297\sqrt{1-2x}(5x+3)^{7/2}}{160(3x+2)^4}+\frac{9(1-2x)^{3/2}(5x+3)^{7/2}}{20(3x+2)^5}+\frac{(1-2x)^{5/2}(5x+3)^{7/2}}{14(3x+2)^6}-\frac{1089\sqrt{1-2x}(5x+3)^{5/2}}{2240(3x+2)^3}-\frac{11979\sqrt{1-2x}(5x+3)^{3/2}}{12544(3x+2)^2}-\frac{395307\sqrt{1-2x}\sqrt{5x+3}}{175616(3x+2)}-\frac{4348377\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{175616\sqrt{7}}$$

```
[Out] (-395307*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(175616*(2 + 3*x)) - (11979
*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(12544*(2 + 3*x)^2) - (1089*Sqrt[
1 - 2*x]*(3 + 5*x)^(5/2))/(2240*(2 + 3*x)^3) + ((1 - 2*x)^(5/2)*(
3 + 5*x)^(7/2))/(14*(2 + 3*x)^6) + (9*(1 - 2*x)^(3/2)*(3 + 5*x)^(
7/2))/(20*(2 + 3*x)^5) + (297*Sqrt[1 - 2*x]*(3 + 5*x)^(7/2))/(160
*(2 + 3*x)^4) - (4348377*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5
*x])])/(175616*Sqrt[7])
```

Rubi [A] time = 0.320546, antiderivative size = 209, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$\frac{297\sqrt{1-2x}(5x+3)^{7/2}}{160(3x+2)^4}+\frac{9(1-2x)^{3/2}(5x+3)^{7/2}}{20(3x+2)^5}+\frac{(1-2x)^{5/2}(5x+3)^{7/2}}{14(3x+2)^6}-\frac{1089\sqrt{1-2x}(5x+3)^{5/2}}{2240(3x+2)^3}-\frac{11979\sqrt{1-2x}(5x+3)^{3/2}}{12544(3x+2)^2}-\frac{395307\sqrt{1-2x}\sqrt{5x+3}}{175616(3x+2)}-\frac{4348377\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{175616\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^7,x]
```

```
[Out] (-395307*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(175616*(2 + 3*x)) - (11979
*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(12544*(2 + 3*x)^2) - (1089*Sqrt[
1 - 2*x]*(3 + 5*x)^(5/2))/(2240*(2 + 3*x)^3) + ((1 - 2*x)^(5/2)*(
3 + 5*x)^(7/2))/(14*(2 + 3*x)^6) + (9*(1 - 2*x)^(3/2)*(3 + 5*x)^(
7/2))/(20*(2 + 3*x)^5) + (297*Sqrt[1 - 2*x]*(3 + 5*x)^(7/2))/(160
*(2 + 3*x)^4) - (4348377*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5
*x])])/(175616*Sqrt[7])
```

Rubi in Sympy [A] time = 24.1518, size = 190, normalized size = 0.91

$$-\frac{99\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{3}{2}}}{1568\left(3x+2\right)^{4}}-\frac{9\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{5}{2}}}{140\left(3x+2\right)^{5}}+\frac{\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{7}{2}}}{14\left(3x+2\right)^{6}}-\frac{35937\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{87808\left(3x+2\right)^{2}}+\frac{1089\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{3}{2}}}{3136\left(3x+2\right)^{3}}+\frac{395307\sqrt{-2x+1}\sqrt{5x+3}}{175616\left(3x+2\right)}-\frac{4348377\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{1229312}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(5/2)/(2+3*x)**7,x)
```

```
[Out] -99*(-2*x + 1)**(5/2)*(5*x + 3)**(3/2)/(1568*(3*x + 2)**4) - 9*(-
2*x + 1)**(5/2)*(5*x + 3)**(5/2)/(140*(3*x + 2)**5) + (-2*x + 1)*
*(5/2)*(5*x + 3)**(7/2)/(14*(3*x + 2)**6) - 35937*(-2*x + 1)**(3/
2)*sqrt(5*x + 3)/(87808*(3*x + 2)**2) + 1089*(-2*x + 1)**(3/2)*(5
*x + 3)**(3/2)/(3136*(3*x + 2)**3) + 395307*sqrt(-2*x + 1)*sqrt(5
*x + 3)/(175616*(3*x + 2)) - 4348377*sqrt(7)*atan(sqrt(7)*sqrt(-2
*x + 1)/(7*sqrt(5*x + 3)))/1229312
```

Mathematica [A] time = 0.153273, size = 92, normalized size = 0.44

$$\frac{\frac{14\sqrt{1-2x}\sqrt{5x+3}(460633945x^5+1555340180x^4+2108117296x^3+1428134688x^2+482263920x+64829376)}{(3x+2)^6}-21741885\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{12293120}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^7,x]
```

```
[Out] ((14*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(64829376 + 482263920*x + 142813
4688*x^2 + 2108117296*x^3 + 1555340180*x^4 + 460633945*x^5))/(2 +
 3*x)^6 - 21741885*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*
Sqrt[3 + 5*x])])/12293120
```

Maple [B] time = 0.02, size = 346, normalized size = 1.7

$$\frac{1}{12293120\,(2+3\,x)^6}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(15849834165\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^6+63399336660\,\sqrt{7}\arctan\left(1/14\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^(5/2)/(2+3*x)^7,x)
```

```
[Out] 1/12293120*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(15849834165*7^(1/2)*arcta
n(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^6+63399336660*7^(
1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^5+10566
5561100*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2)
)*x^4+6448875230*x^5*(-10*x^2-x+3)^(1/2)+93924943200*7^(1/2)*arct
an(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+21774762520*x^
4*(-10*x^2-x+3)^(1/2)+46962471600*7^(1/2)*arctan(1/14*(37*x+20)*7
^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+29513642144*x^3*(-10*x^2-x+3)^(1/
2)+12523325760*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3
)^(1/2))*x+19993885632*x^2*(-10*x^2-x+3)^(1/2)+1391480640*7^(1/2)
*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+6751694880*x*
(-10*x^2-x+3)^(1/2)+907611264*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^
(1/2)/(2+3*x)^6
```

Maxima [A] time = 1.52244, size = 369, normalized size = 1.77

$$\begin{aligned}&\frac{272085}{307328}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}-\frac{\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{42\,(729\,x^6+2916\,x^5+4860\,x^4+4320\,x^3+2160\,x^2+576\,x+64)}\\&+\frac{23\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{420\,(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240\,x+32)}\\&+\frac{297\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{1568\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}+\frac{10989\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{21952\,(27\,x^3+54\,x^2+36\,x+8)}\\&+\frac{489753\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{614656\,(9\,x^2+12\,x+4)}+\frac{6648345}{614656}\sqrt{-10\,x^2-x+3x}\\&+\frac{4348377}{2458624}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)\\&-\frac{5857731}{1229312}\sqrt{-10\,x^2-x+3}+\frac{645909\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{1229312\,(3\,x+2)}\end{aligned}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^7,x, algorithm="maxima")
```

```
[Out] 272085/307328*(-10*x^2 - x + 3)^(3/2) - 1/42*(-10*x^2 - x + 3)^(5
/2)/(729*x^6 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x
```

```
+ 64) + 23/420*(-10*x^2 - x + 3)^(5/2)/(243*x^5 + 810*x^4 + 1080*
x^3 + 720*x^2 + 240*x + 32) + 297/1568*(-10*x^2 - x + 3)^(5/2)/(8
1*x^4 + 216*x^3 + 216*x^2 + 96*x + 16) + 10989/21952*(-10*x^2 - x
 + 3)^(5/2)/(27*x^3 + 54*x^2 + 36*x + 8) + 489753/614656*(-10*x^2
 - x + 3)^(5/2)/(9*x^2 + 12*x + 4) + 6648345/614656*sqrt(-10*x^2
- x + 3)*x + 4348377/2458624*sqrt(7)*arcsin(37/11*x/abs(3*x + 2)
+ 20/11/abs(3*x + 2)) - 5857731/1229312*sqrt(-10*x^2 - x + 3) + 6
45909/1229312*(-10*x^2 - x + 3)^(3/2)/(3*x + 2)
```

Fricas [A] time = 0.228727, size = 188, normalized size = 0.9

$$\frac{\sqrt{7}\left(2\sqrt{7}\left(460633945\,x^5 + 1555340180\,x^4 + 2108117296\,x^3 + 1428134688\,x^2 + 482263920\,x + 64829376\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}\right.}{12293120\,(729\,x^6 + 2916\,x^5 + 4860\,x^4 + 4320\,x^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^7,x, algorithm="fricas")
```

```
[Out] 1/12293120*sqrt(7)*(2*sqrt(7)*(460633945*x^5 + 1555340180*x^4 + 2
108117296*x^3 + 1428134688*x^2 + 482263920*x + 64829376)*sqrt(5*x
 + 3)*sqrt(-2*x + 1) + 21741885*(729*x^6 + 2916*x^5 + 4860*x^4 +
4320*x^3 + 2160*x^2 + 576*x + 64)*arctan(1/14*sqrt(7)*(37*x + 20)
/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(729*x^6 + 2916*x^5 + 4860*x^4
+ 4320*x^3 + 2160*x^2 + 576*x + 64)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(3/2)*(3+5*x)**(5/2)/(2+3*x)**7,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.602692, size = 676, normalized size = 3.23

$$\frac{4348377}{24586240}\sqrt{70}\sqrt{10}\left(\pi + 2\,\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3} - 4\right)}{140\left(\sqrt{2}\sqrt{-10\,x+5} - \sqrt{22}\right)}\right)\right)$$

$$-\frac{161051\left(27\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}} - \frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^{11} + 42840\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}} - \frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^{9} + 27941760\sqrt{10}\left(\frac{\sqrt{2}\right.}{}}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^7,x, algorithm="giac")
```

```
[Out] 4348377/24586240*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)
*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3)
- 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 161051/87808*(27*sq
rt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sq
rt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^11 + 42840*sqrt
(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt
```

```
(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^9 + 27941760*sqrt
(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt
(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^7 - 6539187200*sq
rt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sq
rt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 - 94042368000
0*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) -
4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 - 4646799
3600000*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x +
 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((s
qrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3
)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)^6
```

3.2343 $\int \frac{(1-2x)^{3/2}(3+5x)^{5/2}}{(2+3x)^8} dx$

Optimal. Leaf size=238

$$\frac{181\sqrt{1-2x}(5x+3)^{5/2}}{756(3x+2)^6}-\frac{(1-2x)^{3/2}(5x+3)^{5/2}}{21(3x+2)^7}-\frac{12421\sqrt{1-2x}(5x+3)^{3/2}}{52920(3x+2)^5}+\frac{23466191827\sqrt{1-2x}\sqrt{5x+3}}{4182119424(3x+2)}+\frac{224018941\sqrt{1-2x}\sqrt{5x+3}}{298722816(3x+2)^2}+\frac{6249601\sqrt{1-2x}\sqrt{5x+3}}{53343360(3x+2)^3}-\frac{1289227\sqrt{1-2x}\sqrt{5x+3}}{8890560(3x+2)^4}-\frac{1104970911\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{17210368\sqrt{7}}$$

```
[Out] (-1289227*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(8890560*(2 + 3*x)^4) + (6
249601*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(53343360*(2 + 3*x)^3) + (224
018941*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(298722816*(2 + 3*x)^2) + (23
466191827*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(4182119424*(2 + 3*x)) - (
12421*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(52920*(2 + 3*x)^5) - ((1 -
2*x)^(3/2)*(3 + 5*x)^(5/2))/(21*(2 + 3*x)^7) + (181*Sqrt[1 - 2*x]
*(3 + 5*x)^(5/2))/(756*(2 + 3*x)^6) - (1104970911*ArcTan[Sqrt[1 -
 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(17210368*Sqrt[7])
```

Rubi [A] time = 0.534199, antiderivative size = 238, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$\frac{181\sqrt{1-2x}(5x+3)^{5/2}}{756(3x+2)^6}-\frac{(1-2x)^{3/2}(5x+3)^{5/2}}{21(3x+2)^7}-\frac{12421\sqrt{1-2x}(5x+3)^{3/2}}{52920(3x+2)^5}+\frac{23466191827\sqrt{1-2x}\sqrt{5x+3}}{4182119424(3x+2)}+\frac{224018941\sqrt{1-2x}\sqrt{5x+3}}{298722816(3x+2)^2}+\frac{6249601\sqrt{1-2x}\sqrt{5x+3}}{53343360(3x+2)^3}-\frac{1289227\sqrt{1-2x}\sqrt{5x+3}}{8890560(3x+2)^4}-\frac{1104970911\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{17210368\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^8,x]
```


```
[Out] (-1289227*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(8890560*(2 + 3*x)^4) + (6
249601*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(53343360*(2 + 3*x)^3) + (224
018941*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(298722816*(2 + 3*x)^2) + (23
466191827*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(4182119424*(2 + 3*x)) - (
12421*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(52920*(2 + 3*x)^5) - ((1 -
2*x)^(3/2)*(3 + 5*x)^(5/2))/(21*(2 + 3*x)^7) + (181*Sqrt[1 - 2*x]
*(3 + 5*x)^(5/2))/(756*(2 + 3*x)^6) - (1104970911*ArcTan[Sqrt[1 -
 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(17210368*Sqrt[7])
```

Rubi in Sympy [A] time = 52.0745, size = 218, normalized size = 0.92

$$-\frac{7489\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{370440\left(3x+2\right)^{5}}-\frac{181\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{3}{2}}}{5292\left(3x+2\right)^{6}}-\frac{\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{5}{2}}}{21\left(3x+2\right)^{7}}+\frac{23466191827\sqrt{-2x+1}\sqrt{5x+3}}{4182119424\left(3x+2\right)}+\frac{224018941\sqrt{-2x+1}\sqrt{5x+3}}{298722816\left(3x+2\right)^{2}}+\frac{6249601\sqrt{-2x+1}\sqrt{5x+3}}{53343360\left(3x+2\right)^{3}}+\frac{98267\sqrt{-2x+1}\sqrt{5x+3}}{1270080\left(3x+2\right)^{4}}-\frac{1104970911\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{120472576}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(5/2)/(2+3*x)**8,x)
```

```
[Out] -7489*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/(370440*(3*x + 2)**5) - 181
*(-2*x + 1)**(3/2)*(5*x + 3)**(3/2)/(5292*(3*x + 2)**6) - (-2*x +
 1)**(3/2)*(5*x + 3)**(5/2)/(21*(3*x + 2)**7) + 23466191827*sqrt(
-2*x + 1)*sqrt(5*x + 3)/(4182119424*(3*x + 2)) + 224018941*sqrt(-
2*x + 1)*sqrt(5*x + 3)/(298722816*(3*x + 2)**2) + 6249601*sqrt(-2
*x + 1)*sqrt(5*x + 3)/(53343360*(3*x + 2)**3) + 98267*sqrt(-2*x +
 1)*sqrt(5*x + 3)/(1270080*(3*x + 2)**4) - 1104970911*sqrt(7)*ata
n(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/120472576
```

Mathematica [A] time = 0.150331, size = 97, normalized size = 0.41

$$\frac{\frac{14\sqrt{1-2x}\sqrt{5x+3}(351992877405x^6+1423652835490x^5+2399706883464x^4+2158260396608x^3+1092179419888x^2+294736348384x+33120084096)}{(3x+2)^7}-5524854555\sqrt{}}{1204725760}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^8,x]
```

```
[Out] ((14*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(33120084096 + 294736348384*x +
1092179419888*x^2 + 2158260396608*x^3 + 2399706883464*x^4 + 14236
52835490*x^5 + 351992877405*x^6))/(2 + 3*x)^7 - 5524854555*Sqrt[7
]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/12047257
60
```

Maple [B] time = 0.021, size = 394, normalized size = 1.7

$$\frac{1}{1204725760\,(2+3\,x)^7}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(12082856911785\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^7+56386665588330\,\sqrt{7}\mathrm{arct}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^(5/2)/(2+3*x)^8,x)
```

```
[Out] 1/1204725760*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(12082856911785*7^(1/2)*
arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^7+5638666558
8330*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x
^6+112773331176660*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2
-x+3)^(1/2))*x^5+4927900283670*x^6*(-10*x^2-x+3)^(1/2)+1253037013
07400*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*
x^4+19931139696860*x^5*(-10*x^2-x+3)^(1/2)+83535800871600*7^(1/2)
*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+335958963
68496*x^4*(-10*x^2-x+3)^(1/2)+33414320348640*7^(1/2)*arctan(1/14*
(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+30215645552512*x^3*(-1
0*x^2-x+3)^(1/2)+7425404521920*7^(1/2)*arctan(1/14*(37*x+20)*7^(1
/2)/(-10*x^2-x+3)^(1/2))*x+15290511878432*x^2*(-10*x^2-x+3)^(1/2)
+707181383040*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)
^(1/2))+4126308877376*x*(-10*x^2-x+3)^(1/2)+463681177344*(-10*x^2
-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)^7
```

Maxima [A] time = 1.52321, size = 437, normalized size = 1.84

$$\frac{207419465}{90354432}\left(-10x^2-x+3\right)^{\frac{3}{2}} - \frac{\left(-10x^2-x+3\right)^{\frac{5}{2}}}{49\left(2187x^7+10206x^6+20412x^5+22680x^4+15120x^3+6048x^2+1344x+128\right)} + \frac{157\left(-10x^2-x+3\right)^{\frac{5}{2}}}{4116\left(729x^6+2916x^5+4860x^4+4320x^3+2160x^2+576x+64\right)} + \frac{6289\left(-10x^2-x+3\right)^{\frac{5}{2}}}{41160\left(243x^5+810x^4+1080x^3+720x^2+240x+32\right)} + \frac{75471\left(-10x^2-x+3\right)^{\frac{5}{2}}}{153664\left(81x^4+216x^3+216x^2+96x+16\right)} + \frac{2792427\left(-10x^2-x+3\right)^{\frac{5}{2}}}{2151296\left(27x^3+54x^2+36x+8\right)} + \frac{124451679\left(-10x^2-x+3\right)^{\frac{5}{2}}}{60236288\left(9x^2+12x+4\right)} + \frac{1689418335}{60236288}\sqrt{-10x^2-x+3x} + \frac{1104970911}{240945152}\sqrt{7}\arcsin\left(\frac{37x}{11|3x+2|}+\frac{20}{11|3x+2|}\right) - \frac{1488514533}{120472576}\sqrt{-10x^2-x+3} + \frac{492397961\left(-10x^2-x+3\right)^{\frac{3}{2}}}{361417728\left(3x+2\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^8,x, algorithm="maxima")
```

```
[Out] 207419465/90354432*(-10*x^2 - x + 3)^(3/2) - 1/49*(-10*x^2 - x +
3)^(5/2)/(2187*x^7 + 10206*x^6 + 20412*x^5 + 22680*x^4 + 15120*x^
3 + 6048*x^2 + 1344*x + 128) + 157/4116*(-10*x^2 - x + 3)^(5/2)/(
729*x^6 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64)
 + 6289/41160*(-10*x^2 - x + 3)^(5/2)/(243*x^5 + 810*x^4 + 1080*x
^3 + 720*x^2 + 240*x + 32) + 75471/153664*(-10*x^2 - x + 3)^(5/2)
/(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16) + 2792427/2151296*(-10*
x^2 - x + 3)^(5/2)/(27*x^3 + 54*x^2 + 36*x + 8) + 124451679/60236
288*(-10*x^2 - x + 3)^(5/2)/(9*x^2 + 12*x + 4) + 1689418335/60236
288*sqrt(-10*x^2 - x + 3)*x + 1104970911/240945152*sqrt(7)*arcsin
(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) - 1488514533/12047257
6*sqrt(-10*x^2 - x + 3) + 492397961/361417728*(-10*x^2 - x + 3)^(
3/2)/(3*x + 2)
```

Fricas [A] time = 0.237634, size = 208, normalized size = 0.87

$$\frac{\sqrt{7}\left(2\sqrt{7}\left(351992877405x^6+1423652835490x^5+2399706883464x^4+2158260396608x^3+1092179419888x^2+294736348\right.\right.}{1204725760\left(2187x^7+102\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^8,x, algorithm="fricas")
```

```
[Out] 1/1204725760*sqrt(7)*(2*sqrt(7)*(351992877405*x^6 + 1423652835490
*x^5 + 2399706883464*x^4 + 2158260396608*x^3 + 1092179419888*x^2
+ 294736348384*x + 33120084096)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 55
24854555*(2187*x^7 + 10206*x^6 + 20412*x^5 + 22680*x^4 + 15120*x^
3 + 6048*x^2 + 1344*x + 128)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqr
t(5*x + 3)*sqrt(-2*x + 1))))/(2187*x^7 + 10206*x^6 + 20412*x^5 +
22680*x^4 + 15120*x^3 + 6048*x^2 + 1344*x + 128)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**(5/2)/(2+3*x)**8,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.730009, size = 759, normalized size = 3.19

$$\frac{1104970911}{2409451520}\sqrt{70}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)$$
$$-\frac{161051\left(6861\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^{13}+12807200\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^{11}+10148425\ldots}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^8,x, algorithm="giac")
```

```
[Out] 1104970911/2409451520*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqr
t(70)*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x
+ 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 161051/8605184
*(6861*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x +
3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^13 + 1
2807200*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x +
 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^11 +
10148425280*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5
*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^9
 - 3461100339200*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/s
qrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22
)))^7 - 785566018048000*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt
(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) -
sqrt(22)))^5 - 78720223232000000*sqrt(10)*((sqrt(2)*sqrt(-10*x +
5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*
x + 5) - sqrt(22)))^3 - 3306249375744000000*sqrt(10)*((sqrt(2)*sq
rt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2
)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt
(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) -
sqrt(22)))^2 + 280)^7
```

3.2344 $\int \frac{(1-2x)^{3/2}(2+3x)^3}{\sqrt{3+5x}}\,dx$

Optimal. Leaf size=128

$$-\frac{3\sqrt{5x+3}(11580x+14629)(1-2x)^{5/2}}{80000}-\frac{3}{50}(3x+2)^2\sqrt{5x+3}(1-2x)^{5/2}+\frac{51373\sqrt{5x+3}(1-2x)^{3/2}}{320000}+\frac{1695309\sqrt{5x+3}\sqrt{1-2x}}{3200000}+\frac{18648399\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{3200000\sqrt{10}}$$

```
[Out] (1695309*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/3200000 + (51373*(1 - 2*x)^
(3/2)*Sqrt[3 + 5*x])/320000 - (3*(1 - 2*x)^(5/2)*(2 + 3*x)^2*Sqrt
[3 + 5*x])/50 - (3*(1 - 2*x)^(5/2)*Sqrt[3 + 5*x]*(14629 + 11580*x
))/80000 + (18648399*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(3200000*S
qrt[10])
```

Rubi [A] time = 0.16505, antiderivative size = 128, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$-\frac{3\sqrt{5x+3}(11580x+14629)(1-2x)^{5/2}}{80000}-\frac{3}{50}(3x+2)^2\sqrt{5x+3}(1-2x)^{5/2}+\frac{51373\sqrt{5x+3}(1-2x)^{3/2}}{320000}+\frac{1695309\sqrt{5x+3}\sqrt{1-2x}}{3200000}+\frac{18648399\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{3200000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(2 + 3*x)^3)/Sqrt[3 + 5*x],x]
```

```
[Out] (1695309*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/3200000 + (51373*(1 - 2*x)^
(3/2)*Sqrt[3 + 5*x])/320000 - (3*(1 - 2*x)^(5/2)*(2 + 3*x)^2*Sqrt
[3 + 5*x])/50 - (3*(1 - 2*x)^(5/2)*Sqrt[3 + 5*x]*(14629 + 11580*x
))/80000 + (18648399*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(3200000*S
qrt[10])
```

Rubi in Sympy [A] time = 14.8214, size = 117, normalized size = 0.91

$$-\frac{3\left(-2x+1\right)^{\frac{5}{2}}\left(3x+2\right)^{2}\sqrt{5x+3}}{50}-\frac{\left(-2x+1\right)^{\frac{5}{2}}\sqrt{5x+3}\left(26055x+\frac{131661}{4}\right)}{60000}+\frac{51373\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{320000}+\frac{1695309\sqrt{-2x+1}\sqrt{5x+3}}{3200000}+\frac{18648399\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{32000000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)**3/(3+5*x)**(1/2),x)
```

```
[Out] -3*(-2*x + 1)**(5/2)*(3*x + 2)**2*sqrt(5*x + 3)/50 - (-2*x + 1)**
(5/2)*sqrt(5*x + 3)*(26055*x + 131661/4)/60000 + 51373*(-2*x + 1)
**(3/2)*sqrt(5*x + 3)/320000 + 1695309*sqrt(-2*x + 1)*sqrt(5*x +
3)/3200000 + 18648399*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/32
000000
```

Mathematica [A] time = 0.12897, size = 70, normalized size = 0.55

$$\frac{-10\sqrt{1-2x}\sqrt{5x+3}\left(6912000x^4+7862400x^3-2952480x^2-5372860x+314441\right)-18648399\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{32000000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(2 + 3*x)^3)/Sqrt[3 + 5*x],x]
```

```
[Out] (-10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(314441 - 5372860*x - 2952480*x^
2 + 7862400*x^3 + 6912000*x^4) - 18648399*Sqrt[10]*ArcSin[Sqrt[5/
11]*Sqrt[1 - 2*x]])/32000000
```

Maple [A] time = 0.016, size = 121, normalized size = 1.

$$\frac{1}{64000000}\sqrt{1-2x}\sqrt{3+5x}\left(-138240000\,x^4\sqrt{-10\,x^2-x+3}-157248000\,x^3\sqrt{-10\,x^2-x+3}+59049600\,x^2\sqrt{-10\,x^2-x+\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^3/(3+5*x)^(1/2),x)
```

```
[Out] 1/64000000*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(-138240000*x^4*(-10*x^2-x
+3)^(1/2)-157248000*x^3*(-10*x^2-x+3)^(1/2)+59049600*x^2*(-10*x^2
-x+3)^(1/2)+18648399*10^(1/2)*arcsin(20/11*x+1/11)+107457200*x*(-
10*x^2-x+3)^(1/2)-6288820*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2
)
```

Maxima [A] time = 1.51402, size = 124, normalized size = 0.97

$$-\frac{54}{25}\sqrt{-10\,x^2-x+3}x^4-\frac{2457}{1000}\sqrt{-10\,x^2-x+3}x^3+\frac{18453}{20000}\sqrt{-10\,x^2-x+3}x^2+\frac{268643}{160000}\sqrt{-10\,x^2-x+3}x-\frac{18648399}{64000000}\sqrt{10}\arcsin\left(-\frac{20}{11}x-\frac{1}{11}\right)-\frac{314441}{3200000}\sqrt{-10\,x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*(-2*x + 1)^(3/2)/sqrt(5*x + 3),x, algorithm="maxima")
```

```
[Out] -54/25*sqrt(-10*x^2 - x + 3)*x^4 - 2457/1000*sqrt(-10*x^2 - x + 3
)*x^3 + 18453/20000*sqrt(-10*x^2 - x + 3)*x^2 + 268643/160000*sqr
t(-10*x^2 - x + 3)*x - 18648399/64000000*sqrt(10)*arcsin(-20/11*x
 - 1/11) - 314441/3200000*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.223875, size = 97, normalized size = 0.76

$$-\frac{1}{64000000}\sqrt{10}\left(2\sqrt{10}\left(6912000\,x^4+7862400\,x^3-2952480\,x^2-5372860\,x+314441\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-18648399\,\mathrm{arcta}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*(-2*x + 1)^(3/2)/sqrt(5*x + 3),x, algorithm="fricas")
```

```
[Out] -1/64000000*sqrt(10)*(2*sqrt(10)*(6912000*x^4 + 7862400*x^3 - 295
2480*x^2 - 5372860*x + 314441)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 186
48399*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x +
1))))
```

Sympy [A] time = 97.1458, size = 593, normalized size = 4.63

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)**3/(3+5*x)**(1/2),x)
```

```
[Out] -343*sqrt(2)*Piecewise((121*sqrt(5)*(sqrt(5)*sqrt(-2*x + 1)*sqrt(
10*x + 6)*(20*x + 1)/968 - sqrt(5)*sqrt(-2*x + 1)*sqrt(10*x + 6)/
22 + 3*asin(sqrt(55)*sqrt(-2*x + 1)/11)/8)/125, (x <= 1/2) & (x >
 -3/5)))/8 + 441*sqrt(2)*Piecewise((1331*sqrt(5)*(5*sqrt(5)*(-2*x
 + 1)**(3/2)*(10*x + 6)**(3/2)/7986 + 3*sqrt(5)*sqrt(-2*x + 1)*sq
rt(10*x + 6)*(20*x + 1)/1936 - sqrt(5)*sqrt(-2*x + 1)*sqrt(10*x +
 6)/22 + 5*asin(sqrt(55)*sqrt(-2*x + 1)/11)/16)/625, (x <= 1/2) &
 (x > -3/5)))/8 - 189*sqrt(2)*Piecewise((14641*sqrt(5)*(5*sqrt(5)
*(-2*x + 1)**(3/2)*(10*x + 6)**(3/2)/3993 + 7*sqrt(5)*sqrt(-2*x +
 1)*sqrt(10*x + 6)*(20*x + 1)/3872 + sqrt(5)*sqrt(-2*x + 1)*sqrt(
10*x + 6)*(12100*x - 2000*(-2*x + 1)**3 + 6600*(-2*x + 1)**2 - 47
19)/1874048 - sqrt(5)*sqrt(-2*x + 1)*sqrt(10*x + 6)/22 + 35*asin(
sqrt(55)*sqrt(-2*x + 1)/11)/128)/3125, (x <= 1/2) & (x > -3/5)))/
8 + 27*sqrt(2)*Piecewise((161051*sqrt(5)*(-5*sqrt(5)*(-2*x + 1)**
(5/2)*(10*x + 6)**(5/2)/322102 + 5*sqrt(5)*(-2*x + 1)**(3/2)*(10*
x + 6)**(3/2)/2662 + 15*sqrt(5)*sqrt(-2*x + 1)*sqrt(10*x + 6)*(20
*x + 1)/7744 + 5*sqrt(5)*sqrt(-2*x + 1)*sqrt(10*x + 6)*(12100*x -
 2000*(-2*x + 1)**3 + 6600*(-2*x + 1)**2 - 4719)/3748096 - sqrt(5
)*sqrt(-2*x + 1)*sqrt(10*x + 6)/22 + 63*asin(sqrt(55)*sqrt(-2*x +
 1)/11)/256)/15625, (x <= 1/2) & (x > -3/5)))/8
```

GIAC/XCAS [A] time = 0.273547, size = 371, normalized size = 2.9

$$
\begin{aligned}
&-\frac{9}{160000000}\sqrt{5}\Big(2\left(4\left(8\left(12\left(80x-203\right)(5x+3)+19073\right)(5x+3)-506185\right)(5x+3)+4031895\right)\sqrt{5x+3}\sqrt{-10x+5}+1039\\
&-\frac{27}{3200000}\sqrt{5}\Big(2\left(4\left(8\left(60x-119\right)(5x+3)+6163\right)(5x+3)-66189\right)\sqrt{5x+3}\sqrt{-10x+5}-184305\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+}\right.\\
&-\frac{3}{20000}\sqrt{5}\left(2\left(4\left(40x-59\right)(5x+3)+1293\right)\sqrt{5x+3}\sqrt{-10x+5}+4785\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)\\
&+\frac{1}{100}\sqrt{5}\left(2\left(20x-23\right)\sqrt{5x+3}\sqrt{-10x+5}-143\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)\\
&+\frac{4}{25}\sqrt{5}\left(11\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)+2\sqrt{5x+3}\sqrt{-10x+5}\right)
\end{aligned}
$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*(-2*x + 1)^(3/2)/sqrt(5*x + 3),x, algorithm="giac")
```

```
[Out] -9/160000000*sqrt(5)*(2*(4*(8*(12*(80*x - 203)*(5*x + 3) + 19073)
*(5*x + 3) - 506185)*(5*x + 3) + 4031895)*sqrt(5*x + 3)*sqrt(-10*
x + 5) + 10392195*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) -
27/3200000*sqrt(5)*(2*(4*(8*(60*x - 119)*(5*x + 3) + 6163)*(5*x +
 3) - 66189)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 184305*sqrt(2)*arcsi
n(1/11*sqrt(22)*sqrt(5*x + 3))) - 3/20000*sqrt(5)*(2*(4*(40*x - 5
9)*(5*x + 3) + 1293)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 4785*sqrt(2)
*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 1/100*sqrt(5)*(2*(20*x -
23)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 143*sqrt(2)*arcsin(1/11*sqrt(
22)*sqrt(5*x + 3))) + 4/25*sqrt(5)*(11*sqrt(2)*arcsin(1/11*sqrt(2
2)*sqrt(5*x + 3)) + 2*sqrt(5*x + 3)*sqrt(-10*x + 5))
```

3.2345 $\int \frac{(1-2x)^{3/2}(2+3x)^2}{\sqrt{3+5x}}\,dx$

Optimal. Leaf size=121

$$-\frac{3}{40}(3x+2)\sqrt{5x+3}(1-2x)^{5/2}-\frac{119}{800}\sqrt{5x+3}(1-2x)^{5/2}+\frac{301\sqrt{5x+3}(1-2x)^{3/2}}{3200}+\frac{9933\sqrt{5x+3}\sqrt{1-2x}}{32000}+\frac{109263\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{32000\sqrt{10}}$$

```
[Out] (9933*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/32000 + (301*(1 - 2*x)^(3/2)*S
qrt[3 + 5*x])/3200 - (119*(1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/800 - (3
*(1 - 2*x)^(5/2)*(2 + 3*x)*Sqrt[3 + 5*x])/40 + (109263*ArcSin[Sqr
t[2/11]*Sqrt[3 + 5*x]])/(32000*Sqrt[10])
```

Rubi [A] time = 0.141259, antiderivative size = 121, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$-\frac{3}{40}(3x+2)\sqrt{5x+3}(1-2x)^{5/2}-\frac{119}{800}\sqrt{5x+3}(1-2x)^{5/2}+\frac{301\sqrt{5x+3}(1-2x)^{3/2}}{3200}+\frac{9933\sqrt{5x+3}\sqrt{1-2x}}{32000}+\frac{109263\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{32000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(2 + 3*x)^2)/Sqrt[3 + 5*x],x]
```

```
[Out] (9933*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/32000 + (301*(1 - 2*x)^(3/2)*S
qrt[3 + 5*x])/3200 - (119*(1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/800 - (3
*(1 - 2*x)^(5/2)*(2 + 3*x)*Sqrt[3 + 5*x])/40 + (109263*ArcSin[Sqr
t[2/11]*Sqrt[3 + 5*x]])/(32000*Sqrt[10])
```

Rubi in Sympy [A] time = 11.1113, size = 109, normalized size = 0.9

$$-\frac{(-2x+1)^{\frac{5}{2}}\sqrt{5x+3}\,(9x+6)}{40}-\frac{119\,(-2x+1)^{\frac{5}{2}}\sqrt{5x+3}}{800}+\frac{301\,(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{3200}+\frac{9933\sqrt{-2x+1}\sqrt{5x+3}}{32000}+\frac{109263\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{320000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)**2/(3+5*x)**(1/2),x)
```

```
[Out] -(-2*x + 1)**(5/2)*sqrt(5*x + 3)*(9*x + 6)/40 - 119*(-2*x + 1)**(
5/2)*sqrt(5*x + 3)/800 + 301*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/3200
 + 9933*sqrt(-2*x + 1)*sqrt(5*x + 3)/32000 + 109263*sqrt(10)*asin
(sqrt(22)*sqrt(5*x + 3)/11)/320000
```

Mathematica [A] time = 0.104766, size = 65, normalized size = 0.54

$$\frac{10\sqrt{1-2x}\sqrt{5x+3}\left(-28800x^3-9440x^2+25020x+3383\right)-109263\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{320000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(2 + 3*x)^2)/Sqrt[3 + 5*x],x]
```

```
[Out] (10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(3383 + 25020*x - 9440*x^2 - 2880
0*x^3) - 109263*Sqrt[10]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/320000
```

Maple [A] time = 0.014, size = 104, normalized size = 0.9

$$\frac{1}{640000}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(-576000\,x^{3}\sqrt{-10\,x^{2}-x+3}-188800\,x^{2}\sqrt{-10\,x^{2}-x+3}+109263\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)+5$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^2/(3+5*x)^(1/2),x)
```

```
[Out] 1/640000*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(-576000*x^3*(-10*x^2-x+3)^(
1/2)-188800*x^2*(-10*x^2-x+3)^(1/2)+109263*10^(1/2)*arcsin(20/11*
x+1/11)+500400*x*(-10*x^2-x+3)^(1/2)+67660*(-10*x^2-x+3)^(1/2))/(
-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.50778, size = 101, normalized size = 0.83

$$-\frac{9}{10}\sqrt{-10\,x^{2}-x+3}x^{3}-\frac{59}{200}\sqrt{-10\,x^{2}-x+3}x^{2}+\frac{1251}{1600}\sqrt{-10\,x^{2}-x+3}x-\frac{109263}{640000}\sqrt{10}\arcsin\left(-\frac{20}{11}\,x-\frac{1}{11}\right)+\frac{3383}{32000}\sqrt{-10\,x^{2}-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*(-2*x + 1)^(3/2)/sqrt(5*x + 3),x, algorithm="maxima")
```

```
[Out] -9/10*sqrt(-10*x^2 - x + 3)*x^3 - 59/200*sqrt(-10*x^2 - x + 3)*x^
2 + 1251/1600*sqrt(-10*x^2 - x + 3)*x - 109263/640000*sqrt(10)*ar
csin(-20/11*x - 1/11) + 3383/32000*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.230167, size = 90, normalized size = 0.74

$$-\frac{1}{640000}\sqrt{10}\left(2\sqrt{10}\left(28800\,x^{3}+9440\,x^{2}-25020\,x-3383\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-109263\,\arctan\left(\frac{\sqrt{10}(20\,x+1)}{20\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*(-2*x + 1)^(3/2)/sqrt(5*x + 3),x, algorithm="fricas")
```

```
[Out] -1/640000*sqrt(10)*(2*sqrt(10)*(28800*x^3 + 9440*x^2 - 25020*x -
3383)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 109263*arctan(1/20*sqrt(10)*
(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [A] time = 56.8946, size = 394, normalized size = 3.26

$$-\frac{49\sqrt{2}\left(\begin{cases}\frac{121\sqrt{5}\left(\frac{\sqrt{5}\sqrt{-2x+1}\sqrt{10x+6}(20x+1)}{968}-\frac{\sqrt{5}\sqrt{-2x+1}\sqrt{10x+6}}{22}+\frac{3\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{8}\right)}{125} & \text{for } x\le\frac{1}{2}\wedge x>-\frac{3}{5}\end{cases}\right)}{4}+\frac{21\sqrt{2}\left(\begin{cases}\frac{1331\sqrt{5}\left(\frac{5\sqrt{5}(-2x+1)^{\frac{3}{2}}(10x+6)^{\frac{3}{2}}}{7986}+\frac{3\sqrt{5}\sqrt{-2x+1}\sqrt{10x+6}(20x+1)}{1936}-\frac{\sqrt{5}\sqrt{-2x+1}\sqrt{10x+6}}{22}+\frac{5\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{16}\right)}{625} & \text{for } x\le\frac{1}{2}\wedge x>-\frac{3}{5}\end{cases}\right)}{2}-\frac{9\sqrt{2}\left(\begin{cases}\frac{14641\sqrt{5}\left(\frac{5\sqrt{5}(-2x+1)^{\frac{3}{2}}(10x+6)^{\frac{3}{2}}}{3993}+\frac{7\sqrt{5}\sqrt{-2x+1}\sqrt{10x+6}(20x+1)}{3872}+\frac{\sqrt{5}\sqrt{-2x+1}\sqrt{10x+6}\left(12100x-2000(-2x+1)^3+6600(-2x+1)^2-4719\right)}{1874048}-\frac{\sqrt{5}\sqrt{-2x+1}\sqrt{10x+6}}{22}+\frac{35\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{128}\right)}{3125}\end{cases}\right)}{4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)**2/(3+5*x)**(1/2),x)
```

```
[Out] -49*sqrt(2)*Piecewise((121*sqrt(5)*(sqrt(5)*sqrt(-2*x + 1)*sqrt(1
0*x + 6)*(20*x + 1)/968 - sqrt(5)*sqrt(-2*x + 1)*sqrt(10*x + 6)/2
2 + 3*asin(sqrt(55)*sqrt(-2*x + 1)/11)/8)/125, (x <= 1/2) & (x >
-3/5)))/4 + 21*sqrt(2)*Piecewise((1331*sqrt(5)*(5*sqrt(5)*(-2*x +
 1)**(3/2)*(10*x + 6)**(3/2)/7986 + 3*sqrt(5)*sqrt(-2*x + 1)*sqrt
(10*x + 6)*(20*x + 1)/1936 - sqrt(5)*sqrt(-2*x + 1)*sqrt(10*x + 6
)/22 + 5*asin(sqrt(55)*sqrt(-2*x + 1)/11)/16)/625, (x <= 1/2) & (
x > -3/5)))/2 - 9*sqrt(2)*Piecewise((14641*sqrt(5)*(5*sqrt(5)*(-2
*x + 1)**(3/2)*(10*x + 6)**(3/2)/3993 + 7*sqrt(5)*sqrt(-2*x + 1)*
sqrt(10*x + 6)*(20*x + 1)/3872 + sqrt(5)*sqrt(-2*x + 1)*sqrt(10*x
 + 6)*(12100*x - 2000*(-2*x + 1)**3 + 6600*(-2*x + 1)**2 - 4719)/
1874048 - sqrt(5)*sqrt(-2*x + 1)*sqrt(10*x + 6)/22 + 35*asin(sqrt
(55)*sqrt(-2*x + 1)/11)/128)/3125, (x <= 1/2) & (x > -3/5)))/4
```

GIAC/XCAS [A] time = 0.238343, size = 274, normalized size = 2.26

$$-\frac{3}{1600000}\sqrt{5}\left(2\left(4\left(8\left(60x-119\right)(5x+3)+6163\right)(5x+3)-66189\right)\sqrt{5x+3}\sqrt{-10x+5}-184305\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)-\frac{1}{8000}\sqrt{5}\left(2\left(4\left(40x-59\right)(5x+3)+1293\right)\sqrt{5x+3}\sqrt{-10x+5}+4785\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)+\frac{1}{500}\sqrt{5}\left(2\left(20x-23\right)\sqrt{5x+3}\sqrt{-10x+5}-143\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)+\frac{2}{25}\sqrt{5}\left(11\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)+2\sqrt{5x+3}\sqrt{-10x+5}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*(-2*x + 1)^(3/2)/sqrt(5*x + 3),x, algorithm="giac")
```

```
[Out] -3/1600000*sqrt(5)*(2*(4*(8*(60*x - 119)*(5*x + 3) + 6163)*(5*x +
 3) - 66189)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 184305*sqrt(2)*arcsi
n(1/11*sqrt(22)*sqrt(5*x + 3))) - 1/8000*sqrt(5)*(2*(4*(40*x - 59
)*(5*x + 3) + 1293)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 4785*sqrt(2)*
arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 1/500*sqrt(5)*(2*(20*x - 2
3)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 143*sqrt(2)*arcsin(1/11*sqrt(2
2)*sqrt(5*x + 3))) + 2/25*sqrt(5)*(11*sqrt(2)*arcsin(1/11*sqrt(22
)*sqrt(5*x + 3)) + 2*sqrt(5*x + 3)*sqrt(-10*x + 5))
```

3.2346 $\int \frac{(1-2x)^{3/2}(2+3x)}{\sqrt{3+5x}}\,dx$

Optimal. Leaf size=94

$$-\frac{1}{10}\sqrt{5x+3}(1-2x)^{5/2}+\frac{3}{40}\sqrt{5x+3}(1-2x)^{3/2}+\frac{99}{400}\sqrt{5x+3}\sqrt{1-2x}+\frac{1089\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{400\sqrt{10}}$$

```
[Out] (99*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/400 + (3*(1 - 2*x)^(3/2)*Sqrt[3
+ 5*x])/40 - ((1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/10 + (1089*ArcSin[Sq
rt[2/11]*Sqrt[3 + 5*x]])/(400*Sqrt[10])
```

Rubi [A] time = 0.0959091, antiderivative size = 94, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$-\frac{1}{10}\sqrt{5x+3}(1-2x)^{5/2}+\frac{3}{40}\sqrt{5x+3}(1-2x)^{3/2}+\frac{99}{400}\sqrt{5x+3}\sqrt{1-2x}+\frac{1089\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{400\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)^(3/2)*(2 + 3*x))/Sqrt[3 + 5*x],x]
```

```
[Out] (99*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/400 + (3*(1 - 2*x)^(3/2)*Sqrt[3
+ 5*x])/40 - ((1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/10 + (1089*ArcSin[Sq
rt[2/11]*Sqrt[3 + 5*x]])/(400*Sqrt[10])
```

Rubi in Sympy [A] time = 8.20896, size = 83, normalized size = 0.88

$$-\frac{(-2x+1)^{\frac{5}{2}}\sqrt{5x+3}}{10}+\frac{3(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{40}+\frac{99\sqrt{-2x+1}\sqrt{5x+3}}{400}+\frac{1089\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{4000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**(3/2)*(2+3*x)/(3+5*x)**(1/2),x)
```

```
[Out] -(-2*x + 1)**(5/2)*sqrt(5*x + 3)/10 + 3*(-2*x + 1)**(3/2)*sqrt(5*
x + 3)/40 + 99*sqrt(-2*x + 1)*sqrt(5*x + 3)/400 + 1089*sqrt(10)*a
sin(sqrt(22)*sqrt(5*x + 3)/11)/4000
```

Mathematica [A] time = 0.0938027, size = 60, normalized size = 0.64

$$\frac{10\sqrt{1-2x}\sqrt{5x+3}\left(-160x^2+100x+89\right)-1089\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{4000}$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)^(3/2)*(2 + 3*x))/Sqrt[3 + 5*x],x]
```

```
[Out] (10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(89 + 100*x - 160*x^2) - 1089*Sqr
t[10]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/4000
```

Maple [A] time = 0.013, size = 87, normalized size = 0.9

$$\frac{1}{8000}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(-3200\,x^{2}\sqrt{-10\,x^{2}-x+3}+1089\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)+2000\,x\sqrt{-10\,x^{2}-x+3}+1780\,\sqrt{-10\,}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)/(3+5*x)^(1/2),x)
```

```
[Out] 1/8000*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(-3200*x^2*(-10*x^2-x+3)^(1/2)
+1089*10^(1/2)*arcsin(20/11*x+1/11)+2000*x*(-10*x^2-x+3)^(1/2)+17
80*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.49544, size = 78, normalized size = 0.83

$$-\frac{2}{5}\sqrt{-10\,x^{2}-x+3}x^{2}+\frac{1}{4}\sqrt{-10\,x^{2}-x+3}x-\frac{1089}{8000}\sqrt{10}\arcsin\left(-\frac{20}{11}\,x-\frac{1}{11}\right)+\frac{89}{400}\sqrt{-10\,x^{2}-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)*(-2*x + 1)^(3/2)/sqrt(5*x + 3),x, algorithm="maxima")
```

```
[Out] -2/5*sqrt(-10*x^2 - x + 3)*x^2 + 1/4*sqrt(-10*x^2 - x + 3)*x - 10
89/8000*sqrt(10)*arcsin(-20/11*x - 1/11) + 89/400*sqrt(-10*x^2 -
x + 3)
```

Fricas [A] time = 0.217047, size = 84, normalized size = 0.89

$$-\frac{1}{8000}\sqrt{10}\left(2\,\sqrt{10}\left(160\,x^{2}-100\,x-89\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-1089\,\arctan\left(\frac{\sqrt{10}(20\,x+1)}{20\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)*(-2*x + 1)^(3/2)/sqrt(5*x + 3),x, algorithm="fricas")
```

```
[Out] -1/8000*sqrt(10)*(2*sqrt(10)*(160*x^2 - 100*x - 89)*sqrt(5*x + 3)
*sqrt(-2*x + 1) - 1089*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x
+ 3)*sqrt(-2*x + 1))))
```

Sympy [A] time = 33.6418, size = 223, normalized size = 2.37

$$-\frac{7\sqrt{2}\left(\begin{cases}\frac{121\sqrt{5}\left(\frac{\sqrt{5}\sqrt{-2x+1}\sqrt{10x+6}(20x+1)}{968}-\frac{\sqrt{5}\sqrt{-2x+1}\sqrt{10x+6}}{22}+\frac{3\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{8}\right)}{125} & \text{for}\: x\leq\frac{1}{2}\wedge x>-\frac{3}{5}\end{cases}\right)}{2}+\frac{3\sqrt{2}\left(\begin{cases}\frac{1331\sqrt{5}\left(\frac{5\sqrt{5}(-2x+1)^{\frac{3}{2}}(10x+6)^{\frac{3}{2}}}{7986}+\frac{3\sqrt{5}\sqrt{-2x+1}\sqrt{10x+6}(20x+1)}{1936}-\frac{\sqrt{5}\sqrt{-2x+1}\sqrt{10x+6}}{22}+\frac{5\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{16}\right)}{625} & \text{for}\: x\leq\frac{1}{2}\wedge x>-\frac{3}{5}\end{cases}\right)}{2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)/(3+5*x)**(1/2),x)
```

```
[Out] -7*sqrt(2)*Piecewise((121*sqrt(5)*(sqrt(5)*sqrt(-2*x + 1)*sqrt(10
*x + 6)*(20*x + 1)/968 - sqrt(5)*sqrt(-2*x + 1)*sqrt(10*x + 6)/22
```

```
 + 3*asin(sqrt(55)*sqrt(-2*x + 1)/11)/8)/125, (x <= 1/2) & (x > -
3/5)))/2 + 3*sqrt(2)*Piecewise((1331*sqrt(5)*(5*sqrt(5)*(-2*x + 1
)**(3/2)*(10*x + 6)**(3/2)/7986 + 3*sqrt(5)*sqrt(-2*x + 1)*sqrt(1
0*x + 6)*(20*x + 1)/1936 - sqrt(5)*sqrt(-2*x + 1)*sqrt(10*x + 6)/
22 + 5*asin(sqrt(55)*sqrt(-2*x + 1)/11)/16)/625, (x <= 1/2) & (x
> -3/5)))/2
```

GIAC/XCAS [A] time = 0.232541, size = 189, normalized size = 2.01

$$-\frac{1}{20000}\sqrt{5}\left(2\left(4\left(40x-59\right)\left(5x+3\right)+1293\right)\sqrt{5x+3}\sqrt{-10x+5}+4785\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$
$$-\frac{1}{2000}\sqrt{5}\left(2\left(20x-23\right)\sqrt{5x+3}\sqrt{-10x+5}-143\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$
$$+\frac{1}{25}\sqrt{5}\left(11\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)+2\sqrt{5x+3}\sqrt{-10x+5}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)*(-2*x + 1)^(3/2)/sqrt(5*x + 3),x, algorithm="giac")
```

```
[Out] -1/20000*sqrt(5)*(2*(4*(40*x - 59)*(5*x + 3) + 1293)*sqrt(5*x + 3
)*sqrt(-10*x + 5) + 4785*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x +
3))) - 1/2000*sqrt(5)*(2*(20*x - 23)*sqrt(5*x + 3)*sqrt(-10*x + 5
) - 143*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 1/25*sqrt(
5)*(11*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) + 2*sqrt(5*x +
 3)*sqrt(-10*x + 5))
```

3.2347 $\int \frac{(1-2x)^{3/2}}{\sqrt{3+5x}}\,dx$

Optimal. Leaf size=72

$$\frac{1}{10}\sqrt{5x+3}(1-2x)^{3/2}+\frac{33}{100}\sqrt{5x+3}\sqrt{1-2x}+\frac{363\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{100\sqrt{10}}$$

```
[Out] (33*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/100 + ((1 - 2*x)^(3/2)*Sqrt[3 +
5*x])/10 + (363*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(100*Sqrt[10])
```

Rubi [A] time = 0.0618482, antiderivative size = 72, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.158

$$\frac{1}{10}\sqrt{5x+3}(1-2x)^{3/2}+\frac{33}{100}\sqrt{5x+3}\sqrt{1-2x}+\frac{363\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{100\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^(3/2)/Sqrt[3 + 5*x],x]
```

```
[Out] (33*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/100 + ((1 - 2*x)^(3/2)*Sqrt[3 +
5*x])/10 + (363*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(100*Sqrt[10])
```

Rubi in Sympy [A] time = 6.16649, size = 63, normalized size = 0.88

$$\frac{(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{10}+\frac{33\sqrt{-2x+1}\sqrt{5x+3}}{100}+\frac{363\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{1000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**(3/2)/(3+5*x)**(1/2),x)
```

```
[Out] (-2*x + 1)**(3/2)*sqrt(5*x + 3)/10 + 33*sqrt(-2*x + 1)*sqrt(5*x +
 3)/100 + 363*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/1000
```

Mathematica [A] time = 0.0485101, size = 55, normalized size = 0.76

$$\frac{10(43-20x)\sqrt{1-2x}\sqrt{5x+3}-363\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1000}$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)^(3/2)/Sqrt[3 + 5*x],x]
```

```
[Out] (10*(43 - 20*x)*Sqrt[1 - 2*x]*Sqrt[3 + 5*x] - 363*Sqrt[10]*ArcSin
[Sqrt[5/11]*Sqrt[1 - 2*x]])/1000
```

Maple [A] time = 0.006, size = 72, normalized size = 1.

$$\frac{1}{10}(1-2x)^{\frac{3}{2}}\sqrt{3+5x}+\frac{33}{100}\sqrt{1-2x}\sqrt{3+5x}+\frac{363\sqrt{10}}{2000}\sqrt{(1-2x)(3+5x)}\arcsin\left(\frac{20x}{11}+\frac{1}{11}\right)\frac{1}{\sqrt{1-2x}}\frac{1}{\sqrt{3+5x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)/(3+5*x)^(1/2),x)
```

```
[Out] 1/10*(1-2*x)^(3/2)*(3+5*x)^(1/2)+33/100*(1-2*x)^(1/2)*(3+5*x)^(1/
2)+363/2000*((1-2*x)*(3+5*x))^(1/2)/(3+5*x)^(1/2)/(1-2*x)^(1/2)*1
0^(1/2)*arcsin(20/11*x+1/11)
```

Maxima [A] time = 1.49399, size = 55, normalized size = 0.76

$$-\frac{1}{5}\sqrt{-10\,x^2-x+3}x-\frac{363}{2000}\sqrt{10}\arcsin\left(-\frac{20}{11}\,x-\frac{1}{11}\right)+\frac{43}{100}\sqrt{-10\,x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/sqrt(5*x + 3),x, algorithm="maxima")
```

```
[Out] -1/5*sqrt(-10*x^2 - x + 3)*x - 363/2000*sqrt(10)*arcsin(-20/11*x
- 1/11) + 43/100*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.214945, size = 77, normalized size = 1.07

$$-\frac{1}{2000}\sqrt{10}\left(2\sqrt{10}(20\,x-43)\sqrt{5\,x+3}\sqrt{-2\,x+1}-363\,\arctan\left(\frac{\sqrt{10}(20\,x+1)}{20\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/sqrt(5*x + 3),x, algorithm="fricas")
```

```
[Out] -1/2000*sqrt(10)*(2*sqrt(10)*(20*x - 43)*sqrt(5*x + 3)*sqrt(-2*x
+ 1) - 363*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2
*x + 1))))
```

Sympy [A] time = 5.33716, size = 184, normalized size = 2.56

$$\begin{cases} -\frac{2i\left(x+\frac{3}{5}\right)^{\frac{5}{2}}}{\sqrt{10x-5}}+\frac{77i\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}{10\sqrt{10x-5}}-\frac{121i\sqrt{x+\frac{3}{5}}}{20\sqrt{10x-5}}-\frac{363\sqrt{10}i\operatorname{acosh}\left(\frac{\sqrt{110}\sqrt{x+\frac{3}{5}}}{11}\right)}{1000} & \text{for}\ \frac{10\left|x+\frac{3}{5}\right|}{11}>1 \\ \frac{363\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{110}\sqrt{x+\frac{3}{5}}}{11}\right)}{1000}+\frac{2\left(x+\frac{3}{5}\right)^{\frac{5}{2}}}{\sqrt{-10x+5}}-\frac{77\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}{10\sqrt{-10x+5}}+\frac{121\sqrt{x+\frac{3}{5}}}{20\sqrt{-10x+5}} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)/(3+5*x)**(1/2),x)
```

```
[Out] Piecewise((-2*I*(x + 3/5)**(5/2)/sqrt(10*x - 5) + 77*I*(x + 3/5)*
*(3/2)/(10*sqrt(10*x - 5)) - 121*I*sqrt(x + 3/5)/(20*sqrt(10*x -
5)) - 363*sqrt(10)*I*acosh(sqrt(110)*sqrt(x + 3/5)/11)/1000, 10*A
bs(x + 3/5)/11 > 1), (363*sqrt(10)*asin(sqrt(110)*sqrt(x + 3/5)/1
1)/1000 + 2*(x + 3/5)**(5/2)/sqrt(-10*x + 5) - 77*(x + 3/5)**(3/2
)/(10*sqrt(-10*x + 5)) + 121*sqrt(x + 3/5)/(20*sqrt(-10*x + 5)),
True))
```

GIAC/XCAS [A] time = 0.237437, size = 116, normalized size = 1.61

$$-\frac{1}{1000}\sqrt{5}\left(2\,(20\,x-23)\sqrt{5\,x+3}\sqrt{-10\,x+5}-143\,\sqrt{2}\arcsin\left(\frac{1}{11}\,\sqrt{22}\sqrt{5\,x+3}\right)\right)+\frac{1}{50}\,\sqrt{5}\left(11\,\sqrt{2}\arcsin\left(\frac{1}{11}\,\sqrt{22}\sqrt{5\,x+3}\right)+2\,\sqrt{5\,x+3}\sqrt{-10\,x+5}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/sqrt(5*x + 3),x, algorithm="giac")
```

```
[Out] -1/1000*sqrt(5)*(2*(20*x - 23)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 14
3*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 1/50*sqrt(5)*(11
*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) + 2*sqrt(5*x + 3)*sq
rt(-10*x + 5))
```

3.2348 $\int \frac{(1-2x)^{3/2}}{(2+3x)\sqrt{3+5x}}\,dx$

Optimal. Leaf size=86

$$-\frac{2}{15}\sqrt{1-2x}\sqrt{5x+3}-\frac{103}{45}\sqrt{\frac{2}{5}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{14}{9}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

```
[Out] (-2*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/15 - (103*Sqrt[2/5]*ArcSin[Sqrt[
2/11]*Sqrt[3 + 5*x]])/45 - (14*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]/(Sqrt
[7]*Sqrt[3 + 5*x])])/9
```

Rubi [A] time = 0.171327, antiderivative size = 86, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$-\frac{2}{15}\sqrt{1-2x}\sqrt{5x+3}-\frac{103}{45}\sqrt{\frac{2}{5}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{14}{9}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)/((2 + 3*x)*Sqrt[3 + 5*x]),x]
```

```
[Out] (-2*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/15 - (103*Sqrt[2/5]*ArcSin[Sqrt[
2/11]*Sqrt[3 + 5*x]])/45 - (14*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]/(Sqrt
[7]*Sqrt[3 + 5*x])])/9
```

Rubi in Sympy [A] time = 15.194, size = 80, normalized size = 0.93

$$-\frac{2\sqrt{-2x+1}\sqrt{5x+3}}{15}-\frac{103\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{225}-\frac{14\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)/(2+3*x)/(3+5*x)**(1/2),x)
```

```
[Out] -2*sqrt(-2*x + 1)*sqrt(5*x + 3)/15 - 103*sqrt(10)*asin(sqrt(22)*s
qrt(5*x + 3)/11)/225 - 14*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*
sqrt(5*x + 3)))/9
```

Mathematica [A] time = 0.117096, size = 95, normalized size = 1.1

$$\frac{1}{450}\left(-60\sqrt{1-2x}\sqrt{5x+3}-350\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)-103\sqrt{10}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)/((2 + 3*x)*Sqrt[3 + 5*x]),x]
```

```
[Out] (-60*Sqrt[1 - 2*x]*Sqrt[3 + 5*x] - 350*Sqrt[7]*ArcTan[(-20 - 37*x
)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])] - 103*Sqrt[10]*ArcTan[(1 + 20
*x)/(2*Sqrt[1 - 2*x]*Sqrt[30 + 50*x])])/450
```

Maple [A] time = 0.017, size = 83, normalized size = 1.

$$\frac{1}{450}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(350\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^{2}-x+3}}\right)-103\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)-60\,\sqrt{-10\,x^{2}-x+3}\right)\frac{}{\sqrt{-1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)/(2+3*x)/(3+5*x)^(1/2),x)
```

```
[Out] 1/450*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(350*7^(1/2)*arctan(1/14*(37*x+
20)*7^(1/2)/(-10*x^2-x+3)^(1/2))-103*10^(1/2)*arcsin(20/11*x+1/11
)-60*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.50517, size = 73, normalized size = 0.85

$$-\frac{103}{450}\sqrt{10}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)+\frac{7}{9}\sqrt{7}\arcsin\left(\frac{37x}{11|3x+2|}+\frac{20}{11|3x+2|}\right)-\frac{2}{15}\sqrt{-10x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/(sqrt(5*x + 3)*(3*x + 2)),x, algorithm="maxima")
```

```
[Out] -103/450*sqrt(10)*arcsin(20/11*x + 1/11) + 7/9*sqrt(7)*arcsin(37/
11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) - 2/15*sqrt(-10*x^2 - x +
 3)
```

Fricas [A] time = 0.238913, size = 123, normalized size = 1.43

$$\frac{1}{450}\sqrt{5}\left(70\sqrt{7}\sqrt{5}\arctan\left(\frac{\sqrt{7}(37x+20)}{14\sqrt{5x+3}\sqrt{-2x+1}}\right)-12\sqrt{5}\sqrt{5x+3}\sqrt{-2x+1}-103\sqrt{2}\arctan\left(\frac{\sqrt{5}\sqrt{2}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/(sqrt(5*x + 3)*(3*x + 2)),x, algorithm="fricas")
```

```
[Out] 1/450*sqrt(5)*(70*sqrt(7)*sqrt(5)*arctan(1/14*sqrt(7)*(37*x + 20)
/(sqrt(5*x + 3)*sqrt(-2*x + 1))) - 12*sqrt(5)*sqrt(5*x + 3)*sqrt(
-2*x + 1) - 103*sqrt(2)*arctan(1/20*sqrt(5)*sqrt(2)*(20*x + 1)/(s
qrt(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(-2x+1)^{\frac{3}{2}}}{(3x+2)\sqrt{5x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)/(2+3*x)/(3+5*x)**(1/2),x)
```

```
[Out] Integral((-2*x + 1)**(3/2)/((3*x + 2)*sqrt(5*x + 3)), x)
```

GIAC/XCAS [A] time = 0.259391, size = 216, normalized size = 2.51

$$\frac{7}{90}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{103}{450}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{4\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{2}{75}\sqrt{5}\sqrt{5x+3}\sqrt{-10x+5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/(sqrt(5*x + 3)*(3*x + 2)),x, algorithm="giac")
```

```
[Out] 7/90*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x +
3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqrt(2
)*sqrt(-10*x + 5) - sqrt(22)))) - 103/450*sqrt(10)*(pi + 2*arctan
(-1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x
+ 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 2/75*sqrt(5)*s
qrt(5*x + 3)*sqrt(-10*x + 5)
```

3.2349 $\int \frac{(1-2x)^{3/2}}{(2+3x)^2\sqrt{3+5x}}\,dx$

Optimal. Leaf size=93

$$\frac{7\sqrt{1-2x}\sqrt{5x+3}}{3(3x+2)}+\frac{4}{9}\sqrt{\frac{2}{5}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{29}{9}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

```
[Out] (7*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(3*(2 + 3*x)) + (4*Sqrt[2/5]*ArcS
in[Sqrt[2/11]*Sqrt[3 + 5*x]])/9 - (29*Sqrt[7]*ArcTan[Sqrt[1 - 2*x
]/(Sqrt[7]*Sqrt[3 + 5*x])])/9
```

Rubi [A] time = 0.173728, antiderivative size = 93, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$\frac{7\sqrt{1-2x}\sqrt{5x+3}}{3(3x+2)}+\frac{4}{9}\sqrt{\frac{2}{5}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{29}{9}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)/((2 + 3*x)^2*Sqrt[3 + 5*x]),x]
```

```
[Out] (7*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(3*(2 + 3*x)) + (4*Sqrt[2/5]*ArcS
in[Sqrt[2/11]*Sqrt[3 + 5*x]])/9 - (29*Sqrt[7]*ArcTan[Sqrt[1 - 2*x
]/(Sqrt[7]*Sqrt[3 + 5*x])])/9
```

Rubi in Sympy [A] time = 15.5386, size = 82, normalized size = 0.88

$$\frac{7\sqrt{-2x+1}\sqrt{5x+3}}{3\,(3x+2)}+\frac{4\sqrt{10}\,\text{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{45}-\frac{29\sqrt{7}\,\text{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)/(2+3*x)**2/(3+5*x)**(1/2),x)
```

```
[Out] 7*sqrt(-2*x + 1)*sqrt(5*x + 3)/(3*(3*x + 2)) + 4*sqrt(10)*asin(sq
rt(22)*sqrt(5*x + 3)/11)/45 - 29*sqrt(7)*atan(sqrt(7)*sqrt(-2*x +
 1)/(7*sqrt(5*x + 3)))/9
```

Mathematica [A] time = 0.14447, size = 104, normalized size = 1.12

$$\frac{7\sqrt{1-2x}\sqrt{5x+3}}{9x+6}-\frac{29}{18}\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)+\frac{2}{9}\sqrt{\frac{2}{5}}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)/((2 + 3*x)^2*Sqrt[3 + 5*x]),x]
```

```
[Out] (7*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(6 + 9*x) - (29*Sqrt[7]*ArcTan[(-
20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/18 + (2*Sqrt[2/5]*A
rcTan[(1 + 20*x)/(2*Sqrt[1 - 2*x]*Sqrt[30 + 50*x])])/9
```

Maple [A] time = 0.02, size = 131, normalized size = 1.4

$$\frac{1}{180+270\,x}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(435\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x+12\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x+290\,\sqrt{7}\arctan\left(\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)/(2+3*x)^2/(3+5*x)^(1/2),x)
```

```
[Out] 1/90*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(435*7^(1/2)*arctan(1/14*(37*x+2
0)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+12*10^(1/2)*arcsin(20/11*x+1/11
)*x+290*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2)
)+8*10^(1/2)*arcsin(20/11*x+1/11)+210*(-10*x^2-x+3)^(1/2))/(-10*x
^2-x+3)^(1/2)/(2+3*x)
```

Maxima [A] time = 1.49578, size = 82, normalized size = 0.88

$$\frac{2}{45}\sqrt{10}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)+\frac{29}{18}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{7\,\sqrt{-10\,x^2-x+3}}{3\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/(sqrt(5*x + 3)*(3*x + 2)^2),x, algorithm="maxima")
```

```
[Out] 2/45*sqrt(10)*arcsin(20/11*x + 1/11) + 29/18*sqrt(7)*arcsin(37/11
*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) + 7/3*sqrt(-10*x^2 - x + 3)
/(3*x + 2)
```

Fricas [A] time = 0.234941, size = 146, normalized size = 1.57

$$\frac{\sqrt{5}\left(29\,\sqrt{7}\sqrt{5}(3\,x+2)\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)+4\,\sqrt{2}(3\,x+2)\arctan\left(\frac{\sqrt{5}\sqrt{2}(20\,x+1)}{20\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)+42\,\sqrt{5}\sqrt{5\,x+3}\sqrt{-2\,x+1}\right)}{90\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/(sqrt(5*x + 3)*(3*x + 2)^2),x, algorithm="fricas")
```

```
[Out] 1/90*sqrt(5)*(29*sqrt(7)*sqrt(5)*(3*x + 2)*arctan(1/14*sqrt(7)*(3
7*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))) + 4*sqrt(2)*(3*x + 2)*a
rctan(1/20*sqrt(5)*sqrt(2)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x +
1))) + 42*sqrt(5)*sqrt(5*x + 3)*sqrt(-2*x + 1))/(3*x + 2)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)/(2+3*x)**2/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.289642, size = 351, normalized size = 3.77

$$\frac{29}{180}\sqrt{70}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3} - 4\right)}{140\left(\sqrt{2}\sqrt{-10x+5} - \sqrt{22}\right)}\right)\right) + \frac{2}{45}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3} - 4\right)}{4\left(\sqrt{2}\sqrt{-10x+5} - \sqrt{22}\right)}\right)\right) + \frac{154\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}} - \frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)}{3\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}} - \frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2 + 280\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/(sqrt(5*x + 3)*(3*x + 2)^2),x, algorithm="giac")
```

```
[Out] 29/180*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x
+ 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqrt
(2)*sqrt(-10*x + 5) - sqrt(22)))) + 2/45*sqrt(10)*(pi + 2*arctan(
-1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x +
 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 154/3*sqrt(10)*
((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x
+ 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))/(((sqrt(2)*sqrt(-10*x
+ 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-1
0*x + 5) - sqrt(22)))^2 + 280)
```

3.2350 $\int \frac{(1-2x)^{3/2}}{(2+3x)^3\sqrt{3+5x}}\,dx$

Optimal. Leaf size=93

$$\frac{\sqrt{5x+3}(1-2x)^{3/2}}{2(3x+2)^2}+\frac{33\sqrt{5x+3}\sqrt{1-2x}}{4(3x+2)}-\frac{363\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{4\sqrt{7}}$$

```
[Out] ((1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(2*(2 + 3*x)^2) + (33*Sqrt[1 - 2*
x]*Sqrt[3 + 5*x])/(4*(2 + 3*x)) - (363*ArcTan[Sqrt[1 - 2*x]/(Sqrt
[7]*Sqrt[3 + 5*x])])/(4*Sqrt[7])
```

Rubi [A] time = 0.124558, antiderivative size = 93, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.115

$$\frac{\sqrt{5x+3}(1-2x)^{3/2}}{2(3x+2)^2}+\frac{33\sqrt{5x+3}\sqrt{1-2x}}{4(3x+2)}-\frac{363\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{4\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)/((2 + 3*x)^3*Sqrt[3 + 5*x]),x]
```

```
[Out] ((1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(2*(2 + 3*x)^2) + (33*Sqrt[1 - 2*
x]*Sqrt[3 + 5*x])/(4*(2 + 3*x)) - (363*ArcTan[Sqrt[1 - 2*x]/(Sqrt
[7]*Sqrt[3 + 5*x])])/(4*Sqrt[7])
```

Rubi in Sympy [A] time = 10.6408, size = 82, normalized size = 0.88

$$\frac{(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{2\,(3x+2)^2}+\frac{33\sqrt{-2x+1}\sqrt{5x+3}}{4\,(3x+2)}-\frac{363\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{28}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)/(2+3*x)**3/(3+5*x)**(1/2),x)
```

```
[Out] (-2*x + 1)**(3/2)*sqrt(5*x + 3)/(2*(3*x + 2)**2) + 33*sqrt(-2*x +
 1)*sqrt(5*x + 3)/(4*(3*x + 2)) - 363*sqrt(7)*atan(sqrt(7)*sqrt(-
2*x + 1)/(7*sqrt(5*x + 3)))/28
```

Mathematica [A] time = 0.0714672, size = 72, normalized size = 0.77

$$\frac{\sqrt{1-2x}\sqrt{5x+3}(95x+68)}{4(3x+2)^2}-\frac{363\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{8\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)/((2 + 3*x)^3*Sqrt[3 + 5*x]),x]
```

```
[Out] (Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(68 + 95*x))/(4*(2 + 3*x)^2) - (363*
ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/(8*Sqrt[7]
)
```

Maple [B] time = 0.019, size = 154, normalized size = 1.7

$$\frac{1}{56\ (2+3\,x)^2}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(3267\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^2+4356\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x+1$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)/(2+3*x)^3/(3+5*x)^(1/2),x)
```

```
[Out] 1/56*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(3267*7^(1/2)*arctan(1/14*(37*x+
20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+4356*7^(1/2)*arctan(1/14*(37
*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+1452*7^(1/2)*arctan(1/14*(3
7*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+1330*x*(-10*x^2-x+3)^(1/2)+9
52*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)^2
```

Maxima [A] time = 1.50012, size = 103, normalized size = 1.11

$$\frac{363}{56}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{7\,\sqrt{-10\,x^2-x+3}}{6\,(9\,x^2+12\,x+4)}+\frac{95\,\sqrt{-10\,x^2-x+3}}{12\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/(sqrt(5*x + 3)*(3*x + 2)^3),x, algorithm="maxima")
```

```
[Out] 363/56*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2))
+ 7/6*sqrt(-10*x^2 - x + 3)/(9*x^2 + 12*x + 4) + 95/12*sqrt(-10*x
^2 - x + 3)/(3*x + 2)
```

Fricas [A] time = 0.227855, size = 107, normalized size = 1.15

$$\frac{\sqrt{7}\left(2\,\sqrt{7}(95\,x+68)\sqrt{5\,x+3}\sqrt{-2\,x+1}+363\,\left(9\,x^2+12\,x+4\right)\,\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)}{56\,(9\,x^2+12\,x+4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/(sqrt(5*x + 3)*(3*x + 2)^3),x, algorithm="fricas")
```

```
[Out] 1/56*sqrt(7)*(2*sqrt(7)*(95*x + 68)*sqrt(5*x + 3)*sqrt(-2*x + 1)
+ 363*(9*x^2 + 12*x + 4)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*
x + 3)*sqrt(-2*x + 1))))/(9*x^2 + 12*x + 4)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)/(2+3*x)**3/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.287708, size = 346, normalized size = 3.72

$$\frac{363}{560}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)+\frac{605\left(\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3+168\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)\right)}{2\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/(sqrt(5*x + 3)*(3*x + 2)^3),x, algorithm="giac")
```

```
[Out] 363/560*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x
 + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqr
t(2)*sqrt(-10*x + 5) - sqrt(22)))) + 605/2*(sqrt(10)*((sqrt(2)*sq
rt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2
)*sqrt(-10*x + 5) - sqrt(22)))^3 + 168*sqrt(10)*((sqrt(2)*sqrt(-1
0*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqr
t(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))
/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(
22)))^2 + 280)^2
```

3.2351 $\int \frac{(1-2x)^{3/2}}{(2+3x)^4\sqrt{3+5x}}\,dx$

Optimal. Leaf size=122

$$\frac{\sqrt{5x+3}(1-2x)^{5/2}}{7(3x+2)^3}+\frac{59\sqrt{5x+3}(1-2x)^{3/2}}{28(3x+2)^2}+\frac{1947\sqrt{5x+3}\sqrt{1-2x}}{56(3x+2)}-\frac{21417\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{56\sqrt{7}}$$

```
[Out] ((1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(7*(2 + 3*x)^3) + (59*(1 - 2*x)^(
3/2)*Sqrt[3 + 5*x])/(28*(2 + 3*x)^2) + (1947*Sqrt[1 - 2*x]*Sqrt[3
 + 5*x])/(56*(2 + 3*x)) - (21417*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sq
rt[3 + 5*x])])/(56*Sqrt[7])
```

Rubi [A] time = 0.172655, antiderivative size = 122, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$\frac{\sqrt{5x+3}(1-2x)^{5/2}}{7(3x+2)^3}+\frac{59\sqrt{5x+3}(1-2x)^{3/2}}{28(3x+2)^2}+\frac{1947\sqrt{5x+3}\sqrt{1-2x}}{56(3x+2)}-\frac{21417\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{56\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)/((2 + 3*x)^4*Sqrt[3 + 5*x]),x]
```

```
[Out] ((1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(7*(2 + 3*x)^3) + (59*(1 - 2*x)^(
3/2)*Sqrt[3 + 5*x])/(28*(2 + 3*x)^2) + (1947*Sqrt[1 - 2*x]*Sqrt[3
 + 5*x])/(56*(2 + 3*x)) - (21417*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sq
rt[3 + 5*x])])/(56*Sqrt[7])
```

Rubi in Sympy [A] time = 13.584, size = 109, normalized size = 0.89

$$\frac{(-2x+1)^{\frac{5}{2}}\sqrt{5x+3}}{7(3x+2)^3}+\frac{59(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{28(3x+2)^2}+\frac{1947\sqrt{-2x+1}\sqrt{5x+3}}{56(3x+2)}-\frac{21417\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{392}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)/(2+3*x)**4/(3+5*x)**(1/2),x)
```

```
[Out] (-2*x + 1)**(5/2)*sqrt(5*x + 3)/(7*(3*x + 2)**3) + 59*(-2*x + 1)*
*(3/2)*sqrt(5*x + 3)/(28*(3*x + 2)**2) + 1947*sqrt(-2*x + 1)*sqrt
(5*x + 3)/(56*(3*x + 2)) - 21417*sqrt(7)*atan(sqrt(7)*sqrt(-2*x +
 1)/(7*sqrt(5*x + 3)))/392
```

Mathematica [A] time = 0.0879928, size = 77, normalized size = 0.63

$$\frac{1}{784}\left(\frac{14\sqrt{1-2x}\sqrt{5x+3}\left(16847x^2+23214x+8032\right)}{(3x+2)^3}-21417\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)/((2 + 3*x)^4*Sqrt[3 + 5*x]),x]
```

```
[Out] ((14*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(8032 + 23214*x + 16847*x^2))/(2
 + 3*x)^3 - 21417*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*S
qrt[3 + 5*x])])/784
```

Maple [B] time = 0.022, size = 202, normalized size = 1.7

$$\frac{1}{784\,(2+3\,x)^3}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(578259\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^3+1156518\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)/(2+3*x)^4/(3+5*x)^(1/2),x)
```

```
[Out] 1/784*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(578259*7^(1/2)*arctan(1/14*(37
*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+1156518*7^(1/2)*arctan(1/
14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+771012*7^(1/2)*arct
an(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+235858*x^2*(-10*
x^2-x+3)^(1/2)+171336*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*
x^2-x+3)^(1/2))+324996*x*(-10*x^2-x+3)^(1/2)+112448*(-10*x^2-x+3)
^(1/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)^3
```

Maxima [A] time = 1.49975, size = 144, normalized size = 1.18

$$\frac{21417}{784}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{7\,\sqrt{-10\,x^2-x+3}}{9\,(27\,x^3+54\,x^2+36\,x+8)}+\frac{161\,\sqrt{-10\,x^2-x+3}}{36\,(9\,x^2+12\,x+4)}+\frac{16847\,\sqrt{-10\,x^2-x+3}}{504\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/(sqrt(5*x + 3)*(3*x + 2)^4),x, algorithm="maxima")
```

```
[Out] 21417/784*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2
)) + 7/9*sqrt(-10*x^2 - x + 3)/(27*x^3 + 54*x^2 + 36*x + 8) + 161
/36*sqrt(-10*x^2 - x + 3)/(9*x^2 + 12*x + 4) + 16847/504*sqrt(-10
*x^2 - x + 3)/(3*x + 2)
```

Fricas [A] time = 0.223228, size = 127, normalized size = 1.04

$$\frac{\sqrt{7}\left(2\,\sqrt{7}\left(16847\,x^2+23214\,x+8032\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+21417\,\left(27\,x^3+54\,x^2+36\,x+8\right)\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)}{784\,(27\,x^3+54\,x^2+36\,x+8)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/(sqrt(5*x + 3)*(3*x + 2)^4),x, algorithm="fricas")
```

```
[Out] 1/784*sqrt(7)*(2*sqrt(7)*(16847*x^2 + 23214*x + 8032)*sqrt(5*x +
3)*sqrt(-2*x + 1) + 21417*(27*x^3 + 54*x^2 + 36*x + 8)*arctan(1/1
4*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(27*x^3 +
54*x^2 + 36*x + 8)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)/(2+3*x)**4/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A]   time = 0.33786, size = 429, normalized size = 3.52

$$\frac{21417}{7840}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)+\frac{121\left(383\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^5+132160\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3+13876800\sqrt{10}\left(\cdots\right)\right)}{28\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/(sqrt(5*x + 3)*(3*x + 2)^4),x, algorithm="giac")
```

```
[Out] 21417/7840*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(
5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(
sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 121/28*(383*sqrt(10)*((sq
rt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)
/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 + 132160*sqrt(10)*((sqrt
(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(
sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 13876800*sqrt(10)*((sqrt
(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(
sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5)
- sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x +
 5) - sqrt(22)))^2 + 280)^3
```

3.2352 $\int \frac{(1-2x)^{3/2}}{(2+3x)^5\sqrt{3+5x}}\,dx$

Optimal. Leaf size=151

$$\frac{4148797\sqrt{1-2x}\sqrt{5x+3}}{28224(3x+2)}+\frac{39667\sqrt{1-2x}\sqrt{5x+3}}{2016(3x+2)^2}+\frac{227\sqrt{1-2x}\sqrt{5x+3}}{72(3x+2)^3}+\frac{7\sqrt{1-2x}\sqrt{5x+3}}{12(3x+2)^4}-\frac{5274027\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{3136\sqrt{7}}$$

```
[Out] (7*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(12*(2 + 3*x)^4) + (227*Sqrt[1 -
2*x]*Sqrt[3 + 5*x])/(72*(2 + 3*x)^3) + (39667*Sqrt[1 - 2*x]*Sqrt[
3 + 5*x])/(2016*(2 + 3*x)^2) + (4148797*Sqrt[1 - 2*x]*Sqrt[3 + 5*
x])/(28224*(2 + 3*x)) - (5274027*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sq
rt[3 + 5*x])])/(3136*Sqrt[7])
```

Rubi [A] time = 0.303302, antiderivative size = 151, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$\frac{4148797\sqrt{1-2x}\sqrt{5x+3}}{28224(3x+2)}+\frac{39667\sqrt{1-2x}\sqrt{5x+3}}{2016(3x+2)^2}+\frac{227\sqrt{1-2x}\sqrt{5x+3}}{72(3x+2)^3}+\frac{7\sqrt{1-2x}\sqrt{5x+3}}{12(3x+2)^4}-\frac{5274027\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{3136\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)/((2 + 3*x)^5*Sqrt[3 + 5*x]),x]
```

```
[Out] (7*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(12*(2 + 3*x)^4) + (227*Sqrt[1 -
2*x]*Sqrt[3 + 5*x])/(72*(2 + 3*x)^3) + (39667*Sqrt[1 - 2*x]*Sqrt[
3 + 5*x])/(2016*(2 + 3*x)^2) + (4148797*Sqrt[1 - 2*x]*Sqrt[3 + 5*
x])/(28224*(2 + 3*x)) - (5274027*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sq
rt[3 + 5*x])])/(3136*Sqrt[7])
```

Rubi in Sympy [A] time = 28.1768, size = 138, normalized size = 0.91

$$\frac{4148797\sqrt{-2x+1}\sqrt{5x+3}}{28224\,(3x+2)}+\frac{39667\sqrt{-2x+1}\sqrt{5x+3}}{2016\,(3x+2)^2}+\frac{227\sqrt{-2x+1}\sqrt{5x+3}}{72\,(3x+2)^3}+\frac{7\sqrt{-2x+1}\sqrt{5x+3}}{12\,(3x+2)^4}-\frac{5274027\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{21952}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)/(2+3*x)**5/(3+5*x)**(1/2),x)
```

```
[Out] 4148797*sqrt(-2*x + 1)*sqrt(5*x + 3)/(28224*(3*x + 2)) + 39667*sq
rt(-2*x + 1)*sqrt(5*x + 3)/(2016*(3*x + 2)**2) + 227*sqrt(-2*x +
1)*sqrt(5*x + 3)/(72*(3*x + 2)**3) + 7*sqrt(-2*x + 1)*sqrt(5*x +
3)/(12*(3*x + 2)**4) - 5274027*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1
)/(7*sqrt(5*x + 3)))/21952
```

Mathematica [A] time = 0.143134, size = 82, normalized size = 0.54

$$\frac{\frac{14\sqrt{1-2x}\sqrt{5x+3}\left(12446391x^3+25448120x^2+17365300x+3956240\right)}{(3x+2)^4}-5274027\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{43904}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)/((2 + 3*x)^5*Sqrt[3 + 5*x]),x]
```

```
[Out] ((14*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(3956240 + 17365300*x + 25448120
*x^2 + 12446391*x^3))/(2 + 3*x)^4 - 5274027*Sqrt[7]*ArcTan[(-20 -
 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/43904
```

Maple [B] time = 0.022, size = 250, normalized size = 1.7

$$\frac{1}{43904\,(2+3\,x)^4}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(427196187\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^4+1139189832\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x}{\sqrt{-10\,x}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)/(2+3*x)^5/(3+5*x)^(1/2),x)
```

```
[Out] 1/43904*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(427196187*7^(1/2)*arctan(1/1
4*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^4+1139189832*7^(1/2)*a
rctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+1139189832*
7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+17
4249474*x^3*(-10*x^2-x+3)^(1/2)+506306592*7^(1/2)*arctan(1/14*(37
*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+356273680*x^2*(-10*x^2-x+3)
^(1/2)+84384432*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+
3)^(1/2))+243114200*x*(-10*x^2-x+3)^(1/2)+55387360*(-10*x^2-x+3)^
(1/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)^4
```

Maxima [A] time = 1.51175, size = 193, normalized size = 1.28

$$\frac{5274027}{43904}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{7\sqrt{-10\,x^2-x+3}}{12\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}+\frac{227\sqrt{-10\,x^2-x+3}}{72\,(27\,x^3+54\,x^2+36\,x+8)}+\frac{39667\sqrt{-10\,x^2-x+3}}{2016\,(9\,x^2+12\,x+4)}+\frac{4148797\sqrt{-10\,x^2-x+3}}{28224\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/(sqrt(5*x + 3)*(3*x + 2)^5),x, algorithm="maxima")
```

```
[Out] 5274027/43904*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x
 + 2)) + 7/12*sqrt(-10*x^2 - x + 3)/(81*x^4 + 216*x^3 + 216*x^2 +
 96*x + 16) + 227/72*sqrt(-10*x^2 - x + 3)/(27*x^3 + 54*x^2 + 36*
x + 8) + 39667/2016*sqrt(-10*x^2 - x + 3)/(9*x^2 + 12*x + 4) + 41
48797/28224*sqrt(-10*x^2 - x + 3)/(3*x + 2)
```

Fricas [A] time = 0.21998, size = 147, normalized size = 0.97

$$\frac{\sqrt{7}\left(2\sqrt{7}\left(12446391\,x^3+25448120\,x^2+17365300\,x+3956240\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+5274027\,\left(81\,x^4+216\,x^3+216\,x^2+96\,x\right.\right.}{43904\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/(sqrt(5*x + 3)*(3*x + 2)^5),x, algorithm="fricas")
```

```
[Out] 1/43904*sqrt(7)*(2*sqrt(7)*(12446391*x^3 + 25448120*x^2 + 1736530
0*x + 3956240)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 5274027*(81*x^4 + 2
16*x^3 + 216*x^2 + 96*x + 16)*arctan(1/14*sqrt(7)*(37*x + 20)/(sq
rt(5*x + 3)*sqrt(-2*x + 1))))/(81*x^4 + 216*x^3 + 216*x^2 + 96*x
```

```
+ 16)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)/(2+3*x)**5/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.380449, size = 512, normalized size = 3.39

$$\frac{5274027}{439040}\sqrt{70}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right) + \frac{121\left(113213\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^7 + 59365880\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^5 + 12529809600 \ldots}{1568\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\ldots}\right.\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/(sqrt(5*x + 3)*(3*x + 2)^5),x, algorithm="giac")
```

```
[Out] 5274027/439040*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*s
qrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) -
4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 121/1568*(113213*sqrt
(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt
(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^7 + 59365880*sqrt
(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt
(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 + 12529809600*s
qrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*s
qrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 9568218240
00*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) -
 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2
)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sq
rt(2)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)^4
```

3.2353 $\int \frac{(1-2x)^{3/2}}{(2+3x)^6\sqrt{3+5x}}\,dx$

Optimal. Leaf size=180

$$\frac{87374783\sqrt{1-2x}\sqrt{5x+3}}{131712(3x+2)}+\frac{835409\sqrt{1-2x}\sqrt{5x+3}}{9408(3x+2)^2}+\frac{23909\sqrt{1-2x}\sqrt{5x+3}}{1680(3x+2)^3}+\frac{293\sqrt{1-2x}\sqrt{5x+3}}{120(3x+2)^4}+\frac{7\sqrt{1-2x}\sqrt{5x+3}}{15(3x+2)^5}-\frac{333216939\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{43904\sqrt{7}}$$

```
[Out] (7*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(15*(2 + 3*x)^5) + (293*Sqrt[1 -
2*x]*Sqrt[3 + 5*x])/(120*(2 + 3*x)^4) + (23909*Sqrt[1 - 2*x]*Sqrt
[3 + 5*x])/(1680*(2 + 3*x)^3) + (835409*Sqrt[1 - 2*x]*Sqrt[3 + 5*
x])/(9408*(2 + 3*x)^2) + (87374783*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(
131712*(2 + 3*x)) - (333216939*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt
[3 + 5*x])])/(43904*Sqrt[7])
```

Rubi [A] time = 0.371039, antiderivative size = 180, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$\frac{87374783\sqrt{1-2x}\sqrt{5x+3}}{131712(3x+2)}+\frac{835409\sqrt{1-2x}\sqrt{5x+3}}{9408(3x+2)^2}+\frac{23909\sqrt{1-2x}\sqrt{5x+3}}{1680(3x+2)^3}+\frac{293\sqrt{1-2x}\sqrt{5x+3}}{120(3x+2)^4}+\frac{7\sqrt{1-2x}\sqrt{5x+3}}{15(3x+2)^5}-\frac{333216939\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{43904\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)/((2 + 3*x)^6*Sqrt[3 + 5*x]),x]
```



```
[Out] (7*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(15*(2 + 3*x)^5) + (293*Sqrt[1 -
2*x]*Sqrt[3 + 5*x])/(120*(2 + 3*x)^4) + (23909*Sqrt[1 - 2*x]*Sqrt
[3 + 5*x])/(1680*(2 + 3*x)^3) + (835409*Sqrt[1 - 2*x]*Sqrt[3 + 5*
x])/(9408*(2 + 3*x)^2) + (87374783*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(
131712*(2 + 3*x)) - (333216939*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt
[3 + 5*x])])/(43904*Sqrt[7])
```

Rubi in Sympy [A] time = 35.4352, size = 165, normalized size = 0.92

$$\frac{87374783\sqrt{-2x+1}\sqrt{5x+3}}{131712\,(3x+2)}+\frac{835409\sqrt{-2x+1}\sqrt{5x+3}}{9408\,(3x+2)^2}+\frac{23909\sqrt{-2x+1}\sqrt{5x+3}}{1680\,(3x+2)^3}+\frac{293\sqrt{-2x+1}\sqrt{5x+3}}{120\,(3x+2)^4}+\frac{7\sqrt{-2x+1}\sqrt{5x+3}}{15\,(3x+2)^5}-\frac{333216939\sqrt{7}\,\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{307328}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)/(2+3*x)**6/(3+5*x)**(1/2),x)
```

```
[Out] 87374783*sqrt(-2*x + 1)*sqrt(5*x + 3)/(131712*(3*x + 2)) + 835409
*sqrt(-2*x + 1)*sqrt(5*x + 3)/(9408*(3*x + 2)**2) + 23909*sqrt(-2
*x + 1)*sqrt(5*x + 3)/(1680*(3*x + 2)**3) + 293*sqrt(-2*x + 1)*sq
rt(5*x + 3)/(120*(3*x + 2)**4) + 7*sqrt(-2*x + 1)*sqrt(5*x + 3)/(
15*(3*x + 2)**5) - 333216939*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/
(7*sqrt(5*x + 3)))/307328
```

Mathematica [A] time = 0.155126, size = 103, normalized size = 0.57

$$\frac{\frac{14\sqrt{1-2x}\sqrt{5x+3}\left(436873915(3x+2)^4+58478630(3x+2)^3+9372328(3x+2)^2+1607984(3x+2)+307328\right)}{(3x+2)^5}-4998254085\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{9219840}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)/((2 + 3*x)^6*Sqrt[3 + 5*x]),x]
```

```
[Out] ((14*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(307328 + 1607984*(2 + 3*x) + 93
72328*(2 + 3*x)^2 + 58478630*(2 + 3*x)^3 + 436873915*(2 + 3*x)^4)
)/(2 + 3*x)^5 - 4998254085*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7
- 14*x]*Sqrt[3 + 5*x])])/9219840
```

Maple [B] time = 0.023, size = 298, normalized size = 1.7

$$\frac{1}{3073280\,(2+3\,x)^5}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(404858580885\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^5+1349528602950\,\sqrt{7}\arctan\left(1/\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)/(2+3*x)^6/(3+5*x)^(1/2),x)
```

```
[Out] 1/3073280*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(404858580885*7^(1/2)*arcta
n(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^5+1349528602950*7
^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^4+179
9371470600*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1
/2))*x^3+165138339870*x^4*(-10*x^2-x+3)^(1/2)+1199580980400*7^(1/
2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+4477372
13700*x^3*(-10*x^2-x+3)^(1/2)+399860326800*7^(1/2)*arctan(1/14*(3
7*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+455499158856*x^2*(-10*x^2-
x+3)^(1/2)+53314710240*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10
*x^2-x+3)^(1/2))+206091285904*x*(-10*x^2-x+3)^(1/2)+34994513344*(
-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)^5
```

Maxima [A] time = 1.51473, size = 248, normalized size = 1.38

$$\frac{333216939}{614656}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{7\,\sqrt{-10\,x^2-x+3}}{15\,(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240\,x+32)}+\frac{293\,\sqrt{-10\,x^2-x+3}}{120\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}+\frac{23909\,\sqrt{-10\,x^2-x+3}}{1680\,(27\,x^3+54\,x^2+36\,x+8)}+\frac{835409\,\sqrt{-10\,x^2-x+3}}{9408\,(9\,x^2+12\,x+4)}+\frac{87374783\,\sqrt{-10\,x^2-x+3}}{131712\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/(sqrt(5*x + 3)*(3*x + 2)^6),x, algorithm="maxima")
```

```
[Out] 333216939/614656*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(
3*x + 2)) + 7/15*sqrt(-10*x^2 - x + 3)/(243*x^5 + 810*x^4 + 1080*
x^3 + 720*x^2 + 240*x + 32) + 293/120*sqrt(-10*x^2 - x + 3)/(81*x
^4 + 216*x^3 + 216*x^2 + 96*x + 16) + 23909/1680*sqrt(-10*x^2 - x
 + 3)/(27*x^3 + 54*x^2 + 36*x + 8) + 835409/9408*sqrt(-10*x^2 - x
 + 3)/(9*x^2 + 12*x + 4) + 87374783/131712*sqrt(-10*x^2 - x + 3)/
(3*x + 2)
```

Fricas [A] time = 0.231882, size = 167, normalized size = 0.93

$$\frac{\sqrt{7}\left(2\,\sqrt{7}\left(11795595705\,x^4+31981229550\,x^3+32535654204\,x^2+14720806136\,x+2499608096\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+16660\right.}{3073280\,(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/(sqrt(5*x + 3)*(3*x + 2)^6),x, algorithm="fricas")
```

```
[Out] 1/3073280*sqrt(7)*(2*sqrt(7)*(11795595705*x^4 + 31981229550*x^3 +
 32535654204*x^2 + 14720806136*x + 2499608096)*sqrt(5*x + 3)*sqrt
(-2*x + 1) + 1666084695*(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 +
 240*x + 32)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(
-2*x + 1))))/(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32
)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(3/2)/(2+3*x)**6/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.462996, size = 594, normalized size = 3.3

$$\frac{333216939}{6146560}\sqrt{70}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right) + \frac{121\left(8222141\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}} - \frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^9 + 5797080240\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}} - \frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^7 + 184233627\ldots\right.}{21\ldots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/(sqrt(5*x + 3)*(3*x + 2)^6),x, algorithm="giac")
```

```
[Out] 333216939/6146560*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70
)*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3)
 - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 121/21952*(8222141
*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4
*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^9 + 57970802
40*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) -
 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^7 + 184233
6276480*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x +
 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 + 2
82112659584000*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqr
t(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))
)^3 + 16926759575040000*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt
(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) -
sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3)
- 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)^
5
```

3.2354 $\int \frac{(1-2x)^{3/2}(2+3x)^3}{(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=135

$$-\frac{2(1-2x)^{3/2}(3x+2)^3}{5\sqrt{5x+3}}+\frac{27}{100}(1-2x)^{3/2}\sqrt{5x+3}(3x+2)^2-\frac{63(35-8x)(1-2x)^{3/2}\sqrt{5x+3}}{16000}+\frac{35511\sqrt{1-2x}\sqrt{5x+3}}{160000}+\frac{390621\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{160000\sqrt{10}}$$

```
[Out] (-2*(1 - 2*x)^(3/2)*(2 + 3*x)^3)/(5*Sqrt[3 + 5*x]) + (35511*Sqrt[
1 - 2*x]*Sqrt[3 + 5*x])/160000 - (63*(35 - 8*x)*(1 - 2*x)^(3/2)*S
qrt[3 + 5*x])/16000 + (27*(1 - 2*x)^(3/2)*(2 + 3*x)^2*Sqrt[3 + 5*
x])/100 + (390621*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(160000*Sqrt[
10])
```

Rubi [A] time = 0.20442, antiderivative size = 135, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$-\frac{2(1-2x)^{3/2}(3x+2)^3}{5\sqrt{5x+3}}+\frac{27}{100}(1-2x)^{3/2}\sqrt{5x+3}(3x+2)^2-\frac{63(35-8x)(1-2x)^{3/2}\sqrt{5x+3}}{16000}+\frac{35511\sqrt{1-2x}\sqrt{5x+3}}{160000}+\frac{390621\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{160000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(2 + 3*x)^3)/(3 + 5*x)^(3/2),x]
```

```
[Out] (-2*(1 - 2*x)^(3/2)*(2 + 3*x)^3)/(5*Sqrt[3 + 5*x]) + (35511*Sqrt[
1 - 2*x]*Sqrt[3 + 5*x])/160000 - (63*(35 - 8*x)*(1 - 2*x)^(3/2)*S
qrt[3 + 5*x])/16000 + (27*(1 - 2*x)^(3/2)*(2 + 3*x)^2*Sqrt[3 + 5*
x])/100 + (390621*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(160000*Sqrt[
10])
```

Rubi in Sympy [A] time = 21.3479, size = 124, normalized size = 0.92

$$-\frac{\left(-1890x+\frac{33075}{4}\right)(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{60000}-\frac{2(-2x+1)^{\frac{3}{2}}(3x+2)^3}{5\sqrt{5x+3}}+\frac{27(-2x+1)^{\frac{3}{2}}(3x+2)^2\sqrt{5x+3}}{100}+\frac{35511\sqrt{-2x+1}\sqrt{5x+3}}{160000}+\frac{390621\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{1600000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)**3/(3+5*x)**(3/2),x)
```

```
[Out] -(-1890*x + 33075/4)*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/60000 - 2*(-
2*x + 1)**(3/2)*(3*x + 2)**3/(5*sqrt(5*x + 3)) + 27*(-2*x + 1)**(
3/2)*(3*x + 2)**2*sqrt(5*x + 3)/100 + 35511*sqrt(-2*x + 1)*sqrt(5
*x + 3)/160000 + 390621*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/
1600000
```

Mathematica [A] time = 0.195285, size = 70, normalized size = 0.52

$$\frac{\frac{10\sqrt{1-2x}\left(-432000x^4-439200x^3+287460x^2+317125x+46783\right)}{\sqrt{5x+3}}-390621\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1600000}$$

Antiderivative was successfully verified.

```
[In]   Integrate[((1 - 2*x)^(3/2)*(2 + 3*x)^3)/(3 + 5*x)^(3/2),x]
```

```
[Out] ((10*Sqrt[1 - 2*x]*(46783 + 317125*x + 287460*x^2 - 439200*x^3 -
432000*x^4))/Sqrt[3 + 5*x] - 390621*Sqrt[10]*ArcSin[Sqrt[5/11]*Sq
rt[1 - 2*x]])/1600000
```

Maple [A] time = 0.017, size = 133, normalized size = 1.

$$\frac{1}{3200000}\left(-8640000\,x^4\sqrt{-10\,x^2-x+3}-8784000\,x^3\sqrt{-10\,x^2-x+3}+1953105\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x+5749200\,x^2\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((1-2*x)^(3/2)*(2+3*x)^3/(3+5*x)^(3/2),x)
```

```
[Out] 1/3200000*(-8640000*x^4*(-10*x^2-x+3)^(1/2)-8784000*x^3*(-10*x^2-
x+3)^(1/2)+1953105*10^(1/2)*arcsin(20/11*x+1/11)*x+5749200*x^2*(-
10*x^2-x+3)^(1/2)+1171863*10^(1/2)*arcsin(20/11*x+1/11)+6342500*x
*(-10*x^2-x+3)^(1/2)+935660*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)/(-
10*x^2-x+3)^(1/2)/(3+5*x)^(1/2)
```

Maxima [A] time = 1.51027, size = 248, normalized size = 1.84

$$\frac{27}{500}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x-\frac{35937}{1000000}i\,\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}\,x+\frac{23}{11}\right)$$
$$+\frac{1378113}{16000000}\,\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}\,x+\frac{1}{11}\right)+\frac{171}{10000}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}+\frac{297}{2500}\,\sqrt{10\,x^2+23\,x+\frac{51}{5}}x$$
$$+\frac{9801}{40000}\,\sqrt{-10\,x^2-x+3}x+\frac{6831}{50000}\,\sqrt{10\,x^2+23\,x+\frac{51}{5}}+\frac{28809}{800000}\,\sqrt{-10\,x^2-x+3}$$
$$+\frac{\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{625\left(25\,x^2+30\,x+9\right)}+\frac{9\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{1250\,(5\,x+3)}-\frac{33\,\sqrt{-10\,x^2-x+3}}{3125\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((3*x + 2)^3*(-2*x + 1)^(3/2)/(5*x + 3)^(3/2),x, algorithm="maxima")
```

```
[Out] 27/500*(-10*x^2 - x + 3)^(3/2)*x - 35937/1000000*I*sqrt(5)*sqrt(2
)*arcsin(20/11*x + 23/11) + 1378113/16000000*sqrt(5)*sqrt(2)*arcs
in(20/11*x + 1/11) + 171/10000*(-10*x^2 - x + 3)^(3/2) + 297/2500
*sqrt(10*x^2 + 23*x + 51/5)*x + 9801/40000*sqrt(-10*x^2 - x + 3)*
x + 6831/50000*sqrt(10*x^2 + 23*x + 51/5) + 28809/800000*sqrt(-10
*x^2 - x + 3) + 1/625*(-10*x^2 - x + 3)^(3/2)/(25*x^2 + 30*x + 9)
 + 9/1250*(-10*x^2 - x + 3)^(3/2)/(5*x + 3) - 33/3125*sqrt(-10*x^
2 - x + 3)/(5*x + 3)
```

Fricas [A] time = 0.220607, size = 113, normalized size = 0.84

$$-\frac{\sqrt{10}\left(2\,\sqrt{10}\left(432000\,x^4+439200\,x^3-287460\,x^2-317125\,x-46783\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-390621\,(5\,x+3)\arctan\left(\frac{\sqrt{10}(}{20\,\sqrt{5}\,x+}\right.\right.}{3200000\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((3*x + 2)^3*(-2*x + 1)^(3/2)/(5*x + 3)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/3200000*sqrt(10)*(2*sqrt(10)*(432000*x^4 + 439200*x^3 - 287460
*x^2 - 317125*x - 46783)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 390621*(5
*x + 3)*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x
+ 1))))/(5*x + 3)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)**3/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.303854, size = 185, normalized size = 1.37

$$-\frac{1}{4000000}\left(36\left(8\left(12\sqrt{5}(5x+3)-83\sqrt{5}\right)(5x+3)-805\sqrt{5}\right)(5x+3)+128915\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}+\frac{390621}{1600000}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)-\frac{11\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}{31250\sqrt{5x+3}}+\frac{22\sqrt{10}\sqrt{5x+3}}{15625\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*(-2*x + 1)^(3/2)/(5*x + 3)^(3/2),x, algorithm="giac")
```

```
[Out] -1/4000000*(36*(8*(12*sqrt(5)*(5*x + 3) - 83*sqrt(5))*(5*x + 3) -
 805*sqrt(5))*(5*x + 3) + 128915*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*
x + 5) + 390621/1600000*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x +
3)) - 11/31250*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt
(5*x + 3) + 22/15625*sqrt(10)*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x +
 5) - sqrt(22))
```

3.2355 $\int \frac{(1-2x)^{3/2}(2+3x)^2}{(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=116

$$-\frac{3}{50}\sqrt{5x+3}(1-2x)^{5/2}-\frac{2(1-2x)^{5/2}}{275\sqrt{5x+3}}+\frac{119\sqrt{5x+3}(1-2x)^{3/2}}{2200}+\frac{357\sqrt{5x+3}\sqrt{1-2x}}{2000}+\frac{3927\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{2000\sqrt{10}}$$

```
[Out] (-2*(1 - 2*x)^(5/2))/(275*Sqrt[3 + 5*x]) + (357*Sqrt[1 - 2*x]*Sqr
t[3 + 5*x])/2000 + (119*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/2200 - (3*
(1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/50 + (3927*ArcSin[Sqrt[2/11]*Sqrt[
3 + 5*x]])/(2000*Sqrt[10])
```

Rubi [A] time = 0.142834, antiderivative size = 116, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$-\frac{3}{50}\sqrt{5x+3}(1-2x)^{5/2}-\frac{2(1-2x)^{5/2}}{275\sqrt{5x+3}}+\frac{119\sqrt{5x+3}(1-2x)^{3/2}}{2200}+\frac{357\sqrt{5x+3}\sqrt{1-2x}}{2000}+\frac{3927\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{2000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(2 + 3*x)^2)/(3 + 5*x)^(3/2),x]
```

```
[Out] (-2*(1 - 2*x)^(5/2))/(275*Sqrt[3 + 5*x]) + (357*Sqrt[1 - 2*x]*Sqr
t[3 + 5*x])/2000 + (119*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/2200 - (3*
(1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/50 + (3927*ArcSin[Sqrt[2/11]*Sqrt[
3 + 5*x]])/(2000*Sqrt[10])
```

Rubi in Sympy [A] time = 11.5709, size = 105, normalized size = 0.91

$$-\frac{3(-2x+1)^{\frac{5}{2}}\sqrt{5x+3}}{50}-\frac{2(-2x+1)^{\frac{5}{2}}}{275\sqrt{5x+3}}+\frac{119(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{2200}+\frac{357\sqrt{-2x+1}\sqrt{5x+3}}{2000}+\frac{3927\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{20000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)**2/(3+5*x)**(3/2),x)
```

```
[Out] -3*(-2*x + 1)**(5/2)*sqrt(5*x + 3)/50 - 2*(-2*x + 1)**(5/2)/(275*
sqrt(5*x + 3)) + 119*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/2200 + 357*s
qrt(-2*x + 1)*sqrt(5*x + 3)/2000 + 3927*sqrt(10)*asin(sqrt(22)*sq
rt(5*x + 3)/11)/20000
```

Mathematica [A] time = 0.164305, size = 65, normalized size = 0.56

$$\frac{\frac{10\sqrt{1-2x}(-2400x^3-180x^2+2575x+1021)}{\sqrt{5x+3}}-3927\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{20000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(2 + 3*x)^2)/(3 + 5*x)^(3/2),x]
```

```
[Out] ((10*Sqrt[1 - 2*x]*(1021 + 2575*x - 180*x^2 - 2400*x^3))/Sqrt[3 +
 5*x] - 3927*Sqrt[10]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/20000
```

Maple [A] time = 0.018, size = 116, normalized size = 1.

$$\frac{1}{40000}\left(-48000\,x^3\sqrt{-10\,x^2-x+3}+19635\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x-3600\,x^2\sqrt{-10\,x^2-x+3}+11781\,\sqrt{10}\arcsin\left(\frac{20}{11}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^2/(3+5*x)^(3/2),x)
```

```
[Out] 1/40000*(-48000*x^3*(-10*x^2-x+3)^(1/2)+19635*10^(1/2)*arcsin(20/
11*x+1/11)*x-3600*x^2*(-10*x^2-x+3)^(1/2)+11781*10^(1/2)*arcsin(2
0/11*x+1/11)+51500*x*(-10*x^2-x+3)^(1/2)+20420*(-10*x^2-x+3)^(1/2
))*(1-2*x)^(1/2)/(-10*x^2-x+3)^(1/2)/(3+5*x)^(1/2)
```

Maxima [A] time = 1.50396, size = 208, normalized size = 1.79

$$-\frac{11979}{200000}i\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{23}{11}\right)+\frac{957}{25000}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)$$
$$+\frac{3}{125}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}+\frac{99}{500}\sqrt{10\,x^2+23\,x+\frac{51}{5}}\,x+\frac{2277}{10000}\sqrt{10\,x^2+23\,x+\frac{51}{5}}$$
$$+\frac{99}{1250}\sqrt{-10\,x^2-x+3}+\frac{\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{125\,(25\,x^2+30\,x+9)}+\frac{3\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{125\,(5\,x+3)}-\frac{33\sqrt{-10\,x^2-x+3}}{625\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*(-2*x + 1)^(3/2)/(5*x + 3)^(3/2),x, algorithm="maxima")
```

```
[Out] -11979/200000*I*sqrt(5)*sqrt(2)*arcsin(20/11*x + 23/11) + 957/250
00*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) + 3/125*(-10*x^2 - x +
3)^(3/2) + 99/500*sqrt(10*x^2 + 23*x + 51/5)*x + 2277/10000*sqrt(
10*x^2 + 23*x + 51/5) + 99/1250*sqrt(-10*x^2 - x + 3) + 1/125*(-1
0*x^2 - x + 3)^(3/2)/(25*x^2 + 30*x + 9) + 3/125*(-10*x^2 - x + 3
)^(3/2)/(5*x + 3) - 33/625*sqrt(-10*x^2 - x + 3)/(5*x + 3)
```

Fricas [A] time = 0.227614, size = 107, normalized size = 0.92

$$-\frac{\sqrt{10}\left(2\sqrt{10}\left(2400\,x^3+180\,x^2-2575\,x-1021\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-3927\,(5\,x+3)\arctan\left(\frac{\sqrt{10}(20\,x+1)}{20\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)}{40000\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*(-2*x + 1)^(3/2)/(5*x + 3)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/40000*sqrt(10)*(2*sqrt(10)*(2400*x^3 + 180*x^2 - 2575*x - 1021
)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 3927*(5*x + 3)*arctan(1/20*sqrt(
10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(5*x + 3)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)**2/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.279232, size = 167, normalized size = 1.44

$$-\frac{1}{50000}\left(12\left(8\sqrt{5}(5x+3)-69\sqrt{5}\right)(5x+3)-199\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5} + \frac{3927}{20000}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right) - \frac{11\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}{6250\sqrt{5x+3}} + \frac{22\sqrt{10}\sqrt{5x+3}}{3125\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*(-2*x + 1)^(3/2)/(5*x + 3)^(3/2),x, algorithm="giac")
```

```
[Out] -1/50000*(12*(8*sqrt(5)*(5*x + 3) - 69*sqrt(5))*(5*x + 3) - 199*s
qrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5) + 3927/20000*sqrt(10)*arcsi
n(1/11*sqrt(22)*sqrt(5*x + 3)) - 11/6250*sqrt(10)*(sqrt(2)*sqrt(-
10*x + 5) - sqrt(22))/sqrt(5*x + 3) + 22/3125*sqrt(10)*sqrt(5*x +
 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))
```

3.2356 $\int \frac{(1-2x)^{3/2}(2+3x)}{(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=94

$$-\frac{2(1-2x)^{5/2}}{55\sqrt{5x+3}}+\frac{1}{22}\sqrt{5x+3}(1-2x)^{3/2}+\frac{3}{20}\sqrt{5x+3}\sqrt{1-2x}+\frac{33\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{20\sqrt{10}}$$

```
[Out] (-2*(1 - 2*x)^(5/2))/(55*Sqrt[3 + 5*x]) + (3*Sqrt[1 - 2*x]*Sqrt[3
 + 5*x])/20 + ((1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/22 + (33*ArcSin[Sqr
t[2/11]*Sqrt[3 + 5*x]])/(20*Sqrt[10])
```

Rubi [A] time = 0.0957117, antiderivative size = 94, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$-\frac{2(1-2x)^{5/2}}{55\sqrt{5x+3}}+\frac{1}{22}\sqrt{5x+3}(1-2x)^{3/2}+\frac{3}{20}\sqrt{5x+3}\sqrt{1-2x}+\frac{33\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{20\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(2 + 3*x))/(3 + 5*x)^(3/2),x]
```

```
[Out] (-2*(1 - 2*x)^(5/2))/(55*Sqrt[3 + 5*x]) + (3*Sqrt[1 - 2*x]*Sqrt[3
 + 5*x])/20 + ((1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/22 + (33*ArcSin[Sqr
t[2/11]*Sqrt[3 + 5*x]])/(20*Sqrt[10])
```

Rubi in Sympy [A] time = 8.81795, size = 83, normalized size = 0.88

$$-\frac{2\left(-2x+1\right)^{\frac{5}{2}}}{55\sqrt{5x+3}}+\frac{\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{22}+\frac{3\sqrt{-2x+1}\sqrt{5x+3}}{20}+\frac{33\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{200}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)/(3+5*x)**(3/2),x)
```

```
[Out] -2*(-2*x + 1)**(5/2)/(55*sqrt(5*x + 3)) + (-2*x + 1)**(3/2)*sqrt(
5*x + 3)/22 + 3*sqrt(-2*x + 1)*sqrt(5*x + 3)/20 + 33*sqrt(10)*asi
n(sqrt(22)*sqrt(5*x + 3)/11)/200
```

Mathematica [A] time = 0.119962, size = 60, normalized size = 0.64

$$\frac{\sqrt{1-2x}\left(-12x^2+17x+11\right)}{20\sqrt{5x+3}}-\frac{33\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{20\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(2 + 3*x))/(3 + 5*x)^(3/2),x]
```

```
[Out] (Sqrt[1 - 2*x]*(11 + 17*x - 12*x^2))/(20*Sqrt[3 + 5*x]) - (33*Arc
Sin[Sqrt[5/11]*Sqrt[1 - 2*x]])/(20*Sqrt[10])
```

Maple [A] time = 0.016, size = 99, normalized size = 1.1

$$\frac{1}{400}\left(165\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)x-240x^2\sqrt{-10x^2-x+3}+99\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)+340x\sqrt{-10x^2-x+3}+22\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)/(3+5*x)^(3/2),x)
```

```
[Out] 1/400*(165*10^(1/2)*arcsin(20/11*x+1/11)*x-240*x^2*(-10*x^2-x+3)^
(1/2)+99*10^(1/2)*arcsin(20/11*x+1/11)+340*x*(-10*x^2-x+3)^(1/2)+
220*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)/(-10*x^2-x+3)^(1/2)/(3+5*x
)^(1/2)
```

Maxima [A] time = 1.50666, size = 131, normalized size = 1.39

$$\frac{33}{400}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)+\frac{99}{500}\sqrt{-10x^2-x+3}+\frac{\left(-10x^2-x+3\right)^{\frac{3}{2}}}{25\left(25x^2+30x+9\right)}+\frac{3\left(-10x^2-x+3\right)^{\frac{3}{2}}}{50\left(5x+3\right)}-\frac{33\sqrt{-10x^2-x+3}}{125\left(5x+3\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)*(-2*x + 1)^(3/2)/(5*x + 3)^(3/2),x, algorithm="maxima")
```

```
[Out] 33/400*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) + 99/500*sqrt(-10*x
^2 - x + 3) + 1/25*(-10*x^2 - x + 3)^(3/2)/(25*x^2 + 30*x + 9) +
3/50*(-10*x^2 - x + 3)^(3/2)/(5*x + 3) - 33/125*sqrt(-10*x^2 - x
+ 3)/(5*x + 3)
```

Fricas [A] time = 0.222838, size = 100, normalized size = 1.06

$$-\frac{\sqrt{10}\left(2\sqrt{10}\left(12x^2-17x-11\right)\sqrt{5x+3}\sqrt{-2x+1}-33\left(5x+3\right)\arctan\left(\frac{\sqrt{10}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)}{400\left(5x+3\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)*(-2*x + 1)^(3/2)/(5*x + 3)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/400*sqrt(10)*(2*sqrt(10)*(12*x^2 - 17*x - 11)*sqrt(5*x + 3)*sq
rt(-2*x + 1) - 33*(5*x + 3)*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt
(5*x + 3)*sqrt(-2*x + 1))))/(5*x + 3)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)}{\left(5x+3\right)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)/(3+5*x)**(3/2),x)
```

```
[Out] Integral((-2*x + 1)**(3/2)*(3*x + 2)/(5*x + 3)**(3/2), x)
```

GIAC/XCAS [A] time = 0.267344, size = 150, normalized size = 1.6

$$-\frac{1}{2500}\left(12\sqrt{5}(5x+3)-157\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}+\frac{33}{200}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)-\frac{11\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}{1250\sqrt{5x+3}}+\frac{22\sqrt{10}\sqrt{5x+3}}{625\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)*(-2*x + 1)^(3/2)/(5*x + 3)^(3/2),x, algorithm="giac")
```

```
[Out] -1/2500*(12*sqrt(5)*(5*x + 3) - 157*sqrt(5))*sqrt(5*x + 3)*sqrt(-
10*x + 5) + 33/200*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) -
 11/1250*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x +
 3) + 22/625*sqrt(10)*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sq
rt(22))
```

3.2357 $\int \frac{(1-2x)^{3/2}}{(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=74

$$-\frac{2(1-2x)^{3/2}}{5\sqrt{5x+3}}-\frac{6}{25}\sqrt{5x+3}\sqrt{1-2x}-\frac{33}{25}\sqrt{\frac{2}{5}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)$$

```
[Out] (-2*(1 - 2*x)^(3/2))/(5*Sqrt[3 + 5*x]) - (6*Sqrt[1 - 2*x]*Sqrt[3
+ 5*x])/25 - (33*Sqrt[2/5]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/25
```

Rubi [A] time = 0.0599891, antiderivative size = 74, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.21

$$-\frac{2(1-2x)^{3/2}}{5\sqrt{5x+3}}-\frac{6}{25}\sqrt{5x+3}\sqrt{1-2x}-\frac{33}{25}\sqrt{\frac{2}{5}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)/(3 + 5*x)^(3/2),x]
```

```
[Out] (-2*(1 - 2*x)^(3/2))/(5*Sqrt[3 + 5*x]) - (6*Sqrt[1 - 2*x]*Sqrt[3
+ 5*x])/25 - (33*Sqrt[2/5]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/25
```

Rubi in Sympy [A] time = 6.63255, size = 66, normalized size = 0.89

$$-\frac{2\left(-2x+1\right)^{\frac{3}{2}}}{5\sqrt{5x+3}}-\frac{6\sqrt{-2x+1}\sqrt{5x+3}}{25}-\frac{33\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)/(3+5*x)**(3/2),x)
```

```
[Out] -2*(-2*x + 1)**(3/2)/(5*sqrt(5*x + 3)) - 6*sqrt(-2*x + 1)*sqrt(5*
x + 3)/25 - 33*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/125
```

Mathematica [A] time = 0.08146, size = 57, normalized size = 0.77

$$\frac{33}{25}\sqrt{\frac{2}{5}}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)-\frac{2\sqrt{1-2x}(5x+14)}{25\sqrt{5x+3}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)/(3 + 5*x)^(3/2),x]
```

```
[Out] (-2*Sqrt[1 - 2*x]*(14 + 5*x))/(25*Sqrt[3 + 5*x]) + (33*Sqrt[2/5]*
ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/25
```

Maple [F] time = 0.052, size = 0, normalized size = 0.

$$\int 1\left(1-2\,x\right)^{\frac{3}{2}}\left(3+5\,x\right)^{-\frac{3}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)/(3+5*x)^(3/2),x)
```

```
[Out] int((1-2*x)^(3/2)/(3+5*x)^(3/2),x)
```

Maxima [A] time = 1.5014, size = 84, normalized size = 1.14

$$-\frac{33}{250}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)+\frac{\left(-10x^2-x+3\right)^{\frac{3}{2}}}{5\left(25x^2+30x+9\right)}-\frac{33\sqrt{-10x^2-x+3}}{25\left(5x+3\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/(5*x + 3)^(3/2),x, algorithm="maxima")
```

```
[Out] -33/250*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) + 1/5*(-10*x^2 - x
 + 3)^(3/2)/(25*x^2 + 30*x + 9) - 33/25*sqrt(-10*x^2 - x + 3)/(5*
x + 3)
```

Fricas [A] time = 0.22149, size = 101, normalized size = 1.36

$$-\frac{\sqrt{5}\left(4\sqrt{5}(5x+14)\sqrt{5x+3}\sqrt{-2x+1}+33\sqrt{2}(5x+3)\arctan\left(\frac{\sqrt{5}\sqrt{2}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)}{250\left(5x+3\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/(5*x + 3)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/250*sqrt(5)*(4*sqrt(5)*(5*x + 14)*sqrt(5*x + 3)*sqrt(-2*x + 1)
 + 33*sqrt(2)*(5*x + 3)*arctan(1/20*sqrt(5)*sqrt(2)*(20*x + 1)/(s
qrt(5*x + 3)*sqrt(-2*x + 1))))/(5*x + 3)
```

Sympy [A] time = 5.18093, size = 187, normalized size = 2.53

$$\begin{cases} -\frac{4i\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}{5\sqrt{10x-5}}-\frac{22i\sqrt{x+\frac{3}{5}}}{25\sqrt{10x-5}}+\frac{33\sqrt{10}i\operatorname{acosh}\left(\frac{\sqrt{110}\sqrt{x+\frac{3}{5}}}{11}\right)}{125}+\frac{242i}{125\sqrt{x+\frac{3}{5}}\sqrt{10x-5}} & \text{for}\ \frac{10\left|x+\frac{3}{5}\right|}{11}>1 \\ -\frac{33\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{110}\sqrt{x+\frac{3}{5}}}{11}\right)}{125}+\frac{4\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}{5\sqrt{-10x+5}}+\frac{22\sqrt{x+\frac{3}{5}}}{25\sqrt{-10x+5}}-\frac{242}{125\sqrt{-10x+5}\sqrt{x+\frac{3}{5}}} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)/(3+5*x)**(3/2),x)
```

```
[Out] Piecewise((-4*I*(x + 3/5)**(3/2)/(5*sqrt(10*x - 5)) - 22*I*sqrt(x
 + 3/5)/(25*sqrt(10*x - 5)) + 33*sqrt(10)*I*acosh(sqrt(110)*sqrt(
x + 3/5)/11)/125 + 242*I/(125*sqrt(x + 3/5)*sqrt(10*x - 5)), 10*A
bs(x + 3/5)/11 > 1), (-33*sqrt(10)*asin(sqrt(110)*sqrt(x + 3/5)/1
1)/125 + 4*(x + 3/5)**(3/2)/(5*sqrt(-10*x + 5)) + 22*sqrt(x + 3/5
)/(25*sqrt(-10*x + 5)) - 242/(125*sqrt(-10*x + 5)*sqrt(x + 3/5)),
 True))
```

GIAC/XCAS [A] time = 0.246553, size = 132, normalized size = 1.78

$$-\frac{2}{125}\sqrt{5}\sqrt{5x+3}\sqrt{-10x+5}-\frac{33}{125}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)-\frac{11\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}{250\sqrt{5x+3}}+\frac{22\sqrt{10}\sqrt{5x+3}}{125\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/(5*x + 3)^(3/2),x, algorithm="giac")
```

```
[Out] -2/125*sqrt(5)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 33/125*sqrt(10)*ar
csin(1/11*sqrt(22)*sqrt(5*x + 3)) - 11/250*sqrt(10)*(sqrt(2)*sqrt
(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) + 22/125*sqrt(10)*sqrt(5*x
+ 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))
```

3.2358 $\int \frac{(1-2x)^{3/2}}{(2+3x)(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=86

$$-\frac{22\sqrt{1-2x}}{5\sqrt{5x+3}}+\frac{4}{15}\sqrt{\frac{2}{5}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)+\frac{14}{3}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

```
[Out] (-22*Sqrt[1 - 2*x])/(5*Sqrt[3 + 5*x]) + (4*Sqrt[2/5]*ArcSin[Sqrt[
2/11]*Sqrt[3 + 5*x]])/15 + (14*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]/(Sqrt
[7]*Sqrt[3 + 5*x])])/3
```

Rubi [A] time = 0.169635, antiderivative size = 86, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$-\frac{22\sqrt{1-2x}}{5\sqrt{5x+3}}+\frac{4}{15}\sqrt{\frac{2}{5}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)+\frac{14}{3}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)/((2 + 3*x)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-22*Sqrt[1 - 2*x])/(5*Sqrt[3 + 5*x]) + (4*Sqrt[2/5]*ArcSin[Sqrt[
2/11]*Sqrt[3 + 5*x]])/15 + (14*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]/(Sqrt
[7]*Sqrt[3 + 5*x])])/3
```

Rubi in Sympy [A] time = 15.861, size = 78, normalized size = 0.91

$$-\frac{22\sqrt{-2x+1}}{5\sqrt{5x+3}}+\frac{4\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{75}+\frac{14\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)/(2+3*x)/(3+5*x)**(3/2),x)
```

```
[Out] -22*sqrt(-2*x + 1)/(5*sqrt(5*x + 3)) + 4*sqrt(10)*asin(sqrt(22)*s
qrt(5*x + 3)/11)/75 + 14*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*s
qrt(5*x + 3)))/3
```

Mathematica [A] time = 0.225714, size = 97, normalized size = 1.13

$$\frac{7}{3}\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)+\frac{2}{75}\left(\sqrt{10}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)-\frac{165\sqrt{1-2x}}{\sqrt{5x+3}}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)/((2 + 3*x)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (7*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])
/3 + (2*((-165*Sqrt[1 - 2*x])/Sqrt[3 + 5*x] + Sqrt[10]*ArcTan[(1
+ 20*x)/(2*Sqrt[1 - 2*x]*Sqrt[30 + 50*x])]))/75
```

Maple [B] time = 0.02, size = 124, normalized size = 1.4

$$-\frac{1}{75}\left(875\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x-10\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x+525\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)\cdot\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)/(2+3*x)/(3+5*x)^(3/2),x)
```

```
[Out] -1/75*(875*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1
/2))*x-10*10^(1/2)*arcsin(20/11*x+1/11)*x+525*7^(1/2)*arctan(1/14
*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))-6*10^(1/2)*arcsin(20/11*x
+1/11)+330*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)/(-10*x^2-x+3)^(1/2)
/(3+5*x)^(1/2)
```

Maxima [A] time = 1.49824, size = 93, normalized size = 1.08

$$\frac{2}{75}\sqrt{10}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)-\frac{7}{3}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{44\,x}{5\sqrt{-10\,x^2-x+3}}-\frac{22}{5\sqrt{-10\,x^2-x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^(3/2)*(3*x + 2)),x, algorithm="maxima")
```

```
[Out] 2/75*sqrt(10)*arcsin(20/11*x + 1/11) - 7/3*sqrt(7)*arcsin(37/11*x
/abs(3*x + 2) + 20/11/abs(3*x + 2)) + 44/5*x/sqrt(-10*x^2 - x + 3
) - 22/5/sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.227015, size = 146, normalized size = 1.7

$$-\frac{\sqrt{5}\left(35\sqrt{7}\sqrt{5}(5\,x+3)\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)-2\sqrt{2}(5\,x+3)\arctan\left(\frac{\sqrt{5}\sqrt{2}(20\,x+1)}{20\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)+66\sqrt{5}\sqrt{5\,x+3}\sqrt{-2\,x+1}\right)}{75\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^(3/2)*(3*x + 2)),x, algorithm="fricas")
```

```
[Out] -1/75*sqrt(5)*(35*sqrt(7)*sqrt(5)*(5*x + 3)*arctan(1/14*sqrt(7)*(
37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))) - 2*sqrt(2)*(5*x + 3)*
arctan(1/20*sqrt(5)*sqrt(2)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x +
 1))) + 66*sqrt(5)*sqrt(5*x + 3)*sqrt(-2*x + 1))/(5*x + 3)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(-2x+1)^{\frac{3}{2}}}{(3x+2)\,(5x+3)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)/(2+3*x)/(3+5*x)**(3/2),x)
```

```
[Out] Integral((-2*x + 1)**(3/2)/((3*x + 2)*(5*x + 3)**(3/2)), x)
```

GIAC/XCAS [A] time = 0.273833, size = 270, normalized size = 3.14

$$-\frac{7}{30}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)+\frac{2}{75}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{4\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{11}{50}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/((5*x + 3)^(3/2)*(3*x + 2)),x, algorithm="giac")
```

```
[Out] -7/30*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x +
 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqrt(
2)*sqrt(-10*x + 5) - sqrt(22)))) + 2/75*sqrt(10)*(pi + 2*arctan(-
1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x +
3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 11/50*sqrt(10)*(
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x +
 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))
```

3.2359 $\int \frac{(1-2x)^{3/2}}{(2+3x)^2(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=79

$$\frac{(1-2x)^{3/2}}{(3x+2)\sqrt{5x+3}}-\frac{33\sqrt{1-2x}}{\sqrt{5x+3}}+33\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

```
[Out] (-33*Sqrt[1 - 2*x])/Sqrt[3 + 5*x] + (1 - 2*x)^(3/2)/((2 + 3*x)*Sq
rt[3 + 5*x]) + 33*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 +
5*x])]
```

Rubi [A] time = 0.12877, antiderivative size = 79, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.115

$$\frac{(1-2x)^{3/2}}{(3x+2)\sqrt{5x+3}}-\frac{33\sqrt{1-2x}}{\sqrt{5x+3}}+33\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)/((2 + 3*x)^2*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-33*Sqrt[1 - 2*x])/Sqrt[3 + 5*x] + (1 - 2*x)^(3/2)/((2 + 3*x)*Sq
rt[3 + 5*x]) + 33*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 +
5*x])]
```

Rubi in Sympy [A] time = 10.3629, size = 78, normalized size = 0.99

$$-\frac{2\,(-2x+1)^{\frac{3}{2}}}{(3x+2)\,\sqrt{5x+3}}-\frac{21\sqrt{-2x+1}\sqrt{5x+3}}{3x+2}+33\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)/(2+3*x)**2/(3+5*x)**(3/2),x)
```

```
[Out] -2*(-2*x + 1)**(3/2)/((3*x + 2)*sqrt(5*x + 3)) - 21*sqrt(-2*x + 1
)*sqrt(5*x + 3)/(3*x + 2) + 33*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1
)/(7*sqrt(5*x + 3)))
```

Mathematica [A] time = 0.0926626, size = 70, normalized size = 0.89

$$\frac{33}{2}\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)-\frac{\sqrt{1-2x}(101x+65)}{(3x+2)\sqrt{5x+3}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)/((2 + 3*x)^2*(3 + 5*x)^(3/2)),x]
```

```
[Out] -((Sqrt[1 - 2*x]*(65 + 101*x))/((2 + 3*x)*Sqrt[3 + 5*x])) + (33*S
qrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/2
```

Maple [B] time = 0.02, size = 154, normalized size = 2.

$$-\frac{1}{4+6\,x}\left(495\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^2+627\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x+198\,\sqrt{7}\arctan\left(1/14\,\frac{(3}{\sqrt{-}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)/(2+3*x)^2/(3+5*x)^(3/2),x)
```

```
[Out] -1/2*(495*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/
2))*x^2+627*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(
1/2))*x+198*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(
1/2))+202*x*(-10*x^2-x+3)^(1/2)+130*(-10*x^2-x+3)^(1/2))*(1-2*x)^
(1/2)/(2+3*x)/(-10*x^2-x+3)^(1/2)/(3+5*x)^(1/2)
```

Maxima [A] time = 1.51331, size = 124, normalized size = 1.57

$$-\frac{33}{2}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{202\,x}{3\,\sqrt{-10\,x^2-x+3}}-\frac{317}{9\,\sqrt{-10\,x^2-x+3}}+\frac{49}{9\left(3\,\sqrt{-10\,x^2-x+3}x+2\,\sqrt{-10\,x^2-x+3}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/((5*x + 3)^(3/2)*(3*x + 2)^2),x, algorithm="maxima")
```

```
[Out] -33/2*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) +
 202/3*x/sqrt(-10*x^2 - x + 3) - 317/9/sqrt(-10*x^2 - x + 3) + 49
/9/(3*sqrt(-10*x^2 - x + 3)*x + 2*sqrt(-10*x^2 - x + 3))
```

Fricas [A] time = 0.221078, size = 103, normalized size = 1.3

$$-\frac{33\,\sqrt{7}\left(15\,x^2+19\,x+6\right)\,\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)+2\,(101\,x+65)\sqrt{5\,x+3}\sqrt{-2\,x+1}}{2\,(15\,x^2+19\,x+6)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/((5*x + 3)^(3/2)*(3*x + 2)^2),x, algorithm="fricas")
```

```
[Out] -1/2*(33*sqrt(7)*(15*x^2 + 19*x + 6)*arctan(1/14*sqrt(7)*(37*x +
20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))) + 2*(101*x + 65)*sqrt(5*x + 3
)*sqrt(-2*x + 1))/(15*x^2 + 19*x + 6)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)/(2+3*x)**2/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.280477, size = 340, normalized size = 4.3

$$-\frac{33}{20}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^{2}}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{11}{10}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)-\frac{154\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)}{\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^{2}+280}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/((5*x + 3)^(3/2)*(3*x + 2)^2),x, algorithm="giac")
```

```
[Out] -33/20*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x
+ 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqrt
(2)*sqrt(-10*x + 5) - sqrt(22)))) - 11/10*sqrt(10)*((sqrt(2)*sqrt
(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*
sqrt(-10*x + 5) - sqrt(22))) - 154*sqrt(10)*((sqrt(2)*sqrt(-10*x
+ 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-1
0*x + 5) - sqrt(22)))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt
(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))
^2 + 280)
```

3.2360 $\int \frac{(1-2x)^{3/2}}{(2+3x)^3(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=115

$$\frac{3(1-2x)^{5/2}}{14(3x+2)^2\sqrt{5x+3}}+\frac{173(1-2x)^{3/2}}{28(3x+2)\sqrt{5x+3}}-\frac{5709\sqrt{1-2x}}{28\sqrt{5x+3}}+\frac{5709\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{4\sqrt{7}}$$

```
[Out] (-5709*Sqrt[1 - 2*x])/(28*Sqrt[3 + 5*x]) + (3*(1 - 2*x)^(5/2))/(1
4*(2 + 3*x)^2*Sqrt[3 + 5*x]) + (173*(1 - 2*x)^(3/2))/(28*(2 + 3*x
)*Sqrt[3 + 5*x]) + (5709*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5
*x])])/(4*Sqrt[7])
```

Rubi [A] time = 0.172553, antiderivative size = 115, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$\frac{3(1-2x)^{5/2}}{14(3x+2)^2\sqrt{5x+3}}+\frac{173(1-2x)^{3/2}}{28(3x+2)\sqrt{5x+3}}-\frac{5709\sqrt{1-2x}}{28\sqrt{5x+3}}+\frac{5709\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{4\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)/((2 + 3*x)^3*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-5709*Sqrt[1 - 2*x])/(28*Sqrt[3 + 5*x]) + (3*(1 - 2*x)^(5/2))/(1
4*(2 + 3*x)^2*Sqrt[3 + 5*x]) + (173*(1 - 2*x)^(3/2))/(28*(2 + 3*x
)*Sqrt[3 + 5*x]) + (5709*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5
*x])])/(4*Sqrt[7])
```

Rubi in Sympy [A] time = 13.3027, size = 110, normalized size = 0.96

$$-\frac{10\left(-2x+1\right)^{\frac{5}{2}}}{11\left(3x+2\right)^{2}\sqrt{5x+3}}-\frac{173\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{22\left(3x+2\right)^{2}}-\frac{519\sqrt{-2x+1}\sqrt{5x+3}}{4\left(3x+2\right)}+\frac{5709\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{28}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)/(2+3*x)**3/(3+5*x)**(3/2),x)
```

```
[Out] -10*(-2*x + 1)**(5/2)/(11*(3*x + 2)**2*sqrt(5*x + 3)) - 173*(-2*x
 + 1)**(3/2)*sqrt(5*x + 3)/(22*(3*x + 2)**2) - 519*sqrt(-2*x + 1)
*sqrt(5*x + 3)/(4*(3*x + 2)) + 5709*sqrt(7)*atan(sqrt(7)*sqrt(-2*
x + 1)/(7*sqrt(5*x + 3)))/28
```

Mathematica [A] time = 0.0878533, size = 77, normalized size = 0.67

$$\frac{5709\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{8\sqrt{7}}-\frac{\sqrt{1-2x}\left(7485x^2+9815x+3212\right)}{4(3x+2)^2\sqrt{5x+3}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)/((2 + 3*x)^3*(3 + 5*x)^(3/2)),x]
```

```
[Out] -(Sqrt[1 - 2*x]*(3212 + 9815*x + 7485*x^2))/(4*(2 + 3*x)^2*Sqrt[3
 + 5*x]) + (5709*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5
*x])])/(8*Sqrt[7])
```

Maple [B] time = 0.02, size = 202, normalized size = 1.8

$$-\frac{1}{56\,(2+3x)^2}\left(256905\sqrt{7}\arctan\left(1/14\,\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)x^3+496683\sqrt{7}\arctan\left(1/14\,\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)x^2+319704\sqrt{7}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)/(2+3*x)^3/(3+5*x)^(3/2),x)
```

```
[Out] -1/56*(256905*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)
^(1/2))*x^3+496683*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2
-x+3)^(1/2))*x^2+319704*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-1
0*x^2-x+3)^(1/2))*x+104790*x^2*(-10*x^2-x+3)^(1/2)+68508*7^(1/2)*
arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+137410*x*(-10*
x^2-x+3)^(1/2)+44968*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)/(2+3*x)^2
/(-10*x^2-x+3)^(1/2)/(3+5*x)^(1/2)
```

Maxima [A] time = 1.50959, size = 193, normalized size = 1.68

$$-\frac{5709}{56}\sqrt{7}\arcsin\left(\frac{37x}{11\,|3x+2|}+\frac{20}{11\,|3x+2|}\right)+\frac{2495x}{6\sqrt{-10x^2-x+3}}-\frac{2605}{12\sqrt{-10x^2-x+3}}+\frac{49}{18\left(9\sqrt{-10x^2-x+3}x^2+12\sqrt{-10x^2-x+3}x+4\sqrt{-10x^2-x+3}\right)}+\frac{1127}{36\left(3\sqrt{-10x^2-x+3}x+2\sqrt{-10x^2-x+3}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^(3/2)*(3*x + 2)^3),x, algorithm="maxima")
```

```
[Out] -5709/56*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)
) + 2495/6*x/sqrt(-10*x^2 - x + 3) - 2605/12/sqrt(-10*x^2 - x + 3
) + 49/18/(9*sqrt(-10*x^2 - x + 3)*x^2 + 12*sqrt(-10*x^2 - x + 3)
*x + 4*sqrt(-10*x^2 - x + 3)) + 1127/36/(3*sqrt(-10*x^2 - x + 3)*
x + 2*sqrt(-10*x^2 - x + 3))
```

Fricas [A] time = 0.219877, size = 127, normalized size = 1.1

$$-\frac{\sqrt{7}\left(2\sqrt{7}\left(7485x^2+9815x+3212\right)\sqrt{5x+3}\sqrt{-2x+1}+5709\left(45x^3+87x^2+56x+12\right)\arctan\left(\frac{\sqrt{7}(37x+20)}{14\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)}{56\left(45x^3+87x^2+56x+12\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^(3/2)*(3*x + 2)^3),x, algorithm="fricas")
```

```
[Out] -1/56*sqrt(7)*(2*sqrt(7)*(7485*x^2 + 9815*x + 3212)*sqrt(5*x + 3)
*sqrt(-2*x + 1) + 5709*(45*x^3 + 87*x^2 + 56*x + 12)*arctan(1/14*
sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(45*x^3 + 87
*x^2 + 56*x + 12)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)/(2+3*x)**3/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.314501, size = 427, normalized size = 3.71

$$-\frac{5709}{560}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{11}{2}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)-\frac{55\left(61\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3+13384\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)\right)}{2\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^(3/2)*(3*x + 2)^3),x, algorithm="giac")
```

```
[Out] -5709/560*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5
*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(s
qrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 11/2*sqrt(10)*((sqrt(2)*sq
rt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2
)*sqrt(-10*x + 5) - sqrt(22))) - 55/2*(61*sqrt(10)*((sqrt(2)*sqrt
(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*
sqrt(-10*x + 5) - sqrt(22)))^3 + 13384*sqrt(10)*((sqrt(2)*sqrt(-1
0*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqr
t(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))
/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(
22)))^2 + 280)^2
```

3.2361 $\int \frac{(1-2x)^{3/2}}{(2+3x)^4(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=144

$$-\frac{608185\sqrt{1-2x}}{504\sqrt{5x+3}}+\frac{13409\sqrt{1-2x}}{168(3x+2)\sqrt{5x+3}}+\frac{77\sqrt{1-2x}}{12(3x+2)^2\sqrt{5x+3}}+\frac{7\sqrt{1-2x}}{9(3x+2)^3\sqrt{5x+3}}+\frac{463881\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{56\sqrt{7}}$$

```
[Out] (-608185*Sqrt[1 - 2*x])/(504*Sqrt[3 + 5*x]) + (7*Sqrt[1 - 2*x])/(
9*(2 + 3*x)^3*Sqrt[3 + 5*x]) + (77*Sqrt[1 - 2*x])/(12*(2 + 3*x)^2
*Sqrt[3 + 5*x]) + (13409*Sqrt[1 - 2*x])/(168*(2 + 3*x)*Sqrt[3 + 5
*x]) + (463881*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(56
*Sqrt[7])
```

Rubi [A] time = 0.321034, antiderivative size = 144, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.231$

$$-\frac{608185\sqrt{1-2x}}{504\sqrt{5x+3}}+\frac{13409\sqrt{1-2x}}{168(3x+2)\sqrt{5x+3}}+\frac{77\sqrt{1-2x}}{12(3x+2)^2\sqrt{5x+3}}+\frac{7\sqrt{1-2x}}{9(3x+2)^3\sqrt{5x+3}}+\frac{463881\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{56\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^(3/2)/((2 + 3*x)^4*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-608185*Sqrt[1 - 2*x])/(504*Sqrt[3 + 5*x]) + (7*Sqrt[1 - 2*x])/(
9*(2 + 3*x)^3*Sqrt[3 + 5*x]) + (77*Sqrt[1 - 2*x])/(12*(2 + 3*x)^2
*Sqrt[3 + 5*x]) + (13409*Sqrt[1 - 2*x])/(168*(2 + 3*x)*Sqrt[3 + 5
*x]) + (463881*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(56
*Sqrt[7])
```

Rubi in Sympy [A] time = 28.4812, size = 133, normalized size = 0.92

$$-\frac{608185\sqrt{-2x+1}}{504\sqrt{5x+3}}+\frac{13409\sqrt{-2x+1}}{168\,(3x+2)\,\sqrt{5x+3}}+\frac{77\sqrt{-2x+1}}{12\,(3x+2)^2\,\sqrt{5x+3}}+\frac{7\sqrt{-2x+1}}{9\,(3x+2)^3\,\sqrt{5x+3}}+\frac{463881\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{392}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**(3/2)/(2+3*x)**4/(3+5*x)**(3/2),x)
```

```
[Out] -608185*sqrt(-2*x + 1)/(504*sqrt(5*x + 3)) + 13409*sqrt(-2*x + 1)
/(168*(3*x + 2)*sqrt(5*x + 3)) + 77*sqrt(-2*x + 1)/(12*(3*x + 2)*
*2*sqrt(5*x + 3)) + 7*sqrt(-2*x + 1)/(9*(3*x + 2)**3*sqrt(5*x + 3
)) + 463881*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3))
)/392
```

Mathematica [A] time = 0.106583, size = 82, normalized size = 0.57

$$\frac{1}{784}\left(463881\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)-\frac{14\sqrt{1-2x}\left(1824555x^3+3608883x^2+2378026x+521968\right)}{(3x+2)^3\sqrt{5x+3}}\right)$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)^(3/2)/((2 + 3*x)^4*(3 + 5*x)^(3/2)),x]
```

```
[Out] ((-14*Sqrt[1 - 2*x]*(521968 + 2378026*x + 3608883*x^2 + 1824555*x
^3))/((2 + 3*x)^3*Sqrt[3 + 5*x]) + 463881*Sqrt[7]*ArcTan[(-20 - 3
7*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/784
```

Maple [B] time = 0.023, size = 250, normalized size = 1.7

$$-\frac{1}{784\,(2+3\,x)^{3}}\left(62623935\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^{2}-x+3}}\right)x^{4}+162822231\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^{2}-x+3}}\right)x^{3}+158$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)/(2+3*x)^4/(3+5*x)^(3/2),x)
```

```
[Out] -1/784*(62623935*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x
+3)^(1/2))*x^4+162822231*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-
10*x^2-x+3)^(1/2))*x^3+158647302*7^(1/2)*arctan(1/14*(37*x+20)*7^
(1/2)/(-10*x^2-x+3)^(1/2))*x^2+25543770*x^3*(-10*x^2-x+3)^(1/2)+6
8654388*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2)
)*x+50524362*x^2*(-10*x^2-x+3)^(1/2)+11133144*7^(1/2)*arctan(1/14
*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+33292364*x*(-10*x^2-x+3)^
(1/2)+7307552*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)/(2+3*x)^3/(-10*x
^2-x+3)^(1/2)/(3+5*x)^(1/2)
```

Maxima [A] time = 1.52729, size = 285, normalized size = 1.98

$$-\frac{463881}{784}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{608185\,x}{252\,\sqrt{-10\,x^{2}-x+3}}-\frac{635003}{504\,\sqrt{-10\,x^{2}-x+3}}$$
$$+\frac{49}{27\left(27\,\sqrt{-10\,x^{2}-x+3}x^{3}+54\,\sqrt{-10\,x^{2}-x+3}x^{2}+36\,\sqrt{-10\,x^{2}-x+3}x+8\,\sqrt{-10\,x^{2}-x+3}\right)}$$
$$+\frac{1561}{108\left(9\,\sqrt{-10\,x^{2}-x+3}x^{2}+12\,\sqrt{-10\,x^{2}-x+3}x+4\,\sqrt{-10\,x^{2}-x+3}\right)}$$
$$+\frac{4367}{24\left(3\,\sqrt{-10\,x^{2}-x+3}x+2\,\sqrt{-10\,x^{2}-x+3}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^(3/2)*(3*x + 2)^4),x, algorithm="maxima")
```

```
[Out] -463881/784*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x +
 2)) + 608185/252*x/sqrt(-10*x^2 - x + 3) - 635003/504/sqrt(-10*x
^2 - x + 3) + 49/27/(27*sqrt(-10*x^2 - x + 3)*x^3 + 54*sqrt(-10*x
^2 - x + 3)*x^2 + 36*sqrt(-10*x^2 - x + 3)*x + 8*sqrt(-10*x^2 - x
 + 3)) + 1561/108/(9*sqrt(-10*x^2 - x + 3)*x^2 + 12*sqrt(-10*x^2
- x + 3)*x + 4*sqrt(-10*x^2 - x + 3)) + 4367/24/(3*sqrt(-10*x^2 -
 x + 3)*x + 2*sqrt(-10*x^2 - x + 3))
```

Fricas [A] time = 0.222182, size = 147, normalized size = 1.02

$$-\frac{\sqrt{7}\left(2\,\sqrt{7}\left(1824555\,x^{3}+3608883\,x^{2}+2378026\,x+521968\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+463881\,\left(135\,x^{4}+351\,x^{3}+342\,x^{2}+148\,x+\right.\right.}{784\,(135\,x^{4}+351\,x^{3}+342\,x^{2}+148\,x+24)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^(3/2)*(3*x + 2)^4),x, algorithm="fricas")
```

```
[Out] -1/784*sqrt(7)*(2*sqrt(7)*(1824555*x^3 + 3608883*x^2 + 2378026*x
 + 521968)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 463881*(135*x^4 + 351*x^
```

```
3 + 342*x^2 + 148*x + 24)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5
*x + 3)*sqrt(-2*x + 1))))/(135*x^4 + 351*x^3 + 342*x^2 + 148*x +
24)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)/(2+3*x)**4/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.354879, size = 509, normalized size = 3.53

$$-\frac{463881}{7840}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{55}{2}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)-\frac{11\left(33989\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^5+15023680\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3+1769566400\sqrt{10}\cdots}{28\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^(3/2)*(3*x + 2)^4),x, algorithm="giac")
```

```
[Out] -463881/7840*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqr
t(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)
/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 55/2*sqrt(10)*((sqrt(2)
*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqr
t(2)*sqrt(-10*x + 5) - sqrt(22))) - 11/28*(33989*sqrt(10)*((sqrt(
2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(s
qrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 + 15023680*sqrt(10)*((sqrt(
2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(s
qrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 1769566400*sqrt(10)*((sqr
t(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5)
 - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x
+ 5) - sqrt(22)))^2 + 280)^3
```

3.2362 $\int \frac{(1-2x)^{3/2}}{(2+3x)^5(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=173

$$-\frac{63678595\sqrt{1-2x}}{9408\sqrt{5x+3}}+\frac{1403963\sqrt{1-2x}}{3136(3x+2)\sqrt{5x+3}}+\frac{8063\sqrt{1-2x}}{224(3x+2)^2\sqrt{5x+3}}+\frac{33\sqrt{1-2x}}{8(3x+2)^3\sqrt{5x+3}}+\frac{7\sqrt{1-2x}}{12(3x+2)^4\sqrt{5x+3}}+\frac{145708761\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{3136\sqrt{7}}$$

```
[Out] (-63678595*Sqrt[1 - 2*x])/(9408*Sqrt[3 + 5*x]) + (7*Sqrt[1 - 2*x]
)/(12*(2 + 3*x)^4*Sqrt[3 + 5*x]) + (33*Sqrt[1 - 2*x])/(8*(2 + 3*x
)^3*Sqrt[3 + 5*x]) + (8063*Sqrt[1 - 2*x])/(224*(2 + 3*x)^2*Sqrt[3
 + 5*x]) + (1403963*Sqrt[1 - 2*x])/(3136*(2 + 3*x)*Sqrt[3 + 5*x])
 + (145708761*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(313
6*Sqrt[7])
```

Rubi [A] time = 0.404005, antiderivative size = 173, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$-\frac{63678595\sqrt{1-2x}}{9408\sqrt{5x+3}}+\frac{1403963\sqrt{1-2x}}{3136(3x+2)\sqrt{5x+3}}+\frac{8063\sqrt{1-2x}}{224(3x+2)^2\sqrt{5x+3}}+\frac{33\sqrt{1-2x}}{8(3x+2)^3\sqrt{5x+3}}+\frac{7\sqrt{1-2x}}{12(3x+2)^4\sqrt{5x+3}}+\frac{145708761\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{3136\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)/((2 + 3*x)^5*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-63678595*Sqrt[1 - 2*x])/(9408*Sqrt[3 + 5*x]) + (7*Sqrt[1 - 2*x]
)/(12*(2 + 3*x)^4*Sqrt[3 + 5*x]) + (33*Sqrt[1 - 2*x])/(8*(2 + 3*x
)^3*Sqrt[3 + 5*x]) + (8063*Sqrt[1 - 2*x])/(224*(2 + 3*x)^2*Sqrt[3
 + 5*x]) + (1403963*Sqrt[1 - 2*x])/(3136*(2 + 3*x)*Sqrt[3 + 5*x])
 + (145708761*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(313
6*Sqrt[7])
```

Rubi in Sympy [A] time = 35.5762, size = 160, normalized size = 0.92

$$-\frac{63678595\sqrt{-2x+1}}{9408\sqrt{5x+3}}+\frac{1403963\sqrt{-2x+1}}{3136\left(3x+2\right)\sqrt{5x+3}}+\frac{8063\sqrt{-2x+1}}{224\left(3x+2\right)^{2}\sqrt{5x+3}}+\frac{33\sqrt{-2x+1}}{8\left(3x+2\right)^{3}\sqrt{5x+3}}+\frac{7\sqrt{-2x+1}}{12\left(3x+2\right)^{4}\sqrt{5x+3}}+\frac{145708761\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{21952}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)/(2+3*x)**5/(3+5*x)**(3/2),x)
```

```
[Out] -63678595*sqrt(-2*x + 1)/(9408*sqrt(5*x + 3)) + 1403963*sqrt(-2*x
 + 1)/(3136*(3*x + 2)*sqrt(5*x + 3)) + 8063*sqrt(-2*x + 1)/(224*(
3*x + 2)**2*sqrt(5*x + 3)) + 33*sqrt(-2*x + 1)/(8*(3*x + 2)**3*sq
rt(5*x + 3)) + 7*sqrt(-2*x + 1)/(12*(3*x + 2)**4*sqrt(5*x + 3)) +
 145708761*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))
/21952
```

Mathematica [A] time = 0.134953, size = 87, normalized size = 0.5

$$\frac{145708761\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)-\frac{14\sqrt{1-2x}(1719322065x^4+4546951839x^3+4508028900x^2+1985778980x+327908240)}{(3x+2)^4\sqrt{5x+3}}}{43904}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)/((2 + 3*x)^5*(3 + 5*x)^(3/2)),x]
```

```
[Out] ((-14*Sqrt[1 - 2*x]*(327908240 + 1985778980*x + 4508028900*x^2 +
4546951839*x^3 + 1719322065*x^4))/((2 + 3*x)^4*Sqrt[3 + 5*x]) + 1
45708761*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5
*x])])/43904
```

Maple [B] time = 0.023, size = 298, normalized size = 1.7

$$-\frac{1}{43904\,(2+3\,x)^4}\left(59012048205\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^5+192772690803\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)/(2+3*x)^5/(3+5*x)^(3/2),x)
```

```
[Out] -1/43904*(59012048205*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*
x^2-x+3)^(1/2))*x^5+192772690803*7^(1/2)*arctan(1/14*(37*x+20)*7^
(1/2)/(-10*x^2-x+3)^(1/2))*x^4+251784739008*7^(1/2)*arctan(1/14*(
37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+24070508910*x^4*(-10*x^
2-x+3)^(1/2)+164359482408*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(
-10*x^2-x+3)^(1/2))*x^2+63657325746*x^3*(-10*x^2-x+3)^(1/2)+53620
824048*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))
*x+63112404600*x^2*(-10*x^2-x+3)^(1/2)+6994020528*7^(1/2)*arctan(
1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+27800905720*x*(-10*x^
2-x+3)^(1/2)+4590715360*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)/(2+3*x
)^4/(-10*x^2-x+3)^(1/2)/(3+5*x)^(1/2)
```

Maxima [A] time = 1.52125, size = 400, normalized size = 2.31

$$-\frac{145708761}{43904}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{63678595\,x}{4704\,\sqrt{-10\,x^2-x+3}}-\frac{66486521}{9408\,\sqrt{-10\,x^2-x+3}}$$
$$+\frac{49}{36\left(81\sqrt{-10\,x^2-x+3}x^4+216\sqrt{-10\,x^2-x+3}x^3+216\sqrt{-10\,x^2-x+3}x^2+96\sqrt{-10\,x^2-x+3}x+16\sqrt{-10\,x^2-x+3}\right)}$$
$$+\frac{665}{72\left(27\sqrt{-10\,x^2-x+3}x^3+54\sqrt{-10\,x^2-x+3}x^2+36\sqrt{-10\,x^2-x+3}x+8\sqrt{-10\,x^2-x+3}\right)}$$
$$+\frac{7799}{96\left(9\sqrt{-10\,x^2-x+3}x^2+12\sqrt{-10\,x^2-x+3}x+4\sqrt{-10\,x^2-x+3}\right)}$$
$$+\frac{457237}{448\left(3\sqrt{-10\,x^2-x+3}x+2\sqrt{-10\,x^2-x+3}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^(3/2)*(3*x + 2)^5),x, algorithm="maxima")
```

```
[Out] -145708761/43904*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(
3*x + 2)) + 63678595/4704*x/sqrt(-10*x^2 - x + 3) - 66486521/9408
/sqrt(-10*x^2 - x + 3) + 49/36/(81*sqrt(-10*x^2 - x + 3)*x^4 + 21
6*sqrt(-10*x^2 - x + 3)*x^3 + 216*sqrt(-10*x^2 - x + 3)*x^2 + 96*
sqrt(-10*x^2 - x + 3)*x + 16*sqrt(-10*x^2 - x + 3)) + 665/72/(27*
```

```
sqrt(-10*x^2 - x + 3)*x^3 + 54*sqrt(-10*x^2 - x + 3)*x^2 + 36*sqr
t(-10*x^2 - x + 3)*x + 8*sqrt(-10*x^2 - x + 3)) + 7799/96/(9*sqrt
(-10*x^2 - x + 3)*x^2 + 12*sqrt(-10*x^2 - x + 3)*x + 4*sqrt(-10*x
^2 - x + 3)) + 457237/448/(3*sqrt(-10*x^2 - x + 3)*x + 2*sqrt(-10
*x^2 - x + 3))
```

Fricas [A] time = 0.22261, size = 167, normalized size = 0.97

$$-\frac{\sqrt{7}\left(2\sqrt{7}\left(1719322065\,x^4 + 4546951839\,x^3 + 4508028900\,x^2 + 1985778980\,x + 327908240\right)\sqrt{5\,x+3}\sqrt{-2\,x+1} + 145708761\right.}{43904\,(405\,x^5 + 1323\,x^4 + 1728\,x^3 + 1128\,x^2 + 368}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/((5*x + 3)^(3/2)*(3*x + 2)^5),x, algorithm="fricas")
```

```
[Out] -1/43904*sqrt(7)*(2*sqrt(7)*(1719322065*x^4 + 4546951839*x^3 + 45
08028900*x^2 + 1985778980*x + 327908240)*sqrt(5*x + 3)*sqrt(-2*x
+ 1) + 145708761*(405*x^5 + 1323*x^4 + 1728*x^3 + 1128*x^2 + 368*
x + 48)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x
+ 1))))/(405*x^5 + 1323*x^4 + 1728*x^3 + 1128*x^2 + 368*x + 48)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(3/2)/(2+3*x)**5/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.422662, size = 591, normalized size = 3.42

$$-\frac{145708761}{439040}\sqrt{70}\sqrt{10}\left(\pi + 2\,\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3} - 4\right)}{140\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right) - \frac{275}{2}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}} - \frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right) - \frac{11\left(13252949\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}} - \frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^7 + 8830442040\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}} - \frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^5 + 208681882\right.}{1568\left(\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}} - \frac{4\sqrt{5}}{\sqrt{2}\sqrt{-10\,x}}\right.\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/((5*x + 3)^(3/2)*(3*x + 2)^5),x, algorithm="giac")
```

```
[Out] -145708761/439040*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70
)*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3)
 - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 275/2*sqrt(10)*((s
qrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3
)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))) - 11/1568*(13252949*sqrt(
10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(
5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^7 + 8830442040*sqr
```

```
t(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqr
t(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 + 208681882080
0*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) -
4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 1703091
25952000*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x
+ 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((
sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x +
3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)^4
```

3.2363 $\int \frac{(1-2x)^{3/2}(2+3x)^3}{(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=142

$$-\frac{128\sqrt{1-2x}(3x+2)^3}{25\sqrt{5x+3}}-\frac{2(1-2x)^{3/2}(3x+2)^3}{15(5x+3)^{3/2}}+\frac{378}{125}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^2+\frac{21\sqrt{1-2x}\sqrt{5x+3}(1140x+853)}{10000}+\frac{13153\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{10000\sqrt{10}}$$

```
[Out] (-2*(1 - 2*x)^(3/2)*(2 + 3*x)^3)/(15*(3 + 5*x)^(3/2)) - (128*Sqrt
[1 - 2*x]*(2 + 3*x)^3)/(25*Sqrt[3 + 5*x]) + (378*Sqrt[1 - 2*x]*(2
 + 3*x)^2*Sqrt[3 + 5*x])/125 + (21*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(8
53 + 1140*x))/10000 + (13153*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(1
0000*Sqrt[10])
```

Rubi [A] time = 0.263219, antiderivative size = 142, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$-\frac{128\sqrt{1-2x}(3x+2)^3}{25\sqrt{5x+3}}-\frac{2(1-2x)^{3/2}(3x+2)^3}{15(5x+3)^{3/2}}+\frac{378}{125}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^2+\frac{21\sqrt{1-2x}\sqrt{5x+3}(1140x+853)}{10000}+\frac{13153\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{10000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(2 + 3*x)^3)/(3 + 5*x)^(5/2),x]
```

```
[Out] (-2*(1 - 2*x)^(3/2)*(2 + 3*x)^3)/(15*(3 + 5*x)^(3/2)) - (128*Sqrt
[1 - 2*x]*(2 + 3*x)^3)/(25*Sqrt[3 + 5*x]) + (378*Sqrt[1 - 2*x]*(2
 + 3*x)^2*Sqrt[3 + 5*x])/125 + (21*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(8
53 + 1140*x))/10000 + (13153*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(1
0000*Sqrt[10])
```

Rubi in Sympy [A] time = 21.0067, size = 124, normalized size = 0.87

$$-\frac{2\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{3}}{15\left(5x+3\right)^{\frac{3}{2}}}-\frac{128\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{2}}{275\sqrt{5x+3}}+\frac{\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}\left(130410x+\frac{363825}{4}\right)}{123750}+\frac{13153\sqrt{-2x+1}\sqrt{5x+3}}{110000}+\frac{13153\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{100000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)**3/(3+5*x)**(5/2),x)
```

```
[Out] -2*(-2*x + 1)**(3/2)*(3*x + 2)**3/(15*(5*x + 3)**(3/2)) - 128*(-2
*x + 1)**(3/2)*(3*x + 2)**2/(275*sqrt(5*x + 3)) + (-2*x + 1)**(3/
2)*sqrt(5*x + 3)*(130410*x + 363825/4)/123750 + 13153*sqrt(-2*x +
 1)*sqrt(5*x + 3)/110000 + 13153*sqrt(10)*asin(sqrt(22)*sqrt(5*x
+ 3)/11)/100000
```

Mathematica [A] time = 0.201434, size = 70, normalized size = 0.49

$$\frac{\frac{10\sqrt{1-2x}\left(-108000x^4-83700x^3+118395x^2+129910x+31171\right)}{(5x+3)^{3/2}}-39459\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{300000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(2 + 3*x)^3)/(3 + 5*x)^(5/2),x]
```

```
[Out] ((10*Sqrt[1 - 2*x]*(31171 + 129910*x + 118395*x^2 - 83700*x^3 - 1
08000*x^4))/(3 + 5*x)^(3/2) - 39459*Sqrt[10]*ArcSin[Sqrt[5/11]*Sq
rt[1 - 2*x]])/300000
```

Maple [A] time = 0.02, size = 147, normalized size = 1.

$$\frac{1}{600000}\left(-2160000\,x^4\sqrt{-10\,x^2-x+3}+986475\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x^2-1674000\,x^3\sqrt{-10\,x^2-x+3}+1183770\,\sqrt{10}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^3/(3+5*x)^(5/2),x)
```

```
[Out] 1/600000*(-2160000*x^4*(-10*x^2-x+3)^(1/2)+986475*10^(1/2)*arcsin
(20/11*x+1/11)*x^2-1674000*x^3*(-10*x^2-x+3)^(1/2)+1183770*10^(1/
2)*arcsin(20/11*x+1/11)*x+2367900*x^2*(-10*x^2-x+3)^(1/2)+355131*
10^(1/2)*arcsin(20/11*x+1/11)+2598200*x*(-10*x^2-x+3)^(1/2)+62342
0*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)/(-10*x^2-x+3)^(1/2)/(3+5*x)^
(3/2)
```

Maxima [A] time = 1.53462, size = 285, normalized size = 2.01

$$-\frac{35937}{1000000}i\,\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}\,x+\frac{23}{11}\right)+\frac{7457}{250000}\,\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}\,x+\frac{1}{11}\right)+\frac{9}{625}\,\left(-10\,x^2-x+3\right)^{\frac{3}{2}}+\frac{297}{2500}\,\sqrt{10\,x^2+23\,x+\frac{51}{5}}x+\frac{6831}{50000}\,\sqrt{10\,x^2+23\,x+\frac{51}{5}}+\frac{891}{12500}\,\sqrt{-10\,x^2-x+3}-\frac{\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{1875\,(125\,x^3+225\,x^2+135\,x+27)}+\frac{9\,\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{625\,(25\,x^2+30\,x+9)}+\frac{27\,\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{1250\,(5\,x+3)}-\frac{11\,\sqrt{-10\,x^2-x+3}}{9375\,(25\,x^2+30\,x+9)}-\frac{877\,\sqrt{-10\,x^2-x+3}}{9375\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*(-2*x + 1)^(3/2)/(5*x + 3)^(5/2),x, algorithm="maxima")
```

```
[Out] -35937/1000000*I*sqrt(5)*sqrt(2)*arcsin(20/11*x + 23/11) + 7457/2
50000*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) + 9/625*(-10*x^2 - x
 + 3)^(3/2) + 297/2500*sqrt(10*x^2 + 23*x + 51/5)*x + 6831/50000*
sqrt(10*x^2 + 23*x + 51/5) + 891/12500*sqrt(-10*x^2 - x + 3) - 1/
1875*(-10*x^2 - x + 3)^(3/2)/(125*x^3 + 225*x^2 + 135*x + 27) + 9
/625*(-10*x^2 - x + 3)^(3/2)/(25*x^2 + 30*x + 9) + 27/1250*(-10*x
^2 - x + 3)^(3/2)/(5*x + 3) - 11/9375*sqrt(-10*x^2 - x + 3)/(25*x
^2 + 30*x + 9) - 877/9375*sqrt(-10*x^2 - x + 3)/(5*x + 3)
```

Fricas [A] time = 0.22332, size = 127, normalized size = 0.89

$$-\frac{\sqrt{10}\left(2\,\sqrt{10}\left(108000\,x^4+83700\,x^3-118395\,x^2-129910\,x-31171\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-39459\,\left(25\,x^2+30\,x+9\right)\arctan\left(\right.}{600000\,(25\,x^2+30\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*(-2*x + 1)^(3/2)/(5*x + 3)^(5/2),x, algorithm="fricas")
```

```
[Out] -1/600000*sqrt(10)*(2*sqrt(10)*(108000*x^4 + 83700*x^3 - 118395*x
^2 - 129910*x - 31171)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 39459*(25*x
^2 + 30*x + 9)*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqr
t(-2*x + 1))))/(25*x^2 + 30*x + 9)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)**3/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.313425, size = 255, normalized size = 1.8

$$-\frac{9}{250000}\left(4\left(8\sqrt{5}(5x+3)-65\sqrt{5}\right)(5x+3)-265\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}$$
$$-\frac{\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^3}{750000\,(5x+3)^{\frac{3}{2}}}+\frac{13153}{100000}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)$$
$$-\frac{193\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}{62500\sqrt{5x+3}}+\frac{\left(\frac{579\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}+4\sqrt{10}\right)(5x+3)^{\frac{3}{2}}}{46875\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*(-2*x + 1)^(3/2)/(5*x + 3)^(5/2),x, algorithm="giac")
```

```
[Out] -9/250000*(4*(8*sqrt(5)*(5*x + 3) - 65*sqrt(5))*(5*x + 3) - 265*s
qrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5) - 1/750000*sqrt(10)*(sqrt(2
)*sqrt(-10*x + 5) - sqrt(22))^3/(5*x + 3)^(3/2) + 13153/100000*sq
rt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) - 193/62500*sqrt(10)*(
sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) + 1/46875*(579*
sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) + 4*sqr
t(10))*(5*x + 3)^(3/2)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^3
```

3.2364 $\int \frac{(1-2x)^{3/2}(2+3x)^2}{(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=116

$$-\frac{388(1-2x)^{5/2}}{9075\sqrt{5x+3}}-\frac{2(1-2x)^{5/2}}{825(5x+3)^{3/2}}+\frac{343\sqrt{5x+3}(1-2x)^{3/2}}{18150}+\frac{343\sqrt{5x+3}\sqrt{1-2x}}{5500}+\frac{343\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{500\sqrt{10}}$$

```
[Out] (-2*(1 - 2*x)^(5/2))/(825*(3 + 5*x)^(3/2)) - (388*(1 - 2*x)^(5/2)
)/(9075*Sqrt[3 + 5*x]) + (343*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/5500 +
 (343*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/18150 + (343*ArcSin[Sqrt[2/1
1]*Sqrt[3 + 5*x]])/(500*Sqrt[10])
```

Rubi [A] time = 0.142511, antiderivative size = 116, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$-\frac{388(1-2x)^{5/2}}{9075\sqrt{5x+3}}-\frac{2(1-2x)^{5/2}}{825(5x+3)^{3/2}}+\frac{343\sqrt{5x+3}(1-2x)^{3/2}}{18150}+\frac{343\sqrt{5x+3}\sqrt{1-2x}}{5500}+\frac{343\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{500\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(2 + 3*x)^2)/(3 + 5*x)^(5/2),x]
```

```
[Out] (-2*(1 - 2*x)^(5/2))/(825*(3 + 5*x)^(3/2)) - (388*(1 - 2*x)^(5/2)
)/(9075*Sqrt[3 + 5*x]) + (343*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/5500 +
 (343*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/18150 + (343*ArcSin[Sqrt[2/1
1]*Sqrt[3 + 5*x]])/(500*Sqrt[10])
```

Rubi in Sympy [A] time = 12.059, size = 105, normalized size = 0.91

$$-\frac{388\,(-2x+1)^{\frac{5}{2}}}{9075\sqrt{5x+3}}-\frac{2\,(-2x+1)^{\frac{5}{2}}}{825\,(5x+3)^{\frac{3}{2}}}+\frac{343\,(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{18150}+\frac{343\sqrt{-2x+1}\sqrt{5x+3}}{5500}+\frac{343\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{5000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)**2/(3+5*x)**(5/2),x)
```

```
[Out] -388*(-2*x + 1)**(5/2)/(9075*sqrt(5*x + 3)) - 2*(-2*x + 1)**(5/2)
/(825*(5*x + 3)**(3/2)) + 343*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/181
50 + 343*sqrt(-2*x + 1)*sqrt(5*x + 3)/5500 + 343*sqrt(10)*asin(sq
rt(22)*sqrt(5*x + 3)/11)/5000
```

Mathematica [A] time = 0.171384, size = 65, normalized size = 0.56

$$\frac{\sqrt{1-2x}\left(-2700x^3+1845x^2+3610x+901\right)}{1500(5x+3)^{3/2}}-\frac{343\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{500\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(2 + 3*x)^2)/(3 + 5*x)^(5/2),x]
```

```
[Out] (Sqrt[1 - 2*x]*(901 + 3610*x + 1845*x^2 - 2700*x^3))/(1500*(3 + 5
*x)^(3/2)) - (343*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/(500*Sqrt[10]
)
```

Maple [A] time = 0.018, size = 130, normalized size = 1.1

$$\frac{1}{30000}\left(25725\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)x^2-54000x^3\sqrt{-10x^2-x+3}+30870\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)x+36900x^2\sqrt{-1}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((1-2*x)^(3/2)*(2+3*x)^2/(3+5*x)^(5/2),x)
```

```
[Out] 1/30000*(25725*10^(1/2)*arcsin(20/11*x+1/11)*x^2-54000*x^3*(-10*x
^2-x+3)^(1/2)+30870*10^(1/2)*arcsin(20/11*x+1/11)*x+36900*x^2*(-1
0*x^2-x+3)^(1/2)+9261*10^(1/2)*arcsin(20/11*x+1/11)+72200*x*(-10*
x^2-x+3)^(1/2)+18020*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)/(-10*x^2-
x+3)^(1/2)/(3+5*x)^(3/2)
```

Maxima [A] time = 1.52232, size = 208, normalized size = 1.79

$$\frac{343}{10000}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)+\frac{297}{2500}\sqrt{-10x^2-x+3}-\frac{\left(-10x^2-x+3\right)^{\frac{3}{2}}}{375\left(125x^3+225x^2+135x+27\right)}+\frac{6\left(-10x^2-x+3\right)^{\frac{3}{2}}}{125\left(25x^2+30x+9\right)}+\frac{9\left(-10x^2-x+3\right)^{\frac{3}{2}}}{250\left(5x+3\right)}-\frac{11\sqrt{-10x^2-x+3}}{1875\left(25x^2+30x+9\right)}-\frac{116\sqrt{-10x^2-x+3}}{375\left(5x+3\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2*(-2*x + 1)^(3/2)/(5*x + 3)^(5/2),x, algorithm="maxima")
```

```
[Out] 343/10000*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) + 297/2500*sqrt(
-10*x^2 - x + 3) - 1/375*(-10*x^2 - x + 3)^(3/2)/(125*x^3 + 225*x
^2 + 135*x + 27) + 6/125*(-10*x^2 - x + 3)^(3/2)/(25*x^2 + 30*x +
 9) + 9/250*(-10*x^2 - x + 3)^(3/2)/(5*x + 3) - 11/1875*sqrt(-10*
x^2 - x + 3)/(25*x^2 + 30*x + 9) - 116/375*sqrt(-10*x^2 - x + 3)/
(5*x + 3)
```

Fricas [A] time = 0.21818, size = 120, normalized size = 1.03

$$-\frac{\sqrt{10}\left(2\sqrt{10}\left(2700x^3-1845x^2-3610x-901\right)\sqrt{5x+3}\sqrt{-2x+1}-1029\left(25x^2+30x+9\right)\arctan\left(\frac{\sqrt{10}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)}{30000\left(25x^2+30x+9\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2*(-2*x + 1)^(3/2)/(5*x + 3)^(5/2),x, algorithm="fricas")
```

```
[Out] -1/30000*sqrt(10)*(2*sqrt(10)*(2700*x^3 - 1845*x^2 - 3610*x - 901
)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 1029*(25*x^2 + 30*x + 9)*arctan(
1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(25*x^2
 + 30*x + 9)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)**2/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.299718, size = 238, normalized size = 2.05

$$-\frac{3}{12500}\left(12\sqrt{5}(5x+3)-149\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}-\frac{\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^{3}}{150000\,(5x+3)^{\frac{3}{2}}}+\frac{343}{5000}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)-\frac{127\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}{12500\sqrt{5x+3}}+\frac{\left(\frac{381\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^{2}}{5x+3}+4\sqrt{10}\right)(5x+3)^{\frac{3}{2}}}{9375\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2*(-2*x + 1)^(3/2)/(5*x + 3)^(5/2),x, algorithm="giac")
```

```
[Out] -3/12500*(12*sqrt(5)*(5*x + 3) - 149*sqrt(5))*sqrt(5*x + 3)*sqrt(
-10*x + 5) - 1/150000*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22
))^3/(5*x + 3)^(3/2) + 343/5000*sqrt(10)*arcsin(1/11*sqrt(22)*sqr
t(5*x + 3)) - 127/12500*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(
22))/sqrt(5*x + 3) + 1/9375*(381*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5
) - sqrt(22))^2/(5*x + 3) + 4*sqrt(10))*(5*x + 3)^(3/2)/(sqrt(2)*
sqrt(-10*x + 5) - sqrt(22))^3
```

3.2365 $\int \frac{(1-2x)^{3/2}(2+3x)}{(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=96

$$-\frac{2(1-2x)^{5/2}}{165(5x+3)^{3/2}}-\frac{38(1-2x)^{3/2}}{165\sqrt{5x+3}}-\frac{38}{275}\sqrt{5x+3}\sqrt{1-2x}-\frac{19}{25}\sqrt{\frac{2}{5}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)$$

```
[Out] (-2*(1 - 2*x)^(5/2))/(165*(3 + 5*x)^(3/2)) - (38*(1 - 2*x)^(3/2))
/(165*Sqrt[3 + 5*x]) - (38*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/275 - (19
*Sqrt[2/5]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/25
```

Rubi [A] time = 0.0958403, antiderivative size = 96, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$-\frac{2(1-2x)^{5/2}}{165(5x+3)^{3/2}}-\frac{38(1-2x)^{3/2}}{165\sqrt{5x+3}}-\frac{38}{275}\sqrt{5x+3}\sqrt{1-2x}-\frac{19}{25}\sqrt{\frac{2}{5}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)^(3/2)*(2 + 3*x))/(3 + 5*x)^(5/2),x]
```

```
[Out] (-2*(1 - 2*x)^(5/2))/(165*(3 + 5*x)^(3/2)) - (38*(1 - 2*x)^(3/2))
/(165*Sqrt[3 + 5*x]) - (38*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/275 - (19
*Sqrt[2/5]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/25
```

Rubi in Sympy [A] time = 9.14851, size = 87, normalized size = 0.91

$$-\frac{2\left(-2x+1\right)^{\frac{5}{2}}}{165\left(5x+3\right)^{\frac{3}{2}}}-\frac{38\left(-2x+1\right)^{\frac{3}{2}}}{165\sqrt{5x+3}}-\frac{38\sqrt{-2x+1}\sqrt{5x+3}}{275}-\frac{19\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**(3/2)*(2+3*x)/(3+5*x)**(5/2),x)
```

```
[Out] -2*(-2*x + 1)**(5/2)/(165*(5*x + 3)**(3/2)) - 38*(-2*x + 1)**(3/2
)/(165*sqrt(5*x + 3)) - 38*sqrt(-2*x + 1)*sqrt(5*x + 3)/275 - 19*
sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/125
```

Mathematica [A] time = 0.139098, size = 62, normalized size = 0.65

$$\frac{19}{25}\sqrt{\frac{2}{5}}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)-\frac{2\sqrt{1-2x}\left(45x^2+145x+73\right)}{75(5x+3)^{3/2}}$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)^(3/2)*(2 + 3*x))/(3 + 5*x)^(5/2),x]
```

```
[Out] (-2*Sqrt[1 - 2*x]*(73 + 145*x + 45*x^2))/(75*(3 + 5*x)^(3/2)) + (
19*Sqrt[2/5]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/25
```

Maple [A] time = 0.016, size = 113, normalized size = 1.2

$$-\frac{1}{750}\left(1425\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x^2+1710\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x+900\,x^2\sqrt{-10\,x^2-x+3}+513\sqrt{10}\arcsin\left(\frac{20}{1}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)/(3+5*x)^(5/2),x)
```

```
[Out] -1/750*(1425*10^(1/2)*arcsin(20/11*x+1/11)*x^2+1710*10^(1/2)*arcs
in(20/11*x+1/11)*x+900*x^2*(-10*x^2-x+3)^(1/2)+513*10^(1/2)*arcsi
n(20/11*x+1/11)+2900*x*(-10*x^2-x+3)^(1/2)+1460*(-10*x^2-x+3)^(1/
2))*(1-2*x)^(1/2)/(-10*x^2-x+3)^(1/2)/(3+5*x)^(3/2)
```

Maxima [A] time = 1.49668, size = 161, normalized size = 1.68

$$-\frac{19}{250}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)-\frac{\left(-10x^2-x+3\right)^{\frac{3}{2}}}{75\left(125x^3+225x^2+135x+27\right)}+\frac{3\left(-10x^2-x+3\right)^{\frac{3}{2}}}{25\left(25x^2+30x+9\right)}-\frac{11\sqrt{-10x^2-x+3}}{375\left(25x^2+30x+9\right)}-\frac{283\sqrt{-10x^2-x+3}}{375\left(5x+3\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)*(-2*x + 1)^(3/2)/(5*x + 3)^(5/2),x, algorithm="maxima")
```

```
[Out] -19/250*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) - 1/75*(-10*x^2 -
x + 3)^(3/2)/(125*x^3 + 225*x^2 + 135*x + 27) + 3/25*(-10*x^2 - x
 + 3)^(3/2)/(25*x^2 + 30*x + 9) - 11/375*sqrt(-10*x^2 - x + 3)/(2
5*x^2 + 30*x + 9) - 283/375*sqrt(-10*x^2 - x + 3)/(5*x + 3)
```

Fricas [A] time = 0.220018, size = 122, normalized size = 1.27

$$-\frac{\sqrt{5}\left(4\sqrt{5}\left(45x^2+145x+73\right)\sqrt{5x+3}\sqrt{-2x+1}+57\sqrt{2}\left(25x^2+30x+9\right)\arctan\left(\frac{\sqrt{5}\sqrt{2}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)}{750\left(25x^2+30x+9\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)*(-2*x + 1)^(3/2)/(5*x + 3)^(5/2),x, algorithm="fricas")
```

```
[Out] -1/750*sqrt(5)*(4*sqrt(5)*(45*x^2 + 145*x + 73)*sqrt(5*x + 3)*sqr
t(-2*x + 1) + 57*sqrt(2)*(25*x^2 + 30*x + 9)*arctan(1/20*sqrt(5)*
sqrt(2)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(25*x^2 + 30*
x + 9)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.278669, size = 220, normalized size = 2.29

$$-\frac{\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{3}}{30000\,(5\,x+3)^{\frac{3}{2}}}-\frac{6}{625}\,\sqrt{5}\sqrt{5\,x+3}\sqrt{-10\,x+5}-\frac{19}{125}\,\sqrt{10}\arcsin\left(\frac{1}{11}\,\sqrt{22}\sqrt{5\,x+3}\right)-\frac{61\,\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}{2500\,\sqrt{5\,x+3}}+\frac{\left(\frac{183\,\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{2}}{5\,x+3}+4\,\sqrt{10}\right)(5\,x+3)^{\frac{3}{2}}}{1875\,\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)*(-2*x + 1)^(3/2)/(5*x + 3)^(5/2),x, algorithm="giac")
```

```
[Out] -1/30000*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^3/(5*x + 3
)^(3/2) - 6/625*sqrt(5)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 19/125*sq
rt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) - 61/2500*sqrt(10)*(sq
rt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) + 1/1875*(183*sqr
t(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) + 4*sqrt(1
0))*(5*x + 3)^(3/2)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^3
```

3.2366 $\int \frac{(1-2x)^{3/2}}{(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=74

$$-\frac{2(1-2x)^{3/2}}{15(5x+3)^{3/2}}+\frac{4\sqrt{1-2x}}{25\sqrt{5x+3}}+\frac{4}{25}\sqrt{\frac{2}{5}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)$$

```
[Out] (-2*(1 - 2*x)^(3/2))/(15*(3 + 5*x)^(3/2)) + (4*Sqrt[1 - 2*x])/(25
*Sqrt[3 + 5*x]) + (4*Sqrt[2/5]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/
25
```

Rubi [A] time = 0.0627282, antiderivative size = 74, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.158

$$-\frac{2(1-2x)^{3/2}}{15(5x+3)^{3/2}}+\frac{4\sqrt{1-2x}}{25\sqrt{5x+3}}+\frac{4}{25}\sqrt{\frac{2}{5}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)/(3 + 5*x)^(5/2),x]
```

```
[Out] (-2*(1 - 2*x)^(3/2))/(15*(3 + 5*x)^(3/2)) + (4*Sqrt[1 - 2*x])/(25
*Sqrt[3 + 5*x]) + (4*Sqrt[2/5]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/
25
```

Rubi in Sympy [A] time = 6.91068, size = 65, normalized size = 0.88

$$-\frac{2\left(-2x+1\right)^{\frac{3}{2}}}{15\left(5x+3\right)^{\frac{3}{2}}}+\frac{4\sqrt{-2x+1}}{25\sqrt{5x+3}}+\frac{4\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)/(3+5*x)**(5/2),x)
```

```
[Out] -2*(-2*x + 1)**(3/2)/(15*(5*x + 3)**(3/2)) + 4*sqrt(-2*x + 1)/(25
*sqrt(5*x + 3)) + 4*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/125
```

Mathematica [A] time = 0.130437, size = 55, normalized size = 0.74

$$\frac{2}{375}\left(\frac{5\sqrt{1-2x}(40x+13)}{(5x+3)^{3/2}}-6\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)/(3 + 5*x)^(5/2),x]
```

```
[Out] (2*((5*Sqrt[1 - 2*x]*(13 + 40*x))/(3 + 5*x)^(3/2) - 6*Sqrt[10]*Ar
cSin[Sqrt[5/11]*Sqrt[1 - 2*x]]))/375
```

Maple [F] time = 0.066, size = 0, normalized size = 0.

$$\int 1\left(1-2\,x\right)^{\frac{3}{2}}\left(3+5\,x\right)^{-\frac{5}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((1-2*x)^(3/2)/(3+5*x)^(5/2),x)
```

```
[Out] int((1-2*x)^(3/2)/(3+5*x)^(5/2),x)
```

Maxima [A] time = 1.48783, size = 126, normalized size = 1.7

$$\frac{2}{125}\,\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}\,x+\frac{1}{11}\right)-\frac{\left(-10\,x^{2}-x+3\right)^{\frac{3}{2}}}{15\,(125\,x^{3}+225\,x^{2}+135\,x+27)}-\frac{11\,\sqrt{-10\,x^{2}-x+3}}{75\,(25\,x^{2}+30\,x+9)}+\frac{14\,\sqrt{-10\,x^{2}-x+3}}{75\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((-2*x + 1)^(3/2)/(5*x + 3)^(5/2),x, algorithm="maxima")
```

```
[Out] 2/125*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) - 1/15*(-10*x^2 - x
+ 3)^(3/2)/(125*x^3 + 225*x^2 + 135*x + 27) - 11/75*sqrt(-10*x^2
- x + 3)/(25*x^2 + 30*x + 9) + 14/75*sqrt(-10*x^2 - x + 3)/(5*x +
 3)
```

Fricas [A] time = 0.218221, size = 113, normalized size = 1.53

$$\frac{2\,\sqrt{5}\left(\sqrt{5}(40\,x+13)\sqrt{5\,x+3}\sqrt{-2\,x+1}+3\,\sqrt{2}\left(25\,x^{2}+30\,x+9\right)\,\arctan\left(\frac{\sqrt{5}\sqrt{2}(20\,x+1)}{20\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)}{375\,(25\,x^{2}+30\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((-2*x + 1)^(3/2)/(5*x + 3)^(5/2),x, algorithm="fricas")
```

```
[Out] 2/375*sqrt(5)*(sqrt(5)*(40*x + 13)*sqrt(5*x + 3)*sqrt(-2*x + 1) +
 3*sqrt(2)*(25*x^2 + 30*x + 9)*arctan(1/20*sqrt(5)*sqrt(2)*(20*x
+ 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(25*x^2 + 30*x + 9)
```

Sympy [A] time = 9.87256, size = 206, normalized size = 2.78

$$\begin{cases}\frac{16\sqrt{10}\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}}{375}-\frac{22\sqrt{10}\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}}{1875\left(x+\frac{3}{5}\right)}+\frac{2\sqrt{10}i\log\left(\frac{1}{x+\frac{3}{5}}\right)}{125}+\frac{2\sqrt{10}i\log\left(x+\frac{3}{5}\right)}{125}+\frac{4\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{110}\sqrt{x+\frac{3}{5}}}{11}\right)}{125} & \text{for}\ \frac{11\left|\frac{1}{x+\frac{3}{5}}\right|}{10}>1\\ \frac{16\sqrt{10}i\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}}{375}-\frac{22\sqrt{10}i\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}}{1875\left(x+\frac{3}{5}\right)}+\frac{2\sqrt{10}i\log\left(\frac{1}{x+\frac{3}{5}}\right)}{125}-\frac{4\sqrt{10}i\log\left(\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}+1\right)}{125} & \text{otherwise}\end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((1-2*x)**(3/2)/(3+5*x)**(5/2),x)
```

```
[Out] Piecewise((16*sqrt(10)*sqrt(-1 + 11/(10*(x + 3/5)))/375 - 22*sqrt
(10)*sqrt(-1 + 11/(10*(x + 3/5)))/(1875*(x + 3/5)) + 2*sqrt(10)*I
*log(1/(x + 3/5))/125 + 2*sqrt(10)*I*log(x + 3/5)/125 + 4*sqrt(10
)*asin(sqrt(110)*sqrt(x + 3/5)/11)/125, 11*Abs(1/(x + 3/5))/10 >
1), (16*sqrt(10)*I*sqrt(1 - 11/(10*(x + 3/5)))/375 - 22*sqrt(10)*
I*sqrt(1 - 11/(10*(x + 3/5)))/(1875*(x + 3/5)) + 2*sqrt(10)*I*log
(1/(x + 3/5))/125 - 4*sqrt(10)*I*log(sqrt(1 - 11/(10*(x + 3/5)))
+ 1)/125, True))
```

GIAC/XCAS [A] time = 0.259711, size = 194, normalized size = 2.62

$$-\frac{\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{3}}{6000\,(5\,x+3)^{\frac{3}{2}}}+\frac{4}{125}\,\sqrt{10}\arcsin\left(\frac{1}{11}\,\sqrt{22}\sqrt{5\,x+3}\right)+\frac{\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}{100\,\sqrt{5\,x+3}}-\frac{\left(\frac{15\,\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{2}}{5\,x+3}-4\,\sqrt{10}\right)(5\,x+3)^{\frac{3}{2}}}{375\,\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/(5*x + 3)^(5/2),x, algorithm="giac")
```

```
[Out] -1/6000*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^3/(5*x + 3)
^(3/2) + 4/125*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) + 1/1
00*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) -
1/375*(15*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x +
3) - 4*sqrt(10))*(5*x + 3)^(3/2)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(
22))^3
```

3.2367 $\int \frac{(1-2x)^{3/2}}{(2+3x)(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=75

$$-\frac{2(1-2x)^{3/2}}{3(5x+3)^{3/2}}+\frac{14\sqrt{1-2x}}{\sqrt{5x+3}}-14\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

```
[Out] (-2*(1 - 2*x)^(3/2))/(3*(3 + 5*x)^(3/2)) + (14*Sqrt[1 - 2*x])/Sqr
t[3 + 5*x] - 14*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*
x])]
```

Rubi [A] time = 0.123887, antiderivative size = 75, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.115

$$-\frac{2(1-2x)^{3/2}}{3(5x+3)^{3/2}}+\frac{14\sqrt{1-2x}}{\sqrt{5x+3}}-14\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)/((2 + 3*x)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (-2*(1 - 2*x)^(3/2))/(3*(3 + 5*x)^(3/2)) + (14*Sqrt[1 - 2*x])/Sqr
t[3 + 5*x] - 14*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*
x])]
```

Rubi in Sympy [A] time = 10.3218, size = 70, normalized size = 0.93

$$-\frac{2\,(-2x+1)^{\frac{3}{2}}}{3\,(5x+3)^{\frac{3}{2}}}+\frac{14\sqrt{-2x+1}}{\sqrt{5x+3}}-14\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)/(2+3*x)/(3+5*x)**(5/2),x)
```

```
[Out] -2*(-2*x + 1)**(3/2)/(3*(5*x + 3)**(3/2)) + 14*sqrt(-2*x + 1)/sqr
t(5*x + 3) - 14*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x +
 3)))
```

Mathematica [A] time = 0.128628, size = 63, normalized size = 0.84

$$\frac{2\sqrt{1-2x}(107x+62)}{3(5x+3)^{3/2}}-7\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)/((2 + 3*x)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (2*Sqrt[1 - 2*x]*(62 + 107*x))/(3*(3 + 5*x)^(3/2)) - 7*Sqrt[7]*Ar
cTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])]
```

Maple [B] time = 0.02, size = 147, normalized size = 2.

$$\frac{1}{3}\left(525\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^2+630\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x+189\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20}{\sqrt{-10\,x^2-}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)/(2+3*x)/(3+5*x)^(5/2),x)
```

```
[Out] 1/3*(525*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2
))*x^2+630*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1
/2))*x+189*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1
/2))+214*x*(-10*x^2-x+3)^(1/2)+124*(-10*x^2-x+3)^(1/2))*(1-2*x)^(
1/2)/(-10*x^2-x+3)^(1/2)/(3+5*x)^(3/2)
```

Maxima [A] time = 1.52614, size = 140, normalized size = 1.87

$$7\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)-\frac{428\,x}{15\,\sqrt{-10\,x^2-x+3}}+\frac{8\,x^2}{15\,(-10\,x^2-x+3)^{\frac{3}{2}}}+\frac{1118}{75\,\sqrt{-10\,x^2-x+3}}+\frac{488\,x}{75\,(-10\,x^2-x+3)^{\frac{3}{2}}}-\frac{254}{75\,(-10\,x^2-x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/((5*x + 3)^(5/2)*(3*x + 2)),x, algorithm="maxima")
```

```
[Out] 7*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) - 428
/15*x/sqrt(-10*x^2 - x + 3) + 8/15*x^2/(-10*x^2 - x + 3)^(3/2) +
1118/75/sqrt(-10*x^2 - x + 3) + 488/75*x/(-10*x^2 - x + 3)^(3/2)
- 254/75/(-10*x^2 - x + 3)^(3/2)
```

Fricas [A] time = 0.219008, size = 103, normalized size = 1.37

$$\frac{21\,\sqrt{7}\left(25\,x^2+30\,x+9\right)\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)+2\,(107\,x+62)\sqrt{5\,x+3}\sqrt{-2\,x+1}}{3\,(25\,x^2+30\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/((5*x + 3)^(5/2)*(3*x + 2)),x, algorithm="fricas")
```

```
[Out] 1/3*(21*sqrt(7)*(25*x^2 + 30*x + 9)*arctan(1/14*sqrt(7)*(37*x + 2
0)/(sqrt(5*x + 3)*sqrt(-2*x + 1))) + 2*(107*x + 62)*sqrt(5*x + 3)
*sqrt(-2*x + 1))/(25*x^2 + 30*x + 9)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)/(2+3*x)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.2872, size = 262, normalized size = 3.49

$$-\frac{1}{1200}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3+\frac{7}{10}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)+\frac{7}{10}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/((5*x + 3)^(5/2)*(3*x + 2)),x, algorithm="giac")
```

```
[Out] -1/1200*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x +
 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 7
/10*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x + 3
)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqrt(2)
*sqrt(-10*x + 5) - sqrt(22)))) + 7/10*sqrt(10)*((sqrt(2)*sqrt(-10
*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt
(-10*x + 5) - sqrt(22)))
```

3.2368 $\int \frac{(1-2x)^{3/2}}{(2+3x)^2(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=104

$$\frac{3(1-2x)^{5/2}}{7(3x+2)(5x+3)^{3/2}}-\frac{169(1-2x)^{3/2}}{21(5x+3)^{3/2}}+\frac{169\sqrt{1-2x}}{\sqrt{5x+3}}-169\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

```
[Out] (-169*(1 - 2*x)^(3/2))/(21*(3 + 5*x)^(3/2)) + (3*(1 - 2*x)^(5/2))
/(7*(2 + 3*x)*(3 + 5*x)^(3/2)) + (169*Sqrt[1 - 2*x])/Sqrt[3 + 5*x
] - 169*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])]
```

Rubi [A] time = 0.163692, antiderivative size = 104, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$\frac{3(1-2x)^{5/2}}{7(3x+2)(5x+3)^{3/2}}-\frac{169(1-2x)^{3/2}}{21(5x+3)^{3/2}}+\frac{169\sqrt{1-2x}}{\sqrt{5x+3}}-169\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)/((2 + 3*x)^2*(3 + 5*x)^(5/2)),x]
```

```
[Out] (-169*(1 - 2*x)^(3/2))/(21*(3 + 5*x)^(3/2)) + (3*(1 - 2*x)^(5/2))
/(7*(2 + 3*x)*(3 + 5*x)^(3/2)) + (169*Sqrt[1 - 2*x])/Sqrt[3 + 5*x
] - 169*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])]
```

Rubi in Sympy [A] time = 13.0054, size = 105, normalized size = 1.01

$$-\frac{10\left(-2x+1\right)^{\frac{5}{2}}}{33\left(3x+2\right)\left(5x+3\right)^{\frac{3}{2}}}+\frac{338\left(-2x+1\right)^{\frac{3}{2}}}{33\left(3x+2\right)\sqrt{5x+3}}+\frac{1183\sqrt{-2x+1}\sqrt{5x+3}}{11\left(3x+2\right)}-169\sqrt{7}\,\text{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)/(2+3*x)**2/(3+5*x)**(5/2),x)
```

```
[Out] -10*(-2*x + 1)**(5/2)/(33*(3*x + 2)*(5*x + 3)**(3/2)) + 338*(-2*x
 + 1)**(3/2)/(33*(3*x + 2)*sqrt(5*x + 3)) + 1183*sqrt(-2*x + 1)*s
qrt(5*x + 3)/(11*(3*x + 2)) - 169*sqrt(7)*atan(sqrt(7)*sqrt(-2*x
+ 1)/(7*sqrt(5*x + 3)))
```

Mathematica [A] time = 0.0904842, size = 77, normalized size = 0.74

$$\frac{\sqrt{1-2x}\left(7755x^2+9652x+2995\right)}{3(3x+2)(5x+3)^{3/2}}-\frac{169}{2}\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)/((2 + 3*x)^2*(3 + 5*x)^(5/2)),x]
```

```
[Out] (Sqrt[1 - 2*x]*(2995 + 9652*x + 7755*x^2))/(3*(2 + 3*x)*(3 + 5*x)
^(3/2)) - (169*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt
[3 + 5*x])])/2
```

Maple [B] time = 0.021, size = 202, normalized size = 1.9

$$\frac{1}{12+18x}\left(38025\sqrt{7}\arctan\left(1/14\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)x^3+70980\sqrt{7}\arctan\left(1/14\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)x^2+44109\sqrt{7}\arctan\left(\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)/(2+3*x)^2/(3+5*x)^(5/2),x)
```

```
[Out] 1/6*(38025*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1
/2))*x^3+70980*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3
)^(1/2))*x^2+44109*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2
-x+3)^(1/2))*x+15510*x^2*(-10*x^2-x+3)^(1/2)+9126*7^(1/2)*arctan(
1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+19304*x*(-10*x^2-x+3)
^(1/2)+5990*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)/(2+3*x)/(-10*x^2-x
+3)^(1/2)/(3+5*x)^(3/2)
```

Maxima [A] time = 1.5047, size = 163, normalized size = 1.57

$$\frac{169}{2}\sqrt{7}\arcsin\left(\frac{37x}{11|3x+2|}+\frac{20}{11|3x+2|}\right)-\frac{1034x}{3\sqrt{-10x^2-x+3}}+\frac{2699}{15\sqrt{-10x^2-x+3}}+\frac{3902x}{45(-10x^2-x+3)^{\frac{3}{2}}}+\frac{343}{27\left(3(-10x^2-x+3)^{\frac{3}{2}}x+2(-10x^2-x+3)^{\frac{3}{2}}\right)}-\frac{6343}{135(-10x^2-x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^(5/2)*(3*x + 2)^2),x, algorithm="maxima")
```

```
[Out] 169/2*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) -
 1034/3*x/sqrt(-10*x^2 - x + 3) + 2699/15/sqrt(-10*x^2 - x + 3) +
 3902/45*x/(-10*x^2 - x + 3)^(3/2) + 343/27/(3*(-10*x^2 - x + 3)^
(3/2)*x + 2*(-10*x^2 - x + 3)^(3/2)) - 6343/135/(-10*x^2 - x + 3)
^(3/2)
```

Fricas [A] time = 0.219472, size = 123, normalized size = 1.18

$$\frac{507\sqrt{7}\left(75x^3+140x^2+87x+18\right)\arctan\left(\frac{\sqrt{7}(37x+20)}{14\sqrt{5x+3}\sqrt{-2x+1}}\right)+2\left(7755x^2+9652x+2995\right)\sqrt{5x+3}\sqrt{-2x+1}}{6\left(75x^3+140x^2+87x+18\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^(5/2)*(3*x + 2)^2),x, algorithm="fricas")
```

```
[Out] 1/6*(507*sqrt(7)*(75*x^3 + 140*x^2 + 87*x + 18)*arctan(1/14*sqrt(
7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))) + 2*(7755*x^2 + 96
52*x + 2995)*sqrt(5*x + 3)*sqrt(-2*x + 1))/(75*x^3 + 140*x^2 + 87
*x + 18)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)/(2+3*x)**2/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.323356, size = 423, normalized size = 4.07

$$-\frac{1}{240}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^{3}+\frac{169}{20}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^{2}}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)+\frac{34}{5}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)+\frac{462\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)}{\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^{2}+280}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/((5*x + 3)^(5/2)*(3*x + 2)^2),x, algorithm="giac")
```

```
[Out] -1/240*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x +
3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 16
9/20*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x +
3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqrt(2
)*sqrt(-10*x + 5) - sqrt(22)))) + 34/5*sqrt(10)*((sqrt(2)*sqrt(-1
0*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqr
t(-10*x + 5) - sqrt(22))) + 462*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5
) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x
 + 5) - sqrt(22)))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*
x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^2
+ 280)
```

3.2369 $\int \frac{(1-2x)^{3/2}}{(2+3x)^3(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=137

$$\frac{17825\sqrt{1-2x}}{12\sqrt{5x+3}}-\frac{655\sqrt{1-2x}}{4(5x+3)^{3/2}}+\frac{235\sqrt{1-2x}}{12(3x+2)(5x+3)^{3/2}}+\frac{7\sqrt{1-2x}}{6(3x+2)^2(5x+3)^{3/2}}-\frac{40787\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{4\sqrt{7}}$$

```
[Out] (-655*Sqrt[1 - 2*x])/(4*(3 + 5*x)^(3/2)) + (7*Sqrt[1 - 2*x])/(6*(
2 + 3*x)^2*(3 + 5*x)^(3/2)) + (235*Sqrt[1 - 2*x])/(12*(2 + 3*x)*(
3 + 5*x)^(3/2)) + (17825*Sqrt[1 - 2*x])/(12*Sqrt[3 + 5*x]) - (407
87*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(4*Sqrt[7])
```

Rubi [A] time = 0.329656, antiderivative size = 137, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$\frac{17825\sqrt{1-2x}}{12\sqrt{5x+3}}-\frac{655\sqrt{1-2x}}{4(5x+3)^{3/2}}+\frac{235\sqrt{1-2x}}{12(3x+2)(5x+3)^{3/2}}+\frac{7\sqrt{1-2x}}{6(3x+2)^2(5x+3)^{3/2}}-\frac{40787\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{4\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)/((2 + 3*x)^3*(3 + 5*x)^(5/2)),x]
```

```
[Out] (-655*Sqrt[1 - 2*x])/(4*(3 + 5*x)^(3/2)) + (7*Sqrt[1 - 2*x])/(6*(
2 + 3*x)^2*(3 + 5*x)^(3/2)) + (235*Sqrt[1 - 2*x])/(12*(2 + 3*x)*(
3 + 5*x)^(3/2)) + (17825*Sqrt[1 - 2*x])/(12*Sqrt[3 + 5*x]) - (407
87*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(4*Sqrt[7])
```

Rubi in Sympy [A] time = 28.1091, size = 126, normalized size = 0.92

$$\frac{17825\sqrt{-2x+1}}{12\sqrt{5x+3}}-\frac{655\sqrt{-2x+1}}{4\,(5x+3)^{\frac{3}{2}}}+\frac{235\sqrt{-2x+1}}{12\,(3x+2)\,(5x+3)^{\frac{3}{2}}}+\frac{7\sqrt{-2x+1}}{6\,(3x+2)^2\,(5x+3)^{\frac{3}{2}}}-\frac{40787\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{28}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)/(2+3*x)**3/(3+5*x)**(5/2),x)
```

```
[Out] 17825*sqrt(-2*x + 1)/(12*sqrt(5*x + 3)) - 655*sqrt(-2*x + 1)/(4*(
5*x + 3)**(3/2)) + 235*sqrt(-2*x + 1)/(12*(3*x + 2)*(5*x + 3)**(3
/2)) + 7*sqrt(-2*x + 1)/(6*(3*x + 2)**2*(5*x + 3)**(3/2)) - 40787
*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/28
```

Mathematica [A] time = 0.10272, size = 82, normalized size = 0.6

$$\frac{\sqrt{1-2x}\left(802125x^3+1533090x^2+975325x+206524\right)}{12(3x+2)^2(5x+3)^{3/2}}-\frac{40787\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{8\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)/((2 + 3*x)^3*(3 + 5*x)^(5/2)),x]
```

```
[Out] (Sqrt[1 - 2*x]*(206524 + 975325*x + 1533090*x^2 + 802125*x^3))/(1
2*(2 + 3*x)^2*(3 + 5*x)^(3/2)) - (40787*ArcTan[(-20 - 37*x)/(2*Sq
rt[7 - 14*x]*Sqrt[3 + 5*x])])/(8*Sqrt[7])
```

Maple [B] time = 0.021, size = 250, normalized size = 1.8

$$\frac{1}{168\left(2+3x\right)^{2}}\left(27531225\sqrt{7}\arctan\left(1/14\frac{\left(37x+20\right)\sqrt{7}}{\sqrt{-10x^{2}-x+3}}\right)x^{4}+69745770\sqrt{7}\arctan\left(1/14\frac{\left(37x+20\right)\sqrt{7}}{\sqrt{-10x^{2}-x+3}}\right)x^{3}+661973$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)/(2+3*x)^3/(3+5*x)^(5/2),x)
```

```
[Out] 1/168*(27531225*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+
3)^(1/2))*x^4+69745770*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10
*x^2-x+3)^(1/2))*x^3+66197301*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/
2)/(-10*x^2-x+3)^(1/2))*x^2+11229750*x^3*(-10*x^2-x+3)^(1/2)+2789
8308*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x
+21463260*x^2*(-10*x^2-x+3)^(1/2)+4404996*7^(1/2)*arctan(1/14*(37
*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+13654550*x*(-10*x^2-x+3)^(1/2
)+2891336*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)/(2+3*x)^2/(-10*x^2-x
+3)^(1/2)/(3+5*x)^(3/2)
```

Maxima [A] time = 1.49418, size = 232, normalized size = 1.69

$$\frac{40787}{56}\sqrt{7}\arcsin\left(\frac{37x}{11\left|3x+2\right|}+\frac{20}{11\left|3x+2\right|}\right)-\frac{17825x}{6\sqrt{-10x^{2}-x+3}}+\frac{18611}{12\sqrt{-10x^{2}-x+3}}+\frac{13439x}{18\left(-10x^{2}-x+3\right)^{\frac{3}{2}}}+\frac{343}{54\left(9\left(-10x^{2}-x+3\right)^{\frac{3}{2}}x^{2}+12\left(-10x^{2}-x+3\right)^{\frac{3}{2}}x+4\left(-10x^{2}-x+3\right)^{\frac{3}{2}}\right)}+\frac{11123}{108\left(3\left(-10x^{2}-x+3\right)^{\frac{3}{2}}x+2\left(-10x^{2}-x+3\right)^{\frac{3}{2}}\right)}-\frac{1613}{4\left(-10x^{2}-x+3\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^(5/2)*(3*x + 2)^3),x, algorithm="maxima")
```

```
[Out] 40787/56*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)
) - 17825/6*x/sqrt(-10*x^2 - x + 3) + 18611/12/sqrt(-10*x^2 - x +
 3) + 13439/18*x/(-10*x^2 - x + 3)^(3/2) + 343/54/(9*(-10*x^2 - x
 + 3)^(3/2)*x^2 + 12*(-10*x^2 - x + 3)^(3/2)*x + 4*(-10*x^2 - x +
 3)^(3/2)) + 11123/108/(3*(-10*x^2 - x + 3)^(3/2)*x + 2*(-10*x^2
- x + 3)^(3/2)) - 1613/4/(-10*x^2 - x + 3)^(3/2)
```

Fricas [A] time = 0.222908, size = 147, normalized size = 1.07

$$\frac{\sqrt{7}\left(2\sqrt{7}\left(802125x^{3}+1533090x^{2}+975325x+206524\right)\sqrt{5x+3}\sqrt{-2x+1}+122361\left(225x^{4}+570x^{3}+541x^{2}+228x+36\right)\right.}{168\left(225x^{4}+570x^{3}+541x^{2}+228x+36\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^(5/2)*(3*x + 2)^3),x, algorithm="fricas")
```

```
[Out] 1/168*sqrt(7)*(2*sqrt(7)*(802125*x^3 + 1533090*x^2 + 975325*x + 2
06524)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 122361*(225*x^4 + 570*x^3 +
 541*x^2 + 228*x + 36)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x
+ 3)*sqrt(-2*x + 1))))/(225*x^4 + 570*x^3 + 541*x^2 + 228*x + 36)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)/(2+3*x)**3/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.352459, size = 509, normalized size = 3.72

$$-\frac{1}{48}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^3 + \frac{40787}{560}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right) + \frac{101}{2}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right) + \frac{165\left(89\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^3+21224\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)\right)}{2\left(\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^2+280\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/((5*x + 3)^(5/2)*(3*x + 2)^3),x, algorithm="giac")
```

```
[Out] -1/48*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3
) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 407
87/560*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x
+ 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqrt
(2)*sqrt(-10*x + 5) - sqrt(22)))) + 101/2*sqrt(10)*((sqrt(2)*sqrt
(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*
sqrt(-10*x + 5) - sqrt(22))) + 165/2*(89*sqrt(10)*((sqrt(2)*sqrt(
-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*s
qrt(-10*x + 5) - sqrt(22)))^3 + 21224*sqrt(10)*((sqrt(2)*sqrt(-10
*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt
(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/
sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(2
2)))^2 + 280)^2
```

3.2370 $\int \frac{(1-2x)^{3/2}}{(2+3x)^4(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=166

$$\frac{618645\sqrt{1-2x}}{56\sqrt{5x+3}}-\frac{204595\sqrt{1-2x}}{168(5x+3)^{3/2}}+\frac{24469\sqrt{1-2x}}{168(3x+2)(5x+3)^{3/2}}+\frac{301\sqrt{1-2x}}{36(3x+2)^2(5x+3)^{3/2}}+\frac{7\sqrt{1-2x}}{9(3x+2)^3(5x+3)^{3/2}}-\frac{4246733\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{56\sqrt{7}}$$

```
[Out] (-204595*Sqrt[1 - 2*x])/(168*(3 + 5*x)^(3/2)) + (7*Sqrt[1 - 2*x])
/(9*(2 + 3*x)^3*(3 + 5*x)^(3/2)) + (301*Sqrt[1 - 2*x])/(36*(2 + 3
*x)^2*(3 + 5*x)^(3/2)) + (24469*Sqrt[1 - 2*x])/(168*(2 + 3*x)*(3
+ 5*x)^(3/2)) + (618645*Sqrt[1 - 2*x])/(56*Sqrt[3 + 5*x]) - (4246
733*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(56*Sqrt[7])
```

Rubi [A] time = 0.388138, antiderivative size = 166, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$\frac{618645\sqrt{1-2x}}{56\sqrt{5x+3}}-\frac{204595\sqrt{1-2x}}{168(5x+3)^{3/2}}+\frac{24469\sqrt{1-2x}}{168(3x+2)(5x+3)^{3/2}}+\frac{301\sqrt{1-2x}}{36(3x+2)^2(5x+3)^{3/2}}+\frac{7\sqrt{1-2x}}{9(3x+2)^3(5x+3)^{3/2}}-\frac{4246733\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{56\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)/((2 + 3*x)^4*(3 + 5*x)^(5/2)),x]
```

```
[Out] (-204595*Sqrt[1 - 2*x])/(168*(3 + 5*x)^(3/2)) + (7*Sqrt[1 - 2*x])
/(9*(2 + 3*x)^3*(3 + 5*x)^(3/2)) + (301*Sqrt[1 - 2*x])/(36*(2 + 3
*x)^2*(3 + 5*x)^(3/2)) + (24469*Sqrt[1 - 2*x])/(168*(2 + 3*x)*(3
+ 5*x)^(3/2)) + (618645*Sqrt[1 - 2*x])/(56*Sqrt[3 + 5*x]) - (4246
733*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(56*Sqrt[7])
```

Rubi in Sympy [A] time = 35.6317, size = 153, normalized size = 0.92

$$\frac{618645\sqrt{-2x+1}}{56\sqrt{5x+3}}-\frac{204595\sqrt{-2x+1}}{168\left(5x+3\right)^{\frac{3}{2}}}+\frac{24469\sqrt{-2x+1}}{168\left(3x+2\right)\left(5x+3\right)^{\frac{3}{2}}}+\frac{301\sqrt{-2x+1}}{36\left(3x+2\right)^{2}\left(5x+3\right)^{\frac{3}{2}}}+\frac{7\sqrt{-2x+1}}{9\left(3x+2\right)^{3}\left(5x+3\right)^{\frac{3}{2}}}-\frac{4246733\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{392}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)/(2+3*x)**4/(3+5*x)**(5/2),x)
```

```
[Out] 618645*sqrt(-2*x + 1)/(56*sqrt(5*x + 3)) - 204595*sqrt(-2*x + 1)/
(168*(5*x + 3)**(3/2)) + 24469*sqrt(-2*x + 1)/(168*(3*x + 2)*(5*x
 + 3)**(3/2)) + 301*sqrt(-2*x + 1)/(36*(3*x + 2)**2*(5*x + 3)**(3
/2)) + 7*sqrt(-2*x + 1)/(9*(3*x + 2)**3*(5*x + 3)**(3/2)) - 42467
33*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/392
```

Mathematica [A] time = 0.115498, size = 87, normalized size = 0.52

$$\frac{\sqrt{1-2x}\left(250551225x^4+645909120x^3+623901861x^2+267610802x+43006496\right)}{168(3x+2)^3(5x+3)^{3/2}}-\frac{4246733\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{112\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)/((2 + 3*x)^4*(3 + 5*x)^(5/2)),x]
```

```
[Out] (Sqrt[1 - 2*x]*(43006496 + 267610802*x + 623901861*x^2 + 64590912
0*x^3 + 250551225*x^4))/(168*(2 + 3*x)^3*(3 + 5*x)^(3/2)) - (4246
733*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/(112*S
qrt[7])
```

Maple [B] time = 0.021, size = 298, normalized size = 1.8

$$\frac{1}{2352\,(2+3\,x)^3}\left(8599634325\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^5+27518829840\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^4+\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)/(2+3*x)^4/(3+5*x)^(5/2),x)
```

```
[Out] 1/2352*(8599634325*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2
-x+3)^(1/2))*x^5+27518829840*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2
)/(-10*x^2-x+3)^(1/2))*x^4+35201169837*7^(1/2)*arctan(1/14*(37*x+
20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+3507717150*x^4*(-10*x^2-x+3)
^(1/2)+22499191434*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2
-x+3)^(1/2))*x^2+9042727680*x^3*(-10*x^2-x+3)^(1/2)+7185472236*7^
(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+873462
6054*x^2*(-10*x^2-x+3)^(1/2)+917294328*7^(1/2)*arctan(1/14*(37*x+
20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+3746551228*x*(-10*x^2-x+3)^(1/2)
+602090944*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)/(2+3*x)^3/(-10*x^2-
x+3)^(1/2)/(3+5*x)^(3/2)
```

Maxima [A] time = 1.5375, size = 324, normalized size = 1.95

$$\frac{4246733}{784}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)-\frac{618645\,x}{28\,\sqrt{-10\,x^2-x+3}}+\frac{1937773}{168\,\sqrt{-10\,x^2-x+3}}+\frac{199895\,x}{36\,(-10\,x^2-x+3)^{\frac{3}{2}}}+\frac{343}{81\left(27\,(-10\,x^2-x+3)^{\frac{3}{2}}x^3+54\,(-10\,x^2-x+3)^{\frac{3}{2}}x^2+36\,(-10\,x^2-x+3)^{\frac{3}{2}}x+8\,(-10\,x^2-x+3)^{\frac{3}{2}}\right)}+\frac{4655}{108\left(9\,(-10\,x^2-x+3)^{\frac{3}{2}}x^2+12\,(-10\,x^2-x+3)^{\frac{3}{2}}x+4\,(-10\,x^2-x+3)^{\frac{3}{2}}\right)}+\frac{165739}{216\left(3\,(-10\,x^2-x+3)^{\frac{3}{2}}x+2\,(-10\,x^2-x+3)^{\frac{3}{2}}\right)}-\frac{1943461}{648\,(-10\,x^2-x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^(5/2)*(3*x + 2)^4),x, algorithm="maxima")
```

```
[Out] 4246733/784*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x +
 2)) - 618645/28*x/sqrt(-10*x^2 - x + 3) + 1937773/168/sqrt(-10*x
^2 - x + 3) + 199895/36*x/(-10*x^2 - x + 3)^(3/2) + 343/81/(27*(-
```

```
10*x^2 - x + 3)^(3/2)*x^3 + 54*(-10*x^2 - x + 3)^(3/2)*x^2 + 36*(
-10*x^2 - x + 3)^(3/2)*x + 8*(-10*x^2 - x + 3)^(3/2)) + 4655/108/
(9*(-10*x^2 - x + 3)^(3/2)*x^2 + 12*(-10*x^2 - x + 3)^(3/2)*x + 4
*(-10*x^2 - x + 3)^(3/2)) + 165739/216/(3*(-10*x^2 - x + 3)^(3/2)
*x + 2*(-10*x^2 - x + 3)^(3/2)) - 1943461/648/(-10*x^2 - x + 3)^(
3/2)
```

Fricas [A] time = 0.228428, size = 167, normalized size = 1.01

$$\frac{\sqrt{7}\left(2\sqrt{7}\left(250551225\,x^4+645909120\,x^3+623901861\,x^2+267610802\,x+43006496\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+12740199\,(675\,x^5}{2352\,(675\,x^5+2160\,x^4+2763\,x^3+1766\,x^2+564\,x+72}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/((5*x + 3)^(5/2)*(3*x + 2)^4),x, algorithm="fricas")
```

```
[Out] 1/2352*sqrt(7)*(2*sqrt(7)*(250551225*x^4 + 645909120*x^3 + 623901
861*x^2 + 267610802*x + 43006496)*sqrt(5*x + 3)*sqrt(-2*x + 1) +
12740199*(675*x^5 + 2160*x^4 + 2763*x^3 + 1766*x^2 + 564*x + 72)*
arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/
(675*x^5 + 2160*x^4 + 2763*x^3 + 1766*x^2 + 564*x + 72)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)/(2+3*x)**4/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.417992, size = 591, normalized size = 3.56

$$-\frac{5}{48}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^3$$
$$+\frac{4246733}{7840}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)$$
$$+335\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)$$
$$+\frac{99\left(21713\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^5+10391360\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^3+1283172800\sqrt{10}\right.}{28\left(\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^2+280\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/((5*x + 3)^(5/2)*(3*x + 2)^4),x, algorithm="giac")
```

```
[Out] -5/48*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3
) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 424
6733/7840*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5
```

```
*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(s
qrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 335*sqrt(10)*((sqrt(2)*sqr
t(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)
*sqrt(-10*x + 5) - sqrt(22))) + 99/28*(21713*sqrt(10)*((sqrt(2)*s
qrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(
2)*sqrt(-10*x + 5) - sqrt(22)))^5 + 10391360*sqrt(10)*((sqrt(2)*s
qrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(
2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 1283172800*sqrt(10)*((sqrt(2)
*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqr
t(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) - s
qrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5)
 - sqrt(22)))^2 + 280)^3
```

3.2371 $\int (1-2x)^{5/2}(2+3x)^3\sqrt{3+5x}\,dx$

Optimal. Leaf size=172

$$-\frac{3}{70}(3x+2)^2(5x+3)^{3/2}(1-2x)^{7/2}-\frac{3(5x+3)^{3/2}(26700x+33857)(1-2x)^{7/2}}{280000}-\frac{255169\sqrt{5x+3}(1-2x)^{7/2}}{640000}+\frac{2806859\sqrt{5x+3}(1-2x)^{5/2}}{19200000}+\frac{30875449\sqrt{5x+3}(1-2x)^{3/2}}{76800000}+\frac{339629939\sqrt{5x+3}\sqrt{1-2x}}{256000000}+\frac{3735929329\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{256000000\sqrt{10}}$$

```
[Out] (339629939*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/256000000 + (30875449*(1
- 2*x)^(3/2)*Sqrt[3 + 5*x])/76800000 + (2806859*(1 - 2*x)^(5/2)*S
qrt[3 + 5*x])/19200000 - (255169*(1 - 2*x)^(7/2)*Sqrt[3 + 5*x])/6
40000 - (3*(1 - 2*x)^(7/2)*(2 + 3*x)^2*(3 + 5*x)^(3/2))/70 - (3*(
1 - 2*x)^(7/2)*(3 + 5*x)^(3/2)*(33857 + 26700*x))/280000 + (37359
29329*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(256000000*Sqrt[10])
```

Rubi [A] time = 0.210121, antiderivative size = 172, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.192$

$$-\frac{3}{70}(3x+2)^2(5x+3)^{3/2}(1-2x)^{7/2}-\frac{3(5x+3)^{3/2}(26700x+33857)(1-2x)^{7/2}}{280000}-\frac{255169\sqrt{5x+3}(1-2x)^{7/2}}{640000}+\frac{2806859\sqrt{5x+3}(1-2x)^{5/2}}{19200000}+\frac{30875449\sqrt{5x+3}(1-2x)^{3/2}}{76800000}+\frac{339629939\sqrt{5x+3}\sqrt{1-2x}}{256000000}+\frac{3735929329\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{256000000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)*(2 + 3*x)^3*Sqrt[3 + 5*x],x]
```

```
[Out] (339629939*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/256000000 + (30875449*(1
- 2*x)^(3/2)*Sqrt[3 + 5*x])/76800000 + (2806859*(1 - 2*x)^(5/2)*S
qrt[3 + 5*x])/19200000 - (255169*(1 - 2*x)^(7/2)*Sqrt[3 + 5*x])/6
40000 - (3*(1 - 2*x)^(7/2)*(2 + 3*x)^2*(3 + 5*x)^(3/2))/70 - (3*(
1 - 2*x)^(7/2)*(3 + 5*x)^(3/2)*(33857 + 26700*x))/280000 + (37359
29329*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(256000000*Sqrt[10])
```

Rubi in Sympy [A] time = 18.8809, size = 158, normalized size = 0.92

$$-\frac{3\left(-2x+1\right)^{\frac{7}{2}}\left(3x+2\right)^{2}\left(5x+3\right)^{\frac{3}{2}}}{70}-\frac{\left(-2x+1\right)^{\frac{7}{2}}\left(5x+3\right)^{\frac{3}{2}}\left(60075x+\frac{304713}{4}\right)}{210000}+\frac{255169\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{3}{2}}}{1600000}+\frac{2806859\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{3}{2}}}{9600000}+\frac{30875449\sqrt{-2x+1}\left(5x+3\right)^{\frac{3}{2}}}{64000000}-\frac{339629939\sqrt{-2x+1}\sqrt{5x+3}}{256000000}+\frac{3735929329\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{2560000000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**3*(3+5*x)**(1/2),x)
```

```
[Out] -3*(-2*x + 1)**(7/2)*(3*x + 2)**2*(5*x + 3)**(3/2)/70 - (-2*x + 1
)**(7/2)*(5*x + 3)**(3/2)*(60075*x + 304713/4)/210000 + 255169*(-
2*x + 1)**(5/2)*(5*x + 3)**(3/2)/1600000 + 2806859*(-2*x + 1)**(3
/2)*(5*x + 3)**(3/2)/9600000 + 30875449*sqrt(-2*x + 1)*(5*x + 3)*
*(3/2)/64000000 - 339629939*sqrt(-2*x + 1)*sqrt(5*x + 3)/25600000
```

```
0 + 3735929329*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/256000000
0
```

Mathematica [A] time = 0.140554, size = 80, normalized size = 0.47

$$\frac{10\sqrt{1-2x}\sqrt{5x+3}\,(82944000000x^6+97459200000x^5-52468992000x^4-85095638400x^3+9906627680x^2+29819034260x}{53760000000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)*(2 + 3*x)^3*Sqrt[3 + 5*x],x]
```

```
[Out] (10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(-679278531 + 29819034260*x + 990
6627680*x^2 - 85095638400*x^3 - 52468992000*x^4 + 97459200000*x^5
 + 82944000000*x^6) - 78454515909*Sqrt[10]*ArcSin[Sqrt[5/11]*Sqrt
[1 - 2*x]])/53760000000
```

Maple [A] time = 0.014, size = 155, normalized size = 0.9

$$\frac{1}{107520000000}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(1658880000000\,x^6\sqrt{-10\,x^2-x+3}+1949184000000\,x^5\sqrt{-10\,x^2-x+3}-104937984000\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^3*(3+5*x)^(1/2),x)
```

```
[Out] 1/107520000000*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(1658880000000*x^6*(-1
0*x^2-x+3)^(1/2)+1949184000000*x^5*(-10*x^2-x+3)^(1/2)-1049379840
000*x^4*(-10*x^2-x+3)^(1/2)-1701912768000*x^3*(-10*x^2-x+3)^(1/2)
+198132553600*x^2*(-10*x^2-x+3)^(1/2)+78454515909*10^(1/2)*arcsin
(20/11*x+1/11)+596380685200*x*(-10*x^2-x+3)^(1/2)-13585570620*(-1
0*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.51048, size = 163, normalized size = 0.95

$$-\frac{54}{35}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x^4-\frac{1161}{700}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x^3+\frac{47529}{70000}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x^2+\frac{5697497}{5600000}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x-\frac{5531929}{67200000}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}+\frac{30875449}{12800000}\sqrt{-10\,x^2-x+3}x-\frac{3735929329}{5120000000}\sqrt{10}\arcsin\left(-\frac{20}{11}x-\frac{1}{11}\right)+\frac{30875449}{256000000}\sqrt{-10\,x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^3*(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] -54/35*(-10*x^2 - x + 3)^(3/2)*x^4 - 1161/700*(-10*x^2 - x + 3)^(
3/2)*x^3 + 47529/70000*(-10*x^2 - x + 3)^(3/2)*x^2 + 5697497/5600
000*(-10*x^2 - x + 3)^(3/2)*x - 5531929/67200000*(-10*x^2 - x + 3
)^(3/2) + 30875449/12800000*sqrt(-10*x^2 - x + 3)*x - 3735929329/
5120000000*sqrt(10)*arcsin(-20/11*x - 1/11) + 30875449/256000000*
sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.218289, size = 111, normalized size = 0.65

$$\frac{1}{107520000000}\sqrt{10}\left(2\sqrt{10}\left(82944000000\,x^6+97459200000\,x^5-52468992000\,x^4-85095638400\,x^3+9906627680\,x^2+2981\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(3*x + 2)^3*(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/107520000000*sqrt(10)*(2*sqrt(10)*(82944000000*x^6 + 9745920000
0*x^5 - 52468992000*x^4 - 85095638400*x^3 + 9906627680*x^2 + 2981
9034260*x - 679278531)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 78454515909
*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(5/2)*(2+3*x)**3*(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.279506, size = 548, normalized size = 3.19

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(3*x + 2)^3*(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] 9/89600000000*sqrt(5)*(2*(4*(8*(4*(16*(20*(120*x - 359)*(5*x + 3)
 + 63769)*(5*x + 3) - 3968469)*(5*x + 3) + 33617829)*(5*x + 3) -
276044685)*(5*x + 3) + 87356115)*sqrt(5*x + 3)*sqrt(-10*x + 5) -
960917265*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 9/640000
000*sqrt(5)*(2*(4*(8*(4*(16*(100*x - 239)*(5*x + 3) + 27999)*(5*x
 + 3) - 318159)*(5*x + 3) + 3237255)*(5*x + 3) - 2656665)*sqrt(5*
x + 3)*sqrt(-10*x + 5) + 29223315*sqrt(2)*arcsin(1/11*sqrt(22)*sq
rt(5*x + 3))) - 3/12800000*sqrt(5)*(2*(4*(8*(12*(80*x - 143)*(5*x
 + 3) + 9773)*(5*x + 3) - 136405)*(5*x + 3) + 60555)*sqrt(5*x + 3
)*sqrt(-10*x + 5) - 666105*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x
+ 3))) - 29/960000*sqrt(5)*(2*(4*(8*(60*x - 71)*(5*x + 3) + 2179)
*(5*x + 3) - 4125)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 45375*sqrt(2)*
arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 1/6000*sqrt(5)*(2*(4*(40*x
 - 23)*(5*x + 3) + 33)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 363*sqrt(2
)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 1/50*sqrt(5)*(2*(20*x +
1)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 121*sqrt(2)*arcsin(1/11*sqrt(2
2)*sqrt(5*x + 3)))
```

3.2372 $\int (1-2x)^{5/2}(2+3x)^2\sqrt{3+5x}\,dx$

Optimal. Leaf size=165

$$-\frac{1}{20}(3x+2)(5x+3)^{3/2}(1-2x)^{7/2}-\frac{193(5x+3)^{3/2}(1-2x)^{7/2}}{2000}-\frac{7189\sqrt{5x+3}(1-2x)^{7/2}}{32000}+\frac{79079\sqrt{5x+3}(1-2x)^{5/2}}{960000}+\frac{869869\sqrt{5x+3}(1-2x)^{3/2}}{3840000}+\frac{9568559\sqrt{5x+3}\sqrt{1-2x}}{12800000}+\frac{105254149\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{12800000\sqrt{10}}$$

```
[Out] (9568559*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/12800000 + (869869*(1 - 2*x
)^(3/2)*Sqrt[3 + 5*x])/3840000 + (79079*(1 - 2*x)^(5/2)*Sqrt[3 +
5*x])/960000 - (7189*(1 - 2*x)^(7/2)*Sqrt[3 + 5*x])/32000 - (193*
(1 - 2*x)^(7/2)*(3 + 5*x)^(3/2))/2000 - ((1 - 2*x)^(7/2)*(2 + 3*x
)*(3 + 5*x)^(3/2))/20 + (105254149*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x
]])/(12800000*Sqrt[10])
```

Rubi [A] time = 0.190511, antiderivative size = 165, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$-\frac{1}{20}(3x+2)(5x+3)^{3/2}(1-2x)^{7/2}-\frac{193(5x+3)^{3/2}(1-2x)^{7/2}}{2000}-\frac{7189\sqrt{5x+3}(1-2x)^{7/2}}{32000}+\frac{79079\sqrt{5x+3}(1-2x)^{5/2}}{960000}+\frac{869869\sqrt{5x+3}(1-2x)^{3/2}}{3840000}+\frac{9568559\sqrt{5x+3}\sqrt{1-2x}}{12800000}+\frac{105254149\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{12800000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)*(2 + 3*x)^2*Sqrt[3 + 5*x],x]
```

```
[Out] (9568559*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/12800000 + (869869*(1 - 2*x
)^(3/2)*Sqrt[3 + 5*x])/3840000 + (79079*(1 - 2*x)^(5/2)*Sqrt[3 +
5*x])/960000 - (7189*(1 - 2*x)^(7/2)*Sqrt[3 + 5*x])/32000 - (193*
(1 - 2*x)^(7/2)*(3 + 5*x)^(3/2))/2000 - ((1 - 2*x)^(7/2)*(2 + 3*x
)*(3 + 5*x)^(3/2))/20 + (105254149*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x
]])/(12800000*Sqrt[10])
```

Rubi in Sympy [A] time = 15.8673, size = 150, normalized size = 0.91

$$-\frac{(-2x+1)^{\frac{7}{2}}(5x+3)^{\frac{3}{2}}(9x+6)}{60}-\frac{193(-2x+1)^{\frac{7}{2}}(5x+3)^{\frac{3}{2}}}{2000}+\frac{7189(-2x+1)^{\frac{5}{2}}(5x+3)^{\frac{3}{2}}}{80000}-\frac{79079(-2x+1)^{\frac{5}{2}}\sqrt{5x+3}}{192000}+\frac{869869(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{3840000}+\frac{9568559\sqrt{-2x+1}\sqrt{5x+3}}{12800000}+\frac{105254149\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{128000000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**2*(3+5*x)**(1/2),x)
```

```
[Out] -(-2*x + 1)**(7/2)*(5*x + 3)**(3/2)*(9*x + 6)/60 - 193*(-2*x + 1)
**(7/2)*(5*x + 3)**(3/2)/2000 + 7189*(-2*x + 1)**(5/2)*(5*x + 3)*
*(3/2)/80000 - 79079*(-2*x + 1)**(5/2)*sqrt(5*x + 3)/192000 + 869
869*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/3840000 + 9568559*sqrt(-2*x +
 1)*sqrt(5*x + 3)/12800000 + 105254149*sqrt(10)*asin(sqrt(22)*sqr
```

```
t(5*x + 3)/11)/128000000
```

Mathematica [A] time = 0.120139, size = 75, normalized size = 0.45

$$\frac{10\sqrt{1-2x}\sqrt{5x+3}\left(230400000x^5+94464000x^4-237187200x^3-61262560x^2+102523580x+9303927\right)-315762447\sqrt{10}}{384000000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)*(2 + 3*x)^2*Sqrt[3 + 5*x],x]
```

```
[Out] (10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(9303927 + 102523580*x - 61262560
*x^2 - 237187200*x^3 + 94464000*x^4 + 230400000*x^5) - 315762447*
Sqrt[10]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/384000000
```

Maple [A] time = 0.014, size = 138, normalized size = 0.8

$$\frac{1}{768000000}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(4608000000\,x^5\sqrt{-10\,x^2-x+3}+1889280000\,x^4\sqrt{-10\,x^2-x+3}-4743744000\,x^3\sqrt{-10\,x^2-}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^2*(3+5*x)^(1/2),x)
```

```
[Out] 1/768000000*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(4608000000*x^5*(-10*x^2-
x+3)^(1/2)+1889280000*x^4*(-10*x^2-x+3)^(1/2)-4743744000*x^3*(-10
*x^2-x+3)^(1/2)-1225251200*x^2*(-10*x^2-x+3)^(1/2)+315762447*10^(
1/2)*arcsin(20/11*x+1/11)+2050471600*x*(-10*x^2-x+3)^(1/2)+186078
540*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.5234, size = 140, normalized size = 0.85

$$-\frac{3}{5}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x^3-\frac{93}{500}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x^2+\frac{18251}{40000}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x+\frac{27893}{480000}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}+\frac{869869}{640000}\sqrt{-10\,x^2-x+3}x-\frac{105254149}{256000000}\sqrt{10}\arcsin\left(-\frac{20}{11}x-\frac{1}{11}\right)+\frac{869869}{12800000}\sqrt{-10\,x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^2*(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] -3/5*(-10*x^2 - x + 3)^(3/2)*x^3 - 93/500*(-10*x^2 - x + 3)^(3/2)
*x^2 + 18251/40000*(-10*x^2 - x + 3)^(3/2)*x + 27893/480000*(-10*
x^2 - x + 3)^(3/2) + 869869/640000*sqrt(-10*x^2 - x + 3)*x - 1052
54149/256000000*sqrt(10)*arcsin(-20/11*x - 1/11) + 869869/1280000
0*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.214086, size = 104, normalized size = 0.63

$$\frac{1}{768000000}\sqrt{10}\left(2\sqrt{10}\left(230400000\,x^5+94464000\,x^4-237187200\,x^3-61262560\,x^2+102523580\,x+9303927\right)\sqrt{5\,x+3}\sqrt{-2}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(3*x + 2)^2*(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/768000000*sqrt(10)*(2*sqrt(10)*(230400000*x^5 + 94464000*x^4 -
237187200*x^3 - 61262560*x^2 + 102523580*x + 9303927)*sqrt(5*x +
3)*sqrt(-2*x + 1) + 315762447*arctan(1/20*sqrt(10)*(20*x + 1)/(sq
rt(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [A] time = 166.381, size = 695, normalized size = 4.21

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(5/2)*(2+3*x)**2*(3+5*x)**(1/2),x)
```

```
[Out] 242*sqrt(5)*Piecewise((121*sqrt(2)*(-sqrt(2)*(-20*x - 1)*sqrt(-10
*x + 5)*sqrt(5*x + 3)/121 + asin(sqrt(22)*sqrt(5*x + 3)/11))/32,
(x >= -3/5) & (x < 1/2)))/15625 + 1364*sqrt(5)*Piecewise((1331*sq
rt(2)*(-sqrt(2)*(-20*x - 1)*sqrt(-10*x + 5)*sqrt(5*x + 3)/1936 -
sqrt(2)*(-10*x + 5)**(3/2)*(5*x + 3)**(3/2)/3993 + asin(sqrt(22)*
sqrt(5*x + 3)/11)/16)/8, (x >= -3/5) & (x < 1/2)))/15625 + 1658*s
qrt(5)*Piecewise((14641*sqrt(2)*(-sqrt(2)*(-20*x - 1)*sqrt(-10*x
+ 5)*sqrt(5*x + 3)/3872 - sqrt(2)*(-10*x + 5)**(3/2)*(5*x + 3)**(
3/2)/3993 - sqrt(2)*sqrt(-10*x + 5)*sqrt(5*x + 3)*(-12100*x - 128
*(5*x + 3)**3 + 1056*(5*x + 3)**2 - 5929)/1874048 + 5*asin(sqrt(2
2)*sqrt(5*x + 3)/11)/128)/16, (x >= -3/5) & (x < 1/2)))/15625 - 7
44*sqrt(5)*Piecewise((161051*sqrt(2)*(-sqrt(2)*(-20*x - 1)*sqrt(-
10*x + 5)*sqrt(5*x + 3)/7744 + 2*sqrt(2)*(-10*x + 5)**(5/2)*(5*x
+ 3)**(5/2)/805255 - sqrt(2)*(-10*x + 5)**(3/2)*(5*x + 3)**(3/2)/
3993 - 3*sqrt(2)*sqrt(-10*x + 5)*sqrt(5*x + 3)*(-12100*x - 128*(5
*x + 3)**3 + 1056*(5*x + 3)**2 - 5929)/3748096 + 7*asin(sqrt(22)*
sqrt(5*x + 3)/11)/256)/32, (x >= -3/5) & (x < 1/2)))/15625 + 72*s
qrt(5)*Piecewise((1771561*sqrt(2)*(sqrt(2)*(-20*x - 1)**3*(-10*x
+ 5)**(3/2)*(5*x + 3)**(3/2)/85034928 - sqrt(2)*(-20*x - 1)*sqrt(
-10*x + 5)*sqrt(5*x + 3)/15488 + 4*sqrt(2)*(-10*x + 5)**(5/2)*(5*
x + 3)**(5/2)/805255 - sqrt(2)*(-10*x + 5)**(3/2)*(5*x + 3)**(3/2
)/3993 - 13*sqrt(2)*sqrt(-10*x + 5)*sqrt(5*x + 3)*(-12100*x - 128
*(5*x + 3)**3 + 1056*(5*x + 3)**2 - 5929)/14992384 + 21*asin(sqrt
(22)*sqrt(5*x + 3)/11)/1024)/64, (x >= -3/5) & (x < 1/2)))/15625
```

GIAC/XCAS [A] time = 0.264288, size = 427, normalized size = 2.59

$$\frac{3}{640000000}\sqrt{5}(2(4(8(4(16(100x-239)(5x+3)+27999)(5x+3)-318159)(5x+3)+3237255)(5x+3)-2656665)\sqrt{5x}$$
$$+\frac{1}{16000000}\sqrt{5}(2(4(8(12(80x-143)(5x+3)+9773)(5x+3)-136405)(5x+3)+60555)\sqrt{5x+3}\sqrt{-10x+5}-666105\sqrt{2}$$
$$-\frac{23}{1920000}\sqrt{5}\left(2(4(8(60x-71)(5x+3)+2179)(5x+3)-4125)\sqrt{5x+3}\sqrt{-10x+5}+45375\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$
$$-\frac{1}{6000}\sqrt{5}\left(2(4(40x-23)(5x+3)+33)\sqrt{5x+3}\sqrt{-10x+5}-363\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$
$$+\frac{1}{100}\sqrt{5}\left(2(20x+1)\sqrt{5x+3}\sqrt{-10x+5}+121\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(3*x + 2)^2*(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] 3/640000000*sqrt(5)*(2*(4*(8*(4*(16*(100*x - 239)*(5*x + 3) + 279
99)*(5*x + 3) - 318159)*(5*x + 3) + 3237255)*(5*x + 3) - 2656665)
*sqrt(5*x + 3)*sqrt(-10*x + 5) + 29223315*sqrt(2)*arcsin(1/11*sqr
t(22)*sqrt(5*x + 3))) + 1/16000000*sqrt(5)*(2*(4*(8*(12*(80*x - 1
43)*(5*x + 3) + 9773)*(5*x + 3) - 136405)*(5*x + 3) + 60555)*sqrt
```

```
(5*x + 3)*sqrt(-10*x + 5) - 666105*sqrt(2)*arcsin(1/11*sqrt(22)*s
qrt(5*x + 3))) - 23/1920000*sqrt(5)*(2*(4*(8*(60*x - 71)*(5*x + 3
) + 2179)*(5*x + 3) - 4125)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 45375
*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) - 1/6000*sqrt(5)*(2
*(4*(40*x - 23)*(5*x + 3) + 33)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 3
63*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 1/100*sqrt(5)*(
2*(20*x + 1)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 121*sqrt(2)*arcsin(1
/11*sqrt(22)*sqrt(5*x + 3)))
```

3.2373 $\int (1-2x)^{5/2}(2+3x)\sqrt{3+5x}\,dx$

Optimal. Leaf size=138

$$-\frac{3}{50}(5x+3)^{3/2}(1-2x)^{7/2}-\frac{119}{800}\sqrt{5x+3}(1-2x)^{7/2}+\frac{1309\sqrt{5x+3}(1-2x)^{5/2}}{24000}+\frac{14399\sqrt{5x+3}(1-2x)^{3/2}}{96000}+\frac{158389\sqrt{5x+3}\sqrt{1-2x}}{320000}+\frac{1742279\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{320000\sqrt{10}}$$

```
[Out] (158389*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/320000 + (14399*(1 - 2*x)^(3
/2)*Sqrt[3 + 5*x])/96000 + (1309*(1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/2
4000 - (119*(1 - 2*x)^(7/2)*Sqrt[3 + 5*x])/800 - (3*(1 - 2*x)^(7/
2)*(3 + 5*x)^(3/2))/50 + (1742279*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]
])/(320000*Sqrt[10])
```

Rubi [A] time = 0.141159, antiderivative size = 138, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$-\frac{3}{50}(5x+3)^{3/2}(1-2x)^{7/2}-\frac{119}{800}\sqrt{5x+3}(1-2x)^{7/2}+\frac{1309\sqrt{5x+3}(1-2x)^{5/2}}{24000}+\frac{14399\sqrt{5x+3}(1-2x)^{3/2}}{96000}+\frac{158389\sqrt{5x+3}\sqrt{1-2x}}{320000}+\frac{1742279\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{320000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)*(2 + 3*x)*Sqrt[3 + 5*x],x]
```

```
[Out] (158389*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/320000 + (14399*(1 - 2*x)^(3
/2)*Sqrt[3 + 5*x])/96000 + (1309*(1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/2
4000 - (119*(1 - 2*x)^(7/2)*Sqrt[3 + 5*x])/800 - (3*(1 - 2*x)^(7/
2)*(3 + 5*x)^(3/2))/50 + (1742279*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]
])/(320000*Sqrt[10])
```

Rubi in Sympy [A] time = 12.1929, size = 126, normalized size = 0.91

$$-\frac{3(-2x+1)^{\frac{7}{2}}(5x+3)^{\frac{3}{2}}}{50}+\frac{119(-2x+1)^{\frac{5}{2}}(5x+3)^{\frac{3}{2}}}{2000}+\frac{1309(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{3}{2}}}{12000}-\frac{14399(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{32000}+\frac{158389\sqrt{-2x+1}\sqrt{5x+3}}{320000}+\frac{1742279\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{3200000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)*(3+5*x)**(1/2),x)
```

```
[Out] -3*(-2*x + 1)**(7/2)*(5*x + 3)**(3/2)/50 + 119*(-2*x + 1)**(5/2)*
(5*x + 3)**(3/2)/2000 + 1309*(-2*x + 1)**(3/2)*(5*x + 3)**(3/2)/1
2000 - 14399*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/32000 + 158389*sqrt(
-2*x + 1)*sqrt(5*x + 3)/320000 + 1742279*sqrt(10)*asin(sqrt(22)*s
qrt(5*x + 3)/11)/3200000
```

Mathematica [A] time = 0.0803001, size = 70, normalized size = 0.51

$$\frac{10\sqrt{1-2x}\sqrt{5x+3}\left(2304000x^4-931200x^3-1849760x^2+1108180x+355917\right)-5226837\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{9600000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)*(2 + 3*x)*Sqrt[3 + 5*x],x]
```

```
[Out] (10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(355917 + 1108180*x - 1849760*x^2
 - 931200*x^3 + 2304000*x^4) - 5226837*Sqrt[10]*ArcSin[Sqrt[5/11]
*Sqrt[1 - 2*x]])/9600000
```

Maple [A] time = 0.013, size = 121, normalized size = 0.9

$$\frac{1}{19200000}\sqrt{1-2x}\sqrt{3+5x}\left(46080000\,x^4\sqrt{-10\,x^2-x+3}-18624000\,x^3\sqrt{-10\,x^2-x+3}-36995200\,x^2\sqrt{-10\,x^2-x+3}+\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)*(3+5*x)^(1/2),x)
```

```
[Out] 1/19200000*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(46080000*x^4*(-10*x^2-x+3
)^(1/2)-18624000*x^3*(-10*x^2-x+3)^(1/2)-36995200*x^2*(-10*x^2-x+
3)^(1/2)+5226837*10^(1/2)*arcsin(20/11*x+1/11)+22163600*x*(-10*x^
2-x+3)^(1/2)+7118340*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.48724, size = 117, normalized size = 0.85

$$-\frac{6}{25}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x^2+\frac{121}{1000}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x+\frac{1303}{12000}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}+\frac{14399}{16000}\sqrt{-10\,x^2-x+3}x-\frac{1742279}{6400000}\sqrt{10}\arcsin\left(-\frac{20}{11}x-\frac{1}{11}\right)+\frac{14399}{320000}\sqrt{-10\,x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)*(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] -6/25*(-10*x^2 - x + 3)^(3/2)*x^2 + 121/1000*(-10*x^2 - x + 3)^(3
/2)*x + 1303/12000*(-10*x^2 - x + 3)^(3/2) + 14399/16000*sqrt(-10
*x^2 - x + 3)*x - 1742279/6400000*sqrt(10)*arcsin(-20/11*x - 1/11
) + 14399/320000*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.216821, size = 97, normalized size = 0.7

$$\frac{1}{19200000}\sqrt{10}\left(2\sqrt{10}\left(2304000\,x^4-931200\,x^3-1849760\,x^2+1108180\,x+355917\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+5226837\,\arctan\left(\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)*(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/19200000*sqrt(10)*(2*sqrt(10)*(2304000*x^4 - 931200*x^3 - 18497
60*x^2 + 1108180*x + 355917)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 52268
37*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))
))
```

Sympy [A] time = 118.586, size = 490, normalized size = 3.55

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)*(3+5*x)**(1/2),x)
```

```
[Out] 242*sqrt(5)*Piecewise((121*sqrt(2)*(-sqrt(2)*(-20*x - 1)*sqrt(-10
*x + 5)*sqrt(5*x + 3)/121 + asin(sqrt(22)*sqrt(5*x + 3)/11))/32,
(x >= -3/5) & (x < 1/2)))/3125 + 638*sqrt(5)*Piecewise((1331*sqrt
(2)*(-sqrt(2)*(-20*x - 1)*sqrt(-10*x + 5)*sqrt(5*x + 3)/1936 - sq
rt(2)*(-10*x + 5)**(3/2)*(5*x + 3)**(3/2)/3993 + asin(sqrt(22)*sq
rt(5*x + 3)/11)/16)/8, (x >= -3/5) & (x < 1/2)))/3125 - 256*sqrt(
5)*Piecewise((14641*sqrt(2)*(-sqrt(2)*(-20*x - 1)*sqrt(-10*x + 5)
*sqrt(5*x + 3)/3872 - sqrt(2)*(-10*x + 5)**(3/2)*(5*x + 3)**(3/2)
/3993 - sqrt(2)*sqrt(-10*x + 5)*sqrt(5*x + 3)*(-12100*x - 128*(5*
x + 3)**3 + 1056*(5*x + 3)**2 - 5929)/1874048 + 5*asin(sqrt(22)*s
qrt(5*x + 3)/11)/128)/16, (x >= -3/5) & (x < 1/2)))/3125 + 24*sqr
t(5)*Piecewise((161051*sqrt(2)*(-sqrt(2)*(-20*x - 1)*sqrt(-10*x +
 5)*sqrt(5*x + 3)/7744 + 2*sqrt(2)*(-10*x + 5)**(5/2)*(5*x + 3)**
(5/2)/805255 - sqrt(2)*(-10*x + 5)**(3/2)*(5*x + 3)**(3/2)/3993 -
 3*sqrt(2)*sqrt(-10*x + 5)*sqrt(5*x + 3)*(-12100*x - 128*(5*x + 3
)**3 + 1056*(5*x + 3)**2 - 5929)/3748096 + 7*asin(sqrt(22)*sqrt(5
*x + 3)/11)/256)/32, (x >= -3/5) & (x < 1/2)))/3125
```

GIAC/XCAS [A] time = 0.253745, size = 317, normalized size = 2.3

$$\frac{1}{16000000}\sqrt{5}\left(2\left(4\left(8\left(12\left(80x-143\right)\left(5x+3\right)+9773\right)\left(5x+3\right)-136405\right)\left(5x+3\right)+60555\right)\sqrt{5x+3}\sqrt{-10x+5}-666105\sqrt{2}\ldots\right.$$
$$-\frac{1}{480000}\sqrt{5}\left(2\left(4\left(8\left(60x-71\right)\left(5x+3\right)+2179\right)\left(5x+3\right)-4125\right)\sqrt{5x+3}\sqrt{-10x+5}+45375\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$
$$-\frac{1}{4800}\sqrt{5}\left(2\left(4\left(40x-23\right)\left(5x+3\right)+33\right)\sqrt{5x+3}\sqrt{-10x+5}-363\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$
$$+\frac{1}{200}\sqrt{5}\left(2\left(20x+1\right)\sqrt{5x+3}\sqrt{-10x+5}+121\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)*(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] 1/16000000*sqrt(5)*(2*(4*(8*(12*(80*x - 143)*(5*x + 3) + 9773)*(5
*x + 3) - 136405)*(5*x + 3) + 60555)*sqrt(5*x + 3)*sqrt(-10*x + 5
) - 666105*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) - 1/48000
0*sqrt(5)*(2*(4*(8*(60*x - 71)*(5*x + 3) + 2179)*(5*x + 3) - 4125
)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 45375*sqrt(2)*arcsin(1/11*sqrt(
22)*sqrt(5*x + 3))) - 1/4800*sqrt(5)*(2*(4*(40*x - 23)*(5*x + 3)
+ 33)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 363*sqrt(2)*arcsin(1/11*sqr
t(22)*sqrt(5*x + 3))) + 1/200*sqrt(5)*(2*(20*x + 1)*sqrt(5*x + 3)
*sqrt(-10*x + 5) + 121*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)
))
```

3.2374 $\int(1-2x)^{5/2}\sqrt{3+5x}\,dx$

Optimal. Leaf size=116

$$-\frac{1}{8}\sqrt{5x+3}(1-2x)^{7/2}+\frac{11}{240}\sqrt{5x+3}(1-2x)^{5/2}+\frac{121}{960}\sqrt{5x+3}(1-2x)^{3/2}+\frac{1331\sqrt{5x+3}\sqrt{1-2x}}{3200}+\frac{14641\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{3200\sqrt{10}}$$

```
[Out] (1331*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/3200 + (121*(1 - 2*x)^(3/2)*Sq
rt[3 + 5*x])/960 + (11*(1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/240 - ((1 -
 2*x)^(7/2)*Sqrt[3 + 5*x])/8 + (14641*ArcSin[Sqrt[2/11]*Sqrt[3 +
5*x]])/(3200*Sqrt[10])
```

Rubi [A] time = 0.109075, antiderivative size = 116, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 3, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.158

$$-\frac{1}{8}\sqrt{5x+3}(1-2x)^{7/2}+\frac{11}{240}\sqrt{5x+3}(1-2x)^{5/2}+\frac{121}{960}\sqrt{5x+3}(1-2x)^{3/2}+\frac{1331\sqrt{5x+3}\sqrt{1-2x}}{3200}+\frac{14641\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{3200\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)*Sqrt[3 + 5*x],x]
```

```
[Out] (1331*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/3200 + (121*(1 - 2*x)^(3/2)*Sq
rt[3 + 5*x])/960 + (11*(1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/240 - ((1 -
 2*x)^(7/2)*Sqrt[3 + 5*x])/8 + (14641*ArcSin[Sqrt[2/11]*Sqrt[3 +
5*x]])/(3200*Sqrt[10])
```

Rubi in Sympy [A] time = 9.77037, size = 104, normalized size = 0.9

$$\frac{(-2x+1)^{\frac{5}{2}}(5x+3)^{\frac{3}{2}}}{20}+\frac{11(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{3}{2}}}{120}+\frac{121\sqrt{-2x+1}(5x+3)^{\frac{3}{2}}}{800}-\frac{1331\sqrt{-2x+1}\sqrt{5x+3}}{3200}+\frac{14641\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{32000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(1/2),x)
```

```
[Out] (-2*x + 1)**(5/2)*(5*x + 3)**(3/2)/20 + 11*(-2*x + 1)**(3/2)*(5*x
 + 3)**(3/2)/120 + 121*sqrt(-2*x + 1)*(5*x + 3)**(3/2)/800 - 1331
*sqrt(-2*x + 1)*sqrt(5*x + 3)/3200 + 14641*sqrt(10)*asin(sqrt(22)
*sqrt(5*x + 3)/11)/32000
```

Mathematica [A] time = 0.0918614, size = 65, normalized size = 0.56

$$\frac{10\sqrt{1-2x}\sqrt{5x+3}\left(9600x^3-12640x^2+3020x+4443\right)-43923\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{96000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)*Sqrt[3 + 5*x],x]
```

```
[Out] (10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(4443 + 3020*x - 12640*x^2 + 9600
*x^3) - 43923*Sqrt[10]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/96000
```

Maple [A] time = 0.007, size = 104, normalized size = 0.9

$$\frac{1}{20}(1-2x)^{\frac{5}{2}}(3+5x)^{\frac{3}{2}}+\frac{11}{120}(1-2x)^{\frac{3}{2}}(3+5x)^{\frac{3}{2}}+\frac{121}{800}(3+5x)^{\frac{3}{2}}\sqrt{1-2x}-\frac{1331}{3200}\sqrt{1-2x}\sqrt{3+5x}+\frac{14641\sqrt{10}}{64000}\sqrt{(1-2x)(3+5x)}\arcsin\left(\frac{20x}{11}+\frac{1}{11}\right)\frac{1}{\sqrt{1-2x}}\frac{1}{\sqrt{3+5x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(1/2),x)
```

```
[Out] 1/20*(1-2*x)^(5/2)*(3+5*x)^(3/2)+11/120*(1-2*x)^(3/2)*(3+5*x)^(3/
2)+121/800*(3+5*x)^(3/2)*(1-2*x)^(1/2)-1331/3200*(1-2*x)^(1/2)*(3
+5*x)^(1/2)+14641/64000*((1-2*x)*(3+5*x))^(1/2)/(3+5*x)^(1/2)/(1-
2*x)^(1/2)*10^(1/2)*arcsin(20/11*x+1/11)
```

Maxima [A] time = 1.48296, size = 95, normalized size = 0.82

$$-\frac{1}{10}\left(-10x^2-x+3\right)^{\frac{3}{2}}x+\frac{17}{120}\left(-10x^2-x+3\right)^{\frac{3}{2}}+\frac{121}{160}\sqrt{-10x^2-x+3}x-\frac{14641}{64000}\sqrt{10}\arcsin\left(-\frac{20}{11}x-\frac{1}{11}\right)+\frac{121}{3200}\sqrt{-10x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] -1/10*(-10*x^2 - x + 3)^(3/2)*x + 17/120*(-10*x^2 - x + 3)^(3/2)
+ 121/160*sqrt(-10*x^2 - x + 3)*x - 14641/64000*sqrt(10)*arcsin(-
20/11*x - 1/11) + 121/3200*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.214622, size = 90, normalized size = 0.78

$$\frac{1}{192000}\sqrt{10}\left(2\sqrt{10}\left(9600x^3-12640x^2+3020x+4443\right)\sqrt{5x+3}\sqrt{-2x+1}+43923\arctan\left(\frac{\sqrt{10}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/192000*sqrt(10)*(2*sqrt(10)*(9600*x^3 - 12640*x^2 + 3020*x + 44
43)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 43923*arctan(1/20*sqrt(10)*(20
*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [A] time = 35.7772, size = 269, normalized size = 2.32

$$\begin{cases}\frac{10i\left(x+\frac{3}{5}\right)^{\frac{9}{2}}}{\sqrt{10x-5}}-\frac{253i\left(x+\frac{3}{5}\right)^{\frac{7}{2}}}{6\sqrt{10x-5}}+\frac{15367i\left(x+\frac{3}{5}\right)^{\frac{5}{2}}}{240\sqrt{10x-5}}-\frac{177023i\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}{4800\sqrt{10x-5}}+\frac{14641i\sqrt{x+\frac{3}{5}}}{3200\sqrt{10x-5}}-\frac{14641\sqrt{10}i\operatorname{acosh}\left(\frac{\sqrt{110}\sqrt{x+\frac{3}{5}}}{11}\right)}{32000} & \text{for}\ \frac{10\left|x+\frac{3}{5}\right|}{11}>1\\ \frac{14641\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{110}\sqrt{x+\frac{3}{5}}}{11}\right)}{32000}-\frac{10\left(x+\frac{3}{5}\right)^{\frac{9}{2}}}{\sqrt{-10x+5}}+\frac{253\left(x+\frac{3}{5}\right)^{\frac{7}{2}}}{6\sqrt{-10x+5}}-\frac{15367\left(x+\frac{3}{5}\right)^{\frac{5}{2}}}{240\sqrt{-10x+5}}+\frac{177023\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}{4800\sqrt{-10x+5}}-\frac{14641\sqrt{x+\frac{3}{5}}}{3200\sqrt{-10x+5}} & \text{otherwise}\end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**(1/2),x)
```

```
[Out] Piecewise((10*I*(x + 3/5)**(9/2)/sqrt(10*x - 5) - 253*I*(x + 3/5)
**(7/2)/(6*sqrt(10*x - 5)) + 15367*I*(x + 3/5)**(5/2)/(240*sqrt(1
0*x - 5)) - 177023*I*(x + 3/5)**(3/2)/(4800*sqrt(10*x - 5)) + 146
41*I*sqrt(x + 3/5)/(3200*sqrt(10*x - 5)) - 14641*sqrt(10)*I*acosh
(sqrt(110)*sqrt(x + 3/5)/11)/32000, 10*Abs(x + 3/5)/11 > 1), (146
41*sqrt(10)*asin(sqrt(110)*sqrt(x + 3/5)/11)/32000 - 10*(x + 3/5)
**(9/2)/sqrt(-10*x + 5) + 253*(x + 3/5)**(7/2)/(6*sqrt(-10*x + 5)
) - 15367*(x + 3/5)**(5/2)/(240*sqrt(-10*x + 5)) + 177023*(x + 3/
5)**(3/2)/(4800*sqrt(-10*x + 5)) - 14641*sqrt(x + 3/5)/(3200*sqrt
(-10*x + 5)), True))
```

GIAC/XCAS [A] time = 0.24523, size = 220, normalized size = 1.9

$$\frac{1}{480000}\sqrt{5}\left(2\left(4\left(8\left(60x-71\right)(5x+3)+2179\right)(5x+3)-4125\right)\sqrt{5x+3}\sqrt{-10x+5}+45375\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$
$$-\frac{1}{6000}\sqrt{5}\left(2\left(4\left(40x-23\right)(5x+3)+33\right)\sqrt{5x+3}\sqrt{-10x+5}-363\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$
$$+\frac{1}{400}\sqrt{5}\left(2\left(20x+1\right)\sqrt{5x+3}\sqrt{-10x+5}+121\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] 1/480000*sqrt(5)*(2*(4*(8*(60*x - 71)*(5*x + 3) + 2179)*(5*x + 3)
 - 4125)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 45375*sqrt(2)*arcsin(1/1
1*sqrt(22)*sqrt(5*x + 3))) - 1/6000*sqrt(5)*(2*(4*(40*x - 23)*(5*
x + 3) + 33)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 363*sqrt(2)*arcsin(1
/11*sqrt(22)*sqrt(5*x + 3))) + 1/400*sqrt(5)*(2*(20*x + 1)*sqrt(5
*x + 3)*sqrt(-10*x + 5) + 121*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5
*x + 3)))
```

3.2375 $\int \frac{(1-2x)^{5/2}\sqrt{3+5x}}{2+3x}\,dx$

Optimal. Leaf size=128

$$\frac{1}{9}\sqrt{5x+3}(1-2x)^{5/2}+\frac{59}{180}\sqrt{5x+3}(1-2x)^{3/2}+\frac{6401\sqrt{5x+3}\sqrt{1-2x}}{5400}+\frac{250433\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{16200\sqrt{10}}+\frac{98}{81}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

```
[Out] (6401*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/5400 + (59*(1 - 2*x)^(3/2)*Sqr
t[3 + 5*x])/180 + ((1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/9 + (250433*Arc
Sin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(16200*Sqrt[10]) + (98*Sqrt[7]*Arc
Tan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/81
```

Rubi [A] time = 0.309846, antiderivative size = 128, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 7, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.269

$$\frac{1}{9}\sqrt{5x+3}(1-2x)^{5/2}+\frac{59}{180}\sqrt{5x+3}(1-2x)^{3/2}+\frac{6401\sqrt{5x+3}\sqrt{1-2x}}{5400}+\frac{250433\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{16200\sqrt{10}}+\frac{98}{81}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(2 + 3*x),x]
```

```
[Out] (6401*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/5400 + (59*(1 - 2*x)^(3/2)*Sqr
t[3 + 5*x])/180 + ((1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/9 + (250433*Arc
Sin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(16200*Sqrt[10]) + (98*Sqrt[7]*Arc
Tan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/81
```

Rubi in Sympy [A] time = 30.1976, size = 117, normalized size = 0.91

$$\frac{(-2x+1)^{\frac{5}{2}}\sqrt{5x+3}}{9}+\frac{59(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{180}+\frac{6401\sqrt{-2x+1}\sqrt{5x+3}}{5400}+\frac{250433\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{162000}+\frac{98\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{81}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(1/2)/(2+3*x),x)
```

```
[Out] (-2*x + 1)**(5/2)*sqrt(5*x + 3)/9 + 59*(-2*x + 1)**(3/2)*sqrt(5*x
 + 3)/180 + 6401*sqrt(-2*x + 1)*sqrt(5*x + 3)/5400 + 250433*sqrt(
10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/162000 + 98*sqrt(7)*atan(sqrt
(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/81
```

Mathematica [A] time = 0.197908, size = 105, normalized size = 0.82

$$\frac{60\sqrt{1-2x}\sqrt{5x+3}\left(2400x^2-5940x+8771\right)+196000\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)+250433\sqrt{10}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)}{324000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(2 + 3*x),x]
```

```
[Out] (60*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(8771 - 5940*x + 2400*x^2) + 1960
00*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])]
+ 250433*Sqrt[10]*ArcTan[(1 + 20*x)/(2*Sqrt[1 - 2*x]*Sqrt[30 + 50
*x])])/324000
```

Maple [A] time = 0.013, size = 115, normalized size = 0.9

$$-\frac{1}{324000}\sqrt{1-2x}\sqrt{3+5x}\left(-144000x^2\sqrt{-10x^2-x+3}+196000\sqrt{7}\arctan\left(1/14\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)-250433\sqrt{10}\arcsin\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(1/2)/(2+3*x),x)
```

```
[Out] -1/324000*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(-144000*x^2*(-10*x^2-x+3)^
(1/2)+196000*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^
(1/2))-250433*10^(1/2)*arcsin(20/11*x+1/11)+356400*x*(-10*x^2-x+3
)^(1/2)-526260*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.48612, size = 112, normalized size = 0.88

$$-\frac{2}{45}\left(-10x^2-x+3\right)^{\frac{3}{2}}-\frac{103}{90}\sqrt{-10x^2-x+3}x+\frac{250433}{324000}\sqrt{10}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)-\frac{49}{81}\sqrt{7}\arcsin\left(\frac{37x}{11|3x+2|}+\frac{20}{11|3x+2|}\right)+\frac{9491}{5400}\sqrt{-10x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2),x, algorithm="maxima")
```

```
[Out] -2/45*(-10*x^2 - x + 3)^(3/2) - 103/90*sqrt(-10*x^2 - x + 3)*x +
250433/324000*sqrt(10)*arcsin(20/11*x + 1/11) - 49/81*sqrt(7)*arc
sin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) + 9491/5400*sqrt(-
10*x^2 - x + 3)
```

Fricas [A] time = 0.229009, size = 128, normalized size = 1.

$$\frac{1}{324000}\sqrt{10}\left(6\sqrt{10}\left(2400x^2-5940x+8771\right)\sqrt{5x+3}\sqrt{-2x+1}-19600\sqrt{10}\sqrt{7}\arctan\left(\frac{\sqrt{7}(37x+20)}{14\sqrt{5x+3}\sqrt{-2x+1}}\right)+250433\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2),x, algorithm="fricas")
```

```
[Out] 1/324000*sqrt(10)*(6*sqrt(10)*(2400*x^2 - 5940*x + 8771)*sqrt(5*x
 + 3)*sqrt(-2*x + 1) - 19600*sqrt(10)*sqrt(7)*arctan(1/14*sqrt(7)
*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))) + 250433*arctan(1/20
*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(-2x+1)^{\frac{5}{2}}\sqrt{5x+3}}{3x+2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((1-2*x)**(5/2)*(3+5*x)**(1/2)/(2+3*x),x)
```

```
[Out] Integral((-2*x + 1)**(5/2)*sqrt(5*x + 3)/(3*x + 2), x)
```

GIAC/XCAS [A] time = 0.294132, size = 251, normalized size = 1.96

$$-\frac{49}{810}\,\sqrt{70}\sqrt{10}\left(\pi+2\,\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{2}}{5\,x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)+\frac{1}{27000}\left(12\left(8\,\sqrt{5}(5\,x+3)-147\,\sqrt{5}\right)(5\,x+3)+13199\,\sqrt{5}\right)\sqrt{5\,x+3}\sqrt{-10\,x+5}+\frac{250433}{324000}\,\sqrt{10}\left(\pi+2\,\arctan\left(-\frac{\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{2}}{5\,x+3}-4\right)}{4\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2),x, algorithm="giac")
```

```
[Out] -49/810*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x
 + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqr
t(2)*sqrt(-10*x + 5) - sqrt(22)))) + 1/27000*(12*(8*sqrt(5)*(5*x
+ 3) - 147*sqrt(5))*(5*x + 3) + 13199*sqrt(5))*sqrt(5*x + 3)*sqrt
(-10*x + 5) + 250433/324000*sqrt(10)*(pi + 2*arctan(-1/4*sqrt(5*x
 + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqr
t(2)*sqrt(-10*x + 5) - sqrt(22))))
```

3.2376 $\int \frac{(1-2x)^{5/2}\sqrt{3+5x}}{(2+3x)^2}\,dx$

Optimal. Leaf size=135

$$-\frac{\sqrt{5x+3}(1-2x)^{5/2}}{3(3x+2)}-\frac{1}{3}\sqrt{5x+3}(1-2x)^{3/2}-\frac{43}{30}\sqrt{5x+3}\sqrt{1-2x}-\frac{2119\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{90\sqrt{10}}-\frac{35}{9}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

```
[Out] (-43*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/30 - ((1 - 2*x)^(3/2)*Sqrt[3 +
5*x])/3 - ((1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(3*(2 + 3*x)) - (2119*A
rcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(90*Sqrt[10]) - (35*Sqrt[7]*ArcT
an[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/9
```

Rubi [A] time = 0.307301, antiderivative size = 135, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 7, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.269

$$-\frac{\sqrt{5x+3}(1-2x)^{5/2}}{3(3x+2)}-\frac{1}{3}\sqrt{5x+3}(1-2x)^{3/2}-\frac{43}{30}\sqrt{5x+3}\sqrt{1-2x}-\frac{2119\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{90\sqrt{10}}-\frac{35}{9}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(2 + 3*x)^2,x]
```

```
[Out] (-43*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/30 - ((1 - 2*x)^(3/2)*Sqrt[3 +
5*x])/3 - ((1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(3*(2 + 3*x)) - (2119*A
rcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(90*Sqrt[10]) - (35*Sqrt[7]*ArcT
an[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/9
```

Rubi in Sympy [A] time = 31.1963, size = 121, normalized size = 0.9

$$-\frac{(-2x+1)^{\frac{5}{2}}\sqrt{5x+3}}{3(3x+2)}-\frac{(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{3}-\frac{43\sqrt{-2x+1}\sqrt{5x+3}}{30}-\frac{2119\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{900}-\frac{35\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(1/2)/(2+3*x)**2,x)
```

```
[Out] -(-2*x + 1)**(5/2)*sqrt(5*x + 3)/(3*(3*x + 2)) - (-2*x + 1)**(3/2
)*sqrt(5*x + 3)/3 - 43*sqrt(-2*x + 1)*sqrt(5*x + 3)/30 - 2119*sqr
t(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/900 - 35*sqrt(7)*atan(sqrt(
7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/9
```

Mathematica [A] time = 0.158876, size = 112, normalized size = 0.83

$$\frac{\frac{60\sqrt{1-2x}\sqrt{5x+3}(20x^2-79x-116)}{3x+2}-3500\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)-2119\sqrt{10}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)}{1800}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(2 + 3*x)^2,x]
```

```
[Out] ((60*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(-116 - 79*x + 20*x^2))/(2 + 3*x
) - 3500*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5
*x])] - 2119*Sqrt[10]*ArcTan[(1 + 20*x)/(2*Sqrt[1 - 2*x]*Sqrt[30
+ 50*x])])/1800
```

Maple [A] time = 0.017, size = 163, normalized size = 1.2

$$\frac{1}{3600+5400\,x}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(10500\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x-6357\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x+1200\,x^2\sqrt{\ }$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(1/2)/(2+3*x)^2,x)
```

```
[Out] 1/1800*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(10500*7^(1/2)*arctan(1/14*(37
*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x-6357*10^(1/2)*arcsin(20/11*
x+1/11)*x+1200*x^2*(-10*x^2-x+3)^(1/2)+7000*7^(1/2)*arctan(1/14*(
37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))-4238*10^(1/2)*arcsin(20/11*
x+1/11)-4740*x*(-10*x^2-x+3)^(1/2)-6960*(-10*x^2-x+3)^(1/2))/(-10
*x^2-x+3)^(1/2)/(2+3*x)
```

Maxima [A] time = 1.51054, size = 122, normalized size = 0.9

$$\frac{2}{9}\sqrt{-10\,x^2-x+3}x-\frac{2119}{1800}\sqrt{10}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)+\frac{35}{18}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)-\frac{277}{270}\sqrt{-10\,x^2-x+3}-\frac{49\sqrt{-10\,x^2-x+3}}{27\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^2,x, algorithm="maxima")
```

```
[Out] 2/9*sqrt(-10*x^2 - x + 3)*x - 2119/1800*sqrt(10)*arcsin(20/11*x +
 1/11) + 35/18*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*
x + 2)) - 277/270*sqrt(-10*x^2 - x + 3) - 49/27*sqrt(-10*x^2 - x
+ 3)/(3*x + 2)
```

Fricas [A] time = 0.228161, size = 151, normalized size = 1.12

$$\frac{\sqrt{10}\left(350\,\sqrt{10}\sqrt{7}(3\,x+2)\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)+6\,\sqrt{10}\left(20\,x^2-79\,x-116\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-2119\,(3\,x+2)\arctan\left(\right.\right.}{1800\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^2,x, algorithm="fricas")
```

```
[Out] 1/1800*sqrt(10)*(350*sqrt(10)*sqrt(7)*(3*x + 2)*arctan(1/14*sqrt(
7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))) + 6*sqrt(10)*(20*x
^2 - 79*x - 116)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 2119*(3*x + 2)*ar
ctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(3
*x + 2)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**(1/2)/(2+3*x)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.366672, size = 394, normalized size = 2.92

$$\frac{7}{36}\sqrt{70}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3} - 4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right) + \frac{1}{1350}\left(12\sqrt{5}(5x+3) - 313\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5} - \frac{2119}{1800}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3} - 4\right)}{4\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right) - \frac{1078\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}} - \frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)}{27\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}} - \frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2 + 280\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^2,x, algorithm="giac")
```

```
[Out] 7/36*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x +
3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqrt(2
)*sqrt(-10*x + 5) - sqrt(22)))) + 1/1350*(12*sqrt(5)*(5*x + 3) -
313*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5) - 2119/1800*sqrt(10)*(
pi + 2*arctan(-1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt
(22))^2/(5*x + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 1
078/27*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x +
3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))/(((sqr
t(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)
```

3.2377 $\int \frac{(1-2x)^{5/2}\sqrt{3+5x}}{(2+3x)^3}\,dx$

Optimal. Leaf size=144

$$-\frac{\sqrt{5x+3}(1-2x)^{5/2}}{6(3x+2)^2}+\frac{5\sqrt{5x+3}(1-2x)^{3/2}}{4(3x+2)}+\frac{19}{18}\sqrt{5x+3}\sqrt{1-2x}+\frac{118}{27}\sqrt{\frac{2}{5}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{155}{108}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

```
[Out] (19*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/18 - ((1 - 2*x)^(5/2)*Sqrt[3 + 5
*x])/(6*(2 + 3*x)^2) + (5*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(4*(2 +
3*x)) + (118*Sqrt[2/5]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/27 - (15
5*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/108
```

Rubi [A] time = 0.303739, antiderivative size = 144, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 8, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.308

$$-\frac{\sqrt{5x+3}(1-2x)^{5/2}}{6(3x+2)^2}+\frac{5\sqrt{5x+3}(1-2x)^{3/2}}{4(3x+2)}+\frac{19}{18}\sqrt{5x+3}\sqrt{1-2x}+\frac{118}{27}\sqrt{\frac{2}{5}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{155}{108}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(2 + 3*x)^3,x]
```

```
[Out] (19*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/18 - ((1 - 2*x)^(5/2)*Sqrt[3 + 5
*x])/(6*(2 + 3*x)^2) + (5*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(4*(2 +
3*x)) + (118*Sqrt[2/5]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/27 - (15
5*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/108
```

Rubi in Sympy [A] time = 30.3586, size = 128, normalized size = 0.89

$$-\frac{(-2x+1)^{\frac{5}{2}}\sqrt{5x+3}}{6(3x+2)^2}+\frac{5(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{4(3x+2)}+\frac{19\sqrt{-2x+1}\sqrt{5x+3}}{18}+\frac{118\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{135}-\frac{155\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{108}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(1/2)/(2+3*x)**3,x)
```

```
[Out] -(-2*x + 1)**(5/2)*sqrt(5*x + 3)/(6*(3*x + 2)**2) + 5*(-2*x + 1)*
*(3/2)*sqrt(5*x + 3)/(4*(3*x + 2)) + 19*sqrt(-2*x + 1)*sqrt(5*x +
 3)/18 + 118*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/135 - 155*s
qrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/108
```

Mathematica [A] time = 0.172162, size = 112, normalized size = 0.78

$$\frac{\frac{30\sqrt{1-2x}\sqrt{5x+3}(48x^2+435x+236)}{(3x+2)^2}-775\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)+472\sqrt{10}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)}{1080}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(2 + 3*x)^3,x]
```

```
[Out] ((30*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(236 + 435*x + 48*x^2))/(2 + 3*x
)^2 - 775*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 +
5*x])] + 472*Sqrt[10]*ArcTan[(1 + 20*x)/(2*Sqrt[1 - 2*x]*Sqrt[30
+ 50*x])])/1080
```

Maple [A] time = 0.017, size = 208, normalized size = 1.4

$$\frac{1}{1080\ (2+3\,x)^{2}}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(6975\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^{2}-x+3}}\right)x^{2}+4248\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x^{2}+9300\,\sqrt{\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(1/2)/(2+3*x)^3,x)
```

```
[Out] 1/1080*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(6975*7^(1/2)*arctan(1/14*(37*
x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+4248*10^(1/2)*arcsin(20/11
*x+1/11)*x^2+9300*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-
x+3)^(1/2))*x+5664*10^(1/2)*arcsin(20/11*x+1/11)*x+1440*x^2*(-10*
x^2-x+3)^(1/2)+3100*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^
2-x+3)^(1/2))+1888*10^(1/2)*arcsin(20/11*x+1/11)+13050*x*(-10*x^2
-x+3)^(1/2)+7080*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)
^2
```

Maxima [A] time = 1.51056, size = 136, normalized size = 0.94

$$\frac{59}{135}\sqrt{10}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)+\frac{155}{216}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{13}{9}\sqrt{-10\,x^{2}-x+3}+\frac{7\left(-10\,x^{2}-x+3\right)^{\frac{3}{2}}}{6\,(9\,x^{2}+12\,x+4)}-\frac{49\sqrt{-10\,x^{2}-x+3}}{36\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^3,x, algorithm="maxima")
```

```
[Out] 59/135*sqrt(10)*arcsin(20/11*x + 1/11) + 155/216*sqrt(7)*arcsin(3
7/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) + 13/9*sqrt(-10*x^2 - x
 + 3) + 7/6*(-10*x^2 - x + 3)^(3/2)/(9*x^2 + 12*x + 4) - 49/36*sq
rt(-10*x^2 - x + 3)/(3*x + 2)
```

Fricas [A] time = 0.226926, size = 180, normalized size = 1.25

$$\frac{\sqrt{5}\left(155\,\sqrt{7}\sqrt{5}\left(9\,x^{2}+12\,x+4\right)\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)+6\,\sqrt{5}\left(48\,x^{2}+435\,x+236\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+472\,\sqrt{2}\left(9\,x^{2}+12\right.\right.}{1080\,(9\,x^{2}+12\,x+4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^3,x, algorithm="fricas")
```

```
[Out] 1/1080*sqrt(5)*(155*sqrt(7)*sqrt(5)*(9*x^2 + 12*x + 4)*arctan(1/1
4*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))) + 6*sqrt(5)
*(48*x^2 + 435*x + 236)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 472*sqrt(2
)*(9*x^2 + 12*x + 4)*arctan(1/20*sqrt(5)*sqrt(2)*(20*x + 1)/(sqrt
(5*x + 3)*sqrt(-2*x + 1))))/(9*x^2 + 12*x + 4)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(5/2)*(3+5*x)**(1/2)/(2+3*x)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.400309, size = 463, normalized size = 3.22

$$\frac{31}{432}\sqrt{70}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right) + \frac{59}{135}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{4\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right) + \frac{4}{135}\sqrt{5}\sqrt{5x+3}\sqrt{-10x+5} - \frac{77\left(17\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3 - 13720\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)\right)}{54\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^3,x, algorithm="giac")
```

```
[Out] 31/432*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x
+ 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqrt
(2)*sqrt(-10*x + 5) - sqrt(22)))) + 59/135*sqrt(10)*(pi + 2*arcta
n(-1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x
 + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 4/135*sqrt(5)
*sqrt(5*x + 3)*sqrt(-10*x + 5) - 77/54*(17*sqrt(10)*((sqrt(2)*sqr
t(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)
*sqrt(-10*x + 5) - sqrt(22)))^3 - 13720*sqrt(10)*((sqrt(2)*sqrt(-
10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sq
rt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22)
)/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt
(22)))^2 + 280)^2
```

3.2378 $\int \frac{(1-2x)^{5/2}\sqrt{3+5x}}{(2+3x)^4}\,dx$

Optimal. Leaf size=149

$$-\frac{\sqrt{5x+3}(1-2x)^{5/2}}{9(3x+2)^3}+\frac{5\sqrt{5x+3}(1-2x)^{3/2}}{12(3x+2)^2}+\frac{925\sqrt{5x+3}\sqrt{1-2x}}{216(3x+2)}-\frac{8}{81}\sqrt{10}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{32765\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{648\sqrt{7}}$$

```
[Out] -((1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(9*(2 + 3*x)^3) + (5*(1 - 2*x)^(
3/2)*Sqrt[3 + 5*x])/(12*(2 + 3*x)^2) + (925*Sqrt[1 - 2*x]*Sqrt[3
+ 5*x])/(216*(2 + 3*x)) - (8*Sqrt[10]*ArcSin[Sqrt[2/11]*Sqrt[3 +
5*x]])/81 - (32765*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])
/(648*Sqrt[7])
```

Rubi [A] time = 0.313915, antiderivative size = 149, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 7, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.269

$$-\frac{\sqrt{5x+3}(1-2x)^{5/2}}{9(3x+2)^3}+\frac{5\sqrt{5x+3}(1-2x)^{3/2}}{12(3x+2)^2}+\frac{925\sqrt{5x+3}\sqrt{1-2x}}{216(3x+2)}-\frac{8}{81}\sqrt{10}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{32765\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{648\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(2 + 3*x)^4,x]
```

```
[Out] -((1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(9*(2 + 3*x)^3) + (5*(1 - 2*x)^(
3/2)*Sqrt[3 + 5*x])/(12*(2 + 3*x)^2) + (925*Sqrt[1 - 2*x]*Sqrt[3
+ 5*x])/(216*(2 + 3*x)) - (8*Sqrt[10]*ArcSin[Sqrt[2/11]*Sqrt[3 +
5*x]])/81 - (32765*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])
/(648*Sqrt[7])
```

Rubi in Sympy [A] time = 29.7673, size = 134, normalized size = 0.9

$$-\frac{(-2x+1)^{\frac{5}{2}}\sqrt{5x+3}}{9(3x+2)^3}+\frac{5(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{12(3x+2)^2}+\frac{925\sqrt{-2x+1}\sqrt{5x+3}}{216(3x+2)}-\frac{8\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{81}-\frac{32765\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{4536}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(1/2)/(2+3*x)**4,x)
```

```
[Out] -(-2*x + 1)**(5/2)*sqrt(5*x + 3)/(9*(3*x + 2)**3) + 5*(-2*x + 1)*
*(3/2)*sqrt(5*x + 3)/(12*(3*x + 2)**2) + 925*sqrt(-2*x + 1)*sqrt(
5*x + 3)/(216*(3*x + 2)) - 8*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)
/11)/81 - 32765*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x +
 3)))/4536
```

Mathematica [A] time = 0.19442, size = 112, normalized size = 0.75

$$\frac{\frac{42\sqrt{1-2x}\sqrt{5x+3}(7689x^2+11106x+3856)}{(3x+2)^3}-32765\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)-448\sqrt{10}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)}{9072}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(2 + 3*x)^4,x]
```

```
[Out] ((42*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(3856 + 11106*x + 7689*x^2))/(2
+ 3*x)^3 - 32765*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sq
rt[3 + 5*x])] - 448*Sqrt[10]*ArcTan[(1 + 20*x)/(2*Sqrt[1 - 2*x]*S
qrt[30 + 50*x])])/9072
```

Maple [B] time = 0.017, size = 253, normalized size = 1.7

$$\frac{1}{9072\,(2+3\,x)^3}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(884655\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^3-12096\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x^3+176$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(1/2)/(2+3*x)^4,x)
```

```
[Out] 1/9072*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(884655*7^(1/2)*arctan(1/14*(3
7*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3-12096*10^(1/2)*arcsin(20
/11*x+1/11)*x^3+1769310*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-1
0*x^2-x+3)^(1/2))*x^2-24192*10^(1/2)*arcsin(20/11*x+1/11)*x^2+117
9540*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x
-16128*10^(1/2)*arcsin(20/11*x+1/11)*x+322938*x^2*(-10*x^2-x+3)^(
1/2)+262120*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(
1/2))-3584*10^(1/2)*arcsin(20/11*x+1/11)+466452*x*(-10*x^2-x+3)^(
1/2)+161952*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)^3
```

Maxima [A] time = 1.51618, size = 178, normalized size = 1.19

$$-\frac{4}{81}\sqrt{10}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)+\frac{32765}{9072}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{145}{54}\sqrt{-10\,x^2-x+3}+\frac{7\,(-10\,x^2-x+3)^{\frac{3}{2}}}{9\,(27\,x^3+54\,x^2+36\,x+8)}+\frac{29\,(-10\,x^2-x+3)^{\frac{3}{2}}}{12\,(9\,x^2+12\,x+4)}-\frac{1105\,\sqrt{-10\,x^2-x+3}}{216\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^4,x, algorithm="maxima")
```

```
[Out] -4/81*sqrt(10)*arcsin(20/11*x + 1/11) + 32765/9072*sqrt(7)*arcsin
(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) + 145/54*sqrt(-10*x^2
 - x + 3) + 7/9*(-10*x^2 - x + 3)^(3/2)/(27*x^3 + 54*x^2 + 36*x +
 8) + 29/12*(-10*x^2 - x + 3)^(3/2)/(9*x^2 + 12*x + 4) - 1105/216
*sqrt(-10*x^2 - x + 3)/(3*x + 2)
```

Fricas [A] time = 0.236692, size = 192, normalized size = 1.29

$$-\frac{\sqrt{7}\left(64\,\sqrt{10}\sqrt{7}\left(27\,x^3+54\,x^2+36\,x+8\right)\arctan\left(\frac{\sqrt{10}(20\,x+1)}{20\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)-6\,\sqrt{7}\left(7689\,x^2+11106\,x+3856\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-3}{9072\,(27\,x^3+54\,x^2+36\,x+8)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^4,x, algorithm="fricas")
```

```
[Out] -1/9072*sqrt(7)*(64*sqrt(10)*sqrt(7)*(27*x^3 + 54*x^2 + 36*x + 8)
*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1)))
- 6*sqrt(7)*(7689*x^2 + 11106*x + 3856)*sqrt(5*x + 3)*sqrt(-2*x +
```

```
1) - 32765*(27*x^3 + 54*x^2 + 36*x + 8)*arctan(1/14*sqrt(7)*(37*
x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(27*x^3 + 54*x^2 + 36*x
+ 8)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**(1/2)/(2+3*x)**4,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.400948, size = 520, normalized size = 3.49

$$\frac{6553}{18144}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)$$

$$-\frac{4}{81}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{4\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)$$

$$-\frac{11\left(989\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^5-795200\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3-72520000\sqrt{10}\left(\cdots\right.}{108\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^4,x, algorithm="giac")
```

```
[Out] 6553/18144*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(
5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(
sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 4/81*sqrt(10)*(pi + 2*arc
tan(-1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5
*x + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 11/108*(989
*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4
*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 - 795200*s
qrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*s
qrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 - 72520000*s
qrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*s
qrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sq
rt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2
)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)^3
```

3.2379 $\int \frac{(1-2x)^{5/2}\sqrt{3+5x}}{(2+3x)^5}\,dx$

Optimal. Leaf size=151

$$\frac{(5x+3)^{3/2}(1-2x)^{5/2}}{4(3x+2)^4}+\frac{55(5x+3)^{3/2}(1-2x)^{3/2}}{24(3x+2)^3}+\frac{605(5x+3)^{3/2}\sqrt{1-2x}}{32(3x+2)^2}-\frac{6655\sqrt{5x+3}\sqrt{1-2x}}{448(3x+2)}-\frac{73205\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{448\sqrt{7}}$$

```
[Out] (-6655*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(448*(2 + 3*x)) + ((1 - 2*x)^
(5/2)*(3 + 5*x)^(3/2))/(4*(2 + 3*x)^4) + (55*(1 - 2*x)^(3/2)*(3 +
 5*x)^(3/2))/(24*(2 + 3*x)^3) + (605*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2
))/(32*(2 + 3*x)^2) - (73205*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3
 + 5*x])])/(448*Sqrt[7])
```

Rubi [A] time = 0.215887, antiderivative size = 151, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.115

$$\frac{(5x+3)^{3/2}(1-2x)^{5/2}}{4(3x+2)^4}+\frac{55(5x+3)^{3/2}(1-2x)^{3/2}}{24(3x+2)^3}+\frac{605(5x+3)^{3/2}\sqrt{1-2x}}{32(3x+2)^2}-\frac{6655\sqrt{5x+3}\sqrt{1-2x}}{448(3x+2)}-\frac{73205\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{448\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(2 + 3*x)^5,x]
```

```
[Out] (-6655*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(448*(2 + 3*x)) + ((1 - 2*x)^
(5/2)*(3 + 5*x)^(3/2))/(4*(2 + 3*x)^4) + (55*(1 - 2*x)^(3/2)*(3 +
 5*x)^(3/2))/(24*(2 + 3*x)^3) + (605*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2
))/(32*(2 + 3*x)^2) - (73205*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3
 + 5*x])])/(448*Sqrt[7])
```

Rubi in Sympy [A] time = 17.0809, size = 136, normalized size = 0.9

$$-\frac{55\left(-2x+1\right)^{\frac{5}{2}}\sqrt{5x+3}}{168\left(3x+2\right)^{3}}+\frac{\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{3}{2}}}{4\left(3x+2\right)^{4}}+\frac{605\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{672\left(3x+2\right)^{2}}+\frac{6655\sqrt{-2x+1}\sqrt{5x+3}}{448\left(3x+2\right)}-\frac{73205\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{3136}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(1/2)/(2+3*x)**5,x)
```

```
[Out] -55*(-2*x + 1)**(5/2)*sqrt(5*x + 3)/(168*(3*x + 2)**3) + (-2*x +
1)**(5/2)*(5*x + 3)**(3/2)/(4*(3*x + 2)**4) + 605*(-2*x + 1)**(3/
2)*sqrt(5*x + 3)/(672*(3*x + 2)**2) + 6655*sqrt(-2*x + 1)*sqrt(5*
x + 3)/(448*(3*x + 2)) - 73205*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1
)/(7*sqrt(5*x + 3)))/3136
```

Mathematica [A] time = 0.0876901, size = 82, normalized size = 0.54

$$\frac{\sqrt{1-2x}\sqrt{5x+3}\left(518715x^3+1059032x^2+723428x+164688\right)}{1344(3x+2)^4}-\frac{73205\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{896\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(2 + 3*x)^5,x]
```

```
[Out] (Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(164688 + 723428*x + 1059032*x^2 + 5
18715*x^3))/(1344*(2 + 3*x)^4) - (73205*ArcTan[(-20 - 37*x)/(2*Sq
rt[7 - 14*x]*Sqrt[3 + 5*x])])/(896*Sqrt[7])
```

Maple [B] time = 0.017, size = 250, normalized size = 1.7

$$\frac{1}{18816\,(2+3\,x)^4}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(17788815\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^4+47436840\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)}{\sqrt{-10\,x^2-}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(1/2)/(2+3*x)^5,x)
```

```
[Out] 1/18816*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(17788815*7^(1/2)*arctan(1/14
*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^4+47436840*7^(1/2)*arct
an(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+47436840*7^(1/
2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+7262010
*x^3*(-10*x^2-x+3)^(1/2)+21083040*7^(1/2)*arctan(1/14*(37*x+20)*7
^(1/2)/(-10*x^2-x+3)^(1/2))*x+14826448*x^2*(-10*x^2-x+3)^(1/2)+35
13840*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+
10127992*x*(-10*x^2-x+3)^(1/2)+2305632*(-10*x^2-x+3)^(1/2))/(-10*
x^2-x+3)^(1/2)/(2+3*x)^4
```

Maxima [A] time = 1.55112, size = 212, normalized size = 1.4

$$\frac{73205}{6272}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{3025}{336}\sqrt{-10\,x^2-x+3}$$
$$+\frac{7\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{12\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}+\frac{17\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{8\,(27\,x^3+54\,x^2+36\,x+8)}$$
$$+\frac{1815\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{224\,(9\,x^2+12\,x+4)}-\frac{22385\sqrt{-10\,x^2-x+3}}{1344\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^5,x, algorithm="maxima")
```

```
[Out] 73205/6272*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x +
2)) + 3025/336*sqrt(-10*x^2 - x + 3) + 7/12*(-10*x^2 - x + 3)^(3/
2)/(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16) + 17/8*(-10*x^2 - x +
 3)^(3/2)/(27*x^3 + 54*x^2 + 36*x + 8) + 1815/224*(-10*x^2 - x +
3)^(3/2)/(9*x^2 + 12*x + 4) - 22385/1344*sqrt(-10*x^2 - x + 3)/(3
*x + 2)
```

Fricas [A] time = 0.22421, size = 147, normalized size = 0.97

$$\frac{\sqrt{7}\left(2\sqrt{7}\left(518715\,x^3+1059032\,x^2+723428\,x+164688\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+219615\left(81\,x^4+216\,x^3+216\,x^2+96\,x+16\right)\,\mathrm{a}\right.}{18816\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^5,x, algorithm="fricas")
```

```
[Out] 1/18816*sqrt(7)*(2*sqrt(7)*(518715*x^3 + 1059032*x^2 + 723428*x +
 164688)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 219615*(81*x^4 + 216*x^3
+ 216*x^2 + 96*x + 16)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x
+ 3)*sqrt(-2*x + 1))))/(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**(1/2)/(2+3*x)**5,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.415004, size = 512, normalized size = 3.39

$$\frac{14641}{12544}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)$$

$$-\frac{73205\left(3\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^7-4088\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^5-862400\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+}}{\sqrt{5x+}}\right.}{672\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+28\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^5,x, algorithm="giac")
```

```
[Out] 14641/12544*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt
(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 73205/672*(3*sqrt(10)*((
sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x +
3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^7 - 4088*sqrt(10)*((sqrt
(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(
sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 - 862400*sqrt(10)*((sqrt(2
)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sq
rt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 - 65856000*sqrt(10)*((sqrt(2
)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sq
rt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) -
sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5
) - sqrt(22)))^2 + 280)^4
```

3.2380 $\int \frac{(1-2x)^{5/2}\sqrt{3+5x}}{(2+3x)^6}\,dx$

Optimal. Leaf size=180

$$\frac{3(5x+3)^{3/2}(1-2x)^{7/2}}{35(3x+2)^5}+\frac{251(5x+3)^{3/2}(1-2x)^{5/2}}{280(3x+2)^4}+\frac{2761(5x+3)^{3/2}(1-2x)^{3/2}}{336(3x+2)^3}+\frac{30371(5x+3)^{3/2}\sqrt{1-2x}}{448(3x+2)^2}-\frac{334081\sqrt{5x+3}\sqrt{1-2x}}{6272(3x+2)}-\frac{3674891\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{6272\sqrt{7}}$$

```
[Out] (-334081*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(6272*(2 + 3*x)) + (3*(1 -
2*x)^(7/2)*(3 + 5*x)^(3/2))/(35*(2 + 3*x)^5) + (251*(1 - 2*x)^(5/
2)*(3 + 5*x)^(3/2))/(280*(2 + 3*x)^4) + (2761*(1 - 2*x)^(3/2)*(3
+ 5*x)^(3/2))/(336*(2 + 3*x)^3) + (30371*Sqrt[1 - 2*x]*(3 + 5*x)^
(3/2))/(448*(2 + 3*x)^2) - (3674891*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]
*Sqrt[3 + 5*x])])/(6272*Sqrt[7])
```

Rubi [A] time = 0.264144, antiderivative size = 180, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.154$

$$\frac{3(5x+3)^{3/2}(1-2x)^{7/2}}{35(3x+2)^5}+\frac{251(5x+3)^{3/2}(1-2x)^{5/2}}{280(3x+2)^4}+\frac{2761(5x+3)^{3/2}(1-2x)^{3/2}}{336(3x+2)^3}+\frac{30371(5x+3)^{3/2}\sqrt{1-2x}}{448(3x+2)^2}-\frac{334081\sqrt{5x+3}\sqrt{1-2x}}{6272(3x+2)}-\frac{3674891\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{6272\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(2 + 3*x)^6,x]
```

```
[Out] (-334081*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(6272*(2 + 3*x)) + (3*(1 -
2*x)^(7/2)*(3 + 5*x)^(3/2))/(35*(2 + 3*x)^5) + (251*(1 - 2*x)^(5/
2)*(3 + 5*x)^(3/2))/(280*(2 + 3*x)^4) + (2761*(1 - 2*x)^(3/2)*(3
+ 5*x)^(3/2))/(336*(2 + 3*x)^3) + (30371*Sqrt[1 - 2*x]*(3 + 5*x)^
(3/2))/(448*(2 + 3*x)^2) - (3674891*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]
*Sqrt[3 + 5*x])])/(6272*Sqrt[7])
```

Rubi in Sympy [A] time = 20.3696, size = 165, normalized size = 0.92

$$-\frac{251\left(-2x+1\right)^{\frac{7}{2}}\sqrt{5x+3}}{1960\left(3x+2\right)^4}+\frac{3\left(-2x+1\right)^{\frac{7}{2}}\left(5x+3\right)^{\frac{3}{2}}}{35\left(3x+2\right)^5}+\frac{2761\left(-2x+1\right)^{\frac{5}{2}}\sqrt{5x+3}}{11760\left(3x+2\right)^3}+\frac{30371\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{9408\left(3x+2\right)^2}+\frac{334081\sqrt{-2x+1}\sqrt{5x+3}}{6272\left(3x+2\right)}-\frac{3674891\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{43904}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(1/2)/(2+3*x)**6,x)
```

```
[Out] -251*(-2*x + 1)**(7/2)*sqrt(5*x + 3)/(1960*(3*x + 2)**4) + 3*(-2*
x + 1)**(7/2)*(5*x + 3)**(3/2)/(35*(3*x + 2)**5) + 2761*(-2*x + 1
)**(5/2)*sqrt(5*x + 3)/(11760*(3*x + 2)**3) + 30371*(-2*x + 1)**(
3/2)*sqrt(5*x + 3)/(9408*(3*x + 2)**2) + 334081*sqrt(-2*x + 1)*sq
rt(5*x + 3)/(6272*(3*x + 2)) - 3674891*sqrt(7)*atan(sqrt(7)*sqrt(
-2*x + 1)/(7*sqrt(5*x + 3)))/43904
```

Mathematica [A] time = 0.112539, size = 87, normalized size = 0.48

$$\frac{\frac{14\sqrt{1-2x}\sqrt{5x+3}\left(390269835x^4+1058136330x^3+1076423732x^2+487066088x+82697568\right)}{(3x+2)^5}-55123365\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{1317120}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(2 + 3*x)^6,x]
```

```
[Out] ((14*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(82697568 + 487066088*x + 107642
3732*x^2 + 1058136330*x^3 + 390269835*x^4))/(2 + 3*x)^5 - 5512336
5*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/
1317120
```

Maple [B] time = 0.018, size = 298, normalized size = 1.7

$$\frac{1}{1317120\,(2+3x)^5}\sqrt{1-2x}\sqrt{3+5x}\left(13394977695\sqrt{7}\arctan\left(1/14\,\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)x^5+44649925650\sqrt{7}\arctan\left(1/14\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(1/2)/(2+3*x)^6,x)
```

```
[Out] 1/1317120*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(13394977695*7^(1/2)*arctan
(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^5+44649925650*7^(1
/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^4+595332
34200*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*
x^3+5463777690*x^4*(-10*x^2-x+3)^(1/2)+39688822800*7^(1/2)*arctan
(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+14813908620*x^3*
(-10*x^2-x+3)^(1/2)+13229607600*7^(1/2)*arctan(1/14*(37*x+20)*7^(
1/2)/(-10*x^2-x+3)^(1/2))*x+15069932248*x^2*(-10*x^2-x+3)^(1/2)+1
763947680*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/
2))+6818925232*x*(-10*x^2-x+3)^(1/2)+1157765952*(-10*x^2-x+3)^(1/
2))/(-10*x^2-x+3)^(1/2)/(2+3*x)^5
```

Maxima [A] time = 1.63515, size = 267, normalized size = 1.48

$$\frac{3674891}{87808}\sqrt{7}\arcsin\left(\frac{37x}{11\,|3x+2|}+\frac{20}{11\,|3x+2|}\right)+\frac{151855}{4704}\sqrt{-10x^2-x+3}+\frac{7\left(-10x^2-x+3\right)^{\frac{3}{2}}}{15\,(243x^5+810x^4+1080x^3+720x^2+240x+32)}+\frac{73\left(-10x^2-x+3\right)^{\frac{3}{2}}}{40\,(81x^4+216x^3+216x^2+96x+16)}+\frac{2573\left(-10x^2-x+3\right)^{\frac{3}{2}}}{336\,(27x^3+54x^2+36x+8)}+\frac{91113\left(-10x^2-x+3\right)^{\frac{3}{2}}}{3136\,(9x^2+12x+4)}-\frac{1123727\sqrt{-10x^2-x+3}}{18816\,(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^6,x, algorithm="maxima")
```

```
[Out] 3674891/87808*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x
 + 2)) + 151855/4704*sqrt(-10*x^2 - x + 3) + 7/15*(-10*x^2 - x +
3)^(3/2)/(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32) +
73/40*(-10*x^2 - x + 3)^(3/2)/(81*x^4 + 216*x^3 + 216*x^2 + 96*x
+ 16) + 2573/336*(-10*x^2 - x + 3)^(3/2)/(27*x^3 + 54*x^2 + 36*x
+ 8) + 91113/3136*(-10*x^2 - x + 3)^(3/2)/(9*x^2 + 12*x + 4) - 11
23727/18816*sqrt(-10*x^2 - x + 3)/(3*x + 2)
```

Fricas [A] time = 0.226937, size = 167, normalized size = 0.93

$$\frac{\sqrt{7}\left(2\sqrt{7}\left(390269835x^4+1058136330x^3+1076423732x^2+487066088x+82697568\right)\sqrt{5x+3}\sqrt{-2x+1}+55123365\,(243\right.}{1317120\,(243x^5+810x^4+1080x^3+720x^2+240x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^6,x, algorithm="fricas")
```

```
[Out] 1/1317120*sqrt(7)*(2*sqrt(7)*(390269835*x^4 + 1058136330*x^3 + 10
76423732*x^2 + 487066088*x + 82697568)*sqrt(5*x + 3)*sqrt(-2*x +
1) + 55123365*(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 3
2)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))
))/(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(5/2)*(3+5*x)**(1/2)/(2+3*x)**6,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.498039, size = 594, normalized size = 3.3

$$\frac{3674891}{878080}\sqrt{70}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)$$

$$-\frac{14641\left(753\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^9 - 1524880\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^7 - 503767040\sqrt{10}\left(\right.}{9408\left(\left(\frac{\sqrt{2}}{}\right.\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^6,x, algorithm="giac")
```

```
[Out] 3674891/878080*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*s
qrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) -
4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 14641/9408*(753*sqrt(
10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(
5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^9 - 1524880*sqrt(1
0)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5
*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^7 - 503767040*sqrt(
10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(
5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 - 77139328000*sq
rt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sq
rt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 - 46283596800
00*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) -
 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2
)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sq
rt(2)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)^5
```

3.2381 $\int \frac{(1-2x)^{5/2}\sqrt{3+5x}}{(2+3x)^7}\,dx$

Optimal. Leaf size=209

$$-\frac{\sqrt{5x+3}(1-2x)^{5/2}}{18(3x+2)^6}+\frac{\sqrt{5x+3}(1-2x)^{3/2}}{12(3x+2)^5}+\frac{2770202075\sqrt{5x+3}\sqrt{1-2x}}{14224896(3x+2)}+\frac{26486645\sqrt{5x+3}\sqrt{1-2x}}{1016064(3x+2)^2}+\frac{151621\sqrt{5x+3}\sqrt{1-2x}}{36288(3x+2)^3}+\frac{647\sqrt{5x+3}\sqrt{1-2x}}{864(3x+2)^4}-\frac{391280725\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{175616\sqrt{7}}$$

```
[Out] -((1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(18*(2 + 3*x)^6) + ((1 - 2*x)^(3
/2)*Sqrt[3 + 5*x])/(12*(2 + 3*x)^5) + (647*Sqrt[1 - 2*x]*Sqrt[3 +
 5*x])/(864*(2 + 3*x)^4) + (151621*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(
36288*(2 + 3*x)^3) + (26486645*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(1016
064*(2 + 3*x)^2) + (2770202075*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(1422
4896*(2 + 3*x)) - (391280725*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3
 + 5*x])])/(175616*Sqrt[7])
```

Rubi [A] time = 0.45296, antiderivative size = 209, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$-\frac{\sqrt{5x+3}(1-2x)^{5/2}}{18(3x+2)^6}+\frac{\sqrt{5x+3}(1-2x)^{3/2}}{12(3x+2)^5}+\frac{2770202075\sqrt{5x+3}\sqrt{1-2x}}{14224896(3x+2)}+\frac{26486645\sqrt{5x+3}\sqrt{1-2x}}{1016064(3x+2)^2}+\frac{151621\sqrt{5x+3}\sqrt{1-2x}}{36288(3x+2)^3}+\frac{647\sqrt{5x+3}\sqrt{1-2x}}{864(3x+2)^4}-\frac{391280725\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{175616\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(2 + 3*x)^7,x]
```

```
[Out] -((1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(18*(2 + 3*x)^6) + ((1 - 2*x)^(3
/2)*Sqrt[3 + 5*x])/(12*(2 + 3*x)^5) + (647*Sqrt[1 - 2*x]*Sqrt[3 +
 5*x])/(864*(2 + 3*x)^4) + (151621*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(
36288*(2 + 3*x)^3) + (26486645*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(1016
064*(2 + 3*x)^2) + (2770202075*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(1422
4896*(2 + 3*x)) - (391280725*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3
 + 5*x])])/(175616*Sqrt[7])
```

Rubi in Sympy [A] time = 43.8989, size = 189, normalized size = 0.9

$$-\frac{(-2x+1)^{\frac{5}{2}}\sqrt{5x+3}}{18\,(3x+2)^6}+\frac{(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{12\,(3x+2)^5}+\frac{2770202075\sqrt{-2x+1}\sqrt{5x+3}}{14224896\,(3x+2)}+\frac{26486645\sqrt{-2x+1}\sqrt{5x+3}}{1016064\,(3x+2)^2}+\frac{151621\sqrt{-2x+1}\sqrt{5x+3}}{36288\,(3x+2)^3}+\frac{647\sqrt{-2x+1}\sqrt{5x+3}}{864\,(3x+2)^4}-\frac{391280725\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{1229312}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(1/2)/(2+3*x)**7,x)
```

```
[Out] -(-2*x + 1)**(5/2)*sqrt(5*x + 3)/(18*(3*x + 2)**6) + (-2*x + 1)**
(3/2)*sqrt(5*x + 3)/(12*(3*x + 2)**5) + 2770202075*sqrt(-2*x + 1)
```

```
*sqrt(5*x + 3)/(14224896*(3*x + 2)) + 26486645*sqrt(-2*x + 1)*sqr
t(5*x + 3)/(1016064*(3*x + 2)**2) + 151621*sqrt(-2*x + 1)*sqrt(5*
x + 3)/(36288*(3*x + 2)**3) + 647*sqrt(-2*x + 1)*sqrt(5*x + 3)/(8
64*(3*x + 2)**4) - 391280725*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/
(7*sqrt(5*x + 3)))/1229312
```

Mathematica [A] time = 0.155445, size = 92, normalized size = 0.44

$$\frac{\frac{14\sqrt{1-2x}\sqrt{5x+3}(24931818675x^5+84218501340x^4+113834022672x^3+76960600672x^2+26026519504x+3522190656)}{(3x+2)^6} - 1173842175\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+}}\right.}{7375872}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(2 + 3*x)^7,x]
```

```
[Out] ((14*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(3522190656 + 26026519504*x + 76
960600672*x^2 + 113834022672*x^3 + 84218501340*x^4 + 24931818675*
x^5))/(2 + 3*x)^6 - 1173842175*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqr
t[7 - 14*x]*Sqrt[3 + 5*x])])/7375872
```

Maple [B] time = 0.018, size = 346, normalized size = 1.7

$$\frac{1}{7375872\,(2+3\,x)^6}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(855730945575\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^6+3422923782300\,\sqrt{7}\arctan\left(1/\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(1/2)/(2+3*x)^7,x)
```

```
[Out] 1/7375872*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(855730945575*7^(1/2)*arcta
n(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^6+3422923782300*7
^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^5+570
4872970500*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1
/2))*x^4+349045461450*x^5*(-10*x^2-x+3)^(1/2)+5070998196000*7^(1/
2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+1179059
018760*x^4*(-10*x^2-x+3)^(1/2)+2535499098000*7^(1/2)*arctan(1/14*
(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+1593676317408*x^3*(-10
*x^2-x+3)^(1/2)+676133092800*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2
)/(-10*x^2-x+3)^(1/2))*x+1077448409408*x^2*(-10*x^2-x+3)^(1/2)+75
125899200*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/
2))+364371273056*x*(-10*x^2-x+3)^(1/2)+49310669184*(-10*x^2-x+3)^
(1/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)^6
```

Maxima [A] time = 1.51529, size = 329, normalized size = 1.57

$$\frac{391280725}{2458624}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{16168625}{131712}\sqrt{-10\,x^2-x+3}+\frac{7\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{18\,(729\,x^6+2916\,x^5+4860\,x^4+4320\,x^3+2160\,x^2+576\,x+64)}+\frac{19\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{12\,(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240\,x+32)}+\frac{4673\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{672\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}+\frac{821945\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{28224\,(27\,x^3+54\,x^2+36\,x+8)}+\frac{9701175\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{87808\,(9\,x^2+12\,x+4)}-\frac{119647825\sqrt{-10\,x^2-x+3}}{526848\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^7,x, algorithm="maxima")
```

```
[Out] 391280725/2458624*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs
(3*x + 2)) + 16168625/131712*sqrt(-10*x^2 - x + 3) + 7/18*(-10*x^
2 - x + 3)^(3/2)/(729*x^6 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 2160
*x^2 + 576*x + 64) + 19/12*(-10*x^2 - x + 3)^(3/2)/(243*x^5 + 810
*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32) + 4673/672*(-10*x^2 - x +
 3)^(3/2)/(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16) + 821945/28224
*(-10*x^2 - x + 3)^(3/2)/(27*x^3 + 54*x^2 + 36*x + 8) + 9701175/8
7808*(-10*x^2 - x + 3)^(3/2)/(9*x^2 + 12*x + 4) - 119647825/52684
8*sqrt(-10*x^2 - x + 3)/(3*x + 2)
```

Fricas [A] time = 0.225834, size = 188, normalized size = 0.9

$$\frac{\sqrt{7}\left(2\sqrt{7}\left(24931818675\,x^5 + 84218501340\,x^4 + 113834022672\,x^3 + 76960600672\,x^2 + 26026519504\,x + 3522190656\right)\sqrt{5\,x + 3}\cdots\right.}{7375872\left(729\,x^6 + 2916\,x^5 + 4860\,x^4 + \cdots\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^7,x, algorithm="fricas")
```

```
[Out] 1/7375872*sqrt(7)*(2*sqrt(7)*(24931818675*x^5 + 84218501340*x^4 +
 113834022672*x^3 + 76960600672*x^2 + 26026519504*x + 3522190656)
*sqrt(5*x + 3)*sqrt(-2*x + 1) + 1173842175*(729*x^6 + 2916*x^5 +
4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64)*arctan(1/14*sqrt(7)*
(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(729*x^6 + 2916*x^5
+ 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**(1/2)/(2+3*x)**7,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.613194, size = 676, normalized size = 3.23

$$\frac{78256145}{4917248}\sqrt{70}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3} - 4\right)}{140\left(\sqrt{2}\sqrt{-10\,x+5} - \sqrt{22}\right)}\right)\right)$$
$$-\frac{366025\left(3207\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}} - \frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^{11} - 8960840\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}} - \frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^{9} - 4031723136\cdots\right.}{\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^7,x, algorithm="giac")
```

```
[Out] 78256145/4917248*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)
*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3)
- 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 366025/263424*(3207
*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4
*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^11 - 8960840
```

```
*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4
*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^9 - 40317231
36*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) -
 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^7 - 929280
844800*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x +
3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 - 11
1701434880000*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt
(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))
^3 - 5519365017600000*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(2
2))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sq
rt(22))))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) -
4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)^6
```

3.2382 $\int(1-2x)^{5/2}(2+3x)^3(3+5x)^{3/2}\,dx$

Optimal. Leaf size=194

$$-\frac{3}{80}(3x+2)^2(5x+3)^{5/2}(1-2x)^{7/2}-\frac{735439(5x+3)^{3/2}(1-2x)^{7/2}}{1280000}-\frac{9(5x+3)^{5/2}(13480x+18399)(1-2x)^{7/2}}{448000}-\frac{24269487\sqrt{5x+3}(1-2x)^{7/2}}{20480000}+\frac{88988119\sqrt{5x+3}(1-2x)^{5/2}}{204800000}+\frac{978869309\sqrt{5x+3}(1-2x)^{3/2}}{819200000}+\frac{32302687197\sqrt{5x+3}\sqrt{1-2x}}{8192000000}+\frac{355329559167\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{8192000000\sqrt{10}}$$

```
[Out] (32302687197*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/8192000000 + (978869309
*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/819200000 + (88988119*(1 - 2*x)^(
5/2)*Sqrt[3 + 5*x])/204800000 - (24269487*(1 - 2*x)^(7/2)*Sqrt[3
+ 5*x])/20480000 - (735439*(1 - 2*x)^(7/2)*(3 + 5*x)^(3/2))/12800
00 - (3*(1 - 2*x)^(7/2)*(2 + 3*x)^2*(3 + 5*x)^(5/2))/80 - (9*(1 -
 2*x)^(7/2)*(3 + 5*x)^(5/2)*(18399 + 13480*x))/448000 + (35532955
9167*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(8192000000*Sqrt[10])
```

Rubi [A] time = 0.241778, antiderivative size = 194, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$-\frac{3}{80}(3x+2)^2(5x+3)^{5/2}(1-2x)^{7/2}-\frac{735439(5x+3)^{3/2}(1-2x)^{7/2}}{1280000}-\frac{9(5x+3)^{5/2}(13480x+18399)(1-2x)^{7/2}}{448000}-\frac{24269487\sqrt{5x+3}(1-2x)^{7/2}}{20480000}+\frac{88988119\sqrt{5x+3}(1-2x)^{5/2}}{204800000}+\frac{978869309\sqrt{5x+3}(1-2x)^{3/2}}{819200000}+\frac{32302687197\sqrt{5x+3}\sqrt{1-2x}}{8192000000}+\frac{355329559167\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{8192000000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)*(2 + 3*x)^3*(3 + 5*x)^(3/2),x]
```


```
[Out] (32302687197*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/8192000000 + (978869309
*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/819200000 + (88988119*(1 - 2*x)^(
5/2)*Sqrt[3 + 5*x])/204800000 - (24269487*(1 - 2*x)^(7/2)*Sqrt[3
+ 5*x])/20480000 - (735439*(1 - 2*x)^(7/2)*(3 + 5*x)^(3/2))/12800
00 - (3*(1 - 2*x)^(7/2)*(2 + 3*x)^2*(3 + 5*x)^(5/2))/80 - (9*(1 -
 2*x)^(7/2)*(3 + 5*x)^(5/2)*(18399 + 13480*x))/448000 + (35532955
9167*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(8192000000*Sqrt[10])
```

Rubi in Sympy [A] time = 21.2302, size = 178, normalized size = 0.92

$$-\frac{3(-2x+1)^{\frac{7}{2}}(3x+2)^2(5x+3)^{\frac{5}{2}}}{80}-\frac{(-2x+1)^{\frac{7}{2}}(5x+3)^{\frac{5}{2}}\left(90990x+\frac{496773}{4}\right)}{336000}+\frac{735439(-2x+1)^{\frac{5}{2}}(5x+3)^{\frac{5}{2}}}{3200000}+\frac{8089829(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{5}{2}}}{25600000}+\frac{88988119\sqrt{-2x+1}(5x+3)^{\frac{5}{2}}}{256000000}-\frac{978869309\sqrt{-2x+1}(5x+3)^{\frac{3}{2}}}{2048000000}-\frac{32302687197\sqrt{-2x+1}\sqrt{5x+3}}{8192000000}+\frac{355329559167\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{81920000000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**3*(3+5*x)**(3/2),x)
```

```
[Out] -3*(-2*x + 1)**(7/2)*(3*x + 2)**2*(5*x + 3)**(5/2)/80 - (-2*x + 1
)**(7/2)*(5*x + 3)**(5/2)*(90990*x + 496773/4)/336000 + 735439*(-
2*x + 1)**(5/2)*(5*x + 3)**(5/2)/3200000 + 8089829*(-2*x + 1)**(3
/2)*(5*x + 3)**(5/2)/25600000 + 88988119*sqrt(-2*x + 1)*(5*x + 3)
**(5/2)/256000000 - 978869309*sqrt(-2*x + 1)*(5*x + 3)**(3/2)/204
8000000 - 32302687197*sqrt(-2*x + 1)*sqrt(5*x + 3)/8192000000 + 3
55329559167*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/81920000000
```

Mathematica [A] time = 0.15307, size = 85, normalized size = 0.44

$$\frac{10\sqrt{1-2x}\sqrt{5x+3}\left(3870720000000x^7+7105536000000x^6+808627200000x^5-5264367872000x^4-2347326614400x^3+1\right.}{573440000000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)*(2 + 3*x)^3*(3 + 5*x)^(3/2),x]
```

```
[Out] (10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(-115416461871 + 942468770660*x +
 1304824422880*x^2 - 2347326614400*x^3 - 5264367872000*x^4 + 8086
27200000*x^5 + 7105536000000*x^6 + 3870720000000*x^7) - 248730691
4169*Sqrt[10]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/573440000000
```

Maple [A] time = 0.014, size = 172, normalized size = 0.9

$$\frac{1}{1146880000000}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(77414400000000\,x^7\sqrt{-10\,x^2-x+3}+142110720000000\,x^6\sqrt{-10\,x^2-x+3}+16172544\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^3*(3+5*x)^(3/2),x)
```

```
[Out] 1/1146880000000*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(77414400000000*x^7*(
-10*x^2-x+3)^(1/2)+142110720000000*x^6*(-10*x^2-x+3)^(1/2)+161725
44000000*x^5*(-10*x^2-x+3)^(1/2)-105287357440000*x^4*(-10*x^2-x+3
)^(1/2)-46946532288000*x^3*(-10*x^2-x+3)^(1/2)+26096488457600*x^2
*(-10*x^2-x+3)^(1/2)+2487306914169*10^(1/2)*arcsin(20/11*x+1/11)+
18849375413200*x*(-10*x^2-x+3)^(1/2)-2308329237420*(-10*x^2-x+3)^
(1/2))/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.48951, size = 180, normalized size = 0.93

$$\frac{27}{40}\left(-10\,x^2-x+3\right)^{\frac{5}{2}}x^3+\frac{6183}{5600}\left(-10\,x^2-x+3\right)^{\frac{5}{2}}x^2+\frac{71331}{224000}\left(-10\,x^2-x+3\right)^{\frac{5}{2}}x-\frac{6491477}{22400000}\left(-10\,x^2-x+3\right)^{\frac{5}{2}}+\frac{8089829}{5120000}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x+\frac{8089829}{102400000}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}+\frac{2936607927}{409600000}\sqrt{-10\,x^2-x+3}x-\frac{355329559167}{163840000000}\sqrt{10}\arcsin\left(-\frac{20}{11}\,x-\frac{1}{11}\right)+\frac{2936607927}{8192000000}\sqrt{-10\,x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(3*x + 2)^3*(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] 27/40*(-10*x^2 - x + 3)^(5/2)*x^3 + 6183/5600*(-10*x^2 - x + 3)^(
5/2)*x^2 + 71331/224000*(-10*x^2 - x + 3)^(5/2)*x - 6491477/22400
```

```
000*(-10*x^2 - x + 3)^(5/2) + 8089829/5120000*(-10*x^2 - x + 3)^(
3/2)*x + 8089829/102400000*(-10*x^2 - x + 3)^(3/2) + 2936607927/4
09600000*sqrt(-10*x^2 - x + 3)*x - 355329559167/163840000000*sqrt
(10)*arcsin(-20/11*x - 1/11) + 2936607927/8192000000*sqrt(-10*x^2
 - x + 3)
```

Fricas [A] time = 0.225291, size = 117, normalized size = 0.6

$$\frac{1}{1146880000000}\sqrt{10}\left(2\sqrt{10}\left(3870720000000\,x^{7}+7105536000000\,x^{6}+808627200000\,x^{5}-5264367872000\,x^{4}-23473266144\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(3*x + 2)^3*(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/1146880000000*sqrt(10)*(2*sqrt(10)*(3870720000000*x^7 + 7105536
000000*x^6 + 808627200000*x^5 - 5264367872000*x^4 - 2347326614400
*x^3 + 1304824422880*x^2 + 942468770660*x - 115416461871)*sqrt(5*
x + 3)*sqrt(-2*x + 1) + 2487306914169*arctan(1/20*sqrt(10)*(20*x
+ 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)**3*(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.291845, size = 1, normalized size = 0.01

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(3*x + 2)^3*(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] Done
```

3.2383 $\int (1-2x)^{5/2}(2+3x)^2(3+5x)^{3/2}\,dx$

Optimal. Leaf size=187

$$-\frac{3}{70}(3x+2)(5x+3)^{5/2}(1-2x)^{7/2}-\frac{263(5x+3)^{5/2}(1-2x)^{7/2}}{2800}-\frac{2287(5x+3)^{3/2}(1-2x)^{7/2}}{8000}-\frac{75471\sqrt{5x+3}(1-2x)^{7/2}}{128000}+\frac{276727\sqrt{5x+3}(1-2x)^{5/2}}{1280000}+\frac{3043997\sqrt{5x+3}(1-2x)^{3/2}}{5120000}+\frac{100451901\sqrt{5x+3}\sqrt{1-2x}}{51200000}+\frac{1104970911\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{51200000\sqrt{10}}$$

```
[Out] (100451901*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/51200000 + (3043997*(1 -
2*x)^(3/2)*Sqrt[3 + 5*x])/5120000 + (276727*(1 - 2*x)^(5/2)*Sqrt[
3 + 5*x])/1280000 - (75471*(1 - 2*x)^(7/2)*Sqrt[3 + 5*x])/128000
- (2287*(1 - 2*x)^(7/2)*(3 + 5*x)^(3/2))/8000 - (263*(1 - 2*x)^(7
/2)*(3 + 5*x)^(5/2))/2800 - (3*(1 - 2*x)^(7/2)*(2 + 3*x)*(3 + 5*x
)^(5/2))/70 + (1104970911*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(5120
0000*Sqrt[10])
```

Rubi [A] time = 0.220777, antiderivative size = 187, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$-\frac{3}{70}(3x+2)(5x+3)^{5/2}(1-2x)^{7/2}-\frac{263(5x+3)^{5/2}(1-2x)^{7/2}}{2800}-\frac{2287(5x+3)^{3/2}(1-2x)^{7/2}}{8000}-\frac{75471\sqrt{5x+3}(1-2x)^{7/2}}{128000}+\frac{276727\sqrt{5x+3}(1-2x)^{5/2}}{1280000}+\frac{3043997\sqrt{5x+3}(1-2x)^{3/2}}{5120000}+\frac{100451901\sqrt{5x+3}\sqrt{1-2x}}{51200000}+\frac{1104970911\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{51200000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)*(2 + 3*x)^2*(3 + 5*x)^(3/2),x]
```

```
[Out] (100451901*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/51200000 + (3043997*(1 -
2*x)^(3/2)*Sqrt[3 + 5*x])/5120000 + (276727*(1 - 2*x)^(5/2)*Sqrt[
3 + 5*x])/1280000 - (75471*(1 - 2*x)^(7/2)*Sqrt[3 + 5*x])/128000
- (2287*(1 - 2*x)^(7/2)*(3 + 5*x)^(3/2))/8000 - (263*(1 - 2*x)^(7
/2)*(3 + 5*x)^(5/2))/2800 - (3*(1 - 2*x)^(7/2)*(2 + 3*x)*(3 + 5*x
)^(5/2))/70 + (1104970911*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(5120
0000*Sqrt[10])
```

Rubi in Sympy [A] time = 17.5224, size = 170, normalized size = 0.91

$$-\frac{(-2x+1)^{\frac{7}{2}}(5x+3)^{\frac{5}{2}}(9x+6)}{70}-\frac{263(-2x+1)^{\frac{7}{2}}(5x+3)^{\frac{5}{2}}}{2800}+\frac{2287(-2x+1)^{\frac{5}{2}}(5x+3)^{\frac{5}{2}}}{20000}-\frac{25157(-2x+1)^{\frac{5}{2}}(5x+3)^{\frac{3}{2}}}{64000}-\frac{276727(-2x+1)^{\frac{5}{2}}\sqrt{5x+3}}{256000}+\frac{3043997(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{5120000}+\frac{100451901\sqrt{-2x+1}\sqrt{5x+3}}{51200000}+\frac{1104970911\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{512000000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**2*(3+5*x)**(3/2),x)
```

```
[Out] -(-2*x + 1)**(7/2)*(5*x + 3)**(5/2)*(9*x + 6)/70 - 263*(-2*x + 1)
**(7/2)*(5*x + 3)**(5/2)/2800 + 2287*(-2*x + 1)**(5/2)*(5*x + 3)*
*(5/2)/20000 - 25157*(-2*x + 1)**(5/2)*(5*x + 3)**(3/2)/64000 - 2
```

```
76727*(-2*x + 1)**(5/2)*sqrt(5*x + 3)/256000 + 3043997*(-2*x + 1)
**(3/2)*sqrt(5*x + 3)/5120000 + 100451901*sqrt(-2*x + 1)*sqrt(5*x
 + 3)/51200000 + 1104970911*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/
11)/512000000
```

Mathematica [A] time = 0.145692, size = 80, normalized size = 0.43

$$\frac{10\sqrt{1-2x}\sqrt{5x+3}\left(9216000000x^6+10112000000x^5-6123776000x^4-8717155200x^3+1291331040x^2+2994263780x-1\right.}{3584000000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)*(2 + 3*x)^2*(3 + 5*x)^(3/2),x]
```

```
[Out] (10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(-104420943 + 2994263780*x + 1291
331040*x^2 - 8717155200*x^3 - 6123776000*x^4 + 10112000000*x^5 +
9216000000*x^6) - 7734796377*Sqrt[10]*ArcSin[Sqrt[5/11]*Sqrt[1 -
2*x]])/3584000000
```

Maple [A] time = 0.013, size = 155, normalized size = 0.8

$$\frac{1}{7168000000}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(184320000000\,x^6\sqrt{-10\,x^2-x+3}+202240000000\,x^5\sqrt{-10\,x^2-x+3}-122475520000\,x^4\sqrt{-}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^2*(3+5*x)^(3/2),x)
```

```
[Out] 1/7168000000*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(184320000000*x^6*(-10*x
^2-x+3)^(1/2)+202240000000*x^5*(-10*x^2-x+3)^(1/2)-122475520000*x
^4*(-10*x^2-x+3)^(1/2)-174343104000*x^3*(-10*x^2-x+3)^(1/2)+25826
620800*x^2*(-10*x^2-x+3)^(1/2)+7734796377*10^(1/2)*arcsin(20/11*x
+1/11)+59885275600*x*(-10*x^2-x+3)^(1/2)-2088418860*(-10*x^2-x+3)
^(1/2))/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.50258, size = 157, normalized size = 0.84

$$\begin{aligned}&\frac{9}{35}\left(-10\,x^2-x+3\right)^{\frac{5}{2}}x^2+\frac{323}{1400}\left(-10\,x^2-x+3\right)^{\frac{5}{2}}x-\frac{9141}{140000}\left(-10\,x^2-x+3\right)^{\frac{5}{2}}\\&+\frac{25157}{32000}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x+\frac{25157}{640000}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}+\frac{9131991}{2560000}\sqrt{-10\,x^2-x+3}x\\&-\frac{1104970911}{1024000000}\sqrt{10}\arcsin\left(-\frac{20}{11}x-\frac{1}{11}\right)+\frac{9131991}{51200000}\sqrt{-10\,x^2-x+3}\end{aligned}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)^2*(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] 9/35*(-10*x^2 - x + 3)^(5/2)*x^2 + 323/1400*(-10*x^2 - x + 3)^(5/
2)*x - 9141/140000*(-10*x^2 - x + 3)^(5/2) + 25157/32000*(-10*x^2
 - x + 3)^(3/2)*x + 25157/640000*(-10*x^2 - x + 3)^(3/2) + 913199
1/2560000*sqrt(-10*x^2 - x + 3)*x - 1104970911/1024000000*sqrt(10
)*arcsin(-20/11*x - 1/11) + 9131991/51200000*sqrt(-10*x^2 - x + 3
)
```

Fricas [A] time = 0.219136, size = 111, normalized size = 0.59

$$\frac{1}{7168000000}\sqrt{10}\Big(2\sqrt{10}\big(9216000000\,x^6 + 10112000000\,x^5 - 6123776000\,x^4 - 8717155200\,x^3 + 1291331040\,x^2 + 299426378$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(3*x + 2)^2*(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/7168000000*sqrt(10)*(2*sqrt(10)*(9216000000*x^6 + 10112000000*x
^5 - 6123776000*x^4 - 8717155200*x^3 + 1291331040*x^2 + 299426378
0*x - 104420943)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 7734796377*arctan
(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(5/2)*(2+3*x)**2*(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.287411, size = 548, normalized size = 2.93

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(3*x + 2)^2*(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] 3/17920000000*sqrt(5)*(2*(4*(8*(4*(16*(20*(120*x - 359)*(5*x + 3)
 + 63769)*(5*x + 3) - 3968469)*(5*x + 3) + 33617829)*(5*x + 3) -
276044685)*(5*x + 3) + 87356115)*sqrt(5*x + 3)*sqrt(-10*x + 5) -
960917265*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 7/320000
000*sqrt(5)*(2*(4*(8*(4*(16*(100*x - 239)*(5*x + 3) + 27999)*(5*x
 + 3) - 318159)*(5*x + 3) + 3237255)*(5*x + 3) - 2656665)*sqrt(5*
x + 3)*sqrt(-10*x + 5) + 29223315*sqrt(2)*arcsin(1/11*sqrt(22)*sq
rt(5*x + 3))) - 79/192000000*sqrt(5)*(2*(4*(8*(12*(80*x - 143)*(5
*x + 3) + 9773)*(5*x + 3) - 136405)*(5*x + 3) + 60555)*sqrt(5*x +
 3)*sqrt(-10*x + 5) - 666105*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*
x + 3))) - 89/1920000*sqrt(5)*(2*(4*(8*(60*x - 71)*(5*x + 3) + 21
79)*(5*x + 3) - 4125)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 45375*sqrt(
2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 1/3000*sqrt(5)*(2*(4*(4
0*x - 23)*(5*x + 3) + 33)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 363*sqr
t(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 3/100*sqrt(5)*(2*(20*
x + 1)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 121*sqrt(2)*arcsin(1/11*sq
rt(22)*sqrt(5*x + 3)))
```

3.2384 $\int (1-2x)^{5/2}(2+3x)(3+5x)^{3/2}\,dx$

Optimal. Leaf size=160

$$-\frac{1}{20}(5x+3)^{5/2}(1-2x)^{7/2}$$

$$-\frac{63}{400}(5x+3)^{3/2}(1-2x)^{7/2}-\frac{2079\sqrt{5x+3}(1-2x)^{7/2}}{6400}+\frac{7623\sqrt{5x+3}(1-2x)^{5/2}}{64000}+\frac{83853\sqrt{5x+3}(1-2x)^{3/2}}{256000}+\frac{2767149\sqrt{5x+3}}{2560000}$$

```
[Out] (2767149*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/2560000 + (83853*(1 - 2*x)^
(3/2)*Sqrt[3 + 5*x])/256000 + (7623*(1 - 2*x)^(5/2)*Sqrt[3 + 5*x]
)/64000 - (2079*(1 - 2*x)^(7/2)*Sqrt[3 + 5*x])/6400 - (63*(1 - 2*
x)^(7/2)*(3 + 5*x)^(3/2))/400 - ((1 - 2*x)^(7/2)*(3 + 5*x)^(5/2))
/20 + (30438639*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(2560000*Sqrt[1
0])
```

Rubi [A] time = 0.170911, antiderivative size = 160, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$-\frac{1}{20}(5x+3)^{5/2}(1-2x)^{7/2}$$

$$-\frac{63}{400}(5x+3)^{3/2}(1-2x)^{7/2}-\frac{2079\sqrt{5x+3}(1-2x)^{7/2}}{6400}+\frac{7623\sqrt{5x+3}(1-2x)^{5/2}}{64000}+\frac{83853\sqrt{5x+3}(1-2x)^{3/2}}{256000}+\frac{2767149\sqrt{5x+3}}{2560000}$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^(5/2)*(2 + 3*x)*(3 + 5*x)^(3/2),x]
```

```
[Out] (2767149*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/2560000 + (83853*(1 - 2*x)^
(3/2)*Sqrt[3 + 5*x])/256000 + (7623*(1 - 2*x)^(5/2)*Sqrt[3 + 5*x]
)/64000 - (2079*(1 - 2*x)^(7/2)*Sqrt[3 + 5*x])/6400 - (63*(1 - 2*
x)^(7/2)*(3 + 5*x)^(3/2))/400 - ((1 - 2*x)^(7/2)*(3 + 5*x)^(5/2))
/20 + (30438639*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(2560000*Sqrt[1
0])
```

Rubi in Sympy [A] time = 14.5722, size = 144, normalized size = 0.9

$$-\frac{(-2x+1)^{\frac{7}{2}}(5x+3)^{\frac{5}{2}}}{20}+\frac{63(-2x+1)^{\frac{5}{2}}(5x+3)^{\frac{5}{2}}}{1000}+\frac{693(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{5}{2}}}{8000}-\frac{7623(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{3}{2}}}{32000}-\frac{251559(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{256000}+\frac{2767149\sqrt{-2x+1}\sqrt{5x+3}}{2560000}+\frac{30438639\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{25600000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**(5/2)*(2+3*x)*(3+5*x)**(3/2),x)
```

```
[Out] -(-2*x + 1)**(7/2)*(5*x + 3)**(5/2)/20 + 63*(-2*x + 1)**(5/2)*(5*
x + 3)**(5/2)/1000 + 693*(-2*x + 1)**(3/2)*(5*x + 3)**(5/2)/8000
- 7623*(-2*x + 1)**(3/2)*(5*x + 3)**(3/2)/32000 - 251559*(-2*x +
1)**(3/2)*sqrt(5*x + 3)/256000 + 2767149*sqrt(-2*x + 1)*sqrt(5*x
+ 3)/2560000 + 30438639*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/
25600000
```

Mathematica [A] time = 0.0978463, size = 75, normalized size = 0.47

$$\frac{10\sqrt{1-2x}\sqrt{5x+3}\left(25600000x^5+8448000x^4-25526400x^3-5162720x^2+10406460x+717399\right)-30438639\sqrt{10}\sin^{-1}\left(\sqrt{\right.}$$
$$25600000$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)*(2 + 3*x)*(3 + 5*x)^(3/2),x]
```

```
[Out] (10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(717399 + 10406460*x - 5162720*x^
2 - 25526400*x^3 + 8448000*x^4 + 25600000*x^5) - 30438639*Sqrt[10
]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/25600000
```

Maple [A] time = 0.013, size = 138, normalized size = 0.9

$$\frac{1}{51200000}\sqrt{1-2x}\sqrt{3+5x}\left(512000000x^5\sqrt{-10x^2-x+3}+168960000x^4\sqrt{-10x^2-x+3}-510528000x^3\sqrt{-10x^2-x+\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)*(3+5*x)^(3/2),x)
```

```
[Out] 1/51200000*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(512000000*x^5*(-10*x^2-x+
3)^(1/2)+168960000*x^4*(-10*x^2-x+3)^(1/2)-510528000*x^3*(-10*x^2
-x+3)^(1/2)-103254400*x^2*(-10*x^2-x+3)^(1/2)+30438639*10^(1/2)*a
rcsin(20/11*x+1/11)+208129200*x*(-10*x^2-x+3)^(1/2)+14347980*(-10
*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.49606, size = 134, normalized size = 0.84

$$\frac{1}{10}\left(-10x^2-x+3\right)^{\frac{5}{2}}x+\frac{13}{1000}\left(-10x^2-x+3\right)^{\frac{5}{2}}+\frac{693}{1600}\left(-10x^2-x+3\right)^{\frac{3}{2}}x$$
$$+\frac{693}{32000}\left(-10x^2-x+3\right)^{\frac{3}{2}}+\frac{251559}{128000}\sqrt{-10x^2-x+3x}$$
$$-\frac{30438639}{51200000}\sqrt{10}\arcsin\left(-\frac{20}{11}x-\frac{1}{11}\right)+\frac{251559}{2560000}\sqrt{-10x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)*(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] 1/10*(-10*x^2 - x + 3)^(5/2)*x + 13/1000*(-10*x^2 - x + 3)^(5/2)
+ 693/1600*(-10*x^2 - x + 3)^(3/2)*x + 693/32000*(-10*x^2 - x + 3
)^(3/2) + 251559/128000*sqrt(-10*x^2 - x + 3)*x - 30438639/512000
00*sqrt(10)*arcsin(-20/11*x - 1/11) + 251559/2560000*sqrt(-10*x^2
 - x + 3)
```

Fricas [A] time = 0.22028, size = 104, normalized size = 0.65

$$\frac{1}{51200000}\sqrt{10}\left(2\sqrt{10}\left(25600000x^5+8448000x^4-25526400x^3-5162720x^2+10406460x+717399\right)\sqrt{5x+3}\sqrt{-2x+1}+\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)*(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/51200000*sqrt(10)*(2*sqrt(10)*(25600000*x^5 + 8448000*x^4 - 255
26400*x^3 - 5162720*x^2 + 10406460*x + 717399)*sqrt(5*x + 3)*sqrt
(-2*x + 1) + 30438639*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x +
 3)*sqrt(-2*x + 1))))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)*(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.269357, size = 427, normalized size = 2.67

$$\frac{1}{128000000}\sqrt{5}\Big(2\,(4\,(8\,(4\,(16\,(100\,x-239)(5\,x+3)+27999)(5\,x+3)-318159)(5\,x+3)+3237255)(5\,x+3)-2656665)\sqrt{5\,x}$$
$$+\frac{1}{12000000}\sqrt{5}\Big(2\,(4\,(8\,(12\,(80\,x-143)(5\,x+3)+9773)(5\,x+3)-136405)(5\,x+3)+60555)\sqrt{5\,x+3}\sqrt{-10\,x+5}-666105\,\sqrt{2}$$
$$-\frac{37}{1920000}\sqrt{5}\Big(2\,(4\,(8\,(60\,x-71)(5\,x+3)+2179)(5\,x+3)-4125)\sqrt{5\,x+3}\sqrt{-10\,x+5}+45375\,\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5\,x+3}\right)$$
$$-\frac{1}{4800}\sqrt{5}\left(2\,(4\,(40\,x-23)(5\,x+3)+33)\sqrt{5\,x+3}\sqrt{-10\,x+5}-363\,\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5\,x+3}\right)\right)$$
$$+\frac{3}{200}\sqrt{5}\left(2\,(20\,x+1)\sqrt{5\,x+3}\sqrt{-10\,x+5}+121\,\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5\,x+3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)*(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] 1/128000000*sqrt(5)*(2*(4*(8*(4*(16*(100*x - 239)*(5*x + 3) + 279
99)*(5*x + 3) - 318159)*(5*x + 3) + 3237255)*(5*x + 3) - 2656665)
*sqrt(5*x + 3)*sqrt(-10*x + 5) + 29223315*sqrt(2)*arcsin(1/11*sqr
t(22)*sqrt(5*x + 3))) + 1/12000000*sqrt(5)*(2*(4*(8*(12*(80*x - 1
43)*(5*x + 3) + 9773)*(5*x + 3) - 136405)*(5*x + 3) + 60555)*sqrt
(5*x + 3)*sqrt(-10*x + 5) - 666105*sqrt(2)*arcsin(1/11*sqrt(22)*s
qrt(5*x + 3))) - 37/1920000*sqrt(5)*(2*(4*(8*(60*x - 71)*(5*x + 3
) + 2179)*(5*x + 3) - 4125)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 45375
*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) - 1/4800*sqrt(5)*(2
*(4*(40*x - 23)*(5*x + 3) + 33)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 3
63*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 3/200*sqrt(5)*(
2*(20*x + 1)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 121*sqrt(2)*arcsin(1
/11*sqrt(22)*sqrt(5*x + 3)))
```

3.2385 $\int (1-2x)^{5/2}(3+5x)^{3/2}\,dx$

Optimal. Leaf size=138

$$-\frac{1}{10}(5x+3)^{3/2}(1-2x)^{7/2}-\frac{33}{160}\sqrt{5x+3}(1-2x)^{7/2}+\frac{121\sqrt{5x+3}(1-2x)^{5/2}}{1600}+\frac{1331\sqrt{5x+3}(1-2x)^{3/2}}{6400}+\frac{43923\sqrt{5x+3}\sqrt{1-2x}}{64000}+\frac{483153\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{64000\sqrt{10}}$$

```
[Out] (43923*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/64000 + (1331*(1 - 2*x)^(3/2)
*Sqrt[3 + 5*x])/6400 + (121*(1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/1600 -
 (33*(1 - 2*x)^(7/2)*Sqrt[3 + 5*x])/160 - ((1 - 2*x)^(7/2)*(3 + 5
*x)^(3/2))/10 + (483153*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(64000*
Sqrt[10])
```

Rubi [A] time = 0.130503, antiderivative size = 138, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 3, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.158

$$-\frac{1}{10}(5x+3)^{3/2}(1-2x)^{7/2}-\frac{33}{160}\sqrt{5x+3}(1-2x)^{7/2}+\frac{121\sqrt{5x+3}(1-2x)^{5/2}}{1600}+\frac{1331\sqrt{5x+3}(1-2x)^{3/2}}{6400}+\frac{43923\sqrt{5x+3}\sqrt{1-2x}}{64000}+\frac{483153\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{64000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)*(3 + 5*x)^(3/2),x]
```

```
[Out] (43923*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/64000 + (1331*(1 - 2*x)^(3/2)
*Sqrt[3 + 5*x])/6400 + (121*(1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/1600 -
 (33*(1 - 2*x)^(7/2)*Sqrt[3 + 5*x])/160 - ((1 - 2*x)^(7/2)*(3 + 5
*x)^(3/2))/10 + (483153*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(64000*
Sqrt[10])
```

Rubi in Sympy [A] time = 12.031, size = 124, normalized size = 0.9

$$\frac{(-2x+1)^{\frac{5}{2}}(5x+3)^{\frac{5}{2}}}{25}+\frac{11(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{5}{2}}}{200}+\frac{121\sqrt{-2x+1}(5x+3)^{\frac{5}{2}}}{2000}-\frac{1331\sqrt{-2x+1}(5x+3)^{\frac{3}{2}}}{16000}-\frac{43923\sqrt{-2x+1}\sqrt{5x+3}}{64000}+\frac{483153\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{640000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(3/2),x)
```

```
[Out] (-2*x + 1)**(5/2)*(5*x + 3)**(5/2)/25 + 11*(-2*x + 1)**(3/2)*(5*x
 + 3)**(5/2)/200 + 121*sqrt(-2*x + 1)*(5*x + 3)**(5/2)/2000 - 133
1*sqrt(-2*x + 1)*(5*x + 3)**(3/2)/16000 - 43923*sqrt(-2*x + 1)*sq
rt(5*x + 3)/64000 + 483153*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/1
1)/640000
```

Mathematica [A] time = 0.106187, size = 70, normalized size = 0.51

$$\frac{10\sqrt{1-2x}\sqrt{5x+3}\left(256000x^4-124800x^3-177440x^2+116420x+29673\right)-483153\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{640000}$$

Antiderivative was successfully verified.

```
[In]   Integrate[(1 - 2*x)^(5/2)*(3 + 5*x)^(3/2),x]
```

```
[Out] (10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(29673 + 116420*x - 177440*x^2 -
124800*x^3 + 256000*x^4) - 483153*Sqrt[10]*ArcSin[Sqrt[5/11]*Sqrt
[1 - 2*x]])/640000
```

Maple [A] time = 0.007, size = 120, normalized size = 0.9

$$\frac{1}{25}(1-2x)^{\frac{5}{2}}(3+5x)^{\frac{5}{2}}+\frac{11}{200}(1-2x)^{\frac{3}{2}}(3+5x)^{\frac{5}{2}}+\frac{121}{2000}(3+5x)^{\frac{5}{2}}\sqrt{1-2x}-\frac{1331}{16000}(3+5x)^{\frac{3}{2}}\sqrt{1-2x}-\frac{43923}{64000}\sqrt{1-2x}\sqrt{3+5x}+\frac{483153\sqrt{10}}{1280000}\sqrt{(1-2x)(3+5x)}\arcsin\left(\frac{20x}{11}+\frac{1}{11}\right)\frac{1}{\sqrt{1-2x}}\frac{1}{\sqrt{3+5x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((1-2*x)^(5/2)*(3+5*x)^(3/2),x)
```

```
[Out] 1/25*(1-2*x)^(5/2)*(3+5*x)^(5/2)+11/200*(1-2*x)^(3/2)*(3+5*x)^(5/
2)+121/2000*(3+5*x)^(5/2)*(1-2*x)^(1/2)-1331/16000*(3+5*x)^(3/2)*
(1-2*x)^(1/2)-43923/64000*(1-2*x)^(1/2)*(3+5*x)^(1/2)+483153/1280
000*((1-2*x)*(3+5*x))^(1/2)/(3+5*x)^(1/2)/(1-2*x)^(1/2)*10^(1/2)*
arcsin(20/11*x+1/11)
```

Maxima [A] time = 1.49862, size = 113, normalized size = 0.82

$$\frac{1}{25}\left(-10x^2-x+3\right)^{\frac{5}{2}}+\frac{11}{40}\left(-10x^2-x+3\right)^{\frac{3}{2}}x+\frac{11}{800}\left(-10x^2-x+3\right)^{\frac{3}{2}}+\frac{3993}{3200}\sqrt{-10x^2-x+3}x-\frac{483153}{1280000}\sqrt{10}\arcsin\left(-\frac{20}{11}x-\frac{1}{11}\right)+\frac{3993}{64000}\sqrt{-10x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] 1/25*(-10*x^2 - x + 3)^(5/2) + 11/40*(-10*x^2 - x + 3)^(3/2)*x +
11/800*(-10*x^2 - x + 3)^(3/2) + 3993/3200*sqrt(-10*x^2 - x + 3)*
x - 483153/1280000*sqrt(10)*arcsin(-20/11*x - 1/11) + 3993/64000*
sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.216363, size = 97, normalized size = 0.7

$$\frac{1}{1280000}\sqrt{10}\left(2\sqrt{10}\left(256000x^4-124800x^3-177440x^2+116420x+29673\right)\sqrt{5x+3}\sqrt{-2x+1}+483153\arctan\left(\frac{\sqrt{10}}{20\sqrt{5x}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/1280000*sqrt(10)*(2*sqrt(10)*(256000*x^4 - 124800*x^3 - 177440*
x^2 + 116420*x + 29673)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 483153*arc
tan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [A] time = 146.246, size = 311, normalized size = 2.25

$$\begin{cases} \frac{40i\left(x+\frac{3}{5}\right)^{\frac{11}{2}}}{\sqrt{10x-5}} - \frac{319i\left(x+\frac{3}{5}\right)^{\frac{9}{2}}}{2\sqrt{10x-5}} + \frac{8833i\left(x+\frac{3}{5}\right)^{\frac{7}{2}}}{40\sqrt{10x-5}} - \frac{171699i\left(x+\frac{3}{5}\right)^{\frac{5}{2}}}{1600\sqrt{10x-5}} - \frac{14641i\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}{6400\sqrt{10x-5}} + \frac{483153i\sqrt{x+\frac{3}{5}}}{64000\sqrt{10x-5}} - \frac{483153\sqrt{10}i\operatorname{acosh}\left(\frac{\sqrt{110}\sqrt{x+\frac{3}{5}}}{11}\right)}{640000} & \text{for } \frac{10\left|x+\frac{3}{5}\right|}{11} \\ \frac{483153\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{110}\sqrt{x+\frac{3}{5}}}{11}\right)}{640000} - \frac{40\left(x+\frac{3}{5}\right)^{\frac{11}{2}}}{\sqrt{-10x+5}} + \frac{319\left(x+\frac{3}{5}\right)^{\frac{9}{2}}}{2\sqrt{-10x+5}} - \frac{8833\left(x+\frac{3}{5}\right)^{\frac{7}{2}}}{40\sqrt{-10x+5}} + \frac{171699\left(x+\frac{3}{5}\right)^{\frac{5}{2}}}{1600\sqrt{-10x+5}} + \frac{14641\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}{6400\sqrt{-10x+5}} - \frac{483153\sqrt{x+\frac{3}{5}}}{64000\sqrt{-10x+5}} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**(3/2),x)
```

```
[Out] Piecewise((40*I*(x + 3/5)**(11/2)/sqrt(10*x - 5) - 319*I*(x + 3/5
)**(9/2)/(2*sqrt(10*x - 5)) + 8833*I*(x + 3/5)**(7/2)/(40*sqrt(10
*x - 5)) - 171699*I*(x + 3/5)**(5/2)/(1600*sqrt(10*x - 5)) - 1464
1*I*(x + 3/5)**(3/2)/(6400*sqrt(10*x - 5)) + 483153*I*sqrt(x + 3/
5)/(64000*sqrt(10*x - 5)) - 483153*sqrt(10)*I*acosh(sqrt(110)*sqr
t(x + 3/5)/11)/640000, 10*Abs(x + 3/5)/11 > 1), (483153*sqrt(10)*
asin(sqrt(110)*sqrt(x + 3/5)/11)/640000 - 40*(x + 3/5)**(11/2)/sq
rt(-10*x + 5) + 319*(x + 3/5)**(9/2)/(2*sqrt(-10*x + 5)) - 8833*(
x + 3/5)**(7/2)/(40*sqrt(-10*x + 5)) + 171699*(x + 3/5)**(5/2)/(1
600*sqrt(-10*x + 5)) + 14641*(x + 3/5)**(3/2)/(6400*sqrt(-10*x +
5)) - 483153*sqrt(x + 3/5)/(64000*sqrt(-10*x + 5)), True))
```

GIAC/XCAS [A] time = 0.258564, size = 317, normalized size = 2.3

$$\frac{1}{9600000}\sqrt{5}\left(2\left(4\left(8\left(12\left(80x-143\right)\left(5x+3\right)+9773\right)\left(5x+3\right)-136405\right)\left(5x+3\right)+60555\right)\sqrt{5x+3}\sqrt{-10x+5}-666105\sqrt{2}\,\mathrm{a}\right.$$
$$-\frac{1}{240000}\sqrt{5}\left(2\left(4\left(8\left(60x-71\right)\left(5x+3\right)+2179\right)\left(5x+3\right)-4125\right)\sqrt{5x+3}\sqrt{-10x+5}+45375\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$
$$-\frac{7}{24000}\sqrt{5}\left(2\left(4\left(40x-23\right)\left(5x+3\right)+33\right)\sqrt{5x+3}\sqrt{-10x+5}-363\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$
$$+\frac{3}{400}\sqrt{5}\left(2\left(20x+1\right)\sqrt{5x+3}\sqrt{-10x+5}+121\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] 1/9600000*sqrt(5)*(2*(4*(8*(12*(80*x - 143)*(5*x + 3) + 9773)*(5*
x + 3) - 136405)*(5*x + 3) + 60555)*sqrt(5*x + 3)*sqrt(-10*x + 5)
 - 666105*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) - 1/240000
*sqrt(5)*(2*(4*(8*(60*x - 71)*(5*x + 3) + 2179)*(5*x + 3) - 4125)
*sqrt(5*x + 3)*sqrt(-10*x + 5) + 45375*sqrt(2)*arcsin(1/11*sqrt(2
2)*sqrt(5*x + 3))) - 7/24000*sqrt(5)*(2*(4*(40*x - 23)*(5*x + 3)
+ 33)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 363*sqrt(2)*arcsin(1/11*sqr
t(22)*sqrt(5*x + 3))) + 3/400*sqrt(5)*(2*(20*x + 1)*sqrt(5*x + 3)
*sqrt(-10*x + 5) + 121*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)
))
```

3.2386 $\int \frac{(1-2x)^{5/2}(3+5x)^{3/2}}{2+3x}\,dx$

Optimal. Leaf size=150

$$\frac{1}{12}(5x+3)^{3/2}(1-2x)^{5/2}+\frac{181(5x+3)^{3/2}(1-2x)^{3/2}}{1080}+\frac{7093(5x+3)^{3/2}\sqrt{1-2x}}{21600}-\frac{390869\sqrt{5x+3}\sqrt{1-2x}}{259200}+\frac{1922677\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{777600\sqrt{10}}-\frac{98}{243}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

```
[Out] (-390869*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/259200 + (7093*Sqrt[1 - 2*x
]*(3 + 5*x)^(3/2))/21600 + (181*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/
1080 + ((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/12 + (1922677*ArcSin[Sqr
t[2/11]*Sqrt[3 + 5*x]])/(777600*Sqrt[10]) - (98*Sqrt[7]*ArcTan[Sq
rt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/243
```

Rubi [A] time = 0.367241, antiderivative size = 150, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 7, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.269

$$\frac{1}{12}(5x+3)^{3/2}(1-2x)^{5/2}+\frac{181(5x+3)^{3/2}(1-2x)^{3/2}}{1080}+\frac{7093(5x+3)^{3/2}\sqrt{1-2x}}{21600}-\frac{390869\sqrt{5x+3}\sqrt{1-2x}}{259200}+\frac{1922677\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{777600\sqrt{10}}-\frac{98}{243}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/(2 + 3*x),x]
```

```
[Out] (-390869*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/259200 + (7093*Sqrt[1 - 2*x
]*(3 + 5*x)^(3/2))/21600 + (181*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/
1080 + ((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/12 + (1922677*ArcSin[Sqr
t[2/11]*Sqrt[3 + 5*x]])/(777600*Sqrt[10]) - (98*Sqrt[7]*ArcTan[Sq
rt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/243
```

Rubi in Sympy [A] time = 37.5714, size = 138, normalized size = 0.92

$$\frac{(-2x+1)^{\frac{5}{2}}(5x+3)^{\frac{3}{2}}}{12}-\frac{181(-2x+1)^{\frac{5}{2}}\sqrt{5x+3}}{432}+\frac{871(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{8640}+\frac{77269\sqrt{-2x+1}\sqrt{5x+3}}{259200}+\frac{1922677\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{7776000}-\frac{98\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{243}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(3/2)/(2+3*x),x)
```

```
[Out] (-2*x + 1)**(5/2)*(5*x + 3)**(3/2)/12 - 181*(-2*x + 1)**(5/2)*sqr
t(5*x + 3)/432 + 871*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/8640 + 77269
*sqrt(-2*x + 1)*sqrt(5*x + 3)/259200 + 1922677*sqrt(10)*asin(sqrt
(22)*sqrt(5*x + 3)/11)/7776000 - 98*sqrt(7)*atan(sqrt(7)*sqrt(-2*
x + 1)/(7*sqrt(5*x + 3)))/243
```

Mathematica [A] time = 0.19285, size = 110, normalized size = 0.73

$$\frac{60\sqrt{1-2x}\sqrt{5x+3}\left(432000x^3-607200x^2+230940x+59599\right)-3136000\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)+1922677\sqrt{10}\tan^{-1}\left(\frac{\cdots}{2\cdots}\right.}{15552000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/(2 + 3*x),x]
```

```
[Out] (60*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(59599 + 230940*x - 607200*x^2 +
432000*x^3) - 3136000*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*
x]*Sqrt[3 + 5*x])] + 1922677*Sqrt[10]*ArcTan[(1 + 20*x)/(2*Sqrt[1
 - 2*x]*Sqrt[30 + 50*x])])/15552000
```

Maple [A] time = 0.014, size = 132, normalized size = 0.9

$$\frac{1}{15552000}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(25920000\,x^{3}\sqrt{-10\,x^{2}-x+3}-36432000\,x^{2}\sqrt{-10\,x^{2}-x+3}+3136000\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x}{\sqrt{-10}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(3/2)/(2+3*x),x)
```

```
[Out] 1/15552000*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(25920000*x^3*(-10*x^2-x+3
)^(1/2)-36432000*x^2*(-10*x^2-x+3)^(1/2)+3136000*7^(1/2)*arctan(1
/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+1922677*10^(1/2)*arcsi
n(20/11*x+1/11)+13856400*x*(-10*x^2-x+3)^(1/2)+3575940*(-10*x^2-x
+3)^(1/2))/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.51457, size = 132, normalized size = 0.88

$$-\frac{1}{6}\left(-10\,x^{2}-x+3\right)^{\frac{3}{2}}x+\frac{271}{1080}\left(-10\,x^{2}-x+3\right)^{\frac{3}{2}}+\frac{7093}{4320}\sqrt{-10\,x^{2}-x+3}x+\frac{1922677}{15552000}\sqrt{10}\arcsin\left(\frac{20}{11}\,x+\frac{1}{11}\right)+\frac{49}{243}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)-\frac{135521}{259200}\sqrt{-10\,x^{2}-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2),x, algorithm="maxima")
```

```
[Out] -1/6*(-10*x^2 - x + 3)^(3/2)*x + 271/1080*(-10*x^2 - x + 3)^(3/2)
 + 7093/4320*sqrt(-10*x^2 - x + 3)*x + 1922677/15552000*sqrt(10)*
arcsin(20/11*x + 1/11) + 49/243*sqrt(7)*arcsin(37/11*x/abs(3*x +
2) + 20/11/abs(3*x + 2)) - 135521/259200*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.229065, size = 135, normalized size = 0.9

$$\frac{1}{15552000}\sqrt{10}\left(6\sqrt{10}\left(432000\,x^{3}-607200\,x^{2}+230940\,x+59599\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+313600\sqrt{10}\sqrt{7}\arctan\left(\frac{\sqrt{7}(37\,x}{14\sqrt{5\,x+3}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2),x, algorithm="fricas")
```

```
[Out] 1/15552000*sqrt(10)*(6*sqrt(10)*(432000*x^3 - 607200*x^2 + 230940
*x + 59599)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 313600*sqrt(10)*sqrt(7
)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1)))
 + 1922677*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2
*x + 1))))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**(3/2)/(2+3*x),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.313823, size = 269, normalized size = 1.79

$$\frac{49}{2430}\,\sqrt{70}\sqrt{10}\left(\pi + 2\,\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3}-4\right)}{140\,\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right) + \frac{1}{1296000}\,\left(12\,\left(8\,\left(36\,\sqrt{5}(5\,x+3)-577\,\sqrt{5}\right)(5\,x+3)+23769\,\sqrt{5}\right)(5\,x+3)-390869\,\sqrt{5}\right)\sqrt{5\,x+3}\sqrt{-10\,x+5} + \frac{1922677}{15552000}\,\sqrt{10}\left(\pi + 2\,\arctan\left(-\frac{\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3}-4\right)}{4\,\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2),x, algorithm="giac")
```

```
[Out] 49/2430*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x
 + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqr
t(2)*sqrt(-10*x + 5) - sqrt(22)))) + 1/1296000*(12*(8*(36*sqrt(5)
*(5*x + 3) - 577*sqrt(5))*(5*x + 3) + 23769*sqrt(5))*(5*x + 3) -
390869*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5) + 1922677/15552000*
sqrt(10)*(pi + 2*arctan(-1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x +
 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(
22))))
```

3.2387 $\int \frac{(1-2x)^{5/2}(3+5x)^{3/2}}{(2+3x)^2}\,dx$

Optimal. Leaf size=157

$$-\frac{(5x+3)^{3/2}(1-2x)^{5/2}}{3(3x+2)}-\frac{8}{27}(5x+3)^{3/2}(1-2x)^{3/2}-\frac{247}{270}(5x+3)^{3/2}\sqrt{1-2x}+\frac{24251\sqrt{5x+3}\sqrt{1-2x}}{3240}+\frac{326717\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{9720\sqrt{10}}+\frac{805}{243}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{}}{\sqrt{7}}\right.$$

```
[Out] (24251*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/3240 - (247*Sqrt[1 - 2*x]*(3
+ 5*x)^(3/2))/270 - (8*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/27 - ((1
- 2*x)^(5/2)*(3 + 5*x)^(3/2))/(3*(2 + 3*x)) + (326717*ArcSin[Sqrt
[2/11]*Sqrt[3 + 5*x]])/(9720*Sqrt[10]) + (805*Sqrt[7]*ArcTan[Sqrt
[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/243
```

Rubi [A] time = 0.368572, antiderivative size = 157, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 7, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.269

$$-\frac{(5x+3)^{3/2}(1-2x)^{5/2}}{3(3x+2)}-\frac{8}{27}(5x+3)^{3/2}(1-2x)^{3/2}-\frac{247}{270}(5x+3)^{3/2}\sqrt{1-2x}+\frac{24251\sqrt{5x+3}\sqrt{1-2x}}{3240}+\frac{326717\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{9720\sqrt{10}}+\frac{805}{243}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{}}{\sqrt{7}}\right.$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^2,x]
```

```
[Out] (24251*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/3240 - (247*Sqrt[1 - 2*x]*(3
+ 5*x)^(3/2))/270 - (8*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/27 - ((1
- 2*x)^(5/2)*(3 + 5*x)^(3/2))/(3*(2 + 3*x)) + (326717*ArcSin[Sqrt
[2/11]*Sqrt[3 + 5*x]])/(9720*Sqrt[10]) + (805*Sqrt[7]*ArcTan[Sqrt
[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/243
```

Rubi in Sympy [A] time = 37.9256, size = 141, normalized size = 0.9

$$-\frac{(-2x+1)^{\frac{5}{2}}(5x+3)^{\frac{3}{2}}}{3(3x+2)}-\frac{8(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{3}{2}}}{27}+\frac{247(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{108}+\frac{7949\sqrt{-2x+1}\sqrt{5x+3}}{3240}+\frac{326717\sqrt{10}\,\text{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{97200}+\frac{805\sqrt{7}\,\text{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{243}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(3/2)/(2+3*x)**2,x)
```

```
[Out] -(-2*x + 1)**(5/2)*(5*x + 3)**(3/2)/(3*(3*x + 2)) - 8*(-2*x + 1)*
*(3/2)*(5*x + 3)**(3/2)/27 + 247*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/
108 + 7949*sqrt(-2*x + 1)*sqrt(5*x + 3)/3240 + 326717*sqrt(10)*as
in(sqrt(22)*sqrt(5*x + 3)/11)/97200 + 805*sqrt(7)*atan(sqrt(7)*sq
rt(-2*x + 1)/(7*sqrt(5*x + 3)))/243
```

Mathematica [A] time = 0.225735, size = 117, normalized size = 0.75

$$\frac{\frac{60\sqrt{1-2x}\sqrt{5x+3}(7200x^3-13740x^2+17277x+21718)}{3x+2}+322000\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)+326717\sqrt{10}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)}{194400}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^2,x]
```

```
[Out] ((60*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(21718 + 17277*x - 13740*x^2 + 7
200*x^3))/(2 + 3*x) + 322000*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[
7 - 14*x]*Sqrt[3 + 5*x])] + 326717*Sqrt[10]*ArcTan[(1 + 20*x)/(2*
Sqrt[1 - 2*x]*Sqrt[30 + 50*x])])/194400
```

Maple [A] time = 0.017, size = 180, normalized size = 1.2

$$-\frac{1}{388800+583200\,x}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(-432000\,x^{3}\sqrt{-10\,x^{2}-x+3}+966000\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^{2}-x+3}}\right)x-98015$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(3/2)/(2+3*x)^2,x)
```

```
[Out] -1/194400*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(-432000*x^3*(-10*x^2-x+3)^
(1/2)+966000*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^
(1/2))*x-980151*10^(1/2)*arcsin(20/11*x+1/11)*x+824400*x^2*(-10*x
^2-x+3)^(1/2)+644000*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x
^2-x+3)^(1/2))-653434*10^(1/2)*arcsin(20/11*x+1/11)-1036620*x*(-1
0*x^2-x+3)^(1/2)-1303080*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)
/(2+3*x)
```

Maxima [A] time = 1.48877, size = 140, normalized size = 0.89

$$-\frac{2}{27}\left(-10\,x^{2}-x+3\right)^{\frac{3}{2}}-\frac{247}{54}\sqrt{-10\,x^{2}-x+3}x+\frac{326717}{194400}\sqrt{10}\arcsin\left(\frac{20}{11}\,x+\frac{1}{11}\right)$$
$$-\frac{805}{486}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{15359}{3240}\sqrt{-10\,x^{2}-x+3}-\frac{7\left(-10\,x^{2}-x+3\right)^{\frac{3}{2}}}{9\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^2,x, algorithm="maxima")
```

```
[Out] -2/27*(-10*x^2 - x + 3)^(3/2) - 247/54*sqrt(-10*x^2 - x + 3)*x +
326717/194400*sqrt(10)*arcsin(20/11*x + 1/11) - 805/486*sqrt(7)*a
rcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) + 15359/3240*sqr
t(-10*x^2 - x + 3) - 7/9*(-10*x^2 - x + 3)^(3/2)/(3*x + 2)
```

Fricas [A] time = 0.232213, size = 158, normalized size = 1.01

$$-\frac{\sqrt{10}\left(32200\,\sqrt{10}\sqrt{7}(3\,x+2)\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)-6\,\sqrt{10}\left(7200\,x^{3}-13740\,x^{2}+17277\,x+21718\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-}{194400\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^2,x, algorithm="fricas")
```

```
[Out] -1/194400*sqrt(10)*(32200*sqrt(10)*sqrt(7)*(3*x + 2)*arctan(1/14*
sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))) - 6*sqrt(10)*
(7200*x^3 - 13740*x^2 + 17277*x + 21718)*sqrt(5*x + 3)*sqrt(-2*x
+ 1) - 326717*(3*x + 2)*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x
 + 3)*sqrt(-2*x + 1))))/(3*x + 2)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**(3/2)/(2+3*x)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.408503, size = 412, normalized size = 2.62

$$-\frac{161}{972}\sqrt{70}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3} - 4\right)}{140\left(\sqrt{2}\sqrt{-10x+5} - \sqrt{22}\right)}\right)\right) + \frac{1}{5400}\left(4\left(8\sqrt{5}(5x+3) - 151\sqrt{5}\right)(5x+3) + 4817\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5} + \frac{326717}{194400}\sqrt{10}\left(\pi - 2\arctan\left(\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3} - 4\right)}{4\left(\sqrt{2}\sqrt{-10x+5} - \sqrt{22}\right)}\right)\right) + \frac{1078\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}} - \frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)}{81\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}} - \frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2 + 280\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^2,x, algorithm="giac")
```

```
[Out] -161/972*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*
x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sq
rt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 1/5400*(4*(8*sqrt(5)*(5*x +
 3) - 151*sqrt(5))*(5*x + 3) + 4817*sqrt(5))*sqrt(5*x + 3)*sqrt(-
10*x + 5) + 326717/194400*sqrt(10)*(pi - 2*arctan(1/4*sqrt(5*x +
3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqrt(2
)*sqrt(-10*x + 5) - sqrt(22)))) + 1078/81*sqrt(10)*((sqrt(2)*sqrt
(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*
sqrt(-10*x + 5) - sqrt(22)))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22
))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqr
t(22)))^2 + 280)
```

3.2388 $\int \frac{(1-2x)^{5/2}(3+5x)^{3/2}}{(2+3x)^3}\,dx$

Optimal. Leaf size=164

$$-\frac{(5x+3)^{3/2}(1-2x)^{5/2}}{6(3x+2)^2}+\frac{115(5x+3)^{3/2}(1-2x)^{3/2}}{36(3x+2)}+\frac{41}{18}(5x+3)^{3/2}\sqrt{1-2x}-\frac{1649}{108}\sqrt{5x+3}\sqrt{1-2x}-\frac{6829\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{162\sqrt{10}}-\frac{1945}{324}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

```
[Out] (-1649*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/108 + (41*Sqrt[1 - 2*x]*(3 +
5*x)^(3/2))/18 - ((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/(6*(2 + 3*x)^2
) + (115*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/(36*(2 + 3*x)) - (6829*
ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(162*Sqrt[10]) - (1945*Sqrt[7]*
ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/324
```

Rubi [A] time = 0.366443, antiderivative size = 164, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 8, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.308

$$-\frac{(5x+3)^{3/2}(1-2x)^{5/2}}{6(3x+2)^2}+\frac{115(5x+3)^{3/2}(1-2x)^{3/2}}{36(3x+2)}+\frac{41}{18}(5x+3)^{3/2}\sqrt{1-2x}-\frac{1649}{108}\sqrt{5x+3}\sqrt{1-2x}-\frac{6829\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{162\sqrt{10}}-\frac{1945}{324}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^3,x]
```

```
[Out] (-1649*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/108 + (41*Sqrt[1 - 2*x]*(3 +
5*x)^(3/2))/18 - ((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/(6*(2 + 3*x)^2
) + (115*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/(36*(2 + 3*x)) - (6829*
ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(162*Sqrt[10]) - (1945*Sqrt[7]*
ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/324
```

Rubi in Sympy [A] time = 37.2018, size = 150, normalized size = 0.91

$$-\frac{115\,(-2x+1)^{\frac{5}{2}}\,\sqrt{5x+3}}{252\,(3x+2)}-\frac{(-2x+1)^{\frac{5}{2}}\,(5x+3)^{\frac{3}{2}}}{6\,(3x+2)^2}-\frac{85\,(-2x+1)^{\frac{3}{2}}\,\sqrt{5x+3}}{126}-\frac{74\sqrt{-2x+1}\sqrt{5x+3}}{27}-\frac{6829\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{1620}-\frac{1945\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{324}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(3/2)/(2+3*x)**3,x)
```

```
[Out] -115*(-2*x + 1)**(5/2)*sqrt(5*x + 3)/(252*(3*x + 2)) - (-2*x + 1)
**(5/2)*(5*x + 3)**(3/2)/(6*(3*x + 2)**2) - 85*(-2*x + 1)**(3/2)*
sqrt(5*x + 3)/126 - 74*sqrt(-2*x + 1)*sqrt(5*x + 3)/27 - 6829*sqr
t(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/1620 - 1945*sqrt(7)*atan(sq
rt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/324
```

Mathematica [A] time = 0.182596, size = 117, normalized size = 0.71

$$\frac{\frac{30\sqrt{1-2x}\sqrt{5x+3}(360x^3-1230x^2-3471x-1628)}{(3x+2)^2}-9725\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)-6829\sqrt{10}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)}{3240}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^3,x]
```

```
[Out] ((30*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(-1628 - 3471*x - 1230*x^2 + 360
*x^3))/(2 + 3*x)^2 - 9725*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 -
 14*x]*Sqrt[3 + 5*x])] - 6829*Sqrt[10]*ArcTan[(1 + 20*x)/(2*Sqrt[
1 - 2*x]*Sqrt[30 + 50*x])])/3240
```

Maple [A] time = 0.018, size = 225, normalized size = 1.4

$$\frac{1}{3240\,\left(2+3\,x\right)^{2}}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(87525\,\sqrt{7}\arctan\left(1/14\,\frac{\left(37\,x+20\right)\sqrt{7}}{\sqrt{-10\,x^{2}-x+3}}\right)x^{2}-61461\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x^{2}+108$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(3/2)/(2+3*x)^3,x)
```

```
[Out] 1/3240*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(87525*7^(1/2)*arctan(1/14*(37
*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2-61461*10^(1/2)*arcsin(20/
11*x+1/11)*x^2+10800*x^3*(-10*x^2-x+3)^(1/2)+116700*7^(1/2)*arcta
n(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x-81948*10^(1/2)*ar
csin(20/11*x+1/11)*x-36900*x^2*(-10*x^2-x+3)^(1/2)+38900*7^(1/2)*
arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))-27316*10^(1/2)
*arcsin(20/11*x+1/11)-104130*x*(-10*x^2-x+3)^(1/2)-48840*(-10*x^2
-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)^2
```

Maxima [A] time = 1.50573, size = 176, normalized size = 1.07

$$\frac{5}{9}\left(-10\,x^{2}-x+3\right)^{\frac{3}{2}}+\frac{\left(-10\,x^{2}-x+3\right)^{\frac{5}{2}}}{2\left(9\,x^{2}+12\,x+4\right)}+\frac{205}{18}\sqrt{-10\,x^{2}-x+3}x-\frac{6829}{3240}\sqrt{10}\arcsin\left(\frac{20}{11}\,x+\frac{1}{11}\right)+\frac{1945}{648}\sqrt{7}\arcsin\left(\frac{37\,x}{11\left|3\,x+2\right|}+\frac{20}{11\left|3\,x+2\right|}\right)-\frac{911}{108}\sqrt{-10\,x^{2}-x+3}+\frac{5\left(-10\,x^{2}-x+3\right)^{\frac{3}{2}}}{4\left(3\,x+2\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^3,x, algorithm="maxima")
```

```
[Out] 5/9*(-10*x^2 - x + 3)^(3/2) + 1/2*(-10*x^2 - x + 3)^(5/2)/(9*x^2
+ 12*x + 4) + 205/18*sqrt(-10*x^2 - x + 3)*x - 6829/3240*sqrt(10)
*arcsin(20/11*x + 1/11) + 1945/648*sqrt(7)*arcsin(37/11*x/abs(3*x
 + 2) + 20/11/abs(3*x + 2)) - 911/108*sqrt(-10*x^2 - x + 3) + 5/4
*(-10*x^2 - x + 3)^(3/2)/(3*x + 2)
```

Fricas [A] time = 0.236003, size = 178, normalized size = 1.09

$$\frac{\sqrt{10}\left(1945\,\sqrt{10}\sqrt{7}\left(9\,x^{2}+12\,x+4\right)\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)+6\,\sqrt{10}\left(360\,x^{3}-1230\,x^{2}-3471\,x-1628\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}\right.}{6480\left(9\,x^{2}+12\,x+4\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^3,x, algorithm="fricas")
```

```
[Out] 1/6480*sqrt(10)*(1945*sqrt(10)*sqrt(7)*(9*x^2 + 12*x + 4)*arctan(
1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))) + 6*sqrt
(10)*(360*x^3 - 1230*x^2 - 3471*x - 1628)*sqrt(5*x + 3)*sqrt(-2*x
 + 1) - 13658*(9*x^2 + 12*x + 4)*arctan(1/20*sqrt(10)*(20*x + 1)/
```

```
(sqrt(5*x + 3)*sqrt(-2*x + 1)))))/(9*x^2 + 12*x + 4)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**(3/2)/(2+3*x)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.456115, size = 481, normalized size = 2.93

$$\frac{389}{1296}\sqrt{70}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3} - 4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right) + \frac{1}{270}\left(4\sqrt{5}(5x+3) - 107\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5} - \frac{6829}{3240}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3} - 4\right)}{4\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right) - \frac{77\left(41\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}} - \frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3 + 17640\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}} - \frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)\right)}{54\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}} - \frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2 + 280\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^3,x, algorithm="giac")
```

```
[Out] 389/1296*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*
x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sq
rt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 1/270*(4*sqrt(5)*(5*x + 3)
- 107*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5) - 6829/3240*sqrt(10)
*(pi + 2*arctan(-1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sq
rt(22))^2/(5*x + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) -
 77/54*(41*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*
x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3
+ 17640*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x +
 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((s
qrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3
)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)^2
```

3.2389 $\int \frac{(1-2x)^{5/2}(3+5x)^{3/2}}{(2+3x)^4} dx$

Optimal. Leaf size=171

$$-\frac{(5x+3)^{3/2}(1-2x)^{5/2}}{9(3x+2)^3}+\frac{115(5x+3)^{3/2}(1-2x)^{3/2}}{108(3x+2)^2}+\frac{365(5x+3)^{3/2}\sqrt{1-2x}}{216(3x+2)}-\frac{845}{648}\sqrt{5x+3}\sqrt{1-2x}+\frac{362}{243}\sqrt{10}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)+\frac{215\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{1944\sqrt{7}}$$

```
[Out] (-845*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/648 - ((1 - 2*x)^(5/2)*(3 + 5*
x)^(3/2))/(9*(2 + 3*x)^3) + (115*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))
/(108*(2 + 3*x)^2) + (365*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(216*(2
+ 3*x)) + (362*Sqrt[10]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/243 + (
215*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(1944*Sqrt[7])
```

Rubi [A] time = 0.375341, antiderivative size = 171, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 8, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.308

$$-\frac{(5x+3)^{3/2}(1-2x)^{5/2}}{9(3x+2)^3}+\frac{115(5x+3)^{3/2}(1-2x)^{3/2}}{108(3x+2)^2}+\frac{365(5x+3)^{3/2}\sqrt{1-2x}}{216(3x+2)}-\frac{845}{648}\sqrt{5x+3}\sqrt{1-2x}+\frac{362}{243}\sqrt{10}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)+\frac{215\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{1944\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^4,x]
```

```
[Out] (-845*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/648 - ((1 - 2*x)^(5/2)*(3 + 5*
x)^(3/2))/(9*(2 + 3*x)^3) + (115*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))
/(108*(2 + 3*x)^2) + (365*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(216*(2
+ 3*x)) + (362*Sqrt[10]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/243 + (
215*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(1944*Sqrt[7])
```

Rubi in Sympy [A] time = 36.9047, size = 155, normalized size = 0.91

$$-\frac{115\left(-2x+1\right)^{\frac{5}{2}}\sqrt{5x+3}}{756\left(3x+2\right)^{2}}-\frac{\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{3}{2}}}{9\left(3x+2\right)^{3}}+\frac{2165\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{1512\left(3x+2\right)}+\frac{3065\sqrt{-2x+1}\sqrt{5x+3}}{2268}+\frac{362\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{243}+\frac{215\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{13608}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(3/2)/(2+3*x)**4,x)
```

```
[Out] -115*(-2*x + 1)**(5/2)*sqrt(5*x + 3)/(756*(3*x + 2)**2) - (-2*x +
 1)**(5/2)*(5*x + 3)**(3/2)/(9*(3*x + 2)**3) + 2165*(-2*x + 1)**(
3/2)*sqrt(5*x + 3)/(1512*(3*x + 2)) + 3065*sqrt(-2*x + 1)*sqrt(5*
x + 3)/2268 + 362*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/243 +
215*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/13608
```

Mathematica [A] time = 0.221127, size = 117, normalized size = 0.68

$$\frac{\frac{42\sqrt{1-2x}\sqrt{5x+3}\left(4320x^3+34341x^2+36234x+10304\right)}{(3x+2)^3}+215\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)+20272\sqrt{10}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)}{27216}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^4,x]
```

```
[Out] ((42*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(10304 + 36234*x + 34341*x^2 + 4
320*x^3))/(2 + 3*x)^3 + 215*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7
 - 14*x]*Sqrt[3 + 5*x])] + 20272*Sqrt[10]*ArcTan[(1 + 20*x)/(2*Sq
rt[1 - 2*x]*Sqrt[30 + 50*x])])/27216
```

Maple [B] time = 0.017, size = 270, normalized size = 1.6

$$-\frac{1}{27216\,(2+3\,x)^3}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(5805\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^3-547344\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x^3+1$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(3/2)/(2+3*x)^4,x)
```

```
[Out] -1/27216*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(5805*7^(1/2)*arctan(1/14*(3
7*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3-547344*10^(1/2)*arcsin(2
0/11*x+1/11)*x^3+11610*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10
*x^2-x+3)^(1/2))*x^2-1094688*10^(1/2)*arcsin(20/11*x+1/11)*x^2-18
1440*x^3*(-10*x^2-x+3)^(1/2)+7740*7^(1/2)*arctan(1/14*(37*x+20)*7
^(1/2)/(-10*x^2-x+3)^(1/2))*x-729792*10^(1/2)*arcsin(20/11*x+1/11
)*x-1442322*x^2*(-10*x^2-x+3)^(1/2)+1720*7^(1/2)*arctan(1/14*(37*
x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))-162176*10^(1/2)*arcsin(20/11*x
+1/11)-1521828*x*(-10*x^2-x+3)^(1/2)-432768*(-10*x^2-x+3)^(1/2))/
(-10*x^2-x+3)^(1/2)/(2+3*x)^3
```

Maxima [A] time = 1.51975, size = 217, normalized size = 1.27

$$\frac{125}{378}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}+\frac{\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{3\,(27\,x^3+54\,x^2+36\,x+8)}+\frac{25\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{84\,(9\,x^2+12\,x+4)}+\frac{1825}{756}\sqrt{-10\,x^2-x+3}x+\frac{181}{243}\sqrt{10}\arcsin\left(\frac{20}{11}\,x+\frac{1}{11}\right)-\frac{215}{27216}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{655}{4536}\sqrt{-10\,x^2-x+3}-\frac{65\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{504\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^4,x, algorithm="maxima")
```

```
[Out] 125/378*(-10*x^2 - x + 3)^(3/2) + 1/3*(-10*x^2 - x + 3)^(5/2)/(27
*x^3 + 54*x^2 + 36*x + 8) + 25/84*(-10*x^2 - x + 3)^(5/2)/(9*x^2
+ 12*x + 4) + 1825/756*sqrt(-10*x^2 - x + 3)*x + 181/243*sqrt(10)
*arcsin(20/11*x + 1/11) - 215/27216*sqrt(7)*arcsin(37/11*x/abs(3*
x + 2) + 20/11/abs(3*x + 2)) + 655/4536*sqrt(-10*x^2 - x + 3) - 6
5/504*(-10*x^2 - x + 3)^(3/2)/(3*x + 2)
```

Fricas [A] time = 0.235583, size = 198, normalized size = 1.16

$$\frac{\sqrt{7}\left(2896\,\sqrt{10}\sqrt{7}\left(27\,x^3+54\,x^2+36\,x+8\right)\arctan\left(\frac{\sqrt{10}(20\,x+1)}{20\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)+6\,\sqrt{7}\left(4320\,x^3+34341\,x^2+36234\,x+10304\right)\sqrt{5\,x+3}}{27216\,(27\,x^3+54\,x^2+36\,x+8)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^4,x, algorithm="fricas")
```

```
[Out] 1/27216*sqrt(7)*(2896*sqrt(10)*sqrt(7)*(27*x^3 + 54*x^2 + 36*x +
8)*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))
) + 6*sqrt(7)*(4320*x^3 + 34341*x^2 + 36234*x + 10304)*sqrt(5*x +
 3)*sqrt(-2*x + 1) - 215*(27*x^3 + 54*x^2 + 36*x + 8)*arctan(1/14
*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(27*x^3 + 5
4*x^2 + 36*x + 8)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**(3/2)/(2+3*x)**4,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.497523, size = 545, normalized size = 3.19

$$-\frac{43}{54432}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)$$

$$+\frac{181}{243}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{4\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)+\frac{4}{81}\sqrt{5}\sqrt{5x+3}\sqrt{-10x+5}$$

$$-\frac{11\left(67\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^5+56000\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3-65464000\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x}\ldots}{\sqrt{5x}\ldots}\right.}{108\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^4,x, algorithm="giac")
```

```
[Out] -43/54432*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5
*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(s
qrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 181/243*sqrt(10)*(pi + 2*a
rctan(-1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/
(5*x + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 4/81*sqrt
(5)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 11/108*(67*sqrt(10)*((sqrt(2)
*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqr
t(2)*sqrt(-10*x + 5) - sqrt(22)))^5 + 56000*sqrt(10)*((sqrt(2)*sq
rt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2
)*sqrt(-10*x + 5) - sqrt(22)))^3 - 65464000*sqrt(10)*((sqrt(2)*sq
rt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2
)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt
(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) -
sqrt(22)))^2 + 280)^3
```

3.2390 $\int \frac{(1-2x)^{5/2}(3+5x)^{3/2}}{(2+3x)^5} dx$

Optimal. Leaf size=178

$$-\frac{(5x+3)^{3/2}(1-2x)^{5/2}}{12(3x+2)^4}+\frac{115(5x+3)^{3/2}(1-2x)^{3/2}}{216(3x+2)^3}+\frac{2675(5x+3)^{3/2}\sqrt{1-2x}}{864(3x+2)^2}-\frac{97235\sqrt{5x+3}\sqrt{1-2x}}{36288(3x+2)}-\frac{40}{243}\sqrt{10}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{3244595\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{108864\sqrt{7}}$$

```
[Out] (-97235*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(36288*(2 + 3*x)) - ((1 - 2*
x)^(5/2)*(3 + 5*x)^(3/2))/(12*(2 + 3*x)^4) + (115*(1 - 2*x)^(3/2)
*(3 + 5*x)^(3/2))/(216*(2 + 3*x)^3) + (2675*Sqrt[1 - 2*x]*(3 + 5*
x)^(3/2))/(864*(2 + 3*x)^2) - (40*Sqrt[10]*ArcSin[Sqrt[2/11]*Sqrt
[3 + 5*x]])/243 - (3244595*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 +
 5*x])])/(108864*Sqrt[7])
```

Rubi [A] time = 0.379528, antiderivative size = 178, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 7, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.269

$$-\frac{(5x+3)^{3/2}(1-2x)^{5/2}}{12(3x+2)^4}+\frac{115(5x+3)^{3/2}(1-2x)^{3/2}}{216(3x+2)^3}+\frac{2675(5x+3)^{3/2}\sqrt{1-2x}}{864(3x+2)^2}-\frac{97235\sqrt{5x+3}\sqrt{1-2x}}{36288(3x+2)}-\frac{40}{243}\sqrt{10}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{3244595\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{108864\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^5,x]
```

```
[Out] (-97235*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(36288*(2 + 3*x)) - ((1 - 2*
x)^(5/2)*(3 + 5*x)^(3/2))/(12*(2 + 3*x)^4) + (115*(1 - 2*x)^(3/2)
*(3 + 5*x)^(3/2))/(216*(2 + 3*x)^3) + (2675*Sqrt[1 - 2*x]*(3 + 5*
x)^(3/2))/(864*(2 + 3*x)^2) - (40*Sqrt[10]*ArcSin[Sqrt[2/11]*Sqrt
[3 + 5*x]])/243 - (3244595*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 +
 5*x])])/(108864*Sqrt[7])
```

Rubi in Sympy [A] time = 36.4446, size = 162, normalized size = 0.91

$$-\frac{115\,(-2x+1)^{\frac{5}{2}}\sqrt{5x+3}}{1512\,(3x+2)^3}-\frac{(-2x+1)^{\frac{5}{2}}\,(5x+3)^{\frac{3}{2}}}{12\,(3x+2)^4}+\frac{265\,(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{672\,(3x+2)^2}+\frac{79315\sqrt{-2x+1}\sqrt{5x+3}}{36288\,(3x+2)}-\frac{40\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{243}-\frac{3244595\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{762048}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(3/2)/(2+3*x)**5,x)
```

```
[Out] -115*(-2*x + 1)**(5/2)*sqrt(5*x + 3)/(1512*(3*x + 2)**3) - (-2*x
+ 1)**(5/2)*(5*x + 3)**(3/2)/(12*(3*x + 2)**4) + 265*(-2*x + 1)**
(3/2)*sqrt(5*x + 3)/(672*(3*x + 2)**2) + 79315*sqrt(-2*x + 1)*sqr
t(5*x + 3)/(36288*(3*x + 2)) - 40*sqrt(10)*asin(sqrt(22)*sqrt(5*x
 + 3)/11)/243 - 3244595*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sq
rt(5*x + 3)))/762048
```

Mathematica [A] time = 0.232911, size = 117, normalized size = 0.66

$$\frac{\frac{42\sqrt{1-2x}\sqrt{5x+3}(1790325x^3+4103592x^2+2947548x+677168)}{(3x+2)^4}-3244595\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)-125440\sqrt{10}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)}{1524096}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^5,x]
```

```
[Out] ((42*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(677168 + 2947548*x + 4103592*x^
2 + 1790325*x^3))/(2 + 3*x)^4 - 3244595*Sqrt[7]*ArcTan[(-20 - 37*
x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])] - 125440*Sqrt[10]*ArcTan[(1
+ 20*x)/(2*Sqrt[1 - 2*x]*Sqrt[30 + 50*x])])/1524096
```

Maple [B] time = 0.02, size = 315, normalized size = 1.8

$$\frac{1}{1524096\,(2+3x)^4}\sqrt{1-2x}\sqrt{3+5x}\left(262812195\sqrt{7}\arctan\left(1/14\,\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)x^4-10160640\arcsin\left(\frac{20x}{11}+1/11\right)\sqrt{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(3/2)/(2+3*x)^5,x)
```

```
[Out] 1/1524096*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(262812195*7^(1/2)*arctan(1
/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^4-10160640*arcsin(20
/11*x+1/11)*10^(1/2)*x^4+700832520*7^(1/2)*arctan(1/14*(37*x+20)*
7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3-27095040*10^(1/2)*arcsin(20/11*x
+1/11)*x^3+700832520*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x
^2-x+3)^(1/2))*x^2-27095040*10^(1/2)*arcsin(20/11*x+1/11)*x^2+751
93650*x^3*(-10*x^2-x+3)^(1/2)+311481120*7^(1/2)*arctan(1/14*(37*x
+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x-12042240*10^(1/2)*arcsin(20/1
1*x+1/11)*x+172350864*x^2*(-10*x^2-x+3)^(1/2)+51913520*7^(1/2)*ar
ctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))-2007040*10^(1/2)
*arcsin(20/11*x+1/11)+123797016*x*(-10*x^2-x+3)^(1/2)+28441056*(-
10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)^4
```

Maxima [A] time = 1.53204, size = 266, normalized size = 1.49

$$\begin{aligned}&\frac{21775}{21168}\left(-10x^2-x+3\right)^{\frac{3}{2}}+\frac{\left(-10x^2-x+3\right)^{\frac{5}{2}}}{4\left(81x^4+216x^3+216x^2+96x+16\right)}\\&+\frac{95\left(-10x^2-x+3\right)^{\frac{5}{2}}}{168\left(27x^3+54x^2+36x+8\right)}+\frac{4355\left(-10x^2-x+3\right)^{\frac{5}{2}}}{4704\left(9x^2+12x+4\right)}+\frac{539675}{42336}\sqrt{-10x^2-x+3}x\\&-\frac{20}{243}\sqrt{10}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)+\frac{3244595}{1524096}\sqrt{7}\arcsin\left(\frac{37x}{11|3x+2|}+\frac{20}{11|3x+2|}\right)\\&-\frac{1460395}{254016}\sqrt{-10x^2-x+3}+\frac{18245\left(-10x^2-x+3\right)^{\frac{3}{2}}}{28224(3x+2)}\end{aligned}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^5,x, algorithm="maxima")
```

```
[Out] 21775/21168*(-10*x^2 - x + 3)^(3/2) + 1/4*(-10*x^2 - x + 3)^(5/2)
/(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16) + 95/168*(-10*x^2 - x +
 3)^(5/2)/(27*x^3 + 54*x^2 + 36*x + 8) + 4355/4704*(-10*x^2 - x +
 3)^(5/2)/(9*x^2 + 12*x + 4) + 539675/42336*sqrt(-10*x^2 - x + 3)
*x - 20/243*sqrt(10)*arcsin(20/11*x + 1/11) + 3244595/1524096*sqr
t(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) - 1460395/
254016*sqrt(-10*x^2 - x + 3) + 18245/28224*(-10*x^2 - x + 3)^(3/2
)/(3*x + 2)
```

Fricas [A] time = 0.235273, size = 219, normalized size = 1.23

$$-\frac{\sqrt{7}\left(17920\sqrt{10}\sqrt{7}\left(81x^4+216x^3+216x^2+96x+16\right)\arctan\left(\frac{\sqrt{10}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)-6\sqrt{7}\left(1790325x^3+4103592x^2+29475\right.\right.}{1524096\left(81x^4+216x^3+21\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^5,x, algorithm="fricas")
```

```
[Out] -1/1524096*sqrt(7)*(17920*sqrt(10)*sqrt(7)*(81*x^4 + 216*x^3 + 21
6*x^2 + 96*x + 16)*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)
*sqrt(-2*x + 1))) - 6*sqrt(7)*(1790325*x^3 + 4103592*x^2 + 294754
8*x + 677168)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 3244595*(81*x^4 + 21
6*x^3 + 216*x^2 + 96*x + 16)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqr
t(5*x + 3)*sqrt(-2*x + 1))))/(81*x^4 + 216*x^3 + 216*x^2 + 96*x +
 16)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**(3/2)/(2+3*x)**5,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.526482, size = 602, normalized size = 3.38

$$\frac{648919}{3048192}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)$$
$$-\frac{20}{243}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{4\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)$$
$$-\frac{55\left(19447\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^7+19946472\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^5-6199166400\sqrt{10}\right.}{18144\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{2}}\right.\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^5,x, algorithm="giac")
```

```
[Out] 648919/3048192*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*s
qrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) -
4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 20/243*sqrt(10)*(pi +
 2*arctan(-1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22)
)^2/(5*x + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 55/18
144*(19447*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*
x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^7
+ 19946472*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*
x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5
```

```
- 6199166400*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(
5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^
3 - 348224576000*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/s
qrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22
))))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqr
t(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)^4
```

3.2391 $\int \frac{(1-2x)^{5/2}(3+5x)^{3/2}}{(2+3x)^6} dx$

Optimal. Leaf size=180

$$\frac{121\sqrt{1-2x}(5x+3)^{5/2}}{16(3x+2)^3}+\frac{11(1-2x)^{3/2}(5x+3)^{5/2}}{8(3x+2)^4}+\frac{(1-2x)^{5/2}(5x+3)^{5/2}}{5(3x+2)^5}-\frac{1331\sqrt{1-2x}(5x+3)^{3/2}}{448(3x+2)^2}-\frac{43923\sqrt{1-2x}\sqrt{5x+3}}{6272(3x+2)}-\frac{483153\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{6272\sqrt{7}}$$

```
[Out] (-43923*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(6272*(2 + 3*x)) - (1331*Sqr
t[1 - 2*x]*(3 + 5*x)^(3/2))/(448*(2 + 3*x)^2) + ((1 - 2*x)^(5/2)*
(3 + 5*x)^(5/2))/(5*(2 + 3*x)^5) + (11*(1 - 2*x)^(3/2)*(3 + 5*x)^
(5/2))/(8*(2 + 3*x)^4) + (121*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(16*
(2 + 3*x)^3) - (483153*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x
])])/(6272*Sqrt[7])
```

Rubi [A] time = 0.268611, antiderivative size = 180, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.115

$$\frac{121\sqrt{1-2x}(5x+3)^{5/2}}{16(3x+2)^3}+\frac{11(1-2x)^{3/2}(5x+3)^{5/2}}{8(3x+2)^4}+\frac{(1-2x)^{5/2}(5x+3)^{5/2}}{5(3x+2)^5}-\frac{1331\sqrt{1-2x}(5x+3)^{3/2}}{448(3x+2)^2}-\frac{43923\sqrt{1-2x}\sqrt{5x+3}}{6272(3x+2)}-\frac{483153\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{6272\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^6,x]
```

```
[Out] (-43923*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(6272*(2 + 3*x)) - (1331*Sqr
t[1 - 2*x]*(3 + 5*x)^(3/2))/(448*(2 + 3*x)^2) + ((1 - 2*x)^(5/2)*
(3 + 5*x)^(5/2))/(5*(2 + 3*x)^5) + (11*(1 - 2*x)^(3/2)*(3 + 5*x)^
(5/2))/(8*(2 + 3*x)^4) + (121*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(16*
(2 + 3*x)^3) - (483153*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x
])])/(6272*Sqrt[7])
```

Rubi in Sympy [A] time = 20.6133, size = 163, normalized size = 0.91

$$-\frac{121\left(-2x+1\right)^{\frac{5}{2}}\sqrt{5x+3}}{784\left(3x+2\right)^{3}}-\frac{11\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{3}{2}}}{56\left(3x+2\right)^{4}}+\frac{\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{5}{2}}}{5\left(3x+2\right)^{5}}+\frac{1331\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{3136\left(3x+2\right)^{2}}+\frac{43923\sqrt{-2x+1}\sqrt{5x+3}}{6272\left(3x+2\right)}-\frac{483153\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{43904}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(3/2)/(2+3*x)**6,x)
```

```
[Out] -121*(-2*x + 1)**(5/2)*sqrt(5*x + 3)/(784*(3*x + 2)**3) - 11*(-2*
x + 1)**(5/2)*(5*x + 3)**(3/2)/(56*(3*x + 2)**4) + (-2*x + 1)**(5
/2)*(5*x + 3)**(5/2)/(5*(3*x + 2)**5) + 1331*(-2*x + 1)**(3/2)*sq
rt(5*x + 3)/(3136*(3*x + 2)**2) + 43923*sqrt(-2*x + 1)*sqrt(5*x +
 3)/(6272*(3*x + 2)) - 483153*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)
/(7*sqrt(5*x + 3)))/43904
```

Mathematica [A] time = 0.11699, size = 87, normalized size = 0.48

$$\frac{\frac{14\sqrt{1-2x}\sqrt{5x+3}\left(17153435x^4+46327530x^3+47166452x^2+21361768x+3620448\right)}{(3x+2)^5}-2415765\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{439040}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^6,x]
```

```
[Out] ((14*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(3620448 + 21361768*x + 47166452
*x^2 + 46327530*x^3 + 17153435*x^4))/(2 + 3*x)^5 - 2415765*Sqrt[7
]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/439040
```

Maple [B] time = 0.017, size = 298, normalized size = 1.7

$$\frac{1}{439040\,(2+3\,x)^5}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(587030895\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^5+1956769650\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x}{\sqrt{-10}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(3/2)/(2+3*x)^6,x)
```

```
[Out] 1/439040*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(587030895*7^(1/2)*arctan(1/
14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^5+1956769650*7^(1/2)*
arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^4+2609026200
*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+2
40148090*x^4*(-10*x^2-x+3)^(1/2)+1739350800*7^(1/2)*arctan(1/14*(
37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+648585420*x^3*(-10*x^2-
x+3)^(1/2)+579783600*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x
^2-x+3)^(1/2))*x+660330328*x^2*(-10*x^2-x+3)^(1/2)+77304480*7^(1/
2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+299064752*x
*(-10*x^2-x+3)^(1/2)+50686272*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^
(1/2)/(2+3*x)^5
```

Maxima [A] time = 1.52821, size = 306, normalized size = 1.7

$$\begin{aligned}&\frac{90695}{32928}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}+\frac{\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{5\,(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240\,x+32)}\\&+\frac{33\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{56\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}+\frac{1221\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{784\,(27\,x^3+54\,x^2+36\,x+8)}\\&+\frac{54417\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{21952\,(9\,x^2+12\,x+4)}+\frac{738705}{21952}\sqrt{-10\,x^2-x+3}x\\&+\frac{483153}{87808}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)\\&-\frac{650859}{43904}\sqrt{-10\,x^2-x+3}+\frac{215303\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{131712\,(3\,x+2)}\end{aligned}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^6,x, algorithm="maxima")
```

```
[Out] 90695/32928*(-10*x^2 - x + 3)^(3/2) + 1/5*(-10*x^2 - x + 3)^(5/2)
/(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32) + 33/56*(-
10*x^2 - x + 3)^(5/2)/(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16) +
1221/784*(-10*x^2 - x + 3)^(5/2)/(27*x^3 + 54*x^2 + 36*x + 8) + 5
4417/21952*(-10*x^2 - x + 3)^(5/2)/(9*x^2 + 12*x + 4) + 738705/21
952*sqrt(-10*x^2 - x + 3)*x + 483153/87808*sqrt(7)*arcsin(37/11*x
/abs(3*x + 2) + 20/11/abs(3*x + 2)) - 650859/43904*sqrt(-10*x^2 -
 x + 3) + 215303/131712*(-10*x^2 - x + 3)^(3/2)/(3*x + 2)
```

Fricas [A] time = 0.225231, size = 167, normalized size = 0.93

$$\frac{\sqrt{7}\left(2\sqrt{7}\left(17153435\,x^4+46327530\,x^3+47166452\,x^2+21361768\,x+3620448\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+2415765\left(243\,x^5+810\,x\right.\right.}{439040\left(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240\,x+32\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^6,x, algorithm="fricas")
```

```
[Out] 1/439040*sqrt(7)*(2*sqrt(7)*(17153435*x^4 + 46327530*x^3 + 471664
52*x^2 + 21361768*x + 3620448)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 241
5765*(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)*arctan
(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(243*x
^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(5/2)*(3+5*x)**(3/2)/(2+3*x)**6,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.52418, size = 594, normalized size = 3.3

$$\frac{483153}{878080}\sqrt{70}\sqrt{10}\left(\pi+2\,\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)$$
$$-\frac{161051\left(3\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^9+3920\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^7-2007040\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10}}{\sqrt{5}}\right.\right.}{3136\left(\left(\frac{\sqrt{2}\sqrt{-10\,x+}}{\sqrt{5\,x+}}\right.\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^6,x, algorithm="giac")
```

```
[Out] 483153/878080*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sq
rt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4
)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 161051/3136*(3*sqrt(10
)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*
x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^9 + 3920*sqrt(10)*((
sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x +
3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^7 - 2007040*sqrt(10)*((s
qrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3
)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 - 307328000*sqrt(10)*((
sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x +
3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 - 18439680000*sqrt(10)
*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x
 + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*
x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(
-10*x + 5) - sqrt(22)))^2 + 280)^5
```

3.2392 $\int \frac{(1-2x)^{5/2}(3+5x)^{3/2}}{(2+3x)^7}\,dx$

Optimal. Leaf size=209

$$\frac{(5x+3)^{5/2}(1-2x)^{7/2}}{14(3x+2)^6}+\frac{17(5x+3)^{5/2}(1-2x)^{5/2}}{28(3x+2)^5}+\frac{935(5x+3)^{5/2}(1-2x)^{3/2}}{224(3x+2)^4}+\frac{10285(5x+3)^{5/2}\sqrt{1-2x}}{448(3x+2)^3}-\frac{113135(5x+3)^{3/2}\sqrt{1-2x}}{12544(3x+2)^2}-\frac{3733455\sqrt{5x+3}\sqrt{1-2x}}{175616(3x+2)}-\frac{41068005\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{175616\sqrt{7}}$$

```
[Out] (-3733455*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(175616*(2 + 3*x)) - (1131
35*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(12544*(2 + 3*x)^2) + ((1 - 2*x
)^(7/2)*(3 + 5*x)^(5/2))/(14*(2 + 3*x)^6) + (17*(1 - 2*x)^(5/2)*(
3 + 5*x)^(5/2))/(28*(2 + 3*x)^5) + (935*(1 - 2*x)^(3/2)*(3 + 5*x)
^(5/2))/(224*(2 + 3*x)^4) + (10285*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))
/(448*(2 + 3*x)^3) - (41068005*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt
[3 + 5*x])])/(175616*Sqrt[7])
```

Rubi [A] time = 0.315171, antiderivative size = 209, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$\frac{(5x+3)^{5/2}(1-2x)^{7/2}}{14(3x+2)^6}+\frac{17(5x+3)^{5/2}(1-2x)^{5/2}}{28(3x+2)^5}+\frac{935(5x+3)^{5/2}(1-2x)^{3/2}}{224(3x+2)^4}+\frac{10285(5x+3)^{5/2}\sqrt{1-2x}}{448(3x+2)^3}-\frac{113135(5x+3)^{3/2}\sqrt{1-2x}}{12544(3x+2)^2}-\frac{3733455\sqrt{5x+3}\sqrt{1-2x}}{175616(3x+2)}-\frac{41068005\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{175616\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^7,x]
```

```
[Out] (-3733455*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(175616*(2 + 3*x)) - (1131
35*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(12544*(2 + 3*x)^2) + ((1 - 2*x
)^(7/2)*(3 + 5*x)^(5/2))/(14*(2 + 3*x)^6) + (17*(1 - 2*x)^(5/2)*(
3 + 5*x)^(5/2))/(28*(2 + 3*x)^5) + (935*(1 - 2*x)^(3/2)*(3 + 5*x)
^(5/2))/(224*(2 + 3*x)^4) + (10285*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))
/(448*(2 + 3*x)^3) - (41068005*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt
[3 + 5*x])])/(175616*Sqrt[7])
```

Rubi in Sympy [A] time = 23.8228, size = 190, normalized size = 0.91

$$-\frac{561\left(-2x+1\right)^{\frac{7}{2}}\sqrt{5x+3}}{10976\left(3x+2\right)^{4}}-\frac{17\left(-2x+1\right)^{\frac{7}{2}}\left(5x+3\right)^{\frac{3}{2}}}{196\left(3x+2\right)^{5}}+\frac{\left(-2x+1\right)^{\frac{7}{2}}\left(5x+3\right)^{\frac{5}{2}}}{14\left(3x+2\right)^{6}}+\frac{2057\left(-2x+1\right)^{\frac{5}{2}}\sqrt{5x+3}}{21952\left(3x+2\right)^{3}}+\frac{113135\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{87808\left(3x+2\right)^{2}}+\frac{3733455\sqrt{-2x+1}\sqrt{5x+3}}{175616\left(3x+2\right)}-\frac{41068005\sqrt{7}\,\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{1229312}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(3/2)/(2+3*x)**7,x)
```

```
[Out] -561*(-2*x + 1)**(7/2)*sqrt(5*x + 3)/(10976*(3*x + 2)**4) - 17*(-
2*x + 1)**(7/2)*(5*x + 3)**(3/2)/(196*(3*x + 2)**5) + (-2*x + 1)*
*(7/2)*(5*x + 3)**(5/2)/(14*(3*x + 2)**6) + 2057*(-2*x + 1)**(5/2
)*sqrt(5*x + 3)/(21952*(3*x + 2)**3) + 113135*(-2*x + 1)**(3/2)*s
qrt(5*x + 3)/(87808*(3*x + 2)**2) + 3733455*sqrt(-2*x + 1)*sqrt(5
```

```
*x + 3)/(175616*(3*x + 2)) - 41068005*sqrt(7)*atan(sqrt(7)*sqrt(-
2*x + 1)/(7*sqrt(5*x + 3)))/1229312
```

Mathematica [A] time = 0.156236, size = 92, normalized size = 0.44

$$\frac{\frac{14\sqrt{1-2x}\sqrt{5x+3}(872316385x^5+2946673460x^4+3982356144x^3+2692519968x^2+910641904x+123208128)}{(3x+2)^6} - 41068005\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{2458624}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^7,x]
```

```
[Out] ((14*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(123208128 + 910641904*x + 26925
19968*x^2 + 3982356144*x^3 + 2946673460*x^4 + 872316385*x^5))/(2
+ 3*x)^6 - 41068005*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]
*Sqrt[3 + 5*x]])])/2458624
```

Maple [B] time = 0.018, size = 346, normalized size = 1.7

$$\frac{1}{2458624\,(2+3\,x)^6}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(29938575645\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^6+119754302580\,\sqrt{7}\arctan\left(1/14\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(3/2)/(2+3*x)^7,x)
```

```
[Out] 1/2458624*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(29938575645*7^(1/2)*arctan
(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^6+119754302580*7^(
1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^5+19959
0504300*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2)
)*x^4+12212429390*x^5*(-10*x^2-x+3)^(1/2)+177413781600*7^(1/2)*ar
ctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+41253428440*
x^4*(-10*x^2-x+3)^(1/2)+88706890800*7^(1/2)*arctan(1/14*(37*x+20)
*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+55752986016*x^3*(-10*x^2-x+3)^(
1/2)+23655170880*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x
+3)^(1/2))*x+37695279552*x^2*(-10*x^2-x+3)^(1/2)+2628352320*7^(1/
2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+12748986656
*x*(-10*x^2-x+3)^(1/2)+1724913792*(-10*x^2-x+3)^(1/2))/(-10*x^2-x
+3)^(1/2)/(2+3*x)^6
```

Maxima [A] time = 1.52304, size = 369, normalized size = 1.77

$$\frac{7709075}{921984}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}+\frac{\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{6\,(729\,x^6+2916\,x^5+4860\,x^4+4320\,x^3+2160\,x^2+576\,x+64)}$$
$$+\frac{47\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{84\,(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240\,x+32)}+\frac{2805\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{1568\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}$$
$$+\frac{103785\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{21952\,(27\,x^3+54\,x^2+36\,x+8)}+\frac{4625445\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{614656\,(9\,x^2+12\,x+4)}$$
$$+\frac{62789925}{614656}\sqrt{-10\,x^2-x+3}x+\frac{41068005}{2458624}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)$$
$$-\frac{55323015}{1229312}\sqrt{-10\,x^2-x+3}+\frac{18300755\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{3687936\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^7,x, algorithm="maxima")
```

```
[Out] 7709075/921984*(-10*x^2 - x + 3)^(3/2) + 1/6*(-10*x^2 - x + 3)^(5
/2)/(729*x^6 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x
+ 64) + 47/84*(-10*x^2 - x + 3)^(5/2)/(243*x^5 + 810*x^4 + 1080*x
^3 + 720*x^2 + 240*x + 32) + 2805/1568*(-10*x^2 - x + 3)^(5/2)/(8
1*x^4 + 216*x^3 + 216*x^2 + 96*x + 16) + 103785/21952*(-10*x^2 -
x + 3)^(5/2)/(27*x^3 + 54*x^2 + 36*x + 8) + 4625445/614656*(-10*x
^2 - x + 3)^(5/2)/(9*x^2 + 12*x + 4) + 62789925/614656*sqrt(-10*x
^2 - x + 3)*x + 41068005/2458624*sqrt(7)*arcsin(37/11*x/abs(3*x +
 2) + 20/11/abs(3*x + 2)) - 55323015/1229312*sqrt(-10*x^2 - x + 3
) + 18300755/3687936*(-10*x^2 - x + 3)^(3/2)/(3*x + 2)
```

Fricas [A] time = 0.231261, size = 188, normalized size = 0.9

$$\frac{\sqrt{7}\left(2\sqrt{7}\left(872316385\,x^5 + 2946673460\,x^4 + 3982356144\,x^3 + 2692519968\,x^2 + 910641904\,x + 123208128\right)\sqrt{5\,x + 3}\sqrt{-2\,x + 1}\right.}{2458624\left(729\,x^6 + 2916\,x^5 + 4860\,x^4 + 4320\,x^3\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^7,x, algorithm="fricas")
```

```
[Out] 1/2458624*sqrt(7)*(2*sqrt(7)*(872316385*x^5 + 2946673460*x^4 + 39
82356144*x^3 + 2692519968*x^2 + 910641904*x + 123208128)*sqrt(5*x
 + 3)*sqrt(-2*x + 1) + 41068005*(729*x^6 + 2916*x^5 + 4860*x^4 +
4320*x^3 + 2160*x^2 + 576*x + 64)*arctan(1/14*sqrt(7)*(37*x + 20)
/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(729*x^6 + 2916*x^5 + 4860*x^4
+ 4320*x^3 + 2160*x^2 + 576*x + 64)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(5/2)*(3+5*x)**(3/2)/(2+3*x)**7,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.638375, size = 676, normalized size = 3.23

$$\frac{8213601}{4917248}\sqrt{70}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3} - 4\right)}{140\left(\sqrt{2}\sqrt{-10\,x+5} - \sqrt{22}\right)}\right)\right)$$

$$-\frac{805255\left(51\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}} - \frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^{11} + 80920\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}} - \frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^9 - 59615360\sqrt{10}\left(\frac{\sqrt{2}\right.\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^7,x, algorithm="giac")
```

```
[Out] 8213601/4917248*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*
sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) -
 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 805255/87808*(51*sqr
t(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqr
```

t(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^11 + 80920*sqrt(
10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(
5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^9 - 59615360*sqrt(
10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(
5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^7 - 14778086400*sq
rt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sq
rt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 - 17763558400
00*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) -
 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 - 877728
76800000*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x
+ 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((
sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x +
3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)^6

3.2393 $\int \frac{(1-2x)^{5/2}(3+5x)^{3/2}}{(2+3x)^8}\,dx$

Optimal. Leaf size=238

$$-\frac{(5x+3)^{3/2}(1-2x)^{5/2}}{21(3x+2)^7}+\frac{115(5x+3)^{3/2}(1-2x)^{3/2}}{756(3x+2)^6}+\frac{1921(5x+3)^{3/2}\sqrt{1-2x}}{1512(3x+2)^5}+\frac{40175505215\sqrt{5x+3}\sqrt{1-2x}}{597445632(3x+2)}+\frac{384136145\sqrt{5x+3}\sqrt{1-2x}}{42674688(3x+2)^2}+\frac{2199649\sqrt{5x+3}\sqrt{1-2x}}{1524096(3x+2)^3}-\frac{443563\sqrt{5x+3}\sqrt{1-2x}}{254016(3x+2)^4}-\frac{1891543995\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{2458624\sqrt{7}}$$

```
[Out] (-443563*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(254016*(2 + 3*x)^4) + (219
9649*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(1524096*(2 + 3*x)^3) + (384136
145*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(42674688*(2 + 3*x)^2) + (401755
05215*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(597445632*(2 + 3*x)) - ((1 -
2*x)^(5/2)*(3 + 5*x)^(3/2))/(21*(2 + 3*x)^7) + (115*(1 - 2*x)^(3/
2)*(3 + 5*x)^(3/2))/(756*(2 + 3*x)^6) + (1921*Sqrt[1 - 2*x]*(3 +
5*x)^(3/2))/(1512*(2 + 3*x)^5) - (1891543995*ArcTan[Sqrt[1 - 2*x]
/(Sqrt[7]*Sqrt[3 + 5*x])])/(2458624*Sqrt[7])
```

Rubi [A] time = 0.522877, antiderivative size = 238, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.231$

$$-\frac{(5x+3)^{3/2}(1-2x)^{5/2}}{21(3x+2)^7}+\frac{115(5x+3)^{3/2}(1-2x)^{3/2}}{756(3x+2)^6}+\frac{1921(5x+3)^{3/2}\sqrt{1-2x}}{1512(3x+2)^5}+\frac{40175505215\sqrt{5x+3}\sqrt{1-2x}}{597445632(3x+2)}+\frac{384136145\sqrt{5x+3}\sqrt{1-2x}}{42674688(3x+2)^2}+\frac{2199649\sqrt{5x+3}\sqrt{1-2x}}{1524096(3x+2)^3}-\frac{443563\sqrt{5x+3}\sqrt{1-2x}}{254016(3x+2)^4}-\frac{1891543995\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{2458624\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^8,x]
```


```
[Out] (-443563*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(254016*(2 + 3*x)^4) + (219
9649*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(1524096*(2 + 3*x)^3) + (384136
145*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(42674688*(2 + 3*x)^2) + (401755
05215*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(597445632*(2 + 3*x)) - ((1 -
2*x)^(5/2)*(3 + 5*x)^(3/2))/(21*(2 + 3*x)^7) + (115*(1 - 2*x)^(3/
2)*(3 + 5*x)^(3/2))/(756*(2 + 3*x)^6) + (1921*Sqrt[1 - 2*x]*(3 +
5*x)^(3/2))/(1512*(2 + 3*x)^5) - (1891543995*ArcTan[Sqrt[1 - 2*x]
/(Sqrt[7]*Sqrt[3 + 5*x])])/(2458624*Sqrt[7])
```

Rubi in Sympy [A] time = 52.1583, size = 218, normalized size = 0.92

$$-\frac{115\left(-2x+1\right)^{\frac{5}{2}}\sqrt{5x+3}}{5292\left(3x+2\right)^{6}}-\frac{\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{3}{2}}}{21\left(3x+2\right)^{7}}+\frac{29\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{504\left(3x+2\right)^{5}}+\frac{40175505215\sqrt{-2x+1}\sqrt{5x+3}}{597445632\left(3x+2\right)}+\frac{384136145\sqrt{-2x+1}\sqrt{5x+3}}{42674688\left(3x+2\right)^{2}}+\frac{2199649\sqrt{-2x+1}\sqrt{5x+3}}{1524096\left(3x+2\right)^{3}}+\frac{9083\sqrt{-2x+1}\sqrt{5x+3}}{36288\left(3x+2\right)^{4}}-\frac{1891543995\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{17210368}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(3/2)/(2+3*x)**8,x)
```

```
[Out] -115*(-2*x + 1)**(5/2)*sqrt(5*x + 3)/(5292*(3*x + 2)**6) - (-2*x
+ 1)**(5/2)*(5*x + 3)**(3/2)/(21*(3*x + 2)**7) + 29*(-2*x + 1)**(
3/2)*sqrt(5*x + 3)/(504*(3*x + 2)**5) + 40175505215*sqrt(-2*x + 1
)*sqrt(5*x + 3)/(597445632*(3*x + 2)) + 384136145*sqrt(-2*x + 1)*
sqrt(5*x + 3)/(42674688*(3*x + 2)**2) + 2199649*sqrt(-2*x + 1)*sq
rt(5*x + 3)/(1524096*(3*x + 2)**3) + 9083*sqrt(-2*x + 1)*sqrt(5*x
 + 3)/(36288*(3*x + 2)**4) - 1891543995*sqrt(7)*atan(sqrt(7)*sqrt
(-2*x + 1)/(7*sqrt(5*x + 3)))/17210368
```

Mathematica [A] time = 0.14986, size = 97, normalized size = 0.41

$$\frac{\frac{14\sqrt{1-2x}\sqrt{5x+3}(120526515645x^6+487483968610x^5+821723878536x^4+738910550592x^3+373848853744x^2+100906793184x+11351210112)}{(3x+2)^7} - 1891543995\sqrt{7}\ \mathrm{t}}{34420736}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^8,x]
```

```
[Out] ((14*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(11351210112 + 100906793184*x +
373848853744*x^2 + 738910550592*x^3 + 821723878536*x^4 + 48748396
8610*x^5 + 120526515645*x^6))/(2 + 3*x)^7 - 1891543995*Sqrt[7]*Ar
cTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/34420736
```

Maple [B] time = 0.02, size = 394, normalized size = 1.7

$$\frac{1}{34420736\ (2+3\,x)^7}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(4136806717065\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^7+19305098012970\,\sqrt{7}\arctan\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(3/2)/(2+3*x)^8,x)
```

```
[Out] 1/34420736*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(4136806717065*7^(1/2)*arc
tan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^7+1930509801297
0*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^6+
38610196025940*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3
)^(1/2))*x^5+1687371219030*x^6*(-10*x^2-x+3)^(1/2)+42900217806600
*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^4+6
824775560540*x^5*(-10*x^2-x+3)^(1/2)+28600145204400*7^(1/2)*arcta
n(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+11504134299504*
x^4*(-10*x^2-x+3)^(1/2)+11440058081760*7^(1/2)*arctan(1/14*(37*x+
20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+10344747708288*x^3*(-10*x^2-
x+3)^(1/2)+2542235129280*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-
10*x^2-x+3)^(1/2))*x+5233883952416*x^2*(-10*x^2-x+3)^(1/2)+242117
631360*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))
+1412695104576*x*(-10*x^2-x+3)^(1/2)+158916941568*(-10*x^2-x+3)^(
1/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)^7
```

Maxima [A] time = 1.53137, size = 437, normalized size = 1.84

$$\frac{118356975}{4302592}\left(-10x^2-x+3\right)^{\frac{3}{2}}+\frac{\left(-10x^2-x+3\right)^{\frac{5}{2}}}{7\left(2187x^7+10206x^6+20412x^5+22680x^4+15120x^3+6048x^2+1344x+128\right)}+\frac{305\left(-10x^2-x+3\right)^{\frac{5}{2}}}{588\left(729x^6+2916x^5+4860x^4+4320x^3+2160x^2+576x+64\right)}+\frac{2161\left(-10x^2-x+3\right)^{\frac{5}{2}}}{1176\left(243x^5+810x^4+1080x^3+720x^2+240x+32\right)}+\frac{129195\left(-10x^2-x+3\right)^{\frac{5}{2}}}{21952\left(81x^4+216x^3+216x^2+96x+16\right)}+\frac{4780215\left(-10x^2-x+3\right)^{\frac{5}{2}}}{307328\left(27x^3+54x^2+36x+8\right)}+\frac{213042555\left(-10x^2-x+3\right)^{\frac{5}{2}}}{8605184\left(9x^2+12x+4\right)}+\frac{2892030075}{8605184}\sqrt{-10x^2-x+3x}+\frac{1891543995}{34420736}\sqrt{7}\arcsin\left(\frac{37x}{11|3x+2|}+\frac{20}{11|3x+2|}\right)-\frac{2548112985}{17210368}\sqrt{-10x^2-x+3}+\frac{280970415\left(-10x^2-x+3\right)^{\frac{3}{2}}}{17210368(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^8,x, algorithm="maxima")
```

```
[Out] 118356975/4302592*(-10*x^2 - x + 3)^(3/2) + 1/7*(-10*x^2 - x + 3)
^(5/2)/(2187*x^7 + 10206*x^6 + 20412*x^5 + 22680*x^4 + 15120*x^3
+ 6048*x^2 + 1344*x + 128) + 305/588*(-10*x^2 - x + 3)^(5/2)/(729
*x^6 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64) +
2161/1176*(-10*x^2 - x + 3)^(5/2)/(243*x^5 + 810*x^4 + 1080*x^3 +
 720*x^2 + 240*x + 32) + 129195/21952*(-10*x^2 - x + 3)^(5/2)/(81
*x^4 + 216*x^3 + 216*x^2 + 96*x + 16) + 4780215/307328*(-10*x^2 -
 x + 3)^(5/2)/(27*x^3 + 54*x^2 + 36*x + 8) + 213042555/8605184*(-
10*x^2 - x + 3)^(5/2)/(9*x^2 + 12*x + 4) + 2892030075/8605184*sqr
t(-10*x^2 - x + 3)*x + 1891543995/34420736*sqrt(7)*arcsin(37/11*x
/abs(3*x + 2) + 20/11/abs(3*x + 2)) - 2548112985/17210368*sqrt(-1
0*x^2 - x + 3) + 280970415/17210368*(-10*x^2 - x + 3)^(3/2)/(3*x
+ 2)
```

Fricas [A] time = 0.235074, size = 208, normalized size = 0.87

$$\frac{\sqrt{7}\left(2\sqrt{7}\left(120526515645x^6+487483968610x^5+821723878536x^4+738910550592x^3+373848853744x^2+100906793184\right.\right.}{34420736\left(2187x^7+10206\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^8,x, algorithm="fricas")
```

```
[Out] 1/34420736*sqrt(7)*(2*sqrt(7)*(120526515645*x^6 + 487483968610*x^
5 + 821723878536*x^4 + 738910550592*x^3 + 373848853744*x^2 + 1009
06793184*x + 11351210112)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 18915439
95*(2187*x^7 + 10206*x^6 + 20412*x^5 + 22680*x^4 + 15120*x^3 + 60
48*x^2 + 1344*x + 128)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x
+ 3)*sqrt(-2*x + 1))))/(2187*x^7 + 10206*x^6 + 20412*x^5 + 22680*
x^4 + 15120*x^3 + 6048*x^2 + 1344*x + 128)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**(3/2)/(2+3*x)**8,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.755974, size = 759, normalized size = 3.19

$$\frac{378308799}{68841472}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{805255\left(2349\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^{13}+4384800\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^{11}-4393081280\cdots}{\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^8,x, algorithm="giac")
```

```
[Out] 378308799/68841472*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(7
0)*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3
) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 805255/1229312*(2
349*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3)
- 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^13 + 4384
800*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3)
- 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^11 - 4393
081280*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x +
3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^9 - 15
03513804800*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5
*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^7
 - 272402016768000*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))
/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(
22)))^5 - 26951436288000000*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) -
sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5
) - sqrt(22)))^3 - 1131960324096000000*sqrt(10)*((sqrt(2)*sqrt(-1
0*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqr
t(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))
/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(
22)))^2 + 280)^7
```

3.2394 $\int (1-2x)^{5/2}(2+3x)^3(3+5x)^{5/2}\,dx$

Optimal. Leaf size=216

$$-\frac{1}{30}(3x+2)^2(5x+3)^{7/2}(1-2x)^{7/2}-\frac{526103(5x+3)^{5/2}(1-2x)^{7/2}}{768000}-\frac{5787133(5x+3)^{3/2}(1-2x)^{7/2}}{3072000}-\frac{(5x+3)^{7/2}(170940x+245011)(1-2x)^{7/2}}{672000}-\frac{63658463\sqrt{5x+3}(1-2x)^{7/2}}{16384000}+\frac{700243093\sqrt{5x+3}(1-2x)^{5/2}}{491520000}+\frac{7702674023\sqrt{5x+3}(1-2x)^{3/2}}{1966080000}+\frac{84729414253\sqrt{5x+3}\sqrt{1-2x}}{6553600000}+\frac{932023556783\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{6553600000\sqrt{10}}$$

```
[Out] (84729414253*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/6553600000 + (770267402
3*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/1966080000 + (700243093*(1 - 2*x
)^(5/2)*Sqrt[3 + 5*x])/491520000 - (63658463*(1 - 2*x)^(7/2)*Sqrt
[3 + 5*x])/16384000 - (5787133*(1 - 2*x)^(7/2)*(3 + 5*x)^(3/2))/3
072000 - (526103*(1 - 2*x)^(7/2)*(3 + 5*x)^(5/2))/768000 - ((1 -
2*x)^(7/2)*(2 + 3*x)^2*(3 + 5*x)^(7/2))/30 - ((1 - 2*x)^(7/2)*(3
+ 5*x)^(7/2)*(245011 + 170940*x))/672000 + (932023556783*ArcSin[S
qrt[2/11]*Sqrt[3 + 5*x]])/(6553600000*Sqrt[10])
```

Rubi [A] time = 0.273722, antiderivative size = 216, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$-\frac{1}{30}(3x+2)^2(5x+3)^{7/2}(1-2x)^{7/2}-\frac{526103(5x+3)^{5/2}(1-2x)^{7/2}}{768000}-\frac{5787133(5x+3)^{3/2}(1-2x)^{7/2}}{3072000}-\frac{(5x+3)^{7/2}(170940x+245011)(1-2x)^{7/2}}{672000}-\frac{63658463\sqrt{5x+3}(1-2x)^{7/2}}{16384000}+\frac{700243093\sqrt{5x+3}(1-2x)^{5/2}}{491520000}+\frac{7702674023\sqrt{5x+3}(1-2x)^{3/2}}{1966080000}+\frac{84729414253\sqrt{5x+3}\sqrt{1-2x}}{6553600000}+\frac{932023556783\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{6553600000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)*(2 + 3*x)^3*(3 + 5*x)^(5/2),x]
```


```
[Out] (84729414253*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/6553600000 + (770267402
3*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/1966080000 + (700243093*(1 - 2*x
)^(5/2)*Sqrt[3 + 5*x])/491520000 - (63658463*(1 - 2*x)^(7/2)*Sqrt
[3 + 5*x])/16384000 - (5787133*(1 - 2*x)^(7/2)*(3 + 5*x)^(3/2))/3
072000 - (526103*(1 - 2*x)^(7/2)*(3 + 5*x)^(5/2))/768000 - ((1 -
2*x)^(7/2)*(2 + 3*x)^2*(3 + 5*x)^(7/2))/30 - ((1 - 2*x)^(7/2)*(3
+ 5*x)^(7/2)*(245011 + 170940*x))/672000 + (932023556783*ArcSin[S
qrt[2/11]*Sqrt[3 + 5*x]])/(6553600000*Sqrt[10])
```

Rubi in Sympy [A] time = 24.0907, size = 197, normalized size = 0.91

$$-\frac{(-2x+1)^{\frac{7}{2}}(3x+2)^2(5x+3)^{\frac{7}{2}}}{30}-\frac{(-2x+1)^{\frac{7}{2}}(5x+3)^{\frac{7}{2}}\left(128205x+\frac{735033}{4}\right)}{504000}+\frac{526103(-2x+1)^{\frac{5}{2}}(5x+3)^{\frac{7}{2}}}{1920000}+\frac{5787133(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{7}{2}}}{19200000}+\frac{63658463\sqrt{-2x+1}(5x+3)^{\frac{7}{2}}}{256000000}-\frac{700243093\sqrt{-2x+1}(5x+3)^{\frac{5}{2}}}{3072000000}-\frac{7702674023\sqrt{-2x+1}(5x+3)^{\frac{3}{2}}}{4915200000}-\frac{84729414253\sqrt{-2x+1}\sqrt{5x+3}}{6553600000}+\frac{932023556783\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{65536000000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**3*(3+5*x)**(5/2),x)
```

```
[Out] -(-2*x + 1)**(7/2)*(3*x + 2)**2*(5*x + 3)**(7/2)/30 - (-2*x + 1)*
*(7/2)*(5*x + 3)**(7/2)*(128205*x + 735033/4)/504000 + 526103*(-2
*x + 1)**(5/2)*(5*x + 3)**(7/2)/1920000 + 5787133*(-2*x + 1)**(3/
2)*(5*x + 3)**(7/2)/19200000 + 63658463*sqrt(-2*x + 1)*(5*x + 3)*
*(7/2)/256000000 - 700243093*sqrt(-2*x + 1)*(5*x + 3)**(5/2)/3072
000000 - 7702674023*sqrt(-2*x + 1)*(5*x + 3)**(3/2)/4915200000 -
84729414253*sqrt(-2*x + 1)*sqrt(5*x + 3)/6553600000 + 93202355678
3*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/65536000000
```

Mathematica [A] time = 0.191912, size = 90, normalized size = 0.42

$$\frac{10\sqrt{1-2x}\sqrt{5x+3}\,(41287680000000x^8+102445056000000x^7+59625676800000x^6-46327577600000x^5-6025019878400}{1376}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)*(2 + 3*x)^3*(3 + 5*x)^(5/2),x]
```

```
[Out] (10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(-1496712721437 + 6397508631020*x
 + 16445681555360*x^2 - 5712426076800*x^3 - 60250198784000*x^4 -
46327577600000*x^5 + 59625676800000*x^6 + 102445056000000*x^7 + 4
1287680000000*x^8) - 19572494692443*Sqrt[10]*ArcSin[Sqrt[5/11]*Sq
rt[1 - 2*x]])/1376256000000
```

Maple [A] time = 0.018, size = 189, normalized size = 0.9

$$\frac{1}{2752512000000}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(825753600000000\,x^{8}\sqrt{-10\,x^{2}-x+3}+2048901120000000\,x^{7}\sqrt{-10\,x^{2}-x+3}+1192513\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^3*(3+5*x)^(5/2),x)
```

```
[Out] 1/2752512000000*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(825753600000000*x^8*
(-10*x^2-x+3)^(1/2)+2048901120000000*x^7*(-10*x^2-x+3)^(1/2)+1192
513536000000*x^6*(-10*x^2-x+3)^(1/2)-926551552000000*x^5*(-10*x^2
-x+3)^(1/2)-1205003975680000*x^4*(-10*x^2-x+3)^(1/2)-114248521536
000*x^3*(-10*x^2-x+3)^(1/2)+328913631107200*x^2*(-10*x^2-x+3)^(1/
2)+19572494692443*10^(1/2)*arcsin(20/11*x+1/11)+127950172620400*x
*(-10*x^2-x+3)^(1/2)-29934254428740*(-10*x^2-x+3)^(1/2))/(-10*x^2
-x+3)^(1/2)
```

Maxima [A] time = 1.5052, size = 196, normalized size = 0.91

$$\begin{aligned}&-\frac{3}{10}\left(-10\,x^{2}-x+3\right)^{\frac{7}{2}}x^{2}-\frac{1047}{1600}\left(-10\,x^{2}-x+3\right)^{\frac{7}{2}}x-\frac{111537}{224000}\left(-10\,x^{2}-x+3\right)^{\frac{7}{2}}\\&+\frac{526103}{384000}\left(-10\,x^{2}-x+3\right)^{\frac{5}{2}}x+\frac{526103}{7680000}\left(-10\,x^{2}-x+3\right)^{\frac{5}{2}}+\frac{63658463}{12288000}\left(-10\,x^{2}-x+3\right)^{\frac{3}{2}}x\\&+\frac{63658463}{245760000}\left(-10\,x^{2}-x+3\right)^{\frac{3}{2}}+\frac{7702674023}{327680000}\sqrt{-10\,x^{2}-x+3}x\\&-\frac{932023556783}{131072000000}\sqrt{10}\arcsin\left(-\frac{20}{11}x-\frac{1}{11}\right)+\frac{7702674023}{6553600000}\sqrt{-10\,x^{2}-x+3}\end{aligned}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(3*x + 2)^3*(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] -3/10*(-10*x^2 - x + 3)^(7/2)*x^2 - 1047/1600*(-10*x^2 - x + 3)^(
7/2)*x - 111537/224000*(-10*x^2 - x + 3)^(7/2) + 526103/384000*(-
10*x^2 - x + 3)^(5/2)*x + 526103/7680000*(-10*x^2 - x + 3)^(5/2)
+ 63658463/12288000*(-10*x^2 - x + 3)^(3/2)*x + 63658463/24576000
0*(-10*x^2 - x + 3)^(3/2) + 7702674023/327680000*sqrt(-10*x^2 - x
 + 3)*x - 932023556783/131072000000*sqrt(10)*arcsin(-20/11*x - 1/
11) + 7702674023/6553600000*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.219609, size = 124, normalized size = 0.57

$$\frac{1}{2752512000000}\sqrt{10}\left(2\sqrt{10}\left(41287680000000\,x^{8} + 102445056000000\,x^{7} + 59625676800000\,x^{6} - 46327577600000\,x^{5} - 6025\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(3*x + 2)^3*(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/2752512000000*sqrt(10)*(2*sqrt(10)*(41287680000000*x^8 + 102445
056000000*x^7 + 59625676800000*x^6 - 46327577600000*x^5 - 6025019
8784000*x^4 - 5712426076800*x^3 + 16445681555360*x^2 + 6397508631
020*x - 1496712721437)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 19572494692
443*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1)
)))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)**3*(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.293703, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(3*x + 2)^3*(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] Done
```

3.2395 $\int (1-2x)^{5/2}(2+3x)^2(3+5x)^{5/2}\,dx$

Optimal. Leaf size=209

$$-\frac{3}{80}(3x+2)(5x+3)^{7/2}(1-2x)^{7/2}-\frac{999(5x+3)^{7/2}(1-2x)^{7/2}}{11200}-\frac{12041(5x+3)^{5/2}(1-2x)^{7/2}}{38400}-\frac{132451(5x+3)^{3/2}(1-2x)^{7/2}}{153600}-\frac{1456961\sqrt{5x+3}(1-2x)^{7/2}}{819200}+\frac{16026571\sqrt{5x+3}(1-2x)^{5/2}}{24576000}+\frac{176292281\sqrt{5x+3}(1-2x)^{3/2}}{98304000}+\frac{1939215091\sqrt{5x+3}\sqrt{1-2x}}{327680000}+\frac{21331366001\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{327680000\sqrt{10}}$$

```
[Out] (1939215091*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/327680000 + (176292281*(
1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/98304000 + (16026571*(1 - 2*x)^(5/2
)*Sqrt[3 + 5*x])/24576000 - (1456961*(1 - 2*x)^(7/2)*Sqrt[3 + 5*x
])/819200 - (132451*(1 - 2*x)^(7/2)*(3 + 5*x)^(3/2))/153600 - (12
041*(1 - 2*x)^(7/2)*(3 + 5*x)^(5/2))/38400 - (999*(1 - 2*x)^(7/2)
*(3 + 5*x)^(7/2))/11200 - (3*(1 - 2*x)^(7/2)*(2 + 3*x)*(3 + 5*x)^
(7/2))/80 + (21331366001*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(32768
0000*Sqrt[10])
```

Rubi [A] time = 0.255442, antiderivative size = 209, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.192$

$$-\frac{3}{80}(3x+2)(5x+3)^{7/2}(1-2x)^{7/2}-\frac{999(5x+3)^{7/2}(1-2x)^{7/2}}{11200}-\frac{12041(5x+3)^{5/2}(1-2x)^{7/2}}{38400}-\frac{132451(5x+3)^{3/2}(1-2x)^{7/2}}{153600}-\frac{1456961\sqrt{5x+3}(1-2x)^{7/2}}{819200}+\frac{16026571\sqrt{5x+3}(1-2x)^{5/2}}{24576000}+\frac{176292281\sqrt{5x+3}(1-2x)^{3/2}}{98304000}+\frac{1939215091\sqrt{5x+3}\sqrt{1-2x}}{327680000}+\frac{21331366001\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{327680000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)*(2 + 3*x)^2*(3 + 5*x)^(5/2),x]
```


```
[Out] (1939215091*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/327680000 + (176292281*(
1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/98304000 + (16026571*(1 - 2*x)^(5/2
)*Sqrt[3 + 5*x])/24576000 - (1456961*(1 - 2*x)^(7/2)*Sqrt[3 + 5*x
])/819200 - (132451*(1 - 2*x)^(7/2)*(3 + 5*x)^(3/2))/153600 - (12
041*(1 - 2*x)^(7/2)*(3 + 5*x)^(5/2))/38400 - (999*(1 - 2*x)^(7/2)
*(3 + 5*x)^(7/2))/11200 - (3*(1 - 2*x)^(7/2)*(2 + 3*x)*(3 + 5*x)^
(7/2))/80 + (21331366001*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(32768
0000*Sqrt[10])
```

Rubi in Sympy [A] time = 20.8089, size = 190, normalized size = 0.91

$$-\frac{(-2x+1)^{\frac{7}{2}}(5x+3)^{\frac{7}{2}}(9x+6)}{80}-\frac{999(-2x+1)^{\frac{7}{2}}(5x+3)^{\frac{7}{2}}}{11200}+\frac{12041(-2x+1)^{\frac{5}{2}}(5x+3)^{\frac{7}{2}}}{96000}-\frac{132451(-2x+1)^{\frac{5}{2}}(5x+3)^{\frac{5}{2}}}{384000}-\frac{1456961(-2x+1)^{\frac{5}{2}}(5x+3)^{\frac{3}{2}}}{1228800}-\frac{16026571(-2x+1)^{\frac{5}{2}}\sqrt{5x+3}}{4915200}+\frac{176292281(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{98304000}+\frac{1939215091\sqrt{-2x+1}\sqrt{5x+3}}{327680000}+\frac{21331366001\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{3276800000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**2*(3+5*x)**(5/2),x)
```

```
[Out] -(-2*x + 1)**(7/2)*(5*x + 3)**(7/2)*(9*x + 6)/80 - 999*(-2*x + 1)
**(7/2)*(5*x + 3)**(7/2)/11200 + 12041*(-2*x + 1)**(5/2)*(5*x + 3
)**(7/2)/96000 - 132451*(-2*x + 1)**(5/2)*(5*x + 3)**(5/2)/384000
 - 1456961*(-2*x + 1)**(5/2)*(5*x + 3)**(3/2)/1228800 - 16026571*
(-2*x + 1)**(5/2)*sqrt(5*x + 3)/4915200 + 176292281*(-2*x + 1)**(
3/2)*sqrt(5*x + 3)/98304000 + 1939215091*sqrt(-2*x + 1)*sqrt(5*x
+ 3)/327680000 + 21331366001*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)
/11)/3276800000
```

Mathematica [A] time = 0.15558, size = 85, normalized size = 0.41

$$\frac{10\sqrt{1-2x}\sqrt{5x+3}\left(774144000000x^7+1362124800000x^6+97008640000x^5-1013681408000x^4-413675529600x^3+2527\right.}{68812800000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)*(2 + 3*x)^2*(3 + 5*x)^(5/2),x]
```

```
[Out] (10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(-22414998339 + 169330465940*x +
252700365920*x^2 - 413675529600*x^3 - 1013681408000*x^4 + 9700864
0000*x^5 + 1362124800000*x^6 + 774144000000*x^7) - 447958686021*S
qrt[10]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/68812800000
```

Maple [A] time = 0.014, size = 172, normalized size = 0.8

$$\frac{1}{137625600000}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(15482880000000\,x^7\sqrt{-10\,x^2-x+3}+27242496000000\,x^6\sqrt{-10\,x^2-x+3}+1940172800\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^2*(3+5*x)^(5/2),x)
```

```
[Out] 1/137625600000*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(15482880000000*x^7*(-
10*x^2-x+3)^(1/2)+27242496000000*x^6*(-10*x^2-x+3)^(1/2)+19401728
00000*x^5*(-10*x^2-x+3)^(1/2)-20273628160000*x^4*(-10*x^2-x+3)^(1
/2)-8273510592000*x^3*(-10*x^2-x+3)^(1/2)+5054007318400*x^2*(-10*
x^2-x+3)^(1/2)+447958686021*10^(1/2)*arcsin(20/11*x+1/11)+3386609
318800*x*(-10*x^2-x+3)^(1/2)-448299966780*(-10*x^2-x+3)^(1/2))/(-
10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.50217, size = 173, normalized size = 0.83

$$-\frac{9}{80}\left(-10\,x^2-x+3\right)^{\frac{7}{2}}x-\frac{1839}{11200}\left(-10\,x^2-x+3\right)^{\frac{7}{2}}+\frac{12041}{19200}\left(-10\,x^2-x+3\right)^{\frac{5}{2}}x+\frac{12041}{384000}\left(-10\,x^2-x+3\right)^{\frac{5}{2}}+\frac{1456961}{614400}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x+\frac{1456961}{12288000}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}+\frac{176292281}{16384000}\sqrt{-10\,x^2-x+3}x-\frac{21331366001}{6553600000}\sqrt{10}\arcsin\left(-\frac{20}{11}\,x-\frac{1}{11}\right)+\frac{176292281}{327680000}\sqrt{-10\,x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(3*x + 2)^2*(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] -9/80*(-10*x^2 - x + 3)^(7/2)*x - 1839/11200*(-10*x^2 - x + 3)^(7
/2) + 12041/19200*(-10*x^2 - x + 3)^(5/2)*x + 12041/384000*(-10*x
^2 - x + 3)^(5/2) + 1456961/614400*(-10*x^2 - x + 3)^(3/2)*x + 14
56961/12288000*(-10*x^2 - x + 3)^(3/2) + 176292281/16384000*sqrt(
```

```
-10*x^2 - x + 3)*x - 21331366001/6553600000*sqrt(10)*arcsin(-20/1
1*x - 1/11) + 176292281/327680000*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.222762, size = 117, normalized size = 0.56

$$\frac{1}{137625600000}\sqrt{10}\left(2\sqrt{10}\left(774144000000\,x^{7}+1362124800000\,x^{6}+97008640000\,x^{5}-1013681408000\,x^{4}-413675529600\,x\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(3*x + 2)^2*(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/137625600000*sqrt(10)*(2*sqrt(10)*(774144000000*x^7 + 136212480
0000*x^6 + 97008640000*x^5 - 1013681408000*x^4 - 413675529600*x^3
 + 252700365920*x^2 + 169330465940*x - 22414998339)*sqrt(5*x + 3)
*sqrt(-2*x + 1) + 447958686021*arctan(1/20*sqrt(10)*(20*x + 1)/(s
qrt(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)**2*(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.295485, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(3*x + 2)^2*(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] Done
```

3.2396 $\int (1-2x)^{5/2}(2+3x)(3+5x)^{5/2}\,dx$

Optimal. Leaf size=182

$$-\frac{3}{70}(5x+3)^{7/2}(1-2x)^{7/2}$$

$$-\frac{37}{240}(5x+3)^{5/2}(1-2x)^{7/2}-\frac{407}{960}(5x+3)^{3/2}(1-2x)^{7/2}-\frac{4477\sqrt{5x+3}(1-2x)^{7/2}}{5120}+\frac{49247\sqrt{5x+3}(1-2x)^{5/2}}{153600}+\frac{541717\sqrt{5x+3}(1}{614400}$$

```
[Out] (5958887*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/2048000 + (541717*(1 - 2*x)
^(3/2)*Sqrt[3 + 5*x])/614400 + (49247*(1 - 2*x)^(5/2)*Sqrt[3 + 5*
x])/153600 - (4477*(1 - 2*x)^(7/2)*Sqrt[3 + 5*x])/5120 - (407*(1
- 2*x)^(7/2)*(3 + 5*x)^(3/2))/960 - (37*(1 - 2*x)^(7/2)*(3 + 5*x)
^(5/2))/240 - (3*(1 - 2*x)^(7/2)*(3 + 5*x)^(7/2))/70 + (65547757*
ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(2048000*Sqrt[10])
```

Rubi [A] time = 0.201269, antiderivative size = 182, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$-\frac{3}{70}(5x+3)^{7/2}(1-2x)^{7/2}$$

$$-\frac{37}{240}(5x+3)^{5/2}(1-2x)^{7/2}-\frac{407}{960}(5x+3)^{3/2}(1-2x)^{7/2}-\frac{4477\sqrt{5x+3}(1-2x)^{7/2}}{5120}+\frac{49247\sqrt{5x+3}(1-2x)^{5/2}}{153600}+\frac{541717\sqrt{5x+3}(1}{614400}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)*(2 + 3*x)*(3 + 5*x)^(5/2),x]
```

```
[Out] (5958887*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/2048000 + (541717*(1 - 2*x)
^(3/2)*Sqrt[3 + 5*x])/614400 + (49247*(1 - 2*x)^(5/2)*Sqrt[3 + 5*
x])/153600 - (4477*(1 - 2*x)^(7/2)*Sqrt[3 + 5*x])/5120 - (407*(1
- 2*x)^(7/2)*(3 + 5*x)^(3/2))/960 - (37*(1 - 2*x)^(7/2)*(3 + 5*x)
^(5/2))/240 - (3*(1 - 2*x)^(7/2)*(3 + 5*x)^(7/2))/70 + (65547757*
ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(2048000*Sqrt[10])
```

Rubi in Sympy [A] time = 16.5472, size = 167, normalized size = 0.92

$$-\frac{3(-2x+1)^{\frac{7}{2}}(5x+3)^{\frac{7}{2}}}{70}+\frac{37(-2x+1)^{\frac{5}{2}}(5x+3)^{\frac{7}{2}}}{600}+\frac{407(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{7}{2}}}{6000}-\frac{4477(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{5}{2}}}{32000}-\frac{49247(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{3}{2}}}{76800}-\frac{541717(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{204800}+\frac{5958887\sqrt{-2x+1}\sqrt{5x+3}}{2048000}+\frac{65547757\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{20480000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)*(3+5*x)**(5/2),x)
```

```
[Out] -3*(-2*x + 1)**(7/2)*(5*x + 3)**(7/2)/70 + 37*(-2*x + 1)**(5/2)*(
5*x + 3)**(7/2)/600 + 407*(-2*x + 1)**(3/2)*(5*x + 3)**(7/2)/6000
 - 4477*(-2*x + 1)**(3/2)*(5*x + 3)**(5/2)/32000 - 49247*(-2*x +
1)**(3/2)*(5*x + 3)**(3/2)/76800 - 541717*(-2*x + 1)**(3/2)*sqrt(
5*x + 3)/204800 + 5958887*sqrt(-2*x + 1)*sqrt(5*x + 3)/2048000 +
65547757*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/20480000
```

Mathematica [A] time = 0.104475, size = 80, normalized size = 0.44

$$\frac{10\sqrt{1-2x}\sqrt{5x+3}\left(1843200000x^6+1879040000x^5-1272064000x^4-1600483200x^3+287177440x^2+540576580x-2490\right.}{430080000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)*(2 + 3*x)*(3 + 5*x)^(5/2),x]
```

```
[Out] (10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(-24901623 + 540576580*x + 287177
440*x^2 - 1600483200*x^3 - 1272064000*x^4 + 1879040000*x^5 + 1843
200000*x^6) - 1376502897*Sqrt[10]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]
])/430080000
```

Maple [A] time = 0.013, size = 155, normalized size = 0.9

$$\frac{1}{860160000}\sqrt{1-2x}\sqrt{3+5x}\left(36864000000x^6\sqrt{-10x^2-x+3}+37580800000x^5\sqrt{-10x^2-x+3}-25441280000x^4\sqrt{-10x\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)*(3+5*x)^(5/2),x)
```

```
[Out] 1/860160000*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(36864000000*x^6*(-10*x^2
-x+3)^(1/2)+37580800000*x^5*(-10*x^2-x+3)^(1/2)-25441280000*x^4*(
-10*x^2-x+3)^(1/2)-32009664000*x^3*(-10*x^2-x+3)^(1/2)+5743548800
*x^2*(-10*x^2-x+3)^(1/2)+1376502897*10^(1/2)*arcsin(20/11*x+1/11)
+10811531600*x*(-10*x^2-x+3)^(1/2)-498032460*(-10*x^2-x+3)^(1/2))
/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.50295, size = 153, normalized size = 0.84

$$-\frac{3}{70}\left(-10x^2-x+3\right)^{\frac{7}{2}}+\frac{37}{120}\left(-10x^2-x+3\right)^{\frac{5}{2}}x+\frac{37}{2400}\left(-10x^2-x+3\right)^{\frac{5}{2}}+\frac{4477}{3840}\left(-10x^2-x+3\right)^{\frac{3}{2}}x+\frac{4477}{76800}\left(-10x^2-x+3\right)^{\frac{3}{2}}+\frac{541717}{102400}\sqrt{-10x^2-x+3}x-\frac{65547757}{40960000}\sqrt{10}\arcsin\left(-\frac{20}{11}x-\frac{1}{11}\right)+\frac{541717}{2048000}\sqrt{-10x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)*(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] -3/70*(-10*x^2 - x + 3)^(7/2) + 37/120*(-10*x^2 - x + 3)^(5/2)*x
+ 37/2400*(-10*x^2 - x + 3)^(5/2) + 4477/3840*(-10*x^2 - x + 3)^(
3/2)*x + 4477/76800*(-10*x^2 - x + 3)^(3/2) + 541717/102400*sqrt(
-10*x^2 - x + 3)*x - 65547757/40960000*sqrt(10)*arcsin(-20/11*x -
 1/11) + 541717/2048000*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.220898, size = 111, normalized size = 0.61

$$\frac{1}{860160000}\sqrt{10}\left(2\sqrt{10}\left(1843200000x^6+1879040000x^5-1272064000x^4-1600483200x^3+287177440x^2+540576580x-\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)*(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/860160000*sqrt(10)*(2*sqrt(10)*(1843200000*x^6 + 1879040000*x^5
 - 1272064000*x^4 - 1600483200*x^3 + 287177440*x^2 + 540576580*x
- 24901623)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 1376502897*arctan(1/20
*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)*(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.273803, size = 548, normalized size = 3.01

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)*(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] 1/3584000000*sqrt(5)*(2*(4*(8*(4*(16*(20*(120*x - 359)*(5*x + 3)
+ 63769)*(5*x + 3) - 3968469)*(5*x + 3) + 33617829)*(5*x + 3) - 2
76044685)*(5*x + 3) + 87356115)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 9
60917265*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 13/384000
000*sqrt(5)*(2*(4*(8*(4*(16*(100*x - 239)*(5*x + 3) + 27999)*(5*x
 + 3) - 318159)*(5*x + 3) + 3237255)*(5*x + 3) - 2656665)*sqrt(5*
x + 3)*sqrt(-10*x + 5) + 29223315*sqrt(2)*arcsin(1/11*sqrt(22)*sq
rt(5*x + 3))) - 137/192000000*sqrt(5)*(2*(4*(8*(12*(80*x - 143)*(
5*x + 3) + 9773)*(5*x + 3) - 136405)*(5*x + 3) + 60555)*sqrt(5*x
+ 3)*sqrt(-10*x + 5) - 666105*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5
*x + 3))) - 17/240000*sqrt(5)*(2*(4*(8*(60*x - 71)*(5*x + 3) + 21
79)*(5*x + 3) - 4125)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 45375*sqrt(
2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 1/1600*sqrt(5)*(2*(4*(4
0*x - 23)*(5*x + 3) + 33)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 363*sqr
t(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 9/200*sqrt(5)*(2*(20*
x + 1)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 121*sqrt(2)*arcsin(1/11*sq
rt(22)*sqrt(5*x + 3)))
```

3.2397 $\int (1-2x)^{5/2}(3+5x)^{5/2}\,dx$

Optimal. Leaf size=160

$$-\frac{1}{12}(5x+3)^{5/2}(1-2x)^{7/2}$$

$$-\frac{11}{48}(5x+3)^{3/2}(1-2x)^{7/2}-\frac{121}{256}\sqrt{5x+3}(1-2x)^{7/2}+\frac{1331\sqrt{5x+3}(1-2x)^{5/2}}{7680}+\frac{14641\sqrt{5x+3}(1-2x)^{3/2}}{30720}+\frac{161051\sqrt{5x+3}\sqrt{1-}}{102400}$$

```
[Out] (161051*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/102400 + (14641*(1 - 2*x)^(3
/2)*Sqrt[3 + 5*x])/30720 + (1331*(1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/7
680 - (121*(1 - 2*x)^(7/2)*Sqrt[3 + 5*x])/256 - (11*(1 - 2*x)^(7/
2)*(3 + 5*x)^(3/2))/48 - ((1 - 2*x)^(7/2)*(3 + 5*x)^(5/2))/12 + (
1771561*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(102400*Sqrt[10])
```

Rubi [A] time = 0.157384, antiderivative size = 160, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 3, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}} = 0.158$

$$-\frac{1}{12}(5x+3)^{5/2}(1-2x)^{7/2}$$

$$-\frac{11}{48}(5x+3)^{3/2}(1-2x)^{7/2}-\frac{121}{256}\sqrt{5x+3}(1-2x)^{7/2}+\frac{1331\sqrt{5x+3}(1-2x)^{5/2}}{7680}+\frac{14641\sqrt{5x+3}(1-2x)^{3/2}}{30720}+\frac{161051\sqrt{5x+3}\sqrt{1-}}{102400}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)*(3 + 5*x)^(5/2),x]
```

```
[Out] (161051*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/102400 + (14641*(1 - 2*x)^(3
/2)*Sqrt[3 + 5*x])/30720 + (1331*(1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/7
680 - (121*(1 - 2*x)^(7/2)*Sqrt[3 + 5*x])/256 - (11*(1 - 2*x)^(7/
2)*(3 + 5*x)^(3/2))/48 - ((1 - 2*x)^(7/2)*(3 + 5*x)^(5/2))/12 + (
1771561*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(102400*Sqrt[10])
```

Rubi in Sympy [A] time = 13.7183, size = 144, normalized size = 0.9

$$\frac{(-2x+1)^{\frac{5}{2}}(5x+3)^{\frac{7}{2}}}{30}+\frac{11(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{7}{2}}}{300}+\frac{121\sqrt{-2x+1}(5x+3)^{\frac{7}{2}}}{4000}-\frac{1331\sqrt{-2x+1}(5x+3)^{\frac{5}{2}}}{48000}-\frac{14641\sqrt{-2x+1}(5x+3)^{\frac{3}{2}}}{76800}-\frac{161051\sqrt{-2x+1}\sqrt{5x+3}}{102400}+\frac{1771561\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{1024000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(5/2),x)
```

```
[Out] (-2*x + 1)**(5/2)*(5*x + 3)**(7/2)/30 + 11*(-2*x + 1)**(3/2)*(5*x
 + 3)**(7/2)/300 + 121*sqrt(-2*x + 1)*(5*x + 3)**(7/2)/4000 - 133
1*sqrt(-2*x + 1)*(5*x + 3)**(5/2)/48000 - 14641*sqrt(-2*x + 1)*(5
*x + 3)**(3/2)/76800 - 161051*sqrt(-2*x + 1)*sqrt(5*x + 3)/102400
 + 1771561*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/1024000
```

Mathematica [A] time = 0.0934344, size = 75, normalized size = 0.47

$$\frac{10\sqrt{1-2x}\sqrt{5x+3}\left(5120000x^5+1280000x^4-4905600x^3-748640x^2+1895020x+96003\right)-5314683\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-}\right.}{3072000}$$

Antiderivative was successfully verified.

```
[In]   Integrate[(1 - 2*x)^(5/2)*(3 + 5*x)^(5/2),x]
```

```
[Out] (10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(96003 + 1895020*x - 748640*x^2 -
 4905600*x^3 + 1280000*x^4 + 5120000*x^5) - 5314683*Sqrt[10]*ArcS
in[Sqrt[5/11]*Sqrt[1 - 2*x]])/3072000
```

Maple [A] time = 0.007, size = 136, normalized size = 0.9

$$\frac{1}{30}(1-2x)^{\frac{5}{2}}(3+5x)^{\frac{7}{2}}+\frac{11}{300}(1-2x)^{\frac{3}{2}}(3+5x)^{\frac{7}{2}}+\frac{121}{4000}(3+5x)^{\frac{7}{2}}\sqrt{1-2x}-\frac{1331}{48000}(3+5x)^{\frac{5}{2}}\sqrt{1-2x}-\frac{14641}{76800}(3+5x)^{\frac{3}{2}}\sqrt{1-2x}-\frac{161051}{102400}\sqrt{1-2x}\sqrt{3+5x}+\frac{1771561\sqrt{10}}{2048000}\sqrt{(1-2x)(3+5x)}\arcsin\left(\frac{20x}{11}+\frac{1}{11}\right)\frac{1}{\sqrt{1-2x}}\frac{1}{\sqrt{3+5x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((1-2*x)^(5/2)*(3+5*x)^(5/2),x)
```

```
[Out] 1/30*(1-2*x)^(5/2)*(3+5*x)^(7/2)+11/300*(1-2*x)^(3/2)*(3+5*x)^(7/
2)+121/4000*(3+5*x)^(7/2)*(1-2*x)^(1/2)-1331/48000*(3+5*x)^(5/2)*
(1-2*x)^(1/2)-14641/76800*(3+5*x)^(3/2)*(1-2*x)^(1/2)-161051/1024
00*(1-2*x)^(1/2)*(3+5*x)^(1/2)+1771561/2048000*((1-2*x)*(3+5*x))^
(1/2)/(3+5*x)^(1/2)/(1-2*x)^(1/2)*10^(1/2)*arcsin(20/11*x+1/11)
```

Maxima [A] time = 1.49591, size = 134, normalized size = 0.84

$$\frac{1}{6}\left(-10x^2-x+3\right)^{\frac{5}{2}}x+\frac{1}{120}\left(-10x^2-x+3\right)^{\frac{5}{2}}+\frac{121}{192}\left(-10x^2-x+3\right)^{\frac{3}{2}}x+\frac{121}{3840}\left(-10x^2-x+3\right)^{\frac{3}{2}}+\frac{14641}{5120}\sqrt{-10x^2-x+3}x-\frac{1771561}{2048000}\sqrt{10}\arcsin\left(-\frac{20}{11}x-\frac{1}{11}\right)+\frac{14641}{102400}\sqrt{-10x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] 1/6*(-10*x^2 - x + 3)^(5/2)*x + 1/120*(-10*x^2 - x + 3)^(5/2) + 1
21/192*(-10*x^2 - x + 3)^(3/2)*x + 121/3840*(-10*x^2 - x + 3)^(3/
2) + 14641/5120*sqrt(-10*x^2 - x + 3)*x - 1771561/2048000*sqrt(10
)*arcsin(-20/11*x - 1/11) + 14641/102400*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.224842, size = 104, normalized size = 0.65

$$\frac{1}{6144000}\sqrt{10}\left(2\sqrt{10}\left(5120000x^5+1280000x^4-4905600x^3-748640x^2+1895020x+96003\right)\sqrt{5x+3}\sqrt{-2x+1}+531468\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/6144000*sqrt(10)*(2*sqrt(10)*(5120000*x^5 + 1280000*x^4 - 49056
00*x^3 - 748640*x^2 + 1895020*x + 96003)*sqrt(5*x + 3)*sqrt(-2*x
+ 1) + 5314683*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqr
t(-2*x + 1))))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.266218, size = 427, normalized size = 2.67

$$\frac{1}{76800000}\sqrt{5}\Big(2(4(8(4(16(100x-239)(5x+3)+27999)(5x+3)-318159)(5x+3)+3237255)(5x+3)-2656665)\sqrt{5x+$$
$$+\frac{1}{9600000}\sqrt{5}\Big(2(4(8(12(80x-143)(5x+3)+9773)(5x+3)-136405)(5x+3)+60555)\sqrt{5x+3}\sqrt{-10x+5}-666105\sqrt{2}$$
$$-\frac{59}{1920000}\sqrt{5}\Big(2(4(8(60x-71)(5x+3)+2179)(5x+3)-4125)\sqrt{5x+3}\sqrt{-10x+5}+45375\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)$$
$$-\frac{1}{4000}\sqrt{5}\left(2(4(40x-23)(5x+3)+33)\sqrt{5x+3}\sqrt{-10x+5}-363\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$
$$+\frac{9}{400}\sqrt{5}\left(2(20x+1)\sqrt{5x+3}\sqrt{-10x+5}+121\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] 1/76800000*sqrt(5)*(2*(4*(8*(4*(16*(100*x - 239)*(5*x + 3) + 2799
9)*(5*x + 3) - 318159)*(5*x + 3) + 3237255)*(5*x + 3) - 2656665)*
sqrt(5*x + 3)*sqrt(-10*x + 5) + 29223315*sqrt(2)*arcsin(1/11*sqrt
(22)*sqrt(5*x + 3))) + 1/9600000*sqrt(5)*(2*(4*(8*(12*(80*x - 143
)*(5*x + 3) + 9773)*(5*x + 3) - 136405)*(5*x + 3) + 60555)*sqrt(5
*x + 3)*sqrt(-10*x + 5) - 666105*sqrt(2)*arcsin(1/11*sqrt(22)*sqr
t(5*x + 3))) - 59/1920000*sqrt(5)*(2*(4*(8*(60*x - 71)*(5*x + 3)
+ 2179)*(5*x + 3) - 4125)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 45375*s
qrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) - 1/4000*sqrt(5)*(2*(
4*(40*x - 23)*(5*x + 3) + 33)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 363
*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 9/400*sqrt(5)*(2*
(20*x + 1)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 121*sqrt(2)*arcsin(1/1
1*sqrt(22)*sqrt(5*x + 3)))
```

3.2398 $\int \frac{(1-2x)^{5/2}(3+5x)^{5/2}}{2+3x}\,dx$

Optimal. Leaf size=172

$$\frac{1}{15}(1-2x)^{5/2}(5x+3)^{5/2}$$

$$+\frac{37}{360}(1-2x)^{3/2}(5x+3)^{5/2}+\frac{4783\sqrt{1-2x}(5x+3)^{5/2}}{32400}-\frac{14557\sqrt{1-2x}(5x+3)^{3/2}}{28800}-\frac{1994287\sqrt{1-2x}\sqrt{5x+3}}{3110400}+\frac{109715471\sin^{-}}{93312}$$

```
[Out] (-1994287*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/3110400 - (14557*Sqrt[1 -
2*x]*(3 + 5*x)^(3/2))/28800 + (4783*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2)
)/32400 + (37*(1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/360 + ((1 - 2*x)^(
5/2)*(3 + 5*x)^(5/2))/15 + (109715471*ArcSin[Sqrt[2/11]*Sqrt[3 +
5*x]])/(9331200*Sqrt[10]) + (98*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]/(Sqr
t[7]*Sqrt[3 + 5*x])])/729
```

Rubi [A] time = 0.446653, antiderivative size = 172, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 7, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.269

$$\frac{1}{15}(1-2x)^{5/2}(5x+3)^{5/2}$$

$$+\frac{37}{360}(1-2x)^{3/2}(5x+3)^{5/2}+\frac{4783\sqrt{1-2x}(5x+3)^{5/2}}{32400}-\frac{14557\sqrt{1-2x}(5x+3)^{3/2}}{28800}-\frac{1994287\sqrt{1-2x}\sqrt{5x+3}}{3110400}+\frac{109715471\sin^{-}}{93312}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/(2 + 3*x),x]
```

```
[Out] (-1994287*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/3110400 - (14557*Sqrt[1 -
2*x]*(3 + 5*x)^(3/2))/28800 + (4783*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2)
)/32400 + (37*(1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/360 + ((1 - 2*x)^(
5/2)*(3 + 5*x)^(5/2))/15 + (109715471*ArcSin[Sqrt[2/11]*Sqrt[3 +
5*x]])/(9331200*Sqrt[10]) + (98*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]/(Sqr
t[7]*Sqrt[3 + 5*x])])/729
```

Rubi in Sympy [A] time = 44.8716, size = 158, normalized size = 0.92

$$\frac{(-2x+1)^{\frac{5}{2}}(5x+3)^{\frac{5}{2}}}{15}-\frac{37(-2x+1)^{\frac{5}{2}}(5x+3)^{\frac{3}{2}}}{144}+\frac{2543(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{3}{2}}}{12960}+\frac{79439\sqrt{-2x+1}(5x+3)^{\frac{3}{2}}}{259200}-\frac{1994287\sqrt{-2x+1}\sqrt{5x+3}}{3110400}+\frac{109715471\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{93312000}+\frac{98\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{729}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(5/2)/(2+3*x),x)
```

```
[Out] (-2*x + 1)**(5/2)*(5*x + 3)**(5/2)/15 - 37*(-2*x + 1)**(5/2)*(5*x
 + 3)**(3/2)/144 + 2543*(-2*x + 1)**(3/2)*(5*x + 3)**(3/2)/12960
+ 79439*sqrt(-2*x + 1)*(5*x + 3)**(3/2)/259200 - 1994287*sqrt(-2*
x + 1)*sqrt(5*x + 3)/3110400 + 109715471*sqrt(10)*asin(sqrt(22)*s
qrt(5*x + 3)/11)/93312000 + 98*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1
)/(7*sqrt(5*x + 3)))/729
```

Mathematica [A] time = 0.21048, size = 115, normalized size = 0.67

$$\frac{60\sqrt{1-2x}\sqrt{5x+3}\left(20736000x^4-11836800x^3-11943840x^2+8506260x+2165117\right)+12544000\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{186624000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/(2 + 3*x),x]
```

```
[Out] (60*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(2165117 + 8506260*x - 11943840*x
^2 - 11836800*x^3 + 20736000*x^4) + 12544000*Sqrt[7]*ArcTan[(-20
- 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])] + 109715471*Sqrt[10]*Ar
cTan[(1 + 20*x)/(2*Sqrt[1 - 2*x]*Sqrt[30 + 50*x])])/186624000
```

Maple [A] time = 0.014, size = 149, normalized size = 0.9

$$-\frac{1}{186624000}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(-1244160000\,x^4\sqrt{-10\,x^2-x+3}+710208000\,x^3\sqrt{-10\,x^2-x+3}+716630400\,x^2\sqrt{-10\,x^2-\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(5/2)/(2+3*x),x)
```

```
[Out] -1/186624000*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(-1244160000*x^4*(-10*x^
2-x+3)^(1/2)+710208000*x^3*(-10*x^2-x+3)^(1/2)+716630400*x^2*(-10
*x^2-x+3)^(1/2)+12544000*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-
10*x^2-x+3)^(1/2))-109715471*10^(1/2)*arcsin(20/11*x+1/11)-510375
600*x*(-10*x^2-x+3)^(1/2)-129907020*(-10*x^2-x+3)^(1/2))/(-10*x^2
-x+3)^(1/2)
```

Maxima [A] time = 1.5108, size = 151, normalized size = 0.88

$$\frac{1}{15}\left(-10\,x^2-x+3\right)^{\frac{5}{2}}+\frac{37}{72}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x-\frac{787}{12960}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}+\frac{79439}{51840}\sqrt{-10\,x^2-x+3}x+\frac{109715471}{186624000}\sqrt{10}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)-\frac{49}{729}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{865517}{3110400}\sqrt{-10\,x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2),x, algorithm="maxima")
```

```
[Out] 1/15*(-10*x^2 - x + 3)^(5/2) + 37/72*(-10*x^2 - x + 3)^(3/2)*x -
787/12960*(-10*x^2 - x + 3)^(3/2) + 79439/51840*sqrt(-10*x^2 - x
+ 3)*x + 109715471/186624000*sqrt(10)*arcsin(20/11*x + 1/11) - 49
/729*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) +
865517/3110400*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.235263, size = 142, normalized size = 0.83

$$\frac{1}{186624000}\sqrt{10}\left(6\sqrt{10}\left(20736000\,x^4-11836800\,x^3-11943840\,x^2+8506260\,x+2165117\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-1254400\sqrt{\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2),x, algorithm="fricas")
```

```
[Out] 1/186624000*sqrt(10)*(6*sqrt(10)*(20736000*x^4 - 11836800*x^3 - 1
1943840*x^2 + 8506260*x + 2165117)*sqrt(5*x + 3)*sqrt(-2*x + 1) -
 1254400*sqrt(10)*sqrt(7)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5
*x + 3)*sqrt(-2*x + 1))) + 109715471*arctan(1/20*sqrt(10)*(20*x +
 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**(5/2)/(2+3*x),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.335548, size = 286, normalized size = 1.66

$$-\frac{49}{7290}\sqrt{70}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3} - 4\right)}{140\left(\sqrt{2}\sqrt{-10x+5} - \sqrt{22}\right)}\right)\right)$$
$$+\frac{1}{77760000}\left(12\left(8\left(36\left(48\sqrt{5}(5x+3) - 713\sqrt{5}\right)(5x+3) + 112817\sqrt{5}\right)(5x+3) - 655065\sqrt{5}\right)(5x+3) - 9971435\sqrt{5}\right)\sqrt{5x$$
$$+\frac{109715471}{186624000}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3} - 4\right)}{4\left(\sqrt{2}\sqrt{-10x+5} - \sqrt{22}\right)}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2),x, algorithm="giac")
```

```
[Out] -49/7290*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*
x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sq
rt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 1/77760000*(12*(8*(36*(48*s
qrt(5)*(5*x + 3) - 713*sqrt(5))*(5*x + 3) + 112817*sqrt(5))*(5*x
+ 3) - 655065*sqrt(5))*(5*x + 3) - 9971435*sqrt(5))*sqrt(5*x + 3)
*sqrt(-10*x + 5) + 109715471/186624000*sqrt(10)*(pi + 2*arctan(-1
/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3
) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))
```

3.2399 $\int \frac{(1-2x)^{5/2}(3+5x)^{5/2}}{(2+3x)^2}\,dx$

Optimal. Leaf size=179

$$-\frac{5}{18}(1-2x)^{3/2}(5x+3)^{5/2}-\frac{247}{324}\sqrt{1-2x}(5x+3)^{5/2}-\frac{(1-2x)^{5/2}(5x+3)^{5/2}}{3(3x+2)}+\frac{1453}{288}\sqrt{1-2x}(5x+3)^{3/2}-\frac{155777\sqrt{1-2x}\sqrt{5x+3}}{31104}-\frac{660959\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{93312\sqrt{10}}-\frac{1295}{729}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

```
[Out] (-155777*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/31104 + (1453*Sqrt[1 - 2*x]
*(3 + 5*x)^(3/2))/288 - (247*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/324 -
 (5*(1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/18 - ((1 - 2*x)^(5/2)*(3 + 5
*x)^(5/2))/(3*(2 + 3*x)) - (660959*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x
]])/(93312*Sqrt[10]) - (1295*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7
]*Sqrt[3 + 5*x])])/729
```

Rubi [A] time = 0.457604, antiderivative size = 179, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 7, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.269

$$-\frac{5}{18}(1-2x)^{3/2}(5x+3)^{5/2}-\frac{247}{324}\sqrt{1-2x}(5x+3)^{5/2}-\frac{(1-2x)^{5/2}(5x+3)^{5/2}}{3(3x+2)}+\frac{1453}{288}\sqrt{1-2x}(5x+3)^{3/2}-\frac{155777\sqrt{1-2x}\sqrt{5x+3}}{31104}-\frac{660959\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{93312\sqrt{10}}-\frac{1295}{729}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^2,x]
```


```
[Out] (-155777*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/31104 + (1453*Sqrt[1 - 2*x]
*(3 + 5*x)^(3/2))/288 - (247*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/324 -
 (5*(1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/18 - ((1 - 2*x)^(5/2)*(3 + 5
*x)^(5/2))/(3*(2 + 3*x)) - (660959*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x
]])/(93312*Sqrt[10]) - (1295*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7
]*Sqrt[3 + 5*x])])/729
```

Rubi in Sympy [A] time = 45.1979, size = 162, normalized size = 0.91

$$-\frac{(-2x+1)^{\frac{5}{2}}(5x+3)^{\frac{5}{2}}}{3(3x+2)}-\frac{5(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{5}{2}}}{18}+\frac{1235(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{3}{2}}}{648}-\frac{11045(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{5184}-\frac{9983\sqrt{-2x+1}\sqrt{5x+3}}{31104}-\frac{660959\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{933120}-\frac{1295\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{729}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(5/2)/(2+3*x)**2,x)
```

```
[Out] -(-2*x + 1)**(5/2)*(5*x + 3)**(5/2)/(3*(3*x + 2)) - 5*(-2*x + 1)*
*(3/2)*(5*x + 3)**(5/2)/18 + 1235*(-2*x + 1)**(3/2)*(5*x + 3)**(3
/2)/648 - 11045*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/5184 - 9983*sqrt(
-2*x + 1)*sqrt(5*x + 3)/31104 - 660959*sqrt(10)*asin(sqrt(22)*sqr
t(5*x + 3)/11)/933120 - 1295*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/
(7*sqrt(5*x + 3)))/729
```

Mathematica [A] time = 0.213163, size = 122, normalized size = 0.68

$$\frac{\frac{60\sqrt{1-2x}\sqrt{5x+3}(259200x^4-214560x^3-60348x^2+72849x-45658)}{3x+2}-1657600\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)-660959\sqrt{10}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)}{1866240}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^2,x]
```

```
[Out] ((60*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(-45658 + 72849*x - 60348*x^2 -
214560*x^3 + 259200*x^4))/(2 + 3*x) - 1657600*Sqrt[7]*ArcTan[(-20
 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])] - 660959*Sqrt[10]*ArcT
an[(1 + 20*x)/(2*Sqrt[1 - 2*x]*Sqrt[30 + 50*x])])/1866240
```

Maple [A] time = 0.018, size = 197, normalized size = 1.1

$$\frac{1}{3732480+5598720\,x}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(15552000\,x^4\sqrt{-10\,x^2-x+3}-12873600\,x^3\sqrt{-10\,x^2-x+3}+4972800\,\sqrt{7}\arctan\left(\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(5/2)/(2+3*x)^2,x)
```

```
[Out] 1/1866240*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(15552000*x^4*(-10*x^2-x+3)
^(1/2)-12873600*x^3*(-10*x^2-x+3)^(1/2)+4972800*7^(1/2)*arctan(1/
14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x-1982877*10^(1/2)*arcs
in(20/11*x+1/11)*x-3620880*x^2*(-10*x^2-x+3)^(1/2)+3315200*7^(1/2
)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))-1321918*10^(
1/2)*arcsin(20/11*x+1/11)+4370940*x*(-10*x^2-x+3)^(1/2)-2739480*(
-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)
```

Maxima [A] time = 1.51234, size = 161, normalized size = 0.9

$$-\frac{25}{18}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x+\frac{695}{648}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}-\frac{\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{3\,(3\,x+2)}+\frac{11045}{2592}\sqrt{-10\,x^2-x+3x}-\frac{660959}{1866240}\sqrt{10}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)+\frac{1295}{1458}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)-\frac{76253}{31104}\sqrt{-10\,x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^2,x, algorithm="maxima")
```

```
[Out] -25/18*(-10*x^2 - x + 3)^(3/2)*x + 695/648*(-10*x^2 - x + 3)^(3/2
) - 1/3*(-10*x^2 - x + 3)^(5/2)/(3*x + 2) + 11045/2592*sqrt(-10*x
^2 - x + 3)*x - 660959/1866240*sqrt(10)*arcsin(20/11*x + 1/11) +
1295/1458*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2
)) - 76253/31104*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.230635, size = 165, normalized size = 0.92

$$\frac{\sqrt{10}\left(165760\,\sqrt{10}\sqrt{7}(3\,x+2)\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)+6\,\sqrt{10}\left(259200\,x^4-214560\,x^3-60348\,x^2+72849\,x-45658\right)\sqrt{5\,x}\right.}{1866240\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^2,x, algorithm="fricas")
```

```
[Out] 1/1866240*sqrt(10)*(165760*sqrt(10)*sqrt(7)*(3*x + 2)*arctan(1/14
*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))) + 6*sqrt(10)
*(259200*x^4 - 214560*x^3 - 60348*x^2 + 72849*x - 45658)*sqrt(5*x
 + 3)*sqrt(-2*x + 1) - 660959*(3*x + 2)*arctan(1/20*sqrt(10)*(20*
x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(3*x + 2)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(5/2)*(3+5*x)**(5/2)/(2+3*x)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.456466, size = 429, normalized size = 2.4

$$\frac{259}{2916}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)+\frac{1}{777600}\left(12\left(8\left(36\sqrt{5}(5x+3)-593\sqrt{5}\right)(5x+3)+26185\sqrt{5}\right)(5x+3)-622085\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}-\frac{660959}{1866240}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{4\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{1078\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)}{243\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^2,x, algorithm="giac")
```

```
[Out] 259/2916*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*
x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sq
rt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 1/777600*(12*(8*(36*sqrt(5)
*(5*x + 3) - 593*sqrt(5))*(5*x + 3) + 26185*sqrt(5))*(5*x + 3) -
622085*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5) - 660959/1866240*sq
rt(10)*(pi + 2*arctan(-1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5
) - sqrt(22))^2/(5*x + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22
)))) - 1078/243*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sq
rt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)
))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(
5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)
```

3.2400 $\int \frac{(1-2x)^{5/2}(3+5x)^{5/2}}{(2+3x)^3}\,dx$

Optimal. Leaf size=188

$$\frac{575}{162}\sqrt{1-2x}(5x+3)^{5/2}+\frac{185(1-2x)^{3/2}(5x+3)^{5/2}}{36(3x+2)}-\frac{(1-2x)^{5/2}(5x+3)^{5/2}}{6(3x+2)^2}-\frac{785}{36}\sqrt{1-2x}(5x+3)^{3/2}+\frac{34145\sqrt{1-2x}\sqrt{5x+3}}{1944}+\frac{81733\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{5832}+\frac{21935\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{2916}$$

```
[Out] (34145*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/1944 - (785*Sqrt[1 - 2*x]*(3
+ 5*x)^(3/2))/36 + (575*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/162 - ((1
- 2*x)^(5/2)*(3 + 5*x)^(5/2))/(6*(2 + 3*x)^2) + (185*(1 - 2*x)^(3
/2)*(3 + 5*x)^(5/2))/(36*(2 + 3*x)) + (81733*Sqrt[5/2]*ArcSin[Sqr
t[2/11]*Sqrt[3 + 5*x]])/5832 + (21935*Sqrt[7]*ArcTan[Sqrt[1 - 2*x
]/(Sqrt[7]*Sqrt[3 + 5*x])])/2916
```

Rubi [A] time = 0.456656, antiderivative size = 188, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 8, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.308

$$\frac{575}{162}\sqrt{1-2x}(5x+3)^{5/2}+\frac{185(1-2x)^{3/2}(5x+3)^{5/2}}{36(3x+2)}-\frac{(1-2x)^{5/2}(5x+3)^{5/2}}{6(3x+2)^2}-\frac{785}{36}\sqrt{1-2x}(5x+3)^{3/2}+\frac{34145\sqrt{1-2x}\sqrt{5x+3}}{1944}+\frac{81733\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{5832}+\frac{21935\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{2916}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^3,x]
```


```
[Out] (34145*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/1944 - (785*Sqrt[1 - 2*x]*(3
+ 5*x)^(3/2))/36 + (575*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/162 - ((1
- 2*x)^(5/2)*(3 + 5*x)^(5/2))/(6*(2 + 3*x)^2) + (185*(1 - 2*x)^(3
/2)*(3 + 5*x)^(5/2))/(36*(2 + 3*x)) + (81733*Sqrt[5/2]*ArcSin[Sqr
t[2/11]*Sqrt[3 + 5*x]])/5832 + (21935*Sqrt[7]*ArcTan[Sqrt[1 - 2*x
]/(Sqrt[7]*Sqrt[3 + 5*x])])/2916
```

Rubi in Sympy [A] time = 45.8297, size = 168, normalized size = 0.89

$$-\frac{185\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{3}{2}}}{252\left(3x+2\right)}-\frac{\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{5}{2}}}{6\left(3x+2\right)^{2}}-\frac{905\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{3}{2}}}{1134}-\frac{185\sqrt{-2x+1}\left(5x+3\right)^{\frac{3}{2}}}{81}+\frac{34145\sqrt{-2x+1}\sqrt{5x+3}}{1944}+\frac{81733\sqrt{10}\,\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{11664}+\frac{21935\sqrt{7}\,\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{2916}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(5/2)/(2+3*x)**3,x)
```

```
[Out] -185*(-2*x + 1)**(5/2)*(5*x + 3)**(3/2)/(252*(3*x + 2)) - (-2*x +
 1)**(5/2)*(5*x + 3)**(5/2)/(6*(3*x + 2)**2) - 905*(-2*x + 1)**(3
/2)*(5*x + 3)**(3/2)/1134 - 185*sqrt(-2*x + 1)*(5*x + 3)**(3/2)/8
1 + 34145*sqrt(-2*x + 1)*sqrt(5*x + 3)/1944 + 81733*sqrt(10)*asin
(sqrt(22)*sqrt(5*x + 3)/11)/11664 + 21935*sqrt(7)*atan(sqrt(7)*sq
rt(-2*x + 1)/(7*sqrt(5*x + 3)))/2916
```

Mathematica [A] time = 0.209126, size = 122, normalized size = 0.65

$$\frac{\frac{12\sqrt{1-2x}\sqrt{5x+3}(21600x^4-28980x^3+31731x^2+120534x+53204)}{(3x+2)^2}+87740\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)+81733\sqrt{10}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)}{23328}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^3,x]
```

```
[Out] ((12*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(53204 + 120534*x + 31731*x^2 -
28980*x^3 + 21600*x^4))/(2 + 3*x)^2 + 87740*Sqrt[7]*ArcTan[(-20 -
 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])] + 81733*Sqrt[10]*ArcTan[
(1 + 20*x)/(2*Sqrt[1 - 2*x]*Sqrt[30 + 50*x])])/23328
```

Maple [A] time = 0.019, size = 242, normalized size = 1.3

$$-\frac{1}{23328\,(2+3x)^2}\sqrt{1-2x}\sqrt{3+5x}\left(-259200x^4\sqrt{-10x^2-x+3}+789660\sqrt{7}\arctan\left(1/14\,\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)x^2-735597$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(5/2)/(2+3*x)^3,x)
```

```
[Out] -1/23328*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(-259200*x^4*(-10*x^2-x+3)^(
1/2)+789660*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(
1/2))*x^2-735597*10^(1/2)*arcsin(20/11*x+1/11)*x^2+347760*x^3*(-1
0*x^2-x+3)^(1/2)+1052880*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-
10*x^2-x+3)^(1/2))*x-980796*10^(1/2)*arcsin(20/11*x+1/11)*x-38077
2*x^2*(-10*x^2-x+3)^(1/2)+350960*7^(1/2)*arctan(1/14*(37*x+20)*7^
(1/2)/(-10*x^2-x+3)^(1/2))-326932*10^(1/2)*arcsin(20/11*x+1/11)-1
446408*x*(-10*x^2-x+3)^(1/2)-638448*(-10*x^2-x+3)^(1/2))/(-10*x^2
-x+3)^(1/2)/(2+3*x)^2
```

Maxima [A] time = 1.52542, size = 215, normalized size = 1.14

$$\frac{5}{21}\left(-10x^2-x+3\right)^{\frac{5}{2}}+\frac{3\left(-10x^2-x+3\right)^{\frac{7}{2}}}{14\,(9x^2+12x+4)}+\frac{925}{126}\left(-10x^2-x+3\right)^{\frac{3}{2}}x-\frac{10135}{2268}\left(-10x^2-x+3\right)^{\frac{3}{2}}$$
$$+\frac{37\left(-10x^2-x+3\right)^{\frac{5}{2}}}{28\,(3x+2)}-\frac{925}{81}\sqrt{-10x^2-x+3}x+\frac{81733}{23328}\sqrt{10}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)$$
$$-\frac{21935}{5832}\sqrt{7}\arcsin\left(\frac{37x}{11\,|3x+2|}+\frac{20}{11\,|3x+2|}\right)+\frac{20825}{1944}\sqrt{-10x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^3,x, algorithm="maxima")
```

```
[Out] 5/21*(-10*x^2 - x + 3)^(5/2) + 3/14*(-10*x^2 - x + 3)^(7/2)/(9*x^
2 + 12*x + 4) + 925/126*(-10*x^2 - x + 3)^(3/2)*x - 10135/2268*(-
10*x^2 - x + 3)^(3/2) + 37/28*(-10*x^2 - x + 3)^(5/2)/(3*x + 2) -
 925/81*sqrt(-10*x^2 - x + 3)*x + 81733/23328*sqrt(10)*arcsin(20/
11*x + 1/11) - 21935/5832*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 2
0/11/abs(3*x + 2)) + 20825/1944*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.237654, size = 193, normalized size = 1.03

$$-\frac{\sqrt{2}\left(43870\sqrt{7}\sqrt{2}\left(9x^2+12x+4\right)\arctan\left(\frac{\sqrt{7}(37x+20)}{14\sqrt{5x+3}\sqrt{-2x+1}}\right)-6\sqrt{2}\left(21600x^4-28980x^3+31731x^2+120534x+53204\right)\sqrt{}\right.}{23328\,(9x^2+12x+4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^3,x, algorithm="fricas")
```

```
[Out] -1/23328*sqrt(2)*(43870*sqrt(7)*sqrt(2)*(9*x^2 + 12*x + 4)*arctan
(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))) - 6*sqr
t(2)*(21600*x^4 - 28980*x^3 + 31731*x^2 + 120534*x + 53204)*sqrt(
5*x + 3)*sqrt(-2*x + 1) - 81733*sqrt(5)*(9*x^2 + 12*x + 4)*arctan
(1/20*sqrt(5)*sqrt(2)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))
/(9*x^2 + 12*x + 4)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**(5/2)/(2+3*x)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.533514, size = 498, normalized size = 2.65

$$-\frac{4387}{11664}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)+\frac{1}{3240}\left(4\left(8\sqrt{5}(5x+3)-155\sqrt{5}\right)(5x+3)+5245\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}+\frac{81733}{23328}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{4\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)+\frac{77\left(263\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3+92120\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)\right)}{486\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^3,x, algorithm="giac")
```

```
[Out] -4387/11664*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt
(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 1/3240*(4*(8*sqrt(5)*(5*
x + 3) - 155*sqrt(5))*(5*x + 3) + 5245*sqrt(5))*sqrt(5*x + 3)*sqr
t(-10*x + 5) + 81733/23328*sqrt(10)*(pi + 2*arctan(-1/4*sqrt(5*x
+ 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqrt
(2)*sqrt(-10*x + 5) - sqrt(22)))) + 77/486*(263*sqrt(10)*((sqrt(2
)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sq
rt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 92120*sqrt(10)*((sqrt(2)*s
qrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(
2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) - sqr
t(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) -
 sqrt(22)))^2 + 280)^2
```

3.2401 $\int \frac{(1-2x)^{5/2}(3+5x)^{5/2}}{(2+3x)^4} dx$

Optimal. Leaf size=195

$$-\frac{10385\sqrt{1-2x}(5x+3)^{5/2}}{648(3x+2)}+\frac{185(1-2x)^{3/2}(5x+3)^{5/2}}{108(3x+2)^2}-\frac{(1-2x)^{5/2}(5x+3)^{5/2}}{9(3x+2)^3}+\frac{2075}{72}\sqrt{1-2x}(5x+3)^{3/2}-\frac{48625\sqrt{1-2x}\sqrt{5x+3}}{1944}-\frac{21935\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{1458}-\frac{408665\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{5832\sqrt{7}}$$

```
[Out] (-48625*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/1944 + (2075*Sqrt[1 - 2*x]*(
3 + 5*x)^(3/2))/72 - ((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/(9*(2 + 3*
x)^3) + (185*(1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(108*(2 + 3*x)^2) -
 (10385*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(648*(2 + 3*x)) - (21935*S
qrt[5/2]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/1458 - (408665*ArcTan[
Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(5832*Sqrt[7])
```

Rubi [A] time = 0.4584, antiderivative size = 195, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 8, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.308

$$-\frac{10385\sqrt{1-2x}(5x+3)^{5/2}}{648(3x+2)}+\frac{185(1-2x)^{3/2}(5x+3)^{5/2}}{108(3x+2)^2}-\frac{(1-2x)^{5/2}(5x+3)^{5/2}}{9(3x+2)^3}+\frac{2075}{72}\sqrt{1-2x}(5x+3)^{3/2}-\frac{48625\sqrt{1-2x}\sqrt{5x+3}}{1944}-\frac{21935\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{1458}-\frac{408665\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{5832\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^4,x]
```


```
[Out] (-48625*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/1944 + (2075*Sqrt[1 - 2*x]*(
3 + 5*x)^(3/2))/72 - ((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/(9*(2 + 3*
x)^3) + (185*(1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(108*(2 + 3*x)^2) -
 (10385*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(648*(2 + 3*x)) - (21935*S
qrt[5/2]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/1458 - (408665*ArcTan[
Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(5832*Sqrt[7])
```

Rubi in Sympy [A] time = 44.7042, size = 177, normalized size = 0.91

$$-\frac{22595\left(-2x+1\right)^{\frac{5}{2}}\sqrt{5x+3}}{31752\left(3x+2\right)}-\frac{185\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{3}{2}}}{756\left(3x+2\right)^{2}}-\frac{\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{5}{2}}}{9\left(3x+2\right)^{3}}-\frac{20015\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{15876}-\frac{34145\sqrt{-2x+1}\sqrt{5x+3}}{6804}-\frac{21935\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{2916}-\frac{408665\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{40824}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(5/2)/(2+3*x)**4,x)
```

```
[Out] -22595*(-2*x + 1)**(5/2)*sqrt(5*x + 3)/(31752*(3*x + 2)) - 185*(-
2*x + 1)**(5/2)*(5*x + 3)**(3/2)/(756*(3*x + 2)**2) - (-2*x + 1)*
*(5/2)*(5*x + 3)**(5/2)/(9*(3*x + 2)**3) - 20015*(-2*x + 1)**(3/2
)*sqrt(5*x + 3)/15876 - 34145*sqrt(-2*x + 1)*sqrt(5*x + 3)/6804 -
 21935*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/2916 - 408665*sqr
t(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/40824
```

Mathematica [A] time = 0.249445, size = 122, normalized size = 0.63

$$\frac{\frac{42\sqrt{1-2x}\sqrt{5x+3}(32400x^4-93420x^3-420531x^2-391014x-107984)}{(3x+2)^3}-408665\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)-307090\sqrt{10}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)}{81648}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^4,x]
```

```
[Out] ((42*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(-107984 - 391014*x - 420531*x^2
 - 93420*x^3 + 32400*x^4))/(2 + 3*x)^3 - 408665*Sqrt[7]*ArcTan[(-
20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])] - 307090*Sqrt[10]*Ar
cTan[(1 + 20*x)/(2*Sqrt[1 - 2*x]*Sqrt[30 + 50*x])])/81648
```

Maple [A] time = 0.019, size = 287, normalized size = 1.5

$$\frac{1}{81648\,(2+3\,x)^3}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(11033955\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^3-8291430\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x^3$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(5/2)/(2+3*x)^4,x)
```

```
[Out] 1/81648*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(11033955*7^(1/2)*arctan(1/14
*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3-8291430*10^(1/2)*arcs
in(20/11*x+1/11)*x^3+1360800*x^4*(-10*x^2-x+3)^(1/2)+22067910*7^(
1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2-16582
860*10^(1/2)*arcsin(20/11*x+1/11)*x^2-3923640*x^3*(-10*x^2-x+3)^(
1/2)+14711940*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)
^(1/2))*x-11055240*10^(1/2)*arcsin(20/11*x+1/11)*x-17662302*x^2*(
-10*x^2-x+3)^(1/2)+3269320*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/
(-10*x^2-x+3)^(1/2))-2456720*10^(1/2)*arcsin(20/11*x+1/11)-164225
88*x*(-10*x^2-x+3)^(1/2)-4535328*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+
3)^(1/2)/(2+3*x)^3
```

Maxima [A] time = 1.52836, size = 257, normalized size = 1.32

$$-\frac{185}{882}\left(-10\,x^2-x+3\right)^{\frac{5}{2}}+\frac{\left(-10\,x^2-x+3\right)^{\frac{7}{2}}}{7\,(27\,x^3+54\,x^2+36\,x+8)}-\frac{37\left(-10\,x^2-x+3\right)^{\frac{7}{2}}}{196\,(9\,x^2+12\,x+4)}$$
$$-\frac{16075}{1764}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x+\frac{189865}{31752}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}-\frac{6347\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{3528\,(3\,x+2)}$$
$$+\frac{41225}{2268}\sqrt{-10\,x^2-x+3x}-\frac{21935}{5832}\sqrt{10}\arcsin\left(\frac{20}{11}\,x+\frac{1}{11}\right)$$
$$+\frac{408665}{81648}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)-\frac{191965}{13608}\sqrt{-10\,x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^4,x, algorithm="maxima")
```

```
[Out] -185/882*(-10*x^2 - x + 3)^(5/2) + 1/7*(-10*x^2 - x + 3)^(7/2)/(2
7*x^3 + 54*x^2 + 36*x + 8) - 37/196*(-10*x^2 - x + 3)^(7/2)/(9*x^
2 + 12*x + 4) - 16075/1764*(-10*x^2 - x + 3)^(3/2)*x + 189865/317
52*(-10*x^2 - x + 3)^(3/2) - 6347/3528*(-10*x^2 - x + 3)^(5/2)/(3
*x + 2) + 41225/2268*sqrt(-10*x^2 - x + 3)*x - 21935/5832*sqrt(10
)*arcsin(20/11*x + 1/11) + 408665/81648*sqrt(7)*arcsin(37/11*x/ab
s(3*x + 2) + 20/11/abs(3*x + 2)) - 191965/13608*sqrt(-10*x^2 - x
+ 3)
```

Fricas [A] time = 0.233413, size = 221, normalized size = 1.13

$$\frac{\sqrt{7}\sqrt{2}\Big(6\sqrt{7}\sqrt{2}\big(32400\,x^4-93420\,x^3-420531\,x^2-391014\,x-107984\big)\sqrt{5\,x+3}\sqrt{-2\,x+1}-87740\sqrt{7}\sqrt{5}\big(27\,x^3+54\,x^2+3}{163296\,(27\,x^3+54\,x^2+36\,x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^4,x, algorithm="fricas")
```

```
[Out] 1/163296*sqrt(7)*sqrt(2)*(6*sqrt(7)*sqrt(2)*(32400*x^4 - 93420*x^
3 - 420531*x^2 - 391014*x - 107984)*sqrt(5*x + 3)*sqrt(-2*x + 1)
- 87740*sqrt(7)*sqrt(5)*(27*x^3 + 54*x^2 + 36*x + 8)*arctan(1/20*
sqrt(5)*sqrt(2)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))) + 4086
65*sqrt(2)*(27*x^3 + 54*x^2 + 36*x + 8)*arctan(1/14*sqrt(7)*(37*x
 + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(27*x^3 + 54*x^2 + 36*x +
 8)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(5/2)*(3+5*x)**(5/2)/(2+3*x)**4,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.603531, size = 563, normalized size = 2.89

$$\frac{81733}{163296}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)$$
$$+\frac{1}{486}\left(12\sqrt{5}(5\,x+3)-329\sqrt{5}\right)\sqrt{5\,x+3}\sqrt{-10\,x+5}$$
$$-\frac{21935}{5832}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3}-4\right)}{4\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)$$
$$-\frac{11\left(2803\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^5+1982400\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^3+411208000\sqrt{10}\Big(\sqrt{2}}{324\left(\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^2+280\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^4,x, algorithm="giac")
```

```
[Out] 81733/163296*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqr
t(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)
/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 1/486*(12*sqrt(5)*(5*x
+ 3) - 329*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5) - 21935/5832*sq
rt(10)*(pi + 2*arctan(-1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5
) - sqrt(22))^2/(5*x + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22
)))) - 11/324*(2803*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22)
```

)/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt
(22)))^5 + 1982400*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))
/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(
22)))^3 + 411208000*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22)
)/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt
(22))))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*
sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)^3

3.2402 $\int \frac{(1-2x)^{5/2}(3+5x)^{5/2}}{(2+3x)^5}\,dx$

Optimal. Leaf size=200

$$\frac{1165\sqrt{1-2x}(5x+3)^{5/2}}{2592(3x+2)^2}+\frac{185(1-2x)^{3/2}(5x+3)^{5/2}}{216(3x+2)^3}-\frac{(1-2x)^{5/2}(5x+3)^{5/2}}{12(3x+2)^4}-\frac{3485\sqrt{1-2x}(5x+3)^{3/2}}{4032(3x+2)}+\frac{249575\sqrt{1-2x}\sqrt{5x+3}}{108864}+\frac{1850}{729}\sqrt{10}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)+\frac{3304795\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{326592\sqrt{7}}$$

```
[Out] (249575*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/108864 - (3485*Sqrt[1 - 2*x]
*(3 + 5*x)^(3/2))/(4032*(2 + 3*x)) - ((1 - 2*x)^(5/2)*(3 + 5*x)^(
5/2))/(12*(2 + 3*x)^4) + (185*(1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(2
16*(2 + 3*x)^3) + (1165*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(2592*(2 +
 3*x)^2) + (1850*Sqrt[10]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/729 +
 (3304795*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(326592*
Sqrt[7])
```

Rubi [A] time = 0.457579, antiderivative size = 200, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 8, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.308

$$\frac{1165\sqrt{1-2x}(5x+3)^{5/2}}{2592(3x+2)^2}+\frac{185(1-2x)^{3/2}(5x+3)^{5/2}}{216(3x+2)^3}-\frac{(1-2x)^{5/2}(5x+3)^{5/2}}{12(3x+2)^4}-\frac{3485\sqrt{1-2x}(5x+3)^{3/2}}{4032(3x+2)}+\frac{249575\sqrt{1-2x}\sqrt{5x+3}}{108864}+\frac{1850}{729}\sqrt{10}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)+\frac{3304795\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{326592\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^5,x]
```

```
[Out] (249575*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/108864 - (3485*Sqrt[1 - 2*x]
*(3 + 5*x)^(3/2))/(4032*(2 + 3*x)) - ((1 - 2*x)^(5/2)*(3 + 5*x)^(
5/2))/(12*(2 + 3*x)^4) + (185*(1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(2
16*(2 + 3*x)^3) + (1165*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(2592*(2 +
 3*x)^2) + (1850*Sqrt[10]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/729 +
 (3304795*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(326592*
Sqrt[7])
```

Rubi in Sympy [A] time = 44.4145, size = 182, normalized size = 0.91

$$-\frac{23255\left(-2x+1\right)^{\frac{5}{2}}\sqrt{5x+3}}{127008\left(3x+2\right)^{2}}-\frac{185\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{3}{2}}}{1512\left(3x+2\right)^{3}}-\frac{\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{5}{2}}}{12\left(3x+2\right)^{4}}+\frac{517345\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{254016\left(3x+2\right)}+\frac{778885\sqrt{-2x+1}\sqrt{5x+3}}{381024}+\frac{1850\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{729}+\frac{3304795\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{2286144}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(5/2)/(2+3*x)**5,x)
```

```
[Out] -23255*(-2*x + 1)**(5/2)*sqrt(5*x + 3)/(127008*(3*x + 2)**2) - 18
5*(-2*x + 1)**(5/2)*(5*x + 3)**(3/2)/(1512*(3*x + 2)**3) - (-2*x
```

```
+ 1)**(5/2)*(5*x + 3)**(5/2)/(12*(3*x + 2)**4) + 517345*(-2*x + 1
)**(3/2)*sqrt(5*x + 3)/(254016*(3*x + 2)) + 778885*sqrt(-2*x + 1)
*sqrt(5*x + 3)/381024 + 1850*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)
/11)/729 + 3304795*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*
x + 3)))/2286144
```

Mathematica [A] time = 0.274615, size = 122, normalized size = 0.61

$$\frac{\frac{42\sqrt{1-2x}\sqrt{5x+3}\left(3628800x^4+29475315x^3+45563928x^2+25998852x+5093072\right)}{(3x+2)^4}+3304795\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)+5801600\sqrt{10}\tan^{-1}\left(\frac{20}{2\sqrt{1-2}}\right.}{4572288}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^5,x]
```

```
[Out] ((42*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(5093072 + 25998852*x + 45563928
*x^2 + 29475315*x^3 + 3628800*x^4))/(2 + 3*x)^4 + 3304795*Sqrt[7]
*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])] + 5801600*
Sqrt[10]*ArcTan[(1 + 20*x)/(2*Sqrt[1 - 2*x]*Sqrt[30 + 50*x])])/45
72288
```

Maple [B] time = 0.018, size = 332, normalized size = 1.7

$$-\frac{1}{4572288\,(2+3\,x)^4}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(267688395\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^4-469929600\,\arcsin\left(\frac{20\,x}{11}+1/11\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(5/2)/(2+3*x)^5,x)
```

```
[Out] -1/4572288*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(267688395*7^(1/2)*arctan(
1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^4-469929600*arcsin(
20/11*x+1/11)*10^(1/2)*x^4+713835720*7^(1/2)*arctan(1/14*(37*x+20
)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3-1253145600*10^(1/2)*arcsin(20/
11*x+1/11)*x^3-152409600*x^4*(-10*x^2-x+3)^(1/2)+713835720*7^(1/2
)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2-12531456
00*10^(1/2)*arcsin(20/11*x+1/11)*x^2-1237963230*x^3*(-10*x^2-x+3)
^(1/2)+317260320*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x
+3)^(1/2))*x-556953600*10^(1/2)*arcsin(20/11*x+1/11)*x-1913684976
*x^2*(-10*x^2-x+3)^(1/2)+52876720*7^(1/2)*arctan(1/14*(37*x+20)*7
^(1/2)/(-10*x^2-x+3)^(1/2))-92825600*10^(1/2)*arcsin(20/11*x+1/11
)-1091951784*x*(-10*x^2-x+3)^(1/2)-213909024*(-10*x^2-x+3)^(1/2))
/(-10*x^2-x+3)^(1/2)/(2+3*x)^4
```

Maxima [A] time = 1.52945, size = 305, normalized size = 1.52

$$\frac{5755}{49392}\left(-10\,x^2-x+3\right)^{\frac{5}{2}}+\frac{3\left(-10\,x^2-x+3\right)^{\frac{7}{2}}}{28\left(81\,x^4+216\,x^3+216\,x^2+96\,x+16\right)}+\frac{37\left(-10\,x^2-x+3\right)^{\frac{7}{2}}}{392\left(27\,x^3+54\,x^2+36\,x+8\right)}+\frac{1151\left(-10\,x^2-x+3\right)^{\frac{7}{2}}}{10976\left(9\,x^2+12\,x+4\right)}+\frac{182225}{98784}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x-\frac{1488395}{1778112}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}+\frac{44881\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{197568\,(3\,x+2)}-\frac{28675}{127008}\sqrt{-10\,x^2-x+3}x+\frac{925}{729}\sqrt{10}\arcsin\left(\frac{20}{11}\,x+\frac{1}{11}\right)-\frac{3304795}{4572288}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{1643795}{762048}\sqrt{-10\,x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^5,x, algorithm="maxima")
```

```
[Out] 5755/49392*(-10*x^2 - x + 3)^(5/2) + 3/28*(-10*x^2 - x + 3)^(7/2)
/(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16) + 37/392*(-10*x^2 - x +
 3)^(7/2)/(27*x^3 + 54*x^2 + 36*x + 8) + 1151/10976*(-10*x^2 - x
+ 3)^(7/2)/(9*x^2 + 12*x + 4) + 182225/98784*(-10*x^2 - x + 3)^(3
/2)*x - 1488395/1778112*(-10*x^2 - x + 3)^(3/2) + 44881/197568*(-
10*x^2 - x + 3)^(5/2)/(3*x + 2) - 28675/127008*sqrt(-10*x^2 - x +
 3)*x + 925/729*sqrt(10)*arcsin(20/11*x + 1/11) - 3304795/4572288
*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) + 1643
795/762048*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.234629, size = 225, normalized size = 1.12

$$\frac{\sqrt{7}\left(828800\,\sqrt{10}\sqrt{7}\left(81\,x^4+216\,x^3+216\,x^2+96\,x+16\right)\arctan\left(\frac{\sqrt{10}(20\,x+1)}{20\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)+6\,\sqrt{7}\left(3628800\,x^4+29475315\,x^3+45563\right.\right.}{4572288\,(81\,x^4+216}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^5,x, algorithm="fricas")
```

```
[Out] 1/4572288*sqrt(7)*(828800*sqrt(10)*sqrt(7)*(81*x^4 + 216*x^3 + 21
6*x^2 + 96*x + 16)*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)
*sqrt(-2*x + 1))) + 6*sqrt(7)*(3628800*x^4 + 29475315*x^3 + 45563
928*x^2 + 25998852*x + 5093072)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 33
04795*(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16)*arctan(1/14*sqrt(7
)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(81*x^4 + 216*x^3
+ 216*x^2 + 96*x + 16)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(5/2)*(3+5*x)**(5/2)/(2+3*x)**5,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.641027, size = 628, normalized size = 3.14

$$-\frac{660959}{9144576}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)$$

$$+\frac{925}{729}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3}-4\right)}{4\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)+\frac{20}{243}\sqrt{5}\sqrt{5\,x+3}\sqrt{-10\,x+5}$$

$$+\frac{55\left(8191\,\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^7+7386792\,\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^5+2164545600\,\sqrt{10}\left(\right.\right.}{54432\left(\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right.\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^5,x, algorithm="giac")
```

```
[Out] -660959/9144576*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*
sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) -
 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 925/729*sqrt(10)*(pi
 + 2*arctan(-1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(2
2))^2/(5*x + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 20/
243*sqrt(5)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 55/54432*(8191*sqrt(1
0)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5
*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^7 + 7386792*sqrt(10
)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*
x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 + 2164545600*sqrt(
10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(
5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 2731201984000*
sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*
sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*s
qrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(
2)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)^4
```

3.2403 $\int \frac{(1-2x)^{5/2}(3+5x)^{5/2}}{(2+3x)^6}\,dx$

Optimal. Leaf size=207

$$\frac{2543\sqrt{1-2x}(5x+3)^{5/2}}{1296(3x+2)^3}+\frac{37(1-2x)^{3/2}(5x+3)^{5/2}}{72(3x+2)^4}-\frac{(1-2x)^{5/2}(5x+3)^{5/2}}{15(3x+2)^5}-\frac{32453\sqrt{1-2x}(5x+3)^{3/2}}{36288(3x+2)^2}-\frac{3248687\sqrt{1-2x}\sqrt{5x+3}}{1524096(3x+2)}-\frac{200}{729}\sqrt{10}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{109715471\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{4572288\sqrt{7}}$$

```
[Out] (-3248687*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(1524096*(2 + 3*x)) - (324
53*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(36288*(2 + 3*x)^2) - ((1 - 2*x
)^(5/2)*(3 + 5*x)^(5/2))/(15*(2 + 3*x)^5) + (37*(1 - 2*x)^(3/2)*(
3 + 5*x)^(5/2))/(72*(2 + 3*x)^4) + (2543*Sqrt[1 - 2*x]*(3 + 5*x)^
(5/2))/(1296*(2 + 3*x)^3) - (200*Sqrt[10]*ArcSin[Sqrt[2/11]*Sqrt[
3 + 5*x]])/729 - (109715471*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3
+ 5*x])])/(4572288*Sqrt[7])
```

Rubi [A] time = 0.466291, antiderivative size = 207, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 7, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.269

$$\frac{2543\sqrt{1-2x}(5x+3)^{5/2}}{1296(3x+2)^3}+\frac{37(1-2x)^{3/2}(5x+3)^{5/2}}{72(3x+2)^4}-\frac{(1-2x)^{5/2}(5x+3)^{5/2}}{15(3x+2)^5}-\frac{32453\sqrt{1-2x}(5x+3)^{3/2}}{36288(3x+2)^2}-\frac{3248687\sqrt{1-2x}\sqrt{5x+3}}{1524096(3x+2)}-\frac{200}{729}\sqrt{10}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{109715471\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{4572288\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^6,x]
```


```
[Out] (-3248687*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(1524096*(2 + 3*x)) - (324
53*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(36288*(2 + 3*x)^2) - ((1 - 2*x
)^(5/2)*(3 + 5*x)^(5/2))/(15*(2 + 3*x)^5) + (37*(1 - 2*x)^(3/2)*(
3 + 5*x)^(5/2))/(72*(2 + 3*x)^4) + (2543*Sqrt[1 - 2*x]*(3 + 5*x)^
(5/2))/(1296*(2 + 3*x)^3) - (200*Sqrt[10]*ArcSin[Sqrt[2/11]*Sqrt[
3 + 5*x]])/729 - (109715471*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3
+ 5*x])])/(4572288*Sqrt[7])
```

Rubi in Sympy [A] time = 44.2636, size = 189, normalized size = 0.91

$$-\frac{4783\left(-2x+1\right)^{\frac{5}{2}}\sqrt{5x+3}}{63504\left(3x+2\right)^{3}}-\frac{37\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{3}{2}}}{504\left(3x+2\right)^{4}}-\frac{\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{5}{2}}}{15\left(3x+2\right)^{5}}+\frac{14557\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{28224\left(3x+2\right)^{2}}+\frac{1994287\sqrt{-2x+1}\sqrt{5x+3}}{1524096\left(3x+2\right)}-\frac{200\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{729}-\frac{109715471\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{32006016}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(5/2)/(2+3*x)**6,x)
```

```
[Out] -4783*(-2*x + 1)**(5/2)*sqrt(5*x + 3)/(63504*(3*x + 2)**3) - 37*(
-2*x + 1)**(5/2)*(5*x + 3)**(3/2)/(504*(3*x + 2)**4) - (-2*x + 1)
```

```
**(5/2)*(5*x + 3)**(5/2)/(15*(3*x + 2)**5) + 14557*(-2*x + 1)**(3
/2)*sqrt(5*x + 3)/(28224*(3*x + 2)**2) + 1994287*sqrt(-2*x + 1)*s
qrt(5*x + 3)/(1524096*(3*x + 2)) - 200*sqrt(10)*asin(sqrt(22)*sqr
t(5*x + 3)/11)/729 - 109715471*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1
)/(7*sqrt(5*x + 3)))/32006016
```

Mathematica [A] time = 0.290551, size = 122, normalized size = 0.59

$$\frac{\frac{42\sqrt{1-2x}\sqrt{5x+3}\left(490413015x^4+1809469170x^3+2146957188x^2+1044006792x+180761312\right)}{(3x+2)^5}-548577355\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)-43904000\sqrt{10}}{320060160}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^6,x]
```

```
[Out] ((42*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(180761312 + 1044006792*x + 2146
957188*x^2 + 1809469170*x^3 + 490413015*x^4))/(2 + 3*x)^5 - 54857
7355*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])
] - 43904000*Sqrt[10]*ArcTan[(1 + 20*x)/(2*Sqrt[1 - 2*x]*Sqrt[30
+ 50*x])])/320060160
```

Maple [B] time = 0.02, size = 377, normalized size = 1.8

$$\frac{1}{320060160\,(2+3\,x)^5}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(133304297265\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^5-10668672000\,\sqrt{10}\arcsin\left(\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(5/2)/(2+3*x)^6,x)
```

```
[Out] 1/320060160*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(133304297265*7^(1/2)*arc
tan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^5-10668672000*1
0^(1/2)*arcsin(20/11*x+1/11)*x^5+444347657550*7^(1/2)*arctan(1/14
*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^4-35562240000*arcsin(20
/11*x+1/11)*10^(1/2)*x^4+592463543400*7^(1/2)*arctan(1/14*(37*x+2
0)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3-47416320000*10^(1/2)*arcsin(2
0/11*x+1/11)*x^3+20597346630*x^4*(-10*x^2-x+3)^(1/2)+394975695600
*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2-3
1610880000*10^(1/2)*arcsin(20/11*x+1/11)*x^2+75997705140*x^3*(-10
*x^2-x+3)^(1/2)+131658565200*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2
)/(-10*x^2-x+3)^(1/2))*x-10536960000*10^(1/2)*arcsin(20/11*x+1/11
)*x+90172201896*x^2*(-10*x^2-x+3)^(1/2)+17554475360*7^(1/2)*arcta
n(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))-1404928000*10^(1/2)
*arcsin(20/11*x+1/11)+43848285264*x*(-10*x^2-x+3)^(1/2)+759197510
4*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)^5
```

Maxima [A] time = 1.52531, size = 360, normalized size = 1.74

$$\begin{aligned}&\frac{44881}{691488}\left(-10\,x^2-x+3\right)^{\frac{5}{2}}+\frac{3\left(-10\,x^2-x+3\right)^{\frac{7}{2}}}{35\,(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240\,x+32)}\\&+\frac{333\left(-10\,x^2-x+3\right)^{\frac{7}{2}}}{1960\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}+\frac{6347\left(-10\,x^2-x+3\right)^{\frac{7}{2}}}{27440\,(27\,x^3+54\,x^2+36\,x+8)}\\&+\frac{44881\left(-10\,x^2-x+3\right)^{\frac{7}{2}}}{768320\,(9\,x^2+12\,x+4)}-\frac{3156205}{1382976}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x+\frac{52017151}{24893568}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}\\&-\frac{9235489\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{13829760\,(3\,x+2)}+\frac{17832215}{1778112}\sqrt{-10\,x^2-x+3}x-\frac{100}{729}\sqrt{10}\arcsin\left(\frac{20}{11}\,x+\frac{1}{11}\right)\\&+\frac{109715471}{64012032}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)-\frac{49508071}{10668672}\sqrt{-10\,x^2-x+3}\end{aligned}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^6,x, algorithm="maxima")
```

```
[Out] 44881/691488*(-10*x^2 - x + 3)^(5/2) + 3/35*(-10*x^2 - x + 3)^(7/
2)/(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32) + 333/19
60*(-10*x^2 - x + 3)^(7/2)/(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 1
6) + 6347/27440*(-10*x^2 - x + 3)^(7/2)/(27*x^3 + 54*x^2 + 36*x +
 8) + 44881/768320*(-10*x^2 - x + 3)^(7/2)/(9*x^2 + 12*x + 4) - 3
156205/1382976*(-10*x^2 - x + 3)^(3/2)*x + 52017151/24893568*(-10
*x^2 - x + 3)^(3/2) - 9235489/13829760*(-10*x^2 - x + 3)^(5/2)/(3
*x + 2) + 17832215/1778112*sqrt(-10*x^2 - x + 3)*x - 100/729*sqrt
(10)*arcsin(20/11*x + 1/11) + 109715471/64012032*sqrt(7)*arcsin(3
7/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) - 49508071/10668672*sqr
t(-10*x^2 - x + 3)
```

Fricas [A] time = 0.24142, size = 246, normalized size = 1.19

$$-\frac{\sqrt{7}\left(6272000\sqrt{10}\sqrt{7}\left(243\,x^{5}+810\,x^{4}+1080\,x^{3}+720\,x^{2}+240\,x+32\right)\arctan\left(\frac{\sqrt{10}(20\,x+1)}{20\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)-6\,\sqrt{7}\left(490413015\,x^{4}+18\right.}{32006}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^6,x, algorithm="fricas")
```

```
[Out] -1/320060160*sqrt(7)*(6272000*sqrt(10)*sqrt(7)*(243*x^5 + 810*x^4
 + 1080*x^3 + 720*x^2 + 240*x + 32)*arctan(1/20*sqrt(10)*(20*x +
1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))) - 6*sqrt(7)*(490413015*x^4 + 1
809469170*x^3 + 2146957188*x^2 + 1044006792*x + 180761312)*sqrt(5
*x + 3)*sqrt(-2*x + 1) - 548577355*(243*x^5 + 810*x^4 + 1080*x^3
+ 720*x^2 + 240*x + 32)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x
 + 3)*sqrt(-2*x + 1))))/(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 +
 240*x + 32)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**(5/2)/(2+3*x)**6,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.620478, size = 684, normalized size = 3.3

$$\frac{109715471}{640120320}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)$$
$$-\frac{100}{729}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{4\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)$$
$$-\frac{11\left(3248687\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^9+4238260880\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^7+2165236899\cdots}{76\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^6,x, algorithm="giac")
```

```
[Out] 109715471/640120320*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(
70)*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x +
3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 100/729*sqrt(10)
*(pi + 2*arctan(-1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sq
rt(22))^2/(5*x + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) -
 11/762048*(3248687*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22)
)/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt
(22)))^9 + 4238260880*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(2
2))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sq
rt(22)))^7 + 2165236899840*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - s
qrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5)
 - sqrt(22)))^5 - 364930179712000*sqrt(10)*((sqrt(2)*sqrt(-10*x +
 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10
*x + 5) - sqrt(22)))^3 - 12258004702720000*sqrt(10)*((sqrt(2)*sqr
t(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)
*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(
22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - s
qrt(22)))^2 + 280)^5
```

3.2404 $\int \frac{(1-2x)^{5/2}(3+5x)^{5/2}}{(2+3x)^7}\,dx$

Optimal. Leaf size=209

$$\frac{121\sqrt{1-2x}(5x+3)^{7/2}}{32(3x+2)^4}+\frac{11(1-2x)^{3/2}(5x+3)^{7/2}}{12(3x+2)^5}+\frac{(1-2x)^{5/2}(5x+3)^{7/2}}{6(3x+2)^6}-\frac{1331\sqrt{1-2x}(5x+3)^{5/2}}{1344(3x+2)^3}-\frac{73205\sqrt{1-2x}(5x+3)^{3/2}}{37632(3x+2)^2}-\frac{805255\sqrt{1-2x}\sqrt{5x+3}}{175616(3x+2)}-\frac{8857805\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{175616\sqrt{7}}$$

```
[Out] (-805255*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(175616*(2 + 3*x)) - (73205
*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(37632*(2 + 3*x)^2) - (1331*Sqrt[
1 - 2*x]*(3 + 5*x)^(5/2))/(1344*(2 + 3*x)^3) + ((1 - 2*x)^(5/2)*(
3 + 5*x)^(7/2))/(6*(2 + 3*x)^6) + (11*(1 - 2*x)^(3/2)*(3 + 5*x)^(
7/2))/(12*(2 + 3*x)^5) + (121*Sqrt[1 - 2*x]*(3 + 5*x)^(7/2))/(32*
(2 + 3*x)^4) - (8857805*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*
x])])/(175616*Sqrt[7])
```

Rubi [A] time = 0.324629, antiderivative size = 209, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.115

$$\frac{121\sqrt{1-2x}(5x+3)^{7/2}}{32(3x+2)^4}+\frac{11(1-2x)^{3/2}(5x+3)^{7/2}}{12(3x+2)^5}+\frac{(1-2x)^{5/2}(5x+3)^{7/2}}{6(3x+2)^6}-\frac{1331\sqrt{1-2x}(5x+3)^{5/2}}{1344(3x+2)^3}-\frac{73205\sqrt{1-2x}(5x+3)^{3/2}}{37632(3x+2)^2}-\frac{805255\sqrt{1-2x}\sqrt{5x+3}}{175616(3x+2)}-\frac{8857805\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{175616\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^7,x]
```

```
[Out] (-805255*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(175616*(2 + 3*x)) - (73205
*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(37632*(2 + 3*x)^2) - (1331*Sqrt[
1 - 2*x]*(3 + 5*x)^(5/2))/(1344*(2 + 3*x)^3) + ((1 - 2*x)^(5/2)*(
3 + 5*x)^(7/2))/(6*(2 + 3*x)^6) + (11*(1 - 2*x)^(3/2)*(3 + 5*x)^(
7/2))/(12*(2 + 3*x)^5) + (121*Sqrt[1 - 2*x]*(3 + 5*x)^(7/2))/(32*
(2 + 3*x)^4) - (8857805*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*
x])])/(175616*Sqrt[7])
```

Rubi in Sympy [A] time = 24.6177, size = 190, normalized size = 0.91

$$-\frac{6655\left(-2x+1\right)^{\frac{5}{2}}\sqrt{5x+3}}{65856\left(3x+2\right)^{3}}-\frac{605\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{3}{2}}}{4704\left(3x+2\right)^{4}}-\frac{11\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{5}{2}}}{84\left(3x+2\right)^{5}}+\frac{\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{7}{2}}}{6\left(3x+2\right)^{6}}+\frac{73205\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{263424\left(3x+2\right)^{2}}+\frac{805255\sqrt{-2x+1}\sqrt{5x+3}}{175616\left(3x+2\right)}-\frac{8857805\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{1229312}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(5/2)/(2+3*x)**7,x)
```

```
[Out] -6655*(-2*x + 1)**(5/2)*sqrt(5*x + 3)/(65856*(3*x + 2)**3) - 605*
(-2*x + 1)**(5/2)*(5*x + 3)**(3/2)/(4704*(3*x + 2)**4) - 11*(-2*x
 + 1)**(5/2)*(5*x + 3)**(5/2)/(84*(3*x + 2)**5) + (-2*x + 1)**(5/
2)*(5*x + 3)**(7/2)/(6*(3*x + 2)**6) + 73205*(-2*x + 1)**(3/2)*sq
rt(5*x + 3)/(263424*(3*x + 2)**2) + 805255*sqrt(-2*x + 1)*sqrt(5*
x + 3)/(175616*(3*x + 2)) - 8857805*sqrt(7)*atan(sqrt(7)*sqrt(-2*
```

```
x + 1)/(7*sqrt(5*x + 3)))/1229312
```

Mathematica [A] time = 0.184421, size = 92, normalized size = 0.44

$$\frac{\frac{14\sqrt{1-2x}\sqrt{5x+3}(568572155x^5+1905431420x^4+2573967504x^3+1743189856x^2+589734736x+79536960)}{(3x+2)^6}-26573415\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{7375872}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^7,x]
```

```
[Out] ((14*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(79536960 + 589734736*x + 174318
9856*x^2 + 2573967504*x^3 + 1905431420*x^4 + 568572155*x^5))/(2 +
 3*x)^6 - 26573415*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*
Sqrt[3 + 5*x])])/7375872
```

Maple [B] time = 0.019, size = 346, normalized size = 1.7

$$\frac{1}{7375872\,(2+3\,x)^6}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(19372019535\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^6+77488078140\,\sqrt{7}\arctan\left(1/14\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(5/2)/(2+3*x)^7,x)
```

```
[Out] 1/7375872*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(19372019535*7^(1/2)*arctan
(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^6+77488078140*7^(1
/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^5+129146
796900*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))
*x^4+7960010170*x^5*(-10*x^2-x+3)^(1/2)+114797152800*7^(1/2)*arct
an(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+26676039880*x^
4*(-10*x^2-x+3)^(1/2)+57398576400*7^(1/2)*arctan(1/14*(37*x+20)*7
^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+36035545056*x^3*(-10*x^2-x+3)^(1/
2)+15306287040*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3
)^(1/2))*x+24404657984*x^2*(-10*x^2-x+3)^(1/2)+1700698560*7^(1/2)
*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+8256286304*x*
(-10*x^2-x+3)^(1/2)+1113517440*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)
^(1/2)/(2+3*x)^6
```

Maxima [A] time = 1.6233, size = 408, normalized size = 1.95

$$\begin{aligned}&\frac{3304795}{19361664}\left(-10\,x^2-x+3\right)^{\frac{5}{2}}+\frac{\left(-10\,x^2-x+3\right)^{\frac{7}{2}}}{14\,(729\,x^6+2916\,x^5+4860\,x^4+4320\,x^3+2160\,x^2+576\,x+64)}\\&+\frac{37\left(-10\,x^2-x+3\right)^{\frac{7}{2}}}{196\,(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240\,x+32)}\\&+\frac{4387\left(-10\,x^2-x+3\right)^{\frac{7}{2}}}{10976\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}+\frac{81733\left(-10\,x^2-x+3\right)^{\frac{7}{2}}}{153664\,(27\,x^3+54\,x^2+36\,x+8)}\\&+\frac{660959\left(-10\,x^2-x+3\right)^{\frac{7}{2}}}{4302592\,(9\,x^2+12\,x+4)}-\frac{59208325}{12907776}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x+\frac{113659535}{25815552}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}\\&-\frac{109715471\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{77446656\,(3\,x+2)}+\frac{13542925}{614656}\sqrt{-10\,x^2-x+3}x\\&+\frac{8857805}{2458624}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)-\frac{11932415}{1229312}\sqrt{-10\,x^2-x+3}\end{aligned}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^7,x, algorithm="maxima")
```

```
[Out] 3304795/19361664*(-10*x^2 - x + 3)^(5/2) + 1/14*(-10*x^2 - x + 3)
^(7/2)/(729*x^6 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 576
*x + 64) + 37/196*(-10*x^2 - x + 3)^(7/2)/(243*x^5 + 810*x^4 + 10
80*x^3 + 720*x^2 + 240*x + 32) + 4387/10976*(-10*x^2 - x + 3)^(7/
2)/(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16) + 81733/153664*(-10*x
^2 - x + 3)^(7/2)/(27*x^3 + 54*x^2 + 36*x + 8) + 660959/4302592*(
-10*x^2 - x + 3)^(7/2)/(9*x^2 + 12*x + 4) - 59208325/12907776*(-1
0*x^2 - x + 3)^(3/2)*x + 113659535/25815552*(-10*x^2 - x + 3)^(3/
2) - 109715471/77446656*(-10*x^2 - x + 3)^(5/2)/(3*x + 2) + 13542
925/614656*sqrt(-10*x^2 - x + 3)*x + 8857805/2458624*sqrt(7)*arcs
in(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) - 11932415/1229312*
sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.230502, size = 188, normalized size = 0.9

$$\frac{\sqrt{7}\left(2\sqrt{7}\left(568572155\,x^{5}+1905431420\,x^{4}+2573967504\,x^{3}+1743189856\,x^{2}+589734736\,x+79536960\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+\cdots\right.}{7375872\left(729\,x^{6}+2916\,x^{5}+4860\,x^{4}+4320\,x^{3}\cdots\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^7,x, algorithm="fricas")
```

```
[Out] 1/7375872*sqrt(7)*(2*sqrt(7)*(568572155*x^5 + 1905431420*x^4 + 25
73967504*x^3 + 1743189856*x^2 + 589734736*x + 79536960)*sqrt(5*x
+ 3)*sqrt(-2*x + 1) + 26573415*(729*x^6 + 2916*x^5 + 4860*x^4 + 4
320*x^3 + 2160*x^2 + 576*x + 64)*arctan(1/14*sqrt(7)*(37*x + 20)/
(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(729*x^6 + 2916*x^5 + 4860*x^4 +
 4320*x^3 + 2160*x^2 + 576*x + 64)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**(5/2)/(2+3*x)**7,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.657319, size = 676, normalized size = 3.23

$$\frac{1771561}{4917248}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{2}}{5\,x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)$$

$$-\frac{8857805\left(3\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^{11}+4760\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^{9}+3104640\sqrt{10}\left(\cdots\right.\right.}{\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^7,x, algorithm="giac")
```

```
[Out] 1771561/4917248*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*
sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) -
 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 8857805/263424*(3*sq
rt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sq
rt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^11 + 4760*sqrt(
10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(
5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^9 + 3104640*sqrt(1
0)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5
*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^7 - 869299200*sqrt(
10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(
5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 - 104491520000*s
qrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*s
qrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 - 5163110400
000*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3)
- 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(
2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(s
qrt(2)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)^6
```

3.2405 $\int \frac{(1-2x)^{5/2}(3+5x)^{5/2}}{(2+3x)^8}\,dx$

Optimal. Leaf size=238

$$\frac{4477\sqrt{1-2x}(5x+3)^{7/2}}{448(3x+2)^4}+\frac{407(1-2x)^{3/2}(5x+3)^{7/2}}{168(3x+2)^5}+\frac{37(1-2x)^{5/2}(5x+3)^{7/2}}{84(3x+2)^6}+\frac{3(1-2x)^{7/2}(5x+3)^{7/2}}{49(3x+2)^7}-\frac{49247\sqrt{1-2x}(5x+3)^{5/2}}{18816(3x+2)^3}-\frac{2708585\sqrt{1-2x}(5x+3)^{3/2}}{526848(3x+2)^2}-\frac{29794435\sqrt{1-2x}\sqrt{5x+3}}{2458624(3x+2)}-\frac{327738785\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{2458624\sqrt{7}}$$

```
[Out] (-29794435*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2458624*(2 + 3*x)) - (27
08585*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(526848*(2 + 3*x)^2) - (4924
7*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(18816*(2 + 3*x)^3) + (3*(1 - 2*
x)^(7/2)*(3 + 5*x)^(7/2))/(49*(2 + 3*x)^7) + (37*(1 - 2*x)^(5/2)*
(3 + 5*x)^(7/2))/(84*(2 + 3*x)^6) + (407*(1 - 2*x)^(3/2)*(3 + 5*x
)^(7/2))/(168*(2 + 3*x)^5) + (4477*Sqrt[1 - 2*x]*(3 + 5*x)^(7/2))
/(448*(2 + 3*x)^4) - (327738785*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqr
t[3 + 5*x])])/(2458624*Sqrt[7])
```

Rubi [A] time = 0.37682, antiderivative size = 238, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$\frac{4477\sqrt{1-2x}(5x+3)^{7/2}}{448(3x+2)^4}+\frac{407(1-2x)^{3/2}(5x+3)^{7/2}}{168(3x+2)^5}+\frac{37(1-2x)^{5/2}(5x+3)^{7/2}}{84(3x+2)^6}+\frac{3(1-2x)^{7/2}(5x+3)^{7/2}}{49(3x+2)^7}-\frac{49247\sqrt{1-2x}(5x+3)^{5/2}}{18816(3x+2)^3}-\frac{2708585\sqrt{1-2x}(5x+3)^{3/2}}{526848(3x+2)^2}-\frac{29794435\sqrt{1-2x}\sqrt{5x+3}}{2458624(3x+2)}-\frac{327738785\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{2458624\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^8,x]
```

```
[Out] (-29794435*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2458624*(2 + 3*x)) - (27
08585*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(526848*(2 + 3*x)^2) - (4924
7*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(18816*(2 + 3*x)^3) + (3*(1 - 2*
x)^(7/2)*(3 + 5*x)^(7/2))/(49*(2 + 3*x)^7) + (37*(1 - 2*x)^(5/2)*
(3 + 5*x)^(7/2))/(84*(2 + 3*x)^6) + (407*(1 - 2*x)^(3/2)*(3 + 5*x
)^(7/2))/(168*(2 + 3*x)^5) + (4477*Sqrt[1 - 2*x]*(3 + 5*x)^(7/2))
/(448*(2 + 3*x)^4) - (327738785*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqr
t[3 + 5*x])])/(2458624*Sqrt[7])
```

Rubi in Sympy [A] time = 28.4469, size = 219, normalized size = 0.92

$$-\frac{407\left(-2x+1\right)^{\frac{7}{2}}\left(5x+3\right)^{\frac{3}{2}}}{8232\left(3x+2\right)^{5}}-\frac{37\left(-2x+1\right)^{\frac{7}{2}}\left(5x+3\right)^{\frac{5}{2}}}{588\left(3x+2\right)^{6}}+\frac{3\left(-2x+1\right)^{\frac{7}{2}}\left(5x+3\right)^{\frac{7}{2}}}{49\left(3x+2\right)^{7}}-\frac{246235\left(-2x+1\right)^{\frac{5}{2}}\sqrt{5x+3}}{921984\left(3x+2\right)^{3}}+\frac{4477\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{3}{2}}}{21952\left(3x+2\right)^{4}}+\frac{2708585\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{3687936\left(3x+2\right)^{2}}+\frac{29794435\sqrt{-2x+1}\sqrt{5x+3}}{2458624\left(3x+2\right)}-\frac{327738785\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{17210368}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(5/2)/(2+3*x)**8,x)
```

```
[Out] -407*(-2*x + 1)**(7/2)*(5*x + 3)**(3/2)/(8232*(3*x + 2)**5) - 37*
(-2*x + 1)**(7/2)*(5*x + 3)**(5/2)/(588*(3*x + 2)**6) + 3*(-2*x +
 1)**(7/2)*(5*x + 3)**(7/2)/(49*(3*x + 2)**7) - 246235*(-2*x + 1)
**(5/2)*sqrt(5*x + 3)/(921984*(3*x + 2)**3) + 4477*(-2*x + 1)**(5
/2)*(5*x + 3)**(3/2)/(21952*(3*x + 2)**4) + 2708585*(-2*x + 1)**(
3/2)*sqrt(5*x + 3)/(3687936*(3*x + 2)**2) + 29794435*sqrt(-2*x +
1)*sqrt(5*x + 3)/(2458624*(3*x + 2)) - 327738785*sqrt(7)*atan(sqr
t(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/17210368
```

Mathematica [A] time = 0.153851, size = 97, normalized size = 0.41

$$\frac{\frac{14\sqrt{1-2x}\sqrt{5x+3}(62659925205x^6+253441751890x^5+427105196104x^4+384048502848x^3+194338741616x^2+52456780256x+5897927808)}{(3x+2)^7} - 983216355\sqrt{7}\tan^{-1}$$

$$103262208$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^8,x]
```

```
[Out] ((14*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(5897927808 + 52456780256*x + 19
4338741616*x^2 + 384048502848*x^3 + 427105196104*x^4 + 2534417518
90*x^5 + 62659925205*x^6))/(2 + 3*x)^7 - 983216355*Sqrt[7]*ArcTan
[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/103262208
```

Maple [B] time = 0.019, size = 394, normalized size = 1.7

$$\frac{1}{103262208\,(2+3\,x)^7}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(2150294168385\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^7+10034706119130\,\sqrt{7}\arctan$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(5/2)/(2+3*x)^8,x)
```

```
[Out] 1/103262208*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2150294168385*7^(1/2)*ar
ctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^7+100347061191
30*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^6
+20069412238260*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+
3)^(1/2))*x^5+877238952870*x^6*(-10*x^2-x+3)^(1/2)+22299346931400
*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^4+3
548184526460*x^5*(-10*x^2-x+3)^(1/2)+14866231287600*7^(1/2)*arcta
n(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+5979472745456*x
^4*(-10*x^2-x+3)^(1/2)+5946492515040*7^(1/2)*arctan(1/14*(37*x+20
)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+5376679039872*x^3*(-10*x^2-x+3
)^(1/2)+1321442781120*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*
x^2-x+3)^(1/2))*x+2720742382624*x^2*(-10*x^2-x+3)^(1/2)+125851693
440*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+73
4394923584*x*(-10*x^2-x+3)^(1/2)+82570989312*(-10*x^2-x+3)^(1/2))
/(-10*x^2-x+3)^(1/2)/(2+3*x)^7
```

Maxima [A] time = 1.52865, size = 477, normalized size = 2.

$$\frac{122277415}{271063296}\left(-10\,x^{2}-x+3\right)^{\frac{5}{2}}+\frac{3\left(-10\,x^{2}-x+3\right)^{\frac{7}{2}}}{49\left(2187\,x^{7}+10206\,x^{6}+20412\,x^{5}+22680\,x^{4}+15120\,x^{3}+6048\,x^{2}+1344\,x+128\right)}+\frac{37\left(-10\,x^{2}-x+3\right)^{\frac{7}{2}}}{196\left(729\,x^{6}+2916\,x^{5}+4860\,x^{4}+4320\,x^{3}+2160\,x^{2}+576\,x+64\right)}+\frac{1369\left(-10\,x^{2}-x+3\right)^{\frac{7}{2}}}{2744\left(243\,x^{5}+810\,x^{4}+1080\,x^{3}+720\,x^{2}+240\,x+32\right)}+\frac{162319\left(-10\,x^{2}-x+3\right)^{\frac{7}{2}}}{153664\left(81\,x^{4}+216\,x^{3}+216\,x^{2}+96\,x+16\right)}+\frac{3024121\left(-10\,x^{2}-x+3\right)^{\frac{7}{2}}}{2151296\left(27\,x^{3}+54\,x^{2}+36\,x+8\right)}+\frac{24455483\left(-10\,x^{2}-x+3\right)^{\frac{7}{2}}}{60236288\left(9\,x^{2}+12\,x+4\right)}-\frac{2190708025}{180708864}\left(-10\,x^{2}-x+3\right)^{\frac{3}{2}}x+\frac{4205402795}{361417728}\left(-10\,x^{2}-x+3\right)^{\frac{3}{2}}-\frac{4059472427\left(-10\,x^{2}-x+3\right)^{\frac{5}{2}}}{1084253184\left(3\,x+2\right)}+\frac{501088225}{8605184}\sqrt{-10\,x^{2}-x+3}x+\frac{327738785}{34420736}\sqrt{7}\arcsin\left(\frac{37\,x}{11\left|3\,x+2\right|}+\frac{20}{11\left|3\,x+2\right|}\right)-\frac{441499355}{17210368}\sqrt{-10\,x^{2}-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^8,x, algorithm="maxima")
```

```
[Out] 122277415/271063296*(-10*x^2 - x + 3)^(5/2) + 3/49*(-10*x^2 - x +
 3)^(7/2)/(2187*x^7 + 10206*x^6 + 20412*x^5 + 22680*x^4 + 15120*x
^3 + 6048*x^2 + 1344*x + 128) + 37/196*(-10*x^2 - x + 3)^(7/2)/(7
29*x^6 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64)
+ 1369/2744*(-10*x^2 - x + 3)^(7/2)/(243*x^5 + 810*x^4 + 1080*x^3
 + 720*x^2 + 240*x + 32) + 162319/153664*(-10*x^2 - x + 3)^(7/2)/
(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16) + 3024121/2151296*(-10*x
^2 - x + 3)^(7/2)/(27*x^3 + 54*x^2 + 36*x + 8) + 24455483/6023628
8*(-10*x^2 - x + 3)^(7/2)/(9*x^2 + 12*x + 4) - 2190708025/1807088
64*(-10*x^2 - x + 3)^(3/2)*x + 4205402795/361417728*(-10*x^2 - x
+ 3)^(3/2) - 4059472427/1084253184*(-10*x^2 - x + 3)^(5/2)/(3*x +
 2) + 501088225/8605184*sqrt(-10*x^2 - x + 3)*x + 327738785/34420
736*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) - 4
41499355/17210368*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.231351, size = 208, normalized size = 0.87

$$\frac{\sqrt{7}\Big(2\,\sqrt{7}\big(62659925205\,x^{6}+253441751890\,x^{5}+427105196104\,x^{4}+384048502848\,x^{3}+194338741616\,x^{2}+52456780256\,x+\cdots}{103262208\left(2187\,x^{7}+10206\,x^{6}\cdots\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^8,x, algorithm="fricas")
```

```
[Out] 1/103262208*sqrt(7)*(2*sqrt(7)*(62659925205*x^6 + 253441751890*x^
5 + 427105196104*x^4 + 384048502848*x^3 + 194338741616*x^2 + 5245
6780256*x + 5897927808)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 983216355*
(2187*x^7 + 10206*x^6 + 20412*x^5 + 22680*x^4 + 15120*x^3 + 6048*
x^2 + 1344*x + 128)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3
)*sqrt(-2*x + 1))))/(2187*x^7 + 10206*x^6 + 20412*x^5 + 22680*x^4
 + 15120*x^3 + 6048*x^2 + 1344*x + 128)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**(5/2)/(2+3*x)**8,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.80285, size = 759, normalized size = 3.19

$$\frac{65547757}{68841472}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)$$

$$-\frac{8857805\left(111\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^{13}+207200\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^{11}+164185280\sqrt{\cdots}\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^8,x, algorithm="giac")
```

```
[Out] 65547757/68841472*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70
)*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3)
 - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 8857805/3687936*(1
11*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) -
 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^13 + 20720
0*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) -
4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^11 + 164185
280*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3)
- 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^9 - 63583
027200*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x +
3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^7 - 12
872125952000*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(
5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^
5 - 1273567232000000*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22
))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqr
t(22)))^3 - 53489823744000000*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5)
- sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x +
 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x
 + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^2 +
 280)^7
```

3.2406 $\int \frac{(1-2x)^{5/2}(3+5x)^{5/2}}{(2+3x)^9}\,dx$

Optimal. Leaf size=267

$$\frac{47365\sqrt{1-2x}(5x+3)^{5/2}}{36288(3x+2)^6}+\frac{185(1-2x)^{3/2}(5x+3)^{5/2}}{1008(3x+2)^7}-\frac{(1-2x)^{5/2}(5x+3)^{5/2}}{24(3x+2)^8}-\frac{720833\sqrt{1-2x}(5x+3)^{3/2}}{508032(3x+2)^5}+\frac{6796051494355\sqrt{1-2x}\sqrt{5x+3}}{200741732352(3x+2)}+\frac{64983635965\sqrt{1-2x}\sqrt{5x+3}}{14338695168(3x+2)^2}+\frac{372439373\sqrt{1-2x}\sqrt{5x+3}}{512096256(3x+2)^3}-\frac{75045071\sqrt{1-2x}\sqrt{5x+3}}{85349376(3x+2)^4}-\frac{106656830005\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{275365888\sqrt{7}}$$

```
[Out] (-75045071*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(85349376*(2 + 3*x)^4) +
(372439373*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(512096256*(2 + 3*x)^3) +
 (64983635965*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(14338695168*(2 + 3*x)
^2) + (6796051494355*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(200741732352*(
2 + 3*x)) - (720833*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(508032*(2 + 3
*x)^5) - ((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/(24*(2 + 3*x)^8) + (18
5*(1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(1008*(2 + 3*x)^7) + (47365*Sq
rt[1 - 2*x]*(3 + 5*x)^(5/2))/(36288*(2 + 3*x)^6) - (106656830005*
ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(275365888*Sqrt[7]
)
```

Rubi [A] time = 0.627345, antiderivative size = 267, normalized size of antiderivative = 1., number of steps used = 11, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$\frac{47365\sqrt{1-2x}(5x+3)^{5/2}}{36288(3x+2)^6}+\frac{185(1-2x)^{3/2}(5x+3)^{5/2}}{1008(3x+2)^7}-\frac{(1-2x)^{5/2}(5x+3)^{5/2}}{24(3x+2)^8}-\frac{720833\sqrt{1-2x}(5x+3)^{3/2}}{508032(3x+2)^5}+\frac{6796051494355\sqrt{1-2x}\sqrt{5x+3}}{200741732352(3x+2)}+\frac{64983635965\sqrt{1-2x}\sqrt{5x+3}}{14338695168(3x+2)^2}+\frac{372439373\sqrt{1-2x}\sqrt{5x+3}}{512096256(3x+2)^3}-\frac{75045071\sqrt{1-2x}\sqrt{5x+3}}{85349376(3x+2)^4}-\frac{106656830005\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{275365888\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^9,x]
```

```
[Out] (-75045071*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(85349376*(2 + 3*x)^4) +
(372439373*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(512096256*(2 + 3*x)^3) +
 (64983635965*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(14338695168*(2 + 3*x)
^2) + (6796051494355*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(200741732352*(
2 + 3*x)) - (720833*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(508032*(2 + 3
*x)^5) - ((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/(24*(2 + 3*x)^8) + (18
5*(1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(1008*(2 + 3*x)^7) + (47365*Sq
rt[1 - 2*x]*(3 + 5*x)^(5/2))/(36288*(2 + 3*x)^6) - (106656830005*
ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(275365888*Sqrt[7]
)
```

Rubi in Sympy [A] time = 60.6948, size = 245, normalized size = 0.92

$$-\frac{25895\left(-2x+1\right)^{\frac{5}{2}}\sqrt{5x+3}}{1778112\left(3x+2\right)^{6}}-\frac{185\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{3}{2}}}{7056\left(3x+2\right)^{7}}-\frac{\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{5}{2}}}{24\left(3x+2\right)^{8}}+\frac{11833\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{169344\left(3x+2\right)^{5}}+\frac{6796051494355\sqrt{-2x+1}\sqrt{5x+3}}{200741732352\left(3x+2\right)}+\frac{64983635965\sqrt{-2x+1}\sqrt{5x+3}}{14338695168\left(3x+2\right)^{2}}+\frac{372439373\sqrt{-2x+1}\sqrt{5x+3}}{512096256\left(3x+2\right)^{3}}+\frac{1392991\sqrt{-2x+1}\sqrt{5x+3}}{12192768\left(3x+2\right)^{4}}-\frac{106656830005\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{1927561216}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(5/2)/(2+3*x)**9,x)
```

```
[Out] -25895*(-2*x + 1)**(5/2)*sqrt(5*x + 3)/(1778112*(3*x + 2)**6) - 1
85*(-2*x + 1)**(5/2)*(5*x + 3)**(3/2)/(7056*(3*x + 2)**7) - (-2*x
 + 1)**(5/2)*(5*x + 3)**(5/2)/(24*(3*x + 2)**8) + 11833*(-2*x + 1
)**(3/2)*sqrt(5*x + 3)/(169344*(3*x + 2)**5) + 6796051494355*sqrt
(-2*x + 1)*sqrt(5*x + 3)/(200741732352*(3*x + 2)) + 64983635965*s
qrt(-2*x + 1)*sqrt(5*x + 3)/(14338695168*(3*x + 2)**2) + 37243937
3*sqrt(-2*x + 1)*sqrt(5*x + 3)/(512096256*(3*x + 2)**3) + 1392991
*sqrt(-2*x + 1)*sqrt(5*x + 3)/(12192768*(3*x + 2)**4) - 106656830
005*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/192756
1216
```

Mathematica [A] time = 0.163766, size = 102, normalized size = 0.38

$$\frac{\frac{14\sqrt{1-2x}\sqrt{5x+3}\left(61164463449195x^7+288163475473440x^6+581931572602156x^5+652979564561296x^4+439702534402320x^3+177688060285568x^2+39899303549504x+\right.}{(3x+2)^8}}{11565367296}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^9,x]
```

```
[Out] ((14*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(3840133416192 + 39899303549504*
x + 177688060285568*x^2 + 439702534402320*x^3 + 652979564561296*x
^4 + 581931572602156*x^5 + 288163475473440*x^6 + 61164463449195*x
^7))/(2 + 3*x)^8 - 319970490015*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sq
rt[7 - 14*x]*Sqrt[3 + 5*x])])/11565367296
```

Maple [B] time = 0.037, size = 442, normalized size = 1.7

$$\frac{1}{11565367296\,(2+3\,x)^8}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(2099326384988415\,\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)\sqrt{7}x^8+11196407386604880\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(5/2)/(2+3*x)^9,x)
```

```
[Out] 1/11565367296*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2099326384988415*arcta
n(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*7^(1/2)*x^8+1119640
7386604880*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1
/2))*x^7+26124950568744720*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/
(-10*x^2-x+3)^(1/2))*x^6+856302488288730*x^7*(-10*x^2-x+3)^(1/2)+
34833267424992960*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-
x+3)^(1/2))*x^5+4034288656628160*x^6*(-10*x^2-x+3)^(1/2)+29027722
854160800*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/
2))*x^4+8147042016430184*x^5*(-10*x^2-x+3)^(1/2)+1548145218888576
0*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+
9141713903858144*x^4*(-10*x^2-x+3)^(1/2)+5160484062961920*7^(1/2)
*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+615583548
1632480*x^3*(-10*x^2-x+3)^(1/2)+982949345326080*7^(1/2)*arctan(1/
14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+2487632843997952*x^2*
(-10*x^2-x+3)^(1/2)+81912445443840*7^(1/2)*arctan(1/14*(37*x+20)*
7^(1/2)/(-10*x^2-x+3)^(1/2))+558590249693056*x*(-10*x^2-x+3)^(1/2
)+53761867826688*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)
^8
```

Maxima [A] time = 1.53103, size = 552, normalized size = 2.07

$$\frac{39793036595}{30359089152}\left(-10x^2-x+3\right)^{\frac{5}{2}} + \frac{3\left(-10x^2-x+3\right)^{\frac{7}{2}}}{56\left(6561x^8+34992x^7+81648x^6+108864x^5+90720x^4+48384x^3+16128x^2+3072x+256\right)} + \frac{999\left(-10x^2-x+3\right)^{\frac{7}{2}}}{5488\left(2187x^7+10206x^6+20412x^5+22680x^4+15120x^3+6048x^2+1344x+128\right)} + \frac{12041\left(-10x^2-x+3\right)^{\frac{7}{2}}}{21952\left(729x^6+2916x^5+4860x^4+4320x^3+2160x^2+576x+64\right)} + \frac{445517\left(-10x^2-x+3\right)^{\frac{7}{2}}}{307328\left(243x^5+810x^4+1080x^3+720x^2+240x+32\right)} + \frac{52823867\left(-10x^2-x+3\right)^{\frac{7}{2}}}{17210368\left(81x^4+216x^3+216x^2+96x+16\right)} + \frac{984147053\left(-10x^2-x+3\right)^{\frac{7}{2}}}{240945152\left(27x^3+54x^2+36x+8\right)} + \frac{7958607319\left(-10x^2-x+3\right)^{\frac{7}{2}}}{6746464256\left(9x^2+12x+4\right)} - \frac{712927441325}{20239392768}\left(-10x^2-x+3\right)^{\frac{3}{2}}x + \frac{1368574460935}{40478785536}\left(-10x^2-x+3\right)^{\frac{3}{2}} - \frac{1321083986311\left(-10x^2-x+3\right)^{\frac{5}{2}}}{121436356608\left(3x+2\right)} + \frac{163070359925}{963780608}\sqrt{-10x^2-x+3}x + \frac{106656830005}{3855122432}\sqrt{7}\arcsin\left(\frac{37x}{11\left|3x+2\right|}+\frac{20}{11\left|3x+2\right|}\right) - \frac{143678209015}{1927561216}\sqrt{-10x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^9,x, algorithm="maxima")
```

```
[Out] 39793036595/30359089152*(-10*x^2 - x + 3)^(5/2) + 3/56*(-10*x^2 -
 x + 3)^(7/2)/(6561*x^8 + 34992*x^7 + 81648*x^6 + 108864*x^5 + 90
720*x^4 + 48384*x^3 + 16128*x^2 + 3072*x + 256) + 999/5488*(-10*x
^2 - x + 3)^(7/2)/(2187*x^7 + 10206*x^6 + 20412*x^5 + 22680*x^4 +
 15120*x^3 + 6048*x^2 + 1344*x + 128) + 12041/21952*(-10*x^2 - x
+ 3)^(7/2)/(729*x^6 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 2160*x^2 +
 576*x + 64) + 445517/307328*(-10*x^2 - x + 3)^(7/2)/(243*x^5 + 8
10*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32) + 52823867/17210368*(-1
0*x^2 - x + 3)^(7/2)/(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16) + 9
84147053/240945152*(-10*x^2 - x + 3)^(7/2)/(27*x^3 + 54*x^2 + 36*
x + 8) + 7958607319/6746464256*(-10*x^2 - x + 3)^(7/2)/(9*x^2 + 1
2*x + 4) - 712927441325/20239392768*(-10*x^2 - x + 3)^(3/2)*x + 1
368574460935/40478785536*(-10*x^2 - x + 3)^(3/2) - 1321083986311/
121436356608*(-10*x^2 - x + 3)^(5/2)/(3*x + 2) + 163070359925/963
780608*sqrt(-10*x^2 - x + 3)*x + 106656830005/3855122432*sqrt(7)*
arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) - 143678209015/
1927561216*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.231125, size = 228, normalized size = 0.85

$$\frac{\sqrt{7}\left(2\sqrt{7}\left(61164463449195x^7+288163475473440x^6+581931572602156x^5+652979564561296x^4+439702534402320x^3 \cdots\right.\right.}{11565\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^9,x, algorithm="fricas")
```

```
[Out] 1/11565367296*sqrt(7)*(2*sqrt(7)*(61164463449195*x^7 + 2881634754
73440*x^6 + 581931572602156*x^5 + 652979564561296*x^4 + 439702534
402320*x^3 + 177688060285568*x^2 + 39899303549504*x + 38401334161
92)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 319970490015*(6561*x^8 + 34992
*x^7 + 81648*x^6 + 108864*x^5 + 90720*x^4 + 48384*x^3 + 16128*x^2
 + 3072*x + 256)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*s
qrt(-2*x + 1))))/(6561*x^8 + 34992*x^7 + 81648*x^6 + 108864*x^5 +
 90720*x^4 + 48384*x^3 + 16128*x^2 + 3072*x + 256)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**(5/2)/(2+3*x)**9,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.942972, size = 841, normalized size = 3.15

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^9,x, algorithm="giac")
```

```
[Out] 21331366001/7710244864*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sq
rt(70)*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x
 + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 8857805/41304
8832*(36123*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5
*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^1
5 + 77544040*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(
5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^
13 + 72311503040*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/s
qrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22
)))^11 - 37368091174400*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt
(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) -
sqrt(22)))^9 - 10615979648512000*sqrt(10)*((sqrt(2)*sqrt(-10*x +
5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*
x + 5) - sqrt(22)))^7 - 1587382114734080000*sqrt(10)*((sqrt(2)*sq
rt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2
)*sqrt(-10*x + 5) - sqrt(22)))^5 - 133456146460672000000*sqrt(10)
*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x
 + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 - 48740505663897600
00000*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3
) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqr
t(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)^8
```

3.2407 $\int \frac{(1-2x)^{5/2}(2+3x)^4}{\sqrt{3+5x}}\,dx$

Optimal. Leaf size=179

$$-\frac{\sqrt{5x+3}(11603280x+12923401)(1-2x)^{7/2}}{22400000}-\frac{3}{70}(3x+2)^3\sqrt{5x+3}(1-2x)^{7/2}-\frac{271(3x+2)^2\sqrt{5x+3}(1-2x)^{7/2}}{2800}+\frac{9526549\sqrt{5x+3}(1-2x)^{5/2}}{96000000}+\frac{104792039\sqrt{5x+3}(1-2x)^{3/2}}{384000000}+\frac{1152712429\sqrt{5x+3}\sqrt{1-2x}}{1280000000}+\frac{12679836719\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{1280000000\sqrt{10}}$$

```
[Out] (1152712429*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/1280000000 + (104792039*
(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/384000000 + (9526549*(1 - 2*x)^(5/
2)*Sqrt[3 + 5*x])/96000000 - (271*(1 - 2*x)^(7/2)*(2 + 3*x)^2*Sqr
t[3 + 5*x])/2800 - (3*(1 - 2*x)^(7/2)*(2 + 3*x)^3*Sqrt[3 + 5*x])/
70 - ((1 - 2*x)^(7/2)*Sqrt[3 + 5*x]*(12923401 + 11603280*x))/2240
0000 + (12679836719*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(1280000000
*Sqrt[10])
```

Rubi [A] time = 0.269291, antiderivative size = 179, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$-\frac{\sqrt{5x+3}(11603280x+12923401)(1-2x)^{7/2}}{22400000}-\frac{3}{70}(3x+2)^3\sqrt{5x+3}(1-2x)^{7/2}-\frac{271(3x+2)^2\sqrt{5x+3}(1-2x)^{7/2}}{2800}+\frac{9526549\sqrt{5x+3}(1-2x)^{5/2}}{96000000}+\frac{104792039\sqrt{5x+3}(1-2x)^{3/2}}{384000000}+\frac{1152712429\sqrt{5x+3}\sqrt{1-2x}}{1280000000}+\frac{12679836719\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{1280000000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(2 + 3*x)^4)/Sqrt[3 + 5*x],x]
```


```
[Out] (1152712429*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/1280000000 + (104792039*
(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/384000000 + (9526549*(1 - 2*x)^(5/
2)*Sqrt[3 + 5*x])/96000000 - (271*(1 - 2*x)^(7/2)*(2 + 3*x)^2*Sqr
t[3 + 5*x])/2800 - (3*(1 - 2*x)^(7/2)*(2 + 3*x)^3*Sqrt[3 + 5*x])/
70 - ((1 - 2*x)^(7/2)*Sqrt[3 + 5*x]*(12923401 + 11603280*x))/2240
0000 + (12679836719*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(1280000000
*Sqrt[10])
```

Rubi in Sympy [A] time = 24.8109, size = 165, normalized size = 0.92

$$-\frac{3(-2x+1)^{\frac{7}{2}}(3x+2)^3\sqrt{5x+3}}{70}-\frac{271(-2x+1)^{\frac{7}{2}}(3x+2)^2\sqrt{5x+3}}{2800}-\frac{(-2x+1)^{\frac{7}{2}}\sqrt{5x+3}\left(4351230x+\frac{38770203}{8}\right)}{8400000}+\frac{9526549(-2x+1)^{\frac{5}{2}}\sqrt{5x+3}}{96000000}+\frac{104792039(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{384000000}+\frac{1152712429\sqrt{-2x+1}\sqrt{5x+3}}{1280000000}+\frac{12679836719\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{12800000000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**4/(3+5*x)**(1/2),x)
```

```
[Out] -3*(-2*x + 1)**(7/2)*(3*x + 2)**3*sqrt(5*x + 3)/70 - 271*(-2*x +
1)**(7/2)*(3*x + 2)**2*sqrt(5*x + 3)/2800 - (-2*x + 1)**(7/2)*sqr
t(5*x + 3)*(4351230*x + 38770203/8)/8400000 + 9526549*(-2*x + 1)*
*(5/2)*sqrt(5*x + 3)/96000000 + 104792039*(-2*x + 1)**(3/2)*sqrt(
5*x + 3)/384000000 + 1152712429*sqrt(-2*x + 1)*sqrt(5*x + 3)/1280
000000 + 12679836719*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/128
00000000
```

Mathematica [A] time = 0.153632, size = 80, normalized size = 0.45

$$\frac{10\sqrt{1-2x}\sqrt{5x+3}\,(248832000000x^6+311731200000x^5-147923712000x^4-275707382400x^3+23172376480x^2+9882713}{268800000000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(2 + 3*x)^4)/Sqrt[3 + 5*x],x]
```

```
[Out] (10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(-920643741 + 98827130860*x + 231
72376480*x^2 - 275707382400*x^3 - 147923712000*x^4 + 311731200000
*x^5 + 248832000000*x^6) - 266276571099*Sqrt[10]*ArcSin[Sqrt[5/11
]*Sqrt[1 - 2*x]])/268800000000
```

Maple [A] time = 0.015, size = 155, normalized size = 0.9

$$\frac{1}{537600000000}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(4976640000000\,x^6\sqrt{-10\,x^2-x+3}+6234624000000\,x^5\sqrt{-10\,x^2-x+3}-2958474240000\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^4/(3+5*x)^(1/2),x)
```

```
[Out] 1/537600000000*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(4976640000000*x^6*(-1
0*x^2-x+3)^(1/2)+6234624000000*x^5*(-10*x^2-x+3)^(1/2)-2958474240
000*x^4*(-10*x^2-x+3)^(1/2)-5514147648000*x^3*(-10*x^2-x+3)^(1/2)
+463447529600*x^2*(-10*x^2-x+3)^(1/2)+266276571099*10^(1/2)*arcsi
n(20/11*x+1/11)+1976542617200*x*(-10*x^2-x+3)^(1/2)-18412874820*(
-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.50249, size = 170, normalized size = 0.95

$$\frac{324}{35}\sqrt{-10\,x^2-x+3}x^6+\frac{4059}{350}\sqrt{-10\,x^2-x+3}x^5-\frac{192609}{35000}\sqrt{-10\,x^2-x+3}x^4-\frac{28719519}{2800000}\sqrt{-10\,x^2-x+3}x^3+\frac{144827353}{168000000}\sqrt{-10\,x^2-x+3}x^2+\frac{4941356543}{1344000000}\sqrt{-10\,x^2-x+3}x-\frac{12679836719}{25600000000}\sqrt{10}\arcsin\left(-\frac{20}{11}\,x-\frac{1}{11}\right)-\frac{306881247}{8960000000}\sqrt{-10\,x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4*(-2*x + 1)^(5/2)/sqrt(5*x + 3),x, algorithm="maxima")
```

```
[Out] 324/35*sqrt(-10*x^2 - x + 3)*x^6 + 4059/350*sqrt(-10*x^2 - x + 3)
*x^5 - 192609/35000*sqrt(-10*x^2 - x + 3)*x^4 - 28719519/2800000*
sqrt(-10*x^2 - x + 3)*x^3 + 144827353/168000000*sqrt(-10*x^2 - x
+ 3)*x^2 + 4941356543/1344000000*sqrt(-10*x^2 - x + 3)*x - 126798
36719/25600000000*sqrt(10)*arcsin(-20/11*x - 1/11) - 306881247/89
60000000*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.220093, size = 111, normalized size = 0.62

$$\frac{1}{537600000000}\sqrt{10}\Big(2\sqrt{10}\big(248832000000\,x^6 + 311731200000\,x^5 - 147923712000\,x^4 - 275707382400\,x^3 + 23172376480\,x^2$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^4*(-2*x + 1)^(5/2)/sqrt(5*x + 3),x, algorithm="fricas")
```

```
[Out] 1/537600000000*sqrt(10)*(2*sqrt(10)*(248832000000*x^6 + 311731200
000*x^5 - 147923712000*x^4 - 275707382400*x^3 + 23172376480*x^2 +
 98827130860*x - 920643741)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 266276
571099*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x +
 1))))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)**4/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.28129, size = 602, normalized size = 3.36

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^4*(-2*x + 1)^(5/2)/sqrt(5*x + 3),x, algorithm="giac")
```

```
[Out] 27/448000000000*sqrt(5)*(2*(4*(8*(4*(16*(20*(120*x - 443)*(5*x +
3) + 94933)*(5*x + 3) - 7838433)*(5*x + 3) + 98794353)*(5*x + 3)
- 1568443065)*(5*x + 3) + 8438816295)*sqrt(5*x + 3)*sqrt(-10*x +
5) + 17534989395*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 9
/640000000*sqrt(5)*(2*(4*(8*(4*(16*(100*x - 311)*(5*x + 3) + 4607
1)*(5*x + 3) - 775911)*(5*x + 3) + 15385695)*(5*x + 3) - 99422145
)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 220189365*sqrt(2)*arcsin(1/11*s
qrt(22)*sqrt(5*x + 3))) + 27/320000000*sqrt(5)*(2*(4*(8*(12*(80*x
 - 203)*(5*x + 3) + 19073)*(5*x + 3) - 506185)*(5*x + 3) + 403189
5)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 10392195*sqrt(2)*arcsin(1/11*s
qrt(22)*sqrt(5*x + 3))) - 11/400000*sqrt(5)*(2*(4*(8*(60*x - 119)
*(5*x + 3) + 6163)*(5*x + 3) - 66189)*sqrt(5*x + 3)*sqrt(-10*x +
5) - 184305*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) - 13/150
00*sqrt(5)*(2*(4*(40*x - 59)*(5*x + 3) + 1293)*sqrt(5*x + 3)*sqrt
(-10*x + 5) + 4785*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) +
 2/125*sqrt(5)*(2*(20*x - 23)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 143
*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 8/25*sqrt(5)*(11*
sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) + 2*sqrt(5*x + 3)*sqr
t(-10*x + 5))
```

3.2408 $\int \frac{(1-2x)^{5/2}(2+3x)^3}{\sqrt{3+5x}}\,dx$

Optimal. Leaf size=150

$$-\frac{\sqrt{5x+3}(47280x+52951)(1-2x)^{7/2}}{160000}-\frac{1}{20}(3x+2)^2\sqrt{5x+3}(1-2x)^{7/2}+\frac{276493\sqrt{5x+3}(1-2x)^{5/2}}{4800000}+\frac{3041423\sqrt{5x+3}(1-2x)^{3/2}}{19200000}+\frac{33455653\sqrt{5x+3}\sqrt{1-2x}}{64000000}+\frac{368012183\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{64000000\sqrt{10}}$$

```
[Out] (33455653*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/64000000 + (3041423*(1 - 2
*x)^(3/2)*Sqrt[3 + 5*x])/19200000 + (276493*(1 - 2*x)^(5/2)*Sqrt[
3 + 5*x])/4800000 - ((1 - 2*x)^(7/2)*(2 + 3*x)^2*Sqrt[3 + 5*x])/2
0 - ((1 - 2*x)^(7/2)*Sqrt[3 + 5*x]*(52951 + 47280*x))/160000 + (3
68012183*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(64000000*Sqrt[10])
```

Rubi [A] time = 0.191819, antiderivative size = 150, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$-\frac{\sqrt{5x+3}(47280x+52951)(1-2x)^{7/2}}{160000}-\frac{1}{20}(3x+2)^2\sqrt{5x+3}(1-2x)^{7/2}+\frac{276493\sqrt{5x+3}(1-2x)^{5/2}}{4800000}+\frac{3041423\sqrt{5x+3}(1-2x)^{3/2}}{19200000}+\frac{33455653\sqrt{5x+3}\sqrt{1-2x}}{64000000}+\frac{368012183\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{64000000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(2 + 3*x)^3)/Sqrt[3 + 5*x],x]
```

```
[Out] (33455653*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/64000000 + (3041423*(1 - 2
*x)^(3/2)*Sqrt[3 + 5*x])/19200000 + (276493*(1 - 2*x)^(5/2)*Sqrt[
3 + 5*x])/4800000 - ((1 - 2*x)^(7/2)*(2 + 3*x)^2*Sqrt[3 + 5*x])/2
0 - ((1 - 2*x)^(7/2)*Sqrt[3 + 5*x]*(52951 + 47280*x))/160000 + (3
68012183*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(64000000*Sqrt[10])
```

Rubi in Sympy [A] time = 17.092, size = 136, normalized size = 0.91

$$-\frac{(-2x+1)^{\frac{7}{2}}(3x+2)^2\sqrt{5x+3}}{20}-\frac{(-2x+1)^{\frac{7}{2}}\sqrt{5x+3}\left(35460x+\frac{158853}{4}\right)}{120000}+\frac{276493(-2x+1)^{\frac{5}{2}}\sqrt{5x+3}}{4800000}+\frac{3041423(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{19200000}+\frac{33455653\sqrt{-2x+1}\sqrt{5x+3}}{64000000}+\frac{368012183\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{640000000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**3/(3+5*x)**(1/2),x)
```

```
[Out] -(-2*x + 1)**(7/2)*(3*x + 2)**2*sqrt(5*x + 3)/20 - (-2*x + 1)**(7
/2)*sqrt(5*x + 3)*(35460*x + 158853/4)/120000 + 276493*(-2*x + 1)
**(5/2)*sqrt(5*x + 3)/4800000 + 3041423*(-2*x + 1)**(3/2)*sqrt(5*
x + 3)/19200000 + 33455653*sqrt(-2*x + 1)*sqrt(5*x + 3)/64000000
+ 368012183*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/640000000
```

Mathematica [A] time = 0.126567, size = 75, normalized size = 0.5

$$\frac{10\sqrt{1-2x}\sqrt{5x+3}\left(691200000x^5+338688000x^4-729302400x^3-233839520x^2+334643860x+39899709\right)-1104036549}{1920000000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(2 + 3*x)^3)/Sqrt[3 + 5*x],x]
```

```
[Out] (10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(39899709 + 334643860*x - 2338395
20*x^2 - 729302400*x^3 + 338688000*x^4 + 691200000*x^5) - 1104036
549*Sqrt[10]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/1920000000
```

Maple [A] time = 0.015, size = 138, normalized size = 0.9

$$\frac{1}{3840000000}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(13824000000\,x^5\sqrt{-10\,x^2-x+3}+6773760000\,x^4\sqrt{-10\,x^2-x+3}-14586048000\,x^3\sqrt{-10\,x\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^3/(3+5*x)^(1/2),x)
```

```
[Out] 1/3840000000*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(13824000000*x^5*(-10*x^
2-x+3)^(1/2)+6773760000*x^4*(-10*x^2-x+3)^(1/2)-14586048000*x^3*(
-10*x^2-x+3)^(1/2)-4676790400*x^2*(-10*x^2-x+3)^(1/2)+1104036549*
10^(1/2)*arcsin(20/11*x+1/11)+6692877200*x*(-10*x^2-x+3)^(1/2)+79
7994180*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.51633, size = 147, normalized size = 0.98

$$\frac{18}{5}\sqrt{-10\,x^2-x+3}x^5+\frac{441}{250}\sqrt{-10\,x^2-x+3}x^4-\frac{75969}{20000}\sqrt{-10\,x^2-x+3}x^3-\frac{1461497}{1200000}\sqrt{-10\,x^2-x+3}x^2+\frac{16732193}{9600000}\sqrt{-10\,x^2-x+3}x-\frac{368012183}{1280000000}\sqrt{10}\arcsin\left(-\frac{20}{11}x-\frac{1}{11}\right)+\frac{13299903}{64000000}\sqrt{-10\,x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*(-2*x + 1)^(5/2)/sqrt(5*x + 3),x, algorithm="maxima")
```

```
[Out] 18/5*sqrt(-10*x^2 - x + 3)*x^5 + 441/250*sqrt(-10*x^2 - x + 3)*x^
4 - 75969/20000*sqrt(-10*x^2 - x + 3)*x^3 - 1461497/1200000*sqrt(
-10*x^2 - x + 3)*x^2 + 16732193/9600000*sqrt(-10*x^2 - x + 3)*x -
 368012183/1280000000*sqrt(10)*arcsin(-20/11*x - 1/11) + 13299903
/64000000*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.220319, size = 104, normalized size = 0.69

$$\frac{1}{3840000000}\sqrt{10}\left(2\sqrt{10}\left(691200000\,x^5+338688000\,x^4-729302400\,x^3-233839520\,x^2+334643860\,x+39899709\right)\sqrt{5\,x+3}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*(-2*x + 1)^(5/2)/sqrt(5*x + 3),x, algorithm="fricas")
```

```
[Out] 1/3840000000*sqrt(10)*(2*sqrt(10)*(691200000*x^5 + 338688000*x^4
- 729302400*x^3 - 233839520*x^2 + 334643860*x + 39899709)*sqrt(5*
x + 3)*sqrt(-2*x + 1) + 1104036549*arctan(1/20*sqrt(10)*(20*x + 1
)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)**3/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.273386, size = 481, normalized size = 3.21

$$\frac{9}{3200000000}\sqrt{5}\Big(2(4(8(4(16(100x-311)(5x+3)+46071)(5x+3)-775911)(5x+3)+15385695)(5x+3)-99422145)\sqrt{}$$
$$+\frac{9}{80000000}\sqrt{5}\Big(2(4(8(12(80x-203)(5x+3)+19073)(5x+3)-506185)(5x+3)+4031895)\sqrt{5x+3}\sqrt{-10x+5}+103921$$
$$-\frac{3}{640000}\sqrt{5}\Big(2(4(8(60x-119)(5x+3)+6163)(5x+3)-66189)\sqrt{5x+3}\sqrt{-10x+5}-184305\sqrt{2}\arcsin\Big(\frac{1}{11}\sqrt{22}\sqrt{5x+}$$
$$-\frac{29}{60000}\sqrt{5}\left(2(4(40x-59)(5x+3)+1293)\sqrt{5x+3}\sqrt{-10x+5}+4785\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$
$$+\frac{1}{500}\sqrt{5}\left(2(20x-23)\sqrt{5x+3}\sqrt{-10x+5}-143\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$
$$+\frac{4}{25}\sqrt{5}\left(11\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)+2\sqrt{5x+3}\sqrt{-10x+5}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*(-2*x + 1)^(5/2)/sqrt(5*x + 3),x, algorithm="giac")
```

```
[Out] 9/3200000000*sqrt(5)*(2*(4*(8*(4*(16*(100*x - 311)*(5*x + 3) + 46
071)*(5*x + 3) - 775911)*(5*x + 3) + 15385695)*(5*x + 3) - 994221
45)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 220189365*sqrt(2)*arcsin(1/11
*sqrt(22)*sqrt(5*x + 3))) + 9/80000000*sqrt(5)*(2*(4*(8*(12*(80*x
 - 203)*(5*x + 3) + 19073)*(5*x + 3) - 506185)*(5*x + 3) + 403189
5)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 10392195*sqrt(2)*arcsin(1/11*s
qrt(22)*sqrt(5*x + 3))) - 3/640000*sqrt(5)*(2*(4*(8*(60*x - 119)*
(5*x + 3) + 6163)*(5*x + 3) - 66189)*sqrt(5*x + 3)*sqrt(-10*x + 5
) - 184305*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) - 29/6000
0*sqrt(5)*(2*(4*(40*x - 59)*(5*x + 3) + 1293)*sqrt(5*x + 3)*sqrt(
-10*x + 5) + 4785*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) +
1/500*sqrt(5)*(2*(20*x - 23)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 143*
sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 4/25*sqrt(5)*(11*s
qrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) + 2*sqrt(5*x + 3)*sqrt
(-10*x + 5))
```

3.2409 $\int \frac{(1-2x)^{5/2}(2+3x)^2}{\sqrt{3+5x}}\,dx$

Optimal. Leaf size=143

$$-\frac{3}{50}(3x+2)\sqrt{5x+3}(1-2x)^{7/2}-\frac{369\sqrt{5x+3}(1-2x)^{7/2}}{4000}+\frac{4907\sqrt{5x+3}(1-2x)^{5/2}}{120000}+\frac{53977\sqrt{5x+3}(1-2x)^{3/2}}{480000}+\frac{593747\sqrt{5x+3}\sqrt{1-2x}}{1600000}+\frac{6531217\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{1600000\sqrt{10}}$$

```
[Out] (593747*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/1600000 + (53977*(1 - 2*x)^(
3/2)*Sqrt[3 + 5*x])/480000 + (4907*(1 - 2*x)^(5/2)*Sqrt[3 + 5*x])
/120000 - (369*(1 - 2*x)^(7/2)*Sqrt[3 + 5*x])/4000 - (3*(1 - 2*x)
^(7/2)*(2 + 3*x)*Sqrt[3 + 5*x])/50 + (6531217*ArcSin[Sqrt[2/11]*S
qrt[3 + 5*x]])/(1600000*Sqrt[10])
```

Rubi [A] time = 0.168452, antiderivative size = 143, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$-\frac{3}{50}(3x+2)\sqrt{5x+3}(1-2x)^{7/2}-\frac{369\sqrt{5x+3}(1-2x)^{7/2}}{4000}+\frac{4907\sqrt{5x+3}(1-2x)^{5/2}}{120000}+\frac{53977\sqrt{5x+3}(1-2x)^{3/2}}{480000}+\frac{593747\sqrt{5x+3}\sqrt{1-2x}}{1600000}+\frac{6531217\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{1600000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(2 + 3*x)^2)/Sqrt[3 + 5*x],x]
```


```
[Out] (593747*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/1600000 + (53977*(1 - 2*x)^(
3/2)*Sqrt[3 + 5*x])/480000 + (4907*(1 - 2*x)^(5/2)*Sqrt[3 + 5*x])
/120000 - (369*(1 - 2*x)^(7/2)*Sqrt[3 + 5*x])/4000 - (3*(1 - 2*x)
^(7/2)*(2 + 3*x)*Sqrt[3 + 5*x])/50 + (6531217*ArcSin[Sqrt[2/11]*S
qrt[3 + 5*x]])/(1600000*Sqrt[10])
```

Rubi in Sympy [A] time = 13.4584, size = 129, normalized size = 0.9

$$-\frac{(-2x+1)^{\frac{7}{2}}\sqrt{5x+3}\,(9x+6)}{50}-\frac{369\,(-2x+1)^{\frac{7}{2}}\sqrt{5x+3}}{4000}+\frac{4907\,(-2x+1)^{\frac{5}{2}}\sqrt{5x+3}}{120000}+\frac{53977\,(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{480000}+\frac{593747\sqrt{-2x+1}\sqrt{5x+3}}{1600000}+\frac{6531217\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{16000000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**2/(3+5*x)**(1/2),x)
```

```
[Out] -(-2*x + 1)**(7/2)*sqrt(5*x + 3)*(9*x + 6)/50 - 369*(-2*x + 1)**(
7/2)*sqrt(5*x + 3)/4000 + 4907*(-2*x + 1)**(5/2)*sqrt(5*x + 3)/12
0000 + 53977*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/480000 + 593747*sqrt
(-2*x + 1)*sqrt(5*x + 3)/1600000 + 6531217*sqrt(10)*asin(sqrt(22)
*sqrt(5*x + 3)/11)/16000000
```

Mathematica [A] time = 0.119292, size = 70, normalized size = 0.49

$$\frac{10\sqrt{1-2x}\sqrt{5x+3}\left(6912000x^4-2217600x^3-6256480x^2+3384140x+1498491\right)-19593651\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{48000000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(2 + 3*x)^2)/Sqrt[3 + 5*x],x]
```

```
[Out] (10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(1498491 + 3384140*x - 6256480*x^
2 - 2217600*x^3 + 6912000*x^4) - 19593651*Sqrt[10]*ArcSin[Sqrt[5/
11]*Sqrt[1 - 2*x]])/48000000
```

Maple [A] time = 0.014, size = 121, normalized size = 0.9

$$\frac{1}{96000000}\sqrt{1-2\,x}\sqrt{3+5\,x}\Bigg(138240000\,x^4\sqrt{-10\,x^2-x+3}-44352000\,x^3\sqrt{-10\,x^2-x+3}-125129600\,x^2\sqrt{-10\,x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^2/(3+5*x)^(1/2),x)
```

```
[Out] 1/96000000*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(138240000*x^4*(-10*x^2-x+
3)^(1/2)-44352000*x^3*(-10*x^2-x+3)^(1/2)-125129600*x^2*(-10*x^2-
x+3)^(1/2)+19593651*10^(1/2)*arcsin(20/11*x+1/11)+67682800*x*(-10
*x^2-x+3)^(1/2)+29969820*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.50929, size = 124, normalized size = 0.87

$$\frac{36}{25}\sqrt{-10\,x^2-x+3}x^4-\frac{231}{500}\sqrt{-10\,x^2-x+3}x^3-\frac{39103}{30000}\sqrt{-10\,x^2-x+3}x^2+\frac{169207}{240000}\sqrt{-10\,x^2-x+3}x-\frac{6531217}{32000000}\sqrt{10}\arcsin\left(-\frac{20}{11}\,x-\frac{1}{11}\right)+\frac{499497}{1600000}\sqrt{-10\,x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*(-2*x + 1)^(5/2)/sqrt(5*x + 3),x, algorithm="maxima")
```

```
[Out] 36/25*sqrt(-10*x^2 - x + 3)*x^4 - 231/500*sqrt(-10*x^2 - x + 3)*x
^3 - 39103/30000*sqrt(-10*x^2 - x + 3)*x^2 + 169207/240000*sqrt(-
10*x^2 - x + 3)*x - 6531217/32000000*sqrt(10)*arcsin(-20/11*x - 1
/11) + 499497/1600000*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.222396, size = 97, normalized size = 0.68

$$\frac{1}{96000000}\sqrt{10}\Bigg(2\sqrt{10}\left(6912000\,x^4-2217600\,x^3-6256480\,x^2+3384140\,x+1498491\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+19593651\ \text{arcta}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*(-2*x + 1)^(5/2)/sqrt(5*x + 3),x, algorithm="fricas")
```

```
[Out] 1/96000000*sqrt(10)*(2*sqrt(10)*(6912000*x^4 - 2217600*x^3 - 6256
480*x^2 + 3384140*x + 1498491)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 195
93651*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x +
1))))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)**2/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.259698, size = 371, normalized size = 2.59

$$\frac{3}{80000000}\sqrt{5}\left(2\left(4\left(8\left(12\left(80x-203\right)(5x+3)+19073\right)(5x+3)-506185\right)(5x+3)+4031895\right)\sqrt{5x+3}\sqrt{-10x+5}+10392195\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$
$$+\frac{1}{800000}\sqrt{5}\left(2\left(4\left(8\left(60x-119\right)(5x+3)+6163\right)(5x+3)-66189\right)\sqrt{5x+3}\sqrt{-10x+5}-184305\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$
$$-\frac{23}{120000}\sqrt{5}\left(2\left(4\left(40x-59\right)(5x+3)+1293\right)\sqrt{5x+3}\sqrt{-10x+5}+4785\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$
$$-\frac{1}{500}\sqrt{5}\left(2\left(20x-23\right)\sqrt{5x+3}\sqrt{-10x+5}-143\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$
$$+\frac{2}{25}\sqrt{5}\left(11\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)+2\sqrt{5x+3}\sqrt{-10x+5}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*(-2*x + 1)^(5/2)/sqrt(5*x + 3),x, algorithm="giac")
```

```
[Out] 3/80000000*sqrt(5)*(2*(4*(8*(12*(80*x - 203)*(5*x + 3) + 19073)*(
5*x + 3) - 506185)*(5*x + 3) + 4031895)*sqrt(5*x + 3)*sqrt(-10*x
+ 5) + 10392195*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 1/
800000*sqrt(5)*(2*(4*(8*(60*x - 119)*(5*x + 3) + 6163)*(5*x + 3)
- 66189)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 184305*sqrt(2)*arcsin(1/
11*sqrt(22)*sqrt(5*x + 3))) - 23/120000*sqrt(5)*(2*(4*(40*x - 59)
*(5*x + 3) + 1293)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 4785*sqrt(2)*a
rcsin(1/11*sqrt(22)*sqrt(5*x + 3))) - 1/500*sqrt(5)*(2*(20*x - 23
)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 143*sqrt(2)*arcsin(1/11*sqrt(22
)*sqrt(5*x + 3))) + 2/25*sqrt(5)*(11*sqrt(2)*arcsin(1/11*sqrt(22)
*sqrt(5*x + 3)) + 2*sqrt(5*x + 3)*sqrt(-10*x + 5))
```

3.2410 $\int \frac{(1-2x)^{5/2}(2+3x)}{\sqrt{3+5x}}\,dx$

Optimal. Leaf size=116

$$-\frac{3}{40}\sqrt{5x+3}(1-2x)^{7/2}+\frac{49\sqrt{5x+3}(1-2x)^{5/2}}{1200}+\frac{539\sqrt{5x+3}(1-2x)^{3/2}}{4800}+\frac{5929\sqrt{5x+3}\sqrt{1-2x}}{16000}+\frac{65219\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{16000\sqrt{10}}$$

```
[Out] (5929*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/16000 + (539*(1 - 2*x)^(3/2)*S
qrt[3 + 5*x])/4800 + (49*(1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/1200 - (3
*(1 - 2*x)^(7/2)*Sqrt[3 + 5*x])/40 + (65219*ArcSin[Sqrt[2/11]*Sqr
t[3 + 5*x]])/(16000*Sqrt[10])
```

Rubi [A] time = 0.119928, antiderivative size = 116, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$-\frac{3}{40}\sqrt{5x+3}(1-2x)^{7/2}+\frac{49\sqrt{5x+3}(1-2x)^{5/2}}{1200}+\frac{539\sqrt{5x+3}(1-2x)^{3/2}}{4800}+\frac{5929\sqrt{5x+3}\sqrt{1-2x}}{16000}+\frac{65219\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{16000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(2 + 3*x))/Sqrt[3 + 5*x],x]
```

```
[Out] (5929*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/16000 + (539*(1 - 2*x)^(3/2)*S
qrt[3 + 5*x])/4800 + (49*(1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/1200 - (3
*(1 - 2*x)^(7/2)*Sqrt[3 + 5*x])/40 + (65219*ArcSin[Sqrt[2/11]*Sqr
t[3 + 5*x]])/(16000*Sqrt[10])
```

Rubi in Sympy [A] time = 10.3337, size = 105, normalized size = 0.91

$$-\frac{3(-2x+1)^{\frac{7}{2}}\sqrt{5x+3}}{40}+\frac{49(-2x+1)^{\frac{5}{2}}\sqrt{5x+3}}{1200}+\frac{539(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{4800}+\frac{5929\sqrt{-2x+1}\sqrt{5x+3}}{16000}+\frac{65219\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{160000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)/(3+5*x)**(1/2),x)
```

```
[Out] -3*(-2*x + 1)**(7/2)*sqrt(5*x + 3)/40 + 49*(-2*x + 1)**(5/2)*sqrt
(5*x + 3)/1200 + 539*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/4800 + 5929*
sqrt(-2*x + 1)*sqrt(5*x + 3)/16000 + 65219*sqrt(10)*asin(sqrt(22)
*sqrt(5*x + 3)/11)/160000
```

Mathematica [A] time = 0.0795555, size = 65, normalized size = 0.56

$$\frac{10\sqrt{1-2x}\sqrt{5x+3}\left(28800x^3-35360x^2+2980x+21537\right)-195657\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{480000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(2 + 3*x))/Sqrt[3 + 5*x],x]
```

```
[Out] (10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(21537 + 2980*x - 35360*x^2 + 288
00*x^3) - 195657*Sqrt[10]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/48000
0
```

Maple [A] time = 0.013, size = 104, normalized size = 0.9

$$\frac{1}{960000}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(576000\,x^{3}\sqrt{-10\,x^{2}-x+3}-707200\,x^{2}\sqrt{-10\,x^{2}-x+3}+195657\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)+59\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)/(3+5*x)^(1/2),x)
```

```
[Out] 1/960000*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(576000*x^3*(-10*x^2-x+3)^(1
/2)-707200*x^2*(-10*x^2-x+3)^(1/2)+195657*10^(1/2)*arcsin(20/11*x
+1/11)+59600*x*(-10*x^2-x+3)^(1/2)+430740*(-10*x^2-x+3)^(1/2))/(-
10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.51056, size = 101, normalized size = 0.87

$$\frac{3}{5}\,\sqrt{-10\,x^{2}-x+3}x^{3}-\frac{221}{300}\,\sqrt{-10\,x^{2}-x+3}x^{2}+\frac{149}{2400}\,\sqrt{-10\,x^{2}-x+3}x-\frac{65219}{320000}\,\sqrt{10}\arcsin\left(-\frac{20}{11}\,x-\frac{1}{11}\right)+\frac{7179}{16000}\,\sqrt{-10\,x^{2}-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)*(-2*x + 1)^(5/2)/sqrt(5*x + 3),x, algorithm="maxima")
```

```
[Out] 3/5*sqrt(-10*x^2 - x + 3)*x^3 - 221/300*sqrt(-10*x^2 - x + 3)*x^2
 + 149/2400*sqrt(-10*x^2 - x + 3)*x - 65219/320000*sqrt(10)*arcsi
n(-20/11*x - 1/11) + 7179/16000*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.225762, size = 90, normalized size = 0.78

$$\frac{1}{960000}\,\sqrt{10}\left(2\,\sqrt{10}\left(28800\,x^{3}-35360\,x^{2}+2980\,x+21537\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+195657\,\arctan\left(\frac{\sqrt{10}(20\,x+1)}{20\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)*(-2*x + 1)^(5/2)/sqrt(5*x + 3),x, algorithm="fricas")
```

```
[Out] 1/960000*sqrt(10)*(2*sqrt(10)*(28800*x^3 - 35360*x^2 + 2980*x + 2
1537)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 195657*arctan(1/20*sqrt(10)*
(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [A] time = 81.2204, size = 296, normalized size = 2.55

$$-\frac{7\sqrt{2}\left(\begin{cases}\frac{1331\sqrt{5}\left(\frac{5\sqrt{5}(-2x+1)^{\frac{3}{2}}(10x+6)^{\frac{3}{2}}}{7986}+\frac{3\sqrt{5}\sqrt{-2x+1}\sqrt{10x+6}(20x+1)}{1936}-\frac{\sqrt{5}\sqrt{-2x+1}\sqrt{10x+6}}{22}+\frac{5\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{16}\right)}{625} & \text{for}\: x\leq\frac{1}{2}\wedge x>-\frac{3}{5}\end{cases}\right)}{2}$$

$$+\frac{3\sqrt{2}\left(\begin{cases}\frac{14641\sqrt{5}\left(\frac{5\sqrt{5}(-2x+1)^{\frac{3}{2}}(10x+6)^{\frac{3}{2}}}{3993}+\frac{7\sqrt{5}\sqrt{-2x+1}\sqrt{10x+6}(20x+1)}{3872}+\frac{\sqrt{5}\sqrt{-2x+1}\sqrt{10x+6}\left(12100x-2000(-2x+1)^{3}+6600(-2x+1)^{2}-4719\right)}{1874048}-\frac{\sqrt{5}\sqrt{-2x+1}\sqrt{10x+6}}{22}+\frac{35\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)}{128}\right)}{3125}\end{cases}\right.}{2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)/(3+5*x)**(1/2),x)
```

```
[Out] -7*sqrt(2)*Piecewise((1331*sqrt(5)*(5*sqrt(5)*(-2*x + 1)**(3/2)*(
10*x + 6)**(3/2)/7986 + 3*sqrt(5)*sqrt(-2*x + 1)*sqrt(10*x + 6)*(
20*x + 1)/1936 - sqrt(5)*sqrt(-2*x + 1)*sqrt(10*x + 6)/22 + 5*asi
n(sqrt(55)*sqrt(-2*x + 1)/11)/16)/625, (x <= 1/2) & (x > -3/5)))/
2 + 3*sqrt(2)*Piecewise((14641*sqrt(5)*(5*sqrt(5)*(-2*x + 1)**(3/
2)*(10*x + 6)**(3/2)/3993 + 7*sqrt(5)*sqrt(-2*x + 1)*sqrt(10*x +
6)*(20*x + 1)/3872 + sqrt(5)*sqrt(-2*x + 1)*sqrt(10*x + 6)*(12100
*x - 2000*(-2*x + 1)**3 + 6600*(-2*x + 1)**2 - 4719)/1874048 - sq
rt(5)*sqrt(-2*x + 1)*sqrt(10*x + 6)/22 + 35*asin(sqrt(55)*sqrt(-2
*x + 1)/11)/128)/3125, (x <= 1/2) & (x > -3/5)))/2
```

GIAC/XCAS [A] time = 0.248846, size = 274, normalized size = 2.36

$$\frac{1}{800000}\sqrt{5}\left(2\left(4\left(8\left(60x-119\right)\left(5x+3\right)+6163\right)\left(5x+3\right)-66189\right)\sqrt{5x+3}\sqrt{-10x+5}-184305\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$
$$-\frac{1}{30000}\sqrt{5}\left(2\left(4\left(40x-59\right)\left(5x+3\right)+1293\right)\sqrt{5x+3}\sqrt{-10x+5}+4785\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$
$$-\frac{1}{400}\sqrt{5}\left(2\left(20x-23\right)\sqrt{5x+3}\sqrt{-10x+5}-143\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$
$$+\frac{1}{25}\sqrt{5}\left(11\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)+2\sqrt{5x+3}\sqrt{-10x+5}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)*(-2*x + 1)^(5/2)/sqrt(5*x + 3),x, algorithm="giac")
```

```
[Out] 1/800000*sqrt(5)*(2*(4*(8*(60*x - 119)*(5*x + 3) + 6163)*(5*x + 3
) - 66189)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 184305*sqrt(2)*arcsin(
1/11*sqrt(22)*sqrt(5*x + 3))) - 1/30000*sqrt(5)*(2*(4*(40*x - 59)
*(5*x + 3) + 1293)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 4785*sqrt(2)*a
rcsin(1/11*sqrt(22)*sqrt(5*x + 3))) - 1/400*sqrt(5)*(2*(20*x - 23
)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 143*sqrt(2)*arcsin(1/11*sqrt(22
)*sqrt(5*x + 3))) + 1/25*sqrt(5)*(11*sqrt(2)*arcsin(1/11*sqrt(22)
*sqrt(5*x + 3)) + 2*sqrt(5*x + 3)*sqrt(-10*x + 5))
```

3.2411 $\int \frac{(1-2x)^{5/2}}{\sqrt{3+5x}}\,dx$

Optimal. Leaf size=94

$$\frac{1}{15}\sqrt{5x+3}(1-2x)^{5/2}+\frac{11}{60}\sqrt{5x+3}(1-2x)^{3/2}+\frac{121}{200}\sqrt{5x+3}\sqrt{1-2x}+\frac{1331\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{200\sqrt{10}}$$

```
[Out] (121*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/200 + (11*(1 - 2*x)^(3/2)*Sqrt[
3 + 5*x])/60 + ((1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/15 + (1331*ArcSin[
Sqrt[2/11]*Sqrt[3 + 5*x]])/(200*Sqrt[10])
```

Rubi [A] time = 0.0847475, antiderivative size = 94, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.158

$$\frac{1}{15}\sqrt{5x+3}(1-2x)^{5/2}+\frac{11}{60}\sqrt{5x+3}(1-2x)^{3/2}+\frac{121}{200}\sqrt{5x+3}\sqrt{1-2x}+\frac{1331\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{200\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/Sqrt[3 + 5*x],x]
```

```
[Out] (121*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/200 + (11*(1 - 2*x)^(3/2)*Sqrt[
3 + 5*x])/60 + ((1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/15 + (1331*ArcSin[
Sqrt[2/11]*Sqrt[3 + 5*x]])/(200*Sqrt[10])
```

Rubi in Sympy [A] time = 7.92392, size = 83, normalized size = 0.88

$$\frac{(-2x+1)^{\frac{5}{2}}\sqrt{5x+3}}{15}+\frac{11(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{60}+\frac{121\sqrt{-2x+1}\sqrt{5x+3}}{200}+\frac{1331\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{2000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(3+5*x)**(1/2),x)
```

```
[Out] (-2*x + 1)**(5/2)*sqrt(5*x + 3)/15 + 11*(-2*x + 1)**(3/2)*sqrt(5*
x + 3)/60 + 121*sqrt(-2*x + 1)*sqrt(5*x + 3)/200 + 1331*sqrt(10)*
asin(sqrt(22)*sqrt(5*x + 3)/11)/2000
```

Mathematica [A] time = 0.0560981, size = 60, normalized size = 0.64

$$\frac{10\sqrt{1-2x}\sqrt{5x+3}\left(160x^2-380x+513\right)-3993\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{6000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/Sqrt[3 + 5*x],x]
```

```
[Out] (10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(513 - 380*x + 160*x^2) - 3993*Sq
rt[10]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/6000
```

Maple [A] time = 0.006, size = 88, normalized size = 0.9

$$\frac{1}{15}(1-2x)^{\frac{5}{2}}\sqrt{3+5x}+\frac{11}{60}(1-2x)^{\frac{3}{2}}\sqrt{3+5x}+\frac{121}{200}\sqrt{1-2x}\sqrt{3+5x} +\frac{1331\sqrt{10}}{4000}\sqrt{(1-2x)(3+5x)}\arcsin\left(\frac{20x}{11}+\frac{1}{11}\right)\frac{1}{\sqrt{1-2x}}\frac{1}{\sqrt{3+5x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((1-2*x)^(5/2)/(3+5*x)^(1/2),x)
```

```
[Out] 1/15*(1-2*x)^(5/2)*(3+5*x)^(1/2)+11/60*(1-2*x)^(3/2)*(3+5*x)^(1/2
)+121/200*(1-2*x)^(1/2)*(3+5*x)^(1/2)+1331/4000*((1-2*x)*(3+5*x))
^(1/2)/(3+5*x)^(1/2)/(1-2*x)^(1/2)*10^(1/2)*arcsin(20/11*x+1/11)
```

Maxima [A] time = 1.51504, size = 78, normalized size = 0.83

$$\frac{4}{15}\sqrt{-10x^2-x+3}x^2-\frac{19}{30}\sqrt{-10x^2-x+3}x-\frac{1331}{4000}\sqrt{10}\arcsin\left(-\frac{20}{11}x-\frac{1}{11}\right)+\frac{171}{200}\sqrt{-10x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((-2*x + 1)^(5/2)/sqrt(5*x + 3),x, algorithm="maxima")
```

```
[Out] 4/15*sqrt(-10*x^2 - x + 3)*x^2 - 19/30*sqrt(-10*x^2 - x + 3)*x -
1331/4000*sqrt(10)*arcsin(-20/11*x - 1/11) + 171/200*sqrt(-10*x^2
 - x + 3)
```

Fricas [A] time = 0.224608, size = 84, normalized size = 0.89

$$\frac{1}{12000}\sqrt{10}\left(2\sqrt{10}\left(160x^2-380x+513\right)\sqrt{5x+3}\sqrt{-2x+1}+3993\arctan\left(\frac{\sqrt{10}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((-2*x + 1)^(5/2)/sqrt(5*x + 3),x, algorithm="fricas")
```

```
[Out] 1/12000*sqrt(10)*(2*sqrt(10)*(160*x^2 - 380*x + 513)*sqrt(5*x + 3
)*sqrt(-2*x + 1) + 3993*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x
 + 3)*sqrt(-2*x + 1))))
```

Sympy [A] time = 22.3242, size = 230, normalized size = 2.45

$$\begin{cases} \frac{8i\left(x+\frac{3}{5}\right)^{\frac{7}{2}}}{3\sqrt{10x-5}}-\frac{187i\left(x+\frac{3}{5}\right)^{\frac{5}{2}}}{15\sqrt{10x-5}}+\frac{7139i\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}{300\sqrt{10x-5}}-\frac{14641i\sqrt{x+\frac{3}{5}}}{1000\sqrt{10x-5}}-\frac{1331\sqrt{10}i\operatorname{acosh}\left(\frac{\sqrt{110}\sqrt{x+\frac{3}{5}}}{11}\right)}{2000} & \text{for}\ \frac{10\left|x+\frac{3}{5}\right|}{11}>1 \\ \frac{1331\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{110}\sqrt{x+\frac{3}{5}}}{11}\right)}{2000}-\frac{8\left(x+\frac{3}{5}\right)^{\frac{7}{2}}}{3\sqrt{-10x+5}}+\frac{187\left(x+\frac{3}{5}\right)^{\frac{5}{2}}}{15\sqrt{-10x+5}}-\frac{7139\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}{300\sqrt{-10x+5}}+\frac{14641\sqrt{x+\frac{3}{5}}}{1000\sqrt{-10x+5}} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((1-2*x)**(5/2)/(3+5*x)**(1/2),x)
```

```
[Out] Piecewise((8*I*(x + 3/5)**(7/2)/(3*sqrt(10*x - 5)) - 187*I*(x + 3
/5)**(5/2)/(15*sqrt(10*x - 5)) + 7139*I*(x + 3/5)**(3/2)/(300*sqr
t(10*x - 5)) - 14641*I*sqrt(x + 3/5)/(1000*sqrt(10*x - 5)) - 1331
```

```
*sqrt(10)*I*acosh(sqrt(110)*sqrt(x + 3/5)/11)/2000, 10*Abs(x + 3/
5)/11 > 1), (1331*sqrt(10)*asin(sqrt(110)*sqrt(x + 3/5)/11)/2000
- 8*(x + 3/5)**(7/2)/(3*sqrt(-10*x + 5)) + 187*(x + 3/5)**(5/2)/(
15*sqrt(-10*x + 5)) - 7139*(x + 3/5)**(3/2)/(300*sqrt(-10*x + 5))
 + 14641*sqrt(x + 3/5)/(1000*sqrt(-10*x + 5)), True))
```

GIAC/XCAS [A] time = 0.240128, size = 189, normalized size = 2.01

$$\frac{1}{30000}\sqrt{5}\left(2\left(4\left(40x-59\right)\left(5x+3\right)+1293\right)\sqrt{5x+3}\sqrt{-10x+5}+4785\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$
$$-\frac{1}{500}\sqrt{5}\left(2\left(20x-23\right)\sqrt{5x+3}\sqrt{-10x+5}-143\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$
$$+\frac{1}{50}\sqrt{5}\left(11\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)+2\sqrt{5x+3}\sqrt{-10x+5}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/sqrt(5*x + 3),x, algorithm="giac")
```

```
[Out] 1/30000*sqrt(5)*(2*(4*(40*x - 59)*(5*x + 3) + 1293)*sqrt(5*x + 3)
*sqrt(-10*x + 5) + 4785*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3
))) - 1/500*sqrt(5)*(2*(20*x - 23)*sqrt(5*x + 3)*sqrt(-10*x + 5)
- 143*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))) + 1/50*sqrt(5)
*(11*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) + 2*sqrt(5*x + 3
)*sqrt(-10*x + 5))
```

3.2412 $\int \frac{(1-2x)^{5/2}}{(2+3x)\sqrt{3+5x}}\,dx$

Optimal. Leaf size=106

$$-\frac{1}{15}\sqrt{5x+3}(1-2x)^{3/2}-\frac{239}{450}\sqrt{5x+3}\sqrt{1-2x}-\frac{17687\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{1350\sqrt{10}}-\frac{98}{27}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

```
[Out] (-239*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/450 - ((1 - 2*x)^(3/2)*Sqrt[3
+ 5*x])/15 - (17687*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(1350*Sqrt[
10]) - (98*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])
/27
```

Rubi [A] time = 0.235767, antiderivative size = 106, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 7, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.269$

$$-\frac{1}{15}\sqrt{5x+3}(1-2x)^{3/2}-\frac{239}{450}\sqrt{5x+3}\sqrt{1-2x}-\frac{17687\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{1350\sqrt{10}}-\frac{98}{27}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)*Sqrt[3 + 5*x]),x]
```

```
[Out] (-239*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/450 - ((1 - 2*x)^(3/2)*Sqrt[3
+ 5*x])/15 - (17687*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(1350*Sqrt[
10]) - (98*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])
/27
```

Rubi in Sympy [A] time = 22.7331, size = 99, normalized size = 0.93

$$-\frac{(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{15}-\frac{239\sqrt{-2x+1}\sqrt{5x+3}}{450}-\frac{17687\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{13500}-\frac{98\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{27}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)/(3+5*x)**(1/2),x)
```

```
[Out] -(-2*x + 1)**(3/2)*sqrt(5*x + 3)/15 - 239*sqrt(-2*x + 1)*sqrt(5*x
 + 3)/450 - 17687*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/13500
- 98*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/27
```

Mathematica [A] time = 0.176451, size = 100, normalized size = 0.94

$$\frac{60\sqrt{1-2x}\sqrt{5x+3}(60x-269)-49000\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)-17687\sqrt{10}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)}{27000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)*Sqrt[3 + 5*x]),x]
```

```
[Out] (60*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(-269 + 60*x) - 49000*Sqrt[7]*Arc
Tan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])] - 17687*Sqrt[1
0]*ArcTan[(1 + 20*x)/(2*Sqrt[1 - 2*x]*Sqrt[30 + 50*x])])/27000
```

Maple [A] time = 0.017, size = 98, normalized size = 0.9

$$\frac{1}{27000}\sqrt{1-2x}\sqrt{3+5x}\left(49000\sqrt{7}\arctan\left(1/14\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)-17687\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)+3600x\sqrt{-10x^2-x}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)/(3+5*x)^(1/2),x)
```

```
[Out] 1/27000*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(49000*7^(1/2)*arctan(1/14*(3
7*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))-17687*10^(1/2)*arcsin(20/11*
x+1/11)+3600*x*(-10*x^2-x+3)^(1/2)-16140*(-10*x^2-x+3)^(1/2))/(-1
0*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.52743, size = 93, normalized size = 0.88

$$\frac{2}{15}\sqrt{-10x^2-x+3}x-\frac{17687}{27000}\sqrt{10}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)+\frac{49}{27}\sqrt{7}\arcsin\left(\frac{37x}{11|3x+2|}+\frac{20}{11|3x+2|}\right)-\frac{269}{450}\sqrt{-10x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)),x, algorithm="maxima")
```

```
[Out] 2/15*sqrt(-10*x^2 - x + 3)*x - 17687/27000*sqrt(10)*arcsin(20/11*
x + 1/11) + 49/27*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs
(3*x + 2)) - 269/450*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.239316, size = 122, normalized size = 1.15

$$\frac{1}{27000}\sqrt{10}\left(6\sqrt{10}(60x-269)\sqrt{5x+3}\sqrt{-2x+1}+4900\sqrt{10}\sqrt{7}\arctan\left(\frac{\sqrt{7}(37x+20)}{14\sqrt{5x+3}\sqrt{-2x+1}}\right)-17687\arctan\left(\frac{\sqrt{10}(}{20\sqrt{5x+}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)),x, algorithm="fricas")
```

```
[Out] 1/27000*sqrt(10)*(6*sqrt(10)*(60*x - 269)*sqrt(5*x + 3)*sqrt(-2*x
 + 1) + 4900*sqrt(10)*sqrt(7)*arctan(1/14*sqrt(7)*(37*x + 20)/(sq
rt(5*x + 3)*sqrt(-2*x + 1))) - 17687*arctan(1/20*sqrt(10)*(20*x +
 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(-2x+1)^{\frac{5}{2}}}{(3x+2)\sqrt{5x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)/(2+3*x)/(3+5*x)**(1/2),x)
```

```
[Out] Integral((-2*x + 1)**(5/2)/((3*x + 2)*sqrt(5*x + 3)), x)
```

GIAC/XCAS [A] time = 0.282723, size = 234, normalized size = 2.21

$$\frac{49}{270}\sqrt{70}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3} - 4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right) + \frac{1}{2250}\left(12\sqrt{5}(5x+3) - 305\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5} - \frac{17687}{27000}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3} - 4\right)}{4\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)),x, algorithm="giac")
```

```
[Out] 49/270*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x
+ 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqrt
(2)*sqrt(-10*x + 5) - sqrt(22)))) + 1/2250*(12*sqrt(5)*(5*x + 3)
- 305*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5) - 17687/27000*sqrt(1
0)*(pi + 2*arctan(-1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) -
sqrt(22))^2/(5*x + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))
```

3.2413 $\int \frac{(1-2x)^{5/2}}{(2+3x)^2\sqrt{3+5x}}\,dx$

Optimal. Leaf size=115

$$\frac{7\sqrt{5x+3}(1-2x)^{3/2}}{3(3x+2)}+\frac{74}{45}\sqrt{5x+3}\sqrt{1-2x}+\frac{346}{135}\sqrt{\frac{2}{5}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{175}{27}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

```
[Out] (74*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/45 + (7*(1 - 2*x)^(3/2)*Sqrt[3 +
 5*x])/(3*(2 + 3*x)) + (346*Sqrt[2/5]*ArcSin[Sqrt[2/11]*Sqrt[3 +
5*x]])/135 - (175*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 +
5*x])])/27
```

Rubi [A] time = 0.237379, antiderivative size = 115, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 7, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.269

$$\frac{7\sqrt{5x+3}(1-2x)^{3/2}}{3(3x+2)}+\frac{74}{45}\sqrt{5x+3}\sqrt{1-2x}+\frac{346}{135}\sqrt{\frac{2}{5}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{175}{27}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)^2*Sqrt[3 + 5*x]),x]
```

```
[Out] (74*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/45 + (7*(1 - 2*x)^(3/2)*Sqrt[3 +
 5*x])/(3*(2 + 3*x)) + (346*Sqrt[2/5]*ArcSin[Sqrt[2/11]*Sqrt[3 +
5*x]])/135 - (175*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 +
5*x])])/27
```

Rubi in Sympy [A] time = 23.4036, size = 102, normalized size = 0.89

$$\frac{7\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{3\left(3x+2\right)}+\frac{74\sqrt{-2x+1}\sqrt{5x+3}}{45}+\frac{346\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{675}-\frac{175\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{27}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)**2/(3+5*x)**(1/2),x)
```

```
[Out] 7*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/(3*(3*x + 2)) + 74*sqrt(-2*x +
1)*sqrt(5*x + 3)/45 + 346*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11
)/675 - 175*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3))
)/27
```

Mathematica [A] time = 0.182567, size = 107, normalized size = 0.93

$$\frac{\frac{30\sqrt{1-2x}\sqrt{5x+3}(12x+253)}{3x+2}-4375\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)+346\sqrt{10}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)}{1350}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)^2*Sqrt[3 + 5*x]),x]
```

```
[Out] ((30*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(253 + 12*x))/(2 + 3*x) - 4375*S
qrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])] + 34
6*Sqrt[10]*ArcTan[(1 + 20*x)/(2*Sqrt[1 - 2*x]*Sqrt[30 + 50*x])])/
1350
```

Maple [A] time = 0.02, size = 146, normalized size = 1.3

$$\frac{1}{2700+4050x}\sqrt{1-2x}\sqrt{3+5x}\left(1038\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)x+13125\sqrt{7}\arctan\left(1/14\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)x+692\sqrt{10}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)^2/(3+5*x)^(1/2),x)
```

```
[Out] 1/1350*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(1038*10^(1/2)*arcsin(20/11*x+
1/11)*x+13125*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)
^(1/2))*x+692*10^(1/2)*arcsin(20/11*x+1/11)+8750*7^(1/2)*arctan(1
/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+360*x*(-10*x^2-x+3)^(1
/2)+7590*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)
```

Maxima [A] time = 1.49639, size = 101, normalized size = 0.88

$$\frac{173}{675}\sqrt{10}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)+\frac{175}{54}\sqrt{7}\arcsin\left(\frac{37x}{11|3x+2|}+\frac{20}{11|3x+2|}\right)+\frac{4}{45}\sqrt{-10x^2-x+3}+\frac{49\sqrt{-10x^2-x+3}}{9(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^2),x, algorithm="maxima")
```

```
[Out] 173/675*sqrt(10)*arcsin(20/11*x + 1/11) + 175/54*sqrt(7)*arcsin(3
7/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) + 4/45*sqrt(-10*x^2 - x
 + 3) + 49/9*sqrt(-10*x^2 - x + 3)/(3*x + 2)
```

Fricas [A] time = 0.230922, size = 153, normalized size = 1.33

$$\frac{\sqrt{5}\left(875\sqrt{7}\sqrt{5}(3x+2)\arctan\left(\frac{\sqrt{7}(37x+20)}{14\sqrt{5x+3}\sqrt{-2x+1}}\right)+6\sqrt{5}(12x+253)\sqrt{5x+3}\sqrt{-2x+1}+346\sqrt{2}(3x+2)\arctan\left(\frac{\sqrt{5}\sqrt{2}(20x+}{20\sqrt{5x+3}\sqrt{-2}}\right.\right.}{1350(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^2),x, algorithm="fricas")
```

```
[Out] 1/1350*sqrt(5)*(875*sqrt(7)*sqrt(5)*(3*x + 2)*arctan(1/14*sqrt(7)
*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))) + 6*sqrt(5)*(12*x +
253)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 346*sqrt(2)*(3*x + 2)*arctan(
1/20*sqrt(5)*sqrt(2)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/
(3*x + 2)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)/(2+3*x)**2/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.33766, size = 377, normalized size = 3.28

$$\frac{35}{108}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)+\frac{173}{675}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{4\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)+\frac{4}{225}\sqrt{5}\sqrt{5x+3}\sqrt{-10x+5}+\frac{1078\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)}{9\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^2),x, algorithm="giac")
```

```
[Out] 35/108*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x
+ 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqrt
(2)*sqrt(-10*x + 5) - sqrt(22)))) + 173/675*sqrt(10)*(pi + 2*arct
an(-1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*
x + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 4/225*sqrt(5
)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 1078/9*sqrt(10)*((sqrt(2)*sqrt(
-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*s
qrt(-10*x + 5) - sqrt(22)))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22)
)/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt
(22)))^2 + 280)
```

3.2414 $\int \frac{(1-2x)^{5/2}}{(2+3x)^3\sqrt{3+5x}}\,dx$

Optimal. Leaf size=122

$$\frac{7\sqrt{5x+3}(1-2x)^{3/2}}{6(3x+2)^2}+\frac{637\sqrt{5x+3}\sqrt{1-2x}}{36(3x+2)}-\frac{8}{27}\sqrt{\frac{2}{5}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{3035}{108}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

```
[Out] (7*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(6*(2 + 3*x)^2) + (637*Sqrt[1 -
 2*x]*Sqrt[3 + 5*x])/(36*(2 + 3*x)) - (8*Sqrt[2/5]*ArcSin[Sqrt[2/
11]*Sqrt[3 + 5*x]])/27 - (3035*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]/(Sqrt
[7]*Sqrt[3 + 5*x])])/108
```

Rubi [A] time = 0.237294, antiderivative size = 122, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 7, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.269$

$$\frac{7\sqrt{5x+3}(1-2x)^{3/2}}{6(3x+2)^2}+\frac{637\sqrt{5x+3}\sqrt{1-2x}}{36(3x+2)}-\frac{8}{27}\sqrt{\frac{2}{5}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{3035}{108}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)^3*Sqrt[3 + 5*x]),x]
```

```
[Out] (7*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(6*(2 + 3*x)^2) + (637*Sqrt[1 -
 2*x]*Sqrt[3 + 5*x])/(36*(2 + 3*x)) - (8*Sqrt[2/5]*ArcSin[Sqrt[2/
11]*Sqrt[3 + 5*x]])/27 - (3035*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]/(Sqrt
[7]*Sqrt[3 + 5*x])])/108
```

Rubi in Sympy [A] time = 22.3624, size = 109, normalized size = 0.89

$$\frac{7\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{6\left(3x+2\right)^2}+\frac{637\sqrt{-2x+1}\sqrt{5x+3}}{36\left(3x+2\right)}-\frac{8\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{135}-\frac{3035\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{108}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)**3/(3+5*x)**(1/2),x)
```

```
[Out] 7*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/(6*(3*x + 2)**2) + 637*sqrt(-2*
x + 1)*sqrt(5*x + 3)/(36*(3*x + 2)) - 8*sqrt(10)*asin(sqrt(22)*sq
rt(5*x + 3)/11)/135 - 3035*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7
*sqrt(5*x + 3)))/108
```

Mathematica [A] time = 0.15431, size = 111, normalized size = 0.91

$$\frac{7\sqrt{1-2x}\sqrt{5x+3}(261x+188)}{36(3x+2)^2}-\frac{3035}{216}\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)-\frac{4}{27}\sqrt{\frac{2}{5}}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)^3*Sqrt[3 + 5*x]),x]
```

```
[Out] (7*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(188 + 261*x))/(36*(2 + 3*x)^2) -
(3035*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x]
)])/216 - (4*Sqrt[2/5]*ArcTan[(1 + 20*x)/(2*Sqrt[1 - 2*x]*Sqrt[30
 + 50*x])])/27
```

Maple [B] time = 0.019, size = 191, normalized size = 1.6

$$\frac{1}{1080 \left(2+3x\right)^{2}}\sqrt{1-2x}\sqrt{3+5x}\left(136575\sqrt{7}\arctan\left(1/14\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^{2}-x+3}}\right)x^{2}-288\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)x^{2}+18210$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)^3/(3+5*x)^(1/2),x)
```

```
[Out] 1/1080*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(136575*7^(1/2)*arctan(1/14*(3
7*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2-288*10^(1/2)*arcsin(20/1
1*x+1/11)*x^2+182100*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x
^2-x+3)^(1/2))*x-384*10^(1/2)*arcsin(20/11*x+1/11)*x+60700*7^(1/2
)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))-128*10^(1/2)
*arcsin(20/11*x+1/11)+54810*x*(-10*x^2-x+3)^(1/2)+39480*(-10*x^2-
x+3)^(1/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)^2
```

Maxima [A] time = 1.50914, size = 117, normalized size = 0.96

$$-\frac{4}{135}\sqrt{10}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)+\frac{3035}{216}\sqrt{7}\arcsin\left(\frac{37x}{11\left|3x+2\right|}+\frac{20}{11\left|3x+2\right|}\right)+\frac{49\sqrt{-10x^{2}-x+3}}{18\left(9x^{2}+12x+4\right)}+\frac{203\sqrt{-10x^{2}-x+3}}{12\left(3x+2\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^3),x, algorithm="maxima")
```

```
[Out] -4/135*sqrt(10)*arcsin(20/11*x + 1/11) + 3035/216*sqrt(7)*arcsin(
37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) + 49/18*sqrt(-10*x^2 -
 x + 3)/(9*x^2 + 12*x + 4) + 203/12*sqrt(-10*x^2 - x + 3)/(3*x +
2)
```

Fricas [A] time = 0.23226, size = 173, normalized size = 1.42

$$\frac{\sqrt{5}\left(3035\sqrt{7}\sqrt{5}\left(9x^{2}+12x+4\right)\arctan\left(\frac{\sqrt{7}(37x+20)}{14\sqrt{5x+3}\sqrt{-2x+1}}\right)+42\sqrt{5}(261x+188)\sqrt{5x+3}\sqrt{-2x+1}-32\sqrt{2}\left(9x^{2}+12x+4\right)a}{1080\left(9x^{2}+12x+4\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^3),x, algorithm="fricas")
```

```
[Out] 1/1080*sqrt(5)*(3035*sqrt(7)*sqrt(5)*(9*x^2 + 12*x + 4)*arctan(1/
14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))) + 42*sqrt(
5)*(261*x + 188)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 32*sqrt(2)*(9*x^2
 + 12*x + 4)*arctan(1/20*sqrt(5)*sqrt(2)*(20*x + 1)/(sqrt(5*x + 3
)*sqrt(-2*x + 1))))/(9*x^2 + 12*x + 4)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)/(2+3*x)**3/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.350211, size = 437, normalized size = 3.58

$$\frac{607}{432}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{4}{135}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{4\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)+\frac{77\left(157\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3+25480\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)\right)}{18\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^3),x, algorithm="giac")
```

```
[Out] 607/432*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x
 + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqr
t(2)*sqrt(-10*x + 5) - sqrt(22)))) - 4/135*sqrt(10)*(pi + 2*arcta
n(-1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x
 + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 77/18*(157*sq
rt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sq
rt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 25480*sqrt(
10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(
5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-
10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sq
rt(-10*x + 5) - sqrt(22)))^2 + 280)^2
```

3.2415 $\int \frac{(1-2x)^{5/2}}{(2+3x)^4\sqrt{3+5x}}\,dx$

Optimal. Leaf size=122

$$\frac{\sqrt{5x+3}(1-2x)^{5/2}}{3(3x+2)^3}+\frac{55\sqrt{5x+3}(1-2x)^{3/2}}{12(3x+2)^2}+\frac{605\sqrt{5x+3}\sqrt{1-2x}}{8(3x+2)}-\frac{6655\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{8\sqrt{7}}$$

```
[Out] ((1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(3*(2 + 3*x)^3) + (55*(1 - 2*x)^(
3/2)*Sqrt[3 + 5*x])/(12*(2 + 3*x)^2) + (605*Sqrt[1 - 2*x]*Sqrt[3
+ 5*x])/(8*(2 + 3*x)) - (6655*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[
3 + 5*x])])/(8*Sqrt[7])
```

Rubi [A] time = 0.166898, antiderivative size = 122, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.115

$$\frac{\sqrt{5x+3}(1-2x)^{5/2}}{3(3x+2)^3}+\frac{55\sqrt{5x+3}(1-2x)^{3/2}}{12(3x+2)^2}+\frac{605\sqrt{5x+3}\sqrt{1-2x}}{8(3x+2)}-\frac{6655\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{8\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)^4*Sqrt[3 + 5*x]),x]
```

```
[Out] ((1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(3*(2 + 3*x)^3) + (55*(1 - 2*x)^(
3/2)*Sqrt[3 + 5*x])/(12*(2 + 3*x)^2) + (605*Sqrt[1 - 2*x]*Sqrt[3
+ 5*x])/(8*(2 + 3*x)) - (6655*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[
3 + 5*x])])/(8*Sqrt[7])
```

Rubi in Sympy [A] time = 13.6088, size = 109, normalized size = 0.89

$$\frac{(-2x+1)^{\frac{5}{2}}\sqrt{5x+3}}{3\,(3x+2)^3}+\frac{55\,(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{12\,(3x+2)^2}+\frac{605\sqrt{-2x+1}\sqrt{5x+3}}{8\,(3x+2)}-\frac{6655\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{56}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)**4/(3+5*x)**(1/2),x)
```

```
[Out] (-2*x + 1)**(5/2)*sqrt(5*x + 3)/(3*(3*x + 2)**3) + 55*(-2*x + 1)*
*(3/2)*sqrt(5*x + 3)/(12*(3*x + 2)**2) + 605*sqrt(-2*x + 1)*sqrt(
5*x + 3)/(8*(3*x + 2)) - 6655*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)
/(7*sqrt(5*x + 3)))/56
```

Mathematica [A] time = 0.10472, size = 77, normalized size = 0.63

$$\frac{\sqrt{1-2x}\sqrt{5x+3}\left(15707x^2+21638x+7488\right)}{24(3x+2)^3}-\frac{6655\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{16\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)^4*Sqrt[3 + 5*x]),x]
```

```
[Out] (Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(7488 + 21638*x + 15707*x^2))/(24*(2
 + 3*x)^3) - (6655*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 +
 5*x])])/(16*Sqrt[7])
```

Maple [B] time = 0.02, size = 202, normalized size = 1.7

$$\frac{1}{336\,(2+3\,x)^3}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(539055\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^3+1078110\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)^4/(3+5*x)^(1/2),x)
```

```
[Out] 1/336*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(539055*7^(1/2)*arctan(1/14*(37
*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+1078110*7^(1/2)*arctan(1/
14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+718740*7^(1/2)*arct
an(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+219898*x^2*(-10*
x^2-x+3)^(1/2)+159720*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*
x^2-x+3)^(1/2))+302932*x*(-10*x^2-x+3)^(1/2)+104832*(-10*x^2-x+3)
^(1/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)^3
```

Maxima [A] time = 1.52475, size = 144, normalized size = 1.18

$$\frac{6655}{112}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{49\,\sqrt{-10\,x^2-x+3}}{27\,(27\,x^3+54\,x^2+36\,x+8)}+\frac{1043\,\sqrt{-10\,x^2-x+3}}{108\,(9\,x^2+12\,x+4)}+\frac{15707\,\sqrt{-10\,x^2-x+3}}{216\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^4),x, algorithm="maxima")
```

```
[Out] 6655/112*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)
) + 49/27*sqrt(-10*x^2 - x + 3)/(27*x^3 + 54*x^2 + 36*x + 8) + 10
43/108*sqrt(-10*x^2 - x + 3)/(9*x^2 + 12*x + 4) + 15707/216*sqrt(
-10*x^2 - x + 3)/(3*x + 2)
```

Fricas [A] time = 0.233959, size = 127, normalized size = 1.04

$$\frac{\sqrt{7}\left(2\,\sqrt{7}\left(15707\,x^2+21638\,x+7488\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+19965\,\left(27\,x^3+54\,x^2+36\,x+8\right)\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)}{336\,(27\,x^3+54\,x^2+36\,x+8)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^4),x, algorithm="fricas")
```

```
[Out] 1/336*sqrt(7)*(2*sqrt(7)*(15707*x^2 + 21638*x + 7488)*sqrt(5*x +
3)*sqrt(-2*x + 1) + 19965*(27*x^3 + 54*x^2 + 36*x + 8)*arctan(1/1
4*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(27*x^3 +
54*x^2 + 36*x + 8)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)/(2+3*x)**4/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.367804, size = 429, normalized size = 3.52

$$\frac{1331}{224}\,\sqrt{70}\sqrt{10}\left(\pi + 2\,\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{2}}{5\,x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)$$

$$+\frac{1331\left(33\,\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^{5}+11200\,\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^{3}+1176000\,\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x}\ldots}{\sqrt{5\,x}\ldots}\right.}{12\left(\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^{2}+280\right)^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^4),x, algorithm="giac")
```

```
[Out] 1331/224*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*
x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sq
rt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 1331/12*(33*sqrt(10)*((sqrt
(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(
sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 + 11200*sqrt(10)*((sqrt(2)
*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqr
t(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 1176000*sqrt(10)*((sqrt(2)*
sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt
(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) - sq
rt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5)
- sqrt(22)))^2 + 280)^3
```

3.2416 $\int \frac{(1-2x)^{5/2}}{(2+3x)^5\sqrt{3+5x}}\,dx$

Optimal. Leaf size=151

$$\frac{3\sqrt{5x+3}(1-2x)^{7/2}}{28(3x+2)^4}+\frac{247\sqrt{5x+3}(1-2x)^{5/2}}{168(3x+2)^3}+\frac{13585\sqrt{5x+3}(1-2x)^{3/2}}{672(3x+2)^2}+\frac{149435\sqrt{5x+3}\sqrt{1-2x}}{448(3x+2)}-\frac{1643785\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{448\sqrt{7}}$$

```
[Out] (3*(1 - 2*x)^(7/2)*Sqrt[3 + 5*x])/(28*(2 + 3*x)^4) + (247*(1 - 2*
x)^(5/2)*Sqrt[3 + 5*x])/(168*(2 + 3*x)^3) + (13585*(1 - 2*x)^(3/2
)*Sqrt[3 + 5*x])/(672*(2 + 3*x)^2) + (149435*Sqrt[1 - 2*x]*Sqrt[3
 + 5*x])/(448*(2 + 3*x)) - (1643785*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]
*Sqrt[3 + 5*x])])/(448*Sqrt[7])
```

Rubi [A] time = 0.218227, antiderivative size = 151, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$\frac{3\sqrt{5x+3}(1-2x)^{7/2}}{28(3x+2)^4}+\frac{247\sqrt{5x+3}(1-2x)^{5/2}}{168(3x+2)^3}+\frac{13585\sqrt{5x+3}(1-2x)^{3/2}}{672(3x+2)^2}+\frac{149435\sqrt{5x+3}\sqrt{1-2x}}{448(3x+2)}-\frac{1643785\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{448\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)^5*Sqrt[3 + 5*x]),x]
```

```
[Out] (3*(1 - 2*x)^(7/2)*Sqrt[3 + 5*x])/(28*(2 + 3*x)^4) + (247*(1 - 2*
x)^(5/2)*Sqrt[3 + 5*x])/(168*(2 + 3*x)^3) + (13585*(1 - 2*x)^(3/2
)*Sqrt[3 + 5*x])/(672*(2 + 3*x)^2) + (149435*Sqrt[1 - 2*x]*Sqrt[3
 + 5*x])/(448*(2 + 3*x)) - (1643785*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]
*Sqrt[3 + 5*x])])/(448*Sqrt[7])
```

Rubi in Sympy [A] time = 17.1594, size = 138, normalized size = 0.91

$$\frac{3\left(-2x+1\right)^{\frac{7}{2}}\sqrt{5x+3}}{28\left(3x+2\right)^{4}}+\frac{247\left(-2x+1\right)^{\frac{5}{2}}\sqrt{5x+3}}{168\left(3x+2\right)^{3}}+\frac{13585\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{672\left(3x+2\right)^{2}}+\frac{149435\sqrt{-2x+1}\sqrt{5x+3}}{448\left(3x+2\right)}-\frac{1643785\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{3136}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)**5/(3+5*x)**(1/2),x)
```

```
[Out] 3*(-2*x + 1)**(7/2)*sqrt(5*x + 3)/(28*(3*x + 2)**4) + 247*(-2*x +
 1)**(5/2)*sqrt(5*x + 3)/(168*(3*x + 2)**3) + 13585*(-2*x + 1)**(
3/2)*sqrt(5*x + 3)/(672*(3*x + 2)**2) + 149435*sqrt(-2*x + 1)*sqr
t(5*x + 3)/(448*(3*x + 2)) - 1643785*sqrt(7)*atan(sqrt(7)*sqrt(-2
*x + 1)/(7*sqrt(5*x + 3)))/3136
```

Mathematica [A] time = 0.116955, size = 82, normalized size = 0.54

$$\frac{\frac{14\sqrt{1-2x}\sqrt{5x+3}\left(11637735x^3+23794744x^2+16236916x+3699216\right)}{(3x+2)^4}-4931355\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{18816}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)^5*Sqrt[3 + 5*x]),x]
```

```
[Out] ((14*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(3699216 + 16236916*x + 23794744
*x^2 + 11637735*x^3))/(2 + 3*x)^4 - 4931355*Sqrt[7]*ArcTan[(-20 -
 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/18816
```

Maple [B] time = 0.024, size = 250, normalized size = 1.7

$$\frac{1}{18816\,(2+3\,x)^4}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(399439755\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^4+1065172680\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x}{\sqrt{-10\,x}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)^5/(3+5*x)^(1/2),x)
```

```
[Out] 1/18816*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(399439755*7^(1/2)*arctan(1/1
4*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^4+1065172680*7^(1/2)*a
rctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+1065172680*
7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+16
2928290*x^3*(-10*x^2-x+3)^(1/2)+473410080*7^(1/2)*arctan(1/14*(37
*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+333126416*x^2*(-10*x^2-x+3)
^(1/2)+78901680*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+
3)^(1/2))+227316824*x*(-10*x^2-x+3)^(1/2)+51789024*(-10*x^2-x+3)^
(1/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)^4
```

Maxima [A] time = 1.50179, size = 193, normalized size = 1.28

$$\frac{1643785}{6272}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{49\,\sqrt{-10\,x^2-x+3}}{36\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}+\frac{1477\,\sqrt{-10\,x^2-x+3}}{216\,(27\,x^3+54\,x^2+36\,x+8)}+\frac{37091\,\sqrt{-10\,x^2-x+3}}{864\,(9\,x^2+12\,x+4)}+\frac{3879245\,\sqrt{-10\,x^2-x+3}}{12096\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^5),x, algorithm="maxima")
```

```
[Out] 1643785/6272*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x
+ 2)) + 49/36*sqrt(-10*x^2 - x + 3)/(81*x^4 + 216*x^3 + 216*x^2 +
 96*x + 16) + 1477/216*sqrt(-10*x^2 - x + 3)/(27*x^3 + 54*x^2 + 3
6*x + 8) + 37091/864*sqrt(-10*x^2 - x + 3)/(9*x^2 + 12*x + 4) + 3
879245/12096*sqrt(-10*x^2 - x + 3)/(3*x + 2)
```

Fricas [A] time = 0.234013, size = 147, normalized size = 0.97

$$\frac{\sqrt{7}\left(2\,\sqrt{7}(11637735\,x^3+23794744\,x^2+16236916\,x+3699216)\,\sqrt{5\,x+3}\sqrt{-2\,x+1}+4931355\,\left(81\,x^4+216\,x^3+216\,x^2+96\,x\right.\right.}{18816\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^5),x, algorithm="fricas")
```

```
[Out] 1/18816*sqrt(7)*(2*sqrt(7)*(11637735*x^3 + 23794744*x^2 + 1623691
6*x + 3699216)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 4931355*(81*x^4 + 2
16*x^3 + 216*x^2 + 96*x + 16)*arctan(1/14*sqrt(7)*(37*x + 20)/(sq
rt(5*x + 3)*sqrt(-2*x + 1))))/(81*x^4 + 216*x^3 + 216*x^2 + 96*x
```

```
+ 16)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)/(2+3*x)**5/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.414472, size = 512, normalized size = 3.39

$$\frac{328757}{12544}\,\sqrt{70}\sqrt{10}\left(\pi + 2\,\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3} - 4\right)}{140\,\left(\sqrt{2}\sqrt{-10\,x+5} - \sqrt{22}\right)}\right)\right)$$

$$+\frac{6655\left(1947\,\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}} - \frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^7 + 1009736\,\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}} - \frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^5 + 213012800\,\sqrt{10}\left(\cdots\right.}{672\left(\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}} - \frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^2 \cdots\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^5),x, algorithm="giac")
```

```
[Out] 328757/12544*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqr
t(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)
/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 6655/672*(1947*sqrt(10)
*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x
 + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^7 + 1009736*sqrt(10)*
((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x
+ 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 + 213012800*sqrt(10)
*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x
 + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 16266432000*sqrt(
10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(
5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-
10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sq
rt(-10*x + 5) - sqrt(22)))^2 + 280)^4
```

3.2417 $\int \frac{(1-2x)^{5/2}}{(2+3x)^6\sqrt{3+5x}}\,dx$

Optimal. Leaf size=180

$$\frac{7\sqrt{5x+3}(1-2x)^{3/2}}{15(3x+2)^5}+\frac{245529161\sqrt{5x+3}\sqrt{1-2x}}{169344(3x+2)}+\frac{2347559\sqrt{5x+3}\sqrt{1-2x}}{12096(3x+2)^2}+\frac{67187\sqrt{5x+3}\sqrt{1-2x}}{2160(3x+2)^3}+\frac{2023\sqrt{5x+3}\sqrt{1-2x}}{360(3x+2)^4}-\frac{104040277\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{6272\sqrt{7}}$$

```
[Out] (7*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(15*(2 + 3*x)^5) + (2023*Sqrt[1
 - 2*x]*Sqrt[3 + 5*x])/(360*(2 + 3*x)^4) + (67187*Sqrt[1 - 2*x]*S
qrt[3 + 5*x])/(2160*(2 + 3*x)^3) + (2347559*Sqrt[1 - 2*x]*Sqrt[3
+ 5*x])/(12096*(2 + 3*x)^2) + (245529161*Sqrt[1 - 2*x]*Sqrt[3 + 5
*x])/(169344*(2 + 3*x)) - (104040277*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7
]*Sqrt[3 + 5*x])])/(6272*Sqrt[7])
```

Rubi [A] time = 0.369315, antiderivative size = 180, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$\frac{7\sqrt{5x+3}(1-2x)^{3/2}}{15(3x+2)^5}+\frac{245529161\sqrt{5x+3}\sqrt{1-2x}}{169344(3x+2)}+\frac{2347559\sqrt{5x+3}\sqrt{1-2x}}{12096(3x+2)^2}+\frac{67187\sqrt{5x+3}\sqrt{1-2x}}{2160(3x+2)^3}+\frac{2023\sqrt{5x+3}\sqrt{1-2x}}{360(3x+2)^4}-\frac{104040277\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{6272\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)^6*Sqrt[3 + 5*x]),x]
```


```
[Out] (7*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(15*(2 + 3*x)^5) + (2023*Sqrt[1
 - 2*x]*Sqrt[3 + 5*x])/(360*(2 + 3*x)^4) + (67187*Sqrt[1 - 2*x]*S
qrt[3 + 5*x])/(2160*(2 + 3*x)^3) + (2347559*Sqrt[1 - 2*x]*Sqrt[3
+ 5*x])/(12096*(2 + 3*x)^2) + (245529161*Sqrt[1 - 2*x]*Sqrt[3 + 5
*x])/(169344*(2 + 3*x)) - (104040277*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7
]*Sqrt[3 + 5*x])])/(6272*Sqrt[7])
```

Rubi in Sympy [A] time = 35.2568, size = 165, normalized size = 0.92

$$\frac{7\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{15\left(3x+2\right)^{5}}+\frac{245529161\sqrt{-2x+1}\sqrt{5x+3}}{169344\left(3x+2\right)}+\frac{2347559\sqrt{-2x+1}\sqrt{5x+3}}{12096\left(3x+2\right)^{2}}+\frac{67187\sqrt{-2x+1}\sqrt{5x+3}}{2160\left(3x+2\right)^{3}}+\frac{2023\sqrt{-2x+1}\sqrt{5x+3}}{360\left(3x+2\right)^{4}}-\frac{104040277\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{43904}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)**6/(3+5*x)**(1/2),x)
```

```
[Out] 7*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/(15*(3*x + 2)**5) + 245529161*s
qrt(-2*x + 1)*sqrt(5*x + 3)/(169344*(3*x + 2)) + 2347559*sqrt(-2*
x + 1)*sqrt(5*x + 3)/(12096*(3*x + 2)**2) + 67187*sqrt(-2*x + 1)*
sqrt(5*x + 3)/(2160*(3*x + 2)**3) + 2023*sqrt(-2*x + 1)*sqrt(5*x
+ 3)/(360*(3*x + 2)**4) - 104040277*sqrt(7)*atan(sqrt(7)*sqrt(-2*
x + 1)/(7*sqrt(5*x + 3)))/43904
```

Mathematica [A] time = 0.113237, size = 87, normalized size = 0.48

$$\frac{\frac{14\sqrt{1-2x}\sqrt{5x+3}\left(11048812245x^4+29956486710x^3+30475811404x^2+13788819736x+2341358496\right)}{(3x+2)^5}-1560604155\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{1317120}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)^6*Sqrt[3 + 5*x]),x]
```

```
[Out] ((14*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(2341358496 + 13788819736*x + 30
475811404*x^2 + 29956486710*x^3 + 11048812245*x^4))/(2 + 3*x)^5 -
 1560604155*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3
+ 5*x])])/1317120
```

Maple [B] time = 0.023, size = 298, normalized size = 1.7

$$\frac{1}{1317120\,(2+3\,x)^5}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(379226809665\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^5+1264089365550\,\sqrt{7}\arctan\left(1/\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)^6/(3+5*x)^(1/2),x)
```

```
[Out] 1/1317120*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(379226809665*7^(1/2)*arcta
n(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^5+1264089365550*7
^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^4+168
5452487400*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1
/2))*x^3+154683371430*x^4*(-10*x^2-x+3)^(1/2)+1123634991600*7^(1/
2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+4193908
13940*x^3*(-10*x^2-x+3)^(1/2)+374544997200*7^(1/2)*arctan(1/14*(3
7*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+426661359656*x^2*(-10*x^2-
x+3)^(1/2)+49939332960*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10
*x^2-x+3)^(1/2))+193043476304*x*(-10*x^2-x+3)^(1/2)+32779018944*(
-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)^5
```

Maxima [A] time = 1.50292, size = 248, normalized size = 1.38

$$\frac{104040277}{87808}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{49\,\sqrt{-10\,x^2-x+3}}{45\,(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240\,x+32)}+\frac{637\,\sqrt{-10\,x^2-x+3}}{120\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}+\frac{67187\,\sqrt{-10\,x^2-x+3}}{2160\,(27\,x^3+54\,x^2+36\,x+8)}+\frac{2347559\,\sqrt{-10\,x^2-x+3}}{12096\,(9\,x^2+12\,x+4)}+\frac{245529161\,\sqrt{-10\,x^2-x+3}}{169344\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^6),x, algorithm="maxima")
```

```
[Out] 104040277/87808*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3
*x + 2)) + 49/45*sqrt(-10*x^2 - x + 3)/(243*x^5 + 810*x^4 + 1080*
x^3 + 720*x^2 + 240*x + 32) + 637/120*sqrt(-10*x^2 - x + 3)/(81*x
^4 + 216*x^3 + 216*x^2 + 96*x + 16) + 67187/2160*sqrt(-10*x^2 - x
 + 3)/(27*x^3 + 54*x^2 + 36*x + 8) + 2347559/12096*sqrt(-10*x^2 -
 x + 3)/(9*x^2 + 12*x + 4) + 245529161/169344*sqrt(-10*x^2 - x +
3)/(3*x + 2)
```

Fricas [A] time = 0.230638, size = 167, normalized size = 0.93

$$\frac{\sqrt{7}\left(2\,\sqrt{7}\left(11048812245\,x^4+29956486710\,x^3+30475811404\,x^2+13788819736\,x+2341358496\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+15606\right.}{1317120\,(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^6),x, algorithm="fricas")
```

```
[Out] 1/1317120*sqrt(7)*(2*sqrt(7)*(11048812245*x^4 + 29956486710*x^3 +
 30475811404*x^2 + 13788819736*x + 2341358496)*sqrt(5*x + 3)*sqrt
(-2*x + 1) + 1560604155*(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 +
 240*x + 32)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(
-2*x + 1))))/(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32
)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)/(2+3*x)**6/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.494343, size = 594, normalized size = 3.3

$$\frac{104040277}{878080}\sqrt{70}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3} - 4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right) + \frac{1331\left(706299\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}} - \frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^9 + 493892560\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}} - \frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^7 + 15688429568\ldots}{9408\ldots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^6),x, algorithm="giac")
```

```
[Out] 104040277/878080*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)
*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3)
- 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 1331/9408*(706299*s
qrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*s
qrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^9 + 493892560*
sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*
sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^7 + 156884295
680*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3)
- 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 + 24022
907776000*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x
 + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 +
 1441374466560000*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/
sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(2
2))))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sq
rt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)^5
```

3.2418 $\int \frac{(1-2x)^{5/2}}{(2+3x)^7\sqrt{3+5x}}\,dx$

Optimal. Leaf size=209

$$\frac{7\sqrt{5x+3}(1-2x)^{3/2}}{18(3x+2)^6}+\frac{31603880465\sqrt{5x+3}\sqrt{1-2x}}{4741632(3x+2)}+\frac{302171615\sqrt{5x+3}\sqrt{1-2x}}{338688(3x+2)^2}+\frac{1729615\sqrt{5x+3}\sqrt{1-2x}}{12096(3x+2)^3}+\frac{21199\sqrt{5x+3}\sqrt{1-2x}}{864(3x+2)^4}+\frac{497\sqrt{5x+3}\sqrt{1-2x}}{108(3x+2)^5}-\frac{13391796605\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{175616\sqrt{7}}$$

```
[Out] (7*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(18*(2 + 3*x)^6) + (497*Sqrt[1
- 2*x]*Sqrt[3 + 5*x])/(108*(2 + 3*x)^5) + (21199*Sqrt[1 - 2*x]*Sq
rt[3 + 5*x])/(864*(2 + 3*x)^4) + (1729615*Sqrt[1 - 2*x]*Sqrt[3 +
5*x])/(12096*(2 + 3*x)^3) + (302171615*Sqrt[1 - 2*x]*Sqrt[3 + 5*x
])/(338688*(2 + 3*x)^2) + (31603880465*Sqrt[1 - 2*x]*Sqrt[3 + 5*x
])/(4741632*(2 + 3*x)) - (13391796605*ArcTan[Sqrt[1 - 2*x]/(Sqrt[
7]*Sqrt[3 + 5*x])])/(175616*Sqrt[7])
```

Rubi [A] time = 0.448089, antiderivative size = 209, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$\frac{7\sqrt{5x+3}(1-2x)^{3/2}}{18(3x+2)^6}+\frac{31603880465\sqrt{5x+3}\sqrt{1-2x}}{4741632(3x+2)}+\frac{302171615\sqrt{5x+3}\sqrt{1-2x}}{338688(3x+2)^2}+\frac{1729615\sqrt{5x+3}\sqrt{1-2x}}{12096(3x+2)^3}+\frac{21199\sqrt{5x+3}\sqrt{1-2x}}{864(3x+2)^4}+\frac{497\sqrt{5x+3}\sqrt{1-2x}}{108(3x+2)^5}-\frac{13391796605\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{175616\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)^7*Sqrt[3 + 5*x]),x]
```

```
[Out] (7*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(18*(2 + 3*x)^6) + (497*Sqrt[1
- 2*x]*Sqrt[3 + 5*x])/(108*(2 + 3*x)^5) + (21199*Sqrt[1 - 2*x]*Sq
rt[3 + 5*x])/(864*(2 + 3*x)^4) + (1729615*Sqrt[1 - 2*x]*Sqrt[3 +
5*x])/(12096*(2 + 3*x)^3) + (302171615*Sqrt[1 - 2*x]*Sqrt[3 + 5*x
])/(338688*(2 + 3*x)^2) + (31603880465*Sqrt[1 - 2*x]*Sqrt[3 + 5*x
])/(4741632*(2 + 3*x)) - (13391796605*ArcTan[Sqrt[1 - 2*x]/(Sqrt[
7]*Sqrt[3 + 5*x])])/(175616*Sqrt[7])
```

Rubi in Sympy [A] time = 42.4404, size = 192, normalized size = 0.92

$$\frac{7\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{18\left(3x+2\right)^{6}}+\frac{31603880465\sqrt{-2x+1}\sqrt{5x+3}}{4741632\left(3x+2\right)}+\frac{302171615\sqrt{-2x+1}\sqrt{5x+3}}{338688\left(3x+2\right)^{2}}+\frac{1729615\sqrt{-2x+1}\sqrt{5x+3}}{12096\left(3x+2\right)^{3}}+\frac{21199\sqrt{-2x+1}\sqrt{5x+3}}{864\left(3x+2\right)^{4}}+\frac{497\sqrt{-2x+1}\sqrt{5x+3}}{108\left(3x+2\right)^{5}}-\frac{13391796605\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{1229312}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)**7/(3+5*x)**(1/2),x)
```

```
[Out] 7*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/(18*(3*x + 2)**6) + 31603880465
*sqrt(-2*x + 1)*sqrt(5*x + 3)/(4741632*(3*x + 2)) + 302171615*sqr
```

```
t(-2*x + 1)*sqrt(5*x + 3)/(338688*(3*x + 2)**2) + 1729615*sqrt(-2
*x + 1)*sqrt(5*x + 3)/(12096*(3*x + 2)**3) + 21199*sqrt(-2*x + 1)
*sqrt(5*x + 3)/(864*(3*x + 2)**4) + 497*sqrt(-2*x + 1)*sqrt(5*x +
 3)/(108*(3*x + 2)**5) - 13391796605*sqrt(7)*atan(sqrt(7)*sqrt(-2
*x + 1)/(7*sqrt(5*x + 3)))/1229312
```

Mathematica [A] time = 0.158378, size = 112, normalized size = 0.54

$$\frac{\frac{14\sqrt{1-2x}\sqrt{5x+3}\left(31603880465(3x+2)^5+4230402610(3x+2)^4+678009080(3x+2)^3+116340112(3x+2)^2+20590976(3x+2)+4302592\right)}{(3x+2)^6}-361578508335\sqrt{7}\tan^{-1}\left(\right.}{66382848}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)^7*Sqrt[3 + 5*x]),x]
```

```
[Out] ((14*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(4302592 + 20590976*(2 + 3*x) +
116340112*(2 + 3*x)^2 + 678009080*(2 + 3*x)^3 + 4230402610*(2 + 3
*x)^4 + 31603880465*(2 + 3*x)^5))/(2 + 3*x)^6 - 361578508335*Sqrt
[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/663828
48
```

Maple [B] time = 0.022, size = 346, normalized size = 1.7

$$\frac{1}{7375872\,(2+3\,x)^6}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(29287859175135\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^6+117151436700540\,\sqrt{7}\arctan\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)^7/(3+5*x)^(1/2),x)
```

```
[Out] 1/7375872*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(29287859175135*7^(1/2)*arc
tan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^6+1171514367005
40*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^5
+195252394500900*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x
+3)^(1/2))*x^4+11946266815770*x^5*(-10*x^2-x+3)^(1/2)+17355768400
0800*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x
^3+40353920114760*x^4*(-10*x^2-x+3)^(1/2)+86778842000400*7^(1/2)*
arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+5454441083
9520*x^3*(-10*x^2-x+3)^(1/2)+23141024533440*7^(1/2)*arctan(1/14*(
37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+36876342922048*x^2*(-10*x
^2-x+3)^(1/2)+2571224948160*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)
/(-10*x^2-x+3)^(1/2))+12470758445152*x*(-10*x^2-x+3)^(1/2)+168769
3053312*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)^6
```

Maxima [A] time = 1.50612, size = 311, normalized size = 1.49

$$\frac{13391796605}{2458624}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{49\,\sqrt{-10\,x^2-x+3}}{54\,(729\,x^6+2916\,x^5+4860\,x^4+4320\,x^3+2160\,x^2+576\,x+64)}+\frac{469\,\sqrt{-10\,x^2-x+3}}{108\,(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240\,x+32)}+\frac{21199\,\sqrt{-10\,x^2-x+3}}{864\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}+\frac{1729615\,\sqrt{-10\,x^2-x+3}}{12096\,(27\,x^3+54\,x^2+36\,x+8)}+\frac{302171615\,\sqrt{-10\,x^2-x+3}}{338688\,(9\,x^2+12\,x+4)}+\frac{31603880465\,\sqrt{-10\,x^2-x+3}}{4741632\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^7),x, algorithm="maxima")
```

```
[Out] 13391796605/2458624*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/a
bs(3*x + 2)) + 49/54*sqrt(-10*x^2 - x + 3)/(729*x^6 + 2916*x^5 +
4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64) + 469/108*sqrt(-10*x
^2 - x + 3)/(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)
 + 21199/864*sqrt(-10*x^2 - x + 3)/(81*x^4 + 216*x^3 + 216*x^2 +
96*x + 16) + 1729615/12096*sqrt(-10*x^2 - x + 3)/(27*x^3 + 54*x^2
 + 36*x + 8) + 302171615/338688*sqrt(-10*x^2 - x + 3)/(9*x^2 + 12
*x + 4) + 31603880465/4741632*sqrt(-10*x^2 - x + 3)/(3*x + 2)
```

Fricas [A] time = 0.228641, size = 188, normalized size = 0.9

$$\frac{\sqrt{7}\left(2\sqrt{7}\left(853304772555\,x^5 + 2882422865340\,x^4 + 3896029345680\,x^3 + 2634024494432\,x^2 + 890768460368\,x + 12054950380\right.\right.}{7375872\,(729\,x^6 + 2916\,x^5 + 4860}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^7),x, algorithm="fricas")
```

```
[Out] 1/7375872*sqrt(7)*(2*sqrt(7)*(853304772555*x^5 + 2882422865340*x^
4 + 3896029345680*x^3 + 2634024494432*x^2 + 890768460368*x + 1205
49503808)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 40175389815*(729*x^6 + 2
916*x^5 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64)*arctan(1/1
4*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(729*x^6 +
 2916*x^5 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)/(2+3*x)**7/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.595288, size = 676, normalized size = 3.23

$$\frac{2678359321}{4917248}\sqrt{70}\sqrt{10}\left(\pi + 2\,\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3} - 4\right)}{140\left(\sqrt{2}\sqrt{-10\,x+5} - \sqrt{22}\right)}\right)\right)$$

$$+\frac{6655\left(20305527\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}} - \frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^{11} + 17887837240\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}} - \frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^9 + 759964\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^7),x, algorithm="giac")
```

```
[Out] 2678359321/4917248*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(7
0)*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3
) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 6655/263424*(2030
5527*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3)
 - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^11 + 178
87837240*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x
```

```
+ 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^9 +
7599643632000*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt
(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))
^7 + 1749282956467200*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(2
2))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sq
rt(22)))^5 + 210267345272320000*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5
) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x
 + 5) - sqrt(22)))^3 + 10389680589926400000*sqrt(10)*((sqrt(2)*sq
rt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2
)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt
(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) -
sqrt(22)))^2 + 280)^6
```

3.2419 $\int \frac{(1-2x)^{5/2}(2+3x)^4}{(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=186

$$-\frac{2(1-2x)^{5/2}(3x+2)^4}{5\sqrt{5x+3}}+\frac{13}{50}(1-2x)^{5/2}\sqrt{5x+3}(3x+2)^3+\frac{111(1-2x)^{5/2}\sqrt{5x+3}(3x+2)^2}{5000}-\frac{(1-2x)^{5/2}\sqrt{5x+3}(1990620x+2725981)}{8000000}+\frac{3577399(1-2x)^{3/2}\sqrt{5x+3}}{32000000}+\frac{118054167\sqrt{1-2x}\sqrt{5x+3}}{320000000}+\frac{1298595837\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{320000000\sqrt{10}}$$

```
[Out] (-2*(1 - 2*x)^(5/2)*(2 + 3*x)^4)/(5*Sqrt[3 + 5*x]) + (118054167*S
qrt[1 - 2*x]*Sqrt[3 + 5*x])/320000000 + (3577399*(1 - 2*x)^(3/2)*
Sqrt[3 + 5*x])/32000000 + (111*(1 - 2*x)^(5/2)*(2 + 3*x)^2*Sqrt[3
 + 5*x])/5000 + (13*(1 - 2*x)^(5/2)*(2 + 3*x)^3*Sqrt[3 + 5*x])/50
 - ((1 - 2*x)^(5/2)*Sqrt[3 + 5*x]*(2725981 + 1990620*x))/8000000
+ (1298595837*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(320000000*Sqrt[1
0])
```

Rubi [A] time = 0.314171, antiderivative size = 186, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.231$

$$-\frac{2(1-2x)^{5/2}(3x+2)^4}{5\sqrt{5x+3}}+\frac{13}{50}(1-2x)^{5/2}\sqrt{5x+3}(3x+2)^3+\frac{111(1-2x)^{5/2}\sqrt{5x+3}(3x+2)^2}{5000}-\frac{(1-2x)^{5/2}\sqrt{5x+3}(1990620x+2725981)}{8000000}+\frac{3577399(1-2x)^{3/2}\sqrt{5x+3}}{32000000}+\frac{118054167\sqrt{1-2x}\sqrt{5x+3}}{320000000}+\frac{1298595837\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{320000000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(2 + 3*x)^4)/(3 + 5*x)^(3/2),x]
```

```
[Out] (-2*(1 - 2*x)^(5/2)*(2 + 3*x)^4)/(5*Sqrt[3 + 5*x]) + (118054167*S
qrt[1 - 2*x]*Sqrt[3 + 5*x])/320000000 + (3577399*(1 - 2*x)^(3/2)*
Sqrt[3 + 5*x])/32000000 + (111*(1 - 2*x)^(5/2)*(2 + 3*x)^2*Sqrt[3
 + 5*x])/5000 + (13*(1 - 2*x)^(5/2)*(2 + 3*x)^3*Sqrt[3 + 5*x])/50
 - ((1 - 2*x)^(5/2)*Sqrt[3 + 5*x]*(2725981 + 1990620*x))/8000000
+ (1298595837*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(320000000*Sqrt[1
0])
```

Rubi in Sympy [A] time = 30.9993, size = 173, normalized size = 0.93

$$-\frac{2\left(-2x+1\right)^{\frac{5}{2}}\left(3x+2\right)^4}{5\sqrt{5x+3}}+\frac{13\left(-2x+1\right)^{\frac{5}{2}}\left(3x+2\right)^3\sqrt{5x+3}}{50}+\frac{111\left(-2x+1\right)^{\frac{5}{2}}\left(3x+2\right)^2\sqrt{5x+3}}{5000}-\frac{\left(-2x+1\right)^{\frac{5}{2}}\sqrt{5x+3}\left(\frac{4478895x}{2}+\frac{24533829}{8}\right)}{9000000}+\frac{3577399\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{32000000}+\frac{118054167\sqrt{-2x+1}\sqrt{5x+3}}{320000000}+\frac{1298595837\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{3200000000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**4/(3+5*x)**(3/2),x)
```

```
[Out] -2*(-2*x + 1)**(5/2)*(3*x + 2)**4/(5*sqrt(5*x + 3)) + 13*(-2*x +
1)**(5/2)*(3*x + 2)**3*sqrt(5*x + 3)/50 + 111*(-2*x + 1)**(5/2)*(
```

```
3*x + 2)**2*sqrt(5*x + 3)/5000 - (-2*x + 1)**(5/2)*sqrt(5*x + 3)*
(4478895*x/2 + 24533829/8)/9000000 + 3577399*(-2*x + 1)**(3/2)*sq
rt(5*x + 3)/32000000 + 118054167*sqrt(-2*x + 1)*sqrt(5*x + 3)/320
000000 + 1298595837*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/3200
000000
```

Mathematica [A] time = 0.202332, size = 84, normalized size = 0.45

$$\frac{10\sqrt{1-2x}\left(3456000000x^6+4043520000x^5-2530224000x^4-3673002400x^3+938891620x^2+1366129125x+168414751\right)}{3200000000\sqrt{5x+3}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(2 + 3*x)^4)/(3 + 5*x)^(3/2),x]
```

```
[Out] (10*Sqrt[1 - 2*x]*(168414751 + 1366129125*x + 938891620*x^2 - 367
3002400*x^3 - 2530224000*x^4 + 4043520000*x^5 + 3456000000*x^6) -
 1298595837*Sqrt[30 + 50*x]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/(32
00000000*Sqrt[3 + 5*x])
```

Maple [A] time = 0.02, size = 167, normalized size = 0.9

$$\frac{1}{6400000000}\left(69120000000\,x^6\sqrt{-10\,x^2-x+3}+80870400000\,x^5\sqrt{-10\,x^2-x+3}-50604480000\,x^4\sqrt{-10\,x^2-x+3}-7346\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^4/(3+5*x)^(3/2),x)
```

```
[Out] 1/6400000000*(69120000000*x^6*(-10*x^2-x+3)^(1/2)+80870400000*x^5
*(-10*x^2-x+3)^(1/2)-50604480000*x^4*(-10*x^2-x+3)^(1/2)-73460048
000*x^3*(-10*x^2-x+3)^(1/2)+6492979185*10^(1/2)*arcsin(20/11*x+1/
11)*x+18777832400*x^2*(-10*x^2-x+3)^(1/2)+3895787511*10^(1/2)*arc
sin(20/11*x+1/11)+27322582500*x*(-10*x^2-x+3)^(1/2)+3368295020*(-
10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)/(-10*x^2-x+3)^(1/2)/(3+5*x)^(1/2
)
```

Maxima [A] time = 1.52235, size = 193, normalized size = 1.04

$$-\frac{108\,x^7}{5\,\sqrt{-10\,x^2-x+3}}-\frac{1809\,x^6}{125\,\sqrt{-10\,x^2-x+3}}+\frac{284499\,x^5}{10000\,\sqrt{-10\,x^2-x+3}}+\frac{3009863\,x^4}{200000\,\sqrt{-10\,x^2-x+3}}-\frac{138769641\,x^3}{8000000\,\sqrt{-10\,x^2-x+3}}-\frac{179336663\,x^2}{32000000\,\sqrt{-10\,x^2-x+3}}-\frac{1298595837}{6400000000}\sqrt{10}\arcsin\left(-\frac{20}{11}\,x-\frac{1}{11}\right)+\frac{1029299623\,x}{320000000\,\sqrt{-10\,x^2-x+3}}+\frac{168414751}{320000000\,\sqrt{-10\,x^2-x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4*(-2*x + 1)^(5/2)/(5*x + 3)^(3/2),x, algorithm="maxima")
```

```
[Out] -108/5*x^7/sqrt(-10*x^2 - x + 3) - 1809/125*x^6/sqrt(-10*x^2 - x
+ 3) + 284499/10000*x^5/sqrt(-10*x^2 - x + 3) + 3009863/200000*x^
4/sqrt(-10*x^2 - x + 3) - 138769641/8000000*x^3/sqrt(-10*x^2 - x
+ 3) - 179336663/32000000*x^2/sqrt(-10*x^2 - x + 3) - 1298595837/
6400000000*sqrt(10)*arcsin(-20/11*x - 1/11) + 1029299623/32000000
0*x/sqrt(-10*x^2 - x + 3) + 168414751/320000000/sqrt(-10*x^2 - x
+ 3)
```

Fricas [A] time = 0.228631, size = 127, normalized size = 0.68

$$\frac{\sqrt{10}\left(2\sqrt{10}(3456000000\,x^6 + 4043520000\,x^5 - 2530224000\,x^4 - 3673002400\,x^3 + 938891620\,x^2 + 1366129125\,x + 16841475}{6400000000\,(5\,x + 3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^4*(-2*x + 1)^(5/2)/(5*x + 3)^(3/2),x, algorithm="fricas")
```

```
[Out] 1/6400000000*sqrt(10)*(2*sqrt(10)*(3456000000*x^6 + 4043520000*x^
5 - 2530224000*x^4 - 3673002400*x^3 + 938891620*x^2 + 1366129125*
x + 168414751)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 1298595837*(5*x + 3
)*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1)))
)/(5*x + 3)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(5/2)*(2+3*x)**4/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.352446, size = 220, normalized size = 1.18

$$\frac{1}{8000000000}\left(4\left(8\left(108\left(16\left(20\sqrt{5}(5\,x + 3) - 243\sqrt{5}\right)(5\,x + 3) + 9263\sqrt{5}\right)(5\,x + 3) + 2532859\sqrt{5}\right)(5\,x + 3) + 3473645\sqrt{5}\right)(\right.$$
$$+\frac{1298595837}{3200000000}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5\,x + 3}\right)$$
$$-\frac{121\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x + 5} - \sqrt{22}\right)}{781250\sqrt{5\,x + 3}} + \frac{242\sqrt{10}\sqrt{5\,x + 3}}{390625\left(\sqrt{2}\sqrt{-10\,x + 5} - \sqrt{22}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^4*(-2*x + 1)^(5/2)/(5*x + 3)^(3/2),x, algorithm="giac")
```

```
[Out] 1/8000000000*(4*(8*(108*(16*(20*sqrt(5)*(5*x + 3) - 243*sqrt(5))*
(5*x + 3) + 9263*sqrt(5))*(5*x + 3) + 2532859*sqrt(5))*(5*x + 3)
+ 3473645*sqrt(5))*(5*x + 3) - 533500275*sqrt(5))*sqrt(5*x + 3)*s
qrt(-10*x + 5) + 1298595837/3200000000*sqrt(10)*arcsin(1/11*sqrt(
22)*sqrt(5*x + 3)) - 121/781250*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5)
 - sqrt(22))/sqrt(5*x + 3) + 242/390625*sqrt(10)*sqrt(5*x + 3)/(s
qrt(2)*sqrt(-10*x + 5) - sqrt(22))
```

3.2420 $\int \frac{(1-2x)^{5/2}(2+3x)^3}{(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=157

$$-\frac{2(1-2x)^{5/2}(3x+2)^3}{5\sqrt{5x+3}}+\frac{33}{125}(1-2x)^{5/2}\sqrt{5x+3}(3x+2)^2-\frac{9(2127-460x)(1-2x)^{5/2}\sqrt{5x+3}}{200000}+\frac{66997(1-2x)^{3/2}\sqrt{5x+3}}{800000}+\frac{2210901\sqrt{1-2x}\sqrt{5x+3}}{8000000}+\frac{24319911\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{8000000\sqrt{10}}$$

```
[Out] (-2*(1 - 2*x)^(5/2)*(2 + 3*x)^3)/(5*Sqrt[3 + 5*x]) + (2210901*Sqr
t[1 - 2*x]*Sqrt[3 + 5*x])/8000000 + (66997*(1 - 2*x)^(3/2)*Sqrt[3
 + 5*x])/800000 - (9*(2127 - 460*x)*(1 - 2*x)^(5/2)*Sqrt[3 + 5*x]
)/200000 + (33*(1 - 2*x)^(5/2)*(2 + 3*x)^2*Sqrt[3 + 5*x])/125 + (
24319911*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(8000000*Sqrt[10])
```

Rubi [A] time = 0.235221, antiderivative size = 157, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$-\frac{2(1-2x)^{5/2}(3x+2)^3}{5\sqrt{5x+3}}+\frac{33}{125}(1-2x)^{5/2}\sqrt{5x+3}(3x+2)^2-\frac{9(2127-460x)(1-2x)^{5/2}\sqrt{5x+3}}{200000}+\frac{66997(1-2x)^{3/2}\sqrt{5x+3}}{800000}+\frac{2210901\sqrt{1-2x}\sqrt{5x+3}}{8000000}+\frac{24319911\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{8000000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)^(5/2)*(2 + 3*x)^3)/(3 + 5*x)^(3/2),x]
```

```
[Out] (-2*(1 - 2*x)^(5/2)*(2 + 3*x)^3)/(5*Sqrt[3 + 5*x]) + (2210901*Sqr
t[1 - 2*x]*Sqrt[3 + 5*x])/8000000 + (66997*(1 - 2*x)^(3/2)*Sqrt[3
 + 5*x])/800000 - (9*(2127 - 460*x)*(1 - 2*x)^(5/2)*Sqrt[3 + 5*x]
)/200000 + (33*(1 - 2*x)^(5/2)*(2 + 3*x)^2*Sqrt[3 + 5*x])/125 + (
24319911*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(8000000*Sqrt[10])
```

Rubi in Sympy [A] time = 24.8715, size = 144, normalized size = 0.92

$$-\frac{\left(-3105x+\frac{57429}{4}\right)(-2x+1)^{\frac{5}{2}}\sqrt{5x+3}}{150000}-\frac{2(-2x+1)^{\frac{5}{2}}(3x+2)^3}{5\sqrt{5x+3}}+\frac{33(-2x+1)^{\frac{5}{2}}(3x+2)^2\sqrt{5x+3}}{125}+\frac{66997(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{800000}+\frac{2210901\sqrt{-2x+1}\sqrt{5x+3}}{8000000}+\frac{24319911\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{80000000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**(5/2)*(2+3*x)**3/(3+5*x)**(3/2),x)
```

```
[Out] -(-3105*x + 57429/4)*(-2*x + 1)**(5/2)*sqrt(5*x + 3)/150000 - 2*(
-2*x + 1)**(5/2)*(3*x + 2)**3/(5*sqrt(5*x + 3)) + 33*(-2*x + 1)**
(5/2)*(3*x + 2)**2*sqrt(5*x + 3)/125 + 66997*(-2*x + 1)**(3/2)*sq
rt(5*x + 3)/800000 + 2210901*sqrt(-2*x + 1)*sqrt(5*x + 3)/8000000
 + 24319911*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/80000000
```

Mathematica [A] time = 0.19687, size = 75, normalized size = 0.48

$$\frac{\frac{10\sqrt{1-2x}\left(34560000x^5+12528000x^4-39487200x^3-4101140x^2+20337375x+6089453\right)}{\sqrt{5x+3}}-24319911\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{80000000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(2 + 3*x)^3)/(3 + 5*x)^(3/2),x]
```

```
[Out] ((10*Sqrt[1 - 2*x]*(6089453 + 20337375*x - 4101140*x^2 - 39487200
*x^3 + 12528000*x^4 + 34560000*x^5))/Sqrt[3 + 5*x] - 24319911*Sqr
t[10]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/80000000
```

Maple [A] time = 0.023, size = 150, normalized size = 1.

$$\frac{1}{160000000}\left(691200000\,x^{5}\sqrt{-10\,x^{2}-x+3}+250560000\,x^{4}\sqrt{-10\,x^{2}-x+3}-789744000\,x^{3}\sqrt{-10\,x^{2}-x+3}+121599555\,\sqrt{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^3/(3+5*x)^(3/2),x)
```

```
[Out] 1/160000000*(691200000*x^5*(-10*x^2-x+3)^(1/2)+250560000*x^4*(-10
*x^2-x+3)^(1/2)-789744000*x^3*(-10*x^2-x+3)^(1/2)+121599555*10^(1
/2)*arcsin(20/11*x+1/11)*x-82022800*x^2*(-10*x^2-x+3)^(1/2)+72959
733*10^(1/2)*arcsin(20/11*x+1/11)+406747500*x*(-10*x^2-x+3)^(1/2)
+121789060*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)/(-10*x^2-x+3)^(1/2)
/(3+5*x)^(1/2)
```

Maxima [A] time = 1.50577, size = 170, normalized size = 1.08

$$-\frac{216\,x^{6}}{25\,\sqrt{-10\,x^{2}-x+3}}+\frac{297\,x^{5}}{250\,\sqrt{-10\,x^{2}-x+3}}+\frac{57189\,x^{4}}{5000\,\sqrt{-10\,x^{2}-x+3}}-\frac{782123\,x^{3}}{200000\,\sqrt{-10\,x^{2}-x+3}}-\frac{4477589\,x^{2}}{800000\,\sqrt{-10\,x^{2}-x+3}}-\frac{24319911}{160000000}\,\sqrt{10}\arcsin\left(-\frac{20}{11}\,x-\frac{1}{11}\right)+\frac{8158469\,x}{8000000\,\sqrt{-10\,x^{2}-x+3}}+\frac{6089453}{8000000\,\sqrt{-10\,x^{2}-x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*(-2*x + 1)^(5/2)/(5*x + 3)^(3/2),x, algorithm="maxima")
```

```
[Out] -216/25*x^6/sqrt(-10*x^2 - x + 3) + 297/250*x^5/sqrt(-10*x^2 - x
+ 3) + 57189/5000*x^4/sqrt(-10*x^2 - x + 3) - 782123/200000*x^3/s
qrt(-10*x^2 - x + 3) - 4477589/800000*x^2/sqrt(-10*x^2 - x + 3) -
 24319911/160000000*sqrt(10)*arcsin(-20/11*x - 1/11) + 8158469/80
00000*x/sqrt(-10*x^2 - x + 3) + 6089453/8000000/sqrt(-10*x^2 - x
+ 3)
```

Fricas [A] time = 0.229431, size = 120, normalized size = 0.76

$$\frac{\sqrt{10}\left(2\,\sqrt{10}\left(34560000\,x^{5}+12528000\,x^{4}-39487200\,x^{3}-4101140\,x^{2}+20337375\,x+6089453\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+243199\right.}{160000000\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*(-2*x + 1)^(5/2)/(5*x + 3)^(3/2),x, algorithm="fricas")
```

```
[Out] 1/160000000*sqrt(10)*(2*sqrt(10)*(34560000*x^5 + 12528000*x^4 - 3
9487200*x^3 - 4101140*x^2 + 20337375*x + 6089453)*sqrt(5*x + 3)*s
qrt(-2*x + 1) + 24319911*(5*x + 3)*arctan(1/20*sqrt(10)*(20*x + 1
)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(5*x + 3)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)**3/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.322291, size = 203, normalized size = 1.29

$$\frac{1}{200000000}\left(4\left(24\left(36\left(16\sqrt{5}(5x+3)-211\sqrt{5}\right)(5x+3)+22859\sqrt{5}\right)(5x+3)+969335\sqrt{5}\right)(5x+3)-5816745\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5} + \frac{24319911}{80000000}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right) - \frac{121\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}{156250\sqrt{5x+3}} + \frac{242\sqrt{10}\sqrt{5x+3}}{78125\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^3*(-2*x + 1)^(5/2)/(5*x + 3)^(3/2),x, algorithm="giac")
```

```
[Out] 1/200000000*(4*(24*(36*(16*sqrt(5)*(5*x + 3) - 211*sqrt(5))*(5*x
+ 3) + 22859*sqrt(5))*(5*x + 3) + 969335*sqrt(5))*(5*x + 3) - 581
6745*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5) + 24319911/80000000*s
qrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) - 121/156250*sqrt(10)
*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) + 242/78125*s
qrt(10)*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))
```

3.2421 $\int \frac{(1-2x)^{5/2}(2+3x)^2}{(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=138

$$-\frac{9}{200}\sqrt{5x+3}(1-2x)^{7/2}-\frac{2(1-2x)^{7/2}}{275\sqrt{5x+3}}+\frac{651\sqrt{5x+3}(1-2x)^{5/2}}{22000}+\frac{651\sqrt{5x+3}(1-2x)^{3/2}}{8000}+\frac{21483\sqrt{5x+3}\sqrt{1-2x}}{80000}+\frac{236313\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{80000\sqrt{10}}$$

```
[Out] (-2*(1 - 2*x)^(7/2))/(275*Sqrt[3 + 5*x]) + (21483*Sqrt[1 - 2*x]*S
qrt[3 + 5*x])/80000 + (651*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/8000 +
(651*(1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/22000 - (9*(1 - 2*x)^(7/2)*Sq
rt[3 + 5*x])/200 + (236313*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(800
00*Sqrt[10])
```

Rubi [A] time = 0.166253, antiderivative size = 138, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$-\frac{9}{200}\sqrt{5x+3}(1-2x)^{7/2}-\frac{2(1-2x)^{7/2}}{275\sqrt{5x+3}}+\frac{651\sqrt{5x+3}(1-2x)^{5/2}}{22000}+\frac{651\sqrt{5x+3}(1-2x)^{3/2}}{8000}+\frac{21483\sqrt{5x+3}\sqrt{1-2x}}{80000}+\frac{236313\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{80000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(2 + 3*x)^2)/(3 + 5*x)^(3/2),x]
```

```
[Out] (-2*(1 - 2*x)^(7/2))/(275*Sqrt[3 + 5*x]) + (21483*Sqrt[1 - 2*x]*S
qrt[3 + 5*x])/80000 + (651*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/8000 +
(651*(1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/22000 - (9*(1 - 2*x)^(7/2)*Sq
rt[3 + 5*x])/200 + (236313*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(800
00*Sqrt[10])
```

Rubi in Sympy [A] time = 14.6321, size = 126, normalized size = 0.91

$$-\frac{9(-2x+1)^{\frac{7}{2}}\sqrt{5x+3}}{200}-\frac{2(-2x+1)^{\frac{7}{2}}}{275\sqrt{5x+3}}+\frac{651(-2x+1)^{\frac{5}{2}}\sqrt{5x+3}}{22000}+\frac{651(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{8000}+\frac{21483\sqrt{-2x+1}\sqrt{5x+3}}{80000}+\frac{236313\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{800000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**2/(3+5*x)**(3/2),x)
```

```
[Out] -9*(-2*x + 1)**(7/2)*sqrt(5*x + 3)/200 - 2*(-2*x + 1)**(7/2)/(275
*sqrt(5*x + 3)) + 651*(-2*x + 1)**(5/2)*sqrt(5*x + 3)/22000 + 651
*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/8000 + 21483*sqrt(-2*x + 1)*sqrt
(5*x + 3)/80000 + 236313*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)
/800000
```

Mathematica [A] time = 0.173516, size = 70, normalized size = 0.51

$$\frac{\frac{10\sqrt{1-2x}(144000x^4-77600x^3-112620x^2+134625x+79699)}{\sqrt{5x+3}}-236313\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{800000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(2 + 3*x)^2)/(3 + 5*x)^(3/2),x]
```

```
[Out] ((10*Sqrt[1 - 2*x]*(79699 + 134625*x - 112620*x^2 - 77600*x^3 + 1
44000*x^4))/Sqrt[3 + 5*x] - 236313*Sqrt[10]*ArcSin[Sqrt[5/11]*Sqr
t[1 - 2*x]])/800000
```

Maple [A] time = 0.02, size = 133, normalized size = 1.

$$\frac{1}{1600000}\left(2880000\,x^4\sqrt{-10\,x^2-x+3}-1552000\,x^3\sqrt{-10\,x^2-x+3}+1181565\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x-2252400\,x^2\sqrt{\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^2/(3+5*x)^(3/2),x)
```

```
[Out] 1/1600000*(2880000*x^4*(-10*x^2-x+3)^(1/2)-1552000*x^3*(-10*x^2-x
+3)^(1/2)+1181565*10^(1/2)*arcsin(20/11*x+1/11)*x-2252400*x^2*(-1
0*x^2-x+3)^(1/2)+708939*10^(1/2)*arcsin(20/11*x+1/11)+2692500*x*(
-10*x^2-x+3)^(1/2)+1593980*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)/(-1
0*x^2-x+3)^(1/2)/(3+5*x)^(1/2)
```

Maxima [A] time = 1.49356, size = 147, normalized size = 1.07

$$-\frac{18\,x^5}{5\,\sqrt{-10\,x^2-x+3}}+\frac{187\,x^4}{50\,\sqrt{-10\,x^2-x+3}}+\frac{3691\,x^3}{2000\,\sqrt{-10\,x^2-x+3}}-\frac{38187\,x^2}{8000\,\sqrt{-10\,x^2-x+3}}-\frac{236313}{1600000}\sqrt{10}\arcsin\left(-\frac{20}{11}\,x-\frac{1}{11}\right)-\frac{24773\,x}{80000\,\sqrt{-10\,x^2-x+3}}+\frac{79699}{80000\,\sqrt{-10\,x^2-x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*(-2*x + 1)^(5/2)/(5*x + 3)^(3/2),x, algorithm="maxima")
```

```
[Out] -18/5*x^5/sqrt(-10*x^2 - x + 3) + 187/50*x^4/sqrt(-10*x^2 - x + 3
) + 3691/2000*x^3/sqrt(-10*x^2 - x + 3) - 38187/8000*x^2/sqrt(-10
*x^2 - x + 3) - 236313/1600000*sqrt(10)*arcsin(-20/11*x - 1/11) -
 24773/80000*x/sqrt(-10*x^2 - x + 3) + 79699/80000/sqrt(-10*x^2 -
 x + 3)
```

Fricas [A] time = 0.22333, size = 113, normalized size = 0.82

$$\frac{\sqrt{10}\left(2\,\sqrt{10}\left(144000\,x^4-77600\,x^3-112620\,x^2+134625\,x+79699\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+236313\,(5\,x+3)\arctan\left(\frac{\sqrt{10}(20\,x}{20\,\sqrt{5\,x+3}\sqrt{-}}\right.\right.}{1600000\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*(-2*x + 1)^(5/2)/(5*x + 3)^(3/2),x, algorithm="fricas")
```

```
[Out] 1/1600000*sqrt(10)*(2*sqrt(10)*(144000*x^4 - 77600*x^3 - 112620*x
^2 + 134625*x + 79699)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 236313*(5*x
 + 3)*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x +
1))))/(5*x + 3)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)**2/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.319635, size = 185, normalized size = 1.34

$$\frac{1}{2000000}\left(4\left(8\left(36\sqrt{5}(5x+3)-529\sqrt{5}\right)(5x+3)+16905\sqrt{5}\right)(5x+3)+61545\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}+\frac{236313}{800000}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)-\frac{121\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}{31250\sqrt{5x+3}}+\frac{242\sqrt{10}\sqrt{5x+3}}{15625\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*(-2*x + 1)^(5/2)/(5*x + 3)^(3/2),x, algorithm="giac")
```

```
[Out] 1/2000000*(4*(8*(36*sqrt(5)*(5*x + 3) - 529*sqrt(5))*(5*x + 3) +
16905*sqrt(5))*(5*x + 3) + 61545*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*
x + 5) + 236313/800000*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3
)) - 121/31250*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt
(5*x + 3) + 242/15625*sqrt(10)*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x
+ 5) - sqrt(22))
```

3.2422 $\int \frac{(1-2x)^{5/2}(2+3x)}{(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=116

$$-\frac{2(1-2x)^{7/2}}{55\sqrt{5x+3}}+\frac{7}{275}\sqrt{5x+3}(1-2x)^{5/2}+\frac{7}{100}\sqrt{5x+3}(1-2x)^{3/2}+\frac{231\sqrt{5x+3}\sqrt{1-2x}}{1000}+\frac{2541\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{1000\sqrt{10}}$$

```
[Out] (-2*(1 - 2*x)^(7/2))/(55*Sqrt[3 + 5*x]) + (231*Sqrt[1 - 2*x]*Sqrt
[3 + 5*x])/1000 + (7*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/100 + (7*(1 -
 2*x)^(5/2)*Sqrt[3 + 5*x])/275 + (2541*ArcSin[Sqrt[2/11]*Sqrt[3 +
 5*x]])/(1000*Sqrt[10])
```

Rubi [A] time = 0.119008, antiderivative size = 116, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$-\frac{2(1-2x)^{7/2}}{55\sqrt{5x+3}}+\frac{7}{275}\sqrt{5x+3}(1-2x)^{5/2}+\frac{7}{100}\sqrt{5x+3}(1-2x)^{3/2}+\frac{231\sqrt{5x+3}\sqrt{1-2x}}{1000}+\frac{2541\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{1000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(2 + 3*x))/(3 + 5*x)^(3/2),x]
```

```
[Out] (-2*(1 - 2*x)^(7/2))/(55*Sqrt[3 + 5*x]) + (231*Sqrt[1 - 2*x]*Sqrt
[3 + 5*x])/1000 + (7*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/100 + (7*(1 -
 2*x)^(5/2)*Sqrt[3 + 5*x])/275 + (2541*ArcSin[Sqrt[2/11]*Sqrt[3 +
 5*x]])/(1000*Sqrt[10])
```

Rubi in Sympy [A] time = 11.7375, size = 105, normalized size = 0.91

$$-\frac{2(-2x+1)^{\frac{7}{2}}}{55\sqrt{5x+3}}+\frac{7(-2x+1)^{\frac{5}{2}}\sqrt{5x+3}}{275}+\frac{7(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{100}+\frac{231\sqrt{-2x+1}\sqrt{5x+3}}{1000}+\frac{2541\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{10000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)/(3+5*x)**(3/2),x)
```

```
[Out] -2*(-2*x + 1)**(7/2)/(55*sqrt(5*x + 3)) + 7*(-2*x + 1)**(5/2)*sqr
t(5*x + 3)/275 + 7*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/100 + 231*sqrt
(-2*x + 1)*sqrt(5*x + 3)/1000 + 2541*sqrt(10)*asin(sqrt(22)*sqrt(
5*x + 3)/11)/10000
```

Mathematica [A] time = 0.140674, size = 65, normalized size = 0.56

$$\frac{\frac{10\sqrt{1-2x}(800x^3-1340x^2+1125x+943)}{\sqrt{5x+3}}-2541\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{10000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(2 + 3*x))/(3 + 5*x)^(3/2),x]
```

```
[Out] ((10*Sqrt[1 - 2*x]*(943 + 1125*x - 1340*x^2 + 800*x^3))/Sqrt[3 +
5*x] - 2541*Sqrt[10]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/10000
```

Maple [A] time = 0.016, size = 116, normalized size = 1.

$$\frac{1}{20000}\left(16000\,x^3\sqrt{-10\,x^2-x+3}+12705\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x-26800\,x^2\sqrt{-10\,x^2-x+3}+7623\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)/(3+5*x)^(3/2),x)
```

```
[Out] 1/20000*(16000*x^3*(-10*x^2-x+3)^(1/2)+12705*10^(1/2)*arcsin(20/1
1*x+1/11)*x-26800*x^2*(-10*x^2-x+3)^(1/2)+7623*10^(1/2)*arcsin(20
/11*x+1/11)+22500*x*(-10*x^2-x+3)^(1/2)+18860*(-10*x^2-x+3)^(1/2)
)*(1-2*x)^(1/2)/(-10*x^2-x+3)^(1/2)/(3+5*x)^(1/2)
```

Maxima [A] time = 1.50753, size = 124, normalized size = 1.07

$$-\frac{8\,x^4}{5\,\sqrt{-10\,x^2-x+3}}+\frac{87\,x^3}{25\,\sqrt{-10\,x^2-x+3}}-\frac{359\,x^2}{100\,\sqrt{-10\,x^2-x+3}}-\frac{2541}{20000}\sqrt{10}\arcsin\left(-\frac{20}{11}\,x-\frac{1}{11}\right)-\frac{761\,x}{1000\,\sqrt{-10\,x^2-x+3}}+\frac{943}{1000\,\sqrt{-10\,x^2-x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)*(-2*x + 1)^(5/2)/(5*x + 3)^(3/2),x, algorithm="maxima")
```

```
[Out] -8/5*x^4/sqrt(-10*x^2 - x + 3) + 87/25*x^3/sqrt(-10*x^2 - x + 3)
- 359/100*x^2/sqrt(-10*x^2 - x + 3) - 2541/20000*sqrt(10)*arcsin(
-20/11*x - 1/11) - 761/1000*x/sqrt(-10*x^2 - x + 3) + 943/1000/sq
rt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.230741, size = 107, normalized size = 0.92

$$\frac{\sqrt{10}\left(2\,\sqrt{10}\left(800\,x^3-1340\,x^2+1125\,x+943\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+2541\,(5\,x+3)\arctan\left(\frac{\sqrt{10}(20\,x+1)}{20\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)}{20000\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)*(-2*x + 1)^(5/2)/(5*x + 3)^(3/2),x, algorithm="fricas")
```

```
[Out] 1/20000*sqrt(10)*(2*sqrt(10)*(800*x^3 - 1340*x^2 + 1125*x + 943)*
sqrt(5*x + 3)*sqrt(-2*x + 1) + 2541*(5*x + 3)*arctan(1/20*sqrt(10
)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(5*x + 3)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.288294, size = 167, normalized size = 1.44

$$\frac{1}{25000}\left(4\left(8\sqrt{5}(5x+3)-139\sqrt{5}\right)(5x+3)+3597\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5} + \frac{2541}{10000}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right) - \frac{121\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}{6250\sqrt{5x+3}} + \frac{242\sqrt{10}\sqrt{5x+3}}{3125\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)*(-2*x + 1)^(5/2)/(5*x + 3)^(3/2),x, algorithm="giac")
```

```
[Out] 1/25000*(4*(8*sqrt(5)*(5*x + 3) - 139*sqrt(5))*(5*x + 3) + 3597*s
qrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5) + 2541/10000*sqrt(10)*arcsi
n(1/11*sqrt(22)*sqrt(5*x + 3)) - 121/6250*sqrt(10)*(sqrt(2)*sqrt(
-10*x + 5) - sqrt(22))/sqrt(5*x + 3) + 242/3125*sqrt(10)*sqrt(5*x
 + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))
```

3.2423 $\int \frac{(1-2x)^{5/2}}{(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=94

$$-\frac{2(1-2x)^{5/2}}{5\sqrt{5x+3}}-\frac{1}{5}\sqrt{5x+3}(1-2x)^{3/2}-\frac{33}{50}\sqrt{5x+3}\sqrt{1-2x}-\frac{363\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{50\sqrt{10}}$$

```
[Out] (-2*(1 - 2*x)^(5/2))/(5*Sqrt[3 + 5*x]) - (33*Sqrt[1 - 2*x]*Sqrt[3
 + 5*x])/50 - ((1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/5 - (363*ArcSin[Sqr
t[2/11]*Sqrt[3 + 5*x]])/(50*Sqrt[10])
```

Rubi [A] time = 0.0857884, antiderivative size = 94, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}} = 0.21$

$$-\frac{2(1-2x)^{5/2}}{5\sqrt{5x+3}}-\frac{1}{5}\sqrt{5x+3}(1-2x)^{3/2}-\frac{33}{50}\sqrt{5x+3}\sqrt{1-2x}-\frac{363\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{50\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^(5/2)/(3 + 5*x)^(3/2),x]
```

```
[Out] (-2*(1 - 2*x)^(5/2))/(5*Sqrt[3 + 5*x]) - (33*Sqrt[1 - 2*x]*Sqrt[3
 + 5*x])/50 - ((1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/5 - (363*ArcSin[Sqr
t[2/11]*Sqrt[3 + 5*x]])/(50*Sqrt[10])
```

Rubi in Sympy [A] time = 9.13439, size = 85, normalized size = 0.9

$$-\frac{2\left(-2x+1\right)^{\frac{5}{2}}}{5\sqrt{5x+3}}-\frac{\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{5}-\frac{33\sqrt{-2x+1}\sqrt{5x+3}}{50}-\frac{363\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{500}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**(5/2)/(3+5*x)**(3/2),x)
```

```
[Out] -2*(-2*x + 1)**(5/2)/(5*sqrt(5*x + 3)) - (-2*x + 1)**(3/2)*sqrt(5
*x + 3)/5 - 33*sqrt(-2*x + 1)*sqrt(5*x + 3)/50 - 363*sqrt(10)*asi
n(sqrt(22)*sqrt(5*x + 3)/11)/500
```

Mathematica [A] time = 0.102917, size = 60, normalized size = 0.64

$$\frac{\sqrt{1-2x}\left(20x^2-75x-149\right)}{50\sqrt{5x+3}}+\frac{363\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{50\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In] Integrate[(1 - 2*x)^(5/2)/(3 + 5*x)^(3/2),x]
```

```
[Out] (Sqrt[1 - 2*x]*(-149 - 75*x + 20*x^2))/(50*Sqrt[3 + 5*x]) + (363*
ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/(50*Sqrt[10])
```

Maple [F] time = 0.057, size = 0, normalized size = 0.

$$\int 1\,(1-2\,x)^{\frac{5}{2}}\,(3+5\,x)^{-\frac{3}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(3+5*x)^(3/2),x)
```

```
[Out] int((1-2*x)^(5/2)/(3+5*x)^(3/2),x)
```

Maxima [A] time = 1.50461, size = 101, normalized size = 1.07

$$-\frac{4\,x^3}{5\,\sqrt{-10\,x^2-x+3}}+\frac{17\,x^2}{5\,\sqrt{-10\,x^2-x+3}}+\frac{363}{1000}\,\sqrt{10}\arcsin\left(-\frac{20}{11}\,x-\frac{1}{11}\right)+\frac{223\,x}{50\,\sqrt{-10\,x^2-x+3}}-\frac{149}{50\,\sqrt{-10\,x^2-x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/(5*x + 3)^(3/2),x, algorithm="maxima")
```

```
[Out] -4/5*x^3/sqrt(-10*x^2 - x + 3) + 17/5*x^2/sqrt(-10*x^2 - x + 3) +
 363/1000*sqrt(10)*arcsin(-20/11*x - 1/11) + 223/50*x/sqrt(-10*x^
2 - x + 3) - 149/50/sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.223257, size = 100, normalized size = 1.06

$$\frac{\sqrt{10}\left(2\,\sqrt{10}\left(20\,x^2-75\,x-149\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-363\,(5\,x+3)\arctan\left(\frac{\sqrt{10}(20\,x+1)}{20\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)}{1000\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/(5*x + 3)^(3/2),x, algorithm="fricas")
```

```
[Out] 1/1000*sqrt(10)*(2*sqrt(10)*(20*x^2 - 75*x - 149)*sqrt(5*x + 3)*s
qrt(-2*x + 1) - 363*(5*x + 3)*arctan(1/20*sqrt(10)*(20*x + 1)/(sq
rt(5*x + 3)*sqrt(-2*x + 1))))/(5*x + 3)
```

Sympy [A] time = 29.5776, size = 230, normalized size = 2.45

$$\begin{cases} \frac{4i\left(x+\frac{3}{5}\right)^{\frac{5}{2}}}{5\sqrt{10x-5}}-\frac{121i\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}{25\sqrt{10x-5}}+\frac{121i\sqrt{x+\frac{3}{5}}}{250\sqrt{10x-5}}+\frac{363\sqrt{10}i\operatorname{acosh}\left(\frac{\sqrt{110}\sqrt{x+\frac{3}{5}}}{11}\right)}{500}+\frac{2662i}{625\sqrt{x+\frac{3}{5}}\sqrt{10x-5}} & \text{for}\ \frac{10\left|x+\frac{3}{5}\right|}{11}>1 \\ -\frac{363\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{110}\sqrt{x+\frac{3}{5}}}{11}\right)}{500}-\frac{4\left(x+\frac{3}{5}\right)^{\frac{5}{2}}}{5\sqrt{-10x+5}}+\frac{121\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}{25\sqrt{-10x+5}}-\frac{121\sqrt{x+\frac{3}{5}}}{250\sqrt{-10x+5}}-\frac{2662}{625\sqrt{-10x+5}\sqrt{x+\frac{3}{5}}} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)/(3+5*x)**(3/2),x)
```

```
[Out] Piecewise((4*I*(x + 3/5)**(5/2)/(5*sqrt(10*x - 5)) - 121*I*(x + 3
/5)**(3/2)/(25*sqrt(10*x - 5)) + 121*I*sqrt(x + 3/5)/(250*sqrt(10
*x - 5)) + 363*sqrt(10)*I*acosh(sqrt(110)*sqrt(x + 3/5)/11)/500 +
 2662*I/(625*sqrt(x + 3/5)*sqrt(10*x - 5)), 10*Abs(x + 3/5)/11 >
```

```
1), (-363*sqrt(10)*asin(sqrt(110)*sqrt(x + 3/5)/11)/500 - 4*(x +
3/5)**(5/2)/(5*sqrt(-10*x + 5)) + 121*(x + 3/5)**(3/2)/(25*sqrt(-
10*x + 5)) - 121*sqrt(x + 3/5)/(250*sqrt(-10*x + 5)) - 2662/(625*
sqrt(-10*x + 5)*sqrt(x + 3/5)), True))
```

GIAC/XCAS [A] time = 0.268466, size = 150, normalized size = 1.6

$$\frac{1}{1250}\left(4\sqrt{5}(5x+3)-99\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}-\frac{363}{500}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)$$
$$-\frac{121\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}{1250\sqrt{5x+3}}+\frac{242\sqrt{10}\sqrt{5x+3}}{625\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/(5*x + 3)^(3/2),x, algorithm="giac")
```

```
[Out] 1/1250*(4*sqrt(5)*(5*x + 3) - 99*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*
x + 5) - 363/500*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) - 1
21/1250*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x +
3) + 242/625*sqrt(10)*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sq
rt(22))
```

3.2424 $\int \frac{(1-2x)^{5/2}}{(2+3x)(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=108

$$-\frac{22(1-2x)^{3/2}}{5\sqrt{5x+3}}-\frac{128}{75}\sqrt{5x+3}\sqrt{1-2x}+\frac{338}{225}\sqrt{\frac{2}{5}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)+\frac{98}{9}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

```
[Out] (-22*(1 - 2*x)^(3/2))/(5*Sqrt[3 + 5*x]) - (128*Sqrt[1 - 2*x]*Sqrt
[3 + 5*x])/75 + (338*Sqrt[2/5]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/
225 + (98*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/
9
```

Rubi [A] time = 0.24108, antiderivative size = 108, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 7, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.269

$$-\frac{22(1-2x)^{3/2}}{5\sqrt{5x+3}}-\frac{128}{75}\sqrt{5x+3}\sqrt{1-2x}+\frac{338}{225}\sqrt{\frac{2}{5}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)+\frac{98}{9}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-22*(1 - 2*x)^(3/2))/(5*Sqrt[3 + 5*x]) - (128*Sqrt[1 - 2*x]*Sqrt
[3 + 5*x])/75 + (338*Sqrt[2/5]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/
225 + (98*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/
9
```

Rubi in Sympy [A] time = 24.3839, size = 99, normalized size = 0.92

$$-\frac{22\left(-2x+1\right)^{\frac{3}{2}}}{5\sqrt{5x+3}}-\frac{128\sqrt{-2x+1}\sqrt{5x+3}}{75}+\frac{338\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{1125}+\frac{98\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)/(3+5*x)**(3/2),x)
```

```
[Out] -22*(-2*x + 1)**(3/2)/(5*sqrt(5*x + 3)) - 128*sqrt(-2*x + 1)*sqrt
(5*x + 3)/75 + 338*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/1125
+ 98*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/9
```

Mathematica [A] time = 0.265712, size = 104, normalized size = 0.96

$$\frac{2\sqrt{1-2x}(10x-357)}{75\sqrt{5x+3}}+\frac{49}{9}\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)+\frac{169}{225}\sqrt{\frac{2}{5}}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (2*Sqrt[1 - 2*x]*(-357 + 10*x))/(75*Sqrt[3 + 5*x]) + (49*Sqrt[7]*
ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/9 + (169*S
qrt[2/5]*ArcTan[(1 + 20*x)/(2*Sqrt[1 - 2*x]*Sqrt[30 + 50*x])])/22
5
```

Maple [A] time = 0.019, size = 139, normalized size = 1.3

$$-\frac{1}{1125}\left(30625\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x-845\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x+18375\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20}{\sqrt{-10\,x^2-}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)/(3+5*x)^(3/2),x)
```

```
[Out] -1/1125*(30625*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3
)^(1/2))*x-845*10^(1/2)*arcsin(20/11*x+1/11)*x+18375*7^(1/2)*arct
an(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))-507*10^(1/2)*arcsi
n(20/11*x+1/11)-300*x*(-10*x^2-x+3)^(1/2)+10710*(-10*x^2-x+3)^(1/
2))*(1-2*x)^(1/2)/(-10*x^2-x+3)^(1/2)/(3+5*x)^(1/2)
```

Maxima [A] time = 1.53065, size = 116, normalized size = 1.07

$$-\frac{8\,x^2}{15\sqrt{-10\,x^2-x+3}}+\frac{169}{1125}\sqrt{10}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)-\frac{49}{9}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{1448\,x}{75\sqrt{-10\,x^2-x+3}}-\frac{238}{25\sqrt{-10\,x^2-x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*(3*x + 2)),x, algorithm="maxima")
```

```
[Out] -8/15*x^2/sqrt(-10*x^2 - x + 3) + 169/1125*sqrt(10)*arcsin(20/11*
x + 1/11) - 49/9*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(
3*x + 2)) + 1448/75*x/sqrt(-10*x^2 - x + 3) - 238/25/sqrt(-10*x^2
 - x + 3)
```

Fricas [A] time = 0.23261, size = 153, normalized size = 1.42

$$-\frac{\sqrt{5}\left(1225\sqrt{7}\sqrt{5}(5\,x+3)\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)-6\sqrt{5}(10\,x-357)\sqrt{5\,x+3}\sqrt{-2\,x+1}-169\sqrt{2}(5\,x+3)\arctan\left(\frac{\sqrt{5}\sqrt{2}(2}{20\sqrt{5\,x+3}}\right.\right.}{1125\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*(3*x + 2)),x, algorithm="fricas")
```

```
[Out] -1/1125*sqrt(5)*(1225*sqrt(7)*sqrt(5)*(5*x + 3)*arctan(1/14*sqrt(
7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))) - 6*sqrt(5)*(10*x
- 357)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 169*sqrt(2)*(5*x + 3)*arcta
n(1/20*sqrt(5)*sqrt(2)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1)))
)/(5*x + 3)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)/(2+3*x)/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.294258, size = 296, normalized size = 2.74

$$-\frac{49}{90}\,\sqrt{70}\sqrt{10}\left(\pi + 2\,\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{2}}{5\,x+3}-4\right)}{140\,\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right) + \frac{169}{1125}\,\sqrt{10}\left(\pi + 2\,\arctan\left(-\frac{\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{2}}{5\,x+3}-4\right)}{4\,\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right) + \frac{4}{375}\,\sqrt{5}\sqrt{5\,x+3}\sqrt{-10\,x+5} - \frac{121}{250}\,\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}} - \frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*(3*x + 2)),x, algorithm="giac")
```

```
[Out] -49/90*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x
+ 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqrt
(2)*sqrt(-10*x + 5) - sqrt(22)))) + 169/1125*sqrt(10)*(pi + 2*arc
tan(-1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5
*x + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 4/375*sqrt(
5)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 121/250*sqrt(10)*((sqrt(2)*sqr
t(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)
*sqrt(-10*x + 5) - sqrt(22)))
```

3.2425 $\int \frac{(1-2x)^{5/2}}{(2+3x)^2(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=115

$$\frac{7(1-2x)^{3/2}}{3(3x+2)\sqrt{5x+3}}-\frac{1111\sqrt{1-2x}}{15\sqrt{5x+3}}-\frac{8}{45}\sqrt{\frac{2}{5}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)+\frac{665}{9}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

```
[Out] (-1111*Sqrt[1 - 2*x])/(15*Sqrt[3 + 5*x]) + (7*(1 - 2*x)^(3/2))/(3
*(2 + 3*x)*Sqrt[3 + 5*x]) - (8*Sqrt[2/5]*ArcSin[Sqrt[2/11]*Sqrt[3
 + 5*x]])/45 + (665*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3
+ 5*x])])/9
```

Rubi [A] time = 0.243313, antiderivative size = 115, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 7, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.269

$$\frac{7(1-2x)^{3/2}}{3(3x+2)\sqrt{5x+3}}-\frac{1111\sqrt{1-2x}}{15\sqrt{5x+3}}-\frac{8}{45}\sqrt{\frac{2}{5}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)+\frac{665}{9}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)^2*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-1111*Sqrt[1 - 2*x])/(15*Sqrt[3 + 5*x]) + (7*(1 - 2*x)^(3/2))/(3
*(2 + 3*x)*Sqrt[3 + 5*x]) - (8*Sqrt[2/5]*ArcSin[Sqrt[2/11]*Sqrt[3
 + 5*x]])/45 + (665*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3
+ 5*x])])/9
```

Rubi in Sympy [A] time = 23.872, size = 104, normalized size = 0.9

$$\frac{7\left(-2x+1\right)^{\frac{3}{2}}}{3\left(3x+2\right)\sqrt{5x+3}}-\frac{1111\sqrt{-2x+1}}{15\sqrt{5x+3}}-\frac{8\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{225}+\frac{665\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{9}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)**2/(3+5*x)**(3/2),x)
```

```
[Out] 7*(-2*x + 1)**(3/2)/(3*(3*x + 2)*sqrt(5*x + 3)) - 1111*sqrt(-2*x
+ 1)/(15*sqrt(5*x + 3)) - 8*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/
11)/225 + 665*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3
)))/9
```

Mathematica [A] time = 0.227844, size = 107, normalized size = 0.93

$$\frac{1}{450}\left(-\frac{30\sqrt{1-2x}(3403x+2187)}{(3x+2)\sqrt{5x+3}}+16625\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)-8\sqrt{10}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)^2*(3 + 5*x)^(3/2)),x]
```

```
[Out] ((-30*Sqrt[1 - 2*x]*(2187 + 3403*x))/((2 + 3*x)*Sqrt[3 + 5*x]) +
16625*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x]
```

```
)] - 8*Sqrt[10]*ArcTan[(1 + 20*x)/(2*Sqrt[1 - 2*x]*Sqrt[30 + 50*x
])])/450
```

Maple [B] time = 0.02, size = 191, normalized size = 1.7

$$-\frac{1}{900+1350\,x}\left(120\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x^2+249375\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^2+152\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)^2/(3+5*x)^(3/2),x)
```

```
[Out] -1/450*(120*10^(1/2)*arcsin(20/11*x+1/11)*x^2+249375*7^(1/2)*arct
an(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+152*10^(1/2)*a
rcsin(20/11*x+1/11)*x+315875*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2
)/(-10*x^2-x+3)^(1/2))*x+48*10^(1/2)*arcsin(20/11*x+1/11)+99750*7
^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+102090*
x*(-10*x^2-x+3)^(1/2)+65610*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)/(2
+3*x)/(-10*x^2-x+3)^(1/2)/(3+5*x)^(1/2)
```

Maxima [A] time = 1.50716, size = 139, normalized size = 1.21

$$-\frac{4}{225}\,\sqrt{10}\arcsin\left(\frac{20}{11}\,x+\frac{1}{11}\right)-\frac{665}{18}\,\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)$$
$$+\frac{6806\,x}{45\,\sqrt{-10\,x^2-x+3}}-\frac{10699}{135\,\sqrt{-10\,x^2-x+3}}+\frac{343}{27\left(3\,\sqrt{-10\,x^2-x+3}x+2\,\sqrt{-10\,x^2-x+3}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*(3*x + 2)^2),x, algorithm="maxima")
```

```
[Out] -4/225*sqrt(10)*arcsin(20/11*x + 1/11) - 665/18*sqrt(7)*arcsin(37
/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) + 6806/45*x/sqrt(-10*x^2
 - x + 3) - 10699/135/sqrt(-10*x^2 - x + 3) + 343/27/(3*sqrt(-10*
x^2 - x + 3)*x + 2*sqrt(-10*x^2 - x + 3))
```

Fricas [A] time = 0.229609, size = 173, normalized size = 1.5

$$-\frac{\sqrt{5}\left(3325\,\sqrt{7}\sqrt{5}\left(15\,x^2+19\,x+6\right)\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)+6\,\sqrt{5}(3403\,x+2187)\sqrt{5\,x+3}\sqrt{-2\,x+1}+8\,\sqrt{2}\left(15\,x^2+19\,x+\right.\right.}{450\left(15\,x^2+19\,x+6\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*(3*x + 2)^2),x, algorithm="fricas")
```

```
[Out] -1/450*sqrt(5)*(3325*sqrt(7)*sqrt(5)*(15*x^2 + 19*x + 6)*arctan(1
/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))) + 6*sqrt(
5)*(3403*x + 2187)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 8*sqrt(2)*(15*x
^2 + 19*x + 6)*arctan(1/20*sqrt(5)*sqrt(2)*(20*x + 1)/(sqrt(5*x +
 3)*sqrt(-2*x + 1))))/(15*x^2 + 19*x + 6)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)/(2+3*x)**2/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.325859, size = 431, normalized size = 3.75

$$-\frac{133}{36}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{4}{225}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{4\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{121}{50}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)-\frac{1078\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)}{3\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*(3*x + 2)^2),x, algorithm="giac")
```

```
[Out] -133/36*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x
 + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqr
t(2)*sqrt(-10*x + 5) - sqrt(22)))) - 4/225*sqrt(10)*(pi + 2*arcta
n(-1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x
 + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 121/50*sqrt(1
0)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5
*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))) - 1078/3*sqrt(10)*(
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x +
 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))/(((sqrt(2)*sqrt(-10*x +
 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10
*x + 5) - sqrt(22)))^2 + 280)
```

3.2426 $\int \frac{(1-2x)^{5/2}}{(2+3x)^3(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=115

$$\frac{(1-2x)^{5/2}}{2(3x+2)^2\sqrt{5x+3}}+\frac{55(1-2x)^{3/2}}{4(3x+2)\sqrt{5x+3}}-\frac{1815\sqrt{1-2x}}{4\sqrt{5x+3}}+\frac{1815}{4}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

```
[Out] (-1815*Sqrt[1 - 2*x])/(4*Sqrt[3 + 5*x]) + (1 - 2*x)^(5/2)/(2*(2 +
 3*x)^2*Sqrt[3 + 5*x]) + (55*(1 - 2*x)^(3/2))/(4*(2 + 3*x)*Sqrt[3
 + 5*x]) + (1815*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5
*x])])/4
```

Rubi [A] time = 0.169128, antiderivative size = 115, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.115

$$\frac{(1-2x)^{5/2}}{2(3x+2)^2\sqrt{5x+3}}+\frac{55(1-2x)^{3/2}}{4(3x+2)\sqrt{5x+3}}-\frac{1815\sqrt{1-2x}}{4\sqrt{5x+3}}+\frac{1815}{4}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)^3*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-1815*Sqrt[1 - 2*x])/(4*Sqrt[3 + 5*x]) + (1 - 2*x)^(5/2)/(2*(2 +
 3*x)^2*Sqrt[3 + 5*x]) + (55*(1 - 2*x)^(3/2))/(4*(2 + 3*x)*Sqrt[3
 + 5*x]) + (1815*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5
*x])])/4
```

Rubi in Sympy [A] time = 14.4653, size = 109, normalized size = 0.95

$$-\frac{2\left(-2x+1\right)^{\frac{5}{2}}}{\left(3x+2\right)^{2}\sqrt{5x+3}}-\frac{35\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{2\left(3x+2\right)^{2}}-\frac{1155\sqrt{-2x+1}\sqrt{5x+3}}{4\left(3x+2\right)}+\frac{1815\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)**3/(3+5*x)**(3/2),x)
```

```
[Out] -2*(-2*x + 1)**(5/2)/((3*x + 2)**2*sqrt(5*x + 3)) - 35*(-2*x + 1)
**(3/2)*sqrt(5*x + 3)/(2*(3*x + 2)**2) - 1155*sqrt(-2*x + 1)*sqrt
(5*x + 3)/(4*(3*x + 2)) + 1815*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1
)/(7*sqrt(5*x + 3)))/4
```

Mathematica [A] time = 0.0836055, size = 77, normalized size = 0.67

$$\frac{1815}{8}\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)-\frac{\sqrt{1-2x}\left(16657x^2+21843x+7148\right)}{4(3x+2)^2\sqrt{5x+3}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)^3*(3 + 5*x)^(3/2)),x]
```

```
[Out] -(Sqrt[1 - 2*x]*(7148 + 21843*x + 16657*x^2))/(4*(2 + 3*x)^2*Sqrt
[3 + 5*x]) + (1815*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*
Sqrt[3 + 5*x])])/8
```

Maple [B] time = 0.02, size = 202, normalized size = 1.8

$$-\frac{1}{8\,(2+3\,x)^2}\left(81675\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^3+157905\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^2+101640\,\sqrt{7}\,\mathrm{ar}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)^3/(3+5*x)^(3/2),x)
```

```
[Out] -1/8*(81675*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(
1/2))*x^3+157905*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x
+3)^(1/2))*x^2+101640*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*
x^2-x+3)^(1/2))*x+33314*x^2*(-10*x^2-x+3)^(1/2)+21780*7^(1/2)*arc
tan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+43686*x*(-10*x^2-
x+3)^(1/2)+14296*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)/(2+3*x)^2/(-1
0*x^2-x+3)^(1/2)/(3+5*x)^(1/2)
```

Maxima [A] time = 1.51343, size = 193, normalized size = 1.68

$$-\frac{1815}{8}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{16657\,x}{18\,\sqrt{-10\,x^2-x+3}}-\frac{52169}{108\,\sqrt{-10\,x^2-x+3}}$$
$$+\frac{343}{54\left(9\,\sqrt{-10\,x^2-x+3}x^2+12\,\sqrt{-10\,x^2-x+3}x+4\,\sqrt{-10\,x^2-x+3}\right)}$$
$$+\frac{833}{12\left(3\,\sqrt{-10\,x^2-x+3}x+2\,\sqrt{-10\,x^2-x+3}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*(3*x + 2)^3),x, algorithm="maxima")
```

```
[Out] -1815/8*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2))
 + 16657/18*x/sqrt(-10*x^2 - x + 3) - 52169/108/sqrt(-10*x^2 - x
+ 3) + 343/54/(9*sqrt(-10*x^2 - x + 3)*x^2 + 12*sqrt(-10*x^2 - x
+ 3)*x + 4*sqrt(-10*x^2 - x + 3)) + 833/12/(3*sqrt(-10*x^2 - x +
3)*x + 2*sqrt(-10*x^2 - x + 3))
```

Fricas [A] time = 0.223557, size = 123, normalized size = 1.07

$$-\frac{1815\,\sqrt{7}\left(45\,x^3+87\,x^2+56\,x+12\right)\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)+2\left(16657\,x^2+21843\,x+7148\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}}{8\left(45\,x^3+87\,x^2+56\,x+12\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*(3*x + 2)^3),x, algorithm="fricas")
```

```
[Out] -1/8*(1815*sqrt(7)*(45*x^3 + 87*x^2 + 56*x + 12)*arctan(1/14*sqrt
(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))) + 2*(16657*x^2 +
21843*x + 7148)*sqrt(5*x + 3)*sqrt(-2*x + 1))/(45*x^3 + 87*x^2 +
56*x + 12)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((1-2*x)**(5/2)/(2+3*x)**3/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.328858, size = 427, normalized size = 3.71

$$-\frac{363}{16}\,\sqrt{70}\sqrt{10}\left(\pi+2\,\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{2}}{5\,x+3}-4\right)}{140\,\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)-\frac{121}{10}\,\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)-\frac{847\left(9\,\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^{3}+1960\,\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)\right)}{2\left(\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^{2}+280\right)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*(3*x + 2)^3),x, algorithm="giac")
```

```
[Out] -363/16*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x
 + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqr
t(2)*sqrt(-10*x + 5) - sqrt(22)))) - 121/10*sqrt(10)*((sqrt(2)*sq
rt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2
)*sqrt(-10*x + 5) - sqrt(22))) - 847/2*(9*sqrt(10)*((sqrt(2)*sqrt
(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*
sqrt(-10*x + 5) - sqrt(22)))^3 + 1960*sqrt(10)*((sqrt(2)*sqrt(-10
*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt
(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/
sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(2
2)))^2 + 280)^2
```

3.2427 $\int \frac{(1-2x)^{5/2}}{(2+3x)^4(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=144

$$\frac{(1-2x)^{7/2}}{7(3x+2)^3\sqrt{5x+3}}+\frac{81(1-2x)^{5/2}}{28(3x+2)^2\sqrt{5x+3}}+\frac{4455(1-2x)^{3/2}}{56(3x+2)\sqrt{5x+3}}-\frac{147015\sqrt{1-2x}}{56\sqrt{5x+3}}+\frac{147015\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{8\sqrt{7}}$$

```
[Out] (-147015*Sqrt[1 - 2*x])/(56*Sqrt[3 + 5*x]) + (1 - 2*x)^(7/2)/(7*(
2 + 3*x)^3*Sqrt[3 + 5*x]) + (81*(1 - 2*x)^(5/2))/(28*(2 + 3*x)^2*
Sqrt[3 + 5*x]) + (4455*(1 - 2*x)^(3/2))/(56*(2 + 3*x)*Sqrt[3 + 5*
x]) + (147015*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(8*S
qrt[7])
```

Rubi [A] time = 0.214932, antiderivative size = 144, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$\frac{(1-2x)^{7/2}}{7(3x+2)^3\sqrt{5x+3}}+\frac{81(1-2x)^{5/2}}{28(3x+2)^2\sqrt{5x+3}}+\frac{4455(1-2x)^{3/2}}{56(3x+2)\sqrt{5x+3}}-\frac{147015\sqrt{1-2x}}{56\sqrt{5x+3}}+\frac{147015\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{8\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)^4*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-147015*Sqrt[1 - 2*x])/(56*Sqrt[3 + 5*x]) + (1 - 2*x)^(7/2)/(7*(
2 + 3*x)^3*Sqrt[3 + 5*x]) + (81*(1 - 2*x)^(5/2))/(28*(2 + 3*x)^2*
Sqrt[3 + 5*x]) + (4455*(1 - 2*x)^(3/2))/(56*(2 + 3*x)*Sqrt[3 + 5*
x]) + (147015*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(8*S
qrt[7])
```

Rubi in Sympy [A] time = 17.8316, size = 138, normalized size = 0.96

$$-\frac{10\left(-2x+1\right)^{\frac{7}{2}}}{11\left(3x+2\right)^{3}\sqrt{5x+3}}-\frac{81\left(-2x+1\right)^{\frac{5}{2}}\sqrt{5x+3}}{11\left(3x+2\right)^{3}}-\frac{405\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{4\left(3x+2\right)^{2}}-\frac{13365\sqrt{-2x+1}\sqrt{5x+3}}{8\left(3x+2\right)}+\frac{147015\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{56}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)**4/(3+5*x)**(3/2),x)
```

```
[Out] -10*(-2*x + 1)**(7/2)/(11*(3*x + 2)**3*sqrt(5*x + 3)) - 81*(-2*x
+ 1)**(5/2)*sqrt(5*x + 3)/(11*(3*x + 2)**3) - 405*(-2*x + 1)**(3/
2)*sqrt(5*x + 3)/(4*(3*x + 2)**2) - 13365*sqrt(-2*x + 1)*sqrt(5*x
 + 3)/(8*(3*x + 2)) + 147015*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/
(7*sqrt(5*x + 3)))/56
```

Mathematica [A] time = 0.0961095, size = 82, normalized size = 0.57

$$\frac{147015\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{16\sqrt{7}}-\frac{\sqrt{1-2x}\left(578245x^3+1143741x^2+753654x+165424\right)}{8(3x+2)^3\sqrt{5x+3}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)^4*(3 + 5*x)^(3/2)),x]
```

```
[Out] -(Sqrt[1 - 2*x]*(165424 + 753654*x + 1143741*x^2 + 578245*x^3))/(
8*(2 + 3*x)^3*Sqrt[3 + 5*x]) + (147015*ArcTan[(-20 - 37*x)/(2*Sqr
t[7 - 14*x]*Sqrt[3 + 5*x])])/(16*Sqrt[7])
```

Maple [B] time = 0.02, size = 250, normalized size = 1.7

$$-\frac{1}{112\,(2+3\,x)^3}\left(19847025\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^4+51602265\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^3+5027\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)^4/(3+5*x)^(3/2),x)
```

```
[Out] -1/112*(19847025*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x
+3)^(1/2))*x^4+51602265*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-1
0*x^2-x+3)^(1/2))*x^3+50279130*7^(1/2)*arctan(1/14*(37*x+20)*7^(1
/2)/(-10*x^2-x+3)^(1/2))*x^2+8095430*x^3*(-10*x^2-x+3)^(1/2)+2175
8220*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x
+16012374*x^2*(-10*x^2-x+3)^(1/2)+3528360*7^(1/2)*arctan(1/14*(37
*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+10551156*x*(-10*x^2-x+3)^(1/2
)+2315936*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)/(2+3*x)^3/(-10*x^2-x
+3)^(1/2)/(3+5*x)^(1/2)
```

Maxima [A] time = 1.50619, size = 285, normalized size = 1.98

$$-\frac{147015}{112}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{578245\,x}{108\,\sqrt{-10\,x^2-x+3}}-\frac{603743}{216\,\sqrt{-10\,x^2-x+3}}$$
$$+\frac{343}{81\left(27\,\sqrt{-10\,x^2-x+3}x^3+54\,\sqrt{-10\,x^2-x+3}x^2+36\,\sqrt{-10\,x^2-x+3}x+8\,\sqrt{-10\,x^2-x+3}\right)}$$
$$+\frac{10339}{324\left(9\,\sqrt{-10\,x^2-x+3}x^2+12\,\sqrt{-10\,x^2-x+3}x+4\,\sqrt{-10\,x^2-x+3}\right)}$$
$$+\frac{87199}{216\left(3\,\sqrt{-10\,x^2-x+3}x+2\,\sqrt{-10\,x^2-x+3}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*(3*x + 2)^4),x, algorithm="maxima")
```

```
[Out] -147015/112*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x +
 2)) + 578245/108*x/sqrt(-10*x^2 - x + 3) - 603743/216/sqrt(-10*x
^2 - x + 3) + 343/81/(27*sqrt(-10*x^2 - x + 3)*x^3 + 54*sqrt(-10*
x^2 - x + 3)*x^2 + 36*sqrt(-10*x^2 - x + 3)*x + 8*sqrt(-10*x^2 -
x + 3)) + 10339/324/(9*sqrt(-10*x^2 - x + 3)*x^2 + 12*sqrt(-10*x^
2 - x + 3)*x + 4*sqrt(-10*x^2 - x + 3)) + 87199/216/(3*sqrt(-10*x
^2 - x + 3)*x + 2*sqrt(-10*x^2 - x + 3))
```

Fricas [A] time = 0.220414, size = 147, normalized size = 1.02

$$-\frac{\sqrt{7}\left(2\,\sqrt{7}\left(578245\,x^3+1143741\,x^2+753654\,x+165424\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+147015\left(135\,x^4+351\,x^3+342\,x^2+148\,x+2\right.\right.}{112\left(135\,x^4+351\,x^3+342\,x^2+148\,x+24\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*(3*x + 2)^4),x, algorithm="fricas")
```

```
[Out] -1/112*sqrt(7)*(2*sqrt(7)*(578245*x^3 + 1143741*x^2 + 753654*x +
165424)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 147015*(135*x^4 + 351*x^3
```

```
+ 342*x^2 + 148*x + 24)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x
 + 3)*sqrt(-2*x + 1))))/(135*x^4 + 351*x^3 + 342*x^2 + 148*x + 24
)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)/(2+3*x)**4/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.376855, size = 509, normalized size = 3.53

$$-\frac{29403}{224}\sqrt{70}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)$$
$$-\frac{121}{2}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)$$
$$-\frac{121\left(993\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^5+436800\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3+51352000\sqrt{10}\left(\sqrt{2}\sqrt{-\cdots}\right.\right.}{4\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*(3*x + 2)^4),x, algorithm="giac")
```

```
[Out] -29403/224*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(
5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(
sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 121/2*sqrt(10)*((sqrt(2)*
sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt
(2)*sqrt(-10*x + 5) - sqrt(22))) - 121/4*(993*sqrt(10)*((sqrt(2)*
sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt
(2)*sqrt(-10*x + 5) - sqrt(22)))^5 + 436800*sqrt(10)*((sqrt(2)*sq
rt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2
)*sqrt(-10*x + 5) - sqrt(22)))^3 + 51352000*sqrt(10)*((sqrt(2)*sq
rt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2
)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt
(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) -
sqrt(22)))^2 + 280)^3
```

3.2428 $\int \frac{(1-2x)^{5/2}}{(2+3x)^5(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=173

$$\frac{7(1-2x)^{3/2}}{12(3x+2)^4\sqrt{5x+3}}+\frac{3997345\sqrt{1-2x}}{4032(3x+2)\sqrt{5x+3}}+\frac{22957\sqrt{1-2x}}{288(3x+2)^2\sqrt{5x+3}}+\frac{2051\sqrt{1-2x}}{216(3x+2)^3\sqrt{5x+3}}-\frac{181304825\sqrt{1-2x}}{12096\sqrt{5x+3}}+\frac{46095555\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{448\sqrt{7}}$$

```
[Out] (-181304825*Sqrt[1 - 2*x])/(12096*Sqrt[3 + 5*x]) + (7*(1 - 2*x)^(
3/2))/(12*(2 + 3*x)^4*Sqrt[3 + 5*x]) + (2051*Sqrt[1 - 2*x])/(216*
(2 + 3*x)^3*Sqrt[3 + 5*x]) + (22957*Sqrt[1 - 2*x])/(288*(2 + 3*x)
^2*Sqrt[3 + 5*x]) + (3997345*Sqrt[1 - 2*x])/(4032*(2 + 3*x)*Sqrt[
3 + 5*x]) + (46095555*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x]
)])/(448*Sqrt[7])
```

Rubi [A] time = 0.394061, antiderivative size = 173, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 7, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.269

$$\frac{7(1-2x)^{3/2}}{12(3x+2)^4\sqrt{5x+3}}+\frac{3997345\sqrt{1-2x}}{4032(3x+2)\sqrt{5x+3}}+\frac{22957\sqrt{1-2x}}{288(3x+2)^2\sqrt{5x+3}}+\frac{2051\sqrt{1-2x}}{216(3x+2)^3\sqrt{5x+3}}-\frac{181304825\sqrt{1-2x}}{12096\sqrt{5x+3}}+\frac{46095555\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{448\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)^5*(3 + 5*x)^(3/2)),x]
```


```
[Out] (-181304825*Sqrt[1 - 2*x])/(12096*Sqrt[3 + 5*x]) + (7*(1 - 2*x)^(
3/2))/(12*(2 + 3*x)^4*Sqrt[3 + 5*x]) + (2051*Sqrt[1 - 2*x])/(216*
(2 + 3*x)^3*Sqrt[3 + 5*x]) + (22957*Sqrt[1 - 2*x])/(288*(2 + 3*x)
^2*Sqrt[3 + 5*x]) + (3997345*Sqrt[1 - 2*x])/(4032*(2 + 3*x)*Sqrt[
3 + 5*x]) + (46095555*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x]
)])/(448*Sqrt[7])
```

Rubi in Sympy [A] time = 36.1374, size = 160, normalized size = 0.92

$$\frac{7\left(-2x+1\right)^{\frac{3}{2}}}{12\left(3x+2\right)^{4}\sqrt{5x+3}}-\frac{181304825\sqrt{-2x+1}}{12096\sqrt{5x+3}}+\frac{3997345\sqrt{-2x+1}}{4032\left(3x+2\right)\sqrt{5x+3}}+\frac{22957\sqrt{-2x+1}}{288\left(3x+2\right)^{2}\sqrt{5x+3}}+\frac{2051\sqrt{-2x+1}}{216\left(3x+2\right)^{3}\sqrt{5x+3}}+\frac{46095555\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{3136}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)**5/(3+5*x)**(3/2),x)
```

```
[Out] 7*(-2*x + 1)**(3/2)/(12*(3*x + 2)**4*sqrt(5*x + 3)) - 181304825*s
qrt(-2*x + 1)/(12096*sqrt(5*x + 3)) + 3997345*sqrt(-2*x + 1)/(403
2*(3*x + 2)*sqrt(5*x + 3)) + 22957*sqrt(-2*x + 1)/(288*(3*x + 2)*
*2*sqrt(5*x + 3)) + 2051*sqrt(-2*x + 1)/(216*(3*x + 2)**3*sqrt(5*
x + 3)) + 46095555*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*
x + 3)))/3136
```

Mathematica [A] time = 0.116609, size = 87, normalized size = 0.5

$$\frac{46095555\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)-\frac{14\sqrt{1-2x}(543914475x^4+1438446565x^3+1426133132x^2+628209228x+103735088)}{(3x+2)^4\sqrt{5x+3}}}{6272}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)^5*(3 + 5*x)^(3/2)),x]
```

```
[Out] ((-14*Sqrt[1 - 2*x]*(103735088 + 628209228*x + 1426133132*x^2 + 1
438446565*x^3 + 543914475*x^4))/((2 + 3*x)^4*Sqrt[3 + 5*x]) + 460
95555*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x]
)])/6272
```

Maple [B] time = 0.022, size = 298, normalized size = 1.7

$$-\frac{1}{6272\,(2+3\,x)^4}\left(18668699775\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^5+60984419265\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^4$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)^5/(3+5*x)^(3/2),x)
```

```
[Out] -1/6272*(18668699775*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x
^2-x+3)^(1/2))*x^5+60984419265*7^(1/2)*arctan(1/14*(37*x+20)*7^(1
/2)/(-10*x^2-x+3)^(1/2))*x^4+79653119040*7^(1/2)*arctan(1/14*(37*
x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+7614802650*x^4*(-10*x^2-x+
3)^(1/2)+51995786040*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x
^2-x+3)^(1/2))*x^2+20138251910*x^3*(-10*x^2-x+3)^(1/2)+1696316424
0*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+19
965863848*x^2*(-10*x^2-x+3)^(1/2)+2212586640*7^(1/2)*arctan(1/14*
(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+8794929192*x*(-10*x^2-x+3)
^(1/2)+1452291232*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)/(2+3*x)^4/(-
10*x^2-x+3)^(1/2)/(3+5*x)^(1/2)
```

Maxima [A] time = 1.52273, size = 400, normalized size = 2.31

$$-\frac{46095555}{6272}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{181304825\,x}{6048\,\sqrt{-10\,x^2-x+3}}-\frac{189299515}{12096\,\sqrt{-10\,x^2-x+3}}$$
$$+\frac{343}{108\left(81\sqrt{-10\,x^2-x+3}x^4+216\sqrt{-10\,x^2-x+3}x^3+216\sqrt{-10\,x^2-x+3}x^2+96\sqrt{-10\,x^2-x+3}x+16\sqrt{-10\,x^2-x+3}\right)}$$
$$+\frac{13181}{648\left(27\sqrt{-10\,x^2-x+3}x^3+54\sqrt{-10\,x^2-x+3}x^2+36\sqrt{-10\,x^2-x+3}x+8\sqrt{-10\,x^2-x+3}\right)}$$
$$+\frac{466361}{2592\left(9\sqrt{-10\,x^2-x+3}x^2+12\sqrt{-10\,x^2-x+3}x+4\sqrt{-10\,x^2-x+3}\right)}$$
$$+\frac{1301839}{576\left(3\sqrt{-10\,x^2-x+3}x+2\sqrt{-10\,x^2-x+3}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*(3*x + 2)^5),x, algorithm="maxima")
```

```
[Out] -46095555/6272*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*
x + 2)) + 181304825/6048*x/sqrt(-10*x^2 - x + 3) - 189299515/1209
6/sqrt(-10*x^2 - x + 3) + 343/108/(81*sqrt(-10*x^2 - x + 3)*x^4 +
 216*sqrt(-10*x^2 - x + 3)*x^3 + 216*sqrt(-10*x^2 - x + 3)*x^2 +
96*sqrt(-10*x^2 - x + 3)*x + 16*sqrt(-10*x^2 - x + 3)) + 13181/64
```

```
8/(27*sqrt(-10*x^2 - x + 3)*x^3 + 54*sqrt(-10*x^2 - x + 3)*x^2 +
36*sqrt(-10*x^2 - x + 3)*x + 8*sqrt(-10*x^2 - x + 3)) + 466361/25
92/(9*sqrt(-10*x^2 - x + 3)*x^2 + 12*sqrt(-10*x^2 - x + 3)*x + 4*
sqrt(-10*x^2 - x + 3)) + 1301839/576/(3*sqrt(-10*x^2 - x + 3)*x +
 2*sqrt(-10*x^2 - x + 3))
```

Fricas [A] time = 0.22446, size = 167, normalized size = 0.97

$$-\frac{\sqrt{7}\left(2\sqrt{7}\left(543914475\,x^4+1438446565\,x^3+1426133132\,x^2+628209228\,x+103735088\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+46095555\,(40\right.}{6272\,(405\,x^5+1323\,x^4+1728\,x^3+1128\,x^2+368\,x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*(3*x + 2)^5),x, algorithm="fricas")
```

```
[Out] -1/6272*sqrt(7)*(2*sqrt(7)*(543914475*x^4 + 1438446565*x^3 + 1426
133132*x^2 + 628209228*x + 103735088)*sqrt(5*x + 3)*sqrt(-2*x + 1
) + 46095555*(405*x^5 + 1323*x^4 + 1728*x^3 + 1128*x^2 + 368*x +
48)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1)
)))/(405*x^5 + 1323*x^4 + 1728*x^3 + 1128*x^2 + 368*x + 48)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)/(2+3*x)**5/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.446509, size = 591, normalized size = 3.42

$$-\frac{9219111}{12544}\sqrt{70}\sqrt{10}\left(\pi+2\,\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)$$
$$-\frac{605}{2}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)$$
$$-\frac{605\left(77025\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^7+51138136\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^5+12067876800\sqrt{}\right.}{224\left(\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{2}}\right.\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*(3*x + 2)^5),x, algorithm="giac")
```

```
[Out] -9219111/12544*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*s
qrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) -
4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 605/2*sqrt(10)*((sqrt
(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(
sqrt(2)*sqrt(-10*x + 5) - sqrt(22))) - 605/224*(77025*sqrt(10)*((
sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x +
3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^7 + 51138136*sqrt(10)*((
```

```
sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x +
3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 + 12067876800*sqrt(10)
*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x
 + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 984130112000*sqrt
(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt
(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(
-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*s
qrt(-10*x + 5) - sqrt(22)))^2 + 280)^4
```

3.2429 $\int \frac{(1-2x)^{5/2}}{(2+3x)^6(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=202

$$\frac{7(1-2x)^{3/2}}{15(3x+2)^5\sqrt{5x+3}}+\frac{102293609\sqrt{1-2x}}{18816(3x+2)\sqrt{5x+3}}+\frac{587477\sqrt{1-2x}}{1344(3x+2)^2\sqrt{5x+3}}+\frac{12023\sqrt{1-2x}}{240(3x+2)^3\sqrt{5x+3}}+\frac{2513\sqrt{1-2x}}{360(3x+2)^4\sqrt{5x+3}}-\frac{4639661185\sqrt{1-2x}}{56448\sqrt{5x+3}}+\frac{3538809681\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{6272\sqrt{7}}$$

```
[Out] (-4639661185*Sqrt[1 - 2*x])/(56448*Sqrt[3 + 5*x]) + (7*(1 - 2*x)^
(3/2))/(15*(2 + 3*x)^5*Sqrt[3 + 5*x]) + (2513*Sqrt[1 - 2*x])/(360
*(2 + 3*x)^4*Sqrt[3 + 5*x]) + (12023*Sqrt[1 - 2*x])/(240*(2 + 3*x
)^3*Sqrt[3 + 5*x]) + (587477*Sqrt[1 - 2*x])/(1344*(2 + 3*x)^2*Sqr
t[3 + 5*x]) + (102293609*Sqrt[1 - 2*x])/(18816*(2 + 3*x)*Sqrt[3 +
 5*x]) + (3538809681*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])
])/(6272*Sqrt[7])
```

Rubi [A] time = 0.473397, antiderivative size = 202, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 7, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.269$

$$\frac{7(1-2x)^{3/2}}{15(3x+2)^5\sqrt{5x+3}}+\frac{102293609\sqrt{1-2x}}{18816(3x+2)\sqrt{5x+3}}+\frac{587477\sqrt{1-2x}}{1344(3x+2)^2\sqrt{5x+3}}+\frac{12023\sqrt{1-2x}}{240(3x+2)^3\sqrt{5x+3}}+\frac{2513\sqrt{1-2x}}{360(3x+2)^4\sqrt{5x+3}}-\frac{4639661185\sqrt{1-2x}}{56448\sqrt{5x+3}}+\frac{3538809681\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{6272\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)^6*(3 + 5*x)^(3/2)),x]
```


```
[Out] (-4639661185*Sqrt[1 - 2*x])/(56448*Sqrt[3 + 5*x]) + (7*(1 - 2*x)^
(3/2))/(15*(2 + 3*x)^5*Sqrt[3 + 5*x]) + (2513*Sqrt[1 - 2*x])/(360
*(2 + 3*x)^4*Sqrt[3 + 5*x]) + (12023*Sqrt[1 - 2*x])/(240*(2 + 3*x
)^3*Sqrt[3 + 5*x]) + (587477*Sqrt[1 - 2*x])/(1344*(2 + 3*x)^2*Sqr
t[3 + 5*x]) + (102293609*Sqrt[1 - 2*x])/(18816*(2 + 3*x)*Sqrt[3 +
 5*x]) + (3538809681*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])
])/(6272*Sqrt[7])
```

Rubi in Sympy [A] time = 44.214, size = 187, normalized size = 0.93

$$\frac{7\left(-2x+1\right)^{\frac{3}{2}}}{15\left(3x+2\right)^{5}\sqrt{5x+3}}-\frac{4639661185\sqrt{-2x+1}}{56448\sqrt{5x+3}}+\frac{102293609\sqrt{-2x+1}}{18816\left(3x+2\right)\sqrt{5x+3}}+\frac{587477\sqrt{-2x+1}}{1344\left(3x+2\right)^{2}\sqrt{5x+3}}+\frac{12023\sqrt{-2x+1}}{240\left(3x+2\right)^{3}\sqrt{5x+3}}+\frac{2513\sqrt{-2x+1}}{360\left(3x+2\right)^{4}\sqrt{5x+3}}+\frac{3538809681\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{43904}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)**6/(3+5*x)**(3/2),x)
```

```
[Out] 7*(-2*x + 1)**(3/2)/(15*(3*x + 2)**5*sqrt(5*x + 3)) - 4639661185*
sqrt(-2*x + 1)/(56448*sqrt(5*x + 3)) + 102293609*sqrt(-2*x + 1)/(
18816*(3*x + 2)*sqrt(5*x + 3)) + 587477*sqrt(-2*x + 1)/(1344*(3*x
 + 2)**2*sqrt(5*x + 3)) + 12023*sqrt(-2*x + 1)/(240*(3*x + 2)**3*
sqrt(5*x + 3)) + 2513*sqrt(-2*x + 1)/(360*(3*x + 2)**4*sqrt(5*x +
 3)) + 3538809681*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x
 + 3)))/43904
```

Mathematica [A] time = 0.148788, size = 92, normalized size = 0.46

$$\frac{17694048405\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)-\frac{14\sqrt{1-2x}(626354259975x^5+2074037896035x^4+2746600901250x^3+1818284414692x^2+601741553688x+796386}{(3x+2)^5\sqrt{5x+3}}}{439040}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)^6*(3 + 5*x)^(3/2)),x]
```

```
[Out] ((-14*Sqrt[1 - 2*x]*(79638637088 + 601741553688*x + 1818284414692
*x^2 + 2746600901250*x^3 + 2074037896035*x^4 + 626354259975*x^5))
/((2 + 3*x)^5*Sqrt[3 + 5*x]) + 17694048405*Sqrt[7]*ArcTan[(-20 -
37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/439040
```

Maple [B] time = 0.023, size = 346, normalized size = 1.7

$$-\frac{1}{439040\,(2+3\,x)^5}\left(21498268812075\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^6+84559857327495\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20}{\sqrt{-10\,x^2-}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)^6/(3+5*x)^(3/2),x)
```

```
[Out] -1/439040*(21498268812075*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(
-10*x^2-x+3)^(1/2))*x^6+84559857327495*7^(1/2)*arctan(1/14*(37*x+
20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^5+138544399011150*7^(1/2)*arct
an(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^4+8768959639650*
x^5*(-10*x^2-x+3)^(1/2)+121027291090200*7^(1/2)*arctan(1/14*(37*x
+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+29036530544490*x^4*(-10*x^2
-x+3)^(1/2)+59452002640800*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/
(-10*x^2-x+3)^(1/2))*x^2+38452412617500*x^3*(-10*x^2-x+3)^(1/2)+1
5570762596400*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)
^(1/2))*x+25455981805688*x^2*(-10*x^2-x+3)^(1/2)+1698628646880*7^
(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+84243817
51632*x*(-10*x^2-x+3)^(1/2)+1114940919232*(-10*x^2-x+3)^(1/2))*(1
-2*x)^(1/2)/(2+3*x)^5/(-10*x^2-x+3)^(1/2)/(3+5*x)^(1/2)
```

Maxima [A] time = 1.51907, size = 537, normalized size = 2.66

$$-\frac{3538809681}{87808}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{4639661185\,x}{28224\sqrt{-10\,x^2-x+3}}-\frac{4844248403}{56448\sqrt{-10\,x^2-x+3}}$$
$$+\frac{343}{135\left(243\sqrt{-10\,x^2-x+3}x^5+810\sqrt{-10\,x^2-x+3}x^4+1080\sqrt{-10\,x^2-x+3}x^3+720\sqrt{-10\,x^2-x+3}x^2+240\sqrt{-10\,x^2-\right.}}$$
$$+\frac{5341}{360\left(81\sqrt{-10\,x^2-x+3}x^4+216\sqrt{-10\,x^2-x+3}x^3+216\sqrt{-10\,x^2-x+3}x^2+96\sqrt{-10\,x^2-x+3}x+16\sqrt{-10\,x^2-x+3}\right.}$$
$$+\frac{242879}{2160\left(27\sqrt{-10\,x^2-x+3}x^3+54\sqrt{-10\,x^2-x+3}x^2+36\sqrt{-10\,x^2-x+3}x+8\sqrt{-10\,x^2-x+3}\right)}$$
$$+\frac{315689}{320\left(9\sqrt{-10\,x^2-x+3}x^2+12\sqrt{-10\,x^2-x+3}x+4\sqrt{-10\,x^2-x+3}\right)}$$
$$+\frac{33314567}{2688\left(3\sqrt{-10\,x^2-x+3}x+2\sqrt{-10\,x^2-x+3}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*(3*x + 2)^6),x, algorithm="maxima")
```

```
[Out] -3538809681/87808*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs
(3*x + 2)) + 4639661185/28224*x/sqrt(-10*x^2 - x + 3) - 484424840
3/56448/sqrt(-10*x^2 - x + 3) + 343/135/(243*sqrt(-10*x^2 - x + 3
)*x^5 + 810*sqrt(-10*x^2 - x + 3)*x^4 + 1080*sqrt(-10*x^2 - x + 3
)*x^3 + 720*sqrt(-10*x^2 - x + 3)*x^2 + 240*sqrt(-10*x^2 - x + 3)
*x + 32*sqrt(-10*x^2 - x + 3)) + 5341/360/(81*sqrt(-10*x^2 - x +
3)*x^4 + 216*sqrt(-10*x^2 - x + 3)*x^3 + 216*sqrt(-10*x^2 - x + 3
)*x^2 + 96*sqrt(-10*x^2 - x + 3)*x + 16*sqrt(-10*x^2 - x + 3)) +
242879/2160/(27*sqrt(-10*x^2 - x + 3)*x^3 + 54*sqrt(-10*x^2 - x +
 3)*x^2 + 36*sqrt(-10*x^2 - x + 3)*x + 8*sqrt(-10*x^2 - x + 3)) +
 315689/320/(9*sqrt(-10*x^2 - x + 3)*x^2 + 12*sqrt(-10*x^2 - x +
3)*x + 4*sqrt(-10*x^2 - x + 3)) + 33314567/2688/(3*sqrt(-10*x^2 -
 x + 3)*x + 2*sqrt(-10*x^2 - x + 3))
```

Fricas [A] time = 0.225546, size = 188, normalized size = 0.93

$$-\frac{\sqrt{7}\Big(2\sqrt{7}\big(626354259975\,x^5 + 2074037896035\,x^4 + 2746600901250\,x^3 + 1818284414692\,x^2 + 601741553688\,x + 796386370\cdots}{439040\,(1215\,x^6 + 4779\,x^5 + 783\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*(3*x + 2)^6),x, algorithm="fricas")
```

```
[Out] -1/439040*sqrt(7)*(2*sqrt(7)*(626354259975*x^5 + 2074037896035*x^
4 + 2746600901250*x^3 + 1818284414692*x^2 + 601741553688*x + 7963
8637088)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 17694048405*(1215*x^6 + 4
779*x^5 + 7830*x^4 + 6840*x^3 + 3360*x^2 + 880*x + 96)*arctan(1/1
4*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(1215*x^6
+ 4779*x^5 + 7830*x^4 + 6840*x^3 + 3360*x^2 + 880*x + 96)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)/(2+3*x)**6/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.545801, size = 674, normalized size = 3.34

$$-\frac{3538809681}{878080}\sqrt{70}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3} - 4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)$$
$$-\frac{3025}{2}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}} - \frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)$$
$$-\frac{121\left(34728039\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}} - \frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^9 + 30879615760\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}} - \frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^7 + 1096102\cdots}{\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*(3*x + 2)^6),x, algorithm="giac")
```

```
[Out] -3538809681/878080*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(7
0)*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3
) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 3025/2*sqrt(10)*(
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x +
 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))) - 121/3136*(34728039*sq
rt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sq
rt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^9 + 30879615760
*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4
*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^7 + 10961021
460480*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x +
3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 + 17
91349451136000*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqr
t(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))
)^3 + 112299870108160000*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqr
t(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) -
 sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3)
 - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)
^5
```

3.2430 $\int \frac{(1-2x)^{5/2}(2+3x)^4}{(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=193

$$-\frac{508(1-2x)^{3/2}(3x+2)^4}{75\sqrt{5x+3}}-\frac{2(1-2x)^{5/2}(3x+2)^4}{15(5x+3)^{3/2}}$$

$$+\frac{2514}{625}(1-2x)^{3/2}\sqrt{5x+3}(3x+2)^3+\frac{23991(1-2x)^{3/2}\sqrt{5x+3}(3x+2)^2}{25000}+\frac{21(1-2x)^{3/2}\sqrt{5x+3}(118392x+64435)}{4000000}+\frac{8026963\sqrt{1}}{400}$$

```
[Out] (-2*(1 - 2*x)^(5/2)*(2 + 3*x)^4)/(15*(3 + 5*x)^(3/2)) - (508*(1 -
 2*x)^(3/2)*(2 + 3*x)^4)/(75*Sqrt[3 + 5*x]) + (8026963*Sqrt[1 - 2
*x]*Sqrt[3 + 5*x])/40000000 + (23991*(1 - 2*x)^(3/2)*(2 + 3*x)^2*
Sqrt[3 + 5*x])/25000 + (2514*(1 - 2*x)^(3/2)*(2 + 3*x)^3*Sqrt[3 +
 5*x])/625 + (21*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x]*(64435 + 118392*x)
)/4000000 + (88296593*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(40000000
*Sqrt[10])
```

Rubi [A] time = 0.345857, antiderivative size = 193, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 7, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.269$

$$-\frac{508(1-2x)^{3/2}(3x+2)^4}{75\sqrt{5x+3}}-\frac{2(1-2x)^{5/2}(3x+2)^4}{15(5x+3)^{3/2}}$$

$$+\frac{2514}{625}(1-2x)^{3/2}\sqrt{5x+3}(3x+2)^3+\frac{23991(1-2x)^{3/2}\sqrt{5x+3}(3x+2)^2}{25000}+\frac{21(1-2x)^{3/2}\sqrt{5x+3}(118392x+64435)}{4000000}+\frac{8026963\sqrt{1}}{400}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(2 + 3*x)^4)/(3 + 5*x)^(5/2),x]
```

```
[Out] (-2*(1 - 2*x)^(5/2)*(2 + 3*x)^4)/(15*(3 + 5*x)^(3/2)) - (508*(1 -
 2*x)^(3/2)*(2 + 3*x)^4)/(75*Sqrt[3 + 5*x]) + (8026963*Sqrt[1 - 2
*x]*Sqrt[3 + 5*x])/40000000 + (23991*(1 - 2*x)^(3/2)*(2 + 3*x)^2*
Sqrt[3 + 5*x])/25000 + (2514*(1 - 2*x)^(3/2)*(2 + 3*x)^3*Sqrt[3 +
 5*x])/625 + (21*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x]*(64435 + 118392*x)
)/4000000 + (88296593*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(40000000
*Sqrt[10])
```

Rubi in Sympy [A] time = 31.6952, size = 173, normalized size = 0.9

$$-\frac{2(-2x+1)^{\frac{5}{2}}(3x+2)^4}{15(5x+3)^{\frac{3}{2}}}-\frac{508(-2x+1)^{\frac{5}{2}}(3x+2)^3}{825\sqrt{5x+3}}+\frac{2969(-2x+1)^{\frac{5}{2}}(3x+2)^2\sqrt{5x+3}}{6875}+\frac{(-2x+1)^{\frac{5}{2}}\sqrt{5x+3}\left(\frac{5348295x}{2}+\frac{8453709}{8}\right)}{12375000}+\frac{8026963(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{132000000}+\frac{8026963\sqrt{-2x+1}\sqrt{5x+3}}{40000000}+\frac{88296593\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{400000000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**4/(3+5*x)**(5/2),x)
```

```
[Out] -2*(-2*x + 1)**(5/2)*(3*x + 2)**4/(15*(5*x + 3)**(3/2)) - 508*(-2
*x + 1)**(5/2)*(3*x + 2)**3/(825*sqrt(5*x + 3)) + 2969*(-2*x + 1)
**(5/2)*(3*x + 2)**2*sqrt(5*x + 3)/6875 + (-2*x + 1)**(5/2)*sqrt(
5*x + 3)*(5348295*x/2 + 8453709/8)/12375000 + 8026963*(-2*x + 1)*
*(3/2)*sqrt(5*x + 3)/132000000 + 8026963*sqrt(-2*x + 1)*sqrt(5*x
+ 3)/40000000 + 88296593*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)
```

```
/400000000
```

Mathematica [A] time = 0.241855, size = 80, normalized size = 0.41

$$\frac{\frac{10\sqrt{1-2x}(1555200000x^6+1626480000x^5-1419228000x^4-1405199700x^3+865945995x^2+980658710x+210855251)}{(5x+3)^{3/2}} - 264889779\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right.}{1200000000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(2 + 3*x)^4)/(3 + 5*x)^(5/2),x]
```

```
[Out] ((10*Sqrt[1 - 2*x]*(210855251 + 980658710*x + 865945995*x^2 - 140
5199700*x^3 - 1419228000*x^4 + 1626480000*x^5 + 1555200000*x^6))/
(3 + 5*x)^(3/2) - 264889779*Sqrt[10]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2
*x]])/1200000000
```

Maple [A] time = 0.02, size = 181, normalized size = 0.9

$$\frac{1}{2400000000}\left(31104000000\,x^6\sqrt{-10\,x^2-x+3}+32529600000\,x^5\sqrt{-10\,x^2-x+3}-28384560000\,x^4\sqrt{-10\,x^2-x+3}+6622\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^4/(3+5*x)^(5/2),x)
```

```
[Out] 1/2400000000*(31104000000*x^6*(-10*x^2-x+3)^(1/2)+32529600000*x^5
*(-10*x^2-x+3)^(1/2)-28384560000*x^4*(-10*x^2-x+3)^(1/2)+66222444
75*10^(1/2)*arcsin(20/11*x+1/11)*x^2-28103994000*x^3*(-10*x^2-x+3
)^(1/2)+7946693370*10^(1/2)*arcsin(20/11*x+1/11)*x+17318919900*x^
2*(-10*x^2-x+3)^(1/2)+2384008011*10^(1/2)*arcsin(20/11*x+1/11)+19
613174200*x*(-10*x^2-x+3)^(1/2)+4217105020*(-10*x^2-x+3)^(1/2))*(
1-2*x)^(1/2)/(-10*x^2-x+3)^(1/2)/(3+5*x)^(3/2)
```

Maxima [A] time = 1.54239, size = 478, normalized size = 2.48

$$\begin{aligned}&\frac{81}{15625}\left(-10\,x^2-x+3\right)^{\frac{5}{2}}+\frac{891}{25000}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x\\&-\frac{70759953}{800000000}i\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{23}{11}\right)+\frac{27401}{1250000}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)\\&+\frac{8811}{500000}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}+\frac{\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{3125\,(625\,x^4+1500\,x^3+1350\,x^2+540\,x+81)}\\&+\frac{6\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{3125\,(125\,x^3+225\,x^2+135\,x+27)}+\frac{18\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{3125\,(25\,x^2+30\,x+9)}+\frac{27\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{3125\,(5\,x+3)}\\&+\frac{584793}{2000000}\sqrt{10\,x^2+23\,x+\frac{51}{5}}x+\frac{13450239}{40000000}\sqrt{10\,x^2+23\,x+\frac{51}{5}}\\&+\frac{3267}{62500}\sqrt{-10\,x^2-x+3}-\frac{11\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{18750\,(125\,x^3+225\,x^2+135\,x+27)}+\frac{33\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{3125\,(25\,x^2+30\,x+9)}\\&+\frac{99\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{6250\,(5\,x+3)}-\frac{121\sqrt{-10\,x^2-x+3}}{93750\,(25\,x^2+30\,x+9)}-\frac{638\sqrt{-10\,x^2-x+3}}{9375\,(5\,x+3)}\end{aligned}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4*(-2*x + 1)^(5/2)/(5*x + 3)^(5/2),x, algorithm="maxima")
```

```
[Out] 81/15625*(-10*x^2 - x + 3)^(5/2) + 891/25000*(-10*x^2 - x + 3)^(3
/2)*x - 70759953/800000000*I*sqrt(5)*sqrt(2)*arcsin(20/11*x + 23/
```

```
11) + 27401/1250000*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) + 8811
/500000*(-10*x^2 - x + 3)^(3/2) + 1/3125*(-10*x^2 - x + 3)^(5/2)/
(625*x^4 + 1500*x^3 + 1350*x^2 + 540*x + 81) + 6/3125*(-10*x^2 -
x + 3)^(5/2)/(125*x^3 + 225*x^2 + 135*x + 27) + 18/3125*(-10*x^2
- x + 3)^(5/2)/(25*x^2 + 30*x + 9) + 27/3125*(-10*x^2 - x + 3)^(5
/2)/(5*x + 3) + 584793/2000000*sqrt(10*x^2 + 23*x + 51/5)*x + 134
50239/40000000*sqrt(10*x^2 + 23*x + 51/5) + 3267/62500*sqrt(-10*x
^2 - x + 3) - 11/18750*(-10*x^2 - x + 3)^(3/2)/(125*x^3 + 225*x^2
 + 135*x + 27) + 33/3125*(-10*x^2 - x + 3)^(3/2)/(25*x^2 + 30*x +
 9) + 99/6250*(-10*x^2 - x + 3)^(3/2)/(5*x + 3) - 121/93750*sqrt(
-10*x^2 - x + 3)/(25*x^2 + 30*x + 9) - 638/9375*sqrt(-10*x^2 - x
+ 3)/(5*x + 3)
```

Fricas [A] time = 0.227222, size = 140, normalized size = 0.73

$$\frac{\sqrt{10}\left(2\sqrt{10}\left(1555200000\,x^6+1626480000\,x^5-1419228000\,x^4-1405199700\,x^3+865945995\,x^2+980658710\,x+210855251\right.\right.}{2400000000\,(25\,x^2+30\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^4*(-2*x + 1)^(5/2)/(5*x + 3)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/2400000000*sqrt(10)*(2*sqrt(10)*(1555200000*x^6 + 1626480000*x^
5 - 1419228000*x^4 - 1405199700*x^3 + 865945995*x^2 + 980658710*x
 + 210855251)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 264889779*(25*x^2 +
30*x + 9)*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*
x + 1))))/(25*x^2 + 30*x + 9)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(5/2)*(2+3*x)**4/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.367993, size = 290, normalized size = 1.5

$$\frac{1}{1000000000}\left(12\left(24\left(12\left(48\sqrt{5}(5x+3)-613\sqrt{5}\right)(5x+3)+19439\sqrt{5}\right)(5x+3)+1264235\sqrt{5}\right)(5x+3)-10674335\sqrt{5}\right)\sqrt{}$$
$$-\frac{11\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^3}{18750000\,(5x+3)^{\frac{3}{2}}}+\frac{88296593}{400000000}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)$$
$$-\frac{561\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}{312500\sqrt{5x+3}}+\frac{11\left(\frac{765\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}+4\sqrt{10}\right)(5x+3)^{\frac{3}{2}}}{1171875\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^4*(-2*x + 1)^(5/2)/(5*x + 3)^(5/2),x, algorithm="giac")
```

```
[Out] 1/1000000000*(12*(24*(12*(48*sqrt(5)*(5*x + 3) - 613*sqrt(5))*(5*
x + 3) + 19439*sqrt(5))*(5*x + 3) + 1264235*sqrt(5))*(5*x + 3) -
10674335*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5) - 11/18750000*sqr
t(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^3/(5*x + 3)^(3/2) + 88
```

```
296593/400000000*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) - 5
61/312500*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x
+ 3) + 11/1171875*(765*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(2
2))^2/(5*x + 3) + 4*sqrt(10))*(5*x + 3)^(3/2)/(sqrt(2)*sqrt(-10*x
 + 5) - sqrt(22))^3
```

3.2431 $\int \frac{(1-2x)^{5/2}(2+3x)^3}{(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=164

$$-\frac{376(1-2x)^{3/2}(3x+2)^3}{75\sqrt{5x+3}}-\frac{2(1-2x)^{5/2}(3x+2)^3}{15(5x+3)^{3/2}}+\frac{741}{250}(1-2x)^{3/2}\sqrt{5x+3}(3x+2)^2+\frac{21(1-2x)^{3/2}\sqrt{5x+3}(4392x+3185)}{40000}+\frac{69713\sqrt{1-2x}\sqrt{5x+3}}{400000}+\frac{766843\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{400000\sqrt{10}}$$

```
[Out] (-2*(1 - 2*x)^(5/2)*(2 + 3*x)^3)/(15*(3 + 5*x)^(3/2)) - (376*(1 -
 2*x)^(3/2)*(2 + 3*x)^3)/(75*Sqrt[3 + 5*x]) + (69713*Sqrt[1 - 2*x
]*Sqrt[3 + 5*x])/400000 + (741*(1 - 2*x)^(3/2)*(2 + 3*x)^2*Sqrt[3
 + 5*x])/250 + (21*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x]*(3185 + 4392*x))
/40000 + (766843*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(400000*Sqrt[1
0])
```

Rubi [A] time = 0.281026, antiderivative size = 164, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 7, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.269$

$$-\frac{376(1-2x)^{3/2}(3x+2)^3}{75\sqrt{5x+3}}-\frac{2(1-2x)^{5/2}(3x+2)^3}{15(5x+3)^{3/2}}+\frac{741}{250}(1-2x)^{3/2}\sqrt{5x+3}(3x+2)^2+\frac{21(1-2x)^{3/2}\sqrt{5x+3}(4392x+3185)}{40000}+\frac{69713\sqrt{1-2x}\sqrt{5x+3}}{400000}+\frac{766843\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{400000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(2 + 3*x)^3)/(3 + 5*x)^(5/2),x]
```

```
[Out] (-2*(1 - 2*x)^(5/2)*(2 + 3*x)^3)/(15*(3 + 5*x)^(3/2)) - (376*(1 -
 2*x)^(3/2)*(2 + 3*x)^3)/(75*Sqrt[3 + 5*x]) + (69713*Sqrt[1 - 2*x
]*Sqrt[3 + 5*x])/400000 + (741*(1 - 2*x)^(3/2)*(2 + 3*x)^2*Sqrt[3
 + 5*x])/250 + (21*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x]*(3185 + 4392*x))
/40000 + (766843*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(400000*Sqrt[1
0])
```

Rubi in Sympy [A] time = 23.4168, size = 144, normalized size = 0.88

$$-\frac{2\left(-2x+1\right)^{\frac{5}{2}}\left(3x+2\right)^{3}}{15\left(5x+3\right)^{\frac{3}{2}}}-\frac{376\left(-2x+1\right)^{\frac{5}{2}}\left(3x+2\right)^{2}}{825\sqrt{5x+3}}+\frac{\left(-2x+1\right)^{\frac{5}{2}}\sqrt{5x+3}\left(252045x+\frac{706959}{4}\right)}{247500}+\frac{69713\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{1320000}+\frac{69713\sqrt{-2x+1}\sqrt{5x+3}}{400000}+\frac{766843\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{4000000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**3/(3+5*x)**(5/2),x)
```

```
[Out] -2*(-2*x + 1)**(5/2)*(3*x + 2)**3/(15*(5*x + 3)**(3/2)) - 376*(-2
*x + 1)**(5/2)*(3*x + 2)**2/(825*sqrt(5*x + 3)) + (-2*x + 1)**(5/
2)*sqrt(5*x + 3)*(252045*x + 706959/4)/247500 + 69713*(-2*x + 1)*
*(3/2)*sqrt(5*x + 3)/1320000 + 69713*sqrt(-2*x + 1)*sqrt(5*x + 3)
/400000 + 766843*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/4000000
```

Mathematica [A] time = 0.196162, size = 75, normalized size = 0.46

$$\frac{\frac{10\sqrt{1-2x}(6480000x^5+972000x^4-7724700x^3+3074745x^2+7876210x+2322001)}{(5x+3)^{3/2}}-2300529\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{12000000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(2 + 3*x)^3)/(3 + 5*x)^(5/2),x]
```

```
[Out] ((10*Sqrt[1 - 2*x]*(2322001 + 7876210*x + 3074745*x^2 - 7724700*x
^3 + 972000*x^4 + 6480000*x^5))/(3 + 5*x)^(3/2) - 2300529*Sqrt[10
]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/12000000
```

Maple [A] time = 0.021, size = 164, normalized size = 1.

$$\frac{1}{24000000}\left(129600000\,x^5\sqrt{-10\,x^2-x+3}+19440000\,x^4\sqrt{-10\,x^2-x+3}+57513225\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x^2-15449$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^3/(3+5*x)^(5/2),x)
```

```
[Out] 1/24000000*(129600000*x^5*(-10*x^2-x+3)^(1/2)+19440000*x^4*(-10*x
^2-x+3)^(1/2)+57513225*10^(1/2)*arcsin(20/11*x+1/11)*x^2-15449400
0*x^3*(-10*x^2-x+3)^(1/2)+69015870*10^(1/2)*arcsin(20/11*x+1/11)*
x+61494900*x^2*(-10*x^2-x+3)^(1/2)+20704761*10^(1/2)*arcsin(20/11
*x+1/11)+157524200*x*(-10*x^2-x+3)^(1/2)+46440020*(-10*x^2-x+3)^(
1/2))*(1-2*x)^(1/2)/(-10*x^2-x+3)^(1/2)/(3+5*x)^(3/2)
```

Maxima [A] time = 1.53545, size = 439, normalized size = 2.68

$$-\frac{395307}{8000000}i\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{23}{11}\right)+\frac{23221}{500000}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)$$
$$+\frac{99}{5000}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}+\frac{\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{625\,(625\,x^4+1500\,x^3+1350\,x^2+540\,x+81)}$$
$$+\frac{9\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{1250\,(125\,x^3+225\,x^2+135\,x+27)}+\frac{9\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{625\,(25\,x^2+30\,x+9)}+\frac{27\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{2500\,(5\,x+3)}$$
$$+\frac{3267}{20000}\sqrt{10\,x^2+23\,x+\frac{51}{5}}x+\frac{75141}{400000}\sqrt{10\,x^2+23\,x+\frac{51}{5}}+\frac{3267}{25000}\sqrt{-10\,x^2-x+3}$$
$$-\frac{11\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{3750\,(125\,x^3+225\,x^2+135\,x+27)}+\frac{99\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{2500\,(25\,x^2+30\,x+9)}$$
$$+\frac{99\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{2500\,(5\,x+3)}-\frac{121\sqrt{-10\,x^2-x+3}}{18750\,(25\,x^2+30\,x+9)}-\frac{9493\sqrt{-10\,x^2-x+3}}{37500\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3*(-2*x + 1)^(5/2)/(5*x + 3)^(5/2),x, algorithm="maxima")
```

```
[Out] -395307/8000000*I*sqrt(5)*sqrt(2)*arcsin(20/11*x + 23/11) + 23221
/500000*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) + 99/5000*(-10*x^2
 - x + 3)^(3/2) + 1/625*(-10*x^2 - x + 3)^(5/2)/(625*x^4 + 1500*x
^3 + 1350*x^2 + 540*x + 81) + 9/1250*(-10*x^2 - x + 3)^(5/2)/(125
*x^3 + 225*x^2 + 135*x + 27) + 9/625*(-10*x^2 - x + 3)^(5/2)/(25*
x^2 + 30*x + 9) + 27/2500*(-10*x^2 - x + 3)^(5/2)/(5*x + 3) + 326
7/20000*sqrt(10*x^2 + 23*x + 51/5)*x + 75141/400000*sqrt(10*x^2 +
 23*x + 51/5) + 3267/25000*sqrt(-10*x^2 - x + 3) - 11/3750*(-10*x
^2 - x + 3)^(3/2)/(125*x^3 + 225*x^2 + 135*x + 27) + 99/2500*(-10
```

```
*x^2 - x + 3)^(3/2)/(25*x^2 + 30*x + 9) + 99/2500*(-10*x^2 - x +
3)^(3/2)/(5*x + 3) - 121/18750*sqrt(-10*x^2 - x + 3)/(25*x^2 + 30
*x + 9) - 9493/37500*sqrt(-10*x^2 - x + 3)/(5*x + 3)
```

Fricas [A] time = 0.224731, size = 134, normalized size = 0.82

$$\frac{\sqrt{10}\left(2\sqrt{10}\left(6480000\,x^5+972000\,x^4-7724700\,x^3+3074745\,x^2+7876210\,x+2322001\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+2300529\,(25\,x\right.}{24000000\,(25\,x^2+30\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^3*(-2*x + 1)^(5/2)/(5*x + 3)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/24000000*sqrt(10)*(2*sqrt(10)*(6480000*x^5 + 972000*x^4 - 77247
00*x^3 + 3074745*x^2 + 7876210*x + 2322001)*sqrt(5*x + 3)*sqrt(-2
*x + 1) + 2300529*(25*x^2 + 30*x + 9)*arctan(1/20*sqrt(10)*(20*x
+ 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(25*x^2 + 30*x + 9)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(5/2)*(2+3*x)**3/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.343743, size = 273, normalized size = 1.66

$$\frac{1}{10000000}\left(36\left(24\left(4\sqrt{5}(5\,x+3)-57\sqrt{5}\right)(5\,x+3)+4915\sqrt{5}\right)(5\,x+3)+338795\sqrt{5}\right)\sqrt{5\,x+3}\sqrt{-10\,x+5}-\frac{11\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^3}{3750000\,(5\,x+3)^{\frac{3}{2}}}+\frac{766843}{4000000}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5\,x+3}\right)-\frac{2079\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}{312500\sqrt{5\,x+3}}+\frac{11\left(\frac{567\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3}+4\sqrt{10}\right)(5\,x+3)^{\frac{3}{2}}}{234375\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^3*(-2*x + 1)^(5/2)/(5*x + 3)^(5/2),x, algorithm="giac")
```

```
[Out] 1/10000000*(36*(24*(4*sqrt(5)*(5*x + 3) - 57*sqrt(5))*(5*x + 3) +
 4915*sqrt(5))*(5*x + 3) + 338795*sqrt(5))*sqrt(5*x + 3)*sqrt(-10
*x + 5) - 11/3750000*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)
)^3/(5*x + 3)^(3/2) + 766843/4000000*sqrt(10)*arcsin(1/11*sqrt(22
)*sqrt(5*x + 3)) - 2079/312500*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5)
- sqrt(22))/sqrt(5*x + 3) + 11/234375*(567*sqrt(10)*(sqrt(2)*sqrt
(-10*x + 5) - sqrt(22))^2/(5*x + 3) + 4*sqrt(10))*(5*x + 3)^(3/2)
/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^3
```

3.2432 $\int \frac{(1-2x)^{5/2}(2+3x)^2}{(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=138

$$-\frac{76(1-2x)^{7/2}}{1815\sqrt{5x+3}}-\frac{2(1-2x)^{7/2}}{825(5x+3)^{3/2}}+\frac{329\sqrt{5x+3}(1-2x)^{5/2}}{45375}+\frac{329\sqrt{5x+3}(1-2x)^{3/2}}{16500}+\frac{329\sqrt{5x+3}\sqrt{1-2x}}{5000}+\frac{3619\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{5000\sqrt{10}}$$

```
[Out] (-2*(1 - 2*x)^(7/2))/(825*(3 + 5*x)^(3/2)) - (76*(1 - 2*x)^(7/2))
/(1815*Sqrt[3 + 5*x]) + (329*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/5000 +
(329*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/16500 + (329*(1 - 2*x)^(5/2)*
Sqrt[3 + 5*x])/45375 + (3619*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(5
000*Sqrt[10])
```

Rubi [A] time = 0.16662, antiderivative size = 138, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$-\frac{76(1-2x)^{7/2}}{1815\sqrt{5x+3}}-\frac{2(1-2x)^{7/2}}{825(5x+3)^{3/2}}+\frac{329\sqrt{5x+3}(1-2x)^{5/2}}{45375}+\frac{329\sqrt{5x+3}(1-2x)^{3/2}}{16500}+\frac{329\sqrt{5x+3}\sqrt{1-2x}}{5000}+\frac{3619\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{5000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(2 + 3*x)^2)/(3 + 5*x)^(5/2),x]
```

```
[Out] (-2*(1 - 2*x)^(7/2))/(825*(3 + 5*x)^(3/2)) - (76*(1 - 2*x)^(7/2))
/(1815*Sqrt[3 + 5*x]) + (329*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/5000 +
(329*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/16500 + (329*(1 - 2*x)^(5/2)*
Sqrt[3 + 5*x])/45375 + (3619*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(5
000*Sqrt[10])
```

Rubi in Sympy [A] time = 14.3083, size = 126, normalized size = 0.91

$$-\frac{76\left(-2x+1\right)^{\frac{7}{2}}}{1815\sqrt{5x+3}}-\frac{2\left(-2x+1\right)^{\frac{7}{2}}}{825\left(5x+3\right)^{\frac{3}{2}}}+\frac{329\left(-2x+1\right)^{\frac{5}{2}}\sqrt{5x+3}}{45375}+\frac{329\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{16500}+\frac{329\sqrt{-2x+1}\sqrt{5x+3}}{5000}+\frac{3619\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{50000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**2/(3+5*x)**(5/2),x)
```

```
[Out] -76*(-2*x + 1)**(7/2)/(1815*sqrt(5*x + 3)) - 2*(-2*x + 1)**(7/2)/
(825*(5*x + 3)**(3/2)) + 329*(-2*x + 1)**(5/2)*sqrt(5*x + 3)/4537
5 + 329*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/16500 + 329*sqrt(-2*x + 1
)*sqrt(5*x + 3)/5000 + 3619*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/
11)/50000
```

Mathematica [A] time = 0.184499, size = 70, normalized size = 0.51

$$\frac{\frac{10\sqrt{1-2x}\left(36000x^4-35100x^3+3585x^2+40930x+10633\right)}{(5x+3)^{3/2}}-10857\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{150000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(2 + 3*x)^2)/(3 + 5*x)^(5/2),x]
```

```
[Out] ((10*Sqrt[1 - 2*x]*(10633 + 40930*x + 3585*x^2 - 35100*x^3 + 3600
0*x^4))/(3 + 5*x)^(3/2) - 10857*Sqrt[10]*ArcSin[Sqrt[5/11]*Sqrt[1
 - 2*x]])/150000
```

Maple [A] time = 0.018, size = 147, normalized size = 1.1

$$\frac{1}{300000}\left(720000\,x^{4}\sqrt{-10\,x^{2}-x+3}+271425\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x^{2}-702000\,x^{3}\sqrt{-10\,x^{2}-x+3}+325710\,\sqrt{10}\,\mathrm{arcsi}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^2/(3+5*x)^(5/2),x)
```

```
[Out] 1/300000*(720000*x^4*(-10*x^2-x+3)^(1/2)+271425*10^(1/2)*arcsin(2
0/11*x+1/11)*x^2-702000*x^3*(-10*x^2-x+3)^(1/2)+325710*10^(1/2)*a
rcsin(20/11*x+1/11)*x+71700*x^2*(-10*x^2-x+3)^(1/2)+97713*10^(1/2
)*arcsin(20/11*x+1/11)+818600*x*(-10*x^2-x+3)^(1/2)+212660*(-10*x
^2-x+3)^(1/2))*(1-2*x)^(1/2)/(-10*x^2-x+3)^(1/2)/(3+5*x)^(3/2)
```

Maxima [A] time = 1.51489, size = 333, normalized size = 2.41

$$\frac{3619}{100000}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)+\frac{\left(-10\,x^{2}-x+3\right)^{\frac{5}{2}}}{125\,(625\,x^{4}+1500\,x^{3}+1350\,x^{2}+540\,x+81)}$$
$$+\frac{3\left(-10\,x^{2}-x+3\right)^{\frac{5}{2}}}{125\,(125\,x^{3}+225\,x^{2}+135\,x+27)}+\frac{3\left(-10\,x^{2}-x+3\right)^{\frac{5}{2}}}{125\,(25\,x^{2}+30\,x+9)}+\frac{1089}{5000}\sqrt{-10\,x^{2}-x+3}$$
$$-\frac{11\left(-10\,x^{2}-x+3\right)^{\frac{3}{2}}}{750\,(125\,x^{3}+225\,x^{2}+135\,x+27)}+\frac{33\left(-10\,x^{2}-x+3\right)^{\frac{3}{2}}}{250\,(25\,x^{2}+30\,x+9)}$$
$$+\frac{33\left(-10\,x^{2}-x+3\right)^{\frac{3}{2}}}{500\,(5\,x+3)}-\frac{121\sqrt{-10\,x^{2}-x+3}}{3750\,(25\,x^{2}+30\,x+9)}-\frac{3113\sqrt{-10\,x^{2}-x+3}}{3750\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*(-2*x + 1)^(5/2)/(5*x + 3)^(5/2),x, algorithm="maxima")
```

```
[Out] 3619/100000*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) + 1/125*(-10*x
^2 - x + 3)^(5/2)/(625*x^4 + 1500*x^3 + 1350*x^2 + 540*x + 81) +
3/125*(-10*x^2 - x + 3)^(5/2)/(125*x^3 + 225*x^2 + 135*x + 27) +
3/125*(-10*x^2 - x + 3)^(5/2)/(25*x^2 + 30*x + 9) + 1089/5000*sqr
t(-10*x^2 - x + 3) - 11/750*(-10*x^2 - x + 3)^(3/2)/(125*x^3 + 22
5*x^2 + 135*x + 27) + 33/250*(-10*x^2 - x + 3)^(3/2)/(25*x^2 + 30
*x + 9) + 33/500*(-10*x^2 - x + 3)^(3/2)/(5*x + 3) - 121/3750*sqr
t(-10*x^2 - x + 3)/(25*x^2 + 30*x + 9) - 3113/3750*sqrt(-10*x^2 -
 x + 3)/(5*x + 3)
```

Fricas [A] time = 0.228599, size = 127, normalized size = 0.92

$$\frac{\sqrt{10}\left(2\sqrt{10}\left(36000\,x^{4}-35100\,x^{3}+3585\,x^{2}+40930\,x+10633\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+10857\left(25\,x^{2}+30\,x+9\right)\arctan\left(\frac{\sqrt{10}(}{20\sqrt{5}\,x\cdot}\right.\right.}{300000\,(25\,x^{2}+30\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*(-2*x + 1)^(5/2)/(5*x + 3)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/300000*sqrt(10)*(2*sqrt(10)*(36000*x^4 - 35100*x^3 + 3585*x^2 +
 40930*x + 10633)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 10857*(25*x^2 +
30*x + 9)*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*
x + 1))))/(25*x^2 + 30*x + 9)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)**2/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.329128, size = 255, normalized size = 1.85

$$\frac{1}{125000}\left(12\left(8\sqrt{5}(5x+3)-135\sqrt{5}\right)(5x+3)+9635\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}-\frac{11\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^{3}}{750000\,(5x+3)^{\frac{3}{2}}}+\frac{3619}{50000}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)-\frac{1353\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}{62500\sqrt{5x+3}}+\frac{11\left(\frac{369\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^{2}}{5x+3}+4\sqrt{10}\right)(5x+3)^{\frac{3}{2}}}{46875\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2*(-2*x + 1)^(5/2)/(5*x + 3)^(5/2),x, algorithm="giac")
```

```
[Out] 1/125000*(12*(8*sqrt(5)*(5*x + 3) - 135*sqrt(5))*(5*x + 3) + 9635
*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5) - 11/750000*sqrt(10)*(sqr
t(2)*sqrt(-10*x + 5) - sqrt(22))^3/(5*x + 3)^(3/2) + 3619/50000*s
qrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) - 1353/62500*sqrt(10)
*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) + 11/46875*(3
69*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) + 4*
sqrt(10))*(5*x + 3)^(3/2)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^3
```

3.2433 $\int \frac{(1-2x)^{5/2}(2+3x)}{(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=116

$$-\frac{2(1-2x)^{7/2}}{165(5x+3)^{3/2}}-\frac{182(1-2x)^{5/2}}{825\sqrt{5x+3}}-\frac{91}{825}\sqrt{5x+3}(1-2x)^{3/2}-\frac{91}{250}\sqrt{5x+3}\sqrt{1-2x}-\frac{1001\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{250\sqrt{10}}$$

```
[Out] (-2*(1 - 2*x)^(7/2))/(165*(3 + 5*x)^(3/2)) - (182*(1 - 2*x)^(5/2)
)/(825*Sqrt[3 + 5*x]) - (91*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/250 - (9
1*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/825 - (1001*ArcSin[Sqrt[2/11]*Sq
rt[3 + 5*x]])/(250*Sqrt[10])
```

Rubi [A] time = 0.118545, antiderivative size = 116, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$-\frac{2(1-2x)^{7/2}}{165(5x+3)^{3/2}}-\frac{182(1-2x)^{5/2}}{825\sqrt{5x+3}}-\frac{91}{825}\sqrt{5x+3}(1-2x)^{3/2}-\frac{91}{250}\sqrt{5x+3}\sqrt{1-2x}-\frac{1001\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{250\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(2 + 3*x))/(3 + 5*x)^(5/2),x]
```

```
[Out] (-2*(1 - 2*x)^(7/2))/(165*(3 + 5*x)^(3/2)) - (182*(1 - 2*x)^(5/2)
)/(825*Sqrt[3 + 5*x]) - (91*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/250 - (9
1*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/825 - (1001*ArcSin[Sqrt[2/11]*Sq
rt[3 + 5*x]])/(250*Sqrt[10])
```

Rubi in Sympy [A] time = 11.3422, size = 107, normalized size = 0.92

$$-\frac{2\left(-2x+1\right)^{\frac{7}{2}}}{165\left(5x+3\right)^{\frac{3}{2}}}-\frac{182\left(-2x+1\right)^{\frac{5}{2}}}{825\sqrt{5x+3}}-\frac{91\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{825}-\frac{91\sqrt{-2x+1}\sqrt{5x+3}}{250}-\frac{1001\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{2500}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)/(3+5*x)**(5/2),x)
```

```
[Out] -2*(-2*x + 1)**(7/2)/(165*(5*x + 3)**(3/2)) - 182*(-2*x + 1)**(5/
2)/(825*sqrt(5*x + 3)) - 91*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/825 -
 91*sqrt(-2*x + 1)*sqrt(5*x + 3)/250 - 1001*sqrt(10)*asin(sqrt(22
)*sqrt(5*x + 3)/11)/2500
```

Mathematica [A] time = 0.156415, size = 65, normalized size = 0.56

$$\frac{\frac{10\sqrt{1-2x}(900x^3-2715x^2-7970x-3707)}{(5x+3)^{3/2}}+3003\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{7500}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(2 + 3*x))/(3 + 5*x)^(5/2),x]
```

```
[Out] ((10*Sqrt[1 - 2*x]*(-3707 - 7970*x - 2715*x^2 + 900*x^3))/(3 + 5*
x)^(3/2) + 3003*Sqrt[10]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/7500
```

Maple [A] time = 0.016, size = 130, normalized size = 1.1

$$-\frac{1}{15000}\left(75075\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)x^2-18000x^3\sqrt{-10x^2-x+3}+90090\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)x+54300x^2\sqrt{-}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)/(3+5*x)^(5/2),x)
```

```
[Out] -1/15000*(75075*10^(1/2)*arcsin(20/11*x+1/11)*x^2-18000*x^3*(-10*
x^2-x+3)^(1/2)+90090*10^(1/2)*arcsin(20/11*x+1/11)*x+54300*x^2*(-
10*x^2-x+3)^(1/2)+27027*10^(1/2)*arcsin(20/11*x+1/11)+159400*x*(-
10*x^2-x+3)^(1/2)+74140*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)/(-10*x
^2-x+3)^(1/2)/(3+5*x)^(3/2)
```

Maxima [A] time = 1.50813, size = 251, normalized size = 2.16

$$-\frac{1001}{5000}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)+\frac{\left(-10x^2-x+3\right)^{\frac{5}{2}}}{25\left(625x^4+1500x^3+1350x^2+540x+81\right)}+\frac{3\left(-10x^2-x+3\right)^{\frac{5}{2}}}{50\left(125x^3+225x^2+135x+27\right)}-\frac{11\left(-10x^2-x+3\right)^{\frac{3}{2}}}{150\left(125x^3+225x^2+135x+27\right)}+\frac{33\left(-10x^2-x+3\right)^{\frac{3}{2}}}{100\left(25x^2+30x+9\right)}-\frac{121\sqrt{-10x^2-x+3}}{750\left(25x^2+30x+9\right)}-\frac{2959\sqrt{-10x^2-x+3}}{1500\left(5x+3\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)*(-2*x + 1)^(5/2)/(5*x + 3)^(5/2),x, algorithm="maxima")
```

```
[Out] -1001/5000*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) + 1/25*(-10*x^2
 - x + 3)^(5/2)/(625*x^4 + 1500*x^3 + 1350*x^2 + 540*x + 81) + 3/
50*(-10*x^2 - x + 3)^(5/2)/(125*x^3 + 225*x^2 + 135*x + 27) - 11/
150*(-10*x^2 - x + 3)^(3/2)/(125*x^3 + 225*x^2 + 135*x + 27) + 33
/100*(-10*x^2 - x + 3)^(3/2)/(25*x^2 + 30*x + 9) - 121/750*sqrt(-
10*x^2 - x + 3)/(25*x^2 + 30*x + 9) - 2959/1500*sqrt(-10*x^2 - x
+ 3)/(5*x + 3)
```

Fricas [A] time = 0.224189, size = 120, normalized size = 1.03

$$\frac{\sqrt{10}\left(2\sqrt{10}\left(900x^3-2715x^2-7970x-3707\right)\sqrt{5x+3}\sqrt{-2x+1}-3003\left(25x^2+30x+9\right)\arctan\left(\frac{\sqrt{10}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)}{15000\left(25x^2+30x+9\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)*(-2*x + 1)^(5/2)/(5*x + 3)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/15000*sqrt(10)*(2*sqrt(10)*(900*x^3 - 2715*x^2 - 7970*x - 3707)
*sqrt(5*x + 3)*sqrt(-2*x + 1) - 3003*(25*x^2 + 30*x + 9)*arctan(1
/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(25*x^2
+ 30*x + 9)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.300117, size = 238, normalized size = 2.05

$$\frac{1}{6250}\left(12\sqrt{5}(5x+3)-289\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}-\frac{11\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^3}{150000\,(5x+3)^{\frac{3}{2}}}-\frac{1001}{2500}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)-\frac{627\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}{12500\sqrt{5x+3}}+\frac{11\left(\frac{171\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}+4\sqrt{10}\right)(5x+3)^{\frac{3}{2}}}{9375\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)*(-2*x + 1)^(5/2)/(5*x + 3)^(5/2),x, algorithm="giac")
```

```
[Out] 1/6250*(12*sqrt(5)*(5*x + 3) - 289*sqrt(5))*sqrt(5*x + 3)*sqrt(-1
0*x + 5) - 11/150000*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)
)^3/(5*x + 3)^(3/2) - 1001/2500*sqrt(10)*arcsin(1/11*sqrt(22)*sqr
t(5*x + 3)) - 627/12500*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(
22))/sqrt(5*x + 3) + 11/9375*(171*sqrt(10)*(sqrt(2)*sqrt(-10*x +
5) - sqrt(22))^2/(5*x + 3) + 4*sqrt(10))*(5*x + 3)^(3/2)/(sqrt(2)
*sqrt(-10*x + 5) - sqrt(22))^3
```

3.2434 $\int \frac{(1-2x)^{5/2}}{(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=96

$$-\frac{2(1-2x)^{5/2}}{15(5x+3)^{3/2}}+\frac{4(1-2x)^{3/2}}{15\sqrt{5x+3}}+\frac{4}{25}\sqrt{5x+3}\sqrt{1-2x}+\frac{22}{25}\sqrt{\frac{2}{5}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)$$

```
[Out] (-2*(1 - 2*x)^(5/2))/(15*(3 + 5*x)^(3/2)) + (4*(1 - 2*x)^(3/2))/(
15*Sqrt[3 + 5*x]) + (4*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/25 + (22*Sqrt
[2/5]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/25
```

Rubi [A] time = 0.084375, antiderivative size = 96, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.21

$$-\frac{2(1-2x)^{5/2}}{15(5x+3)^{3/2}}+\frac{4(1-2x)^{3/2}}{15\sqrt{5x+3}}+\frac{4}{25}\sqrt{5x+3}\sqrt{1-2x}+\frac{22}{25}\sqrt{\frac{2}{5}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/(3 + 5*x)^(5/2),x]
```

```
[Out] (-2*(1 - 2*x)^(5/2))/(15*(3 + 5*x)^(3/2)) + (4*(1 - 2*x)^(3/2))/(
15*Sqrt[3 + 5*x]) + (4*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/25 + (22*Sqrt
[2/5]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/25
```

Rubi in Sympy [A] time = 8.91471, size = 85, normalized size = 0.89

$$-\frac{2\left(-2x+1\right)^{\frac{5}{2}}}{15\left(5x+3\right)^{\frac{3}{2}}}+\frac{4\left(-2x+1\right)^{\frac{3}{2}}}{15\sqrt{5x+3}}+\frac{4\sqrt{-2x+1}\sqrt{5x+3}}{25}+\frac{22\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(3+5*x)**(5/2),x)
```

```
[Out] -2*(-2*x + 1)**(5/2)/(15*(5*x + 3)**(3/2)) + 4*(-2*x + 1)**(3/2)/
(15*sqrt(5*x + 3)) + 4*sqrt(-2*x + 1)*sqrt(5*x + 3)/25 + 22*sqrt(
10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/125
```

Mathematica [A] time = 0.16204, size = 60, normalized size = 0.62

$$\frac{2}{375}\left(\frac{5\sqrt{1-2x}\left(30x^2+190x+79\right)}{(5x+3)^{3/2}}-33\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/(3 + 5*x)^(5/2),x]
```

```
[Out] (2*((5*Sqrt[1 - 2*x]*(79 + 190*x + 30*x^2))/(3 + 5*x)^(3/2) - 33*
Sqrt[10]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]]))/375
```

Maple [F] time = 0.063, size = 0, normalized size = 0.

$$\int 1\left(1-2\,x\right)^{\frac{5}{2}}\left(3+5\,x\right)^{-\frac{5}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(3+5*x)^(5/2),x)
```

```
[Out] int((1-2*x)^(5/2)/(3+5*x)^(5/2),x)
```

Maxima [A] time = 1.49762, size = 174, normalized size = 1.81

$$\frac{11}{125}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)+\frac{\left(-10x^2-x+3\right)^{\frac{5}{2}}}{5\left(625x^4+1500x^3+1350x^2+540x+81\right)}-\frac{11\left(-10x^2-x+3\right)^{\frac{3}{2}}}{30\left(125x^3+225x^2+135x+27\right)}-\frac{121\sqrt{-10x^2-x+3}}{150\left(25x^2+30x+9\right)}+\frac{77\sqrt{-10x^2-x+3}}{75\left(5x+3\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/(5*x + 3)^(5/2),x, algorithm="maxima")
```

```
[Out] 11/125*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) + 1/5*(-10*x^2 - x
+ 3)^(5/2)/(625*x^4 + 1500*x^3 + 1350*x^2 + 540*x + 81) - 11/30*(
-10*x^2 - x + 3)^(3/2)/(125*x^3 + 225*x^2 + 135*x + 27) - 121/150
*sqrt(-10*x^2 - x + 3)/(25*x^2 + 30*x + 9) + 77/75*sqrt(-10*x^2 -
 x + 3)/(5*x + 3)
```

Fricas [A] time = 0.219522, size = 122, normalized size = 1.27

$$\frac{\sqrt{5}\left(2\sqrt{5}\left(30x^2+190x+79\right)\sqrt{5x+3}\sqrt{-2x+1}+33\sqrt{2}\left(25x^2+30x+9\right)\arctan\left(\frac{\sqrt{5}\sqrt{2}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)}{375\left(25x^2+30x+9\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/(5*x + 3)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/375*sqrt(5)*(2*sqrt(5)*(30*x^2 + 190*x + 79)*sqrt(5*x + 3)*sqrt
(-2*x + 1) + 33*sqrt(2)*(25*x^2 + 30*x + 9)*arctan(1/20*sqrt(5)*s
qrt(2)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(25*x^2 + 30*x
 + 9)
```

Sympy [A] time = 29.1668, size = 258, normalized size = 2.69

$$\begin{cases}\frac{4\sqrt{10}\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)}{125}+\frac{308\sqrt{10}\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}}{1875}-\frac{242\sqrt{10}\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}}{9375\left(x+\frac{3}{5}\right)}+\frac{11\sqrt{10}i\log\left(\frac{1}{x+\frac{3}{5}}\right)}{125}+\frac{11\sqrt{10}i\log\left(x+\frac{3}{5}\right)}{125}+\frac{22\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{110}\sqrt{x+\frac{3}{5}}}{11}\right)}{125} & \text{for} \\ \frac{4\sqrt{10}i\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)}{125}+\frac{308\sqrt{10}i\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}}{1875}-\frac{242\sqrt{10}i\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}}{9375\left(x+\frac{3}{5}\right)}+\frac{11\sqrt{10}i\log\left(\frac{1}{x+\frac{3}{5}}\right)}{125}-\frac{22\sqrt{10}i\log\left(\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}+1\right)}{125} & \text{oth}\end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)/(3+5*x)**(5/2),x)
```

```
[Out] Piecewise((4*sqrt(10)*sqrt(-1 + 11/(10*(x + 3/5)))*(x + 3/5)/125
+ 308*sqrt(10)*sqrt(-1 + 11/(10*(x + 3/5)))/1875 - 242*sqrt(10)*s
qrt(-1 + 11/(10*(x + 3/5)))/(9375*(x + 3/5)) + 11*sqrt(10)*I*log(
1/(x + 3/5))/125 + 11*sqrt(10)*I*log(x + 3/5)/125 + 22*sqrt(10)*a
sin(sqrt(110)*sqrt(x + 3/5)/11)/125, 11*Abs(1/(x + 3/5))/10 > 1),
 (4*sqrt(10)*I*sqrt(1 - 11/(10*(x + 3/5)))*(x + 3/5)/125 + 308*sq
rt(10)*I*sqrt(1 - 11/(10*(x + 3/5)))/1875 - 242*sqrt(10)*I*sqrt(1
```

```
 - 11/(10*(x + 3/5)))/(9375*(x + 3/5)) + 11*sqrt(10)*I*log(1/(x +
 3/5))/125 - 22*sqrt(10)*I*log(sqrt(1 - 11/(10*(x + 3/5))) + 1)/1
25, True))
```

GIAC/XCAS [A] time = 0.288613, size = 220, normalized size = 2.29

$$-\frac{11\,\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{3}}{30000\,(5\,x+3)^{\frac{3}{2}}}+\frac{4}{625}\,\sqrt{5}\sqrt{5\,x+3}\sqrt{-10\,x+5}+\frac{22}{125}\,\sqrt{10}\arcsin\left(\frac{1}{11}\,\sqrt{22}\sqrt{5\,x+3}\right)+\frac{99\,\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}{2500\,\sqrt{5\,x+3}}-\frac{11\left(\frac{27\,\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{2}}{5\,x+3}-4\,\sqrt{10}\right)(5\,x+3)^{\frac{3}{2}}}{1875\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/(5*x + 3)^(5/2),x, algorithm="giac")
```

```
[Out] -11/30000*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^3/(5*x +
3)^(3/2) + 4/625*sqrt(5)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 22/125*s
qrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) + 99/2500*sqrt(10)*(s
qrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 11/1875*(27*sq
rt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4*sqrt(
10))*(5*x + 3)^(3/2)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^3
```

3.2435 $\int \frac{(1-2x)^{5/2}}{(2+3x)(3+5x)^{5/2}} \, dx$

Optimal. Leaf size=108

$$-\frac{22(1-2x)^{3/2}}{15(5x+3)^{3/2}}+\frac{814\sqrt{1-2x}}{25\sqrt{5x+3}}-\frac{8}{75}\sqrt{\frac{2}{5}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{98}{3}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

```
[Out] (-22*(1 - 2*x)^(3/2))/(15*(3 + 5*x)^(3/2)) + (814*Sqrt[1 - 2*x])/
(25*Sqrt[3 + 5*x]) - (8*Sqrt[2/5]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]
])/75 - (98*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])]
)/3
```

Rubi [A] time = 0.244266, antiderivative size = 108, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 7, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.269$

$$-\frac{22(1-2x)^{3/2}}{15(5x+3)^{3/2}}+\frac{814\sqrt{1-2x}}{25\sqrt{5x+3}}-\frac{8}{75}\sqrt{\frac{2}{5}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{98}{3}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (-22*(1 - 2*x)^(3/2))/(15*(3 + 5*x)^(3/2)) + (814*Sqrt[1 - 2*x])/
(25*Sqrt[3 + 5*x]) - (8*Sqrt[2/5]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]
])/75 - (98*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])]
)/3
```

Rubi in Sympy [A] time = 22.9029, size = 99, normalized size = 0.92

$$-\frac{22\left(-2x+1\right)^{\frac{3}{2}}}{15\left(5x+3\right)^{\frac{3}{2}}}+\frac{814\sqrt{-2x+1}}{25\sqrt{5x+3}}-\frac{8\sqrt{10}\,\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{375}-\frac{98\sqrt{7}\,\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)/(3+5*x)**(5/2),x)
```

```
[Out] -22*(-2*x + 1)**(3/2)/(15*(5*x + 3)**(3/2)) + 814*sqrt(-2*x + 1)/
(25*sqrt(5*x + 3)) - 8*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/3
75 - 98*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/3
```

Mathematica [A] time = 0.400168, size = 103, normalized size = 0.95

$$\frac{2}{375}\left(\frac{55\sqrt{1-2x}(565x+328)}{(5x+3)^{3/2}}-2\sqrt{10}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)\right)-\frac{49}{3}\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (-49*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])
])/3 + (2*((55*Sqrt[1 - 2*x]*(328 + 565*x))/(3 + 5*x)^(3/2) - 2*S
qrt[10]*ArcTan[(1 + 20*x)/(2*Sqrt[1 - 2*x]*Sqrt[30 + 50*x])]))/37
5
```

Maple [B] time = 0.02, size = 184, normalized size = 1.7

$$\frac{1}{375}\left(153125\sqrt{7}\arctan\left(1/14\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)x^2-100\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)x^2+183750\sqrt{7}\arctan\left(1/14\frac{(37x+2}{\sqrt{-10x^2}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)/(3+5*x)^(5/2),x)
```

```
[Out] 1/375*(153125*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)
^(1/2))*x^2-100*10^(1/2)*arcsin(20/11*x+1/11)*x^2+183750*7^(1/2)*
arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x-120*10^(1/2)
*arcsin(20/11*x+1/11)*x+55125*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/
2)/(-10*x^2-x+3)^(1/2))-36*10^(1/2)*arcsin(20/11*x+1/11)+62150*x*
(-10*x^2-x+3)^(1/2)+36080*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)/(-10
*x^2-x+3)^(1/2)/(3+5*x)^(3/2)
```

Maxima [A] time = 1.51406, size = 220, normalized size = 2.04

$$\frac{626336\,x^2}{17788815\,\sqrt{-10\,x^2-x+3}}-\frac{16\,x^3}{15\,(-10\,x^2-x+3)^{\frac{3}{2}}}-\frac{4}{375}\sqrt{10}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)+\frac{49}{3}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{313168}{88944075}\sqrt{-10\,x^2-x+3}-\frac{5905573412\,x}{88944075\,\sqrt{-10\,x^2-x+3}}+\frac{3286544\,x^2}{735075\,(-10\,x^2-x+3)^{\frac{3}{2}}}+\frac{3102773174}{88944075\,\sqrt{-10\,x^2-x+3}}+\frac{11007824\,x}{735075\,(-10\,x^2-x+3)^{\frac{3}{2}}}-\frac{2075846}{245025\,(-10\,x^2-x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^(5/2)*(3*x + 2)),x, algorithm="maxima")
```

```
[Out] 626336/17788815*x^2/sqrt(-10*x^2 - x + 3) - 16/15*x^3/(-10*x^2 -
x + 3)^(3/2) - 4/375*sqrt(10)*arcsin(20/11*x + 1/11) + 49/3*sqrt(
7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) + 313168/889
44075*sqrt(-10*x^2 - x + 3) - 5905573412/88944075*x/sqrt(-10*x^2
- x + 3) + 3286544/735075*x^2/(-10*x^2 - x + 3)^(3/2) + 310277317
4/88944075/sqrt(-10*x^2 - x + 3) + 11007824/735075*x/(-10*x^2 - x
 + 3)^(3/2) - 2075846/245025/(-10*x^2 - x + 3)^(3/2)
```

Fricas [A] time = 0.23134, size = 173, normalized size = 1.6

$$\frac{\sqrt{5}\left(1225\sqrt{7}\sqrt{5}\left(25x^2+30x+9\right)\arctan\left(\frac{\sqrt{7}(37x+20)}{14\sqrt{5x+3}\sqrt{-2x+1}}\right)+22\sqrt{5}(565x+328)\sqrt{5x+3}\sqrt{-2x+1}-4\sqrt{2}\left(25x^2+30x+9\right)\right.}{375\left(25x^2+30x+9\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^(5/2)*(3*x + 2)),x, algorithm="fricas")
```

```
[Out] 1/375*sqrt(5)*(1225*sqrt(7)*sqrt(5)*(25*x^2 + 30*x + 9)*arctan(1/
14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))) + 22*sqrt(
5)*(565*x + 328)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 4*sqrt(2)*(25*x^2
 + 30*x + 9)*arctan(1/20*sqrt(5)*sqrt(2)*(20*x + 1)/(sqrt(5*x + 3
)*sqrt(-2*x + 1))))/(25*x^2 + 30*x + 9)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)/(2+3*x)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.302195, size = 352, normalized size = 3.26

$$-\frac{11}{6000}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3 + \frac{49}{30}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right) - \frac{4}{375}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{4\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right) + \frac{407}{250}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(5/2)*(3*x + 2)),x, algorithm="giac")
```

```
[Out] -11/6000*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x
+ 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 +
49/30*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x +
 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqrt(
2)*sqrt(-10*x + 5) - sqrt(22)))) - 4/375*sqrt(10)*(pi + 2*arctan(
-1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x +
 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 407/250*sqrt(10
)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*
x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))
```

3.2436 $\int \frac{(1-2x)^{5/2}}{(2+3x)^2(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=101

$$\frac{(1-2x)^{5/2}}{(3x+2)(5x+3)^{3/2}}-\frac{55(1-2x)^{3/2}}{3(5x+3)^{3/2}}+\frac{385\sqrt{1-2x}}{\sqrt{5x+3}}-385\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

```
[Out] (-55*(1 - 2*x)^(3/2))/(3*(3 + 5*x)^(3/2)) + (1 - 2*x)^(5/2)/((2 +
 3*x)*(3 + 5*x)^(3/2)) + (385*Sqrt[1 - 2*x])/Sqrt[3 + 5*x] - 385*
Sqrt[7]*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])]
```

Rubi [A] time = 0.171903, antiderivative size = 101, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.115$

$$\frac{(1-2x)^{5/2}}{(3x+2)(5x+3)^{3/2}}-\frac{55(1-2x)^{3/2}}{3(5x+3)^{3/2}}+\frac{385\sqrt{1-2x}}{\sqrt{5x+3}}-385\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)^2*(3 + 5*x)^(5/2)),x]
```

```
[Out] (-55*(1 - 2*x)^(3/2))/(3*(3 + 5*x)^(3/2)) + (1 - 2*x)^(5/2)/((2 +
 3*x)*(3 + 5*x)^(3/2)) + (385*Sqrt[1 - 2*x])/Sqrt[3 + 5*x] - 385*
Sqrt[7]*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])]
```

Rubi in Sympy [A] time = 13.9196, size = 105, normalized size = 1.04

$$-\frac{2\left(-2x+1\right)^{\frac{5}{2}}}{3\left(3x+2\right)\left(5x+3\right)^{\frac{3}{2}}}+\frac{70\left(-2x+1\right)^{\frac{3}{2}}}{3\left(3x+2\right)\sqrt{5x+3}}+\frac{245\sqrt{-2x+1}\sqrt{5x+3}}{3x+2}-385\sqrt{7}\,\text{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)**2/(3+5*x)**(5/2),x)
```

```
[Out] -2*(-2*x + 1)**(5/2)/(3*(3*x + 2)*(5*x + 3)**(3/2)) + 70*(-2*x +
1)**(3/2)/(3*(3*x + 2)*sqrt(5*x + 3)) + 245*sqrt(-2*x + 1)*sqrt(5
*x + 3)/(3*x + 2) - 385*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sq
rt(5*x + 3)))
```

Mathematica [A] time = 0.0905577, size = 77, normalized size = 0.76

$$\frac{\sqrt{1-2x}\left(17667x^2+21988x+6823\right)}{3(3x+2)(5x+3)^{3/2}}-\frac{385}{2}\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)^2*(3 + 5*x)^(5/2)),x]
```

```
[Out] (Sqrt[1 - 2*x]*(6823 + 21988*x + 17667*x^2))/(3*(2 + 3*x)*(3 + 5*
x)^(3/2)) - (385*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sq
rt[3 + 5*x])])/2
```

Maple [B] time = 0.02, size = 202, normalized size = 2.

$$\frac{1}{12+18x}\left(86625\sqrt{7}\arctan\left(1/14\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)x^3+161700\sqrt{7}\arctan\left(1/14\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)x^2+100485\sqrt{7}\arctan\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)^2/(3+5*x)^(5/2),x)
```

```
[Out] 1/6*(86625*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1
/2))*x^3+161700*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+
3)^(1/2))*x^2+100485*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x
^2-x+3)^(1/2))*x+35334*x^2*(-10*x^2-x+3)^(1/2)+20790*7^(1/2)*arct
an(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+43976*x*(-10*x^2-x
+3)^(1/2)+13646*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)/(2+3*x)/(-10*x
^2-x+3)^(1/2)/(3+5*x)^(3/2)
```

Maxima [A] time = 1.51487, size = 186, normalized size = 1.84

$$\frac{385}{2}\sqrt{7}\arcsin\left(\frac{37x}{11|3x+2|}+\frac{20}{11|3x+2|}\right)-\frac{3926x}{5\sqrt{-10x^2-x+3}}-\frac{16x^2}{45(-10x^2-x+3)^{\frac{3}{2}}}+\frac{30743}{75\sqrt{-10x^2-x+3}}+\frac{133642x}{675(-10x^2-x+3)^{\frac{3}{2}}}+\frac{2401}{81\left(3(-10x^2-x+3)^{\frac{3}{2}}x+2(-10x^2-x+3)^{\frac{3}{2}}\right)}-\frac{217433}{2025(-10x^2-x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^(5/2)*(3*x + 2)^2),x, algorithm="maxima")
```

```
[Out] 385/2*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) -
 3926/5*x/sqrt(-10*x^2 - x + 3) - 16/45*x^2/(-10*x^2 - x + 3)^(3/
2) + 30743/75/sqrt(-10*x^2 - x + 3) + 133642/675*x/(-10*x^2 - x +
 3)^(3/2) + 2401/81/(3*(-10*x^2 - x + 3)^(3/2)*x + 2*(-10*x^2 - x
 + 3)^(3/2)) - 217433/2025/(-10*x^2 - x + 3)^(3/2)
```

Fricas [A] time = 0.22135, size = 123, normalized size = 1.22

$$\frac{1155\sqrt{7}\left(75x^3+140x^2+87x+18\right)\arctan\left(\frac{\sqrt{7}(37x+20)}{14\sqrt{5x+3}\sqrt{-2x+1}}\right)+2\left(17667x^2+21988x+6823\right)\sqrt{5x+3}\sqrt{-2x+1}}{6\left(75x^3+140x^2+87x+18\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^(5/2)*(3*x + 2)^2),x, algorithm="fricas")
```

```
[Out] 1/6*(1155*sqrt(7)*(75*x^3 + 140*x^2 + 87*x + 18)*arctan(1/14*sqrt
(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))) + 2*(17667*x^2 +
21988*x + 6823)*sqrt(5*x + 3)*sqrt(-2*x + 1))/(75*x^3 + 140*x^2 +
 87*x + 18)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)/(2+3*x)**2/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.327495, size = 423, normalized size = 4.19

$$-\frac{11}{1200}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^{3} + \frac{77}{4}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^{2}}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right) + \frac{77}{5}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right) + \frac{1078\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)}{\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^{2}+280}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^(5/2)*(3*x + 2)^2),x, algorithm="giac")
```

```
[Out] -11/1200*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x
+ 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 +
77/4*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x +
3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqrt(2
)*sqrt(-10*x + 5) - sqrt(22)))) + 77/5*sqrt(10)*((sqrt(2)*sqrt(-1
0*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqr
t(-10*x + 5) - sqrt(22))) + 1078*sqrt(10)*((sqrt(2)*sqrt(-10*x +
5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*
x + 5) - sqrt(22)))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5
*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^2
 + 280)
```

3.2437 $\int \frac{(1-2x)^{5/2}}{(2+3x)^3(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=137

$$\frac{3(1-2x)^{7/2}}{14(3x+2)^2(5x+3)^{3/2}}+\frac{239(1-2x)^{5/2}}{28(3x+2)(5x+3)^{3/2}}-\frac{13145(1-2x)^{3/2}}{84(5x+3)^{3/2}}+\frac{13145\sqrt{1-2x}}{4\sqrt{5x+3}}-\frac{13145}{4}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

```
[Out] (-13145*(1 - 2*x)^(3/2))/(84*(3 + 5*x)^(3/2)) + (3*(1 - 2*x)^(7/2
))/(14*(2 + 3*x)^2*(3 + 5*x)^(3/2)) + (239*(1 - 2*x)^(5/2))/(28*(
2 + 3*x)*(3 + 5*x)^(3/2)) + (13145*Sqrt[1 - 2*x])/(4*Sqrt[3 + 5*x
]) - (13145*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])]
)/4
```

Rubi [A] time = 0.212926, antiderivative size = 137, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$\frac{3(1-2x)^{7/2}}{14(3x+2)^2(5x+3)^{3/2}}+\frac{239(1-2x)^{5/2}}{28(3x+2)(5x+3)^{3/2}}-\frac{13145(1-2x)^{3/2}}{84(5x+3)^{3/2}}+\frac{13145\sqrt{1-2x}}{4\sqrt{5x+3}}-\frac{13145}{4}\sqrt{7}\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)^3*(3 + 5*x)^(5/2)),x]
```

```
[Out] (-13145*(1 - 2*x)^(3/2))/(84*(3 + 5*x)^(3/2)) + (3*(1 - 2*x)^(7/2
))/(14*(2 + 3*x)^2*(3 + 5*x)^(3/2)) + (239*(1 - 2*x)^(5/2))/(28*(
2 + 3*x)*(3 + 5*x)^(3/2)) + (13145*Sqrt[1 - 2*x])/(4*Sqrt[3 + 5*x
]) - (13145*Sqrt[7]*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])]
)/4
```

Rubi in Sympy [A] time = 17.0358, size = 138, normalized size = 1.01

$$-\frac{10\left(-2x+1\right)^{\frac{7}{2}}}{33\left(3x+2\right)^{2}\left(5x+3\right)^{\frac{3}{2}}}+\frac{478\left(-2x+1\right)^{\frac{5}{2}}}{33\left(3x+2\right)^{2}\sqrt{5x+3}}+\frac{8365\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{66\left(3x+2\right)^{2}}+\frac{8365\sqrt{-2x+1}\sqrt{5x+3}}{4\left(3x+2\right)}-\frac{13145\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)**3/(3+5*x)**(5/2),x)
```

```
[Out] -10*(-2*x + 1)**(7/2)/(33*(3*x + 2)**2*(5*x + 3)**(3/2)) + 478*(-
2*x + 1)**(5/2)/(33*(3*x + 2)**2*sqrt(5*x + 3)) + 8365*(-2*x + 1)
**(3/2)*sqrt(5*x + 3)/(66*(3*x + 2)**2) + 8365*sqrt(-2*x + 1)*sqr
t(5*x + 3)/(4*(3*x + 2)) - 13145*sqrt(7)*atan(sqrt(7)*sqrt(-2*x +
 1)/(7*sqrt(5*x + 3)))/4
```

Mathematica [A] time = 0.0929637, size = 82, normalized size = 0.6

$$\frac{\sqrt{1-2x}\left(1809585x^3+3458634x^2+2200321x+465916\right)}{12(3x+2)^2(5x+3)^{3/2}}-\frac{13145}{8}\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)^3*(3 + 5*x)^(5/2)),x]
```

```
[Out] (Sqrt[1 - 2*x]*(465916 + 2200321*x + 3458634*x^2 + 1809585*x^3))/
(12*(2 + 3*x)^2*(3 + 5*x)^(3/2)) - (13145*Sqrt[7]*ArcTan[(-20 - 3
7*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/8
```

Maple [B] time = 0.022, size = 250, normalized size = 1.8

$$\frac{1}{24\,(2+3\,x)^2}\left(8872875\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^4+22477950\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^3+2133433$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)^3/(3+5*x)^(5/2),x)
```

```
[Out] 1/24*(8872875*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)
^(1/2))*x^4+22477950*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x
^2-x+3)^(1/2))*x^3+21334335*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)
/(-10*x^2-x+3)^(1/2))*x^2+3619170*x^3*(-10*x^2-x+3)^(1/2)+8991180
*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+691
7268*x^2*(-10*x^2-x+3)^(1/2)+1419660*7^(1/2)*arctan(1/14*(37*x+20
)*7^(1/2)/(-10*x^2-x+3)^(1/2))+4400642*x*(-10*x^2-x+3)^(1/2)+9318
32*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)/(2+3*x)^2/(-10*x^2-x+3)^(1/
2)/(3+5*x)^(3/2)
```

Maxima [A] time = 1.51186, size = 232, normalized size = 1.69

$$\frac{13145}{8}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)-\frac{40213\,x}{6\,\sqrt{-10\,x^2-x+3}}+\frac{69977}{20\,\sqrt{-10\,x^2-x+3}}+\frac{454757\,x}{270\,(-10\,x^2-x+3)^{\frac{3}{2}}}+\frac{2401}{162\left(9\,(-10\,x^2-x+3)^{\frac{3}{2}}x^2+12\,(-10\,x^2-x+3)^{\frac{3}{2}}x+4\,(-10\,x^2-x+3)^{\frac{3}{2}}\right)}+\frac{25039}{108\left(3\,(-10\,x^2-x+3)^{\frac{3}{2}}x+2\,(-10\,x^2-x+3)^{\frac{3}{2}}\right)}-\frac{1473541}{1620\,(-10\,x^2-x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^(5/2)*(3*x + 2)^3),x, algorithm="maxima")
```

```
[Out] 13145/8*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2))
 - 40213/6*x/sqrt(-10*x^2 - x + 3) + 69977/20/sqrt(-10*x^2 - x +
3) + 454757/270*x/(-10*x^2 - x + 3)^(3/2) + 2401/162/(9*(-10*x^2
- x + 3)^(3/2)*x^2 + 12*(-10*x^2 - x + 3)^(3/2)*x + 4*(-10*x^2 -
x + 3)^(3/2)) + 25039/108/(3*(-10*x^2 - x + 3)^(3/2)*x + 2*(-10*x
^2 - x + 3)^(3/2)) - 1473541/1620/(-10*x^2 - x + 3)^(3/2)
```

Fricas [A] time = 0.227032, size = 143, normalized size = 1.04

$$\frac{39435\,\sqrt{7}\left(225\,x^4+570\,x^3+541\,x^2+228\,x+36\right)\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)+2\left(1809585\,x^3+3458634\,x^2+2200321\,x+4659\right.}{24\,(225\,x^4+570\,x^3+541\,x^2+228\,x+36)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^(5/2)*(3*x + 2)^3),x, algorithm="fricas")
```

```
[Out] 1/24*(39435*sqrt(7)*(225*x^4 + 570*x^3 + 541*x^2 + 228*x + 36)*ar
ctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))) + 2
*(1809585*x^3 + 3458634*x^2 + 2200321*x + 465916)*sqrt(5*x + 3)*s
qrt(-2*x + 1))/(225*x^4 + 570*x^3 + 541*x^2 + 228*x + 36)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(5/2)/(2+3*x)**3/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.375035, size = 509, normalized size = 3.72

$$-\frac{11}{240}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3+\frac{2629}{16}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)+\frac{1133}{10}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)+\frac{77\left(437\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3+103880\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)\right)}{2\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(5/2)*(3*x + 2)^3),x, algorithm="giac")
```

```
[Out] -11/240*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x +
 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 2
629/16*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x
+ 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqrt
(2)*sqrt(-10*x + 5) - sqrt(22)))) + 1133/10*sqrt(10)*((sqrt(2)*sq
rt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2
)*sqrt(-10*x + 5) - sqrt(22))) + 77/2*(437*sqrt(10)*((sqrt(2)*sqr
t(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)
*sqrt(-10*x + 5) - sqrt(22)))^3 + 103880*sqrt(10)*((sqrt(2)*sqrt(
-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*s
qrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22
))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqr
t(22)))^2 + 280)^2
```

3.2438 $\int \frac{(1-2x)^{5/2}}{(2+3x)^4(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=166

$$\frac{7(1-2x)^{3/2}}{9(3x+2)^3(5x+3)^{3/2}}+\frac{1784635\sqrt{1-2x}}{72\sqrt{5x+3}}+\frac{7843\sqrt{1-2x}}{24(3x+2)(5x+3)^{3/2}}+\frac{77\sqrt{1-2x}}{4(3x+2)^2(5x+3)^{3/2}}-\frac{196735\sqrt{1-2x}}{72(5x+3)^{3/2}}-\frac{1361195\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{8\sqrt{7}}$$

```
[Out] (-196735*Sqrt[1 - 2*x])/(72*(3 + 5*x)^(3/2)) + (7*(1 - 2*x)^(3/2)
)/(9*(2 + 3*x)^3*(3 + 5*x)^(3/2)) + (77*Sqrt[1 - 2*x])/(4*(2 + 3*
x)^2*(3 + 5*x)^(3/2)) + (7843*Sqrt[1 - 2*x])/(24*(2 + 3*x)*(3 + 5
*x)^(3/2)) + (1784635*Sqrt[1 - 2*x])/(72*Sqrt[3 + 5*x]) - (136119
5*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(8*Sqrt[7])
```

Rubi [A] time = 0.38767, antiderivative size = 166, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 7, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.269

$$\frac{7(1-2x)^{3/2}}{9(3x+2)^3(5x+3)^{3/2}}+\frac{1784635\sqrt{1-2x}}{72\sqrt{5x+3}}+\frac{7843\sqrt{1-2x}}{24(3x+2)(5x+3)^{3/2}}+\frac{77\sqrt{1-2x}}{4(3x+2)^2(5x+3)^{3/2}}-\frac{196735\sqrt{1-2x}}{72(5x+3)^{3/2}}-\frac{1361195\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{8\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)^4*(3 + 5*x)^(5/2)),x]
```

```
[Out] (-196735*Sqrt[1 - 2*x])/(72*(3 + 5*x)^(3/2)) + (7*(1 - 2*x)^(3/2)
)/(9*(2 + 3*x)^3*(3 + 5*x)^(3/2)) + (77*Sqrt[1 - 2*x])/(4*(2 + 3*
x)^2*(3 + 5*x)^(3/2)) + (7843*Sqrt[1 - 2*x])/(24*(2 + 3*x)*(3 + 5
*x)^(3/2)) + (1784635*Sqrt[1 - 2*x])/(72*Sqrt[3 + 5*x]) - (136119
5*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(8*Sqrt[7])
```

Rubi in Sympy [A] time = 36.5509, size = 153, normalized size = 0.92

$$\frac{7\left(-2x+1\right)^{\frac{3}{2}}}{9\left(3x+2\right)^{3}\left(5x+3\right)^{\frac{3}{2}}}+\frac{1784635\sqrt{-2x+1}}{72\sqrt{5x+3}}-\frac{196735\sqrt{-2x+1}}{72\left(5x+3\right)^{\frac{3}{2}}}+\frac{7843\sqrt{-2x+1}}{24\left(3x+2\right)\left(5x+3\right)^{\frac{3}{2}}}+\frac{77\sqrt{-2x+1}}{4\left(3x+2\right)^{2}\left(5x+3\right)^{\frac{3}{2}}}-\frac{1361195\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{56}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)**4/(3+5*x)**(5/2),x)
```

```
[Out] 7*(-2*x + 1)**(3/2)/(9*(3*x + 2)**3*(5*x + 3)**(3/2)) + 1784635*s
qrt(-2*x + 1)/(72*sqrt(5*x + 3)) - 196735*sqrt(-2*x + 1)/(72*(5*x
 + 3)**(3/2)) + 7843*sqrt(-2*x + 1)/(24*(3*x + 2)*(5*x + 3)**(3/2
)) + 77*sqrt(-2*x + 1)/(4*(3*x + 2)**2*(5*x + 3)**(3/2)) - 136119
5*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/56
```

Mathematica [A] time = 0.116622, size = 87, normalized size = 0.52

$$\frac{\sqrt{1-2x}\left(80308575x^4+207031680x^3+199977747x^2+85776638x+13784768\right)}{24(3x+2)^3(5x+3)^{3/2}}-\frac{1361195\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{16\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)^4*(3 + 5*x)^(5/2)),x]
```

```
[Out] (Sqrt[1 - 2*x]*(13784768 + 85776638*x + 199977747*x^2 + 207031680
*x^3 + 80308575*x^4))/(24*(2 + 3*x)^3*(3 + 5*x)^(3/2)) - (1361195
*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/(16*Sqrt[
7])
```

Maple [B] time = 0.021, size = 298, normalized size = 1.8

$$\frac{1}{336\,(2+3\,x)^3}\left(2756419875\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^5+8820543600\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^4+11$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)^4/(3+5*x)^(5/2),x)
```

```
[Out] 1/336*(2756419875*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-
x+3)^(1/2))*x^5+8820543600*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/
(-10*x^2-x+3)^(1/2))*x^4+11282945355*7^(1/2)*arctan(1/14*(37*x+20
)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+1124320050*x^4*(-10*x^2-x+3)^(
1/2)+7211611110*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+
3)^(1/2))*x^2+2898443520*x^3*(-10*x^2-x+3)^(1/2)+2303141940*7^(1/
2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+279968845
8*x^2*(-10*x^2-x+3)^(1/2)+294018120*7^(1/2)*arctan(1/14*(37*x+20)
*7^(1/2)/(-10*x^2-x+3)^(1/2))+1200872932*x*(-10*x^2-x+3)^(1/2)+19
2986752*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)/(2+3*x)^3/(-10*x^2-x+3
)^(1/2)/(3+5*x)^(3/2)
```

Maxima [A] time = 1.4937, size = 324, normalized size = 1.95

$$\frac{1361195}{112}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)-\frac{1784635\,x}{36\,\sqrt{-10\,x^2-x+3}}+\frac{1863329}{72\,\sqrt{-10\,x^2-x+3}}+\frac{149501\,x}{12\,(-10\,x^2-x+3)^{\frac{3}{2}}}+\frac{2401}{243\left(27\,(-10\,x^2-x+3)^{\frac{3}{2}}x^3+54\,(-10\,x^2-x+3)^{\frac{3}{2}}x^2+36\,(-10\,x^2-x+3)^{\frac{3}{2}}x+8\,(-10\,x^2-x+3)^{\frac{3}{2}}\right)}+\frac{31213}{324\left(9\,(-10\,x^2-x+3)^{\frac{3}{2}}x^2+12\,(-10\,x^2-x+3)^{\frac{3}{2}}x+4\,(-10\,x^2-x+3)^{\frac{3}{2}}\right)}+\frac{1115681}{648\left(3\,(-10\,x^2-x+3)^{\frac{3}{2}}x+2\,(-10\,x^2-x+3)^{\frac{3}{2}}\right)}-\frac{13081615}{1944\,(-10\,x^2-x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^(5/2)*(3*x + 2)^4),x, algorithm="maxima")
```

```
[Out] 1361195/112*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x +
 2)) - 1784635/36*x/sqrt(-10*x^2 - x + 3) + 1863329/72/sqrt(-10*x
^2 - x + 3) + 149501/12*x/(-10*x^2 - x + 3)^(3/2) + 2401/243/(27*
```

```
(-10*x^2 - x + 3)^(3/2)*x^3 + 54*(-10*x^2 - x + 3)^(3/2)*x^2 + 36
*(-10*x^2 - x + 3)^(3/2)*x + 8*(-10*x^2 - x + 3)^(3/2)) + 31213/3
24/(9*(-10*x^2 - x + 3)^(3/2)*x^2 + 12*(-10*x^2 - x + 3)^(3/2)*x
+ 4*(-10*x^2 - x + 3)^(3/2)) + 1115681/648/(3*(-10*x^2 - x + 3)^(
3/2)*x + 2*(-10*x^2 - x + 3)^(3/2)) - 13081615/1944/(-10*x^2 - x
+ 3)^(3/2)
```

Fricas [A] time = 0.225174, size = 167, normalized size = 1.01

$$\frac{\sqrt{7}\left(2\sqrt{7}\left(80308575\,x^4 + 207031680\,x^3 + 199977747\,x^2 + 85776638\,x + 13784768\right)\sqrt{5\,x+3}\sqrt{-2\,x+1} + 4083585\left(675\,x^5 + 2\right.\right.}{336\left(675\,x^5 + 2160\,x^4 + 2763\,x^3 + 1766\,x^2 + 564\,x + 72\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(5/2)*(3*x + 2)^4),x, algorithm="fricas")
```

```
[Out] 1/336*sqrt(7)*(2*sqrt(7)*(80308575*x^4 + 207031680*x^3 + 19997774
7*x^2 + 85776638*x + 13784768)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 408
3585*(675*x^5 + 2160*x^4 + 2763*x^3 + 1766*x^2 + 564*x + 72)*arct
an(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(675
*x^5 + 2160*x^4 + 2763*x^3 + 1766*x^2 + 564*x + 72)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(5/2)/(2+3*x)**4/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.444853, size = 591, normalized size = 3.56

$$-\frac{11}{48}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}} - \frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^3 + \frac{272239}{224}\sqrt{70}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3} - 4\right)}{140\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right) + 748\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}} - \frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right) + \frac{11\left(63359\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}} - \frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^5 + 30251200\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}} - \frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^3 + 3730664000\sqrt{10}\right.}{4\left(\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}} - \frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^2 + 280\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(5/2)*(3*x + 2)^4),x, algorithm="giac")
```

```
[Out] -11/48*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x +
3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 27
2239/224*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*
```

```
x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sq
rt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 748*sqrt(10)*((sqrt(2)*sqrt
(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*
sqrt(-10*x + 5) - sqrt(22))) + 11/4*(63359*sqrt(10)*((sqrt(2)*sqr
t(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)
*sqrt(-10*x + 5) - sqrt(22)))^5 + 30251200*sqrt(10)*((sqrt(2)*sqr
t(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)
*sqrt(-10*x + 5) - sqrt(22)))^3 + 3730664000*sqrt(10)*((sqrt(2)*s
qrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(
2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) - sqr
t(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) -
 sqrt(22)))^2 + 280)^3
```

3.2439 $\int \frac{(1-2x)^{5/2}}{(2+3x)^5(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=195

$$\frac{7(1-2x)^{3/2}}{12(3x+2)^4(5x+3)^{3/2}}+\frac{227000875\sqrt{1-2x}}{1344\sqrt{5x+3}}+\frac{2992825\sqrt{1-2x}}{1344(3x+2)(5x+3)^{3/2}}+\frac{36817\sqrt{1-2x}}{288(3x+2)^2(5x+3)^{3/2}}+\frac{847\sqrt{1-2x}}{72(3x+2)^3(5x+3)^{3/2}}-\frac{25024175\sqrt{1-2x}}{1344(5x+3)^{3/2}}-\frac{519421265\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{448\sqrt{7}}$$

```
[Out] (-25024175*Sqrt[1 - 2*x])/(1344*(3 + 5*x)^(3/2)) + (7*(1 - 2*x)^(
3/2))/(12*(2 + 3*x)^4*(3 + 5*x)^(3/2)) + (847*Sqrt[1 - 2*x])/(72*
(2 + 3*x)^3*(3 + 5*x)^(3/2)) + (36817*Sqrt[1 - 2*x])/(288*(2 + 3*
x)^2*(3 + 5*x)^(3/2)) + (2992825*Sqrt[1 - 2*x])/(1344*(2 + 3*x)*(
3 + 5*x)^(3/2)) + (227000875*Sqrt[1 - 2*x])/(1344*Sqrt[3 + 5*x])
- (519421265*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(448*
Sqrt[7])
```

Rubi [A] time = 0.479682, antiderivative size = 195, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 7, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.269

$$\frac{7(1-2x)^{3/2}}{12(3x+2)^4(5x+3)^{3/2}}+\frac{227000875\sqrt{1-2x}}{1344\sqrt{5x+3}}+\frac{2992825\sqrt{1-2x}}{1344(3x+2)(5x+3)^{3/2}}+\frac{36817\sqrt{1-2x}}{288(3x+2)^2(5x+3)^{3/2}}+\frac{847\sqrt{1-2x}}{72(3x+2)^3(5x+3)^{3/2}}-\frac{25024175\sqrt{1-2x}}{1344(5x+3)^{3/2}}-\frac{519421265\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{448\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)^5*(3 + 5*x)^(5/2)),x]
```

```
[Out] (-25024175*Sqrt[1 - 2*x])/(1344*(3 + 5*x)^(3/2)) + (7*(1 - 2*x)^(
3/2))/(12*(2 + 3*x)^4*(3 + 5*x)^(3/2)) + (847*Sqrt[1 - 2*x])/(72*
(2 + 3*x)^3*(3 + 5*x)^(3/2)) + (36817*Sqrt[1 - 2*x])/(288*(2 + 3*
x)^2*(3 + 5*x)^(3/2)) + (2992825*Sqrt[1 - 2*x])/(1344*(2 + 3*x)*(
3 + 5*x)^(3/2)) + (227000875*Sqrt[1 - 2*x])/(1344*Sqrt[3 + 5*x])
- (519421265*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(448*
Sqrt[7])
```

Rubi in Sympy [A] time = 43.4552, size = 180, normalized size = 0.92

$$\frac{7\left(-2x+1\right)^{\frac{3}{2}}}{12\left(3x+2\right)^{4}\left(5x+3\right)^{\frac{3}{2}}}+\frac{227000875\sqrt{-2x+1}}{1344\sqrt{5x+3}}-\frac{25024175\sqrt{-2x+1}}{1344\left(5x+3\right)^{\frac{3}{2}}}+\frac{2992825\sqrt{-2x+1}}{1344\left(3x+2\right)\left(5x+3\right)^{\frac{3}{2}}}+\frac{36817\sqrt{-2x+1}}{288\left(3x+2\right)^{2}\left(5x+3\right)^{\frac{3}{2}}}+\frac{847\sqrt{-2x+1}}{72\left(3x+2\right)^{3}\left(5x+3\right)^{\frac{3}{2}}}-\frac{519421265\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{3136}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)**5/(3+5*x)**(5/2),x)
```

```
[Out] 7*(-2*x + 1)**(3/2)/(12*(3*x + 2)**4*(5*x + 3)**(3/2)) + 22700087
5*sqrt(-2*x + 1)/(1344*sqrt(5*x + 3)) - 25024175*sqrt(-2*x + 1)/(
1344*(5*x + 3)**(3/2)) + 2992825*sqrt(-2*x + 1)/(1344*(3*x + 2)*(
5*x + 3)**(3/2)) + 36817*sqrt(-2*x + 1)/(288*(3*x + 2)**2*(5*x +
3)**(3/2)) + 847*sqrt(-2*x + 1)/(72*(3*x + 2)**3*(5*x + 3)**(3/2)
) - 519421265*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3
)))/3136
```

Mathematica [A] time = 0.124333, size = 92, normalized size = 0.47

$$\frac{\sqrt{1-2x}\left(91935354375x^5+298295199450x^4+386933096475x^3+250814924064x^2+81243850516x+10520317456\right)}{1344(3x+2)^4(5x+3)^{3/2}} - \frac{519421265\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{896\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)^5*(3 + 5*x)^(5/2)),x]
```

```
[Out] (Sqrt[1 - 2*x]*(10520317456 + 81243850516*x + 250814924064*x^2 +
386933096475*x^3 + 298295199450*x^4 + 91935354375*x^5))/(1344*(2
+ 3*x)^4*(3 + 5*x)^(3/2)) - (519421265*ArcTan[(-20 - 37*x)/(2*Sqr
t[7 - 14*x]*Sqrt[3 + 5*x])])/(896*Sqrt[7])
```

Maple [B] time = 0.023, size = 346, normalized size = 1.8

$$\frac{1}{18816\,(2+3\,x)^4}\left(3155484184875\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^6+12201205514850\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)^5/(3+5*x)^(5/2),x)
```

```
[Out] 1/18816*(3155484184875*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10
*x^2-x+3)^(1/2))*x^6+12201205514850*7^(1/2)*arctan(1/14*(37*x+20)
*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^5+19648148191155*7^(1/2)*arctan(1
/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^4+1287094961250*x^5*
(-10*x^2-x+3)^(1/2)+16866647317080*7^(1/2)*arctan(1/14*(37*x+20)*
7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+4176132792300*x^4*(-10*x^2-x+3)^
(1/2)+8140370065080*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^
2-x+3)^(1/2))*x^2+5417063350650*x^3*(-10*x^2-x+3)^(1/2)+209430654
0480*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x
+3511408936896*x^2*(-10*x^2-x+3)^(1/2)+224389986480*7^(1/2)*arcta
n(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+1137413907224*x*(-1
0*x^2-x+3)^(1/2)+147284444384*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)/
(2+3*x)^4/(-10*x^2-x+3)^(1/2)/(3+5*x)^(3/2)
```

Maxima [A] time = 1.5182, size = 439, normalized size = 2.25

$$\frac{519421265}{6272}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right) - \frac{227000875\,x}{672\,\sqrt{-10\,x^2-x+3}} + \frac{79003515}{448\,\sqrt{-10\,x^2-x+3}} + \frac{24449315\,x}{288\,(-10\,x^2-x+3)^{\frac{3}{2}}}$$
$$+\frac{2401}{324\left(81\,(-10\,x^2-x+3)^{\frac{3}{2}}x^4+216\,(-10\,x^2-x+3)^{\frac{3}{2}}x^3+216\,(-10\,x^2-x+3)^{\frac{3}{2}}x^2+96\,(-10\,x^2-x+3)^{\frac{3}{2}}x+16\,(-10\,x^2-x\right.}$$
$$+\frac{37387}{648\left(27\,(-10\,x^2-x+3)^{\frac{3}{2}}x^3+54\,(-10\,x^2-x+3)^{\frac{3}{2}}x^2+36\,(-10\,x^2-x+3)^{\frac{3}{2}}x+8\,(-10\,x^2-x+3)^{\frac{3}{2}}\right)}$$
$$+\frac{571291}{864\left(9\,(-10\,x^2-x+3)^{\frac{3}{2}}x^2+12\,(-10\,x^2-x+3)^{\frac{3}{2}}x+4\,(-10\,x^2-x+3)^{\frac{3}{2}}\right)}$$
$$+\frac{60813781}{5184\left(3\,(-10\,x^2-x+3)^{\frac{3}{2}}x+2\,(-10\,x^2-x+3)^{\frac{3}{2}}\right)} - \frac{237706249}{5184\,(-10\,x^2-x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^(5/2)*(3*x + 2)^5),x, algorithm="maxima")
```

```
[Out] 519421265/6272*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*
x + 2)) - 227000875/672*x/sqrt(-10*x^2 - x + 3) + 79003515/448/sq
rt(-10*x^2 - x + 3) + 24449315/288*x/(-10*x^2 - x + 3)^(3/2) + 24
01/324/(81*(-10*x^2 - x + 3)^(3/2)*x^4 + 216*(-10*x^2 - x + 3)^(3
/2)*x^3 + 216*(-10*x^2 - x + 3)^(3/2)*x^2 + 96*(-10*x^2 - x + 3)^
(3/2)*x + 16*(-10*x^2 - x + 3)^(3/2)) + 37387/648/(27*(-10*x^2 -
x + 3)^(3/2)*x^3 + 54*(-10*x^2 - x + 3)^(3/2)*x^2 + 36*(-10*x^2 -
 x + 3)^(3/2)*x + 8*(-10*x^2 - x + 3)^(3/2)) + 571291/864/(9*(-10
*x^2 - x + 3)^(3/2)*x^2 + 12*(-10*x^2 - x + 3)^(3/2)*x + 4*(-10*x
^2 - x + 3)^(3/2)) + 60813781/5184/(3*(-10*x^2 - x + 3)^(3/2)*x +
 2*(-10*x^2 - x + 3)^(3/2)) - 237706249/5184/(-10*x^2 - x + 3)^(3
/2)
```

Fricas [A] time = 0.227094, size = 188, normalized size = 0.96

$$\frac{\sqrt{7}\left(2\sqrt{7}\left(91935354375\,x^{5}+298295199450\,x^{4}+386933096475\,x^{3}+250814924064\,x^{2}+81243850516\,x+10520317456\right)\sqrt{5\,x}\cdots\right.}{18816\left(2025\,x^{6}+7830\,x^{5}+12609\,x^{4}\cdots\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(5/2)*(3*x + 2)^5),x, algorithm="fricas")
```

```
[Out] 1/18816*sqrt(7)*(2*sqrt(7)*(91935354375*x^5 + 298295199450*x^4 +
386933096475*x^3 + 250814924064*x^2 + 81243850516*x + 10520317456
)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 1558263795*(2025*x^6 + 7830*x^5
+ 12609*x^4 + 10824*x^3 + 5224*x^2 + 1344*x + 144)*arctan(1/14*sq
rt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(2025*x^6 + 78
30*x^5 + 12609*x^4 + 10824*x^3 + 5224*x^2 + 1344*x + 144)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)/(2+3*x)**5/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.513274, size = 674, normalized size = 3.46

$$-\frac{55}{48}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^{3}$$
$$+\frac{103884253}{12544}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{2}}{5\,x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)$$
$$+\frac{9295}{2}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)$$
$$+\frac{55\left(6089929\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^{7}+4375094808\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^{5}+1081495934\cdots\right.}{224\left(\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}\cdots}\right.\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(5/2)*(3*x + 2)^5),x, algorithm="giac")
```

```
[Out] -55/48*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x +
3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 10
3884253/12544*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sq
rt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4
)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 9295/2*sqrt(10)*((sqrt
(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(
sqrt(2)*sqrt(-10*x + 5) - sqrt(22))) + 55/224*(6089929*sqrt(10)*(
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x +
 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^7 + 4375094808*sqrt(10)
*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x
 + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 + 1081495934400*sqr
t(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqr
t(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 909731052160
00*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) -
 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2
)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sq
rt(2)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)^4
```

3.2440 $\int \frac{(1-2x)^{5/2}}{(2+3x)^6(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=224

$$\frac{7(1-2x)^{3/2}}{15(3x+2)^5(5x+3)^{3/2}}+\frac{20529722435\sqrt{1-2x}}{18816\sqrt{5x+3}}+\frac{270667969\sqrt{1-2x}}{18816(3x+2)(5x+3)^{3/2}}+\frac{3329689\sqrt{1-2x}}{4032(3x+2)^2(5x+3)^{3/2}}+\frac{53009\sqrt{1-2x}}{720(3x+2)^3(5x+3)^{3/2}}+\frac{1001\sqrt{1-2x}}{120(3x+2)^4(5x+3)^{3/2}}-\frac{754386765\sqrt{1-2x}}{6272(5x+3)^{3/2}}-\frac{46975917593\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{6272\sqrt{7}}$$

```
[Out] (-754386765*Sqrt[1 - 2*x])/(6272*(3 + 5*x)^(3/2)) + (7*(1 - 2*x)^
(3/2))/(15*(2 + 3*x)^5*(3 + 5*x)^(3/2)) + (1001*Sqrt[1 - 2*x])/(1
20*(2 + 3*x)^4*(3 + 5*x)^(3/2)) + (53009*Sqrt[1 - 2*x])/(720*(2 +
 3*x)^3*(3 + 5*x)^(3/2)) + (3329689*Sqrt[1 - 2*x])/(4032*(2 + 3*x
)^2*(3 + 5*x)^(3/2)) + (270667969*Sqrt[1 - 2*x])/(18816*(2 + 3*x)
*(3 + 5*x)^(3/2)) + (20529722435*Sqrt[1 - 2*x])/(18816*Sqrt[3 + 5
*x]) - (46975917593*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])]
)/(6272*Sqrt[7])
```

Rubi [A] time = 0.556578, antiderivative size = 224, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 7, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.269$

$$\frac{7(1-2x)^{3/2}}{15(3x+2)^5(5x+3)^{3/2}}+\frac{20529722435\sqrt{1-2x}}{18816\sqrt{5x+3}}+\frac{270667969\sqrt{1-2x}}{18816(3x+2)(5x+3)^{3/2}}+\frac{3329689\sqrt{1-2x}}{4032(3x+2)^2(5x+3)^{3/2}}+\frac{53009\sqrt{1-2x}}{720(3x+2)^3(5x+3)^{3/2}}+\frac{1001\sqrt{1-2x}}{120(3x+2)^4(5x+3)^{3/2}}-\frac{754386765\sqrt{1-2x}}{6272(5x+3)^{3/2}}-\frac{46975917593\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{6272\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)^6*(3 + 5*x)^(5/2)),x]
```

```
[Out] (-754386765*Sqrt[1 - 2*x])/(6272*(3 + 5*x)^(3/2)) + (7*(1 - 2*x)^
(3/2))/(15*(2 + 3*x)^5*(3 + 5*x)^(3/2)) + (1001*Sqrt[1 - 2*x])/(1
20*(2 + 3*x)^4*(3 + 5*x)^(3/2)) + (53009*Sqrt[1 - 2*x])/(720*(2 +
 3*x)^3*(3 + 5*x)^(3/2)) + (3329689*Sqrt[1 - 2*x])/(4032*(2 + 3*x
)^2*(3 + 5*x)^(3/2)) + (270667969*Sqrt[1 - 2*x])/(18816*(2 + 3*x)
*(3 + 5*x)^(3/2)) + (20529722435*Sqrt[1 - 2*x])/(18816*Sqrt[3 + 5
*x]) - (46975917593*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])]
)/(6272*Sqrt[7])
```

Rubi in Sympy [A] time = 51.5714, size = 207, normalized size = 0.92

$$\frac{7\left(-2x+1\right)^{\frac{3}{2}}}{15\left(3x+2\right)^{5}\left(5x+3\right)^{\frac{3}{2}}}+\frac{20529722435\sqrt{-2x+1}}{18816\sqrt{5x+3}}-\frac{754386765\sqrt{-2x+1}}{6272\left(5x+3\right)^{\frac{3}{2}}}+\frac{270667969\sqrt{-2x+1}}{18816\left(3x+2\right)\left(5x+3\right)^{\frac{3}{2}}}+\frac{3329689\sqrt{-2x+1}}{4032\left(3x+2\right)^{2}\left(5x+3\right)^{\frac{3}{2}}}+\frac{53009\sqrt{-2x+1}}{720\left(3x+2\right)^{3}\left(5x+3\right)^{\frac{3}{2}}}+\frac{1001\sqrt{-2x+1}}{120\left(3x+2\right)^{4}\left(5x+3\right)^{\frac{3}{2}}}-\frac{46975917593\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{43904}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)**6/(3+5*x)**(5/2),x)
```

```
[Out] 7*(-2*x + 1)**(3/2)/(15*(3*x + 2)**5*(5*x + 3)**(3/2)) + 20529722
435*sqrt(-2*x + 1)/(18816*sqrt(5*x + 3)) - 754386765*sqrt(-2*x +
1)/(6272*(5*x + 3)**(3/2)) + 270667969*sqrt(-2*x + 1)/(18816*(3*x
 + 2)*(5*x + 3)**(3/2)) + 3329689*sqrt(-2*x + 1)/(4032*(3*x + 2)*
*2*(5*x + 3)**(3/2)) + 53009*sqrt(-2*x + 1)/(720*(3*x + 2)**3*(5*
x + 3)**(3/2)) + 1001*sqrt(-2*x + 1)/(120*(3*x + 2)**4*(5*x + 3)*
*(3/2)) - 46975917593*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt
(5*x + 3)))/43904
```

Mathematica [A] time = 0.163061, size = 133, normalized size = 0.59

$$\sqrt{1-2x}\sqrt{5x+3}\left(\frac{1672000}{15x+9}-\frac{30250}{3(5x+3)^2}+\frac{2008587687}{6272(3x+2)}+\frac{10921833}{448(3x+2)^2}+\frac{169629}{80(3x+2)^3}+\frac{6811}{40(3x+2)^4}+\frac{49}{5(3x+2)^5}\right)-\frac{46975917593\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{12544\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)^6*(3 + 5*x)^(5/2)),x]
```

```
[Out] Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(49/(5*(2 + 3*x)^5) + 6811/(40*(2 + 3
*x)^4) + 169629/(80*(2 + 3*x)^3) + 10921833/(448*(2 + 3*x)^2) + 2
008587687/(6272*(2 + 3*x)) - 30250/(3*(3 + 5*x)^2) + 1672000/(9 +
 15*x)) - (46975917593*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt
[3 + 5*x])])/(12544*Sqrt[7])
```

Maple [B] time = 0.028, size = 394, normalized size = 1.8

$$\frac{1}{1317120\,(2+3\,x)^5}\left(4280680490662125\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^7+19405751557668300\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)^6/(3+5*x)^(5/2),x)
```

```
[Out] 1/1317120*(4280680490662125*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)
/(-10*x^2-x+3)^(1/2))*x^7+19405751557668300*7^(1/2)*arctan(1/14*(
37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^6+37689013564451865*7^(1/
2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^5+1746052
893096750*x^6*(-10*x^2-x+3)^(1/2)+40650610289102550*7^(1/2)*arcta
n(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^4+682931168956260
0*x^5*(-10*x^2-x+3)^(1/2)+26297118668561400*7^(1/2)*arctan(1/14*(
37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+11125554365281230*x^4*(
-10*x^2-x+3)^(1/2)+10203169301199600*7^(1/2)*arctan(1/14*(37*x+20
)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+9662658051124260*x^3*(-10*x^2-
x+3)^(1/2)+2198472943352400*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)
/(-10*x^2-x+3)^(1/2))*x+4718679545989416*x^2*(-10*x^2-x+3)^(1/2)+
202935964001760*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+
3)^(1/2))+1228469050319504*x*(-10*x^2-x+3)^(1/2)+133202515888064*
(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)/(2+3*x)^5/(-10*x^2-x+3)^(1/2)/
(3+5*x)^(3/2)
```

Maxima [A] time = 1.53514, size = 576, normalized size = 2.57

$$\frac{46975917593}{87808}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)-\frac{20529722435\,x}{9408\,\sqrt{-10\,x^2-x+3}}+\frac{21434986553}{18816\,\sqrt{-10\,x^2-x+3}}+\frac{2211170555\,x}{4032\,(-10\,x^2-x+3)^{\frac{3}{2}}}+\frac{2401}{405\left(243\,(-10\,x^2-x+3)^{\frac{3}{2}}x^5+810\,(-10\,x^2-x+3)^{\frac{3}{2}}x^4+1080\,(-10\,x^2-x+3)^{\frac{3}{2}}x^3+720\,(-10\,x^2-x+3)^{\frac{3}{2}}x^2+240\,(-10\,x\right.}+\frac{43561}{1080\left(81\,(-10\,x^2-x+3)^{\frac{3}{2}}x^4+216\,(-10\,x^2-x+3)^{\frac{3}{2}}x^3+216\,(-10\,x^2-x+3)^{\frac{3}{2}}x^2+96\,(-10\,x^2-x+3)^{\frac{3}{2}}x+16\,(-10\,x^2-\right.}+\frac{2438681}{6480\left(27\,(-10\,x^2-x+3)^{\frac{3}{2}}x^3+54\,(-10\,x^2-x+3)^{\frac{3}{2}}x^2+36\,(-10\,x^2-x+3)^{\frac{3}{2}}x+8\,(-10\,x^2-x+3)^{\frac{3}{2}}\right)}+\frac{110694619}{25920\left(9\,(-10\,x^2-x+3)^{\frac{3}{2}}x^2+12\,(-10\,x^2-x+3)^{\frac{3}{2}}x+4\,(-10\,x^2-x+3)^{\frac{3}{2}}\right)}+\frac{1309509421}{17280\left(3\,(-10\,x^2-x+3)^{\frac{3}{2}}x+2\,(-10\,x^2-x+3)^{\frac{3}{2}}\right)}-\frac{21497905297}{72576\,(-10\,x^2-x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(5/2)*(3*x + 2)^6),x, algorithm="maxima")
```

```
[Out] 46975917593/87808*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs
(3*x + 2)) - 20529722435/9408*x/sqrt(-10*x^2 - x + 3) + 214349865
53/18816/sqrt(-10*x^2 - x + 3) + 2211170555/4032*x/(-10*x^2 - x +
 3)^(3/2) + 2401/405/(243*(-10*x^2 - x + 3)^(3/2)*x^5 + 810*(-10*
x^2 - x + 3)^(3/2)*x^4 + 1080*(-10*x^2 - x + 3)^(3/2)*x^3 + 720*(
-10*x^2 - x + 3)^(3/2)*x^2 + 240*(-10*x^2 - x + 3)^(3/2)*x + 32*(
-10*x^2 - x + 3)^(3/2)) + 43561/1080/(81*(-10*x^2 - x + 3)^(3/2)*
x^4 + 216*(-10*x^2 - x + 3)^(3/2)*x^3 + 216*(-10*x^2 - x + 3)^(3/
2)*x^2 + 96*(-10*x^2 - x + 3)^(3/2)*x + 16*(-10*x^2 - x + 3)^(3/2
)) + 2438681/6480/(27*(-10*x^2 - x + 3)^(3/2)*x^3 + 54*(-10*x^2 -
 x + 3)^(3/2)*x^2 + 36*(-10*x^2 - x + 3)^(3/2)*x + 8*(-10*x^2 - x
 + 3)^(3/2)) + 110694619/25920/(9*(-10*x^2 - x + 3)^(3/2)*x^2 + 1
2*(-10*x^2 - x + 3)^(3/2)*x + 4*(-10*x^2 - x + 3)^(3/2)) + 130950
9421/17280/(3*(-10*x^2 - x + 3)^(3/2)*x + 2*(-10*x^2 - x + 3)^(3/
2)) - 21497905297/72576/(-10*x^2 - x + 3)^(3/2)
```

Fricas [A] time = 0.227324, size = 208, normalized size = 0.93

$$\frac{\sqrt{7}\left(2\,\sqrt{7}\left(124718063792625\,x^6+487807977825900\,x^5+794682454662945\,x^4+690189860794590\,x^3+337048538999244\,x^2\right.\right.}{1317120\,(6075}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(5/2)*(3*x + 2)^6),x, algorithm="fricas")
```

```
[Out] 1/1317120*sqrt(7)*(2*sqrt(7)*(124718063792625*x^6 + 4878079778259
00*x^5 + 794682454662945*x^4 + 690189860794590*x^3 + 337048538999
244*x^2 + 87747789308536*x + 9514465420576)*sqrt(5*x + 3)*sqrt(-2
*x + 1) + 704638763895*(6075*x^7 + 27540*x^6 + 53487*x^5 + 57690*
x^4 + 37320*x^3 + 14480*x^2 + 3120*x + 288)*arctan(1/14*sqrt(7)*(
37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(6075*x^7 + 27540*x^6
 + 53487*x^5 + 57690*x^4 + 37320*x^3 + 14480*x^2 + 3120*x + 288)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)/(2+3*x)**6/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.632461, size = 756, normalized size = 3.38

$$-\frac{275}{48}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3 + \frac{46975917593}{878080}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right) + 27775\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right) + \frac{11\left(3277500437\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^9+3147123544880\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^7+1168\cdots\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(5/2)*(3*x + 2)^6),x, algorithm="giac")
```

```
[Out] -275/48*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x +
 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 4
6975917593/878080*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70
)*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3)
 - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 27775*sqrt(10)*((s
qrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3
)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))) + 11/3136*(3277500437*sqr
t(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqr
t(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^9 + 314712354488
0*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) -
4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^7 + 1168996
576419840*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x
 + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 +
 196941720284288000*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22)
)/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt
(22)))^3 + 12621260024737280000*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5
) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x
 + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5
*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^2
 + 280)^5
```

3.2441 $\int \frac{(2+3x)^4\sqrt{3+5x}}{\sqrt{1-2x}}\,dx$

Optimal. Leaf size=135

$$-\frac{3}{50}\sqrt{1-2x}(5x+3)^{3/2}(3x+2)^3-\frac{987\sqrt{1-2x}(5x+3)^{3/2}(3x+2)^2}{4000}-\frac{21\sqrt{1-2x}(5x+3)^{3/2}(92040x+194923)}{640000}-\frac{97032047\sqrt{1-2x}\sqrt{5x+3}}{2560000}+\frac{1067352517\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{2560000\sqrt{10}}$$

```
[Out] (-97032047*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/2560000 - (987*Sqrt[1 - 2
*x]*(2 + 3*x)^2*(3 + 5*x)^(3/2))/4000 - (3*Sqrt[1 - 2*x]*(2 + 3*x
)^3*(3 + 5*x)^(3/2))/50 - (21*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)*(1949
23 + 92040*x))/640000 + (1067352517*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*
x]])/(2560000*Sqrt[10])
```

Rubi [A] time = 0.201474, antiderivative size = 135, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$-\frac{3}{50}\sqrt{1-2x}(5x+3)^{3/2}(3x+2)^3-\frac{987\sqrt{1-2x}(5x+3)^{3/2}(3x+2)^2}{4000}-\frac{21\sqrt{1-2x}(5x+3)^{3/2}(92040x+194923)}{640000}-\frac{97032047\sqrt{1-2x}\sqrt{5x+3}}{2560000}+\frac{1067352517\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{2560000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^4*Sqrt[3 + 5*x])/Sqrt[1 - 2*x],x]
```

```
[Out] (-97032047*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/2560000 - (987*Sqrt[1 - 2
*x]*(2 + 3*x)^2*(3 + 5*x)^(3/2))/4000 - (3*Sqrt[1 - 2*x]*(2 + 3*x
)^3*(3 + 5*x)^(3/2))/50 - (21*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)*(1949
23 + 92040*x))/640000 + (1067352517*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*
x]])/(2560000*Sqrt[10])
```

Rubi in Sympy [A] time = 20.9834, size = 124, normalized size = 0.92

$$-\frac{3\sqrt{-2x+1}\,(3x+2)^3\,(5x+3)^{\frac{3}{2}}}{50}-\frac{987\sqrt{-2x+1}\,(3x+2)^2\,(5x+3)^{\frac{3}{2}}}{4000}-\frac{\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}\left(3624075x+\frac{61400745}{8}\right)}{1200000}-\frac{97032047\sqrt{-2x+1}\sqrt{5x+3}}{2560000}+\frac{1067352517\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{25600000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4*(3+5*x)**(1/2)/(1-2*x)**(1/2),x)
```

```
[Out] -3*sqrt(-2*x + 1)*(3*x + 2)**3*(5*x + 3)**(3/2)/50 - 987*sqrt(-2*
x + 1)*(3*x + 2)**2*(5*x + 3)**(3/2)/4000 - sqrt(-2*x + 1)*(5*x +
 3)**(3/2)*(3624075*x + 61400745/8)/1200000 - 97032047*sqrt(-2*x
+ 1)*sqrt(5*x + 3)/2560000 + 1067352517*sqrt(10)*asin(sqrt(22)*sq
rt(5*x + 3)/11)/25600000
```

Mathematica [A] time = 0.12566, size = 70, normalized size = 0.52

$$\frac{-10\sqrt{1-2x}\sqrt{5x+3}\left(20736000x^4+82339200x^3+146144160x^2+163168620x+157419203\right)-1067352517\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\right.}{25600000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^4*Sqrt[3 + 5*x])/Sqrt[1 - 2*x],x]
```

```
[Out] (-10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(157419203 + 163168620*x + 14614
4160*x^2 + 82339200*x^3 + 20736000*x^4) - 1067352517*Sqrt[10]*Arc
Sin[Sqrt[5/11]*Sqrt[1 - 2*x]])/25600000
```

Maple [A] time = 0.017, size = 121, normalized size = 0.9

$$\frac{1}{51200000}\sqrt{1-2x}\sqrt{3+5x}\left(-414720000x^4\sqrt{-10x^2-x+3}-1646784000x^3\sqrt{-10x^2-x+3}-2922883200x^2\sqrt{-10x^2-\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4*(3+5*x)^(1/2)/(1-2*x)^(1/2),x)
```

```
[Out] 1/51200000*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(-414720000*x^4*(-10*x^2-x
+3)^(1/2)-1646784000*x^3*(-10*x^2-x+3)^(1/2)-2922883200*x^2*(-10*
x^2-x+3)^(1/2)+1067352517*10^(1/2)*arcsin(20/11*x+1/11)-326337240
0*x*(-10*x^2-x+3)^(1/2)-3148384060*(-10*x^2-x+3)^(1/2))/(-10*x^2-
x+3)^(1/2)
```

Maxima [A] time = 1.5029, size = 122, normalized size = 0.9

$$\frac{81}{100}\left(-10x^2-x+3\right)^{\frac{3}{2}}x^2+\frac{25083}{8000}\left(-10x^2-x+3\right)^{\frac{3}{2}}x+\frac{1067352517}{51200000}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)$$
$$+\frac{180423}{32000}\left(-10x^2-x+3\right)^{\frac{3}{2}}-\frac{8640723}{128000}\sqrt{-10x^2-x+3}x-\frac{200720723}{2560000}\sqrt{-10x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^4/sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] 81/100*(-10*x^2 - x + 3)^(3/2)*x^2 + 25083/8000*(-10*x^2 - x + 3)
^(3/2)*x + 1067352517/51200000*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1
/11) + 180423/32000*(-10*x^2 - x + 3)^(3/2) - 8640723/128000*sqrt
(-10*x^2 - x + 3)*x - 200720723/2560000*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.222856, size = 97, normalized size = 0.72

$$-\frac{1}{51200000}\sqrt{10}\left(2\sqrt{10}\left(20736000x^4+82339200x^3+146144160x^2+163168620x+157419203\right)\sqrt{5x+3}\sqrt{-2x+1}-1067\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^4/sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] -1/51200000*sqrt(10)*(2*sqrt(10)*(20736000*x^4 + 82339200*x^3 + 1
46144160*x^2 + 163168620*x + 157419203)*sqrt(5*x + 3)*sqrt(-2*x +
```

```
 1) - 1067352517*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*s
qrt(-2*x + 1))))
```

Sympy [A] time = 22.8166, size = 665, normalized size = 4.93

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4*(3+5*x)**(1/2)/(1-2*x)**(1/2),x)
```

```
[Out] 2*sqrt(5)*Piecewise((11*sqrt(2)*(-sqrt(2)*sqrt(-10*x + 5)*sqrt(5*
x + 3)/22 + asin(sqrt(22)*sqrt(5*x + 3)/11)/2)/4, (x >= -3/5) & (
x < 1/2)))/3125 + 24*sqrt(5)*Piecewise((121*sqrt(2)*(sqrt(2)*(-20
*x - 1)*sqrt(-10*x + 5)*sqrt(5*x + 3)/968 - sqrt(2)*sqrt(-10*x +
5)*sqrt(5*x + 3)/22 + 3*asin(sqrt(22)*sqrt(5*x + 3)/11)/8)/8, (x
>= -3/5) & (x < 1/2)))/3125 + 108*sqrt(5)*Piecewise((1331*sqrt(2)
*(3*sqrt(2)*(-20*x - 1)*sqrt(-10*x + 5)*sqrt(5*x + 3)/1936 + sqrt
(2)*(-10*x + 5)**(3/2)*(5*x + 3)**(3/2)/3993 - sqrt(2)*sqrt(-10*x
 + 5)*sqrt(5*x + 3)/22 + 5*asin(sqrt(22)*sqrt(5*x + 3)/11)/16)/16
, (x >= -3/5) & (x < 1/2)))/3125 + 216*sqrt(5)*Piecewise((14641*s
qrt(2)*(7*sqrt(2)*(-20*x - 1)*sqrt(-10*x + 5)*sqrt(5*x + 3)/3872
+ 2*sqrt(2)*(-10*x + 5)**(3/2)*(5*x + 3)**(3/2)/3993 + sqrt(2)*sq
rt(-10*x + 5)*sqrt(5*x + 3)*(-12100*x - 128*(5*x + 3)**3 + 1056*(
5*x + 3)**2 - 5929)/1874048 - sqrt(2)*sqrt(-10*x + 5)*sqrt(5*x +
3)/22 + 35*asin(sqrt(22)*sqrt(5*x + 3)/11)/128)/32, (x >= -3/5) &
 (x < 1/2)))/3125 + 162*sqrt(5)*Piecewise((161051*sqrt(2)*(15*sqr
t(2)*(-20*x - 1)*sqrt(-10*x + 5)*sqrt(5*x + 3)/7744 - 2*sqrt(2)*(
-10*x + 5)**(5/2)*(5*x + 3)**(5/2)/805255 + sqrt(2)*(-10*x + 5)**
(3/2)*(5*x + 3)**(3/2)/1331 + 5*sqrt(2)*sqrt(-10*x + 5)*sqrt(5*x
+ 3)*(-12100*x - 128*(5*x + 3)**3 + 1056*(5*x + 3)**2 - 5929)/374
8096 - sqrt(2)*sqrt(-10*x + 5)*sqrt(5*x + 3)/22 + 63*asin(sqrt(22
)*sqrt(5*x + 3)/11)/256)/64, (x >= -3/5) & (x < 1/2)))/3125
```

GIAC/XCAS [A] time = 0.232899, size = 97, normalized size = 0.72

$$-\frac{1}{128000000}\sqrt{5}\left(2\,(12\,(24\,(12\,(240\,x+521)(5\,x+3)+29669)(5\,x+3)+4900505)(5\,x+3)+485160235)\sqrt{5\,x+3}\sqrt{-10\,x+5}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^4/sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] -1/128000000*sqrt(5)*(2*(12*(24*(12*(240*x + 521)*(5*x + 3) + 296
69)*(5*x + 3) + 4900505)*(5*x + 3) + 485160235)*sqrt(5*x + 3)*sqr
t(-10*x + 5) - 5336762585*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x +
 3)))
```

3.2442 $\int \frac{(2+3x)^3\sqrt{3+5x}}{\sqrt{1-2x}}\,dx$

Optimal. Leaf size=106

$$-\frac{3}{40}\sqrt{1-2x}(5x+3)^{3/2}(3x+2)^2-\frac{3\sqrt{1-2x}(5x+3)^{3/2}(408x+865)}{1280}-\frac{61547\sqrt{1-2x}\sqrt{5x+3}}{5120}+\frac{677017\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{5120\sqrt{10}}$$

```
[Out] (-61547*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/5120 - (3*Sqrt[1 - 2*x]*(2 +
 3*x)^2*(3 + 5*x)^(3/2))/40 - (3*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)*(8
65 + 408*x))/1280 + (677017*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(51
20*Sqrt[10])
```

Rubi [A] time = 0.136643, antiderivative size = 106, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$-\frac{3}{40}\sqrt{1-2x}(5x+3)^{3/2}(3x+2)^2-\frac{3\sqrt{1-2x}(5x+3)^{3/2}(408x+865)}{1280}-\frac{61547\sqrt{1-2x}\sqrt{5x+3}}{5120}+\frac{677017\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{5120\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^3*Sqrt[3 + 5*x])/Sqrt[1 - 2*x],x]
```

```
[Out] (-61547*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/5120 - (3*Sqrt[1 - 2*x]*(2 +
 3*x)^2*(3 + 5*x)^(3/2))/40 - (3*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)*(8
65 + 408*x))/1280 + (677017*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(51
20*Sqrt[10])
```

Rubi in Sympy [A] time = 13.3589, size = 97, normalized size = 0.92

$$-\frac{3\sqrt{-2x+1}\,(3x+2)^2\,(5x+3)^{\frac{3}{2}}}{40}-\frac{\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}\left(22950x+\frac{194625}{4}\right)}{24000}-\frac{61547\sqrt{-2x+1}\sqrt{5x+3}}{5120}+\frac{677017\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{51200}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3*(3+5*x)**(1/2)/(1-2*x)**(1/2),x)
```

```
[Out] -3*sqrt(-2*x + 1)*(3*x + 2)**2*(5*x + 3)**(3/2)/40 - sqrt(-2*x +
1)*(5*x + 3)**(3/2)*(22950*x + 194625/4)/24000 - 61547*sqrt(-2*x
+ 1)*sqrt(5*x + 3)/5120 + 677017*sqrt(10)*asin(sqrt(22)*sqrt(5*x
+ 3)/11)/51200
```

Mathematica [A] time = 0.092676, size = 65, normalized size = 0.61

$$\frac{-10\sqrt{1-2x}\sqrt{5x+3}\left(17280x^3+57888x^2+88092x+97295\right)-677017\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{51200}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^3*Sqrt[3 + 5*x])/Sqrt[1 - 2*x],x]
```

```
[Out] (-10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(97295 + 88092*x + 57888*x^2 + 1
7280*x^3) - 677017*Sqrt[10]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/512
00
```

Maple [A] time = 0.019, size = 104, normalized size = 1.

$$\frac{1}{102400}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(-345600\,x^3\sqrt{-10\,x^2-x+3}-1157760\,x^2\sqrt{-10\,x^2-x+3}+677017\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)-\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3*(3+5*x)^(1/2)/(1-2*x)^(1/2),x)
```

```
[Out] 1/102400*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(-345600*x^3*(-10*x^2-x+3)^(
1/2)-1157760*x^2*(-10*x^2-x+3)^(1/2)+677017*10^(1/2)*arcsin(20/11
*x+1/11)-1761840*x*(-10*x^2-x+3)^(1/2)-1945900*(-10*x^2-x+3)^(1/2
))/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.51126, size = 99, normalized size = 0.93

$$\frac{27}{80}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x+\frac{677017}{102400}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}\,x+\frac{1}{11}\right)$$
$$+\frac{351}{320}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}-\frac{4383}{256}\sqrt{-10\,x^2-x+3}x-\frac{114143}{5120}\sqrt{-10\,x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^3/sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] 27/80*(-10*x^2 - x + 3)^(3/2)*x + 677017/102400*sqrt(5)*sqrt(2)*a
rcsin(20/11*x + 1/11) + 351/320*(-10*x^2 - x + 3)^(3/2) - 4383/25
6*sqrt(-10*x^2 - x + 3)*x - 114143/5120*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.218087, size = 90, normalized size = 0.85

$$-\frac{1}{102400}\sqrt{10}\left(2\sqrt{10}\left(17280\,x^3+57888\,x^2+88092\,x+97295\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-677017\,\arctan\left(\frac{\sqrt{10}(20\,x+1)}{20\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^3/sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] -1/102400*sqrt(10)*(2*sqrt(10)*(17280*x^3 + 57888*x^2 + 88092*x +
 97295)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 677017*arctan(1/20*sqrt(10
)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [A] time = 15.3609, size = 466, normalized size = 4.4

$$\frac{2\sqrt{5}\left(\begin{cases}\frac{11\sqrt{2}\left(-\frac{\sqrt{2}\sqrt{-10x+5}\sqrt{5x+3}}{22}+\frac{\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{2}\right)}{4} & \text{for}\ x\geq-\frac{3}{5}\wedge x<\frac{1}{2}\end{cases}\right)}{625}+\frac{18\sqrt{5}\left(\begin{cases}\frac{121\sqrt{2}\left(\frac{\sqrt{2}(-20x-1)\sqrt{-10x+5}\sqrt{5x+3}}{968}-\frac{\sqrt{2}\sqrt{-10x+5}\sqrt{5x+3}}{22}+\frac{3\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{8}\right)}{8} & \text{for}\ x\geq-\frac{3}{5}\wedge x<\frac{1}{2}\end{cases}\right)}{625}+\frac{54\sqrt{5}\left(\begin{cases}\frac{1331\sqrt{2}\left(\frac{3\sqrt{2}(-20x-1)\sqrt{-10x+5}\sqrt{5x+3}}{1936}+\frac{\sqrt{2}(-10x+5)^{\frac{3}{2}}(5x+3)^{\frac{3}{2}}}{3993}-\frac{\sqrt{2}\sqrt{-10x+5}\sqrt{5x+3}}{22}+\frac{5\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{16}\right)}{16} & \text{for}\ x\geq-\frac{3}{5}\wedge x<\frac{1}{2}\end{cases}\right)}{625}+\frac{54\sqrt{5}\left(\begin{cases}\frac{14641\sqrt{2}\left(\frac{7\sqrt{2}(-20x-1)\sqrt{-10x+5}\sqrt{5x+3}}{3872}+\frac{2\sqrt{2}(-10x+5)^{\frac{3}{2}}(5x+3)^{\frac{3}{2}}}{3993}+\frac{\sqrt{2}\sqrt{-10x+5}\sqrt{5x+3}\left(-12100x-128(5x+3)^{3}+1056(5x+3)^{2}-5929\right)}{1874048}-\frac{\sqrt{2}\sqrt{-10x+5}\sqrt{5x+3}}{22}+\frac{35\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{128}\right)}{32} & \end{cases}\right)}{625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3*(3+5*x)**(1/2)/(1-2*x)**(1/2),x)
```

```
[Out] 2*sqrt(5)*Piecewise((11*sqrt(2)*(-sqrt(2)*sqrt(-10*x + 5)*sqrt(5*
x + 3)/22 + asin(sqrt(22)*sqrt(5*x + 3)/11)/2)/4, (x >= -3/5) & (
x < 1/2)))/625 + 18*sqrt(5)*Piecewise((121*sqrt(2)*(sqrt(2)*(-20*
x - 1)*sqrt(-10*x + 5)*sqrt(5*x + 3)/968 - sqrt(2)*sqrt(-10*x + 5
)*sqrt(5*x + 3)/22 + 3*asin(sqrt(22)*sqrt(5*x + 3)/11)/8)/8, (x >
= -3/5) & (x < 1/2)))/625 + 54*sqrt(5)*Piecewise((1331*sqrt(2)*(3
*sqrt(2)*(-20*x - 1)*sqrt(-10*x + 5)*sqrt(5*x + 3)/1936 + sqrt(2)
*(-10*x + 5)**(3/2)*(5*x + 3)**(3/2)/3993 - sqrt(2)*sqrt(-10*x +
5)*sqrt(5*x + 3)/22 + 5*asin(sqrt(22)*sqrt(5*x + 3)/11)/16)/16, (
x >= -3/5) & (x < 1/2)))/625 + 54*sqrt(5)*Piecewise((14641*sqrt(2
)*(7*sqrt(2)*(-20*x - 1)*sqrt(-10*x + 5)*sqrt(5*x + 3)/3872 + 2*s
qrt(2)*(-10*x + 5)**(3/2)*(5*x + 3)**(3/2)/3993 + sqrt(2)*sqrt(-1
0*x + 5)*sqrt(5*x + 3)*(-12100*x - 128*(5*x + 3)**3 + 1056*(5*x +
 3)**2 - 5929)/1874048 - sqrt(2)*sqrt(-10*x + 5)*sqrt(5*x + 3)/22
 + 35*asin(sqrt(22)*sqrt(5*x + 3)/11)/128)/32, (x >= -3/5) & (x <
 1/2)))/625
```

GIAC/XCAS [A] time = 0.231878, size = 85, normalized size = 0.8

$$-\frac{1}{1280000}\sqrt{5}\left(2\,(36\,(24\,(20\,x+43)(5\,x+3)+5179)(5\,x+3)+1538675)\sqrt{5\,x+3}\sqrt{-10\,x+5}-16925425\,\sqrt{2}\arcsin\left(\frac{1}{11}\,\sqrt{22}\sqrt{5\,x+3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^3/sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] -1/1280000*sqrt(5)*(2*(36*(24*(20*x + 43)*(5*x + 3) + 5179)*(5*x
+ 3) + 1538675)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 16925425*sqrt(2)*
arcsin(1/11*sqrt(22)*sqrt(5*x + 3)))
```

3.2443 $\int \frac{(2+3x)^2\sqrt{3+5x}}{\sqrt{1-2x}}\,dx$

Optimal. Leaf size=99

$$-\frac{1}{10}\sqrt{1-2x}(3x+2)(5x+3)^{3/2}-\frac{181}{400}\sqrt{1-2x}(5x+3)^{3/2}-\frac{6269\sqrt{1-2x}\sqrt{5x+3}}{1600}+\frac{68959\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{1600\sqrt{10}}$$

```
[Out] (-6269*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/1600 - (181*Sqrt[1 - 2*x]*(3
+ 5*x)^(3/2))/400 - (Sqrt[1 - 2*x]*(2 + 3*x)*(3 + 5*x)^(3/2))/10
+ (68959*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(1600*Sqrt[10])
```

Rubi [A] time = 0.114035, antiderivative size = 99, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$-\frac{1}{10}\sqrt{1-2x}(3x+2)(5x+3)^{3/2}-\frac{181}{400}\sqrt{1-2x}(5x+3)^{3/2}-\frac{6269\sqrt{1-2x}\sqrt{5x+3}}{1600}+\frac{68959\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{1600\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^2*Sqrt[3 + 5*x])/Sqrt[1 - 2*x],x]
```

```
[Out] (-6269*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/1600 - (181*Sqrt[1 - 2*x]*(3
+ 5*x)^(3/2))/400 - (Sqrt[1 - 2*x]*(2 + 3*x)*(3 + 5*x)^(3/2))/10
+ (68959*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(1600*Sqrt[10])
```

Rubi in Sympy [A] time = 9.47344, size = 88, normalized size = 0.89

$$-\frac{\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}\,(9x+6)}{30}-\frac{181\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{400}-\frac{6269\sqrt{-2x+1}\sqrt{5x+3}}{1600}+\frac{68959\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{16000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2*(3+5*x)**(1/2)/(1-2*x)**(1/2),x)
```

```
[Out] -sqrt(-2*x + 1)*(5*x + 3)**(3/2)*(9*x + 6)/30 - 181*sqrt(-2*x + 1
)*(5*x + 3)**(3/2)/400 - 6269*sqrt(-2*x + 1)*sqrt(5*x + 3)/1600 +
 68959*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/16000
```

Mathematica [A] time = 0.0807525, size = 60, normalized size = 0.61

$$\frac{-10\sqrt{1-2x}\sqrt{5x+3}\left(2400x^2+6660x+9401\right)-68959\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{16000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^2*Sqrt[3 + 5*x])/Sqrt[1 - 2*x],x]
```

```
[Out] (-10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(9401 + 6660*x + 2400*x^2) - 689
59*Sqrt[10]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/16000
```

Maple [A] time = 0.015, size = 87, normalized size = 0.9

$$\frac{1}{32000}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(-48000\,x^{2}\sqrt{-10\,x^{2}-x+3}+68959\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)-133200\,x\sqrt{-10\,x^{2}-x+3}-18802$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((2+3*x)^2*(3+5*x)^(1/2)/(1-2*x)^(1/2),x)
```

```
[Out] 1/32000*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(-48000*x^2*(-10*x^2-x+3)^(1/
2)+68959*10^(1/2)*arcsin(20/11*x+1/11)-133200*x*(-10*x^2-x+3)^(1/
2)-188020*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.50221, size = 78, normalized size = 0.79

$$\frac{68959}{32000}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}\,x+\frac{1}{11}\right)+\frac{3}{20}\left(-10\,x^{2}-x+3\right)^{\frac{3}{2}}-\frac{321}{80}\sqrt{-10\,x^{2}-x+3}x-\frac{10121}{1600}\sqrt{-10\,x^{2}-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(3*x + 2)^2/sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] 68959/32000*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) + 3/20*(-10*x^
2 - x + 3)^(3/2) - 321/80*sqrt(-10*x^2 - x + 3)*x - 10121/1600*sq
rt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.213823, size = 84, normalized size = 0.85

$$-\frac{1}{32000}\sqrt{10}\left(2\sqrt{10}\left(2400\,x^{2}+6660\,x+9401\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-68959\,\arctan\left(\frac{\sqrt{10}(20\,x+1)}{20\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(3*x + 2)^2/sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] -1/32000*sqrt(10)*(2*sqrt(10)*(2400*x^2 + 6660*x + 9401)*sqrt(5*x
 + 3)*sqrt(-2*x + 1) - 68959*arctan(1/20*sqrt(10)*(20*x + 1)/(sqr
t(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [A] time = 10.8309, size = 292, normalized size = 2.95

$$\frac{2\sqrt{5}\left(\begin{cases}\frac{11\sqrt{2}\left(-\frac{\sqrt{2}\sqrt{-10x+5}\sqrt{5x+3}}{22}+\frac{\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{2}\right)}{4} & \text{for}\ x\geq-\frac{3}{5}\wedge x<\frac{1}{2}\end{cases}\right)}{125}+\frac{12\sqrt{5}\left(\begin{cases}\frac{121\sqrt{2}\left(\frac{\sqrt{2}(-20x-1)\sqrt{-10x+5}\sqrt{5x+3}}{968}-\frac{\sqrt{2}\sqrt{-10x+5}\sqrt{5x+3}}{22}+\frac{3\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{8}\right)}{8} & \text{for}\ x\geq-\frac{3}{5}\wedge x<\frac{1}{2}\end{cases}\right)}{125}+\frac{18\sqrt{5}\left(\begin{cases}\frac{1331\sqrt{2}\left(\frac{3\sqrt{2}(-20x-1)\sqrt{-10x+5}\sqrt{5x+3}}{1936}+\frac{\sqrt{2}(-10x+5)^{\frac{3}{2}}(5x+3)^{\frac{3}{2}}}{3993}-\frac{\sqrt{2}\sqrt{-10x+5}\sqrt{5x+3}}{22}+\frac{5\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{16}\right)}{16} & \text{for}\ x\geq-\frac{3}{5}\wedge x<\frac{1}{2}\end{cases}\right)}{125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2*(3+5*x)**(1/2)/(1-2*x)**(1/2),x)
```

```
[Out] 2*sqrt(5)*Piecewise((11*sqrt(2)*(-sqrt(2)*sqrt(-10*x + 5)*sqrt(5*
x + 3)/22 + asin(sqrt(22)*sqrt(5*x + 3)/11)/2)/4, (x >= -3/5) & (
x < 1/2)))/125 + 12*sqrt(5)*Piecewise((121*sqrt(2)*(sqrt(2)*(-20*
x - 1)*sqrt(-10*x + 5)*sqrt(5*x + 3)/968 - sqrt(2)*sqrt(-10*x + 5
)*sqrt(5*x + 3)/22 + 3*asin(sqrt(22)*sqrt(5*x + 3)/11)/8)/8, (x >
= -3/5) & (x < 1/2)))/125 + 18*sqrt(5)*Piecewise((1331*sqrt(2)*(3
*sqrt(2)*(-20*x - 1)*sqrt(-10*x + 5)*sqrt(5*x + 3)/1936 + sqrt(2)
*(-10*x + 5)**(3/2)*(5*x + 3)**(3/2)/3993 - sqrt(2)*sqrt(-10*x +
5)*sqrt(5*x + 3)/22 + 5*asin(sqrt(22)*sqrt(5*x + 3)/11)/16)/16, (
x >= -3/5) & (x < 1/2)))/125
```

GIAC/XCAS [A] time = 0.23897, size = 73, normalized size = 0.74

$$-\frac{1}{16000}\sqrt{5}\left(2\left(12\left(40x+87\right)\left(5x+3\right)+6269\right)\sqrt{5x+3}\sqrt{-10x+5}-68959\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^2/sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] -1/16000*sqrt(5)*(2*(12*(40*x + 87)*(5*x + 3) + 6269)*sqrt(5*x +
3)*sqrt(-10*x + 5) - 68959*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x
+ 3)))
```

3.2444 $\int \frac{(2+3x)\sqrt{3+5x}}{\sqrt{1-2x}}\,dx$

Optimal. Leaf size=72

$$-\frac{3}{20}\sqrt{1-2x}(5x+3)^{3/2}-\frac{107}{80}\sqrt{1-2x}\sqrt{5x+3}+\frac{1177\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{80\sqrt{10}}$$

```
[Out] (-107*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/80 - (3*Sqrt[1 - 2*x]*(3 + 5*x
)^(3/2))/20 + (1177*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(80*Sqrt[10
])
```

Rubi [A] time = 0.0717162, antiderivative size = 72, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$-\frac{3}{20}\sqrt{1-2x}(5x+3)^{3/2}-\frac{107}{80}\sqrt{1-2x}\sqrt{5x+3}+\frac{1177\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{80\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In] Int[((2 + 3*x)*Sqrt[3 + 5*x])/Sqrt[1 - 2*x],x]
```

```
[Out] (-107*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/80 - (3*Sqrt[1 - 2*x]*(3 + 5*x
)^(3/2))/20 + (1177*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(80*Sqrt[10
])
```

Rubi in Sympy [A] time = 6.88674, size = 65, normalized size = 0.9

$$-\frac{3\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{20}-\frac{107\sqrt{-2x+1}\sqrt{5x+3}}{80}+\frac{1177\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{800}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)*(3+5*x)**(1/2)/(1-2*x)**(1/2),x)
```

```
[Out] -3*sqrt(-2*x + 1)*(5*x + 3)**(3/2)/20 - 107*sqrt(-2*x + 1)*sqrt(5
*x + 3)/80 + 1177*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/800
```

Mathematica [A] time = 0.0496415, size = 55, normalized size = 0.76

$$\frac{1}{800}\left(-10\sqrt{1-2x}\sqrt{5x+3}(60x+143)-1177\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)\right)$$

Antiderivative was successfully verified.

```
[In] Integrate[((2 + 3*x)*Sqrt[3 + 5*x])/Sqrt[1 - 2*x],x]
```

```
[Out] (-10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(143 + 60*x) - 1177*Sqrt[10]*Arc
Sin[Sqrt[5/11]*Sqrt[1 - 2*x]])/800
```

Maple [A] time = 0.013, size = 70, normalized size = 1.

$$\frac{1}{1600}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(1177\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)-1200\,x\sqrt{-10\,x^2-x+3}-2860\,\sqrt{-10\,x^2-x+3}\right)\frac{1}{\sqrt{-10\,x^2-x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)*(3+5*x)^(1/2)/(1-2*x)^(1/2),x)
```

```
[Out] 1/1600*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(1177*10^(1/2)*arcsin(20/11*x+
1/11)-1200*x*(-10*x^2-x+3)^(1/2)-2860*(-10*x^2-x+3)^(1/2))/(-10*x
^2-x+3)^(1/2)
```

Maxima [A] time = 1.49729, size = 59, normalized size = 0.82

$$\frac{1177}{1600}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)-\frac{3}{4}\sqrt{-10x^2-x+3}x-\frac{143}{80}\sqrt{-10x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)/sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] 1177/1600*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) - 3/4*sqrt(-10*x
^2 - x + 3)*x - 143/80*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.215348, size = 77, normalized size = 1.07

$$-\frac{1}{1600}\sqrt{10}\left(2\sqrt{10}(60x+143)\sqrt{5x+3}\sqrt{-2x+1}-1177\arctan\left(\frac{\sqrt{10}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)/sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] -1/1600*sqrt(10)*(2*sqrt(10)*(60*x + 143)*sqrt(5*x + 3)*sqrt(-2*x
 + 1) - 1177*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(
-2*x + 1))))
```

Sympy [A] time = 7.68106, size = 167, normalized size = 2.32

$$\frac{2\sqrt{5}\left(\begin{cases}\frac{11\sqrt{2}\left(-\frac{\sqrt{2}\sqrt{-10x+5}\sqrt{5x+3}}{22}+\frac{\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{2}\right)}{4} & \text{for}\: x \geq -\frac{3}{5} \wedge x < \frac{1}{2}\end{cases}\right)}{25}+\frac{6\sqrt{5}\left(\begin{cases}\frac{121\sqrt{2}\left(\frac{\sqrt{2}(-20x-1)\sqrt{-10x+5}\sqrt{5x+3}}{968}-\frac{\sqrt{2}\sqrt{-10x+5}\sqrt{5x+3}}{22}+\frac{3\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{8}\right)}{8} & \text{for}\: x \geq -\frac{3}{5} \wedge x < \frac{1}{2}\end{cases}\right)}{25}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)*(3+5*x)**(1/2)/(1-2*x)**(1/2),x)
```

```
[Out] 2*sqrt(5)*Piecewise((11*sqrt(2)*(-sqrt(2)*sqrt(-10*x + 5)*sqrt(5*
x + 3)/22 + asin(sqrt(22)*sqrt(5*x + 3)/11)/2)/4, (x >= -3/5) & (
x < 1/2)))/25 + 6*sqrt(5)*Piecewise((121*sqrt(2)*(sqrt(2)*(-20*x
- 1)*sqrt(-10*x + 5)*sqrt(5*x + 3)/968 - sqrt(2)*sqrt(-10*x + 5)*
sqrt(5*x + 3)/22 + 3*asin(sqrt(22)*sqrt(5*x + 3)/11)/8)/8, (x >=
-3/5) & (x < 1/2)))/25
```

GIAC/XCAS [A] time = 0.227266, size = 61, normalized size = 0.85

$$-\frac{1}{800}\sqrt{5}\left(2\,(60\,x+143)\sqrt{5\,x+3}\sqrt{-10\,x+5}-1177\,\sqrt{2}\arcsin\left(\frac{1}{11}\,\sqrt{22}\sqrt{5\,x+3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(3*x + 2)/sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] -1/800*sqrt(5)*(2*(60*x + 143)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 11
77*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)))
```

3.2445 $\int \frac{\sqrt{3+5x}}{\sqrt{1-2x}}\,dx$

Optimal. Leaf size=50

$$\frac{11\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{2\sqrt{10}}-\frac{1}{2}\sqrt{1-2x}\sqrt{5x+3}$$

```
[Out] -(Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/2 + (11*ArcSin[Sqrt[2/11]*Sqrt[3 +
 5*x]])/(2*Sqrt[10])
```

Rubi [A] time = 0.0435897, antiderivative size = 50, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.158

$$\frac{11\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{2\sqrt{10}}-\frac{1}{2}\sqrt{1-2x}\sqrt{5x+3}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[3 + 5*x]/Sqrt[1 - 2*x],x]
```

```
[Out] -(Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/2 + (11*ArcSin[Sqrt[2/11]*Sqrt[3 +
 5*x]])/(2*Sqrt[10])
```

Rubi in Sympy [A] time = 4.76494, size = 42, normalized size = 0.84

$$-\frac{\sqrt{-2x+1}\sqrt{5x+3}}{2}+\frac{11\sqrt{10}\,\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{20}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(1/2)/(1-2*x)**(1/2),x)
```

```
[Out] -sqrt(-2*x + 1)*sqrt(5*x + 3)/2 + 11*sqrt(10)*asin(sqrt(22)*sqrt(
5*x + 3)/11)/20
```

Mathematica [A] time = 0.0340056, size = 50, normalized size = 1.

$$-\frac{1}{2}\sqrt{1-2x}\sqrt{5x+3}-\frac{11\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{2\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[3 + 5*x]/Sqrt[1 - 2*x],x]
```

```
[Out] -(Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/2 - (11*ArcSin[Sqrt[5/11]*Sqrt[1 -
 2*x]])/(2*Sqrt[10])
```

Maple [A] time = 0.006, size = 56, normalized size = 1.1

$$-\frac{1}{2}\sqrt{1-2\,x}\sqrt{3+5\,x}+\frac{11\,\sqrt{10}}{40}\sqrt{(1-2\,x)(3+5\,x)}\arcsin\left(\frac{20\,x}{11}+\frac{1}{11}\right)\frac{1}{\sqrt{1-2\,x}}\frac{1}{\sqrt{3+5\,x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((3+5*x)^(1/2)/(1-2*x)^(1/2),x)
```

```
[Out] -1/2*(1-2*x)^(1/2)*(3+5*x)^(1/2)+11/40*((1-2*x)*(3+5*x))^(1/2)/(3
+5*x)^(1/2)/(1-2*x)^(1/2)*10^(1/2)*arcsin(20/11*x+1/11)
```

Maxima [A]   time = 1.50389, size = 39, normalized size = 0.78

$$\frac{11}{40}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)-\frac{1}{2}\sqrt{-10x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(sqrt(5*x + 3)/sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] 11/40*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) - 1/2*sqrt(-10*x^2 -
 x + 3)
```

Fricas [A]   time = 0.220745, size = 70, normalized size = 1.4

$$-\frac{1}{40}\sqrt{10}\left(2\sqrt{10}\sqrt{5x+3}\sqrt{-2x+1}-11\arctan\left(\frac{\sqrt{10}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(sqrt(5*x + 3)/sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] -1/40*sqrt(10)*(2*sqrt(10)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 11*arct
an(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [A]   time = 3.09506, size = 141, normalized size = 2.82

$$\begin{cases} -\frac{5i\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}{\sqrt{10x-5}}+\frac{11i\sqrt{x+\frac{3}{5}}}{2\sqrt{10x-5}}-\frac{11\sqrt{10}i\operatorname{acosh}\left(\frac{\sqrt{110}\sqrt{x+\frac{3}{5}}}{11}\right)}{20} & \text{for}\ \frac{10\left|x+\frac{3}{5}\right|}{11}>1 \\ \frac{11\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{110}\sqrt{x+\frac{3}{5}}}{11}\right)}{20}+\frac{5\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}{\sqrt{-10x+5}}-\frac{11\sqrt{x+\frac{3}{5}}}{2\sqrt{-10x+5}} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((3+5*x)**(1/2)/(1-2*x)**(1/2),x)
```

```
[Out] Piecewise((-5*I*(x + 3/5)**(3/2)/sqrt(10*x - 5) + 11*I*sqrt(x + 3
/5)/(2*sqrt(10*x - 5)) - 11*sqrt(10)*I*acosh(sqrt(110)*sqrt(x + 3
/5)/11)/20, 10*Abs(x + 3/5)/11 > 1), (11*sqrt(10)*asin(sqrt(110)*
sqrt(x + 3/5)/11)/20 + 5*(x + 3/5)**(3/2)/sqrt(-10*x + 5) - 11*sq
rt(x + 3/5)/(2*sqrt(-10*x + 5)), True))
```

GIAC/XCAS [A]   time = 0.228127, size = 54, normalized size = 1.08

$$\frac{1}{20}\sqrt{5}\left(11\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)-2\sqrt{5x+3}\sqrt{-10x+5}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] 1/20*sqrt(5)*(11*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) - 2*
sqrt(5*x + 3)*sqrt(-10*x + 5))
```

3.2446 $\int \frac{\sqrt{3+5x}}{\sqrt{1-2x}(2+3x)}\,dx$

Optimal. Leaf size=62

$$\frac{1}{3}\sqrt{10}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)+\frac{2\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{3\sqrt{7}}$$

```
[Out] (Sqrt[10]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/3 + (2*ArcTan[Sqrt[1
- 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(3*Sqrt[7])
```

Rubi [A] time = 0.107283, antiderivative size = 62, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$\frac{1}{3}\sqrt{10}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)+\frac{2\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{3\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[3 + 5*x]/(Sqrt[1 - 2*x]*(2 + 3*x)),x]
```

```
[Out] (Sqrt[10]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/3 + (2*ArcTan[Sqrt[1
- 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(3*Sqrt[7])
```

Rubi in Sympy [A] time = 8.86168, size = 56, normalized size = 0.9

$$\frac{\sqrt{10}\,\text{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{3}+\frac{2\sqrt{7}\,\text{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{21}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(1/2)/(2+3*x)/(1-2*x)**(1/2),x)
```

```
[Out] sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/3 + 2*sqrt(7)*atan(sqrt(
7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/21
```

Mathematica [A] time = 0.113928, size = 75, normalized size = 1.21

$$\frac{1}{42}\left(2\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)+7\sqrt{10}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[3 + 5*x]/(Sqrt[1 - 2*x]*(2 + 3*x)),x]
```

```
[Out] (2*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])]
+ 7*Sqrt[10]*ArcTan[(1 + 20*x)/(2*Sqrt[1 - 2*x]*Sqrt[30 + 50*x])]
)/42
```

Maple [A] time = 0.016, size = 69, normalized size = 1.1

$$-\frac{1}{42}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(2\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)-7\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)\right)\frac{1}{\sqrt{-10\,x^2-x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((3+5*x)^(1/2)/(2+3*x)/(1-2*x)^(1/2),x)
```

```
[Out] -1/42*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(2*7^(1/2)*arctan(1/14*(37*x+20
)*7^(1/2)/(-10*x^2-x+3)^(1/2))-7*10^(1/2)*arcsin(20/11*x+1/11))/(
-10*x^2-x+3)^(1/2)
```

Maxima [A]   time = 1.50029, size = 54, normalized size = 0.87

$$\frac{1}{6}\sqrt{10}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)-\frac{1}{21}\sqrt{7}\arcsin\left(\frac{37x}{11|3x+2|}+\frac{20}{11|3x+2|}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)/((3*x + 2)*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 1/6*sqrt(10)*arcsin(20/11*x + 1/11) - 1/21*sqrt(7)*arcsin(37/11*x
/abs(3*x + 2) + 20/11/abs(3*x + 2))
```

Fricas [A]   time = 0.23036, size = 88, normalized size = 1.42

$$\frac{1}{42}\sqrt{7}\left(\sqrt{10}\sqrt{7}\arctan\left(\frac{\sqrt{10}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)-2\arctan\left(\frac{\sqrt{7}(37x+20)}{14\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)/((3*x + 2)*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] 1/42*sqrt(7)*(sqrt(10)*sqrt(7)*arctan(1/20*sqrt(10)*(20*x + 1)/(s
qrt(5*x + 3)*sqrt(-2*x + 1))) - 2*arctan(1/14*sqrt(7)*(37*x + 20)
/(sqrt(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [F]   time = 0., size = 0, normalized size = 0.

$$\int\frac{\sqrt{5x+3}}{\sqrt{-2x+1}\,(3x+2)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((3+5*x)**(1/2)/(2+3*x)/(1-2*x)**(1/2),x)
```

```
[Out] Integral(sqrt(5*x + 3)/(sqrt(-2*x + 1)*(3*x + 2)), x)
```

GIAC/XCAS [A]   time = 0.267202, size = 190, normalized size = 3.06

$$-\frac{1}{210}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)+\frac{1}{6}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{4\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)/((3*x + 2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] -1/210*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x
+ 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqrt
(2)*sqrt(-10*x + 5) - sqrt(22)))) + 1/6*sqrt(10)*(pi + 2*arctan(-
1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x +
3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))
```

3.2447 $\int \frac{\sqrt{3+5x}}{\sqrt{1-2x}(2+3x)^2}\,dx$

Optimal. Leaf size=64

$$-\frac{\sqrt{1-2x}\sqrt{5x+3}}{7(3x+2)}-\frac{11\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{7\sqrt{7}}$$

```
[Out] -(Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(7*(2 + 3*x)) - (11*ArcTan[Sqrt[1
- 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(7*Sqrt[7])
```

Rubi [A] time = 0.08539, antiderivative size = 64, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.115

$$-\frac{\sqrt{1-2x}\sqrt{5x+3}}{7(3x+2)}-\frac{11\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{7\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In] Int[Sqrt[3 + 5*x]/(Sqrt[1 - 2*x]*(2 + 3*x)^2),x]
```

```
[Out] -(Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(7*(2 + 3*x)) - (11*ArcTan[Sqrt[1
- 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(7*Sqrt[7])
```

Rubi in Sympy [A] time = 7.70062, size = 56, normalized size = 0.88

$$-\frac{\sqrt{-2x+1}\sqrt{5x+3}}{7\,(3x+2)}-\frac{11\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{49}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((3+5*x)**(1/2)/(2+3*x)**2/(1-2*x)**(1/2),x)
```

```
[Out] -sqrt(-2*x + 1)*sqrt(5*x + 3)/(7*(3*x + 2)) - 11*sqrt(7)*atan(sqr
t(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/49
```

Mathematica [A] time = 0.0727053, size = 67, normalized size = 1.05

$$-\frac{\sqrt{1-2x}\sqrt{5x+3}}{7(3x+2)}-\frac{11\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{14\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In] Integrate[Sqrt[3 + 5*x]/(Sqrt[1 - 2*x]*(2 + 3*x)^2),x]
```

```
[Out] -(Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(7*(2 + 3*x)) - (11*ArcTan[(-20 -
37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/(14*Sqrt[7])
```

Maple [B] time = 0.02, size = 108, normalized size = 1.7

$$\frac{1}{196+294\,x}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(33\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x+22\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)-14\,\sqrt{-10}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(1/2)/(2+3*x)^2/(1-2*x)^(1/2),x)
```

```
[Out] 1/98*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(33*7^(1/2)*arctan(1/14*(37*x+20
)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+22*7^(1/2)*arctan(1/14*(37*x+20)
*7^(1/2)/(-10*x^2-x+3)^(1/2))-14*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+
3)^(1/2)/(2+3*x)
```

Maxima [A] time = 1.54614, size = 68, normalized size = 1.06

$$\frac{11}{98}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)-\frac{\sqrt{-10\,x^2-x+3}}{7\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)/((3*x + 2)^2*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 11/98*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) -
 1/7*sqrt(-10*x^2 - x + 3)/(3*x + 2)
```

Fricas [A] time = 0.21863, size = 86, normalized size = 1.34

$$\frac{\sqrt{7}\left(11\,(3\,x+2)\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)-2\,\sqrt{7}\sqrt{5\,x+3}\sqrt{-2\,x+1}\right)}{98\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)/((3*x + 2)^2*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] 1/98*sqrt(7)*(11*(3*x + 2)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(
5*x + 3)*sqrt(-2*x + 1))) - 2*sqrt(7)*sqrt(5*x + 3)*sqrt(-2*x + 1
))/(3*x + 2)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(1/2)/(2+3*x)**2/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.268196, size = 261, normalized size = 4.08

$$\frac{11}{980}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)-\frac{22\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)}{7\left(\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^2+280\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/((3*x + 2)^2*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 11/980*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x
+ 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqrt
(2)*sqrt(-10*x + 5) - sqrt(22)))) - 22/7*sqrt(10)*((sqrt(2)*sqrt(
-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*s
qrt(-10*x + 5) - sqrt(22)))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22)
)/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt
(22)))^2 + 280)
```

3.2448 $\int \frac{\sqrt{3+5x}}{\sqrt{1-2x}(2+3x)^3}\,dx$

Optimal. Leaf size=93

$$\frac{3\sqrt{1-2x}(5x+3)^{3/2}}{14(3x+2)^2}-\frac{41\sqrt{1-2x}\sqrt{5x+3}}{196(3x+2)}-\frac{451\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{196\sqrt{7}}$$

```
[Out] (-41*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(196*(2 + 3*x)) + (3*Sqrt[1 - 2
*x]*(3 + 5*x)^(3/2))/(14*(2 + 3*x)^2) - (451*ArcTan[Sqrt[1 - 2*x]
/(Sqrt[7]*Sqrt[3 + 5*x])])/(196*Sqrt[7])
```

Rubi [A] time = 0.123221, antiderivative size = 93, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$\frac{3\sqrt{1-2x}(5x+3)^{3/2}}{14(3x+2)^2}-\frac{41\sqrt{1-2x}\sqrt{5x+3}}{196(3x+2)}-\frac{451\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{196\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In] Int[Sqrt[3 + 5*x]/(Sqrt[1 - 2*x]*(2 + 3*x)^3),x]
```

```
[Out] (-41*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(196*(2 + 3*x)) + (3*Sqrt[1 - 2
*x]*(3 + 5*x)^(3/2))/(14*(2 + 3*x)^2) - (451*ArcTan[Sqrt[1 - 2*x]
/(Sqrt[7]*Sqrt[3 + 5*x])])/(196*Sqrt[7])
```

Rubi in Sympy [A] time = 10.3984, size = 83, normalized size = 0.89

$$-\frac{41\sqrt{-2x+1}\sqrt{5x+3}}{196\,(3x+2)}+\frac{3\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{14\,(3x+2)^2}-\frac{451\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{1372}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((3+5*x)**(1/2)/(2+3*x)**3/(1-2*x)**(1/2),x)
```

```
[Out] -41*sqrt(-2*x + 1)*sqrt(5*x + 3)/(196*(3*x + 2)) + 3*sqrt(-2*x +
1)*(5*x + 3)**(3/2)/(14*(3*x + 2)**2) - 451*sqrt(7)*atan(sqrt(7)*
sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/1372
```

Mathematica [A] time = 0.0744831, size = 72, normalized size = 0.77

$$\frac{\frac{14\sqrt{1-2x}\sqrt{5x+3}(87x+44)}{(3x+2)^2}-451\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{2744}$$

Antiderivative was successfully verified.

```
[In] Integrate[Sqrt[3 + 5*x]/(Sqrt[1 - 2*x]*(2 + 3*x)^3),x]
```

```
[Out] ((14*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(44 + 87*x))/(2 + 3*x)^2 - 451*S
qrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/274
4
```

Maple [B] time = 0.02, size = 154, normalized size = 1.7

$$\frac{1}{2744\,(2+3\,x)^{2}}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(4059\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^{2}-x+3}}\right)x^{2}+5412\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^{2}-x+3}}\right)x\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(1/2)/(2+3*x)^3/(1-2*x)^(1/2),x)
```

```
[Out] 1/2744*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(4059*7^(1/2)*arctan(1/14*(37*
x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+5412*7^(1/2)*arctan(1/14*(
37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+1804*7^(1/2)*arctan(1/14*
(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+1218*x*(-10*x^2-x+3)^(1/2)
+616*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)^2
```

Maxima [A] time = 1.50505, size = 103, normalized size = 1.11

$$\frac{451}{2744}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)-\frac{\sqrt{-10\,x^{2}-x+3}}{14\,(9\,x^{2}+12\,x+4)}+\frac{29\,\sqrt{-10\,x^{2}-x+3}}{196\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/((3*x + 2)^3*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 451/2744*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)
) - 1/14*sqrt(-10*x^2 - x + 3)/(9*x^2 + 12*x + 4) + 29/196*sqrt(-
10*x^2 - x + 3)/(3*x + 2)
```

Fricas [A] time = 0.221353, size = 107, normalized size = 1.15

$$\frac{\sqrt{7}\left(2\,\sqrt{7}(87\,x+44)\sqrt{5\,x+3}\sqrt{-2\,x+1}+451\,\left(9\,x^{2}+12\,x+4\right)\,\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)}{2744\,(9\,x^{2}+12\,x+4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/((3*x + 2)^3*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] 1/2744*sqrt(7)*(2*sqrt(7)*(87*x + 44)*sqrt(5*x + 3)*sqrt(-2*x + 1
) + 451*(9*x^2 + 12*x + 4)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(
5*x + 3)*sqrt(-2*x + 1))))/(9*x^2 + 12*x + 4)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(1/2)/(2+3*x)**3/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.301326, size = 347, normalized size = 3.73

$$\frac{451}{27440}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^{2}}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{11\left(41\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^{3}-7000\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)\right)}{98\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^{2}+280\right)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)/((3*x + 2)^3*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 451/27440*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5
*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(s
qrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 11/98*(41*sqrt(10)*((sqrt(
2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(s
qrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 - 7000*sqrt(10)*((sqrt(2)*s
qrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(
2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) - sqr
t(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) -
 sqrt(22)))^2 + 280)^2
```

3.2449 $\int \frac{\sqrt{3+5x}}{\sqrt{1-2x}(2+3x)^4}\,dx$

Optimal. Leaf size=122

$$\frac{3895\sqrt{1-2x}\sqrt{5x+3}}{8232(3x+2)}+\frac{25\sqrt{1-2x}\sqrt{5x+3}}{588(3x+2)^2}-\frac{\sqrt{1-2x}\sqrt{5x+3}}{21(3x+2)^3}-\frac{15235\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{2744\sqrt{7}}$$

```
[Out] -(Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(21*(2 + 3*x)^3) + (25*Sqrt[1 - 2*
x]*Sqrt[3 + 5*x])/(588*(2 + 3*x)^2) + (3895*Sqrt[1 - 2*x]*Sqrt[3
+ 5*x])/(8232*(2 + 3*x)) - (15235*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*S
qrt[3 + 5*x])])/(2744*Sqrt[7])
```

Rubi [A] time = 0.223571, antiderivative size = 122, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$\frac{3895\sqrt{1-2x}\sqrt{5x+3}}{8232(3x+2)}+\frac{25\sqrt{1-2x}\sqrt{5x+3}}{588(3x+2)^2}-\frac{\sqrt{1-2x}\sqrt{5x+3}}{21(3x+2)^3}-\frac{15235\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{2744\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[3 + 5*x]/(Sqrt[1 - 2*x]*(2 + 3*x)^4),x]
```

```
[Out] -(Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(21*(2 + 3*x)^3) + (25*Sqrt[1 - 2*
x]*Sqrt[3 + 5*x])/(588*(2 + 3*x)^2) + (3895*Sqrt[1 - 2*x]*Sqrt[3
+ 5*x])/(8232*(2 + 3*x)) - (15235*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*S
qrt[3 + 5*x])])/(2744*Sqrt[7])
```

Rubi in Sympy [A] time = 21.6782, size = 109, normalized size = 0.89

$$\frac{3895\sqrt{-2x+1}\sqrt{5x+3}}{8232\,(3x+2)}+\frac{25\sqrt{-2x+1}\sqrt{5x+3}}{588\,(3x+2)^2}-\frac{\sqrt{-2x+1}\sqrt{5x+3}}{21\,(3x+2)^3}-\frac{15235\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{19208}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(1/2)/(2+3*x)**4/(1-2*x)**(1/2),x)
```

```
[Out] 3895*sqrt(-2*x + 1)*sqrt(5*x + 3)/(8232*(3*x + 2)) + 25*sqrt(-2*x
 + 1)*sqrt(5*x + 3)/(588*(3*x + 2)**2) - sqrt(-2*x + 1)*sqrt(5*x
+ 3)/(21*(3*x + 2)**3) - 15235*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1
)/(7*sqrt(5*x + 3)))/19208
```

Mathematica [A] time = 0.0856345, size = 77, normalized size = 0.63

$$\frac{\frac{14\sqrt{1-2x}\sqrt{5x+3}(11685x^2+15930x+5296)}{(3x+2)^3}-15235\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{38416}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[3 + 5*x]/(Sqrt[1 - 2*x]*(2 + 3*x)^4),x]
```

```
[Out] ((14*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(5296 + 15930*x + 11685*x^2))/(2
 + 3*x)^3 - 15235*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*S
qrt[3 + 5*x])])/38416
```

Maple [B] time = 0.02, size = 202, normalized size = 1.7

$$\frac{1}{38416\ (2+3\,x)^3}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(411345\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^3+822690\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(1/2)/(2+3*x)^4/(1-2*x)^(1/2),x)
```

```
[Out] 1/38416*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(411345*7^(1/2)*arctan(1/14*(
37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+822690*7^(1/2)*arctan(1
/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+548460*7^(1/2)*arc
tan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+163590*x^2*(-10
*x^2-x+3)^(1/2)+121880*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10
*x^2-x+3)^(1/2))+223020*x*(-10*x^2-x+3)^(1/2)+74144*(-10*x^2-x+3)
^(1/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)^3
```

Maxima [A] time = 1.50313, size = 144, normalized size = 1.18

$$\frac{15235}{38416}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)-\frac{\sqrt{-10\,x^2-x+3}}{21\,(27\,x^3+54\,x^2+36\,x+8)}+\frac{25\,\sqrt{-10\,x^2-x+3}}{588\,(9\,x^2+12\,x+4)}+\frac{3895\,\sqrt{-10\,x^2-x+3}}{8232\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/((3*x + 2)^4*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 15235/38416*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x +
 2)) - 1/21*sqrt(-10*x^2 - x + 3)/(27*x^3 + 54*x^2 + 36*x + 8) +
25/588*sqrt(-10*x^2 - x + 3)/(9*x^2 + 12*x + 4) + 3895/8232*sqrt(
-10*x^2 - x + 3)/(3*x + 2)
```

Fricas [A] time = 0.222604, size = 127, normalized size = 1.04

$$\frac{\sqrt{7}\left(2\,\sqrt{7}\left(11685\,x^2+15930\,x+5296\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+15235\,\left(27\,x^3+54\,x^2+36\,x+8\right)\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)}{38416\,(27\,x^3+54\,x^2+36\,x+8)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/((3*x + 2)^4*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] 1/38416*sqrt(7)*(2*sqrt(7)*(11685*x^2 + 15930*x + 5296)*sqrt(5*x
+ 3)*sqrt(-2*x + 1) + 15235*(27*x^3 + 54*x^2 + 36*x + 8)*arctan(1
/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(27*x^3
+ 54*x^2 + 36*x + 8)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(1/2)/(2+3*x)**4/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.351742, size = 429, normalized size = 3.52

$$\frac{3047}{76832}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right) - \frac{55\left(277\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^5-159040\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3-20713280\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-\cdots}}{\cdots}\right.\cdots\right.}{1372\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)/((3*x + 2)^4*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 3047/76832*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(
5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(
sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 55/1372*(277*sqrt(10)*((s
qrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3
)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 - 159040*sqrt(10)*((sqr
t(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 - 20713280*sqrt(10)*((sqr
t(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5)
 - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x
+ 5) - sqrt(22)))^2 + 280)^3
```

3.2450 $\int \frac{\sqrt{3+5x}}{\sqrt{1-2x}(2+3x)^5}\,dx$

Optimal. Leaf size=151

$$\frac{32735\sqrt{1-2x}\sqrt{5x+3}}{21952(3x+2)}+\frac{305\sqrt{1-2x}\sqrt{5x+3}}{1568(3x+2)^2}+\frac{\sqrt{1-2x}\sqrt{5x+3}}{56(3x+2)^3}-\frac{\sqrt{1-2x}\sqrt{5x+3}}{28(3x+2)^4}-\frac{375265\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{21952\sqrt{7}}$$

```
[Out] -(Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(28*(2 + 3*x)^4) + (Sqrt[1 - 2*x]*
Sqrt[3 + 5*x])/(56*(2 + 3*x)^3) + (305*Sqrt[1 - 2*x]*Sqrt[3 + 5*x
])/(1568*(2 + 3*x)^2) + (32735*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2195
2*(2 + 3*x)) - (375265*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x
])])/(21952*Sqrt[7])
```

Rubi [A] time = 0.29664, antiderivative size = 151, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$\frac{32735\sqrt{1-2x}\sqrt{5x+3}}{21952(3x+2)}+\frac{305\sqrt{1-2x}\sqrt{5x+3}}{1568(3x+2)^2}+\frac{\sqrt{1-2x}\sqrt{5x+3}}{56(3x+2)^3}-\frac{\sqrt{1-2x}\sqrt{5x+3}}{28(3x+2)^4}-\frac{375265\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{21952\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[3 + 5*x]/(Sqrt[1 - 2*x]*(2 + 3*x)^5),x]
```

```
[Out] -(Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(28*(2 + 3*x)^4) + (Sqrt[1 - 2*x]*
Sqrt[3 + 5*x])/(56*(2 + 3*x)^3) + (305*Sqrt[1 - 2*x]*Sqrt[3 + 5*x
])/(1568*(2 + 3*x)^2) + (32735*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2195
2*(2 + 3*x)) - (375265*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x
])])/(21952*Sqrt[7])
```

Rubi in Sympy [A] time = 28.9191, size = 134, normalized size = 0.89

$$\frac{32735\sqrt{-2x+1}\sqrt{5x+3}}{21952\,(3x+2)}+\frac{305\sqrt{-2x+1}\sqrt{5x+3}}{1568\,(3x+2)^2}+\frac{\sqrt{-2x+1}\sqrt{5x+3}}{56\,(3x+2)^3}-\frac{\sqrt{-2x+1}\sqrt{5x+3}}{28\,(3x+2)^4}-\frac{375265\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{153664}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(1/2)/(2+3*x)**5/(1-2*x)**(1/2),x)
```

```
[Out] 32735*sqrt(-2*x + 1)*sqrt(5*x + 3)/(21952*(3*x + 2)) + 305*sqrt(-
2*x + 1)*sqrt(5*x + 3)/(1568*(3*x + 2)**2) + sqrt(-2*x + 1)*sqrt(
5*x + 3)/(56*(3*x + 2)**3) - sqrt(-2*x + 1)*sqrt(5*x + 3)/(28*(3*
x + 2)**4) - 375265*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5
*x + 3)))/153664
```

Mathematica [A] time = 0.120711, size = 82, normalized size = 0.54

$$\frac{\frac{14\sqrt{1-2x}\sqrt{5x+3}\left(883845x^3+1806120x^2+1230876x+278960\right)}{(3x+2)^4}-375265\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{307328}$$

Antiderivative was successfully verified.

```
[In]   Integrate[Sqrt[3 + 5*x]/(Sqrt[1 - 2*x]*(2 + 3*x)^5),x]
```

```
[Out] ((14*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(278960 + 1230876*x + 1806120*x^
2 + 883845*x^3))/(2 + 3*x)^4 - 375265*Sqrt[7]*ArcTan[(-20 - 37*x)
/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/307328
```

Maple [B] time = 0.022, size = 250, normalized size = 1.7

$$\frac{1}{307328\,(2+3\,x)^4}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(30396465\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^4+81057240\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+2}{\sqrt{-10\,x^2}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((3+5*x)^(1/2)/(2+3*x)^5/(1-2*x)^(1/2),x)
```

```
[Out] 1/307328*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(30396465*7^(1/2)*arctan(1/1
4*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^4+81057240*7^(1/2)*arc
tan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+81057240*7^(1
/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+123738
30*x^3*(-10*x^2-x+3)^(1/2)+36025440*7^(1/2)*arctan(1/14*(37*x+20)
*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+25285680*x^2*(-10*x^2-x+3)^(1/2)+
6004240*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2)
)+17232264*x*(-10*x^2-x+3)^(1/2)+3905440*(-10*x^2-x+3)^(1/2))/(-1
0*x^2-x+3)^(1/2)/(2+3*x)^4
```

Maxima [A] time = 1.56804, size = 193, normalized size = 1.28

$$\frac{375265}{307328}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)-\frac{\sqrt{-10\,x^2-x+3}}{28\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}+\frac{\sqrt{-10\,x^2-x+3}}{56\,(27\,x^3+54\,x^2+36\,x+8)}+\frac{305\,\sqrt{-10\,x^2-x+3}}{1568\,(9\,x^2+12\,x+4)}+\frac{32735\,\sqrt{-10\,x^2-x+3}}{21952\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/((3*x + 2)^5*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 375265/307328*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x
 + 2)) - 1/28*sqrt(-10*x^2 - x + 3)/(81*x^4 + 216*x^3 + 216*x^2 +
 96*x + 16) + 1/56*sqrt(-10*x^2 - x + 3)/(27*x^3 + 54*x^2 + 36*x
+ 8) + 305/1568*sqrt(-10*x^2 - x + 3)/(9*x^2 + 12*x + 4) + 32735/
21952*sqrt(-10*x^2 - x + 3)/(3*x + 2)
```

Fricas [A] time = 0.224484, size = 147, normalized size = 0.97

$$\frac{\sqrt{7}\left(2\,\sqrt{7}\left(883845\,x^3+1806120\,x^2+1230876\,x+278960\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+375265\,\left(81\,x^4+216\,x^3+216\,x^2+96\,x+16\right)\right.}{307328\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/((3*x + 2)^5*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] 1/307328*sqrt(7)*(2*sqrt(7)*(883845*x^3 + 1806120*x^2 + 1230876*x
 + 278960)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 375265*(81*x^4 + 216*x^
3 + 216*x^2 + 96*x + 16)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*
x + 3)*sqrt(-2*x + 1))))/(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(1/2)/(2+3*x)**5/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.430446, size = 512, normalized size = 3.39

$$\frac{75053}{614656}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)$$

$$-\frac{55\left(6823\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^7-7629720\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^5-1915892160\sqrt{10}\left(\cdots\right.\right.}{10976\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\cdots\right.\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/((3*x + 2)^5*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 75053/614656*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqr
t(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)
/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 55/10976*(6823*sqrt(10)
*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x
 + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^7 - 7629720*sqrt(10)*
((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x
+ 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 - 1915892160*sqrt(10
)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*
x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 - 149136243200*sqr
t(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqr
t(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt
(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*
sqrt(-10*x + 5) - sqrt(22)))^2 + 280)^4
```

3.2451 $\int \frac{(2+3x)^3(3+5x)^{3/2}}{\sqrt{1-2x}}\,dx$

Optimal. Leaf size=128

$$-\frac{3}{50}\sqrt{1-2x}(3x+2)^2(5x+3)^{5/2}-\frac{3\sqrt{1-2x}(3900x+7889)(5x+3)^{5/2}}{16000}-\frac{917953\sqrt{1-2x}(5x+3)^{3/2}}{128000}-\frac{30292449\sqrt{1-2x}\sqrt{5x+3}}{512000}+\frac{333216939\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{512000\sqrt{10}}$$

```
[Out] (-30292449*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/512000 - (917953*Sqrt[1 -
 2*x]*(3 + 5*x)^(3/2))/128000 - (3*Sqrt[1 - 2*x]*(2 + 3*x)^2*(3 +
 5*x)^(5/2))/50 - (3*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2)*(7889 + 3900*x
))/16000 + (333216939*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(512000*S
qrt[10])
```

Rubi [A] time = 0.163333, antiderivative size = 128, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$-\frac{3}{50}\sqrt{1-2x}(3x+2)^2(5x+3)^{5/2}-\frac{3\sqrt{1-2x}(3900x+7889)(5x+3)^{5/2}}{16000}-\frac{917953\sqrt{1-2x}(5x+3)^{3/2}}{128000}-\frac{30292449\sqrt{1-2x}\sqrt{5x+3}}{512000}+\frac{333216939\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{512000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^3*(3 + 5*x)^(3/2))/Sqrt[1 - 2*x],x]
```

```
[Out] (-30292449*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/512000 - (917953*Sqrt[1 -
 2*x]*(3 + 5*x)^(3/2))/128000 - (3*Sqrt[1 - 2*x]*(2 + 3*x)^2*(3 +
 5*x)^(5/2))/50 - (3*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2)*(7889 + 3900*x
))/16000 + (333216939*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(512000*S
qrt[10])
```

Rubi in Sympy [A] time = 15.3677, size = 117, normalized size = 0.91

$$-\frac{3\sqrt{-2x+1}\,(3x+2)^2\,(5x+3)^{\frac{5}{2}}}{50}-\frac{\sqrt{-2x+1}\,(5x+3)^{\frac{5}{2}}\left(43875x+\frac{355005}{4}\right)}{60000}-\frac{917953\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{128000}-\frac{30292449\sqrt{-2x+1}\sqrt{5x+3}}{512000}+\frac{333216939\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{5120000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3*(3+5*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] -3*sqrt(-2*x + 1)*(3*x + 2)**2*(5*x + 3)**(5/2)/50 - sqrt(-2*x +
1)*(5*x + 3)**(5/2)*(43875*x + 355005/4)/60000 - 917953*sqrt(-2*x
 + 1)*(5*x + 3)**(3/2)/128000 - 30292449*sqrt(-2*x + 1)*sqrt(5*x
+ 3)/512000 + 333216939*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/
5120000
```

Mathematica [A] time = 0.11692, size = 70, normalized size = 0.55

$$\frac{-10\sqrt{1-2x}\sqrt{5x+3}\left(6912000x^4+26870400x^3+46785120x^2+51453140x+49229901\right)-333216939\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-\right.}{5120000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^3*(3 + 5*x)^(3/2))/Sqrt[1 - 2*x],x]
```

```
[Out] (-10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(49229901 + 51453140*x + 4678512
0*x^2 + 26870400*x^3 + 6912000*x^4) - 333216939*Sqrt[10]*ArcSin[S
qrt[5/11]*Sqrt[1 - 2*x]])/5120000
```

Maple [A] time = 0.013, size = 121, normalized size = 1.

$$\frac{1}{10240000}\sqrt{1-2x}\sqrt{3+5x}\left(-138240000\,x^4\sqrt{-10\,x^2-x+3}-537408000\,x^3\sqrt{-10\,x^2-x+3}-935702400\,x^2\sqrt{-10\,x^2-x+\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3*(3+5*x)^(3/2)/(1-2*x)^(1/2),x)
```

```
[Out] 1/10240000*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(-138240000*x^4*(-10*x^2-x
+3)^(1/2)-537408000*x^3*(-10*x^2-x+3)^(1/2)-935702400*x^2*(-10*x^
2-x+3)^(1/2)+333216939*10^(1/2)*arcsin(20/11*x+1/11)-1029062800*x
*(-10*x^2-x+3)^(1/2)-984598020*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)
^(1/2)
```

Maxima [A] time = 1.50205, size = 124, normalized size = 0.97

$$-\frac{27}{2}\sqrt{-10\,x^2-x+3}x^4-\frac{8397}{160}\sqrt{-10\,x^2-x+3}x^3-\frac{292407}{3200}\sqrt{-10\,x^2-x+3}x^2-\frac{2572657}{25600}\sqrt{-10\,x^2-x+3}x-\frac{333216939}{10240000}\sqrt{10}\arcsin\left(-\frac{20}{11}x-\frac{1}{11}\right)-\frac{49229901}{512000}\sqrt{-10\,x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)^3/sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] -27/2*sqrt(-10*x^2 - x + 3)*x^4 - 8397/160*sqrt(-10*x^2 - x + 3)*
x^3 - 292407/3200*sqrt(-10*x^2 - x + 3)*x^2 - 2572657/25600*sqrt(
-10*x^2 - x + 3)*x - 333216939/10240000*sqrt(10)*arcsin(-20/11*x
- 1/11) - 49229901/512000*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.216733, size = 97, normalized size = 0.76

$$-\frac{1}{10240000}\sqrt{10}\left(2\sqrt{10}\left(6912000\,x^4+26870400\,x^3+46785120\,x^2+51453140\,x+49229901\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-33321693\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)^3/sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] -1/10240000*sqrt(10)*(2*sqrt(10)*(6912000*x^4 + 26870400*x^3 + 46
785120*x^2 + 51453140*x + 49229901)*sqrt(5*x + 3)*sqrt(-2*x + 1)
- 333216939*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-
2*x + 1))))
```

Sympy [A] time = 98.4051, size = 597, normalized size = 4.66

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3*(3+5*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] 2*sqrt(5)*Piecewise((121*sqrt(2)*(sqrt(2)*(-20*x - 1)*sqrt(-10*x
+ 5)*sqrt(5*x + 3)/968 - sqrt(2)*sqrt(-10*x + 5)*sqrt(5*x + 3)/22
 + 3*asin(sqrt(22)*sqrt(5*x + 3)/11)/8)/8, (x >= -3/5) & (x < 1/2
)))/625 + 18*sqrt(5)*Piecewise((1331*sqrt(2)*(3*sqrt(2)*(-20*x -
1)*sqrt(-10*x + 5)*sqrt(5*x + 3)/1936 + sqrt(2)*(-10*x + 5)**(3/2
)*(5*x + 3)**(3/2)/3993 - sqrt(2)*sqrt(-10*x + 5)*sqrt(5*x + 3)/2
2 + 5*asin(sqrt(22)*sqrt(5*x + 3)/11)/16)/16, (x >= -3/5) & (x <
1/2)))/625 + 54*sqrt(5)*Piecewise((14641*sqrt(2)*(7*sqrt(2)*(-20*
x - 1)*sqrt(-10*x + 5)*sqrt(5*x + 3)/3872 + 2*sqrt(2)*(-10*x + 5)
**(3/2)*(5*x + 3)**(3/2)/3993 + sqrt(2)*sqrt(-10*x + 5)*sqrt(5*x
+ 3)*(-12100*x - 128*(5*x + 3)**3 + 1056*(5*x + 3)**2 - 5929)/187
4048 - sqrt(2)*sqrt(-10*x + 5)*sqrt(5*x + 3)/22 + 35*asin(sqrt(22
)*sqrt(5*x + 3)/11)/128)/32, (x >= -3/5) & (x < 1/2)))/625 + 54*s
qrt(5)*Piecewise((161051*sqrt(2)*(15*sqrt(2)*(-20*x - 1)*sqrt(-10
*x + 5)*sqrt(5*x + 3)/7744 - 2*sqrt(2)*(-10*x + 5)**(5/2)*(5*x +
3)**(5/2)/805255 + sqrt(2)*(-10*x + 5)**(3/2)*(5*x + 3)**(3/2)/13
31 + 5*sqrt(2)*sqrt(-10*x + 5)*sqrt(5*x + 3)*(-12100*x - 128*(5*x
 + 3)**3 + 1056*(5*x + 3)**2 - 5929)/3748096 - sqrt(2)*sqrt(-10*x
 + 5)*sqrt(5*x + 3)/22 + 63*asin(sqrt(22)*sqrt(5*x + 3)/11)/256)/
64, (x >= -3/5) & (x < 1/2)))/625
```

GIAC/XCAS [A] time = 0.246283, size = 97, normalized size = 0.76

$$-\frac{1}{25600000}\sqrt{5}\Big(2\,(4\,(24\,(36\,(80\,x+167)(5\,x+3)+27809)(5\,x+3)+4589765)(5\,x+3)+151462245)\sqrt{5\,x+3}\sqrt{-10\,x+5}-16$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(3*x + 2)^3/sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] -1/25600000*sqrt(5)*(2*(4*(24*(36*(80*x + 167)*(5*x + 3) + 27809)
*(5*x + 3) + 4589765)*(5*x + 3) + 151462245)*sqrt(5*x + 3)*sqrt(-
10*x + 5) - 1666084695*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)
))
```

3.2452 $\int \frac{(2+3x)^2(3+5x)^{3/2}}{\sqrt{1-2x}}\,dx$

Optimal. Leaf size=121

$$-\frac{3}{40}\sqrt{1-2x}(3x+2)(5x+3)^{5/2}-\frac{251}{800}\sqrt{1-2x}(5x+3)^{5/2}-\frac{14529\sqrt{1-2x}(5x+3)^{3/2}}{6400}-\frac{479457\sqrt{1-2x}\sqrt{5x+3}}{25600}+\frac{5274027\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{25600\sqrt{10}}$$

```
[Out] (-479457*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/25600 - (14529*Sqrt[1 - 2*x
]*(3 + 5*x)^(3/2))/6400 - (251*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/800
 - (3*Sqrt[1 - 2*x]*(2 + 3*x)*(3 + 5*x)^(5/2))/40 + (5274027*ArcS
in[Sqrt[2/11]*Sqrt[3 + 5*x]])/(25600*Sqrt[10])
```

Rubi [A] time = 0.140917, antiderivative size = 121, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$-\frac{3}{40}\sqrt{1-2x}(3x+2)(5x+3)^{5/2}-\frac{251}{800}\sqrt{1-2x}(5x+3)^{5/2}-\frac{14529\sqrt{1-2x}(5x+3)^{3/2}}{6400}-\frac{479457\sqrt{1-2x}\sqrt{5x+3}}{25600}+\frac{5274027\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{25600\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^2*(3 + 5*x)^(3/2))/Sqrt[1 - 2*x],x]
```

```
[Out] (-479457*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/25600 - (14529*Sqrt[1 - 2*x
]*(3 + 5*x)^(3/2))/6400 - (251*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/800
 - (3*Sqrt[1 - 2*x]*(2 + 3*x)*(3 + 5*x)^(5/2))/40 + (5274027*ArcS
in[Sqrt[2/11]*Sqrt[3 + 5*x]])/(25600*Sqrt[10])
```

Rubi in Sympy [A] time = 11.6318, size = 109, normalized size = 0.9

$$-\frac{\sqrt{-2x+1}\,(5x+3)^{\frac{5}{2}}\,(9x+6)}{40}-\frac{251\sqrt{-2x+1}\,(5x+3)^{\frac{5}{2}}}{800}-\frac{14529\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{6400}-\frac{479457\sqrt{-2x+1}\sqrt{5x+3}}{25600}+\frac{5274027\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{256000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2*(3+5*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] -sqrt(-2*x + 1)*(5*x + 3)**(5/2)*(9*x + 6)/40 - 251*sqrt(-2*x + 1
)*(5*x + 3)**(5/2)/800 - 14529*sqrt(-2*x + 1)*(5*x + 3)**(3/2)/64
00 - 479457*sqrt(-2*x + 1)*sqrt(5*x + 3)/25600 + 5274027*sqrt(10)
*asin(sqrt(22)*sqrt(5*x + 3)/11)/256000
```

Mathematica [A] time = 0.0957549, size = 65, normalized size = 0.54

$$\frac{-10\sqrt{1-2x}\sqrt{5x+3}\left(144000x^3+469600x^2+698580x+760653\right)-5274027\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{256000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^2*(3 + 5*x)^(3/2))/Sqrt[1 - 2*x],x]
```

```
[Out] (-10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(760653 + 698580*x + 469600*x^2
+ 144000*x^3) - 5274027*Sqrt[10]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]]
)/256000
```

Maple [A] time = 0.014, size = 104, normalized size = 0.9

$$\frac{1}{512000}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(-2880000\,x^{3}\sqrt{-10\,x^{2}-x+3}-9392000\,x^{2}\sqrt{-10\,x^{2}-x+3}+5274027\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2*(3+5*x)^(3/2)/(1-2*x)^(1/2),x)
```

```
[Out] 1/512000*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(-2880000*x^3*(-10*x^2-x+3)^
(1/2)-9392000*x^2*(-10*x^2-x+3)^(1/2)+5274027*10^(1/2)*arcsin(20/
11*x+1/11)-13971600*x*(-10*x^2-x+3)^(1/2)-15213060*(-10*x^2-x+3)^
(1/2))/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.48966, size = 101, normalized size = 0.83

$$-\frac{45}{8}\sqrt{-10\,x^{2}-x+3}x^{3}-\frac{587}{32}\sqrt{-10\,x^{2}-x+3}x^{2}-\frac{34929}{1280}\sqrt{-10\,x^{2}-x+3}x-\frac{5274027}{512000}\sqrt{10}\arcsin\left(-\frac{20}{11}\,x-\frac{1}{11}\right)-\frac{760653}{25600}\sqrt{-10\,x^{2}-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)^2/sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] -45/8*sqrt(-10*x^2 - x + 3)*x^3 - 587/32*sqrt(-10*x^2 - x + 3)*x^
2 - 34929/1280*sqrt(-10*x^2 - x + 3)*x - 5274027/512000*sqrt(10)*
arcsin(-20/11*x - 1/11) - 760653/25600*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.217052, size = 90, normalized size = 0.74

$$-\frac{1}{512000}\sqrt{10}\left(2\sqrt{10}\left(144000\,x^{3}+469600\,x^{2}+698580\,x+760653\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-5274027\,\arctan\left(\frac{\sqrt{10}(20\,x+1)}{20\sqrt{5\,x+3}\sqrt{-2\,x}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)^2/sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] -1/512000*sqrt(10)*(2*sqrt(10)*(144000*x^3 + 469600*x^2 + 698580*
x + 760653)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 5274027*arctan(1/20*sq
rt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [A] time = 57.2444, size = 398, normalized size = 3.29

$$\frac{2\sqrt{5}\left(\begin{cases}\frac{121\sqrt{2}\left(\frac{\sqrt{2}(-20x-1)\sqrt{-10x+5}\sqrt{5x+3}}{968}-\frac{\sqrt{2}\sqrt{-10x+5}\sqrt{5x+3}}{22}+\frac{3\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{8}\right)}{8} & \text{for}\ x\geq-\frac{3}{5}\wedge x<\frac{1}{2}\end{cases}\right)}{125}+\frac{12\sqrt{5}\left(\begin{cases}\frac{1331\sqrt{2}\left(\frac{3\sqrt{2}(-20x-1)\sqrt{-10x+5}\sqrt{5x+3}}{1936}+\frac{\sqrt{2}(-10x+5)^{\frac{3}{2}}(5x+3)^{\frac{3}{2}}}{3993}-\frac{\sqrt{2}\sqrt{-10x+5}\sqrt{5x+3}}{22}+\frac{5\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{16}\right)}{16} & \text{for}\ x\geq-\frac{3}{5}\wedge x<\frac{1}{2}\end{cases}\right)}{125}+\frac{18\sqrt{5}\left(\begin{cases}\frac{14641\sqrt{2}\left(\frac{7\sqrt{2}(-20x-1)\sqrt{-10x+5}\sqrt{5x+3}}{3872}+\frac{2\sqrt{2}(-10x+5)^{\frac{3}{2}}(5x+3)^{\frac{3}{2}}}{3993}+\frac{\sqrt{2}\sqrt{-10x+5}\sqrt{5x+3}\left(-12100x-128(5x+3)^{3}+1056(5x+3)^{2}-5929\right)}{1874048}-\frac{\sqrt{2}\sqrt{-10x+5}\sqrt{5x+3}}{22}+\frac{35\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{128}\right)}{32}\end{cases}\right)}{125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2*(3+5*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] 2*sqrt(5)*Piecewise((121*sqrt(2)*(sqrt(2)*(-20*x - 1)*sqrt(-10*x
+ 5)*sqrt(5*x + 3)/968 - sqrt(2)*sqrt(-10*x + 5)*sqrt(5*x + 3)/22
 + 3*asin(sqrt(22)*sqrt(5*x + 3)/11)/8)/8, (x >= -3/5) & (x < 1/2
)))/125 + 12*sqrt(5)*Piecewise((1331*sqrt(2)*(3*sqrt(2)*(-20*x -
1)*sqrt(-10*x + 5)*sqrt(5*x + 3)/1936 + sqrt(2)*(-10*x + 5)**(3/2
)*(5*x + 3)**(3/2)/3993 - sqrt(2)*sqrt(-10*x + 5)*sqrt(5*x + 3)/2
2 + 5*asin(sqrt(22)*sqrt(5*x + 3)/11)/16)/16, (x >= -3/5) & (x <
1/2)))/125 + 18*sqrt(5)*Piecewise((14641*sqrt(2)*(7*sqrt(2)*(-20*
x - 1)*sqrt(-10*x + 5)*sqrt(5*x + 3)/3872 + 2*sqrt(2)*(-10*x + 5)
**(3/2)*(5*x + 3)**(3/2)/3993 + sqrt(2)*sqrt(-10*x + 5)*sqrt(5*x
+ 3)*(-12100*x - 128*(5*x + 3)**3 + 1056*(5*x + 3)**2 - 5929)/187
4048 - sqrt(2)*sqrt(-10*x + 5)*sqrt(5*x + 3)/22 + 35*asin(sqrt(22
)*sqrt(5*x + 3)/11)/128)/32, (x >= -3/5) & (x < 1/2)))/125
```

GIAC/XCAS [A] time = 0.232241, size = 85, normalized size = 0.7

$$-\frac{1}{256000}\sqrt{5}\left(2\left(4\left(8\left(180x+371\right)(5x+3)+14529\right)(5x+3)+479457\right)\sqrt{5x+3}\sqrt{-10x+5}-5274027\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)^2/sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] -1/256000*sqrt(5)*(2*(4*(8*(180*x + 371)*(5*x + 3) + 14529)*(5*x
+ 3) + 479457)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 5274027*sqrt(2)*ar
csin(1/11*sqrt(22)*sqrt(5*x + 3)))
```

3.2453 $\int \frac{(2+3x)(3+5x)^{3/2}}{\sqrt{1-2x}}\,dx$

Optimal. Leaf size=94

$$-\frac{1}{10}\sqrt{1-2x}(5x+3)^{5/2}-\frac{59}{80}\sqrt{1-2x}(5x+3)^{3/2}-\frac{1947}{320}\sqrt{1-2x}\sqrt{5x+3}+\frac{21417\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{320\sqrt{10}}$$

```
[Out] (-1947*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/320 - (59*Sqrt[1 - 2*x]*(3 +
5*x)^(3/2))/80 - (Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/10 + (21417*ArcS
in[Sqrt[2/11]*Sqrt[3 + 5*x]])/(320*Sqrt[10])
```

Rubi [A] time = 0.0956151, antiderivative size = 94, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$-\frac{1}{10}\sqrt{1-2x}(5x+3)^{5/2}-\frac{59}{80}\sqrt{1-2x}(5x+3)^{3/2}-\frac{1947}{320}\sqrt{1-2x}\sqrt{5x+3}+\frac{21417\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{320\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In] Int[((2 + 3*x)*(3 + 5*x)^(3/2))/Sqrt[1 - 2*x],x]
```

```
[Out] (-1947*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/320 - (59*Sqrt[1 - 2*x]*(3 +
5*x)^(3/2))/80 - (Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/10 + (21417*ArcS
in[Sqrt[2/11]*Sqrt[3 + 5*x]])/(320*Sqrt[10])
```

Rubi in Sympy [A] time = 8.833, size = 83, normalized size = 0.88

$$-\frac{\sqrt{-2x+1}\,(5x+3)^{\frac{5}{2}}}{10}-\frac{59\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{80}-\frac{1947\sqrt{-2x+1}\sqrt{5x+3}}{320}+\frac{21417\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{3200}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)*(3+5*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] -sqrt(-2*x + 1)*(5*x + 3)**(5/2)/10 - 59*sqrt(-2*x + 1)*(5*x + 3)
**(3/2)/80 - 1947*sqrt(-2*x + 1)*sqrt(5*x + 3)/320 + 21417*sqrt(1
0)*asin(sqrt(22)*sqrt(5*x + 3)/11)/3200
```

Mathematica [A] time = 0.063317, size = 60, normalized size = 0.64

$$\frac{-10\sqrt{1-2x}\sqrt{5x+3}\left(800x^2+2140x+2943\right)-21417\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{3200}$$

Antiderivative was successfully verified.

```
[In] Integrate[((2 + 3*x)*(3 + 5*x)^(3/2))/Sqrt[1 - 2*x],x]
```

```
[Out] (-10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(2943 + 2140*x + 800*x^2) - 2141
7*Sqrt[10]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/3200
```

Maple [A] time = 0.013, size = 87, normalized size = 0.9

$$\frac{1}{6400}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(-16000\,x^{2}\sqrt{-10\,x^{2}-x+3}+21417\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)-42800\,x\sqrt{-10\,x^{2}-x+3}-58860\,\sqrt{\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)*(3+5*x)^(3/2)/(1-2*x)^(1/2),x)
```

```
[Out] 1/6400*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(-16000*x^2*(-10*x^2-x+3)^(1/2
)+21417*10^(1/2)*arcsin(20/11*x+1/11)-42800*x*(-10*x^2-x+3)^(1/2)
-58860*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.50554, size = 78, normalized size = 0.83

$$-\frac{5}{2}\sqrt{-10\,x^{2}-x+3}x^{2}-\frac{107}{16}\sqrt{-10\,x^{2}-x+3}x-\frac{21417}{6400}\sqrt{10}\arcsin\left(-\frac{20}{11}\,x-\frac{1}{11}\right)-\frac{2943}{320}\sqrt{-10\,x^{2}-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)/sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] -5/2*sqrt(-10*x^2 - x + 3)*x^2 - 107/16*sqrt(-10*x^2 - x + 3)*x -
 21417/6400*sqrt(10)*arcsin(-20/11*x - 1/11) - 2943/320*sqrt(-10*
x^2 - x + 3)
```

Fricas [A] time = 0.216451, size = 84, normalized size = 0.89

$$-\frac{1}{6400}\sqrt{10}\left(2\,\sqrt{10}\left(800\,x^{2}+2140\,x+2943\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-21417\,\arctan\left(\frac{\sqrt{10}(20\,x+1)}{20\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)/sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] -1/6400*sqrt(10)*(2*sqrt(10)*(800*x^2 + 2140*x + 2943)*sqrt(5*x +
 3)*sqrt(-2*x + 1) - 21417*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(
5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [A] time = 34.0048, size = 224, normalized size = 2.38

$$\frac{2\sqrt{5}\left(\begin{cases}\frac{121\sqrt{2}\left(\frac{\sqrt{2}(-20x-1)\sqrt{-10x+5}\sqrt{5x+3}}{968}-\frac{\sqrt{2}\sqrt{-10x+5}\sqrt{5x+3}}{22}+\frac{3\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{8}\right)}{8} & \text{for}\: x\geq -\frac{3}{5}\wedge x<\frac{1}{2}\end{cases}\right)}{25}+\frac{6\sqrt{5}\left(\begin{cases}\frac{1331\sqrt{2}\left(\frac{3\sqrt{2}(-20x-1)\sqrt{-10x+5}\sqrt{5x+3}}{1936}+\frac{\sqrt{2}(-10x+5)^{\frac{3}{2}}(5x+3)^{\frac{3}{2}}}{3993}-\frac{\sqrt{2}\sqrt{-10x+5}\sqrt{5x+3}}{22}+\frac{5\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{16}\right)}{16} & \text{for}\: x\geq -\frac{3}{5}\wedge x<\frac{1}{2}\end{cases}\right)}{25}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)*(3+5*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] 2*sqrt(5)*Piecewise((121*sqrt(2)*(sqrt(2)*(-20*x - 1)*sqrt(-10*x
+ 5)*sqrt(5*x + 3)/968 - sqrt(2)*sqrt(-10*x + 5)*sqrt(5*x + 3)/22
```

```
 + 3*asin(sqrt(22)*sqrt(5*x + 3)/11)/8)/8, (x >= -3/5) & (x < 1/2
)))/25 + 6*sqrt(5)*Piecewise((1331*sqrt(2)*(3*sqrt(2)*(-20*x - 1)
*sqrt(-10*x + 5)*sqrt(5*x + 3)/1936 + sqrt(2)*(-10*x + 5)**(3/2)*
(5*x + 3)**(3/2)/3993 - sqrt(2)*sqrt(-10*x + 5)*sqrt(5*x + 3)/22
+ 5*asin(sqrt(22)*sqrt(5*x + 3)/11)/16)/16, (x >= -3/5) & (x < 1/
2)))/25
```

GIAC/XCAS [A] time = 0.227513, size = 73, normalized size = 0.78

$$-\frac{1}{3200}\,\sqrt{5}\left(2\,(4\,(40\,x+83)(5\,x+3)+1947)\sqrt{5\,x+3}\sqrt{-10\,x+5}-21417\,\sqrt{2}\arcsin\left(\frac{1}{11}\,\sqrt{22}\sqrt{5\,x+3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(3*x + 2)/sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] -1/3200*sqrt(5)*(2*(4*(40*x + 83)*(5*x + 3) + 1947)*sqrt(5*x + 3)
*sqrt(-10*x + 5) - 21417*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x +
3)))
```

3.2454 $\int \frac{(3+5x)^{3/2}}{\sqrt{1-2x}}\,dx$

Optimal. Leaf size=72

$$-\frac{1}{4}\sqrt{1-2x}(5x+3)^{3/2}-\frac{33}{16}\sqrt{1-2x}\sqrt{5x+3}+\frac{363\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{16\sqrt{10}}$$

```
[Out] (-33*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/16 - (Sqrt[1 - 2*x]*(3 + 5*x)^(
3/2))/4 + (363*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(16*Sqrt[10])
```

Rubi [A] time = 0.0643038, antiderivative size = 72, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.158

$$-\frac{1}{4}\sqrt{1-2x}(5x+3)^{3/2}-\frac{33}{16}\sqrt{1-2x}\sqrt{5x+3}+\frac{363\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{16\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(3/2)/Sqrt[1 - 2*x],x]
```

```
[Out] (-33*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/16 - (Sqrt[1 - 2*x]*(3 + 5*x)^(
3/2))/4 + (363*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(16*Sqrt[10])
```

Rubi in Sympy [A] time = 6.48045, size = 63, normalized size = 0.88

$$-\frac{\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{4}-\frac{33\sqrt{-2x+1}\sqrt{5x+3}}{16}+\frac{363\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{160}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] -sqrt(-2*x + 1)*(5*x + 3)**(3/2)/4 - 33*sqrt(-2*x + 1)*sqrt(5*x +
 3)/16 + 363*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/160
```

Mathematica [A] time = 0.0481386, size = 55, normalized size = 0.76

$$\frac{1}{160}\left(-50\sqrt{1-2x}\sqrt{5x+3}(4x+9)-363\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(3/2)/Sqrt[1 - 2*x],x]
```

```
[Out] (-50*Sqrt[1 - 2*x]*(9 + 4*x)*Sqrt[3 + 5*x] - 363*Sqrt[10]*ArcSin[
Sqrt[5/11]*Sqrt[1 - 2*x]])/160
```

Maple [A] time = 0.005, size = 72, normalized size = 1.

$$-\frac{1}{4}(3+5x)^{\frac{3}{2}}\sqrt{1-2x}-\frac{33}{16}\sqrt{1-2x}\sqrt{3+5x}$$
$$+\frac{363\sqrt{10}}{320}\sqrt{(1-2x)(3+5x)}\arcsin\left(\frac{20x}{11}+\frac{1}{11}\right)\frac{1}{\sqrt{1-2x}}\frac{1}{\sqrt{3+5x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((3+5*x)^(3/2)/(1-2*x)^(1/2),x)
```

```
[Out] -1/4*(3+5*x)^(3/2)*(1-2*x)^(1/2)-33/16*(1-2*x)^(1/2)*(3+5*x)^(1/2
)+363/320*((1-2*x)*(3+5*x))^(1/2)/(3+5*x)^(1/2)/(1-2*x)^(1/2)*10^
(1/2)*arcsin(20/11*x+1/11)
```

Maxima [A]   time = 1.50983, size = 55, normalized size = 0.76

$$-\frac{5}{4}\sqrt{-10\,x^2 - x + 3}x - \frac{363}{320}\sqrt{10}\arcsin\left(-\frac{20}{11}\,x - \frac{1}{11}\right) - \frac{45}{16}\sqrt{-10\,x^2 - x + 3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((5*x + 3)^(3/2)/sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] -5/4*sqrt(-10*x^2 - x + 3)*x - 363/320*sqrt(10)*arcsin(-20/11*x -
 1/11) - 45/16*sqrt(-10*x^2 - x + 3)
```

Fricas [A]   time = 0.222764, size = 77, normalized size = 1.07

$$-\frac{1}{320}\sqrt{10}\left(10\sqrt{10}\sqrt{5\,x + 3}(4\,x + 9)\sqrt{-2\,x + 1} - 363\,\arctan\left(\frac{\sqrt{10}(20\,x + 1)}{20\sqrt{5\,x + 3}\sqrt{-2\,x + 1}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((5*x + 3)^(3/2)/sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] -1/320*sqrt(10)*(10*sqrt(10)*sqrt(5*x + 3)*(4*x + 9)*sqrt(-2*x +
1) - 363*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x
 + 1))))
```

Sympy [A]   time = 6.1716, size = 187, normalized size = 2.6

$$\begin{cases} -\frac{25i\left(x+\frac{3}{5}\right)^{\frac{5}{2}}}{2\sqrt{10x-5}} - \frac{55i\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}{8\sqrt{10x-5}} + \frac{363i\sqrt{x+\frac{3}{5}}}{16\sqrt{10x-5}} - \frac{363\sqrt{10}i\operatorname{acosh}\left(\frac{\sqrt{110}\sqrt{x+\frac{3}{5}}}{11}\right)}{160} & \text{for}\ \frac{10\left|x+\frac{3}{5}\right|}{11} > 1 \\ \frac{363\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{110}\sqrt{x+\frac{3}{5}}}{11}\right)}{160} + \frac{25\left(x+\frac{3}{5}\right)^{\frac{5}{2}}}{2\sqrt{-10x+5}} + \frac{55\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}{8\sqrt{-10x+5}} - \frac{363\sqrt{x+\frac{3}{5}}}{16\sqrt{-10x+5}} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((3+5*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] Piecewise((-25*I*(x + 3/5)**(5/2)/(2*sqrt(10*x - 5)) - 55*I*(x +
3/5)**(3/2)/(8*sqrt(10*x - 5)) + 363*I*sqrt(x + 3/5)/(16*sqrt(10*
x - 5)) - 363*sqrt(10)*I*acosh(sqrt(110)*sqrt(x + 3/5)/11)/160, 1
0*Abs(x + 3/5)/11 > 1), (363*sqrt(10)*asin(sqrt(110)*sqrt(x + 3/5
)/11)/160 + 25*(x + 3/5)**(5/2)/(2*sqrt(-10*x + 5)) + 55*(x + 3/5
)**(3/2)/(8*sqrt(-10*x + 5)) - 363*sqrt(x + 3/5)/(16*sqrt(-10*x +
 5)), True))
```

GIAC/XCAS [A]   time = 0.228622, size = 61, normalized size = 0.85

$$-\frac{1}{160}\sqrt{5}\left(10\sqrt{5\,x + 3}(4\,x + 9)\sqrt{-10\,x + 5} - 363\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5\,x + 3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] -1/160*sqrt(5)*(10*sqrt(5*x + 3)*(4*x + 9)*sqrt(-10*x + 5) - 363*
sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)))
```

3.2455 $\int \frac{(3+5x)^{3/2}}{\sqrt{1-2x}(2+3x)}\,dx$

Optimal. Leaf size=86

$$-\frac{5}{6}\sqrt{1-2x}\sqrt{5x+3}+\frac{29}{18}\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{2\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{9\sqrt{7}}$$

```
[Out] (-5*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/6 + (29*Sqrt[5/2]*ArcSin[Sqrt[2/
11]*Sqrt[3 + 5*x]])/18 - (2*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3
+ 5*x])])/(9*Sqrt[7])
```

Rubi [A] time = 0.174828, antiderivative size = 86, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$-\frac{5}{6}\sqrt{1-2x}\sqrt{5x+3}+\frac{29}{18}\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{2\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{9\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(3/2)/(Sqrt[1 - 2*x]*(2 + 3*x)),x]
```

```
[Out] (-5*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/6 + (29*Sqrt[5/2]*ArcSin[Sqrt[2/
11]*Sqrt[3 + 5*x]])/18 - (2*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3
+ 5*x])])/(9*Sqrt[7])
```

Rubi in Sympy [A] time = 16.2237, size = 78, normalized size = 0.91

$$-\frac{5\sqrt{-2x+1}\sqrt{5x+3}}{6}+\frac{29\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{36}-\frac{2\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{63}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(3/2)/(2+3*x)/(1-2*x)**(1/2),x)
```

```
[Out] -5*sqrt(-2*x + 1)*sqrt(5*x + 3)/6 + 29*sqrt(10)*asin(sqrt(22)*sqr
t(5*x + 3)/11)/36 - 2*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt
(5*x + 3)))/63
```

Mathematica [A] time = 0.110822, size = 95, normalized size = 1.1

$$\frac{1}{504}\left(-420\sqrt{1-2x}\sqrt{5x+3}-8\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)+203\sqrt{10}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(3/2)/(Sqrt[1 - 2*x]*(2 + 3*x)),x]
```

```
[Out] (-420*Sqrt[1 - 2*x]*Sqrt[3 + 5*x] - 8*Sqrt[7]*ArcTan[(-20 - 37*x)
/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])] + 203*Sqrt[10]*ArcTan[(1 + 20*
x)/(2*Sqrt[1 - 2*x]*Sqrt[30 + 50*x])])/504
```

Maple [A] time = 0.017, size = 83, normalized size = 1.

$$\frac{1}{504}\sqrt{1-2x}\sqrt{3+5x}\left(8\sqrt{7}\arctan\left(1/14\,\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)+203\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)-420\sqrt{-10x^2-x+3}\right)\frac{1}{\sqrt{-10}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(3/2)/(2+3*x)/(1-2*x)^(1/2),x)
```

```
[Out] 1/504*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(8*7^(1/2)*arctan(1/14*(37*x+20
)*7^(1/2)/(-10*x^2-x+3)^(1/2))+203*10^(1/2)*arcsin(20/11*x+1/11)-
420*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.49811, size = 73, normalized size = 0.85

$$\frac{29}{72}\sqrt{10}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)+\frac{1}{63}\sqrt{7}\arcsin\left(\frac{37x}{11|3x+2|}+\frac{20}{11|3x+2|}\right)-\frac{5}{6}\sqrt{-10x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/((3*x + 2)*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 29/72*sqrt(10)*arcsin(20/11*x + 1/11) + 1/63*sqrt(7)*arcsin(37/11
*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) - 5/6*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.228147, size = 131, normalized size = 1.52

$$-\frac{1}{504}\sqrt{7}\sqrt{2}\left(30\sqrt{7}\sqrt{2}\sqrt{5x+3}\sqrt{-2x+1}-29\sqrt{7}\sqrt{5}\arctan\left(\frac{\sqrt{5}\sqrt{2}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)-4\sqrt{2}\arctan\left(\frac{\sqrt{7}(37x+20)}{14\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/((3*x + 2)*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/504*sqrt(7)*sqrt(2)*(30*sqrt(7)*sqrt(2)*sqrt(5*x + 3)*sqrt(-2*
x + 1) - 29*sqrt(7)*sqrt(5)*arctan(1/20*sqrt(5)*sqrt(2)*(20*x + 1
)/(sqrt(5*x + 3)*sqrt(-2*x + 1))) - 4*sqrt(2)*arctan(1/14*sqrt(7)
*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(5x+3)^{\frac{3}{2}}}{\sqrt{-2x+1}\,(3x+2)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(3/2)/(2+3*x)/(1-2*x)**(1/2),x)
```

```
[Out] Integral((5*x + 3)**(3/2)/(sqrt(-2*x + 1)*(3*x + 2)), x)
```

GIAC/XCAS [A] time = 0.276378, size = 216, normalized size = 2.51

$$\frac{1}{630}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)+\frac{29}{72}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{4\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{1}{6}\sqrt{5}\sqrt{5x+3}\sqrt{-10x+5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)/((3*x + 2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 1/630*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x +
 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqrt(
2)*sqrt(-10*x + 5) - sqrt(22)))) + 29/72*sqrt(10)*(pi + 2*arctan(
-1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x +
 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 1/6*sqrt(5)*sqr
t(5*x + 3)*sqrt(-10*x + 5)
```

3.2456 $\int \frac{(3+5x)^{3/2}}{\sqrt{1-2x}(2+3x)^2}\,dx$

Optimal. Leaf size=91

$$\frac{\sqrt{1-2x}\sqrt{5x+3}}{21(3x+2)}+\frac{5}{9}\sqrt{10}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)+\frac{103\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{63\sqrt{7}}$$

```
[Out] (Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(21*(2 + 3*x)) + (5*Sqrt[10]*ArcSin
[Sqrt[2/11]*Sqrt[3 + 5*x]])/9 + (103*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7
]*Sqrt[3 + 5*x])])/(63*Sqrt[7])
```

Rubi [A] time = 0.175931, antiderivative size = 91, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$\frac{\sqrt{1-2x}\sqrt{5x+3}}{21(3x+2)}+\frac{5}{9}\sqrt{10}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)+\frac{103\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{63\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(3/2)/(Sqrt[1 - 2*x]*(2 + 3*x)^2),x]
```

```
[Out] (Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(21*(2 + 3*x)) + (5*Sqrt[10]*ArcSin
[Sqrt[2/11]*Sqrt[3 + 5*x]])/9 + (103*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7
]*Sqrt[3 + 5*x])])/(63*Sqrt[7])
```

Rubi in Sympy [A] time = 16.2451, size = 80, normalized size = 0.88

$$\frac{\sqrt{-2x+1}\sqrt{5x+3}}{21\,(3x+2)}+\frac{5\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{9}+\frac{103\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{441}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(3/2)/(2+3*x)**2/(1-2*x)**(1/2),x)
```

```
[Out] sqrt(-2*x + 1)*sqrt(5*x + 3)/(21*(3*x + 2)) + 5*sqrt(10)*asin(sqr
t(22)*sqrt(5*x + 3)/11)/9 + 103*sqrt(7)*atan(sqrt(7)*sqrt(-2*x +
1)/(7*sqrt(5*x + 3)))/441
```

Mathematica [A] time = 0.13841, size = 102, normalized size = 1.12

$$\frac{1}{882}\left(\frac{42\sqrt{1-2x}\sqrt{5x+3}}{3x+2}+103\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)+245\sqrt{10}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(3/2)/(Sqrt[1 - 2*x]*(2 + 3*x)^2),x]
```

```
[Out] ((42*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2 + 3*x) + 103*Sqrt[7]*ArcTan[
(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])] + 245*Sqrt[10]*Arc
Tan[(1 + 20*x)/(2*Sqrt[1 - 2*x]*Sqrt[30 + 50*x])])/882
```

Maple [A] time = 0.019, size = 131, normalized size = 1.4

$$-\frac{1}{1764+2646x}\sqrt{1-2x}\sqrt{3+5x}\left(309\sqrt{7}\arctan\left(1/14\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)x-735\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)x+206\sqrt{7}\mathrm{arc}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(3/2)/(2+3*x)^2/(1-2*x)^(1/2),x)
```

```
[Out] -1/882*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(309*7^(1/2)*arctan(1/14*(37*x
+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x-735*10^(1/2)*arcsin(20/11*x+1
/11)*x+206*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1
/2))-490*10^(1/2)*arcsin(20/11*x+1/11)-42*(-10*x^2-x+3)^(1/2))/(-
10*x^2-x+3)^(1/2)/(2+3*x)
```

Maxima [A] time = 1.5099, size = 82, normalized size = 0.9

$$\frac{5}{18}\sqrt{10}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)-\frac{103}{882}\sqrt{7}\arcsin\left(\frac{37x}{11|3x+2|}+\frac{20}{11|3x+2|}\right)+\frac{\sqrt{-10x^2-x+3}}{21(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/((3*x + 2)^2*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 5/18*sqrt(10)*arcsin(20/11*x + 1/11) - 103/882*sqrt(7)*arcsin(37/
11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) + 1/21*sqrt(-10*x^2 - x +
 3)/(3*x + 2)
```

Fricas [A] time = 0.229806, size = 138, normalized size = 1.52

$$\frac{\sqrt{7}\left(35\sqrt{10}\sqrt{7}(3x+2)\arctan\left(\frac{\sqrt{10}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)-103(3x+2)\arctan\left(\frac{\sqrt{7}(37x+20)}{14\sqrt{5x+3}\sqrt{-2x+1}}\right)+6\sqrt{7}\sqrt{5x+3}\sqrt{-2x+1}\right)}{882(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/((3*x + 2)^2*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] 1/882*sqrt(7)*(35*sqrt(10)*sqrt(7)*(3*x + 2)*arctan(1/20*sqrt(10)
*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))) - 103*(3*x + 2)*arcta
n(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))) + 6*sq
rt(7)*sqrt(5*x + 3)*sqrt(-2*x + 1))/(3*x + 2)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(3/2)/(2+3*x)**2/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.295393, size = 351, normalized size = 3.86

$$-\frac{103}{8820}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)+\frac{5}{18}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{4\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)+\frac{22\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)}{21\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)/((3*x + 2)^2*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] -103/8820*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5
*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(s
qrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 5/18*sqrt(10)*(pi + 2*arct
an(-1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*
x + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 22/21*sqrt(1
0)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5
*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))/(((sqrt(2)*sqrt(-10
*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt
(-10*x + 5) - sqrt(22)))^2 + 280)
```

3.2457 $\int \frac{(3+5x)^{3/2}}{\sqrt{1-2x}(2+3x)^3}\,dx$

Optimal. Leaf size=93

$$-\frac{\sqrt{1-2x}(5x+3)^{3/2}}{14(3x+2)^2}-\frac{33\sqrt{1-2x}\sqrt{5x+3}}{196(3x+2)}-\frac{363\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{196\sqrt{7}}$$

```
[Out] (-33*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(196*(2 + 3*x)) - (Sqrt[1 - 2*x
]*(3 + 5*x)^(3/2))/(14*(2 + 3*x)^2) - (363*ArcTan[Sqrt[1 - 2*x]/(
Sqrt[7]*Sqrt[3 + 5*x])])/(196*Sqrt[7])
```

Rubi [A] time = 0.127018, antiderivative size = 93, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.115

$$-\frac{\sqrt{1-2x}(5x+3)^{3/2}}{14(3x+2)^2}-\frac{33\sqrt{1-2x}\sqrt{5x+3}}{196(3x+2)}-\frac{363\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{196\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(3/2)/(Sqrt[1 - 2*x]*(2 + 3*x)^3),x]
```

```
[Out] (-33*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(196*(2 + 3*x)) - (Sqrt[1 - 2*x
]*(3 + 5*x)^(3/2))/(14*(2 + 3*x)^2) - (363*ArcTan[Sqrt[1 - 2*x]/(
Sqrt[7]*Sqrt[3 + 5*x])])/(196*Sqrt[7])
```

Rubi in Sympy [A] time = 10.7598, size = 83, normalized size = 0.89

$$-\frac{33\sqrt{-2x+1}\sqrt{5x+3}}{196\,(3x+2)}-\frac{\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{14\,(3x+2)^2}-\frac{363\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{1372}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(3/2)/(2+3*x)**3/(1-2*x)**(1/2),x)
```

```
[Out] -33*sqrt(-2*x + 1)*sqrt(5*x + 3)/(196*(3*x + 2)) - sqrt(-2*x + 1)
*(5*x + 3)**(3/2)/(14*(3*x + 2)**2) - 363*sqrt(7)*atan(sqrt(7)*sq
rt(-2*x + 1)/(7*sqrt(5*x + 3)))/1372
```

Mathematica [A] time = 0.0778448, size = 72, normalized size = 0.77

$$\frac{-\frac{14\sqrt{1-2x}\sqrt{5x+3}(169x+108)}{(3x+2)^2}-363\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{2744}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(3/2)/(Sqrt[1 - 2*x]*(2 + 3*x)^3),x]
```

```
[Out] ((-14*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(108 + 169*x))/(2 + 3*x)^2 - 36
3*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/
2744
```

Maple [B] time = 0.019, size = 154, normalized size = 1.7

$$\frac{1}{2744\,(2+3\,x)^2}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(3267\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^2+4356\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(3/2)/(2+3*x)^3/(1-2*x)^(1/2),x)
```

```
[Out] 1/2744*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(3267*7^(1/2)*arctan(1/14*(37*
x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+4356*7^(1/2)*arctan(1/14*(
37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+1452*7^(1/2)*arctan(1/14*
(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))-2366*x*(-10*x^2-x+3)^(1/2)
-1512*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)^2
```

Maxima [A] time = 1.51208, size = 103, normalized size = 1.11

$$\frac{363}{2744}\,\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{\sqrt{-10\,x^2-x+3}}{42\,(9\,x^2+12\,x+4)}-\frac{169\,\sqrt{-10\,x^2-x+3}}{588\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/((3*x + 2)^3*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 363/2744*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)
) + 1/42*sqrt(-10*x^2 - x + 3)/(9*x^2 + 12*x + 4) - 169/588*sqrt(
-10*x^2 - x + 3)/(3*x + 2)
```

Fricas [A] time = 0.220167, size = 107, normalized size = 1.15

$$-\frac{\sqrt{7}\left(2\,\sqrt{7}(169\,x+108)\sqrt{5\,x+3}\sqrt{-2\,x+1}-363\,\left(9\,x^2+12\,x+4\right)\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)}{2744\,(9\,x^2+12\,x+4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/((3*x + 2)^3*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/2744*sqrt(7)*(2*sqrt(7)*(169*x + 108)*sqrt(5*x + 3)*sqrt(-2*x
+ 1) - 363*(9*x^2 + 12*x + 4)*arctan(1/14*sqrt(7)*(37*x + 20)/(sq
rt(5*x + 3)*sqrt(-2*x + 1))))/(9*x^2 + 12*x + 4)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(3/2)/(2+3*x)**3/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.304443, size = 347, normalized size = 3.73

$$\frac{363}{27440}\,\sqrt{70}\sqrt{10}\left(\pi + 2\,\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{2}}{5\,x+3} - 4\right)}{140\,\left(\sqrt{2}\sqrt{-10\,x+5} - \sqrt{22}\right)}\right)\right) - \frac{121\left(3\,\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}} - \frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^{3} + 1400\,\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}} - \frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)\right)}{98\left(\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}} - \frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^{2} + 280\right)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)/((3*x + 2)^3*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 363/27440*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5
*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(s
qrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 121/98*(3*sqrt(10)*((sqrt(
2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(s
qrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 1400*sqrt(10)*((sqrt(2)*s
qrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(
2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) - sqr
t(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) -
 sqrt(22)))^2 + 280)^2
```

3.2458 $\int \frac{(3+5x)^{3/2}}{\sqrt{1-2x}(2+3x)^4} dx$

Optimal. Leaf size=122

$$\frac{\sqrt{1-2x}(5x+3)^{5/2}}{7(3x+2)^3}-\frac{15\sqrt{1-2x}(5x+3)^{3/2}}{196(3x+2)^2}-\frac{495\sqrt{1-2x}\sqrt{5x+3}}{2744(3x+2)}-\frac{5445\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{2744\sqrt{7}}$$

```
[Out] (-495*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2744*(2 + 3*x)) - (15*Sqrt[1
- 2*x]*(3 + 5*x)^(3/2))/(196*(2 + 3*x)^2) + (Sqrt[1 - 2*x]*(3 + 5
*x)^(5/2))/(7*(2 + 3*x)^3) - (5445*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*
Sqrt[3 + 5*x])])/(2744*Sqrt[7])
```

Rubi [A] time = 0.172516, antiderivative size = 122, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$\frac{\sqrt{1-2x}(5x+3)^{5/2}}{7(3x+2)^3}-\frac{15\sqrt{1-2x}(5x+3)^{3/2}}{196(3x+2)^2}-\frac{495\sqrt{1-2x}\sqrt{5x+3}}{2744(3x+2)}-\frac{5445\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{2744\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(3/2)/(Sqrt[1 - 2*x]*(2 + 3*x)^4),x]
```

```
[Out] (-495*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2744*(2 + 3*x)) - (15*Sqrt[1
- 2*x]*(3 + 5*x)^(3/2))/(196*(2 + 3*x)^2) + (Sqrt[1 - 2*x]*(3 + 5
*x)^(5/2))/(7*(2 + 3*x)^3) - (5445*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*
Sqrt[3 + 5*x])])/(2744*Sqrt[7])
```

Rubi in Sympy [A] time = 13.5544, size = 109, normalized size = 0.89

$$-\frac{495\sqrt{-2x+1}\sqrt{5x+3}}{2744\,(3x+2)}-\frac{15\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{196\,(3x+2)^2}+\frac{\sqrt{-2x+1}\,(5x+3)^{\frac{5}{2}}}{7\,(3x+2)^3}-\frac{5445\sqrt{7}\,\text{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{19208}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(3/2)/(2+3*x)**4/(1-2*x)**(1/2),x)
```

```
[Out] -495*sqrt(-2*x + 1)*sqrt(5*x + 3)/(2744*(3*x + 2)) - 15*sqrt(-2*x
 + 1)*(5*x + 3)**(3/2)/(196*(3*x + 2)**2) + sqrt(-2*x + 1)*(5*x +
 3)**(5/2)/(7*(3*x + 2)**3) - 5445*sqrt(7)*atan(sqrt(7)*sqrt(-2*x
 + 1)/(7*sqrt(5*x + 3)))/19208
```

Mathematica [A] time = 0.114729, size = 77, normalized size = 0.63

$$\frac{\frac{14\sqrt{1-2x}\sqrt{5x+3}(2195x^2+1830x+288)}{(3x+2)^3}-5445\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{38416}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(3/2)/(Sqrt[1 - 2*x]*(2 + 3*x)^4),x]
```

```
[Out] ((14*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(288 + 1830*x + 2195*x^2))/(2 +
3*x)^3 - 5445*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[
3 + 5*x])])/38416
```

Maple [B] time = 0.02, size = 202, normalized size = 1.7

$$\frac{1}{38416\,(2+3\,x)^3}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(147015\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^3+294030\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(3/2)/(2+3*x)^4/(1-2*x)^(1/2),x)
```

```
[Out] 1/38416*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(147015*7^(1/2)*arctan(1/14*(
37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+294030*7^(1/2)*arctan(1
/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+196020*7^(1/2)*arc
tan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+30730*x^2*(-10*
x^2-x+3)^(1/2)+43560*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x
^2-x+3)^(1/2))+25620*x*(-10*x^2-x+3)^(1/2)+4032*(-10*x^2-x+3)^(1/
2))/(-10*x^2-x+3)^(1/2)/(2+3*x)^3
```

Maxima [A] time = 1.50371, size = 144, normalized size = 1.18

$$\frac{5445}{38416}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{\sqrt{-10\,x^2-x+3}}{63\,(27\,x^3+54\,x^2+36\,x+8)}-\frac{235\,\sqrt{-10\,x^2-x+3}}{1764\,(9\,x^2+12\,x+4)}+\frac{2195\,\sqrt{-10\,x^2-x+3}}{24696\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/((3*x + 2)^4*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 5445/38416*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x +
2)) + 1/63*sqrt(-10*x^2 - x + 3)/(27*x^3 + 54*x^2 + 36*x + 8) - 2
35/1764*sqrt(-10*x^2 - x + 3)/(9*x^2 + 12*x + 4) + 2195/24696*sqr
t(-10*x^2 - x + 3)/(3*x + 2)
```

Fricas [A] time = 0.223973, size = 127, normalized size = 1.04

$$\frac{\sqrt{7}\left(2\,\sqrt{7}\left(2195\,x^2+1830\,x+288\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+5445\,\left(27\,x^3+54\,x^2+36\,x+8\right)\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)}{38416\,(27\,x^3+54\,x^2+36\,x+8)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/((3*x + 2)^4*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] 1/38416*sqrt(7)*(2*sqrt(7)*(2195*x^2 + 1830*x + 288)*sqrt(5*x + 3
)*sqrt(-2*x + 1) + 5445*(27*x^3 + 54*x^2 + 36*x + 8)*arctan(1/14*
sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(27*x^3 + 54
*x^2 + 36*x + 8)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(3/2)/(2+3*x)**4/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.353439, size = 429, normalized size = 3.52

$$\frac{1089}{76832}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)$$

$$-\frac{605\left(9\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^5+6720\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3-203840\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-}{\sqrt{5x+3}}\right.\right.}{1372\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)/((3*x + 2)^4*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 1089/76832*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(
5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(
sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 605/1372*(9*sqrt(10)*((sq
rt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)
/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 + 6720*sqrt(10)*((sqrt(2
)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sq
rt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 - 203840*sqrt(10)*((sqrt(2)*
sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt
(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) - sq
rt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5)
- sqrt(22)))^2 + 280)^3
```

3.2459 $\int \frac{(3+5x)^{3/2}}{\sqrt{1-2x}(2+3x)^5}\,dx$

Optimal. Leaf size=151

$$\frac{57595\sqrt{1-2x}\sqrt{5x+3}}{197568(3x+2)}+\frac{85\sqrt{1-2x}\sqrt{5x+3}}{14112(3x+2)^2}-\frac{43\sqrt{1-2x}\sqrt{5x+3}}{504(3x+2)^3}+\frac{\sqrt{1-2x}\sqrt{5x+3}}{84(3x+2)^4}-\frac{78045\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{21952\sqrt{7}}$$

```
[Out] (Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(84*(2 + 3*x)^4) - (43*Sqrt[1 - 2*x
]*Sqrt[3 + 5*x])/(504*(2 + 3*x)^3) + (85*Sqrt[1 - 2*x]*Sqrt[3 + 5
*x])/(14112*(2 + 3*x)^2) + (57595*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(1
97568*(2 + 3*x)) - (78045*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 +
5*x])])/(21952*Sqrt[7])
```

Rubi [A] time = 0.295899, antiderivative size = 151, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$\frac{57595\sqrt{1-2x}\sqrt{5x+3}}{197568(3x+2)}+\frac{85\sqrt{1-2x}\sqrt{5x+3}}{14112(3x+2)^2}-\frac{43\sqrt{1-2x}\sqrt{5x+3}}{504(3x+2)^3}+\frac{\sqrt{1-2x}\sqrt{5x+3}}{84(3x+2)^4}-\frac{78045\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{21952\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(3/2)/(Sqrt[1 - 2*x]*(2 + 3*x)^5),x]
```

```
[Out] (Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(84*(2 + 3*x)^4) - (43*Sqrt[1 - 2*x
]*Sqrt[3 + 5*x])/(504*(2 + 3*x)^3) + (85*Sqrt[1 - 2*x]*Sqrt[3 + 5
*x])/(14112*(2 + 3*x)^2) + (57595*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(1
97568*(2 + 3*x)) - (78045*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 +
5*x])])/(21952*Sqrt[7])
```

Rubi in Sympy [A] time = 29.1534, size = 136, normalized size = 0.9

$$\frac{57595\sqrt{-2x+1}\sqrt{5x+3}}{197568\,(3x+2)}+\frac{85\sqrt{-2x+1}\sqrt{5x+3}}{14112\,(3x+2)^2}-\frac{43\sqrt{-2x+1}\sqrt{5x+3}}{504\,(3x+2)^3}+\frac{\sqrt{-2x+1}\sqrt{5x+3}}{84\,(3x+2)^4}-\frac{78045\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{153664}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(3/2)/(2+3*x)**5/(1-2*x)**(1/2),x)
```

```
[Out] 57595*sqrt(-2*x + 1)*sqrt(5*x + 3)/(197568*(3*x + 2)) + 85*sqrt(-
2*x + 1)*sqrt(5*x + 3)/(14112*(3*x + 2)**2) - 43*sqrt(-2*x + 1)*s
qrt(5*x + 3)/(504*(3*x + 2)**3) + sqrt(-2*x + 1)*sqrt(5*x + 3)/(8
4*(3*x + 2)**4) - 78045*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sq
rt(5*x + 3)))/153664
```

Mathematica [A] time = 0.132314, size = 82, normalized size = 0.54

$$\frac{\frac{126\sqrt{1-2x}\sqrt{5x+3}\left(172785x^3+346760x^2+226348x+48240\right)}{(3x+2)^4}-702405\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{2765952}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(3/2)/(Sqrt[1 - 2*x]*(2 + 3*x)^5),x]
```

```
[Out] ((126*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(48240 + 226348*x + 346760*x^2
+ 172785*x^3))/(2 + 3*x)^4 - 702405*Sqrt[7]*ArcTan[(-20 - 37*x)/(
2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/2765952
```

Maple [B] time = 0.023, size = 250, normalized size = 1.7

$$\frac{1}{307328\,(2+3x)^4}\sqrt{1-2x}\sqrt{3+5x}\left(6321645\sqrt{7}\arctan\left(1/14\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)x^4+16857720\sqrt{7}\arctan\left(1/14\frac{(37x+20}{\sqrt{-10x^2-}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(3/2)/(2+3*x)^5/(1-2*x)^(1/2),x)
```

```
[Out] 1/307328*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(6321645*7^(1/2)*arctan(1/14
*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^4+16857720*7^(1/2)*arct
an(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+16857720*7^(1/
2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+2418990
*x^3*(-10*x^2-x+3)^(1/2)+7492320*7^(1/2)*arctan(1/14*(37*x+20)*7^
(1/2)/(-10*x^2-x+3)^(1/2))*x+4854640*x^2*(-10*x^2-x+3)^(1/2)+1248
720*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+31
68872*x*(-10*x^2-x+3)^(1/2)+675360*(-10*x^2-x+3)^(1/2))/(-10*x^2-
x+3)^(1/2)/(2+3*x)^4
```

Maxima [A] time = 1.50738, size = 193, normalized size = 1.28

$$\frac{78045}{307328}\sqrt{7}\arcsin\left(\frac{37x}{11\,|3x+2|}+\frac{20}{11\,|3x+2|}\right)+\frac{\sqrt{-10x^2-x+3}}{84\,(81x^4+216x^3+216x^2+96x+16)}-\frac{43\sqrt{-10x^2-x+3}}{504\,(27x^3+54x^2+36x+8)}+\frac{85\sqrt{-10x^2-x+3}}{14112\,(9x^2+12x+4)}+\frac{57595\sqrt{-10x^2-x+3}}{197568\,(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/((3*x + 2)^5*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 78045/307328*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x
+ 2)) + 1/84*sqrt(-10*x^2 - x + 3)/(81*x^4 + 216*x^3 + 216*x^2 +
96*x + 16) - 43/504*sqrt(-10*x^2 - x + 3)/(27*x^3 + 54*x^2 + 36*x
 + 8) + 85/14112*sqrt(-10*x^2 - x + 3)/(9*x^2 + 12*x + 4) + 57595
/197568*sqrt(-10*x^2 - x + 3)/(3*x + 2)
```

Fricas [A] time = 0.225949, size = 147, normalized size = 0.97

$$\frac{\sqrt{7}\left(2\sqrt{7}\left(172785x^3+346760x^2+226348x+48240\right)\sqrt{5x+3}\sqrt{-2x+1}+78045\left(81x^4+216x^3+216x^2+96x+16\right)\text{arcta}\right.}{307328\,(81x^4+216x^3+216x^2+96x+16)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/((3*x + 2)^5*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] 1/307328*sqrt(7)*(2*sqrt(7)*(172785*x^3 + 346760*x^2 + 226348*x +
 48240)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 78045*(81*x^4 + 216*x^3 +
216*x^2 + 96*x + 16)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x +
3)*sqrt(-2*x + 1))))/(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(3/2)/(2+3*x)**5/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.414952, size = 512, normalized size = 3.39

$$\frac{15609}{614656}\sqrt{70}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)$$

$$-\frac{605\left(129\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^7+132440\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^5-21026880\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-}\right.}{10976\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/((3*x + 2)^5*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 15609/614656*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqr
t(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)
/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 605/10976*(129*sqrt(10)
*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x
 + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^7 + 132440*sqrt(10)*(
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x +
 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 - 21026880*sqrt(10)*(
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x +
 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 - 2510681600*sqrt(10)
*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x
 + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*
x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(
-10*x + 5) - sqrt(22)))^2 + 280)^4
```

3.2460 $\int \frac{(3+5x)^{3/2}}{\sqrt{1-2x}(2+3x)^6} dx$

Optimal. Leaf size=180

$$\frac{694229\sqrt{1-2x}\sqrt{5x+3}}{921984(3x+2)}+\frac{6107\sqrt{1-2x}\sqrt{5x+3}}{65856(3x+2)^2}-\frac{73\sqrt{1-2x}\sqrt{5x+3}}{11760(3x+2)^3}-\frac{367\sqrt{1-2x}\sqrt{5x+3}}{5880(3x+2)^4}+\frac{\sqrt{1-2x}\sqrt{5x+3}}{105(3x+2)^5}-\frac{2664057\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{307328\sqrt{7}}$$

```
[Out] (Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(105*(2 + 3*x)^5) - (367*Sqrt[1 - 2
*x]*Sqrt[3 + 5*x])/(5880*(2 + 3*x)^4) - (73*Sqrt[1 - 2*x]*Sqrt[3
+ 5*x])/(11760*(2 + 3*x)^3) + (6107*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/
(65856*(2 + 3*x)^2) + (694229*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(92198
4*(2 + 3*x)) - (2664057*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*
x])])/(307328*Sqrt[7])
```

Rubi [A] time = 0.375669, antiderivative size = 180, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$\frac{694229\sqrt{1-2x}\sqrt{5x+3}}{921984(3x+2)}+\frac{6107\sqrt{1-2x}\sqrt{5x+3}}{65856(3x+2)^2}-\frac{73\sqrt{1-2x}\sqrt{5x+3}}{11760(3x+2)^3}-\frac{367\sqrt{1-2x}\sqrt{5x+3}}{5880(3x+2)^4}+\frac{\sqrt{1-2x}\sqrt{5x+3}}{105(3x+2)^5}-\frac{2664057\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{307328\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(3/2)/(Sqrt[1 - 2*x]*(2 + 3*x)^6),x]
```

```
[Out] (Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(105*(2 + 3*x)^5) - (367*Sqrt[1 - 2
*x]*Sqrt[3 + 5*x])/(5880*(2 + 3*x)^4) - (73*Sqrt[1 - 2*x]*Sqrt[3
+ 5*x])/(11760*(2 + 3*x)^3) + (6107*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/
(65856*(2 + 3*x)^2) + (694229*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(92198
4*(2 + 3*x)) - (2664057*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*
x])])/(307328*Sqrt[7])
```

Rubi in Sympy [A] time = 35.858, size = 163, normalized size = 0.91

$$\frac{694229\sqrt{-2x+1}\sqrt{5x+3}}{921984\,(3x+2)}+\frac{6107\sqrt{-2x+1}\sqrt{5x+3}}{65856\,(3x+2)^2}-\frac{73\sqrt{-2x+1}\sqrt{5x+3}}{11760\,(3x+2)^3}-\frac{367\sqrt{-2x+1}\sqrt{5x+3}}{5880\,(3x+2)^4}+\frac{\sqrt{-2x+1}\sqrt{5x+3}}{105\,(3x+2)^5}-\frac{2664057\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{2151296}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(3/2)/(2+3*x)**6/(1-2*x)**(1/2),x)
```

```
[Out] 694229*sqrt(-2*x + 1)*sqrt(5*x + 3)/(921984*(3*x + 2)) + 6107*sqr
t(-2*x + 1)*sqrt(5*x + 3)/(65856*(3*x + 2)**2) - 73*sqrt(-2*x + 1
)*sqrt(5*x + 3)/(11760*(3*x + 2)**3) - 367*sqrt(-2*x + 1)*sqrt(5*
x + 3)/(5880*(3*x + 2)**4) + sqrt(-2*x + 1)*sqrt(5*x + 3)/(105*(3
*x + 2)**5) - 2664057*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt
(5*x + 3)))/2151296
```

Mathematica [A] time = 0.136464, size = 87, normalized size = 0.48

$$\frac{\frac{42\sqrt{1-2x}\sqrt{5x+3}(93720915x^4+253769850x^3+257531412x^2+115804328x+19437408)}{(3x+2)^5}-39960855\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{64538880}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(3/2)/(Sqrt[1 - 2*x]*(2 + 3*x)^6),x]
```

```
[Out] ((42*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(19437408 + 115804328*x + 257531
412*x^2 + 253769850*x^3 + 93720915*x^4))/(2 + 3*x)^5 - 39960855*S
qrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/645
38880
```

Maple [B] time = 0.022, size = 298, normalized size = 1.7

$$\frac{1}{21512960\,(2+3\,x)^{5}}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(3236829255\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^{2}-x+3}}\right)x^{5}+10789430850\,\sqrt{7}\arctan\left(1/14\,\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(3/2)/(2+3*x)^6/(1-2*x)^(1/2),x)
```

```
[Out] 1/21512960*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(3236829255*7^(1/2)*arctan
(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^5+10789430850*7^(1
/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^4+143859
07800*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*
x^3+1312092810*x^4*(-10*x^2-x+3)^(1/2)+9590605200*7^(1/2)*arctan(
1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+3552777900*x^3*(-
10*x^2-x+3)^(1/2)+3196868400*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2
)/(-10*x^2-x+3)^(1/2))*x+3605439768*x^2*(-10*x^2-x+3)^(1/2)+42624
9120*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+1
621260592*x*(-10*x^2-x+3)^(1/2)+272123712*(-10*x^2-x+3)^(1/2))/(-
10*x^2-x+3)^(1/2)/(2+3*x)^5
```

Maxima [A] time = 1.5042, size = 248, normalized size = 1.38

$$\frac{2664057}{4302592}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{\sqrt{-10\,x^{2}-x+3}}{105\,(243\,x^{5}+810\,x^{4}+1080\,x^{3}+720\,x^{2}+240\,x+32)}-\frac{367\,\sqrt{-10\,x^{2}-x+3}}{5880\,(81\,x^{4}+216\,x^{3}+216\,x^{2}+96\,x+16)}-\frac{73\,\sqrt{-10\,x^{2}-x+3}}{11760\,(27\,x^{3}+54\,x^{2}+36\,x+8)}+\frac{6107\,\sqrt{-10\,x^{2}-x+3}}{65856\,(9\,x^{2}+12\,x+4)}+\frac{694229\,\sqrt{-10\,x^{2}-x+3}}{921984\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/((3*x + 2)^6*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 2664057/4302592*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3
*x + 2)) + 1/105*sqrt(-10*x^2 - x + 3)/(243*x^5 + 810*x^4 + 1080*
x^3 + 720*x^2 + 240*x + 32) - 367/5880*sqrt(-10*x^2 - x + 3)/(81*
x^4 + 216*x^3 + 216*x^2 + 96*x + 16) - 73/11760*sqrt(-10*x^2 - x
+ 3)/(27*x^3 + 54*x^2 + 36*x + 8) + 6107/65856*sqrt(-10*x^2 - x +
 3)/(9*x^2 + 12*x + 4) + 694229/921984*sqrt(-10*x^2 - x + 3)/(3*x
 + 2)
```

Fricas [A] time = 0.227344, size = 167, normalized size = 0.93

$$\frac{\sqrt{7}\left(2\,\sqrt{7}\left(93720915\,x^{4}+253769850\,x^{3}+257531412\,x^{2}+115804328\,x+19437408\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+13320285\,\left(243\,x^{5}+\right.\right.}{21512960\,(243\,x^{5}+810\,x^{4}+1080\,x^{3}+720\,x^{2}+240\,x+32}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)/((3*x + 2)^6*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] 1/21512960*sqrt(7)*(2*sqrt(7)*(93720915*x^4 + 253769850*x^3 + 257
531412*x^2 + 115804328*x + 19437408)*sqrt(5*x + 3)*sqrt(-2*x + 1)
 + 13320285*(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)
*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))
/(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3+5*x)**(3/2)/(2+3*x)**6/(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.523214, size = 594, normalized size = 3.3

$$\frac{2664057}{43025920}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)$$
$$-\frac{121\left(22017\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^9+28768880\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^7-9856573440\sqrt{1}\cdots}{153664\left(\cdots\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)/((3*x + 2)^6*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 2664057/43025920*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)
*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3)
- 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 121/153664*(22017*s
qrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*s
qrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^9 + 28768880*s
qrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*s
qrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^7 - 9856573440
*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4
*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 - 21238183
68000*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3
) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 - 133
530503680000*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(
5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))
/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*
x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)^5
```

3.2461 $\int \frac{(2+3x)^3(3+5x)^{5/2}}{\sqrt{1-2x}}\,dx$

Optimal. Leaf size=150

$$-\frac{1}{20}\sqrt{1-2x}(3x+2)^2(5x+3)^{7/2}-\frac{\sqrt{1-2x}(18960x+37439)(5x+3)^{7/2}}{32000}-\frac{2012291\sqrt{1-2x}(5x+3)^{5/2}}{384000}-\frac{22135201\sqrt{1-2x}(5x+3)^{3/2}}{614400}-\frac{243487211\sqrt{1-2x}\sqrt{5x+3}}{819200}+\frac{2678359321\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{819200\sqrt{10}}$$

```
[Out] (-243487211*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/819200 - (22135201*Sqrt[
1 - 2*x]*(3 + 5*x)^(3/2))/614400 - (2012291*Sqrt[1 - 2*x]*(3 + 5*
x)^(5/2))/384000 - (Sqrt[1 - 2*x]*(2 + 3*x)^2*(3 + 5*x)^(7/2))/20
 - (Sqrt[1 - 2*x]*(3 + 5*x)^(7/2)*(37439 + 18960*x))/32000 + (267
8359321*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(819200*Sqrt[10])
```

Rubi [A] time = 0.189347, antiderivative size = 150, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$-\frac{1}{20}\sqrt{1-2x}(3x+2)^2(5x+3)^{7/2}-\frac{\sqrt{1-2x}(18960x+37439)(5x+3)^{7/2}}{32000}-\frac{2012291\sqrt{1-2x}(5x+3)^{5/2}}{384000}-\frac{22135201\sqrt{1-2x}(5x+3)^{3/2}}{614400}-\frac{243487211\sqrt{1-2x}\sqrt{5x+3}}{819200}+\frac{2678359321\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{819200\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^3*(3 + 5*x)^(5/2))/Sqrt[1 - 2*x],x]
```

```
[Out] (-243487211*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/819200 - (22135201*Sqrt[
1 - 2*x]*(3 + 5*x)^(3/2))/614400 - (2012291*Sqrt[1 - 2*x]*(3 + 5*
x)^(5/2))/384000 - (Sqrt[1 - 2*x]*(2 + 3*x)^2*(3 + 5*x)^(7/2))/20
 - (Sqrt[1 - 2*x]*(3 + 5*x)^(7/2)*(37439 + 18960*x))/32000 + (267
8359321*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(819200*Sqrt[10])
```

Rubi in Sympy [A] time = 16.7822, size = 136, normalized size = 0.91

$$-\frac{\sqrt{-2x+1}\,(3x+2)^2\,(5x+3)^{\frac{7}{2}}}{20}-\frac{\sqrt{-2x+1}\,(5x+3)^{\frac{7}{2}}\,\left(71100x+\frac{561585}{4}\right)}{120000}-\frac{2012291\sqrt{-2x+1}\,(5x+3)^{\frac{5}{2}}}{384000}-\frac{22135201\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{614400}-\frac{243487211\sqrt{-2x+1}\sqrt{5x+3}}{819200}+\frac{2678359321\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{8192000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3*(3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] -sqrt(-2*x + 1)*(3*x + 2)**2*(5*x + 3)**(7/2)/20 - sqrt(-2*x + 1)
*(5*x + 3)**(7/2)*(71100*x + 561585/4)/120000 - 2012291*sqrt(-2*x
 + 1)*(5*x + 3)**(5/2)/384000 - 22135201*sqrt(-2*x + 1)*(5*x + 3)
**(3/2)/614400 - 243487211*sqrt(-2*x + 1)*sqrt(5*x + 3)/819200 +
2678359321*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/8192000
```

Mathematica [A] time = 0.157364, size = 75, normalized size = 0.5

$$\frac{-10\sqrt{1-2x}\sqrt{5x+3}\left(138240000x^5+615168000x^4+1229558400x^3+1505007200x^2+1362715220x+1202896557\right)-8035}{24576000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^3*(3 + 5*x)^(5/2))/Sqrt[1 - 2*x],x]
```

```
[Out] (-10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(1202896557 + 1362715220*x + 150
5007200*x^2 + 1229558400*x^3 + 615168000*x^4 + 138240000*x^5) - 8
035077963*Sqrt[10]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/24576000
```

Maple [A] time = 0.014, size = 138, normalized size = 0.9

$$\frac{1}{49152000}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(-2764800000\,x^{5}\sqrt{-10\,x^{2}-x+3}-12303360000\,x^{4}\sqrt{-10\,x^{2}-x+3}-24591168000\,x^{3}\sqrt{-10\,x^{2}}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3*(3+5*x)^(5/2)/(1-2*x)^(1/2),x)
```

```
[Out] 1/49152000*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(-2764800000*x^5*(-10*x^2-
x+3)^(1/2)-12303360000*x^4*(-10*x^2-x+3)^(1/2)-24591168000*x^3*(-
10*x^2-x+3)^(1/2)-30100144000*x^2*(-10*x^2-x+3)^(1/2)+8035077963*
10^(1/2)*arcsin(20/11*x+1/11)-27254304400*x*(-10*x^2-x+3)^(1/2)-2
4057931140*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.48219, size = 147, normalized size = 0.98

$$-\frac{225}{4}\sqrt{-10\,x^{2}-x+3}x^{5}-\frac{4005}{16}\sqrt{-10\,x^{2}-x+3}x^{4}-\frac{128079}{256}\sqrt{-10\,x^{2}-x+3}x^{3}-\frac{1881259}{3072}\sqrt{-10\,x^{2}-x+3}x^{2}-\frac{68135761}{122880}\sqrt{-10\,x^{2}-x+3}x-\frac{2678359321}{16384000}\sqrt{10}\arcsin\left(-\frac{20}{11}\,x-\frac{1}{11}\right)-\frac{400965519}{819200}\sqrt{-10\,x^{2}-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)^3/sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] -225/4*sqrt(-10*x^2 - x + 3)*x^5 - 4005/16*sqrt(-10*x^2 - x + 3)*
x^4 - 128079/256*sqrt(-10*x^2 - x + 3)*x^3 - 1881259/3072*sqrt(-1
0*x^2 - x + 3)*x^2 - 68135761/122880*sqrt(-10*x^2 - x + 3)*x - 26
78359321/16384000*sqrt(10)*arcsin(-20/11*x - 1/11) - 400965519/81
9200*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.217543, size = 104, normalized size = 0.69

$$-\frac{1}{49152000}\sqrt{10}\left(2\sqrt{10}\left(138240000\,x^{5}+615168000\,x^{4}+1229558400\,x^{3}+1505007200\,x^{2}+1362715220\,x+1202896557\right)\sqrt{5}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)^3/sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] -1/49152000*sqrt(10)*(2*sqrt(10)*(138240000*x^5 + 615168000*x^4 +
 1229558400*x^3 + 1505007200*x^2 + 1362715220*x + 1202896557)*sqr
t(5*x + 3)*sqrt(-2*x + 1) - 8035077963*arctan(1/20*sqrt(10)*(20*x
 + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3*(3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.238875, size = 109, normalized size = 0.73

$$-\frac{1}{122880000}\sqrt{5}\left(2\,(4\,(8\,(108\,(16\,(20\,x+41)(5\,x+3)+2903)(5\,x+3)+2012291)(5\,x+3)+110676005)(5\,x+3)+365230816\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(3*x + 2)^3/sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] -1/122880000*sqrt(5)*(2*(4*(8*(108*(16*(20*x + 41)*(5*x + 3) + 29
03)*(5*x + 3) + 2012291)*(5*x + 3) + 110676005)*(5*x + 3) + 36523
08165)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 40175389815*sqrt(2)*arcsin
(1/11*sqrt(22)*sqrt(5*x + 3)))
```

3.2462 $\int \frac{(2+3x)^2(3+5x)^{5/2}}{\sqrt{1-2x}}\,dx$

Optimal. Leaf size=143

$$-\frac{3}{50}\sqrt{1-2x}(3x+2)(5x+3)^{7/2}-\frac{963\sqrt{1-2x}(5x+3)^{7/2}}{4000}-\frac{78167\sqrt{1-2x}(5x+3)^{5/2}}{48000}-\frac{859837\sqrt{1-2x}(5x+3)^{3/2}}{76800}-\frac{9458207\sqrt{1-2x}\sqrt{5x+3}}{102400}+\frac{104040277\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{102400\sqrt{10}}$$

```
[Out] (-9458207*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/102400 - (859837*Sqrt[1 -
2*x]*(3 + 5*x)^(3/2))/76800 - (78167*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2
))/48000 - (963*Sqrt[1 - 2*x]*(3 + 5*x)^(7/2))/4000 - (3*Sqrt[1 -
 2*x]*(2 + 3*x)*(3 + 5*x)^(7/2))/50 + (104040277*ArcSin[Sqrt[2/11
]*Sqrt[3 + 5*x]])/(102400*Sqrt[10])
```

Rubi [A] time = 0.167198, antiderivative size = 143, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$-\frac{3}{50}\sqrt{1-2x}(3x+2)(5x+3)^{7/2}-\frac{963\sqrt{1-2x}(5x+3)^{7/2}}{4000}-\frac{78167\sqrt{1-2x}(5x+3)^{5/2}}{48000}-\frac{859837\sqrt{1-2x}(5x+3)^{3/2}}{76800}-\frac{9458207\sqrt{1-2x}\sqrt{5x+3}}{102400}+\frac{104040277\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{102400\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^2*(3 + 5*x)^(5/2))/Sqrt[1 - 2*x],x]
```

```
[Out] (-9458207*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/102400 - (859837*Sqrt[1 -
2*x]*(3 + 5*x)^(3/2))/76800 - (78167*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2
))/48000 - (963*Sqrt[1 - 2*x]*(3 + 5*x)^(7/2))/4000 - (3*Sqrt[1 -
 2*x]*(2 + 3*x)*(3 + 5*x)^(7/2))/50 + (104040277*ArcSin[Sqrt[2/11
]*Sqrt[3 + 5*x]])/(102400*Sqrt[10])
```

Rubi in Sympy [A] time = 13.2658, size = 129, normalized size = 0.9

$$-\frac{\sqrt{-2x+1}\,(5x+3)^{\frac{7}{2}}\,(9x+6)}{50}-\frac{963\sqrt{-2x+1}\,(5x+3)^{\frac{7}{2}}}{4000}-\frac{78167\sqrt{-2x+1}\,(5x+3)^{\frac{5}{2}}}{48000}-\frac{859837\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{76800}-\frac{9458207\sqrt{-2x+1}\sqrt{5x+3}}{102400}+\frac{104040277\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{1024000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2*(3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] -sqrt(-2*x + 1)*(5*x + 3)**(7/2)*(9*x + 6)/50 - 963*sqrt(-2*x + 1
)*(5*x + 3)**(7/2)/4000 - 78167*sqrt(-2*x + 1)*(5*x + 3)**(5/2)/4
8000 - 859837*sqrt(-2*x + 1)*(5*x + 3)**(3/2)/76800 - 9458207*sqr
t(-2*x + 1)*sqrt(5*x + 3)/102400 + 104040277*sqrt(10)*asin(sqrt(2
2)*sqrt(5*x + 3)/11)/1024000
```

Mathematica [A] time = 0.113895, size = 70, normalized size = 0.49

$$\frac{-10\sqrt{1-2x}\sqrt{5x+3}\left(6912000x^4+26294400x^3+44906720x^2+48658820x+46187289\right)-312120831\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-\right.}{3072000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^2*(3 + 5*x)^(5/2))/Sqrt[1 - 2*x],x]
```

```
[Out] (-10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(46187289 + 48658820*x + 4490672
0*x^2 + 26294400*x^3 + 6912000*x^4) - 312120831*Sqrt[10]*ArcSin[S
qrt[5/11]*Sqrt[1 - 2*x]])/3072000
```

Maple [A] time = 0.014, size = 121, normalized size = 0.9

$$\frac{1}{6144000}\sqrt{1-2x}\sqrt{3+5x}\left(-138240000\,x^4\sqrt{-10\,x^2-x+3}-525888000\,x^3\sqrt{-10\,x^2-x+3}-898134400\,x^2\sqrt{-10\,x^2-x+\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2*(3+5*x)^(5/2)/(1-2*x)^(1/2),x)
```

```
[Out] 1/6144000*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(-138240000*x^4*(-10*x^2-x+
3)^(1/2)-525888000*x^3*(-10*x^2-x+3)^(1/2)-898134400*x^2*(-10*x^2
-x+3)^(1/2)+312120831*10^(1/2)*arcsin(20/11*x+1/11)-973176400*x*(
-10*x^2-x+3)^(1/2)-923745780*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(
1/2)
```

Maxima [A] time = 1.50472, size = 124, normalized size = 0.87

$$-\frac{45}{2}\sqrt{-10\,x^2-x+3}x^4-\frac{2739}{32}\sqrt{-10\,x^2-x+3}x^3-\frac{280667}{1920}\sqrt{-10\,x^2-x+3}x^2-\frac{2432941}{15360}\sqrt{-10\,x^2-x+3}x-\frac{104040277}{2048000}\sqrt{10}\arcsin\left(-\frac{20}{11}x-\frac{1}{11}\right)-\frac{15395763}{102400}\sqrt{-10\,x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)^2/sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] -45/2*sqrt(-10*x^2 - x + 3)*x^4 - 2739/32*sqrt(-10*x^2 - x + 3)*x
^3 - 280667/1920*sqrt(-10*x^2 - x + 3)*x^2 - 2432941/15360*sqrt(-
10*x^2 - x + 3)*x - 104040277/2048000*sqrt(10)*arcsin(-20/11*x -
1/11) - 15395763/102400*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.217994, size = 97, normalized size = 0.68

$$-\frac{1}{6144000}\sqrt{10}\left(2\sqrt{10}\left(6912000\,x^4+26294400\,x^3+44906720\,x^2+48658820\,x+46187289\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-312120831\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)^2/sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] -1/6144000*sqrt(10)*(2*sqrt(10)*(6912000*x^4 + 26294400*x^3 + 449
06720*x^2 + 48658820*x + 46187289)*sqrt(5*x + 3)*sqrt(-2*x + 1) -
 312120831*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2
*x + 1))))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2*(3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.239831, size = 97, normalized size = 0.68

$$-\frac{1}{15360000}\sqrt{5}\left(2\left(4\left(8\left(36\left(240x+481\right)(5x+3)+78167\right)(5x+3)+4299185\right)(5x+3)+141873105\right)\sqrt{5x+3}\sqrt{-10x+5}-15\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)^2/sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] -1/15360000*sqrt(5)*(2*(4*(8*(36*(240*x + 481)*(5*x + 3) + 78167)
*(5*x + 3) + 4299185)*(5*x + 3) + 141873105)*sqrt(5*x + 3)*sqrt(-
10*x + 5) - 1560604155*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)
))
```

3.2463 $\int \frac{(2+3x)(3+5x)^{5/2}}{\sqrt{1-2x}}\,dx$

Optimal. Leaf size=116

$$-\frac{3}{40}\sqrt{1-2x}(5x+3)^{7/2}-\frac{247}{480}\sqrt{1-2x}(5x+3)^{5/2}-\frac{2717}{768}\sqrt{1-2x}(5x+3)^{3/2}-\frac{29887\sqrt{1-2x}\sqrt{5x+3}}{1024}+\frac{328757\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{1024\sqrt{10}}$$

```
[Out] (-29887*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/1024 - (2717*Sqrt[1 - 2*x]*(
3 + 5*x)^(3/2))/768 - (247*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/480 - (
3*Sqrt[1 - 2*x]*(3 + 5*x)^(7/2))/40 + (328757*ArcSin[Sqrt[2/11]*S
qrt[3 + 5*x]])/(1024*Sqrt[10])
```

Rubi [A] time = 0.119473, antiderivative size = 116, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$-\frac{3}{40}\sqrt{1-2x}(5x+3)^{7/2}-\frac{247}{480}\sqrt{1-2x}(5x+3)^{5/2}-\frac{2717}{768}\sqrt{1-2x}(5x+3)^{3/2}-\frac{29887\sqrt{1-2x}\sqrt{5x+3}}{1024}+\frac{328757\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{1024\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)*(3 + 5*x)^(5/2))/Sqrt[1 - 2*x],x]
```


```
[Out] (-29887*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/1024 - (2717*Sqrt[1 - 2*x]*(
3 + 5*x)^(3/2))/768 - (247*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/480 - (
3*Sqrt[1 - 2*x]*(3 + 5*x)^(7/2))/40 + (328757*ArcSin[Sqrt[2/11]*S
qrt[3 + 5*x]])/(1024*Sqrt[10])
```

Rubi in Sympy [A] time = 10.083, size = 105, normalized size = 0.91

$$-\frac{3\sqrt{-2x+1}\,(5x+3)^{\frac{7}{2}}}{40}-\frac{247\sqrt{-2x+1}\,(5x+3)^{\frac{5}{2}}}{480}-\frac{2717\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{768}-\frac{29887\sqrt{-2x+1}\sqrt{5x+3}}{1024}+\frac{328757\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{10240}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)*(3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] -3*sqrt(-2*x + 1)*(5*x + 3)**(7/2)/40 - 247*sqrt(-2*x + 1)*(5*x +
 3)**(5/2)/480 - 2717*sqrt(-2*x + 1)*(5*x + 3)**(3/2)/768 - 29887
*sqrt(-2*x + 1)*sqrt(5*x + 3)/1024 + 328757*sqrt(10)*asin(sqrt(22
)*sqrt(5*x + 3)/11)/10240
```

Mathematica [A] time = 0.0796354, size = 65, normalized size = 0.56

$$\frac{-10\sqrt{1-2x}\sqrt{5x+3}\left(28800x^3+91360x^2+132868x+142713\right)-986271\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{30720}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)*(3 + 5*x)^(5/2))/Sqrt[1 - 2*x],x]
```

```
[Out] (-10*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(142713 + 132868*x + 91360*x^2 +
 28800*x^3) - 986271*Sqrt[10]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/3
0720
```

Maple [A] time = 0.013, size = 104, normalized size = 0.9

$$\frac{1}{61440}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(-576000\,x^3\sqrt{-10\,x^2-x+3}-1827200\,x^2\sqrt{-10\,x^2-x+3}+986271\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)-2$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)*(3+5*x)^(5/2)/(1-2*x)^(1/2),x)
```

```
[Out] 1/61440*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(-576000*x^3*(-10*x^2-x+3)^(1
/2)-1827200*x^2*(-10*x^2-x+3)^(1/2)+986271*10^(1/2)*arcsin(20/11*
x+1/11)-2657360*x*(-10*x^2-x+3)^(1/2)-2854260*(-10*x^2-x+3)^(1/2)
)/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.51022, size = 101, normalized size = 0.87

$$-\frac{75}{8}\sqrt{-10\,x^2-x+3}x^3-\frac{2855}{96}\sqrt{-10\,x^2-x+3}x^2-\frac{33217}{768}\sqrt{-10\,x^2-x+3}x-\frac{328757}{20480}\sqrt{10}\arcsin\left(-\frac{20}{11}x-\frac{1}{11}\right)-\frac{47571}{1024}\sqrt{-10\,x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)/sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] -75/8*sqrt(-10*x^2 - x + 3)*x^3 - 2855/96*sqrt(-10*x^2 - x + 3)*x
^2 - 33217/768*sqrt(-10*x^2 - x + 3)*x - 328757/20480*sqrt(10)*ar
csin(-20/11*x - 1/11) - 47571/1024*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.218309, size = 90, normalized size = 0.78

$$-\frac{1}{61440}\sqrt{10}\left(2\sqrt{10}\left(28800\,x^3+91360\,x^2+132868\,x+142713\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-986271\,\arctan\left(\frac{\sqrt{10}(20\,x+1)}{20\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)/sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] -1/61440*sqrt(10)*(2*sqrt(10)*(28800*x^3 + 91360*x^2 + 132868*x +
 142713)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 986271*arctan(1/20*sqrt(1
0)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [A] time = 81.2365, size = 298, normalized size = 2.57

$$\frac{2\sqrt{5}\left(\begin{cases}\frac{1331\sqrt{2}\left(\frac{3\sqrt{2}(-20x-1)\sqrt{-10x+5}\sqrt{5x+3}}{1936}+\frac{\sqrt{2}(-10x+5)^{\frac{3}{2}}(5x+3)^{\frac{3}{2}}}{3993}-\frac{\sqrt{2}\sqrt{-10x+5}\sqrt{5x+3}}{22}+\frac{5\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{16}\right)}{16} & \text{for}\ x\geq-\frac{3}{5}\wedge x<\frac{1}{2}\end{cases}\right)}{25}+\frac{6\sqrt{5}\left(\begin{cases}\frac{14641\sqrt{2}\left(\frac{7\sqrt{2}(-20x-1)\sqrt{-10x+5}\sqrt{5x+3}}{3872}+\frac{2\sqrt{2}(-10x+5)^{\frac{3}{2}}(5x+3)^{\frac{3}{2}}}{3993}+\frac{\sqrt{2}\sqrt{-10x+5}\sqrt{5x+3}\left(-12100x-128(5x+3)^3+1056(5x+3)^2-5929\right)}{1874048}-\frac{\sqrt{2}\sqrt{-10x+5}\sqrt{5x+3}}{22}+\frac{35\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{128}\right)}{32} & \text{fo}\end{cases}\right)}{25}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)*(3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] 2*sqrt(5)*Piecewise((1331*sqrt(2)*(3*sqrt(2)*(-20*x - 1)*sqrt(-10
*x + 5)*sqrt(5*x + 3)/1936 + sqrt(2)*(-10*x + 5)**(3/2)*(5*x + 3)
**(3/2)/3993 - sqrt(2)*sqrt(-10*x + 5)*sqrt(5*x + 3)/22 + 5*asin(
sqrt(22)*sqrt(5*x + 3)/11)/16)/16, (x >= -3/5) & (x < 1/2)))/25 +
 6*sqrt(5)*Piecewise((14641*sqrt(2)*(7*sqrt(2)*(-20*x - 1)*sqrt(-
10*x + 5)*sqrt(5*x + 3)/3872 + 2*sqrt(2)*(-10*x + 5)**(3/2)*(5*x
+ 3)**(3/2)/3993 + sqrt(2)*sqrt(-10*x + 5)*sqrt(5*x + 3)*(-12100*
x - 128*(5*x + 3)**3 + 1056*(5*x + 3)**2 - 5929)/1874048 - sqrt(2
)*sqrt(-10*x + 5)*sqrt(5*x + 3)/22 + 35*asin(sqrt(22)*sqrt(5*x +
3)/11)/128)/32, (x >= -3/5) & (x < 1/2)))/25
```

GIAC/XCAS [A] time = 0.232411, size = 85, normalized size = 0.73

$$-\frac{1}{30720}\sqrt{5}\left(2\left(4\left(8\left(36x+71\right)(5x+3)+2717\right)(5x+3)+89661\right)\sqrt{5x+3}\sqrt{-10x+5}-986271\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)/sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] -1/30720*sqrt(5)*(2*(4*(8*(36*x + 71)*(5*x + 3) + 2717)*(5*x + 3)
 + 89661)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 986271*sqrt(2)*arcsin(1
/11*sqrt(22)*sqrt(5*x + 3)))
```

3.2464 $\int \frac{(3+5x)^{5/2}}{\sqrt{1-2x}}\,dx$

Optimal. Leaf size=96

$$-\frac{1}{6}\sqrt{1-2x}(5x+3)^{5/2}-\frac{55}{48}\sqrt{1-2x}(5x+3)^{3/2}-\frac{605}{64}\sqrt{1-2x}\sqrt{5x+3}+\frac{1331}{64}\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)$$

```
[Out] (-605*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/64 - (55*Sqrt[1 - 2*x]*(3 + 5*
x)^(3/2))/48 - (Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/6 + (1331*Sqrt[5/2
]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/64
```

Rubi [A] time = 0.0826711, antiderivative size = 96, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.158

$$-\frac{1}{6}\sqrt{1-2x}(5x+3)^{5/2}-\frac{55}{48}\sqrt{1-2x}(5x+3)^{3/2}-\frac{605}{64}\sqrt{1-2x}\sqrt{5x+3}+\frac{1331}{64}\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(5/2)/Sqrt[1 - 2*x],x]
```

```
[Out] (-605*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/64 - (55*Sqrt[1 - 2*x]*(3 + 5*
x)^(3/2))/48 - (Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/6 + (1331*Sqrt[5/2
]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/64
```

Rubi in Sympy [A] time = 7.92208, size = 83, normalized size = 0.86

$$-\frac{\sqrt{-2x+1}\,(5x+3)^{\frac{5}{2}}}{6}-\frac{55\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{48}-\frac{605\sqrt{-2x+1}\sqrt{5x+3}}{64}+\frac{1331\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{128}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] -sqrt(-2*x + 1)*(5*x + 3)**(5/2)/6 - 55*sqrt(-2*x + 1)*(5*x + 3)*
*(3/2)/48 - 605*sqrt(-2*x + 1)*sqrt(5*x + 3)/64 + 1331*sqrt(10)*a
sin(sqrt(22)*sqrt(5*x + 3)/11)/128
```

Mathematica [A] time = 0.0586234, size = 60, normalized size = 0.62

$$\frac{1}{384}\left(-2\sqrt{1-2x}\sqrt{5x+3}\left(800x^2+2060x+2763\right)-3993\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(5/2)/Sqrt[1 - 2*x],x]
```

```
[Out] (-2*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(2763 + 2060*x + 800*x^2) - 3993*
Sqrt[10]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/384
```

Maple [A] time = 0.006, size = 88, normalized size = 0.9

$$-\frac{1}{6}(3+5x)^{\frac{5}{2}}\sqrt{1-2x}-\frac{55}{48}(3+5x)^{\frac{3}{2}}\sqrt{1-2x}-\frac{605}{64}\sqrt{1-2x}\sqrt{3+5x}+\frac{1331\sqrt{10}}{256}\sqrt{(1-2x)(3+5x)}\arcsin\left(\frac{20x}{11}+\frac{1}{11}\right)\frac{1}{\sqrt{1-2x}}\frac{1}{\sqrt{3+5x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)/(1-2*x)^(1/2),x)
```

```
[Out] -1/6*(3+5*x)^(5/2)*(1-2*x)^(1/2)-55/48*(3+5*x)^(3/2)*(1-2*x)^(1/2
)-605/64*(1-2*x)^(1/2)*(3+5*x)^(1/2)+1331/256*((1-2*x)*(3+5*x))^(
1/2)/(3+5*x)^(1/2)/(1-2*x)^(1/2)*10^(1/2)*arcsin(20/11*x+1/11)
```

Maxima [A] time = 1.49925, size = 78, normalized size = 0.81

$$-\frac{25}{6}\sqrt{-10x^2-x+3}x^2-\frac{515}{48}\sqrt{-10x^2-x+3}x-\frac{1331}{256}\sqrt{10}\arcsin\left(-\frac{20}{11}x-\frac{1}{11}\right)-\frac{921}{64}\sqrt{-10x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] -25/6*sqrt(-10*x^2 - x + 3)*x^2 - 515/48*sqrt(-10*x^2 - x + 3)*x
- 1331/256*sqrt(10)*arcsin(-20/11*x - 1/11) - 921/64*sqrt(-10*x^2
 - x + 3)
```

Fricas [A] time = 0.221401, size = 92, normalized size = 0.96

$$-\frac{1}{768}\sqrt{2}\left(2\sqrt{2}\left(800x^2+2060x+2763\right)\sqrt{5x+3}\sqrt{-2x+1}-3993\sqrt{5}\arctan\left(\frac{\sqrt{5}\sqrt{2}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] -1/768*sqrt(2)*(2*sqrt(2)*(800*x^2 + 2060*x + 2763)*sqrt(5*x + 3)
*sqrt(-2*x + 1) - 3993*sqrt(5)*arctan(1/20*sqrt(5)*sqrt(2)*(20*x
+ 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [A] time = 24.1625, size = 230, normalized size = 2.4

$$\begin{cases} -\frac{125i\left(x+\frac{3}{5}\right)^{\frac{7}{2}}}{3\sqrt{10x-5}}-\frac{275i\left(x+\frac{3}{5}\right)^{\frac{5}{2}}}{24\sqrt{10x-5}}-\frac{3025i\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}{96\sqrt{10x-5}}+\frac{6655i\sqrt{x+\frac{3}{5}}}{64\sqrt{10x-5}}-\frac{1331\sqrt{10}i\operatorname{acosh}\left(\frac{\sqrt{110}\sqrt{x+\frac{3}{5}}}{11}\right)}{128} & \text{for}\ \frac{10\left|x+\frac{3}{5}\right|}{11}>1 \\ \frac{1331\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{110}\sqrt{x+\frac{3}{5}}}{11}\right)}{128}+\frac{125\left(x+\frac{3}{5}\right)^{\frac{7}{2}}}{3\sqrt{-10x+5}}+\frac{275\left(x+\frac{3}{5}\right)^{\frac{5}{2}}}{24\sqrt{-10x+5}}+\frac{3025\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}{96\sqrt{-10x+5}}-\frac{6655\sqrt{x+\frac{3}{5}}}{64\sqrt{-10x+5}} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] Piecewise((-125*I*(x + 3/5)**(7/2)/(3*sqrt(10*x - 5)) - 275*I*(x
+ 3/5)**(5/2)/(24*sqrt(10*x - 5)) - 3025*I*(x + 3/5)**(3/2)/(96*s
qrt(10*x - 5)) + 6655*I*sqrt(x + 3/5)/(64*sqrt(10*x - 5)) - 1331*
```

```
sqrt(10)*I*acosh(sqrt(110)*sqrt(x + 3/5)/11)/128, 10*Abs(x + 3/5)
/11 > 1), (1331*sqrt(10)*asin(sqrt(110)*sqrt(x + 3/5)/11)/128 + 1
25*(x + 3/5)**(7/2)/(3*sqrt(-10*x + 5)) + 275*(x + 3/5)**(5/2)/(2
4*sqrt(-10*x + 5)) + 3025*(x + 3/5)**(3/2)/(96*sqrt(-10*x + 5)) -
 6655*sqrt(x + 3/5)/(64*sqrt(-10*x + 5)), True))
```

GIAC/XCAS [A] time = 0.226045, size = 73, normalized size = 0.76

$$-\frac{1}{1920}\sqrt{5}\left(2\left(4\left(40x+79\right)\left(5x+3\right)+1815\right)\sqrt{5x+3}\sqrt{-10x+5}-19965\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] -1/1920*sqrt(5)*(2*(4*(40*x + 79)*(5*x + 3) + 1815)*sqrt(5*x + 3)
*sqrt(-10*x + 5) - 19965*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x +
3)))
```

3.2465 $\int \frac{(3+5x)^{5/2}}{\sqrt{1-2x}(2+3x)}\,dx$

Optimal. Leaf size=108

$$-\frac{5}{12}\sqrt{1-2x}(5x+3)^{3/2}-\frac{455}{144}\sqrt{1-2x}\sqrt{5x+3}+\frac{3035}{432}\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)+\frac{2\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{27\sqrt{7}}$$

```
[Out] (-455*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/144 - (5*Sqrt[1 - 2*x]*(3 + 5*
x)^(3/2))/12 + (3035*Sqrt[5/2]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/
432 + (2*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(27*Sqrt[
7])
```

Rubi [A] time = 0.236484, antiderivative size = 108, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 7, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.269$

$$-\frac{5}{12}\sqrt{1-2x}(5x+3)^{3/2}-\frac{455}{144}\sqrt{1-2x}\sqrt{5x+3}+\frac{3035}{432}\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)+\frac{2\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{27\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(5/2)/(Sqrt[1 - 2*x]*(2 + 3*x)),x]
```

```
[Out] (-455*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/144 - (5*Sqrt[1 - 2*x]*(3 + 5*
x)^(3/2))/12 + (3035*Sqrt[5/2]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/
432 + (2*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(27*Sqrt[
7])
```

Rubi in Sympy [A] time = 22.5449, size = 99, normalized size = 0.92

$$-\frac{5\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{12}-\frac{455\sqrt{-2x+1}\sqrt{5x+3}}{144}+\frac{3035\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{864}+\frac{2\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{189}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)/(2+3*x)/(1-2*x)**(1/2),x)
```

```
[Out] -5*sqrt(-2*x + 1)*(5*x + 3)**(3/2)/12 - 455*sqrt(-2*x + 1)*sqrt(5
*x + 3)/144 + 3035*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/864 +
 2*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/189
```

Mathematica [A] time = 0.17759, size = 100, normalized size = 0.93

$$\frac{-420\sqrt{1-2x}\sqrt{5x+3}(60x+127)+64\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)+21245\sqrt{10}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)}{12096}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(5/2)/(Sqrt[1 - 2*x]*(2 + 3*x)),x]
```

```
[Out] (-420*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(127 + 60*x) + 64*Sqrt[7]*ArcTa
n[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])] + 21245*Sqrt[10]
*ArcTan[(1 + 20*x)/(2*Sqrt[1 - 2*x]*Sqrt[30 + 50*x])])/12096
```

Maple [A] time = 0.019, size = 98, normalized size = 0.9

$$-\frac{1}{12096}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(64\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^{2}-x+3}}\right)-21245\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)+25200\,x\sqrt{-10\,x^{2}-x}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)/(2+3*x)/(1-2*x)^(1/2),x)
```

```
[Out] -1/12096*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(64*7^(1/2)*arctan(1/14*(37*
x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))-21245*10^(1/2)*arcsin(20/11*x+
1/11)+25200*x*(-10*x^2-x+3)^(1/2)+53340*(-10*x^2-x+3)^(1/2))/(-10
*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.50766, size = 93, normalized size = 0.86

$$-\frac{25}{12}\sqrt{-10\,x^{2}-x+3x}+\frac{3035}{1728}\sqrt{10}\arcsin\left(\frac{20}{11}\,x+\frac{1}{11}\right)-\frac{1}{189}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)-\frac{635}{144}\sqrt{-10\,x^{2}-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] -25/12*sqrt(-10*x^2 - x + 3)*x + 3035/1728*sqrt(10)*arcsin(20/11*
x + 1/11) - 1/189*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs
(3*x + 2)) - 635/144*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.228761, size = 138, normalized size = 1.28

$$-\frac{1}{12096}\sqrt{7}\sqrt{2}\left(30\,\sqrt{7}\sqrt{2}(60\,x+127)\sqrt{5\,x+3}\sqrt{-2\,x+1}-3035\,\sqrt{7}\sqrt{5}\arctan\left(\frac{\sqrt{5}\sqrt{2}(20\,x+1)}{20\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)+32\,\sqrt{2}\arctan\left(\frac{}{14\,\sqrt{}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/12096*sqrt(7)*sqrt(2)*(30*sqrt(7)*sqrt(2)*(60*x + 127)*sqrt(5*
x + 3)*sqrt(-2*x + 1) - 3035*sqrt(7)*sqrt(5)*arctan(1/20*sqrt(5)*
sqrt(2)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))) + 32*sqrt(2)*a
rctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(5x+3)^{\frac{5}{2}}}{\sqrt{-2x+1}\,(3x+2)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(5/2)/(2+3*x)/(1-2*x)**(1/2),x)
```

```
[Out] Integral((5*x + 3)**(5/2)/(sqrt(-2*x + 1)*(3*x + 2)), x)
```

GIAC/XCAS [A] time = 0.288813, size = 234, normalized size = 2.17

$$-\frac{1}{1890}\,\sqrt{70}\sqrt{10}\left(\pi+2\,\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{2}}{5\,x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)-\frac{1}{144}\left(12\,\sqrt{5}(5\,x+3)+91\,\sqrt{5}\right)\sqrt{5\,x+3}\sqrt{-10\,x+5}+\frac{3035}{1728}\,\sqrt{10}\left(\pi+2\,\arctan\left(-\frac{\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{2}}{5\,x+3}-4\right)}{4\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] -1/1890*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x
 + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqr
t(2)*sqrt(-10*x + 5) - sqrt(22)))) - 1/144*(12*sqrt(5)*(5*x + 3)
+ 91*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5) + 3035/1728*sqrt(10)*
(pi + 2*arctan(-1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqr
t(22))^2/(5*x + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))
```

3.2466 $\int \frac{(3+5x)^{5/2}}{\sqrt{1-2x}(2+3x)^2}\,dx$

Optimal. Leaf size=115

$$\frac{\sqrt{1-2x}(5x+3)^{3/2}}{21(3x+2)}-\frac{185}{126}\sqrt{1-2x}\sqrt{5x+3}+\frac{125}{54}\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{173\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{189\sqrt{7}}$$

```
[Out] (-185*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/126 + (Sqrt[1 - 2*x]*(3 + 5*x)
^(3/2))/(21*(2 + 3*x)) + (125*Sqrt[5/2]*ArcSin[Sqrt[2/11]*Sqrt[3
+ 5*x]])/54 - (173*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])
/(189*Sqrt[7])
```

Rubi [A] time = 0.238545, antiderivative size = 115, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 7, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.269

$$\frac{\sqrt{1-2x}(5x+3)^{3/2}}{21(3x+2)}-\frac{185}{126}\sqrt{1-2x}\sqrt{5x+3}+\frac{125}{54}\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{173\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{189\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(5/2)/(Sqrt[1 - 2*x]*(2 + 3*x)^2),x]
```

```
[Out] (-185*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/126 + (Sqrt[1 - 2*x]*(3 + 5*x)
^(3/2))/(21*(2 + 3*x)) + (125*Sqrt[5/2]*ArcSin[Sqrt[2/11]*Sqrt[3
+ 5*x]])/54 - (173*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])
/(189*Sqrt[7])
```

Rubi in Sympy [A] time = 23.1721, size = 100, normalized size = 0.87

$$-\frac{185\sqrt{-2x+1}\sqrt{5x+3}}{126}+\frac{\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{21\,(3x+2)}+\frac{125\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{108}-\frac{173\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{1323}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)/(2+3*x)**2/(1-2*x)**(1/2),x)
```

```
[Out] -185*sqrt(-2*x + 1)*sqrt(5*x + 3)/126 + sqrt(-2*x + 1)*(5*x + 3)*
*(3/2)/(21*(3*x + 2)) + 125*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/
11)/108 - 173*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3
)))/1323
```

Mathematica [A] time = 0.208791, size = 107, normalized size = 0.93

$$\frac{-\frac{84\sqrt{1-2x}\sqrt{5x+3}(525x+352)}{3x+2}-692\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)+6125\sqrt{10}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)}{10584}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(5/2)/(Sqrt[1 - 2*x]*(2 + 3*x)^2),x]
```

```
[Out] ((-84*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(352 + 525*x))/(2 + 3*x) - 692*
Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])] + 6
125*Sqrt[10]*ArcTan[(1 + 20*x)/(2*Sqrt[1 - 2*x]*Sqrt[30 + 50*x])]
```

```
)/10584
```

Maple [A] time = 0.019, size = 146, normalized size = 1.3

$$\frac{1}{21168+31752\,x}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(2076\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^{2}-x+3}}\right)x+18375\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x+1384\,\sqrt{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)/(2+3*x)^2/(1-2*x)^(1/2),x)
```

```
[Out] 1/10584*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(2076*7^(1/2)*arctan(1/14*(37
*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+18375*10^(1/2)*arcsin(20/11
*x+1/11)*x+1384*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+
3)^(1/2))+12250*10^(1/2)*arcsin(20/11*x+1/11)-44100*x*(-10*x^2-x+
3)^(1/2)-29568*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)
```

Maxima [A] time = 1.50966, size = 101, normalized size = 0.88

$$\frac{125}{216}\sqrt{10}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)+\frac{173}{2646}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)-\frac{25}{18}\sqrt{-10\,x^{2}-x+3}-\frac{\sqrt{-10\,x^{2}-x+3}}{63\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)^2*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 125/216*sqrt(10)*arcsin(20/11*x + 1/11) + 173/2646*sqrt(7)*arcsin
(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) - 25/18*sqrt(-10*x^2
- x + 3) - 1/63*sqrt(-10*x^2 - x + 3)/(3*x + 2)
```

Fricas [A] time = 0.228123, size = 161, normalized size = 1.4

$$-\frac{\sqrt{7}\sqrt{2}\left(6\,\sqrt{7}\sqrt{2}(525\,x+352)\sqrt{5\,x+3}\sqrt{-2\,x+1}-875\,\sqrt{7}\sqrt{5}(3\,x+2)\arctan\left(\frac{\sqrt{5}\sqrt{2}(20\,x+1)}{20\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)-346\,\sqrt{2}(3\,x+2)\arctan\left(\frac{}{14}\right.\right.}{10584\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)^2*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/10584*sqrt(7)*sqrt(2)*(6*sqrt(7)*sqrt(2)*(525*x + 352)*sqrt(5*
x + 3)*sqrt(-2*x + 1) - 875*sqrt(7)*sqrt(5)*(3*x + 2)*arctan(1/20
*sqrt(5)*sqrt(2)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))) - 346
*sqrt(2)*(3*x + 2)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)
*sqrt(-2*x + 1))))/(3*x + 2)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(5/2)/(2+3*x)**2/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.326344, size = 377, normalized size = 3.28

$$\frac{173}{26460}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^{2}}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)+\frac{125}{216}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^{2}}{5x+3}-4\right)}{4\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{5}{18}\sqrt{5}\sqrt{5x+3}\sqrt{-10x+5}-\frac{22\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)}{63\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^{2}+280\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)^2*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 173/26460*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5
*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(s
qrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 125/216*sqrt(10)*(pi + 2*a
rctan(-1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/
(5*x + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 5/18*sqrt
(5)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 22/63*sqrt(10)*((sqrt(2)*sqrt
(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*
sqrt(-10*x + 5) - sqrt(22)))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22
))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqr
t(22)))^2 + 280)
```

3.2467 $\int \frac{(3+5x)^{5/2}}{\sqrt{1-2x}(2+3x)^3}\,dx$

Optimal. Leaf size=120

$$\frac{\sqrt{1-2x}(5x+3)^{3/2}}{42(3x+2)^2}+\frac{239\sqrt{1-2x}\sqrt{5x+3}}{1764(3x+2)}+\frac{25}{27}\sqrt{10}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)+\frac{17687\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{5292\sqrt{7}}$$

```
[Out] (239*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(1764*(2 + 3*x)) + (Sqrt[1 - 2*
x]*(3 + 5*x)^(3/2))/(42*(2 + 3*x)^2) + (25*Sqrt[10]*ArcSin[Sqrt[2
/11]*Sqrt[3 + 5*x]])/27 + (17687*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sq
rt[3 + 5*x])])/(5292*Sqrt[7])
```

Rubi [A] time = 0.232804, antiderivative size = 120, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 7, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.269

$$\frac{\sqrt{1-2x}(5x+3)^{3/2}}{42(3x+2)^2}+\frac{239\sqrt{1-2x}\sqrt{5x+3}}{1764(3x+2)}+\frac{25}{27}\sqrt{10}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)+\frac{17687\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{5292\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(5/2)/(Sqrt[1 - 2*x]*(2 + 3*x)^3),x]
```

```
[Out] (239*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(1764*(2 + 3*x)) + (Sqrt[1 - 2*
x]*(3 + 5*x)^(3/2))/(42*(2 + 3*x)^2) + (25*Sqrt[10]*ArcSin[Sqrt[2
/11]*Sqrt[3 + 5*x]])/27 + (17687*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sq
rt[3 + 5*x])])/(5292*Sqrt[7])
```

Rubi in Sympy [A] time = 22.8996, size = 107, normalized size = 0.89

$$\frac{239\sqrt{-2x+1}\sqrt{5x+3}}{1764\,(3x+2)}+\frac{\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{42\,(3x+2)^2}+\frac{25\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{27}+\frac{17687\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{37044}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)/(2+3*x)**3/(1-2*x)**(1/2),x)
```

```
[Out] 239*sqrt(-2*x + 1)*sqrt(5*x + 3)/(1764*(3*x + 2)) + sqrt(-2*x + 1
)*(5*x + 3)**(3/2)/(42*(3*x + 2)**2) + 25*sqrt(10)*asin(sqrt(22)*
sqrt(5*x + 3)/11)/27 + 17687*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/
(7*sqrt(5*x + 3)))/37044
```

Mathematica [A] time = 0.179509, size = 107, normalized size = 0.89

$$\frac{\frac{42\sqrt{1-2x}\sqrt{5x+3}(927x+604)}{(3x+2)^2}+17687\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)+34300\sqrt{10}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)}{74088}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(5/2)/(Sqrt[1 - 2*x]*(2 + 3*x)^3),x]
```

```
[Out] ((42*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(604 + 927*x))/(2 + 3*x)^2 + 176
87*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])]
+ 34300*Sqrt[10]*ArcTan[(1 + 20*x)/(2*Sqrt[1 - 2*x]*Sqrt[30 + 50*
```

```
x])])/74088
```

Maple [B] time = 0.02, size = 191, normalized size = 1.6

$$-\frac{1}{74088\,(2+3\,x)^{2}}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(159183\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^{2}-x+3}}\right)x^{2}-308700\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x^{2}+$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)/(2+3*x)^3/(1-2*x)^(1/2),x)
```

```
[Out] -1/74088*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(159183*7^(1/2)*arctan(1/14*
(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2-308700*10^(1/2)*arcsin
(20/11*x+1/11)*x^2+212244*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(
-10*x^2-x+3)^(1/2))*x-411600*10^(1/2)*arcsin(20/11*x+1/11)*x+7074
8*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))-1372
00*10^(1/2)*arcsin(20/11*x+1/11)-38934*x*(-10*x^2-x+3)^(1/2)-2536
8*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)^2
```

Maxima [A] time = 1.50838, size = 117, normalized size = 0.98

$$\frac{25}{54}\sqrt{10}\arcsin\left(\frac{20}{11}\,x+\frac{1}{11}\right)-\frac{17687}{74088}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)-\frac{\sqrt{-10\,x^{2}-x+3}}{126\,(9\,x^{2}+12\,x+4)}+\frac{103\,\sqrt{-10\,x^{2}-x+3}}{588\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)^3*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 25/54*sqrt(10)*arcsin(20/11*x + 1/11) - 17687/74088*sqrt(7)*arcsi
n(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) - 1/126*sqrt(-10*x^2
 - x + 3)/(9*x^2 + 12*x + 4) + 103/588*sqrt(-10*x^2 - x + 3)/(3*x
 + 2)
```

Fricas [A] time = 0.228817, size = 165, normalized size = 1.38

$$\frac{\sqrt{7}\left(4900\,\sqrt{10}\sqrt{7}\left(9\,x^{2}+12\,x+4\right)\arctan\left(\frac{\sqrt{10}(20\,x+1)}{20\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)+6\,\sqrt{7}(927\,x+604)\sqrt{5\,x+3}\sqrt{-2\,x+1}-17687\left(9\,x^{2}+12\,x+4\right)\right.}{74088\,(9\,x^{2}+12\,x+4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)^3*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] 1/74088*sqrt(7)*(4900*sqrt(10)*sqrt(7)*(9*x^2 + 12*x + 4)*arctan(
1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))) + 6*sqrt
(7)*(927*x + 604)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 17687*(9*x^2 + 1
2*x + 4)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x
 + 1))))/(9*x^2 + 12*x + 4)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(5/2)/(2+3*x)**3/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.355943, size = 437, normalized size = 3.64

$$-\frac{17687}{740880}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)+\frac{25}{54}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{4\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)+\frac{11\left(239\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3+85400\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)\right)}{882\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)^3*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] -17687/740880*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sq
rt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4
)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 25/54*sqrt(10)*(pi + 2
*arctan(-1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^
2/(5*x + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 11/882*
(239*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3)
 - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 8540
0*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) -
4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)
*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqr
t(2)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)^2
```

3.2468 $\int \frac{(3+5x)^{5/2}}{\sqrt{1-2x}(2+3x)^4}\,dx$

Optimal. Leaf size=122

$$-\frac{\sqrt{1-2x}(5x+3)^{5/2}}{21(3x+2)^3}-\frac{55\sqrt{1-2x}(5x+3)^{3/2}}{588(3x+2)^2}-\frac{605\sqrt{1-2x}\sqrt{5x+3}}{2744(3x+2)}-\frac{6655\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{2744\sqrt{7}}$$

```
[Out] (-605*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2744*(2 + 3*x)) - (55*Sqrt[1
- 2*x]*(3 + 5*x)^(3/2))/(588*(2 + 3*x)^2) - (Sqrt[1 - 2*x]*(3 + 5
*x)^(5/2))/(21*(2 + 3*x)^3) - (6655*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]
*Sqrt[3 + 5*x])])/(2744*Sqrt[7])
```

Rubi [A] time = 0.172459, antiderivative size = 122, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.115

$$-\frac{\sqrt{1-2x}(5x+3)^{5/2}}{21(3x+2)^3}-\frac{55\sqrt{1-2x}(5x+3)^{3/2}}{588(3x+2)^2}-\frac{605\sqrt{1-2x}\sqrt{5x+3}}{2744(3x+2)}-\frac{6655\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{2744\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(5/2)/(Sqrt[1 - 2*x]*(2 + 3*x)^4),x]
```

```
[Out] (-605*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2744*(2 + 3*x)) - (55*Sqrt[1
- 2*x]*(3 + 5*x)^(3/2))/(588*(2 + 3*x)^2) - (Sqrt[1 - 2*x]*(3 + 5
*x)^(5/2))/(21*(2 + 3*x)^3) - (6655*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]
*Sqrt[3 + 5*x])])/(2744*Sqrt[7])
```

Rubi in Sympy [A] time = 13.6123, size = 110, normalized size = 0.9

$$-\frac{605\sqrt{-2x+1}\sqrt{5x+3}}{2744\,(3x+2)}-\frac{55\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{588\,(3x+2)^2}-\frac{\sqrt{-2x+1}\,(5x+3)^{\frac{5}{2}}}{21\,(3x+2)^3}-\frac{6655\sqrt{7}\,\text{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{19208}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)/(2+3*x)**4/(1-2*x)**(1/2),x)
```

```
[Out] -605*sqrt(-2*x + 1)*sqrt(5*x + 3)/(2744*(3*x + 2)) - 55*sqrt(-2*x
 + 1)*(5*x + 3)**(3/2)/(588*(3*x + 2)**2) - sqrt(-2*x + 1)*(5*x +
 3)**(5/2)/(21*(3*x + 2)**3) - 6655*sqrt(7)*atan(sqrt(7)*sqrt(-2*
x + 1)/(7*sqrt(5*x + 3)))/19208
```

Mathematica [A] time = 0.0856438, size = 77, normalized size = 0.63

$$-\frac{\sqrt{1-2x}\sqrt{5x+3}\left(37685x^2+48170x+15408\right)}{8232(3x+2)^3}-\frac{6655\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{5488\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(5/2)/(Sqrt[1 - 2*x]*(2 + 3*x)^4),x]
```

```
[Out] -(Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(15408 + 48170*x + 37685*x^2))/(823
2*(2 + 3*x)^3) - (6655*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt
[3 + 5*x])])/(5488*Sqrt[7])
```

Maple [B] time = 0.019, size = 202, normalized size = 1.7

$$\frac{1}{115248\,(2+3\,x)^{3}}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(539055\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^{2}-x+3}}\right)x^{3}+1078110\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^{2}-x}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)/(2+3*x)^4/(1-2*x)^(1/2),x)
```

```
[Out] 1/115248*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(539055*7^(1/2)*arctan(1/14*
(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+1078110*7^(1/2)*arctan
(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+718740*7^(1/2)*a
rctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x-527590*x^2*(-
10*x^2-x+3)^(1/2)+159720*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-
10*x^2-x+3)^(1/2))-674380*x*(-10*x^2-x+3)^(1/2)-215712*(-10*x^2-x
+3)^(1/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)^3
```

Maxima [A] time = 1.50089, size = 144, normalized size = 1.18

$$\frac{6655}{38416}\,\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)-\frac{\sqrt{-10\,x^{2}-x+3}}{189\,(27\,x^{3}+54\,x^{2}+36\,x+8)}+\frac{445\,\sqrt{-10\,x^{2}-x+3}}{5292\,(9\,x^{2}+12\,x+4)}-\frac{37685\,\sqrt{-10\,x^{2}-x+3}}{74088\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)^4*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 6655/38416*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x +
2)) - 1/189*sqrt(-10*x^2 - x + 3)/(27*x^3 + 54*x^2 + 36*x + 8) +
445/5292*sqrt(-10*x^2 - x + 3)/(9*x^2 + 12*x + 4) - 37685/74088*s
qrt(-10*x^2 - x + 3)/(3*x + 2)
```

Fricas [A] time = 0.222241, size = 127, normalized size = 1.04

$$-\frac{\sqrt{7}\left(2\,\sqrt{7}\left(37685\,x^{2}+48170\,x+15408\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-19965\,\left(27\,x^{3}+54\,x^{2}+36\,x+8\right)\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)}{115248\,(27\,x^{3}+54\,x^{2}+36\,x+8)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)^4*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/115248*sqrt(7)*(2*sqrt(7)*(37685*x^2 + 48170*x + 15408)*sqrt(5
*x + 3)*sqrt(-2*x + 1) - 19965*(27*x^3 + 54*x^2 + 36*x + 8)*arcta
n(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(27*x
^3 + 54*x^2 + 36*x + 8)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(5/2)/(2+3*x)**4/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.364333, size = 429, normalized size = 3.52

$$\frac{1331}{76832}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^{2}}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)$$

$$-\frac{6655\left(3\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^{5}+2240\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^{3}+517440\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-}{\sqrt{5x+3}}\right.\right.}{4116\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^{2}+280\right)^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)^4*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 1331/76832*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(
5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(
sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 6655/4116*(3*sqrt(10)*((s
qrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3
)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 + 2240*sqrt(10)*((sqrt(
2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(s
qrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 517440*sqrt(10)*((sqrt(2)
*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqr
t(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) - s
qrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5)
 - sqrt(22)))^2 + 280)^3
```

3.2469 $\int \frac{(3+5x)^{5/2}}{\sqrt{1-2x}(2+3x)^5}\,dx$

Optimal. Leaf size=151

$$\frac{3\sqrt{1-2x}(5x+3)^{7/2}}{28(3x+2)^4}-\frac{\sqrt{1-2x}(5x+3)^{5/2}}{24(3x+2)^3}-\frac{55\sqrt{1-2x}(5x+3)^{3/2}}{672(3x+2)^2}-\frac{605\sqrt{1-2x}\sqrt{5x+3}}{3136(3x+2)}-\frac{6655\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{3136\sqrt{7}}$$

```
[Out] (-605*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(3136*(2 + 3*x)) - (55*Sqrt[1
- 2*x]*(3 + 5*x)^(3/2))/(672*(2 + 3*x)^2) - (Sqrt[1 - 2*x]*(3 + 5
*x)^(5/2))/(24*(2 + 3*x)^3) + (3*Sqrt[1 - 2*x]*(3 + 5*x)^(7/2))/(
28*(2 + 3*x)^4) - (6655*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*
x])])/(3136*Sqrt[7])
```

Rubi [A] time = 0.216009, antiderivative size = 151, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$\frac{3\sqrt{1-2x}(5x+3)^{7/2}}{28(3x+2)^4}-\frac{\sqrt{1-2x}(5x+3)^{5/2}}{24(3x+2)^3}-\frac{55\sqrt{1-2x}(5x+3)^{3/2}}{672(3x+2)^2}-\frac{605\sqrt{1-2x}\sqrt{5x+3}}{3136(3x+2)}-\frac{6655\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{3136\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(5/2)/(Sqrt[1 - 2*x]*(2 + 3*x)^5),x]
```

```
[Out] (-605*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(3136*(2 + 3*x)) - (55*Sqrt[1
- 2*x]*(3 + 5*x)^(3/2))/(672*(2 + 3*x)^2) - (Sqrt[1 - 2*x]*(3 + 5
*x)^(5/2))/(24*(2 + 3*x)^3) + (3*Sqrt[1 - 2*x]*(3 + 5*x)^(7/2))/(
28*(2 + 3*x)^4) - (6655*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*
x])])/(3136*Sqrt[7])
```

Rubi in Sympy [A] time = 16.5343, size = 136, normalized size = 0.9

$$-\frac{605\sqrt{-2x+1}\sqrt{5x+3}}{3136\,(3x+2)}-\frac{55\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{672\,(3x+2)^2}-\frac{\sqrt{-2x+1}\,(5x+3)^{\frac{5}{2}}}{24\,(3x+2)^3}+\frac{3\sqrt{-2x+1}\,(5x+3)^{\frac{7}{2}}}{28\,(3x+2)^4}-\frac{6655\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{21952}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)/(2+3*x)**5/(1-2*x)**(1/2),x)
```

```
[Out] -605*sqrt(-2*x + 1)*sqrt(5*x + 3)/(3136*(3*x + 2)) - 55*sqrt(-2*x
 + 1)*(5*x + 3)**(3/2)/(672*(3*x + 2)**2) - sqrt(-2*x + 1)*(5*x +
 3)**(5/2)/(24*(3*x + 2)**3) + 3*sqrt(-2*x + 1)*(5*x + 3)**(7/2)/
(28*(3*x + 2)**4) - 6655*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*s
qrt(5*x + 3)))/21952
```

Mathematica [A] time = 0.0905075, size = 82, normalized size = 0.54

$$\frac{\sqrt{1-2x}\sqrt{5x+3}\left(12945x^3+6920x^2-6484x-3600\right)}{9408(3x+2)^4}-\frac{6655\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{6272\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(5/2)/(Sqrt[1 - 2*x]*(2 + 3*x)^5),x]
```

```
[Out] (Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(-3600 - 6484*x + 6920*x^2 + 12945*x
^3))/(9408*(2 + 3*x)^4) - (6655*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 1
4*x]*Sqrt[3 + 5*x])])/(6272*Sqrt[7])
```

Maple [B] time = 0.023, size = 250, normalized size = 1.7

$$\frac{1}{131712\,(2+3\,x)^4}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(1617165\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^4+4312440\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)}{\sqrt{-10\,x^2-}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)/(2+3*x)^5/(1-2*x)^(1/2),x)
```

```
[Out] 1/131712*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(1617165*7^(1/2)*arctan(1/14
*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^4+4312440*7^(1/2)*arcta
n(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+4312440*7^(1/2)
*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+181230*x^
3*(-10*x^2-x+3)^(1/2)+1916640*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/
2)/(-10*x^2-x+3)^(1/2))*x+96880*x^2*(-10*x^2-x+3)^(1/2)+319440*7^
(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))-90776*x*
(-10*x^2-x+3)^(1/2)-50400*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2
)/(2+3*x)^4
```

Maxima [A] time = 1.51684, size = 193, normalized size = 1.28

$$\frac{6655}{43904}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)-\frac{\sqrt{-10\,x^2-x+3}}{252\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}+\frac{83\,\sqrt{-10\,x^2-x+3}}{1512\,(27\,x^3+54\,x^2+36\,x+8)}-\frac{1355\,\sqrt{-10\,x^2-x+3}}{6048\,(9\,x^2+12\,x+4)}+\frac{4315\,\sqrt{-10\,x^2-x+3}}{84672\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)^5*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 6655/43904*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x +
2)) - 1/252*sqrt(-10*x^2 - x + 3)/(81*x^4 + 216*x^3 + 216*x^2 + 9
6*x + 16) + 83/1512*sqrt(-10*x^2 - x + 3)/(27*x^3 + 54*x^2 + 36*x
 + 8) - 1355/6048*sqrt(-10*x^2 - x + 3)/(9*x^2 + 12*x + 4) + 4315
/84672*sqrt(-10*x^2 - x + 3)/(3*x + 2)
```

Fricas [A] time = 0.221541, size = 147, normalized size = 0.97

$$\frac{\sqrt{7}\left(2\,\sqrt{7}\left(12945\,x^3+6920\,x^2-6484\,x-3600\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+19965\left(81\,x^4+216\,x^3+216\,x^2+96\,x+16\right)\arctan\left(\frac{}{14\,\sqrt{}}\right.\right.}{131712\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)^5*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] 1/131712*sqrt(7)*(2*sqrt(7)*(12945*x^3 + 6920*x^2 - 6484*x - 3600
)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 19965*(81*x^4 + 216*x^3 + 216*x^
2 + 96*x + 16)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqr
t(-2*x + 1))))/(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(5/2)/(2+3*x)**5/(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.429224, size = 512, normalized size = 3.39

$$\frac{1331}{87808}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)$$

$$-\frac{6655\left(3\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^7+3080\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^5+1144640\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+}}{\sqrt{5x+}}\right.\right.}{4704\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+28\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)^5*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 1331/87808*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(
5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(
sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 6655/4704*(3*sqrt(10)*((s
qrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3
)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^7 + 3080*sqrt(10)*((sqrt(
2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(s
qrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 + 1144640*sqrt(10)*((sqrt(2
)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sq
rt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 2956800*sqrt(10)*((sqrt(2)
*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqr
t(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) - s
qrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5)
 - sqrt(22)))^2 + 280)^4
```

3.2470 $\int \frac{(3+5x)^{5/2}}{\sqrt{1-2x}(2+3x)^6}\,dx$

Optimal. Leaf size=180

$$\frac{\sqrt{1-2x}(5x+3)^{3/2}}{105(3x+2)^5}+\frac{1948963\sqrt{1-2x}\sqrt{5x+3}}{8297856(3x+2)}-\frac{12371\sqrt{1-2x}\sqrt{5x+3}}{592704(3x+2)^2}-\frac{14831\sqrt{1-2x}\sqrt{5x+3}}{105840(3x+2)^3}+\frac{437\sqrt{1-2x}\sqrt{5x+3}}{17640(3x+2)^4}-\frac{933031\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{307328\sqrt{7}}$$

```
[Out] (437*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(17640*(2 + 3*x)^4) - (14831*Sq
rt[1 - 2*x]*Sqrt[3 + 5*x])/(105840*(2 + 3*x)^3) - (12371*Sqrt[1 -
 2*x]*Sqrt[3 + 5*x])/(592704*(2 + 3*x)^2) + (1948963*Sqrt[1 - 2*x
]*Sqrt[3 + 5*x])/(8297856*(2 + 3*x)) + (Sqrt[1 - 2*x]*(3 + 5*x)^(
3/2))/(105*(2 + 3*x)^5) - (933031*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*S
qrt[3 + 5*x])])/(307328*Sqrt[7])
```

Rubi [A] time = 0.370489, antiderivative size = 180, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$\frac{\sqrt{1-2x}(5x+3)^{3/2}}{105(3x+2)^5}+\frac{1948963\sqrt{1-2x}\sqrt{5x+3}}{8297856(3x+2)}-\frac{12371\sqrt{1-2x}\sqrt{5x+3}}{592704(3x+2)^2}-\frac{14831\sqrt{1-2x}\sqrt{5x+3}}{105840(3x+2)^3}+\frac{437\sqrt{1-2x}\sqrt{5x+3}}{17640(3x+2)^4}-\frac{933031\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{307328\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(5/2)/(Sqrt[1 - 2*x]*(2 + 3*x)^6),x]
```


```
[Out] (437*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(17640*(2 + 3*x)^4) - (14831*Sq
rt[1 - 2*x]*Sqrt[3 + 5*x])/(105840*(2 + 3*x)^3) - (12371*Sqrt[1 -
 2*x]*Sqrt[3 + 5*x])/(592704*(2 + 3*x)^2) + (1948963*Sqrt[1 - 2*x
]*Sqrt[3 + 5*x])/(8297856*(2 + 3*x)) + (Sqrt[1 - 2*x]*(3 + 5*x)^(
3/2))/(105*(2 + 3*x)^5) - (933031*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*S
qrt[3 + 5*x])])/(307328*Sqrt[7])
```

Rubi in Sympy [A] time = 36.1264, size = 163, normalized size = 0.91

$$\frac{1948963\sqrt{-2x+1}\sqrt{5x+3}}{8297856\,(3x+2)}-\frac{12371\sqrt{-2x+1}\sqrt{5x+3}}{592704\,(3x+2)^2}-\frac{14831\sqrt{-2x+1}\sqrt{5x+3}}{105840\,(3x+2)^3}+\frac{437\sqrt{-2x+1}\sqrt{5x+3}}{17640\,(3x+2)^4}+\frac{\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{105\,(3x+2)^5}-\frac{933031\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{2151296}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)/(2+3*x)**6/(1-2*x)**(1/2),x)
```

```
[Out] 1948963*sqrt(-2*x + 1)*sqrt(5*x + 3)/(8297856*(3*x + 2)) - 12371*
sqrt(-2*x + 1)*sqrt(5*x + 3)/(592704*(3*x + 2)**2) - 14831*sqrt(-
2*x + 1)*sqrt(5*x + 3)/(105840*(3*x + 2)**3) + 437*sqrt(-2*x + 1)
*sqrt(5*x + 3)/(17640*(3*x + 2)**4) + sqrt(-2*x + 1)*(5*x + 3)**(
3/2)/(105*(3*x + 2)**5) - 933031*sqrt(7)*atan(sqrt(7)*sqrt(-2*x +
 1)/(7*sqrt(5*x + 3)))/2151296
```

Mathematica [A] time = 0.161246, size = 87, normalized size = 0.48

$$\frac{\frac{14\sqrt{1-2x}\sqrt{5x+3}(87703335x^4+231277650x^3+222865988x^2+93291272x+14330592)}{(3x+2)^5}-13995465\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{64538880}$$

Antiderivative was successfully verified.

```
[In]   Integrate[(3 + 5*x)^(5/2)/(Sqrt[1 - 2*x]*(2 + 3*x)^6),x]
```

```
[Out] ((14*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(14330592 + 93291272*x + 2228659
88*x^2 + 231277650*x^3 + 87703335*x^4))/(2 + 3*x)^5 - 13995465*Sq
rt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/6453
8880
```

Maple [B] time = 0.023, size = 298, normalized size = 1.7

$$\frac{1}{64538880\,(2+3\,x)^5}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(3400897995\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^5+11336326650\,\sqrt{7}\arctan\left(1/14\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((3+5*x)^(5/2)/(2+3*x)^6/(1-2*x)^(1/2),x)
```

```
[Out] 1/64538880*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(3400897995*7^(1/2)*arctan
(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^5+11336326650*7^(1
/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^4+151151
02200*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*
x^3+1227846690*x^4*(-10*x^2-x+3)^(1/2)+10076734800*7^(1/2)*arctan
(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+3237887100*x^3*(
-10*x^2-x+3)^(1/2)+3358911600*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/
2)/(-10*x^2-x+3)^(1/2))*x+3120123832*x^2*(-10*x^2-x+3)^(1/2)+4478
54880*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+
1306077808*x*(-10*x^2-x+3)^(1/2)+200628288*(-10*x^2-x+3)^(1/2))/(
-10*x^2-x+3)^(1/2)/(2+3*x)^5
```

Maxima [A] time = 1.52156, size = 248, normalized size = 1.38

$$\frac{933031}{4302592}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)-\frac{\sqrt{-10\,x^2-x+3}}{315\,(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240\,x+32)}+\frac{239\,\sqrt{-10\,x^2-x+3}}{5880\,(81\,x^4+216\,x^3+216\,x^2+96\,x+16)}-\frac{14831\,\sqrt{-10\,x^2-x+3}}{105840\,(27\,x^3+54\,x^2+36\,x+8)}-\frac{12371\,\sqrt{-10\,x^2-x+3}}{592704\,(9\,x^2+12\,x+4)}+\frac{1948963\,\sqrt{-10\,x^2-x+3}}{8297856\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)^6*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 933031/4302592*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*
x + 2)) - 1/315*sqrt(-10*x^2 - x + 3)/(243*x^5 + 810*x^4 + 1080*x
^3 + 720*x^2 + 240*x + 32) + 239/5880*sqrt(-10*x^2 - x + 3)/(81*x
^4 + 216*x^3 + 216*x^2 + 96*x + 16) - 14831/105840*sqrt(-10*x^2 -
 x + 3)/(27*x^3 + 54*x^2 + 36*x + 8) - 12371/592704*sqrt(-10*x^2
- x + 3)/(9*x^2 + 12*x + 4) + 1948963/8297856*sqrt(-10*x^2 - x +
3)/(3*x + 2)
```

Fricas [A] time = 0.229376, size = 167, normalized size = 0.93

$$\frac{\sqrt{7}\left(2\,\sqrt{7}\left(87703335\,x^4+231277650\,x^3+222865988\,x^2+93291272\,x+14330592\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+13995465\,\left(243\,x^5+\right.\right.}{64538880\,(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240\,x+32)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)^6*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] 1/64538880*sqrt(7)*(2*sqrt(7)*(87703335*x^4 + 231277650*x^3 + 222
865988*x^2 + 93291272*x + 14330592)*sqrt(5*x + 3)*sqrt(-2*x + 1)
+ 13995465*(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)*
arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/
(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3+5*x)**(5/2)/(2+3*x)**6/(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.517146, size = 594, normalized size = 3.3

$$\frac{933031}{43025920}\sqrt{70}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)$$

$$-\frac{1331\left(2103\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^9 + 2747920\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^7 + 1406935040\sqrt{10}\cdots}{460992\left(\left(\cdots\right.\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)^6*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 933031/43025920*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*
sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) -
 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 1331/460992*(2103*sq
rt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sq
rt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^9 + 2747920*sqr
t(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqr
t(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^7 + 1406935040*s
qrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*s
qrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 - 7414131200
0*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) -
4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 - 1022875
3920000*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x +
 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((s
qrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3
)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)^5
```

3.2471 $\int \frac{(3+5x)^{5/2}}{\sqrt{1-2x}(2+3x)^7}\,dx$

Optimal. Leaf size=209

$$\frac{\sqrt{1-2x}(5x+3)^{3/2}}{126(3x+2)^6}+\frac{122343637\sqrt{1-2x}\sqrt{5x+3}}{232339968(3x+2)}+\frac{958171\sqrt{1-2x}\sqrt{5x+3}}{16595712(3x+2)^2}-\frac{71369\sqrt{1-2x}\sqrt{5x+3}}{2963520(3x+2)^3}-\frac{149951\sqrt{1-2x}\sqrt{5x+3}}{1481760(3x+2)^4}+\frac{503\sqrt{1-2x}\sqrt{5x+3}}{26460(3x+2)^5}-\frac{52573169\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{8605184\sqrt{7}}$$

```
[Out] (503*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(26460*(2 + 3*x)^5) - (149951*S
qrt[1 - 2*x]*Sqrt[3 + 5*x])/(1481760*(2 + 3*x)^4) - (71369*Sqrt[1
 - 2*x]*Sqrt[3 + 5*x])/(2963520*(2 + 3*x)^3) + (958171*Sqrt[1 - 2
*x]*Sqrt[3 + 5*x])/(16595712*(2 + 3*x)^2) + (122343637*Sqrt[1 - 2
*x]*Sqrt[3 + 5*x])/(232339968*(2 + 3*x)) + (Sqrt[1 - 2*x]*(3 + 5*
x)^(3/2))/(126*(2 + 3*x)^6) - (52573169*ArcTan[Sqrt[1 - 2*x]/(Sqr
t[7]*Sqrt[3 + 5*x])])/(8605184*Sqrt[7])
```

Rubi [A] time = 0.454823, antiderivative size = 209, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$\frac{\sqrt{1-2x}(5x+3)^{3/2}}{126(3x+2)^6}+\frac{122343637\sqrt{1-2x}\sqrt{5x+3}}{232339968(3x+2)}+\frac{958171\sqrt{1-2x}\sqrt{5x+3}}{16595712(3x+2)^2}-\frac{71369\sqrt{1-2x}\sqrt{5x+3}}{2963520(3x+2)^3}-\frac{149951\sqrt{1-2x}\sqrt{5x+3}}{1481760(3x+2)^4}+\frac{503\sqrt{1-2x}\sqrt{5x+3}}{26460(3x+2)^5}-\frac{52573169\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{8605184\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(5/2)/(Sqrt[1 - 2*x]*(2 + 3*x)^7),x]
```

```
[Out] (503*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(26460*(2 + 3*x)^5) - (149951*S
qrt[1 - 2*x]*Sqrt[3 + 5*x])/(1481760*(2 + 3*x)^4) - (71369*Sqrt[1
 - 2*x]*Sqrt[3 + 5*x])/(2963520*(2 + 3*x)^3) + (958171*Sqrt[1 - 2
*x]*Sqrt[3 + 5*x])/(16595712*(2 + 3*x)^2) + (122343637*Sqrt[1 - 2
*x]*Sqrt[3 + 5*x])/(232339968*(2 + 3*x)) + (Sqrt[1 - 2*x]*(3 + 5*
x)^(3/2))/(126*(2 + 3*x)^6) - (52573169*ArcTan[Sqrt[1 - 2*x]/(Sqr
t[7]*Sqrt[3 + 5*x])])/(8605184*Sqrt[7])
```

Rubi in Sympy [A] time = 44.0773, size = 190, normalized size = 0.91

$$\frac{122343637\sqrt{-2x+1}\sqrt{5x+3}}{232339968\,(3x+2)}+\frac{958171\sqrt{-2x+1}\sqrt{5x+3}}{16595712\,(3x+2)^2}-\frac{71369\sqrt{-2x+1}\sqrt{5x+3}}{2963520\,(3x+2)^3}-\frac{149951\sqrt{-2x+1}\sqrt{5x+3}}{1481760\,(3x+2)^4}+\frac{503\sqrt{-2x+1}\sqrt{5x+3}}{26460\,(3x+2)^5}+\frac{\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{126\,(3x+2)^6}-\frac{52573169\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{60236288}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)/(2+3*x)**7/(1-2*x)**(1/2),x)
```

```
[Out] 122343637*sqrt(-2*x + 1)*sqrt(5*x + 3)/(232339968*(3*x + 2)) + 95
8171*sqrt(-2*x + 1)*sqrt(5*x + 3)/(16595712*(3*x + 2)**2) - 71369
*sqrt(-2*x + 1)*sqrt(5*x + 3)/(2963520*(3*x + 2)**3) - 149951*sqr
t(-2*x + 1)*sqrt(5*x + 3)/(1481760*(3*x + 2)**4) + 503*sqrt(-2*x
+ 1)*sqrt(5*x + 3)/(26460*(3*x + 2)**5) + sqrt(-2*x + 1)*(5*x + 3
)**(3/2)/(126*(3*x + 2)**6) - 52573169*sqrt(7)*atan(sqrt(7)*sqrt(
```

```
-2*x + 1)/(7*sqrt(5*x + 3)))/60236288
```

Mathematica [A] time = 0.134551, size = 92, normalized size = 0.44

$$\frac{\frac{378\sqrt{1-2x}\sqrt{5x+3}(16516390995x^5+55658284380x^4+74931979536x^3+50261760608x^2+16771747280x+2225100096)}{(3x+2)^6} - 21292133445\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x}}\right.}{48791393280}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(5/2)/(Sqrt[1 - 2*x]*(2 + 3*x)^7),x]
```

```
[Out] ((378*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(2225100096 + 16771747280*x + 5
0261760608*x^2 + 74931979536*x^3 + 55658284380*x^4 + 16516390995*
x^5))/(2 + 3*x)^6 - 21292133445*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sq
rt[7 - 14*x]*Sqrt[3 + 5*x])])/48791393280
```

Maple [B] time = 0.023, size = 346, normalized size = 1.7

$$\frac{1}{1807088640\,(2+3x)^6}\sqrt{1-2x}\sqrt{3+5x}\left(574887603015\sqrt{7}\arctan\left(1/14\,\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)x^6+2299550412060\sqrt{7}\arctan\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)/(2+3*x)^7/(1-2*x)^(1/2),x)
```

```
[Out] 1/1807088640*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(574887603015*7^(1/2)*ar
ctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^6+229955041206
0*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^5+
3832584020100*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)
^(1/2))*x^4+231229473930*x^5*(-10*x^2-x+3)^(1/2)+3406741351200*7^
(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+7792
15981320*x^4*(-10*x^2-x+3)^(1/2)+1703370675600*7^(1/2)*arctan(1/1
4*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+1049047713504*x^3*(-
10*x^2-x+3)^(1/2)+454232180160*7^(1/2)*arctan(1/14*(37*x+20)*7^(1
/2)/(-10*x^2-x+3)^(1/2))*x+703664648512*x^2*(-10*x^2-x+3)^(1/2)+5
0470242240*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1
/2))+234804461920*x*(-10*x^2-x+3)^(1/2)+31151401344*(-10*x^2-x+3)
^(1/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)^6
```

Maxima [A] time = 1.51971, size = 311, normalized size = 1.49

$$\frac{52573169}{120472576}\sqrt{7}\arcsin\left(\frac{37x}{11|3x+2|}+\frac{20}{11|3x+2|}\right) - \frac{\sqrt{-10x^2-x+3}}{378(729x^6+2916x^5+4860x^4+4320x^3+2160x^2+576x+64)} + \frac{853\sqrt{-10x^2-x+3}}{26460(243x^5+810x^4+1080x^3+720x^2+240x+32)} - \frac{149951\sqrt{-10x^2-x+3}}{1481760(81x^4+216x^3+216x^2+96x+16)} - \frac{71369\sqrt{-10x^2-x+3}}{2963520(27x^3+54x^2+36x+8)} + \frac{958171\sqrt{-10x^2-x+3}}{16595712(9x^2+12x+4)} + \frac{122343637\sqrt{-10x^2-x+3}}{232339968(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)^7*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 52573169/120472576*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/ab
s(3*x + 2)) - 1/378*sqrt(-10*x^2 - x + 3)/(729*x^6 + 2916*x^5 + 4
```

```
860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64) + 853/26460*sqrt(-10*
x^2 - x + 3)/(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32
) - 149951/1481760*sqrt(-10*x^2 - x + 3)/(81*x^4 + 216*x^3 + 216*
x^2 + 96*x + 16) - 71369/2963520*sqrt(-10*x^2 - x + 3)/(27*x^3 +
54*x^2 + 36*x + 8) + 958171/16595712*sqrt(-10*x^2 - x + 3)/(9*x^2
 + 12*x + 4) + 122343637/232339968*sqrt(-10*x^2 - x + 3)/(3*x + 2
)
```

Fricas [A] time = 0.230771, size = 188, normalized size = 0.9

$$\frac{\sqrt{7}\left(2\sqrt{7}\left(16516390995\,x^5 + 55658284380\,x^4 + 74931979536\,x^3 + 50261760608\,x^2 + 16771747280\,x + 2225100096\right)\sqrt{5\,x+3}\cdots\right.}{1807088640\left(729\,x^6 + 2916\,x^5 + 4860\,x^4 + \cdots\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)^7*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] 1/1807088640*sqrt(7)*(2*sqrt(7)*(16516390995*x^5 + 55658284380*x^
4 + 74931979536*x^3 + 50261760608*x^2 + 16771747280*x + 222510009
6)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 788597535*(729*x^6 + 2916*x^5 +
 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64)*arctan(1/14*sqrt(7)
*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(729*x^6 + 2916*x^5
 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(5/2)/(2+3*x)**7/(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.644462, size = 676, normalized size = 3.23

$$\frac{52573169}{1204725760}\sqrt{70}\sqrt{10}\left(\pi + 2\,\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3} - 4\right)}{140\left(\sqrt{2}\sqrt{-10\,x+5} - \sqrt{22}\right)}\right)\right)$$

$$-\frac{1331\left(118497\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}} - \frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^{11} + 188015240\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}} - \frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^{9} + 122630175\cdots\right.}{\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)^7*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 52573169/1204725760*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(
70)*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x +
3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 1331/12907776*(1
18497*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3
) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^11 + 18
8015240*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x +
 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^9 + 1
```

```
22630175360*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5
*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^7
 - 17238395059200*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/
sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(2
2)))^5 - 3670540357120000*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sq
rt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5)
- sqrt(22)))^3 - 197895383347200000*sqrt(10)*((sqrt(2)*sqrt(-10*x
 + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-
10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sq
rt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)
))^2 + 280)^6
```

3.2472 $\int \frac{(2+3x)^4}{\sqrt{1-2x}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=113

$$-\frac{3}{40}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^3-\frac{259}{800}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^2-\frac{7\sqrt{1-2x}\sqrt{5x+3}(77820x+187559)}{128000}+\frac{10866247\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{128000\sqrt{10}}$$

```
[Out] (-259*Sqrt[1 - 2*x]*(2 + 3*x)^2*Sqrt[3 + 5*x])/800 - (3*Sqrt[1 -
2*x]*(2 + 3*x)^3*Sqrt[3 + 5*x])/40 - (7*Sqrt[1 - 2*x]*Sqrt[3 + 5*
x]*(187559 + 77820*x))/128000 + (10866247*ArcSin[Sqrt[2/11]*Sqrt[
3 + 5*x]])/(128000*Sqrt[10])
```

Rubi [A] time = 0.186069, antiderivative size = 113, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$-\frac{3}{40}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^3-\frac{259}{800}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^2-\frac{7\sqrt{1-2x}\sqrt{5x+3}(77820x+187559)}{128000}+\frac{10866247\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{128000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^4/(Sqrt[1 - 2*x]*Sqrt[3 + 5*x]),x]
```

```
[Out] (-259*Sqrt[1 - 2*x]*(2 + 3*x)^2*Sqrt[3 + 5*x])/800 - (3*Sqrt[1 -
2*x]*(2 + 3*x)^3*Sqrt[3 + 5*x])/40 - (7*Sqrt[1 - 2*x]*Sqrt[3 + 5*
x]*(187559 + 77820*x))/128000 + (10866247*ArcSin[Sqrt[2/11]*Sqrt[
3 + 5*x]])/(128000*Sqrt[10])
```

Rubi in Sympy [A] time = 18.6092, size = 105, normalized size = 0.93

$$-\frac{3\sqrt{-2x+1}\,(3x+2)^3\,\sqrt{5x+3}}{40}-\frac{259\sqrt{-2x+1}\,(3x+2)^2\,\sqrt{5x+3}}{800}-\frac{\sqrt{-2x+1}\sqrt{5x+3}\left(\frac{2042775x}{2}+\frac{19693695}{8}\right)}{240000}+\frac{10866247\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{1280000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4/(1-2*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] -3*sqrt(-2*x + 1)*(3*x + 2)**3*sqrt(5*x + 3)/40 - 259*sqrt(-2*x +
 1)*(3*x + 2)**2*sqrt(5*x + 3)/800 - sqrt(-2*x + 1)*sqrt(5*x + 3)
*(2042775*x/2 + 19693695/8)/240000 + 10866247*sqrt(10)*asin(sqrt(
22)*sqrt(5*x + 3)/11)/1280000
```

Mathematica [A] time = 0.113637, size = 65, normalized size = 0.58

$$\frac{-30\sqrt{1-2x}\sqrt{5x+3}\left(86400x^3+297120x^2+462540x+518491\right)-10866247\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{1280000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^4/(Sqrt[1 - 2*x]*Sqrt[3 + 5*x]),x]
```

```
[Out] (-30*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(518491 + 462540*x + 297120*x^2
+ 86400*x^3) - 10866247*Sqrt[10]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]]
)/1280000
```

Maple [A] time = 0.018, size = 104, normalized size = 0.9

$$\frac{1}{2560000}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(-5184000\,x^{3}\sqrt{-10\,x^{2}-x+3}-17827200\,x^{2}\sqrt{-10\,x^{2}-x+3}+10866247\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4/(1-2*x)^(1/2)/(3+5*x)^(1/2),x)
```

```
[Out] 1/2560000*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(-5184000*x^3*(-10*x^2-x+3)
^(1/2)-17827200*x^2*(-10*x^2-x+3)^(1/2)+10866247*10^(1/2)*arcsin(
20/11*x+1/11)-27752400*x*(-10*x^2-x+3)^(1/2)-31109460*(-10*x^2-x+
3)^(1/2))/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.49344, size = 101, normalized size = 0.89

$$-\frac{81}{40}\sqrt{-10\,x^{2}-x+3}x^{3}-\frac{5571}{800}\sqrt{-10\,x^{2}-x+3}x^{2}-\frac{69381}{6400}\sqrt{-10\,x^{2}-x+3}x-\frac{10866247}{2560000}\sqrt{10}\arcsin\left(-\frac{20}{11}x-\frac{1}{11}\right)-\frac{1555473}{128000}\sqrt{-10\,x^{2}-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4/(sqrt(5*x + 3)*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] -81/40*sqrt(-10*x^2 - x + 3)*x^3 - 5571/800*sqrt(-10*x^2 - x + 3)
*x^2 - 69381/6400*sqrt(-10*x^2 - x + 3)*x - 10866247/2560000*sqrt
(10)*arcsin(-20/11*x - 1/11) - 1555473/128000*sqrt(-10*x^2 - x +
3)
```

Fricas [A] time = 0.222002, size = 90, normalized size = 0.8

$$-\frac{1}{2560000}\sqrt{10}\left(6\sqrt{10}\left(86400\,x^{3}+297120\,x^{2}+462540\,x+518491\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-10866247\,\arctan\left(\frac{\sqrt{10}(20\,x+1}{20\,\sqrt{5\,x+3}\sqrt{-2}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4/(sqrt(5*x + 3)*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/2560000*sqrt(10)*(6*sqrt(10)*(86400*x^3 + 297120*x^2 + 462540*
x + 518491)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 10866247*arctan(1/20*s
qrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{4}}{\sqrt{-2x+1}\sqrt{5x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4/(1-2*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] Integral((3*x + 2)**4/(sqrt(-2*x + 1)*sqrt(5*x + 3)), x)
```

GIAC/XCAS [A] time = 0.233821, size = 85, normalized size = 0.75

$$-\frac{1}{6400000}\sqrt{5}\left(6\left(12\left(8\left(180x+403\right)\left(5x+3\right)+16609\right)\left(5x+3\right)+1646339\right)\sqrt{5x+3}\sqrt{-10x+5}-54331235\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{2}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^4/(sqrt(5*x + 3)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] -1/6400000*sqrt(5)*(6*(12*(8*(180*x + 403)*(5*x + 3) + 16609)*(5*
x + 3) + 1646339)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 54331235*sqrt(2
)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)))
```

3.2473 $\int \frac{(2+3x)^3}{\sqrt{1-2x}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=84

$$-\frac{1}{10}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^2-\frac{\sqrt{1-2x}\sqrt{5x+3}(2220x+5363)}{1600}+\frac{44437\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{1600\sqrt{10}}$$

```
[Out] -(Sqrt[1 - 2*x]*(2 + 3*x)^2*Sqrt[3 + 5*x])/10 - (Sqrt[1 - 2*x]*Sq
rt[3 + 5*x]*(5363 + 2220*x))/1600 + (44437*ArcSin[Sqrt[2/11]*Sqrt
[3 + 5*x]])/(1600*Sqrt[10])
```

Rubi [A] time = 0.118713, antiderivative size = 84, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$-\frac{1}{10}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^2-\frac{\sqrt{1-2x}\sqrt{5x+3}(2220x+5363)}{1600}+\frac{44437\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{1600\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In] Int[(2 + 3*x)^3/(Sqrt[1 - 2*x]*Sqrt[3 + 5*x]),x]
```

```
[Out] -(Sqrt[1 - 2*x]*(2 + 3*x)^2*Sqrt[3 + 5*x])/10 - (Sqrt[1 - 2*x]*Sq
rt[3 + 5*x]*(5363 + 2220*x))/1600 + (44437*ArcSin[Sqrt[2/11]*Sqrt
[3 + 5*x]])/(1600*Sqrt[10])
```

Rubi in Sympy [A] time = 11.4343, size = 75, normalized size = 0.89

$$-\frac{\sqrt{-2x+1}\,(3x+2)^2\,\sqrt{5x+3}}{10}-\frac{\sqrt{-2x+1}\sqrt{5x+3}\,\left(8325x+\frac{80445}{4}\right)}{6000}+\frac{44437\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{16000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**3/(1-2*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] -sqrt(-2*x + 1)*(3*x + 2)**2*sqrt(5*x + 3)/10 - sqrt(-2*x + 1)*sq
rt(5*x + 3)*(8325*x + 80445/4)/6000 + 44437*sqrt(10)*asin(sqrt(22
)*sqrt(5*x + 3)/11)/16000
```

Mathematica [A] time = 0.087835, size = 60, normalized size = 0.71

$$\frac{-90\sqrt{1-2x}\sqrt{5x+3}\left(160x^2+460x+667\right)-44437\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{16000}$$

Antiderivative was successfully verified.

```
[In] Integrate[(2 + 3*x)^3/(Sqrt[1 - 2*x]*Sqrt[3 + 5*x]),x]
```

```
[Out] (-90*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(667 + 460*x + 160*x^2) - 44437*
Sqrt[10]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/16000
```

Maple [A] time = 0.028, size = 87, normalized size = 1.

$$\frac{1}{32000}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(-28800\,x^{2}\sqrt{-10\,x^{2}-x+3}+44437\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)-82800\,x\sqrt{-10\,x^{2}-x+3}-12006($$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3/(1-2*x)^(1/2)/(3+5*x)^(1/2),x)
```

```
[Out] 1/32000*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(-28800*x^2*(-10*x^2-x+3)^(1/
2)+44437*10^(1/2)*arcsin(20/11*x+1/11)-82800*x*(-10*x^2-x+3)^(1/2
)-120060*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.49255, size = 78, normalized size = 0.93

$$-\frac{9}{10}\sqrt{-10\,x^{2}-x+3}x^{2}-\frac{207}{80}\sqrt{-10\,x^{2}-x+3}x-\frac{44437}{32000}\sqrt{10}\arcsin\left(-\frac{20}{11}\,x-\frac{1}{11}\right)-\frac{6003}{1600}\sqrt{-10\,x^{2}-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3/(sqrt(5*x + 3)*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] -9/10*sqrt(-10*x^2 - x + 3)*x^2 - 207/80*sqrt(-10*x^2 - x + 3)*x
- 44437/32000*sqrt(10)*arcsin(-20/11*x - 1/11) - 6003/1600*sqrt(-
10*x^2 - x + 3)
```

Fricas [A] time = 0.217762, size = 84, normalized size = 1.

$$-\frac{1}{32000}\sqrt{10}\left(18\,\sqrt{10}\left(160\,x^{2}+460\,x+667\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-44437\,\arctan\left(\frac{\sqrt{10}(20\,x+1)}{20\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3/(sqrt(5*x + 3)*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/32000*sqrt(10)*(18*sqrt(10)*(160*x^2 + 460*x + 667)*sqrt(5*x +
 3)*sqrt(-2*x + 1) - 44437*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(
5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(3x+2)^{3}}{\sqrt{-2x+1}\sqrt{5x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3/(1-2*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] Integral((3*x + 2)**3/(sqrt(-2*x + 1)*sqrt(5*x + 3)), x)
```

GIAC/XCAS [A] time = 0.228928, size = 73, normalized size = 0.87

$$-\frac{1}{80000}\sqrt{5}\left(18\left(4\left(40\,x+91\right)\left(5\,x+3\right)+2243\right)\sqrt{5\,x+3}\sqrt{-10\,x+5}-222185\,\sqrt{2}\arcsin\left(\frac{1}{11}\,\sqrt{22}\sqrt{5\,x+3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3/(sqrt(5*x + 3)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] -1/80000*sqrt(5)*(18*(4*(40*x + 91)*(5*x + 3) + 2243)*sqrt(5*x +
3)*sqrt(-10*x + 5) - 222185*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x
 + 3)))
```

3.2474 $\int \frac{(2+3x)^2}{\sqrt{1-2x}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=77

$$-\frac{3}{20}\sqrt{1-2x}\sqrt{5x+3}(3x+2)-\frac{333}{400}\sqrt{1-2x}\sqrt{5x+3}+\frac{3827\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{400\sqrt{10}}$$

```
[Out] (-333*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/400 - (3*Sqrt[1 - 2*x]*(2 + 3*
x)*Sqrt[3 + 5*x])/20 + (3827*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(4
00*Sqrt[10])
```

Rubi [A] time = 0.0980927, antiderivative size = 77, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$-\frac{3}{20}\sqrt{1-2x}\sqrt{5x+3}(3x+2)-\frac{333}{400}\sqrt{1-2x}\sqrt{5x+3}+\frac{3827\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{400\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In] Int[(2 + 3*x)^2/(Sqrt[1 - 2*x]*Sqrt[3 + 5*x]),x]
```

```
[Out] (-333*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/400 - (3*Sqrt[1 - 2*x]*(2 + 3*
x)*Sqrt[3 + 5*x])/20 + (3827*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(4
00*Sqrt[10])
```

Rubi in Sympy [A] time = 7.64595, size = 68, normalized size = 0.88

$$-\frac{\sqrt{-2x+1}\sqrt{5x+3}\,(9x+6)}{20}-\frac{333\sqrt{-2x+1}\sqrt{5x+3}}{400}+\frac{3827\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{4000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**2/(1-2*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] -sqrt(-2*x + 1)*sqrt(5*x + 3)*(9*x + 6)/20 - 333*sqrt(-2*x + 1)*s
qrt(5*x + 3)/400 + 3827*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/
4000
```

Mathematica [A] time = 0.0696942, size = 55, normalized size = 0.71

$$\frac{-30\sqrt{1-2x}\sqrt{5x+3}(60x+151)-3827\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{4000}$$

Antiderivative was successfully verified.

```
[In] Integrate[(2 + 3*x)^2/(Sqrt[1 - 2*x]*Sqrt[3 + 5*x]),x]
```

```
[Out] (-30*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(151 + 60*x) - 3827*Sqrt[10]*Arc
Sin[Sqrt[5/11]*Sqrt[1 - 2*x]])/4000
```

Maple [A] time = 0.02, size = 70, normalized size = 0.9

$$\frac{1}{8000}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(3827\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)-3600\,x\sqrt{-10\,x^{2}-x+3}-9060\,\sqrt{-10\,x^{2}-x+3}\right)\frac{1}{\sqrt{-10\,x^{2}-x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2/(1-2*x)^(1/2)/(3+5*x)^(1/2),x)
```

```
[Out] 1/8000*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(3827*10^(1/2)*arcsin(20/11*x+
1/11)-3600*x*(-10*x^2-x+3)^(1/2)-9060*(-10*x^2-x+3)^(1/2))/(-10*x
^2-x+3)^(1/2)
```

Maxima [A] time = 1.49715, size = 55, normalized size = 0.71

$$-\frac{9}{20}\sqrt{-10\,x^{2}-x+3}x-\frac{3827}{8000}\sqrt{10}\arcsin\left(-\frac{20}{11}\,x-\frac{1}{11}\right)-\frac{453}{400}\sqrt{-10\,x^{2}-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2/(sqrt(5*x + 3)*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] -9/20*sqrt(-10*x^2 - x + 3)*x - 3827/8000*sqrt(10)*arcsin(-20/11*
x - 1/11) - 453/400*sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.220948, size = 77, normalized size = 1.

$$-\frac{1}{8000}\sqrt{10}\left(6\sqrt{10}(60\,x+151)\sqrt{5\,x+3}\sqrt{-2\,x+1}-3827\,\arctan\left(\frac{\sqrt{10}(20\,x+1)}{20\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2/(sqrt(5*x + 3)*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/8000*sqrt(10)*(6*sqrt(10)*(60*x + 151)*sqrt(5*x + 3)*sqrt(-2*x
 + 1) - 3827*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(
-2*x + 1))))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(3x+2)^{2}}{\sqrt{-2x+1}\sqrt{5x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2/(1-2*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] Integral((3*x + 2)**2/(sqrt(-2*x + 1)*sqrt(5*x + 3)), x)
```

GIAC/XCAS [A] time = 0.226409, size = 61, normalized size = 0.79

$$-\frac{1}{4000}\sqrt{5}\left(6\,(60\,x+151)\sqrt{5\,x+3}\sqrt{-10\,x+5}-3827\,\sqrt{2}\arcsin\left(\frac{1}{11}\,\sqrt{22}\sqrt{5\,x+3}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2/(sqrt(5*x + 3)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] -1/4000*sqrt(5)*(6*(60*x + 151)*sqrt(5*x + 3)*sqrt(-10*x + 5) - 3
827*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)))
```

3.2475 $\int \frac{2+3x}{\sqrt{1-2x}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=50

$$\frac{37\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{10\sqrt{10}}-\frac{3}{10}\sqrt{1-2x}\sqrt{5x+3}$$

```
[Out] (-3*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/10 + (37*ArcSin[Sqrt[2/11]*Sqrt[
3 + 5*x]])/(10*Sqrt[10])
```

Rubi [A] time = 0.0556831, antiderivative size = 50, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$\frac{37\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{10\sqrt{10}}-\frac{3}{10}\sqrt{1-2x}\sqrt{5x+3}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)/(Sqrt[1 - 2*x]*Sqrt[3 + 5*x]),x]
```

```
[Out] (-3*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/10 + (37*ArcSin[Sqrt[2/11]*Sqrt[
3 + 5*x]])/(10*Sqrt[10])
```

Rubi in Sympy [A] time = 5.13679, size = 44, normalized size = 0.88

$$-\frac{3\sqrt{-2x+1}\sqrt{5x+3}}{10}+\frac{37\sqrt{10}\,\text{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{100}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)/(1-2*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] -3*sqrt(-2*x + 1)*sqrt(5*x + 3)/10 + 37*sqrt(10)*asin(sqrt(22)*sq
rt(5*x + 3)/11)/100
```

Mathematica [A] time = 0.0324248, size = 50, normalized size = 1.

$$\frac{1}{100}\left(-30\sqrt{1-2x}\sqrt{5x+3}-37\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)/(Sqrt[1 - 2*x]*Sqrt[3 + 5*x]),x]
```

```
[Out] (-30*Sqrt[1 - 2*x]*Sqrt[3 + 5*x] - 37*Sqrt[10]*ArcSin[Sqrt[5/11]*
Sqrt[1 - 2*x]])/100
```

Maple [A] time = 0.017, size = 55, normalized size = 1.1

$$\frac{1}{200}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(37\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)-60\,\sqrt{-10\,x^2-x+3}\right)\frac{1}{\sqrt{-10\,x^2-x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)/(1-2*x)^(1/2)/(3+5*x)^(1/2),x)
```

```
[Out] 1/200*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(37*10^(1/2)*arcsin(20/11*x+1/1
1)-60*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.49134, size = 35, normalized size = 0.7

$$-\frac{37}{200}\sqrt{10}\arcsin\left(-\frac{20}{11}x-\frac{1}{11}\right)-\frac{3}{10}\sqrt{-10x^2-x+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)/(sqrt(5*x + 3)*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] -37/200*sqrt(10)*arcsin(-20/11*x - 1/11) - 3/10*sqrt(-10*x^2 - x
+ 3)
```

Fricas [A] time = 0.216072, size = 70, normalized size = 1.4

$$-\frac{1}{200}\sqrt{10}\left(6\sqrt{10}\sqrt{5x+3}\sqrt{-2x+1}-37\arctan\left(\frac{\sqrt{10}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)/(sqrt(5*x + 3)*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/200*sqrt(10)*(6*sqrt(10)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 37*arc
tan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{3x+2}{\sqrt{-2x+1}\sqrt{5x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)/(1-2*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] Integral((3*x + 2)/(sqrt(-2*x + 1)*sqrt(5*x + 3)), x)
```

GIAC/XCAS [A] time = 0.227213, size = 54, normalized size = 1.08

$$\frac{1}{100}\sqrt{5}\left(37\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)-6\sqrt{5x+3}\sqrt{-10x+5}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)/(sqrt(5*x + 3)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 1/100*sqrt(5)*(37*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) - 6
*sqrt(5*x + 3)*sqrt(-10*x + 5))
```

3.2476 $\int \frac{1}{\sqrt{1-2x}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=26

$$\sqrt{\frac{2}{5}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)$$

```
[Out] Sqrt[2/5]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]]
```

Rubi [A] time = 0.0260399, antiderivative size = 26, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.105

$$\sqrt{\frac{2}{5}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 - 2*x]*Sqrt[3 + 5*x]),x]

[Out] Sqrt[2/5]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]]
```

Rubi in Sympy [A] time = 3.17287, size = 22, normalized size = 0.85

$$\frac{\sqrt{10}\,\text{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(1/2)/(3+5*x)**(1/2),x)

[Out] sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/5
```

Mathematica [A] time = 0.0188169, size = 27, normalized size = 1.04

$$-\sqrt{\frac{2}{5}}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 - 2*x]*Sqrt[3 + 5*x]),x]

[Out] -(Sqrt[2/5]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])
```

Maple [B] time = 0.006, size = 39, normalized size = 1.5

$$\frac{\sqrt{10}}{10}\sqrt{(1-2x)(3+5x)}\arcsin\left(\frac{20x}{11}+\frac{1}{11}\right)\frac{1}{\sqrt{1-2x}}\frac{1}{\sqrt{3+5x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(1/2)/(3+5*x)^(1/2),x)
```

```
[Out] 1/10*((1-2*x)*(3+5*x))^(1/2)/(3+5*x)^(1/2)/(1-2*x)^(1/2)*10^(1/2)
*arcsin(20/11*x+1/11)
```

Maxima [A] time = 1.49509, size = 15, normalized size = 0.58

$$-\frac{1}{10}\sqrt{10}\arcsin\left(-\frac{20}{11}x-\frac{1}{11}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(5*x + 3)*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] -1/10*sqrt(10)*arcsin(-20/11*x - 1/11)
```

Fricas [A] time = 0.214564, size = 49, normalized size = 1.88

$$\frac{1}{10}\sqrt{5}\sqrt{2}\arctan\left(\frac{\sqrt{5}\sqrt{2}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(5*x + 3)*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] 1/10*sqrt(5)*sqrt(2)*arctan(1/20*sqrt(5)*sqrt(2)*(20*x + 1)/(sqrt
(5*x + 3)*sqrt(-2*x + 1)))
```

Sympy [A] time = 1.8459, size = 58, normalized size = 2.23

$$\begin{cases} -\frac{\sqrt{10}i\operatorname{acosh}\left(\frac{\sqrt{110}\sqrt{x+\frac{3}{5}}}{11}\right)}{5} & \text{for}\ \frac{10\left|x+\frac{3}{5}\right|}{11}>1 \\ \frac{\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{110}\sqrt{x+\frac{3}{5}}}{11}\right)}{5} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] Piecewise((-sqrt(10)*I*acosh(sqrt(110)*sqrt(x + 3/5)/11)/5, 10*Ab
s(x + 3/5)/11 > 1), (sqrt(10)*asin(sqrt(110)*sqrt(x + 3/5)/11)/5,
 True))
```

GIAC/XCAS [A] time = 0.227863, size = 28, normalized size = 1.08

$$\frac{1}{5}\sqrt{5}\sqrt{2}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(5*x + 3)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 1/5*sqrt(5)*sqrt(2)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))
```

3.2477 $\int \frac{1}{\sqrt{1-2x}(2+3x)\sqrt{3+5x}}\,dx$

Optimal. Leaf size=32

$$-\frac{2\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{\sqrt{7}}$$

```
[Out] (-2*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/Sqrt[7]
```

Rubi [A] time = 0.0488416, antiderivative size = 32, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.077$

$$-\frac{2\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 - 2*x]*(2 + 3*x)*Sqrt[3 + 5*x]),x]
```

```
[Out] (-2*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/Sqrt[7]
```

Rubi in Sympy [A] time = 4.74363, size = 34, normalized size = 1.06

$$-\frac{2\sqrt{7}\,\text{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(2+3*x)/(1-2*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] -2*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/7
```

Mathematica [A] time = 0.0443496, size = 35, normalized size = 1.09

$$-\frac{\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 - 2*x]*(2 + 3*x)*Sqrt[3 + 5*x]),x]
```

```
[Out] -(ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])]/Sqrt[7])
```

Maple [B] time = 0.017, size = 55, normalized size = 1.7

$$\frac{\sqrt{7}}{7}\sqrt{1-2\,x}\sqrt{3+5\,x}\arctan\left(\frac{(37\,x+20)\sqrt{7}}{14}\frac{1}{\sqrt{-10\,x^2-x+3}}\right)\frac{1}{\sqrt{-10\,x^2-x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(2+3*x)/(1-2*x)^(1/2)/(3+5*x)^(1/2),x)
```

```
[Out] 1/7*(1-2*x)^(1/2)*(3+5*x)^(1/2)/(-10*x^2-x+3)^(1/2)*7^(1/2)*arcta
n(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))
```

Maxima [A] time = 1.4999, size = 38, normalized size = 1.19

$$\frac{1}{7}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(5*x + 3)*(3*x + 2)*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 1/7*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2))
```

Fricas [A] time = 0.224452, size = 41, normalized size = 1.28

$$\frac{1}{7}\sqrt{7}\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(5*x + 3)*(3*x + 2)*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] 1/7*sqrt(7)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-
2*x + 1)))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{-2x+1}\,(3x+2)\,\sqrt{5x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(2+3*x)/(1-2*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] Integral(1/(sqrt(-2*x + 1)*(3*x + 2)*sqrt(5*x + 3)), x)
```

GIAC/XCAS [A] time = 0.231936, size = 99, normalized size = 3.09

$$\frac{1}{70}\sqrt{70}\sqrt{10}\left(\pi+2\,\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(5*x + 3)*(3*x + 2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 1/70*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x +
3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqrt(2
)*sqrt(-10*x + 5) - sqrt(22))))
```

3.2478 $\int \frac{1}{\sqrt{1-2x}(2+3x)^2\sqrt{3+5x}}\,dx$

Optimal. Leaf size=64

$$\frac{3\sqrt{1-2x}\sqrt{5x+3}}{7(3x+2)}-\frac{37\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{7\sqrt{7}}$$

```
[Out] (3*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(7*(2 + 3*x)) - (37*ArcTan[Sqrt[1
 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(7*Sqrt[7])
```

Rubi [A] time = 0.0887994, antiderivative size = 64, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.115

$$\frac{3\sqrt{1-2x}\sqrt{5x+3}}{7(3x+2)}-\frac{37\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{7\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In] Int[1/(Sqrt[1 - 2*x]*(2 + 3*x)^2*Sqrt[3 + 5*x]),x]
```

```
[Out] (3*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(7*(2 + 3*x)) - (37*ArcTan[Sqrt[1
 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(7*Sqrt[7])
```

Rubi in Sympy [A] time = 7.39742, size = 56, normalized size = 0.88

$$\frac{3\sqrt{-2x+1}\sqrt{5x+3}}{7\,(3x+2)}-\frac{37\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{49}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(1/(2+3*x)**2/(1-2*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] 3*sqrt(-2*x + 1)*sqrt(5*x + 3)/(7*(3*x + 2)) - 37*sqrt(7)*atan(sq
rt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/49
```

Mathematica [A] time = 0.0851971, size = 67, normalized size = 1.05

$$\frac{3\sqrt{1-2x}\sqrt{5x+3}}{7(3x+2)}-\frac{37\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{14\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In] Integrate[1/(Sqrt[1 - 2*x]*(2 + 3*x)^2*Sqrt[3 + 5*x]),x]
```

```
[Out] (3*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(7*(2 + 3*x)) - (37*ArcTan[(-20 -
 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/(14*Sqrt[7])
```

Maple [B] time = 0.02, size = 108, normalized size = 1.7

$$\frac{1}{196+294\,x}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(111\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x+74\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)+42\,\sqrt{-10}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int(1/(2+3*x)^2/(1-2*x)^(1/2)/(3+5*x)^(1/2),x)
```

```
[Out] 1/98*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(111*7^(1/2)*arctan(1/14*(37*x+2
0)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+74*7^(1/2)*arctan(1/14*(37*x+20
)*7^(1/2)/(-10*x^2-x+3)^(1/2))+42*(-10*x^2-x+3)^(1/2))/(-10*x^2-x
+3)^(1/2)/(2+3*x)
```

Maxima [A] time = 1.50693, size = 68, normalized size = 1.06

$$\frac{37}{98}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{3\,\sqrt{-10\,x^2-x+3}}{7\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^2*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 37/98*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) +
 3/7*sqrt(-10*x^2 - x + 3)/(3*x + 2)
```

Fricas [A] time = 0.222685, size = 86, normalized size = 1.34

$$\frac{\sqrt{7}\left(37\,(3\,x+2)\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)+6\,\sqrt{7}\sqrt{5\,x+3}\sqrt{-2\,x+1}\right)}{98\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^2*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] 1/98*sqrt(7)*(37*(3*x + 2)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(
5*x + 3)*sqrt(-2*x + 1))) + 6*sqrt(7)*sqrt(5*x + 3)*sqrt(-2*x + 1
))/(3*x + 2)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(1/(2+3*x)**2/(1-2*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.248944, size = 261, normalized size = 4.08

$$\frac{37}{980}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)+\frac{66\,\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)}{7\left(\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^2+280\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^2*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 37/980*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x
+ 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqrt
(2)*sqrt(-10*x + 5) - sqrt(22)))) + 66/7*sqrt(10)*((sqrt(2)*sqrt(
-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*s
qrt(-10*x + 5) - sqrt(22)))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22)
)/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt
(22)))^2 + 280)
```

3.2479 $\int \frac{1}{\sqrt{1-2x}(2+3x)^3\sqrt{3+5x}}\,dx$

Optimal. Leaf size=93

$$\frac{333\sqrt{1-2x}\sqrt{5x+3}}{196(3x+2)}+\frac{3\sqrt{1-2x}\sqrt{5x+3}}{14(3x+2)^2}-\frac{3827\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{196\sqrt{7}}$$

```
[Out] (3*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(14*(2 + 3*x)^2) + (333*Sqrt[1 -
2*x]*Sqrt[3 + 5*x])/(196*(2 + 3*x)) - (3827*ArcTan[Sqrt[1 - 2*x]/
(Sqrt[7]*Sqrt[3 + 5*x])])/(196*Sqrt[7])
```

Rubi [A] time = 0.160907, antiderivative size = 93, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$\frac{333\sqrt{1-2x}\sqrt{5x+3}}{196(3x+2)}+\frac{3\sqrt{1-2x}\sqrt{5x+3}}{14(3x+2)^2}-\frac{3827\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{196\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 - 2*x]*(2 + 3*x)^3*Sqrt[3 + 5*x]),x]
```

```
[Out] (3*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(14*(2 + 3*x)^2) + (333*Sqrt[1 -
2*x]*Sqrt[3 + 5*x])/(196*(2 + 3*x)) - (3827*ArcTan[Sqrt[1 - 2*x]/
(Sqrt[7]*Sqrt[3 + 5*x])])/(196*Sqrt[7])
```

Rubi in Sympy [A] time = 15.0055, size = 83, normalized size = 0.89

$$\frac{333\sqrt{-2x+1}\sqrt{5x+3}}{196\,(3x+2)}+\frac{3\sqrt{-2x+1}\sqrt{5x+3}}{14\,(3x+2)^2}-\frac{3827\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{1372}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(2+3*x)**3/(1-2*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] 333*sqrt(-2*x + 1)*sqrt(5*x + 3)/(196*(3*x + 2)) + 3*sqrt(-2*x +
1)*sqrt(5*x + 3)/(14*(3*x + 2)**2) - 3827*sqrt(7)*atan(sqrt(7)*sq
rt(-2*x + 1)/(7*sqrt(5*x + 3)))/1372
```

Mathematica [A] time = 0.0775722, size = 72, normalized size = 0.77

$$\frac{\frac{42\sqrt{1-2x}\sqrt{5x+3}(333x+236)}{(3x+2)^2}-3827\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{2744}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 - 2*x]*(2 + 3*x)^3*Sqrt[3 + 5*x]),x]
```

```
[Out] ((42*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(236 + 333*x))/(2 + 3*x)^2 - 382
7*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/
2744
```

Maple [B] time = 0.02, size = 154, normalized size = 1.7

$$\frac{1}{2744\,(2+3\,x)^2}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(34443\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^2+45924\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(2+3*x)^3/(1-2*x)^(1/2)/(3+5*x)^(1/2),x)
```

```
[Out] 1/2744*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(34443*7^(1/2)*arctan(1/14*(37
*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+45924*7^(1/2)*arctan(1/14
*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+15308*7^(1/2)*arctan(1/
14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+13986*x*(-10*x^2-x+3)^(
1/2)+9912*(-10*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)^2
```

Maxima [A] time = 1.51391, size = 103, normalized size = 1.11

$$\frac{3827}{2744}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{3\,\sqrt{-10\,x^2-x+3}}{14\,(9\,x^2+12\,x+4)}+\frac{333\,\sqrt{-10\,x^2-x+3}}{196\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(5*x + 3)*(3*x + 2)^3*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 3827/2744*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2
)) + 3/14*sqrt(-10*x^2 - x + 3)/(9*x^2 + 12*x + 4) + 333/196*sqrt
(-10*x^2 - x + 3)/(3*x + 2)
```

Fricas [A] time = 0.237485, size = 107, normalized size = 1.15

$$\frac{\sqrt{7}\left(6\,\sqrt{7}(333\,x+236)\sqrt{5\,x+3}\sqrt{-2\,x+1}+3827\,\left(9\,x^2+12\,x+4\right)\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)}{2744\,(9\,x^2+12\,x+4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(5*x + 3)*(3*x + 2)^3*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] 1/2744*sqrt(7)*(6*sqrt(7)*(333*x + 236)*sqrt(5*x + 3)*sqrt(-2*x +
 1) + 3827*(9*x^2 + 12*x + 4)*arctan(1/14*sqrt(7)*(37*x + 20)/(sq
rt(5*x + 3)*sqrt(-2*x + 1))))/(9*x^2 + 12*x + 4)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(2+3*x)**3/(1-2*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.270251, size = 347, normalized size = 3.73

$$\frac{3827}{27440}\,\sqrt{70}\sqrt{10}\left(\pi+2\,\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{2}}{5\,x+3}-4\right)}{140\,\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)+\frac{33\,\left(181\,\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^{3}+32200\,\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)\right)}{98\,\left(\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^{2}+280\right)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^3*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 3827/27440*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(
5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(
sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 33/98*(181*sqrt(10)*((sqr
t(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 32200*sqrt(10)*((sqrt(2
)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sq
rt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) -
sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5
) - sqrt(22)))^2 + 280)^2
```

3.2480 $\int \frac{1}{\sqrt{1-2x}(2+3x)^4\sqrt{3+5x}}\,dx$

Optimal. Leaf size=122

$$\frac{19415\sqrt{1-2x}\sqrt{5x+3}}{2744(3x+2)}+\frac{185\sqrt{1-2x}\sqrt{5x+3}}{196(3x+2)^2}+\frac{\sqrt{1-2x}\sqrt{5x+3}}{7(3x+2)^3}-\frac{222185\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{2744\sqrt{7}}$$

```
[Out] (Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(7*(2 + 3*x)^3) + (185*Sqrt[1 - 2*x
]*Sqrt[3 + 5*x])/(196*(2 + 3*x)^2) + (19415*Sqrt[1 - 2*x]*Sqrt[3
+ 5*x])/(2744*(2 + 3*x)) - (222185*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*
Sqrt[3 + 5*x])])/(2744*Sqrt[7])
```

Rubi [A] time = 0.226128, antiderivative size = 122, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$\frac{19415\sqrt{1-2x}\sqrt{5x+3}}{2744(3x+2)}+\frac{185\sqrt{1-2x}\sqrt{5x+3}}{196(3x+2)^2}+\frac{\sqrt{1-2x}\sqrt{5x+3}}{7(3x+2)^3}-\frac{222185\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{2744\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 - 2*x]*(2 + 3*x)^4*Sqrt[3 + 5*x]),x]
```

```
[Out] (Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(7*(2 + 3*x)^3) + (185*Sqrt[1 - 2*x
]*Sqrt[3 + 5*x])/(196*(2 + 3*x)^2) + (19415*Sqrt[1 - 2*x]*Sqrt[3
+ 5*x])/(2744*(2 + 3*x)) - (222185*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*
Sqrt[3 + 5*x])])/(2744*Sqrt[7])
```

Rubi in Sympy [A] time = 22.2467, size = 109, normalized size = 0.89

$$\frac{19415\sqrt{-2x+1}\sqrt{5x+3}}{2744\,(3x+2)}+\frac{185\sqrt{-2x+1}\sqrt{5x+3}}{196\,(3x+2)^2}+\frac{\sqrt{-2x+1}\sqrt{5x+3}}{7\,(3x+2)^3}-\frac{222185\sqrt{7}\,\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{19208}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(2+3*x)**4/(1-2*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] 19415*sqrt(-2*x + 1)*sqrt(5*x + 3)/(2744*(3*x + 2)) + 185*sqrt(-2
*x + 1)*sqrt(5*x + 3)/(196*(3*x + 2)**2) + sqrt(-2*x + 1)*sqrt(5*
x + 3)/(7*(3*x + 2)**3) - 222185*sqrt(7)*atan(sqrt(7)*sqrt(-2*x +
 1)/(7*sqrt(5*x + 3)))/19208
```

Mathematica [A] time = 0.0990555, size = 77, normalized size = 0.63

$$\frac{\frac{126\sqrt{1-2x}\sqrt{5x+3}(19415x^2+26750x+9248)}{(3x+2)^3}-222185\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{38416}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 - 2*x]*(2 + 3*x)^4*Sqrt[3 + 5*x]),x]
```

```
[Out] ((126*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(9248 + 26750*x + 19415*x^2))/(
2 + 3*x)^3 - 222185*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]
*Sqrt[3 + 5*x])])/38416
```

Maple [B] time = 0.023, size = 202, normalized size = 1.7

$$\frac{1}{38416\,(2+3\,x)^3}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(5998995\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^3+11997990\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)}{\sqrt{-10\,x^2-}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(2+3*x)^4/(1-2*x)^(1/2)/(3+5*x)^(1/2),x)
```

```
[Out] 1/38416*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(5998995*7^(1/2)*arctan(1/14*
(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+11997990*7^(1/2)*arcta
n(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+7998660*7^(1/2)
*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+2446290*x^2
*(-10*x^2-x+3)^(1/2)+1777480*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2
)/(-10*x^2-x+3)^(1/2))+3370500*x*(-10*x^2-x+3)^(1/2)+1165248*(-10
*x^2-x+3)^(1/2))/(-10*x^2-x+3)^(1/2)/(2+3*x)^3
```

Maxima [A] time = 1.50298, size = 144, normalized size = 1.18

$$\frac{222185}{38416}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{\sqrt{-10\,x^2-x+3}}{7\,(27\,x^3+54\,x^2+36\,x+8)}+\frac{185\,\sqrt{-10\,x^2-x+3}}{196\,(9\,x^2+12\,x+4)}+\frac{19415\,\sqrt{-10\,x^2-x+3}}{2744\,(3\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(5*x + 3)*(3*x + 2)^4*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 222185/38416*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x
+ 2)) + 1/7*sqrt(-10*x^2 - x + 3)/(27*x^3 + 54*x^2 + 36*x + 8) +
185/196*sqrt(-10*x^2 - x + 3)/(9*x^2 + 12*x + 4) + 19415/2744*sqr
t(-10*x^2 - x + 3)/(3*x + 2)
```

Fricas [A] time = 0.223051, size = 127, normalized size = 1.04

$$\frac{\sqrt{7}\left(18\,\sqrt{7}\left(19415\,x^2+26750\,x+9248\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+222185\,\left(27\,x^3+54\,x^2+36\,x+8\right)\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)}{38416\,(27\,x^3+54\,x^2+36\,x+8)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(5*x + 3)*(3*x + 2)^4*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] 1/38416*sqrt(7)*(18*sqrt(7)*(19415*x^2 + 26750*x + 9248)*sqrt(5*x
 + 3)*sqrt(-2*x + 1) + 222185*(27*x^3 + 54*x^2 + 36*x + 8)*arctan
(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(27*x^
3 + 54*x^2 + 36*x + 8)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(2+3*x)**4/(1-2*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.311302, size = 429, normalized size = 3.52

$$\frac{44437}{76832}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)+\frac{495\left(937\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^5+333760\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3+35170240\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)\right)}{1372\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^4*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 44437/76832*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt
(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 495/1372*(937*sqrt(10)*(
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x +
 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 + 333760*sqrt(10)*((s
qrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3
)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 35170240*sqrt(10)*((s
qrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3
)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x +
5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*
x + 5) - sqrt(22)))^2 + 280)^3
```

3.2481 $\int \frac{(2+3x)^4}{\sqrt{1-2x}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=113

$$-\frac{2\sqrt{1-2x}(3x+2)^3}{55\sqrt{5x+3}}-\frac{21}{550}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^2-\frac{21\sqrt{1-2x}\sqrt{5x+3}(3660x+8987)}{88000}+\frac{143283\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{8000\sqrt{10}}$$

```
[Out] (-2*Sqrt[1 - 2*x]*(2 + 3*x)^3)/(55*Sqrt[3 + 5*x]) - (21*Sqrt[1 -
2*x]*(2 + 3*x)^2*Sqrt[3 + 5*x])/550 - (21*Sqrt[1 - 2*x]*Sqrt[3 +
5*x]*(8987 + 3660*x))/88000 + (143283*ArcSin[Sqrt[2/11]*Sqrt[3 +
5*x]])/(8000*Sqrt[10])
```

Rubi [A] time = 0.187896, antiderivative size = 113, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$-\frac{2\sqrt{1-2x}(3x+2)^3}{55\sqrt{5x+3}}-\frac{21}{550}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^2-\frac{21\sqrt{1-2x}\sqrt{5x+3}(3660x+8987)}{88000}+\frac{143283\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{8000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^4/(Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-2*Sqrt[1 - 2*x]*(2 + 3*x)^3)/(55*Sqrt[3 + 5*x]) - (21*Sqrt[1 -
2*x]*(2 + 3*x)^2*Sqrt[3 + 5*x])/550 - (21*Sqrt[1 - 2*x]*Sqrt[3 +
5*x]*(8987 + 3660*x))/88000 + (143283*ArcSin[Sqrt[2/11]*Sqrt[3 +
5*x]])/(8000*Sqrt[10])
```

Rubi in Sympy [A] time = 19.1658, size = 105, normalized size = 0.93

$$-\frac{2\sqrt{-2x+1}\,(3x+2)^3}{55\sqrt{5x+3}}-\frac{21\sqrt{-2x+1}\,(3x+2)^2\,\sqrt{5x+3}}{550}-\frac{\sqrt{-2x+1}\sqrt{5x+3}\,\left(\frac{288225x}{2}+\frac{2830905}{8}\right)}{165000}+\frac{143283\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{80000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4/(3+5*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] -2*sqrt(-2*x + 1)*(3*x + 2)**3/(55*sqrt(5*x + 3)) - 21*sqrt(-2*x
+ 1)*(3*x + 2)**2*sqrt(5*x + 3)/550 - sqrt(-2*x + 1)*sqrt(5*x + 3
)*(288225*x/2 + 2830905/8)/165000 + 143283*sqrt(10)*asin(sqrt(22)
*sqrt(5*x + 3)/11)/80000
```

Mathematica [A] time = 0.164665, size = 65, normalized size = 0.58

$$\frac{-\frac{10\sqrt{1-2x}(237600x^3+849420x^2+1477575x+632101)}{\sqrt{5x+3}}-1576113\sqrt{10}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{880000}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^4/(Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)),x]
```

```
[Out] ((-10*Sqrt[1 - 2*x]*(632101 + 1477575*x + 849420*x^2 + 237600*x^3
))/Sqrt[3 + 5*x] - 1576113*Sqrt[10]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*
x]])/880000
```

Maple [A] time = 0.02, size = 116, normalized size = 1.

$$\frac{1}{1760000}\left(-4752000\,x^3\sqrt{-10\,x^2-x+3}+7880565\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x-16988400\,x^2\sqrt{-10\,x^2-x+3}+4728339\,\sqrt{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4/(3+5*x)^(3/2)/(1-2*x)^(1/2),x)
```

```
[Out] 1/1760000*(-4752000*x^3*(-10*x^2-x+3)^(1/2)+7880565*10^(1/2)*arcs
in(20/11*x+1/11)*x-16988400*x^2*(-10*x^2-x+3)^(1/2)+4728339*10^(1
/2)*arcsin(20/11*x+1/11)-29551500*x*(-10*x^2-x+3)^(1/2)-12642020*
(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)/(-10*x^2-x+3)^(1/2)/(3+5*x)^(1
/2)
```

Maxima [A] time = 1.49565, size = 111, normalized size = 0.98

$$-\frac{27}{50}\sqrt{-10\,x^2-x+3}x^2+\frac{143283}{160000}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)-\frac{3213}{2000}\sqrt{-10\,x^2-x+3}x-\frac{95769}{40000}\sqrt{-10\,x^2-x+3}-\frac{2\sqrt{-10\,x^2-x+3}}{6875\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4/((5*x + 3)^(3/2)*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] -27/50*sqrt(-10*x^2 - x + 3)*x^2 + 143283/160000*sqrt(5)*sqrt(2)*
arcsin(20/11*x + 1/11) - 3213/2000*sqrt(-10*x^2 - x + 3)*x - 9576
9/40000*sqrt(-10*x^2 - x + 3) - 2/6875*sqrt(-10*x^2 - x + 3)/(5*x
 + 3)
```

Fricas [A] time = 0.224995, size = 107, normalized size = 0.95

$$-\frac{\sqrt{10}\left(2\sqrt{10}\left(237600\,x^3+849420\,x^2+1477575\,x+632101\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-1576113\,(5\,x+3)\arctan\left(\frac{\sqrt{10}(20\,x+1)}{20\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right.}{1760000\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4/((5*x + 3)^(3/2)*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/1760000*sqrt(10)*(2*sqrt(10)*(237600*x^3 + 849420*x^2 + 147757
5*x + 632101)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 1576113*(5*x + 3)*ar
ctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(5
*x + 3)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(3x+2)^4}{\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4/(3+5*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] Integral((3*x + 2)**4/(sqrt(-2*x + 1)*(5*x + 3)**(3/2)), x)
```

GIAC/XCAS [A] time = 0.241646, size = 167, normalized size = 1.48

$$-\frac{27}{200000}\left(4\left(8\sqrt{5}(5x+3)+71\sqrt{5}\right)(5x+3)+2407\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}+\frac{143283}{80000}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)-\frac{\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}{68750\sqrt{5x+3}}+\frac{2\sqrt{10}\sqrt{5x+3}}{34375\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4/((5*x + 3)^(3/2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] -27/200000*(4*(8*sqrt(5)*(5*x + 3) + 71*sqrt(5))*(5*x + 3) + 2407
*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5) + 143283/80000*sqrt(10)*a
rcsin(1/11*sqrt(22)*sqrt(5*x + 3)) - 1/68750*sqrt(10)*(sqrt(2)*sq
rt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) + 2/34375*sqrt(10)*sqrt(5
*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))
```

3.2482 $\int \frac{(2+3x)^3}{\sqrt{1-2x}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=84

$$-\frac{2\sqrt{1-2x}(3x+2)^2}{55\sqrt{5x+3}}-\frac{3\sqrt{1-2x}\sqrt{5x+3}(300x+979)}{4400}+\frac{2493\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{400\sqrt{10}}$$

```
[Out] (-2*Sqrt[1 - 2*x]*(2 + 3*x)^2)/(55*Sqrt[3 + 5*x]) - (3*Sqrt[1 - 2
*x]*Sqrt[3 + 5*x]*(979 + 300*x))/4400 + (2493*ArcSin[Sqrt[2/11]*S
qrt[3 + 5*x]])/(400*Sqrt[10])
```

Rubi [A] time = 0.119971, antiderivative size = 84, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.154$

$$-\frac{2\sqrt{1-2x}(3x+2)^2}{55\sqrt{5x+3}}-\frac{3\sqrt{1-2x}\sqrt{5x+3}(300x+979)}{4400}+\frac{2493\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{400\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^3/(Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-2*Sqrt[1 - 2*x]*(2 + 3*x)^2)/(55*Sqrt[3 + 5*x]) - (3*Sqrt[1 - 2
*x]*Sqrt[3 + 5*x]*(979 + 300*x))/4400 + (2493*ArcSin[Sqrt[2/11]*S
qrt[3 + 5*x]])/(400*Sqrt[10])
```

Rubi in Sympy [A] time = 11.7642, size = 76, normalized size = 0.9

$$-\frac{2\sqrt{-2x+1}\,(3x+2)^2}{55\sqrt{5x+3}}-\frac{\sqrt{-2x+1}\sqrt{5x+3}\left(1125x+\frac{14685}{4}\right)}{5500}+\frac{2493\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{4000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3/(3+5*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] -2*sqrt(-2*x + 1)*(3*x + 2)**2/(55*sqrt(5*x + 3)) - sqrt(-2*x + 1
)*sqrt(5*x + 3)*(1125*x + 14685/4)/5500 + 2493*sqrt(10)*asin(sqrt
(22)*sqrt(5*x + 3)/11)/4000
```

Mathematica [A] time = 0.139273, size = 60, normalized size = 0.71

$$-\frac{\sqrt{1-2x}\left(5940x^2+19305x+9451\right)}{4400\sqrt{5x+3}}-\frac{2493\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{400\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^3/(Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)),x]
```

```
[Out] -(Sqrt[1 - 2*x]*(9451 + 19305*x + 5940*x^2))/(4400*Sqrt[3 + 5*x])
 - (2493*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/(400*Sqrt[10])
```

Maple [A] time = 0.02, size = 99, normalized size = 1.2

$$\frac{1}{88000}\left(137115\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x-118800\,x^{2}\sqrt{-10\,x^{2}-x+3}+82269\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)-386100\,x\sqrt{-1}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3/(3+5*x)^(3/2)/(1-2*x)^(1/2),x)
```

```
[Out] 1/88000*(137115*10^(1/2)*arcsin(20/11*x+1/11)*x-118800*x^2*(-10*x
^2-x+3)^(1/2)+82269*10^(1/2)*arcsin(20/11*x+1/11)-386100*x*(-10*x
^2-x+3)^(1/2)-189020*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)/(-10*x^2-
x+3)^(1/2)/(3+5*x)^(1/2)
```

Maxima [A] time = 1.51555, size = 88, normalized size = 1.05

$$\frac{2493}{8000}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)-\frac{27}{100}\sqrt{-10\,x^{2}-x+3}x-\frac{1431}{2000}\sqrt{-10\,x^{2}-x+3}-\frac{2\sqrt{-10\,x^{2}-x+3}}{1375\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3/((5*x + 3)^(3/2)*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 2493/8000*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) - 27/100*sqrt(-1
0*x^2 - x + 3)*x - 1431/2000*sqrt(-10*x^2 - x + 3) - 2/1375*sqrt(
-10*x^2 - x + 3)/(5*x + 3)
```

Fricas [A] time = 0.230768, size = 100, normalized size = 1.19

$$-\frac{\sqrt{10}\left(2\sqrt{10}\left(5940\,x^{2}+19305\,x+9451\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-27423\,(5\,x+3)\arctan\left(\frac{\sqrt{10}(20\,x+1)}{20\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)}{88000\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3/((5*x + 3)^(3/2)*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/88000*sqrt(10)*(2*sqrt(10)*(5940*x^2 + 19305*x + 9451)*sqrt(5*
x + 3)*sqrt(-2*x + 1) - 27423*(5*x + 3)*arctan(1/20*sqrt(10)*(20*
x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(5*x + 3)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(3x+2)^{3}}{\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3/(3+5*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] Integral((3*x + 2)**3/(sqrt(-2*x + 1)*(5*x + 3)**(3/2)), x)
```

GIAC/XCAS [A] time = 0.245574, size = 150, normalized size = 1.79

$$-\frac{27}{10000}\left(4\sqrt{5}(5x+3)+41\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}+\frac{2493}{4000}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)-\frac{\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}{13750\sqrt{5x+3}}+\frac{2\sqrt{10}\sqrt{5x+3}}{6875\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^3/((5*x + 3)^(3/2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] -27/10000*(4*sqrt(5)*(5*x + 3) + 41*sqrt(5))*sqrt(5*x + 3)*sqrt(-
10*x + 5) + 2493/4000*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)
) - 1/13750*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*
x + 3) + 2/6875*sqrt(10)*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) -
 sqrt(22))
```

3.2483 $\int \frac{(2+3x)^2}{\sqrt{1-2x}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=72

$$-\frac{9}{50}\sqrt{1-2x}\sqrt{5x+3}-\frac{2\sqrt{1-2x}}{275\sqrt{5x+3}}+\frac{123\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{50\sqrt{10}}$$

```
[Out] (-2*Sqrt[1 - 2*x])/(275*Sqrt[3 + 5*x]) - (9*Sqrt[1 - 2*x]*Sqrt[3
+ 5*x])/50 + (123*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(50*Sqrt[10])
```

Rubi [A] time = 0.098453, antiderivative size = 72, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$-\frac{9}{50}\sqrt{1-2x}\sqrt{5x+3}-\frac{2\sqrt{1-2x}}{275\sqrt{5x+3}}+\frac{123\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{50\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^2/(Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-2*Sqrt[1 - 2*x])/(275*Sqrt[3 + 5*x]) - (9*Sqrt[1 - 2*x]*Sqrt[3
+ 5*x])/50 + (123*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(50*Sqrt[10])
```

Rubi in Sympy [A] time = 7.86429, size = 65, normalized size = 0.9

$$-\frac{9\sqrt{-2x+1}\sqrt{5x+3}}{50}-\frac{2\sqrt{-2x+1}}{275\sqrt{5x+3}}+\frac{123\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{500}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2/(3+5*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] -9*sqrt(-2*x + 1)*sqrt(5*x + 3)/50 - 2*sqrt(-2*x + 1)/(275*sqrt(5
*x + 3)) + 123*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/500
```

Mathematica [A] time = 0.122176, size = 55, normalized size = 0.76

$$-\frac{\sqrt{1-2x}(495x+301)}{550\sqrt{5x+3}}-\frac{123\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{50\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^2/(Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)),x]
```

```
[Out] -(Sqrt[1 - 2*x]*(301 + 495*x))/(550*Sqrt[3 + 5*x]) - (123*ArcSin[
Sqrt[5/11]*Sqrt[1 - 2*x]])/(50*Sqrt[10])
```

Maple [A] time = 0.018, size = 82, normalized size = 1.1

$$\frac{1}{11000}\left(6765\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)x+4059\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)-9900x\sqrt{-10x^2-x+3}-6020\sqrt{-10x^2-x+$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((2+3*x)^2/(3+5*x)^(3/2)/(1-2*x)^(1/2),x)
```

```
[Out] 1/11000*(6765*10^(1/2)*arcsin(20/11*x+1/11)*x+4059*10^(1/2)*arcsi
n(20/11*x+1/11)-9900*x*(-10*x^2-x+3)^(1/2)-6020*(-10*x^2-x+3)^(1/
2))*(1-2*x)^(1/2)/(-10*x^2-x+3)^(1/2)/(3+5*x)^(1/2)
```

Maxima [A] time = 1.50235, size = 68, normalized size = 0.94

$$\frac{123}{1000}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)-\frac{9}{50}\sqrt{-10x^2-x+3}-\frac{2\sqrt{-10x^2-x+3}}{275(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2/((5*x + 3)^(3/2)*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 123/1000*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) - 9/50*sqrt(-10*x
^2 - x + 3) - 2/275*sqrt(-10*x^2 - x + 3)/(5*x + 3)
```

Fricas [A] time = 0.228156, size = 93, normalized size = 1.29

$$-\frac{\sqrt{10}\left(2\sqrt{10}(495x+301)\sqrt{5x+3}\sqrt{-2x+1}-1353(5x+3)\arctan\left(\frac{\sqrt{10}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)}{11000(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2/((5*x + 3)^(3/2)*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/11000*sqrt(10)*(2*sqrt(10)*(495*x + 301)*sqrt(5*x + 3)*sqrt(-2
*x + 1) - 1353*(5*x + 3)*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*
x + 3)*sqrt(-2*x + 1))))/(5*x + 3)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^2}{\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((2+3*x)**2/(3+5*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] Integral((3*x + 2)**2/(sqrt(-2*x + 1)*(5*x + 3)**(3/2)), x)
```

GIAC/XCAS [A] time = 0.242901, size = 132, normalized size = 1.83

$$-\frac{9}{250}\sqrt{5}\sqrt{5x+3}\sqrt{-10x+5}+\frac{123}{500}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)$$
$$-\frac{\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}{2750\sqrt{5x+3}}+\frac{2\sqrt{10}\sqrt{5x+3}}{1375\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2/((5*x + 3)^(3/2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] -9/250*sqrt(5)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 123/500*sqrt(10)*a
rcsin(1/11*sqrt(22)*sqrt(5*x + 3)) - 1/2750*sqrt(10)*(sqrt(2)*sqr
t(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) + 2/1375*sqrt(10)*sqrt(5*x
 + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))
```

3.2484 $\int \frac{2+3x}{\sqrt{1-2x}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=52

$$\frac{3}{5}\sqrt{\frac{2}{5}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{2\sqrt{1-2x}}{55\sqrt{5x+3}}$$

```
[Out] (-2*Sqrt[1 - 2*x])/(55*Sqrt[3 + 5*x]) + (3*Sqrt[2/5]*ArcSin[Sqrt[
2/11]*Sqrt[3 + 5*x]])/5
```

Rubi [A] time = 0.0576421, antiderivative size = 52, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$\frac{3}{5}\sqrt{\frac{2}{5}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{2\sqrt{1-2x}}{55\sqrt{5x+3}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)/(Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-2*Sqrt[1 - 2*x])/(55*Sqrt[3 + 5*x]) + (3*Sqrt[2/5]*ArcSin[Sqrt[
2/11]*Sqrt[3 + 5*x]])/5
```

Rubi in Sympy [A] time = 5.39526, size = 44, normalized size = 0.85

$$-\frac{2\sqrt{-2x+1}}{55\sqrt{5x+3}}+\frac{3\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{25}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)/(3+5*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] -2*sqrt(-2*x + 1)/(55*sqrt(5*x + 3)) + 3*sqrt(10)*asin(sqrt(22)*s
qrt(5*x + 3)/11)/25
```

Mathematica [A] time = 0.0744146, size = 52, normalized size = 1.

$$-\frac{2\sqrt{1-2x}}{55\sqrt{5x+3}}-\frac{3}{5}\sqrt{\frac{2}{5}}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)/(Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-2*Sqrt[1 - 2*x])/(55*Sqrt[3 + 5*x]) - (3*Sqrt[2/5]*ArcSin[Sqrt[
5/11]*Sqrt[1 - 2*x]])/5
```

Maple [A] time = 0.017, size = 67, normalized size = 1.3

$$\frac{1}{550}\left(165\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)x+99\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)-20\sqrt{-10x^2-x+3}\right)\sqrt{1-2x}\frac{1}{\sqrt{-10x^2-x+3}}\frac{1}{\sqrt{3+}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)/(3+5*x)^(3/2)/(1-2*x)^(1/2),x)
```

```
[Out] 1/550*(165*10^(1/2)*arcsin(20/11*x+1/11)*x+99*10^(1/2)*arcsin(20/
11*x+1/11)-20*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)/(-10*x^2-x+3)^(1
/2)/(3+5*x)^(1/2)
```

Maxima [A] time = 1.49917, size = 49, normalized size = 0.94

$$\frac{3}{50}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)-\frac{2\sqrt{-10x^2-x+3}}{55(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)/((5*x + 3)^(3/2)*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 3/50*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) - 2/55*sqrt(-10*x^2 -
 x + 3)/(5*x + 3)
```

Fricas [A] time = 0.229431, size = 95, normalized size = 1.83

$$\frac{\sqrt{5}\left(33\sqrt{2}(5x+3)\arctan\left(\frac{\sqrt{5}\sqrt{2}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)-4\sqrt{5}\sqrt{5x+3}\sqrt{-2x+1}\right)}{550(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)/((5*x + 3)^(3/2)*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] 1/550*sqrt(5)*(33*sqrt(2)*(5*x + 3)*arctan(1/20*sqrt(5)*sqrt(2)*(
20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))) - 4*sqrt(5)*sqrt(5*x +
3)*sqrt(-2*x + 1))/(5*x + 3)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{3x+2}{\sqrt{-2x+1}(5x+3)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)/(3+5*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] Integral((3*x + 2)/(sqrt(-2*x + 1)*(5*x + 3)**(3/2)), x)
```

GIAC/XCAS [A] time = 0.243514, size = 107, normalized size = 2.06

$$\frac{3}{25}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)-\frac{\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}{550\sqrt{5x+3}}+\frac{2\sqrt{10}\sqrt{5x+3}}{275\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)/((5*x + 3)^(3/2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] 3/25*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) - 1/550*sqrt(10
)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) + 2/275*sqrt
(10)*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))
```

3.2485 $\int \frac{1}{\sqrt{1-2x}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=22

$$-\frac{2\sqrt{1-2x}}{11\sqrt{5x+3}}$$

```
[Out] (-2*Sqrt[1 - 2*x])/(11*Sqrt[3 + 5*x])
```

Rubi [A] time = 0.0164657, antiderivative size = 22, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}} = 0.053$

$$-\frac{2\sqrt{1-2x}}{11\sqrt{5x+3}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)),x]

[Out] (-2*Sqrt[1 - 2*x])/(11*Sqrt[3 + 5*x])
```

Rubi in Sympy [A] time = 2.74643, size = 20, normalized size = 0.91

$$-\frac{2\sqrt{-2x+1}}{11\sqrt{5x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(3+5*x)**(3/2)/(1-2*x)**(1/2),x)

[Out] -2*sqrt(-2*x + 1)/(11*sqrt(5*x + 3))
```

Mathematica [A] time = 0.0196828, size = 22, normalized size = 1.

$$-\frac{2\sqrt{1-2x}}{11\sqrt{5x+3}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)),x]

[Out] (-2*Sqrt[1 - 2*x])/(11*Sqrt[3 + 5*x])
```

Maple [A] time = 0.004, size = 17, normalized size = 0.8

$$-\frac{2}{11}\sqrt{1-2\,x}\frac{1}{\sqrt{3+5\,x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(3+5*x)^(3/2)/(1-2*x)^(1/2),x)
```

```
[Out] -2/11*(1-2*x)^(1/2)/(3+5*x)^(1/2)
```

Maxima [A] time = 1.49566, size = 28, normalized size = 1.27

$$-\frac{2\sqrt{-10x^2-x+3}}{11(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(3/2)*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] -2/11*sqrt(-10*x^2 - x + 3)/(5*x + 3)
```

Fricas [A] time = 0.220966, size = 22, normalized size = 1.

$$-\frac{2\sqrt{-2x+1}}{11\sqrt{5x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(3/2)*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -2/11*sqrt(-2*x + 1)/sqrt(5*x + 3)
```

Sympy [A] time = 1.84773, size = 54, normalized size = 2.45

$$\begin{cases} -\frac{2\sqrt{10}\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}}{55} & \text{for}\ \frac{11\left|\frac{1}{x+\frac{3}{5}}\right|}{10} > 1 \\ -\frac{2\sqrt{10}i\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}}{55} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(3+5*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] Piecewise((-2*sqrt(10)*sqrt(-1 + 11/(10*(x + 3/5)))/55, 11*Abs(1/
(x + 3/5))/10 > 1), (-2*sqrt(10)*I*sqrt(1 - 11/(10*(x + 3/5)))/55
, True))
```

GIAC/XCAS [A] time = 0.229835, size = 82, normalized size = 3.73

$$-\frac{\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}{110\sqrt{5x+3}}+\frac{2\sqrt{10}\sqrt{5x+3}}{55\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(3/2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] -1/110*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3
) + 2/55*sqrt(10)*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(2
2))
```

3.2486 $\int \frac{1}{\sqrt{1-2x}(2+3x)(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=55

$$\frac{6\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{\sqrt{7}}-\frac{10\sqrt{1-2x}}{11\sqrt{5x+3}}$$

```
[Out] (-10*Sqrt[1 - 2*x])/(11*Sqrt[3 + 5*x]) + (6*ArcTan[Sqrt[1 - 2*x]/
(Sqrt[7]*Sqrt[3 + 5*x])])/Sqrt[7]
```

Rubi [A] time = 0.0879988, antiderivative size = 55, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.115

$$\frac{6\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{\sqrt{7}}-\frac{10\sqrt{1-2x}}{11\sqrt{5x+3}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 - 2*x]*(2 + 3*x)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-10*Sqrt[1 - 2*x])/(11*Sqrt[3 + 5*x]) + (6*ArcTan[Sqrt[1 - 2*x]/
(Sqrt[7]*Sqrt[3 + 5*x])])/Sqrt[7]
```

Rubi in Sympy [A] time = 7.03536, size = 53, normalized size = 0.96

$$-\frac{10\sqrt{-2x+1}}{11\sqrt{5x+3}}+\frac{6\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(2+3*x)/(3+5*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] -10*sqrt(-2*x + 1)/(11*sqrt(5*x + 3)) + 6*sqrt(7)*atan(sqrt(7)*sq
rt(-2*x + 1)/(7*sqrt(5*x + 3)))/7
```

Mathematica [A] time = 0.0695873, size = 58, normalized size = 1.05

$$\frac{3\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{\sqrt{7}}-\frac{10\sqrt{1-2x}}{11\sqrt{5x+3}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 - 2*x]*(2 + 3*x)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-10*Sqrt[1 - 2*x])/(11*Sqrt[3 + 5*x]) + (3*ArcTan[(-20 - 37*x)/(
2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/Sqrt[7]
```

Maple [B] time = 0.02, size = 101, normalized size = 1.8

$$-\frac{1}{77}\left(165\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x+99\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)+70\sqrt{-10\,x^2-x+3}\right)\sqrt{1-2\,x}\frac{}{\sqrt{-}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(2+3*x)/(3+5*x)^(3/2)/(1-2*x)^(1/2),x)
```

```
[Out] -1/77*(165*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1
/2))*x+99*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/
2))+70*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)/(-10*x^2-x+3)^(1/2)/(3+
5*x)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5x+3)^{\frac{3}{2}}(3x+2)\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)*sqrt(-2*x + 1)), x)
```

Fricas [A] time = 0.23723, size = 86, normalized size = 1.56

$$-\frac{\sqrt{7}\left(33\,(5\,x+3)\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)+10\,\sqrt{7}\sqrt{5\,x+3}\sqrt{-2\,x+1}\right)}{77\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/77*sqrt(7)*(33*(5*x + 3)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt
(5*x + 3)*sqrt(-2*x + 1))) + 10*sqrt(7)*sqrt(5*x + 3)*sqrt(-2*x +
 1))/(5*x + 3)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{-2x+1}\,(3x+2)\,(5x+3)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(2+3*x)/(3+5*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] Integral(1/(sqrt(-2*x + 1)*(3*x + 2)*(5*x + 3)**(3/2)), x)
```

GIAC/XCAS [A] time = 0.236446, size = 180, normalized size = 3.27

$$-\frac{3}{70}\,\sqrt{70}\sqrt{10}\left(\pi+2\,\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{2}}{5\,x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)-\frac{1}{22}\,\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] -3/70*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x +
 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqrt(
2)*sqrt(-10*x + 5) - sqrt(22)))) - 1/22*sqrt(10)*((sqrt(2)*sqrt(-
10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sq
rt(-10*x + 5) - sqrt(22)))
```

3.2487 $\int \frac{1}{\sqrt{1-2x}(2+3x)^2(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=86

$$-\frac{515\sqrt{1-2x}}{77\sqrt{5x+3}}+\frac{3\sqrt{1-2x}}{7(3x+2)\sqrt{5x+3}}+\frac{321\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{7\sqrt{7}}$$

```
[Out] (-515*Sqrt[1 - 2*x])/(77*Sqrt[3 + 5*x]) + (3*Sqrt[1 - 2*x])/(7*(2
 + 3*x)*Sqrt[3 + 5*x]) + (321*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[
3 + 5*x])])/(7*Sqrt[7])
```

Rubi [A] time = 0.1679, antiderivative size = 86, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$-\frac{515\sqrt{1-2x}}{77\sqrt{5x+3}}+\frac{3\sqrt{1-2x}}{7(3x+2)\sqrt{5x+3}}+\frac{321\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{7\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 - 2*x]*(2 + 3*x)^2*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-515*Sqrt[1 - 2*x])/(77*Sqrt[3 + 5*x]) + (3*Sqrt[1 - 2*x])/(7*(2
 + 3*x)*Sqrt[3 + 5*x]) + (321*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[
3 + 5*x])])/(7*Sqrt[7])
```

Rubi in Sympy [A] time = 14.5854, size = 78, normalized size = 0.91

$$-\frac{515\sqrt{-2x+1}}{77\sqrt{5x+3}}+\frac{3\sqrt{-2x+1}}{7\,(3x+2)\,\sqrt{5x+3}}+\frac{321\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{49}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(2+3*x)**2/(3+5*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] -515*sqrt(-2*x + 1)/(77*sqrt(5*x + 3)) + 3*sqrt(-2*x + 1)/(7*(3*x
 + 2)*sqrt(5*x + 3)) + 321*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7
*sqrt(5*x + 3)))/49
```

Mathematica [A] time = 0.0959581, size = 72, normalized size = 0.84

$$\frac{321\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{14\sqrt{7}}-\frac{\sqrt{1-2x}(1545x+997)}{77(3x+2)\sqrt{5x+3}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 - 2*x]*(2 + 3*x)^2*(3 + 5*x)^(3/2)),x]
```

```
[Out] -(Sqrt[1 - 2*x]*(997 + 1545*x))/(77*(2 + 3*x)*Sqrt[3 + 5*x]) + (3
21*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/(14*Sqr
t[7])
```

Maple [B] time = 0.022, size = 154, normalized size = 1.8

$$-\frac{1}{2156+3234x}\left(52965\sqrt{7}\arctan\left(1/14\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)x^2+67089\sqrt{7}\arctan\left(1/14\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)x+21186\sqrt{7}\mathrm{arc}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(2+3*x)^2/(3+5*x)^(3/2)/(1-2*x)^(1/2),x)
```

```
[Out] -1/1078*(52965*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3
)^(1/2))*x^2+67089*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2
-x+3)^(1/2))*x+21186*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x
^2-x+3)^(1/2))+21630*x*(-10*x^2-x+3)^(1/2)+13958*(-10*x^2-x+3)^(1
/2))*(1-2*x)^(1/2)/(2+3*x)/(-10*x^2-x+3)^(1/2)/(3+5*x)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5x+3)^{\frac{3}{2}}(3x+2)^2\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^2*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^2*sqrt(-2*x + 1)), x)
```

Fricas [A] time = 0.235318, size = 107, normalized size = 1.24

$$-\frac{\sqrt{7}\left(2\sqrt{7}(1545x+997)\sqrt{5x+3}\sqrt{-2x+1}+3531\left(15x^2+19x+6\right)\arctan\left(\frac{\sqrt{7}(37x+20)}{14\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)}{1078\left(15x^2+19x+6\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^2*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/1078*sqrt(7)*(2*sqrt(7)*(1545*x + 997)*sqrt(5*x + 3)*sqrt(-2*x
 + 1) + 3531*(15*x^2 + 19*x + 6)*arctan(1/14*sqrt(7)*(37*x + 20)/
(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(15*x^2 + 19*x + 6)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(2+3*x)**2/(3+5*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.275583, size = 340, normalized size = 3.95

$$-\frac{321}{980}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{5}{22}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)-\frac{198\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)}{7\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^2*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] -321/980*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*
x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sq
rt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 5/22*sqrt(10)*((sqrt(2)*sqr
t(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)
*sqrt(-10*x + 5) - sqrt(22))) - 198/7*sqrt(10)*((sqrt(2)*sqrt(-10
*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt
(-10*x + 5) - sqrt(22)))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/s
qrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22
)))^2 + 280)
```

3.2488 $\int \frac{1}{\sqrt{1-2x}(2+3x)^3(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=115

$$-\frac{90415\sqrt{1-2x}}{2156\sqrt{5x+3}}+\frac{543\sqrt{1-2x}}{196(3x+2)\sqrt{5x+3}}+\frac{3\sqrt{1-2x}}{14(3x+2)^2\sqrt{5x+3}}+\frac{56421\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{196\sqrt{7}}$$

```
[Out] (-90415*Sqrt[1 - 2*x])/(2156*Sqrt[3 + 5*x]) + (3*Sqrt[1 - 2*x])/(
14*(2 + 3*x)^2*Sqrt[3 + 5*x]) + (543*Sqrt[1 - 2*x])/(196*(2 + 3*x
)*Sqrt[3 + 5*x]) + (56421*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 +
5*x])])/(196*Sqrt[7])
```

Rubi [A] time = 0.241999, antiderivative size = 115, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$-\frac{90415\sqrt{1-2x}}{2156\sqrt{5x+3}}+\frac{543\sqrt{1-2x}}{196(3x+2)\sqrt{5x+3}}+\frac{3\sqrt{1-2x}}{14(3x+2)^2\sqrt{5x+3}}+\frac{56421\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{196\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 - 2*x]*(2 + 3*x)^3*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-90415*Sqrt[1 - 2*x])/(2156*Sqrt[3 + 5*x]) + (3*Sqrt[1 - 2*x])/(
14*(2 + 3*x)^2*Sqrt[3 + 5*x]) + (543*Sqrt[1 - 2*x])/(196*(2 + 3*x
)*Sqrt[3 + 5*x]) + (56421*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 +
5*x])])/(196*Sqrt[7])
```

Rubi in Sympy [A] time = 21.2501, size = 105, normalized size = 0.91

$$-\frac{90415\sqrt{-2x+1}}{2156\sqrt{5x+3}}+\frac{543\sqrt{-2x+1}}{196\,(3x+2)\,\sqrt{5x+3}}+\frac{3\sqrt{-2x+1}}{14\,(3x+2)^2\,\sqrt{5x+3}}+\frac{56421\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{1372}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(2+3*x)**3/(3+5*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] -90415*sqrt(-2*x + 1)/(2156*sqrt(5*x + 3)) + 543*sqrt(-2*x + 1)/(
196*(3*x + 2)*sqrt(5*x + 3)) + 3*sqrt(-2*x + 1)/(14*(3*x + 2)**2*
sqrt(5*x + 3)) + 56421*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqr
t(5*x + 3)))/1372
```

Mathematica [A] time = 0.0915852, size = 77, normalized size = 0.67

$$\frac{56421\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{392\sqrt{7}}-\frac{\sqrt{1-2x}\left(813735x^2+1067061x+349252\right)}{2156(3x+2)^2\sqrt{5x+3}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 - 2*x]*(2 + 3*x)^3*(3 + 5*x)^(3/2)),x]
```

```
[Out] -(Sqrt[1 - 2*x]*(349252 + 1067061*x + 813735*x^2))/(2156*(2 + 3*x
)^2*Sqrt[3 + 5*x]) + (56421*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]
*Sqrt[3 + 5*x])])/(392*Sqrt[7])
```

Maple [B] time = 0.023, size = 202, normalized size = 1.8

$$-\frac{1}{30184\left(2+3x\right)^{2}}\left(27928395\sqrt{7}\arctan\left(1/14\frac{\left(37x+20\right)\sqrt{7}}{\sqrt{-10x^{2}-x+3}}\right)x^{3}+53994897\sqrt{7}\arctan\left(1/14\frac{\left(37x+20\right)\sqrt{7}}{\sqrt{-10x^{2}-x+3}}\right)x^{2}+34\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(2+3*x)^3/(3+5*x)^(3/2)/(1-2*x)^(1/2),x)
```

```
[Out] -1/30184*(27928395*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2
-x+3)^(1/2))*x^3+53994897*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(
-10*x^2-x+3)^(1/2))*x^2+34755336*7^(1/2)*arctan(1/14*(37*x+20)*7^
(1/2)/(-10*x^2-x+3)^(1/2))*x+11392290*x^2*(-10*x^2-x+3)^(1/2)+744
7572*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+1
4938854*x*(-10*x^2-x+3)^(1/2)+4889528*(-10*x^2-x+3)^(1/2))*(1-2*x
)^(1/2)/(2+3*x)^2/(-10*x^2-x+3)^(1/2)/(3+5*x)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\left(5x+3\right)^{\frac{3}{2}}\left(3x+2\right)^{3}\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^3*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^3*sqrt(-2*x + 1)), x)
```

Fricas [A] time = 0.233186, size = 127, normalized size = 1.1

$$-\frac{\sqrt{7}\left(2\sqrt{7}\left(813735x^{2}+1067061x+349252\right)\sqrt{5x+3}\sqrt{-2x+1}+620631\left(45x^{3}+87x^{2}+56x+12\right)\arctan\left(\frac{\sqrt{7}(37x+20)}{14\sqrt{5x+3}\sqrt{-2x+}}\right.\right.}{30184\left(45x^{3}+87x^{2}+56x+12\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^3*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/30184*sqrt(7)*(2*sqrt(7)*(813735*x^2 + 1067061*x + 349252)*sqr
t(5*x + 3)*sqrt(-2*x + 1) + 620631*(45*x^3 + 87*x^2 + 56*x + 12)*
arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/
(45*x^3 + 87*x^2 + 56*x + 12)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(2+3*x)**3/(3+5*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.292462, size = 427, normalized size = 3.71

$$-\frac{56421}{27440}\,\sqrt{70}\sqrt{10}\left(\pi+2\,\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{2}}{5\,x+3}-4\right)}{140\,\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)-\frac{25}{22}\,\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)-\frac{297\,\left(107\,\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^{3}+23800\,\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)\right)}{98\,\left(\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^{2}+280\right)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^3*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] -56421/27440*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqr
t(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)
/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 25/22*sqrt(10)*((sqrt(2
)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sq
rt(2)*sqrt(-10*x + 5) - sqrt(22))) - 297/98*(107*sqrt(10)*((sqrt(
2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(s
qrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 23800*sqrt(10)*((sqrt(2)*
sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt
(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) - sq
rt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5)
- sqrt(22)))^2 + 280)^2
```

3.2489 $\int \frac{1}{\sqrt{1-2x}(2+3x)^4(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=144

$$-\frac{7396875\sqrt{1-2x}}{30184\sqrt{5x+3}}+\frac{44475\sqrt{1-2x}}{2744(3x+2)\sqrt{5x+3}}+\frac{255\sqrt{1-2x}}{196(3x+2)^2\sqrt{5x+3}}+\frac{\sqrt{1-2x}}{7(3x+2)^3\sqrt{5x+3}}+\frac{4616025\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{2744\sqrt{7}}$$

```
[Out] (-7396875*Sqrt[1 - 2*x])/(30184*Sqrt[3 + 5*x]) + Sqrt[1 - 2*x]/(7
*(2 + 3*x)^3*Sqrt[3 + 5*x]) + (255*Sqrt[1 - 2*x])/(196*(2 + 3*x)^
2*Sqrt[3 + 5*x]) + (44475*Sqrt[1 - 2*x])/(2744*(2 + 3*x)*Sqrt[3 +
 5*x]) + (4616025*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/
(2744*Sqrt[7])
```

Rubi [A] time = 0.322053, antiderivative size = 144, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.231$

$$-\frac{7396875\sqrt{1-2x}}{30184\sqrt{5x+3}}+\frac{44475\sqrt{1-2x}}{2744(3x+2)\sqrt{5x+3}}+\frac{255\sqrt{1-2x}}{196(3x+2)^2\sqrt{5x+3}}+\frac{\sqrt{1-2x}}{7(3x+2)^3\sqrt{5x+3}}+\frac{4616025\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{2744\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 - 2*x]*(2 + 3*x)^4*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-7396875*Sqrt[1 - 2*x])/(30184*Sqrt[3 + 5*x]) + Sqrt[1 - 2*x]/(7
*(2 + 3*x)^3*Sqrt[3 + 5*x]) + (255*Sqrt[1 - 2*x])/(196*(2 + 3*x)^
2*Sqrt[3 + 5*x]) + (44475*Sqrt[1 - 2*x])/(2744*(2 + 3*x)*Sqrt[3 +
 5*x]) + (4616025*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/
(2744*Sqrt[7])
```

Rubi in Sympy [A] time = 28.078, size = 131, normalized size = 0.91

$$-\frac{7396875\sqrt{-2x+1}}{30184\sqrt{5x+3}}+\frac{44475\sqrt{-2x+1}}{2744\,(3x+2)\,\sqrt{5x+3}}+\frac{255\sqrt{-2x+1}}{196\,(3x+2)^2\,\sqrt{5x+3}}+\frac{\sqrt{-2x+1}}{7\,(3x+2)^3\,\sqrt{5x+3}}+\frac{4616025\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{19208}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(2+3*x)**4/(3+5*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] -7396875*sqrt(-2*x + 1)/(30184*sqrt(5*x + 3)) + 44475*sqrt(-2*x +
 1)/(2744*(3*x + 2)*sqrt(5*x + 3)) + 255*sqrt(-2*x + 1)/(196*(3*x
 + 2)**2*sqrt(5*x + 3)) + sqrt(-2*x + 1)/(7*(3*x + 2)**3*sqrt(5*x
 + 3)) + 4616025*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x
+ 3)))/19208
```

Mathematica [A] time = 0.106817, size = 82, normalized size = 0.57

$$\frac{50776275\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)-\frac{14\sqrt{1-2x}\left(199715625x^3+395028225x^2+260298990x+57135248\right)}{(3x+2)^3\sqrt{5x+3}}}{422576}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 - 2*x]*(2 + 3*x)^4*(3 + 5*x)^(3/2)),x]
```

```
[Out] ((-14*Sqrt[1 - 2*x]*(57135248 + 260298990*x + 395028225*x^2 + 199
715625*x^3))/((2 + 3*x)^3*Sqrt[3 + 5*x]) + 50776275*Sqrt[7]*ArcTa
n[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/422576
```

Maple [B] time = 0.025, size = 250, normalized size = 1.7

$$-\frac{1}{422576\,(2+3\,x)^3}\left(6854797125\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^4+17822472525\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(2+3*x)^4/(3+5*x)^(3/2)/(1-2*x)^(1/2),x)
```

```
[Out] -1/422576*(6854797125*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*
x^2-x+3)^(1/2))*x^4+17822472525*7^(1/2)*arctan(1/14*(37*x+20)*7^(
1/2)/(-10*x^2-x+3)^(1/2))*x^3+17365486050*7^(1/2)*arctan(1/14*(37
*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+2796018750*x^3*(-10*x^2-x
+3)^(1/2)+7514888700*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x
^2-x+3)^(1/2))*x+5530395150*x^2*(-10*x^2-x+3)^(1/2)+1218630600*7^
(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+36441858
60*x*(-10*x^2-x+3)^(1/2)+799893472*(-10*x^2-x+3)^(1/2))*(1-2*x)^(
1/2)/(2+3*x)^3/(-10*x^2-x+3)^(1/2)/(3+5*x)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{1}{(5\,x+3)^{\frac{3}{2}}(3\,x+2)^4\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^4*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^4*sqrt(-2*x + 1)), x)
```

Fricas [A] time = 0.237866, size = 147, normalized size = 1.02

$$-\frac{\sqrt{7}\left(2\,\sqrt{7}\left(199715625\,x^3+395028225\,x^2+260298990\,x+57135248\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+50776275\,\left(135\,x^4+351\,x^3+342\right.\right.}{422576\,(135\,x^4+351\,x^3+342\,x^2+148\,x+24)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^4*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/422576*sqrt(7)*(2*sqrt(7)*(199715625*x^3 + 395028225*x^2 + 260
298990*x + 57135248)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 50776275*(135
*x^4 + 351*x^3 + 342*x^2 + 148*x + 24)*arctan(1/14*sqrt(7)*(37*x
+ 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(135*x^4 + 351*x^3 + 342*x
^2 + 148*x + 24)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(2+3*x)**4/(3+5*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.344673, size = 509, normalized size = 3.53

$$-\frac{923205}{76832}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^{2}}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)$$
$$-\frac{125}{22}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)$$
$$-\frac{7425\left(487\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^{5}+217280\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^{3}+25693248\sqrt{10}\left(\frac{\sqrt{2}\right.}{}\right.}{1372\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^{2}+280\right)^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^4*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] -923205/76832*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sq
rt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4
)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 125/22*sqrt(10)*((sqrt
(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(
sqrt(2)*sqrt(-10*x + 5) - sqrt(22))) - 7425/1372*(487*sqrt(10)*((
sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x +
3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 + 217280*sqrt(10)*((sq
rt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)
/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 25693248*sqrt(10)*((sq
rt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)
/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5
) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x
 + 5) - sqrt(22)))^2 + 280)^3
```

3.2490 $\int \frac{(2+3x)^5}{\sqrt{1-2x}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=142

$$-\frac{2\sqrt{1-2x}(3x+2)^4}{165(5x+3)^{3/2}}-\frac{734\sqrt{1-2x}(3x+2)^3}{9075\sqrt{5x+3}}+\frac{511\sqrt{1-2x}\sqrt{5x+3}(3x+2)^2}{30250}-\frac{7\sqrt{1-2x}\sqrt{5x+3}(366420x+938509)}{4840000}+\frac{462357\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{40000\sqrt{10}}$$

```
[Out] (-2*Sqrt[1 - 2*x]*(2 + 3*x)^4)/(165*(3 + 5*x)^(3/2)) - (734*Sqrt[
1 - 2*x]*(2 + 3*x)^3)/(9075*Sqrt[3 + 5*x]) + (511*Sqrt[1 - 2*x]*(
2 + 3*x)^2*Sqrt[3 + 5*x])/30250 - (7*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*
(938509 + 366420*x))/4840000 + (462357*ArcSin[Sqrt[2/11]*Sqrt[3 +
 5*x]])/(40000*Sqrt[10])
```

Rubi [A] time = 0.264547, antiderivative size = 142, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$-\frac{2\sqrt{1-2x}(3x+2)^4}{165(5x+3)^{3/2}}-\frac{734\sqrt{1-2x}(3x+2)^3}{9075\sqrt{5x+3}}+\frac{511\sqrt{1-2x}\sqrt{5x+3}(3x+2)^2}{30250}-\frac{7\sqrt{1-2x}\sqrt{5x+3}(366420x+938509)}{4840000}+\frac{462357\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{40000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^5/(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2)),x]
```

```
[Out] (-2*Sqrt[1 - 2*x]*(2 + 3*x)^4)/(165*(3 + 5*x)^(3/2)) - (734*Sqrt[
1 - 2*x]*(2 + 3*x)^3)/(9075*Sqrt[3 + 5*x]) + (511*Sqrt[1 - 2*x]*(
2 + 3*x)^2*Sqrt[3 + 5*x])/30250 - (7*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*
(938509 + 366420*x))/4840000 + (462357*ArcSin[Sqrt[2/11]*Sqrt[3 +
 5*x]])/(40000*Sqrt[10])
```

Rubi in Sympy [A] time = 25.8521, size = 133, normalized size = 0.94

$$-\frac{2\sqrt{-2x+1}\,(3x+2)^4}{165\,(5x+3)^{\frac{3}{2}}}-\frac{734\sqrt{-2x+1}\,(3x+2)^3}{9075\sqrt{5x+3}}+\frac{511\sqrt{-2x+1}\,(3x+2)^2\,\sqrt{5x+3}}{30250}-\frac{\sqrt{-2x+1}\sqrt{5x+3}\,\left(\frac{28855575x}{4}+\frac{295630335}{16}\right)}{13612500}+\frac{462357\sqrt{10}\,\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{400000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**5/(3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] -2*sqrt(-2*x + 1)*(3*x + 2)**4/(165*(5*x + 3)**(3/2)) - 734*sqrt(
-2*x + 1)*(3*x + 2)**3/(9075*sqrt(5*x + 3)) + 511*sqrt(-2*x + 1)*
(3*x + 2)**2*sqrt(5*x + 3)/30250 - sqrt(-2*x + 1)*sqrt(5*x + 3)*(
28855575*x/4 + 295630335/16)/13612500 + 462357*sqrt(10)*asin(sqrt
(22)*sqrt(5*x + 3)/11)/400000
```

Mathematica [A] time = 0.197561, size = 70, normalized size = 0.49

$$-\frac{\sqrt{1-2x}\left(117612000x^4+502791300x^3+1030526145x^2+795297410x+199549721\right)}{14520000(5x+3)^{3/2}}-\frac{462357\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{40000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^5/(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2)),x]
```

```
[Out] -(Sqrt[1 - 2*x]*(199549721 + 795297410*x + 1030526145*x^2 + 50279
1300*x^3 + 117612000*x^4))/(14520000*(3 + 5*x)^(3/2)) - (462357*A
rcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/(40000*Sqrt[10])
```

Maple [A] time = 0.021, size = 147, normalized size = 1.

$$\frac{1}{290400000}\left(-2352240000\,x^4\sqrt{-10\,x^2-x+3}+4195889775\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x^2-10055826000\,x^3\sqrt{-10\,x^2-x+}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^5/(3+5*x)^(5/2)/(1-2*x)^(1/2),x)
```

```
[Out] 1/290400000*(-2352240000*x^4*(-10*x^2-x+3)^(1/2)+4195889775*10^(1
/2)*arcsin(20/11*x+1/11)*x^2-10055826000*x^3*(-10*x^2-x+3)^(1/2)+
5035067730*10^(1/2)*arcsin(20/11*x+1/11)*x-20610522900*x^2*(-10*x
^2-x+3)^(1/2)+1510520319*10^(1/2)*arcsin(20/11*x+1/11)-1590594820
0*x*(-10*x^2-x+3)^(1/2)-3990994420*(-10*x^2-x+3)^(1/2))*(1-2*x)^(
1/2)/(-10*x^2-x+3)^(1/2)/(3+5*x)^(3/2)
```

Maxima [A] time = 1.50438, size = 146, normalized size = 1.03

$$-\frac{81}{250}\sqrt{-10\,x^2-x+3}x^2+\frac{462357}{800000}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)-\frac{9963}{10000}\sqrt{-10\,x^2-x+3}x-\frac{305343}{200000}\sqrt{-10\,x^2-x+3}-\frac{2\sqrt{-10\,x^2-x+3}}{103125\,(25\,x^2+30\,x+9)}-\frac{998\sqrt{-10\,x^2-x+3}}{1134375\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/((5*x + 3)^(5/2)*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] -81/250*sqrt(-10*x^2 - x + 3)*x^2 + 462357/800000*sqrt(5)*sqrt(2)
*arcsin(20/11*x + 1/11) - 9963/10000*sqrt(-10*x^2 - x + 3)*x - 30
5343/200000*sqrt(-10*x^2 - x + 3) - 2/103125*sqrt(-10*x^2 - x + 3
)/(25*x^2 + 30*x + 9) - 998/1134375*sqrt(-10*x^2 - x + 3)/(5*x +
3)
```

Fricas [A] time = 0.237297, size = 127, normalized size = 0.89

$$-\frac{\sqrt{10}\left(2\sqrt{10}\left(117612000\,x^4+502791300\,x^3+1030526145\,x^2+795297410\,x+199549721\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-167835591\right.}{290400000\,(25\,x^2+30\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^5/((5*x + 3)^(5/2)*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/290400000*sqrt(10)*(2*sqrt(10)*(117612000*x^4 + 502791300*x^3
+ 1030526145*x^2 + 795297410*x + 199549721)*sqrt(5*x + 3)*sqrt(-2
*x + 1) - 167835591*(25*x^2 + 30*x + 9)*arctan(1/20*sqrt(10)*(20*
x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(25*x^2 + 30*x + 9)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^5}{\sqrt{-2x+1}\,(5x+3)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2+3*x)**5/(3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] Integral((3*x + 2)**5/(sqrt(-2*x + 1)*(5*x + 3)**(5/2)), x)
```

GIAC/XCAS [A] time = 0.281475, size = 255, normalized size = 1.8

$$-\frac{27}{1000000}\left(12\left(8\sqrt{5}(5x+3)+75\sqrt{5}\right)(5x+3)+7745\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5} - \frac{\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^3}{90750000\,(5x+3)^{\frac{3}{2}}} + \frac{462357}{400000}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right) - \frac{333\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}{7562500\sqrt{5x+3}} + \frac{\left(\frac{999\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}+4\sqrt{10}\right)(5x+3)^{\frac{3}{2}}}{5671875\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^5/((5*x + 3)^(5/2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] -27/1000000*(12*(8*sqrt(5)*(5*x + 3) + 75*sqrt(5))*(5*x + 3) + 77
45*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5) - 1/90750000*sqrt(10)*(
sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^3/(5*x + 3)^(3/2) + 462357/40
0000*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) - 333/7562500*s
qrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) + 1/56
71875*(999*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x +
 3) + 4*sqrt(10))*(5*x + 3)^(3/2)/(sqrt(2)*sqrt(-10*x + 5) - sqrt
(22))^3
```

3.2491 $\int \frac{(2+3x)^4}{\sqrt{1-2x}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=113

$$-\frac{2\sqrt{1-2x}(3x+2)^3}{165(5x+3)^{3/2}}-\frac{602\sqrt{1-2x}(3x+2)^2}{9075\sqrt{5x+3}}-\frac{7\sqrt{1-2x}\sqrt{5x+3}(1020x+12199)}{242000}+\frac{8127\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{2000\sqrt{10}}$$

```
[Out] (-2*Sqrt[1 - 2*x]*(2 + 3*x)^3)/(165*(3 + 5*x)^(3/2)) - (602*Sqrt[
1 - 2*x]*(2 + 3*x)^2)/(9075*Sqrt[3 + 5*x]) - (7*Sqrt[1 - 2*x]*Sqr
t[3 + 5*x]*(12199 + 1020*x))/242000 + (8127*ArcSin[Sqrt[2/11]*Sqr
t[3 + 5*x]])/(2000*Sqrt[10])
```

Rubi [A] time = 0.195979, antiderivative size = 113, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$-\frac{2\sqrt{1-2x}(3x+2)^3}{165(5x+3)^{3/2}}-\frac{602\sqrt{1-2x}(3x+2)^2}{9075\sqrt{5x+3}}-\frac{7\sqrt{1-2x}\sqrt{5x+3}(1020x+12199)}{242000}+\frac{8127\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{2000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^4/(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2)),x]
```

```
[Out] (-2*Sqrt[1 - 2*x]*(2 + 3*x)^3)/(165*(3 + 5*x)^(3/2)) - (602*Sqrt[
1 - 2*x]*(2 + 3*x)^2)/(9075*Sqrt[3 + 5*x]) - (7*Sqrt[1 - 2*x]*Sqr
t[3 + 5*x]*(12199 + 1020*x))/242000 + (8127*ArcSin[Sqrt[2/11]*Sqr
t[3 + 5*x]])/(2000*Sqrt[10])
```

Rubi in Sympy [A] time = 18.7961, size = 105, normalized size = 0.93

$$-\frac{2\sqrt{-2x+1}\,(3x+2)^3}{165\,(5x+3)^{\frac{3}{2}}}-\frac{602\sqrt{-2x+1}\,(3x+2)^2}{9075\sqrt{5x+3}}-\frac{\sqrt{-2x+1}\sqrt{5x+3}\left(\frac{26775x}{2}+\frac{1280895}{8}\right)}{453750}+\frac{8127\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{20000}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4/(3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] -2*sqrt(-2*x + 1)*(3*x + 2)**3/(165*(5*x + 3)**(3/2)) - 602*sqrt(
-2*x + 1)*(3*x + 2)**2/(9075*sqrt(5*x + 3)) - sqrt(-2*x + 1)*sqrt
(5*x + 3)*(26775*x/2 + 1280895/8)/453750 + 8127*sqrt(10)*asin(sqr
t(22)*sqrt(5*x + 3)/11)/20000
```

Mathematica [A] time = 0.174261, size = 65, normalized size = 0.58

$$-\frac{\sqrt{1-2x}\left(2940300x^3+11712195x^2+10891910x+2953931\right)}{726000(5x+3)^{3/2}}-\frac{8127\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{2000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^4/(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2)),x]
```

```
[Out] -(Sqrt[1 - 2*x]*(2953931 + 10891910*x + 11712195*x^2 + 2940300*x^
3))/(726000*(3 + 5*x)^(3/2)) - (8127*ArcSin[Sqrt[5/11]*Sqrt[1 - 2
*x]])/(2000*Sqrt[10])
```

Maple [A] time = 0.024, size = 130, normalized size = 1.2

$$\frac{1}{14520000}\left(73752525\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)x^2-58806000x^3\sqrt{-10x^2-x+3}+88503030\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)x-\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((2+3*x)^4/(3+5*x)^(5/2)/(1-2*x)^(1/2),x)
```

```
[Out] 1/14520000*(73752525*10^(1/2)*arcsin(20/11*x+1/11)*x^2-58806000*x
^3*(-10*x^2-x+3)^(1/2)+88503030*10^(1/2)*arcsin(20/11*x+1/11)*x-2
34243900*x^2*(-10*x^2-x+3)^(1/2)+26550909*10^(1/2)*arcsin(20/11*x
+1/11)-217838200*x*(-10*x^2-x+3)^(1/2)-59078620*(-10*x^2-x+3)^(1/
2))*(1-2*x)^(1/2)/(-10*x^2-x+3)^(1/2)/(3+5*x)^(3/2)
```

Maxima [A] time = 1.53342, size = 123, normalized size = 1.09

$$\frac{8127}{40000}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)-\frac{81}{500}\sqrt{-10x^2-x+3}x-\frac{4509}{10000}\sqrt{-10x^2-x+3}-\frac{2\sqrt{-10x^2-x+3}}{20625(25x^2+30x+9)}-\frac{32\sqrt{-10x^2-x+3}}{9075(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^4/((5*x + 3)^(5/2)*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 8127/40000*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) - 81/500*sqrt(-
10*x^2 - x + 3)*x - 4509/10000*sqrt(-10*x^2 - x + 3) - 2/20625*sq
rt(-10*x^2 - x + 3)/(25*x^2 + 30*x + 9) - 32/9075*sqrt(-10*x^2 -
x + 3)/(5*x + 3)
```

Fricas [A] time = 0.232392, size = 120, normalized size = 1.06

$$-\frac{\sqrt{10}\left(2\sqrt{10}\left(2940300x^3+11712195x^2+10891910x+2953931\right)\sqrt{5x+3}\sqrt{-2x+1}-2950101\left(25x^2+30x+9\right)\arctan\left(\right.\right.}{14520000\left(25x^2+30x+9\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^4/((5*x + 3)^(5/2)*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/14520000*sqrt(10)*(2*sqrt(10)*(2940300*x^3 + 11712195*x^2 + 10
891910*x + 2953931)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 2950101*(25*x^
2 + 30*x + 9)*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt
(-2*x + 1))))/(25*x^2 + 30*x + 9)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^4}{\sqrt{-2x+1}\,(5x+3)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4/(3+5*x)**(5/2)/(1-2*x)**(1/2),x)

[Out] Integral((3*x + 2)**4/(sqrt(-2*x + 1)*(5*x + 3)**(5/2)), x)
```

GIAC/XCAS [A] time = 0.270291, size = 238, normalized size = 2.11

$$-\frac{27}{50000}\left(12\sqrt{5}(5x+3)+131\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5} - \frac{\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^{3}}{18150000\,(5x+3)^{\frac{3}{2}}} + \frac{8127}{20000}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right) - \frac{267\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}{1512500\sqrt{5x+3}} + \frac{\left(\frac{801\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^{2}}{5x+3}+4\sqrt{10}\right)(5x+3)^{\frac{3}{2}}}{1134375\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4/((5*x + 3)^(5/2)*sqrt(-2*x + 1)),x, algorithm="giac")

[Out] -27/50000*(12*sqrt(5)*(5*x + 3) + 131*sqrt(5))*sqrt(5*x + 3)*sqrt
(-10*x + 5) - 1/18150000*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt
(22))^3/(5*x + 3)^(3/2) + 8127/20000*sqrt(10)*arcsin(1/11*sqrt(22
)*sqrt(5*x + 3)) - 267/1512500*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5)
- sqrt(22))/sqrt(5*x + 3) + 1/1134375*(801*sqrt(10)*(sqrt(2)*sqrt
(-10*x + 5) - sqrt(22))^2/(5*x + 3) + 4*sqrt(10))*(5*x + 3)^(3/2)
/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^3
```

3.2492 $\int \frac{(2+3x)^3}{\sqrt{1-2x}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=84

$$-\frac{2\sqrt{1-2x}(3x+2)^2}{165(5x+3)^{3/2}}-\frac{\sqrt{1-2x}(9405x+5831)}{18150\sqrt{5x+3}}+\frac{81\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{50\sqrt{10}}$$

```
[Out] (-2*Sqrt[1 - 2*x]*(2 + 3*x)^2)/(165*(3 + 5*x)^(3/2)) - (Sqrt[1 -
2*x]*(5831 + 9405*x))/(18150*Sqrt[3 + 5*x]) + (81*ArcSin[Sqrt[2/1
1]*Sqrt[3 + 5*x]])/(50*Sqrt[10])
```

Rubi [A] time = 0.125204, antiderivative size = 84, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.154$

$$-\frac{2\sqrt{1-2x}(3x+2)^2}{165(5x+3)^{3/2}}-\frac{\sqrt{1-2x}(9405x+5831)}{18150\sqrt{5x+3}}+\frac{81\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{50\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^3/(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2)),x]
```

```
[Out] (-2*Sqrt[1 - 2*x]*(2 + 3*x)^2)/(165*(3 + 5*x)^(3/2)) - (Sqrt[1 -
2*x]*(5831 + 9405*x))/(18150*Sqrt[3 + 5*x]) + (81*ArcSin[Sqrt[2/1
1]*Sqrt[3 + 5*x]])/(50*Sqrt[10])
```

Rubi in Sympy [A] time = 11.6424, size = 80, normalized size = 0.95

$$-\frac{2\sqrt{-2x+1}\,(3x+2)^2}{165\,(5x+3)^{\frac{3}{2}}}-\frac{2\sqrt{-2x+1}\left(\frac{47025x}{4}+\frac{29155}{4}\right)}{45375\sqrt{5x+3}}+\frac{81\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{500}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3/(3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] -2*sqrt(-2*x + 1)*(3*x + 2)**2/(165*(5*x + 3)**(3/2)) - 2*sqrt(-2
*x + 1)*(47025*x/4 + 29155/4)/(45375*sqrt(5*x + 3)) + 81*sqrt(10)
*asin(sqrt(22)*sqrt(5*x + 3)/11)/500
```

Mathematica [A] time = 0.148541, size = 60, normalized size = 0.71

$$-\frac{\sqrt{1-2x}\left(49005x^2+60010x+18373\right)}{18150(5x+3)^{3/2}}-\frac{81\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{50\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^3/(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2)),x]
```

```
[Out] -(Sqrt[1 - 2*x]*(18373 + 60010*x + 49005*x^2))/(18150*(3 + 5*x)^(
3/2)) - (81*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/(50*Sqrt[10])
```

Maple [A] time = 0.019, size = 113, normalized size = 1.4

$$\frac{1}{363000}\left(735075\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)x^2+882090\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)x-980100x^2\sqrt{-10x^2-x+3}+264627\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3/(3+5*x)^(5/2)/(1-2*x)^(1/2),x)
```

```
[Out] 1/363000*(735075*10^(1/2)*arcsin(20/11*x+1/11)*x^2+882090*10^(1/2
)*arcsin(20/11*x+1/11)*x-980100*x^2*(-10*x^2-x+3)^(1/2)+264627*10
^(1/2)*arcsin(20/11*x+1/11)-1200200*x*(-10*x^2-x+3)^(1/2)-367460*
(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)/(-10*x^2-x+3)^(1/2)/(3+5*x)^(3
/2)
```

Maxima [A] time = 1.50234, size = 103, normalized size = 1.23

$$\frac{81}{1000}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)-\frac{27}{250}\sqrt{-10x^2-x+3}-\frac{2\sqrt{-10x^2-x+3}}{4125(25x^2+30x+9)}-\frac{602\sqrt{-10x^2-x+3}}{45375(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3/((5*x + 3)^(5/2)*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 81/1000*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) - 27/250*sqrt(-10*
x^2 - x + 3) - 2/4125*sqrt(-10*x^2 - x + 3)/(25*x^2 + 30*x + 9) -
 602/45375*sqrt(-10*x^2 - x + 3)/(5*x + 3)
```

Fricas [A] time = 0.23495, size = 113, normalized size = 1.35

$$-\frac{\sqrt{10}\left(2\sqrt{10}(49005x^2+60010x+18373)\sqrt{5x+3}\sqrt{-2x+1}-29403(25x^2+30x+9)\arctan\left(\frac{\sqrt{10}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)}{363000(25x^2+30x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3/((5*x + 3)^(5/2)*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/363000*sqrt(10)*(2*sqrt(10)*(49005*x^2 + 60010*x + 18373)*sqrt
(5*x + 3)*sqrt(-2*x + 1) - 29403*(25*x^2 + 30*x + 9)*arctan(1/20*
sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(25*x^2 + 30
*x + 9)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(3x+2)^3}{\sqrt{-2x+1}\,(5x+3)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3/(3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] Integral((3*x + 2)**3/(sqrt(-2*x + 1)*(5*x + 3)**(5/2)), x)
```

GIAC/XCAS [A] time = 0.263259, size = 220, normalized size = 2.62

$$-\frac{\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{3}}{3630000\,(5\,x+3)^{\frac{3}{2}}}-\frac{27}{1250}\,\sqrt{5}\sqrt{5\,x+3}\sqrt{-10\,x+5}+\frac{81}{500}\,\sqrt{10}\arcsin\left(\frac{1}{11}\,\sqrt{22}\sqrt{5\,x+3}\right)-\frac{201\,\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}{302500\,\sqrt{5\,x+3}}+\frac{\left(\frac{603\,\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{2}}{5\,x+3}+4\,\sqrt{10}\right)(5\,x+3)^{\frac{3}{2}}}{226875\,\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^3/((5*x + 3)^(5/2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] -1/3630000*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^3/(5*x +
 3)^(3/2) - 27/1250*sqrt(5)*sqrt(5*x + 3)*sqrt(-10*x + 5) + 81/50
0*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) - 201/302500*sqrt(
10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) + 1/226875
*(603*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) +
 4*sqrt(10))*(5*x + 3)^(3/2)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))
^3
```

3.2493 $\int \frac{(2+3x)^2}{\sqrt{1-2x}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=74

$$-\frac{404\sqrt{1-2x}}{9075\sqrt{5x+3}}-\frac{2\sqrt{1-2x}}{825(5x+3)^{3/2}}+\frac{9}{25}\sqrt{\frac{2}{5}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)$$

```
[Out] (-2*Sqrt[1 - 2*x])/(825*(3 + 5*x)^(3/2)) - (404*Sqrt[1 - 2*x])/(9
075*Sqrt[3 + 5*x]) + (9*Sqrt[2/5]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]
])/25
```

Rubi [A] time = 0.102133, antiderivative size = 74, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$-\frac{404\sqrt{1-2x}}{9075\sqrt{5x+3}}-\frac{2\sqrt{1-2x}}{825(5x+3)^{3/2}}+\frac{9}{25}\sqrt{\frac{2}{5}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^2/(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2)),x]
```

```
[Out] (-2*Sqrt[1 - 2*x])/(825*(3 + 5*x)^(3/2)) - (404*Sqrt[1 - 2*x])/(9
075*Sqrt[3 + 5*x]) + (9*Sqrt[2/5]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]
])/25
```

Rubi in Sympy [A] time = 8.5222, size = 65, normalized size = 0.88

$$-\frac{404\sqrt{-2x+1}}{9075\sqrt{5x+3}}-\frac{2\sqrt{-2x+1}}{825\,(5x+3)^{\frac{3}{2}}}+\frac{9\sqrt{10}\,\text{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2/(3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] -404*sqrt(-2*x + 1)/(9075*sqrt(5*x + 3)) - 2*sqrt(-2*x + 1)/(825*
(5*x + 3)**(3/2)) + 9*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/12
5
```

Mathematica [A] time = 0.13387, size = 57, normalized size = 0.77

$$-\frac{2\sqrt{1-2x}(1010x+617)}{9075(5x+3)^{3/2}}-\frac{9}{25}\sqrt{\frac{2}{5}}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^2/(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2)),x]
```

```
[Out] (-2*Sqrt[1 - 2*x]*(617 + 1010*x))/(9075*(3 + 5*x)^(3/2)) - (9*Sqr
t[2/5]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/25
```

Maple [A] time = 0.021, size = 96, normalized size = 1.3

$$\frac{1}{90750}\left(81675\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x^2+98010\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x+29403\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)-20200\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2/(3+5*x)^(5/2)/(1-2*x)^(1/2),x)
```

```
[Out] 1/90750*(81675*10^(1/2)*arcsin(20/11*x+1/11)*x^2+98010*10^(1/2)*a
rcsin(20/11*x+1/11)*x+29403*10^(1/2)*arcsin(20/11*x+1/11)-20200*x
*(-10*x^2-x+3)^(1/2)-12340*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)/(-1
0*x^2-x+3)^(1/2)/(3+5*x)^(3/2)
```

Maxima [A] time = 1.48039, size = 84, normalized size = 1.14

$$\frac{9}{250}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)-\frac{2\sqrt{-10x^2-x+3}}{825(25x^2+30x+9)}-\frac{404\sqrt{-10x^2-x+3}}{9075(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2/((5*x + 3)^(5/2)*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] 9/250*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) - 2/825*sqrt(-10*x^2
 - x + 3)/(25*x^2 + 30*x + 9) - 404/9075*sqrt(-10*x^2 - x + 3)/(5
*x + 3)
```

Fricas [A] time = 0.228941, size = 115, normalized size = 1.55

$$-\frac{\sqrt{5}\left(4\sqrt{5}(1010x+617)\sqrt{5x+3}\sqrt{-2x+1}-3267\sqrt{2}(25x^2+30x+9)\arctan\left(\frac{\sqrt{5}\sqrt{2}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)}{90750(25x^2+30x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2/((5*x + 3)^(5/2)*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -1/90750*sqrt(5)*(4*sqrt(5)*(1010*x + 617)*sqrt(5*x + 3)*sqrt(-2*
x + 1) - 3267*sqrt(2)*(25*x^2 + 30*x + 9)*arctan(1/20*sqrt(5)*sqr
t(2)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(25*x^2 + 30*x +
 9)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(3x+2)^2}{\sqrt{-2x+1}\,(5x+3)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2/(3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] Integral((3*x + 2)**2/(sqrt(-2*x + 1)*(5*x + 3)**(5/2)), x)
```

GIAC/XCAS [A] time = 0.257793, size = 194, normalized size = 2.62

$$-\frac{\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^3}{726000(5x+3)^{\frac{3}{2}}}+\frac{9}{125}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)-\frac{27\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}{12100\sqrt{5x+3}}+\frac{\left(\frac{405\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}+4\sqrt{10}\right)(5x+3)^{\frac{3}{2}}}{45375\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2/((5*x + 3)^(5/2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] -1/726000*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^3/(5*x +
3)^(3/2) + 9/125*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) - 2
7/12100*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x +
3) + 1/45375*(405*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2
/(5*x + 3) + 4*sqrt(10))*(5*x + 3)^(3/2)/(sqrt(2)*sqrt(-10*x + 5)
 - sqrt(22))^3
```

3.2494 $\int \frac{2+3x}{\sqrt{1-2x}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=45

$$-\frac{206\sqrt{1-2x}}{1815\sqrt{5x+3}}-\frac{2\sqrt{1-2x}}{165(5x+3)^{3/2}}$$

```
[Out] (-2*Sqrt[1 - 2*x])/(165*(3 + 5*x)^(3/2)) - (206*Sqrt[1 - 2*x])/(1
815*Sqrt[3 + 5*x])
```

Rubi [A] time = 0.0458088, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.083

$$-\frac{206\sqrt{1-2x}}{1815\sqrt{5x+3}}-\frac{2\sqrt{1-2x}}{165(5x+3)^{3/2}}$$

Antiderivative was successfully verified.

```
[In] Int[(2 + 3*x)/(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2)),x]
```

```
[Out] (-2*Sqrt[1 - 2*x])/(165*(3 + 5*x)^(3/2)) - (206*Sqrt[1 - 2*x])/(1
815*Sqrt[3 + 5*x])
```

Rubi in Sympy [A] time = 5.25973, size = 41, normalized size = 0.91

$$-\frac{206\sqrt{-2x+1}}{1815\sqrt{5x+3}}-\frac{2\sqrt{-2x+1}}{165\,(5x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)/(3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] -206*sqrt(-2*x + 1)/(1815*sqrt(5*x + 3)) - 2*sqrt(-2*x + 1)/(165*
(5*x + 3)**(3/2))
```

Mathematica [A] time = 0.0365117, size = 27, normalized size = 0.6

$$-\frac{2\sqrt{1-2x}(103x+64)}{363(5x+3)^{3/2}}$$

Antiderivative was successfully verified.

```
[In] Integrate[(2 + 3*x)/(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2)),x]
```

```
[Out] (-2*Sqrt[1 - 2*x]*(64 + 103*x))/(363*(3 + 5*x)^(3/2))
```

Maple [A] time = 0.006, size = 22, normalized size = 0.5

$$-\frac{206\,x+128}{363}\sqrt{1-2\,x}\,(3+5\,x)^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)/(3+5*x)^(5/2)/(1-2*x)^(1/2),x)
```

```
[Out] -2/363*(103*x+64)/(3+5*x)^(3/2)*(1-2*x)^(1/2)
```

Maxima [A] time = 1.50417, size = 65, normalized size = 1.44

$$-\frac{2\sqrt{-10\,x^2-x+3}}{165\,(25\,x^2+30\,x+9)}-\frac{206\sqrt{-10\,x^2-x+3}}{1815\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)/((5*x + 3)^(5/2)*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] -2/165*sqrt(-10*x^2 - x + 3)/(25*x^2 + 30*x + 9) - 206/1815*sqrt(
-10*x^2 - x + 3)/(5*x + 3)
```

Fricas [A] time = 0.224448, size = 45, normalized size = 1.

$$-\frac{2\,(103\,x+64)\sqrt{5\,x+3}\sqrt{-2\,x+1}}{363\,(25\,x^2+30\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)/((5*x + 3)^(5/2)*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -2/363*(103*x + 64)*sqrt(5*x + 3)*sqrt(-2*x + 1)/(25*x^2 + 30*x +
 9)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{3x+2}{\sqrt{-2x+1}\,(5x+3)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)/(3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] Integral((3*x + 2)/(sqrt(-2*x + 1)*(5*x + 3)**(5/2)), x)
```

GIAC/XCAS [A] time = 0.244293, size = 170, normalized size = 3.78

$$-\frac{\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^3}{145200\,(5\,x+3)^{\frac{3}{2}}}-\frac{69\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}{12100\sqrt{5\,x+3}}+\frac{\left(\frac{207\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3}+4\sqrt{10}\right)(5\,x+3)^{\frac{3}{2}}}{9075\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)/((5*x + 3)^(5/2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] -1/145200*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^3/(5*x +
3)^(3/2) - 69/12100*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))
/sqrt(5*x + 3) + 1/9075*(207*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) -
sqrt(22))^2/(5*x + 3) + 4*sqrt(10))*(5*x + 3)^(3/2)/(sqrt(2)*sqrt
(-10*x + 5) - sqrt(22))^3
```

3.2495 $\int \frac{1}{\sqrt{1-2x}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=45

$$-\frac{8\sqrt{1-2x}}{363\sqrt{5x+3}}-\frac{2\sqrt{1-2x}}{33(5x+3)^{3/2}}$$

```
[Out] (-2*Sqrt[1 - 2*x])/(33*(3 + 5*x)^(3/2)) - (8*Sqrt[1 - 2*x])/(363*
Sqrt[3 + 5*x])
```

Rubi [A] time = 0.0325141, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.105

$$-\frac{8\sqrt{1-2x}}{363\sqrt{5x+3}}-\frac{2\sqrt{1-2x}}{33(5x+3)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2)),x]
```

```
[Out] (-2*Sqrt[1 - 2*x])/(33*(3 + 5*x)^(3/2)) - (8*Sqrt[1 - 2*x])/(363*
Sqrt[3 + 5*x])
```

Rubi in Sympy [A] time = 4.3171, size = 41, normalized size = 0.91

$$-\frac{8\sqrt{-2x+1}}{363\sqrt{5x+3}}-\frac{2\sqrt{-2x+1}}{33\,(5x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] -8*sqrt(-2*x + 1)/(363*sqrt(5*x + 3)) - 2*sqrt(-2*x + 1)/(33*(5*x
 + 3)**(3/2))
```

Mathematica [A] time = 0.0230932, size = 27, normalized size = 0.6

$$-\frac{2\sqrt{1-2x}(20x+23)}{363(5x+3)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2)),x]
```

```
[Out] (-2*Sqrt[1 - 2*x]*(23 + 20*x))/(363*(3 + 5*x)^(3/2))
```

Maple [A] time = 0.004, size = 22, normalized size = 0.5

$$-\frac{46+40\,x}{363}\sqrt{1-2\,x}\,(3+5\,x)^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int(1/(3+5*x)^(5/2)/(1-2*x)^(1/2),x)
```

```
[Out] -2/363*(23+20*x)/(3+5*x)^(3/2)*(1-2*x)^(1/2)
```

Maxima [A] time = 1.49888, size = 65, normalized size = 1.44

$$-\frac{2\,\sqrt{-10\,x^2-x+3}}{33\,(25\,x^2+30\,x+9)}-\frac{8\,\sqrt{-10\,x^2-x+3}}{363\,(5\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(1/((5*x + 3)^(5/2)*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] -2/33*sqrt(-10*x^2 - x + 3)/(25*x^2 + 30*x + 9) - 8/363*sqrt(-10*
x^2 - x + 3)/(5*x + 3)
```

Fricas [A] time = 0.214481, size = 45, normalized size = 1.

$$-\frac{2\,(20\,x+23)\sqrt{5\,x+3}\sqrt{-2\,x+1}}{363\,(25\,x^2+30\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(1/((5*x + 3)^(5/2)*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] -2/363*(20*x + 23)*sqrt(5*x + 3)*sqrt(-2*x + 1)/(25*x^2 + 30*x +
9)
```

Sympy [A] time = 8.11816, size = 104, normalized size = 2.31

$$\begin{cases} -\frac{8\sqrt{10}\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}}{1815}-\frac{2\sqrt{10}\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}}{825\left(x+\frac{3}{5}\right)} & \text{for}\ \frac{11\left|\frac{1}{x+\frac{3}{5}}\right|}{10}>1 \\ -\frac{8\sqrt{10}i\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}}{1815}-\frac{2\sqrt{10}i\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}}{825\left(x+\frac{3}{5}\right)} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(1/(3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] Piecewise((-8*sqrt(10)*sqrt(-1 + 11/(10*(x + 3/5)))/1815 - 2*sqrt
(10)*sqrt(-1 + 11/(10*(x + 3/5)))/(825*(x + 3/5)), 11*Abs(1/(x +
3/5))/10 > 1), (-8*sqrt(10)*I*sqrt(1 - 11/(10*(x + 3/5)))/1815 -
2*sqrt(10)*I*sqrt(1 - 11/(10*(x + 3/5)))/(825*(x + 3/5)), True))
```

GIAC/XCAS [A] time = 0.233517, size = 170, normalized size = 3.78

$$-\frac{\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^3}{29040\,(5\,x+3)^{\frac{3}{2}}}-\frac{3\,\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}{2420\,\sqrt{5\,x+3}}+\frac{\left(\frac{9\,\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3}+4\,\sqrt{10}\right)(5\,x+3)^{\frac{3}{2}}}{1815\,\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(5/2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] -1/29040*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^3/(5*x + 3
)^(3/2) - 3/2420*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sq
rt(5*x + 3) + 1/1815*(9*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(
22))^2/(5*x + 3) + 4*sqrt(10))*(5*x + 3)^(3/2)/(sqrt(2)*sqrt(-10*
x + 5) - sqrt(22))^3
```

3.2496 $\int \frac{1}{\sqrt{1-2x}(2+3x)(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=77

$$\frac{950\sqrt{1-2x}}{363\sqrt{5x+3}}-\frac{10\sqrt{1-2x}}{33(5x+3)^{3/2}}-\frac{18\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{\sqrt{7}}$$

```
[Out] (-10*Sqrt[1 - 2*x])/(33*(3 + 5*x)^(3/2)) + (950*Sqrt[1 - 2*x])/(3
63*Sqrt[3 + 5*x]) - (18*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*
x])])/Sqrt[7]
```

Rubi [A] time = 0.16571, antiderivative size = 77, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$\frac{950\sqrt{1-2x}}{363\sqrt{5x+3}}-\frac{10\sqrt{1-2x}}{33(5x+3)^{3/2}}-\frac{18\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 - 2*x]*(2 + 3*x)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (-10*Sqrt[1 - 2*x])/(33*(3 + 5*x)^(3/2)) + (950*Sqrt[1 - 2*x])/(3
63*Sqrt[3 + 5*x]) - (18*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*
x])])/Sqrt[7]
```

Rubi in Sympy [A] time = 14.5261, size = 73, normalized size = 0.95

$$\frac{950\sqrt{-2x+1}}{363\sqrt{5x+3}}-\frac{10\sqrt{-2x+1}}{33\,(5x+3)^{\frac{3}{2}}}-\frac{18\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(2+3*x)/(3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] 950*sqrt(-2*x + 1)/(363*sqrt(5*x + 3)) - 10*sqrt(-2*x + 1)/(33*(5
*x + 3)**(3/2)) - 18*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(
5*x + 3)))/7
```

Mathematica [A] time = 0.0941768, size = 63, normalized size = 0.82

$$\frac{10\sqrt{1-2x}(475x+274)}{363(5x+3)^{3/2}}-\frac{9\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 - 2*x]*(2 + 3*x)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (10*Sqrt[1 - 2*x]*(274 + 475*x))/(363*(3 + 5*x)^(3/2)) - (9*ArcTa
n[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/Sqrt[7]
```

Maple [B] time = 0.022, size = 147, normalized size = 1.9

$$\frac{1}{2541}\left(81675\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^2+98010\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x+29403\sqrt{7}\arctan\left(1/14\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(2+3*x)/(3+5*x)^(5/2)/(1-2*x)^(1/2),x)
```

```
[Out] 1/2541*(81675*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)
^(1/2))*x^2+98010*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-
x+3)^(1/2))*x+29403*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^
2-x+3)^(1/2))+33250*x*(-10*x^2-x+3)^(1/2)+19180*(-10*x^2-x+3)^(1/
2))*(1-2*x)^(1/2)/(-10*x^2-x+3)^(1/2)/(3+5*x)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5\,x+3)^{\frac{5}{2}}(3\,x+2)\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(5/2)*(3*x + 2)*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)*sqrt(-2*x + 1)), x)
```

Fricas [A] time = 0.233107, size = 107, normalized size = 1.39

$$\frac{\sqrt{7}\left(10\sqrt{7}(475\,x+274)\sqrt{5\,x+3}\sqrt{-2\,x+1}+3267\left(25\,x^2+30\,x+9\right)\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)}{2541\left(25\,x^2+30\,x+9\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(5/2)*(3*x + 2)*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] 1/2541*sqrt(7)*(10*sqrt(7)*(475*x + 274)*sqrt(5*x + 3)*sqrt(-2*x
+ 1) + 3267*(25*x^2 + 30*x + 9)*arctan(1/14*sqrt(7)*(37*x + 20)/(
sqrt(5*x + 3)*sqrt(-2*x + 1))))/(25*x^2 + 30*x + 9)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{-2x+1}\,(3x+2)\,(5x+3)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(2+3*x)/(3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] Integral(1/(sqrt(-2*x + 1)*(3*x + 2)*(5*x + 3)**(5/2)), x)
```

GIAC/XCAS [A] time = 0.247934, size = 262, normalized size = 3.4

$$-\frac{1}{5808}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3+\frac{9}{70}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)+\frac{31}{242}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] -1/5808*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x +
 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 9
/70*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x + 3
)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqrt(2)
*sqrt(-10*x + 5) - sqrt(22)))) + 31/242*sqrt(10)*((sqrt(2)*sqrt(-
10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sq
rt(-10*x + 5) - sqrt(22)))
```

3.2497 $\int \frac{1}{\sqrt{1-2x}(2+3x)^2(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=108

$$\frac{84235\sqrt{1-2x}}{2541\sqrt{5x+3}}-\frac{845\sqrt{1-2x}}{231(5x+3)^{3/2}}+\frac{3\sqrt{1-2x}}{7(3x+2)(5x+3)^{3/2}}-\frac{1593\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{7\sqrt{7}}$$

```
[Out] (-845*Sqrt[1 - 2*x])/(231*(3 + 5*x)^(3/2)) + (3*Sqrt[1 - 2*x])/(7
*(2 + 3*x)*(3 + 5*x)^(3/2)) + (84235*Sqrt[1 - 2*x])/(2541*Sqrt[3
+ 5*x]) - (1593*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(7
*Sqrt[7])
```

Rubi [A] time = 0.243496, antiderivative size = 108, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$\frac{84235\sqrt{1-2x}}{2541\sqrt{5x+3}}-\frac{845\sqrt{1-2x}}{231(5x+3)^{3/2}}+\frac{3\sqrt{1-2x}}{7(3x+2)(5x+3)^{3/2}}-\frac{1593\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{7\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 - 2*x]*(2 + 3*x)^2*(3 + 5*x)^(5/2)),x]
```

```
[Out] (-845*Sqrt[1 - 2*x])/(231*(3 + 5*x)^(3/2)) + (3*Sqrt[1 - 2*x])/(7
*(2 + 3*x)*(3 + 5*x)^(3/2)) + (84235*Sqrt[1 - 2*x])/(2541*Sqrt[3
+ 5*x]) - (1593*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(7
*Sqrt[7])
```

Rubi in Sympy [A] time = 20.948, size = 99, normalized size = 0.92

$$\frac{84235\sqrt{-2x+1}}{2541\sqrt{5x+3}}-\frac{845\sqrt{-2x+1}}{231\,(5x+3)^{\frac{3}{2}}}+\frac{3\sqrt{-2x+1}}{7\,(3x+2)\,(5x+3)^{\frac{3}{2}}}-\frac{1593\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{49}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(2+3*x)**2/(3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] 84235*sqrt(-2*x + 1)/(2541*sqrt(5*x + 3)) - 845*sqrt(-2*x + 1)/(2
31*(5*x + 3)**(3/2)) + 3*sqrt(-2*x + 1)/(7*(3*x + 2)*(5*x + 3)**(
3/2)) - 1593*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)
))/49
```

Mathematica [A] time = 0.0879518, size = 77, normalized size = 0.71

$$\frac{\sqrt{1-2x}\left(1263525x^2+1572580x+487909\right)}{2541(3x+2)(5x+3)^{3/2}}-\frac{1593\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{14\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 - 2*x]*(2 + 3*x)^2*(3 + 5*x)^(5/2)),x]
```

```
[Out] (Sqrt[1 - 2*x]*(487909 + 1572580*x + 1263525*x^2))/(2541*(2 + 3*x
)*(3 + 5*x)^(3/2)) - (1593*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*
Sqrt[3 + 5*x])])/(14*Sqrt[7])
```

Maple [B] time = 0.023, size = 202, normalized size = 1.9

$$\frac{1}{71148+106722\,x}\left(43369425\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^3+80956260\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^2+50$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(2+3*x)^2/(3+5*x)^(5/2)/(1-2*x)^(1/2),x)
```

```
[Out] 1/35574*(43369425*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-
x+3)^(1/2))*x^3+80956260*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-
10*x^2-x+3)^(1/2))*x^2+50308533*7^(1/2)*arctan(1/14*(37*x+20)*7^(
1/2)/(-10*x^2-x+3)^(1/2))*x+17689350*x^2*(-10*x^2-x+3)^(1/2)+1040
8662*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+2
2016120*x*(-10*x^2-x+3)^(1/2)+6830726*(-10*x^2-x+3)^(1/2))*(1-2*x
)^(1/2)/(2+3*x)/(-10*x^2-x+3)^(1/2)/(3+5*x)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5\,x+3)^{\frac{5}{2}}(3\,x+2)^2\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^2*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^2*sqrt(-2*x + 1)), x)
```

Fricas [A] time = 0.230399, size = 127, normalized size = 1.18

$$\frac{\sqrt{7}\left(2\sqrt{7}(1263525\,x^2+1572580\,x+487909)\sqrt{5\,x+3}\sqrt{-2\,x+1}+578259\,(75\,x^3+140\,x^2+87\,x+18)\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x}}\right.\right.}{35574\,(75\,x^3+140\,x^2+87\,x+18)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^2*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] 1/35574*sqrt(7)*(2*sqrt(7)*(1263525*x^2 + 1572580*x + 487909)*sqr
t(5*x + 3)*sqrt(-2*x + 1) + 578259*(75*x^3 + 140*x^2 + 87*x + 18)
*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))
/(75*x^3 + 140*x^2 + 87*x + 18)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(2+3*x)**2/(3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.286716, size = 423, normalized size = 3.92

$$-\frac{5}{5808}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^{3}+\frac{1593}{980}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^{2}}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)+\frac{160}{121}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)+\frac{594\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)}{7\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^{2}+280\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^2*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] -5/5808*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x +
 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 1
593/980*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x
 + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqr
t(2)*sqrt(-10*x + 5) - sqrt(22)))) + 160/121*sqrt(10)*((sqrt(2)*s
qrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(
2)*sqrt(-10*x + 5) - sqrt(22))) + 594/7*sqrt(10)*((sqrt(2)*sqrt(-
10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sq
rt(-10*x + 5) - sqrt(22)))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))
/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(
22)))^2 + 280)
```

3.2498 $\int \frac{1}{\sqrt{1-2x}(2+3x)^3(3+5x)^{5/2}} dx$

Optimal. Leaf size=137

$$\frac{20743985\sqrt{1-2x}}{71148\sqrt{5x+3}}-\frac{207895\sqrt{1-2x}}{6468(5x+3)^{3/2}}+\frac{753\sqrt{1-2x}}{196(3x+2)(5x+3)^{3/2}}+\frac{3\sqrt{1-2x}}{14(3x+2)^2(5x+3)^{3/2}}-\frac{392283\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{196\sqrt{7}}$$

```
[Out] (-207895*Sqrt[1 - 2*x])/(6468*(3 + 5*x)^(3/2)) + (3*Sqrt[1 - 2*x]
)/(14*(2 + 3*x)^2*(3 + 5*x)^(3/2)) + (753*Sqrt[1 - 2*x])/(196*(2
+ 3*x)*(3 + 5*x)^(3/2)) + (20743985*Sqrt[1 - 2*x])/(71148*Sqrt[3
+ 5*x]) - (392283*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/
(196*Sqrt[7])
```

Rubi [A] time = 0.321724, antiderivative size = 137, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$\frac{20743985\sqrt{1-2x}}{71148\sqrt{5x+3}}-\frac{207895\sqrt{1-2x}}{6468(5x+3)^{3/2}}+\frac{753\sqrt{1-2x}}{196(3x+2)(5x+3)^{3/2}}+\frac{3\sqrt{1-2x}}{14(3x+2)^2(5x+3)^{3/2}}-\frac{392283\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{196\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 - 2*x]*(2 + 3*x)^3*(3 + 5*x)^(5/2)),x]
```

```
[Out] (-207895*Sqrt[1 - 2*x])/(6468*(3 + 5*x)^(3/2)) + (3*Sqrt[1 - 2*x]
)/(14*(2 + 3*x)^2*(3 + 5*x)^(3/2)) + (753*Sqrt[1 - 2*x])/(196*(2
+ 3*x)*(3 + 5*x)^(3/2)) + (20743985*Sqrt[1 - 2*x])/(71148*Sqrt[3
+ 5*x]) - (392283*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/
(196*Sqrt[7])
```

Rubi in Sympy [A] time = 28.0494, size = 126, normalized size = 0.92

$$\frac{20743985\sqrt{-2x+1}}{71148\sqrt{5x+3}}-\frac{207895\sqrt{-2x+1}}{6468\left(5x+3\right)^{\frac{3}{2}}}+\frac{753\sqrt{-2x+1}}{196\left(3x+2\right)\left(5x+3\right)^{\frac{3}{2}}}+\frac{3\sqrt{-2x+1}}{14\left(3x+2\right)^{2}\left(5x+3\right)^{\frac{3}{2}}}-\frac{392283\sqrt{7}\,\text{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{1372}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(2+3*x)**3/(3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] 20743985*sqrt(-2*x + 1)/(71148*sqrt(5*x + 3)) - 207895*sqrt(-2*x
+ 1)/(6468*(5*x + 3)**(3/2)) + 753*sqrt(-2*x + 1)/(196*(3*x + 2)*
(5*x + 3)**(3/2)) + 3*sqrt(-2*x + 1)/(14*(3*x + 2)**2*(5*x + 3)**
(3/2)) - 392283*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x +
 3)))/1372
```

Mathematica [A] time = 0.110367, size = 82, normalized size = 0.6

$$\frac{\sqrt{1-2x}\left(933479325x^3+1784145090x^2+1135041037x+240342364\right)}{71148(3x+2)^2(5x+3)^{3/2}}-\frac{392283\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{392\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 - 2*x]*(2 + 3*x)^3*(3 + 5*x)^(5/2)),x]
```

```
[Out] (Sqrt[1 - 2*x]*(240342364 + 1135041037*x + 1784145090*x^2 + 93347
9325*x^3))/(71148*(2 + 3*x)^2*(3 + 5*x)^(3/2)) - (392283*ArcTan[(
-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/(392*Sqrt[7])
```

Maple [B] time = 0.024, size = 250, normalized size = 1.8

$$\frac{1}{996072\,(2+3\,x)^2}\left(32039714025\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^4+81167275530\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(2+3*x)^3/(3+5*x)^(5/2)/(1-2*x)^(1/2),x)
```

```
[Out] 1/996072*(32039714025*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*
x^2-x+3)^(1/2))*x^4+81167275530*7^(1/2)*arctan(1/14*(37*x+20)*7^(
1/2)/(-10*x^2-x+3)^(1/2))*x^3+77037712389*7^(1/2)*arctan(1/14*(37
*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+13068710550*x^3*(-10*x^2-
x+3)^(1/2)+32466910212*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10
*x^2-x+3)^(1/2))*x+24978031260*x^2*(-10*x^2-x+3)^(1/2)+5126354244
*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+15890
574518*x*(-10*x^2-x+3)^(1/2)+3364793096*(-10*x^2-x+3)^(1/2))*(1-2
*x)^(1/2)/(2+3*x)^2/(-10*x^2-x+3)^(1/2)/(3+5*x)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5\,x+3)^{\frac{5}{2}}(3\,x+2)^3\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^3*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^3*sqrt(-2*x + 1)), x)
```

Fricas [A] time = 0.231444, size = 147, normalized size = 1.07

$$\frac{\sqrt{7}\left(2\,\sqrt{7}\left(933479325\,x^3+1784145090\,x^2+1135041037\,x+240342364\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+142398729\,\left(225\,x^4+570\,x^3+5\right.\right.}{996072\,(225\,x^4+570\,x^3+541\,x^2+228\,x+36)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^3*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] 1/996072*sqrt(7)*(2*sqrt(7)*(933479325*x^3 + 1784145090*x^2 + 113
5041037*x + 240342364)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 142398729*(
225*x^4 + 570*x^3 + 541*x^2 + 228*x + 36)*arctan(1/14*sqrt(7)*(37
*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(225*x^4 + 570*x^3 + 54
1*x^2 + 228*x + 36)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(2+3*x)**3/(3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.336747, size = 509, normalized size = 3.72

$$-\frac{25}{5808}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3+\frac{392283}{27440}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)+\frac{2425}{242}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)+\frac{297\left(461\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3+110600\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)\right)}{98\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^3*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] -25/5808*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x
+ 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 +
392283/27440*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqr
t(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)
/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 2425/242*sqrt(10)*((sqr
t(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))) + 297/98*(461*sqrt(10)*((sq
rt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)
/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 110600*sqrt(10)*((sqrt
(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(
sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5)
- sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x +
 5) - sqrt(22)))^2 + 280)^2
```

3.2499 $\int \frac{1}{\sqrt{1-2x}(2+3x)^4(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=166

$$\frac{2184369575\sqrt{1-2x}}{996072\sqrt{5x+3}}-\frac{21891025\sqrt{1-2x}}{90552(5x+3)^{3/2}}+\frac{79335\sqrt{1-2x}}{2744(3x+2)(5x+3)^{3/2}}+\frac{325\sqrt{1-2x}}{196(3x+2)^2(5x+3)^{3/2}}+\frac{\sqrt{1-2x}}{7(3x+2)^3(5x+3)^{3/2}}-\frac{41307885\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{2744\sqrt{7}}$$

```
[Out] (-21891025*Sqrt[1 - 2*x])/(90552*(3 + 5*x)^(3/2)) + Sqrt[1 - 2*x]
/(7*(2 + 3*x)^3*(3 + 5*x)^(3/2)) + (325*Sqrt[1 - 2*x])/(196*(2 +
3*x)^2*(3 + 5*x)^(3/2)) + (79335*Sqrt[1 - 2*x])/(2744*(2 + 3*x)*(
3 + 5*x)^(3/2)) + (2184369575*Sqrt[1 - 2*x])/(996072*Sqrt[3 + 5*x
]) - (41307885*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(27
44*Sqrt[7])
```

Rubi [A] time = 0.40114, antiderivative size = 166, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$\frac{2184369575\sqrt{1-2x}}{996072\sqrt{5x+3}}-\frac{21891025\sqrt{1-2x}}{90552(5x+3)^{3/2}}+\frac{79335\sqrt{1-2x}}{2744(3x+2)(5x+3)^{3/2}}+\frac{325\sqrt{1-2x}}{196(3x+2)^2(5x+3)^{3/2}}+\frac{\sqrt{1-2x}}{7(3x+2)^3(5x+3)^{3/2}}-\frac{41307885\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{2744\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 - 2*x]*(2 + 3*x)^4*(3 + 5*x)^(5/2)),x]
```

```
[Out] (-21891025*Sqrt[1 - 2*x])/(90552*(3 + 5*x)^(3/2)) + Sqrt[1 - 2*x]
/(7*(2 + 3*x)^3*(3 + 5*x)^(3/2)) + (325*Sqrt[1 - 2*x])/(196*(2 +
3*x)^2*(3 + 5*x)^(3/2)) + (79335*Sqrt[1 - 2*x])/(2744*(2 + 3*x)*(
3 + 5*x)^(3/2)) + (2184369575*Sqrt[1 - 2*x])/(996072*Sqrt[3 + 5*x
]) - (41307885*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(27
44*Sqrt[7])
```

Rubi in Sympy [A] time = 35.3827, size = 151, normalized size = 0.91

$$\frac{2184369575\sqrt{-2x+1}}{996072\sqrt{5x+3}}-\frac{21891025\sqrt{-2x+1}}{90552\,(5x+3)^{\frac{3}{2}}}+\frac{79335\sqrt{-2x+1}}{2744\,(3x+2)\,(5x+3)^{\frac{3}{2}}}+\frac{325\sqrt{-2x+1}}{196\,(3x+2)^2\,(5x+3)^{\frac{3}{2}}}+\frac{\sqrt{-2x+1}}{7\,(3x+2)^3\,(5x+3)^{\frac{3}{2}}}-\frac{41307885\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{19208}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(2+3*x)**4/(3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] 2184369575*sqrt(-2*x + 1)/(996072*sqrt(5*x + 3)) - 21891025*sqrt(
-2*x + 1)/(90552*(5*x + 3)**(3/2)) + 79335*sqrt(-2*x + 1)/(2744*(
3*x + 2)*(5*x + 3)**(3/2)) + 325*sqrt(-2*x + 1)/(196*(3*x + 2)**2
*(5*x + 3)**(3/2)) + sqrt(-2*x + 1)/(7*(3*x + 2)**3*(5*x + 3)**(3
/2)) - 41307885*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x +
 3)))/19208
```

Mathematica [A] time = 0.13611, size = 87, normalized size = 0.52

$$\frac{\sqrt{1-2x}\left(294889892625x^4+760212086400x^3+734310313245x^2+314968389410x+50617099616\right)}{996072(3x+2)^3(5x+3)^{3/2}} - \frac{41307885\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{5488\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 - 2*x]*(2 + 3*x)^4*(3 + 5*x)^(5/2)),x]
```

```
[Out] (Sqrt[1 - 2*x]*(50617099616 + 314968389410*x + 734310313245*x^2 +
 760212086400*x^3 + 294889892625*x^4))/(996072*(2 + 3*x)^3*(3 + 5
*x)^(3/2)) - (41307885*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt
[3 + 5*x])])/(5488*Sqrt[7])
```

Maple [B] time = 0.024, size = 298, normalized size = 1.8

$$\frac{1}{13945008\,(2+3\,x)^3}\left(10121464522125\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^5+32388686470800\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+2}{\sqrt{-10\,x^2-}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(2+3*x)^4/(3+5*x)^(5/2)/(1-2*x)^(1/2),x)
```

```
[Out] 1/13945008*(10121464522125*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/
(-10*x^2-x+3)^(1/2))*x^5+32388686470800*7^(1/2)*arctan(1/14*(37*x
+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^4+41430528110565*7^(1/2)*arct
an(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+4128458496750*
x^4*(-10*x^2-x+3)^(1/2)+26480750142330*7^(1/2)*arctan(1/14*(37*x+
20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+10642969209600*x^3*(-10*x^2-
x+3)^(1/2)+8457045911820*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-
10*x^2-x+3)^(1/2))*x+10280344385430*x^2*(-10*x^2-x+3)^(1/2)+10796
22882360*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2
))+4409557451740*x*(-10*x^2-x+3)^(1/2)+708639394624*(-10*x^2-x+3)
^(1/2))*(1-2*x)^(1/2)/(2+3*x)^3/(-10*x^2-x+3)^(1/2)/(3+5*x)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5\,x+3)^{\frac{5}{2}}(3\,x+2)^4\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^4*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^4*sqrt(-2*x + 1)), x)
```

Fricas [A] time = 0.234379, size = 167, normalized size = 1.01

$$\frac{\sqrt{7}\left(2\,\sqrt{7}\left(294889892625\,x^4+760212086400\,x^3+734310313245\,x^2+314968389410\,x+50617099616\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+\right.}{13945008\,(675\,x^5+2160\,x^4+2763\,x^3+1766\,x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^4*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] 1/13945008*sqrt(7)*(2*sqrt(7)*(294889892625*x^4 + 760212086400*x^
3 + 734310313245*x^2 + 314968389410*x + 50617099616)*sqrt(5*x + 3
)*sqrt(-2*x + 1) + 14994762255*(675*x^5 + 2160*x^4 + 2763*x^3 + 1
766*x^2 + 564*x + 72)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x +
 3)*sqrt(-2*x + 1))))/(675*x^5 + 2160*x^4 + 2763*x^3 + 1766*x^2 +
 564*x + 72)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(2+3*x)**4/(3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.408014, size = 591, normalized size = 3.56

$$
\begin{aligned}
&-\frac{125}{5808}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3 \\
&+\frac{8261577}{76832}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right) \\
&+\frac{8125}{121}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right) \\
&+\frac{1485\left(13759\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^5+6614720\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3+818950720\sqrt{10}\left(\cdots\right)\right)}{1372\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)^3}
\end{aligned}
$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^4*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] -125/5808*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x
 + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 +
 8261577/76832*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*s
qrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) -
4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 8125/121*sqrt(10)*((s
qrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3
)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))) + 1485/1372*(13759*sqrt(1
0)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5
*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 + 6614720*sqrt(10
)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*
x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 818950720*sqrt(1
0)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5
*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-1
0*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqr
t(-10*x + 5) - sqrt(22)))^2 + 280)^3
```

3.2500 $\int \frac{1}{\sqrt{a+bx}(e+fx)\sqrt{2be-af+bfx}}\,dx$

Optimal. Leaf size=59

$$\frac{\tan^{-1}\left(\frac{\sqrt{f}\sqrt{a+bx}\sqrt{-af+2be+bfx}}{be-af}\right)}{\sqrt{f}(be-af)}$$

```
[Out] ArcTan[(Sqrt[f]*Sqrt[a + b*x]*Sqrt[2*b*e - a*f + b*f*x])/(b*e - a
*f)]/(Sqrt[f]*(b*e - a*f))
```

Rubi [A] time = 0.178832, antiderivative size = 59, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 34, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.059

$$\frac{\tan^{-1}\left(\frac{\sqrt{f}\sqrt{a+bx}\sqrt{-af+2be+bfx}}{be-af}\right)}{\sqrt{f}(be-af)}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[a + b*x]*(e + f*x)*Sqrt[2*b*e - a*f + b*f*x]),x]
```

```
[Out] ArcTan[(Sqrt[f]*Sqrt[a + b*x]*Sqrt[2*b*e - a*f + b*f*x])/(b*e - a
*f)]/(Sqrt[f]*(b*e - a*f))
```

Rubi in Sympy [A] time = 16.4549, size = 49, normalized size = 0.83

$$\frac{\operatorname{atan}\left(\frac{\sqrt{f}\sqrt{a+bx}\sqrt{-af+2be+bfx}}{af-be}\right)}{\sqrt{f}\,(af-be)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(f*x+e)/(b*x+a)**(1/2)/(b*f*x-a*f+2*b*e)**(1/2),x)
```

```
[Out] atan(sqrt(f)*sqrt(a + b*x)*sqrt(-a*f + 2*b*e + b*f*x)/(a*f - b*e)
)/(sqrt(f)*(a*f - b*e))
```

Mathematica [C] time = 0.164553, size = 81, normalized size = 1.37

$$\frac{i\log\left(\frac{2f\sqrt{a+bx}\sqrt{-af+2be+bfx}}{e+fx}-\frac{2i\sqrt{f}(af-be)}{e+fx}\right)}{\sqrt{f}(be-af)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[a + b*x]*(e + f*x)*Sqrt[2*b*e - a*f + b*f*x]),x]
```

```
[Out] (I*Log[((-2*I)*Sqrt[f]*(-(b*e) + a*f))/(e + f*x) + (2*f*Sqrt[a +
b*x]*Sqrt[2*b*e - a*f + b*f*x])/(e + f*x)])/(Sqrt[f]*(b*e - a*f))
```

Maple [B] time = 0.073, size = 154, normalized size = 2.6

$$-\frac{1}{f}\ln\left(-2\,\frac{1}{fx+e}\left(a^2f^2-2\,abef+b^2e^2-\sqrt{-\frac{(af-be)^2}{f}}\sqrt{b^2fx^2+2\,b^2ex-a^2f+2\,abef}\right)\right)\sqrt{bfx-af+2\,be}\sqrt{bx+a}\frac{1}{\sqrt{\ }}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(f*x+e)/(b*x+a)^(1/2)/(b*f*x-a*f+2*b*e)^(1/2),x)
```

```
[Out] -ln(-2*(a^2*f^2-2*a*b*e*f+b^2*e^2-(-(a*f-b*e)^2/f)^(1/2)*(b^2*f*x
^2+2*b^2*e*x-a^2*f+2*a*b*e)^(1/2)*f)/(f*x+e))*(b*f*x-a*f+2*b*e)^(
1/2)*(b*x+a)^(1/2)/(-(a*f-b*e)^2/f)^(1/2)/(b^2*f*x^2+2*b^2*e*x-a^
2*f+2*a*b*e)^(1/2)/f
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(b*f*x + 2*b*e - a*f)*sqrt(b*x + a)*(f*x + e)),x, algorithm="max
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.268886, size = 1, normalized size = 0.02

$$\left[-\frac{\log\left(\frac{2\,(bef-af^2)\,\sqrt{bfx+2\,be-af}\,\sqrt{bx+a}-(b^2f^2x^2+2\,b^2efx-b^2e^2+4\,abef-2\,a^2f^2)\,\sqrt{-f}}{f^2x^2+2\,efx+e^2}\right)}{2\,(be-af)\sqrt{-f}},\ \frac{\arctan\left(-\frac{be-af}{\sqrt{bfx+2\,be-af}\,\sqrt{bx+a}\,\sqrt{f}}\right)}{(be-af)\sqrt{f}}\right]$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(b*f*x + 2*b*e - a*f)*sqrt(b*x + a)*(f*x + e)),x, algorithm="fri
```

```
[Out] [-1/2*log((2*(b*e*f - a*f^2)*sqrt(b*f*x + 2*b*e - a*f)*sqrt(b*x +
 a) - (b^2*f^2*x^2 + 2*b^2*e*f*x - b^2*e^2 + 4*a*b*e*f - 2*a^2*f^
2)*sqrt(-f))/(f^2*x^2 + 2*e*f*x + e^2))/((b*e - a*f)*sqrt(-f)), a
rctan(-(b*e - a*f)/(sqrt(b*f*x + 2*b*e - a*f)*sqrt(b*x + a)*sqrt(
f)))/((b*e - a*f)*sqrt(f))]
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{a+bx}\,(e+fx)\,\sqrt{-af+2be+bfx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(f*x+e)/(b*x+a)**(1/2)/(b*f*x-a*f+2*b*e)**(1/2),x)
```

```
[Out] Integral(1/(sqrt(a + b*x)*(e + f*x)*sqrt(-a*f + 2*b*e + b*f*x)),
x)
```

GIAC/XCAS [A] time = 0.226551, size = 130, normalized size = 2.2

$$-\frac{2 f^{\frac{3}{2}} \arctan\left(\frac{\left(\sqrt{bfx-af+2\,be}\sqrt{f}-\sqrt{2\,af^2-2\,bfe+(bfx-af+2\,be)f}\right)^2}{2\,(af^2-bfe)}\right)}{(af^2-bfe)|f|}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(b*f*x + 2*b*e - a*f)*sqrt(b*x + a)*(f*x + e)),x, algorithm="gia
```

```
[Out] -2*f^(3/2)*arctan(1/2*(sqrt(b*f*x - a*f + 2*b*e)*sqrt(f) - sqrt(2
*a*f^2 - 2*b*f*e + (b*f*x - a*f + 2*b*e)*f))^2/(a*f^2 - b*f*e))/(
(a*f^2 - b*f*e)*abs(f))
```

3.2501 $\int \frac{(2+3x)^5\sqrt{3+5x}}{(1-2x)^{3/2}}\,dx$

Optimal. Leaf size=168

$$\frac{\sqrt{5x+3}(3x+2)^5}{\sqrt{1-2x}}+\frac{33}{20}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^4+\frac{10389\sqrt{1-2x}\sqrt{5x+3}(3x+2)^3}{1600}+\frac{847637\sqrt{1-2x}\sqrt{5x+3}(3x+2)^2}{32000}+\frac{49\sqrt{1-2x}\sqrt{5x+3}(36265980x+87394471)}{5120000}-\frac{35439958001\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{5120000\sqrt{10}}$$

```
[Out] (847637*Sqrt[1 - 2*x]*(2 + 3*x)^2*Sqrt[3 + 5*x])/32000 + (10389*S
qrt[1 - 2*x]*(2 + 3*x)^3*Sqrt[3 + 5*x])/1600 + (33*Sqrt[1 - 2*x]*
(2 + 3*x)^4*Sqrt[3 + 5*x])/20 + ((2 + 3*x)^5*Sqrt[3 + 5*x])/Sqrt[
1 - 2*x] + (49*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(87394471 + 36265980*x
))/5120000 - (35439958001*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(5120
000*Sqrt[10])
```

Rubi [A] time = 0.316331, antiderivative size = 168, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$\frac{\sqrt{5x+3}(3x+2)^5}{\sqrt{1-2x}}+\frac{33}{20}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^4+\frac{10389\sqrt{1-2x}\sqrt{5x+3}(3x+2)^3}{1600}+\frac{847637\sqrt{1-2x}\sqrt{5x+3}(3x+2)^2}{32000}+\frac{49\sqrt{1-2x}\sqrt{5x+3}(36265980x+87394471)}{5120000}-\frac{35439958001\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{5120000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^5*Sqrt[3 + 5*x])/(1 - 2*x)^(3/2),x]
```

```
[Out] (847637*Sqrt[1 - 2*x]*(2 + 3*x)^2*Sqrt[3 + 5*x])/32000 + (10389*S
qrt[1 - 2*x]*(2 + 3*x)^3*Sqrt[3 + 5*x])/1600 + (33*Sqrt[1 - 2*x]*
(2 + 3*x)^4*Sqrt[3 + 5*x])/20 + ((2 + 3*x)^5*Sqrt[3 + 5*x])/Sqrt[
1 - 2*x] + (49*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(87394471 + 36265980*x
))/5120000 - (35439958001*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(5120
000*Sqrt[10])
```

Rubi in Sympy [A] time = 33.1101, size = 156, normalized size = 0.93

$$\frac{33\sqrt{-2x+1}\,(3x+2)^4\,\sqrt{5x+3}}{20}+\frac{10389\sqrt{-2x+1}\,(3x+2)^3\,\sqrt{5x+3}}{1600}+\frac{847637\sqrt{-2x+1}\,(3x+2)^2\,\sqrt{5x+3}}{32000}+\frac{\sqrt{-2x+1}\sqrt{5x+3}\left(\frac{33319369125x}{8}+\frac{321174680925}{32}\right)}{12000000}-\frac{35439958001\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{51200000}+\frac{(3x+2)^5\,\sqrt{5x+3}}{\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**5*(3+5*x)**(1/2)/(1-2*x)**(3/2),x)
```

```
[Out] 33*sqrt(-2*x + 1)*(3*x + 2)**4*sqrt(5*x + 3)/20 + 10389*sqrt(-2*x
 + 1)*(3*x + 2)**3*sqrt(5*x + 3)/1600 + 847637*sqrt(-2*x + 1)*(3*
x + 2)**2*sqrt(5*x + 3)/32000 + sqrt(-2*x + 1)*sqrt(5*x + 3)*(333
```

```
19369125*x/8 + 321174680925/32)/12000000 - 35439958001*sqrt(10)*a
sin(sqrt(22)*sqrt(5*x + 3)/11)/51200000 + (3*x + 2)**5*sqrt(5*x +
 3)/sqrt(-2*x + 1)
```

Mathematica [A] time = 0.126889, size = 79, normalized size = 0.47

$$\frac{35439958001\sqrt{10-20x}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)-10\sqrt{5x+3}\left(124416000x^5+613267200x^4+1429191360x^3+2297649240x^2\right.}{51200000\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^5*Sqrt[3 + 5*x])/(1 - 2*x)^(3/2),x]
```

```
[Out] (-10*Sqrt[3 + 5*x]*(-5389783159 + 3810769458*x + 2297649240*x^2 +
 1429191360*x^3 + 613267200*x^4 + 124416000*x^5) + 35439958001*Sq
rt[10 - 20*x]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/(51200000*Sqrt[1
- 2*x])
```

Maple [A] time = 0.023, size = 157, normalized size = 0.9

$$-\frac{1}{-102400000+204800000\,x}\left(-2488320000\,x^5\sqrt{-10\,x^2-x+3}-12265344000\,x^4\sqrt{-10\,x^2-x+3}-28583827200\,x^3\sqrt{-10\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^5*(3+5*x)^(1/2)/(1-2*x)^(3/2),x)
```

```
[Out] -1/102400000*(-2488320000*x^5*(-10*x^2-x+3)^(1/2)-12265344000*x^4
*(-10*x^2-x+3)^(1/2)-28583827200*x^3*(-10*x^2-x+3)^(1/2)+70879916
002*10^(1/2)*arcsin(20/11*x+1/11)*x-45952984800*x^2*(-10*x^2-x+3)
^(1/2)-35439958001*10^(1/2)*arcsin(20/11*x+1/11)-76215389160*x*(-
10*x^2-x+3)^(1/2)+107795663180*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)
*(3+5*x)^(1/2)/(-1+2*x)/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.51282, size = 150, normalized size = 0.89

$$-\frac{243}{200}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x^2-\frac{103599}{16000}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x-\frac{35439958001}{102400000}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)-\frac{1086219}{64000}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}+\frac{80155719}{256000}\sqrt{-10\,x^2-x+3}x+\frac{2961355719}{5120000}\sqrt{-10\,x^2-x+3}-\frac{16807\sqrt{-10\,x^2-x+3}}{32\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^5/(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] -243/200*(-10*x^2 - x + 3)^(3/2)*x^2 - 103599/16000*(-10*x^2 - x
+ 3)^(3/2)*x - 35439958001/102400000*sqrt(5)*sqrt(2)*arcsin(20/11
*x + 1/11) - 1086219/64000*(-10*x^2 - x + 3)^(3/2) + 80155719/256
000*sqrt(-10*x^2 - x + 3)*x + 2961355719/5120000*sqrt(-10*x^2 - x
 + 3) - 16807/32*sqrt(-10*x^2 - x + 3)/(2*x - 1)
```

Fricas [A] time = 0.23427, size = 120, normalized size = 0.71

$$\frac{\sqrt{10}\left(2\sqrt{10}\left(124416000\,x^5+613267200\,x^4+1429191360\,x^3+2297649240\,x^2+3810769458\,x-5389783159\right)\sqrt{5\,x+3}\sqrt{-2\,x\right.}{102400000\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^5/(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] 1/102400000*sqrt(10)*(2*sqrt(10)*(124416000*x^5 + 613267200*x^4 +
 1429191360*x^3 + 2297649240*x^2 + 3810769458*x - 5389783159)*sqr
t(5*x + 3)*sqrt(-2*x + 1) - 35439958001*(2*x - 1)*arctan(1/20*sqr
t(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(2*x - 1)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**5*(3+5*x)**(1/2)/(1-2*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.239403, size = 149, normalized size = 0.89

$$-\frac{35439958001}{51200000}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right) + \frac{\left(6\left(12\left(8\left(36\left(48\sqrt{5}(5x+3)+463\sqrt{5}\right)(5x+3)+140711\sqrt{5}\right)(5x+3)+10847547\sqrt{5}\right)(5x+3)+1789896455\sqrt{5}\right)(5x+\cdots}{640000000\,(2x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^5/(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] -35439958001/51200000*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)
) + 1/640000000*(6*(12*(8*(36*(48*sqrt(5)*(5*x + 3) + 463*sqrt(5)
)*(5*x + 3) + 140711*sqrt(5))*(5*x + 3) + 10847547*sqrt(5))*(5*x
+ 3) + 1789896455*sqrt(5))*(5*x + 3) - 177199790005*sqrt(5))*sqrt
(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)
```

3.2502 $\int \frac{(2+3x)^4\sqrt{3+5x}}{(1-2x)^{3/2}}\,dx$

Optimal. Leaf size=139

$$\frac{\sqrt{5x+3}(3x+2)^4}{\sqrt{1-2x}}+\frac{27}{16}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^3+\frac{2203}{320}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^2+\frac{\sqrt{1-2x}\sqrt{5x+3}(4618500x+11129753)}{51200}-\frac{92108287\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{51200\sqrt{10}}$$

```
[Out] (2203*Sqrt[1 - 2*x]*(2 + 3*x)^2*Sqrt[3 + 5*x])/320 + (27*Sqrt[1 -
 2*x]*(2 + 3*x)^3*Sqrt[3 + 5*x])/16 + ((2 + 3*x)^4*Sqrt[3 + 5*x])
/Sqrt[1 - 2*x] + (Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(11129753 + 4618500
*x))/51200 - (92108287*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(51200*S
qrt[10])
```

Rubi [A] time = 0.244564, antiderivative size = 139, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$\frac{\sqrt{5x+3}(3x+2)^4}{\sqrt{1-2x}}+\frac{27}{16}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^3+\frac{2203}{320}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^2+\frac{\sqrt{1-2x}\sqrt{5x+3}(4618500x+11129753)}{51200}-\frac{92108287\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{51200\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^4*Sqrt[3 + 5*x])/(1 - 2*x)^(3/2),x]
```

```
[Out] (2203*Sqrt[1 - 2*x]*(2 + 3*x)^2*Sqrt[3 + 5*x])/320 + (27*Sqrt[1 -
 2*x]*(2 + 3*x)^3*Sqrt[3 + 5*x])/16 + ((2 + 3*x)^4*Sqrt[3 + 5*x])
/Sqrt[1 - 2*x] + (Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(11129753 + 4618500
*x))/51200 - (92108287*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(51200*S
qrt[10])
```

Rubi in Sympy [A] time = 25.8782, size = 129, normalized size = 0.93

$$\frac{27\sqrt{-2x+1}\,(3x+2)^3\,\sqrt{5x+3}}{16}+\frac{2203\sqrt{-2x+1}\,(3x+2)^2\,\sqrt{5x+3}}{320}+\frac{\sqrt{-2x+1}\sqrt{5x+3}\,\left(\frac{86596875x}{4}+\frac{834731475}{16}\right)}{240000}-\frac{92108287\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{512000}+\frac{(3x+2)^4\,\sqrt{5x+3}}{\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4*(3+5*x)**(1/2)/(1-2*x)**(3/2),x)
```

```
[Out] 27*sqrt(-2*x + 1)*(3*x + 2)**3*sqrt(5*x + 3)/16 + 2203*sqrt(-2*x
+ 1)*(3*x + 2)**2*sqrt(5*x + 3)/320 + sqrt(-2*x + 1)*sqrt(5*x + 3
)*(86596875*x/4 + 834731475/16)/240000 - 92108287*sqrt(10)*asin(s
qrt(22)*sqrt(5*x + 3)/11)/512000 + (3*x + 2)**4*sqrt(5*x + 3)/sqr
t(-2*x + 1)
```

Mathematica [A] time = 0.114539, size = 74, normalized size = 0.53

$$\frac{92108287\sqrt{10-20x}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)-10\sqrt{5x+3}\left(518400x^4+2283840x^3+5020200x^2+9587886x-14050073\right)}{512000\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^4*Sqrt[3 + 5*x])/(1 - 2*x)^(3/2),x]
```

```
[Out] (-10*Sqrt[3 + 5*x]*(-14050073 + 9587886*x + 5020200*x^2 + 2283840
*x^3 + 518400*x^4) + 92108287*Sqrt[10 - 20*x]*ArcSin[Sqrt[5/11]*S
qrt[1 - 2*x]])/(512000*Sqrt[1 - 2*x])
```

Maple [A] time = 0.019, size = 140, normalized size = 1.

$$-\frac{1}{-1024000+2048000\,x}\left(-10368000\,x^{4}\sqrt{-10\,x^{2}-x+3}-45676800\,x^{3}\sqrt{-10\,x^{2}-x+3}+184216574\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4*(3+5*x)^(1/2)/(1-2*x)^(3/2),x)
```

```
[Out] -1/1024000*(-10368000*x^4*(-10*x^2-x+3)^(1/2)-45676800*x^3*(-10*x
^2-x+3)^(1/2)+184216574*10^(1/2)*arcsin(20/11*x+1/11)*x-100404000
*x^2*(-10*x^2-x+3)^(1/2)-92108287*10^(1/2)*arcsin(20/11*x+1/11)-1
91757720*x*(-10*x^2-x+3)^(1/2)+281001460*(-10*x^2-x+3)^(1/2))*(1-
2*x)^(1/2)*(3+5*x)^(1/2)/(-1+2*x)/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.50924, size = 127, normalized size = 0.91

$$-\frac{81}{160}\left(-10\,x^{2}-x+3\right)^{\frac{3}{2}}x-\frac{92108287}{1024000}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}\,x+\frac{1}{11}\right)-\frac{1557}{640}\left(-10\,x^{2}-x+3\right)^{\frac{3}{2}}+\frac{154953}{2560}\sqrt{-10\,x^{2}-x+3}x+\frac{6740553}{51200}\sqrt{-10\,x^{2}-x+3}-\frac{2401\sqrt{-10\,x^{2}-x+3}}{16\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^4/(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] -81/160*(-10*x^2 - x + 3)^(3/2)*x - 92108287/1024000*sqrt(5)*sqrt
(2)*arcsin(20/11*x + 1/11) - 1557/640*(-10*x^2 - x + 3)^(3/2) + 1
54953/2560*sqrt(-10*x^2 - x + 3)*x + 6740553/51200*sqrt(-10*x^2 -
 x + 3) - 2401/16*sqrt(-10*x^2 - x + 3)/(2*x - 1)
```

Fricas [A] time = 0.229259, size = 113, normalized size = 0.81

$$\frac{\sqrt{10}\left(2\,\sqrt{10}\left(518400\,x^{4}+2283840\,x^{3}+5020200\,x^{2}+9587886\,x-14050073\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-92108287\,(2\,x-1)\arctan\right.}{1024000\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^4/(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] 1/1024000*sqrt(10)*(2*sqrt(10)*(518400*x^4 + 2283840*x^3 + 502020
0*x^2 + 9587886*x - 14050073)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 9210
8287*(2*x - 1)*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqr
t(-2*x + 1))))/(2*x - 1)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4*(3+5*x)**(1/2)/(1-2*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.240353, size = 131, normalized size = 0.94

$$-\frac{92108287}{512000}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)+\frac{\left(6\left(12\left(8\left(36\sqrt{5}(5x+3)+361\sqrt{5}\right)(5x+3)+28181\sqrt{5}\right)(5x+3)+4651913\sqrt{5}\right)(5x+3)-460541435\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10}}{6400000(2x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^4/(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] -92108287/512000*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) + 1
/6400000*(6*(12*(8*(36*sqrt(5)*(5*x + 3) + 361*sqrt(5))*(5*x + 3)
 + 28181*sqrt(5))*(5*x + 3) + 4651913*sqrt(5))*(5*x + 3) - 460541
435*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)
```

3.2503 $\int \frac{(2+3x)^3\sqrt{3+5x}}{(1-2x)^{3/2}}\,dx$

Optimal. Leaf size=110

$$\frac{\sqrt{5x+3}(3x+2)^3}{\sqrt{1-2x}}+\frac{7}{4}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^2+\frac{\sqrt{1-2x}\sqrt{5x+3}(73380x+176833)}{3200}-\frac{1463447\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{3200\sqrt{10}}$$

```
[Out] (7*Sqrt[1 - 2*x]*(2 + 3*x)^2*Sqrt[3 + 5*x])/4 + ((2 + 3*x)^3*Sqrt
[3 + 5*x])/Sqrt[1 - 2*x] + (Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(176833 +
 73380*x))/3200 - (1463447*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(320
0*Sqrt[10])
```

Rubi [A] time = 0.184084, antiderivative size = 110, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.192$

$$\frac{\sqrt{5x+3}(3x+2)^3}{\sqrt{1-2x}}+\frac{7}{4}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^2+\frac{\sqrt{1-2x}\sqrt{5x+3}(73380x+176833)}{3200}-\frac{1463447\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{3200\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^3*Sqrt[3 + 5*x])/(1 - 2*x)^(3/2),x]
```

```
[Out] (7*Sqrt[1 - 2*x]*(2 + 3*x)^2*Sqrt[3 + 5*x])/4 + ((2 + 3*x)^3*Sqrt
[3 + 5*x])/Sqrt[1 - 2*x] + (Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(176833 +
 73380*x))/3200 - (1463447*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(320
0*Sqrt[10])
```

Rubi in Sympy [A] time = 18.7885, size = 102, normalized size = 0.93

$$\frac{7\sqrt{-2x+1}\,(3x+2)^2\,\sqrt{5x+3}}{4}+\frac{\sqrt{-2x+1}\sqrt{5x+3}\left(\frac{275175x}{2}+\frac{2652495}{8}\right)}{6000}-\frac{1463447\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{32000}+\frac{(3x+2)^3\,\sqrt{5x+3}}{\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3*(3+5*x)**(1/2)/(1-2*x)**(3/2),x)
```

```
[Out] 7*sqrt(-2*x + 1)*(3*x + 2)**2*sqrt(5*x + 3)/4 + sqrt(-2*x + 1)*sq
rt(5*x + 3)*(275175*x/2 + 2652495/8)/6000 - 1463447*sqrt(10)*asin
(sqrt(22)*sqrt(5*x + 3)/11)/32000 + (3*x + 2)**3*sqrt(5*x + 3)/sq
rt(-2*x + 1)
```

Mathematica [A] time = 0.0928808, size = 69, normalized size = 0.63

$$\frac{1463447\sqrt{10-20x}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)-10\sqrt{5x+3}\left(14400x^3+57960x^2+142686x-224833\right)}{32000\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^3*Sqrt[3 + 5*x])/(1 - 2*x)^(3/2),x]
```

```
[Out] (-10*Sqrt[3 + 5*x]*(-224833 + 142686*x + 57960*x^2 + 14400*x^3) +
 1463447*Sqrt[10 - 20*x]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/(32000
*Sqrt[1 - 2*x])
```

Maple [A] time = 0.017, size = 123, normalized size = 1.1

$$-\frac{1}{-64000+128000\,x}\left(-288000\,x^{3}\sqrt{-10\,x^{2}-x+3}+2926894\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x-1159200\,x^{2}\sqrt{-10\,x^{2}-x+3}-\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3*(3+5*x)^(1/2)/(1-2*x)^(3/2),x)
```

```
[Out] -1/64000*(-288000*x^3*(-10*x^2-x+3)^(1/2)+2926894*10^(1/2)*arcsin
(20/11*x+1/11)*x-1159200*x^2*(-10*x^2-x+3)^(1/2)-1463447*10^(1/2)
*arcsin(20/11*x+1/11)-2853720*x*(-10*x^2-x+3)^(1/2)+4496660*(-10*
x^2-x+3)^(1/2))*(1-2*x)^(1/2)*(3+5*x)^(1/2)/(-1+2*x)/(-10*x^2-x+3
)^(1/2)
```

Maxima [A] time = 1.51689, size = 107, normalized size = 0.97

$$-\frac{1463447}{64000}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}\,x+\frac{1}{11}\right)-\frac{9}{40}\left(-10\,x^{2}-x+3\right)^{\frac{3}{2}}+\frac{1593}{160}\sqrt{-10\,x^{2}-x+3x}+\frac{89793}{3200}\sqrt{-10\,x^{2}-x+3}-\frac{343\sqrt{-10\,x^{2}-x+3}}{8\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^3/(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] -1463447/64000*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) - 9/40*(-10
*x^2 - x + 3)^(3/2) + 1593/160*sqrt(-10*x^2 - x + 3)*x + 89793/32
00*sqrt(-10*x^2 - x + 3) - 343/8*sqrt(-10*x^2 - x + 3)/(2*x - 1)
```

Fricas [A] time = 0.223108, size = 107, normalized size = 0.97

$$\frac{\sqrt{10}\left(2\,\sqrt{10}\left(14400\,x^{3}+57960\,x^{2}+142686\,x-224833\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-1463447\,(2\,x-1)\arctan\left(\frac{\sqrt{10}(20\,x+1)}{20\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)}{64000\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^3/(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] 1/64000*sqrt(10)*(2*sqrt(10)*(14400*x^3 + 57960*x^2 + 142686*x -
224833)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 1463447*(2*x - 1)*arctan(1
/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(2*x - 1
)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3*(3+5*x)**(1/2)/(1-2*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.230721, size = 113, normalized size = 1.03

$$-\frac{1463447}{32000}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)+\frac{\left(18\left(4\left(8\sqrt{5}(5x+3)+89\sqrt{5}\right)(5x+3)+4927\sqrt{5}\right)(5x+3)-1463447\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{80000(2x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^3/(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] -1463447/32000*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) + 1/8
0000*(18*(4*(8*sqrt(5)*(5*x + 3) + 89*sqrt(5))*(5*x + 3) + 4927*s
qrt(5))*(5*x + 3) - 1463447*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5
)/(2*x - 1)
```

3.2504 $\int \frac{(2+3x)^2\sqrt{3+5x}}{(1-2x)^{3/2}}\,dx$

Optimal. Leaf size=94

$$\frac{9}{40}\sqrt{1-2x}(5x+3)^{3/2}+\frac{49(5x+3)^{3/2}}{22\sqrt{1-2x}}+\frac{17951\sqrt{1-2x}\sqrt{5x+3}}{1760}-\frac{17951\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{160\sqrt{10}}$$

```
[Out] (17951*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/1760 + (49*(3 + 5*x)^(3/2))/(
22*Sqrt[1 - 2*x]) + (9*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/40 - (17951
*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(160*Sqrt[10])
```

Rubi [A] time = 0.117366, antiderivative size = 94, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$\frac{9}{40}\sqrt{1-2x}(5x+3)^{3/2}+\frac{49(5x+3)^{3/2}}{22\sqrt{1-2x}}+\frac{17951\sqrt{1-2x}\sqrt{5x+3}}{1760}-\frac{17951\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{160\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^2*Sqrt[3 + 5*x])/(1 - 2*x)^(3/2),x]
```

```
[Out] (17951*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/1760 + (49*(3 + 5*x)^(3/2))/(
22*Sqrt[1 - 2*x]) + (9*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/40 - (17951
*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(160*Sqrt[10])
```

Rubi in Sympy [A] time = 10.0096, size = 85, normalized size = 0.9

$$\frac{9\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{40}+\frac{17951\sqrt{-2x+1}\sqrt{5x+3}}{1760}-\frac{17951\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{1600}+\frac{49\,(5x+3)^{\frac{3}{2}}}{22\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2*(3+5*x)**(1/2)/(1-2*x)**(3/2),x)
```

```
[Out] 9*sqrt(-2*x + 1)*(5*x + 3)**(3/2)/40 + 17951*sqrt(-2*x + 1)*sqrt(
5*x + 3)/1760 - 17951*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/16
00 + 49*(5*x + 3)**(3/2)/(22*sqrt(-2*x + 1))
```

Mathematica [A] time = 0.0781072, size = 64, normalized size = 0.68

$$\frac{17951\sqrt{10-20x}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)-10\sqrt{5x+3}\left(360x^2+1518x-2809\right)}{1600\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^2*Sqrt[3 + 5*x])/(1 - 2*x)^(3/2),x]
```

```
[Out] (-10*Sqrt[3 + 5*x]*(-2809 + 1518*x + 360*x^2) + 17951*Sqrt[10 - 2
0*x]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/(1600*Sqrt[1 - 2*x])
```

Maple [A] time = 0.018, size = 106, normalized size = 1.1

$$-\frac{1}{-3200+6400\,x}\left(35902\,\sqrt{10}\,\arcsin\left(\frac{20\,x}{11}+1/11\right)x-7200\,x^{2}\sqrt{-10\,x^{2}-x+3}-17951\,\sqrt{10}\,\arcsin\left(\frac{20\,x}{11}+1/11\right)-3036\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2*(3+5*x)^(1/2)/(1-2*x)^(3/2),x)
```

```
[Out] -1/3200*(35902*10^(1/2)*arcsin(20/11*x+1/11)*x-7200*x^2*(-10*x^2-
x+3)^(1/2)-17951*10^(1/2)*arcsin(20/11*x+1/11)-30360*x*(-10*x^2-x
+3)^(1/2)+56180*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)*(3+5*x)^(1/2)/
(-1+2*x)/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.50409, size = 88, normalized size = 0.94

$$-\frac{17951}{3200}\,\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}\,x+\frac{1}{11}\right)+\frac{9}{8}\,\sqrt{-10\,x^{2}-x+3}x+\frac{849}{160}\,\sqrt{-10\,x^{2}-x+3}-\frac{49\,\sqrt{-10\,x^{2}-x+3}}{4\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^2/(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] -17951/3200*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) + 9/8*sqrt(-10
*x^2 - x + 3)*x + 849/160*sqrt(-10*x^2 - x + 3) - 49/4*sqrt(-10*x
^2 - x + 3)/(2*x - 1)
```

Fricas [A] time = 0.227821, size = 100, normalized size = 1.06

$$\frac{\sqrt{10}\left(2\,\sqrt{10}\left(360\,x^{2}+1518\,x-2809\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-17951\,(2\,x-1)\arctan\left(\frac{\sqrt{10}(20\,x+1)}{20\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)}{3200\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^2/(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] 1/3200*sqrt(10)*(2*sqrt(10)*(360*x^2 + 1518*x - 2809)*sqrt(5*x +
3)*sqrt(-2*x + 1) - 17951*(2*x - 1)*arctan(1/20*sqrt(10)*(20*x +
1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(2*x - 1)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(3x+2)^{2}\,\sqrt{5x+3}}{(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2*(3+5*x)**(1/2)/(1-2*x)**(3/2),x)
```

```
[Out] Integral((3*x + 2)**2*sqrt(5*x + 3)/(-2*x + 1)**(3/2), x)
```

GIAC/XCAS [A] time = 0.229743, size = 96, normalized size = 1.02

$$-\frac{17951}{1600}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)+\frac{\left(6\left(12\sqrt{5}(5x+3)+181\sqrt{5}\right)(5x+3)-17951\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{4000(2x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(3*x + 2)^2/(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] -17951/1600*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) + 1/4000
*(6*(12*sqrt(5)*(5*x + 3) + 181*sqrt(5))*(5*x + 3) - 17951*sqrt(5
))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)
```

3.2505 $\int \frac{(2+3x)\sqrt{3+5x}}{(1-2x)^{3/2}}\,dx$

Optimal. Leaf size=72

$$\frac{7(5x+3)^{3/2}}{11\sqrt{1-2x}}+\frac{103}{44}\sqrt{1-2x}\sqrt{5x+3}-\frac{103\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{4\sqrt{10}}$$

```
[Out] (103*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/44 + (7*(3 + 5*x)^(3/2))/(11*Sq
rt[1 - 2*x]) - (103*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(4*Sqrt[10]
)
```

Rubi [A] time = 0.07466, antiderivative size = 72, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$\frac{7(5x+3)^{3/2}}{11\sqrt{1-2x}}+\frac{103}{44}\sqrt{1-2x}\sqrt{5x+3}-\frac{103\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{4\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)*Sqrt[3 + 5*x])/(1 - 2*x)^(3/2),x]
```

```
[Out] (103*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/44 + (7*(3 + 5*x)^(3/2))/(11*Sq
rt[1 - 2*x]) - (103*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(4*Sqrt[10]
)
```

Rubi in Sympy [A] time = 7.09688, size = 65, normalized size = 0.9

$$\frac{103\sqrt{-2x+1}\sqrt{5x+3}}{44}-\frac{103\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{40}+\frac{7\,(5x+3)^{\frac{3}{2}}}{11\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)*(3+5*x)**(1/2)/(1-2*x)**(3/2),x)
```

```
[Out] 103*sqrt(-2*x + 1)*sqrt(5*x + 3)/44 - 103*sqrt(10)*asin(sqrt(22)*
sqrt(5*x + 3)/11)/40 + 7*(5*x + 3)**(3/2)/(11*sqrt(-2*x + 1))
```

Mathematica [A] time = 0.0586986, size = 59, normalized size = 0.82

$$\frac{10\sqrt{5x+3}(17-6x)+103\sqrt{10-20x}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{40\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)*Sqrt[3 + 5*x])/(1 - 2*x)^(3/2),x]
```

```
[Out] (10*(17 - 6*x)*Sqrt[3 + 5*x] + 103*Sqrt[10 - 20*x]*ArcSin[Sqrt[5/
11]*Sqrt[1 - 2*x]])/(40*Sqrt[1 - 2*x])
```

Maple [A] time = 0.016, size = 89, normalized size = 1.2

$$-\frac{1}{-80+160\,x}\left(206\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x-103\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)-120\,x\sqrt{-10\,x^{2}-x+3}+340\,\sqrt{-10\,x^{2}-x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)*(3+5*x)^(1/2)/(1-2*x)^(3/2),x)
```

```
[Out] -1/80*(206*10^(1/2)*arcsin(20/11*x+1/11)*x-103*10^(1/2)*arcsin(20
/11*x+1/11)-120*x*(-10*x^2-x+3)^(1/2)+340*(-10*x^2-x+3)^(1/2))*(1
-2*x)^(1/2)*(3+5*x)^(1/2)/(-1+2*x)/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.5068, size = 68, normalized size = 0.94

$$-\frac{103}{80}\,\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}\,x+\frac{1}{11}\right)+\frac{3}{4}\,\sqrt{-10\,x^{2}-x+3}-\frac{7\,\sqrt{-10\,x^{2}-x+3}}{2\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(3*x + 2)/(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] -103/80*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) + 3/4*sqrt(-10*x^2
 - x + 3) - 7/2*sqrt(-10*x^2 - x + 3)/(2*x - 1)
```

Fricas [A] time = 0.23363, size = 93, normalized size = 1.29

$$\frac{\sqrt{10}\left(2\,\sqrt{10}(6\,x-17)\sqrt{5\,x+3}\sqrt{-2\,x+1}-103\,(2\,x-1)\arctan\left(\frac{\sqrt{10}(20\,x+1)}{20\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)}{80\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(3*x + 2)/(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] 1/80*sqrt(10)*(2*sqrt(10)*(6*x - 17)*sqrt(5*x + 3)*sqrt(-2*x + 1)
 - 103*(2*x - 1)*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*s
qrt(-2*x + 1))))/(2*x - 1)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(3x+2)\,\sqrt{5x+3}}{(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)*(3+5*x)**(1/2)/(1-2*x)**(3/2),x)
```

```
[Out] Integral((3*x + 2)*sqrt(5*x + 3)/(-2*x + 1)**(3/2), x)
```

GIAC/XCAS [A] time = 0.225252, size = 78, normalized size = 1.08

$$-\frac{103}{40}\,\sqrt{10}\arcsin\left(\frac{1}{11}\,\sqrt{22}\sqrt{5\,x+3}\right)+\frac{\left(6\,\sqrt{5}(5\,x+3)-103\,\sqrt{5}\right)\sqrt{5\,x+3}\sqrt{-10\,x+5}}{100\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(3*x + 2)/(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] -103/40*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) + 1/100*(6*s
qrt(5)*(5*x + 3) - 103*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*
x - 1)
```

3.2506 $\int \frac{\sqrt{3+5x}}{(1-2x)^{3/2}}\,dx$

Optimal. Leaf size=47

$$\frac{\sqrt{5x+3}}{\sqrt{1-2x}}-\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)$$

```
[Out] Sqrt[3 + 5*x]/Sqrt[1 - 2*x] - Sqrt[5/2]*ArcSin[Sqrt[2/11]*Sqrt[3
+ 5*x]]
```

Rubi [A] time = 0.0422528, antiderivative size = 47, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.158

$$\frac{\sqrt{5x+3}}{\sqrt{1-2x}}-\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[3 + 5*x]/(1 - 2*x)^(3/2),x]
```

```
[Out] Sqrt[3 + 5*x]/Sqrt[1 - 2*x] - Sqrt[5/2]*ArcSin[Sqrt[2/11]*Sqrt[3
+ 5*x]]
```

Rubi in Sympy [A] time = 5.20399, size = 39, normalized size = 0.83

$$-\frac{\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{2}+\frac{\sqrt{5x+3}}{\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(1/2)/(1-2*x)**(3/2),x)
```

```
[Out] -sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/2 + sqrt(5*x + 3)/sqrt(
-2*x + 1)
```

Mathematica [A] time = 0.0407409, size = 46, normalized size = 0.98

$$\frac{\sqrt{5x+3}}{\sqrt{1-2x}}+\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[3 + 5*x]/(1 - 2*x)^(3/2),x]
```

```
[Out] Sqrt[3 + 5*x]/Sqrt[1 - 2*x] + Sqrt[5/2]*ArcSin[Sqrt[5/11]*Sqrt[1
- 2*x]]
```

Maple [F] time = 0.057, size = 0, normalized size = 0.

$$\int 1\sqrt{3+5\,x}\,(1-2\,x)^{-\frac{3}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(1/2)/(1-2*x)^(3/2),x)
```

```
[Out] int((3+5*x)^(1/2)/(1-2*x)^(3/2),x)
```

Maxima [A] time = 1.48211, size = 49, normalized size = 1.04

$$-\frac{1}{4}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x + \frac{1}{11}\right) - \frac{\sqrt{-10x^2 - x + 3}}{2x - 1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] -1/4*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) - sqrt(-10*x^2 - x +
3)/(2*x - 1)
```

Fricas [A] time = 0.231625, size = 93, normalized size = 1.98

$$-\frac{\sqrt{2}\left(\sqrt{5}(2x-1)\arctan\left(\frac{\sqrt{5}\sqrt{2}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right) + 2\sqrt{2}\sqrt{5x+3}\sqrt{-2x+1}\right)}{4(2x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] -1/4*sqrt(2)*(sqrt(5)*(2*x - 1)*arctan(1/20*sqrt(5)*sqrt(2)*(20*x
 + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))) + 2*sqrt(2)*sqrt(5*x + 3)*s
qrt(-2*x + 1))/(2*x - 1)
```

Sympy [A] time = 2.81075, size = 95, normalized size = 2.02

$$\begin{cases} -\frac{5i\sqrt{x+\frac{3}{5}}}{\sqrt{10x-5}} + \frac{\sqrt{10}i\operatorname{acosh}\left(\frac{\sqrt{110}\sqrt{x+\frac{3}{5}}}{11}\right)}{2} & \text{for}\ \frac{10\left|x+\frac{3}{5}\right|}{11} > 1 \\ -\frac{\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{110}\sqrt{x+\frac{3}{5}}}{11}\right)}{2} + \frac{5\sqrt{x+\frac{3}{5}}}{\sqrt{-10x+5}} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(1/2)/(1-2*x)**(3/2),x)
```

```
[Out] Piecewise((-5*I*sqrt(x + 3/5)/sqrt(10*x - 5) + sqrt(10)*I*acosh(s
qrt(110)*sqrt(x + 3/5)/11)/2, 10*Abs(x + 3/5)/11 > 1), (-sqrt(10)
*asin(sqrt(110)*sqrt(x + 3/5)/11)/2 + 5*sqrt(x + 3/5)/sqrt(-10*x
+ 5), True))
```

GIAC/XCAS [A] time = 0.223305, size = 61, normalized size = 1.3

$$-\frac{1}{2}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right) - \frac{\sqrt{5}\sqrt{5x+3}\sqrt{-10x+5}}{5(2x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] -1/2*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) - 1/5*sqrt(5)*s
qrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)
```

3.2507 $\int \frac{\sqrt{3+5x}}{(1-2x)^{3/2}(2+3x)}\,dx$

Optimal. Leaf size=57

$$\frac{2\sqrt{5x+3}}{7\sqrt{1-2x}}+\frac{2\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{7\sqrt{7}}$$

```
[Out] (2*Sqrt[3 + 5*x])/(7*Sqrt[1 - 2*x]) + (2*ArcTan[Sqrt[1 - 2*x]/(Sq
rt[7]*Sqrt[3 + 5*x])])/(7*Sqrt[7])
```

Rubi [A] time = 0.0859833, antiderivative size = 57, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.115

$$\frac{2\sqrt{5x+3}}{7\sqrt{1-2x}}+\frac{2\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{7\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In] Int[Sqrt[3 + 5*x]/((1 - 2*x)^(3/2)*(2 + 3*x)),x]
```

```
[Out] (2*Sqrt[3 + 5*x])/(7*Sqrt[1 - 2*x]) + (2*ArcTan[Sqrt[1 - 2*x]/(Sq
rt[7]*Sqrt[3 + 5*x])])/(7*Sqrt[7])
```

Rubi in Sympy [A] time = 7.81994, size = 53, normalized size = 0.93

$$\frac{2\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{49}+\frac{2\sqrt{5x+3}}{7\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((3+5*x)**(1/2)/(1-2*x)**(3/2)/(2+3*x),x)
```

```
[Out] 2*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/49 + 2*s
qrt(5*x + 3)/(7*sqrt(-2*x + 1))
```

Mathematica [A] time = 0.0847609, size = 68, normalized size = 1.19

$$\frac{\sqrt{7}(2x-1)\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)-14\sqrt{1-2x}\sqrt{5x+3}}{98x-49}$$

Antiderivative was successfully verified.

```
[In] Integrate[Sqrt[3 + 5*x]/((1 - 2*x)^(3/2)*(2 + 3*x)),x]
```

```
[Out] (-14*Sqrt[1 - 2*x]*Sqrt[3 + 5*x] + Sqrt[7]*(-1 + 2*x)*ArcTan[(-20
 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/(-49 + 98*x)
```

Maple [B] time = 0.02, size = 108, normalized size = 1.9

$$-\frac{1}{-49+98\,x}\left(2\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x-\sqrt{7}\arctan\left(\frac{(37\,x+20)\sqrt{7}}{14}\frac{1}{\sqrt{-10\,x^2-x+3}}\right)+14\,\sqrt{-10\,x^2-x+3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(1/2)/(1-2*x)^(3/2)/(2+3*x),x)
```

```
[Out] -1/49*(2*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2
))*x-7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+1
4*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)*(3+5*x)^(1/2)/(-1+2*x)/(-10*
x^2-x+3)^(1/2)
```

Maxima [A] time = 1.50003, size = 78, normalized size = 1.37

$$-\frac{1}{49}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{10\,x}{7\,\sqrt{-10\,x^2-x+3}}+\frac{6}{7\,\sqrt{-10\,x^2-x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/((3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] -1/49*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) +
 10/7*x/sqrt(-10*x^2 - x + 3) + 6/7/sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.22779, size = 85, normalized size = 1.49

$$-\frac{\sqrt{7}\left((2\,x-1)\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)+2\,\sqrt{7}\sqrt{5\,x+3}\sqrt{-2\,x+1}\right)}{49\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/((3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] -1/49*sqrt(7)*((2*x - 1)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*
x + 3)*sqrt(-2*x + 1))) + 2*sqrt(7)*sqrt(5*x + 3)*sqrt(-2*x + 1))
/(2*x - 1)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{\sqrt{5x+3}}{(-2x+1)^{\frac{3}{2}}\,(3x+2)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(1/2)/(1-2*x)**(3/2)/(2+3*x),x)
```

```
[Out] Integral(sqrt(5*x + 3)/((-2*x + 1)**(3/2)*(3*x + 2)), x)
```

GIAC/XCAS [A] time = 0.248905, size = 135, normalized size = 2.37

$$-\frac{1}{490}\sqrt{70}\sqrt{10}\left(\pi+2\,\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)-\frac{2\,\sqrt{5}\sqrt{5\,x+3}\sqrt{-10\,x+5}}{35\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)/((3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] -1/490*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x
+ 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqrt
(2)*sqrt(-10*x + 5) - sqrt(22)))) - 2/35*sqrt(5)*sqrt(5*x + 3)*sq
rt(-10*x + 5)/(2*x - 1)
```

3.2508 $\int \frac{\sqrt{3+5x}}{(1-2x)^{3/2}(2+3x)^2}\,dx$

Optimal. Leaf size=93

$$\frac{4(5x+3)^{3/2}}{77\sqrt{1-2x}(3x+2)}-\frac{29\sqrt{1-2x}\sqrt{5x+3}}{539(3x+2)}-\frac{29\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{49\sqrt{7}}$$

```
[Out] (-29*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(539*(2 + 3*x)) + (4*(3 + 5*x)^
(3/2))/(77*Sqrt[1 - 2*x]*(2 + 3*x)) - (29*ArcTan[Sqrt[1 - 2*x]/(S
qrt[7]*Sqrt[3 + 5*x])])/(49*Sqrt[7])
```

Rubi [A] time = 0.128351, antiderivative size = 93, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$\frac{4(5x+3)^{3/2}}{77\sqrt{1-2x}(3x+2)}-\frac{29\sqrt{1-2x}\sqrt{5x+3}}{539(3x+2)}-\frac{29\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{49\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[3 + 5*x]/((1 - 2*x)^(3/2)*(2 + 3*x)^2),x]
```

```
[Out] (-29*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(539*(2 + 3*x)) + (4*(3 + 5*x)^
(3/2))/(77*Sqrt[1 - 2*x]*(2 + 3*x)) - (29*ArcTan[Sqrt[1 - 2*x]/(S
qrt[7]*Sqrt[3 + 5*x])])/(49*Sqrt[7])
```

Rubi in Sympy [A] time = 9.92505, size = 78, normalized size = 0.84

$$-\frac{29\sqrt{7}\,\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{343}-\frac{29\sqrt{5x+3}}{49\sqrt{-2x+1}}+\frac{3\,(5x+3)^{\frac{3}{2}}}{7\sqrt{-2x+1}\,(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(1/2)/(1-2*x)**(3/2)/(2+3*x)**2,x)
```

```
[Out] -29*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/343 -
29*sqrt(5*x + 3)/(49*sqrt(-2*x + 1)) + 3*(5*x + 3)**(3/2)/(7*sqrt
(-2*x + 1)*(3*x + 2))
```

Mathematica [A] time = 0.0761256, size = 75, normalized size = 0.81

$$-\frac{\sqrt{1-2x}\sqrt{5x+3}(18x+5)}{49\left(6x^2+x-2\right)}-\frac{29\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{98\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[3 + 5*x]/((1 - 2*x)^(3/2)*(2 + 3*x)^2),x]
```

```
[Out] -(Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(5 + 18*x))/(49*(-2 + x + 6*x^2)) -
 (29*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/(98*S
qrt[7])
```

Maple [B] time = 0.02, size = 161, normalized size = 1.7

$$\frac{1}{(1372+2058\,x)(-1+2\,x)}\left(174\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^{2}-x+3}}\right)x^{2}+29\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^{2}-x+3}}\right)x-58\,\sqrt{7}\,\text{ar}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(1/2)/(1-2*x)^(3/2)/(2+3*x)^2,x)
```

```
[Out] 1/686*(174*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1
/2))*x^2+29*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(
1/2))*x-58*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1
/2))-252*x*(-10*x^2-x+3)^(1/2)-70*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1
/2)*(3+5*x)^(1/2)/(2+3*x)/(-1+2*x)/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.50691, size = 124, normalized size = 1.33

$$\frac{29}{686}\,\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{30\,x}{49\,\sqrt{-10\,x^{2}-x+3}}+\frac{19}{147\,\sqrt{-10\,x^{2}-x+3}}+\frac{1}{21\left(3\,\sqrt{-10\,x^{2}-x+3}x+2\,\sqrt{-10\,x^{2}-x+3}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/((3*x + 2)^2*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 29/686*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2))
+ 30/49*x/sqrt(-10*x^2 - x + 3) + 19/147/sqrt(-10*x^2 - x + 3) +
1/21/(3*sqrt(-10*x^2 - x + 3)*x + 2*sqrt(-10*x^2 - x + 3))
```

Fricas [A] time = 0.231633, size = 101, normalized size = 1.09

$$-\frac{\sqrt{7}\left(2\,\sqrt{7}(18\,x+5)\sqrt{5\,x+3}\sqrt{-2\,x+1}-29\left(6\,x^{2}+x-2\right)\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)}{686\left(6\,x^{2}+x-2\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/((3*x + 2)^2*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] -1/686*sqrt(7)*(2*sqrt(7)*(18*x + 5)*sqrt(5*x + 3)*sqrt(-2*x + 1)
 - 29*(6*x^2 + x - 2)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x +
 3)*sqrt(-2*x + 1))))/(6*x^2 + x - 2)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(1/2)/(1-2*x)**(3/2)/(2+3*x)**2,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.303508, size = 296, normalized size = 3.18

$$\frac{29}{6860}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{4\sqrt{5}\sqrt{5x+3}\sqrt{-10x+5}}{245(2x-1)}-\frac{66\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)}{49\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)/((3*x + 2)^2*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 29/6860*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x
 + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqr
t(2)*sqrt(-10*x + 5) - sqrt(22)))) - 4/245*sqrt(5)*sqrt(5*x + 3)*
sqrt(-10*x + 5)/(2*x - 1) - 66/49*sqrt(10)*((sqrt(2)*sqrt(-10*x +
 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10
*x + 5) - sqrt(22)))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(
5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^
2 + 280)
```

3.2509 $\int \frac{\sqrt{3+5x}}{(1-2x)^{3/2}(2+3x)^3}\,dx$

Optimal. Leaf size=122

$$\frac{15\sqrt{1-2x}\sqrt{5x+3}}{1372(3x+2)}-\frac{15\sqrt{1-2x}\sqrt{5x+3}}{98(3x+2)^2}+\frac{2\sqrt{5x+3}}{7\sqrt{1-2x}(3x+2)^2}-\frac{1585\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{1372\sqrt{7}}$$

```
[Out] (2*Sqrt[3 + 5*x])/(7*Sqrt[1 - 2*x]*(2 + 3*x)^2) - (15*Sqrt[1 - 2*
x]*Sqrt[3 + 5*x])/(98*(2 + 3*x)^2) + (15*Sqrt[1 - 2*x]*Sqrt[3 + 5
*x])/(1372*(2 + 3*x)) - (1585*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[
3 + 5*x])])/(1372*Sqrt[7])
```

Rubi [A] time = 0.227673, antiderivative size = 122, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$\frac{15\sqrt{1-2x}\sqrt{5x+3}}{1372(3x+2)}-\frac{15\sqrt{1-2x}\sqrt{5x+3}}{98(3x+2)^2}+\frac{2\sqrt{5x+3}}{7\sqrt{1-2x}(3x+2)^2}-\frac{1585\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{1372\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[3 + 5*x]/((1 - 2*x)^(3/2)*(2 + 3*x)^3),x]
```

```
[Out] (2*Sqrt[3 + 5*x])/(7*Sqrt[1 - 2*x]*(2 + 3*x)^2) - (15*Sqrt[1 - 2*
x]*Sqrt[3 + 5*x])/(98*(2 + 3*x)^2) + (15*Sqrt[1 - 2*x]*Sqrt[3 + 5
*x])/(1372*(2 + 3*x)) - (1585*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[
3 + 5*x])])/(1372*Sqrt[7])
```

Rubi in Sympy [A] time = 21.3306, size = 110, normalized size = 0.9

$$\frac{15\sqrt{-2x+1}\sqrt{5x+3}}{1372\,(3x+2)}-\frac{15\sqrt{-2x+1}\sqrt{5x+3}}{98\,(3x+2)^2}-\frac{1585\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{9604}+\frac{2\sqrt{5x+3}}{7\sqrt{-2x+1}\,(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(1/2)/(1-2*x)**(3/2)/(2+3*x)**3,x)
```

```
[Out] 15*sqrt(-2*x + 1)*sqrt(5*x + 3)/(1372*(3*x + 2)) - 15*sqrt(-2*x +
 1)*sqrt(5*x + 3)/(98*(3*x + 2)**2) - 1585*sqrt(7)*atan(sqrt(7)*s
qrt(-2*x + 1)/(7*sqrt(5*x + 3)))/9604 + 2*sqrt(5*x + 3)/(7*sqrt(-
2*x + 1)*(3*x + 2)**2)
```

Mathematica [A] time = 0.112043, size = 77, normalized size = 0.63

$$\frac{\frac{14\sqrt{5x+3}(-90x^2+405x+212)}{\sqrt{1-2x}(3x+2)^2}-1585\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{19208}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[3 + 5*x]/((1 - 2*x)^(3/2)*(2 + 3*x)^3),x]
```

```
[Out] ((14*Sqrt[3 + 5*x]*(212 + 405*x - 90*x^2))/(Sqrt[1 - 2*x]*(2 + 3*
x)^2) - 1585*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3
 + 5*x])])/19208
```

Maple [B] time = 0.02, size = 209, normalized size = 1.7

$$\frac{1}{19208\,(2+3\,x)^2\,(-1+2\,x)}\left(28530\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^3+23775\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^2-6$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(1/2)/(1-2*x)^(3/2)/(2+3*x)^3,x)
```

```
[Out] 1/19208*(28530*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3
)^(1/2))*x^3+23775*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2
-x+3)^(1/2))*x^2-6340*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*
x^2-x+3)^(1/2))*x+1260*x^2*(-10*x^2-x+3)^(1/2)-6340*7^(1/2)*arcta
n(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))-5670*x*(-10*x^2-x+3
)^(1/2)-2968*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)*(3+5*x)^(1/2)/(2+
3*x)^2/(-1+2*x)/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.5149, size = 193, normalized size = 1.58

$$\frac{1585}{19208}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)-\frac{25\,x}{686\,\sqrt{-10\,x^2-x+3}}+\frac{785}{4116\,\sqrt{-10\,x^2-x+3}}+\frac{1}{42\left(9\,\sqrt{-10\,x^2-x+3}x^2+12\,\sqrt{-10\,x^2-x+3}x+4\,\sqrt{-10\,x^2-x+3}\right)}-\frac{95}{588\left(3\,\sqrt{-10\,x^2-x+3}x+2\,\sqrt{-10\,x^2-x+3}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/((3*x + 2)^3*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 1585/19208*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x +
2)) - 25/686*x/sqrt(-10*x^2 - x + 3) + 785/4116/sqrt(-10*x^2 - x
+ 3) + 1/42/(9*sqrt(-10*x^2 - x + 3)*x^2 + 12*sqrt(-10*x^2 - x +
3)*x + 4*sqrt(-10*x^2 - x + 3)) - 95/588/(3*sqrt(-10*x^2 - x + 3)
*x + 2*sqrt(-10*x^2 - x + 3))
```

Fricas [A] time = 0.231634, size = 127, normalized size = 1.04

$$\frac{\sqrt{7}\left(2\,\sqrt{7}\left(90\,x^2-405\,x-212\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+1585\,\left(18\,x^3+15\,x^2-4\,x-4\right)\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)}{19208\left(18\,x^3+15\,x^2-4\,x-4\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/((3*x + 2)^3*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/19208*sqrt(7)*(2*sqrt(7)*(90*x^2 - 405*x - 212)*sqrt(5*x + 3)*s
qrt(-2*x + 1) + 1585*(18*x^3 + 15*x^2 - 4*x - 4)*arctan(1/14*sqrt
(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(18*x^3 + 15*x^2
 - 4*x - 4)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(1/2)/(1-2*x)**(3/2)/(2+3*x)**3,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.373215, size = 382, normalized size = 3.13

$$\frac{317}{38416}\sqrt{70}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3} - 4\right)}{140\left(\sqrt{2}\sqrt{-10x+5} - \sqrt{22}\right)}\right)\right) - \frac{8\sqrt{5}\sqrt{5x+3}\sqrt{-10x+5}}{1715(2x-1)} - \frac{33\left(7\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}} - \frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3 - 680\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}} - \frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)\right)}{98\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}} - \frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2 + 280\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/((3*x + 2)^3*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 317/38416*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5
*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(s
qrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 8/1715*sqrt(5)*sqrt(5*x +
3)*sqrt(-10*x + 5)/(2*x - 1) - 33/98*(7*sqrt(10)*((sqrt(2)*sqrt(-
10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sq
rt(-10*x + 5) - sqrt(22)))^3 - 680*sqrt(10)*((sqrt(2)*sqrt(-10*x
+ 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-1
0*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqr
t(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))
)^2 + 280)^2
```

3.2510 $\int \frac{\sqrt{3+5x}}{(1-2x)^{3/2}(2+3x)^4} dx$

Optimal. Leaf size=151

$$\frac{565\sqrt{1-2x}\sqrt{5x+3}}{2744(3x+2)}-\frac{5\sqrt{1-2x}\sqrt{5x+3}}{196(3x+2)^2}-\frac{\sqrt{1-2x}\sqrt{5x+3}}{7(3x+2)^3}+\frac{2\sqrt{5x+3}}{7\sqrt{1-2x}(3x+2)^3}-\frac{7435\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{2744\sqrt{7}}$$

```
[Out] (2*Sqrt[3 + 5*x])/(7*Sqrt[1 - 2*x]*(2 + 3*x)^3) - (Sqrt[1 - 2*x]*
Sqrt[3 + 5*x])/(7*(2 + 3*x)^3) - (5*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/
(196*(2 + 3*x)^2) + (565*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2744*(2 +
3*x)) - (7435*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(274
4*Sqrt[7])
```

Rubi [A] time = 0.293805, antiderivative size = 151, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$\frac{565\sqrt{1-2x}\sqrt{5x+3}}{2744(3x+2)}-\frac{5\sqrt{1-2x}\sqrt{5x+3}}{196(3x+2)^2}-\frac{\sqrt{1-2x}\sqrt{5x+3}}{7(3x+2)^3}+\frac{2\sqrt{5x+3}}{7\sqrt{1-2x}(3x+2)^3}-\frac{7435\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{2744\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[3 + 5*x]/((1 - 2*x)^(3/2)*(2 + 3*x)^4),x]
```

```
[Out] (2*Sqrt[3 + 5*x])/(7*Sqrt[1 - 2*x]*(2 + 3*x)^3) - (Sqrt[1 - 2*x]*
Sqrt[3 + 5*x])/(7*(2 + 3*x)^3) - (5*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/
(196*(2 + 3*x)^2) + (565*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2744*(2 +
3*x)) - (7435*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(274
4*Sqrt[7])
```

Rubi in Sympy [A] time = 28.5261, size = 136, normalized size = 0.9

$$\frac{565\sqrt{-2x+1}\sqrt{5x+3}}{2744\,(3x+2)}-\frac{5\sqrt{-2x+1}\sqrt{5x+3}}{196\,(3x+2)^{2}}-\frac{\sqrt{-2x+1}\sqrt{5x+3}}{7\,(3x+2)^{3}}-\frac{7435\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{19208}+\frac{2\sqrt{5x+3}}{7\sqrt{-2x+1}\,(3x+2)^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(1/2)/(1-2*x)**(3/2)/(2+3*x)**4,x)
```

```
[Out] 565*sqrt(-2*x + 1)*sqrt(5*x + 3)/(2744*(3*x + 2)) - 5*sqrt(-2*x +
 1)*sqrt(5*x + 3)/(196*(3*x + 2)**2) - sqrt(-2*x + 1)*sqrt(5*x +
3)/(7*(3*x + 2)**3) - 7435*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7
*sqrt(5*x + 3)))/19208 + 2*sqrt(5*x + 3)/(7*sqrt(-2*x + 1)*(3*x +
 2)**3)
```

Mathematica [A] time = 0.110148, size = 82, normalized size = 0.54

$$\frac{\frac{14\sqrt{5x+3}(-10170x^3-8055x^2+3114x+2512)}{\sqrt{1-2x}(3x+2)^3}-7435\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{38416}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[3 + 5*x]/((1 - 2*x)^(3/2)*(2 + 3*x)^4),x]
```

```
[Out] ((14*Sqrt[3 + 5*x]*(2512 + 3114*x - 8055*x^2 - 10170*x^3))/(Sqrt[
1 - 2*x]*(2 + 3*x)^3) - 7435*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[
7 - 14*x]*Sqrt[3 + 5*x])])/38416
```

Maple [B] time = 0.022, size = 257, normalized size = 1.7

$$\frac{1}{38416\,(2+3\,x)^3\,(-1+2\,x)}\left(401490\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^4+602235\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^3\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((3+5*x)^(1/2)/(1-2*x)^(3/2)/(2+3*x)^4,x)
```

```
[Out] 1/38416*(401490*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+
3)^(1/2))*x^4+602235*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x
^2-x+3)^(1/2))*x^3+133830*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(
-10*x^2-x+3)^(1/2))*x^2+142380*x^3*(-10*x^2-x+3)^(1/2)-148700*7^(
1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+112770*
x^2*(-10*x^2-x+3)^(1/2)-59480*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/
2)/(-10*x^2-x+3)^(1/2))-43596*x*(-10*x^2-x+3)^(1/2)-35168*(-10*x^
2-x+3)^(1/2))*(1-2*x)^(1/2)*(3+5*x)^(1/2)/(2+3*x)^3/(-1+2*x)/(-10
*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.51286, size = 285, normalized size = 1.89

$$\frac{7435}{38416}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)-\frac{2825\,x}{4116\,\sqrt{-10\,x^2-x+3}}+\frac{1145}{2744\,\sqrt{-10\,x^2-x+3}}$$
$$+\frac{1}{63\left(27\,\sqrt{-10\,x^2-x+3}x^3+54\,\sqrt{-10\,x^2-x+3}x^2+36\,\sqrt{-10\,x^2-x+3}x+8\,\sqrt{-10\,x^2-x+3}\right)}$$
$$-\frac{23}{252\left(9\,\sqrt{-10\,x^2-x+3}x^2+12\,\sqrt{-10\,x^2-x+3}x+4\,\sqrt{-10\,x^2-x+3}\right)}$$
$$-\frac{125}{1176\left(3\,\sqrt{-10\,x^2-x+3}x+2\,\sqrt{-10\,x^2-x+3}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)/((3*x + 2)^4*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 7435/38416*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x +
2)) - 2825/4116*x/sqrt(-10*x^2 - x + 3) + 1145/2744/sqrt(-10*x^2
- x + 3) + 1/63/(27*sqrt(-10*x^2 - x + 3)*x^3 + 54*sqrt(-10*x^2 -
 x + 3)*x^2 + 36*sqrt(-10*x^2 - x + 3)*x + 8*sqrt(-10*x^2 - x + 3
)) - 23/252/(9*sqrt(-10*x^2 - x + 3)*x^2 + 12*sqrt(-10*x^2 - x +
3)*x + 4*sqrt(-10*x^2 - x + 3)) - 125/1176/(3*sqrt(-10*x^2 - x +
3)*x + 2*sqrt(-10*x^2 - x + 3))
```

Fricas [A] time = 0.235589, size = 147, normalized size = 0.97

$$\frac{\sqrt{7}\left(2\,\sqrt{7}\left(10170\,x^3+8055\,x^2-3114\,x-2512\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+7435\left(54\,x^4+81\,x^3+18\,x^2-20\,x-8\right)\arctan\left(\frac{\sqrt{7}(37}{14\,\sqrt{5\,x+3}}\right.\right.}{38416\left(54\,x^4+81\,x^3+18\,x^2-20\,x-8\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)/((3*x + 2)^4*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/38416*sqrt(7)*(2*sqrt(7)*(10170*x^3 + 8055*x^2 - 3114*x - 2512)
*sqrt(5*x + 3)*sqrt(-2*x + 1) + 7435*(54*x^4 + 81*x^3 + 18*x^2 -
```

```
20*x - 8)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*
x + 1))))/(54*x^4 + 81*x^3 + 18*x^2 - 20*x - 8)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(1/2)/(1-2*x)**(3/2)/(2+3*x)**4,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.468808, size = 464, normalized size = 3.07

$$\frac{1487}{76832}\sqrt{70}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right) - \frac{16\sqrt{5}\sqrt{5x+3}\sqrt{-10x+5}}{12005(2x-1)}$$

$$-\frac{99\left(527\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^5 - 253120\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3 - 36299200\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-}\cdots}{\cdots}\right.}{9604\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/((3*x + 2)^4*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 1487/76832*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(
5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(
sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 16/12005*sqrt(5)*sqrt(5*x
 + 3)*sqrt(-10*x + 5)/(2*x - 1) - 99/9604*(527*sqrt(10)*((sqrt(2)
*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqr
t(2)*sqrt(-10*x + 5) - sqrt(22)))^5 - 253120*sqrt(10)*((sqrt(2)*s
qrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(
2)*sqrt(-10*x + 5) - sqrt(22)))^3 - 36299200*sqrt(10)*((sqrt(2)*s
qrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(
2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) - sqr
t(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) -
 sqrt(22)))^2 + 280)^3
```

3.2511 $\int \frac{\sqrt{3+5x}}{(1-2x)^{3/2}(2+3x)^5}\,dx$

Optimal. Leaf size=180

$$\frac{107245\sqrt{1-2x}\sqrt{5x+3}}{153664(3x+2)}+\frac{835\sqrt{1-2x}\sqrt{5x+3}}{10976(3x+2)^2}-\frac{13\sqrt{1-2x}\sqrt{5x+3}}{392(3x+2)^3}-\frac{27\sqrt{1-2x}\sqrt{5x+3}}{196(3x+2)^4}+\frac{2\sqrt{5x+3}}{7\sqrt{1-2x}(3x+2)^4}-\frac{1244755\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{153664\sqrt{7}}$$

```
[Out] (2*Sqrt[3 + 5*x])/(7*Sqrt[1 - 2*x]*(2 + 3*x)^4) - (27*Sqrt[1 - 2*
x]*Sqrt[3 + 5*x])/(196*(2 + 3*x)^4) - (13*Sqrt[1 - 2*x]*Sqrt[3 +
5*x])/(392*(2 + 3*x)^3) + (835*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(1097
6*(2 + 3*x)^2) + (107245*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(153664*(2
+ 3*x)) - (1244755*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])
/(153664*Sqrt[7])
```

Rubi [A] time = 0.376508, antiderivative size = 180, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$\frac{107245\sqrt{1-2x}\sqrt{5x+3}}{153664(3x+2)}+\frac{835\sqrt{1-2x}\sqrt{5x+3}}{10976(3x+2)^2}-\frac{13\sqrt{1-2x}\sqrt{5x+3}}{392(3x+2)^3}-\frac{27\sqrt{1-2x}\sqrt{5x+3}}{196(3x+2)^4}+\frac{2\sqrt{5x+3}}{7\sqrt{1-2x}(3x+2)^4}-\frac{1244755\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{153664\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[3 + 5*x]/((1 - 2*x)^(3/2)*(2 + 3*x)^5),x]
```

```
[Out] (2*Sqrt[3 + 5*x])/(7*Sqrt[1 - 2*x]*(2 + 3*x)^4) - (27*Sqrt[1 - 2*
x]*Sqrt[3 + 5*x])/(196*(2 + 3*x)^4) - (13*Sqrt[1 - 2*x]*Sqrt[3 +
5*x])/(392*(2 + 3*x)^3) + (835*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(1097
6*(2 + 3*x)^2) + (107245*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(153664*(2
+ 3*x)) - (1244755*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])
/(153664*Sqrt[7])
```

Rubi in Sympy [A] time = 35.4434, size = 165, normalized size = 0.92

$$\frac{107245\sqrt{-2x+1}\sqrt{5x+3}}{153664\,(3x+2)}+\frac{835\sqrt{-2x+1}\sqrt{5x+3}}{10976\,(3x+2)^2}-\frac{13\sqrt{-2x+1}\sqrt{5x+3}}{392\,(3x+2)^3}-\frac{27\sqrt{-2x+1}\sqrt{5x+3}}{196\,(3x+2)^4}-\frac{1244755\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{1075648}+\frac{2\sqrt{5x+3}}{7\sqrt{-2x+1}\,(3x+2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(1/2)/(1-2*x)**(3/2)/(2+3*x)**5,x)
```

```
[Out] 107245*sqrt(-2*x + 1)*sqrt(5*x + 3)/(153664*(3*x + 2)) + 835*sqrt
(-2*x + 1)*sqrt(5*x + 3)/(10976*(3*x + 2)**2) - 13*sqrt(-2*x + 1)
*sqrt(5*x + 3)/(392*(3*x + 2)**3) - 27*sqrt(-2*x + 1)*sqrt(5*x +
3)/(196*(3*x + 2)**4) - 1244755*sqrt(7)*atan(sqrt(7)*sqrt(-2*x +
1)/(7*sqrt(5*x + 3)))/1075648 + 2*sqrt(5*x + 3)/(7*sqrt(-2*x + 1)
*(3*x + 2)**4)
```

Mathematica [A] time = 0.122735, size = 87, normalized size = 0.48

$$\frac{-\frac{14\sqrt{5x+3}\left(5791230x^4+8897265x^3+2075184x^2-2239092x-917264\right)}{\sqrt{1-2x}(3x+2)^4}-1244755\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{2151296}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[3 + 5*x]/((1 - 2*x)^(3/2)*(2 + 3*x)^5),x]
```

```
[Out] ((-14*Sqrt[3 + 5*x]*(-917264 - 2239092*x + 2075184*x^2 + 8897265*
x^3 + 5791230*x^4))/(Sqrt[1 - 2*x]*(2 + 3*x)^4) - 1244755*Sqrt[7]
*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/2151296
```

Maple [B] time = 0.021, size = 305, normalized size = 1.7

$$\frac{1}{2151296\,(2+3\,x)^4\,(-1+2\,x)}\left(201650310\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^5+436909005\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)}{\sqrt{-10\,x^2-x}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(1/2)/(1-2*x)^(3/2)/(2+3*x)^5,x)
```

```
[Out] 1/2151296*(201650310*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x
^2-x+3)^(1/2))*x^5+436909005*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2
)/(-10*x^2-x+3)^(1/2))*x^4+268867080*7^(1/2)*arctan(1/14*(37*x+20
)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+81077220*x^4*(-10*x^2-x+3)^(1/
2)-29874120*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(
1/2))*x^2+124561710*x^3*(-10*x^2-x+3)^(1/2)-79664320*7^(1/2)*arct
an(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+29052576*x^2*(-1
0*x^2-x+3)^(1/2)-19916080*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(
-10*x^2-x+3)^(1/2))-31347288*x*(-10*x^2-x+3)^(1/2)-12841696*(-10*
x^2-x+3)^(1/2))*(1-2*x)^(1/2)*(3+5*x)^(1/2)/(2+3*x)^4/(-1+2*x)/(-
10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.51381, size = 400, normalized size = 2.22

$$\frac{1244755}{2151296}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)-\frac{536225\,x}{230496\,\sqrt{-10\,x^2-x+3}}+\frac{189585}{153664\,\sqrt{-10\,x^2-x+3}}$$
$$+\frac{1}{84\left(81\,\sqrt{-10\,x^2-x+3}x^4+216\,\sqrt{-10\,x^2-x+3}x^3+216\,\sqrt{-10\,x^2-x+3}x^2+96\,\sqrt{-10\,x^2-x+3}x+16\,\sqrt{-10\,x^2-x+3}\right)}$$
$$-\frac{227}{3528\left(27\,\sqrt{-10\,x^2-x+3}x^3+54\,\sqrt{-10\,x^2-x+3}x^2+36\,\sqrt{-10\,x^2-x+3}x+8\,\sqrt{-10\,x^2-x+3}\right)}$$
$$-\frac{599}{14112\left(9\,\sqrt{-10\,x^2-x+3}x^2+12\,\sqrt{-10\,x^2-x+3}x+4\,\sqrt{-10\,x^2-x+3}\right)}$$
$$-\frac{12725}{65856\left(3\,\sqrt{-10\,x^2-x+3}x+2\,\sqrt{-10\,x^2-x+3}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/((3*x + 2)^5*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 1244755/2151296*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3
*x + 2)) - 536225/230496*x/sqrt(-10*x^2 - x + 3) + 189585/153664/
sqrt(-10*x^2 - x + 3) + 1/84/(81*sqrt(-10*x^2 - x + 3)*x^4 + 216*
sqrt(-10*x^2 - x + 3)*x^3 + 216*sqrt(-10*x^2 - x + 3)*x^2 + 96*sq
rt(-10*x^2 - x + 3)*x + 16*sqrt(-10*x^2 - x + 3)) - 227/3528/(27*
sqrt(-10*x^2 - x + 3)*x^3 + 54*sqrt(-10*x^2 - x + 3)*x^2 + 36*sqr
t(-10*x^2 - x + 3)*x + 8*sqrt(-10*x^2 - x + 3)) - 599/14112/(9*sq
rt(-10*x^2 - x + 3)*x^2 + 12*sqrt(-10*x^2 - x + 3)*x + 4*sqrt(-10
*x^2 - x + 3)) - 12725/65856/(3*sqrt(-10*x^2 - x + 3)*x + 2*sqrt(
-10*x^2 - x + 3))
```

Fricas [A] time = 0.235473, size = 167, normalized size = 0.93

$$\frac{\sqrt{7}\left(2\sqrt{7}\left(5791230\,x^4+8897265\,x^3+2075184\,x^2-2239092\,x-917264\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+1244755\,\left(162\,x^5+351\,x^4+21\right.\right.}{2151296\,(162\,x^5+351\,x^4+216\,x^3-24\,x^2-64\,x-16)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)/((3*x + 2)^5*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/2151296*sqrt(7)*(2*sqrt(7)*(5791230*x^4 + 8897265*x^3 + 2075184
*x^2 - 2239092*x - 917264)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 1244755
*(162*x^5 + 351*x^4 + 216*x^3 - 24*x^2 - 64*x - 16)*arctan(1/14*s
qrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(162*x^5 + 35
1*x^4 + 216*x^3 - 24*x^2 - 64*x - 16)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(1/2)/(1-2*x)**(3/2)/(2+3*x)**5,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.606891, size = 547, normalized size = 3.04

$$\frac{248951}{4302592}\sqrt{70}\sqrt{10}\left(\pi+2\,\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3}-4\right)}{140\,\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)-\frac{32\,\sqrt{5}\sqrt{5\,x+3}\sqrt{-10\,x+5}}{84035\,(2\,x-1)}$$

$$-\frac{33\left(264101\,\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^7-272107080\,\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^5-72200520000\right.}{537824\left(\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}}\right.\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)/((3*x + 2)^5*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 248951/4302592*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*s
qrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) -
4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 32/84035*sqrt(5)*sqrt
(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1) - 33/537824*(264101*sqrt(10)*
((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x
+ 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^7 - 272107080*sqrt(10)
*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x
 + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 - 72200520000*sqrt(
10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(
5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 - 5707629760000*
sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*
sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*s
qrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(
2)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)^4
```

3.2512 $\int \frac{(2+3x)^4(3+5x)^{3/2}}{(1-2x)^{3/2}}\,dx$

Optimal. Leaf size=161

$$\frac{(5x+3)^{3/2}(3x+2)^4}{\sqrt{1-2x}}+\frac{33}{20}\sqrt{1-2x}(5x+3)^{3/2}(3x+2)^3+\frac{10377\sqrt{1-2x}(5x+3)^{3/2}(3x+2)^2}{1600}+\frac{9\sqrt{1-2x}(5x+3)^{3/2}(2253560x+4772357)}{256000}+\frac{1018114917\sqrt{1-2x}\sqrt{5x+3}}{1024000}-\frac{11199264087\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{1024000\sqrt{10}}$$

```
[Out] (1018114917*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/1024000 + (10377*Sqrt[1
- 2*x]*(2 + 3*x)^2*(3 + 5*x)^(3/2))/1600 + (33*Sqrt[1 - 2*x]*(2 +
 3*x)^3*(3 + 5*x)^(3/2))/20 + ((2 + 3*x)^4*(3 + 5*x)^(3/2))/Sqrt[
1 - 2*x] + (9*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)*(4772357 + 2253560*x)
)/256000 - (11199264087*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(102400
0*Sqrt[10])
```

Rubi [A] time = 0.258423, antiderivative size = 161, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$\frac{(5x+3)^{3/2}(3x+2)^4}{\sqrt{1-2x}}+\frac{33}{20}\sqrt{1-2x}(5x+3)^{3/2}(3x+2)^3+\frac{10377\sqrt{1-2x}(5x+3)^{3/2}(3x+2)^2}{1600}+\frac{9\sqrt{1-2x}(5x+3)^{3/2}(2253560x+4772357)}{256000}+\frac{1018114917\sqrt{1-2x}\sqrt{5x+3}}{1024000}-\frac{11199264087\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{1024000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^4*(3 + 5*x)^(3/2))/(1 - 2*x)^(3/2),x]
```


```
[Out] (1018114917*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/1024000 + (10377*Sqrt[1
- 2*x]*(2 + 3*x)^2*(3 + 5*x)^(3/2))/1600 + (33*Sqrt[1 - 2*x]*(2 +
 3*x)^3*(3 + 5*x)^(3/2))/20 + ((2 + 3*x)^4*(3 + 5*x)^(3/2))/Sqrt[
1 - 2*x] + (9*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)*(4772357 + 2253560*x)
)/256000 - (11199264087*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(102400
0*Sqrt[10])
```

Rubi in Sympy [A] time = 28.0872, size = 150, normalized size = 0.93

$$\frac{33\sqrt{-2x+1}\,(3x+2)^3\,(5x+3)^{\frac{3}{2}}}{20}+\frac{10377\sqrt{-2x+1}\,(3x+2)^2\,(5x+3)^{\frac{3}{2}}}{1600}+\frac{\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}\left(\frac{190144125x}{2}+\frac{3221340975}{16}\right)}{1200000}+\frac{1018114917\sqrt{-2x+1}\sqrt{5x+3}}{1024000}-\frac{11199264087\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{10240000}+\frac{(3x+2)^4\,(5x+3)^{\frac{3}{2}}}{\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4*(3+5*x)**(3/2)/(1-2*x)**(3/2),x)
```

```
[Out] 33*sqrt(-2*x + 1)*(3*x + 2)**3*(5*x + 3)**(3/2)/20 + 10377*sqrt(-
2*x + 1)*(3*x + 2)**2*(5*x + 3)**(3/2)/1600 + sqrt(-2*x + 1)*(5*x
 + 3)**(3/2)*(190144125*x/2 + 3221340975/16)/1200000 + 1018114917
```

```
*sqrt(-2*x + 1)*sqrt(5*x + 3)/1024000 - 11199264087*sqrt(10)*asin
(sqrt(22)*sqrt(5*x + 3)/11)/10240000 + (3*x + 2)**4*(5*x + 3)**(3
/2)/sqrt(-2*x + 1)
```

Mathematica [A] time = 0.122095, size = 79, normalized size = 0.49

$$\frac{11199264087\sqrt{10-20x}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)-10\sqrt{5x+3}\left(41472000x^5+200966400x^4+461171520x^3+732415080x^2+12\right.}{10240000\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^4*(3 + 5*x)^(3/2))/(1 - 2*x)^(3/2),x]
```

```
[Out] (-10*Sqrt[3 + 5*x]*(-1702927233 + 1206337246*x + 732415080*x^2 +
461171520*x^3 + 200966400*x^4 + 41472000*x^5) + 11199264087*Sqrt[
10 - 20*x]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/(10240000*Sqrt[1 - 2
*x])
```

Maple [A] time = 0.02, size = 157, normalized size = 1.

$$-\frac{1}{-20480000+40960000\,x}\left(-829440000\,x^5\sqrt{-10\,x^2-x+3}-4019328000\,x^4\sqrt{-10\,x^2-x+3}-9223430400\,x^3\sqrt{-10\,x^2-\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4*(3+5*x)^(3/2)/(1-2*x)^(3/2),x)
```

```
[Out] -1/20480000*(-829440000*x^5*(-10*x^2-x+3)^(1/2)-4019328000*x^4*(-
10*x^2-x+3)^(1/2)-9223430400*x^3*(-10*x^2-x+3)^(1/2)+22398528174*
10^(1/2)*arcsin(20/11*x+1/11)*x-14648301600*x^2*(-10*x^2-x+3)^(1/
2)-11199264087*10^(1/2)*arcsin(20/11*x+1/11)-24126744920*x*(-10*x
^2-x+3)^(1/2)+34058544660*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)*(3+5
*x)^(1/2)/(-1+2*x)/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.52421, size = 267, normalized size = 1.66

$$\frac{81}{400}\left(-10\,x^2-x+3\right)^{\frac{5}{2}}-\frac{6669}{640}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x-\frac{12607994487}{20480000}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}\,x+\frac{1}{11}\right)$$
$$-\frac{1760913}{25600}i\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}\,x-\frac{21}{11}\right)-\frac{359469}{12800}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}+\frac{14553}{64}\sqrt{10\,x^2-21\,x+8}x$$
$$-\frac{2420847}{51200}\sqrt{-10\,x^2-x+3}x-\frac{305613}{1280}\sqrt{10\,x^2-21\,x+8}+\frac{540891153}{1024000}\sqrt{-10\,x^2-x+3}$$
$$-\frac{2401\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{32\left(4\,x^2-4\,x+1\right)}-\frac{1029\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{16\left(2\,x-1\right)}-\frac{79233\sqrt{-10\,x^2-x+3}}{64\left(2\,x-1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)^4/(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] 81/400*(-10*x^2 - x + 3)^(5/2) - 6669/640*(-10*x^2 - x + 3)^(3/2)
*x - 12607994487/20480000*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11)
- 1760913/25600*I*sqrt(5)*sqrt(2)*arcsin(20/11*x - 21/11) - 35946
9/12800*(-10*x^2 - x + 3)^(3/2) + 14553/64*sqrt(10*x^2 - 21*x + 8
)*x - 2420847/51200*sqrt(-10*x^2 - x + 3)*x - 305613/1280*sqrt(10
*x^2 - 21*x + 8) + 540891153/1024000*sqrt(-10*x^2 - x + 3) - 2401
/32*(-10*x^2 - x + 3)^(3/2)/(4*x^2 - 4*x + 1) - 1029/16*(-10*x^2
- x + 3)^(3/2)/(2*x - 1) - 79233/64*sqrt(-10*x^2 - x + 3)/(2*x -
```

1)

Fricas [A] time = 0.229568, size = 120, normalized size = 0.75

$$\frac{\sqrt{10}\left(2\sqrt{10}\left(41472000x^5+200966400x^4+461171520x^3+732415080x^2+1206337246x-1702927233\right)\sqrt{5x+3}\sqrt{-2x+1}\right.}{20480000(2x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(3*x + 2)^4/(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] 1/20480000*sqrt(10)*(2*sqrt(10)*(41472000*x^5 + 200966400*x^4 + 4
61171520*x^3 + 732415080*x^2 + 1206337246*x - 1702927233)*sqrt(5*
x + 3)*sqrt(-2*x + 1) - 11199264087*(2*x - 1)*arctan(1/20*sqrt(10
)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(2*x - 1)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2+3*x)**4*(3+5*x)**(3/2)/(1-2*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.247335, size = 149, normalized size = 0.93

$$-\frac{11199264087}{10240000}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)+\frac{\left(2\left(12\left(24\left(12\left(48\sqrt{5}(5x+3)+443\sqrt{5}\right)(5x+3)+44497\sqrt{5}\right)(5x+3)+10283927\sqrt{5}\right)(5x+3)+1696858195\sqrt{5}\right)(5x+\right.}{128000000(2x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(3*x + 2)^4/(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] -11199264087/10240000*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)
) + 1/128000000*(2*(12*(24*(12*(48*sqrt(5)*(5*x + 3) + 443*sqrt(5
))*(5*x + 3) + 44497*sqrt(5))*(5*x + 3) + 10283927*sqrt(5))*(5*x
+ 3) + 1696858195*sqrt(5))*(5*x + 3) - 55996320435*sqrt(5))*sqrt(
5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)
```

3.2513 $\int \frac{(2+3x)^3(3+5x)^{3/2}}{(1-2x)^{3/2}}\,dx$

Optimal. Leaf size=132

$$\frac{(5x+3)^{3/2}(3x+2)^3}{\sqrt{1-2x}}+\frac{27}{16}\sqrt{1-2x}(5x+3)^{3/2}(3x+2)^2+\frac{9\sqrt{1-2x}(5x+3)^{3/2}(29320x+62091)}{12800}+\frac{13246251\sqrt{1-2x}\sqrt{5x+3}}{51200}-\frac{145708761\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{51200\sqrt{10}}$$

```
[Out] (13246251*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/51200 + (27*Sqrt[1 - 2*x]*
(2 + 3*x)^2*(3 + 5*x)^(3/2))/16 + ((2 + 3*x)^3*(3 + 5*x)^(3/2))/S
qrt[1 - 2*x] + (9*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)*(62091 + 29320*x)
)/12800 - (145708761*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(51200*Sqr
t[10])
```

Rubi [A] time = 0.200653, antiderivative size = 132, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$\frac{(5x+3)^{3/2}(3x+2)^3}{\sqrt{1-2x}}+\frac{27}{16}\sqrt{1-2x}(5x+3)^{3/2}(3x+2)^2+\frac{9\sqrt{1-2x}(5x+3)^{3/2}(29320x+62091)}{12800}+\frac{13246251\sqrt{1-2x}\sqrt{5x+3}}{51200}-\frac{145708761\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{51200\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^3*(3 + 5*x)^(3/2))/(1 - 2*x)^(3/2),x]
```

```
[Out] (13246251*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/51200 + (27*Sqrt[1 - 2*x]*
(2 + 3*x)^2*(3 + 5*x)^(3/2))/16 + ((2 + 3*x)^3*(3 + 5*x)^(3/2))/S
qrt[1 - 2*x] + (9*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)*(62091 + 29320*x)
)/12800 - (145708761*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(51200*Sqr
t[10])
```

Rubi in Sympy [A] time = 20.295, size = 121, normalized size = 0.92

$$\frac{27\sqrt{-2x+1}\,(3x+2)^2\,(5x+3)^{\frac{3}{2}}}{16}+\frac{\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}\left(494775x+\frac{8382285}{8}\right)}{24000}+\frac{13246251\sqrt{-2x+1}\sqrt{5x+3}}{51200}-\frac{145708761\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{512000}+\frac{(3x+2)^3\,(5x+3)^{\frac{3}{2}}}{\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3*(3+5*x)**(3/2)/(1-2*x)**(3/2),x)
```

```
[Out] 27*sqrt(-2*x + 1)*(3*x + 2)**2*(5*x + 3)**(3/2)/16 + sqrt(-2*x +
1)*(5*x + 3)**(3/2)*(494775*x + 8382285/8)/24000 + 13246251*sqrt(
-2*x + 1)*sqrt(5*x + 3)/51200 - 145708761*sqrt(10)*asin(sqrt(22)*
sqrt(5*x + 3)/11)/512000 + (3*x + 2)**3*(5*x + 3)**(3/2)/sqrt(-2*
x + 1)
```

Mathematica [A] time = 0.109131, size = 74, normalized size = 0.56

$$\frac{145708761\sqrt{10-20x}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)-10\sqrt{5x+3}\left(864000x^4+3729600x^3+8057880x^2+15218818x-22217679\right)}{512000\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^3*(3 + 5*x)^(3/2))/(1 - 2*x)^(3/2),x]
```

```
[Out] (-10*Sqrt[3 + 5*x]*(-22217679 + 15218818*x + 8057880*x^2 + 372960
0*x^3 + 864000*x^4) + 145708761*Sqrt[10 - 20*x]*ArcSin[Sqrt[5/11]
*Sqrt[1 - 2*x]])/(512000*Sqrt[1 - 2*x])
```

Maple [A] time = 0.02, size = 140, normalized size = 1.1

$$-\frac{1}{-1024000+2048000\,x}\left(-17280000\,x^4\sqrt{-10\,x^2-x+3}-74592000\,x^3\sqrt{-10\,x^2-x+3}+291417522\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3*(3+5*x)^(3/2)/(1-2*x)^(3/2),x)
```

```
[Out] -1/1024000*(-17280000*x^4*(-10*x^2-x+3)^(1/2)-74592000*x^3*(-10*x
^2-x+3)^(1/2)+291417522*10^(1/2)*arcsin(20/11*x+1/11)*x-161157600
*x^2*(-10*x^2-x+3)^(1/2)-145708761*10^(1/2)*arcsin(20/11*x+1/11)-
304376360*x*(-10*x^2-x+3)^(1/2)+444353580*(-10*x^2-x+3)^(1/2))*(1
-2*x)^(1/2)*(3+5*x)^(1/2)/(-1+2*x)/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.51875, size = 248, normalized size = 1.88

$$-\frac{27}{32}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x-\frac{155771121}{1024000}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}\,x+\frac{1}{11}\right)$$
$$-\frac{251559}{25600}i\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}\,x-\frac{21}{11}\right)-\frac{2547}{640}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}+\frac{2079}{64}\sqrt{10\,x^2-21\,x+8}x$$
$$-\frac{9801}{2560}\sqrt{-10\,x^2-x+3}x-\frac{43659}{1280}\sqrt{10\,x^2-21\,x+8}+\frac{5811399}{51200}\sqrt{-10\,x^2-x+3}$$
$$-\frac{343\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{16\left(4\,x^2-4\,x+1\right)}-\frac{441\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{32\left(2\,x-1\right)}-\frac{11319\sqrt{-10\,x^2-x+3}}{32\left(2\,x-1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)^3/(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] -27/32*(-10*x^2 - x + 3)^(3/2)*x - 155771121/1024000*sqrt(5)*sqrt
(2)*arcsin(20/11*x + 1/11) - 251559/25600*I*sqrt(5)*sqrt(2)*arcsi
n(20/11*x - 21/11) - 2547/640*(-10*x^2 - x + 3)^(3/2) + 2079/64*s
qrt(10*x^2 - 21*x + 8)*x - 9801/2560*sqrt(-10*x^2 - x + 3)*x - 43
659/1280*sqrt(10*x^2 - 21*x + 8) + 5811399/51200*sqrt(-10*x^2 - x
 + 3) - 343/16*(-10*x^2 - x + 3)^(3/2)/(4*x^2 - 4*x + 1) - 441/32
*(-10*x^2 - x + 3)^(3/2)/(2*x - 1) - 11319/32*sqrt(-10*x^2 - x +
3)/(2*x - 1)
```

Fricas [A] time = 0.233909, size = 113, normalized size = 0.86

$$\frac{\sqrt{10}\left(2\sqrt{10}\left(864000\,x^4+3729600\,x^3+8057880\,x^2+15218818\,x-22217679\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-145708761\left(2\,x-1\right)\text{arcta}\right.}{1024000\left(2\,x-1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)^3/(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] 1/1024000*sqrt(10)*(2*sqrt(10)*(864000*x^4 + 3729600*x^3 + 805788
0*x^2 + 15218818*x - 22217679)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 145
```

```
708761*(2*x - 1)*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*s
qrt(-2*x + 1))))/(2*x - 1)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3*(3+5*x)**(3/2)/(1-2*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.238735, size = 131, normalized size = 0.99

$$-\frac{145708761}{512000}\,\sqrt{10}\arcsin\left(\frac{1}{11}\,\sqrt{22}\sqrt{5\,x+3}\right)+\frac{\left(2\,\left(36\,\left(8\,\left(12\,\sqrt{5}(5\,x+3)+115\,\sqrt{5}\right)(5\,x+3)+8919\,\sqrt{5}\right)(5\,x+3)+4415417\,\sqrt{5}\right)(5\,x+3)-145708761\,\sqrt{5}\right)\sqrt{5\,x+3}\sqrt{-10\,x+5}}{1280000\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)^3/(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] -145708761/512000*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) +
1/1280000*(2*(36*(8*(12*sqrt(5)*(5*x + 3) + 115*sqrt(5))*(5*x + 3
) + 8919*sqrt(5))*(5*x + 3) + 4415417*sqrt(5))*(5*x + 3) - 145708
761*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)
```

3.2514 $\int \frac{(2+3x)^2(3+5x)^{3/2}}{(1-2x)^{3/2}}\,dx$

Optimal. Leaf size=116

$$\frac{3}{20}\sqrt{1-2x}(5x+3)^{5/2}+\frac{49(5x+3)^{5/2}}{22\sqrt{1-2x}}+\frac{14057\sqrt{1-2x}(5x+3)^{3/2}}{1760}+\frac{42171}{640}\sqrt{1-2x}\sqrt{5x+3}-\frac{463881\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{640\sqrt{10}}$$

```
[Out] (42171*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/640 + (14057*Sqrt[1 - 2*x]*(3
 + 5*x)^(3/2))/1760 + (49*(3 + 5*x)^(5/2))/(22*Sqrt[1 - 2*x]) + (
3*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/20 - (463881*ArcSin[Sqrt[2/11]*S
qrt[3 + 5*x]])/(640*Sqrt[10])
```

Rubi [A] time = 0.142704, antiderivative size = 116, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$\frac{3}{20}\sqrt{1-2x}(5x+3)^{5/2}+\frac{49(5x+3)^{5/2}}{22\sqrt{1-2x}}+\frac{14057\sqrt{1-2x}(5x+3)^{3/2}}{1760}+\frac{42171}{640}\sqrt{1-2x}\sqrt{5x+3}-\frac{463881\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{640\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^2*(3 + 5*x)^(3/2))/(1 - 2*x)^(3/2),x]
```

```
[Out] (42171*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/640 + (14057*Sqrt[1 - 2*x]*(3
 + 5*x)^(3/2))/1760 + (49*(3 + 5*x)^(5/2))/(22*Sqrt[1 - 2*x]) + (
3*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/20 - (463881*ArcSin[Sqrt[2/11]*S
qrt[3 + 5*x]])/(640*Sqrt[10])
```

Rubi in Sympy [A] time = 11.5191, size = 105, normalized size = 0.91

$$\frac{3\sqrt{-2x+1}\,(5x+3)^{\frac{5}{2}}}{20}+\frac{14057\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{1760}+\frac{42171\sqrt{-2x+1}\sqrt{5x+3}}{640}-\frac{463881\sqrt{10}\,\text{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{6400}+\frac{49\,(5x+3)^{\frac{5}{2}}}{22\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2*(3+5*x)**(3/2)/(1-2*x)**(3/2),x)
```

```
[Out] 3*sqrt(-2*x + 1)*(5*x + 3)**(5/2)/20 + 14057*sqrt(-2*x + 1)*(5*x
+ 3)**(3/2)/1760 + 42171*sqrt(-2*x + 1)*sqrt(5*x + 3)/640 - 46388
1*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/6400 + 49*(5*x + 3)**(
5/2)/(22*sqrt(-2*x + 1))
```

Mathematica [A] time = 0.0917007, size = 69, normalized size = 0.59

$$\frac{463881\sqrt{10-20x}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)-10\sqrt{5x+3}\left(4800x^3+18840x^2+45538x-71199\right)}{6400\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^2*(3 + 5*x)^(3/2))/(1 - 2*x)^(3/2),x]
```

```
[Out] (-10*Sqrt[3 + 5*x]*(-71199 + 45538*x + 18840*x^2 + 4800*x^3) + 46
3881*Sqrt[10 - 20*x]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/(6400*Sqrt
[1 - 2*x])
```

Maple [A] time = 0.019, size = 123, normalized size = 1.1

$$-\frac{1}{-12800+25600\,x}\left(-96000\,x^{3}\sqrt{-10\,x^{2}-x+3}+927762\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x-376800\,x^{2}\sqrt{-10\,x^{2}-x+3}-4638$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2*(3+5*x)^(3/2)/(1-2*x)^(3/2),x)
```

```
[Out] -1/12800*(-96000*x^3*(-10*x^2-x+3)^(1/2)+927762*10^(1/2)*arcsin(2
0/11*x+1/11)*x-376800*x^2*(-10*x^2-x+3)^(1/2)-463881*10^(1/2)*arc
sin(20/11*x+1/11)-910760*x*(-10*x^2-x+3)^(1/2)+1423980*(-10*x^2-x
+3)^(1/2))*(1-2*x)^(1/2)*(3+5*x)^(1/2)/(-1+2*x)/(-10*x^2-x+3)^(1/
2)
```

Maxima [A] time = 1.51225, size = 208, normalized size = 1.79

$$-\frac{23793}{640}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}\,x+\frac{1}{11}\right)-\frac{11979}{12800}i\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}\,x-\frac{21}{11}\right)-\frac{3}{8}\left(-10\,x^{2}-x+3\right)^{\frac{3}{2}}+\frac{99}{32}\sqrt{10\,x^{2}-21\,x+8}x-\frac{2079}{640}\sqrt{10\,x^{2}-21\,x+8}+\frac{693}{32}\sqrt{-10\,x^{2}-x+3}-\frac{49\left(-10\,x^{2}-x+3\right)^{\frac{3}{2}}}{8\left(4\,x^{2}-4\,x+1\right)}-\frac{21\left(-10\,x^{2}-x+3\right)^{\frac{3}{2}}}{8\left(2\,x-1\right)}-\frac{1617\sqrt{-10\,x^{2}-x+3}}{16\left(2\,x-1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)^2/(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] -23793/640*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) - 11979/12800*I
*sqrt(5)*sqrt(2)*arcsin(20/11*x - 21/11) - 3/8*(-10*x^2 - x + 3)^
(3/2) + 99/32*sqrt(10*x^2 - 21*x + 8)*x - 2079/640*sqrt(10*x^2 -
21*x + 8) + 693/32*sqrt(-10*x^2 - x + 3) - 49/8*(-10*x^2 - x + 3)
^(3/2)/(4*x^2 - 4*x + 1) - 21/8*(-10*x^2 - x + 3)^(3/2)/(2*x - 1)
 - 1617/16*sqrt(-10*x^2 - x + 3)/(2*x - 1)
```

Fricas [A] time = 0.234871, size = 107, normalized size = 0.92

$$\frac{\sqrt{10}\left(2\sqrt{10}\left(4800\,x^{3}+18840\,x^{2}+45538\,x-71199\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-463881\left(2\,x-1\right)\arctan\left(\frac{\sqrt{10}(20\,x+1)}{20\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)}{12800\left(2\,x-1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)^2/(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] 1/12800*sqrt(10)*(2*sqrt(10)*(4800*x^3 + 18840*x^2 + 45538*x - 71
199)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 463881*(2*x - 1)*arctan(1/20*
sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(2*x - 1)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2*(3+5*x)**(3/2)/(1-2*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.236486, size = 113, normalized size = 0.97

$$-\frac{463881}{6400}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)+\frac{\left(2\left(12\left(8\sqrt{5}(5x+3)+85\sqrt{5}\right)(5x+3)+14057\sqrt{5}\right)(5x+3)-463881\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{16000(2x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)^2/(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] -463881/6400*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) + 1/160
00*(2*(12*(8*sqrt(5)*(5*x + 3) + 85*sqrt(5))*(5*x + 3) + 14057*sq
rt(5))*(5*x + 3) - 463881*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5)/
(2*x - 1)
```

3.2515 $\int \frac{(2+3x)(3+5x)^{3/2}}{(1-2x)^{3/2}}\,dx$

Optimal. Leaf size=94

$$\frac{7(5x+3)^{5/2}}{11\sqrt{1-2x}}+\frac{173}{88}\sqrt{1-2x}(5x+3)^{3/2}+\frac{519}{32}\sqrt{1-2x}\sqrt{5x+3}-\frac{5709\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{32\sqrt{10}}$$

```
[Out] (519*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/32 + (173*Sqrt[1 - 2*x]*(3 + 5*
x)^(3/2))/88 + (7*(3 + 5*x)^(5/2))/(11*Sqrt[1 - 2*x]) - (5709*Arc
Sin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(32*Sqrt[10])
```

Rubi [A] time = 0.0994635, antiderivative size = 94, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$\frac{7(5x+3)^{5/2}}{11\sqrt{1-2x}}+\frac{173}{88}\sqrt{1-2x}(5x+3)^{3/2}+\frac{519}{32}\sqrt{1-2x}\sqrt{5x+3}-\frac{5709\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{32\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)*(3 + 5*x)^(3/2))/(1 - 2*x)^(3/2),x]
```

```
[Out] (519*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/32 + (173*Sqrt[1 - 2*x]*(3 + 5*
x)^(3/2))/88 + (7*(3 + 5*x)^(5/2))/(11*Sqrt[1 - 2*x]) - (5709*Arc
Sin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(32*Sqrt[10])
```

Rubi in Sympy [A] time = 8.87354, size = 85, normalized size = 0.9

$$\frac{173\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{88}+\frac{519\sqrt{-2x+1}\sqrt{5x+3}}{32}-\frac{5709\sqrt{10}\,\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{320}+\frac{7\,(5x+3)^{\frac{5}{2}}}{11\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)*(3+5*x)**(3/2)/(1-2*x)**(3/2),x)
```

```
[Out] 173*sqrt(-2*x + 1)*(5*x + 3)**(3/2)/88 + 519*sqrt(-2*x + 1)*sqrt(
5*x + 3)/32 - 5709*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/320 +
 7*(5*x + 3)**(5/2)/(11*sqrt(-2*x + 1))
```

Mathematica [A] time = 0.0680364, size = 64, normalized size = 0.68

$$\frac{5709\sqrt{10-20x}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)-10\sqrt{5x+3}\left(120x^2+490x-891\right)}{320\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)*(3 + 5*x)^(3/2))/(1 - 2*x)^(3/2),x]
```

```
[Out] (-10*Sqrt[3 + 5*x]*(-891 + 490*x + 120*x^2) + 5709*Sqrt[10 - 20*x
]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/(320*Sqrt[1 - 2*x])
```

Maple [A] time = 0.016, size = 106, normalized size = 1.1

$$-\frac{1}{-640+1280x}\left(11418\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)x-2400x^2\sqrt{-10x^2-x+3}-5709\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)-9800x\sqrt{\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((2+3*x)*(3+5*x)^(3/2)/(1-2*x)^(3/2),x)
```

```
[Out] -1/640*(11418*10^(1/2)*arcsin(20/11*x+1/11)*x-2400*x^2*(-10*x^2-x
+3)^(1/2)-5709*10^(1/2)*arcsin(20/11*x+1/11)-9800*x*(-10*x^2-x+3)
^(1/2)+17820*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)*(3+5*x)^(1/2)/(-1
+2*x)/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.50843, size = 131, normalized size = 1.39

$$-\frac{5709}{640}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)+\frac{99}{32}\sqrt{-10x^2-x+3}-\frac{7\left(-10x^2-x+3\right)^{\frac{3}{2}}}{4\left(4x^2-4x+1\right)}-\frac{3\left(-10x^2-x+3\right)^{\frac{3}{2}}}{8\left(2x-1\right)}-\frac{231\sqrt{-10x^2-x+3}}{8\left(2x-1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)/(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] -5709/640*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) + 99/32*sqrt(-10
*x^2 - x + 3) - 7/4*(-10*x^2 - x + 3)^(3/2)/(4*x^2 - 4*x + 1) - 3
/8*(-10*x^2 - x + 3)^(3/2)/(2*x - 1) - 231/8*sqrt(-10*x^2 - x + 3
)/(2*x - 1)
```

Fricas [A] time = 0.233754, size = 100, normalized size = 1.06

$$\frac{\sqrt{10}\left(2\sqrt{10}\left(120x^2+490x-891\right)\sqrt{5x+3}\sqrt{-2x+1}-5709\left(2x-1\right)\arctan\left(\frac{\sqrt{10}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)}{640\left(2x-1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)/(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] 1/640*sqrt(10)*(2*sqrt(10)*(120*x^2 + 490*x - 891)*sqrt(5*x + 3)*
sqrt(-2*x + 1) - 5709*(2*x - 1)*arctan(1/20*sqrt(10)*(20*x + 1)/(
sqrt(5*x + 3)*sqrt(-2*x + 1))))/(2*x - 1)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)(5x+3)^{\frac{3}{2}}}{(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((2+3*x)*(3+5*x)**(3/2)/(1-2*x)**(3/2),x)
```

```
[Out] Integral((3*x + 2)*(5*x + 3)**(3/2)/(-2*x + 1)**(3/2), x)
```

GIAC/XCAS [A] time = 0.231876, size = 96, normalized size = 1.02

$$-\frac{5709}{320}\,\sqrt{10}\arcsin\left(\frac{1}{11}\,\sqrt{22}\sqrt{5\,x+3}\right)+\frac{\left(2\,\left(12\,\sqrt{5}(5\,x+3)+173\,\sqrt{5}\right)(5\,x+3)-5709\,\sqrt{5}\right)\sqrt{5\,x+3}\sqrt{-10\,x+5}}{800\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(3*x + 2)/(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] -5709/320*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) + 1/800*(2
*(12*sqrt(5)*(5*x + 3) + 173*sqrt(5))*(5*x + 3) - 5709*sqrt(5))*s
qrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)
```

3.2516 $\int \frac{(3+5x)^{3/2}}{(1-2x)^{3/2}}\,dx$

Optimal. Leaf size=71

$$\frac{(5x+3)^{3/2}}{\sqrt{1-2x}}+\frac{15}{4}\sqrt{1-2x}\sqrt{5x+3}-\frac{33}{4}\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)$$

```
[Out] (15*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/4 + (3 + 5*x)^(3/2)/Sqrt[1 - 2*x
] - (33*Sqrt[5/2]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/4
```

Rubi [A] time = 0.0631282, antiderivative size = 71, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.21

$$\frac{(5x+3)^{3/2}}{\sqrt{1-2x}}+\frac{15}{4}\sqrt{1-2x}\sqrt{5x+3}-\frac{33}{4}\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)$$

Antiderivative was successfully verified.

```
[In] Int[(3 + 5*x)^(3/2)/(1 - 2*x)^(3/2),x]
```

```
[Out] (15*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/4 + (3 + 5*x)^(3/2)/Sqrt[1 - 2*x
] - (33*Sqrt[5/2]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/4
```

Rubi in Sympy [A] time = 6.55448, size = 61, normalized size = 0.86

$$\frac{15\sqrt{-2x+1}\sqrt{5x+3}}{4}-\frac{33\sqrt{10}\,\text{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{8}+\frac{(5x+3)^{\frac{3}{2}}}{\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((3+5*x)**(3/2)/(1-2*x)**(3/2),x)
```

```
[Out] 15*sqrt(-2*x + 1)*sqrt(5*x + 3)/4 - 33*sqrt(10)*asin(sqrt(22)*sqr
t(5*x + 3)/11)/8 + (5*x + 3)**(3/2)/sqrt(-2*x + 1)
```

Mathematica [A] time = 0.0551798, size = 59, normalized size = 0.83

$$\frac{2\sqrt{5x+3}(27-10x)+33\sqrt{10-20x}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{8\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In] Integrate[(3 + 5*x)^(3/2)/(1 - 2*x)^(3/2),x]
```

```
[Out] (2*(27 - 10*x)*Sqrt[3 + 5*x] + 33*Sqrt[10 - 20*x]*ArcSin[Sqrt[5/1
1]*Sqrt[1 - 2*x]])/(8*Sqrt[1 - 2*x])
```

Maple [F] time = 0.043, size = 0, normalized size = 0.

$$\int 1\,(3+5\,x)^{\frac{3}{2}}\,(1-2\,x)^{-\frac{3}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(3/2)/(1-2*x)^(3/2),x)
```

```
[Out] int((3+5*x)^(3/2)/(1-2*x)^(3/2),x)
```

Maxima [A] time = 1.49862, size = 84, normalized size = 1.18

$$-\frac{33}{16}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)-\frac{\left(-10x^2-x+3\right)^{\frac{3}{2}}}{2\left(4x^2-4x+1\right)}-\frac{33\sqrt{-10x^2-x+3}}{4(2x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] -33/16*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) - 1/2*(-10*x^2 - x
+ 3)^(3/2)/(4*x^2 - 4*x + 1) - 33/4*sqrt(-10*x^2 - x + 3)/(2*x -
1)
```

Fricas [A] time = 0.230411, size = 101, normalized size = 1.42

$$\frac{\sqrt{2}\left(2\sqrt{2}(10x-27)\sqrt{5x+3}\sqrt{-2x+1}-33\sqrt{5}(2x-1)\arctan\left(\frac{\sqrt{5}\sqrt{2}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)}{16(2x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] 1/16*sqrt(2)*(2*sqrt(2)*(10*x - 27)*sqrt(5*x + 3)*sqrt(-2*x + 1)
- 33*sqrt(5)*(2*x - 1)*arctan(1/20*sqrt(5)*sqrt(2)*(20*x + 1)/(sq
rt(5*x + 3)*sqrt(-2*x + 1))))/(2*x - 1)
```

Sympy [A] time = 6.08687, size = 144, normalized size = 2.03

$$\begin{cases}\frac{25i\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}{2\sqrt{10x-5}}-\frac{165i\sqrt{x+\frac{3}{5}}}{4\sqrt{10x-5}}+\frac{33\sqrt{10}i\operatorname{acosh}\left(\frac{\sqrt{110}\sqrt{x+\frac{3}{5}}}{11}\right)}{8} & \text{for}\ \frac{10\left|x+\frac{3}{5}\right|}{11}>1\\ -\frac{33\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{110}\sqrt{x+\frac{3}{5}}}{11}\right)}{8}-\frac{25\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}{2\sqrt{-10x+5}}+\frac{165\sqrt{x+\frac{3}{5}}}{4\sqrt{-10x+5}} & \text{otherwise}\end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(3/2)/(1-2*x)**(3/2),x)
```

```
[Out] Piecewise((25*I*(x + 3/5)**(3/2)/(2*sqrt(10*x - 5)) - 165*I*sqrt(
x + 3/5)/(4*sqrt(10*x - 5)) + 33*sqrt(10)*I*acosh(sqrt(110)*sqrt(
x + 3/5)/11)/8, 10*Abs(x + 3/5)/11 > 1), (-33*sqrt(10)*asin(sqrt(
110)*sqrt(x + 3/5)/11)/8 - 25*(x + 3/5)**(3/2)/(2*sqrt(-10*x + 5)
) + 165*sqrt(x + 3/5)/(4*sqrt(-10*x + 5)), True))
```

GIAC/XCAS [A] time = 0.228936, size = 78, normalized size = 1.1

$$-\frac{33}{8}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)+\frac{\left(2\sqrt{5}(5x+3)-33\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{20(2x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] -33/8*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) + 1/20*(2*sqrt
(5)*(5*x + 3) - 33*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x -
1)
```

3.2517 $\int \frac{(3+5x)^{3/2}}{(1-2x)^{3/2}(2+3x)}\,dx$

Optimal. Leaf size=86

$$\frac{11\sqrt{5x+3}}{7\sqrt{1-2x}}-\frac{5}{3}\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{2\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{21\sqrt{7}}$$

```
[Out] (11*Sqrt[3 + 5*x])/(7*Sqrt[1 - 2*x]) - (5*Sqrt[5/2]*ArcSin[Sqrt[2
/11]*Sqrt[3 + 5*x]])/3 - (2*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3
+ 5*x])])/(21*Sqrt[7])
```

Rubi [A] time = 0.177204, antiderivative size = 86, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$\frac{11\sqrt{5x+3}}{7\sqrt{1-2x}}-\frac{5}{3}\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{2\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{21\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(3/2)/((1 - 2*x)^(3/2)*(2 + 3*x)),x]
```

```
[Out] (11*Sqrt[3 + 5*x])/(7*Sqrt[1 - 2*x]) - (5*Sqrt[5/2]*ArcSin[Sqrt[2
/11]*Sqrt[3 + 5*x]])/3 - (2*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3
+ 5*x])])/(21*Sqrt[7])
```

Rubi in Sympy [A] time = 15.9025, size = 78, normalized size = 0.91

$$-\frac{5\sqrt{10}\,\text{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{6}-\frac{2\sqrt{7}\,\text{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{147}+\frac{11\sqrt{5x+3}}{7\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(3/2)/(1-2*x)**(3/2)/(2+3*x),x)
```

```
[Out] -5*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/6 - 2*sqrt(7)*atan(sq
rt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/147 + 11*sqrt(5*x + 3)/(7
*sqrt(-2*x + 1))
```

Mathematica [A] time = 0.238029, size = 104, normalized size = 1.21

$$\frac{11\sqrt{1-2x}\sqrt{5x+3}}{7-14x}-\frac{\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{21\sqrt{7}}-\frac{5}{6}\sqrt{\frac{5}{2}}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(3/2)/((1 - 2*x)^(3/2)*(2 + 3*x)),x]
```

```
[Out] (11*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(7 - 14*x) - ArcTan[(-20 - 37*x)
/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])]/(21*Sqrt[7]) - (5*Sqrt[5/2]*Ar
cTan[(1 + 20*x)/(2*Sqrt[1 - 2*x]*Sqrt[30 + 50*x])])/6
```

Maple [B] time = 0.017, size = 131, normalized size = 1.5

$$-\frac{1}{-588+1176x}\left(490\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)x-8\sqrt{7}\arctan\left(1/14\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)x-245\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(3/2)/(1-2*x)^(3/2)/(2+3*x),x)
```

```
[Out] -1/588*(490*10^(1/2)*arcsin(20/11*x+1/11)*x-8*7^(1/2)*arctan(1/14
*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x-245*10^(1/2)*arcsin(20/
11*x+1/11)+4*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^
(1/2))+924*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)*(3+5*x)^(1/2)/(-1+2
*x)/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.49756, size = 93, normalized size = 1.08

$$-\frac{5}{12}\sqrt{10}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)+\frac{1}{147}\sqrt{7}\arcsin\left(\frac{37x}{11|3x+2|}+\frac{20}{11|3x+2|}\right)+\frac{55x}{7\sqrt{-10x^2-x+3}}+\frac{33}{7\sqrt{-10x^2-x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)/((3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] -5/12*sqrt(10)*arcsin(20/11*x + 1/11) + 1/147*sqrt(7)*arcsin(37/1
1*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) + 55/7*x/sqrt(-10*x^2 - x
+ 3) + 33/7/sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.233892, size = 154, normalized size = 1.79

$$-\frac{\sqrt{7}\sqrt{2}\left(35\sqrt{7}\sqrt{5}(2x-1)\arctan\left(\frac{\sqrt{5}\sqrt{2}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)-2\sqrt{2}(2x-1)\arctan\left(\frac{\sqrt{7}(37x+20)}{14\sqrt{5x+3}\sqrt{-2x+1}}\right)+66\sqrt{7}\sqrt{2}\sqrt{5x+3}\sqrt{-2x+1}\right)}{588(2x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)/((3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] -1/588*sqrt(7)*sqrt(2)*(35*sqrt(7)*sqrt(5)*(2*x - 1)*arctan(1/20*
sqrt(5)*sqrt(2)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))) - 2*sq
rt(2)*(2*x - 1)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sq
rt(-2*x + 1))) + 66*sqrt(7)*sqrt(2)*sqrt(5*x + 3)*sqrt(-2*x + 1))
/(2*x - 1)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(5x+3)^{\frac{3}{2}}}{(-2x+1)^{\frac{3}{2}}(3x+2)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(3/2)/(1-2*x)**(3/2)/(2+3*x),x)
```

```
[Out] Integral((5*x + 3)**(3/2)/((-2*x + 1)**(3/2)*(3*x + 2)), x)
```

GIAC/XCAS [A] time = 0.266378, size = 225, normalized size = 2.62

$$\frac{1}{1470}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{5}{12}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{4\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{11\sqrt{5}\sqrt{5x+3}\sqrt{-10x+5}}{35(2x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)/((3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 1/1470*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x
+ 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqrt
(2)*sqrt(-10*x + 5) - sqrt(22)))) - 5/12*sqrt(10)*(pi + 2*arctan(
-1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x +
 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 11/35*sqrt(5)*s
qrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)
```

3.2518 $\int \frac{(3+5x)^{3/2}}{(1-2x)^{3/2}(2+3x)^2}\,dx$

Optimal. Leaf size=93

$$\frac{2(5x+3)^{3/2}}{7\sqrt{1-2x}(3x+2)}+\frac{3\sqrt{1-2x}\sqrt{5x+3}}{49(3x+2)}+\frac{33\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{49\sqrt{7}}$$

```
[Out] (3*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(49*(2 + 3*x)) + (2*(3 + 5*x)^(3/
2))/(7*Sqrt[1 - 2*x]*(2 + 3*x)) + (33*ArcTan[Sqrt[1 - 2*x]/(Sqrt[
7]*Sqrt[3 + 5*x])])/(49*Sqrt[7])
```

Rubi [A] time = 0.129385, antiderivative size = 93, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.115

$$\frac{2(5x+3)^{3/2}}{7\sqrt{1-2x}(3x+2)}+\frac{3\sqrt{1-2x}\sqrt{5x+3}}{49(3x+2)}+\frac{33\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{49\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(3/2)/((1 - 2*x)^(3/2)*(2 + 3*x)^2),x]
```

```
[Out] (3*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(49*(2 + 3*x)) + (2*(3 + 5*x)^(3/
2))/(7*Sqrt[1 - 2*x]*(2 + 3*x)) + (33*ArcTan[Sqrt[1 - 2*x]/(Sqrt[
7]*Sqrt[3 + 5*x])])/(49*Sqrt[7])
```

Rubi in Sympy [A] time = 10.6797, size = 76, normalized size = 0.82

$$\frac{33\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{343}+\frac{33\sqrt{5x+3}}{49\sqrt{-2x+1}}-\frac{(5x+3)^{\frac{3}{2}}}{7\sqrt{-2x+1}\,(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(3/2)/(1-2*x)**(3/2)/(2+3*x)**2,x)
```

```
[Out] 33*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/343 + 3
3*sqrt(5*x + 3)/(49*sqrt(-2*x + 1)) - (5*x + 3)**(3/2)/(7*sqrt(-2
*x + 1)*(3*x + 2))
```

Mathematica [A] time = 0.0803327, size = 75, normalized size = 0.81

$$\frac{33\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{98\sqrt{7}}-\frac{\sqrt{1-2x}\sqrt{5x+3}(64x+45)}{49\left(6x^2+x-2\right)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(3/2)/((1 - 2*x)^(3/2)*(2 + 3*x)^2),x]
```

```
[Out] -(Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(45 + 64*x))/(49*(-2 + x + 6*x^2))
+ (33*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/(98*
Sqrt[7])
```

Maple [B] time = 0.019, size = 161, normalized size = 1.7

$$-\frac{1}{(1372+2058x)(-1+2x)}\left(198\sqrt{7}\arctan\left(1/14\,\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)x^2+33\sqrt{7}\arctan\left(1/14\,\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)x-66\sqrt{7}\,\mathrm{a}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(3/2)/(1-2*x)^(3/2)/(2+3*x)^2,x)
```

```
[Out] -1/686*(198*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(
1/2))*x^2+33*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^
(1/2))*x-66*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(
1/2))+896*x*(-10*x^2-x+3)^(1/2)+630*(-10*x^2-x+3)^(1/2))*(1-2*x)^
(1/2)*(3+5*x)^(1/2)/(2+3*x)/(-1+2*x)/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.50456, size = 124, normalized size = 1.33

$$-\frac{33}{686}\sqrt{7}\arcsin\left(\frac{37x}{11\,|3x+2|}+\frac{20}{11\,|3x+2|}\right)+\frac{320x}{147\sqrt{-10x^2-x+3}}+\frac{611}{441\sqrt{-10x^2-x+3}}-\frac{1}{63\left(3\sqrt{-10x^2-x+3}x+2\sqrt{-10x^2-x+3}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)/((3*x + 2)^2*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] -33/686*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2))
 + 320/147*x/sqrt(-10*x^2 - x + 3) + 611/441/sqrt(-10*x^2 - x + 3
) - 1/63/(3*sqrt(-10*x^2 - x + 3)*x + 2*sqrt(-10*x^2 - x + 3))
```

Fricas [A] time = 0.224877, size = 101, normalized size = 1.09

$$-\frac{\sqrt{7}\left(2\sqrt{7}(64x+45)\sqrt{5x+3}\sqrt{-2x+1}+33\left(6x^2+x-2\right)\arctan\left(\frac{\sqrt{7}(37x+20)}{14\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)}{686\left(6x^2+x-2\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)/((3*x + 2)^2*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] -1/686*sqrt(7)*(2*sqrt(7)*(64*x + 45)*sqrt(5*x + 3)*sqrt(-2*x + 1
) + 33*(6*x^2 + x - 2)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x
+ 3)*sqrt(-2*x + 1))))/(6*x^2 + x - 2)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(3/2)/(1-2*x)**(3/2)/(2+3*x)**2,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.311052, size = 296, normalized size = 3.18

$$-\frac{33}{6860}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^{2}}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{22\sqrt{5}\sqrt{5x+3}\sqrt{-10x+5}}{245(2x-1)}+\frac{22\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)}{49\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^{2}+280\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)/((3*x + 2)^2*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] -33/6860*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*
x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sq
rt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 22/245*sqrt(5)*sqrt(5*x + 3
)*sqrt(-10*x + 5)/(2*x - 1) + 22/49*sqrt(10)*((sqrt(2)*sqrt(-10*x
 + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-
10*x + 5) - sqrt(22)))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqr
t(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))
)^2 + 280)
```

3.2519 $\int \frac{(3+5x)^{3/2}}{(1-2x)^{3/2}(2+3x)^3}\,dx$

Optimal. Leaf size=122

$$\frac{4(5x+3)^{5/2}}{77\sqrt{1-2x}(3x+2)^2}-\frac{25\sqrt{1-2x}(5x+3)^{3/2}}{1078(3x+2)^2}-\frac{75\sqrt{1-2x}\sqrt{5x+3}}{1372(3x+2)}-\frac{825\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{1372\sqrt{7}}$$

```
[Out] (-75*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(1372*(2 + 3*x)) - (25*Sqrt[1 -
 2*x]*(3 + 5*x)^(3/2))/(1078*(2 + 3*x)^2) + (4*(3 + 5*x)^(5/2))/(
77*Sqrt[1 - 2*x]*(2 + 3*x)^2) - (825*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7
]*Sqrt[3 + 5*x])])/(1372*Sqrt[7])
```

Rubi [A] time = 0.174841, antiderivative size = 122, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$\frac{4(5x+3)^{5/2}}{77\sqrt{1-2x}(3x+2)^2}-\frac{25\sqrt{1-2x}(5x+3)^{3/2}}{1078(3x+2)^2}-\frac{75\sqrt{1-2x}\sqrt{5x+3}}{1372(3x+2)}-\frac{825\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{1372\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(3/2)/((1 - 2*x)^(3/2)*(2 + 3*x)^3),x]
```

```
[Out] (-75*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(1372*(2 + 3*x)) - (25*Sqrt[1 -
 2*x]*(3 + 5*x)^(3/2))/(1078*(2 + 3*x)^2) + (4*(3 + 5*x)^(5/2))/(
77*Sqrt[1 - 2*x]*(2 + 3*x)^2) - (825*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7
]*Sqrt[3 + 5*x])])/(1372*Sqrt[7])
```

Rubi in Sympy [A] time = 13.5226, size = 109, normalized size = 0.89

$$-\frac{75\sqrt{-2x+1}\sqrt{5x+3}}{1372\,(3x+2)}-\frac{825\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{9604}-\frac{25\,(5x+3)^{\frac{3}{2}}}{98\sqrt{-2x+1}\,(3x+2)}+\frac{3\,(5x+3)^{\frac{5}{2}}}{14\sqrt{-2x+1}\,(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(3/2)/(1-2*x)**(3/2)/(2+3*x)**3,x)
```

```
[Out] -75*sqrt(-2*x + 1)*sqrt(5*x + 3)/(1372*(3*x + 2)) - 825*sqrt(7)*a
tan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/9604 - 25*(5*x + 3)
**(3/2)/(98*sqrt(-2*x + 1)*(3*x + 2)) + 3*(5*x + 3)**(5/2)/(14*sq
rt(-2*x + 1)*(3*x + 2)**2)
```

Mathematica [A] time = 0.121606, size = 77, normalized size = 0.63

$$\frac{\frac{14\sqrt{5x+3}(2550x^2+2245x+396)}{\sqrt{1-2x}(3x+2)^2}-825\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{19208}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(3/2)/((1 - 2*x)^(3/2)*(2 + 3*x)^3),x]
```

```
[Out] ((14*Sqrt[3 + 5*x]*(396 + 2245*x + 2550*x^2))/(Sqrt[1 - 2*x]*(2 +
 3*x)^2) - 825*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt
[3 + 5*x])])/19208
```

Maple [B] time = 0.022, size = 209, normalized size = 1.7

$$\frac{1}{19208\,(2+3\,x)^2\,(-1+2\,x)}\left(14850\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^3+12375\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^2-3$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(3/2)/(1-2*x)^(3/2)/(2+3*x)^3,x)
```

```
[Out] 1/19208*(14850*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3
)^(1/2))*x^3+12375*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2
-x+3)^(1/2))*x^2-3300*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*
x^2-x+3)^(1/2))*x-35700*x^2*(-10*x^2-x+3)^(1/2)-3300*7^(1/2)*arct
an(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))-31430*x*(-10*x^2-x
+3)^(1/2)-5544*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)*(3+5*x)^(1/2)/(
2+3*x)^2/(-1+2*x)/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.50782, size = 193, normalized size = 1.58

$$\frac{825}{19208}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{2125\,x}{2058\,\sqrt{-10\,x^2-x+3}}+\frac{625}{4116\,\sqrt{-10\,x^2-x+3}}-\frac{1}{126\left(9\,\sqrt{-10\,x^2-x+3}x^2+12\,\sqrt{-10\,x^2-x+3}x+4\,\sqrt{-10\,x^2-x+3}\right)}+\frac{235}{1764\left(3\,\sqrt{-10\,x^2-x+3}x+2\,\sqrt{-10\,x^2-x+3}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/((3*x + 2)^3*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 825/19208*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2
)) + 2125/2058*x/sqrt(-10*x^2 - x + 3) + 625/4116/sqrt(-10*x^2 -
x + 3) - 1/126/(9*sqrt(-10*x^2 - x + 3)*x^2 + 12*sqrt(-10*x^2 - x
 + 3)*x + 4*sqrt(-10*x^2 - x + 3)) + 235/1764/(3*sqrt(-10*x^2 - x
 + 3)*x + 2*sqrt(-10*x^2 - x + 3))
```

Fricas [A] time = 0.233351, size = 127, normalized size = 1.04

$$-\frac{\sqrt{7}\left(2\,\sqrt{7}\left(2550\,x^2+2245\,x+396\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-825\,\left(18\,x^3+15\,x^2-4\,x-4\right)\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)}{19208\,(18\,x^3+15\,x^2-4\,x-4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/((3*x + 2)^3*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] -1/19208*sqrt(7)*(2*sqrt(7)*(2550*x^2 + 2245*x + 396)*sqrt(5*x +
3)*sqrt(-2*x + 1) - 825*(18*x^3 + 15*x^2 - 4*x - 4)*arctan(1/14*s
qrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(18*x^3 + 15*
x^2 - 4*x - 4)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(3/2)/(1-2*x)**(3/2)/(2+3*x)**3,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.37412, size = 382, normalized size = 3.13

$$\frac{165}{38416}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{44\sqrt{5}\sqrt{5x+3}\sqrt{-10x+5}}{1715(2x-1)}-\frac{11\left(13\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3+6280\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)\right)}{98\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/((3*x + 2)^3*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 165/38416*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5
*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(s
qrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 44/1715*sqrt(5)*sqrt(5*x +
 3)*sqrt(-10*x + 5)/(2*x - 1) - 11/98*(13*sqrt(10)*((sqrt(2)*sqrt
(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*
sqrt(-10*x + 5) - sqrt(22)))^3 + 6280*sqrt(10)*((sqrt(2)*sqrt(-10
*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt
(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/
sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(2
2)))^2 + 280)^2
```

3.2520 $\int \frac{(3+5x)^{3/2}}{(1-2x)^{3/2}(2+3x)^4}\,dx$

Optimal. Leaf size=151

$$-\frac{415\sqrt{1-2x}\sqrt{5x+3}}{8232(3x+2)}-\frac{145\sqrt{1-2x}\sqrt{5x+3}}{588(3x+2)^2}-\frac{2\sqrt{1-2x}\sqrt{5x+3}}{3(3x+2)^3}+\frac{11\sqrt{5x+3}}{7\sqrt{1-2x}(3x+2)^3}-\frac{2805\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{2744\sqrt{7}}$$

```
[Out] (11*Sqrt[3 + 5*x])/(7*Sqrt[1 - 2*x]*(2 + 3*x)^3) - (2*Sqrt[1 - 2*
x]*Sqrt[3 + 5*x])/(3*(2 + 3*x)^3) - (145*Sqrt[1 - 2*x]*Sqrt[3 + 5
*x])/(588*(2 + 3*x)^2) - (415*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(8232*
(2 + 3*x)) - (2805*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])
/(2744*Sqrt[7])
```

Rubi [A] time = 0.301797, antiderivative size = 151, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$-\frac{415\sqrt{1-2x}\sqrt{5x+3}}{8232(3x+2)}-\frac{145\sqrt{1-2x}\sqrt{5x+3}}{588(3x+2)^2}-\frac{2\sqrt{1-2x}\sqrt{5x+3}}{3(3x+2)^3}+\frac{11\sqrt{5x+3}}{7\sqrt{1-2x}(3x+2)^3}-\frac{2805\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{2744\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(3/2)/((1 - 2*x)^(3/2)*(2 + 3*x)^4),x]
```

```
[Out] (11*Sqrt[3 + 5*x])/(7*Sqrt[1 - 2*x]*(2 + 3*x)^3) - (2*Sqrt[1 - 2*
x]*Sqrt[3 + 5*x])/(3*(2 + 3*x)^3) - (145*Sqrt[1 - 2*x]*Sqrt[3 + 5
*x])/(588*(2 + 3*x)^2) - (415*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(8232*
(2 + 3*x)) - (2805*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])
/(2744*Sqrt[7])
```

Rubi in Sympy [A] time = 29.2741, size = 138, normalized size = 0.91

$$-\frac{415\sqrt{-2x+1}\sqrt{5x+3}}{8232\,(3x+2)}-\frac{145\sqrt{-2x+1}\sqrt{5x+3}}{588\,(3x+2)^2}-\frac{2\sqrt{-2x+1}\sqrt{5x+3}}{3\,(3x+2)^3}-\frac{2805\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{19208}+\frac{11\sqrt{5x+3}}{7\sqrt{-2x+1}\,(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(3/2)/(1-2*x)**(3/2)/(2+3*x)**4,x)
```

```
[Out] -415*sqrt(-2*x + 1)*sqrt(5*x + 3)/(8232*(3*x + 2)) - 145*sqrt(-2*
x + 1)*sqrt(5*x + 3)/(588*(3*x + 2)**2) - 2*sqrt(-2*x + 1)*sqrt(5
*x + 3)/(3*(3*x + 2)**3) - 2805*sqrt(7)*atan(sqrt(7)*sqrt(-2*x +
1)/(7*sqrt(5*x + 3)))/19208 + 11*sqrt(5*x + 3)/(7*sqrt(-2*x + 1)*
(3*x + 2)**3)
```

Mathematica [A] time = 0.115583, size = 82, normalized size = 0.54

$$\frac{\frac{14\sqrt{5x+3}\left(2490x^3+6135x^2+3782x+576\right)}{\sqrt{1-2x}(3x+2)^3}-2805\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{38416}$$

Antiderivative was successfully verified.

```
[In]   Integrate[(3 + 5*x)^(3/2)/((1 - 2*x)^(3/2)*(2 + 3*x)^4),x]
```

```
[Out] ((14*Sqrt[3 + 5*x]*(576 + 3782*x + 6135*x^2 + 2490*x^3))/(Sqrt[1
- 2*x]*(2 + 3*x)^3) - 2805*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7
- 14*x]*Sqrt[3 + 5*x])])/38416
```

Maple [B] time = 0.023, size = 257, normalized size = 1.7

$$\frac{1}{38416\,(2+3\,x)^3\,(-1+2\,x)}\left(151470\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^4+227205\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^3\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((3+5*x)^(3/2)/(1-2*x)^(3/2)/(2+3*x)^4,x)
```

```
[Out] 1/38416*(151470*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+
3)^(1/2))*x^4+227205*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x
^2-x+3)^(1/2))*x^3+50490*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-
10*x^2-x+3)^(1/2))*x^2-34860*x^3*(-10*x^2-x+3)^(1/2)-56100*7^(1/2
)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x-85890*x^2*
(-10*x^2-x+3)^(1/2)-22440*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(
-10*x^2-x+3)^(1/2))-52948*x*(-10*x^2-x+3)^(1/2)-8064*(-10*x^2-x+3
)^(1/2))*(1-2*x)^(1/2)*(3+5*x)^(1/2)/(2+3*x)^3/(-1+2*x)/(-10*x^2-
x+3)^(1/2)
```

Maxima [A] time = 1.50499, size = 285, normalized size = 1.89

$$\frac{2805}{38416}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{2075\,x}{12348\,\sqrt{-10\,x^2-x+3}}+\frac{4415}{24696\,\sqrt{-10\,x^2-x+3}}$$
$$-\frac{1}{189\left(27\,\sqrt{-10\,x^2-x+3}x^3+54\,\sqrt{-10\,x^2-x+3}x^2+36\,\sqrt{-10\,x^2-x+3}x+8\,\sqrt{-10\,x^2-x+3}\right)}$$
$$+\frac{53}{756\left(9\,\sqrt{-10\,x^2-x+3}x^2+12\,\sqrt{-10\,x^2-x+3}x+4\,\sqrt{-10\,x^2-x+3}\right)}$$
$$-\frac{275}{1176\left(3\,\sqrt{-10\,x^2-x+3}x+2\,\sqrt{-10\,x^2-x+3}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/((3*x + 2)^4*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 2805/38416*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x +
2)) + 2075/12348*x/sqrt(-10*x^2 - x + 3) + 4415/24696/sqrt(-10*x^
2 - x + 3) - 1/189/(27*sqrt(-10*x^2 - x + 3)*x^3 + 54*sqrt(-10*x^
2 - x + 3)*x^2 + 36*sqrt(-10*x^2 - x + 3)*x + 8*sqrt(-10*x^2 - x
+ 3)) + 53/756/(9*sqrt(-10*x^2 - x + 3)*x^2 + 12*sqrt(-10*x^2 - x
 + 3)*x + 4*sqrt(-10*x^2 - x + 3)) - 275/1176/(3*sqrt(-10*x^2 - x
 + 3)*x + 2*sqrt(-10*x^2 - x + 3))
```

Fricas [A] time = 0.237093, size = 147, normalized size = 0.97

$$-\frac{\sqrt{7}\left(2\,\sqrt{7}\left(2490\,x^3+6135\,x^2+3782\,x+576\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-2805\left(54\,x^4+81\,x^3+18\,x^2-20\,x-8\right)\arctan\left(\frac{\sqrt{7}(37\,x}{14\,\sqrt{5\,x+3}}\right.\right.}{38416\left(54\,x^4+81\,x^3+18\,x^2-20\,x-8\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)/((3*x + 2)^4*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] -1/38416*sqrt(7)*(2*sqrt(7)*(2490*x^3 + 6135*x^2 + 3782*x + 576)*
sqrt(5*x + 3)*sqrt(-2*x + 1) - 2805*(54*x^4 + 81*x^3 + 18*x^2 - 2
0*x - 8)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x
 + 1))))/(54*x^4 + 81*x^3 + 18*x^2 - 20*x - 8)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3+5*x)**(3/2)/(1-2*x)**(3/2)/(2+3*x)**4,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.476243, size = 464, normalized size = 3.07

$$\frac{561}{76832}\sqrt{70}\sqrt{10}\left(\pi+2\,\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{2}}{5\,x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)-\frac{88\,\sqrt{5}\sqrt{5\,x+3}\sqrt{-10\,x+5}}{12005\,(2\,x-1)}$$

$$-\frac{11\left(1849\,\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^{5}+1386560\,\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^{3}+15601600\,\sqrt{10}\left(\frac{\sqrt{2}\cdots}{}\right.\right.}{9604\left(\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^{2}+280\right)^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)/((3*x + 2)^4*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 561/76832*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5
*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(s
qrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 88/12005*sqrt(5)*sqrt(5*x
+ 3)*sqrt(-10*x + 5)/(2*x - 1) - 11/9604*(1849*sqrt(10)*((sqrt(2)
*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqr
t(2)*sqrt(-10*x + 5) - sqrt(22)))^5 + 1386560*sqrt(10)*((sqrt(2)*
sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt
(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 15601600*sqrt(10)*((sqrt(2)*
sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt
(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) - sq
rt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5)
- sqrt(22)))^2 + 280)^3
```

3.2521 $\int \frac{(3+5x)^{3/2}}{(1-2x)^{3/2}(2+3x)^5}\,dx$

Optimal. Leaf size=180

$$\frac{16985\sqrt{1-2x}\sqrt{5x+3}}{153664(3x+2)}-\frac{745\sqrt{1-2x}\sqrt{5x+3}}{10976(3x+2)^2}-\frac{89\sqrt{1-2x}\sqrt{5x+3}}{392(3x+2)^3}-\frac{131\sqrt{1-2x}\sqrt{5x+3}}{196(3x+2)^4}+\frac{11\sqrt{5x+3}}{7\sqrt{1-2x}(3x+2)^4}-\frac{279015\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{153664\sqrt{7}}$$

```
[Out] (11*Sqrt[3 + 5*x])/(7*Sqrt[1 - 2*x]*(2 + 3*x)^4) - (131*Sqrt[1 -
2*x]*Sqrt[3 + 5*x])/(196*(2 + 3*x)^4) - (89*Sqrt[1 - 2*x]*Sqrt[3
+ 5*x])/(392*(2 + 3*x)^3) - (745*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(10
976*(2 + 3*x)^2) + (16985*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(153664*(2
 + 3*x)) - (279015*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])
/(153664*Sqrt[7])
```

Rubi [A] time = 0.375722, antiderivative size = 180, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$\frac{16985\sqrt{1-2x}\sqrt{5x+3}}{153664(3x+2)}-\frac{745\sqrt{1-2x}\sqrt{5x+3}}{10976(3x+2)^2}-\frac{89\sqrt{1-2x}\sqrt{5x+3}}{392(3x+2)^3}-\frac{131\sqrt{1-2x}\sqrt{5x+3}}{196(3x+2)^4}+\frac{11\sqrt{5x+3}}{7\sqrt{1-2x}(3x+2)^4}-\frac{279015\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{153664\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(3/2)/((1 - 2*x)^(3/2)*(2 + 3*x)^5),x]
```

```
[Out] (11*Sqrt[3 + 5*x])/(7*Sqrt[1 - 2*x]*(2 + 3*x)^4) - (131*Sqrt[1 -
2*x]*Sqrt[3 + 5*x])/(196*(2 + 3*x)^4) - (89*Sqrt[1 - 2*x]*Sqrt[3
+ 5*x])/(392*(2 + 3*x)^3) - (745*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(10
976*(2 + 3*x)^2) + (16985*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(153664*(2
 + 3*x)) - (279015*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])
/(153664*Sqrt[7])
```

Rubi in Sympy [A] time = 36.6654, size = 165, normalized size = 0.92

$$\frac{16985\sqrt{-2x+1}\sqrt{5x+3}}{153664\left(3x+2\right)}-\frac{745\sqrt{-2x+1}\sqrt{5x+3}}{10976\left(3x+2\right)^2}-\frac{89\sqrt{-2x+1}\sqrt{5x+3}}{392\left(3x+2\right)^3}-\frac{131\sqrt{-2x+1}\sqrt{5x+3}}{196\left(3x+2\right)^4}-\frac{279015\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{1075648}+\frac{11\sqrt{5x+3}}{7\sqrt{-2x+1}\left(3x+2\right)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(3/2)/(1-2*x)**(3/2)/(2+3*x)**5,x)
```

```
[Out] 16985*sqrt(-2*x + 1)*sqrt(5*x + 3)/(153664*(3*x + 2)) - 745*sqrt(
-2*x + 1)*sqrt(5*x + 3)/(10976*(3*x + 2)**2) - 89*sqrt(-2*x + 1)*
sqrt(5*x + 3)/(392*(3*x + 2)**3) - 131*sqrt(-2*x + 1)*sqrt(5*x +
3)/(196*(3*x + 2)**4) - 279015*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1
)/(7*sqrt(5*x + 3)))/1075648 + 11*sqrt(5*x + 3)/(7*sqrt(-2*x + 1)
*(3*x + 2)**4)
```

Mathematica [A] time = 0.133796, size = 87, normalized size = 0.48

$$\frac{\frac{14\sqrt{5x+3}\left(-917190x^4-1188045x^3+60048x^2+538276x+163152\right)}{\sqrt{1-2x}(3x+2)^4}-279015\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{2151296}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(3/2)/((1 - 2*x)^(3/2)*(2 + 3*x)^5),x]
```

```
[Out] ((14*Sqrt[3 + 5*x]*(163152 + 538276*x + 60048*x^2 - 1188045*x^3 -
 917190*x^4))/(Sqrt[1 - 2*x]*(2 + 3*x)^4) - 279015*Sqrt[7]*ArcTan
[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/2151296
```

Maple [B] time = 0.023, size = 305, normalized size = 1.7

$$\frac{1}{2151296\,(2+3x)^4\,(-1+2x)}\left(45200430\sqrt{7}\arctan\left(1/14\,\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)x^5+97934265\sqrt{7}\arctan\left(1/14\,\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(3/2)/(1-2*x)^(3/2)/(2+3*x)^5,x)
```

```
[Out] 1/2151296*(45200430*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^
2-x+3)^(1/2))*x^5+97934265*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/
(-10*x^2-x+3)^(1/2))*x^4+60267240*7^(1/2)*arctan(1/14*(37*x+20)*7
^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+12840660*x^4*(-10*x^2-x+3)^(1/2)-
6696360*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2)
)*x^2+16632630*x^3*(-10*x^2-x+3)^(1/2)-17856960*7^(1/2)*arctan(1/
14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x-840672*x^2*(-10*x^2-x
+3)^(1/2)-4464240*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-
x+3)^(1/2))-7535864*x*(-10*x^2-x+3)^(1/2)-2284128*(-10*x^2-x+3)^(
1/2))*(1-2*x)^(1/2)*(3+5*x)^(1/2)/(2+3*x)^4/(-1+2*x)/(-10*x^2-x+3
)^(1/2)
```

Maxima [A] time = 1.51599, size = 400, normalized size = 2.22

$$\frac{279015}{2151296}\sqrt{7}\arcsin\left(\frac{37x}{11\,|3x+2|}+\frac{20}{11\,|3x+2|}\right)-\frac{84925x}{230496\sqrt{-10x^2-x+3}}+\frac{131015}{460992\sqrt{-10x^2-x+3}}$$
$$-\frac{1}{252\left(81\sqrt{-10x^2-x+3}x^4+216\sqrt{-10x^2-x+3}x^3+216\sqrt{-10x^2-x+3}x^2+96\sqrt{-10x^2-x+3}x+16\sqrt{-10x^2-x+}\right.}$$
$$+\frac{169}{3528\left(27\sqrt{-10x^2-x+3}x^3+54\sqrt{-10x^2-x+3}x^2+36\sqrt{-10x^2-x+3}x+8\sqrt{-10x^2-x+3}\right)}$$
$$-\frac{649}{4704\left(9\sqrt{-10x^2-x+3}x^2+12\sqrt{-10x^2-x+3}x+4\sqrt{-10x^2-x+3}\right)}$$
$$-\frac{2475}{21952\left(3\sqrt{-10x^2-x+3}x+2\sqrt{-10x^2-x+3}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/((3*x + 2)^5*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 279015/2151296*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*
x + 2)) - 84925/230496*x/sqrt(-10*x^2 - x + 3) + 131015/460992/sq
rt(-10*x^2 - x + 3) - 1/252/(81*sqrt(-10*x^2 - x + 3)*x^4 + 216*s
qrt(-10*x^2 - x + 3)*x^3 + 216*sqrt(-10*x^2 - x + 3)*x^2 + 96*sqr
t(-10*x^2 - x + 3)*x + 16*sqrt(-10*x^2 - x + 3)) + 169/3528/(27*s
qrt(-10*x^2 - x + 3)*x^3 + 54*sqrt(-10*x^2 - x + 3)*x^2 + 36*sqrt
(-10*x^2 - x + 3)*x + 8*sqrt(-10*x^2 - x + 3)) - 649/4704/(9*sqrt
(-10*x^2 - x + 3)*x^2 + 12*sqrt(-10*x^2 - x + 3)*x + 4*sqrt(-10*x
^2 - x + 3)) - 2475/21952/(3*sqrt(-10*x^2 - x + 3)*x + 2*sqrt(-10
*x^2 - x + 3))
```

Fricas [A] time = 0.239198, size = 167, normalized size = 0.93

$$\frac{\sqrt{7}\Big(2\sqrt{7}\big(917190\,x^4+1188045\,x^3-60048\,x^2-538276\,x-163152\big)\sqrt{5\,x+3}\sqrt{-2\,x+1}+279015\,\big(162\,x^5+351\,x^4+216\,x^3-}{2151296\,\big(162\,x^5+351\,x^4+216\,x^3-24\,x^2-64\,x-16\big)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)/((3*x + 2)^5*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/2151296*sqrt(7)*(2*sqrt(7)*(917190*x^4 + 1188045*x^3 - 60048*x^
2 - 538276*x - 163152)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 279015*(162
*x^5 + 351*x^4 + 216*x^3 - 24*x^2 - 64*x - 16)*arctan(1/14*sqrt(7
)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(162*x^5 + 351*x^4
 + 216*x^3 - 24*x^2 - 64*x - 16)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3+5*x)**(3/2)/(1-2*x)**(3/2)/(2+3*x)**5,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.607672, size = 547, normalized size = 3.04

$$\frac{55803}{4302592}\sqrt{70}\sqrt{10}\left(\pi+2\,\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)-\frac{176\,\sqrt{5}\sqrt{5\,x+3}\sqrt{-10\,x+5}}{84035\,(2\,x-1)}$$

$$-\frac{11\left(178579\,\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^7+183436680\,\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^5-17824632000}{537824\left(\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5-}}\right.\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)/((3*x + 2)^5*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 55803/4302592*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sq
rt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4
)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 176/84035*sqrt(5)*sqrt
(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1) - 11/537824*(178579*sqrt(10)*
((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x
+ 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^7 + 183436680*sqrt(10)
*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x
 + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 - 17824632000*sqrt(
10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(
5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 - 2829942080000*
sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*
sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*s
qrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(
2)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)^4
```

3.2522 $\int \frac{(2+3x)^4(3+5x)^{5/2}}{(1-2x)^{3/2}}\,dx$

Optimal. Leaf size=183

$$\frac{(5x+3)^{5/2}(3x+2)^4}{\sqrt{1-2x}}+\frac{13}{8}\sqrt{1-2x}(5x+3)^{5/2}(3x+2)^3$$

$$+\frac{999}{160}\sqrt{1-2x}(5x+3)^{5/2}(3x+2)^2+\frac{295101237\sqrt{1-2x}(5x+3)^{3/2}}{409600}+\frac{\sqrt{1-2x}(5x+3)^{5/2}(3765060x+7611023)}{51200}+\frac{9738340821\sqrt{1}}{1638}$$

```
[Out] (9738340821*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/1638400 + (295101237*Sqr
t[1 - 2*x]*(3 + 5*x)^(3/2))/409600 + (999*Sqrt[1 - 2*x]*(2 + 3*x)
^2*(3 + 5*x)^(5/2))/160 + (13*Sqrt[1 - 2*x]*(2 + 3*x)^3*(3 + 5*x)
^(5/2))/8 + ((2 + 3*x)^4*(3 + 5*x)^(5/2))/Sqrt[1 - 2*x] + (Sqrt[1
 - 2*x]*(3 + 5*x)^(5/2)*(7611023 + 3765060*x))/51200 - (107121749
031*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(1638400*Sqrt[10])
```

Rubi [A] time = 0.292871, antiderivative size = 183, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.231$

$$\frac{(5x+3)^{5/2}(3x+2)^4}{\sqrt{1-2x}}+\frac{13}{8}\sqrt{1-2x}(5x+3)^{5/2}(3x+2)^3$$

$$+\frac{999}{160}\sqrt{1-2x}(5x+3)^{5/2}(3x+2)^2+\frac{295101237\sqrt{1-2x}(5x+3)^{3/2}}{409600}+\frac{\sqrt{1-2x}(5x+3)^{5/2}(3765060x+7611023)}{51200}+\frac{9738340821\sqrt{1}}{1638}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^4*(3 + 5*x)^(5/2))/(1 - 2*x)^(3/2),x]
```

```
[Out] (9738340821*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/1638400 + (295101237*Sqr
t[1 - 2*x]*(3 + 5*x)^(3/2))/409600 + (999*Sqrt[1 - 2*x]*(2 + 3*x)
^2*(3 + 5*x)^(5/2))/160 + (13*Sqrt[1 - 2*x]*(2 + 3*x)^3*(3 + 5*x)
^(5/2))/8 + ((2 + 3*x)^4*(3 + 5*x)^(5/2))/Sqrt[1 - 2*x] + (Sqrt[1
 - 2*x]*(3 + 5*x)^(5/2)*(7611023 + 3765060*x))/51200 - (107121749
031*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(1638400*Sqrt[10])
```

Rubi in Sympy [A] time = 30.4489, size = 170, normalized size = 0.93

$$\frac{13\sqrt{-2x+1}\,(3x+2)^3\,(5x+3)^{\frac{5}{2}}}{8}+\frac{999\sqrt{-2x+1}\,(3x+2)^2\,(5x+3)^{\frac{5}{2}}}{160}+\frac{\sqrt{-2x+1}\,(5x+3)^{\frac{5}{2}}\left(\frac{1058923125x}{4}+\frac{8562400875}{16}\right)}{3600000}+\frac{295101237\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{409600}+\frac{9738340821\sqrt{-2x+1}\sqrt{5x+3}}{1638400}-\frac{107121749031\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{16384000}+\frac{(3x+2)^4\,(5x+3)^{\frac{5}{2}}}{\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4*(3+5*x)**(5/2)/(1-2*x)**(3/2),x)
```

```
[Out] 13*sqrt(-2*x + 1)*(3*x + 2)**3*(5*x + 3)**(5/2)/8 + 999*sqrt(-2*x
 + 1)*(3*x + 2)**2*(5*x + 3)**(5/2)/160 + sqrt(-2*x + 1)*(5*x + 3
)**(5/2)*(1058923125*x/4 + 8562400875/16)/3600000 + 295101237*sqr
t(-2*x + 1)*(5*x + 3)**(3/2)/409600 + 9738340821*sqrt(-2*x + 1)*s
qrt(5*x + 3)/1638400 - 107121749031*sqrt(10)*asin(sqrt(22)*sqrt(5
*x + 3)/11)/16384000 + (3*x + 2)**4*(5*x + 3)**(5/2)/sqrt(-2*x +
1)
```

Mathematica [A] time = 0.13574, size = 84, normalized size = 0.46

$$\frac{107121749031\sqrt{10-20x}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)-10\sqrt{5x+3}\,(276480000x^6+1479168000x^5+3687379200x^4+5945485120x}{16384000\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^4*(3 + 5*x)^(5/2))/(1 - 2*x)^(3/2),x]
```

```
[Out] (-10*Sqrt[3 + 5*x]*(-16267424049 + 11734056318*x + 7755469800*x^2
 + 5945485120*x^3 + 3687379200*x^4 + 1479168000*x^5 + 276480000*x
^6) + 107121749031*Sqrt[10 - 20*x]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x
]])/(16384000*Sqrt[1 - 2*x])
```

Maple [A] time = 0.019, size = 174, normalized size = 1.

$$-\frac{1}{-32768000+65536000\,x}\left(-5529600000\,x^6\sqrt{-10\,x^2-x+3}-29583360000\,x^5\sqrt{-10\,x^2-x+3}-73747584000\,x^4\sqrt{-10\,x^2}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4*(3+5*x)^(5/2)/(1-2*x)^(3/2),x)
```

```
[Out] -1/32768000*(-5529600000*x^6*(-10*x^2-x+3)^(1/2)-29583360000*x^5*
(-10*x^2-x+3)^(1/2)-73747584000*x^4*(-10*x^2-x+3)^(1/2)-118909702
400*x^3*(-10*x^2-x+3)^(1/2)+214243498062*10^(1/2)*arcsin(20/11*x+
1/11)*x-155109396000*x^2*(-10*x^2-x+3)^(1/2)-107121749031*10^(1/2
)*arcsin(20/11*x+1/11)-234681126360*x*(-10*x^2-x+3)^(1/2)+3253484
80980*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)*(3+5*x)^(1/2)/(-1+2*x)/(
-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.51471, size = 193, normalized size = 1.05

$$-\frac{3375\,x^7}{4\sqrt{-10\,x^2-x+3}}-\frac{80325\,x^6}{16\sqrt{-10\,x^2-x+3}}-\frac{3574125\,x^5}{256\sqrt{-10\,x^2-x+3}}-\frac{25493477\,x^4}{1024\sqrt{-10\,x^2-x+3}}-\frac{1415345109\,x^3}{40960\sqrt{-10\,x^2-x+3}}-\frac{8193669099\,x^2}{163840\sqrt{-10\,x^2-x+3}}+\frac{107121749031}{32768000}\sqrt{10}\arcsin\left(-\frac{20}{11}x-\frac{1}{11}\right)+\frac{46134951291\,x}{1638400\sqrt{-10\,x^2-x+3}}+\frac{48802272147}{1638400\sqrt{-10\,x^2-x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)^4/(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] -3375/4*x^7/sqrt(-10*x^2 - x + 3) - 80325/16*x^6/sqrt(-10*x^2 - x
 + 3) - 3574125/256*x^5/sqrt(-10*x^2 - x + 3) - 25493477/1024*x^4
/sqrt(-10*x^2 - x + 3) - 1415345109/40960*x^3/sqrt(-10*x^2 - x +
3) - 8193669099/163840*x^2/sqrt(-10*x^2 - x + 3) + 107121749031/3
2768000*sqrt(10)*arcsin(-20/11*x - 1/11) + 46134951291/1638400*x/
sqrt(-10*x^2 - x + 3) + 48802272147/1638400/sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.245612, size = 127, normalized size = 0.69

$$\frac{\sqrt{10}\left(2\sqrt{10}(276480000\,x^6+1479168000\,x^5+3687379200\,x^4+5945485120\,x^3+7755469800\,x^2+11734056318\,x-1626742\right.}{32768000\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)^4/(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] 1/32768000*sqrt(10)*(2*sqrt(10)*(276480000*x^6 + 1479168000*x^5 +
 3687379200*x^4 + 5945485120*x^3 + 7755469800*x^2 + 11734056318*x
 - 16267424049)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 107121749031*(2*x
- 1)*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1
))))/(2*x - 1)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4*(3+5*x)**(5/2)/(1-2*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.248553, size = 166, normalized size = 0.91

$$-\frac{107121749031}{16384000}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5\,x+3}\right) + \frac{\Big(2\Big(4\Big(8\Big(108\Big(16\Big(4\sqrt{5}(5\,x+3)+35\sqrt{5}\Big)(5\,x+3)+4299\sqrt{5}\Big)(5\,x+3)+3832457\sqrt{5}\Big)(5\,x+3)+295101237\sqrt{5}\Big)(5\,x+3)+\cdots}{204800000\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)^4/(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] -107121749031/16384000*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3
)) + 1/204800000*(2*(4*(8*(108*(16*(4*sqrt(5)*(5*x + 3) + 35*sqrt
(5))*(5*x + 3) + 4299*sqrt(5))*(5*x + 3) + 3832457*sqrt(5))*(5*x
+ 3) + 295101237*sqrt(5))*(5*x + 3) + 16230568035*sqrt(5))*(5*x +
 3) - 535608745155*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x -
1)
```

3.2523 $\int \frac{(2+3x)^3(3+5x)^{5/2}}{(1-2x)^{3/2}}\,dx$

Optimal. Leaf size=154

$$\frac{(5x+3)^{5/2}(3x+2)^3}{\sqrt{1-2x}} + \frac{33}{20}\sqrt{1-2x}(5x+3)^{5/2}(3x+2)^2 + \frac{9748787\sqrt{1-2x}(5x+3)^{3/2}}{51200} + \frac{9\sqrt{1-2x}(5x+3)^{5/2}(13820x+27937)}{6400} + \frac{321709971\sqrt{1-2x}\sqrt{5x+3}}{204800} - \frac{3538809681\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{204800\sqrt{10}}$$

```
[Out] (321709971*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/204800 + (9748787*Sqrt[1
- 2*x]*(3 + 5*x)^(3/2))/51200 + (33*Sqrt[1 - 2*x]*(2 + 3*x)^2*(3
+ 5*x)^(5/2))/20 + ((2 + 3*x)^3*(3 + 5*x)^(5/2))/Sqrt[1 - 2*x] +
(9*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2)*(27937 + 13820*x))/6400 - (35388
09681*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(204800*Sqrt[10])
```

Rubi [A] time = 0.223326, antiderivative size = 154, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.231$

$$\frac{(5x+3)^{5/2}(3x+2)^3}{\sqrt{1-2x}} + \frac{33}{20}\sqrt{1-2x}(5x+3)^{5/2}(3x+2)^2 + \frac{9748787\sqrt{1-2x}(5x+3)^{3/2}}{51200} + \frac{9\sqrt{1-2x}(5x+3)^{5/2}(13820x+27937)}{6400} + \frac{321709971\sqrt{1-2x}\sqrt{5x+3}}{204800} - \frac{3538809681\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{204800\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^3*(3 + 5*x)^(5/2))/(1 - 2*x)^(3/2),x]
```

```
[Out] (321709971*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/204800 + (9748787*Sqrt[1
- 2*x]*(3 + 5*x)^(3/2))/51200 + (33*Sqrt[1 - 2*x]*(2 + 3*x)^2*(3
+ 5*x)^(5/2))/20 + ((2 + 3*x)^3*(3 + 5*x)^(5/2))/Sqrt[1 - 2*x] +
(9*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2)*(27937 + 13820*x))/6400 - (35388
09681*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(204800*Sqrt[10])
```

Rubi in Sympy [A] time = 23.5348, size = 143, normalized size = 0.93

$$\frac{33\sqrt{-2x+1}\,(3x+2)^2\,(5x+3)^{\frac{5}{2}}}{20} + \frac{\sqrt{-2x+1}\,(5x+3)^{\frac{5}{2}}\left(\frac{2332125x}{2}+\frac{18857475}{8}\right)}{60000} + \frac{9748787\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{51200} + \frac{321709971\sqrt{-2x+1}\sqrt{5x+3}}{204800} - \frac{3538809681\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{2048000} + \frac{(3x+2)^3\,(5x+3)^{\frac{5}{2}}}{\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3*(3+5*x)**(5/2)/(1-2*x)**(3/2),x)
```

```
[Out] 33*sqrt(-2*x + 1)*(3*x + 2)**2*(5*x + 3)**(5/2)/20 + sqrt(-2*x +
1)*(5*x + 3)**(5/2)*(2332125*x/2 + 18857475/8)/60000 + 9748787*sq
rt(-2*x + 1)*(5*x + 3)**(3/2)/51200 + 321709971*sqrt(-2*x + 1)*sq
rt(5*x + 3)/204800 - 3538809681*sqrt(10)*asin(sqrt(22)*sqrt(5*x +
 3)/11)/2048000 + (3*x + 2)**3*(5*x + 3)**(5/2)/sqrt(-2*x + 1)
```

Mathematica [A] time = 0.117105, size = 79, normalized size = 0.51

$$\frac{3538809681\sqrt{10-20x}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)-10\sqrt{5x+3}\left(13824000x^5+65836800x^4+148751040x^3+233394520x^2+3818\right.}{2048000\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^3*(3 + 5*x)^(5/2))/(1 - 2*x)^(3/2),x]
```

```
[Out] (-10*Sqrt[3 + 5*x]*(-538018839 + 381820658*x + 233394520*x^2 + 14
8751040*x^3 + 65836800*x^4 + 13824000*x^5) + 3538809681*Sqrt[10 -
 20*x]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/(2048000*Sqrt[1 - 2*x])
```

Maple [A] time = 0.019, size = 157, normalized size = 1.

$$-\frac{1}{-4096000+8192000\,x}\left(-276480000\,x^5\sqrt{-10\,x^2-x+3}-1316736000\,x^4\sqrt{-10\,x^2-x+3}-2975020800\,x^3\sqrt{-10\,x^2-x\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3*(3+5*x)^(5/2)/(1-2*x)^(3/2),x)
```

```
[Out] -1/4096000*(-276480000*x^5*(-10*x^2-x+3)^(1/2)-1316736000*x^4*(-1
0*x^2-x+3)^(1/2)-2975020800*x^3*(-10*x^2-x+3)^(1/2)+7077619362*10
^(1/2)*arcsin(20/11*x+1/11)*x-4667890400*x^2*(-10*x^2-x+3)^(1/2)-
3538809681*10^(1/2)*arcsin(20/11*x+1/11)-7636413160*x*(-10*x^2-x+
3)^(1/2)+10760376780*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)*(3+5*x)^(
1/2)/(-1+2*x)/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.50941, size = 170, normalized size = 1.1

$$-\frac{675\,x^6}{2\sqrt{-10\,x^2-x+3}}-\frac{57915\,x^5}{32\sqrt{-10\,x^2-x+3}}-\frac{588291\,x^4}{128\sqrt{-10\,x^2-x+3}}-\frac{40330643\,x^3}{5120\sqrt{-10\,x^2-x+3}}-\frac{52185737\,x^2}{4096\sqrt{-10\,x^2-x+3}}+\frac{3538809681}{4096000}\sqrt{10}\arcsin\left(-\frac{20}{11}\,x-\frac{1}{11}\right)+\frac{1544632221\,x}{204800\sqrt{-10\,x^2-x+3}}+\frac{1614056517}{204800\sqrt{-10\,x^2-x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)^3/(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] -675/2*x^6/sqrt(-10*x^2 - x + 3) - 57915/32*x^5/sqrt(-10*x^2 - x
+ 3) - 588291/128*x^4/sqrt(-10*x^2 - x + 3) - 40330643/5120*x^3/s
qrt(-10*x^2 - x + 3) - 52185737/4096*x^2/sqrt(-10*x^2 - x + 3) +
3538809681/4096000*sqrt(10)*arcsin(-20/11*x - 1/11) + 1544632221/
204800*x/sqrt(-10*x^2 - x + 3) + 1614056517/204800/sqrt(-10*x^2 -
 x + 3)
```

Fricas [A] time = 0.244254, size = 120, normalized size = 0.78

$$\frac{\sqrt{10}\left(2\sqrt{10}\left(13824000\,x^5+65836800\,x^4+148751040\,x^3+233394520\,x^2+381820658\,x-538018839\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-\right.}{4096000\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(3*x + 2)^3/(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] 1/4096000*sqrt(10)*(2*sqrt(10)*(13824000*x^5 + 65836800*x^4 + 148
751040*x^3 + 233394520*x^2 + 381820658*x - 538018839)*sqrt(5*x +
3)*sqrt(-2*x + 1) - 3538809681*(2*x - 1)*arctan(1/20*sqrt(10)*(20
*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(2*x - 1)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2+3*x)**3*(3+5*x)**(5/2)/(1-2*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.235076, size = 149, normalized size = 0.97

$$-\frac{3538809681}{2048000}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)+\frac{\left(2\left(4\left(24\left(36\left(16\sqrt{5}(5x+3)+141\sqrt{5}\right)(5x+3)+42197\sqrt{5}\right)(5x+3)+9748787\sqrt{5}\right)(5x+3)+536183285\sqrt{5}\right)(5x+3)-\right.}{25600000(2x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(3*x + 2)^3/(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] -3538809681/2048000*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))
+ 1/25600000*(2*(4*(24*(36*(16*sqrt(5)*(5*x + 3) + 141*sqrt(5))*(
5*x + 3) + 42197*sqrt(5))*(5*x + 3) + 9748787*sqrt(5))*(5*x + 3)
+ 536183285*sqrt(5))*(5*x + 3) - 17694048405*sqrt(5))*sqrt(5*x +
3)*sqrt(-10*x + 5)/(2*x - 1)
```

3.2524 $\int \frac{(2+3x)^2(3+5x)^{5/2}}{(1-2x)^{3/2}}\,dx$

Optimal. Leaf size=138

$$\frac{9}{80}\sqrt{1-2x}(5x+3)^{7/2}+\frac{49(5x+3)^{7/2}}{22\sqrt{1-2x}}+\frac{25397\sqrt{1-2x}(5x+3)^{5/2}}{3520}+\frac{25397}{512}\sqrt{1-2x}(5x+3)^{3/2}+\frac{838101\sqrt{1-2x}\sqrt{5x+3}}{2048}-\frac{9219111\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{2048\sqrt{10}}$$

```
[Out] (838101*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/2048 + (25397*Sqrt[1 - 2*x]*
(3 + 5*x)^(3/2))/512 + (25397*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/3520
 + (49*(3 + 5*x)^(7/2))/(22*Sqrt[1 - 2*x]) + (9*Sqrt[1 - 2*x]*(3
+ 5*x)^(7/2))/80 - (9219111*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(20
48*Sqrt[10])
```

Rubi [A] time = 0.169689, antiderivative size = 138, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$\frac{9}{80}\sqrt{1-2x}(5x+3)^{7/2}+\frac{49(5x+3)^{7/2}}{22\sqrt{1-2x}}+\frac{25397\sqrt{1-2x}(5x+3)^{5/2}}{3520}+\frac{25397}{512}\sqrt{1-2x}(5x+3)^{3/2}+\frac{838101\sqrt{1-2x}\sqrt{5x+3}}{2048}-\frac{9219111\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{2048\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^2*(3 + 5*x)^(5/2))/(1 - 2*x)^(3/2),x]
```

```
[Out] (838101*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/2048 + (25397*Sqrt[1 - 2*x]*
(3 + 5*x)^(3/2))/512 + (25397*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/3520
 + (49*(3 + 5*x)^(7/2))/(22*Sqrt[1 - 2*x]) + (9*Sqrt[1 - 2*x]*(3
+ 5*x)^(7/2))/80 - (9219111*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(20
48*Sqrt[10])
```

Rubi in Sympy [A] time = 14.2799, size = 126, normalized size = 0.91

$$\frac{9\sqrt{-2x+1}\,(5x+3)^{\frac{7}{2}}}{80}+\frac{25397\sqrt{-2x+1}\,(5x+3)^{\frac{5}{2}}}{3520}+\frac{25397\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{512}+\frac{838101\sqrt{-2x+1}\sqrt{5x+3}}{2048}-\frac{9219111\sqrt{10}\,\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{20480}+\frac{49\,(5x+3)^{\frac{7}{2}}}{22\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2*(3+5*x)**(5/2)/(1-2*x)**(3/2),x)
```

```
[Out] 9*sqrt(-2*x + 1)*(5*x + 3)**(7/2)/80 + 25397*sqrt(-2*x + 1)*(5*x
+ 3)**(5/2)/3520 + 25397*sqrt(-2*x + 1)*(5*x + 3)**(3/2)/512 + 83
8101*sqrt(-2*x + 1)*sqrt(5*x + 3)/2048 - 9219111*sqrt(10)*asin(sq
rt(22)*sqrt(5*x + 3)/11)/20480 + 49*(5*x + 3)**(7/2)/(22*sqrt(-2*
x + 1))
```

Mathematica [A] time = 0.100928, size = 74, normalized size = 0.54

$$\frac{9219111\sqrt{10-20x}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)-10\sqrt{5x+3}\left(57600x^4+243520x^3+517096x^2+966014x-1405233\right)}{20480\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^2*(3 + 5*x)^(5/2))/(1 - 2*x)^(3/2),x]
```

```
[Out] (-10*Sqrt[3 + 5*x]*(-1405233 + 966014*x + 517096*x^2 + 243520*x^3
 + 57600*x^4) + 9219111*Sqrt[10 - 20*x]*ArcSin[Sqrt[5/11]*Sqrt[1
- 2*x]])/(20480*Sqrt[1 - 2*x])
```

Maple [A] time = 0.017, size = 140, normalized size = 1.

$$-\frac{1}{-40960+81920\,x}\left(-1152000\,x^{4}\sqrt{-10\,x^{2}-x+3}-4870400\,x^{3}\sqrt{-10\,x^{2}-x+3}+18438222\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x-\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2*(3+5*x)^(5/2)/(1-2*x)^(3/2),x)
```

```
[Out] -1/40960*(-1152000*x^4*(-10*x^2-x+3)^(1/2)-4870400*x^3*(-10*x^2-x
+3)^(1/2)+18438222*10^(1/2)*arcsin(20/11*x+1/11)*x-10341920*x^2*(
-10*x^2-x+3)^(1/2)-9219111*10^(1/2)*arcsin(20/11*x+1/11)-19320280
*x*(-10*x^2-x+3)^(1/2)+28104660*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2
)*(3+5*x)^(1/2)/(-1+2*x)/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.49685, size = 147, normalized size = 1.07

$$-\frac{1125\,x^{5}}{8\,\sqrt{-10\,x^{2}-x+3}}-\frac{21725\,x^{4}}{32\,\sqrt{-10\,x^{2}-x+3}}-\frac{414505\,x^{3}}{256\,\sqrt{-10\,x^{2}-x+3}}-\frac{3190679\,x^{2}}{1024\,\sqrt{-10\,x^{2}-x+3}}+\frac{9219111}{40960}\sqrt{10}\arcsin\left(-\frac{20}{11}\,x-\frac{1}{11}\right)+\frac{4128123\,x}{2048\,\sqrt{-10\,x^{2}-x+3}}+\frac{4215699}{2048\,\sqrt{-10\,x^{2}-x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)^2/(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] -1125/8*x^5/sqrt(-10*x^2 - x + 3) - 21725/32*x^4/sqrt(-10*x^2 - x
 + 3) - 414505/256*x^3/sqrt(-10*x^2 - x + 3) - 3190679/1024*x^2/s
qrt(-10*x^2 - x + 3) + 9219111/40960*sqrt(10)*arcsin(-20/11*x - 1
/11) + 4128123/2048*x/sqrt(-10*x^2 - x + 3) + 4215699/2048/sqrt(-
10*x^2 - x + 3)
```

Fricas [A] time = 0.230255, size = 113, normalized size = 0.82

$$\frac{\sqrt{10}\left(2\,\sqrt{10}\left(57600\,x^{4}+243520\,x^{3}+517096\,x^{2}+966014\,x-1405233\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-9219111\,(2\,x-1)\arctan\left(\frac{\sqrt{10}}{20\,\sqrt{5\,x}}\right.\right.}{40960\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)^2/(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] 1/40960*sqrt(10)*(2*sqrt(10)*(57600*x^4 + 243520*x^3 + 517096*x^2
 + 966014*x - 1405233)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 9219111*(2*
x - 1)*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x +
 1))))/(2*x - 1)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2*(3+5*x)**(5/2)/(1-2*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.238138, size = 131, normalized size = 0.95

$$-\frac{9219111}{20480}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)+\frac{\left(2\left(4\left(8\left(36\sqrt{5}(5x+3)+329\sqrt{5}\right)(5x+3)+25397\sqrt{5}\right)(5x+3)+1396835\sqrt{5}\right)(5x+3)-46095555\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x}}{256000(2x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)^2/(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] -9219111/20480*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) + 1/2
56000*(2*(4*(8*(36*sqrt(5)*(5*x + 3) + 329*sqrt(5))*(5*x + 3) + 2
5397*sqrt(5))*(5*x + 3) + 1396835*sqrt(5))*(5*x + 3) - 46095555*s
qrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)
```

3.2525 $\int \frac{(2+3x)(3+5x)^{5/2}}{(1-2x)^{3/2}}\,dx$

Optimal. Leaf size=118

$$\frac{7(5x+3)^{7/2}}{11\sqrt{1-2x}}+\frac{81}{44}\sqrt{1-2x}(5x+3)^{5/2}+\frac{405}{32}\sqrt{1-2x}(5x+3)^{3/2}+\frac{13365}{128}\sqrt{1-2x}\sqrt{5x+3}-\frac{29403}{128}\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)$$

```
[Out] (13365*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/128 + (405*Sqrt[1 - 2*x]*(3 +
 5*x)^(3/2))/32 + (81*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/44 + (7*(3 +
 5*x)^(7/2))/(11*Sqrt[1 - 2*x]) - (29403*Sqrt[5/2]*ArcSin[Sqrt[2/
11]*Sqrt[3 + 5*x]])/128
```

Rubi [A] time = 0.119116, antiderivative size = 118, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$\frac{7(5x+3)^{7/2}}{11\sqrt{1-2x}}+\frac{81}{44}\sqrt{1-2x}(5x+3)^{5/2}+\frac{405}{32}\sqrt{1-2x}(5x+3)^{3/2}+\frac{13365}{128}\sqrt{1-2x}\sqrt{5x+3}-\frac{29403}{128}\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)$$

Antiderivative was successfully verified.

```
[In] Int[((2 + 3*x)*(3 + 5*x)^(5/2))/(1 - 2*x)^(3/2),x]
```

```
[Out] (13365*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/128 + (405*Sqrt[1 - 2*x]*(3 +
 5*x)^(3/2))/32 + (81*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/44 + (7*(3 +
 5*x)^(7/2))/(11*Sqrt[1 - 2*x]) - (29403*Sqrt[5/2]*ArcSin[Sqrt[2/
11]*Sqrt[3 + 5*x]])/128
```

Rubi in Sympy [A] time = 11.1827, size = 105, normalized size = 0.89

$$\frac{81\sqrt{-2x+1}\,(5x+3)^{\frac{5}{2}}}{44}+\frac{405\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{32}+\frac{13365\sqrt{-2x+1}\sqrt{5x+3}}{128}-\frac{29403\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{256}+\frac{7\,(5x+3)^{\frac{7}{2}}}{11\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)*(3+5*x)**(5/2)/(1-2*x)**(3/2),x)
```

```
[Out] 81*sqrt(-2*x + 1)*(5*x + 3)**(5/2)/44 + 405*sqrt(-2*x + 1)*(5*x +
 3)**(3/2)/32 + 13365*sqrt(-2*x + 1)*sqrt(5*x + 3)/128 - 29403*sq
rt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/256 + 7*(5*x + 3)**(7/2)/(
11*sqrt(-2*x + 1))
```

Mathematica [A] time = 0.0796758, size = 69, normalized size = 0.58

$$\frac{29403\sqrt{10-20x}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)-2\sqrt{5x+3}\left(1600x^3+6120x^2+14526x-22545\right)}{256\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)*(3 + 5*x)^(5/2))/(1 - 2*x)^(3/2),x]
```

```
[Out] (-2*Sqrt[3 + 5*x]*(-22545 + 14526*x + 6120*x^2 + 1600*x^3) + 2940
3*Sqrt[10 - 20*x]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/(256*Sqrt[1 -
 2*x])
```

Maple [A] time = 0.018, size = 123, normalized size = 1.

$$-\frac{1}{-512+1024\,x}\left(-6400\,x^3\sqrt{-10\,x^2-x+3}+58806\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x-24480\,x^2\sqrt{-10\,x^2-x+3}-29403\,\sqrt{10}\,\mathrm{a}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)*(3+5*x)^(5/2)/(1-2*x)^(3/2),x)
```

```
[Out] -1/512*(-6400*x^3*(-10*x^2-x+3)^(1/2)+58806*10^(1/2)*arcsin(20/11
*x+1/11)*x-24480*x^2*(-10*x^2-x+3)^(1/2)-29403*10^(1/2)*arcsin(20
/11*x+1/11)-58104*x*(-10*x^2-x+3)^(1/2)+90180*(-10*x^2-x+3)^(1/2)
)*(1-2*x)^(1/2)*(3+5*x)^(1/2)/(-1+2*x)/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.5014, size = 124, normalized size = 1.05

$$-\frac{125\,x^4}{2\,\sqrt{-10\,x^2-x+3}}-\frac{4425\,x^3}{16\,\sqrt{-10\,x^2-x+3}}-\frac{45495\,x^2}{64\,\sqrt{-10\,x^2-x+3}}+\frac{29403}{512}\sqrt{10}\arcsin\left(-\frac{20}{11}\,x-\frac{1}{11}\right)+\frac{69147\,x}{128\,\sqrt{-10\,x^2-x+3}}+\frac{67635}{128\,\sqrt{-10\,x^2-x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)/(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] -125/2*x^4/sqrt(-10*x^2 - x + 3) - 4425/16*x^3/sqrt(-10*x^2 - x +
 3) - 45495/64*x^2/sqrt(-10*x^2 - x + 3) + 29403/512*sqrt(10)*arc
sin(-20/11*x - 1/11) + 69147/128*x/sqrt(-10*x^2 - x + 3) + 67635/
128/sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.228979, size = 115, normalized size = 0.97

$$\frac{\sqrt{2}\left(2\,\sqrt{2}\left(1600\,x^3+6120\,x^2+14526\,x-22545\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-29403\,\sqrt{5}(2\,x-1)\arctan\left(\frac{\sqrt{5}\sqrt{2}(20\,x+1)}{20\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)}{512\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)/(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] 1/512*sqrt(2)*(2*sqrt(2)*(1600*x^3 + 6120*x^2 + 14526*x - 22545)*
sqrt(5*x + 3)*sqrt(-2*x + 1) - 29403*sqrt(5)*(2*x - 1)*arctan(1/2
0*sqrt(5)*sqrt(2)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(2*
x - 1)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)*(3+5*x)**(5/2)/(1-2*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.232681, size = 113, normalized size = 0.96

$$-\frac{29403}{256}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)+\frac{\left(2\left(4\left(8\sqrt{5}(5x+3)+81\sqrt{5}\right)(5x+3)+4455\sqrt{5}\right)(5x+3)-147015\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{3200(2x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)/(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] -29403/256*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) + 1/3200*
(2*(4*(8*sqrt(5)*(5*x + 3) + 81*sqrt(5))*(5*x + 3) + 4455*sqrt(5)
)*(5*x + 3) - 147015*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x
- 1)
```

3.2526 $\int \frac{(3+5x)^{5/2}}{(1-2x)^{3/2}}\,dx$

Optimal. Leaf size=93

$$\frac{(5x+3)^{5/2}}{\sqrt{1-2x}}+\frac{25}{8}\sqrt{1-2x}(5x+3)^{3/2}+\frac{825}{32}\sqrt{1-2x}\sqrt{5x+3}-\frac{1815}{32}\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)$$

```
[Out] (825*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/32 + (25*Sqrt[1 - 2*x]*(3 + 5*x
)^(3/2))/8 + (3 + 5*x)^(5/2)/Sqrt[1 - 2*x] - (1815*Sqrt[5/2]*ArcS
in[Sqrt[2/11]*Sqrt[3 + 5*x]])/32
```

Rubi [A] time = 0.0819144, antiderivative size = 93, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.21

$$\frac{(5x+3)^{5/2}}{\sqrt{1-2x}}+\frac{25}{8}\sqrt{1-2x}(5x+3)^{3/2}+\frac{825}{32}\sqrt{1-2x}\sqrt{5x+3}-\frac{1815}{32}\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(5/2)/(1 - 2*x)^(3/2),x]
```

```
[Out] (825*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/32 + (25*Sqrt[1 - 2*x]*(3 + 5*x
)^(3/2))/8 + (3 + 5*x)^(5/2)/Sqrt[1 - 2*x] - (1815*Sqrt[5/2]*ArcS
in[Sqrt[2/11]*Sqrt[3 + 5*x]])/32
```

Rubi in Sympy [A] time = 8.96746, size = 82, normalized size = 0.88

$$\frac{25\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{8}+\frac{825\sqrt{-2x+1}\sqrt{5x+3}}{32}-\frac{1815\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{64}+\frac{(5x+3)^{\frac{5}{2}}}{\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)/(1-2*x)**(3/2),x)
```

```
[Out] 25*sqrt(-2*x + 1)*(5*x + 3)**(3/2)/8 + 825*sqrt(-2*x + 1)*sqrt(5*
x + 3)/32 - 1815*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/64 + (5
*x + 3)**(5/2)/sqrt(-2*x + 1)
```

Mathematica [A] time = 0.0603539, size = 64, normalized size = 0.69

$$\frac{1815\sqrt{10-20x}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)-2\sqrt{5x+3}\left(200x^2+790x-1413\right)}{64\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(5/2)/(1 - 2*x)^(3/2),x]
```

```
[Out] (-2*Sqrt[3 + 5*x]*(-1413 + 790*x + 200*x^2) + 1815*Sqrt[10 - 20*x
]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/(64*Sqrt[1 - 2*x])
```

Maple [F] time = 0.07, size = 0, normalized size = 0.

$$\int 1\,(3+5\,x)^{\frac{5}{2}}\,(1-2\,x)^{-\frac{3}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)/(1-2*x)^(3/2),x)
```

```
[Out] int((3+5*x)^(5/2)/(1-2*x)^(3/2),x)
```

Maxima [A] time = 1.52487, size = 101, normalized size = 1.09

$$-\frac{125\,x^3}{4\,\sqrt{-10\,x^2-x+3}}-\frac{2275\,x^2}{16\,\sqrt{-10\,x^2-x+3}}+\frac{1815}{128}\,\sqrt{10}\arcsin\left(-\frac{20}{11}\,x-\frac{1}{11}\right)+\frac{4695\,x}{32\,\sqrt{-10\,x^2-x+3}}+\frac{4239}{32\,\sqrt{-10\,x^2-x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] -125/4*x^3/sqrt(-10*x^2 - x + 3) - 2275/16*x^2/sqrt(-10*x^2 - x +
 3) + 1815/128*sqrt(10)*arcsin(-20/11*x - 1/11) + 4695/32*x/sqrt(
-10*x^2 - x + 3) + 4239/32/sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.224578, size = 108, normalized size = 1.16

$$\frac{\sqrt{2}\left(2\,\sqrt{2}\left(200\,x^2+790\,x-1413\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-1815\,\sqrt{5}(2\,x-1)\arctan\left(\frac{\sqrt{5}\sqrt{2}(20\,x+1)}{20\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)}{128\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] 1/128*sqrt(2)*(2*sqrt(2)*(200*x^2 + 790*x - 1413)*sqrt(5*x + 3)*s
qrt(-2*x + 1) - 1815*sqrt(5)*(2*x - 1)*arctan(1/20*sqrt(5)*sqrt(2
)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(2*x - 1)
```

Sympy [A] time = 31.7412, size = 187, normalized size = 2.01

$$\begin{cases} \frac{125i\left(x+\frac{3}{5}\right)^{\frac{5}{2}}}{4\sqrt{10x-5}}+\frac{1375i\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}{16\sqrt{10x-5}}-\frac{9075i\sqrt{x+\frac{3}{5}}}{32\sqrt{10x-5}}+\frac{1815\sqrt{10}i\operatorname{acosh}\left(\frac{\sqrt{110}\sqrt{x+\frac{3}{5}}}{11}\right)}{64} & \text{for}\ \frac{10\left|x+\frac{3}{5}\right|}{11}>1 \\ -\frac{1815\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{110}\sqrt{x+\frac{3}{5}}}{11}\right)}{64}-\frac{125\left(x+\frac{3}{5}\right)^{\frac{5}{2}}}{4\sqrt{-10x+5}}-\frac{1375\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}{16\sqrt{-10x+5}}+\frac{9075\sqrt{x+\frac{3}{5}}}{32\sqrt{-10x+5}} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(5/2)/(1-2*x)**(3/2),x)
```

```
[Out] Piecewise((125*I*(x + 3/5)**(5/2)/(4*sqrt(10*x - 5)) + 1375*I*(x
+ 3/5)**(3/2)/(16*sqrt(10*x - 5)) - 9075*I*sqrt(x + 3/5)/(32*sqrt
(10*x - 5)) + 1815*sqrt(10)*I*acosh(sqrt(110)*sqrt(x + 3/5)/11)/6
4, 10*Abs(x + 3/5)/11 > 1), (-1815*sqrt(10)*asin(sqrt(110)*sqrt(x
 + 3/5)/11)/64 - 125*(x + 3/5)**(5/2)/(4*sqrt(-10*x + 5)) - 1375*
```

```
(x + 3/5)**(3/2)/(16*sqrt(-10*x + 5)) + 9075*sqrt(x + 3/5)/(32*sq
rt(-10*x + 5)), True))
```

GIAC/XCAS [A] time = 0.22699, size = 96, normalized size = 1.03

$$-\frac{1815}{64}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)+\frac{\left(2\left(4\sqrt{5}(5x+3)+55\sqrt{5}\right)(5x+3)-1815\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{160(2x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] -1815/64*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) + 1/160*(2*
(4*sqrt(5)*(5*x + 3) + 55*sqrt(5))*(5*x + 3) - 1815*sqrt(5))*sqrt
(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)
```

3.2527 $\int \frac{(3+5x)^{5/2}}{(1-2x)^{3/2}(2+3x)}\,dx$

Optimal. Leaf size=108

$$\frac{11(5x+3)^{3/2}}{7\sqrt{1-2x}}+\frac{505}{84}\sqrt{1-2x}\sqrt{5x+3}-\frac{475}{36}\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)+\frac{2\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{63\sqrt{7}}$$

```
[Out] (505*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/84 + (11*(3 + 5*x)^(3/2))/(7*Sq
rt[1 - 2*x]) - (475*Sqrt[5/2]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/3
6 + (2*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(63*Sqrt[7]
)
```

Rubi [A] time = 0.235279, antiderivative size = 108, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 7, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.269$

$$\frac{11(5x+3)^{3/2}}{7\sqrt{1-2x}}+\frac{505}{84}\sqrt{1-2x}\sqrt{5x+3}-\frac{475}{36}\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)+\frac{2\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{63\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(5/2)/((1 - 2*x)^(3/2)*(2 + 3*x)),x]
```

```
[Out] (505*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/84 + (11*(3 + 5*x)^(3/2))/(7*Sq
rt[1 - 2*x]) - (475*Sqrt[5/2]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/3
6 + (2*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(63*Sqrt[7]
)
```

Rubi in Sympy [A] time = 23.7972, size = 99, normalized size = 0.92

$$\frac{505\sqrt{-2x+1}\sqrt{5x+3}}{84}-\frac{475\sqrt{10}\,\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{72}+\frac{2\sqrt{7}\,\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{441}+\frac{11\,(5x+3)^{\frac{3}{2}}}{7\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)/(1-2*x)**(3/2)/(2+3*x),x)
```

```
[Out] 505*sqrt(-2*x + 1)*sqrt(5*x + 3)/84 - 475*sqrt(10)*asin(sqrt(22)*
sqrt(5*x + 3)/11)/72 + 2*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*s
qrt(5*x + 3)))/441 + 11*(5*x + 3)**(3/2)/(7*sqrt(-2*x + 1))
```

Mathematica [A] time = 0.343426, size = 104, normalized size = 0.96

$$\frac{\sqrt{5x+3}(901-350x)}{84\sqrt{1-2x}}+\frac{\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{63\sqrt{7}}-\frac{475}{72}\sqrt{\frac{5}{2}}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(5/2)/((1 - 2*x)^(3/2)*(2 + 3*x)),x]
```

```
[Out] ((901 - 350*x)*Sqrt[3 + 5*x])/(84*Sqrt[1 - 2*x]) + ArcTan[(-20 -
37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])]/(63*Sqrt[7]) - (475*Sqrt[
5/2]*ArcTan[(1 + 20*x)/(2*Sqrt[1 - 2*x]*Sqrt[30 + 50*x])])/72
```

Maple [A] time = 0.019, size = 146, normalized size = 1.4

$$-\frac{1}{-7056+14112\,x}\left(32\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x+46550\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x-16\,\sqrt{7}\arctan\left(1/14\,\frac{(37}{\sqrt{-}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)/(1-2*x)^(3/2)/(2+3*x),x)
```

```
[Out] -1/7056*(32*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(
1/2))*x+46550*10^(1/2)*arcsin(20/11*x+1/11)*x-16*7^(1/2)*arctan(1
/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))-23275*10^(1/2)*arcsin(
20/11*x+1/11)-29400*x*(-10*x^2-x+3)^(1/2)+75684*(-10*x^2-x+3)^(1/
2))*(1-2*x)^(1/2)*(3+5*x)^(1/2)/(-1+2*x)/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.50059, size = 116, normalized size = 1.07

$$-\frac{125\,x^2}{6\,\sqrt{-10\,x^2-x+3}}-\frac{475}{144}\,\sqrt{10}\arcsin\left(\frac{20}{11}\,x+\frac{1}{11}\right)-\frac{1}{441}\,\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{3455\,x}{84\,\sqrt{-10\,x^2-x+3}}+\frac{901}{28\,\sqrt{-10\,x^2-x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] -125/6*x^2/sqrt(-10*x^2 - x + 3) - 475/144*sqrt(10)*arcsin(20/11*
x + 1/11) - 1/441*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs
(3*x + 2)) + 3455/84*x/sqrt(-10*x^2 - x + 3) + 901/28/sqrt(-10*x^
2 - x + 3)
```

Fricas [A] time = 0.237054, size = 161, normalized size = 1.49

$$\frac{\sqrt{7}\sqrt{2}\left(6\,\sqrt{7}\sqrt{2}(350\,x-901)\sqrt{5\,x+3}\sqrt{-2\,x+1}-3325\,\sqrt{7}\sqrt{5}(2\,x-1)\arctan\left(\frac{\sqrt{5}\sqrt{2}(20\,x+1)}{20\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)-8\,\sqrt{2}(2\,x-1)\arctan\left(\frac{\sqrt{}}{14\,\sqrt{5}}\right.\right.}{7056\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/7056*sqrt(7)*sqrt(2)*(6*sqrt(7)*sqrt(2)*(350*x - 901)*sqrt(5*x
+ 3)*sqrt(-2*x + 1) - 3325*sqrt(7)*sqrt(5)*(2*x - 1)*arctan(1/20*
sqrt(5)*sqrt(2)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))) - 8*sq
rt(2)*(2*x - 1)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sq
rt(-2*x + 1))))/(2*x - 1)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(5/2)/(1-2*x)**(3/2)/(2+3*x),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.272082, size = 243, normalized size = 2.25

$$-\frac{1}{4410}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{475}{144}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{4\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)+\frac{\left(70\sqrt{5}(5x+3)-1111\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{420(2x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] -1/4410*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x
 + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqr
t(2)*sqrt(-10*x + 5) - sqrt(22)))) - 475/144*sqrt(10)*(pi + 2*arc
tan(-1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5
*x + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 1/420*(70*s
qrt(5)*(5*x + 3) - 1111*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2
*x - 1)
```

3.2528 $\int \frac{(3+5x)^{5/2}}{(1-2x)^{3/2}(2+3x)^2}\,dx$

Optimal. Leaf size=122

$$\frac{11(5x+3)^{3/2}}{7\sqrt{1-2x}(3x+2)}+\frac{32\sqrt{1-2x}\sqrt{5x+3}}{147(3x+2)}-\frac{25}{9}\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{169\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{441\sqrt{7}}$$

```
[Out] (32*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(147*(2 + 3*x)) + (11*(3 + 5*x)^
(3/2))/(7*Sqrt[1 - 2*x]*(2 + 3*x)) - (25*Sqrt[5/2]*ArcSin[Sqrt[2/
11]*Sqrt[3 + 5*x]])/9 - (169*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3
 + 5*x])])/(441*Sqrt[7])
```

Rubi [A] time = 0.244374, antiderivative size = 122, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 7, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.269

$$\frac{11(5x+3)^{3/2}}{7\sqrt{1-2x}(3x+2)}+\frac{32\sqrt{1-2x}\sqrt{5x+3}}{147(3x+2)}-\frac{25}{9}\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)-\frac{169\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{441\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(5/2)/((1 - 2*x)^(3/2)*(2 + 3*x)^2),x]
```

```
[Out] (32*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(147*(2 + 3*x)) + (11*(3 + 5*x)^
(3/2))/(7*Sqrt[1 - 2*x]*(2 + 3*x)) - (25*Sqrt[5/2]*ArcSin[Sqrt[2/
11]*Sqrt[3 + 5*x]])/9 - (169*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3
 + 5*x])])/(441*Sqrt[7])
```

Rubi in Sympy [A] time = 22.8858, size = 107, normalized size = 0.88

$$\frac{32\sqrt{-2x+1}\sqrt{5x+3}}{147\,(3x+2)}-\frac{25\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{18}-\frac{169\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{3087}+\frac{11\,(5x+3)^{\frac{3}{2}}}{7\sqrt{-2x+1}\,(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)/(1-2*x)**(3/2)/(2+3*x)**2,x)
```

```
[Out] 32*sqrt(-2*x + 1)*sqrt(5*x + 3)/(147*(3*x + 2)) - 25*sqrt(10)*asi
n(sqrt(22)*sqrt(5*x + 3)/11)/18 - 169*sqrt(7)*atan(sqrt(7)*sqrt(-
2*x + 1)/(7*sqrt(5*x + 3)))/3087 + 11*(5*x + 3)**(3/2)/(7*sqrt(-2
*x + 1)*(3*x + 2))
```

Mathematica [A] time = 0.199502, size = 110, normalized size = 0.9

$$\frac{-\frac{84\sqrt{1-2x}\sqrt{5x+3}(1091x+725)}{6x^2+x-2}-338\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)-8575\sqrt{10}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)}{12348}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(5/2)/((1 - 2*x)^(3/2)*(2 + 3*x)^2),x]
```

```
[Out] ((-84*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(725 + 1091*x))/(-2 + x + 6*x^2
) - 338*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*
x])] - 8575*Sqrt[10]*ArcTan[(1 + 20*x)/(2*Sqrt[1 - 2*x]*Sqrt[30 +
```

```
50*x])])/12348
```

Maple [B] time = 0.02, size = 198, normalized size = 1.6

$$\frac{1}{(24696+37044x)(-1+2x)}\left(2028\sqrt{7}\arctan\left(1/14\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)x^2-51450\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)x^2+338\sqrt{7}\mathrm{ar}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)/(1-2*x)^(3/2)/(2+3*x)^2,x)
```

```
[Out] 1/12348*(2028*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)
^(1/2))*x^2-51450*10^(1/2)*arcsin(20/11*x+1/11)*x^2+338*7^(1/2)*a
rctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x-8575*10^(1/2)
*arcsin(20/11*x+1/11)*x-676*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)
/(-10*x^2-x+3)^(1/2))+17150*10^(1/2)*arcsin(20/11*x+1/11)-91644*x
*(-10*x^2-x+3)^(1/2)-60900*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)*(3+
5*x)^(1/2)/(2+3*x)/(-1+2*x)/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.50735, size = 139, normalized size = 1.14

$$-\frac{25}{36}\sqrt{10}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)+\frac{169}{6174}\sqrt{7}\arcsin\left(\frac{37x}{11|3x+2|}+\frac{20}{11|3x+2|}\right)$$
$$+\frac{5455x}{441\sqrt{-10x^2-x+3}}+\frac{9784}{1323\sqrt{-10x^2-x+3}}+\frac{1}{189\left(3\sqrt{-10x^2-x+3}x+2\sqrt{-10x^2-x+3}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)^2*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] -25/36*sqrt(10)*arcsin(20/11*x + 1/11) + 169/6174*sqrt(7)*arcsin(
37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) + 5455/441*x/sqrt(-10*
x^2 - x + 3) + 9784/1323/sqrt(-10*x^2 - x + 3) + 1/189/(3*sqrt(-1
0*x^2 - x + 3)*x + 2*sqrt(-10*x^2 - x + 3))
```

Fricas [A] time = 0.233575, size = 173, normalized size = 1.42

$$-\frac{\sqrt{7}\sqrt{2}\left(6\sqrt{7}\sqrt{2}(1091x+725)\sqrt{5x+3}\sqrt{-2x+1}+1225\sqrt{7}\sqrt{5}\left(6x^2+x-2\right)\arctan\left(\frac{\sqrt{5}\sqrt{2}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)-169\sqrt{2}\left(6x^2+x-\right.\right.}{12348\left(6x^2+x-2\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)^2*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] -1/12348*sqrt(7)*sqrt(2)*(6*sqrt(7)*sqrt(2)*(1091*x + 725)*sqrt(5
*x + 3)*sqrt(-2*x + 1) + 1225*sqrt(7)*sqrt(5)*(6*x^2 + x - 2)*arc
tan(1/20*sqrt(5)*sqrt(2)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1)
)) - 169*sqrt(2)*(6*x^2 + x - 2)*arctan(1/14*sqrt(7)*(37*x + 20)/
(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(6*x^2 + x - 2)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(5/2)/(1-2*x)**(3/2)/(2+3*x)**2,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.362595, size = 386, normalized size = 3.16

$$\frac{169}{61740}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{25}{36}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{4\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{121\sqrt{5}\sqrt{5x+3}\sqrt{-10x+5}}{245(2x-1)}-\frac{22\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)}{147\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)^2*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 169/61740*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5
*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(s
qrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 25/36*sqrt(10)*(pi + 2*arc
tan(-1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5
*x + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 121/245*sqr
t(5)*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1) - 22/147*sqrt(10)*((
sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x +
3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))/(((sqrt(2)*sqrt(-10*x +
5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*
x + 5) - sqrt(22)))^2 + 280)
```

3.2529 $\int \frac{(3+5x)^{5/2}}{(1-2x)^{3/2}(2+3x)^3} \, dx$

Optimal. Leaf size=122

$$\frac{2(5x+3)^{5/2}}{7\sqrt{1-2x}(3x+2)^2}+\frac{5\sqrt{1-2x}(5x+3)^{3/2}}{98(3x+2)^2}+\frac{165\sqrt{1-2x}\sqrt{5x+3}}{1372(3x+2)}+\frac{1815\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{1372\sqrt{7}}$$

```
[Out] (165*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(1372*(2 + 3*x)) + (5*Sqrt[1 -
2*x]*(3 + 5*x)^(3/2))/(98*(2 + 3*x)^2) + (2*(3 + 5*x)^(5/2))/(7*S
qrt[1 - 2*x]*(2 + 3*x)^2) + (1815*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*S
qrt[3 + 5*x])])/(1372*Sqrt[7])
```

Rubi [A] time = 0.171623, antiderivative size = 122, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.115

$$\frac{2(5x+3)^{5/2}}{7\sqrt{1-2x}(3x+2)^2}+\frac{5\sqrt{1-2x}(5x+3)^{3/2}}{98(3x+2)^2}+\frac{165\sqrt{1-2x}\sqrt{5x+3}}{1372(3x+2)}+\frac{1815\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{1372\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(5/2)/((1 - 2*x)^(3/2)*(2 + 3*x)^3),x]
```

```
[Out] (165*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(1372*(2 + 3*x)) + (5*Sqrt[1 -
2*x]*(3 + 5*x)^(3/2))/(98*(2 + 3*x)^2) + (2*(3 + 5*x)^(5/2))/(7*S
qrt[1 - 2*x]*(2 + 3*x)^2) + (1815*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*S
qrt[3 + 5*x])])/(1372*Sqrt[7])
```

Rubi in Sympy [A] time = 13.696, size = 107, normalized size = 0.88

$$\frac{165\sqrt{-2x+1}\sqrt{5x+3}}{1372\,(3x+2)}+\frac{1815\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{9604}+\frac{55\,(5x+3)^{\frac{3}{2}}}{98\sqrt{-2x+1}\,(3x+2)}-\frac{(5x+3)^{\frac{5}{2}}}{14\sqrt{-2x+1}\,(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)/(1-2*x)**(3/2)/(2+3*x)**3,x)
```

```
[Out] 165*sqrt(-2*x + 1)*sqrt(5*x + 3)/(1372*(3*x + 2)) + 1815*sqrt(7)*
atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/9604 + 55*(5*x + 3
)**(3/2)/(98*sqrt(-2*x + 1)*(3*x + 2)) - (5*x + 3)**(5/2)/(14*sqr
t(-2*x + 1)*(3*x + 2)**2)
```

Mathematica [A] time = 0.119916, size = 77, normalized size = 0.63

$$\frac{\frac{14\sqrt{5x+3}(8110x^2+11525x+4068)}{\sqrt{1-2x}(3x+2)^2}+1815\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{19208}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(5/2)/((1 - 2*x)^(3/2)*(2 + 3*x)^3),x]
```

```
[Out] ((14*Sqrt[3 + 5*x]*(4068 + 11525*x + 8110*x^2))/(Sqrt[1 - 2*x]*(2
 + 3*x)^2) + 1815*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*S
qrt[3 + 5*x])])/19208
```

Maple [B] time = 0.02, size = 209, normalized size = 1.7

$$-\frac{1}{19208\,(2+3x)^2(-1+2x)}\left(32670\sqrt{7}\arctan\left(1/14\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)x^3+27225\sqrt{7}\arctan\left(1/14\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)x^2-\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)/(1-2*x)^(3/2)/(2+3*x)^3,x)
```

```
[Out] -1/19208*(32670*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+
3)^(1/2))*x^3+27225*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^
2-x+3)^(1/2))*x^2-7260*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10
*x^2-x+3)^(1/2))*x+113540*x^2*(-10*x^2-x+3)^(1/2)-7260*7^(1/2)*ar
ctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+161350*x*(-10*x^
2-x+3)^(1/2)+56952*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)*(3+5*x)^(1/
2)/(2+3*x)^2/(-1+2*x)/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.53416, size = 193, normalized size = 1.58

$$-\frac{1815}{19208}\sqrt{7}\arcsin\left(\frac{37x}{11|3x+2|}+\frac{20}{11|3x+2|}\right)+\frac{20275x}{6174\sqrt{-10x^2-x+3}}+\frac{83665}{37044\sqrt{-10x^2-x+3}}+\frac{1}{378\left(9\sqrt{-10x^2-x+3}x^2+12\sqrt{-10x^2-x+3}x+4\sqrt{-10x^2-x+3}\right)}-\frac{125}{1764\left(3\sqrt{-10x^2-x+3}x+2\sqrt{-10x^2-x+3}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)^3*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] -1815/19208*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x +
 2)) + 20275/6174*x/sqrt(-10*x^2 - x + 3) + 83665/37044/sqrt(-10*
x^2 - x + 3) + 1/378/(9*sqrt(-10*x^2 - x + 3)*x^2 + 12*sqrt(-10*x
^2 - x + 3)*x + 4*sqrt(-10*x^2 - x + 3)) - 125/1764/(3*sqrt(-10*x
^2 - x + 3)*x + 2*sqrt(-10*x^2 - x + 3))
```

Fricas [A] time = 0.234898, size = 127, normalized size = 1.04

$$-\frac{\sqrt{7}\left(2\sqrt{7}\left(8110x^2+11525x+4068\right)\sqrt{5x+3}\sqrt{-2x+1}+1815\left(18x^3+15x^2-4x-4\right)\arctan\left(\frac{\sqrt{7}(37x+20)}{14\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)}{19208\left(18x^3+15x^2-4x-4\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)^3*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] -1/19208*sqrt(7)*(2*sqrt(7)*(8110*x^2 + 11525*x + 4068)*sqrt(5*x
+ 3)*sqrt(-2*x + 1) + 1815*(18*x^3 + 15*x^2 - 4*x - 4)*arctan(1/1
4*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(18*x^3 +
15*x^2 - 4*x - 4)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(5/2)/(1-2*x)**(3/2)/(2+3*x)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.399426, size = 381, normalized size = 3.12

$$-\frac{363}{38416}\,\sqrt{70}\sqrt{10}\left(\pi+2\,\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)-\frac{242\,\sqrt{5}\sqrt{5\,x+3}\sqrt{-10\,x+5}}{1715\,(2\,x-1)}+\frac{121\left(\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^3+360\,\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)\right)}{98\left(\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^2+280\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)^3*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] -363/38416*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(
5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(
sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 242/1715*sqrt(5)*sqrt(5*x
 + 3)*sqrt(-10*x + 5)/(2*x - 1) + 121/98*(sqrt(10)*((sqrt(2)*sqrt
(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*
sqrt(-10*x + 5) - sqrt(22)))^3 + 360*sqrt(10)*((sqrt(2)*sqrt(-10*
x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(
-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/s
qrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22
)))^2 + 280)^2
```

3.2530 $\int \frac{(3+5x)^{5/2}}{(1-2x)^{3/2}(2+3x)^4}\,dx$

Optimal. Leaf size=151

$$\frac{4(5x+3)^{7/2}}{77\sqrt{1-2x}(3x+2)^3}-\frac{\sqrt{1-2x}(5x+3)^{5/2}}{77(3x+2)^3}-\frac{5\sqrt{1-2x}(5x+3)^{3/2}}{196(3x+2)^2}-\frac{165\sqrt{1-2x}\sqrt{5x+3}}{2744(3x+2)}-\frac{1815\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{2744\sqrt{7}}$$

```
[Out] (-165*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2744*(2 + 3*x)) - (5*Sqrt[1 -
 2*x]*(3 + 5*x)^(3/2))/(196*(2 + 3*x)^2) - (Sqrt[1 - 2*x]*(3 + 5*
x)^(5/2))/(77*(2 + 3*x)^3) + (4*(3 + 5*x)^(7/2))/(77*Sqrt[1 - 2*x
]*(2 + 3*x)^3) - (1815*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x
])])/(2744*Sqrt[7])
```

Rubi [A] time = 0.218719, antiderivative size = 151, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$\frac{4(5x+3)^{7/2}}{77\sqrt{1-2x}(3x+2)^3}-\frac{\sqrt{1-2x}(5x+3)^{5/2}}{77(3x+2)^3}-\frac{5\sqrt{1-2x}(5x+3)^{3/2}}{196(3x+2)^2}-\frac{165\sqrt{1-2x}\sqrt{5x+3}}{2744(3x+2)}-\frac{1815\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{2744\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(5/2)/((1 - 2*x)^(3/2)*(2 + 3*x)^4),x]
```

```
[Out] (-165*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2744*(2 + 3*x)) - (5*Sqrt[1 -
 2*x]*(3 + 5*x)^(3/2))/(196*(2 + 3*x)^2) - (Sqrt[1 - 2*x]*(3 + 5*
x)^(5/2))/(77*(2 + 3*x)^3) + (4*(3 + 5*x)^(7/2))/(77*Sqrt[1 - 2*x
]*(2 + 3*x)^3) - (1815*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x
])])/(2744*Sqrt[7])
```

Rubi in Sympy [A] time = 17.1911, size = 134, normalized size = 0.89

$$-\frac{165\sqrt{-2x+1}\sqrt{5x+3}}{2744\,(3x+2)}-\frac{5\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{196\,(3x+2)^2}-\frac{1815\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{19208}-\frac{(5x+3)^{\frac{5}{2}}}{7\sqrt{-2x+1}\,(3x+2)^2}+\frac{(5x+3)^{\frac{7}{2}}}{7\sqrt{-2x+1}\,(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)/(1-2*x)**(3/2)/(2+3*x)**4,x)
```

```
[Out] -165*sqrt(-2*x + 1)*sqrt(5*x + 3)/(2744*(3*x + 2)) - 5*sqrt(-2*x
+ 1)*(5*x + 3)**(3/2)/(196*(3*x + 2)**2) - 1815*sqrt(7)*atan(sqrt
(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/19208 - (5*x + 3)**(5/2)/(7
*sqrt(-2*x + 1)*(3*x + 2)**2) + (5*x + 3)**(7/2)/(7*sqrt(-2*x + 1
)*(3*x + 2)**3)
```

Mathematica [A] time = 0.126639, size = 82, normalized size = 0.54

$$\frac{\frac{14\sqrt{5x+3}(24670x^3+37405x^2+17666x+2448)}{\sqrt{1-2x}(3x+2)^3}-1815\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{38416}$$

Antiderivative was successfully verified.

```
[In]   Integrate[(3 + 5*x)^(5/2)/((1 - 2*x)^(3/2)*(2 + 3*x)^4),x]
```

```
[Out] ((14*Sqrt[3 + 5*x]*(2448 + 17666*x + 37405*x^2 + 24670*x^3))/(Sqr
t[1 - 2*x]*(2 + 3*x)^3) - 1815*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqr
t[7 - 14*x]*Sqrt[3 + 5*x])])/38416
```

Maple [B] time = 0.022, size = 257, normalized size = 1.7

$$\frac{1}{38416\,(2+3\,x)^3\,(-1+2\,x)}\left(98010\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^4+147015\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^3+$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((3+5*x)^(5/2)/(1-2*x)^(3/2)/(2+3*x)^4,x)
```

```
[Out] 1/38416*(98010*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3
)^(1/2))*x^4+147015*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^
2-x+3)^(1/2))*x^3+32670*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-1
0*x^2-x+3)^(1/2))*x^2-345380*x^3*(-10*x^2-x+3)^(1/2)-36300*7^(1/2
)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x-523670*x^2
*(-10*x^2-x+3)^(1/2)-14520*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/
(-10*x^2-x+3)^(1/2))-247324*x*(-10*x^2-x+3)^(1/2)-34272*(-10*x^2-
x+3)^(1/2))*(1-2*x)^(1/2)*(3+5*x)^(1/2)/(2+3*x)^3/(-1+2*x)/(-10*x
^2-x+3)^(1/2)
```

Maxima [A] time = 1.49981, size = 285, normalized size = 1.89

$$\frac{1815}{38416}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{61675\,x}{37044\,\sqrt{-10\,x^2-x+3}}+\frac{14335}{74088\,\sqrt{-10\,x^2-x+3}}$$
$$+\frac{1}{567\left(27\,\sqrt{-10\,x^2-x+3}x^3+54\,\sqrt{-10\,x^2-x+3}x^2+36\,\sqrt{-10\,x^2-x+3}x+8\,\sqrt{-10\,x^2-x+3}\right)}$$
$$-\frac{83}{2268\left(9\,\sqrt{-10\,x^2-x+3}x^2+12\,\sqrt{-10\,x^2-x+3}x+4\,\sqrt{-10\,x^2-x+3}\right)}$$
$$+\frac{3175}{10584\left(3\,\sqrt{-10\,x^2-x+3}x+2\,\sqrt{-10\,x^2-x+3}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)^4*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 1815/38416*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x +
2)) + 61675/37044*x/sqrt(-10*x^2 - x + 3) + 14335/74088/sqrt(-10*
x^2 - x + 3) + 1/567/(27*sqrt(-10*x^2 - x + 3)*x^3 + 54*sqrt(-10*
x^2 - x + 3)*x^2 + 36*sqrt(-10*x^2 - x + 3)*x + 8*sqrt(-10*x^2 -
x + 3)) - 83/2268/(9*sqrt(-10*x^2 - x + 3)*x^2 + 12*sqrt(-10*x^2
- x + 3)*x + 4*sqrt(-10*x^2 - x + 3)) + 3175/10584/(3*sqrt(-10*x^
2 - x + 3)*x + 2*sqrt(-10*x^2 - x + 3))
```

Fricas [A] time = 0.23997, size = 147, normalized size = 0.97

$$-\frac{\sqrt{7}\left(2\,\sqrt{7}\left(24670\,x^3+37405\,x^2+17666\,x+2448\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-1815\left(54\,x^4+81\,x^3+18\,x^2-20\,x-8\right)\arctan\left(\frac{\sqrt{}}{14\,\sqrt{}}\right.\right.}{38416\left(54\,x^4+81\,x^3+18\,x^2-20\,x-8\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)^4*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] -1/38416*sqrt(7)*(2*sqrt(7)*(24670*x^3 + 37405*x^2 + 17666*x + 24
48)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 1815*(54*x^4 + 81*x^3 + 18*x^2
 - 20*x - 8)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(
-2*x + 1))))/(54*x^4 + 81*x^3 + 18*x^2 - 20*x - 8)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3+5*x)**(5/2)/(1-2*x)**(3/2)/(2+3*x)**4,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.494541, size = 464, normalized size = 3.07

$$\frac{363}{76832}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{484\sqrt{5}\sqrt{5x+3}\sqrt{-10x+5}}{12005(2x-1)}$$

$$-\frac{121\left(137\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^5+105280\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3+25636800\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-}\right.}{9604\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)^4*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 363/76832*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5
*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(s
qrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 484/12005*sqrt(5)*sqrt(5*x
 + 3)*sqrt(-10*x + 5)/(2*x - 1) - 121/9604*(137*sqrt(10)*((sqrt(2
)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sq
rt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 + 105280*sqrt(10)*((sqrt(2)*
sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt
(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 25636800*sqrt(10)*((sqrt(2)*
sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt
(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) - sq
rt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5)
- sqrt(22)))^2 + 280)^3
```

3.2531 $\int \frac{(3+5x)^{5/2}}{(1-2x)^{3/2}(2+3x)^5}\,dx$

Optimal. Leaf size=180

$$\frac{11(5x+3)^{3/2}}{7\sqrt{1-2x}(3x+2)^4}-\frac{167155\sqrt{1-2x}\sqrt{5x+3}}{1382976(3x+2)}-\frac{38365\sqrt{1-2x}\sqrt{5x+3}}{98784(3x+2)^2}-\frac{3653\sqrt{1-2x}\sqrt{5x+3}}{3528(3x+2)^3}+\frac{131\sqrt{1-2x}\sqrt{5x+3}}{588(3x+2)^4}-\frac{168795\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{153664\sqrt{7}}$$

```
[Out] (131*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(588*(2 + 3*x)^4) - (3653*Sqrt[
1 - 2*x]*Sqrt[3 + 5*x])/(3528*(2 + 3*x)^3) - (38365*Sqrt[1 - 2*x]
*Sqrt[3 + 5*x])/(98784*(2 + 3*x)^2) - (167155*Sqrt[1 - 2*x]*Sqrt[
3 + 5*x])/(1382976*(2 + 3*x)) + (11*(3 + 5*x)^(3/2))/(7*Sqrt[1 -
2*x]*(2 + 3*x)^4) - (168795*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3
+ 5*x])])/(153664*Sqrt[7])
```

Rubi [A] time = 0.370498, antiderivative size = 180, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$\frac{11(5x+3)^{3/2}}{7\sqrt{1-2x}(3x+2)^4}-\frac{167155\sqrt{1-2x}\sqrt{5x+3}}{1382976(3x+2)}-\frac{38365\sqrt{1-2x}\sqrt{5x+3}}{98784(3x+2)^2}-\frac{3653\sqrt{1-2x}\sqrt{5x+3}}{3528(3x+2)^3}+\frac{131\sqrt{1-2x}\sqrt{5x+3}}{588(3x+2)^4}-\frac{168795\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{153664\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(5/2)/((1 - 2*x)^(3/2)*(2 + 3*x)^5),x]
```

```
[Out] (131*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(588*(2 + 3*x)^4) - (3653*Sqrt[
1 - 2*x]*Sqrt[3 + 5*x])/(3528*(2 + 3*x)^3) - (38365*Sqrt[1 - 2*x]
*Sqrt[3 + 5*x])/(98784*(2 + 3*x)^2) - (167155*Sqrt[1 - 2*x]*Sqrt[
3 + 5*x])/(1382976*(2 + 3*x)) + (11*(3 + 5*x)^(3/2))/(7*Sqrt[1 -
2*x]*(2 + 3*x)^4) - (168795*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3
+ 5*x])])/(153664*Sqrt[7])
```

Rubi in Sympy [A] time = 37.6869, size = 165, normalized size = 0.92

$$-\frac{167155\sqrt{-2x+1}\sqrt{5x+3}}{1382976\,(3x+2)}-\frac{38365\sqrt{-2x+1}\sqrt{5x+3}}{98784\,(3x+2)^2}-\frac{3653\sqrt{-2x+1}\sqrt{5x+3}}{3528\,(3x+2)^3}+\frac{131\sqrt{-2x+1}\sqrt{5x+3}}{588\,(3x+2)^4}-\frac{168795\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{1075648}+\frac{11\,(5x+3)^{\frac{3}{2}}}{7\sqrt{-2x+1}\,(3x+2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)/(1-2*x)**(3/2)/(2+3*x)**5,x)
```

```
[Out] -167155*sqrt(-2*x + 1)*sqrt(5*x + 3)/(1382976*(3*x + 2)) - 38365*
sqrt(-2*x + 1)*sqrt(5*x + 3)/(98784*(3*x + 2)**2) - 3653*sqrt(-2*
x + 1)*sqrt(5*x + 3)/(3528*(3*x + 2)**3) + 131*sqrt(-2*x + 1)*sqr
t(5*x + 3)/(588*(3*x + 2)**4) - 168795*sqrt(7)*atan(sqrt(7)*sqrt(
-2*x + 1)/(7*sqrt(5*x + 3)))/1075648 + 11*(5*x + 3)**(3/2)/(7*sqr
t(-2*x + 1)*(3*x + 2)**4)
```

Mathematica [A] time = 0.127359, size = 87, normalized size = 0.48

$$\frac{\frac{14\sqrt{5x+3}(1002930x^4+2578615x^3+2184144x^2+687828x+53136)}{\sqrt{1-2x}(3x+2)^4} - 168795\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{2151296}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(5/2)/((1 - 2*x)^(3/2)*(2 + 3*x)^5),x]
```

```
[Out] ((14*Sqrt[3 + 5*x]*(53136 + 687828*x + 2184144*x^2 + 2578615*x^3
+ 1002930*x^4))/(Sqrt[1 - 2*x]*(2 + 3*x)^4) - 168795*Sqrt[7]*ArcT
an[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/2151296
```

Maple [B] time = 0.022, size = 305, normalized size = 1.7

$$\frac{1}{2151296\,(2+3\,x)^4\,(-1+2\,x)}\left(27344790\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^5+59247045\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)/(1-2*x)^(3/2)/(2+3*x)^5,x)
```

```
[Out] 1/2151296*(27344790*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^
2-x+3)^(1/2))*x^5+59247045*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/
(-10*x^2-x+3)^(1/2))*x^4+36459720*7^(1/2)*arctan(1/14*(37*x+20)*7
^(1/2)/(-10*x^2-x+3)^(1/2))*x^3-14041020*x^4*(-10*x^2-x+3)^(1/2)-
4051080*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2)
)*x^2-36100610*x^3*(-10*x^2-x+3)^(1/2)-10802880*7^(1/2)*arctan(1/
14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x-30578016*x^2*(-10*x^2
-x+3)^(1/2)-2700720*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^
2-x+3)^(1/2))-9629592*x*(-10*x^2-x+3)^(1/2)-743904*(-10*x^2-x+3)^
(1/2))*(1-2*x)^(1/2)*(3+5*x)^(1/2)/(2+3*x)^4/(-1+2*x)/(-10*x^2-x+
3)^(1/2)
```

Maxima [A] time = 1.51882, size = 400, normalized size = 2.22

$$\frac{168795}{2151296}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{835775\,x}{2074464\,\sqrt{-10\,x^2-x+3}}+\frac{843155}{4148928\,\sqrt{-10\,x^2-x+3}}$$
$$+\frac{1}{756\left(81\,\sqrt{-10\,x^2-x+3}x^4+216\,\sqrt{-10\,x^2-x+3}x^3+216\,\sqrt{-10\,x^2-x+3}x^2+96\,\sqrt{-10\,x^2-x+3}x+16\,\sqrt{-10\,x^2-x+3}\right)}$$
$$-\frac{787}{31752\left(27\,\sqrt{-10\,x^2-x+3}x^3+54\,\sqrt{-10\,x^2-x+3}x^2+36\,\sqrt{-10\,x^2-x+3}x+8\,\sqrt{-10\,x^2-x+3}\right)}$$
$$+\frac{20681}{127008\left(9\,\sqrt{-10\,x^2-x+3}x^2+12\,\sqrt{-10\,x^2-x+3}x+4\,\sqrt{-10\,x^2-x+3}\right)}$$
$$-\frac{69575}{197568\left(3\,\sqrt{-10\,x^2-x+3}x+2\,\sqrt{-10\,x^2-x+3}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)^5*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 168795/2151296*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*
x + 2)) + 835775/2074464*x/sqrt(-10*x^2 - x + 3) + 843155/4148928
/sqrt(-10*x^2 - x + 3) + 1/756/(81*sqrt(-10*x^2 - x + 3)*x^4 + 21
6*sqrt(-10*x^2 - x + 3)*x^3 + 216*sqrt(-10*x^2 - x + 3)*x^2 + 96*
sqrt(-10*x^2 - x + 3)*x + 16*sqrt(-10*x^2 - x + 3)) - 787/31752/(
27*sqrt(-10*x^2 - x + 3)*x^3 + 54*sqrt(-10*x^2 - x + 3)*x^2 + 36*
```

```
sqrt(-10*x^2 - x + 3)*x + 8*sqrt(-10*x^2 - x + 3)) + 20681/127008
/(9*sqrt(-10*x^2 - x + 3)*x^2 + 12*sqrt(-10*x^2 - x + 3)*x + 4*sq
rt(-10*x^2 - x + 3)) - 69575/197568/(3*sqrt(-10*x^2 - x + 3)*x +
2*sqrt(-10*x^2 - x + 3))
```

Fricas [A] time = 0.241732, size = 167, normalized size = 0.93

$$-\frac{\sqrt{7}\left(2\sqrt{7}\left(1002930\,x^4+2578615\,x^3+2184144\,x^2+687828\,x+53136\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-168795\left(162\,x^5+351\,x^4+216\right.\right.}{2151296\left(162\,x^5+351\,x^4+216\,x^3-24\,x^2-64\,x-16\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)^5*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] -1/2151296*sqrt(7)*(2*sqrt(7)*(1002930*x^4 + 2578615*x^3 + 218414
4*x^2 + 687828*x + 53136)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 168795*(
162*x^5 + 351*x^4 + 216*x^3 - 24*x^2 - 64*x - 16)*arctan(1/14*sqr
t(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(162*x^5 + 351*
x^4 + 216*x^3 - 24*x^2 - 64*x - 16)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3+5*x)**(5/2)/(1-2*x)**(3/2)/(2+3*x)**5,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.624503, size = 547, normalized size = 3.04

$$\frac{33759}{4302592}\sqrt{70}\sqrt{10}\left(\pi+2\,\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)-\frac{968\sqrt{5}\sqrt{5\,x+3}\sqrt{-10\,x+5}}{84035\,(2\,x-1)}$$

$$-\frac{121\left(10277\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^7+10598840\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^5+3966648000\sqrt{1}\right.}{537824\left(\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5-\sqrt{}}}\right.\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)^5*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 33759/4302592*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sq
rt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4
)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 968/84035*sqrt(5)*sqrt
(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1) - 121/537824*(10277*sqrt(10)*
((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x
+ 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^7 + 10598840*sqrt(10)*
((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x
+ 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 + 3966648000*sqrt(10
)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*
x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 122821440000*sqr
t(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqr
```

```
t(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt
(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*
sqrt(-10*x + 5) - sqrt(22)))^2 + 280)^4
```

3.2532 $\int \frac{(3+5x)^{5/2}}{(1-2x)^{3/2}(2+3x)^6}\,dx$

Optimal. Leaf size=209

$$\frac{11(5x+3)^{3/2}}{7\sqrt{1-2x}(3x+2)^5}+\frac{426781\sqrt{1-2x}\sqrt{5x+3}}{6453888(3x+2)}-\frac{55277\sqrt{1-2x}\sqrt{5x+3}}{460992(3x+2)^2}-\frac{29297\sqrt{1-2x}\sqrt{5x+3}}{82320(3x+2)^3}-\frac{42863\sqrt{1-2x}\sqrt{5x+3}}{41160(3x+2)^4}+\frac{164\sqrt{1-2x}\sqrt{5x+3}}{735(3x+2)^5}-\frac{3474273\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{2151296\sqrt{7}}$$

```
[Out] (164*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(735*(2 + 3*x)^5) - (42863*Sqrt
[1 - 2*x]*Sqrt[3 + 5*x])/(41160*(2 + 3*x)^4) - (29297*Sqrt[1 - 2*
x]*Sqrt[3 + 5*x])/(82320*(2 + 3*x)^3) - (55277*Sqrt[1 - 2*x]*Sqrt
[3 + 5*x])/(460992*(2 + 3*x)^2) + (426781*Sqrt[1 - 2*x]*Sqrt[3 +
5*x])/(6453888*(2 + 3*x)) + (11*(3 + 5*x)^(3/2))/(7*Sqrt[1 - 2*x]
*(2 + 3*x)^5) - (3474273*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5
*x])])/(2151296*Sqrt[7])
```

Rubi [A] time = 0.446731, antiderivative size = 209, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.231$

$$\frac{11(5x+3)^{3/2}}{7\sqrt{1-2x}(3x+2)^5}+\frac{426781\sqrt{1-2x}\sqrt{5x+3}}{6453888(3x+2)}-\frac{55277\sqrt{1-2x}\sqrt{5x+3}}{460992(3x+2)^2}-\frac{29297\sqrt{1-2x}\sqrt{5x+3}}{82320(3x+2)^3}-\frac{42863\sqrt{1-2x}\sqrt{5x+3}}{41160(3x+2)^4}+\frac{164\sqrt{1-2x}\sqrt{5x+3}}{735(3x+2)^5}-\frac{3474273\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{2151296\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(5/2)/((1 - 2*x)^(3/2)*(2 + 3*x)^6),x]
```

```
[Out] (164*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(735*(2 + 3*x)^5) - (42863*Sqrt
[1 - 2*x]*Sqrt[3 + 5*x])/(41160*(2 + 3*x)^4) - (29297*Sqrt[1 - 2*
x]*Sqrt[3 + 5*x])/(82320*(2 + 3*x)^3) - (55277*Sqrt[1 - 2*x]*Sqrt
[3 + 5*x])/(460992*(2 + 3*x)^2) + (426781*Sqrt[1 - 2*x]*Sqrt[3 +
5*x])/(6453888*(2 + 3*x)) + (11*(3 + 5*x)^(3/2))/(7*Sqrt[1 - 2*x]
*(2 + 3*x)^5) - (3474273*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5
*x])])/(2151296*Sqrt[7])
```

Rubi in Sympy [A] time = 44.1544, size = 192, normalized size = 0.92

$$\frac{426781\sqrt{-2x+1}\sqrt{5x+3}}{6453888\,(3x+2)}-\frac{55277\sqrt{-2x+1}\sqrt{5x+3}}{460992\,(3x+2)^2}-\frac{29297\sqrt{-2x+1}\sqrt{5x+3}}{82320\,(3x+2)^3}-\frac{42863\sqrt{-2x+1}\sqrt{5x+3}}{41160\,(3x+2)^4}+\frac{164\sqrt{-2x+1}\sqrt{5x+3}}{735\,(3x+2)^5}-\frac{3474273\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{15059072}+\frac{11\,(5x+3)^{\frac{3}{2}}}{7\sqrt{-2x+1}\,(3x+2)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)/(1-2*x)**(3/2)/(2+3*x)**6,x)
```

```
[Out] 426781*sqrt(-2*x + 1)*sqrt(5*x + 3)/(6453888*(3*x + 2)) - 55277*s
qrt(-2*x + 1)*sqrt(5*x + 3)/(460992*(3*x + 2)**2) - 29297*sqrt(-2
*x + 1)*sqrt(5*x + 3)/(82320*(3*x + 2)**3) - 42863*sqrt(-2*x + 1)
*sqrt(5*x + 3)/(41160*(3*x + 2)**4) + 164*sqrt(-2*x + 1)*sqrt(5*x
 + 3)/(735*(3*x + 2)**5) - 3474273*sqrt(7)*atan(sqrt(7)*sqrt(-2*x
 + 1)/(7*sqrt(5*x + 3)))/15059072 + 11*(5*x + 3)**(3/2)/(7*sqrt(-
```

```
2*x + 1)*(3*x + 2)**5)
```

Mathematica [A] time = 0.158765, size = 92, normalized size = 0.44

$$\frac{\frac{14\sqrt{5x+3}(-115230870x^5-180017865x^4+19738914x^3+164918884x^2+95331368x+16456032)}{\sqrt{1-2x}(3x+2)^5}-17371365\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{150590720}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(5/2)/((1 - 2*x)^(3/2)*(2 + 3*x)^6),x]
```

```
[Out] ((14*Sqrt[3 + 5*x]*(16456032 + 95331368*x + 164918884*x^2 + 19738
914*x^3 - 180017865*x^4 - 115230870*x^5))/(Sqrt[1 - 2*x]*(2 + 3*x
)^5) - 17371365*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqr
t[3 + 5*x]])]/150590720
```

Maple [B] time = 0.023, size = 353, normalized size = 1.7

$$\frac{1}{150590720\,(2+3x)^5(-1+2x)}\left(8442483390\sqrt{7}\arctan\left(1/14\,\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)x^6+23920369605\sqrt{7}\arctan\left(1/14\,\frac{(37x}{\sqrt{-10}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)/(1-2*x)^(3/2)/(2+3*x)^6,x)
```

```
[Out] 1/150590720*(8442483390*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-1
0*x^2-x+3)^(1/2))*x^6+23920369605*7^(1/2)*arctan(1/14*(37*x+20)*7
^(1/2)/(-10*x^2-x+3)^(1/2))*x^5+23451342750*7^(1/2)*arctan(1/14*(
37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^4+1613232180*x^5*(-10*x^2
-x+3)^(1/2)+6253691400*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10
*x^2-x+3)^(1/2))*x^3+2520250110*x^4*(-10*x^2-x+3)^(1/2)-416912760
0*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2-
276344796*x^3*(-10*x^2-x+3)^(1/2)-3057360240*7^(1/2)*arctan(1/14*
(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x-2308864376*x^2*(-10*x^2-
x+3)^(1/2)-555883680*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x
^2-x+3)^(1/2))-1334639152*x*(-10*x^2-x+3)^(1/2)-230384448*(-10*x^
2-x+3)^(1/2))*(1-2*x)^(1/2)*(3+5*x)^(1/2)/(2+3*x)^5/(-1+2*x)/(-10
*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.56404, size = 537, normalized size = 2.57

$$\frac{3474273}{30118144}\sqrt{7}\arcsin\left(\frac{37x}{11|3x+2|}+\frac{20}{11|3x+2|}\right)-\frac{2133905x}{9680832\sqrt{-10x^2-x+3}}+\frac{4998019}{19361664\sqrt{-10x^2-x+3}}$$
$$+\frac{1}{945\left(243\sqrt{-10x^2-x+3}x^5+810\sqrt{-10x^2-x+3}x^4+1080\sqrt{-10x^2-x+3}x^3+720\sqrt{-10x^2-x+3}x^2+240\sqrt{-10x^2-\right.}}$$
$$-\frac{331}{17640\left(81\sqrt{-10x^2-x+3}x^4+216\sqrt{-10x^2-x+3}x^3+216\sqrt{-10x^2-x+3}x^2+96\sqrt{-10x^2-x+3}x+16\sqrt{-10x^2-x\right.}}$$
$$+\frac{83537}{740880\left(27\sqrt{-10x^2-x+3}x^3+54\sqrt{-10x^2-x+3}x^2+36\sqrt{-10x^2-x+3}x+8\sqrt{-10x^2-x+3}\right)}$$
$$-\frac{23353}{109760\left(9\sqrt{-10x^2-x+3}x^2+12\sqrt{-10x^2-x+3}x+4\sqrt{-10x^2-x+3}\right)}$$
$$-\frac{137335}{921984\left(3\sqrt{-10x^2-x+3}x+2\sqrt{-10x^2-x+3}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)^6*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 3474273/30118144*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(
3*x + 2)) - 2133905/9680832*x/sqrt(-10*x^2 - x + 3) + 4998019/193
61664/sqrt(-10*x^2 - x + 3) + 1/945/(243*sqrt(-10*x^2 - x + 3)*x^
5 + 810*sqrt(-10*x^2 - x + 3)*x^4 + 1080*sqrt(-10*x^2 - x + 3)*x^
3 + 720*sqrt(-10*x^2 - x + 3)*x^2 + 240*sqrt(-10*x^2 - x + 3)*x +
 32*sqrt(-10*x^2 - x + 3)) - 331/17640/(81*sqrt(-10*x^2 - x + 3)*
x^4 + 216*sqrt(-10*x^2 - x + 3)*x^3 + 216*sqrt(-10*x^2 - x + 3)*x
^2 + 96*sqrt(-10*x^2 - x + 3)*x + 16*sqrt(-10*x^2 - x + 3)) + 835
37/740880/(27*sqrt(-10*x^2 - x + 3)*x^3 + 54*sqrt(-10*x^2 - x + 3
)*x^2 + 36*sqrt(-10*x^2 - x + 3)*x + 8*sqrt(-10*x^2 - x + 3)) - 2
3353/109760/(9*sqrt(-10*x^2 - x + 3)*x^2 + 12*sqrt(-10*x^2 - x +
3)*x + 4*sqrt(-10*x^2 - x + 3)) - 137335/921984/(3*sqrt(-10*x^2 -
 x + 3)*x + 2*sqrt(-10*x^2 - x + 3))
```

Fricas [A] time = 0.237626, size = 188, normalized size = 0.9

$$\frac{\sqrt{7}\left(2\sqrt{7}\left(115230870\,x^5+180017865\,x^4-19738914\,x^3-164918884\,x^2-95331368\,x-16456032\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+173\right.}{150590720\,(486\,x^6+1377\,x^5+1350\,x^4+360\,x^3-}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)^6*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/150590720*sqrt(7)*(2*sqrt(7)*(115230870*x^5 + 180017865*x^4 - 1
9738914*x^3 - 164918884*x^2 - 95331368*x - 16456032)*sqrt(5*x + 3
)*sqrt(-2*x + 1) + 17371365*(486*x^6 + 1377*x^5 + 1350*x^4 + 360*
x^3 - 240*x^2 - 176*x - 32)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt
(5*x + 3)*sqrt(-2*x + 1))))/(486*x^6 + 1377*x^5 + 1350*x^4 + 360*
x^3 - 240*x^2 - 176*x - 32)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3+5*x)**(5/2)/(1-2*x)**(3/2)/(2+3*x)**6,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.819509, size = 629, normalized size = 3.01

$$\frac{3474273}{301181440}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)$$
$$-\frac{1936\sqrt{5}\sqrt{5\,x+3}\sqrt{-10\,x+5}}{588245\,(2\,x-1)}$$
$$-\frac{121\left(203039\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^9+265495440\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^7+13607129088\right.}{7529536}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)^6*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 3474273/301181440*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70
)*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3)
 - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 1936/588245*sqrt(5
)*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1) - 121/7529536*(203039*s
qrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*s
qrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^9 + 265495440*
sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*
sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^7 + 136071290
880*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3)
 - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 - 77494
9504000*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x +
 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 - 6
50054039040000*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqr
t(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))
))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(
5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)^5
```

3.2533 $\int \frac{(2+3x)^5}{(1-2x)^{3/2}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=142

$$\frac{7\sqrt{5x+3}(3x+2)^4}{11\sqrt{1-2x}}+\frac{939}{880}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^3+\frac{76587\sqrt{1-2x}\sqrt{5x+3}(3x+2)^2}{17600}+\frac{21\sqrt{1-2x}\sqrt{5x+3}(7645620x+18424549)}{2816000}-\frac{291096141\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{256000\sqrt{10}}$$

```
[Out] (76587*Sqrt[1 - 2*x]*(2 + 3*x)^2*Sqrt[3 + 5*x])/17600 + (939*Sqrt
[1 - 2*x]*(2 + 3*x)^3*Sqrt[3 + 5*x])/880 + (7*(2 + 3*x)^4*Sqrt[3
+ 5*x])/(11*Sqrt[1 - 2*x]) + (21*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(184
24549 + 7645620*x))/2816000 - (291096141*ArcSin[Sqrt[2/11]*Sqrt[3
 + 5*x]])/(256000*Sqrt[10])
```

Rubi [A] time = 0.25934, antiderivative size = 142, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$\frac{7\sqrt{5x+3}(3x+2)^4}{11\sqrt{1-2x}}+\frac{939}{880}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^3+\frac{76587\sqrt{1-2x}\sqrt{5x+3}(3x+2)^2}{17600}+\frac{21\sqrt{1-2x}\sqrt{5x+3}(7645620x+18424549)}{2816000}-\frac{291096141\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{256000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^5/((1 - 2*x)^(3/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (76587*Sqrt[1 - 2*x]*(2 + 3*x)^2*Sqrt[3 + 5*x])/17600 + (939*Sqrt
[1 - 2*x]*(2 + 3*x)^3*Sqrt[3 + 5*x])/880 + (7*(2 + 3*x)^4*Sqrt[3
+ 5*x])/(11*Sqrt[1 - 2*x]) + (21*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(184
24549 + 7645620*x))/2816000 - (291096141*ArcSin[Sqrt[2/11]*Sqrt[3
 + 5*x]])/(256000*Sqrt[10])
```

Rubi in Sympy [A] time = 26.3267, size = 133, normalized size = 0.94

$$\frac{939\sqrt{-2x+1}\,(3x+2)^3\,\sqrt{5x+3}}{880}+\frac{76587\sqrt{-2x+1}\,(3x+2)^2\,\sqrt{5x+3}}{17600}+\frac{\sqrt{-2x+1}\sqrt{5x+3}\,\left(\frac{602092575x}{4}+\frac{5803732935}{16}\right)}{2640000}-\frac{291096141\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{2560000}+\frac{7\,(3x+2)^4\,\sqrt{5x+3}}{11\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**5/(1-2*x)**(3/2)/(3+5*x)**(1/2),x)
```

```
[Out] 939*sqrt(-2*x + 1)*(3*x + 2)**3*sqrt(5*x + 3)/880 + 76587*sqrt(-2
*x + 1)*(3*x + 2)**2*sqrt(5*x + 3)/17600 + sqrt(-2*x + 1)*sqrt(5*
x + 3)*(602092575*x/4 + 5803732935/16)/2640000 - 291096141*sqrt(1
0)*asin(sqrt(22)*sqrt(5*x + 3)/11)/2560000 + 7*(3*x + 2)**4*sqrt(
5*x + 3)/(11*sqrt(-2*x + 1))
```

Mathematica [A] time = 0.122438, size = 74, normalized size = 0.52

$$\frac{3202057551\sqrt{10-20x}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)-10\sqrt{5x+3}\,\left(17107200x^4+76887360x^3+171939240x^2+332129358x-4886\right.}{28160000\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^5/((1 - 2*x)^(3/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (-10*Sqrt[3 + 5*x]*(-488641609 + 332129358*x + 171939240*x^2 + 76
887360*x^3 + 17107200*x^4) + 3202057551*Sqrt[10 - 20*x]*ArcSin[Sq
rt[5/11]*Sqrt[1 - 2*x]])/(28160000*Sqrt[1 - 2*x])
```

Maple [A] time = 0.021, size = 140, normalized size = 1.

$$-\frac{1}{-56320000+112640000\,x}\left(-342144000\,x^{4}\sqrt{-10\,x^{2}-x+3}-1537747200\,x^{3}\sqrt{-10\,x^{2}-x+3}+6404115102\,\sqrt{10}\,\arcsin\left(\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^5/(1-2*x)^(3/2)/(3+5*x)^(1/2),x)
```

```
[Out] -1/56320000*(-342144000*x^4*(-10*x^2-x+3)^(1/2)-1537747200*x^3*(-
10*x^2-x+3)^(1/2)+6404115102*10^(1/2)*arcsin(20/11*x+1/11)*x-3438
784800*x^2*(-10*x^2-x+3)^(1/2)-3202057551*10^(1/2)*arcsin(20/11*x
+1/11)-6642587160*x*(-10*x^2-x+3)^(1/2)+9772832180*(-10*x^2-x+3)^
(1/2))*(3+5*x)^(1/2)*(1-2*x)^(1/2)/(-1+2*x)/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.50312, size = 134, normalized size = 0.94

$$\frac{243}{80}\sqrt{-10\,x^{2}-x+3}x^{3}+\frac{24273}{1600}\sqrt{-10\,x^{2}-x+3}x^{2}-\frac{291096141}{5120000}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}\,x+\frac{1}{11}\right)+\frac{487863}{12800}\sqrt{-10\,x^{2}-x+3}x+\frac{19975419}{256000}\sqrt{-10\,x^{2}-x+3}-\frac{16807\sqrt{-10\,x^{2}-x+3}}{176\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/(sqrt(5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 243/80*sqrt(-10*x^2 - x + 3)*x^3 + 24273/1600*sqrt(-10*x^2 - x +
3)*x^2 - 291096141/5120000*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11)
 + 487863/12800*sqrt(-10*x^2 - x + 3)*x + 19975419/256000*sqrt(-1
0*x^2 - x + 3) - 16807/176*sqrt(-10*x^2 - x + 3)/(2*x - 1)
```

Fricas [A] time = 0.2358, size = 113, normalized size = 0.8

$$\frac{\sqrt{10}\left(2\sqrt{10}\left(17107200\,x^{4}+76887360\,x^{3}+171939240\,x^{2}+332129358\,x-488641609\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-3202057551\,(2\,x\right.}{56320000\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/(sqrt(5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/56320000*sqrt(10)*(2*sqrt(10)*(17107200*x^4 + 76887360*x^3 + 17
1939240*x^2 + 332129358*x - 488641609)*sqrt(5*x + 3)*sqrt(-2*x +
1) - 3202057551*(2*x - 1)*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5
*x + 3)*sqrt(-2*x + 1))))/(2*x - 1)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(3x+2)^{5}}{(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**5/(1-2*x)**(3/2)/(3+5*x)**(1/2),x)
```

```
[Out] Integral((3*x + 2)**5/((-2*x + 1)**(3/2)*sqrt(5*x + 3)), x)
```

GIAC/XCAS [A] time = 0.23662, size = 131, normalized size = 0.92

$$-\frac{291096141}{2560000}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)+\frac{\left(198\left(12\left(8\left(36\sqrt{5}(5x+3)+377\sqrt{5}\right)(5x+3)+29669\sqrt{5}\right)(5x+3)+4900505\sqrt{5}\right)(5x+3)-16010291851\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{352000000(2x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/(sqrt(5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] -291096141/2560000*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) +
 1/352000000*(198*(12*(8*(36*sqrt(5)*(5*x + 3) + 377*sqrt(5))*(5*
x + 3) + 29669*sqrt(5))*(5*x + 3) + 4900505*sqrt(5))*(5*x + 3) -
16010291851*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)
```

3.2534 $\int \frac{(2+3x)^4}{(1-2x)^{3/2}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=113

$$\frac{7\sqrt{5x+3}(3x+2)^3}{11\sqrt{1-2x}}+\frac{243}{220}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^2+\frac{9\sqrt{1-2x}\sqrt{5x+3}(11316x+27269)}{7040}-\frac{184641\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{640\sqrt{10}}$$

```
[Out] (243*Sqrt[1 - 2*x]*(2 + 3*x)^2*Sqrt[3 + 5*x])/220 + (7*(2 + 3*x)^
3*Sqrt[3 + 5*x])/(11*Sqrt[1 - 2*x]) + (9*Sqrt[1 - 2*x]*Sqrt[3 + 5
*x]*(27269 + 11316*x))/7040 - (184641*ArcSin[Sqrt[2/11]*Sqrt[3 +
5*x]])/(640*Sqrt[10])
```

Rubi [A] time = 0.188224, antiderivative size = 113, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$\frac{7\sqrt{5x+3}(3x+2)^3}{11\sqrt{1-2x}}+\frac{243}{220}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^2+\frac{9\sqrt{1-2x}\sqrt{5x+3}(11316x+27269)}{7040}-\frac{184641\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{640\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^4/((1 - 2*x)^(3/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (243*Sqrt[1 - 2*x]*(2 + 3*x)^2*Sqrt[3 + 5*x])/220 + (7*(2 + 3*x)^
3*Sqrt[3 + 5*x])/(11*Sqrt[1 - 2*x]) + (9*Sqrt[1 - 2*x]*Sqrt[3 + 5
*x]*(27269 + 11316*x))/7040 - (184641*ArcSin[Sqrt[2/11]*Sqrt[3 +
5*x]])/(640*Sqrt[10])
```

Rubi in Sympy [A] time = 19.4104, size = 105, normalized size = 0.93

$$\frac{243\sqrt{-2x+1}\,(3x+2)^2\,\sqrt{5x+3}}{220}+\frac{\sqrt{-2x+1}\sqrt{5x+3}\,\left(\frac{1909575x}{2}+\frac{18406575}{8}\right)}{66000}-\frac{184641\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{6400}+\frac{7\,(3x+2)^3\,\sqrt{5x+3}}{11\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4/(1-2*x)**(3/2)/(3+5*x)**(1/2),x)
```

```
[Out] 243*sqrt(-2*x + 1)*(3*x + 2)**2*sqrt(5*x + 3)/220 + sqrt(-2*x + 1
)*sqrt(5*x + 3)*(1909575*x/2 + 18406575/8)/66000 - 184641*sqrt(10
)*asin(sqrt(22)*sqrt(5*x + 3)/11)/6400 + 7*(3*x + 2)**3*sqrt(5*x
+ 3)/(11*sqrt(-2*x + 1))
```

Mathematica [A] time = 0.0961245, size = 69, normalized size = 0.61

$$\frac{2031051\sqrt{10-20x}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)-10\sqrt{5x+3}\left(19008x^3+78408x^2+196614x-312365\right)}{70400\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^4/((1 - 2*x)^(3/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (-10*Sqrt[3 + 5*x]*(-312365 + 196614*x + 78408*x^2 + 19008*x^3) +
 2031051*Sqrt[10 - 20*x]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/(70400
*Sqrt[1 - 2*x])
```

Maple [A] time = 0.019, size = 123, normalized size = 1.1

$$-\frac{1}{-140800+281600\,x}\left(-380160\,x^{3}\sqrt{-10\,x^{2}-x+3}+4062102\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x-1568160\,x^{2}\sqrt{-10\,x^{2}-x+3}-\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4/(1-2*x)^(3/2)/(3+5*x)^(1/2),x)
```

```
[Out] -1/140800*(-380160*x^3*(-10*x^2-x+3)^(1/2)+4062102*10^(1/2)*arcsi
n(20/11*x+1/11)*x-1568160*x^2*(-10*x^2-x+3)^(1/2)-2031051*10^(1/2
)*arcsin(20/11*x+1/11)-3932280*x*(-10*x^2-x+3)^(1/2)+6247300*(-10
*x^2-x+3)^(1/2))*(3+5*x)^(1/2)*(1-2*x)^(1/2)/(-1+2*x)/(-10*x^2-x+
3)^(1/2)
```

Maxima [A] time = 1.50258, size = 111, normalized size = 0.98

$$\frac{27}{20}\sqrt{-10\,x^{2}-x+3}x^{2}-\frac{184641}{12800}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}\,x+\frac{1}{11}\right)+\frac{999}{160}\sqrt{-10\,x^{2}-x+3}x+\frac{2187}{128}\sqrt{-10\,x^{2}-x+3}-\frac{2401\sqrt{-10\,x^{2}-x+3}}{88\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4/(sqrt(5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 27/20*sqrt(-10*x^2 - x + 3)*x^2 - 184641/12800*sqrt(5)*sqrt(2)*ar
csin(20/11*x + 1/11) + 999/160*sqrt(-10*x^2 - x + 3)*x + 2187/128
*sqrt(-10*x^2 - x + 3) - 2401/88*sqrt(-10*x^2 - x + 3)/(2*x - 1)
```

Fricas [A] time = 0.238541, size = 107, normalized size = 0.95

$$\frac{\sqrt{10}\left(2\sqrt{10}\left(19008\,x^{3}+78408\,x^{2}+196614\,x-312365\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-2031051\,(2\,x-1)\arctan\left(\frac{\sqrt{10}(20\,x+1)}{20\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)}{140800\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4/(sqrt(5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/140800*sqrt(10)*(2*sqrt(10)*(19008*x^3 + 78408*x^2 + 196614*x -
 312365)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 2031051*(2*x - 1)*arctan(
1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(2*x -
1)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(3x+2)^{4}}{(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4/(1-2*x)**(3/2)/(3+5*x)**(1/2),x)
```

```
[Out] Integral((3*x + 2)**4/((-2*x + 1)**(3/2)*sqrt(5*x + 3)), x)
```

GIAC/XCAS [A] time = 0.23141, size = 113, normalized size = 1.

$$-\frac{184641}{6400}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)+\frac{\left(594\left(4\left(8\sqrt{5}(5x+3)+93\sqrt{5}\right)(5x+3)+5179\sqrt{5}\right)(5x+3)-50776531\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{4400000(2x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4/(sqrt(5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] -184641/6400*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) + 1/440
0000*(594*(4*(8*sqrt(5)*(5*x + 3) + 93*sqrt(5))*(5*x + 3) + 5179*
sqrt(5))*(5*x + 3) - 50776531*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x +
 5)/(2*x - 1)
```

3.2535 $\int \frac{(2+3x)^3}{(1-2x)^{3/2}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=84

$$\frac{7\sqrt{5x+3}(3x+2)^2}{11\sqrt{1-2x}}+\frac{3\sqrt{1-2x}\sqrt{5x+3}(10380x+25003)}{8800}-\frac{56421\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{800\sqrt{10}}$$

```
[Out] (7*(2 + 3*x)^2*Sqrt[3 + 5*x])/(11*Sqrt[1 - 2*x]) + (3*Sqrt[1 - 2*
x]*Sqrt[3 + 5*x]*(25003 + 10380*x))/8800 - (56421*ArcSin[Sqrt[2/1
1]*Sqrt[3 + 5*x]])/(800*Sqrt[10])
```

Rubi [A] time = 0.119773, antiderivative size = 84, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$\frac{7\sqrt{5x+3}(3x+2)^2}{11\sqrt{1-2x}}+\frac{3\sqrt{1-2x}\sqrt{5x+3}(10380x+25003)}{8800}-\frac{56421\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{800\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^3/((1 - 2*x)^(3/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (7*(2 + 3*x)^2*Sqrt[3 + 5*x])/(11*Sqrt[1 - 2*x]) + (3*Sqrt[1 - 2*
x]*Sqrt[3 + 5*x]*(25003 + 10380*x))/8800 - (56421*ArcSin[Sqrt[2/1
1]*Sqrt[3 + 5*x]])/(800*Sqrt[10])
```

Rubi in Sympy [A] time = 12.2705, size = 76, normalized size = 0.9

$$\frac{\sqrt{-2x+1}\sqrt{5x+3}\left(7785x+\frac{75009}{4}\right)}{2200}-\frac{56421\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{8000}+\frac{7\left(3x+2\right)^2\sqrt{5x+3}}{11\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3/(1-2*x)**(3/2)/(3+5*x)**(1/2),x)
```

```
[Out] sqrt(-2*x + 1)*sqrt(5*x + 3)*(7785*x + 75009/4)/2200 - 56421*sqrt
(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/8000 + 7*(3*x + 2)**2*sqrt(5
*x + 3)/(11*sqrt(-2*x + 1))
```

Mathematica [A] time = 0.0865199, size = 64, normalized size = 0.76

$$\frac{620631\sqrt{10-20x}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)-10\sqrt{5x+3}\left(11880x^2+51678x-97409\right)}{88000\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^3/((1 - 2*x)^(3/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (-10*Sqrt[3 + 5*x]*(-97409 + 51678*x + 11880*x^2) + 620631*Sqrt[1
0 - 20*x]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/(88000*Sqrt[1 - 2*x])
```

Maple [A] time = 0.021, size = 106, normalized size = 1.3

$$-\frac{1}{-176000+352000x}\left(1241262\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)x-237600x^{2}\sqrt{-10x^{2}-x+3}-620631\sqrt{10}\arcsin\left(\frac{20x}{11}+1/1\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3/(1-2*x)^(3/2)/(3+5*x)^(1/2),x)
```

```
[Out] -1/176000*(1241262*10^(1/2)*arcsin(20/11*x+1/11)*x-237600*x^2*(-1
0*x^2-x+3)^(1/2)-620631*10^(1/2)*arcsin(20/11*x+1/11)-1033560*x*(
-10*x^2-x+3)^(1/2)+1948180*(-10*x^2-x+3)^(1/2))*(3+5*x)^(1/2)*(1-
2*x)^(1/2)/(-1+2*x)/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.50145, size = 88, normalized size = 1.05

$$-\frac{56421}{16000}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)+\frac{27}{40}\sqrt{-10x^{2}-x+3}x+\frac{2619}{800}\sqrt{-10x^{2}-x+3}-\frac{343\sqrt{-10x^{2}-x+3}}{44(2x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3/(sqrt(5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] -56421/16000*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) + 27/40*sqrt(
-10*x^2 - x + 3)*x + 2619/800*sqrt(-10*x^2 - x + 3) - 343/44*sqrt
(-10*x^2 - x + 3)/(2*x - 1)
```

Fricas [A] time = 0.230667, size = 100, normalized size = 1.19

$$\frac{\sqrt{10}\left(2\sqrt{10}\left(11880x^{2}+51678x-97409\right)\sqrt{5x+3}\sqrt{-2x+1}-620631(2x-1)\arctan\left(\frac{\sqrt{10}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)}{176000(2x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3/(sqrt(5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/176000*sqrt(10)*(2*sqrt(10)*(11880*x^2 + 51678*x - 97409)*sqrt(
5*x + 3)*sqrt(-2*x + 1) - 620631*(2*x - 1)*arctan(1/20*sqrt(10)*(
20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(2*x - 1)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(3x+2)^{3}}{(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3/(1-2*x)**(3/2)/(3+5*x)**(1/2),x)
```

```
[Out] Integral((3*x + 2)**3/((-2*x + 1)**(3/2)*sqrt(5*x + 3)), x)
```

GIAC/XCAS [A] time = 0.231089, size = 96, normalized size = 1.14

$$-\frac{56421}{8000}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)+\frac{\left(594\left(4\sqrt{5}(5x+3)+63\sqrt{5}\right)(5x+3)-620695\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{220000\,(2x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^3/(sqrt(5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] -56421/8000*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) + 1/2200
00*(594*(4*sqrt(5)*(5*x + 3) + 63*sqrt(5))*(5*x + 3) - 620695*sqr
t(5))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)
```

3.2536 $\int \frac{(2+3x)^2}{(1-2x)^{3/2}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=72

$$\frac{9}{20}\sqrt{1-2x}\sqrt{5x+3}+\frac{49\sqrt{5x+3}}{22\sqrt{1-2x}}-\frac{321\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{20\sqrt{10}}$$

```
[Out] (49*Sqrt[3 + 5*x])/(22*Sqrt[1 - 2*x]) + (9*Sqrt[1 - 2*x]*Sqrt[3 +
 5*x])/20 - (321*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(20*Sqrt[10])
```

Rubi [A] time = 0.0984511, antiderivative size = 72, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$\frac{9}{20}\sqrt{1-2x}\sqrt{5x+3}+\frac{49\sqrt{5x+3}}{22\sqrt{1-2x}}-\frac{321\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{20\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^2/((1 - 2*x)^(3/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (49*Sqrt[3 + 5*x])/(22*Sqrt[1 - 2*x]) + (9*Sqrt[1 - 2*x]*Sqrt[3 +
 5*x])/20 - (321*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(20*Sqrt[10])
```

Rubi in Sympy [A] time = 8.26021, size = 65, normalized size = 0.9

$$\frac{9\sqrt{-2x+1}\sqrt{5x+3}}{20}-\frac{321\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{200}+\frac{49\sqrt{5x+3}}{22\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2/(1-2*x)**(3/2)/(3+5*x)**(1/2),x)
```

```
[Out] 9*sqrt(-2*x + 1)*sqrt(5*x + 3)/20 - 321*sqrt(10)*asin(sqrt(22)*sq
rt(5*x + 3)/11)/200 + 49*sqrt(5*x + 3)/(22*sqrt(-2*x + 1))
```

Mathematica [A] time = 0.0719178, size = 59, normalized size = 0.82

$$\frac{10\sqrt{5x+3}(589-198x)+3531\sqrt{10-20x}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{2200\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^2/((1 - 2*x)^(3/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (10*(589 - 198*x)*Sqrt[3 + 5*x] + 3531*Sqrt[10 - 20*x]*ArcSin[Sqr
t[5/11]*Sqrt[1 - 2*x]])/(2200*Sqrt[1 - 2*x])
```

Maple [A] time = 0.019, size = 89, normalized size = 1.2

$$-\frac{1}{-4400+8800\,x}\left(7062\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x-3531\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)-3960\,x\sqrt{-10\,x^2-x+3}+11780\,\sqrt{-}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((2+3*x)^2/(1-2*x)^(3/2)/(3+5*x)^(1/2),x)
```

```
[Out] -1/4400*(7062*10^(1/2)*arcsin(20/11*x+1/11)*x-3531*10^(1/2)*arcsi
n(20/11*x+1/11)-3960*x*(-10*x^2-x+3)^(1/2)+11780*(-10*x^2-x+3)^(1
/2))*(3+5*x)^(1/2)*(1-2*x)^(1/2)/(-1+2*x)/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.49016, size = 68, normalized size = 0.94

$$-\frac{321}{400}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)+\frac{9}{20}\sqrt{-10x^2-x+3}-\frac{49\sqrt{-10x^2-x+3}}{22(2x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2/(sqrt(5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] -321/400*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) + 9/20*sqrt(-10*x
^2 - x + 3) - 49/22*sqrt(-10*x^2 - x + 3)/(2*x - 1)
```

Fricas [A] time = 0.226755, size = 93, normalized size = 1.29

$$\frac{\sqrt{10}\left(2\sqrt{10}(198x-589)\sqrt{5x+3}\sqrt{-2x+1}-3531(2x-1)\arctan\left(\frac{\sqrt{10}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)}{4400(2x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2/(sqrt(5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/4400*sqrt(10)*(2*sqrt(10)*(198*x - 589)*sqrt(5*x + 3)*sqrt(-2*x
 + 1) - 3531*(2*x - 1)*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x
+ 3)*sqrt(-2*x + 1))))/(2*x - 1)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(3x+2)^2}{(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((2+3*x)**2/(1-2*x)**(3/2)/(3+5*x)**(1/2),x)
```

```
[Out] Integral((3*x + 2)**2/((-2*x + 1)**(3/2)*sqrt(5*x + 3)), x)
```

GIAC/XCAS [A] time = 0.233553, size = 78, normalized size = 1.08

$$-\frac{321}{200}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)+\frac{\left(198\sqrt{5}(5x+3)-3539\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{5500(2x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2/(sqrt(5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] -321/200*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) + 1/5500*(1
98*sqrt(5)*(5*x + 3) - 3539*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5
)/(2*x - 1)
```

3.2537 $\int \frac{2+3x}{(1-2x)^{3/2}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=48

$$\frac{7\sqrt{5x+3}}{11\sqrt{1-2x}}-\frac{3\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{\sqrt{10}}$$

```
[Out] (7*Sqrt[3 + 5*x])/(11*Sqrt[1 - 2*x]) - (3*ArcSin[Sqrt[2/11]*Sqrt[
3 + 5*x]])/Sqrt[10]
```

Rubi [A] time = 0.0568325, antiderivative size = 48, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$\frac{7\sqrt{5x+3}}{11\sqrt{1-2x}}-\frac{3\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)/((1 - 2*x)^(3/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (7*Sqrt[3 + 5*x])/(11*Sqrt[1 - 2*x]) - (3*ArcSin[Sqrt[2/11]*Sqrt[
3 + 5*x]])/Sqrt[10]
```

Rubi in Sympy [A] time = 5.52265, size = 44, normalized size = 0.92

$$-\frac{3\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{10}+\frac{7\sqrt{5x+3}}{11\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)/(1-2*x)**(3/2)/(3+5*x)**(1/2),x)
```

```
[Out] -3*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/10 + 7*sqrt(5*x + 3)/
(11*sqrt(-2*x + 1))
```

Mathematica [A] time = 0.0588202, size = 48, normalized size = 1.

$$\frac{7\sqrt{5x+3}}{11\sqrt{1-2x}}+\frac{3\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)/((1 - 2*x)^(3/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (7*Sqrt[3 + 5*x])/(11*Sqrt[1 - 2*x]) + (3*ArcSin[Sqrt[5/11]*Sqrt[
1 - 2*x]])/Sqrt[10]
```

Maple [B] time = 0.016, size = 74, normalized size = 1.5

$$-\frac{1}{-220+440\,x}\left(66\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x-33\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)+140\,\sqrt{-10\,x^{2}-x+3}\right)\sqrt{3+5\,x}\sqrt{1-2\,x}\frac{}{\sqrt{}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)/(1-2*x)^(3/2)/(3+5*x)^(1/2),x)
```

```
[Out] -1/220*(66*10^(1/2)*arcsin(20/11*x+1/11)*x-33*10^(1/2)*arcsin(20/
11*x+1/11)+140*(-10*x^2-x+3)^(1/2))*(3+5*x)^(1/2)*(1-2*x)^(1/2)/(
-1+2*x)/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.51403, size = 49, normalized size = 1.02

$$-\frac{3}{20}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)-\frac{7\sqrt{-10x^2-x+3}}{11(2x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)/(sqrt(5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] -3/20*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) - 7/11*sqrt(-10*x^2
- x + 3)/(2*x - 1)
```

Fricas [A] time = 0.227639, size = 86, normalized size = 1.79

$$-\frac{\sqrt{10}\left(33(2x-1)\arctan\left(\frac{\sqrt{10}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)+14\sqrt{10}\sqrt{5x+3}\sqrt{-2x+1}\right)}{220(2x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)/(sqrt(5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] -1/220*sqrt(10)*(33*(2*x - 1)*arctan(1/20*sqrt(10)*(20*x + 1)/(sq
rt(5*x + 3)*sqrt(-2*x + 1))) + 14*sqrt(10)*sqrt(5*x + 3)*sqrt(-2*
x + 1))/(2*x - 1)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{3x+2}{(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)/(1-2*x)**(3/2)/(3+5*x)**(1/2),x)
```

```
[Out] Integral((3*x + 2)/((-2*x + 1)**(3/2)*sqrt(5*x + 3)), x)
```

GIAC/XCAS [A] time = 0.226805, size = 61, normalized size = 1.27

$$-\frac{3}{10}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)-\frac{7\sqrt{5}\sqrt{5x+3}\sqrt{-10x+5}}{55(2x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)/(sqrt(5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] -3/10*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) - 7/55*sqrt(5)
*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)
```

3.2538 $\int \frac{1}{(1-2x)^{3/2}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=22

$$\frac{2\sqrt{5x+3}}{11\sqrt{1-2x}}$$

```
[Out] (2*Sqrt[3 + 5*x])/(11*Sqrt[1 - 2*x])
```

Rubi [A] time = 0.0162011, antiderivative size = 22, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.053

$$\frac{2\sqrt{5x+3}}{11\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(3/2)*Sqrt[3 + 5*x]),x]

[Out] (2*Sqrt[3 + 5*x])/(11*Sqrt[1 - 2*x])
```

Rubi in Sympy [A] time = 2.86661, size = 19, normalized size = 0.86

$$\frac{2\sqrt{5x+3}}{11\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(3/2)/(3+5*x)**(1/2),x)

[Out] 2*sqrt(5*x + 3)/(11*sqrt(-2*x + 1))
```

Mathematica [A] time = 0.0210821, size = 22, normalized size = 1.

$$\frac{2\sqrt{5x+3}}{11\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(3/2)*Sqrt[3 + 5*x]),x]

[Out] (2*Sqrt[3 + 5*x])/(11*Sqrt[1 - 2*x])
```

Maple [A] time = 0.006, size = 17, normalized size = 0.8

$$\frac{2}{11}\sqrt{3+5\,x}\frac{1}{\sqrt{1-2\,x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(3/2)/(3+5*x)^(1/2),x)
```

```
[Out] 2/11*(3+5*x)^(1/2)/(1-2*x)^(1/2)
```

Maxima [A] time = 1.48024, size = 28, normalized size = 1.27

$$-\frac{2\sqrt{-10x^2-x+3}}{11(2x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] -2/11*sqrt(-10*x^2 - x + 3)/(2*x - 1)
```

Fricas [A] time = 0.221591, size = 31, normalized size = 1.41

$$-\frac{2\sqrt{5x+3}\sqrt{-2x+1}}{11(2x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] -2/11*sqrt(5*x + 3)*sqrt(-2*x + 1)/(2*x - 1)
```

Sympy [A] time = 1.92408, size = 49, normalized size = 2.23

$$\begin{cases} \frac{\sqrt{10}}{11\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}} & \text{for}\: \frac{11\left|\frac{1}{x+\frac{3}{5}}\right|}{10} > 1 \\ -\frac{\sqrt{10}i}{11\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(1-2*x)**(3/2)/(3+5*x)**(1/2),x)
```

```
[Out] Piecewise((sqrt(10)/(11*sqrt(-1 + 11/(10*(x + 3/5)))), 11*Abs(1/(
x + 3/5))/10 > 1), (-sqrt(10)*I/(11*sqrt(1 - 11/(10*(x + 3/5)))),
 True))
```

GIAC/XCAS [A] time = 0.223246, size = 35, normalized size = 1.59

$$-\frac{2\sqrt{5}\sqrt{5x+3}\sqrt{-10x+5}}{55(2x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] -2/55*sqrt(5)*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)
```

3.2539 $\int \frac{1}{(1-2x)^{3/2}(2+3x)\sqrt{3+5x}}\,dx$

Optimal. Leaf size=57

$$\frac{4\sqrt{5x+3}}{77\sqrt{1-2x}}-\frac{6\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{7\sqrt{7}}$$

```
[Out] (4*Sqrt[3 + 5*x])/(77*Sqrt[1 - 2*x]) - (6*ArcTan[Sqrt[1 - 2*x]/(S
qrt[7]*Sqrt[3 + 5*x])])/(7*Sqrt[7])
```

Rubi [A] time = 0.0889073, antiderivative size = 57, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.115

$$\frac{4\sqrt{5x+3}}{77\sqrt{1-2x}}-\frac{6\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{7\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In] Int[1/((1 - 2*x)^(3/2)*(2 + 3*x)*Sqrt[3 + 5*x]),x]
```

```
[Out] (4*Sqrt[3 + 5*x])/(77*Sqrt[1 - 2*x]) - (6*ArcTan[Sqrt[1 - 2*x]/(S
qrt[7]*Sqrt[3 + 5*x])])/(7*Sqrt[7])
```

Rubi in Sympy [A] time = 7.18883, size = 53, normalized size = 0.93

$$-\frac{6\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{49}+\frac{4\sqrt{5x+3}}{77\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(1/(1-2*x)**(3/2)/(2+3*x)/(3+5*x)**(1/2),x)
```

```
[Out] -6*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/49 + 4*
sqrt(5*x + 3)/(77*sqrt(-2*x + 1))
```

Mathematica [A] time = 0.111026, size = 60, normalized size = 1.05

$$\frac{4\sqrt{5x+3}}{77\sqrt{1-2x}}-\frac{3\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{7\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In] Integrate[1/((1 - 2*x)^(3/2)*(2 + 3*x)*Sqrt[3 + 5*x]),x]
```

```
[Out] (4*Sqrt[3 + 5*x])/(77*Sqrt[1 - 2*x]) - (3*ArcTan[(-20 - 37*x)/(2*
Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/(7*Sqrt[7])
```

Maple [B] time = 0.022, size = 108, normalized size = 1.9

$$\frac{1}{-539+1078\,x}\left(66\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x-33\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)-28\,\sqrt{-10\,x^2-x+3}\right)\sqrt{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(3/2)/(2+3*x)/(3+5*x)^(1/2),x)
```

```
[Out] 1/539*(66*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/
2))*x-33*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2
))-28*(-10*x^2-x+3)^(1/2))*(3+5*x)^(1/2)*(1-2*x)^(1/2)/(-1+2*x)/(
-10*x^2-x+3)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{5x+3}(3x+2)(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(5*x + 3)*(3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(5*x + 3)*(3*x + 2)*(-2*x + 1)^(3/2)), x)
```

Fricas [A] time = 0.22697, size = 86, normalized size = 1.51

$$\frac{\sqrt{7}\left(33\,(2\,x-1)\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)-4\,\sqrt{7}\sqrt{5\,x+3}\sqrt{-2\,x+1}\right)}{539\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(5*x + 3)*(3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/539*sqrt(7)*(33*(2*x - 1)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt
(5*x + 3)*sqrt(-2*x + 1))) - 4*sqrt(7)*sqrt(5*x + 3)*sqrt(-2*x +
1))/(2*x - 1)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(-2x+1)^{\frac{3}{2}}\,(3x+2)\,\sqrt{5x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(3/2)/(2+3*x)/(3+5*x)**(1/2),x)
```

```
[Out] Integral(1/((-2*x + 1)**(3/2)*(3*x + 2)*sqrt(5*x + 3)), x)
```

GIAC/XCAS [A] time = 0.24892, size = 135, normalized size = 2.37

$$\frac{3}{490}\,\sqrt{70}\sqrt{10}\left(\pi+2\,\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)-\frac{4\,\sqrt{5}\sqrt{5\,x+3}\sqrt{-10\,x+5}}{385\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(5*x + 3)*(3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 3/490*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x +
 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqrt(
2)*sqrt(-10*x + 5) - sqrt(22)))) - 4/385*sqrt(5)*sqrt(5*x + 3)*sq
rt(-10*x + 5)/(2*x - 1)
```

3.2540 $\int \frac{1}{(1-2x)^{3/2}(2+3x)^2\sqrt{3+5x}}\,dx$

Optimal. Leaf size=86

$$-\frac{58\sqrt{5x+3}}{539\sqrt{1-2x}}+\frac{3\sqrt{5x+3}}{7\sqrt{1-2x}(3x+2)}-\frac{123\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{49\sqrt{7}}$$

```
[Out] (-58*Sqrt[3 + 5*x])/(539*Sqrt[1 - 2*x]) + (3*Sqrt[3 + 5*x])/(7*Sq
rt[1 - 2*x]*(2 + 3*x)) - (123*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[
3 + 5*x])])/(49*Sqrt[7])
```

Rubi [A] time = 0.173424, antiderivative size = 86, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.192$

$$-\frac{58\sqrt{5x+3}}{539\sqrt{1-2x}}+\frac{3\sqrt{5x+3}}{7\sqrt{1-2x}(3x+2)}-\frac{123\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{49\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(3/2)*(2 + 3*x)^2*Sqrt[3 + 5*x]),x]
```

```
[Out] (-58*Sqrt[3 + 5*x])/(539*Sqrt[1 - 2*x]) + (3*Sqrt[3 + 5*x])/(7*Sq
rt[1 - 2*x]*(2 + 3*x)) - (123*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[
3 + 5*x])])/(49*Sqrt[7])
```

Rubi in Sympy [A] time = 14.8876, size = 78, normalized size = 0.91

$$-\frac{123\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{343}-\frac{58\sqrt{5x+3}}{539\sqrt{-2x+1}}+\frac{3\sqrt{5x+3}}{7\sqrt{-2x+1}\,(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(3/2)/(2+3*x)**2/(3+5*x)**(1/2),x)
```

```
[Out] -123*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/343 -
 58*sqrt(5*x + 3)/(539*sqrt(-2*x + 1)) + 3*sqrt(5*x + 3)/(7*sqrt(
-2*x + 1)*(3*x + 2))
```

Mathematica [A] time = 0.0773751, size = 75, normalized size = 0.87

$$\frac{\sqrt{1-2x}\sqrt{5x+3}(174x-115)}{539\,(6x^2+x-2)}-\frac{123\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{98\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(3/2)*(2 + 3*x)^2*Sqrt[3 + 5*x]),x]
```

```
[Out] (Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(-115 + 174*x))/(539*(-2 + x + 6*x^2
)) - (123*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/
(98*Sqrt[7])
```

Maple [B] time = 0.022, size = 161, normalized size = 1.9

$$\frac{1}{(15092+22638\,x)(-1+2\,x)}\left(8118\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^{2}-x+3}}\right)x^{2}+1353\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^{2}-x+3}}\right)x-27\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(3/2)/(2+3*x)^2/(3+5*x)^(1/2),x)
```

```
[Out] 1/7546*(8118*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^
(1/2))*x^2+1353*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+
3)^(1/2))*x-2706*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x
+3)^(1/2))+2436*x*(-10*x^2-x+3)^(1/2)-1610*(-10*x^2-x+3)^(1/2))*(
3+5*x)^(1/2)*(1-2*x)^(1/2)/(2+3*x)/(-1+2*x)/(-10*x^2-x+3)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{5\,x+3}(3\,x+2)^{2}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(5*x + 3)*(3*x + 2)^2*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^2*(-2*x + 1)^(3/2)), x)
```

Fricas [A] time = 0.221099, size = 101, normalized size = 1.17

$$\frac{\sqrt{7}\left(2\,\sqrt{7}(174\,x-115)\sqrt{5\,x+3}\sqrt{-2\,x+1}+1353\left(6\,x^{2}+x-2\right)\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)}{7546\left(6\,x^{2}+x-2\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(5*x + 3)*(3*x + 2)^2*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/7546*sqrt(7)*(2*sqrt(7)*(174*x - 115)*sqrt(5*x + 3)*sqrt(-2*x +
 1) + 1353*(6*x^2 + x - 2)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(
5*x + 3)*sqrt(-2*x + 1))))/(6*x^2 + x - 2)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(3/2)/(2+3*x)**2/(3+5*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.298698, size = 296, normalized size = 3.44

$$\frac{123}{6860}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{8\sqrt{5}\sqrt{5x+3}\sqrt{-10x+5}}{2695(2x-1)}+\frac{198\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)}{49\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^2*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 123/6860*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*
x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sq
rt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 8/2695*sqrt(5)*sqrt(5*x + 3
)*sqrt(-10*x + 5)/(2*x - 1) + 198/49*sqrt(10)*((sqrt(2)*sqrt(-10*
x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(
-10*x + 5) - sqrt(22)))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sq
rt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)
))^2 + 280)
```

3.2541 $\int \frac{1}{(1-2x)^{3/2}(2+3x)^3\sqrt{3+5x}}\,dx$

Optimal. Leaf size=115

$$-\frac{3895\sqrt{5x+3}}{7546\sqrt{1-2x}}+\frac{345\sqrt{5x+3}}{196\sqrt{1-2x}(3x+2)}+\frac{3\sqrt{5x+3}}{14\sqrt{1-2x}(3x+2)^2}-\frac{12465\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{1372\sqrt{7}}$$

```
[Out] (-3895*Sqrt[3 + 5*x])/(7546*Sqrt[1 - 2*x]) + (3*Sqrt[3 + 5*x])/(1
4*Sqrt[1 - 2*x]*(2 + 3*x)^2) + (345*Sqrt[3 + 5*x])/(196*Sqrt[1 -
2*x]*(2 + 3*x)) - (12465*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5
*x])])/(1372*Sqrt[7])
```

Rubi [A] time = 0.246803, antiderivative size = 115, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$-\frac{3895\sqrt{5x+3}}{7546\sqrt{1-2x}}+\frac{345\sqrt{5x+3}}{196\sqrt{1-2x}(3x+2)}+\frac{3\sqrt{5x+3}}{14\sqrt{1-2x}(3x+2)^2}-\frac{12465\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{1372\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In] Int[1/((1 - 2*x)^(3/2)*(2 + 3*x)^3*Sqrt[3 + 5*x]),x]
```

```
[Out] (-3895*Sqrt[3 + 5*x])/(7546*Sqrt[1 - 2*x]) + (3*Sqrt[3 + 5*x])/(1
4*Sqrt[1 - 2*x]*(2 + 3*x)^2) + (345*Sqrt[3 + 5*x])/(196*Sqrt[1 -
2*x]*(2 + 3*x)) - (12465*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5
*x])])/(1372*Sqrt[7])
```

Rubi in Sympy [A] time = 21.7745, size = 105, normalized size = 0.91

$$-\frac{12465\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{9604}-\frac{3895\sqrt{5x+3}}{7546\sqrt{-2x+1}}+\frac{345\sqrt{5x+3}}{196\sqrt{-2x+1}\,(3x+2)}+\frac{3\sqrt{5x+3}}{14\sqrt{-2x+1}\,(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(1/(1-2*x)**(3/2)/(2+3*x)**3/(3+5*x)**(1/2),x)
```

```
[Out] -12465*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/960
4 - 3895*sqrt(5*x + 3)/(7546*sqrt(-2*x + 1)) + 345*sqrt(5*x + 3)/
(196*sqrt(-2*x + 1)*(3*x + 2)) + 3*sqrt(5*x + 3)/(14*sqrt(-2*x +
1)*(3*x + 2)**2)
```

Mathematica [A] time = 0.0996097, size = 77, normalized size = 0.67

$$\frac{-\frac{14\sqrt{5x+3}(70110x^2+13785x-25204)}{\sqrt{1-2x}(3x+2)^2}-137115\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{211288}$$

Antiderivative was successfully verified.

```
[In] Integrate[1/((1 - 2*x)^(3/2)*(2 + 3*x)^3*Sqrt[3 + 5*x]),x]
```

```
[Out] ((-14*Sqrt[3 + 5*x]*(-25204 + 13785*x + 70110*x^2))/(Sqrt[1 - 2*x
]*(2 + 3*x)^2) - 137115*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 1
4*x]*Sqrt[3 + 5*x])])/211288
```

Maple [B] time = 0.023, size = 209, normalized size = 1.8

$$\frac{1}{211288\,(2+3x)^2(-1+2x)}\left(2468070\sqrt{7}\arctan\left(1/14\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)x^3+2056725\sqrt{7}\arctan\left(1/14\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(3/2)/(2+3*x)^3/(3+5*x)^(1/2),x)
```

```
[Out] 1/211288*(2468070*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-
x+3)^(1/2))*x^3+2056725*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-1
0*x^2-x+3)^(1/2))*x^2-548460*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2
)/(-10*x^2-x+3)^(1/2))*x+981540*x^2*(-10*x^2-x+3)^(1/2)-548460*7^
(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+192990*x
*(-10*x^2-x+3)^(1/2)-352856*(-10*x^2-x+3)^(1/2))*(3+5*x)^(1/2)*(1
-2*x)^(1/2)/(2+3*x)^2/(-1+2*x)/(-10*x^2-x+3)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{1}{\sqrt{5x+3}(3x+2)^3(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^3*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^3*(-2*x + 1)^(3/2)), x)
```

Fricas [A] time = 0.229318, size = 127, normalized size = 1.1

$$\frac{\sqrt{7}\left(2\sqrt{7}\left(70110x^2+13785x-25204\right)\sqrt{5x+3}\sqrt{-2x+1}+137115\left(18x^3+15x^2-4x-4\right)\arctan\left(\frac{\sqrt{7}(37x+20)}{14\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)}{211288\left(18x^3+15x^2-4x-4\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^3*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/211288*sqrt(7)*(2*sqrt(7)*(70110*x^2 + 13785*x - 25204)*sqrt(5*
x + 3)*sqrt(-2*x + 1) + 137115*(18*x^3 + 15*x^2 - 4*x - 4)*arctan
(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(18*x^
3 + 15*x^2 - 4*x - 4)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(3/2)/(2+3*x)**3/(3+5*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.341157, size = 382, normalized size = 3.32

$$\frac{2493}{38416}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{16\sqrt{5}\sqrt{5x+3}\sqrt{-10x+5}}{18865\,(2x-1)}+\frac{297\left(9\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3+1640\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)\right)}{98\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^3*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 2493/38416*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(
5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(
sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 16/18865*sqrt(5)*sqrt(5*x
 + 3)*sqrt(-10*x + 5)/(2*x - 1) + 297/98*(9*sqrt(10)*((sqrt(2)*sq
rt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2
)*sqrt(-10*x + 5) - sqrt(22)))^3 + 1640*sqrt(10)*((sqrt(2)*sqrt(-
10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sq
rt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22)
)/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt
(22)))^2 + 280)^2
```

3.2542 $\int \frac{1}{(1-2x)^{3/2}(2+3x)^4\sqrt{3+5x}}\,dx$

Optimal. Leaf size=144

$$-\frac{32735\sqrt{5x+3}}{15092\sqrt{1-2x}}+\frac{2865\sqrt{5x+3}}{392\sqrt{1-2x}(3x+2)}+\frac{27\sqrt{5x+3}}{28\sqrt{1-2x}(3x+2)^2}+\frac{\sqrt{5x+3}}{7\sqrt{1-2x}(3x+2)^3}-\frac{102345\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{2744\sqrt{7}}$$

```
[Out] (-32735*Sqrt[3 + 5*x])/(15092*Sqrt[1 - 2*x]) + Sqrt[3 + 5*x]/(7*S
qrt[1 - 2*x]*(2 + 3*x)^3) + (27*Sqrt[3 + 5*x])/(28*Sqrt[1 - 2*x]*
(2 + 3*x)^2) + (2865*Sqrt[3 + 5*x])/(392*Sqrt[1 - 2*x]*(2 + 3*x))
 - (102345*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(2744*S
qrt[7])
```

Rubi [A] time = 0.326419, antiderivative size = 144, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$-\frac{32735\sqrt{5x+3}}{15092\sqrt{1-2x}}+\frac{2865\sqrt{5x+3}}{392\sqrt{1-2x}(3x+2)}+\frac{27\sqrt{5x+3}}{28\sqrt{1-2x}(3x+2)^2}+\frac{\sqrt{5x+3}}{7\sqrt{1-2x}(3x+2)^3}-\frac{102345\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{2744\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(3/2)*(2 + 3*x)^4*Sqrt[3 + 5*x]),x]
```

```
[Out] (-32735*Sqrt[3 + 5*x])/(15092*Sqrt[1 - 2*x]) + Sqrt[3 + 5*x]/(7*S
qrt[1 - 2*x]*(2 + 3*x)^3) + (27*Sqrt[3 + 5*x])/(28*Sqrt[1 - 2*x]*
(2 + 3*x)^2) + (2865*Sqrt[3 + 5*x])/(392*Sqrt[1 - 2*x]*(2 + 3*x))
 - (102345*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(2744*S
qrt[7])
```

Rubi in Sympy [A] time = 29.7378, size = 131, normalized size = 0.91

$$-\frac{102345\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{19208}-\frac{32735\sqrt{5x+3}}{15092\sqrt{-2x+1}}+\frac{2865\sqrt{5x+3}}{392\sqrt{-2x+1}\,(3x+2)}+\frac{27\sqrt{5x+3}}{28\sqrt{-2x+1}\,(3x+2)^2}+\frac{\sqrt{5x+3}}{7\sqrt{-2x+1}\,(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(3/2)/(2+3*x)**4/(3+5*x)**(1/2),x)
```

```
[Out] -102345*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/19
208 - 32735*sqrt(5*x + 3)/(15092*sqrt(-2*x + 1)) + 2865*sqrt(5*x
+ 3)/(392*sqrt(-2*x + 1)*(3*x + 2)) + 27*sqrt(5*x + 3)/(28*sqrt(-
2*x + 1)*(3*x + 2)**2) + sqrt(5*x + 3)/(7*sqrt(-2*x + 1)*(3*x + 2
)**3)
```

Mathematica [A] time = 0.118313, size = 82, normalized size = 0.57

$$\frac{\frac{14\sqrt{5x+3}(-1767690x^3-1549935x^2+377658x+421184)}{\sqrt{1-2x}(3x+2)^3}-1125795\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{422576}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(3/2)*(2 + 3*x)^4*Sqrt[3 + 5*x]),x]
```

```
[Out] ((14*Sqrt[3 + 5*x]*(421184 + 377658*x - 1549935*x^2 - 1767690*x^3
))/(Sqrt[1 - 2*x]*(2 + 3*x)^3) - 1125795*Sqrt[7]*ArcTan[(-20 - 37
*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/422576
```

Maple [B] time = 0.024, size = 257, normalized size = 1.8

$$\frac{1}{422576\,(2+3x)^3(-1+2x)}\left(60792930\sqrt{7}\arctan\left(1/14\,\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)x^4+91189395\sqrt{7}\arctan\left(1/14\,\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(3/2)/(2+3*x)^4/(3+5*x)^(1/2),x)
```

```
[Out] 1/422576*(60792930*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2
-x+3)^(1/2))*x^4+91189395*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(
-10*x^2-x+3)^(1/2))*x^3+20264310*7^(1/2)*arctan(1/14*(37*x+20)*7^
(1/2)/(-10*x^2-x+3)^(1/2))*x^2+24747660*x^3*(-10*x^2-x+3)^(1/2)-2
2515900*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2)
)*x+21699090*x^2*(-10*x^2-x+3)^(1/2)-9006360*7^(1/2)*arctan(1/14*
(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))-5287212*x*(-10*x^2-x+3)^(1
/2)-5896576*(-10*x^2-x+3)^(1/2))*(3+5*x)^(1/2)*(1-2*x)^(1/2)/(2+3
*x)^3/(-1+2*x)/(-10*x^2-x+3)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{5x+3}(3x+2)^4(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(5*x + 3)*(3*x + 2)^4*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^4*(-2*x + 1)^(3/2)), x)
```

Fricas [A] time = 0.229879, size = 147, normalized size = 1.02

$$\frac{\sqrt{7}\left(2\sqrt{7}(1767690x^3+1549935x^2-377658x-421184)\sqrt{5x+3}\sqrt{-2x+1}+1125795\,(54x^4+81x^3+18x^2-20x-8)\,\mathrm{a}\right.}{422576\,(54x^4+81x^3+18x^2-20x-8)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(5*x + 3)*(3*x + 2)^4*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/422576*sqrt(7)*(2*sqrt(7)*(1767690*x^3 + 1549935*x^2 - 377658*x
 - 421184)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 1125795*(54*x^4 + 81*x^
3 + 18*x^2 - 20*x - 8)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x
+ 3)*sqrt(-2*x + 1))))/(54*x^4 + 81*x^3 + 18*x^2 - 20*x - 8)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(3/2)/(2+3*x)**4/(3+5*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.430915, size = 464, normalized size = 3.22

$$\frac{20469}{76832}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{32\sqrt{5}\sqrt{5x+3}\sqrt{-10x+5}}{132055(2x-1)}+\frac{297\left(4937\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^5+1785280\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3+188708800\sqrt{10}\left(\cdots\right.}{9604\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^4*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 20469/76832*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt
(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 32/132055*sqrt(5)*sqrt(5
*x + 3)*sqrt(-10*x + 5)/(2*x - 1) + 297/9604*(4937*sqrt(10)*((sqr
t(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 + 1785280*sqrt(10)*((sqrt
(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(
sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 188708800*sqrt(10)*((sqr
t(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5)
 - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x
+ 5) - sqrt(22)))^2 + 280)^3
```

3.2543 $\int \frac{1}{(1-2x)^{3/2}(2+3x)^5\sqrt{3+5x}}\,dx$

Optimal. Leaf size=173

$$-\frac{7986105\sqrt{5x+3}}{845152\sqrt{1-2x}}+\frac{698295\sqrt{5x+3}}{21952\sqrt{1-2x}(3x+2)}+\frac{6621\sqrt{5x+3}}{1568\sqrt{1-2x}(3x+2)^2}+\frac{263\sqrt{5x+3}}{392\sqrt{1-2x}(3x+2)^3}+\frac{3\sqrt{5x+3}}{28\sqrt{1-2x}(3x+2)^4}-\frac{24922335\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{153664\sqrt{7}}$$

```
[Out] (-7986105*Sqrt[3 + 5*x])/(845152*Sqrt[1 - 2*x]) + (3*Sqrt[3 + 5*x
])/(28*Sqrt[1 - 2*x]*(2 + 3*x)^4) + (263*Sqrt[3 + 5*x])/(392*Sqrt
[1 - 2*x]*(2 + 3*x)^3) + (6621*Sqrt[3 + 5*x])/(1568*Sqrt[1 - 2*x]
*(2 + 3*x)^2) + (698295*Sqrt[3 + 5*x])/(21952*Sqrt[1 - 2*x]*(2 +
3*x)) - (24922335*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/
(153664*Sqrt[7])
```

Rubi [A] time = 0.412221, antiderivative size = 173, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$-\frac{7986105\sqrt{5x+3}}{845152\sqrt{1-2x}}+\frac{698295\sqrt{5x+3}}{21952\sqrt{1-2x}(3x+2)}+\frac{6621\sqrt{5x+3}}{1568\sqrt{1-2x}(3x+2)^2}+\frac{263\sqrt{5x+3}}{392\sqrt{1-2x}(3x+2)^3}+\frac{3\sqrt{5x+3}}{28\sqrt{1-2x}(3x+2)^4}-\frac{24922335\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{153664\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(3/2)*(2 + 3*x)^5*Sqrt[3 + 5*x]),x]
```


```
[Out] (-7986105*Sqrt[3 + 5*x])/(845152*Sqrt[1 - 2*x]) + (3*Sqrt[3 + 5*x
])/(28*Sqrt[1 - 2*x]*(2 + 3*x)^4) + (263*Sqrt[3 + 5*x])/(392*Sqrt
[1 - 2*x]*(2 + 3*x)^3) + (6621*Sqrt[3 + 5*x])/(1568*Sqrt[1 - 2*x]
*(2 + 3*x)^2) + (698295*Sqrt[3 + 5*x])/(21952*Sqrt[1 - 2*x]*(2 +
3*x)) - (24922335*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/
(153664*Sqrt[7])
```

Rubi in Sympy [A] time = 36.9032, size = 160, normalized size = 0.92

$$-\frac{24922335\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{1075648}-\frac{7986105\sqrt{5x+3}}{845152\sqrt{-2x+1}}+\frac{698295\sqrt{5x+3}}{21952\sqrt{-2x+1}\,(3x+2)}+\frac{6621\sqrt{5x+3}}{1568\sqrt{-2x+1}\,(3x+2)^2}+\frac{263\sqrt{5x+3}}{392\sqrt{-2x+1}\,(3x+2)^3}+\frac{3\sqrt{5x+3}}{28\sqrt{-2x+1}\,(3x+2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(3/2)/(2+3*x)**5/(3+5*x)**(1/2),x)
```

```
[Out] -24922335*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/
1075648 - 7986105*sqrt(5*x + 3)/(845152*sqrt(-2*x + 1)) + 698295*
sqrt(5*x + 3)/(21952*sqrt(-2*x + 1)*(3*x + 2)) + 6621*sqrt(5*x +
3)/(1568*sqrt(-2*x + 1)*(3*x + 2)**2) + 263*sqrt(5*x + 3)/(392*sq
rt(-2*x + 1)*(3*x + 2)**3) + 3*sqrt(5*x + 3)/(28*sqrt(-2*x + 1)*(
3*x + 2)**4)
```

Mathematica [A] time = 0.143821, size = 87, normalized size = 0.5

$$\frac{-\frac{14\sqrt{5x+3}(1293749010x^4+1998242055x^3+482249808x^2-491393004x-205593328)}{\sqrt{1-2x}(3x+2)^4}-274145685\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{23664256}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(3/2)*(2 + 3*x)^5*Sqrt[3 + 5*x]),x]
```

```
[Out] ((-14*Sqrt[3 + 5*x]*(-205593328 - 491393004*x + 482249808*x^2 + 1
998242055*x^3 + 1293749010*x^4))/(Sqrt[1 - 2*x]*(2 + 3*x)^4) - 27
4145685*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*
x])])/23664256
```

Maple [B] time = 0.027, size = 305, normalized size = 1.8

$$\frac{1}{23664256\,(2+3\,x)^4\,(-1+2\,x)}\left(44411600970\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^5+96225135435\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x}{\sqrt{-10}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(3/2)/(2+3*x)^5/(3+5*x)^(1/2),x)
```

```
[Out] 1/23664256*(44411600970*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-1
0*x^2-x+3)^(1/2))*x^5+96225135435*7^(1/2)*arctan(1/14*(37*x+20)*7
^(1/2)/(-10*x^2-x+3)^(1/2))*x^4+59215467960*7^(1/2)*arctan(1/14*(
37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+18112486140*x^4*(-10*x^
2-x+3)^(1/2)-6579496440*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-1
0*x^2-x+3)^(1/2))*x^2+27975388770*x^3*(-10*x^2-x+3)^(1/2)-1754532
3840*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x
+6751497312*x^2*(-10*x^2-x+3)^(1/2)-4386330960*7^(1/2)*arctan(1/1
4*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))-6879502056*x*(-10*x^2-x+
3)^(1/2)-2878306592*(-10*x^2-x+3)^(1/2))*(3+5*x)^(1/2)*(1-2*x)^(1
/2)/(2+3*x)^4/(-1+2*x)/(-10*x^2-x+3)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{5\,x+3}(3\,x+2)^5(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(5*x + 3)*(3*x + 2)^5*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^5*(-2*x + 1)^(3/2)), x)
```

Fricas [A] time = 0.237871, size = 167, normalized size = 0.97

$$\frac{\sqrt{7}\left(2\,\sqrt{7}\left(1293749010\,x^4+1998242055\,x^3+482249808\,x^2-491393004\,x-205593328\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+274145685\,(16\right.}{23664256\,(162\,x^5+351\,x^4+216\,x^3-24\,x^2-64\,x-16}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(5*x + 3)*(3*x + 2)^5*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/23664256*sqrt(7)*(2*sqrt(7)*(1293749010*x^4 + 1998242055*x^3 +
482249808*x^2 - 491393004*x - 205593328)*sqrt(5*x + 3)*sqrt(-2*x
+ 1) + 274145685*(162*x^5 + 351*x^4 + 216*x^3 - 24*x^2 - 64*x - 1
6)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))
))/(162*x^5 + 351*x^4 + 216*x^3 - 24*x^2 - 64*x - 16)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(3/2)/(2+3*x)**5/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.569646, size = 547, normalized size = 3.16

$$\frac{4984467}{4302592}\sqrt{70}\sqrt{10}\left(\pi+2\,\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)-\frac{64\sqrt{5}\sqrt{5\,x+3}\sqrt{-10\,x+5}}{924385\,(2\,x-1)}$$

$$+\frac{99\left(4411181\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^7+2388710520\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^5+50621272800\cdots\right.}{537824\left(\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x}\cdots}{\sqrt{2}\sqrt{-10\,x+}\cdots}\right.\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(5*x + 3)*(3*x + 2)^5*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] 4984467/4302592*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*
sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) -
 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 64/924385*sqrt(5)*sq
rt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1) + 99/537824*(4411181*sqrt(1
0)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5
*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^7 + 2388710520*sqrt
(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt
(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 + 506212728000*
sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*
sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 386766800
00000*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3
) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqr
t(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)^4
```

3.2544 $\int \frac{(2+3x)^5}{(1-2x)^{3/2}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=142

$$\frac{7(3x+2)^4}{11\sqrt{1-2x}\sqrt{5x+3}}-\frac{37\sqrt{1-2x}(3x+2)^3}{605\sqrt{5x+3}}+\frac{8463\sqrt{1-2x}\sqrt{5x+3}(3x+2)^2}{12100}+\frac{21\sqrt{1-2x}\sqrt{5x+3}(841380x+2027201)}{1936000}-\frac{2911419\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{16000\sqrt{10}}$$

```
[Out] (-37*Sqrt[1 - 2*x]*(2 + 3*x)^3)/(605*Sqrt[3 + 5*x]) + (7*(2 + 3*x
)^4)/(11*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) + (8463*Sqrt[1 - 2*x]*(2 +
3*x)^2*Sqrt[3 + 5*x])/12100 + (21*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(20
27201 + 841380*x))/1936000 - (2911419*ArcSin[Sqrt[2/11]*Sqrt[3 +
5*x]])/(16000*Sqrt[10])
```

Rubi [A] time = 0.264112, antiderivative size = 142, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$\frac{7(3x+2)^4}{11\sqrt{1-2x}\sqrt{5x+3}}-\frac{37\sqrt{1-2x}(3x+2)^3}{605\sqrt{5x+3}}+\frac{8463\sqrt{1-2x}\sqrt{5x+3}(3x+2)^2}{12100}+\frac{21\sqrt{1-2x}\sqrt{5x+3}(841380x+2027201)}{1936000}-\frac{2911419\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{16000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^5/((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-37*Sqrt[1 - 2*x]*(2 + 3*x)^3)/(605*Sqrt[3 + 5*x]) + (7*(2 + 3*x
)^4)/(11*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) + (8463*Sqrt[1 - 2*x]*(2 +
3*x)^2*Sqrt[3 + 5*x])/12100 + (21*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(20
27201 + 841380*x))/1936000 - (2911419*ArcSin[Sqrt[2/11]*Sqrt[3 +
5*x]])/(16000*Sqrt[10])
```

Rubi in Sympy [A] time = 26.8862, size = 133, normalized size = 0.94

$$-\frac{37\sqrt{-2x+1}\,(3x+2)^3}{605\sqrt{5x+3}}+\frac{8463\sqrt{-2x+1}\,(3x+2)^2\,\sqrt{5x+3}}{12100}+\frac{\sqrt{-2x+1}\sqrt{5x+3}\,\left(\frac{66258675x}{4}+\frac{638568315}{16}\right)}{1815000}-\frac{2911419\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{160000}+\frac{7\,(3x+2)^4}{11\sqrt{-2x+1}\sqrt{5x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**5/(1-2*x)**(3/2)/(3+5*x)**(3/2),x)
```

```
[Out] -37*sqrt(-2*x + 1)*(3*x + 2)**3/(605*sqrt(5*x + 3)) + 8463*sqrt(-
2*x + 1)*(3*x + 2)**2*sqrt(5*x + 3)/12100 + sqrt(-2*x + 1)*sqrt(5
*x + 3)*(66258675*x/4 + 638568315/16)/1815000 - 2911419*sqrt(10)*
asin(sqrt(22)*sqrt(5*x + 3)/11)/160000 + 7*(3*x + 2)**4/(11*sqrt(
-2*x + 1)*sqrt(5*x + 3))
```

Mathematica [A] time = 0.155565, size = 86, normalized size = 0.61

$$\frac{352281699\sqrt{10-20x}(5x+3)\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)-10\sqrt{5x+3}\left(15681600x^4+75663720x^3+208989990x^2-169670279x\right.}{19360000\sqrt{1-2x}(5x+3)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^5/((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-10*Sqrt[3 + 5*x]*(-162727423 - 169670279*x + 208989990*x^2 + 75
663720*x^3 + 15681600*x^4) + 352281699*Sqrt[10 - 20*x]*(3 + 5*x)*
ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/(19360000*Sqrt[1 - 2*x]*(3 + 5*
x))
```

Maple [A] time = 0.023, size = 154, normalized size = 1.1

$$-\frac{1}{-38720000+77440000\,x}\sqrt{1-2\,x}\left(-313632000\,x^{4}\sqrt{-10\,x^{2}-x+3}+3522816990\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x^{2}-1513274\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^5/(1-2*x)^(3/2)/(3+5*x)^(3/2),x)
```

```
[Out] -1/38720000*(1-2*x)^(1/2)*(-313632000*x^4*(-10*x^2-x+3)^(1/2)+352
2816990*10^(1/2)*arcsin(20/11*x+1/11)*x^2-1513274400*x^3*(-10*x^2
-x+3)^(1/2)+352281699*10^(1/2)*arcsin(20/11*x+1/11)*x-4179799800*
x^2*(-10*x^2-x+3)^(1/2)-1056845097*10^(1/2)*arcsin(20/11*x+1/11)+
3393405580*x*(-10*x^2-x+3)^(1/2)+3254548460*(-10*x^2-x+3)^(1/2))/
(-1+2*x)/(-10*x^2-x+3)^(1/2)/(3+5*x)^(1/2)
```

Maxima [A] time = 1.52328, size = 124, normalized size = 0.87

$$-\frac{81\,x^{4}}{10\,\sqrt{-10\,x^{2}-x+3}}-\frac{15633\,x^{3}}{400\,\sqrt{-10\,x^{2}-x+3}}-\frac{172719\,x^{2}}{1600\,\sqrt{-10\,x^{2}-x+3}}+\frac{2911419}{320000}\,\sqrt{10}\arcsin\left(-\frac{20}{11}\,x-\frac{1}{11}\right)+\frac{169670279\,x}{1936000\,\sqrt{-10\,x^{2}-x+3}}+\frac{162727423}{1936000\,\sqrt{-10\,x^{2}-x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] -81/10*x^4/sqrt(-10*x^2 - x + 3) - 15633/400*x^3/sqrt(-10*x^2 - x
 + 3) - 172719/1600*x^2/sqrt(-10*x^2 - x + 3) + 2911419/320000*sq
rt(10)*arcsin(-20/11*x - 1/11) + 169670279/1936000*x/sqrt(-10*x^2
 - x + 3) + 162727423/1936000/sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.229246, size = 122, normalized size = 0.86

$$\frac{\sqrt{10}\left(2\,\sqrt{10}\left(15681600\,x^{4}+75663720\,x^{3}+208989990\,x^{2}-169670279\,x-162727423\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-352281699\,\left(10\,x\right.\right.}{38720000\,\left(10\,x^{2}+x-3\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/38720000*sqrt(10)*(2*sqrt(10)*(15681600*x^4 + 75663720*x^3 + 20
8989990*x^2 - 169670279*x - 162727423)*sqrt(5*x + 3)*sqrt(-2*x +
1) - 352281699*(10*x^2 + x - 3)*arctan(1/20*sqrt(10)*(20*x + 1)/(
sqrt(5*x + 3)*sqrt(-2*x + 1))))/(10*x^2 + x - 3)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^5}{(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**5/(1-2*x)**(3/2)/(3+5*x)**(3/2),x)
```

```
[Out] Integral((3*x + 2)**5/((-2*x + 1)**(3/2)*(5*x + 3)**(3/2)), x)
```

GIAC/XCAS [A] time = 0.26187, size = 194, normalized size = 1.37

$$-\frac{2911419}{160000}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right) + \frac{\left(6534\left(12\left(8\sqrt{5}(5x+3)+97\sqrt{5}\right)(5x+3)+16325\sqrt{5}\right)(5x+3)-1761451247\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{242000000(2x-1)} - \frac{\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}{756250\sqrt{5x+3}} + \frac{2\sqrt{10}\sqrt{5x+3}}{378125\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] -2911419/160000*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) + 1/
242000000*(6534*(12*(8*sqrt(5)*(5*x + 3) + 97*sqrt(5))*(5*x + 3)
+ 16325*sqrt(5))*(5*x + 3) - 1761451247*sqrt(5))*sqrt(5*x + 3)*sq
rt(-10*x + 5)/(2*x - 1) - 1/756250*sqrt(10)*(sqrt(2)*sqrt(-10*x +
 5) - sqrt(22))/sqrt(5*x + 3) + 2/378125*sqrt(10)*sqrt(5*x + 3)/(
sqrt(2)*sqrt(-10*x + 5) - sqrt(22))
```

3.2545 $\int \frac{(2+3x)^4}{(1-2x)^{3/2}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=113

$$\frac{7(3x+2)^3}{11\sqrt{1-2x}\sqrt{5x+3}}-\frac{37\sqrt{1-2x}(3x+2)^2}{605\sqrt{5x+3}}+\frac{3\sqrt{1-2x}\sqrt{5x+3}(72060x+173063)}{96800}-\frac{35451\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{800\sqrt{10}}$$

```
[Out] (-37*Sqrt[1 - 2*x]*(2 + 3*x)^2)/(605*Sqrt[3 + 5*x]) + (7*(2 + 3*x
)^3)/(11*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) + (3*Sqrt[1 - 2*x]*Sqrt[3 +
 5*x]*(173063 + 72060*x))/96800 - (35451*ArcSin[Sqrt[2/11]*Sqrt[3
 + 5*x]])/(800*Sqrt[10])
```

Rubi [A] time = 0.192527, antiderivative size = 113, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$\frac{7(3x+2)^3}{11\sqrt{1-2x}\sqrt{5x+3}}-\frac{37\sqrt{1-2x}(3x+2)^2}{605\sqrt{5x+3}}+\frac{3\sqrt{1-2x}\sqrt{5x+3}(72060x+173063)}{96800}-\frac{35451\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{800\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^4/((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-37*Sqrt[1 - 2*x]*(2 + 3*x)^2)/(605*Sqrt[3 + 5*x]) + (7*(2 + 3*x
)^3)/(11*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) + (3*Sqrt[1 - 2*x]*Sqrt[3 +
 5*x]*(173063 + 72060*x))/96800 - (35451*ArcSin[Sqrt[2/11]*Sqrt[3
 + 5*x]])/(800*Sqrt[10])
```

Rubi in Sympy [A] time = 19.1701, size = 105, normalized size = 0.93

$$-\frac{37\sqrt{-2x+1}\,(3x+2)^2}{605\sqrt{5x+3}}+\frac{\sqrt{-2x+1}\sqrt{5x+3}\left(\frac{270225x}{2}+\frac{2595945}{8}\right)}{60500}-\frac{35451\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{8000}+\frac{7\,(3x+2)^3}{11\sqrt{-2x+1}\sqrt{5x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4/(1-2*x)**(3/2)/(3+5*x)**(3/2),x)
```

```
[Out] -37*sqrt(-2*x + 1)*(3*x + 2)**2/(605*sqrt(5*x + 3)) + sqrt(-2*x +
 1)*sqrt(5*x + 3)*(270225*x/2 + 2595945/8)/60500 - 35451*sqrt(10)
*asin(sqrt(22)*sqrt(5*x + 3)/11)/8000 + 7*(3*x + 2)**3/(11*sqrt(-
2*x + 1)*sqrt(5*x + 3))
```

Mathematica [A] time = 0.142448, size = 78, normalized size = 0.69

$$\frac{10\left(-392040x^3-1992870x^2+2323271x+2026687\right)+4289571\sqrt{10-20x}\sqrt{5x+3}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{968000\sqrt{1-2x}\sqrt{5x+3}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^4/((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (10*(2026687 + 2323271*x - 1992870*x^2 - 392040*x^3) + 4289571*Sq
rt[10 - 20*x]*Sqrt[3 + 5*x]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/(96
8000*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])
```

Maple [A] time = 0.02, size = 137, normalized size = 1.2

$$-\frac{1}{-1936000+3872000\,x}\sqrt{1-2\,x}\left(42895710\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x^{2}-7840800\,x^{3}\sqrt{-10\,x^{2}-x+3}+4289571\,\sqrt{10}\,\mathrm{arc}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4/(1-2*x)^(3/2)/(3+5*x)^(3/2),x)
```

```
[Out] -1/1936000*(1-2*x)^(1/2)*(42895710*10^(1/2)*arcsin(20/11*x+1/11)*
x^2-7840800*x^3*(-10*x^2-x+3)^(1/2)+4289571*10^(1/2)*arcsin(20/11
*x+1/11)*x-39857400*x^2*(-10*x^2-x+3)^(1/2)-12868713*10^(1/2)*arc
sin(20/11*x+1/11)+46465420*x*(-10*x^2-x+3)^(1/2)+40533740*(-10*x^
2-x+3)^(1/2))/(-1+2*x)/(-10*x^2-x+3)^(1/2)/(3+5*x)^(1/2)
```

Maxima [A] time = 1.49339, size = 101, normalized size = 0.89

$$-\frac{81\,x^{3}}{20\,\sqrt{-10\,x^{2}-x+3}}-\frac{1647\,x^{2}}{80\,\sqrt{-10\,x^{2}-x+3}}+\frac{35451}{16000}\sqrt{10}\arcsin\left(-\frac{20}{11}\,x-\frac{1}{11}\right)+\frac{2323271\,x}{96800\,\sqrt{-10\,x^{2}-x+3}}+\frac{2026687}{96800\,\sqrt{-10\,x^{2}-x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4/((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] -81/20*x^3/sqrt(-10*x^2 - x + 3) - 1647/80*x^2/sqrt(-10*x^2 - x +
 3) + 35451/16000*sqrt(10)*arcsin(-20/11*x - 1/11) + 2323271/9680
0*x/sqrt(-10*x^2 - x + 3) + 2026687/96800/sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.230112, size = 115, normalized size = 1.02

$$\frac{\sqrt{10}\left(2\,\sqrt{10}\left(392040\,x^{3}+1992870\,x^{2}-2323271\,x-2026687\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-4289571\,\left(10\,x^{2}+x-3\right)\,\arctan\left(\frac{\sqrt{10}(20}{20\,\sqrt{5\,x+3}}\right.\right.}{1936000\,\left(10\,x^{2}+x-3\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4/((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/1936000*sqrt(10)*(2*sqrt(10)*(392040*x^3 + 1992870*x^2 - 232327
1*x - 2026687)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 4289571*(10*x^2 + x
 - 3)*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x +
1))))/(10*x^2 + x - 3)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(3x+2)^{4}}{(-2x+1)^{\frac{3}{2}}\,(5x+3)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4/(1-2*x)**(3/2)/(3+5*x)**(3/2),x)
```

```
[Out] Integral((3*x + 2)**4/((-2*x + 1)**(3/2)*(5*x + 3)**(3/2)), x)
```

GIAC/XCAS [A] time = 0.252568, size = 177, normalized size = 1.57

$$-\frac{35451}{8000}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)+\frac{\left(6534\left(12\sqrt{5}(5x+3)+197\sqrt{5}\right)(5x+3)-21456431\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{12100000(2x-1)}-\frac{\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}{151250\sqrt{5x+3}}+\frac{2\sqrt{10}\sqrt{5x+3}}{75625\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^4/((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] -35451/8000*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) + 1/1210
0000*(6534*(12*sqrt(5)*(5*x + 3) + 197*sqrt(5))*(5*x + 3) - 21456
431*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1) - 1/151250*s
qrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) + 2/75
625*sqrt(10)*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))
```

3.2546 $\int \frac{(2+3x)^3}{(1-2x)^{3/2}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=84

$$\frac{7(3x+2)^2}{11\sqrt{1-2x}\sqrt{5x+3}}+\frac{\sqrt{1-2x}(50985x+30443)}{12100\sqrt{5x+3}}-\frac{999\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{100\sqrt{10}}$$

```
[Out] (7*(2 + 3*x)^2)/(11*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) + (Sqrt[1 - 2*x]
*(30443 + 50985*x))/(12100*Sqrt[3 + 5*x]) - (999*ArcSin[Sqrt[2/11
]*Sqrt[3 + 5*x]])/(100*Sqrt[10])
```

Rubi [A] time = 0.122271, antiderivative size = 84, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.154$

$$\frac{7(3x+2)^2}{11\sqrt{1-2x}\sqrt{5x+3}}+\frac{\sqrt{1-2x}(50985x+30443)}{12100\sqrt{5x+3}}-\frac{999\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{100\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^3/((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (7*(2 + 3*x)^2)/(11*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) + (Sqrt[1 - 2*x]
*(30443 + 50985*x))/(12100*Sqrt[3 + 5*x]) - (999*ArcSin[Sqrt[2/11
]*Sqrt[3 + 5*x]])/(100*Sqrt[10])
```

Rubi in Sympy [A] time = 11.8214, size = 78, normalized size = 0.93

$$\frac{\sqrt{-2x+1}\left(\frac{50985x}{4}+\frac{30443}{4}\right)}{3025\sqrt{5x+3}}-\frac{999\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{1000}+\frac{7\,(3x+2)^2}{11\sqrt{-2x+1}\sqrt{5x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3/(1-2*x)**(3/2)/(3+5*x)**(3/2),x)
```

```
[Out] sqrt(-2*x + 1)*(50985*x/4 + 30443/4)/(3025*sqrt(5*x + 3)) - 999*s
qrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/1000 + 7*(3*x + 2)**2/(11
*sqrt(-2*x + 1)*sqrt(5*x + 3))
```

Mathematica [A] time = 0.13241, size = 70, normalized size = 0.83

$$\frac{-326700x^2+824990x+120879\sqrt{10-20x}\sqrt{5x+3}\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)+612430}{121000\sqrt{1-2x}\sqrt{5x+3}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^3/((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (612430 + 824990*x - 326700*x^2 + 120879*Sqrt[10 - 20*x]*Sqrt[3 +
 5*x]*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/(121000*Sqrt[1 - 2*x]*Sqr
t[3 + 5*x])
```

Maple [A] time = 0.02, size = 120, normalized size = 1.4

$$-\frac{1}{-242000+484000\,x}\sqrt{1-2\,x}\left(1208790\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x^{2}+120879\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x-653400\,x^{2}\sqrt{-}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3/(1-2*x)^(3/2)/(3+5*x)^(3/2),x)
```

```
[Out] -1/242000*(1-2*x)^(1/2)*(1208790*10^(1/2)*arcsin(20/11*x+1/11)*x^
2+120879*10^(1/2)*arcsin(20/11*x+1/11)*x-653400*x^2*(-10*x^2-x+3)
^(1/2)-362637*10^(1/2)*arcsin(20/11*x+1/11)+1649980*x*(-10*x^2-x+
3)^(1/2)+1224860*(-10*x^2-x+3)^(1/2))/(-1+2*x)/(-10*x^2-x+3)^(1/2
)/(3+5*x)^(1/2)
```

Maxima [A] time = 1.49957, size = 78, normalized size = 0.93

$$-\frac{27\,x^{2}}{10\,\sqrt{-10\,x^{2}-x+3}}+\frac{999}{2000}\,\sqrt{10}\arcsin\left(-\frac{20}{11}\,x-\frac{1}{11}\right)+\frac{82499\,x}{12100\,\sqrt{-10\,x^{2}-x+3}}+\frac{61243}{12100\,\sqrt{-10\,x^{2}-x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3/((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] -27/10*x^2/sqrt(-10*x^2 - x + 3) + 999/2000*sqrt(10)*arcsin(-20/1
1*x - 1/11) + 82499/12100*x/sqrt(-10*x^2 - x + 3) + 61243/12100/s
qrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.236266, size = 108, normalized size = 1.29

$$\frac{\sqrt{10}\left(2\,\sqrt{10}\left(32670\,x^{2}-82499\,x-61243\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-120879\,\left(10\,x^{2}+x-3\right)\,\arctan\left(\frac{\sqrt{10}(20\,x+1)}{20\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)}{242000\,\left(10\,x^{2}+x-3\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3/((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/242000*sqrt(10)*(2*sqrt(10)*(32670*x^2 - 82499*x - 61243)*sqrt(
5*x + 3)*sqrt(-2*x + 1) - 120879*(10*x^2 + x - 3)*arctan(1/20*sqr
t(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(10*x^2 + x - 3
)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(3x+2)^{3}}{(-2x+1)^{\frac{3}{2}}\,(5x+3)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3/(1-2*x)**(3/2)/(3+5*x)**(3/2),x)
```

```
[Out] Integral((3*x + 2)**3/((-2*x + 1)**(3/2)*(5*x + 3)**(3/2)), x)
```

GIAC/XCAS [A] time = 0.250225, size = 159, normalized size = 1.89

$$-\frac{999}{1000}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)+\frac{\left(6534\sqrt{5}(5x+3)-121687\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{302500\,(2x-1)}-\frac{\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}{30250\sqrt{5x+3}}+\frac{2\sqrt{10}\sqrt{5x+3}}{15125\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^3/((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] -999/1000*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) + 1/302500
*(6534*sqrt(5)*(5*x + 3) - 121687*sqrt(5))*sqrt(5*x + 3)*sqrt(-10
*x + 5)/(2*x - 1) - 1/30250*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - s
qrt(22))/sqrt(5*x + 3) + 2/15125*sqrt(10)*sqrt(5*x + 3)/(sqrt(2)*
sqrt(-10*x + 5) - sqrt(22))
```

3.2547 $\int \frac{(2+3x)^2}{(1-2x)^{3/2}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=72

$$-\frac{1229\sqrt{1-2x}}{1210\sqrt{5x+3}}+\frac{49}{22\sqrt{1-2x}\sqrt{5x+3}}-\frac{9\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{5\sqrt{10}}$$

```
[Out] 49/(22*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) - (1229*Sqrt[1 - 2*x])/(1210*
Sqrt[3 + 5*x]) - (9*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(5*Sqrt[10]
)
```

Rubi [A] time = 0.0976486, antiderivative size = 72, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$-\frac{1229\sqrt{1-2x}}{1210\sqrt{5x+3}}+\frac{49}{22\sqrt{1-2x}\sqrt{5x+3}}-\frac{9\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{5\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^2/((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] 49/(22*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) - (1229*Sqrt[1 - 2*x])/(1210*
Sqrt[3 + 5*x]) - (9*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(5*Sqrt[10]
)
```

Rubi in Sympy [A] time = 8.65728, size = 65, normalized size = 0.9

$$-\frac{9\sqrt{10}\,\text{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{50}+\frac{1229\sqrt{5x+3}}{3025\sqrt{-2x+1}}-\frac{2}{275\sqrt{-2x+1}\sqrt{5x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2/(1-2*x)**(3/2)/(3+5*x)**(3/2),x)
```

```
[Out] -9*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/50 + 1229*sqrt(5*x +
3)/(3025*sqrt(-2*x + 1)) - 2/(275*sqrt(-2*x + 1)*sqrt(5*x + 3))
```

Mathematica [A] time = 0.13626, size = 55, normalized size = 0.76

$$\frac{1229x+733}{605\sqrt{1-2x}\sqrt{5x+3}}+\frac{9\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{5\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^2/((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (733 + 1229*x)/(605*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) + (9*ArcSin[Sqrt
[5/11]*Sqrt[1 - 2*x]])/(5*Sqrt[10])
```

Maple [A] time = 0.02, size = 103, normalized size = 1.4

$$-\frac{1}{-12100+24200x}\sqrt{1-2x}\left(10890\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)x^2+1089\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)x-3267\sqrt{10}\arcsin\left(\frac{20}{1}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2/(1-2*x)^(3/2)/(3+5*x)^(3/2),x)
```

```
[Out] -1/12100*(1-2*x)^(1/2)*(10890*10^(1/2)*arcsin(20/11*x+1/11)*x^2+1
089*10^(1/2)*arcsin(20/11*x+1/11)*x-3267*10^(1/2)*arcsin(20/11*x+
1/11)+24580*x*(-10*x^2-x+3)^(1/2)+14660*(-10*x^2-x+3)^(1/2))/(-1+
2*x)/(-10*x^2-x+3)^(1/2)/(3+5*x)^(1/2)
```

Maxima [A] time = 1.4971, size = 55, normalized size = 0.76

$$\frac{9}{100}\sqrt{10}\arcsin\left(-\frac{20}{11}x-\frac{1}{11}\right)+\frac{1229x}{605\sqrt{-10x^2-x+3}}+\frac{733}{605\sqrt{-10x^2-x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2/((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 9/100*sqrt(10)*arcsin(-20/11*x - 1/11) + 1229/605*x/sqrt(-10*x^2
- x + 3) + 733/605/sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.229446, size = 101, normalized size = 1.4

$$-\frac{\sqrt{10}\left(2\sqrt{10}(1229x+733)\sqrt{5x+3}\sqrt{-2x+1}+1089\left(10x^2+x-3\right)\arctan\left(\frac{\sqrt{10}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)}{12100\left(10x^2+x-3\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2/((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] -1/12100*sqrt(10)*(2*sqrt(10)*(1229*x + 733)*sqrt(5*x + 3)*sqrt(-
2*x + 1) + 1089*(10*x^2 + x - 3)*arctan(1/20*sqrt(10)*(20*x + 1)/
(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(10*x^2 + x - 3)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(3x+2)^2}{(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2/(1-2*x)**(3/2)/(3+5*x)**(3/2),x)
```

```
[Out] Integral((3*x + 2)**2/((-2*x + 1)**(3/2)*(5*x + 3)**(3/2)), x)
```

GIAC/XCAS [A] time = 0.246186, size = 142, normalized size = 1.97

$$-\frac{9}{50}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)-\frac{\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}{6050\sqrt{5x+3}}-\frac{49\sqrt{5}\sqrt{5x+3}\sqrt{-10x+5}}{605(2x-1)}+\frac{2\sqrt{10}\sqrt{5x+3}}{3025\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2/((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] -9/50*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) - 1/6050*sqrt(
10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 49/605*s
qrt(5)*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1) + 2/3025*sqrt(10)*
sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))
```

3.2548 $\int \frac{2+3x}{(1-2x)^{3/2}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=45

$$\frac{74\sqrt{5x+3}}{605\sqrt{1-2x}}-\frac{2}{55\sqrt{1-2x}\sqrt{5x+3}}$$

```
[Out] -2/(55*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) + (74*Sqrt[3 + 5*x])/(605*Sqr
t[1 - 2*x])
```

Rubi [A] time = 0.0484819, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.083

$$\frac{74\sqrt{5x+3}}{605\sqrt{1-2x}}-\frac{2}{55\sqrt{1-2x}\sqrt{5x+3}}$$

Antiderivative was successfully verified.

```
[In] Int[(2 + 3*x)/((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] -2/(55*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) + (74*Sqrt[3 + 5*x])/(605*Sqr
t[1 - 2*x])
```

Rubi in Sympy [A] time = 5.14134, size = 39, normalized size = 0.87

$$-\frac{37\sqrt{-2x+1}}{121\sqrt{5x+3}}+\frac{7}{11\sqrt{-2x+1}\sqrt{5x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)/(1-2*x)**(3/2)/(3+5*x)**(3/2),x)
```

```
[Out] -37*sqrt(-2*x + 1)/(121*sqrt(5*x + 3)) + 7/(11*sqrt(-2*x + 1)*sqr
t(5*x + 3))
```

Mathematica [A] time = 0.0399492, size = 27, normalized size = 0.6

$$\frac{2(37x+20)}{121\sqrt{1-2x}\sqrt{5x+3}}$$

Antiderivative was successfully verified.

```
[In] Integrate[(2 + 3*x)/((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (2*(20 + 37*x))/(121*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])
```

Maple [A] time = 0.004, size = 22, normalized size = 0.5

$$\frac{74\,x+40}{121}\frac{1}{\sqrt{1-2\,x}}\frac{1}{\sqrt{3+5\,x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((2+3*x)/(1-2*x)^(3/2)/(3+5*x)^(3/2),x)
```

```
[Out] 2/121*(37*x+20)/(3+5*x)^(1/2)/(1-2*x)^(1/2)
```

Maxima [A] time = 1.32476, size = 41, normalized size = 0.91

$$\frac{74\,x}{121\,\sqrt{-10\,x^2-x+3}}+\frac{40}{121\,\sqrt{-10\,x^2-x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)/((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 74/121*x/sqrt(-10*x^2 - x + 3) + 40/121/sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.227332, size = 42, normalized size = 0.93

$$-\frac{2\,(37\,x+20)\sqrt{5\,x+3}\sqrt{-2\,x+1}}{121\,(10\,x^2+x-3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)/((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] -2/121*(37*x + 20)*sqrt(5*x + 3)*sqrt(-2*x + 1)/(10*x^2 + x - 3)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{3x+2}{(-2x+1)^{\frac{3}{2}}\,(5x+3)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)/(1-2*x)**(3/2)/(3+5*x)**(3/2),x)
```

```
[Out] Integral((3*x + 2)/((-2*x + 1)**(3/2)*(5*x + 3)**(3/2)), x)
```

GIAC/XCAS [A] time = 0.238433, size = 117, normalized size = 2.6

$$-\frac{\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}{1210\,\sqrt{5\,x+3}}-\frac{14\,\sqrt{5}\sqrt{5\,x+3}\sqrt{-10\,x+5}}{605\,(2\,x-1)}+\frac{2\,\sqrt{10}\sqrt{5\,x+3}}{605\,\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)/((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] -1/1210*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x +
3) - 14/605*sqrt(5)*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1) + 2/6
05*sqrt(10)*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))
```

3.2549 $\int \frac{1}{(1-2x)^{3/2}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=45

$$\frac{2}{11\sqrt{1-2x}\sqrt{5x+3}}-\frac{20\sqrt{1-2x}}{121\sqrt{5x+3}}$$

```
[Out] 2/(11*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) - (20*Sqrt[1 - 2*x])/(121*Sqrt
[3 + 5*x])
```

Rubi [A] time = 0.0344602, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.105

$$\frac{2}{11\sqrt{1-2x}\sqrt{5x+3}}-\frac{20\sqrt{1-2x}}{121\sqrt{5x+3}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] 2/(11*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) - (20*Sqrt[1 - 2*x])/(121*Sqrt
[3 + 5*x])
```

Rubi in Sympy [A] time = 4.26566, size = 39, normalized size = 0.87

$$-\frac{20\sqrt{-2x+1}}{121\sqrt{5x+3}}+\frac{2}{11\sqrt{-2x+1}\sqrt{5x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(3/2)/(3+5*x)**(3/2),x)
```

```
[Out] -20*sqrt(-2*x + 1)/(121*sqrt(5*x + 3)) + 2/(11*sqrt(-2*x + 1)*sqr
t(5*x + 3))
```

Mathematica [A] time = 0.0252454, size = 27, normalized size = 0.6

$$\frac{2(20x+1)}{121\sqrt{1-2x}\sqrt{5x+3}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (2*(1 + 20*x))/(121*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])
```

Maple [A] time = 0.004, size = 22, normalized size = 0.5

$$\frac{2+40\,x}{121}\frac{1}{\sqrt{1-2\,x}}\frac{1}{\sqrt{3+5\,x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(3/2)/(3+5*x)^(3/2),x)
```

```
[Out] 2/121*(1+20*x)/(3+5*x)^(1/2)/(1-2*x)^(1/2)
```

Maxima [A] time = 1.34182, size = 41, normalized size = 0.91

$$\frac{40\,x}{121\,\sqrt{-10\,x^2-x+3}}+\frac{2}{121\,\sqrt{-10\,x^2-x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 40/121*x/sqrt(-10*x^2 - x + 3) + 2/121/sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.21463, size = 42, normalized size = 0.93

$$-\frac{2\,(20\,x+1)\sqrt{5\,x+3}\sqrt{-2\,x+1}}{121\,(10\,x^2+x-3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] -2/121*(20*x + 1)*sqrt(5*x + 3)*sqrt(-2*x + 1)/(10*x^2 + x - 3)
```

Sympy [A] time = 5.75217, size = 117, normalized size = 2.6

$$\begin{cases} -\frac{40\sqrt{10}\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)}{1210x-605}+\frac{22\sqrt{10}\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}}{1210x-605} & \text{for}\ \frac{11\left|\frac{1}{x+\frac{3}{5}}\right|}{10}>1 \\ -\frac{40\sqrt{10}i\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)}{1210x-605}+\frac{22\sqrt{10}i\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}}{1210x-605} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(3/2)/(3+5*x)**(3/2),x)
```

```
[Out] Piecewise((-40*sqrt(10)*sqrt(-1 + 11/(10*(x + 3/5)))*(x + 3/5)/(1
210*x - 605) + 22*sqrt(10)*sqrt(-1 + 11/(10*(x + 3/5)))/(1210*x -
 605), 11*Abs(1/(x + 3/5))/10 > 1), (-40*sqrt(10)*I*sqrt(1 - 11/(
10*(x + 3/5)))*(x + 3/5)/(1210*x - 605) + 22*sqrt(10)*I*sqrt(1 -
11/(10*(x + 3/5)))/(1210*x - 605), True))
```

GIAC/XCAS [A] time = 0.226621, size = 117, normalized size = 2.6

$$-\frac{\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}{242\,\sqrt{5\,x+3}}-\frac{4\,\sqrt{5}\sqrt{5\,x+3}\sqrt{-10\,x+5}}{605\,(2\,x-1)}+\frac{2\,\sqrt{10}\sqrt{5\,x+3}}{121\,\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] -1/242*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3
) - 4/605*sqrt(5)*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1) + 2/121
*sqrt(10)*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))
```

3.2550 $\int \frac{1}{(1-2x)^{3/2}(2+3x)(3+5x)^{3/2}} dx$

Optimal. Leaf size=79

$$-\frac{370\sqrt{1-2x}}{847\sqrt{5x+3}}+\frac{4}{77\sqrt{1-2x}\sqrt{5x+3}}+\frac{18\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{7\sqrt{7}}$$

```
[Out] 4/(77*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) - (370*Sqrt[1 - 2*x])/(847*Sqr
t[3 + 5*x]) + (18*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/
(7*Sqrt[7])
```

Rubi [A] time = 0.165133, antiderivative size = 79, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$-\frac{370\sqrt{1-2x}}{847\sqrt{5x+3}}+\frac{4}{77\sqrt{1-2x}\sqrt{5x+3}}+\frac{18\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{7\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(3/2)*(2 + 3*x)*(3 + 5*x)^(3/2)),x]
```

```
[Out] 4/(77*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) - (370*Sqrt[1 - 2*x])/(847*Sqr
t[3 + 5*x]) + (18*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/
(7*Sqrt[7])
```

Rubi in Sympy [A] time = 15.1956, size = 73, normalized size = 0.92

$$-\frac{370\sqrt{-2x+1}}{847\sqrt{5x+3}}+\frac{18\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{49}+\frac{4}{77\sqrt{-2x+1}\sqrt{5x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(3/2)/(2+3*x)/(3+5*x)**(3/2),x)
```

```
[Out] -370*sqrt(-2*x + 1)/(847*sqrt(5*x + 3)) + 18*sqrt(7)*atan(sqrt(7)
*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/49 + 4/(77*sqrt(-2*x + 1)*sqrt
(5*x + 3))
```

Mathematica [A] time = 0.113767, size = 65, normalized size = 0.82

$$\frac{2(370x-163)}{847\sqrt{1-2x}\sqrt{5x+3}}+\frac{9\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{7\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(3/2)*(2 + 3*x)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (2*(-163 + 370*x))/(847*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) + (9*ArcTan[
(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/(7*Sqrt[7])
```

Maple [B] time = 0.023, size = 154, normalized size = 2.

$$-\frac{1}{-5929+11858\,x}\sqrt{1-2\,x}\left(10890\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^2+1089\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x-32\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(3/2)/(2+3*x)/(3+5*x)^(3/2),x)
```

```
[Out] -1/5929*(1-2*x)^(1/2)*(10890*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2
)/(-10*x^2-x+3)^(1/2))*x^2+1089*7^(1/2)*arctan(1/14*(37*x+20)*7^(
1/2)/(-10*x^2-x+3)^(1/2))*x-3267*7^(1/2)*arctan(1/14*(37*x+20)*7^
(1/2)/(-10*x^2-x+3)^(1/2))+5180*x*(-10*x^2-x+3)^(1/2)-2282*(-10*x
^2-x+3)^(1/2))/(-1+2*x)/(-10*x^2-x+3)^(1/2)/(3+5*x)^(1/2)
```

Maxima [A] time = 1.49764, size = 78, normalized size = 0.99

$$-\frac{9}{49}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{740\,x}{847\,\sqrt{-10\,x^2-x+3}}-\frac{326}{847\,\sqrt{-10\,x^2-x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] -9/49*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) +
 740/847*x/sqrt(-10*x^2 - x + 3) - 326/847/sqrt(-10*x^2 - x + 3)
```

Fricas [A] time = 0.228698, size = 101, normalized size = 1.28

$$-\frac{\sqrt{7}\left(2\,\sqrt{7}(370\,x-163)\sqrt{5\,x+3}\sqrt{-2\,x+1}+1089\left(10\,x^2+x-3\right)\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)}{5929\,(10\,x^2+x-3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] -1/5929*sqrt(7)*(2*sqrt(7)*(370*x - 163)*sqrt(5*x + 3)*sqrt(-2*x
+ 1) + 1089*(10*x^2 + x - 3)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqr
t(5*x + 3)*sqrt(-2*x + 1))))/(10*x^2 + x - 3)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{1}{(-2x+1)^{\frac{3}{2}}\,(3x+2)\,(5x+3)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(3/2)/(2+3*x)/(3+5*x)**(3/2),x)
```

```
[Out] Integral(1/((-2*x + 1)**(3/2)*(3*x + 2)*(5*x + 3)**(3/2)), x)
```

GIAC/XCAS [A] time = 0.250956, size = 215, normalized size = 2.72

$$-\frac{9}{490}\sqrt{70}\sqrt{10}\left(\pi+2\,\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)-\frac{5}{242}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)-\frac{8\,\sqrt{5}\sqrt{5\,x+3}\sqrt{-10\,x+5}}{4235\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] -9/490*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x
+ 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqrt
(2)*sqrt(-10*x + 5) - sqrt(22)))) - 5/242*sqrt(10)*((sqrt(2)*sqrt
(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*
sqrt(-10*x + 5) - sqrt(22))) - 8/4235*sqrt(5)*sqrt(5*x + 3)*sqrt(
-10*x + 5)/(2*x - 1)
```

3.2551 $\int \frac{1}{(1-2x)^{3/2}(2+3x)^2(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=108

$$-\frac{17735\sqrt{1-2x}}{5929\sqrt{5x+3}}-\frac{58}{539\sqrt{1-2x}\sqrt{5x+3}}+\frac{3}{7\sqrt{1-2x}(3x+2)\sqrt{5x+3}}+\frac{999\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{49\sqrt{7}}$$

```
[Out] -58/(539*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) - (17735*Sqrt[1 - 2*x])/(59
29*Sqrt[3 + 5*x]) + 3/(7*Sqrt[1 - 2*x]*(2 + 3*x)*Sqrt[3 + 5*x]) +
 (999*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(49*Sqrt[7])
```

Rubi [A] time = 0.251875, antiderivative size = 108, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$-\frac{17735\sqrt{1-2x}}{5929\sqrt{5x+3}}-\frac{58}{539\sqrt{1-2x}\sqrt{5x+3}}+\frac{3}{7\sqrt{1-2x}(3x+2)\sqrt{5x+3}}+\frac{999\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{49\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(3/2)*(2 + 3*x)^2*(3 + 5*x)^(3/2)),x]
```

```
[Out] -58/(539*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) - (17735*Sqrt[1 - 2*x])/(59
29*Sqrt[3 + 5*x]) + 3/(7*Sqrt[1 - 2*x]*(2 + 3*x)*Sqrt[3 + 5*x]) +
 (999*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(49*Sqrt[7])
```

Rubi in Sympy [A] time = 22.1975, size = 99, normalized size = 0.92

$$-\frac{17735\sqrt{-2x+1}}{5929\sqrt{5x+3}}+\frac{999\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{343}-\frac{58}{539\sqrt{-2x+1}\sqrt{5x+3}}+\frac{3}{7\sqrt{-2x+1}\,(3x+2)\,\sqrt{5x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(3/2)/(2+3*x)**2/(3+5*x)**(3/2),x)
```

```
[Out] -17735*sqrt(-2*x + 1)/(5929*sqrt(5*x + 3)) + 999*sqrt(7)*atan(sqr
t(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/343 - 58/(539*sqrt(-2*x +
1)*sqrt(5*x + 3)) + 3/(7*sqrt(-2*x + 1)*(3*x + 2)*sqrt(5*x + 3))
```

Mathematica [A] time = 0.100253, size = 80, normalized size = 0.74

$$\frac{999\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{98\sqrt{7}}-\frac{\sqrt{1-2x}\left(106410x^2+15821x-34205\right)}{5929\sqrt{5x+3}\,(6x^2+x-2)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(3/2)*(2 + 3*x)^2*(3 + 5*x)^(3/2)),x]
```

```
[Out] -(Sqrt[1 - 2*x]*(-34205 + 15821*x + 106410*x^2))/(5929*Sqrt[3 + 5
*x]*(-2 + x + 6*x^2)) + (999*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x
]*Sqrt[3 + 5*x])])/(98*Sqrt[7])
```

Maple [B] time = 0.023, size = 209, normalized size = 1.9

$$-\frac{1}{(166012+249018x)(-1+2x)}\sqrt{1-2x}\left(3626370\sqrt{7}\arctan\left(1/14\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)x^3+2780217\sqrt{7}\arctan\left(1/14\frac{(37\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(3/2)/(2+3*x)^2/(3+5*x)^(3/2),x)
```

```
[Out] -1/83006*(1-2*x)^(1/2)*(3626370*7^(1/2)*arctan(1/14*(37*x+20)*7^(
1/2)/(-10*x^2-x+3)^(1/2))*x^3+2780217*7^(1/2)*arctan(1/14*(37*x+2
0)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2-846153*7^(1/2)*arctan(1/14*(3
7*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+1489740*x^2*(-10*x^2-x+3)^
(1/2)-725274*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^
(1/2))+221494*x*(-10*x^2-x+3)^(1/2)-478870*(-10*x^2-x+3)^(1/2))/(
2+3*x)/(-1+2*x)/(-10*x^2-x+3)^(1/2)/(3+5*x)^(1/2)
```

Maxima [A] time = 1.51323, size = 124, normalized size = 1.15

$$-\frac{999}{686}\sqrt{7}\arcsin\left(\frac{37x}{11|3x+2|}+\frac{20}{11|3x+2|}\right)+\frac{35470x}{5929\sqrt{-10x^2-x+3}}-\frac{18373}{5929\sqrt{-10x^2-x+3}}+\frac{3}{7\left(3\sqrt{-10x^2-x+3}x+2\sqrt{-10x^2-x+3}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^2*(-2*x + 1)^(3/2)),x, algorithm="maxima"
```

```
[Out] -999/686*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)
) + 35470/5929*x/sqrt(-10*x^2 - x + 3) - 18373/5929/sqrt(-10*x^2
- x + 3) + 3/7/(3*sqrt(-10*x^2 - x + 3)*x + 2*sqrt(-10*x^2 - x +
3))
```

Fricas [A] time = 0.235831, size = 127, normalized size = 1.18

$$-\frac{\sqrt{7}\left(2\sqrt{7}\left(106410x^2+15821x-34205\right)\sqrt{5x+3}\sqrt{-2x+1}+120879\left(30x^3+23x^2-7x-6\right)\arctan\left(\frac{\sqrt{7}(37x+20)}{14\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)}{83006\left(30x^3+23x^2-7x-6\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^2*(-2*x + 1)^(3/2)),x, algorithm="fricas"
```

```
[Out] -1/83006*sqrt(7)*(2*sqrt(7)*(106410*x^2 + 15821*x - 34205)*sqrt(5
*x + 3)*sqrt(-2*x + 1) + 120879*(30*x^3 + 23*x^2 - 7*x - 6)*arcta
n(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(30*x
^3 + 23*x^2 - 7*x - 6)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(3/2)/(2+3*x)**2/(3+5*x)**(3/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.311981, size = 375, normalized size = 3.47

$$-\frac{999}{6860}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{25}{242}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)-\frac{16\sqrt{5}\sqrt{5x+3}\sqrt{-10x+5}}{29645(2x-1)}-\frac{594\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)}{49\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^2*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] -999/6860*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5
*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(s
qrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 25/242*sqrt(10)*((sqrt(2)*
sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt
(2)*sqrt(-10*x + 5) - sqrt(22))) - 16/29645*sqrt(5)*sqrt(5*x + 3)
*sqrt(-10*x + 5)/(2*x - 1) - 594/49*sqrt(10)*((sqrt(2)*sqrt(-10*x
 + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-
10*x + 5) - sqrt(22)))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqr
t(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))
)^2 + 280)
```

3.2552 $\int \frac{1}{(1-2x)^{3/2}(2+3x)^3(3+5x)^{3/2}} \, dx$

Optimal. Leaf size=137

$$-\frac{3125575\sqrt{1-2x}}{166012\sqrt{5x+3}}-\frac{6205}{7546\sqrt{1-2x}\sqrt{5x+3}}+\frac{555}{196\sqrt{1-2x}(3x+2)\sqrt{5x+3}}+\frac{3}{14\sqrt{1-2x}(3x+2)^2\sqrt{5x+3}}+\frac{177255\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{1372\sqrt{7}}$$

```
[Out] -6205/(7546*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) - (3125575*Sqrt[1 - 2*x]
)/(166012*Sqrt[3 + 5*x]) + 3/(14*Sqrt[1 - 2*x]*(2 + 3*x)^2*Sqrt[3
 + 5*x]) + 555/(196*Sqrt[1 - 2*x]*(2 + 3*x)*Sqrt[3 + 5*x]) + (177
255*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(1372*Sqrt[7])
```

Rubi [A] time = 0.335411, antiderivative size = 137, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.231$

$$-\frac{3125575\sqrt{1-2x}}{166012\sqrt{5x+3}}-\frac{6205}{7546\sqrt{1-2x}\sqrt{5x+3}}+\frac{555}{196\sqrt{1-2x}(3x+2)\sqrt{5x+3}}+\frac{3}{14\sqrt{1-2x}(3x+2)^2\sqrt{5x+3}}+\frac{177255\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{1372\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(3/2)*(2 + 3*x)^3*(3 + 5*x)^(3/2)),x]
```

```
[Out] -6205/(7546*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) - (3125575*Sqrt[1 - 2*x]
)/(166012*Sqrt[3 + 5*x]) + 3/(14*Sqrt[1 - 2*x]*(2 + 3*x)^2*Sqrt[3
 + 5*x]) + 555/(196*Sqrt[1 - 2*x]*(2 + 3*x)*Sqrt[3 + 5*x]) + (177
255*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(1372*Sqrt[7])
```

Rubi in Sympy [A] time = 29.3628, size = 126, normalized size = 0.92

$$-\frac{3125575\sqrt{-2x+1}}{166012\sqrt{5x+3}}+\frac{177255\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{9604}-\frac{6205}{7546\sqrt{-2x+1}\sqrt{5x+3}}+\frac{555}{196\sqrt{-2x+1}\,(3x+2)\,\sqrt{5x+3}}+\frac{3}{14\sqrt{-2x+1}\,(3x+2)^2\,\sqrt{5x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(3/2)/(2+3*x)**3/(3+5*x)**(3/2),x)
```

```
[Out] -3125575*sqrt(-2*x + 1)/(166012*sqrt(5*x + 3)) + 177255*sqrt(7)*a
tan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/9604 - 6205/(7546*s
qrt(-2*x + 1)*sqrt(5*x + 3)) + 555/(196*sqrt(-2*x + 1)*(3*x + 2)*
sqrt(5*x + 3)) + 3/(14*sqrt(-2*x + 1)*(3*x + 2)**2*sqrt(5*x + 3))
```

Mathematica [A] time = 0.113021, size = 82, normalized size = 0.6

$$\frac{56260350x^3+45655035x^2-12730165x-12072596}{166012\sqrt{1-2x}(3x+2)^2\sqrt{5x+3}}+\frac{177255\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{2744\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(3/2)*(2 + 3*x)^3*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-12072596 - 12730165*x + 45655035*x^2 + 56260350*x^3)/(166012*Sq
rt[1 - 2*x]*(2 + 3*x)^2*Sqrt[3 + 5*x]) + (177255*ArcTan[(-20 - 37
*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/(2744*Sqrt[7])
```

Maple [B] time = 0.026, size = 257, normalized size = 1.9

$$-\frac{1}{2324168\,(2+3\,x)^2\,(-1+2\,x)}\sqrt{1-2\,x}\left(1930306950\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^4+2766773295\,\sqrt{7}\arctan\left(1/14\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(3/2)/(2+3*x)^3/(3+5*x)^(3/2),x)
```

```
[Out] -1/2324168*(1-2*x)^(1/2)*(1930306950*7^(1/2)*arctan(1/14*(37*x+20
)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^4+2766773295*7^(1/2)*arctan(1/14
*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+536196375*7^(1/2)*arc
tan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+787644900*x^3
*(-10*x^2-x+3)^(1/2)-686331360*7^(1/2)*arctan(1/14*(37*x+20)*7^(1
/2)/(-10*x^2-x+3)^(1/2))*x+639170490*x^2*(-10*x^2-x+3)^(1/2)-2573
74260*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))-
178222310*x*(-10*x^2-x+3)^(1/2)-169016344*(-10*x^2-x+3)^(1/2))/(2
+3*x)^2/(-1+2*x)/(-10*x^2-x+3)^(1/2)/(3+5*x)^(1/2)
```

Maxima [A] time = 1.50601, size = 193, normalized size = 1.41

$$-\frac{177255}{19208}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{3125575\,x}{83006\,\sqrt{-10\,x^2-x+3}}-\frac{3262085}{166012\,\sqrt{-10\,x^2-x+3}}+\frac{3}{14\left(9\,\sqrt{-10\,x^2-x+3}x^2+12\,\sqrt{-10\,x^2-x+3}x+4\,\sqrt{-10\,x^2-x+3}\right)}+\frac{555}{196\left(3\,\sqrt{-10\,x^2-x+3}x+2\,\sqrt{-10\,x^2-x+3}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^3*(-2*x + 1)^(3/2)),x, algorithm="maxima"
```

```
[Out] -177255/19208*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x
 + 2)) + 3125575/83006*x/sqrt(-10*x^2 - x + 3) - 3262085/166012/s
qrt(-10*x^2 - x + 3) + 3/14/(9*sqrt(-10*x^2 - x + 3)*x^2 + 12*sqr
t(-10*x^2 - x + 3)*x + 4*sqrt(-10*x^2 - x + 3)) + 555/196/(3*sqrt
(-10*x^2 - x + 3)*x + 2*sqrt(-10*x^2 - x + 3))
```

Fricas [A] time = 0.241395, size = 147, normalized size = 1.07

$$-\frac{\sqrt{7}\left(2\,\sqrt{7}\left(56260350\,x^3+45655035\,x^2-12730165\,x-12072596\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+21447855\,\left(90\,x^4+129\,x^3+25\,x^2-\right.\right.}{2324168\,(90\,x^4+129\,x^3+25\,x^2-32\,x-12)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^3*(-2*x + 1)^(3/2)),x, algorithm="fricas"
```

```
[Out] -1/2324168*sqrt(7)*(2*sqrt(7)*(56260350*x^3 + 45655035*x^2 - 1273
0165*x - 12072596)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 21447855*(90*x^
4 + 129*x^3 + 25*x^2 - 32*x - 12)*arctan(1/14*sqrt(7)*(37*x + 20)
```

```
/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(90*x^4 + 129*x^3 + 25*x^2 - 32
*x - 12)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(3/2)/(2+3*x)**3/(3+5*x)**(3/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.40021, size = 462, normalized size = 3.37

$$-\frac{35451}{38416}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{125}{242}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)-\frac{32\sqrt{5}\sqrt{5x+3}\sqrt{-10x+5}}{207515(2x-1)}-\frac{297\left(47\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3+10520\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)\right)}{98\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^3*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] -35451/38416*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqr
t(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)
/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 125/242*sqrt(10)*((sqrt
(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(
sqrt(2)*sqrt(-10*x + 5) - sqrt(22))) - 32/207515*sqrt(5)*sqrt(5*x
 + 3)*sqrt(-10*x + 5)/(2*x - 1) - 297/98*(47*sqrt(10)*((sqrt(2)*s
qrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(
2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 10520*sqrt(10)*((sqrt(2)*sqrt
(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*
sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(2
2))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sq
rt(22)))^2 + 280)^2
```

3.2553 $\int \frac{1}{(1-2x)^{3/2}(2+3x)^4(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=166

$$-\frac{36657025\sqrt{1-2x}}{332024\sqrt{5x+3}}-\frac{73435}{15092\sqrt{1-2x}\sqrt{5x+3}}+\frac{6525}{392\sqrt{1-2x}(3x+2)\sqrt{5x+3}}+\frac{37}{28\sqrt{1-2x}(3x+2)^2\sqrt{5x+3}}+\frac{1}{7\sqrt{1-2x}(3x+2)^3\sqrt{5x+3}}+\frac{2079585\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{2744\sqrt{7}}$$

```
[Out] -73435/(15092*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) - (36657025*Sqrt[1 - 2
*x])/(332024*Sqrt[3 + 5*x]) + 1/(7*Sqrt[1 - 2*x]*(2 + 3*x)^3*Sqrt
[3 + 5*x]) + 37/(28*Sqrt[1 - 2*x]*(2 + 3*x)^2*Sqrt[3 + 5*x]) + 65
25/(392*Sqrt[1 - 2*x]*(2 + 3*x)*Sqrt[3 + 5*x]) + (2079585*ArcTan[
Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(2744*Sqrt[7])
```

Rubi [A] time = 0.421736, antiderivative size = 166, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$-\frac{36657025\sqrt{1-2x}}{332024\sqrt{5x+3}}-\frac{73435}{15092\sqrt{1-2x}\sqrt{5x+3}}+\frac{6525}{392\sqrt{1-2x}(3x+2)\sqrt{5x+3}}+\frac{37}{28\sqrt{1-2x}(3x+2)^2\sqrt{5x+3}}+\frac{1}{7\sqrt{1-2x}(3x+2)^3\sqrt{5x+3}}+\frac{2079585\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{2744\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(3/2)*(2 + 3*x)^4*(3 + 5*x)^(3/2)),x]
```

```
[Out] -73435/(15092*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) - (36657025*Sqrt[1 - 2
*x])/(332024*Sqrt[3 + 5*x]) + 1/(7*Sqrt[1 - 2*x]*(2 + 3*x)^3*Sqrt
[3 + 5*x]) + 37/(28*Sqrt[1 - 2*x]*(2 + 3*x)^2*Sqrt[3 + 5*x]) + 65
25/(392*Sqrt[1 - 2*x]*(2 + 3*x)*Sqrt[3 + 5*x]) + (2079585*ArcTan[
Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(2744*Sqrt[7])
```

Rubi in Sympy [A] time = 36.2737, size = 153, normalized size = 0.92

$$-\frac{36657025\sqrt{-2x+1}}{332024\sqrt{5x+3}}+\frac{2079585\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{19208}-\frac{73435}{15092\sqrt{-2x+1}\sqrt{5x+3}}+\frac{6525}{392\sqrt{-2x+1}\,(3x+2)\,\sqrt{5x+3}}+\frac{37}{28\sqrt{-2x+1}\,(3x+2)^2\,\sqrt{5x+3}}+\frac{1}{7\sqrt{-2x+1}\,(3x+2)^3\,\sqrt{5x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(3/2)/(2+3*x)**4/(3+5*x)**(3/2),x)
```

```
[Out] -36657025*sqrt(-2*x + 1)/(332024*sqrt(5*x + 3)) + 2079585*sqrt(7)
*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/19208 - 73435/(15
092*sqrt(-2*x + 1)*sqrt(5*x + 3)) + 6525/(392*sqrt(-2*x + 1)*(3*x
 + 2)*sqrt(5*x + 3)) + 37/(28*sqrt(-2*x + 1)*(3*x + 2)**2*sqrt(5*
x + 3)) + 1/(7*sqrt(-2*x + 1)*(3*x + 2)**3*sqrt(5*x + 3))
```

Mathematica [A] time = 0.139571, size = 87, normalized size = 0.52

$$\frac{1979479350x^4+2925598635x^3+622325745x^2-723664682x-283149136}{332024\sqrt{1-2x}(3x+2)^3\sqrt{5x+3}}+\frac{2079585\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{5488\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(3/2)*(2 + 3*x)^4*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-283149136 - 723664682*x + 622325745*x^2 + 2925598635*x^3 + 1979
479350*x^4)/(332024*Sqrt[1 - 2*x]*(2 + 3*x)^3*Sqrt[3 + 5*x]) + (2
079585*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/(54
88*Sqrt[7])
```

Maple [B] time = 0.024, size = 305, normalized size = 1.8

$$-\frac{1}{4648336\,(2+3\,x)^{3}\,(-1+2\,x)}\sqrt{1-2\,x}\left(67940041950\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^{2}-x+3}}\right)x^{5}+142674088095\,\sqrt{7}\arctan\left(1/\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(3/2)/(2+3*x)^4/(3+5*x)^(3/2),x)
```

```
[Out] -1/4648336*(1-2*x)^(1/2)*(67940041950*7^(1/2)*arctan(1/14*(37*x+2
0)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^5+142674088095*7^(1/2)*arctan(1
/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^4+83792718405*7^(1/2
)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+27712710
900*x^4*(-10*x^2-x+3)^(1/2)-11574970110*7^(1/2)*arctan(1/14*(37*x
+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+40958380890*x^3*(-10*x^2-x+
3)^(1/2)-25162978500*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x
^2-x+3)^(1/2))*x+8712560430*x^2*(-10*x^2-x+3)^(1/2)-6039114840*7^
(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))-10131305
548*x*(-10*x^2-x+3)^(1/2)-3964087904*(-10*x^2-x+3)^(1/2))/(2+3*x)
^3/(-1+2*x)/(-10*x^2-x+3)^(1/2)/(3+5*x)^(1/2)
```

Maxima [A] time = 1.50658, size = 285, normalized size = 1.72

$$\begin{aligned}&-\frac{2079585}{38416}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)\\&+\frac{36657025\,x}{166012\,\sqrt{-10\,x^{2}-x+3}}-\frac{38272595}{332024\,\sqrt{-10\,x^{2}-x+3}}\\&+\frac{1}{7\left(27\,\sqrt{-10\,x^{2}-x+3}x^{3}+54\,\sqrt{-10\,x^{2}-x+3}x^{2}+36\,\sqrt{-10\,x^{2}-x+3}x+8\,\sqrt{-10\,x^{2}-x+3}\right)}\\&+\frac{37}{28\left(9\,\sqrt{-10\,x^{2}-x+3}x^{2}+12\,\sqrt{-10\,x^{2}-x+3}x+4\,\sqrt{-10\,x^{2}-x+3}\right)}\\&+\frac{6525}{392\left(3\,\sqrt{-10\,x^{2}-x+3}x+2\,\sqrt{-10\,x^{2}-x+3}\right)}\end{aligned}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^4*(-2*x + 1)^(3/2)),x, algorithm="maxima"
```

```
[Out] -2079585/38416*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*
x + 2)) + 36657025/166012*x/sqrt(-10*x^2 - x + 3) - 38272595/3320
24/sqrt(-10*x^2 - x + 3) + 1/7/(27*sqrt(-10*x^2 - x + 3)*x^3 + 54
*sqrt(-10*x^2 - x + 3)*x^2 + 36*sqrt(-10*x^2 - x + 3)*x + 8*sqrt(
-10*x^2 - x + 3)) + 37/28/(9*sqrt(-10*x^2 - x + 3)*x^2 + 12*sqrt(
-10*x^2 - x + 3)*x + 4*sqrt(-10*x^2 - x + 3)) + 6525/392/(3*sqrt(
-10*x^2 - x + 3)*x + 2*sqrt(-10*x^2 - x + 3))
```

Fricas [A] time = 0.242611, size = 167, normalized size = 1.01

$$-\frac{\sqrt{7}\left(2\sqrt{7}\left(1979479350\,x^4+2925598635\,x^3+622325745\,x^2-723664682\,x-283149136\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+251629785\,(\cdots\right.}{4648336\,(270\,x^5+567\,x^4+333\,x^3-46\,x^2-100\,x-\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^4*(-2*x + 1)^(3/2)),x, algorithm="fricas"
```

```
[Out] -1/4648336*sqrt(7)*(2*sqrt(7)*(1979479350*x^4 + 2925598635*x^3 +
622325745*x^2 - 723664682*x - 283149136)*sqrt(5*x + 3)*sqrt(-2*x
+ 1) + 251629785*(270*x^5 + 567*x^4 + 333*x^3 - 46*x^2 - 100*x -
24)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1)
)))/(270*x^5 + 567*x^4 + 333*x^3 - 46*x^2 - 100*x - 24)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(1-2*x)**(3/2)/(2+3*x)**4/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.490994, size = 544, normalized size = 3.28

$$-\frac{415917}{76832}\sqrt{70}\sqrt{10}\left(\pi+2\,\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)-\frac{625}{242}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)-\frac{64\sqrt{5}\sqrt{5\,x+3}\sqrt{-10\,x+5}}{1452605\,(2\,x-1)}-\frac{297\left(37841\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^5+16959040\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^3+2009470400\sqrt{1\cdots}\right.}{9604\left(\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^2+280\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^4*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] -415917/76832*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sq
rt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4
)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 625/242*sqrt(10)*((sqr
t(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))) - 64/1452605*sqrt(5)*sqrt(5
*x + 3)*sqrt(-10*x + 5)/(2*x - 1) - 297/9604*(37841*sqrt(10)*((sq
rt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)
/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^5 + 16959040*sqrt(10)*((sq
rt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)
/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 2009470400*sqrt(10)*((
sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x +
3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x +
 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10
*x + 5) - sqrt(22)))^2 + 280)^3
```

3.2554 $\int \frac{(2+3x)^5}{(1-2x)^{3/2}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=142

$$\frac{7(3x+2)^4}{11\sqrt{1-2x}(5x+3)^{3/2}}-\frac{107\sqrt{1-2x}(3x+2)^3}{1815(5x+3)^{3/2}}-\frac{4487\sqrt{1-2x}(3x+2)^2}{99825\sqrt{5x+3}}+\frac{7\sqrt{1-2x}\sqrt{5x+3}(1078860x+2571547)}{5324000}-\frac{111321\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{4000\sqrt{10}}$$

```
[Out] (-107*Sqrt[1 - 2*x]*(2 + 3*x)^3)/(1815*(3 + 5*x)^(3/2)) + (7*(2 +
 3*x)^4)/(11*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) - (4487*Sqrt[1 - 2*x]
*(2 + 3*x)^2)/(99825*Sqrt[3 + 5*x]) + (7*Sqrt[1 - 2*x]*Sqrt[3 + 5
*x]*(2571547 + 1078860*x))/5324000 - (111321*ArcSin[Sqrt[2/11]*Sq
rt[3 + 5*x]])/(4000*Sqrt[10])
```

Rubi [A] time = 0.270838, antiderivative size = 142, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$\frac{7(3x+2)^4}{11\sqrt{1-2x}(5x+3)^{3/2}}-\frac{107\sqrt{1-2x}(3x+2)^3}{1815(5x+3)^{3/2}}-\frac{4487\sqrt{1-2x}(3x+2)^2}{99825\sqrt{5x+3}}+\frac{7\sqrt{1-2x}\sqrt{5x+3}(1078860x+2571547)}{5324000}-\frac{111321\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{4000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^5/((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2)),x]
```


```
[Out] (-107*Sqrt[1 - 2*x]*(2 + 3*x)^3)/(1815*(3 + 5*x)^(3/2)) + (7*(2 +
 3*x)^4)/(11*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) - (4487*Sqrt[1 - 2*x]
*(2 + 3*x)^2)/(99825*Sqrt[3 + 5*x]) + (7*Sqrt[1 - 2*x]*Sqrt[3 + 5
*x]*(2571547 + 1078860*x))/5324000 - (111321*ArcSin[Sqrt[2/11]*Sq
rt[3 + 5*x]])/(4000*Sqrt[10])
```

Rubi in Sympy [A] time = 26.091, size = 133, normalized size = 0.94

$$-\frac{107\sqrt{-2x+1}\,(3x+2)^3}{1815\,(5x+3)^{\frac{3}{2}}}-\frac{4487\sqrt{-2x+1}\,(3x+2)^2}{99825\sqrt{5x+3}}+\frac{\sqrt{-2x+1}\sqrt{5x+3}\left(\frac{28320075x}{4}+\frac{270012435}{16}\right)}{4991250}-\frac{111321\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{40000}+\frac{7\,(3x+2)^4}{11\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**5/(1-2*x)**(3/2)/(3+5*x)**(5/2),x)
```

```
[Out] -107*sqrt(-2*x + 1)*(3*x + 2)**3/(1815*(5*x + 3)**(3/2)) - 4487*s
qrt(-2*x + 1)*(3*x + 2)**2/(99825*sqrt(5*x + 3)) + sqrt(-2*x + 1)
*sqrt(5*x + 3)*(28320075*x/4 + 270012435/16)/4991250 - 111321*sqr
t(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/40000 + 7*(3*x + 2)**4/(11*
sqrt(-2*x + 1)*(5*x + 3)**(3/2))
```

Mathematica [A] time = 0.20713, size = 83, normalized size = 0.58

$$\frac{10\left(-194059800x^4-1128781170x^3+612106475x^2+1785872944x+632498543\right)+444504753\sqrt{10-20x}(5x+3)^{3/2}\sin^{-1}\left(\right.}{159720000\sqrt{1-2x}(5x+3)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^5/((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (10*(632498543 + 1785872944*x + 612106475*x^2 - 1128781170*x^3 -
194059800*x^4) + 444504753*Sqrt[10 - 20*x]*(3 + 5*x)^(3/2)*ArcSin
[Sqrt[5/11]*Sqrt[1 - 2*x]])/(159720000*Sqrt[1 - 2*x]*(3 + 5*x)^(3
/2))
```

Maple [A] time = 0.023, size = 168, normalized size = 1.2

$$-\frac{1}{-319440000+638880000\,x}\sqrt{1-2\,x}\left(22225237650\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x^3-3881196000\,x^4\sqrt{-10\,x^2-x+3}+1555\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^5/(1-2*x)^(3/2)/(3+5*x)^(5/2),x)
```

```
[Out] -1/319440000*(1-2*x)^(1/2)*(22225237650*10^(1/2)*arcsin(20/11*x+1
/11)*x^3-3881196000*x^4*(-10*x^2-x+3)^(1/2)+15557666355*10^(1/2)*
arcsin(20/11*x+1/11)*x^2-22575623400*x^3*(-10*x^2-x+3)^(1/2)-5334
057036*10^(1/2)*arcsin(20/11*x+1/11)*x+12242129500*x^2*(-10*x^2-x
+3)^(1/2)-4000542777*10^(1/2)*arcsin(20/11*x+1/11)+35717458880*x*
(-10*x^2-x+3)^(1/2)+12649970860*(-10*x^2-x+3)^(1/2))/(-1+2*x)/(-1
0*x^2-x+3)^(1/2)/(3+5*x)^(3/2)
```

Maxima [A] time = 1.51371, size = 151, normalized size = 1.06

$$-\frac{243\,x^3}{100\,\sqrt{-10\,x^2-x+3}}-\frac{111321}{80000}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}\,x+\frac{1}{11}\right)-\frac{25353\,x^2}{2000\,\sqrt{-10\,x^2-x+3}}+\frac{1219513649\,x}{79860000\,\sqrt{-10\,x^2-x+3}}+\frac{5270823773}{399300000\,\sqrt{-10\,x^2-x+3}}-\frac{2}{103125\left(5\,\sqrt{-10\,x^2-x+3}x+3\,\sqrt{-10\,x^2-x+3}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] -243/100*x^3/sqrt(-10*x^2 - x + 3) - 111321/80000*sqrt(5)*sqrt(2)
*arcsin(20/11*x + 1/11) - 25353/2000*x^2/sqrt(-10*x^2 - x + 3) +
1219513649/79860000*x/sqrt(-10*x^2 - x + 3) + 5270823773/39930000
0/sqrt(-10*x^2 - x + 3) - 2/103125/(5*sqrt(-10*x^2 - x + 3)*x + 3
*sqrt(-10*x^2 - x + 3))
```

Fricas [A] time = 0.233619, size = 140, normalized size = 0.99

$$\frac{\sqrt{10}\left(2\,\sqrt{10}\left(194059800\,x^4+1128781170\,x^3-612106475\,x^2-1785872944\,x-632498543\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-444504753\right.}{319440000\left(50\,x^3+35\,x^2-12\,x-9\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/319440000*sqrt(10)*(2*sqrt(10)*(194059800*x^4 + 1128781170*x^3
- 612106475*x^2 - 1785872944*x - 632498543)*sqrt(5*x + 3)*sqrt(-2
*x + 1) - 444504753*(50*x^3 + 35*x^2 - 12*x - 9)*arctan(1/20*sqrt
```

```
(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(50*x^3 + 35*x^2
 - 12*x - 9)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^5}{(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**5/(1-2*x)**(3/2)/(3+5*x)**(5/2),x)
```

```
[Out] Integral((3*x + 2)**5/((-2*x + 1)**(3/2)*(5*x + 3)**(5/2)), x)
```

GIAC/XCAS [A] time = 0.272929, size = 265, normalized size = 1.87

$$-\frac{\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^3}{199650000\,(5x+3)^{\frac{3}{2}}}-\frac{111321}{40000}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)+\frac{\left(215622\left(12\sqrt{5}(5x+3)+205\sqrt{5}\right)(5x+3)-741559591\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{665500000\,(2x-1)}-\frac{337\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}{16637500\sqrt{5x+3}}+\frac{\left(\frac{1011\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}+4\sqrt{10}\right)(5x+3)^{\frac{3}{2}}}{12478125\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^5/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] -1/199650000*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^3/(5*x
 + 3)^(3/2) - 111321/40000*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x
 + 3)) + 1/665500000*(215622*(12*sqrt(5)*(5*x + 3) + 205*sqrt(5))
*(5*x + 3) - 741559591*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*
x - 1) - 337/16637500*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22
))/sqrt(5*x + 3) + 1/12478125*(1011*sqrt(10)*(sqrt(2)*sqrt(-10*x
+ 5) - sqrt(22))^2/(5*x + 3) + 4*sqrt(10))*(5*x + 3)^(3/2)/(sqrt(
2)*sqrt(-10*x + 5) - sqrt(22))^3
```

3.2555 $\int \frac{(2+3x)^4}{(1-2x)^{3/2}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=113

$$\frac{7(3x+2)^3}{11\sqrt{1-2x}(5x+3)^{3/2}}-\frac{107\sqrt{1-2x}(3x+2)^2}{1815(5x+3)^{3/2}}+\frac{\sqrt{1-2x}(1051875x+627641)}{399300\sqrt{5x+3}}-\frac{621\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{100\sqrt{10}}$$

```
[Out] (-107*Sqrt[1 - 2*x]*(2 + 3*x)^2)/(1815*(3 + 5*x)^(3/2)) + (7*(2 +
 3*x)^3)/(11*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) + (Sqrt[1 - 2*x]*(627
641 + 1051875*x))/(399300*Sqrt[3 + 5*x]) - (621*ArcSin[Sqrt[2/11]
*Sqrt[3 + 5*x]])/(100*Sqrt[10])
```

Rubi [A] time = 0.197289, antiderivative size = 113, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$\frac{7(3x+2)^3}{11\sqrt{1-2x}(5x+3)^{3/2}}-\frac{107\sqrt{1-2x}(3x+2)^2}{1815(5x+3)^{3/2}}+\frac{\sqrt{1-2x}(1051875x+627641)}{399300\sqrt{5x+3}}-\frac{621\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{100\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^4/((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (-107*Sqrt[1 - 2*x]*(2 + 3*x)^2)/(1815*(3 + 5*x)^(3/2)) + (7*(2 +
 3*x)^3)/(11*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) + (Sqrt[1 - 2*x]*(627
641 + 1051875*x))/(399300*Sqrt[3 + 5*x]) - (621*ArcSin[Sqrt[2/11]
*Sqrt[3 + 5*x]])/(100*Sqrt[10])
```

Rubi in Sympy [A] time = 19.1783, size = 107, normalized size = 0.95

$$-\frac{107\sqrt{-2x+1}\,(3x+2)^2}{1815\,(5x+3)^{\frac{3}{2}}}+\frac{2\sqrt{-2x+1}\left(\frac{5259375x}{8}+\frac{3138205}{8}\right)}{499125\sqrt{5x+3}}-\frac{621\sqrt{10}\,\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{1000}+\frac{7\,(3x+2)^3}{11\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4/(1-2*x)**(3/2)/(3+5*x)**(5/2),x)
```

```
[Out] -107*sqrt(-2*x + 1)*(3*x + 2)**2/(1815*(5*x + 3)**(3/2)) + 2*sqrt
(-2*x + 1)*(5259375*x/8 + 3138205/8)/(499125*sqrt(5*x + 3)) - 621
*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/1000 + 7*(3*x + 2)**3/(
11*sqrt(-2*x + 1)*(5*x + 3)**(3/2))
```

Mathematica [A] time = 0.205712, size = 65, normalized size = 0.58

$$\frac{-3234330x^3+6746215x^2+11581424x+3821563}{399300\sqrt{1-2x}(5x+3)^{3/2}}+\frac{621\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{100\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^4/((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (3821563 + 11581424*x + 6746215*x^2 - 3234330*x^3)/(399300*Sqrt[1
 - 2*x]*(3 + 5*x)^(3/2)) + (621*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])
```

```
/(100*Sqrt[10])
```

Maple [A] time = 0.026, size = 151, normalized size = 1.3

$$-\frac{1}{-7986000+15972000\,x}\sqrt{1-2\,x}\left(123982650\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x^{3}+86787855\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x^{2}-64\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4/(1-2*x)^(3/2)/(3+5*x)^(5/2),x)
```

```
[Out] -1/7986000*(1-2*x)^(1/2)*(123982650*10^(1/2)*arcsin(20/11*x+1/11)
*x^3+86787855*10^(1/2)*arcsin(20/11*x+1/11)*x^2-64686600*x^3*(-10
*x^2-x+3)^(1/2)-29755836*10^(1/2)*arcsin(20/11*x+1/11)*x+13492430
0*x^2*(-10*x^2-x+3)^(1/2)-22316877*10^(1/2)*arcsin(20/11*x+1/11)+
231628480*x*(-10*x^2-x+3)^(1/2)+76431260*(-10*x^2-x+3)^(1/2))/(-1
+2*x)/(-10*x^2-x+3)^(1/2)/(3+5*x)^(3/2)
```

Maxima [A] time = 1.50871, size = 128, normalized size = 1.13

$$-\frac{621}{2000}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)-\frac{81\,x^{2}}{50\,\sqrt{-10\,x^{2}-x+3}}+\frac{8686813\,x}{1996500\,\sqrt{-10\,x^{2}-x+3}}+\frac{31846681}{9982500\,\sqrt{-10\,x^{2}-x+3}}-\frac{2}{20625\left(5\,\sqrt{-10\,x^{2}-x+3}x+3\,\sqrt{-10\,x^{2}-x+3}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] -621/2000*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) - 81/50*x^2/sqrt
(-10*x^2 - x + 3) + 8686813/1996500*x/sqrt(-10*x^2 - x + 3) + 318
46681/9982500/sqrt(-10*x^2 - x + 3) - 2/20625/(5*sqrt(-10*x^2 - x
 + 3)*x + 3*sqrt(-10*x^2 - x + 3))
```

Fricas [A] time = 0.23162, size = 134, normalized size = 1.19

$$\frac{\sqrt{10}\left(2\,\sqrt{10}\left(3234330\,x^{3}-6746215\,x^{2}-11581424\,x-3821563\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-2479653\,\left(50\,x^{3}+35\,x^{2}-12\,x-9\right)\mathrm{arc}\right.}{7986000\left(50\,x^{3}+35\,x^{2}-12\,x-9\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/7986000*sqrt(10)*(2*sqrt(10)*(3234330*x^3 - 6746215*x^2 - 11581
424*x - 3821563)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 2479653*(50*x^3 +
 35*x^2 - 12*x - 9)*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3
)*sqrt(-2*x + 1))))/(50*x^3 + 35*x^2 - 12*x - 9)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(3x+2)^{4}}{(-2x+1)^{\frac{3}{2}}\,(5x+3)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4/(1-2*x)**(3/2)/(3+5*x)**(5/2),x)
```

```
[Out] Integral((3*x + 2)**4/((-2*x + 1)**(3/2)*(5*x + 3)**(5/2)), x)
```

GIAC/XCAS [A] time = 0.265721, size = 247, normalized size = 2.19

$$-\frac{\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{3}}{39930000\,(5\,x+3)^{\frac{3}{2}}}-\frac{621}{1000}\,\sqrt{10}\arcsin\left(\frac{1}{11}\,\sqrt{22}\sqrt{5\,x+3}\right)+\frac{\left(215622\,\sqrt{5}(5\,x+3)-4187171\,\sqrt{5}\right)\sqrt{5\,x+3}\sqrt{-10\,x+5}}{16637500\,(2\,x-1)}-\frac{271\,\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}{3327500\,\sqrt{5\,x+3}}+\frac{\left(\frac{813\,\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{2}}{5\,x+3}+4\,\sqrt{10}\right)(5\,x+3)^{\frac{3}{2}}}{2495625\,\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^4/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] -1/39930000*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^3/(5*x
+ 3)^(3/2) - 621/1000*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)
) + 1/16637500*(215622*sqrt(5)*(5*x + 3) - 4187171*sqrt(5))*sqrt(
5*x + 3)*sqrt(-10*x + 5)/(2*x - 1) - 271/3327500*sqrt(10)*(sqrt(2
)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) + 1/2495625*(813*sqrt
(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) + 4*sqrt(10
))*(5*x + 3)^(3/2)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^3
```

3.2556 $\int \frac{(2+3x)^3}{(1-2x)^{3/2}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=84

$$\frac{7(3x+2)^2}{11\sqrt{1-2x}(5x+3)^{3/2}}-\frac{\sqrt{1-2x}(38770x+24439)}{99825(5x+3)^{3/2}}-\frac{27\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{25\sqrt{10}}$$

```
[Out] (7*(2 + 3*x)^2)/(11*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) - (Sqrt[1 - 2*
x]*(24439 + 38770*x))/(99825*(3 + 5*x)^(3/2)) - (27*ArcSin[Sqrt[2
/11]*Sqrt[3 + 5*x]])/(25*Sqrt[10])
```

Rubi [A] time = 0.123076, antiderivative size = 84, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$\frac{7(3x+2)^2}{11\sqrt{1-2x}(5x+3)^{3/2}}-\frac{\sqrt{1-2x}(38770x+24439)}{99825(5x+3)^{3/2}}-\frac{27\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{25\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^3/((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (7*(2 + 3*x)^2)/(11*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) - (Sqrt[1 - 2*
x]*(24439 + 38770*x))/(99825*(3 + 5*x)^(3/2)) - (27*ArcSin[Sqrt[2
/11]*Sqrt[3 + 5*x]])/(25*Sqrt[10])
```

Rubi in Sympy [A] time = 12.3331, size = 80, normalized size = 0.95

$$-\frac{4\sqrt{-2x+1}\left(\frac{19385x}{2}+\frac{24439}{4}\right)}{99825\,(5x+3)^{\frac{3}{2}}}-\frac{27\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{250}+\frac{7\,(3x+2)^2}{11\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3/(1-2*x)**(3/2)/(3+5*x)**(5/2),x)
```

```
[Out] -4*sqrt(-2*x + 1)*(19385*x/2 + 24439/4)/(99825*(5*x + 3)**(3/2))
- 27*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/250 + 7*(3*x + 2)**
2/(11*sqrt(-2*x + 1)*(5*x + 3)**(3/2))
```

Mathematica [A] time = 0.19352, size = 60, normalized size = 0.71

$$\frac{649265x^2+772408x+229661}{99825\sqrt{1-2x}(5x+3)^{3/2}}+\frac{27\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{25\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^3/((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (229661 + 772408*x + 649265*x^2)/(99825*Sqrt[1 - 2*x]*(3 + 5*x)^(
3/2)) + (27*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/(25*Sqrt[10])
```

Maple [B] time = 0.021, size = 134, normalized size = 1.6

$$-\frac{1}{-1996500+3993000x}\sqrt{1-2x}\left(5390550\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)x^3+3773385\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)x^2-1293732$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3/(1-2*x)^(3/2)/(3+5*x)^(5/2),x)
```

```
[Out] -1/1996500*(1-2*x)^(1/2)*(5390550*10^(1/2)*arcsin(20/11*x+1/11)*x
^3+3773385*10^(1/2)*arcsin(20/11*x+1/11)*x^2-1293732*10^(1/2)*arc
sin(20/11*x+1/11)*x+12985300*x^2*(-10*x^2-x+3)^(1/2)-970299*10^(1
/2)*arcsin(20/11*x+1/11)+15448160*x*(-10*x^2-x+3)^(1/2)+4593220*(
-10*x^2-x+3)^(1/2))/(-1+2*x)/(-10*x^2-x+3)^(1/2)/(3+5*x)^(3/2)
```

Maxima [A] time = 1.50419, size = 105, normalized size = 1.25

$$-\frac{27}{500}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)+\frac{129853x}{99825\sqrt{-10x^2-x+3}}+\frac{382849}{499125\sqrt{-10x^2-x+3}}-\frac{2}{4125\left(5\sqrt{-10x^2-x+3}x+3\sqrt{-10x^2-x+3}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] -27/500*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) + 129853/99825*x/s
qrt(-10*x^2 - x + 3) + 382849/499125/sqrt(-10*x^2 - x + 3) - 2/41
25/(5*sqrt(-10*x^2 - x + 3)*x + 3*sqrt(-10*x^2 - x + 3))
```

Fricas [A] time = 0.229976, size = 127, normalized size = 1.51

$$-\frac{\sqrt{10}\left(2\sqrt{10}\left(649265x^2+772408x+229661\right)\sqrt{5x+3}\sqrt{-2x+1}+107811\left(50x^3+35x^2-12x-9\right)\arctan\left(\frac{\sqrt{10}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+}}\right.\right.}{1996500\left(50x^3+35x^2-12x-9\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] -1/1996500*sqrt(10)*(2*sqrt(10)*(649265*x^2 + 772408*x + 229661)*
sqrt(5*x + 3)*sqrt(-2*x + 1) + 107811*(50*x^3 + 35*x^2 - 12*x - 9
)*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1)))
)/(50*x^3 + 35*x^2 - 12*x - 9)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(3x+2)^3}{(-2x+1)^{\frac{3}{2}}(5x+3)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3/(1-2*x)**(3/2)/(3+5*x)**(5/2),x)
```

```
[Out] Integral((3*x + 2)**3/((-2*x + 1)**(3/2)*(5*x + 3)**(5/2)), x)
```

GIAC/XCAS [A] time = 0.267805, size = 230, normalized size = 2.74

$$-\frac{\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{3}}{7986000\,(5\,x+3)^{\frac{3}{2}}}-\frac{27}{250}\,\sqrt{10}\arcsin\left(\frac{1}{11}\,\sqrt{22}\sqrt{5\,x+3}\right)-\frac{41\,\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}{133100\,\sqrt{5\,x+3}}-\frac{343\,\sqrt{5}\sqrt{5\,x+3}\sqrt{-10\,x+5}}{6655\,(2\,x-1)}+\frac{\left(\frac{615\,\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{2}}{5\,x+3}+4\,\sqrt{10}\right)(5\,x+3)^{\frac{3}{2}}}{499125\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^3/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] -1/7986000*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^3/(5*x +
 3)^(3/2) - 27/250*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) -
 41/133100*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x
 + 3) - 343/6655*sqrt(5)*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)
+ 1/499125*(615*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(
5*x + 3) + 4*sqrt(10))*(5*x + 3)^(3/2)/(sqrt(2)*sqrt(-10*x + 5) -
 sqrt(22))^3
```

3.2557 $\int \frac{(2+3x)^2}{(1-2x)^{3/2}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=67

$$-\frac{4091\sqrt{1-2x}}{19965\sqrt{5x+3}}-\frac{3679\sqrt{1-2x}}{3630(5x+3)^{3/2}}+\frac{49}{22(5x+3)^{3/2}\sqrt{1-2x}}$$

```
[Out] 49/(22*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) - (3679*Sqrt[1 - 2*x])/(363
0*(3 + 5*x)^(3/2)) - (4091*Sqrt[1 - 2*x])/(19965*Sqrt[3 + 5*x])
```

Rubi [A] time = 0.0891281, antiderivative size = 67, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.115

$$-\frac{4091\sqrt{1-2x}}{19965\sqrt{5x+3}}-\frac{3679\sqrt{1-2x}}{3630(5x+3)^{3/2}}+\frac{49}{22(5x+3)^{3/2}\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^2/((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] 49/(22*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) - (3679*Sqrt[1 - 2*x])/(363
0*(3 + 5*x)^(3/2)) - (4091*Sqrt[1 - 2*x])/(19965*Sqrt[3 + 5*x])
```

Rubi in Sympy [A] time = 8.28504, size = 60, normalized size = 0.9

$$\frac{8182\sqrt{5x+3}}{99825\sqrt{-2x+1}}-\frac{412}{9075\sqrt{-2x+1}\sqrt{5x+3}}-\frac{2}{825\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2/(1-2*x)**(3/2)/(3+5*x)**(5/2),x)
```

```
[Out] 8182*sqrt(5*x + 3)/(99825*sqrt(-2*x + 1)) - 412/(9075*sqrt(-2*x +
 1)*sqrt(5*x + 3)) - 2/(825*sqrt(-2*x + 1)*(5*x + 3)**(3/2))
```

Mathematica [A] time = 0.0505029, size = 32, normalized size = 0.48

$$\frac{2\left(4091x^2+4456x+1196\right)}{3993\sqrt{1-2x}(5x+3)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^2/((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (2*(1196 + 4456*x + 4091*x^2))/(3993*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2
))
```

Maple [A] time = 0.005, size = 27, normalized size = 0.4

$$\frac{8182\,x^2+8912\,x+2392}{3993}(3+5\,x)^{-\frac{3}{2}}\frac{1}{\sqrt{1-2\,x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2/(1-2*x)^(3/2)/(3+5*x)^(5/2),x)
```

```
[Out] 2/3993*(4091*x^2+4456*x+1196)/(3+5*x)^(3/2)/(1-2*x)^(1/2)
```

Maxima [A] time = 1.34495, size = 86, normalized size = 1.28

$$\frac{8182\,x}{19965\,\sqrt{-10\,x^2-x+3}}+\frac{20014}{99825\,\sqrt{-10\,x^2-x+3}}-\frac{2}{825\,\left(5\,\sqrt{-10\,x^2-x+3}x+3\,\sqrt{-10\,x^2-x+3}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 8182/19965*x/sqrt(-10*x^2 - x + 3) + 20014/99825/sqrt(-10*x^2 - x
 + 3) - 2/825/(5*sqrt(-10*x^2 - x + 3)*x + 3*sqrt(-10*x^2 - x + 3
))
```

Fricas [A] time = 0.228541, size = 58, normalized size = 0.87

$$-\frac{2\,\left(4091\,x^2+4456\,x+1196\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}}{3993\,\left(50\,x^3+35\,x^2-12\,x-9\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] -2/3993*(4091*x^2 + 4456*x + 1196)*sqrt(5*x + 3)*sqrt(-2*x + 1)/(
50*x^3 + 35*x^2 - 12*x - 9)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(3x+2)^2}{(-2x+1)^{\frac{3}{2}}\,(5x+3)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2/(1-2*x)**(3/2)/(3+5*x)**(5/2),x)
```

```
[Out] Integral((3*x + 2)**2/((-2*x + 1)**(3/2)*(5*x + 3)**(5/2)), x)
```

GIAC/XCAS [A] time = 0.255842, size = 205, normalized size = 3.06

$$-\frac{\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^3}{1597200\,(5\,x+3)^{\frac{3}{2}}}-\frac{139\,\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}{133100\,\sqrt{5\,x+3}}-\frac{98\,\sqrt{5}\sqrt{5\,x+3}\sqrt{-10\,x+5}}{6655\,(2\,x-1)}+\frac{\left(\frac{417\,\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3}+4\,\sqrt{10}\right)(5\,x+3)^{\frac{3}{2}}}{99825\,\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] -1/1597200*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^3/(5*x +
 3)^(3/2) - 139/133100*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(2
2))/sqrt(5*x + 3) - 98/6655*sqrt(5)*sqrt(5*x + 3)*sqrt(-10*x + 5)
/(2*x - 1) + 1/99825*(417*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqr
t(22))^2/(5*x + 3) + 4*sqrt(10))*(5*x + 3)^(3/2)/(sqrt(2)*sqrt(-1
0*x + 5) - sqrt(22))^3
```

3.2558 $\int \frac{2+3x}{(1-2x)^{3/2}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=67

$$-\frac{428\sqrt{1-2x}}{3993\sqrt{5x+3}}-\frac{107\sqrt{1-2x}}{363(5x+3)^{3/2}}+\frac{7}{11(5x+3)^{3/2}\sqrt{1-2x}}$$

```
[Out] 7/(11*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) - (107*Sqrt[1 - 2*x])/(363*(
3 + 5*x)^(3/2)) - (428*Sqrt[1 - 2*x])/(3993*Sqrt[3 + 5*x])
```

Rubi [A] time = 0.068454, antiderivative size = 67, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$-\frac{428\sqrt{1-2x}}{3993\sqrt{5x+3}}-\frac{107\sqrt{1-2x}}{363(5x+3)^{3/2}}+\frac{7}{11(5x+3)^{3/2}\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)/((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] 7/(11*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) - (107*Sqrt[1 - 2*x])/(363*(
3 + 5*x)^(3/2)) - (428*Sqrt[1 - 2*x])/(3993*Sqrt[3 + 5*x])
```

Rubi in Sympy [A] time = 6.90168, size = 60, normalized size = 0.9

$$-\frac{428\sqrt{-2x+1}}{3993\sqrt{5x+3}}-\frac{107\sqrt{-2x+1}}{363\,(5x+3)^{\frac{3}{2}}}+\frac{7}{11\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)/(1-2*x)**(3/2)/(3+5*x)**(5/2),x)
```

```
[Out] -428*sqrt(-2*x + 1)/(3993*sqrt(5*x + 3)) - 107*sqrt(-2*x + 1)/(36
3*(5*x + 3)**(3/2)) + 7/(11*sqrt(-2*x + 1)*(5*x + 3)**(3/2))
```

Mathematica [A] time = 0.0435868, size = 32, normalized size = 0.48

$$\frac{2\left(2140x^2+1391x+40\right)}{3993\sqrt{1-2x}(5x+3)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)/((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (2*(40 + 1391*x + 2140*x^2))/(3993*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))
```

Maple [A] time = 0.005, size = 27, normalized size = 0.4

$$\frac{4280\,x^2+2782\,x+80}{3993}(3+5\,x)^{-\frac{3}{2}}\frac{1}{\sqrt{1-2\,x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)/(1-2*x)^(3/2)/(3+5*x)^(5/2),x)
```

```
[Out] 2/3993*(2140*x^2+1391*x+40)/(3+5*x)^(3/2)/(1-2*x)^(1/2)
```

Maxima [A] time = 1.33945, size = 86, normalized size = 1.28

$$\frac{856\,x}{3993\,\sqrt{-10\,x^2-x+3}}+\frac{214}{19965\,\sqrt{-10\,x^2-x+3}}-\frac{2}{165\,\left(5\,\sqrt{-10\,x^2-x+3}x+3\,\sqrt{-10\,x^2-x+3}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 856/3993*x/sqrt(-10*x^2 - x + 3) + 214/19965/sqrt(-10*x^2 - x + 3
) - 2/165/(5*sqrt(-10*x^2 - x + 3)*x + 3*sqrt(-10*x^2 - x + 3))
```

Fricas [A] time = 0.219199, size = 58, normalized size = 0.87

$$-\frac{2\,\left(2140\,x^2+1391\,x+40\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}}{3993\,(50\,x^3+35\,x^2-12\,x-9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] -2/3993*(2140*x^2 + 1391*x + 40)*sqrt(5*x + 3)*sqrt(-2*x + 1)/(50
*x^3 + 35*x^2 - 12*x - 9)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{3x+2}{(-2x+1)^{\frac{3}{2}}\,(5x+3)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)/(1-2*x)**(3/2)/(3+5*x)**(5/2),x)
```

```
[Out] Integral((3*x + 2)/((-2*x + 1)**(3/2)*(5*x + 3)**(5/2)), x)
```

GIAC/XCAS [A] time = 0.255708, size = 205, normalized size = 3.06

$$-\frac{\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^3}{319440\,(5\,x+3)^{\frac{3}{2}}}-\frac{73\,\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}{26620\,\sqrt{5\,x+3}}-\frac{28\,\sqrt{5}\sqrt{5\,x+3}\sqrt{-10\,x+5}}{6655\,(2\,x-1)}+\frac{\left(\frac{219\,\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3}+4\,\sqrt{10}\right)(5\,x+3)^{\frac{3}{2}}}{19965\,\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] -1/319440*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^3/(5*x +
3)^(3/2) - 73/26620*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))
/sqrt(5*x + 3) - 28/6655*sqrt(5)*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2
*x - 1) + 1/19965*(219*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(2
2))^2/(5*x + 3) + 4*sqrt(10))*(5*x + 3)^(3/2)/(sqrt(2)*sqrt(-10*x
 + 5) - sqrt(22))^3
```

3.2559 $\int \frac{1}{(1-2x)^{3/2}(3+5x)^{5/2}} \, dx$

Optimal. Leaf size=67

$$-\frac{160\sqrt{1-2x}}{3993\sqrt{5x+3}}-\frac{40\sqrt{1-2x}}{363(5x+3)^{3/2}}+\frac{2}{11(5x+3)^{3/2}\sqrt{1-2x}}$$

```
[Out] 2/(11*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) - (40*Sqrt[1 - 2*x])/(363*(3
 + 5*x)^(3/2)) - (160*Sqrt[1 - 2*x])/(3993*Sqrt[3 + 5*x])
```

Rubi [A] time = 0.0508741, antiderivative size = 67, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 2, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.105

$$-\frac{160\sqrt{1-2x}}{3993\sqrt{5x+3}}-\frac{40\sqrt{1-2x}}{363(5x+3)^{3/2}}+\frac{2}{11(5x+3)^{3/2}\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] 2/(11*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) - (40*Sqrt[1 - 2*x])/(363*(3
 + 5*x)^(3/2)) - (160*Sqrt[1 - 2*x])/(3993*Sqrt[3 + 5*x])
```

Rubi in Sympy [A] time = 5.9186, size = 60, normalized size = 0.9

$$-\frac{160\sqrt{-2x+1}}{3993\sqrt{5x+3}}-\frac{40\sqrt{-2x+1}}{363\,(5x+3)^{\frac{3}{2}}}+\frac{2}{11\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(3/2)/(3+5*x)**(5/2),x)
```

```
[Out] -160*sqrt(-2*x + 1)/(3993*sqrt(5*x + 3)) - 40*sqrt(-2*x + 1)/(363
*(5*x + 3)**(3/2)) + 2/(11*sqrt(-2*x + 1)*(5*x + 3)**(3/2))
```

Mathematica [A] time = 0.0304998, size = 32, normalized size = 0.48

$$\frac{2\left(800x^2+520x-97\right)}{3993\sqrt{1-2x}(5x+3)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (2*(-97 + 520*x + 800*x^2))/(3993*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))
```

Maple [A] time = 0.005, size = 27, normalized size = 0.4

$$\frac{1600\,x^2+1040\,x-194}{3993}\,(3+5\,x)^{-\frac{3}{2}}\,\frac{1}{\sqrt{1-2\,x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(3/2)/(3+5*x)^(5/2),x)
```

```
[Out] 2/3993*(800*x^2+520*x-97)/(3+5*x)^(3/2)/(1-2*x)^(1/2)
```

Maxima [A] time = 1.3544, size = 86, normalized size = 1.28

$$\frac{320\,x}{3993\,\sqrt{-10\,x^2-x+3}}+\frac{16}{3993\,\sqrt{-10\,x^2-x+3}}-\frac{2}{33\left(5\,\sqrt{-10\,x^2-x+3}x+3\,\sqrt{-10\,x^2-x+3}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] 320/3993*x/sqrt(-10*x^2 - x + 3) + 16/3993/sqrt(-10*x^2 - x + 3)
- 2/33/(5*sqrt(-10*x^2 - x + 3)*x + 3*sqrt(-10*x^2 - x + 3))
```

Fricas [A] time = 0.224411, size = 58, normalized size = 0.87

$$-\frac{2\left(800\,x^2+520\,x-97\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}}{3993\left(50\,x^3+35\,x^2-12\,x-9\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] -2/3993*(800*x^2 + 520*x - 97)*sqrt(5*x + 3)*sqrt(-2*x + 1)/(50*x
^3 + 35*x^2 - 12*x - 9)
```

Sympy [A] time = 40.047, size = 231, normalized size = 3.45

$$\begin{cases} -\frac{1600\sqrt{10}\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)^2}{-219615x+199650\left(x+\frac{3}{5}\right)^2-131769}+\frac{880\sqrt{10}\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)}{-219615x+199650\left(x+\frac{3}{5}\right)^2-131769}+\frac{242\sqrt{10}\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}}{-219615x+199650\left(x+\frac{3}{5}\right)^2-131769} & \text{for}\ \frac{11\left|\frac{1}{x+\frac{3}{5}}\right|}{10}>1 \\ -\frac{1600\sqrt{10}i\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)^2}{-219615x+199650\left(x+\frac{3}{5}\right)^2-131769}+\frac{880\sqrt{10}i\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)}{-219615x+199650\left(x+\frac{3}{5}\right)^2-131769}+\frac{242\sqrt{10}i\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}}{-219615x+199650\left(x+\frac{3}{5}\right)^2-131769} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(3/2)/(3+5*x)**(5/2),x)
```

```
[Out] Piecewise((-1600*sqrt(10)*sqrt(-1 + 11/(10*(x + 3/5)))*(x + 3/5)*
*2/(-219615*x + 199650*(x + 3/5)**2 - 131769) + 880*sqrt(10)*sqrt
(-1 + 11/(10*(x + 3/5)))*(x + 3/5)/(-219615*x + 199650*(x + 3/5)*
*2 - 131769) + 242*sqrt(10)*sqrt(-1 + 11/(10*(x + 3/5)))/(-219615
*x + 199650*(x + 3/5)**2 - 131769), 11*Abs(1/(x + 3/5))/10 > 1),
(-1600*sqrt(10)*I*sqrt(1 - 11/(10*(x + 3/5)))*(x + 3/5)**2/(-2196
15*x + 199650*(x + 3/5)**2 - 131769) + 880*sqrt(10)*I*sqrt(1 - 11
/(10*(x + 3/5)))*(x + 3/5)/(-219615*x + 199650*(x + 3/5)**2 - 131
769) + 242*sqrt(10)*I*sqrt(1 - 11/(10*(x + 3/5)))/(-219615*x + 19
9650*(x + 3/5)**2 - 131769), True))
```

GIAC/XCAS [A] time = 0.235631, size = 205, normalized size = 3.06

$$-\frac{\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{3}}{63888\,(5\,x+3)^{\frac{3}{2}}}-\frac{7\,\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}{5324\,\sqrt{5\,x+3}}-\frac{8\,\sqrt{5}\sqrt{5\,x+3}\sqrt{-10\,x+5}}{6655\,(2\,x-1)}+\frac{\left(\frac{21\,\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{2}}{5\,x+3}+4\,\sqrt{10}\right)(5\,x+3)^{\frac{3}{2}}}{3993\,\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] -1/63888*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^3/(5*x + 3
)^(3/2) - 7/5324*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sq
rt(5*x + 3) - 8/6655*sqrt(5)*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x -
 1) + 1/3993*(21*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/
(5*x + 3) + 4*sqrt(10))*(5*x + 3)^(3/2)/(sqrt(2)*sqrt(-10*x + 5)
- sqrt(22))^3
```

3.2560 $\int \frac{1}{(1-2x)^{3/2}(2+3x)(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=101

$$\frac{31030\sqrt{1-2x}}{27951\sqrt{5x+3}}-\frac{410\sqrt{1-2x}}{2541(5x+3)^{3/2}}+\frac{4}{77\sqrt{1-2x}(5x+3)^{3/2}}-\frac{54\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{7\sqrt{7}}$$

```
[Out] 4/(77*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) - (410*Sqrt[1 - 2*x])/(2541*
(3 + 5*x)^(3/2)) + (31030*Sqrt[1 - 2*x])/(27951*Sqrt[3 + 5*x]) -
(54*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(7*Sqrt[7])
```

Rubi [A] time = 0.235072, antiderivative size = 101, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$\frac{31030\sqrt{1-2x}}{27951\sqrt{5x+3}}-\frac{410\sqrt{1-2x}}{2541(5x+3)^{3/2}}+\frac{4}{77\sqrt{1-2x}(5x+3)^{3/2}}-\frac{54\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{7\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In] Int[1/((1 - 2*x)^(3/2)*(2 + 3*x)*(3 + 5*x)^(5/2)),x]
```

```
[Out] 4/(77*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) - (410*Sqrt[1 - 2*x])/(2541*
(3 + 5*x)^(3/2)) + (31030*Sqrt[1 - 2*x])/(27951*Sqrt[3 + 5*x]) -
(54*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(7*Sqrt[7])
```

Rubi in Sympy [A] time = 22.1333, size = 94, normalized size = 0.93

$$\frac{31030\sqrt{-2x+1}}{27951\sqrt{5x+3}}-\frac{410\sqrt{-2x+1}}{2541\,(5x+3)^{\frac{3}{2}}}-\frac{54\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{49}+\frac{4}{77\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(1/(1-2*x)**(3/2)/(2+3*x)/(3+5*x)**(5/2),x)
```

```
[Out] 31030*sqrt(-2*x + 1)/(27951*sqrt(5*x + 3)) - 410*sqrt(-2*x + 1)/(
2541*(5*x + 3)**(3/2)) - 54*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(
7*sqrt(5*x + 3)))/49 + 4/(77*sqrt(-2*x + 1)*(5*x + 3)**(3/2))
```

Mathematica [A] time = 0.135746, size = 70, normalized size = 0.69

$$-\frac{2\left(155150x^2+11005x-45016\right)}{27951\sqrt{1-2x}(5x+3)^{3/2}}-\frac{27\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{7\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In] Integrate[1/((1 - 2*x)^(3/2)*(2 + 3*x)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (-2*(-45016 + 11005*x + 155150*x^2))/(27951*Sqrt[1 - 2*x]*(3 + 5*
x)^(3/2)) - (27*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*
x])])/(7*Sqrt[7])
```

Maple [B] time = 0.023, size = 202, normalized size = 2.

$$\frac{1}{-195657+391314x}\sqrt{1-2x}\left(5390550\sqrt{7}\arctan\left(1/14\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)x^3+3773385\sqrt{7}\arctan\left(1/14\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(3/2)/(2+3*x)/(3+5*x)^(5/2),x)
```

```
[Out] 1/195657*(1-2*x)^(1/2)*(5390550*7^(1/2)*arctan(1/14*(37*x+20)*7^(
1/2)/(-10*x^2-x+3)^(1/2))*x^3+3773385*7^(1/2)*arctan(1/14*(37*x+2
0)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2-1293732*7^(1/2)*arctan(1/14*(
37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+2172100*x^2*(-10*x^2-x+3)
^(1/2)-970299*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)
^(1/2))+154070*x*(-10*x^2-x+3)^(1/2)-630224*(-10*x^2-x+3)^(1/2))/
(-1+2*x)/(-10*x^2-x+3)^(1/2)/(3+5*x)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5x+3)^{\frac{5}{2}}(3x+2)(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(5/2)*(3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)*(-2*x + 1)^(3/2)), x)
```

Fricas [A] time = 0.236475, size = 127, normalized size = 1.26

$$\frac{\sqrt{7}\left(2\sqrt{7}\left(155150x^2+11005x-45016\right)\sqrt{5x+3}\sqrt{-2x+1}+107811\left(50x^3+35x^2-12x-9\right)\arctan\left(\frac{\sqrt{7}(37x+20)}{14\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)}{195657\left(50x^3+35x^2-12x-9\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(5/2)*(3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] 1/195657*sqrt(7)*(2*sqrt(7)*(155150*x^2 + 11005*x - 45016)*sqrt(5
*x + 3)*sqrt(-2*x + 1) + 107811*(50*x^3 + 35*x^2 - 12*x - 9)*arct
an(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(50*
x^3 + 35*x^2 - 12*x - 9)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(-2x+1)^{\frac{3}{2}}(3x+2)(5x+3)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(3/2)/(2+3*x)/(3+5*x)**(5/2),x)
```

```
[Out] Integral(1/((-2*x + 1)**(3/2)*(3*x + 2)*(5*x + 3)**(5/2)), x)
```

GIAC/XCAS [A] time = 0.260523, size = 297, normalized size = 2.94

$$-\frac{5}{63888}\,\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^{3}+\frac{27}{490}\,\sqrt{70}\sqrt{10}\left(\pi+2\,\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{2}}{5\,x+3}-4\right)}{140\,\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)+\frac{145}{2662}\,\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)-\frac{16\,\sqrt{5}\sqrt{5\,x+3}\sqrt{-10\,x+5}}{46585\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] -5/63888*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x
+ 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 +
27/490*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x
+ 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqrt
(2)*sqrt(-10*x + 5) - sqrt(22)))) + 145/2662*sqrt(10)*((sqrt(2)*s
qrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(
2)*sqrt(-10*x + 5) - sqrt(22))) - 16/46585*sqrt(5)*sqrt(5*x + 3)*
sqrt(-10*x + 5)/(2*x - 1)
```

3.2561 $\int \frac{1}{(1-2x)^{3/2}(2+3x)^2(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=130

$$\frac{2841815\sqrt{1-2x}}{195657\sqrt{5x+3}}-\frac{28705\sqrt{1-2x}}{17787(5x+3)^{3/2}}-\frac{58}{539\sqrt{1-2x}(5x+3)^{3/2}}+\frac{3}{7\sqrt{1-2x}(3x+2)(5x+3)^{3/2}}-\frac{4887\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{49\sqrt{7}}$$

```
[Out] -58/(539*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) - (28705*Sqrt[1 - 2*x])/(
17787*(3 + 5*x)^(3/2)) + 3/(7*Sqrt[1 - 2*x]*(2 + 3*x)*(3 + 5*x)^(
3/2)) + (2841815*Sqrt[1 - 2*x])/(195657*Sqrt[3 + 5*x]) - (4887*Ar
cTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(49*Sqrt[7])
```

Rubi [A] time = 0.324932, antiderivative size = 130, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$\frac{2841815\sqrt{1-2x}}{195657\sqrt{5x+3}}-\frac{28705\sqrt{1-2x}}{17787(5x+3)^{3/2}}-\frac{58}{539\sqrt{1-2x}(5x+3)^{3/2}}+\frac{3}{7\sqrt{1-2x}(3x+2)(5x+3)^{3/2}}-\frac{4887\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{49\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(3/2)*(2 + 3*x)^2*(3 + 5*x)^(5/2)),x]
```

```
[Out] -58/(539*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) - (28705*Sqrt[1 - 2*x])/(
17787*(3 + 5*x)^(3/2)) + 3/(7*Sqrt[1 - 2*x]*(2 + 3*x)*(3 + 5*x)^(
3/2)) + (2841815*Sqrt[1 - 2*x])/(195657*Sqrt[3 + 5*x]) - (4887*Ar
cTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(49*Sqrt[7])
```

Rubi in Sympy [A] time = 29.324, size = 119, normalized size = 0.92

$$\frac{2841815\sqrt{-2x+1}}{195657\sqrt{5x+3}}-\frac{28705\sqrt{-2x+1}}{17787\left(5x+3\right)^{\frac{3}{2}}}-\frac{4887\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{343}-\frac{58}{539\sqrt{-2x+1}\left(5x+3\right)^{\frac{3}{2}}}+\frac{3}{7\sqrt{-2x+1}\left(3x+2\right)\left(5x+3\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(3/2)/(2+3*x)**2/(3+5*x)**(5/2),x)
```

```
[Out] 2841815*sqrt(-2*x + 1)/(195657*sqrt(5*x + 3)) - 28705*sqrt(-2*x +
 1)/(17787*(5*x + 3)**(3/2)) - 4887*sqrt(7)*atan(sqrt(7)*sqrt(-2*
x + 1)/(7*sqrt(5*x + 3)))/343 - 58/(539*sqrt(-2*x + 1)*(5*x + 3)*
*(3/2)) + 3/(7*sqrt(-2*x + 1)*(3*x + 2)*(5*x + 3)**(3/2))
```

Mathematica [A] time = 0.11028, size = 85, normalized size = 0.65

$$\frac{\sqrt{1-2x}\left(85254450x^3+63467215x^2-20145298x-16461125\right)}{195657(5x+3)^{3/2}\left(6x^2+x-2\right)}-\frac{4887\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{98\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(3/2)*(2 + 3*x)^2*(3 + 5*x)^(5/2)),x]
```

```
[Out] (Sqrt[1 - 2*x]*(-16461125 - 20145298*x + 63467215*x^2 + 85254450*
x^3))/(195657*(3 + 5*x)^(3/2)*(-2 + x + 6*x^2)) - (4887*ArcTan[(-
20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/(98*Sqrt[7])
```

Maple [B] time = 0.024, size = 257, normalized size = 2.

$$\frac{1}{(5478396+8217594\,x)\,(-1+2\,x)}\sqrt{1-2\,x}\left(2927068650\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^4+4000327155\,\sqrt{7}\arctan\left(1/\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(3/2)/(2+3*x)^2/(3+5*x)^(5/2),x)
```

```
[Out] 1/2739198*(1-2*x)^(1/2)*(2927068650*7^(1/2)*arctan(1/14*(37*x+20)
*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^4+4000327155*7^(1/2)*arctan(1/14*
(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+663468894*7^(1/2)*arct
an(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+1193562300*x^3
*(-10*x^2-x+3)^(1/2)-995203341*7^(1/2)*arctan(1/14*(37*x+20)*7^(1
/2)/(-10*x^2-x+3)^(1/2))*x+888541010*x^2*(-10*x^2-x+3)^(1/2)-3512
48238*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))-
282034172*x*(-10*x^2-x+3)^(1/2)-230455750*(-10*x^2-x+3)^(1/2))/(2
+3*x)/(-1+2*x)/(-10*x^2-x+3)^(1/2)/(3+5*x)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5\,x+3)^{\frac{5}{2}}(3\,x+2)^2(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^2*(-2*x + 1)^(3/2)),x, algorithm="maxima"
```

```
[Out] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^2*(-2*x + 1)^(3/2)), x)
```

Fricas [A] time = 0.236565, size = 147, normalized size = 1.13

$$\frac{\sqrt{7}\left(2\,\sqrt{7}\left(85254450\,x^3+63467215\,x^2-20145298\,x-16461125\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+19513791\,\left(150\,x^4+205\,x^3+34\,x^2-5\right.\right.}{2739198\,(150\,x^4+205\,x^3+34\,x^2-51\,x-18)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^2*(-2*x + 1)^(3/2)),x, algorithm="fricas"
```

```
[Out] 1/2739198*sqrt(7)*(2*sqrt(7)*(85254450*x^3 + 63467215*x^2 - 20145
298*x - 16461125)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 19513791*(150*x^
4 + 205*x^3 + 34*x^2 - 51*x - 18)*arctan(1/14*sqrt(7)*(37*x + 20)
/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(150*x^4 + 205*x^3 + 34*x^2 - 5
1*x - 18)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(3/2)/(2+3*x)**2/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.366384, size = 458, normalized size = 3.52

$$-\frac{25}{63888}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3+\frac{4887}{6860}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)+\frac{775}{1331}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)-\frac{32\sqrt{5}\sqrt{5x+3}\sqrt{-10x+5}}{326095(2x-1)}+\frac{1782\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)}{49\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^2*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] -25/63888*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x
 + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 +
 4887/6860*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(
5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(
sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 775/1331*sqrt(10)*((sqrt(
2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(s
qrt(2)*sqrt(-10*x + 5) - sqrt(22))) - 32/326095*sqrt(5)*sqrt(5*x
+ 3)*sqrt(-10*x + 5)/(2*x - 1) + 1782/49*sqrt(10)*((sqrt(2)*sqrt(
-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*s
qrt(-10*x + 5) - sqrt(22)))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22)
)/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt
(22)))^2 + 280)
```

3.2562 $\int \frac{1}{(1-2x)^{3/2}(2+3x)^3(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=159

$$\frac{707286025\sqrt{1-2x}}{5478396\sqrt{5x+3}}-\frac{7090175\sqrt{1-2x}}{498036(5x+3)^{3/2}}-\frac{8515}{7546\sqrt{1-2x}(5x+3)^{3/2}}+\frac{765}{196\sqrt{1-2x}(3x+2)(5x+3)^{3/2}}+\frac{3}{14\sqrt{1-2x}(3x+2)^2(5x+3)^{3/2}}-\frac{1215945\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{1372\sqrt{7}}$$

```
[Out] -8515/(7546*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) - (7090175*Sqrt[1 - 2*
x])/(498036*(3 + 5*x)^(3/2)) + 3/(14*Sqrt[1 - 2*x]*(2 + 3*x)^2*(3
 + 5*x)^(3/2)) + 765/(196*Sqrt[1 - 2*x]*(2 + 3*x)*(3 + 5*x)^(3/2)
) + (707286025*Sqrt[1 - 2*x])/(5478396*Sqrt[3 + 5*x]) - (1215945*
ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(1372*Sqrt[7])
```

Rubi [A] time = 0.412832, antiderivative size = 159, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$\frac{707286025\sqrt{1-2x}}{5478396\sqrt{5x+3}}-\frac{7090175\sqrt{1-2x}}{498036(5x+3)^{3/2}}-\frac{8515}{7546\sqrt{1-2x}(5x+3)^{3/2}}+\frac{765}{196\sqrt{1-2x}(3x+2)(5x+3)^{3/2}}+\frac{3}{14\sqrt{1-2x}(3x+2)^2(5x+3)^{3/2}}-\frac{1215945\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{1372\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(3/2)*(2 + 3*x)^3*(3 + 5*x)^(5/2)),x]
```

```
[Out] -8515/(7546*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) - (7090175*Sqrt[1 - 2*
x])/(498036*(3 + 5*x)^(3/2)) + 3/(14*Sqrt[1 - 2*x]*(2 + 3*x)^2*(3
 + 5*x)^(3/2)) + 765/(196*Sqrt[1 - 2*x]*(2 + 3*x)*(3 + 5*x)^(3/2)
) + (707286025*Sqrt[1 - 2*x])/(5478396*Sqrt[3 + 5*x]) - (1215945*
ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(1372*Sqrt[7])
```

Rubi in Sympy [A] time = 36.5257, size = 146, normalized size = 0.92

$$\frac{707286025\sqrt{-2x+1}}{5478396\sqrt{5x+3}}-\frac{7090175\sqrt{-2x+1}}{498036\,(5x+3)^{\frac{3}{2}}}-\frac{1215945\sqrt{7}\,\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{9604}-\frac{8515}{7546\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}+\frac{765}{196\sqrt{-2x+1}\,(3x+2)\,(5x+3)^{\frac{3}{2}}}+\frac{3}{14\sqrt{-2x+1}\,(3x+2)^2\,(5x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(3/2)/(2+3*x)**3/(3+5*x)**(5/2),x)
```

```
[Out] 707286025*sqrt(-2*x + 1)/(5478396*sqrt(5*x + 3)) - 7090175*sqrt(-
2*x + 1)/(498036*(5*x + 3)**(3/2)) - 1215945*sqrt(7)*atan(sqrt(7)
*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/9604 - 8515/(7546*sqrt(-2*x +
1)*(5*x + 3)**(3/2)) + 765/(196*sqrt(-2*x + 1)*(3*x + 2)*(5*x + 3
)**(3/2)) + 3/(14*sqrt(-2*x + 1)*(3*x + 2)**2*(5*x + 3)**(3/2))
```

Mathematica [A] time = 0.12058, size = 87, normalized size = 0.55

$$\frac{-63655742250x^4-89836042575x^3-16567908760x^2+22311149965x+8194676012}{5478396\sqrt{1-2x}(3x+2)^2(5x+3)^{3/2}}-\frac{1215945\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{2744\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]   Integrate[1/((1 - 2*x)^(3/2)*(2 + 3*x)^3*(3 + 5*x)^(5/2)),x]
```

```
[Out] (8194676012 + 22311149965*x - 16567908760*x^2 - 89836042575*x^3 -
 63655742250*x^4)/(5478396*Sqrt[1 - 2*x]*(2 + 3*x)^2*(3 + 5*x)^(3
/2)) - (1215945*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*
x])])/(2744*Sqrt[7])
```

Maple [B] time = 0.026, size = 305, normalized size = 1.9

$$\frac{1}{76697544\,(2+3x)^2\,(-1+2x)}\sqrt{1-2x}\left(2184870773250\sqrt{7}\arctan\left(1/14\,\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)x^5+4442570572275\sqrt{7}\arctan\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int(1/(1-2*x)^(3/2)/(2+3*x)^3/(3+5*x)^(5/2),x)
```

```
[Out] 1/76697544*(1-2*x)^(1/2)*(2184870773250*7^(1/2)*arctan(1/14*(37*x
+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^5+4442570572275*7^(1/2)*arcta
n(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^4+2485897413120*7
^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+891
180391500*x^4*(-10*x^2-x+3)^(1/2)-412697812725*7^(1/2)*arctan(1/1
4*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+1257704596050*x^3*(-
10*x^2-x+3)^(1/2)-757421868060*7^(1/2)*arctan(1/14*(37*x+20)*7^(1
/2)/(-10*x^2-x+3)^(1/2))*x+231950722640*x^2*(-10*x^2-x+3)^(1/2)-1
74789661860*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(
1/2))-312356099510*x*(-10*x^2-x+3)^(1/2)-114725464168*(-10*x^2-x+
3)^(1/2))/(2+3*x)^2/(-1+2*x)/(-10*x^2-x+3)^(1/2)/(3+5*x)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5x+3)^{\frac{5}{2}}(3x+2)^3(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^3*(-2*x + 1)^(3/2)),x, algorithm="maxima"
```

```
[Out] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^3*(-2*x + 1)^(3/2)), x)
```

Fricas [A] time = 0.237201, size = 167, normalized size = 1.05

$$\frac{\sqrt{7}\left(2\sqrt{7}\left(63655742250x^4+89836042575x^3+16567908760x^2-22311149965x-8194676012\right)\sqrt{5x+3}\sqrt{-2x+1}+48552\right.}{76697544\left(450x^5+915x^4+512x^3-85x^2-156\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^3*(-2*x + 1)^(3/2)),x, algorithm="fricas"
```

```
[Out] 1/76697544*sqrt(7)*(2*sqrt(7)*(63655742250*x^4 + 89836042575*x^3
+ 16567908760*x^2 - 22311149965*x - 8194676012)*sqrt(5*x + 3)*sqr
t(-2*x + 1) + 4855268385*(450*x^5 + 915*x^4 + 512*x^3 - 85*x^2 -
156*x - 36)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-
2*x + 1))))/(450*x^5 + 915*x^4 + 512*x^3 - 85*x^2 - 156*x - 36)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(3/2)/(2+3*x)**3/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.48209, size = 544, normalized size = 3.42

$$-\frac{125}{63888}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3+\frac{243189}{38416}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)+\frac{11875}{2662}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)-\frac{64\sqrt{5}\sqrt{5x+3}\sqrt{-10x+5}}{2282665(2x-1)}+\frac{891\left(67\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3+16120\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)\right)}{98\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^3*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] -125/63888*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*
x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3
+ 243189/38416*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*s
qrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) -
4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 11875/2662*sqrt(10)*(
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x +
 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))) - 64/2282665*sqrt(5)*sq
rt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1) + 891/98*(67*sqrt(10)*((sqr
t(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 + 16120*sqrt(10)*((sqrt(2
)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sq
rt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) -
sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5
) - sqrt(22)))^2 + 280)^2
```

3.2563 $\int \frac{(2+3x)^4\sqrt{3+5x}}{(1-2x)^{5/2}}\,dx$

Optimal. Leaf size=142

$$\frac{\sqrt{5x+3}(3x+2)^4}{3(1-2x)^{3/2}}-\frac{299\sqrt{5x+3}(3x+2)^3}{66\sqrt{1-2x}}-\frac{697}{88}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^2-\frac{\sqrt{1-2x}\sqrt{5x+3}(7306140x+17606479)}{70400}+\frac{13246251\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{6400\sqrt{10}}$$

```
[Out] (-697*Sqrt[1 - 2*x]*(2 + 3*x)^2*Sqrt[3 + 5*x])/88 - (299*(2 + 3*x
)^3*Sqrt[3 + 5*x])/(66*Sqrt[1 - 2*x]) + ((2 + 3*x)^4*Sqrt[3 + 5*x
])/(3*(1 - 2*x)^(3/2)) - (Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(17606479 +
 7306140*x))/70400 + (13246251*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/
(6400*Sqrt[10])
```

Rubi [A] time = 0.258207, antiderivative size = 142, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.231$

$$\frac{\sqrt{5x+3}(3x+2)^4}{3(1-2x)^{3/2}}-\frac{299\sqrt{5x+3}(3x+2)^3}{66\sqrt{1-2x}}-\frac{697}{88}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^2-\frac{\sqrt{1-2x}\sqrt{5x+3}(7306140x+17606479)}{70400}+\frac{13246251\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{6400\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^4*Sqrt[3 + 5*x])/(1 - 2*x)^(5/2),x]
```

```
[Out] (-697*Sqrt[1 - 2*x]*(2 + 3*x)^2*Sqrt[3 + 5*x])/88 - (299*(2 + 3*x
)^3*Sqrt[3 + 5*x])/(66*Sqrt[1 - 2*x]) + ((2 + 3*x)^4*Sqrt[3 + 5*x
])/(3*(1 - 2*x)^(3/2)) - (Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(17606479 +
 7306140*x))/70400 + (13246251*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/
(6400*Sqrt[10])
```

Rubi in Sympy [A] time = 26.9749, size = 131, normalized size = 0.92

$$-\frac{697\sqrt{-2x+1}\,(3x+2)^2\,\sqrt{5x+3}}{88}-\frac{\sqrt{-2x+1}\sqrt{5x+3}\,\left(\frac{82194075x}{4}+\frac{792291555}{16}\right)}{198000}+\frac{13246251\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{64000}-\frac{299\,(3x+2)^3\,\sqrt{5x+3}}{66\sqrt{-2x+1}}+\frac{(3x+2)^4\,\sqrt{5x+3}}{3\,(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4*(3+5*x)**(1/2)/(1-2*x)**(5/2),x)
```

```
[Out] -697*sqrt(-2*x + 1)*(3*x + 2)**2*sqrt(5*x + 3)/88 - sqrt(-2*x + 1
)*sqrt(5*x + 3)*(82194075*x/4 + 792291555/16)/198000 + 13246251*s
qrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/64000 - 299*(3*x + 2)**3*
sqrt(5*x + 3)/(66*sqrt(-2*x + 1)) + (3*x + 2)**4*sqrt(5*x + 3)/(3
*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.176014, size = 79, normalized size = 0.56

$$\frac{437126283\sqrt{10-20x}(2x-1)\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)-10\sqrt{5x+3}\left(2851200x^4+15040080x^3+52700868x^2-183672928x+\right.}{2112000(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^4*Sqrt[3 + 5*x])/(1 - 2*x)^(5/2),x]
```

```
[Out] (-10*Sqrt[3 + 5*x]*(66038637 - 183672928*x + 52700868*x^2 + 15040
080*x^3 + 2851200*x^4) + 437126283*Sqrt[10 - 20*x]*(-1 + 2*x)*Arc
Sin[Sqrt[5/11]*Sqrt[1 - 2*x]])/(2112000*(1 - 2*x)^(3/2))
```

Maple [A] time = 0.022, size = 154, normalized size = 1.1

$$\frac{1}{4224000\,(-1+2\,x)^{2}}\left(-57024000\,x^{4}\sqrt{-10\,x^{2}-x+3}+1748505132\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x^{2}-300801600\,x^{3}\sqrt{-10\,x^{2}-\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4*(3+5*x)^(1/2)/(1-2*x)^(5/2),x)
```

```
[Out] 1/4224000*(-57024000*x^4*(-10*x^2-x+3)^(1/2)+1748505132*10^(1/2)*
arcsin(20/11*x+1/11)*x^2-300801600*x^3*(-10*x^2-x+3)^(1/2)-174850
5132*10^(1/2)*arcsin(20/11*x+1/11)*x-1054017360*x^2*(-10*x^2-x+3)
^(1/2)+437126283*10^(1/2)*arcsin(20/11*x+1/11)+3673458560*x*(-10*
x^2-x+3)^(1/2)-1320772740*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)*(3+5
*x)^(1/2)/(-1+2*x)^2/(-10*x^2-x+3)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^4/(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] Timed out
```

Fricas [A] time = 0.228946, size = 127, normalized size = 0.89

$$-\frac{\sqrt{10}\left(2\,\sqrt{10}\left(2851200\,x^{4}+15040080\,x^{3}+52700868\,x^{2}-183672928\,x+66038637\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-437126283\,\left(4\,x^{2}-\right.\right.}{4224000\,(4\,x^{2}-4\,x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^4/(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] -1/4224000*sqrt(10)*(2*sqrt(10)*(2851200*x^4 + 15040080*x^3 + 527
00868*x^2 - 183672928*x + 66038637)*sqrt(5*x + 3)*sqrt(-2*x + 1)
- 437126283*(4*x^2 - 4*x + 1)*arctan(1/20*sqrt(10)*(20*x + 1)/(sq
rt(5*x + 3)*sqrt(-2*x + 1))))/(4*x^2 - 4*x + 1)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4*(3+5*x)**(1/2)/(1-2*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.237615, size = 131, normalized size = 0.92

$$\frac{13246251}{64000}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right) - \frac{\left(4\left(891\left(4\left(8\sqrt{5}(5x+3)+115\sqrt{5}\right)(5x+3)+8919\sqrt{5}\right)(5x+3)-291417650\sqrt{5}\right)(5x+3)+4808389113\sqrt{5}\right)\sqrt{5x+3}\sqrt{-}}{26400000(2x-1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^4/(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] 13246251/64000*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) - 1/2
6400000*(4*(891*(4*(8*sqrt(5)*(5*x + 3) + 115*sqrt(5))*(5*x + 3)
+ 8919*sqrt(5))*(5*x + 3) - 291417650*sqrt(5))*(5*x + 3) + 480838
9113*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)^2
```

3.2564 $\int \frac{(2+3x)^3\sqrt{3+5x}}{(1-2x)^{5/2}}\,dx$

Optimal. Leaf size=113

$$\frac{\sqrt{5x+3}(3x+2)^3}{3(1-2x)^{3/2}}-\frac{233\sqrt{5x+3}(3x+2)^2}{66\sqrt{1-2x}}-\frac{\sqrt{1-2x}\sqrt{5x+3}(69780x+168157)}{3520}+\frac{126513\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{320\sqrt{10}}$$

```
[Out] (-233*(2 + 3*x)^2*Sqrt[3 + 5*x])/(66*Sqrt[1 - 2*x]) + ((2 + 3*x)^
3*Sqrt[3 + 5*x])/(3*(1 - 2*x)^(3/2)) - (Sqrt[1 - 2*x]*Sqrt[3 + 5*
x]*(168157 + 69780*x))/3520 + (126513*ArcSin[Sqrt[2/11]*Sqrt[3 +
5*x]])/(320*Sqrt[10])
```

Rubi [A] time = 0.190855, antiderivative size = 113, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$\frac{\sqrt{5x+3}(3x+2)^3}{3(1-2x)^{3/2}}-\frac{233\sqrt{5x+3}(3x+2)^2}{66\sqrt{1-2x}}-\frac{\sqrt{1-2x}\sqrt{5x+3}(69780x+168157)}{3520}+\frac{126513\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{320\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In] Int[((2 + 3*x)^3*Sqrt[3 + 5*x])/(1 - 2*x)^(5/2),x]
```


```
[Out] (-233*(2 + 3*x)^2*Sqrt[3 + 5*x])/(66*Sqrt[1 - 2*x]) + ((2 + 3*x)^
3*Sqrt[3 + 5*x])/(3*(1 - 2*x)^(3/2)) - (Sqrt[1 - 2*x]*Sqrt[3 + 5*
x]*(168157 + 69780*x))/3520 + (126513*ArcSin[Sqrt[2/11]*Sqrt[3 +
5*x]])/(320*Sqrt[10])
```

Rubi in Sympy [A] time = 19.6097, size = 104, normalized size = 0.92

$$-\frac{\sqrt{-2x+1}\sqrt{5x+3}\left(\frac{261675x}{2}+\frac{2522355}{8}\right)}{6600}+\frac{126513\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{3200}-\frac{233\,(3x+2)^2\,\sqrt{5x+3}}{66\sqrt{-2x+1}}+\frac{(3x+2)^3\,\sqrt{5x+3}}{3\,(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**3*(3+5*x)**(1/2)/(1-2*x)**(5/2),x)
```

```
[Out] -sqrt(-2*x + 1)*sqrt(5*x + 3)*(261675*x/2 + 2522355/8)/6600 + 126
513*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/3200 - 233*(3*x + 2)
**2*sqrt(5*x + 3)/(66*sqrt(-2*x + 1)) + (3*x + 2)**3*sqrt(5*x + 3
)/(3*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.160605, size = 74, normalized size = 0.65

$$\frac{4174929\sqrt{10-20x}(2x-1)\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)-10\sqrt{5x+3}\left(71280x^3+431244x^2-1786144x+625431\right)}{105600(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In] Integrate[((2 + 3*x)^3*Sqrt[3 + 5*x])/(1 - 2*x)^(5/2),x]
```

```
[Out] (-10*Sqrt[3 + 5*x]*(625431 - 1786144*x + 431244*x^2 + 71280*x^3)
+ 4174929*Sqrt[10 - 20*x]*(-1 + 2*x)*ArcSin[Sqrt[5/11]*Sqrt[1 - 2
*x]])/(105600*(1 - 2*x)^(3/2))
```

Maple [A] time = 0.018, size = 137, normalized size = 1.2

$$\frac{1}{211200\,(-1+2\,x)^2}\left(16699716\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x^2-1425600\,x^3\sqrt{-10\,x^2-x+3}-16699716\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3*(3+5*x)^(1/2)/(1-2*x)^(5/2),x)
```

```
[Out] 1/211200*(16699716*10^(1/2)*arcsin(20/11*x+1/11)*x^2-1425600*x^3*
(-10*x^2-x+3)^(1/2)-16699716*10^(1/2)*arcsin(20/11*x+1/11)*x-8624
880*x^2*(-10*x^2-x+3)^(1/2)+4174929*10^(1/2)*arcsin(20/11*x+1/11)
+35722880*x*(-10*x^2-x+3)^(1/2)-12508620*(-10*x^2-x+3)^(1/2))*(1-
2*x)^(1/2)*(3+5*x)^(1/2)/(-1+2*x)^2/(-10*x^2-x+3)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^3/(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] Timed out
```

Fricas [A] time = 0.221795, size = 120, normalized size = 1.06

$$-\frac{\sqrt{10}\left(2\,\sqrt{10}\left(71280\,x^3+431244\,x^2-1786144\,x+625431\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-4174929\left(4\,x^2-4\,x+1\right)\arctan\left(\frac{\sqrt{10}(20\,x}{20\,\sqrt{5\,x+3}\sqrt{-}}\right.\right.}{211200\left(4\,x^2-4\,x+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^3/(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] -1/211200*sqrt(10)*(2*sqrt(10)*(71280*x^3 + 431244*x^2 - 1786144*
x + 625431)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 4174929*(4*x^2 - 4*x +
 1)*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1)
)))/(4*x^2 - 4*x + 1)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3*(3+5*x)**(1/2)/(1-2*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.230856, size = 113, normalized size = 1.

$$\frac{126513}{3200}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right) - \frac{\left(4\left(891\left(4\sqrt{5}(5x+3)+85\sqrt{5}\right)(5x+3)-2783318\sqrt{5}\right)(5x+3)+45924219\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{1320000\,(2x-1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(3*x + 2)^3/(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] 126513/3200*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) - 1/1320
000*(4*(891*(4*sqrt(5)*(5*x + 3) + 85*sqrt(5))*(5*x + 3) - 278331
8*sqrt(5))*(5*x + 3) + 45924219*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x
 + 5)/(2*x - 1)^2
```

3.2565 $\int \frac{(2+3x)^2\sqrt{3+5x}}{(1-2x)^{5/2}}\,dx$

Optimal. Leaf size=94

$$-\frac{21(5x+3)^{3/2}}{11\sqrt{1-2x}}+\frac{49(5x+3)^{3/2}}{66(1-2x)^{3/2}}-\frac{519}{88}\sqrt{1-2x}\sqrt{5x+3}+\frac{519\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{8\sqrt{10}}$$

```
[Out] (-519*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/88 + (49*(3 + 5*x)^(3/2))/(66*
(1 - 2*x)^(3/2)) - (21*(3 + 5*x)^(3/2))/(11*Sqrt[1 - 2*x]) + (519
*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(8*Sqrt[10])
```

Rubi [A] time = 0.11762, antiderivative size = 94, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$-\frac{21(5x+3)^{3/2}}{11\sqrt{1-2x}}+\frac{49(5x+3)^{3/2}}{66(1-2x)^{3/2}}-\frac{519}{88}\sqrt{1-2x}\sqrt{5x+3}+\frac{519\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{8\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^2*Sqrt[3 + 5*x])/(1 - 2*x)^(5/2),x]
```

```
[Out] (-519*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/88 + (49*(3 + 5*x)^(3/2))/(66*
(1 - 2*x)^(3/2)) - (21*(3 + 5*x)^(3/2))/(11*Sqrt[1 - 2*x]) + (519
*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(8*Sqrt[10])
```

Rubi in Sympy [A] time = 10.3761, size = 85, normalized size = 0.9

$$-\frac{519\sqrt{-2x+1}\sqrt{5x+3}}{88}+\frac{519\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{80}-\frac{21\left(5x+3\right)^{\frac{3}{2}}}{11\sqrt{-2x+1}}+\frac{49\left(5x+3\right)^{\frac{3}{2}}}{66\left(-2x+1\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2*(3+5*x)**(1/2)/(1-2*x)**(5/2),x)
```

```
[Out] -519*sqrt(-2*x + 1)*sqrt(5*x + 3)/88 + 519*sqrt(10)*asin(sqrt(22)
*sqrt(5*x + 3)/11)/80 - 21*(5*x + 3)**(3/2)/(11*sqrt(-2*x + 1)) +
 49*(5*x + 3)**(3/2)/(66*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.132494, size = 69, normalized size = 0.73

$$\frac{17127\sqrt{10-20x}(2x-1)\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)-10\sqrt{5x+3}\left(1188x^2-7712x+2481\right)}{2640(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^2*Sqrt[3 + 5*x])/(1 - 2*x)^(5/2),x]
```

```
[Out] (-10*Sqrt[3 + 5*x]*(2481 - 7712*x + 1188*x^2) + 17127*Sqrt[10 - 2
0*x]*(-1 + 2*x)*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/(2640*(1 - 2*x)
^(3/2))
```

Maple [A] time = 0.019, size = 120, normalized size = 1.3

$$\frac{1}{5280\left(-1+2x\right)^{2}}\left(68508\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)x^{2}-68508\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)x-23760x^{2}\sqrt{-10x^{2}-x+3}+17\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2*(3+5*x)^(1/2)/(1-2*x)^(5/2),x)
```

```
[Out] 1/5280*(68508*10^(1/2)*arcsin(20/11*x+1/11)*x^2-68508*10^(1/2)*ar
csin(20/11*x+1/11)*x-23760*x^2*(-10*x^2-x+3)^(1/2)+17127*10^(1/2)
*arcsin(20/11*x+1/11)+154240*x*(-10*x^2-x+3)^(1/2)-49620*(-10*x^2
-x+3)^(1/2))*(1-2*x)^(1/2)*(3+5*x)^(1/2)/(-1+2*x)^2/(-10*x^2-x+3)
^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^2/(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] Timed out
```

Fricas [A] time = 0.228309, size = 113, normalized size = 1.2

$$-\frac{\sqrt{10}\left(2\sqrt{10}\left(1188x^{2}-7712x+2481\right)\sqrt{5x+3}\sqrt{-2x+1}-17127\left(4x^{2}-4x+1\right)\arctan\left(\frac{\sqrt{10}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)}{5280\left(4x^{2}-4x+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^2/(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] -1/5280*sqrt(10)*(2*sqrt(10)*(1188*x^2 - 7712*x + 2481)*sqrt(5*x
+ 3)*sqrt(-2*x + 1) - 17127*(4*x^2 - 4*x + 1)*arctan(1/20*sqrt(10
)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(4*x^2 - 4*x + 1)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2*(3+5*x)**(1/2)/(1-2*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.234647, size = 96, normalized size = 1.02

$$\frac{519}{80}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)-\frac{\left(4\left(297\sqrt{5}(5x+3)-11422\sqrt{5}\right)(5x+3)+188397\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{33000\left(2x-1\right)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^2/(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] 519/80*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) - 1/33000*(4*
(297*sqrt(5)*(5*x + 3) - 11422*sqrt(5))*(5*x + 3) + 188397*sqrt(5
))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)^2
```

3.2566 $\int \frac{(2+3x)\sqrt{3+5x}}{(1-2x)^{5/2}}\,dx$

Optimal. Leaf size=74

$$\frac{7(5x+3)^{3/2}}{33(1-2x)^{3/2}}-\frac{3\sqrt{5x+3}}{2\sqrt{1-2x}}+\frac{3}{2}\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)$$

```
[Out] (-3*Sqrt[3 + 5*x])/(2*Sqrt[1 - 2*x]) + (7*(3 + 5*x)^(3/2))/(33*(1
 - 2*x)^(3/2)) + (3*Sqrt[5/2]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/2
```

Rubi [A] time = 0.074046, antiderivative size = 74, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$\frac{7(5x+3)^{3/2}}{33(1-2x)^{3/2}}-\frac{3\sqrt{5x+3}}{2\sqrt{1-2x}}+\frac{3}{2}\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)*Sqrt[3 + 5*x])/(1 - 2*x)^(5/2),x]
```

```
[Out] (-3*Sqrt[3 + 5*x])/(2*Sqrt[1 - 2*x]) + (7*(3 + 5*x)^(3/2))/(33*(1
 - 2*x)^(3/2)) + (3*Sqrt[5/2]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/2
```

Rubi in Sympy [A] time = 7.88819, size = 65, normalized size = 0.88

$$\frac{3\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{4}-\frac{3\sqrt{5x+3}}{2\sqrt{-2x+1}}+\frac{7\left(5x+3\right)^{\frac{3}{2}}}{33\left(-2x+1\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)*(3+5*x)**(1/2)/(1-2*x)**(5/2),x)
```

```
[Out] 3*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/4 - 3*sqrt(5*x + 3)/(2
*sqrt(-2*x + 1)) + 7*(5*x + 3)**(3/2)/(33*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.111145, size = 64, normalized size = 0.86

$$\frac{2\sqrt{5x+3}(268x-57)+99\sqrt{10-20x}(2x-1)\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{132(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)*Sqrt[3 + 5*x])/(1 - 2*x)^(5/2),x]
```

```
[Out] (2*Sqrt[3 + 5*x]*(-57 + 268*x) + 99*Sqrt[10 - 20*x]*(-1 + 2*x)*Ar
cSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/(132*(1 - 2*x)^(3/2))
```

Maple [A] time = 0.015, size = 103, normalized size = 1.4

$$\frac{1}{264\,(-1+2\,x)^{2}}\left(396\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x^{2}-396\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x+99\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)+1072\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)*(3+5*x)^(1/2)/(1-2*x)^(5/2),x)
```

```
[Out] 1/264*(396*10^(1/2)*arcsin(20/11*x+1/11)*x^2-396*10^(1/2)*arcsin(
20/11*x+1/11)*x+99*10^(1/2)*arcsin(20/11*x+1/11)+1072*x*(-10*x^2-
x+3)^(1/2)-228*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)*(3+5*x)^(1/2)/(
-1+2*x)^2/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.50722, size = 65, normalized size = 0.88

$$\frac{2\sqrt{-10x^2-x+3}}{3(4x^2-4x+1)}+\frac{10\sqrt{-10x^2-x+3}}{33(2x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)/(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] 2/3*sqrt(-10*x^2 - x + 3)/(4*x^2 - 4*x + 1) + 10/33*sqrt(-10*x^2
- x + 3)/(2*x - 1)
```

Fricas [A] time = 0.2277, size = 115, normalized size = 1.55

$$\frac{\sqrt{2}\left(2\sqrt{2}(268x-57)\sqrt{5x+3}\sqrt{-2x+1}+99\sqrt{5}\left(4x^2-4x+1\right)\arctan\left(\frac{\sqrt{5}\sqrt{2}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)}{264(4x^2-4x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)/(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/264*sqrt(2)*(2*sqrt(2)*(268*x - 57)*sqrt(5*x + 3)*sqrt(-2*x + 1
) + 99*sqrt(5)*(4*x^2 - 4*x + 1)*arctan(1/20*sqrt(5)*sqrt(2)*(20*
x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(4*x^2 - 4*x + 1)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(3x+2)\sqrt{5x+3}}{(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)*(3+5*x)**(1/2)/(1-2*x)**(5/2),x)
```

```
[Out] Integral((3*x + 2)*sqrt(5*x + 3)/(-2*x + 1)**(5/2), x)
```

GIAC/XCAS [A] time = 0.228133, size = 78, normalized size = 1.05

$$\frac{3}{4}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)+\frac{\left(268\sqrt{5}(5x+3)-1089\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{1650(2x-1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)/(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] 3/4*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) + 1/1650*(268*sq
rt(5)*(5*x + 3) - 1089*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*
x - 1)^2
```

3.2567 $\int \frac{\sqrt{3+5x}}{(1-2x)^{5/2}}\,dx$

Optimal. Leaf size=22

$$\frac{2(5x+3)^{3/2}}{33(1-2x)^{3/2}}$$

```
[Out] (2*(3 + 5*x)^(3/2))/(33*(1 - 2*x)^(3/2))
```

Rubi [A] time = 0.0155742, antiderivative size = 22, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}} = 0.053$

$$\frac{2(5x+3)^{3/2}}{33(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[3 + 5*x]/(1 - 2*x)^(5/2),x]

[Out] (2*(3 + 5*x)^(3/2))/(33*(1 - 2*x)^(3/2))
```

Rubi in Sympy [A] time = 2.89888, size = 19, normalized size = 0.86

$$\frac{2\,(5x+3)^{\frac{3}{2}}}{33\,(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(1/2)/(1-2*x)**(5/2),x)

[Out] 2*(5*x + 3)**(3/2)/(33*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.0248704, size = 22, normalized size = 1.

$$\frac{2(5x+3)^{3/2}}{33(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[3 + 5*x]/(1 - 2*x)^(5/2),x]

[Out] (2*(3 + 5*x)^(3/2))/(33*(1 - 2*x)^(3/2))
```

Maple [A] time = 0.005, size = 17, normalized size = 0.8

$$\frac{2}{33}\,(3+5\,x)^{\frac{3}{2}}\,(1-2\,x)^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(1/2)/(1-2*x)^(5/2),x)
```

```
[Out] 2/33*(3+5*x)^(3/2)/(1-2*x)^(3/2)
```

Maxima [A] time = 1.48675, size = 65, normalized size = 2.95

$$\frac{\sqrt{-10\,x^2-x+3}}{3\,(4\,x^2-4\,x+1)}+\frac{5\,\sqrt{-10\,x^2-x+3}}{33\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] 1/3*sqrt(-10*x^2 - x + 3)/(4*x^2 - 4*x + 1) + 5/33*sqrt(-10*x^2 -
 x + 3)/(2*x - 1)
```

Fricas [A] time = 0.218012, size = 38, normalized size = 1.73

$$\frac{2\,(5\,x+3)^{\frac{3}{2}}\sqrt{-2\,x+1}}{33\,(4\,x^2-4\,x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 2/33*(5*x + 3)^(3/2)*sqrt(-2*x + 1)/(4*x^2 - 4*x + 1)
```

Sympy [A] time = 5.0071, size = 82, normalized size = 3.73

$$\begin{cases} \frac{250i\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}{330\left(x+\frac{3}{5}\right)\sqrt{10x-5}-363\sqrt{10x-5}} & \text{for } \frac{10\left|x+\frac{3}{5}\right|}{11}>1 \\ -\frac{250\left(x+\frac{3}{5}\right)^{\frac{3}{2}}}{330\sqrt{-10x+5}\left(x+\frac{3}{5}\right)-363\sqrt{-10x+5}} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(1/2)/(1-2*x)**(5/2),x)
```

```
[Out] Piecewise((250*I*(x + 3/5)**(3/2)/(330*(x + 3/5)*sqrt(10*x - 5) -
 363*sqrt(10*x - 5)), 10*Abs(x + 3/5)/11 > 1), (-250*(x + 3/5)**(
3/2)/(330*sqrt(-10*x + 5)*(x + 3/5) - 363*sqrt(-10*x + 5)), True)
)
```

GIAC/XCAS [A] time = 0.224908, size = 35, normalized size = 1.59

$$\frac{2\,\sqrt{5}(5\,x+3)^{\frac{3}{2}}\sqrt{-10\,x+5}}{165\,(2\,x-1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] 2/165*sqrt(5)*(5*x + 3)^(3/2)*sqrt(-10*x + 5)/(2*x - 1)^2
```

3.2568 $\int \frac{\sqrt{3+5x}}{(1-2x)^{5/2}(2+3x)}\,dx$

Optimal. Leaf size=79

$$\frac{4(5x+3)^{3/2}}{231(1-2x)^{3/2}}+\frac{6\sqrt{5x+3}}{49\sqrt{1-2x}}+\frac{6\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{49\sqrt{7}}$$

```
[Out] (6*Sqrt[3 + 5*x])/(49*Sqrt[1 - 2*x]) + (4*(3 + 5*x)^(3/2))/(231*(
1 - 2*x)^(3/2)) + (6*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])
])/(49*Sqrt[7])
```

Rubi [A] time = 0.123303, antiderivative size = 79, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$\frac{4(5x+3)^{3/2}}{231(1-2x)^{3/2}}+\frac{6\sqrt{5x+3}}{49\sqrt{1-2x}}+\frac{6\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{49\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[3 + 5*x]/((1 - 2*x)^(5/2)*(2 + 3*x)),x]
```

```
[Out] (6*Sqrt[3 + 5*x])/(49*Sqrt[1 - 2*x]) + (4*(3 + 5*x)^(3/2))/(231*(
1 - 2*x)^(3/2)) + (6*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])
])/(49*Sqrt[7])
```

Rubi in Sympy [A] time = 10.4804, size = 73, normalized size = 0.92

$$\frac{6\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{343}+\frac{6\sqrt{5x+3}}{49\sqrt{-2x+1}}+\frac{4\,(5x+3)^{\frac{3}{2}}}{231\,(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(1/2)/(1-2*x)**(5/2)/(2+3*x),x)
```

```
[Out] 6*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/343 + 6*
sqrt(5*x + 3)/(49*sqrt(-2*x + 1)) + 4*(5*x + 3)**(3/2)/(231*(-2*x
 + 1)**(3/2))
```

Mathematica [A] time = 0.150137, size = 65, normalized size = 0.82

$$\frac{2\sqrt{5x+3}(141-128x)}{1617(1-2x)^{3/2}}+\frac{3\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{49\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[3 + 5*x]/((1 - 2*x)^(5/2)*(2 + 3*x)),x]
```

```
[Out] (2*(141 - 128*x)*Sqrt[3 + 5*x])/(1617*(1 - 2*x)^(3/2)) + (3*ArcTa
n[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/(49*Sqrt[7])
```

Maple [B] time = 0.019, size = 154, normalized size = 2.

$$-\frac{1}{11319\,(-1+2\,x)^{2}}\left(396\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^{2}-x+3}}\right)x^{2}-396\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^{2}-x+3}}\right)x+99\sqrt{7}\arctan\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(1/2)/(1-2*x)^(5/2)/(2+3*x),x)
```

```
[Out] -1/11319*(396*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)
^(1/2))*x^2-396*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+
3)^(1/2))*x+99*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3
)^(1/2))+1792*x*(-10*x^2-x+3)^(1/2)-1974*(-10*x^2-x+3)^(1/2))*(1-
2*x)^(1/2)*(3+5*x)^(1/2)/(-1+2*x)^2/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.50745, size = 117, normalized size = 1.48

$$-\frac{3}{343}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{640\,x}{1617\,\sqrt{-10\,x^{2}-x+3}}-\frac{1}{1617\,\sqrt{-10\,x^{2}-x+3}}+\frac{55\,x}{21\,(-10\,x^{2}-x+3)^{\frac{3}{2}}}+\frac{11}{7\,(-10\,x^{2}-x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/((3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] -3/343*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2))
+ 640/1617*x/sqrt(-10*x^2 - x + 3) - 1/1617/sqrt(-10*x^2 - x + 3)
 + 55/21*x/(-10*x^2 - x + 3)^(3/2) + 11/7/(-10*x^2 - x + 3)^(3/2)
```

Fricas [A] time = 0.23042, size = 107, normalized size = 1.35

$$-\frac{\sqrt{7}\left(2\sqrt{7}(128\,x-141)\sqrt{5\,x+3}\sqrt{-2\,x+1}+99\left(4\,x^{2}-4\,x+1\right)\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)}{11319\,(4\,x^{2}-4\,x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/((3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] -1/11319*sqrt(7)*(2*sqrt(7)*(128*x - 141)*sqrt(5*x + 3)*sqrt(-2*x
 + 1) + 99*(4*x^2 - 4*x + 1)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqr
t(5*x + 3)*sqrt(-2*x + 1))))/(4*x^2 - 4*x + 1)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(1/2)/(1-2*x)**(5/2)/(2+3*x),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.25412, size = 153, normalized size = 1.94

$$-\frac{3}{3430}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{2\left(128\sqrt{5}(5x+3)-1089\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{40425\,(2x-1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)/((3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] -3/3430*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x
 + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqr
t(2)*sqrt(-10*x + 5) - sqrt(22)))) - 2/40425*(128*sqrt(5)*(5*x +
3) - 1089*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)^2
```

3.2569 $\int \frac{\sqrt{3+5x}}{(1-2x)^{5/2}(2+3x)^2} \, dx$

Optimal. Leaf size=115

$$\frac{850\sqrt{5x+3}}{11319\sqrt{1-2x}}-\frac{5\sqrt{5x+3}}{49\sqrt{1-2x}(3x+2)}+\frac{2\sqrt{5x+3}}{21(1-2x)^{3/2}(3x+2)}-\frac{75\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{343\sqrt{7}}$$

```
[Out] (850*Sqrt[3 + 5*x])/(11319*Sqrt[1 - 2*x]) + (2*Sqrt[3 + 5*x])/(21
*(1 - 2*x)^(3/2)*(2 + 3*x)) - (5*Sqrt[3 + 5*x])/(49*Sqrt[1 - 2*x]
*(2 + 3*x)) - (75*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/
(343*Sqrt[7])
```

Rubi [A] time = 0.243769, antiderivative size = 115, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$\frac{850\sqrt{5x+3}}{11319\sqrt{1-2x}}-\frac{5\sqrt{5x+3}}{49\sqrt{1-2x}(3x+2)}+\frac{2\sqrt{5x+3}}{21(1-2x)^{3/2}(3x+2)}-\frac{75\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{343\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[3 + 5*x]/((1 - 2*x)^(5/2)*(2 + 3*x)^2),x]
```

```
[Out] (850*Sqrt[3 + 5*x])/(11319*Sqrt[1 - 2*x]) + (2*Sqrt[3 + 5*x])/(21
*(1 - 2*x)^(3/2)*(2 + 3*x)) - (5*Sqrt[3 + 5*x])/(49*Sqrt[1 - 2*x]
*(2 + 3*x)) - (75*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/
(343*Sqrt[7])
```

Rubi in Sympy [A] time = 22.4389, size = 104, normalized size = 0.9

$$-\frac{75\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{2401}+\frac{850\sqrt{5x+3}}{11319\sqrt{-2x+1}}-\frac{5\sqrt{5x+3}}{49\sqrt{-2x+1}\,(3x+2)}+\frac{2\sqrt{5x+3}}{21\,(-2x+1)^{\frac{3}{2}}\,(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(1/2)/(1-2*x)**(5/2)/(2+3*x)**2,x)
```

```
[Out] -75*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/2401 +
 850*sqrt(5*x + 3)/(11319*sqrt(-2*x + 1)) - 5*sqrt(5*x + 3)/(49*s
qrt(-2*x + 1)*(3*x + 2)) + 2*sqrt(5*x + 3)/(21*(-2*x + 1)**(3/2)*
(3*x + 2))
```

Mathematica [A] time = 0.0956743, size = 77, normalized size = 0.67

$$\frac{\sqrt{5x+3}\left(-5100x^2+1460x+1623\right)}{11319(1-2x)^{3/2}(3x+2)}-\frac{75\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{686\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[3 + 5*x]/((1 - 2*x)^(5/2)*(2 + 3*x)^2),x]
```

```
[Out] (Sqrt[3 + 5*x]*(1623 + 1460*x - 5100*x^2))/(11319*(1 - 2*x)^(3/2)
*(2 + 3*x)) - (75*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 +
5*x])])/(686*Sqrt[7])
```

Maple [B] time = 0.02, size = 209, normalized size = 1.8

$$\frac{1}{(316932+475398\,x)\,(-1+2\,x)^{2}}\left(29700\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^{2}-x+3}}\right)x^{3}-9900\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^{2}-x+3}}\right)x^{2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(1/2)/(1-2*x)^(5/2)/(2+3*x)^2,x)
```

```
[Out] 1/158466*(29700*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+
3)^(1/2))*x^3-9900*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2
-x+3)^(1/2))*x^2-12375*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10
*x^2-x+3)^(1/2))*x-71400*x^2*(-10*x^2-x+3)^(1/2)+4950*7^(1/2)*arc
tan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+20440*x*(-10*x^2-
x+3)^(1/2)+22722*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)*(3+5*x)^(1/2)
/(2+3*x)/(-1+2*x)^2/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.51058, size = 163, normalized size = 1.42

$$\frac{75}{4802}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{4250\,x}{11319\,\sqrt{-10\,x^{2}-x+3}}+\frac{625}{11319\,\sqrt{-10\,x^{2}-x+3}}+\frac{100\,x}{147\,(-10\,x^{2}-x+3)^{\frac{3}{2}}}-\frac{1}{63\left(3\,(-10\,x^{2}-x+3)^{\frac{3}{2}}x+2\,(-10\,x^{2}-x+3)^{\frac{3}{2}}\right)}+\frac{215}{441\,(-10\,x^{2}-x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/((3*x + 2)^2*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 75/4802*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2))
 + 4250/11319*x/sqrt(-10*x^2 - x + 3) + 625/11319/sqrt(-10*x^2 -
x + 3) + 100/147*x/(-10*x^2 - x + 3)^(3/2) - 1/63/(3*(-10*x^2 - x
 + 3)^(3/2)*x + 2*(-10*x^2 - x + 3)^(3/2)) + 215/441/(-10*x^2 - x
 + 3)^(3/2)
```

Fricas [A] time = 0.232698, size = 127, normalized size = 1.1

$$-\frac{\sqrt{7}\left(2\,\sqrt{7}\left(5100\,x^{2}-1460\,x-1623\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-2475\,\left(12\,x^{3}-4\,x^{2}-5\,x+2\right)\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)}{158466\,(12\,x^{3}-4\,x^{2}-5\,x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/((3*x + 2)^2*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] -1/158466*sqrt(7)*(2*sqrt(7)*(5100*x^2 - 1460*x - 1623)*sqrt(5*x
+ 3)*sqrt(-2*x + 1) - 2475*(12*x^3 - 4*x^2 - 5*x + 2)*arctan(1/14
*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(12*x^3 - 4
*x^2 - 5*x + 2)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(1/2)/(1-2*x)**(5/2)/(2+3*x)**2,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.331367, size = 313, normalized size = 2.72

$$\frac{15}{9604}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{198\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)}{343\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)}-\frac{8\left(163\sqrt{5}(5x+3)-1089\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{282975\,(2x-1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)/((3*x + 2)^2*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 15/9604*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x
 + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqr
t(2)*sqrt(-10*x + 5) - sqrt(22)))) - 198/343*sqrt(10)*((sqrt(2)*s
qrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(
2)*sqrt(-10*x + 5) - sqrt(22)))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt
(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) -
sqrt(22)))^2 + 280) - 8/282975*(163*sqrt(5)*(5*x + 3) - 1089*sqrt
(5))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)^2
```

3.2570 $\int \frac{\sqrt{3+5x}}{(1-2x)^{5/2}(2+3x)^3}\,dx$

Optimal. Leaf size=144

$$\frac{415\sqrt{5x+3}}{22638\sqrt{1-2x}}+\frac{5\sqrt{5x+3}}{196\sqrt{1-2x}(3x+2)}-\frac{\sqrt{5x+3}}{14\sqrt{1-2x}(3x+2)^2}+\frac{2\sqrt{5x+3}}{21(1-2x)^{3/2}(3x+2)^2}-\frac{765\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{1372\sqrt{7}}$$

```
[Out] (415*Sqrt[3 + 5*x])/(22638*Sqrt[1 - 2*x]) + (2*Sqrt[3 + 5*x])/(21
*(1 - 2*x)^(3/2)*(2 + 3*x)^2) - Sqrt[3 + 5*x]/(14*Sqrt[1 - 2*x]*(
2 + 3*x)^2) + (5*Sqrt[3 + 5*x])/(196*Sqrt[1 - 2*x]*(2 + 3*x)) - (
765*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(1372*Sqrt[7])
```

Rubi [A] time = 0.323628, antiderivative size = 144, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$\frac{415\sqrt{5x+3}}{22638\sqrt{1-2x}}+\frac{5\sqrt{5x+3}}{196\sqrt{1-2x}(3x+2)}-\frac{\sqrt{5x+3}}{14\sqrt{1-2x}(3x+2)^2}+\frac{2\sqrt{5x+3}}{21(1-2x)^{3/2}(3x+2)^2}-\frac{765\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{1372\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[3 + 5*x]/((1 - 2*x)^(5/2)*(2 + 3*x)^3),x]
```

```
[Out] (415*Sqrt[3 + 5*x])/(22638*Sqrt[1 - 2*x]) + (2*Sqrt[3 + 5*x])/(21
*(1 - 2*x)^(3/2)*(2 + 3*x)^2) - Sqrt[3 + 5*x]/(14*Sqrt[1 - 2*x]*(
2 + 3*x)^2) + (5*Sqrt[3 + 5*x])/(196*Sqrt[1 - 2*x]*(2 + 3*x)) - (
765*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(1372*Sqrt[7])
```

Rubi in Sympy [A] time = 29.4351, size = 131, normalized size = 0.91

$$-\frac{765\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{9604}+\frac{415\sqrt{5x+3}}{22638\sqrt{-2x+1}}+\frac{5\sqrt{5x+3}}{196\sqrt{-2x+1}\,(3x+2)}-\frac{\sqrt{5x+3}}{14\sqrt{-2x+1}\,(3x+2)^2}+\frac{2\sqrt{5x+3}}{21\,(-2x+1)^{\frac{3}{2}}\,(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(1/2)/(1-2*x)**(5/2)/(2+3*x)**3,x)
```

```
[Out] -765*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/9604
+ 415*sqrt(5*x + 3)/(22638*sqrt(-2*x + 1)) + 5*sqrt(5*x + 3)/(196
*sqrt(-2*x + 1)*(3*x + 2)) - sqrt(5*x + 3)/(14*sqrt(-2*x + 1)*(3*
x + 2)**2) + 2*sqrt(5*x + 3)/(21*(-2*x + 1)**(3/2)*(3*x + 2)**2)
```

Mathematica [A] time = 0.0946718, size = 85, normalized size = 0.59

$$\frac{\sqrt{1-2x}\sqrt{5x+3}\left(-14940x^3-19380x^2+8633x+6708\right)}{45276\left(6x^2+x-2\right)^2}-\frac{765\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{2744\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[3 + 5*x]/((1 - 2*x)^(5/2)*(2 + 3*x)^3),x]
```

```
[Out] (Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(6708 + 8633*x - 19380*x^2 - 14940*x
^3))/(45276*(-2 + x + 6*x^2)^2) - (765*ArcTan[(-20 - 37*x)/(2*Sqr
```

```
t[7 - 14*x]*Sqrt[3 + 5*x])])/(2744*Sqrt[7])
```

Maple [B] time = 0.021, size = 257, normalized size = 1.8

$$\frac{1}{633864\,(2+3x)^2(-1+2x)^2}\left(908820\sqrt{7}\arctan\left(1/14\,\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)x^4+302940\sqrt{7}\arctan\left(1/14\,\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(1/2)/(1-2*x)^(5/2)/(2+3*x)^3,x)
```

```
[Out] 1/633864*(908820*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x
+3)^(1/2))*x^4+302940*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*
x^2-x+3)^(1/2))*x^3-580635*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/
(-10*x^2-x+3)^(1/2))*x^2-209160*x^3*(-10*x^2-x+3)^(1/2)-100980*7^
(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x-271320
*x^2*(-10*x^2-x+3)^(1/2)+100980*7^(1/2)*arctan(1/14*(37*x+20)*7^(
1/2)/(-10*x^2-x+3)^(1/2))+120862*x*(-10*x^2-x+3)^(1/2)+93912*(-10
*x^2-x+3)^(1/2))*(1-2*x)^(1/2)*(3+5*x)^(1/2)/(2+3*x)^2/(-1+2*x)^2
/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.51825, size = 232, normalized size = 1.61

$$\frac{765}{19208}\sqrt{7}\arcsin\left(\frac{37x}{11|3x+2|}+\frac{20}{11|3x+2|}\right)+\frac{2075x}{22638\sqrt{-10x^2-x+3}}+\frac{4415}{45276\sqrt{-10x^2-x+3}}+\frac{125x}{294(-10x^2-x+3)^{\frac{3}{2}}}-\frac{1}{126\left(9(-10x^2-x+3)^{\frac{3}{2}}x^2+12(-10x^2-x+3)^{\frac{3}{2}}x+4(-10x^2-x+3)^{\frac{3}{2}}\right)}+\frac{23}{252\left(3(-10x^2-x+3)^{\frac{3}{2}}x+2(-10x^2-x+3)^{\frac{3}{2}}\right)}-\frac{5}{1764(-10x^2-x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/((3*x + 2)^3*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 765/19208*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2
)) + 2075/22638*x/sqrt(-10*x^2 - x + 3) + 4415/45276/sqrt(-10*x^2
 - x + 3) + 125/294*x/(-10*x^2 - x + 3)^(3/2) - 1/126/(9*(-10*x^2
 - x + 3)^(3/2)*x^2 + 12*(-10*x^2 - x + 3)^(3/2)*x + 4*(-10*x^2 -
 x + 3)^(3/2)) + 23/252/(3*(-10*x^2 - x + 3)^(3/2)*x + 2*(-10*x^2
 - x + 3)^(3/2)) - 5/1764/(-10*x^2 - x + 3)^(3/2)
```

Fricas [A] time = 0.229796, size = 147, normalized size = 1.02

$$-\frac{\sqrt{7}\left(2\sqrt{7}\left(14940x^3+19380x^2-8633x-6708\right)\sqrt{5x+3}\sqrt{-2x+1}-25245\left(36x^4+12x^3-23x^2-4x+4\right)\arctan\left(\frac{\sqrt{7}}{14\sqrt{5}}\right.\right.}{633864\left(36x^4+12x^3-23x^2-4x+4\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/((3*x + 2)^3*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] -1/633864*sqrt(7)*(2*sqrt(7)*(14940*x^3 + 19380*x^2 - 8633*x - 67
08)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 25245*(36*x^4 + 12*x^3 - 23*x^
2 - 4*x + 4)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(
-2*x + 1))))/(36*x^4 + 12*x^3 - 23*x^2 - 4*x + 4)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(1/2)/(1-2*x)**(5/2)/(2+3*x)**3,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.419847, size = 400, normalized size = 2.78

$$\frac{153}{38416}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{8\left(524\sqrt{5}(5x+3)-3267\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{1980825(2x-1)^2}-\frac{297\left(19\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3-840\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)\right)}{4802\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/((3*x + 2)^3*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 153/38416*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5
*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(s
qrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 8/1980825*(524*sqrt(5)*(5*
x + 3) - 3267*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)^2
- 297/4802*(19*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqr
t(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))
)^3 - 840*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x
 + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/((
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x +
 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)^2
```

3.2571 $\int \frac{\sqrt{3+5x}}{(1-2x)^{5/2}(2+3x)^4} \, dx$

Optimal. Leaf size=173

$$-\frac{16985\sqrt{5x+3}}{316932\sqrt{1-2x}}+\frac{605\sqrt{5x+3}}{2744\sqrt{1-2x}(3x+2)}-\frac{\sqrt{5x+3}}{196\sqrt{1-2x}(3x+2)^2}-\frac{3\sqrt{5x+3}}{49\sqrt{1-2x}(3x+2)^3}+\frac{2\sqrt{5x+3}}{21(1-2x)^{3/2}(3x+2)^3}-\frac{25365\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{19208\sqrt{7}}$$

```
[Out] (-16985*Sqrt[3 + 5*x])/(316932*Sqrt[1 - 2*x]) + (2*Sqrt[3 + 5*x])
/(21*(1 - 2*x)^(3/2)*(2 + 3*x)^3) - (3*Sqrt[3 + 5*x])/(49*Sqrt[1
- 2*x]*(2 + 3*x)^3) - Sqrt[3 + 5*x]/(196*Sqrt[1 - 2*x]*(2 + 3*x)^
2) + (605*Sqrt[3 + 5*x])/(2744*Sqrt[1 - 2*x]*(2 + 3*x)) - (25365*
ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(19208*Sqrt[7])
```

Rubi [A] time = 0.406856, antiderivative size = 173, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$-\frac{16985\sqrt{5x+3}}{316932\sqrt{1-2x}}+\frac{605\sqrt{5x+3}}{2744\sqrt{1-2x}(3x+2)}-\frac{\sqrt{5x+3}}{196\sqrt{1-2x}(3x+2)^2}-\frac{3\sqrt{5x+3}}{49\sqrt{1-2x}(3x+2)^3}+\frac{2\sqrt{5x+3}}{21(1-2x)^{3/2}(3x+2)^3}-\frac{25365\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{19208\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[3 + 5*x]/((1 - 2*x)^(5/2)*(2 + 3*x)^4),x]
```

```
[Out] (-16985*Sqrt[3 + 5*x])/(316932*Sqrt[1 - 2*x]) + (2*Sqrt[3 + 5*x])
/(21*(1 - 2*x)^(3/2)*(2 + 3*x)^3) - (3*Sqrt[3 + 5*x])/(49*Sqrt[1
- 2*x]*(2 + 3*x)^3) - Sqrt[3 + 5*x]/(196*Sqrt[1 - 2*x]*(2 + 3*x)^
2) + (605*Sqrt[3 + 5*x])/(2744*Sqrt[1 - 2*x]*(2 + 3*x)) - (25365*
ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(19208*Sqrt[7])
```

Rubi in Sympy [A] time = 36.6081, size = 158, normalized size = 0.91

$$-\frac{25365\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{134456}-\frac{16985\sqrt{5x+3}}{316932\sqrt{-2x+1}}+\frac{605\sqrt{5x+3}}{2744\sqrt{-2x+1}\,(3x+2)}-\frac{\sqrt{5x+3}}{196\sqrt{-2x+1}\,(3x+2)^2}-\frac{3\sqrt{5x+3}}{49\sqrt{-2x+1}\,(3x+2)^3}+\frac{2\sqrt{5x+3}}{21\,(-2x+1)^{\frac{3}{2}}\,(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(1/2)/(1-2*x)**(5/2)/(2+3*x)**4,x)
```

```
[Out] -25365*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/134
456 - 16985*sqrt(5*x + 3)/(316932*sqrt(-2*x + 1)) + 605*sqrt(5*x
+ 3)/(2744*sqrt(-2*x + 1)*(3*x + 2)) - sqrt(5*x + 3)/(196*sqrt(-2
*x + 1)*(3*x + 2)**2) - 3*sqrt(5*x + 3)/(49*sqrt(-2*x + 1)*(3*x +
 2)**3) + 2*sqrt(5*x + 3)/(21*(-2*x + 1)**(3/2)*(3*x + 2)**3)
```

Mathematica [A] time = 0.148931, size = 87, normalized size = 0.5

$$\frac{\frac{14\sqrt{5x+3}(1834380x^4+235980x^3-1465461x^2-39530x+302352)}{(1-2x)^{3/2}(3x+2)^3}-837045\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{8874096}$$

Antiderivative was successfully verified.

```
[In]   Integrate[Sqrt[3 + 5*x]/((1 - 2*x)^(5/2)*(2 + 3*x)^4),x]
```

```
[Out] ((14*Sqrt[3 + 5*x]*(302352 - 39530*x - 1465461*x^2 + 235980*x^3 +
 1834380*x^4))/((1 - 2*x)^(3/2)*(2 + 3*x)^3) - 837045*Sqrt[7]*Arc
Tan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/8874096
```

Maple [B] time = 0.022, size = 305, normalized size = 1.8

$$\frac{1}{8874096\,(2+3x)^3\,(-1+2x)^2}\left(90400860\,\sqrt{7}\arctan\left(1/14\,\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)x^5+90400860\,\sqrt{7}\arctan\left(1/14\,\frac{(37x+20)\sqrt{}}{\sqrt{-10x^2-x}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((3+5*x)^(1/2)/(1-2*x)^(5/2)/(2+3*x)^4,x)
```

```
[Out] 1/8874096*(90400860*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^
2-x+3)^(1/2))*x^5+90400860*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/
(-10*x^2-x+3)^(1/2))*x^4-37667025*7^(1/2)*arctan(1/14*(37*x+20)*7
^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+25681320*x^4*(-10*x^2-x+3)^(1/2)-
48548610*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2
))*x^2+3303720*x^3*(-10*x^2-x+3)^(1/2)+3348180*7^(1/2)*arctan(1/1
4*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x-20516454*x^2*(-10*x^2-
x+3)^(1/2)+6696360*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2
-x+3)^(1/2))-553420*x*(-10*x^2-x+3)^(1/2)+4232928*(-10*x^2-x+3)^(
1/2))*(1-2*x)^(1/2)*(3+5*x)^(1/2)/(2+3*x)^3/(-1+2*x)^2/(-10*x^2-x
+3)^(1/2)
```

Maxima [A] time = 1.5141, size = 324, normalized size = 1.87

$$\frac{25365}{268912}\sqrt{7}\arcsin\left(\frac{37x}{11|3x+2|}+\frac{20}{11|3x+2|}\right)-\frac{84925x}{316932\sqrt{-10x^2-x+3}}+\frac{131015}{633864\sqrt{-10x^2-x+3}}+\frac{375x}{1372(-10x^2-x+3)^{\frac{3}{2}}}-\frac{1}{189\left(27(-10x^2-x+3)^{\frac{3}{2}}x^3+54(-10x^2-x+3)^{\frac{3}{2}}x^2+36(-10x^2-x+3)^{\frac{3}{2}}x+8(-10x^2-x+3)^{\frac{3}{2}}\right)}+\frac{11}{196\left(9(-10x^2-x+3)^{\frac{3}{2}}x^2+12(-10x^2-x+3)^{\frac{3}{2}}x+4(-10x^2-x+3)^{\frac{3}{2}}\right)}-\frac{377}{3528\left(3(-10x^2-x+3)^{\frac{3}{2}}x+2(-10x^2-x+3)^{\frac{3}{2}}\right)}-\frac{3215}{74088(-10x^2-x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/((3*x + 2)^4*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 25365/268912*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x
+ 2)) - 84925/316932*x/sqrt(-10*x^2 - x + 3) + 131015/633864/sqrt
(-10*x^2 - x + 3) + 375/1372*x/(-10*x^2 - x + 3)^(3/2) - 1/189/(2
7*(-10*x^2 - x + 3)^(3/2)*x^3 + 54*(-10*x^2 - x + 3)^(3/2)*x^2 +
36*(-10*x^2 - x + 3)^(3/2)*x + 8*(-10*x^2 - x + 3)^(3/2)) + 11/19
6/(9*(-10*x^2 - x + 3)^(3/2)*x^2 + 12*(-10*x^2 - x + 3)^(3/2)*x +
 4*(-10*x^2 - x + 3)^(3/2)) - 377/3528/(3*(-10*x^2 - x + 3)^(3/2)
*x + 2*(-10*x^2 - x + 3)^(3/2)) - 3215/74088/(-10*x^2 - x + 3)^(3
/2)
```

Fricas [A] time = 0.231431, size = 167, normalized size = 0.97

$$\frac{\sqrt{7}\left(2\sqrt{7}\left(1834380\,x^4+235980\,x^3-1465461\,x^2-39530\,x+302352\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+837045\left(108\,x^5+108\,x^4-45\,x^3-\right.\right.}{8874096\left(108\,x^5+108\,x^4-45\,x^3-58\,x^2+4\,x+8\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)/((3*x + 2)^4*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/8874096*sqrt(7)*(2*sqrt(7)*(1834380*x^4 + 235980*x^3 - 1465461*
x^2 - 39530*x + 302352)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 837045*(10
8*x^5 + 108*x^4 - 45*x^3 - 58*x^2 + 4*x + 8)*arctan(1/14*sqrt(7)*
(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(108*x^5 + 108*x^4 -
 45*x^3 - 58*x^2 + 4*x + 8)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3+5*x)**(1/2)/(1-2*x)**(5/2)/(2+3*x)**4,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.542411, size = 482, normalized size = 2.79

$$\frac{5073}{537824}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)-\frac{32\left(361\sqrt{5}(5\,x+3)-2178\sqrt{5}\right)\sqrt{5\,x+3}\sqrt{-10\,x+5}}{13865775\,(2\,x-1)^2}-\frac{297\left(603\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^5-235200\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^3-37240000\sqrt{10}\left(\frac{\sqrt{2}\sqrt{\cdot}}{}\right.\right.}{67228\left(\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^2+280\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)/((3*x + 2)^4*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 5073/537824*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt
(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 32/13865775*(361*sqrt(5)
*(5*x + 3) - 2178*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1
)^2 - 297/67228*(603*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22
))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqr
t(22)))^5 - 235200*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))
/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(
22)))^3 - 37240000*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))
/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(
22))))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*s
qrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)^3
```

3.2572 $\int \frac{(2+3x)^4(3+5x)^{3/2}}{(1-2x)^{5/2}}\,dx$

Optimal. Leaf size=164

$$\frac{(5x+3)^{3/2}(3x+2)^4}{3(1-2x)^{3/2}}-\frac{123(5x+3)^{3/2}(3x+2)^3}{22\sqrt{1-2x}}$$

$$-\frac{3315}{352}\sqrt{1-2x}(5x+3)^{3/2}(3x+2)^2-\frac{3\sqrt{1-2x}(5x+3)^{3/2}(10798680x+22868329)}{281600}-\frac{1626211523\sqrt{1-2x}\sqrt{5x+3}}{1126400}+\frac{162621152}{}$$

```
[Out] (-1626211523*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/1126400 - (3315*Sqrt[1
- 2*x]*(2 + 3*x)^2*(3 + 5*x)^(3/2))/352 - (123*(2 + 3*x)^3*(3 + 5
*x)^(3/2))/(22*Sqrt[1 - 2*x]) + ((2 + 3*x)^4*(3 + 5*x)^(3/2))/(3*
(1 - 2*x)^(3/2)) - (3*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)*(22868329 + 1
0798680*x))/281600 + (1626211523*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]]
)/(102400*Sqrt[10])
```

Rubi [A] time = 0.279846, antiderivative size = 164, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 7, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.269

$$\frac{(5x+3)^{3/2}(3x+2)^4}{3(1-2x)^{3/2}}-\frac{123(5x+3)^{3/2}(3x+2)^3}{22\sqrt{1-2x}}$$

$$-\frac{3315}{352}\sqrt{1-2x}(5x+3)^{3/2}(3x+2)^2-\frac{3\sqrt{1-2x}(5x+3)^{3/2}(10798680x+22868329)}{281600}-\frac{1626211523\sqrt{1-2x}\sqrt{5x+3}}{1126400}+\frac{162621152}{}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^4*(3 + 5*x)^(3/2))/(1 - 2*x)^(5/2),x]
```

```
[Out] (-1626211523*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/1126400 - (3315*Sqrt[1
- 2*x]*(2 + 3*x)^2*(3 + 5*x)^(3/2))/352 - (123*(2 + 3*x)^3*(3 + 5
*x)^(3/2))/(22*Sqrt[1 - 2*x]) + ((2 + 3*x)^4*(3 + 5*x)^(3/2))/(3*
(1 - 2*x)^(3/2)) - (3*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)*(22868329 + 1
0798680*x))/281600 + (1626211523*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]]
)/(102400*Sqrt[10])
```

Rubi in Sympy [A] time = 35.0517, size = 158, normalized size = 0.96

$$-\frac{3337\sqrt{-2x+1}\,(3x+2)^3\,\sqrt{5x+3}}{224}-\frac{7779\sqrt{-2x+1}\,(3x+2)^2\,\sqrt{5x+3}}{128}-\frac{\sqrt{-2x+1}\sqrt{5x+3}\left(\frac{32107012875x}{8}+\frac{309488440275}{32}\right)}{5040000}+\frac{1626211523\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{1024000}-\frac{123\,(3x+2)^4\,\sqrt{5x+3}}{14\sqrt{-2x+1}}+\frac{(3x+2)^4\,(5x+3)^{\frac{3}{2}}}{3\,(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4*(3+5*x)**(3/2)/(1-2*x)**(5/2),x)
```

```
[Out] -3337*sqrt(-2*x + 1)*(3*x + 2)**3*sqrt(5*x + 3)/224 - 7779*sqrt(-
2*x + 1)*(3*x + 2)**2*sqrt(5*x + 3)/128 - sqrt(-2*x + 1)*sqrt(5*x
 + 3)*(32107012875*x/8 + 309488440275/32)/5040000 + 1626211523*sq
rt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/1024000 - 123*(3*x + 2)**4
*sqrt(5*x + 3)/(14*sqrt(-2*x + 1)) + (3*x + 2)**4*(5*x + 3)**(3/2
)/(3*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.190477, size = 84, normalized size = 0.51

$$\frac{4878634569\sqrt{10-20x}(2x-1)\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)-10\sqrt{5x+3}\left(15552000x^5+83548800x^4+236669040x^3+633940524x\right.}{3072000(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^4*(3 + 5*x)^(3/2))/(1 - 2*x)^(5/2),x]
```

```
[Out] (-10*Sqrt[3 + 5*x]*(739060191 - 2034703904*x + 633940524*x^2 + 23
6669040*x^3 + 83548800*x^4 + 15552000*x^5) + 4878634569*Sqrt[10 -
 20*x]*(-1 + 2*x)*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/(3072000*(1 -
 2*x)^(3/2))
```

Maple [A] time = 0.019, size = 171, normalized size = 1.

$$\frac{1}{6144000\,(-1+2\,x)^2}\left(-311040000\,x^5\sqrt{-10\,x^2-x+3}-1670976000\,x^4\sqrt{-10\,x^2-x+3}+19514538276\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4*(3+5*x)^(3/2)/(1-2*x)^(5/2),x)
```

```
[Out] 1/6144000*(-311040000*x^5*(-10*x^2-x+3)^(1/2)-1670976000*x^4*(-10
*x^2-x+3)^(1/2)+19514538276*10^(1/2)*arcsin(20/11*x+1/11)*x^2-473
3380800*x^3*(-10*x^2-x+3)^(1/2)-19514538276*10^(1/2)*arcsin(20/11
*x+1/11)*x-12678810480*x^2*(-10*x^2-x+3)^(1/2)+4878634569*10^(1/2
)*arcsin(20/11*x+1/11)+40694078080*x*(-10*x^2-x+3)^(1/2)-14781203
820*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)*(3+5*x)^(1/2)/(-1+2*x)^2/(
-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.54612, size = 325, normalized size = 1.98

$$\begin{aligned}
&\frac{81}{64}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x+\frac{1666460963}{2048000}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}\,x+\frac{1}{11}\right)\\
&+\frac{251559}{12800}i\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}\,x-\frac{21}{11}\right)+\frac{10161}{1280}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}\\
&-\frac{2079}{32}\sqrt{10\,x^2-21\,x+8}x+\frac{29403}{5120}\sqrt{-10\,x^2-x+3}x+\frac{43659}{640}\sqrt{10\,x^2-21\,x+8}\\
&-\frac{34897797}{102400}\sqrt{-10\,x^2-x+3}-\frac{2401\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{96\left(8\,x^3-12\,x^2+6\,x-1\right)}+\frac{1029\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{8\left(4\,x^2-4\,x+1\right)}\\
&+\frac{1323\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{32\left(2\,x-1\right)}+\frac{26411\sqrt{-10\,x^2-x+3}}{192\left(4\,x^2-4\,x+1\right)}+\frac{491519\sqrt{-10\,x^2-x+3}}{192\left(2\,x-1\right)}
\end{aligned}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)^4/(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] 81/64*(-10*x^2 - x + 3)^(3/2)*x + 1666460963/2048000*sqrt(5)*sqrt
(2)*arcsin(20/11*x + 1/11) + 251559/12800*I*sqrt(5)*sqrt(2)*arcsi
n(20/11*x - 21/11) + 10161/1280*(-10*x^2 - x + 3)^(3/2) - 2079/32
*sqrt(10*x^2 - 21*x + 8)*x + 29403/5120*sqrt(-10*x^2 - x + 3)*x +
 43659/640*sqrt(10*x^2 - 21*x + 8) - 34897797/102400*sqrt(-10*x^2
 - x + 3) - 2401/96*(-10*x^2 - x + 3)^(3/2)/(8*x^3 - 12*x^2 + 6*x
 - 1) + 1029/8*(-10*x^2 - x + 3)^(3/2)/(4*x^2 - 4*x + 1) + 1323/3
2*(-10*x^2 - x + 3)^(3/2)/(2*x - 1) + 26411/192*sqrt(-10*x^2 - x
+ 3)/(4*x^2 - 4*x + 1) + 491519/192*sqrt(-10*x^2 - x + 3)/(2*x -
1)
```

Fricas [A] time = 0.23128, size = 134, normalized size = 0.82

$$-\frac{\sqrt{10}\left(2\sqrt{10}\left(15552000\,x^5+83548800\,x^4+236669040\,x^3+633940524\,x^2-2034703904\,x+739060191\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}\right.}{6144000\,(4\,x^2-4\,x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)^4/(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] -1/6144000*sqrt(10)*(2*sqrt(10)*(15552000*x^5 + 83548800*x^4 + 23
6669040*x^3 + 633940524*x^2 - 2034703904*x + 739060191)*sqrt(5*x
+ 3)*sqrt(-2*x + 1) - 4878634569*(4*x^2 - 4*x + 1)*arctan(1/20*sq
rt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(4*x^2 - 4*x +
 1)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4*(3+5*x)**(3/2)/(1-2*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.241724, size = 149, normalized size = 0.91

$$\frac{1626211523}{1024000}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5\,x+3}\right) - \frac{\left(4\left(9\left(12\left(8\left(36\sqrt{5}(5\,x+3)+427\sqrt{5}\right)(5\,x+3)+42657\sqrt{5}\right)(5\,x+3)+9855815\sqrt{5}\right)(5\,x+3)-3252423046\sqrt{5}\right)(5\,x+3)\right.}{38400000\,(2\,x-1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)^4/(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] 1626211523/1024000*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) -
 1/38400000*(4*(9*(12*(8*(36*sqrt(5)*(5*x + 3) + 427*sqrt(5))*(5*
x + 3) + 42657*sqrt(5))*(5*x + 3) + 9855815*sqrt(5))*(5*x + 3) -
3252423046*sqrt(5))*(5*x + 3) + 53664980259*sqrt(5))*sqrt(5*x + 3
)*sqrt(-10*x + 5)/(2*x - 1)^2
```

3.2573 $\int \frac{(2+3x)^3(3+5x)^{3/2}}{(1-2x)^{5/2}}\,dx$

Optimal. Leaf size=135

$$\frac{(5x+3)^{3/2}(3x+2)^3}{3(1-2x)^{3/2}}-\frac{101(5x+3)^{3/2}(3x+2)^2}{22\sqrt{1-2x}}-\frac{3\sqrt{1-2x}(5x+3)^{3/2}(28200x+59719)}{3520}-\frac{4246733\sqrt{1-2x}\sqrt{5x+3}}{14080}+\frac{4246733\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{1280\sqrt{10}}$$

```
[Out] (-4246733*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/14080 - (101*(2 + 3*x)^2*(
3 + 5*x)^(3/2))/(22*Sqrt[1 - 2*x]) + ((2 + 3*x)^3*(3 + 5*x)^(3/2)
)/(3*(1 - 2*x)^(3/2)) - (3*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)*(59719 +
 28200*x))/3520 + (4246733*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(128
0*Sqrt[10])
```

Rubi [A] time = 0.212006, antiderivative size = 135, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$\frac{(5x+3)^{3/2}(3x+2)^3}{3(1-2x)^{3/2}}-\frac{101(5x+3)^{3/2}(3x+2)^2}{22\sqrt{1-2x}}-\frac{3\sqrt{1-2x}(5x+3)^{3/2}(28200x+59719)}{3520}-\frac{4246733\sqrt{1-2x}\sqrt{5x+3}}{14080}+\frac{4246733\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{1280\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^3*(3 + 5*x)^(3/2))/(1 - 2*x)^(5/2),x]
```

```
[Out] (-4246733*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/14080 - (101*(2 + 3*x)^2*(
3 + 5*x)^(3/2))/(22*Sqrt[1 - 2*x]) + ((2 + 3*x)^3*(3 + 5*x)^(3/2)
)/(3*(1 - 2*x)^(3/2)) - (3*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)*(59719 +
 28200*x))/3520 + (4246733*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(128
0*Sqrt[10])
```

Rubi in Sympy [A] time = 27.6202, size = 131, normalized size = 0.97

$$-\frac{711\sqrt{-2x+1}\,(3x+2)^2\,\sqrt{5x+3}}{56}-\frac{\sqrt{-2x+1}\sqrt{5x+3}\left(\frac{83845125x}{4}+\frac{808206525}{16}\right)}{126000}+\frac{4246733\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{12800}-\frac{101\,(3x+2)^3\,\sqrt{5x+3}}{14\sqrt{-2x+1}}+\frac{(3x+2)^3\,(5x+3)^{\frac{3}{2}}}{3\,(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3*(3+5*x)**(3/2)/(1-2*x)**(5/2),x)
```

```
[Out] -711*sqrt(-2*x + 1)*(3*x + 2)**2*sqrt(5*x + 3)/56 - sqrt(-2*x + 1
)*sqrt(5*x + 3)*(83845125*x/4 + 808206525/16)/126000 + 4246733*sq
rt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/12800 - 101*(3*x + 2)**3*s
qrt(5*x + 3)/(14*sqrt(-2*x + 1)) + (3*x + 2)**3*(5*x + 3)**(3/2)/
(3*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.161726, size = 79, normalized size = 0.59

$$\frac{12740199\sqrt{10-20x}(2x-1)\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)-10\sqrt{5x+3}\left(86400x^4+447120x^3+1544724x^2-5349344x+1925361\right)}{38400(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^3*(3 + 5*x)^(3/2))/(1 - 2*x)^(5/2),x]
```

```
[Out] (-10*Sqrt[3 + 5*x]*(1925361 - 5349344*x + 1544724*x^2 + 447120*x^
3 + 86400*x^4) + 12740199*Sqrt[10 - 20*x]*(-1 + 2*x)*ArcSin[Sqrt[
5/11]*Sqrt[1 - 2*x]])/(38400*(1 - 2*x)^(3/2))
```

Maple [A] time = 0.019, size = 154, normalized size = 1.1

$$\frac{1}{76800\,(-1+2\,x)^2}\left(-1728000\,x^4\sqrt{-10\,x^2-x+3}+50960796\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x^2-8942400\,x^3\sqrt{-10\,x^2-x+3}-\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3*(3+5*x)^(3/2)/(1-2*x)^(5/2),x)
```

```
[Out] 1/76800*(-1728000*x^4*(-10*x^2-x+3)^(1/2)+50960796*10^(1/2)*arcsi
n(20/11*x+1/11)*x^2-8942400*x^3*(-10*x^2-x+3)^(1/2)-50960796*10^(
1/2)*arcsin(20/11*x+1/11)*x-30894480*x^2*(-10*x^2-x+3)^(1/2)+1274
0199*10^(1/2)*arcsin(20/11*x+1/11)+106986880*x*(-10*x^2-x+3)^(1/2
)-38507220*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)*(3+5*x)^(1/2)/(-1+2
*x)^2/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.52774, size = 285, normalized size = 2.11

$$\frac{428267}{2560}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)+\frac{35937}{25600}i\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x-\frac{21}{11}\right)+\frac{9}{16}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}-\frac{297}{64}\sqrt{10\,x^2-21\,x+8}x+\frac{6237}{1280}\sqrt{10\,x^2-21\,x+8}-\frac{6237}{128}\sqrt{-10\,x^2-x+3}-\frac{343\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{48\,(8\,x^3-12\,x^2+6\,x-1)}+\frac{441\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{16\,(4\,x^2-4\,x+1)}+\frac{189\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{32\,(2\,x-1)}+\frac{3773\sqrt{-10\,x^2-x+3}}{96\,(4\,x^2-4\,x+1)}+\frac{3479\sqrt{-10\,x^2-x+3}}{6\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(3*x + 2)^3/(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] 428267/2560*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) + 35937/25600*
I*sqrt(5)*sqrt(2)*arcsin(20/11*x - 21/11) + 9/16*(-10*x^2 - x + 3
)^(3/2) - 297/64*sqrt(10*x^2 - 21*x + 8)*x + 6237/1280*sqrt(10*x^
2 - 21*x + 8) - 6237/128*sqrt(-10*x^2 - x + 3) - 343/48*(-10*x^2
- x + 3)^(3/2)/(8*x^3 - 12*x^2 + 6*x - 1) + 441/16*(-10*x^2 - x +
 3)^(3/2)/(4*x^2 - 4*x + 1) + 189/32*(-10*x^2 - x + 3)^(3/2)/(2*x
 - 1) + 3773/96*sqrt(-10*x^2 - x + 3)/(4*x^2 - 4*x + 1) + 3479/6*
sqrt(-10*x^2 - x + 3)/(2*x - 1)
```

Fricas [A] time = 0.222786, size = 127, normalized size = 0.94

$$-\frac{\sqrt{10}\left(2\,\sqrt{10}\left(86400\,x^4+447120\,x^3+1544724\,x^2-5349344\,x+1925361\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-12740199\,\left(4\,x^2-4\,x+1\right)\text{ar}\right.}{76800\,(4\,x^2-4\,x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(3*x + 2)^3/(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] -1/76800*sqrt(10)*(2*sqrt(10)*(86400*x^4 + 447120*x^3 + 1544724*x
^2 - 5349344*x + 1925361)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 12740199
*(4*x^2 - 4*x + 1)*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)
*sqrt(-2*x + 1))))/(4*x^2 - 4*x + 1)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2+3*x)**3*(3+5*x)**(3/2)/(1-2*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.234973, size = 131, normalized size = 0.97

$$\frac{4246733}{12800}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right) - \frac{\left(4\left(27\left(4\left(8\sqrt{5}(5x+3)+111\sqrt{5}\right)(5x+3)+8579\sqrt{5}\right)(5x+3)-8493466\sqrt{5}\right)(5x+3)+140142189\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{480000(2x-1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(3*x + 2)^3/(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] 4246733/12800*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) - 1/48
0000*(4*(27*(4*(8*sqrt(5)*(5*x + 3) + 111*sqrt(5))*(5*x + 3) + 85
79*sqrt(5))*(5*x + 3) - 8493466*sqrt(5))*(5*x + 3) + 140142189*sq
rt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)^2
```

3.2574 $\int \frac{(2+3x)^2(3+5x)^{3/2}}{(1-2x)^{5/2}}\,dx$

Optimal. Leaf size=116

$$-\frac{938(5x+3)^{5/2}}{363\sqrt{1-2x}}+\frac{49(5x+3)^{5/2}}{66(1-2x)^{3/2}}-\frac{40787\sqrt{1-2x}(5x+3)^{3/2}}{5808}-\frac{40787}{704}\sqrt{1-2x}\sqrt{5x+3}+\frac{40787\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{64\sqrt{10}}$$

```
[Out] (-40787*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/704 - (40787*Sqrt[1 - 2*x]*(
3 + 5*x)^(3/2))/5808 + (49*(3 + 5*x)^(5/2))/(66*(1 - 2*x)^(3/2))
- (938*(3 + 5*x)^(5/2))/(363*Sqrt[1 - 2*x]) + (40787*ArcSin[Sqrt[
2/11]*Sqrt[3 + 5*x]])/(64*Sqrt[10])
```

Rubi [A] time = 0.141227, antiderivative size = 116, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$-\frac{938(5x+3)^{5/2}}{363\sqrt{1-2x}}+\frac{49(5x+3)^{5/2}}{66(1-2x)^{3/2}}-\frac{40787\sqrt{1-2x}(5x+3)^{3/2}}{5808}-\frac{40787}{704}\sqrt{1-2x}\sqrt{5x+3}+\frac{40787\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{64\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In] Int[((2 + 3*x)^2*(3 + 5*x)^(3/2))/(1 - 2*x)^(5/2),x]
```

```
[Out] (-40787*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/704 - (40787*Sqrt[1 - 2*x]*(
3 + 5*x)^(3/2))/5808 + (49*(3 + 5*x)^(5/2))/(66*(1 - 2*x)^(3/2))
- (938*(3 + 5*x)^(5/2))/(363*Sqrt[1 - 2*x]) + (40787*ArcSin[Sqrt[
2/11]*Sqrt[3 + 5*x]])/(64*Sqrt[10])
```

Rubi in Sympy [A] time = 12.3842, size = 105, normalized size = 0.91

$$-\frac{40787\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{5808}-\frac{40787\sqrt{-2x+1}\sqrt{5x+3}}{704}+\frac{40787\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{640}-\frac{938\,(5x+3)^{\frac{5}{2}}}{363\sqrt{-2x+1}}+\frac{49\,(5x+3)^{\frac{5}{2}}}{66\,(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**2*(3+5*x)**(3/2)/(1-2*x)**(5/2),x)
```

```
[Out] -40787*sqrt(-2*x + 1)*(5*x + 3)**(3/2)/5808 - 40787*sqrt(-2*x + 1
)*sqrt(5*x + 3)/704 + 40787*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/
11)/640 - 938*(5*x + 3)**(5/2)/(363*sqrt(-2*x + 1)) + 49*(5*x + 3
)**(5/2)/(66*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.148764, size = 74, normalized size = 0.64

$$\frac{122361\sqrt{10-20x}(2x-1)\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)-10\sqrt{5x+3}\left(2160x^3+12780x^2-52256x+18351\right)}{1920(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^2*(3 + 5*x)^(3/2))/(1 - 2*x)^(5/2),x]
```

```
[Out] (-10*Sqrt[3 + 5*x]*(18351 - 52256*x + 12780*x^2 + 2160*x^3) + 122
361*Sqrt[10 - 20*x]*(-1 + 2*x)*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/
(1920*(1 - 2*x)^(3/2))
```

Maple [A] time = 0.019, size = 137, normalized size = 1.2

$$\frac{1}{3840\,(-1+2\,x)^2}\left(489444\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x^2-43200\,x^3\sqrt{-10\,x^2-x+3}-489444\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x-\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2*(3+5*x)^(3/2)/(1-2*x)^(5/2),x)
```

```
[Out] 1/3840*(489444*10^(1/2)*arcsin(20/11*x+1/11)*x^2-43200*x^3*(-10*x
^2-x+3)^(1/2)-489444*10^(1/2)*arcsin(20/11*x+1/11)*x-255600*x^2*(
-10*x^2-x+3)^(1/2)+122361*10^(1/2)*arcsin(20/11*x+1/11)+1045120*x
*(-10*x^2-x+3)^(1/2)-367020*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)*(3
+5*x)^(1/2)/(-1+2*x)^2/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.5333, size = 208, normalized size = 1.79

$$\frac{40787}{1280}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)-\frac{297}{64}\sqrt{-10\,x^2-x+3}-\frac{49\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{24\,(8\,x^3-12\,x^2+6\,x-1)}+\frac{21\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{4\,(4\,x^2-4\,x+1)}+\frac{9\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{16\,(2\,x-1)}+\frac{539\sqrt{-10\,x^2-x+3}}{48\,(4\,x^2-4\,x+1)}+\frac{5873\sqrt{-10\,x^2-x+3}}{48\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)^2/(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] 40787/1280*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) - 297/64*sqrt(-
10*x^2 - x + 3) - 49/24*(-10*x^2 - x + 3)^(3/2)/(8*x^3 - 12*x^2 +
 6*x - 1) + 21/4*(-10*x^2 - x + 3)^(3/2)/(4*x^2 - 4*x + 1) + 9/16
*(-10*x^2 - x + 3)^(3/2)/(2*x - 1) + 539/48*sqrt(-10*x^2 - x + 3)
/(4*x^2 - 4*x + 1) + 5873/48*sqrt(-10*x^2 - x + 3)/(2*x - 1)
```

Fricas [A] time = 0.226328, size = 120, normalized size = 1.03

$$-\frac{\sqrt{10}\left(2\,\sqrt{10}\left(2160\,x^3+12780\,x^2-52256\,x+18351\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-122361\,\left(4\,x^2-4\,x+1\right)\arctan\left(\frac{\sqrt{10}(20\,x+1)}{20\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)}{3840\,(4\,x^2-4\,x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)^2/(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] -1/3840*sqrt(10)*(2*sqrt(10)*(2160*x^3 + 12780*x^2 - 52256*x + 18
351)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 122361*(4*x^2 - 4*x + 1)*arct
an(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(4*x
^2 - 4*x + 1)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2*(3+5*x)**(3/2)/(1-2*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.23517, size = 113, normalized size = 0.97

$$\frac{40787}{640}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right) - \frac{\left(4\left(9\left(12\sqrt{5}(5x+3)+247\sqrt{5}\right)(5x+3)-81574\sqrt{5}\right)(5x+3)+1345971\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{24000(2x-1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)^2/(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] 40787/640*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) - 1/24000*
(4*(9*(12*sqrt(5)*(5*x + 3) + 247*sqrt(5))*(5*x + 3) - 81574*sqrt
(5))*(5*x + 3) + 1345971*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(
2*x - 1)^2
```

3.2575 $\int \frac{(2+3x)(3+5x)^{3/2}}{(1-2x)^{5/2}}\,dx$

Optimal. Leaf size=96

$$\frac{7(5x+3)^{5/2}}{33(1-2x)^{3/2}}-\frac{169(5x+3)^{3/2}}{66\sqrt{1-2x}}-\frac{845}{88}\sqrt{1-2x}\sqrt{5x+3}+\frac{169}{8}\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)$$

```
[Out] (-845*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/88 - (169*(3 + 5*x)^(3/2))/(66
*Sqrt[1 - 2*x]) + (7*(3 + 5*x)^(5/2))/(33*(1 - 2*x)^(3/2)) + (169
*Sqrt[5/2]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/8
```

Rubi [A] time = 0.0932571, antiderivative size = 96, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{7(5x+3)^{5/2}}{33(1-2x)^{3/2}}-\frac{169(5x+3)^{3/2}}{66\sqrt{1-2x}}-\frac{845}{88}\sqrt{1-2x}\sqrt{5x+3}+\frac{169}{8}\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)$$

Antiderivative was successfully verified.

```
[In] Int[((2 + 3*x)*(3 + 5*x)^(3/2))/(1 - 2*x)^(5/2),x]
```

```
[Out] (-845*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/88 - (169*(3 + 5*x)^(3/2))/(66
*Sqrt[1 - 2*x]) + (7*(3 + 5*x)^(5/2))/(33*(1 - 2*x)^(3/2)) + (169
*Sqrt[5/2]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/8
```

Rubi in Sympy [A] time = 9.4227, size = 85, normalized size = 0.89

$$-\frac{845\sqrt{-2x+1}\sqrt{5x+3}}{88}+\frac{169\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{16}-\frac{169\left(5x+3\right)^{\frac{3}{2}}}{66\sqrt{-2x+1}}+\frac{7\left(5x+3\right)^{\frac{5}{2}}}{33\left(-2x+1\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)*(3+5*x)**(3/2)/(1-2*x)**(5/2),x)
```

```
[Out] -845*sqrt(-2*x + 1)*sqrt(5*x + 3)/88 + 169*sqrt(10)*asin(sqrt(22)
*sqrt(5*x + 3)/11)/16 - 169*(5*x + 3)**(3/2)/(66*sqrt(-2*x + 1))
+ 7*(5*x + 3)**(5/2)/(33*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.109347, size = 69, normalized size = 0.72

$$\frac{507\sqrt{10-20x}(2x-1)\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)-2\sqrt{5x+3}\left(180x^2-1136x+369\right)}{48(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In] Integrate[((2 + 3*x)*(3 + 5*x)^(3/2))/(1 - 2*x)^(5/2),x]
```

```
[Out] (-2*Sqrt[3 + 5*x]*(369 - 1136*x + 180*x^2) + 507*Sqrt[10 - 20*x]*
(-1 + 2*x)*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/(48*(1 - 2*x)^(3/2))
```

Maple [A] time = 0.016, size = 120, normalized size = 1.3

$$\frac{1}{96\,(-1+2\,x)^2}\left(2028\,\sqrt{10}\,\mathrm{arcsin}\left(\frac{20\,x}{11}+1/11\right)x^2-2028\,\sqrt{10}\,\mathrm{arcsin}\left(\frac{20\,x}{11}+1/11\right)x-720\,x^2\sqrt{-10\,x^2-x+3}+507\,\sqrt{10}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)*(3+5*x)^(3/2)/(1-2*x)^(5/2),x)
```

```
[Out] 1/96*(2028*10^(1/2)*arcsin(20/11*x+1/11)*x^2-2028*10^(1/2)*arcsin
(20/11*x+1/11)*x-720*x^2*(-10*x^2-x+3)^(1/2)+507*10^(1/2)*arcsin(
20/11*x+1/11)+4544*x*(-10*x^2-x+3)^(1/2)-1476*(-10*x^2-x+3)^(1/2)
)*(1-2*x)^(1/2)*(3+5*x)^(1/2)/(-1+2*x)^2/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.51011, size = 161, normalized size = 1.68

$$\frac{169}{32}\,\sqrt{5}\sqrt{2}\,\mathrm{arcsin}\left(\frac{20}{11}\,x+\frac{1}{11}\right)-\frac{7\,(-10\,x^2-x+3)^{\frac{3}{2}}}{12\,(8\,x^3-12\,x^2+6\,x-1)}+\frac{3\,(-10\,x^2-x+3)^{\frac{3}{2}}}{4\,(4\,x^2-4\,x+1)}+\frac{77\,\sqrt{-10\,x^2-x+3}}{24\,(4\,x^2-4\,x+1)}+\frac{271\,\sqrt{-10\,x^2-x+3}}{12\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)/(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] 169/32*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) - 7/12*(-10*x^2 - x
 + 3)^(3/2)/(8*x^3 - 12*x^2 + 6*x - 1) + 3/4*(-10*x^2 - x + 3)^(3
/2)/(4*x^2 - 4*x + 1) + 77/24*sqrt(-10*x^2 - x + 3)/(4*x^2 - 4*x
+ 1) + 271/12*sqrt(-10*x^2 - x + 3)/(2*x - 1)
```

Fricas [A] time = 0.228521, size = 122, normalized size = 1.27

$$-\frac{\sqrt{2}\left(2\,\sqrt{2}\left(180\,x^2-1136\,x+369\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-507\,\sqrt{5}\left(4\,x^2-4\,x+1\right)\arctan\left(\frac{\sqrt{5}\sqrt{2}(20\,x+1)}{20\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)}{96\,(4\,x^2-4\,x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)/(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] -1/96*sqrt(2)*(2*sqrt(2)*(180*x^2 - 1136*x + 369)*sqrt(5*x + 3)*s
qrt(-2*x + 1) - 507*sqrt(5)*(4*x^2 - 4*x + 1)*arctan(1/20*sqrt(5)
*sqrt(2)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(4*x^2 - 4*x
 + 1)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)*(3+5*x)**(3/2)/(1-2*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.229413, size = 96, normalized size = 1.

$$\frac{169}{16}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)-\frac{\left(4\left(9\sqrt{5}(5x+3)-338\sqrt{5}\right)(5x+3)+5577\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{600\,(2x-1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(3*x + 2)/(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] 169/16*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) - 1/600*(4*(9
*sqrt(5)*(5*x + 3) - 338*sqrt(5))*(5*x + 3) + 5577*sqrt(5))*sqrt(
5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)^2
```

3.2576 $\int \frac{(3+5x)^{3/2}}{(1-2x)^{5/2}}\,dx$

Optimal. Leaf size=74

$$\frac{(5x+3)^{3/2}}{3(1-2x)^{3/2}}-\frac{5\sqrt{5x+3}}{2\sqrt{1-2x}}+\frac{5}{2}\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)$$

```
[Out] (-5*Sqrt[3 + 5*x])/(2*Sqrt[1 - 2*x]) + (3 + 5*x)^(3/2)/(3*(1 - 2*
x)^(3/2)) + (5*Sqrt[5/2]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/2
```

Rubi [A] time = 0.0612905, antiderivative size = 74, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.158

$$\frac{(5x+3)^{3/2}}{3(1-2x)^{3/2}}-\frac{5\sqrt{5x+3}}{2\sqrt{1-2x}}+\frac{5}{2}\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(3/2)/(1 - 2*x)^(5/2),x]
```

```
[Out] (-5*Sqrt[3 + 5*x])/(2*Sqrt[1 - 2*x]) + (3 + 5*x)^(3/2)/(3*(1 - 2*
x)^(3/2)) + (5*Sqrt[5/2]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/2
```

Rubi in Sympy [A] time = 7.18687, size = 63, normalized size = 0.85

$$\frac{5\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{4}-\frac{5\sqrt{5x+3}}{2\sqrt{-2x+1}}+\frac{(5x+3)^{\frac{3}{2}}}{3\,(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(3/2)/(1-2*x)**(5/2),x)
```

```
[Out] 5*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/4 - 5*sqrt(5*x + 3)/(2
*sqrt(-2*x + 1)) + (5*x + 3)**(3/2)/(3*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.105979, size = 64, normalized size = 0.86

$$\frac{2\sqrt{5x+3}(40x-9)+15\sqrt{10-20x}(2x-1)\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{12(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(3/2)/(1 - 2*x)^(5/2),x]
```

```
[Out] (2*Sqrt[3 + 5*x]*(-9 + 40*x) + 15*Sqrt[10 - 20*x]*(-1 + 2*x)*ArcS
in[Sqrt[5/11]*Sqrt[1 - 2*x]])/(12*(1 - 2*x)^(3/2))
```

Maple [F] time = 0.043, size = 0, normalized size = 0.

$$\int 1\,(3+5\,x)^{\frac{3}{2}}\,(1-2\,x)^{-\frac{5}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((3+5*x)^(3/2)/(1-2*x)^(5/2),x)
```

```
[Out] int((3+5*x)^(3/2)/(1-2*x)^(5/2),x)
```

Maxima [A] time = 1.50462, size = 126, normalized size = 1.7

$$\frac{5}{8}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)-\frac{\left(-10x^2-x+3\right)^{\frac{3}{2}}}{6\left(8x^3-12x^2+6x-1\right)}+\frac{11\sqrt{-10x^2-x+3}}{12\left(4x^2-4x+1\right)}+\frac{35\sqrt{-10x^2-x+3}}{12\left(2x-1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((5*x + 3)^(3/2)/(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] 5/8*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) - 1/6*(-10*x^2 - x + 3
)^(3/2)/(8*x^3 - 12*x^2 + 6*x - 1) + 11/12*sqrt(-10*x^2 - x + 3)/
(4*x^2 - 4*x + 1) + 35/12*sqrt(-10*x^2 - x + 3)/(2*x - 1)
```

Fricas [A] time = 0.231894, size = 115, normalized size = 1.55

$$\frac{\sqrt{2}\left(2\sqrt{2}(40x-9)\sqrt{5x+3}\sqrt{-2x+1}+15\sqrt{5}\left(4x^2-4x+1\right)\arctan\left(\frac{\sqrt{5}\sqrt{2}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)}{24\left(4x^2-4x+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((5*x + 3)^(3/2)/(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] 1/24*sqrt(2)*(2*sqrt(2)*(40*x - 9)*sqrt(5*x + 3)*sqrt(-2*x + 1) +
 15*sqrt(5)*(4*x^2 - 4*x + 1)*arctan(1/20*sqrt(5)*sqrt(2)*(20*x +
 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(4*x^2 - 4*x + 1)
```

Sympy [A] time = 10.6786, size = 636, normalized size = 8.59

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((3+5*x)**(3/2)/(1-2*x)**(5/2),x)
```

```
[Out] Piecewise((-300*sqrt(10)*I*(x + 3/5)**(15/2)*sqrt(10*x - 5)*acosh
(sqrt(110)*sqrt(x + 3/5)/11)/(240*(x + 3/5)**(15/2)*sqrt(10*x - 5
) - 264*(x + 3/5)**(13/2)*sqrt(10*x - 5)) + 150*sqrt(10)*pi*(x +
3/5)**(15/2)*sqrt(10*x - 5)/(240*(x + 3/5)**(15/2)*sqrt(10*x - 5)
 - 264*(x + 3/5)**(13/2)*sqrt(10*x - 5)) + 330*sqrt(10)*I*(x + 3/
5)**(13/2)*sqrt(10*x - 5)*acosh(sqrt(110)*sqrt(x + 3/5)/11)/(240*
(x + 3/5)**(15/2)*sqrt(10*x - 5) - 264*(x + 3/5)**(13/2)*sqrt(10*
x - 5)) - 165*sqrt(10)*pi*(x + 3/5)**(13/2)*sqrt(10*x - 5)/(240*(
x + 3/5)**(15/2)*sqrt(10*x - 5) - 264*(x + 3/5)**(13/2)*sqrt(10*x
 - 5)) + 4000*I*(x + 3/5)**8/(240*(x + 3/5)**(15/2)*sqrt(10*x - 5
) - 264*(x + 3/5)**(13/2)*sqrt(10*x - 5)) - 3300*I*(x + 3/5)**7/(
240*(x + 3/5)**(15/2)*sqrt(10*x - 5) - 264*(x + 3/5)**(13/2)*sqrt
(10*x - 5)), 10*Abs(x + 3/5)/11 > 1), (150*sqrt(10)*sqrt(-10*x +
5)*(x + 3/5)**(15/2)*asin(sqrt(110)*sqrt(x + 3/5)/11)/(120*sqrt(-
10*x + 5)*(x + 3/5)**(15/2) - 132*sqrt(-10*x + 5)*(x + 3/5)**(13/
2)) - 165*sqrt(10)*sqrt(-10*x + 5)*(x + 3/5)**(13/2)*asin(sqrt(11
0)*sqrt(x + 3/5)/11)/(120*sqrt(-10*x + 5)*(x + 3/5)**(15/2) - 132
*sqrt(-10*x + 5)*(x + 3/5)**(13/2)) - 2000*(x + 3/5)**8/(120*sqrt
```

```
(-10*x + 5)*(x + 3/5)**(15/2) - 132*sqrt(-10*x + 5)*(x + 3/5)**(1
3/2)) + 1650*(x + 3/5)**7/(120*sqrt(-10*x + 5)*(x + 3/5)**(15/2)
- 132*sqrt(-10*x + 5)*(x + 3/5)**(13/2)), True))
```

GIAC/XCAS [A] time = 0.233358, size = 78, normalized size = 1.05

$$\frac{5}{4}\,\sqrt{10}\arcsin\left(\frac{1}{11}\,\sqrt{22}\sqrt{5\,x+3}\right)+\frac{\left(8\,\sqrt{5}(5\,x+3)-33\,\sqrt{5}\right)\sqrt{5\,x+3}\sqrt{-10\,x+5}}{30\,(2\,x-1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] 5/4*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) + 1/30*(8*sqrt(5
)*(5*x + 3) - 33*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)
^2
```

3.2577 $\int \frac{(3+5x)^{3/2}}{(1-2x)^{5/2}(2+3x)}\,dx$

Optimal. Leaf size=79

$$\frac{2(5x+3)^{3/2}}{21(1-2x)^{3/2}}-\frac{2\sqrt{5x+3}}{49\sqrt{1-2x}}-\frac{2\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{49\sqrt{7}}$$

```
[Out] (-2*Sqrt[3 + 5*x])/(49*Sqrt[1 - 2*x]) + (2*(3 + 5*x)^(3/2))/(21*(
1 - 2*x)^(3/2)) - (2*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])
])/(49*Sqrt[7])
```

Rubi [A] time = 0.124907, antiderivative size = 79, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.115

$$\frac{2(5x+3)^{3/2}}{21(1-2x)^{3/2}}-\frac{2\sqrt{5x+3}}{49\sqrt{1-2x}}-\frac{2\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{49\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In] Int[(3 + 5*x)^(3/2)/((1 - 2*x)^(5/2)*(2 + 3*x)),x]
```

```
[Out] (-2*Sqrt[3 + 5*x])/(49*Sqrt[1 - 2*x]) + (2*(3 + 5*x)^(3/2))/(21*(
1 - 2*x)^(3/2)) - (2*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])
])/(49*Sqrt[7])
```

Rubi in Sympy [A] time = 10.8325, size = 73, normalized size = 0.92

$$-\frac{2\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{343}-\frac{2\sqrt{5x+3}}{49\sqrt{-2x+1}}+\frac{2\left(5x+3\right)^{\frac{3}{2}}}{21\left(-2x+1\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((3+5*x)**(3/2)/(1-2*x)**(5/2)/(2+3*x),x)
```

```
[Out] -2*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/343 - 2
*sqrt(5*x + 3)/(49*sqrt(-2*x + 1)) + 2*(5*x + 3)**(3/2)/(21*(-2*x
 + 1)**(3/2))
```

Mathematica [A] time = 0.120111, size = 65, normalized size = 0.82

$$\frac{2\sqrt{5x+3}(41x+18)}{147(1-2x)^{3/2}}-\frac{\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{49\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In] Integrate[(3 + 5*x)^(3/2)/((1 - 2*x)^(5/2)*(2 + 3*x)),x]
```

```
[Out] (2*Sqrt[3 + 5*x]*(18 + 41*x))/(147*(1 - 2*x)^(3/2)) - ArcTan[(-20
 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])]/(49*Sqrt[7])
```

Maple [B] time = 0.02, size = 154, normalized size = 2.

$$\frac{1}{1029\left(-1+2x\right)^{2}}\left(12\sqrt{7}\arctan\left(1/14\frac{\left(37x+20\right)\sqrt{7}}{\sqrt{-10x^{2}-x+3}}\right)x^{2}-12\sqrt{7}\arctan\left(1/14\frac{\left(37x+20\right)\sqrt{7}}{\sqrt{-10x^{2}-x+3}}\right)x+3\sqrt{7}\arctan\left(1/14\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(3/2)/(1-2*x)^(5/2)/(2+3*x),x)
```

```
[Out] 1/1029*(12*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1
/2))*x^2-12*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(
1/2))*x+3*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/
2))+574*x*(-10*x^2-x+3)^(1/2)+252*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1
/2)*(3+5*x)^(1/2)/(-1+2*x)^2/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.50844, size = 140, normalized size = 1.77

$$\frac{1}{343}\sqrt{7}\arcsin\left(\frac{37x}{11|3x+2|}+\frac{20}{11|3x+2|}\right)-\frac{205x}{147\sqrt{-10x^{2}-x+3}}+\frac{125x^{2}}{6\left(-10x^{2}-x+3\right)^{\frac{3}{2}}}-\frac{37}{588\sqrt{-10x^{2}-x+3}}+\frac{1385x}{84\left(-10x^{2}-x+3\right)^{\frac{3}{2}}}+\frac{67}{28\left(-10x^{2}-x+3\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/((3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 1/343*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) -
 205/147*x/sqrt(-10*x^2 - x + 3) + 125/6*x^2/(-10*x^2 - x + 3)^(3
/2) - 37/588/sqrt(-10*x^2 - x + 3) + 1385/84*x/(-10*x^2 - x + 3)^
(3/2) + 67/28/(-10*x^2 - x + 3)^(3/2)
```

Fricas [A] time = 0.226159, size = 107, normalized size = 1.35

$$\frac{\sqrt{7}\left(2\sqrt{7}(41x+18)\sqrt{5x+3}\sqrt{-2x+1}+3\left(4x^{2}-4x+1\right)\arctan\left(\frac{\sqrt{7}(37x+20)}{14\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)}{1029\left(4x^{2}-4x+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/((3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/1029*sqrt(7)*(2*sqrt(7)*(41*x + 18)*sqrt(5*x + 3)*sqrt(-2*x + 1
) + 3*(4*x^2 - 4*x + 1)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x
 + 3)*sqrt(-2*x + 1))))/(4*x^2 - 4*x + 1)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(3/2)/(1-2*x)**(5/2)/(2+3*x),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.265058, size = 153, normalized size = 1.94

$$\frac{1}{3430}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)+\frac{2\left(41\sqrt{5}(5x+3)-33\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{3675(2x-1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)/((3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 1/3430*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x
+ 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqrt
(2)*sqrt(-10*x + 5) - sqrt(22)))) + 2/3675*(41*sqrt(5)*(5*x + 3)
- 33*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)^2
```

3.2578 $\int \frac{(3+5x)^{3/2}}{(1-2x)^{5/2}(2+3x)^2}\,dx$

Optimal. Leaf size=122

$$\frac{4(5x+3)^{5/2}}{231(1-2x)^{3/2}(3x+2)}+\frac{190(5x+3)^{3/2}}{1617\sqrt{1-2x}(3x+2)}+\frac{95\sqrt{1-2x}\sqrt{5x+3}}{3773(3x+2)}+\frac{95\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{343\sqrt{7}}$$

```
[Out] (95*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(3773*(2 + 3*x)) + (190*(3 + 5*x
)^(3/2))/(1617*Sqrt[1 - 2*x]*(2 + 3*x)) + (4*(3 + 5*x)^(5/2))/(23
1*(1 - 2*x)^(3/2)*(2 + 3*x)) + (95*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*
Sqrt[3 + 5*x])])/(343*Sqrt[7])
```

Rubi [A] time = 0.172, antiderivative size = 122, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$\frac{4(5x+3)^{5/2}}{231(1-2x)^{3/2}(3x+2)}+\frac{190(5x+3)^{3/2}}{1617\sqrt{1-2x}(3x+2)}+\frac{95\sqrt{1-2x}\sqrt{5x+3}}{3773(3x+2)}+\frac{95\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{343\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(3/2)/((1 - 2*x)^(5/2)*(2 + 3*x)^2),x]
```

```
[Out] (95*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(3773*(2 + 3*x)) + (190*(3 + 5*x
)^(3/2))/(1617*Sqrt[1 - 2*x]*(2 + 3*x)) + (4*(3 + 5*x)^(5/2))/(23
1*(1 - 2*x)^(3/2)*(2 + 3*x)) + (95*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*
Sqrt[3 + 5*x])])/(343*Sqrt[7])
```

Rubi in Sympy [A] time = 13.3028, size = 99, normalized size = 0.81

$$\frac{95\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{2401}+\frac{95\sqrt{5x+3}}{343\sqrt{-2x+1}}-\frac{95\,(5x+3)^{\frac{3}{2}}}{147\,(-2x+1)^{\frac{3}{2}}}+\frac{3\,(5x+3)^{\frac{5}{2}}}{7\,(-2x+1)^{\frac{3}{2}}\,(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(3/2)/(1-2*x)**(5/2)/(2+3*x)**2,x)
```

```
[Out] 95*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/2401 +
95*sqrt(5*x + 3)/(343*sqrt(-2*x + 1)) - 95*(5*x + 3)**(3/2)/(147*
(-2*x + 1)**(3/2)) + 3*(5*x + 3)**(5/2)/(7*(-2*x + 1)**(3/2)*(3*x
 + 2))
```

Mathematica [A] time = 0.0925864, size = 77, normalized size = 0.63

$$\frac{\sqrt{5x+3}\left(-660x^2+310x+549\right)}{1029(1-2x)^{3/2}(3x+2)}+\frac{95\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{686\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(3/2)/((1 - 2*x)^(5/2)*(2 + 3*x)^2),x]
```

```
[Out] (Sqrt[3 + 5*x]*(549 + 310*x - 660*x^2))/(1029*(1 - 2*x)^(3/2)*(2
+ 3*x)) + (95*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x]
)])/(686*Sqrt[7])
```

Maple [B] time = 0.021, size = 209, normalized size = 1.7

$$-\frac{1}{(28812+43218x)(-1+2x)^2}\left(3420\sqrt{7}\arctan\left(1/14\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)x^3-1140\sqrt{7}\arctan\left(1/14\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)x^2-$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(3/2)/(1-2*x)^(5/2)/(2+3*x)^2,x)
```

```
[Out] -1/14406*(3420*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3
)^(1/2))*x^3-1140*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-
x+3)^(1/2))*x^2-1425*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x
^2-x+3)^(1/2))*x+9240*x^2*(-10*x^2-x+3)^(1/2)+570*7^(1/2)*arctan(
1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))-4340*x*(-10*x^2-x+3)^
(1/2)-7686*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)*(3+5*x)^(1/2)/(2+3*
x)/(-1+2*x)^2/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.51639, size = 163, normalized size = 1.34

$$-\frac{95}{4802}\sqrt{7}\arcsin\left(\frac{37x}{11|3x+2|}+\frac{20}{11|3x+2|}\right)+\frac{550x}{1029\sqrt{-10x^2-x+3}}-\frac{20}{1029\sqrt{-10x^2-x+3}}$$
$$+\frac{1825x}{441(-10x^2-x+3)^{\frac{3}{2}}}+\frac{1}{189\left(3(-10x^2-x+3)^{\frac{3}{2}}x+2(-10x^2-x+3)^{\frac{3}{2}}\right)}+\frac{3250}{1323(-10x^2-x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/((3*x + 2)^2*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] -95/4802*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)
) + 550/1029*x/sqrt(-10*x^2 - x + 3) - 20/1029/sqrt(-10*x^2 - x +
 3) + 1825/441*x/(-10*x^2 - x + 3)^(3/2) + 1/189/(3*(-10*x^2 - x
+ 3)^(3/2)*x + 2*(-10*x^2 - x + 3)^(3/2)) + 3250/1323/(-10*x^2 -
x + 3)^(3/2)
```

Fricas [A] time = 0.223447, size = 127, normalized size = 1.04

$$-\frac{\sqrt{7}\left(2\sqrt{7}\left(660x^2-310x-549\right)\sqrt{5x+3}\sqrt{-2x+1}+285\left(12x^3-4x^2-5x+2\right)\arctan\left(\frac{\sqrt{7}(37x+20)}{14\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)}{14406\left(12x^3-4x^2-5x+2\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/((3*x + 2)^2*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] -1/14406*sqrt(7)*(2*sqrt(7)*(660*x^2 - 310*x - 549)*sqrt(5*x + 3)
*sqrt(-2*x + 1) + 285*(12*x^3 - 4*x^2 - 5*x + 2)*arctan(1/14*sqrt
(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(12*x^3 - 4*x^2
- 5*x + 2)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(3/2)/(1-2*x)**(5/2)/(2+3*x)**2,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.330088, size = 313, normalized size = 2.57

$$-\frac{19}{9604}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^{2}}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)+\frac{66\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)}{343\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^{2}+280\right)}-\frac{2\left(116\sqrt{5}(5x+3)-1023\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{25725(2x-1)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)/((3*x + 2)^2*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] -19/9604*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*
x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sq
rt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 66/343*sqrt(10)*((sqrt(2)*s
qrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(
2)*sqrt(-10*x + 5) - sqrt(22)))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt
(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) -
sqrt(22)))^2 + 280) - 2/25725*(116*sqrt(5)*(5*x + 3) - 1023*sqrt(
5))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)^2
```

3.2579 $\int \frac{(3+5x)^{3/2}}{(1-2x)^{5/2}(2+3x)^3}\,dx$

Optimal. Leaf size=144

$$\frac{5\sqrt{5x+3}}{42\sqrt{1-2x}}-\frac{5\sqrt{5x+3}}{28\sqrt{1-2x}(3x+2)}-\frac{3\sqrt{5x+3}}{14\sqrt{1-2x}(3x+2)^2}+\frac{11\sqrt{5x+3}}{21(1-2x)^{3/2}(3x+2)^2}-\frac{5\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{28\sqrt{7}}$$

```
[Out] (5*Sqrt[3 + 5*x])/(42*Sqrt[1 - 2*x]) + (11*Sqrt[3 + 5*x])/(21*(1
- 2*x)^(3/2)*(2 + 3*x)^2) - (3*Sqrt[3 + 5*x])/(14*Sqrt[1 - 2*x]*(
2 + 3*x)^2) - (5*Sqrt[3 + 5*x])/(28*Sqrt[1 - 2*x]*(2 + 3*x)) - (5
*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(28*Sqrt[7])
```

Rubi [A] time = 0.328194, antiderivative size = 144, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$\frac{5\sqrt{5x+3}}{42\sqrt{1-2x}}-\frac{5\sqrt{5x+3}}{28\sqrt{1-2x}(3x+2)}-\frac{3\sqrt{5x+3}}{14\sqrt{1-2x}(3x+2)^2}+\frac{11\sqrt{5x+3}}{21(1-2x)^{3/2}(3x+2)^2}-\frac{5\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{28\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In] Int[(3 + 5*x)^(3/2)/((1 - 2*x)^(5/2)*(2 + 3*x)^3),x]
```

```
[Out] (5*Sqrt[3 + 5*x])/(42*Sqrt[1 - 2*x]) + (11*Sqrt[3 + 5*x])/(21*(1
- 2*x)^(3/2)*(2 + 3*x)^2) - (3*Sqrt[3 + 5*x])/(14*Sqrt[1 - 2*x]*(
2 + 3*x)^2) - (5*Sqrt[3 + 5*x])/(28*Sqrt[1 - 2*x]*(2 + 3*x)) - (5
*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(28*Sqrt[7])
```

Rubi in Sympy [A] time = 28.6151, size = 133, normalized size = 0.92

$$-\frac{5\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{196}+\frac{5\sqrt{5x+3}}{42\sqrt{-2x+1}}-\frac{5\sqrt{5x+3}}{28\sqrt{-2x+1}\,(3x+2)}-\frac{3\sqrt{5x+3}}{14\sqrt{-2x+1}\,(3x+2)^2}+\frac{11\sqrt{5x+3}}{21\,(-2x+1)^{\frac{3}{2}}\,(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((3+5*x)**(3/2)/(1-2*x)**(5/2)/(2+3*x)**3,x)
```

```
[Out] -5*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/196 + 5
*sqrt(5*x + 3)/(42*sqrt(-2*x + 1)) - 5*sqrt(5*x + 3)/(28*sqrt(-2*
x + 1)*(3*x + 2)) - 3*sqrt(5*x + 3)/(14*sqrt(-2*x + 1)*(3*x + 2)*
*2) + 11*sqrt(5*x + 3)/(21*(-2*x + 1)**(3/2)*(3*x + 2)**2)
```

Mathematica [A] time = 0.100992, size = 85, normalized size = 0.59

$$\frac{\sqrt{1-2x}\sqrt{5x+3}\left(-180x^3-60x^2+91x+36\right)}{84\left(6x^2+x-2\right)^2}-\frac{5\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{56\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In] Integrate[(3 + 5*x)^(3/2)/((1 - 2*x)^(5/2)*(2 + 3*x)^3),x]
```

```
[Out] (Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(36 + 91*x - 60*x^2 - 180*x^3))/(84*
(-2 + x + 6*x^2)^2) - (5*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sq
```

```
rt[3 + 5*x])])/(56*Sqrt[7])
```

Maple [B] time = 0.022, size = 257, normalized size = 1.8

$$\frac{1}{1176\,(2+3\,x)^2\,(-1+2\,x)^2}\left(540\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^4+180\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^3-345\,\sqrt{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(3/2)/(1-2*x)^(5/2)/(2+3*x)^3,x)
```

```
[Out] 1/1176*(540*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(
1/2))*x^4+180*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)
^(1/2))*x^3-345*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+
3)^(1/2))*x^2-2520*x^3*(-10*x^2-x+3)^(1/2)-60*7^(1/2)*arctan(1/14
*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x-840*x^2*(-10*x^2-x+3)^(
1/2)+60*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2)
)+1274*x*(-10*x^2-x+3)^(1/2)+504*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/
2)*(3+5*x)^(1/2)/(2+3*x)^2/(-1+2*x)^2/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.50885, size = 232, normalized size = 1.61

$$\frac{5}{392}\,\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{25\,x}{42\,\sqrt{-10\,x^2-x+3}}+\frac{5}{84\,\sqrt{-10\,x^2-x+3}}+\frac{125\,x}{126\,(-10\,x^2-x+3)^{\frac{3}{2}}}+\frac{1}{378\left(9\,(-10\,x^2-x+3)^{\frac{3}{2}}x^2+12\,(-10\,x^2-x+3)^{\frac{3}{2}}x+4\,(-10\,x^2-x+3)^{\frac{3}{2}}\right)}-\frac{43}{756\left(3\,(-10\,x^2-x+3)^{\frac{3}{2}}x+2\,(-10\,x^2-x+3)^{\frac{3}{2}}\right)}+\frac{205}{252\,(-10\,x^2-x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/((3*x + 2)^3*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 5/392*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) +
 25/42*x/sqrt(-10*x^2 - x + 3) + 5/84/sqrt(-10*x^2 - x + 3) + 125
/126*x/(-10*x^2 - x + 3)^(3/2) + 1/378/(9*(-10*x^2 - x + 3)^(3/2)
*x^2 + 12*(-10*x^2 - x + 3)^(3/2)*x + 4*(-10*x^2 - x + 3)^(3/2))
- 43/756/(3*(-10*x^2 - x + 3)^(3/2)*x + 2*(-10*x^2 - x + 3)^(3/2)
) + 205/252/(-10*x^2 - x + 3)^(3/2)
```

Fricas [A] time = 0.226914, size = 147, normalized size = 1.02

$$-\frac{\sqrt{7}\left(2\,\sqrt{7}\left(180\,x^3+60\,x^2-91\,x-36\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-15\left(36\,x^4+12\,x^3-23\,x^2-4\,x+4\right)\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)}{1176\,(36\,x^4+12\,x^3-23\,x^2-4\,x+4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/((3*x + 2)^3*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] -1/1176*sqrt(7)*(2*sqrt(7)*(180*x^3 + 60*x^2 - 91*x - 36)*sqrt(5*
x + 3)*sqrt(-2*x + 1) - 15*(36*x^4 + 12*x^3 - 23*x^2 - 4*x + 4)*a
rctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(
36*x^4 + 12*x^3 - 23*x^2 - 4*x + 4)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(3/2)/(1-2*x)**(5/2)/(2+3*x)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.430934, size = 400, normalized size = 2.78

$$\frac{1}{784}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{8\left(157\sqrt{5}(5x+3)-1056\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{180075(2x-1)^2}-\frac{33\left(83\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3+41720\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)\right)}{4802\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/((3*x + 2)^3*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 1/784*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x +
 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqrt(
2)*sqrt(-10*x + 5) - sqrt(22)))) - 8/180075*(157*sqrt(5)*(5*x + 3
) - 1056*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)^2 - 33/
4802*(83*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x
+ 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3 +
41720*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3
) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/(((sqr
t(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)^2
```

3.2580 $\int \frac{(3+5x)^{3/2}}{(1-2x)^{5/2}(2+3x)^4}\,dx$

Optimal. Leaf size=173

$$\frac{465\sqrt{5x+3}}{9604\sqrt{1-2x}}-\frac{85\sqrt{5x+3}}{2744\sqrt{1-2x}(3x+2)}-\frac{23\sqrt{5x+3}}{196\sqrt{1-2x}(3x+2)^2}-\frac{32\sqrt{5x+3}}{147\sqrt{1-2x}(3x+2)^3}+\frac{11\sqrt{5x+3}}{21(1-2x)^{3/2}(3x+2)^3}-\frac{9395\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{19208\sqrt{7}}$$

```
[Out] (465*Sqrt[3 + 5*x])/(9604*Sqrt[1 - 2*x]) + (11*Sqrt[3 + 5*x])/(21
*(1 - 2*x)^(3/2)*(2 + 3*x)^3) - (32*Sqrt[3 + 5*x])/(147*Sqrt[1 -
2*x]*(2 + 3*x)^3) - (23*Sqrt[3 + 5*x])/(196*Sqrt[1 - 2*x]*(2 + 3*
x)^2) - (85*Sqrt[3 + 5*x])/(2744*Sqrt[1 - 2*x]*(2 + 3*x)) - (9395
*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(19208*Sqrt[7])
```

Rubi [A] time = 0.404115, antiderivative size = 173, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$\frac{465\sqrt{5x+3}}{9604\sqrt{1-2x}}-\frac{85\sqrt{5x+3}}{2744\sqrt{1-2x}(3x+2)}-\frac{23\sqrt{5x+3}}{196\sqrt{1-2x}(3x+2)^2}-\frac{32\sqrt{5x+3}}{147\sqrt{1-2x}(3x+2)^3}+\frac{11\sqrt{5x+3}}{21(1-2x)^{3/2}(3x+2)^3}-\frac{9395\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{19208\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(3/2)/((1 - 2*x)^(5/2)*(2 + 3*x)^4),x]
```

```
[Out] (465*Sqrt[3 + 5*x])/(9604*Sqrt[1 - 2*x]) + (11*Sqrt[3 + 5*x])/(21
*(1 - 2*x)^(3/2)*(2 + 3*x)^3) - (32*Sqrt[3 + 5*x])/(147*Sqrt[1 -
2*x]*(2 + 3*x)^3) - (23*Sqrt[3 + 5*x])/(196*Sqrt[1 - 2*x]*(2 + 3*
x)^2) - (85*Sqrt[3 + 5*x])/(2744*Sqrt[1 - 2*x]*(2 + 3*x)) - (9395
*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(19208*Sqrt[7])
```

Rubi in Sympy [A] time = 35.966, size = 160, normalized size = 0.92

$$-\frac{9395\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{134456}+\frac{465\sqrt{5x+3}}{9604\sqrt{-2x+1}}-\frac{85\sqrt{5x+3}}{2744\sqrt{-2x+1}\,(3x+2)}-\frac{23\sqrt{5x+3}}{196\sqrt{-2x+1}\,(3x+2)^2}-\frac{32\sqrt{5x+3}}{147\sqrt{-2x+1}\,(3x+2)^3}+\frac{11\sqrt{5x+3}}{21\,(-2x+1)^{\frac{3}{2}}\,(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(3/2)/(1-2*x)**(5/2)/(2+3*x)**4,x)
```

```
[Out] -9395*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/1344
56 + 465*sqrt(5*x + 3)/(9604*sqrt(-2*x + 1)) - 85*sqrt(5*x + 3)/(
2744*sqrt(-2*x + 1)*(3*x + 2)) - 23*sqrt(5*x + 3)/(196*sqrt(-2*x
+ 1)*(3*x + 2)**2) - 32*sqrt(5*x + 3)/(147*sqrt(-2*x + 1)*(3*x +
2)**3) + 11*sqrt(5*x + 3)/(21*(-2*x + 1)**(3/2)*(3*x + 2)**3)
```

Mathematica [A] time = 0.158621, size = 87, normalized size = 0.5

$$\frac{\frac{14\sqrt{5x+3}\left(-150660x^4-193860x^3+17127x^2+80510x+19296\right)}{(1-2x)^{3/2}(3x+2)^3}-28185\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{806736}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(3/2)/((1 - 2*x)^(5/2)*(2 + 3*x)^4),x]
```

```
[Out] ((14*Sqrt[3 + 5*x]*(19296 + 80510*x + 17127*x^2 - 193860*x^3 - 15
0660*x^4))/((1 - 2*x)^(3/2)*(2 + 3*x)^3) - 28185*Sqrt[7]*ArcTan[(
-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/806736
```

Maple [B] time = 0.022, size = 305, normalized size = 1.8

$$\frac{1}{806736\,(2+3\,x)^3\,(-1+2\,x)^2}\left(3043980\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^5+3043980\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(3/2)/(1-2*x)^(5/2)/(2+3*x)^4,x)
```

```
[Out] 1/806736*(3043980*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-
x+3)^(1/2))*x^5+3043980*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-1
0*x^2-x+3)^(1/2))*x^4-1268325*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/
2)/(-10*x^2-x+3)^(1/2))*x^3-2109240*x^4*(-10*x^2-x+3)^(1/2)-16347
30*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2
-2714040*x^3*(-10*x^2-x+3)^(1/2)+112740*7^(1/2)*arctan(1/14*(37*x
+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+239778*x^2*(-10*x^2-x+3)^(1/2
)+225480*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2
))+1127140*x*(-10*x^2-x+3)^(1/2)+270144*(-10*x^2-x+3)^(1/2))*(1-2
*x)^(1/2)*(3+5*x)^(1/2)/(2+3*x)^3/(-1+2*x)^2/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.51164, size = 324, normalized size = 1.87

$$\begin{aligned}&\frac{9395}{268912}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{2325\,x}{9604\,\sqrt{-10\,x^2-x+3}}\\&+\frac{5395}{57624\,\sqrt{-10\,x^2-x+3}}+\frac{7625\,x}{12348\,(-10\,x^2-x+3)^{\frac{3}{2}}}\\&+\frac{1}{567\left(27\,(-10\,x^2-x+3)^{\frac{3}{2}}x^3+54\,(-10\,x^2-x+3)^{\frac{3}{2}}x^2+36\,(-10\,x^2-x+3)^{\frac{3}{2}}x+8\,(-10\,x^2-x+3)^{\frac{3}{2}}\right)}\\&-\frac{169}{5292\left(9\,(-10\,x^2-x+3)^{\frac{3}{2}}x^2+12\,(-10\,x^2-x+3)^{\frac{3}{2}}x+4\,(-10\,x^2-x+3)^{\frac{3}{2}}\right)}\\&+\frac{1987}{10584\left(3\,(-10\,x^2-x+3)^{\frac{3}{2}}x+2\,(-10\,x^2-x+3)^{\frac{3}{2}}\right)}+\frac{2165}{222264\,(-10\,x^2-x+3)^{\frac{3}{2}}}\end{aligned}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/((3*x + 2)^4*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 9395/268912*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x +
 2)) + 2325/9604*x/sqrt(-10*x^2 - x + 3) + 5395/57624/sqrt(-10*x^
2 - x + 3) + 7625/12348*x/(-10*x^2 - x + 3)^(3/2) + 1/567/(27*(-1
0*x^2 - x + 3)^(3/2)*x^3 + 54*(-10*x^2 - x + 3)^(3/2)*x^2 + 36*(-
10*x^2 - x + 3)^(3/2)*x + 8*(-10*x^2 - x + 3)^(3/2)) - 169/5292/(
9*(-10*x^2 - x + 3)^(3/2)*x^2 + 12*(-10*x^2 - x + 3)^(3/2)*x + 4*
(-10*x^2 - x + 3)^(3/2)) + 1987/10584/(3*(-10*x^2 - x + 3)^(3/2)*
x + 2*(-10*x^2 - x + 3)^(3/2)) + 2165/222264/(-10*x^2 - x + 3)^(3
/2)
```

Fricas [A] time = 0.226505, size = 167, normalized size = 0.97

$$-\frac{\sqrt{7}\left(2\sqrt{7}\left(150660x^4+193860x^3-17127x^2-80510x-19296\right)\sqrt{5x+3}\sqrt{-2x+1}-28185\left(108x^5+108x^4-45x^3-58\right.\right.}{806736\left(108x^5+108x^4-45x^3-58x^2+4x+8\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)/((3*x + 2)^4*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] -1/806736*sqrt(7)*(2*sqrt(7)*(150660*x^4 + 193860*x^3 - 17127*x^2
 - 80510*x - 19296)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 28185*(108*x^5
 + 108*x^4 - 45*x^3 - 58*x^2 + 4*x + 8)*arctan(1/14*sqrt(7)*(37*x
 + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(108*x^5 + 108*x^4 - 45*x
^3 - 58*x^2 + 4*x + 8)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3+5*x)**(3/2)/(1-2*x)**(5/2)/(2+3*x)**4,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.558812, size = 482, normalized size = 2.79

$$\frac{1879}{537824}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{8\left(512\sqrt{5}(5x+3)-3201\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{1260525\,(2x-1)^2}-\frac{99\left(727\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^5+548800\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3+20776000\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-1}}{\sqrt{}}\right.\right.}{67228\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)/((3*x + 2)^4*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 1879/537824*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt
(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 8/1260525*(512*sqrt(5)*(
5*x + 3) - 3201*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)^
2 - 99/67228*(727*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/
sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(2
2)))^5 + 548800*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sq
rt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)
))^3 + 20776000*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sq
rt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)
)))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt
(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)^3
```

3.2581 $\int \frac{(2+3x)^4(3+5x)^{5/2}}{(1-2x)^{5/2}}\,dx$

Optimal. Leaf size=186

$$\frac{(5x+3)^{5/2}(3x+2)^4}{3(1-2x)^{3/2}}-\frac{439(5x+3)^{5/2}(3x+2)^3}{66\sqrt{1-2x}}$$

$$-\frac{4819}{440}\sqrt{1-2x}(5x+3)^{5/2}(3x+2)^2-\frac{4270537963\sqrt{1-2x}(5x+3)^{3/2}}{3379200}-\frac{\sqrt{1-2x}(5x+3)^{5/2}(18161940x+36714139)}{140800}-\frac{4270537}{}$$

```
[Out] (-4270537963*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/409600 - (4270537963*Sq
rt[1 - 2*x]*(3 + 5*x)^(3/2))/3379200 - (4819*Sqrt[1 - 2*x]*(2 + 3
*x)^2*(3 + 5*x)^(5/2))/440 - (439*(2 + 3*x)^3*(3 + 5*x)^(5/2))/(6
6*Sqrt[1 - 2*x]) + ((2 + 3*x)^4*(3 + 5*x)^(5/2))/(3*(1 - 2*x)^(3/
2)) - (Sqrt[1 - 2*x]*(3 + 5*x)^(5/2)*(36714139 + 18161940*x))/140
800 + (46975917593*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(409600*Sqrt
[10])
```

Rubi [A] time = 0.320355, antiderivative size = 186, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 7, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.269$

$$\frac{(5x+3)^{5/2}(3x+2)^4}{3(1-2x)^{3/2}}-\frac{439(5x+3)^{5/2}(3x+2)^3}{66\sqrt{1-2x}}$$

$$-\frac{4819}{440}\sqrt{1-2x}(5x+3)^{5/2}(3x+2)^2-\frac{4270537963\sqrt{1-2x}(5x+3)^{3/2}}{3379200}-\frac{\sqrt{1-2x}(5x+3)^{5/2}(18161940x+36714139)}{140800}-\frac{4270537}{}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^4*(3 + 5*x)^(5/2))/(1 - 2*x)^(5/2),x]
```


```
[Out] (-4270537963*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/409600 - (4270537963*Sq
rt[1 - 2*x]*(3 + 5*x)^(3/2))/3379200 - (4819*Sqrt[1 - 2*x]*(2 + 3
*x)^2*(3 + 5*x)^(5/2))/440 - (439*(2 + 3*x)^3*(3 + 5*x)^(5/2))/(6
6*Sqrt[1 - 2*x]) + ((2 + 3*x)^4*(3 + 5*x)^(5/2))/(3*(1 - 2*x)^(3/
2)) - (Sqrt[1 - 2*x]*(3 + 5*x)^(5/2)*(36714139 + 18161940*x))/140
800 + (46975917593*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(409600*Sqrt
[10])
```

Rubi in Sympy [A] time = 37.4328, size = 178, normalized size = 0.96

$$-\frac{969\sqrt{-2x+1}\,(3x+2)^3\,(5x+3)^{\frac{3}{2}}}{56}-\frac{43527\sqrt{-2x+1}\,(3x+2)^2\,(5x+3)^{\frac{3}{2}}}{640}$$
$$-\frac{\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}\left(\frac{83744836875x}{4}+\frac{1418769347625}{32}\right)}{25200000}-\frac{4270537963\sqrt{-2x+1}\sqrt{5x+3}}{409600}$$
$$+\frac{46975917593\sqrt{10}\,\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{4096000}-\frac{439\,(3x+2)^4\,(5x+3)^{\frac{3}{2}}}{42\sqrt{-2x+1}}+\frac{(3x+2)^4\,(5x+3)^{\frac{5}{2}}}{3\,(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4*(3+5*x)**(5/2)/(1-2*x)**(5/2),x)
```

```
[Out] -969*sqrt(-2*x + 1)*(3*x + 2)**3*(5*x + 3)**(3/2)/56 - 43527*sqrt
(-2*x + 1)*(3*x + 2)**2*(5*x + 3)**(3/2)/640 - sqrt(-2*x + 1)*(5*
x + 3)**(3/2)*(83744836875*x/4 + 1418769347625/32)/25200000 - 427
0537963*sqrt(-2*x + 1)*sqrt(5*x + 3)/409600 + 46975917593*sqrt(10
)*asin(sqrt(22)*sqrt(5*x + 3)/11)/4096000 - 439*(3*x + 2)**4*(5*x
 + 3)**(3/2)/(42*sqrt(-2*x + 1)) + (3*x + 2)**4*(5*x + 3)**(5/2)/
```

```
(3*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.191504, size = 89, normalized size = 0.48

$$\frac{140927752779\sqrt{10-20x}(2x-1)\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)-10\sqrt{5x+3}\left(248832000x^6+1423526400x^5+4002203520x^4+8217\right.}{12288000(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^4*(3 + 5*x)^(5/2))/(1 - 2*x)^(5/2),x]
```

```
[Out] (-10*Sqrt[3 + 5*x]*(21368105901 - 58600061024*x + 18987469764*x^2
 + 8217694800*x^3 + 4002203520*x^4 + 1423526400*x^5 + 248832000*x
^6) + 140927752779*Sqrt[10 - 20*x]*(-1 + 2*x)*ArcSin[Sqrt[5/11]*S
qrt[1 - 2*x]])/(12288000*(1 - 2*x)^(3/2))
```

Maple [A] time = 0.018, size = 188, normalized size = 1.

$$\frac{1}{24576000\,(-1+2\,x)^2}\left(-4976640000\,x^6\sqrt{-10\,x^2-x+3}-28470528000\,x^5\sqrt{-10\,x^2-x+3}-80044070400\,x^4\sqrt{-10\,x^2-x}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4*(3+5*x)^(5/2)/(1-2*x)^(5/2),x)
```

```
[Out] 1/24576000*(-4976640000*x^6*(-10*x^2-x+3)^(1/2)-28470528000*x^5*(
-10*x^2-x+3)^(1/2)-80044070400*x^4*(-10*x^2-x+3)^(1/2)+5637110111
16*10^(1/2)*arcsin(20/11*x+1/11)*x^2-164353896000*x^3*(-10*x^2-x+
3)^(1/2)-563711011116*10^(1/2)*arcsin(20/11*x+1/11)*x-37974939528
0*x^2*(-10*x^2-x+3)^(1/2)+140927752779*10^(1/2)*arcsin(20/11*x+1/
11)+1172001220480*x*(-10*x^2-x+3)^(1/2)-427362118020*(-10*x^2-x+3
)^(1/2))*(1-2*x)^(1/2)*(3+5*x)^(1/2)/(-1+2*x)^2/(-10*x^2-x+3)^(1/
2)
```

Maxima [A] time = 1.5196, size = 478, normalized size = 2.57

$$-\frac{81}{160}\left(-10\,x^2-x+3\right)^{\frac{5}{2}}+\frac{891}{256}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}x+\frac{11872553}{2048}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}\,x+\frac{1}{11}\right)$$
$$+\frac{514294407}{8192000}i\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}\,x-\frac{21}{11}\right)+\frac{139491}{5120}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}$$
$$-\frac{2401\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{32\left(16\,x^4-32\,x^3+24\,x^2-8\,x+1\right)}-\frac{1029\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{16\left(8\,x^3-12\,x^2+6\,x-1\right)}-\frac{441\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{16\left(4\,x^2-4\,x+1\right)}$$
$$-\frac{189\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{32\left(2\,x-1\right)}-\frac{4250367}{20480}\sqrt{10\,x^2-21\,x+8}x+\frac{89257707}{409600}\sqrt{10\,x^2-21\,x+8}$$
$$-\frac{800415}{512}\sqrt{-10\,x^2-x+3}-\frac{132055\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{384\left(8\,x^3-12\,x^2+6\,x-1\right)}+\frac{56595\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{64\left(4\,x^2-4\,x+1\right)}$$
$$+\frac{24255\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{128\left(2\,x-1\right)}+\frac{1452605\sqrt{-10\,x^2-x+3}}{768\left(4\,x^2-4\,x+1\right)}+\frac{15827735\sqrt{-10\,x^2-x+3}}{768\left(2\,x-1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)^4/(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] -81/160*(-10*x^2 - x + 3)^(5/2) + 891/256*(-10*x^2 - x + 3)^(3/2)
*x + 11872553/2048*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) + 51429
```

```
4407/8192000*I*sqrt(5)*sqrt(2)*arcsin(20/11*x - 21/11) + 139491/5
120*(-10*x^2 - x + 3)^(3/2) - 2401/32*(-10*x^2 - x + 3)^(5/2)/(16
*x^4 - 32*x^3 + 24*x^2 - 8*x + 1) - 1029/16*(-10*x^2 - x + 3)^(5/
2)/(8*x^3 - 12*x^2 + 6*x - 1) - 441/16*(-10*x^2 - x + 3)^(5/2)/(4
*x^2 - 4*x + 1) - 189/32*(-10*x^2 - x + 3)^(5/2)/(2*x - 1) - 4250
367/20480*sqrt(10*x^2 - 21*x + 8)*x + 89257707/409600*sqrt(10*x^2
 - 21*x + 8) - 800415/512*sqrt(-10*x^2 - x + 3) - 132055/384*(-10
*x^2 - x + 3)^(3/2)/(8*x^3 - 12*x^2 + 6*x - 1) + 56595/64*(-10*x^
2 - x + 3)^(3/2)/(4*x^2 - 4*x + 1) + 24255/128*(-10*x^2 - x + 3)^
(3/2)/(2*x - 1) + 1452605/768*sqrt(-10*x^2 - x + 3)/(4*x^2 - 4*x
+ 1) + 15827735/768*sqrt(-10*x^2 - x + 3)/(2*x - 1)
```

Fricas [A] time = 0.230598, size = 140, normalized size = 0.75

$$-\frac{\sqrt{10}\left(2\sqrt{10}\left(248832000\,x^6+1423526400\,x^5+4002203520\,x^4+8217694800\,x^3+18987469764\,x^2-58600061024\,x+21368\right.\right.}{24576000\,(4\,x^2-4\,x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(3*x + 2)^4/(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] -1/24576000*sqrt(10)*(2*sqrt(10)*(248832000*x^6 + 1423526400*x^5
+ 4002203520*x^4 + 8217694800*x^3 + 18987469764*x^2 - 58600061024
*x + 21368105901)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 140927752779*(4*
x^2 - 4*x + 1)*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqr
t(-2*x + 1))))/(4*x^2 - 4*x + 1)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4*(3+5*x)**(5/2)/(1-2*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.25127, size = 166, normalized size = 0.89

$$\frac{46975917593}{4096000}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5\,x+3}\right)-\frac{\left(4\left(3\left(12\left(72\left(4\left(48\sqrt{5}(5\,x+3)+509\sqrt{5}\right)(5\,x+3)+20743\sqrt{5}\right)(5\,x+3)+18487133\sqrt{5}\right)(5\,x+3)+4270537963\sqrt{5}\right)(5\,x\right.\right.}{768000000\,(2\,x-1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(3*x + 2)^4/(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] 46975917593/4096000*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))
- 1/768000000*(4*(3*(12*(72*(4*(48*sqrt(5)*(5*x + 3) + 509*sqrt(5
))*(5*x + 3) + 20743*sqrt(5))*(5*x + 3) + 18487133*sqrt(5))*(5*x
+ 3) + 4270537963*sqrt(5))*(5*x + 3) - 469759175930*sqrt(5))*(5*x
 + 3) + 7751026402845*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x
 - 1)^2
```

3.2582 $\int \frac{(2+3x)^3(3+5x)^{5/2}}{(1-2x)^{5/2}}\,dx$

Optimal. Leaf size=157

$$\frac{(5x+3)^{5/2}(3x+2)^3}{3(1-2x)^{3/2}}-\frac{373(5x+3)^{5/2}(3x+2)^2}{66\sqrt{1-2x}}-\frac{9444023\sqrt{1-2x}(5x+3)^{3/2}}{33792}-\frac{\sqrt{1-2x}(5x+3)^{5/2}(40164x+81191)}{1408}-\frac{9444023\sqrt{1-2x}\sqrt{5x+3}}{4096}+\frac{103884253\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{4096\sqrt{10}}$$

```
[Out] (-9444023*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/4096 - (9444023*Sqrt[1 - 2
*x]*(3 + 5*x)^(3/2))/33792 - (373*(2 + 3*x)^2*(3 + 5*x)^(5/2))/(6
6*Sqrt[1 - 2*x]) + ((2 + 3*x)^3*(3 + 5*x)^(5/2))/(3*(1 - 2*x)^(3/
2)) - (Sqrt[1 - 2*x]*(3 + 5*x)^(5/2)*(81191 + 40164*x))/1408 + (1
03884253*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(4096*Sqrt[10])
```

Rubi [A] time = 0.240923, antiderivative size = 157, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$\frac{(5x+3)^{5/2}(3x+2)^3}{3(1-2x)^{3/2}}-\frac{373(5x+3)^{5/2}(3x+2)^2}{66\sqrt{1-2x}}-\frac{9444023\sqrt{1-2x}(5x+3)^{3/2}}{33792}-\frac{\sqrt{1-2x}(5x+3)^{5/2}(40164x+81191)}{1408}-\frac{9444023\sqrt{1-2x}\sqrt{5x+3}}{4096}+\frac{103884253\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{4096\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^3*(3 + 5*x)^(5/2))/(1 - 2*x)^(5/2),x]
```

```
[Out] (-9444023*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/4096 - (9444023*Sqrt[1 - 2
*x]*(3 + 5*x)^(3/2))/33792 - (373*(2 + 3*x)^2*(3 + 5*x)^(5/2))/(6
6*Sqrt[1 - 2*x]) + ((2 + 3*x)^3*(3 + 5*x)^(5/2))/(3*(1 - 2*x)^(3/
2)) - (Sqrt[1 - 2*x]*(3 + 5*x)^(5/2)*(81191 + 40164*x))/1408 + (1
03884253*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(4096*Sqrt[10])
```

Rubi in Sympy [A] time = 29.4856, size = 151, normalized size = 0.96

$$-\frac{3369\sqrt{-2x+1}\,(3x+2)^2\,(5x+3)^{\frac{3}{2}}}{224}-\frac{\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}\left(\frac{185196375x}{2}+\frac{3137518125}{16}\right)}{504000}-\frac{9444023\sqrt{-2x+1}\sqrt{5x+3}}{4096}+\frac{103884253\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{40960}-\frac{373\,(3x+2)^3\,(5x+3)^{\frac{3}{2}}}{42\sqrt{-2x+1}}+\frac{(3x+2)^3\,(5x+3)^{\frac{5}{2}}}{3\,(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3*(3+5*x)**(5/2)/(1-2*x)**(5/2),x)
```

```
[Out] -3369*sqrt(-2*x + 1)*(3*x + 2)**2*(5*x + 3)**(3/2)/224 - sqrt(-2*
x + 1)*(5*x + 3)**(3/2)*(185196375*x/2 + 3137518125/16)/504000 -
9444023*sqrt(-2*x + 1)*sqrt(5*x + 3)/4096 + 103884253*sqrt(10)*as
in(sqrt(22)*sqrt(5*x + 3)/11)/40960 - 373*(3*x + 2)**3*(5*x + 3)*
*(3/2)/(42*sqrt(-2*x + 1)) + (3*x + 2)**3*(5*x + 3)**(5/2)/(3*(-2
*x + 1)**(3/2))
```

Mathematica [A] time = 0.168806, size = 84, normalized size = 0.54

$$\frac{311652759\sqrt{10-20x}(2x-1)\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)-10\sqrt{5x+3}\left(1036800x^5+5477760x^4+15301008x^3+40614996x^2-12\right.}{122880(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^3*(3 + 5*x)^(5/2))/(1 - 2*x)^(5/2),x]
```

```
[Out] (-10*Sqrt[3 + 5*x]*(47216961 - 129940960*x + 40614996*x^2 + 15301
008*x^3 + 5477760*x^4 + 1036800*x^5) + 311652759*Sqrt[10 - 20*x]*
(-1 + 2*x)*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/(122880*(1 - 2*x)^(3
/2))
```

Maple [A] time = 0.019, size = 171, normalized size = 1.1

$$\frac{1}{245760\,(-1+2\,x)^2}\left(-20736000\,x^5\sqrt{-10\,x^2-x+3}-109555200\,x^4\sqrt{-10\,x^2-x+3}+1246611036\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3*(3+5*x)^(5/2)/(1-2*x)^(5/2),x)
```

```
[Out] 1/245760*(-20736000*x^5*(-10*x^2-x+3)^(1/2)-109555200*x^4*(-10*x^
2-x+3)^(1/2)+1246611036*10^(1/2)*arcsin(20/11*x+1/11)*x^2-3060201
60*x^3*(-10*x^2-x+3)^(1/2)-1246611036*10^(1/2)*arcsin(20/11*x+1/1
1)*x-812299920*x^2*(-10*x^2-x+3)^(1/2)+311652759*10^(1/2)*arcsin(
20/11*x+1/11)+2598819200*x*(-10*x^2-x+3)^(1/2)-944339220*(-10*x^2
-x+3)^(1/2))*(1-2*x)^(1/2)*(3+5*x)^(1/2)/(-1+2*x)^2/(-10*x^2-x+3)
^(1/2)
```

Maxima [A] time = 1.52485, size = 439, normalized size = 2.8

$$\begin{aligned}&\frac{2606989}{2048}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)+\frac{395307}{81920}i\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x-\frac{21}{11}\right)+\frac{495}{256}\left(-10\,x^2-x+3\right)^{\frac{3}{2}}\\&-\frac{343\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{16\,(16\,x^4-32\,x^3+24\,x^2-8\,x+1)}-\frac{441\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{32\,(8\,x^3-12\,x^2+6\,x-1)}-\frac{63\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{16\,(4\,x^2-4\,x+1)}\\&-\frac{27\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{64\,(2\,x-1)}-\frac{16335}{1024}\sqrt{10\,x^2-21\,x+8}x+\frac{68607}{4096}\sqrt{10\,x^2-21\,x+8}\\&-\frac{114345}{512}\sqrt{-10\,x^2-x+3}-\frac{18865\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{192\,(8\,x^3-12\,x^2+6\,x-1)}+\frac{24255\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{128\,(4\,x^2-4\,x+1)}\\&+\frac{3465\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{128\,(2\,x-1)}+\frac{207515\sqrt{-10\,x^2-x+3}}{384\,(4\,x^2-4\,x+1)}+\frac{3721795\sqrt{-10\,x^2-x+3}}{768\,(2\,x-1)}\end{aligned}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)^3/(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] 2606989/2048*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) + 395307/8192
0*I*sqrt(5)*sqrt(2)*arcsin(20/11*x - 21/11) + 495/256*(-10*x^2 -
x + 3)^(3/2) - 343/16*(-10*x^2 - x + 3)^(5/2)/(16*x^4 - 32*x^3 +
24*x^2 - 8*x + 1) - 441/32*(-10*x^2 - x + 3)^(5/2)/(8*x^3 - 12*x^
2 + 6*x - 1) - 63/16*(-10*x^2 - x + 3)^(5/2)/(4*x^2 - 4*x + 1) -
27/64*(-10*x^2 - x + 3)^(5/2)/(2*x - 1) - 16335/1024*sqrt(10*x^2
- 21*x + 8)*x + 68607/4096*sqrt(10*x^2 - 21*x + 8) - 114345/512*s
qrt(-10*x^2 - x + 3) - 18865/192*(-10*x^2 - x + 3)^(3/2)/(8*x^3 -
 12*x^2 + 6*x - 1) + 24255/128*(-10*x^2 - x + 3)^(3/2)/(4*x^2 - 4
*x + 1) + 3465/128*(-10*x^2 - x + 3)^(3/2)/(2*x - 1) + 207515/384
```

```
*sqrt(-10*x^2 - x + 3)/(4*x^2 - 4*x + 1) + 3721795/768*sqrt(-10*x
^2 - x + 3)/(2*x - 1)
```

Fricas [A] time = 0.231026, size = 134, normalized size = 0.85

$$-\frac{\sqrt{10}\left(2\sqrt{10}\left(1036800\,x^5+5477760\,x^4+15301008\,x^3+40614996\,x^2-129940960\,x+47216961\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-3116\right.}{245760\,(4\,x^2-4\,x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(3*x + 2)^3/(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] -1/245760*sqrt(10)*(2*sqrt(10)*(1036800*x^5 + 5477760*x^4 + 15301
008*x^3 + 40614996*x^2 - 129940960*x + 47216961)*sqrt(5*x + 3)*sq
rt(-2*x + 1) - 311652759*(4*x^2 - 4*x + 1)*arctan(1/20*sqrt(10)*(
20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(4*x^2 - 4*x + 1)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2+3*x)**3*(3+5*x)**(5/2)/(1-2*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.242795, size = 149, normalized size = 0.95

$$\frac{103884253}{40960}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5\,x+3}\right)$$
$$-\frac{\left(4\left(3\left(36\left(8\left(12\sqrt{5}(5\,x+3)+137\sqrt{5}\right)(5\,x+3)+13627\sqrt{5}\right)(5\,x+3)+9444023\sqrt{5}\right)(5\,x+3)-1038842530\sqrt{5}\right)(5\,x+3)\right.}{7680000\,(2\,x-1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(3*x + 2)^3/(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] 103884253/40960*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) - 1/
7680000*(4*(3*(36*(8*(12*sqrt(5)*(5*x + 3) + 137*sqrt(5))*(5*x +
3) + 13627*sqrt(5))*(5*x + 3) + 9444023*sqrt(5))*(5*x + 3) - 1038
842530*sqrt(5))*(5*x + 3) + 17140901745*sqrt(5))*sqrt(5*x + 3)*sq
rt(-10*x + 5)/(2*x - 1)^2
```

3.2583 $\int \frac{(2+3x)^2(3+5x)^{5/2}}{(1-2x)^{5/2}}\,dx$

Optimal. Leaf size=140

$$-\frac{1183(5x+3)^{7/2}}{363\sqrt{1-2x}}+\frac{49(5x+3)^{7/2}}{66(1-2x)^{3/2}}-\frac{24749\sqrt{1-2x}(5x+3)^{5/2}}{2904}-\frac{123745\sqrt{1-2x}(5x+3)^{3/2}}{2112}-\frac{123745}{256}\sqrt{1-2x}\sqrt{5x+3}+\frac{272239}{256}\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)$$

```
[Out] (-123745*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/256 - (123745*Sqrt[1 - 2*x]
*(3 + 5*x)^(3/2))/2112 - (24749*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/29
04 + (49*(3 + 5*x)^(7/2))/(66*(1 - 2*x)^(3/2)) - (1183*(3 + 5*x)^
(7/2))/(363*Sqrt[1 - 2*x]) + (272239*Sqrt[5/2]*ArcSin[Sqrt[2/11]*
Sqrt[3 + 5*x]])/256
```

Rubi [A] time = 0.167187, antiderivative size = 140, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.192$

$$-\frac{1183(5x+3)^{7/2}}{363\sqrt{1-2x}}+\frac{49(5x+3)^{7/2}}{66(1-2x)^{3/2}}-\frac{24749\sqrt{1-2x}(5x+3)^{5/2}}{2904}-\frac{123745\sqrt{1-2x}(5x+3)^{3/2}}{2112}-\frac{123745}{256}\sqrt{1-2x}\sqrt{5x+3}+\frac{272239}{256}\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^2*(3 + 5*x)^(5/2))/(1 - 2*x)^(5/2),x]
```

```
[Out] (-123745*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/256 - (123745*Sqrt[1 - 2*x]
*(3 + 5*x)^(3/2))/2112 - (24749*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/29
04 + (49*(3 + 5*x)^(7/2))/(66*(1 - 2*x)^(3/2)) - (1183*(3 + 5*x)^
(7/2))/(363*Sqrt[1 - 2*x]) + (272239*Sqrt[5/2]*ArcSin[Sqrt[2/11]*
Sqrt[3 + 5*x]])/256
```

Rubi in Sympy [A] time = 14.7156, size = 126, normalized size = 0.9

$$-\frac{24749\sqrt{-2x+1}\,(5x+3)^{\frac{5}{2}}}{2904}-\frac{123745\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{2112}-\frac{123745\sqrt{-2x+1}\sqrt{5x+3}}{256}+\frac{272239\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{512}-\frac{1183\,(5x+3)^{\frac{7}{2}}}{363\sqrt{-2x+1}}+\frac{49\,(5x+3)^{\frac{7}{2}}}{66\,(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2*(3+5*x)**(5/2)/(1-2*x)**(5/2),x)
```

```
[Out] -24749*sqrt(-2*x + 1)*(5*x + 3)**(5/2)/2904 - 123745*sqrt(-2*x +
1)*(5*x + 3)**(3/2)/2112 - 123745*sqrt(-2*x + 1)*sqrt(5*x + 3)/25
6 + 272239*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/512 - 1183*(5
*x + 3)**(7/2)/(363*sqrt(-2*x + 1)) + 49*(5*x + 3)**(7/2)/(66*(-2
*x + 1)**(3/2))
```

Mathematica [A] time = 0.153539, size = 79, normalized size = 0.56

$$\frac{816717\sqrt{10-20x}(2x-1)\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)-2\sqrt{5x+3}\left(28800x^4+146160x^3+497868x^2-1713440x+617319\right)}{1536(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^2*(3 + 5*x)^(5/2))/(1 - 2*x)^(5/2),x]
```

```
[Out] (-2*Sqrt[3 + 5*x]*(617319 - 1713440*x + 497868*x^2 + 146160*x^3 +
 28800*x^4) + 816717*Sqrt[10 - 20*x]*(-1 + 2*x)*ArcSin[Sqrt[5/11]
*Sqrt[1 - 2*x]])/(1536*(1 - 2*x)^(3/2))
```

Maple [A] time = 0.019, size = 154, normalized size = 1.1

$$\frac{1}{3072\,(-1+2\,x)^2}\left(-115200\,x^4\sqrt{-10\,x^2-x+3}+3266868\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x^2-584640\,x^3\sqrt{-10\,x^2-x+3}-3266$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2*(3+5*x)^(5/2)/(1-2*x)^(5/2),x)
```

```
[Out] 1/3072*(-115200*x^4*(-10*x^2-x+3)^(1/2)+3266868*10^(1/2)*arcsin(2
0/11*x+1/11)*x^2-584640*x^3*(-10*x^2-x+3)^(1/2)-3266868*10^(1/2)*
arcsin(20/11*x+1/11)*x-1991472*x^2*(-10*x^2-x+3)^(1/2)+816717*10^
(1/2)*arcsin(20/11*x+1/11)+6853760*x*(-10*x^2-x+3)^(1/2)-2469276*
(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)*(3+5*x)^(1/2)/(-1+2*x)^2/(-10*
x^2-x+3)^(1/2)
```

Maxima [A] time = 1.52009, size = 333, normalized size = 2.38

$$\frac{272239}{1024}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}\,x+\frac{1}{11}\right)-\frac{49\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{8\,(16\,x^4-32\,x^3+24\,x^2-8\,x+1)}-\frac{21\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{8\,(8\,x^3-12\,x^2+6\,x-1)}-\frac{3\left(-10\,x^2-x+3\right)^{\frac{5}{2}}}{8\,(4\,x^2-4\,x+1)}-\frac{5445}{256}\sqrt{-10\,x^2-x+3}-\frac{2695\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{96\,(8\,x^3-12\,x^2+6\,x-1)}+\frac{1155\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{32\,(4\,x^2-4\,x+1)}+\frac{165\left(-10\,x^2-x+3\right)^{\frac{3}{2}}}{64\,(2\,x-1)}+\frac{29645\sqrt{-10\,x^2-x+3}}{192\,(4\,x^2-4\,x+1)}+\frac{104335\sqrt{-10\,x^2-x+3}}{96\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)^2/(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] 272239/1024*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) - 49/8*(-10*x^
2 - x + 3)^(5/2)/(16*x^4 - 32*x^3 + 24*x^2 - 8*x + 1) - 21/8*(-10
*x^2 - x + 3)^(5/2)/(8*x^3 - 12*x^2 + 6*x - 1) - 3/8*(-10*x^2 - x
 + 3)^(5/2)/(4*x^2 - 4*x + 1) - 5445/256*sqrt(-10*x^2 - x + 3) -
2695/96*(-10*x^2 - x + 3)^(3/2)/(8*x^3 - 12*x^2 + 6*x - 1) + 1155
/32*(-10*x^2 - x + 3)^(3/2)/(4*x^2 - 4*x + 1) + 165/64*(-10*x^2 -
 x + 3)^(3/2)/(2*x - 1) + 29645/192*sqrt(-10*x^2 - x + 3)/(4*x^2
- 4*x + 1) + 104335/96*sqrt(-10*x^2 - x + 3)/(2*x - 1)
```

Fricas [A] time = 0.239262, size = 135, normalized size = 0.96

$$-\frac{\sqrt{2}\left(2\,\sqrt{2}\left(28800\,x^4+146160\,x^3+497868\,x^2-1713440\,x+617319\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-816717\,\sqrt{5}\left(4\,x^2-4\,x+1\right)\mathrm{arctar}}{3072\,(4\,x^2-4\,x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)^2/(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] -1/3072*sqrt(2)*(2*sqrt(2)*(28800*x^4 + 146160*x^3 + 497868*x^2 -
 1713440*x + 617319)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 816717*sqrt(5
)*(4*x^2 - 4*x + 1)*arctan(1/20*sqrt(5)*sqrt(2)*(20*x + 1)/(sqrt(
5*x + 3)*sqrt(-2*x + 1))))/(4*x^2 - 4*x + 1)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2*(3+5*x)**(5/2)/(1-2*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.257254, size = 131, normalized size = 0.94

$$\frac{272239}{512}\,\sqrt{10}\arcsin\left(\frac{1}{11}\,\sqrt{22}\sqrt{5\,x+3}\right) - \frac{\left(4\left(3\left(12\left(8\,\sqrt{5}(5\,x+3)+107\,\sqrt{5}\right)(5\,x+3)+24749\,\sqrt{5}\right)(5\,x+3)-2722390\,\sqrt{5}\right)(5\,x+3)+44919435\,\sqrt{5}\right)\sqrt{5\,x+3}\sqrt{-10\,x}}{96000\,(2\,x-1)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)^2/(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] 272239/512*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) - 1/96000
*(4*(3*(12*(8*sqrt(5)*(5*x + 3) + 107*sqrt(5))*(5*x + 3) + 24749*
sqrt(5))*(5*x + 3) - 2722390*sqrt(5))*(5*x + 3) + 44919435*sqrt(5
))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)^2
```

3.2584 $\int \frac{(2+3x)(3+5x)^{5/2}}{(1-2x)^{5/2}}\,dx$

Optimal. Leaf size=118

$$\frac{7(5x+3)^{7/2}}{33(1-2x)^{3/2}}-\frac{239(5x+3)^{5/2}}{66\sqrt{1-2x}}-\frac{5975}{528}\sqrt{1-2x}(5x+3)^{3/2}-\frac{5975}{64}\sqrt{1-2x}\sqrt{5x+3}+\frac{13145}{64}\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)$$

```
[Out] (-5975*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/64 - (5975*Sqrt[1 - 2*x]*(3 +
 5*x)^(3/2))/528 - (239*(3 + 5*x)^(5/2))/(66*Sqrt[1 - 2*x]) + (7*
(3 + 5*x)^(7/2))/(33*(1 - 2*x)^(3/2)) + (13145*Sqrt[5/2]*ArcSin[S
qrt[2/11]*Sqrt[3 + 5*x]])/64
```

Rubi [A] time = 0.119453, antiderivative size = 118, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.208

$$\frac{7(5x+3)^{7/2}}{33(1-2x)^{3/2}}-\frac{239(5x+3)^{5/2}}{66\sqrt{1-2x}}-\frac{5975}{528}\sqrt{1-2x}(5x+3)^{3/2}-\frac{5975}{64}\sqrt{1-2x}\sqrt{5x+3}+\frac{13145}{64}\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)*(3 + 5*x)^(5/2))/(1 - 2*x)^(5/2),x]
```

```
[Out] (-5975*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/64 - (5975*Sqrt[1 - 2*x]*(3 +
 5*x)^(3/2))/528 - (239*(3 + 5*x)^(5/2))/(66*Sqrt[1 - 2*x]) + (7*
(3 + 5*x)^(7/2))/(33*(1 - 2*x)^(3/2)) + (13145*Sqrt[5/2]*ArcSin[S
qrt[2/11]*Sqrt[3 + 5*x]])/64
```

Rubi in Sympy [A] time = 11.4912, size = 105, normalized size = 0.89

$$-\frac{5975\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{528}-\frac{5975\sqrt{-2x+1}\sqrt{5x+3}}{64}+\frac{13145\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{128}-\frac{239\,(5x+3)^{\frac{5}{2}}}{66\sqrt{-2x+1}}+\frac{7\,(5x+3)^{\frac{7}{2}}}{33\,(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)*(3+5*x)**(5/2)/(1-2*x)**(5/2),x)
```

```
[Out] -5975*sqrt(-2*x + 1)*(5*x + 3)**(3/2)/528 - 5975*sqrt(-2*x + 1)*s
qrt(5*x + 3)/64 + 13145*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/
128 - 239*(5*x + 3)**(5/2)/(66*sqrt(-2*x + 1)) + 7*(5*x + 3)**(7/
2)/(33*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.122769, size = 74, normalized size = 0.63

$$\frac{39435\sqrt{10-20x}(2x-1)\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)-2\sqrt{5x+3}\left(3600x^3+20820x^2-84064x+29601\right)}{384(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)*(3 + 5*x)^(5/2))/(1 - 2*x)^(5/2),x]
```

```
[Out] (-2*Sqrt[3 + 5*x]*(29601 - 84064*x + 20820*x^2 + 3600*x^3) + 3943
5*Sqrt[10 - 20*x]*(-1 + 2*x)*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/(3
84*(1 - 2*x)^(3/2))
```

Maple [A] time = 0.019, size = 137, normalized size = 1.2

$$\frac{1}{768 (-1+2x)^2}\left(157740\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)x^2-14400x^3\sqrt{-10x^2-x+3}-157740\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)x-8$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)*(3+5*x)^(5/2)/(1-2*x)^(5/2),x)
```

```
[Out] 1/768*(157740*10^(1/2)*arcsin(20/11*x+1/11)*x^2-14400*x^3*(-10*x^
2-x+3)^(1/2)-157740*10^(1/2)*arcsin(20/11*x+1/11)*x-83280*x^2*(-1
0*x^2-x+3)^(1/2)+39435*10^(1/2)*arcsin(20/11*x+1/11)+336256*x*(-1
0*x^2-x+3)^(1/2)-118404*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)*(3+5*x
)^(1/2)/(-1+2*x)^2/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.50239, size = 251, normalized size = 2.13

$$\frac{13145}{256}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)-\frac{7\left(-10x^2-x+3\right)^{\frac{5}{2}}}{4\left(16x^4-32x^3+24x^2-8x+1\right)}-\frac{3\left(-10x^2-x+3\right)^{\frac{5}{2}}}{8\left(8x^3-12x^2+6x-1\right)}-\frac{385\left(-10x^2-x+3\right)^{\frac{3}{2}}}{48\left(8x^3-12x^2+6x-1\right)}+\frac{165\left(-10x^2-x+3\right)^{\frac{3}{2}}}{32\left(4x^2-4x+1\right)}+\frac{4235\sqrt{-10x^2-x+3}}{96\left(4x^2-4x+1\right)}+\frac{43285\sqrt{-10x^2-x+3}}{192\left(2x-1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)/(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] 13145/256*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) - 7/4*(-10*x^2 -
 x + 3)^(5/2)/(16*x^4 - 32*x^3 + 24*x^2 - 8*x + 1) - 3/8*(-10*x^2
 - x + 3)^(5/2)/(8*x^3 - 12*x^2 + 6*x - 1) - 385/48*(-10*x^2 - x
+ 3)^(3/2)/(8*x^3 - 12*x^2 + 6*x - 1) + 165/32*(-10*x^2 - x + 3)^
(3/2)/(4*x^2 - 4*x + 1) + 4235/96*sqrt(-10*x^2 - x + 3)/(4*x^2 -
4*x + 1) + 43285/192*sqrt(-10*x^2 - x + 3)/(2*x - 1)
```

Fricas [A] time = 0.229734, size = 128, normalized size = 1.08

$$-\frac{\sqrt{2}\left(2\sqrt{2}\left(3600x^3+20820x^2-84064x+29601\right)\sqrt{5x+3}\sqrt{-2x+1}-39435\sqrt{5}\left(4x^2-4x+1\right)\arctan\left(\frac{\sqrt{5}\sqrt{2}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)}{768\left(4x^2-4x+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)/(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] -1/768*sqrt(2)*(2*sqrt(2)*(3600*x^3 + 20820*x^2 - 84064*x + 29601
)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 39435*sqrt(5)*(4*x^2 - 4*x + 1)*
arctan(1/20*sqrt(5)*sqrt(2)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x +
 1))))/(4*x^2 - 4*x + 1)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)*(3+5*x)**(5/2)/(1-2*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.23958, size = 113, normalized size = 0.96

$$\frac{13145}{128}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right) - \frac{\left(4\left(3\left(12\sqrt{5}(5x+3)+239\sqrt{5}\right)(5x+3)-26290\sqrt{5}\right)(5x+3)+433785\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{4800(2x-1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)/(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] 13145/128*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) - 1/4800*(
4*(3*(12*sqrt(5)*(5*x + 3) + 239*sqrt(5))*(5*x + 3) - 26290*sqrt(
5))*(5*x + 3) + 433785*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*
x - 1)^2
```

3.2585 $\int \frac{(3+5x)^{5/2}}{(1-2x)^{5/2}}\,dx$

Optimal. Leaf size=96

$$\frac{(5x+3)^{5/2}}{3(1-2x)^{3/2}}-\frac{25(5x+3)^{3/2}}{6\sqrt{1-2x}}-\frac{125}{8}\sqrt{1-2x}\sqrt{5x+3}+\frac{275}{8}\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)$$

```
[Out] (-125*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/8 - (25*(3 + 5*x)^(3/2))/(6*Sq
rt[1 - 2*x]) + (3 + 5*x)^(5/2)/(3*(1 - 2*x)^(3/2)) + (275*Sqrt[5/
2]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/8
```

Rubi [A] time = 0.0814997, antiderivative size = 96, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.21

$$\frac{(5x+3)^{5/2}}{3(1-2x)^{3/2}}-\frac{25(5x+3)^{3/2}}{6\sqrt{1-2x}}-\frac{125}{8}\sqrt{1-2x}\sqrt{5x+3}+\frac{275}{8}\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(5/2)/(1 - 2*x)^(5/2),x]
```

```
[Out] (-125*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/8 - (25*(3 + 5*x)^(3/2))/(6*Sq
rt[1 - 2*x]) + (3 + 5*x)^(5/2)/(3*(1 - 2*x)^(3/2)) + (275*Sqrt[5/
2]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/8
```

Rubi in Sympy [A] time = 9.10538, size = 83, normalized size = 0.86

$$-\frac{125\sqrt{-2x+1}\sqrt{5x+3}}{8}+\frac{275\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{16}-\frac{25\left(5x+3\right)^{\frac{3}{2}}}{6\sqrt{-2x+1}}+\frac{\left(5x+3\right)^{\frac{5}{2}}}{3\left(-2x+1\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)/(1-2*x)**(5/2),x)
```

```
[Out] -125*sqrt(-2*x + 1)*sqrt(5*x + 3)/8 + 275*sqrt(10)*asin(sqrt(22)*
sqrt(5*x + 3)/11)/16 - 25*(5*x + 3)**(3/2)/(6*sqrt(-2*x + 1)) + (
5*x + 3)**(5/2)/(3*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.110108, size = 69, normalized size = 0.72

$$\frac{825\sqrt{10-20x}(2x-1)\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)-2\sqrt{5x+3}\left(300x^2-1840x+603\right)}{48(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(5/2)/(1 - 2*x)^(5/2),x]
```

```
[Out] (-2*Sqrt[3 + 5*x]*(603 - 1840*x + 300*x^2) + 825*Sqrt[10 - 20*x]*
(-1 + 2*x)*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/(48*(1 - 2*x)^(3/2))
```

Maple [F] time = 0.042, size = 0, normalized size = 0.

$$\int 1\,(3+5x)^{\frac{5}{2}}\,(1-2x)^{-\frac{5}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)/(1-2*x)^(5/2),x)
```

```
[Out] int((3+5*x)^(5/2)/(1-2*x)^(5/2),x)
```

Maxima [A] time = 1.50349, size = 174, normalized size = 1.81

$$\frac{275}{32}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)-\frac{\left(-10x^2-x+3\right)^{\frac{5}{2}}}{2\left(16x^4-32x^3+24x^2-8x+1\right)}-\frac{55\left(-10x^2-x+3\right)^{\frac{3}{2}}}{24\left(8x^3-12x^2+6x-1\right)}+\frac{605\sqrt{-10x^2-x+3}}{48\left(4x^2-4x+1\right)}+\frac{1925\sqrt{-10x^2-x+3}}{48\left(2x-1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] 275/32*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) - 1/2*(-10*x^2 - x
+ 3)^(5/2)/(16*x^4 - 32*x^3 + 24*x^2 - 8*x + 1) - 55/24*(-10*x^2
- x + 3)^(3/2)/(8*x^3 - 12*x^2 + 6*x - 1) + 605/48*sqrt(-10*x^2 -
 x + 3)/(4*x^2 - 4*x + 1) + 1925/48*sqrt(-10*x^2 - x + 3)/(2*x -
1)
```

Fricas [A] time = 0.222662, size = 122, normalized size = 1.27

$$-\frac{\sqrt{2}\left(2\sqrt{2}\left(300x^2-1840x+603\right)\sqrt{5x+3}\sqrt{-2x+1}-825\sqrt{5}\left(4x^2-4x+1\right)\arctan\left(\frac{\sqrt{5}\sqrt{2}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)}{96\left(4x^2-4x+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] -1/96*sqrt(2)*(2*sqrt(2)*(300*x^2 - 1840*x + 603)*sqrt(5*x + 3)*s
qrt(-2*x + 1) - 825*sqrt(5)*(4*x^2 - 4*x + 1)*arctan(1/20*sqrt(5)
*sqrt(2)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(4*x^2 - 4*x
 + 1)
```

Sympy [A] time = 30.8273, size = 729, normalized size = 7.59

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(5/2)/(1-2*x)**(5/2),x)
```

```
[Out] Piecewise((-16500*sqrt(10)*I*(x + 3/5)**(27/2)*sqrt(10*x - 5)*aco
sh(sqrt(110)*sqrt(x + 3/5)/11)/(960*(x + 3/5)**(27/2)*sqrt(10*x -
 5) - 1056*(x + 3/5)**(25/2)*sqrt(10*x - 5)) + 8250*sqrt(10)*pi*(
x + 3/5)**(27/2)*sqrt(10*x - 5)/(960*(x + 3/5)**(27/2)*sqrt(10*x
- 5) - 1056*(x + 3/5)**(25/2)*sqrt(10*x - 5)) + 18150*sqrt(10)*I*
(x + 3/5)**(25/2)*sqrt(10*x - 5)*acosh(sqrt(110)*sqrt(x + 3/5)/11
```

```
)/(960*(x + 3/5)**(27/2)*sqrt(10*x - 5) - 1056*(x + 3/5)**(25/2)*
sqrt(10*x - 5)) - 9075*sqrt(10)*pi*(x + 3/5)**(25/2)*sqrt(10*x -
5)/(960*(x + 3/5)**(27/2)*sqrt(10*x - 5) - 1056*(x + 3/5)**(25/2)
*sqrt(10*x - 5)) - 30000*I*(x + 3/5)**15/(960*(x + 3/5)**(27/2)*s
qrt(10*x - 5) - 1056*(x + 3/5)**(25/2)*sqrt(10*x - 5)) + 220000*I
*(x + 3/5)**14/(960*(x + 3/5)**(27/2)*sqrt(10*x - 5) - 1056*(x +
3/5)**(25/2)*sqrt(10*x - 5)) - 181500*I*(x + 3/5)**13/(960*(x + 3
/5)**(27/2)*sqrt(10*x - 5) - 1056*(x + 3/5)**(25/2)*sqrt(10*x - 5
)), 10*Abs(x + 3/5)/11 > 1), (8250*sqrt(10)*sqrt(-10*x + 5)*(x +
3/5)**(27/2)*asin(sqrt(110)*sqrt(x + 3/5)/11)/(480*sqrt(-10*x + 5
)*(x + 3/5)**(27/2) - 528*sqrt(-10*x + 5)*(x + 3/5)**(25/2)) - 90
75*sqrt(10)*sqrt(-10*x + 5)*(x + 3/5)**(25/2)*asin(sqrt(110)*sqrt
(x + 3/5)/11)/(480*sqrt(-10*x + 5)*(x + 3/5)**(27/2) - 528*sqrt(-
10*x + 5)*(x + 3/5)**(25/2)) + 15000*(x + 3/5)**15/(480*sqrt(-10*
x + 5)*(x + 3/5)**(27/2) - 528*sqrt(-10*x + 5)*(x + 3/5)**(25/2))
 - 110000*(x + 3/5)**14/(480*sqrt(-10*x + 5)*(x + 3/5)**(27/2) -
528*sqrt(-10*x + 5)*(x + 3/5)**(25/2)) + 90750*(x + 3/5)**13/(480
*sqrt(-10*x + 5)*(x + 3/5)**(27/2) - 528*sqrt(-10*x + 5)*(x + 3/5
)**(25/2)), True))
```

GIAC/XCAS [A] time = 0.233866, size = 96, normalized size = 1.

$$\frac{275}{16}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)-\frac{\left(4\left(3\sqrt{5}(5x+3)-110\sqrt{5}\right)(5x+3)+1815\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{120\,(2x-1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] 275/16*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) - 1/120*(4*(3
*sqrt(5)*(5*x + 3) - 110*sqrt(5))*(5*x + 3) + 1815*sqrt(5))*sqrt(
5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)^2
```

3.2586 $\int \frac{(3+5x)^{5/2}}{(1-2x)^{5/2}(2+3x)}\,dx$

Optimal. Leaf size=108

$$\frac{11(5x+3)^{3/2}}{21(1-2x)^{3/2}}-\frac{407\sqrt{5x+3}}{98\sqrt{1-2x}}+\frac{25}{6}\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)+\frac{2\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{147\sqrt{7}}$$

```
[Out] (-407*Sqrt[3 + 5*x])/(98*Sqrt[1 - 2*x]) + (11*(3 + 5*x)^(3/2))/(2
1*(1 - 2*x)^(3/2)) + (25*Sqrt[5/2]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x
]])/6 + (2*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(147*Sq
rt[7])
```

Rubi [A] time = 0.242522, antiderivative size = 108, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 7, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.269

$$\frac{11(5x+3)^{3/2}}{21(1-2x)^{3/2}}-\frac{407\sqrt{5x+3}}{98\sqrt{1-2x}}+\frac{25}{6}\sqrt{\frac{5}{2}}\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)+\frac{2\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{147\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(5/2)/((1 - 2*x)^(5/2)*(2 + 3*x)),x]
```

```
[Out] (-407*Sqrt[3 + 5*x])/(98*Sqrt[1 - 2*x]) + (11*(3 + 5*x)^(3/2))/(2
1*(1 - 2*x)^(3/2)) + (25*Sqrt[5/2]*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x
]])/6 + (2*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(147*Sq
rt[7])
```

Rubi in Sympy [A] time = 23.0889, size = 99, normalized size = 0.92

$$\frac{25\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{12}+\frac{2\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{1029}-\frac{407\sqrt{5x+3}}{98\sqrt{-2x+1}}+\frac{11\,(5x+3)^{\frac{3}{2}}}{21\,(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)/(1-2*x)**(5/2)/(2+3*x),x)
```

```
[Out] 25*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/12 + 2*sqrt(7)*atan(s
qrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/1029 - 407*sqrt(5*x + 3)
/(98*sqrt(-2*x + 1)) + 11*(5*x + 3)**(3/2)/(21*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.244243, size = 100, normalized size = 0.93

$$\frac{\frac{308\sqrt{5x+3}(292x-69)}{(1-2x)^{3/2}}+8\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)+8575\sqrt{10}\tan^{-1}\left(\frac{20x+1}{2\sqrt{1-2x}\sqrt{50x+30}}\right)}{8232}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(5/2)/((1 - 2*x)^(5/2)*(2 + 3*x)),x]
```

```
[Out] ((308*Sqrt[3 + 5*x]*(-69 + 292*x))/(1 - 2*x)^(3/2) + 8*Sqrt[7]*Ar
cTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])] + 8575*Sqrt[1
0]*ArcTan[(1 + 20*x)/(2*Sqrt[1 - 2*x]*Sqrt[30 + 50*x])])/8232
```

Maple [B] time = 0.02, size = 191, normalized size = 1.8

$$-\frac{1}{8232\left(-1+2x\right)^{2}}\left(32\sqrt{7}\arctan\left(1/14\frac{\left(37x+20\right)\sqrt{7}}{\sqrt{-10x^{2}-x+3}}\right)x^{2}-34300\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)x^{2}-32\sqrt{7}\arctan\left(1/14\frac{(}{\sqrt{}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)/(1-2*x)^(5/2)/(2+3*x),x)
```

```
[Out] -1/8232*(32*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(
1/2))*x^2-34300*10^(1/2)*arcsin(20/11*x+1/11)*x^2-32*7^(1/2)*arct
an(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+34300*10^(1/2)*a
rcsin(20/11*x+1/11)*x+8*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-1
0*x^2-x+3)^(1/2))-8575*10^(1/2)*arcsin(20/11*x+1/11)-89936*x*(-10
*x^2-x+3)^(1/2)+21252*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)*(3+5*x)^
(1/2)/(-1+2*x)^2/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.52003, size = 220, normalized size = 2.04

$$-\frac{12233125\,x^{2}}{3557763\,\sqrt{-10\,x^{2}-x+3}}+\frac{625\,x^{3}}{6\,{\left(-10\,x^{2}-x+3\right)}^{\frac{3}{2}}}+\frac{25}{24}\,\sqrt{10}\arcsin\left(\frac{20}{11}\,x+\frac{1}{11}\right)-\frac{1}{1029}\,\sqrt{7}\arcsin\left(\frac{37\,x}{11\,{\left|3\,x+2\right|}}+\frac{20}{11\,{\left|3\,x+2\right|}}\right)-\frac{2446625}{7115526}\,\sqrt{-10\,x^{2}-x+3}-\frac{12021894385\,x}{697321548\,\sqrt{-10\,x^{2}-x+3}}+\frac{16029625\,x^{2}}{117612\,{\left(-10\,x^{2}-x+3\right)}^{\frac{3}{2}}}-\frac{6953014391}{697321548\,\sqrt{-10\,x^{2}-x+3}}+\frac{12465295\,x}{205821\,{\left(-10\,x^{2}-x+3\right)}^{\frac{3}{2}}}+\frac{2681981}{274428\,{\left(-10\,x^{2}-x+3\right)}^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] -12233125/3557763*x^2/sqrt(-10*x^2 - x + 3) + 625/6*x^3/(-10*x^2
- x + 3)^(3/2) + 25/24*sqrt(10)*arcsin(20/11*x + 1/11) - 1/1029*s
qrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2)) - 244662
5/7115526*sqrt(-10*x^2 - x + 3) - 12021894385/697321548*x/sqrt(-1
0*x^2 - x + 3) + 16029625/117612*x^2/(-10*x^2 - x + 3)^(3/2) - 69
53014391/697321548/sqrt(-10*x^2 - x + 3) + 12465295/205821*x/(-10
*x^2 - x + 3)^(3/2) + 2681981/274428/(-10*x^2 - x + 3)^(3/2)
```

Fricas [A] time = 0.232996, size = 181, normalized size = 1.68

$$\frac{\sqrt{7}\sqrt{2}\left(22\sqrt{7}\sqrt{2}(292x-69)\sqrt{5x+3}\sqrt{-2x+1}+1225\sqrt{7}\sqrt{5}\left(4x^{2}-4x+1\right)\arctan\left(\frac{\sqrt{5}\sqrt{2}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)-4\sqrt{2}\left(4x^{2}-4x+1\right.\right.}{8232\left(4x^{2}-4x+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/8232*sqrt(7)*sqrt(2)*(22*sqrt(7)*sqrt(2)*(292*x - 69)*sqrt(5*x
+ 3)*sqrt(-2*x + 1) + 1225*sqrt(7)*sqrt(5)*(4*x^2 - 4*x + 1)*arct
an(1/20*sqrt(5)*sqrt(2)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))
) - 4*sqrt(2)*(4*x^2 - 4*x + 1)*arctan(1/14*sqrt(7)*(37*x + 20)/(
sqrt(5*x + 3)*sqrt(-2*x + 1))))/(4*x^2 - 4*x + 1)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(5/2)/(1-2*x)**(5/2)/(2+3*x),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.282072, size = 243, normalized size = 2.25

$$-\frac{1}{10290}\sqrt{70}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right) + \frac{25}{24}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{4\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right) + \frac{11\left(292\sqrt{5}(5x+3)-1221\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{7350\,(2x-1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] -1/10290*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*
x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sq
rt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 25/24*sqrt(10)*(pi + 2*arct
an(-1/4*sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*
x + 3) - 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 11/7350*(292
*sqrt(5)*(5*x + 3) - 1221*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5)/
(2*x - 1)^2
```

3.2587 $\int \frac{(3+5x)^{5/2}}{(1-2x)^{5/2}(2+3x)^2}\,dx$

Optimal. Leaf size=122

$$\frac{2(5x+3)^{5/2}}{21(1-2x)^{3/2}(3x+2)}-\frac{10(5x+3)^{3/2}}{147\sqrt{1-2x}(3x+2)}-\frac{5\sqrt{1-2x}\sqrt{5x+3}}{343(3x+2)}-\frac{55\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{343\sqrt{7}}$$

```
[Out] (-5*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(343*(2 + 3*x)) - (10*(3 + 5*x)^
(3/2))/(147*Sqrt[1 - 2*x]*(2 + 3*x)) + (2*(3 + 5*x)^(5/2))/(21*(1
 - 2*x)^(3/2)*(2 + 3*x)) - (55*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt
[3 + 5*x])])/(343*Sqrt[7])
```

Rubi [A] time = 0.174053, antiderivative size = 122, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.115

$$\frac{2(5x+3)^{5/2}}{21(1-2x)^{3/2}(3x+2)}-\frac{10(5x+3)^{3/2}}{147\sqrt{1-2x}(3x+2)}-\frac{5\sqrt{1-2x}\sqrt{5x+3}}{343(3x+2)}-\frac{55\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{343\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(5/2)/((1 - 2*x)^(5/2)*(2 + 3*x)^2),x]
```

```
[Out] (-5*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(343*(2 + 3*x)) - (10*(3 + 5*x)^
(3/2))/(147*Sqrt[1 - 2*x]*(2 + 3*x)) + (2*(3 + 5*x)^(5/2))/(21*(1
 - 2*x)^(3/2)*(2 + 3*x)) - (55*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt
[3 + 5*x])])/(343*Sqrt[7])
```

Rubi in Sympy [A] time = 14.0778, size = 97, normalized size = 0.8

$$-\frac{55\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{2401}-\frac{55\sqrt{5x+3}}{343\sqrt{-2x+1}}+\frac{55\left(5x+3\right)^{\frac{3}{2}}}{147\left(-2x+1\right)^{\frac{3}{2}}}-\frac{\left(5x+3\right)^{\frac{5}{2}}}{7\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)/(1-2*x)**(5/2)/(2+3*x)**2,x)
```

```
[Out] -55*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/2401 -
 55*sqrt(5*x + 3)/(343*sqrt(-2*x + 1)) + 55*(5*x + 3)**(3/2)/(147
*(-2*x + 1)**(3/2)) - (5*x + 3)**(5/2)/(7*(-2*x + 1)**(3/2)*(3*x
+ 2))
```

Mathematica [A] time = 0.105553, size = 77, normalized size = 0.63

$$\frac{\sqrt{5x+3}\left(3090x^2+3070x+657\right)}{1029(1-2x)^{3/2}(3x+2)}-\frac{55\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{686\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(5/2)/((1 - 2*x)^(5/2)*(2 + 3*x)^2),x]
```

```
[Out] (Sqrt[3 + 5*x]*(657 + 3070*x + 3090*x^2))/(1029*(1 - 2*x)^(3/2)*(
2 + 3*x)) - (55*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*
x])])/(686*Sqrt[7])
```

Maple [B] time = 0.02, size = 209, normalized size = 1.7

$$\frac{1}{(28812+43218x)(-1+2x)^2}\left(1980\sqrt{7}\arctan\left(1/14\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)x^3-660\sqrt{7}\arctan\left(1/14\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)x^2-8$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((3+5*x)^(5/2)/(1-2*x)^(5/2)/(2+3*x)^2,x)
```

```
[Out] 1/14406*(1980*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)
^(1/2))*x^3-660*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+
3)^(1/2))*x^2-825*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-
x+3)^(1/2))*x+43260*x^2*(-10*x^2-x+3)^(1/2)+330*7^(1/2)*arctan(1/
14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+42980*x*(-10*x^2-x+3)^(
1/2)+9198*(-10*x^2-x+3)^(1/2))*(1-2*x)^(1/2)*(3+5*x)^(1/2)/(2+3*x
)/(-1+2*x)^2/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.50056, size = 186, normalized size = 1.52

$$\frac{55}{4802}\sqrt{7}\arcsin\left(\frac{37x}{11|3x+2|}+\frac{20}{11|3x+2|}\right)-\frac{2575x}{1029\sqrt{-10x^2-x+3}}+\frac{625x^2}{18(-10x^2-x+3)^{\frac{3}{2}}}-\frac{135}{1372\sqrt{-10x^2-x+3}}+\frac{138125x}{5292(-10x^2-x+3)^{\frac{3}{2}}}-\frac{1}{567\left(3(-10x^2-x+3)^{\frac{3}{2}}x+2(-10x^2-x+3)^{\frac{3}{2}}\right)}+\frac{50315}{15876(-10x^2-x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)^2*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 55/4802*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2))
 - 2575/1029*x/sqrt(-10*x^2 - x + 3) + 625/18*x^2/(-10*x^2 - x +
3)^(3/2) - 135/1372/sqrt(-10*x^2 - x + 3) + 138125/5292*x/(-10*x^
2 - x + 3)^(3/2) - 1/567/(3*(-10*x^2 - x + 3)^(3/2)*x + 2*(-10*x^
2 - x + 3)^(3/2)) + 50315/15876/(-10*x^2 - x + 3)^(3/2)
```

Fricas [A] time = 0.222309, size = 127, normalized size = 1.04

$$\frac{\sqrt{7}\left(2\sqrt{7}(3090x^2+3070x+657)\sqrt{5x+3}\sqrt{-2x+1}+165(12x^3-4x^2-5x+2)\arctan\left(\frac{\sqrt{7}(37x+20)}{14\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)}{14406(12x^3-4x^2-5x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)^2*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/14406*sqrt(7)*(2*sqrt(7)*(3090*x^2 + 3070*x + 657)*sqrt(5*x + 3
)*sqrt(-2*x + 1) + 165*(12*x^3 - 4*x^2 - 5*x + 2)*arctan(1/14*sqr
t(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(12*x^3 - 4*x^2
 - 5*x + 2)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(5/2)/(1-2*x)**(5/2)/(2+3*x)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A]   time = 0.347802, size = 313, normalized size = 2.57

$$\frac{11}{9604}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{22\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)}{343\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)}+\frac{22\left(47\sqrt{5}(5x+3)-66\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{25725\left(2x-1\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)^2*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 11/9604*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x
 + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqr
t(2)*sqrt(-10*x + 5) - sqrt(22)))) - 22/343*sqrt(10)*((sqrt(2)*sq
rt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2
)*sqrt(-10*x + 5) - sqrt(22)))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(
22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - s
qrt(22)))^2 + 280) + 22/25725*(47*sqrt(5)*(5*x + 3) - 66*sqrt(5))
*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)^2
```

3.2588 $\int \frac{(3+5x)^{5/2}}{(1-2x)^{5/2}(2+3x)^3} dx$

Optimal. Leaf size=151

$$\frac{4(5x+3)^{7/2}}{231(1-2x)^{3/2}(3x+2)^2}+\frac{26(5x+3)^{5/2}}{231\sqrt{1-2x}(3x+2)^2}+\frac{65\sqrt{1-2x}(5x+3)^{3/2}}{3234(3x+2)^2}+\frac{65\sqrt{1-2x}\sqrt{5x+3}}{1372(3x+2)}+\frac{715\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{1372\sqrt{7}}$$

```
[Out] (65*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(1372*(2 + 3*x)) + (65*Sqrt[1 -
2*x]*(3 + 5*x)^(3/2))/(3234*(2 + 3*x)^2) + (26*(3 + 5*x)^(5/2))/(
231*Sqrt[1 - 2*x]*(2 + 3*x)^2) + (4*(3 + 5*x)^(7/2))/(231*(1 - 2*
x)^(3/2)*(2 + 3*x)^2) + (715*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3
 + 5*x])])/(1372*Sqrt[7])
```

Rubi [A] time = 0.220137, antiderivative size = 151, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.154$

$$\frac{4(5x+3)^{7/2}}{231(1-2x)^{3/2}(3x+2)^2}+\frac{26(5x+3)^{5/2}}{231\sqrt{1-2x}(3x+2)^2}+\frac{65\sqrt{1-2x}(5x+3)^{3/2}}{3234(3x+2)^2}+\frac{65\sqrt{1-2x}\sqrt{5x+3}}{1372(3x+2)}+\frac{715\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{1372\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(5/2)/((1 - 2*x)^(5/2)*(2 + 3*x)^3),x]
```

```
[Out] (65*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(1372*(2 + 3*x)) + (65*Sqrt[1 -
2*x]*(3 + 5*x)^(3/2))/(3234*(2 + 3*x)^2) + (26*(3 + 5*x)^(5/2))/(
231*Sqrt[1 - 2*x]*(2 + 3*x)^2) + (4*(3 + 5*x)^(7/2))/(231*(1 - 2*
x)^(3/2)*(2 + 3*x)^2) + (715*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3
 + 5*x])])/(1372*Sqrt[7])
```

Rubi in Sympy [A] time = 17.185, size = 131, normalized size = 0.87

$$\frac{715\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{9604}+\frac{715\sqrt{5x+3}}{1372\sqrt{-2x+1}}-\frac{65\,(5x+3)^{\frac{3}{2}}}{588\sqrt{-2x+1}\,(3x+2)}-\frac{13\,(5x+3)^{\frac{5}{2}}}{42\,(-2x+1)^{\frac{3}{2}}\,(3x+2)}+\frac{3\,(5x+3)^{\frac{7}{2}}}{14\,(-2x+1)^{\frac{3}{2}}\,(3x+2)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)/(1-2*x)**(5/2)/(2+3*x)**3,x)
```

```
[Out] 715*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/9604 +
 715*sqrt(5*x + 3)/(1372*sqrt(-2*x + 1)) - 65*(5*x + 3)**(3/2)/(5
88*sqrt(-2*x + 1)*(3*x + 2)) - 13*(5*x + 3)**(5/2)/(42*(-2*x + 1)
**(3/2)*(3*x + 2)) + 3*(5*x + 3)**(7/2)/(14*(-2*x + 1)**(3/2)*(3*
x + 2)**2)
```

Mathematica [A] time = 0.11075, size = 85, normalized size = 0.56

$$\frac{\frac{14\sqrt{1-2x}\sqrt{5x+3}(-10260x^3-1620x^2+13627x+6732)}{(6x^2+x-2)^2}+2145\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{57624}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(5/2)/((1 - 2*x)^(5/2)*(2 + 3*x)^3),x]
```

```
[Out] ((14*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(6732 + 13627*x - 1620*x^2 - 102
60*x^3))/(-2 + x + 6*x^2)^2 + 2145*Sqrt[7]*ArcTan[(-20 - 37*x)/(2
*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/57624
```

Maple [B] time = 0.021, size = 257, normalized size = 1.7

$$-\frac{1}{57624\,(2+3\,x)^2\,(-1+2\,x)^2}\left(77220\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^4+25740\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^3$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)/(1-2*x)^(5/2)/(2+3*x)^3,x)
```

```
[Out] -1/57624*(77220*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+
3)^(1/2))*x^4+25740*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^
2-x+3)^(1/2))*x^3-49335*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-1
0*x^2-x+3)^(1/2))*x^2+143640*x^3*(-10*x^2-x+3)^(1/2)-8580*7^(1/2)
*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+22680*x^2*(
-10*x^2-x+3)^(1/2)+8580*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-1
0*x^2-x+3)^(1/2))-190778*x*(-10*x^2-x+3)^(1/2)-94248*(-10*x^2-x+3
)^(1/2))*(1-2*x)^(1/2)*(3+5*x)^(1/2)/(2+3*x)^2/(-1+2*x)^2/(-10*x^
2-x+3)^(1/2)
```

Maxima [A] time = 1.51346, size = 232, normalized size = 1.54

$$-\frac{715}{19208}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{475\,x}{686\,\sqrt{-10\,x^2-x+3}}-\frac{215}{4116\,\sqrt{-10\,x^2-x+3}}+\frac{17375\,x}{2646\,(-10\,x^2-x+3)^{\frac{3}{2}}}-\frac{1}{1134\left(9\,(-10\,x^2-x+3)^{\frac{3}{2}}x^2+12\,(-10\,x^2-x+3)^{\frac{3}{2}}x+4\,(-10\,x^2-x+3)^{\frac{3}{2}}\right)}+\frac{1}{36\left(3\,(-10\,x^2-x+3)^{\frac{3}{2}}x+2\,(-10\,x^2-x+3)^{\frac{3}{2}}\right)}+\frac{60695}{15876\,(-10\,x^2-x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)^3*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] -715/19208*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x +
2)) + 475/686*x/sqrt(-10*x^2 - x + 3) - 215/4116/sqrt(-10*x^2 - x
 + 3) + 17375/2646*x/(-10*x^2 - x + 3)^(3/2) - 1/1134/(9*(-10*x^2
 - x + 3)^(3/2)*x^2 + 12*(-10*x^2 - x + 3)^(3/2)*x + 4*(-10*x^2 -
 x + 3)^(3/2)) + 1/36/(3*(-10*x^2 - x + 3)^(3/2)*x + 2*(-10*x^2 -
 x + 3)^(3/2)) + 60695/15876/(-10*x^2 - x + 3)^(3/2)
```

Fricas [A] time = 0.224954, size = 147, normalized size = 0.97

$$-\frac{\sqrt{7}\left(2\,\sqrt{7}\left(10260\,x^3+1620\,x^2-13627\,x-6732\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+2145\,\left(36\,x^4+12\,x^3-23\,x^2-4\,x+4\right)\arctan\left(\frac{\sqrt{7}(}{14\,\sqrt{5\,x}}\right.\right.}{57624\,(36\,x^4+12\,x^3-23\,x^2-4\,x+4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)^3*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] -1/57624*sqrt(7)*(2*sqrt(7)*(10260*x^3 + 1620*x^2 - 13627*x - 673
2)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 2145*(36*x^4 + 12*x^3 - 23*x^2
- 4*x + 4)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2
*x + 1))))/(36*x^4 + 12*x^3 - 23*x^2 - 4*x + 4)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3+5*x)**(5/2)/(1-2*x)**(5/2)/(2+3*x)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.458173, size = 400, normalized size = 2.65

$$-\frac{143}{38416}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{22\left(104\sqrt{5}(5x+3)-957\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{180075\,(2x-1)^2}+\frac{11\left(223\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3+80920\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)\right)}{4802\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)^3*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] -143/38416*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(
5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(
sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 22/180075*(104*sqrt(5)*(5
*x + 3) - 957*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)^2
+ 11/4802*(223*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqr
t(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))
)^3 + 80920*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5
*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))))/
(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x
 + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)^2
```

3.2589 $\int \frac{(3+5x)^{5/2}}{(1-2x)^{5/2}(2+3x)^4} \, dx$

Optimal. Leaf size=173

$$\frac{11(5x+3)^{3/2}}{21(1-2x)^{3/2}(3x+2)^3}+\frac{15755\sqrt{5x+3}}{86436\sqrt{1-2x}}-\frac{2365\sqrt{5x+3}}{8232\sqrt{1-2x}(3x+2)}-\frac{187\sqrt{5x+3}}{588\sqrt{1-2x}(3x+2)^2}+\frac{32\sqrt{5x+3}}{441\sqrt{1-2x}(3x+2)^3}-\frac{2585\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{19208\sqrt{7}}$$

```
[Out] (15755*Sqrt[3 + 5*x])/(86436*Sqrt[1 - 2*x]) + (32*Sqrt[3 + 5*x])/
(441*Sqrt[1 - 2*x]*(2 + 3*x)^3) - (187*Sqrt[3 + 5*x])/(588*Sqrt[1
 - 2*x]*(2 + 3*x)^2) - (2365*Sqrt[3 + 5*x])/(8232*Sqrt[1 - 2*x]*(
2 + 3*x)) + (11*(3 + 5*x)^(3/2))/(21*(1 - 2*x)^(3/2)*(2 + 3*x)^3)
 - (2585*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(19208*Sq
rt[7])
```

Rubi [A] time = 0.40268, antiderivative size = 173, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 7, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.269

$$\frac{11(5x+3)^{3/2}}{21(1-2x)^{3/2}(3x+2)^3}+\frac{15755\sqrt{5x+3}}{86436\sqrt{1-2x}}-\frac{2365\sqrt{5x+3}}{8232\sqrt{1-2x}(3x+2)}-\frac{187\sqrt{5x+3}}{588\sqrt{1-2x}(3x+2)^2}+\frac{32\sqrt{5x+3}}{441\sqrt{1-2x}(3x+2)^3}-\frac{2585\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{19208\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(5/2)/((1 - 2*x)^(5/2)*(2 + 3*x)^4),x]
```

```
[Out] (15755*Sqrt[3 + 5*x])/(86436*Sqrt[1 - 2*x]) + (32*Sqrt[3 + 5*x])/
(441*Sqrt[1 - 2*x]*(2 + 3*x)^3) - (187*Sqrt[3 + 5*x])/(588*Sqrt[1
 - 2*x]*(2 + 3*x)^2) - (2365*Sqrt[3 + 5*x])/(8232*Sqrt[1 - 2*x]*(
2 + 3*x)) + (11*(3 + 5*x)^(3/2))/(21*(1 - 2*x)^(3/2)*(2 + 3*x)^3)
 - (2585*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(19208*Sq
rt[7])
```

Rubi in Sympy [A] time = 36.459, size = 160, normalized size = 0.92

$$-\frac{2585\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{134456}+\frac{15755\sqrt{5x+3}}{86436\sqrt{-2x+1}}-\frac{2365\sqrt{5x+3}}{8232\sqrt{-2x+1}\,(3x+2)}-\frac{187\sqrt{5x+3}}{588\sqrt{-2x+1}\,(3x+2)^2}+\frac{32\sqrt{5x+3}}{441\sqrt{-2x+1}\,(3x+2)^3}+\frac{11\,(5x+3)^{\frac{3}{2}}}{21\,(-2x+1)^{\frac{3}{2}}\,(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)/(1-2*x)**(5/2)/(2+3*x)**4,x)
```

```
[Out] -2585*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/1344
56 + 15755*sqrt(5*x + 3)/(86436*sqrt(-2*x + 1)) - 2365*sqrt(5*x +
 3)/(8232*sqrt(-2*x + 1)*(3*x + 2)) - 187*sqrt(5*x + 3)/(588*sqrt
(-2*x + 1)*(3*x + 2)**2) + 32*sqrt(5*x + 3)/(441*sqrt(-2*x + 1)*(
3*x + 2)**3) + 11*(5*x + 3)**(3/2)/(21*(-2*x + 1)**(3/2)*(3*x + 2
)**3)
```

Mathematica [A] time = 0.155882, size = 87, normalized size = 0.5

$$\frac{\frac{14\sqrt{5x+3}(-567180x^4-552780x^3+169221x^2+304730x+75888)}{(1-2x)^{3/2}(3x+2)^3}-7755\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{806736}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(5/2)/((1 - 2*x)^(5/2)*(2 + 3*x)^4),x]
```

```
[Out] ((14*Sqrt[3 + 5*x]*(75888 + 304730*x + 169221*x^2 - 552780*x^3 -
567180*x^4))/((1 - 2*x)^(3/2)*(2 + 3*x)^3) - 7755*Sqrt[7]*ArcTan[
(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/806736
```

Maple [B] time = 0.023, size = 305, normalized size = 1.8

$$\frac{1}{806736\,(2+3\,x)^3\,(-1+2\,x)^2}\left(837540\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^5+837540\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)/(1-2*x)^(5/2)/(2+3*x)^4,x)
```

```
[Out] 1/806736*(837540*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x
+3)^(1/2))*x^5+837540*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*
x^2-x+3)^(1/2))*x^4-348975*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/
(-10*x^2-x+3)^(1/2))*x^3-7940520*x^4*(-10*x^2-x+3)^(1/2)-449790*7
^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2-773
8920*x^3*(-10*x^2-x+3)^(1/2)+31020*7^(1/2)*arctan(1/14*(37*x+20)*
7^(1/2)/(-10*x^2-x+3)^(1/2))*x+2369094*x^2*(-10*x^2-x+3)^(1/2)+62
040*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+42
66220*x*(-10*x^2-x+3)^(1/2)+1062432*(-10*x^2-x+3)^(1/2))*(1-2*x)^
(1/2)*(3+5*x)^(1/2)/(2+3*x)^3/(-1+2*x)^2/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.51144, size = 324, normalized size = 1.87

$$\frac{2585}{268912}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{78775\,x}{86436\,\sqrt{-10\,x^2-x+3}}+\frac{11755}{172872\,\sqrt{-10\,x^2-x+3}}+\frac{17875\,x}{12348\,(-10\,x^2-x+3)^{\frac{3}{2}}}-\frac{1}{1701\left(27\,(-10\,x^2-x+3)^{\frac{3}{2}}x^3+54\,(-10\,x^2-x+3)^{\frac{3}{2}}x^2+36\,(-10\,x^2-x+3)^{\frac{3}{2}}x+8\,(-10\,x^2-x+3)^{\frac{3}{2}}\right)}+\frac{239}{15876\left(9\,(-10\,x^2-x+3)^{\frac{3}{2}}x^2+12\,(-10\,x^2-x+3)^{\frac{3}{2}}x+4\,(-10\,x^2-x+3)^{\frac{3}{2}}\right)}-\frac{4997}{31752\left(3\,(-10\,x^2-x+3)^{\frac{3}{2}}x+2\,(-10\,x^2-x+3)^{\frac{3}{2}}\right)}+\frac{901885}{666792\,(-10\,x^2-x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)^4*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 2585/268912*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x +
 2)) + 78775/86436*x/sqrt(-10*x^2 - x + 3) + 11755/172872/sqrt(-1
0*x^2 - x + 3) + 17875/12348*x/(-10*x^2 - x + 3)^(3/2) - 1/1701/(
27*(-10*x^2 - x + 3)^(3/2)*x^3 + 54*(-10*x^2 - x + 3)^(3/2)*x^2 +
 36*(-10*x^2 - x + 3)^(3/2)*x + 8*(-10*x^2 - x + 3)^(3/2)) + 239/
15876/(9*(-10*x^2 - x + 3)^(3/2)*x^2 + 12*(-10*x^2 - x + 3)^(3/2)
*x + 4*(-10*x^2 - x + 3)^(3/2)) - 4997/31752/(3*(-10*x^2 - x + 3)
^(3/2)*x + 2*(-10*x^2 - x + 3)^(3/2)) + 901885/666792/(-10*x^2 -
```

```
x + 3)^(3/2)
```

Fricas [A] time = 0.223124, size = 167, normalized size = 0.97

$$-\frac{\sqrt{7}\left(2\sqrt{7}\left(567180\,x^4+552780\,x^3-169221\,x^2-304730\,x-75888\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-7755\left(108\,x^5+108\,x^4-45\,x^3-5\right.}{806736\left(108\,x^5+108\,x^4-45\,x^3-58\,x^2+4\,x+8\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)^4*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] -1/806736*sqrt(7)*(2*sqrt(7)*(567180*x^4 + 552780*x^3 - 169221*x^
2 - 304730*x - 75888)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 7755*(108*x^
5 + 108*x^4 - 45*x^3 - 58*x^2 + 4*x + 8)*arctan(1/14*sqrt(7)*(37*
x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(108*x^5 + 108*x^4 - 45*
x^3 - 58*x^2 + 4*x + 8)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3+5*x)**(5/2)/(1-2*x)**(5/2)/(2+3*x)**4,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.566207, size = 482, normalized size = 2.79

$$\frac{517}{537824}\sqrt{70}\sqrt{10}\left(\pi+2\,\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)-\frac{88\left(151\sqrt{5}(5\,x+3)-1023\sqrt{5}\right)\sqrt{5\,x+3}\sqrt{-10\,x+5}}{1260525\,(2\,x-1)^2}-\frac{11\left(3629\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^5+2900800\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^3+755384000\sqrt{10}\left(\sqrt{2}\right.\right.}{67228\left(\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^2+280\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)^4*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 517/537824*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(
5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(
sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 88/1260525*(151*sqrt(5)*(
5*x + 3) - 1023*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)^
2 - 11/67228*(3629*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))
/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(
22)))^5 + 2900800*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/
sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(2
2)))^3 + 755384000*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))
/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(
22))))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*s
qrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)^3
```

3.2590 $\int \frac{(3+5x)^{5/2}}{(1-2x)^{5/2}(2+3x)^5} dx$

Optimal. Leaf size=202

$$\frac{11(5x+3)^{3/2}}{21(1-2x)^{3/2}(3x+2)^4}+\frac{139745\sqrt{5x+3}}{1613472\sqrt{1-2x}}-\frac{14135\sqrt{5x+3}}{153664\sqrt{1-2x}(3x+2)}-\frac{2013\sqrt{5x+3}}{10976\sqrt{1-2x}(3x+2)^2}-\frac{2717\sqrt{5x+3}}{8232\sqrt{1-2x}(3x+2)^3}+\frac{43\sqrt{5x+3}}{588\sqrt{1-2x}(3x+2)^4}-\frac{547745\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{1075648\sqrt{7}}$$

```
[Out] (139745*Sqrt[3 + 5*x])/(1613472*Sqrt[1 - 2*x]) + (43*Sqrt[3 + 5*x
])/(588*Sqrt[1 - 2*x]*(2 + 3*x)^4) - (2717*Sqrt[3 + 5*x])/(8232*S
qrt[1 - 2*x]*(2 + 3*x)^3) - (2013*Sqrt[3 + 5*x])/(10976*Sqrt[1 -
2*x]*(2 + 3*x)^2) - (14135*Sqrt[3 + 5*x])/(153664*Sqrt[1 - 2*x]*(
2 + 3*x)) + (11*(3 + 5*x)^(3/2))/(21*(1 - 2*x)^(3/2)*(2 + 3*x)^4)
 - (547745*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(107564
8*Sqrt[7])
```

Rubi [A] time = 0.493227, antiderivative size = 202, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 7, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.269

$$\frac{11(5x+3)^{3/2}}{21(1-2x)^{3/2}(3x+2)^4}+\frac{139745\sqrt{5x+3}}{1613472\sqrt{1-2x}}-\frac{14135\sqrt{5x+3}}{153664\sqrt{1-2x}(3x+2)}-\frac{2013\sqrt{5x+3}}{10976\sqrt{1-2x}(3x+2)^2}-\frac{2717\sqrt{5x+3}}{8232\sqrt{1-2x}(3x+2)^3}+\frac{43\sqrt{5x+3}}{588\sqrt{1-2x}(3x+2)^4}-\frac{547745\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{1075648\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(5/2)/((1 - 2*x)^(5/2)*(2 + 3*x)^5),x]
```

```
[Out] (139745*Sqrt[3 + 5*x])/(1613472*Sqrt[1 - 2*x]) + (43*Sqrt[3 + 5*x
])/(588*Sqrt[1 - 2*x]*(2 + 3*x)^4) - (2717*Sqrt[3 + 5*x])/(8232*S
qrt[1 - 2*x]*(2 + 3*x)^3) - (2013*Sqrt[3 + 5*x])/(10976*Sqrt[1 -
2*x]*(2 + 3*x)^2) - (14135*Sqrt[3 + 5*x])/(153664*Sqrt[1 - 2*x]*(
2 + 3*x)) + (11*(3 + 5*x)^(3/2))/(21*(1 - 2*x)^(3/2)*(2 + 3*x)^4)
 - (547745*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(107564
8*Sqrt[7])
```

Rubi in Sympy [A] time = 43.2809, size = 187, normalized size = 0.93

$$-\frac{547745\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{7529536}+\frac{139745\sqrt{5x+3}}{1613472\sqrt{-2x+1}}-\frac{14135\sqrt{5x+3}}{153664\sqrt{-2x+1}\,(3x+2)}-\frac{2013\sqrt{5x+3}}{10976\sqrt{-2x+1}\,(3x+2)^2}-\frac{2717\sqrt{5x+3}}{8232\sqrt{-2x+1}\,(3x+2)^3}+\frac{43\sqrt{5x+3}}{588\sqrt{-2x+1}\,(3x+2)^4}+\frac{11\,(5x+3)^{\frac{3}{2}}}{21\,(-2x+1)^{\frac{3}{2}}\,(3x+2)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)/(1-2*x)**(5/2)/(2+3*x)**5,x)
```

```
[Out] -547745*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/75
29536 + 139745*sqrt(5*x + 3)/(1613472*sqrt(-2*x + 1)) - 14135*sqr
t(5*x + 3)/(153664*sqrt(-2*x + 1)*(3*x + 2)) - 2013*sqrt(5*x + 3)
/(10976*sqrt(-2*x + 1)*(3*x + 2)**2) - 2717*sqrt(5*x + 3)/(8232*s
qrt(-2*x + 1)*(3*x + 2)**3) + 43*sqrt(5*x + 3)/(588*sqrt(-2*x + 1
)*(3*x + 2)**4) + 11*(5*x + 3)**(3/2)/(21*(-2*x + 1)**(3/2)*(3*x
```

```
+ 2)**4)
```

Mathematica [A] time = 0.151454, size = 92, normalized size = 0.46

$$\frac{\frac{14\sqrt{5x+3}\left(-45277380x^5-82071900x^4-25673409x^3+27318504x^2+18627988x+2906640\right)}{(1-2x)^{3/2}(3x+2)^4}-1643235\sqrt{7}\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{45177216}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(5/2)/((1 - 2*x)^(5/2)*(2 + 3*x)^5),x]
```

```
[Out] ((14*Sqrt[3 + 5*x]*(2906640 + 18627988*x + 27318504*x^2 - 2567340
9*x^3 - 82071900*x^4 - 45277380*x^5))/((1 - 2*x)^(3/2)*(2 + 3*x)^
4) - 1643235*Sqrt[7]*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3
 + 5*x])])/45177216
```

Maple [B] time = 0.023, size = 353, normalized size = 1.8

$$\frac{1}{45177216\,(2+3\,x)^4\,(-1+2\,x)^2}\left(532408140\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^6+887346900\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20}{\sqrt{-10\,x^2-}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)/(1-2*x)^(5/2)/(2+3*x)^5,x)
```

```
[Out] 1/45177216*(532408140*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*
x^2-x+3)^(1/2))*x^6+887346900*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/
2)/(-10*x^2-x+3)^(1/2))*x^5+133102035*7^(1/2)*arctan(1/14*(37*x+2
0)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^4-633883320*x^5*(-10*x^2-x+3)^(
1/2)-433814040*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3
)^(1/2))*x^3-1149006600*x^4*(-10*x^2-x+3)^(1/2)-170896440*7^(1/2)
*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2-359427726
*x^3*(-10*x^2-x+3)^(1/2)+52583520*7^(1/2)*arctan(1/14*(37*x+20)*7
^(1/2)/(-10*x^2-x+3)^(1/2))*x+382459056*x^2*(-10*x^2-x+3)^(1/2)+2
6291760*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2)
)+260791832*x*(-10*x^2-x+3)^(1/2)+40692960*(-10*x^2-x+3)^(1/2))*(
1-2*x)^(1/2)*(3+5*x)^(1/2)/(2+3*x)^4/(-1+2*x)^2/(-10*x^2-x+3)^(1/
2)
```

Maxima [A] time = 1.50922, size = 439, normalized size = 2.17

$$\frac{547745}{15059072}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)+\frac{698725\,x}{1613472\,\sqrt{-10\,x^2-x+3}}+\frac{343745}{3226944\,\sqrt{-10\,x^2-x+3}}+\frac{633875\,x}{691488\,(-10\,x^2-x+3)^{\frac{3}{2}}}-\frac{1}{2268\left(81\,(-10\,x^2-x+3)^{\frac{3}{2}}x^4+216\,(-10\,x^2-x+3)^{\frac{3}{2}}x^3+216\,(-10\,x^2-x+3)^{\frac{3}{2}}x^2+96\,(-10\,x^2-x+3)^{\frac{3}{2}}x+16\,(-10\,x^2-\right.}+\frac{331}{31752\left(27\,(-10\,x^2-x+3)^{\frac{3}{2}}x^3+54\,(-10\,x^2-x+3)^{\frac{3}{2}}x^2+36\,(-10\,x^2-x+3)^{\frac{3}{2}}x+8\,(-10\,x^2-x+3)^{\frac{3}{2}}\right)}-\frac{9313}{98784\left(9\,(-10\,x^2-x+3)^{\frac{3}{2}}x^2+12\,(-10\,x^2-x+3)^{\frac{3}{2}}x+4\,(-10\,x^2-x+3)^{\frac{3}{2}}\right)}+\frac{659891}{1778112\left(3\,(-10\,x^2-x+3)^{\frac{3}{2}}x+2\,(-10\,x^2-x+3)^{\frac{3}{2}}\right)}+\frac{296615}{12446784\,(-10\,x^2-x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)^5*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 547745/15059072*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3
*x + 2)) + 698725/1613472*x/sqrt(-10*x^2 - x + 3) + 343745/322694
4/sqrt(-10*x^2 - x + 3) + 633875/691488*x/(-10*x^2 - x + 3)^(3/2)
 - 1/2268/(81*(-10*x^2 - x + 3)^(3/2)*x^4 + 216*(-10*x^2 - x + 3)
^(3/2)*x^3 + 216*(-10*x^2 - x + 3)^(3/2)*x^2 + 96*(-10*x^2 - x +
3)^(3/2)*x + 16*(-10*x^2 - x + 3)^(3/2)) + 331/31752/(27*(-10*x^2
 - x + 3)^(3/2)*x^3 + 54*(-10*x^2 - x + 3)^(3/2)*x^2 + 36*(-10*x^
2 - x + 3)^(3/2)*x + 8*(-10*x^2 - x + 3)^(3/2)) - 9313/98784/(9*(
-10*x^2 - x + 3)^(3/2)*x^2 + 12*(-10*x^2 - x + 3)^(3/2)*x + 4*(-1
0*x^2 - x + 3)^(3/2)) + 659891/1778112/(3*(-10*x^2 - x + 3)^(3/2)
*x + 2*(-10*x^2 - x + 3)^(3/2)) + 296615/12446784/(-10*x^2 - x +
3)^(3/2)
```

Fricas [A] time = 0.226863, size = 188, normalized size = 0.93

$$-\frac{\sqrt{7}\left(2\sqrt{7}\left(45277380\,x^5+82071900\,x^4+25673409\,x^3-27318504\,x^2-18627988\,x-2906640\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-164323\cdots\right.}{45177216\left(324\,x^6+540\,x^5+81\,x^4-264\,x^3-104\,x\cdots\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)^5*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] -1/45177216*sqrt(7)*(2*sqrt(7)*(45277380*x^5 + 82071900*x^4 + 256
73409*x^3 - 27318504*x^2 - 18627988*x - 2906640)*sqrt(5*x + 3)*sq
rt(-2*x + 1) - 1643235*(324*x^6 + 540*x^5 + 81*x^4 - 264*x^3 - 10
4*x^2 + 32*x + 16)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)
*sqrt(-2*x + 1))))/(324*x^6 + 540*x^5 + 81*x^4 - 264*x^3 - 104*x^
2 + 32*x + 16)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3+5*x)**(5/2)/(1-2*x)**(5/2)/(2+3*x)**5,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.750022, size = 564, normalized size = 2.79

$$\frac{109549}{30118144}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)$$
$$-\frac{88\left(100\sqrt{5}(5\,x+3)-627\sqrt{5}\right)\sqrt{5\,x+3}\sqrt{-10\,x+5}}{1764735\,(2\,x-1)^2}$$
$$-\frac{55\left(79441\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^7+82486488\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^5+31196222400\sqrt{1\cdots}\right.}{3764768\left(\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\cdots}\right.\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)^5*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 109549/30118144*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*
sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) -
 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 88/1764735*(100*sqrt
(5)*(5*x + 3) - 627*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x -
 1)^2 - 55/3764768*(79441*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sq
rt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5)
- sqrt(22)))^7 + 82486488*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sq
rt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5)
- sqrt(22)))^5 + 31196222400*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) -
 sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x +
5) - sqrt(22)))^3 + 1487445568000*sqrt(10)*((sqrt(2)*sqrt(-10*x +
 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10
*x + 5) - sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt
(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))
^2 + 280)^4
```

3.2591 $\int \frac{(2+3x)^5}{(1-2x)^{5/2}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=142

$$\frac{7\sqrt{5x+3}(3x+2)^4}{33(1-2x)^{3/2}}-\frac{2051\sqrt{5x+3}(3x+2)^3}{726\sqrt{1-2x}}-\frac{23909\sqrt{1-2x}\sqrt{5x+3}(3x+2)^2}{4840}-\frac{\sqrt{1-2x}\sqrt{5x+3}(50124540x+120791143)}{774400}+\frac{8261577\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{6400\sqrt{10}}$$

```
[Out] (-23909*Sqrt[1 - 2*x]*(2 + 3*x)^2*Sqrt[3 + 5*x])/4840 - (2051*(2
+ 3*x)^3*Sqrt[3 + 5*x])/(726*Sqrt[1 - 2*x]) + (7*(2 + 3*x)^4*Sqrt
[3 + 5*x])/(33*(1 - 2*x)^(3/2)) - (Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(1
20791143 + 50124540*x))/774400 + (8261577*ArcSin[Sqrt[2/11]*Sqrt[
3 + 5*x]])/(6400*Sqrt[10])
```

Rubi [A] time = 0.263685, antiderivative size = 142, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$\frac{7\sqrt{5x+3}(3x+2)^4}{33(1-2x)^{3/2}}-\frac{2051\sqrt{5x+3}(3x+2)^3}{726\sqrt{1-2x}}-\frac{23909\sqrt{1-2x}\sqrt{5x+3}(3x+2)^2}{4840}-\frac{\sqrt{1-2x}\sqrt{5x+3}(50124540x+120791143)}{774400}+\frac{8261577\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{6400\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^5/((1 - 2*x)^(5/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (-23909*Sqrt[1 - 2*x]*(2 + 3*x)^2*Sqrt[3 + 5*x])/4840 - (2051*(2
+ 3*x)^3*Sqrt[3 + 5*x])/(726*Sqrt[1 - 2*x]) + (7*(2 + 3*x)^4*Sqrt
[3 + 5*x])/(33*(1 - 2*x)^(3/2)) - (Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(1
20791143 + 50124540*x))/774400 + (8261577*ArcSin[Sqrt[2/11]*Sqrt[
3 + 5*x]])/(6400*Sqrt[10])
```

Rubi in Sympy [A] time = 25.8082, size = 133, normalized size = 0.94

$$-\frac{23909\sqrt{-2x+1}\,(3x+2)^2\,\sqrt{5x+3}}{4840}-\frac{\sqrt{-2x+1}\sqrt{5x+3}\,\left(\frac{563901075x}{4}+\frac{5435601435}{16}\right)}{2178000}+\frac{8261577\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{64000}-\frac{2051\,(3x+2)^3\,\sqrt{5x+3}}{726\sqrt{-2x+1}}+\frac{7\,(3x+2)^4\,\sqrt{5x+3}}{33\,(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**5/(1-2*x)**(5/2)/(3+5*x)**(1/2),x)
```

```
[Out] -23909*sqrt(-2*x + 1)*(3*x + 2)**2*sqrt(5*x + 3)/4840 - sqrt(-2*x
 + 1)*sqrt(5*x + 3)*(563901075*x/4 + 5435601435/16)/2178000 + 826
1577*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/64000 - 2051*(3*x +
 2)**3*sqrt(5*x + 3)/(726*sqrt(-2*x + 1)) + 7*(3*x + 2)**4*sqrt(5
*x + 3)/(33*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.177408, size = 79, normalized size = 0.56

$$\frac{2998952451\sqrt{10-20x}(2x-1)\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)-10\sqrt{5x+3}\left(18817920x^4+101146320x^3+359461476x^2-126107017\right.}{23232000(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^5/((1 - 2*x)^(5/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (-10*Sqrt[3 + 5*x]*(452899509 - 1261070176*x + 359461476*x^2 + 10
1146320*x^3 + 18817920*x^4) + 2998952451*Sqrt[10 - 20*x]*(-1 + 2*
x)*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/(23232000*(1 - 2*x)^(3/2))
```

Maple [A] time = 0.023, size = 154, normalized size = 1.1

$$\frac{1}{46464000\,(-1+2\,x)^2}\left(-376358400\,x^4\sqrt{-10\,x^2-x+3}+11995809804\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x^2-2022926400\,x^3\sqrt{-10}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^5/(1-2*x)^(5/2)/(3+5*x)^(1/2),x)
```

```
[Out] 1/46464000*(-376358400*x^4*(-10*x^2-x+3)^(1/2)+11995809804*10^(1/
2)*arcsin(20/11*x+1/11)*x^2-2022926400*x^3*(-10*x^2-x+3)^(1/2)-11
995809804*10^(1/2)*arcsin(20/11*x+1/11)*x-7189229520*x^2*(-10*x^2
-x+3)^(1/2)+2998952451*10^(1/2)*arcsin(20/11*x+1/11)+25221403520*
x*(-10*x^2-x+3)^(1/2)-9057990180*(-10*x^2-x+3)^(1/2))*(3+5*x)^(1/
2)*(1-2*x)^(1/2)/(-1+2*x)^2/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.49746, size = 146, normalized size = 1.03

$$-\frac{81}{40}\sqrt{-10\,x^2-x+3}x^2+\frac{8261577}{128000}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}\,x+\frac{1}{11}\right)-\frac{4131}{320}\sqrt{-10\,x^2-x+3}x-\frac{326943}{6400}\sqrt{-10\,x^2-x+3}+\frac{16807\sqrt{-10\,x^2-x+3}}{528\,(4\,x^2-4\,x+1)}+\frac{1020425\sqrt{-10\,x^2-x+3}}{5808\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/(sqrt(5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] -81/40*sqrt(-10*x^2 - x + 3)*x^2 + 8261577/128000*sqrt(5)*sqrt(2)
*arcsin(20/11*x + 1/11) - 4131/320*sqrt(-10*x^2 - x + 3)*x - 3269
43/6400*sqrt(-10*x^2 - x + 3) + 16807/528*sqrt(-10*x^2 - x + 3)/(
4*x^2 - 4*x + 1) + 1020425/5808*sqrt(-10*x^2 - x + 3)/(2*x - 1)
```

Fricas [A] time = 0.225309, size = 127, normalized size = 0.89

$$-\frac{\sqrt{10}\left(2\sqrt{10}\left(18817920\,x^4+101146320\,x^3+359461476\,x^2-1261070176\,x+452899509\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-2998952451\right.}{46464000\,(4\,x^2-4\,x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/(sqrt(5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] -1/46464000*sqrt(10)*(2*sqrt(10)*(18817920*x^4 + 101146320*x^3 +
359461476*x^2 - 1261070176*x + 452899509)*sqrt(5*x + 3)*sqrt(-2*x
 + 1) - 2998952451*(4*x^2 - 4*x + 1)*arctan(1/20*sqrt(10)*(20*x +
 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(4*x^2 - 4*x + 1)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^5}{(-2x+1)^{\frac{5}{2}}\sqrt{5x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**5/(1-2*x)**(5/2)/(3+5*x)**(1/2),x)
```

```
[Out] Integral((3*x + 2)**5/((-2*x + 1)**(5/2)*sqrt(5*x + 3)), x)
```

GIAC/XCAS [A] time = 0.244393, size = 131, normalized size = 0.92

$$\frac{8261577}{64000}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right) - \frac{\left(4\left(9801\left(12\left(8\sqrt{5}(5x+3)+119\sqrt{5}\right)(5x+3)+27809\sqrt{5}\right)(5x+3)-9996528778\sqrt{5}\right)(5x+3)+164942367909\sqrt{5}\right)\sqrt{5x}}{1452000000\,(2x-1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/(sqrt(5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 8261577/64000*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) - 1/14
52000000*(4*(9801*(12*(8*sqrt(5)*(5*x + 3) + 119*sqrt(5))*(5*x +
3) + 27809*sqrt(5))*(5*x + 3) - 9996528778*sqrt(5))*(5*x + 3) + 1
64942367909*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)^2
```

3.2592 $\int \frac{(2+3x)^4}{(1-2x)^{5/2}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=113

$$\frac{7\sqrt{5x+3}(3x+2)^3}{33(1-2x)^{3/2}}-\frac{1589\sqrt{5x+3}(3x+2)^2}{726\sqrt{1-2x}}-\frac{\sqrt{1-2x}\sqrt{5x+3}(2380020x+5735477)}{193600}+\frac{392283\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{1600\sqrt{10}}$$

```
[Out] (-1589*(2 + 3*x)^2*Sqrt[3 + 5*x])/(726*Sqrt[1 - 2*x]) + (7*(2 + 3
*x)^3*Sqrt[3 + 5*x])/(33*(1 - 2*x)^(3/2)) - (Sqrt[1 - 2*x]*Sqrt[3
 + 5*x]*(5735477 + 2380020*x))/193600 + (392283*ArcSin[Sqrt[2/11]
*Sqrt[3 + 5*x]])/(1600*Sqrt[10])
```

Rubi [A] time = 0.191153, antiderivative size = 113, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$\frac{7\sqrt{5x+3}(3x+2)^3}{33(1-2x)^{3/2}}-\frac{1589\sqrt{5x+3}(3x+2)^2}{726\sqrt{1-2x}}-\frac{\sqrt{1-2x}\sqrt{5x+3}(2380020x+5735477)}{193600}+\frac{392283\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{1600\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^4/((1 - 2*x)^(5/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (-1589*(2 + 3*x)^2*Sqrt[3 + 5*x])/(726*Sqrt[1 - 2*x]) + (7*(2 + 3
*x)^3*Sqrt[3 + 5*x])/(33*(1 - 2*x)^(3/2)) - (Sqrt[1 - 2*x]*Sqrt[3
 + 5*x]*(5735477 + 2380020*x))/193600 + (392283*ArcSin[Sqrt[2/11]
*Sqrt[3 + 5*x]])/(1600*Sqrt[10])
```

Rubi in Sympy [A] time = 18.7808, size = 105, normalized size = 0.93

$$-\frac{\sqrt{-2x+1}\sqrt{5x+3}\left(\frac{1785015x}{2}+\frac{17206431}{8}\right)}{72600}+\frac{392283\sqrt{10}\,\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{16000}-\frac{1589\left(3x+2\right)^2\sqrt{5x+3}}{726\sqrt{-2x+1}}+\frac{7\left(3x+2\right)^3\sqrt{5x+3}}{33\left(-2x+1\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4/(1-2*x)**(5/2)/(3+5*x)**(1/2),x)
```

```
[Out] -sqrt(-2*x + 1)*sqrt(5*x + 3)*(1785015*x/2 + 17206431/8)/72600 +
392283*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/16000 - 1589*(3*x
 + 2)**2*sqrt(5*x + 3)/(726*sqrt(-2*x + 1)) + 7*(3*x + 2)**3*sqrt
(5*x + 3)/(33*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.147487, size = 74, normalized size = 0.65

$$\frac{142398729\sqrt{10-20x}(2x-1)\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)-10\sqrt{5x+3}\left(2352240x^3+14544684x^2-61036064x+21305631\right)}{5808000(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^4/((1 - 2*x)^(5/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (-10*Sqrt[3 + 5*x]*(21305631 - 61036064*x + 14544684*x^2 + 235224
0*x^3) + 142398729*Sqrt[10 - 20*x]*(-1 + 2*x)*ArcSin[Sqrt[5/11]*S
qrt[1 - 2*x]])/(5808000*(1 - 2*x)^(3/2))
```

Maple [A] time = 0.021, size = 137, normalized size = 1.2

$$\frac{1}{11616000\,(-1+2\,x)^2}\left(569594916\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x^2-47044800\,x^3\sqrt{-10\,x^2-x+3}-569594916\,\sqrt{10}\arcsin\left(\frac{20}{1}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4/(1-2*x)^(5/2)/(3+5*x)^(1/2),x)
```

```
[Out] 1/11616000*(569594916*10^(1/2)*arcsin(20/11*x+1/11)*x^2-47044800*
x^3*(-10*x^2-x+3)^(1/2)-569594916*10^(1/2)*arcsin(20/11*x+1/11)*x
-290893680*x^2*(-10*x^2-x+3)^(1/2)+142398729*10^(1/2)*arcsin(20/1
1*x+1/11)+1220721280*x*(-10*x^2-x+3)^(1/2)-426112620*(-10*x^2-x+3
)^(1/2))*(3+5*x)^(1/2)*(1-2*x)^(1/2)/(-1+2*x)^2/(-10*x^2-x+3)^(1/
2)
```

Maxima [A] time = 1.53977, size = 123, normalized size = 1.09

$$\frac{392283}{32000}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)-\frac{81}{80}\sqrt{-10\,x^2-x+3}x-\frac{11637}{1600}\sqrt{-10\,x^2-x+3}+\frac{2401\sqrt{-10\,x^2-x+3}}{264\,(4\,x^2-4\,x+1)}+\frac{55909\sqrt{-10\,x^2-x+3}}{1452\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4/(sqrt(5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 392283/32000*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) - 81/80*sqrt(
-10*x^2 - x + 3)*x - 11637/1600*sqrt(-10*x^2 - x + 3) + 2401/264*
sqrt(-10*x^2 - x + 3)/(4*x^2 - 4*x + 1) + 55909/1452*sqrt(-10*x^2
 - x + 3)/(2*x - 1)
```

Fricas [A] time = 0.235275, size = 120, normalized size = 1.06

$$-\frac{\sqrt{10}\left(2\,\sqrt{10}\left(2352240\,x^3+14544684\,x^2-61036064\,x+21305631\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-142398729\left(4\,x^2-4\,x+1\right)\arctan\right.}{11616000\,(4\,x^2-4\,x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4/(sqrt(5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] -1/11616000*sqrt(10)*(2*sqrt(10)*(2352240*x^3 + 14544684*x^2 - 61
036064*x + 21305631)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 142398729*(4*
x^2 - 4*x + 1)*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqr
t(-2*x + 1))))/(4*x^2 - 4*x + 1)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^4}{(-2x+1)^{\frac{5}{2}}\sqrt{5x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4/(1-2*x)**(5/2)/(3+5*x)**(1/2),x)
```

```
[Out] Integral((3*x + 2)**4/((-2*x + 1)**(5/2)*sqrt(5*x + 3)), x)
```

GIAC/XCAS [A] time = 0.255409, size = 113, normalized size = 1.

$$\frac{392283}{16000}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right) - \frac{\left(4\left(9801\left(12\sqrt{5}(5x+3)+263\sqrt{5}\right)(5x+3)-94936582\sqrt{5}\right)(5x+3)+1566381795\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{72600000\,(2x-1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4/(sqrt(5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 392283/16000*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) - 1/726
00000*(4*(9801*(12*sqrt(5)*(5*x + 3) + 263*sqrt(5))*(5*x + 3) - 9
4936582*sqrt(5))*(5*x + 3) + 1566381795*sqrt(5))*sqrt(5*x + 3)*sq
rt(-10*x + 5)/(2*x - 1)^2
```

3.2593 $\int \frac{(2+3x)^3}{(1-2x)^{5/2}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=84

$$\frac{7\sqrt{5x+3}(3x+2)^2}{33(1-2x)^{3/2}}-\frac{(95621-33462x)\sqrt{5x+3}}{14520\sqrt{1-2x}}+\frac{1593\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{40\sqrt{10}}$$

```
[Out] -((95621 - 33462*x)*Sqrt[3 + 5*x])/(14520*Sqrt[1 - 2*x]) + (7*(2
+ 3*x)^2*Sqrt[3 + 5*x])/(33*(1 - 2*x)^(3/2)) + (1593*ArcSin[Sqrt[
2/11]*Sqrt[3 + 5*x]])/(40*Sqrt[10])
```

Rubi [A] time = 0.123918, antiderivative size = 84, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$\frac{7\sqrt{5x+3}(3x+2)^2}{33(1-2x)^{3/2}}-\frac{(95621-33462x)\sqrt{5x+3}}{14520\sqrt{1-2x}}+\frac{1593\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{40\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^3/((1 - 2*x)^(5/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] -((95621 - 33462*x)*Sqrt[3 + 5*x])/(14520*Sqrt[1 - 2*x]) + (7*(2
+ 3*x)^2*Sqrt[3 + 5*x])/(33*(1 - 2*x)^(3/2)) + (1593*ArcSin[Sqrt[
2/11]*Sqrt[3 + 5*x]])/(40*Sqrt[10])
```

Rubi in Sympy [A] time = 11.6481, size = 78, normalized size = 0.93

$$-\frac{\left(-\frac{16731x}{2}+\frac{95621}{4}\right)\sqrt{5x+3}}{3630\sqrt{-2x+1}}+\frac{1593\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{400}+\frac{7\left(3x+2\right)^2\sqrt{5x+3}}{33\left(-2x+1\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3/(1-2*x)**(5/2)/(3+5*x)**(1/2),x)
```

```
[Out] -(-16731*x/2 + 95621/4)*sqrt(5*x + 3)/(3630*sqrt(-2*x + 1)) + 159
3*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/400 + 7*(3*x + 2)**2*s
qrt(5*x + 3)/(33*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.154134, size = 69, normalized size = 0.82

$$\frac{578259\sqrt{10-20x}(2x-1)\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)-10\sqrt{5x+3}\left(39204x^2-261664x+83301\right)}{145200(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^3/((1 - 2*x)^(5/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (-10*Sqrt[3 + 5*x]*(83301 - 261664*x + 39204*x^2) + 578259*Sqrt[1
0 - 20*x]*(-1 + 2*x)*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/(145200*(1
 - 2*x)^(3/2))
```

Maple [A] time = 0.02, size = 120, normalized size = 1.4

$$\frac{1}{290400\left(-1+2x\right)^{2}}\left(2313036\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)x^{2}-2313036\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)x-784080x^{2}\sqrt{-10x^{2}-x}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((2+3*x)^3/(1-2*x)^(5/2)/(3+5*x)^(1/2),x)
```

```
[Out] 1/290400*(2313036*10^(1/2)*arcsin(20/11*x+1/11)*x^2-2313036*10^(1
/2)*arcsin(20/11*x+1/11)*x-784080*x^2*(-10*x^2-x+3)^(1/2)+578259*
10^(1/2)*arcsin(20/11*x+1/11)+5233280*x*(-10*x^2-x+3)^(1/2)-16660
20*(-10*x^2-x+3)^(1/2))*(3+5*x)^(1/2)*(1-2*x)^(1/2)/(-1+2*x)^2/(-
10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.48652, size = 103, normalized size = 1.23

$$\frac{1593}{800}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)-\frac{27}{40}\sqrt{-10x^{2}-x+3}+\frac{343\sqrt{-10x^{2}-x+3}}{132\left(4x^{2}-4x+1\right)}+\frac{11123\sqrt{-10x^{2}-x+3}}{1452\left(2x-1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3/(sqrt(5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 1593/800*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) - 27/40*sqrt(-10*
x^2 - x + 3) + 343/132*sqrt(-10*x^2 - x + 3)/(4*x^2 - 4*x + 1) +
11123/1452*sqrt(-10*x^2 - x + 3)/(2*x - 1)
```

Fricas [A] time = 0.224416, size = 113, normalized size = 1.35

$$-\frac{\sqrt{10}\left(2\sqrt{10}\left(39204x^{2}-261664x+83301\right)\sqrt{5x+3}\sqrt{-2x+1}-578259\left(4x^{2}-4x+1\right)\arctan\left(\frac{\sqrt{10}(20x+1)}{20\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)}{290400\left(4x^{2}-4x+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3/(sqrt(5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] -1/290400*sqrt(10)*(2*sqrt(10)*(39204*x^2 - 261664*x + 83301)*sqr
t(5*x + 3)*sqrt(-2*x + 1) - 578259*(4*x^2 - 4*x + 1)*arctan(1/20*
sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(4*x^2 - 4*x
 + 1)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(3x+2)^{3}}{(-2x+1)^{\frac{5}{2}}\sqrt{5x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((2+3*x)**3/(1-2*x)**(5/2)/(3+5*x)**(1/2),x)
```

```
[Out] Integral((3*x + 2)**3/((-2*x + 1)**(5/2)*sqrt(5*x + 3)), x)
```

GIAC/XCAS [A] time = 0.265011, size = 96, normalized size = 1.14

$$\frac{1593}{400}\,\sqrt{10}\arcsin\left(\frac{1}{11}\,\sqrt{22}\sqrt{5\,x+3}\right) - \frac{\left(4\left(9801\,\sqrt{5}(5\,x+3) - 385886\,\sqrt{5}\right)(5\,x+3) + 6360321\,\sqrt{5}\right)\sqrt{5\,x+3}\sqrt{-10\,x+5}}{1815000\,(2\,x-1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^3/(sqrt(5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 1593/400*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) - 1/1815000
*(4*(9801*sqrt(5)*(5*x + 3) - 385886*sqrt(5))*(5*x + 3) + 6360321
*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)^2
```

3.2594 $\int \frac{(2+3x)^2}{(1-2x)^{5/2}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=72

$$-\frac{448\sqrt{5x+3}}{363\sqrt{1-2x}}+\frac{49\sqrt{5x+3}}{66(1-2x)^{3/2}}+\frac{9\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{2\sqrt{10}}$$

```
[Out] (49*Sqrt[3 + 5*x])/(66*(1 - 2*x)^(3/2)) - (448*Sqrt[3 + 5*x])/(36
3*Sqrt[1 - 2*x]) + (9*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(2*Sqrt[1
0])
```

Rubi [A] time = 0.0983234, antiderivative size = 72, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$-\frac{448\sqrt{5x+3}}{363\sqrt{1-2x}}+\frac{49\sqrt{5x+3}}{66(1-2x)^{3/2}}+\frac{9\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{2\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In] Int[(2 + 3*x)^2/((1 - 2*x)^(5/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (49*Sqrt[3 + 5*x])/(66*(1 - 2*x)^(3/2)) - (448*Sqrt[3 + 5*x])/(36
3*Sqrt[1 - 2*x]) + (9*ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]])/(2*Sqrt[1
0])
```

Rubi in Sympy [A] time = 8.31524, size = 65, normalized size = 0.9

$$\frac{9\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{20}-\frac{448\sqrt{5x+3}}{363\sqrt{-2x+1}}+\frac{49\sqrt{5x+3}}{66\,(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**2/(1-2*x)**(5/2)/(3+5*x)**(1/2),x)
```

```
[Out] 9*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/20 - 448*sqrt(5*x + 3)
/(363*sqrt(-2*x + 1)) + 49*sqrt(5*x + 3)/(66*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.145639, size = 64, normalized size = 0.89

$$\frac{70\sqrt{5x+3}(256x-51)+3267\sqrt{10-20x}(2x-1)\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{7260(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In] Integrate[(2 + 3*x)^2/((1 - 2*x)^(5/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (70*Sqrt[3 + 5*x]*(-51 + 256*x) + 3267*Sqrt[10 - 20*x]*(-1 + 2*x)
*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/(7260*(1 - 2*x)^(3/2))
```

Maple [A] time = 0.02, size = 103, normalized size = 1.4

$$\frac{1}{14520\,(-1+2\,x)^2}\left(13068\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x^2-13068\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x+3267\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/1\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2/(1-2*x)^(5/2)/(3+5*x)^(1/2),x)
```

```
[Out] 1/14520*(13068*10^(1/2)*arcsin(20/11*x+1/11)*x^2-13068*10^(1/2)*a
rcsin(20/11*x+1/11)*x+3267*10^(1/2)*arcsin(20/11*x+1/11)+35840*x*
(-10*x^2-x+3)^(1/2)-7140*(-10*x^2-x+3)^(1/2))*(3+5*x)^(1/2)*(1-2*
x)^(1/2)/(-1+2*x)^2/(-10*x^2-x+3)^(1/2)
```

Maxima [A] time = 1.48025, size = 84, normalized size = 1.17

$$\frac{9}{40}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}\,x+\frac{1}{11}\right)+\frac{49\,\sqrt{-10\,x^2-x+3}}{66\,(4\,x^2-4\,x+1)}+\frac{448\,\sqrt{-10\,x^2-x+3}}{363\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2/(sqrt(5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 9/40*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) + 49/66*sqrt(-10*x^2
- x + 3)/(4*x^2 - 4*x + 1) + 448/363*sqrt(-10*x^2 - x + 3)/(2*x -
 1)
```

Fricas [A] time = 0.223716, size = 107, normalized size = 1.49

$$\frac{\sqrt{10}\left(14\,\sqrt{10}(256\,x-51)\sqrt{5\,x+3}\sqrt{-2\,x+1}+3267\,\left(4\,x^2-4\,x+1\right)\,\arctan\left(\frac{\sqrt{10}(20\,x+1)}{20\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)}{14520\,(4\,x^2-4\,x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2/(sqrt(5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/14520*sqrt(10)*(14*sqrt(10)*(256*x - 51)*sqrt(5*x + 3)*sqrt(-2*
x + 1) + 3267*(4*x^2 - 4*x + 1)*arctan(1/20*sqrt(10)*(20*x + 1)/(
sqrt(5*x + 3)*sqrt(-2*x + 1))))/(4*x^2 - 4*x + 1)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(3x+2)^2}{(-2x+1)^{\frac{5}{2}}\sqrt{5x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2/(1-2*x)**(5/2)/(3+5*x)**(1/2),x)
```

```
[Out] Integral((3*x + 2)**2/((-2*x + 1)**(5/2)*sqrt(5*x + 3)), x)
```

GIAC/XCAS [A] time = 0.252803, size = 78, normalized size = 1.08

$$\frac{9}{20}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5\,x+3}\right)+\frac{7\left(256\,\sqrt{5}(5\,x+3)-1023\,\sqrt{5}\right)\sqrt{5\,x+3}\sqrt{-10\,x+5}}{18150\,(2\,x-1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2/(sqrt(5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 9/20*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) + 7/18150*(256*
sqrt(5)*(5*x + 3) - 1023*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(
2*x - 1)^2
```

3.2595 $\int \frac{2+3x}{(1-2x)^{5/2}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=45

$$\frac{7\sqrt{5x+3}}{33(1-2x)^{3/2}}-\frac{29\sqrt{5x+3}}{363\sqrt{1-2x}}$$

```
[Out] (7*Sqrt[3 + 5*x])/(33*(1 - 2*x)^(3/2)) - (29*Sqrt[3 + 5*x])/(363*
Sqrt[1 - 2*x])
```

Rubi [A] time = 0.046817, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.083

$$\frac{7\sqrt{5x+3}}{33(1-2x)^{3/2}}-\frac{29\sqrt{5x+3}}{363\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)/((1 - 2*x)^(5/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (7*Sqrt[3 + 5*x])/(33*(1 - 2*x)^(3/2)) - (29*Sqrt[3 + 5*x])/(363*
Sqrt[1 - 2*x])
```

Rubi in Sympy [A] time = 5.12597, size = 39, normalized size = 0.87

$$-\frac{29\sqrt{5x+3}}{363\sqrt{-2x+1}}+\frac{7\sqrt{5x+3}}{33\,(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)/(1-2*x)**(5/2)/(3+5*x)**(1/2),x)
```

```
[Out] -29*sqrt(5*x + 3)/(363*sqrt(-2*x + 1)) + 7*sqrt(5*x + 3)/(33*(-2*
x + 1)**(3/2))
```

Mathematica [A] time = 0.037447, size = 27, normalized size = 0.6

$$\frac{2\sqrt{5x+3}(29x+24)}{363(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)/((1 - 2*x)^(5/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (2*Sqrt[3 + 5*x]*(24 + 29*x))/(363*(1 - 2*x)^(3/2))
```

Maple [A] time = 0.004, size = 22, normalized size = 0.5

$$\frac{58\,x+48}{363}\sqrt{3+5\,x}\,(1-2\,x)^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)/(1-2*x)^(5/2)/(3+5*x)^(1/2),x)
```

```
[Out] 2/363*(3+5*x)^(1/2)*(29*x+24)/(1-2*x)^(3/2)
```

Maxima [A] time = 1.49072, size = 65, normalized size = 1.44

$$\frac{7\sqrt{-10x^2-x+3}}{33(4x^2-4x+1)}+\frac{29\sqrt{-10x^2-x+3}}{363(2x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)/(sqrt(5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 7/33*sqrt(-10*x^2 - x + 3)/(4*x^2 - 4*x + 1) + 29/363*sqrt(-10*x^
2 - x + 3)/(2*x - 1)
```

Fricas [A] time = 0.21652, size = 45, normalized size = 1.

$$\frac{2(29x+24)\sqrt{5x+3}\sqrt{-2x+1}}{363(4x^2-4x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)/(sqrt(5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 2/363*(29*x + 24)*sqrt(5*x + 3)*sqrt(-2*x + 1)/(4*x^2 - 4*x + 1)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{3x+2}{(-2x+1)^{\frac{5}{2}}\sqrt{5x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)/(1-2*x)**(5/2)/(3+5*x)**(1/2),x)
```

```
[Out] Integral((3*x + 2)/((-2*x + 1)**(5/2)*sqrt(5*x + 3)), x)
```

GIAC/XCAS [A] time = 0.251923, size = 53, normalized size = 1.18

$$\frac{2\left(29\sqrt{5}(5x+3)+33\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{9075(2x-1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)/(sqrt(5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 2/9075*(29*sqrt(5)*(5*x + 3) + 33*sqrt(5))*sqrt(5*x + 3)*sqrt(-10
*x + 5)/(2*x - 1)^2
```

3.2596 $\int \frac{1}{(1-2x)^{5/2}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=45

$$\frac{20\sqrt{5x+3}}{363\sqrt{1-2x}}+\frac{2\sqrt{5x+3}}{33(1-2x)^{3/2}}$$

```
[Out] (2*Sqrt[3 + 5*x])/(33*(1 - 2*x)^(3/2)) + (20*Sqrt[3 + 5*x])/(363*
Sqrt[1 - 2*x])
```

Rubi [A] time = 0.0331464, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.105

$$\frac{20\sqrt{5x+3}}{363\sqrt{1-2x}}+\frac{2\sqrt{5x+3}}{33(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(5/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (2*Sqrt[3 + 5*x])/(33*(1 - 2*x)^(3/2)) + (20*Sqrt[3 + 5*x])/(363*
Sqrt[1 - 2*x])
```

Rubi in Sympy [A] time = 4.18521, size = 39, normalized size = 0.87

$$\frac{20\sqrt{5x+3}}{363\sqrt{-2x+1}}+\frac{2\sqrt{5x+3}}{33\left(-2x+1\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(5/2)/(3+5*x)**(1/2),x)
```

```
[Out] 20*sqrt(5*x + 3)/(363*sqrt(-2*x + 1)) + 2*sqrt(5*x + 3)/(33*(-2*x
 + 1)**(3/2))
```

Mathematica [A] time = 0.0254751, size = 27, normalized size = 0.6

$$-\frac{2\sqrt{5x+3}(20x-21)}{363(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(5/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (-2*Sqrt[3 + 5*x]*(-21 + 20*x))/(363*(1 - 2*x)^(3/2))
```

Maple [A] time = 0.005, size = 22, normalized size = 0.5

$$-\frac{-42+40\,x}{363}\sqrt{3+5\,x}\,(1-2\,x)^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(5/2)/(3+5*x)^(1/2),x)
```

```
[Out] -2/363*(3+5*x)^(1/2)*(-21+20*x)/(1-2*x)^(3/2)
```

Maxima [A] time = 1.4941, size = 65, normalized size = 1.44

$$\frac{2\sqrt{-10\,x^2-x+3}}{33\,(4\,x^2-4\,x+1)}-\frac{20\sqrt{-10\,x^2-x+3}}{363\,(2\,x-1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 2/33*sqrt(-10*x^2 - x + 3)/(4*x^2 - 4*x + 1) - 20/363*sqrt(-10*x^
2 - x + 3)/(2*x - 1)
```

Fricas [A] time = 0.213241, size = 45, normalized size = 1.

$$-\frac{2\,(20\,x-21)\sqrt{5\,x+3}\sqrt{-2\,x+1}}{363\,(4\,x^2-4\,x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] -2/363*(20*x - 21)*sqrt(5*x + 3)*sqrt(-2*x + 1)/(4*x^2 - 4*x + 1)
```

Sympy [A] time = 8.2289, size = 178, normalized size = 3.96

$$\begin{cases} \frac{100\sqrt{10}\left(x+\frac{3}{5}\right)}{3630\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)-3993\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}}-\frac{165\sqrt{10}}{3630\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)-3993\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}} & \text{for}\ \frac{11\left|\frac{1}{x+\frac{3}{5}}\right|}{10}>1 \\ -\frac{100\sqrt{10}i\left(x+\frac{3}{5}\right)}{3630\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)-3993\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}}+\frac{165\sqrt{10}i}{3630\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)-3993\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(5/2)/(3+5*x)**(1/2),x)
```

```
[Out] Piecewise((100*sqrt(10)*(x + 3/5)/(3630*sqrt(-1 + 11/(10*(x + 3/5
)))*(x + 3/5) - 3993*sqrt(-1 + 11/(10*(x + 3/5)))) - 165*sqrt(10)
/(3630*sqrt(-1 + 11/(10*(x + 3/5)))*(x + 3/5) - 3993*sqrt(-1 + 11
/(10*(x + 3/5)))), 11*Abs(1/(x + 3/5))/10 > 1), (-100*sqrt(10)*I*
(x + 3/5)/(3630*sqrt(1 - 11/(10*(x + 3/5)))*(x + 3/5) - 3993*sqrt
(1 - 11/(10*(x + 3/5)))) + 165*sqrt(10)*I/(3630*sqrt(1 - 11/(10*(
x + 3/5)))*(x + 3/5) - 3993*sqrt(1 - 11/(10*(x + 3/5)))), True))
```

GIAC/XCAS [A] time = 0.245857, size = 53, normalized size = 1.18

$$-\frac{2\left(4\sqrt{5}(5\,x+3)-33\sqrt{5}\right)\sqrt{5\,x+3}\sqrt{-10\,x+5}}{1815\,(2\,x-1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] -2/1815*(4*sqrt(5)*(5*x + 3) - 33*sqrt(5))*sqrt(5*x + 3)*sqrt(-10
*x + 5)/(2*x - 1)^2
```

3.2597 $\int \frac{1}{(1-2x)^{5/2}(2+3x)\sqrt{3+5x}}\,dx$

Optimal. Leaf size=79

$$\frac{676\sqrt{5x+3}}{17787\sqrt{1-2x}}+\frac{4\sqrt{5x+3}}{231(1-2x)^{3/2}}-\frac{18\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{49\sqrt{7}}$$

```
[Out] (4*Sqrt[3 + 5*x])/(231*(1 - 2*x)^(3/2)) + (676*Sqrt[3 + 5*x])/(17
787*Sqrt[1 - 2*x]) - (18*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5
*x])])/(49*Sqrt[7])
```

Rubi [A] time = 0.166291, antiderivative size = 79, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$\frac{676\sqrt{5x+3}}{17787\sqrt{1-2x}}+\frac{4\sqrt{5x+3}}{231(1-2x)^{3/2}}-\frac{18\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{49\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In] Int[1/((1 - 2*x)^(5/2)*(2 + 3*x)*Sqrt[3 + 5*x]),x]
```

```
[Out] (4*Sqrt[3 + 5*x])/(231*(1 - 2*x)^(3/2)) + (676*Sqrt[3 + 5*x])/(17
787*Sqrt[1 - 2*x]) - (18*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5
*x])])/(49*Sqrt[7])
```

Rubi in Sympy [A] time = 14.7174, size = 73, normalized size = 0.92

$$-\frac{18\sqrt{7}\,\text{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{343}+\frac{676\sqrt{5x+3}}{17787\sqrt{-2x+1}}+\frac{4\sqrt{5x+3}}{231\,(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(1/(1-2*x)**(5/2)/(2+3*x)/(3+5*x)**(1/2),x)
```

```
[Out] -18*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/343 +
676*sqrt(5*x + 3)/(17787*sqrt(-2*x + 1)) + 4*sqrt(5*x + 3)/(231*(
-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.141967, size = 65, normalized size = 0.82

$$\frac{8(123-169x)\sqrt{5x+3}}{17787(1-2x)^{3/2}}-\frac{9\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{49\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In] Integrate[1/((1 - 2*x)^(5/2)*(2 + 3*x)*Sqrt[3 + 5*x]),x]
```

```
[Out] (8*(123 - 169*x)*Sqrt[3 + 5*x])/(17787*(1 - 2*x)^(3/2)) - (9*ArcT
an[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/(49*Sqrt[7])
```

Maple [B] time = 0.022, size = 154, normalized size = 2.

$$\frac{1}{124509\,(-1+2\,x)^2}\left(13068\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^2-13068\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x+3267\,\sqrt{7}\,\text{a}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(5/2)/(2+3*x)/(3+5*x)^(1/2),x)
```

```
[Out] 1/124509*(13068*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+
3)^(1/2))*x^2-13068*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^
2-x+3)^(1/2))*x+3267*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x
^2-x+3)^(1/2))-9464*x*(-10*x^2-x+3)^(1/2)+6888*(-10*x^2-x+3)^(1/2
))*(3+5*x)^(1/2)*(1-2*x)^(1/2)/(-1+2*x)^2/(-10*x^2-x+3)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{5\,x+3}(3\,x+2)(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(5*x + 3)*(3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(5*x + 3)*(3*x + 2)*(-2*x + 1)^(5/2)), x)
```

Fricas [A] time = 0.230043, size = 107, normalized size = 1.35

$$-\frac{\sqrt{7}\left(8\,\sqrt{7}(169\,x-123)\sqrt{5\,x+3}\sqrt{-2\,x+1}-3267\,\left(4\,x^2-4\,x+1\right)\,\arctan\left(\frac{\sqrt{7}(37\,x+20)}{14\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)}{124509\,(4\,x^2-4\,x+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(5*x + 3)*(3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] -1/124509*sqrt(7)*(8*sqrt(7)*(169*x - 123)*sqrt(5*x + 3)*sqrt(-2*
x + 1) - 3267*(4*x^2 - 4*x + 1)*arctan(1/14*sqrt(7)*(37*x + 20)/(
sqrt(5*x + 3)*sqrt(-2*x + 1))))/(4*x^2 - 4*x + 1)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(-2x+1)^{\frac{5}{2}}\,(3x+2)\,\sqrt{5x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(5/2)/(2+3*x)/(3+5*x)**(1/2),x)
```

```
[Out] Integral(1/((-2*x + 1)**(5/2)*(3*x + 2)*sqrt(5*x + 3)), x)
```

GIAC/XCAS [A] time = 0.260467, size = 153, normalized size = 1.94

$$\frac{9}{3430}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{8\left(169\sqrt{5}(5x+3)-1122\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{444675(2x-1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(5*x + 3)*(3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 9/3430*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x
+ 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqrt
(2)*sqrt(-10*x + 5) - sqrt(22)))) - 8/444675*(169*sqrt(5)*(5*x +
3) - 1122*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)^2
```

3.2598 $\int \frac{1}{(1-2x)^{5/2}(2+3x)^2\sqrt{3+5x}}\,dx$

Optimal. Leaf size=108

$$-\frac{4390\sqrt{5x+3}}{124509\sqrt{1-2x}}+\frac{3\sqrt{5x+3}}{7(1-2x)^{3/2}(3x+2)}-\frac{190\sqrt{5x+3}}{1617(1-2x)^{3/2}}-\frac{405\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{343\sqrt{7}}$$

```
[Out] (-190*Sqrt[3 + 5*x])/(1617*(1 - 2*x)^(3/2)) - (4390*Sqrt[3 + 5*x]
)/(124509*Sqrt[1 - 2*x]) + (3*Sqrt[3 + 5*x])/(7*(1 - 2*x)^(3/2)*(
2 + 3*x)) - (405*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(
343*Sqrt[7])
```

Rubi [A] time = 0.24952, antiderivative size = 108, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$-\frac{4390\sqrt{5x+3}}{124509\sqrt{1-2x}}+\frac{3\sqrt{5x+3}}{7(1-2x)^{3/2}(3x+2)}-\frac{190\sqrt{5x+3}}{1617(1-2x)^{3/2}}-\frac{405\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{343\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(5/2)*(2 + 3*x)^2*Sqrt[3 + 5*x]),x]
```

```
[Out] (-190*Sqrt[3 + 5*x])/(1617*(1 - 2*x)^(3/2)) - (4390*Sqrt[3 + 5*x]
)/(124509*Sqrt[1 - 2*x]) + (3*Sqrt[3 + 5*x])/(7*(1 - 2*x)^(3/2)*(
2 + 3*x)) - (405*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(
343*Sqrt[7])
```

Rubi in Sympy [A] time = 21.9494, size = 99, normalized size = 0.92

$$-\frac{405\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{2401}-\frac{4390\sqrt{5x+3}}{124509\sqrt{-2x+1}}-\frac{190\sqrt{5x+3}}{1617\,(-2x+1)^{\frac{3}{2}}}+\frac{3\sqrt{5x+3}}{7\,(-2x+1)^{\frac{3}{2}}\,(3x+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(5/2)/(2+3*x)**2/(3+5*x)**(1/2),x)
```

```
[Out] -405*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/2401
- 4390*sqrt(5*x + 3)/(124509*sqrt(-2*x + 1)) - 190*sqrt(5*x + 3)/
(1617*(-2*x + 1)**(3/2)) + 3*sqrt(5*x + 3)/(7*(-2*x + 1)**(3/2)*(
3*x + 2))
```

Mathematica [A] time = 0.105248, size = 77, normalized size = 0.71

$$\frac{\sqrt{5x+3}\,\left(26340x^2-39500x+15321\right)}{124509(1-2x)^{3/2}(3x+2)}-\frac{405\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{686\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(5/2)*(2 + 3*x)^2*Sqrt[3 + 5*x]),x]
```

```
[Out] (Sqrt[3 + 5*x]*(15321 - 39500*x + 26340*x^2))/(124509*(1 - 2*x)^(
3/2)*(2 + 3*x)) - (405*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt
[3 + 5*x])])/(686*Sqrt[7])
```

Maple [B] time = 0.023, size = 209, normalized size = 1.9

$$\frac{1}{(3486252 + 5229378\,x)\,(-1 + 2\,x)^2}\left(1764180\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x + 20)\,\sqrt{7}}{\sqrt{-10\,x^2 - x + 3}}\right)x^3 - 588060\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x + 20)\,\sqrt{7}}{\sqrt{-10\,x^2 - x}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(5/2)/(2+3*x)^2/(3+5*x)^(1/2),x)
```

```
[Out] 1/1743126*(1764180*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2
-x+3)^(1/2))*x^3-588060*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-1
0*x^2-x+3)^(1/2))*x^2-735075*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2
)/(-10*x^2-x+3)^(1/2))*x+368760*x^2*(-10*x^2-x+3)^(1/2)+294030*7^
(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))-553000*x
*(-10*x^2-x+3)^(1/2)+214494*(-10*x^2-x+3)^(1/2))*(3+5*x)^(1/2)*(1
-2*x)^(1/2)/(2+3*x)/(-1+2*x)^2/(-10*x^2-x+3)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{5\,x + 3}(3\,x + 2)^2(-2\,x + 1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^2*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^2*(-2*x + 1)^(5/2)), x)
```

Fricas [A] time = 0.225232, size = 127, normalized size = 1.18

$$\frac{\sqrt{7}\left(2\,\sqrt{7}\left(26340\,x^2 - 39500\,x + 15321\right)\sqrt{5\,x + 3}\sqrt{-2\,x + 1} + 147015\,\left(12\,x^3 - 4\,x^2 - 5\,x + 2\right)\,\arctan\left(\frac{\sqrt{7}(37\,x + 20)}{14\,\sqrt{5\,x + 3}\sqrt{-2\,x + 1}}\right)\right)}{1743126\,(12\,x^3 - 4\,x^2 - 5\,x + 2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^2*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/1743126*sqrt(7)*(2*sqrt(7)*(26340*x^2 - 39500*x + 15321)*sqrt(5
*x + 3)*sqrt(-2*x + 1) + 147015*(12*x^3 - 4*x^2 - 5*x + 2)*arctan
(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(12*x^
3 - 4*x^2 - 5*x + 2)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(5/2)/(2+3*x)**2/(3+5*x)**(1/2),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [A] time = 0.323293, size = 313, normalized size = 2.9

$$\frac{81}{9604}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)+\frac{594\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)}{343\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)}-\frac{8\left(536\sqrt{5}(5x+3)-3333\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{3112725(2x-1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^2*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 81/9604*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*x
 + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sqr
t(2)*sqrt(-10*x + 5) - sqrt(22)))) + 594/343*sqrt(10)*((sqrt(2)*s
qrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(
2)*sqrt(-10*x + 5) - sqrt(22)))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt
(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) -
sqrt(22)))^2 + 280) - 8/3112725*(536*sqrt(5)*(5*x + 3) - 3333*sqr
t(5))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)^2
```

3.2599 $\int \frac{1}{(1-2x)^{5/2}(2+3x)^3\sqrt{3+5x}}\,dx$

Optimal. Leaf size=137

$$-\frac{57595\sqrt{5x+3}}{249018\sqrt{1-2x}}+\frac{51\sqrt{5x+3}}{28(1-2x)^{3/2}(3x+2)}-\frac{1735\sqrt{5x+3}}{3234(1-2x)^{3/2}}+\frac{3\sqrt{5x+3}}{14(1-2x)^{3/2}(3x+2)^2}-\frac{5805\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{1372\sqrt{7}}$$

```
[Out] (-1735*Sqrt[3 + 5*x])/(3234*(1 - 2*x)^(3/2)) - (57595*Sqrt[3 + 5*
x])/(249018*Sqrt[1 - 2*x]) + (3*Sqrt[3 + 5*x])/(14*(1 - 2*x)^(3/2
)*(2 + 3*x)^2) + (51*Sqrt[3 + 5*x])/(28*(1 - 2*x)^(3/2)*(2 + 3*x)
) - (5805*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(1372*Sq
rt[7])
```

Rubi [A] time = 0.318894, antiderivative size = 137, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.231$

$$-\frac{57595\sqrt{5x+3}}{249018\sqrt{1-2x}}+\frac{51\sqrt{5x+3}}{28(1-2x)^{3/2}(3x+2)}-\frac{1735\sqrt{5x+3}}{3234(1-2x)^{3/2}}+\frac{3\sqrt{5x+3}}{14(1-2x)^{3/2}(3x+2)^2}-\frac{5805\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{1372\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In] Int[1/((1 - 2*x)^(5/2)*(2 + 3*x)^3*Sqrt[3 + 5*x]),x]
```

```
[Out] (-1735*Sqrt[3 + 5*x])/(3234*(1 - 2*x)^(3/2)) - (57595*Sqrt[3 + 5*
x])/(249018*Sqrt[1 - 2*x]) + (3*Sqrt[3 + 5*x])/(14*(1 - 2*x)^(3/2
)*(2 + 3*x)^2) + (51*Sqrt[3 + 5*x])/(28*(1 - 2*x)^(3/2)*(2 + 3*x)
) - (5805*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(1372*Sq
rt[7])
```

Rubi in Sympy [A] time = 28.8236, size = 126, normalized size = 0.92

$$-\frac{5805\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{9604}-\frac{57595\sqrt{5x+3}}{249018\sqrt{-2x+1}}-\frac{1735\sqrt{5x+3}}{3234\left(-2x+1\right)^{\frac{3}{2}}}+\frac{51\sqrt{5x+3}}{28\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)}+\frac{3\sqrt{5x+3}}{14\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(1/(1-2*x)**(5/2)/(2+3*x)**3/(3+5*x)**(1/2),x)
```

```
[Out] -5805*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/9604
 - 57595*sqrt(5*x + 3)/(249018*sqrt(-2*x + 1)) - 1735*sqrt(5*x +
3)/(3234*(-2*x + 1)**(3/2)) + 51*sqrt(5*x + 3)/(28*(-2*x + 1)**(3
/2)*(3*x + 2)) + 3*sqrt(5*x + 3)/(14*(-2*x + 1)**(3/2)*(3*x + 2)*
*2)
```

Mathematica [A] time = 0.116479, size = 85, normalized size = 0.62

$$\frac{\sqrt{1-2x}\sqrt{5x+3}\left(2073420x^3-676860x^2-945629x+391476\right)}{498036\left(6x^2+x-2\right)^2}-\frac{5805\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{2744\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In] Integrate[1/((1 - 2*x)^(5/2)*(2 + 3*x)^3*Sqrt[3 + 5*x]),x]
```

```
[Out] (Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(391476 - 945629*x - 676860*x^2 + 20
73420*x^3))/(498036*(-2 + x + 6*x^2)^2) - (5805*ArcTan[(-20 - 37*
x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/(2744*Sqrt[7])
```

Maple [B] time = 0.025, size = 257, normalized size = 1.9

$$\frac{1}{6972504\,(2+3\,x)^{2}\,(-1+2\,x)^{2}}\left(75859740\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^{2}-x+3}}\right)x^{4}+25286580\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^{2}-x+3}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(5/2)/(2+3*x)^3/(3+5*x)^(1/2),x)
```

```
[Out] 1/6972504*(75859740*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^
2-x+3)^(1/2))*x^4+25286580*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/
(-10*x^2-x+3)^(1/2))*x^3-48465945*7^(1/2)*arctan(1/14*(37*x+20)*7
^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+29027880*x^3*(-10*x^2-x+3)^(1/2)-
8428860*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2)
)*x-9476040*x^2*(-10*x^2-x+3)^(1/2)+8428860*7^(1/2)*arctan(1/14*(
37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))-13238806*x*(-10*x^2-x+3)^(1
/2)+5480664*(-10*x^2-x+3)^(1/2))*(3+5*x)^(1/2)*(1-2*x)^(1/2)/(2+3
*x)^2/(-1+2*x)^2/(-10*x^2-x+3)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{5\,x+3}(3\,x+2)^{3}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(5*x + 3)*(3*x + 2)^3*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^3*(-2*x + 1)^(5/2)), x)
```

Fricas [A] time = 0.226095, size = 147, normalized size = 1.07

$$\frac{\sqrt{7}\left(2\,\sqrt{7}\left(2073420\,x^{3}-676860\,x^{2}-945629\,x+391476\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+2107215\left(36\,x^{4}+12\,x^{3}-23\,x^{2}-4\,x+4\right)\operatorname{arct}\right.}{6972504\,(36\,x^{4}+12\,x^{3}-23\,x^{2}-4\,x+4)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(5*x + 3)*(3*x + 2)^3*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/6972504*sqrt(7)*(2*sqrt(7)*(2073420*x^3 - 676860*x^2 - 945629*x
 + 391476)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 2107215*(36*x^4 + 12*x^
3 - 23*x^2 - 4*x + 4)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x +
 3)*sqrt(-2*x + 1))))/(36*x^4 + 12*x^3 - 23*x^2 - 4*x + 4)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(5/2)/(2+3*x)**3/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.389163, size = 400, normalized size = 2.92

$$\frac{1161}{38416}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{32\left(367\sqrt{5}(5x+3)-2211\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{21789075\,(2x-1)^2}+\frac{297\left(197\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3+36680\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)\right)}{4802\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^3*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 1161/38416*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(
5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(
sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 32/21789075*(367*sqrt(5)*
(5*x + 3) - 2211*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)
^2 + 297/4802*(197*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))
/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(
22)))^3 + 36680*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sq
rt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)
)))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt
(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)^2
```

3.2600 $\int \frac{1}{(1-2x)^{5/2}(2+3x)^4\sqrt{3+5x}}\,dx$

Optimal. Leaf size=166

$$-\frac{3471145\sqrt{5x+3}}{3486252\sqrt{1-2x}}+\frac{423\sqrt{5x+3}}{56(1-2x)^{3/2}(3x+2)}-\frac{101485\sqrt{5x+3}}{45276(1-2x)^{3/2}}+\frac{193\sqrt{5x+3}}{196(1-2x)^{3/2}(3x+2)^2}+\frac{\sqrt{5x+3}}{7(1-2x)^{3/2}(3x+2)^3}-\frac{330255\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{19208\sqrt{7}}$$

```
[Out] (-101485*Sqrt[3 + 5*x])/(45276*(1 - 2*x)^(3/2)) - (3471145*Sqrt[3
 + 5*x])/(3486252*Sqrt[1 - 2*x]) + Sqrt[3 + 5*x]/(7*(1 - 2*x)^(3/
2)*(2 + 3*x)^3) + (193*Sqrt[3 + 5*x])/(196*(1 - 2*x)^(3/2)*(2 + 3
*x)^2) + (423*Sqrt[3 + 5*x])/(56*(1 - 2*x)^(3/2)*(2 + 3*x)) - (33
0255*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(19208*Sqrt[7
])
```

Rubi [A] time = 0.403448, antiderivative size = 166, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$-\frac{3471145\sqrt{5x+3}}{3486252\sqrt{1-2x}}+\frac{423\sqrt{5x+3}}{56(1-2x)^{3/2}(3x+2)}-\frac{101485\sqrt{5x+3}}{45276(1-2x)^{3/2}}+\frac{193\sqrt{5x+3}}{196(1-2x)^{3/2}(3x+2)^2}+\frac{\sqrt{5x+3}}{7(1-2x)^{3/2}(3x+2)^3}-\frac{330255\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{19208\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(5/2)*(2 + 3*x)^4*Sqrt[3 + 5*x]),x]
```

```
[Out] (-101485*Sqrt[3 + 5*x])/(45276*(1 - 2*x)^(3/2)) - (3471145*Sqrt[3
 + 5*x])/(3486252*Sqrt[1 - 2*x]) + Sqrt[3 + 5*x]/(7*(1 - 2*x)^(3/
2)*(2 + 3*x)^3) + (193*Sqrt[3 + 5*x])/(196*(1 - 2*x)^(3/2)*(2 + 3
*x)^2) + (423*Sqrt[3 + 5*x])/(56*(1 - 2*x)^(3/2)*(2 + 3*x)) - (33
0255*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(19208*Sqrt[7
])
```

Rubi in Sympy [A] time = 36.1777, size = 151, normalized size = 0.91

$$-\frac{330255\sqrt{7}\,\text{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{134456}-\frac{3471145\sqrt{5x+3}}{3486252\sqrt{-2x+1}}-\frac{101485\sqrt{5x+3}}{45276\,(-2x+1)^{\frac{3}{2}}}+\frac{423\sqrt{5x+3}}{56\,(-2x+1)^{\frac{3}{2}}\,(3x+2)}+\frac{193\sqrt{5x+3}}{196\,(-2x+1)^{\frac{3}{2}}\,(3x+2)^2}+\frac{\sqrt{5x+3}}{7\,(-2x+1)^{\frac{3}{2}}\,(3x+2)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(5/2)/(2+3*x)**4/(3+5*x)**(1/2),x)
```

```
[Out] -330255*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/13
4456 - 3471145*sqrt(5*x + 3)/(3486252*sqrt(-2*x + 1)) - 101485*sq
rt(5*x + 3)/(45276*(-2*x + 1)**(3/2)) + 423*sqrt(5*x + 3)/(56*(-2
*x + 1)**(3/2)*(3*x + 2)) + 193*sqrt(5*x + 3)/(196*(-2*x + 1)**(3
/2)*(3*x + 2)**2) + sqrt(5*x + 3)/(7*(-2*x + 1)**(3/2)*(3*x + 2)*
*3)
```

Mathematica [A] time = 0.127635, size = 87, normalized size = 0.52

$$\frac{\sqrt{5x+3}\left(374883660x^4+140350860x^3-244982277x^2-48873610x+44829024\right)}{6972504(1-2x)^{3/2}(3x+2)^3}-\frac{330255\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{38416\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(5/2)*(2 + 3*x)^4*Sqrt[3 + 5*x]),x]
```

```
[Out] (Sqrt[3 + 5*x]*(44829024 - 48873610*x - 244982277*x^2 + 140350860
*x^3 + 374883660*x^4))/(6972504*(1 - 2*x)^(3/2)*(2 + 3*x)^3) - (3
30255*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/(384
16*Sqrt[7])
```

Maple [B] time = 0.024, size = 305, normalized size = 1.8

$$\frac{1}{97615056\,(2+3\,x)^3\,(-1+2\,x)^2}\left(12947317020\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^5+12947317020\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x}{\sqrt{-10}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(5/2)/(2+3*x)^4/(3+5*x)^(1/2),x)
```

```
[Out] 1/97615056*(12947317020*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-1
0*x^2-x+3)^(1/2))*x^5+12947317020*7^(1/2)*arctan(1/14*(37*x+20)*7
^(1/2)/(-10*x^2-x+3)^(1/2))*x^4-5394715425*7^(1/2)*arctan(1/14*(3
7*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+5248371240*x^4*(-10*x^2-
x+3)^(1/2)-6953188770*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*
x^2-x+3)^(1/2))*x^2+1964912040*x^3*(-10*x^2-x+3)^(1/2)+479530260*
7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x-3429
751878*x^2*(-10*x^2-x+3)^(1/2)+959060520*7^(1/2)*arctan(1/14*(37*
x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))-684230540*x*(-10*x^2-x+3)^(1/2
)+627606336*(-10*x^2-x+3)^(1/2))*(3+5*x)^(1/2)*(1-2*x)^(1/2)/(2+3
*x)^3/(-1+2*x)^2/(-10*x^2-x+3)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{5\,x+3}(3\,x+2)^4(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(5*x + 3)*(3*x + 2)^4*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^4*(-2*x + 1)^(5/2)), x)
```

Fricas [A] time = 0.224093, size = 167, normalized size = 1.01

$$\frac{\sqrt{7}\left(2\,\sqrt{7}(374883660\,x^4+140350860\,x^3-244982277\,x^2-48873610\,x+44829024)\,\sqrt{5\,x+3}\sqrt{-2\,x+1}+119882565\,(108\,x^5\right.}{97615056\,(108\,x^5+108\,x^4-45\,x^3-58\,x^2+4\,x+8)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(5*x + 3)*(3*x + 2)^4*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/97615056*sqrt(7)*(2*sqrt(7)*(374883660*x^4 + 140350860*x^3 - 24
4982277*x^2 - 48873610*x + 44829024)*sqrt(5*x + 3)*sqrt(-2*x + 1)
 + 119882565*(108*x^5 + 108*x^4 - 45*x^3 - 58*x^2 + 4*x + 8)*arct
an(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(108
*x^5 + 108*x^4 - 45*x^3 - 58*x^2 + 4*x + 8)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(5/2)/(2+3*x)**4/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.496346, size = 482, normalized size = 2.9

$$\frac{66051}{537824}\sqrt{70}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right) - \frac{32\left(932\sqrt{5}(5x+3)-5511\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{152523525\,(2x-1)^2} + \frac{297\left(15599\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^5 + 5723200\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3 + 607208000\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)\right)}{67228\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(5*x + 3)*(3*x + 2)^4*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 66051/537824*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqr
t(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)
/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 32/152523525*(932*sqrt(
5)*(5*x + 3) - 5511*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x -
 1)^2 + 297/67228*(15599*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqr
t(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) -
 sqrt(22)))^5 + 5723200*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt
(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) -
sqrt(22)))^3 + 607208000*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqr
t(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) -
 sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3)
 - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)
^3
```

3.2601 $\int \frac{(2+3x)^5}{(1-2x)^{5/2}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=142

$$\frac{7(3x+2)^4}{33(1-2x)^{3/2}\sqrt{5x+3}}-\frac{1561(3x+2)^3}{726\sqrt{1-2x}\sqrt{5x+3}}+\frac{7723\sqrt{1-2x}(3x+2)^2}{39930\sqrt{5x+3}}-\frac{\sqrt{1-2x}\sqrt{5x+3}(16227780x+39109961)}{2129600}+\frac{243189\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{1600\sqrt{10}}$$

```
[Out] (7723*Sqrt[1 - 2*x]*(2 + 3*x)^2)/(39930*Sqrt[3 + 5*x]) - (1561*(2
 + 3*x)^3)/(726*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) + (7*(2 + 3*x)^4)/(3
3*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x]) - (Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(
39109961 + 16227780*x))/2129600 + (243189*ArcSin[Sqrt[2/11]*Sqrt[
3 + 5*x]])/(1600*Sqrt[10])
```

Rubi [A] time = 0.272784, antiderivative size = 142, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$\frac{7(3x+2)^4}{33(1-2x)^{3/2}\sqrt{5x+3}}-\frac{1561(3x+2)^3}{726\sqrt{1-2x}\sqrt{5x+3}}+\frac{7723\sqrt{1-2x}(3x+2)^2}{39930\sqrt{5x+3}}-\frac{\sqrt{1-2x}\sqrt{5x+3}(16227780x+39109961)}{2129600}+\frac{243189\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{1600\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^5/((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (7723*Sqrt[1 - 2*x]*(2 + 3*x)^2)/(39930*Sqrt[3 + 5*x]) - (1561*(2
 + 3*x)^3)/(726*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) + (7*(2 + 3*x)^4)/(3
3*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x]) - (Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(
39109961 + 16227780*x))/2129600 + (243189*ArcSin[Sqrt[2/11]*Sqrt[
3 + 5*x]])/(1600*Sqrt[10])
```

Rubi in Sympy [A] time = 26.8836, size = 133, normalized size = 0.94

$$\frac{7723\sqrt{-2x+1}\,(3x+2)^2}{39930\sqrt{5x+3}}-\frac{\sqrt{-2x+1}\sqrt{5x+3}\left(\frac{60854175x}{4}+\frac{586649415}{16}\right)}{1996500}+\frac{243189\sqrt{10}\,\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{16000}-\frac{1561\,(3x+2)^3}{726\sqrt{-2x+1}\sqrt{5x+3}}+\frac{7\,(3x+2)^4}{33\,(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**5/(1-2*x)**(5/2)/(3+5*x)**(3/2),x)
```

```
[Out] 7723*sqrt(-2*x + 1)*(3*x + 2)**2/(39930*sqrt(5*x + 3)) - sqrt(-2*
x + 1)*sqrt(5*x + 3)*(60854175*x/4 + 586649415/16)/1996500 + 2431
89*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/16000 - 1561*(3*x + 2
)**3/(726*sqrt(-2*x + 1)*sqrt(5*x + 3)) + 7*(3*x + 2)**4/(33*(-2*
x + 1)**(3/2)*sqrt(5*x + 3))
```

Mathematica [A] time = 0.17696, size = 89, normalized size = 0.63

$$-\frac{10\sqrt{5x+3}\left(77623920x^4+536898780x^3-1790987404x^2-525679641x+435258129\right)-971053677\sqrt{10-20x}\left(10x^2+x-\right.}{63888000(1-2x)^{3/2}(5x+3)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^5/((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] -(10*Sqrt[3 + 5*x]*(435258129 - 525679641*x - 1790987404*x^2 + 53
6898780*x^3 + 77623920*x^4) - 971053677*Sqrt[10 - 20*x]*(-3 + x +
 10*x^2)*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/(63888000*(1 - 2*x)^(3
/2)*(3 + 5*x))
```

Maple [A] time = 0.021, size = 168, normalized size = 1.2

$$\frac{1}{127776000\,(-1+2\,x)^2}\sqrt{1-2\,x}\left(19421073540\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x^3-1552478400\,x^4\sqrt{-10\,x^2-x+3}-776842941\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^5/(1-2*x)^(5/2)/(3+5*x)^(3/2),x)
```

```
[Out] 1/127776000*(1-2*x)^(1/2)*(19421073540*10^(1/2)*arcsin(20/11*x+1/
11)*x^3-1552478400*x^4*(-10*x^2-x+3)^(1/2)-7768429416*10^(1/2)*ar
csin(20/11*x+1/11)*x^2-10737975600*x^3*(-10*x^2-x+3)^(1/2)-679737
5739*10^(1/2)*arcsin(20/11*x+1/11)*x+35819748080*x^2*(-10*x^2-x+3
)^(1/2)+2913161031*10^(1/2)*arcsin(20/11*x+1/11)+10513592820*x*(-
10*x^2-x+3)^(1/2)-8705162580*(-10*x^2-x+3)^(1/2))/(-1+2*x)^2/(-10
*x^2-x+3)^(1/2)/(3+5*x)^(1/2)
```

Maxima [A] time = 1.49811, size = 151, normalized size = 1.06

$$\frac{243\,x^3}{40\,\sqrt{-10\,x^2-x+3}}+\frac{243189}{32000}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}\,x+\frac{1}{11}\right)+\frac{7209\,x^2}{160\,\sqrt{-10\,x^2-x+3}}-\frac{751566017\,x}{6388800\,\sqrt{-10\,x^2-x+3}}-\frac{638622829}{6388800\,\sqrt{-10\,x^2-x+3}}-\frac{16807}{528\left(2\,\sqrt{-10\,x^2-x+3}x-\sqrt{-10\,x^2-x+3}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 243/40*x^3/sqrt(-10*x^2 - x + 3) + 243189/32000*sqrt(5)*sqrt(2)*a
rcsin(20/11*x + 1/11) + 7209/160*x^2/sqrt(-10*x^2 - x + 3) - 7515
66017/6388800*x/sqrt(-10*x^2 - x + 3) - 638622829/6388800/sqrt(-1
0*x^2 - x + 3) - 16807/528/(2*sqrt(-10*x^2 - x + 3)*x - sqrt(-10*
x^2 - x + 3))
```

Fricas [A] time = 0.227332, size = 140, normalized size = 0.99

$$-\frac{\sqrt{10}\left(2\,\sqrt{10}\left(77623920\,x^4+536898780\,x^3-1790987404\,x^2-525679641\,x+435258129\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-971053677\,\left(\right.\right.}{127776000\,(20\,x^3-8\,x^2-7\,x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] -1/127776000*sqrt(10)*(2*sqrt(10)*(77623920*x^4 + 536898780*x^3 -
 1790987404*x^2 - 525679641*x + 435258129)*sqrt(5*x + 3)*sqrt(-2*
x + 1) - 971053677*(20*x^3 - 8*x^2 - 7*x + 3)*arctan(1/20*sqrt(10
```

```
)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(20*x^3 - 8*x^2 - 7
*x + 3)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^5}{(-2x+1)^{\frac{5}{2}}(5x+3)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**5/(1-2*x)**(5/2)/(3+5*x)**(3/2),x)
```

```
[Out] Integral((3*x + 2)**5/((-2*x + 1)**(5/2)*(5*x + 3)**(3/2)), x)
```

GIAC/XCAS [A] time = 0.261919, size = 194, normalized size = 1.37

$$\frac{243189}{16000}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)-\frac{\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}{1663750\sqrt{5x+3}}$$
$$-\frac{\left(4\left(323433\left(12\sqrt{5}(5x+3)+271\sqrt{5}\right)(5x+3)-3237172310\sqrt{5}\right)(5x+3)+53407238379\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{3993000000(2x-1)^2}$$
$$+\frac{2\sqrt{10}\sqrt{5x+3}}{831875\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 243189/16000*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) - 1/166
3750*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3)
- 1/3993000000*(4*(323433*(12*sqrt(5)*(5*x + 3) + 271*sqrt(5))*(5
*x + 3) - 3237172310*sqrt(5))*(5*x + 3) + 53407238379*sqrt(5))*sq
rt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)^2 + 2/831875*sqrt(10)*sqrt(
5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))
```

3.2602 $\int \frac{(2+3x)^4}{(1-2x)^{5/2}(3+5x)^{3/2}} dx$

Optimal. Leaf size=113

$$\frac{7(3x+2)^3}{33(1-2x)^{3/2}\sqrt{5x+3}}-\frac{1099(3x+2)^2}{726\sqrt{1-2x}\sqrt{5x+3}}-\frac{\sqrt{1-2x}(8200665x+4898747)}{798600\sqrt{5x+3}}+\frac{4887\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{200\sqrt{10}}$$

```
[Out] (-1099*(2 + 3*x)^2)/(726*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) + (7*(2 + 3
*x)^3)/(33*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x]) - (Sqrt[1 - 2*x]*(48987
47 + 8200665*x))/(798600*Sqrt[3 + 5*x]) + (4887*ArcSin[Sqrt[2/11]
*Sqrt[3 + 5*x]])/(200*Sqrt[10])
```

Rubi [A] time = 0.201064, antiderivative size = 113, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$\frac{7(3x+2)^3}{33(1-2x)^{3/2}\sqrt{5x+3}}-\frac{1099(3x+2)^2}{726\sqrt{1-2x}\sqrt{5x+3}}-\frac{\sqrt{1-2x}(8200665x+4898747)}{798600\sqrt{5x+3}}+\frac{4887\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{200\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^4/((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-1099*(2 + 3*x)^2)/(726*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) + (7*(2 + 3
*x)^3)/(33*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x]) - (Sqrt[1 - 2*x]*(48987
47 + 8200665*x))/(798600*Sqrt[3 + 5*x]) + (4887*ArcSin[Sqrt[2/11]
*Sqrt[3 + 5*x]])/(200*Sqrt[10])
```

Rubi in Sympy [A] time = 18.7356, size = 105, normalized size = 0.93

$$-\frac{\sqrt{-2x+1}\left(\frac{8200665x}{8}+\frac{4898747}{8}\right)}{99825\sqrt{5x+3}}+\frac{4887\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{2000}-\frac{1099\,(3x+2)^2}{726\sqrt{-2x+1}\sqrt{5x+3}}+\frac{7\,(3x+2)^3}{33\,(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4/(1-2*x)**(5/2)/(3+5*x)**(3/2),x)
```

```
[Out] -sqrt(-2*x + 1)*(8200665*x/8 + 4898747/8)/(99825*sqrt(5*x + 3)) +
 4887*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/2000 - 1099*(3*x +
 2)**2/(726*sqrt(-2*x + 1)*sqrt(5*x + 3)) + 7*(3*x + 2)**3/(33*(-
2*x + 1)**(3/2)*sqrt(5*x + 3))
```

Mathematica [A] time = 0.149278, size = 84, normalized size = 0.74

$$-\frac{10\sqrt{5x+3}\left(6468660x^3-40488772x^2-12657123x+8379147\right)-19513791\sqrt{10-20x}\left(10x^2+x-3\right)\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right.}{7986000(1-2x)^{3/2}(5x+3)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^4/((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] -(10*Sqrt[3 + 5*x]*(8379147 - 12657123*x - 40488772*x^2 + 6468660
*x^3) - 19513791*Sqrt[10 - 20*x]*(-3 + x + 10*x^2)*ArcSin[Sqrt[5/
```

```
11]*Sqrt[1 - 2*x]])/(7986000*(1 - 2*x)^(3/2)*(3 + 5*x))
```

Maple [A] time = 0.021, size = 151, normalized size = 1.3

$$\frac{1}{15972000\,(-1+2\,x)^{2}}\sqrt{1-2\,x}\left(390275820\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x^{3}-156110328\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x^{2}-12937$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4/(1-2*x)^(5/2)/(3+5*x)^(3/2),x)
```

```
[Out] 1/15972000*(1-2*x)^(1/2)*(390275820*10^(1/2)*arcsin(20/11*x+1/11)
*x^3-156110328*10^(1/2)*arcsin(20/11*x+1/11)*x^2-129373200*x^3*(-
10*x^2-x+3)^(1/2)-136596537*10^(1/2)*arcsin(20/11*x+1/11)*x+80977
5440*x^2*(-10*x^2-x+3)^(1/2)+58541373*10^(1/2)*arcsin(20/11*x+1/1
1)+253142460*x*(-10*x^2-x+3)^(1/2)-167582940*(-10*x^2-x+3)^(1/2))
/(-1+2*x)^2/(-10*x^2-x+3)^(1/2)/(3+5*x)^(1/2)
```

Maxima [A] time = 1.49997, size = 128, normalized size = 1.13

$$\frac{4887}{4000}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)+\frac{81\,x^{2}}{20\,\sqrt{-10\,x^{2}-x+3}}-\frac{18627221\,x}{798600\,\sqrt{-10\,x^{2}-x+3}}-\frac{3910543}{199650\,\sqrt{-10\,x^{2}-x+3}}-\frac{2401}{264\left(2\,\sqrt{-10\,x^{2}-x+3}x-\sqrt{-10\,x^{2}-x+3}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 4887/4000*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) + 81/20*x^2/sqrt
(-10*x^2 - x + 3) - 18627221/798600*x/sqrt(-10*x^2 - x + 3) - 391
0543/199650/sqrt(-10*x^2 - x + 3) - 2401/264/(2*sqrt(-10*x^2 - x
+ 3)*x - sqrt(-10*x^2 - x + 3))
```

Fricas [A] time = 0.226737, size = 134, normalized size = 1.19

$$-\frac{\sqrt{10}\left(2\,\sqrt{10}\left(6468660\,x^{3}-40488772\,x^{2}-12657123\,x+8379147\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-19513791\left(20\,x^{3}-8\,x^{2}-7\,x+3\right)\text{a}}{15972000\left(20\,x^{3}-8\,x^{2}-7\,x+3\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] -1/15972000*sqrt(10)*(2*sqrt(10)*(6468660*x^3 - 40488772*x^2 - 12
657123*x + 8379147)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 19513791*(20*x
^3 - 8*x^2 - 7*x + 3)*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x +
 3)*sqrt(-2*x + 1))))/(20*x^3 - 8*x^2 - 7*x + 3)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(3x+2)^{4}}{(-2x+1)^{\frac{5}{2}}\,(5x+3)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4/(1-2*x)**(5/2)/(3+5*x)**(3/2),x)
```

```
[Out] Integral((3*x + 2)**4/((-2*x + 1)**(5/2)*(5*x + 3)**(3/2)), x)
```

GIAC/XCAS [A] time = 0.257955, size = 177, normalized size = 1.57

$$\frac{4887}{2000}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right)-\frac{\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}{332750\sqrt{5x+3}}-\frac{\left(4\left(323433\sqrt{5}(5x+3)-13033138\sqrt{5}\right)(5x+3)+214579893\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{99825000\,(2x-1)^2}+\frac{2\sqrt{10}\sqrt{5x+3}}{166375\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^4/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 4887/2000*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) - 1/332750
*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 1/
99825000*(4*(323433*sqrt(5)*(5*x + 3) - 13033138*sqrt(5))*(5*x +
3) + 214579893*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)^2
 + 2/166375*sqrt(10)*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqr
t(22))
```

3.2603 $\int \frac{(2+3x)^3}{(1-2x)^{5/2}(3+5x)^{3/2}} dx$

Optimal. Leaf size=84

$$\frac{7(3x+2)^2}{33(1-2x)^{3/2}\sqrt{5x+3}} - \frac{111311x+66967}{39930\sqrt{1-2x}\sqrt{5x+3}} + \frac{27\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{10\sqrt{10}}$$

```
[Out] (7*(2 + 3*x)^2)/(33*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x]) - (66967 + 111
311*x)/(39930*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) + (27*ArcSin[Sqrt[2/11
]*Sqrt[3 + 5*x]])/(10*Sqrt[10])
```

Rubi [A] time = 0.125762, antiderivative size = 84, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.154$

$$\frac{7(3x+2)^2}{33(1-2x)^{3/2}\sqrt{5x+3}} - \frac{111311x+66967}{39930\sqrt{1-2x}\sqrt{5x+3}} + \frac{27\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{10\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^3/((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (7*(2 + 3*x)^2)/(33*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x]) - (66967 + 111
311*x)/(39930*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) + (27*ArcSin[Sqrt[2/11
]*Sqrt[3 + 5*x]])/(10*Sqrt[10])
```

Rubi in Sympy [A] time = 12.3079, size = 78, normalized size = 0.93

$$\frac{27\sqrt{10}\operatorname{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{100} - \frac{2\left(\frac{111311x}{4} + \frac{66967}{4}\right)}{19965\sqrt{-2x+1}\sqrt{5x+3}} + \frac{7(3x+2)^2}{33(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3/(1-2*x)**(5/2)/(3+5*x)**(3/2),x)
```

```
[Out] 27*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/100 - 2*(111311*x/4 +
 66967/4)/(19965*sqrt(-2*x + 1)*sqrt(5*x + 3)) + 7*(3*x + 2)**2/(
33*(-2*x + 1)**(3/2)*sqrt(5*x + 3))
```

Mathematica [A] time = 0.13362, size = 79, normalized size = 0.94

$$-\frac{-10\sqrt{5x+3}\left(298852x^2+124263x-33087\right) - 107811\sqrt{10-20x}\left(10x^2+x-3\right)\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{399300(1-2x)^{3/2}(5x+3)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^3/((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] -(-10*Sqrt[3 + 5*x]*(-33087 + 124263*x + 298852*x^2) - 107811*Sqr
t[10 - 20*x]*(-3 + x + 10*x^2)*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/
(399300*(1 - 2*x)^(3/2)*(3 + 5*x))
```

Maple [B] time = 0.022, size = 134, normalized size = 1.6

$$\frac{1}{798600\left(-1+2x\right)^{2}}\sqrt{1-2x}\left(2156220\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)x^{3}-862488\sqrt{10}\arcsin\left(\frac{20x}{11}+1/11\right)x^{2}-754677\sqrt{10}\mathrm{ar}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3/(1-2*x)^(5/2)/(3+5*x)^(3/2),x)
```

```
[Out] 1/798600*(1-2*x)^(1/2)*(2156220*10^(1/2)*arcsin(20/11*x+1/11)*x^3
-862488*10^(1/2)*arcsin(20/11*x+1/11)*x^2-754677*10^(1/2)*arcsin(
20/11*x+1/11)*x+5977040*x^2*(-10*x^2-x+3)^(1/2)+323433*10^(1/2)*a
rcsin(20/11*x+1/11)+2485260*x*(-10*x^2-x+3)^(1/2)-661740*(-10*x^2
-x+3)^(1/2))/(-1+2*x)^2/(-10*x^2-x+3)^(1/2)/(3+5*x)^(1/2)
```

Maxima [A] time = 1.49172, size = 105, normalized size = 1.25

$$\frac{27}{200}\sqrt{5}\sqrt{2}\arcsin\left(\frac{20}{11}x+\frac{1}{11}\right)-\frac{74713\,x}{19965\sqrt{-10\,x^{2}-x+3}}-\frac{273689}{79860\sqrt{-10\,x^{2}-x+3}}-\frac{343}{132\left(2\sqrt{-10\,x^{2}-x+3}x-\sqrt{-10\,x^{2}-x+3}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 27/200*sqrt(5)*sqrt(2)*arcsin(20/11*x + 1/11) - 74713/19965*x/sqr
t(-10*x^2 - x + 3) - 273689/79860/sqrt(-10*x^2 - x + 3) - 343/132
/(2*sqrt(-10*x^2 - x + 3)*x - sqrt(-10*x^2 - x + 3))
```

Fricas [A] time = 0.223332, size = 127, normalized size = 1.51

$$\frac{\sqrt{10}\left(2\sqrt{10}\left(298852\,x^{2}+124263\,x-33087\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+107811\left(20\,x^{3}-8\,x^{2}-7\,x+3\right)\arctan\left(\frac{\sqrt{10}(20\,x+1)}{20\sqrt{5\,x+3}\sqrt{-2\,x+1}}\right)\right)}{798600\left(20\,x^{3}-8\,x^{2}-7\,x+3\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/798600*sqrt(10)*(2*sqrt(10)*(298852*x^2 + 124263*x - 33087)*sqr
t(5*x + 3)*sqrt(-2*x + 1) + 107811*(20*x^3 - 8*x^2 - 7*x + 3)*arc
tan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(20
*x^3 - 8*x^2 - 7*x + 3)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(3x+2)^{3}}{(-2x+1)^{\frac{5}{2}}(5x+3)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3/(1-2*x)**(5/2)/(3+5*x)**(3/2),x)
```

```
[Out] Integral((3*x + 2)**3/((-2*x + 1)**(5/2)*(5*x + 3)**(3/2)), x)
```

GIAC/XCAS [A] time = 0.25484, size = 159, normalized size = 1.89

$$\frac{27}{100}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5x+3}\right) - \frac{\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}{66550\sqrt{5x+3}} + \frac{49\left(244\sqrt{5}(5x+3)-957\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{199650(2x-1)^2} + \frac{2\sqrt{10}\sqrt{5x+3}}{33275\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^3/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] 27/100*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3)) - 1/66550*sqr
t(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) + 49/199
650*(244*sqrt(5)*(5*x + 3) - 957*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*
x + 5)/(2*x - 1)^2 + 2/33275*sqrt(10)*sqrt(5*x + 3)/(sqrt(2)*sqrt
(-10*x + 5) - sqrt(22))
```

3.2604 $\int \frac{(2+3x)^2}{(1-2x)^{5/2}(3+5x)^{3/2}} \, dx$

Optimal. Leaf size=67

$$-\frac{793\sqrt{5x+3}}{19965\sqrt{1-2x}}-\frac{1237}{3630\sqrt{1-2x}\sqrt{5x+3}}+\frac{49}{66(1-2x)^{3/2}\sqrt{5x+3}}$$

```
[Out] 49/(66*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x]) - 1237/(3630*Sqrt[1 - 2*x]*
Sqrt[3 + 5*x]) - (793*Sqrt[3 + 5*x])/(19965*Sqrt[1 - 2*x])
```

Rubi [A] time = 0.0910496, antiderivative size = 67, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.115$

$$-\frac{793\sqrt{5x+3}}{19965\sqrt{1-2x}}-\frac{1237}{3630\sqrt{1-2x}\sqrt{5x+3}}+\frac{49}{66(1-2x)^{3/2}\sqrt{5x+3}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^2/((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] 49/(66*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x]) - 1237/(3630*Sqrt[1 - 2*x]*
Sqrt[3 + 5*x]) - (793*Sqrt[3 + 5*x])/(19965*Sqrt[1 - 2*x])
```

Rubi in Sympy [A] time = 8.08141, size = 60, normalized size = 0.9

$$-\frac{793\sqrt{5x+3}}{19965\sqrt{-2x+1}}+\frac{1237\sqrt{5x+3}}{9075\left(-2x+1\right)^{\frac{3}{2}}}-\frac{2}{275\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2/(1-2*x)**(5/2)/(3+5*x)**(3/2),x)
```

```
[Out] -793*sqrt(5*x + 3)/(19965*sqrt(-2*x + 1)) + 1237*sqrt(5*x + 3)/(9
075*(-2*x + 1)**(3/2)) - 2/(275*(-2*x + 1)**(3/2)*sqrt(5*x + 3))
```

Mathematica [A] time = 0.0515915, size = 32, normalized size = 0.48

$$\frac{2\left(793x^2+1440x+564\right)}{3993(1-2x)^{3/2}\sqrt{5x+3}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^2/((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (2*(564 + 1440*x + 793*x^2))/(3993*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])
```

Maple [A] time = 0.006, size = 27, normalized size = 0.4

$$\frac{1586\,x^2+2880\,x+1128}{3993}(1-2\,x)^{-\frac{3}{2}}\frac{1}{\sqrt{3+5\,x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2/(1-2*x)^(5/2)/(3+5*x)^(3/2),x)
```

```
[Out] 2/3993*(793*x^2+1440*x+564)/(3+5*x)^(1/2)/(1-2*x)^(3/2)
```

Maxima [A] time = 1.32976, size = 86, normalized size = 1.28

$$-\frac{793\,x}{3993\,\sqrt{-10\,x^2-x+3}}-\frac{3673}{7986\,\sqrt{-10\,x^2-x+3}}-\frac{49}{66\,\left(2\,\sqrt{-10\,x^2-x+3}x-\sqrt{-10\,x^2-x+3}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] -793/3993*x/sqrt(-10*x^2 - x + 3) - 3673/7986/sqrt(-10*x^2 - x +
3) - 49/66/(2*sqrt(-10*x^2 - x + 3)*x - sqrt(-10*x^2 - x + 3))
```

Fricas [A] time = 0.21601, size = 58, normalized size = 0.87

$$\frac{2\,\left(793\,x^2+1440\,x+564\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}}{3993\,\left(20\,x^3-8\,x^2-7\,x+3\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 2/3993*(793*x^2 + 1440*x + 564)*sqrt(5*x + 3)*sqrt(-2*x + 1)/(20*
x^3 - 8*x^2 - 7*x + 3)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^2}{(-2x+1)^{\frac{5}{2}}\,(5x+3)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2/(1-2*x)**(5/2)/(3+5*x)**(3/2),x)
```

```
[Out] Integral((3*x + 2)**2/((-2*x + 1)**(5/2)*(5*x + 3)**(3/2)), x)
```

GIAC/XCAS [A] time = 0.270602, size = 135, normalized size = 2.01

$$-\frac{\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}{13310\,\sqrt{5\,x+3}}+\frac{14\,\left(23\,\sqrt{5}(5\,x+3)+66\,\sqrt{5}\right)\sqrt{5\,x+3}\sqrt{-10\,x+5}}{99825\,(2\,x-1)^2}+\frac{2\,\sqrt{10}\sqrt{5\,x+3}}{6655\,\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^2/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] -1/13310*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x +
 3) + 14/99825*(23*sqrt(5)*(5*x + 3) + 66*sqrt(5))*sqrt(5*x + 3)*
```

```
sqrt(-10*x + 5)/(2*x - 1)^2 + 2/6655*sqrt(10)*sqrt(5*x + 3)/(sqrt
(2)*sqrt(-10*x + 5) - sqrt(22))
```

3.2605 $\int \frac{2+3x}{(1-2x)^{5/2}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=67

$$\frac{164\sqrt{5x+3}}{3993\sqrt{1-2x}}+\frac{82\sqrt{5x+3}}{1815(1-2x)^{3/2}}-\frac{2}{55(1-2x)^{3/2}\sqrt{5x+3}}$$

```
[Out] -2/(55*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x]) + (82*Sqrt[3 + 5*x])/(1815*
(1 - 2*x)^(3/2)) + (164*Sqrt[3 + 5*x])/(3993*Sqrt[1 - 2*x])
```

Rubi [A] time = 0.0675651, antiderivative size = 67, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$\frac{164\sqrt{5x+3}}{3993\sqrt{1-2x}}+\frac{82\sqrt{5x+3}}{1815(1-2x)^{3/2}}-\frac{2}{55(1-2x)^{3/2}\sqrt{5x+3}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)/((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] -2/(55*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x]) + (82*Sqrt[3 + 5*x])/(1815*
(1 - 2*x)^(3/2)) + (164*Sqrt[3 + 5*x])/(3993*Sqrt[1 - 2*x])
```

Rubi in Sympy [A] time = 6.70042, size = 60, normalized size = 0.9

$$\frac{164\sqrt{5x+3}}{3993\sqrt{-2x+1}}+\frac{82\sqrt{5x+3}}{1815\,(-2x+1)^{\frac{3}{2}}}-\frac{2}{55\,(-2x+1)^{\frac{3}{2}}\,\sqrt{5x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)/(1-2*x)**(5/2)/(3+5*x)**(3/2),x)
```

```
[Out] 164*sqrt(5*x + 3)/(3993*sqrt(-2*x + 1)) + 82*sqrt(5*x + 3)/(1815*
(-2*x + 1)**(3/2)) - 2/(55*(-2*x + 1)**(3/2)*sqrt(5*x + 3))
```

Mathematica [A] time = 0.0464369, size = 32, normalized size = 0.48

$$\frac{-1640x^2+738x+888}{3993(1-2x)^{3/2}\sqrt{5x+3}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)/((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (888 + 738*x - 1640*x^2)/(3993*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])
```

Maple [A] time = 0.004, size = 27, normalized size = 0.4

$$-\frac{1640\,x^2-738\,x-888}{3993}(1-2\,x)^{-\frac{3}{2}}\frac{1}{\sqrt{3+5\,x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)/(1-2*x)^(5/2)/(3+5*x)^(3/2),x)
```

```
[Out] -2/3993*(820*x^2-369*x-444)/(3+5*x)^(1/2)/(1-2*x)^(3/2)
```

Maxima [A] time = 1.359, size = 86, normalized size = 1.28

$$\frac{820\,x}{3993\,\sqrt{-10\,x^2-x+3}}+\frac{41}{3993\,\sqrt{-10\,x^2-x+3}}-\frac{7}{33\left(2\,\sqrt{-10\,x^2-x+3}x-\sqrt{-10\,x^2-x+3}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 820/3993*x/sqrt(-10*x^2 - x + 3) + 41/3993/sqrt(-10*x^2 - x + 3)
- 7/33/(2*sqrt(-10*x^2 - x + 3)*x - sqrt(-10*x^2 - x + 3))
```

Fricas [A] time = 0.21695, size = 58, normalized size = 0.87

$$-\frac{2\left(820\,x^2-369\,x-444\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}}{3993\left(20\,x^3-8\,x^2-7\,x+3\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] -2/3993*(820*x^2 - 369*x - 444)*sqrt(5*x + 3)*sqrt(-2*x + 1)/(20*
x^3 - 8*x^2 - 7*x + 3)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{3x+2}{(-2x+1)^{\frac{5}{2}}\,(5x+3)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)/(1-2*x)**(5/2)/(3+5*x)**(3/2),x)
```

```
[Out] Integral((3*x + 2)/((-2*x + 1)**(5/2)*(5*x + 3)**(3/2)), x)
```

GIAC/XCAS [A] time = 0.25364, size = 135, normalized size = 2.01

$$-\frac{\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}{2662\,\sqrt{5\,x+3}}-\frac{2\left(152\,\sqrt{5}(5\,x+3)-1221\,\sqrt{5}\right)\sqrt{5\,x+3}\sqrt{-10\,x+5}}{99825\,(2\,x-1)^2}+\frac{2\,\sqrt{10}\sqrt{5\,x+3}}{1331\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] -1/2662*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x +
3) - 2/99825*(152*sqrt(5)*(5*x + 3) - 1221*sqrt(5))*sqrt(5*x + 3)
```

```
*sqrt(-10*x + 5)/(2*x - 1)^2 + 2/1331*sqrt(10)*sqrt(5*x + 3)/(sqr
t(2)*sqrt(-10*x + 5) - sqrt(22))
```

3.2606 $\int \frac{1}{(1-2x)^{5/2}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=67

$$-\frac{400\sqrt{1-2x}}{3993\sqrt{5x+3}}+\frac{40}{363\sqrt{5x+3}\sqrt{1-2x}}+\frac{2}{33\sqrt{5x+3}(1-2x)^{3/2}}$$

```
[Out] 2/(33*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x]) + 40/(363*Sqrt[1 - 2*x]*Sqrt
[3 + 5*x]) - (400*Sqrt[1 - 2*x])/(3993*Sqrt[3 + 5*x])
```

Rubi [A] time = 0.052833, antiderivative size = 67, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 2, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.105

$$-\frac{400\sqrt{1-2x}}{3993\sqrt{5x+3}}+\frac{40}{363\sqrt{5x+3}\sqrt{1-2x}}+\frac{2}{33\sqrt{5x+3}(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] 2/(33*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x]) + 40/(363*Sqrt[1 - 2*x]*Sqrt
[3 + 5*x]) - (400*Sqrt[1 - 2*x])/(3993*Sqrt[3 + 5*x])
```

Rubi in Sympy [A] time = 5.77613, size = 60, normalized size = 0.9

$$-\frac{400\sqrt{-2x+1}}{3993\sqrt{5x+3}}+\frac{40}{363\sqrt{-2x+1}\sqrt{5x+3}}+\frac{2}{33\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(5/2)/(3+5*x)**(3/2),x)
```

```
[Out] -400*sqrt(-2*x + 1)/(3993*sqrt(5*x + 3)) + 40/(363*sqrt(-2*x + 1)
*sqrt(5*x + 3)) + 2/(33*(-2*x + 1)**(3/2)*sqrt(5*x + 3))
```

Mathematica [A] time = 0.0332568, size = 32, normalized size = 0.48

$$\frac{-1600x^2+720x+282}{3993(1-2x)^{3/2}\sqrt{5x+3}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (282 + 720*x - 1600*x^2)/(3993*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])
```

Maple [A] time = 0.005, size = 27, normalized size = 0.4

$$-\frac{1600\,x^2-720\,x-282}{3993}\left(1-2\,x\right)^{-\frac{3}{2}}\frac{1}{\sqrt{3+5\,x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(5/2)/(3+5*x)^(3/2),x)
```

```
[Out] -2/3993*(800*x^2-360*x-141)/(3+5*x)^(1/2)/(1-2*x)^(3/2)
```

Maxima [A] time = 1.34233, size = 86, normalized size = 1.28

$$\frac{800\,x}{3993\,\sqrt{-10\,x^2-x+3}}+\frac{40}{3993\,\sqrt{-10\,x^2-x+3}}-\frac{2}{33\,\left(2\,\sqrt{-10\,x^2-x+3}x-\sqrt{-10\,x^2-x+3}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 800/3993*x/sqrt(-10*x^2 - x + 3) + 40/3993/sqrt(-10*x^2 - x + 3)
- 2/33/(2*sqrt(-10*x^2 - x + 3)*x - sqrt(-10*x^2 - x + 3))
```

Fricas [A] time = 0.219621, size = 58, normalized size = 0.87

$$-\frac{2\,\left(800\,x^2-360\,x-141\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}}{3993\,\left(20\,x^3-8\,x^2-7\,x+3\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] -2/3993*(800*x^2 - 360*x - 141)*sqrt(5*x + 3)*sqrt(-2*x + 1)/(20*
x^3 - 8*x^2 - 7*x + 3)
```

Sympy [A] time = 39.9921, size = 231, normalized size = 3.45

$$\begin{cases} -\frac{8000\sqrt{10}\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)^2}{-878460x+399300\left(x+\frac{3}{5}\right)^2-43923}+\frac{13200\sqrt{10}\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)}{-878460x+399300\left(x+\frac{3}{5}\right)^2-43923}-\frac{3630\sqrt{10}\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}}{-878460x+399300\left(x+\frac{3}{5}\right)^2-43923} & \text{for}\ \frac{11\left|\frac{1}{x+\frac{3}{5}}\right|}{10}>1 \\ -\frac{8000\sqrt{10}i\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)^2}{-878460x+399300\left(x+\frac{3}{5}\right)^2-43923}+\frac{13200\sqrt{10}i\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)}{-878460x+399300\left(x+\frac{3}{5}\right)^2-43923}-\frac{3630\sqrt{10}i\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}}{-878460x+399300\left(x+\frac{3}{5}\right)^2-43923} & \text{otherwise} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(5/2)/(3+5*x)**(3/2),x)
```

```
[Out] Piecewise((-8000*sqrt(10)*sqrt(-1 + 11/(10*(x + 3/5)))*(x + 3/5)*
*2/(-878460*x + 399300*(x + 3/5)**2 - 43923) + 13200*sqrt(10)*sqr
t(-1 + 11/(10*(x + 3/5)))*(x + 3/5)/(-878460*x + 399300*(x + 3/5)
**2 - 43923) - 3630*sqrt(10)*sqrt(-1 + 11/(10*(x + 3/5)))/(-87846
0*x + 399300*(x + 3/5)**2 - 43923), 11*Abs(1/(x + 3/5))/10 > 1),
(-8000*sqrt(10)*I*sqrt(1 - 11/(10*(x + 3/5)))*(x + 3/5)**2/(-8784
60*x + 399300*(x + 3/5)**2 - 43923) + 13200*sqrt(10)*I*sqrt(1 - 1
1/(10*(x + 3/5)))*(x + 3/5)/(-878460*x + 399300*(x + 3/5)**2 - 43
923) - 3630*sqrt(10)*I*sqrt(1 - 11/(10*(x + 3/5)))/(-878460*x + 3
99300*(x + 3/5)**2 - 43923), True))
```

GIAC/XCAS [A] time = 0.232218, size = 135, normalized size = 2.01

$$-\frac{5\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}{2662\sqrt{5x+3}}-\frac{8\left(5\sqrt{5}(5x+3)-33\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{19965(2x-1)^2}+\frac{10\sqrt{10}\sqrt{5x+3}}{1331\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] -5/2662*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x +
3) - 8/19965*(5*sqrt(5)*(5*x + 3) - 33*sqrt(5))*sqrt(5*x + 3)*sqr
t(-10*x + 5)/(2*x - 1)^2 + 10/1331*sqrt(10)*sqrt(5*x + 3)/(sqrt(2
)*sqrt(-10*x + 5) - sqrt(22))
```

3.2607 $\int \frac{1}{(1-2x)^{5/2}(2+3x)(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=101

$$-\frac{42230\sqrt{1-2x}}{195657\sqrt{5x+3}}+\frac{956}{17787\sqrt{1-2x}\sqrt{5x+3}}+\frac{4}{231(1-2x)^{3/2}\sqrt{5x+3}}+\frac{54\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{49\sqrt{7}}$$

```
[Out] 4/(231*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x]) + 956/(17787*Sqrt[1 - 2*x]*
Sqrt[3 + 5*x]) - (42230*Sqrt[1 - 2*x])/(195657*Sqrt[3 + 5*x]) + (
54*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(49*Sqrt[7])
```

Rubi [A] time = 0.242879, antiderivative size = 101, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$-\frac{42230\sqrt{1-2x}}{195657\sqrt{5x+3}}+\frac{956}{17787\sqrt{1-2x}\sqrt{5x+3}}+\frac{4}{231(1-2x)^{3/2}\sqrt{5x+3}}+\frac{54\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{49\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(5/2)*(2 + 3*x)*(3 + 5*x)^(3/2)),x]
```

```
[Out] 4/(231*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x]) + 956/(17787*Sqrt[1 - 2*x]*
Sqrt[3 + 5*x]) - (42230*Sqrt[1 - 2*x])/(195657*Sqrt[3 + 5*x]) + (
54*ArcTan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(49*Sqrt[7])
```

Rubi in Sympy [A] time = 21.6534, size = 94, normalized size = 0.93

$$\frac{54\sqrt{7}\operatorname{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{343}+\frac{16892\sqrt{5x+3}}{195657\sqrt{-2x+1}}-\frac{1070}{2541\sqrt{-2x+1}\sqrt{5x+3}}+\frac{4}{231\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(5/2)/(2+3*x)/(3+5*x)**(3/2),x)
```

```
[Out] 54*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/343 + 1
6892*sqrt(5*x + 3)/(195657*sqrt(-2*x + 1)) - 1070/(2541*sqrt(-2*x
 + 1)*sqrt(5*x + 3)) + 4/(231*(-2*x + 1)**(3/2)*sqrt(5*x + 3))
```

Mathematica [A] time = 0.158569, size = 70, normalized size = 0.69

$$\frac{27\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{49\sqrt{7}}-\frac{2\left(84460x^2-73944x+14163\right)}{195657(1-2x)^{3/2}\sqrt{5x+3}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(5/2)*(2 + 3*x)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-2*(14163 - 73944*x + 84460*x^2))/(195657*(1 - 2*x)^(3/2)*Sqrt[3
 + 5*x]) + (27*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x
])])/(49*Sqrt[7])
```

Maple [B] time = 0.023, size = 202, normalized size = 2.

$$-\frac{1}{1369599\left(-1+2x\right)^{2}}\sqrt{1-2x}\left(2156220\sqrt{7}\arctan\left(1/14\frac{\left(37x+20\right)\sqrt{7}}{\sqrt{-10x^{2}-x+3}}\right)x^{3}-862488\sqrt{7}\arctan\left(1/14\frac{\left(37x+20\right)\sqrt{7}}{\sqrt{-10x^{2}-x+3}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(5/2)/(2+3*x)/(3+5*x)^(3/2),x)
```

```
[Out] -1/1369599*(1-2*x)^(1/2)*(2156220*7^(1/2)*arctan(1/14*(37*x+20)*7
^(1/2)/(-10*x^2-x+3)^(1/2))*x^3-862488*7^(1/2)*arctan(1/14*(37*x+
20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2-754677*7^(1/2)*arctan(1/14*(
37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x+1182440*x^2*(-10*x^2-x+3)
^(1/2)+323433*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)
^(1/2))-1035216*x*(-10*x^2-x+3)^(1/2)+198282*(-10*x^2-x+3)^(1/2))
/(-1+2*x)^2/(-10*x^2-x+3)^(1/2)/(3+5*x)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{1}{\left(5x+3\right)^{\frac{3}{2}}\left(3x+2\right)\left(-2x+1\right)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(3/2)*(3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)*(-2*x + 1)^(5/2)), x)
```

Fricas [A] time = 0.227456, size = 127, normalized size = 1.26

$$-\frac{\sqrt{7}\left(2\sqrt{7}\left(84460x^{2}-73944x+14163\right)\sqrt{5x+3}\sqrt{-2x+1}+107811\left(20x^{3}-8x^{2}-7x+3\right)\arctan\left(\frac{\sqrt{7}(37x+20)}{14\sqrt{5x+3}\sqrt{-2x+1}}\right)\right)}{1369599\left(20x^{3}-8x^{2}-7x+3\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(3/2)*(3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] -1/1369599*sqrt(7)*(2*sqrt(7)*(84460*x^2 - 73944*x + 14163)*sqrt(
5*x + 3)*sqrt(-2*x + 1) + 107811*(20*x^3 - 8*x^2 - 7*x + 3)*arcta
n(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(20*x
^3 - 8*x^2 - 7*x + 3)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{1}{\left(-2x+1\right)^{\frac{5}{2}}\left(3x+2\right)\left(5x+3\right)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(5/2)/(2+3*x)/(3+5*x)**(3/2),x)
```

```
[Out] Integral(1/((-2*x + 1)**(5/2)*(3*x + 2)*(5*x + 3)**(3/2)), x)
```

GIAC/XCAS [A] time = 0.266328, size = 232, normalized size = 2.3

$$-\frac{27}{3430}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{25}{2662}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)-\frac{8\left(548\sqrt{5}(5x+3)-3399\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{4891425\,(2x-1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] -27/3430*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5*
x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(sq
rt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 25/2662*sqrt(10)*((sqrt(2)*
sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt
(2)*sqrt(-10*x + 5) - sqrt(22))) - 8/4891425*(548*sqrt(5)*(5*x +
3) - 3399*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)^2
```

3.2608 $\int \frac{1}{(1-2x)^{5/2}(2+3x)^2(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=130

$$-\frac{1840225\sqrt{1-2x}}{1369599\sqrt{5x+3}}-\frac{3830}{124509\sqrt{1-2x}\sqrt{5x+3}}+\frac{3}{7(1-2x)^{3/2}(3x+2)\sqrt{5x+3}}-\frac{190}{1617(1-2x)^{3/2}\sqrt{5x+3}}+\frac{3105\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{343\sqrt{7}}$$

```
[Out] -190/(1617*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x]) - 3830/(124509*Sqrt[1 -
 2*x]*Sqrt[3 + 5*x]) - (1840225*Sqrt[1 - 2*x])/(1369599*Sqrt[3 +
5*x]) + 3/(7*(1 - 2*x)^(3/2)*(2 + 3*x)*Sqrt[3 + 5*x]) + (3105*Arc
Tan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(343*Sqrt[7])
```

Rubi [A] time = 0.333581, antiderivative size = 130, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$-\frac{1840225\sqrt{1-2x}}{1369599\sqrt{5x+3}}-\frac{3830}{124509\sqrt{1-2x}\sqrt{5x+3}}+\frac{3}{7(1-2x)^{3/2}(3x+2)\sqrt{5x+3}}-\frac{190}{1617(1-2x)^{3/2}\sqrt{5x+3}}+\frac{3105\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{343\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(5/2)*(2 + 3*x)^2*(3 + 5*x)^(3/2)),x]
```

```
[Out] -190/(1617*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x]) - 3830/(124509*Sqrt[1 -
 2*x]*Sqrt[3 + 5*x]) - (1840225*Sqrt[1 - 2*x])/(1369599*Sqrt[3 +
5*x]) + 3/(7*(1 - 2*x)^(3/2)*(2 + 3*x)*Sqrt[3 + 5*x]) + (3105*Arc
Tan[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(343*Sqrt[7])
```

Rubi in Sympy [A] time = 28.3811, size = 119, normalized size = 0.92

$$-\frac{1840225\sqrt{-2x+1}}{1369599\sqrt{5x+3}}+\frac{3105\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{2401}-\frac{3830}{124509\sqrt{-2x+1}\sqrt{5x+3}}-\frac{190}{1617\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}+\frac{3}{7\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)\sqrt{5x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(5/2)/(2+3*x)**2/(3+5*x)**(3/2),x)
```

```
[Out] -1840225*sqrt(-2*x + 1)/(1369599*sqrt(5*x + 3)) + 3105*sqrt(7)*at
an(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/2401 - 3830/(124509*
sqrt(-2*x + 1)*sqrt(5*x + 3)) - 190/(1617*(-2*x + 1)**(3/2)*sqrt(
5*x + 3)) + 3/(7*(-2*x + 1)**(3/2)*(3*x + 2)*sqrt(5*x + 3))
```

Mathematica [A] time = 0.110323, size = 82, normalized size = 0.63

$$\frac{-22082700x^3+7613680x^2+8760465x-3499599}{1369599(1-2x)^{3/2}(3x+2)\sqrt{5x+3}}+\frac{3105\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{686\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(5/2)*(2 + 3*x)^2*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-3499599 + 8760465*x + 7613680*x^2 - 22082700*x^3)/(1369599*(1 -
 2*x)^(3/2)*(2 + 3*x)*Sqrt[3 + 5*x]) + (3105*ArcTan[(-20 - 37*x)/
(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/(686*Sqrt[7])
```

Maple [B] time = 0.025, size = 257, normalized size = 2.

$$-\frac{1}{(38348772+57523158x)(-1+2x)^2}\sqrt{1-2x}\left(743895900\sqrt{7}\arctan\left(1/14\frac{(37x+20)\sqrt{7}}{\sqrt{-10x^2-x+3}}\right)x^4+198372240\sqrt{7}\arctan\left(\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(5/2)/(2+3*x)^2/(3+5*x)^(3/2),x)
```

```
[Out] -1/19174386*(1-2*x)^(1/2)*(743895900*7^(1/2)*arctan(1/14*(37*x+20
)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^4+198372240*7^(1/2)*arctan(1/14*
(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3-458735805*7^(1/2)*arct
an(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+309157800*x^3*
(-10*x^2-x+3)^(1/2)-61991325*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2
)/(-10*x^2-x+3)^(1/2))*x-106591520*x^2*(-10*x^2-x+3)^(1/2)+743895
90*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))-122
646510*x*(-10*x^2-x+3)^(1/2)+48994386*(-10*x^2-x+3)^(1/2))/(2+3*x
)/(-1+2*x)^2/(-10*x^2-x+3)^(1/2)/(3+5*x)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{1}{(5x+3)^{\frac{3}{2}}(3x+2)^2(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^2*(-2*x + 1)^(5/2)),x, algorithm="maxima"
```

```
[Out] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^2*(-2*x + 1)^(5/2)), x)
```

Fricas [A] time = 0.229766, size = 147, normalized size = 1.13

$$-\frac{\sqrt{7}\left(2\sqrt{7}\left(22082700x^3-7613680x^2-8760465x+3499599\right)\sqrt{5x+3}\sqrt{-2x+1}+12398265\left(60x^4+16x^3-37x^2-5x+\right.\right.}{19174386\left(60x^4+16x^3-37x^2-5x+6\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^2*(-2*x + 1)^(5/2)),x, algorithm="fricas"
```

```
[Out] -1/19174386*sqrt(7)*(2*sqrt(7)*(22082700*x^3 - 7613680*x^2 - 8760
465*x + 3499599)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 12398265*(60*x^4
+ 16*x^3 - 37*x^2 - 5*x + 6)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqr
t(5*x + 3)*sqrt(-2*x + 1))))/(60*x^4 + 16*x^3 - 37*x^2 - 5*x + 6)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(5/2)/(2+3*x)**2/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.337768, size = 393, normalized size = 3.02

$$-\frac{621}{9604}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right)-\frac{125}{2662}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)-\frac{1782\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)}{343\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)}-\frac{32\left(373\sqrt{5}(5x+3)-2244\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{34239975\,(2x-1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^2*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] -621/9604*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5
*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(s
qrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 125/2662*sqrt(10)*((sqrt(2
)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sq
rt(2)*sqrt(-10*x + 5) - sqrt(22))) - 1782/343*sqrt(10)*((sqrt(2)*
sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt
(2)*sqrt(-10*x + 5) - sqrt(22)))/(((sqrt(2)*sqrt(-10*x + 5) - sqr
t(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) -
 sqrt(22)))^2 + 280) - 32/34239975*(373*sqrt(5)*(5*x + 3) - 2244*
sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)^2
```

3.2609 $\int \frac{1}{(1-2x)^{5/2}(2+3x)^3(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=159

$$-\frac{46307675\sqrt{1-2x}}{5478396\sqrt{5x+3}}-\frac{89945}{249018\sqrt{1-2x}\sqrt{5x+3}}+\frac{81}{28(1-2x)^{3/2}(3x+2)\sqrt{5x+3}}-\frac{2725}{3234(1-2x)^{3/2}\sqrt{5x+3}}+\frac{3}{14(1-2x)^{3/2}(3x+2)^2\sqrt{5x+3}}+\frac{79515\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{1372\sqrt{7}}$$

```
[Out] -2725/(3234*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x]) - 89945/(249018*Sqrt[1
 - 2*x]*Sqrt[3 + 5*x]) - (46307675*Sqrt[1 - 2*x])/(5478396*Sqrt[3
 + 5*x]) + 3/(14*(1 - 2*x)^(3/2)*(2 + 3*x)^2*Sqrt[3 + 5*x]) + 81/
(28*(1 - 2*x)^(3/2)*(2 + 3*x)*Sqrt[3 + 5*x]) + (79515*ArcTan[Sqrt
[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(1372*Sqrt[7])
```

Rubi [A] time = 0.415338, antiderivative size = 159, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$-\frac{46307675\sqrt{1-2x}}{5478396\sqrt{5x+3}}-\frac{89945}{249018\sqrt{1-2x}\sqrt{5x+3}}+\frac{81}{28(1-2x)^{3/2}(3x+2)\sqrt{5x+3}}-\frac{2725}{3234(1-2x)^{3/2}\sqrt{5x+3}}+\frac{3}{14(1-2x)^{3/2}(3x+2)^2\sqrt{5x+3}}+\frac{79515\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{1372\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(5/2)*(2 + 3*x)^3*(3 + 5*x)^(3/2)),x]
```

```
[Out] -2725/(3234*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x]) - 89945/(249018*Sqrt[1
 - 2*x]*Sqrt[3 + 5*x]) - (46307675*Sqrt[1 - 2*x])/(5478396*Sqrt[3
 + 5*x]) + 3/(14*(1 - 2*x)^(3/2)*(2 + 3*x)^2*Sqrt[3 + 5*x]) + 81/
(28*(1 - 2*x)^(3/2)*(2 + 3*x)*Sqrt[3 + 5*x]) + (79515*ArcTan[Sqrt
[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(1372*Sqrt[7])
```

Rubi in Sympy [A] time = 35.5864, size = 146, normalized size = 0.92

$$-\frac{46307675\sqrt{-2x+1}}{5478396\sqrt{5x+3}}+\frac{79515\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{9604}-\frac{89945}{249018\sqrt{-2x+1}\sqrt{5x+3}}-\frac{2725}{3234\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}+\frac{81}{28\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)\sqrt{5x+3}}+\frac{3}{14\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{2}\sqrt{5x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(5/2)/(2+3*x)**3/(3+5*x)**(3/2),x)
```

```
[Out] -46307675*sqrt(-2*x + 1)/(5478396*sqrt(5*x + 3)) + 79515*sqrt(7)*
atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/9604 - 89945/(2490
18*sqrt(-2*x + 1)*sqrt(5*x + 3)) - 2725/(3234*(-2*x + 1)**(3/2)*s
qrt(5*x + 3)) + 81/(28*(-2*x + 1)**(3/2)*(3*x + 2)*sqrt(5*x + 3))
 + 3/(14*(-2*x + 1)**(3/2)*(3*x + 2)**2*sqrt(5*x + 3))
```

Mathematica [A] time = 0.12052, size = 90, normalized size = 0.57

$$\frac{79515\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{2744\sqrt{7}}-\frac{\sqrt{1-2x}\left(1667076300x^4+520073880x^3-1053213025x^2-169466391x+178740084\right)}{5478396\sqrt{5x+3}\left(6x^2+x-2\right)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(5/2)*(2 + 3*x)^3*(3 + 5*x)^(3/2)),x]
```

```
[Out] -(Sqrt[1 - 2*x]*(178740084 - 169466391*x - 1053213025*x^2 + 52007
3880*x^3 + 1667076300*x^4))/(5478396*Sqrt[3 + 5*x]*(-2 + x + 6*x^
2)^2) + (79515*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x
])])/(2744*Sqrt[7])
```

Maple [B] time = 0.026, size = 305, normalized size = 1.9

$$-\frac{1}{76697544\,(2+3\,x)^{2}\,(-1+2\,x)^{2}}\sqrt{1-2\,x}\left(57150611100\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^{2}-x+3}}\right)x^{5}+53340570360\,\sqrt{7}\arctan\left(1\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(5/2)/(2+3*x)^3/(3+5*x)^(3/2),x)
```

```
[Out] -1/76697544*(1-2*x)^(1/2)*(57150611100*7^(1/2)*arctan(1/14*(37*x+
20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^5+53340570360*7^(1/2)*arctan(1
/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^4-25082768205*7^(1/2
)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+23339068
200*x^4*(-10*x^2-x+3)^(1/2)-28257802155*7^(1/2)*arctan(1/14*(37*x
+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+7281034320*x^3*(-10*x^2-x+3
)^(1/2)+2540027160*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2
-x+3)^(1/2))*x-14744982350*x^2*(-10*x^2-x+3)^(1/2)+3810040740*7^(
1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))-237252947
4*x*(-10*x^2-x+3)^(1/2)+2502361176*(-10*x^2-x+3)^(1/2))/(2+3*x)^2
/(-1+2*x)^2/(-10*x^2-x+3)^(1/2)/(3+5*x)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5\,x+3)^{\frac{3}{2}}(3\,x+2)^{3}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^3*(-2*x + 1)^(5/2)),x, algorithm="maxima"
```

```
[Out] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^3*(-2*x + 1)^(5/2)), x)
```

Fricas [A] time = 0.22703, size = 167, normalized size = 1.05

$$-\frac{\sqrt{7}\left(2\,\sqrt{7}\left(1667076300\,x^{4}+520073880\,x^{3}-1053213025\,x^{2}-169466391\,x+178740084\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+317503395\,\left(\right.\right.}{76697544\,(180\,x^{5}+168\,x^{4}-79\,x^{3}-89\,x^{2}+8\,x+12)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^3*(-2*x + 1)^(5/2)),x, algorithm="fricas"
```

```
[Out] -1/76697544*sqrt(7)*(2*sqrt(7)*(1667076300*x^4 + 520073880*x^3 -
1053213025*x^2 - 169466391*x + 178740084)*sqrt(5*x + 3)*sqrt(-2*x
 + 1) + 317503395*(180*x^5 + 168*x^4 - 79*x^3 - 89*x^2 + 8*x + 12
)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1)))
)/(180*x^5 + 168*x^4 - 79*x^3 - 89*x^2 + 8*x + 12)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(5/2)/(2+3*x)**3/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.449638, size = 479, normalized size = 3.01

$$-\frac{15903}{38416}\sqrt{70}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right) - \frac{625}{2662}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right) - \frac{32\left(944\sqrt{5}(5x+3)-5577\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{239679825(2x-1)^2} - \frac{891\left(337\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3+75880\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)\right)}{4802\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^3*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] -15903/38416*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqr
t(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)
/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) - 625/2662*sqrt(10)*((sqr
t(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))) - 32/239679825*(944*sqrt(5)
*(5*x + 3) - 5577*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1
)^2 - 891/4802*(337*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22)
)/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt
(22)))^3 + 75880*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/s
qrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22
))))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqr
t(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280)^2
```

3.2610 $\int \frac{(2+3x)^6}{(1-2x)^{5/2}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=171

$$\frac{7(3x+2)^5}{33(1-2x)^{3/2}(5x+3)^{3/2}}-\frac{511(3x+2)^4}{242\sqrt{1-2x}(5x+3)^{3/2}}+\frac{7591\sqrt{1-2x}(3x+2)^3}{39930(5x+3)^{3/2}}+\frac{261331\sqrt{1-2x}(3x+2)^2}{2196150\sqrt{5x+3}}-\frac{7\sqrt{1-2x}\sqrt{5x+3}(78981180x+190406711)}{117128000}+\frac{753543\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{8000\sqrt{10}}$$

```
[Out] (7591*Sqrt[1 - 2*x]*(2 + 3*x)^3)/(39930*(3 + 5*x)^(3/2)) - (511*(
2 + 3*x)^4)/(242*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) + (7*(2 + 3*x)^5)
/(33*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)) + (261331*Sqrt[1 - 2*x]*(2
+ 3*x)^2)/(2196150*Sqrt[3 + 5*x]) - (7*Sqrt[1 - 2*x]*Sqrt[3 + 5*x
]*(190406711 + 78981180*x))/117128000 + (753543*ArcSin[Sqrt[2/11]
*Sqrt[3 + 5*x]])/(8000*Sqrt[10])
```

Rubi [A] time = 0.358956, antiderivative size = 171, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.192$

$$\frac{7(3x+2)^5}{33(1-2x)^{3/2}(5x+3)^{3/2}}-\frac{511(3x+2)^4}{242\sqrt{1-2x}(5x+3)^{3/2}}+\frac{7591\sqrt{1-2x}(3x+2)^3}{39930(5x+3)^{3/2}}+\frac{261331\sqrt{1-2x}(3x+2)^2}{2196150\sqrt{5x+3}}-\frac{7\sqrt{1-2x}\sqrt{5x+3}(78981180x+190406711)}{117128000}+\frac{753543\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{8000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^6/((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (7591*Sqrt[1 - 2*x]*(2 + 3*x)^3)/(39930*(3 + 5*x)^(3/2)) - (511*(
2 + 3*x)^4)/(242*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) + (7*(2 + 3*x)^5)
/(33*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)) + (261331*Sqrt[1 - 2*x]*(2
+ 3*x)^2)/(2196150*Sqrt[3 + 5*x]) - (7*Sqrt[1 - 2*x]*Sqrt[3 + 5*x
]*(190406711 + 78981180*x))/117128000 + (753543*ArcSin[Sqrt[2/11]
*Sqrt[3 + 5*x]])/(8000*Sqrt[10])
```

Rubi in Sympy [A] time = 34.2191, size = 160, normalized size = 0.94

$$\frac{7591\sqrt{-2x+1}\,(3x+2)^3}{39930\,(5x+3)^{\frac{3}{2}}}+\frac{261331\sqrt{-2x+1}\,(3x+2)^2}{2196150\sqrt{5x+3}}-\frac{\sqrt{-2x+1}\sqrt{5x+3}\,\left(\frac{6219767925x}{8}+\frac{59978113965}{32}\right)}{164711250}+\frac{753543\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{80000}-\frac{511\,(3x+2)^4}{242\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}+\frac{7\,(3x+2)^5}{33\,(-2x+1)^{\frac{3}{2}}\,(5x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**6/(1-2*x)**(5/2)/(3+5*x)**(5/2),x)
```

```
[Out] 7591*sqrt(-2*x + 1)*(3*x + 2)**3/(39930*(5*x + 3)**(3/2)) + 26133
1*sqrt(-2*x + 1)*(3*x + 2)**2/(2196150*sqrt(5*x + 3)) - sqrt(-2*x
 + 1)*sqrt(5*x + 3)*(6219767925*x/8 + 59978113965/32)/164711250 +
 753543*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/80000 - 511*(3*x
 + 2)**4/(242*sqrt(-2*x + 1)*(5*x + 3)**(3/2)) + 7*(3*x + 2)**5/(
33*(-2*x + 1)**(3/2)*(5*x + 3)**(3/2))
```

Mathematica [A] time = 0.27552, size = 75, normalized size = 0.44

$$-\frac{12807946800x^5+97980793020x^4-252342435560x^3-274128335769x^2+19932058554x+44437106459}{351384000(1-2x)^{3/2}(5x+3)^{3/2}}-\frac{753543\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{8000\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^6/((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] -(44437106459 + 19932058554*x - 274128335769*x^2 - 252342435560*x
^3 + 97980793020*x^4 + 12807946800*x^5)/(351384000*(1 - 2*x)^(3/2
)*(3 + 5*x)^(3/2)) - (753543*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]])/(8
000*Sqrt[10])
```

Maple [A] time = 0.023, size = 199, normalized size = 1.2

$$\frac{1}{7027680000\,(-1+2\,x)^2}\sqrt{1-2\,x}\left(3309786918900\,\arcsin\left(\frac{20\,x}{11}+1/11\right)\sqrt{10}x^4-256158936000\,x^5\sqrt{-10\,x^2-x+3}+66195$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^6/(1-2*x)^(5/2)/(3+5*x)^(5/2),x)
```

```
[Out] 1/7027680000*(1-2*x)^(1/2)*(3309786918900*arcsin(20/11*x+1/11)*10
^(1/2)*x^4-256158936000*x^5*(-10*x^2-x+3)^(1/2)+661957383780*10^(
1/2)*arcsin(20/11*x+1/11)*x^3-1959615860400*x^4*(-10*x^2-x+3)^(1/
2)-1952774282151*10^(1/2)*arcsin(20/11*x+1/11)*x^2+5046848711200*
x^3*(-10*x^2-x+3)^(1/2)-198587215134*10^(1/2)*arcsin(20/11*x+1/11
)*x+5482566715380*x^2*(-10*x^2-x+3)^(1/2)+297880822701*10^(1/2)*a
rcsin(20/11*x+1/11)-398641171080*x*(-10*x^2-x+3)^(1/2)-8887421291
80*(-10*x^2-x+3)^(1/2))/(-1+2*x)^2/(-10*x^2-x+3)^(1/2)/(3+5*x)^(3
/2)
```

Maxima [A] time = 1.51096, size = 289, normalized size = 1.69

$$-\frac{729\,x^5}{20\,(-10\,x^2-x+3)^{\frac{3}{2}}}-\frac{111537\,x^4}{400\,(-10\,x^2-x+3)^{\frac{3}{2}}}+\frac{251181}{234256000}\,x\left(\frac{7220\,x}{\sqrt{-10\,x^2-x+3}}+\frac{439230\,x^2}{(-10\,x^2-x+3)^{\frac{3}{2}}}+\frac{361}{\sqrt{-10\,x^2-x+3}}+\frac{21901\,x}{(-10\,x^2-x+3)^{\frac{3}{2}}}-\frac{87483}{(-10\,x^2-x+3)^{\frac{3}{2}}}\right)-\frac{753543}{160000}\sqrt{10}\arcsin\left(-\frac{20}{11}\,x-\frac{1}{11}\right)+\frac{90676341}{117128000}\sqrt{-10\,x^2-x+3}-\frac{170985889\,x}{7027680\,\sqrt{-10\,x^2-x+3}}+\frac{766611\,x^2}{1000\,(-10\,x^2-x+3)^{\frac{3}{2}}}+\frac{1005653687}{878460000\,\sqrt{-10\,x^2-x+3}}+\frac{416356591\,x}{3630000\,(-10\,x^2-x+3)^{\frac{3}{2}}}-\frac{496819753}{3630000\,(-10\,x^2-x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^6/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] -729/20*x^5/(-10*x^2 - x + 3)^(3/2) - 111537/400*x^4/(-10*x^2 - x
 + 3)^(3/2) + 251181/234256000*x*(7220*x/sqrt(-10*x^2 - x + 3) +
439230*x^2/(-10*x^2 - x + 3)^(3/2) + 361/sqrt(-10*x^2 - x + 3) +
21901*x/(-10*x^2 - x + 3)^(3/2) - 87483/(-10*x^2 - x + 3)^(3/2))
- 753543/160000*sqrt(10)*arcsin(-20/11*x - 1/11) + 90676341/11712
```

```
8000*sqrt(-10*x^2 - x + 3) - 170985889/7027680*x/sqrt(-10*x^2 - x
 + 3) + 766611/1000*x^2/(-10*x^2 - x + 3)^(3/2) + 1005653687/8784
60000/sqrt(-10*x^2 - x + 3) + 416356591/3630000*x/(-10*x^2 - x +
3)^(3/2) - 496819753/3630000/(-10*x^2 - x + 3)^(3/2)
```

Fricas [A] time = 0.229629, size = 161, normalized size = 0.94

$$-\frac{\sqrt{10}\left(2\sqrt{10}\left(12807946800\,x^{5}+97980793020\,x^{4}-252342435560\,x^{3}-274128335769\,x^{2}+19932058554\,x+44437106459\right)\cdots\right.}{7027680000\left(100\,x^{4}+20\,x^{3}-59\,x^{2}\cdots\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^6/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] -1/7027680000*sqrt(10)*(2*sqrt(10)*(12807946800*x^5 + 97980793020
*x^4 - 252342435560*x^3 - 274128335769*x^2 + 19932058554*x + 4443
7106459)*sqrt(5*x + 3)*sqrt(-2*x + 1) - 33097869189*(100*x^4 + 20
*x^3 - 59*x^2 - 6*x + 9)*arctan(1/20*sqrt(10)*(20*x + 1)/(sqrt(5*
x + 3)*sqrt(-2*x + 1))))/(100*x^4 + 20*x^3 - 59*x^2 - 6*x + 9)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**6/(1-2*x)**(5/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.286803, size = 282, normalized size = 1.65

$$-\frac{\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{3}}{2196150000\,(5\,x+3)^{\frac{3}{2}}}+\frac{753543}{80000}\sqrt{10}\arcsin\left(\frac{1}{11}\sqrt{22}\sqrt{5\,x+3}\right)-\frac{37\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}{16637500\sqrt{5\,x+3}}$$
$$-\frac{\left(4\left(32019867\left(4\sqrt{5}(5\,x+3)+93\sqrt{5}\right)(5\,x+3)-110347010662\sqrt{5}\right)(5\,x+3)+1820310410259\sqrt{5}\right)\sqrt{5\,x+3}\sqrt{-10\,x+5}}{219615000000\,(2\,x-1)^{2}}$$
$$+\frac{\left(\frac{1221\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{2}}{5\,x+3}+4\sqrt{10}\right)(5\,x+3)^{\frac{3}{2}}}{137259375\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^6/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] -1/2196150000*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^3/(5*
x + 3)^(3/2) + 753543/80000*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*
x + 3)) - 37/16637500*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22
))/sqrt(5*x + 3) - 1/219615000000*(4*(32019867*(4*sqrt(5)*(5*x +
3) + 93*sqrt(5))*(5*x + 3) - 110347010662*sqrt(5))*(5*x + 3) + 18
20310410259*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)^2 +
1/137259375*(1221*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2
/(5*x + 3) + 4*sqrt(10))*(5*x + 3)^(3/2)/(sqrt(2)*sqrt(-10*x + 5)
 - sqrt(22))^3
```

3.2611 $\int \frac{(2+3x)^5}{(1-2x)^{5/2}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=142

$$\frac{7(3x+2)^4}{33(1-2x)^{3/2}(5x+3)^{3/2}}-\frac{357(3x+2)^3}{242\sqrt{1-2x}(5x+3)^{3/2}}+\frac{5281\sqrt{1-2x}(3x+2)^2}{39930(5x+3)^{3/2}}-\frac{\sqrt{1-2x}(55300905x+33035947)}{8784600\sqrt{5x+3}}+\frac{2997\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{200\sqrt{10}}$$

```
[Out] (5281*Sqrt[1 - 2*x]*(2 + 3*x)^2)/(39930*(3 + 5*x)^(3/2)) - (357*(
2 + 3*x)^3)/(242*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) + (7*(2 + 3*x)^4)
/(33*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)) - (Sqrt[1 - 2*x]*(33035947
+ 55300905*x))/(8784600*Sqrt[3 + 5*x]) + (2997*ArcSin[Sqrt[2/11]*
Sqrt[3 + 5*x]])/(200*Sqrt[10])
```

Rubi [A] time = 0.283578, antiderivative size = 142, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.192$

$$\frac{7(3x+2)^4}{33(1-2x)^{3/2}(5x+3)^{3/2}}-\frac{357(3x+2)^3}{242\sqrt{1-2x}(5x+3)^{3/2}}+\frac{5281\sqrt{1-2x}(3x+2)^2}{39930(5x+3)^{3/2}}-\frac{\sqrt{1-2x}(55300905x+33035947)}{8784600\sqrt{5x+3}}+\frac{2997\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{200\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^5/((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (5281*Sqrt[1 - 2*x]*(2 + 3*x)^2)/(39930*(3 + 5*x)^(3/2)) - (357*(
2 + 3*x)^3)/(242*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) + (7*(2 + 3*x)^4)
/(33*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)) - (Sqrt[1 - 2*x]*(33035947
+ 55300905*x))/(8784600*Sqrt[3 + 5*x]) + (2997*ArcSin[Sqrt[2/11]*
Sqrt[3 + 5*x]])/(200*Sqrt[10])
```

Rubi in Sympy [A] time = 25.8499, size = 134, normalized size = 0.94

$$\frac{5281\sqrt{-2x+1}\,(3x+2)^2}{39930\,(5x+3)^{\frac{3}{2}}}-\frac{2\sqrt{-2x+1}\left(\frac{829513575x}{16}+\frac{495539205}{16}\right)}{16471125\sqrt{5x+3}}+\frac{2997\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{2000}-\frac{357\,(3x+2)^3}{242\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}+\frac{7\,(3x+2)^4}{33\,(-2x+1)^{\frac{3}{2}}\,(5x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**5/(1-2*x)**(5/2)/(3+5*x)**(5/2),x)
```

```
[Out] 5281*sqrt(-2*x + 1)*(3*x + 2)**2/(39930*(5*x + 3)**(3/2)) - 2*sqr
t(-2*x + 1)*(829513575*x/16 + 495539205/16)/(16471125*sqrt(5*x +
3)) + 2997*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/2000 - 357*(3
*x + 2)**3/(242*sqrt(-2*x + 1)*(5*x + 3)**(3/2)) + 7*(3*x + 2)**4
/(33*(-2*x + 1)**(3/2)*(5*x + 3)**(3/2))
```

Mathematica [A] time = 0.263981, size = 70, normalized size = 0.49

$$-\frac{213465780x^4-1247811640x^3-1260430251x^2+19593966x+168318961}{8784600(1-2x)^{3/2}(5x+3)^{3/2}}-\frac{2997\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{200\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]   Integrate[(2 + 3*x)^5/((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] -(168318961 + 19593966*x - 1260430251*x^2 - 1247811640*x^3 + 2134
65780*x^4)/(8784600*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)) - (2997*ArcS
in[Sqrt[5/11]*Sqrt[1 - 2*x]])/(200*Sqrt[10])
```

Maple [A]   time = 0.021, size = 182, normalized size = 1.3

$$\frac{1}{175692000\,(-1+2\,x)^2}\sqrt{1-2\,x}\left(13163723100\,\arcsin\left(\frac{20\,x}{11}+1/11\right)\sqrt{10}x^4+2632744620\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x^3-4$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((2+3*x)^5/(1-2*x)^(5/2)/(3+5*x)^(5/2),x)
```

```
[Out] 1/175692000*(1-2*x)^(1/2)*(13163723100*arcsin(20/11*x+1/11)*10^(1
/2)*x^4+2632744620*10^(1/2)*arcsin(20/11*x+1/11)*x^3-4269315600*x
^4*(-10*x^2-x+3)^(1/2)-7766596629*10^(1/2)*arcsin(20/11*x+1/11)*x
^2+24956232800*x^3*(-10*x^2-x+3)^(1/2)-789823386*10^(1/2)*arcsin(
20/11*x+1/11)*x+25208605020*x^2*(-10*x^2-x+3)^(1/2)+1184735079*10
^(1/2)*arcsin(20/11*x+1/11)-391879320*x*(-10*x^2-x+3)^(1/2)-33663
79220*(-10*x^2-x+3)^(1/2))/(-1+2*x)^2/(-10*x^2-x+3)^(1/2)/(3+5*x)
^(3/2)
```

Maxima [A]   time = 1.51178, size = 266, normalized size = 1.87

$$-\frac{243\,x^4}{10\,(-10\,x^2-x+3)^{\frac{3}{2}}}+\frac{999}{5856400}\,x\left(\frac{7220\,x}{\sqrt{-10\,x^2-x+3}}+\frac{439230\,x^2}{(-10\,x^2-x+3)^{\frac{3}{2}}}+\frac{361}{\sqrt{-10\,x^2-x+3}}+\frac{21901\,x}{(-10\,x^2-x+3)^{\frac{3}{2}}}-\frac{87483}{(-10\,x^2-x+3)^{\frac{3}{2}}}\right)-\frac{2997}{4000}\sqrt{10}\arcsin\left(-\frac{20}{11}\,x-\frac{1}{11}\right)+\frac{360639}{2928200}\sqrt{-10\,x^2-x+3}-\frac{5842159\,x}{878460\,\sqrt{-10\,x^2-x+3}}+\frac{3429\,x^2}{25\,(-10\,x^2-x+3)^{\frac{3}{2}}}+\frac{947293}{21961500\,\sqrt{-10\,x^2-x+3}}+\frac{3016649\,x}{90750\,(-10\,x^2-x+3)^{\frac{3}{2}}}-\frac{1851167}{90750\,(-10\,x^2-x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^5/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] -243/10*x^4/(-10*x^2 - x + 3)^(3/2) + 999/5856400*x*(7220*x/sqrt(
-10*x^2 - x + 3) + 439230*x^2/(-10*x^2 - x + 3)^(3/2) + 361/sqrt(
-10*x^2 - x + 3) + 21901*x/(-10*x^2 - x + 3)^(3/2) - 87483/(-10*x
^2 - x + 3)^(3/2)) - 2997/4000*sqrt(10)*arcsin(-20/11*x - 1/11) +
 360639/2928200*sqrt(-10*x^2 - x + 3) - 5842159/878460*x/sqrt(-10
*x^2 - x + 3) + 3429/25*x^2/(-10*x^2 - x + 3)^(3/2) + 947293/2196
1500/sqrt(-10*x^2 - x + 3) + 3016649/90750*x/(-10*x^2 - x + 3)^(3
/2) - 1851167/90750/(-10*x^2 - x + 3)^(3/2)
```

Fricas [A]   time = 0.22649, size = 154, normalized size = 1.08

$$-\frac{\sqrt{10}\left(2\,\sqrt{10}\left(213465780\,x^4-1247811640\,x^3-1260430251\,x^2+19593966\,x+168318961\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}-131637231\right.}{175692000\,(100\,x^4+20\,x^3-59\,x^2-6\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^5/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] -1/175692000*sqrt(10)*(2*sqrt(10)*(213465780*x^4 - 1247811640*x^3
 - 1260430251*x^2 + 19593966*x + 168318961)*sqrt(5*x + 3)*sqrt(-2
*x + 1) - 131637231*(100*x^4 + 20*x^3 - 59*x^2 - 6*x + 9)*arctan(
1/20*sqrt(10)*(20*x + 1)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(100*x^
4 + 20*x^3 - 59*x^2 - 6*x + 9)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2+3*x)**5/(1-2*x)**(5/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.282344, size = 265, normalized size = 1.87

$$-\frac{\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{3}}{439230000\,(5\,x+3)^{\frac{3}{2}}}+\frac{2997}{2000}\,\sqrt{10}\arcsin\left(\frac{1}{11}\,\sqrt{22}\sqrt{5\,x+3}\right)-\frac{31\,\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}{3327500\,\sqrt{5\,x+3}}-\frac{\left(4\left(10673289\,\sqrt{5}(5\,x+3)-440040554\,\sqrt{5}\right)(5\,x+3)+7233942969\,\sqrt{5}\right)\sqrt{5\,x+3}\sqrt{-10\,x+5}}{5490375000\,(2\,x-1)^{2}}+\frac{\left(\frac{1023\,\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{2}}{5\,x+3}+4\,\sqrt{10}\right)(5\,x+3)^{\frac{3}{2}}}{27451875\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^5/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] -1/439230000*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^3/(5*x
 + 3)^(3/2) + 2997/2000*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x +
3)) - 31/3327500*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sq
rt(5*x + 3) - 1/5490375000*(4*(10673289*sqrt(5)*(5*x + 3) - 44004
0554*sqrt(5))*(5*x + 3) + 7233942969*sqrt(5))*sqrt(5*x + 3)*sqrt(
-10*x + 5)/(2*x - 1)^2 + 1/27451875*(1023*sqrt(10)*(sqrt(2)*sqrt(
-10*x + 5) - sqrt(22))^2/(5*x + 3) + 4*sqrt(10))*(5*x + 3)^(3/2)/
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^3
```

3.2612 $\int \frac{(2+3x)^4}{(1-2x)^{5/2}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=113

$$\frac{7(3x+2)^3}{33(1-2x)^{3/2}(5x+3)^{3/2}}-\frac{203(3x+2)^2}{242\sqrt{1-2x}(5x+3)^{3/2}}+\frac{\sqrt{1-2x}(991010x+627287)}{2196150(5x+3)^{3/2}}+\frac{81\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{50\sqrt{10}}$$

```
[Out] (-203*(2 + 3*x)^2)/(242*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) + (7*(2 +
3*x)^3)/(33*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)) + (Sqrt[1 - 2*x]*(62
7287 + 991010*x))/(2196150*(3 + 5*x)^(3/2)) + (81*ArcSin[Sqrt[2/1
1]*Sqrt[3 + 5*x]])/(50*Sqrt[10])
```

Rubi [A] time = 0.205359, antiderivative size = 113, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$\frac{7(3x+2)^3}{33(1-2x)^{3/2}(5x+3)^{3/2}}-\frac{203(3x+2)^2}{242\sqrt{1-2x}(5x+3)^{3/2}}+\frac{\sqrt{1-2x}(991010x+627287)}{2196150(5x+3)^{3/2}}+\frac{81\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)}{50\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^4/((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (-203*(2 + 3*x)^2)/(242*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) + (7*(2 +
3*x)^3)/(33*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)) + (Sqrt[1 - 2*x]*(62
7287 + 991010*x))/(2196150*(3 + 5*x)^(3/2)) + (81*ArcSin[Sqrt[2/1
1]*Sqrt[3 + 5*x]])/(50*Sqrt[10])
```

Rubi in Sympy [A] time = 19.3002, size = 107, normalized size = 0.95

$$\frac{4\sqrt{-2x+1}\left(\frac{1486515x}{4}+\frac{1881861}{8}\right)}{3294225\left(5x+3\right)^{\frac{3}{2}}}+\frac{81\sqrt{10}\,\mathrm{asin}\left(\frac{\sqrt{22}\sqrt{5x+3}}{11}\right)}{500}-\frac{203\left(3x+2\right)^2}{242\sqrt{-2x+1}\left(5x+3\right)^{\frac{3}{2}}}+\frac{7\left(3x+2\right)^3}{33\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**4/(1-2*x)**(5/2)/(3+5*x)**(5/2),x)
```

```
[Out] 4*sqrt(-2*x + 1)*(1486515*x/4 + 1881861/8)/(3294225*(5*x + 3)**(3
/2)) + 81*sqrt(10)*asin(sqrt(22)*sqrt(5*x + 3)/11)/500 - 203*(3*x
 + 2)**2/(242*sqrt(-2*x + 1)*(5*x + 3)**(3/2)) + 7*(3*x + 2)**3/(
33*(-2*x + 1)**(3/2)*(5*x + 3)**(3/2))
```

Mathematica [A] time = 0.247855, size = 65, normalized size = 0.58

$$\frac{49702040x^3+51334383x^2+7883562x-3014813}{2196150(1-2x)^{3/2}(5x+3)^{3/2}}-\frac{81\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)}{50\sqrt{10}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^4/((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (-3014813 + 7883562*x + 51334383*x^2 + 49702040*x^3)/(2196150*(1
- 2*x)^(3/2)*(3 + 5*x)^(3/2)) - (81*ArcSin[Sqrt[5/11]*Sqrt[1 - 2*
```

```
x]])/(50*Sqrt[10])
```

Maple [A] time = 0.022, size = 165, normalized size = 1.5

$$\frac{1}{43923000\,(-1+2\,x)^2}\sqrt{1-2\,x}\left(355776300\,\arcsin\left(\frac{20\,x}{11}+1/11\right)\sqrt{10}x^4+71155260\,\sqrt{10}\arcsin\left(\frac{20\,x}{11}+1/11\right)x^3-209908$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^4/(1-2*x)^(5/2)/(3+5*x)^(5/2),x)
```

```
[Out] 1/43923000*(1-2*x)^(1/2)*(355776300*arcsin(20/11*x+1/11)*10^(1/2)
*x^4+71155260*10^(1/2)*arcsin(20/11*x+1/11)*x^3-209908017*10^(1/2
)*arcsin(20/11*x+1/11)*x^2+994040800*x^3*(-10*x^2-x+3)^(1/2)-2134
6578*10^(1/2)*arcsin(20/11*x+1/11)*x+1026687660*x^2*(-10*x^2-x+3)
^(1/2)+32019867*10^(1/2)*arcsin(20/11*x+1/11)+157671240*x*(-10*x^
2-x+3)^(1/2)-60296260*(-10*x^2-x+3)^(1/2))/(-1+2*x)^2/(-10*x^2-x+
3)^(1/2)/(3+5*x)^(3/2)
```

Maxima [A] time = 1.51541, size = 243, normalized size = 2.15

$$\frac{27}{1464100}x\left(\frac{7220\,x}{\sqrt{-10\,x^2-x+3}}+\frac{439230\,x^2}{(-10\,x^2-x+3)^{\frac{3}{2}}}+\frac{361}{\sqrt{-10\,x^2-x+3}}+\frac{21901\,x}{(-10\,x^2-x+3)^{\frac{3}{2}}}-\frac{87483}{(-10\,x^2-x+3)^{\frac{3}{2}}}\right) -\frac{81}{1000}\sqrt{10}\arcsin\left(-\frac{20}{11}x-\frac{1}{11}\right)+\frac{9747}{732050}\sqrt{-10\,x^2-x+3}-\frac{1588351\,x}{1098075\sqrt{-10\,x^2-x+3}} +\frac{108\,x^2}{5\,(-10\,x^2-x+3)^{\frac{3}{2}}}-\frac{34823}{1098075\sqrt{-10\,x^2-x+3}}+\frac{86854\,x}{9075\,(-10\,x^2-x+3)^{\frac{3}{2}}}-\frac{12682}{9075\,(-10\,x^2-x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 27/1464100*x*(7220*x/sqrt(-10*x^2 - x + 3) + 439230*x^2/(-10*x^2
- x + 3)^(3/2) + 361/sqrt(-10*x^2 - x + 3) + 21901*x/(-10*x^2 - x
 + 3)^(3/2) - 87483/(-10*x^2 - x + 3)^(3/2)) - 81/1000*sqrt(10)*a
rcsin(-20/11*x - 1/11) + 9747/732050*sqrt(-10*x^2 - x + 3) - 1588
351/1098075*x/sqrt(-10*x^2 - x + 3) + 108/5*x^2/(-10*x^2 - x + 3)
^(3/2) - 34823/1098075/sqrt(-10*x^2 - x + 3) + 86854/9075*x/(-10*
x^2 - x + 3)^(3/2) - 12682/9075/(-10*x^2 - x + 3)^(3/2)
```

Fricas [A] time = 0.223779, size = 147, normalized size = 1.3

$$\frac{\sqrt{10}\left(2\,\sqrt{10}\left(49702040\,x^3+51334383\,x^2+7883562\,x-3014813\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+3557763\,\left(100\,x^4+20\,x^3-59\,x^2-6\,x\right.\right.}{43923000\,(100\,x^4+20\,x^3-59\,x^2-6\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/43923000*sqrt(10)*(2*sqrt(10)*(49702040*x^3 + 51334383*x^2 + 78
83562*x - 3014813)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 3557763*(100*x^
4 + 20*x^3 - 59*x^2 - 6*x + 9)*arctan(1/20*sqrt(10)*(20*x + 1)/(s
qrt(5*x + 3)*sqrt(-2*x + 1))))/(100*x^4 + 20*x^3 - 59*x^2 - 6*x +
 9)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**4/(1-2*x)**(5/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.276901, size = 247, normalized size = 2.19

$$-\frac{\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{3}}{87846000\,(5\,x+3)^{\frac{3}{2}}}+\frac{81}{500}\,\sqrt{10}\arcsin\left(\frac{1}{11}\,\sqrt{22}\sqrt{5\,x+3}\right)-\frac{\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}{26620\,\sqrt{5\,x+3}}+\frac{343\,\left(232\,\sqrt{5}(5\,x+3)-891\,\sqrt{5}\right)\sqrt{5\,x+3}\sqrt{-10\,x+5}}{2196150\,(2\,x-1)^{2}}+\frac{\left(\frac{825\,\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{2}}{5\,x+3}+4\,\sqrt{10}\right)(5\,x+3)^{\frac{3}{2}}}{5490375\,\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^4/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] -1/87846000*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^3/(5*x
+ 3)^(3/2) + 81/500*sqrt(10)*arcsin(1/11*sqrt(22)*sqrt(5*x + 3))
- 1/26620*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x
+ 3) + 343/2196150*(232*sqrt(5)*(5*x + 3) - 891*sqrt(5))*sqrt(5*x
 + 3)*sqrt(-10*x + 5)/(2*x - 1)^2 + 1/5490375*(825*sqrt(10)*(sqrt
(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) + 4*sqrt(10))*(5*x +
3)^(3/2)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^3
```

3.2613 $\int \frac{(2+3x)^3}{(1-2x)^{5/2}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=96

$$\frac{2(3x+2)^3}{33(1-2x)^{3/2}(5x+3)^{3/2}}-\frac{8182\sqrt{1-2x}}{219615\sqrt{5x+3}}-\frac{3679\sqrt{1-2x}}{19965(5x+3)^{3/2}}+\frac{49}{121\sqrt{1-2x}(5x+3)^{3/2}}$$

```
[Out] 49/(121*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) - (3679*Sqrt[1 - 2*x])/(19
965*(3 + 5*x)^(3/2)) + (2*(2 + 3*x)^3)/(33*(1 - 2*x)^(3/2)*(3 + 5
*x)^(3/2)) - (8182*Sqrt[1 - 2*x])/(219615*Sqrt[3 + 5*x])
```

Rubi [A] time = 0.134302, antiderivative size = 96, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.154$

$$\frac{2(3x+2)^3}{33(1-2x)^{3/2}(5x+3)^{3/2}}-\frac{8182\sqrt{1-2x}}{219615\sqrt{5x+3}}-\frac{3679\sqrt{1-2x}}{19965(5x+3)^{3/2}}+\frac{49}{121\sqrt{1-2x}(5x+3)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^3/((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] 49/(121*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) - (3679*Sqrt[1 - 2*x])/(19
965*(3 + 5*x)^(3/2)) + (2*(2 + 3*x)^3)/(33*(1 - 2*x)^(3/2)*(3 + 5
*x)^(3/2)) - (8182*Sqrt[1 - 2*x])/(219615*Sqrt[3 + 5*x])
```

Rubi in Sympy [A] time = 11.3508, size = 87, normalized size = 0.91

$$-\frac{11102\sqrt{5x+3}}{219615\sqrt{-2x+1}}-\frac{2\,(3x+2)^3}{33\,(-2x+1)^{\frac{3}{2}}\,(5x+3)^{\frac{3}{2}}}+\frac{17318\sqrt{5x+3}}{99825\,(-2x+1)^{\frac{3}{2}}}-\frac{28}{3025\,(-2x+1)^{\frac{3}{2}}\,\sqrt{5x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**3/(1-2*x)**(5/2)/(3+5*x)**(5/2),x)
```

```
[Out] -11102*sqrt(5*x + 3)/(219615*sqrt(-2*x + 1)) - 2*(3*x + 2)**3/(33
*(-2*x + 1)**(3/2)*(5*x + 3)**(3/2)) + 17318*sqrt(5*x + 3)/(99825
*(-2*x + 1)**(3/2)) - 28/(3025*(-2*x + 1)**(3/2)*sqrt(5*x + 3))
```

Mathematica [A] time = 0.0541571, size = 37, normalized size = 0.39

$$\frac{2\left(19573x^3+62232x^2+52044x+13040\right)}{43923(1-2x)^{3/2}(5x+3)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^3/((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (2*(13040 + 52044*x + 62232*x^2 + 19573*x^3))/(43923*(1 - 2*x)^(3
/2)*(3 + 5*x)^(3/2))
```

Maple [A] time = 0.007, size = 32, normalized size = 0.3

$$\frac{39146\,x^3+124464\,x^2+104088\,x+26080}{43923}\,(1-2\,x)^{-\frac{3}{2}}\,(3+5\,x)^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^3/(1-2*x)^(5/2)/(3+5*x)^(5/2),x)
```

```
[Out] 2/43923*(19573*x^3+62232*x^2+52044*x+13040)/(3+5*x)^(3/2)/(1-2*x)
^(3/2)
```

Maxima [A] time = 1.34686, size = 103, normalized size = 1.07

$$-\frac{19573\,x}{219615\,\sqrt{-10\,x^2-x+3}}+\frac{27\,x^2}{10\,(-10\,x^2-x+3)^{\frac{3}{2}}}-\frac{19573}{4392300\,\sqrt{-10\,x^2-x+3}}+\frac{95567\,x}{36300\,(-10\,x^2-x+3)^{\frac{3}{2}}}+\frac{22039}{36300\,(-10\,x^2-x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] -19573/219615*x/sqrt(-10*x^2 - x + 3) + 27/10*x^2/(-10*x^2 - x +
3)^(3/2) - 19573/4392300/sqrt(-10*x^2 - x + 3) + 95567/36300*x/(-
10*x^2 - x + 3)^(3/2) + 22039/36300/(-10*x^2 - x + 3)^(3/2)
```

Fricas [A] time = 0.219934, size = 72, normalized size = 0.75

$$\frac{2\,\left(19573\,x^3+62232\,x^2+52044\,x+13040\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}}{43923\,(100\,x^4+20\,x^3-59\,x^2-6\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^3/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 2/43923*(19573*x^3 + 62232*x^2 + 52044*x + 13040)*sqrt(5*x + 3)*s
qrt(-2*x + 1)/(100*x^4 + 20*x^3 - 59*x^2 - 6*x + 9)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**3/(1-2*x)**(5/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.266256, size = 223, normalized size = 2.32

$$-\frac{\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^3}{17569200\,(5\,x+3)^{\frac{3}{2}}}-\frac{19\,\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}{133100\,\sqrt{5\,x+3}}+\frac{98\left(17\,\sqrt{5}(5\,x+3)+99\,\sqrt{5}\right)\sqrt{5\,x+3}\sqrt{-10\,x+5}}{1098075\,(2\,x-1)^2}+\frac{\left(\frac{627\,\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3}+4\,\sqrt{10}\right)(5\,x+3)^{\frac{3}{2}}}{1098075\,\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^3/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] -1/17569200*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^3/(5*x
+ 3)^(3/2) - 19/133100*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(2
2))/sqrt(5*x + 3) + 98/1098075*(17*sqrt(5)*(5*x + 3) + 99*sqrt(5)
)*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)^2 + 1/1098075*(627*sqrt
(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) + 4*sqrt(10
))*(5*x + 3)^(3/2)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^3
```

3.2614 $\int \frac{(2+3x)^2}{(1-2x)^{5/2}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=89

$$-\frac{3298\sqrt{1-2x}}{43923\sqrt{5x+3}}-\frac{1649\sqrt{1-2x}}{7986(5x+3)^{3/2}}+\frac{14}{121(5x+3)^{3/2}\sqrt{1-2x}}+\frac{49}{66(5x+3)^{3/2}(1-2x)^{3/2}}$$

```
[Out] 49/(66*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)) + 14/(121*Sqrt[1 - 2*x]*(
3 + 5*x)^(3/2)) - (1649*Sqrt[1 - 2*x])/(7986*(3 + 5*x)^(3/2)) - (
3298*Sqrt[1 - 2*x])/(43923*Sqrt[3 + 5*x])
```

Rubi [A] time = 0.110757, antiderivative size = 89, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$-\frac{3298\sqrt{1-2x}}{43923\sqrt{5x+3}}-\frac{1649\sqrt{1-2x}}{7986(5x+3)^{3/2}}+\frac{14}{121(5x+3)^{3/2}\sqrt{1-2x}}+\frac{49}{66(5x+3)^{3/2}(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^2/((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] 49/(66*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)) + 14/(121*Sqrt[1 - 2*x]*(
3 + 5*x)^(3/2)) - (1649*Sqrt[1 - 2*x])/(7986*(3 + 5*x)^(3/2)) - (
3298*Sqrt[1 - 2*x])/(43923*Sqrt[3 + 5*x])
```

Rubi in Sympy [A] time = 10.1688, size = 80, normalized size = 0.9

$$\frac{6596\sqrt{5x+3}}{219615\sqrt{-2x+1}}+\frac{3298\sqrt{5x+3}}{99825\,(-2x+1)^{\frac{3}{2}}}-\frac{28}{605\,(-2x+1)^{\frac{3}{2}}\,\sqrt{5x+3}}-\frac{2}{825\,(-2x+1)^{\frac{3}{2}}\,(5x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**2/(1-2*x)**(5/2)/(3+5*x)**(5/2),x)
```

```
[Out] 6596*sqrt(5*x + 3)/(219615*sqrt(-2*x + 1)) + 3298*sqrt(5*x + 3)/(
99825*(-2*x + 1)**(3/2)) - 28/(605*(-2*x + 1)**(3/2)*sqrt(5*x + 3
)) - 2/(825*(-2*x + 1)**(3/2)*(5*x + 3)**(3/2))
```

Mathematica [A] time = 0.0549251, size = 37, normalized size = 0.42

$$\frac{-65960x^3-9894x^2+49200x+18728}{43923(1-2x)^{3/2}(5x+3)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^2/((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (18728 + 49200*x - 9894*x^2 - 65960*x^3)/(43923*(1 - 2*x)^(3/2)*(
3 + 5*x)^(3/2))
```

Maple [A] time = 0.006, size = 32, normalized size = 0.4

$$-\frac{65960\,x^3+9894\,x^2-49200\,x-18728}{43923}\,(1-2\,x)^{-\frac{3}{2}}\,(3+5\,x)^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^2/(1-2*x)^(5/2)/(3+5*x)^(5/2),x)
```

```
[Out] -2/43923*(32980*x^3+4947*x^2-24600*x-9364)/(3+5*x)^(3/2)/(1-2*x)^
(3/2)
```

Maxima [A] time = 1.33944, size = 80, normalized size = 0.9

$$\frac{6596\,x}{43923\,\sqrt{-10\,x^2-x+3}}+\frac{1649}{219615\,\sqrt{-10\,x^2-x+3}}+\frac{1229\,x}{1815\,(-10\,x^2-x+3)^{\frac{3}{2}}}+\frac{733}{1815\,(-10\,x^2-x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 6596/43923*x/sqrt(-10*x^2 - x + 3) + 1649/219615/sqrt(-10*x^2 - x
 + 3) + 1229/1815*x/(-10*x^2 - x + 3)^(3/2) + 733/1815/(-10*x^2 -
 x + 3)^(3/2)
```

Fricas [A] time = 0.219463, size = 72, normalized size = 0.81

$$-\frac{2\,\left(32980\,x^3+4947\,x^2-24600\,x-9364\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}}{43923\,(100\,x^4+20\,x^3-59\,x^2-6\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] -2/43923*(32980*x^3 + 4947*x^2 - 24600*x - 9364)*sqrt(5*x + 3)*sq
rt(-2*x + 1)/(100*x^4 + 20*x^3 - 59*x^2 - 6*x + 9)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**2/(1-2*x)**(5/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.270794, size = 223, normalized size = 2.51

$$-\frac{\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^3}{3513840\,(5\,x+3)^{\frac{3}{2}}}-\frac{13\,\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}{26620\,\sqrt{5\,x+3}}-\frac{14\,\left(164\,\sqrt{5}(5\,x+3)-1287\,\sqrt{5}\right)\sqrt{5\,x+3}\sqrt{-10\,x+5}}{1098075\,(2\,x-1)^2}+\frac{\left(\frac{429\,\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3}+4\,\sqrt{10}\right)(5\,x+3)^{\frac{3}{2}}}{219615\,\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^2/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] -1/3513840*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^3/(5*x +
 3)^(3/2) - 13/26620*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)
)/sqrt(5*x + 3) - 14/1098075*(164*sqrt(5)*(5*x + 3) - 1287*sqrt(5
))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)^2 + 1/219615*(429*sqrt
(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) + 4*sqrt(10
))*(5*x + 3)^(3/2)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^3
```

3.2615 $\int \frac{2+3x}{(1-2x)^{5/2}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=89

$$-\frac{2960\sqrt{1-2x}}{43923\sqrt{5x+3}}+\frac{296}{3993\sqrt{5x+3}\sqrt{1-2x}}+\frac{74}{1815\sqrt{5x+3}(1-2x)^{3/2}}-\frac{2}{165(5x+3)^{3/2}(1-2x)^{3/2}}$$

```
[Out] -2/(165*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)) + 74/(1815*(1 - 2*x)^(3/
2)*Sqrt[3 + 5*x]) + 296/(3993*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) - (296
0*Sqrt[1 - 2*x])/(43923*Sqrt[3 + 5*x])
```

Rubi [A] time = 0.0866773, antiderivative size = 89, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$-\frac{2960\sqrt{1-2x}}{43923\sqrt{5x+3}}+\frac{296}{3993\sqrt{5x+3}\sqrt{1-2x}}+\frac{74}{1815\sqrt{5x+3}(1-2x)^{3/2}}-\frac{2}{165(5x+3)^{3/2}(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)/((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] -2/(165*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)) + 74/(1815*(1 - 2*x)^(3/
2)*Sqrt[3 + 5*x]) + 296/(3993*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) - (296
0*Sqrt[1 - 2*x])/(43923*Sqrt[3 + 5*x])
```

Rubi in Sympy [A] time = 8.81924, size = 80, normalized size = 0.9

$$-\frac{2960\sqrt{-2x+1}}{43923\sqrt{5x+3}}-\frac{740\sqrt{-2x+1}}{3993\,(5x+3)^{\frac{3}{2}}}+\frac{37}{121\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}+\frac{7}{33\,(-2x+1)^{\frac{3}{2}}\,(5x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)/(1-2*x)**(5/2)/(3+5*x)**(5/2),x)
```

```
[Out] -2960*sqrt(-2*x + 1)/(43923*sqrt(5*x + 3)) - 740*sqrt(-2*x + 1)/(
3993*(5*x + 3)**(3/2)) + 37/(121*sqrt(-2*x + 1)*(5*x + 3)**(3/2))
 + 7/(33*(-2*x + 1)**(3/2)*(5*x + 3)**(3/2))
```

Mathematica [A] time = 0.0552422, size = 37, normalized size = 0.42

$$\frac{-59200x^3-8880x^2+26418x+5728}{43923(1-2x)^{3/2}(5x+3)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)/((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (5728 + 26418*x - 8880*x^2 - 59200*x^3)/(43923*(1 - 2*x)^(3/2)*(3
 + 5*x)^(3/2))
```

Maple [A] time = 0.004, size = 32, normalized size = 0.4

$$-\frac{59200\,x^3+8880\,x^2-26418\,x-5728}{43923}\,(1-2\,x)^{-\frac{3}{2}}\,(3+5\,x)^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)/(1-2*x)^(5/2)/(3+5*x)^(5/2),x)
```

```
[Out] -2/43923*(29600*x^3+4440*x^2-13209*x-2864)/(3+5*x)^(3/2)/(1-2*x)^
(3/2)
```

Maxima [A] time = 1.34377, size = 80, normalized size = 0.9

$$\frac{5920\,x}{43923\,\sqrt{-10\,x^2-x+3}}+\frac{296}{43923\,\sqrt{-10\,x^2-x+3}}+\frac{74\,x}{363\,(-10\,x^2-x+3)^{\frac{3}{2}}}+\frac{40}{363\,(-10\,x^2-x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 5920/43923*x/sqrt(-10*x^2 - x + 3) + 296/43923/sqrt(-10*x^2 - x +
 3) + 74/363*x/(-10*x^2 - x + 3)^(3/2) + 40/363/(-10*x^2 - x + 3)
^(3/2)
```

Fricas [A] time = 0.228588, size = 72, normalized size = 0.81

$$-\frac{2\,\left(29600\,x^3+4440\,x^2-13209\,x-2864\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}}{43923\,(100\,x^4+20\,x^3-59\,x^2-6\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] -2/43923*(29600*x^3 + 4440*x^2 - 13209*x - 2864)*sqrt(5*x + 3)*sq
rt(-2*x + 1)/(100*x^4 + 20*x^3 - 59*x^2 - 6*x + 9)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)/(1-2*x)**(5/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.265601, size = 223, normalized size = 2.51

$$-\frac{\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^3}{702768\,(5\,x+3)^{\frac{3}{2}}}-\frac{7\,\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}{5324\,\sqrt{5\,x+3}}-\frac{8\,\left(181\,\sqrt{5}(5\,x+3)-1188\,\sqrt{5}\right)\sqrt{5\,x+3}\sqrt{-10\,x+5}}{1098075\,(2\,x-1)^2}+\frac{\left(\frac{231\,\sqrt{10}\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3}+4\,\sqrt{10}\right)(5\,x+3)^{\frac{3}{2}}}{43923\,\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] -1/702768*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^3/(5*x +
3)^(3/2) - 7/5324*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/s
qrt(5*x + 3) - 8/1098075*(181*sqrt(5)*(5*x + 3) - 1188*sqrt(5))*s
qrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)^2 + 1/43923*(231*sqrt(10)*
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) + 4*sqrt(10))*(5
*x + 3)^(3/2)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^3
```

3.2616 $\int \frac{1}{(1-2x)^{5/2}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=89

$$-\frac{1600\sqrt{1-2x}}{43923\sqrt{5x+3}}-\frac{400\sqrt{1-2x}}{3993(5x+3)^{3/2}}+\frac{20}{121(5x+3)^{3/2}\sqrt{1-2x}}+\frac{2}{33(5x+3)^{3/2}(1-2x)^{3/2}}$$

```
[Out] 2/(33*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)) + 20/(121*Sqrt[1 - 2*x]*(3
 + 5*x)^(3/2)) - (400*Sqrt[1 - 2*x])/(3993*(3 + 5*x)^(3/2)) - (16
00*Sqrt[1 - 2*x])/(43923*Sqrt[3 + 5*x])
```

Rubi [A] time = 0.0724173, antiderivative size = 89, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 2, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.105

$$-\frac{1600\sqrt{1-2x}}{43923\sqrt{5x+3}}-\frac{400\sqrt{1-2x}}{3993(5x+3)^{3/2}}+\frac{20}{121(5x+3)^{3/2}\sqrt{1-2x}}+\frac{2}{33(5x+3)^{3/2}(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] 2/(33*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)) + 20/(121*Sqrt[1 - 2*x]*(3
 + 5*x)^(3/2)) - (400*Sqrt[1 - 2*x])/(3993*(3 + 5*x)^(3/2)) - (16
00*Sqrt[1 - 2*x])/(43923*Sqrt[3 + 5*x])
```

Rubi in Sympy [A] time = 8.36827, size = 80, normalized size = 0.9

$$-\frac{1600\sqrt{-2x+1}}{43923\sqrt{5x+3}}-\frac{400\sqrt{-2x+1}}{3993\,(5x+3)^{\frac{3}{2}}}+\frac{20}{121\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}+\frac{2}{33\,(-2x+1)^{\frac{3}{2}}\,(5x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(5/2)/(3+5*x)**(5/2),x)
```

```
[Out] -1600*sqrt(-2*x + 1)/(43923*sqrt(5*x + 3)) - 400*sqrt(-2*x + 1)/(
3993*(5*x + 3)**(3/2)) + 20/(121*sqrt(-2*x + 1)*(5*x + 3)**(3/2))
 + 2/(33*(-2*x + 1)**(3/2)*(5*x + 3)**(3/2))
```

Mathematica [A] time = 0.0416311, size = 37, normalized size = 0.42

$$\frac{-32000x^3-4800x^2+14280x+722}{43923(1-2x)^{3/2}(5x+3)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (722 + 14280*x - 4800*x^2 - 32000*x^3)/(43923*(1 - 2*x)^(3/2)*(3
+ 5*x)^(3/2))
```

Maple [A] time = 0.003, size = 32, normalized size = 0.4

$$-\frac{32000\,x^3+4800\,x^2-14280\,x-722}{43923}(1-2\,x)^{-\frac{3}{2}}(3+5\,x)^{-\frac{3}{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(5/2)/(3+5*x)^(5/2),x)
```

```
[Out] -2/43923*(16000*x^3+2400*x^2-7140*x-361)/(3+5*x)^(3/2)/(1-2*x)^(3
/2)
```

Maxima [A] time = 1.34151, size = 80, normalized size = 0.9

$$\frac{3200\,x}{43923\,\sqrt{-10\,x^2-x+3}}+\frac{160}{43923\,\sqrt{-10\,x^2-x+3}}+\frac{40\,x}{363\,(-10\,x^2-x+3)^{\frac{3}{2}}}+\frac{2}{363\,(-10\,x^2-x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 3200/43923*x/sqrt(-10*x^2 - x + 3) + 160/43923/sqrt(-10*x^2 - x +
 3) + 40/363*x/(-10*x^2 - x + 3)^(3/2) + 2/363/(-10*x^2 - x + 3)^
(3/2)
```

Fricas [A] time = 0.23009, size = 72, normalized size = 0.81

$$-\frac{2\,\left(16000\,x^3+2400\,x^2-7140\,x-361\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}}{43923\,(100\,x^4+20\,x^3-59\,x^2-6\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] -2/43923*(16000*x^3 + 2400*x^2 - 7140*x - 361)*sqrt(5*x + 3)*sqrt
(-2*x + 1)/(100*x^4 + 20*x^3 - 59*x^2 - 6*x + 9)
```

Sympy [A] time = 141.072, size = 393, normalized size = 4.42

$$\begin{cases} -\frac{32000\sqrt{10}\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)^3}{5314683x+4392300\left(x+\frac{3}{5}\right)^3-9663060\left(x+\frac{3}{5}\right)^2+\frac{15944049}{5}}+\frac{52800\sqrt{10}\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)^2}{5314683x+4392300\left(x+\frac{3}{5}\right)^3-9663060\left(x+\frac{3}{5}\right)^2+\frac{15944049}{5}}-\frac{14520\sqrt{10}\sqrt{-1+\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)}{5314683x+4392300\left(x+\frac{3}{5}\right)^3-9663060\left(x+\frac{3}{5}\right)} \\ -\frac{32000\sqrt{10}i\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)^3}{5314683x+4392300\left(x+\frac{3}{5}\right)^3-9663060\left(x+\frac{3}{5}\right)^2+\frac{15944049}{5}}+\frac{52800\sqrt{10}i\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)^2}{5314683x+4392300\left(x+\frac{3}{5}\right)^3-9663060\left(x+\frac{3}{5}\right)^2+\frac{15944049}{5}}-\frac{14520\sqrt{10}i\sqrt{1-\frac{11}{10\left(x+\frac{3}{5}\right)}}\left(x+\frac{3}{5}\right)}{5314683x+4392300\left(x+\frac{3}{5}\right)^3-9663060\left(x+\frac{3}{5}\right)} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(5/2)/(3+5*x)**(5/2),x)
```

```
[Out] Piecewise((-32000*sqrt(10)*sqrt(-1 + 11/(10*(x + 3/5)))*(x + 3/5)
**3/(5314683*x + 4392300*(x + 3/5)**3 - 9663060*(x + 3/5)**2 + 15
944049/5) + 52800*sqrt(10)*sqrt(-1 + 11/(10*(x + 3/5)))*(x + 3/5)
**2/(5314683*x + 4392300*(x + 3/5)**3 - 9663060*(x + 3/5)**2 + 15
944049/5) - 14520*sqrt(10)*sqrt(-1 + 11/(10*(x + 3/5)))*(x + 3/5)
/(5314683*x + 4392300*(x + 3/5)**3 - 9663060*(x + 3/5)**2 + 15944
049/5) - 2662*sqrt(10)*sqrt(-1 + 11/(10*(x + 3/5)))/(5314683*x +
4392300*(x + 3/5)**3 - 9663060*(x + 3/5)**2 + 15944049/5), 11*Abs
(1/(x + 3/5))/10 > 1), (-32000*sqrt(10)*I*sqrt(1 - 11/(10*(x + 3/
5)))*(x + 3/5)**3/(5314683*x + 4392300*(x + 3/5)**3 - 9663060*(x
+ 3/5)**2 + 15944049/5) + 52800*sqrt(10)*I*sqrt(1 - 11/(10*(x + 3
/5)))*(x + 3/5)**2/(5314683*x + 4392300*(x + 3/5)**3 - 9663060*(x
 + 3/5)**2 + 15944049/5) - 14520*sqrt(10)*I*sqrt(1 - 11/(10*(x +
3/5)))*(x + 3/5)/(5314683*x + 4392300*(x + 3/5)**3 - 9663060*(x +
```

```
3/5)**2 + 15944049/5) - 2662*sqrt(10)*I*sqrt(1 - 11/(10*(x + 3/5
)))/(5314683*x + 4392300*(x + 3/5)**3 - 9663060*(x + 3/5)**2 + 15
944049/5), True))
```

GIAC/XCAS [A] time = 0.239323, size = 223, normalized size = 2.51

$$-\frac{5\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^3}{702768\,(5x+3)^{\frac{3}{2}}}-\frac{5\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}{5324\sqrt{5x+3}}-\frac{8\left(16\sqrt{5}(5x+3)-99\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{219615\,(2x-1)^2}+\frac{5\left(\frac{33\sqrt{10}\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}+4\sqrt{10}\right)(5x+3)^{\frac{3}{2}}}{43923\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] -5/702768*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^3/(5*x +
3)^(3/2) - 5/5324*sqrt(10)*(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/s
qrt(5*x + 3) - 8/219615*(16*sqrt(5)*(5*x + 3) - 99*sqrt(5))*sqrt(
5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)^2 + 5/43923*(33*sqrt(10)*(sqrt
(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) + 4*sqrt(10))*(5*x +
3)^(3/2)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^3
```

3.2617 $\int \frac{1}{(1-2x)^{5/2}(2+3x)(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=123

$$\frac{1001590\sqrt{1-2x}}{2152227\sqrt{5x+3}}-\frac{19130\sqrt{1-2x}}{195657(5x+3)^{3/2}}+\frac{412}{5929\sqrt{1-2x}(5x+3)^{3/2}}+\frac{4}{231(1-2x)^{3/2}(5x+3)^{3/2}}-\frac{162\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{49\sqrt{7}}$$

```
[Out] 4/(231*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)) + 412/(5929*Sqrt[1 - 2*x]
*(3 + 5*x)^(3/2)) - (19130*Sqrt[1 - 2*x])/(195657*(3 + 5*x)^(3/2)
) + (1001590*Sqrt[1 - 2*x])/(2152227*Sqrt[3 + 5*x]) - (162*ArcTan
[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(49*Sqrt[7])
```

Rubi [A] time = 0.320598, antiderivative size = 123, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$\frac{1001590\sqrt{1-2x}}{2152227\sqrt{5x+3}}-\frac{19130\sqrt{1-2x}}{195657(5x+3)^{3/2}}+\frac{412}{5929\sqrt{1-2x}(5x+3)^{3/2}}+\frac{4}{231(1-2x)^{3/2}(5x+3)^{3/2}}-\frac{162\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{49\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(5/2)*(2 + 3*x)*(3 + 5*x)^(5/2)),x]
```

```
[Out] 4/(231*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)) + 412/(5929*Sqrt[1 - 2*x]
*(3 + 5*x)^(3/2)) - (19130*Sqrt[1 - 2*x])/(195657*(3 + 5*x)^(3/2)
) + (1001590*Sqrt[1 - 2*x])/(2152227*Sqrt[3 + 5*x]) - (162*ArcTan
[Sqrt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(49*Sqrt[7])
```

Rubi in Sympy [A] time = 29.6887, size = 114, normalized size = 0.93

$$-\frac{162\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{343}-\frac{400636\sqrt{5x+3}}{2152227\sqrt{-2x+1}}+\frac{29710}{27951\sqrt{-2x+1}\sqrt{5x+3}}-\frac{370}{2541\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}+\frac{4}{231\,(-2x+1)^{\frac{3}{2}}\,(5x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(5/2)/(2+3*x)/(3+5*x)**(5/2),x)
```

```
[Out] -162*sqrt(7)*atan(sqrt(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/343 -
 400636*sqrt(5*x + 3)/(2152227*sqrt(-2*x + 1)) + 29710/(27951*sqr
t(-2*x + 1)*sqrt(5*x + 3)) - 370/(2541*sqrt(-2*x + 1)*(5*x + 3)**
(3/2)) + 4/(231*(-2*x + 1)**(3/2)*(5*x + 3)**(3/2))
```

Mathematica [A] time = 0.152722, size = 75, normalized size = 0.61

$$\frac{20031800x^3-8854440x^2-6468522x+2981164}{2152227(1-2x)^{3/2}(5x+3)^{3/2}}-\frac{81\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{49\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(5/2)*(2 + 3*x)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (2981164 - 6468522*x - 8854440*x^2 + 20031800*x^3)/(2152227*(1 -
2*x)^(3/2)*(3 + 5*x)^(3/2)) - (81*ArcTan[(-20 - 37*x)/(2*Sqrt[7 -
 14*x]*Sqrt[3 + 5*x])])/(49*Sqrt[7])
```

Maple [B] time = 0.023, size = 250, normalized size = 2.

$$\frac{1}{15065589\,(-1+2\,x)^2}\sqrt{1-2\,x}\left(355776300\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^4+71155260\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)}{\sqrt{-10\,x^2-x}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(5/2)/(2+3*x)/(3+5*x)^(5/2),x)
```

```
[Out] 1/15065589*(1-2*x)^(1/2)*(355776300*7^(1/2)*arctan(1/14*(37*x+20)
*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^4+71155260*7^(1/2)*arctan(1/14*(3
7*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3-209908017*7^(1/2)*arctan
(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+140222600*x^3*(-
10*x^2-x+3)^(1/2)-21346578*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/
(-10*x^2-x+3)^(1/2))*x-61981080*x^2*(-10*x^2-x+3)^(1/2)+32019867*
7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))-452796
54*x*(-10*x^2-x+3)^(1/2)+20868148*(-10*x^2-x+3)^(1/2))/(-1+2*x)^2
/(-10*x^2-x+3)^(1/2)/(3+5*x)^(3/2)
```

Maxima [A] time = 1.50277, size = 117, normalized size = 0.95

$$\frac{81}{343}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)-\frac{2003180\,x}{2152227\,\sqrt{-10\,x^2-x+3}}+\frac{1085762}{2152227\,\sqrt{-10\,x^2-x+3}}+\frac{740\,x}{2541\,(-10\,x^2-x+3)^{\frac{3}{2}}}-\frac{326}{2541\,(-10\,x^2-x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(5/2)*(3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] 81/343*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x + 2))
- 2003180/2152227*x/sqrt(-10*x^2 - x + 3) + 1085762/2152227/sqrt(
-10*x^2 - x + 3) + 740/2541*x/(-10*x^2 - x + 3)^(3/2) - 326/2541/
(-10*x^2 - x + 3)^(3/2)
```

Fricas [A] time = 0.234832, size = 147, normalized size = 1.2

$$\frac{\sqrt{7}\left(2\,\sqrt{7}\left(10015900\,x^3-4427220\,x^2-3234261\,x+1490582\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+3557763\,\left(100\,x^4+20\,x^3-59\,x^2-6\,x+9\right.\right.}{15065589\,(100\,x^4+20\,x^3-59\,x^2-6\,x+9)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(5/2)*(3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] 1/15065589*sqrt(7)*(2*sqrt(7)*(10015900*x^3 - 4427220*x^2 - 32342
61*x + 1490582)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 3557763*(100*x^4 +
 20*x^3 - 59*x^2 - 6*x + 9)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt
(5*x + 3)*sqrt(-2*x + 1))))/(100*x^4 + 20*x^3 - 59*x^2 - 6*x + 9)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(5/2)/(2+3*x)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.279605, size = 315, normalized size = 2.56

$$-\frac{25}{702768}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^{3}+\frac{81}{3430}\sqrt{70}\sqrt{10}\left(\pi+2\,\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^{2}}{5\,x+3}-4\right)}{140\,\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)+\frac{675}{29282}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\,\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)-\frac{32\,\left(379\,\sqrt{5}(5\,x+3)-2277\,\sqrt{5}\right)\sqrt{5\,x+3}\sqrt{-10\,x+5}}{53805675\,(2\,x-1)^{2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(5/2)*(3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] -25/702768*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*
x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3
+ 81/3430*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqrt(5
*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)/(s
qrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 675/29282*sqrt(10)*((sqrt(
2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(s
qrt(2)*sqrt(-10*x + 5) - sqrt(22))) - 32/53805675*(379*sqrt(5)*(5
*x + 3) - 2277*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)^2
```

3.2618 $\int \frac{1}{(1-2x)^{5/2}(2+3x)^2(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=152

$$\frac{95783075\sqrt{1-2x}}{15065589\sqrt{5x+3}}-\frac{985525\sqrt{1-2x}}{1369599(5x+3)^{3/2}}-\frac{1090}{41503\sqrt{1-2x}(5x+3)^{3/2}}+\frac{3}{7(1-2x)^{3/2}(3x+2)(5x+3)^{3/2}}-\frac{190}{1617(1-2x)^{3/2}(5x+3)^{3/2}}-\frac{14985\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{343\sqrt{7}}$$

```
[Out] -190/(1617*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)) - 1090/(41503*Sqrt[1
- 2*x]*(3 + 5*x)^(3/2)) - (985525*Sqrt[1 - 2*x])/(1369599*(3 + 5*
x)^(3/2)) + 3/(7*(1 - 2*x)^(3/2)*(2 + 3*x)*(3 + 5*x)^(3/2)) + (95
783075*Sqrt[1 - 2*x])/(15065589*Sqrt[3 + 5*x]) - (14985*ArcTan[Sq
rt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(343*Sqrt[7])
```

Rubi [A] time = 0.406552, antiderivative size = 152, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$\frac{95783075\sqrt{1-2x}}{15065589\sqrt{5x+3}}-\frac{985525\sqrt{1-2x}}{1369599(5x+3)^{3/2}}-\frac{1090}{41503\sqrt{1-2x}(5x+3)^{3/2}}+\frac{3}{7(1-2x)^{3/2}(3x+2)(5x+3)^{3/2}}-\frac{190}{1617(1-2x)^{3/2}(5x+3)^{3/2}}-\frac{14985\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{343\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(5/2)*(2 + 3*x)^2*(3 + 5*x)^(5/2)),x]
```

```
[Out] -190/(1617*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)) - 1090/(41503*Sqrt[1
- 2*x]*(3 + 5*x)^(3/2)) - (985525*Sqrt[1 - 2*x])/(1369599*(3 + 5*
x)^(3/2)) + 3/(7*(1 - 2*x)^(3/2)*(2 + 3*x)*(3 + 5*x)^(3/2)) + (95
783075*Sqrt[1 - 2*x])/(15065589*Sqrt[3 + 5*x]) - (14985*ArcTan[Sq
rt[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(343*Sqrt[7])
```

Rubi in Sympy [A] time = 38.642, size = 139, normalized size = 0.91

$$\frac{95783075\sqrt{-2x+1}}{15065589\sqrt{5x+3}}-\frac{985525\sqrt{-2x+1}}{1369599\,(5x+3)^{\frac{3}{2}}}-\frac{14985\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{2401}-\frac{1090}{41503\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}-\frac{190}{1617\,(-2x+1)^{\frac{3}{2}}\,(5x+3)^{\frac{3}{2}}}+\frac{3}{7\,(-2x+1)^{\frac{3}{2}}\,(3x+2)\,(5x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(5/2)/(2+3*x)**2/(3+5*x)**(5/2),x)
```

```
[Out] 95783075*sqrt(-2*x + 1)/(15065589*sqrt(5*x + 3)) - 985525*sqrt(-2
*x + 1)/(1369599*(5*x + 3)**(3/2)) - 14985*sqrt(7)*atan(sqrt(7)*s
qrt(-2*x + 1)/(7*sqrt(5*x + 3)))/2401 - 1090/(41503*sqrt(-2*x + 1
)*(5*x + 3)**(3/2)) - 190/(1617*(-2*x + 1)**(3/2)*(5*x + 3)**(3/2
)) + 3/(7*(-2*x + 1)**(3/2)*(3*x + 2)*(5*x + 3)**(3/2))
```

Mathematica [A] time = 0.144564, size = 87, normalized size = 0.57

$$\frac{5746984500x^4+1402439900x^3-3498236655x^2-429626520x+555141781}{15065589(1-2x)^{3/2}(3x+2)(5x+3)^{3/2}}-\frac{14985\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{686\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(5/2)*(2 + 3*x)^2*(3 + 5*x)^(5/2)),x]
```

```
[Out] (555141781 - 429626520*x - 3498236655*x^2 + 1402439900*x^3 + 5746
984500*x^4)/(15065589*(1 - 2*x)^(3/2)*(2 + 3*x)*(3 + 5*x)^(3/2))
- (14985*ArcTan[(-20 - 37*x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/(
686*Sqrt[7])
```

Maple [B] time = 0.026, size = 305, normalized size = 2.

$$\frac{1}{(421836492+632754738\,x)\,(-1+2\,x)^2}\sqrt{1-2\,x}\left(197455846500\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\,\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^5+171128400300\,\sqrt{7}\,\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(5/2)/(2+3*x)^2/(3+5*x)^(5/2),x)
```

```
[Out] 1/210918246*(1-2*x)^(1/2)*(197455846500*7^(1/2)*arctan(1/14*(37*x
+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^5+171128400300*7^(1/2)*arctan
(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^4-90171503235*7^(1
/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+804577
83000*x^4*(-10*x^2-x+3)^(1/2)-89513317080*7^(1/2)*arctan(1/14*(37
*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2+19634158600*x^3*(-10*x^2-
x+3)^(1/2)+9872792325*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*
x^2-x+3)^(1/2))*x-48975313170*x^2*(-10*x^2-x+3)^(1/2)+11847350790
*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))-60147
71280*x*(-10*x^2-x+3)^(1/2)+7771984934*(-10*x^2-x+3)^(1/2))/(2+3*
x)/(-1+2*x)^2/(-10*x^2-x+3)^(1/2)/(3+5*x)^(3/2)
```

Maxima [A] time = 1.51228, size = 163, normalized size = 1.07

$$\frac{14985}{4802}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)-\frac{191566150\,x}{15065589\,\sqrt{-10\,x^2-x+3}}+\frac{100119385}{15065589\,\sqrt{-10\,x^2-x+3}}+\frac{57250\,x}{17787\,(-10\,x^2-x+3)^{\frac{3}{2}}}+\frac{3}{7\left(3\,(-10\,x^2-x+3)^{\frac{3}{2}}x+2\,(-10\,x^2-x+3)^{\frac{3}{2}}\right)}-\frac{30715}{17787\,(-10\,x^2-x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^2*(-2*x + 1)^(5/2)),x, algorithm="maxima"
```

```
[Out] 14985/4802*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x +
2)) - 191566150/15065589*x/sqrt(-10*x^2 - x + 3) + 100119385/1506
5589/sqrt(-10*x^2 - x + 3) + 57250/17787*x/(-10*x^2 - x + 3)^(3/2
) + 3/7/(3*(-10*x^2 - x + 3)^(3/2)*x + 2*(-10*x^2 - x + 3)^(3/2))
 - 30715/17787/(-10*x^2 - x + 3)^(3/2)
```

Fricas [A] time = 0.226336, size = 167, normalized size = 1.1

$$\frac{\sqrt{7}\left(2\,\sqrt{7}\left(5746984500\,x^4+1402439900\,x^3-3498236655\,x^2-429626520\,x+555141781\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}+658186155\,(\right.}{210918246\,(300\,x^5+260\,x^4-137\,x^3-136\,x^2+15\,x+}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^2*(-2*x + 1)^(5/2)),x, algorithm="fricas"
```

```
[Out] 1/210918246*sqrt(7)*(2*sqrt(7)*(5746984500*x^4 + 1402439900*x^3 -
 3498236655*x^2 - 429626520*x + 555141781)*sqrt(5*x + 3)*sqrt(-2*
x + 1) + 658186155*(300*x^5 + 260*x^4 - 137*x^3 - 136*x^2 + 15*x
+ 18)*arctan(1/14*sqrt(7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x +
1))))/(300*x^5 + 260*x^4 - 137*x^3 - 136*x^2 + 15*x + 18)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(5/2)/(2+3*x)**2/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.424971, size = 475, normalized size = 3.12

$$-\frac{125}{702768}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^3 + \frac{2997}{9604}\sqrt{70}\sqrt{10}\left(\pi + 2\arctan\left(-\frac{\sqrt{70}\sqrt{5x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)^2}{5x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10x+5}-\sqrt{22}\right)}\right)\right) + \frac{3750}{14641}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right) + \frac{5346\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)}{343\left(\left(\frac{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}{\sqrt{5x+3}}-\frac{4\sqrt{5x+3}}{\sqrt{2}\sqrt{-10x+5}-\sqrt{22}}\right)^2+280\right)} - \frac{32\left(956\sqrt{5}(5x+3)-5643\sqrt{5}\right)\sqrt{5x+3}\sqrt{-10x+5}}{376639725\,(2x-1)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^2*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] -125/702768*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5
*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3
 + 2997/9604*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*sqr
t(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) - 4)
/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 3750/14641*sqrt(10)*((s
qrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3
)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))) + 5346/343*sqrt(10)*((sqr
t(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/
(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))/(((sqrt(2)*sqrt(-10*x + 5)
- sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x +
 5) - sqrt(22)))^2 + 280) - 32/376639725*(956*sqrt(5)*(5*x + 3) -
 5643*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5)/(2*x - 1)^2
```

3.2619 $\int \frac{1}{(1-2x)^{5/2}(2+3x)^3(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=181

$$\frac{3443814775\sqrt{1-2x}}{60262356\sqrt{5x+3}}-\frac{34551425\sqrt{1-2x}}{5478396(5x+3)^{3/2}}-\frac{40765}{83006\sqrt{1-2x}(5x+3)^{3/2}}+\frac{111}{28(1-2x)^{3/2}(3x+2)(5x+3)^{3/2}}-\frac{3715}{3234(1-2x)^{3/2}(5x+3)^{3/2}}+\frac{3}{14(1-2x)^{3/2}(3x+2)^2(5x+3)^{3/2}}-\frac{538245\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{1372\sqrt{7}}$$

```
[Out] -3715/(3234*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)) - 40765/(83006*Sqrt[
1 - 2*x]*(3 + 5*x)^(3/2)) - (34551425*Sqrt[1 - 2*x])/(5478396*(3
+ 5*x)^(3/2)) + 3/(14*(1 - 2*x)^(3/2)*(2 + 3*x)^2*(3 + 5*x)^(3/2)
) + 111/(28*(1 - 2*x)^(3/2)*(2 + 3*x)*(3 + 5*x)^(3/2)) + (3443814
775*Sqrt[1 - 2*x])/(60262356*Sqrt[3 + 5*x]) - (538245*ArcTan[Sqrt
[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(1372*Sqrt[7])
```

Rubi [A] time = 0.492758, antiderivative size = 181, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.231

$$\frac{3443814775\sqrt{1-2x}}{60262356\sqrt{5x+3}}-\frac{34551425\sqrt{1-2x}}{5478396(5x+3)^{3/2}}-\frac{40765}{83006\sqrt{1-2x}(5x+3)^{3/2}}+\frac{111}{28(1-2x)^{3/2}(3x+2)(5x+3)^{3/2}}-\frac{3715}{3234(1-2x)^{3/2}(5x+3)^{3/2}}+\frac{3}{14(1-2x)^{3/2}(3x+2)^2(5x+3)^{3/2}}-\frac{538245\tan^{-1}\left(\frac{\sqrt{1-2x}}{\sqrt{7}\sqrt{5x+3}}\right)}{1372\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(5/2)*(2 + 3*x)^3*(3 + 5*x)^(5/2)),x]
```

```
[Out] -3715/(3234*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)) - 40765/(83006*Sqrt[
1 - 2*x]*(3 + 5*x)^(3/2)) - (34551425*Sqrt[1 - 2*x])/(5478396*(3
+ 5*x)^(3/2)) + 3/(14*(1 - 2*x)^(3/2)*(2 + 3*x)^2*(3 + 5*x)^(3/2)
) + 111/(28*(1 - 2*x)^(3/2)*(2 + 3*x)*(3 + 5*x)^(3/2)) + (3443814
775*Sqrt[1 - 2*x])/(60262356*Sqrt[3 + 5*x]) - (538245*ArcTan[Sqrt
[1 - 2*x]/(Sqrt[7]*Sqrt[3 + 5*x])])/(1372*Sqrt[7])
```

Rubi in Sympy [A] time = 42.7831, size = 167, normalized size = 0.92

$$\frac{3443814775\sqrt{-2x+1}}{60262356\sqrt{5x+3}}-\frac{34551425\sqrt{-2x+1}}{5478396\,(5x+3)^{\frac{3}{2}}}-\frac{538245\sqrt{7}\,\mathrm{atan}\left(\frac{\sqrt{7}\sqrt{-2x+1}}{7\sqrt{5x+3}}\right)}{9604}-\frac{40765}{83006\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}-\frac{3715}{3234\,(-2x+1)^{\frac{3}{2}}\,(5x+3)^{\frac{3}{2}}}+\frac{111}{28\,(-2x+1)^{\frac{3}{2}}\,(3x+2)\,(5x+3)^{\frac{3}{2}}}+\frac{3}{14\,(-2x+1)^{\frac{3}{2}}\,(3x+2)^2\,(5x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(5/2)/(2+3*x)**3/(3+5*x)**(5/2),x)
```

```
[Out] 3443814775*sqrt(-2*x + 1)/(60262356*sqrt(5*x + 3)) - 34551425*sqr
t(-2*x + 1)/(5478396*(5*x + 3)**(3/2)) - 538245*sqrt(7)*atan(sqrt
(7)*sqrt(-2*x + 1)/(7*sqrt(5*x + 3)))/9604 - 40765/(83006*sqrt(-2
*x + 1)*(5*x + 3)**(3/2)) - 3715/(3234*(-2*x + 1)**(3/2)*(5*x + 3
```

```
)**(3/2)) + 111/(28*(-2*x + 1)**(3/2)*(3*x + 2)*(5*x + 3)**(3/2))
 + 3/(14*(-2*x + 1)**(3/2)*(3*x + 2)**2*(5*x + 3)**(3/2))
```

Mathematica [A] time = 0.116463, size = 95, normalized size = 0.52

$$\frac{\sqrt{1-2x}\left(619886659500x^5+564878517900x^4-276089438305x^3-297937101390x^2+28838387211x+39900939556\right)}{60262356(5x+3)^{3/2}\left(6x^2+x-2\right)^2}-\frac{538245\tan^{-1}\left(\frac{-37x-20}{2\sqrt{7-14x}\sqrt{5x+3}}\right)}{2744\sqrt{7}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(5/2)*(2 + 3*x)^3*(3 + 5*x)^(5/2)),x]
```

```
[Out] (Sqrt[1 - 2*x]*(39900939556 + 28838387211*x - 297937101390*x^2 -
276089438305*x^3 + 564878517900*x^4 + 619886659500*x^5))/(6026235
6*(3 + 5*x)^(3/2)*(-2 + x + 6*x^2)^2) - (538245*ArcTan[(-20 - 37*
x)/(2*Sqrt[7 - 14*x]*Sqrt[3 + 5*x])])/(2744*Sqrt[7])
```

Maple [B] time = 0.026, size = 353, normalized size = 2.

$$\frac{1}{843672984\,(2+3\,x)^2(-1+2\,x)^2}\sqrt{1-2\,x}\left(21277201621500\,\sqrt{7}\arctan\left(1/14\,\frac{(37\,x+20)\sqrt{7}}{\sqrt{-10\,x^2-x+3}}\right)x^6+32625042486300\,\sqrt{7}\,\text{ar}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(5/2)/(2+3*x)^3/(3+5*x)^(5/2),x)
```

```
[Out] 1/843672984*(1-2*x)^(1/2)*(21277201621500*7^(1/2)*arctan(1/14*(37
*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^6+32625042486300*7^(1/2)*ar
ctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^5+257690552971
5*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^4+
8678413233000*x^5*(-10*x^2-x+3)^(1/2)-16123390562070*7^(1/2)*arct
an(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^3+7908299250600*
x^4*(-10*x^2-x+3)^(1/2)-5366583075645*7^(1/2)*arctan(1/14*(37*x+2
0)*7^(1/2)/(-10*x^2-x+3)^(1/2))*x^2-3865252136270*x^3*(-10*x^2-x+
3)^(1/2)+1985872151340*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10
*x^2-x+3)^(1/2))*x-4171119419460*x^2*(-10*x^2-x+3)^(1/2)+85108806
4860*7^(1/2)*arctan(1/14*(37*x+20)*7^(1/2)/(-10*x^2-x+3)^(1/2))+4
03737420954*x*(-10*x^2-x+3)^(1/2)+558613153784*(-10*x^2-x+3)^(1/2
))/(2+3*x)^2/(-1+2*x)^2/(-10*x^2-x+3)^(1/2)/(3+5*x)^(3/2)
```

Maxima [A] time = 1.50737, size = 232, normalized size = 1.28

$$\frac{538245}{19208}\sqrt{7}\arcsin\left(\frac{37\,x}{11\,|3\,x+2|}+\frac{20}{11\,|3\,x+2|}\right)-\frac{3443814775\,x}{30131178\sqrt{-10\,x^2-x+3}}+\frac{3595841045}{60262356\sqrt{-10\,x^2-x+3}}+\frac{1022125\,x}{35574\,(-10\,x^2-x+3)^{\frac{3}{2}}}+\frac{3}{14\left(9\,(-10\,x^2-x+3)^{\frac{3}{2}}x^2+12\,(-10\,x^2-x+3)^{\frac{3}{2}}x+4\,(-10\,x^2-x+3)^{\frac{3}{2}}\right)}+\frac{111}{28\left(3\,(-10\,x^2-x+3)^{\frac{3}{2}}x+2\,(-10\,x^2-x+3)^{\frac{3}{2}}\right)}-\frac{1103855}{71148\,(-10\,x^2-x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^3*(-2*x + 1)^(5/2)),x, algorithm="maxima"
```

```
[Out] 538245/19208*sqrt(7)*arcsin(37/11*x/abs(3*x + 2) + 20/11/abs(3*x
+ 2)) - 3443814775/30131178*x/sqrt(-10*x^2 - x + 3) + 3595841045/
60262356/sqrt(-10*x^2 - x + 3) + 1022125/35574*x/(-10*x^2 - x + 3
)^(3/2) + 3/14/(9*(-10*x^2 - x + 3)^(3/2)*x^2 + 12*(-10*x^2 - x +
 3)^(3/2)*x + 4*(-10*x^2 - x + 3)^(3/2)) + 111/28/(3*(-10*x^2 - x
 + 3)^(3/2)*x + 2*(-10*x^2 - x + 3)^(3/2)) - 1103855/71148/(-10*x
^2 - x + 3)^(3/2)
```

Fricas [A] time = 0.234973, size = 188, normalized size = 1.04

$$\frac{\sqrt{7}\Big(2\sqrt{7}\big(619886659500\,x^5+564878517900\,x^4-276089438305\,x^3-297937101390\,x^2+28838387211\,x+39900939556\big)\sqrt{5}}{843672984\,(900\,x^6+1380\,x^5+109\,x^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^3*(-2*x + 1)^(5/2)),x, algorithm="fricas"
```

```
[Out] 1/843672984*sqrt(7)*(2*sqrt(7)*(619886659500*x^5 + 564878517900*x
^4 - 276089438305*x^3 - 297937101390*x^2 + 28838387211*x + 399009
39556)*sqrt(5*x + 3)*sqrt(-2*x + 1) + 23641335135*(900*x^6 + 1380
*x^5 + 109*x^4 - 682*x^3 - 227*x^2 + 84*x + 36)*arctan(1/14*sqrt(
7)*(37*x + 20)/(sqrt(5*x + 3)*sqrt(-2*x + 1))))/(900*x^6 + 1380*x
^5 + 109*x^4 - 682*x^3 - 227*x^2 + 84*x + 36)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(1-2*x)**(5/2)/(2+3*x)**3/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.532899, size = 562, normalized size = 3.1

$$-\frac{625}{702768}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^3+\frac{107649}{38416}\sqrt{70}\sqrt{10}\left(\pi+2\arctan\left(-\frac{\sqrt{70}\sqrt{5\,x+3}\left(\frac{\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)^2}{5\,x+3}-4\right)}{140\left(\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}\right)}\right)\right)+\frac{58125}{29282}\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)-\frac{128\left(577\sqrt{5}(5\,x+3)-3366\sqrt{5}\right)\sqrt{5\,x+3}\sqrt{-10\,x+5}}{2636478075\,(2\,x-1)^2}+\frac{8019\left(159\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^3+38360\sqrt{10}\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)\right)}{4802\left(\left(\frac{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}{\sqrt{5\,x+3}}-\frac{4\sqrt{5\,x+3}}{\sqrt{2}\sqrt{-10\,x+5}-\sqrt{22}}\right)^2+280\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^3*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] -625/702768*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5
*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^3
 + 107649/38416*sqrt(70)*sqrt(10)*(pi + 2*arctan(-1/140*sqrt(70)*
sqrt(5*x + 3)*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))^2/(5*x + 3) -
 4)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))) + 58125/29282*sqrt(10)
*((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x
 + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22))) - 128/2636478075*(577
*sqrt(5)*(5*x + 3) - 3366*sqrt(5))*sqrt(5*x + 3)*sqrt(-10*x + 5)/
(2*x - 1)^2 + 8019/4802*(159*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) -
 sqrt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x +
5) - sqrt(22)))^3 + 38360*sqrt(10)*((sqrt(2)*sqrt(-10*x + 5) - sq
rt(22))/sqrt(5*x + 3) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5)
- sqrt(22))))/(((sqrt(2)*sqrt(-10*x + 5) - sqrt(22))/sqrt(5*x + 3
) - 4*sqrt(5*x + 3)/(sqrt(2)*sqrt(-10*x + 5) - sqrt(22)))^2 + 280
)^2
```

3.2620 $\int \frac{1}{\sqrt{a+bx}\sqrt{c+\frac{b(-1+c)x}{a}}\sqrt{e+\frac{b(-1+e)x}{a}}}\,dx$

Optimal. Leaf size=58

$$\frac{2\sqrt{a}F\left(\sin^{-1}\left(\frac{\sqrt{1-c}\sqrt{a+bx}}{\sqrt{a}}\right)|\frac{1-e}{1-c}\right)}{b\sqrt{1-c}}$$

```
[Out] (2*Sqrt[a]*EllipticF[ArcSin[(Sqrt[1 - c]*Sqrt[a + b*x])/Sqrt[a]],
 (1 - e)/(1 - c)])/(b*Sqrt[1 - c])
```

Rubi [A] time = 0.205639, antiderivative size = 58, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 40, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.025

$$\frac{2\sqrt{a}F\left(\sin^{-1}\left(\frac{\sqrt{1-c}\sqrt{a+bx}}{\sqrt{a}}\right)|\frac{1-e}{1-c}\right)}{b\sqrt{1-c}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[a + b*x]*Sqrt[c + (b*(-1 + c)*x)/a]*Sqrt[e + (b*(-
1 + e)*x)/a]),x]
```

```
[Out] (2*Sqrt[a]*EllipticF[ArcSin[(Sqrt[1 - c]*Sqrt[a + b*x])/Sqrt[a]],
 (1 - e)/(1 - c)])/(b*Sqrt[1 - c])
```

Rubi in Sympy [A] time = 20.5572, size = 42, normalized size = 0.72

$$\frac{2\sqrt{a}F\left(\operatorname{asin}\left(\frac{\sqrt{a+bx}\sqrt{-e+1}}{\sqrt{a}}\right)\middle|\frac{c-1}{e-1}\right)}{b\sqrt{-e+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(1/(b*x+a)**(1/2)/(c+b*(-1+c)*x/a)**(1/2)/(e+b*(-1+e)*x/a)**(1/2
```

```
[Out] 2*sqrt(a)*elliptic_f(asin(sqrt(a + b*x)*sqrt(-e + 1)/sqrt(a)), (c
 - 1)/(e - 1))/(b*sqrt(-e + 1))
```

Mathematica [B] time = 0.469788, size = 129, normalized size = 2.22

$$-\frac{2(a+bx)\sqrt{\frac{\frac{a}{a+bx}+c-1}{c-1}}\sqrt{\frac{\frac{a}{a+bx}+e-1}{e-1}}F\left(\sin^{-1}\left(\frac{\sqrt{-\frac{a}{c-1}}}{\sqrt{a+bx}}\right)|\frac{c-1}{e-1}\right)}{b\sqrt{-\frac{a}{c-1}}\sqrt{\frac{b(c-1)x}{a}+c}\sqrt{\frac{b(e-1)x}{a}+e}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[a + b*x]*Sqrt[c + (b*(-1 + c)*x)/a]*Sqrt[e + (b*(-
1 + e)*x)/a]),x]
```

```
[Out] (-2*(a + b*x)*Sqrt[(-1 + c + a/(a + b*x))/(-1 + c)]*Sqrt[(-1 + e
+ a/(a + b*x))/(-1 + e)]*EllipticF[ArcSin[Sqrt[-(a/(-1 + c))]/Sqr
t[a + b*x]], (-1 + c)/(-1 + e)])/(b*Sqrt[-(a/(-1 + c))]*Sqrt[c +
(b*(-1 + c)*x)/a]*Sqrt[e + (b*(-1 + e)*x)/a])
```

Maple [B] time = 0.253, size = 181, normalized size = 3.1

$$-2\frac{a(c-e)}{\sqrt{bx+a}b(c-1)(-1+e)}\sqrt{-\frac{(-1+e)(bcx+ac-bx)}{a(c-e)}}\sqrt{-\frac{(bx+a)(c-1)}{a}}\sqrt{\frac{(c-1)(bxe+ae-bx)}{a(c-e)}}EllipticF\left(\sqrt{-\frac{(-1+e}{}}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(1/(b*x+a)^(1/2)/(c+b*(c-1)*x/a)^(1/2)/(e+b*(-1+e)*x/a)^(1/2),x)
```

```
[Out] -2/(b*x+a)^(1/2)*a*(-(-1+e)*(b*c*x+a*c-b*x)/a/(c-e))^(1/2)*(-(b*x
+a)*(c-1)/a)^(1/2)*((c-1)*(b*e*x+a*e-b*x)/a/(c-e))^(1/2)*Elliptic
F((-(-1+e)*(b*c*x+a*c-b*x)/a/(c-e))^(1/2),(-(c-e)/(-1+e))^(1/2))*
(c-e)/((b*c*x+a*c-b*x)/a)^(1/2)/((b*e*x+a*e-b*x)/a)^(1/2)/b/(c-1)
/(-1+e)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{bx+a}\sqrt{\frac{b(c-1)x}{a}+c}\sqrt{\frac{b(e-1)x}{a}+e}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(b*x + a)*sqrt(b*(c - 1)*x/a + c)*sqrt(b*(e - 1)*x/a + e)),x, alg
```

```
[Out] integrate(1/(sqrt(b*x + a)*sqrt(b*(c - 1)*x/a + c)*sqrt(b*(e - 1)
*x/a + e)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{\sqrt{bx+a}\sqrt{\frac{ac+(bc-b)x}{a}}\sqrt{\frac{ae+(be-b)x}{a}}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(b*x + a)*sqrt(b*(c - 1)*x/a + c)*sqrt(b*(e - 1)*x/a + e)),x, alg
```

```
[Out] integral(1/(sqrt(b*x + a)*sqrt((a*c + (b*c - b)*x)/a)*sqrt((a*e +
 (b*e - b)*x)/a)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{a+bx}\sqrt{c+\frac{bcx}{a}-\frac{bx}{a}}\sqrt{e+\frac{bex}{a}-\frac{bx}{a}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(b*x+a)**(1/2)/(c+b*(-1+c)*x/a)**(1/2)/(e+b*(-1+e)*x/a)**(1/2),x)
```

```
[Out] Integral(1/(sqrt(a + b*x)*sqrt(c + b*c*x/a - b*x/a)*sqrt(e + b*e*
x/a - b*x/a)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{bx+a}\sqrt{\frac{b(c-1)x}{a}+c}\sqrt{\frac{b(e-1)x}{a}+e}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(b*x + a)*sqrt(b*(c - 1)*x/a + c)*sqrt(b*(e - 1)*x/a + e)),x, alg
```

```
[Out] integrate(1/(sqrt(b*x + a)*sqrt(b*(c - 1)*x/a + c)*sqrt(b*(e - 1)
*x/a + e)), x)
```

3.2621 $\int \frac{1}{\sqrt{a+bx}\sqrt{c+dx}\sqrt{e+\frac{b(-1+e)x}{a}}}\,dx$

Optimal. Leaf size=96

$$\frac{2\sqrt{a}\sqrt{\frac{b(c+dx)}{bc-ad}}F\left(\sin^{-1}\left(\frac{\sqrt{1-e}\sqrt{a+bx}}{\sqrt{a}}\right)|-\frac{ad}{(bc-ad)(1-e)}\right)}{b\sqrt{1-e}\sqrt{c+dx}}$$

```
[Out] (2*Sqrt[a]*Sqrt[(b*(c + d*x))/(b*c - a*d)]*EllipticF[ArcSin[(Sqrt
[1 - e]*Sqrt[a + b*x])/Sqrt[a]], -((a*d)/((b*c - a*d)*(1 - e)))])
/(b*Sqrt[1 - e]*Sqrt[c + d*x])
```

Rubi [A] time = 0.400461, antiderivative size = 96, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 34, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.059

$$\frac{2\sqrt{a}\sqrt{\frac{b(c+dx)}{bc-ad}}F\left(\sin^{-1}\left(\frac{\sqrt{1-e}\sqrt{a+bx}}{\sqrt{a}}\right)|-\frac{ad}{(bc-ad)(1-e)}\right)}{b\sqrt{1-e}\sqrt{c+dx}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[a + b*x]*Sqrt[c + d*x]*Sqrt[e + (b*(-1 + e)*x)/a]),x]
```

```
[Out] (2*Sqrt[a]*Sqrt[(b*(c + d*x))/(b*c - a*d)]*EllipticF[ArcSin[(Sqrt
[1 - e]*Sqrt[a + b*x])/Sqrt[a]], -((a*d)/((b*c - a*d)*(1 - e)))])
/(b*Sqrt[1 - e]*Sqrt[c + d*x])
```

Rubi in Sympy [A] time = 52.401, size = 83, normalized size = 0.86

$$\frac{2\sqrt{\frac{b(-c-dx)}{ad-bc}}\sqrt{ad-bc}F\left(\operatorname{asin}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{ad-bc}}\right)\middle|\frac{(e-1)(-ad+bc)}{ad}\right)}{b\sqrt{d}\sqrt{c+dx}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(b*x+a)**(1/2)/(d*x+c)**(1/2)/(e+b*(-1+e)*x/a)**(1/2),x)
```

```
[Out] 2*sqrt(b*(-c - d*x)/(a*d - b*c))*sqrt(a*d - b*c)*elliptic_f(asin(
sqrt(d)*sqrt(a + b*x)/sqrt(a*d - b*c)), (e - 1)*(-a*d + b*c)/(a*d
))/(b*sqrt(d)*sqrt(c + d*x))
```

Mathematica [A] time = 0.598351, size = 126, normalized size = 1.31

$$-\frac{2\sqrt{c+dx}\sqrt{\frac{\frac{a}{a+bx}+e-1}{e-1}}F\left(\sin^{-1}\left(\frac{\sqrt{-\frac{a}{e-1}}}{\sqrt{a+bx}}\right)|\frac{(bc-ad)(e-1)}{ad}\right)}{d\sqrt{-\frac{a}{e-1}}\sqrt{\frac{b(e-1)x}{a}+e}\sqrt{\frac{b(c+dx)}{d(a+bx)}}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[a + b*x]*Sqrt[c + d*x]*Sqrt[e + (b*(-1 + e)*x)/a]),x]
```

```
[Out] (-2*Sqrt[c + d*x]*Sqrt[(-1 + e + a/(a + b*x))/(-1 + e)]*EllipticF
[ArcSin[Sqrt[-(a/(-1 + e))]/Sqrt[a + b*x]], ((b*c - a*d)*(-1 + e)
)/(a*d)])/(d*Sqrt[-(a/(-1 + e))]*Sqrt[(b*(c + d*x))/(d*(a + b*x))
]*Sqrt[e + (b*(-1 + e)*x)/a])
```

Maple [B] time = 0.171, size = 207, normalized size = 2.2

$$2\frac{\sqrt{bx+a}\,\sqrt{dx+c}\,(ade-bce+bc)}{(dx^2b+adx+bcx+ac)\,bd\,(-1+e)}\sqrt{\frac{d\,(bxe+ae-bx)}{ade-bce+bc}}\sqrt{-\frac{(bx+a)\,(-1+e)}{a}}\sqrt{-\frac{(dx+c)\,b\,(-1+e)}{ade-bce+bc}}\,\mathit{EllipticF}\left(\sqrt{\frac{d\,(bxe+\dots}{ade-b\dots}}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(b*x+a)^(1/2)/(d*x+c)^(1/2)/(e+b*(-1+e)*x/a)^(1/2),x)
```

```
[Out] 2*(b*x+a)^(1/2)*(d*x+c)^(1/2)*(d*(b*e*x+a*e-b*x)/(a*d*e-b*c*e+b*c
))^(1/2)*(-(b*x+a)*(-1+e)/a)^(1/2)*(-(d*x+c)*b*(-1+e)/(a*d*e-b*c*
e+b*c))^(1/2)*EllipticF((d*(b*e*x+a*e-b*x)/(a*d*e-b*c*e+b*c))^(1/
2),((a*d*e-b*c*e+b*c)/a/d)^(1/2))*(a*d*e-b*c*e+b*c)/((b*e*x+a*e-b
*x)/a)^(1/2)/(b*d*x^2+a*d*x+b*c*x+a*c)/b/d/(-1+e)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{bx+a}\sqrt{dx+c}\sqrt{\frac{b(e-1)x}{a}+e}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(b*x + a)*sqrt(d*x + c)*sqrt(b*(e - 1)*x/a + e)),x, algorithm="m
```

```
[Out] integrate(1/(sqrt(b*x + a)*sqrt(d*x + c)*sqrt(b*(e - 1)*x/a + e))
, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{1}{\sqrt{bx+a}\sqrt{dx+c}\sqrt{\frac{ae+(be-b)x}{a}}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(b*x + a)*sqrt(d*x + c)*sqrt(b*(e - 1)*x/a + e)),x, algorithm="f
```

```
[Out] integral(1/(sqrt(b*x + a)*sqrt(d*x + c)*sqrt((a*e + (b*e - b)*x)/
a)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{a+bx}\sqrt{c+dx}\sqrt{e+\frac{bex}{a}-\frac{bx}{a}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(b*x+a)**(1/2)/(d*x+c)**(1/2)/(e+b*(-1+e)*x/a)**(1/2),x)
```

```
[Out] Integral(1/(sqrt(a + b*x)*sqrt(c + d*x)*sqrt(e + b*e*x/a - b*x/a)
), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{bx+a}\sqrt{dx+c}\sqrt{\frac{b(e-1)x}{a}+e}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(b*x + a)*sqrt(d*x + c)*sqrt(b*(e - 1)*x/a + e)),x, algorithm="g
```

```
[Out] integrate(1/(sqrt(b*x + a)*sqrt(d*x + c)*sqrt(b*(e - 1)*x/a + e))
, x)
```

3.2622 $\int \frac{1}{\sqrt{a+bx}\sqrt{c+dx}\sqrt{e+fx}}\,dx$

Optimal. Leaf size=134

$$\frac{2\sqrt{ad-bc}\sqrt{\frac{b(c+dx)}{bc-ad}}\sqrt{\frac{b(e+fx)}{be-af}}F\left(\sin^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{ad-bc}}\right)|\frac{(bc-ad)f}{d(be-af)}\right)}{b\sqrt{d}\sqrt{c+dx}\sqrt{e+fx}}$$

```
[Out] (2*Sqrt[-(b*c) + a*d]*Sqrt[(b*(c + d*x))/(b*c - a*d)]*Sqrt[(b*(e
+ f*x))/(b*e - a*f)]*EllipticF[ArcSin[(Sqrt[d]*Sqrt[a + b*x])/Sqr
t[-(b*c) + a*d]], ((b*c - a*d)*f)/(d*(b*e - a*f))])/(b*Sqrt[d]*Sq
rt[c + d*x]*Sqrt[e + f*x])
```

Rubi [A] time = 0.58786, antiderivative size = 134, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 2, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.071

$$\frac{2\sqrt{ad-bc}\sqrt{\frac{b(c+dx)}{bc-ad}}\sqrt{\frac{b(e+fx)}{be-af}}F\left(\sin^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{ad-bc}}\right)|\frac{(bc-ad)f}{d(be-af)}\right)}{b\sqrt{d}\sqrt{c+dx}\sqrt{e+fx}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[a + b*x]*Sqrt[c + d*x]*Sqrt[e + f*x]),x]
```

```
[Out] (2*Sqrt[-(b*c) + a*d]*Sqrt[(b*(c + d*x))/(b*c - a*d)]*Sqrt[(b*(e
+ f*x))/(b*e - a*f)]*EllipticF[ArcSin[(Sqrt[d]*Sqrt[a + b*x])/Sqr
t[-(b*c) + a*d]], ((b*c - a*d)*f)/(d*(b*e - a*f))])/(b*Sqrt[d]*Sq
rt[c + d*x]*Sqrt[e + f*x])
```

Rubi in Sympy [A] time = 50.6381, size = 114, normalized size = 0.85

$$\frac{2\sqrt{\frac{b(-c-dx)}{ad-bc}}\sqrt{\frac{b(-e-fx)}{af-be}}\sqrt{ad-bc}F\left(\operatorname{asin}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{ad-bc}}\right)\middle|\frac{f(ad-bc)}{d(af-be)}\right)}{b\sqrt{d}\sqrt{c+dx}\sqrt{e+fx}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(b*x+a)**(1/2)/(d*x+c)**(1/2)/(f*x+e)**(1/2),x)
```

```
[Out] 2*sqrt(b*(-c - d*x)/(a*d - b*c))*sqrt(b*(-e - f*x)/(a*f - b*e))*s
qrt(a*d - b*c)*elliptic_f(asin(sqrt(d)*sqrt(a + b*x)/sqrt(a*d - b
*c)), f*(a*d - b*c)/(d*(a*f - b*e)))/(b*sqrt(d)*sqrt(c + d*x)*sqr
t(e + f*x))
```

Mathematica [A] time = 0.661568, size = 126, normalized size = 0.94

$$-\frac{2\sqrt{c+dx}\sqrt{\frac{b(e+fx)}{f(a+bx)}}F\left(\sin^{-1}\left(\frac{\sqrt{a-\frac{bc}{d}}}{\sqrt{a+bx}}\right)|\frac{bde-adf}{bcf-adf}\right)}{d\sqrt{e+fx}\sqrt{a-\frac{bc}{d}}\sqrt{\frac{b(c+dx)}{d(a+bx)}}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[a + b*x]*Sqrt[c + d*x]*Sqrt[e + f*x]),x]
```

```
[Out] (-2*Sqrt[c + d*x]*Sqrt[(b*(e + f*x))/(f*(a + b*x))]*EllipticF[Arc
Sin[Sqrt[a - (b*c)/d]/Sqrt[a + b*x]], (b*d*e - a*d*f)/(b*c*f - a*
```

```
d*f)])/(Sqrt[a - (b*c)/d]*d*Sqrt[(b*(c + d*x))/(d*(a + b*x))]*Sqr
t[e + f*x])
```

Maple [A] time = 0.115, size = 192, normalized size = 1.4

$$2\frac{(ad-bc)\sqrt{bx+a}\sqrt{dx+c}\sqrt{fx+e}}{bd\left(bdfx^3+adfx^2+bcfx^2+bdex^2+acfx+adex+bcex+ace\right)}EllipticF\left(\sqrt{\frac{d\left(bx+a\right)}{ad-bc}},\sqrt{\frac{(ad-bc)f}{d\left(af-be\right)}}\right)\sqrt{-\frac{(dx+c)b}{ad-bc}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(b*x+a)^(1/2)/(d*x+c)^(1/2)/(f*x+e)^(1/2),x)
```

```
[Out] 2*(a*d-b*c)*EllipticF((d*(b*x+a)/(a*d-b*c))^(1/2),((a*d-b*c)*f/d/
(a*f-b*e))^(1/2))*(-(d*x+c)*b/(a*d-b*c))^(1/2)*(-(f*x+e)*b/(a*f-b
*e))^(1/2)*(d*(b*x+a)/(a*d-b*c))^(1/2)/d/b*(b*x+a)^(1/2)*(d*x+c)^
(1/2)*(f*x+e)^(1/2)/(b*d*f*x^3+a*d*f*x^2+b*c*f*x^2+b*d*e*x^2+a*c*
f*x+a*d*e*x+b*c*e*x+a*c*e)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{bx+a}\sqrt{dx+c}\sqrt{fx+e}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(b*x + a)*sqrt(d*x + c)*sqrt(f*x + e)),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(b*x + a)*sqrt(d*x + c)*sqrt(f*x + e)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{\sqrt{bx+a}\sqrt{dx+c}\sqrt{fx+e}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(b*x + a)*sqrt(d*x + c)*sqrt(f*x + e)),x, algorithm="fricas")
```

```
[Out] integral(1/(sqrt(b*x + a)*sqrt(d*x + c)*sqrt(f*x + e)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{a+bx}\sqrt{c+dx}\sqrt{e+fx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(b*x+a)**(1/2)/(d*x+c)**(1/2)/(f*x+e)**(1/2),x)
```

```
[Out] Integral(1/(sqrt(a + b*x)*sqrt(c + d*x)*sqrt(e + f*x)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{bx+a}\sqrt{dx+c}\sqrt{fx+e}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(b*x + a)*sqrt(d*x + c)*sqrt(f*x + e)),x, algorithm="giac")
```

```
[Out] integrate(1/(sqrt(b*x + a)*sqrt(d*x + c)*sqrt(f*x + e)), x)
```

3.2623 $\int \frac{\sqrt{e+\frac{b(-1+e)x}{a}}}{\sqrt{a+bx}\sqrt{c+\frac{b(-1+c)x}{a}}}\,dx$

Optimal. Leaf size=58

$$\frac{2\sqrt{a}E\left(\sin^{-1}\left(\frac{\sqrt{1-c}\sqrt{a+bx}}{\sqrt{a}}\right)|\frac{1-e}{1-c}\right)}{b\sqrt{1-c}}$$

```
[Out] (2*Sqrt[a]*EllipticE[ArcSin[(Sqrt[1 - c]*Sqrt[a + b*x])/Sqrt[a]],
 (1 - e)/(1 - c)])/(b*Sqrt[1 - c])
```

Rubi [A] time = 0.17513, antiderivative size = 58, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 40, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.025

$$\frac{2\sqrt{a}E\left(\sin^{-1}\left(\frac{\sqrt{1-c}\sqrt{a+bx}}{\sqrt{a}}\right)|\frac{1-e}{1-c}\right)}{b\sqrt{1-c}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[e + (b*(-1 + e)*x)/a]/(Sqrt[a + b*x]*Sqrt[c + (b*(-
1 + c)*x)/a]),x]
```

```
[Out] (2*Sqrt[a]*EllipticE[ArcSin[(Sqrt[1 - c]*Sqrt[a + b*x])/Sqrt[a]],
 (1 - e)/(1 - c)])/(b*Sqrt[1 - c])
```

Rubi in Sympy [A] time = 18.2144, size = 42, normalized size = 0.72

$$\frac{2\sqrt{a}E\left(\operatorname{asin}\left(\frac{\sqrt{a+bx}\sqrt{-c+1}}{\sqrt{a}}\right)\middle|\frac{e-1}{c-1}\right)}{b\sqrt{-c+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((e+b*(-1+e)*x/a)**(1/2)/(b*x+a)**(1/2)/(c+b*(-1+c)*x/a)**(1/2),
```

```
[Out] 2*sqrt(a)*elliptic_e(asin(sqrt(a + b*x)*sqrt(-c + 1)/sqrt(a)), (e
 - 1)/(c - 1))/(b*sqrt(-c + 1))
```

Mathematica [B] time = 1.14863, size = 191, normalized size = 3.29

$$-\frac{2(a+bx)^{3/2}\left(\frac{a\sqrt{\frac{\frac{a}{a+bx}+c-1}{c-1}}\sqrt{\frac{\frac{a}{a+bx}+e-1}{e-1}}E\left(\sin^{-1}\left(\frac{\sqrt{-\frac{a}{e-1}}}{\sqrt{a+bx}}\right)|\frac{e-1}{c-1}\right)}{\sqrt{a+bx}}-\frac{\sqrt{-\frac{a}{e-1}}\left(\frac{a}{a+bx}+c-1\right)\left(\frac{a}{a+bx}+e-1\right)}{c-1}\right)}{ab\sqrt{-\frac{a}{e-1}}\sqrt{\frac{b(c-1)x}{a}+c}\sqrt{\frac{b(e-1)x}{a}+e}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[e + (b*(-1 + e)*x)/a]/(Sqrt[a + b*x]*Sqrt[c + (b*(-
1 + c)*x)/a]),x]
```

```
[Out] (-2*(a + b*x)^(3/2)*(-((Sqrt[-(a/(-1 + e))]*(-1 + c + a/(a + b*x)
)*(-1 + e + a/(a + b*x)))/(-1 + c)) + (a*Sqrt[(-1 + c + a/(a + b*
x))/(-1 + c)]*Sqrt[(-1 + e + a/(a + b*x))/(-1 + e)]*EllipticE[Arc
```

```
Sin[Sqrt[-(a/(-1 + e))]/Sqrt[a + b*x]], (-1 + e)/(-1 + c)])/Sqrt[
a + b*x]))/(a*b*Sqrt[-(a/(-1 + e))]*Sqrt[c + (b*(-1 + c)*x)/a]*Sq
rt[e + (b*(-1 + e)*x)/a])
```

Maple [B] time = 0.053, size = 548, normalized size = 9.5

$$-2\frac{a^{2}\sqrt{bx+a}}{(b^{2}ex^{2}+2\,abex-b^{2}x^{2}+a^{2}e-abx)\,(c-1)^{2}\,b\,(-1+e)}\sqrt{\frac{bxe+ae-bx}{a}}\sqrt{-\frac{(-1+e)\,(bcx+ac-bx)}{a\,(c-e)}}\sqrt{-\frac{(bx+a)\,(c-1)}{a}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((e+b*(-1+e)*x/a)^(1/2)/(b*x+a)^(1/2)/(c+b*(c-1)*x/a)^(1/2),x)
```

```
[Out] -2*a^2*((b*e*x+a*e-b*x)/a)^(1/2)*(b*x+a)^(1/2)*(-(-1+e)*(b*c*x+a*
c-b*x)/a/(c-e))^(1/2)*(-(b*x+a)*(c-1)/a)^(1/2)*((c-1)*(b*e*x+a*e-
b*x)/a/(c-e))^(1/2)*(EllipticF((-(-1+e)*(b*c*x+a*c-b*x)/a/(c-e))^
(1/2),(-(c-e)/(-1+e))^(1/2))*c^2-EllipticF((-(-1+e)*(b*c*x+a*c-b*
x)/a/(c-e))^(1/2),(-(c-e)/(-1+e))^(1/2))*c*e-EllipticE((-(-1+e)*(
b*c*x+a*c-b*x)/a/(c-e))^(1/2),(-(c-e)/(-1+e))^(1/2))*c*e+Elliptic
E((-(-1+e)*(b*c*x+a*c-b*x)/a/(c-e))^(1/2),(-(c-e)/(-1+e))^(1/2))*
e^2-EllipticF((-(-1+e)*(b*c*x+a*c-b*x)/a/(c-e))^(1/2),(-(c-e)/(-1
+e))^(1/2))*c+EllipticF((-(-1+e)*(b*c*x+a*c-b*x)/a/(c-e))^(1/2),(
-(c-e)/(-1+e))^(1/2))*e+EllipticE((-(-1+e)*(b*c*x+a*c-b*x)/a/(c-e
))^(1/2),(-(c-e)/(-1+e))^(1/2))*c-EllipticE((-(-1+e)*(b*c*x+a*c-b
*x)/a/(c-e))^(1/2),(-(c-e)/(-1+e))^(1/2))*e)/((b*c*x+a*c-b*x)/a)^
(1/2)/(b^2*e*x^2+2*a*b*e*x-b^2*x^2+a^2*e-a*b*x)/(c-1)^2/b/(-1+e)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{\frac{b(e-1)x}{a}+e}}{\sqrt{bx+a}\sqrt{\frac{b(c-1)x}{a}+c}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*(e - 1)*x/a + e)/(sqrt(b*x + a)*sqrt(b*(c - 1)*x/a + c)),x, algor
```

```
[Out] integrate(sqrt(b*(e - 1)*x/a + e)/(sqrt(b*x + a)*sqrt(b*(c - 1)*x
/a + c)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{\frac{ae+(be-b)x}{a}}}{\sqrt{bx+a}\sqrt{\frac{ac+(bc-b)x}{a}}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*(e - 1)*x/a + e)/(sqrt(b*x + a)*sqrt(b*(c - 1)*x/a + c)),x, algor
```

```
[Out] integral(sqrt((a*e + (b*e - b)*x)/a)/(sqrt(b*x + a)*sqrt((a*c + (
b*c - b)*x)/a)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{e + \frac{bex}{a} - \frac{bx}{a}}}{\sqrt{a + bx}\sqrt{c + \frac{bcx}{a} - \frac{bx}{a}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((e+b*(-1+e)*x/a)**(1/2)/(b*x+a)**(1/2)/(c+b*(-1+c)*x/a)**(1/2),x)
```

```
[Out] Integral(sqrt(e + b*e*x/a - b*x/a)/(sqrt(a + b*x)*sqrt(c + b*c*x/
a - b*x/a)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{\frac{b(e-1)x}{a} + e}}{\sqrt{bx + a}\sqrt{\frac{b(c-1)x}{a} + c}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(b*(e - 1)*x/a + e)/(sqrt(b*x + a)*sqrt(b*(c - 1)*x/a + c)),x, algor
```

```
[Out] integrate(sqrt(b*(e - 1)*x/a + e)/(sqrt(b*x + a)*sqrt(b*(c - 1)*x
/a + c)), x)
```

3.2624 $\int \frac{\sqrt{c+dx}}{\sqrt{a+bx}\sqrt{e+\frac{b(-1+e)x}{a}}}\,dx$

Optimal. Leaf size=96

$$\frac{2\sqrt{a}\sqrt{c+dx}E\left(\sin^{-1}\left(\frac{\sqrt{1-e}\sqrt{a+bx}}{\sqrt{a}}\right)|-\frac{ad}{(bc-ad)(1-e)}\right)}{b\sqrt{1-e}\sqrt{\frac{b(c+dx)}{bc-ad}}}$$

```
[Out] (2*Sqrt[a]*Sqrt[c + d*x]*EllipticE[ArcSin[(Sqrt[1 - e]*Sqrt[a + b
*x])/Sqrt[a]], -((a*d)/((b*c - a*d)*(1 - e)))])/(b*Sqrt[1 - e]*Sq
rt[(b*(c + d*x))/(b*c - a*d)])
```

Rubi [A] time = 0.382393, antiderivative size = 96, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 34, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.059

$$\frac{2\sqrt{a}\sqrt{c+dx}E\left(\sin^{-1}\left(\frac{\sqrt{1-e}\sqrt{a+bx}}{\sqrt{a}}\right)|-\frac{ad}{(bc-ad)(1-e)}\right)}{b\sqrt{1-e}\sqrt{\frac{b(c+dx)}{bc-ad}}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[c + d*x]/(Sqrt[a + b*x]*Sqrt[e + (b*(-1 + e)*x)/a]),x]
```

```
[Out] (2*Sqrt[a]*Sqrt[c + d*x]*EllipticE[ArcSin[(Sqrt[1 - e]*Sqrt[a + b
*x])/Sqrt[a]], -((a*d)/((b*c - a*d)*(1 - e)))])/(b*Sqrt[1 - e]*Sq
rt[(b*(c + d*x))/(b*c - a*d)])
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(1/2)/(b*x+a)**(1/2)/(e+b*(-1+e)*x/a)**(1/2),x)
```

```
[Out] Timed out
```

Mathematica [B] time = 1.99785, size = 200, normalized size = 2.08

$$\frac{2\sqrt{\frac{\frac{a}{a+bx}+e-1}{e-1}}\left(b\sqrt{a+bx}(c+dx)\sqrt{a-\frac{bc}{d}}\sqrt{\frac{ae+b(e-1)x}{(e-1)(a+bx)}}-(a+bx)(bc-ad)\sqrt{\frac{b(c+dx)}{d(a+bx)}}E\left(\sin^{-1}\left(\frac{\sqrt{a-\frac{bc}{d}}}{\sqrt{a+bx}}\right)|\frac{ad}{(bc-ad)(e-1)}\right)\right)}{b^2\sqrt{c+dx}\sqrt{a-\frac{bc}{d}}\sqrt{\frac{b(e-1)x}{a}+e}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[c + d*x]/(Sqrt[a + b*x]*Sqrt[e + (b*(-1 + e)*x)/a]),x]
```

```
[Out] (2*Sqrt[(-1 + e + a/(a + b*x))/(-1 + e)]*(b*Sqrt[a - (b*c)/d]*Sqr
t[a + b*x]*(c + d*x)*Sqrt[(a*e + b*(-1 + e)*x)/((-1 + e)*(a + b*x
))] - (b*c - a*d)*(a + b*x)*Sqrt[(b*(c + d*x))/(d*(a + b*x))]*Ell
ipticE[ArcSin[Sqrt[a - (b*c)/d]/Sqrt[a + b*x]], (a*d)/((b*c - a*d
)*(-1 + e))]))/(b^2*Sqrt[a - (b*c)/d]*Sqrt[c + d*x]*Sqrt[e + (b*(
-1 + e)*x)/a])
```

Maple [B] time = 0.047, size = 822, normalized size = 8.6

$$-2\frac{\sqrt{bx+a}\sqrt{dx+c}}{(dx^2b+adx+bcx+ac)(-1+e)^2b^2d}\sqrt{\frac{d(bxe+ae-bx)}{ade-bce+bc}}\sqrt{-\frac{(bx+a)(-1+e)}{a}}\sqrt{-\frac{(dx+c)b(-1+e)}{ade-bce+bc}}\left(EllipticF\left(\sqrt{\frac{d(b}{ad}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(1/2)/(b*x+a)^(1/2)/(e+b*(-1+e)*x/a)^(1/2),x)
```

```
[Out] -2*(d*x+c)^(1/2)*(b*x+a)^(1/2)*(d*(b*e*x+a*e-b*x)/(a*d*e-b*c*e+b*
c))^(1/2)*(-(b*x+a)*(-1+e)/a)^(1/2)*(-(d*x+c)*b*(-1+e)/(a*d*e-b*c
*e+b*c))^(1/2)*(EllipticF((d*(b*e*x+a*e-b*x)/(a*d*e-b*c*e+b*c))^(
1/2),((a*d*e-b*c*e+b*c)/a/d)^(1/2))*a^2*d^2*e^2-2*EllipticF((d*(b
*e*x+a*e-b*x)/(a*d*e-b*c*e+b*c))^(1/2),((a*d*e-b*c*e+b*c)/a/d)^(1
/2))*a*b*c*d*e^2+EllipticF((d*(b*e*x+a*e-b*x)/(a*d*e-b*c*e+b*c))^
(1/2),((a*d*e-b*c*e+b*c)/a/d)^(1/2))*b^2*c^2*e^2-EllipticF((d*(b*
e*x+a*e-b*x)/(a*d*e-b*c*e+b*c))^(1/2),((a*d*e-b*c*e+b*c)/a/d)^(1/
2))*a^2*d^2*e+3*EllipticF((d*(b*e*x+a*e-b*x)/(a*d*e-b*c*e+b*c))^(
1/2),((a*d*e-b*c*e+b*c)/a/d)^(1/2))*a*b*c*d*e-2*EllipticF((d*(b*e
*x+a*e-b*x)/(a*d*e-b*c*e+b*c))^(1/2),((a*d*e-b*c*e+b*c)/a/d)^(1/2
))*b^2*c^2*e+EllipticE((d*(b*e*x+a*e-b*x)/(a*d*e-b*c*e+b*c))^(1/2
),((a*d*e-b*c*e+b*c)/a/d)^(1/2))*a^2*d^2*e-EllipticE((d*(b*e*x+a*
e-b*x)/(a*d*e-b*c*e+b*c))^(1/2),((a*d*e-b*c*e+b*c)/a/d)^(1/2))*a*
b*c*d*e-EllipticF((d*(b*e*x+a*e-b*x)/(a*d*e-b*c*e+b*c))^(1/2),((a
*d*e-b*c*e+b*c)/a/d)^(1/2))*a*b*c*d+EllipticF((d*(b*e*x+a*e-b*x)/
(a*d*e-b*c*e+b*c))^(1/2),((a*d*e-b*c*e+b*c)/a/d)^(1/2))*b^2*c^2+E
llipticE((d*(b*e*x+a*e-b*x)/(a*d*e-b*c*e+b*c))^(1/2),((a*d*e-b*c*
e+b*c)/a/d)^(1/2))*a*b*c*d)/((b*e*x+a*e-b*x)/a)^(1/2)/(b*d*x^2+a*
d*x+b*c*x+a*c)/(-1+e)^2/b^2/d
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{dx+c}}{\sqrt{bx+a}\sqrt{\frac{b(e-1)x}{a}+e}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(d*x + c)/(sqrt(b*x + a)*sqrt(b*(e - 1)*x/a + e)),x, algorithm="max
```

```
[Out] integrate(sqrt(d*x + c)/(sqrt(b*x + a)*sqrt(b*(e - 1)*x/a + e)),
x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{dx+c}}{\sqrt{bx+a}\sqrt{\frac{ae+(be-b)x}{a}}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(d*x + c)/(sqrt(b*x + a)*sqrt(b*(e - 1)*x/a + e)),x, algorithm="fri
```

```
[Out] integral(sqrt(d*x + c)/(sqrt(b*x + a)*sqrt((a*e + (b*e - b)*x)/a)
), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{c+dx}}{\sqrt{a+bx}\sqrt{e+\frac{bex}{a}-\frac{bx}{a}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(1/2)/(b*x+a)**(1/2)/(e+b*(-1+e)*x/a)**(1/2),x)
```

```
[Out] Integral(sqrt(c + d*x)/(sqrt(a + b*x)*sqrt(e + b*e*x/a - b*x/a)),
 x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{dx+c}}{\sqrt{bx+a}\sqrt{\frac{b(e-1)x}{a}+e}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(d*x + c)/(sqrt(b*x + a)*sqrt(b*(e - 1)*x/a + e)),x, algorithm="gia
```

```
[Out] integrate(sqrt(d*x + c)/(sqrt(b*x + a)*sqrt(b*(e - 1)*x/a + e)),
x)
```

3.2625 $\int \frac{\sqrt{a+bx}}{\sqrt{c+\frac{b(-1+c)x}{a}}\sqrt{e+\frac{b(-1+e)x}{a}}}\,dx$

Optimal. Leaf size=162

$$-\frac{2a\sqrt{c-e}\sqrt{a+bx}\sqrt{-\frac{(1-c)(ae-b(1-e)x)}{a(c-e)}}E\left(\sin^{-1}\left(\frac{\sqrt{1-e}\sqrt{c-\frac{b(1-c)x}{a}}}{\sqrt{c-e}}\right)|\frac{c-e}{1-e}\right)}{b(1-c)\sqrt{1-e}\sqrt{\frac{(1-c)(a+bx)}{a}}\sqrt{e-\frac{b(1-e)x}{a}}}$$

```
[Out] (-2*a*Sqrt[c - e]*Sqrt[a + b*x]*Sqrt[-(((1 - c)*(a*e - b*(1 - e)*
x))/(a*(c - e)))]*EllipticE[ArcSin[(Sqrt[1 - e]*Sqrt[c - (b*(1 -
c)*x)/a])/Sqrt[c - e]], (c - e)/(1 - e)])/(b*(1 - c)*Sqrt[1 - e]*
Sqrt[((1 - c)*(a + b*x))/a]*Sqrt[e - (b*(1 - e)*x)/a])
```

Rubi [A] time = 0.824337, antiderivative size = 162, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 40, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{2a\sqrt{c-e}\sqrt{a+bx}\sqrt{-\frac{(1-c)(ae-b(1-e)x)}{a(c-e)}}E\left(\sin^{-1}\left(\frac{\sqrt{1-e}\sqrt{c-\frac{b(1-c)x}{a}}}{\sqrt{c-e}}\right)|\frac{c-e}{1-e}\right)}{b(1-c)\sqrt{1-e}\sqrt{\frac{(1-c)(a+bx)}{a}}\sqrt{e-\frac{b(1-e)x}{a}}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[a + b*x]/(Sqrt[c + (b*(-1 + c)*x)/a]*Sqrt[e + (b*(-
1 + e)*x)/a]),x]
```



```
[Out] (-2*a*Sqrt[c - e]*Sqrt[a + b*x]*Sqrt[-(((1 - c)*(a*e - b*(1 - e)*
x))/(a*(c - e)))]*EllipticE[ArcSin[(Sqrt[1 - e]*Sqrt[c - (b*(1 -
c)*x)/a])/Sqrt[c - e]], (c - e)/(1 - e)])/(b*(1 - c)*Sqrt[1 - e]*
Sqrt[((1 - c)*(a + b*x))/a]*Sqrt[e - (b*(1 - e)*x)/a])
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)**(1/2)/(c+b*(-1+c)*x/a)**(1/2)/(e+b*(-1+e)*x/a)**(1/2),
```

```
[Out] Timed out
```

Mathematica [C] time = 0.295552, size = 103, normalized size = 0.64

$$-\frac{2ia\sqrt{a+bx}\left(E\left(i\sinh^{-1}\left(\sqrt{\frac{(c-1)(a+bx)}{a}}\right)|\frac{e-1}{c-1}\right)-F\left(i\sinh^{-1}\left(\sqrt{\frac{(c-1)(a+bx)}{a}}\right)|\frac{e-1}{c-1}\right)\right)}{b(e-1)\sqrt{\frac{(c-1)(a+bx)}{a}}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[a + b*x]/(Sqrt[c + (b*(-1 + c)*x)/a]*Sqrt[e + (b*(-
1 + e)*x)/a]),x]
```

```
[Out] ((-2*I)*a*Sqrt[a + b*x]*(EllipticE[I*ArcSinh[Sqrt[((-1 + c)*(a +
b*x))/a]], (-1 + e)/(-1 + c)] - EllipticF[I*ArcSinh[Sqrt[((-1 + c
```

```
)*(a + b*x))/a]], (-1 + e)/(-1 + c)]))/(b*(-1 + e)*Sqrt[((-1 + c)
*(a + b*x))/a])
```

Maple [A] time = 0.052, size = 183, normalized size = 1.1

$$2\frac{(c-e)\,a^2}{\sqrt{bx+a}\,(c-1)^2\,b\,(-1+e)}EllipticE\left(\sqrt{-\frac{(-1+e)\,(bcx+ac-bx)}{a\,(c-e)}},\sqrt{-\frac{c-e}{-1+e}}\right)\sqrt{\frac{(c-1)\,(bxe+ae-bx)}{a\,(c-e)}}\sqrt{-\frac{(bx+a)\,(c-}{a}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((b*x+a)^(1/2)/(c+b*(c-1)*x/a)^(1/2)/(e+b*(-1+e)*x/a)^(1/2),x)
```

```
[Out] 2*a^2*(c-e)*EllipticE((-(-1+e)*(b*c*x+a*c-b*x)/a/(c-e))^(1/2),(-(
c-e)/(-1+e))^(1/2))*((c-1)*(b*e*x+a*e-b*x)/a/(c-e))^(1/2)*(-(b*x+
a)*(c-1)/a)^(1/2)*(-(-1+e)*(b*c*x+a*c-b*x)/a/(c-e))^(1/2)/(b*x+a)
^(1/2)/((b*e*x+a*e-b*x)/a)^(1/2)/((b*c*x+a*c-b*x)/a)^(1/2)/(c-1)^
2/b/(-1+e)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{\sqrt{bx+a}}{\sqrt{\frac{b(c-1)x}{a}+c}\sqrt{\frac{b(e-1)x}{a}+e}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(b*x + a)/(sqrt(b*(c - 1)*x/a + c)*sqrt(b*(e - 1)*x/a + e)),x, algor
```

```
[Out] integrate(sqrt(b*x + a)/(sqrt(b*(c - 1)*x/a + c)*sqrt(b*(e - 1)*x
/a + e)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{bx+a}}{\sqrt{\frac{ac+(bc-b)x}{a}}\sqrt{\frac{ae+(be-b)x}{a}}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(b*x + a)/(sqrt(b*(c - 1)*x/a + c)*sqrt(b*(e - 1)*x/a + e)),x, algor
```

```
[Out] integral(sqrt(b*x + a)/(sqrt((a*c + (b*c - b)*x)/a)*sqrt((a*e + (
b*e - b)*x)/a)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{\sqrt{a+bx}}{\sqrt{c+\frac{bcx}{a}-\frac{bx}{a}}\sqrt{e+\frac{bex}{a}-\frac{bx}{a}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**(1/2)/(c+b*(-1+c)*x/a)**(1/2)/(e+b*(-1+e)*x/a)**(1/2),x)
```

```
[Out] Integral(sqrt(a + b*x)/(sqrt(c + b*c*x/a - b*x/a)*sqrt(e + b*e*x/
a - b*x/a)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{bx+a}}{\sqrt{\frac{b(c-1)x}{a}+c}\sqrt{\frac{b(e-1)x}{a}+e}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(b*x + a)/(sqrt(b*(c - 1)*x/a + c)*sqrt(b*(e - 1)*x/a + e)),x, algor
```

```
[Out] integrate(sqrt(b*x + a)/(sqrt(b*(c - 1)*x/a + c)*sqrt(b*(e - 1)*x
/a + e)), x)
```

3.2626 $\int \frac{\sqrt{e+fx}}{\sqrt{a+bx}\sqrt{c+dx}}\,dx$

Optimal. Leaf size=134

$$\frac{2\sqrt{e+fx}\sqrt{ad-bc}\sqrt{\frac{b(c+dx)}{bc-ad}}E\left(\sin^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{ad-bc}}\right)|\frac{(bc-ad)f}{d(be-af)}\right)}{b\sqrt{d}\sqrt{c+dx}\sqrt{\frac{b(e+fx)}{be-af}}}$$

```
[Out] (2*Sqrt[-(b*c) + a*d]*Sqrt[(b*(c + d*x))/(b*c - a*d)]*Sqrt[e + f*
x]*EllipticE[ArcSin[(Sqrt[d]*Sqrt[a + b*x])/Sqrt[-(b*c) + a*d]],
((b*c - a*d)*f)/(d*(b*e - a*f))])/(b*Sqrt[d]*Sqrt[c + d*x]*Sqrt[(
b*(e + f*x))/(b*e - a*f)])
```

Rubi [A] time = 0.35832, antiderivative size = 134, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.071

$$\frac{2\sqrt{e+fx}\sqrt{ad-bc}\sqrt{\frac{b(c+dx)}{bc-ad}}E\left(\sin^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{ad-bc}}\right)|\frac{(bc-ad)f}{d(be-af)}\right)}{b\sqrt{d}\sqrt{c+dx}\sqrt{\frac{b(e+fx)}{be-af}}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[e + f*x]/(Sqrt[a + b*x]*Sqrt[c + d*x]),x]
```

```
[Out] (2*Sqrt[-(b*c) + a*d]*Sqrt[(b*(c + d*x))/(b*c - a*d)]*Sqrt[e + f*
x]*EllipticE[ArcSin[(Sqrt[d]*Sqrt[a + b*x])/Sqrt[-(b*c) + a*d]],
((b*c - a*d)*f)/(d*(b*e - a*f))])/(b*Sqrt[d]*Sqrt[c + d*x]*Sqrt[(
b*(e + f*x))/(b*e - a*f)])
```

Rubi in Sympy [A] time = 42.8359, size = 114, normalized size = 0.85

$$\frac{2\sqrt{\frac{b(-c-dx)}{ad-bc}}\sqrt{e+fx}\sqrt{ad-bc}E\left(\operatorname{asin}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{ad-bc}}\right)\middle|\frac{f(ad-bc)}{d(af-be)}\right)}{b\sqrt{d}\sqrt{\frac{b(-e-fx)}{af-be}}\sqrt{c+dx}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((f*x+e)**(1/2)/(b*x+a)**(1/2)/(d*x+c)**(1/2),x)
```

```
[Out] 2*sqrt(b*(-c - d*x)/(a*d - b*c))*sqrt(e + f*x)*sqrt(a*d - b*c)*el
liptic_e(asin(sqrt(d)*sqrt(a + b*x)/sqrt(a*d - b*c)), f*(a*d - b*
c)/(d*(a*f - b*e)))/(b*sqrt(d)*sqrt(b*(-e - f*x)/(a*f - b*e))*sqr
t(c + d*x))
```

Mathematica [A] time = 2.26468, size = 154, normalized size = 1.15

$$\frac{2\sqrt{c+dx}\left(\frac{(af-be)\sqrt{\frac{b(e+fx)}{f(a+bx)}}E\left(\sin^{-1}\left(\frac{\sqrt{a-\frac{be}{f}}}{\sqrt{a+bx}}\right)|\frac{bcf-adf}{bde-adf}\right)}{b\sqrt{a-\frac{be}{f}}\sqrt{\frac{b(c+dx)}{d(a+bx)}}}+\frac{e+fx}{\sqrt{a+bx}}\right)}{d\sqrt{e+fx}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[e + f*x]/(Sqrt[a + b*x]*Sqrt[c + d*x]),x]
```

```
[Out] (2*Sqrt[c + d*x]*((e + f*x)/Sqrt[a + b*x] + ((-(b*e) + a*f)*Sqrt[
(b*(e + f*x))/(f*(a + b*x))]*EllipticE[ArcSin[Sqrt[a - (b*e)/f]/S
qrt[a + b*x]], (b*c*f - a*d*f)/(b*d*e - a*d*f)])/(b*Sqrt[a - (b*e
)/f]*Sqrt[(b*(c + d*x))/(d*(a + b*x))])))/(d*Sqrt[e + f*x])
```

Maple [A] time = 0.027, size = 209, normalized size = 1.6

$$-2\frac{(a^2df-abcf-bead+b^2ce)\sqrt{dx+c}\sqrt{bx+a}\sqrt{fx+e}}{b^2d(bdfx^3+adfx^2+bcfx^2+bdex^2+acfx+adex+bcex+ace)}EllipticE\left(\sqrt{\frac{d(bx+a)}{ad-bc}},\sqrt{\frac{(ad-bc)f}{d(af-be)}}\right)\sqrt{-\frac{(dx+c)}{ad-bc}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((f*x+e)^(1/2)/(b*x+a)^(1/2)/(d*x+c)^(1/2),x)
```

```
[Out] -2*(a^2*d*f-a*b*c*f-a*b*d*e+b^2*c*e)*EllipticE((d*(b*x+a)/(a*d-b*
c))^(1/2),((a*d-b*c)*f/d/(a*f-b*e))^(1/2))*(-(d*x+c)*b/(a*d-b*c))
^(1/2)*(-(f*x+e)*b/(a*f-b*e))^(1/2)*(d*(b*x+a)/(a*d-b*c))^(1/2)/d
/b^2*(d*x+c)^(1/2)*(b*x+a)^(1/2)*(f*x+e)^(1/2)/(b*d*f*x^3+a*d*f*x
^2+b*c*f*x^2+b*d*e*x^2+a*c*f*x+a*d*e*x+b*c*e*x+a*c*e)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{fx+e}}{\sqrt{bx+a}\sqrt{dx+c}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(f*x + e)/(sqrt(b*x + a)*sqrt(d*x + c)),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(f*x + e)/(sqrt(b*x + a)*sqrt(d*x + c)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\sqrt{fx+e}}{\sqrt{bx+a}\sqrt{dx+c}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(f*x + e)/(sqrt(b*x + a)*sqrt(d*x + c)),x, algorithm="fricas")
```

```
[Out] integral(sqrt(f*x + e)/(sqrt(b*x + a)*sqrt(d*x + c)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{e+fx}}{\sqrt{a+bx}\sqrt{c+dx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((f*x+e)**(1/2)/(b*x+a)**(1/2)/(d*x+c)**(1/2),x)
```

```
[Out] Integral(sqrt(e + f*x)/(sqrt(a + b*x)*sqrt(c + d*x)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{fx+e}}{\sqrt{bx+a}\sqrt{dx+c}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(f*x + e)/(sqrt(b*x + a)*sqrt(d*x + c)),x, algorithm="giac")
```

```
[Out] integrate(sqrt(f*x + e)/(sqrt(b*x + a)*sqrt(d*x + c)), x)
```

3.2627 $\int \frac{1}{\sqrt{-c+dx}\sqrt{c+dx}\sqrt{e+fx}}\,dx$

Optimal. Leaf size=101

$$\frac{2\sqrt{c}\sqrt{\frac{c-dx}{c}}\sqrt{\frac{d(e+fx)}{de-cf}}F\left(\sin^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{2}\sqrt{c}}\right)|-\frac{2cf}{de-cf}\right)}{d\sqrt{dx-c}\sqrt{e+fx}}$$

```
[Out] (2*Sqrt[c]*Sqrt[(c - d*x)/c]*Sqrt[(d*(e + f*x))/(d*e - c*f)]*Elli
pticF[ArcSin[Sqrt[c + d*x]/(Sqrt[2]*Sqrt[c])], (-2*c*f)/(d*e - c*
f)])/(d*Sqrt[-c + d*x]*Sqrt[e + f*x])
```

Rubi [A] time = 0.394566, antiderivative size = 101, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 2, integrand size = 30, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.067

$$\frac{2\sqrt{c}\sqrt{\frac{c-dx}{c}}\sqrt{\frac{d(e+fx)}{de-cf}}F\left(\sin^{-1}\left(\frac{\sqrt{c+dx}}{\sqrt{2}\sqrt{c}}\right)|-\frac{2cf}{de-cf}\right)}{d\sqrt{dx-c}\sqrt{e+fx}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[-c + d*x]*Sqrt[c + d*x]*Sqrt[e + f*x]),x]
```

```
[Out] (2*Sqrt[c]*Sqrt[(c - d*x)/c]*Sqrt[(d*(e + f*x))/(d*e - c*f)]*Elli
pticF[ArcSin[Sqrt[c + d*x]/(Sqrt[2]*Sqrt[c])], (-2*c*f)/(d*e - c*
f)])/(d*Sqrt[-c + d*x]*Sqrt[e + f*x])
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(d*x-c)**(1/2)/(d*x+c)**(1/2)/(f*x+e)**(1/2),x)
```

```
[Out] Timed out
```

Mathematica [A] time = 0.422492, size = 123, normalized size = 1.22

$$\frac{\sqrt{2}(c-dx)\sqrt{\frac{c+dx}{dx-c}}\sqrt{\frac{d(e+fx)}{f(dx-c)}}F\left(\sin^{-1}\left(\frac{\sqrt{2}\sqrt{-c}}{\sqrt{dx-c}}\right)|\frac{1}{2}\left(\frac{de}{cf}+1\right)\right)}{\sqrt{-c}d\sqrt{c+dx}\sqrt{e+fx}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[-c + d*x]*Sqrt[c + d*x]*Sqrt[e + f*x]),x]
```

```
[Out] (Sqrt[2]*(c - d*x)*Sqrt[(c + d*x)/(-c + d*x)]*Sqrt[(d*(e + f*x))/
(f*(-c + d*x))]*EllipticF[ArcSin[(Sqrt[2]*Sqrt[-c])/Sqrt[-c + d*x
]], (1 + (d*e)/(c*f))/2])/(Sqrt[-c]*d*Sqrt[c + d*x]*Sqrt[e + f*x]
)
```

Maple [A] time = 0.119, size = 174, normalized size = 1.7

$$-2\frac{\sqrt{fx+e}\sqrt{dx+c}\sqrt{dx-c}(cf-de)}{df(d^2fx^3+d^2ex^2-c^2fx-c^2e)}\sqrt{-\frac{(fx+e)d}{cf-de}}\sqrt{-\frac{(dx-c)f}{cf+de}}\sqrt{\frac{(dx+c)f}{cf-de}}EllipticF\left(\sqrt{-\frac{(fx+e)d}{cf-de}},\sqrt{-\frac{cf-de}{cf+de}}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(d*x-c)^(1/2)/(d*x+c)^(1/2)/(f*x+e)^(1/2),x)
```

```
[Out] -2*(f*x+e)^(1/2)*(d*x+c)^(1/2)*(d*x-c)^(1/2)/d/f*(-(f*x+e)*d/(c*f
-d*e))^(1/2)*(-(d*x-c)*f/(c*f+d*e))^(1/2)*((d*x+c)*f/(c*f-d*e))^(
1/2)*EllipticF((-(f*x+e)*d/(c*f-d*e))^(1/2),(-(c*f-d*e)/(c*f+d*e)
)^(1/2))*(c*f-d*e)/(d^2*f*x^3+d^2*e*x^2-c^2*f*x-c^2*e)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{dx+c}\sqrt{dx-c}\sqrt{fx+e}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(d*x + c)*sqrt(d*x - c)*sqrt(f*x + e)),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(d*x + c)*sqrt(d*x - c)*sqrt(f*x + e)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{\sqrt{dx+c}\sqrt{dx-c}\sqrt{fx+e}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(d*x + c)*sqrt(d*x - c)*sqrt(f*x + e)),x, algorithm="fricas")
```

```
[Out] integral(1/(sqrt(d*x + c)*sqrt(d*x - c)*sqrt(f*x + e)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{-c+dx}\sqrt{c+dx}\sqrt{e+fx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(d*x-c)**(1/2)/(d*x+c)**(1/2)/(f*x+e)**(1/2),x)
```

```
[Out] Integral(1/(sqrt(-c + d*x)*sqrt(c + d*x)*sqrt(e + f*x)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{dx+c}\sqrt{dx-c}\sqrt{fx+e}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(d*x + c)*sqrt(d*x - c)*sqrt(f*x + e)),x, algorithm="giac")
```

```
[Out] integrate(1/(sqrt(d*x + c)*sqrt(d*x - c)*sqrt(f*x + e)), x)
```

3.2628 $\int \sqrt{1-2x}(2+3x)^{5/2}\sqrt{3+5x}\,dx$

Optimal. Leaf size=191

$$\frac{2}{45}\sqrt{1-2x}(5x+3)^{3/2}(3x+2)^{5/2}-\frac{23\sqrt{1-2x}(5x+3)^{3/2}(3x+2)^{3/2}}{1575}-\frac{1244\sqrt{1-2x}(5x+3)^{3/2}\sqrt{3x+2}}{13125}-\frac{175111\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{236250}-\frac{175111\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1181250}-\frac{2911577\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{590625}$$

```
[Out] (-175111*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/236250 - (124
4*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/13125 - (23*Sqrt[1
 - 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2))/1575 + (2*Sqrt[1 - 2*x]*
(2 + 3*x)^(5/2)*(3 + 5*x)^(3/2))/45 - (2911577*Sqrt[11/3]*Ellipti
cE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/590625 - (175111*Sqrt
[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1181250
```

Rubi [A] time = 0.422338, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{2}{45}\sqrt{1-2x}(5x+3)^{3/2}(3x+2)^{5/2}-\frac{23\sqrt{1-2x}(5x+3)^{3/2}(3x+2)^{3/2}}{1575}-\frac{1244\sqrt{1-2x}(5x+3)^{3/2}\sqrt{3x+2}}{13125}-\frac{175111\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{236250}-\frac{175111\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1181250}-\frac{2911577\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{590625}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x],x]
```


```
[Out] (-175111*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/236250 - (124
4*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/13125 - (23*Sqrt[1
 - 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2))/1575 + (2*Sqrt[1 - 2*x]*
(2 + 3*x)^(5/2)*(3 + 5*x)^(3/2))/45 - (2911577*Sqrt[11/3]*Ellipti
cE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/590625 - (175111*Sqrt
[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1181250
```

Rubi in Sympy [A] time = 39.1561, size = 172, normalized size = 0.9

$$\frac{2\sqrt{-2x+1}\,(3x+2)^{\frac{7}{2}}\sqrt{5x+3}}{27}-\frac{37\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}\sqrt{5x+3}}{945}-\frac{3617\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\sqrt{5x+3}}{23625}-\frac{167647\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{236250}-\frac{2911577\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{1771875}-\frac{175111\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{3543750}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(5/2)*(1-2*x)**(1/2)*(3+5*x)**(1/2),x)
```

```
[Out] 2*sqrt(-2*x + 1)*(3*x + 2)**(7/2)*sqrt(5*x + 3)/27 - 37*sqrt(-2*x
 + 1)*(3*x + 2)**(5/2)*sqrt(5*x + 3)/945 - 3617*sqrt(-2*x + 1)*(3
*x + 2)**(3/2)*sqrt(5*x + 3)/23625 - 167647*sqrt(-2*x + 1)*sqrt(3
*x + 2)*sqrt(5*x + 3)/236250 - 2911577*sqrt(33)*elliptic_e(asin(s
qrt(21)*sqrt(-2*x + 1)/7), 35/33)/1771875 - 175111*sqrt(33)*ellip
```

```
tic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/3543750
```

Mathematica [A] time = 0.366293, size = 102, normalized size = 0.53

$$\frac{15\sqrt{2-4x}\sqrt{3x+2}\sqrt{5x+3}\left(472500x^3+861750x^2+410490x-136987\right)-5867645F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+116463}{3543750\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x],x]
```

```
[Out] (15*Sqrt[2 - 4*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(-136987 + 410490*x
 + 861750*x^2 + 472500*x^3) + 11646308*EllipticE[ArcSin[Sqrt[2/11
]*Sqrt[3 + 5*x]], -33/2] - 5867645*EllipticF[ArcSin[Sqrt[2/11]*Sq
rt[3 + 5*x]], -33/2])/(3543750*Sqrt[2])
```

Maple [C] time = 0.112, size = 179, normalized size = 0.9

$$\frac{1}{212625000\,x^3+163012500\,x^2-49612500\,x-42525000}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(425250000\,x^6+5867645\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(5/2)*(1-2*x)^(1/2)*(3+5*x)^(1/2),x)
```

```
[Out] 1/7087500*(2+3*x)^(1/2)*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(425250000*x^
6+5867645*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Ellip
ticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2
^(1/2))-11646308*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2
)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^
(1/2)*2^(1/2))+1101600000*x^5+864823500*x^4-106067700*x^3-3358389
30*x^2-45120930*x+24657660)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \sqrt{5\,x+3}(3\,x+2)^{\frac{5}{2}}\sqrt{-2\,x+1}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^(5/2)*sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(5*x + 3)*(3*x + 2)^(5/2)*sqrt(-2*x + 1), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\left(9\,x^2+12\,x+4\right)\sqrt{5\,x+3}\sqrt{3\,x+2}\sqrt{-2\,x+1},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^(5/2)*sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] integral((9*x^2 + 12*x + 4)*sqrt(5*x + 3)*sqrt(3*x + 2)*sqrt(-2*x
 + 1), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(5/2)*(1-2*x)**(1/2)*(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \sqrt{5x+3}(3x+2)^{\frac{5}{2}}\sqrt{-2x+1}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^(5/2)*sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)*(3*x + 2)^(5/2)*sqrt(-2*x + 1), x)
```

3.2629 $\int \sqrt{1-2x}(2+3x)^{3/2}\sqrt{3+5x}\,dx$

Optimal. Leaf size=160

$$\frac{2}{35}\sqrt{1-2x}(3x+2)^{3/2}(5x+3)^{3/2}-\frac{27}{875}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}-\frac{823\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{2625}-\frac{823\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{13125}-\frac{55019\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{26250}$$

```
[Out] (-823*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/2625 - (27*Sqrt[
1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/875 + (2*Sqrt[1 - 2*x]*(2
 + 3*x)^(3/2)*(3 + 5*x)^(3/2))/35 - (55019*Sqrt[11/3]*EllipticE[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/26250 - (823*Sqrt[11/3]*E
llipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/13125
```

Rubi [A] time = 0.329839, antiderivative size = 160, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{2}{35}\sqrt{1-2x}(3x+2)^{3/2}(5x+3)^{3/2}-\frac{27}{875}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}-\frac{823\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{2625}-\frac{823\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{13125}-\frac{55019\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{26250}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x],x]
```

```
[Out] (-823*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/2625 - (27*Sqrt[
1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/875 + (2*Sqrt[1 - 2*x]*(2
 + 3*x)^(3/2)*(3 + 5*x)^(3/2))/35 - (55019*Sqrt[11/3]*EllipticE[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/26250 - (823*Sqrt[11/3]*E
llipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/13125
```

Rubi in Sympy [A] time = 31.3051, size = 143, normalized size = 0.89

$$\frac{2\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}\,\sqrt{5x+3}}{21}-\frac{37\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\,\sqrt{5x+3}}{525}-\frac{796\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{2625}-\frac{55019\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{78750}-\frac{823\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{39375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(3/2)*(1-2*x)**(1/2)*(3+5*x)**(1/2),x)
```

```
[Out] 2*sqrt(-2*x + 1)*(3*x + 2)**(5/2)*sqrt(5*x + 3)/21 - 37*sqrt(-2*x
 + 1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/525 - 796*sqrt(-2*x + 1)*sqr
t(3*x + 2)*sqrt(5*x + 3)/2625 - 55019*sqrt(33)*elliptic_e(asin(sq
rt(21)*sqrt(-2*x + 1)/7), 35/33)/78750 - 823*sqrt(33)*elliptic_f(
asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/39375
```

Mathematica [A] time = 0.303513, size = 97, normalized size = 0.61

$$\frac{15\sqrt{2-4x}\sqrt{3x+2}\sqrt{5x+3}\left(2250x^2+2445x-166\right)-27860F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+55019E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)\right.}{39375\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x],x]
```

```
[Out] (15*Sqrt[2 - 4*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(-166 + 2445*x + 22
50*x^2) + 55019*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2
] - 27860*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/(39
375*Sqrt[2])
```

Maple [C] time = 0.015, size = 174, normalized size = 1.1

$$\frac{1}{2362500\,x^3+1811250\,x^2-551250\,x-472500}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(27860\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/1\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(3/2)*(1-2*x)^(1/2)*(3+5*x)^(1/2),x)
```

```
[Out] 1/78750*(2+3*x)^(1/2)*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(27860*2^(1/2)*
(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)
*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-55019*2^(1
/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(
1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+202500
0*x^5+3753000*x^4+1065150*x^3-1032990*x^2-405240*x+29880)/(30*x^3
+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \sqrt{5\,x+3}(3\,x+2)^{\frac{3}{2}}\sqrt{-2\,x+1}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^(3/2)*sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(5*x + 3)*(3*x + 2)^(3/2)*sqrt(-2*x + 1), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\sqrt{5\,x+3}(3\,x+2)^{\frac{3}{2}}\sqrt{-2\,x+1},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^(3/2)*sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] integral(sqrt(5*x + 3)*(3*x + 2)^(3/2)*sqrt(-2*x + 1), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(3/2)*(1-2*x)**(1/2)*(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \sqrt{5x+3}(3x+2)^{\frac{3}{2}}\sqrt{-2x+1}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(3*x + 2)^(3/2)*sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)*(3*x + 2)^(3/2)*sqrt(-2*x + 1), x)
```

3.2630 $\int \sqrt{1-2x}\sqrt{2+3x}\sqrt{3+5x}\,dx$

Optimal. Leaf size=129

$$\frac{2}{25}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}-\frac{31}{225}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}-\frac{31\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1125}-\frac{1159\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1125}$$

```
[Out] (-31*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/225 + (2*Sqrt[1 -
 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/25 - (1159*Sqrt[11/3]*Ellipt
icE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1125 - (31*Sqrt[11/3
]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1125
```

Rubi [A] time = 0.259615, antiderivative size = 129, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{2}{25}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}-\frac{31}{225}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}-\frac{31\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1125}-\frac{1159\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1125}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x],x]
```

```
[Out] (-31*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/225 + (2*Sqrt[1 -
 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/25 - (1159*Sqrt[11/3]*Ellipt
icE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1125 - (31*Sqrt[11/3
]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1125
```

Rubi in Sympy [A] time = 24.0735, size = 114, normalized size = 0.88

$$\frac{2\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\sqrt{5x+3}}{15}-\frac{37\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{225}-\frac{1159\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{3375}-\frac{341\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{39375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)*(2+3*x)**(1/2)*(3+5*x)**(1/2),x)
```

```
[Out] 2*sqrt(-2*x + 1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/15 - 37*sqrt(-2*x
 + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/225 - 1159*sqrt(33)*elliptic_e(
asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/3375 - 341*sqrt(35)*ellip
tic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/39375
```

Mathematica [A] time = 0.245484, size = 97, normalized size = 0.75

$$\frac{30\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}(90x+23)-1295\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+2318\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)}{6750}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x],x]
```

```
[Out] (30*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(23 + 90*x) + 2318*
Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 1295
*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/6750
```

Maple [C] time = 0.013, size = 169, normalized size = 1.3

$$\frac{1}{202500\,x^{3}+155250\,x^{2}-47250\,x-40500}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(1295\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{11}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)*(2+3*x)^(1/2)*(3+5*x)^(1/2),x)
```

```
[Out] 1/6750*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(1295*2^(1/2)*(3
+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2
^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-2318*2^(1/2)
*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2
)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+81000*x^4
+82800*x^3-3030*x^2-21030*x-4140)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \sqrt{5\,x+3}\sqrt{3\,x+2}\sqrt{-2\,x+1}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*sqrt(3*x + 2)*sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(5*x + 3)*sqrt(3*x + 2)*sqrt(-2*x + 1), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\sqrt{5\,x+3}\sqrt{3\,x+2}\sqrt{-2\,x+1},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*sqrt(3*x + 2)*sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] integral(sqrt(5*x + 3)*sqrt(3*x + 2)*sqrt(-2*x + 1), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)*(2+3*x)**(1/2)*(3+5*x)**(1/2),x)
```

```
[Out] Integral(sqrt(-2*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \sqrt{5x+3}\sqrt{3x+2}\sqrt{-2x+1}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*sqrt(3*x + 2)*sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)*sqrt(3*x + 2)*sqrt(-2*x + 1), x)
```

3.2631 $\int \frac{\sqrt{1-2x}\sqrt{3+5x}}{\sqrt{2+3x}}\,dx$

Optimal. Leaf size=98

$$\frac{2}{9}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}+\frac{2}{45}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{37}{45}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (2*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/9 - (37*Sqrt[11/3]*
EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/45 + (2*Sqrt[1
1/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/45
```

Rubi [A] time = 0.19372, antiderivative size = 98, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.143

$$\frac{2}{9}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}+\frac{2}{45}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{37}{45}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/Sqrt[2 + 3*x],x]
```

```
[Out] (2*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/9 - (37*Sqrt[11/3]*
EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/45 + (2*Sqrt[1
1/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/45
```

Rubi in Sympy [A] time = 16.7639, size = 85, normalized size = 0.87

$$\frac{2\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{9}-\frac{37\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{135}+\frac{2\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{135}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)*(3+5*x)**(1/2)/(2+3*x)**(1/2),x)
```

```
[Out] 2*sqrt(-2*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/9 - 37*sqrt(33)*elli
ptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/135 + 2*sqrt(33)*e
lliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/135
```

Mathematica [A] time = 0.165793, size = 92, normalized size = 0.94

$$\frac{1}{135}\left(30\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}-70\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+37\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/Sqrt[2 + 3*x],x]
```

```
[Out] (30*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x] + 37*Sqrt[2]*Ellipt
icE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 70*Sqrt[2]*Ellipti
cF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/135
```

Maple [C] time = 0.031, size = 164, normalized size = 1.7

$$\frac{1}{4050\,x^{3}+3105\,x^{2}-945\,x-810}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(70\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)*(3+5*x)^(1/2)/(2+3*x)^(1/2),x)
```

```
[Out] 1/135*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(70*2^(1/2)*(3+5*
x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1
/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-37*2^(1/2)*(3+5
*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(
1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+900*x^3+690*x^
2-210*x-180)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}\sqrt{-2\,x+1}}{\sqrt{3\,x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*sqrt(-2*x + 1)/sqrt(3*x + 2),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(5*x + 3)*sqrt(-2*x + 1)/sqrt(3*x + 2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{5\,x+3}\sqrt{-2\,x+1}}{\sqrt{3\,x+2}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*sqrt(-2*x + 1)/sqrt(3*x + 2),x, algorithm="fricas")
```

```
[Out] integral(sqrt(5*x + 3)*sqrt(-2*x + 1)/sqrt(3*x + 2), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{-2x+1}\sqrt{5x+3}}{\sqrt{3x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)*(3+5*x)**(1/2)/(2+3*x)**(1/2),x)
```

```
[Out] Integral(sqrt(-2*x + 1)*sqrt(5*x + 3)/sqrt(3*x + 2), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}\sqrt{-2\,x+1}}{\sqrt{3\,x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*sqrt(-2*x + 1)/sqrt(3*x + 2),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)*sqrt(-2*x + 1)/sqrt(3*x + 2), x)
```

3.2632 $\int \frac{\sqrt{1-2x}\sqrt{3+5x}}{(2+3x)^{3/2}}\,dx$

Optimal. Leaf size=98

$$-\frac{2\sqrt{1-2x}\sqrt{5x+3}}{3\sqrt{3x+2}}-\frac{2}{3}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{4}{3}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (-2*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(3*Sqrt[2 + 3*x]) + (4*Sqrt[11/3
]*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3 - (2*Sqrt[
11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3
```

Rubi [A] time = 0.189242, antiderivative size = 98, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.143

$$-\frac{2\sqrt{1-2x}\sqrt{5x+3}}{3\sqrt{3x+2}}-\frac{2}{3}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{4}{3}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2 + 3*x)^(3/2),x]
```

```
[Out] (-2*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(3*Sqrt[2 + 3*x]) + (4*Sqrt[11/3
]*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3 - (2*Sqrt[
11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3
```

Rubi in Sympy [A] time = 17.0093, size = 85, normalized size = 0.87

$$-\frac{2\sqrt{-2x+1}\sqrt{5x+3}}{3\sqrt{3x+2}}+\frac{4\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{9}-\frac{22\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{105}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)*(3+5*x)**(1/2)/(2+3*x)**(3/2),x)
```

```
[Out] -2*sqrt(-2*x + 1)*sqrt(5*x + 3)/(3*sqrt(3*x + 2)) + 4*sqrt(33)*el
liptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/9 - 22*sqrt(35)*
elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/105
```

Mathematica [A] time = 0.226248, size = 92, normalized size = 0.94

$$\frac{1}{9}\left(-\frac{6\sqrt{1-2x}\sqrt{5x+3}}{\sqrt{3x+2}}+37\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-4\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2 + 3*x)^(3/2),x]
```

```
[Out] ((-6*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/Sqrt[2 + 3*x] - 4*Sqrt[2]*Ellip
ticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 37*Sqrt[2]*Ellipt
icF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/9
```

Maple [C] time = 0.049, size = 159, normalized size = 1.6

$$-\frac{1}{270\,x^{3}+207\,x^{2}-63\,x-54}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(37\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)*(3+5*x)^(1/2)/(2+3*x)^(3/2),x)
```

```
[Out] -1/9*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(37*2^(1/2)*(3+5*x
)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/
2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-4*2^(1/2)*(3+5*x
)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/
2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+60*x^2+6*x-18)/(
30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}\sqrt{-2\,x+1}}{(3\,x+2)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^(3/2),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^(3/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{5\,x+3}\sqrt{-2\,x+1}}{(3\,x+2)^{\frac{3}{2}}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^(3/2),x, algorithm="fricas")
```

```
[Out] integral(sqrt(5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^(3/2), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{-2x+1}\sqrt{5x+3}}{(3x+2)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)*(3+5*x)**(1/2)/(2+3*x)**(3/2),x)
```

```
[Out] Integral(sqrt(-2*x + 1)*sqrt(5*x + 3)/(3*x + 2)**(3/2), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}\sqrt{-2\,x+1}}{(3\,x+2)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^(3/2),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^(3/2), x)
```

3.2633 $\int \frac{\sqrt{1-2x}\sqrt{3+5x}}{(2+3x)^{5/2}}\,dx$

Optimal. Leaf size=129

$$\frac{74\sqrt{1-2x}\sqrt{5x+3}}{63\sqrt{3x+2}}-\frac{2\sqrt{1-2x}\sqrt{5x+3}}{9(3x+2)^{3/2}}+\frac{4}{63}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{74}{63}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (-2*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(9*(2 + 3*x)^(3/2)) + (74*Sqrt[1
 - 2*x]*Sqrt[3 + 5*x])/(63*Sqrt[2 + 3*x]) - (74*Sqrt[11/3]*Ellipt
icE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/63 + (4*Sqrt[11/3]*E
llipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/63
```

Rubi [A] time = 0.262762, antiderivative size = 129, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{74\sqrt{1-2x}\sqrt{5x+3}}{63\sqrt{3x+2}}-\frac{2\sqrt{1-2x}\sqrt{5x+3}}{9(3x+2)^{3/2}}+\frac{4}{63}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{74}{63}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2 + 3*x)^(5/2),x]
```

```
[Out] (-2*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(9*(2 + 3*x)^(3/2)) + (74*Sqrt[1
 - 2*x]*Sqrt[3 + 5*x])/(63*Sqrt[2 + 3*x]) - (74*Sqrt[11/3]*Ellipt
icE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/63 + (4*Sqrt[11/3]*E
llipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/63
```

Rubi in Sympy [A] time = 23.6051, size = 114, normalized size = 0.88

$$\frac{74\sqrt{-2x+1}\sqrt{5x+3}}{63\sqrt{3x+2}}-\frac{2\sqrt{-2x+1}\sqrt{5x+3}}{9\,(3x+2)^{\frac{3}{2}}}-\frac{74\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{189}+\frac{4\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{189}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)*(3+5*x)**(1/2)/(2+3*x)**(5/2),x)
```

```
[Out] 74*sqrt(-2*x + 1)*sqrt(5*x + 3)/(63*sqrt(3*x + 2)) - 2*sqrt(-2*x
+ 1)*sqrt(5*x + 3)/(9*(3*x + 2)**(3/2)) - 74*sqrt(33)*elliptic_e(
asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/189 + 4*sqrt(33)*elliptic
_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/189
```

Mathematica [A] time = 0.23698, size = 97, normalized size = 0.75

$$\frac{2}{189}\left(\frac{3\sqrt{1-2x}\sqrt{5x+3}(111x+67)}{(3x+2)^{3/2}}-70\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+37\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2 + 3*x)^(5/2),x]
```

```
[Out] (2*((3*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(67 + 111*x))/(2 + 3*x)^(3/2)
+ 37*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] -
 70*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]))/
189
```

Maple [C] time = 0.044, size = 267, normalized size = 2.1

$$\frac{2}{1890\,x^2+189\,x-567}\left(210\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-111\,\sqrt{2}EllipticE$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)*(3+5*x)^(1/2)/(2+3*x)^(5/2),x)
```

```
[Out] 2/189*(210*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),
1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-
2*x)^(1/2)-111*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1
/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)
*(1-2*x)^(1/2)+140*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1
/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*
3^(1/2)*2^(1/2))-74*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(
1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)
*3^(1/2)*2^(1/2))+3330*x^3+2343*x^2-798*x-603)*(1-2*x)^(1/2)*(3+5
*x)^(1/2)/(10*x^2+x-3)/(2+3*x)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}\sqrt{-2\,x+1}}{(3\,x+2)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^(5/2),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^(5/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{5\,x+3}\sqrt{-2\,x+1}}{(9\,x^2+12\,x+4)\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^(5/2),x, algorithm="fricas")
```

```
[Out] integral(sqrt(5*x + 3)*sqrt(-2*x + 1)/((9*x^2 + 12*x + 4)*sqrt(3*
x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)*(3+5*x)**(1/2)/(2+3*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}\sqrt{-2\,x+1}}{(3\,x+2)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^(5/2),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^(5/2), x)
```

3.2634 $\int \frac{\sqrt{1-2x}\sqrt{3+5x}}{(2+3x)^{7/2}}\,dx$

Optimal. Leaf size=160

$$\frac{4636\sqrt{1-2x}\sqrt{5x+3}}{2205\sqrt{3x+2}}+\frac{74\sqrt{1-2x}\sqrt{5x+3}}{315(3x+2)^{3/2}}-\frac{2\sqrt{1-2x}\sqrt{5x+3}}{15(3x+2)^{5/2}}-\frac{124\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{2205}-\frac{4636\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{2205}$$

```
[Out] (-2*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(15*(2 + 3*x)^(5/2)) + (74*Sqrt[
1 - 2*x]*Sqrt[3 + 5*x])/(315*(2 + 3*x)^(3/2)) + (4636*Sqrt[1 - 2*
x]*Sqrt[3 + 5*x])/(2205*Sqrt[2 + 3*x]) - (4636*Sqrt[11/3]*Ellipti
cE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/2205 - (124*Sqrt[11/3
]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/2205
```

Rubi [A] time = 0.342271, antiderivative size = 160, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.179$

$$\frac{4636\sqrt{1-2x}\sqrt{5x+3}}{2205\sqrt{3x+2}}+\frac{74\sqrt{1-2x}\sqrt{5x+3}}{315(3x+2)^{3/2}}-\frac{2\sqrt{1-2x}\sqrt{5x+3}}{15(3x+2)^{5/2}}-\frac{124\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{2205}-\frac{4636\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{2205}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2 + 3*x)^(7/2),x]
```

```
[Out] (-2*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(15*(2 + 3*x)^(5/2)) + (74*Sqrt[
1 - 2*x]*Sqrt[3 + 5*x])/(315*(2 + 3*x)^(3/2)) + (4636*Sqrt[1 - 2*
x]*Sqrt[3 + 5*x])/(2205*Sqrt[2 + 3*x]) - (4636*Sqrt[11/3]*Ellipti
cE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/2205 - (124*Sqrt[11/3
]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/2205
```

Rubi in Sympy [A] time = 30.8231, size = 143, normalized size = 0.89

$$\frac{4636\sqrt{-2x+1}\sqrt{5x+3}}{2205\sqrt{3x+2}}+\frac{74\sqrt{-2x+1}\sqrt{5x+3}}{315\,(3x+2)^{\frac{3}{2}}}-\frac{2\sqrt{-2x+1}\sqrt{5x+3}}{15\,(3x+2)^{\frac{5}{2}}}-\frac{4636\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{6615}-\frac{1364\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{77175}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)*(3+5*x)**(1/2)/(2+3*x)**(7/2),x)
```

```
[Out] 4636*sqrt(-2*x + 1)*sqrt(5*x + 3)/(2205*sqrt(3*x + 2)) + 74*sqrt(
-2*x + 1)*sqrt(5*x + 3)/(315*(3*x + 2)**(3/2)) - 2*sqrt(-2*x + 1)
*sqrt(5*x + 3)/(15*(3*x + 2)**(5/2)) - 4636*sqrt(33)*elliptic_e(a
sin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/6615 - 1364*sqrt(35)*ellip
tic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/77175
```

Mathematica [A] time = 0.318054, size = 99, normalized size = 0.62

$$\frac{2\left(\frac{3\sqrt{1-2x}\sqrt{5x+3}(20862x^2+28593x+9643)}{(3x+2)^{5/2}}+\sqrt{2}\left(2318E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-1295F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)\right)}{6615}$$

Antiderivative was successfully verified.

```
[In]   Integrate[(Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2 + 3*x)^(7/2),x]
```

```
[Out] (2*((3*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(9643 + 28593*x + 20862*x^2))/
(2 + 3*x)^(5/2) + Sqrt[2]*(2318*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[
3 + 5*x]], -33/2] - 1295*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x
]], -33/2])))/6615
```

Maple [C] time = 0.048, size = 386, normalized size = 2.4

$$\frac{2}{66150\,x^2+6615\,x-19845}\left(11655\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^2\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-20862\,\sqrt{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((1-2*x)^(1/2)*(3+5*x)^(1/2)/(2+3*x)^(7/2),x)
```

```
[Out] 2/6615*(11655*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/
2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2
)*(1-2*x)^(1/2)-20862*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+
5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3
*x)^(1/2)*(1-2*x)^(1/2)+15540*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(
1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2
)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-27816*2^(1/2)*EllipticE(1/11*11^(1/
2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x
)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+5180*2^(1/2)*(3+5*x)^(1/2)*(2
+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)
^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-9272*2^(1/2)*(3+5*x)^(1/2)
*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5
*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+625860*x^4+920376*x^3+1
87311*x^2-228408*x-86787)*(1-2*x)^(1/2)*(3+5*x)^(1/2)/(10*x^2+x-3
)/(2+3*x)^(5/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}\sqrt{-2\,x+1}}{(3\,x+2)^{\frac{7}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^(7/2),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^(7/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\sqrt{5\,x+3}\sqrt{-2\,x+1}}{(27\,x^3+54\,x^2+36\,x+8)\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^(7/2),x, algorithm="fricas")
```

```
[Out] integral(sqrt(5*x + 3)*sqrt(-2*x + 1)/((27*x^3 + 54*x^2 + 36*x +
8)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)*(3+5*x)**(1/2)/(2+3*x)**(7/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5x+3}\sqrt{-2x+1}}{(3x+2)^{\frac{7}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^(7/2),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^(7/2), x)
```

3.2635 $\int \frac{\sqrt{1-2x}\sqrt{3+5x}}{(2+3x)^{9/2}}\,dx$

Optimal. Leaf size=191

$$\frac{220076\sqrt{1-2x}\sqrt{5x+3}}{36015\sqrt{3x+2}}+\frac{3184\sqrt{1-2x}\sqrt{5x+3}}{5145(3x+2)^{3/2}}+\frac{74\sqrt{1-2x}\sqrt{5x+3}}{735(3x+2)^{5/2}}-\frac{2\sqrt{1-2x}\sqrt{5x+3}}{21(3x+2)^{7/2}}-\frac{6584\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{36015}-\frac{220076\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{36015}$$

```
[Out] (-2*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(21*(2 + 3*x)^(7/2)) + (74*Sqrt[
1 - 2*x]*Sqrt[3 + 5*x])/(735*(2 + 3*x)^(5/2)) + (3184*Sqrt[1 - 2*
x]*Sqrt[3 + 5*x])/(5145*(2 + 3*x)^(3/2)) + (220076*Sqrt[1 - 2*x]*
Sqrt[3 + 5*x])/(36015*Sqrt[2 + 3*x]) - (220076*Sqrt[11/3]*Ellipti
cE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/36015 - (6584*Sqrt[11
/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/36015
```

Rubi [A] time = 0.426537, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{220076\sqrt{1-2x}\sqrt{5x+3}}{36015\sqrt{3x+2}}+\frac{3184\sqrt{1-2x}\sqrt{5x+3}}{5145(3x+2)^{3/2}}+\frac{74\sqrt{1-2x}\sqrt{5x+3}}{735(3x+2)^{5/2}}-\frac{2\sqrt{1-2x}\sqrt{5x+3}}{21(3x+2)^{7/2}}-\frac{6584\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{36015}-\frac{220076\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{36015}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2 + 3*x)^(9/2),x]
```


```
[Out] (-2*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(21*(2 + 3*x)^(7/2)) + (74*Sqrt[
1 - 2*x]*Sqrt[3 + 5*x])/(735*(2 + 3*x)^(5/2)) + (3184*Sqrt[1 - 2*
x]*Sqrt[3 + 5*x])/(5145*(2 + 3*x)^(3/2)) + (220076*Sqrt[1 - 2*x]*
Sqrt[3 + 5*x])/(36015*Sqrt[2 + 3*x]) - (220076*Sqrt[11/3]*Ellipti
cE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/36015 - (6584*Sqrt[11
/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/36015
```

Rubi in Sympy [A] time = 37.497, size = 172, normalized size = 0.9

$$\frac{220076\sqrt{-2x+1}\sqrt{5x+3}}{36015\sqrt{3x+2}}+\frac{3184\sqrt{-2x+1}\sqrt{5x+3}}{5145\,(3x+2)^{\frac{3}{2}}}+\frac{74\sqrt{-2x+1}\sqrt{5x+3}}{735\,(3x+2)^{\frac{5}{2}}}-\frac{2\sqrt{-2x+1}\sqrt{5x+3}}{21\,(3x+2)^{\frac{7}{2}}}-\frac{220076\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{108045}-\frac{72424\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{1260525}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)*(3+5*x)**(1/2)/(2+3*x)**(9/2),x)
```

```
[Out] 220076*sqrt(-2*x + 1)*sqrt(5*x + 3)/(36015*sqrt(3*x + 2)) + 3184*
sqrt(-2*x + 1)*sqrt(5*x + 3)/(5145*(3*x + 2)**(3/2)) + 74*sqrt(-2
*x + 1)*sqrt(5*x + 3)/(735*(3*x + 2)**(5/2)) - 2*sqrt(-2*x + 1)*s
qrt(5*x + 3)/(21*(3*x + 2)**(7/2)) - 220076*sqrt(33)*elliptic_e(a
sin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/108045 - 72424*sqrt(35)*el
liptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/1260525
```

Mathematica [A] time = 0.31759, size = 106, normalized size = 0.55

$$\frac{4\left(\frac{3\sqrt{1-2x}\sqrt{5x+3}(2971026x^3+6042348x^2+4100535x+926791)}{2(3x+2)^{7/2}}+\sqrt{2}\left(55019E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-27860F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right.\right.\right.\right.}{108045}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2 + 3*x)^(9/2),x]
```

```
[Out] (4*((3*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(926791 + 4100535*x + 6042348*
x^2 + 2971026*x^3))/(2*(2 + 3*x)^(7/2)) + Sqrt[2]*(55019*Elliptic
E[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 27860*EllipticF[ArcS
in[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])))/108045
```

Maple [C] time = 0.05, size = 505, normalized size = 2.6

$$\frac{2}{1080450\,x^2+108045\,x-324135}\left(1504440\,\sqrt{2}\mathit{EllipticF}\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^3\sqrt{1-2\,x}\sqrt{3+5\,x}\sqrt{2+3\,x}-\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)*(3+5*x)^(1/2)/(2+3*x)^(9/2),x)
```

```
[Out] 2/108045*(1504440*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)
^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*x)^
(1/2)*(2+3*x)^(1/2)-2971026*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/
2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2
)*(3+5*x)^(1/2)*(2+3*x)^(1/2)+3008880*2^(1/2)*EllipticF(1/11*11^(
1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3
+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-5942052*2^(1/2)*EllipticE
(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/
2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+2005920*2^(1/2)
*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(
1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-3961368
*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(
1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)
+445760*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Ellipti
cF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(
1/2))-880304*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*El
lipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2
)*2^(1/2))+89130780*x^5+190183518*x^4+114403860*x^3-14275797*x^2-
34124442*x-8341119)*(1-2*x)^(1/2)*(3+5*x)^(1/2)/(10*x^2+x-3)/(2+3
*x)^(7/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}\sqrt{-2\,x+1}}{(3\,x+2)^{\frac{9}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^(9/2),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^(9/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{5\,x+3}\sqrt{-2\,x+1}}{(81\,x^4+216\,x^3+216\,x^2+96\,x+16)\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^(9/2),x, algorithm="fricas")
```

```
[Out] integral(sqrt(5*x + 3)*sqrt(-2*x + 1)/((81*x^4 + 216*x^3 + 216*x^
2 + 96*x + 16)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(1/2)*(3+5*x)**(1/2)/(2+3*x)**(9/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}\sqrt{-2\,x+1}}{(3\,x+2)^{\frac{9}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^(9/2),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)^(9/2), x)
```

3.2636 $\int \sqrt{1-2x}(2+3x)^{5/2}(3+5x)^{3/2}\,dx$

Optimal. Leaf size=218

$$\frac{2}{55}\sqrt{1-2x}(3x+2)^{5/2}(5x+3)^{5/2}-\frac{23\sqrt{1-2x}(3x+2)^{3/2}(5x+3)^{5/2}}{2475}-\frac{543\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}}{9625}-\frac{342971\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}}{866250}-\frac{11346991\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{3898125}-\frac{11346991F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1771875\sqrt{33}}-\frac{1508889271E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{7087500\sqrt{33}}$$

```
[Out] (-11346991*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/3898125 - (
342971*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/866250 - (543
*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/9625 - (23*Sqrt[1 -
 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(5/2))/2475 + (2*Sqrt[1 - 2*x]*(2
 + 3*x)^(5/2)*(3 + 5*x)^(5/2))/55 - (1508889271*EllipticE[ArcSin[
Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(7087500*Sqrt[33]) - (11346991*
EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(1771875*Sqrt[
33])
```

Rubi [A] time = 0.481687, antiderivative size = 218, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{2}{55}\sqrt{1-2x}(3x+2)^{5/2}(5x+3)^{5/2}-\frac{23\sqrt{1-2x}(3x+2)^{3/2}(5x+3)^{5/2}}{2475}-\frac{543\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}}{9625}-\frac{342971\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}}{866250}-\frac{11346991\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{3898125}-\frac{11346991F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1771875\sqrt{33}}-\frac{1508889271E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{7087500\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)*(3 + 5*x)^(3/2),x]
```


```
[Out] (-11346991*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/3898125 - (
342971*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/866250 - (543
*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/9625 - (23*Sqrt[1 -
 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(5/2))/2475 + (2*Sqrt[1 - 2*x]*(2
 + 3*x)^(5/2)*(3 + 5*x)^(5/2))/55 - (1508889271*EllipticE[ArcSin[
Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(7087500*Sqrt[33]) - (11346991*
EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(1771875*Sqrt[
33])
```

Rubi in Sympy [A] time = 46.3692, size = 201, normalized size = 0.92

$$\frac{2\sqrt{-2x+1}\,(3x+2)^{\frac{7}{2}}\,(5x+3)^{\frac{3}{2}}}{33}-\frac{41\sqrt{-2x+1}\,(3x+2)^{\frac{7}{2}}\,\sqrt{5x+3}}{891}-\frac{4439\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}\,\sqrt{5x+3}}{31185}-\frac{932783\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\,\sqrt{5x+3}}{1559250}-\frac{21713939\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{7796250}-\frac{1508889271\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{233887500}-\frac{11346991\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{62015625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(5/2)*(3+5*x)**(3/2)*(1-2*x)**(1/2),x)
```

```
[Out] 2*sqrt(-2*x + 1)*(3*x + 2)**(7/2)*(5*x + 3)**(3/2)/33 - 41*sqrt(-
2*x + 1)*(3*x + 2)**(7/2)*sqrt(5*x + 3)/891 - 4439*sqrt(-2*x + 1)
*(3*x + 2)**(5/2)*sqrt(5*x + 3)/31185 - 932783*sqrt(-2*x + 1)*(3*
x + 2)**(3/2)*sqrt(5*x + 3)/1559250 - 21713939*sqrt(-2*x + 1)*sqr
t(3*x + 2)*sqrt(5*x + 3)/7796250 - 1508889271*sqrt(33)*elliptic_e
(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/233887500 - 11346991*sqr
t(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/6201562
5
```

Mathematica [A] time = 0.43942, size = 107, normalized size = 0.49

$$\frac{15\sqrt{2-4x}\sqrt{3x+2}\sqrt{5x+3}\left(63787500x^4+156161250x^3+132234750x^2+29706255x-27010769\right)-759987865F\left(\sin^{-1}\left(\sqrt{\right.\right.}{116943750\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)*(3 + 5*x)^(3/2),x]
```

```
[Out] (15*Sqrt[2 - 4*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(-27010769 + 297062
55*x + 132234750*x^2 + 156161250*x^3 + 63787500*x^4) + 1508889271
*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 759987865*E
llipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/(116943750*Sqr
t[2])
```

Maple [C] time = 0.031, size = 184, normalized size = 0.8

$$\frac{1}{7016625000\,x^3+5379412500\,x^2-1637212500\,x-1403325000}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(57408750000\,x^7+184558500000\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(5/2)*(3+5*x)^(3/2)*(1-2*x)^(1/2),x)
```

```
[Out] 1/233887500*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(5740875000
0*x^7+184558500000*x^6+759987865*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1
/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1
/2*I*11^(1/2)*3^(1/2)*2^(1/2))-1508889271*2^(1/2)*(3+5*x)^(1/2)*(
2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x
)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+213367162500*x^5+73701994
500*x^4-59690698650*x^3-48677999160*x^2+325135590*x+4861938420)/(
30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (5\,x+3)^{\frac{3}{2}}(3\,x+2)^{\frac{5}{2}}\sqrt{-2\,x+1}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(3*x + 2)^(5/2)*sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] integrate((5*x + 3)^(3/2)*(3*x + 2)^(5/2)*sqrt(-2*x + 1), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\left(45\,x^3+87\,x^2+56\,x+12\right)\sqrt{5\,x+3}\sqrt{3\,x+2}\sqrt{-2\,x+1},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(3*x + 2)^(5/2)*sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] integral((45*x^3 + 87*x^2 + 56*x + 12)*sqrt(5*x + 3)*sqrt(3*x + 2
)*sqrt(-2*x + 1), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2+3*x)**(5/2)*(3+5*x)**(3/2)*(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (5x+3)^{\frac{3}{2}}(3x+2)^{\frac{5}{2}}\sqrt{-2x+1}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(3*x + 2)^(5/2)*sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(3/2)*(3*x + 2)^(5/2)*sqrt(-2*x + 1), x)
```

3.2637 $\int \sqrt{1-2x}(2+3x)^{3/2}(3+5x)^{3/2}\,dx$

Optimal. Leaf size=191

$$\frac{2}{45}\sqrt{1-2x}(3x+2)^{3/2}(5x+3)^{5/2}-\frac{3}{175}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}-\frac{1208\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}}{7875}-\frac{160297\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{141750}-\frac{160297\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{708750}-\frac{5327983\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{708750}$$

```
[Out] (-160297*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/141750 - (120
8*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/7875 - (3*Sqrt[1 -
 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/175 + (2*Sqrt[1 - 2*x]*(2 +
3*x)^(3/2)*(3 + 5*x)^(5/2))/45 - (5327983*Sqrt[11/3]*EllipticE[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/708750 - (160297*Sqrt[11/3
]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/708750
```

Rubi [A] time = 0.402518, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.179$

$$\frac{2}{45}\sqrt{1-2x}(3x+2)^{3/2}(5x+3)^{5/2}-\frac{3}{175}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}-\frac{1208\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}}{7875}-\frac{160297\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{141750}-\frac{160297\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{708750}-\frac{5327983\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{708750}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2),x]
```

```
[Out] (-160297*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/141750 - (120
8*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/7875 - (3*Sqrt[1 -
 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/175 + (2*Sqrt[1 - 2*x]*(2 +
3*x)^(3/2)*(3 + 5*x)^(5/2))/45 - (5327983*Sqrt[11/3]*EllipticE[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/708750 - (160297*Sqrt[11/3
]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/708750
```

Rubi in Sympy [A] time = 38.8297, size = 172, normalized size = 0.9

$$\frac{2\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}\,(5x+3)^{\frac{3}{2}}}{27}-\frac{41\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}\,\sqrt{5x+3}}{567}-\frac{3284\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\,\sqrt{5x+3}}{14175}-\frac{153319\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{141750}-\frac{5327983\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{2126250}-\frac{160297\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{2126250}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(3/2)*(3+5*x)**(3/2)*(1-2*x)**(1/2),x)
```

```
[Out] 2*sqrt(-2*x + 1)*(3*x + 2)**(5/2)*(5*x + 3)**(3/2)/27 - 41*sqrt(-
2*x + 1)*(3*x + 2)**(5/2)*sqrt(5*x + 3)/567 - 3284*sqrt(-2*x + 1)
*(3*x + 2)**(3/2)*sqrt(5*x + 3)/14175 - 153319*sqrt(-2*x + 1)*sqr
t(3*x + 2)*sqrt(5*x + 3)/141750 - 5327983*sqrt(33)*elliptic_e(asi
n(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/2126250 - 160297*sqrt(33)*el
```

```
liptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/2126250
```

Mathematica [A] time = 0.337202, size = 102, normalized size = 0.53

$$\frac{15\sqrt{2-4x}\sqrt{3x+2}\sqrt{5x+3}\left(472500x^3+821250x^2+366480x-133999\right)-5366165F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+106559}{2126250\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2),x]
```

```
[Out] (15*Sqrt[2 - 4*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(-133999 + 366480*x
 + 821250*x^2 + 472500*x^3) + 10655966*EllipticE[ArcSin[Sqrt[2/11
]*Sqrt[3 + 5*x]], -33/2] - 5366165*EllipticF[ArcSin[Sqrt[2/11]*Sq
rt[3 + 5*x]], -33/2])/(2126250*Sqrt[2])
```

Maple [C] time = 0.017, size = 179, normalized size = 0.9

$$\frac{1}{127575000\,x^3+97807500\,x^2-29767500\,x-25515000}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(425250000\,x^6+5366165\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(3/2)*(3+5*x)^(3/2)*(1-2*x)^(1/2),x)
```

```
[Out] 1/4252500*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(425250000*x^
6+5366165*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Ellip
ticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2
^(1/2))-10655966*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2
)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^
(1/2)*2^(1/2))+1065150000*x^5+797269500*x^4-125240400*x^3-3172451
10*x^2-37826610*x+24119820)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (5\,x+3)^{\frac{3}{2}}(3\,x+2)^{\frac{3}{2}}\sqrt{-2\,x+1}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)^(3/2)*sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] integrate((5*x + 3)^(3/2)*(3*x + 2)^(3/2)*sqrt(-2*x + 1), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\left(15\,x^2+19\,x+6\right)\sqrt{5\,x+3}\sqrt{3\,x+2}\sqrt{-2\,x+1},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)^(3/2)*sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] integral((15*x^2 + 19*x + 6)*sqrt(5*x + 3)*sqrt(3*x + 2)*sqrt(-2*
x + 1), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(3/2)*(3+5*x)**(3/2)*(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (5x+3)^{\frac{3}{2}}(3x+2)^{\frac{3}{2}}\sqrt{-2x+1}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(3*x + 2)^(3/2)*sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(3/2)*(3*x + 2)^(3/2)*sqrt(-2*x + 1), x)
```

3.2638 $\int \sqrt{1-2x}\sqrt{2+3x}(3+5x)^{3/2}\,dx$

Optimal. Leaf size=160

$$\frac{2}{35}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}-\frac{31}{525}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}-\frac{2252\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{4725}-\frac{2252\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{23625}-\frac{148831\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{47250}$$

```
[Out] (-2252*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/4725 - (31*Sqrt
[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/525 + (2*Sqrt[1 - 2*x]*S
qrt[2 + 3*x]*(3 + 5*x)^(5/2))/35 - (148831*Sqrt[11/3]*EllipticE[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/47250 - (2252*Sqrt[11/3]*
EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/23625
```

Rubi [A] time = 0.333773, antiderivative size = 160, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{2}{35}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}-\frac{31}{525}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}-\frac{2252\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{4725}-\frac{2252\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{23625}-\frac{148831\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{47250}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2),x]
```

```
[Out] (-2252*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/4725 - (31*Sqrt
[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/525 + (2*Sqrt[1 - 2*x]*S
qrt[2 + 3*x]*(3 + 5*x)^(5/2))/35 - (148831*Sqrt[11/3]*EllipticE[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/47250 - (2252*Sqrt[11/3]*
EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/23625
```

Rubi in Sympy [A] time = 31.3404, size = 143, normalized size = 0.89

$$\frac{2\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\,(5x+3)^{\frac{3}{2}}}{21}-\frac{41\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\,\sqrt{5x+3}}{315}-\frac{2129\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{4725}-\frac{148831\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{141750}-\frac{2252\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{70875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(3/2)*(1-2*x)**(1/2)*(2+3*x)**(1/2),x)
```

```
[Out] 2*sqrt(-2*x + 1)*(3*x + 2)**(3/2)*(5*x + 3)**(3/2)/21 - 41*sqrt(-
2*x + 1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/315 - 2129*sqrt(-2*x + 1)
*sqrt(3*x + 2)*sqrt(5*x + 3)/4725 - 148831*sqrt(33)*elliptic_e(as
in(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/141750 - 2252*sqrt(33)*elli
ptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/70875
```

Mathematica [A] time = 0.293005, size = 97, normalized size = 0.61

$$\frac{15\sqrt{2-4x}\sqrt{3x+2}\sqrt{5x+3}\left(6750x^2+6705x-659\right)-74515F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+148831E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right.\right.}{70875\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2),x]
```

```
[Out] (15*Sqrt[2 - 4*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(-659 + 6705*x + 67
50*x^2) + 148831*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/
2] - 74515*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/(7
0875*Sqrt[2])
```

Maple [C] time = 0.015, size = 174, normalized size = 1.1

$$\frac{1}{4252500\,x^3+3260250\,x^2-992250\,x-850500}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(74515\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/1\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(3/2)*(1-2*x)^(1/2)*(2+3*x)^(1/2),x)
```

```
[Out] 1/141750*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(74515*2^(1/2)
*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2
)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-148831*2^
(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11
^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+6075
000*x^5+10692000*x^4+2615850*x^3-3077760*x^2-1068510*x+118620)/(3
0*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (5\,x+3)^{\frac{3}{2}}\sqrt{3\,x+2}\sqrt{-2\,x+1}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*sqrt(3*x + 2)*sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] integrate((5*x + 3)^(3/2)*sqrt(3*x + 2)*sqrt(-2*x + 1), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left((5\,x+3)^{\frac{3}{2}}\sqrt{3\,x+2}\sqrt{-2\,x+1},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*sqrt(3*x + 2)*sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] integral((5*x + 3)^(3/2)*sqrt(3*x + 2)*sqrt(-2*x + 1), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(3/2)*(1-2*x)**(1/2)*(2+3*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (5x+3)^{\frac{3}{2}}\sqrt{3x+2}\sqrt{-2x+1}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*sqrt(3*x + 2)*sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(3/2)*sqrt(3*x + 2)*sqrt(-2*x + 1), x)
```

3.2639 $\int \frac{\sqrt{1-2x}(3+5x)^{3/2}}{\sqrt{2+3x}}\,dx$

Optimal. Leaf size=129

$$\frac{2}{15}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}-\frac{41}{135}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}-\frac{41}{675}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{974}{675}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (-41*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/135 + (2*Sqrt[1 -
 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/15 - (974*Sqrt[11/3]*Ellipti
cE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/675 - (41*Sqrt[11/3]*
EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/675
```

Rubi [A] time = 0.256972, antiderivative size = 129, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{2}{15}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}-\frac{41}{135}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}-\frac{41}{675}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{974}{675}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/Sqrt[2 + 3*x],x]
```

```
[Out] (-41*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/135 + (2*Sqrt[1 -
 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/15 - (974*Sqrt[11/3]*Ellipti
cE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/675 - (41*Sqrt[11/3]*
EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/675
```

Rubi in Sympy [A] time = 23.6568, size = 114, normalized size = 0.88

$$\frac{2\sqrt{-2x+1}\sqrt{3x+2}\,(5x+3)^{\frac{3}{2}}}{15}-\frac{41\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{135}-\frac{974\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{2025}-\frac{451\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{23625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(3/2)*(1-2*x)**(1/2)/(2+3*x)**(1/2),x)
```

```
[Out] 2*sqrt(-2*x + 1)*sqrt(3*x + 2)*(5*x + 3)**(3/2)/15 - 41*sqrt(-2*x
 + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/135 - 974*sqrt(33)*elliptic_e(a
sin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/2025 - 451*sqrt(35)*ellipt
ic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/23625
```

Mathematica [A] time = 0.25003, size = 92, normalized size = 0.71

$$\frac{15\sqrt{2-4x}\sqrt{3x+2}\sqrt{5x+3}(90x+13)-595F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+1948E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)}{2025\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/Sqrt[2 + 3*x],x]
```

```
[Out] (15*Sqrt[2 - 4*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(13 + 90*x) + 1948*
EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 595*Elliptic
F[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/(2025*Sqrt[2])
```

Maple [C] time = 0.016, size = 169, normalized size = 1.3

$$\frac{1}{121500\,x^3+93150\,x^2-28350\,x-24300}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(595\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}\mathit{EllipticF}\left(1/11\,\sqrt{11}\sqrt{2}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(3/2)*(1-2*x)^(1/2)/(2+3*x)^(1/2),x)
```

```
[Out] 1/4050*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(595*2^(1/2)*(3+
5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^
(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-1948*2^(1/2)*
(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)
*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+81000*x^4+
73800*x^3-9930*x^2-18930*x-2340)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{3}{2}}\sqrt{-2\,x+1}}{\sqrt{3\,x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/sqrt(3*x + 2),x, algorithm="maxima")
```

```
[Out] integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/sqrt(3*x + 2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{(5\,x+3)^{\frac{3}{2}}\sqrt{-2\,x+1}}{\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/sqrt(3*x + 2),x, algorithm="fricas")
```

```
[Out] integral((5*x + 3)^(3/2)*sqrt(-2*x + 1)/sqrt(3*x + 2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(3/2)*(1-2*x)**(1/2)/(2+3*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{3}{2}}\sqrt{-2x+1}}{\sqrt{3x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/sqrt(3*x + 2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/sqrt(3*x + 2), x)
```

3.2640 $\int \frac{\sqrt{1-2x}(3+5x)^{3/2}}{(2+3x)^{3/2}}\,dx$

Optimal. Leaf size=129

$$-\frac{2\sqrt{1-2x}(5x+3)^{3/2}}{3\sqrt{3x+2}}+\frac{40}{27}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}+\frac{8}{27}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{49}{27}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (40*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/27 - (2*Sqrt[1 - 2
*x]*(3 + 5*x)^(3/2))/(3*Sqrt[2 + 3*x]) - (49*Sqrt[11/3]*EllipticE
[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/27 + (8*Sqrt[11/3]*Elli
pticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/27
```

Rubi [A] time = 0.254076, antiderivative size = 129, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{2\sqrt{1-2x}(5x+3)^{3/2}}{3\sqrt{3x+2}}+\frac{40}{27}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}+\frac{8}{27}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{49}{27}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(2 + 3*x)^(3/2),x]
```

```
[Out] (40*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/27 - (2*Sqrt[1 - 2
*x]*(3 + 5*x)^(3/2))/(3*Sqrt[2 + 3*x]) - (49*Sqrt[11/3]*EllipticE
[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/27 + (8*Sqrt[11/3]*Elli
pticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/27
```

Rubi in Sympy [A] time = 24.3653, size = 114, normalized size = 0.88

$$\frac{40\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{27}-\frac{2\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{3\sqrt{3x+2}}-\frac{49\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{81}+\frac{88\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{945}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(3/2)*(1-2*x)**(1/2)/(2+3*x)**(3/2),x)
```

```
[Out] 40*sqrt(-2*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/27 - 2*sqrt(-2*x +
1)*(5*x + 3)**(3/2)/(3*sqrt(3*x + 2)) - 49*sqrt(33)*elliptic_e(as
in(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/81 + 88*sqrt(35)*elliptic_f
(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/945
```

Mathematica [A] time = 0.281544, size = 97, normalized size = 0.75

$$\frac{1}{81}\left(\frac{6\sqrt{1-2x}\sqrt{5x+3}(15x+13)}{\sqrt{3x+2}}-181\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+49\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(2 + 3*x)^(3/2),x]
```

```
[Out] ((6*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(13 + 15*x))/Sqrt[2 + 3*x] + 49*S
qrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 181*S
qrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/81
```

Maple [C] time = 0.024, size = 164, normalized size = 1.3

$$\frac{1}{2430\,x^3+1863\,x^2-567\,x-486}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(181\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(3/2)*(1-2*x)^(1/2)/(2+3*x)^(3/2),x)
```

```
[Out] 1/81*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(181*2^(1/2)*(3+5*
x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1
/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-49*2^(1/2)*(3+5
*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(
1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+900*x^3+870*x^
2-192*x-234)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{3}{2}}\sqrt{-2\,x+1}}{(3\,x+2)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/(3*x + 2)^(3/2),x, algorithm="maxima")
```

```
[Out] integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/(3*x + 2)^(3/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(5\,x+3)^{\frac{3}{2}}\sqrt{-2\,x+1}}{(3\,x+2)^{\frac{3}{2}}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/(3*x + 2)^(3/2),x, algorithm="fricas")
```

```
[Out] integral((5*x + 3)^(3/2)*sqrt(-2*x + 1)/(3*x + 2)^(3/2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(3/2)*(1-2*x)**(1/2)/(2+3*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{3}{2}}\sqrt{-2x+1}}{(3x+2)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/(3*x + 2)^(3/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/(3*x + 2)^(3/2), x)
```

3.2641 $\int \frac{\sqrt{1-2x}(3+5x)^{3/2}}{(2+3x)^{5/2}} dx$

Optimal. Leaf size=129

$$-\frac{2\sqrt{1-2x}(5x+3)^{3/2}}{9(3x+2)^{3/2}}-\frac{214\sqrt{1-2x}\sqrt{5x+3}}{189\sqrt{3x+2}}-\frac{214}{189}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{494}{189}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (-214*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(189*Sqrt[2 + 3*x]) - (2*Sqrt[
1 - 2*x]*(3 + 5*x)^(3/2))/(9*(2 + 3*x)^(3/2)) + (494*Sqrt[11/3]*E
llipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/189 - (214*Sqrt
[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/189
```

Rubi [A] time = 0.258408, antiderivative size = 129, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{2\sqrt{1-2x}(5x+3)^{3/2}}{9(3x+2)^{3/2}}-\frac{214\sqrt{1-2x}\sqrt{5x+3}}{189\sqrt{3x+2}}-\frac{214}{189}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{494}{189}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(2 + 3*x)^(5/2),x]
```

```
[Out] (-214*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(189*Sqrt[2 + 3*x]) - (2*Sqrt[
1 - 2*x]*(3 + 5*x)^(3/2))/(9*(2 + 3*x)^(3/2)) + (494*Sqrt[11/3]*E
llipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/189 - (214*Sqrt
[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/189
```

Rubi in Sympy [A] time = 23.8583, size = 114, normalized size = 0.88

$$-\frac{214\sqrt{-2x+1}\sqrt{5x+3}}{189\sqrt{3x+2}}-\frac{2\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{9\,(3x+2)^{\frac{3}{2}}}+\frac{494\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{567}-\frac{2354\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{6615}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(3/2)*(1-2*x)**(1/2)/(2+3*x)**(5/2),x)
```

```
[Out] -214*sqrt(-2*x + 1)*sqrt(5*x + 3)/(189*sqrt(3*x + 2)) - 2*sqrt(-2
*x + 1)*(5*x + 3)**(3/2)/(9*(3*x + 2)**(3/2)) + 494*sqrt(33)*elli
ptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/567 - 2354*sqrt(35
)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/6615
```

Mathematica [A] time = 0.296617, size = 97, normalized size = 0.75

$$\frac{1}{567}\left(-\frac{6\sqrt{1-2x}\sqrt{5x+3}(426x+277)}{(3x+2)^{3/2}}+4025\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-494\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(2 + 3*x)^(5/2),x]
```

```
[Out] ((-6*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(277 + 426*x))/(2 + 3*x)^(3/2) -
 494*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] +
 4025*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])
/567
```

Maple [C] time = 0.027, size = 267, normalized size = 2.1

$$-\frac{1}{5670\,x^2+567\,x-1701}\left(12075\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-1482\,\sqrt{2}El\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(3/2)*(1-2*x)^(1/2)/(2+3*x)^(5/2),x)
```

```
[Out] -1/567*(12075*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/
2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*
(1-2*x)^(1/2)-1482*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x
)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(
1/2)*(1-2*x)^(1/2)+8050*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*
x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(
1/2)*3^(1/2)*2^(1/2))-988*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-
2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11
^(1/2)*3^(1/2)*2^(1/2))+25560*x^3+19176*x^2-6006*x-4986)*(1-2*x)^
(1/2)*(3+5*x)^(1/2)/(10*x^2+x-3)/(2+3*x)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{3}{2}}\sqrt{-2\,x+1}}{(3\,x+2)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/(3*x + 2)^(5/2),x, algorithm="maxima")
```

```
[Out] integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/(3*x + 2)^(5/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{(5\,x+3)^{\frac{3}{2}}\sqrt{-2\,x+1}}{(9\,x^2+12\,x+4)\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/(3*x + 2)^(5/2),x, algorithm="fricas")
```

```
[Out] integral((5*x + 3)^(3/2)*sqrt(-2*x + 1)/((9*x^2 + 12*x + 4)*sqrt(
3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(3/2)*(1-2*x)**(1/2)/(2+3*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{3}{2}}\sqrt{-2x+1}}{(3x+2)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/(3*x + 2)^(5/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/(3*x + 2)^(5/2), x)
```

3.2642 $\int \frac{\sqrt{1-2x}(3+5x)^{3/2}}{(2+3x)^{7/2}}\,dx$

Optimal. Leaf size=160

$$-\frac{2\sqrt{1-2x}(5x+3)^{3/2}}{15(3x+2)^{5/2}}+\frac{8314\sqrt{1-2x}\sqrt{5x+3}}{6615\sqrt{3x+2}}-\frac{214\sqrt{1-2x}\sqrt{5x+3}}{945(3x+2)^{3/2}}+\frac{824\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{6615}-\frac{8314\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{6615}$$

```
[Out] (-214*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(945*(2 + 3*x)^(3/2)) + (8314*
Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(6615*Sqrt[2 + 3*x]) - (2*Sqrt[1 - 2
*x]*(3 + 5*x)^(3/2))/(15*(2 + 3*x)^(5/2)) - (8314*Sqrt[11/3]*Elli
pticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/6615 + (824*Sqrt[1
1/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/6615
```

Rubi [A] time = 0.333205, antiderivative size = 160, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$-\frac{2\sqrt{1-2x}(5x+3)^{3/2}}{15(3x+2)^{5/2}}+\frac{8314\sqrt{1-2x}\sqrt{5x+3}}{6615\sqrt{3x+2}}-\frac{214\sqrt{1-2x}\sqrt{5x+3}}{945(3x+2)^{3/2}}+\frac{824\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{6615}-\frac{8314\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{6615}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(2 + 3*x)^(7/2),x]
```

```
[Out] (-214*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(945*(2 + 3*x)^(3/2)) + (8314*
Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(6615*Sqrt[2 + 3*x]) - (2*Sqrt[1 - 2
*x]*(3 + 5*x)^(3/2))/(15*(2 + 3*x)^(5/2)) - (8314*Sqrt[11/3]*Elli
pticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/6615 + (824*Sqrt[1
1/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/6615
```

Rubi in Sympy [A] time = 31.0573, size = 143, normalized size = 0.89

$$\frac{8314\sqrt{-2x+1}\sqrt{5x+3}}{6615\sqrt{3x+2}}-\frac{214\sqrt{-2x+1}\sqrt{5x+3}}{945\,(3x+2)^{\frac{3}{2}}}-\frac{2\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{15\,(3x+2)^{\frac{5}{2}}}-\frac{8314\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{19845}+\frac{9064\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{231525}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(3/2)*(1-2*x)**(1/2)/(2+3*x)**(7/2),x)
```

```
[Out] 8314*sqrt(-2*x + 1)*sqrt(5*x + 3)/(6615*sqrt(3*x + 2)) - 214*sqrt
(-2*x + 1)*sqrt(5*x + 3)/(945*(3*x + 2)**(3/2)) - 2*sqrt(-2*x + 1
)*(5*x + 3)**(3/2)/(15*(3*x + 2)**(5/2)) - 8314*sqrt(33)*elliptic
_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/19845 + 9064*sqrt(35)*
elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/231525
```

Mathematica [A] time = 0.31041, size = 99, normalized size = 0.62

$$\frac{2\left(\frac{3\sqrt{1-2x}\sqrt{5x+3}(37413x^2+45432x+13807)}{(3x+2)^{5/2}}+\sqrt{2}\left(4157E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-10955F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)\right)}{19845}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(2 + 3*x)^(7/2),x]
```

```
[Out] (2*((3*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(13807 + 45432*x + 37413*x^2))
/(2 + 3*x)^(5/2) + Sqrt[2]*(4157*EllipticE[ArcSin[Sqrt[2/11]*Sqrt
[3 + 5*x]], -33/2] - 10955*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5
*x]], -33/2])))/19845
```

Maple [C] time = 0.027, size = 386, normalized size = 2.4

$$\frac{2}{198450\,x^2+19845\,x-59535}\left(98595\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^2\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-3741\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(3/2)*(1-2*x)^(1/2)/(2+3*x)^(7/2),x)
```

```
[Out] 2/19845*(98595*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1
/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/
2)*(1-2*x)^(1/2)-37413*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3
+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+
3*x)^(1/2)*(1-2*x)^(1/2)+131460*2^(1/2)*EllipticF(1/11*11^(1/2)*2
^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1
/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-49884*2^(1/2)*EllipticE(1/11*11^(
1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5
*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+43820*2^(1/2)*(3+5*x)^(1/2)
*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5
*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-16628*2^(1/2)*(3+5*x)^(
1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*
(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+1122390*x^4+1475199
*x^3+213789*x^2-367467*x-124263)*(1-2*x)^(1/2)*(3+5*x)^(1/2)/(10*
x^2+x-3)/(2+3*x)^(5/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{3}{2}}\sqrt{-2\,x+1}}{(3\,x+2)^{\frac{7}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/(3*x + 2)^(7/2),x, algorithm="maxima")
```

```
[Out] integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/(3*x + 2)^(7/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(5\,x+3)^{\frac{3}{2}}\sqrt{-2\,x+1}}{(27\,x^3+54\,x^2+36\,x+8)\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/(3*x + 2)^(7/2),x, algorithm="fricas")
```

```
[Out] integral((5*x + 3)^(3/2)*sqrt(-2*x + 1)/((27*x^3 + 54*x^2 + 36*x
+ 8)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(3/2)*(1-2*x)**(1/2)/(2+3*x)**(7/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{3}{2}}\sqrt{-2x+1}}{(3x+2)^{\frac{7}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/(3*x + 2)^(7/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/(3*x + 2)^(7/2), x)
```

3.2643 $\int \frac{\sqrt{1-2x}(3+5x)^{3/2}}{(2+3x)^{9/2}} dx$

Optimal. Leaf size=191

$$-\frac{2\sqrt{1-2x}(5x+3)^{3/2}}{21(3x+2)^{7/2}}+\frac{475592\sqrt{1-2x}\sqrt{5x+3}}{324135\sqrt{3x+2}}+\frac{8578\sqrt{1-2x}\sqrt{5x+3}}{46305(3x+2)^{3/2}}-\frac{214\sqrt{1-2x}\sqrt{5x+3}}{2205(3x+2)^{5/2}}-\frac{10628\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{324135}-\frac{475592\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{324135}$$

```
[Out] (-214*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2205*(2 + 3*x)^(5/2)) + (8578
*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(46305*(2 + 3*x)^(3/2)) + (475592*S
qrt[1 - 2*x]*Sqrt[3 + 5*x])/(324135*Sqrt[2 + 3*x]) - (2*Sqrt[1 -
2*x]*(3 + 5*x)^(3/2))/(21*(2 + 3*x)^(7/2)) - (475592*Sqrt[11/3]*E
llipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/324135 - (10628
*Sqrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/32
4135
```

Rubi [A] time = 0.421527, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$-\frac{2\sqrt{1-2x}(5x+3)^{3/2}}{21(3x+2)^{7/2}}+\frac{475592\sqrt{1-2x}\sqrt{5x+3}}{324135\sqrt{3x+2}}+\frac{8578\sqrt{1-2x}\sqrt{5x+3}}{46305(3x+2)^{3/2}}-\frac{214\sqrt{1-2x}\sqrt{5x+3}}{2205(3x+2)^{5/2}}-\frac{10628\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{324135}-\frac{475592\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{324135}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(2 + 3*x)^(9/2),x]
```


```
[Out] (-214*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2205*(2 + 3*x)^(5/2)) + (8578
*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(46305*(2 + 3*x)^(3/2)) + (475592*S
qrt[1 - 2*x]*Sqrt[3 + 5*x])/(324135*Sqrt[2 + 3*x]) - (2*Sqrt[1 -
2*x]*(3 + 5*x)^(3/2))/(21*(2 + 3*x)^(7/2)) - (475592*Sqrt[11/3]*E
llipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/324135 - (10628
*Sqrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/32
4135
```

Rubi in Sympy [A] time = 37.8091, size = 172, normalized size = 0.9

$$\frac{475592\sqrt{-2x+1}\sqrt{5x+3}}{324135\sqrt{3x+2}}+\frac{8578\sqrt{-2x+1}\sqrt{5x+3}}{46305\,(3x+2)^{\frac{3}{2}}}-\frac{214\sqrt{-2x+1}\sqrt{5x+3}}{2205\,(3x+2)^{\frac{5}{2}}}-\frac{2\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{21\,(3x+2)^{\frac{7}{2}}}-\frac{475592\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{972405}-\frac{116908\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{11344725}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(3/2)*(1-2*x)**(1/2)/(2+3*x)**(9/2),x)
```

```
[Out] 475592*sqrt(-2*x + 1)*sqrt(5*x + 3)/(324135*sqrt(3*x + 2)) + 8578
*sqrt(-2*x + 1)*sqrt(5*x + 3)/(46305*(3*x + 2)**(3/2)) - 214*sqrt
(-2*x + 1)*sqrt(5*x + 3)/(2205*(3*x + 2)**(5/2)) - 2*sqrt(-2*x +
1)*(5*x + 3)**(3/2)/(21*(3*x + 2)**(7/2)) - 475592*sqrt(33)*ellip
tic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/972405 - 116908*sqr
t(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/1134472
5
```

Mathematica [A] time = 0.339351, size = 104, normalized size = 0.54

$$\frac{2\left(\frac{3\sqrt{1-2x}\sqrt{5x+3}(6420492x^3+13111191x^2+8796570x+1944697)}{(3x+2)^{7/2}}+\sqrt{2}\left(237796E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-150115F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x\right.\right.\right.\right.}{972405}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(2 + 3*x)^(9/2),x]
```

```
[Out] (2*((3*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(1944697 + 8796570*x + 1311119
1*x^2 + 6420492*x^3))/(2 + 3*x)^(7/2) + Sqrt[2]*(237796*EllipticE
[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 150115*EllipticF[ArcS
in[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])))/972405
```

Maple [C] time = 0.029, size = 505, normalized size = 2.6

$$\frac{2}{9724050\,x^2+972405\,x-2917215}\left(4053105\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^3\sqrt{1-2\,x}\sqrt{3+5\,x}\sqrt{2+3\,x}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(3/2)*(1-2*x)^(1/2)/(2+3*x)^(9/2),x)
```

```
[Out] 2/972405*(4053105*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)
^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*x)^
(1/2)*(2+3*x)^(1/2)-6420492*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/
2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2
)*(3+5*x)^(1/2)*(2+3*x)^(1/2)+8106210*2^(1/2)*EllipticF(1/11*11^(
1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3
+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-12840984*2^(1/2)*Elliptic
E(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1
/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+5404140*2^(1/2
)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^
(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-856065
6*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^
(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2
)+1200920*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Ellip
ticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2
^(1/2))-1902368*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)
*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(
1/2)*2^(1/2))+192614760*x^5+412597206*x^4+245446245*x^3-33270099*
x^2-73335039*x-17502273)*(1-2*x)^(1/2)*(3+5*x)^(1/2)/(10*x^2+x-3)
/(2+3*x)^(7/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{3}{2}}\sqrt{-2\,x+1}}{(3\,x+2)^{\frac{9}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/(3*x + 2)^(9/2),x, algorithm="maxima")
```

```
[Out] integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/(3*x + 2)^(9/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{(5\,x+3)^{\frac{3}{2}}\sqrt{-2\,x+1}}{(81\,x^4+216\,x^3+216\,x^2+96\,x+16)\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/(3*x + 2)^(9/2),x, algorithm="fricas")
```

```
[Out] integral((5*x + 3)^(3/2)*sqrt(-2*x + 1)/((81*x^4 + 216*x^3 + 216*
x^2 + 96*x + 16)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(3/2)*(1-2*x)**(1/2)/(2+3*x)**(9/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{3}{2}}\sqrt{-2x+1}}{(3x+2)^{\frac{9}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/(3*x + 2)^(9/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/(3*x + 2)^(9/2), x)
```

3.2644 $\int \frac{\sqrt{1-2x}(3+5x)^{3/2}}{(2+3x)^{11/2}}\,dx$

Optimal. Leaf size=222

$$-\frac{2\sqrt{1-2x}(5x+3)^{3/2}}{27(3x+2)^{9/2}}+\frac{22738708\sqrt{1-2x}\sqrt{5x+3}}{6806835\sqrt{3x+2}}+\frac{332372\sqrt{1-2x}\sqrt{5x+3}}{972405(3x+2)^{3/2}}+\frac{8842\sqrt{1-2x}\sqrt{5x+3}}{138915(3x+2)^{5/2}}-\frac{214\sqrt{1-2x}\sqrt{5x+3}}{3969(3x+2)^{7/2}}-\frac{673072\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{6806835}-\frac{22738708\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{6806835}$$

```
[Out] (-214*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(3969*(2 + 3*x)^(7/2)) + (8842
*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(138915*(2 + 3*x)^(5/2)) + (332372*
Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(972405*(2 + 3*x)^(3/2)) + (22738708
*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(6806835*Sqrt[2 + 3*x]) - (2*Sqrt[1
 - 2*x]*(3 + 5*x)^(3/2))/(27*(2 + 3*x)^(9/2)) - (22738708*Sqrt[11
/3]*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/6806835 -
(673072*Sqrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/
33])/6806835
```

Rubi [A] time = 0.504916, antiderivative size = 222, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$-\frac{2\sqrt{1-2x}(5x+3)^{3/2}}{27(3x+2)^{9/2}}+\frac{22738708\sqrt{1-2x}\sqrt{5x+3}}{6806835\sqrt{3x+2}}+\frac{332372\sqrt{1-2x}\sqrt{5x+3}}{972405(3x+2)^{3/2}}+\frac{8842\sqrt{1-2x}\sqrt{5x+3}}{138915(3x+2)^{5/2}}-\frac{214\sqrt{1-2x}\sqrt{5x+3}}{3969(3x+2)^{7/2}}-\frac{673072\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{6806835}-\frac{22738708\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{6806835}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(2 + 3*x)^(11/2),x]
```

```
[Out] (-214*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(3969*(2 + 3*x)^(7/2)) + (8842
*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(138915*(2 + 3*x)^(5/2)) + (332372*
Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(972405*(2 + 3*x)^(3/2)) + (22738708
*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(6806835*Sqrt[2 + 3*x]) - (2*Sqrt[1
 - 2*x]*(3 + 5*x)^(3/2))/(27*(2 + 3*x)^(9/2)) - (22738708*Sqrt[11
/3]*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/6806835 -
(673072*Sqrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/
33])/6806835
```

Rubi in Sympy [A] time = 45.3699, size = 201, normalized size = 0.91

$$\frac{22738708\sqrt{-2x+1}\sqrt{5x+3}}{6806835\sqrt{3x+2}}+\frac{332372\sqrt{-2x+1}\sqrt{5x+3}}{972405\left(3x+2\right)^{\frac{3}{2}}}+\frac{8842\sqrt{-2x+1}\sqrt{5x+3}}{138915\left(3x+2\right)^{\frac{5}{2}}}-\frac{214\sqrt{-2x+1}\sqrt{5x+3}}{3969\left(3x+2\right)^{\frac{7}{2}}}-\frac{2\sqrt{-2x+1}\left(5x+3\right)^{\frac{3}{2}}}{27\left(3x+2\right)^{\frac{9}{2}}}-\frac{22738708\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{20420505}-\frac{7403792\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{238239225}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(3/2)*(1-2*x)**(1/2)/(2+3*x)**(11/2),x)
```

```
[Out] 22738708*sqrt(-2*x + 1)*sqrt(5*x + 3)/(6806835*sqrt(3*x + 2)) + 3
32372*sqrt(-2*x + 1)*sqrt(5*x + 3)/(972405*(3*x + 2)**(3/2)) + 88
42*sqrt(-2*x + 1)*sqrt(5*x + 3)/(138915*(3*x + 2)**(5/2)) - 214*s
qrt(-2*x + 1)*sqrt(5*x + 3)/(3969*(3*x + 2)**(7/2)) - 2*sqrt(-2*x
 + 1)*(5*x + 3)**(3/2)/(27*(3*x + 2)**(9/2)) - 22738708*sqrt(33)*
elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/20420505 - 740
3792*sqrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)
/238239225
```

Mathematica [A] time = 0.405756, size = 107, normalized size = 0.48

$$\frac{\frac{24\sqrt{2-4x}\sqrt{5x+3}(920917674x^4+2487189618x^3+2520548433x^2+1134125364x+190959271)}{(3x+2)^{9/2}} - 93064160F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right) + 18190966\ldots}{81682020\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(2 + 3*x)^(11/2),x]
```

```
[Out] ((24*Sqrt[2 - 4*x]*Sqrt[3 + 5*x]*(190959271 + 1134125364*x + 2520
548433*x^2 + 2487189618*x^3 + 920917674*x^4))/(2 + 3*x)^(9/2) + 1
81909664*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 930
64160*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/(816820
20*Sqrt[2])
```

Maple [C] time = 0.055, size = 624, normalized size = 2.8

$$\frac{2}{204205050x^2+20420505x-61261515}\left(471137310\sqrt{2}EllipticF\left(1/11\sqrt{11}\sqrt{2}\sqrt{3+5x}, i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^4\sqrt{3+5x}\sqrt{2+3x}\ldots\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(3/2)*(1-2*x)^(1/2)/(2+3*x)^(11/2),x)
```

```
[Out] 2/20420505*(471137310*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+
5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^4*(3+5*x)^(1/2)*(2+3
*x)^(1/2)*(1-2*x)^(1/2)-920917674*2^(1/2)*EllipticE(1/11*11^(1/2)
*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^4*(3+5*x
)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+1256366160*2^(1/2)*EllipticF(
1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2
))*x^3*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)-2455780464*2^(1/
2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3
^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)+125
6366160*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2
*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2
*x)^(1/2)-2455780464*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5
*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*
x)^(1/2)*(1-2*x)^(1/2)+558384960*2^(1/2)*EllipticF(1/11*11^(1/2)*
2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(
1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-1091457984*2^(1/2)*EllipticE(1/1
1*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*
x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+27627530220*x^6+93064
160*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1
/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2)
)-181909664*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Ell
ipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)
*2^(1/2))+77378441562*x^5+74789762778*x^4+19200699657*x^3-1355378
1675*x^2-9634250463*x-1718633439)*(1-2*x)^(1/2)*(3+5*x)^(1/2)/(10
*x^2+x-3)/(2+3*x)^(9/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{3}{2}}\sqrt{-2x+1}}{(3x+2)^{\frac{11}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/(3*x + 2)^(11/2),x, algorithm="maxima")
```

```
[Out] integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/(3*x + 2)^(11/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(5x+3)^{\frac{3}{2}}\sqrt{-2x+1}}{(243x^5+810x^4+1080x^3+720x^2+240x+32)\sqrt{3x+2}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/(3*x + 2)^(11/2),x, algorithm="fricas")
```

```
[Out] integral((5*x + 3)^(3/2)*sqrt(-2*x + 1)/((243*x^5 + 810*x^4 + 108
0*x^3 + 720*x^2 + 240*x + 32)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(3/2)*(1-2*x)**(1/2)/(2+3*x)**(11/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{3}{2}}\sqrt{-2x+1}}{(3x+2)^{\frac{11}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/(3*x + 2)^(11/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(3/2)*sqrt(-2*x + 1)/(3*x + 2)^(11/2), x)
```

3.2645 $\int \sqrt{1-2x}(2+3x)^{5/2}(3+5x)^{5/2}\,dx$

Optimal. Leaf size=249

$$\frac{2}{65}\sqrt{1-2x}(3x+2)^{5/2}(5x+3)^{7/2}-\frac{23\sqrt{1-2x}(3x+2)^{3/2}(5x+3)^{7/2}}{3575}-\frac{2014\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{7/2}}{53625}-\frac{564731\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}}{2252250}-\frac{1865989\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}}{1126125}-\frac{493825477\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{40540500}-\frac{493825477F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{18427500\sqrt{33}}-\frac{16416987253E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{18427500\sqrt{33}}$$

```
[Out] (-493825477*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/40540500 -
 (1865989*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/1126125 -
(564731*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/2252250 - (2
014*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(7/2))/53625 - (23*Sqrt
[1 - 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(7/2))/3575 + (2*Sqrt[1 - 2*x
]*(2 + 3*x)^(5/2)*(3 + 5*x)^(7/2))/65 - (16416987253*EllipticE[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(18427500*Sqrt[33]) - (493
825477*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(184275
00*Sqrt[33])
```

Rubi [A] time = 0.564653, antiderivative size = 249, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.179$

$$\frac{2}{65}\sqrt{1-2x}(3x+2)^{5/2}(5x+3)^{7/2}-\frac{23\sqrt{1-2x}(3x+2)^{3/2}(5x+3)^{7/2}}{3575}-\frac{2014\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{7/2}}{53625}-\frac{564731\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}}{2252250}-\frac{1865989\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}}{1126125}-\frac{493825477\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{40540500}-\frac{493825477F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{18427500\sqrt{33}}-\frac{16416987253E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{18427500\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)*(3 + 5*x)^(5/2),x]
```


```
[Out] (-493825477*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/40540500 -
 (1865989*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/1126125 -
(564731*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/2252250 - (2
014*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(7/2))/53625 - (23*Sqrt
[1 - 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(7/2))/3575 + (2*Sqrt[1 - 2*x
]*(2 + 3*x)^(5/2)*(3 + 5*x)^(7/2))/65 - (16416987253*EllipticE[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(18427500*Sqrt[33]) - (493
825477*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(184275
00*Sqrt[33])
```

Rubi in Sympy [A] time = 54.5741, size = 230, normalized size = 0.92

$$\frac{2\sqrt{-2x+1}\,(3x+2)^{\frac{7}{2}}\,(5x+3)^{\frac{5}{2}}}{39}-\frac{5\sqrt{-2x+1}\,(3x+2)^{\frac{7}{2}}\,(5x+3)^{\frac{3}{2}}}{143}-\frac{362\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}\,(5x+3)^{\frac{3}{2}}}{3861}-\frac{101861\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}\,\sqrt{5x+3}}{162162}-\frac{5075047\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\,\sqrt{5x+3}}{2027025}-\frac{472506679\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{40540500}-\frac{16416987253\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{608107500}-\frac{493825477\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{608107500}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(5/2)*(3+5*x)**(5/2)*(1-2*x)**(1/2),x)
```

```
[Out] 2*sqrt(-2*x + 1)*(3*x + 2)**(7/2)*(5*x + 3)**(5/2)/39 - 5*sqrt(-2
*x + 1)*(3*x + 2)**(7/2)*(5*x + 3)**(3/2)/143 - 362*sqrt(-2*x + 1
)*(3*x + 2)**(5/2)*(5*x + 3)**(3/2)/3861 - 101861*sqrt(-2*x + 1)*
(3*x + 2)**(5/2)*sqrt(5*x + 3)/162162 - 5075047*sqrt(-2*x + 1)*(3
*x + 2)**(3/2)*sqrt(5*x + 3)/2027025 - 472506679*sqrt(-2*x + 1)*s
qrt(3*x + 2)*sqrt(5*x + 3)/40540500 - 16416987253*sqrt(33)*ellipt
ic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/608107500 - 49382547
7*sqrt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/608
107500
```

Mathematica [A] time = 0.445325, size = 112, normalized size = 0.45

$$\frac{15\sqrt{2-4x}\sqrt{3x+2}\sqrt{5x+3}\left(1403325000x^5+4299277500x^4+5075689500x^3+2626854750x^2+139824180x-707313559\right)}{608107500\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)*(3 + 5*x)^(5/2),x]
```

```
[Out] (15*Sqrt[2 - 4*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(-707313559 + 13982
4180*x + 2626854750*x^2 + 5075689500*x^3 + 4299277500*x^4 + 14033
25000*x^5) + 32833974506*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x
]], -33/2] - 16537733765*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x
]], -33/2])/(608107500*Sqrt[2])
```

Maple [C] time = 0.033, size = 189, normalized size = 0.8

$$\frac{1}{36486450000\,x^3+27972945000\,x^2-8513505000\,x-7297290000}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(1262992500000\,x^8+48376440\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(5/2)*(3+5*x)^(5/2)*(1-2*x)^(1/2),x)
```

```
[Out] 1/1216215000*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(126299250
0000*x^8+4837644000000*x^7+7239923775000*x^6+16537733765*2^(1/2)*
(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)
*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-3283397450
6*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/1
1*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+
4710948255000*x^5+98606794500*x^4-2005367126400*x^3-990243288510*
x^2+123367494990*x+127316440620)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (5\,x+3)^{\frac{5}{2}}(3\,x+2)^{\frac{5}{2}}\sqrt{-2\,x+1}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)^(5/2)*sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] integrate((5*x + 3)^(5/2)*(3*x + 2)^(5/2)*sqrt(-2*x + 1), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\left(225\,x^{4}+570\,x^{3}+541\,x^{2}+228\,x+36\right)\sqrt{5\,x+3}\sqrt{3\,x+2}\sqrt{-2\,x+1},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(3*x + 2)^(5/2)*sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] integral((225*x^4 + 570*x^3 + 541*x^2 + 228*x + 36)*sqrt(5*x + 3)
*sqrt(3*x + 2)*sqrt(-2*x + 1), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(5/2)*(3+5*x)**(5/2)*(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (5\,x+3)^{\frac{5}{2}}(3\,x+2)^{\frac{5}{2}}\sqrt{-2\,x+1}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(3*x + 2)^(5/2)*sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)*(3*x + 2)^(5/2)*sqrt(-2*x + 1), x)
```

3.2646 $\int \sqrt{1-2x}(2+3x)^{3/2}(3+5x)^{5/2}\,dx$

Optimal. Leaf size=218

$$\frac{2}{55}\sqrt{1-2x}(3x+2)^{3/2}(5x+3)^{7/2}-\frac{3}{275}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{7/2}-\frac{177\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}}{1925}-\frac{7031\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}}{11550}-\frac{465127\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{103950}-\frac{465127F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{47250\sqrt{33}}-\frac{30926081E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{94500\sqrt{33}}$$

```
[Out] (-465127*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/103950 - (703
1*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/11550 - (177*Sqrt[
1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/1925 - (3*Sqrt[1 - 2*x]*S
qrt[2 + 3*x]*(3 + 5*x)^(7/2))/275 + (2*Sqrt[1 - 2*x]*(2 + 3*x)^(3
/2)*(3 + 5*x)^(7/2))/55 - (30926081*EllipticE[ArcSin[Sqrt[3/7]*Sq
rt[1 - 2*x]], 35/33])/(94500*Sqrt[33]) - (465127*EllipticF[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(47250*Sqrt[33])
```

Rubi [A] time = 0.482675, antiderivative size = 218, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{2}{55}\sqrt{1-2x}(3x+2)^{3/2}(5x+3)^{7/2}-\frac{3}{275}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{7/2}-\frac{177\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}}{1925}-\frac{7031\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}}{11550}-\frac{465127\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{103950}-\frac{465127F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{47250\sqrt{33}}-\frac{30926081E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{94500\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(5/2),x]
```

```
[Out] (-465127*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/103950 - (703
1*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/11550 - (177*Sqrt[
1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/1925 - (3*Sqrt[1 - 2*x]*S
qrt[2 + 3*x]*(3 + 5*x)^(7/2))/275 + (2*Sqrt[1 - 2*x]*(2 + 3*x)^(3
/2)*(3 + 5*x)^(7/2))/55 - (30926081*EllipticE[ArcSin[Sqrt[3/7]*Sq
rt[1 - 2*x]], 35/33])/(94500*Sqrt[33]) - (465127*EllipticF[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(47250*Sqrt[33])
```

Rubi in Sympy [A] time = 46.3927, size = 201, normalized size = 0.92

$$\frac{2\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}\,(5x+3)^{\frac{5}{2}}}{33}-\frac{5\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}\,(5x+3)^{\frac{3}{2}}}{99}-\frac{95\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\,(5x+3)^{\frac{3}{2}}}{693}-\frac{6691\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\,\sqrt{5x+3}}{6930}-\frac{222527\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{51975}-\frac{30926081\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{3118500}-\frac{465127\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{1653750}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(3/2)*(3+5*x)**(5/2)*(1-2*x)**(1/2),x)
```

```
[Out] 2*sqrt(-2*x + 1)*(3*x + 2)**(5/2)*(5*x + 3)**(5/2)/33 - 5*sqrt(-2
*x + 1)*(3*x + 2)**(5/2)*(5*x + 3)**(3/2)/99 - 95*sqrt(-2*x + 1)*
(3*x + 2)**(3/2)*(5*x + 3)**(3/2)/693 - 6691*sqrt(-2*x + 1)*(3*x
```

```
+ 2)**(3/2)*sqrt(5*x + 3)/6930 - 222527*sqrt(-2*x + 1)*sqrt(3*x +
 2)*sqrt(5*x + 3)/51975 - 30926081*sqrt(33)*elliptic_e(asin(sqrt(
21)*sqrt(-2*x + 1)/7), 35/33)/3118500 - 465127*sqrt(35)*elliptic_
f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/1653750
```

Mathematica [A] time = 0.375617, size = 107, normalized size = 0.49

$$\frac{15\sqrt{2-4x}\sqrt{3x+2}\sqrt{5x+3}\left(1417500x^4+3354750x^3+2737800x^2+570555x-567484\right)-15576890F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right.\right.}{1559250\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(5/2),x]
```

```
[Out] (15*Sqrt[2 - 4*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(-567484 + 570555*x
 + 2737800*x^2 + 3354750*x^3 + 1417500*x^4) + 30926081*EllipticE[
ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 15576890*EllipticF[Arc
Sin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/(1559250*Sqrt[2])
```

Maple [C] time = 0.017, size = 184, normalized size = 0.8

$$\frac{1}{93555000\,x^3+71725500\,x^2-21829500\,x-18711000}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(1275750000\,x^7+3997350000\,x^6+155768\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(3/2)*(3+5*x)^(5/2)*(1-2*x)^(1/2),x)
```

```
[Out] 1/3118500*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(1275750000*x
^7+3997350000*x^6+15576890*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1
-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*1
1^(1/2)*3^(1/2)*2^(1/2))-30926081*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(
1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),
1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+4481122500*x^5+1442934000*x^4-129
5845650*x^3-1004184510*x^2+16471740*x+102147120)/(30*x^3+23*x^2-7
*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (5\,x+3)^{\frac{5}{2}}(3\,x+2)^{\frac{3}{2}}\sqrt{-2\,x+1}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)^(3/2)*sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] integrate((5*x + 3)^(5/2)*(3*x + 2)^(3/2)*sqrt(-2*x + 1), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\left(75\,x^3+140\,x^2+87\,x+18\right)\sqrt{5\,x+3}\sqrt{3\,x+2}\sqrt{-2\,x+1},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)^(3/2)*sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] integral((75*x^3 + 140*x^2 + 87*x + 18)*sqrt(5*x + 3)*sqrt(3*x +
2)*sqrt(-2*x + 1), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2+3*x)**(3/2)*(3+5*x)**(5/2)*(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (5x+3)^{\frac{5}{2}}(3x+2)^{\frac{3}{2}}\sqrt{-2x+1}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(3*x + 2)^(3/2)*sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)*(3*x + 2)^(3/2)*sqrt(-2*x + 1), x)
```

3.2647 $\int \sqrt{1-2x}\sqrt{2+3x}(3+5x)^{5/2}\,dx$

Optimal. Leaf size=191

$$\frac{2}{45}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{7/2} - \frac{31}{945}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2} - \frac{223}{945}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2} - \frac{29357\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{17010} - \frac{29357\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{85050} - \frac{488149\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{42525}$$

```
[Out] (-29357*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/17010 - (223*S
qrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/945 - (31*Sqrt[1 - 2*
x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/945 + (2*Sqrt[1 - 2*x]*Sqrt[2 +
 3*x]*(3 + 5*x)^(7/2))/45 - (488149*Sqrt[11/3]*EllipticE[ArcSin[S
qrt[3/7]*Sqrt[1 - 2*x]], 35/33])/42525 - (29357*Sqrt[11/3]*Ellipt
icF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/85050
```

Rubi [A] time = 0.406946, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.179$

$$\frac{2}{45}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{7/2} - \frac{31}{945}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2} - \frac{223}{945}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2} - \frac{29357\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{17010} - \frac{29357\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{85050} - \frac{488149\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{42525}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2),x]
```

```
[Out] (-29357*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/17010 - (223*S
qrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/945 - (31*Sqrt[1 - 2*
x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/945 + (2*Sqrt[1 - 2*x]*Sqrt[2 +
 3*x]*(3 + 5*x)^(7/2))/45 - (488149*Sqrt[11/3]*EllipticE[ArcSin[S
qrt[3/7]*Sqrt[1 - 2*x]], 35/33])/42525 - (29357*Sqrt[11/3]*Ellipt
icF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/85050
```

Rubi in Sympy [A] time = 38.8456, size = 172, normalized size = 0.9

$$\frac{2\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\,(5x+3)^{\frac{5}{2}}}{27} - \frac{5\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\,(5x+3)^{\frac{3}{2}}}{63} - \frac{208\sqrt{-2x+1}\sqrt{3x+2}\,(5x+3)^{\frac{3}{2}}}{945} - \frac{29357\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{17010} - \frac{488149\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{127575} - \frac{322927\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{2976750}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)*(1-2*x)**(1/2)*(2+3*x)**(1/2),x)
```

```
[Out] 2*sqrt(-2*x + 1)*(3*x + 2)**(3/2)*(5*x + 3)**(5/2)/27 - 5*sqrt(-2
*x + 1)*(3*x + 2)**(3/2)*(5*x + 3)**(3/2)/63 - 208*sqrt(-2*x + 1)
*sqrt(3*x + 2)*(5*x + 3)**(3/2)/945 - 29357*sqrt(-2*x + 1)*sqrt(3
*x + 2)*sqrt(5*x + 3)/17010 - 488149*sqrt(33)*elliptic_e(asin(sqr
t(21)*sqrt(-2*x + 1)/7), 35/33)/127575 - 322927*sqrt(35)*elliptic
```

```
_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/2976750
```

Mathematica [A] time = 0.328572, size = 102, normalized size = 0.53

$$\frac{15\sqrt{2-4x}\sqrt{3x+2}\sqrt{5x+3}\left(94500x^3+156150x^2+65250x-26009\right)-983815F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+1952596E\left(\right.}{255150\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2),x]
```

```
[Out] (15*Sqrt[2 - 4*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(-26009 + 65250*x +
 156150*x^2 + 94500*x^3) + 1952596*EllipticE[ArcSin[Sqrt[2/11]*Sq
rt[3 + 5*x]], -33/2] - 983815*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3
+ 5*x]], -33/2])/(255150*Sqrt[2])
```

Maple [C] time = 0.017, size = 179, normalized size = 0.9

$$\frac{1}{15309000\,x^3+11736900\,x^2-3572100\,x-3061800}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(85050000\,x^6+983815\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)*(1-2*x)^(1/2)*(2+3*x)^(1/2),x)
```

```
[Out] 1/510300*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(85050000*x^6+
983815*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Elliptic
F(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1
/2))-1952596*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*El
lipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2
)*2^(1/2))+205740000*x^5+146623500*x^4-28187100*x^3-59755710*x^2-
6283110*x+4681620)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (5\,x+3)^{\frac{5}{2}}\sqrt{3\,x+2}\sqrt{-2\,x+1}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*sqrt(3*x + 2)*sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] integrate((5*x + 3)^(5/2)*sqrt(3*x + 2)*sqrt(-2*x + 1), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\left(25\,x^2+30\,x+9\right)\sqrt{5\,x+3}\sqrt{3\,x+2}\sqrt{-2\,x+1},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*sqrt(3*x + 2)*sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] integral((25*x^2 + 30*x + 9)*sqrt(5*x + 3)*sqrt(3*x + 2)*sqrt(-2*
x + 1), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(5/2)*(1-2*x)**(1/2)*(2+3*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (5x+3)^{\frac{5}{2}} \sqrt{3x+2}\sqrt{-2x+1}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*sqrt(3*x + 2)*sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)*sqrt(3*x + 2)*sqrt(-2*x + 1), x)
```

3.2648 $\int \frac{\sqrt{1-2x}(3+5x)^{5/2}}{\sqrt{2+3x}}\,dx$

Optimal. Leaf size=160

$$\frac{2}{21}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}-\frac{1}{7}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}-\frac{131}{189}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}-\frac{131}{945}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{9013\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1890}$$

```
[Out] (-131*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/189 - (Sqrt[1 -
2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/7 + (2*Sqrt[1 - 2*x]*Sqrt[2 +
 3*x]*(3 + 5*x)^(5/2))/21 - (9013*Sqrt[11/3]*EllipticE[ArcSin[Sqr
t[3/7]*Sqrt[1 - 2*x]], 35/33])/1890 - (131*Sqrt[11/3]*EllipticF[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/945
```

Rubi [A] time = 0.336018, antiderivative size = 160, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{2}{21}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}-\frac{1}{7}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}-\frac{131}{189}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}-\frac{131}{945}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{9013\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1890}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/Sqrt[2 + 3*x],x]
```

```
[Out] (-131*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/189 - (Sqrt[1 -
2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/7 + (2*Sqrt[1 - 2*x]*Sqrt[2 +
 3*x]*(3 + 5*x)^(5/2))/21 - (9013*Sqrt[11/3]*EllipticE[ArcSin[Sqr
t[3/7]*Sqrt[1 - 2*x]], 35/33])/1890 - (131*Sqrt[11/3]*EllipticF[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/945
```

Rubi in Sympy [A] time = 31.0322, size = 141, normalized size = 0.88

$$\frac{2\sqrt{-2x+1}\sqrt{3x+2}\,(5x+3)^{\frac{5}{2}}}{21}-\frac{\sqrt{-2x+1}\sqrt{3x+2}\,(5x+3)^{\frac{3}{2}}}{7}-\frac{131\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{189}-\frac{9013\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{5670}-\frac{1441\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{33075}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)*(1-2*x)**(1/2)/(2+3*x)**(1/2),x)
```

```
[Out] 2*sqrt(-2*x + 1)*sqrt(3*x + 2)*(5*x + 3)**(5/2)/21 - sqrt(-2*x +
1)*sqrt(3*x + 2)*(5*x + 3)**(3/2)/7 - 131*sqrt(-2*x + 1)*sqrt(3*x
 + 2)*sqrt(5*x + 3)/189 - 9013*sqrt(33)*elliptic_e(asin(sqrt(21)*
sqrt(-2*x + 1)/7), 35/33)/5670 - 1441*sqrt(35)*elliptic_f(asin(sq
rt(55)*sqrt(-2*x + 1)/11), 33/35)/33075
```

Mathematica [A] time = 0.354525, size = 97, normalized size = 0.61

$$\frac{75\sqrt{2-4x}\sqrt{3x+2}\sqrt{5x+3}\left(90x^2+81x-10\right)-4690F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+9013E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)}{2835\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/Sqrt[2 + 3*x],x]
```

```
[Out] (75*Sqrt[2 - 4*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(-10 + 81*x + 90*x^
2) + 9013*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 46
90*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/(2835*Sqrt
[2])
```

Maple [C] time = 0.017, size = 174, normalized size = 1.1

$$\frac{1}{170100\,x^3+130410\,x^2-39690\,x-34020}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(4690\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{11}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)*(1-2*x)^(1/2)/(2+3*x)^(1/2),x)
```

```
[Out] 1/5670*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(4690*2^(1/2)*(3
+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2
^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-9013*2^(1/2)
*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2
)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+405000*x^
5+675000*x^4+139950*x^3-200550*x^2-62400*x+9000)/(30*x^3+23*x^2-7
*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{5}{2}}\sqrt{-2\,x+1}}{\sqrt{3\,x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/sqrt(3*x + 2),x, algorithm="maxima")
```

```
[Out] integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/sqrt(3*x + 2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\left(25\,x^2+30\,x+9\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}}{\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/sqrt(3*x + 2),x, algorithm="fricas")
```

```
[Out] integral((25*x^2 + 30*x + 9)*sqrt(5*x + 3)*sqrt(-2*x + 1)/sqrt(3*
x + 2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(5/2)*(1-2*x)**(1/2)/(2+3*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}\sqrt{-2x+1}}{\sqrt{3x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/sqrt(3*x + 2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/sqrt(3*x + 2), x)
```

3.2649 $\int \frac{\sqrt{1-2x}(3+5x)^{5/2}}{(2+3x)^{3/2}}\,dx$

Optimal. Leaf size=156

$$-\frac{2\sqrt{1-2x}(5x+3)^{5/2}}{3\sqrt{3x+2}}+\frac{4}{3}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}-\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}-\frac{1}{5}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{3}{5}\sqrt{33}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] -(Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) + (4*Sqrt[1 - 2*x]*S
qrt[2 + 3*x]*(3 + 5*x)^(3/2))/3 - (2*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2
))/(3*Sqrt[2 + 3*x]) - (3*Sqrt[33]*EllipticE[ArcSin[Sqrt[3/7]*Sqr
t[1 - 2*x]], 35/33])/5 - (Sqrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*S
qrt[1 - 2*x]], 35/33])/5
```

Rubi [A] time = 0.331435, antiderivative size = 156, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{2\sqrt{1-2x}(5x+3)^{5/2}}{3\sqrt{3x+2}}+\frac{4}{3}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}-\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}-\frac{1}{5}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{3}{5}\sqrt{33}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(2 + 3*x)^(3/2),x]
```

```
[Out] -(Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) + (4*Sqrt[1 - 2*x]*S
qrt[2 + 3*x]*(3 + 5*x)^(3/2))/3 - (2*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2
))/(3*Sqrt[2 + 3*x]) - (3*Sqrt[33]*EllipticE[ArcSin[Sqrt[3/7]*Sqr
t[1 - 2*x]], 35/33])/5 - (Sqrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*S
qrt[1 - 2*x]], 35/33])/5
```

Rubi in Sympy [A] time = 31.6586, size = 138, normalized size = 0.88

$$\frac{4\sqrt{-2x+1}\sqrt{3x+2}\,(5x+3)^{\frac{3}{2}}}{3}-\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}-\frac{2\sqrt{-2x+1}\,(5x+3)^{\frac{5}{2}}}{3\sqrt{3x+2}}-\frac{3\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{5}-\frac{\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{15}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)*(1-2*x)**(1/2)/(2+3*x)**(3/2),x)
```

```
[Out] 4*sqrt(-2*x + 1)*sqrt(3*x + 2)*(5*x + 3)**(3/2)/3 - sqrt(-2*x + 1
)*sqrt(3*x + 2)*sqrt(5*x + 3) - 2*sqrt(-2*x + 1)*(5*x + 3)**(5/2)
/(3*sqrt(3*x + 2)) - 3*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*
x + 1)/7), 35/33)/5 - sqrt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x
 + 1)/7), 35/33)/15
```

Mathematica [A] time = 0.240574, size = 112, normalized size = 0.72

$$\frac{10\sqrt{1-2x}x\sqrt{3x+2}\sqrt{5x+3}(10x+7)+15\sqrt{2}(3x+2)F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+18\sqrt{2}(3x+2)E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)\right.}{90x+60}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(2 + 3*x)^(3/2),x]
```

```
[Out] (10*Sqrt[1 - 2*x]*x*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(7 + 10*x) + 18*S
qrt[2]*(2 + 3*x)*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/
2] + 15*Sqrt[2]*(2 + 3*x)*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*
x]], -33/2])/(60 + 90*x)
```

Maple [C] time = 0.024, size = 168, normalized size = 1.1

$$-\frac{1}{900\,x^{3}+690\,x^{2}-210\,x-180}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(15\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)*(1-2*x)^(1/2)/(2+3*x)^(3/2),x)
```

```
[Out] -1/30*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(15*2^(1/2)*(3+5*
x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1
/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+18*2^(1/2)*(3+5
*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(
1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-1000*x^4-800*x
^3+230*x^2+210*x)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{5}{2}}\sqrt{-2\,x+1}}{(3\,x+2)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^(3/2),x, algorithm="maxima")
```

```
[Out] integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^(3/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\left(25\,x^{2}+30\,x+9\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}}{(3\,x+2)^{\frac{3}{2}}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^(3/2),x, algorithm="fricas")
```

```
[Out] integral((25*x^2 + 30*x + 9)*sqrt(5*x + 3)*sqrt(-2*x + 1)/(3*x +
2)^(3/2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(5/2)*(1-2*x)**(1/2)/(2+3*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}\sqrt{-2x+1}}{(3x+2)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^(3/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^(3/2), x)
```

3.2650 $\int \frac{\sqrt{1-2x}(3+5x)^{5/2}}{(2+3x)^{5/2}}\,dx$

Optimal. Leaf size=160

$$-\frac{2\sqrt{1-2x}(5x+3)^{5/2}}{9(3x+2)^{3/2}}-\frac{118\sqrt{1-2x}(5x+3)^{3/2}}{63\sqrt{3x+2}}+\frac{2470}{567}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}+\frac{494}{567}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{2209}{567}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (2470*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/567 - (118*Sqrt[
1 - 2*x]*(3 + 5*x)^(3/2))/(63*Sqrt[2 + 3*x]) - (2*Sqrt[1 - 2*x]*(
3 + 5*x)^(5/2))/(9*(2 + 3*x)^(3/2)) - (2209*Sqrt[11/3]*EllipticE[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/567 + (494*Sqrt[11/3]*El
lipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/567
```

Rubi [A] time = 0.333079, antiderivative size = 160, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$-\frac{2\sqrt{1-2x}(5x+3)^{5/2}}{9(3x+2)^{3/2}}-\frac{118\sqrt{1-2x}(5x+3)^{3/2}}{63\sqrt{3x+2}}+\frac{2470}{567}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}+\frac{494}{567}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{2209}{567}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(2 + 3*x)^(5/2),x]
```

```
[Out] (2470*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/567 - (118*Sqrt[
1 - 2*x]*(3 + 5*x)^(3/2))/(63*Sqrt[2 + 3*x]) - (2*Sqrt[1 - 2*x]*(
3 + 5*x)^(5/2))/(9*(2 + 3*x)^(3/2)) - (2209*Sqrt[11/3]*EllipticE[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/567 + (494*Sqrt[11/3]*El
lipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/567
```

Rubi in Sympy [A] time = 31.323, size = 143, normalized size = 0.89

$$\frac{2470\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{567}-\frac{118\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{63\sqrt{3x+2}}-\frac{2\sqrt{-2x+1}\,(5x+3)^{\frac{5}{2}}}{9\,(3x+2)^{\frac{3}{2}}}-\frac{2209\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{1701}+\frac{5434\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{19845}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)*(1-2*x)**(1/2)/(2+3*x)**(5/2),x)
```

```
[Out] 2470*sqrt(-2*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/567 - 118*sqrt(-2
*x + 1)*(5*x + 3)**(3/2)/(63*sqrt(3*x + 2)) - 2*sqrt(-2*x + 1)*(5
*x + 3)**(5/2)/(9*(3*x + 2)**(3/2)) - 2209*sqrt(33)*elliptic_e(as
in(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/1701 + 5434*sqrt(35)*ellipt
ic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/19845
```

Mathematica [A] time = 0.370827, size = 102, normalized size = 0.64

$$\frac{\frac{6\sqrt{1-2x}\sqrt{5x+3}\left(1575x^2+2841x+1187\right)}{(3x+2)^{3/2}}-10360\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+2209\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)}{1701}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(2 + 3*x)^(5/2),x]
```

```
[Out] ((6*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(1187 + 2841*x + 1575*x^2))/(2 +
3*x)^(3/2) + 2209*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*
x]], -33/2] - 10360*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 +
5*x]], -33/2])/1701
```

Maple [C] time = 0.027, size = 272, normalized size = 1.7

$$\frac{1}{17010\,x^2+1701\,x-5103}\left(31080\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-6627\,\sqrt{2}E$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)*(1-2*x)^(1/2)/(2+3*x)^(5/2),x)
```

```
[Out] 1/1701*(31080*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/
2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*
(1-2*x)^(1/2)-6627*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x
)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(
1/2)*(1-2*x)^(1/2)+20720*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2
*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^
(1/2)*3^(1/2)*2^(1/2))-4418*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(
1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*
11^(1/2)*3^(1/2)*2^(1/2))+94500*x^4+179910*x^3+59916*x^2-44016*x-
21366)*(1-2*x)^(1/2)*(3+5*x)^(1/2)/(10*x^2+x-3)/(2+3*x)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{5}{2}}\sqrt{-2\,x+1}}{(3\,x+2)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^(5/2),x, algorithm="maxima")
```

```
[Out] integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^(5/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(25\,x^2+30\,x+9\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}}{(9\,x^2+12\,x+4)\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^(5/2),x, algorithm="fricas")
```

```
[Out] integral((25*x^2 + 30*x + 9)*sqrt(5*x + 3)*sqrt(-2*x + 1)/((9*x^2
 + 12*x + 4)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(5/2)*(1-2*x)**(1/2)/(2+3*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}\sqrt{-2x+1}}{(3x+2)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^(5/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^(5/2), x)
```

3.2651 $\int \frac{\sqrt{1-2x}(3+5x)^{5/2}}{(2+3x)^{7/2}}\,dx$

Optimal. Leaf size=160

$$-\frac{2\sqrt{1-2x}(5x+3)^{5/2}}{15(3x+2)^{5/2}}-\frac{118\sqrt{1-2x}(5x+3)^{3/2}}{315(3x+2)^{3/2}}-\frac{12758\sqrt{1-2x}\sqrt{5x+3}}{6615\sqrt{3x+2}}-\frac{12758\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{6615}+\frac{31588\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{6615}$$

```
[Out] (-12758*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(6615*Sqrt[2 + 3*x]) - (118*
Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(315*(2 + 3*x)^(3/2)) - (2*Sqrt[1
- 2*x]*(3 + 5*x)^(5/2))/(15*(2 + 3*x)^(5/2)) + (31588*Sqrt[11/3]*
EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/6615 - (12758*
Sqrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/661
5
```

Rubi [A] time = 0.337782, antiderivative size = 160, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{2\sqrt{1-2x}(5x+3)^{5/2}}{15(3x+2)^{5/2}}-\frac{118\sqrt{1-2x}(5x+3)^{3/2}}{315(3x+2)^{3/2}}-\frac{12758\sqrt{1-2x}\sqrt{5x+3}}{6615\sqrt{3x+2}}-\frac{12758\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{6615}+\frac{31588\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{6615}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(2 + 3*x)^(7/2),x]
```


```
[Out] (-12758*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(6615*Sqrt[2 + 3*x]) - (118*
Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(315*(2 + 3*x)^(3/2)) - (2*Sqrt[1
- 2*x]*(3 + 5*x)^(5/2))/(15*(2 + 3*x)^(5/2)) + (31588*Sqrt[11/3]*
EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/6615 - (12758*
Sqrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/661
5
```

Rubi in Sympy [A] time = 30.7329, size = 143, normalized size = 0.89

$$-\frac{12758\sqrt{-2x+1}\sqrt{5x+3}}{6615\sqrt{3x+2}}-\frac{118\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{315\,(3x+2)^{\frac{3}{2}}}-\frac{2\sqrt{-2x+1}\,(5x+3)^{\frac{5}{2}}}{15\,(3x+2)^{\frac{5}{2}}}+\frac{31588\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{19845}-\frac{12758\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{19845}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)*(1-2*x)**(1/2)/(2+3*x)**(7/2),x)
```

```
[Out] -12758*sqrt(-2*x + 1)*sqrt(5*x + 3)/(6615*sqrt(3*x + 2)) - 118*sq
rt(-2*x + 1)*(5*x + 3)**(3/2)/(315*(3*x + 2)**(3/2)) - 2*sqrt(-2*
x + 1)*(5*x + 3)**(5/2)/(15*(3*x + 2)**(5/2)) + 31588*sqrt(33)*el
liptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/19845 - 12758*sq
rt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/19845
```

Mathematica [A] time = 0.320173, size = 99, normalized size = 0.62

$$\frac{\sqrt{2}\left(242095F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-31588E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)-\frac{6\sqrt{1-2x}\sqrt{5x+3}(87021x^2+113319x+36919)}{(3x+2)^{5/2}}}{19845}$$

Antiderivative was successfully verified.

```
[In]   Integrate[(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(2 + 3*x)^(7/2),x]
```

```
[Out] ((-6*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(36919 + 113319*x + 87021*x^2))/
(2 + 3*x)^(5/2) + Sqrt[2]*(-31588*EllipticE[ArcSin[Sqrt[2/11]*Sqr
t[3 + 5*x]], -33/2] + 242095*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 +
 5*x]], -33/2]))/19845
```

Maple [C] time = 0.029, size = 386, normalized size = 2.4

$$-\frac{1}{198450\,x^2+19845\,x-59535}\left(2178855\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^2\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-2\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((3+5*x)^(5/2)*(1-2*x)^(1/2)/(2+3*x)^(7/2),x)
```

```
[Out] -1/19845*(2178855*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)
^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^
(1/2)*(1-2*x)^(1/2)-284292*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2
)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)
*(2+3*x)^(1/2)*(1-2*x)^(1/2)+2905140*2^(1/2)*EllipticF(1/11*11^(1
/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*
x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-379056*2^(1/2)*EllipticE(1/1
1*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*
x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+968380*2^(1/2)*(3+5*x
)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/
2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-126352*2^(1/2)*(
3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*
2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+5221260*x^4
+7321266*x^3+1328676*x^2-1818228*x-664542)*(1-2*x)^(1/2)*(3+5*x)^
(1/2)/(10*x^2+x-3)/(2+3*x)^(5/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{5}{2}}\sqrt{-2\,x+1}}{(3\,x+2)^{\frac{7}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^(7/2),x, algorithm="maxima")
```

```
[Out] integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^(7/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\left(25\,x^2+30\,x+9\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}}{\left(27\,x^3+54\,x^2+36\,x+8\right)\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^(7/2),x, algorithm="fricas")
```

```
[Out] integral((25*x^2 + 30*x + 9)*sqrt(5*x + 3)*sqrt(-2*x + 1)/((27*x^
3 + 54*x^2 + 36*x + 8)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(5/2)*(1-2*x)**(1/2)/(2+3*x)**(7/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}\sqrt{-2x+1}}{(3x+2)^{\frac{7}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^(7/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^(7/2), x)
```

3.2652 $\int \frac{\sqrt{1-2x}(3+5x)^{5/2}}{(2+3x)^{9/2}}\,dx$

Optimal. Leaf size=191

$$-\frac{2\sqrt{1-2x}(5x+3)^{5/2}}{21(3x+2)^{7/2}}-\frac{118\sqrt{1-2x}(5x+3)^{3/2}}{735(3x+2)^{5/2}}+\frac{173482\sqrt{1-2x}\sqrt{5x+3}}{108045\sqrt{3x+2}}-\frac{4282\sqrt{1-2x}\sqrt{5x+3}}{15435(3x+2)^{3/2}}+\frac{23612\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{108045}-\frac{173482\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{108045}$$

```
[Out] (-4282*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(15435*(2 + 3*x)^(3/2)) + (17
3482*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(108045*Sqrt[2 + 3*x]) - (118*S
qrt[1 - 2*x]*(3 + 5*x)^(3/2))/(735*(2 + 3*x)^(5/2)) - (2*Sqrt[1 -
 2*x]*(3 + 5*x)^(5/2))/(21*(2 + 3*x)^(7/2)) - (173482*Sqrt[11/3]*
EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/108045 + (2361
2*Sqrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1
08045
```

Rubi [A] time = 0.421032, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.214$

$$-\frac{2\sqrt{1-2x}(5x+3)^{5/2}}{21(3x+2)^{7/2}}-\frac{118\sqrt{1-2x}(5x+3)^{3/2}}{735(3x+2)^{5/2}}+\frac{173482\sqrt{1-2x}\sqrt{5x+3}}{108045\sqrt{3x+2}}-\frac{4282\sqrt{1-2x}\sqrt{5x+3}}{15435(3x+2)^{3/2}}+\frac{23612\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{108045}-\frac{173482\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{108045}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(2 + 3*x)^(9/2),x]
```


```
[Out] (-4282*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(15435*(2 + 3*x)^(3/2)) + (17
3482*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(108045*Sqrt[2 + 3*x]) - (118*S
qrt[1 - 2*x]*(3 + 5*x)^(3/2))/(735*(2 + 3*x)^(5/2)) - (2*Sqrt[1 -
 2*x]*(3 + 5*x)^(5/2))/(21*(2 + 3*x)^(7/2)) - (173482*Sqrt[11/3]*
EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/108045 + (2361
2*Sqrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1
08045
```

Rubi in Sympy [A] time = 38.3525, size = 172, normalized size = 0.9

$$\frac{173482\sqrt{-2x+1}\sqrt{5x+3}}{108045\sqrt{3x+2}}-\frac{4282\sqrt{-2x+1}\sqrt{5x+3}}{15435\,(3x+2)^{\frac{3}{2}}}-\frac{118\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{735\,(3x+2)^{\frac{5}{2}}}-\frac{2\sqrt{-2x+1}\,(5x+3)^{\frac{5}{2}}}{21\,(3x+2)^{\frac{7}{2}}}-\frac{173482\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{324135}+\frac{23612\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{324135}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)*(1-2*x)**(1/2)/(2+3*x)**(9/2),x)
```

```
[Out] 173482*sqrt(-2*x + 1)*sqrt(5*x + 3)/(108045*sqrt(3*x + 2)) - 4282
*sqrt(-2*x + 1)*sqrt(5*x + 3)/(15435*(3*x + 2)**(3/2)) - 118*sqrt
(-2*x + 1)*(5*x + 3)**(3/2)/(735*(3*x + 2)**(5/2)) - 2*sqrt(-2*x
+ 1)*(5*x + 3)**(5/2)/(21*(3*x + 2)**(7/2)) - 173482*sqrt(33)*ell
iptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/324135 + 23612*sq
rt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/324135
```

Mathematica [A] time = 0.348585, size = 104, normalized size = 0.54

$$\frac{2\left(\frac{3\sqrt{1-2x}\sqrt{5x+3}(2342007x^3+4290411x^2+2623695x+535637)}{(3x+2)^{7/2}}+\sqrt{2}\left(86741E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)\middle|-\frac{33}{2}\right)-281540F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+\right.\right.\right.\right.}{324135}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(2 + 3*x)^(9/2),x]
```

```
[Out] (2*((3*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(535637 + 2623695*x + 4290411*
x^2 + 2342007*x^3))/(2 + 3*x)^(7/2) + Sqrt[2]*(86741*EllipticE[Ar
cSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 281540*EllipticF[ArcSin[
Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])))/324135
```

Maple [C] time = 0.03, size = 505, normalized size = 2.6

$$\frac{2}{3241350\,x^2+324135\,x-972405}\left(7601580\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^3\sqrt{1-2\,x}\sqrt{3+5\,x}\sqrt{2+3\,x}-\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)*(1-2*x)^(1/2)/(2+3*x)^(9/2),x)
```

```
[Out] 2/324135*(7601580*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)
^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*x)^
(1/2)*(2+3*x)^(1/2)-2342007*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/
2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2
)*(3+5*x)^(1/2)*(2+3*x)^(1/2)+15203160*2^(1/2)*EllipticF(1/11*11^
(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(
3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-4684014*2^(1/2)*Elliptic
E(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1
/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+10135440*2^(1/
2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3
^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-31226
76*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11
^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/
2)+2252320*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Elli
pticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*
2^(1/2))-693928*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)
*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(
1/2)*2^(1/2))+70260210*x^5+135738351*x^4+70504020*x^3-14673504*x^
2-22006344*x-4820733)*(1-2*x)^(1/2)*(3+5*x)^(1/2)/(10*x^2+x-3)/(2
+3*x)^(7/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{5}{2}}\sqrt{-2\,x+1}}{(3\,x+2)^{\frac{9}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^(9/2),x, algorithm="maxima")
```

```
[Out] integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^(9/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(25\,x^2+30\,x+9)\sqrt{5\,x+3}\sqrt{-2\,x+1}}{(81\,x^4+216\,x^3+216\,x^2+96\,x+16)\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^(9/2),x, algorithm="fricas")
```

```
[Out] integral((25*x^2 + 30*x + 9)*sqrt(5*x + 3)*sqrt(-2*x + 1)/((81*x^
4 + 216*x^3 + 216*x^2 + 96*x + 16)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3+5*x)**(5/2)*(1-2*x)**(1/2)/(2+3*x)**(9/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}\sqrt{-2x+1}}{(3x+2)^{\frac{9}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^(9/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^(9/2), x)
```

3.2653 $\int \frac{\sqrt{1-2x}(3+5x)^{5/2}}{(2+3x)^{11/2}}\,dx$

Optimal. Leaf size=222

$$-\frac{2\sqrt{1-2x}(5x+3)^{5/2}}{27(3x+2)^{9/2}}-\frac{118\sqrt{1-2x}(5x+3)^{3/2}}{1323(3x+2)^{7/2}}+\frac{27198452\sqrt{1-2x}\sqrt{5x+3}}{20420505\sqrt{3x+2}}+\frac{568318\sqrt{1-2x}\sqrt{5x+3}}{2917215(3x+2)^{3/2}}-\frac{12934\sqrt{1-2x}\sqrt{5x+3}}{138915(3x+2)^{5/2}}-\frac{442868\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{20420505}-\frac{27198452\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{20420505}$$

```
[Out] (-12934*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(138915*(2 + 3*x)^(5/2)) + (
568318*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2917215*(2 + 3*x)^(3/2)) + (
27198452*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(20420505*Sqrt[2 + 3*x]) -
(118*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(1323*(2 + 3*x)^(7/2)) - (2*S
qrt[1 - 2*x]*(3 + 5*x)^(5/2))/(27*(2 + 3*x)^(9/2)) - (27198452*Sq
rt[11/3]*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/20420
505 - (442868*Sqrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]
], 35/33])/20420505
```

Rubi [A] time = 0.499168, antiderivative size = 222, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$-\frac{2\sqrt{1-2x}(5x+3)^{5/2}}{27(3x+2)^{9/2}}-\frac{118\sqrt{1-2x}(5x+3)^{3/2}}{1323(3x+2)^{7/2}}+\frac{27198452\sqrt{1-2x}\sqrt{5x+3}}{20420505\sqrt{3x+2}}+\frac{568318\sqrt{1-2x}\sqrt{5x+3}}{2917215(3x+2)^{3/2}}-\frac{12934\sqrt{1-2x}\sqrt{5x+3}}{138915(3x+2)^{5/2}}-\frac{442868\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{20420505}-\frac{27198452\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{20420505}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(2 + 3*x)^(11/2),x]
```


```
[Out] (-12934*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(138915*(2 + 3*x)^(5/2)) + (
568318*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2917215*(2 + 3*x)^(3/2)) + (
27198452*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(20420505*Sqrt[2 + 3*x]) -
(118*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(1323*(2 + 3*x)^(7/2)) - (2*S
qrt[1 - 2*x]*(3 + 5*x)^(5/2))/(27*(2 + 3*x)^(9/2)) - (27198452*Sq
rt[11/3]*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/20420
505 - (442868*Sqrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]
], 35/33])/20420505
```

Rubi in Sympy [A] time = 45.5805, size = 201, normalized size = 0.91

$$\frac{27198452\sqrt{-2x+1}\sqrt{5x+3}}{20420505\sqrt{3x+2}}+\frac{568318\sqrt{-2x+1}\sqrt{5x+3}}{2917215\,(3x+2)^{\frac{3}{2}}}-\frac{12934\sqrt{-2x+1}\sqrt{5x+3}}{138915\,(3x+2)^{\frac{5}{2}}}-\frac{118\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{1323\,(3x+2)^{\frac{7}{2}}}-\frac{2\sqrt{-2x+1}\,(5x+3)^{\frac{5}{2}}}{27\,(3x+2)^{\frac{9}{2}}}-\frac{27198452\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{61261515}-\frac{442868\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{61261515}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)*(1-2*x)**(1/2)/(2+3*x)**(11/2),x)
```

```
[Out] 27198452*sqrt(-2*x + 1)*sqrt(5*x + 3)/(20420505*sqrt(3*x + 2)) +
568318*sqrt(-2*x + 1)*sqrt(5*x + 3)/(2917215*(3*x + 2)**(3/2)) -
12934*sqrt(-2*x + 1)*sqrt(5*x + 3)/(138915*(3*x + 2)**(5/2)) - 11
8*sqrt(-2*x + 1)*(5*x + 3)**(3/2)/(1323*(3*x + 2)**(7/2)) - 2*sqr
t(-2*x + 1)*(5*x + 3)**(5/2)/(27*(3*x + 2)**(9/2)) - 27198452*sqr
t(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/61261515
 - 442868*sqrt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35
/33)/61261515
```

Mathematica [A] time = 0.421964, size = 110, normalized size = 0.5

$$\frac{\frac{24\sqrt{1-2x}\sqrt{5x+3}(1101537306x^4+2991138867x^3+3003721227x^2+1325733891x+217427099)}{(3x+2)^{9/2}}+8\sqrt{2}\left(13599226E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-994\right.}{245046060}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(2 + 3*x)^(11/2),x]
```

```
[Out] ((24*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(217427099 + 1325733891*x + 3003
721227*x^2 + 2991138867*x^3 + 1101537306*x^4))/(2 + 3*x)^(9/2) +
8*Sqrt[2]*(13599226*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -
33/2] - 9945565*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2
]))/245046060
```

Maple [C] time = 0.029, size = 624, normalized size = 2.8

$$\frac{2}{612615150\,x^2+61261515\,x-183784545}\left(805590765\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^4\sqrt{3+5\,x}\sqrt{2+3\,x}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)*(1-2*x)^(1/2)/(2+3*x)^(11/2),x)
```

```
[Out] 2/61261515*(805590765*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+
5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^4*(3+5*x)^(1/2)*(2+3
*x)^(1/2)*(1-2*x)^(1/2)-1101537306*2^(1/2)*EllipticE(1/11*11^(1/2
)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^4*(3+5*
x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+2148242040*2^(1/2)*EllipticF
(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/
2))*x^3*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)-2937432816*2^(1
/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*
3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)+21
48242040*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/
2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-
2*x)^(1/2)-2937432816*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+
5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3
*x)^(1/2)*(1-2*x)^(1/2)+954774240*2^(1/2)*EllipticF(1/11*11^(1/2)
*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^
(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-1305525696*2^(1/2)*EllipticE(1/
11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))
*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+33046119180*x^6+1591
29040*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF
(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/
2))-217587616*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*E
llipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/
2)*2^(1/2))+93038777928*x^5+89171217657*x^4+21862930608*x^3-16533
476400*x^2-11279323722*x-1956843891)*(1-2*x)^(1/2)*(3+5*x)^(1/2)/
(10*x^2+x-3)/(2+3*x)^(9/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}\sqrt{-2x+1}}{(3x+2)^{\frac{11}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^(11/2),x, algorithm="maxima")
```

```
[Out] integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^(11/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(25x^2+30x+9)\sqrt{5x+3}\sqrt{-2x+1}}{(243x^5+810x^4+1080x^3+720x^2+240x+32)\sqrt{3x+2}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^(11/2),x, algorithm="fricas")
```

```
[Out] integral((25*x^2 + 30*x + 9)*sqrt(5*x + 3)*sqrt(-2*x + 1)/((243*x
^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)*sqrt(3*x + 2)), x
)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3+5*x)**(5/2)*(1-2*x)**(1/2)/(2+3*x)**(11/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}\sqrt{-2x+1}}{(3x+2)^{\frac{11}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^(11/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^(11/2), x)
```

3.2654 $\int \frac{\sqrt{1-2x}(3+5x)^{5/2}}{(2+3x)^{13/2}}\,dx$

Optimal. Leaf size=249

$$-\frac{2\sqrt{1-2x}(5x+3)^{5/2}}{33(3x+2)^{11/2}}-\frac{118\sqrt{1-2x}(5x+3)^{3/2}}{2079(3x+2)^{9/2}}+\frac{1305025844\sqrt{1-2x}\sqrt{5x+3}}{524126295\sqrt{3x+2}}+\frac{19417096\sqrt{1-2x}\sqrt{5x+3}}{74875185(3x+2)^{3/2}}+\frac{627806\sqrt{1-2x}\sqrt{5x+3}}{10696455(3x+2)^{5/2}}-\frac{13022\sqrt{1-2x}\sqrt{5x+3}}{305613(3x+2)^{7/2}}-\frac{37904696F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{47647845\sqrt{33}}-\frac{1305025844E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{47647845\sqrt{33}}$$

```
[Out] (-13022*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(305613*(2 + 3*x)^(7/2)) + (
627806*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(10696455*(2 + 3*x)^(5/2)) +
(19417096*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(74875185*(2 + 3*x)^(3/2))
 + (1305025844*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(524126295*Sqrt[2 + 3
*x]) - (118*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(2079*(2 + 3*x)^(9/2))
 - (2*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(33*(2 + 3*x)^(11/2)) - (130
5025844*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(47647
845*Sqrt[33]) - (37904696*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x
]], 35/33])/(47647845*Sqrt[33])
```

Rubi [A] time = 0.593664, antiderivative size = 249, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$-\frac{2\sqrt{1-2x}(5x+3)^{5/2}}{33(3x+2)^{11/2}}-\frac{118\sqrt{1-2x}(5x+3)^{3/2}}{2079(3x+2)^{9/2}}+\frac{1305025844\sqrt{1-2x}\sqrt{5x+3}}{524126295\sqrt{3x+2}}+\frac{19417096\sqrt{1-2x}\sqrt{5x+3}}{74875185(3x+2)^{3/2}}+\frac{627806\sqrt{1-2x}\sqrt{5x+3}}{10696455(3x+2)^{5/2}}-\frac{13022\sqrt{1-2x}\sqrt{5x+3}}{305613(3x+2)^{7/2}}-\frac{37904696F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{47647845\sqrt{33}}-\frac{1305025844E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{47647845\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(2 + 3*x)^(13/2),x]
```


```
[Out] (-13022*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(305613*(2 + 3*x)^(7/2)) + (
627806*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(10696455*(2 + 3*x)^(5/2)) +
(19417096*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(74875185*(2 + 3*x)^(3/2))
 + (1305025844*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(524126295*Sqrt[2 + 3
*x]) - (118*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(2079*(2 + 3*x)^(9/2))
 - (2*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(33*(2 + 3*x)^(11/2)) - (130
5025844*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(47647
845*Sqrt[33]) - (37904696*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x
]], 35/33])/(47647845*Sqrt[33])
```

Rubi in Sympy [A] time = 53.0374, size = 230, normalized size = 0.92

$$\frac{1305025844\sqrt{-2x+1}\sqrt{5x+3}}{524126295\sqrt{3x+2}}+\frac{19417096\sqrt{-2x+1}\sqrt{5x+3}}{74875185\left(3x+2\right)^{\frac{3}{2}}}+\frac{627806\sqrt{-2x+1}\sqrt{5x+3}}{10696455\left(3x+2\right)^{\frac{5}{2}}}-\frac{13022\sqrt{-2x+1}\sqrt{5x+3}}{305613\left(3x+2\right)^{\frac{7}{2}}}-\frac{118\sqrt{-2x+1}\left(5x+3\right)^{\frac{3}{2}}}{2079\left(3x+2\right)^{\frac{9}{2}}}-\frac{2\sqrt{-2x+1}\left(5x+3\right)^{\frac{5}{2}}}{33\left(3x+2\right)^{\frac{11}{2}}}-\frac{1305025844\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{1572378885}-\frac{37904696\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{1572378885}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)*(1-2*x)**(1/2)/(2+3*x)**(13/2),x)
```

```
[Out] 1305025844*sqrt(-2*x + 1)*sqrt(5*x + 3)/(524126295*sqrt(3*x + 2))
 + 19417096*sqrt(-2*x + 1)*sqrt(5*x + 3)/(74875185*(3*x + 2)**(3/
2)) + 627806*sqrt(-2*x + 1)*sqrt(5*x + 3)/(10696455*(3*x + 2)**(5
/2)) - 13022*sqrt(-2*x + 1)*sqrt(5*x + 3)/(305613*(3*x + 2)**(7/2
)) - 118*sqrt(-2*x + 1)*(5*x + 3)**(3/2)/(2079*(3*x + 2)**(9/2))
- 2*sqrt(-2*x + 1)*(5*x + 3)**(5/2)/(33*(3*x + 2)**(11/2)) - 1305
025844*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33
)/1572378885 - 37904696*sqrt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2
*x + 1)/7), 35/33)/1572378885
```

Mathematica [A] time = 0.485797, size = 112, normalized size = 0.45

$$\frac{\frac{48\sqrt{2-4x}\sqrt{5x+3}\left(158560640046x^5+534040213536x^4+719808574005x^3+484598540169x^2+162787885893x+21813966691\right)}{(3x+2)^{11/2}}-10873573760F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5\right.\right.}{12579031080\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(2 + 3*x)^(13/2),x]
```

```
[Out] ((48*Sqrt[2 - 4*x]*Sqrt[3 + 5*x]*(21813966691 + 162787885893*x +
484598540169*x^2 + 719808574005*x^3 + 534040213536*x^4 + 15856064
0046*x^5))/(2 + 3*x)^(11/2) + 20880413504*EllipticE[ArcSin[Sqrt[2
/11]*Sqrt[3 + 5*x]], -33/2] - 10873573760*EllipticF[ArcSin[Sqrt[2
/11]*Sqrt[3 + 5*x]], -33/2])/(12579031080*Sqrt[2])
```

Maple [C] time = 0.058, size = 743, normalized size = 3.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)*(1-2*x)^(1/2)/(2+3*x)^(13/2),x)
```

```
[Out] 2/1572378885*(82571200740*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)
*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^5*(3+5*x)^(1/2)*
(2+3*x)^(1/2)*(1-2*x)^(1/2)-158560640046*2^(1/2)*EllipticE(1/11*1
1^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^5
*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+275237335800*2^(1/2)*E
llipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/
2)*2^(1/2))*x^4*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-5285354
66820*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I
*11^(1/2)*3^(1/2)*2^(1/2))*x^4*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x
)^(1/2)+366983114400*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5
*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*
x)^(1/2)*(2+3*x)^(1/2)-704713955760*2^(1/2)*EllipticE(1/11*11^(1/
2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2
*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)+244655409600*2^(1/2)*Ellipt
icF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^
(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-469809303840
*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(
1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/
2)+4756819201380*x^7+81551803200*2^(1/2)*EllipticF(1/11*11^(1/2)*
2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(
1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-156603101280*2^(1/2)*EllipticE(1
/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2)
)*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+16496888326218*x^6+
10873573760*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Ell
ipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)
*2^(1/2))-20880413504*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)
^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/
2)*3^(1/2)*2^(1/2))+21769332100344*x^5+11891020005261*x^4-1408449
```

```
68748*x^3-3218604203112*x^2-1399649072964*x-196325700219)*(1-2*x)
^(1/2)*(3+5*x)^(1/2)/(10*x^2+x-3)/(2+3*x)^(11/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}\sqrt{-2x+1}}{(3x+2)^{\frac{13}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^(13/2),x, algorithm="maxima")
```

```
[Out] integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^(13/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(25x^2+30x+9)\sqrt{5x+3}\sqrt{-2x+1}}{(729x^6+2916x^5+4860x^4+4320x^3+2160x^2+576x+64)\sqrt{3x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^(13/2),x, algorithm="fricas")
```

```
[Out] integral((25*x^2 + 30*x + 9)*sqrt(5*x + 3)*sqrt(-2*x + 1)/((729*x
^6 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64)*sqrt
(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(5/2)*(1-2*x)**(1/2)/(2+3*x)**(13/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}\sqrt{-2x+1}}{(3x+2)^{\frac{13}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^(13/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)*sqrt(-2*x + 1)/(3*x + 2)^(13/2), x)
```

3.2655 $\int \frac{\sqrt{e+fx}}{\sqrt{a+bx}\sqrt{c+dx}}\,dx$

Optimal. Leaf size=134

$$\frac{2\sqrt{e+fx}\sqrt{ad-bc}\sqrt{\frac{b(c+dx)}{bc-ad}}E\left(\sin^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{ad-bc}}\right)|\frac{(bc-ad)f}{d(be-af)}\right)}{b\sqrt{d}\sqrt{c+dx}\sqrt{\frac{b(e+fx)}{be-af}}}$$

```
[Out] (2*Sqrt[-(b*c) + a*d]*Sqrt[(b*(c + d*x))/(b*c - a*d)]*Sqrt[e + f*
x]*EllipticE[ArcSin[(Sqrt[d]*Sqrt[a + b*x])/Sqrt[-(b*c) + a*d]],
((b*c - a*d)*f)/(d*(b*e - a*f))])/(b*Sqrt[d]*Sqrt[c + d*x]*Sqrt[(
b*(e + f*x))/(b*e - a*f)])
```

Rubi [A] time = 0.326858, antiderivative size = 134, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.071

$$\frac{2\sqrt{e+fx}\sqrt{ad-bc}\sqrt{\frac{b(c+dx)}{bc-ad}}E\left(\sin^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{ad-bc}}\right)|\frac{(bc-ad)f}{d(be-af)}\right)}{b\sqrt{d}\sqrt{c+dx}\sqrt{\frac{b(e+fx)}{be-af}}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[e + f*x]/(Sqrt[a + b*x]*Sqrt[c + d*x]),x]
```

```
[Out] (2*Sqrt[-(b*c) + a*d]*Sqrt[(b*(c + d*x))/(b*c - a*d)]*Sqrt[e + f*
x]*EllipticE[ArcSin[(Sqrt[d]*Sqrt[a + b*x])/Sqrt[-(b*c) + a*d]],
((b*c - a*d)*f)/(d*(b*e - a*f))])/(b*Sqrt[d]*Sqrt[c + d*x]*Sqrt[(
b*(e + f*x))/(b*e - a*f)])
```

Rubi in Sympy [A] time = 42.8128, size = 114, normalized size = 0.85

$$\frac{2\sqrt{\frac{b(-c-dx)}{ad-bc}}\sqrt{e+fx}\sqrt{ad-bc}E\left(\operatorname{asin}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{ad-bc}}\right)\middle|\frac{f(ad-bc)}{d(af-be)}\right)}{b\sqrt{d}\sqrt{\frac{b(-e-fx)}{af-be}}\sqrt{c+dx}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((f*x+e)**(1/2)/(b*x+a)**(1/2)/(d*x+c)**(1/2),x)
```

```
[Out] 2*sqrt(b*(-c - d*x)/(a*d - b*c))*sqrt(e + f*x)*sqrt(a*d - b*c)*el
liptic_e(asin(sqrt(d)*sqrt(a + b*x)/sqrt(a*d - b*c)), f*(a*d - b*
c)/(d*(a*f - b*e)))/(b*sqrt(d)*sqrt(b*(-e - f*x)/(a*f - b*e))*sqr
t(c + d*x))
```

Mathematica [A] time = 1.29506, size = 154, normalized size = 1.15

$$\frac{2\sqrt{c+dx}\left(\frac{(af-be)\sqrt{\frac{b(e+fx)}{f(a+bx)}}E\left(\sin^{-1}\left(\frac{\sqrt{a-\frac{be}{f}}}{\sqrt{a+bx}}\right)|\frac{bcf-adf}{bde-adf}\right)}{b\sqrt{a-\frac{be}{f}}\sqrt{\frac{b(c+dx)}{d(a+bx)}}}+\frac{e+fx}{\sqrt{a+bx}}\right)}{d\sqrt{e+fx}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[e + f*x]/(Sqrt[a + b*x]*Sqrt[c + d*x]),x]
```

```
[Out] (2*Sqrt[c + d*x]*((e + f*x)/Sqrt[a + b*x] + ((-(b*e) + a*f)*Sqrt[
(b*(e + f*x))/(f*(a + b*x))]*EllipticE[ArcSin[Sqrt[a - (b*e)/f]/S
qrt[a + b*x]], (b*c*f - a*d*f)/(b*d*e - a*d*f)])/(b*Sqrt[a - (b*e
)/f]*Sqrt[(b*(c + d*x))/(d*(a + b*x))])))/(d*Sqrt[e + f*x])
```

Maple [A] time = 0., size = 209, normalized size = 1.6

$$-2\,\frac{\left(a^{2}df-abcf-bead+b^{2}ce\right)\sqrt{dx+c}\sqrt{bx+a}\sqrt{fx+e}}{b^{2}d\left(bdfx^{3}+adfx^{2}+bcfx^{2}+bdex^{2}+acfx+adex+bcex+ace\right)}\mathit{EllipticE}\left(\sqrt{\frac{d\left(bx+a\right)}{ad-bc}},\sqrt{\frac{\left(ad-bc\right)f}{d\left(af-be\right)}}\right)\sqrt{-\frac{\left(dx+c\right)}{ad-bc}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((f*x+e)^(1/2)/(b*x+a)^(1/2)/(d*x+c)^(1/2),x)
```

```
[Out] -2*(a^2*d*f-a*b*c*f-a*b*d*e+b^2*c*e)*EllipticE((d*(b*x+a)/(a*d-b*
c))^(1/2),((a*d-b*c)*f/d/(a*f-b*e))^(1/2))*(-(d*x+c)*b/(a*d-b*c))
^(1/2)*(-(f*x+e)*b/(a*f-b*e))^(1/2)*(d*(b*x+a)/(a*d-b*c))^(1/2)/d
/b^2*(d*x+c)^(1/2)*(b*x+a)^(1/2)*(f*x+e)^(1/2)/(b*d*f*x^3+a*d*f*x
^2+b*c*f*x^2+b*d*e*x^2+a*c*f*x+a*d*e*x+b*c*e*x+a*c*e)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{fx+e}}{\sqrt{bx+a}\sqrt{dx+c}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(f*x + e)/(sqrt(b*x + a)*sqrt(d*x + c)),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(f*x + e)/(sqrt(b*x + a)*sqrt(d*x + c)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\sqrt{fx+e}}{\sqrt{bx+a}\sqrt{dx+c}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(f*x + e)/(sqrt(b*x + a)*sqrt(d*x + c)),x, algorithm="fricas")
```

```
[Out] integral(sqrt(f*x + e)/(sqrt(b*x + a)*sqrt(d*x + c)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{e+fx}}{\sqrt{a+bx}\sqrt{c+dx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((f*x+e)**(1/2)/(b*x+a)**(1/2)/(d*x+c)**(1/2),x)
```

```
[Out] Integral(sqrt(e + f*x)/(sqrt(a + b*x)*sqrt(c + d*x)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{fx+e}}{\sqrt{bx+a}\sqrt{dx+c}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(f*x + e)/(sqrt(b*x + a)*sqrt(d*x + c)),x, algorithm="giac")
```

```
[Out] integrate(sqrt(f*x + e)/(sqrt(b*x + a)*sqrt(d*x + c)), x)
```

3.2656 $\int \frac{\sqrt{e+fx}}{(a+bx)^{3/2}\sqrt{c+dx}}\,dx$

Optimal. Leaf size=184

$$\frac{2\sqrt{f}\sqrt{c+dx}\sqrt{af-be}\sqrt{\frac{b(e+fx)}{be-af}}E\left(\sin^{-1}\left(\frac{\sqrt{f}\sqrt{a+bx}}{\sqrt{af-be}}\right)|\frac{d(be-af)}{(bc-ad)f}\right)}{b\sqrt{e+fx}(bc-ad)\sqrt{\frac{b(c+dx)}{bc-ad}}}-\frac{2\sqrt{c+dx}\sqrt{e+fx}}{\sqrt{a+bx}(bc-ad)}$$

```
[Out] (-2*Sqrt[c + d*x]*Sqrt[e + f*x])/((b*c - a*d)*Sqrt[a + b*x]) + (2
*Sqrt[f]*Sqrt[-(b*e) + a*f]*Sqrt[c + d*x]*Sqrt[(b*(e + f*x))/(b*e
 - a*f)]*EllipticE[ArcSin[(Sqrt[f]*Sqrt[a + b*x])/Sqrt[-(b*e) + a
*f]], (d*(b*e - a*f))/((b*c - a*d)*f)])/(b*(b*c - a*d)*Sqrt[(b*(c
 + d*x))/(b*c - a*d)]*Sqrt[e + f*x])
```

Rubi [A] time = 0.53936, antiderivative size = 184, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.143$

$$\frac{2\sqrt{f}\sqrt{c+dx}\sqrt{af-be}\sqrt{\frac{b(e+fx)}{be-af}}E\left(\sin^{-1}\left(\frac{\sqrt{f}\sqrt{a+bx}}{\sqrt{af-be}}\right)|\frac{d(be-af)}{(bc-ad)f}\right)}{b\sqrt{e+fx}(bc-ad)\sqrt{\frac{b(c+dx)}{bc-ad}}}-\frac{2\sqrt{c+dx}\sqrt{e+fx}}{\sqrt{a+bx}(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[e + f*x]/((a + b*x)^(3/2)*Sqrt[c + d*x]),x]
```

```
[Out] (-2*Sqrt[c + d*x]*Sqrt[e + f*x])/((b*c - a*d)*Sqrt[a + b*x]) + (2
*Sqrt[f]*Sqrt[-(b*e) + a*f]*Sqrt[c + d*x]*Sqrt[(b*(e + f*x))/(b*e
 - a*f)]*EllipticE[ArcSin[(Sqrt[f]*Sqrt[a + b*x])/Sqrt[-(b*e) + a
*f]], (d*(b*e - a*f))/((b*c - a*d)*f)])/(b*(b*c - a*d)*Sqrt[(b*(c
 + d*x))/(b*c - a*d)]*Sqrt[e + f*x])
```

Rubi in Sympy [A] time = 59.0382, size = 150, normalized size = 0.82

$$\frac{2\sqrt{c+dx}\sqrt{e+fx}}{\sqrt{a+bx}\,(ad-bc)}-\frac{2\sqrt{\frac{f(a+bx)}{af-be}}\sqrt{c+dx}\sqrt{-af+be}E\left(\operatorname{asin}\left(\frac{\sqrt{b}\sqrt{e+fx}}{\sqrt{-af+be}}\right)\middle|\frac{d(af-be)}{b(cf-de)}\right)}{\sqrt{b}\sqrt{\frac{f(c+dx)}{cf-de}}\sqrt{a+bx}\,(ad-bc)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((f*x+e)**(1/2)/(b*x+a)**(3/2)/(d*x+c)**(1/2),x)
```

```
[Out] 2*sqrt(c + d*x)*sqrt(e + f*x)/(sqrt(a + b*x)*(a*d - b*c)) - 2*sqr
t(f*(a + b*x)/(a*f - b*e))*sqrt(c + d*x)*sqrt(-a*f + b*e)*ellipti
c_e(asin(sqrt(b)*sqrt(e + f*x)/sqrt(-a*f + b*e)), d*(a*f - b*e)/(
b*(c*f - d*e)))/(sqrt(b)*sqrt(f*(c + d*x)/(c*f - d*e))*sqrt(a + b
*x)*(a*d - b*c))
```

Mathematica [A] time = 1.29133, size = 126, normalized size = 0.68

$$-\frac{2\sqrt{e+fx}\sqrt{\frac{b(c+dx)}{d(a+bx)}}E\left(\sin^{-1}\left(\frac{\sqrt{a-\frac{bc}{d}}}{\sqrt{a+bx}}\right)|\frac{bde-adf}{bcf-adf}\right)}{b\sqrt{c+dx}\sqrt{a-\frac{bc}{d}}\sqrt{\frac{b(e+fx)}{f(a+bx)}}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[e + f*x]/((a + b*x)^(3/2)*Sqrt[c + d*x]),x]
```

```
[Out] (-2*Sqrt[(b*(c + d*x))/(d*(a + b*x))]*Sqrt[e + f*x]*EllipticE[Arc
Sin[Sqrt[a - (b*c)/d]/Sqrt[a + b*x]], (b*d*e - a*d*f)/(b*c*f - a*
d*f)])/(b*Sqrt[a - (b*c)/d]*Sqrt[c + d*x]*Sqrt[(b*(e + f*x))/(f*(
a + b*x))])
```

Maple [B] time = 0.082, size = 1022, normalized size = 5.6

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((f*x+e)^(1/2)/(b*x+a)^(3/2)/(d*x+c)^(1/2),x)
```

```
[Out] -2*(EllipticF((d*(b*x+a)/(a*d-b*c))^(1/2),((a*d-b*c)*f/d/(a*f-b*e
))^(1/2))*a*b*c*d*f*(d*(b*x+a)/(a*d-b*c))^(1/2)*(-(f*x+e)*b/(a*f-
b*e))^(1/2)*(-(d*x+c)*b/(a*d-b*c))^(1/2)-EllipticF((d*(b*x+a)/(a*
d-b*c))^(1/2),((a*d-b*c)*f/d/(a*f-b*e))^(1/2))*a*b*d^2*e*(d*(b*x+
a)/(a*d-b*c))^(1/2)*(-(f*x+e)*b/(a*f-b*e))^(1/2)*(-(d*x+c)*b/(a*d
-b*c))^(1/2)-EllipticF((d*(b*x+a)/(a*d-b*c))^(1/2),((a*d-b*c)*f/d
/(a*f-b*e))^(1/2))*b^2*c^2*f*(d*(b*x+a)/(a*d-b*c))^(1/2)*(-(f*x+e
)*b/(a*f-b*e))^(1/2)*(-(d*x+c)*b/(a*d-b*c))^(1/2)+EllipticF((d*(b
*x+a)/(a*d-b*c))^(1/2),((a*d-b*c)*f/d/(a*f-b*e))^(1/2))*b^2*c*d*e
*(d*(b*x+a)/(a*d-b*c))^(1/2)*(-(f*x+e)*b/(a*f-b*e))^(1/2)*(-(d*x+
c)*b/(a*d-b*c))^(1/2)-EllipticE((d*(b*x+a)/(a*d-b*c))^(1/2),((a*d
-b*c)*f/d/(a*f-b*e))^(1/2))*a^2*d^2*f*(d*(b*x+a)/(a*d-b*c))^(1/2)
*(-(f*x+e)*b/(a*f-b*e))^(1/2)*(-(d*x+c)*b/(a*d-b*c))^(1/2)+Ellipt
icE((d*(b*x+a)/(a*d-b*c))^(1/2),((a*d-b*c)*f/d/(a*f-b*e))^(1/2))*
a*b*c*d*f*(d*(b*x+a)/(a*d-b*c))^(1/2)*(-(f*x+e)*b/(a*f-b*e))^(1/2
)*(-(d*x+c)*b/(a*d-b*c))^(1/2)+EllipticE((d*(b*x+a)/(a*d-b*c))^(1
/2),((a*d-b*c)*f/d/(a*f-b*e))^(1/2))*a*b*d^2*e*(d*(b*x+a)/(a*d-b*
c))^(1/2)*(-(f*x+e)*b/(a*f-b*e))^(1/2)*(-(d*x+c)*b/(a*d-b*c))^(1/
2)-EllipticE((d*(b*x+a)/(a*d-b*c))^(1/2),((a*d-b*c)*f/d/(a*f-b*e)
)^(1/2))*b^2*c*d*e*(d*(b*x+a)/(a*d-b*c))^(1/2)*(-(f*x+e)*b/(a*f-b
*e))^(1/2)*(-(d*x+c)*b/(a*d-b*c))^(1/2)-x^2*b^2*d^2*f-x*b^2*c*d*f
-x*b^2*d^2*e-b^2*c*d*e)*(d*x+c)^(1/2)*(b*x+a)^(1/2)*(f*x+e)^(1/2)
/d/b^2/(a*d-b*c)/(b*d*f*x^3+a*d*f*x^2+b*c*f*x^2+b*d*e*x^2+a*c*f*x
+a*d*e*x+b*c*e*x+a*c*e)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{fx+e}}{(bx+a)^{\frac{3}{2}}\sqrt{dx+c}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(f*x + e)/((b*x + a)^(3/2)*sqrt(d*x + c)),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(f*x + e)/((b*x + a)^(3/2)*sqrt(d*x + c)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{fx+e}}{(bx+a)^{\frac{3}{2}}\sqrt{dx+c}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(f*x + e)/((b*x + a)^(3/2)*sqrt(d*x + c)),x, algorithm="fricas")
```

```
[Out] integral(sqrt(f*x + e)/((b*x + a)^(3/2)*sqrt(d*x + c)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{e+fx}}{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((f*x+e)**(1/2)/(b*x+a)**(3/2)/(d*x+c)**(1/2),x)
```

```
[Out] Integral(sqrt(e + f*x)/((a + b*x)**(3/2)*sqrt(c + d*x)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{fx+e}}{(bx+a)^{\frac{3}{2}}\sqrt{dx+c}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(f*x + e)/((b*x + a)^(3/2)*sqrt(d*x + c)),x, algorithm="giac")
```

```
[Out] integrate(sqrt(f*x + e)/((b*x + a)^(3/2)*sqrt(d*x + c)), x)
```

3.2657 $\int \frac{\sqrt{1-2x}}{\sqrt{-3-5x}\sqrt{2+3x}}\,dx$

Optimal. Leaf size=31

$$\frac{2}{3}\sqrt{\frac{7}{5}}E\left(\sin^{-1}\left(\sqrt{5}\sqrt{3x+2}\right)|\frac{2}{35}\right)$$

```
[Out] (2*Sqrt[7/5]*EllipticE[ArcSin[Sqrt[5]*Sqrt[2 + 3*x]], 2/35])/3
```

Rubi [A] time = 0.0496607, antiderivative size = 31, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.036

$$\frac{2}{3}\sqrt{\frac{7}{5}}E\left(\sin^{-1}\left(\sqrt{5}\sqrt{3x+2}\right)|\frac{2}{35}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]/(Sqrt[-3 - 5*x]*Sqrt[2 + 3*x]),x]

[Out] (2*Sqrt[7/5]*EllipticE[ArcSin[Sqrt[5]*Sqrt[2 + 3*x]], 2/35])/3
```

Rubi in Sympy [A] time = 4.65762, size = 26, normalized size = 0.84

$$\frac{2\sqrt{35}E\left(\operatorname{asin}\left(\sqrt{5}\sqrt{3x+2}\right)\middle|\frac{2}{35}\right)}{15}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)/(-3-5*x)**(1/2)/(2+3*x)**(1/2),x)

[Out] 2*sqrt(35)*elliptic_e(asin(sqrt(5)*sqrt(3*x + 2)), 2/35)/15
```

Mathematica [B] time = 0.62316, size = 109, normalized size = 3.52

$$-\frac{2\left(\frac{3(10x^2+x-3)}{\sqrt{3x+2}}+\sqrt{35}\sqrt{\frac{2x-1}{3x+2}}(3x+2)\sqrt{\frac{5x+3}{3x+2}}E\left(\sin^{-1}\left(\frac{\sqrt{\frac{7}{2}}}{\sqrt{3x+2}}\right)|\frac{2}{35}\right)\right)}{15\sqrt{-5x-3}\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]/(Sqrt[-3 - 5*x]*Sqrt[2 + 3*x]),x]

[Out] (-2*((3*(-3 + x + 10*x^2))/Sqrt[2 + 3*x] + Sqrt[35]*Sqrt[(-1 + 2*
x)/(2 + 3*x)]*(2 + 3*x)*Sqrt[(3 + 5*x)/(2 + 3*x)]*EllipticE[ArcSi
n[Sqrt[7/2]/Sqrt[2 + 3*x]], 2/35]))/(15*Sqrt[-3 - 5*x]*Sqrt[1 - 2
*x])
```

Maple [C] time = 0.046, size = 81, normalized size = 2.6

$$-\frac{\sqrt{2}}{15}\left(35\,\mathit{EllipticF}\left(1/11\sqrt{11}\sqrt{2}\sqrt{3+5x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)-2\,\mathit{EllipticE}\left(1/11\sqrt{11}\sqrt{2}\sqrt{3+5x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)\right)\sqrt{-3-5x}\frac{}{\sqrt{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)/(-3-5*x)^(1/2)/(2+3*x)^(1/2),x)
```

```
[Out] -1/15*(35*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^
(1/2)*3^(1/2)*2^(1/2))-2*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^
(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2)))/(3+5*x)^(1/2)*2^(1/2)*(-3-
5*x)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{-2\,x+1}}{\sqrt{3\,x+2}\sqrt{-5\,x-3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/(sqrt(3*x + 2)*sqrt(-5*x - 3)),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(-2*x + 1)/(sqrt(3*x + 2)*sqrt(-5*x - 3)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{-2\,x+1}}{\sqrt{3\,x+2}\sqrt{-5\,x-3}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/(sqrt(3*x + 2)*sqrt(-5*x - 3)),x, algorithm="fricas")
```

```
[Out] integral(sqrt(-2*x + 1)/(sqrt(3*x + 2)*sqrt(-5*x - 3)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{-2x+1}}{\sqrt{-5x-3}\sqrt{3x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)/(-3-5*x)**(1/2)/(2+3*x)**(1/2),x)
```

```
[Out] Integral(sqrt(-2*x + 1)/(sqrt(-5*x - 3)*sqrt(3*x + 2)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{-2\,x+1}}{\sqrt{3\,x+2}\sqrt{-5\,x-3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/(sqrt(3*x + 2)*sqrt(-5*x - 3)),x, algorithm="giac")
```

```
[Out] integrate(sqrt(-2*x + 1)/(sqrt(3*x + 2)*sqrt(-5*x - 3)), x)
```

3.2658 $\int \frac{\sqrt{1-2x}(2+3x)^{5/2}}{\sqrt{3+5x}}\,dx$

Optimal. Leaf size=158

$$\frac{2}{35}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{5/2}-\frac{23}{875}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}-\frac{859\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{4375}-\frac{314\sqrt{33}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{21875}-\frac{61151\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{43750}$$

```
[Out] (-859*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/4375 - (23*Sqrt[
1 - 2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/875 + (2*Sqrt[1 - 2*x]*(2
 + 3*x)^(5/2)*Sqrt[3 + 5*x])/35 - (61151*Sqrt[11/3]*EllipticE[Arc
Sin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/43750 - (314*Sqrt[33]*Ellip
ticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/21875
```

Rubi [A] time = 0.340862, antiderivative size = 158, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{2}{35}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{5/2}-\frac{23}{875}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}-\frac{859\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{4375}-\frac{314\sqrt{33}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{21875}-\frac{61151\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{43750}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(2 + 3*x)^(5/2))/Sqrt[3 + 5*x],x]
```

```
[Out] (-859*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/4375 - (23*Sqrt[
1 - 2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/875 + (2*Sqrt[1 - 2*x]*(2
 + 3*x)^(5/2)*Sqrt[3 + 5*x])/35 - (61151*Sqrt[11/3]*EllipticE[Arc
Sin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/43750 - (314*Sqrt[33]*Ellip
ticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/21875
```

Rubi in Sympy [A] time = 33.2088, size = 143, normalized size = 0.91

$$\frac{2\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}\,\sqrt{5x+3}}{35}-\frac{23\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\,\sqrt{5x+3}}{875}-\frac{859\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{4375}-\frac{61151\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{131250}-\frac{10362\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{765625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(5/2)*(1-2*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] 2*sqrt(-2*x + 1)*(3*x + 2)**(5/2)*sqrt(5*x + 3)/35 - 23*sqrt(-2*x
 + 1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/875 - 859*sqrt(-2*x + 1)*sqr
t(3*x + 2)*sqrt(5*x + 3)/4375 - 61151*sqrt(33)*elliptic_e(asin(sq
rt(21)*sqrt(-2*x + 1)/7), 35/33)/131250 - 10362*sqrt(35)*elliptic
_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/765625
```

Mathematica [A] time = 0.316911, size = 97, normalized size = 0.61

$$\frac{15\sqrt{2-4x}\sqrt{3x+2}\sqrt{5x+3}\left(2250x^2+2655x-89\right)-30065F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+61151E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|\right.}{65625\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(2 + 3*x)^(5/2))/Sqrt[3 + 5*x],x]
```

```
[Out] (15*Sqrt[2 - 4*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(-89 + 2655*x + 225
0*x^2) + 61151*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]
 - 30065*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/(656
25*Sqrt[2])
```

Maple [C] time = 0.032, size = 174, normalized size = 1.1

$$\frac{1}{3937500\,x^3+3018750\,x^2-918750\,x-787500}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(30065\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/1\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(5/2)*(1-2*x)^(1/2)/(3+5*x)^(1/2),x)
```

```
[Out] 1/131250*(2+3*x)^(1/2)*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(30065*2^(1/2)
*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2
)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-61151*2^(
1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^
(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+20250
00*x^5+3942000*x^4+1279350*x^3-1023960*x^2-459210*x+16020)/(30*x^
3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{5}{2}}\sqrt{-2\,x+1}}{\sqrt{5\,x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(5/2)*sqrt(-2*x + 1)/sqrt(5*x + 3),x, algorithm="maxima")
```

```
[Out] integrate((3*x + 2)^(5/2)*sqrt(-2*x + 1)/sqrt(5*x + 3), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\left(9\,x^2+12\,x+4\right)\sqrt{3\,x+2}\sqrt{-2\,x+1}}{\sqrt{5\,x+3}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(5/2)*sqrt(-2*x + 1)/sqrt(5*x + 3),x, algorithm="fricas")
```

```
[Out] integral((9*x^2 + 12*x + 4)*sqrt(3*x + 2)*sqrt(-2*x + 1)/sqrt(5*x
 + 3), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(5/2)*(1-2*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{5}{2}}\sqrt{-2x+1}}{\sqrt{5x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(5/2)*sqrt(-2*x + 1)/sqrt(5*x + 3),x, algorithm="giac")
```

```
[Out] integrate((3*x + 2)^(5/2)*sqrt(-2*x + 1)/sqrt(5*x + 3), x)
```

3.2659 $\int \frac{\sqrt{1-2x}(2+3x)^{3/2}}{\sqrt{3+5x}}\,dx$

Optimal. Leaf size=127

$$\frac{2}{25}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}-\frac{9}{125}\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}-\frac{17}{625}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{146}{625}\sqrt{33}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (-9*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/125 + (2*Sqrt[1 -
2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/25 - (146*Sqrt[33]*EllipticE[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/625 - (17*Sqrt[11/3]*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/625
```

Rubi [A] time = 0.262722, antiderivative size = 127, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{2}{25}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}-\frac{9}{125}\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}-\frac{17}{625}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{146}{625}\sqrt{33}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(2 + 3*x)^(3/2))/Sqrt[3 + 5*x],x]
```

```
[Out] (-9*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/125 + (2*Sqrt[1 -
2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/25 - (146*Sqrt[33]*EllipticE[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/625 - (17*Sqrt[11/3]*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/625
```

Rubi in Sympy [A] time = 26.2838, size = 114, normalized size = 0.9

$$\frac{2\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\,\sqrt{5x+3}}{25}-\frac{9\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{125}-\frac{146\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{625}-\frac{17\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{1875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(3/2)*(1-2*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] 2*sqrt(-2*x + 1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/25 - 9*sqrt(-2*x
+ 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/125 - 146*sqrt(33)*elliptic_e(as
in(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/625 - 17*sqrt(33)*elliptic_
f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/1875
```

Mathematica [A] time = 0.277499, size = 97, normalized size = 0.76

$$\frac{10\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}(30x+11)-105\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+292\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)}{1250}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(2 + 3*x)^(3/2))/Sqrt[3 + 5*x],x]
```

```
[Out] (10*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(11 + 30*x) + 292*S
qrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 105*S
qrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/1250
```

Maple [C] time = 0.016, size = 169, normalized size = 1.3

$$\frac{1}{37500\,x^{3}+28750\,x^{2}-8750\,x-7500}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(105\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(3/2)*(1-2*x)^(1/2)/(3+5*x)^(1/2),x)
```

```
[Out] 1/1250*(2+3*x)^(1/2)*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(105*2^(1/2)*(3+
5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^
(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-292*2^(1/2)*(
3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*
2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+9000*x^4+10
200*x^3+430*x^2-2570*x-660)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{3}{2}}\sqrt{-2\,x+1}}{\sqrt{5\,x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(3/2)*sqrt(-2*x + 1)/sqrt(5*x + 3),x, algorithm="maxima")
```

```
[Out] integrate((3*x + 2)^(3/2)*sqrt(-2*x + 1)/sqrt(5*x + 3), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{(3\,x+2)^{\frac{3}{2}}\sqrt{-2\,x+1}}{\sqrt{5\,x+3}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(3/2)*sqrt(-2*x + 1)/sqrt(5*x + 3),x, algorithm="fricas")
```

```
[Out] integral((3*x + 2)^(3/2)*sqrt(-2*x + 1)/sqrt(5*x + 3), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(3/2)*(1-2*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{3}{2}}\sqrt{-2x+1}}{\sqrt{5x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(3/2)*sqrt(-2*x + 1)/sqrt(5*x + 3),x, algorithm="giac")
```

```
[Out] integrate((3*x + 2)^(3/2)*sqrt(-2*x + 1)/sqrt(5*x + 3), x)
```

3.2660 $\int \frac{\sqrt{1-2x}\sqrt{2+3x}}{\sqrt{3+5x}}\,dx$

Optimal. Leaf size=98

$$\frac{2}{15}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}-\frac{4}{75}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{31}{75}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (2*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/15 - (31*Sqrt[11/3]
*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/75 - (4*Sqrt[
11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/75
```

Rubi [A] time = 0.189784, antiderivative size = 98, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.143

$$\frac{2}{15}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}-\frac{4}{75}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{31}{75}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/Sqrt[3 + 5*x],x]
```

```
[Out] (2*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/15 - (31*Sqrt[11/3]
*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/75 - (4*Sqrt[
11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/75
```

Rubi in Sympy [A] time = 19.4327, size = 85, normalized size = 0.87

$$\frac{2\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{15}-\frac{31\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{225}-\frac{44\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{2625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)*(2+3*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] 2*sqrt(-2*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/15 - 31*sqrt(33)*ell
iptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/225 - 44*sqrt(35)
*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/2625
```

Mathematica [A] time = 0.160981, size = 92, normalized size = 0.94

$$\frac{1}{225}\left(30\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}+35\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+31\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/Sqrt[3 + 5*x],x]
```

```
[Out] (30*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x] + 31*Sqrt[2]*Ellipt
icE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 35*Sqrt[2]*Ellipti
cF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/225
```

Maple [C] time = 0.014, size = 164, normalized size = 1.7

$$-\frac{1}{6750\,x^{3}+5175\,x^{2}-1575\,x-1350}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(35\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)*(2+3*x)^(1/2)/(3+5*x)^(1/2),x)
```

```
[Out] -1/225*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(35*2^(1/2)*(3+5
*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(
1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+31*2^(1/2)*(3+
5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^
(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-900*x^3-690*x
^2+210*x+180)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{3\,x+2}\sqrt{-2\,x+1}}{\sqrt{5\,x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(3*x + 2)*sqrt(-2*x + 1)/sqrt(5*x + 3),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(3*x + 2)*sqrt(-2*x + 1)/sqrt(5*x + 3), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{3\,x+2}\sqrt{-2\,x+1}}{\sqrt{5\,x+3}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(3*x + 2)*sqrt(-2*x + 1)/sqrt(5*x + 3),x, algorithm="fricas")
```

```
[Out] integral(sqrt(3*x + 2)*sqrt(-2*x + 1)/sqrt(5*x + 3), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{-2x+1}\sqrt{3x+2}}{\sqrt{5x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)*(2+3*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] Integral(sqrt(-2*x + 1)*sqrt(3*x + 2)/sqrt(5*x + 3), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{3\,x+2}\sqrt{-2\,x+1}}{\sqrt{5\,x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(3*x + 2)*sqrt(-2*x + 1)/sqrt(5*x + 3),x, algorithm="giac")
```

```
[Out] integrate(sqrt(3*x + 2)*sqrt(-2*x + 1)/sqrt(5*x + 3), x)
```

3.2661 $\int \frac{\sqrt{1-2x}}{\sqrt{2+3x}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=49

$$\frac{2\sqrt{\frac{7}{5}}\sqrt{-5x-3}E\left(\sin^{-1}\left(\sqrt{5}\sqrt{3x+2}\right)|\frac{2}{35}\right)}{3\sqrt{5x+3}}$$

```
[Out] (2*Sqrt[7/5]*Sqrt[-3 - 5*x]*EllipticE[ArcSin[Sqrt[5]*Sqrt[2 + 3*x
]], 2/35])/(3*Sqrt[3 + 5*x])
```

Rubi [A] time = 0.093612, antiderivative size = 49, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.071

$$\frac{2\sqrt{\frac{7}{5}}\sqrt{-5x-3}E\left(\sin^{-1}\left(\sqrt{5}\sqrt{3x+2}\right)|\frac{2}{35}\right)}{3\sqrt{5x+3}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]/(Sqrt[2 + 3*x]*Sqrt[3 + 5*x]),x]
```

```
[Out] (2*Sqrt[7/5]*Sqrt[-3 - 5*x]*EllipticE[ArcSin[Sqrt[5]*Sqrt[2 + 3*x
]], 2/35])/(3*Sqrt[3 + 5*x])
```

Rubi in Sympy [A] time = 9.14623, size = 65, normalized size = 1.33

$$\frac{2\sqrt{5}\sqrt{-15x-9}\sqrt{-2x+1}E\left(\operatorname{asin}\left(\sqrt{5}\sqrt{3x+2}\right)\middle|\frac{2}{35}\right)}{15\sqrt{-\frac{6x}{7}+\frac{3}{7}}\sqrt{5x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)/(2+3*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] 2*sqrt(5)*sqrt(-15*x - 9)*sqrt(-2*x + 1)*elliptic_e(asin(sqrt(5)*
sqrt(3*x + 2)), 2/35)/(15*sqrt(-6*x/7 + 3/7)*sqrt(5*x + 3))
```

Mathematica [B] time = 0.372234, size = 121, normalized size = 2.47

$$\frac{2\sqrt{1-2x}\left(5\left(6x^2+x-2\right)\sqrt{5x+3}+\sqrt{33}\sqrt{\frac{2x-1}{5x+3}}\sqrt{\frac{3x+2}{5x+3}}(5x+3)^2E\left(\sin^{-1}\left(\frac{\sqrt{\frac{11}{2}}}{\sqrt{5x+3}}\right)|-\frac{2}{33}\right)\right)}{15\sqrt{3x+2}\left(10x^2+x-3\right)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]/(Sqrt[2 + 3*x]*Sqrt[3 + 5*x]),x]
```

```
[Out] (2*Sqrt[1 - 2*x]*(5*Sqrt[3 + 5*x]*(-2 + x + 6*x^2) + Sqrt[33]*Sqr
t[(-1 + 2*x)/(3 + 5*x)]*Sqrt[(2 + 3*x)/(3 + 5*x)]*(3 + 5*x)^2*Ell
ipticE[ArcSin[Sqrt[11/2]/Sqrt[3 + 5*x]], -2/33]))/(15*Sqrt[2 + 3*
x]*(-3 + x + 10*x^2))
```

Maple [C] time = 0.018, size = 67, normalized size = 1.4

$$\frac{\sqrt{2}}{15}\left(35\,EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)-2\,EllipticE\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)/(2+3*x)^(1/2)/(3+5*x)^(1/2),x)
```

```
[Out] 1/15*(35*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(
1/2)*3^(1/2)*2^(1/2))-2*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(
1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2)))*2^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{-2\,x+1}}{\sqrt{5\,x+3}\sqrt{3\,x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/(sqrt(5*x + 3)*sqrt(3*x + 2)),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(-2*x + 1)/(sqrt(5*x + 3)*sqrt(3*x + 2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{-2\,x+1}}{\sqrt{5\,x+3}\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/(sqrt(5*x + 3)*sqrt(3*x + 2)),x, algorithm="fricas")
```

```
[Out] integral(sqrt(-2*x + 1)/(sqrt(5*x + 3)*sqrt(3*x + 2)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{-2x+1}}{\sqrt{3x+2}\sqrt{5x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)/(2+3*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] Integral(sqrt(-2*x + 1)/(sqrt(3*x + 2)*sqrt(5*x + 3)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{-2\,x+1}}{\sqrt{5\,x+3}\sqrt{3\,x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/(sqrt(5*x + 3)*sqrt(3*x + 2)),x, algorithm="giac")

[Out] integrate(sqrt(-2*x + 1)/(sqrt(5*x + 3)*sqrt(3*x + 2)), x)
```

3.2662 $\int \frac{\sqrt{1-2x}}{(2+3x)^{3/2}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=61

$$\frac{2\sqrt{1-2x}\sqrt{5x+3}}{\sqrt{3x+2}}-2\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (2*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/Sqrt[2 + 3*x] - 2*Sqrt[11/3]*Elli
pticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33]
```

Rubi [A] time = 0.0868808, antiderivative size = 61, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.107

$$\frac{2\sqrt{1-2x}\sqrt{5x+3}}{\sqrt{3x+2}}-2\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In] Int[Sqrt[1 - 2*x]/((2 + 3*x)^(3/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (2*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/Sqrt[2 + 3*x] - 2*Sqrt[11/3]*Elli
pticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33]
```

Rubi in Sympy [A] time = 9.42041, size = 54, normalized size = 0.89

$$\frac{2\sqrt{-2x+1}\sqrt{5x+3}}{\sqrt{3x+2}}-\frac{2\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**(1/2)/(2+3*x)**(3/2)/(3+5*x)**(1/2),x)
```

```
[Out] 2*sqrt(-2*x + 1)*sqrt(5*x + 3)/sqrt(3*x + 2) - 2*sqrt(33)*ellipti
c_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/3
```

Mathematica [A] time = 0.151324, size = 106, normalized size = 1.74

$$\frac{6\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}-2\sqrt{2}(3x+2)F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+2\sqrt{2}(3x+2)E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)}{9x+6}$$

Antiderivative was successfully verified.

```
[In] Integrate[Sqrt[1 - 2*x]/((2 + 3*x)^(3/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (6*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x] + 2*Sqrt[2]*(2 + 3*x
)*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 2*Sqrt[2]*
(2 + 3*x)*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/(6
+ 9*x)
```

Maple [C] time = 0.024, size = 158, normalized size = 2.6

$$\frac{2}{90\,x^3+69\,x^2-21\,x-18}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(\frac{\sqrt{11}\sqrt{2}}{11}\sqrt{3+5\,x},\frac{i}{2}\sqrt{11}\sqrt{3}\sqrt{2}\right)\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)/(2+3*x)^(3/2)/(3+5*x)^(1/2),x)
```

```
[Out] 2/3*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(2^(1/2)*(3+5*x)^(1
/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(
3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-2^(1/2)*(3+5*x)^(1/2
)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+
5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+30*x^2+3*x-9)/(30*x^3+
23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{-2\,x+1}}{\sqrt{5\,x+3}(3\,x+2)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/(sqrt(5*x + 3)*(3*x + 2)^(3/2)),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(-2*x + 1)/(sqrt(5*x + 3)*(3*x + 2)^(3/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{-2\,x+1}}{\sqrt{5\,x+3}(3\,x+2)^{\frac{3}{2}}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/(sqrt(5*x + 3)*(3*x + 2)^(3/2)),x, algorithm="fricas")
```

```
[Out] integral(sqrt(-2*x + 1)/(sqrt(5*x + 3)*(3*x + 2)^(3/2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)/(2+3*x)**(3/2)/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{-2\,x+1}}{\sqrt{5\,x+3}(3\,x+2)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/(sqrt(5*x + 3)*(3*x + 2)^(3/2)),x, algorithm="giac")
```

```
[Out] integrate(sqrt(-2*x + 1)/(sqrt(5*x + 3)*(3*x + 2)^(3/2)), x)
```

3.2663 $\int \frac{\sqrt{1-2x}}{(2+3x)^{5/2}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=129

$$\frac{136\sqrt{1-2x}\sqrt{5x+3}}{21\sqrt{3x+2}}+\frac{2\sqrt{1-2x}\sqrt{5x+3}}{3(3x+2)^{3/2}}-\frac{4}{21}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{136}{21}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (2*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(3*(2 + 3*x)^(3/2)) + (136*Sqrt[1
 - 2*x]*Sqrt[3 + 5*x])/(21*Sqrt[2 + 3*x]) - (136*Sqrt[11/3]*Ellip
ticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/21 - (4*Sqrt[11/3]*
EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/21
```

Rubi [A] time = 0.261951, antiderivative size = 129, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.179$

$$\frac{136\sqrt{1-2x}\sqrt{5x+3}}{21\sqrt{3x+2}}+\frac{2\sqrt{1-2x}\sqrt{5x+3}}{3(3x+2)^{3/2}}-\frac{4}{21}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{136}{21}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]/((2 + 3*x)^(5/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (2*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(3*(2 + 3*x)^(3/2)) + (136*Sqrt[1
 - 2*x]*Sqrt[3 + 5*x])/(21*Sqrt[2 + 3*x]) - (136*Sqrt[11/3]*Ellip
ticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/21 - (4*Sqrt[11/3]*
EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/21
```

Rubi in Sympy [A] time = 25.2261, size = 114, normalized size = 0.88

$$\frac{136\sqrt{-2x+1}\sqrt{5x+3}}{21\sqrt{3x+2}}+\frac{2\sqrt{-2x+1}\sqrt{5x+3}}{3\left(3x+2\right)^{\frac{3}{2}}}-\frac{136\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{63}-\frac{4\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{63}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)/(2+3*x)**(5/2)/(3+5*x)**(1/2),x)
```

```
[Out] 136*sqrt(-2*x + 1)*sqrt(5*x + 3)/(21*sqrt(3*x + 2)) + 2*sqrt(-2*x
 + 1)*sqrt(5*x + 3)/(3*(3*x + 2)**(3/2)) - 136*sqrt(33)*elliptic_
e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/63 - 4*sqrt(33)*ellipti
c_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/63
```

Mathematica [A] time = 0.323401, size = 97, normalized size = 0.75

$$\frac{2}{63}\left(\frac{3\sqrt{1-2x}\sqrt{5x+3}(204x+143)}{(3x+2)^{3/2}}-35\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+68\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]/((2 + 3*x)^(5/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (2*((3*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(143 + 204*x))/(2 + 3*x)^(3/2)
 + 68*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]
- 35*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]))
/63
```

Maple [C] time = 0.028, size = 267, normalized size = 2.1

$$\frac{2}{630\,x^2+63\,x-189}\left(105\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-204\,\sqrt{2}EllipticE\left(1\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)/(2+3*x)^(5/2)/(3+5*x)^(1/2),x)
```

```
[Out] 2/63*(105*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1
/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2
*x)^(1/2)-204*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/
2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*
(1-2*x)^(1/2)+70*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2
)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^
(1/2)*2^(1/2))-136*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1
/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*
3^(1/2)*2^(1/2))+6120*x^3+4902*x^2-1407*x-1287)*(3+5*x)^(1/2)*(1-
2*x)^(1/2)/(10*x^2+x-3)/(2+3*x)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{-2\,x+1}}{\sqrt{5\,x+3}(3\,x+2)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/(sqrt(5*x + 3)*(3*x + 2)^(5/2)),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(-2*x + 1)/(sqrt(5*x + 3)*(3*x + 2)^(5/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{-2\,x+1}}{(9\,x^2+12\,x+4)\sqrt{5\,x+3}\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/(sqrt(5*x + 3)*(3*x + 2)^(5/2)),x, algorithm="fricas")
```

```
[Out] integral(sqrt(-2*x + 1)/((9*x^2 + 12*x + 4)*sqrt(5*x + 3)*sqrt(3*
x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)/(2+3*x)**(5/2)/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{-2x+1}}{\sqrt{5x+3}(3x+2)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/(sqrt(5*x + 3)*(3*x + 2)^(5/2)),x, algorithm="giac")
```

```
[Out] integrate(sqrt(-2*x + 1)/(sqrt(5*x + 3)*(3*x + 2)^(5/2)), x)
```

3.2664 $\int \frac{\sqrt{1-2x}}{(2+3x)^{7/2}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=158

$$\frac{6388\sqrt{1-2x}\sqrt{5x+3}}{245\sqrt{3x+2}}+\frac{92\sqrt{1-2x}\sqrt{5x+3}}{35(3x+2)^{3/2}}+\frac{2\sqrt{1-2x}\sqrt{5x+3}}{5(3x+2)^{5/2}}-\frac{64}{245}\sqrt{33}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{6388}{245}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (2*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(5*(2 + 3*x)^(5/2)) + (92*Sqrt[1
- 2*x]*Sqrt[3 + 5*x])/(35*(2 + 3*x)^(3/2)) + (6388*Sqrt[1 - 2*x]*
Sqrt[3 + 5*x])/(245*Sqrt[2 + 3*x]) - (6388*Sqrt[11/3]*EllipticE[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/245 - (64*Sqrt[33]*Ellipt
icF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/245
```

Rubi [A] time = 0.343588, antiderivative size = 158, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{6388\sqrt{1-2x}\sqrt{5x+3}}{245\sqrt{3x+2}}+\frac{92\sqrt{1-2x}\sqrt{5x+3}}{35(3x+2)^{3/2}}+\frac{2\sqrt{1-2x}\sqrt{5x+3}}{5(3x+2)^{5/2}}-\frac{64}{245}\sqrt{33}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{6388}{245}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]/((2 + 3*x)^(7/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (2*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(5*(2 + 3*x)^(5/2)) + (92*Sqrt[1
- 2*x]*Sqrt[3 + 5*x])/(35*(2 + 3*x)^(3/2)) + (6388*Sqrt[1 - 2*x]*
Sqrt[3 + 5*x])/(245*Sqrt[2 + 3*x]) - (6388*Sqrt[11/3]*EllipticE[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/245 - (64*Sqrt[33]*Ellipt
icF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/245
```

Rubi in Sympy [A] time = 33.269, size = 143, normalized size = 0.91

$$\frac{6388\sqrt{-2x+1}\sqrt{5x+3}}{245\sqrt{3x+2}}+\frac{92\sqrt{-2x+1}\sqrt{5x+3}}{35\,(3x+2)^{\frac{3}{2}}}+\frac{2\sqrt{-2x+1}\sqrt{5x+3}}{5\,(3x+2)^{\frac{5}{2}}}-\frac{6388\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{735}-\frac{2112\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{8575}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)/(2+3*x)**(7/2)/(3+5*x)**(1/2),x)
```

```
[Out] 6388*sqrt(-2*x + 1)*sqrt(5*x + 3)/(245*sqrt(3*x + 2)) + 92*sqrt(-
2*x + 1)*sqrt(5*x + 3)/(35*(3*x + 2)**(3/2)) + 2*sqrt(-2*x + 1)*s
qrt(5*x + 3)/(5*(3*x + 2)**(5/2)) - 6388*sqrt(33)*elliptic_e(asin
(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/735 - 2112*sqrt(35)*elliptic_
f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/8575
```

Mathematica [A] time = 0.312761, size = 101, normalized size = 0.64

$$\frac{4}{735}\left(\frac{3\sqrt{1-2x}\sqrt{5x+3}\left(28746x^2+39294x+13469\right)}{2(3x+2)^{5/2}}+\sqrt{2}\left(1597E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-805F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]/((2 + 3*x)^(7/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (4*((3*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(13469 + 39294*x + 28746*x^2))
/(2*(2 + 3*x)^(5/2)) + Sqrt[2]*(1597*EllipticE[ArcSin[Sqrt[2/11]*
Sqrt[3 + 5*x]], -33/2] - 805*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 +
 5*x]], -33/2])))/735
```

Maple [C] time = 0.03, size = 386, normalized size = 2.4

$$\frac{2}{7350\,x^2+735\,x-2205}\left(14490\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^2\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-28746\,\sqrt{2}E$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)/(2+3*x)^(7/2)/(3+5*x)^(1/2),x)
```

```
[Out] 2/735*(14490*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2
),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)
*(1-2*x)^(1/2)-28746*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5
*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*
x)^(1/2)*(1-2*x)^(1/2)+19320*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1
/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)
*(2+3*x)^(1/2)*(1-2*x)^(1/2)-38328*2^(1/2)*EllipticE(1/11*11^(1/2
)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)
^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+6440*2^(1/2)*(3+5*x)^(1/2)*(2+
3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^
(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-12776*2^(1/2)*(3+5*x)^(1/2)
*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5
*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+862380*x^4+1265058*x^3+
263238*x^2-313239*x-121221)*(3+5*x)^(1/2)*(1-2*x)^(1/2)/(10*x^2+x
-3)/(2+3*x)^(5/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{-2\,x+1}}{\sqrt{5\,x+3}(3\,x+2)^{\frac{7}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/(sqrt(5*x + 3)*(3*x + 2)^(7/2)),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(-2*x + 1)/(sqrt(5*x + 3)*(3*x + 2)^(7/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\sqrt{-2\,x+1}}{(27\,x^3+54\,x^2+36\,x+8)\sqrt{5\,x+3}\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/(sqrt(5*x + 3)*(3*x + 2)^(7/2)),x, algorithm="fricas")
```

```
[Out] integral(sqrt(-2*x + 1)/((27*x^3 + 54*x^2 + 36*x + 8)*sqrt(5*x +
3)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)/(2+3*x)**(7/2)/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{-2\,x+1}}{\sqrt{5\,x+3}(3\,x+2)^{\frac{7}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/(sqrt(5*x + 3)*(3*x + 2)^(7/2)),x, algorithm="giac")
```

```
[Out] integrate(sqrt(-2*x + 1)/(sqrt(5*x + 3)*(3*x + 2)^(7/2)), x)
```

3.2665 $\int \frac{\sqrt{1-2x}(2+3x)^{7/2}}{(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=189

$$-\frac{2\sqrt{1-2x}(3x+2)^{7/2}}{5\sqrt{5x+3}}+\frac{48}{175}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{5/2}+\frac{183\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}}{4375}-\frac{2486\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{21875}-\frac{38723F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{109375\sqrt{33}}-\frac{203179\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{218750}$$

```
[Out] (-2*Sqrt[1 - 2*x]*(2 + 3*x)^(7/2))/(5*Sqrt[3 + 5*x]) - (2486*Sqrt
[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/21875 + (183*Sqrt[1 - 2*x]
*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/4375 + (48*Sqrt[1 - 2*x]*(2 + 3*x
)^(5/2)*Sqrt[3 + 5*x])/175 - (203179*Sqrt[11/3]*EllipticE[ArcSin[
Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/218750 - (38723*EllipticF[ArcSi
n[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(109375*Sqrt[33])
```

Rubi [A] time = 0.408487, antiderivative size = 189, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{2\sqrt{1-2x}(3x+2)^{7/2}}{5\sqrt{5x+3}}+\frac{48}{175}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{5/2}+\frac{183\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}}{4375}-\frac{2486\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{21875}-\frac{38723F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{109375\sqrt{33}}-\frac{203179\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{218750}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(2 + 3*x)^(7/2))/(3 + 5*x)^(3/2),x]
```

```
[Out] (-2*Sqrt[1 - 2*x]*(2 + 3*x)^(7/2))/(5*Sqrt[3 + 5*x]) - (2486*Sqrt
[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/21875 + (183*Sqrt[1 - 2*x]
*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/4375 + (48*Sqrt[1 - 2*x]*(2 + 3*x
)^(5/2)*Sqrt[3 + 5*x])/175 - (203179*Sqrt[11/3]*EllipticE[ArcSin[
Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/218750 - (38723*EllipticF[ArcSi
n[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(109375*Sqrt[33])
```

Rubi in Sympy [A] time = 41.4733, size = 172, normalized size = 0.91

$$-\frac{2\sqrt{-2x+1}\,(3x+2)^{\frac{7}{2}}}{5\sqrt{5x+3}}+\frac{48\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}\,\sqrt{5x+3}}{175}+\frac{183\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\,\sqrt{5x+3}}{4375}-\frac{2486\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{21875}-\frac{203179\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{656250}-\frac{38723\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{3828125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(7/2)*(1-2*x)**(1/2)/(3+5*x)**(3/2),x)
```

```
[Out] -2*sqrt(-2*x + 1)*(3*x + 2)**(7/2)/(5*sqrt(5*x + 3)) + 48*sqrt(-2
*x + 1)*(3*x + 2)**(5/2)*sqrt(5*x + 3)/175 + 183*sqrt(-2*x + 1)*(
3*x + 2)**(3/2)*sqrt(5*x + 3)/4375 - 2486*sqrt(-2*x + 1)*sqrt(3*x
```

```
 + 2)*sqrt(5*x + 3)/21875 - 203179*sqrt(33)*elliptic_e(asin(sqrt(
21)*sqrt(-2*x + 1)/7), 35/33)/656250 - 38723*sqrt(35)*elliptic_f(
asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/3828125
```

Mathematica [A] time = 0.429746, size = 107, normalized size = 0.57

$$\frac{\frac{30\sqrt{1-2x}\sqrt{3x+2}(33750x^3+63225x^2+25955x+32)}{\sqrt{5x+3}} - 87010\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right) + 203179\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)}{656250}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(2 + 3*x)^(7/2))/(3 + 5*x)^(3/2),x]
```

```
[Out] ((30*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(32 + 25955*x + 63225*x^2 + 3375
0*x^3))/Sqrt[3 + 5*x] + 203179*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11
]*Sqrt[3 + 5*x]], -33/2] - 87010*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/
11]*Sqrt[3 + 5*x]], -33/2])/656250
```

Maple [C] time = 0.048, size = 174, normalized size = 0.9

$$\frac{1}{19687500\,x^3+15093750\,x^2-4593750\,x-3937500}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(87010\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(7/2)*(1-2*x)^(1/2)/(3+5*x)^(3/2),x)
```

```
[Out] 1/656250*(2+3*x)^(1/2)*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(87010*2^(1/2)
*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2
)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-203179*2^
(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11
^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+6075
000*x^5+12393000*x^4+4543650*x^3-3009090*x^2-1556340*x-1920)/(30*
x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{7}{2}}\sqrt{-2\,x+1}}{(5\,x+3)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(7/2)*sqrt(-2*x + 1)/(5*x + 3)^(3/2),x, algorithm="maxima")
```

```
[Out] integrate((3*x + 2)^(7/2)*sqrt(-2*x + 1)/(5*x + 3)^(3/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(27\,x^3+54\,x^2+36\,x+8)\sqrt{3\,x+2}\sqrt{-2\,x+1}}{(5\,x+3)^{\frac{3}{2}}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(7/2)*sqrt(-2*x + 1)/(5*x + 3)^(3/2),x, algorithm="fricas")
```

```
[Out] integral((27*x^3 + 54*x^2 + 36*x + 8)*sqrt(3*x + 2)*sqrt(-2*x + 1
)/(5*x + 3)^(3/2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(7/2)*(1-2*x)**(1/2)/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{7}{2}}\sqrt{-2\,x+1}}{(5\,x+3)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(7/2)*sqrt(-2*x + 1)/(5*x + 3)^(3/2),x, algorithm="giac")
```

```
[Out] integrate((3*x + 2)^(7/2)*sqrt(-2*x + 1)/(5*x + 3)^(3/2), x)
```

3.2666 $\int \frac{\sqrt{1-2x}(2+3x)^{5/2}}{(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=158

$$-\frac{2\sqrt{1-2x}(3x+2)^{5/2}}{5\sqrt{5x+3}}+\frac{36}{125}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}+\frac{13}{625}\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}-\frac{1091F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3125\sqrt{33}}-\frac{1409\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3125}$$

```
[Out] (-2*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2))/(5*Sqrt[3 + 5*x]) + (13*Sqrt[1
 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/625 + (36*Sqrt[1 - 2*x]*(2 +
 3*x)^(3/2)*Sqrt[3 + 5*x])/125 - (1409*Sqrt[11/3]*EllipticE[ArcSi
n[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3125 - (1091*EllipticF[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(3125*Sqrt[33])
```

Rubi [A] time = 0.335712, antiderivative size = 158, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{2\sqrt{1-2x}(3x+2)^{5/2}}{5\sqrt{5x+3}}+\frac{36}{125}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}+\frac{13}{625}\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}-\frac{1091F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3125\sqrt{33}}-\frac{1409\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3125}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(2 + 3*x)^(5/2))/(3 + 5*x)^(3/2),x]
```

```
[Out] (-2*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2))/(5*Sqrt[3 + 5*x]) + (13*Sqrt[1
 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/625 + (36*Sqrt[1 - 2*x]*(2 +
 3*x)^(3/2)*Sqrt[3 + 5*x])/125 - (1409*Sqrt[11/3]*EllipticE[ArcSi
n[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3125 - (1091*EllipticF[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(3125*Sqrt[33])
```

Rubi in Sympy [A] time = 33.9458, size = 143, normalized size = 0.91

$$-\frac{2\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}}{5\sqrt{5x+3}}+\frac{36\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\sqrt{5x+3}}{125}+\frac{13\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{625}-\frac{1409\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{9375}-\frac{1091\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{109375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(5/2)*(1-2*x)**(1/2)/(3+5*x)**(3/2),x)
```

```
[Out] -2*sqrt(-2*x + 1)*(3*x + 2)**(5/2)/(5*sqrt(5*x + 3)) + 36*sqrt(-2
*x + 1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/125 + 13*sqrt(-2*x + 1)*sq
rt(3*x + 2)*sqrt(5*x + 3)/625 - 1409*sqrt(33)*elliptic_e(asin(sqr
t(21)*sqrt(-2*x + 1)/7), 35/33)/9375 - 1091*sqrt(35)*elliptic_f(a
sin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/109375
```

Mathematica [A] time = 0.383844, size = 102, normalized size = 0.65

$$\frac{\frac{30\sqrt{1-2x}\sqrt{3x+2}(450x^2+485x+119)}{\sqrt{5x+3}}+455\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+2818\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)}{18750}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(2 + 3*x)^(5/2))/(3 + 5*x)^(3/2),x]
```

```
[Out] ((30*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(119 + 485*x + 450*x^2))/Sqrt[3
+ 5*x] + 2818*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]],
 -33/2] + 455*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]],
 -33/2])/18750
```

Maple [C] time = 0.026, size = 169, normalized size = 1.1

$$-\frac{1}{562500\,x^3+431250\,x^2-131250\,x-112500}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(455\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(5/2)*(1-2*x)^(1/2)/(3+5*x)^(3/2),x)
```

```
[Out] -1/18750*(2+3*x)^(1/2)*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(455*2^(1/2)*(
3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*
2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+2818*2^(1/2
)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/
2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-81000*x^
4-100800*x^3-8970*x^2+25530*x+7140)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{5}{2}}\sqrt{-2\,x+1}}{(5\,x+3)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(5/2)*sqrt(-2*x + 1)/(5*x + 3)^(3/2),x, algorithm="maxima")
```

```
[Out] integrate((3*x + 2)^(5/2)*sqrt(-2*x + 1)/(5*x + 3)^(3/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\left(9\,x^2+12\,x+4\right)\sqrt{3\,x+2}\sqrt{-2\,x+1}}{(5\,x+3)^{\frac{3}{2}}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(5/2)*sqrt(-2*x + 1)/(5*x + 3)^(3/2),x, algorithm="fricas")
```

```
[Out] integral((9*x^2 + 12*x + 4)*sqrt(3*x + 2)*sqrt(-2*x + 1)/(5*x + 3
)^(3/2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(5/2)*(1-2*x)**(1/2)/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{5}{2}}\sqrt{-2x+1}}{(5x+3)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(5/2)*sqrt(-2*x + 1)/(5*x + 3)^(3/2),x, algorithm="giac")
```

```
[Out] integrate((3*x + 2)^(5/2)*sqrt(-2*x + 1)/(5*x + 3)^(3/2), x)
```

3.2667 $\int \frac{\sqrt{1-2x}(2+3x)^{3/2}}{(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=127

$$-\frac{2\sqrt{1-2x}(3x+2)^{3/2}}{5\sqrt{5x+3}}+\frac{8}{25}\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}-\frac{106F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{125\sqrt{33}}-\frac{19}{125}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (-2*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2))/(5*Sqrt[3 + 5*x]) + (8*Sqrt[1
- 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/25 - (19*Sqrt[11/3]*EllipticE
[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/125 - (106*EllipticF[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(125*Sqrt[33])
```

Rubi [A] time = 0.253126, antiderivative size = 127, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{2\sqrt{1-2x}(3x+2)^{3/2}}{5\sqrt{5x+3}}+\frac{8}{25}\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}-\frac{106F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{125\sqrt{33}}-\frac{19}{125}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(2 + 3*x)^(3/2))/(3 + 5*x)^(3/2),x]
```

```
[Out] (-2*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2))/(5*Sqrt[3 + 5*x]) + (8*Sqrt[1
- 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/25 - (19*Sqrt[11/3]*EllipticE
[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/125 - (106*EllipticF[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(125*Sqrt[33])
```

Rubi in Sympy [A] time = 26.451, size = 114, normalized size = 0.9

$$-\frac{2\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}}{5\sqrt{5x+3}}+\frac{8\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{25}-\frac{19\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{375}-\frac{106\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{4125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(3/2)*(1-2*x)**(1/2)/(3+5*x)**(3/2),x)
```

```
[Out] -2*sqrt(-2*x + 1)*(3*x + 2)**(3/2)/(5*sqrt(5*x + 3)) + 8*sqrt(-2*
x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/25 - 19*sqrt(33)*elliptic_e(as
in(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/375 - 106*sqrt(33)*elliptic
_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/4125
```

Mathematica [A] time = 0.361011, size = 97, normalized size = 0.76

$$\frac{1}{375}\left(\frac{30\sqrt{1-2x}\sqrt{3x+2}(5x+2)}{\sqrt{5x+3}}+140\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+19\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(2 + 3*x)^(3/2))/(3 + 5*x)^(3/2),x]
```

```
[Out] ((30*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(2 + 5*x))/Sqrt[3 + 5*x] + 19*Sq
rt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 140*Sq
rt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/375
```

Maple [C] time = 0.023, size = 164, normalized size = 1.3

$$-\frac{1}{11250\,x^{3}+8625\,x^{2}-2625\,x-2250}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(140\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(3/2)*(1-2*x)^(1/2)/(3+5*x)^(3/2),x)
```

```
[Out] -1/375*(2+3*x)^(1/2)*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(140*2^(1/2)*(3+
5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^
(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+19*2^(1/2)*(3
+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2
^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-900*x^3-510*
x^2+240*x+120)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{3}{2}}\sqrt{-2\,x+1}}{(5\,x+3)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(3/2)*sqrt(-2*x + 1)/(5*x + 3)^(3/2),x, algorithm="maxima")
```

```
[Out] integrate((3*x + 2)^(3/2)*sqrt(-2*x + 1)/(5*x + 3)^(3/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(3\,x+2)^{\frac{3}{2}}\sqrt{-2\,x+1}}{(5\,x+3)^{\frac{3}{2}}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(3/2)*sqrt(-2*x + 1)/(5*x + 3)^(3/2),x, algorithm="fricas")
```

```
[Out] integral((3*x + 2)^(3/2)*sqrt(-2*x + 1)/(5*x + 3)^(3/2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(3/2)*(1-2*x)**(1/2)/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{3}{2}}\sqrt{-2x+1}}{(5x+3)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(3/2)*sqrt(-2*x + 1)/(5*x + 3)^(3/2),x, algorithm="giac")
```

```
[Out] integrate((3*x + 2)^(3/2)*sqrt(-2*x + 1)/(5*x + 3)^(3/2), x)
```

3.2668 $\int \frac{\sqrt{1-2x}\sqrt{2+3x}}{(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=94

$$-\frac{2\sqrt{1-2x}\sqrt{3x+2}}{5\sqrt{5x+3}}-\frac{62F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{25\sqrt{33}}+\frac{4}{25}\sqrt{33}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (-2*Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/(5*Sqrt[3 + 5*x]) + (4*Sqrt[33]*
EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/25 - (62*Ellip
ticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(25*Sqrt[33])
```

Rubi [A] time = 0.186217, antiderivative size = 94, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.143

$$-\frac{2\sqrt{1-2x}\sqrt{3x+2}}{5\sqrt{5x+3}}-\frac{62F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{25\sqrt{33}}+\frac{4}{25}\sqrt{33}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In] Int[(Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/(3 + 5*x)^(3/2),x]
```

```
[Out] (-2*Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/(5*Sqrt[3 + 5*x]) + (4*Sqrt[33]*
EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/25 - (62*Ellip
ticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(25*Sqrt[33])
```

Rubi in Sympy [A] time = 18.7668, size = 85, normalized size = 0.9

$$-\frac{2\sqrt{-2x+1}\sqrt{3x+2}}{5\sqrt{5x+3}}+\frac{4\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{25}-\frac{62\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**(1/2)*(2+3*x)**(1/2)/(3+5*x)**(3/2),x)
```

```
[Out] -2*sqrt(-2*x + 1)*sqrt(3*x + 2)/(5*sqrt(5*x + 3)) + 4*sqrt(33)*el
liptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/25 - 62*sqrt(35)
*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/875
```

Mathematica [A] time = 0.274968, size = 92, normalized size = 0.98

$$\frac{1}{25}\left(-\frac{10\sqrt{1-2x}\sqrt{3x+2}}{\sqrt{5x+3}}+35\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-4\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)$$

Antiderivative was successfully verified.

```
[In] Integrate[(Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/(3 + 5*x)^(3/2),x]
```

```
[Out] ((-10*Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/Sqrt[3 + 5*x] - 4*Sqrt[2]*Elli
pticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 35*Sqrt[2]*Ellip
ticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/25
```

Maple [C] time = 0.018, size = 159, normalized size = 1.7

$$-\frac{1}{750\,x^{3}+575\,x^{2}-175\,x-150}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(35\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)*(2+3*x)^(1/2)/(3+5*x)^(3/2),x)
```

```
[Out] -1/25*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(35*2^(1/2)*(3+5*
x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1
/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-4*2^(1/2)*(3+5*
x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1
/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+60*x^2+10*x-20)
/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{3\,x+2}\sqrt{-2\,x+1}}{(5\,x+3)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(3*x + 2)*sqrt(-2*x + 1)/(5*x + 3)^(3/2),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(3*x + 2)*sqrt(-2*x + 1)/(5*x + 3)^(3/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\sqrt{3\,x+2}\sqrt{-2\,x+1}}{(5\,x+3)^{\frac{3}{2}}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(3*x + 2)*sqrt(-2*x + 1)/(5*x + 3)^(3/2),x, algorithm="fricas")
```

```
[Out] integral(sqrt(3*x + 2)*sqrt(-2*x + 1)/(5*x + 3)^(3/2), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{-2x+1}\sqrt{3x+2}}{(5x+3)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)*(2+3*x)**(1/2)/(3+5*x)**(3/2),x)
```

```
[Out] Integral(sqrt(-2*x + 1)*sqrt(3*x + 2)/(5*x + 3)**(3/2), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{3\,x+2}\sqrt{-2\,x+1}}{(5\,x+3)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(3*x + 2)*sqrt(-2*x + 1)/(5*x + 3)^(3/2),x, algorithm="giac")
```

```
[Out] integrate(sqrt(3*x + 2)*sqrt(-2*x + 1)/(5*x + 3)^(3/2), x)
```

3.2669 $\int \frac{\sqrt{1-2x}}{\sqrt{2+3x}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=61

$$2\sqrt{\frac{7}{5}}E\left(\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)|\frac{33}{35}\right)-\frac{2\sqrt{1-2x}\sqrt{3x+2}}{\sqrt{5x+3}}$$

```
[Out] (-2*Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/Sqrt[3 + 5*x] + 2*Sqrt[7/5]*Elli
pticE[ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]], 33/35]
```

Rubi [A] time = 0.0876837, antiderivative size = 61, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.107

$$2\sqrt{\frac{7}{5}}E\left(\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)|\frac{33}{35}\right)-\frac{2\sqrt{1-2x}\sqrt{3x+2}}{\sqrt{5x+3}}$$

Antiderivative was successfully verified.

```
[In] Int[Sqrt[1 - 2*x]/(Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-2*Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/Sqrt[3 + 5*x] + 2*Sqrt[7/5]*Elli
pticE[ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]], 33/35]
```

Rubi in Sympy [A] time = 9.61802, size = 54, normalized size = 0.89

$$-\frac{2\sqrt{-2x+1}\sqrt{3x+2}}{\sqrt{5x+3}}+\frac{2\sqrt{35}E\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**(1/2)/(3+5*x)**(3/2)/(2+3*x)**(1/2),x)
```

```
[Out] -2*sqrt(-2*x + 1)*sqrt(3*x + 2)/sqrt(5*x + 3) + 2*sqrt(35)*ellipt
ic_e(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/5
```

Mathematica [A] time = 0.150551, size = 61, normalized size = 1.

$$-\frac{2\sqrt{1-2x}\sqrt{3x+2}}{\sqrt{5x+3}}-\frac{2}{5}\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)$$

Antiderivative was successfully verified.

```
[In] Integrate[Sqrt[1 - 2*x]/(Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-2*Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/Sqrt[3 + 5*x] - (2*Sqrt[2]*Ellip
ticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/5
```

Maple [C] time = 0.024, size = 104, normalized size = 1.7

$$\frac{2}{150\,x^3+115\,x^2-35\,x-30}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticE\left(\frac{\sqrt{11}\sqrt{2}}{11}\sqrt{3+5\,x},\frac{i}{2}\sqrt{11}\sqrt{3}\sqrt{2}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((1-2*x)^(1/2)/(3+5*x)^(3/2)/(2+3*x)^(1/2),x)
```

```
[Out] 2/5*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(2^(1/2)*(3+5*x)^(1
/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(
3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-30*x^2-5*x+10)/(30*x
^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{-2\,x + 1}}{(5\,x + 3)^{\frac{3}{2}}\sqrt{3\,x + 2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/((5*x + 3)^(3/2)*sqrt(3*x + 2)),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(-2*x + 1)/((5*x + 3)^(3/2)*sqrt(3*x + 2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{-2\,x + 1}}{(5\,x + 3)^{\frac{3}{2}}\sqrt{3\,x + 2}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/((5*x + 3)^(3/2)*sqrt(3*x + 2)),x, algorithm="fricas")
```

```
[Out] integral(sqrt(-2*x + 1)/((5*x + 3)^(3/2)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate((1-2*x)**(1/2)/(3+5*x)**(3/2)/(2+3*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{-2\,x + 1}}{(5\,x + 3)^{\frac{3}{2}}\sqrt{3\,x + 2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/((5*x + 3)^(3/2)*sqrt(3*x + 2)),x, algorithm="giac")
```

```
[Out] integrate(sqrt(-2*x + 1)/((5*x + 3)^(3/2)*sqrt(3*x + 2)), x)
```

3.2670 $\int \frac{\sqrt{1-2x}}{(2+3x)^{3/2}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=117

$$-\frac{20\sqrt{1-2x}\sqrt{3x+2}}{\sqrt{5x+3}}+\frac{2\sqrt{1-2x}}{\sqrt{3x+2}\sqrt{5x+3}}+\frac{4F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{\sqrt{33}}+4\sqrt{33}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (2*Sqrt[1 - 2*x])/(Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) - (20*Sqrt[1 - 2*
x]*Sqrt[2 + 3*x])/Sqrt[3 + 5*x] + 4*Sqrt[33]*EllipticE[ArcSin[Sqr
t[3/7]*Sqrt[1 - 2*x]], 35/33] + (4*EllipticF[ArcSin[Sqrt[3/7]*Sqr
t[1 - 2*x]], 35/33])/Sqrt[33]
```

Rubi [A] time = 0.266853, antiderivative size = 117, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{20\sqrt{1-2x}\sqrt{3x+2}}{\sqrt{5x+3}}+\frac{2\sqrt{1-2x}}{\sqrt{3x+2}\sqrt{5x+3}}+\frac{4F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{\sqrt{33}}+4\sqrt{33}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]/((2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (2*Sqrt[1 - 2*x])/(Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) - (20*Sqrt[1 - 2*
x]*Sqrt[2 + 3*x])/Sqrt[3 + 5*x] + 4*Sqrt[33]*EllipticE[ArcSin[Sqr
t[3/7]*Sqrt[1 - 2*x]], 35/33] + (4*EllipticF[ArcSin[Sqrt[3/7]*Sqr
t[1 - 2*x]], 35/33])/Sqrt[33]
```

Rubi in Sympy [A] time = 25.4904, size = 109, normalized size = 0.93

$$-\frac{20\sqrt{-2x+1}\sqrt{3x+2}}{\sqrt{5x+3}}+\frac{2\sqrt{-2x+1}}{\sqrt{3x+2}\sqrt{5x+3}}+4\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)+\frac{4\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{35}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)/(2+3*x)**(3/2)/(3+5*x)**(3/2),x)
```

```
[Out] -20*sqrt(-2*x + 1)*sqrt(3*x + 2)/sqrt(5*x + 3) + 2*sqrt(-2*x + 1)
/(sqrt(3*x + 2)*sqrt(5*x + 3)) + 4*sqrt(33)*elliptic_e(asin(sqrt(
21)*sqrt(-2*x + 1)/7), 35/33) + 4*sqrt(35)*elliptic_f(asin(sqrt(5
5)*sqrt(-2*x + 1)/11), 33/35)/35
```

Mathematica [A] time = 0.229839, size = 128, normalized size = 1.09

$$\frac{2\sqrt{2}\left(15x^2+19x+6\right)F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-4\sqrt{2}\left(15x^2+19x+6\right)E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-2\sqrt{1-2x}\sqrt{3}}{(3x+2)(5x+3)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]/((2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-2*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(19 + 30*x) - 4*Sqr
t[2]*(6 + 19*x + 15*x^2)*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x
]], -33/2] + 2*Sqrt[2]*(6 + 19*x + 15*x^2)*EllipticF[ArcSin[Sqrt[
2/11]*Sqrt[3 + 5*x]], -33/2])/((2 + 3*x)*(3 + 5*x))
```

Maple [C] time = 0.027, size = 158, normalized size = 1.4

$$-2\,\frac{\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)-2\,\sqrt{2}\sqrt{3+5\,x}\sqrt{}\right.}{30\,x^{3}+23\,x^{2}-7\,x-6}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)/(2+3*x)^(3/2)/(3+5*x)^(3/2),x)
```

```
[Out] -2*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(2^(1/2)*(3+5*x)^(1/
2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3
+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-2*2^(1/2)*(3+5*x)^(1/
2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3
+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+60*x^2+8*x-19)/(30*x^
3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{-2\,x+1}}{(5\,x+3)^{\frac{3}{2}}(3\,x+2)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/((5*x + 3)^(3/2)*(3*x + 2)^(3/2)),x, algorithm="maxima"
```

```
[Out] integrate(sqrt(-2*x + 1)/((5*x + 3)^(3/2)*(3*x + 2)^(3/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\sqrt{-2\,x+1}}{(15\,x^{2}+19\,x+6)\sqrt{5\,x+3}\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/((5*x + 3)^(3/2)*(3*x + 2)^(3/2)),x, algorithm="fricas"
```

```
[Out] integral(sqrt(-2*x + 1)/((15*x^2 + 19*x + 6)*sqrt(5*x + 3)*sqrt(3
*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)/(2+3*x)**(3/2)/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{-2x+1}}{(5x+3)^{\frac{3}{2}}(3x+2)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/((5*x + 3)^(3/2)*(3*x + 2)^(3/2)),x, algorithm="giac")
```

```
[Out] integrate(sqrt(-2*x + 1)/((5*x + 3)^(3/2)*(3*x + 2)^(3/2)), x)
```

3.2671 $\int \frac{\sqrt{1-2x}}{(2+3x)^{5/2}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=158

$$-\frac{2780\sqrt{1-2x}\sqrt{3x+2}}{21\sqrt{5x+3}}+\frac{92\sqrt{1-2x}}{7\sqrt{3x+2}\sqrt{5x+3}}+\frac{2\sqrt{1-2x}}{3(3x+2)^{3/2}\sqrt{5x+3}}+\frac{184F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{7\sqrt{33}}+\frac{556}{7}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (2*Sqrt[1 - 2*x])/(3*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x]) + (92*Sqrt[1
- 2*x])/(7*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) - (2780*Sqrt[1 - 2*x]*Sqr
t[2 + 3*x])/(21*Sqrt[3 + 5*x]) + (556*Sqrt[11/3]*EllipticE[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/7 + (184*EllipticF[ArcSin[Sqrt
[3/7]*Sqrt[1 - 2*x]], 35/33])/(7*Sqrt[33])
```

Rubi [A] time = 0.343884, antiderivative size = 158, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{2780\sqrt{1-2x}\sqrt{3x+2}}{21\sqrt{5x+3}}+\frac{92\sqrt{1-2x}}{7\sqrt{3x+2}\sqrt{5x+3}}+\frac{2\sqrt{1-2x}}{3(3x+2)^{3/2}\sqrt{5x+3}}+\frac{184F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{7\sqrt{33}}+\frac{556}{7}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]/((2 + 3*x)^(5/2)*(3 + 5*x)^(3/2)),x]
```


```
[Out] (2*Sqrt[1 - 2*x])/(3*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x]) + (92*Sqrt[1
- 2*x])/(7*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) - (2780*Sqrt[1 - 2*x]*Sqr
t[2 + 3*x])/(21*Sqrt[3 + 5*x]) + (556*Sqrt[11/3]*EllipticE[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/7 + (184*EllipticF[ArcSin[Sqrt
[3/7]*Sqrt[1 - 2*x]], 35/33])/(7*Sqrt[33])
```

Rubi in Sympy [A] time = 31.0435, size = 143, normalized size = 0.91

$$-\frac{2780\sqrt{-2x+1}\sqrt{3x+2}}{21\sqrt{5x+3}}+\frac{92\sqrt{-2x+1}}{7\sqrt{3x+2}\sqrt{5x+3}}+\frac{2\sqrt{-2x+1}}{3\,(3x+2)^{\frac{3}{2}}\sqrt{5x+3}}+\frac{556\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{21}+\frac{184\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{245}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)/(2+3*x)**(5/2)/(3+5*x)**(3/2),x)
```

```
[Out] -2780*sqrt(-2*x + 1)*sqrt(3*x + 2)/(21*sqrt(5*x + 3)) + 92*sqrt(-
2*x + 1)/(7*sqrt(3*x + 2)*sqrt(5*x + 3)) + 2*sqrt(-2*x + 1)/(3*(3
*x + 2)**(3/2)*sqrt(5*x + 3)) + 556*sqrt(33)*elliptic_e(asin(sqrt
(21)*sqrt(-2*x + 1)/7), 35/33)/21 + 184*sqrt(35)*elliptic_f(asin(
sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/245
```

Mathematica [A] time = 0.31101, size = 100, normalized size = 0.63

$$-\frac{2\sqrt{1-2x}\left(4170x^2+5422x+1759\right)}{7(3x+2)^{3/2}\sqrt{5x+3}} - \frac{4}{21}\sqrt{2}\left(139E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-70F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]/((2 + 3*x)^(5/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-2*Sqrt[1 - 2*x]*(1759 + 5422*x + 4170*x^2))/(7*(2 + 3*x)^(3/2)*
Sqrt[3 + 5*x]) - (4*Sqrt[2]*(139*EllipticE[ArcSin[Sqrt[2/11]*Sqrt
[3 + 5*x]], -33/2] - 70*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]
], -33/2]))/21
```

Maple [C] time = 0.033, size = 267, normalized size = 1.7

$$-\frac{2}{210\,x^2+21\,x-63}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(420\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)/(2+3*x)^(5/2)/(3+5*x)^(3/2),x)
```

```
[Out] -2/21*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(420*2^(1/2)*EllipticF(1/11*11^
(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+
5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-834*2^(1/2)*EllipticE(1/11
*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x
*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+280*2^(1/2)*(3+5*x)^(1
/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(
3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-556*2^(1/2)*(3+5*x)^
(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)
*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+25020*x^3+20022*x^
2-5712*x-5277)/(2+3*x)^(3/2)/(10*x^2+x-3)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{-2\,x+1}}{(5\,x+3)^{\frac{3}{2}}(3\,x+2)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/((5*x + 3)^(3/2)*(3*x + 2)^(5/2)),x, algorithm="maxima"
```

```
[Out] integrate(sqrt(-2*x + 1)/((5*x + 3)^(3/2)*(3*x + 2)^(5/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\sqrt{-2\,x+1}}{(45\,x^3+87\,x^2+56\,x+12)\sqrt{5\,x+3}\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/((5*x + 3)^(3/2)*(3*x + 2)^(5/2)),x, algorithm="fricas"
```

```
[Out] integral(sqrt(-2*x + 1)/((45*x^3 + 87*x^2 + 56*x + 12)*sqrt(5*x +
 3)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)/(2+3*x)**(5/2)/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{-2\,x+1}}{(5\,x+3)^{\frac{3}{2}}(3\,x+2)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/((5*x + 3)^(3/2)*(3*x + 2)^(5/2)),x, algorithm="giac")
```

```
[Out] integrate(sqrt(-2*x + 1)/((5*x + 3)^(3/2)*(3*x + 2)^(5/2)), x)
```

3.2672 $\int \frac{\sqrt{1-2x}}{(2+3x)^{7/2}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=189

$$-\frac{116464\sqrt{1-2x}\sqrt{3x+2}}{147\sqrt{5x+3}}+\frac{19268\sqrt{1-2x}}{245\sqrt{3x+2}\sqrt{5x+3}}+\frac{416\sqrt{1-2x}}{105(3x+2)^{3/2}\sqrt{5x+3}}+\frac{2\sqrt{1-2x}}{5(3x+2)^{5/2}\sqrt{5x+3}}+\frac{38536F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{245\sqrt{33}}+\frac{116464}{245}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (2*Sqrt[1 - 2*x])/(5*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x]) + (416*Sqrt[1
 - 2*x])/(105*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x]) + (19268*Sqrt[1 - 2*
x])/(245*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) - (116464*Sqrt[1 - 2*x]*Sqr
t[2 + 3*x])/(147*Sqrt[3 + 5*x]) + (116464*Sqrt[11/3]*EllipticE[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/245 + (38536*EllipticF[Arc
Sin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(245*Sqrt[33])
```

Rubi [A] time = 0.432462, antiderivative size = 189, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{116464\sqrt{1-2x}\sqrt{3x+2}}{147\sqrt{5x+3}}+\frac{19268\sqrt{1-2x}}{245\sqrt{3x+2}\sqrt{5x+3}}+\frac{416\sqrt{1-2x}}{105(3x+2)^{3/2}\sqrt{5x+3}}+\frac{2\sqrt{1-2x}}{5(3x+2)^{5/2}\sqrt{5x+3}}+\frac{38536F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{245\sqrt{33}}+\frac{116464}{245}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]/((2 + 3*x)^(7/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (2*Sqrt[1 - 2*x])/(5*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x]) + (416*Sqrt[1
 - 2*x])/(105*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x]) + (19268*Sqrt[1 - 2*
x])/(245*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) - (116464*Sqrt[1 - 2*x]*Sqr
t[2 + 3*x])/(147*Sqrt[3 + 5*x]) + (116464*Sqrt[11/3]*EllipticE[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/245 + (38536*EllipticF[Arc
Sin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(245*Sqrt[33])
```

Rubi in Sympy [A] time = 38.0217, size = 172, normalized size = 0.91

$$-\frac{116464\sqrt{-2x+1}\sqrt{5x+3}}{245\sqrt{3x+2}}-\frac{1676\sqrt{-2x+1}}{21\sqrt{3x+2}\sqrt{5x+3}}+\frac{416\sqrt{-2x+1}}{105\,(3x+2)^{\frac{3}{2}}\sqrt{5x+3}}+\frac{2\sqrt{-2x+1}}{5\,(3x+2)^{\frac{5}{2}}\sqrt{5x+3}}+\frac{116464\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{735}+\frac{38536\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{8575}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)/(2+3*x)**(7/2)/(3+5*x)**(3/2),x)
```

```
[Out] -116464*sqrt(-2*x + 1)*sqrt(5*x + 3)/(245*sqrt(3*x + 2)) - 1676*s
qrt(-2*x + 1)/(21*sqrt(3*x + 2)*sqrt(5*x + 3)) + 416*sqrt(-2*x +
1)/(105*(3*x + 2)**(3/2)*sqrt(5*x + 3)) + 2*sqrt(-2*x + 1)/(5*(3*
x + 2)**(5/2)*sqrt(5*x + 3)) + 116464*sqrt(33)*elliptic_e(asin(sq
rt(21)*sqrt(-2*x + 1)/7), 35/33)/735 + 38536*sqrt(35)*elliptic_f(
asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/8575
```

Mathematica [A] time = 0.324374, size = 105, normalized size = 0.56

$$\frac{2}{735}\left(-\frac{3\sqrt{1-2x}\left(2620440x^3+5154174x^2+3376856x+736871\right)}{(3x+2)^{5/2}\sqrt{5x+3}}-2\sqrt{2}\left(29116E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-14665F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]/((2 + 3*x)^(7/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (2*((-3*Sqrt[1 - 2*x]*(736871 + 3376856*x + 5154174*x^2 + 2620440
*x^3))/((2 + 3*x)^(5/2)*Sqrt[3 + 5*x]) - 2*Sqrt[2]*(29116*Ellipti
cE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 14665*EllipticF[Arc
Sin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])))/735
```

Maple [C] time = 0.035, size = 386, normalized size = 2.

$$-\frac{2}{7350x^2+735x-2205}\sqrt{1-2x}\sqrt{3+5x}\left(263970\sqrt{2}EllipticF\left(1/11\sqrt{11}\sqrt{2}\sqrt{3+5x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^2\sqrt{3+5x}\sqrt{2+3x}\sqrt{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)/(2+3*x)^(7/2)/(3+5*x)^(3/2),x)
```

```
[Out] -2/735*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(263970*2^(1/2)*EllipticF(1/11
*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x
^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-524088*2^(1/2)*Ellip
ticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2
^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+351960*2^(1
/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*
3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-6987
84*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11
^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/
2)+117320*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Ellip
ticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2
^(1/2))-232928*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*
EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1
/2)*2^(1/2))+15722640*x^4+23063724*x^3+4798614*x^2-5709342*x-2210
613)/(2+3*x)^(5/2)/(10*x^2+x-3)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{\sqrt{-2x+1}}{(5x+3)^{\frac{3}{2}}(3x+2)^{\frac{7}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/((5*x + 3)^(3/2)*(3*x + 2)^(7/2)),x, algorithm="maxima"
```

```
[Out] integrate(sqrt(-2*x + 1)/((5*x + 3)^(3/2)*(3*x + 2)^(7/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\sqrt{-2x+1}}{(135x^4+351x^3+342x^2+148x+24)\sqrt{5x+3}\sqrt{3x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/((5*x + 3)^(3/2)*(3*x + 2)^(7/2)),x, algorithm="fricas"
```

```
[Out] integral(sqrt(-2*x + 1)/((135*x^4 + 351*x^3 + 342*x^2 + 148*x + 2
4)*sqrt(5*x + 3)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(1/2)/(2+3*x)**(7/2)/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{-2\,x+1}}{(5\,x+3)^{\frac{3}{2}}(3\,x+2)^{\frac{7}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/((5*x + 3)^(3/2)*(3*x + 2)^(7/2)),x, algorithm="giac")
```

```
[Out] integrate(sqrt(-2*x + 1)/((5*x + 3)^(3/2)*(3*x + 2)^(7/2)), x)
```

3.2673 $\int \frac{\sqrt{1-2x}(2+3x)^{9/2}}{(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=218

$$-\frac{2\sqrt{1-2x}(3x+2)^{9/2}}{15(5x+3)^{3/2}}-\frac{118\sqrt{1-2x}(3x+2)^{7/2}}{165\sqrt{5x+3}}+\frac{958\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{5/2}}{1925}+\frac{5153\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}}{48125}-\frac{12601\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{240625}-\frac{31288F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{109375\sqrt{33}}-\frac{1473539E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{218750\sqrt{33}}$$

```
[Out] (-2*Sqrt[1 - 2*x]*(2 + 3*x)^(9/2))/(15*(3 + 5*x)^(3/2)) - (118*Sq
rt[1 - 2*x]*(2 + 3*x)^(7/2))/(165*Sqrt[3 + 5*x]) - (12601*Sqrt[1
- 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/240625 + (5153*Sqrt[1 - 2*x]*
(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/48125 + (958*Sqrt[1 - 2*x]*(2 + 3*
x)^(5/2)*Sqrt[3 + 5*x])/1925 - (1473539*EllipticE[ArcSin[Sqrt[3/7
]*Sqrt[1 - 2*x]], 35/33])/(218750*Sqrt[33]) - (31288*EllipticF[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(109375*Sqrt[33])
```

Rubi [A] time = 0.495995, antiderivative size = 218, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$-\frac{2\sqrt{1-2x}(3x+2)^{9/2}}{15(5x+3)^{3/2}}-\frac{118\sqrt{1-2x}(3x+2)^{7/2}}{165\sqrt{5x+3}}+\frac{958\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{5/2}}{1925}+\frac{5153\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}}{48125}-\frac{12601\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{240625}-\frac{31288F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{109375\sqrt{33}}-\frac{1473539E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{218750\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(2 + 3*x)^(9/2))/(3 + 5*x)^(5/2),x]
```

```
[Out] (-2*Sqrt[1 - 2*x]*(2 + 3*x)^(9/2))/(15*(3 + 5*x)^(3/2)) - (118*Sq
rt[1 - 2*x]*(2 + 3*x)^(7/2))/(165*Sqrt[3 + 5*x]) - (12601*Sqrt[1
- 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/240625 + (5153*Sqrt[1 - 2*x]*
(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/48125 + (958*Sqrt[1 - 2*x]*(2 + 3*
x)^(5/2)*Sqrt[3 + 5*x])/1925 - (1473539*EllipticE[ArcSin[Sqrt[3/7
]*Sqrt[1 - 2*x]], 35/33])/(218750*Sqrt[33]) - (31288*EllipticF[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(109375*Sqrt[33])
```

Rubi in Sympy [A] time = 47.1336, size = 201, normalized size = 0.92

$$-\frac{2\sqrt{-2x+1}\,(3x+2)^{\frac{9}{2}}}{15\,(5x+3)^{\frac{3}{2}}}-\frac{118\sqrt{-2x+1}\,(3x+2)^{\frac{7}{2}}}{165\sqrt{5x+3}}+\frac{958\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}\sqrt{5x+3}}{1925}+\frac{5153\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\sqrt{5x+3}}{48125}-\frac{12601\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{240625}-\frac{1473539\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{7218750}-\frac{31288\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{3828125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(9/2)*(1-2*x)**(1/2)/(3+5*x)**(5/2),x)
```

```
[Out] -2*sqrt(-2*x + 1)*(3*x + 2)**(9/2)/(15*(5*x + 3)**(3/2)) - 118*sq
rt(-2*x + 1)*(3*x + 2)**(7/2)/(165*sqrt(5*x + 3)) + 958*sqrt(-2*x
```

```
 + 1)*(3*x + 2)**(5/2)*sqrt(5*x + 3)/1925 + 5153*sqrt(-2*x + 1)*(
3*x + 2)**(3/2)*sqrt(5*x + 3)/48125 - 12601*sqrt(-2*x + 1)*sqrt(3
*x + 2)*sqrt(5*x + 3)/240625 - 1473539*sqrt(33)*elliptic_e(asin(s
qrt(21)*sqrt(-2*x + 1)/7), 35/33)/7218750 - 31288*sqrt(35)*ellipt
ic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/3828125
```

Mathematica [A] time = 0.459184, size = 112, normalized size = 0.51

$$\frac{\frac{10\sqrt{1-2x}\sqrt{3x+2}(3341250x^4+8575875x^3+6882975x^2+1854575x+54083)}{(5x+3)^{3/2}} - 441035\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right) + 1473539\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\right.\right.}{7218750}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(2 + 3*x)^(9/2))/(3 + 5*x)^(5/2),x]
```

```
[Out] ((10*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(54083 + 1854575*x + 6882975*x^2
 + 8575875*x^3 + 3341250*x^4))/(3 + 5*x)^(3/2) + 1473539*Sqrt[2]*
EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 441035*Sqrt[
2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/7218750
```

Maple [C] time = 0.052, size = 282, normalized size = 1.3

$$\frac{1}{43312500\,x^2+7218750\,x-14437500}\left(2205175\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(9/2)*(1-2*x)^(1/2)/(3+5*x)^(5/2),x)
```

```
[Out] 1/7218750*(2205175*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x
)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(
1/2)*(1-2*x)^(1/2)-7367695*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2
)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(
2+3*x)^(1/2)*(1-2*x)^(1/2)+200475000*x^6+1323105*2^(1/2)*(3+5*x)^
(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)
*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-4420617*2^(1/2)*(3
+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2
^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+547965000*x^
5+431912250*x^4+8586750*x^3-115868770*x^2-36550670*x-1081660)*(1-
2*x)^(1/2)*(2+3*x)^(1/2)/(6*x^2+x-2)/(3+5*x)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{9}{2}}\sqrt{-2\,x+1}}{(5\,x+3)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(9/2)*sqrt(-2*x + 1)/(5*x + 3)^(5/2),x, algorithm="maxima")
```

```
[Out] integrate((3*x + 2)^(9/2)*sqrt(-2*x + 1)/(5*x + 3)^(5/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(81\,x^4+216\,x^3+216\,x^2+96\,x+16\right)\sqrt{3\,x+2}\sqrt{-2\,x+1}}{(25\,x^2+30\,x+9)\sqrt{5\,x+3}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(9/2)*sqrt(-2*x + 1)/(5*x + 3)^(5/2),x, algorithm="fricas")
```

```
[Out] integral((81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16)*sqrt(3*x + 2)*s
qrt(-2*x + 1)/((25*x^2 + 30*x + 9)*sqrt(5*x + 3)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2+3*x)**(9/2)*(1-2*x)**(1/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{9}{2}}\sqrt{-2x+1}}{(5x+3)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(9/2)*sqrt(-2*x + 1)/(5*x + 3)^(5/2),x, algorithm="giac")
```

```
[Out] integrate((3*x + 2)^(9/2)*sqrt(-2*x + 1)/(5*x + 3)^(5/2), x)
```

3.2674 $\int \frac{\sqrt{1-2x}(2+3x)^{7/2}}{(3+5x)^{5/2}} dx$

Optimal. Leaf size=189

$$-\frac{2\sqrt{1-2x}(3x+2)^{7/2}}{15(5x+3)^{3/2}}-\frac{458\sqrt{1-2x}(3x+2)^{5/2}}{825\sqrt{5x+3}}+\frac{2818\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}}{6875}+\frac{2719\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{34375}-\frac{523\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{15625}-\frac{47342E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{15625\sqrt{33}}$$

```
[Out] (-2*Sqrt[1 - 2*x]*(2 + 3*x)^(7/2))/(15*(3 + 5*x)^(3/2)) - (458*Sq
rt[1 - 2*x]*(2 + 3*x)^(5/2))/(825*Sqrt[3 + 5*x]) + (2719*Sqrt[1 -
 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/34375 + (2818*Sqrt[1 - 2*x]*(2
 + 3*x)^(3/2)*Sqrt[3 + 5*x])/6875 - (47342*EllipticE[ArcSin[Sqrt[
3/7]*Sqrt[1 - 2*x]], 35/33])/(15625*Sqrt[33]) - (523*Sqrt[11/3]*E
llipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/15625
```

Rubi [A] time = 0.41411, antiderivative size = 189, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$-\frac{2\sqrt{1-2x}(3x+2)^{7/2}}{15(5x+3)^{3/2}}-\frac{458\sqrt{1-2x}(3x+2)^{5/2}}{825\sqrt{5x+3}}+\frac{2818\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}}{6875}+\frac{2719\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{34375}-\frac{523\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{15625}-\frac{47342E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{15625\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(2 + 3*x)^(7/2))/(3 + 5*x)^(5/2),x]
```

```
[Out] (-2*Sqrt[1 - 2*x]*(2 + 3*x)^(7/2))/(15*(3 + 5*x)^(3/2)) - (458*Sq
rt[1 - 2*x]*(2 + 3*x)^(5/2))/(825*Sqrt[3 + 5*x]) + (2719*Sqrt[1 -
 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/34375 + (2818*Sqrt[1 - 2*x]*(2
 + 3*x)^(3/2)*Sqrt[3 + 5*x])/6875 - (47342*EllipticE[ArcSin[Sqrt[
3/7]*Sqrt[1 - 2*x]], 35/33])/(15625*Sqrt[33]) - (523*Sqrt[11/3]*E
llipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/15625
```

Rubi in Sympy [A] time = 39.2212, size = 172, normalized size = 0.91

$$-\frac{2\sqrt{-2x+1}\,(3x+2)^{\frac{7}{2}}}{15\,(5x+3)^{\frac{3}{2}}}-\frac{458\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}}{825\sqrt{5x+3}}+\frac{2818\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\,\sqrt{5x+3}}{6875}+\frac{2719\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{34375}-\frac{47342\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{515625}-\frac{5753\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{546875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(7/2)*(1-2*x)**(1/2)/(3+5*x)**(5/2),x)
```

```
[Out] -2*sqrt(-2*x + 1)*(3*x + 2)**(7/2)/(15*(5*x + 3)**(3/2)) - 458*sq
rt(-2*x + 1)*(3*x + 2)**(5/2)/(825*sqrt(5*x + 3)) + 2818*sqrt(-2*
x + 1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/6875 + 2719*sqrt(-2*x + 1)*
```

```
sqrt(3*x + 2)*sqrt(5*x + 3)/34375 - 47342*sqrt(33)*elliptic_e(asi
n(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/515625 - 5753*sqrt(35)*ellip
tic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/546875
```

Mathematica [A] time = 0.411594, size = 107, normalized size = 0.57

$$\frac{\frac{10\sqrt{1-2x}\sqrt{3x+2}(222750x^3+398475x^2+221200x+37273)}{(5x+3)^{3/2}}+95165\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+94684\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\right.}{1031250}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(2 + 3*x)^(7/2))/(3 + 5*x)^(5/2),x]
```

```
[Out] ((10*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(37273 + 221200*x + 398475*x^2 +
 222750*x^3))/(3 + 5*x)^(3/2) + 94684*Sqrt[2]*EllipticE[ArcSin[Sq
rt[2/11]*Sqrt[3 + 5*x]], -33/2] + 95165*Sqrt[2]*EllipticF[ArcSin[
Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/1031250
```

Maple [C] time = 0.027, size = 277, normalized size = 1.5

$$-\frac{1}{6187500x^2+1031250x-2062500}\left(475825\sqrt{2}EllipticF\left(1/11\sqrt{11}\sqrt{2}\sqrt{3+5x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5x}\sqrt{2+3x}\sqrt{1-2x}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(7/2)*(1-2*x)^(1/2)/(3+5*x)^(5/2),x)
```

```
[Out] -1/1031250*(475825*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x
)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(
1/2)*(1-2*x)^(1/2)+473420*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)
*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2
+3*x)^(1/2)*(1-2*x)^(1/2)+285495*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1
/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1
/2*I*11^(1/2)*3^(1/2)*2^(1/2))+284052*2^(1/2)*(3+5*x)^(1/2)*(2+3*
x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1
/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-13365000*x^5-26136000*x^4-128
01750*x^3+3521120*x^2+4051270*x+745460)*(1-2*x)^(1/2)*(2+3*x)^(1/
2)/(6*x^2+x-2)/(3+5*x)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{7}{2}}\sqrt{-2x+1}}{(5x+3)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(7/2)*sqrt(-2*x + 1)/(5*x + 3)^(5/2),x, algorithm="maxima")
```

```
[Out] integrate((3*x + 2)^(7/2)*sqrt(-2*x + 1)/(5*x + 3)^(5/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(27x^3+54x^2+36x+8)\sqrt{3x+2}\sqrt{-2x+1}}{(25x^2+30x+9)\sqrt{5x+3}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(7/2)*sqrt(-2*x + 1)/(5*x + 3)^(5/2),x, algorithm="fricas")
```

```
[Out] integral((27*x^3 + 54*x^2 + 36*x + 8)*sqrt(3*x + 2)*sqrt(-2*x + 1
)/((25*x^2 + 30*x + 9)*sqrt(5*x + 3)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2+3*x)**(7/2)*(1-2*x)**(1/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{7}{2}}\sqrt{-2x+1}}{(5x+3)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(7/2)*sqrt(-2*x + 1)/(5*x + 3)^(5/2),x, algorithm="giac")
```

```
[Out] integrate((3*x + 2)^(7/2)*sqrt(-2*x + 1)/(5*x + 3)^(5/2), x)
```

3.2675 $\int \frac{\sqrt{1-2x}(2+3x)^{5/2}}{(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=156

$$-\frac{2\sqrt{1-2x}(3x+2)^{5/2}}{15(5x+3)^{3/2}}-\frac{326\sqrt{1-2x}(3x+2)^{3/2}}{825\sqrt{5x+3}}+\frac{458\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{1375}-\frac{496F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{625\sqrt{33}}-\frac{169E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{625\sqrt{33}}$$

```
[Out] (-2*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2))/(15*(3 + 5*x)^(3/2)) - (326*Sq
rt[1 - 2*x]*(2 + 3*x)^(3/2))/(825*Sqrt[3 + 5*x]) + (458*Sqrt[1 -
2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/1375 - (169*EllipticE[ArcSin[Sq
rt[3/7]*Sqrt[1 - 2*x]], 35/33])/(625*Sqrt[33]) - (496*EllipticF[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(625*Sqrt[33])
```

Rubi [A] time = 0.334742, antiderivative size = 156, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.214$

$$-\frac{2\sqrt{1-2x}(3x+2)^{5/2}}{15(5x+3)^{3/2}}-\frac{326\sqrt{1-2x}(3x+2)^{3/2}}{825\sqrt{5x+3}}+\frac{458\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{1375}-\frac{496F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{625\sqrt{33}}-\frac{169E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{625\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(2 + 3*x)^(5/2))/(3 + 5*x)^(5/2),x]
```

```
[Out] (-2*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2))/(15*(3 + 5*x)^(3/2)) - (326*Sq
rt[1 - 2*x]*(2 + 3*x)^(3/2))/(825*Sqrt[3 + 5*x]) + (458*Sqrt[1 -
2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/1375 - (169*EllipticE[ArcSin[Sq
rt[3/7]*Sqrt[1 - 2*x]], 35/33])/(625*Sqrt[33]) - (496*EllipticF[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(625*Sqrt[33])
```

Rubi in Sympy [A] time = 31.8149, size = 143, normalized size = 0.92

$$-\frac{2\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}}{15\,(5x+3)^{\frac{3}{2}}}-\frac{326\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}}{825\sqrt{5x+3}}+\frac{458\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{1375}-\frac{169\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{20625}-\frac{496\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{21875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(5/2)*(1-2*x)**(1/2)/(3+5*x)**(5/2),x)
```

```
[Out] -2*sqrt(-2*x + 1)*(3*x + 2)**(5/2)/(15*(5*x + 3)**(3/2)) - 326*sq
rt(-2*x + 1)*(3*x + 2)**(3/2)/(825*sqrt(5*x + 3)) + 458*sqrt(-2*x
 + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/1375 - 169*sqrt(33)*elliptic_e(
asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/20625 - 496*sqrt(35)*elli
ptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/21875
```

Mathematica [A] time = 0.38069, size = 102, normalized size = 0.65

$$\frac{\frac{10\sqrt{1-2x}\sqrt{3x+2}(2475x^2+1825x+193)}{(5x+3)^{3/2}}+8015\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+169\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)}{20625}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(2 + 3*x)^(5/2))/(3 + 5*x)^(5/2),x]
```

```
[Out] ((10*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(193 + 1825*x + 2475*x^2))/(3 +
5*x)^(3/2) + 169*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x
]], -33/2] + 8015*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*
x]], -33/2])/20625
```

Maple [C] time = 0.028, size = 272, normalized size = 1.7

$$-\frac{1}{123750\,x^2+20625\,x-41250}\left(40075\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}+845$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(5/2)*(1-2*x)^(1/2)/(3+5*x)^(5/2),x)
```

```
[Out] -1/20625*(40075*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(
1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2
)*(1-2*x)^(1/2)+845*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*
x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^
(1/2)*(1-2*x)^(1/2)+24045*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-
2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11
^(1/2)*3^(1/2)*2^(1/2))+507*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(
1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*
11^(1/2)*3^(1/2)*2^(1/2))-148500*x^4-134250*x^3+19670*x^2+34570*x
+3860)*(1-2*x)^(1/2)*(2+3*x)^(1/2)/(6*x^2+x-2)/(3+5*x)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{5}{2}}\sqrt{-2\,x+1}}{(5\,x+3)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(5/2)*sqrt(-2*x + 1)/(5*x + 3)^(5/2),x, algorithm="maxima")
```

```
[Out] integrate((3*x + 2)^(5/2)*sqrt(-2*x + 1)/(5*x + 3)^(5/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\left(9\,x^2+12\,x+4\right)\sqrt{3\,x+2}\sqrt{-2\,x+1}}{(25\,x^2+30\,x+9)\sqrt{5\,x+3}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(5/2)*sqrt(-2*x + 1)/(5*x + 3)^(5/2),x, algorithm="fricas")
```

```
[Out] integral((9*x^2 + 12*x + 4)*sqrt(3*x + 2)*sqrt(-2*x + 1)/((25*x^2
 + 30*x + 9)*sqrt(5*x + 3)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(5/2)*(1-2*x)**(1/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{5}{2}}\sqrt{-2x+1}}{(5x+3)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(5/2)*sqrt(-2*x + 1)/(5*x + 3)^(5/2),x, algorithm="giac")
```

```
[Out] integrate((3*x + 2)^(5/2)*sqrt(-2*x + 1)/(5*x + 3)^(5/2), x)
```

3.2676 $\int \frac{\sqrt{1-2x}(2+3x)^{3/2}}{(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=125

$$-\frac{2\sqrt{1-2x}(3x+2)^{3/2}}{15(5x+3)^{3/2}}-\frac{194\sqrt{1-2x}\sqrt{3x+2}}{825\sqrt{5x+3}}-\frac{178F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{125\sqrt{33}}+\frac{458E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{125\sqrt{33}}$$

```
[Out] (-2*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2))/(15*(3 + 5*x)^(3/2)) - (194*Sq
rt[1 - 2*x]*Sqrt[2 + 3*x])/(825*Sqrt[3 + 5*x]) + (458*EllipticE[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(125*Sqrt[33]) - (178*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(125*Sqrt[33])
```

Rubi [A] time = 0.258989, antiderivative size = 125, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{2\sqrt{1-2x}(3x+2)^{3/2}}{15(5x+3)^{3/2}}-\frac{194\sqrt{1-2x}\sqrt{3x+2}}{825\sqrt{5x+3}}-\frac{178F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{125\sqrt{33}}+\frac{458E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{125\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*(2 + 3*x)^(3/2))/(3 + 5*x)^(5/2),x]
```

```
[Out] (-2*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2))/(15*(3 + 5*x)^(3/2)) - (194*Sq
rt[1 - 2*x]*Sqrt[2 + 3*x])/(825*Sqrt[3 + 5*x]) + (458*EllipticE[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(125*Sqrt[33]) - (178*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(125*Sqrt[33])
```

Rubi in Sympy [A] time = 24.4155, size = 114, normalized size = 0.91

$$-\frac{2\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}}{15\,(5x+3)^{\frac{3}{2}}}-\frac{194\sqrt{-2x+1}\sqrt{3x+2}}{825\sqrt{5x+3}}+\frac{458\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{4125}-\frac{178\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{4375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(3/2)*(1-2*x)**(1/2)/(3+5*x)**(5/2),x)
```

```
[Out] -2*sqrt(-2*x + 1)*(3*x + 2)**(3/2)/(15*(5*x + 3)**(3/2)) - 194*sq
rt(-2*x + 1)*sqrt(3*x + 2)/(825*sqrt(5*x + 3)) + 458*sqrt(33)*ell
iptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/4125 - 178*sqrt(3
5)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/4375
```

Mathematica [A] time = 0.38883, size = 97, normalized size = 0.78

$$\frac{-\frac{10\sqrt{1-2x}\sqrt{3x+2}(650x+401)}{(5x+3)^{3/2}}+3395\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-458\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)}{4125}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*(2 + 3*x)^(3/2))/(3 + 5*x)^(5/2),x]
```

```
[Out] ((-10*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(401 + 650*x))/(3 + 5*x)^(3/2)
- 458*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]
+ 3395*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]
)/4125
```

Maple [C] time = 0.026, size = 267, normalized size = 2.1

$$-\frac{1}{24750\,x^2+4125\,x-8250}\left(16975\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-2290\,\sqrt{2}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(3/2)*(1-2*x)^(1/2)/(3+5*x)^(5/2),x)
```

```
[Out] -1/4125*(16975*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1
/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)
*(1-2*x)^(1/2)-2290*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*
x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^
(1/2)*(1-2*x)^(1/2)+10185*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-
2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11
^(1/2)*3^(1/2)*2^(1/2))-1374*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*
(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I
*11^(1/2)*3^(1/2)*2^(1/2))+39000*x^3+30560*x^2-8990*x-8020)*(1-2*
x)^(1/2)*(2+3*x)^(1/2)/(6*x^2+x-2)/(3+5*x)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{3}{2}}\sqrt{-2\,x+1}}{(5\,x+3)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(3/2)*sqrt(-2*x + 1)/(5*x + 3)^(5/2),x, algorithm="maxima")
```

```
[Out] integrate((3*x + 2)^(3/2)*sqrt(-2*x + 1)/(5*x + 3)^(5/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{(3\,x+2)^{\frac{3}{2}}\sqrt{-2\,x+1}}{(25\,x^2+30\,x+9)\sqrt{5\,x+3}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(3/2)*sqrt(-2*x + 1)/(5*x + 3)^(5/2),x, algorithm="fricas")
```

```
[Out] integral((3*x + 2)^(3/2)*sqrt(-2*x + 1)/((25*x^2 + 30*x + 9)*sqrt
(5*x + 3)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(3/2)*(1-2*x)**(1/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{3}{2}}\sqrt{-2x+1}}{(5x+3)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(3/2)*sqrt(-2*x + 1)/(5*x + 3)^(5/2),x, algorithm="giac")
```

```
[Out] integrate((3*x + 2)^(3/2)*sqrt(-2*x + 1)/(5*x + 3)^(5/2), x)
```

3.2677 $\int \frac{\sqrt{1-2x}\sqrt{2+3x}}{(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=125

$$-\frac{62\sqrt{1-2x}\sqrt{3x+2}}{165\sqrt{5x+3}}-\frac{2\sqrt{1-2x}\sqrt{3x+2}}{15(5x+3)^{3/2}}+\frac{8F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{25\sqrt{33}}+\frac{62E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{25\sqrt{33}}$$

```
[Out] (-2*Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/(15*(3 + 5*x)^(3/2)) - (62*Sqrt[
1 - 2*x]*Sqrt[2 + 3*x])/(165*Sqrt[3 + 5*x]) + (62*EllipticE[ArcSi
n[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(25*Sqrt[33]) + (8*EllipticF[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(25*Sqrt[33])
```

Rubi [A] time = 0.261572, antiderivative size = 125, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{62\sqrt{1-2x}\sqrt{3x+2}}{165\sqrt{5x+3}}-\frac{2\sqrt{1-2x}\sqrt{3x+2}}{15(5x+3)^{3/2}}+\frac{8F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{25\sqrt{33}}+\frac{62E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{25\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/(3 + 5*x)^(5/2),x]
```

```
[Out] (-2*Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/(15*(3 + 5*x)^(3/2)) - (62*Sqrt[
1 - 2*x]*Sqrt[2 + 3*x])/(165*Sqrt[3 + 5*x]) + (62*EllipticE[ArcSi
n[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(25*Sqrt[33]) + (8*EllipticF[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(25*Sqrt[33])
```

Rubi in Sympy [A] time = 24.3973, size = 114, normalized size = 0.91

$$-\frac{62\sqrt{-2x+1}\sqrt{3x+2}}{165\sqrt{5x+3}}-\frac{2\sqrt{-2x+1}\sqrt{3x+2}}{15\,(5x+3)^{\frac{3}{2}}}+\frac{62\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{825}+\frac{8\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)*(2+3*x)**(1/2)/(3+5*x)**(5/2),x)
```

```
[Out] -62*sqrt(-2*x + 1)*sqrt(3*x + 2)/(165*sqrt(5*x + 3)) - 2*sqrt(-2*
x + 1)*sqrt(3*x + 2)/(15*(5*x + 3)**(3/2)) + 62*sqrt(33)*elliptic
_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/825 + 8*sqrt(35)*ellip
tic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/875
```

Mathematica [A] time = 0.358003, size = 97, normalized size = 0.78

$$\frac{2}{825}\left(-\frac{5\sqrt{1-2x}\sqrt{3x+2}(155x+104)}{(5x+3)^{3/2}}-35\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-31\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/(3 + 5*x)^(5/2),x]
```

```
[Out] (2*((-5*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(104 + 155*x))/(3 + 5*x)^(3/2
) - 31*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]
 - 35*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])
)/825
```

Maple [C] time = 0.021, size = 267, normalized size = 2.1

$$\frac{2}{4950\,x^2+825\,x-1650}\left(175\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}+155\,\sqrt{2}Elliptic\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)*(2+3*x)^(1/2)/(3+5*x)^(5/2),x)
```

```
[Out] 2/825*(175*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),
1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-
2*x)^(1/2)+155*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1
/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)
*(1-2*x)^(1/2)+105*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1
/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*
3^(1/2)*2^(1/2))+93*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(
1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)
*3^(1/2)*2^(1/2))-4650*x^3-3895*x^2+1030*x+1040)*(1-2*x)^(1/2)*(2
+3*x)^(1/2)/(6*x^2+x-2)/(3+5*x)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{3\,x+2}\sqrt{-2\,x+1}}{(5\,x+3)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(3*x + 2)*sqrt(-2*x + 1)/(5*x + 3)^(5/2),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(3*x + 2)*sqrt(-2*x + 1)/(5*x + 3)^(5/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{3\,x+2}\sqrt{-2\,x+1}}{(25\,x^2+30\,x+9)\sqrt{5\,x+3}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(3*x + 2)*sqrt(-2*x + 1)/(5*x + 3)^(5/2),x, algorithm="fricas")
```

```
[Out] integral(sqrt(3*x + 2)*sqrt(-2*x + 1)/((25*x^2 + 30*x + 9)*sqrt(5
*x + 3)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)*(2+3*x)**(1/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F]   time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{3x+2}\sqrt{-2x+1}}{(5x+3)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(3*x + 2)*sqrt(-2*x + 1)/(5*x + 3)^(5/2),x, algorithm="giac")
```

```
[Out] integrate(sqrt(3*x + 2)*sqrt(-2*x + 1)/(5*x + 3)^(5/2), x)
```

3.2678 $\int \frac{\sqrt{1-2x}}{\sqrt{2+3x}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=125

$$\frac{136\sqrt{1-2x}\sqrt{3x+2}}{33\sqrt{5x+3}}-\frac{2\sqrt{1-2x}\sqrt{3x+2}}{3(5x+3)^{3/2}}-\frac{4F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{5\sqrt{33}}-\frac{136E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{5\sqrt{33}}$$

```
[Out] (-2*Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/(3*(3 + 5*x)^(3/2)) + (136*Sqrt[
1 - 2*x]*Sqrt[2 + 3*x])/(33*Sqrt[3 + 5*x]) - (136*EllipticE[ArcSi
n[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(5*Sqrt[33]) - (4*EllipticF[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(5*Sqrt[33])
```

Rubi [A] time = 0.26354, antiderivative size = 125, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{136\sqrt{1-2x}\sqrt{3x+2}}{33\sqrt{5x+3}}-\frac{2\sqrt{1-2x}\sqrt{3x+2}}{3(5x+3)^{3/2}}-\frac{4F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{5\sqrt{33}}-\frac{136E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{5\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]/(Sqrt[2 + 3*x]*(3 + 5*x)^(5/2)),x]
```

```
[Out] (-2*Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/(3*(3 + 5*x)^(3/2)) + (136*Sqrt[
1 - 2*x]*Sqrt[2 + 3*x])/(33*Sqrt[3 + 5*x]) - (136*EllipticE[ArcSi
n[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(5*Sqrt[33]) - (4*EllipticF[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(5*Sqrt[33])
```

Rubi in Sympy [A] time = 23.9354, size = 114, normalized size = 0.91

$$\frac{136\sqrt{-2x+1}\sqrt{3x+2}}{33\sqrt{5x+3}}-\frac{2\sqrt{-2x+1}\sqrt{3x+2}}{3\,(5x+3)^{\frac{3}{2}}}-\frac{136\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{165}-\frac{4\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{175}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)/(3+5*x)**(5/2)/(2+3*x)**(1/2),x)
```

```
[Out] 136*sqrt(-2*x + 1)*sqrt(3*x + 2)/(33*sqrt(5*x + 3)) - 2*sqrt(-2*x
 + 1)*sqrt(3*x + 2)/(3*(5*x + 3)**(3/2)) - 136*sqrt(33)*elliptic_
e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/165 - 4*sqrt(35)*ellipt
ic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/175
```

Mathematica [A] time = 0.272485, size = 97, normalized size = 0.78

$$\frac{2}{165}\left(\frac{5\sqrt{1-2x}\sqrt{3x+2}(340x+193)}{(5x+3)^{3/2}}-35\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+68\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]/(Sqrt[2 + 3*x]*(3 + 5*x)^(5/2)),x]
```

```
[Out] (2*((5*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(193 + 340*x))/(3 + 5*x)^(3/2)
 + 68*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]
- 35*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]))
/165
```

Maple [C] time = 0.028, size = 267, normalized size = 2.1

$$\frac{2}{990\,x^2+165\,x-330}\left(175\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-340\,\sqrt{2}EllipticE\left(\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)/(3+5*x)^(5/2)/(2+3*x)^(1/2),x)
```

```
[Out] 2/165*(175*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),
1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-
2*x)^(1/2)-340*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1
/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)
*(1-2*x)^(1/2)+105*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1
/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*
3^(1/2)*2^(1/2))-204*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^
(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2
)*3^(1/2)*2^(1/2))+10200*x^3+7490*x^2-2435*x-1930)*(2+3*x)^(1/2)*
(1-2*x)^(1/2)/(6*x^2+x-2)/(3+5*x)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{-2\,x+1}}{(5\,x+3)^{\frac{5}{2}}\sqrt{3\,x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/((5*x + 3)^(5/2)*sqrt(3*x + 2)),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(-2*x + 1)/((5*x + 3)^(5/2)*sqrt(3*x + 2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{-2\,x+1}}{(25\,x^2+30\,x+9)\sqrt{5\,x+3}\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/((5*x + 3)^(5/2)*sqrt(3*x + 2)),x, algorithm="fricas")
```

```
[Out] integral(sqrt(-2*x + 1)/((25*x^2 + 30*x + 9)*sqrt(5*x + 3)*sqrt(3
*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)/(3+5*x)**(5/2)/(2+3*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{-2\,x+1}}{(5\,x+3)^{\frac{5}{2}}\sqrt{3\,x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/((5*x + 3)^(5/2)*sqrt(3*x + 2)),x, algorithm="giac")
```

```
[Out] integrate(sqrt(-2*x + 1)/((5*x + 3)^(5/2)*sqrt(3*x + 2)), x)
```

3.2679 $\int \frac{\sqrt{1-2x}}{(2+3x)^{3/2}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=150

$$\frac{2660\sqrt{1-2x}\sqrt{3x+2}}{33\sqrt{5x+3}}-\frac{40\sqrt{1-2x}\sqrt{3x+2}}{3(5x+3)^{3/2}}+\frac{2\sqrt{1-2x}}{\sqrt{3x+2}(5x+3)^{3/2}}-\frac{16F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{\sqrt{33}}-\frac{532E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{\sqrt{33}}$$

```
[Out] (2*Sqrt[1 - 2*x])/(Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)) - (40*Sqrt[1 -
2*x]*Sqrt[2 + 3*x])/(3*(3 + 5*x)^(3/2)) + (2660*Sqrt[1 - 2*x]*Sqr
t[2 + 3*x])/(33*Sqrt[3 + 5*x]) - (532*EllipticE[ArcSin[Sqrt[3/7]*
Sqrt[1 - 2*x]], 35/33])/Sqrt[33] - (16*EllipticF[ArcSin[Sqrt[3/7]
*Sqrt[1 - 2*x]], 35/33])/Sqrt[33]
```

Rubi [A] time = 0.337069, antiderivative size = 150, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{2660\sqrt{1-2x}\sqrt{3x+2}}{33\sqrt{5x+3}}-\frac{40\sqrt{1-2x}\sqrt{3x+2}}{3(5x+3)^{3/2}}+\frac{2\sqrt{1-2x}}{\sqrt{3x+2}(5x+3)^{3/2}}-\frac{16F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{\sqrt{33}}-\frac{532E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]/((2 + 3*x)^(3/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (2*Sqrt[1 - 2*x])/(Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)) - (40*Sqrt[1 -
2*x]*Sqrt[2 + 3*x])/(3*(3 + 5*x)^(3/2)) + (2660*Sqrt[1 - 2*x]*Sqr
t[2 + 3*x])/(33*Sqrt[3 + 5*x]) - (532*EllipticE[ArcSin[Sqrt[3/7]*
Sqrt[1 - 2*x]], 35/33])/Sqrt[33] - (16*EllipticF[ArcSin[Sqrt[3/7]
*Sqrt[1 - 2*x]], 35/33])/Sqrt[33]
```

Rubi in Sympy [A] time = 30.4672, size = 141, normalized size = 0.94

$$\frac{2660\sqrt{-2x+1}\sqrt{3x+2}}{33\sqrt{5x+3}}-\frac{40\sqrt{-2x+1}\sqrt{3x+2}}{3\left(5x+3\right)^{\frac{3}{2}}}+\frac{2\sqrt{-2x+1}}{\sqrt{3x+2}\left(5x+3\right)^{\frac{3}{2}}}-\frac{532\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{33}-\frac{16\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{35}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)/(2+3*x)**(3/2)/(3+5*x)**(5/2),x)
```

```
[Out] 2660*sqrt(-2*x + 1)*sqrt(3*x + 2)/(33*sqrt(5*x + 3)) - 40*sqrt(-2
*x + 1)*sqrt(3*x + 2)/(3*(5*x + 3)**(3/2)) + 2*sqrt(-2*x + 1)/(sq
rt(3*x + 2)*(5*x + 3)**(3/2)) - 532*sqrt(33)*elliptic_e(asin(sqrt
(21)*sqrt(-2*x + 1)/7), 35/33)/33 - 16*sqrt(35)*elliptic_f(asin(s
qrt(55)*sqrt(-2*x + 1)/11), 33/35)/35
```

Mathematica [A] time = 0.265202, size = 99, normalized size = 0.66

$$\frac{2}{33}\left(\frac{\sqrt{1-2x}\left(19950x^2+24610x+7573\right)}{\sqrt{3x+2}(5x+3)^{3/2}} + 2\sqrt{2}\left(133E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-67F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]/((2 + 3*x)^(3/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (2*((Sqrt[1 - 2*x]*(7573 + 24610*x + 19950*x^2))/(Sqrt[2 + 3*x]*(
3 + 5*x)^(3/2)) + 2*Sqrt[2]*(133*EllipticE[ArcSin[Sqrt[2/11]*Sqrt
[3 + 5*x]], -33/2] - 67*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]
], -33/2])))/33
```

Maple [C] time = 0.033, size = 267, normalized size = 1.8

$$\frac{2}{198\,x^2+33\,x-66}\sqrt{1-2\,x}\sqrt{2+3\,x}\left(670\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-13$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)/(2+3*x)^(3/2)/(3+5*x)^(5/2),x)
```

```
[Out] 2/33*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(670*2^(1/2)*EllipticF(1/11*11^(
1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5
*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-1330*2^(1/2)*EllipticE(1/11
*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x
*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+402*2^(1/2)*(3+5*x)^(1
/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(
3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-798*2^(1/2)*(3+5*x)^
(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)
*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+39900*x^3+29270*x^
2-9464*x-7573)/(3+5*x)^(3/2)/(6*x^2+x-2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{-2\,x+1}}{(5\,x+3)^{\frac{5}{2}}(3\,x+2)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/((5*x + 3)^(5/2)*(3*x + 2)^(3/2)),x, algorithm="maxima"
```

```
[Out] integrate(sqrt(-2*x + 1)/((5*x + 3)^(5/2)*(3*x + 2)^(3/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{-2\,x+1}}{(75\,x^3+140\,x^2+87\,x+18)\sqrt{5\,x+3}\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/((5*x + 3)^(5/2)*(3*x + 2)^(3/2)),x, algorithm="fricas"
```

```
[Out] integral(sqrt(-2*x + 1)/((75*x^3 + 140*x^2 + 87*x + 18)*sqrt(5*x
+ 3)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)/(2+3*x)**(3/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{-2\,x+1}}{(5\,x+3)^{\frac{5}{2}}(3\,x+2)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/((5*x + 3)^(5/2)*(3*x + 2)^(3/2)),x, algorithm="giac")
```

```
[Out] integrate(sqrt(-2*x + 1)/((5*x + 3)^(5/2)*(3*x + 2)^(3/2)), x)
```

3.2680 $\int \frac{\sqrt{1-2x}}{(2+3x)^{5/2}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=187

$$\frac{184840\sqrt{1-2x}\sqrt{3x+2}}{231\sqrt{5x+3}}-\frac{2780\sqrt{1-2x}\sqrt{3x+2}}{21(5x+3)^{3/2}}+\frac{416\sqrt{1-2x}}{21\sqrt{3x+2}(5x+3)^{3/2}}+\frac{2\sqrt{1-2x}}{3(3x+2)^{3/2}(5x+3)^{3/2}}-\frac{1112F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{7\sqrt{33}}-\frac{36968E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{7\sqrt{33}}$$

```
[Out] (2*Sqrt[1 - 2*x])/(3*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)) + (416*Sqrt
[1 - 2*x])/(21*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)) - (2780*Sqrt[1 - 2*
x]*Sqrt[2 + 3*x])/(21*(3 + 5*x)^(3/2)) + (184840*Sqrt[1 - 2*x]*Sq
rt[2 + 3*x])/(231*Sqrt[3 + 5*x]) - (36968*EllipticE[ArcSin[Sqrt[3
/7]*Sqrt[1 - 2*x]], 35/33])/(7*Sqrt[33]) - (1112*EllipticF[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(7*Sqrt[33])
```

Rubi [A] time = 0.425303, antiderivative size = 187, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.179$

$$\frac{184840\sqrt{1-2x}\sqrt{3x+2}}{231\sqrt{5x+3}}-\frac{2780\sqrt{1-2x}\sqrt{3x+2}}{21(5x+3)^{3/2}}+\frac{416\sqrt{1-2x}}{21\sqrt{3x+2}(5x+3)^{3/2}}+\frac{2\sqrt{1-2x}}{3(3x+2)^{3/2}(5x+3)^{3/2}}-\frac{1112F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{7\sqrt{33}}-\frac{36968E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{7\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]/((2 + 3*x)^(5/2)*(3 + 5*x)^(5/2)),x]
```


```
[Out] (2*Sqrt[1 - 2*x])/(3*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)) + (416*Sqrt
[1 - 2*x])/(21*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)) - (2780*Sqrt[1 - 2*
x]*Sqrt[2 + 3*x])/(21*(3 + 5*x)^(3/2)) + (184840*Sqrt[1 - 2*x]*Sq
rt[2 + 3*x])/(231*Sqrt[3 + 5*x]) - (36968*EllipticE[ArcSin[Sqrt[3
/7]*Sqrt[1 - 2*x]], 35/33])/(7*Sqrt[33]) - (1112*EllipticF[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(7*Sqrt[33])
```

Rubi in Sympy [A] time = 38.1557, size = 172, normalized size = 0.92

$$\frac{184840\sqrt{-2x+1}\sqrt{3x+2}}{231\sqrt{5x+3}}-\frac{2780\sqrt{-2x+1}\sqrt{3x+2}}{21\,(5x+3)^{\frac{3}{2}}}+\frac{416\sqrt{-2x+1}}{21\sqrt{3x+2}\,(5x+3)^{\frac{3}{2}}}+\frac{2\sqrt{-2x+1}}{3\,(3x+2)^{\frac{3}{2}}\,(5x+3)^{\frac{3}{2}}}-\frac{36968\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{231}-\frac{1112\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{231}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)/(2+3*x)**(5/2)/(3+5*x)**(5/2),x)
```

```
[Out] 184840*sqrt(-2*x + 1)*sqrt(3*x + 2)/(231*sqrt(5*x + 3)) - 2780*sq
rt(-2*x + 1)*sqrt(3*x + 2)/(21*(5*x + 3)**(3/2)) + 416*sqrt(-2*x
+ 1)/(21*sqrt(3*x + 2)*(5*x + 3)**(3/2)) + 2*sqrt(-2*x + 1)/(3*(3
*x + 2)**(3/2)*(5*x + 3)**(3/2)) - 36968*sqrt(33)*elliptic_e(asin
(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/231 - 1112*sqrt(33)*elliptic_
f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/231
```

Mathematica [A] time = 0.324012, size = 104, normalized size = 0.56

$$\frac{2}{231}\left(\frac{\sqrt{1-2x}\left(4158900x^3+7902930x^2+4998904x+1052533\right)}{(3x+2)^{3/2}(5x+3)^{3/2}}+2\sqrt{2}\left(9242E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-4655F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]/((2 + 3*x)^(5/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (2*((Sqrt[1 - 2*x]*(1052533 + 4998904*x + 7902930*x^2 + 4158900*x
^3))/((2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)) + 2*Sqrt[2]*(9242*Elliptic
E[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 4655*EllipticF[ArcSi
n[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])))/231
```

Maple [C] time = 0.033, size = 383, normalized size = 2.1

$$-\frac{2}{-231+462\,x}\sqrt{1-2\,x}\left(277260\,\sqrt{2}EllipticE\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^2\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-139650\,\sqrt{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)/(2+3*x)^(5/2)/(3+5*x)^(5/2),x)
```

```
[Out] -2/231*(1-2*x)^(1/2)*(277260*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1
/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/
2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-139650*2^(1/2)*EllipticF(1/11*11^(
1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3
+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+351196*2^(1/2)*EllipticE(
1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2
))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-176890*2^(1/2)*Ell
ipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)
*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+110904*2^(1
/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(
1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-55860*
2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*
11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-83
17800*x^4-11646960*x^3-2094878*x^2+2893838*x+1052533)/(2+3*x)^(3/
2)/(3+5*x)^(3/2)/(-1+2*x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{-2\,x+1}}{(5\,x+3)^{\frac{5}{2}}(3\,x+2)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(-2*x + 1)/((5*x + 3)^(5/2)*(3*x + 2)^(5/2)),x, algorithm="maxima"
```

```
[Out] integrate(sqrt(-2*x + 1)/((5*x + 3)^(5/2)*(3*x + 2)^(5/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{-2\,x+1}}{(225\,x^4+570\,x^3+541\,x^2+228\,x+36)\sqrt{5\,x+3}\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/((5*x + 3)^(5/2)*(3*x + 2)^(5/2)),x, algorithm="fricas"
```

```
[Out] integral(sqrt(-2*x + 1)/((225*x^4 + 570*x^3 + 541*x^2 + 228*x + 3
6)*sqrt(5*x + 3)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(1/2)/(2+3*x)**(5/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{-2\,x + 1}}{(5\,x + 3)^{\frac{5}{2}}(3\,x + 2)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/((5*x + 3)^(5/2)*(3*x + 2)^(5/2)),x, algorithm="giac")
```

```
[Out] integrate(sqrt(-2*x + 1)/((5*x + 3)^(5/2)*(3*x + 2)^(5/2)), x)
```

3.2681 $\int \frac{\sqrt{1-2x}}{(2+3x)^{7/2}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=218

$$\frac{10312712\sqrt{1-2x}\sqrt{3x+2}}{1617\sqrt{5x+3}}-\frac{155104\sqrt{1-2x}\sqrt{3x+2}}{147(5x+3)^{3/2}}+\frac{116044\sqrt{1-2x}}{735\sqrt{3x+2}(5x+3)^{3/2}}+\frac{556\sqrt{1-2x}}{105(3x+2)^{3/2}(5x+3)^{3/2}}+\frac{2\sqrt{1-2x}}{5(3x+2)^{5/2}(5x+3)^{3/2}}-\frac{310208F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{245\sqrt{33}}-\frac{10312712E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{245\sqrt{33}}$$

```
[Out] (2*Sqrt[1 - 2*x])/(5*(2 + 3*x)^(5/2)*(3 + 5*x)^(3/2)) + (556*Sqrt
[1 - 2*x])/(105*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)) + (116044*Sqrt[1
 - 2*x])/(735*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)) - (155104*Sqrt[1 - 2
*x]*Sqrt[2 + 3*x])/(147*(3 + 5*x)^(3/2)) + (10312712*Sqrt[1 - 2*x
]*Sqrt[2 + 3*x])/(1617*Sqrt[3 + 5*x]) - (10312712*EllipticE[ArcSi
n[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(245*Sqrt[33]) - (310208*Elli
pticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(245*Sqrt[33])
```

Rubi [A] time = 0.523331, antiderivative size = 218, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{10312712\sqrt{1-2x}\sqrt{3x+2}}{1617\sqrt{5x+3}}-\frac{155104\sqrt{1-2x}\sqrt{3x+2}}{147(5x+3)^{3/2}}+\frac{116044\sqrt{1-2x}}{735\sqrt{3x+2}(5x+3)^{3/2}}+\frac{556\sqrt{1-2x}}{105(3x+2)^{3/2}(5x+3)^{3/2}}+\frac{2\sqrt{1-2x}}{5(3x+2)^{5/2}(5x+3)^{3/2}}-\frac{310208F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{245\sqrt{33}}-\frac{10312712E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{245\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[1 - 2*x]/((2 + 3*x)^(7/2)*(3 + 5*x)^(5/2)),x]
```


```
[Out] (2*Sqrt[1 - 2*x])/(5*(2 + 3*x)^(5/2)*(3 + 5*x)^(3/2)) + (556*Sqrt
[1 - 2*x])/(105*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)) + (116044*Sqrt[1
 - 2*x])/(735*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)) - (155104*Sqrt[1 - 2
*x]*Sqrt[2 + 3*x])/(147*(3 + 5*x)^(3/2)) + (10312712*Sqrt[1 - 2*x
]*Sqrt[2 + 3*x])/(1617*Sqrt[3 + 5*x]) - (10312712*EllipticE[ArcSi
n[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(245*Sqrt[33]) - (310208*Elli
pticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(245*Sqrt[33])
```

Rubi in Sympy [A] time = 45.6274, size = 201, normalized size = 0.92

$$\frac{10312712\sqrt{-2x+1}\sqrt{5x+3}}{2695\sqrt{3x+2}}+\frac{148408\sqrt{-2x+1}}{231\sqrt{3x+2}\sqrt{5x+3}}-\frac{372\sqrt{-2x+1}}{7\sqrt{3x+2}\,(5x+3)^{\frac{3}{2}}}+\frac{556\sqrt{-2x+1}}{105\,(3x+2)^{\frac{3}{2}}\,(5x+3)^{\frac{3}{2}}}+\frac{2\sqrt{-2x+1}}{5\,(3x+2)^{\frac{5}{2}}\,(5x+3)^{\frac{3}{2}}}-\frac{10312712\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{8085}-\frac{310208\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{8575}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(1/2)/(2+3*x)**(7/2)/(3+5*x)**(5/2),x)
```

```
[Out] 10312712*sqrt(-2*x + 1)*sqrt(5*x + 3)/(2695*sqrt(3*x + 2)) + 1484
08*sqrt(-2*x + 1)/(231*sqrt(3*x + 2)*sqrt(5*x + 3)) - 372*sqrt(-2
*x + 1)/(7*sqrt(3*x + 2)*(5*x + 3)**(3/2)) + 556*sqrt(-2*x + 1)/(
105*(3*x + 2)**(3/2)*(5*x + 3)**(3/2)) + 2*sqrt(-2*x + 1)/(5*(3*x
 + 2)**(5/2)*(5*x + 3)**(3/2)) - 10312712*sqrt(33)*elliptic_e(asi
n(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/8085 - 310208*sqrt(35)*ellip
tic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/8575
```

Mathematica [A] time = 0.361465, size = 109, normalized size = 0.5

$$\frac{2\left(\frac{\sqrt{1-2x}(3480540300x^4+8934240060x^3+8592783498x^2+3669873602x+587237237)}{(3x+2)^{5/2}(5x+3)^{3/2}}+4\sqrt{2}\left(1289089E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-649285F\right.\right.}{8085}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[1 - 2*x]/((2 + 3*x)^(7/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (2*((Sqrt[1 - 2*x]*(587237237 + 3669873602*x + 8592783498*x^2 + 8
934240060*x^3 + 3480540300*x^4))/((2 + 3*x)^(5/2)*(3 + 5*x)^(3/2)
) + 4*Sqrt[2]*(1289089*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]]
, -33/2] - 649285*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33
/2])))/8085
```

Maple [C] time = 0.036, size = 502, normalized size = 2.3

$$\frac{2}{-8085+16170\,x}\sqrt{1-2\,x}\left(116871300\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^3\sqrt{1-2\,x}\sqrt{3+5\,x}\sqrt{2+3\,x}-232\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(1/2)/(2+3*x)^(7/2)/(3+5*x)^(5/2),x)
```

```
[Out] 2/8085*(1-2*x)^(1/2)*(116871300*2^(1/2)*EllipticF(1/11*11^(1/2)*2
^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^
(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)-232036020*2^(1/2)*EllipticE(1/1
1*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*
x^3*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)+225951180*2^(1/2)*E
llipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/
2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-4486029
72*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11
^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(
1/2)+145439840*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1
/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)
*(1-2*x)^(1/2)-288755936*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*
(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+
3*x)^(1/2)*(1-2*x)^(1/2)+31165680*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(
1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),
1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-61876272*2^(1/2)*(3+5*x)^(1/2)*(2
+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)
^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+6961080600*x^5+14387939820
*x^4+8251326936*x^3-1253036294*x^2-2495399128*x-587237237)/(2+3*x
)^(5/2)/(3+5*x)^(3/2)/(-1+2*x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{-2\,x+1}}{(5\,x+3)^{\frac{5}{2}}(3\,x+2)^{\frac{7}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/((5*x + 3)^(5/2)*(3*x + 2)^(7/2)),x, algorithm="maxima"
```

```
[Out] integrate(sqrt(-2*x + 1)/((5*x + 3)^(5/2)*(3*x + 2)^(7/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{-2\,x+1}}{(675\,x^5+2160\,x^4+2763\,x^3+1766\,x^2+564\,x+72)\sqrt{5\,x+3}\sqrt{3\,x+2}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/((5*x + 3)^(5/2)*(3*x + 2)^(7/2)),x, algorithm="fricas"
```

```
[Out] integral(sqrt(-2*x + 1)/((675*x^5 + 2160*x^4 + 2763*x^3 + 1766*x^
2 + 564*x + 72)*sqrt(5*x + 3)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(1/2)/(2+3*x)**(7/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{-2\,x+1}}{(5\,x+3)^{\frac{5}{2}}(3\,x+2)^{\frac{7}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(-2*x + 1)/((5*x + 3)^(5/2)*(3*x + 2)^(7/2)),x, algorithm="giac")
```

```
[Out] integrate(sqrt(-2*x + 1)/((5*x + 3)^(5/2)*(3*x + 2)^(7/2)), x)
```

3.2682 $\int (1-2x)^{3/2}(2+3x)^{5/2}\sqrt{3+5x}\,dx$

Optimal. Leaf size=218

$$\frac{2}{55}(1-2x)^{3/2}(5x+3)^{3/2}(3x+2)^{5/2}+\frac{178\sqrt{1-2x}(5x+3)^{3/2}(3x+2)^{5/2}}{7425}+\frac{1103\sqrt{1-2x}(5x+3)^{3/2}(3x+2)^{3/2}}{259875}-\frac{124891\sqrt{1-2x}(5x+3)^{3/2}\sqrt{3x+2}}{2165625}-\frac{18177329\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{38981250}-\frac{18177329F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{17718750\sqrt{33}}-\frac{604915631E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{17718750\sqrt{33}}$$

```
[Out] (-18177329*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/38981250 -
(124891*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/2165625 + (1
103*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2))/259875 + (178*
Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)*(3 + 5*x)^(3/2))/7425 + (2*(1 - 2*x
)^(3/2)*(2 + 3*x)^(5/2)*(3 + 5*x)^(3/2))/55 - (604915631*Elliptic
E[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(17718750*Sqrt[33]) -
(18177329*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(177
18750*Sqrt[33])
```

Rubi [A] time = 0.479312, antiderivative size = 218, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{2}{55}(1-2x)^{3/2}(5x+3)^{3/2}(3x+2)^{5/2}+\frac{178\sqrt{1-2x}(5x+3)^{3/2}(3x+2)^{5/2}}{7425}+\frac{1103\sqrt{1-2x}(5x+3)^{3/2}(3x+2)^{3/2}}{259875}-\frac{124891\sqrt{1-2x}(5x+3)^{3/2}\sqrt{3x+2}}{2165625}-\frac{18177329\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{38981250}-\frac{18177329F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{17718750\sqrt{33}}-\frac{604915631E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{17718750\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x],x]
```


```
[Out] (-18177329*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/38981250 -
(124891*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/2165625 + (1
103*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2))/259875 + (178*
Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)*(3 + 5*x)^(3/2))/7425 + (2*(1 - 2*x
)^(3/2)*(2 + 3*x)^(5/2)*(3 + 5*x)^(3/2))/55 - (604915631*Elliptic
E[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(17718750*Sqrt[33]) -
(18177329*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(177
18750*Sqrt[33])
```

Rubi in Sympy [A] time = 46.5695, size = 201, normalized size = 0.92

$$\frac{2(-2x+1)^{\frac{3}{2}}(3x+2)^{\frac{7}{2}}\sqrt{5x+3}}{33} - \frac{107(-2x+1)^{\frac{3}{2}}(3x+2)^{\frac{5}{2}}\sqrt{5x+3}}{1485} - \frac{10831(-2x+1)^{\frac{3}{2}}(3x+2)^{\frac{3}{2}}\sqrt{5x+3}}{51975} - \frac{505079(-2x+1)^{\frac{3}{2}}\sqrt{3x+2}\sqrt{5x+3}}{866250} + \frac{17802656\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{19490625} - \frac{604915631\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{584718750} - \frac{18177329\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{584718750}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)**(5/2)*(3+5*x)**(1/2),x)
```

```
[Out] 2*(-2*x + 1)**(3/2)*(3*x + 2)**(7/2)*sqrt(5*x + 3)/33 - 107*(-2*x
 + 1)**(3/2)*(3*x + 2)**(5/2)*sqrt(5*x + 3)/1485 - 10831*(-2*x +
1)**(3/2)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/51975 - 505079*(-2*x + 1
)**(3/2)*sqrt(3*x + 2)*sqrt(5*x + 3)/866250 + 17802656*sqrt(-2*x
+ 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/19490625 - 604915631*sqrt(33)*el
liptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/584718750 - 1817
7329*sqrt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/
584718750
```

Mathematica [A] time = 0.371743, size = 107, normalized size = 0.49

$$\frac{15\sqrt{2-4x}\sqrt{3x+2}\sqrt{5x+3}\left(-127575000x^4-140805000x^3+48345750x^2+89595360x+4295257\right)-609979405F\left(\sin^{-1}\left(\right.\right.}{584718750\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x],x]
```

```
[Out] (15*Sqrt[2 - 4*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(4295257 + 89595360
*x + 48345750*x^2 - 140805000*x^3 - 127575000*x^4) + 1209831262*E
llipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 609979405*Ell
ipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/(584718750*Sqrt[
2])
```

Maple [C] time = 0.016, size = 184, normalized size = 0.8

$$\frac{1}{35083125000\,x^3+26897062500\,x^2-8186062500\,x-7016625000}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(-114817500000\,x^7-2147512\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^(5/2)*(3+5*x)^(1/2),x)
```

```
[Out] 1/1169437500*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(-11481750
0000*x^7-214751250000*x^6+609979405*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)
^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2
),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-1209831262*2^(1/2)*(3+5*x)^(1/2
)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+
5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-26853525000*x^5+166526
941500*x^4+80878822200*x^3-24553533270*x^2-17029168770*x-77314626
0)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \sqrt{5\,x+3}(3\,x+2)^{\frac{5}{2}}(-2\,x+1)^{\frac{3}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(3*x + 2)^(5/2)*(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(5*x + 3)*(3*x + 2)^(5/2)*(-2*x + 1)^(3/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\left(18\,x^3+15\,x^2-4\,x-4\right)\sqrt{5\,x+3}\sqrt{3\,x+2}\sqrt{-2\,x+1},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(3*x + 2)^(5/2)*(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] integral(-(18*x^3 + 15*x^2 - 4*x - 4)*sqrt(5*x + 3)*sqrt(3*x + 2)
*sqrt(-2*x + 1), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(3/2)*(2+3*x)**(5/2)*(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \sqrt{5\,x+3}(3\,x+2)^{\frac{5}{2}}(-2\,x+1)^{\frac{3}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(3*x + 2)^(5/2)*(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)*(3*x + 2)^(5/2)*(-2*x + 1)^(3/2), x)
```

3.2683 $\int (1-2x)^{3/2}(2+3x)^{3/2}\sqrt{3+5x}\,dx$

Optimal. Leaf size=191

$$\frac{2}{45}(1-2x)^{3/2}(3x+2)^{3/2}(5x+3)^{3/2}+\frac{62\sqrt{1-2x}(3x+2)^{3/2}(5x+3)^{3/2}}{1575}-\frac{347\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}}{39375}-\frac{84134\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{354375}-\frac{84134\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1771875}-\frac{5684677\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3543750}$$

```
[Out] (-84134*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/354375 - (347*
Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/39375 + (62*Sqrt[1 -
 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2))/1575 + (2*(1 - 2*x)^(3/2)*
(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2))/45 - (5684677*Sqrt[11/3]*Ellipti
cE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3543750 - (84134*Sqrt
[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1771875
```

Rubi [A] time = 0.389632, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{2}{45}(1-2x)^{3/2}(3x+2)^{3/2}(5x+3)^{3/2}+\frac{62\sqrt{1-2x}(3x+2)^{3/2}(5x+3)^{3/2}}{1575}-\frac{347\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}}{39375}-\frac{84134\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{354375}-\frac{84134\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1771875}-\frac{5684677\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3543750}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x],x]
```

```
[Out] (-84134*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/354375 - (347*
Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/39375 + (62*Sqrt[1 -
 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2))/1575 + (2*(1 - 2*x)^(3/2)*
(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2))/45 - (5684677*Sqrt[11/3]*Ellipti
cE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3543750 - (84134*Sqrt
[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1771875
```

Rubi in Sympy [A] time = 38.8296, size = 172, normalized size = 0.9

$$\frac{2(-2x+1)^{\frac{3}{2}}(3x+2)^{\frac{5}{2}}\sqrt{5x+3}}{27}-\frac{107(-2x+1)^{\frac{3}{2}}(3x+2)^{\frac{3}{2}}\sqrt{5x+3}}{945}-\frac{2384(-2x+1)^{\frac{3}{2}}\sqrt{3x+2}\sqrt{5x+3}}{7875}+\frac{167227\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{354375}-\frac{5684677\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{10631250}-\frac{84134\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{5315625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)**(3/2)*(3+5*x)**(1/2),x)
```

```
[Out] 2*(-2*x + 1)**(3/2)*(3*x + 2)**(5/2)*sqrt(5*x + 3)/27 - 107*(-2*x
 + 1)**(3/2)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/945 - 2384*(-2*x + 1)
**(3/2)*sqrt(3*x + 2)*sqrt(5*x + 3)/7875 + 167227*sqrt(-2*x + 1)*
sqrt(3*x + 2)*sqrt(5*x + 3)/354375 - 5684677*sqrt(33)*elliptic_e(
asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/10631250 - 84134*sqrt(33)
```

```
*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/5315625
```

Mathematica [A] time = 0.322789, size = 105, normalized size = 0.55

$$\frac{5684677E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-5\left(3\sqrt{2-4x}\sqrt{3x+2}\sqrt{5x+3}\left(472500x^3+153000x^2-359685x-84697\right)+58165\right.}{5315625\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x],x]
```

```
[Out] (5684677*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 5*(
3*Sqrt[2 - 4*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(-84697 - 359685*x +
153000*x^2 + 472500*x^3) + 581651*EllipticF[ArcSin[Sqrt[2/11]*Sqr
t[3 + 5*x]], -33/2]))/(5315625*Sqrt[2])
```

Maple [C] time = 0.017, size = 179, normalized size = 0.9

$$-\frac{1}{318937500\,x^3+244518750\,x^2-74418750\,x-63787500}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(425250000\,x^6+5684677\,\sqrt{2}\sqrt{3+5\,x}\sqrt{\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^(3/2)*(3+5*x)^(1/2),x)
```

```
[Out] -1/10631250*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(425250000*
x^6+5684677*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Ell
ipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)
*2^(1/2))-2908255*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/
2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3
^(1/2)*2^(1/2))+463725000*x^5-317371500*x^4-441589950*x^3-1044708
0*x^2+82529670*x+15245460)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int\sqrt{5\,x+3}(3\,x+2)^{\frac{3}{2}}(-2\,x+1)^{\frac{3}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^(3/2)*(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(5*x + 3)*(3*x + 2)^(3/2)*(-2*x + 1)^(3/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\left(6\,x^2+x-2\right)\sqrt{5\,x+3}\sqrt{3\,x+2}\sqrt{-2\,x+1},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^(3/2)*(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] integral(-(6*x^2 + x - 2)*sqrt(5*x + 3)*sqrt(3*x + 2)*sqrt(-2*x +
 1), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)**(3/2)*(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \sqrt{5x+3}(3x+2)^{\frac{3}{2}}(-2x+1)^{\frac{3}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^(3/2)*(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)*(3*x + 2)^(3/2)*(-2*x + 1)^(3/2), x)
```

3.2684 $\int (1-2x)^{3/2}\sqrt{2+3x}\sqrt{3+5x}\,dx$

Optimal. Leaf size=160

$$\frac{2}{35}(1-2x)^{3/2}\sqrt{3x+2}(5x+3)^{3/2}+\frac{194\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}}{2625}-\frac{2657\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{23625}-\frac{2657\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{118125}-\frac{118898\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{118125}$$

```
[Out] (-2657*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/23625 + (194*Sq
rt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/2625 + (2*(1 - 2*x)^(3
/2)*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/35 - (118898*Sqrt[11/3]*Ellipt
icE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/118125 - (2657*Sqrt[
11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/118125
```

Rubi [A] time = 0.326339, antiderivative size = 160, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{2}{35}(1-2x)^{3/2}\sqrt{3x+2}(5x+3)^{3/2}+\frac{194\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}}{2625}-\frac{2657\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{23625}-\frac{2657\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{118125}-\frac{118898\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{118125}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)*Sqrt[2 + 3*x]*Sqrt[3 + 5*x],x]
```

```
[Out] (-2657*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/23625 + (194*Sq
rt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/2625 + (2*(1 - 2*x)^(3
/2)*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/35 - (118898*Sqrt[11/3]*Ellipt
icE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/118125 - (2657*Sqrt[
11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/118125
```

Rubi in Sympy [A] time = 31.5468, size = 143, normalized size = 0.89

$$\frac{2\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{\frac{3}{2}}\sqrt{5x+3}}{21}-\frac{107\left(-2x+1\right)^{\frac{3}{2}}\sqrt{3x+2}\sqrt{5x+3}}{525}+\frac{6946\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{23625}-\frac{118898\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{354375}-\frac{2657\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{354375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)**(1/2)*(3+5*x)**(1/2),x)
```

```
[Out] 2*(-2*x + 1)**(3/2)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/21 - 107*(-2*x
 + 1)**(3/2)*sqrt(3*x + 2)*sqrt(5*x + 3)/525 + 6946*sqrt(-2*x + 1
)*sqrt(3*x + 2)*sqrt(5*x + 3)/23625 - 118898*sqrt(33)*elliptic_e(
asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/354375 - 2657*sqrt(33)*el
liptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/354375
```

Mathematica [A] time = 0.294373, size = 97, normalized size = 0.61

$$\frac{15\sqrt{2-4x}\sqrt{3x+2}\sqrt{5x+3}\left(-13500x^2+7380x+6631\right)-150115F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+237796E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5\right.\right.}{354375\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)*Sqrt[2 + 3*x]*Sqrt[3 + 5*x],x]
```

```
[Out] (15*Sqrt[2 - 4*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(6631 + 7380*x - 13
500*x^2) + 237796*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33
/2] - 150115*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/
(354375*Sqrt[2])
```

Maple [C] time = 0.016, size = 174, normalized size = 1.1

$$\frac{1}{21262500\,x^3+16301250\,x^2-4961250\,x-4252500}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(150115\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}Elliptic$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^(1/2)*(3+5*x)^(1/2),x)
```

```
[Out] 1/708750*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(150115*2^(1/2
)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/
2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-237796*2
^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*1
1^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-121
50000*x^5-2673000*x^4+13895100*x^3+5455590*x^2-2720910*x-1193580)
/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \sqrt{5\,x+3}\sqrt{3\,x+2}(-2\,x+1)^{\frac{3}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*sqrt(3*x + 2)*(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(5*x + 3)*sqrt(3*x + 2)*(-2*x + 1)^(3/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\sqrt{5\,x+3}\sqrt{3\,x+2}(-2\,x+1)^{\frac{3}{2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*sqrt(3*x + 2)*(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] integral(sqrt(5*x + 3)*sqrt(3*x + 2)*(-2*x + 1)^(3/2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)**(1/2)*(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \sqrt{5x+3}\sqrt{3x+2}(-2x+1)^{\frac{3}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*sqrt(3*x + 2)*(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)*sqrt(3*x + 2)*(-2*x + 1)^(3/2), x)
```

3.2685 $\int \frac{(1-2x)^{3/2}\sqrt{3+5x}}{\sqrt{2+3x}}\,dx$

Optimal. Leaf size=129

$$\frac{2}{15}\sqrt{3x+2}\sqrt{5x+3}(1-2x)^{3/2}+\frac{214}{675}\sqrt{3x+2}\sqrt{5x+3}\sqrt{1-2x}+\frac{412\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3375}-\frac{4157\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3375}$$

```
[Out] (214*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/675 + (2*(1 - 2*x
)^(3/2)*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/15 - (4157*Sqrt[11/3]*Ellipt
icE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3375 + (412*Sqrt[11/
3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3375
```

Rubi [A] time = 0.255228, antiderivative size = 129, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{2}{15}\sqrt{3x+2}\sqrt{5x+3}(1-2x)^{3/2}+\frac{214}{675}\sqrt{3x+2}\sqrt{5x+3}\sqrt{1-2x}+\frac{412\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3375}-\frac{4157\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3375}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/Sqrt[2 + 3*x],x]
```

```
[Out] (214*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/675 + (2*(1 - 2*x
)^(3/2)*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/15 - (4157*Sqrt[11/3]*Ellipt
icE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3375 + (412*Sqrt[11/
3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3375
```

Rubi in Sympy [A] time = 24.1858, size = 114, normalized size = 0.88

$$\frac{2(-2x+1)^{\frac{3}{2}}\sqrt{3x+2}\sqrt{5x+3}}{15}+\frac{214\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{675}-\frac{4157\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{10125}+\frac{412\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{10125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(1/2)/(2+3*x)**(1/2),x)
```

```
[Out] 2*(-2*x + 1)**(3/2)*sqrt(3*x + 2)*sqrt(5*x + 3)/15 + 214*sqrt(-2*
x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/675 - 4157*sqrt(33)*elliptic_e
(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/10125 + 412*sqrt(33)*ell
iptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/10125
```

Mathematica [A] time = 0.141498, size = 97, normalized size = 0.75

$$\frac{-60\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}(45x-76)-10955\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+4157\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)}{10125}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/Sqrt[2 + 3*x],x]
```

```
[Out] (-60*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(-76 + 45*x) + 415
7*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 10
955*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/1
0125
```

Maple [C] time = 0.016, size = 169, normalized size = 1.3

$$\frac{1}{303750\,x^{3}+232875\,x^{2}-70875\,x-60750}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(10955\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{1}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^(1/2)/(2+3*x)^(1/2),x)
```

```
[Out] 1/10125*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(10955*2^(1/2)*
(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)
*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-4157*2^(1/
2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1
/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-81000*x
^4+74700*x^3+123780*x^2-15720*x-27360)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}(-2\,x+1)^{\frac{3}{2}}}{\sqrt{3\,x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/sqrt(3*x + 2),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/sqrt(3*x + 2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\sqrt{5\,x+3}(-2\,x+1)^{\frac{3}{2}}}{\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/sqrt(3*x + 2),x, algorithm="fricas")
```

```
[Out] integral(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/sqrt(3*x + 2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**(1/2)/(2+3*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5x+3}(-2x+1)^{\frac{3}{2}}}{\sqrt{3x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/sqrt(3*x + 2),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/sqrt(3*x + 2), x)
```

3.2686 $\int \frac{(1-2x)^{3/2}\sqrt{3+5x}}{(2+3x)^{3/2}}\,dx$

Optimal. Leaf size=129

$$-\frac{2\sqrt{5x+3}(1-2x)^{3/2}}{3\sqrt{3x+2}}-\frac{16}{27}\sqrt{3x+2}\sqrt{5x+3}\sqrt{1-2x}-\frac{214}{135}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{494}{135}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (-2*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(3*Sqrt[2 + 3*x]) - (16*Sqrt[1
 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/27 + (494*Sqrt[11/3]*Ellipti
cE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/135 - (214*Sqrt[11/3]
*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/135
```

Rubi [A] time = 0.255645, antiderivative size = 129, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{2\sqrt{5x+3}(1-2x)^{3/2}}{3\sqrt{3x+2}}-\frac{16}{27}\sqrt{3x+2}\sqrt{5x+3}\sqrt{1-2x}-\frac{214}{135}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{494}{135}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(2 + 3*x)^(3/2),x]
```

```
[Out] (-2*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(3*Sqrt[2 + 3*x]) - (16*Sqrt[1
 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/27 + (494*Sqrt[11/3]*Ellipti
cE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/135 - (214*Sqrt[11/3]
*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/135
```

Rubi in Sympy [A] time = 24.3155, size = 114, normalized size = 0.88

$$-\frac{2\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{3\sqrt{3x+2}}-\frac{16\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{27}+\frac{494\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{405}-\frac{214\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{405}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(1/2)/(2+3*x)**(3/2),x)
```

```
[Out] -2*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/(3*sqrt(3*x + 2)) - 16*sqrt(-2
*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/27 + 494*sqrt(33)*elliptic_e(
asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/405 - 214*sqrt(33)*ellipt
ic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/405
```

Mathematica [A] time = 0.249964, size = 97, normalized size = 0.75

$$\frac{1}{405}\left(-\frac{30\sqrt{1-2x}\sqrt{5x+3}(6x+25)}{\sqrt{3x+2}}+4025\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-494\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(2 + 3*x)^(3/2),x]
```

```
[Out] ((-30*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(25 + 6*x))/Sqrt[2 + 3*x] - 494
*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 402
5*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/405
```

Maple [C] time = 0.024, size = 164, normalized size = 1.3

$$-\frac{1}{12150\,x^3+9315\,x^2-2835\,x-2430}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(4025\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^(1/2)/(2+3*x)^(3/2),x)
```

```
[Out] -1/405*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(4025*2^(1/2)*(3
+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2
^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-494*2^(1/2)*
(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)
*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+1800*x^3+7
680*x^2+210*x-2250)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}(-2\,x+1)^{\frac{3}{2}}}{(3\,x+2)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^(3/2),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^(3/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{5\,x+3}(-2\,x+1)^{\frac{3}{2}}}{(3\,x+2)^{\frac{3}{2}}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^(3/2),x, algorithm="fricas")
```

```
[Out] integral(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^(3/2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**(1/2)/(2+3*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5x+3}(-2x+1)^{\frac{3}{2}}}{(3x+2)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^(3/2),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^(3/2), x)
```

3.2687 $\int \frac{(1-2x)^{3/2}\sqrt{3+5x}}{(2+3x)^{5/2}}\,dx$

Optimal. Leaf size=129

$$-\frac{2\sqrt{5x+3}(1-2x)^{3/2}}{9(3x+2)^{3/2}}+\frac{82\sqrt{5x+3}\sqrt{1-2x}}{27\sqrt{3x+2}}+\frac{16}{27}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{98}{27}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (-2*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(9*(2 + 3*x)^(3/2)) + (82*Sqrt
[1 - 2*x]*Sqrt[3 + 5*x])/(27*Sqrt[2 + 3*x]) - (98*Sqrt[11/3]*Elli
pticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/27 + (16*Sqrt[11/3
]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/27
```

Rubi [A] time = 0.263943, antiderivative size = 129, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{2\sqrt{5x+3}(1-2x)^{3/2}}{9(3x+2)^{3/2}}+\frac{82\sqrt{5x+3}\sqrt{1-2x}}{27\sqrt{3x+2}}+\frac{16}{27}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{98}{27}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(2 + 3*x)^(5/2),x]
```

```
[Out] (-2*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(9*(2 + 3*x)^(3/2)) + (82*Sqrt
[1 - 2*x]*Sqrt[3 + 5*x])/(27*Sqrt[2 + 3*x]) - (98*Sqrt[11/3]*Elli
pticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/27 + (16*Sqrt[11/3
]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/27
```

Rubi in Sympy [A] time = 23.9942, size = 114, normalized size = 0.88

$$-\frac{2\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{9\left(3x+2\right)^{\frac{3}{2}}}+\frac{82\sqrt{-2x+1}\sqrt{5x+3}}{27\sqrt{3x+2}}-\frac{98\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{81}+\frac{16\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{81}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(1/2)/(2+3*x)**(5/2),x)
```

```
[Out] -2*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/(9*(3*x + 2)**(3/2)) + 82*sqrt
(-2*x + 1)*sqrt(5*x + 3)/(27*sqrt(3*x + 2)) - 98*sqrt(33)*ellipti
c_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/81 + 16*sqrt(33)*elli
ptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/81
```

Mathematica [A] time = 0.236792, size = 97, normalized size = 0.75

$$\frac{2}{81}\left(\frac{3\sqrt{1-2x}\sqrt{5x+3}(129x+79)}{(3x+2)^{3/2}}-181\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+49\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(2 + 3*x)^(5/2),x]
```

```
[Out] (2*((3*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(79 + 129*x))/(2 + 3*x)^(3/2)
+ 49*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] -
 181*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]))
/81
```

Maple [C] time = 0.027, size = 267, normalized size = 2.1

$$\frac{2}{810\,x^2+81\,x-243}\left(543\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-147\,\sqrt{2}EllipticE\left(1\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^(1/2)/(2+3*x)^(5/2),x)
```

```
[Out] 2/81*(543*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1
/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2
*x)^(1/2)-147*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/
2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*
(1-2*x)^(1/2)+362*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/
2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3
^(1/2)*2^(1/2))-98*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1
/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*
3^(1/2)*2^(1/2))+3870*x^3+2757*x^2-924*x-711)*(3+5*x)^(1/2)*(1-2*
x)^(1/2)/(10*x^2+x-3)/(2+3*x)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}(-2\,x+1)^{\frac{3}{2}}}{(3\,x+2)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^(5/2),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^(5/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\sqrt{5\,x+3}(-2\,x+1)^{\frac{3}{2}}}{(9\,x^2+12\,x+4)\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^(5/2),x, algorithm="fricas")
```

```
[Out] integral(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/((9*x^2 + 12*x + 4)*sqrt(
3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**(1/2)/(2+3*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5x+3}(-2x+1)^{\frac{3}{2}}}{(3x+2)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^(5/2),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^(5/2), x)
```

3.2688 $\int \frac{(1-2x)^{3/2}\sqrt{3+5x}}{(2+3x)^{7/2}}\,dx$

Optimal. Leaf size=160

$$-\frac{2\sqrt{5x+3}(1-2x)^{3/2}}{15(3x+2)^{5/2}}+\frac{3896\sqrt{5x+3}\sqrt{1-2x}}{945\sqrt{3x+2}}+\frac{82\sqrt{5x+3}\sqrt{1-2x}}{135(3x+2)^{3/2}}-\frac{164}{945}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{3896}{945}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (-2*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(15*(2 + 3*x)^(5/2)) + (82*Sqr
t[1 - 2*x]*Sqrt[3 + 5*x])/(135*(2 + 3*x)^(3/2)) + (3896*Sqrt[1 -
2*x]*Sqrt[3 + 5*x])/(945*Sqrt[2 + 3*x]) - (3896*Sqrt[11/3]*Ellipt
icE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/945 - (164*Sqrt[11/3
]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/945
```

Rubi [A] time = 0.342633, antiderivative size = 160, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$-\frac{2\sqrt{5x+3}(1-2x)^{3/2}}{15(3x+2)^{5/2}}+\frac{3896\sqrt{5x+3}\sqrt{1-2x}}{945\sqrt{3x+2}}+\frac{82\sqrt{5x+3}\sqrt{1-2x}}{135(3x+2)^{3/2}}-\frac{164}{945}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{3896}{945}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(2 + 3*x)^(7/2),x]
```

```
[Out] (-2*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(15*(2 + 3*x)^(5/2)) + (82*Sqr
t[1 - 2*x]*Sqrt[3 + 5*x])/(135*(2 + 3*x)^(3/2)) + (3896*Sqrt[1 -
2*x]*Sqrt[3 + 5*x])/(945*Sqrt[2 + 3*x]) - (3896*Sqrt[11/3]*Ellipt
icE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/945 - (164*Sqrt[11/3
]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/945
```

Rubi in Sympy [A] time = 30.8049, size = 143, normalized size = 0.89

$$-\frac{2\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{15\left(3x+2\right)^{\frac{5}{2}}}+\frac{3896\sqrt{-2x+1}\sqrt{5x+3}}{945\sqrt{3x+2}}+\frac{82\sqrt{-2x+1}\sqrt{5x+3}}{135\left(3x+2\right)^{\frac{3}{2}}}-\frac{3896\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{2835}-\frac{164\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{2835}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(1/2)/(2+3*x)**(7/2),x)
```

```
[Out] -2*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/(15*(3*x + 2)**(5/2)) + 3896*s
qrt(-2*x + 1)*sqrt(5*x + 3)/(945*sqrt(3*x + 2)) + 82*sqrt(-2*x +
1)*sqrt(5*x + 3)/(135*(3*x + 2)**(3/2)) - 3896*sqrt(33)*elliptic_
e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/2835 - 164*sqrt(33)*ell
iptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/2835
```

Mathematica [A] time = 0.215048, size = 99, normalized size = 0.62

$$\frac{2\left(\frac{3\sqrt{1-2x}\sqrt{5x+3}\left(17532x^2+24363x+8303\right)}{(3x+2)^{5/2}}+\sqrt{2}\left(1948E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-595F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)\right)}{2835}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(2 + 3*x)^(7/2),x]
```

```
[Out] (2*((3*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(8303 + 24363*x + 17532*x^2))/
(2 + 3*x)^(5/2) + Sqrt[2]*(1948*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[
3 + 5*x]], -33/2] - 595*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]
], -33/2])))/2835
```

Maple [C] time = 0.027, size = 386, normalized size = 2.4

$$\frac{2}{28350\,x^2+2835\,x-8505}\left(5355\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^2\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-17532\,\sqrt{2}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^(1/2)/(2+3*x)^(7/2),x)
```

```
[Out] 2/2835*(5355*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2
),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)
*(1-2*x)^(1/2)-17532*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5
*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*
x)^(1/2)*(1-2*x)^(1/2)+7140*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/
2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*
(2+3*x)^(1/2)*(1-2*x)^(1/2)-23376*2^(1/2)*EllipticE(1/11*11^(1/2)
*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^
(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+2380*2^(1/2)*(3+5*x)^(1/2)*(2+3
*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(
1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-7792*2^(1/2)*(3+5*x)^(1/2)*(
2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x
)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+525960*x^4+783486*x^3+164
391*x^2-194358*x-74727)*(3+5*x)^(1/2)*(1-2*x)^(1/2)/(10*x^2+x-3)/
(2+3*x)^(5/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}(-2\,x+1)^{\frac{3}{2}}}{(3\,x+2)^{\frac{7}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^(7/2),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^(7/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{5\,x+3}(-2\,x+1)^{\frac{3}{2}}}{(27\,x^3+54\,x^2+36\,x+8)\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^(7/2),x, algorithm="fricas")
```

```
[Out] integral(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/((27*x^3 + 54*x^2 + 36*x
+ 8)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**(1/2)/(2+3*x)**(7/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}(-2\,x+1)^{\frac{3}{2}}}{(3\,x+2)^{\frac{7}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^(7/2),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^(7/2), x)
```

3.2689 $\int \frac{(1-2x)^{3/2}\sqrt{3+5x}}{(2+3x)^{9/2}}\,dx$

Optimal. Leaf size=191

$$-\frac{2\sqrt{5x+3}(1-2x)^{3/2}}{21(3x+2)^{7/2}}+\frac{595324\sqrt{5x+3}\sqrt{1-2x}}{46305\sqrt{3x+2}}+\frac{8516\sqrt{5x+3}\sqrt{1-2x}}{6615(3x+2)^{3/2}}+\frac{82\sqrt{5x+3}\sqrt{1-2x}}{315(3x+2)^{5/2}}-\frac{18016\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{46305}-\frac{595324\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{46305}$$

```
[Out] (-2*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(21*(2 + 3*x)^(7/2)) + (82*Sqr
t[1 - 2*x]*Sqrt[3 + 5*x])/(315*(2 + 3*x)^(5/2)) + (8516*Sqrt[1 -
2*x]*Sqrt[3 + 5*x])/(6615*(2 + 3*x)^(3/2)) + (595324*Sqrt[1 - 2*x
]*Sqrt[3 + 5*x])/(46305*Sqrt[2 + 3*x]) - (595324*Sqrt[11/3]*Ellip
ticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/46305 - (18016*Sqrt
[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/46305
```

Rubi [A] time = 0.422274, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.214$

$$-\frac{2\sqrt{5x+3}(1-2x)^{3/2}}{21(3x+2)^{7/2}}+\frac{595324\sqrt{5x+3}\sqrt{1-2x}}{46305\sqrt{3x+2}}+\frac{8516\sqrt{5x+3}\sqrt{1-2x}}{6615(3x+2)^{3/2}}+\frac{82\sqrt{5x+3}\sqrt{1-2x}}{315(3x+2)^{5/2}}-\frac{18016\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{46305}-\frac{595324\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{46305}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(2 + 3*x)^(9/2),x]
```

```
[Out] (-2*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(21*(2 + 3*x)^(7/2)) + (82*Sqr
t[1 - 2*x]*Sqrt[3 + 5*x])/(315*(2 + 3*x)^(5/2)) + (8516*Sqrt[1 -
2*x]*Sqrt[3 + 5*x])/(6615*(2 + 3*x)^(3/2)) + (595324*Sqrt[1 - 2*x
]*Sqrt[3 + 5*x])/(46305*Sqrt[2 + 3*x]) - (595324*Sqrt[11/3]*Ellip
ticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/46305 - (18016*Sqrt
[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/46305
```

Rubi in Sympy [A] time = 38.238, size = 172, normalized size = 0.9

$$-\frac{2\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{21\left(3x+2\right)^{\frac{7}{2}}}+\frac{595324\sqrt{-2x+1}\sqrt{5x+3}}{46305\sqrt{3x+2}}+\frac{8516\sqrt{-2x+1}\sqrt{5x+3}}{6615\left(3x+2\right)^{\frac{3}{2}}}+\frac{82\sqrt{-2x+1}\sqrt{5x+3}}{315\left(3x+2\right)^{\frac{5}{2}}}-\frac{595324\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{138915}-\frac{18016\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{138915}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(1/2)/(2+3*x)**(9/2),x)
```

```
[Out] -2*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/(21*(3*x + 2)**(7/2)) + 595324
*sqrt(-2*x + 1)*sqrt(5*x + 3)/(46305*sqrt(3*x + 2)) + 8516*sqrt(-
2*x + 1)*sqrt(5*x + 3)/(6615*(3*x + 2)**(3/2)) + 82*sqrt(-2*x + 1
)*sqrt(5*x + 3)/(315*(3*x + 2)**(5/2)) - 595324*sqrt(33)*elliptic
_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/138915 - 18016*sqrt(33
)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/138915
```

Mathematica [A] time = 0.329159, size = 106, normalized size = 0.55

$$\frac{4\left(\frac{3\sqrt{1-2x}\sqrt{5x+3}(8036874x^3+16342002x^2+11095995x+2510369)}{2(3x+2)^{7/2}}+\sqrt{2}\left(148831E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-74515F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x\right.\right.\right.\right.}{138915}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(2 + 3*x)^(9/2),x]
```

```
[Out] (4*((3*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(2510369 + 11095995*x + 163420
02*x^2 + 8036874*x^3))/(2*(2 + 3*x)^(7/2)) + Sqrt[2]*(148831*Elli
pticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 74515*EllipticF[
ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])))/138915
```

Maple [C] time = 0.029, size = 505, normalized size = 2.6

$$\frac{2}{1389150\,x^2+138915\,x-416745}\left(4023810\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^3\sqrt{1-2\,x}\sqrt{3+5\,x}\sqrt{2+3\,x}-\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^(1/2)/(2+3*x)^(9/2),x)
```

```
[Out] 2/138915*(4023810*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)
^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*x)^
(1/2)*(2+3*x)^(1/2)-8036874*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/
2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2
)*(3+5*x)^(1/2)*(2+3*x)^(1/2)+8047620*2^(1/2)*EllipticF(1/11*11^(
1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3
+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-16073748*2^(1/2)*Elliptic
E(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1
/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+5365080*2^(1/2
)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^
(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-107158
32*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11
^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/
2)+1192240*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Elli
pticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*
2^(1/2))-2381296*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2
)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^
(1/2)*2^(1/2))+241106220*x^5+514370682*x^4+309573990*x^3-38478963
*x^2-92332848*x-22593321)*(3+5*x)^(1/2)*(1-2*x)^(1/2)/(10*x^2+x-3
)/(2+3*x)^(7/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}(-2\,x+1)^{\frac{3}{2}}}{(3\,x+2)^{\frac{9}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^(9/2),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^(9/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{5\,x+3}(-2\,x+1)^{\frac{3}{2}}}{(81\,x^4+216\,x^3+216\,x^2+96\,x+16)\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^(9/2),x, algorithm="fricas")
```

```
[Out] integral(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/((81*x^4 + 216*x^3 + 216*
x^2 + 96*x + 16)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(3/2)*(3+5*x)**(1/2)/(2+3*x)**(9/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}(-2\,x+1)^{\frac{3}{2}}}{(3\,x+2)^{\frac{9}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^(9/2),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^(9/2), x)
```

3.2690 $\int \frac{(1-2x)^{3/2}\sqrt{3+5x}}{(2+3x)^{11/2}}\,dx$

Optimal. Leaf size=222

$$-\frac{2\sqrt{5x+3}(1-2x)^{3/2}}{27(3x+2)^{9/2}}+\frac{42623864\sqrt{5x+3}\sqrt{1-2x}}{972405\sqrt{3x+2}}+\frac{613276\sqrt{5x+3}\sqrt{1-2x}}{138915(3x+2)^{3/2}}+\frac{13136\sqrt{5x+3}\sqrt{1-2x}}{19845(3x+2)^{5/2}}+\frac{82\sqrt{5x+3}\sqrt{1-2x}}{567(3x+2)^{7/2}}-\frac{1282376\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{972405}-\frac{42623864\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{972405}$$

```
[Out] (-2*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(27*(2 + 3*x)^(9/2)) + (82*Sqr
t[1 - 2*x]*Sqrt[3 + 5*x])/(567*(2 + 3*x)^(7/2)) + (13136*Sqrt[1 -
 2*x]*Sqrt[3 + 5*x])/(19845*(2 + 3*x)^(5/2)) + (613276*Sqrt[1 - 2
*x]*Sqrt[3 + 5*x])/(138915*(2 + 3*x)^(3/2)) + (42623864*Sqrt[1 -
2*x]*Sqrt[3 + 5*x])/(972405*Sqrt[2 + 3*x]) - (42623864*Sqrt[11/3]
*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/972405 - (128
2376*Sqrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33]
)/972405
```

Rubi [A] time = 0.505436, antiderivative size = 222, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$-\frac{2\sqrt{5x+3}(1-2x)^{3/2}}{27(3x+2)^{9/2}}+\frac{42623864\sqrt{5x+3}\sqrt{1-2x}}{972405\sqrt{3x+2}}+\frac{613276\sqrt{5x+3}\sqrt{1-2x}}{138915(3x+2)^{3/2}}+\frac{13136\sqrt{5x+3}\sqrt{1-2x}}{19845(3x+2)^{5/2}}+\frac{82\sqrt{5x+3}\sqrt{1-2x}}{567(3x+2)^{7/2}}-\frac{1282376\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{972405}-\frac{42623864\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{972405}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(2 + 3*x)^(11/2),x]
```

```
[Out] (-2*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(27*(2 + 3*x)^(9/2)) + (82*Sqr
t[1 - 2*x]*Sqrt[3 + 5*x])/(567*(2 + 3*x)^(7/2)) + (13136*Sqrt[1 -
 2*x]*Sqrt[3 + 5*x])/(19845*(2 + 3*x)^(5/2)) + (613276*Sqrt[1 - 2
*x]*Sqrt[3 + 5*x])/(138915*(2 + 3*x)^(3/2)) + (42623864*Sqrt[1 -
2*x]*Sqrt[3 + 5*x])/(972405*Sqrt[2 + 3*x]) - (42623864*Sqrt[11/3]
*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/972405 - (128
2376*Sqrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33]
)/972405
```

Rubi in Sympy [A] time = 45.2764, size = 201, normalized size = 0.91

$$-\frac{2\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{27\left(3x+2\right)^{\frac{9}{2}}}+\frac{42623864\sqrt{-2x+1}\sqrt{5x+3}}{972405\sqrt{3x+2}}+\frac{613276\sqrt{-2x+1}\sqrt{5x+3}}{138915\left(3x+2\right)^{\frac{3}{2}}}+\frac{13136\sqrt{-2x+1}\sqrt{5x+3}}{19845\left(3x+2\right)^{\frac{5}{2}}}+\frac{82\sqrt{-2x+1}\sqrt{5x+3}}{567\left(3x+2\right)^{\frac{7}{2}}}-\frac{42623864\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{2917215}-\frac{14106136\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{34034175}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(1/2)/(2+3*x)**(11/2),x)
```

```
[Out] -2*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/(27*(3*x + 2)**(9/2)) + 426238
64*sqrt(-2*x + 1)*sqrt(5*x + 3)/(972405*sqrt(3*x + 2)) + 613276*s
qrt(-2*x + 1)*sqrt(5*x + 3)/(138915*(3*x + 2)**(3/2)) + 13136*sqr
t(-2*x + 1)*sqrt(5*x + 3)/(19845*(3*x + 2)**(5/2)) + 82*sqrt(-2*x
 + 1)*sqrt(5*x + 3)/(567*(3*x + 2)**(7/2)) - 42623864*sqrt(33)*el
liptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/2917215 - 141061
36*sqrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/3
4034175
```

Mathematica [A] time = 0.364187, size = 111, normalized size = 0.5

$$\frac{4\left(\frac{3\sqrt{1-2x}\sqrt{5x+3}\left(1726266492x^4+4661331894x^3+4722182964x^2+2127363207x+359554583\right)}{2(3x+2)^{9/2}}+\sqrt{2}\left(10655966E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)\middle|-\frac{33}{2}\right)-53\right.\right.}{2917215}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(2 + 3*x)^(11/2),x]
```

```
[Out] (4*((3*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(359554583 + 2127363207*x + 47
22182964*x^2 + 4661331894*x^3 + 1726266492*x^4))/(2*(2 + 3*x)^(9/
2)) + Sqrt[2]*(10655966*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]
], -33/2] - 5366165*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -
33/2])))/2917215
```

Maple [C] time = 0.03, size = 624, normalized size = 2.8

$$\frac{2}{29172150\,x^2+2917215\,x-8751645}\left(869318730\,\sqrt{2}\mathit{EllipticF}\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^4\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^(1/2)/(2+3*x)^(11/2),x)
```

```
[Out] 2/2917215*(869318730*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5
*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^4*(3+5*x)^(1/2)*(2+3*
x)^(1/2)*(1-2*x)^(1/2)-1726266492*2^(1/2)*EllipticE(1/11*11^(1/2)
*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^4*(3+5*x
)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+2318183280*2^(1/2)*EllipticF(
1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2
))*x^3*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)-4603377312*2^(1/
2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3
^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)+231
8183280*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2
*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2
*x)^(1/2)-4603377312*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5
*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*
x)^(1/2)*(1-2*x)^(1/2)+1030303680*2^(1/2)*EllipticF(1/11*11^(1/2)
*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^
(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-2045945472*2^(1/2)*EllipticE(1/
11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))
*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+51787994760*x^6+1717
17280*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF
(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/
2))-340990912*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*E
llipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/
2)*2^(1/2))+145018756296*x^5+140113086174*x^4+36035458056*x^3-253
30919565*x^2-18067605114*x-3235991247)*(3+5*x)^(1/2)*(1-2*x)^(1/2
)/(10*x^2+x-3)/(2+3*x)^(9/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5x+3}(-2x+1)^{\frac{3}{2}}}{(3x+2)^{\frac{11}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^(11/2),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^(11/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{5x+3}(-2x+1)^{\frac{3}{2}}}{(243x^5+810x^4+1080x^3+720x^2+240x+32)\sqrt{3x+2}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^(11/2),x, algorithm="fricas")
```

```
[Out] integral(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/((243*x^5 + 810*x^4 + 108
0*x^3 + 720*x^2 + 240*x + 32)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(3/2)*(3+5*x)**(1/2)/(2+3*x)**(11/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5x+3}(-2x+1)^{\frac{3}{2}}}{(3x+2)^{\frac{11}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^(11/2),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)*(-2*x + 1)^(3/2)/(3*x + 2)^(11/2), x)
```

3.2691 $\int (1-2x)^{3/2}(2+3x)^{5/2}(3+5x)^{3/2}\,dx$

Optimal. Leaf size=249

$$\frac{2}{65}(1-2x)^{3/2}(3x+2)^{5/2}(5x+3)^{5/2}+\frac{178\sqrt{1-2x}(3x+2)^{5/2}(5x+3)^{5/2}}{10725}+\frac{601\sqrt{1-2x}(3x+2)^{3/2}(5x+3)^{5/2}}{160875}-\frac{18034\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}}{625625}-\frac{11725073\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}}{56306250}-\frac{776112041\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{506756250}-\frac{776112041F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{230343750\sqrt{33}}-\frac{51601293223E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{460687500\sqrt{33}}$$

```
[Out] (-776112041*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/506756250
- (11725073*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/56306250
 - (18034*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/625625 + (
601*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(5/2))/160875 + (178*
Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)*(3 + 5*x)^(5/2))/10725 + (2*(1 - 2*
x)^(3/2)*(2 + 3*x)^(5/2)*(3 + 5*x)^(5/2))/65 - (51601293223*Ellip
ticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(460687500*Sqrt[33]
) - (776112041*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])
/(230343750*Sqrt[33])
```

Rubi [A] time = 0.568609, antiderivative size = 249, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{2}{65}(1-2x)^{3/2}(3x+2)^{5/2}(5x+3)^{5/2}+\frac{178\sqrt{1-2x}(3x+2)^{5/2}(5x+3)^{5/2}}{10725}+\frac{601\sqrt{1-2x}(3x+2)^{3/2}(5x+3)^{5/2}}{160875}-\frac{18034\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}}{625625}-\frac{11725073\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}}{56306250}-\frac{776112041\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{506756250}-\frac{776112041F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{230343750\sqrt{33}}-\frac{51601293223E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{460687500\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)*(2 + 3*x)^(5/2)*(3 + 5*x)^(3/2),x]
```

```
[Out] (-776112041*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/506756250
- (11725073*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/56306250
 - (18034*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/625625 + (
601*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(5/2))/160875 + (178*
Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)*(3 + 5*x)^(5/2))/10725 + (2*(1 - 2*
x)^(3/2)*(2 + 3*x)^(5/2)*(3 + 5*x)^(5/2))/65 - (51601293223*Ellip
ticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(460687500*Sqrt[33]
) - (776112041*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])
/(230343750*Sqrt[33])
```

Rubi in Sympy [A] time = 54.3711, size = 230, normalized size = 0.92

$$\frac{2\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{\frac{7}{2}}\left(5x+3\right)^{\frac{3}{2}}}{39}-\frac{37\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{\frac{7}{2}}\sqrt{5x+3}}{429}+\frac{8746\sqrt{-2x+1}\left(3x+2\right)^{\frac{7}{2}}\sqrt{5x+3}}{57915}-\frac{150812\sqrt{-2x+1}\left(3x+2\right)^{\frac{5}{2}}\sqrt{5x+3}}{2027025}-\frac{31887029\sqrt{-2x+1}\left(3x+2\right)^{\frac{3}{2}}\sqrt{5x+3}}{101351250}-\frac{371279941\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{253378125}-\frac{51601293223\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{15202687500}-\frac{776112041\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{8062031250}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)**(5/2)*(3+5*x)**(3/2),x)
```

```
[Out] 2*(-2*x + 1)**(3/2)*(3*x + 2)**(7/2)*(5*x + 3)**(3/2)/39 - 37*(-2
*x + 1)**(3/2)*(3*x + 2)**(7/2)*sqrt(5*x + 3)/429 + 8746*sqrt(-2*
x + 1)*(3*x + 2)**(7/2)*sqrt(5*x + 3)/57915 - 150812*sqrt(-2*x +
1)*(3*x + 2)**(5/2)*sqrt(5*x + 3)/2027025 - 31887029*sqrt(-2*x +
1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/101351250 - 371279941*sqrt(-2*x
 + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/253378125 - 51601293223*sqrt(33
)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/15202687500
- 776112041*sqrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11),
 33/35)/8062031250
```

Mathematica [A] time = 0.441935, size = 115, normalized size = 0.46

$$\frac{51601293223E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-5\left(3\sqrt{2-4x}\sqrt{3x+2}\sqrt{5x+3}\left(7016625000x^5+12374775000x^4+3047388750\right.\right.}{7601343750\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)*(2 + 3*x)^(5/2)*(3 + 5*x)^(3/2),x]
```

```
[Out] (51601293223*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] -
 5*(3*Sqrt[2 - 4*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(325972172 - 3548
873565*x - 5775295500*x^2 + 3047388750*x^3 + 12374775000*x^4 + 70
16625000*x^5) + 5197919174*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5
*x]], -33/2]))/(7601343750*Sqrt[2])
```

Maple [C] time = 0.016, size = 189, normalized size = 0.8

$$\frac{1}{456080625000\,x^3+349661812500\,x^2-106418812500\,x-91216125000}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(-6314962500000\,x^8-1\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^(5/2)*(3+5*x)^(3/2),x)
```

```
[Out] 1/15202687500*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(-6314962
500000*x^8-15978768750000*x^7-9807753375000*x^6+25989595870*2^(1/
2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1
/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-5160129
3223*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(
1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2
))+6956762962500*x^5+10046351241000*x^4+1491065725050*x^3-2009737
437330*x^2-570343085580*x+58674990960)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (5\,x+3)^{\frac{3}{2}}(3\,x+2)^{\frac{5}{2}}(-2\,x+1)^{\frac{3}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)^(5/2)*(-2*x + 1)^(3/2),x, algorithm="maxima"
```

```
[Out] integrate((5*x + 3)^(3/2)*(3*x + 2)^(5/2)*(-2*x + 1)^(3/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\left(90\,x^4+129\,x^3+25\,x^2-32\,x-12\right)\sqrt{5\,x+3}\sqrt{3\,x+2}\sqrt{-2\,x+1},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(3*x + 2)^(5/2)*(-2*x + 1)^(3/2),x, algorithm="fricas"
```

```
[Out] integral(-(90*x^4 + 129*x^3 + 25*x^2 - 32*x - 12)*sqrt(5*x + 3)*s
qrt(3*x + 2)*sqrt(-2*x + 1), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)**(5/2)*(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (5\,x+3)^{\frac{3}{2}}(3\,x+2)^{\frac{5}{2}}(-2\,x+1)^{\frac{3}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(3*x + 2)^(5/2)*(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(3/2)*(3*x + 2)^(5/2)*(-2*x + 1)^(3/2), x)
```

3.2692 $\int (1-2x)^{3/2}(2+3x)^{3/2}(3+5x)^{3/2}\,dx$

Optimal. Leaf size=218

$$\frac{2}{55}(1-2x)^{3/2}(3x+2)^{3/2}(5x+3)^{5/2}+\frac{62\sqrt{1-2x}(3x+2)^{3/2}(5x+3)^{5/2}}{2475}-\frac{23\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}}{9625}-\frac{40703\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}}{433125}-\frac{5442127\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{7796250}-\frac{5442127F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3543750\sqrt{33}}-\frac{90397364E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1771875\sqrt{33}}$$

```
[Out] (-5442127*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/7796250 - (4
0703*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/433125 - (23*Sq
rt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/9625 + (62*Sqrt[1 - 2*
x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(5/2))/2475 + (2*(1 - 2*x)^(3/2)*(2
+ 3*x)^(3/2)*(3 + 5*x)^(5/2))/55 - (90397364*EllipticE[ArcSin[Sqr
t[3/7]*Sqrt[1 - 2*x]], 35/33])/(1771875*Sqrt[33]) - (5442127*Elli
pticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(3543750*Sqrt[33])
```

Rubi [A] time = 0.484428, antiderivative size = 218, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.179$

$$\frac{2}{55}(1-2x)^{3/2}(3x+2)^{3/2}(5x+3)^{5/2}+\frac{62\sqrt{1-2x}(3x+2)^{3/2}(5x+3)^{5/2}}{2475}-\frac{23\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}}{9625}-\frac{40703\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}}{433125}-\frac{5442127\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{7796250}-\frac{5442127F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3543750\sqrt{33}}-\frac{90397364E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1771875\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2),x]
```


```
[Out] (-5442127*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/7796250 - (4
0703*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/433125 - (23*Sq
rt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/9625 + (62*Sqrt[1 - 2*
x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(5/2))/2475 + (2*(1 - 2*x)^(3/2)*(2
+ 3*x)^(3/2)*(3 + 5*x)^(5/2))/55 - (90397364*EllipticE[ArcSin[Sqr
t[3/7]*Sqrt[1 - 2*x]], 35/33])/(1771875*Sqrt[33]) - (5442127*Elli
pticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(3543750*Sqrt[33])
```

Rubi in Sympy [A] time = 45.7725, size = 201, normalized size = 0.92

$$\frac{2(-2x+1)^{\frac{3}{2}}(3x+2)^{\frac{5}{2}}(5x+3)^{\frac{3}{2}}}{33}-\frac{37(-2x+1)^{\frac{3}{2}}(3x+2)^{\frac{5}{2}}\sqrt{5x+3}}{297}+\frac{6436\sqrt{-2x+1}(3x+2)^{\frac{5}{2}}\sqrt{5x+3}}{31185}-\frac{110519\sqrt{-2x+1}(3x+2)^{\frac{3}{2}}\sqrt{5x+3}}{779625}-\frac{5199979\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{7796250}-\frac{90397364\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{58471875}-\frac{5442127\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{124031250}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)**(3/2)*(3+5*x)**(3/2),x)
```

```
[Out] 2*(-2*x + 1)**(3/2)*(3*x + 2)**(5/2)*(5*x + 3)**(3/2)/33 - 37*(-2
*x + 1)**(3/2)*(3*x + 2)**(5/2)*sqrt(5*x + 3)/297 + 6436*sqrt(-2*
x + 1)*(3*x + 2)**(5/2)*sqrt(5*x + 3)/31185 - 110519*sqrt(-2*x +
1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/779625 - 5199979*sqrt(-2*x + 1)
*sqrt(3*x + 2)*sqrt(5*x + 3)/7796250 - 90397364*sqrt(33)*elliptic
_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/58471875 - 5442127*sqr
t(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/1240312
50
```

Mathematica [A] time = 0.391771, size = 110, normalized size = 0.5

$$\frac{361589456E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-5\left(3\sqrt{2-4x}\sqrt{3x+2}\sqrt{5x+3}\left(42525000x^4+43470000x^3-17237250x^2-27227\right.\right.}{116943750\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2),x]
```

```
[Out] (361589456*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 5
*(3*Sqrt[2 - 4*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(-810641 - 27227430
*x - 17237250*x^2 + 43470000*x^3 + 42525000*x^4) + 36399853*Ellip
ticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]))/(116943750*Sqrt[2
])
```

Maple [C] time = 0.022, size = 184, normalized size = 0.8

$$\frac{1}{7016625000\,x^3+5379412500\,x^2-1637212500\,x-1403325000}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(-38272500000\,x^7-6846525000\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^(3/2)*(3+5*x)^(3/2),x)
```

```
[Out] 1/233887500*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(-382725000
00*x^7-68465250000*x^6+181999265*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1
/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1
/2*I*11^(1/2)*3^(1/2)*2^(1/2))-361589456*2^(1/2)*(3+5*x)^(1/2)*(2
+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)
^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-5550525000*x^5+53181589500
*x^4+23721281100*x^3-8261123010*x^2-5071172010*x-145915380)/(30*x
^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (5\,x+3)^{\frac{3}{2}}(3\,x+2)^{\frac{3}{2}}(-2\,x+1)^{\frac{3}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)^(3/2)*(-2*x + 1)^(3/2),x, algorithm="maxima"
```

```
[Out] integrate((5*x + 3)^(3/2)*(3*x + 2)^(3/2)*(-2*x + 1)^(3/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\left(30\,x^3+23\,x^2-7\,x-6\right)\sqrt{5\,x+3}\sqrt{3\,x+2}\sqrt{-2\,x+1},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(3*x + 2)^(3/2)*(-2*x + 1)^(3/2),x, algorithm="fricas"
```

```
[Out] integral(-(30*x^3 + 23*x^2 - 7*x - 6)*sqrt(5*x + 3)*sqrt(3*x + 2)
*sqrt(-2*x + 1), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(3/2)*(2+3*x)**(3/2)*(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (5x+3)^{\frac{3}{2}}(3x+2)^{\frac{3}{2}}(-2x+1)^{\frac{3}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(3*x + 2)^(3/2)*(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(3/2)*(3*x + 2)^(3/2)*(-2*x + 1)^(3/2), x)
```

3.2693 $\int (1-2x)^{3/2}\sqrt{2+3x}(3+5x)^{3/2}\,dx$

Optimal. Leaf size=191

$$\frac{2}{45}(1-2x)^{3/2}\sqrt{3x+2}(5x+3)^{5/2}+\frac{194\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}}{4725}-\frac{839\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}}{23625}-\frac{76163\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{212625}-\frac{76163\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1063125}-\frac{4971289\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{2126250}$$

```
[Out] (-76163*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/212625 - (839*
Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/23625 + (194*Sqrt[1
- 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/4725 + (2*(1 - 2*x)^(3/2)*S
qrt[2 + 3*x]*(3 + 5*x)^(5/2))/45 - (4971289*Sqrt[11/3]*EllipticE[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/2126250 - (76163*Sqrt[11
/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1063125
```

Rubi [A] time = 0.404634, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{2}{45}(1-2x)^{3/2}\sqrt{3x+2}(5x+3)^{5/2}+\frac{194\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}}{4725}-\frac{839\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}}{23625}-\frac{76163\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{212625}-\frac{76163\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1063125}-\frac{4971289\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{2126250}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2),x]
```

```
[Out] (-76163*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/212625 - (839*
Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/23625 + (194*Sqrt[1
- 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/4725 + (2*(1 - 2*x)^(3/2)*S
qrt[2 + 3*x]*(3 + 5*x)^(5/2))/45 - (4971289*Sqrt[11/3]*EllipticE[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/2126250 - (76163*Sqrt[11
/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1063125
```

Rubi in Sympy [A] time = 38.3437, size = 172, normalized size = 0.9

$$\frac{2\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{3}{2}}}{27}-\frac{37\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{\frac{3}{2}}\sqrt{5x+3}}{189}+\frac{4126\sqrt{-2x+1}\left(3x+2\right)^{\frac{3}{2}}\sqrt{5x+3}}{14175}-\frac{70226\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{212625}-\frac{4971289\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{6378750}-\frac{76163\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{3189375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(3/2)*(2+3*x)**(1/2),x)
```

```
[Out] 2*(-2*x + 1)**(3/2)*(3*x + 2)**(3/2)*(5*x + 3)**(3/2)/27 - 37*(-2
*x + 1)**(3/2)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/189 + 4126*sqrt(-2*
x + 1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/14175 - 70226*sqrt(-2*x + 1
)*sqrt(3*x + 2)*sqrt(5*x + 3)/212625 - 4971289*sqrt(33)*elliptic_
e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/6378750 - 76163*sqrt(33
```

```
)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/3189375
```

Mathematica [A] time = 0.342226, size = 105, normalized size = 0.55

$$\frac{4971289E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-5\left(3\sqrt{2-4x}\sqrt{3x+2}\sqrt{5x+3}\left(472500x^3+112500x^2-337545x-64804\right)+49158\right.}{3189375\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2),x]
```

```
[Out] (4971289*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 5*(
3*Sqrt[2 - 4*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(-64804 - 337545*x +
112500*x^2 + 472500*x^3) + 491582*EllipticF[ArcSin[Sqrt[2/11]*Sqr
t[3 + 5*x]], -33/2]))/(3189375*Sqrt[2])
```

Maple [C] time = 0.017, size = 179, normalized size = 0.9

$$\frac{1}{191362500\,x^3+146711250\,x^2-44651250\,x-38272500}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(-425250000\,x^6+2457910\,\sqrt{2}\sqrt{3+5\,x}\sqrt{\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^(3/2)*(2+3*x)^(1/2),x)
```

```
[Out] 1/6378750*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(-425250000*x
^6+2457910*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Elli
pticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*
2^(1/2))-4971289*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2
)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^
(1/2)*2^(1/2))-427275000*x^5+325390500*x^4+399904650*x^3-5919690*
x^2-74366940*x-11664720)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (5\,x+3)^{\frac{3}{2}}\sqrt{3\,x+2}(-2\,x+1)^{\frac{3}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*sqrt(3*x + 2)*(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] integrate((5*x + 3)^(3/2)*sqrt(3*x + 2)*(-2*x + 1)^(3/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\left(10\,x^2+x-3\right)\sqrt{5\,x+3}\sqrt{3\,x+2}\sqrt{-2\,x+1},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*sqrt(3*x + 2)*(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] integral(-(10*x^2 + x - 3)*sqrt(5*x + 3)*sqrt(3*x + 2)*sqrt(-2*x
+ 1), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**(3/2)*(2+3*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (5x+3)^{\frac{3}{2}}\sqrt{3x+2}(-2x+1)^{\frac{3}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*sqrt(3*x + 2)*(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(3/2)*sqrt(3*x + 2)*(-2*x + 1)^(3/2), x)
```

3.2694 $\int \frac{(1-2x)^{3/2}(3+5x)^{3/2}}{\sqrt{2+3x}}\,dx$

Optimal. Leaf size=160

$$\frac{2}{21}(1-2x)^{3/2}\sqrt{3x+2}(5x+3)^{3/2}+\frac{74}{525}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}-\frac{1847\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{4725}-\frac{1847\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{23625}-\frac{29933\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{23625}$$

```
[Out] (-1847*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/4725 + (74*Sqrt
[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/525 + (2*(1 - 2*x)^(3/2)
*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/21 - (29933*Sqrt[11/3]*EllipticE[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/23625 - (1847*Sqrt[11/3]
*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/23625
```

Rubi [A] time = 0.323509, antiderivative size = 160, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{2}{21}(1-2x)^{3/2}\sqrt{3x+2}(5x+3)^{3/2}+\frac{74}{525}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}-\frac{1847\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{4725}-\frac{1847\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{23625}-\frac{29933\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{23625}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/Sqrt[2 + 3*x],x]
```

```
[Out] (-1847*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/4725 + (74*Sqrt
[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/525 + (2*(1 - 2*x)^(3/2)
*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/21 - (29933*Sqrt[11/3]*EllipticE[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/23625 - (1847*Sqrt[11/3]
*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/23625
```

Rubi in Sympy [A] time = 30.9341, size = 143, normalized size = 0.89

$$\frac{2\left(-2x+1\right)^{\frac{3}{2}}\sqrt{3x+2}\left(5x+3\right)^{\frac{3}{2}}}{21}-\frac{37\left(-2x+1\right)^{\frac{3}{2}}\sqrt{3x+2}\sqrt{5x+3}}{105}+\frac{1816\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{4725}-\frac{29933\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{70875}-\frac{20317\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{826875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(3/2)/(2+3*x)**(1/2),x)
```

```
[Out] 2*(-2*x + 1)**(3/2)*sqrt(3*x + 2)*(5*x + 3)**(3/2)/21 - 37*(-2*x
+ 1)**(3/2)*sqrt(3*x + 2)*sqrt(5*x + 3)/105 + 1816*sqrt(-2*x + 1)
*sqrt(3*x + 2)*sqrt(5*x + 3)/4725 - 29933*sqrt(33)*elliptic_e(asi
n(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/70875 - 20317*sqrt(35)*ellip
tic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/826875
```

Mathematica [A] time = 0.302236, size = 97, normalized size = 0.61

$$\frac{15\sqrt{2-4x}\sqrt{3x+2}\sqrt{5x+3}\left(-4500x^2+2880x+1501\right)+1085F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+59866E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right.\right.}{70875\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/Sqrt[2 + 3*x],x]
```

```
[Out] (15*Sqrt[2 - 4*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(1501 + 2880*x - 45
00*x^2) + 59866*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2
] + 1085*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/(708
75*Sqrt[2])
```

Maple [C] time = 0.017, size = 174, normalized size = 1.1

$$-\frac{1}{4252500\,x^3+3260250\,x^2-992250\,x-850500}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(1085\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/1\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^(3/2)/(2+3*x)^(1/2),x)
```

```
[Out] -1/141750*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1085*2^(1/2)
*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2
)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+59866*2^(
1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^
(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+40500
00*x^5+513000*x^4-4283100*x^3-1240890*x^2+833610*x+270180)/(30*x^
3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{3}{2}}(-2\,x+1)^{\frac{3}{2}}}{\sqrt{3\,x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/sqrt(3*x + 2),x, algorithm="maxima")
```

```
[Out] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/sqrt(3*x + 2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{(10\,x^2+x-3)\sqrt{5\,x+3}\sqrt{-2\,x+1}}{\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/sqrt(3*x + 2),x, algorithm="fricas")
```

```
[Out] integral(-(10*x^2 + x - 3)*sqrt(5*x + 3)*sqrt(-2*x + 1)/sqrt(3*x
+ 2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**(3/2)/(2+3*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{3}{2}}(-2x+1)^{\frac{3}{2}}}{\sqrt{3x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/sqrt(3*x + 2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/sqrt(3*x + 2), x)
```

3.2695 $\int \frac{(1-2x)^{3/2}(3+5x)^{3/2}}{(2+3x)^{3/2}}\,dx$

Optimal. Leaf size=160

$$-\frac{8}{15}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}-\frac{2(1-2x)^{3/2}(5x+3)^{3/2}}{3\sqrt{3x+2}}+\frac{494}{135}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}+\frac{494}{675}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{2209}{675}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (494*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/135 - (2*(1 - 2*x
)^(3/2)*(3 + 5*x)^(3/2))/(3*Sqrt[2 + 3*x]) - (8*Sqrt[1 - 2*x]*Sqr
t[2 + 3*x]*(3 + 5*x)^(3/2))/15 - (2209*Sqrt[11/3]*EllipticE[ArcSi
n[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/675 + (494*Sqrt[11/3]*Ellipti
cF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/675
```

Rubi [A] time = 0.322612, antiderivative size = 160, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{8}{15}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}-\frac{2(1-2x)^{3/2}(5x+3)^{3/2}}{3\sqrt{3x+2}}+\frac{494}{135}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}+\frac{494}{675}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{2209}{675}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^(3/2),x]
```


```
[Out] (494*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/135 - (2*(1 - 2*x
)^(3/2)*(3 + 5*x)^(3/2))/(3*Sqrt[2 + 3*x]) - (8*Sqrt[1 - 2*x]*Sqr
t[2 + 3*x]*(3 + 5*x)^(3/2))/15 - (2209*Sqrt[11/3]*EllipticE[ArcSi
n[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/675 + (494*Sqrt[11/3]*Ellipti
cF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/675
```

Rubi in Sympy [A] time = 31.3372, size = 143, normalized size = 0.89

$$-\frac{2\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{3}{2}}}{3\sqrt{3x+2}}-\frac{8\sqrt{-2x+1}\sqrt{3x+2}\left(5x+3\right)^{\frac{3}{2}}}{15}+\frac{494\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{135}-\frac{2209\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{2025}+\frac{494\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{2025}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(3/2)/(2+3*x)**(3/2),x)
```

```
[Out] -2*(-2*x + 1)**(3/2)*(5*x + 3)**(3/2)/(3*sqrt(3*x + 2)) - 8*sqrt(
-2*x + 1)*sqrt(3*x + 2)*(5*x + 3)**(3/2)/15 + 494*sqrt(-2*x + 1)*
sqrt(3*x + 2)*sqrt(5*x + 3)/135 - 2209*sqrt(33)*elliptic_e(asin(s
qrt(21)*sqrt(-2*x + 1)/7), 35/33)/2025 + 494*sqrt(33)*elliptic_f(
asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/2025
```

Mathematica [A] time = 0.325451, size = 102, normalized size = 0.64

$$\frac{-\frac{30\sqrt{1-2x}\sqrt{5x+3}(90x^2-102x-143)}{\sqrt{3x+2}}-10360\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+2209\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)}{2025}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^(3/2),x]
```

```
[Out] ((-30*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(-143 - 102*x + 90*x^2))/Sqrt[2
 + 3*x] + 2209*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]]
, -33/2] - 10360*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x
]], -33/2])/2025
```

Maple [C] time = 0.024, size = 169, normalized size = 1.1

$$\frac{1}{60750\,x^3+46575\,x^2-14175\,x-12150}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(10360\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{11}\sqrt{}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^(3/2)/(2+3*x)^(3/2),x)
```

```
[Out] 1/2025*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(10360*2^(1/2)*(
3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*
2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-2209*2^(1/2
)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/
2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-27000*x^
4+27900*x^3+54060*x^2-4890*x-12870)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{3}{2}}(-2\,x+1)^{\frac{3}{2}}}{(3\,x+2)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(3/2),x, algorithm="maxima"
```

```
[Out] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(3/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{(10\,x^2+x-3)\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}{(3\,x+2)^{\frac{3}{2}}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(3/2),x, algorithm="fricas"
```

```
[Out] integral(-(10*x^2 + x - 3)*sqrt(5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)
^(3/2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**(3/2)/(2+3*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{3}{2}}(-2x+1)^{\frac{3}{2}}}{(3x+2)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(3/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(3/2), x)
```

3.2696 $\int \frac{(1-2x)^{3/2}(3+5x)^{3/2}}{(2+3x)^{5/2}}\,dx$

Optimal. Leaf size=160

$$\frac{74\sqrt{1-2x}(5x+3)^{3/2}}{9\sqrt{3x+2}}-\frac{2(1-2x)^{3/2}(5x+3)^{3/2}}{9(3x+2)^{3/2}}-\frac{1150}{81}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}-\frac{230}{81}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{592}{81}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (-1150*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/81 - (2*(1 - 2*
x)^(3/2)*(3 + 5*x)^(3/2))/(9*(2 + 3*x)^(3/2)) + (74*Sqrt[1 - 2*x]
*(3 + 5*x)^(3/2))/(9*Sqrt[2 + 3*x]) + (592*Sqrt[11/3]*EllipticE[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/81 - (230*Sqrt[11/3]*Elli
pticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/81
```

Rubi [A] time = 0.328648, antiderivative size = 160, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{74\sqrt{1-2x}(5x+3)^{3/2}}{9\sqrt{3x+2}}-\frac{2(1-2x)^{3/2}(5x+3)^{3/2}}{9(3x+2)^{3/2}}-\frac{1150}{81}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}-\frac{230}{81}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{592}{81}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^(5/2),x]
```

```
[Out] (-1150*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/81 - (2*(1 - 2*
x)^(3/2)*(3 + 5*x)^(3/2))/(9*(2 + 3*x)^(3/2)) + (74*Sqrt[1 - 2*x]
*(3 + 5*x)^(3/2))/(9*Sqrt[2 + 3*x]) + (592*Sqrt[11/3]*EllipticE[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/81 - (230*Sqrt[11/3]*Elli
pticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/81
```

Rubi in Sympy [A] time = 31.1654, size = 143, normalized size = 0.89

$$-\frac{74\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{63\sqrt{3x+2}}-\frac{2\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{3}{2}}}{9\left(3x+2\right)^{\frac{3}{2}}}-\frac{724\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{567}+\frac{592\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{243}-\frac{506\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{567}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(3/2)/(2+3*x)**(5/2),x)
```

```
[Out] -74*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/(63*sqrt(3*x + 2)) - 2*(-2*x
+ 1)**(3/2)*(5*x + 3)**(3/2)/(9*(3*x + 2)**(3/2)) - 724*sqrt(-2*x
 + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/567 + 592*sqrt(33)*elliptic_e(a
sin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/243 - 506*sqrt(35)*ellipti
c_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/567
```

Mathematica [A] time = 0.325282, size = 102, normalized size = 0.64

$$\frac{1}{243}\left(-\frac{6\sqrt{1-2x}\sqrt{5x+3}\left(90x^2+564x+329\right)}{(3x+2)^{3/2}}+4387\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-592\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^(5/2),x]
```

```
[Out] ((-6*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(329 + 564*x + 90*x^2))/(2 + 3*x
)^(3/2) - 592*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]],
 -33/2] + 4387*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]]
, -33/2])/243
```

Maple [C] time = 0.028, size = 272, normalized size = 1.7

$$-\frac{1}{2430\,x^2+243\,x-729}\left(13161\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-1776\,\sqrt{2}Elli$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^(3/2)/(2+3*x)^(5/2),x)
```

```
[Out] -1/243*(13161*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/
2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*
(1-2*x)^(1/2)-1776*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x
)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(
1/2)*(1-2*x)^(1/2)+8774*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*
x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(
1/2)*3^(1/2)*2^(1/2))-1184*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1
-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*1
1^(1/2)*3^(1/2)*2^(1/2))+5400*x^4+34380*x^3+21504*x^2-8178*x-5922
)*(3+5*x)^(1/2)*(1-2*x)^(1/2)/(10*x^2+x-3)/(2+3*x)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{3}{2}}(-2\,x+1)^{\frac{3}{2}}}{(3\,x+2)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(5/2),x, algorithm="maxima"
```

```
[Out] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(5/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{\left(10\,x^2+x-3\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}}{(9\,x^2+12\,x+4)\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(5/2),x, algorithm="fricas"
```

```
[Out] integral(-(10*x^2 + x - 3)*sqrt(5*x + 3)*sqrt(-2*x + 1)/((9*x^2 +
 12*x + 4)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**(3/2)/(2+3*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{3}{2}}(-2x+1)^{\frac{3}{2}}}{(3x+2)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(5/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(5/2), x)
```

3.2697 $\int \frac{(1-2x)^{3/2}(3+5x)^{3/2}}{(2+3x)^{7/2}}\,dx$

Optimal. Leaf size=160

$$\frac{74\sqrt{1-2x}(5x+3)^{3/2}}{45(3x+2)^{3/2}}-\frac{2(1-2x)^{3/2}(5x+3)^{3/2}}{15(3x+2)^{5/2}}+\frac{988\sqrt{1-2x}\sqrt{5x+3}}{945\sqrt{3x+2}}+\frac{988}{945}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{4418}{945}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (988*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(945*Sqrt[2 + 3*x]) - (2*(1 - 2
*x)^(3/2)*(3 + 5*x)^(3/2))/(15*(2 + 3*x)^(5/2)) + (74*Sqrt[1 - 2*
x]*(3 + 5*x)^(3/2))/(45*(2 + 3*x)^(3/2)) - (4418*Sqrt[11/3]*Ellip
ticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/945 + (988*Sqrt[11/
3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/945
```

Rubi [A] time = 0.332677, antiderivative size = 160, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{74\sqrt{1-2x}(5x+3)^{3/2}}{45(3x+2)^{3/2}}-\frac{2(1-2x)^{3/2}(5x+3)^{3/2}}{15(3x+2)^{5/2}}+\frac{988\sqrt{1-2x}\sqrt{5x+3}}{945\sqrt{3x+2}}+\frac{988}{945}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{4418}{945}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^(7/2),x]
```

```
[Out] (988*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(945*Sqrt[2 + 3*x]) - (2*(1 - 2
*x)^(3/2)*(3 + 5*x)^(3/2))/(15*(2 + 3*x)^(5/2)) + (74*Sqrt[1 - 2*
x]*(3 + 5*x)^(3/2))/(45*(2 + 3*x)^(3/2)) - (4418*Sqrt[11/3]*Ellip
ticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/945 + (988*Sqrt[11/
3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/945
```

Rubi in Sympy [A] time = 30.4985, size = 143, normalized size = 0.89

$$-\frac{74\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{315\left(3x+2\right)^{\frac{3}{2}}}-\frac{2\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{3}{2}}}{15\left(3x+2\right)^{\frac{5}{2}}}+\frac{98\sqrt{-2x+1}\sqrt{5x+3}}{27\sqrt{3x+2}}-\frac{4418\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{2835}+\frac{10868\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{33075}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(3/2)/(2+3*x)**(7/2),x)
```

```
[Out] -74*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/(315*(3*x + 2)**(3/2)) - 2*(-
2*x + 1)**(3/2)*(5*x + 3)**(3/2)/(15*(3*x + 2)**(5/2)) + 98*sqrt(
-2*x + 1)*sqrt(5*x + 3)/(27*sqrt(3*x + 2)) - 4418*sqrt(33)*ellipt
ic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/2835 + 10868*sqrt(35
)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/33075
```

Mathematica [A] time = 0.234927, size = 99, normalized size = 0.62

$$\frac{2\left(\frac{3\sqrt{1-2x}\sqrt{5x+3}(16731x^2+20754x+6449)}{(3x+2)^{5/2}}+\sqrt{2}\left(2209E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-10360F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)\right)}{2835}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^(7/2),x]
```

```
[Out] (2*((3*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(6449 + 20754*x + 16731*x^2))/
(2 + 3*x)^(5/2) + Sqrt[2]*(2209*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[
3 + 5*x]], -33/2] - 10360*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*
x]], -33/2])))/2835
```

Maple [C] time = 0.027, size = 386, normalized size = 2.4

$$\frac{2}{28350\,x^2+2835\,x-8505}\left(93240\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^2\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-19881\,\sqrt{\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^(3/2)/(2+3*x)^(7/2),x)
```

```
[Out] 2/2835*(93240*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/
2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2
)*(1-2*x)^(1/2)-19881*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+
5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3
*x)^(1/2)*(1-2*x)^(1/2)+124320*2^(1/2)*EllipticF(1/11*11^(1/2)*2^
(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/
2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-26508*2^(1/2)*EllipticE(1/11*11^(1
/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*
x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+41440*2^(1/2)*(3+5*x)^(1/2)*
(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*
x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-8836*2^(1/2)*(3+5*x)^(1/
2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3
+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+501930*x^4+672813*x^3
+105153*x^2-167439*x-58041)*(3+5*x)^(1/2)*(1-2*x)^(1/2)/(10*x^2+x
-3)/(2+3*x)^(5/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{3}{2}}(-2\,x+1)^{\frac{3}{2}}}{(3\,x+2)^{\frac{7}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(7/2),x, algorithm="maxima"
```

```
[Out] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(7/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{\left(10\,x^2+x-3\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}}{\left(27\,x^3+54\,x^2+36\,x+8\right)\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(7/2),x, algorithm="fricas"
```

```
[Out] integral(-(10*x^2 + x - 3)*sqrt(5*x + 3)*sqrt(-2*x + 1)/((27*x^3
+ 54*x^2 + 36*x + 8)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**(3/2)/(2+3*x)**(7/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{3}{2}}(-2x+1)^{\frac{3}{2}}}{(3x+2)^{\frac{7}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(7/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(7/2), x)
```

3.2698 $\int \frac{(1-2x)^{3/2}(3+5x)^{3/2}}{(2+3x)^{9/2}}\,dx$

Optimal. Leaf size=191

$$\frac{74\sqrt{1-2x}(5x+3)^{3/2}}{105(3x+2)^{5/2}}-\frac{2(1-2x)^{3/2}(5x+3)^{3/2}}{21(3x+2)^{7/2}}+\frac{119732\sqrt{1-2x}\sqrt{5x+3}}{46305\sqrt{3x+2}}-\frac{3632\sqrt{1-2x}\sqrt{5x+3}}{6615(3x+2)^{3/2}}-\frac{7388\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{46305}-\frac{119732\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{46305}$$

```
[Out] (-3632*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(6615*(2 + 3*x)^(3/2)) + (119
732*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(46305*Sqrt[2 + 3*x]) - (2*(1 -
2*x)^(3/2)*(3 + 5*x)^(3/2))/(21*(2 + 3*x)^(7/2)) + (74*Sqrt[1 - 2
*x]*(3 + 5*x)^(3/2))/(105*(2 + 3*x)^(5/2)) - (119732*Sqrt[11/3]*E
llipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/46305 - (7388*S
qrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/4630
5
```

Rubi [A] time = 0.414057, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{74\sqrt{1-2x}(5x+3)^{3/2}}{105(3x+2)^{5/2}}-\frac{2(1-2x)^{3/2}(5x+3)^{3/2}}{21(3x+2)^{7/2}}+\frac{119732\sqrt{1-2x}\sqrt{5x+3}}{46305\sqrt{3x+2}}-\frac{3632\sqrt{1-2x}\sqrt{5x+3}}{6615(3x+2)^{3/2}}-\frac{7388\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{46305}-\frac{119732\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{46305}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^(9/2),x]
```

```
[Out] (-3632*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(6615*(2 + 3*x)^(3/2)) + (119
732*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(46305*Sqrt[2 + 3*x]) - (2*(1 -
2*x)^(3/2)*(3 + 5*x)^(3/2))/(21*(2 + 3*x)^(7/2)) + (74*Sqrt[1 - 2
*x]*(3 + 5*x)^(3/2))/(105*(2 + 3*x)^(5/2)) - (119732*Sqrt[11/3]*E
llipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/46305 - (7388*S
qrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/4630
5
```

Rubi in Sympy [A] time = 38.2118, size = 172, normalized size = 0.9

$$-\frac{74\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{735\left(3x+2\right)^{\frac{5}{2}}}-\frac{2\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{3}{2}}}{21\left(3x+2\right)^{\frac{7}{2}}}+\frac{119732\sqrt{-2x+1}\sqrt{5x+3}}{46305\sqrt{3x+2}}+\frac{3694\sqrt{-2x+1}\sqrt{5x+3}}{6615\left(3x+2\right)^{\frac{3}{2}}}-\frac{119732\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{138915}-\frac{81268\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{1620675}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(3/2)/(2+3*x)**(9/2),x)
```

```
[Out] -74*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/(735*(3*x + 2)**(5/2)) - 2*(-
2*x + 1)**(3/2)*(5*x + 3)**(3/2)/(21*(3*x + 2)**(7/2)) + 119732*s
qrt(-2*x + 1)*sqrt(5*x + 3)/(46305*sqrt(3*x + 2)) + 3694*sqrt(-2*
x + 1)*sqrt(5*x + 3)/(6615*(3*x + 2)**(3/2)) - 119732*sqrt(33)*el
liptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/138915 - 81268*s
qrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/16206
75
```

Mathematica [A] time = 0.260711, size = 104, normalized size = 0.54

$$\frac{2\left(\frac{3\sqrt{1-2x}\sqrt{5x+3}(1616382x^3+3385161x^2+2314860x+519367)}{(3x+2)^{7/2}}+\sqrt{2}\left(1085F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+59866E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)\right.\right.\right.}{138915}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^(9/2),x]
```

```
[Out] (2*((3*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(519367 + 2314860*x + 3385161*
x^2 + 1616382*x^3))/(2 + 3*x)^(7/2) + Sqrt[2]*(59866*EllipticE[Ar
cSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 1085*EllipticF[ArcSin[Sq
rt[2/11]*Sqrt[3 + 5*x]], -33/2])))/138915
```

Maple [C] time = 0.029, size = 505, normalized size = 2.6

$$-\frac{2}{1389150\,x^2+138915\,x-416745}\left(29295\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^3\sqrt{1-2\,x}\sqrt{3+5\,x}\sqrt{2+3\,x}+\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^(3/2)/(2+3*x)^(9/2),x)
```

```
[Out] -2/138915*(29295*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^
(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*x)^(
1/2)*(2+3*x)^(1/2)+1616382*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2
)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)
*(3+5*x)^(1/2)*(2+3*x)^(1/2)+58590*2^(1/2)*EllipticF(1/11*11^(1/2
)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*
x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+3232764*2^(1/2)*EllipticE(1/
11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))
*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+39060*2^(1/2)*Elli
pticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*
2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+2155176*2^(1
/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*
3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+8680
*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11
*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+4
78928*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE
(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/
2))-48491460*x^5-106403976*x^4-65053845*x^3+7940859*x^2+19275639*
x+4674303)*(3+5*x)^(1/2)*(1-2*x)^(1/2)/(10*x^2+x-3)/(2+3*x)^(7/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{3}{2}}(-2\,x+1)^{\frac{3}{2}}}{(3\,x+2)^{\frac{9}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(9/2),x, algorithm="maxima"
```

```
[Out] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(9/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{(10\,x^2+x-3)\sqrt{5\,x+3}\sqrt{-2\,x+1}}{(81\,x^4+216\,x^3+216\,x^2+96\,x+16)\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(9/2),x, algorithm="fricas"
```

```
[Out] integral(-(10*x^2 + x - 3)*sqrt(5*x + 3)*sqrt(-2*x + 1)/((81*x^4
+ 216*x^3 + 216*x^2 + 96*x + 16)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(3/2)*(3+5*x)**(3/2)/(2+3*x)**(9/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{3}{2}}(-2\,x+1)^{\frac{3}{2}}}{(3\,x+2)^{\frac{9}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(9/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(9/2), x)
```

3.2699 $\int \frac{(1-2x)^{3/2}(3+5x)^{3/2}}{(2+3x)^{11/2}}\,dx$

Optimal. Leaf size=222

$$\frac{74\sqrt{1-2x}(5x+3)^{3/2}}{189(3x+2)^{7/2}}-\frac{2(1-2x)^{3/2}(5x+3)^{3/2}}{27(3x+2)^{9/2}}+\frac{19885156\sqrt{1-2x}\sqrt{5x+3}}{2917215\sqrt{3x+2}}+\frac{280904\sqrt{1-2x}\sqrt{5x+3}}{416745(3x+2)^{3/2}}-\frac{8252\sqrt{1-2x}\sqrt{5x+3}}{19845(3x+2)^{5/2}}-\frac{609304\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{2917215}-\frac{19885156\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{2917215}$$

```
[Out] (-8252*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(19845*(2 + 3*x)^(5/2)) + (28
0904*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(416745*(2 + 3*x)^(3/2)) + (198
85156*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2917215*Sqrt[2 + 3*x]) - (2*(
1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/(27*(2 + 3*x)^(9/2)) + (74*Sqrt[1
 - 2*x]*(3 + 5*x)^(3/2))/(189*(2 + 3*x)^(7/2)) - (19885156*Sqrt[1
1/3]*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/2917215 -
 (609304*Sqrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35
/33])/2917215
```

Rubi [A] time = 0.493621, antiderivative size = 222, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.214$

$$\frac{74\sqrt{1-2x}(5x+3)^{3/2}}{189(3x+2)^{7/2}}-\frac{2(1-2x)^{3/2}(5x+3)^{3/2}}{27(3x+2)^{9/2}}+\frac{19885156\sqrt{1-2x}\sqrt{5x+3}}{2917215\sqrt{3x+2}}+\frac{280904\sqrt{1-2x}\sqrt{5x+3}}{416745(3x+2)^{3/2}}-\frac{8252\sqrt{1-2x}\sqrt{5x+3}}{19845(3x+2)^{5/2}}-\frac{609304\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{2917215}-\frac{19885156\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{2917215}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^(11/2),x]
```

```
[Out] (-8252*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(19845*(2 + 3*x)^(5/2)) + (28
0904*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(416745*(2 + 3*x)^(3/2)) + (198
85156*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2917215*Sqrt[2 + 3*x]) - (2*(
1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/(27*(2 + 3*x)^(9/2)) + (74*Sqrt[1
 - 2*x]*(3 + 5*x)^(3/2))/(189*(2 + 3*x)^(7/2)) - (19885156*Sqrt[1
1/3]*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/2917215 -
 (609304*Sqrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35
/33])/2917215
```

Rubi in Sympy [A] time = 45.5029, size = 201, normalized size = 0.91

$$-\frac{74\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{1323\left(3x+2\right)^{\frac{7}{2}}}-\frac{2\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{3}{2}}}{27\left(3x+2\right)^{\frac{9}{2}}}+\frac{19885156\sqrt{-2x+1}\sqrt{5x+3}}{2917215\sqrt{3x+2}}+\frac{280904\sqrt{-2x+1}\sqrt{5x+3}}{416745\left(3x+2\right)^{\frac{3}{2}}}+\frac{3958\sqrt{-2x+1}\sqrt{5x+3}}{19845\left(3x+2\right)^{\frac{5}{2}}}-\frac{19885156\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{8751645}-\frac{6702344\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{102102525}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(3/2)/(2+3*x)**(11/2),x)
```

```
[Out] -74*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/(1323*(3*x + 2)**(7/2)) - 2*(
-2*x + 1)**(3/2)*(5*x + 3)**(3/2)/(27*(3*x + 2)**(9/2)) + 1988515
6*sqrt(-2*x + 1)*sqrt(5*x + 3)/(2917215*sqrt(3*x + 2)) + 280904*s
qrt(-2*x + 1)*sqrt(5*x + 3)/(416745*(3*x + 2)**(3/2)) + 3958*sqrt
(-2*x + 1)*sqrt(5*x + 3)/(19845*(3*x + 2)**(5/2)) - 19885156*sqrt
(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/8751645 -
 6702344*sqrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33
/35)/102102525
```

Mathematica [A] time = 0.362568, size = 111, normalized size = 0.5

$$\frac{4\left(\frac{3\sqrt{1-2x}\sqrt{5x+3}(805348818x^4+2174142276x^3+2204875881x^2+993561978x+167622907)}{2(3x+2)^{9/2}}+\sqrt{2}\left(4971289E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-24579\right.\right.}{8751645}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^(11/2),x]
```

```
[Out] (4*((3*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(167622907 + 993561978*x + 220
4875881*x^2 + 2174142276*x^3 + 805348818*x^4))/(2*(2 + 3*x)^(9/2)
) + Sqrt[2]*(4971289*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]],
-33/2] - 2457910*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/
2])))/8751645
```

Maple [C] time = 0.03, size = 624, normalized size = 2.8

$$\frac{2}{87516450\,x^2+8751645\,x-26254935}\left(398181420\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^4\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^(3/2)/(2+3*x)^(11/2),x)
```

```
[Out] 2/8751645*(398181420*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5
*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^4*(3+5*x)^(1/2)*(2+3*
x)^(1/2)*(1-2*x)^(1/2)-805348818*2^(1/2)*EllipticE(1/11*11^(1/2)*
2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^4*(3+5*x)
^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+1061817120*2^(1/2)*EllipticF(1
/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2)
)*x^3*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)-2147596848*2^(1/2
)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^
(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)+1061
817120*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*
I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*
x)^(1/2)-2147596848*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*
x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x
)^(1/2)*(1-2*x)^(1/2)+471918720*2^(1/2)*EllipticF(1/11*11^(1/2)*2
^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1
/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-954487488*2^(1/2)*EllipticE(1/11*
11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*
(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+24160464540*x^6+7865312
0*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/1
1*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-
159081248*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Ellip
ticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2
^(1/2))+67640314734*x^5+65420563896*x^4+16854206499*x^3-118345097
85*x^2-8439189081*x-1508606163)*(3+5*x)^(1/2)*(1-2*x)^(1/2)/(10*x
^2+x-3)/(2+3*x)^(9/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{3}{2}}(-2x+1)^{\frac{3}{2}}}{(3x+2)^{\frac{11}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(11/2),x, algorithm="maxima
```

```
[Out] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(11/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{(10x^2+x-3)\sqrt{5x+3}\sqrt{-2x+1}}{(243x^5+810x^4+1080x^3+720x^2+240x+32)\sqrt{3x+2}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(11/2),x, algorithm="fricas
```

```
[Out] integral(-(10*x^2 + x - 3)*sqrt(5*x + 3)*sqrt(-2*x + 1)/((243*x^5
 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(3/2)*(3+5*x)**(3/2)/(2+3*x)**(11/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{3}{2}}(-2x+1)^{\frac{3}{2}}}{(3x+2)^{\frac{11}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(11/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(11/2), x)
```

3.2700 $\int \frac{(1-2x)^{3/2}(3+5x)^{3/2}}{(2+3x)^{13/2}}\,dx$

Optimal. Leaf size=249

$$\frac{74\sqrt{1-2x}(5x+3)^{3/2}}{297(3x+2)^{9/2}}-\frac{2(1-2x)^{3/2}(5x+3)^{3/2}}{33(3x+2)^{11/2}}+\frac{1446357824\sqrt{1-2x}\sqrt{5x+3}}{74875185\sqrt{3x+2}}+\frac{20799916\sqrt{1-2x}\sqrt{5x+3}}{10696455(3x+2)^{3/2}}+\frac{442076\sqrt{1-2x}\sqrt{5x+3}}{1528065(3x+2)^{5/2}}-\frac{12872\sqrt{1-2x}\sqrt{5x+3}}{43659(3x+2)^{7/2}}-\frac{43537016F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{6806835\sqrt{33}}-\frac{1446357824E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{6806835\sqrt{33}}$$

```
[Out] (-12872*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(43659*(2 + 3*x)^(7/2)) + (4
42076*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(1528065*(2 + 3*x)^(5/2)) + (2
0799916*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(10696455*(2 + 3*x)^(3/2)) +
 (1446357824*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(74875185*Sqrt[2 + 3*x]
) - (2*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/(33*(2 + 3*x)^(11/2)) + (
74*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(297*(2 + 3*x)^(9/2)) - (144635
7824*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(6806835*
Sqrt[33]) - (43537016*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]],
35/33])/(6806835*Sqrt[33])
```

Rubi [A] time = 0.587038, antiderivative size = 249, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{74\sqrt{1-2x}(5x+3)^{3/2}}{297(3x+2)^{9/2}}-\frac{2(1-2x)^{3/2}(5x+3)^{3/2}}{33(3x+2)^{11/2}}+\frac{1446357824\sqrt{1-2x}\sqrt{5x+3}}{74875185\sqrt{3x+2}}+\frac{20799916\sqrt{1-2x}\sqrt{5x+3}}{10696455(3x+2)^{3/2}}+\frac{442076\sqrt{1-2x}\sqrt{5x+3}}{1528065(3x+2)^{5/2}}-\frac{12872\sqrt{1-2x}\sqrt{5x+3}}{43659(3x+2)^{7/2}}-\frac{43537016F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{6806835\sqrt{33}}-\frac{1446357824E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{6806835\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^(13/2),x]
```


```
[Out] (-12872*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(43659*(2 + 3*x)^(7/2)) + (4
42076*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(1528065*(2 + 3*x)^(5/2)) + (2
0799916*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(10696455*(2 + 3*x)^(3/2)) +
 (1446357824*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(74875185*Sqrt[2 + 3*x]
) - (2*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/(33*(2 + 3*x)^(11/2)) + (
74*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(297*(2 + 3*x)^(9/2)) - (144635
7824*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(6806835*
Sqrt[33]) - (43537016*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]],
35/33])/(6806835*Sqrt[33])
```

Rubi in Sympy [A] time = 53.1777, size = 230, normalized size = 0.92

$$-\frac{74\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{2079\left(3x+2\right)^{\frac{9}{2}}}-\frac{2\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{3}{2}}}{33\left(3x+2\right)^{\frac{11}{2}}}+\frac{1446357824\sqrt{-2x+1}\sqrt{5x+3}}{74875185\sqrt{3x+2}}+\frac{20799916\sqrt{-2x+1}\sqrt{5x+3}}{10696455\left(3x+2\right)^{\frac{3}{2}}}+\frac{442076\sqrt{-2x+1}\sqrt{5x+3}}{1528065\left(3x+2\right)^{\frac{5}{2}}}+\frac{4222\sqrt{-2x+1}\sqrt{5x+3}}{43659\left(3x+2\right)^{\frac{7}{2}}}-\frac{1446357824\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{224625555}-\frac{43537016\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{224625555}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(3/2)/(2+3*x)**(13/2),x)
```

```
[Out] -74*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/(2079*(3*x + 2)**(9/2)) - 2*(
-2*x + 1)**(3/2)*(5*x + 3)**(3/2)/(33*(3*x + 2)**(11/2)) + 144635
7824*sqrt(-2*x + 1)*sqrt(5*x + 3)/(74875185*sqrt(3*x + 2)) + 2079
9916*sqrt(-2*x + 1)*sqrt(5*x + 3)/(10696455*(3*x + 2)**(3/2)) + 4
42076*sqrt(-2*x + 1)*sqrt(5*x + 3)/(1528065*(3*x + 2)**(5/2)) + 4
222*sqrt(-2*x + 1)*sqrt(5*x + 3)/(43659*(3*x + 2)**(7/2)) - 14463
57824*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)
/224625555 - 43537016*sqrt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x
 + 1)/7), 35/33)/224625555
```

Mathematica [A] time = 0.441864, size = 112, normalized size = 0.45

$$\frac{\frac{24\sqrt{2-4x}\sqrt{5x+3}\left(175732475616x^5+591671694906x^4+797050394730x^3+537061687749x^2+180988667568x+24398176891\right)}{(3x+2)^{11/2}}-5823976480F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5\right.\right.}{898502220\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^(13/2),x]
```

```
[Out] ((24*Sqrt[2 - 4*x]*Sqrt[3 + 5*x]*(24398176891 + 180988667568*x +
537061687749*x^2 + 797050394730*x^3 + 591671694906*x^4 + 17573247
5616*x^5))/(2 + 3*x)^(11/2) + 11570862592*EllipticE[ArcSin[Sqrt[2
/11]*Sqrt[3 + 5*x]], -33/2] - 5823976480*EllipticF[ArcSin[Sqrt[2/
11]*Sqrt[3 + 5*x]], -33/2])/(898502220*Sqrt[2])
```

Maple [C] time = 0.03, size = 743, normalized size = 3.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^(3/2)/(2+3*x)^(13/2),x)
```

```
[Out] 2/224625555*(88451642790*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*
(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^5*(3+5*x)^(1/2)*(
2+3*x)^(1/2)*(1-2*x)^(1/2)-175732475616*2^(1/2)*EllipticE(1/11*11
^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^5*
(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+294838809300*2^(1/2)*El
lipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2
)*2^(1/2))*x^4*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-58577491
8720*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*
11^(1/2)*3^(1/2)*2^(1/2))*x^4*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)
^(1/2)+393118412400*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*
x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*x
)^(1/2)*(2+3*x)^(1/2)-781033224960*2^(1/2)*EllipticE(1/11*11^(1/2
)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*
x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)+262078941600*2^(1/2)*Ellipti
cF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(
1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-520688816640*
2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1
/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2
)+5271974268480*x^7+87359647200*2^(1/2)*EllipticF(1/11*11^(1/2)*2
^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1
/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-173562938880*2^(1/2)*EllipticE(1/
11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))
*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+18277348274028*x^6+1
1647952960*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Elli
pticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*
2^(1/2))-23141725184*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^
(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2
)*3^(1/2)*2^(1/2))+24104934646074*x^5+13177956562506*x^4-13260846
```

```
2283*x^3-3558643880307*x^2-1555703477439*x-219583592019)*(3+5*x)^
(1/2)*(1-2*x)^(1/2)/(10*x^2+x-3)/(2+3*x)^(11/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{3}{2}}(-2x+1)^{\frac{3}{2}}}{(3x+2)^{\frac{13}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(13/2),x, algorithm="maxima
```

```
[Out] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(13/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{(10\,x^2+x-3)\sqrt{5\,x+3}\sqrt{-2\,x+1}}{(729\,x^6+2916\,x^5+4860\,x^4+4320\,x^3+2160\,x^2+576\,x+64)\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(13/2),x, algorithm="fricas
```

```
[Out] integral(-(10*x^2 + x - 3)*sqrt(5*x + 3)*sqrt(-2*x + 1)/((729*x^6
 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64)*sqrt(3
*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**(3/2)/(2+3*x)**(13/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{3}{2}}(-2x+1)^{\frac{3}{2}}}{(3x+2)^{\frac{13}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(13/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(13/2), x)
```

3.2701 $\int (1-2x)^{3/2}(2+3x)^{5/2}(3+5x)^{5/2}\,dx$

Optimal. Leaf size=280

$$\frac{2}{75}(1-2x)^{3/2}(3x+2)^{5/2}(5x+3)^{7/2}+\frac{178\sqrt{1-2x}(3x+2)^{5/2}(5x+3)^{7/2}}{14625}+\frac{2503\sqrt{1-2x}(3x+2)^{3/2}(5x+3)^{7/2}}{804375}-\frac{199721\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{7/2}}{12065625}-\frac{57509209\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}}{506756250}-\frac{380132617\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}}{506756250}-\frac{50299451003\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{9121612500}-\frac{50299451003F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{4146187500\sqrt{33}}-\frac{836091184171E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{2073093750\sqrt{33}}$$

```
[Out] (-50299451003*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/91216125
00 - (380132617*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/5067
56250 - (57509209*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/50
6756250 - (199721*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(7/2))/12
065625 + (2503*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(7/2))/804
375 + (178*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)*(3 + 5*x)^(7/2))/14625 +
 (2*(1 - 2*x)^(3/2)*(2 + 3*x)^(5/2)*(3 + 5*x)^(7/2))/75 - (836091
184171*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(207309
3750*Sqrt[33]) - (50299451003*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 -
 2*x]], 35/33])/(4146187500*Sqrt[33])
```

Rubi [A] time = 0.646294, antiderivative size = 280, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.179$

$$\frac{2}{75}(1-2x)^{3/2}(3x+2)^{5/2}(5x+3)^{7/2}+\frac{178\sqrt{1-2x}(3x+2)^{5/2}(5x+3)^{7/2}}{14625}+\frac{2503\sqrt{1-2x}(3x+2)^{3/2}(5x+3)^{7/2}}{804375}-\frac{199721\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{7/2}}{12065625}-\frac{57509209\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}}{506756250}-\frac{380132617\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}}{506756250}-\frac{50299451003\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{9121612500}-\frac{50299451003F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{4146187500\sqrt{33}}-\frac{836091184171E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{2073093750\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)*(2 + 3*x)^(5/2)*(3 + 5*x)^(5/2),x]
```


```
[Out] (-50299451003*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/91216125
00 - (380132617*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/5067
56250 - (57509209*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/50
6756250 - (199721*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(7/2))/12
065625 + (2503*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(7/2))/804
375 + (178*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)*(3 + 5*x)^(7/2))/14625 +
 (2*(1 - 2*x)^(3/2)*(2 + 3*x)^(5/2)*(3 + 5*x)^(7/2))/75 - (836091
184171*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(207309
3750*Sqrt[33]) - (50299451003*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 -
 2*x]], 35/33])/(4146187500*Sqrt[33])
```

Rubi in Sympy [A] time = 62.163, size = 258, normalized size = 0.92

$$\frac{2(-2x+1)^{\frac{3}{2}}(3x+2)^{\frac{7}{2}}(5x+3)^{\frac{5}{2}}}{45}-\frac{23(-2x+1)^{\frac{3}{2}}(3x+2)^{\frac{7}{2}}(5x+3)^{\frac{3}{2}}}{351}+\frac{2152\sqrt{-2x+1}(3x+2)^{\frac{7}{2}}(5x+3)^{\frac{3}{2}}}{19305}-\frac{35767\sqrt{-2x+1}(3x+2)^{\frac{5}{2}}(5x+3)^{\frac{3}{2}}}{868725}-\frac{10362379\sqrt{-2x+1}(3x+2)^{\frac{5}{2}}\sqrt{5x+3}}{36486450}-\frac{1033872841\sqrt{-2x+1}(3x+2)^{\frac{3}{2}}\sqrt{5x+3}}{912161250}-\frac{48128081531\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{9121612500}-\frac{836091184171\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{68412093750}-\frac{50299451003\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{136824187500}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)**(5/2)*(3+5*x)**(5/2),x)
```

```
[Out] 2*(-2*x + 1)**(3/2)*(3*x + 2)**(7/2)*(5*x + 3)**(5/2)/45 - 23*(-2
*x + 1)**(3/2)*(3*x + 2)**(7/2)*(5*x + 3)**(3/2)/351 + 2152*sqrt(
-2*x + 1)*(3*x + 2)**(7/2)*(5*x + 3)**(3/2)/19305 - 35767*sqrt(-2
*x + 1)*(3*x + 2)**(5/2)*(5*x + 3)**(3/2)/868725 - 10362379*sqrt(
-2*x + 1)*(3*x + 2)**(5/2)*sqrt(5*x + 3)/36486450 - 1033872841*sq
rt(-2*x + 1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/912161250 - 481280815
31*sqrt(-2*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/9121612500 - 836091
184171*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33
)/68412093750 - 50299451003*sqrt(33)*elliptic_f(asin(sqrt(21)*sqr
t(-2*x + 1)/7), 35/33)/136824187500
```

Mathematica [A] time = 0.373274, size = 119, normalized size = 0.42

$$\frac{\sqrt{2}\left(3344364736684E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)\middle|-\frac{33}{2}\right)-1684482853585F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)\middle|-\frac{33}{2}\right)\right)-30\sqrt{1-2x}\sqrt{3x+2}\cdots}{\cdots}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)*(2 + 3*x)^(5/2)*(3 + 5*x)^(5/2),x]
```

```
[Out] (-30*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(44426819351 - 177
853891770*x - 522917547750*x^2 - 227285730000*x^3 + 888419542500*
x^4 + 1316318850000*x^5 + 547296750000*x^6) + Sqrt[2]*(3344364736
684*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 16844828
53585*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]))/273648
375000
```

Maple [C] time = 0.032, size = 194, normalized size = 0.7

$$\frac{1}{8209451250000\,x^3+6293912625000\,x^2-1915538625000\,x-1641890250000}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(-49256707500000\cdots\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^(5/2)*(3+5*x)^(5/2),x)
```

```
[Out] 1/273648375000*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(-492567
075000000*x^9-1562321722500000*x^8-1592905277250000*x^7-335119538
25000*x^6+1684482853585*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*
x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(
1/2)*3^(1/2)*2^(1/2))-3344364736684*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)
^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2
```

```
),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+1050958443600000*x^5+6330671248
90500*x^4-67989068522100*x^3-162128981218890*x^2-22684068454890*x
+7996827483180)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (5x+3)^{\frac{5}{2}}(3x+2)^{\frac{5}{2}}(-2x+1)^{\frac{3}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(3*x + 2)^(5/2)*(-2*x + 1)^(3/2),x, algorithm="maxima"
```

```
[Out] integrate((5*x + 3)^(5/2)*(3*x + 2)^(5/2)*(-2*x + 1)^(3/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(-\left(450x^5+915x^4+512x^3-85x^2-156x-36\right)\sqrt{5x+3}\sqrt{3x+2}\sqrt{-2x+1},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(3*x + 2)^(5/2)*(-2*x + 1)^(3/2),x, algorithm="fricas"
```

```
[Out] integral(-(450*x^5 + 915*x^4 + 512*x^3 - 85*x^2 - 156*x - 36)*sqr
t(5*x + 3)*sqrt(3*x + 2)*sqrt(-2*x + 1), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)**(5/2)*(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.486771, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(3*x + 2)^(5/2)*(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] Done
```

3.2702 $\int (1-2x)^{3/2}(2+3x)^{3/2}(3+5x)^{5/2}\,dx$

Optimal. Leaf size=249

$$\frac{2}{65}(1-2x)^{3/2}(3x+2)^{3/2}(5x+3)^{7/2}+\frac{62\sqrt{1-2x}(3x+2)^{3/2}(5x+3)^{7/2}}{3575}-\frac{67\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{7/2}}{160875}-\frac{160084\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}}{3378375}-\frac{2133359\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}}{6756750}-\frac{70536439\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{30405375}-\frac{70536439F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{13820625\sqrt{33}}-\frac{9380126059E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{55282500\sqrt{33}}$$

```
[Out] (-70536439*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/30405375 -
(2133359*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/6756750 - (
160084*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/3378375 - (67
*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(7/2))/160875 + (62*Sqrt[1
 - 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(7/2))/3575 + (2*(1 - 2*x)^(3/2
)*(2 + 3*x)^(3/2)*(3 + 5*x)^(7/2))/65 - (9380126059*EllipticE[Arc
Sin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(55282500*Sqrt[33]) - (7053
6439*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(13820625
*Sqrt[33])
```

Rubi [A] time = 0.558925, antiderivative size = 249, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{2}{65}(1-2x)^{3/2}(3x+2)^{3/2}(5x+3)^{7/2}+\frac{62\sqrt{1-2x}(3x+2)^{3/2}(5x+3)^{7/2}}{3575}-\frac{67\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{7/2}}{160875}-\frac{160084\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}}{3378375}-\frac{2133359\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}}{6756750}-\frac{70536439\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{30405375}-\frac{70536439F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{13820625\sqrt{33}}-\frac{9380126059E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{55282500\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)*(2 + 3*x)^(3/2)*(3 + 5*x)^(5/2),x]
```

```
[Out] (-70536439*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/30405375 -
(2133359*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/6756750 - (
160084*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/3378375 - (67
*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(7/2))/160875 + (62*Sqrt[1
 - 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(7/2))/3575 + (2*(1 - 2*x)^(3/2
)*(2 + 3*x)^(3/2)*(3 + 5*x)^(7/2))/65 - (9380126059*EllipticE[Arc
Sin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(55282500*Sqrt[33]) - (7053
6439*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(13820625
*Sqrt[33])
```

Rubi in Sympy [A] time = 53.9109, size = 230, normalized size = 0.92

$$\frac{2\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{5}{2}}}{39}-\frac{115\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{3}{2}}}{1287}+\frac{130\sqrt{-2x+1}\left(3x+2\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{3}{2}}}{891}-\frac{27814\sqrt{-2x+1}\left(3x+2\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{3}{2}}}{405405}-\frac{2026949\sqrt{-2x+1}\left(3x+2\right)^{\frac{3}{2}}\sqrt{5x+3}}{4054050}-\frac{134992031\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{60810750}-\frac{9380126059\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{1824322500}-\frac{70536439\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{456080625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)**(3/2)*(3+5*x)**(5/2),x)
```

```
[Out] 2*(-2*x + 1)**(3/2)*(3*x + 2)**(5/2)*(5*x + 3)**(5/2)/39 - 115*(-
2*x + 1)**(3/2)*(3*x + 2)**(5/2)*(5*x + 3)**(3/2)/1287 + 130*sqrt
(-2*x + 1)*(3*x + 2)**(5/2)*(5*x + 3)**(3/2)/891 - 27814*sqrt(-2*
x + 1)*(3*x + 2)**(3/2)*(5*x + 3)**(3/2)/405405 - 2026949*sqrt(-2
*x + 1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/4054050 - 134992031*sqrt(-
2*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/60810750 - 9380126059*sqrt(3
3)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/1824322500
- 70536439*sqrt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 3
5/33)/456080625
```

Mathematica [A] time = 0.444095, size = 115, normalized size = 0.46

$$\frac{9380126059E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-5\left(3\sqrt{2-4x}\sqrt{3x+2}\sqrt{5x+3}\left(1403325000x^5+2364390000x^4+496455750x^3\right.\right.}{912161250\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)*(2 + 3*x)^(3/2)*(3 + 5*x)^(5/2),x]
```

```
[Out] (9380126059*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] -
5*(3*Sqrt[2 - 4*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(67302101 - 638983
395*x - 1110242250*x^2 + 496455750*x^3 + 2364390000*x^4 + 1403325
000*x^5) + 944944217*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]],
-33/2]))/(912161250*Sqrt[2])
```

Maple [C] time = 0.016, size = 189, normalized size = 0.8

$$\frac{1}{54729675000\,x^3+41959417500\,x^2-12770257500\,x-10945935000}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(-1262992500000\,x^8-3096\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^(3/2)*(3+5*x)^(5/2),x)
```

```
[Out] 1/1824322500*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(-12629925
00000*x^8-3096245250000*x^7-1783541025000*x^6+4724721085*2^(1/2)*
(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)
*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-9380126059
*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11
*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+1
405783957500*x^5+1870998115500*x^4+236537814150*x^3-380468567640*
x^2-100883569890*x+12114378180)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (5\,x+3)^{\frac{5}{2}}(3\,x+2)^{\frac{3}{2}}(-2\,x+1)^{\frac{3}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(3*x + 2)^(3/2)*(-2*x + 1)^(3/2),x, algorithm="maxima"
```

```
[Out] integrate((5*x + 3)^(5/2)*(3*x + 2)^(3/2)*(-2*x + 1)^(3/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\left(150\,x^4+205\,x^3+34\,x^2-51\,x-18\right)\sqrt{5\,x+3}\sqrt{3\,x+2}\sqrt{-2\,x+1},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(3*x + 2)^(3/2)*(-2*x + 1)^(3/2),x, algorithm="fricas"
```

```
[Out] integral(-(150*x^4 + 205*x^3 + 34*x^2 - 51*x - 18)*sqrt(5*x + 3)*
sqrt(3*x + 2)*sqrt(-2*x + 1), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)**(3/2)*(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int(5\,x+3)^{\frac{5}{2}}(3\,x+2)^{\frac{3}{2}}(-2\,x+1)^{\frac{3}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(3*x + 2)^(3/2)*(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)*(3*x + 2)^(3/2)*(-2*x + 1)^(3/2), x)
```

3.2703 $\int (1-2x)^{3/2}\sqrt{2+3x}(3+5x)^{5/2}\,dx$

Optimal. Leaf size=218

$$\frac{2}{55}(1-2x)^{3/2}\sqrt{3x+2}(5x+3)^{7/2}+\frac{194\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{7/2}}{7425}-\frac{2377\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}}{155925}-\frac{22576\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}}{155925}-\frac{2930159\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{2806650}-\frac{2930159F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1275750\sqrt{33}}-\frac{97540001E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1275750\sqrt{33}}$$

```
[Out] (-2930159*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/2806650 - (2
2576*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/155925 - (2377*
Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/155925 + (194*Sqrt[1
 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(7/2))/7425 + (2*(1 - 2*x)^(3/2)*
Sqrt[2 + 3*x]*(3 + 5*x)^(7/2))/55 - (97540001*EllipticE[ArcSin[Sq
rt[3/7]*Sqrt[1 - 2*x]], 35/33])/(1275750*Sqrt[33]) - (2930159*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(1275750*Sqrt[33]
)
```

Rubi [A] time = 0.486633, antiderivative size = 218, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{2}{55}(1-2x)^{3/2}\sqrt{3x+2}(5x+3)^{7/2}+\frac{194\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{7/2}}{7425}-\frac{2377\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}}{155925}-\frac{22576\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}}{155925}-\frac{2930159\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{2806650}-\frac{2930159F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1275750\sqrt{33}}-\frac{97540001E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1275750\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2),x]
```

```
[Out] (-2930159*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/2806650 - (2
2576*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/155925 - (2377*
Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/155925 + (194*Sqrt[1
 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(7/2))/7425 + (2*(1 - 2*x)^(3/2)*
Sqrt[2 + 3*x]*(3 + 5*x)^(7/2))/55 - (97540001*EllipticE[ArcSin[Sq
rt[3/7]*Sqrt[1 - 2*x]], 35/33])/(1275750*Sqrt[33]) - (2930159*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(1275750*Sqrt[33]
)
```

Rubi in Sympy [A] time = 46.3733, size = 201, normalized size = 0.92

$$\frac{2\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{5}{2}}}{33}-\frac{115\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{3}{2}}}{891}+\frac{1228\sqrt{-2x+1}\left(3x+2\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{3}{2}}}{6237}-\frac{19861\sqrt{-2x+1}\sqrt{3x+2}\left(5x+3\right)^{\frac{3}{2}}}{155925}-\frac{2930159\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{2806650}-\frac{97540001\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{42099750}-\frac{2930159\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{42099750}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(5/2)*(2+3*x)**(1/2),x)
```

```
[Out] 2*(-2*x + 1)**(3/2)*(3*x + 2)**(3/2)*(5*x + 3)**(5/2)/33 - 115*(-
2*x + 1)**(3/2)*(3*x + 2)**(3/2)*(5*x + 3)**(3/2)/891 + 1228*sqrt
(-2*x + 1)*(3*x + 2)**(3/2)*(5*x + 3)**(3/2)/6237 - 19861*sqrt(-2
*x + 1)*sqrt(3*x + 2)*(5*x + 3)**(3/2)/155925 - 2930159*sqrt(-2*x
 + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/2806650 - 97540001*sqrt(33)*ell
iptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/42099750 - 293015
9*sqrt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/420
99750
```

Mathematica [A] time = 0.368606, size = 107, normalized size = 0.49

$$\frac{-15\sqrt{2-4x}\sqrt{3x+2}\sqrt{5x+3}\left(25515000x^4+24003000x^3-10837350x^2-14851260x-201247\right)-98384755F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\right.\right.}{42099750\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2),x]
```

```
[Out] (-15*Sqrt[2 - 4*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(-201247 - 1485126
0*x - 10837350*x^2 + 24003000*x^3 + 25515000*x^4) + 195080002*Ell
ipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 98384755*Ellipt
icF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/(42099750*Sqrt[2])
```

Maple [C] time = 0.016, size = 184, normalized size = 0.8

$$\frac{1}{2525985000\,x^3+1936588500\,x^2-589396500\,x-505197000}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(-22963500000\,x^7-39208050000\,x\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^(5/2)*(2+3*x)^(1/2),x)
```

```
[Out] 1/84199500*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(-2296350000
0*x^7-39208050000*x^6+98384755*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2
)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2
*I*11^(1/2)*3^(1/2)*2^(1/2))-195080002*2^(1/2)*(3+5*x)^(1/2)*(2+3
*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(
1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-1450305000*x^5+30477235500*x
^4+12473188200*x^3-4930627170*x^2-2715488670*x-36224460)/(30*x^3+
23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (5\,x+3)^{\frac{5}{2}}\sqrt{3\,x+2}(-2\,x+1)^{\frac{3}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*sqrt(3*x + 2)*(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] integrate((5*x + 3)^(5/2)*sqrt(3*x + 2)*(-2*x + 1)^(3/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\left(50\,x^3+35\,x^2-12\,x-9\right)\sqrt{5\,x+3}\sqrt{3\,x+2}\sqrt{-2\,x+1},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*sqrt(3*x + 2)*(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] integral(-(50*x^3 + 35*x^2 - 12*x - 9)*sqrt(5*x + 3)*sqrt(3*x + 2
)*sqrt(-2*x + 1), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(3/2)*(3+5*x)**(5/2)*(2+3*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (5x+3)^{\frac{5}{2}} \sqrt{3x+2}(-2x+1)^{\frac{3}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*sqrt(3*x + 2)*(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)*sqrt(3*x + 2)*(-2*x + 1)^(3/2), x)
```

3.2704 $\int \frac{(1-2x)^{3/2}(3+5x)^{5/2}}{\sqrt{2+3x}}\,dx$

Optimal. Leaf size=191

$$\frac{2}{27}(1-2x)^{3/2}\sqrt{3x+2}(5x+3)^{5/2}+\frac{46}{567}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}-\frac{499\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}}{2835}-\frac{11908\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{25515}-\frac{11908\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{127575}-\frac{886499\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{255150}$$

```
[Out] (-11908*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/25515 - (499*S
qrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/2835 + (46*Sqrt[1 - 2
*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/567 + (2*(1 - 2*x)^(3/2)*Sqrt[
2 + 3*x]*(3 + 5*x)^(5/2))/27 - (886499*Sqrt[11/3]*EllipticE[ArcSi
n[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/255150 - (11908*Sqrt[11/3]*El
lipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/127575
```

Rubi [A] time = 0.409541, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{2}{27}(1-2x)^{3/2}\sqrt{3x+2}(5x+3)^{5/2}+\frac{46}{567}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}-\frac{499\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}}{2835}-\frac{11908\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{25515}-\frac{11908\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{127575}-\frac{886499\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{255150}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/Sqrt[2 + 3*x],x]
```

```
[Out] (-11908*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/25515 - (499*S
qrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/2835 + (46*Sqrt[1 - 2
*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/567 + (2*(1 - 2*x)^(3/2)*Sqrt[
2 + 3*x]*(3 + 5*x)^(5/2))/27 - (886499*Sqrt[11/3]*EllipticE[ArcSi
n[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/255150 - (11908*Sqrt[11/3]*El
lipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/127575
```

Rubi in Sympy [A] time = 39.365, size = 172, normalized size = 0.9

$$\frac{2\left(-2x+1\right)^{\frac{3}{2}}\sqrt{3x+2}\left(5x+3\right)^{\frac{5}{2}}}{27}-\frac{115\left(-2x+1\right)^{\frac{3}{2}}\sqrt{3x+2}\left(5x+3\right)^{\frac{3}{2}}}{567}+\frac{766\sqrt{-2x+1}\sqrt{3x+2}\left(5x+3\right)^{\frac{3}{2}}}{2835}-\frac{11908\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{25515}-\frac{886499\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{765450}-\frac{11908\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{382725}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(5/2)/(2+3*x)**(1/2),x)
```

```
[Out] 2*(-2*x + 1)**(3/2)*sqrt(3*x + 2)*(5*x + 3)**(5/2)/27 - 115*(-2*x
 + 1)**(3/2)*sqrt(3*x + 2)*(5*x + 3)**(3/2)/567 + 766*sqrt(-2*x +
 1)*sqrt(3*x + 2)*(5*x + 3)**(3/2)/2835 - 11908*sqrt(-2*x + 1)*sq
rt(3*x + 2)*sqrt(5*x + 3)/25515 - 886499*sqrt(33)*elliptic_e(asin
(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/765450 - 11908*sqrt(33)*ellip
```

```
tic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/382725
```

Mathematica [A] time = 0.357475, size = 105, normalized size = 0.55

$$\frac{886499E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-5\left(3\sqrt{2-4x}\sqrt{3x+2}\sqrt{5x+3}\left(94500x^3+14400x^2-62325x-10259\right)+98707F\left(\sin\right.\right.}{382725\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/Sqrt[2 + 3*x],x]
```

```
[Out] (886499*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 5*(3
*Sqrt[2 - 4*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(-10259 - 62325*x + 14
400*x^2 + 94500*x^3) + 98707*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 +
 5*x]], -33/2]))/(382725*Sqrt[2])
```

Maple [C] time = 0.017, size = 179, normalized size = 0.9

$$\frac{1}{22963500\,x^3+17605350\,x^2-5358150\,x-4592700}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(-85050000\,x^6+493535\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^(5/2)/(2+3*x)^(1/2),x)
```

```
[Out] 1/765450*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(-85050000*x^6
+493535*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Ellipti
cF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(
1/2))-886499*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*El
lipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2
)*2^(1/2))-78165000*x^5+66001500*x^4+72271350*x^3-3417540*x^2-133
72890*x-1846620)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{5}{2}}(-2\,x+1)^{\frac{3}{2}}}{\sqrt{3\,x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/sqrt(3*x + 2),x, algorithm="maxima")
```

```
[Out] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/sqrt(3*x + 2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{\left(50\,x^3+35\,x^2-12\,x-9\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}}{\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/sqrt(3*x + 2),x, algorithm="fricas")
```

```
[Out] integral(-(50*x^3 + 35*x^2 - 12*x - 9)*sqrt(5*x + 3)*sqrt(-2*x +
1)/sqrt(3*x + 2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**(5/2)/(2+3*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}(-2x+1)^{\frac{3}{2}}}{\sqrt{3x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/sqrt(3*x + 2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/sqrt(3*x + 2), x)
```

3.2705 $\int \frac{(1-2x)^{3/2}(3+5x)^{5/2}}{(2+3x)^{3/2}}\,dx$

Optimal. Leaf size=191

$$-\frac{32}{63}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}-\frac{2(1-2x)^{3/2}(5x+3)^{5/2}}{3\sqrt{3x+2}}$$
$$+\frac{202}{63}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}-\frac{1061}{567}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}-\frac{1061\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{2835}-\frac{2894\sqrt{\frac{11}{3}}E\left(\sin^{-1}\right.}{28}$$

```
[Out] (-1061*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/567 + (202*Sqrt
[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/63 - (2*(1 - 2*x)^(3/2)*
(3 + 5*x)^(5/2))/(3*Sqrt[2 + 3*x]) - (32*Sqrt[1 - 2*x]*Sqrt[2 + 3
*x]*(3 + 5*x)^(5/2))/63 - (2894*Sqrt[11/3]*EllipticE[ArcSin[Sqrt[
3/7]*Sqrt[1 - 2*x]], 35/33])/2835 - (1061*Sqrt[11/3]*EllipticF[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/2835
```

Rubi [A] time = 0.408329, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{32}{63}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}-\frac{2(1-2x)^{3/2}(5x+3)^{5/2}}{3\sqrt{3x+2}}$$
$$+\frac{202}{63}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}-\frac{1061}{567}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}-\frac{1061\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{2835}-\frac{2894\sqrt{\frac{11}{3}}E\left(\sin^{-1}\right.}{28}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^(3/2),x]
```

```
[Out] (-1061*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/567 + (202*Sqrt
[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/63 - (2*(1 - 2*x)^(3/2)*
(3 + 5*x)^(5/2))/(3*Sqrt[2 + 3*x]) - (32*Sqrt[1 - 2*x]*Sqrt[2 + 3
*x]*(3 + 5*x)^(5/2))/63 - (2894*Sqrt[11/3]*EllipticE[ArcSin[Sqrt[
3/7]*Sqrt[1 - 2*x]], 35/33])/2835 - (1061*Sqrt[11/3]*EllipticF[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/2835
```

Rubi in Sympy [A] time = 42.5515, size = 172, normalized size = 0.9

$$-\frac{2\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{5}{2}}}{3\sqrt{3x+2}}-\frac{32\sqrt{-2x+1}\sqrt{3x+2}\left(5x+3\right)^{\frac{5}{2}}}{63}+\frac{202\sqrt{-2x+1}\sqrt{3x+2}\left(5x+3\right)^{\frac{3}{2}}}{63}-\frac{1061\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{567}-\frac{2894\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{8505}-\frac{1061\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{8505}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(5/2)/(2+3*x)**(3/2),x)
```

```
[Out] -2*(-2*x + 1)**(3/2)*(5*x + 3)**(5/2)/(3*sqrt(3*x + 2)) - 32*sqrt
(-2*x + 1)*sqrt(3*x + 2)*(5*x + 3)**(5/2)/63 + 202*sqrt(-2*x + 1)
*sqrt(3*x + 2)*(5*x + 3)**(3/2)/63 - 1061*sqrt(-2*x + 1)*sqrt(3*x
 + 2)*sqrt(5*x + 3)/567 - 2894*sqrt(33)*elliptic_e(asin(sqrt(21)*
sqrt(-2*x + 1)/7), 35/33)/8505 - 1061*sqrt(33)*elliptic_f(asin(sq
rt(21)*sqrt(-2*x + 1)/7), 35/33)/8505
```

Mathematica [A] time = 0.396741, size = 107, normalized size = 0.56

$$\frac{\frac{30\sqrt{1-2x}\sqrt{5x+3}(-2700x^3+180x^2+1767x+200)}{\sqrt{3x+2}}+29225\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+5788\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)}{17010}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^(3/2),x]
```

```
[Out] ((30*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(200 + 1767*x + 180*x^2 - 2700*x
^3))/Sqrt[2 + 3*x] + 5788*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqr
t[3 + 5*x]], -33/2] + 29225*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*S
qrt[3 + 5*x]], -33/2])/17010
```

Maple [C] time = 0.024, size = 174, normalized size = 0.9

$$-\frac{1}{510300x^3+391230x^2-119070x-102060}\sqrt{1-2x}\sqrt{2+3x}\sqrt{3+5x}\left(29225\sqrt{2}\sqrt{3+5x}\sqrt{2+3x}\sqrt{1-2x}EllipticF\left(1/11\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^(5/2)/(2+3*x)^(3/2),x)
```

```
[Out] -1/17010*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(29225*2^(1/2)
*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2
)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+5788*2^(1
/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(
1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+810000
*x^5+27000*x^4-778500*x^3-96810*x^2+153030*x+18000)/(30*x^3+23*x^
2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}(-2x+1)^{\frac{3}{2}}}{(3x+2)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(3/2),x, algorithm="maxima"
```

```
[Out] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(3/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{(50x^3+35x^2-12x-9)\sqrt{5x+3}\sqrt{-2x+1}}{(3x+2)^{\frac{3}{2}}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(3/2),x, algorithm="fricas"
```

```
[Out] integral(-(50*x^3 + 35*x^2 - 12*x - 9)*sqrt(5*x + 3)*sqrt(-2*x +
1)/(3*x + 2)^(3/2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**(5/2)/(2+3*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}(-2x+1)^{\frac{3}{2}}}{(3x+2)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(3/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(3/2), x)
```

3.2706 $\int \frac{(1-2x)^{3/2}(3+5x)^{5/2}}{(2+3x)^{5/2}}\,dx$

Optimal. Leaf size=191

$$\frac{362\sqrt{1-2x}(5x+3)^{5/2}}{27\sqrt{3x+2}}-\frac{2(1-2x)^{3/2}(5x+3)^{5/2}}{9(3x+2)^{3/2}}$$
$$-\frac{614}{27}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}+\frac{2632}{243}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}+\frac{2632\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1215}-\frac{9587\sqrt{\frac{11}{3}}E\left(\sin^{-1}\right.}{12}$$

```
[Out] (2632*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/243 - (614*Sqrt[
1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/27 - (2*(1 - 2*x)^(3/2)*(
3 + 5*x)^(5/2))/(9*(2 + 3*x)^(3/2)) + (362*Sqrt[1 - 2*x]*(3 + 5*x
)^(5/2))/(27*Sqrt[2 + 3*x]) - (9587*Sqrt[11/3]*EllipticE[ArcSin[S
qrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1215 + (2632*Sqrt[11/3]*Elliptic
F[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1215
```

Rubi [A] time = 0.413511, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{362\sqrt{1-2x}(5x+3)^{5/2}}{27\sqrt{3x+2}}-\frac{2(1-2x)^{3/2}(5x+3)^{5/2}}{9(3x+2)^{3/2}}$$
$$-\frac{614}{27}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}+\frac{2632}{243}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}+\frac{2632\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1215}-\frac{9587\sqrt{\frac{11}{3}}E\left(\sin^{-1}\right.}{12}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^(5/2),x]
```

```
[Out] (2632*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/243 - (614*Sqrt[
1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/27 - (2*(1 - 2*x)^(3/2)*(
3 + 5*x)^(5/2))/(9*(2 + 3*x)^(3/2)) + (362*Sqrt[1 - 2*x]*(3 + 5*x
)^(5/2))/(27*Sqrt[2 + 3*x]) - (9587*Sqrt[11/3]*EllipticE[ArcSin[S
qrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1215 + (2632*Sqrt[11/3]*Elliptic
F[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1215
```

Rubi in Sympy [A] time = 40.841, size = 172, normalized size = 0.9

$$-\frac{362\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{3}{2}}}{189\sqrt{3x+2}}-\frac{2\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{5}{2}}}{9\left(3x+2\right)^{\frac{3}{2}}}-\frac{316\sqrt{-2x+1}\sqrt{3x+2}\left(5x+3\right)^{\frac{3}{2}}}{189}+\frac{2632\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{243}-\frac{9587\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{3645}+\frac{2632\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{3645}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(5/2)/(2+3*x)**(5/2),x)
```

```
[Out] -362*(-2*x + 1)**(3/2)*(5*x + 3)**(3/2)/(189*sqrt(3*x + 2)) - 2*(
-2*x + 1)**(3/2)*(5*x + 3)**(5/2)/(9*(3*x + 2)**(3/2)) - 316*sqrt
(-2*x + 1)*sqrt(3*x + 2)*(5*x + 3)**(3/2)/189 + 2632*sqrt(-2*x +
1)*sqrt(3*x + 2)*sqrt(5*x + 3)/243 - 9587*sqrt(33)*elliptic_e(asi
n(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/3645 + 2632*sqrt(33)*ellipti
c_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/3645
```

Mathematica [A] time = 0.417023, size = 107, normalized size = 0.56

$$\frac{-\frac{30\sqrt{1-2x}\sqrt{5x+3}(810x^3-468x^2-2463x-1187)}{(3x+2)^{3/2}}-53015\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+9587\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)}{3645}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^(5/2),x]
```

```
[Out] ((-30*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(-1187 - 2463*x - 468*x^2 + 810
*x^3))/(2 + 3*x)^(3/2) + 9587*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]
*Sqrt[3 + 5*x]], -33/2] - 53015*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/1
1]*Sqrt[3 + 5*x]], -33/2])/3645
```

Maple [C] time = 0.03, size = 277, normalized size = 1.5

$$\frac{1}{36450\,x^2+3645\,x-10935}\left(159045\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-28761\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^(5/2)/(2+3*x)^(5/2),x)
```

```
[Out] 1/3645*(159045*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1
/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)
*(1-2*x)^(1/2)-28761*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5
*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)
^(1/2)*(1-2*x)^(1/2)+106030*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(
1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*
11^(1/2)*3^(1/2)*2^(1/2))-19174*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/
2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/
2*I*11^(1/2)*3^(1/2)*2^(1/2))-243000*x^5+116100*x^4+825840*x^3+38
7870*x^2-186060*x-106830)*(3+5*x)^(1/2)*(1-2*x)^(1/2)/(10*x^2+x-3
)/(2+3*x)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{5}{2}}(-2\,x+1)^{\frac{3}{2}}}{(3\,x+2)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(5/2),x, algorithm="maxima"
```

```
[Out] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(5/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{(50\,x^3+35\,x^2-12\,x-9)\sqrt{5\,x+3}\sqrt{-2\,x+1}}{(9\,x^2+12\,x+4)\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(5/2),x, algorithm="fricas"
```

```
[Out] integral(-(50*x^3 + 35*x^2 - 12*x - 9)*sqrt(5*x + 3)*sqrt(-2*x +
1)/((9*x^2 + 12*x + 4)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**(5/2)/(2+3*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}(-2x+1)^{\frac{3}{2}}}{(3x+2)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(5/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(5/2), x)
```

3.2707 $\int \frac{(1-2x)^{3/2}(3+5x)^{5/2}}{(2+3x)^{7/2}}\,dx$

Optimal. Leaf size=191

$$\frac{362\sqrt{1-2x}(5x+3)^{5/2}}{135(3x+2)^{3/2}}-\frac{2(1-2x)^{3/2}(5x+3)^{5/2}}{15(3x+2)^{5/2}}+\frac{9808\sqrt{1-2x}(5x+3)^{3/2}}{945\sqrt{3x+2}}-\frac{43214\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{1701}-\frac{43214\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{8505}+\frac{116854\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{8505}$$

```
[Out] (-43214*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/1701 + (9808*S
qrt[1 - 2*x]*(3 + 5*x)^(3/2))/(945*Sqrt[2 + 3*x]) - (2*(1 - 2*x)^
(3/2)*(3 + 5*x)^(5/2))/(15*(2 + 3*x)^(5/2)) + (362*Sqrt[1 - 2*x]*
(3 + 5*x)^(5/2))/(135*(2 + 3*x)^(3/2)) + (116854*Sqrt[11/3]*Ellip
ticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/8505 - (43214*Sqrt[
11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/8505
```

Rubi [A] time = 0.411239, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{362\sqrt{1-2x}(5x+3)^{5/2}}{135(3x+2)^{3/2}}-\frac{2(1-2x)^{3/2}(5x+3)^{5/2}}{15(3x+2)^{5/2}}+\frac{9808\sqrt{1-2x}(5x+3)^{3/2}}{945\sqrt{3x+2}}-\frac{43214\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{1701}-\frac{43214\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{8505}+\frac{116854\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{8505}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^(7/2),x]
```

```
[Out] (-43214*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/1701 + (9808*S
qrt[1 - 2*x]*(3 + 5*x)^(3/2))/(945*Sqrt[2 + 3*x]) - (2*(1 - 2*x)^
(3/2)*(3 + 5*x)^(5/2))/(15*(2 + 3*x)^(5/2)) + (362*Sqrt[1 - 2*x]*
(3 + 5*x)^(5/2))/(135*(2 + 3*x)^(3/2)) + (116854*Sqrt[11/3]*Ellip
ticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/8505 - (43214*Sqrt[
11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/8505
```

Rubi in Sympy [A] time = 40.4672, size = 172, normalized size = 0.9

$$-\frac{394\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{189\sqrt{3x+2}}-\frac{362\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{3}{2}}}{945\left(3x+2\right)^{\frac{3}{2}}}-\frac{2\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{5}{2}}}{15\left(3x+2\right)^{\frac{5}{2}}}-\frac{4208\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{1701}+\frac{116854\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{25515}-\frac{43214\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{25515}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(5/2)/(2+3*x)**(7/2),x)
```

```
[Out] -394*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/(189*sqrt(3*x + 2)) - 362*(-
2*x + 1)**(3/2)*(5*x + 3)**(3/2)/(945*(3*x + 2)**(3/2)) - 2*(-2*x
 + 1)**(3/2)*(5*x + 3)**(5/2)/(15*(3*x + 2)**(5/2)) - 4208*sqrt(-
```

```
2*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/1701 + 116854*sqrt(33)*ellip
tic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/25515 - 43214*sqrt(
33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/25515
```

Mathematica [A] time = 0.34056, size = 104, normalized size = 0.54

$$\frac{\sqrt{2}\left(829885F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-116854E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)-\frac{6\sqrt{1-2x}\sqrt{5x+3}(47250x^3+377793x^2+432387x+1}{(3x+2)^{5/2}}}{25515}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^(7/2),x]
```

```
[Out] ((-6*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(134497 + 432387*x + 377793*x^2
+ 47250*x^3))/(2 + 3*x)^(5/2) + Sqrt[2]*(-116854*EllipticE[ArcSin
[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 829885*EllipticF[ArcSin[Sqrt
[2/11]*Sqrt[3 + 5*x]], -33/2]))/25515
```

Maple [C] time = 0.029, size = 391, normalized size = 2.1

$$-\frac{1}{255150\,x^2+25515\,x-76545}\left(7468965\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^2\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-1\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^(5/2)/(2+3*x)^(7/2),x)
```

```
[Out] -1/25515*(7468965*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)
^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^
(1/2)*(1-2*x)^(1/2)-1051686*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/
2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2
)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+9958620*2^(1/2)*EllipticF(1/11*11^(
1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5
*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-1402248*2^(1/2)*EllipticE(1
/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2)
)*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+3319540*2^(1/2)*(3+
5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^
(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-467416*2^(1/2
)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/
2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+2835000*
x^5+22951080*x^4+27359478*x^3+3863868*x^2-6975984*x-2420946)*(3+5
*x)^(1/2)*(1-2*x)^(1/2)/(10*x^2+x-3)/(2+3*x)^(5/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{5}{2}}(-2\,x+1)^{\frac{3}{2}}}{(3\,x+2)^{\frac{7}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(7/2),x, algorithm="maxima"
```

```
[Out] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(7/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{(50\,x^3+35\,x^2-12\,x-9)\sqrt{5\,x+3}\sqrt{-2\,x+1}}{(27\,x^3+54\,x^2+36\,x+8)\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(7/2),x, algorithm="fricas"
```

```
[Out] integral(-(50*x^3 + 35*x^2 - 12*x - 9)*sqrt(5*x + 3)*sqrt(-2*x +
1)/((27*x^3 + 54*x^2 + 36*x + 8)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**(5/2)/(2+3*x)**(7/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}(-2x+1)^{\frac{3}{2}}}{(3x+2)^{\frac{7}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(7/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(7/2), x)
```

3.2708 $\int \frac{(1-2x)^{3/2}(3+5x)^{5/2}}{(2+3x)^{9/2}} dx$

Optimal. Leaf size=191

$$\frac{362\sqrt{1-2x}(5x+3)^{5/2}}{315(3x+2)^{5/2}}-\frac{2(1-2x)^{3/2}(5x+3)^{5/2}}{21(3x+2)^{7/2}}+\frac{2108\sqrt{1-2x}(5x+3)^{3/2}}{6615(3x+2)^{3/2}}+\frac{249448\sqrt{1-2x}\sqrt{5x+3}}{138915\sqrt{3x+2}}+\frac{249448\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{138915}-\frac{962678\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{138915}$$

```
[Out] (249448*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(138915*Sqrt[2 + 3*x]) + (21
08*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(6615*(2 + 3*x)^(3/2)) - (2*(1
- 2*x)^(3/2)*(3 + 5*x)^(5/2))/(21*(2 + 3*x)^(7/2)) + (362*Sqrt[1
- 2*x]*(3 + 5*x)^(5/2))/(315*(2 + 3*x)^(5/2)) - (962678*Sqrt[11/3
]*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/138915 + (24
9448*Sqrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33]
)/138915
```

Rubi [A] time = 0.415628, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{362\sqrt{1-2x}(5x+3)^{5/2}}{315(3x+2)^{5/2}}-\frac{2(1-2x)^{3/2}(5x+3)^{5/2}}{21(3x+2)^{7/2}}+\frac{2108\sqrt{1-2x}(5x+3)^{3/2}}{6615(3x+2)^{3/2}}+\frac{249448\sqrt{1-2x}\sqrt{5x+3}}{138915\sqrt{3x+2}}+\frac{249448\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{138915}-\frac{962678\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{138915}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^(9/2),x]
```



```
[Out] (249448*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(138915*Sqrt[2 + 3*x]) + (21
08*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(6615*(2 + 3*x)^(3/2)) - (2*(1
- 2*x)^(3/2)*(3 + 5*x)^(5/2))/(21*(2 + 3*x)^(7/2)) + (362*Sqrt[1
- 2*x]*(3 + 5*x)^(5/2))/(315*(2 + 3*x)^(5/2)) - (962678*Sqrt[11/3
]*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/138915 + (24
9448*Sqrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33]
)/138915
```

Rubi in Sympy [A] time = 41.1549, size = 172, normalized size = 0.9

$$-\frac{14054\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{46305\left(3x+2\right)^{\frac{3}{2}}}-\frac{362\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{3}{2}}}{2205\left(3x+2\right)^{\frac{5}{2}}}-\frac{2\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{5}{2}}}{21\left(3x+2\right)^{\frac{7}{2}}}+\frac{20378\sqrt{-2x+1}\sqrt{5x+3}}{3969\sqrt{3x+2}}-\frac{962678\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{416745}+\frac{2743928\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{4862025}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(5/2)/(2+3*x)**(9/2),x)
```

```
[Out] -14054*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/(46305*(3*x + 2)**(3/2)) -
 362*(-2*x + 1)**(3/2)*(5*x + 3)**(3/2)/(2205*(3*x + 2)**(5/2)) -
 2*(-2*x + 1)**(3/2)*(5*x + 3)**(5/2)/(21*(3*x + 2)**(7/2)) + 203
78*sqrt(-2*x + 1)*sqrt(5*x + 3)/(3969*sqrt(3*x + 2)) - 962678*sqr
t(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/416745 +
 2743928*sqrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33
```

```
/35)/4862025
```

Mathematica [A] time = 0.353925, size = 104, normalized size = 0.54

$$\frac{2\left(\frac{3\sqrt{1-2x}\sqrt{5x+3}(10680903x^3+20067219x^2+12594615x+2640643)}{(3x+2)^{7/2}}+\sqrt{2}\left(481339E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-2539285F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\right.\right.\right.\right.}{416745}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^(9/2),x]
```

```
[Out] (2*((3*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(2640643 + 12594615*x + 200672
19*x^2 + 10680903*x^3))/(2 + 3*x)^(7/2) + Sqrt[2]*(481339*Ellipti
cE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 2539285*EllipticF[A
rcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])))/416745
```

Maple [C] time = 0.028, size = 505, normalized size = 2.6

$$\frac{2}{4167450\,x^2+416745\,x-1250235}\left(68560695\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^3\sqrt{1-2\,x}\sqrt{3+5\,x}\sqrt{2+3\,x}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^(5/2)/(2+3*x)^(9/2),x)
```

```
[Out] 2/416745*(68560695*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x
)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*x)
^(1/2)*(2+3*x)^(1/2)-12996153*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(
1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1
/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)+137121390*2^(1/2)*EllipticF(1/11*
11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^
2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-25992306*2^(1/2)*Elli
pticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*
2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+91414260*2
^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/
2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-1
7328204*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2
*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x
)^(1/2)+20314280*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2
)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^
(1/2)*2^(1/2))-3850712*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x
)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1
/2)*3^(1/2)*2^(1/2))+320427090*x^5+634059279*x^4+341911980*x^3-63
601836*x^2-105429606*x-23765787)*(3+5*x)^(1/2)*(1-2*x)^(1/2)/(10*
x^2+x-3)/(2+3*x)^(7/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{5}{2}}(-2\,x+1)^{\frac{3}{2}}}{(3\,x+2)^{\frac{9}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(9/2),x, algorithm="maxima"
```

```
[Out] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(9/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(-\frac{\left(50\,x^{3}+35\,x^{2}-12\,x-9\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}}{\left(81\,x^{4}+216\,x^{3}+216\,x^{2}+96\,x+16\right)\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(9/2),x, algorithm="fricas"

[Out] integral(-(50*x^3 + 35*x^2 - 12*x - 9)*sqrt(5*x + 3)*sqrt(-2*x +
1)/((81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**(5/2)/(2+3*x)**(9/2),x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{5}{2}}(-2\,x+1)^{\frac{3}{2}}}{(3\,x+2)^{\frac{9}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(9/2),x, algorithm="giac")

[Out] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(9/2), x)
```

3.2709 $\int \frac{(1-2x)^{3/2}(3+5x)^{5/2}}{(2+3x)^{11/2}} dx$

Optimal. Leaf size=222

$$\frac{362\sqrt{1-2x}(5x+3)^{5/2}}{567(3x+2)^{7/2}}-\frac{2(1-2x)^{3/2}(5x+3)^{5/2}}{27(3x+2)^{9/2}}-\frac{1864\sqrt{1-2x}(5x+3)^{3/2}}{6615(3x+2)^{5/2}}+\frac{17830424\sqrt{1-2x}\sqrt{5x+3}}{8751645\sqrt{3x+2}}-\frac{558524\sqrt{1-2x}\sqrt{5x+3}}{1250235(3x+2)^{3/2}}-\frac{1717916\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{8751645}-\frac{17830424\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{8751645}$$

```
[Out] (-558524*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(1250235*(2 + 3*x)^(3/2)) +
 (17830424*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(8751645*Sqrt[2 + 3*x]) -
 (1864*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(6615*(2 + 3*x)^(5/2)) - (2
*(1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(27*(2 + 3*x)^(9/2)) + (362*Sqr
t[1 - 2*x]*(3 + 5*x)^(5/2))/(567*(2 + 3*x)^(7/2)) - (17830424*Sqr
t[11/3]*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/875164
5 - (1717916*Sqrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]]
, 35/33])/8751645
```

Rubi [A] time = 0.505333, antiderivative size = 222, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.214$

$$\frac{362\sqrt{1-2x}(5x+3)^{5/2}}{567(3x+2)^{7/2}}-\frac{2(1-2x)^{3/2}(5x+3)^{5/2}}{27(3x+2)^{9/2}}-\frac{1864\sqrt{1-2x}(5x+3)^{3/2}}{6615(3x+2)^{5/2}}+\frac{17830424\sqrt{1-2x}\sqrt{5x+3}}{8751645\sqrt{3x+2}}-\frac{558524\sqrt{1-2x}\sqrt{5x+3}}{1250235(3x+2)^{3/2}}-\frac{1717916\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{8751645}-\frac{17830424\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{8751645}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^(11/2),x]
```


```
[Out] (-558524*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(1250235*(2 + 3*x)^(3/2)) +
 (17830424*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(8751645*Sqrt[2 + 3*x]) -
 (1864*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(6615*(2 + 3*x)^(5/2)) - (2
*(1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(27*(2 + 3*x)^(9/2)) + (362*Sqr
t[1 - 2*x]*(3 + 5*x)^(5/2))/(567*(2 + 3*x)^(7/2)) - (17830424*Sqr
t[11/3]*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/875164
5 - (1717916*Sqrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]]
, 35/33])/8751645
```

Rubi in Sympy [A] time = 47.8188, size = 201, normalized size = 0.91

$$-\frac{14318\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{138915\left(3x+2\right)^{\frac{5}{2}}}-\frac{362\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{3}{2}}}{3969\left(3x+2\right)^{\frac{7}{2}}}-\frac{2\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{5}{2}}}{27\left(3x+2\right)^{\frac{9}{2}}}+\frac{17830424\sqrt{-2x+1}\sqrt{5x+3}}{8751645\sqrt{3x+2}}+\frac{858958\sqrt{-2x+1}\sqrt{5x+3}}{1250235\left(3x+2\right)^{\frac{3}{2}}}-\frac{17830424\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{26254935}-\frac{18897076\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{306307575}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(5/2)/(2+3*x)**(11/2),x)
```

```
[Out] -14318*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/(138915*(3*x + 2)**(5/2))
- 362*(-2*x + 1)**(3/2)*(5*x + 3)**(3/2)/(3969*(3*x + 2)**(7/2))
- 2*(-2*x + 1)**(3/2)*(5*x + 3)**(5/2)/(27*(3*x + 2)**(9/2)) + 17
830424*sqrt(-2*x + 1)*sqrt(5*x + 3)/(8751645*sqrt(3*x + 2)) + 858
958*sqrt(-2*x + 1)*sqrt(5*x + 3)/(1250235*(3*x + 2)**(3/2)) - 178
30424*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)
/26254935 - 18897076*sqrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x
+ 1)/11), 33/35)/306307575
```

Mathematica [A] time = 0.431317, size = 110, normalized size = 0.5

$$\frac{\frac{24\sqrt{1-2x}\sqrt{5x+3}\left(722132172x^4+2043155529x^3+2115318249x^2+955601637x+159578303\right)}{(3x+2)^{9/2}}+8\sqrt{2}\left(5257595F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+891521\right.}{105019740}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^(11/2),x]
```

```
[Out] ((24*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(159578303 + 955601637*x + 21153
18249*x^2 + 2043155529*x^3 + 722132172*x^4))/(2 + 3*x)^(9/2) + 8*
Sqrt[2]*(8915212*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/
2] + 5257595*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]))
/105019740
```

Maple [C] time = 0.033, size = 624, normalized size = 2.8

$$-\frac{2}{262549350\,x^2+26254935\,x-78764805}\left(425865195\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^4\sqrt{3+5\,x}\sqrt{2+3\,x}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^(5/2)/(2+3*x)^(11/2),x)
```

```
[Out] -2/26254935*(425865195*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3
+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^4*(3+5*x)^(1/2)*(2+
3*x)^(1/2)*(1-2*x)^(1/2)+722132172*2^(1/2)*EllipticE(1/11*11^(1/2
)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^4*(3+5*
x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+1135640520*2^(1/2)*EllipticF
(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/
2))*x^3*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)+1925685792*2^(1
/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*
3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)+11
35640520*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/
2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-
2*x)^(1/2)+1925685792*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+
5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3
*x)^(1/2)*(1-2*x)^(1/2)+504729120*2^(1/2)*EllipticF(1/11*11^(1/2)
*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^
(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+855860352*2^(1/2)*EllipticE(1/1
1*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*
x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-21663965160*x^6+84121
520*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1
/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2)
)+142643392*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Ell
ipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)
*2^(1/2))-63461062386*x^5-63089824509*x^4-16625604096*x^3+1138371
0240*x^2+8121679824*x+1436204727)*(3+5*x)^(1/2)*(1-2*x)^(1/2)/(10
*x^2+x-3)/(2+3*x)^(9/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}(-2x+1)^{\frac{3}{2}}}{(3x+2)^{\frac{11}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(11/2),x, algorithm="maxima
```

```
[Out] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(11/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{(50x^3+35x^2-12x-9)\sqrt{5x+3}\sqrt{-2x+1}}{(243x^5+810x^4+1080x^3+720x^2+240x+32)\sqrt{3x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(11/2),x, algorithm="fricas
```

```
[Out] integral(-(50*x^3 + 35*x^2 - 12*x - 9)*sqrt(5*x + 3)*sqrt(-2*x +
1)/((243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)*sqrt(3*
x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**(5/2)/(2+3*x)**(11/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}(-2x+1)^{\frac{3}{2}}}{(3x+2)^{\frac{11}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(11/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(11/2), x)
```

3.2710 $\int \frac{(1-2x)^{3/2}(3+5x)^{5/2}}{(2+3x)^{13/2}}\,dx$

Optimal. Leaf size=249

$$\frac{362\sqrt{1-2x}(5x+3)^{5/2}}{891(3x+2)^{9/2}}-\frac{2(1-2x)^{3/2}(5x+3)^{5/2}}{33(3x+2)^{11/2}}-\frac{13292\sqrt{1-2x}(5x+3)^{3/2}}{43659(3x+2)^{7/2}}+\frac{3316711588\sqrt{1-2x}\sqrt{5x+3}}{673876665\sqrt{3x+2}}+\frac{45748292\sqrt{1-2x}\sqrt{5x+3}}{96268095(3x+2)^{3/2}}-\frac{1366496\sqrt{1-2x}\sqrt{5x+3}}{4584195(3x+2)^{5/2}}-\frac{103970992F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{61261515\sqrt{33}}-\frac{3316711588E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{61261515\sqrt{33}}$$

```
[Out] (-1366496*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(4584195*(2 + 3*x)^(5/2))
+ (45748292*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(96268095*(2 + 3*x)^(3/2
)) + (3316711588*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(673876665*Sqrt[2 +
 3*x]) - (13292*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(43659*(2 + 3*x)^(
7/2)) - (2*(1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(33*(2 + 3*x)^(11/2))
 + (362*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(891*(2 + 3*x)^(9/2)) - (3
316711588*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(612
61515*Sqrt[33]) - (103970992*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 -
2*x]], 35/33])/(61261515*Sqrt[33])
```

Rubi [A] time = 0.585511, antiderivative size = 249, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.214$

$$\frac{362\sqrt{1-2x}(5x+3)^{5/2}}{891(3x+2)^{9/2}}-\frac{2(1-2x)^{3/2}(5x+3)^{5/2}}{33(3x+2)^{11/2}}-\frac{13292\sqrt{1-2x}(5x+3)^{3/2}}{43659(3x+2)^{7/2}}+\frac{3316711588\sqrt{1-2x}\sqrt{5x+3}}{673876665\sqrt{3x+2}}+\frac{45748292\sqrt{1-2x}\sqrt{5x+3}}{96268095(3x+2)^{3/2}}-\frac{1366496\sqrt{1-2x}\sqrt{5x+3}}{4584195(3x+2)^{5/2}}-\frac{103970992F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{61261515\sqrt{33}}-\frac{3316711588E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{61261515\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^(13/2),x]
```


```
[Out] (-1366496*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(4584195*(2 + 3*x)^(5/2))
+ (45748292*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(96268095*(2 + 3*x)^(3/2
)) + (3316711588*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(673876665*Sqrt[2 +
 3*x]) - (13292*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(43659*(2 + 3*x)^(
7/2)) - (2*(1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(33*(2 + 3*x)^(11/2))
 + (362*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(891*(2 + 3*x)^(9/2)) - (3
316711588*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(612
61515*Sqrt[33]) - (103970992*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 -
2*x]], 35/33])/(61261515*Sqrt[33])
```

Rubi in Sympy [A] time = 57.2645, size = 230, normalized size = 0.92

$$-\frac{14582\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{305613\left(3x+2\right)^{\frac{7}{2}}}-\frac{362\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{3}{2}}}{6237\left(3x+2\right)^{\frac{9}{2}}}-\frac{2\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{5}{2}}}{33\left(3x+2\right)^{\frac{11}{2}}}+\frac{3316711588\sqrt{-2x+1}\sqrt{5x+3}}{673876665\sqrt{3x+2}}+\frac{45748292\sqrt{-2x+1}\sqrt{5x+3}}{96268095\left(3x+2\right)^{\frac{3}{2}}}+\frac{1039534\sqrt{-2x+1}\sqrt{5x+3}}{4584195\left(3x+2\right)^{\frac{5}{2}}}-\frac{3316711588\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{2021629995}-\frac{103970992\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{2021629995}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(5/2)/(2+3*x)**(13/2),x)
```

```
[Out] -14582*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/(305613*(3*x + 2)**(7/2))
- 362*(-2*x + 1)**(3/2)*(5*x + 3)**(3/2)/(6237*(3*x + 2)**(9/2))
- 2*(-2*x + 1)**(3/2)*(5*x + 3)**(5/2)/(33*(3*x + 2)**(11/2)) + 3
316711588*sqrt(-2*x + 1)*sqrt(5*x + 3)/(673876665*sqrt(3*x + 2))
+ 45748292*sqrt(-2*x + 1)*sqrt(5*x + 3)/(96268095*(3*x + 2)**(3/2
)) + 1039534*sqrt(-2*x + 1)*sqrt(5*x + 3)/(4584195*(3*x + 2)**(5/
2)) - 3316711588*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)
/7), 35/33)/2021629995 - 103970992*sqrt(33)*elliptic_f(asin(sqrt(
21)*sqrt(-2*x + 1)/7), 35/33)/2021629995
```

Mathematica [A] time = 0.438001, size = 112, normalized size = 0.45

$$\frac{\frac{48\sqrt{2-4x}\sqrt{5x+3}\left(402980457942x^5+1356237833922x^4+1829570010885x^3+1234133449713x^2+415681177941x+55875107717\right)}{(3x+2)^{11/2}}-25619043520F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\right.\right.}{16173039960\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^(13/2),x]
```

```
[Out] ((48*Sqrt[2 - 4*x]*Sqrt[3 + 5*x]*(55875107717 + 415681177941*x +
1234133449713*x^2 + 1829570010885*x^3 + 1356237833922*x^4 + 40298
0457942*x^5))/(2 + 3*x)^(11/2) + 53067385408*EllipticE[ArcSin[Sqr
t[2/11]*Sqrt[3 + 5*x]], -33/2] - 25619043520*EllipticF[ArcSin[Sqr
t[2/11]*Sqrt[3 + 5*x]], -33/2])/(16173039960*Sqrt[2])
```

Maple [C] time = 0.031, size = 743, normalized size = 3.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(3+5*x)^(5/2)/(2+3*x)^(13/2),x)
```

```
[Out] 2/2021629995*(194544611730*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2
)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^5*(3+5*x)^(1/2)
*(2+3*x)^(1/2)*(1-2*x)^(1/2)-402980457942*2^(1/2)*EllipticE(1/11*
11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^
5*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+648482039100*2^(1/2)*
EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1
/2)*2^(1/2))*x^4*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-134326
8193140*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2
*I*11^(1/2)*3^(1/2)*2^(1/2))*x^4*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2
*x)^(1/2)+864642718800*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3
+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+
5*x)^(1/2)*(2+3*x)^(1/2)-1791024257520*2^(1/2)*EllipticE(1/11*11^
(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(
1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)+576428479200*2^(1/2)*Ell
ipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)
*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-119401617
1680*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*
11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)
^(1/2)+12089413738260*x^7+192142826400*2^(1/2)*EllipticF(1/11*11^
(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+
5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-398005390560*2^(1/2)*Ellip
ticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2
^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+4189607639148
6*x^6+25619043520*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/
2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3
^(1/2)*2^(1/2))-53067385408*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(
1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*
11^(1/2)*3^(1/2)*2^(1/2))+55328989706838*x^5+30306573018747*x^4-2
```

```
93294410596*x^3-8183904282084*x^2-3573505278318*x-502875969453)*(
3+5*x)^(1/2)*(1-2*x)^(1/2)/(10*x^2+x-3)/(2+3*x)^(11/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}(-2x+1)^{\frac{3}{2}}}{(3x+2)^{\frac{13}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(13/2),x, algorithm="maxima
```

```
[Out] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(13/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{\left(50\,x^3+35\,x^2-12\,x-9\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}}{\left(729\,x^6+2916\,x^5+4860\,x^4+4320\,x^3+2160\,x^2+576\,x+64\right)\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(13/2),x, algorithm="fricas
```

```
[Out] integral(-(50*x^3 + 35*x^2 - 12*x - 9)*sqrt(5*x + 3)*sqrt(-2*x +
1)/((729*x^6 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x
+ 64)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(3+5*x)**(5/2)/(2+3*x)**(13/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}(-2x+1)^{\frac{3}{2}}}{(3x+2)^{\frac{13}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(13/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(13/2), x)
```

3.2711 $\int \frac{(1-2x)^{3/2}(3+5x)^{5/2}}{(2+3x)^{15/2}}\,dx$

Optimal. Leaf size=280

$$\frac{362\sqrt{1-2x}(5x+3)^{5/2}}{1287(3x+2)^{11/2}}-\frac{2(1-2x)^{3/2}(5x+3)^{5/2}}{39(3x+2)^{13/2}}-\frac{20992\sqrt{1-2x}(5x+3)^{3/2}}{81081(3x+2)^{9/2}}+\frac{245282464136\sqrt{1-2x}\sqrt{5x+3}}{20440925505\sqrt{3x+2}}+\frac{3523482724\sqrt{1-2x}\sqrt{5x+3}}{2920132215(3x+2)^{3/2}}+\frac{73596464\sqrt{1-2x}\sqrt{5x+3}}{417161745(3x+2)^{5/2}}-\frac{2174468\sqrt{1-2x}\sqrt{5x+3}}{11918907(3x+2)^{7/2}}-\frac{7391549624F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1858265955\sqrt{33}}-\frac{245282464136E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1858265955\sqrt{33}}$$

```
[Out] (-2174468*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(11918907*(2 + 3*x)^(7/2))
 + (73596464*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(417161745*(2 + 3*x)^(5
/2)) + (3523482724*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2920132215*(2 +
3*x)^(3/2)) + (245282464136*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2044092
5505*Sqrt[2 + 3*x]) - (20992*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(8108
1*(2 + 3*x)^(9/2)) - (2*(1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(39*(2 +
 3*x)^(13/2)) + (362*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(1287*(2 + 3*
x)^(11/2)) - (245282464136*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*
x]], 35/33])/(1858265955*Sqrt[33]) - (7391549624*EllipticF[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(1858265955*Sqrt[33])
```

Rubi [A] time = 0.673338, antiderivative size = 280, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{362\sqrt{1-2x}(5x+3)^{5/2}}{1287(3x+2)^{11/2}}-\frac{2(1-2x)^{3/2}(5x+3)^{5/2}}{39(3x+2)^{13/2}}-\frac{20992\sqrt{1-2x}(5x+3)^{3/2}}{81081(3x+2)^{9/2}}+\frac{245282464136\sqrt{1-2x}\sqrt{5x+3}}{20440925505\sqrt{3x+2}}+\frac{3523482724\sqrt{1-2x}\sqrt{5x+3}}{2920132215(3x+2)^{3/2}}+\frac{73596464\sqrt{1-2x}\sqrt{5x+3}}{417161745(3x+2)^{5/2}}-\frac{2174468\sqrt{1-2x}\sqrt{5x+3}}{11918907(3x+2)^{7/2}}-\frac{7391549624F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1858265955\sqrt{33}}-\frac{245282464136E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1858265955\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^(15/2),x]
```


```
[Out] (-2174468*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(11918907*(2 + 3*x)^(7/2))
 + (73596464*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(417161745*(2 + 3*x)^(5
/2)) + (3523482724*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2920132215*(2 +
3*x)^(3/2)) + (245282464136*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2044092
5505*Sqrt[2 + 3*x]) - (20992*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(8108
1*(2 + 3*x)^(9/2)) - (2*(1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(39*(2 +
 3*x)^(13/2)) + (362*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(1287*(2 + 3*
x)^(11/2)) - (245282464136*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*
x]], 35/33])/(1858265955*Sqrt[33]) - (7391549624*EllipticF[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(1858265955*Sqrt[33])
```

Rubi in Sympy [A] time = 66.908, size = 258, normalized size = 0.92

$$-\frac{1142\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{43659\left(3x+2\right)^{\frac{9}{2}}}-\frac{362\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{3}{2}}}{9009\left(3x+2\right)^{\frac{11}{2}}}-\frac{2\left(-2x+1\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{5}{2}}}{39\left(3x+2\right)^{\frac{13}{2}}}+\frac{245282464136\sqrt{-2x+1}\sqrt{5x+3}}{20440925505\sqrt{3x+2}}+\frac{3523482724\sqrt{-2x+1}\sqrt{5x+3}}{2920132215\left(3x+2\right)^{\frac{3}{2}}}+\frac{73596464\sqrt{-2x+1}\sqrt{5x+3}}{417161745\left(3x+2\right)^{\frac{5}{2}}}+\frac{1254958\sqrt{-2x+1}\sqrt{5x+3}}{11918907\left(3x+2\right)^{\frac{7}{2}}}-\frac{245282464136\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{61322776515}-\frac{7391549624\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{65039308425}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   rubi_integrate((1-2*x)**(3/2)*(3+5*x)**(5/2)/(2+3*x)**(15/2),x)
```

```
[Out] -1142*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/(43659*(3*x + 2)**(9/2)) -
362*(-2*x + 1)**(3/2)*(5*x + 3)**(3/2)/(9009*(3*x + 2)**(11/2)) -
 2*(-2*x + 1)**(3/2)*(5*x + 3)**(5/2)/(39*(3*x + 2)**(13/2)) + 24
5282464136*sqrt(-2*x + 1)*sqrt(5*x + 3)/(20440925505*sqrt(3*x + 2
)) + 3523482724*sqrt(-2*x + 1)*sqrt(5*x + 3)/(2920132215*(3*x + 2
)**(3/2)) + 73596464*sqrt(-2*x + 1)*sqrt(5*x + 3)/(417161745*(3*x
 + 2)**(5/2)) + 1254958*sqrt(-2*x + 1)*sqrt(5*x + 3)/(11918907*(3
*x + 2)**(7/2)) - 245282464136*sqrt(33)*elliptic_e(asin(sqrt(21)*
sqrt(-2*x + 1)/7), 35/33)/61322776515 - 7391549624*sqrt(35)*ellip
tic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/65039308425
```

Mathematica [A] time = 0.478676, size = 117, normalized size = 0.42

$$\frac{\frac{48\sqrt{2-4x}\sqrt{5x+3}\left(89405458177572x^6+360618554767050x^5+606171513555828x^4+543590753927373x^3+274263621177573x^2+73802680969881x+8272877174903\right)}{(3x+2)^{13/2}}-1}{490582212120\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]   Integrate[((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^(15/2),x]
```

```
[Out] ((48*Sqrt[2 - 4*x]*Sqrt[3 + 5*x]*(8272877174903 + 73802680969881*
x + 274263621177573*x^2 + 543590753927373*x^3 + 606171513555828*x
^4 + 360618554767050*x^5 + 89405458177572*x^6))/(2 + 3*x)^(13/2)
+ 3924519426176*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2
] - 1973150325440*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33
/2])/(490582212120*Sqrt[2])
```

Maple [C] time = 0.06, size = 862, normalized size = 3.1

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((1-2*x)^(3/2)*(3+5*x)^(5/2)/(2+3*x)^(15/2),x)
```

```
[Out] 2/61322776515*(44950830851430*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(
1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^6*(3+5*x)^(1
/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-89405458177572*2^(1/2)*EllipticE(
1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2
))*x^6*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+179803323405720*
2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1
/2)*3^(1/2)*2^(1/2))*x^5*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2
)-357621832710288*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)
```

```
^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^5*(3+5*x)^(1/2)*(2+3*x)^
(1/2)*(1-2*x)^(1/2)+29967220567620O*2^(1/2)*EllipticF(1/11*11^(1/
2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^4*(3+5
*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-596036387850480*2^(1/2)*Ell
ipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)
*2^(1/2))*x^4*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+266375293
934400*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*
I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*
x)^(1/2)-529810122533760*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*
(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(
3+5*x)^(1/2)*(2+3*x)^(1/2)+2682163745327160*x^8+133187646967200*2
^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/
2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)
-264905061266880*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^
(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(
1/2)*(1-2*x)^(1/2)+11086773017544216*x^7+35516705857920*2^(1/2)*E
llipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/
2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-706413496
71168*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I
*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^
(1/2)+18462351947377842*x^6+3946300650880*2^(1/2)*(3+5*x)^(1/2)*(
2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x
)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-7849038852352*2^(1/2)*(3+
5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^
(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+1488067016558
5224*x^5+4403137275106857*x^4-1855445492717208*x^3-19987782324414
24*x^2-639405497204220*x-74455894574127)*(3+5*x)^(1/2)*(1-2*x)^(1
/2)/(10*x^2+x-3)/(2+3*x)^(13/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{5}{2}}(-2\,x+1)^{\frac{3}{2}}}{(3\,x+2)^{\frac{15}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(15/2),x, algorithm="maxima
```

```
[Out] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(15/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(-\frac{\left(50\,x^3+35\,x^2-12\,x-9\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}}{\left(2187\,x^7+10206\,x^6+20412\,x^5+22680\,x^4+15120\,x^3+6048\,x^2+1344\,x+128\right)\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(15/2),x, algorithm="fricas
```

```
[Out] integral(-(50*x^3 + 35*x^2 - 12*x - 9)*sqrt(5*x + 3)*sqrt(-2*x +
1)/((2187*x^7 + 10206*x^6 + 20412*x^5 + 22680*x^4 + 15120*x^3 + 6
048*x^2 + 1344*x + 128)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(3/2)*(3+5*x)**(5/2)/(2+3*x)**(15/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}(-2x+1)^{\frac{3}{2}}}{(3x+2)^{\frac{15}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(15/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)/(3*x + 2)^(15/2), x)
```

3.2712 $\int \frac{(1-2x)^{3/2}(2+3x)^{5/2}}{\sqrt{3+5x}}\,dx$

Optimal. Leaf size=191

$$\frac{2}{45}(1-2x)^{3/2}\sqrt{5x+3}(3x+2)^{5/2}+\frac{178\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{5/2}}{4725}+\frac{403\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}}{118125}-\frac{87476\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{590625}-\frac{104663\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{2953125}-\frac{6515539\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{5906250}$$

```
[Out] (-87476*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/590625 + (403*
Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/118125 + (178*Sqrt[1
 - 2*x]*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x])/4725 + (2*(1 - 2*x)^(3/2)*
(2 + 3*x)^(5/2)*Sqrt[3 + 5*x])/45 - (6515539*Sqrt[11/3]*EllipticE
[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/5906250 - (104663*Sqrt[
11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/2953125
```

Rubi [A] time = 0.406636, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{2}{45}(1-2x)^{3/2}\sqrt{5x+3}(3x+2)^{5/2}+\frac{178\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{5/2}}{4725}+\frac{403\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}}{118125}-\frac{87476\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{590625}-\frac{104663\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{2953125}-\frac{6515539\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{5906250}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(2 + 3*x)^(5/2))/Sqrt[3 + 5*x],x]
```

```
[Out] (-87476*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/590625 + (403*
Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/118125 + (178*Sqrt[1
 - 2*x]*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x])/4725 + (2*(1 - 2*x)^(3/2)*
(2 + 3*x)^(5/2)*Sqrt[3 + 5*x])/45 - (6515539*Sqrt[11/3]*EllipticE
[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/5906250 - (104663*Sqrt[
11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/2953125
```

Rubi in Sympy [A] time = 39.4106, size = 172, normalized size = 0.9

$$\frac{2\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{\frac{5}{2}}\sqrt{5x+3}}{45}+\frac{178\sqrt{-2x+1}\left(3x+2\right)^{\frac{5}{2}}\sqrt{5x+3}}{4725}+\frac{403\sqrt{-2x+1}\left(3x+2\right)^{\frac{3}{2}}\sqrt{5x+3}}{118125}-\frac{87476\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{590625}-\frac{6515539\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{17718750}-\frac{1151293\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{103359375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)**(5/2)/(3+5*x)**(1/2),x)
```

```
[Out] 2*(-2*x + 1)**(3/2)*(3*x + 2)**(5/2)*sqrt(5*x + 3)/45 + 178*sqrt(
-2*x + 1)*(3*x + 2)**(5/2)*sqrt(5*x + 3)/4725 + 403*sqrt(-2*x + 1
)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/118125 - 87476*sqrt(-2*x + 1)*sq
rt(3*x + 2)*sqrt(5*x + 3)/590625 - 6515539*sqrt(33)*elliptic_e(as
in(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/17718750 - 1151293*sqrt(35)
```

```
*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/103359375
```

Mathematica [A] time = 0.356656, size = 105, normalized size = 0.55

$$\frac{6515539E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-5\left(3\sqrt{2-4x}\sqrt{3x+2}\sqrt{5x+3}\left(472500x^3+193500x^2-378045x-110554\right)+6123\right.}{8859375\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(2 + 3*x)^(5/2))/Sqrt[3 + 5*x],x]
```

```
[Out] (6515539*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 5*(
3*Sqrt[2 - 4*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(-110554 - 378045*x +
 193500*x^2 + 472500*x^3) + 612332*EllipticF[ArcSin[Sqrt[2/11]*Sq
rt[3 + 5*x]], -33/2]))/(8859375*Sqrt[2])
```

Maple [C] time = 0.017, size = 179, normalized size = 0.9

$$\frac{1}{531562500\,x^3+407531250\,x^2-124031250\,x-106312500}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(-425250000\,x^6+3061660\,\sqrt{2}\sqrt{3+5\,x}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^(5/2)/(3+5*x)^(1/2),x)
```

```
[Out] 1/17718750*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(-425250000*
x^6+3061660*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Ell
ipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)
*2^(1/2))-6515539*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/
2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3
^(1/2)*2^(1/2))-500175000*x^5+305950500*x^4+486034650*x^3+3172281
0*x^2-91264440*x-19899720)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{5}{2}}(-2\,x+1)^{\frac{3}{2}}}{\sqrt{5\,x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(5/2)*(-2*x + 1)^(3/2)/sqrt(5*x + 3),x, algorithm="maxima")
```

```
[Out] integrate((3*x + 2)^(5/2)*(-2*x + 1)^(3/2)/sqrt(5*x + 3), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{\left(18\,x^3+15\,x^2-4\,x-4\right)\sqrt{3\,x+2}\sqrt{-2\,x+1}}{\sqrt{5\,x+3}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(5/2)*(-2*x + 1)^(3/2)/sqrt(5*x + 3),x, algorithm="fricas")
```

```
[Out] integral(-(18*x^3 + 15*x^2 - 4*x - 4)*sqrt(3*x + 2)*sqrt(-2*x + 1
)/sqrt(5*x + 3), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)**(5/2)/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{5}{2}}(-2x+1)^{\frac{3}{2}}}{\sqrt{5x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(5/2)*(-2*x + 1)^(3/2)/sqrt(5*x + 3),x, algorithm="giac")
```

```
[Out] integrate((3*x + 2)^(5/2)*(-2*x + 1)^(3/2)/sqrt(5*x + 3), x)
```

3.2713 $\int \frac{(1-2x)^{3/2}(2+3x)^{3/2}}{\sqrt{3+5x}}\,dx$

Optimal. Leaf size=160

$$\frac{2}{35}(1-2x)^{3/2}\sqrt{5x+3}(3x+2)^{3/2}+\frac{62}{875}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}-\frac{487\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{13125}-\frac{2281\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{65625}-\frac{46159\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{65625}$$

```
[Out] (-487*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/13125 + (62*Sqrt
[1 - 2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/875 + (2*(1 - 2*x)^(3/2)
*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/35 - (46159*Sqrt[11/3]*EllipticE[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/65625 - (2281*Sqrt[11/3]
*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/65625
```

Rubi [A] time = 0.321382, antiderivative size = 160, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{2}{35}(1-2x)^{3/2}\sqrt{5x+3}(3x+2)^{3/2}+\frac{62}{875}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}-\frac{487\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{13125}-\frac{2281\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{65625}-\frac{46159\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{65625}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(2 + 3*x)^(3/2))/Sqrt[3 + 5*x],x]
```

```
[Out] (-487*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/13125 + (62*Sqrt
[1 - 2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/875 + (2*(1 - 2*x)^(3/2)
*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/35 - (46159*Sqrt[11/3]*EllipticE[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/65625 - (2281*Sqrt[11/3]
*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/65625
```

Rubi in Sympy [A] time = 31.7769, size = 143, normalized size = 0.89

$$\frac{2\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{\frac{3}{2}}\sqrt{5x+3}}{35}+\frac{62\sqrt{-2x+1}\left(3x+2\right)^{\frac{3}{2}}\sqrt{5x+3}}{875}-\frac{487\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{13125}-\frac{46159\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{196875}-\frac{25091\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{2296875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)**(3/2)/(3+5*x)**(1/2),x)
```

```
[Out] 2*(-2*x + 1)**(3/2)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/35 + 62*sqrt(-
2*x + 1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/875 - 487*sqrt(-2*x + 1)*
sqrt(3*x + 2)*sqrt(5*x + 3)/13125 - 46159*sqrt(33)*elliptic_e(asi
n(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/196875 - 25091*sqrt(35)*elli
ptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/2296875
```

Mathematica [A] time = 0.296766, size = 97, normalized size = 0.61

$$\frac{15\sqrt{2-4x}\sqrt{3x+2}\sqrt{5x+3}\left(-4500x^2+2040x+2873\right)-17045F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+92318E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+\right.\right.}{196875\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(2 + 3*x)^(3/2))/Sqrt[3 + 5*x],x]
```

```
[Out] (15*Sqrt[2 - 4*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(2873 + 2040*x - 45
00*x^2) + 92318*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2
] - 17045*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/(19
6875*Sqrt[2])
```

Maple [C] time = 0.017, size = 174, normalized size = 1.1

$$\frac{1}{11812500\,x^3+9056250\,x^2-2756250\,x-2362500}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(17045\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^(3/2)/(3+5*x)^(1/2),x)
```

```
[Out] 1/393750*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(17045*2^(1/2)
*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2
)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-92318*2^(
1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^
(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-40500
00*x^5-1269000*x^4+4938300*x^3+2363970*x^2-970530*x-517140)/(30*x
^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{3}{2}}(-2\,x+1)^{\frac{3}{2}}}{\sqrt{5\,x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(3/2)*(-2*x + 1)^(3/2)/sqrt(5*x + 3),x, algorithm="maxima")
```

```
[Out] integrate((3*x + 2)^(3/2)*(-2*x + 1)^(3/2)/sqrt(5*x + 3), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{(6\,x^2+x-2)\sqrt{3\,x+2}\sqrt{-2\,x+1}}{\sqrt{5\,x+3}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(3/2)*(-2*x + 1)^(3/2)/sqrt(5*x + 3),x, algorithm="fricas")
```

```
[Out] integral(-(6*x^2 + x - 2)*sqrt(3*x + 2)*sqrt(-2*x + 1)/sqrt(5*x +
 3), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)**(3/2)/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{3}{2}}(-2\,x+1)^{\frac{3}{2}}}{\sqrt{5\,x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(3/2)*(-2*x + 1)^(3/2)/sqrt(5*x + 3),x, algorithm="giac")
```

```
[Out] integrate((3*x + 2)^(3/2)*(-2*x + 1)^(3/2)/sqrt(5*x + 3), x)
```

3.2714 $\int \frac{(1-2x)^{3/2}\sqrt{2+3x}}{\sqrt{3+5x}}\,dx$

Optimal. Leaf size=129

$$\frac{2}{25}\sqrt{3x+2}\sqrt{5x+3}(1-2x)^{3/2}+\frac{194\sqrt{3x+2}\sqrt{5x+3}\sqrt{1-2x}}{1125}-\frac{598\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{5625}-\frac{2797\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{5625}$$

```
[Out] (194*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/1125 + (2*(1 - 2*
x)^(3/2)*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/25 - (2797*Sqrt[11/3]*Ellip
ticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/5625 - (598*Sqrt[11
/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/5625
```

Rubi [A] time = 0.25427, antiderivative size = 129, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{2}{25}\sqrt{3x+2}\sqrt{5x+3}(1-2x)^{3/2}+\frac{194\sqrt{3x+2}\sqrt{5x+3}\sqrt{1-2x}}{1125}-\frac{598\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{5625}-\frac{2797\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{5625}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*Sqrt[2 + 3*x])/Sqrt[3 + 5*x],x]
```

```
[Out] (194*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/1125 + (2*(1 - 2*
x)^(3/2)*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/25 - (2797*Sqrt[11/3]*Ellip
ticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/5625 - (598*Sqrt[11
/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/5625
```

Rubi in Sympy [A] time = 25.1066, size = 114, normalized size = 0.88

$$\frac{2\left(-2x+1\right)^{\frac{3}{2}}\sqrt{3x+2}\sqrt{5x+3}}{25}+\frac{194\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{1125}-\frac{2797\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{16875}-\frac{6578\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{196875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] 2*(-2*x + 1)**(3/2)*sqrt(3*x + 2)*sqrt(5*x + 3)/25 + 194*sqrt(-2*
x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/1125 - 2797*sqrt(33)*elliptic_
e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/16875 - 6578*sqrt(35)*e
lliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/196875
```

Mathematica [A] time = 0.203182, size = 97, normalized size = 0.75

$$\frac{60\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}(71-45x)+7070\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+2797\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)}{16875}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*Sqrt[2 + 3*x])/Sqrt[3 + 5*x],x]
```

```
[Out] (60*(71 - 45*x)*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x] + 2797*
Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 7070
*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/1687
5
```

Maple [C] time = 0.017, size = 169, normalized size = 1.3

$$-\frac{1}{506250\,x^3+388125\,x^2-118125\,x-101250}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(7070\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^(1/2)/(3+5*x)^(1/2),x)
```

```
[Out] -1/16875*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(7070*2^(1/2)*
(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)
*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+2797*2^(1/
2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1
/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+81000*x
^4-65700*x^3-116880*x^2+13620*x+25560)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{3\,x+2}(-2\,x+1)^{\frac{3}{2}}}{\sqrt{5\,x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(3*x + 2)*(-2*x + 1)^(3/2)/sqrt(5*x + 3),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(3*x + 2)*(-2*x + 1)^(3/2)/sqrt(5*x + 3), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{3\,x+2}(-2\,x+1)^{\frac{3}{2}}}{\sqrt{5\,x+3}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(3*x + 2)*(-2*x + 1)^(3/2)/sqrt(5*x + 3),x, algorithm="fricas")
```

```
[Out] integral(sqrt(3*x + 2)*(-2*x + 1)^(3/2)/sqrt(5*x + 3), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{3x+2}(-2x+1)^{\frac{3}{2}}}{\sqrt{5x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(3*x + 2)*(-2*x + 1)^(3/2)/sqrt(5*x + 3),x, algorithm="giac")
```

```
[Out] integrate(sqrt(3*x + 2)*(-2*x + 1)^(3/2)/sqrt(5*x + 3), x)
```

3.2715 $\int \frac{(1-2x)^{3/2}}{\sqrt{2+3x}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=98

$$-\frac{4}{45}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3} - \frac{202}{225}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right) + \frac{272}{225}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (-4*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/45 + (272*Sqrt[11/
3]*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/225 - (202*
Sqrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/225
```

Rubi [A] time = 0.189681, antiderivative size = 98, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.143

$$-\frac{4}{45}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3} - \frac{202}{225}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right) + \frac{272}{225}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)/(Sqrt[2 + 3*x]*Sqrt[3 + 5*x]),x]
```

```
[Out] (-4*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/45 + (272*Sqrt[11/
3]*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/225 - (202*
Sqrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/225
```

Rubi in Sympy [A] time = 16.9958, size = 85, normalized size = 0.87

$$-\frac{4\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{45} + \frac{272\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{675} - \frac{2222\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{7875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)/(2+3*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] -4*sqrt(-2*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/45 + 272*sqrt(33)*e
lliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/675 - 2222*sqrt
(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/7875
```

Mathematica [A] time = 0.165156, size = 92, normalized size = 0.94

$$\frac{1}{675}\left(-60\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3} + 3605\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right) - 272\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)/(Sqrt[2 + 3*x]*Sqrt[3 + 5*x]),x]
```

```
[Out] (-60*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x] - 272*Sqrt[2]*Elli
pticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 3605*Sqrt[2]*Ell
ipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/675
```

Maple [C] time = 0.019, size = 164, normalized size = 1.7

$$-\frac{1}{20250\,x^3+15525\,x^2-4725\,x-4050}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(3605\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)/(2+3*x)^(1/2)/(3+5*x)^(1/2),x)
```

```
[Out] -1/675*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(3605*2^(1/2)*(3
+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2
^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-272*2^(1/2)*
(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)
*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+1800*x^3+1
380*x^2-420*x-360)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2\,x+1)^{\frac{3}{2}}}{\sqrt{5\,x+3}\sqrt{3\,x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/(sqrt(5*x + 3)*sqrt(3*x + 2)),x, algorithm="maxima")
```

```
[Out] integrate((-2*x + 1)^(3/2)/(sqrt(5*x + 3)*sqrt(3*x + 2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(-2\,x+1)^{\frac{3}{2}}}{\sqrt{5\,x+3}\sqrt{3\,x+2}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/(sqrt(5*x + 3)*sqrt(3*x + 2)),x, algorithm="fricas")
```

```
[Out] integral((-2*x + 1)^(3/2)/(sqrt(5*x + 3)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)/(2+3*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2x+1)^{\frac{3}{2}}}{\sqrt{5x+3}\sqrt{3x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/(sqrt(5*x + 3)*sqrt(3*x + 2)),x, algorithm="giac")
```

```
[Out] integrate((-2*x + 1)^(3/2)/(sqrt(5*x + 3)*sqrt(3*x + 2)), x)
```

3.2716 $\int \frac{(1-2x)^{3/2}}{(2+3x)^{3/2}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=98

$$\frac{14\sqrt{1-2x}\sqrt{5x+3}}{3\sqrt{3x+2}}+\frac{4}{15}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{74}{15}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (14*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(3*Sqrt[2 + 3*x]) - (74*Sqrt[11/
3]*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/15 + (4*Sqr
t[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/15
```

Rubi [A] time = 0.187978, antiderivative size = 98, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.143

$$\frac{14\sqrt{1-2x}\sqrt{5x+3}}{3\sqrt{3x+2}}+\frac{4}{15}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{74}{15}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)/((2 + 3*x)^(3/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (14*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(3*Sqrt[2 + 3*x]) - (74*Sqrt[11/
3]*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/15 + (4*Sqr
t[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/15
```

Rubi in Sympy [A] time = 17.0952, size = 85, normalized size = 0.87

$$\frac{14\sqrt{-2x+1}\sqrt{5x+3}}{3\sqrt{3x+2}}-\frac{74\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{45}+\frac{44\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{525}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)/(2+3*x)**(3/2)/(3+5*x)**(1/2),x)
```

```
[Out] 14*sqrt(-2*x + 1)*sqrt(5*x + 3)/(3*sqrt(3*x + 2)) - 74*sqrt(33)*e
lliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/45 + 44*sqrt(35
)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/525
```

Mathematica [A] time = 0.249607, size = 92, normalized size = 0.94

$$\frac{2}{45}\left(\frac{105\sqrt{1-2x}\sqrt{5x+3}}{\sqrt{3x+2}}-70\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+37\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)/((2 + 3*x)^(3/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (2*((105*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/Sqrt[2 + 3*x] + 37*Sqrt[2]*
EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 70*Sqrt[2]*E
llipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]))/45
```

Maple [C] time = 0.027, size = 159, normalized size = 1.6

$$\frac{2}{1350\,x^{3}+1035\,x^{2}-315\,x-270}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(70\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)/(2+3*x)^(3/2)/(3+5*x)^(1/2),x)
```

```
[Out] 2/45*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(70*2^(1/2)*(3+5*x
)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/
2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-37*2^(1/2)*(3+5*
x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1
/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+1050*x^2+105*x-
315)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2\,x+1)^{\frac{3}{2}}}{\sqrt{5\,x+3}(3\,x+2)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/(sqrt(5*x + 3)*(3*x + 2)^(3/2)),x, algorithm="maxima"
```

```
[Out] integrate((-2*x + 1)^(3/2)/(sqrt(5*x + 3)*(3*x + 2)^(3/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(-2\,x+1)^{\frac{3}{2}}}{\sqrt{5\,x+3}(3\,x+2)^{\frac{3}{2}}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/(sqrt(5*x + 3)*(3*x + 2)^(3/2)),x, algorithm="fricas"
```

```
[Out] integral((-2*x + 1)^(3/2)/(sqrt(5*x + 3)*(3*x + 2)^(3/2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)/(2+3*x)**(3/2)/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2\,x+1)^{\frac{3}{2}}}{\sqrt{5\,x+3}(3\,x+2)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/(sqrt(5*x + 3)*(3*x + 2)^(3/2)),x, algorithm="giac")

[Out] integrate((-2*x + 1)^(3/2)/(sqrt(5*x + 3)*(3*x + 2)^(3/2)), x)
```

3.2717 $\int \frac{(1-2x)^{3/2}}{(2+3x)^{5/2}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=129

$$\frac{124\sqrt{1-2x}\sqrt{5x+3}}{9\sqrt{3x+2}}+\frac{14\sqrt{1-2x}\sqrt{5x+3}}{9(3x+2)^{3/2}} -\frac{4}{9}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{124}{9}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (14*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(9*(2 + 3*x)^(3/2)) + (124*Sqrt[
1 - 2*x]*Sqrt[3 + 5*x])/(9*Sqrt[2 + 3*x]) - (124*Sqrt[11/3]*Ellip
ticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/9 - (4*Sqrt[11/3]*E
llipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/9
```

Rubi [A] time = 0.26409, antiderivative size = 129, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{124\sqrt{1-2x}\sqrt{5x+3}}{9\sqrt{3x+2}}+\frac{14\sqrt{1-2x}\sqrt{5x+3}}{9(3x+2)^{3/2}} -\frac{4}{9}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{124}{9}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)/((2 + 3*x)^(5/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (14*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(9*(2 + 3*x)^(3/2)) + (124*Sqrt[
1 - 2*x]*Sqrt[3 + 5*x])/(9*Sqrt[2 + 3*x]) - (124*Sqrt[11/3]*Ellip
ticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/9 - (4*Sqrt[11/3]*E
llipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/9
```

Rubi in Sympy [A] time = 23.6746, size = 114, normalized size = 0.88

$$\frac{124\sqrt{-2x+1}\sqrt{5x+3}}{9\sqrt{3x+2}}+\frac{14\sqrt{-2x+1}\sqrt{5x+3}}{9\,(3x+2)^{\frac{3}{2}}} -\frac{124\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{27}-\frac{4\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{27}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)/(2+3*x)**(5/2)/(3+5*x)**(1/2),x)
```

```
[Out] 124*sqrt(-2*x + 1)*sqrt(5*x + 3)/(9*sqrt(3*x + 2)) + 14*sqrt(-2*x
 + 1)*sqrt(5*x + 3)/(9*(3*x + 2)**(3/2)) - 124*sqrt(33)*elliptic_
e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/27 - 4*sqrt(33)*ellipti
c_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/27
```

Mathematica [A] time = 0.304063, size = 97, normalized size = 0.75

$$\frac{2}{27}\left(\frac{3\sqrt{1-2x}\sqrt{5x+3}(186x+131)}{(3x+2)^{3/2}} -29\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+62\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)/((2 + 3*x)^(5/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (2*((3*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(131 + 186*x))/(2 + 3*x)^(3/2)
 + 62*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]
- 29*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]))
/27
```

Maple [C] time = 0.029, size = 267, normalized size = 2.1

$$\frac{2}{270x^2+27x-81}\left(87\sqrt{2}EllipticF\left(1/11\sqrt{11}\sqrt{2}\sqrt{3+5x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5x}\sqrt{2+3x}\sqrt{1-2x}-186\sqrt{2}EllipticE\left(1/1\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)/(2+3*x)^(5/2)/(3+5*x)^(1/2),x)
```

```
[Out] 2/27*(87*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/
2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*
x)^(1/2)-186*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2
),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(
1-2*x)^(1/2)+58*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)
*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(
1/2)*2^(1/2))-124*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/
2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3
^(1/2)*2^(1/2))+5580*x^3+4488*x^2-1281*x-1179)*(3+5*x)^(1/2)*(1-2
*x)^(1/2)/(10*x^2+x-3)/(2+3*x)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(-2x+1)^{\frac{3}{2}}}{\sqrt{5x+3}(3x+2)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/(sqrt(5*x + 3)*(3*x + 2)^(5/2)),x, algorithm="maxima"
```

```
[Out] integrate((-2*x + 1)^(3/2)/(sqrt(5*x + 3)*(3*x + 2)^(5/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(-2x+1)^{\frac{3}{2}}}{(9x^2+12x+4)\sqrt{5x+3}\sqrt{3x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/(sqrt(5*x + 3)*(3*x + 2)^(5/2)),x, algorithm="fricas"
```

```
[Out] integral((-2*x + 1)^(3/2)/((9*x^2 + 12*x + 4)*sqrt(5*x + 3)*sqrt(
3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)/(2+3*x)**(5/2)/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2x+1)^{\frac{3}{2}}}{\sqrt{5x+3}(3x+2)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/(sqrt(5*x + 3)*(3*x + 2)^(5/2)),x, algorithm="giac")
```

```
[Out] integrate((-2*x + 1)^(3/2)/(sqrt(5*x + 3)*(3*x + 2)^(5/2)), x)
```

3.2718 $\int \frac{(1-2x)^{3/2}}{(2+3x)^{7/2}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=160

$$\frac{17804\sqrt{1-2x}\sqrt{5x+3}}{315\sqrt{3x+2}}+\frac{256\sqrt{1-2x}\sqrt{5x+3}}{45(3x+2)^{3/2}}+\frac{14\sqrt{1-2x}\sqrt{5x+3}}{15(3x+2)^{5/2}}-\frac{536}{315}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{17804}{315}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (14*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(15*(2 + 3*x)^(5/2)) + (256*Sqrt
[1 - 2*x]*Sqrt[3 + 5*x])/(45*(2 + 3*x)^(3/2)) + (17804*Sqrt[1 - 2
*x]*Sqrt[3 + 5*x])/(315*Sqrt[2 + 3*x]) - (17804*Sqrt[11/3]*Ellipt
icE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/315 - (536*Sqrt[11/3
]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/315
```

Rubi [A] time = 0.342947, antiderivative size = 160, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{17804\sqrt{1-2x}\sqrt{5x+3}}{315\sqrt{3x+2}}+\frac{256\sqrt{1-2x}\sqrt{5x+3}}{45(3x+2)^{3/2}}+\frac{14\sqrt{1-2x}\sqrt{5x+3}}{15(3x+2)^{5/2}}-\frac{536}{315}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{17804}{315}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)/((2 + 3*x)^(7/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (14*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(15*(2 + 3*x)^(5/2)) + (256*Sqrt
[1 - 2*x]*Sqrt[3 + 5*x])/(45*(2 + 3*x)^(3/2)) + (17804*Sqrt[1 - 2
*x]*Sqrt[3 + 5*x])/(315*Sqrt[2 + 3*x]) - (17804*Sqrt[11/3]*Ellipt
icE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/315 - (536*Sqrt[11/3
]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/315
```

Rubi in Sympy [A] time = 30.5885, size = 143, normalized size = 0.89

$$\frac{17804\sqrt{-2x+1}\sqrt{5x+3}}{315\sqrt{3x+2}}+\frac{256\sqrt{-2x+1}\sqrt{5x+3}}{45\,(3x+2)^{\frac{3}{2}}}+\frac{14\sqrt{-2x+1}\sqrt{5x+3}}{15\,(3x+2)^{\frac{5}{2}}}-\frac{17804\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{945}-\frac{5896\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{11025}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)/(2+3*x)**(7/2)/(3+5*x)**(1/2),x)
```

```
[Out] 17804*sqrt(-2*x + 1)*sqrt(5*x + 3)/(315*sqrt(3*x + 2)) + 256*sqrt
(-2*x + 1)*sqrt(5*x + 3)/(45*(3*x + 2)**(3/2)) + 14*sqrt(-2*x + 1
)*sqrt(5*x + 3)/(15*(3*x + 2)**(5/2)) - 17804*sqrt(33)*elliptic_e
(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/945 - 5896*sqrt(35)*elli
ptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/11025
```

Mathematica [A] time = 0.305989, size = 101, normalized size = 0.63

$$\frac{4}{945}\left(\frac{3\sqrt{1-2x}\sqrt{5x+3}\left(80118x^2+109512x+37547\right)}{2(3x+2)^{5/2}}+\sqrt{2}\left(4451E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-2240F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)/((2 + 3*x)^(7/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (4*((3*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(37547 + 109512*x + 80118*x^2)
)/(2*(2 + 3*x)^(5/2)) + Sqrt[2]*(4451*EllipticE[ArcSin[Sqrt[2/11]
*Sqrt[3 + 5*x]], -33/2] - 2240*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3
 + 5*x]], -33/2])))/945
```

Maple [C] time = 0.03, size = 386, normalized size = 2.4

$$\frac{2}{9450\,x^2+945\,x-2835}\left(40320\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^2\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-80118\,\sqrt{2}E$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)/(2+3*x)^(7/2)/(3+5*x)^(1/2),x)
```

```
[Out] 2/945*(40320*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2
),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)
*(1-2*x)^(1/2)-80118*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5
*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*
x)^(1/2)*(1-2*x)^(1/2)+53760*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1
/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)
*(2+3*x)^(1/2)*(1-2*x)^(1/2)-106824*2^(1/2)*EllipticE(1/11*11^(1/
2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x
)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+17920*2^(1/2)*(3+5*x)^(1/2)*(
2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x
)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-35608*2^(1/2)*(3+5*x)^(1/
2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3
+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+2403540*x^4+3525714*x
^3+733884*x^2-872967*x-337923)*(3+5*x)^(1/2)*(1-2*x)^(1/2)/(10*x^
2+x-3)/(2+3*x)^(5/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2\,x+1)^{\frac{3}{2}}}{\sqrt{5\,x+3}(3\,x+2)^{\frac{7}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/(sqrt(5*x + 3)*(3*x + 2)^(7/2)),x, algorithm="maxima"
```

```
[Out] integrate((-2*x + 1)^(3/2)/(sqrt(5*x + 3)*(3*x + 2)^(7/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(-2\,x+1)^{\frac{3}{2}}}{(27\,x^3+54\,x^2+36\,x+8)\sqrt{5\,x+3}\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/(sqrt(5*x + 3)*(3*x + 2)^(7/2)),x, algorithm="fricas"
```

```
[Out] integrate((-2*x + 1)^(3/2)/((27*x^3 + 54*x^2 + 36*x + 8)*sqrt(5*x
+ 3)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)/(2+3*x)**(7/2)/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2x+1)^{\frac{3}{2}}}{\sqrt{5x+3}(3x+2)^{\frac{7}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/(sqrt(5*x + 3)*(3*x + 2)^(7/2)),x, algorithm="giac")
```

```
[Out] integrate((-2*x + 1)^(3/2)/(sqrt(5*x + 3)*(3*x + 2)^(7/2)), x)
```

3.2719 $\int \frac{(1-2x)^{3/2}}{(2+3x)^{9/2}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=191

$$\frac{1255552\sqrt{1-2x}\sqrt{5x+3}}{5145\sqrt{3x+2}}+\frac{18068\sqrt{1-2x}\sqrt{5x+3}}{735(3x+2)^{3/2}}+\frac{388\sqrt{1-2x}\sqrt{5x+3}}{105(3x+2)^{5/2}}+\frac{2\sqrt{1-2x}\sqrt{5x+3}}{3(3x+2)^{7/2}}-\frac{37768\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{5145}-\frac{1255552\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{5145}$$

```
[Out] (2*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(3*(2 + 3*x)^(7/2)) + (388*Sqrt[1
 - 2*x]*Sqrt[3 + 5*x])/(105*(2 + 3*x)^(5/2)) + (18068*Sqrt[1 - 2*
x]*Sqrt[3 + 5*x])/(735*(2 + 3*x)^(3/2)) + (1255552*Sqrt[1 - 2*x]*
Sqrt[3 + 5*x])/(5145*Sqrt[2 + 3*x]) - (1255552*Sqrt[11/3]*Ellipti
cE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/5145 - (37768*Sqrt[11
/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/5145
```

Rubi [A] time = 0.414102, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{1255552\sqrt{1-2x}\sqrt{5x+3}}{5145\sqrt{3x+2}}+\frac{18068\sqrt{1-2x}\sqrt{5x+3}}{735(3x+2)^{3/2}}+\frac{388\sqrt{1-2x}\sqrt{5x+3}}{105(3x+2)^{5/2}}+\frac{2\sqrt{1-2x}\sqrt{5x+3}}{3(3x+2)^{7/2}}-\frac{37768\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{5145}-\frac{1255552\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{5145}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)/((2 + 3*x)^(9/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (2*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(3*(2 + 3*x)^(7/2)) + (388*Sqrt[1
 - 2*x]*Sqrt[3 + 5*x])/(105*(2 + 3*x)^(5/2)) + (18068*Sqrt[1 - 2*
x]*Sqrt[3 + 5*x])/(735*(2 + 3*x)^(3/2)) + (1255552*Sqrt[1 - 2*x]*
Sqrt[3 + 5*x])/(5145*Sqrt[2 + 3*x]) - (1255552*Sqrt[11/3]*Ellipti
cE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/5145 - (37768*Sqrt[11
/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/5145
```

Rubi in Sympy [A] time = 38.3338, size = 172, normalized size = 0.9

$$\frac{1255552\sqrt{-2x+1}\sqrt{5x+3}}{5145\sqrt{3x+2}}+\frac{18068\sqrt{-2x+1}\sqrt{5x+3}}{735\,(3x+2)^{\frac{3}{2}}}+\frac{388\sqrt{-2x+1}\sqrt{5x+3}}{105\,(3x+2)^{\frac{5}{2}}}+\frac{2\sqrt{-2x+1}\sqrt{5x+3}}{3\,(3x+2)^{\frac{7}{2}}}-\frac{1255552\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{15435}-\frac{415448\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{180075}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)/(2+3*x)**(9/2)/(3+5*x)**(1/2),x)
```

```
[Out] 1255552*sqrt(-2*x + 1)*sqrt(5*x + 3)/(5145*sqrt(3*x + 2)) + 18068
*sqrt(-2*x + 1)*sqrt(5*x + 3)/(735*(3*x + 2)**(3/2)) + 388*sqrt(-
2*x + 1)*sqrt(5*x + 3)/(105*(3*x + 2)**(5/2)) + 2*sqrt(-2*x + 1)*
sqrt(5*x + 3)/(3*(3*x + 2)**(7/2)) - 1255552*sqrt(33)*elliptic_e(
asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/15435 - 415448*sqrt(35)*e
lliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/180075
```

Mathematica [A] time = 0.337439, size = 106, normalized size = 0.55

$$\frac{4\left(\frac{3\sqrt{1-2x}\sqrt{5x+3}(16949952x^3+34469046x^2+23387310x+5295887)}{2(3x+2)^{7/2}}+\sqrt{2}\left(313888E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-158095F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)\right)}{15435}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)/((2 + 3*x)^(9/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (4*((3*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(5295887 + 23387310*x + 344690
46*x^2 + 16949952*x^3))/(2*(2 + 3*x)^(7/2)) + Sqrt[2]*(313888*Ell
ipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 158095*Elliptic
F[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])))/15435
```

Maple [C] time = 0.033, size = 505, normalized size = 2.6

$$\frac{2}{154350x^2+15435x-46305}\left(8537130\sqrt{2}EllipticF\left(1/11\sqrt{11}\sqrt{2}\sqrt{3+5x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^3\sqrt{1-2x}\sqrt{3+5x}\sqrt{2+3x}-16\ldots\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)/(2+3*x)^(9/2)/(3+5*x)^(1/2),x)
```

```
[Out] 2/15435*(8537130*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^
(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*x)^(
1/2)*(2+3*x)^(1/2)-16949952*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/
2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2
)*(3+5*x)^(1/2)*(2+3*x)^(1/2)+17074260*2^(1/2)*EllipticF(1/11*11^
(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(
3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-33899904*2^(1/2)*Ellipti
cE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(
1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+11382840*2^(1
/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*
3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-2259
9936*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*
11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(
1/2)+2529520*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*El
lipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2
)*2^(1/2))-5022208*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1
/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*
3^(1/2)*2^(1/2))+508498560*x^5+1084921236*x^4+652476870*x^3-81182
874*x^2-194598129*x-47662983)*(3+5*x)^(1/2)*(1-2*x)^(1/2)/(10*x^2
+x-3)/(2+3*x)^(7/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2x+1)^{\frac{3}{2}}}{\sqrt{5x+3}(3x+2)^{\frac{9}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/(sqrt(5*x + 3)*(3*x + 2)^(9/2)),x, algorithm="maxima"
```

```
[Out] integrate((-2*x + 1)^(3/2)/(sqrt(5*x + 3)*(3*x + 2)^(9/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{(-2x+1)^{\frac{3}{2}}}{(81x^4+216x^3+216x^2+96x+16)\sqrt{5x+3}\sqrt{3x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/(sqrt(5*x + 3)*(3*x + 2)^(9/2)),x, algorithm="fricas"
```

```
[Out] integral((-2*x + 1)^(3/2)/((81*x^4 + 216*x^3 + 216*x^2 + 96*x + 1
6)*sqrt(5*x + 3)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)/(2+3*x)**(9/2)/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2x+1)^{\frac{3}{2}}}{\sqrt{5x+3}(3x+2)^{\frac{9}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/(sqrt(5*x + 3)*(3*x + 2)^(9/2)),x, algorithm="giac")
```

```
[Out] integrate((-2*x + 1)^(3/2)/(sqrt(5*x + 3)*(3*x + 2)^(9/2)), x)
```

3.2720 $\int \frac{(1-2x)^{3/2}(2+3x)^{7/2}}{(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=222

$$-\frac{8}{45}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{7/2}-\frac{2(1-2x)^{3/2}(3x+2)^{7/2}}{5\sqrt{5x+3}}+\frac{958\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{5/2}}{1575}+\frac{5153\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}}{39375}-\frac{12601\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{196875}-\frac{31288\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{984375}-\frac{1473539\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1968750}$$

```
[Out] (-2*(1 - 2*x)^(3/2)*(2 + 3*x)^(7/2))/(5*Sqrt[3 + 5*x]) - (12601*S
qrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/196875 + (5153*Sqrt[1 -
 2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/39375 + (958*Sqrt[1 - 2*x]*(
2 + 3*x)^(5/2)*Sqrt[3 + 5*x])/1575 - (8*Sqrt[1 - 2*x]*(2 + 3*x)^(
7/2)*Sqrt[3 + 5*x])/45 - (1473539*Sqrt[11/3]*EllipticE[ArcSin[Sqr
t[3/7]*Sqrt[1 - 2*x]], 35/33])/1968750 - (31288*Sqrt[11/3]*Ellipt
icF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/984375
```

Rubi [A] time = 0.484417, antiderivative size = 222, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.179$

$$-\frac{8}{45}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{7/2}-\frac{2(1-2x)^{3/2}(3x+2)^{7/2}}{5\sqrt{5x+3}}+\frac{958\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{5/2}}{1575}+\frac{5153\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}}{39375}-\frac{12601\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{196875}-\frac{31288\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{984375}-\frac{1473539\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1968750}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(2 + 3*x)^(7/2))/(3 + 5*x)^(3/2),x]
```


```
[Out] (-2*(1 - 2*x)^(3/2)*(2 + 3*x)^(7/2))/(5*Sqrt[3 + 5*x]) - (12601*S
qrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/196875 + (5153*Sqrt[1 -
 2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/39375 + (958*Sqrt[1 - 2*x]*(
2 + 3*x)^(5/2)*Sqrt[3 + 5*x])/1575 - (8*Sqrt[1 - 2*x]*(2 + 3*x)^(
7/2)*Sqrt[3 + 5*x])/45 - (1473539*Sqrt[11/3]*EllipticE[ArcSin[Sqr
t[3/7]*Sqrt[1 - 2*x]], 35/33])/1968750 - (31288*Sqrt[11/3]*Ellipt
icF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/984375
```

Rubi in Sympy [A] time = 47.4585, size = 201, normalized size = 0.91

$$-\frac{2\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{\frac{7}{2}}}{5\sqrt{5x+3}}-\frac{8\sqrt{-2x+1}\left(3x+2\right)^{\frac{7}{2}}\sqrt{5x+3}}{45}+\frac{958\sqrt{-2x+1}\left(3x+2\right)^{\frac{5}{2}}\sqrt{5x+3}}{1575}+\frac{5153\sqrt{-2x+1}\left(3x+2\right)^{\frac{3}{2}}\sqrt{5x+3}}{39375}-\frac{12601\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{196875}-\frac{1473539\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{5906250}-\frac{31288\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{2953125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)**(7/2)/(3+5*x)**(3/2),x)
```

```
[Out] -2*(-2*x + 1)**(3/2)*(3*x + 2)**(7/2)/(5*sqrt(5*x + 3)) - 8*sqrt(
-2*x + 1)*(3*x + 2)**(7/2)*sqrt(5*x + 3)/45 + 958*sqrt(-2*x + 1)*
```

```
(3*x + 2)**(5/2)*sqrt(5*x + 3)/1575 + 5153*sqrt(-2*x + 1)*(3*x +
2)**(3/2)*sqrt(5*x + 3)/39375 - 12601*sqrt(-2*x + 1)*sqrt(3*x + 2
)*sqrt(5*x + 3)/196875 - 1473539*sqrt(33)*elliptic_e(asin(sqrt(21
)*sqrt(-2*x + 1)/7), 35/33)/5906250 - 31288*sqrt(33)*elliptic_f(a
sin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/2953125
```

Mathematica [A] time = 0.233998, size = 132, normalized size = 0.59

$$\frac{1473539\sqrt{2}(5x+3)E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-5\left(6\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}\left(472500x^4+517500x^3-252225x^2-377\right.\right.}{5906250(5x+3)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(2 + 3*x)^(7/2))/(3 + 5*x)^(3/2),x]
```

```
[Out] (1473539*Sqrt[2]*(3 + 5*x)*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5
*x]], -33/2] - 5*(6*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(-8
3787 - 377530*x - 252225*x^2 + 517500*x^3 + 472500*x^4) + 88207*S
qrt[2]*(3 + 5*x)*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/
2]))/(5906250*(3 + 5*x))
```

Maple [C] time = 0.026, size = 179, normalized size = 0.8

$$\frac{1}{177187500\,x^3+135843750\,x^2-41343750\,x-35437500}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(-85050000\,x^6+441035\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^(7/2)/(3+5*x)^(3/2),x)
```

```
[Out] 1/5906250*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(-85050000*x^
6+441035*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Ellipt
icF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^
(1/2))-1473539*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*
EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1
/2)*2^(1/2))-107325000*x^5+58225500*x^4+106572150*x^3+11274060*x^
2-20138190*x-5027220)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{7}{2}}(-2\,x+1)^{\frac{3}{2}}}{(5\,x+3)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(7/2)*(-2*x + 1)^(3/2)/(5*x + 3)^(3/2),x, algorithm="maxima"
```

```
[Out] integrate((3*x + 2)^(7/2)*(-2*x + 1)^(3/2)/(5*x + 3)^(3/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{\left(54\,x^4+81\,x^3+18\,x^2-20\,x-8\right)\sqrt{3\,x+2}\sqrt{-2\,x+1}}{(5\,x+3)^{\frac{3}{2}}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(7/2)*(-2*x + 1)^(3/2)/(5*x + 3)^(3/2),x, algorithm="fricas"
```

```
[Out] integral(-(54*x^4 + 81*x^3 + 18*x^2 - 20*x - 8)*sqrt(3*x + 2)*sqr
t(-2*x + 1)/(5*x + 3)^(3/2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)**(7/2)/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{7}{2}}(-2x+1)^{\frac{3}{2}}}{(5x+3)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(7/2)*(-2*x + 1)^(3/2)/(5*x + 3)^(3/2),x, algorithm="giac")
```

```
[Out] integrate((3*x + 2)^(7/2)*(-2*x + 1)^(3/2)/(5*x + 3)^(3/2), x)
```

3.2721 $\int \frac{(1-2x)^{3/2}(2+3x)^{5/2}}{(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=191

$$-\frac{32}{175}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{5/2}-\frac{2(1-2x)^{3/2}(3x+2)^{5/2}}{5\sqrt{5x+3}}+\frac{2818\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}}{4375}+\frac{2719\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{21875}-\frac{5753\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{109375}-\frac{47342\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{109375}$$

```
[Out] (-2*(1 - 2*x)^(3/2)*(2 + 3*x)^(5/2))/(5*Sqrt[3 + 5*x]) + (2719*Sq
rt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/21875 + (2818*Sqrt[1 - 2
*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/4375 - (32*Sqrt[1 - 2*x]*(2 +
3*x)^(5/2)*Sqrt[3 + 5*x])/175 - (47342*Sqrt[11/3]*EllipticE[ArcSi
n[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/109375 - (5753*Sqrt[11/3]*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/109375
```

Rubi [A] time = 0.400805, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.179$

$$-\frac{32}{175}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{5/2}-\frac{2(1-2x)^{3/2}(3x+2)^{5/2}}{5\sqrt{5x+3}}+\frac{2818\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}}{4375}+\frac{2719\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{21875}-\frac{5753\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{109375}-\frac{47342\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{109375}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(2 + 3*x)^(5/2))/(3 + 5*x)^(3/2),x]
```

```
[Out] (-2*(1 - 2*x)^(3/2)*(2 + 3*x)^(5/2))/(5*Sqrt[3 + 5*x]) + (2719*Sq
rt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/21875 + (2818*Sqrt[1 - 2
*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/4375 - (32*Sqrt[1 - 2*x]*(2 +
3*x)^(5/2)*Sqrt[3 + 5*x])/175 - (47342*Sqrt[11/3]*EllipticE[ArcSi
n[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/109375 - (5753*Sqrt[11/3]*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/109375
```

Rubi in Sympy [A] time = 39.6784, size = 172, normalized size = 0.9

$$-\frac{2\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{\frac{5}{2}}}{5\sqrt{5x+3}}-\frac{32\sqrt{-2x+1}\left(3x+2\right)^{\frac{5}{2}}\sqrt{5x+3}}{175}+\frac{2818\sqrt{-2x+1}\left(3x+2\right)^{\frac{3}{2}}\sqrt{5x+3}}{4375}+\frac{2719\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{21875}-\frac{47342\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{328125}-\frac{63283\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{3828125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)**(5/2)/(3+5*x)**(3/2),x)
```

```
[Out] -2*(-2*x + 1)**(3/2)*(3*x + 2)**(5/2)/(5*sqrt(5*x + 3)) - 32*sqrt
(-2*x + 1)*(3*x + 2)**(5/2)*sqrt(5*x + 3)/175 + 2818*sqrt(-2*x +
1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/4375 + 2719*sqrt(-2*x + 1)*sqrt
(3*x + 2)*sqrt(5*x + 3)/21875 - 47342*sqrt(33)*elliptic_e(asin(sq
```

```
rt(21)*sqrt(-2*x + 1)/7), 35/33)/328125 - 63283*sqrt(35)*elliptic
_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/3828125
```

Mathematica [A] time = 0.371305, size = 107, normalized size = 0.56

$$-\frac{\frac{30\sqrt{1-2x}\sqrt{3x+2}(22500x^3+5400x^2-22305x-9697)}{\sqrt{5x+3}} + 95165\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right) + 94684\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)}{656250}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(2 + 3*x)^(5/2))/(3 + 5*x)^(3/2),x]
```

```
[Out] ((-30*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(-9697 - 22305*x + 5400*x^2 + 2
2500*x^3))/Sqrt[3 + 5*x] + 94684*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/
11]*Sqrt[3 + 5*x]], -33/2] + 95165*Sqrt[2]*EllipticF[ArcSin[Sqrt[
2/11]*Sqrt[3 + 5*x]], -33/2])/656250
```

Maple [C] time = 0.026, size = 174, normalized size = 0.9

$$-\frac{1}{19687500\,x^3+15093750\,x^2-4593750\,x-3937500}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(95165\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}Elliptic\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^(5/2)/(3+5*x)^(3/2),x)
```

```
[Out] -1/656250*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(95165*2^(1/2
)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/
2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+94684*2^
(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11
^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+4050
000*x^5+1647000*x^4-5202900*x^3-2738610*x^2+1047390*x+581820)/(30
*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{5}{2}}(-2\,x+1)^{\frac{3}{2}}}{(5\,x+3)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(5/2)*(-2*x + 1)^(3/2)/(5*x + 3)^(3/2),x, algorithm="maxima"
```

```
[Out] integrate((3*x + 2)^(5/2)*(-2*x + 1)^(3/2)/(5*x + 3)^(3/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{(18\,x^3+15\,x^2-4\,x-4)\,\sqrt{3\,x+2}\sqrt{-2\,x+1}}{(5\,x+3)^{\frac{3}{2}}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(5/2)*(-2*x + 1)^(3/2)/(5*x + 3)^(3/2),x, algorithm="fricas"
```

```
[Out] integral(-(18*x^3 + 15*x^2 - 4*x - 4)*sqrt(3*x + 2)*sqrt(-2*x + 1
)/(5*x + 3)^(3/2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)**(5/2)/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{5}{2}}(-2x+1)^{\frac{3}{2}}}{(5x+3)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(5/2)*(-2*x + 1)^(3/2)/(5*x + 3)^(3/2),x, algorithm="giac")
```

```
[Out] integrate((3*x + 2)^(5/2)*(-2*x + 1)^(3/2)/(5*x + 3)^(3/2), x)
```

3.2722 $\int \frac{(1-2x)^{3/2}(2+3x)^{3/2}}{(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=160

$$-\frac{24}{125}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}-\frac{2(1-2x)^{3/2}(3x+2)^{3/2}}{5\sqrt{5x+3}}+\frac{458}{625}\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}-\frac{496\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3125}-\frac{169\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3125}$$

```
[Out] (-2*(1 - 2*x)^(3/2)*(2 + 3*x)^(3/2))/(5*Sqrt[3 + 5*x]) + (458*Sqr
t[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/625 - (24*Sqrt[1 - 2*x]*(
2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/125 - (169*Sqrt[11/3]*EllipticE[Arc
Sin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3125 - (496*Sqrt[11/3]*Elli
pticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3125
```

Rubi [A] time = 0.322731, antiderivative size = 160, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{24}{125}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}-\frac{2(1-2x)^{3/2}(3x+2)^{3/2}}{5\sqrt{5x+3}}+\frac{458}{625}\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}-\frac{496\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3125}-\frac{169\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3125}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(2 + 3*x)^(3/2))/(3 + 5*x)^(3/2),x]
```

```
[Out] (-2*(1 - 2*x)^(3/2)*(2 + 3*x)^(3/2))/(5*Sqrt[3 + 5*x]) + (458*Sqr
t[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/625 - (24*Sqrt[1 - 2*x]*(
2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/125 - (169*Sqrt[11/3]*EllipticE[Arc
Sin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3125 - (496*Sqrt[11/3]*Elli
pticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3125
```

Rubi in Sympy [A] time = 32.2553, size = 143, normalized size = 0.89

$$-\frac{2\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{\frac{3}{2}}}{5\sqrt{5x+3}}-\frac{24\sqrt{-2x+1}\left(3x+2\right)^{\frac{3}{2}}\sqrt{5x+3}}{125}+\frac{458\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{625}-\frac{169\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{9375}-\frac{496\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{9375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)**(3/2)/(3+5*x)**(3/2),x)
```

```
[Out] -2*(-2*x + 1)**(3/2)*(3*x + 2)**(3/2)/(5*sqrt(5*x + 3)) - 24*sqrt
(-2*x + 1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/125 + 458*sqrt(-2*x + 1
)*sqrt(3*x + 2)*sqrt(5*x + 3)/625 - 169*sqrt(33)*elliptic_e(asin(
sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/9375 - 496*sqrt(33)*elliptic_f
(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/9375
```

Mathematica [A] time = 0.307114, size = 102, normalized size = 0.64

$$\frac{\frac{30\sqrt{1-2x}\sqrt{3x+2}(-150x^2+130x+77)}{\sqrt{5x+3}}+8015\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+169\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)}{9375}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(2 + 3*x)^(3/2))/(3 + 5*x)^(3/2),x]
```

```
[Out] ((30*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(77 + 130*x - 150*x^2))/Sqrt[3 +
 5*x] + 169*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -
33/2] + 8015*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]],
-33/2])/9375
```

Maple [C] time = 0.027, size = 169, normalized size = 1.1

$$-\frac{1}{281250\,x^{3}+215625\,x^{2}-65625\,x-56250}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(8015\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}\mathit{EllipticF}\left(1/11\,\sqrt{1}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^(3/2)/(3+5*x)^(3/2),x)
```

```
[Out] -1/9375*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(8015*2^(1/2)*(
3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*
2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+169*2^(1/2)
*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2
)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+27000*x^4
-18900*x^3-26760*x^2+5490*x+4620)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{3}{2}}(-2\,x+1)^{\frac{3}{2}}}{(5\,x+3)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(3/2)*(-2*x + 1)^(3/2)/(5*x + 3)^(3/2),x, algorithm="maxima"
```

```
[Out] integrate((3*x + 2)^(3/2)*(-2*x + 1)^(3/2)/(5*x + 3)^(3/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{\left(6\,x^{2}+x-2\right)\sqrt{3\,x+2}\sqrt{-2\,x+1}}{(5\,x+3)^{\frac{3}{2}}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(3/2)*(-2*x + 1)^(3/2)/(5*x + 3)^(3/2),x, algorithm="fricas"
```

```
[Out] integral(-(6*x^2 + x - 2)*sqrt(3*x + 2)*sqrt(-2*x + 1)/(5*x + 3)^
(3/2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)**(3/2)/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{3}{2}}(-2x+1)^{\frac{3}{2}}}{(5x+3)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(3/2)*(-2*x + 1)^(3/2)/(5*x + 3)^(3/2),x, algorithm="giac")
```

```
[Out] integrate((3*x + 2)^(3/2)*(-2*x + 1)^(3/2)/(5*x + 3)^(3/2), x)
```

3.2723 $\int \frac{(1-2x)^{3/2}\sqrt{2+3x}}{(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=129

$$-\frac{2\sqrt{3x+2}(1-2x)^{3/2}}{5\sqrt{5x+3}}-\frac{16}{75}\sqrt{3x+2}\sqrt{5x+3}\sqrt{1-2x}-\frac{178}{375}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{458}{375}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (-2*(1 - 2*x)^(3/2)*Sqrt[2 + 3*x])/(5*Sqrt[3 + 5*x]) - (16*Sqrt[1
 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/75 + (458*Sqrt[11/3]*Ellipti
cE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/375 - (178*Sqrt[11/3]
*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/375
```

Rubi [A] time = 0.256816, antiderivative size = 129, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{2\sqrt{3x+2}(1-2x)^{3/2}}{5\sqrt{5x+3}}-\frac{16}{75}\sqrt{3x+2}\sqrt{5x+3}\sqrt{1-2x}-\frac{178}{375}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{458}{375}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*Sqrt[2 + 3*x])/(3 + 5*x)^(3/2),x]
```

```
[Out] (-2*(1 - 2*x)^(3/2)*Sqrt[2 + 3*x])/(5*Sqrt[3 + 5*x]) - (16*Sqrt[1
 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/75 + (458*Sqrt[11/3]*Ellipti
cE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/375 - (178*Sqrt[11/3]
*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/375
```

Rubi in Sympy [A] time = 24.9127, size = 114, normalized size = 0.88

$$-\frac{2\left(-2x+1\right)^{\frac{3}{2}}\sqrt{3x+2}}{5\sqrt{5x+3}}-\frac{16\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{75}+\frac{458\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{1125}-\frac{178\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{1125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)**(1/2)/(3+5*x)**(3/2),x)
```

```
[Out] -2*(-2*x + 1)**(3/2)*sqrt(3*x + 2)/(5*sqrt(5*x + 3)) - 16*sqrt(-2
*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/75 + 458*sqrt(33)*elliptic_e(
asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/1125 - 178*sqrt(33)*ellip
tic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/1125
```

Mathematica [A] time = 0.261138, size = 97, normalized size = 0.75

$$\frac{-\frac{30\sqrt{1-2x}\sqrt{3x+2}(10x+39)}{\sqrt{5x+3}}+3395\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-458\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)}{1125}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*Sqrt[2 + 3*x])/(3 + 5*x)^(3/2),x]
```

```
[Out] ((-30*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(39 + 10*x))/Sqrt[3 + 5*x] - 45
8*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 33
95*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/11
25
```

Maple [C] time = 0.024, size = 164, normalized size = 1.3

$$-\frac{1}{33750\,x^3+25875\,x^2-7875\,x-6750}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(3395\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^(1/2)/(3+5*x)^(3/2),x)
```

```
[Out] -1/1125*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(3395*2^(1/2)*(
3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*
2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-458*2^(1/2)
*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2
)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+1800*x^3+
7320*x^2+570*x-2340)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{3\,x+2}(-2\,x+1)^{\frac{3}{2}}}{(5\,x+3)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(3*x + 2)*(-2*x + 1)^(3/2)/(5*x + 3)^(3/2),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(3*x + 2)*(-2*x + 1)^(3/2)/(5*x + 3)^(3/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\sqrt{3\,x+2}(-2\,x+1)^{\frac{3}{2}}}{(5\,x+3)^{\frac{3}{2}}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(3*x + 2)*(-2*x + 1)^(3/2)/(5*x + 3)^(3/2),x, algorithm="fricas")
```

```
[Out] integral(sqrt(3*x + 2)*(-2*x + 1)^(3/2)/(5*x + 3)^(3/2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)**(1/2)/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{3x+2}(-2x+1)^{\frac{3}{2}}}{(5x+3)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(3*x + 2)*(-2*x + 1)^(3/2)/(5*x + 3)^(3/2),x, algorithm="giac")
```

```
[Out] integrate(sqrt(3*x + 2)*(-2*x + 1)^(3/2)/(5*x + 3)^(3/2), x)
```

3.2724 $\int \frac{(1-2x)^{3/2}}{\sqrt{2+3x}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=98

$$-\frac{22\sqrt{1-2x}\sqrt{3x+2}}{5\sqrt{5x+3}}+\frac{8}{25}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{62}{25}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (-22*Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/(5*Sqrt[3 + 5*x]) + (62*Sqrt[11
/3]*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/25 + (8*Sq
rt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/25
```

Rubi [A] time = 0.188495, antiderivative size = 98, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.143

$$-\frac{22\sqrt{1-2x}\sqrt{3x+2}}{5\sqrt{5x+3}}+\frac{8}{25}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{62}{25}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)/(Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-22*Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/(5*Sqrt[3 + 5*x]) + (62*Sqrt[11
/3]*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/25 + (8*Sq
rt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/25
```

Rubi in Sympy [A] time = 17.5005, size = 85, normalized size = 0.87

$$-\frac{22\sqrt{-2x+1}\sqrt{3x+2}}{5\sqrt{5x+3}}+\frac{62\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{75}+\frac{8\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{75}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)/(3+5*x)**(3/2)/(2+3*x)**(1/2),x)
```

```
[Out] -22*sqrt(-2*x + 1)*sqrt(3*x + 2)/(5*sqrt(5*x + 3)) + 62*sqrt(33)*
elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/75 + 8*sqrt(33
)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/75
```

Mathematica [A] time = 0.299395, size = 92, normalized size = 0.94

$$\frac{1}{75}\left(-\frac{330\sqrt{1-2x}\sqrt{3x+2}}{\sqrt{5x+3}}-70\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-62\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)/(Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)),x]
```

```
[Out] ((-330*Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/Sqrt[3 + 5*x] - 62*Sqrt[2]*El
lipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 70*Sqrt[2]*Ell
ipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/75
```

Maple [C] time = 0.024, size = 159, normalized size = 1.6

$$\frac{2}{2250\,x^3+1725\,x^2-525\,x-450}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(35\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)/(3+5*x)^(3/2)/(2+3*x)^(1/2),x)
```

```
[Out] 2/75*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(35*2^(1/2)*(3+5*x
)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/
2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+31*2^(1/2)*(3+5*
x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1
/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-990*x^2-165*x+3
30)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2\,x+1)^{\frac{3}{2}}}{(5\,x+3)^{\frac{3}{2}}\sqrt{3\,x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^(3/2)*sqrt(3*x + 2)),x, algorithm="maxima"
```

```
[Out] integrate((-2*x + 1)^(3/2)/((5*x + 3)^(3/2)*sqrt(3*x + 2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{(-2\,x+1)^{\frac{3}{2}}}{(5\,x+3)^{\frac{3}{2}}\sqrt{3\,x+2}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^(3/2)*sqrt(3*x + 2)),x, algorithm="fricas"
```

```
[Out] integral((-2*x + 1)^(3/2)/((5*x + 3)^(3/2)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)/(3+5*x)**(3/2)/(2+3*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2\,x+1)^{\frac{3}{2}}}{(5\,x+3)^{\frac{3}{2}}\sqrt{3\,x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/((5*x + 3)^(3/2)*sqrt(3*x + 2)),x, algorithm="giac")

[Out] integrate((-2*x + 1)^(3/2)/((5*x + 3)^(3/2)*sqrt(3*x + 2)), x)
```

3.2725 $\int \frac{(1-2x)^{3/2}}{(2+3x)^{3/2}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=129

$$-\frac{136\sqrt{1-2x}\sqrt{3x+2}}{3\sqrt{5x+3}}+\frac{14\sqrt{1-2x}}{3\sqrt{3x+2}\sqrt{5x+3}}+\frac{4}{5}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{136}{5}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (14*Sqrt[1 - 2*x])/(3*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) - (136*Sqrt[1
- 2*x]*Sqrt[2 + 3*x])/(3*Sqrt[3 + 5*x]) + (136*Sqrt[11/3]*Ellipti
cE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/5 + (4*Sqrt[11/3]*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/5
```

Rubi [A] time = 0.261014, antiderivative size = 129, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{136\sqrt{1-2x}\sqrt{3x+2}}{3\sqrt{5x+3}}+\frac{14\sqrt{1-2x}}{3\sqrt{3x+2}\sqrt{5x+3}}+\frac{4}{5}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{136}{5}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)/((2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (14*Sqrt[1 - 2*x])/(3*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) - (136*Sqrt[1
- 2*x]*Sqrt[2 + 3*x])/(3*Sqrt[3 + 5*x]) + (136*Sqrt[11/3]*Ellipti
cE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/5 + (4*Sqrt[11/3]*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/5
```

Rubi in Sympy [A] time = 25.6862, size = 114, normalized size = 0.88

$$-\frac{136\sqrt{-2x+1}\sqrt{3x+2}}{3\sqrt{5x+3}}+\frac{14\sqrt{-2x+1}}{3\sqrt{3x+2}\sqrt{5x+3}}+\frac{136\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{15}+\frac{44\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{175}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)/(2+3*x)**(3/2)/(3+5*x)**(3/2),x)
```

```
[Out] -136*sqrt(-2*x + 1)*sqrt(3*x + 2)/(3*sqrt(5*x + 3)) + 14*sqrt(-2*
x + 1)/(3*sqrt(3*x + 2)*sqrt(5*x + 3)) + 136*sqrt(33)*elliptic_e(
asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/15 + 44*sqrt(35)*elliptic
_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/175
```

Mathematica [A] time = 0.247226, size = 131, normalized size = 1.02

$$\frac{70\sqrt{2}\left(15x^2+19x+6\right)F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-136\sqrt{2}\left(15x^2+19x+6\right)E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-30\sqrt{1-2}}{15(3x+2)(5x+3)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)/((2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-30*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(43 + 68*x) - 136*
Sqrt[2]*(6 + 19*x + 15*x^2)*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 +
5*x]], -33/2] + 70*Sqrt[2]*(6 + 19*x + 15*x^2)*EllipticF[ArcSin[S
qrt[2/11]*Sqrt[3 + 5*x]], -33/2])/(15*(2 + 3*x)*(3 + 5*x))
```

Maple [C] time = 0.029, size = 159, normalized size = 1.2

$$-\frac{2}{450\,x^3+345\,x^2-105\,x-90}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(35\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)/(2+3*x)^(3/2)/(3+5*x)^(3/2),x)
```

```
[Out] -2/15*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(35*2^(1/2)*(3+5*
x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1
/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-68*2^(1/2)*(3+5
*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(
1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+2040*x^2+270*x
-645)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2\,x+1)^{\frac{3}{2}}}{(5\,x+3)^{\frac{3}{2}}(3\,x+2)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^(3/2)*(3*x + 2)^(3/2)),x, algorithm="maxima
```

```
[Out] integrate((-2*x + 1)^(3/2)/((5*x + 3)^(3/2)*(3*x + 2)^(3/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(-2\,x+1)^{\frac{3}{2}}}{(15\,x^2+19\,x+6)\sqrt{5\,x+3}\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^(3/2)*(3*x + 2)^(3/2)),x, algorithm="frica
```

```
[Out] integral((-2*x + 1)^(3/2)/((15*x^2 + 19*x + 6)*sqrt(5*x + 3)*sqrt
(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)/(2+3*x)**(3/2)/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2x+1)^{\frac{3}{2}}}{(5x+3)^{\frac{3}{2}}(3x+2)^{\frac{3}{2}}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/((5*x + 3)^(3/2)*(3*x + 2)^(3/2)),x, algorithm="giac"
```

```
[Out] integrate((-2*x + 1)^(3/2)/((5*x + 3)^(3/2)*(3*x + 2)^(3/2)), x)
```

3.2726 $\int \frac{(1-2x)^{3/2}}{(2+3x)^{5/2}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=160

$$-\frac{2660\sqrt{1-2x}\sqrt{3x+2}}{9\sqrt{5x+3}}+\frac{88\sqrt{1-2x}}{3\sqrt{3x+2}\sqrt{5x+3}}+\frac{14\sqrt{1-2x}}{9(3x+2)^{3/2}\sqrt{5x+3}}+\frac{16}{3}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{532}{3}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (14*Sqrt[1 - 2*x])/(9*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x]) + (88*Sqrt[1
 - 2*x])/(3*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) - (2660*Sqrt[1 - 2*x]*Sq
rt[2 + 3*x])/(9*Sqrt[3 + 5*x]) + (532*Sqrt[11/3]*EllipticE[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3 + (16*Sqrt[11/3]*EllipticF[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3
```

Rubi [A] time = 0.344304, antiderivative size = 160, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{2660\sqrt{1-2x}\sqrt{3x+2}}{9\sqrt{5x+3}}+\frac{88\sqrt{1-2x}}{3\sqrt{3x+2}\sqrt{5x+3}}+\frac{14\sqrt{1-2x}}{9(3x+2)^{3/2}\sqrt{5x+3}}+\frac{16}{3}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{532}{3}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)/((2 + 3*x)^(5/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (14*Sqrt[1 - 2*x])/(9*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x]) + (88*Sqrt[1
 - 2*x])/(3*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) - (2660*Sqrt[1 - 2*x]*Sq
rt[2 + 3*x])/(9*Sqrt[3 + 5*x]) + (532*Sqrt[11/3]*EllipticE[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3 + (16*Sqrt[11/3]*EllipticF[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3
```

Rubi in Sympy [A] time = 33.1996, size = 143, normalized size = 0.89

$$-\frac{2660\sqrt{-2x+1}\sqrt{3x+2}}{9\sqrt{5x+3}}+\frac{88\sqrt{-2x+1}}{3\sqrt{3x+2}\sqrt{5x+3}}+\frac{14\sqrt{-2x+1}}{9\,(3x+2)^{\frac{3}{2}}\sqrt{5x+3}}+\frac{532\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{9}+\frac{176\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{105}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)/(2+3*x)**(5/2)/(3+5*x)**(3/2),x)
```

```
[Out] -2660*sqrt(-2*x + 1)*sqrt(3*x + 2)/(9*sqrt(5*x + 3)) + 88*sqrt(-2
*x + 1)/(3*sqrt(3*x + 2)*sqrt(5*x + 3)) + 14*sqrt(-2*x + 1)/(9*(3
*x + 2)**(3/2)*sqrt(5*x + 3)) + 532*sqrt(33)*elliptic_e(asin(sqrt
(21)*sqrt(-2*x + 1)/7), 35/33)/9 + 176*sqrt(35)*elliptic_f(asin(s
qrt(55)*sqrt(-2*x + 1)/11), 33/35)/105
```

Mathematica [A] time = 0.195298, size = 100, normalized size = 0.62

$$-\frac{2\sqrt{1-2x}\left(3990x^2+5188x+1683\right)}{3(3x+2)^{3/2}\sqrt{5x+3}}-\frac{4}{9}\sqrt{2}\left(133E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-67F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)/((2 + 3*x)^(5/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-2*Sqrt[1 - 2*x]*(1683 + 5188*x + 3990*x^2))/(3*(2 + 3*x)^(3/2)*
Sqrt[3 + 5*x]) - (4*Sqrt[2]*(133*EllipticE[ArcSin[Sqrt[2/11]*Sqrt
[3 + 5*x]], -33/2] - 67*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]
], -33/2]))/9
```

Maple [C] time = 0.034, size = 267, normalized size = 1.7

$$-\frac{2}{90\,x^2+9\,x-27}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(402\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-79$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)/(2+3*x)^(5/2)/(3+5*x)^(3/2),x)
```

```
[Out] -2/9*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(402*2^(1/2)*EllipticF(1/11*11^(
1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5
*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-798*2^(1/2)*EllipticE(1/11*
11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*
(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+268*2^(1/2)*(3+5*x)^(1/
2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3
+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-532*2^(1/2)*(3+5*x)^(
1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*
(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+23940*x^3+19158*x^2
-5466*x-5049)/(2+3*x)^(3/2)/(10*x^2+x-3)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2\,x+1)^{\frac{3}{2}}}{(5\,x+3)^{\frac{3}{2}}(3\,x+2)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^(3/2)*(3*x + 2)^(5/2)),x, algorithm="maxima
```

```
[Out] integrate((-2*x + 1)^(3/2)/((5*x + 3)^(3/2)*(3*x + 2)^(5/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(-2\,x+1)^{\frac{3}{2}}}{(45\,x^3+87\,x^2+56\,x+12)\sqrt{5\,x+3}\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^(3/2)*(3*x + 2)^(5/2)),x, algorithm="fricas
```

```
[Out] integral((-2*x + 1)^(3/2)/((45*x^3 + 87*x^2 + 56*x + 12)*sqrt(5*x
 + 3)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)/(2+3*x)**(5/2)/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2x+1)^{\frac{3}{2}}}{(5x+3)^{\frac{3}{2}}(3x+2)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/((5*x + 3)^(3/2)*(3*x + 2)^(5/2)),x, algorithm="giac"
```

```
[Out] integrate((-2*x + 1)^(3/2)/((5*x + 3)^(3/2)*(3*x + 2)^(5/2)), x)
```

3.2727 $\int \frac{(1-2x)^{3/2}}{(2+3x)^{7/2}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=191

$$-\frac{36968\sqrt{1-2x}\sqrt{3x+2}}{21\sqrt{5x+3}}+\frac{6116\sqrt{1-2x}}{35\sqrt{3x+2}\sqrt{5x+3}}+\frac{44\sqrt{1-2x}}{5(3x+2)^{3/2}\sqrt{5x+3}}+\frac{14\sqrt{1-2x}}{15(3x+2)^{5/2}\sqrt{5x+3}}+\frac{1112}{35}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{36968}{35}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (14*Sqrt[1 - 2*x])/(15*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x]) + (44*Sqrt[
1 - 2*x])/(5*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x]) + (6116*Sqrt[1 - 2*x]
)/(35*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) - (36968*Sqrt[1 - 2*x]*Sqrt[2
+ 3*x])/(21*Sqrt[3 + 5*x]) + (36968*Sqrt[11/3]*EllipticE[ArcSin[S
qrt[3/7]*Sqrt[1 - 2*x]], 35/33])/35 + (1112*Sqrt[11/3]*EllipticF[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/35
```

Rubi [A] time = 0.435007, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{36968\sqrt{1-2x}\sqrt{3x+2}}{21\sqrt{5x+3}}+\frac{6116\sqrt{1-2x}}{35\sqrt{3x+2}\sqrt{5x+3}}+\frac{44\sqrt{1-2x}}{5(3x+2)^{3/2}\sqrt{5x+3}}+\frac{14\sqrt{1-2x}}{15(3x+2)^{5/2}\sqrt{5x+3}}+\frac{1112}{35}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{36968}{35}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)/((2 + 3*x)^(7/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (14*Sqrt[1 - 2*x])/(15*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x]) + (44*Sqrt[
1 - 2*x])/(5*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x]) + (6116*Sqrt[1 - 2*x]
)/(35*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) - (36968*Sqrt[1 - 2*x]*Sqrt[2
+ 3*x])/(21*Sqrt[3 + 5*x]) + (36968*Sqrt[11/3]*EllipticE[ArcSin[S
qrt[3/7]*Sqrt[1 - 2*x]], 35/33])/35 + (1112*Sqrt[11/3]*EllipticF[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/35
```

Rubi in Sympy [A] time = 40.3079, size = 172, normalized size = 0.9

$$-\frac{36968\sqrt{-2x+1}\sqrt{5x+3}}{35\sqrt{3x+2}}-\frac{532\sqrt{-2x+1}}{3\sqrt{3x+2}\sqrt{5x+3}}+\frac{44\sqrt{-2x+1}}{5\,(3x+2)^{\frac{3}{2}}\,\sqrt{5x+3}}+\frac{14\sqrt{-2x+1}}{15\,(3x+2)^{\frac{5}{2}}\,\sqrt{5x+3}}+\frac{36968\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{105}+\frac{12232\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{1225}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)/(2+3*x)**(7/2)/(3+5*x)**(3/2),x)
```

```
[Out] -36968*sqrt(-2*x + 1)*sqrt(5*x + 3)/(35*sqrt(3*x + 2)) - 532*sqrt
(-2*x + 1)/(3*sqrt(3*x + 2)*sqrt(5*x + 3)) + 44*sqrt(-2*x + 1)/(5
*(3*x + 2)**(3/2)*sqrt(5*x + 3)) + 14*sqrt(-2*x + 1)/(15*(3*x + 2
)**(5/2)*sqrt(5*x + 3)) + 36968*sqrt(33)*elliptic_e(asin(sqrt(21)
*sqrt(-2*x + 1)/7), 35/33)/105 + 12232*sqrt(35)*elliptic_f(asin(s
qrt(55)*sqrt(-2*x + 1)/11), 33/35)/1225
```

Mathematica [A] time = 0.235731, size = 105, normalized size = 0.55

$$\frac{2}{105}\left(-\frac{3\sqrt{1-2x}\,(831780x^3+1636038x^2+1071882x+233897)}{(3x+2)^{5/2}\sqrt{5x+3}}-2\sqrt{2}\left(9242E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)\middle|-\frac{33}{2}\right)-4655F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)\middle|-\frac{33}{2}\right)\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)/((2 + 3*x)^(7/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (2*((-3*Sqrt[1 - 2*x]*(233897 + 1071882*x + 1636038*x^2 + 831780*
x^3))/((2 + 3*x)^(5/2)*Sqrt[3 + 5*x]) - 2*Sqrt[2]*(9242*EllipticE
[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 4655*EllipticF[ArcSin
[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])))/105
```

Maple [C] time = 0.034, size = 386, normalized size = 2.

$$-\frac{2}{1050\,x^2+105\,x-315}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(83790\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^2\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)/(2+3*x)^(7/2)/(3+5*x)^(3/2),x)
```

```
[Out] -2/105*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(83790*2^(1/2)*EllipticF(1/11*
11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^
2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-166356*2^(1/2)*Ellipt
icE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^
(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+111720*2^(1/
2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3
^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-22180
8*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^
(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2
)+37240*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Ellipti
cF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(
1/2))-73936*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Ell
ipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)
*2^(1/2))+4990680*x^4+7320888*x^3+1523178*x^2-1812264*x-701691)/(
2+3*x)^(5/2)/(10*x^2+x-3)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(-2\,x+1)^{\frac{3}{2}}}{(5\,x+3)^{\frac{3}{2}}(3\,x+2)^{\frac{7}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^(3/2)*(3*x + 2)^(7/2)),x, algorithm="maxima
```

```
[Out] integrate((-2*x + 1)^(3/2)/((5*x + 3)^(3/2)*(3*x + 2)^(7/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{(-2\,x+1)^{\frac{3}{2}}}{(135\,x^4+351\,x^3+342\,x^2+148\,x+24)\sqrt{5\,x+3}\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/((5*x + 3)^(3/2)*(3*x + 2)^(7/2)),x, algorithm="frica
```

```
[Out] integral((-2*x + 1)^(3/2)/((135*x^4 + 351*x^3 + 342*x^2 + 148*x +
 24)*sqrt(5*x + 3)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)/(2+3*x)**(7/2)/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2x+1)^{\frac{3}{2}}}{(5x+3)^{\frac{3}{2}}(3x+2)^{\frac{7}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/((5*x + 3)^(3/2)*(3*x + 2)^(7/2)),x, algorithm="giac"
```

```
[Out] integrate((-2*x + 1)^(3/2)/((5*x + 3)^(3/2)*(3*x + 2)^(7/2)), x)
```

3.2728 $\int \frac{(1-2x)^{3/2}}{(2+3x)^{9/2}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=222

$$-\frac{10312712\sqrt{1-2x}\sqrt{3x+2}}{1029\sqrt{5x+3}}+\frac{1706144\sqrt{1-2x}}{1715\sqrt{3x+2}\sqrt{5x+3}}+\frac{12276\sqrt{1-2x}}{245(3x+2)^{3/2}\sqrt{5x+3}}+\frac{176\sqrt{1-2x}}{35(3x+2)^{5/2}\sqrt{5x+3}}+\frac{2\sqrt{1-2x}}{3(3x+2)^{7/2}\sqrt{5x+3}}+\frac{310208\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1715}+\frac{10312712\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1715}$$

```
[Out] (2*Sqrt[1 - 2*x])/(3*(2 + 3*x)^(7/2)*Sqrt[3 + 5*x]) + (176*Sqrt[1
 - 2*x])/(35*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x]) + (12276*Sqrt[1 - 2*x
])/(245*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x]) + (1706144*Sqrt[1 - 2*x])/
(1715*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) - (10312712*Sqrt[1 - 2*x]*Sqrt
[2 + 3*x])/(1029*Sqrt[3 + 5*x]) + (10312712*Sqrt[11/3]*EllipticE[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1715 + (310208*Sqrt[11/3
]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1715
```

Rubi [A] time = 0.524784, antiderivative size = 222, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.179$

$$-\frac{10312712\sqrt{1-2x}\sqrt{3x+2}}{1029\sqrt{5x+3}}+\frac{1706144\sqrt{1-2x}}{1715\sqrt{3x+2}\sqrt{5x+3}}+\frac{12276\sqrt{1-2x}}{245(3x+2)^{3/2}\sqrt{5x+3}}+\frac{176\sqrt{1-2x}}{35(3x+2)^{5/2}\sqrt{5x+3}}+\frac{2\sqrt{1-2x}}{3(3x+2)^{7/2}\sqrt{5x+3}}+\frac{310208\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1715}+\frac{10312712\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1715}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)/((2 + 3*x)^(9/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (2*Sqrt[1 - 2*x])/(3*(2 + 3*x)^(7/2)*Sqrt[3 + 5*x]) + (176*Sqrt[1
 - 2*x])/(35*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x]) + (12276*Sqrt[1 - 2*x
])/(245*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x]) + (1706144*Sqrt[1 - 2*x])/
(1715*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) - (10312712*Sqrt[1 - 2*x]*Sqrt
[2 + 3*x])/(1029*Sqrt[3 + 5*x]) + (10312712*Sqrt[11/3]*EllipticE[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1715 + (310208*Sqrt[11/3
]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1715
```

Rubi in Sympy [A] time = 45.6682, size = 201, normalized size = 0.91

$$-\frac{10312712\sqrt{-2x+1}\sqrt{5x+3}}{1715\sqrt{3x+2}}-\frac{148408\sqrt{-2x+1}\sqrt{5x+3}}{245\,(3x+2)^{\frac{3}{2}}}-\frac{3188\sqrt{-2x+1}}{21\,(3x+2)^{\frac{3}{2}}\sqrt{5x+3}}+\frac{176\sqrt{-2x+1}}{35\,(3x+2)^{\frac{5}{2}}\sqrt{5x+3}}+\frac{2\sqrt{-2x+1}}{3\,(3x+2)^{\frac{7}{2}}\sqrt{5x+3}}+\frac{10312712\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{5145}+\frac{3412288\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{60025}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)/(2+3*x)**(9/2)/(3+5*x)**(3/2),x)
```

```
[Out] -10312712*sqrt(-2*x + 1)*sqrt(5*x + 3)/(1715*sqrt(3*x + 2)) - 148
408*sqrt(-2*x + 1)*sqrt(5*x + 3)/(245*(3*x + 2)**(3/2)) - 3188*sq
```

```
rt(-2*x + 1)/(21*(3*x + 2)**(3/2)*sqrt(5*x + 3)) + 176*sqrt(-2*x
+ 1)/(35*(3*x + 2)**(5/2)*sqrt(5*x + 3)) + 2*sqrt(-2*x + 1)/(3*(3
*x + 2)**(7/2)*sqrt(5*x + 3)) + 10312712*sqrt(33)*elliptic_e(asin
(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/5145 + 3412288*sqrt(35)*ellip
tic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/60025
```

Mathematica [A] time = 0.274668, size = 110, normalized size = 0.5

$$\frac{2\left(-\frac{3\sqrt{1-2x}(696108060x^4+1833255216x^3+1809835578x^2+793777840x+130497191)}{(3x+2)^{7/2}\sqrt{5x+3}}-4\sqrt{2}\left(1289089E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-649285F\right.\right.}{5145}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)/((2 + 3*x)^(9/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (2*((-3*Sqrt[1 - 2*x]*(130497191 + 793777840*x + 1809835578*x^2 +
 1833255216*x^3 + 696108060*x^4))/((2 + 3*x)^(7/2)*Sqrt[3 + 5*x])
 - 4*Sqrt[2]*(1289089*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]],
 -33/2] - 649285*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/
2])))/5145
```

Maple [C] time = 0.037, size = 505, normalized size = 2.3

$$\frac{2}{51450\,x^2+5145\,x-15435}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(139221612\,\sqrt{2}EllipticE\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^3\sqrt{1-2\,x}\sqrt{3+\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)/(2+3*x)^(9/2)/(3+5*x)^(3/2),x)
```

```
[Out] 2/5145*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(139221612*2^(1/2)*EllipticE(1
/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2)
)*x^3*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)-70122780*2^(1/2)*
EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1
/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)+278443
224*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*1
1^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^
(1/2)-140245560*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(
1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1
/2)*(1-2*x)^(1/2)+185628816*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/
2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*
(2+3*x)^(1/2)*(1-2*x)^(1/2)-93497040*2^(1/2)*EllipticF(1/11*11^(1
/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*
x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+41250848*2^(1/2)*(3+5*x)^(1/
2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3
+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-20777120*2^(1/2)*(3+5
*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(
1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-4176648360*x^5
-8911207116*x^4-5359247820*x^3+666839694*x^2+1598350374*x+3914915
73)/(2+3*x)^(7/2)/(10*x^2+x-3)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2\,x+1)^{\frac{3}{2}}}{(5\,x+3)^{\frac{3}{2}}(3\,x+2)^{\frac{9}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^(3/2)*(3*x + 2)^(9/2)),x, algorithm="maxima
```

```
[Out] integrate((-2*x + 1)^(3/2)/((5*x + 3)^(3/2)*(3*x + 2)^(9/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(-2x+1)^{\frac{3}{2}}}{(405x^5+1323x^4+1728x^3+1128x^2+368x+48)\sqrt{5x+3}\sqrt{3x+2}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/((5*x + 3)^(3/2)*(3*x + 2)^(9/2)),x, algorithm="frica
```

```
[Out] integral((-2*x + 1)^(3/2)/((405*x^5 + 1323*x^4 + 1728*x^3 + 1128*
x^2 + 368*x + 48)*sqrt(5*x + 3)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(3/2)/(2+3*x)**(9/2)/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2x+1)^{\frac{3}{2}}}{(5x+3)^{\frac{3}{2}}(3x+2)^{\frac{9}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/((5*x + 3)^(3/2)*(3*x + 2)^(9/2)),x, algorithm="giac"
```

```
[Out] integrate((-2*x + 1)^(3/2)/((5*x + 3)^(3/2)*(3*x + 2)^(9/2)), x)
```

3.2729 $\int \frac{(1-2x)^{3/2}(2+3x)^{7/2}}{(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=220

$$-\frac{6\sqrt{1-2x}(3x+2)^{7/2}}{\sqrt{5x+3}}-\frac{2(1-2x)^{3/2}(3x+2)^{7/2}}{15(5x+3)^{3/2}}$$

$$+\frac{622}{175}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{5/2}+\frac{3872\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}}{4375}+\frac{4801\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{21875}-\frac{24369\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\right.\right.}{109375}$$

```
[Out] (-2*(1 - 2*x)^(3/2)*(2 + 3*x)^(7/2))/(15*(3 + 5*x)^(3/2)) - (6*Sq
rt[1 - 2*x]*(2 + 3*x)^(7/2))/Sqrt[3 + 5*x] + (4801*Sqrt[1 - 2*x]*
Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/21875 + (3872*Sqrt[1 - 2*x]*(2 + 3*x
)^(3/2)*Sqrt[3 + 5*x])/4375 + (622*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)*
Sqrt[3 + 5*x])/175 - (25643*Sqrt[11/3]*EllipticE[ArcSin[Sqrt[3/7]
*Sqrt[1 - 2*x]], 35/33])/109375 - (24369*Sqrt[3/11]*EllipticF[Arc
Sin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/109375
```

Rubi [A] time = 0.493695, antiderivative size = 220, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$-\frac{6\sqrt{1-2x}(3x+2)^{7/2}}{\sqrt{5x+3}}-\frac{2(1-2x)^{3/2}(3x+2)^{7/2}}{15(5x+3)^{3/2}}$$

$$+\frac{622}{175}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{5/2}+\frac{3872\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}}{4375}+\frac{4801\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{21875}-\frac{24369\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\right.\right.}{109375}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(2 + 3*x)^(7/2))/(3 + 5*x)^(5/2),x]
```

```
[Out] (-2*(1 - 2*x)^(3/2)*(2 + 3*x)^(7/2))/(15*(3 + 5*x)^(3/2)) - (6*Sq
rt[1 - 2*x]*(2 + 3*x)^(7/2))/Sqrt[3 + 5*x] + (4801*Sqrt[1 - 2*x]*
Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/21875 + (3872*Sqrt[1 - 2*x]*(2 + 3*x
)^(3/2)*Sqrt[3 + 5*x])/4375 + (622*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)*
Sqrt[3 + 5*x])/175 - (25643*Sqrt[11/3]*EllipticE[ArcSin[Sqrt[3/7]
*Sqrt[1 - 2*x]], 35/33])/109375 - (24369*Sqrt[3/11]*EllipticF[Arc
Sin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/109375
```

Rubi in Sympy [A] time = 46.7345, size = 201, normalized size = 0.91

$$-\frac{2\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{\frac{7}{2}}}{15\left(5x+3\right)^{\frac{3}{2}}}-\frac{6\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{\frac{5}{2}}}{11\sqrt{5x+3}}-\frac{508\sqrt{-2x+1}\left(3x+2\right)^{\frac{5}{2}}\sqrt{5x+3}}{1925}+\frac{3872\sqrt{-2x+1}\left(3x+2\right)^{\frac{3}{2}}\sqrt{5x+3}}{4375}+\frac{4801\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{21875}-\frac{25643\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{328125}-\frac{73107\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{3828125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)**(7/2)/(3+5*x)**(5/2),x)
```

```
[Out] -2*(-2*x + 1)**(3/2)*(3*x + 2)**(7/2)/(15*(5*x + 3)**(3/2)) - 6*(
-2*x + 1)**(3/2)*(3*x + 2)**(5/2)/(11*sqrt(5*x + 3)) - 508*sqrt(-
2*x + 1)*(3*x + 2)**(5/2)*sqrt(5*x + 3)/1925 + 3872*sqrt(-2*x + 1
)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/4375 + 4801*sqrt(-2*x + 1)*sqrt(
3*x + 2)*sqrt(5*x + 3)/21875 - 25643*sqrt(33)*elliptic_e(asin(sqr
t(21)*sqrt(-2*x + 1)/7), 35/33)/328125 - 73107*sqrt(35)*elliptic_
```

```
f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/3828125
```

Mathematica [A] time = 0.476057, size = 112, normalized size = 0.51

$$\frac{\frac{10\sqrt{1-2x}\sqrt{3x+2}(-202500x^4-189000x^3+174525x^2+216050x+52067)}{(5x+3)^{3/2}} + 168035\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)\middle|-\frac{33}{2}\right) + 51286\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{\right.\right.}{656250}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(2 + 3*x)^(7/2))/(3 + 5*x)^(5/2),x]
```

```
[Out] ((10*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(52067 + 216050*x + 174525*x^2 -
 189000*x^3 - 202500*x^4))/(3 + 5*x)^(3/2) + 51286*Sqrt[2]*Ellipt
icE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 168035*Sqrt[2]*Ell
ipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/656250
```

Maple [C] time = 0.029, size = 282, normalized size = 1.3

$$-\frac{1}{3937500\,x^2+656250\,x-1312500}\left(840175\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^(7/2)/(3+5*x)^(5/2),x)
```

```
[Out] -1/656250*(840175*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)
^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1
/2)*(1-2*x)^(1/2)+256430*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*
(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+
3*x)^(1/2)*(1-2*x)^(1/2)+12150000*x^6+504105*2^(1/2)*(3+5*x)^(1/2
)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+
5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+153858*2^(1/2)*(3+5*x)
^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2
)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+13365000*x^5-1263
1500*x^4-18488250*x^3-1794020*x^2+3800330*x+1041340)*(2+3*x)^(1/2
)*(1-2*x)^(1/2)/(6*x^2+x-2)/(3+5*x)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{7}{2}}(-2\,x+1)^{\frac{3}{2}}}{(5\,x+3)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(7/2)*(-2*x + 1)^(3/2)/(5*x + 3)^(5/2),x, algorithm="maxima"
```

```
[Out] integrate((3*x + 2)^(7/2)*(-2*x + 1)^(3/2)/(5*x + 3)^(5/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{(54\,x^4+81\,x^3+18\,x^2-20\,x-8)\sqrt{3\,x+2}\sqrt{-2\,x+1}}{(25\,x^2+30\,x+9)\sqrt{5\,x+3}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(7/2)*(-2*x + 1)^(3/2)/(5*x + 3)^(5/2),x, algorithm="fricas"
```

```
[Out] integral(-(54*x^4 + 81*x^3 + 18*x^2 - 20*x - 8)*sqrt(3*x + 2)*sqr
t(-2*x + 1)/((25*x^2 + 30*x + 9)*sqrt(5*x + 3)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(3/2)*(2+3*x)**(7/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{7}{2}}(-2x+1)^{\frac{3}{2}}}{(5x+3)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(7/2)*(-2*x + 1)^(3/2)/(5*x + 3)^(5/2),x, algorithm="giac")
```

```
[Out] integrate((3*x + 2)^(7/2)*(-2*x + 1)^(3/2)/(5*x + 3)^(5/2), x)
```

3.2730 $\int \frac{(1-2x)^{3/2}(2+3x)^{5/2}}{(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=191

$$-\frac{106\sqrt{1-2x}(3x+2)^{5/2}}{25\sqrt{5x+3}}-\frac{2(1-2x)^{3/2}(3x+2)^{5/2}}{15(5x+3)^{3/2}}$$
$$+\frac{1558}{625}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}+\frac{2264\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{3125}-\frac{8366\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{15625}+\frac{1973\sqrt{\frac{11}{3}}E\left(\sin^{-1}\right.}{15}$$

```
[Out] (-2*(1 - 2*x)^(3/2)*(2 + 3*x)^(5/2))/(15*(3 + 5*x)^(3/2)) - (106*
Sqrt[1 - 2*x]*(2 + 3*x)^(5/2))/(25*Sqrt[3 + 5*x]) + (2264*Sqrt[1
- 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/3125 + (1558*Sqrt[1 - 2*x]*(2
 + 3*x)^(3/2)*Sqrt[3 + 5*x])/625 + (1973*Sqrt[11/3]*EllipticE[Arc
Sin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/15625 - (8366*Sqrt[3/11]*El
lipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/15625
```

Rubi [A] time = 0.412031, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$-\frac{106\sqrt{1-2x}(3x+2)^{5/2}}{25\sqrt{5x+3}}-\frac{2(1-2x)^{3/2}(3x+2)^{5/2}}{15(5x+3)^{3/2}}$$
$$+\frac{1558}{625}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}+\frac{2264\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{3125}-\frac{8366\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{15625}+\frac{1973\sqrt{\frac{11}{3}}E\left(\sin^{-1}\right.}{15}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(2 + 3*x)^(5/2))/(3 + 5*x)^(5/2),x]
```

```
[Out] (-2*(1 - 2*x)^(3/2)*(2 + 3*x)^(5/2))/(15*(3 + 5*x)^(3/2)) - (106*
Sqrt[1 - 2*x]*(2 + 3*x)^(5/2))/(25*Sqrt[3 + 5*x]) + (2264*Sqrt[1
- 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/3125 + (1558*Sqrt[1 - 2*x]*(2
 + 3*x)^(3/2)*Sqrt[3 + 5*x])/625 + (1973*Sqrt[11/3]*EllipticE[Arc
Sin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/15625 - (8366*Sqrt[3/11]*El
lipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/15625
```

Rubi in Sympy [A] time = 39.1957, size = 172, normalized size = 0.9

$$-\frac{2\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{\frac{5}{2}}}{15\left(5x+3\right)^{\frac{3}{2}}}-\frac{106\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{\frac{3}{2}}}{275\sqrt{5x+3}}-\frac{1412\sqrt{-2x+1}\left(3x+2\right)^{\frac{3}{2}}\sqrt{5x+3}}{6875}+\frac{2264\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{3125}+\frac{1973\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{46875}-\frac{8366\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{171875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)**(5/2)/(3+5*x)**(5/2),x)
```

```
[Out] -2*(-2*x + 1)**(3/2)*(3*x + 2)**(5/2)/(15*(5*x + 3)**(3/2)) - 106
*(-2*x + 1)**(3/2)*(3*x + 2)**(3/2)/(275*sqrt(5*x + 3)) - 1412*sq
rt(-2*x + 1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/6875 + 2264*sqrt(-2*x
 + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/3125 + 1973*sqrt(33)*elliptic_e
(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/46875 - 8366*sqrt(33)*el
liptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/171875
```

Mathematica [A] time = 0.466886, size = 107, normalized size = 0.56

$$\frac{\frac{10\sqrt{1-2x}\sqrt{3x+2}(-6750x^3+1050x^2+2975x-106)}{(5x+3)^{3/2}}+39620\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-1973\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)}{46875}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(2 + 3*x)^(5/2))/(3 + 5*x)^(5/2),x]
```

```
[Out] ((10*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(-106 + 2975*x + 1050*x^2 - 6750
*x^3))/(3 + 5*x)^(3/2) - 1973*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]
*Sqrt[3 + 5*x]], -33/2] + 39620*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/1
1]*Sqrt[3 + 5*x]], -33/2])/46875
```

Maple [C] time = 0.03, size = 277, normalized size = 1.5

$$-\frac{1}{281250\,x^2+46875\,x-93750}\left(198100\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-986$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^(5/2)/(3+5*x)^(5/2),x)
```

```
[Out] -1/46875*(198100*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^
(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/
2)*(1-2*x)^(1/2)-9865*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+
5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x
)^(1/2)*(1-2*x)^(1/2)+118860*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*
(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I
*11^(1/2)*3^(1/2)*2^(1/2))-5919*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/
2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/
2*I*11^(1/2)*3^(1/2)*2^(1/2))+405000*x^5+4500*x^4-324000*x^3-2390
*x^2+60560*x-2120)*(2+3*x)^(1/2)*(1-2*x)^(1/2)/(6*x^2+x-2)/(3+5*x
)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{5}{2}}(-2\,x+1)^{\frac{3}{2}}}{(5\,x+3)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(5/2)*(-2*x + 1)^(3/2)/(5*x + 3)^(5/2),x, algorithm="maxima"
```

```
[Out] integrate((3*x + 2)^(5/2)*(-2*x + 1)^(3/2)/(5*x + 3)^(5/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{(18\,x^3+15\,x^2-4\,x-4)\sqrt{3\,x+2}\sqrt{-2\,x+1}}{(25\,x^2+30\,x+9)\sqrt{5\,x+3}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(5/2)*(-2*x + 1)^(3/2)/(5*x + 3)^(5/2),x, algorithm="fricas"
```

```
[Out] integral(-(18*x^3 + 15*x^2 - 4*x - 4)*sqrt(3*x + 2)*sqrt(-2*x + 1
)/((25*x^2 + 30*x + 9)*sqrt(5*x + 3)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)**(5/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{5}{2}}(-2\,x+1)^{\frac{3}{2}}}{(5\,x+3)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(5/2)*(-2*x + 1)^(3/2)/(5*x + 3)^(5/2),x, algorithm="giac")
```

```
[Out] integrate((3*x + 2)^(5/2)*(-2*x + 1)^(3/2)/(5*x + 3)^(5/2), x)
```

3.2731 $\int \frac{(1-2x)^{3/2}(2+3x)^{3/2}}{(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=160

$$-\frac{62\sqrt{1-2x}(3x+2)^{3/2}}{25\sqrt{5x+3}}-\frac{2(1-2x)^{3/2}(3x+2)^{3/2}}{15(5x+3)^{3/2}}+\frac{178}{125}\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}-\frac{582}{625}\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{496}{625}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (-2*(1 - 2*x)^(3/2)*(2 + 3*x)^(3/2))/(15*(3 + 5*x)^(3/2)) - (62*S
qrt[1 - 2*x]*(2 + 3*x)^(3/2))/(25*Sqrt[3 + 5*x]) + (178*Sqrt[1 -
2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/125 + (496*Sqrt[11/3]*EllipticE
[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/625 - (582*Sqrt[3/11]*E
llipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/625
```

Rubi [A] time = 0.333466, antiderivative size = 160, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$-\frac{62\sqrt{1-2x}(3x+2)^{3/2}}{25\sqrt{5x+3}}-\frac{2(1-2x)^{3/2}(3x+2)^{3/2}}{15(5x+3)^{3/2}}+\frac{178}{125}\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}-\frac{582}{625}\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{496}{625}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*(2 + 3*x)^(3/2))/(3 + 5*x)^(5/2),x]
```

```
[Out] (-2*(1 - 2*x)^(3/2)*(2 + 3*x)^(3/2))/(15*(3 + 5*x)^(3/2)) - (62*S
qrt[1 - 2*x]*(2 + 3*x)^(3/2))/(25*Sqrt[3 + 5*x]) + (178*Sqrt[1 -
2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/125 + (496*Sqrt[11/3]*EllipticE
[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/625 - (582*Sqrt[3/11]*E
llipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/625
```

Rubi in Sympy [A] time = 34.5952, size = 143, normalized size = 0.89

$$-\frac{2\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{\frac{3}{2}}}{15\left(5x+3\right)^{\frac{3}{2}}}-\frac{62\left(-2x+1\right)^{\frac{3}{2}}\sqrt{3x+2}}{275\sqrt{5x+3}}-\frac{212\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{1375}+\frac{496\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{1875}-\frac{1746\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{21875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)**(3/2)/(3+5*x)**(5/2),x)
```

```
[Out] -2*(-2*x + 1)**(3/2)*(3*x + 2)**(3/2)/(15*(5*x + 3)**(3/2)) - 62*
(-2*x + 1)**(3/2)*sqrt(3*x + 2)/(275*sqrt(5*x + 3)) - 212*sqrt(-2
*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/1375 + 496*sqrt(33)*elliptic_
e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/1875 - 1746*sqrt(35)*el
liptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/21875
```

Mathematica [A] time = 0.392152, size = 102, normalized size = 0.64

$$\frac{-\frac{10\sqrt{1-2x}\sqrt{3x+2}\left(150x^2+800x+437\right)}{(5x+3)^{3/2}}+3115\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-496\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)}{1875}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*(2 + 3*x)^(3/2))/(3 + 5*x)^(5/2),x]
```

```
[Out] ((-10*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(437 + 800*x + 150*x^2))/(3 + 5
*x)^(3/2) - 496*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]
], -33/2] + 3115*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x
]], -33/2])/1875
```

Maple [C] time = 0.026, size = 272, normalized size = 1.7

$$-\frac{1}{11250\,x^2+1875\,x-3750}\left(15575\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-2480\,\sqrt{2}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^(3/2)/(3+5*x)^(5/2),x)
```

```
[Out] -1/1875*(15575*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1
/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)
*(1-2*x)^(1/2)-2480*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*
x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^
(1/2)*(1-2*x)^(1/2)+9345*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2
*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^
(1/2)*3^(1/2)*2^(1/2))-1488*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(
1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*
11^(1/2)*3^(1/2)*2^(1/2))+9000*x^4+49500*x^3+31220*x^2-11630*x-87
40)*(2+3*x)^(1/2)*(1-2*x)^(1/2)/(6*x^2+x-2)/(3+5*x)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{3}{2}}(-2\,x+1)^{\frac{3}{2}}}{(5\,x+3)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(3/2)*(-2*x + 1)^(3/2)/(5*x + 3)^(5/2),x, algorithm="maxima"
```

```
[Out] integrate((3*x + 2)^(3/2)*(-2*x + 1)^(3/2)/(5*x + 3)^(5/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{(6\,x^2+x-2)\,\sqrt{3\,x+2}\sqrt{-2\,x+1}}{(25\,x^2+30\,x+9)\sqrt{5\,x+3}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(3/2)*(-2*x + 1)^(3/2)/(5*x + 3)^(5/2),x, algorithm="fricas"
```

```
[Out] integral(-(6*x^2 + x - 2)*sqrt(3*x + 2)*sqrt(-2*x + 1)/((25*x^2 +
 30*x + 9)*sqrt(5*x + 3)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)**(3/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{3}{2}}(-2x+1)^{\frac{3}{2}}}{(5x+3)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(3/2)*(-2*x + 1)^(3/2)/(5*x + 3)^(5/2),x, algorithm="giac")
```

```
[Out] integrate((3*x + 2)^(3/2)*(-2*x + 1)^(3/2)/(5*x + 3)^(5/2), x)
```

3.2732 $\int \frac{(1-2x)^{3/2}\sqrt{2+3x}}{(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=127

$$-\frac{2\sqrt{3x+2}(1-2x)^{3/2}}{15(5x+3)^{3/2}}-\frac{18\sqrt{3x+2}\sqrt{1-2x}}{25\sqrt{5x+3}}+\frac{212F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{125\sqrt{33}}+\frac{38}{125}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (-2*(1 - 2*x)^(3/2)*Sqrt[2 + 3*x])/(15*(3 + 5*x)^(3/2)) - (18*Sqr
t[1 - 2*x]*Sqrt[2 + 3*x])/(25*Sqrt[3 + 5*x]) + (38*Sqrt[11/3]*Ell
ipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/125 + (212*Ellipt
icF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(125*Sqrt[33])
```

Rubi [A] time = 0.26729, antiderivative size = 127, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{2\sqrt{3x+2}(1-2x)^{3/2}}{15(5x+3)^{3/2}}-\frac{18\sqrt{3x+2}\sqrt{1-2x}}{25\sqrt{5x+3}}+\frac{212F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{125\sqrt{33}}+\frac{38}{125}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(3/2)*Sqrt[2 + 3*x])/(3 + 5*x)^(5/2),x]
```

```
[Out] (-2*(1 - 2*x)^(3/2)*Sqrt[2 + 3*x])/(15*(3 + 5*x)^(3/2)) - (18*Sqr
t[1 - 2*x]*Sqrt[2 + 3*x])/(25*Sqrt[3 + 5*x]) + (38*Sqrt[11/3]*Ell
ipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/125 + (212*Ellipt
icF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(125*Sqrt[33])
```

Rubi in Sympy [A] time = 27.1916, size = 114, normalized size = 0.9

$$-\frac{2\left(-2x+1\right)^{\frac{3}{2}}\sqrt{3x+2}}{15\left(5x+3\right)^{\frac{3}{2}}}-\frac{18\sqrt{-2x+1}\sqrt{3x+2}}{25\sqrt{5x+3}}+\frac{38\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{375}+\frac{212\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{4125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)*(2+3*x)**(1/2)/(3+5*x)**(5/2),x)
```

```
[Out] -2*(-2*x + 1)**(3/2)*sqrt(3*x + 2)/(15*(5*x + 3)**(3/2)) - 18*sqr
t(-2*x + 1)*sqrt(3*x + 2)/(25*sqrt(5*x + 3)) + 38*sqrt(33)*ellipt
ic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/375 + 212*sqrt(33)*e
lliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/4125
```

Mathematica [A] time = 0.336538, size = 97, normalized size = 0.76

$$\frac{2}{375}\left(-\frac{5\sqrt{1-2x}\sqrt{3x+2}(125x+86)}{(5x+3)^{3/2}}-140\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-19\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(3/2)*Sqrt[2 + 3*x])/(3 + 5*x)^(5/2),x]
```

```
[Out] (2*((-5*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(86 + 125*x))/(3 + 5*x)^(3/2)
 - 19*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]
- 140*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])
)/375
```

Maple [C] time = 0.028, size = 267, normalized size = 2.1

$$\frac{2}{2250\,x^2+375\,x-750}\left(700\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}+95\,\sqrt{2}EllipticE\left(\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)*(2+3*x)^(1/2)/(3+5*x)^(5/2),x)
```

```
[Out] 2/375*(700*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),
1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-
2*x)^(1/2)+95*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/
2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*
(1-2*x)^(1/2)+420*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/
2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3
^(1/2)*2^(1/2))+57*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1
/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*
3^(1/2)*2^(1/2))-3750*x^3-3205*x^2+820*x+860)*(2+3*x)^(1/2)*(1-2*
x)^(1/2)/(6*x^2+x-2)/(3+5*x)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{3\,x+2}(-2\,x+1)^{\frac{3}{2}}}{(5\,x+3)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(3*x + 2)*(-2*x + 1)^(3/2)/(5*x + 3)^(5/2),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(3*x + 2)*(-2*x + 1)^(3/2)/(5*x + 3)^(5/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\sqrt{3\,x+2}(-2\,x+1)^{\frac{3}{2}}}{(25\,x^2+30\,x+9)\sqrt{5\,x+3}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(3*x + 2)*(-2*x + 1)^(3/2)/(5*x + 3)^(5/2),x, algorithm="fricas")
```

```
[Out] integral(sqrt(3*x + 2)*(-2*x + 1)^(3/2)/((25*x^2 + 30*x + 9)*sqrt
(5*x + 3)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)*(2+3*x)**(1/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{3x+2}(-2x+1)^{\frac{3}{2}}}{(5x+3)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(3*x + 2)*(-2*x + 1)^(3/2)/(5*x + 3)^(5/2),x, algorithm="giac")
```

```
[Out] integrate(sqrt(3*x + 2)*(-2*x + 1)^(3/2)/(5*x + 3)^(5/2), x)
```

3.2733 $\int \frac{(1-2x)^{3/2}}{\sqrt{2+3x}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=127

$$\frac{148\sqrt{1-2x}\sqrt{3x+2}}{15\sqrt{5x+3}}-\frac{22\sqrt{1-2x}\sqrt{3x+2}}{15(5x+3)^{3/2}}-\frac{52F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{25\sqrt{33}}-\frac{148}{25}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (-22*Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/(15*(3 + 5*x)^(3/2)) + (148*Sqr
t[1 - 2*x]*Sqrt[2 + 3*x])/(15*Sqrt[3 + 5*x]) - (148*Sqrt[11/3]*El
lipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/25 - (52*Ellipti
cF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(25*Sqrt[33])
```

Rubi [A] time = 0.263025, antiderivative size = 127, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{148\sqrt{1-2x}\sqrt{3x+2}}{15\sqrt{5x+3}}-\frac{22\sqrt{1-2x}\sqrt{3x+2}}{15(5x+3)^{3/2}}-\frac{52F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{25\sqrt{33}}-\frac{148}{25}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)/(Sqrt[2 + 3*x]*(3 + 5*x)^(5/2)),x]
```

```
[Out] (-22*Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/(15*(3 + 5*x)^(3/2)) + (148*Sqr
t[1 - 2*x]*Sqrt[2 + 3*x])/(15*Sqrt[3 + 5*x]) - (148*Sqrt[11/3]*El
lipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/25 - (52*Ellipti
cF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(25*Sqrt[33])
```

Rubi in Sympy [A] time = 26.0014, size = 114, normalized size = 0.9

$$\frac{148\sqrt{-2x+1}\sqrt{3x+2}}{15\sqrt{5x+3}}-\frac{22\sqrt{-2x+1}\sqrt{3x+2}}{15\,(5x+3)^{\frac{3}{2}}}-\frac{148\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{75}-\frac{52\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)/(3+5*x)**(5/2)/(2+3*x)**(1/2),x)
```

```
[Out] 148*sqrt(-2*x + 1)*sqrt(3*x + 2)/(15*sqrt(5*x + 3)) - 22*sqrt(-2*
x + 1)*sqrt(3*x + 2)/(15*(5*x + 3)**(3/2)) - 148*sqrt(33)*ellipti
c_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/75 - 52*sqrt(35)*elli
ptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/875
```

Mathematica [A] time = 0.368846, size = 97, normalized size = 0.76

$$\frac{2}{75}\left(\frac{5\sqrt{1-2x}\sqrt{3x+2}(370x+211)}{(5x+3)^{3/2}}-35\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+74\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)/(Sqrt[2 + 3*x]*(3 + 5*x)^(5/2)),x]
```

```
[Out] (2*((5*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(211 + 370*x))/(3 + 5*x)^(3/2)
 + 74*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]
- 35*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]))
/75
```

Maple [C] time = 0.03, size = 267, normalized size = 2.1

$$\frac{2}{450\,x^2+75\,x-150}\left(175\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-370\,\sqrt{2}EllipticE\left(1\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)/(3+5*x)^(5/2)/(2+3*x)^(1/2),x)
```

```
[Out] 2/75*(175*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1
/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2
*x)^(1/2)-370*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/
2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*
(1-2*x)^(1/2)+105*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/
2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3
^(1/2)*2^(1/2))-222*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(
1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)
*3^(1/2)*2^(1/2))+11100*x^3+8180*x^2-2645*x-2110)*(2+3*x)^(1/2)*(
1-2*x)^(1/2)/(6*x^2+x-2)/(3+5*x)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2\,x+1)^{\frac{3}{2}}}{(5\,x+3)^{\frac{5}{2}}\sqrt{3\,x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^(5/2)*sqrt(3*x + 2)),x, algorithm="maxima"
```

```
[Out] integrate((-2*x + 1)^(3/2)/((5*x + 3)^(5/2)*sqrt(3*x + 2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(-2\,x+1)^{\frac{3}{2}}}{(25\,x^2+30\,x+9)\sqrt{5\,x+3}\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^(5/2)*sqrt(3*x + 2)),x, algorithm="fricas"
```

```
[Out] integral((-2*x + 1)^(3/2)/((25*x^2 + 30*x + 9)*sqrt(5*x + 3)*sqrt
(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)/(3+5*x)**(5/2)/(2+3*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2x+1)^{\frac{3}{2}}}{(5x+3)^{\frac{5}{2}}\sqrt{3x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/((5*x + 3)^(5/2)*sqrt(3*x + 2)),x, algorithm="giac")
```

```
[Out] integrate((-2*x + 1)^(3/2)/((5*x + 3)^(5/2)*sqrt(3*x + 2)), x)
```

3.2734 $\int \frac{(1-2x)^{3/2}}{(2+3x)^{3/2}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=158

$$\frac{556\sqrt{1-2x}\sqrt{3x+2}}{3\sqrt{5x+3}}-\frac{92\sqrt{1-2x}\sqrt{3x+2}}{3(5x+3)^{3/2}}+\frac{14\sqrt{1-2x}}{3\sqrt{3x+2}(5x+3)^{3/2}}-\frac{184F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{5\sqrt{33}}-\frac{556}{5}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (14*Sqrt[1 - 2*x])/(3*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)) - (92*Sqrt[1
 - 2*x]*Sqrt[2 + 3*x])/(3*(3 + 5*x)^(3/2)) + (556*Sqrt[1 - 2*x]*S
qrt[2 + 3*x])/(3*Sqrt[3 + 5*x]) - (556*Sqrt[11/3]*EllipticE[ArcSi
n[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/5 - (184*EllipticF[ArcSin[Sqr
t[3/7]*Sqrt[1 - 2*x]], 35/33])/(5*Sqrt[33])
```

Rubi [A] time = 0.338069, antiderivative size = 158, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{556\sqrt{1-2x}\sqrt{3x+2}}{3\sqrt{5x+3}}-\frac{92\sqrt{1-2x}\sqrt{3x+2}}{3(5x+3)^{3/2}}+\frac{14\sqrt{1-2x}}{3\sqrt{3x+2}(5x+3)^{3/2}}-\frac{184F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{5\sqrt{33}}-\frac{556}{5}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)/((2 + 3*x)^(3/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (14*Sqrt[1 - 2*x])/(3*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)) - (92*Sqrt[1
 - 2*x]*Sqrt[2 + 3*x])/(3*(3 + 5*x)^(3/2)) + (556*Sqrt[1 - 2*x]*S
qrt[2 + 3*x])/(3*Sqrt[3 + 5*x]) - (556*Sqrt[11/3]*EllipticE[ArcSi
n[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/5 - (184*EllipticF[ArcSin[Sqr
t[3/7]*Sqrt[1 - 2*x]], 35/33])/(5*Sqrt[33])
```

Rubi in Sympy [A] time = 32.5199, size = 143, normalized size = 0.91

$$\frac{556\sqrt{-2x+1}\sqrt{3x+2}}{3\sqrt{5x+3}}-\frac{92\sqrt{-2x+1}\sqrt{3x+2}}{3\,(5x+3)^{\frac{3}{2}}}+\frac{14\sqrt{-2x+1}}{3\sqrt{3x+2}\,(5x+3)^{\frac{3}{2}}}-\frac{556\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{15}-\frac{184\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{175}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)/(2+3*x)**(3/2)/(3+5*x)**(5/2),x)
```

```
[Out] 556*sqrt(-2*x + 1)*sqrt(3*x + 2)/(3*sqrt(5*x + 3)) - 92*sqrt(-2*x
 + 1)*sqrt(3*x + 2)/(3*(5*x + 3)**(3/2)) + 14*sqrt(-2*x + 1)/(3*s
qrt(3*x + 2)*(5*x + 3)**(3/2)) - 556*sqrt(33)*elliptic_e(asin(sqr
t(21)*sqrt(-2*x + 1)/7), 35/33)/15 - 184*sqrt(35)*elliptic_f(asin
(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/175
```

Mathematica [A] time = 0.212619, size = 100, normalized size = 0.63

$$\frac{2\sqrt{1-2x}\left(4170x^2+5144x+1583\right)}{3\sqrt{3x+2}(5x+3)^{3/2}}+\frac{4}{15}\sqrt{2}\left(139E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-70F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)/((2 + 3*x)^(3/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (2*Sqrt[1 - 2*x]*(1583 + 5144*x + 4170*x^2))/(3*Sqrt[2 + 3*x]*(3
+ 5*x)^(3/2)) + (4*Sqrt[2]*(139*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[
3 + 5*x]], -33/2] - 70*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]]
, -33/2]))/15
```

Maple [C] time = 0.033, size = 267, normalized size = 1.7

$$\frac{2}{90\,x^2+15\,x-30}\sqrt{1-2\,x}\sqrt{2+3\,x}\left(700\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-139$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)/(2+3*x)^(3/2)/(3+5*x)^(5/2),x)
```

```
[Out] 2/15*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(700*2^(1/2)*EllipticF(1/11*11^(
1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5
*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-1390*2^(1/2)*EllipticE(1/11
*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x
*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+420*2^(1/2)*(3+5*x)^(1
/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(
3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-834*2^(1/2)*(3+5*x)^
(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)
*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+41700*x^3+30590*x^
2-9890*x-7915)/(3+5*x)^(3/2)/(6*x^2+x-2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2\,x+1)^{\frac{3}{2}}}{(5\,x+3)^{\frac{5}{2}}(3\,x+2)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^(5/2)*(3*x + 2)^(3/2)),x, algorithm="maxima
```

```
[Out] integrate((-2*x + 1)^(3/2)/((5*x + 3)^(5/2)*(3*x + 2)^(3/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(-2\,x+1)^{\frac{3}{2}}}{(75\,x^3+140\,x^2+87\,x+18)\sqrt{5\,x+3}\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^(5/2)*(3*x + 2)^(3/2)),x, algorithm="frica
```

```
[Out] integral((-2*x + 1)^(3/2)/((75*x^3 + 140*x^2 + 87*x + 18)*sqrt(5*
x + 3)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(3/2)/(2+3*x)**(3/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2x+1)^{\frac{3}{2}}}{(5x+3)^{\frac{5}{2}}(3x+2)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/((5*x + 3)^(5/2)*(3*x + 2)^(3/2)),x, algorithm="giac"
```

```
[Out] integrate((-2*x + 1)^(3/2)/((5*x + 3)^(5/2)*(3*x + 2)^(3/2)), x)
```

3.2735 $\int \frac{(1-2x)^{3/2}}{(2+3x)^{5/2}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=185

$$\frac{5440\sqrt{1-2x}\sqrt{3x+2}}{3\sqrt{5x+3}}-\frac{300\sqrt{1-2x}\sqrt{3x+2}}{(5x+3)^{3/2}}+\frac{404\sqrt{1-2x}}{9\sqrt{3x+2}(5x+3)^{3/2}}+\frac{14\sqrt{1-2x}}{9(3x+2)^{3/2}(5x+3)^{3/2}}-120\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-1088\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (14*Sqrt[1 - 2*x])/(9*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)) + (404*Sqr
t[1 - 2*x])/(9*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)) - (300*Sqrt[1 - 2*x
]*Sqrt[2 + 3*x])/(3 + 5*x)^(3/2) + (5440*Sqrt[1 - 2*x]*Sqrt[2 + 3
*x])/(3*Sqrt[3 + 5*x]) - 1088*Sqrt[11/3]*EllipticE[ArcSin[Sqrt[3/
7]*Sqrt[1 - 2*x]], 35/33] - 120*Sqrt[3/11]*EllipticF[ArcSin[Sqrt[
3/7]*Sqrt[1 - 2*x]], 35/33]
```

Rubi [A] time = 0.433668, antiderivative size = 185, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{5440\sqrt{1-2x}\sqrt{3x+2}}{3\sqrt{5x+3}}-\frac{300\sqrt{1-2x}\sqrt{3x+2}}{(5x+3)^{3/2}}+\frac{404\sqrt{1-2x}}{9\sqrt{3x+2}(5x+3)^{3/2}}+\frac{14\sqrt{1-2x}}{9(3x+2)^{3/2}(5x+3)^{3/2}}-120\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-1088\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)/((2 + 3*x)^(5/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (14*Sqrt[1 - 2*x])/(9*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)) + (404*Sqr
t[1 - 2*x])/(9*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)) - (300*Sqrt[1 - 2*x
]*Sqrt[2 + 3*x])/(3 + 5*x)^(3/2) + (5440*Sqrt[1 - 2*x]*Sqrt[2 + 3
*x])/(3*Sqrt[3 + 5*x]) - 1088*Sqrt[11/3]*EllipticE[ArcSin[Sqrt[3/
7]*Sqrt[1 - 2*x]], 35/33] - 120*Sqrt[3/11]*EllipticF[ArcSin[Sqrt[
3/7]*Sqrt[1 - 2*x]], 35/33]
```

Rubi in Sympy [A] time = 40.3476, size = 170, normalized size = 0.92

$$\frac{5440\sqrt{-2x+1}\sqrt{3x+2}}{3\sqrt{5x+3}}-\frac{300\sqrt{-2x+1}\sqrt{3x+2}}{(5x+3)^{\frac{3}{2}}}+\frac{404\sqrt{-2x+1}}{9\sqrt{3x+2}\,(5x+3)^{\frac{3}{2}}}+\frac{14\sqrt{-2x+1}}{9\,(3x+2)^{\frac{3}{2}}\,(5x+3)^{\frac{3}{2}}}-\frac{1088\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{3}-\frac{120\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{11}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)/(2+3*x)**(5/2)/(3+5*x)**(5/2),x)
```

```
[Out] 5440*sqrt(-2*x + 1)*sqrt(3*x + 2)/(3*sqrt(5*x + 3)) - 300*sqrt(-2
*x + 1)*sqrt(3*x + 2)/(5*x + 3)**(3/2) + 404*sqrt(-2*x + 1)/(9*sq
rt(3*x + 2)*(5*x + 3)**(3/2)) + 14*sqrt(-2*x + 1)/(9*(3*x + 2)**(
3/2)*(5*x + 3)**(3/2)) - 1088*sqrt(33)*elliptic_e(asin(sqrt(21)*s
qrt(-2*x + 1)/7), 35/33)/3 - 120*sqrt(33)*elliptic_f(asin(sqrt(21
)*sqrt(-2*x + 1)/7), 35/33)/11
```

Mathematica [A] time = 0.306055, size = 104, normalized size = 0.56

$$\frac{2}{3}\left(\frac{\sqrt{1-2x}\left(122400x^3+232590x^2+147122x+30977\right)}{(3x+2)^{3/2}(5x+3)^{3/2}}+2\sqrt{2}\left(272E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)\middle|-\frac{33}{2}\right)-137F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)\middle|-\frac{33}{2}\right)\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)/((2 + 3*x)^(5/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (2*((Sqrt[1 - 2*x]*(30977 + 147122*x + 232590*x^2 + 122400*x^3))/
((2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)) + 2*Sqrt[2]*(272*EllipticE[ArcS
in[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 137*EllipticF[ArcSin[Sqrt[
2/11]*Sqrt[3 + 5*x]], -33/2])))/3
```

Maple [C] time = 0.035, size = 383, normalized size = 2.1

$$-\frac{2}{-3+6x}\sqrt{1-2x}\left(8160\sqrt{2}EllipticE\left(1/11\sqrt{11}\sqrt{2}\sqrt{3+5x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^2\sqrt{3+5x}\sqrt{2+3x}\sqrt{1-2x}-4110\sqrt{2}Elliptic$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)/(2+3*x)^(5/2)/(3+5*x)^(5/2),x)
```

```
[Out] -2/3*(1-2*x)^(1/2)*(8160*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*
(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(
2+3*x)^(1/2)*(1-2*x)^(1/2)-4110*2^(1/2)*EllipticF(1/11*11^(1/2)*2
^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^
(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+10336*2^(1/2)*EllipticE(1/11*11
^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3
+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-5206*2^(1/2)*EllipticF(1/
11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))
*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+3264*2^(1/2)*(3+5*x)
^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2
)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-1644*2^(1/2)*(3+5
*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(
1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-244800*x^4-342
780*x^3-61654*x^2+85168*x+30977)/(2+3*x)^(3/2)/(3+5*x)^(3/2)/(-1+
2*x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2x+1)^{\frac{3}{2}}}{(5x+3)^{\frac{5}{2}}(3x+2)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^(5/2)*(3*x + 2)^(5/2)),x, algorithm="maxima
```

```
[Out] integrate((-2*x + 1)^(3/2)/((5*x + 3)^(5/2)*(3*x + 2)^(5/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(-2x+1)^{\frac{3}{2}}}{(225x^4+570x^3+541x^2+228x+36)\sqrt{5x+3}\sqrt{3x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/((5*x + 3)^(5/2)*(3*x + 2)^(5/2)),x, algorithm="frica
```

```
[Out] integral((-2*x + 1)^(3/2)/((225*x^4 + 570*x^3 + 541*x^2 + 228*x +
 36)*sqrt(5*x + 3)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)/(2+3*x)**(5/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2\,x+1)^{\frac{3}{2}}}{(5\,x+3)^{\frac{5}{2}}(3\,x+2)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/((5*x + 3)^(5/2)*(3*x + 2)^(5/2)),x, algorithm="giac"
```

```
[Out] integrate((-2*x + 1)^(3/2)/((5*x + 3)^(5/2)*(3*x + 2)^(5/2)), x)
```

3.2736 $\int \frac{(1-2x)^{3/2}}{(2+3x)^{7/2}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=222

$$\frac{301304\sqrt{1-2x}\sqrt{3x+2}}{21\sqrt{5x+3}}-\frac{16616\sqrt{1-2x}\sqrt{3x+2}}{7(5x+3)^{3/2}}+\frac{111884\sqrt{1-2x}}{315\sqrt{3x+2}(5x+3)^{3/2}}+\frac{536\sqrt{1-2x}}{45(3x+2)^{3/2}(5x+3)^{3/2}}+\frac{14\sqrt{1-2x}}{15(3x+2)^{5/2}(5x+3)^{3/2}}-\frac{33232}{35}\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{301304}{35}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (14*Sqrt[1 - 2*x])/(15*(2 + 3*x)^(5/2)*(3 + 5*x)^(3/2)) + (536*Sq
rt[1 - 2*x])/(45*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)) + (111884*Sqrt[
1 - 2*x])/(315*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)) - (16616*Sqrt[1 - 2
*x]*Sqrt[2 + 3*x])/(7*(3 + 5*x)^(3/2)) + (301304*Sqrt[1 - 2*x]*Sq
rt[2 + 3*x])/(21*Sqrt[3 + 5*x]) - (301304*Sqrt[11/3]*EllipticE[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/35 - (33232*Sqrt[3/11]*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/35
```

Rubi [A] time = 0.518788, antiderivative size = 222, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.179$

$$\frac{301304\sqrt{1-2x}\sqrt{3x+2}}{21\sqrt{5x+3}}-\frac{16616\sqrt{1-2x}\sqrt{3x+2}}{7(5x+3)^{3/2}}+\frac{111884\sqrt{1-2x}}{315\sqrt{3x+2}(5x+3)^{3/2}}+\frac{536\sqrt{1-2x}}{45(3x+2)^{3/2}(5x+3)^{3/2}}+\frac{14\sqrt{1-2x}}{15(3x+2)^{5/2}(5x+3)^{3/2}}-\frac{33232}{35}\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{301304}{35}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(3/2)/((2 + 3*x)^(7/2)*(3 + 5*x)^(5/2)),x]
```


```
[Out] (14*Sqrt[1 - 2*x])/(15*(2 + 3*x)^(5/2)*(3 + 5*x)^(3/2)) + (536*Sq
rt[1 - 2*x])/(45*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)) + (111884*Sqrt[
1 - 2*x])/(315*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)) - (16616*Sqrt[1 - 2
*x]*Sqrt[2 + 3*x])/(7*(3 + 5*x)^(3/2)) + (301304*Sqrt[1 - 2*x]*Sq
rt[2 + 3*x])/(21*Sqrt[3 + 5*x]) - (301304*Sqrt[11/3]*EllipticE[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/35 - (33232*Sqrt[3/11]*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/35
```

Rubi in Sympy [A] time = 48.8799, size = 201, normalized size = 0.91

$$\frac{301304\sqrt{-2x+1}\sqrt{5x+3}}{35\sqrt{3x+2}}+\frac{4336\sqrt{-2x+1}}{3\sqrt{3x+2}\sqrt{5x+3}}-\frac{1076\sqrt{-2x+1}}{9\sqrt{3x+2}\,(5x+3)^{\frac{3}{2}}}+\frac{536\sqrt{-2x+1}}{45\,(3x+2)^{\frac{3}{2}}\,(5x+3)^{\frac{3}{2}}}+\frac{14\sqrt{-2x+1}}{15\,(3x+2)^{\frac{5}{2}}\,(5x+3)^{\frac{3}{2}}}-\frac{301304\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{105}-\frac{99696\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{1225}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(3/2)/(2+3*x)**(7/2)/(3+5*x)**(5/2),x)
```

```
[Out] 301304*sqrt(-2*x + 1)*sqrt(5*x + 3)/(35*sqrt(3*x + 2)) + 4336*sqr
t(-2*x + 1)/(3*sqrt(3*x + 2)*sqrt(5*x + 3)) - 1076*sqrt(-2*x + 1)
/(9*sqrt(3*x + 2)*(5*x + 3)**(3/2)) + 536*sqrt(-2*x + 1)/(45*(3*x
 + 2)**(3/2)*(5*x + 3)**(3/2)) + 14*sqrt(-2*x + 1)/(15*(3*x + 2)*
```

```
*(5/2)*(5*x + 3)**(3/2)) - 301304*sqrt(33)*elliptic_e(asin(sqrt(2
1)*sqrt(-2*x + 1)/7), 35/33)/105 - 99696*sqrt(35)*elliptic_f(asin
(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/1225
```

Mathematica [A] time = 0.361923, size = 109, normalized size = 0.49

$$\frac{2}{105}\left(\frac{\sqrt{1-2x}\left(101690100x^4+261029520x^3+251053266x^2+107221804x+17157169\right)}{(3x+2)^{5/2}(5x+3)^{3/2}}+4\sqrt{2}\left(37663E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-18970F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(3/2)/((2 + 3*x)^(7/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (2*((Sqrt[1 - 2*x]*(17157169 + 107221804*x + 251053266*x^2 + 2610
29520*x^3 + 101690100*x^4))/((2 + 3*x)^(5/2)*(3 + 5*x)^(3/2)) + 4
*Sqrt[2]*(37663*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2
] - 18970*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])))/1
05
```

Maple [C] time = 0.037, size = 502, normalized size = 2.3

$$-\frac{2}{-105+210\,x}\sqrt{1-2\,x}\left(6779340\,\sqrt{2}EllipticE\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^3\sqrt{1-2\,x}\sqrt{3+5\,x}\sqrt{2+3\,x}-3414600$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(3/2)/(2+3*x)^(7/2)/(3+5*x)^(5/2),x)
```

```
[Out] -2/105*(1-2*x)^(1/2)*(6779340*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(
1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1
/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)-3414600*2^(1/2)*EllipticF(1/11*11
^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*
(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)+13106724*2^(1/2)*Ellipt
icE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^
(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-6601560*2^(1
/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*
3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+84
36512*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I
*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^
(1/2)-4249280*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/
2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*
(1-2*x)^(1/2)+1807824*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)
^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/
2)*3^(1/2)*2^(1/2))-910560*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1
-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*1
1^(1/2)*3^(1/2)*2^(1/2))-203380200*x^5-420368940*x^4-241077012*x^
3+36609658*x^2+72907466*x+17157169)/(2+3*x)^(5/2)/(3+5*x)^(3/2)/(
-1+2*x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2\,x+1)^{\frac{3}{2}}}{(5\,x+3)^{\frac{5}{2}}(3\,x+2)^{\frac{7}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(3/2)/((5*x + 3)^(5/2)*(3*x + 2)^(7/2)),x, algorithm="maxima
```

```
[Out] integrate((-2*x + 1)^(3/2)/((5*x + 3)^(5/2)*(3*x + 2)^(7/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(-2\,x+1)^{\frac{3}{2}}}{(675\,x^5+2160\,x^4+2763\,x^3+1766\,x^2+564\,x+72)\sqrt{5\,x+3}\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/((5*x + 3)^(5/2)*(3*x + 2)^(7/2)),x, algorithm="frica
```

```
[Out] integral((-2*x + 1)^(3/2)/((675*x^5 + 2160*x^4 + 2763*x^3 + 1766*
x^2 + 564*x + 72)*sqrt(5*x + 3)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(3/2)/(2+3*x)**(7/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2\,x+1)^{\frac{3}{2}}}{(5\,x+3)^{\frac{5}{2}}(3\,x+2)^{\frac{7}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(3/2)/((5*x + 3)^(5/2)*(3*x + 2)^(7/2)),x, algorithm="giac"
```

```
[Out] integrate((-2*x + 1)^(3/2)/((5*x + 3)^(5/2)*(3*x + 2)^(7/2)), x)
```

3.2737 $\int (1-2x)^{5/2}(2+3x)^{5/2}\sqrt{3+5x}\,dx$

Optimal. Leaf size=249

$$\frac{2}{65}(1-2x)^{5/2}(5x+3)^{3/2}(3x+2)^{5/2}+\frac{62(1-2x)^{3/2}(5x+3)^{3/2}(3x+2)^{5/2}}{2145}+\frac{34\sqrt{1-2x}(5x+3)^{3/2}(3x+2)^{5/2}}{2475}+\frac{32717\sqrt{1-2x}(5x+3)^{3/2}(3x+2)^{3/2}}{1126125}-\frac{445024\sqrt{1-2x}(5x+3)^{3/2}\sqrt{3x+2}}{9384375}-\frac{69808931\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{168918750}-\frac{69808931F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{76781250\sqrt{33}}-\frac{1163388067E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{38390625\sqrt{33}}$$

```
[Out] (-69808931*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/168918750 -
 (445024*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/9384375 + (
32717*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2))/1126125 + (3
4*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)*(3 + 5*x)^(3/2))/2475 + (62*(1 -
2*x)^(3/2)*(2 + 3*x)^(5/2)*(3 + 5*x)^(3/2))/2145 + (2*(1 - 2*x)^(
5/2)*(2 + 3*x)^(5/2)*(3 + 5*x)^(3/2))/65 - (1163388067*EllipticE[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(38390625*Sqrt[33]) - (6
9808931*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(76781
250*Sqrt[33])
```

Rubi [A] time = 0.546473, antiderivative size = 249, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{2}{65}(1-2x)^{5/2}(5x+3)^{3/2}(3x+2)^{5/2}+\frac{62(1-2x)^{3/2}(5x+3)^{3/2}(3x+2)^{5/2}}{2145}+\frac{34\sqrt{1-2x}(5x+3)^{3/2}(3x+2)^{5/2}}{2475}+\frac{32717\sqrt{1-2x}(5x+3)^{3/2}(3x+2)^{3/2}}{1126125}-\frac{445024\sqrt{1-2x}(5x+3)^{3/2}\sqrt{3x+2}}{9384375}-\frac{69808931\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{168918750}-\frac{69808931F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{76781250\sqrt{33}}-\frac{1163388067E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{38390625\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x],x]
```

```
[Out] (-69808931*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/168918750 -
 (445024*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/9384375 + (
32717*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2))/1126125 + (3
4*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)*(3 + 5*x)^(3/2))/2475 + (62*(1 -
2*x)^(3/2)*(2 + 3*x)^(5/2)*(3 + 5*x)^(3/2))/2145 + (2*(1 - 2*x)^(
5/2)*(2 + 3*x)^(5/2)*(3 + 5*x)^(3/2))/65 - (1163388067*EllipticE[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(38390625*Sqrt[33]) - (6
9808931*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(76781
250*Sqrt[33])
```

Rubi in Sympy [A] time = 58.0211, size = 230, normalized size = 0.92

$$\frac{2\left(-2x+1\right)^{\frac{5}{2}}\left(3x+2\right)^{\frac{7}{2}}\sqrt{5x+3}}{39}-\frac{59\left(-2x+1\right)^{\frac{5}{2}}\left(3x+2\right)^{\frac{5}{2}}\sqrt{5x+3}}{715}-\frac{401\left(-2x+1\right)^{\frac{5}{2}}\left(3x+2\right)^{\frac{3}{2}}\sqrt{5x+3}}{2145}-\frac{18787\left(-2x+1\right)^{\frac{5}{2}}\sqrt{3x+2}\sqrt{5x+3}}{50050}+\frac{51694\left(-2x+1\right)^{\frac{3}{2}}\sqrt{3x+2}\sqrt{5x+3}}{144375}+\frac{68473859\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{84459375}-\frac{1163388067\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{1266890625}-\frac{69808931\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{2533781250}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**(5/2)*(3+5*x)**(1/2),x)
```

```
[Out] 2*(-2*x + 1)**(5/2)*(3*x + 2)**(7/2)*sqrt(5*x + 3)/39 - 59*(-2*x
+ 1)**(5/2)*(3*x + 2)**(5/2)*sqrt(5*x + 3)/715 - 401*(-2*x + 1)**
(5/2)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/2145 - 18787*(-2*x + 1)**(5/
2)*sqrt(3*x + 2)*sqrt(5*x + 3)/50050 + 51694*(-2*x + 1)**(3/2)*sq
rt(3*x + 2)*sqrt(5*x + 3)/144375 + 68473859*sqrt(-2*x + 1)*sqrt(3
*x + 2)*sqrt(5*x + 3)/84459375 - 1163388067*sqrt(33)*elliptic_e(a
sin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/1266890625 - 69808931*sqrt
(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/253378125
0
```

Mathematica [A] time = 0.43827, size = 112, normalized size = 0.45

$$\frac{15\sqrt{2-4x}\sqrt{3x+2}\sqrt{5x+3}\left(935550000x^5+433755000x^4-936022500x^3-309143250x^2+380959290x+84411073\right)-234}{2533781250\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x],x]
```

```
[Out] (15*Sqrt[2 - 4*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(84411073 + 3809592
90*x - 309143250*x^2 - 936022500*x^3 + 433755000*x^4 + 935550000*
x^5) + 4653552268*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33
/2] - 2349857545*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/
2])/(2533781250*Sqrt[2])
```

Maple [C] time = 0.016, size = 189, normalized size = 0.8

$$\frac{1}{152026875000\,x^3+116553937500\,x^2-35472937500\,x-30405375000}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(841995000000\,x^8+10359\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^(5/2)*(3+5*x)^(1/2),x)
```

```
[Out] 1/5067562500*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(841995000
000*x^8+1035909000000*x^7-739594800000*x^6+2349857545*2^(1/2)*(3+
5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^
(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-4653552268*2^
(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11
^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-1183
572000000*x^5+248043343500*x^4+572236008300*x^3+33887974470*x^2-8
6298997530*x-15193993140)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \sqrt{5\,x+3}(3\,x+2)^{\frac{5}{2}}(-2\,x+1)^{\frac{5}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^(5/2)*(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(5*x + 3)*(3*x + 2)^(5/2)*(-2*x + 1)^(5/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left((36\,x^4+12\,x^3-23\,x^2-4\,x+4)\sqrt{5\,x+3}\sqrt{3\,x+2}\sqrt{-2\,x+1},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(3*x + 2)^(5/2)*(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] integral((36*x^4 + 12*x^3 - 23*x^2 - 4*x + 4)*sqrt(5*x + 3)*sqrt(
3*x + 2)*sqrt(-2*x + 1), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)**(5/2)*(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int\sqrt{5\,x+3}(3\,x+2)^{\frac{5}{2}}(-2\,x+1)^{\frac{5}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(3*x + 2)^(5/2)*(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)*(3*x + 2)^(5/2)*(-2*x + 1)^(5/2), x)
```

3.2738 $\int (1-2x)^{5/2}(2+3x)^{3/2}\sqrt{3+5x}\,dx$

Optimal. Leaf size=218

$$\frac{2}{55}(3x+2)^{3/2}(5x+3)^{3/2}(1-2x)^{5/2}+\frac{106(3x+2)^{3/2}(5x+3)^{3/2}(1-2x)^{3/2}}{2475}+\frac{2866(3x+2)^{3/2}(5x+3)^{3/2}\sqrt{1-2x}}{86625}+\frac{38729\sqrt{3x+2}(5x+3)^{3/2}\sqrt{1-2x}}{2165625}-\frac{4738087\sqrt{3x+2}\sqrt{5x+3}\sqrt{1-2x}}{19490625}-\frac{4738087F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{8859375\sqrt{33}}-\frac{326256461E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{17718750\sqrt{33}}$$

```
[Out] (-4738087*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/19490625 + (
38729*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/2165625 + (286
6*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2))/86625 + (106*(1
- 2*x)^(3/2)*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2))/2475 + (2*(1 - 2*x)
^(5/2)*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2))/55 - (326256461*EllipticE
[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(17718750*Sqrt[33]) - (
4738087*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(88593
75*Sqrt[33])
```

Rubi [A] time = 0.460922, antiderivative size = 218, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.179$

$$\frac{2}{55}(3x+2)^{3/2}(5x+3)^{3/2}(1-2x)^{5/2}+\frac{106(3x+2)^{3/2}(5x+3)^{3/2}(1-2x)^{3/2}}{2475}+\frac{2866(3x+2)^{3/2}(5x+3)^{3/2}\sqrt{1-2x}}{86625}+\frac{38729\sqrt{3x+2}(5x+3)^{3/2}\sqrt{1-2x}}{2165625}-\frac{4738087\sqrt{3x+2}\sqrt{5x+3}\sqrt{1-2x}}{19490625}-\frac{4738087F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{8859375\sqrt{33}}-\frac{326256461E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{17718750\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x],x]
```


```
[Out] (-4738087*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/19490625 + (
38729*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/2165625 + (286
6*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2))/86625 + (106*(1
- 2*x)^(3/2)*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2))/2475 + (2*(1 - 2*x)
^(5/2)*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2))/55 - (326256461*EllipticE
[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(17718750*Sqrt[33]) - (
4738087*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(88593
75*Sqrt[33])
```

Rubi in Sympy [A] time = 47.0519, size = 201, normalized size = 0.92

$$\frac{2\left(-2x+1\right)^{\frac{5}{2}}\left(3x+2\right)^{\frac{5}{2}}\sqrt{5x+3}}{33}-\frac{59\left(-2x+1\right)^{\frac{5}{2}}\left(3x+2\right)^{\frac{3}{2}}\sqrt{5x+3}}{495}-\frac{1324\left(-2x+1\right)^{\frac{5}{2}}\sqrt{3x+2}\sqrt{5x+3}}{5775}+\frac{10457\left(-2x+1\right)^{\frac{3}{2}}\sqrt{3x+2}\sqrt{5x+3}}{48125}+\frac{9592361\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{19490625}-\frac{326256461\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{584718750}-\frac{4738087\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{292359375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**(3/2)*(3+5*x)**(1/2),x)
```

```
[Out] 2*(-2*x + 1)**(5/2)*(3*x + 2)**(5/2)*sqrt(5*x + 3)/33 - 59*(-2*x
+ 1)**(5/2)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/495 - 1324*(-2*x + 1)*
*(5/2)*sqrt(3*x + 2)*sqrt(5*x + 3)/5775 + 10457*(-2*x + 1)**(3/2)
*sqrt(3*x + 2)*sqrt(5*x + 3)/48125 + 9592361*sqrt(-2*x + 1)*sqrt(
3*x + 2)*sqrt(5*x + 3)/19490625 - 326256461*sqrt(33)*elliptic_e(a
sin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/584718750 - 4738087*sqrt(3
3)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/292359375
```

Mathematica [A] time = 0.365066, size = 107, normalized size = 0.49

$$\frac{15\sqrt{2-4x}\sqrt{3x+2}\sqrt{5x+3}\left(42525000x^4-13702500x^3-35750250x^2+16294455x+9437696\right)-169899590F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\right.\right.}{292359375\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x],x]
```

```
[Out] (15*Sqrt[2 - 4*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(9437696 + 16294455
*x - 35750250*x^2 - 13702500*x^3 + 42525000*x^4) + 326256461*Elli
pticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 169899590*Ellipt
icF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/(292359375*Sqrt[2])
```

Maple [C] time = 0.016, size = 184, normalized size = 0.8

$$\frac{1}{17541562500\,x^3+13448531250\,x^2-4093031250\,x-3508312500}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(38272500000\,x^7+170100000000\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^(3/2)*(3+5*x)^(1/2),x)
```

```
[Out] 1/584718750*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(3827250000
0*x^7+17010000000*x^6+169899590*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/
2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/
2*I*11^(1/2)*3^(1/2)*2^(1/2))-326256461*2^(1/2)*(3+5*x)^(1/2)*(2+
3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^
(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-50560200000*x^5-14779638000
*x^4+29711102850*x^3+9525219690*x^2-4914918060*x-1698785280)/(30*
x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \sqrt{5\,x+3}(3\,x+2)^{\frac{3}{2}}(-2\,x+1)^{\frac{5}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(3*x + 2)^(3/2)*(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(5*x + 3)*(3*x + 2)^(3/2)*(-2*x + 1)^(5/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\left(12\,x^3-4\,x^2-5\,x+2\right)\sqrt{5\,x+3}\sqrt{3\,x+2}\sqrt{-2\,x+1},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(3*x + 2)^(3/2)*(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] integral((12*x^3 - 4*x^2 - 5*x + 2)*sqrt(5*x + 3)*sqrt(3*x + 2)*s
qrt(-2*x + 1), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)**(3/2)*(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \sqrt{5\,x+3}(3\,x+2)^{\frac{3}{2}}(-2\,x+1)^{\frac{5}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(3*x + 2)^(3/2)*(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)*(3*x + 2)^(3/2)*(-2*x + 1)^(5/2), x)
```

3.2739 $\int (1-2x)^{5/2}\sqrt{2+3x}\sqrt{3+5x}\,dx$

Optimal. Leaf size=191

$$\frac{2}{45}\sqrt{3x+2}(5x+3)^{3/2}(1-2x)^{5/2}+\frac{326\sqrt{3x+2}(5x+3)^{3/2}(1-2x)^{3/2}}{4725}+\frac{10214\sqrt{3x+2}(5x+3)^{3/2}\sqrt{1-2x}}{118125}-\frac{110717\sqrt{3x+2}\sqrt{5x+3}\sqrt{1-2x}}{1063125}-\frac{110717\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{5315625}-\frac{6799613\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{5315625}$$

```
[Out] (-110717*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/1063125 + (10
214*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/118125 + (326*(1
 - 2*x)^(3/2)*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/4725 + (2*(1 - 2*x)^
(5/2)*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/45 - (6799613*Sqrt[11/3]*Ell
ipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/5315625 - (110717
*Sqrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/53
15625
```

Rubi [A] time = 0.396527, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{2}{45}\sqrt{3x+2}(5x+3)^{3/2}(1-2x)^{5/2}+\frac{326\sqrt{3x+2}(5x+3)^{3/2}(1-2x)^{3/2}}{4725}+\frac{10214\sqrt{3x+2}(5x+3)^{3/2}\sqrt{1-2x}}{118125}-\frac{110717\sqrt{3x+2}\sqrt{5x+3}\sqrt{1-2x}}{1063125}-\frac{110717\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{5315625}-\frac{6799613\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{5315625}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)*Sqrt[2 + 3*x]*Sqrt[3 + 5*x],x]
```

```
[Out] (-110717*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/1063125 + (10
214*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/118125 + (326*(1
 - 2*x)^(3/2)*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/4725 + (2*(1 - 2*x)^
(5/2)*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/45 - (6799613*Sqrt[11/3]*Ell
ipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/5315625 - (110717
*Sqrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/53
15625
```

Rubi in Sympy [A] time = 39.6121, size = 172, normalized size = 0.9

$$\frac{2\left(-2x+1\right)^{\frac{5}{2}}\left(3x+2\right)^{\frac{3}{2}}\sqrt{5x+3}}{27}-\frac{59\left(-2x+1\right)^{\frac{5}{2}}\sqrt{3x+2}\sqrt{5x+3}}{315}+\frac{1286\left(-2x+1\right)^{\frac{3}{2}}\sqrt{3x+2}\sqrt{5x+3}}{7875}+\frac{394876\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{1063125}-\frac{6799613\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{15946875}-\frac{110717\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{15946875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**(1/2)*(3+5*x)**(1/2),x)
```

```
[Out] 2*(-2*x + 1)**(5/2)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/27 - 59*(-2*x
+ 1)**(5/2)*sqrt(3*x + 2)*sqrt(5*x + 3)/315 + 1286*(-2*x + 1)**(3
/2)*sqrt(3*x + 2)*sqrt(5*x + 3)/7875 + 394876*sqrt(-2*x + 1)*sqrt
```

```
(3*x + 2)*sqrt(5*x + 3)/1063125 - 6799613*sqrt(33)*elliptic_e(asi
n(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/15946875 - 110717*sqrt(33)*e
lliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/15946875
```

Mathematica [A] time = 0.341894, size = 102, normalized size = 0.53

$$\frac{15\sqrt{2-4x}\sqrt{3x+2}\sqrt{5x+3}\left(945000x^3-1111500x^2+55530x+526861\right)-9945565F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+135992}{15946875\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)*Sqrt[2 + 3*x]*Sqrt[3 + 5*x],x]
```

```
[Out] (15*Sqrt[2 - 4*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(526861 + 55530*x -
 1111500*x^2 + 945000*x^3) + 13599226*EllipticE[ArcSin[Sqrt[2/11]
*Sqrt[3 + 5*x]], -33/2] - 9945565*EllipticF[ArcSin[Sqrt[2/11]*Sqr
t[3 + 5*x]], -33/2])/(15946875*Sqrt[2])
```

Maple [C] time = 0.014, size = 179, normalized size = 0.9

$$\frac{1}{956812500\,x^3+733556250\,x^2-223256250\,x-191362500}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(850500000\,x^6+9945565\,\sqrt{2}\sqrt{3+5\,x}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^(1/2)*(3+5*x)^(1/2),x)
```

```
[Out] 1/31893750*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(850500000*x
^6+9945565*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Elli
pticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*
2^(1/2))-13599226*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/
2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3
^(1/2)*2^(1/2))-348300000*x^5-915408000*x^4+575805600*x^3+5519427
90*x^2-120636210*x-94834980)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \sqrt{5\,x+3}\sqrt{3\,x+2}(-2\,x+1)^{\frac{5}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*sqrt(3*x + 2)*(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(5*x + 3)*sqrt(3*x + 2)*(-2*x + 1)^(5/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\left(4\,x^2-4\,x+1\right)\sqrt{5\,x+3}\sqrt{3\,x+2}\sqrt{-2\,x+1},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*sqrt(3*x + 2)*(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] integral((4*x^2 - 4*x + 1)*sqrt(5*x + 3)*sqrt(3*x + 2)*sqrt(-2*x
+ 1), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)**(1/2)*(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \sqrt{5x+3}\sqrt{3x+2}(-2x+1)^{\frac{5}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*sqrt(3*x + 2)*(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)*sqrt(3*x + 2)*(-2*x + 1)^(5/2), x)
```

3.2740 $\int \frac{(1-2x)^{5/2}\sqrt{3+5x}}{\sqrt{2+3x}}\,dx$

Optimal. Leaf size=160

$$\frac{2}{21}\sqrt{3x+2}\sqrt{5x+3}(1-2x)^{5/2}+\frac{118}{525}\sqrt{3x+2}\sqrt{5x+3}(1-2x)^{3/2}+\frac{4282\sqrt{3x+2}\sqrt{5x+3}\sqrt{1-2x}}{7875}+\frac{11806\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{39375}-\frac{86741\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{39375}$$

```
[Out] (4282*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/7875 + (118*(1 -
 2*x)^(3/2)*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/525 + (2*(1 - 2*x)^(5/2)
*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/21 - (86741*Sqrt[11/3]*EllipticE[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/39375 + (11806*Sqrt[11/3]*
EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/39375
```

Rubi [A] time = 0.328943, antiderivative size = 160, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{2}{21}\sqrt{3x+2}\sqrt{5x+3}(1-2x)^{5/2}+\frac{118}{525}\sqrt{3x+2}\sqrt{5x+3}(1-2x)^{3/2}+\frac{4282\sqrt{3x+2}\sqrt{5x+3}\sqrt{1-2x}}{7875}+\frac{11806\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{39375}-\frac{86741\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{39375}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/Sqrt[2 + 3*x],x]
```

```
[Out] (4282*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/7875 + (118*(1 -
 2*x)^(3/2)*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/525 + (2*(1 - 2*x)^(5/2)
*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/21 - (86741*Sqrt[11/3]*EllipticE[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/39375 + (11806*Sqrt[11/3]*
EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/39375
```

Rubi in Sympy [A] time = 32.0948, size = 143, normalized size = 0.89

$$\frac{2(-2x+1)^{\frac{5}{2}}\sqrt{3x+2}\sqrt{5x+3}}{21}+\frac{118(-2x+1)^{\frac{3}{2}}\sqrt{3x+2}\sqrt{5x+3}}{525}+\frac{4282\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{7875}-\frac{86741\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{118125}+\frac{11806\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{118125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(1/2)/(2+3*x)**(1/2),x)
```

```
[Out] 2*(-2*x + 1)**(5/2)*sqrt(3*x + 2)*sqrt(5*x + 3)/21 + 118*(-2*x +
1)**(3/2)*sqrt(3*x + 2)*sqrt(5*x + 3)/525 + 4282*sqrt(-2*x + 1)*s
qrt(3*x + 2)*sqrt(5*x + 3)/7875 - 86741*sqrt(33)*elliptic_e(asin(
sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/118125 + 11806*sqrt(33)*ellipt
ic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/118125
```

Mathematica [A] time = 0.168412, size = 102, normalized size = 0.64

$$\frac{30\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}\left(1500x^2-3270x+3401\right)-281540\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+86741\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\right.\right.}{118125}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/Sqrt[2 + 3*x],x]
```

```
[Out] (30*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(3401 - 3270*x + 15
00*x^2) + 86741*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]
], -33/2] - 281540*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5
*x]], -33/2])/118125
```

Maple [C] time = 0.017, size = 174, normalized size = 1.1

$$\frac{1}{3543750\,x^{3}+2716875\,x^{2}-826875\,x-708750}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(281540\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}\mathit{EllipticF}\left(1/\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(1/2)/(2+3*x)^(1/2),x)
```

```
[Out] 1/118125*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(281540*2^(1/2
)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/
2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-86741*2^
(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11
^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+1350
000*x^5-1908000*x^4+489600*x^3+2763390*x^2-125610*x-612180)/(30*x
^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}(-2\,x+1)^{\frac{5}{2}}}{\sqrt{3\,x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/sqrt(3*x + 2),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/sqrt(3*x + 2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\left(4\,x^{2}-4\,x+1\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}}{\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/sqrt(3*x + 2),x, algorithm="fricas")
```

```
[Out] integral((4*x^2 - 4*x + 1)*sqrt(5*x + 3)*sqrt(-2*x + 1)/sqrt(3*x
+ 2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**(1/2)/(2+3*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}(-2\,x+1)^{\frac{5}{2}}}{\sqrt{3\,x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/sqrt(3*x + 2),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/sqrt(3*x + 2), x)
```

3.2741 $\int \frac{(1-2x)^{5/2}\sqrt{3+5x}}{(2+3x)^{3/2}}\,dx$

Optimal. Leaf size=160

$$-\frac{2\sqrt{5x+3}(1-2x)^{5/2}}{3\sqrt{3x+2}}-\frac{8}{15}\sqrt{3x+2}\sqrt{5x+3}(1-2x)^{3/2}-\frac{1076}{675}\sqrt{3x+2}\sqrt{5x+3}\sqrt{1-2x}-\frac{12758\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3375}+\frac{31588\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3375}$$

```
[Out] (-2*(1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(3*Sqrt[2 + 3*x]) - (1076*Sqrt
[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/675 - (8*(1 - 2*x)^(3/2)*S
qrt[2 + 3*x]*Sqrt[3 + 5*x])/15 + (31588*Sqrt[11/3]*EllipticE[ArcS
in[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3375 - (12758*Sqrt[11/3]*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3375
```

Rubi [A] time = 0.330428, antiderivative size = 160, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{2\sqrt{5x+3}(1-2x)^{5/2}}{3\sqrt{3x+2}}-\frac{8}{15}\sqrt{3x+2}\sqrt{5x+3}(1-2x)^{3/2}-\frac{1076}{675}\sqrt{3x+2}\sqrt{5x+3}\sqrt{1-2x}-\frac{12758\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3375}+\frac{31588\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3375}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(2 + 3*x)^(3/2),x]
```

```
[Out] (-2*(1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(3*Sqrt[2 + 3*x]) - (1076*Sqrt
[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/675 - (8*(1 - 2*x)^(3/2)*S
qrt[2 + 3*x]*Sqrt[3 + 5*x])/15 + (31588*Sqrt[11/3]*EllipticE[ArcS
in[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3375 - (12758*Sqrt[11/3]*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3375
```

Rubi in Sympy [A] time = 31.556, size = 143, normalized size = 0.89

$$-\frac{2(-2x+1)^{\frac{5}{2}}\sqrt{5x+3}}{3\sqrt{3x+2}}-\frac{8(-2x+1)^{\frac{3}{2}}\sqrt{3x+2}\sqrt{5x+3}}{15}-\frac{1076\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{675}+\frac{31588\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{10125}-\frac{140338\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{118125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(1/2)/(2+3*x)**(3/2),x)
```

```
[Out] -2*(-2*x + 1)**(5/2)*sqrt(5*x + 3)/(3*sqrt(3*x + 2)) - 8*(-2*x +
1)**(3/2)*sqrt(3*x + 2)*sqrt(5*x + 3)/15 - 1076*sqrt(-2*x + 1)*sq
rt(3*x + 2)*sqrt(5*x + 3)/675 + 31588*sqrt(33)*elliptic_e(asin(sq
rt(21)*sqrt(-2*x + 1)/7), 35/33)/10125 - 140338*sqrt(35)*elliptic
_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/118125
```

Mathematica [A] time = 0.305633, size = 102, normalized size = 0.64

$$\frac{\frac{30\sqrt{1-2x}\sqrt{5x+3}\left(180x^2-534x-1661\right)}{\sqrt{3x+2}}+242095\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-31588\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)}{10125}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(2 + 3*x)^(3/2),x]
```

```
[Out] ((30*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(-1661 - 534*x + 180*x^2))/Sqrt[
2 + 3*x] - 31588*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x
]], -33/2] + 242095*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 +
5*x]], -33/2])/10125
```

Maple [C] time = 0.023, size = 169, normalized size = 1.1

$$-\frac{1}{303750\,x^3+232875\,x^2-70875\,x-60750}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(242095\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(1/2)/(2+3*x)^(3/2),x)
```

```
[Out] -1/10125*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(242095*2^(1/2
)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/
2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-31588*2^
(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11
^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-5400
0*x^4+154800*x^3+530520*x^2+1770*x-149490)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}(-2\,x+1)^{\frac{5}{2}}}{(3\,x+2)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^(3/2),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^(3/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(4\,x^2-4\,x+1\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}}{(3\,x+2)^{\frac{3}{2}}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^(3/2),x, algorithm="fricas")
```

```
[Out] integral((4*x^2 - 4*x + 1)*sqrt(5*x + 3)*sqrt(-2*x + 1)/(3*x + 2)
^(3/2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**(1/2)/(2+3*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5x+3}(-2x+1)^{\frac{5}{2}}}{(3x+2)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^(3/2),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^(3/2), x)
```

3.2742 $\int \frac{(1-2x)^{5/2}\sqrt{3+5x}}{(2+3x)^{5/2}}\,dx$

Optimal. Leaf size=160

$$-\frac{2\sqrt{5x+3}(1-2x)^{5/2}}{9(3x+2)^{3/2}}+\frac{10\sqrt{5x+3}(1-2x)^{3/2}}{3\sqrt{3x+2}}+\frac{196}{81}\sqrt{3x+2}\sqrt{5x+3}\sqrt{1-2x}+\frac{988}{405}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{4418}{405}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (-2*(1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(9*(2 + 3*x)^(3/2)) + (10*(1 -
 2*x)^(3/2)*Sqrt[3 + 5*x])/(3*Sqrt[2 + 3*x]) + (196*Sqrt[1 - 2*x]
*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/81 - (4418*Sqrt[11/3]*EllipticE[Arc
Sin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/405 + (988*Sqrt[11/3]*Ellip
ticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/405
```

Rubi [A] time = 0.334035, antiderivative size = 160, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.214$

$$-\frac{2\sqrt{5x+3}(1-2x)^{5/2}}{9(3x+2)^{3/2}}+\frac{10\sqrt{5x+3}(1-2x)^{3/2}}{3\sqrt{3x+2}}+\frac{196}{81}\sqrt{3x+2}\sqrt{5x+3}\sqrt{1-2x}+\frac{988}{405}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{4418}{405}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(2 + 3*x)^(5/2),x]
```

```
[Out] (-2*(1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(9*(2 + 3*x)^(3/2)) + (10*(1 -
 2*x)^(3/2)*Sqrt[3 + 5*x])/(3*Sqrt[2 + 3*x]) + (196*Sqrt[1 - 2*x]
*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/81 - (4418*Sqrt[11/3]*EllipticE[Arc
Sin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/405 + (988*Sqrt[11/3]*Ellip
ticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/405
```

Rubi in Sympy [A] time = 32.0367, size = 143, normalized size = 0.89

$$-\frac{2\left(-2x+1\right)^{\frac{5}{2}}\sqrt{5x+3}}{9\left(3x+2\right)^{\frac{3}{2}}}+\frac{10\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{3\sqrt{3x+2}}+\frac{196\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{81}-\frac{4418\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{1215}+\frac{10868\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{14175}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(1/2)/(2+3*x)**(5/2),x)
```

```
[Out] -2*(-2*x + 1)**(5/2)*sqrt(5*x + 3)/(9*(3*x + 2)**(3/2)) + 10*(-2*
x + 1)**(3/2)*sqrt(5*x + 3)/(3*sqrt(3*x + 2)) + 196*sqrt(-2*x + 1
)*sqrt(3*x + 2)*sqrt(5*x + 3)/81 - 4418*sqrt(33)*elliptic_e(asin(
sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/1215 + 10868*sqrt(35)*elliptic
_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/14175
```

Mathematica [A] time = 0.318398, size = 102, normalized size = 0.64

$$\frac{2\left(\frac{15\sqrt{1-2x}\sqrt{5x+3}\left(36x^2+1077x+653\right)}{(3x+2)^{3/2}}-10360\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+2209\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)}{1215}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(2 + 3*x)^(5/2),x]
```

```
[Out] (2*((15*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(653 + 1077*x + 36*x^2))/(2 +
 3*x)^(3/2) + 2209*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5
*x]], -33/2] - 10360*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 +
 5*x]], -33/2]))/1215
```

Maple [C] time = 0.027, size = 272, normalized size = 1.7

$$\frac{2}{12150\,x^2+1215\,x-3645}\left(31080\,\sqrt{2}\mathit{EllipticF}\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-6627\,\sqrt{2}E$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(1/2)/(2+3*x)^(5/2),x)
```

```
[Out] 2/1215*(31080*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/
2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*
(1-2*x)^(1/2)-6627*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x
)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(
1/2)*(1-2*x)^(1/2)+20720*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2
*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^
(1/2)*3^(1/2)*2^(1/2))-4418*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(
1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*
11^(1/2)*3^(1/2)*2^(1/2))+5400*x^4+162090*x^3+112485*x^2-38670*x-
29385)*(3+5*x)^(1/2)*(1-2*x)^(1/2)/(10*x^2+x-3)/(2+3*x)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}(-2\,x+1)^{\frac{5}{2}}}{(3\,x+2)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^(5/2),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^(5/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{(4\,x^2-4\,x+1)\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}{(9\,x^2+12\,x+4)\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^(5/2),x, algorithm="fricas")
```

```
[Out] integral((4*x^2 - 4*x + 1)*sqrt(5*x + 3)*sqrt(-2*x + 1)/((9*x^2 +
 12*x + 4)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**(1/2)/(2+3*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5x+3}(-2x+1)^{\frac{5}{2}}}{(3x+2)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^(5/2),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^(5/2), x)
```

3.2743 $\int \frac{(1-2x)^{5/2}\sqrt{3+5x}}{(2+3x)^{7/2}}\,dx$

Optimal. Leaf size=156

$$-\frac{2\sqrt{5x+3}(1-2x)^{5/2}}{15(3x+2)^{5/2}}+\frac{2\sqrt{5x+3}(1-2x)^{3/2}}{3(3x+2)^{3/2}}+\frac{8\sqrt{5x+3}\sqrt{1-2x}}{\sqrt{3x+2}}-\frac{4}{5}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{12}{5}\sqrt{33}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (-2*(1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(15*(2 + 3*x)^(5/2)) + (2*(1 -
 2*x)^(3/2)*Sqrt[3 + 5*x])/(3*(2 + 3*x)^(3/2)) + (8*Sqrt[1 - 2*x]
*Sqrt[3 + 5*x])/Sqrt[2 + 3*x] - (12*Sqrt[33]*EllipticE[ArcSin[Sqr
t[3/7]*Sqrt[1 - 2*x]], 35/33])/5 - (4*Sqrt[11/3]*EllipticF[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/5
```

Rubi [A] time = 0.338234, antiderivative size = 156, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.179$

$$-\frac{2\sqrt{5x+3}(1-2x)^{5/2}}{15(3x+2)^{5/2}}+\frac{2\sqrt{5x+3}(1-2x)^{3/2}}{3(3x+2)^{3/2}}+\frac{8\sqrt{5x+3}\sqrt{1-2x}}{\sqrt{3x+2}}-\frac{4}{5}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{12}{5}\sqrt{33}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(2 + 3*x)^(7/2),x]
```

```
[Out] (-2*(1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(15*(2 + 3*x)^(5/2)) + (2*(1 -
 2*x)^(3/2)*Sqrt[3 + 5*x])/(3*(2 + 3*x)^(3/2)) + (8*Sqrt[1 - 2*x]
*Sqrt[3 + 5*x])/Sqrt[2 + 3*x] - (12*Sqrt[33]*EllipticE[ArcSin[Sqr
t[3/7]*Sqrt[1 - 2*x]], 35/33])/5 - (4*Sqrt[11/3]*EllipticF[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/5
```

Rubi in Sympy [A] time = 30.7352, size = 141, normalized size = 0.9

$$-\frac{2\left(-2x+1\right)^{\frac{5}{2}}\sqrt{5x+3}}{15\left(3x+2\right)^{\frac{5}{2}}}+\frac{2\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{3\left(3x+2\right)^{\frac{3}{2}}}+\frac{8\sqrt{-2x+1}\sqrt{5x+3}}{\sqrt{3x+2}}-\frac{12\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{5}-\frac{44\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{175}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(1/2)/(2+3*x)**(7/2),x)
```

```
[Out] -2*(-2*x + 1)**(5/2)*sqrt(5*x + 3)/(15*(3*x + 2)**(5/2)) + 2*(-2*
x + 1)**(3/2)*sqrt(5*x + 3)/(3*(3*x + 2)**(3/2)) + 8*sqrt(-2*x +
1)*sqrt(5*x + 3)/sqrt(3*x + 2) - 12*sqrt(33)*elliptic_e(asin(sqrt
(21)*sqrt(-2*x + 1)/7), 35/33)/5 - 44*sqrt(35)*elliptic_f(asin(sq
rt(55)*sqrt(-2*x + 1)/11), 33/35)/175
```

Mathematica [A] time = 0.204114, size = 99, normalized size = 0.63

$$\frac{2}{15}\left(\frac{\sqrt{1-2x}\sqrt{5x+3}\left(506x^2+719x+249\right)}{(3x+2)^{5/2}}+3\sqrt{2}\left(5F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+6E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)\right)$$

Antiderivative was successfully verified.

```
[In]   Integrate[((1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(2 + 3*x)^(7/2),x]
```

```
[Out] (2*((Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(249 + 719*x + 506*x^2))/(2 + 3*
x)^(5/2) + 3*Sqrt[2]*(6*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]
], -33/2] + 5*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])
))/15
```

Maple [C] time = 0.028, size = 386, normalized size = 2.5

$$-\frac{2}{150\,x^2+15\,x-45}\left(135\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^2\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}+162\,\sqrt{2}EllipticE\left(\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((1-2*x)^(5/2)*(3+5*x)^(1/2)/(2+3*x)^(7/2),x)
```

```
[Out] -2/15*(135*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),
1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(
1-2*x)^(1/2)+162*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^
(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(
1/2)*(1-2*x)^(1/2)+180*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3
+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*
x)^(1/2)*(1-2*x)^(1/2)+216*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2
)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(
2+3*x)^(1/2)*(1-2*x)^(1/2)+60*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)
*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*
I*11^(1/2)*3^(1/2)*2^(1/2))+72*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2
)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2
*I*11^(1/2)*3^(1/2)*2^(1/2))-5060*x^4-7696*x^3-1691*x^2+1908*x+74
7)*(3+5*x)^(1/2)*(1-2*x)^(1/2)/(10*x^2+x-3)/(2+3*x)^(5/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}(-2\,x+1)^{\frac{5}{2}}}{(3\,x+2)^{\frac{7}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^(7/2),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^(7/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(4\,x^2-4\,x+1\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}}{\left(27\,x^3+54\,x^2+36\,x+8\right)\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^(7/2),x, algorithm="fricas")
```

```
[Out] integral((4*x^2 - 4*x + 1)*sqrt(5*x + 3)*sqrt(-2*x + 1)/((27*x^3
+ 54*x^2 + 36*x + 8)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**(1/2)/(2+3*x)**(7/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}(-2\,x+1)^{\frac{5}{2}}}{(3\,x+2)^{\frac{7}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^(7/2),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^(7/2), x)
```

3.2744 $\int \frac{(1-2x)^{5/2}\sqrt{3+5x}}{(2+3x)^{9/2}}\,dx$

Optimal. Leaf size=191

$$-\frac{2\sqrt{5x+3}(1-2x)^{5/2}}{21(3x+2)^{7/2}}+\frac{2\sqrt{5x+3}(1-2x)^{3/2}}{7(3x+2)^{5/2}}+\frac{36052\sqrt{5x+3}\sqrt{1-2x}}{1323\sqrt{3x+2}}+\frac{524\sqrt{5x+3}\sqrt{1-2x}}{189(3x+2)^{3/2}}-\frac{1048\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1323}-\frac{36052\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1323}$$

```
[Out] (-2*(1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(21*(2 + 3*x)^(7/2)) + (2*(1 -
 2*x)^(3/2)*Sqrt[3 + 5*x])/(7*(2 + 3*x)^(5/2)) + (524*Sqrt[1 - 2*
x]*Sqrt[3 + 5*x])/(189*(2 + 3*x)^(3/2)) + (36052*Sqrt[1 - 2*x]*Sq
rt[3 + 5*x])/(1323*Sqrt[2 + 3*x]) - (36052*Sqrt[11/3]*EllipticE[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1323 - (1048*Sqrt[11/3]*E
llipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1323
```

Rubi [A] time = 0.417101, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$-\frac{2\sqrt{5x+3}(1-2x)^{5/2}}{21(3x+2)^{7/2}}+\frac{2\sqrt{5x+3}(1-2x)^{3/2}}{7(3x+2)^{5/2}}+\frac{36052\sqrt{5x+3}\sqrt{1-2x}}{1323\sqrt{3x+2}}+\frac{524\sqrt{5x+3}\sqrt{1-2x}}{189(3x+2)^{3/2}}-\frac{1048\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1323}-\frac{36052\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1323}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(2 + 3*x)^(9/2),x]
```

```
[Out] (-2*(1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(21*(2 + 3*x)^(7/2)) + (2*(1 -
 2*x)^(3/2)*Sqrt[3 + 5*x])/(7*(2 + 3*x)^(5/2)) + (524*Sqrt[1 - 2*
x]*Sqrt[3 + 5*x])/(189*(2 + 3*x)^(3/2)) + (36052*Sqrt[1 - 2*x]*Sq
rt[3 + 5*x])/(1323*Sqrt[2 + 3*x]) - (36052*Sqrt[11/3]*EllipticE[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1323 - (1048*Sqrt[11/3]*E
llipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1323
```

Rubi in Sympy [A] time = 38.2245, size = 172, normalized size = 0.9

$$-\frac{2\left(-2x+1\right)^{\frac{5}{2}}\sqrt{5x+3}}{21\left(3x+2\right)^{\frac{7}{2}}}+\frac{2\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{7\left(3x+2\right)^{\frac{5}{2}}}+\frac{36052\sqrt{-2x+1}\sqrt{5x+3}}{1323\sqrt{3x+2}}+\frac{524\sqrt{-2x+1}\sqrt{5x+3}}{189\left(3x+2\right)^{\frac{3}{2}}}-\frac{36052\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{3969}-\frac{11528\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{46305}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(1/2)/(2+3*x)**(9/2),x)
```

```
[Out] -2*(-2*x + 1)**(5/2)*sqrt(5*x + 3)/(21*(3*x + 2)**(7/2)) + 2*(-2*
x + 1)**(3/2)*sqrt(5*x + 3)/(7*(3*x + 2)**(5/2)) + 36052*sqrt(-2*
x + 1)*sqrt(5*x + 3)/(1323*sqrt(3*x + 2)) + 524*sqrt(-2*x + 1)*sq
rt(5*x + 3)/(189*(3*x + 2)**(3/2)) - 36052*sqrt(33)*elliptic_e(as
in(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/3969 - 11528*sqrt(35)*ellip
tic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/46305
```

Mathematica [A] time = 0.350602, size = 106, normalized size = 0.55

$$\frac{4\left(\frac{3\sqrt{1-2x}\sqrt{5x+3}(486702x^3+988524x^2+671007x+151859)}{2(3x+2)^{7/2}}+\sqrt{2}\left(9013E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-4690F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{3}{}\right.\right.\right.}{3969}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(2 + 3*x)^(9/2),x]
```

```
[Out] (4*((3*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(151859 + 671007*x + 988524*x^
2 + 486702*x^3))/(2*(2 + 3*x)^(7/2)) + Sqrt[2]*(9013*EllipticE[Ar
cSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 4690*EllipticF[ArcSin[Sq
rt[2/11]*Sqrt[3 + 5*x]], -33/2])))/3969
```

Maple [C] time = 0.03, size = 505, normalized size = 2.6

$$\frac{2}{39690\,x^2+3969\,x-11907}\left(253260\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^3\sqrt{1-2\,x}\sqrt{3+5\,x}\sqrt{2+3\,x}-48670\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(1/2)/(2+3*x)^(9/2),x)
```

```
[Out] 2/3969*(253260*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1
/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*x)^(1/
2)*(2+3*x)^(1/2)-486702*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(
3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3
+5*x)^(1/2)*(2+3*x)^(1/2)+506520*2^(1/2)*EllipticF(1/11*11^(1/2)*
2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)
^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-973404*2^(1/2)*EllipticE(1/11*
11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^
2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+337680*2^(1/2)*Ellipt
icF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^
(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-648936*2^(1/2)
*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(
1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+75040*2
^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*1
1^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-144
208*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1
/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2)
)+14601060*x^5+31115826*x^4+18715464*x^3-2327925*x^2-5583486*x-13
66731)*(3+5*x)^(1/2)*(1-2*x)^(1/2)/(10*x^2+x-3)/(2+3*x)^(7/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}(-2\,x+1)^{\frac{5}{2}}}{(3\,x+2)^{\frac{9}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^(9/2),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^(9/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{(4\,x^2-4\,x+1)\,\sqrt{5\,x+3}\sqrt{-2\,x+1}}{(81\,x^4+216\,x^3+216\,x^2+96\,x+16)\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^(9/2),x, algorithm="fricas")
```

```
[Out] integral((4*x^2 - 4*x + 1)*sqrt(5*x + 3)*sqrt(-2*x + 1)/((81*x^4
+ 216*x^3 + 216*x^2 + 96*x + 16)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(5/2)*(3+5*x)**(1/2)/(2+3*x)**(9/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5x+3}(-2x+1)^{\frac{5}{2}}}{(3x+2)^{\frac{9}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^(9/2),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^(9/2), x)
```

3.2745 $\int \frac{(1-2x)^{5/2}\sqrt{3+5x}}{(2+3x)^{11/2}}\,dx$

Optimal. Leaf size=222

$$-\frac{2\sqrt{5x+3}(1-2x)^{5/2}}{27(3x+2)^{9/2}}+\frac{10\sqrt{5x+3}(1-2x)^{3/2}}{63(3x+2)^{7/2}}+\frac{7810384\sqrt{5x+3}\sqrt{1-2x}}{83349\sqrt{3x+2}}+\frac{112436\sqrt{5x+3}\sqrt{1-2x}}{11907(3x+2)^{3/2}}+\frac{832\sqrt{5x+3}\sqrt{1-2x}}{567(3x+2)^{5/2}}-\frac{234856\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{83349}-\frac{7810384\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{83349}$$

```
[Out] (-2*(1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(27*(2 + 3*x)^(9/2)) + (10*(1
- 2*x)^(3/2)*Sqrt[3 + 5*x])/(63*(2 + 3*x)^(7/2)) + (832*Sqrt[1 -
2*x]*Sqrt[3 + 5*x])/(567*(2 + 3*x)^(5/2)) + (112436*Sqrt[1 - 2*x]
*Sqrt[3 + 5*x])/(11907*(2 + 3*x)^(3/2)) + (7810384*Sqrt[1 - 2*x]*
Sqrt[3 + 5*x])/(83349*Sqrt[2 + 3*x]) - (7810384*Sqrt[11/3]*Ellipt
icE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/83349 - (234856*Sqrt
[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/83349
```

Rubi [A] time = 0.501484, antiderivative size = 222, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$-\frac{2\sqrt{5x+3}(1-2x)^{5/2}}{27(3x+2)^{9/2}}+\frac{10\sqrt{5x+3}(1-2x)^{3/2}}{63(3x+2)^{7/2}}+\frac{7810384\sqrt{5x+3}\sqrt{1-2x}}{83349\sqrt{3x+2}}+\frac{112436\sqrt{5x+3}\sqrt{1-2x}}{11907(3x+2)^{3/2}}+\frac{832\sqrt{5x+3}\sqrt{1-2x}}{567(3x+2)^{5/2}}-\frac{234856\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{83349}-\frac{7810384\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{83349}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(2 + 3*x)^(11/2),x]
```


```
[Out] (-2*(1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(27*(2 + 3*x)^(9/2)) + (10*(1
- 2*x)^(3/2)*Sqrt[3 + 5*x])/(63*(2 + 3*x)^(7/2)) + (832*Sqrt[1 -
2*x]*Sqrt[3 + 5*x])/(567*(2 + 3*x)^(5/2)) + (112436*Sqrt[1 - 2*x]
*Sqrt[3 + 5*x])/(11907*(2 + 3*x)^(3/2)) + (7810384*Sqrt[1 - 2*x]*
Sqrt[3 + 5*x])/(83349*Sqrt[2 + 3*x]) - (7810384*Sqrt[11/3]*Ellipt
icE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/83349 - (234856*Sqrt
[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/83349
```

Rubi in Sympy [A] time = 45.5849, size = 201, normalized size = 0.91

$$-\frac{2\left(-2x+1\right)^{\frac{5}{2}}\sqrt{5x+3}}{27\left(3x+2\right)^{\frac{9}{2}}}+\frac{10\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{63\left(3x+2\right)^{\frac{7}{2}}}+\frac{7810384\sqrt{-2x+1}\sqrt{5x+3}}{83349\sqrt{3x+2}}+\frac{112436\sqrt{-2x+1}\sqrt{5x+3}}{11907\left(3x+2\right)^{\frac{3}{2}}}+\frac{832\sqrt{-2x+1}\sqrt{5x+3}}{567\left(3x+2\right)^{\frac{5}{2}}}-\frac{7810384\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{250047}-\frac{234856\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{250047}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(1/2)/(2+3*x)**(11/2),x)
```

```
[Out] -2*(-2*x + 1)**(5/2)*sqrt(5*x + 3)/(27*(3*x + 2)**(9/2)) + 10*(-2
*x + 1)**(3/2)*sqrt(5*x + 3)/(63*(3*x + 2)**(7/2)) + 7810384*sqrt
```

```
(-2*x + 1)*sqrt(5*x + 3)/(83349*sqrt(3*x + 2)) + 112436*sqrt(-2*x
 + 1)*sqrt(5*x + 3)/(11907*(3*x + 2)**(3/2)) + 832*sqrt(-2*x + 1)
*sqrt(5*x + 3)/(567*(3*x + 2)**(5/2)) - 7810384*sqrt(33)*elliptic
_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/250047 - 234856*sqrt(3
3)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/250047
```

Mathematica [A] time = 0.378305, size = 111, normalized size = 0.5

$$\frac{4\left(\frac{3\sqrt{1-2x}\sqrt{5x+3}(316320552x^4+854146674x^3+865270206x^2+389804925x+65886031)}{2(3x+2)^{9/2}}+\sqrt{2}\left(1952596E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-983815F\right.\right.}{250047}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(2 + 3*x)^(11/2),x]
```

```
[Out] (4*((3*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(65886031 + 389804925*x + 8652
70206*x^2 + 854146674*x^3 + 316320552*x^4))/(2*(2 + 3*x)^(9/2)) +
 Sqrt[2]*(1952596*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33
/2] - 983815*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]))
)/250047
```

Maple [C] time = 0.03, size = 624, normalized size = 2.8

$$\frac{2}{2500470\,x^2+250047\,x-750141}\left(159378030\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^4\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(1/2)/(2+3*x)^(11/2),x)
```

```
[Out] 2/250047*(159378030*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*
x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^4*(3+5*x)^(1/2)*(2+3*x
)^(1/2)*(1-2*x)^(1/2)-316320552*2^(1/2)*EllipticE(1/11*11^(1/2)*2
^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^4*(3+5*x)^
(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+425008080*2^(1/2)*EllipticF(1/1
1*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*
x^3*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)-843521472*2^(1/2)*E
llipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/
2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)+4250080
80*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11
^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(
1/2)-843521472*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1
/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/
2)*(1-2*x)^(1/2)+188892480*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2
)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(
2+3*x)^(1/2)*(1-2*x)^(1/2)-374898432*2^(1/2)*EllipticE(1/11*11^(1
/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*
x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+9489616560*x^6+31482080*2^(1
/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(
1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-624830
72*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/
11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))
+26573361876*x^5+25673661234*x^4+6602638302*x^3-4641436149*x^2-33
10586232*x-592974279)*(3+5*x)^(1/2)*(1-2*x)^(1/2)/(10*x^2+x-3)/(2
+3*x)^(9/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}(-2\,x+1)^{\frac{5}{2}}}{(3\,x+2)^{\frac{11}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^(11/2),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^(11/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(4x^2-4x+1\right)\sqrt{5x+3}\sqrt{-2x+1}}{(243x^5+810x^4+1080x^3+720x^2+240x+32)\sqrt{3x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^(11/2),x, algorithm="fricas")
```

```
[Out] integral((4*x^2 - 4*x + 1)*sqrt(5*x + 3)*sqrt(-2*x + 1)/((243*x^5
 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**(1/2)/(2+3*x)**(11/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5x+3}(-2x+1)^{\frac{5}{2}}}{(3x+2)^{\frac{11}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^(11/2),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^(11/2), x)
```

3.2746 $\int \frac{(1-2x)^{5/2}\sqrt{3+5x}}{(2+3x)^{13/2}}\,dx$

Optimal. Leaf size=249

$$-\frac{2\sqrt{5x+3}(1-2x)^{5/2}}{33(3x+2)^{11/2}}+\frac{10\sqrt{5x+3}(1-2x)^{3/2}}{99(3x+2)^{9/2}}+\frac{247408648\sqrt{5x+3}\sqrt{1-2x}}{713097\sqrt{3x+2}}+\frac{3560432\sqrt{5x+3}\sqrt{1-2x}}{101871(3x+2)^{3/2}}+\frac{76492\sqrt{5x+3}\sqrt{1-2x}}{14553(3x+2)^{5/2}}+\frac{1900\sqrt{5x+3}\sqrt{1-2x}}{2079(3x+2)^{7/2}}-\frac{7442032F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{64827\sqrt{33}}-\frac{247408648E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{64827\sqrt{33}}$$

```
[Out] (-2*(1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(33*(2 + 3*x)^(11/2)) + (10*(1
 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(99*(2 + 3*x)^(9/2)) + (1900*Sqrt[1
- 2*x]*Sqrt[3 + 5*x])/(2079*(2 + 3*x)^(7/2)) + (76492*Sqrt[1 - 2*
x]*Sqrt[3 + 5*x])/(14553*(2 + 3*x)^(5/2)) + (3560432*Sqrt[1 - 2*x
]*Sqrt[3 + 5*x])/(101871*(2 + 3*x)^(3/2)) + (247408648*Sqrt[1 - 2
*x]*Sqrt[3 + 5*x])/(713097*Sqrt[2 + 3*x]) - (247408648*EllipticE[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(64827*Sqrt[33]) - (7442
032*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(64827*Sqr
t[33])
```

Rubi [A] time = 0.591366, antiderivative size = 249, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.214$

$$-\frac{2\sqrt{5x+3}(1-2x)^{5/2}}{33(3x+2)^{11/2}}+\frac{10\sqrt{5x+3}(1-2x)^{3/2}}{99(3x+2)^{9/2}}+\frac{247408648\sqrt{5x+3}\sqrt{1-2x}}{713097\sqrt{3x+2}}+\frac{3560432\sqrt{5x+3}\sqrt{1-2x}}{101871(3x+2)^{3/2}}+\frac{76492\sqrt{5x+3}\sqrt{1-2x}}{14553(3x+2)^{5/2}}+\frac{1900\sqrt{5x+3}\sqrt{1-2x}}{2079(3x+2)^{7/2}}-\frac{7442032F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{64827\sqrt{33}}-\frac{247408648E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{64827\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(2 + 3*x)^(13/2),x]
```

```
[Out] (-2*(1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(33*(2 + 3*x)^(11/2)) + (10*(1
 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(99*(2 + 3*x)^(9/2)) + (1900*Sqrt[1
- 2*x]*Sqrt[3 + 5*x])/(2079*(2 + 3*x)^(7/2)) + (76492*Sqrt[1 - 2*
x]*Sqrt[3 + 5*x])/(14553*(2 + 3*x)^(5/2)) + (3560432*Sqrt[1 - 2*x
]*Sqrt[3 + 5*x])/(101871*(2 + 3*x)^(3/2)) + (247408648*Sqrt[1 - 2
*x]*Sqrt[3 + 5*x])/(713097*Sqrt[2 + 3*x]) - (247408648*EllipticE[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(64827*Sqrt[33]) - (7442
032*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(64827*Sqr
t[33])
```

Rubi in Sympy [A] time = 53.8901, size = 230, normalized size = 0.92

$$-\frac{2\left(-2x+1\right)^{\frac{5}{2}}\sqrt{5x+3}}{33\left(3x+2\right)^{\frac{11}{2}}}+\frac{10\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{99\left(3x+2\right)^{\frac{9}{2}}}+\frac{247408648\sqrt{-2x+1}\sqrt{5x+3}}{713097\sqrt{3x+2}}+\frac{3560432\sqrt{-2x+1}\sqrt{5x+3}}{101871\left(3x+2\right)^{\frac{3}{2}}}+\frac{76492\sqrt{-2x+1}\sqrt{5x+3}}{14553\left(3x+2\right)^{\frac{5}{2}}}+\frac{1900\sqrt{-2x+1}\sqrt{5x+3}}{2079\left(3x+2\right)^{\frac{7}{2}}}-\frac{247408648\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{2139291}-\frac{7442032\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{2268945}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(1/2)/(2+3*x)**(13/2),x)
```

```
[Out] -2*(-2*x + 1)**(5/2)*sqrt(5*x + 3)/(33*(3*x + 2)**(11/2)) + 10*(-
2*x + 1)**(3/2)*sqrt(5*x + 3)/(99*(3*x + 2)**(9/2)) + 247408648*s
qrt(-2*x + 1)*sqrt(5*x + 3)/(713097*sqrt(3*x + 2)) + 3560432*sqrt
(-2*x + 1)*sqrt(5*x + 3)/(101871*(3*x + 2)**(3/2)) + 76492*sqrt(-
2*x + 1)*sqrt(5*x + 3)/(14553*(3*x + 2)**(5/2)) + 1900*sqrt(-2*x
+ 1)*sqrt(5*x + 3)/(2079*(3*x + 2)**(7/2)) - 247408648*sqrt(33)*e
lliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/2139291 - 74420
32*sqrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/2
268945
```

Mathematica [A] time = 0.44067, size = 115, normalized size = 0.46

$$\frac{\frac{24\sqrt{1-2x}\sqrt{5x+3}\left(30060150732x^5+101209884912x^4+136342955970x^3+91862628912x^2+30956769477x+4174268813\right)}{(3x+2)^{11/2}}+32\sqrt{2}\left(30926081E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5\right.\right.\right.}{8557164}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*Sqrt[3 + 5*x])/(2 + 3*x)^(13/2),x]
```

```
[Out] ((24*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(4174268813 + 30956769477*x + 91
862628912*x^2 + 136342955970*x^3 + 101209884912*x^4 + 30060150732
*x^5))/(2 + 3*x)^(11/2) + 32*Sqrt[2]*(30926081*EllipticE[ArcSin[S
qrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 15576890*EllipticF[ArcSin[Sqrt
[2/11]*Sqrt[3 + 5*x]], -33/2]))/8557164
```

Maple [C] time = 0.03, size = 743, normalized size = 3.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(1/2)/(2+3*x)^(13/2),x)
```

```
[Out] 2/2139291*(15140737080*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3
+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^5*(3+5*x)^(1/2)*(2+
3*x)^(1/2)*(1-2*x)^(1/2)-30060150732*2^(1/2)*EllipticE(1/11*11^(1
/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^5*(3+
5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+50469123600*2^(1/2)*Ellipt
icF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^
(1/2))*x^4*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-100200502440
*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(
1/2)*3^(1/2)*2^(1/2))*x^4*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/
2)+67292164800*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1
/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*x)^(1/
2)*(2+3*x)^(1/2)-133600669920*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(
1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1
/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)+44861443200*2^(1/2)*EllipticF(1/1
1*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*
x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-89067113280*2^(1/2)
*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(
1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+90180
4521960*x^7+14953814400*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(
3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3
*x)^(1/2)*(1-2*x)^(1/2)-29689037760*2^(1/2)*EllipticE(1/11*11^(1/
2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x
)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+3126476999556*x^6+1993841920*
2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*
11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-39
58538368*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Ellipt
icE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^
(1/2))+4123376977248*x^5+2254018771062*x^4-22795632684*x^3-608665
```

```
287387*x^2-266088118854*x-37568419317)*(3+5*x)^(1/2)*(1-2*x)^(1/2
)/(10*x^2+x-3)/(2+3*x)^(11/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}(-2\,x+1)^{\frac{5}{2}}}{(3\,x+2)^{\frac{13}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^(13/2),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^(13/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(4\,x^2-4\,x+1\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}}{(729\,x^6+2916\,x^5+4860\,x^4+4320\,x^3+2160\,x^2+576\,x+64)\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^(13/2),x, algorithm="fricas")
```

```
[Out] integral((4*x^2 - 4*x + 1)*sqrt(5*x + 3)*sqrt(-2*x + 1)/((729*x^6
 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64)*sqrt(3
*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(5/2)*(3+5*x)**(1/2)/(2+3*x)**(13/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}(-2\,x+1)^{\frac{5}{2}}}{(3\,x+2)^{\frac{13}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^(13/2),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)*(-2*x + 1)^(5/2)/(3*x + 2)^(13/2), x)
```

3.2747 $\int (1-2x)^{5/2}(2+3x)^{5/2}(3+5x)^{3/2}\,dx$

Optimal. Leaf size=280

$$\frac{2}{75}(1-2x)^{5/2}(3x+2)^{5/2}(5x+3)^{5/2}+\frac{62(1-2x)^{3/2}(3x+2)^{5/2}(5x+3)^{5/2}}{2925}+\frac{3698\sqrt{1-2x}(3x+2)^{5/2}(5x+3)^{5/2}}{482625}+\frac{142391\sqrt{1-2x}(3x+2)^{3/2}(5x+3)^{5/2}}{7239375}-\frac{569519\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}}{28153125}-\frac{400516993\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}}{2533781250}-\frac{13267820528\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{11402015625}-\frac{13267820528F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{5182734375\sqrt{33}}-\frac{1764163292393E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{20730937500\sqrt{33}}$$

```
[Out] (-13267820528*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/11402015
625 - (400516993*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/253
3781250 - (569519*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/28
153125 + (142391*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(5/2))/7
239375 + (3698*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)*(3 + 5*x)^(5/2))/482
625 + (62*(1 - 2*x)^(3/2)*(2 + 3*x)^(5/2)*(3 + 5*x)^(5/2))/2925 +
 (2*(1 - 2*x)^(5/2)*(2 + 3*x)^(5/2)*(3 + 5*x)^(5/2))/75 - (176416
3292393*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(20730
937500*Sqrt[33]) - (13267820528*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1
 - 2*x]], 35/33])/(5182734375*Sqrt[33])
```

Rubi [A] time = 0.644864, antiderivative size = 280, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{2}{75}(1-2x)^{5/2}(3x+2)^{5/2}(5x+3)^{5/2}+\frac{62(1-2x)^{3/2}(3x+2)^{5/2}(5x+3)^{5/2}}{2925}+\frac{3698\sqrt{1-2x}(3x+2)^{5/2}(5x+3)^{5/2}}{482625}+\frac{142391\sqrt{1-2x}(3x+2)^{3/2}(5x+3)^{5/2}}{7239375}-\frac{569519\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}}{28153125}-\frac{400516993\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}}{2533781250}-\frac{13267820528\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{11402015625}-\frac{13267820528F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{5182734375\sqrt{33}}-\frac{1764163292393E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{20730937500\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)*(2 + 3*x)^(5/2)*(3 + 5*x)^(3/2),x]
```


```
[Out] (-13267820528*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/11402015
625 - (400516993*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/253
3781250 - (569519*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/28
153125 + (142391*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(5/2))/7
239375 + (3698*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)*(3 + 5*x)^(5/2))/482
625 + (62*(1 - 2*x)^(3/2)*(2 + 3*x)^(5/2)*(3 + 5*x)^(5/2))/2925 +
 (2*(1 - 2*x)^(5/2)*(2 + 3*x)^(5/2)*(3 + 5*x)^(5/2))/75 - (176416
3292393*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(20730
937500*Sqrt[33]) - (13267820528*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1
 - 2*x]], 35/33])/(5182734375*Sqrt[33])
```

Rubi in Sympy [A] time = 62.4838, size = 258, normalized size = 0.92

$$\frac{2(-2x+1)^{\frac{5}{2}}(3x+2)^{\frac{7}{2}}(5x+3)^{\frac{3}{2}}}{45}-\frac{181(-2x+1)^{\frac{5}{2}}(3x+2)^{\frac{7}{2}}\sqrt{5x+3}}{1755}+\frac{1594(-2x+1)^{\frac{3}{2}}(3x+2)^{\frac{7}{2}}\sqrt{5x+3}}{10725}+\frac{298244\sqrt{-2x+1}(3x+2)^{\frac{7}{2}}\sqrt{5x+3}}{2606175}-\frac{5068747\sqrt{-2x+1}(3x+2)^{\frac{5}{2}}\sqrt{5x+3}}{91216125}-\frac{1089070189\sqrt{-2x+1}(3x+2)^{\frac{3}{2}}\sqrt{5x+3}}{4560806250}-\frac{25385346787\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{22804031250}-\frac{1764163292393\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{684120937500}-\frac{13267820528\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{181395703125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**(5/2)*(3+5*x)**(3/2),x)
```

```
[Out] 2*(-2*x + 1)**(5/2)*(3*x + 2)**(7/2)*(5*x + 3)**(3/2)/45 - 181*(-
2*x + 1)**(5/2)*(3*x + 2)**(7/2)*sqrt(5*x + 3)/1755 + 1594*(-2*x
+ 1)**(3/2)*(3*x + 2)**(7/2)*sqrt(5*x + 3)/10725 + 298244*sqrt(-2
*x + 1)*(3*x + 2)**(7/2)*sqrt(5*x + 3)/2606175 - 5068747*sqrt(-2*
x + 1)*(3*x + 2)**(5/2)*sqrt(5*x + 3)/91216125 - 1089070189*sqrt(
-2*x + 1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/4560806250 - 25385346787
*sqrt(-2*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/22804031250 - 1764163
292393*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33
)/684120937500 - 13267820528*sqrt(35)*elliptic_f(asin(sqrt(55)*sq
rt(-2*x + 1)/11), 33/35)/181395703125
```

Mathematica [A] time = 0.349957, size = 119, normalized size = 0.42

$$\frac{30\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}\,(547296750000x^6+621672975000x^5-336683182500x^4-528977216250x^3+48836706750x^2+}{6}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)*(2 + 3*x)^(5/2)*(3 + 5*x)^(3/2),x]
```

```
[Out] (30*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(12155574323 + 1734
84591165*x + 48836706750*x^2 - 528977216250*x^3 - 336683182500*x^
4 + 621672975000*x^5 + 547296750000*x^6) + Sqrt[2]*(1764163292393
*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 88848713754
5*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]))/6841209375
00
```

Maple [C] time = 0.017, size = 194, normalized size = 0.7

$$\frac{1}{20523628125000\,x^3+15734781562500\,x^2-4788846562500\,x-4104725625000}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\,\big(4925670750000$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^(5/2)*(3+5*x)^(3/2),x)
```

```
[Out] 1/684120937500*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(4925670
75000000*x^9+937140435000000*x^8+11007171000000*x^7-9374556303000
00*x^6+888487137545*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(
1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)
*3^(1/2)*2^(1/2))-1764163292393*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/
2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/
```

```
2*I*11^(1/2)*3^(1/2)*2^(1/2))-362238910312500*x^5+361521647968500
*x^4+215604575302050*x^3-36835025076780*x^2-33779897017530*x-2188
003378140)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (5x+3)^{\frac{3}{2}}(3x+2)^{\frac{5}{2}}(-2x+1)^{\frac{5}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(3*x + 2)^(5/2)*(-2*x + 1)^(5/2),x, algorithm="maxima"
```

```
[Out] integrate((5*x + 3)^(3/2)*(3*x + 2)^(5/2)*(-2*x + 1)^(5/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\operatorname{integral}\left((180x^5+168x^4-79x^3-89x^2+8x+12)\sqrt{5x+3}\sqrt{3x+2}\sqrt{-2x+1},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(3*x + 2)^(5/2)*(-2*x + 1)^(5/2),x, algorithm="fricas"
```

```
[Out] integral((180*x^5 + 168*x^4 - 79*x^3 - 89*x^2 + 8*x + 12)*sqrt(5*
x + 3)*sqrt(3*x + 2)*sqrt(-2*x + 1), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)**(5/2)*(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.484079, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(3*x + 2)^(5/2)*(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] Done
```

3.2748 $\int (1-2x)^{5/2}(2+3x)^{3/2}(3+5x)^{3/2}\,dx$

Optimal. Leaf size=249

$$\frac{2}{65}(1-2x)^{5/2}(3x+2)^{3/2}(5x+3)^{5/2}+\frac{106(1-2x)^{3/2}(3x+2)^{3/2}(5x+3)^{5/2}}{3575}+\frac{8318\sqrt{1-2x}(3x+2)^{3/2}(5x+3)^{5/2}}{482625}+\frac{25603\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}}{1876875}-\frac{6794792\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}}{84459375}-\frac{923943703\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{1520268750}-\frac{923943703F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{691031250\sqrt{33}}-\frac{30660308017E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{691031250\sqrt{33}}$$

```
[Out] (-923943703*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/1520268750
 - (6794792*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/84459375
 + (25603*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/1876875 +
(8318*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(5/2))/482625 + (10
6*(1 - 2*x)^(3/2)*(2 + 3*x)^(3/2)*(3 + 5*x)^(5/2))/3575 + (2*(1 -
 2*x)^(5/2)*(2 + 3*x)^(3/2)*(3 + 5*x)^(5/2))/65 - (30660308017*El
lipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(691031250*Sqrt[
33]) - (923943703*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/3
3])/(691031250*Sqrt[33])
```

Rubi [A] time = 0.56147, antiderivative size = 249, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{2}{65}(1-2x)^{5/2}(3x+2)^{3/2}(5x+3)^{5/2}+\frac{106(1-2x)^{3/2}(3x+2)^{3/2}(5x+3)^{5/2}}{3575}+\frac{8318\sqrt{1-2x}(3x+2)^{3/2}(5x+3)^{5/2}}{482625}+\frac{25603\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}}{1876875}-\frac{6794792\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}}{84459375}-\frac{923943703\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{1520268750}-\frac{923943703F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{691031250\sqrt{33}}-\frac{30660308017E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{691031250\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2),x]
```


```
[Out] (-923943703*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/1520268750
 - (6794792*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/84459375
 + (25603*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/1876875 +
(8318*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(5/2))/482625 + (10
6*(1 - 2*x)^(3/2)*(2 + 3*x)^(3/2)*(3 + 5*x)^(5/2))/3575 + (2*(1 -
 2*x)^(5/2)*(2 + 3*x)^(3/2)*(3 + 5*x)^(5/2))/65 - (30660308017*El
lipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(691031250*Sqrt[
33]) - (923943703*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/3
3])/(691031250*Sqrt[33])
```

Rubi in Sympy [A] time = 54.268, size = 230, normalized size = 0.92

$$\frac{2\left(-2x+1\right)^{\frac{5}{2}}\left(3x+2\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{3}{2}}}{39}-\frac{181\left(-2x+1\right)^{\frac{5}{2}}\left(3x+2\right)^{\frac{5}{2}}\sqrt{5x+3}}{1287}+\frac{10496\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{\frac{5}{2}}\sqrt{5x+3}}{57915}+\frac{1087234\sqrt{-2x+1}\left(3x+2\right)^{\frac{5}{2}}\sqrt{5x+3}}{6081075}-\frac{18399116\sqrt{-2x+1}\left(3x+2\right)^{\frac{3}{2}}\sqrt{5x+3}}{152026875}-\frac{880870681\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{1520268750}-\frac{30660308017\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{22804031250}-\frac{923943703\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{24186093750}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**(3/2)*(3+5*x)**(3/2),x)
```

```
[Out] 2*(-2*x + 1)**(5/2)*(3*x + 2)**(5/2)*(5*x + 3)**(3/2)/39 - 181*(-
2*x + 1)**(5/2)*(3*x + 2)**(5/2)*sqrt(5*x + 3)/1287 + 10496*(-2*x
 + 1)**(3/2)*(3*x + 2)**(5/2)*sqrt(5*x + 3)/57915 + 1087234*sqrt(
-2*x + 1)*(3*x + 2)**(5/2)*sqrt(5*x + 3)/6081075 - 18399116*sqrt(
-2*x + 1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/152026875 - 880870681*sq
rt(-2*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/1520268750 - 30660308017
*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/2280
4031250 - 923943703*sqrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x +
 1)/11), 33/35)/24186093750
```

Mathematica [A] time = 0.398959, size = 112, normalized size = 0.45

$$\frac{15\sqrt{2-4x}\sqrt{3x+2}\sqrt{5x+3}\left(14033250000x^5+5400675000x^4-13684072500x^3-3707642250x^2+5290733520x+10207859\right.}{22804031250\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2),x]
```

```
[Out] (15*Sqrt[2 - 4*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(1020785999 + 52907
33520*x - 3707642250*x^2 - 13684072500*x^3 + 5400675000*x^4 + 140
33250000*x^5) + 61320616034*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 +
5*x]], -33/2] - 30830473835*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 +
5*x]], -33/2])/(22804031250*Sqrt[2])
```

Maple [C] time = 0.016, size = 189, normalized size = 0.8

$$\frac{1}{1368241875000\,x^3+1048985437500\,x^2-319256437500\,x-273648375000}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(12629925000000\,x^8\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^(3/2)*(3+5*x)^(3/2),x)
```

```
[Out] 1/45608062500*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(12629925
000000*x^8+14543550000000*x^7-11536182000000*x^6+30830473835*2^(1
/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(
1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-613206
16034*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE
(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/
2))-16439014800000*x^5+4104920740500*x^4+7811051450400*x^3+260663
905110*x^2-1166697093390*x-183741479820)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (5\,x+3)^{\frac{3}{2}}(3\,x+2)^{\frac{3}{2}}(-2\,x+1)^{\frac{5}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)^(3/2)*(-2*x + 1)^(5/2),x, algorithm="maxima"
```

```
[Out] integrate((5*x + 3)^(3/2)*(3*x + 2)^(3/2)*(-2*x + 1)^(5/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\left(60\,x^4+16\,x^3-37\,x^2-5\,x+6\right)\sqrt{5\,x+3}\sqrt{3\,x+2}\sqrt{-2\,x+1},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(3*x + 2)^(3/2)*(-2*x + 1)^(5/2),x, algorithm="fricas"
```

```
[Out] integral((60*x^4 + 16*x^3 - 37*x^2 - 5*x + 6)*sqrt(5*x + 3)*sqrt(
3*x + 2)*sqrt(-2*x + 1), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)**(3/2)*(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (5\,x+3)^{\frac{3}{2}}(3\,x+2)^{\frac{3}{2}}(-2\,x+1)^{\frac{5}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(3*x + 2)^(3/2)*(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(3/2)*(3*x + 2)^(3/2)*(-2*x + 1)^(5/2), x)
```

3.2749 $\int (1-2x)^{5/2}\sqrt{2+3x}(3+5x)^{3/2}\,dx$

Optimal. Leaf size=218

$$\frac{2}{55}(1-2x)^{5/2}\sqrt{3x+2}(5x+3)^{5/2}+\frac{326(1-2x)^{3/2}\sqrt{3x+2}(5x+3)^{5/2}}{7425}+\frac{30362\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}}{779625}-\frac{78797\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}}{3898125}-\frac{12996374\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{35083125}-\frac{12996374F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{15946875\sqrt{33}}-\frac{829177897E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{31893750\sqrt{33}}$$

```
[Out] (-12996374*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/35083125 -
(78797*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/3898125 + (30
362*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/779625 + (326*(1
 - 2*x)^(3/2)*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/7425 + (2*(1 - 2*x)^
(5/2)*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/55 - (829177897*EllipticE[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(31893750*Sqrt[33]) - (129
96374*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(1594687
5*Sqrt[33])
```

Rubi [A] time = 0.48088, antiderivative size = 218, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{2}{55}(1-2x)^{5/2}\sqrt{3x+2}(5x+3)^{5/2}+\frac{326(1-2x)^{3/2}\sqrt{3x+2}(5x+3)^{5/2}}{7425}+\frac{30362\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}}{779625}-\frac{78797\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}}{3898125}-\frac{12996374\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{35083125}-\frac{12996374F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{15946875\sqrt{33}}-\frac{829177897E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{31893750\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2),x]
```


```
[Out] (-12996374*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/35083125 -
(78797*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/3898125 + (30
362*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/779625 + (326*(1
 - 2*x)^(3/2)*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/7425 + (2*(1 - 2*x)^
(5/2)*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/55 - (829177897*EllipticE[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(31893750*Sqrt[33]) - (129
96374*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(1594687
5*Sqrt[33])
```

Rubi in Sympy [A] time = 46.9914, size = 201, normalized size = 0.92

$$\frac{2(-2x+1)^{\frac{5}{2}}(3x+2)^{\frac{3}{2}}(5x+3)^{\frac{3}{2}}}{33}-\frac{181(-2x+1)^{\frac{5}{2}}(3x+2)^{\frac{3}{2}}\sqrt{5x+3}}{891}+\frac{6646(-2x+1)^{\frac{3}{2}}(3x+2)^{\frac{3}{2}}\sqrt{5x+3}}{31185}+\frac{683248\sqrt{-2x+1}(3x+2)^{\frac{3}{2}}\sqrt{5x+3}}{2338875}-\frac{11437073\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{35083125}-\frac{829177897\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{1052493750}-\frac{12996374\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{558140625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(3/2)*(2+3*x)**(1/2),x)
```

```
[Out] 2*(-2*x + 1)**(5/2)*(3*x + 2)**(3/2)*(5*x + 3)**(3/2)/33 - 181*(-
2*x + 1)**(5/2)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/891 + 6646*(-2*x +
 1)**(3/2)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/31185 + 683248*sqrt(-2*
x + 1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/2338875 - 11437073*sqrt(-2*
x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/35083125 - 829177897*sqrt(33)*
elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/1052493750 - 1
2996374*sqrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/
35)/558140625
```

Mathematica [A] time = 0.419843, size = 107, normalized size = 0.49

$$\frac{15\sqrt{2-4x}\sqrt{3x+2}\sqrt{5x+3}\left(127575000x^4-51502500x^3-95024250x^2+48272535x+22517617\right)-400297555F\left(\sin^{-1}\left(\sqrt{\right.\right.}{526246875\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]   Integrate[(1 - 2*x)^(5/2)*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2),x]
```

```
[Out] (15*Sqrt[2 - 4*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(22517617 + 4827253
5*x - 95024250*x^2 - 51502500*x^3 + 127575000*x^4) + 829177897*El
lipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 400297555*Elli
pticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/(526246875*Sqrt[2
])
```

Maple [C] time = 0.016, size = 184, normalized size = 0.8

$$\frac{1}{31574812500\,x^3+24207356250\,x^2-7367456250\,x-6314962500}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(114817500000\,x^7+416745000\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((1-2*x)^(5/2)*(3+5*x)^(3/2)*(2+3*x)^(1/2),x)
```

```
[Out] 1/1052493750*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(114817500
000*x^7+41674500000*x^6+400297555*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(
1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),
1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-829177897*2^(1/2)*(3+5*x)^(1/2)*(
2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x
)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-147849300000*x^5-34269426
000*x^4+82799446950*x^3+22504288380*x^2-13417755870*x-4053171060)
/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (5x+3)^{\frac{3}{2}}\sqrt{3x+2}(-2x+1)^{\frac{5}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*sqrt(3*x + 2)*(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] integrate((5*x + 3)^(3/2)*sqrt(3*x + 2)*(-2*x + 1)^(5/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\left(20x^3-8x^2-7x+3\right)\sqrt{5x+3}\sqrt{3x+2}\sqrt{-2x+1},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*sqrt(3*x + 2)*(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] integral((20*x^3 - 8*x^2 - 7*x + 3)*sqrt(5*x + 3)*sqrt(3*x + 2)*s
qrt(-2*x + 1), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**(3/2)*(2+3*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (5x+3)^{\frac{3}{2}}\sqrt{3x+2}(-2x+1)^{\frac{5}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*sqrt(3*x + 2)*(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(3/2)*sqrt(3*x + 2)*(-2*x + 1)^(5/2), x)
```

3.2750 $\int \frac{(1-2x)^{5/2}(3+5x)^{3/2}}{\sqrt{2+3x}}\,dx$

Optimal. Leaf size=191

$$\frac{2}{27}\sqrt{3x+2}(5x+3)^{3/2}(1-2x)^{5/2}+\frac{362\sqrt{3x+2}(5x+3)^{3/2}(1-2x)^{3/2}}{2835}+\frac{14318\sqrt{3x+2}(5x+3)^{3/2}\sqrt{1-2x}}{70875}-\frac{429479\sqrt{3x+2}\sqrt{5x+3}\sqrt{1-2x}}{637875}-\frac{429479\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3189375}-\frac{4457606\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3189375}$$

```
[Out] (-429479*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/637875 + (143
18*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/70875 + (362*(1 -
 2*x)^(3/2)*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/2835 + (2*(1 - 2*x)^(5
/2)*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/27 - (4457606*Sqrt[11/3]*Ellip
ticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3189375 - (429479*S
qrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3189
375
```

Rubi [A] time = 0.395649, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.179$

$$\frac{2}{27}\sqrt{3x+2}(5x+3)^{3/2}(1-2x)^{5/2}+\frac{362\sqrt{3x+2}(5x+3)^{3/2}(1-2x)^{3/2}}{2835}+\frac{14318\sqrt{3x+2}(5x+3)^{3/2}\sqrt{1-2x}}{70875}-\frac{429479\sqrt{3x+2}\sqrt{5x+3}\sqrt{1-2x}}{637875}-\frac{429479\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3189375}-\frac{4457606\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3189375}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/Sqrt[2 + 3*x],x]
```


```
[Out] (-429479*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/637875 + (143
18*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/70875 + (362*(1 -
 2*x)^(3/2)*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/2835 + (2*(1 - 2*x)^(5
/2)*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/27 - (4457606*Sqrt[11/3]*Ellip
ticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3189375 - (429479*S
qrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3189
375
```

Rubi in Sympy [A] time = 39.4964, size = 172, normalized size = 0.9

$$\frac{2\left(-2x+1\right)^{\frac{5}{2}}\sqrt{3x+2}\left(5x+3\right)^{\frac{3}{2}}}{27}-\frac{181\left(-2x+1\right)^{\frac{5}{2}}\sqrt{3x+2}\sqrt{5x+3}}{567}+\frac{932\left(-2x+1\right)^{\frac{3}{2}}\sqrt{3x+2}\sqrt{5x+3}}{4725}+\frac{279262\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{637875}-\frac{4457606\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{9568125}-\frac{429479\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{9568125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(3/2)/(2+3*x)**(1/2),x)
```

```
[Out] 2*(-2*x + 1)**(5/2)*sqrt(3*x + 2)*(5*x + 3)**(3/2)/27 - 181*(-2*x
 + 1)**(5/2)*sqrt(3*x + 2)*sqrt(5*x + 3)/567 + 932*(-2*x + 1)**(3
/2)*sqrt(3*x + 2)*sqrt(5*x + 3)/4725 + 279262*sqrt(-2*x + 1)*sqrt
```

```
(3*x + 2)*sqrt(5*x + 3)/637875 - 4457606*sqrt(33)*elliptic_e(asin
(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/9568125 - 429479*sqrt(33)*ell
iptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/9568125
```

Mathematica [A] time = 0.246345, size = 102, normalized size = 0.53

$$\frac{15\sqrt{2-4x}\sqrt{3x+2}\sqrt{5x+3}\left(945000x^3-1192500x^2+232110x+343207\right)+5257595F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+89152}{9568125\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/Sqrt[2 + 3*x],x]
```

```
[Out] (15*Sqrt[2 - 4*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(343207 + 232110*x
- 1192500*x^2 + 945000*x^3) + 8915212*EllipticE[ArcSin[Sqrt[2/11]
*Sqrt[3 + 5*x]], -33/2] + 5257595*EllipticF[ArcSin[Sqrt[2/11]*Sqr
t[3 + 5*x]], -33/2])/(9568125*Sqrt[2])
```

Maple [C] time = 0.017, size = 179, normalized size = 0.9

$$-\frac{1}{574087500\,x^3+440133750\,x^2-133953750\,x-114817500}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(-850500000\,x^6+5257595\,\sqrt{2}\sqrt{3+5}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(3/2)/(2+3*x)^(1/2),x)
```

```
[Out] -1/19136250*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(-850500000
*x^6+5257595*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*El
lipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2
)*2^(1/2))+8915212*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1
/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*
3^(1/2)*2^(1/2))+421200000*x^5+812376000*x^4-549367200*x^3-402719
730*x^2+113853270*x+61777260)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{3}{2}}(-2\,x+1)^{\frac{5}{2}}}{\sqrt{3\,x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/sqrt(3*x + 2),x, algorithm="maxima")
```

```
[Out] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/sqrt(3*x + 2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(20\,x^3-8\,x^2-7\,x+3\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}}{\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/sqrt(3*x + 2),x, algorithm="fricas")
```

```
[Out] integral((20*x^3 - 8*x^2 - 7*x + 3)*sqrt(5*x + 3)*sqrt(-2*x + 1)/
sqrt(3*x + 2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**(3/2)/(2+3*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{3}{2}}(-2x+1)^{\frac{5}{2}}}{\sqrt{3x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/sqrt(3*x + 2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/sqrt(3*x + 2), x)
```

3.2751 $\int \frac{(1-2x)^{5/2}(3+5x)^{3/2}}{(2+3x)^{3/2}}\,dx$

Optimal. Leaf size=191

$$-\frac{2(5x+3)^{3/2}(1-2x)^{5/2}}{3\sqrt{3x+2}}$$

$$-\frac{32}{63}\sqrt{3x+2}(5x+3)^{3/2}(1-2x)^{3/2}-\frac{2108\sqrt{3x+2}(5x+3)^{3/2}\sqrt{1-2x}}{1575}+\frac{124724\sqrt{3x+2}\sqrt{5x+3}\sqrt{1-2x}}{14175}+\frac{124724\sqrt{\frac{11}{3}}F\left(\sin^{-1}\right.}{708}$$

```
[Out] (124724*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/14175 - (2*(1
- 2*x)^(5/2)*(3 + 5*x)^(3/2))/(3*Sqrt[2 + 3*x]) - (2108*Sqrt[1 -
2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/1575 - (32*(1 - 2*x)^(3/2)*Sq
rt[2 + 3*x]*(3 + 5*x)^(3/2))/63 - (481339*Sqrt[11/3]*EllipticE[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/70875 + (124724*Sqrt[11/3]
*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/70875
```

Rubi [A] time = 0.396581, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{2(5x+3)^{3/2}(1-2x)^{5/2}}{3\sqrt{3x+2}}$$

$$-\frac{32}{63}\sqrt{3x+2}(5x+3)^{3/2}(1-2x)^{3/2}-\frac{2108\sqrt{3x+2}(5x+3)^{3/2}\sqrt{1-2x}}{1575}+\frac{124724\sqrt{3x+2}\sqrt{5x+3}\sqrt{1-2x}}{14175}+\frac{124724\sqrt{\frac{11}{3}}F\left(\sin^{-1}\right.}{708}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^(3/2),x]
```

```
[Out] (124724*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/14175 - (2*(1
- 2*x)^(5/2)*(3 + 5*x)^(3/2))/(3*Sqrt[2 + 3*x]) - (2108*Sqrt[1 -
2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/1575 - (32*(1 - 2*x)^(3/2)*Sq
rt[2 + 3*x]*(3 + 5*x)^(3/2))/63 - (481339*Sqrt[11/3]*EllipticE[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/70875 + (124724*Sqrt[11/3]
*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/70875
```

Rubi in Sympy [A] time = 39.6748, size = 172, normalized size = 0.9

$$-\frac{2\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{3}{2}}}{3\sqrt{3x+2}}-\frac{32\left(-2x+1\right)^{\frac{3}{2}}\sqrt{3x+2}\left(5x+3\right)^{\frac{3}{2}}}{63}+\frac{1054\left(-2x+1\right)^{\frac{3}{2}}\sqrt{3x+2}\sqrt{5x+3}}{315}+\frac{20378\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{14175}-\frac{481339\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{212625}+\frac{124724\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{212625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(3/2)/(2+3*x)**(3/2),x)
```

```
[Out] -2*(-2*x + 1)**(5/2)*(5*x + 3)**(3/2)/(3*sqrt(3*x + 2)) - 32*(-2*
x + 1)**(3/2)*sqrt(3*x + 2)*(5*x + 3)**(3/2)/63 + 1054*(-2*x + 1)
**(3/2)*sqrt(3*x + 2)*sqrt(5*x + 3)/315 + 20378*sqrt(-2*x + 1)*sq
rt(3*x + 2)*sqrt(5*x + 3)/14175 - 481339*sqrt(33)*elliptic_e(asin
(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/212625 + 124724*sqrt(33)*elli
ptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/212625
```

Mathematica [A] time = 0.33506, size = 107, normalized size = 0.56

$$\frac{\frac{30\sqrt{1-2x}\sqrt{5x+3}(13500x^3-21690x^2+14727x+32033)}{\sqrt{3x+2}} - 2539285\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right) + 481339\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|\cdot\right.}{212625}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^(3/2),x]
```

```
[Out] ((30*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(32033 + 14727*x - 21690*x^2 + 1
3500*x^3))/Sqrt[2 + 3*x] + 481339*Sqrt[2]*EllipticE[ArcSin[Sqrt[2
/11]*Sqrt[3 + 5*x]], -33/2] - 2539285*Sqrt[2]*EllipticF[ArcSin[Sq
rt[2/11]*Sqrt[3 + 5*x]], -33/2])/212625
```

Maple [C] time = 0.024, size = 174, normalized size = 0.9

$$\frac{1}{6378750\,x^3+4890375\,x^2-1488375\,x-1275750}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(2539285\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}\mathit{EllipticF}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(3/2)/(2+3*x)^(3/2),x)
```

```
[Out] 1/212625*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(2539285*2^(1/
2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1
/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-481339*
2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*
11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+40
50000*x^5-6102000*x^4+2552400*x^3+12003810*x^2-364440*x-2882970)/
(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{3}{2}}(-2\,x+1)^{\frac{5}{2}}}{(3\,x+2)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(3/2),x, algorithm="maxima"
```

```
[Out] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(3/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{(20\,x^3-8\,x^2-7\,x+3)\sqrt{5\,x+3}\sqrt{-2\,x+1}}{(3\,x+2)^{\frac{3}{2}}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(3/2),x, algorithm="fricas"
```

```
[Out] integral((20*x^3 - 8*x^2 - 7*x + 3)*sqrt(5*x + 3)*sqrt(-2*x + 1)/
(3*x + 2)^(3/2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**(3/2)/(2+3*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{3}{2}}(-2x+1)^{\frac{5}{2}}}{(3x+2)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(3/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(3/2), x)
```

3.2752 $\int \frac{(1-2x)^{5/2}(3+5x)^{3/2}}{(2+3x)^{5/2}}\,dx$

Optimal. Leaf size=191

$$-\frac{2(5x+3)^{3/2}(1-2x)^{5/2}}{9(3x+2)^{3/2}}+\frac{230(5x+3)^{3/2}(1-2x)^{3/2}}{27\sqrt{3x+2}}+\frac{788}{135}\sqrt{3x+2}(5x+3)^{3/2}\sqrt{1-2x}-\frac{43214\sqrt{3x+2}\sqrt{5x+3}\sqrt{1-2x}}{1215}-\frac{43214\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{6075}+\frac{116854\sqrt{\frac{11}{3}}E\left(\mathrm{s}\right.}{}$$

```
[Out] (-43214*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/1215 - (2*(1 -
 2*x)^(5/2)*(3 + 5*x)^(3/2))/(9*(2 + 3*x)^(3/2)) + (230*(1 - 2*x)
^(3/2)*(3 + 5*x)^(3/2))/(27*Sqrt[2 + 3*x]) + (788*Sqrt[1 - 2*x]*S
qrt[2 + 3*x]*(3 + 5*x)^(3/2))/135 + (116854*Sqrt[11/3]*EllipticE[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/6075 - (43214*Sqrt[11/3]
*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/6075
```

Rubi [A] time = 0.420482, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$-\frac{2(5x+3)^{3/2}(1-2x)^{5/2}}{9(3x+2)^{3/2}}+\frac{230(5x+3)^{3/2}(1-2x)^{3/2}}{27\sqrt{3x+2}}+\frac{788}{135}\sqrt{3x+2}(5x+3)^{3/2}\sqrt{1-2x}-\frac{43214\sqrt{3x+2}\sqrt{5x+3}\sqrt{1-2x}}{1215}-\frac{43214\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{6075}+\frac{116854\sqrt{\frac{11}{3}}E\left(\mathrm{s}\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^(5/2),x]
```

```
[Out] (-43214*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/1215 - (2*(1 -
 2*x)^(5/2)*(3 + 5*x)^(3/2))/(9*(2 + 3*x)^(3/2)) + (230*(1 - 2*x)
^(3/2)*(3 + 5*x)^(3/2))/(27*Sqrt[2 + 3*x]) + (788*Sqrt[1 - 2*x]*S
qrt[2 + 3*x]*(3 + 5*x)^(3/2))/135 + (116854*Sqrt[11/3]*EllipticE[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/6075 - (43214*Sqrt[11/3]
*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/6075
```

Rubi in Sympy [A] time = 39.4841, size = 172, normalized size = 0.9

$$-\frac{230\left(-2x+1\right)^{\frac{5}{2}}\sqrt{5x+3}}{189\sqrt{3x+2}}-\frac{2\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{3}{2}}}{9\left(3x+2\right)^{\frac{3}{2}}}-\frac{76\left(-2x+1\right)^{\frac{3}{2}}\sqrt{3x+2}\sqrt{5x+3}}{63}-\frac{4208\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{1215}+\frac{116854\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{18225}-\frac{43214\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{18225}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(3/2)/(2+3*x)**(5/2),x)
```

```
[Out] -230*(-2*x + 1)**(5/2)*sqrt(5*x + 3)/(189*sqrt(3*x + 2)) - 2*(-2*
x + 1)**(5/2)*(5*x + 3)**(3/2)/(9*(3*x + 2)**(3/2)) - 76*(-2*x +
1)**(3/2)*sqrt(3*x + 2)*sqrt(5*x + 3)/63 - 4208*sqrt(-2*x + 1)*sq
rt(3*x + 2)*sqrt(5*x + 3)/1215 + 116854*sqrt(33)*elliptic_e(asin(
sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/18225 - 43214*sqrt(33)*ellipti
c_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/18225
```

Mathematica [A] time = 0.318156, size = 107, normalized size = 0.56

$$\frac{\frac{30\sqrt{1-2x}\sqrt{5x+3}(1620x^3-3906x^2-23538x-13231)}{(3x+2)^{3/2}}+829885\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-116854\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{3}{2}\right.}{18225}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^(5/2),x]
```

```
[Out] ((30*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(-13231 - 23538*x - 3906*x^2 + 1
620*x^3))/(2 + 3*x)^(3/2) - 116854*Sqrt[2]*EllipticE[ArcSin[Sqrt[
2/11]*Sqrt[3 + 5*x]], -33/2] + 829885*Sqrt[2]*EllipticF[ArcSin[Sq
rt[2/11]*Sqrt[3 + 5*x]], -33/2])/18225
```

Maple [C] time = 0.028, size = 277, normalized size = 1.5

$$-\frac{1}{182250x^2+18225x-54675}\left(2489655\sqrt{2}EllipticF\left(1/11\sqrt{11}\sqrt{2}\sqrt{3+5x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5x}\sqrt{2+3x}\sqrt{1-2x}-35\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(3/2)/(2+3*x)^(5/2),x)
```

```
[Out] -1/18225*(2489655*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)
^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1
/2)*(1-2*x)^(1/2)-350562*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*
(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+
3*x)^(1/2)*(1-2*x)^(1/2)+1659770*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1
/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1
/2*I*11^(1/2)*3^(1/2)*2^(1/2))-233708*2^(1/2)*(3+5*x)^(1/2)*(2+3*
x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1
/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-486000*x^5+1123200*x^4+732438
0*x^3+4323900*x^2-1721490*x-1190790)*(3+5*x)^(1/2)*(1-2*x)^(1/2)/
(10*x^2+x-3)/(2+3*x)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(5x+3)^{\frac{3}{2}}(-2x+1)^{\frac{5}{2}}}{(3x+2)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(5/2),x, algorithm="maxima"
```

```
[Out] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(5/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(20x^3-8x^2-7x+3)\sqrt{5x+3}\sqrt{-2x+1}}{(9x^2+12x+4)\sqrt{3x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(5/2),x, algorithm="fricas"
```

```
[Out] integral((20*x^3 - 8*x^2 - 7*x + 3)*sqrt(5*x + 3)*sqrt(-2*x + 1)/
((9*x^2 + 12*x + 4)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**(3/2)/(2+3*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{3}{2}}(-2x+1)^{\frac{5}{2}}}{(3x+2)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(5/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(5/2), x)
```

3.2753 $\int \frac{(1-2x)^{5/2}(3+5x)^{3/2}}{(2+3x)^{7/2}}\,dx$

Optimal. Leaf size=191

$$-\frac{2(5x+3)^{3/2}(1-2x)^{5/2}}{15(3x+2)^{5/2}}+\frac{46(5x+3)^{3/2}(1-2x)^{3/2}}{27(3x+2)^{3/2}}-\frac{316(5x+3)^{3/2}\sqrt{1-2x}}{27\sqrt{3x+2}}+\frac{5264}{243}\sqrt{3x+2}\sqrt{5x+3}\sqrt{1-2x}+\frac{5264\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1215}-\frac{19174\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1215}$$

```
[Out] (5264*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/243 - (2*(1 - 2*
x)^(5/2)*(3 + 5*x)^(3/2))/(15*(2 + 3*x)^(5/2)) + (46*(1 - 2*x)^(3
/2)*(3 + 5*x)^(3/2))/(27*(2 + 3*x)^(3/2)) - (316*Sqrt[1 - 2*x]*(3
 + 5*x)^(3/2))/(27*Sqrt[2 + 3*x]) - (19174*Sqrt[11/3]*EllipticE[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1215 + (5264*Sqrt[11/3]*E
llipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1215
```

Rubi [A] time = 0.409331, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$-\frac{2(5x+3)^{3/2}(1-2x)^{5/2}}{15(3x+2)^{5/2}}+\frac{46(5x+3)^{3/2}(1-2x)^{3/2}}{27(3x+2)^{3/2}}-\frac{316(5x+3)^{3/2}\sqrt{1-2x}}{27\sqrt{3x+2}}+\frac{5264}{243}\sqrt{3x+2}\sqrt{5x+3}\sqrt{1-2x}+\frac{5264\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1215}-\frac{19174\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1215}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^(7/2),x]
```

```
[Out] (5264*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/243 - (2*(1 - 2*
x)^(5/2)*(3 + 5*x)^(3/2))/(15*(2 + 3*x)^(5/2)) + (46*(1 - 2*x)^(3
/2)*(3 + 5*x)^(3/2))/(27*(2 + 3*x)^(3/2)) - (316*Sqrt[1 - 2*x]*(3
 + 5*x)^(3/2))/(27*Sqrt[2 + 3*x]) - (19174*Sqrt[11/3]*EllipticE[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1215 + (5264*Sqrt[11/3]*E
llipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1215
```

Rubi in Sympy [A] time = 39.0883, size = 172, normalized size = 0.9

$$-\frac{46\left(-2x+1\right)^{\frac{5}{2}}\sqrt{5x+3}}{189\left(3x+2\right)^{\frac{3}{2}}}-\frac{2\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{3}{2}}}{15\left(3x+2\right)^{\frac{5}{2}}}+\frac{274\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{63\sqrt{3x+2}}+\frac{5564\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{1701}-\frac{19174\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{3645}+\frac{8272\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{6075}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(3/2)/(2+3*x)**(7/2),x)
```

```
[Out] -46*(-2*x + 1)**(5/2)*sqrt(5*x + 3)/(189*(3*x + 2)**(3/2)) - 2*(-
2*x + 1)**(5/2)*(5*x + 3)**(3/2)/(15*(3*x + 2)**(5/2)) + 274*(-2*
x + 1)**(3/2)*sqrt(5*x + 3)/(63*sqrt(3*x + 2)) + 5564*sqrt(-2*x +
```

```
 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/1701 - 19174*sqrt(33)*elliptic_e(
asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/3645 + 8272*sqrt(35)*elli
ptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/6075
```

Mathematica [A] time = 0.253433, size = 104, normalized size = 0.54

$$\frac{2\left(\frac{3\sqrt{1-2x}\sqrt{5x+3}(2700x^3+68913x^2+83412x+25927)}{(3x+2)^{5/2}}+\sqrt{2}\left(9587E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-53015F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)\right)}{3645}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^(7/2),x]
```

```
[Out] (2*((3*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(25927 + 83412*x + 68913*x^2 +
 2700*x^3))/(2 + 3*x)^(5/2) + Sqrt[2]*(9587*EllipticE[ArcSin[Sqrt
[2/11]*Sqrt[3 + 5*x]], -33/2] - 53015*EllipticF[ArcSin[Sqrt[2/11]
*Sqrt[3 + 5*x]], -33/2])))/3645
```

Maple [C] time = 0.028, size = 391, normalized size = 2.1

$$\frac{2}{36450\,x^2+3645\,x-10935}\left(477135\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^2\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-86283\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(3/2)/(2+3*x)^(7/2),x)
```

```
[Out] 2/3645*(477135*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1
/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/
2)*(1-2*x)^(1/2)-86283*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3
+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+
3*x)^(1/2)*(1-2*x)^(1/2)+636180*2^(1/2)*EllipticF(1/11*11^(1/2)*2
^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1
/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-115044*2^(1/2)*EllipticE(1/11*11^
(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+
5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+212060*2^(1/2)*(3+5*x)^(1/
2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3
+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-38348*2^(1/2)*(3+5*x)
^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2
)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+81000*x^5+2075490
*x^4+2684799*x^3+407829*x^2-672927*x-233343)*(3+5*x)^(1/2)*(1-2*x
)^(1/2)/(10*x^2+x-3)/(2+3*x)^(5/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(5\,x+3)^{\frac{3}{2}}(-2\,x+1)^{\frac{5}{2}}}{(3\,x+2)^{\frac{7}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(7/2),x, algorithm="maxima"
```

```
[Out] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(7/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(20\,x^3-8\,x^2-7\,x+3)\sqrt{5\,x+3}\sqrt{-2\,x+1}}{(27\,x^3+54\,x^2+36\,x+8)\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(7/2),x, algorithm="fricas"
```

```
[Out] integral((20*x^3 - 8*x^2 - 7*x + 3)*sqrt(5*x + 3)*sqrt(-2*x + 1)/
((27*x^3 + 54*x^2 + 36*x + 8)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**(3/2)/(2+3*x)**(7/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{3}{2}}(-2x+1)^{\frac{5}{2}}}{(3x+2)^{\frac{7}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(7/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(7/2), x)
```

3.2754 $\int \frac{(1-2x)^{5/2}(3+5x)^{3/2}}{(2+3x)^{9/2}}\,dx$

Optimal. Leaf size=191

$$-\frac{2(5x+3)^{3/2}(1-2x)^{5/2}}{21(3x+2)^{7/2}}+\frac{46(5x+3)^{3/2}(1-2x)^{3/2}}{63(3x+2)^{5/2}}+\frac{608(5x+3)^{3/2}\sqrt{1-2x}}{189(3x+2)^{3/2}}-\frac{4244\sqrt{5x+3}\sqrt{1-2x}}{3969\sqrt{3x+2}}-\frac{4244\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3969}-\frac{11576\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3969}$$

```
[Out] (-4244*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(3969*Sqrt[2 + 3*x]) - (2*(1
- 2*x)^(5/2)*(3 + 5*x)^(3/2))/(21*(2 + 3*x)^(7/2)) + (46*(1 - 2*x
)^(3/2)*(3 + 5*x)^(3/2))/(63*(2 + 3*x)^(5/2)) + (608*Sqrt[1 - 2*x
]*(3 + 5*x)^(3/2))/(189*(2 + 3*x)^(3/2)) - (11576*Sqrt[11/3]*Elli
pticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3969 - (4244*Sqrt[
11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3969
```

Rubi [A] time = 0.41118, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.179$

$$-\frac{2(5x+3)^{3/2}(1-2x)^{5/2}}{21(3x+2)^{7/2}}+\frac{46(5x+3)^{3/2}(1-2x)^{3/2}}{63(3x+2)^{5/2}}+\frac{608(5x+3)^{3/2}\sqrt{1-2x}}{189(3x+2)^{3/2}}-\frac{4244\sqrt{5x+3}\sqrt{1-2x}}{3969\sqrt{3x+2}}-\frac{4244\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3969}-\frac{11576\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3969}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^(9/2),x]
```

```
[Out] (-4244*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(3969*Sqrt[2 + 3*x]) - (2*(1
- 2*x)^(5/2)*(3 + 5*x)^(3/2))/(21*(2 + 3*x)^(7/2)) + (46*(1 - 2*x
)^(3/2)*(3 + 5*x)^(3/2))/(63*(2 + 3*x)^(5/2)) + (608*Sqrt[1 - 2*x
]*(3 + 5*x)^(3/2))/(189*(2 + 3*x)^(3/2)) - (11576*Sqrt[11/3]*Elli
pticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3969 - (4244*Sqrt[
11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3969
```

Rubi in Sympy [A] time = 38.6479, size = 172, normalized size = 0.9

$$-\frac{46\left(-2x+1\right)^{\frac{5}{2}}\sqrt{5x+3}}{441\left(3x+2\right)^{\frac{5}{2}}}-\frac{2\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{3}{2}}}{21\left(3x+2\right)^{\frac{7}{2}}}+\frac{130\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{189\left(3x+2\right)^{\frac{3}{2}}}+\frac{2260\sqrt{-2x+1}\sqrt{5x+3}}{567\sqrt{3x+2}}-\frac{11576\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{11907}-\frac{46684\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{138915}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(3/2)/(2+3*x)**(9/2),x)
```

```
[Out] -46*(-2*x + 1)**(5/2)*sqrt(5*x + 3)/(441*(3*x + 2)**(5/2)) - 2*(-
2*x + 1)**(5/2)*(5*x + 3)**(3/2)/(21*(3*x + 2)**(7/2)) + 130*(-2*
x + 1)**(3/2)*sqrt(5*x + 3)/(189*(3*x + 2)**(3/2)) + 2260*sqrt(-2
*x + 1)*sqrt(5*x + 3)/(567*sqrt(3*x + 2)) - 11576*sqrt(33)*ellipt
ic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/11907 - 46684*sqrt(3
5)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/138915
```

Mathematica [A] time = 0.286258, size = 104, normalized size = 0.54

$$\frac{2\left(\frac{3\sqrt{1-2x}\sqrt{5x+3}(182736x^3+409005x^2+292578x+67759)}{(3x+2)^{7/2}}+\sqrt{2}\left(29225F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+5788E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{3}{}\right.\right.}{11907}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^(9/2),x]
```

```
[Out] (2*((3*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(67759 + 292578*x + 409005*x^2
 + 182736*x^3))/(2 + 3*x)^(7/2) + Sqrt[2]*(5788*EllipticE[ArcSin[
Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 29225*EllipticF[ArcSin[Sqrt[2
/11]*Sqrt[3 + 5*x]], -33/2])))/11907
```

Maple [C] time = 0.029, size = 505, normalized size = 2.6

$$-\frac{2}{119070x^2+11907x-35721}\left(789075\sqrt{2}EllipticF\left(1/11\sqrt{11}\sqrt{2}\sqrt{3+5x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^3\sqrt{1-2x}\sqrt{3+5x}\sqrt{2+3x}+15\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(3/2)/(2+3*x)^(9/2),x)
```

```
[Out] -2/11907*(789075*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^
(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*x)^(
1/2)*(2+3*x)^(1/2)+156276*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)
*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*
(3+5*x)^(1/2)*(2+3*x)^(1/2)+1578150*2^(1/2)*EllipticF(1/11*11^(1/
2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5
*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+312552*2^(1/2)*EllipticE(1/
11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))
*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+1052100*2^(1/2)*El
lipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2
)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+208368*2^(
1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)
*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+233
800*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1
/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2)
)+46304*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Ellipti
cE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(
1/2))-5482080*x^5-12818358*x^4-8359731*x^3+770541*x^2+2429925*x+6
09831)*(3+5*x)^(1/2)*(1-2*x)^(1/2)/(10*x^2+x-3)/(2+3*x)^(7/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{3}{2}}(-2x+1)^{\frac{5}{2}}}{(3x+2)^{\frac{9}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(9/2),x, algorithm="maxima"
```

```
[Out] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(9/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(20x^3-8x^2-7x+3)\sqrt{5x+3}\sqrt{-2x+1}}{(81x^4+216x^3+216x^2+96x+16)\sqrt{3x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(9/2),x, algorithm="fricas"
```

```
[Out] integral((20*x^3 - 8*x^2 - 7*x + 3)*sqrt(5*x + 3)*sqrt(-2*x + 1)/
((81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(5/2)*(3+5*x)**(3/2)/(2+3*x)**(9/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{3}{2}}(-2\,x+1)^{\frac{5}{2}}}{(3\,x+2)^{\frac{9}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(9/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(9/2), x)
```

3.2755 $\int \frac{(1-2x)^{5/2}(3+5x)^{3/2}}{(2+3x)^{11/2}} dx$

Optimal. Leaf size=222

$$-\frac{2(5x+3)^{3/2}(1-2x)^{5/2}}{27(3x+2)^{9/2}}+\frac{230(5x+3)^{3/2}(1-2x)^{3/2}}{567(3x+2)^{7/2}}+\frac{1532(5x+3)^{3/2}\sqrt{1-2x}}{567(3x+2)^{5/2}}+\frac{3545996\sqrt{5x+3}\sqrt{1-2x}}{250047\sqrt{3x+2}}-\frac{104036\sqrt{5x+3}\sqrt{1-2x}}{35721(3x+2)^{3/2}}-\frac{95264\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{250047}-\frac{3545996\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{250047}$$

```
[Out] (-104036*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(35721*(2 + 3*x)^(3/2)) + (
3545996*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(250047*Sqrt[2 + 3*x]) - (2*
(1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/(27*(2 + 3*x)^(9/2)) + (230*(1 -
 2*x)^(3/2)*(3 + 5*x)^(3/2))/(567*(2 + 3*x)^(7/2)) + (1532*Sqrt[1
 - 2*x]*(3 + 5*x)^(3/2))/(567*(2 + 3*x)^(5/2)) - (3545996*Sqrt[11
/3]*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/250047 - (
95264*Sqrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33
])/250047
```

Rubi [A] time = 0.496801, antiderivative size = 222, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$-\frac{2(5x+3)^{3/2}(1-2x)^{5/2}}{27(3x+2)^{9/2}}+\frac{230(5x+3)^{3/2}(1-2x)^{3/2}}{567(3x+2)^{7/2}}+\frac{1532(5x+3)^{3/2}\sqrt{1-2x}}{567(3x+2)^{5/2}}+\frac{3545996\sqrt{5x+3}\sqrt{1-2x}}{250047\sqrt{3x+2}}-\frac{104036\sqrt{5x+3}\sqrt{1-2x}}{35721(3x+2)^{3/2}}-\frac{95264\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{250047}-\frac{3545996\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{250047}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^(11/2),x]
```


```
[Out] (-104036*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(35721*(2 + 3*x)^(3/2)) + (
3545996*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(250047*Sqrt[2 + 3*x]) - (2*
(1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/(27*(2 + 3*x)^(9/2)) + (230*(1 -
 2*x)^(3/2)*(3 + 5*x)^(3/2))/(567*(2 + 3*x)^(7/2)) + (1532*Sqrt[1
 - 2*x]*(3 + 5*x)^(3/2))/(567*(2 + 3*x)^(5/2)) - (3545996*Sqrt[11
/3]*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/250047 - (
95264*Sqrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33
])/250047
```

Rubi in Sympy [A] time = 45.9123, size = 201, normalized size = 0.91

$$-\frac{230\left(-2x+1\right)^{\frac{5}{2}}\sqrt{5x+3}}{3969\left(3x+2\right)^{\frac{7}{2}}}-\frac{2\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{3}{2}}}{27\left(3x+2\right)^{\frac{9}{2}}}+\frac{998\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{3969\left(3x+2\right)^{\frac{5}{2}}}+\frac{3545996\sqrt{-2x+1}\sqrt{5x+3}}{250047\sqrt{3x+2}}+\frac{47632\sqrt{-2x+1}\sqrt{5x+3}}{35721\left(3x+2\right)^{\frac{3}{2}}}-\frac{3545996\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{750141}-\frac{1047904\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{8751645}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(3/2)/(2+3*x)**(11/2),x)
```

```
[Out] -230*(-2*x + 1)**(5/2)*sqrt(5*x + 3)/(3969*(3*x + 2)**(7/2)) - 2*
(-2*x + 1)**(5/2)*(5*x + 3)**(3/2)/(27*(3*x + 2)**(9/2)) + 998*(-
2*x + 1)**(3/2)*sqrt(5*x + 3)/(3969*(3*x + 2)**(5/2)) + 3545996*s
qrt(-2*x + 1)*sqrt(5*x + 3)/(250047*sqrt(3*x + 2)) + 47632*sqrt(-
2*x + 1)*sqrt(5*x + 3)/(35721*(3*x + 2)**(3/2)) - 3545996*sqrt(33
)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/750141 - 104
7904*sqrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)
/8751645
```

Mathematica [A] time = 0.395744, size = 111, normalized size = 0.5

$$\frac{4\left(\frac{3\sqrt{1-2x}\sqrt{5x+3}(143612838x^4+386630766x^3+391601529x^2+176436240x+29785139)}{2(3x+2)^{9/2}}+\sqrt{2}\left(886499E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-493535F\left(\right.\right.\right.}{750141}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^(11/2),x]
```

```
[Out] (4*((3*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(29785139 + 176436240*x + 3916
01529*x^2 + 386630766*x^3 + 143612838*x^4))/(2*(2 + 3*x)^(9/2)) +
 Sqrt[2]*(886499*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/
2] - 493535*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])))
/750141
```

Maple [C] time = 0.029, size = 624, normalized size = 2.8

$$\frac{2}{7501410\,x^2+750141\,x-2250423}\left(79952670\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^4\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(3/2)/(2+3*x)^(11/2),x)
```

```
[Out] 2/750141*(79952670*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x
)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^4*(3+5*x)^(1/2)*(2+3*x)
^(1/2)*(1-2*x)^(1/2)-143612838*2^(1/2)*EllipticE(1/11*11^(1/2)*2^
(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^4*(3+5*x)^(
1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+213207120*2^(1/2)*EllipticF(1/11
*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x
^3*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)-382967568*2^(1/2)*El
lipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2
)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)+21320712
0*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^
(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1
/2)-382967568*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/
2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2
)*(1-2*x)^(1/2)+94758720*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*
(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+
3*x)^(1/2)*(1-2*x)^(1/2)-170207808*2^(1/2)*EllipticE(1/11*11^(1/2
)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)
^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+4308385140*x^6+15793120*2^(1/2
)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/
2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-28367968
*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11
*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+1
2029761494*x^5+11615422626*x^4+2988214893*x^3-2101550871*x^2-1498
570743*x-268066251)*(3+5*x)^(1/2)*(1-2*x)^(1/2)/(10*x^2+x-3)/(2+3
*x)^(9/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{3}{2}}(-2x+1)^{\frac{5}{2}}}{(3x+2)^{\frac{11}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(11/2),x, algorithm="maxima
```

```
[Out] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(11/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(20x^3-8x^2-7x+3)\sqrt{5x+3}\sqrt{-2x+1}}{(243x^5+810x^4+1080x^3+720x^2+240x+32)\sqrt{3x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(11/2),x, algorithm="fricas
```

```
[Out] integral((20*x^3 - 8*x^2 - 7*x + 3)*sqrt(5*x + 3)*sqrt(-2*x + 1)/
((243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)*sqrt(3*x +
 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**(3/2)/(2+3*x)**(11/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{3}{2}}(-2x+1)^{\frac{5}{2}}}{(3x+2)^{\frac{11}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(11/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(11/2), x)
```

3.2756 $\int \frac{(1-2x)^{5/2}(3+5x)^{3/2}}{(2+3x)^{13/2}}\,dx$

Optimal. Leaf size=249

$$-\frac{2(5x+3)^{3/2}(1-2x)^{5/2}}{33(3x+2)^{11/2}}+\frac{230(5x+3)^{3/2}(1-2x)^{3/2}}{891(3x+2)^{9/2}}+\frac{12280(5x+3)^{3/2}\sqrt{1-2x}}{6237(3x+2)^{7/2}}+\frac{780320008\sqrt{5x+3}\sqrt{1-2x}}{19253619\sqrt{3x+2}}+\frac{11243972\sqrt{5x+3}\sqrt{1-2x}}{2750517(3x+2)^{3/2}}-\frac{325796\sqrt{5x+3}\sqrt{1-2x}}{130977(3x+2)^{5/2}}-\frac{23441272F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1750329\sqrt{33}}-\frac{780320008E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1750329\sqrt{33}}$$

```
[Out] (-325796*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(130977*(2 + 3*x)^(5/2)) +
(11243972*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2750517*(2 + 3*x)^(3/2))
+ (780320008*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(19253619*Sqrt[2 + 3*x]
) - (2*(1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/(33*(2 + 3*x)^(11/2)) + (
230*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/(891*(2 + 3*x)^(9/2)) + (122
80*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(6237*(2 + 3*x)^(7/2)) - (78032
0008*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(1750329*
Sqrt[33]) - (23441272*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]],
35/33])/(1750329*Sqrt[33])
```

Rubi [A] time = 0.582152, antiderivative size = 249, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.214$

$$-\frac{2(5x+3)^{3/2}(1-2x)^{5/2}}{33(3x+2)^{11/2}}+\frac{230(5x+3)^{3/2}(1-2x)^{3/2}}{891(3x+2)^{9/2}}+\frac{12280(5x+3)^{3/2}\sqrt{1-2x}}{6237(3x+2)^{7/2}}+\frac{780320008\sqrt{5x+3}\sqrt{1-2x}}{19253619\sqrt{3x+2}}+\frac{11243972\sqrt{5x+3}\sqrt{1-2x}}{2750517(3x+2)^{3/2}}-\frac{325796\sqrt{5x+3}\sqrt{1-2x}}{130977(3x+2)^{5/2}}-\frac{23441272F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1750329\sqrt{33}}-\frac{780320008E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1750329\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^(13/2),x]
```


```
[Out] (-325796*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(130977*(2 + 3*x)^(5/2)) +
(11243972*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2750517*(2 + 3*x)^(3/2))
+ (780320008*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(19253619*Sqrt[2 + 3*x]
) - (2*(1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/(33*(2 + 3*x)^(11/2)) + (
230*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/(891*(2 + 3*x)^(9/2)) + (122
80*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(6237*(2 + 3*x)^(7/2)) - (78032
0008*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(1750329*
Sqrt[33]) - (23441272*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]],
35/33])/(1750329*Sqrt[33])
```

Rubi in Sympy [A] time = 58.5387, size = 230, normalized size = 0.92

$$-\frac{230\left(-2x+1\right)^{\frac{5}{2}}\sqrt{5x+3}}{6237\left(3x+2\right)^{\frac{9}{2}}}-\frac{2\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{3}{2}}}{33\left(3x+2\right)^{\frac{11}{2}}}+\frac{1810\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{14553\left(3x+2\right)^{\frac{7}{2}}}+\frac{780320008\sqrt{-2x+1}\sqrt{5x+3}}{19253619\sqrt{3x+2}}+\frac{11243972\sqrt{-2x+1}\sqrt{5x+3}}{2750517\left(3x+2\right)^{\frac{3}{2}}}+\frac{79444\sqrt{-2x+1}\sqrt{5x+3}}{130977\left(3x+2\right)^{\frac{5}{2}}}-\frac{780320008\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{57760857}-\frac{23441272\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{61261515}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(3/2)/(2+3*x)**(13/2),x)
```

```
[Out] -230*(-2*x + 1)**(5/2)*sqrt(5*x + 3)/(6237*(3*x + 2)**(9/2)) - 2*
(-2*x + 1)**(5/2)*(5*x + 3)**(3/2)/(33*(3*x + 2)**(11/2)) + 1810*
(-2*x + 1)**(3/2)*sqrt(5*x + 3)/(14553*(3*x + 2)**(7/2)) + 780320
008*sqrt(-2*x + 1)*sqrt(5*x + 3)/(19253619*sqrt(3*x + 2)) + 11243
972*sqrt(-2*x + 1)*sqrt(5*x + 3)/(2750517*(3*x + 2)**(3/2)) + 794
44*sqrt(-2*x + 1)*sqrt(5*x + 3)/(130977*(3*x + 2)**(5/2)) - 78032
0008*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/
57760857 - 23441272*sqrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x +
 1)/11), 33/35)/61261515
```

Mathematica [A] time = 0.447432, size = 115, normalized size = 0.46

$$\frac{\frac{24\sqrt{1-2x}\sqrt{5x+3}\left(94808880972x^5+319217269302x^4+429993423180x^3+289719086787x^2+97637232762x+13163824553\right)}{(3x+2)^{11/2}}+16\sqrt{2}\left(195080002E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\right.\right.\right.}{231043428}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^(13/2),x]
```

```
[Out] ((24*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(13163824553 + 97637232762*x + 2
89719086787*x^2 + 429993423180*x^3 + 319217269302*x^4 + 948088809
72*x^5))/(2 + 3*x)^(11/2) + 16*Sqrt[2]*(195080002*EllipticE[ArcSi
n[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 98384755*EllipticF[ArcSin[S
qrt[2/11]*Sqrt[3 + 5*x]], -33/2]))/231043428
```

Maple [C] time = 0.03, size = 743, normalized size = 3.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(3/2)/(2+3*x)^(13/2),x)
```

```
[Out] 2/57760857*(47814990930*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(
3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^5*(3+5*x)^(1/2)*(2
+3*x)^(1/2)*(1-2*x)^(1/2)-94808880972*2^(1/2)*EllipticE(1/11*11^(
1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^5*(3
+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+159383303100*2^(1/2)*Elli
pticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*
2^(1/2))*x^4*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-3160296032
40*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11
^(1/2)*3^(1/2)*2^(1/2))*x^4*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(
1/2)+212511070800*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)
^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*x)^
(1/2)*(2+3*x)^(1/2)-421372804320*2^(1/2)*EllipticE(1/11*11^(1/2)*
2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)
^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)+141674047200*2^(1/2)*EllipticF
(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/
2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-280915202880*2^
(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2
)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+
2844266429160*x^7+47224682400*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(
1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2
)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-93638400960*2^(1/2)*EllipticE(1/11*
11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*
(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+9860944721976*x^6+62966
24320*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF
(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/
2))-12485120128*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)
*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(
1/2)*2^(1/2))+13004174574558*x^5+7108597449432*x^4-71666565399*x^
```

```
3-1919645346207*x^2-839243621199*x-118474420977)*(3+5*x)^(1/2)*(1
-2*x)^(1/2)/(10*x^2+x-3)/(2+3*x)^(11/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{3}{2}}(-2x+1)^{\frac{5}{2}}}{(3x+2)^{\frac{13}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(13/2),x, algorithm="maxima
```

```
[Out] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(13/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(20x^3-8x^2-7x+3)\sqrt{5x+3}\sqrt{-2x+1}}{(729x^6+2916x^5+4860x^4+4320x^3+2160x^2+576x+64)\sqrt{3x+2}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(13/2),x, algorithm="fricas
```

```
[Out] integral((20*x^3 - 8*x^2 - 7*x + 3)*sqrt(5*x + 3)*sqrt(-2*x + 1)/
((729*x^6 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 6
4)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**(3/2)/(2+3*x)**(13/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{3}{2}}(-2x+1)^{\frac{5}{2}}}{(3x+2)^{\frac{13}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(13/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(13/2), x)
```

3.2757 $\int \frac{(1-2x)^{5/2}(3+5x)^{3/2}}{(2+3x)^{15/2}}\,dx$

Optimal. Leaf size=280

$$-\frac{2(5x+3)^{3/2}(1-2x)^{5/2}}{39(3x+2)^{13/2}}+\frac{230(5x+3)^{3/2}(1-2x)^{3/2}}{1287(3x+2)^{11/2}}+\frac{1300(5x+3)^{3/2}\sqrt{1-2x}}{891(3x+2)^{9/2}}+\frac{75041008472\sqrt{5x+3}\sqrt{1-2x}}{584026443\sqrt{3x+2}}+\frac{1079936248\sqrt{5x+3}\sqrt{1-2x}}{83432349(3x+2)^{3/2}}+\frac{23210828\sqrt{5x+3}\sqrt{1-2x}}{11918907(3x+2)^{5/2}}-\frac{3347620\sqrt{5x+3}\sqrt{1-2x}}{1702701(3x+2)^{7/2}}-\frac{2257166048F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{53093313\sqrt{33}}-\frac{75041008472E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{53093313\sqrt{33}}$$

```
[Out] (-3347620*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(1702701*(2 + 3*x)^(7/2))
+ (23210828*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(11918907*(2 + 3*x)^(5/2
)) + (1079936248*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(83432349*(2 + 3*x)
^(3/2)) + (75041008472*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(584026443*Sq
rt[2 + 3*x]) - (2*(1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/(39*(2 + 3*x)^
(13/2)) + (230*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/(1287*(2 + 3*x)^(
11/2)) + (1300*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(891*(2 + 3*x)^(9/2
)) - (75041008472*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/3
3])/(53093313*Sqrt[33]) - (2257166048*EllipticF[ArcSin[Sqrt[3/7]*
Sqrt[1 - 2*x]], 35/33])/(53093313*Sqrt[33])
```

Rubi [A] time = 0.671497, antiderivative size = 280, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$-\frac{2(5x+3)^{3/2}(1-2x)^{5/2}}{39(3x+2)^{13/2}}+\frac{230(5x+3)^{3/2}(1-2x)^{3/2}}{1287(3x+2)^{11/2}}+\frac{1300(5x+3)^{3/2}\sqrt{1-2x}}{891(3x+2)^{9/2}}+\frac{75041008472\sqrt{5x+3}\sqrt{1-2x}}{584026443\sqrt{3x+2}}+\frac{1079936248\sqrt{5x+3}\sqrt{1-2x}}{83432349(3x+2)^{3/2}}+\frac{23210828\sqrt{5x+3}\sqrt{1-2x}}{11918907(3x+2)^{5/2}}-\frac{3347620\sqrt{5x+3}\sqrt{1-2x}}{1702701(3x+2)^{7/2}}-\frac{2257166048F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{53093313\sqrt{33}}-\frac{75041008472E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{53093313\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^(15/2),x]
```


```
[Out] (-3347620*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(1702701*(2 + 3*x)^(7/2))
+ (23210828*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(11918907*(2 + 3*x)^(5/2
)) + (1079936248*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(83432349*(2 + 3*x)
^(3/2)) + (75041008472*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(584026443*Sq
rt[2 + 3*x]) - (2*(1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/(39*(2 + 3*x)^
(13/2)) + (230*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))/(1287*(2 + 3*x)^(
11/2)) + (1300*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(891*(2 + 3*x)^(9/2
)) - (75041008472*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/3
3])/(53093313*Sqrt[33]) - (2257166048*EllipticF[ArcSin[Sqrt[3/7]*
Sqrt[1 - 2*x]], 35/33])/(53093313*Sqrt[33])
```

Rubi in Sympy [A] time = 66.4313, size = 258, normalized size = 0.92

$$-\frac{230\left(-2x+1\right)^{\frac{5}{2}}\sqrt{5x+3}}{9009\left(3x+2\right)^{\frac{11}{2}}}-\frac{2\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{3}{2}}}{39\left(3x+2\right)^{\frac{13}{2}}}+\frac{5870\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{81081\left(3x+2\right)^{\frac{9}{2}}}+\frac{75041008472\sqrt{-2x+1}\sqrt{5x+3}}{584026443\sqrt{3x+2}}+\frac{1079936248\sqrt{-2x+1}\sqrt{5x+3}}{83432349\left(3x+2\right)^{\frac{3}{2}}}+\frac{23210828\sqrt{-2x+1}\sqrt{5x+3}}{11918907\left(3x+2\right)^{\frac{5}{2}}}+\frac{556280\sqrt{-2x+1}\sqrt{5x+3}}{1702701\left(3x+2\right)^{\frac{7}{2}}}-\frac{75041008472\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{1752079329}-\frac{2257166048\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{1858265955}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(3/2)/(2+3*x)**(15/2),x)
```

```
[Out] -230*(-2*x + 1)**(5/2)*sqrt(5*x + 3)/(9009*(3*x + 2)**(11/2)) - 2
*(-2*x + 1)**(5/2)*(5*x + 3)**(3/2)/(39*(3*x + 2)**(13/2)) + 5870
*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/(81081*(3*x + 2)**(9/2)) + 75041
008472*sqrt(-2*x + 1)*sqrt(5*x + 3)/(584026443*sqrt(3*x + 2)) + 1
079936248*sqrt(-2*x + 1)*sqrt(5*x + 3)/(83432349*(3*x + 2)**(3/2)
) + 23210828*sqrt(-2*x + 1)*sqrt(5*x + 3)/(11918907*(3*x + 2)**(5
/2)) + 556280*sqrt(-2*x + 1)*sqrt(5*x + 3)/(1702701*(3*x + 2)**(7
/2)) - 75041008472*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x +
1)/7), 35/33)/1752079329 - 2257166048*sqrt(35)*elliptic_f(asin(sq
rt(55)*sqrt(-2*x + 1)/11), 33/35)/1858265955
```

Mathematica [A] time = 0.445073, size = 117, normalized size = 0.42

$$\frac{\frac{48\sqrt{2-4x}\sqrt{5x+3}\left(27352447588044x^6+110328276131100x^5+185457331738206x^4+166295375376786x^3+83893544414217x^2+22577209892436x+2532151719515\right)}{(3x+2)^{13/2}}-6}{14016634632\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2))/(2 + 3*x)^(15/2),x]
```

```
[Out] ((48*Sqrt[2 - 4*x]*Sqrt[3 + 5*x]*(2532151719515 + 22577209892436*
x + 83893544414217*x^2 + 166295375376786*x^3 + 185457331738206*x^
4 + 110328276131100*x^5 + 27352447588044*x^6))/(2 + 3*x)^(13/2) +
 1200656135552*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]
 - 604764298880*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2
])/(14016634632*Sqrt[2])
```

Maple [C] time = 0.032, size = 862, normalized size = 3.1

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(3/2)/(2+3*x)^(15/2),x)
```

```
[Out] 2/1752079329*(13777286683860*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1
/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^6*(3+5*x)^(1/
2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-27352447588044*2^(1/2)*EllipticE(1
/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2)
)*x^6*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+55109146735440*2^
(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2
)*3^(1/2)*2^(1/2))*x^5*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-
109409790352176*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(
```

```
1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^5*(3+5*x)^(1/2)*(2+3*x)^(1
/2)*(1-2*x)^(1/2)+91848577892400*2^(1/2)*EllipticF(1/11*11^(1/2)*
2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^4*(3+5*x)
^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-182349650586960*2^(1/2)*Ellipt
icE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^
(1/2))*x^4*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+816431803488
00*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11
^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(
1/2)-162088578299520*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5
*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*
x)^(1/2)*(2+3*x)^(1/2)+820573427641320*x^8+40821590174400*2^(1/2)
*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(
1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-81044
289149760*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1
/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1
-2*x)^(1/2)+3391905626697132*x^7+10885757379840*2^(1/2)*EllipticF
(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/
2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-21611810439936*2^
(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2
)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+56
48532752247084*x^6+1209528597760*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1
/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1
/2*I*11^(1/2)*3^(1/2)*2^(1/2))-2401312271104*2^(1/2)*(3+5*x)^(1/2
)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+
5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+4552278771338298*x^5+1
346576472913014*x^4-567661448375343*x^3-611345718465195*x^2-19559
8433873379*x-22789365475635)*(3+5*x)^(1/2)*(1-2*x)^(1/2)/(10*x^2+
x-3)/(2+3*x)^(13/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{3}{2}}(-2x+1)^{\frac{5}{2}}}{(3x+2)^{\frac{15}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(15/2),x, algorithm="maxima
```

```
[Out] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(15/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(20x^3-8x^2-7x+3)\sqrt{5x+3}\sqrt{-2x+1}}{(2187x^7+10206x^6+20412x^5+22680x^4+15120x^3+6048x^2+1344x+128)\sqrt{3x+2}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(15/2),x, algorithm="fricas
```

```
[Out] integral((20*x^3 - 8*x^2 - 7*x + 3)*sqrt(5*x + 3)*sqrt(-2*x + 1)/
((2187*x^7 + 10206*x^6 + 20412*x^5 + 22680*x^4 + 15120*x^3 + 6048
*x^2 + 1344*x + 128)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**(3/2)/(2+3*x)**(15/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{3}{2}}(-2x+1)^{\frac{5}{2}}}{(3x+2)^{\frac{15}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(15/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(15/2), x)
```

3.2758 $\int (1-2x)^{5/2}(2+3x)^{3/2}(3+5x)^{5/2}\,dx$

Optimal. Leaf size=280

$$\frac{2}{75}(1-2x)^{5/2}(3x+2)^{3/2}(5x+3)^{7/2}+\frac{106(1-2x)^{3/2}(3x+2)^{3/2}(5x+3)^{7/2}}{4875}+\frac{8038\sqrt{1-2x}(3x+2)^{3/2}(5x+3)^{7/2}}{804375}+\frac{364267\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{7/2}}{36196875}-\frac{26534891\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}}{760134375}-\frac{359748241\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}}{1520268750}-\frac{23763809947\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{13682418750}-\frac{23763809947F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{6219281250\sqrt{33}}-\frac{1580201444291E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{12438562500\sqrt{33}}$$

```
[Out] (-23763809947*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/13682418
750 - (359748241*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/152
0268750 - (26534891*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/
760134375 + (364267*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(7/2))/
36196875 + (8038*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(7/2))/8
04375 + (106*(1 - 2*x)^(3/2)*(2 + 3*x)^(3/2)*(3 + 5*x)^(7/2))/487
5 + (2*(1 - 2*x)^(5/2)*(2 + 3*x)^(3/2)*(3 + 5*x)^(7/2))/75 - (158
0201444291*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(12
438562500*Sqrt[33]) - (23763809947*EllipticF[ArcSin[Sqrt[3/7]*Sqr
t[1 - 2*x]], 35/33])/(6219281250*Sqrt[33])
```

Rubi [A] time = 0.645549, antiderivative size = 280, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.179$

$$\frac{2}{75}(1-2x)^{5/2}(3x+2)^{3/2}(5x+3)^{7/2}+\frac{106(1-2x)^{3/2}(3x+2)^{3/2}(5x+3)^{7/2}}{4875}+\frac{8038\sqrt{1-2x}(3x+2)^{3/2}(5x+3)^{7/2}}{804375}+\frac{364267\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{7/2}}{36196875}-\frac{26534891\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}}{760134375}-\frac{359748241\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}}{1520268750}-\frac{23763809947\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{13682418750}-\frac{23763809947F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{6219281250\sqrt{33}}-\frac{1580201444291E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{12438562500\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)*(2 + 3*x)^(3/2)*(3 + 5*x)^(5/2),x]
```


```
[Out] (-23763809947*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/13682418
750 - (359748241*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/152
0268750 - (26534891*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/
760134375 + (364267*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(7/2))/
36196875 + (8038*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(7/2))/8
04375 + (106*(1 - 2*x)^(3/2)*(2 + 3*x)^(3/2)*(3 + 5*x)^(7/2))/487
5 + (2*(1 - 2*x)^(5/2)*(2 + 3*x)^(3/2)*(3 + 5*x)^(7/2))/75 - (158
0201444291*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(12
438562500*Sqrt[33]) - (23763809947*EllipticF[ArcSin[Sqrt[3/7]*Sqr
t[1 - 2*x]], 35/33])/(6219281250*Sqrt[33])
```

Rubi in Sympy [A] time = 63.5606, size = 258, normalized size = 0.92

$$\frac{2(-2x+1)^{\frac{5}{2}}(3x+2)^{\frac{5}{2}}(5x+3)^{\frac{5}{2}}}{45}-\frac{37(-2x+1)^{\frac{5}{2}}(3x+2)^{\frac{5}{2}}(5x+3)^{\frac{3}{2}}}{351}+\frac{8318(-2x+1)^{\frac{3}{2}}(3x+2)^{\frac{5}{2}}(5x+3)^{\frac{3}{2}}}{57915}+\frac{21608\sqrt{-2x+1}(3x+2)^{\frac{5}{2}}(5x+3)^{\frac{3}{2}}}{200475}-\frac{4239971\sqrt{-2x+1}(3x+2)^{\frac{5}{2}}\sqrt{5x+3}}{54729675}-\frac{978675493\sqrt{-2x+1}(3x+2)^{\frac{3}{2}}\sqrt{5x+3}}{2736483750}-\frac{11371367372\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{6841209375}-\frac{1580201444291\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{410472562500}-\frac{23763809947\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{205236281250}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**(3/2)*(3+5*x)**(5/2),x)
```

```
[Out] 2*(-2*x + 1)**(5/2)*(3*x + 2)**(5/2)*(5*x + 3)**(5/2)/45 - 37*(-2
*x + 1)**(5/2)*(3*x + 2)**(5/2)*(5*x + 3)**(3/2)/351 + 8318*(-2*x
 + 1)**(3/2)*(3*x + 2)**(5/2)*(5*x + 3)**(3/2)/57915 + 21608*sqrt
(-2*x + 1)*(3*x + 2)**(5/2)*(5*x + 3)**(3/2)/200475 - 4239971*sqr
t(-2*x + 1)*(3*x + 2)**(5/2)*sqrt(5*x + 3)/54729675 - 978675493*s
qrt(-2*x + 1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/2736483750 - 1137136
7372*sqrt(-2*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/6841209375 - 1580
201444291*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35
/33)/410472562500 - 23763809947*sqrt(33)*elliptic_f(asin(sqrt(21)
*sqrt(-2*x + 1)/7), 35/33)/205236281250
```

Mathematica [A] time = 0.34304, size = 119, normalized size = 0.42

$$\frac{30\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}\left(547296750000x^6+579573225000x^5-352885207500x^4-487924998750x^3+59959633500x^2+\right.}{41}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)*(2 + 3*x)^(3/2)*(3 + 5*x)^(5/2),x]
```

```
[Out] (30*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(9093216326 + 15761
2390605*x + 59959633500*x^2 - 487924998750*x^3 - 352885207500*x^4
 + 579573225000*x^5 + 547296750000*x^6) + Sqrt[2]*(1580201444291*
EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 795995716040
*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]))/41047256250
0
```

Maple [C] time = 0.018, size = 194, normalized size = 0.7

$$\frac{1}{12314176875000\,x^3+9440868937500\,x^2-2873307937500\,x-2462835375000}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(49256707500000\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^(3/2)*(3+5*x)^(5/2),x)
```

```
[Out] 1/410472562500*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(4925670
75000000*x^9+899250660000000*x^8-32623479000000*x^7-9028470843000
00*x^6+795995716040*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(
1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)
*3^(1/2)*2^(1/2))-1580201444291*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/
2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/
```

```
2*I*11^(1/2)*3^(1/2)*2^(1/2))-312921865912500*x^5+349206885747000
*x^4+192171420950850*x^3-37617016792110*x^2-30279805737360*x-1636
778938680)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (5x+3)^{\frac{5}{2}}(3x+2)^{\frac{3}{2}}(-2x+1)^{\frac{5}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(3*x + 2)^(3/2)*(-2*x + 1)^(5/2),x, algorithm="maxima"
```

```
[Out] integrate((5*x + 3)^(5/2)*(3*x + 2)^(3/2)*(-2*x + 1)^(5/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\left(300\,x^5+260\,x^4-137\,x^3-136\,x^2+15\,x+18\right)\sqrt{5\,x+3}\sqrt{3\,x+2}\sqrt{-2\,x+1},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(3*x + 2)^(3/2)*(-2*x + 1)^(5/2),x, algorithm="fricas"
```

```
[Out] integral((300*x^5 + 260*x^4 - 137*x^3 - 136*x^2 + 15*x + 18)*sqrt
(5*x + 3)*sqrt(3*x + 2)*sqrt(-2*x + 1), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)**(3/2)*(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.47386, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(3*x + 2)^(3/2)*(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] Done
```

3.2759 $\int (1-2x)^{5/2}\sqrt{2+3x}(3+5x)^{5/2}\,dx$

Optimal. Leaf size=249

$$\frac{2}{65}(1-2x)^{5/2}\sqrt{3x+2}(5x+3)^{7/2}+\frac{326(1-2x)^{3/2}\sqrt{3x+2}(5x+3)^{7/2}}{10725}+\frac{2314\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{7/2}}{111375}-\frac{121031\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}}{30405375}-\frac{3872003\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}}{30405375}-\frac{486785077\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{547296750}-\frac{486785077F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{248771250\sqrt{33}}-\frac{8120161139E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{124385625\sqrt{33}}$$

```
[Out] (-486785077*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/547296750
- (3872003*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/30405375
- (121031*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/30405375 +
 (2314*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(7/2))/111375 + (326
*(1 - 2*x)^(3/2)*Sqrt[2 + 3*x]*(3 + 5*x)^(7/2))/10725 + (2*(1 - 2
*x)^(5/2)*Sqrt[2 + 3*x]*(3 + 5*x)^(7/2))/65 - (8120161139*Ellipti
cE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(124385625*Sqrt[33])
- (486785077*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(
248771250*Sqrt[33])
```

Rubi [A] time = 0.571533, antiderivative size = 249, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{2}{65}(1-2x)^{5/2}\sqrt{3x+2}(5x+3)^{7/2}+\frac{326(1-2x)^{3/2}\sqrt{3x+2}(5x+3)^{7/2}}{10725}+\frac{2314\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{7/2}}{111375}-\frac{121031\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}}{30405375}-\frac{3872003\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}}{30405375}-\frac{486785077\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{547296750}-\frac{486785077F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{248771250\sqrt{33}}-\frac{8120161139E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{124385625\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2),x]
```


```
[Out] (-486785077*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/547296750
- (3872003*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/30405375
- (121031*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/30405375 +
 (2314*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(7/2))/111375 + (326
*(1 - 2*x)^(3/2)*Sqrt[2 + 3*x]*(3 + 5*x)^(7/2))/10725 + (2*(1 - 2
*x)^(5/2)*Sqrt[2 + 3*x]*(3 + 5*x)^(7/2))/65 - (8120161139*Ellipti
cE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(124385625*Sqrt[33])
- (486785077*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(
248771250*Sqrt[33])
```

Rubi in Sympy [A] time = 57.9022, size = 230, normalized size = 0.92

$$\frac{2\left(-2x+1\right)^{\frac{5}{2}}\left(3x+2\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{5}{2}}}{39}-\frac{185\left(-2x+1\right)^{\frac{5}{2}}\left(3x+2\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{3}{2}}}{1287}+\frac{6008\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{3}{2}}}{34749}+\frac{200318\sqrt{-2x+1}\left(3x+2\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{3}{2}}}{1216215}-\frac{2955908\sqrt{-2x+1}\left(3x+2\right)^{\frac{3}{2}}\sqrt{5x+3}}{18243225}-\frac{469049629\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{547296750}-\frac{8120161139\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{4104725625}-\frac{486785077\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{8209451250}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(5/2)*(2+3*x)**(1/2),x)
```

```
[Out] 2*(-2*x + 1)**(5/2)*(3*x + 2)**(3/2)*(5*x + 3)**(5/2)/39 - 185*(-
2*x + 1)**(5/2)*(3*x + 2)**(3/2)*(5*x + 3)**(3/2)/1287 + 6008*(-2
*x + 1)**(3/2)*(3*x + 2)**(3/2)*(5*x + 3)**(3/2)/34749 + 200318*s
qrt(-2*x + 1)*(3*x + 2)**(3/2)*(5*x + 3)**(3/2)/1216215 - 2955908
*sqrt(-2*x + 1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/18243225 - 4690496
29*sqrt(-2*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/547296750 - 8120161
139*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/4
104725625 - 486785077*sqrt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x
 + 1)/7), 35/33)/8209451250
```

Mathematica [A] time = 0.422342, size = 112, normalized size = 0.45

$$\frac{15\sqrt{2-4x}\sqrt{3x+2}\sqrt{5x+3}\left(8419950000x^5+2577015000x^4-7942630500x^3-1730459250x^2+2923422930x+495379991\right)}{8209451250\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2),x]
```

```
[Out] (15*Sqrt[2 - 4*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(495379991 + 292342
2930*x - 1730459250*x^2 - 7942630500*x^3 + 2577015000*x^4 + 84199
50000*x^5) + 32480644556*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x
]], -33/2] - 16416737015*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x
]], -33/2])/(8209451250*Sqrt[2])
```

Maple [C] time = 0.017, size = 189, normalized size = 0.8

$$\frac{1}{492567075000\,x^3+377634757500\,x^2-114932317500\,x-98513415000}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(7577955000000\,x^8+812\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(5/2)*(2+3*x)^(1/2),x)
```

```
[Out] 1/16418902500*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(75779550
00000*x^8+8129079000000*x^7-7138416600000*x^6+16416737015*2^(1/2)
*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2
)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-324806445
56*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/
11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))
-9094592520000*x^5+2641153459500*x^4+4256073746100*x^3+3937604349
0*x^2-630245925510*x-89168398380)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (5\,x+3)^{\frac{5}{2}}\sqrt{3\,x+2}(-2\,x+1)^{\frac{5}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*sqrt(3*x + 2)*(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] integrate((5*x + 3)^(5/2)*sqrt(3*x + 2)*(-2*x + 1)^(5/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\left(100\,x^{4} + 20\,x^{3} - 59\,x^{2} - 6\,x + 9\right)\sqrt{5\,x + 3}\sqrt{3\,x + 2}\sqrt{-2\,x + 1}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*sqrt(3*x + 2)*(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] integral((100*x^4 + 20*x^3 - 59*x^2 - 6*x + 9)*sqrt(5*x + 3)*sqrt
(3*x + 2)*sqrt(-2*x + 1), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(5/2)*(3+5*x)**(5/2)*(2+3*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (5\,x + 3)^{\frac{5}{2}}\sqrt{3\,x + 2}(-2\,x + 1)^{\frac{5}{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*sqrt(3*x + 2)*(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)*sqrt(3*x + 2)*(-2*x + 1)^(5/2), x)
```

3.2760 $\int \frac{(1-2x)^{5/2}(3+5x)^{5/2}}{\sqrt{2+3x}}\,dx$

Optimal. Leaf size=218

$$\frac{2}{33}(1-2x)^{5/2}\sqrt{3x+2}(5x+3)^{5/2}$$
$$+\frac{74}{891}(1-2x)^{3/2}\sqrt{3x+2}(5x+3)^{5/2}+\frac{9698\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}}{93555}-\frac{146963\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}}{467775}-\frac{1654421\sqrt{1-2x}}{4209}$$

```
[Out] (-1654421*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/4209975 - (1
46963*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/467775 + (9698
*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/93555 + (74*(1 - 2*
x)^(3/2)*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/891 + (2*(1 - 2*x)^(5/2)*
Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/33 - (146222113*EllipticE[ArcSin[S
qrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(3827250*Sqrt[33]) - (1654421*El
lipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(1913625*Sqrt[33
])
```

Rubi [A] time = 0.485073, antiderivative size = 218, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{2}{33}(1-2x)^{5/2}\sqrt{3x+2}(5x+3)^{5/2}$$
$$+\frac{74}{891}(1-2x)^{3/2}\sqrt{3x+2}(5x+3)^{5/2}+\frac{9698\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}}{93555}-\frac{146963\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}}{467775}-\frac{1654421\sqrt{1-2x}}{4209}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/Sqrt[2 + 3*x],x]
```


```
[Out] (-1654421*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/4209975 - (1
46963*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/467775 + (9698
*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/93555 + (74*(1 - 2*
x)^(3/2)*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/891 + (2*(1 - 2*x)^(5/2)*
Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/33 - (146222113*EllipticE[ArcSin[S
qrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(3827250*Sqrt[33]) - (1654421*El
lipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(1913625*Sqrt[33
])
```

Rubi in Sympy [A] time = 49.5068, size = 201, normalized size = 0.92

$$\frac{2(-2x+1)^{\frac{5}{2}}\sqrt{3x+2}(5x+3)^{\frac{5}{2}}}{33}-\frac{185(-2x+1)^{\frac{5}{2}}\sqrt{3x+2}(5x+3)^{\frac{3}{2}}}{891}+\frac{3698(-2x+1)^{\frac{3}{2}}\sqrt{3x+2}(5x+3)^{\frac{3}{2}}}{18711}+\frac{119732\sqrt{-2x+1}\sqrt{3x+2}(5x+3)^{\frac{3}{2}}}{467775}-\frac{1654421\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{4209975}-\frac{146222113\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{126299250}-\frac{1654421\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{63149625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(5/2)/(2+3*x)**(1/2),x)
```

```
[Out] 2*(-2*x + 1)**(5/2)*sqrt(3*x + 2)*(5*x + 3)**(5/2)/33 - 185*(-2*x
 + 1)**(5/2)*sqrt(3*x + 2)*(5*x + 3)**(3/2)/891 + 3698*(-2*x + 1)
```

```
**(3/2)*sqrt(3*x + 2)*(5*x + 3)**(3/2)/18711 + 119732*sqrt(-2*x +
 1)*sqrt(3*x + 2)*(5*x + 3)**(3/2)/467775 - 1654421*sqrt(-2*x + 1
)*sqrt(3*x + 2)*sqrt(5*x + 3)/4209975 - 146222113*sqrt(33)*ellipt
ic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/126299250 - 1654421*
sqrt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/63149
625
```

Mathematica [A] time = 0.381976, size = 107, normalized size = 0.49

$$\frac{15\sqrt{2-4x}\sqrt{3x+2}\sqrt{5x+3}\left(25515000x^4-12379500x^3-16381350x^2+9143865x+3748468\right)-91626220F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5\right.\right.}{63149625\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/Sqrt[2 + 3*x],x]
```

```
[Out] (15*Sqrt[2 - 4*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(3748468 + 9143865*
x - 16381350*x^2 - 12379500*x^3 + 25515000*x^4) + 146222113*Ellip
ticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 91626220*Elliptic
F[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/(63149625*Sqrt[2])
```

Maple [C] time = 0.017, size = 184, normalized size = 0.8

$$\frac{1}{3788977500\,x^3+2904882750\,x^2-884094750\,x-757795500}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(22963500000\,x^7+6463800000\,x^6+\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(5/2)/(2+3*x)^(1/2),x)
```

```
[Out] 1/126299250*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(2296350000
0*x^7+6463800000*x^6+91626220*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)
*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*
I*11^(1/2)*3^(1/2)*2^(1/2))-146222113*2^(1/2)*(3+5*x)^(1/2)*(2+3*
x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1
/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-28643220000*x^5-5066658000*x^
4+15351281550*x^3+3614874270*x^2-2433073980*x-674724240)/(30*x^3+
23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{5}{2}}(-2\,x+1)^{\frac{5}{2}}}{\sqrt{3\,x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/sqrt(3*x + 2),x, algorithm="maxima")
```

```
[Out] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/sqrt(3*x + 2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(100\,x^4+20\,x^3-59\,x^2-6\,x+9\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}}{\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/sqrt(3*x + 2),x, algorithm="fricas")
```

```
[Out] integral((100*x^4 + 20*x^3 - 59*x^2 - 6*x + 9)*sqrt(5*x + 3)*sqrt
(-2*x + 1)/sqrt(3*x + 2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(5/2)*(3+5*x)**(5/2)/(2+3*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}(-2x+1)^{\frac{5}{2}}}{\sqrt{3x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/sqrt(3*x + 2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/sqrt(3*x + 2), x)
```

3.2761 $\int \frac{(1-2x)^{5/2}(3+5x)^{5/2}}{(2+3x)^{3/2}}\,dx$

Optimal. Leaf size=222

$$-\frac{40}{81}(1-2x)^{3/2}\sqrt{3x+2}(5x+3)^{5/2}-\frac{2108\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}}{1701}-\frac{2(1-2x)^{5/2}(5x+3)^{5/2}}{3\sqrt{3x+2}}+\frac{64628\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}}{8505}-\frac{310399\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{76545}-\frac{310399\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{382725}-\frac{25111\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{382725}$$

```
[Out] (-310399*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/76545 + (6462
8*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/8505 - (2*(1 - 2*x
)^(5/2)*(3 + 5*x)^(5/2))/(3*Sqrt[2 + 3*x]) - (2108*Sqrt[1 - 2*x]*
Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/1701 - (40*(1 - 2*x)^(3/2)*Sqrt[2
+ 3*x]*(3 + 5*x)^(5/2))/81 - (25111*Sqrt[11/3]*EllipticE[ArcSin[S
qrt[3/7]*Sqrt[1 - 2*x]], 35/33])/382725 - (310399*Sqrt[11/3]*Elli
pticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/382725
```

Rubi [A] time = 0.480322, antiderivative size = 222, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{40}{81}(1-2x)^{3/2}\sqrt{3x+2}(5x+3)^{5/2}-\frac{2108\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}}{1701}-\frac{2(1-2x)^{5/2}(5x+3)^{5/2}}{3\sqrt{3x+2}}+\frac{64628\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}}{8505}-\frac{310399\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{76545}-\frac{310399\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{382725}-\frac{25111\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{382725}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^(3/2),x]
```

```
[Out] (-310399*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/76545 + (6462
8*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/8505 - (2*(1 - 2*x
)^(5/2)*(3 + 5*x)^(5/2))/(3*Sqrt[2 + 3*x]) - (2108*Sqrt[1 - 2*x]*
Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/1701 - (40*(1 - 2*x)^(3/2)*Sqrt[2
+ 3*x]*(3 + 5*x)^(5/2))/81 - (25111*Sqrt[11/3]*EllipticE[ArcSin[S
qrt[3/7]*Sqrt[1 - 2*x]], 35/33])/382725 - (310399*Sqrt[11/3]*Elli
pticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/382725
```

Rubi in Sympy [A] time = 49.7676, size = 201, normalized size = 0.91

$$-\frac{2\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{5}{2}}}{3\sqrt{3x+2}}-\frac{40\left(-2x+1\right)^{\frac{3}{2}}\sqrt{3x+2}\left(5x+3\right)^{\frac{5}{2}}}{81}+\frac{5270\left(-2x+1\right)^{\frac{3}{2}}\sqrt{3x+2}\left(5x+3\right)^{\frac{3}{2}}}{1701}-\frac{3329\left(-2x+1\right)^{\frac{3}{2}}\sqrt{3x+2}\sqrt{5x+3}}{1701}+\frac{19172\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{76545}-\frac{25111\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{1148175}-\frac{3414389\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{13395375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(5/2)/(2+3*x)**(3/2),x)
```

```
[Out] -2*(-2*x + 1)**(5/2)*(5*x + 3)**(5/2)/(3*sqrt(3*x + 2)) - 40*(-2*
x + 1)**(3/2)*sqrt(3*x + 2)*(5*x + 3)**(5/2)/81 + 5270*(-2*x + 1)
```

```
**(3/2)*sqrt(3*x + 2)*(5*x + 3)**(3/2)/1701 - 3329*(-2*x + 1)**(3
/2)*sqrt(3*x + 2)*sqrt(5*x + 3)/1701 + 19172*sqrt(-2*x + 1)*sqrt(
3*x + 2)*sqrt(5*x + 3)/76545 - 25111*sqrt(33)*elliptic_e(asin(sqr
t(21)*sqrt(-2*x + 1)/7), 35/33)/1148175 - 3414389*sqrt(35)*ellipt
ic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/13395375
```

Mathematica [A] time = 0.452249, size = 112, normalized size = 0.5

$$\frac{\frac{30\sqrt{1-2x}\sqrt{5x+3}(567000x^4-386100x^3-259650x^2+245751x+21964)}{\sqrt{3x+2}} + 10192945\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right) + 50222\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\right.\right.}{2296350}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^(3/2),x]
```

```
[Out] ((30*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(21964 + 245751*x - 259650*x^2 -
 386100*x^3 + 567000*x^4))/Sqrt[2 + 3*x] + 50222*Sqrt[2]*Elliptic
E[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 10192945*Sqrt[2]*Ell
ipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/2296350
```

Maple [C] time = 0.026, size = 179, normalized size = 0.8

$$-\frac{1}{68890500x^3+52816050x^2-16074450x-13778100}\sqrt{1-2x}\sqrt{2+3x}\sqrt{3+5x}\left(-170100000x^6+10192945\sqrt{2}\sqrt{3+5x}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(5/2)/(2+3*x)^(3/2),x)
```

```
[Out] -1/2296350*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(-170100000*
x^6+10192945*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*El
lipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2
)*2^(1/2))+50222*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2
)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^
(1/2)*2^(1/2))+98820000*x^5+140508000*x^4-100684800*x^3-37330230*
x^2+21458670*x+1976760)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}(-2x+1)^{\frac{5}{2}}}{(3x+2)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(3/2),x, algorithm="maxima"
```

```
[Out] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(3/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(100x^4+20x^3-59x^2-6x+9)\sqrt{5x+3}\sqrt{-2x+1}}{(3x+2)^{\frac{3}{2}}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(3/2),x, algorithm="fricas"
```

```
[Out] integral((100*x^4 + 20*x^3 - 59*x^2 - 6*x + 9)*sqrt(5*x + 3)*sqrt
(-2*x + 1)/(3*x + 2)^(3/2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(5/2)*(3+5*x)**(5/2)/(2+3*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}(-2x+1)^{\frac{5}{2}}}{(3x+2)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(3/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(3/2), x)
```

3.2762 $\int \frac{(1-2x)^{5/2}(3+5x)^{5/2}}{(2+3x)^{5/2}}\,dx$

Optimal. Leaf size=222

$$\frac{5260}{567}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}+\frac{370(1-2x)^{3/2}(5x+3)^{5/2}}{27\sqrt{3x+2}}-\frac{2(1-2x)^{5/2}(5x+3)^{5/2}}{9(3x+2)^{3/2}}$$
$$-\frac{31298}{567}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}+\frac{135334\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{5103}+\frac{135334\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{25515}-\frac{452399\sqrt{\frac{11}{3}}}{}$$

```
[Out] (135334*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/5103 - (31298*
Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/567 - (2*(1 - 2*x)^(
5/2)*(3 + 5*x)^(5/2))/(9*(2 + 3*x)^(3/2)) + (370*(1 - 2*x)^(3/2)*
(3 + 5*x)^(5/2))/(27*Sqrt[2 + 3*x]) + (5260*Sqrt[1 - 2*x]*Sqrt[2
+ 3*x]*(3 + 5*x)^(5/2))/567 - (452399*Sqrt[11/3]*EllipticE[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/25515 + (135334*Sqrt[11/3]*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/25515
```

Rubi [A] time = 0.484889, antiderivative size = 222, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{5260}{567}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}+\frac{370(1-2x)^{3/2}(5x+3)^{5/2}}{27\sqrt{3x+2}}-\frac{2(1-2x)^{5/2}(5x+3)^{5/2}}{9(3x+2)^{3/2}}$$
$$-\frac{31298}{567}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}+\frac{135334\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{5103}+\frac{135334\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{25515}-\frac{452399\sqrt{\frac{11}{3}}}{}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^(5/2),x]
```

```
[Out] (135334*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/5103 - (31298*
Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/567 - (2*(1 - 2*x)^(
5/2)*(3 + 5*x)^(5/2))/(9*(2 + 3*x)^(3/2)) + (370*(1 - 2*x)^(3/2)*
(3 + 5*x)^(5/2))/(27*Sqrt[2 + 3*x]) + (5260*Sqrt[1 - 2*x]*Sqrt[2
+ 3*x]*(3 + 5*x)^(5/2))/567 - (452399*Sqrt[11/3]*EllipticE[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/25515 + (135334*Sqrt[11/3]*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/25515
```

Rubi in Sympy [A] time = 49.7736, size = 201, normalized size = 0.91

$$-\frac{370\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{3}{2}}}{189\sqrt{3x+2}}-\frac{2\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{5}{2}}}{9\left(3x+2\right)^{\frac{3}{2}}}-\frac{940\left(-2x+1\right)^{\frac{3}{2}}\sqrt{3x+2}\left(5x+3\right)^{\frac{3}{2}}}{567}$$
$$-\frac{2368\sqrt{-2x+1}\sqrt{3x+2}\left(5x+3\right)^{\frac{3}{2}}}{567}+\frac{135334\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{5103}$$
$$-\frac{452399\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{76545}+\frac{135334\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{76545}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(5/2)/(2+3*x)**(5/2),x)
```

```
[Out] -370*(-2*x + 1)**(5/2)*(5*x + 3)**(3/2)/(189*sqrt(3*x + 2)) - 2*(
-2*x + 1)**(5/2)*(5*x + 3)**(5/2)/(9*(3*x + 2)**(3/2)) - 940*(-2*
x + 1)**(3/2)*sqrt(3*x + 2)*(5*x + 3)**(3/2)/567 - 2368*sqrt(-2*x
 + 1)*sqrt(3*x + 2)*(5*x + 3)**(3/2)/567 + 135334*sqrt(-2*x + 1)*
sqrt(3*x + 2)*sqrt(5*x + 3)/5103 - 452399*sqrt(33)*elliptic_e(asi
n(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/76545 + 135334*sqrt(33)*elli
```

```
ptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/76545
```

Mathematica [A] time = 0.418589, size = 112, normalized size = 0.5

$$\frac{\frac{30\sqrt{1-2x}\sqrt{5x+3}(24300x^4-25110x^3+5949x^2+108285x+56963)}{(3x+2)^{3/2}} - 2685410\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right) + 452399\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x\right.\right.}{76545}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^(5/2),x]
```

```
[Out] ((30*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(56963 + 108285*x + 5949*x^2 - 2
5110*x^3 + 24300*x^4))/(2 + 3*x)^(3/2) + 452399*Sqrt[2]*EllipticE
[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 2685410*Sqrt[2]*Ellip
ticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/76545
```

Maple [C] time = 0.029, size = 282, normalized size = 1.3

$$\frac{1}{765450x^2+76545x-229635}\left(8056230\sqrt{2}EllipticF\left(1/11\sqrt{11}\sqrt{2}\sqrt{3+5x}, i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5x}\sqrt{2+3x}\sqrt{1-2x} - 13\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(5/2)/(2+3*x)^(5/2),x)
```

```
[Out] 1/76545*(8056230*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^
(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/
2)*(1-2*x)^(1/2)-1357197*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*
(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+
3*x)^(1/2)*(1-2*x)^(1/2)+7290000*x^6+5370820*2^(1/2)*(3+5*x)^(1/2
)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+
5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-904798*2^(1/2)*(3+5*x)
^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2
)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-6804000*x^5-11556
00*x^4+34923870*x^3+19802040*x^2-8036760*x-5126670)*(3+5*x)^(1/2)
*(1-2*x)^(1/2)/(10*x^2+x-3)/(2+3*x)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}(-2x+1)^{\frac{5}{2}}}{(3x+2)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(5/2),x, algorithm="maxima"
```

```
[Out] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(5/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(100x^4+20x^3-59x^2-6x+9)\sqrt{5x+3}\sqrt{-2x+1}}{(9x^2+12x+4)\sqrt{3x+2}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(5/2),x, algorithm="fricas"
```

```
[Out] integral((100*x^4 + 20*x^3 - 59*x^2 - 6*x + 9)*sqrt(5*x + 3)*sqrt
(-2*x + 1)/((9*x^2 + 12*x + 4)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**(5/2)/(2+3*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}(-2x+1)^{\frac{5}{2}}}{(3x+2)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(5/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(5/2), x)
```

3.2763 $\int \frac{(1-2x)^{5/2}(3+5x)^{5/2}}{(2+3x)^{7/2}}\,dx$

Optimal. Leaf size=222

$$-\frac{6464\sqrt{1-2x}(5x+3)^{5/2}}{81\sqrt{3x+2}}+\frac{74(1-2x)^{3/2}(5x+3)^{5/2}}{27(3x+2)^{3/2}}-\frac{2(1-2x)^{5/2}(5x+3)^{5/2}}{15(3x+2)^{5/2}}+\frac{11036}{81}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}-\frac{48478}{729}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}-\frac{48478\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3645}+\frac{136028\sqrt{\frac{11}{3}}E}{}$$

```
[Out] (-48478*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/729 + (11036*S
qrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/81 - (2*(1 - 2*x)^(5/
2)*(3 + 5*x)^(5/2))/(15*(2 + 3*x)^(5/2)) + (74*(1 - 2*x)^(3/2)*(3
 + 5*x)^(5/2))/(27*(2 + 3*x)^(3/2)) - (6464*Sqrt[1 - 2*x]*(3 + 5*
x)^(5/2))/(81*Sqrt[2 + 3*x]) + (136028*Sqrt[11/3]*EllipticE[ArcSi
n[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3645 - (48478*Sqrt[11/3]*Elli
pticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3645
```

Rubi [A] time = 0.485549, antiderivative size = 222, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.214$

$$-\frac{6464\sqrt{1-2x}(5x+3)^{5/2}}{81\sqrt{3x+2}}+\frac{74(1-2x)^{3/2}(5x+3)^{5/2}}{27(3x+2)^{3/2}}-\frac{2(1-2x)^{5/2}(5x+3)^{5/2}}{15(3x+2)^{5/2}}+\frac{11036}{81}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}-\frac{48478}{729}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}-\frac{48478\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3645}+\frac{136028\sqrt{\frac{11}{3}}E}{}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^(7/2),x]
```

```
[Out] (-48478*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/729 + (11036*S
qrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/81 - (2*(1 - 2*x)^(5/
2)*(3 + 5*x)^(5/2))/(15*(2 + 3*x)^(5/2)) + (74*(1 - 2*x)^(3/2)*(3
 + 5*x)^(5/2))/(27*(2 + 3*x)^(3/2)) - (6464*Sqrt[1 - 2*x]*(3 + 5*
x)^(5/2))/(81*Sqrt[2 + 3*x]) + (136028*Sqrt[11/3]*EllipticE[ArcSi
n[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3645 - (48478*Sqrt[11/3]*Elli
pticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3645
```

Rubi in Sympy [A] time = 49.5497, size = 201, normalized size = 0.91

$$-\frac{8906\left(-2x+1\right)^{\frac{5}{2}}\sqrt{5x+3}}{3969\sqrt{3x+2}}-\frac{74\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{3}{2}}}{189\left(3x+2\right)^{\frac{3}{2}}}-\frac{2\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{5}{2}}}{15\left(3x+2\right)^{\frac{5}{2}}}-\frac{3208\left(-2x+1\right)^{\frac{3}{2}}\sqrt{3x+2}\sqrt{5x+3}}{1323}-\frac{35020\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{5103}+\frac{136028\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{10935}-\frac{533258\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{127575}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(5/2)/(2+3*x)**(7/2),x)
```

```
[Out] -8906*(-2*x + 1)**(5/2)*sqrt(5*x + 3)/(3969*sqrt(3*x + 2)) - 74*(
-2*x + 1)**(5/2)*(5*x + 3)**(3/2)/(189*(3*x + 2)**(3/2)) - 2*(-2*
x + 1)**(5/2)*(5*x + 3)**(5/2)/(15*(3*x + 2)**(5/2)) - 3208*(-2*x
 + 1)**(3/2)*sqrt(3*x + 2)*sqrt(5*x + 3)/1323 - 35020*sqrt(-2*x +
 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/5103 + 136028*sqrt(33)*elliptic_e
(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/10935 - 533258*sqrt(35)*
```

```
elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/127575
```

Mathematica [A] time = 0.34477, size = 109, normalized size = 0.49

$$\frac{\frac{6\sqrt{1-2x}\sqrt{5x+3}(24300x^4-45090x^3-461043x^2-517257x-158237)}{(3x+2)^{5/2}}+\sqrt{2}\left(935915F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-136028E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x\right.\right.\right.}{10935}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^(7/2),x]
```

```
[Out] ((6*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(-158237 - 517257*x - 461043*x^2
- 45090*x^3 + 24300*x^4))/(2 + 3*x)^(5/2) + Sqrt[2]*(-136028*Elli
pticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 935915*EllipticF
[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]))/10935
```

Maple [C] time = 0.03, size = 396, normalized size = 1.8

$$-\frac{1}{109350x^2+10935x-32805}\left(8423235\sqrt{2}EllipticF\left(1/11\sqrt{11}\sqrt{2}\sqrt{3+5x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^2\sqrt{3+5x}\sqrt{2+3x}\sqrt{1-2x}-1\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(5/2)/(2+3*x)^(7/2),x)
```

```
[Out] -1/10935*(8423235*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)
^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^
(1/2)*(1-2*x)^(1/2)-1224252*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/
2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2
)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+11230980*2^(1/2)*EllipticF(1/11*11^
(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+
5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-1632336*2^(1/2)*EllipticE(
1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2
))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-1458000*x^6+374366
0*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/1
1*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-
544112*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Elliptic
E(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1
/2))+2559600*x^5+28370520*x^4+32990058*x^3+4298988*x^2-8361204*x-
2848266)*(3+5*x)^(1/2)*(1-2*x)^(1/2)/(10*x^2+x-3)/(2+3*x)^(5/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(5x+3)^{\frac{5}{2}}(-2x+1)^{\frac{5}{2}}}{(3x+2)^{\frac{7}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(7/2),x, algorithm="maxima"
```

```
[Out] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(7/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(100x^4+20x^3-59x^2-6x+9)\sqrt{5x+3}\sqrt{-2x+1}}{(27x^3+54x^2+36x+8)\sqrt{3x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(7/2),x, algorithm="fricas"
```

```
[Out] integral((100*x^4 + 20*x^3 - 59*x^2 - 6*x + 9)*sqrt(5*x + 3)*sqrt
(-2*x + 1)/((27*x^3 + 54*x^2 + 36*x + 8)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(5/2)*(3+5*x)**(5/2)/(2+3*x)**(7/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{5}{2}}(-2\,x+1)^{\frac{5}{2}}}{(3\,x+2)^{\frac{7}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(7/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(7/2), x)
```

3.2764 $\int \frac{(1-2x)^{5/2}(3+5x)^{5/2}}{(2+3x)^{9/2}}\,dx$

Optimal. Leaf size=222

$$-\frac{1844\sqrt{1-2x}(5x+3)^{5/2}}{567(3x+2)^{3/2}}+\frac{74(1-2x)^{3/2}(5x+3)^{5/2}}{63(3x+2)^{5/2}}-\frac{2(1-2x)^{5/2}(5x+3)^{5/2}}{21(3x+2)^{7/2}}-\frac{62596\sqrt{1-2x}(5x+3)^{3/2}}{3969\sqrt{3x+2}}+\frac{1353340\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{35721}+\frac{270668\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{35721}-\frac{904798\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{35721}$$

```
[Out] (1353340*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/35721 - (6259
6*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(3969*Sqrt[2 + 3*x]) - (2*(1 - 2
*x)^(5/2)*(3 + 5*x)^(5/2))/(21*(2 + 3*x)^(7/2)) + (74*(1 - 2*x)^(
3/2)*(3 + 5*x)^(5/2))/(63*(2 + 3*x)^(5/2)) - (1844*Sqrt[1 - 2*x]*
(3 + 5*x)^(5/2))/(567*(2 + 3*x)^(3/2)) - (904798*Sqrt[11/3]*Ellip
ticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/35721 + (270668*Sqr
t[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/35721
```

Rubi [A] time = 0.490711, antiderivative size = 222, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.214$

$$-\frac{1844\sqrt{1-2x}(5x+3)^{5/2}}{567(3x+2)^{3/2}}+\frac{74(1-2x)^{3/2}(5x+3)^{5/2}}{63(3x+2)^{5/2}}-\frac{2(1-2x)^{5/2}(5x+3)^{5/2}}{21(3x+2)^{7/2}}-\frac{62596\sqrt{1-2x}(5x+3)^{3/2}}{3969\sqrt{3x+2}}+\frac{1353340\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{35721}+\frac{270668\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{35721}-\frac{904798\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{35721}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^(9/2),x]
```


```
[Out] (1353340*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/35721 - (6259
6*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(3969*Sqrt[2 + 3*x]) - (2*(1 - 2
*x)^(5/2)*(3 + 5*x)^(5/2))/(21*(2 + 3*x)^(7/2)) + (74*(1 - 2*x)^(
3/2)*(3 + 5*x)^(5/2))/(63*(2 + 3*x)^(5/2)) - (1844*Sqrt[1 - 2*x]*
(3 + 5*x)^(5/2))/(567*(2 + 3*x)^(3/2)) - (904798*Sqrt[11/3]*Ellip
ticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/35721 + (270668*Sqr
t[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/35721
```

Rubi in Sympy [A] time = 48.8236, size = 201, normalized size = 0.91

$$-\frac{1310\left(-2x+1\right)^{\frac{5}{2}}\sqrt{5x+3}}{3969\left(3x+2\right)^{\frac{3}{2}}}-\frac{74\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{3}{2}}}{441\left(3x+2\right)^{\frac{5}{2}}}-\frac{2\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{5}{2}}}{21\left(3x+2\right)^{\frac{7}{2}}}+\frac{1250\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{189\sqrt{3x+2}}+\frac{181180\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{35721}-\frac{904798\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{107163}+\frac{2977348\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{1250235}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(5/2)/(2+3*x)**(9/2),x)
```

```
[Out] -1310*(-2*x + 1)**(5/2)*sqrt(5*x + 3)/(3969*(3*x + 2)**(3/2)) - 7
4*(-2*x + 1)**(5/2)*(5*x + 3)**(3/2)/(441*(3*x + 2)**(5/2)) - 2*(
```

```
-2*x + 1)**(5/2)*(5*x + 3)**(5/2)/(21*(3*x + 2)**(7/2)) + 1250*(-
2*x + 1)**(3/2)*sqrt(5*x + 3)/(189*sqrt(3*x + 2)) + 181180*sqrt(-
2*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/35721 - 904798*sqrt(33)*elli
ptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/107163 + 2977348*s
qrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/12502
35
```

Mathematica [A] time = 0.292841, size = 109, normalized size = 0.49

$$\frac{2\left(\frac{3\sqrt{1-2x}\sqrt{5x+3}(396900x^4+9846603x^3+17788023x^2+11107911x+2337569)}{(3x+2)^{7/2}}+\sqrt{2}\left(452399E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-2685410F\left(\sin^{-1}\right.\right.\right.}{107163}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^(9/2),x]
```

```
[Out] (2*((3*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(2337569 + 11107911*x + 177880
23*x^2 + 9846603*x^3 + 396900*x^4))/(2 + 3*x)^(7/2) + Sqrt[2]*(45
2399*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 2685410
*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])))/107163
```

Maple [C] time = 0.03, size = 510, normalized size = 2.3

$$\frac{2}{1071630\,x^2+107163\,x-321489}\left(72506070\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^3\sqrt{1-2\,x}\sqrt{3+5\,x}\sqrt{2+3\,x}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(5/2)/(2+3*x)^(9/2),x)
```

```
[Out] 2/107163*(72506070*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x
)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*x)
^(1/2)*(2+3*x)^(1/2)-12214773*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(
1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1
/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)+145012140*2^(1/2)*EllipticF(1/11*
11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^
2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-24429546*2^(1/2)*Elli
pticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*
2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+96674760*2
^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/
2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-1
6286364*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2
*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x
)^(1/2)+11907000*x^6+21483280*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)
*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*
I*11^(1/2)*3^(1/2)*2^(1/2))-3619192*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)
^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2
),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+296588790*x^5+559608399*x^4+297
981972*x^3-56641404*x^2-92958492*x-21038121)*(3+5*x)^(1/2)*(1-2*x
)^(1/2)/(10*x^2+x-3)/(2+3*x)^(7/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{5}{2}}(-2\,x+1)^{\frac{5}{2}}}{(3\,x+2)^{\frac{9}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(9/2),x, algorithm="maxima"
```

```
[Out] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(9/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(100\,x^4+20\,x^3-59\,x^2-6\,x+9\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}}{\left(81\,x^4+216\,x^3+216\,x^2+96\,x+16\right)\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(9/2),x, algorithm="fricas"
```

```
[Out] integral((100*x^4 + 20*x^3 - 59*x^2 - 6*x + 9)*sqrt(5*x + 3)*sqrt
(-2*x + 1)/((81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16)*sqrt(3*x + 2
)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**(5/2)/(2+3*x)**(9/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{5}{2}}(-2\,x+1)^{\frac{5}{2}}}{(3\,x+2)^{\frac{9}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(9/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(9/2), x)
```

3.2765 $\int \frac{(1-2x)^{5/2}(3+5x)^{5/2}}{(2+3x)^{11/2}}\,dx$

Optimal. Leaf size=222

$$\frac{2776\sqrt{1-2x}(5x+3)^{5/2}}{1701(3x+2)^{5/2}}+\frac{370(1-2x)^{3/2}(5x+3)^{5/2}}{567(3x+2)^{7/2}}-\frac{2(1-2x)^{5/2}(5x+3)^{5/2}}{27(3x+2)^{9/2}}-\frac{13316\sqrt{1-2x}(5x+3)^{3/2}}{35721(3x+2)^{3/2}}-\frac{1241596\sqrt{1-2x}\sqrt{5x+3}}{750141\sqrt{3x+2}}-\frac{1241596\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{750141}-\frac{100444\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{750141}$$

```
[Out] (-1241596*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(750141*Sqrt[2 + 3*x]) - (
13316*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(35721*(2 + 3*x)^(3/2)) - (2
*(1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/(27*(2 + 3*x)^(9/2)) + (370*(1
- 2*x)^(3/2)*(3 + 5*x)^(5/2))/(567*(2 + 3*x)^(7/2)) + (2776*Sqrt[
1 - 2*x]*(3 + 5*x)^(5/2))/(1701*(2 + 3*x)^(5/2)) - (100444*Sqrt[1
1/3]*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/750141 -
(1241596*Sqrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35
/33])/750141
```

Rubi [A] time = 0.494021, antiderivative size = 222, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.179$

$$\frac{2776\sqrt{1-2x}(5x+3)^{5/2}}{1701(3x+2)^{5/2}}+\frac{370(1-2x)^{3/2}(5x+3)^{5/2}}{567(3x+2)^{7/2}}-\frac{2(1-2x)^{5/2}(5x+3)^{5/2}}{27(3x+2)^{9/2}}-\frac{13316\sqrt{1-2x}(5x+3)^{3/2}}{35721(3x+2)^{3/2}}-\frac{1241596\sqrt{1-2x}\sqrt{5x+3}}{750141\sqrt{3x+2}}-\frac{1241596\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{750141}-\frac{100444\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{750141}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^(11/2),x]
```

```
[Out] (-1241596*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(750141*Sqrt[2 + 3*x]) - (
13316*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(35721*(2 + 3*x)^(3/2)) - (2
*(1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/(27*(2 + 3*x)^(9/2)) + (370*(1
- 2*x)^(3/2)*(3 + 5*x)^(5/2))/(567*(2 + 3*x)^(7/2)) + (2776*Sqrt[
1 - 2*x]*(3 + 5*x)^(5/2))/(1701*(2 + 3*x)^(5/2)) - (100444*Sqrt[1
1/3]*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/750141 -
(1241596*Sqrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35
/33])/750141
```

Rubi in Sympy [A] time = 48.9722, size = 201, normalized size = 0.91

$$-\frac{9434\left(-2x+1\right)^{\frac{5}{2}}\sqrt{5x+3}}{83349\left(3x+2\right)^{\frac{5}{2}}}-\frac{370\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{3}{2}}}{3969\left(3x+2\right)^{\frac{7}{2}}}-\frac{2\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{5}{2}}}{27\left(3x+2\right)^{\frac{9}{2}}}+\frac{33290\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{35721\left(3x+2\right)^{\frac{3}{2}}}+\frac{191720\sqrt{-2x+1}\sqrt{5x+3}}{107163\sqrt{3x+2}}-\frac{100444\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{2250423}-\frac{1241596\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{2250423}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(5/2)/(2+3*x)**(11/2),x)
```

```
[Out] -9434*(-2*x + 1)**(5/2)*sqrt(5*x + 3)/(83349*(3*x + 2)**(5/2)) -
370*(-2*x + 1)**(5/2)*(5*x + 3)**(3/2)/(3969*(3*x + 2)**(7/2)) -
2*(-2*x + 1)**(5/2)*(5*x + 3)**(5/2)/(27*(3*x + 2)**(9/2)) + 3329
0*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/(35721*(3*x + 2)**(3/2)) + 1917
20*sqrt(-2*x + 1)*sqrt(5*x + 3)/(107163*sqrt(3*x + 2)) - 100444*s
qrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/225042
3 - 1241596*sqrt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7),
35/33)/2250423
```

Mathematica [A] time = 0.31405, size = 109, normalized size = 0.49

$$\frac{2\left(\frac{3\sqrt{1-2x}\sqrt{5x+3}\left(29072682x^4+115002639x^3+142557831x^2+71920155x+12903031\right)}{(3x+2)^{9/2}}+\sqrt{2}\left(10192945F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+50222E\left(\right.\right.\right.}{2250423}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^(11/2),x]
```

```
[Out] (2*((3*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(12903031 + 71920155*x + 14255
7831*x^2 + 115002639*x^3 + 29072682*x^4))/(2 + 3*x)^(9/2) + Sqrt[
2]*(50222*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 10
192945*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])))/2250
423
```

Maple [C] time = 0.03, size = 624, normalized size = 2.8

$$-\frac{2}{22504230\,x^2+2250423\,x-6751269}\left(825628545\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^4\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(5/2)/(2+3*x)^(11/2),x)
```

```
[Out] -2/2250423*(825628545*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+
5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^4*(3+5*x)^(1/2)*(2+3
*x)^(1/2)*(1-2*x)^(1/2)+4067982*2^(1/2)*EllipticE(1/11*11^(1/2)*2
^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^4*(3+5*x)^
(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+2201676120*2^(1/2)*EllipticF(1/
11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))
*x^3*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)+10847952*2^(1/2)*E
llipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/
2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)+2201676
120*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*1
1^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^
(1/2)+10847952*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1
/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/
2)*(1-2*x)^(1/2)+978522720*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2
)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(
2+3*x)^(1/2)*(1-2*x)^(1/2)+4821312*2^(1/2)*EllipticE(1/11*11^(1/2
)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)
^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-872180460*x^6+163087120*2^(1/2
)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/
2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+803552*2
^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*1
1^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-353
7297216*x^5-4360088709*x^4-1550254392*x^3+680169084*x^2+608572302
*x+116127279)*(3+5*x)^(1/2)*(1-2*x)^(1/2)/(10*x^2+x-3)/(2+3*x)^(9
/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}(-2x+1)^{\frac{5}{2}}}{(3x+2)^{\frac{11}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(11/2),x, algorithm="maxima
```

```
[Out] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(11/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(100x^4+20x^3-59x^2-6x+9)\sqrt{5x+3}\sqrt{-2x+1}}{(243x^5+810x^4+1080x^3+720x^2+240x+32)\sqrt{3x+2}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(11/2),x, algorithm="fricas
```

```
[Out] integral((100*x^4 + 20*x^3 - 59*x^2 - 6*x + 9)*sqrt(5*x + 3)*sqrt
(-2*x + 1)/((243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)
*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(5/2)*(3+5*x)**(5/2)/(2+3*x)**(11/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}(-2x+1)^{\frac{5}{2}}}{(3x+2)^{\frac{11}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(11/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(11/2), x)
```

3.2766 $\int \frac{(1-2x)^{5/2}(3+5x)^{5/2}}{(2+3x)^{13/2}}\,dx$

Optimal. Leaf size=249

$$\frac{36980\sqrt{1-2x}(5x+3)^{5/2}}{18711(3x+2)^{7/2}}+\frac{370(1-2x)^{3/2}(5x+3)^{5/2}}{891(3x+2)^{9/2}}-\frac{2(1-2x)^{5/2}(5x+3)^{5/2}}{33(3x+2)^{11/2}}-\frac{55772\sqrt{1-2x}(5x+3)^{3/2}}{43659(3x+2)^{5/2}}+\frac{584888452\sqrt{1-2x}\sqrt{5x+3}}{57760857\sqrt{3x+2}}-\frac{17089252\sqrt{1-2x}\sqrt{5x+3}}{8251551(3x+2)^{3/2}}-\frac{13235368F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{5250987\sqrt{33}}-\frac{584888452E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{5250987\sqrt{33}}$$

```
[Out] (-17089252*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(8251551*(2 + 3*x)^(3/2))
 + (584888452*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(57760857*Sqrt[2 + 3*x
]) - (55772*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(43659*(2 + 3*x)^(5/2)
) - (2*(1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/(33*(2 + 3*x)^(11/2)) + (
370*(1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(891*(2 + 3*x)^(9/2)) + (369
80*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(18711*(2 + 3*x)^(7/2)) - (5848
88452*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(5250987
*Sqrt[33]) - (13235368*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]],
 35/33])/(5250987*Sqrt[33])
```

Rubi [A] time = 0.588197, antiderivative size = 249, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.214$

$$\frac{36980\sqrt{1-2x}(5x+3)^{5/2}}{18711(3x+2)^{7/2}}+\frac{370(1-2x)^{3/2}(5x+3)^{5/2}}{891(3x+2)^{9/2}}-\frac{2(1-2x)^{5/2}(5x+3)^{5/2}}{33(3x+2)^{11/2}}-\frac{55772\sqrt{1-2x}(5x+3)^{3/2}}{43659(3x+2)^{5/2}}+\frac{584888452\sqrt{1-2x}\sqrt{5x+3}}{57760857\sqrt{3x+2}}-\frac{17089252\sqrt{1-2x}\sqrt{5x+3}}{8251551(3x+2)^{3/2}}-\frac{13235368F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{5250987\sqrt{33}}-\frac{584888452E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{5250987\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^(13/2),x]
```


```
[Out] (-17089252*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(8251551*(2 + 3*x)^(3/2))
 + (584888452*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(57760857*Sqrt[2 + 3*x
]) - (55772*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(43659*(2 + 3*x)^(5/2)
) - (2*(1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/(33*(2 + 3*x)^(11/2)) + (
370*(1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(891*(2 + 3*x)^(9/2)) + (369
80*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(18711*(2 + 3*x)^(7/2)) - (5848
88452*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(5250987
*Sqrt[33]) - (13235368*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]],
 35/33])/(5250987*Sqrt[33])
```

Rubi in Sympy [A] time = 58.0702, size = 230, normalized size = 0.92

$$-\frac{48490\left(-2x+1\right)^{\frac{5}{2}}\sqrt{5x+3}}{916839\left(3x+2\right)^{\frac{7}{2}}}-\frac{370\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{3}{2}}}{6237\left(3x+2\right)^{\frac{9}{2}}}-\frac{2\left(-2x+1\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{5}{2}}}{33\left(3x+2\right)^{\frac{11}{2}}}+\frac{293926\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{916839\left(3x+2\right)^{\frac{5}{2}}}+\frac{584888452\sqrt{-2x+1}\sqrt{5x+3}}{57760857\sqrt{3x+2}}+\frac{6617684\sqrt{-2x+1}\sqrt{5x+3}}{8251551\left(3x+2\right)^{\frac{3}{2}}}-\frac{584888452\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{173282571}-\frac{13235368\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{183784545}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(5/2)/(2+3*x)**(13/2),x)
```

```
[Out] -48490*(-2*x + 1)**(5/2)*sqrt(5*x + 3)/(916839*(3*x + 2)**(7/2))
- 370*(-2*x + 1)**(5/2)*(5*x + 3)**(3/2)/(6237*(3*x + 2)**(9/2))
- 2*(-2*x + 1)**(5/2)*(5*x + 3)**(5/2)/(33*(3*x + 2)**(11/2)) + 2
93926*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/(916839*(3*x + 2)**(5/2)) +
 584888452*sqrt(-2*x + 1)*sqrt(5*x + 3)/(57760857*sqrt(3*x + 2))
+ 6617684*sqrt(-2*x + 1)*sqrt(5*x + 3)/(8251551*(3*x + 2)**(3/2))
 - 584888452*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7),
 35/33)/173282571 - 13235368*sqrt(35)*elliptic_f(asin(sqrt(55)*sq
rt(-2*x + 1)/11), 33/35)/183784545
```

Mathematica [A] time = 0.558912, size = 112, normalized size = 0.45

$$\frac{\frac{48\sqrt{2-4x}\sqrt{5x+3}(71063946918x^5+237923150688x^4+320012032635x^3+215597947743x^2+72620507583x+9770732477)}{(3x+2)^{11/2}} - 5864078080F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+\right.\right.}{1386260568\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^(13/2),x]
```

```
[Out] ((48*Sqrt[2 - 4*x]*Sqrt[3 + 5*x]*(9770732477 + 72620507583*x + 21
5597947743*x^2 + 320012032635*x^3 + 237923150688*x^4 + 7106394691
8*x^5))/(2 + 3*x)^(11/2) + 9358215232*EllipticE[ArcSin[Sqrt[2/11]
*Sqrt[3 + 5*x]], -33/2] - 5864078080*EllipticF[ArcSin[Sqrt[2/11]*
Sqrt[3 + 5*x]], -33/2])/(1386260568*Sqrt[2])
```

Maple [C] time = 0.031, size = 743, normalized size = 3.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(5/2)/(2+3*x)^(13/2),x)
```

```
[Out] 2/173282571*(44530342920*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*
(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^5*(3+5*x)^(1/2)*(
2+3*x)^(1/2)*(1-2*x)^(1/2)-71063946918*2^(1/2)*EllipticE(1/11*11^
(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^5*(
3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+148434476400*2^(1/2)*Ell
ipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)
*2^(1/2))*x^4*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-236879823
060*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*1
1^(1/2)*3^(1/2)*2^(1/2))*x^4*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^
(1/2)+197912635200*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x
)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*x)
^(1/2)*(2+3*x)^(1/2)-315839764080*2^(1/2)*EllipticE(1/11*11^(1/2)
*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x
)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)+131941756800*2^(1/2)*Elliptic
F(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1
/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-210559842720*2
^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/
2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)
+2131918407540*x^7+43980585600*2^(1/2)*EllipticF(1/11*11^(1/2)*2^
(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/
2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-70186614240*2^(1/2)*EllipticE(1/11
*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x
*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+7350886361394*x^6+5864
078080*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Elliptic
F(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1
/2))-9358215232*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)
*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(
1/2)*2^(1/2))+9674554908852*x^5+5286666174003*x^4-54699222996*x^3
```

```
-1429398032628*x^2-624272370816*x-87936592293)*(3+5*x)^(1/2)*(1-2
*x)^(1/2)/(10*x^2+x-3)/(2+3*x)^(11/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}(-2x+1)^{\frac{5}{2}}}{(3x+2)^{\frac{13}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(13/2),x, algorithm="maxima
```

```
[Out] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(13/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(100x^4+20x^3-59x^2-6x+9)\sqrt{5x+3}\sqrt{-2x+1}}{(729x^6+2916x^5+4860x^4+4320x^3+2160x^2+576x+64)\sqrt{3x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(13/2),x, algorithm="fricas
```

```
[Out] integral((100*x^4 + 20*x^3 - 59*x^2 - 6*x + 9)*sqrt(5*x + 3)*sqrt
(-2*x + 1)/((729*x^6 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 2160*x^2
+ 576*x + 64)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**(5/2)/(2+3*x)**(13/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}(-2x+1)^{\frac{5}{2}}}{(3x+2)^{\frac{13}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(13/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(13/2), x)
```

3.2767 $\int \frac{(1-2x)^{5/2}(3+5x)^{5/2}}{(2+3x)^{15/2}}\,dx$

Optimal. Leaf size=280

$$\frac{60080\sqrt{1-2x}(5x+3)^{5/2}}{34749(3x+2)^{9/2}}+\frac{370(1-2x)^{3/2}(5x+3)^{5/2}}{1287(3x+2)^{11/2}}-\frac{2(1-2x)^{5/2}(5x+3)^{5/2}}{39(3x+2)^{13/2}}-\frac{2622980\sqrt{1-2x}(5x+3)^{3/2}}{1702701(3x+2)^{7/2}}+\frac{129922578224\sqrt{1-2x}\sqrt{5x+3}}{5256237987\sqrt{3x+2}}+\frac{1876198516\sqrt{1-2x}\sqrt{5x+3}}{750891141(3x+2)^{3/2}}-\frac{54281308\sqrt{1-2x}\sqrt{5x+3}}{35756721(3x+2)^{5/2}}-\frac{3894280616F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{477839817\sqrt{33}}-\frac{129922578224E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{477839817\sqrt{33}}$$

```
[Out] (-54281308*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(35756721*(2 + 3*x)^(5/2)
) + (1876198516*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(750891141*(2 + 3*x)
^(3/2)) + (129922578224*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(5256237987*
Sqrt[2 + 3*x]) - (2622980*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(1702701
*(2 + 3*x)^(7/2)) - (2*(1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/(39*(2 +
3*x)^(13/2)) + (370*(1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(1287*(2 + 3
*x)^(11/2)) + (60080*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(34749*(2 + 3
*x)^(9/2)) - (129922578224*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*
x]], 35/33])/(477839817*Sqrt[33]) - (3894280616*EllipticF[ArcSin[
Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(477839817*Sqrt[33])
```

Rubi [A] time = 0.681419, antiderivative size = 280, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{60080\sqrt{1-2x}(5x+3)^{5/2}}{34749(3x+2)^{9/2}}+\frac{370(1-2x)^{3/2}(5x+3)^{5/2}}{1287(3x+2)^{11/2}}-\frac{2(1-2x)^{5/2}(5x+3)^{5/2}}{39(3x+2)^{13/2}}-\frac{2622980\sqrt{1-2x}(5x+3)^{3/2}}{1702701(3x+2)^{7/2}}+\frac{129922578224\sqrt{1-2x}\sqrt{5x+3}}{5256237987\sqrt{3x+2}}+\frac{1876198516\sqrt{1-2x}\sqrt{5x+3}}{750891141(3x+2)^{3/2}}-\frac{54281308\sqrt{1-2x}\sqrt{5x+3}}{35756721(3x+2)^{5/2}}-\frac{3894280616F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{477839817\sqrt{33}}-\frac{129922578224E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{477839817\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^(15/2),x]
```


```
[Out] (-54281308*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(35756721*(2 + 3*x)^(5/2)
) + (1876198516*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(750891141*(2 + 3*x)
^(3/2)) + (129922578224*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(5256237987*
Sqrt[2 + 3*x]) - (2622980*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(1702701
*(2 + 3*x)^(7/2)) - (2*(1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/(39*(2 +
3*x)^(13/2)) + (370*(1 - 2*x)^(3/2)*(3 + 5*x)^(5/2))/(1287*(2 + 3
*x)^(11/2)) + (60080*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))/(34749*(2 + 3
*x)^(9/2)) - (129922578224*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*
x]], 35/33])/(477839817*Sqrt[33]) - (3894280616*EllipticF[ArcSin[
Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(477839817*Sqrt[33])
```

Rubi in Sympy [A] time = 66.3478, size = 258, normalized size = 0.92

$$-\frac{49810(-2x+1)^{\frac{5}{2}}\sqrt{5x+3}}{1702701(3x+2)^{\frac{9}{2}}}-\frac{370(-2x+1)^{\frac{5}{2}}(5x+3)^{\frac{3}{2}}}{9009(3x+2)^{\frac{11}{2}}}-\frac{2(-2x+1)^{\frac{5}{2}}(5x+3)^{\frac{5}{2}}}{39(3x+2)^{\frac{13}{2}}}+\frac{610730(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{3972969(3x+2)^{\frac{7}{2}}}+\frac{129922578224\sqrt{-2x+1}\sqrt{5x+3}}{5256237987\sqrt{3x+2}}+\frac{1876198516\sqrt{-2x+1}\sqrt{5x+3}}{750891141(3x+2)^{\frac{3}{2}}}+\frac{11823632\sqrt{-2x+1}\sqrt{5x+3}}{35756721(3x+2)^{\frac{5}{2}}}-\frac{129922578224\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{15768713961}-\frac{3894280616\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{16724393595}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(5/2)/(2+3*x)**(15/2),x)
```

```
[Out] -49810*(-2*x + 1)**(5/2)*sqrt(5*x + 3)/(1702701*(3*x + 2)**(9/2))
 - 370*(-2*x + 1)**(5/2)*(5*x + 3)**(3/2)/(9009*(3*x + 2)**(11/2)
) - 2*(-2*x + 1)**(5/2)*(5*x + 3)**(5/2)/(39*(3*x + 2)**(13/2)) +
 610730*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/(3972969*(3*x + 2)**(7/2)
) + 129922578224*sqrt(-2*x + 1)*sqrt(5*x + 3)/(5256237987*sqrt(3*
x + 2)) + 1876198516*sqrt(-2*x + 1)*sqrt(5*x + 3)/(750891141*(3*x
 + 2)**(3/2)) + 11823632*sqrt(-2*x + 1)*sqrt(5*x + 3)/(35756721*(
3*x + 2)**(5/2)) - 129922578224*sqrt(33)*elliptic_e(asin(sqrt(21)
*sqrt(-2*x + 1)/7), 35/33)/15768713961 - 3894280616*sqrt(35)*elli
ptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/16724393595
```

Mathematica [A] time = 0.473664, size = 117, normalized size = 0.42

$$\frac{\frac{48\sqrt{2-4x}\sqrt{5x+3}\left(47356779762648x^6+191022825888450x^5+321056742490902x^4+287874442427697x^3+145238558453649x^2+39086872650957x+4382625184685\right)}{(3x+2)^{13/2}}-1}{126149711688\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^(15/2),x]
```

```
[Out] ((48*Sqrt[2 - 4*x]*Sqrt[3 + 5*x]*(4382625184685 + 39086872650957*
x + 145238558453649*x^2 + 287874442427697*x^3 + 321056742490902*x
^4 + 191022825888450*x^5 + 47356779762648*x^6))/(2 + 3*x)^(13/2)
+ 2078761251584*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2
] - 1050671168960*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33
/2])/(126149711688*Sqrt[2])
```

Maple [C] time = 0.032, size = 862, normalized size = 3.1

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(5/2)/(2+3*x)^(15/2),x)
```

```
[Out] 2/15768713961*(23935602567870*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(
1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^6*(3+5*x)^(1
/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-47356779762648*2^(1/2)*EllipticE(
1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2
))*x^6*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+95742410271480*2
^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/
2)*3^(1/2)*2^(1/2))*x^5*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)
-189427119050592*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^
```

```
(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^5*(3+5*x)^(1/2)*(2+3*x)^(
1/2)*(1-2*x)^(1/2)+159570683785800*2^(1/2)*EllipticF(1/11*11^(1/2
)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^4*(3+5*
x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-315711865084320*2^(1/2)*Elli
pticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*
2^(1/2))*x^4*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+1418406078
09600*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I
*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x
)^(1/2)-280632768963840*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(
3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3
+5*x)^(1/2)*(2+3*x)^(1/2)+1420703392879440*x^8+70920303904800*2^(
1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)
*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-1
40316384481920*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1
/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/
2)*(1-2*x)^(1/2)+5872755115941444*x^7+18912081041280*2^(1/2)*Elli
pticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*
2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-374177025285
12*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11
^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/
2)+9778559734528578*x^6+2101342337920*2^(1/2)*(3+5*x)^(1/2)*(2+3*
x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1
/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-4157522503168*2^(1/2)*(3+5*x)
^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2
)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+7880198067307566*
x^5+2331269398474443*x^4-982548126959616*x^3-1058407652589420*x^2
-338633978304558*x-39443626662165)*(3+5*x)^(1/2)*(1-2*x)^(1/2)/(1
0*x^2+x-3)/(2+3*x)^(13/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}(-2x+1)^{\frac{5}{2}}}{(3x+2)^{\frac{15}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(15/2),x, algorithm="maxima
```

```
[Out] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(15/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(100\,x^{4}+20\,x^{3}-59\,x^{2}-6\,x+9\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}}{\left(2187\,x^{7}+10206\,x^{6}+20412\,x^{5}+22680\,x^{4}+15120\,x^{3}+6048\,x^{2}+1344\,x+128\right)\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(15/2),x, algorithm="fricas
```

```
[Out] integral((100*x^4 + 20*x^3 - 59*x^2 - 6*x + 9)*sqrt(5*x + 3)*sqrt
(-2*x + 1)/((2187*x^7 + 10206*x^6 + 20412*x^5 + 22680*x^4 + 15120
*x^3 + 6048*x^2 + 1344*x + 128)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(5/2)*(3+5*x)**(5/2)/(2+3*x)**(15/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}(-2x+1)^{\frac{5}{2}}}{(3x+2)^{\frac{15}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(15/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(15/2), x)
```

3.2768 $\int \frac{(1-2x)^{5/2}(3+5x)^{5/2}}{(2+3x)^{17/2}} dx$

Optimal. Leaf size=311

$$\frac{16636\sqrt{1-2x}(5x+3)^{5/2}}{11583(3x+2)^{11/2}}+\frac{74(1-2x)^{3/2}(5x+3)^{5/2}}{351(3x+2)^{13/2}}-\frac{2(1-2x)^{5/2}(5x+3)^{5/2}}{45(3x+2)^{15/2}}-\frac{1085156\sqrt{1-2x}(5x+3)^{3/2}}{729729(3x+2)^{9/2}}+\frac{12641611554328\sqrt{1-2x}\sqrt{5x+3}}{183968329545\sqrt{3x+2}}+\frac{181941877952\sqrt{1-2x}\sqrt{5x+3}}{26281189935(3x+2)^{3/2}}+\frac{3914701972\sqrt{1-2x}\sqrt{5x+3}}{3754455705(3x+2)^{5/2}}-\frac{112817764\sqrt{1-2x}\sqrt{5x+3}}{107270163(3x+2)^{7/2}}-\frac{380220959152F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{16724393595\sqrt{33}}-\frac{12641611554328E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{16724393595\sqrt{33}}$$

```
[Out] (-112817764*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(107270163*(2 + 3*x)^(7/
2)) + (3914701972*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(3754455705*(2 + 3
*x)^(5/2)) + (181941877952*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(26281189
935*(2 + 3*x)^(3/2)) + (12641611554328*Sqrt[1 - 2*x]*Sqrt[3 + 5*x
])/(183968329545*Sqrt[2 + 3*x]) - (1085156*Sqrt[1 - 2*x]*(3 + 5*x
)^(3/2))/(729729*(2 + 3*x)^(9/2)) - (2*(1 - 2*x)^(5/2)*(3 + 5*x)^
(5/2))/(45*(2 + 3*x)^(15/2)) + (74*(1 - 2*x)^(3/2)*(3 + 5*x)^(5/2
))/(351*(2 + 3*x)^(13/2)) + (16636*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))
/(11583*(2 + 3*x)^(11/2)) - (12641611554328*EllipticE[ArcSin[Sqrt
[3/7]*Sqrt[1 - 2*x]], 35/33])/(16724393595*Sqrt[33]) - (380220959
152*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(167243935
95*Sqrt[33])
```

Rubi [A] time = 0.78065, antiderivative size = 311, normalized size of antiderivative = 1., number of steps used = 11, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{16636\sqrt{1-2x}(5x+3)^{5/2}}{11583(3x+2)^{11/2}}+\frac{74(1-2x)^{3/2}(5x+3)^{5/2}}{351(3x+2)^{13/2}}-\frac{2(1-2x)^{5/2}(5x+3)^{5/2}}{45(3x+2)^{15/2}}-\frac{1085156\sqrt{1-2x}(5x+3)^{3/2}}{729729(3x+2)^{9/2}}+\frac{12641611554328\sqrt{1-2x}\sqrt{5x+3}}{183968329545\sqrt{3x+2}}+\frac{181941877952\sqrt{1-2x}\sqrt{5x+3}}{26281189935(3x+2)^{3/2}}+\frac{3914701972\sqrt{1-2x}\sqrt{5x+3}}{3754455705(3x+2)^{5/2}}-\frac{112817764\sqrt{1-2x}\sqrt{5x+3}}{107270163(3x+2)^{7/2}}-\frac{380220959152F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{16724393595\sqrt{33}}-\frac{12641611554328E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{16724393595\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^(17/2),x]
```


```
[Out] (-112817764*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(107270163*(2 + 3*x)^(7/
2)) + (3914701972*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(3754455705*(2 + 3
*x)^(5/2)) + (181941877952*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(26281189
935*(2 + 3*x)^(3/2)) + (12641611554328*Sqrt[1 - 2*x]*Sqrt[3 + 5*x
])/(183968329545*Sqrt[2 + 3*x]) - (1085156*Sqrt[1 - 2*x]*(3 + 5*x
)^(3/2))/(729729*(2 + 3*x)^(9/2)) - (2*(1 - 2*x)^(5/2)*(3 + 5*x)^
(5/2))/(45*(2 + 3*x)^(15/2)) + (74*(1 - 2*x)^(3/2)*(3 + 5*x)^(5/2
))/(351*(2 + 3*x)^(13/2)) + (16636*Sqrt[1 - 2*x]*(3 + 5*x)^(5/2))
/(11583*(2 + 3*x)^(11/2)) - (12641611554328*EllipticE[ArcSin[Sqrt
[3/7]*Sqrt[1 - 2*x]], 35/33])/(16724393595*Sqrt[33]) - (380220959
152*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(167243935
95*Sqrt[33])
```

Rubi in Sympy [A] time = 74.9808, size = 287, normalized size = 0.92

$$-\frac{10226\,(-2x+1)^{\frac{5}{2}}\sqrt{5x+3}}{567567\,(3x+2)^{\frac{11}{2}}}-\frac{74\,(-2x+1)^{\frac{5}{2}}\,(5x+3)^{\frac{3}{2}}}{2457\,(3x+2)^{\frac{13}{2}}}-\frac{2\,(-2x+1)^{\frac{5}{2}}\,(5x+3)^{\frac{5}{2}}}{45\,(3x+2)^{\frac{15}{2}}}+\frac{450566\,(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}{5108103\,(3x+2)^{\frac{9}{2}}}+\frac{12641611554328\sqrt{-2x+1}\sqrt{5x+3}}{183968329545\sqrt{3x+2}}+\frac{181941877952\sqrt{-2x+1}\sqrt{5x+3}}{26281189935\,(3x+2)^{\frac{3}{2}}}+\frac{3914701972\sqrt{-2x+1}\sqrt{5x+3}}{3754455705\,(3x+2)^{\frac{5}{2}}}+\frac{16959884\sqrt{-2x+1}\sqrt{5x+3}}{107270163\,(3x+2)^{\frac{7}{2}}}-\frac{12641611554328\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{551904988635}-\frac{380220959152\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{551904988635}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(3+5*x)**(5/2)/(2+3*x)**(17/2),x)
```

```
[Out] -10226*(-2*x + 1)**(5/2)*sqrt(5*x + 3)/(567567*(3*x + 2)**(11/2))
 - 74*(-2*x + 1)**(5/2)*(5*x + 3)**(3/2)/(2457*(3*x + 2)**(13/2))
 - 2*(-2*x + 1)**(5/2)*(5*x + 3)**(5/2)/(45*(3*x + 2)**(15/2)) +
450566*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/(5108103*(3*x + 2)**(9/2))
 + 12641611554328*sqrt(-2*x + 1)*sqrt(5*x + 3)/(183968329545*sqrt
(3*x + 2)) + 181941877952*sqrt(-2*x + 1)*sqrt(5*x + 3)/(262811899
35*(3*x + 2)**(3/2)) + 3914701972*sqrt(-2*x + 1)*sqrt(5*x + 3)/(3
754455705*(3*x + 2)**(5/2)) + 16959884*sqrt(-2*x + 1)*sqrt(5*x +
3)/(107270163*(3*x + 2)**(7/2)) - 12641611554328*sqrt(33)*ellipti
c_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/551904988635 - 380220
959152*sqrt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33
)/551904988635
```

Mathematica [A] time = 0.501348, size = 122, normalized size = 0.39

$$\frac{\frac{96\sqrt{2-4x}\sqrt{5x+3}(13823602234657668x^7+64974368463330312x^6+130900492508039982x^5+146528498784887100x^4+98427465692862075x^3+39676146370896231x^2+88}{(3x+2)^{15/2}}}{8830}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2))/(2 + 3*x)^(17/2),x]
```

```
[Out] ((96*Sqrt[2 - 4*x]*Sqrt[3 + 5*x]*(853124799464729 + 8886579657279
639*x + 39676146370896231*x^2 + 98427465692862075*x^3 + 146528498
784887100*x^4 + 130900492508039982*x^5 + 64974368463330312*x^6 +
13823602234657668*x^7))/(2 + 3*x)^(15/2) + 404531569738496*Ellipt
icE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 203774903306240*El
lipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/(8830479818160*
Sqrt[2])
```

Maple [C] time = 0.065, size = 981, normalized size = 3.2

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(3+5*x)^(5/2)/(2+3*x)^(17/2),x)
```

```
[Out] -2/551904988635*(77419842517122564*x-32495729111616960*2^(1/2)*El
lipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2
)*2^(1/2))*x^6*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+95570583
350719680*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1
/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2
```

```
+3*x)^(1/2)-19256728362439680*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(
1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1
/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-4814820906099200*2^(1/2)*Ellipti
cF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(
1/2))*x^3*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)-4279272969431
040*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*1
1^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1
/2)-7221273135914880 0*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+
5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^4*(3+5*x)^(1/2)*(2+3
*x)^(1/2)*(1-2*x)^(1/2)-64991458223233920*2^(1/2)*EllipticF(1/11*
11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^
5*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-2214305034568163712*x
^5-4203787124900760138*x^6-3997525460519271384*x^7+50022136240468
0812*x^3-1668102991414892 55*x^4+304831834382285292*x^2-4147080670
39730040*x^9-1990701860603882364*x^8+8495162964508416*2^(1/2)*Ell
ipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)
*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+64510143761
735784*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*
I*11^(1/2)*3^(1/2)*2^(1/2))*x^6*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*
x)^(1/2)+13823602234657668*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2
)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^7*(3+5*x)^(1/2)
*(2+3*x)^(1/2)*(1-2*x)^(1/2)+143355875026079520*2^(1/2)*EllipticE
(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/
2))*x^4*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+382282333402878
72*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11
^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(
1/2)-6963370523917920*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+
5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^7*(3+5*x)^(1/2)*(2+3
*x)^(1/2)*(1-2*x)^(1/2)+129020287523471568*2^(1/2)*EllipticE(1/11
*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x
^5*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-407549806612480*2^(1
/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(
1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+809063
139476992*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Ellip
ticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2
^(1/2))+7678123195182561)*(3+5*x)^(1/2)*(1-2*x)^(1/2)/(10*x^2+x-3
)/(2+3*x)^(15/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}(-2x+1)^{\frac{5}{2}}}{(3x+2)^{\frac{17}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(17/2),x, algorithm="maxima
```

```
[Out] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(17/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(100x^4+20x^3-59x^2-6x+9)\sqrt{5x+3}\sqrt{-2x+1}}{(6561x^8+34992x^7+81648x^6+108864x^5+90720x^4+48384x^3+16128x^2+3072x+256)\sqrt{3x+2}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(17/2),x, algorithm="fricas
```

```
[Out] integral((100*x^4 + 20*x^3 - 59*x^2 - 6*x + 9)*sqrt(5*x + 3)*sqrt
(-2*x + 1)/((6561*x^8 + 34992*x^7 + 81648*x^6 + 108864*x^5 + 9072
0*x^4 + 48384*x^3 + 16128*x^2 + 3072*x + 256)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(3+5*x)**(5/2)/(2+3*x)**(17/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}(-2x+1)^{\frac{5}{2}}}{(3x+2)^{\frac{17}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(17/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)/(3*x + 2)^(17/2), x)
```

3.2769 $\int \frac{(1-2x)^{5/2}(2+3x)^{5/2}}{\sqrt{3+5x}}\,dx$

Optimal. Leaf size=218

$$\frac{2}{55}(1-2x)^{5/2}\sqrt{5x+3}(3x+2)^{5/2}+\frac{62(1-2x)^{3/2}\sqrt{5x+3}(3x+2)^{5/2}}{1485}+\frac{4258\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{5/2}}{155925}+\frac{181333\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}}{3898125}-\frac{2865161\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{19490625}-\frac{3963068F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{8859375\sqrt{33}}-\frac{231061879E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{17718750\sqrt{33}}$$

```
[Out] (-2865161*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/19490625 + (
181333*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/3898125 + (42
58*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x])/155925 + (62*(1 -
 2*x)^(3/2)*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x])/1485 + (2*(1 - 2*x)^(5
/2)*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x])/55 - (231061879*EllipticE[ArcS
in[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(17718750*Sqrt[33]) - (39630
68*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(8859375*Sq
rt[33])
```

Rubi [A] time = 0.4873, antiderivative size = 218, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{2}{55}(1-2x)^{5/2}\sqrt{5x+3}(3x+2)^{5/2}+\frac{62(1-2x)^{3/2}\sqrt{5x+3}(3x+2)^{5/2}}{1485}+\frac{4258\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{5/2}}{155925}+\frac{181333\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}}{3898125}-\frac{2865161\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{19490625}-\frac{3963068F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{8859375\sqrt{33}}-\frac{231061879E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{17718750\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(2 + 3*x)^(5/2))/Sqrt[3 + 5*x],x]
```

```
[Out] (-2865161*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/19490625 + (
181333*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/3898125 + (42
58*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x])/155925 + (62*(1 -
 2*x)^(3/2)*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x])/1485 + (2*(1 - 2*x)^(5
/2)*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x])/55 - (231061879*EllipticE[ArcS
in[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(17718750*Sqrt[33]) - (39630
68*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(8859375*Sq
rt[33])
```

Rubi in Sympy [A] time = 50.4115, size = 201, normalized size = 0.92

$$\frac{2(-2x+1)^{\frac{5}{2}}(3x+2)^{\frac{5}{2}}\sqrt{5x+3}}{55}+\frac{62(-2x+1)^{\frac{3}{2}}(3x+2)^{\frac{5}{2}}\sqrt{5x+3}}{1485}+\frac{4258\sqrt{-2x+1}(3x+2)^{\frac{5}{2}}\sqrt{5x+3}}{155925}+\frac{181333\sqrt{-2x+1}(3x+2)^{\frac{3}{2}}\sqrt{5x+3}}{3898125}-\frac{2865161\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{19490625}-\frac{231061879\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{584718750}-\frac{3963068\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{292359375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**(5/2)/(3+5*x)**(1/2),x)
```

```
[Out] 2*(-2*x + 1)**(5/2)*(3*x + 2)**(5/2)*sqrt(5*x + 3)/55 + 62*(-2*x
+ 1)**(3/2)*(3*x + 2)**(5/2)*sqrt(5*x + 3)/1485 + 4258*sqrt(-2*x
+ 1)*(3*x + 2)**(5/2)*sqrt(5*x + 3)/155925 + 181333*sqrt(-2*x + 1
)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/3898125 - 2865161*sqrt(-2*x + 1)
*sqrt(3*x + 2)*sqrt(5*x + 3)/19490625 - 231061879*sqrt(33)*ellipt
ic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/584718750 - 3963068*
sqrt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/29235
9375
```

Mathematica [A] time = 0.510876, size = 107, normalized size = 0.49

$$\frac{15\sqrt{2-4x}\sqrt{3x+2}\sqrt{5x+3}\left(25515000x^4-6142500x^3-23717250x^2+9526995x+7167169\right)-100280635F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5\right.\right.}{292359375\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(2 + 3*x)^(5/2))/Sqrt[3 + 5*x],x]
```

```
[Out] (15*Sqrt[2 - 4*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(7167169 + 9526995*
x - 23717250*x^2 - 6142500*x^3 + 25515000*x^4) + 231061879*Ellipt
icE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 100280635*Elliptic
F[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/(292359375*Sqrt[2])
```

Maple [C] time = 0.017, size = 184, normalized size = 0.8

$$\frac{1}{17541562500\,x^3+13448531250\,x^2-4093031250\,x-3508312500}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(22963500000\,x^7+120771000\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^(5/2)/(3+5*x)^(1/2),x)
```

```
[Out] 1/584718750*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(2296350000
0*x^7+12077100000*x^6+100280635*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/
2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/
2*I*11^(1/2)*3^(1/2)*2^(1/2))-231061879*2^(1/2)*(3+5*x)^(1/2)*(2+
3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^
(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-30942000000*x^5-11093382000
*x^4+19110351150*x^3+7213782660*x^2-3219964590*x-1290090420)/(30*
x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{5}{2}}(-2x+1)^{\frac{5}{2}}}{\sqrt{5x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(5/2)*(-2*x + 1)^(5/2)/sqrt(5*x + 3),x, algorithm="maxima")
```

```
[Out] integrate((3*x + 2)^(5/2)*(-2*x + 1)^(5/2)/sqrt(5*x + 3), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(36x^4+12x^3-23x^2-4x+4)\sqrt{3x+2}\sqrt{-2x+1}}{\sqrt{5x+3}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(5/2)*(-2*x + 1)^(5/2)/sqrt(5*x + 3),x, algorithm="fricas")
```

```
[Out] integral((36*x^4 + 12*x^3 - 23*x^2 - 4*x + 4)*sqrt(3*x + 2)*sqrt(
-2*x + 1)/sqrt(5*x + 3), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)**(5/2)/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{5}{2}}(-2x+1)^{\frac{5}{2}}}{\sqrt{5x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(5/2)*(-2*x + 1)^(5/2)/sqrt(5*x + 3),x, algorithm="giac")
```

```
[Out] integrate((3*x + 2)^(5/2)*(-2*x + 1)^(5/2)/sqrt(5*x + 3), x)
```

3.2770 $\int \frac{(1-2x)^{5/2}(2+3x)^{3/2}}{\sqrt{3+5x}}\,dx$

Optimal. Leaf size=191

$$\frac{2}{45}(3x+2)^{3/2}\sqrt{5x+3}(1-2x)^{5/2}+\frac{106(3x+2)^{3/2}\sqrt{5x+3}(1-2x)^{3/2}}{1575}+\frac{8878(3x+2)^{3/2}\sqrt{5x+3}\sqrt{1-2x}}{118125}+\frac{21547\sqrt{3x+2}\sqrt{5x+3}\sqrt{1-2x}}{1771875}-\frac{509189\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{8859375}-\frac{8024546\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{8859375}$$

```
[Out] (21547*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/1771875 + (8878
*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/118125 + (106*(1 -
2*x)^(3/2)*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/1575 + (2*(1 - 2*x)^(5/
2)*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/45 - (8024546*Sqrt[11/3]*Ellipt
icE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/8859375 - (509189*Sq
rt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/88593
75
```

Rubi [A] time = 0.399975, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.179$

$$\frac{2}{45}(3x+2)^{3/2}\sqrt{5x+3}(1-2x)^{5/2}+\frac{106(3x+2)^{3/2}\sqrt{5x+3}(1-2x)^{3/2}}{1575}+\frac{8878(3x+2)^{3/2}\sqrt{5x+3}\sqrt{1-2x}}{118125}+\frac{21547\sqrt{3x+2}\sqrt{5x+3}\sqrt{1-2x}}{1771875}-\frac{509189\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{8859375}-\frac{8024546\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{8859375}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(2 + 3*x)^(3/2))/Sqrt[3 + 5*x],x]
```


```
[Out] (21547*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/1771875 + (8878
*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/118125 + (106*(1 -
2*x)^(3/2)*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/1575 + (2*(1 - 2*x)^(5/
2)*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/45 - (8024546*Sqrt[11/3]*Ellipt
icE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/8859375 - (509189*Sq
rt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/88593
75
```

Rubi in Sympy [A] time = 42.3839, size = 172, normalized size = 0.9

$$\frac{2\left(-2x+1\right)^{\frac{5}{2}}\left(3x+2\right)^{\frac{3}{2}}\sqrt{5x+3}}{45}+\frac{106\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{\frac{3}{2}}\sqrt{5x+3}}{1575}+\frac{8878\sqrt{-2x+1}\left(3x+2\right)^{\frac{3}{2}}\sqrt{5x+3}}{118125}+\frac{21547\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{1771875}-\frac{8024546\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{26578125}-\frac{509189\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{26578125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**(3/2)/(3+5*x)**(1/2),x)
```

```
[Out] 2*(-2*x + 1)**(5/2)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/45 + 106*(-2*x
 + 1)**(3/2)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/1575 + 8878*sqrt(-2*x
 + 1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/118125 + 21547*sqrt(-2*x + 1
```

```
)*sqrt(3*x + 2)*sqrt(5*x + 3)/1771875 - 8024546*sqrt(33)*elliptic
_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/26578125 - 509189*sqrt
(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/26578125
```

Mathematica [A] time = 0.33754, size = 102, normalized size = 0.53

$$\frac{15\sqrt{2-4x}\sqrt{3x+2}\sqrt{5x+3}\left(945000x^3-1030500x^2-113490x+683887\right)+754145F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+160490}{26578125\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(2 + 3*x)^(3/2))/Sqrt[3 + 5*x],x]
```

```
[Out] (15*Sqrt[2 - 4*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(683887 - 113490*x
- 1030500*x^2 + 945000*x^3) + 16049092*EllipticE[ArcSin[Sqrt[2/11
]*Sqrt[3 + 5*x]], -33/2] + 754145*EllipticF[ArcSin[Sqrt[2/11]*Sqr
t[3 + 5*x]], -33/2])/(26578125*Sqrt[2])
```

Maple [C] time = 0.017, size = 179, normalized size = 0.9

$$-\frac{1}{1594687500\,x^3+1222593750\,x^2-372093750\,x-318937500}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(-850500000\,x^6+754145\,\sqrt{2}\sqrt{3+}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^(3/2)/(3+5*x)^(1/2),x)
```

```
[Out] -1/53156250*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(-850500000
*x^6+754145*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Ell
ipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)
*2^(1/2))+16049092*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1
/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*
3^(1/2)*2^(1/2))+275400000*x^5+1011636000*x^4-583495200*x^3-68120
4930*x^2+123188070*x+123099660)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{3}{2}}(-2\,x+1)^{\frac{5}{2}}}{\sqrt{5\,x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(3/2)*(-2*x + 1)^(5/2)/sqrt(5*x + 3),x, algorithm="maxima")
```

```
[Out] integrate((3*x + 2)^(3/2)*(-2*x + 1)^(5/2)/sqrt(5*x + 3), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\left(12\,x^3-4\,x^2-5\,x+2\right)\sqrt{3\,x+2}\sqrt{-2\,x+1}}{\sqrt{5\,x+3}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(3/2)*(-2*x + 1)^(5/2)/sqrt(5*x + 3),x, algorithm="fricas")
```

```
[Out] integral((12*x^3 - 4*x^2 - 5*x + 2)*sqrt(3*x + 2)*sqrt(-2*x + 1)/
sqrt(5*x + 3), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)**(3/2)/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{3}{2}}(-2x+1)^{\frac{5}{2}}}{\sqrt{5x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(3/2)*(-2*x + 1)^(5/2)/sqrt(5*x + 3),x, algorithm="giac")
```

```
[Out] integrate((3*x + 2)^(3/2)*(-2*x + 1)^(5/2)/sqrt(5*x + 3), x)
```

3.2771 $\int \frac{(1-2x)^{5/2}\sqrt{2+3x}}{\sqrt{3+5x}}\,dx$

Optimal. Leaf size=160

$$\frac{2}{35}\sqrt{3x+2}\sqrt{5x+3}(1-2x)^{5/2}+\frac{326\sqrt{3x+2}\sqrt{5x+3}(1-2x)^{3/2}}{2625}+\frac{30922\sqrt{3x+2}\sqrt{5x+3}\sqrt{1-2x}}{118125}-\frac{132824\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{590625}-\frac{408311\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{590625}$$

```
[Out] (30922*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/118125 + (326*(
1 - 2*x)^(3/2)*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/2625 + (2*(1 - 2*x)^(
5/2)*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/35 - (408311*Sqrt[11/3]*Ellipti
cE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/590625 - (132824*Sqrt
[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/590625
```

Rubi [A] time = 0.335705, antiderivative size = 160, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{2}{35}\sqrt{3x+2}\sqrt{5x+3}(1-2x)^{5/2}+\frac{326\sqrt{3x+2}\sqrt{5x+3}(1-2x)^{3/2}}{2625}+\frac{30922\sqrt{3x+2}\sqrt{5x+3}\sqrt{1-2x}}{118125}-\frac{132824\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{590625}-\frac{408311\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{590625}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*Sqrt[2 + 3*x])/Sqrt[3 + 5*x],x]
```


```
[Out] (30922*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/118125 + (326*(
1 - 2*x)^(3/2)*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/2625 + (2*(1 - 2*x)^(
5/2)*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/35 - (408311*Sqrt[11/3]*Ellipti
cE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/590625 - (132824*Sqrt
[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/590625
```

Rubi in Sympy [A] time = 33.8684, size = 143, normalized size = 0.89

$$\frac{2(-2x+1)^{\frac{5}{2}}\sqrt{3x+2}\sqrt{5x+3}}{35}+\frac{326(-2x+1)^{\frac{3}{2}}\sqrt{3x+2}\sqrt{5x+3}}{2625}+\frac{30922\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{118125}-\frac{408311\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{1771875}-\frac{132824\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{1771875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] 2*(-2*x + 1)**(5/2)*sqrt(3*x + 2)*sqrt(5*x + 3)/35 + 326*(-2*x +
1)**(3/2)*sqrt(3*x + 2)*sqrt(5*x + 3)/2625 + 30922*sqrt(-2*x + 1)
*sqrt(3*x + 2)*sqrt(5*x + 3)/118125 - 408311*sqrt(33)*elliptic_e(
asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/1771875 - 132824*sqrt(33)
*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/1771875
```

Mathematica [A] time = 0.254527, size = 102, normalized size = 0.64

$$\frac{30\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}\left(13500x^2-28170x+26171\right)+1783285\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+408311\sqrt{2}E\left(\sin^{-1}\left(\right.\right.}{1771875}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*Sqrt[2 + 3*x])/Sqrt[3 + 5*x],x]
```

```
[Out] (30*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(26171 - 28170*x +
13500*x^2) + 408311*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 +
5*x]], -33/2] + 1783285*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[
3 + 5*x]], -33/2])/1771875
```

Maple [C] time = 0.02, size = 174, normalized size = 1.1

$$-\frac{1}{53156250\,x^{3}+40753125\,x^{2}-12403125\,x-10631250}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(1783285\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}Ell\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^(1/2)/(3+5*x)^(1/2),x)
```

```
[Out] -1/1771875*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(1783285*2^(
1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^
(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+40831
1*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/1
1*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-
12150000*x^5+16038000*x^4-1281600*x^3-21543690*x^2+425310*x+47107
80)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{3\,x+2}(-2\,x+1)^{\frac{5}{2}}}{\sqrt{5\,x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(3*x + 2)*(-2*x + 1)^(5/2)/sqrt(5*x + 3),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(3*x + 2)*(-2*x + 1)^(5/2)/sqrt(5*x + 3), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\left(4\,x^{2}-4\,x+1\right)\sqrt{3\,x+2}\sqrt{-2\,x+1}}{\sqrt{5\,x+3}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(3*x + 2)*(-2*x + 1)^(5/2)/sqrt(5*x + 3),x, algorithm="fricas")
```

```
[Out] integral((4*x^2 - 4*x + 1)*sqrt(3*x + 2)*sqrt(-2*x + 1)/sqrt(5*x
+ 3), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{3\,x+2}(-2\,x+1)^{\frac{5}{2}}}{\sqrt{5\,x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(3*x + 2)*(-2*x + 1)^(5/2)/sqrt(5*x + 3),x, algorithm="giac")
```

```
[Out] integrate(sqrt(3*x + 2)*(-2*x + 1)^(5/2)/sqrt(5*x + 3), x)
```

3.2772 $\int \frac{(1-2x)^{5/2}}{\sqrt{2+3x}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=129

$$-\frac{4}{75}\sqrt{3x+2}\sqrt{5x+3}(1-2x)^{3/2}-\frac{1088\sqrt{3x+2}\sqrt{5x+3}\sqrt{1-2x}}{3375}-\frac{34154\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{16875}+\frac{53194\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{16875}$$

```
[Out] (-1088*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/3375 - (4*(1 -
2*x)^(3/2)*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/75 + (53194*Sqrt[11/3]*El
lipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/16875 - (34154*S
qrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1687
5
```

Rubi [A] time = 0.260521, antiderivative size = 129, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{4}{75}\sqrt{3x+2}\sqrt{5x+3}(1-2x)^{3/2}-\frac{1088\sqrt{3x+2}\sqrt{5x+3}\sqrt{1-2x}}{3375}-\frac{34154\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{16875}+\frac{53194\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{16875}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/(Sqrt[2 + 3*x]*Sqrt[3 + 5*x]),x]
```

```
[Out] (-1088*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/3375 - (4*(1 -
2*x)^(3/2)*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/75 + (53194*Sqrt[11/3]*El
lipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/16875 - (34154*S
qrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1687
5
```

Rubi in Sympy [A] time = 25.854, size = 114, normalized size = 0.88

$$-\frac{4(-2x+1)^{\frac{3}{2}}\sqrt{3x+2}\sqrt{5x+3}}{75}-\frac{1088\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{3375}+\frac{53194\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{50625}-\frac{34154\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{50625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] -4*(-2*x + 1)**(3/2)*sqrt(3*x + 2)*sqrt(5*x + 3)/75 - 1088*sqrt(-
2*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/3375 + 53194*sqrt(33)*ellipt
ic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/50625 - 34154*sqrt(3
3)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/50625
```

Mathematica [A] time = 0.20934, size = 97, normalized size = 0.75

$$\frac{60\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}(90x-317)+616735\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-53194\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)}{50625}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/(Sqrt[2 + 3*x]*Sqrt[3 + 5*x]),x]
```

```
[Out] (60*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(-317 + 90*x) - 531
94*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 6
16735*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])
/50625
```

Maple [C] time = 0.02, size = 169, normalized size = 1.3

$$-\frac{1}{1518750\,x^3+1164375\,x^2-354375\,x-303750}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(616735\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)^(1/2)/(3+5*x)^(1/2),x)
```

```
[Out] -1/50625*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(616735*2^(1/2
)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/
2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-53194*2^
(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11
^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-1620
00*x^4+446400*x^3+475260*x^2-100740*x-114120)/(30*x^3+23*x^2-7*x-
6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2\,x+1)^{\frac{5}{2}}}{\sqrt{5\,x+3}\sqrt{3\,x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*sqrt(3*x + 2)),x, algorithm="maxima")
```

```
[Out] integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*sqrt(3*x + 2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(4\,x^2-4\,x+1)\sqrt{-2\,x+1}}{\sqrt{5\,x+3}\sqrt{3\,x+2}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*sqrt(3*x + 2)),x, algorithm="fricas")
```

```
[Out] integral((4*x^2 - 4*x + 1)*sqrt(-2*x + 1)/(sqrt(5*x + 3)*sqrt(3*x
 + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)/(2+3*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2x+1)^{\frac{5}{2}}}{\sqrt{5x+3}\sqrt{3x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*sqrt(3*x + 2)),x, algorithm="giac")
```

```
[Out] integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*sqrt(3*x + 2)), x)
```

3.2773 $\int \frac{(1-2x)^{5/2}}{(2+3x)^{3/2}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=129

$$\frac{14\sqrt{5x+3}(1-2x)^{3/2}}{3\sqrt{3x+2}}+\frac{428}{135}\sqrt{3x+2}\sqrt{5x+3}\sqrt{1-2x}+\frac{824}{675}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{8314}{675}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (14*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(3*Sqrt[2 + 3*x]) + (428*Sqrt[
1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/135 - (8314*Sqrt[11/3]*Elli
pticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/675 + (824*Sqrt[11
/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/675
```

Rubi [A] time = 0.257002, antiderivative size = 129, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{14\sqrt{5x+3}(1-2x)^{3/2}}{3\sqrt{3x+2}}+\frac{428}{135}\sqrt{3x+2}\sqrt{5x+3}\sqrt{1-2x}+\frac{824}{675}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{8314}{675}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)^(3/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (14*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(3*Sqrt[2 + 3*x]) + (428*Sqrt[
1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/135 - (8314*Sqrt[11/3]*Elli
pticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/675 + (824*Sqrt[11
/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/675
```

Rubi in Sympy [A] time = 25.7791, size = 114, normalized size = 0.88

$$\frac{14\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{3\sqrt{3x+2}}+\frac{428\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{135}-\frac{8314\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{2025}+\frac{9064\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{23625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)**(3/2)/(3+5*x)**(1/2),x)
```

```
[Out] 14*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/(3*sqrt(3*x + 2)) + 428*sqrt(-
2*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/135 - 8314*sqrt(33)*elliptic
_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/2025 + 9064*sqrt(35)*e
lliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/23625
```

Mathematica [A] time = 0.295316, size = 97, normalized size = 0.75

$$\frac{2\left(\frac{15\sqrt{1-2x}\sqrt{5x+3}(12x+743)}{\sqrt{3x+2}}-10955\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+4157\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)}{2025}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)^(3/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (2*((15*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(743 + 12*x))/Sqrt[2 + 3*x] +
 4157*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]
- 10955*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2
]))/2025
```

Maple [C] time = 0.026, size = 164, normalized size = 1.3

$$\frac{2}{60750\,x^3+46575\,x^2-14175\,x-12150}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(10955\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{11}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)^(3/2)/(3+5*x)^(1/2),x)
```

```
[Out] 2/2025*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(10955*2^(1/2)*(
3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*
2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-4157*2^(1/2
)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/
2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+1800*x^3
+111630*x^2+10605*x-33435)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2\,x+1)^{\frac{5}{2}}}{\sqrt{5\,x+3}(3\,x+2)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^(3/2)),x, algorithm="maxima"
```

```
[Out] integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^(3/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{(4\,x^2-4\,x+1)\sqrt{-2\,x+1}}{\sqrt{5\,x+3}(3\,x+2)^{\frac{3}{2}}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^(3/2)),x, algorithm="fricas"
```

```
[Out] integral((4*x^2 - 4*x + 1)*sqrt(-2*x + 1)/(sqrt(5*x + 3)*(3*x + 2
)^(3/2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)/(2+3*x)**(3/2)/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2x+1)^{\frac{5}{2}}}{\sqrt{5x+3}(3x+2)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^(3/2)),x, algorithm="giac")
```

```
[Out] integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^(3/2)), x)
```

3.2774 $\int \frac{(1-2x)^{5/2}}{(2+3x)^{5/2}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=129

$$\frac{14\sqrt{5x+3}(1-2x)^{3/2}}{9(3x+2)^{3/2}}+\frac{812\sqrt{5x+3}\sqrt{1-2x}}{27\sqrt{3x+2}}-\frac{164}{135}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{3896}{135}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (14*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(9*(2 + 3*x)^(3/2)) + (812*Sqr
t[1 - 2*x]*Sqrt[3 + 5*x])/(27*Sqrt[2 + 3*x]) - (3896*Sqrt[11/3]*E
llipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/135 - (164*Sqrt
[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/135
```

Rubi [A] time = 0.25988, antiderivative size = 129, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{14\sqrt{5x+3}(1-2x)^{3/2}}{9(3x+2)^{3/2}}+\frac{812\sqrt{5x+3}\sqrt{1-2x}}{27\sqrt{3x+2}}-\frac{164}{135}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{3896}{135}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In] Int[(1 - 2*x)^(5/2)/((2 + 3*x)^(5/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (14*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(9*(2 + 3*x)^(3/2)) + (812*Sqr
t[1 - 2*x]*Sqrt[3 + 5*x])/(27*Sqrt[2 + 3*x]) - (3896*Sqrt[11/3]*E
llipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/135 - (164*Sqrt
[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/135
```

Rubi in Sympy [A] time = 25.6196, size = 114, normalized size = 0.88

$$\frac{14\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{9\left(3x+2\right)^{\frac{3}{2}}}+\frac{812\sqrt{-2x+1}\sqrt{5x+3}}{27\sqrt{3x+2}}-\frac{3896\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{405}-\frac{1804\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{4725}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)**(5/2)/(2+3*x)**(5/2)/(3+5*x)**(1/2),x)
```

```
[Out] 14*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/(9*(3*x + 2)**(3/2)) + 812*sqr
t(-2*x + 1)*sqrt(5*x + 3)/(27*sqrt(3*x + 2)) - 3896*sqrt(33)*elli
ptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/405 - 1804*sqrt(35
)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/4725
```

Mathematica [A] time = 0.285075, size = 97, normalized size = 0.75

$$\frac{2}{405}\left(\frac{735\sqrt{1-2x}\sqrt{5x+3}(24x+17)}{(3x+2)^{3/2}}-595\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+1948\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)^(5/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (2*((735*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(17 + 24*x))/(2 + 3*x)^(3/2)
 + 1948*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2
] - 595*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2
]))/405
```

Maple [C] time = 0.028, size = 267, normalized size = 2.1

$$\frac{2}{4050\,x^2+405\,x-1215}\left(1785\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-5844\,\sqrt{2}Ellip\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)^(5/2)/(3+5*x)^(1/2),x)
```

```
[Out] 2/405*(1785*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2)
,1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1
-2*x)^(1/2)-5844*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^
(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/
2)*(1-2*x)^(1/2)+1190*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)
^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/
2)*3^(1/2)*2^(1/2))-3896*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2
*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^
(1/2)*3^(1/2)*2^(1/2))+176400*x^3+142590*x^2-40425*x-37485)*(3+5*
x)^(1/2)*(1-2*x)^(1/2)/(10*x^2+x-3)/(2+3*x)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2\,x+1)^{\frac{5}{2}}}{\sqrt{5\,x+3}(3\,x+2)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^(5/2)),x, algorithm="maxima"
```

```
[Out] integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^(5/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\left(4\,x^2-4\,x+1\right)\sqrt{-2\,x+1}}{(9\,x^2+12\,x+4)\sqrt{5\,x+3}\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^(5/2)),x, algorithm="fricas"
```

```
[Out] integral((4*x^2 - 4*x + 1)*sqrt(-2*x + 1)/((9*x^2 + 12*x + 4)*sqr
t(5*x + 3)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)/(2+3*x)**(5/2)/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2x+1)^{\frac{5}{2}}}{\sqrt{5x+3}(3x+2)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^(5/2)),x, algorithm="giac")
```

```
[Out] integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^(5/2)), x)
```

3.2775 $\int \frac{(1-2x)^{5/2}}{(2+3x)^{7/2}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=160

$$\frac{14\sqrt{5x+3}(1-2x)^{3/2}}{15(3x+2)^{5/2}}+\frac{16564\sqrt{5x+3}\sqrt{1-2x}}{135\sqrt{3x+2}}+\frac{1736\sqrt{5x+3}\sqrt{1-2x}}{135(3x+2)^{3/2}}-\frac{496}{135}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{16564}{135}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (14*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(15*(2 + 3*x)^(5/2)) + (1736*S
qrt[1 - 2*x]*Sqrt[3 + 5*x])/(135*(2 + 3*x)^(3/2)) + (16564*Sqrt[1
 - 2*x]*Sqrt[3 + 5*x])/(135*Sqrt[2 + 3*x]) - (16564*Sqrt[11/3]*El
lipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/135 - (496*Sqrt[
11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/135
```

Rubi [A] time = 0.338556, antiderivative size = 160, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{14\sqrt{5x+3}(1-2x)^{3/2}}{15(3x+2)^{5/2}}+\frac{16564\sqrt{5x+3}\sqrt{1-2x}}{135\sqrt{3x+2}}+\frac{1736\sqrt{5x+3}\sqrt{1-2x}}{135(3x+2)^{3/2}}-\frac{496}{135}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{16564}{135}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)^(7/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (14*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(15*(2 + 3*x)^(5/2)) + (1736*S
qrt[1 - 2*x]*Sqrt[3 + 5*x])/(135*(2 + 3*x)^(3/2)) + (16564*Sqrt[1
 - 2*x]*Sqrt[3 + 5*x])/(135*Sqrt[2 + 3*x]) - (16564*Sqrt[11/3]*El
lipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/135 - (496*Sqrt[
11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/135
```

Rubi in Sympy [A] time = 33.1561, size = 143, normalized size = 0.89

$$\frac{14\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{15\left(3x+2\right)^{\frac{5}{2}}}+\frac{16564\sqrt{-2x+1}\sqrt{5x+3}}{135\sqrt{3x+2}}+\frac{1736\sqrt{-2x+1}\sqrt{5x+3}}{135\left(3x+2\right)^{\frac{3}{2}}}-\frac{16564\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{405}-\frac{5456\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{4725}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)**(7/2)/(3+5*x)**(1/2),x)
```

```
[Out] 14*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/(15*(3*x + 2)**(5/2)) + 16564*
sqrt(-2*x + 1)*sqrt(5*x + 3)/(135*sqrt(3*x + 2)) + 1736*sqrt(-2*x
 + 1)*sqrt(5*x + 3)/(135*(3*x + 2)**(3/2)) - 16564*sqrt(33)*ellip
tic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/405 - 5456*sqrt(35)
*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/4725
```

Mathematica [A] time = 0.313951, size = 101, normalized size = 0.63

$$\frac{4}{405}\left(\frac{3\sqrt{1-2x}\sqrt{5x+3}\left(74538x^2+101862x+34927\right)}{2(3x+2)^{5/2}}+\sqrt{2}\left(4141E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-2095F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)^(7/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (4*((3*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(34927 + 101862*x + 74538*x^2)
)/(2*(2 + 3*x)^(5/2)) + Sqrt[2]*(4141*EllipticE[ArcSin[Sqrt[2/11]
*Sqrt[3 + 5*x]], -33/2] - 2095*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3
 + 5*x]], -33/2])))/405
```

Maple [C] time = 0.03, size = 386, normalized size = 2.4

$$\frac{2}{4050\,x^2+405\,x-1215}\left(37710\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^2\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-74538\,\sqrt{2}E$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)^(7/2)/(3+5*x)^(1/2),x)
```

```
[Out] 2/405*(37710*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2
),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)
*(1-2*x)^(1/2)-74538*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5
*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*
x)^(1/2)*(1-2*x)^(1/2)+50280*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1
/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)
*(2+3*x)^(1/2)*(1-2*x)^(1/2)-99384*2^(1/2)*EllipticE(1/11*11^(1/2
)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)
^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+16760*2^(1/2)*(3+5*x)^(1/2)*(2
+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)
^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-33128*2^(1/2)*(3+5*x)^(1/2
)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+
5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+2236140*x^4+3279474*x^
3+682554*x^2-811977*x-314343)*(3+5*x)^(1/2)*(1-2*x)^(1/2)/(10*x^2
+x-3)/(2+3*x)^(5/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2\,x+1)^{\frac{5}{2}}}{\sqrt{5\,x+3}(3\,x+2)^{\frac{7}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^(7/2)),x, algorithm="maxima"
```

```
[Out] integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^(7/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{(4\,x^2-4\,x+1)\sqrt{-2\,x+1}}{(27\,x^3+54\,x^2+36\,x+8)\sqrt{5\,x+3}\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^(7/2)),x, algorithm="fricas"
```

```
[Out] integral((4*x^2 - 4*x + 1)*sqrt(-2*x + 1)/((27*x^3 + 54*x^2 + 36*
x + 8)*sqrt(5*x + 3)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)/(2+3*x)**(7/2)/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2x+1)^{\frac{5}{2}}}{\sqrt{5x+3}(3x+2)^{\frac{7}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^(7/2)),x, algorithm="giac")
```

```
[Out] integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^(7/2)), x)
```

3.2776 $\int \frac{(1-2x)^{5/2}}{(2+3x)^{9/2}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=191

$$\frac{2\sqrt{5x+3}(1-2x)^{3/2}}{3(3x+2)^{7/2}}+\frac{703480\sqrt{5x+3}\sqrt{1-2x}}{1323\sqrt{3x+2}}+\frac{10124\sqrt{5x+3}\sqrt{1-2x}}{189(3x+2)^{3/2}}+\frac{76\sqrt{5x+3}\sqrt{1-2x}}{9(3x+2)^{5/2}}-\frac{21160\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1323}-\frac{703480\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1323}$$

```
[Out] (2*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(3*(2 + 3*x)^(7/2)) + (76*Sqrt[
1 - 2*x]*Sqrt[3 + 5*x])/(9*(2 + 3*x)^(5/2)) + (10124*Sqrt[1 - 2*x
]*Sqrt[3 + 5*x])/(189*(2 + 3*x)^(3/2)) + (703480*Sqrt[1 - 2*x]*Sq
rt[3 + 5*x])/(1323*Sqrt[2 + 3*x]) - (703480*Sqrt[11/3]*EllipticE[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1323 - (21160*Sqrt[11/3]
*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1323
```

Rubi [A] time = 0.422754, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{2\sqrt{5x+3}(1-2x)^{3/2}}{3(3x+2)^{7/2}}+\frac{703480\sqrt{5x+3}\sqrt{1-2x}}{1323\sqrt{3x+2}}+\frac{10124\sqrt{5x+3}\sqrt{1-2x}}{189(3x+2)^{3/2}}+\frac{76\sqrt{5x+3}\sqrt{1-2x}}{9(3x+2)^{5/2}}-\frac{21160\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1323}-\frac{703480\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1323}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)^(9/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (2*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(3*(2 + 3*x)^(7/2)) + (76*Sqrt[
1 - 2*x]*Sqrt[3 + 5*x])/(9*(2 + 3*x)^(5/2)) + (10124*Sqrt[1 - 2*x
]*Sqrt[3 + 5*x])/(189*(2 + 3*x)^(3/2)) + (703480*Sqrt[1 - 2*x]*Sq
rt[3 + 5*x])/(1323*Sqrt[2 + 3*x]) - (703480*Sqrt[11/3]*EllipticE[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1323 - (21160*Sqrt[11/3]
*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1323
```

Rubi in Sympy [A] time = 40.9144, size = 172, normalized size = 0.9

$$\frac{2\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{3\left(3x+2\right)^{\frac{7}{2}}}+\frac{703480\sqrt{-2x+1}\sqrt{5x+3}}{1323\sqrt{3x+2}}+\frac{10124\sqrt{-2x+1}\sqrt{5x+3}}{189\left(3x+2\right)^{\frac{3}{2}}}+\frac{76\sqrt{-2x+1}\sqrt{5x+3}}{9\left(3x+2\right)^{\frac{5}{2}}}-\frac{703480\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{3969}-\frac{46552\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{9261}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)**(9/2)/(3+5*x)**(1/2),x)
```

```
[Out] 2*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/(3*(3*x + 2)**(7/2)) + 703480*s
qrt(-2*x + 1)*sqrt(5*x + 3)/(1323*sqrt(3*x + 2)) + 10124*sqrt(-2*
x + 1)*sqrt(5*x + 3)/(189*(3*x + 2)**(3/2)) + 76*sqrt(-2*x + 1)*s
qrt(5*x + 3)/(9*(3*x + 2)**(5/2)) - 703480*sqrt(33)*elliptic_e(as
in(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/3969 - 46552*sqrt(35)*ellip
tic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/9261
```

Mathematica [A] time = 0.318105, size = 107, normalized size = 0.56

$$\frac{4\left(\frac{3\sqrt{1-2x}\sqrt{5x+3}(9496980x^3+19312866x^2+13103724x+2967269)}{2(3x+2)^{7/2}}+5\sqrt{2}\left(35174E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-17717F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x\right.\right.\right.\right.}{3969}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)^(9/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (4*((3*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(2967269 + 13103724*x + 193128
66*x^2 + 9496980*x^3))/(2*(2 + 3*x)^(7/2)) + 5*Sqrt[2]*(35174*Ell
ipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 17717*EllipticF
[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])))/3969
```

Maple [C] time = 0.031, size = 505, normalized size = 2.6

$$\frac{2}{39690x^2+3969x-11907}\left(4783590\sqrt{2}EllipticF\left(1/11\sqrt{11}\sqrt{2}\sqrt{3+5x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^3\sqrt{1-2x}\sqrt{3+5x}\sqrt{2+3x}-9496\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)^(9/2)/(3+5*x)^(1/2),x)
```

```
[Out] 2/3969*(4783590*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(
1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*x)^(1
/2)*(2+3*x)^(1/2)-9496980*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)
*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*
(3+5*x)^(1/2)*(2+3*x)^(1/2)+9567180*2^(1/2)*EllipticF(1/11*11^(1/
2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5
*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-18993960*2^(1/2)*EllipticE(
1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2
))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+6378120*2^(1/2)*
EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1
/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-12662640
*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(
1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)
+1417360*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Ellipt
icF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^
(1/2))-2813920*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*
EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1
/2)*2^(1/2))+284909400*x^5+607876920*x^4+365577498*x^3-45486552*x
^2-109031709*x-26705421)*(3+5*x)^(1/2)*(1-2*x)^(1/2)/(10*x^2+x-3)
/(2+3*x)^(7/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2x+1)^{\frac{5}{2}}}{\sqrt{5x+3}(3x+2)^{\frac{9}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^(9/2)),x, algorithm="maxima"
```

```
[Out] integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^(9/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(4x^2-4x+1)\sqrt{-2x+1}}{(81x^4+216x^3+216x^2+96x+16)\sqrt{5x+3}\sqrt{3x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^(9/2)),x, algorithm="fricas"
```

```
[Out] integral((4*x^2 - 4*x + 1)*sqrt(-2*x + 1)/((81*x^4 + 216*x^3 + 21
6*x^2 + 96*x + 16)*sqrt(5*x + 3)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(5/2)/(2+3*x)**(9/2)/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2\,x+1)^{\frac{5}{2}}}{\sqrt{5\,x+3}(3\,x+2)^{\frac{9}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^(9/2)),x, algorithm="giac")
```

```
[Out] integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^(9/2)), x)
```

3.2777 $\int \frac{(1-2x)^{5/2}}{(2+3x)^{11/2}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=222

$$\frac{14\sqrt{5x+3}(1-2x)^{3/2}}{27(3x+2)^{9/2}}+\frac{66055016\sqrt{5x+3}\sqrt{1-2x}}{27783\sqrt{3x+2}}+\frac{950584\sqrt{5x+3}\sqrt{1-2x}}{3969(3x+2)^{3/2}}+\frac{20420\sqrt{5x+3}\sqrt{1-2x}}{567(3x+2)^{5/2}}+\frac{512\sqrt{5x+3}\sqrt{1-2x}}{81(3x+2)^{7/2}}-\frac{1986944\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{27783}-\frac{66055016\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{27783}$$

```
[Out] (14*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(27*(2 + 3*x)^(9/2)) + (512*Sq
rt[1 - 2*x]*Sqrt[3 + 5*x])/(81*(2 + 3*x)^(7/2)) + (20420*Sqrt[1 -
 2*x]*Sqrt[3 + 5*x])/(567*(2 + 3*x)^(5/2)) + (950584*Sqrt[1 - 2*x
]*Sqrt[3 + 5*x])/(3969*(2 + 3*x)^(3/2)) + (66055016*Sqrt[1 - 2*x]
*Sqrt[3 + 5*x])/(27783*Sqrt[2 + 3*x]) - (66055016*Sqrt[11/3]*Elli
pticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/27783 - (1986944*S
qrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/2778
3
```

Rubi [A] time = 0.506174, antiderivative size = 222, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.214$

$$\frac{14\sqrt{5x+3}(1-2x)^{3/2}}{27(3x+2)^{9/2}}+\frac{66055016\sqrt{5x+3}\sqrt{1-2x}}{27783\sqrt{3x+2}}+\frac{950584\sqrt{5x+3}\sqrt{1-2x}}{3969(3x+2)^{3/2}}+\frac{20420\sqrt{5x+3}\sqrt{1-2x}}{567(3x+2)^{5/2}}+\frac{512\sqrt{5x+3}\sqrt{1-2x}}{81(3x+2)^{7/2}}-\frac{1986944\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{27783}-\frac{66055016\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{27783}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)^(11/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (14*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(27*(2 + 3*x)^(9/2)) + (512*Sq
rt[1 - 2*x]*Sqrt[3 + 5*x])/(81*(2 + 3*x)^(7/2)) + (20420*Sqrt[1 -
 2*x]*Sqrt[3 + 5*x])/(567*(2 + 3*x)^(5/2)) + (950584*Sqrt[1 - 2*x
]*Sqrt[3 + 5*x])/(3969*(2 + 3*x)^(3/2)) + (66055016*Sqrt[1 - 2*x]
*Sqrt[3 + 5*x])/(27783*Sqrt[2 + 3*x]) - (66055016*Sqrt[11/3]*Elli
pticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/27783 - (1986944*S
qrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/2778
3
```

Rubi in Sympy [A] time = 48.5625, size = 201, normalized size = 0.91

$$\frac{14\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{27\left(3x+2\right)^{\frac{9}{2}}}+\frac{66055016\sqrt{-2x+1}\sqrt{5x+3}}{27783\sqrt{3x+2}}+\frac{950584\sqrt{-2x+1}\sqrt{5x+3}}{3969\left(3x+2\right)^{\frac{3}{2}}}+\frac{20420\sqrt{-2x+1}\sqrt{5x+3}}{567\left(3x+2\right)^{\frac{5}{2}}}+\frac{512\sqrt{-2x+1}\sqrt{5x+3}}{81\left(3x+2\right)^{\frac{7}{2}}}-\frac{66055016\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{83349}-\frac{1986944\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{83349}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)**(11/2)/(3+5*x)**(1/2),x)
```

```
[Out] 14*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/(27*(3*x + 2)**(9/2)) + 660550
16*sqrt(-2*x + 1)*sqrt(5*x + 3)/(27783*sqrt(3*x + 2)) + 950584*sq
rt(-2*x + 1)*sqrt(5*x + 3)/(3969*(3*x + 2)**(3/2)) + 20420*sqrt(-
2*x + 1)*sqrt(5*x + 3)/(567*(3*x + 2)**(5/2)) + 512*sqrt(-2*x + 1
)*sqrt(5*x + 3)/(81*(3*x + 2)**(7/2)) - 66055016*sqrt(33)*ellipti
c_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/83349 - 1986944*sqrt(
33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/83349
```

Mathematica [A] time = 0.384305, size = 111, normalized size = 0.5

$$\frac{8\left(\frac{3\sqrt{1-2x}\sqrt{5x+3}(2675228148x^4+7223771916x^3+7318104714x^2+3296666850x+557240459)}{4(3x+2)^{9/2}}+\sqrt{2}\left(8256877E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-415\right.\right.}{83349}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)^(11/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (8*((3*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(557240459 + 3296666850*x + 73
18104714*x^2 + 7223771916*x^3 + 2675228148*x^4))/(4*(2 + 3*x)^(9/
2)) + Sqrt[2]*(8256877*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]]
, -33/2] - 4158805*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -3
3/2])))/83349
```

Maple [C] time = 0.033, size = 624, normalized size = 2.8

$$\frac{2}{833490\,x^2+83349\,x-250047}\left(1347452820\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^4\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)^(11/2)/(3+5*x)^(1/2),x)
```

```
[Out] 2/83349*(1347452820*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*
x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^4*(3+5*x)^(1/2)*(2+3*x
)^(1/2)*(1-2*x)^(1/2)-2675228148*2^(1/2)*EllipticE(1/11*11^(1/2)*
2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^4*(3+5*x)
^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+3593207520*2^(1/2)*EllipticF(1
/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2)
)*x^3*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)-7133941728*2^(1/2
)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^
(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)+3593
207520*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*
I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*
x)^(1/2)-7133941728*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*
x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x
)^(1/2)*(1-2*x)^(1/2)+1596981120*2^(1/2)*EllipticF(1/11*11^(1/2)*
2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(
1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-3170640768*2^(1/2)*EllipticE(1/1
1*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*
x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+80256844440*x^6+26616
3520*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(
1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2
))-528440128*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*El
lipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2
)*2^(1/2))+224738841924*x^5+217137403836*x^4+55840372398*x^3-3925
5728106*x^2-27998280273*x-5015164131)*(3+5*x)^(1/2)*(1-2*x)^(1/2)
/(10*x^2+x-3)/(2+3*x)^(9/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2\,x+1)^{\frac{5}{2}}}{\sqrt{5\,x+3}(3\,x+2)^{\frac{11}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^(11/2)),x, algorithm="maxima
```

```
[Out] integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^(11/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(4\,x^{2}-4\,x+1\right)\sqrt{-2\,x+1}}{\left(243\,x^{5}+810\,x^{4}+1080\,x^{3}+720\,x^{2}+240\,x+32\right)\sqrt{5\,x+3}\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^(11/2)),x, algorithm="fricas
```

```
[Out] integral((4*x^2 - 4*x + 1)*sqrt(-2*x + 1)/((243*x^5 + 810*x^4 + 1
080*x^3 + 720*x^2 + 240*x + 32)*sqrt(5*x + 3)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(5/2)/(2+3*x)**(11/2)/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\left(-2\,x+1\right)^{\frac{5}{2}}}{\sqrt{5\,x+3}\left(3\,x+2\right)^{\frac{11}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^(11/2)),x, algorithm="giac")
```

```
[Out] integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^(11/2)), x)
```

3.2778 $\int \frac{(1-2x)^{5/2}}{(2+3x)^{13/2}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=249

$$\frac{14\sqrt{5x+3}(1-2x)^{3/2}}{33(3x+2)^{11/2}}+\frac{23204503328\sqrt{5x+3}\sqrt{1-2x}}{2139291\sqrt{3x+2}}+\frac{333930952\sqrt{5x+3}\sqrt{1-2x}}{305613(3x+2)^{3/2}}+\frac{7173272\sqrt{5x+3}\sqrt{1-2x}}{43659(3x+2)^{5/2}}+\frac{171004\sqrt{5x+3}\sqrt{1-2x}}{6237(3x+2)^{7/2}}+\frac{4508\sqrt{5x+3}\sqrt{1-2x}}{891(3x+2)^{9/2}}-\frac{697995152F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{194481\sqrt{33}}-\frac{23204503328E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{194481\sqrt{33}}$$

```
[Out] (14*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(33*(2 + 3*x)^(11/2)) + (4508*
Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(891*(2 + 3*x)^(9/2)) + (171004*Sqrt
[1 - 2*x]*Sqrt[3 + 5*x])/(6237*(2 + 3*x)^(7/2)) + (7173272*Sqrt[1
 - 2*x]*Sqrt[3 + 5*x])/(43659*(2 + 3*x)^(5/2)) + (333930952*Sqrt[
1 - 2*x]*Sqrt[3 + 5*x])/(305613*(2 + 3*x)^(3/2)) + (23204503328*S
qrt[1 - 2*x]*Sqrt[3 + 5*x])/(2139291*Sqrt[2 + 3*x]) - (2320450332
8*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(194481*Sqrt
[33]) - (697995152*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/
33])/(194481*Sqrt[33])
```

Rubi [A] time = 0.600311, antiderivative size = 249, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.214$

$$\frac{14\sqrt{5x+3}(1-2x)^{3/2}}{33(3x+2)^{11/2}}+\frac{23204503328\sqrt{5x+3}\sqrt{1-2x}}{2139291\sqrt{3x+2}}+\frac{333930952\sqrt{5x+3}\sqrt{1-2x}}{305613(3x+2)^{3/2}}+\frac{7173272\sqrt{5x+3}\sqrt{1-2x}}{43659(3x+2)^{5/2}}+\frac{171004\sqrt{5x+3}\sqrt{1-2x}}{6237(3x+2)^{7/2}}+\frac{4508\sqrt{5x+3}\sqrt{1-2x}}{891(3x+2)^{9/2}}-\frac{697995152F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{194481\sqrt{33}}-\frac{23204503328E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{194481\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)^(13/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (14*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x])/(33*(2 + 3*x)^(11/2)) + (4508*
Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(891*(2 + 3*x)^(9/2)) + (171004*Sqrt
[1 - 2*x]*Sqrt[3 + 5*x])/(6237*(2 + 3*x)^(7/2)) + (7173272*Sqrt[1
 - 2*x]*Sqrt[3 + 5*x])/(43659*(2 + 3*x)^(5/2)) + (333930952*Sqrt[
1 - 2*x]*Sqrt[3 + 5*x])/(305613*(2 + 3*x)^(3/2)) + (23204503328*S
qrt[1 - 2*x]*Sqrt[3 + 5*x])/(2139291*Sqrt[2 + 3*x]) - (2320450332
8*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(194481*Sqrt
[33]) - (697995152*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/
33])/(194481*Sqrt[33])
```

Rubi in Sympy [A] time = 57.4079, size = 230, normalized size = 0.92

$$\frac{14\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}{33\left(3x+2\right)^{\frac{11}{2}}}+\frac{23204503328\sqrt{-2x+1}\sqrt{5x+3}}{2139291\sqrt{3x+2}}+\frac{333930952\sqrt{-2x+1}\sqrt{5x+3}}{305613\left(3x+2\right)^{\frac{3}{2}}}+\frac{7173272\sqrt{-2x+1}\sqrt{5x+3}}{43659\left(3x+2\right)^{\frac{5}{2}}}+\frac{171004\sqrt{-2x+1}\sqrt{5x+3}}{6237\left(3x+2\right)^{\frac{7}{2}}}+\frac{4508\sqrt{-2x+1}\sqrt{5x+3}}{891\left(3x+2\right)^{\frac{9}{2}}}-\frac{23204503328\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{6417873}-\frac{697995152\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{6806835}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)**(13/2)/(3+5*x)**(1/2),x)
```

```
[Out] 14*(-2*x + 1)**(3/2)*sqrt(5*x + 3)/(33*(3*x + 2)**(11/2)) + 23204
503328*sqrt(-2*x + 1)*sqrt(5*x + 3)/(2139291*sqrt(3*x + 2)) + 333
930952*sqrt(-2*x + 1)*sqrt(5*x + 3)/(305613*(3*x + 2)**(3/2)) + 7
173272*sqrt(-2*x + 1)*sqrt(5*x + 3)/(43659*(3*x + 2)**(5/2)) + 17
1004*sqrt(-2*x + 1)*sqrt(5*x + 3)/(6237*(3*x + 2)**(7/2)) + 4508*
sqrt(-2*x + 1)*sqrt(5*x + 3)/(891*(3*x + 2)**(9/2)) - 23204503328
*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/6417
873 - 697995152*sqrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/
11), 33/35)/6806835
```

Mathematica [A] time = 0.477696, size = 115, normalized size = 0.46

$$\frac{\frac{12\sqrt{1-2x}\sqrt{5x+3}\left(2819347154352x^5+9492493272732x^4+12787628716260x^3+8615827181322x^2+2903435279352x+391506734113\right)}{(3x+2)^{11/2}}+16\sqrt{2}\left(2900562916E\left(\text{si}\right.\right.}{12835746}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)^(13/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] ((12*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(391506734113 + 2903435279352*x
+ 8615827181322*x^2 + 12787628716260*x^3 + 9492493272732*x^4 + 28
19347154352*x^5))/(2 + 3*x)^(11/2) + 16*Sqrt[2]*(2900562916*Ellip
ticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 1460947915*Ellipt
icF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]))/12835746
```

Maple [C] time = 0.033, size = 743, normalized size = 3.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)^(13/2)/(3+5*x)^(1/2),x)
```

```
[Out] 2/6417873*(1420041373380*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*
(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^5*(3+5*x)^(1/2)*(
2+3*x)^(1/2)*(1-2*x)^(1/2)-2819347154352*2^(1/2)*EllipticE(1/11*1
1^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^5
*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+4733471244600*2^(1/2)*
EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1
/2)*2^(1/2))*x^4*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-939782
3847840*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2
*I*11^(1/2)*3^(1/2)*2^(1/2))*x^4*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2
*x)^(1/2)+6311294992800*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(
3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3
+5*x)^(1/2)*(2+3*x)^(1/2)-12530431797120*2^(1/2)*EllipticE(1/11*1
1^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3
*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)+4207529995200*2^(1/2)*
EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1
/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-835362
1198080*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2
*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2
*x)^(1/2)+84580414630560*x^7+1402509998400*2^(1/2)*EllipticF(1/11
*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x
*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-2784540399360*2^(1/2)*
EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1
/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+29323283
9645016*x^6+187001333120*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2
*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^
(1/2)*3^(1/2)*2^(1/2))-371272053248*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)
^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2
),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+386732216916828*x^5+21140526213
```

```
3852*x^4-2138118521814*x^3-57086936770452*x^2-24956397311829*x-35
23560607017)*(3+5*x)^(1/2)*(1-2*x)^(1/2)/(10*x^2+x-3)/(2+3*x)^(11
/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2x+1)^{\frac{5}{2}}}{\sqrt{5x+3}(3x+2)^{\frac{13}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^(13/2)),x, algorithm="maxima
```

```
[Out] integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^(13/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{(4x^2-4x+1)\sqrt{-2x+1}}{(729x^6+2916x^5+4860x^4+4320x^3+2160x^2+576x+64)\sqrt{5x+3}\sqrt{3x+2}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^(13/2)),x, algorithm="fricas
```

```
[Out] integral((4*x^2 - 4*x + 1)*sqrt(-2*x + 1)/((729*x^6 + 2916*x^5 +
4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64)*sqrt(5*x + 3)*sqrt(3
*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)/(2+3*x)**(13/2)/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2x+1)^{\frac{5}{2}}}{\sqrt{5x+3}(3x+2)^{\frac{13}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^(13/2)),x, algorithm="giac")
```

```
[Out] integrate((-2*x + 1)^(5/2)/(sqrt(5*x + 3)*(3*x + 2)^(13/2)), x)
```

3.2779 $\int \frac{(1-2x)^{5/2}(2+3x)^{7/2}}{(3+5x)^{3/2}} dx$

Optimal. Leaf size=249

$$-\frac{48}{275}(1-2x)^{3/2}\sqrt{5x+3}(3x+2)^{7/2}-\frac{2972\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{7/2}}{7425}-\frac{2(1-2x)^{5/2}(3x+2)^{7/2}}{5\sqrt{5x+3}}+\frac{346636\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{5/2}}{259875}+\frac{2020841\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}}{6496875}-\frac{703672\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{32484375}-\frac{7261561F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{14765625\sqrt{33}}-\frac{264260033E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{29531250\sqrt{33}}$$

```
[Out] (-2*(1 - 2*x)^(5/2)*(2 + 3*x)^(7/2))/(5*Sqrt[3 + 5*x]) - (703672*
Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/32484375 + (2020841*Sq
rt[1 - 2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/6496875 + (346636*Sqrt
[1 - 2*x]*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x])/259875 - (2972*Sqrt[1 -
2*x]*(2 + 3*x)^(7/2)*Sqrt[3 + 5*x])/7425 - (48*(1 - 2*x)^(3/2)*(2
 + 3*x)^(7/2)*Sqrt[3 + 5*x])/275 - (264260033*EllipticE[ArcSin[Sq
rt[3/7]*Sqrt[1 - 2*x]], 35/33])/(29531250*Sqrt[33]) - (7261561*El
lipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(14765625*Sqrt[3
3])
```

Rubi [A] time = 0.57652, antiderivative size = 249, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.179$

$$-\frac{48}{275}(1-2x)^{3/2}\sqrt{5x+3}(3x+2)^{7/2}-\frac{2972\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{7/2}}{7425}-\frac{2(1-2x)^{5/2}(3x+2)^{7/2}}{5\sqrt{5x+3}}+\frac{346636\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{5/2}}{259875}+\frac{2020841\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}}{6496875}-\frac{703672\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{32484375}-\frac{7261561F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{14765625\sqrt{33}}-\frac{264260033E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{29531250\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(2 + 3*x)^(7/2))/(3 + 5*x)^(3/2),x]
```


```
[Out] (-2*(1 - 2*x)^(5/2)*(2 + 3*x)^(7/2))/(5*Sqrt[3 + 5*x]) - (703672*
Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/32484375 + (2020841*Sq
rt[1 - 2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/6496875 + (346636*Sqrt
[1 - 2*x]*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x])/259875 - (2972*Sqrt[1 -
2*x]*(2 + 3*x)^(7/2)*Sqrt[3 + 5*x])/7425 - (48*(1 - 2*x)^(3/2)*(2
 + 3*x)^(7/2)*Sqrt[3 + 5*x])/275 - (264260033*EllipticE[ArcSin[Sq
rt[3/7]*Sqrt[1 - 2*x]], 35/33])/(29531250*Sqrt[33]) - (7261561*El
lipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(14765625*Sqrt[3
3])
```

Rubi in Sympy [A] time = 58.9925, size = 230, normalized size = 0.92

$$-\frac{2(-2x+1)^{\frac{5}{2}}(3x+2)^{\frac{7}{2}}}{5\sqrt{5x+3}}-\frac{48(-2x+1)^{\frac{3}{2}}(3x+2)^{\frac{7}{2}}\sqrt{5x+3}}{275}+\frac{1486(-2x+1)^{\frac{3}{2}}(3x+2)^{\frac{5}{2}}\sqrt{5x+3}}{2475}+\frac{8717(-2x+1)^{\frac{3}{2}}(3x+2)^{\frac{3}{2}}\sqrt{5x+3}}{86625}-\frac{82561(-2x+1)^{\frac{3}{2}}\sqrt{3x+2}\sqrt{5x+3}}{721875}+\frac{7965233\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{32484375}-\frac{264260033\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{974531250}-\frac{7261561\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{487265625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**(7/2)/(3+5*x)**(3/2),x)
```

```
[Out] -2*(-2*x + 1)**(5/2)*(3*x + 2)**(7/2)/(5*sqrt(5*x + 3)) - 48*(-2*
x + 1)**(3/2)*(3*x + 2)**(7/2)*sqrt(5*x + 3)/275 + 1486*(-2*x + 1
)**(3/2)*(3*x + 2)**(5/2)*sqrt(5*x + 3)/2475 + 8717*(-2*x + 1)**(
3/2)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/86625 - 82561*(-2*x + 1)**(3/
2)*sqrt(3*x + 2)*sqrt(5*x + 3)/721875 + 7965233*sqrt(-2*x + 1)*sq
rt(3*x + 2)*sqrt(5*x + 3)/32484375 - 264260033*sqrt(33)*elliptic_
e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/974531250 - 7261561*sqr
t(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/48726562
5
```

Mathematica [A] time = 0.44615, size = 125, normalized size = 0.5

$$\frac{30\sqrt{1-2x}\sqrt{3x+2}\left(127575000x^5+56227500x^4-141221250x^3-32807925x^2+71568535x+26378214\right)-24628520\sqrt{10x}}{974531250\sqrt{5x+3}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(2 + 3*x)^(7/2))/(3 + 5*x)^(3/2),x]
```

```
[Out] (30*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(26378214 + 71568535*x - 32807925
*x^2 - 141221250*x^3 + 56227500*x^4 + 127575000*x^5) + 264260033*
Sqrt[6 + 10*x]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]
 - 24628520*Sqrt[6 + 10*x]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5
*x]], -33/2])/(974531250*Sqrt[3 + 5*x])
```

Maple [C] time = 0.027, size = 184, normalized size = 0.7

$$\frac{1}{29235937500\,x^3+22414218750\,x^2-6821718750\,x-5847187500}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(22963500000\,x^7+1394820000\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^(7/2)/(3+5*x)^(3/2),x)
```

```
[Out] 1/974531250*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(2296350000
0*x^7+13948200000*x^6+24628520*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2
)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2
*I*11^(1/2)*3^(1/2)*2^(1/2))-264260033*2^(1/2)*(3+5*x)^(1/2)*(2+3
*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(
1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-31387500000*x^5-13515714000*
x^4+20371373550*x^3+8863610070*x^2-3502765680*x-1582692840)/(30*x
^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{7}{2}}(-2x+1)^{\frac{5}{2}}}{(5x+3)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(7/2)*(-2*x + 1)^(5/2)/(5*x + 3)^(3/2),x, algorithm="maxima"
```

```
[Out] integrate((3*x + 2)^(7/2)*(-2*x + 1)^(5/2)/(5*x + 3)^(3/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(108x^5+108x^4-45x^3-58x^2+4x+8)\sqrt{3x+2}\sqrt{-2x+1}}{(5x+3)^{\frac{3}{2}}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(7/2)*(-2*x + 1)^(5/2)/(5*x + 3)^(3/2),x, algorithm="fricas"
```

```
[Out] integral((108*x^5 + 108*x^4 - 45*x^3 - 58*x^2 + 4*x + 8)*sqrt(3*x
 + 2)*sqrt(-2*x + 1)/(5*x + 3)^(3/2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)**(7/2)/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{7}{2}}(-2x+1)^{\frac{5}{2}}}{(5x+3)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(7/2)*(-2*x + 1)^(5/2)/(5*x + 3)^(3/2),x, algorithm="giac")
```

```
[Out] integrate((3*x + 2)^(7/2)*(-2*x + 1)^(5/2)/(5*x + 3)^(3/2), x)
```

3.2780 $\int \frac{(1-2x)^{5/2}(2+3x)^{5/2}}{(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=222

$$-\frac{8}{45}(1-2x)^{3/2}\sqrt{5x+3}(3x+2)^{5/2}-\frac{1972\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{5/2}}{4725}-\frac{2(1-2x)^{5/2}(3x+2)^{5/2}}{5\sqrt{5x+3}}+\frac{167228\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}}{118125}+\frac{196499\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{590625}-\frac{299863\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{2953125}-\frac{1509007\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{2953125}$$

```
[Out] (-2*(1 - 2*x)^(5/2)*(2 + 3*x)^(5/2))/(5*Sqrt[3 + 5*x]) + (196499*
Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/590625 + (167228*Sqrt[
1 - 2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/118125 - (1972*Sqrt[1 - 2
*x]*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x])/4725 - (8*(1 - 2*x)^(3/2)*(2 +
 3*x)^(5/2)*Sqrt[3 + 5*x])/45 - (1509007*Sqrt[11/3]*EllipticE[Arc
Sin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/2953125 - (299863*Sqrt[11/3
]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/2953125
```

Rubi [A] time = 0.495084, antiderivative size = 222, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{8}{45}(1-2x)^{3/2}\sqrt{5x+3}(3x+2)^{5/2}-\frac{1972\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{5/2}}{4725}-\frac{2(1-2x)^{5/2}(3x+2)^{5/2}}{5\sqrt{5x+3}}+\frac{167228\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}}{118125}+\frac{196499\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{590625}-\frac{299863\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{2953125}-\frac{1509007\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{2953125}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(2 + 3*x)^(5/2))/(3 + 5*x)^(3/2),x]
```


```
[Out] (-2*(1 - 2*x)^(5/2)*(2 + 3*x)^(5/2))/(5*Sqrt[3 + 5*x]) + (196499*
Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/590625 + (167228*Sqrt[
1 - 2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/118125 - (1972*Sqrt[1 - 2
*x]*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x])/4725 - (8*(1 - 2*x)^(3/2)*(2 +
 3*x)^(5/2)*Sqrt[3 + 5*x])/45 - (1509007*Sqrt[11/3]*EllipticE[Arc
Sin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/2953125 - (299863*Sqrt[11/3
]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/2953125
```

Rubi in Sympy [A] time = 51.1868, size = 201, normalized size = 0.91

$$-\frac{2\left(-2x+1\right)^{\frac{5}{2}}\left(3x+2\right)^{\frac{5}{2}}}{5\sqrt{5x+3}}-\frac{8\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{\frac{5}{2}}\sqrt{5x+3}}{45}+\frac{986\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{\frac{3}{2}}\sqrt{5x+3}}{1575}+\frac{887\left(-2x+1\right)^{\frac{3}{2}}\sqrt{3x+2}\sqrt{5x+3}}{13125}+\frac{103364\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{590625}-\frac{1509007\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{8859375}-\frac{3298493\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{103359375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**(5/2)/(3+5*x)**(3/2),x)
```

```
[Out] -2*(-2*x + 1)**(5/2)*(3*x + 2)**(5/2)/(5*sqrt(5*x + 3)) - 8*(-2*x
 + 1)**(3/2)*(3*x + 2)**(5/2)*sqrt(5*x + 3)/45 + 986*(-2*x + 1)**
```

```
(3/2)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/1575 + 887*(-2*x + 1)**(3/2)
*sqrt(3*x + 2)*sqrt(5*x + 3)/13125 + 103364*sqrt(-2*x + 1)*sqrt(3
*x + 2)*sqrt(5*x + 3)/590625 - 1509007*sqrt(33)*elliptic_e(asin(s
qrt(21)*sqrt(-2*x + 1)/7), 35/33)/8859375 - 3298493*sqrt(35)*elli
ptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/103359375
```

Mathematica [A] time = 0.454914, size = 112, normalized size = 0.5

$$\frac{\frac{30\sqrt{1-2x}\sqrt{3x+2}\left(945000x^4-382500x^3-844650x^2+650155x+443337\right)}{\sqrt{5x+3}}+6877465\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+3018014\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\right.\right.}{17718750}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(2 + 3*x)^(5/2))/(3 + 5*x)^(3/2),x]
```

```
[Out] ((30*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(443337 + 650155*x - 844650*x^2
- 382500*x^3 + 945000*x^4))/Sqrt[3 + 5*x] + 3018014*Sqrt[2]*Ellip
ticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 6877465*Sqrt[2]*E
llipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/17718750
```

Maple [C] time = 0.026, size = 179, normalized size = 0.8

$$-\frac{1}{531562500\,x^3+407531250\,x^2-124031250\,x-106312500}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(-170100000\,x^6+6877465\,\sqrt{2}\sqrt{3+5\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^(5/2)/(3+5*x)^(3/2),x)
```

```
[Out] -1/17718750*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(-170100000
*x^6+6877465*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*El
lipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2
)*2^(1/2))+3018014*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1
/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*
3^(1/2)*2^(1/2))+40500000*x^5+220212000*x^4-114638400*x^3-1499843
10*x^2+25709190*x+26600220)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{5}{2}}(-2\,x+1)^{\frac{5}{2}}}{(5\,x+3)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(5/2)*(-2*x + 1)^(5/2)/(5*x + 3)^(3/2),x, algorithm="maxima"
```

```
[Out] integrate((3*x + 2)^(5/2)*(-2*x + 1)^(5/2)/(5*x + 3)^(3/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(36\,x^4+12\,x^3-23\,x^2-4\,x+4\right)\sqrt{3\,x+2}\sqrt{-2\,x+1}}{(5\,x+3)^{\frac{3}{2}}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(5/2)*(-2*x + 1)^(5/2)/(5*x + 3)^(3/2),x, algorithm="fricas"
```

```
[Out] integral((36*x^4 + 12*x^3 - 23*x^2 - 4*x + 4)*sqrt(3*x + 2)*sqrt(
-2*x + 1)/(5*x + 3)^(3/2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)**(5/2)/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{5}{2}}(-2x+1)^{\frac{5}{2}}}{(5x+3)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(5/2)*(-2*x + 1)^(5/2)/(5*x + 3)^(3/2),x, algorithm="giac")
```

```
[Out] integrate((3*x + 2)^(5/2)*(-2*x + 1)^(5/2)/(5*x + 3)^(3/2), x)
```

3.2781 $\int \frac{(1-2x)^{5/2}(2+3x)^{3/2}}{(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=191

$$-\frac{2(3x+2)^{3/2}(1-2x)^{5/2}}{5\sqrt{5x+3}}$$

$$-\frac{32}{175}(3x+2)^{3/2}\sqrt{5x+3}(1-2x)^{3/2}-\frac{1972(3x+2)^{3/2}\sqrt{5x+3}\sqrt{1-2x}}{4375}+\frac{106772\sqrt{3x+2}\sqrt{5x+3}\sqrt{1-2x}}{65625}-\frac{110014\sqrt{\frac{11}{3}}F\left(\sin^{-}\right.}{328}$$

```
[Out] (-2*(1 - 2*x)^(5/2)*(2 + 3*x)^(3/2))/(5*Sqrt[3 + 5*x]) + (106772*
Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/65625 - (1972*Sqrt[1 -
 2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/4375 - (32*(1 - 2*x)^(3/2)*(
2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/175 + (53279*Sqrt[11/3]*EllipticE[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/328125 - (110014*Sqrt[11/
3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/328125
```

Rubi [A] time = 0.404995, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{2(3x+2)^{3/2}(1-2x)^{5/2}}{5\sqrt{5x+3}}$$

$$-\frac{32}{175}(3x+2)^{3/2}\sqrt{5x+3}(1-2x)^{3/2}-\frac{1972(3x+2)^{3/2}\sqrt{5x+3}\sqrt{1-2x}}{4375}+\frac{106772\sqrt{3x+2}\sqrt{5x+3}\sqrt{1-2x}}{65625}-\frac{110014\sqrt{\frac{11}{3}}F\left(\sin^{-}\right.}{328}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(2 + 3*x)^(3/2))/(3 + 5*x)^(3/2),x]
```


```
[Out] (-2*(1 - 2*x)^(5/2)*(2 + 3*x)^(3/2))/(5*Sqrt[3 + 5*x]) + (106772*
Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/65625 - (1972*Sqrt[1 -
 2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/4375 - (32*(1 - 2*x)^(3/2)*(
2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/175 + (53279*Sqrt[11/3]*EllipticE[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/328125 - (110014*Sqrt[11/
3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/328125
```

Rubi in Sympy [A] time = 42.2002, size = 172, normalized size = 0.9

$$-\frac{2\left(-2x+1\right)^{\frac{5}{2}}\left(3x+2\right)^{\frac{3}{2}}}{5\sqrt{5x+3}}-\frac{32\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{\frac{3}{2}}\sqrt{5x+3}}{175}+\frac{2958\left(-2x+1\right)^{\frac{3}{2}}\sqrt{3x+2}\sqrt{5x+3}}{4375}+\frac{3242\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{65625}+\frac{53279\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{984375}-\frac{1210154\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{11484375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**(3/2)/(3+5*x)**(3/2),x)
```

```
[Out] -2*(-2*x + 1)**(5/2)*(3*x + 2)**(3/2)/(5*sqrt(5*x + 3)) - 32*(-2*
x + 1)**(3/2)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/175 + 2958*(-2*x + 1
)**(3/2)*sqrt(3*x + 2)*sqrt(5*x + 3)/4375 + 3242*sqrt(-2*x + 1)*s
qrt(3*x + 2)*sqrt(5*x + 3)/65625 + 53279*sqrt(33)*elliptic_e(asin
(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/984375 - 1210154*sqrt(35)*ell
iptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/11484375
```

Mathematica [A] time = 0.434841, size = 107, normalized size = 0.56

$$\frac{\frac{30\sqrt{1-2x}\sqrt{3x+2}(22500x^3-31350x^2+9545x+9168)}{\sqrt{5x+3}}+1868510\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-53279\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)}{984375}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(2 + 3*x)^(3/2))/(3 + 5*x)^(3/2),x]
```

```
[Out] ((30*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(9168 + 9545*x - 31350*x^2 + 225
00*x^3))/Sqrt[3 + 5*x] - 53279*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11
]*Sqrt[3 + 5*x]], -33/2] + 1868510*Sqrt[2]*EllipticF[ArcSin[Sqrt[
2/11]*Sqrt[3 + 5*x]], -33/2])/984375
```

Maple [C] time = 0.026, size = 174, normalized size = 0.9

$$-\frac{1}{29531250x^3+22640625x^2-6890625x-5906250}\sqrt{1-2x}\sqrt{2+3x}\sqrt{3+5x}\left(1868510\sqrt{2}\sqrt{3+5x}\sqrt{2+3x}\sqrt{1-2x}Ellip\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^(3/2)/(3+5*x)^(3/2),x)
```

```
[Out] -1/984375*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(1868510*2^(1
/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(
1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-53279*
2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*
11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-40
50000*x^5+4968000*x^4+572400*x^3-3817590*x^2+297660*x+550080)/(30
*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{3}{2}}(-2x+1)^{\frac{5}{2}}}{(5x+3)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(3/2)*(-2*x + 1)^(5/2)/(5*x + 3)^(3/2),x, algorithm="maxima"
```

```
[Out] integrate((3*x + 2)^(3/2)*(-2*x + 1)^(5/2)/(5*x + 3)^(3/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{(12x^3-4x^2-5x+2)\sqrt{3x+2}\sqrt{-2x+1}}{(5x+3)^{\frac{3}{2}}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(3/2)*(-2*x + 1)^(5/2)/(5*x + 3)^(3/2),x, algorithm="fricas"
```

```
[Out] integral((12*x^3 - 4*x^2 - 5*x + 2)*sqrt(3*x + 2)*sqrt(-2*x + 1)/
(5*x + 3)^(3/2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)**(3/2)/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{3}{2}}(-2x+1)^{\frac{5}{2}}}{(5x+3)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(3/2)*(-2*x + 1)^(5/2)/(5*x + 3)^(3/2),x, algorithm="giac")
```

```
[Out] integrate((3*x + 2)^(3/2)*(-2*x + 1)^(5/2)/(5*x + 3)^(3/2), x)
```

3.2782 $\int \frac{(1-2x)^{5/2}\sqrt{2+3x}}{(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=160

$$-\frac{2\sqrt{3x+2}(1-2x)^{5/2}}{5\sqrt{5x+3}}-\frac{24}{125}\sqrt{3x+2}\sqrt{5x+3}(1-2x)^{3/2}-\frac{3028\sqrt{3x+2}\sqrt{5x+3}\sqrt{1-2x}}{5625}-\frac{28174\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{28125}+\frac{81164\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{28125}$$

```
[Out] (-2*(1 - 2*x)^(5/2)*Sqrt[2 + 3*x])/(5*Sqrt[3 + 5*x]) - (3028*Sqrt
[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/5625 - (24*(1 - 2*x)^(3/2)
*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/125 + (81164*Sqrt[11/3]*EllipticE[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/28125 - (28174*Sqrt[11/3]
*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/28125
```

Rubi [A] time = 0.334653, antiderivative size = 160, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{2\sqrt{3x+2}(1-2x)^{5/2}}{5\sqrt{5x+3}}-\frac{24}{125}\sqrt{3x+2}\sqrt{5x+3}(1-2x)^{3/2}-\frac{3028\sqrt{3x+2}\sqrt{5x+3}\sqrt{1-2x}}{5625}-\frac{28174\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{28125}+\frac{81164\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{28125}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*Sqrt[2 + 3*x])/(3 + 5*x)^(3/2),x]
```

```
[Out] (-2*(1 - 2*x)^(5/2)*Sqrt[2 + 3*x])/(5*Sqrt[3 + 5*x]) - (3028*Sqrt
[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/5625 - (24*(1 - 2*x)^(3/2)
*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/125 + (81164*Sqrt[11/3]*EllipticE[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/28125 - (28174*Sqrt[11/3]
*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/28125
```

Rubi in Sympy [A] time = 34.1973, size = 143, normalized size = 0.89

$$-\frac{2(-2x+1)^{\frac{5}{2}}\sqrt{3x+2}}{5\sqrt{5x+3}}-\frac{24(-2x+1)^{\frac{3}{2}}\sqrt{3x+2}\sqrt{5x+3}}{125}-\frac{3028\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{5625}+\frac{81164\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{84375}-\frac{309914\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{984375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**(1/2)/(3+5*x)**(3/2),x)
```

```
[Out] -2*(-2*x + 1)**(5/2)*sqrt(3*x + 2)/(5*sqrt(5*x + 3)) - 24*(-2*x +
 1)**(3/2)*sqrt(3*x + 2)*sqrt(5*x + 3)/125 - 3028*sqrt(-2*x + 1)*
sqrt(3*x + 2)*sqrt(5*x + 3)/5625 + 81164*sqrt(33)*elliptic_e(asin
(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/84375 - 309914*sqrt(35)*ellip
tic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/984375
```

Mathematica [A] time = 0.404501, size = 102, normalized size = 0.64

$$\frac{\frac{30\sqrt{1-2x}\sqrt{3x+2}(900x^2-2530x-7287)}{\sqrt{5x+3}}+546035\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-81164\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)}{84375}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*Sqrt[2 + 3*x])/(3 + 5*x)^(3/2),x]
```

```
[Out] ((30*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(-7287 - 2530*x + 900*x^2))/Sqrt
[3 + 5*x] - 81164*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*
x]], -33/2] + 546035*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 +
 5*x]], -33/2])/84375
```

Maple [C] time = 0.025, size = 169, normalized size = 1.1

$$-\frac{1}{2531250\,x^{3}+1940625\,x^{2}-590625\,x-506250}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(546035\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}\mathit{EllipticF}\left(1\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^(1/2)/(3+5*x)^(3/2),x)
```

```
[Out] -1/84375*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(546035*2^(1/2
)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/
2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-81164*2^
(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11
^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-1620
00*x^4+428400*x^3+1441560*x^2+66810*x-437220)/(30*x^3+23*x^2-7*x-
6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{3\,x+2}(-2\,x+1)^{\frac{5}{2}}}{(5\,x+3)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(3*x + 2)*(-2*x + 1)^(5/2)/(5*x + 3)^(3/2),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(3*x + 2)*(-2*x + 1)^(5/2)/(5*x + 3)^(3/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\left(4\,x^{2}-4\,x+1\right)\sqrt{3\,x+2}\sqrt{-2\,x+1}}{(5\,x+3)^{\frac{3}{2}}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(3*x + 2)*(-2*x + 1)^(5/2)/(5*x + 3)^(3/2),x, algorithm="fricas")
```

```
[Out] integral((4*x^2 - 4*x + 1)*sqrt(3*x + 2)*sqrt(-2*x + 1)/(5*x + 3)
^(3/2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)**(1/2)/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{3\,x+2}(-2\,x+1)^{\frac{5}{2}}}{(5\,x+3)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(3*x + 2)*(-2*x + 1)^(5/2)/(5*x + 3)^(3/2),x, algorithm="giac")
```

```
[Out] integrate(sqrt(3*x + 2)*(-2*x + 1)^(5/2)/(5*x + 3)^(3/2), x)
```

3.2783 $\int \frac{(1-2x)^{5/2}}{\sqrt{2+3x}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=129

$$-\frac{22\sqrt{3x+2}(1-2x)^{3/2}}{5\sqrt{5x+3}}-\frac{388}{225}\sqrt{3x+2}\sqrt{5x+3}\sqrt{1-2x}+\frac{1196\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1125}+\frac{5594\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1125}$$

```
[Out] (-22*(1 - 2*x)^(3/2)*Sqrt[2 + 3*x])/(5*Sqrt[3 + 5*x]) - (388*Sqrt
[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/225 + (5594*Sqrt[11/3]*Ell
ipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1125 + (1196*Sqrt
[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1125
```

Rubi [A] time = 0.257039, antiderivative size = 129, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{22\sqrt{3x+2}(1-2x)^{3/2}}{5\sqrt{5x+3}}-\frac{388}{225}\sqrt{3x+2}\sqrt{5x+3}\sqrt{1-2x}+\frac{1196\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1125}+\frac{5594\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1125}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/(Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-22*(1 - 2*x)^(3/2)*Sqrt[2 + 3*x])/(5*Sqrt[3 + 5*x]) - (388*Sqrt
[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/225 + (5594*Sqrt[11/3]*Ell
ipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1125 + (1196*Sqrt
[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1125
```

Rubi in Sympy [A] time = 26.397, size = 114, normalized size = 0.88

$$-\frac{22\left(-2x+1\right)^{\frac{3}{2}}\sqrt{3x+2}}{5\sqrt{5x+3}}-\frac{388\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{225}+\frac{5594\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{3375}+\frac{1196\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{3375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(3+5*x)**(3/2)/(2+3*x)**(1/2),x)
```

```
[Out] -22*(-2*x + 1)**(3/2)*sqrt(3*x + 2)/(5*sqrt(5*x + 3)) - 388*sqrt(
-2*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/225 + 5594*sqrt(33)*ellipti
c_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/3375 + 1196*sqrt(33)*
elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/3375
```

Mathematica [A] time = 0.462311, size = 97, normalized size = 0.75

$$\frac{2\left(\frac{15\sqrt{1-2x}\sqrt{3x+2}(20x-1077)}{\sqrt{5x+3}}-7070\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-2797\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)}{3375}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/(Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)),x]
```

```
[Out] (2*((15*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(-1077 + 20*x))/Sqrt[3 + 5*x]
 - 2797*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2
] - 7070*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/
2]))/3375
```

Maple [C] time = 0.026, size = 164, normalized size = 1.3

$$\frac{2}{101250\,x^3+77625\,x^2-23625\,x-20250}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(7070\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}\mathit{EllipticF}\left(1/11\,\sqrt{11}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(3+5*x)^(3/2)/(2+3*x)^(1/2),x)
```

```
[Out] 2/3375*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(7070*2^(1/2)*(3
+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2
^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+2797*2^(1/2)
*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2
)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+1800*x^3-
96630*x^2-16755*x+32310)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2\,x+1)^{\frac{5}{2}}}{(5\,x+3)^{\frac{3}{2}}\sqrt{3\,x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*sqrt(3*x + 2)),x, algorithm="maxima"
```

```
[Out] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*sqrt(3*x + 2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{(4\,x^2-4\,x+1)\sqrt{-2\,x+1}}{(5\,x+3)^{\frac{3}{2}}\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*sqrt(3*x + 2)),x, algorithm="fricas"
```

```
[Out] integral((4*x^2 - 4*x + 1)*sqrt(-2*x + 1)/((5*x + 3)^(3/2)*sqrt(3
*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)/(3+5*x)**(3/2)/(2+3*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2x+1)^{\frac{5}{2}}}{(5x+3)^{\frac{3}{2}}\sqrt{3x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*sqrt(3*x + 2)),x, algorithm="giac")
```

```
[Out] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*sqrt(3*x + 2)), x)
```

3.2784 $\int \frac{(1-2x)^{5/2}}{(2+3x)^{3/2}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=129

$$\frac{14(1-2x)^{3/2}}{3\sqrt{3x+2}\sqrt{5x+3}}-\frac{1496\sqrt{3x+2}\sqrt{1-2x}}{15\sqrt{5x+3}}+\frac{124}{75}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{4636}{75}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (14*(1 - 2*x)^(3/2))/(3*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) - (1496*Sqrt
[1 - 2*x]*Sqrt[2 + 3*x])/(15*Sqrt[3 + 5*x]) + (4636*Sqrt[11/3]*El
lipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/75 + (124*Sqrt[1
1/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/75
```

Rubi [A] time = 0.258991, antiderivative size = 129, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{14(1-2x)^{3/2}}{3\sqrt{3x+2}\sqrt{5x+3}}-\frac{1496\sqrt{3x+2}\sqrt{1-2x}}{15\sqrt{5x+3}}+\frac{124}{75}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{4636}{75}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (14*(1 - 2*x)^(3/2))/(3*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) - (1496*Sqrt
[1 - 2*x]*Sqrt[2 + 3*x])/(15*Sqrt[3 + 5*x]) + (4636*Sqrt[11/3]*El
lipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/75 + (124*Sqrt[1
1/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/75
```

Rubi in Sympy [A] time = 25.7435, size = 114, normalized size = 0.88

$$\frac{14\left(-2x+1\right)^{\frac{3}{2}}}{3\sqrt{3x+2}\sqrt{5x+3}}-\frac{1496\sqrt{-2x+1}\sqrt{3x+2}}{15\sqrt{5x+3}}+\frac{4636\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{225}+\frac{1364\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{2625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)**(3/2)/(3+5*x)**(3/2),x)
```

```
[Out] 14*(-2*x + 1)**(3/2)/(3*sqrt(3*x + 2)*sqrt(5*x + 3)) - 1496*sqrt(
-2*x + 1)*sqrt(3*x + 2)/(15*sqrt(5*x + 3)) + 4636*sqrt(33)*ellipt
ic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/225 + 1364*sqrt(35)*
elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/2625
```

Mathematica [A] time = 0.226497, size = 131, normalized size = 1.02

$$\frac{2590\sqrt{2}\left(15x^2+19x+6\right)F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-4636\sqrt{2}\left(15x^2+19x+6\right)E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-30\sqrt{1}}{225(3x+2)(5x+3)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-30*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(1461 + 2314*x) -
4636*Sqrt[2]*(6 + 19*x + 15*x^2)*EllipticE[ArcSin[Sqrt[2/11]*Sqrt
[3 + 5*x]], -33/2] + 2590*Sqrt[2]*(6 + 19*x + 15*x^2)*EllipticF[A
rcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/(225*(2 + 3*x)*(3 + 5*x)
)
```

Maple [C] time = 0.029, size = 159, normalized size = 1.2

$$-\frac{2}{6750\,x^3+5175\,x^2-1575\,x-1350}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(1295\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)^(3/2)/(3+5*x)^(3/2),x)
```

```
[Out] -2/225*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(1295*2^(1/2)*(3
+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2
^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-2318*2^(1/2)
*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2
)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+69420*x^2
+9120*x-21915)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2\,x+1)^{\frac{5}{2}}}{(5\,x+3)^{\frac{3}{2}}(3\,x+2)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*(3*x + 2)^(3/2)),x, algorithm="maxima
```

```
[Out] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*(3*x + 2)^(3/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(4\,x^2-4\,x+1)\sqrt{-2\,x+1}}{(15\,x^2+19\,x+6)\sqrt{5\,x+3}\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*(3*x + 2)^(3/2)),x, algorithm="frica
```

```
[Out] integral((4*x^2 - 4*x + 1)*sqrt(-2*x + 1)/((15*x^2 + 19*x + 6)*sq
rt(5*x + 3)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)/(2+3*x)**(3/2)/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2x+1)^{\frac{5}{2}}}{(5x+3)^{\frac{3}{2}}(3x+2)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*(3*x + 2)^(3/2)),x, algorithm="giac"
```

```
[Out] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*(3*x + 2)^(3/2)), x)
```

3.2785 $\int \frac{(1-2x)^{5/2}}{(2+3x)^{5/2}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=160

$$\frac{14(1-2x)^{3/2}}{9(3x+2)^{3/2}\sqrt{5x+3}}-\frac{17804\sqrt{3x+2}\sqrt{1-2x}}{27\sqrt{5x+3}}+\frac{1792\sqrt{1-2x}}{27\sqrt{3x+2}\sqrt{5x+3}}+\frac{536}{45}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{17804}{45}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (14*(1 - 2*x)^(3/2))/(9*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x]) + (1792*Sq
rt[1 - 2*x])/(27*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) - (17804*Sqrt[1 - 2
*x]*Sqrt[2 + 3*x])/(27*Sqrt[3 + 5*x]) + (17804*Sqrt[11/3]*Ellipti
cE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/45 + (536*Sqrt[11/3]*
EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/45
```

Rubi [A] time = 0.346422, antiderivative size = 160, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{14(1-2x)^{3/2}}{9(3x+2)^{3/2}\sqrt{5x+3}}-\frac{17804\sqrt{3x+2}\sqrt{1-2x}}{27\sqrt{5x+3}}+\frac{1792\sqrt{1-2x}}{27\sqrt{3x+2}\sqrt{5x+3}}+\frac{536}{45}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{17804}{45}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)^(5/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (14*(1 - 2*x)^(3/2))/(9*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x]) + (1792*Sq
rt[1 - 2*x])/(27*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) - (17804*Sqrt[1 - 2
*x]*Sqrt[2 + 3*x])/(27*Sqrt[3 + 5*x]) + (17804*Sqrt[11/3]*Ellipti
cE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/45 + (536*Sqrt[11/3]*
EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/45
```

Rubi in Sympy [A] time = 32.9839, size = 143, normalized size = 0.89

$$\frac{14\left(-2x+1\right)^{\frac{3}{2}}}{9\left(3x+2\right)^{\frac{3}{2}}\sqrt{5x+3}}-\frac{17804\sqrt{-2x+1}\sqrt{3x+2}}{27\sqrt{5x+3}}+\frac{1792\sqrt{-2x+1}}{27\sqrt{3x+2}\sqrt{5x+3}}+\frac{17804\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{135}+\frac{5896\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{1575}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)**(5/2)/(3+5*x)**(3/2),x)
```

```
[Out] 14*(-2*x + 1)**(3/2)/(9*(3*x + 2)**(3/2)*sqrt(5*x + 3)) - 17804*s
qrt(-2*x + 1)*sqrt(3*x + 2)/(27*sqrt(5*x + 3)) + 1792*sqrt(-2*x +
 1)/(27*sqrt(3*x + 2)*sqrt(5*x + 3)) + 17804*sqrt(33)*elliptic_e(
asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/135 + 5896*sqrt(35)*ellip
tic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/1575
```

Mathematica [A] time = 0.223392, size = 100, normalized size = 0.62

$$-\frac{2\sqrt{1-2x}\left(26706x^2+34726x+11265\right)}{9(3x+2)^{3/2}\sqrt{5x+3}}-\frac{4}{135}\sqrt{2}\left(4451E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-2240F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)^(5/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-2*Sqrt[1 - 2*x]*(11265 + 34726*x + 26706*x^2))/(9*(2 + 3*x)^(3/
2)*Sqrt[3 + 5*x]) - (4*Sqrt[2]*(4451*EllipticE[ArcSin[Sqrt[2/11]*
Sqrt[3 + 5*x]], -33/2] - 2240*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3
+ 5*x]], -33/2]))/135
```

Maple [C] time = 0.034, size = 267, normalized size = 1.7

$$-\frac{2}{1350\,x^2+135\,x-405}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(13440\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)^(5/2)/(3+5*x)^(3/2),x)
```

```
[Out] -2/135*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(13440*2^(1/2)*EllipticF(1/11*
11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*
(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-26706*2^(1/2)*EllipticE
(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/
2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+8960*2^(1/2)*(3+5
*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(
1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-17804*2^(1/2)*
(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)
*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+801180*x^3
+641190*x^2-182940*x-168975)/(2+3*x)^(3/2)/(10*x^2+x-3)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2\,x+1)^{\frac{5}{2}}}{(5\,x+3)^{\frac{3}{2}}(3\,x+2)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*(3*x + 2)^(5/2)),x, algorithm="maxima
```

```
[Out] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*(3*x + 2)^(5/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\left(4\,x^2-4\,x+1\right)\sqrt{-2\,x+1}}{(45\,x^3+87\,x^2+56\,x+12)\sqrt{5\,x+3}\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*(3*x + 2)^(5/2)),x, algorithm="frica
```

```
[Out] integral((4*x^2 - 4*x + 1)*sqrt(-2*x + 1)/((45*x^3 + 87*x^2 + 56*
x + 12)*sqrt(5*x + 3)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)/(2+3*x)**(5/2)/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2x+1)^{\frac{5}{2}}}{(5x+3)^{\frac{3}{2}}(3x+2)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*(3*x + 2)^(5/2)),x, algorithm="giac"
```

```
[Out] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*(3*x + 2)^(5/2)), x)
```

3.2786 $\int \frac{(1-2x)^{5/2}}{(2+3x)^{7/2}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=191

$$\frac{14(1-2x)^{3/2}}{15(3x+2)^{5/2}\sqrt{5x+3}}-\frac{105584\sqrt{3x+2}\sqrt{1-2x}}{27\sqrt{5x+3}}+\frac{17468\sqrt{1-2x}}{45\sqrt{3x+2}\sqrt{5x+3}}+\frac{2716\sqrt{1-2x}}{135(3x+2)^{3/2}\sqrt{5x+3}}+\frac{3176}{45}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{105584}{45}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (14*(1 - 2*x)^(3/2))/(15*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x]) + (2716*S
qrt[1 - 2*x])/(135*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x]) + (17468*Sqrt[1
 - 2*x])/(45*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) - (105584*Sqrt[1 - 2*x]
*Sqrt[2 + 3*x])/(27*Sqrt[3 + 5*x]) + (105584*Sqrt[11/3]*EllipticE
[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/45 + (3176*Sqrt[11/3]*E
llipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/45
```

Rubi [A] time = 0.426338, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{14(1-2x)^{3/2}}{15(3x+2)^{5/2}\sqrt{5x+3}}-\frac{105584\sqrt{3x+2}\sqrt{1-2x}}{27\sqrt{5x+3}}+\frac{17468\sqrt{1-2x}}{45\sqrt{3x+2}\sqrt{5x+3}}+\frac{2716\sqrt{1-2x}}{135(3x+2)^{3/2}\sqrt{5x+3}}+\frac{3176}{45}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{105584}{45}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)^(7/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (14*(1 - 2*x)^(3/2))/(15*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x]) + (2716*S
qrt[1 - 2*x])/(135*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x]) + (17468*Sqrt[1
 - 2*x])/(45*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) - (105584*Sqrt[1 - 2*x]
*Sqrt[2 + 3*x])/(27*Sqrt[3 + 5*x]) + (105584*Sqrt[11/3]*EllipticE
[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/45 + (3176*Sqrt[11/3]*E
llipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/45
```

Rubi in Sympy [A] time = 40.6927, size = 172, normalized size = 0.9

$$\frac{14\left(-2x+1\right)^{\frac{3}{2}}}{15\left(3x+2\right)^{\frac{5}{2}}\sqrt{5x+3}}-\frac{105584\sqrt{-2x+1}\sqrt{3x+2}}{27\sqrt{5x+3}}+\frac{17468\sqrt{-2x+1}}{45\sqrt{3x+2}\sqrt{5x+3}}+\frac{2716\sqrt{-2x+1}}{135\left(3x+2\right)^{\frac{3}{2}}\sqrt{5x+3}}+\frac{105584\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{135}+\frac{3176\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{135}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)**(7/2)/(3+5*x)**(3/2),x)
```

```
[Out] 14*(-2*x + 1)**(3/2)/(15*(3*x + 2)**(5/2)*sqrt(5*x + 3)) - 105584
*sqrt(-2*x + 1)*sqrt(3*x + 2)/(27*sqrt(5*x + 3)) + 17468*sqrt(-2*
x + 1)/(45*sqrt(3*x + 2)*sqrt(5*x + 3)) + 2716*sqrt(-2*x + 1)/(13
5*(3*x + 2)**(3/2)*sqrt(5*x + 3)) + 105584*sqrt(33)*elliptic_e(as
in(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/135 + 3176*sqrt(33)*ellipti
c_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/135
```

Mathematica [A] time = 0.327842, size = 105, normalized size = 0.55

$$\frac{2}{135}\left(-\frac{3\sqrt{1-2x}\left(2375640x^3+4672674x^2+3061396x+668031\right)}{(3x+2)^{5/2}\sqrt{5x+3}}-2\sqrt{2}\left(26396E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)\middle|-\frac{33}{2}\right)-13295F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)\middle|-\frac{33}{2}\right)\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)^(7/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (2*((-3*Sqrt[1 - 2*x]*(668031 + 3061396*x + 4672674*x^2 + 2375640
*x^3))/((2 + 3*x)^(5/2)*Sqrt[3 + 5*x]) - 2*Sqrt[2]*(26396*Ellipti
cE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 13295*EllipticF[Arc
Sin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])))/135
```

Maple [C] time = 0.035, size = 386, normalized size = 2.

$$-\frac{2}{1350\,x^2+135\,x-405}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(239310\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^2\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)^(7/2)/(3+5*x)^(3/2),x)
```

```
[Out] -2/135*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(239310*2^(1/2)*EllipticF(1/11
*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x
^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-475128*2^(1/2)*Ellip
ticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2
^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+319080*2^(1
/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*
3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-6335
04*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11
^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/
2)+106360*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Ellip
ticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2
^(1/2))-211168*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*
EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1
/2)*2^(1/2))+14253840*x^4+20909124*x^3+4350354*x^2-5176002*x-2004
093)/(2+3*x)^(5/2)/(10*x^2+x-3)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2\,x+1)^{\frac{5}{2}}}{(5\,x+3)^{\frac{3}{2}}(3\,x+2)^{\frac{7}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*(3*x + 2)^(7/2)),x, algorithm="maxima
```

```
[Out] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*(3*x + 2)^(7/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(4\,x^2-4\,x+1\right)\sqrt{-2\,x+1}}{\left(135\,x^4+351\,x^3+342\,x^2+148\,x+24\right)\sqrt{5\,x+3}\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*(3*x + 2)^(7/2)),x, algorithm="frica
```

```
[Out] integral((4*x^2 - 4*x + 1)*sqrt(-2*x + 1)/((135*x^4 + 351*x^3 + 3
42*x^2 + 148*x + 24)*sqrt(5*x + 3)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(5/2)/(2+3*x)**(7/2)/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2x+1)^{\frac{5}{2}}}{(5x+3)^{\frac{3}{2}}(3x+2)^{\frac{7}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*(3*x + 2)^(7/2)),x, algorithm="giac"
```

```
[Out] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*(3*x + 2)^(7/2)), x)
```

3.2787 $\int \frac{(1-2x)^{5/2}}{(2+3x)^{9/2}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=222

$$\frac{2(1-2x)^{3/2}}{3(3x+2)^{7/2}\sqrt{5x+3}}-\frac{9795160\sqrt{3x+2}\sqrt{1-2x}}{441\sqrt{5x+3}}+\frac{324104\sqrt{1-2x}}{147\sqrt{3x+2}\sqrt{5x+3}}+\frac{2332\sqrt{1-2x}}{21(3x+2)^{3/2}\sqrt{5x+3}}+\frac{104\sqrt{1-2x}}{9(3x+2)^{5/2}\sqrt{5x+3}}+\frac{58928}{147}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{1959032}{147}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (2*(1 - 2*x)^(3/2))/(3*(2 + 3*x)^(7/2)*Sqrt[3 + 5*x]) + (104*Sqrt
[1 - 2*x])/(9*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x]) + (2332*Sqrt[1 - 2*x
])/(21*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x]) + (324104*Sqrt[1 - 2*x])/(1
47*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) - (9795160*Sqrt[1 - 2*x]*Sqrt[2 +
 3*x])/(441*Sqrt[3 + 5*x]) + (1959032*Sqrt[11/3]*EllipticE[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/147 + (58928*Sqrt[11/3]*Ellipt
icF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/147
```

Rubi [A] time = 0.518641, antiderivative size = 222, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{2(1-2x)^{3/2}}{3(3x+2)^{7/2}\sqrt{5x+3}}-\frac{9795160\sqrt{3x+2}\sqrt{1-2x}}{441\sqrt{5x+3}}+\frac{324104\sqrt{1-2x}}{147\sqrt{3x+2}\sqrt{5x+3}}+\frac{2332\sqrt{1-2x}}{21(3x+2)^{3/2}\sqrt{5x+3}}+\frac{104\sqrt{1-2x}}{9(3x+2)^{5/2}\sqrt{5x+3}}+\frac{58928}{147}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{1959032}{147}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)^(9/2)*(3 + 5*x)^(3/2)),x]
```


```
[Out] (2*(1 - 2*x)^(3/2))/(3*(2 + 3*x)^(7/2)*Sqrt[3 + 5*x]) + (104*Sqrt
[1 - 2*x])/(9*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x]) + (2332*Sqrt[1 - 2*x
])/(21*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x]) + (324104*Sqrt[1 - 2*x])/(1
47*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) - (9795160*Sqrt[1 - 2*x]*Sqrt[2 +
 3*x])/(441*Sqrt[3 + 5*x]) + (1959032*Sqrt[11/3]*EllipticE[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/147 + (58928*Sqrt[11/3]*Ellipt
icF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/147
```

Rubi in Sympy [A] time = 48.5841, size = 201, normalized size = 0.91

$$\frac{2\left(-2x+1\right)^{\frac{3}{2}}}{3\left(3x+2\right)^{\frac{7}{2}}\sqrt{5x+3}}-\frac{9795160\sqrt{-2x+1}\sqrt{3x+2}}{441\sqrt{5x+3}}+\frac{324104\sqrt{-2x+1}}{147\sqrt{3x+2}\sqrt{5x+3}}+\frac{2332\sqrt{-2x+1}}{21\left(3x+2\right)^{\frac{3}{2}}\sqrt{5x+3}}+\frac{104\sqrt{-2x+1}}{9\left(3x+2\right)^{\frac{5}{2}}\sqrt{5x+3}}+\frac{1959032\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{441}+\frac{648208\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{5145}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)**(9/2)/(3+5*x)**(3/2),x)
```

```
[Out] 2*(-2*x + 1)**(3/2)/(3*(3*x + 2)**(7/2)*sqrt(5*x + 3)) - 9795160*
sqrt(-2*x + 1)*sqrt(3*x + 2)/(441*sqrt(5*x + 3)) + 324104*sqrt(-2
*x + 1)/(147*sqrt(3*x + 2)*sqrt(5*x + 3)) + 2332*sqrt(-2*x + 1)/(
21*(3*x + 2)**(3/2)*sqrt(5*x + 3)) + 104*sqrt(-2*x + 1)/(9*(3*x +
```

```
2)**(5/2)*sqrt(5*x + 3)) + 1959032*sqrt(33)*elliptic_e(asin(sqrt
(21)*sqrt(-2*x + 1)/7), 35/33)/441 + 648208*sqrt(35)*elliptic_f(a
sin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/5145
```

Mathematica [A] time = 0.362829, size = 110, normalized size = 0.5

$$\frac{2}{441}\left(-\frac{3\sqrt{1-2x}\left(132234660x^4+348250356x^3+343801494x^2+150788294x+24789615\right)}{(3x+2)^{7/2}\sqrt{5x+3}}-4\sqrt{2}\left(244879E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-123340F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)^(9/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (2*((-3*Sqrt[1 - 2*x]*(24789615 + 150788294*x + 343801494*x^2 + 3
48250356*x^3 + 132234660*x^4))/((2 + 3*x)^(7/2)*Sqrt[3 + 5*x]) -
4*Sqrt[2]*(244879*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33
/2] - 123340*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]))
)/441
```

Maple [C] time = 0.036, size = 505, normalized size = 2.3

$$-\frac{2}{4410\,x^2+441\,x-1323}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(13320720\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^3\sqrt{1-2\,x}\sqrt{3+5\,x}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)^(9/2)/(3+5*x)^(3/2),x)
```

```
[Out] -2/441*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(13320720*2^(1/2)*EllipticF(1/
11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))
*x^3*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)-26446932*2^(1/2)*E
llipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/
2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)+2664144
0*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^
(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1
/2)-52893864*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2
),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)
*(1-2*x)^(1/2)+17760960*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(
3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3
*x)^(1/2)*(1-2*x)^(1/2)-35262576*2^(1/2)*EllipticE(1/11*11^(1/2)*
2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(
1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+3946880*2^(1/2)*(3+5*x)^(1/2)*(2
+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)
^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-7836128*2^(1/2)*(3+5*x)^(1
/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(
3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+793407960*x^5+169279
8156*x^4+1018057896*x^3-126674718*x^2-303627192*x-74368845)/(2+3*
x)^(7/2)/(10*x^2+x-3)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2\,x+1)^{\frac{5}{2}}}{(5\,x+3)^{\frac{3}{2}}(3\,x+2)^{\frac{9}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*(3*x + 2)^(9/2)),x, algorithm="maxima
```

```
[Out] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*(3*x + 2)^(9/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(4\,x^{2}-4\,x+1\right)\sqrt{-2\,x+1}}{(405\,x^{5}+1323\,x^{4}+1728\,x^{3}+1128\,x^{2}+368\,x+48)\sqrt{5\,x+3}\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*(3*x + 2)^(9/2)),x, algorithm="frica
```

```
[Out] integral((4*x^2 - 4*x + 1)*sqrt(-2*x + 1)/((405*x^5 + 1323*x^4 +
1728*x^3 + 1128*x^2 + 368*x + 48)*sqrt(5*x + 3)*sqrt(3*x + 2)), x
)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)/(2+3*x)**(9/2)/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2\,x+1)^{\frac{5}{2}}}{(5\,x+3)^{\frac{3}{2}}(3\,x+2)^{\frac{9}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*(3*x + 2)^(9/2)),x, algorithm="giac"
```

```
[Out] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*(3*x + 2)^(9/2)), x)
```

3.2788 $\int \frac{(1-2x)^{5/2}}{(2+3x)^{11/2}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=253

$$\frac{14(1-2x)^{3/2}}{27(3x+2)^{9/2}\sqrt{5x+3}}-\frac{3415750480\sqrt{3x+2}\sqrt{1-2x}}{27783\sqrt{5x+3}}+\frac{113020952\sqrt{1-2x}}{9261\sqrt{3x+2}\sqrt{5x+3}}+\frac{813208\sqrt{1-2x}}{1323(3x+2)^{3/2}\sqrt{5x+3}}+\frac{11660\sqrt{1-2x}}{189(3x+2)^{5/2}\sqrt{5x+3}}+\frac{652\sqrt{1-2x}}{81(3x+2)^{7/2}\sqrt{5x+3}}+\frac{20549264\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{9261}+\frac{683150096\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{9261}$$

```
[Out] (14*(1 - 2*x)^(3/2))/(27*(2 + 3*x)^(9/2)*Sqrt[3 + 5*x]) + (652*Sq
rt[1 - 2*x])/(81*(2 + 3*x)^(7/2)*Sqrt[3 + 5*x]) + (11660*Sqrt[1 -
 2*x])/(189*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x]) + (813208*Sqrt[1 - 2*x
])/(1323*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x]) + (113020952*Sqrt[1 - 2*x
])/(9261*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) - (3415750480*Sqrt[1 - 2*x]
*Sqrt[2 + 3*x])/(27783*Sqrt[3 + 5*x]) + (683150096*Sqrt[11/3]*Ell
ipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/9261 + (20549264*
Sqrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/926
1
```

Rubi [A] time = 0.613359, antiderivative size = 253, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{14(1-2x)^{3/2}}{27(3x+2)^{9/2}\sqrt{5x+3}}-\frac{3415750480\sqrt{3x+2}\sqrt{1-2x}}{27783\sqrt{5x+3}}+\frac{113020952\sqrt{1-2x}}{9261\sqrt{3x+2}\sqrt{5x+3}}+\frac{813208\sqrt{1-2x}}{1323(3x+2)^{3/2}\sqrt{5x+3}}+\frac{11660\sqrt{1-2x}}{189(3x+2)^{5/2}\sqrt{5x+3}}+\frac{652\sqrt{1-2x}}{81(3x+2)^{7/2}\sqrt{5x+3}}+\frac{20549264\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{9261}+\frac{683150096\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{9261}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)^(11/2)*(3 + 5*x)^(3/2)),x]
```


```
[Out] (14*(1 - 2*x)^(3/2))/(27*(2 + 3*x)^(9/2)*Sqrt[3 + 5*x]) + (652*Sq
rt[1 - 2*x])/(81*(2 + 3*x)^(7/2)*Sqrt[3 + 5*x]) + (11660*Sqrt[1 -
 2*x])/(189*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x]) + (813208*Sqrt[1 - 2*x
])/(1323*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x]) + (113020952*Sqrt[1 - 2*x
])/(9261*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) - (3415750480*Sqrt[1 - 2*x]
*Sqrt[2 + 3*x])/(27783*Sqrt[3 + 5*x]) + (683150096*Sqrt[11/3]*Ell
ipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/9261 + (20549264*
Sqrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/926
1
```

Rubi in Sympy [A] time = 56.5091, size = 230, normalized size = 0.91

$$\frac{14\,(-2x+1)^{\frac{3}{2}}}{27\,(3x+2)^{\frac{9}{2}}\,\sqrt{5x+3}}-\frac{683150096\sqrt{-2x+1}\sqrt{5x+3}}{9261\sqrt{3x+2}}-\frac{49155320\sqrt{-2x+1}}{3969\sqrt{3x+2}\sqrt{5x+3}}+\frac{813208\sqrt{-2x+1}}{1323\,(3x+2)^{\frac{3}{2}}\,\sqrt{5x+3}}+\frac{11660\sqrt{-2x+1}}{189\,(3x+2)^{\frac{5}{2}}\,\sqrt{5x+3}}+\frac{652\sqrt{-2x+1}}{81\,(3x+2)^{\frac{7}{2}}\,\sqrt{5x+3}}+\frac{683150096\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{27783}+\frac{20549264\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{27783}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)**(11/2)/(3+5*x)**(3/2),x)
```

```
[Out] 14*(-2*x + 1)**(3/2)/(27*(3*x + 2)**(9/2)*sqrt(5*x + 3)) - 683150
096*sqrt(-2*x + 1)*sqrt(5*x + 3)/(9261*sqrt(3*x + 2)) - 49155320*
sqrt(-2*x + 1)/(3969*sqrt(3*x + 2)*sqrt(5*x + 3)) + 813208*sqrt(-
2*x + 1)/(1323*(3*x + 2)**(3/2)*sqrt(5*x + 3)) + 11660*sqrt(-2*x
+ 1)/(189*(3*x + 2)**(5/2)*sqrt(5*x + 3)) + 652*sqrt(-2*x + 1)/(8
1*(3*x + 2)**(7/2)*sqrt(5*x + 3)) + 683150096*sqrt(33)*elliptic_e
(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/27783 + 20549264*sqrt(33
)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/27783
```

Mathematica [A] time = 0.404677, size = 115, normalized size = 0.45

$$\frac{2\left(-\frac{3\sqrt{1-2x}(138337894440x^5+456548966244x^4+602551975428x^3+397527527442x^2+131099014240x+17289178827)}{(3x+2)^{9/2}\sqrt{5x+3}}-4\sqrt{2}\left(85393762E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\right.\right.\right.\right.}{27783}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)^(11/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (2*((-3*Sqrt[1 - 2*x]*(17289178827 + 131099014240*x + 39752752744
2*x^2 + 602551975428*x^3 + 456548966244*x^4 + 138337894440*x^5))/
((2 + 3*x)^(9/2)*Sqrt[3 + 5*x]) - 4*Sqrt[2]*(85393762*EllipticE[A
rcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 43010905*EllipticF[ArcS
in[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])))/27783
```

Maple [C] time = 0.037, size = 624, normalized size = 2.5

$$-\frac{2}{277830x^2+27783x-83349}\sqrt{1-2x}\sqrt{3+5x}\left(13935533220\sqrt{2}EllipticF\left(1/11\sqrt{11}\sqrt{2}\sqrt{3+5x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^4\sqrt{3+5\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)^(11/2)/(3+5*x)^(3/2),x)
```

```
[Out] -2/27783*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(13935533220*2^(1/2)*Ellipti
cF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(
1/2))*x^4*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-27667578888*2
^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/
2)*3^(1/2)*2^(1/2))*x^4*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)
+37161421920*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2
),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*x)^(1/2)
*(2+3*x)^(1/2)-73780210368*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2
)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)
*(3+5*x)^(1/2)*(2+3*x)^(1/2)+37161421920*2^(1/2)*EllipticF(1/11*1
1^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2
*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-73780210368*2^(1/2)*El
lipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2
)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+16516187
520*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*1
1^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1
/2)-32791204608*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(
1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2
)*(1-2*x)^(1/2)+830027366640*x^6+2752697920*2^(1/2)*(3+5*x)^(1/2)
*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5
*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-5465200768*2^(1/2)*(3+5
*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(
1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+2324280114144*
x^5+2245664953836*x^4+577509238368*x^3-405988496886*x^2-289561969
758*x-51867536481)/(2+3*x)^(9/2)/(10*x^2+x-3)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2x+1)^{\frac{5}{2}}}{(5x+3)^{\frac{3}{2}}(3x+2)^{\frac{11}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*(3*x + 2)^(11/2)),x, algorithm="maxi
```

```
[Out] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*(3*x + 2)^(11/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(4x^2-4x+1)\sqrt{-2x+1}}{(1215x^6+4779x^5+7830x^4+6840x^3+3360x^2+880x+96)\sqrt{5x+3}\sqrt{3x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*(3*x + 2)^(11/2)),x, algorithm="fric
```

```
[Out] integral((4*x^2 - 4*x + 1)*sqrt(-2*x + 1)/((1215*x^6 + 4779*x^5 +
 7830*x^4 + 6840*x^3 + 3360*x^2 + 880*x + 96)*sqrt(5*x + 3)*sqrt(
3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)/(2+3*x)**(11/2)/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2x+1)^{\frac{5}{2}}}{(5x+3)^{\frac{3}{2}}(3x+2)^{\frac{11}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*(3*x + 2)^(11/2)),x, algorithm="giac
```

```
[Out] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(3/2)*(3*x + 2)^(11/2)), x)
```

3.2789 $\int \frac{(1-2x)^{5/2}(2+3x)^{7/2}}{(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=253

$$-\frac{524}{225}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{7/2}-\frac{442(1-2x)^{3/2}(3x+2)^{7/2}}{75\sqrt{5x+3}}-\frac{2(1-2x)^{5/2}(3x+2)^{7/2}}{15(5x+3)^{3/2}}+\frac{59662\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{5/2}}{7875}+\frac{373022\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}}{196875}+\frac{500501\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{984375}-\frac{595387\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{4921875}-\frac{1065118\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{4921875}$$

```
[Out] (-2*(1 - 2*x)^(5/2)*(2 + 3*x)^(7/2))/(15*(3 + 5*x)^(3/2)) - (442*
(1 - 2*x)^(3/2)*(2 + 3*x)^(7/2))/(75*Sqrt[3 + 5*x]) + (500501*Sqr
t[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/984375 + (373022*Sqrt[1 -
 2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/196875 + (59662*Sqrt[1 - 2*x
]*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x])/7875 - (524*Sqrt[1 - 2*x]*(2 + 3
*x)^(7/2)*Sqrt[3 + 5*x])/225 - (1065118*Sqrt[11/3]*EllipticE[ArcS
in[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/4921875 - (595387*Sqrt[11/3]
*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/4921875
```

Rubi [A] time = 0.581851, antiderivative size = 253, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$-\frac{524}{225}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{7/2}-\frac{442(1-2x)^{3/2}(3x+2)^{7/2}}{75\sqrt{5x+3}}-\frac{2(1-2x)^{5/2}(3x+2)^{7/2}}{15(5x+3)^{3/2}}+\frac{59662\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{5/2}}{7875}+\frac{373022\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}}{196875}+\frac{500501\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{984375}-\frac{595387\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{4921875}-\frac{1065118\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{4921875}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(2 + 3*x)^(7/2))/(3 + 5*x)^(5/2),x]
```

```
[Out] (-2*(1 - 2*x)^(5/2)*(2 + 3*x)^(7/2))/(15*(3 + 5*x)^(3/2)) - (442*
(1 - 2*x)^(3/2)*(2 + 3*x)^(7/2))/(75*Sqrt[3 + 5*x]) + (500501*Sqr
t[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/984375 + (373022*Sqrt[1 -
 2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/196875 + (59662*Sqrt[1 - 2*x
]*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x])/7875 - (524*Sqrt[1 - 2*x]*(2 + 3
*x)^(7/2)*Sqrt[3 + 5*x])/225 - (1065118*Sqrt[11/3]*EllipticE[ArcS
in[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/4921875 - (595387*Sqrt[11/3]
*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/4921875
```

Rubi in Sympy [A] time = 58.2501, size = 230, normalized size = 0.91

$$-\frac{2\left(-2x+1\right)^{\frac{5}{2}}\left(3x+2\right)^{\frac{7}{2}}}{15\left(5x+3\right)^{\frac{3}{2}}}-\frac{442\left(-2x+1\right)^{\frac{5}{2}}\left(3x+2\right)^{\frac{5}{2}}}{825\sqrt{5x+3}}-\frac{212\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{\frac{5}{2}}\sqrt{5x+3}}{825}+\frac{2264\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{\frac{3}{2}}\sqrt{5x+3}}{2625}+\frac{3863\left(-2x+1\right)^{\frac{3}{2}}\sqrt{3x+2}\sqrt{5x+3}}{21875}+\frac{94886\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{984375}-\frac{1065118\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{14765625}-\frac{6549257\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{172265625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**(7/2)/(3+5*x)**(5/2),x)
```

```
[Out] -2*(-2*x + 1)**(5/2)*(3*x + 2)**(7/2)/(15*(5*x + 3)**(3/2)) - 442
*(-2*x + 1)**(5/2)*(3*x + 2)**(5/2)/(825*sqrt(5*x + 3)) - 212*(-2
*x + 1)**(3/2)*(3*x + 2)**(5/2)*sqrt(5*x + 3)/825 + 2264*(-2*x +
1)**(3/2)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/2625 + 3863*(-2*x + 1)**
(3/2)*sqrt(3*x + 2)*sqrt(5*x + 3)/21875 + 94886*sqrt(-2*x + 1)*sq
rt(3*x + 2)*sqrt(5*x + 3)/984375 - 1065118*sqrt(33)*elliptic_e(as
in(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/14765625 - 6549257*sqrt(35)
*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/172265625
```

Mathematica [A] time = 0.487237, size = 117, normalized size = 0.46

$$\frac{\frac{30\sqrt{1-2x}\sqrt{3x+2}(4725000x^5+1327500x^4-5654250x^3+470675x^2+4026600x+1215489)}{(5x+3)^{3/2}}+17517535\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+2130236\sqrt{2}}{29531250}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(2 + 3*x)^(7/2))/(3 + 5*x)^(5/2),x]
```

```
[Out] ((30*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(1215489 + 4026600*x + 470675*x^
2 - 5654250*x^3 + 1327500*x^4 + 4725000*x^5))/(3 + 5*x)^(3/2) + 2
130236*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]
 + 17517535*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -
33/2])/29531250
```

Maple [C] time = 0.029, size = 287, normalized size = 1.1

$$-\frac{1}{177187500x^2+29531250x-59062500}\left(-850500000x^7+87587675\sqrt{2}EllipticF\left(1/11\sqrt{11}\sqrt{2}\sqrt{3+5x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^(7/2)/(3+5*x)^(5/2),x)
```

```
[Out] -1/29531250*(-850500000*x^7+87587675*2^(1/2)*EllipticF(1/11*11^(1
/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*
x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+10651180*2^(1/2)*EllipticE(1
/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2)
)*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-380700000*x^6+52552
605*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1
/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2)
)+6390708*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Ellip
ticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2
^(1/2))+1261440000*x^5+164556000*x^4-1078163250*x^3-311345520*x^2
+205131330*x+72929340)*(2+3*x)^(1/2)*(1-2*x)^(1/2)/(6*x^2+x-2)/(3
+5*x)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{7}{2}}(-2x+1)^{\frac{5}{2}}}{(5x+3)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(7/2)*(-2*x + 1)^(5/2)/(5*x + 3)^(5/2),x, algorithm="maxima"
```

```
[Out] integrate((3*x + 2)^(7/2)*(-2*x + 1)^(5/2)/(5*x + 3)^(5/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(108\,x^5 + 108\,x^4 - 45\,x^3 - 58\,x^2 + 4\,x + 8\right)\sqrt{3\,x + 2}\sqrt{-2\,x + 1}}{(25\,x^2 + 30\,x + 9)\sqrt{5\,x + 3}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(7/2)*(-2*x + 1)^(5/2)/(5*x + 3)^(5/2),x, algorithm="fricas"
```

```
[Out] integral((108*x^5 + 108*x^4 - 45*x^3 - 58*x^2 + 4*x + 8)*sqrt(3*x
 + 2)*sqrt(-2*x + 1)/((25*x^2 + 30*x + 9)*sqrt(5*x + 3)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)**(7/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x + 2)^{\frac{7}{2}}(-2\,x + 1)^{\frac{5}{2}}}{(5\,x + 3)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(7/2)*(-2*x + 1)^(5/2)/(5*x + 3)^(5/2),x, algorithm="giac")
```

```
[Out] integrate((3*x + 2)^(7/2)*(-2*x + 1)^(5/2)/(5*x + 3)^(5/2), x)
```

3.2790 $\int \frac{(1-2x)^{5/2}(2+3x)^{5/2}}{(3+5x)^{5/2}} dx$

Optimal. Leaf size=222

$$-\frac{284}{175}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{5/2}-\frac{62(1-2x)^{3/2}(3x+2)^{5/2}}{15\sqrt{5x+3}}-\frac{2(1-2x)^{5/2}(3x+2)^{5/2}}{15(5x+3)^{3/2}}+\frac{22866\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}}{4375}+\frac{33778\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{21875}-\frac{32836\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{109375}+\frac{49321\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{109375}$$

```
[Out] (-2*(1 - 2*x)^(5/2)*(2 + 3*x)^(5/2))/(15*(3 + 5*x)^(3/2)) - (62*(
1 - 2*x)^(3/2)*(2 + 3*x)^(5/2))/(15*Sqrt[3 + 5*x]) + (33778*Sqrt[
1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/21875 + (22866*Sqrt[1 - 2*x
]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/4375 - (284*Sqrt[1 - 2*x]*(2 + 3
*x)^(5/2)*Sqrt[3 + 5*x])/175 + (49321*Sqrt[11/3]*EllipticE[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/109375 - (32836*Sqrt[11/3]*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/109375
```

Rubi [A] time = 0.485122, antiderivative size = 222, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$-\frac{284}{175}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{5/2}-\frac{62(1-2x)^{3/2}(3x+2)^{5/2}}{15\sqrt{5x+3}}-\frac{2(1-2x)^{5/2}(3x+2)^{5/2}}{15(5x+3)^{3/2}}+\frac{22866\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}}{4375}+\frac{33778\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{21875}-\frac{32836\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{109375}+\frac{49321\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{109375}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(2 + 3*x)^(5/2))/(3 + 5*x)^(5/2),x]
```

```
[Out] (-2*(1 - 2*x)^(5/2)*(2 + 3*x)^(5/2))/(15*(3 + 5*x)^(3/2)) - (62*(
1 - 2*x)^(3/2)*(2 + 3*x)^(5/2))/(15*Sqrt[3 + 5*x]) + (33778*Sqrt[
1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/21875 + (22866*Sqrt[1 - 2*x
]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/4375 - (284*Sqrt[1 - 2*x]*(2 + 3
*x)^(5/2)*Sqrt[3 + 5*x])/175 + (49321*Sqrt[11/3]*EllipticE[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/109375 - (32836*Sqrt[11/3]*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/109375
```

Rubi in Sympy [A] time = 49.4968, size = 201, normalized size = 0.91

$$-\frac{2\left(-2x+1\right)^{\frac{5}{2}}\left(3x+2\right)^{\frac{5}{2}}}{15\left(5x+3\right)^{\frac{3}{2}}}-\frac{62\left(-2x+1\right)^{\frac{5}{2}}\left(3x+2\right)^{\frac{3}{2}}}{165\sqrt{5x+3}}-\frac{1132\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{\frac{3}{2}}\sqrt{5x+3}}{5775}+\frac{2976\left(-2x+1\right)^{\frac{3}{2}}\sqrt{3x+2}\sqrt{5x+3}}{4375}-\frac{942\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{21875}+\frac{49321\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{328125}-\frac{361196\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{3828125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**(5/2)/(3+5*x)**(5/2),x)
```

```
[Out] -2*(-2*x + 1)**(5/2)*(3*x + 2)**(5/2)/(15*(5*x + 3)**(3/2)) - 62*
(-2*x + 1)**(5/2)*(3*x + 2)**(3/2)/(165*sqrt(5*x + 3)) - 1132*(-2
```

```
*x + 1)**(3/2)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/5775 + 2976*(-2*x +
 1)**(3/2)*sqrt(3*x + 2)*sqrt(5*x + 3)/4375 - 942*sqrt(-2*x + 1)*
sqrt(3*x + 2)*sqrt(5*x + 3)/21875 + 49321*sqrt(33)*elliptic_e(asi
n(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/328125 - 361196*sqrt(35)*ell
iptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/3828125
```

Mathematica [A] time = 0.441126, size = 112, normalized size = 0.5

$$\frac{\frac{10\sqrt{1-2x}\sqrt{3x+2}(67500x^4-47250x^3-41025x^2-23425x-19087)}{(5x+3)^{3/2}}+591115\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-49321\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x-\right.\right.}{328125}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(2 + 3*x)^(5/2))/(3 + 5*x)^(5/2),x]
```

```
[Out] ((10*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(-19087 - 23425*x - 41025*x^2 -
47250*x^3 + 67500*x^4))/(3 + 5*x)^(3/2) - 49321*Sqrt[2]*EllipticE
[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 591115*Sqrt[2]*Ellipt
icF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/328125
```

Maple [C] time = 0.029, size = 282, normalized size = 1.3

$$-\frac{1}{1968750x^2+328125x-656250}\left(2955575\sqrt{2}EllipticF\left(1/11\sqrt{11}\sqrt{2}\sqrt{3+5x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5x}\sqrt{2+3x}\sqrt{1-2x}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^(5/2)/(3+5*x)^(5/2),x)
```

```
[Out] -1/328125*(2955575*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x
)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(
1/2)*(1-2*x)^(1/2)-246605*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)
*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2
+3*x)^(1/2)*(1-2*x)^(1/2)-4050000*x^6+1773345*2^(1/2)*(3+5*x)^(1/
2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3
+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-147963*2^(1/2)*(3+5*x
)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/
2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+2160000*x^5+4284
000*x^4+870750*x^3+558970*x^2-277630*x-381740)*(2+3*x)^(1/2)*(1-2
*x)^(1/2)/(6*x^2+x-2)/(3+5*x)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{5}{2}}(-2x+1)^{\frac{5}{2}}}{(5x+3)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(5/2)*(-2*x + 1)^(5/2)/(5*x + 3)^(5/2),x, algorithm="maxima"
```

```
[Out] integrate((3*x + 2)^(5/2)*(-2*x + 1)^(5/2)/(5*x + 3)^(5/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(36x^4+12x^3-23x^2-4x+4)\sqrt{3x+2}\sqrt{-2x+1}}{(25x^2+30x+9)\sqrt{5x+3}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(5/2)*(-2*x + 1)^(5/2)/(5*x + 3)^(5/2),x, algorithm="fricas"
```

```
[Out] integral((36*x^4 + 12*x^3 - 23*x^2 - 4*x + 4)*sqrt(3*x + 2)*sqrt(
-2*x + 1)/((25*x^2 + 30*x + 9)*sqrt(5*x + 3)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)**(5/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{5}{2}}(-2x+1)^{\frac{5}{2}}}{(5x+3)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(5/2)*(-2*x + 1)^(5/2)/(5*x + 3)^(5/2),x, algorithm="giac")
```

```
[Out] integrate((3*x + 2)^(5/2)*(-2*x + 1)^(5/2)/(5*x + 3)^(5/2), x)
```

3.2791 $\int \frac{(1-2x)^{5/2}(2+3x)^{3/2}}{(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=189

$$-\frac{2(3x+2)^{3/2}(1-2x)^{5/2}}{15(5x+3)^{3/2}}-\frac{178(3x+2)^{3/2}(1-2x)^{3/2}}{75\sqrt{5x+3}}-\frac{572}{625}(3x+2)^{3/2}\sqrt{5x+3}\sqrt{1-2x}+\frac{8874\sqrt{3x+2}\sqrt{5x+3}\sqrt{1-2x}}{3125}-\frac{7738\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{15625}+\frac{9206\sqrt{33}E\left(\sin^{-1}\right.}{15}$$

```
[Out] (-2*(1 - 2*x)^(5/2)*(2 + 3*x)^(3/2))/(15*(3 + 5*x)^(3/2)) - (178*
(1 - 2*x)^(3/2)*(2 + 3*x)^(3/2))/(75*Sqrt[3 + 5*x]) + (8874*Sqrt[
1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/3125 - (572*Sqrt[1 - 2*x]*(
2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/625 + (9206*Sqrt[33]*EllipticE[ArcS
in[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/15625 - (7738*Sqrt[11/3]*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/15625
```

Rubi [A] time = 0.400532, antiderivative size = 189, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$-\frac{2(3x+2)^{3/2}(1-2x)^{5/2}}{15(5x+3)^{3/2}}-\frac{178(3x+2)^{3/2}(1-2x)^{3/2}}{75\sqrt{5x+3}}-\frac{572}{625}(3x+2)^{3/2}\sqrt{5x+3}\sqrt{1-2x}+\frac{8874\sqrt{3x+2}\sqrt{5x+3}\sqrt{1-2x}}{3125}-\frac{7738\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{15625}+\frac{9206\sqrt{33}E\left(\sin^{-1}\right.}{15}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*(2 + 3*x)^(3/2))/(3 + 5*x)^(5/2),x]
```


```
[Out] (-2*(1 - 2*x)^(5/2)*(2 + 3*x)^(3/2))/(15*(3 + 5*x)^(3/2)) - (178*
(1 - 2*x)^(3/2)*(2 + 3*x)^(3/2))/(75*Sqrt[3 + 5*x]) + (8874*Sqrt[
1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/3125 - (572*Sqrt[1 - 2*x]*(
2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/625 + (9206*Sqrt[33]*EllipticE[ArcS
in[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/15625 - (7738*Sqrt[11/3]*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/15625
```

Rubi in Sympy [A] time = 40.5084, size = 172, normalized size = 0.91

$$-\frac{2\left(-2x+1\right)^{\frac{5}{2}}\left(3x+2\right)^{\frac{3}{2}}}{15\left(5x+3\right)^{\frac{3}{2}}}-\frac{178\left(-2x+1\right)^{\frac{5}{2}}\sqrt{3x+2}}{825\sqrt{5x+3}}-\frac{2836\left(-2x+1\right)^{\frac{3}{2}}\sqrt{3x+2}\sqrt{5x+3}}{20625}-\frac{1136\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{3125}+\frac{9206\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{15625}-\frac{7738\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{46875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**(3/2)/(3+5*x)**(5/2),x)
```

```
[Out] -2*(-2*x + 1)**(5/2)*(3*x + 2)**(3/2)/(15*(5*x + 3)**(3/2)) - 178
*(-2*x + 1)**(5/2)*sqrt(3*x + 2)/(825*sqrt(5*x + 3)) - 2836*(-2*x
 + 1)**(3/2)*sqrt(3*x + 2)*sqrt(5*x + 3)/20625 - 1136*sqrt(-2*x +
 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/3125 + 9206*sqrt(33)*elliptic_e(a
sin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/15625 - 7738*sqrt(33)*elli
ptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/46875
```

Mathematica [A] time = 0.410056, size = 107, normalized size = 0.57

$$\frac{\frac{10\sqrt{1-2x}\sqrt{3x+2}(4500x^3-9450x^2-48650x-25421)}{(5x+3)^{3/2}}+155295\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-27618\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)}{46875}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*(2 + 3*x)^(3/2))/(3 + 5*x)^(5/2),x]
```

```
[Out] ((10*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(-25421 - 48650*x - 9450*x^2 + 4
500*x^3))/(3 + 5*x)^(3/2) - 27618*Sqrt[2]*EllipticE[ArcSin[Sqrt[2
/11]*Sqrt[3 + 5*x]], -33/2] + 155295*Sqrt[2]*EllipticF[ArcSin[Sqr
t[2/11]*Sqrt[3 + 5*x]], -33/2])/46875
```

Maple [C] time = 0.028, size = 277, normalized size = 1.5

$$-\frac{1}{281250x^2+46875x-93750}\left(776475\sqrt{2}EllipticF\left(1/11\sqrt{11}\sqrt{2}\sqrt{3+5x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5x}\sqrt{2+3x}\sqrt{1-2x}-138\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^(3/2)/(3+5*x)^(5/2),x)
```

```
[Out] -1/46875*(776475*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^
(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/
2)*(1-2*x)^(1/2)-138090*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(
3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3
*x)^(1/2)*(1-2*x)^(1/2)+465885*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2
)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2
*I*11^(1/2)*3^(1/2)*2^(1/2))-82854*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^
(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2)
,1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-270000*x^5+522000*x^4+3103500*x^
3+1822760*x^2-718790*x-508420)*(2+3*x)^(1/2)*(1-2*x)^(1/2)/(6*x^2
+x-2)/(3+5*x)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{3}{2}}(-2x+1)^{\frac{5}{2}}}{(5x+3)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(3/2)*(-2*x + 1)^(5/2)/(5*x + 3)^(5/2),x, algorithm="maxima"
```

```
[Out] integrate((3*x + 2)^(3/2)*(-2*x + 1)^(5/2)/(5*x + 3)^(5/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(12x^3-4x^2-5x+2)\sqrt{3x+2}\sqrt{-2x+1}}{(25x^2+30x+9)\sqrt{5x+3}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(3/2)*(-2*x + 1)^(5/2)/(5*x + 3)^(5/2),x, algorithm="fricas"
```

```
[Out] integral((12*x^3 - 4*x^2 - 5*x + 2)*sqrt(3*x + 2)*sqrt(-2*x + 1)/
((25*x^2 + 30*x + 9)*sqrt(5*x + 3)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)**(3/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{3}{2}}(-2\,x+1)^{\frac{5}{2}}}{(5\,x+3)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(3/2)*(-2*x + 1)^(5/2)/(5*x + 3)^(5/2),x, algorithm="giac")
```

```
[Out] integrate((3*x + 2)^(3/2)*(-2*x + 1)^(5/2)/(5*x + 3)^(5/2), x)
```

3.2792 $\int \frac{(1-2x)^{5/2}\sqrt{2+3x}}{(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=160

$$-\frac{2\sqrt{3x+2}(1-2x)^{5/2}}{15(5x+3)^{3/2}}-\frac{46\sqrt{3x+2}(1-2x)^{3/2}}{75\sqrt{5x+3}}-\frac{76}{375}\sqrt{3x+2}\sqrt{5x+3}\sqrt{1-2x}+\frac{992\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1875}+\frac{338\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1875}$$

```
[Out] (-2*(1 - 2*x)^(5/2)*Sqrt[2 + 3*x])/(15*(3 + 5*x)^(3/2)) - (46*(1
- 2*x)^(3/2)*Sqrt[2 + 3*x])/(75*Sqrt[3 + 5*x]) - (76*Sqrt[1 - 2*x
]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/375 + (338*Sqrt[11/3]*EllipticE[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1875 + (992*Sqrt[11/3]*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1875
```

Rubi [A] time = 0.333128, antiderivative size = 160, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.214$

$$-\frac{2\sqrt{3x+2}(1-2x)^{5/2}}{15(5x+3)^{3/2}}-\frac{46\sqrt{3x+2}(1-2x)^{3/2}}{75\sqrt{5x+3}}-\frac{76}{375}\sqrt{3x+2}\sqrt{5x+3}\sqrt{1-2x}+\frac{992\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1875}+\frac{338\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1875}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)^(5/2)*Sqrt[2 + 3*x])/(3 + 5*x)^(5/2),x]
```

```
[Out] (-2*(1 - 2*x)^(5/2)*Sqrt[2 + 3*x])/(15*(3 + 5*x)^(3/2)) - (46*(1
- 2*x)^(3/2)*Sqrt[2 + 3*x])/(75*Sqrt[3 + 5*x]) - (76*Sqrt[1 - 2*x
]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/375 + (338*Sqrt[11/3]*EllipticE[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1875 + (992*Sqrt[11/3]*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1875
```

Rubi in Sympy [A] time = 33.1744, size = 143, normalized size = 0.89

$$-\frac{2\left(-2x+1\right)^{\frac{5}{2}}\sqrt{3x+2}}{15\left(5x+3\right)^{\frac{3}{2}}}-\frac{46\left(-2x+1\right)^{\frac{3}{2}}\sqrt{3x+2}}{75\sqrt{5x+3}}-\frac{76\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{375}+\frac{338\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{5625}+\frac{992\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{5625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)*(2+3*x)**(1/2)/(3+5*x)**(5/2),x)
```

```
[Out] -2*(-2*x + 1)**(5/2)*sqrt(3*x + 2)/(15*(5*x + 3)**(3/2)) - 46*(-2
*x + 1)**(3/2)*sqrt(3*x + 2)/(75*sqrt(5*x + 3)) - 76*sqrt(-2*x +
1)*sqrt(3*x + 2)*sqrt(5*x + 3)/375 + 338*sqrt(33)*elliptic_e(asin
(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/5625 + 992*sqrt(33)*elliptic_
f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/5625
```

Mathematica [A] time = 0.408513, size = 102, normalized size = 0.64

$$\frac{2\left(\frac{15\sqrt{1-2x}\sqrt{3x+2}(100x^2-925x-712)}{(5x+3)^{3/2}}-8015\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-169\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)}{5625}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)^(5/2)*Sqrt[2 + 3*x])/(3 + 5*x)^(5/2),x]
```

```
[Out] (2*((15*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(-712 - 925*x + 100*x^2))/(3
+ 5*x)^(3/2) - 169*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5
*x]], -33/2] - 8015*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 +
5*x]], -33/2]))/5625
```

Maple [C] time = 0.027, size = 272, normalized size = 1.7

$$\frac{2}{33750\,x^2+5625\,x-11250}\left(40075\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}+845\,\sqrt{2}E$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)*(2+3*x)^(1/2)/(3+5*x)^(5/2),x)
```

```
[Out] 2/5625*(40075*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/
2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*
(1-2*x)^(1/2)+845*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)
^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1
/2)*(1-2*x)^(1/2)+24045*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*
x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(
1/2)*3^(1/2)*2^(1/2))+507*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-
2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11
^(1/2)*3^(1/2)*2^(1/2))+9000*x^4-81750*x^3-80955*x^2+17070*x+2136
0)*(2+3*x)^(1/2)*(1-2*x)^(1/2)/(6*x^2+x-2)/(3+5*x)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{3\,x+2}(-2\,x+1)^{\frac{5}{2}}}{(5\,x+3)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(3*x + 2)*(-2*x + 1)^(5/2)/(5*x + 3)^(5/2),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(3*x + 2)*(-2*x + 1)^(5/2)/(5*x + 3)^(5/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(4\,x^2-4\,x+1)\,\sqrt{3\,x+2}\sqrt{-2\,x+1}}{(25\,x^2+30\,x+9)\sqrt{5\,x+3}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(3*x + 2)*(-2*x + 1)^(5/2)/(5*x + 3)^(5/2),x, algorithm="fricas")
```

```
[Out] integral((4*x^2 - 4*x + 1)*sqrt(3*x + 2)*sqrt(-2*x + 1)/((25*x^2
+ 30*x + 9)*sqrt(5*x + 3)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)*(2+3*x)**(1/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{3\,x+2}(-2\,x+1)^{\frac{5}{2}}}{(5\,x+3)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(3*x + 2)*(-2*x + 1)^(5/2)/(5*x + 3)^(5/2),x, algorithm="giac")
```

```
[Out] integrate(sqrt(3*x + 2)*(-2*x + 1)^(5/2)/(5*x + 3)^(5/2), x)
```

3.2793 $\int \frac{(1-2x)^{5/2}}{\sqrt{2+3x}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=127

$$-\frac{22\sqrt{3x+2}(1-2x)^{3/2}}{15(5x+3)^{3/2}}+\frac{572\sqrt{3x+2}\sqrt{1-2x}}{25\sqrt{5x+3}}-\frac{68}{125}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{584}{125}\sqrt{33}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (-22*(1 - 2*x)^(3/2)*Sqrt[2 + 3*x])/(15*(3 + 5*x)^(3/2)) + (572*S
qrt[1 - 2*x]*Sqrt[2 + 3*x])/(25*Sqrt[3 + 5*x]) - (584*Sqrt[33]*El
lipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/125 - (68*Sqrt[1
1/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/125
```

Rubi [A] time = 0.259237, antiderivative size = 127, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.179$

$$-\frac{22\sqrt{3x+2}(1-2x)^{3/2}}{15(5x+3)^{3/2}}+\frac{572\sqrt{3x+2}\sqrt{1-2x}}{25\sqrt{5x+3}}-\frac{68}{125}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{584}{125}\sqrt{33}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/(Sqrt[2 + 3*x]*(3 + 5*x)^(5/2)),x]
```

```
[Out] (-22*(1 - 2*x)^(3/2)*Sqrt[2 + 3*x])/(15*(3 + 5*x)^(3/2)) + (572*S
qrt[1 - 2*x]*Sqrt[2 + 3*x])/(25*Sqrt[3 + 5*x]) - (584*Sqrt[33]*El
lipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/125 - (68*Sqrt[1
1/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/125
```

Rubi in Sympy [A] time = 25.1531, size = 114, normalized size = 0.9

$$-\frac{22\left(-2x+1\right)^{\frac{3}{2}}\sqrt{3x+2}}{15\left(5x+3\right)^{\frac{3}{2}}}+\frac{572\sqrt{-2x+1}\sqrt{3x+2}}{25\sqrt{5x+3}}-\frac{584\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{125}-\frac{748\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{4375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(3+5*x)**(5/2)/(2+3*x)**(1/2),x)
```

```
[Out] -22*(-2*x + 1)**(3/2)*sqrt(3*x + 2)/(15*(5*x + 3)**(3/2)) + 572*s
qrt(-2*x + 1)*sqrt(3*x + 2)/(25*sqrt(5*x + 3)) - 584*sqrt(33)*ell
iptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/125 - 748*sqrt(35
)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/4375
```

Mathematica [A] time = 0.294031, size = 97, normalized size = 0.76

$$\frac{2}{375}\left(\frac{55\sqrt{1-2x}\sqrt{3x+2}(400x+229)}{(5x+3)^{3/2}}-315\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+876\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/(Sqrt[2 + 3*x]*(3 + 5*x)^(5/2)),x]
```

```
[Out] (2*((55*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(229 + 400*x))/(3 + 5*x)^(3/2
) + 876*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2
] - 315*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2
]))/375
```

Maple [C] time = 0.028, size = 267, normalized size = 2.1

$$\frac{2}{2250\,x^2+375\,x-750}\left(1575\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-4380\,\sqrt{2}Ellipti$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(3+5*x)^(5/2)/(2+3*x)^(1/2),x)
```

```
[Out] 2/375*(1575*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2)
,1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1
-2*x)^(1/2)-4380*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^
(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/
2)*(1-2*x)^(1/2)+945*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^
(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2
)*3^(1/2)*2^(1/2))-2628*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*
x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(
1/2)*3^(1/2)*2^(1/2))+132000*x^3+97570*x^2-31405*x-25190)*(2+3*x)
^(1/2)*(1-2*x)^(1/2)/(6*x^2+x-2)/(3+5*x)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2\,x+1)^{\frac{5}{2}}}{(5\,x+3)^{\frac{5}{2}}\sqrt{3\,x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^(5/2)*sqrt(3*x + 2)),x, algorithm="maxima"
```

```
[Out] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(5/2)*sqrt(3*x + 2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\left(4\,x^2-4\,x+1\right)\sqrt{-2\,x+1}}{\left(25\,x^2+30\,x+9\right)\sqrt{5\,x+3}\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^(5/2)*sqrt(3*x + 2)),x, algorithm="fricas"
```

```
[Out] integral((4*x^2 - 4*x + 1)*sqrt(-2*x + 1)/((25*x^2 + 30*x + 9)*sq
rt(5*x + 3)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)/(3+5*x)**(5/2)/(2+3*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2x+1)^{\frac{5}{2}}}{(5x+3)^{\frac{5}{2}}\sqrt{3x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(5/2)*sqrt(3*x + 2)),x, algorithm="giac")
```

```
[Out] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(5/2)*sqrt(3*x + 2)), x)
```

3.2794 $\int \frac{(1-2x)^{5/2}}{(2+3x)^{3/2}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=158

$$\frac{14(1-2x)^{3/2}}{3\sqrt{3x+2}(5x+3)^{3/2}}+\frac{6388\sqrt{3x+2}\sqrt{1-2x}}{15\sqrt{5x+3}}-\frac{1012\sqrt{3x+2}\sqrt{1-2x}}{15(5x+3)^{3/2}}-\frac{64}{25}\sqrt{33}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{6388}{25}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (14*(1 - 2*x)^(3/2))/(3*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)) - (1012*Sq
rt[1 - 2*x]*Sqrt[2 + 3*x])/(15*(3 + 5*x)^(3/2)) + (6388*Sqrt[1 -
2*x]*Sqrt[2 + 3*x])/(15*Sqrt[3 + 5*x]) - (6388*Sqrt[11/3]*Ellipti
cE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/25 - (64*Sqrt[33]*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/25
```

Rubi [A] time = 0.33598, antiderivative size = 158, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{14(1-2x)^{3/2}}{3\sqrt{3x+2}(5x+3)^{3/2}}+\frac{6388\sqrt{3x+2}\sqrt{1-2x}}{15\sqrt{5x+3}}-\frac{1012\sqrt{3x+2}\sqrt{1-2x}}{15(5x+3)^{3/2}}-\frac{64}{25}\sqrt{33}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{6388}{25}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)^(3/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (14*(1 - 2*x)^(3/2))/(3*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)) - (1012*Sq
rt[1 - 2*x]*Sqrt[2 + 3*x])/(15*(3 + 5*x)^(3/2)) + (6388*Sqrt[1 -
2*x]*Sqrt[2 + 3*x])/(15*Sqrt[3 + 5*x]) - (6388*Sqrt[11/3]*Ellipti
cE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/25 - (64*Sqrt[33]*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/25
```

Rubi in Sympy [A] time = 32.2947, size = 143, normalized size = 0.91

$$\frac{14\left(-2x+1\right)^{\frac{3}{2}}}{3\sqrt{3x+2}\left(5x+3\right)^{\frac{3}{2}}}+\frac{6388\sqrt{-2x+1}\sqrt{3x+2}}{15\sqrt{5x+3}}-\frac{1012\sqrt{-2x+1}\sqrt{3x+2}}{15\left(5x+3\right)^{\frac{3}{2}}}-\frac{6388\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{75}-\frac{2112\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)**(3/2)/(3+5*x)**(5/2),x)
```

```
[Out] 14*(-2*x + 1)**(3/2)/(3*sqrt(3*x + 2)*(5*x + 3)**(3/2)) + 6388*sq
rt(-2*x + 1)*sqrt(3*x + 2)/(15*sqrt(5*x + 3)) - 1012*sqrt(-2*x +
1)*sqrt(3*x + 2)/(15*(5*x + 3)**(3/2)) - 6388*sqrt(33)*elliptic_e
(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/75 - 2112*sqrt(35)*ellip
tic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/875
```

Mathematica [A] time = 0.218298, size = 100, normalized size = 0.63

$$\frac{2}{75}\left(\frac{5\sqrt{1-2x}\left(47910x^2+59098x+18187\right)}{\sqrt{3x+2}(5x+3)^{3/2}}+2\sqrt{2}\left(1597E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-805F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)^(3/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (2*((5*Sqrt[1 - 2*x]*(18187 + 59098*x + 47910*x^2))/(Sqrt[2 + 3*x
]*(3 + 5*x)^(3/2)) + 2*Sqrt[2]*(1597*EllipticE[ArcSin[Sqrt[2/11]*
Sqrt[3 + 5*x]], -33/2] - 805*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 +
 5*x]], -33/2])))/75
```

Maple [C] time = 0.033, size = 267, normalized size = 1.7

$$\frac{2}{450\,x^2+75\,x-150}\sqrt{1-2\,x}\sqrt{2+3\,x}\left(8050\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)^(3/2)/(3+5*x)^(5/2),x)
```

```
[Out] 2/75*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(8050*2^(1/2)*EllipticF(1/11*11^
(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+
5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-15970*2^(1/2)*EllipticE(1/
11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))
*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+4830*2^(1/2)*(3+5*x)
^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2
)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-9582*2^(1/2)*(3+5
*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(
1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+479100*x^3+351
430*x^2-113620*x-90935)/(3+5*x)^(3/2)/(6*x^2+x-2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2\,x+1)^{\frac{5}{2}}}{(5\,x+3)^{\frac{5}{2}}(3\,x+2)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(5/2)*(3*x + 2)^(3/2)),x, algorithm="maxima
```

```
[Out] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(5/2)*(3*x + 2)^(3/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(4\,x^2-4\,x+1)\sqrt{-2\,x+1}}{(75\,x^3+140\,x^2+87\,x+18)\sqrt{5\,x+3}\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(5/2)*(3*x + 2)^(3/2)),x, algorithm="fricas
```

```
[Out] integral((4*x^2 - 4*x + 1)*sqrt(-2*x + 1)/((75*x^3 + 140*x^2 + 87
*x + 18)*sqrt(5*x + 3)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)/(2+3*x)**(3/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2x+1)^{\frac{5}{2}}}{(5x+3)^{\frac{5}{2}}(3x+2)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(5/2)*(3*x + 2)^(3/2)),x, algorithm="giac"
```

```
[Out] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(5/2)*(3*x + 2)^(3/2)), x)
```

3.2795 $\int \frac{(1-2x)^{5/2}}{(2+3x)^{5/2}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=191

$$\frac{14(1-2x)^{3/2}}{9(3x+2)^{3/2}(5x+3)^{3/2}}+\frac{36968\sqrt{3x+2}\sqrt{1-2x}}{9\sqrt{5x+3}}-\frac{6116\sqrt{3x+2}\sqrt{1-2x}}{9(5x+3)^{3/2}}+\frac{308\sqrt{1-2x}}{3\sqrt{3x+2}(5x+3)^{3/2}}-\frac{1112}{15}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{36968}{15}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (14*(1 - 2*x)^(3/2))/(9*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)) + (308*S
qrt[1 - 2*x])/(3*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)) - (6116*Sqrt[1 -
2*x]*Sqrt[2 + 3*x])/(9*(3 + 5*x)^(3/2)) + (36968*Sqrt[1 - 2*x]*Sq
rt[2 + 3*x])/(9*Sqrt[3 + 5*x]) - (36968*Sqrt[11/3]*EllipticE[ArcS
in[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/15 - (1112*Sqrt[11/3]*Ellipt
icF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/15
```

Rubi [A] time = 0.422756, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{14(1-2x)^{3/2}}{9(3x+2)^{3/2}(5x+3)^{3/2}}+\frac{36968\sqrt{3x+2}\sqrt{1-2x}}{9\sqrt{5x+3}}-\frac{6116\sqrt{3x+2}\sqrt{1-2x}}{9(5x+3)^{3/2}}+\frac{308\sqrt{1-2x}}{3\sqrt{3x+2}(5x+3)^{3/2}}-\frac{1112}{15}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{36968}{15}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)^(5/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (14*(1 - 2*x)^(3/2))/(9*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)) + (308*S
qrt[1 - 2*x])/(3*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)) - (6116*Sqrt[1 -
2*x]*Sqrt[2 + 3*x])/(9*(3 + 5*x)^(3/2)) + (36968*Sqrt[1 - 2*x]*Sq
rt[2 + 3*x])/(9*Sqrt[3 + 5*x]) - (36968*Sqrt[11/3]*EllipticE[ArcS
in[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/15 - (1112*Sqrt[11/3]*Ellipt
icF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/15
```

Rubi in Sympy [A] time = 39.4909, size = 172, normalized size = 0.9

$$\frac{14\left(-2x+1\right)^{\frac{3}{2}}}{9\left(3x+2\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{3}{2}}}+\frac{36968\sqrt{-2x+1}\sqrt{3x+2}}{9\sqrt{5x+3}}-\frac{6116\sqrt{-2x+1}\sqrt{3x+2}}{9\left(5x+3\right)^{\frac{3}{2}}}+\frac{308\sqrt{-2x+1}}{3\sqrt{3x+2}\left(5x+3\right)^{\frac{3}{2}}}-\frac{36968\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{45}-\frac{1112\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{45}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)**(5/2)/(3+5*x)**(5/2),x)
```

```
[Out] 14*(-2*x + 1)**(3/2)/(9*(3*x + 2)**(3/2)*(5*x + 3)**(3/2)) + 3696
8*sqrt(-2*x + 1)*sqrt(3*x + 2)/(9*sqrt(5*x + 3)) - 6116*sqrt(-2*x
 + 1)*sqrt(3*x + 2)/(9*(5*x + 3)**(3/2)) + 308*sqrt(-2*x + 1)/(3*
sqrt(3*x + 2)*(5*x + 3)**(3/2)) - 36968*sqrt(33)*elliptic_e(asin(
sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/45 - 1112*sqrt(33)*elliptic_f(
asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/45
```

Mathematica [A] time = 0.24604, size = 105, normalized size = 0.55

$$\frac{2\sqrt{1-2x}\left(277260x^3+526862x^2+333260x+70169\right)}{3(3x+2)^{3/2}(5x+3)^{3/2}}+\frac{4}{45}\sqrt{2}\left(9242E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-4655F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)^(5/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (2*Sqrt[1 - 2*x]*(70169 + 333260*x + 526862*x^2 + 277260*x^3))/(3
*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)) + (4*Sqrt[2]*(9242*EllipticE[Ar
cSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 4655*EllipticF[ArcSin[Sq
rt[2/11]*Sqrt[3 + 5*x]], -33/2]))/45
```

Maple [C] time = 0.033, size = 383, normalized size = 2.

$$\frac{2}{-45+90\,x}\sqrt{1-2\,x}\left(139650\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^2\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-277260\,\sqrt{2}Ell$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)^(5/2)/(3+5*x)^(5/2),x)
```

```
[Out] 2/45*(1-2*x)^(1/2)*(139650*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2
)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)
*(2+3*x)^(1/2)*(1-2*x)^(1/2)-277260*2^(1/2)*EllipticE(1/11*11^(1/
2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5
*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+176890*2^(1/2)*EllipticF(1/
11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))
*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-351196*2^(1/2)*Ellip
ticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2
^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+55860*2^(1/2)
*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2
)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-110904*2^
(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11
^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+8317
800*x^4+11646960*x^3+2094870*x^2-2893830*x-1052535)/(2+3*x)^(3/2)
/(3+5*x)^(3/2)/(-1+2*x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2\,x+1)^{\frac{5}{2}}}{(5\,x+3)^{\frac{5}{2}}(3\,x+2)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^(5/2)*(3*x + 2)^(5/2)),x, algorithm="maxima
```

```
[Out] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(5/2)*(3*x + 2)^(5/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(4\,x^2-4\,x+1\right)\sqrt{-2\,x+1}}{(225\,x^4+570\,x^3+541\,x^2+228\,x+36)\sqrt{5\,x+3}\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(5/2)*(3*x + 2)^(5/2)),x, algorithm="frica
```

```
[Out] integral((4*x^2 - 4*x + 1)*sqrt(-2*x + 1)/((225*x^4 + 570*x^3 + 5
41*x^2 + 228*x + 36)*sqrt(5*x + 3)*sqrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((1-2*x)**(5/2)/(2+3*x)**(5/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2\,x+1)^{\frac{5}{2}}}{(5\,x+3)^{\frac{5}{2}}(3\,x+2)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(5/2)*(3*x + 2)^(5/2)),x, algorithm="giac"
```

```
[Out] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(5/2)*(3*x + 2)^(5/2)), x)
```

3.2796 $\int \frac{(1-2x)^{5/2}}{(2+3x)^{7/2}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=222

$$\frac{14(1-2x)^{3/2}}{15(3x+2)^{5/2}(5x+3)^{3/2}}+\frac{96808\sqrt{3x+2}\sqrt{1-2x}}{3\sqrt{5x+3}}-\frac{16016\sqrt{3x+2}\sqrt{1-2x}}{3(5x+3)^{3/2}}+\frac{35948\sqrt{1-2x}}{45\sqrt{3x+2}(5x+3)^{3/2}}+\frac{1232\sqrt{1-2x}}{45(3x+2)^{3/2}(5x+3)^{3/2}}-\frac{2912}{5}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{96808}{5}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (14*(1 - 2*x)^(3/2))/(15*(2 + 3*x)^(5/2)*(3 + 5*x)^(3/2)) + (1232
*Sqrt[1 - 2*x])/(45*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)) + (35948*Sqr
t[1 - 2*x])/(45*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)) - (16016*Sqrt[1 -
2*x]*Sqrt[2 + 3*x])/(3*(3 + 5*x)^(3/2)) + (96808*Sqrt[1 - 2*x]*Sq
rt[2 + 3*x])/(3*Sqrt[3 + 5*x]) - (96808*Sqrt[11/3]*EllipticE[ArcS
in[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/5 - (2912*Sqrt[11/3]*Ellipti
cF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/5
```

Rubi [A] time = 0.518457, antiderivative size = 222, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{14(1-2x)^{3/2}}{15(3x+2)^{5/2}(5x+3)^{3/2}}+\frac{96808\sqrt{3x+2}\sqrt{1-2x}}{3\sqrt{5x+3}}-\frac{16016\sqrt{3x+2}\sqrt{1-2x}}{3(5x+3)^{3/2}}+\frac{35948\sqrt{1-2x}}{45\sqrt{3x+2}(5x+3)^{3/2}}+\frac{1232\sqrt{1-2x}}{45(3x+2)^{3/2}(5x+3)^{3/2}}-\frac{2912}{5}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{96808}{5}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)^(7/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (14*(1 - 2*x)^(3/2))/(15*(2 + 3*x)^(5/2)*(3 + 5*x)^(3/2)) + (1232
*Sqrt[1 - 2*x])/(45*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)) + (35948*Sqr
t[1 - 2*x])/(45*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)) - (16016*Sqrt[1 -
2*x]*Sqrt[2 + 3*x])/(3*(3 + 5*x)^(3/2)) + (96808*Sqrt[1 - 2*x]*Sq
rt[2 + 3*x])/(3*Sqrt[3 + 5*x]) - (96808*Sqrt[11/3]*EllipticE[ArcS
in[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/5 - (2912*Sqrt[11/3]*Ellipti
cF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/5
```

Rubi in Sympy [A] time = 47.231, size = 201, normalized size = 0.91

$$\frac{14\left(-2x+1\right)^{\frac{3}{2}}}{15\left(3x+2\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{3}{2}}}+\frac{96808\sqrt{-2x+1}\sqrt{3x+2}}{3\sqrt{5x+3}}-\frac{16016\sqrt{-2x+1}\sqrt{3x+2}}{3\left(5x+3\right)^{\frac{3}{2}}}+\frac{35948\sqrt{-2x+1}}{45\sqrt{3x+2}\left(5x+3\right)^{\frac{3}{2}}}+\frac{1232\sqrt{-2x+1}}{45\left(3x+2\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{3}{2}}}-\frac{96808\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{15}-\frac{4576\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{25}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)**(7/2)/(3+5*x)**(5/2),x)
```

```
[Out] 14*(-2*x + 1)**(3/2)/(15*(3*x + 2)**(5/2)*(5*x + 3)**(3/2)) + 968
08*sqrt(-2*x + 1)*sqrt(3*x + 2)/(3*sqrt(5*x + 3)) - 16016*sqrt(-2
*x + 1)*sqrt(3*x + 2)/(3*(5*x + 3)**(3/2)) + 35948*sqrt(-2*x + 1)
/(45*sqrt(3*x + 2)*(5*x + 3)**(3/2)) + 1232*sqrt(-2*x + 1)/(45*(3
```

```
*x + 2)**(3/2)*(5*x + 3)**(3/2)) - 96808*sqrt(33)*elliptic_e(asin
(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/15 - 4576*sqrt(35)*elliptic_f
(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/25
```

Mathematica [A] time = 0.373151, size = 109, normalized size = 0.49

$$\frac{2}{15}\left(\frac{\sqrt{1-2x}\left(32672700x^4+83867940x^3+80662602x^2+34450018x+5512543\right)}{(3x+2)^{5/2}(5x+3)^{3/2}}+4\sqrt{2}\left(12101E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-6095F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)^(7/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (2*((Sqrt[1 - 2*x]*(5512543 + 34450018*x + 80662602*x^2 + 8386794
0*x^3 + 32672700*x^4))/((2 + 3*x)^(5/2)*(3 + 5*x)^(3/2)) + 4*Sqrt
[2]*(12101*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 6
095*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])))/15
```

Maple [C] time = 0.036, size = 502, normalized size = 2.3

$$\frac{2}{-15+30\,x}\sqrt{1-2\,x}\left(1097100\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^3\sqrt{1-2\,x}\sqrt{3+5\,x}\sqrt{2+3\,x}-2178180\,\sqrt{2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)^(7/2)/(3+5*x)^(5/2),x)
```

```
[Out] 2/15*(1-2*x)^(1/2)*(1097100*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/
2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2
)*(3+5*x)^(1/2)*(2+3*x)^(1/2)-2178180*2^(1/2)*EllipticE(1/11*11^(
1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1
-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)+2121060*2^(1/2)*EllipticF
(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/
2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-4211148*2^(1/2)
*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(
1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+13652
80*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11
^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/
2)-2710624*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),
1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-
2*x)^(1/2)+292560*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/
2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3
^(1/2)*2^(1/2))-580848*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x
)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1
/2)*3^(1/2)*2^(1/2))+65345400*x^5+135063180*x^4+77457264*x^3-1176
2566*x^2-23424932*x-5512543)/(2+3*x)^(5/2)/(3+5*x)^(3/2)/(-1+2*x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2\,x+1)^{\frac{5}{2}}}{(5\,x+3)^{\frac{5}{2}}(3\,x+2)^{\frac{7}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-2*x + 1)^(5/2)/((5*x + 3)^(5/2)*(3*x + 2)^(7/2)),x, algorithm="maxima
```

```
[Out] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(5/2)*(3*x + 2)^(7/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\left(4\,x^2-4\,x+1\right)\sqrt{-2\,x+1}}{(675\,x^5+2160\,x^4+2763\,x^3+1766\,x^2+564\,x+72)\sqrt{5\,x+3}\sqrt{3\,x+2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(5/2)*(3*x + 2)^(7/2)),x, algorithm="frica
```

```
[Out] integral((4*x^2 - 4*x + 1)*sqrt(-2*x + 1)/((675*x^5 + 2160*x^4 +
2763*x^3 + 1766*x^2 + 564*x + 72)*sqrt(5*x + 3)*sqrt(3*x + 2)), x
)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)/(2+3*x)**(7/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2\,x+1)^{\frac{5}{2}}}{(5\,x+3)^{\frac{5}{2}}(3\,x+2)^{\frac{7}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(5/2)*(3*x + 2)^(7/2)),x, algorithm="giac"
```

```
[Out] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(5/2)*(3*x + 2)^(7/2)), x)
```

3.2797 $\int \frac{(1-2x)^{5/2}}{(2+3x)^{9/2}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=251

$$\frac{2(1-2x)^{3/2}}{3(3x+2)^{7/2}(5x+3)^{3/2}}+\frac{11171040\sqrt{3x+2}\sqrt{1-2x}}{49\sqrt{5x+3}}-\frac{5544440\sqrt{3x+2}\sqrt{1-2x}}{147(5x+3)^{3/2}}+\frac{2488904\sqrt{1-2x}}{441\sqrt{3x+2}(5x+3)^{3/2}}+\frac{11924\sqrt{1-2x}}{63(3x+2)^{3/2}(5x+3)^{3/2}}+\frac{44\sqrt{1-2x}}{3(3x+2)^{5/2}(5x+3)^{3/2}}-\frac{201616}{49}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{2234208}{49}\sqrt{33}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (2*(1 - 2*x)^(3/2))/(3*(2 + 3*x)^(7/2)*(3 + 5*x)^(3/2)) + (44*Sqr
t[1 - 2*x])/(3*(2 + 3*x)^(5/2)*(3 + 5*x)^(3/2)) + (11924*Sqrt[1 -
 2*x])/(63*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)) + (2488904*Sqrt[1 - 2
*x])/(441*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)) - (5544440*Sqrt[1 - 2*x]
*Sqrt[2 + 3*x])/(147*(3 + 5*x)^(3/2)) + (11171040*Sqrt[1 - 2*x]*S
qrt[2 + 3*x])/(49*Sqrt[3 + 5*x]) - (2234208*Sqrt[33]*EllipticE[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/49 - (201616*Sqrt[11/3]*El
lipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/49
```

Rubi [A] time = 0.609184, antiderivative size = 251, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.214$

$$\frac{2(1-2x)^{3/2}}{3(3x+2)^{7/2}(5x+3)^{3/2}}+\frac{11171040\sqrt{3x+2}\sqrt{1-2x}}{49\sqrt{5x+3}}-\frac{5544440\sqrt{3x+2}\sqrt{1-2x}}{147(5x+3)^{3/2}}+\frac{2488904\sqrt{1-2x}}{441\sqrt{3x+2}(5x+3)^{3/2}}+\frac{11924\sqrt{1-2x}}{63(3x+2)^{3/2}(5x+3)^{3/2}}+\frac{44\sqrt{1-2x}}{3(3x+2)^{5/2}(5x+3)^{3/2}}-\frac{201616}{49}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{2234208}{49}\sqrt{33}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)^(5/2)/((2 + 3*x)^(9/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (2*(1 - 2*x)^(3/2))/(3*(2 + 3*x)^(7/2)*(3 + 5*x)^(3/2)) + (44*Sqr
t[1 - 2*x])/(3*(2 + 3*x)^(5/2)*(3 + 5*x)^(3/2)) + (11924*Sqrt[1 -
 2*x])/(63*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)) + (2488904*Sqrt[1 - 2
*x])/(441*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)) - (5544440*Sqrt[1 - 2*x]
*Sqrt[2 + 3*x])/(147*(3 + 5*x)^(3/2)) + (11171040*Sqrt[1 - 2*x]*S
qrt[2 + 3*x])/(49*Sqrt[3 + 5*x]) - (2234208*Sqrt[33]*EllipticE[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/49 - (201616*Sqrt[11/3]*El
lipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/49
```

Rubi in Sympy [A] time = 55.9894, size = 230, normalized size = 0.92

$$\frac{2\left(-2x+1\right)^{\frac{3}{2}}}{3\left(3x+2\right)^{\frac{7}{2}}\left(5x+3\right)^{\frac{3}{2}}}+\frac{11171040\sqrt{-2x+1}\sqrt{3x+2}}{49\sqrt{5x+3}}-\frac{5544440\sqrt{-2x+1}\sqrt{3x+2}}{147\left(5x+3\right)^{\frac{3}{2}}}+\frac{2488904\sqrt{-2x+1}}{441\sqrt{3x+2}\left(5x+3\right)^{\frac{3}{2}}}+\frac{11924\sqrt{-2x+1}}{63\left(3x+2\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{3}{2}}}+\frac{44\sqrt{-2x+1}}{3\left(3x+2\right)^{\frac{5}{2}}\left(5x+3\right)^{\frac{3}{2}}}-\frac{2234208\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{49}-\frac{2217776\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{1715}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)**(5/2)/(2+3*x)**(9/2)/(3+5*x)**(5/2),x)
```

```
[Out] 2*(-2*x + 1)**(3/2)/(3*(3*x + 2)**(7/2)*(5*x + 3)**(3/2)) + 11171
040*sqrt(-2*x + 1)*sqrt(3*x + 2)/(49*sqrt(5*x + 3)) - 5544440*sqr
t(-2*x + 1)*sqrt(3*x + 2)/(147*(5*x + 3)**(3/2)) + 2488904*sqrt(-
2*x + 1)/(441*sqrt(3*x + 2)*(5*x + 3)**(3/2)) + 11924*sqrt(-2*x +
 1)/(63*(3*x + 2)**(3/2)*(5*x + 3)**(3/2)) + 44*sqrt(-2*x + 1)/(3
*(3*x + 2)**(5/2)*(5*x + 3)**(3/2)) - 2234208*sqrt(33)*elliptic_e
(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/49 - 2217776*sqrt(35)*el
liptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/1715
```

Mathematica [A] time = 0.403471, size = 114, normalized size = 0.45

$$\frac{2}{147}\left(\frac{\sqrt{1-2x}\left(6786406800x^5+21944379060x^4+28367736228x^3+18325125498x^2+5915384456x+763335749\right)}{(3x+2)^{7/2}(5x+3)^{3/2}}+12\sqrt{2}\left(279276E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-140665F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)^(5/2)/((2 + 3*x)^(9/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (2*((Sqrt[1 - 2*x]*(763335749 + 5915384456*x + 18325125498*x^2 +
28367736228*x^3 + 21944379060*x^4 + 6786406800*x^5))/((2 + 3*x)^(
7/2)*(3 + 5*x)^(3/2)) + 12*Sqrt[2]*(279276*EllipticE[ArcSin[Sqrt[
2/11]*Sqrt[3 + 5*x]], -33/2] - 140665*EllipticF[ArcSin[Sqrt[2/11]
*Sqrt[3 + 5*x]], -33/2])))/147
```

Maple [C] time = 0.036, size = 621, normalized size = 2.5

$$-\frac{2}{-147+294x}\sqrt{1-2x}\left(452427120\sqrt{2}EllipticE\left(1/11\sqrt{11}\sqrt{2}\sqrt{3+5x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^4\sqrt{3+5x}\sqrt{2+3x}\sqrt{1-2x}-22787\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)^(5/2)/(2+3*x)^(9/2)/(3+5*x)^(5/2),x)
```

```
[Out] -2/147*(1-2*x)^(1/2)*(452427120*2^(1/2)*EllipticE(1/11*11^(1/2)*2
^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^4*(3+5*x)^
(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-227877300*2^(1/2)*EllipticF(1/1
1*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*
x^4*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+1176310512*2^(1/2)*
EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1
/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)-592480
980*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*1
1^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^
(1/2)+1146148704*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^
(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(
1/2)*(1-2*x)^(1/2)-577289160*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1
/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/
2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+495994176*2^(1/2)*EllipticE(1/11*1
1^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(
3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-249821040*2^(1/2)*Ellipt
icF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^
(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-13572813600*x^
6+80431488*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Elli
pticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*
2^(1/2))-40511520*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/
2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3
^(1/2)*2^(1/2))-37102351320*x^5-34791093396*x^4-8282514768*x^3+64
94356586*x^2+4388712958*x+763335749)/(2+3*x)^(7/2)/(3+5*x)^(3/2)/
(-1+2*x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2x+1)^{\frac{5}{2}}}{(5x+3)^{\frac{5}{2}}(3x+2)^{\frac{9}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(5/2)*(3*x + 2)^(9/2)),x, algorithm="maxima
```

```
[Out] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(5/2)*(3*x + 2)^(9/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(4x^2-4x+1)\sqrt{-2x+1}}{(2025x^6+7830x^5+12609x^4+10824x^3+5224x^2+1344x+144)\sqrt{5x+3}\sqrt{3x+2}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(5/2)*(3*x + 2)^(9/2)),x, algorithm="fricas
```

```
[Out] integral((4*x^2 - 4*x + 1)*sqrt(-2*x + 1)/((2025*x^6 + 7830*x^5 +
 12609*x^4 + 10824*x^3 + 5224*x^2 + 1344*x + 144)*sqrt(5*x + 3)*s
qrt(3*x + 2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)**(5/2)/(2+3*x)**(9/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-2x+1)^{\frac{5}{2}}}{(5x+3)^{\frac{5}{2}}(3x+2)^{\frac{9}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(5/2)*(3*x + 2)^(9/2)),x, algorithm="giac"
```

```
[Out] integrate((-2*x + 1)^(5/2)/((5*x + 3)^(5/2)*(3*x + 2)^(9/2)), x)
```

3.2798 $\int \frac{(2+3x)^{5/2}\sqrt{3+5x}}{\sqrt{1-2x}}\,dx$

Optimal. Leaf size=158

$$-\frac{1}{7}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{5/2}-\frac{104}{175}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}-\frac{4839\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{1750}-\frac{5057\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{8750}-\frac{56041\sqrt{33}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{8750}$$

```
[Out] (-4839*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/1750 - (104*Sqr
t[1 - 2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/175 - (Sqrt[1 - 2*x]*(2
 + 3*x)^(5/2)*Sqrt[3 + 5*x])/7 - (56041*Sqrt[33]*EllipticE[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/8750 - (5057*Sqrt[11/3]*Ellipt
icF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/8750
```

Rubi [A] time = 0.332034, antiderivative size = 158, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{1}{7}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{5/2}-\frac{104}{175}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}-\frac{4839\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{1750}-\frac{5057\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{8750}-\frac{56041\sqrt{33}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{8750}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^(5/2)*Sqrt[3 + 5*x])/Sqrt[1 - 2*x],x]
```

```
[Out] (-4839*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/1750 - (104*Sqr
t[1 - 2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/175 - (Sqrt[1 - 2*x]*(2
 + 3*x)^(5/2)*Sqrt[3 + 5*x])/7 - (56041*Sqrt[33]*EllipticE[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/8750 - (5057*Sqrt[11/3]*Ellipt
icF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/8750
```

Rubi in Sympy [A] time = 33.2649, size = 143, normalized size = 0.91

$$-\frac{\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}\,\sqrt{5x+3}}{7}-\frac{104\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\,\sqrt{5x+3}}{175}-\frac{4839\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{1750}-\frac{56041\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{8750}-\frac{5057\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{26250}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(5/2)*(3+5*x)**(1/2)/(1-2*x)**(1/2),x)
```

```
[Out] -sqrt(-2*x + 1)*(3*x + 2)**(5/2)*sqrt(5*x + 3)/7 - 104*sqrt(-2*x
+ 1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/175 - 4839*sqrt(-2*x + 1)*sqr
t(3*x + 2)*sqrt(5*x + 3)/1750 - 56041*sqrt(33)*elliptic_e(asin(sq
rt(21)*sqrt(-2*x + 1)/7), 35/33)/8750 - 5057*sqrt(33)*elliptic_f(
asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/26250
```

Mathematica [A] time = 0.29035, size = 97, normalized size = 0.61

$$\frac{-5\sqrt{2-4x}\sqrt{3x+2}\sqrt{5x+3}\left(2250x^2+6120x+7919\right)-56455F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+112082E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+\right.\right.}{8750\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^(5/2)*Sqrt[3 + 5*x])/Sqrt[1 - 2*x],x]
```

```
[Out] (-5*Sqrt[2 - 4*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(7919 + 6120*x + 22
50*x^2) + 112082*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/
2] - 56455*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/(8
750*Sqrt[2])
```

Maple [C] time = 0.034, size = 174, normalized size = 1.1

$$\frac{1}{525000\,x^3+402500\,x^2-122500\,x-105000}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(56455\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}\mathit{EllipticF}\left(1/11\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(5/2)*(3+5*x)^(1/2)/(1-2*x)^(1/2),x)
```

```
[Out] 1/17500*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(56455*2^(1/2)*
(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)
*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-112082*2^(
1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^
(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-67500
0*x^5-2353500*x^4-3625800*x^3-1257970*x^2+921530*x+475140)/(30*x^
3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}(3\,x+2)^{\frac{5}{2}}}{\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^(5/2)/sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(5*x + 3)*(3*x + 2)^(5/2)/sqrt(-2*x + 1), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(9\,x^2+12\,x+4\right)\sqrt{5\,x+3}\sqrt{3\,x+2}}{\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^(5/2)/sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] integral((9*x^2 + 12*x + 4)*sqrt(5*x + 3)*sqrt(3*x + 2)/sqrt(-2*x
 + 1), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(5/2)*(3+5*x)**(1/2)/(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}(3\,x+2)^{\frac{5}{2}}}{\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(3*x + 2)^(5/2)/sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)*(3*x + 2)^(5/2)/sqrt(-2*x + 1), x)
```

3.2799 $\int \frac{(2+3x)^{3/2}\sqrt{3+5x}}{\sqrt{1-2x}}\,dx$

Optimal. Leaf size=127

$$-\frac{1}{5}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}-\frac{23}{25}\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}-\frac{8}{125}\sqrt{33}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{1597}{250}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (-23*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/25 - (Sqrt[1 - 2*
x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/5 - (1597*Sqrt[11/3]*EllipticE[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/250 - (8*Sqrt[33]*Ellipt
icF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/125
```

Rubi [A] time = 0.258665, antiderivative size = 127, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{1}{5}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}-\frac{23}{25}\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}-\frac{8}{125}\sqrt{33}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{1597}{250}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/Sqrt[1 - 2*x],x]
```

```
[Out] (-23*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/25 - (Sqrt[1 - 2*
x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/5 - (1597*Sqrt[11/3]*EllipticE[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/250 - (8*Sqrt[33]*Ellipt
icF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/125
```

Rubi in Sympy [A] time = 25.3885, size = 114, normalized size = 0.9

$$-\frac{\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\,\sqrt{5x+3}}{5}-\frac{23\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{25}-\frac{1597\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{750}-\frac{8\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(3/2)*(3+5*x)**(1/2)/(1-2*x)**(1/2),x)
```

```
[Out] -sqrt(-2*x + 1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/5 - 23*sqrt(-2*x +
 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/25 - 1597*sqrt(33)*elliptic_e(asi
n(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/750 - 8*sqrt(33)*elliptic_f(
asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/125
```

Mathematica [A] time = 0.216752, size = 92, normalized size = 0.72

$$\frac{-45\sqrt{2-4x}\sqrt{3x+2}\sqrt{5x+3}(5x+11)-805F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+1597E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)}{375\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/Sqrt[1 - 2*x],x]
```

```
[Out] (-45*Sqrt[2 - 4*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(11 + 5*x) + 1597*
EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 805*Elliptic
F[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/(375*Sqrt[2])
```

Maple [C] time = 0.017, size = 169, normalized size = 1.3

$$\frac{1}{22500\,x^3+17250\,x^2-5250\,x-4500}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(805\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(3/2)*(3+5*x)^(1/2)/(1-2*x)^(1/2),x)
```

```
[Out] 1/750*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(805*2^(1/2)*(3+5
*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(
1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-1597*2^(1/2)*(
3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*
2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-13500*x^4-4
0050*x^3-19620*x^2+9630*x+5940)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}(3\,x+2)^{\frac{3}{2}}}{\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^(3/2)/sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(5*x + 3)*(3*x + 2)^(3/2)/sqrt(-2*x + 1), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{5\,x+3}(3\,x+2)^{\frac{3}{2}}}{\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^(3/2)/sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] integral(sqrt(5*x + 3)*(3*x + 2)^(3/2)/sqrt(-2*x + 1), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(3/2)*(3+5*x)**(1/2)/(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}(3\,x+2)^{\frac{3}{2}}}{\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(3*x + 2)^(3/2)/sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)*(3*x + 2)^(3/2)/sqrt(-2*x + 1), x)
```

3.2800 $\int \frac{\sqrt{2+3x}\sqrt{3+5x}}{\sqrt{1-2x}}\,dx$

Optimal. Leaf size=98

$$-\frac{1}{3}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}-\frac{1}{15}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{34}{15}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] -(Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/3 - (34*Sqrt[11/3]*E
llipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/15 - (Sqrt[11/3
]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/15
```

Rubi [A] time = 0.187124, antiderivative size = 98, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.143

$$-\frac{1}{3}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}-\frac{1}{15}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{34}{15}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/Sqrt[1 - 2*x],x]
```

```
[Out] -(Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/3 - (34*Sqrt[11/3]*E
llipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/15 - (Sqrt[11/3
]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/15
```

Rubi in Sympy [A] time = 17.4606, size = 85, normalized size = 0.87

$$-\frac{\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{3}-\frac{34\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{45}-\frac{11\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{525}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(1/2)*(3+5*x)**(1/2)/(1-2*x)**(1/2),x)
```

```
[Out] -sqrt(-2*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/3 - 34*sqrt(33)*ellip
tic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/45 - 11*sqrt(35)*el
liptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/525
```

Mathematica [A] time = 0.17009, size = 92, normalized size = 0.94

$$\frac{1}{90}\left(-30\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}-35\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+68\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/Sqrt[1 - 2*x],x]
```

```
[Out] (-30*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x] + 68*Sqrt[2]*Ellip
ticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 35*Sqrt[2]*Ellipt
icF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/90
```

Maple [C] time = 0.015, size = 164, normalized size = 1.7

$$\frac{1}{2700\,x^3+2070\,x^2-630\,x-540}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(35\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(1/2)*(3+5*x)^(1/2)/(1-2*x)^(1/2),x)
```

```
[Out] 1/90*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(35*2^(1/2)*(3+5*x
)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/
2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-68*2^(1/2)*(3+5*
x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1
/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-900*x^3-690*x^2
+210*x+180)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}\sqrt{3\,x+2}}{\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*sqrt(3*x + 2)/sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(5*x + 3)*sqrt(3*x + 2)/sqrt(-2*x + 1), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{5\,x+3}\sqrt{3\,x+2}}{\sqrt{-2\,x+1}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*sqrt(3*x + 2)/sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] integral(sqrt(5*x + 3)*sqrt(3*x + 2)/sqrt(-2*x + 1), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{3x+2}\sqrt{5x+3}}{\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(1/2)*(3+5*x)**(1/2)/(1-2*x)**(1/2),x)
```

```
[Out] Integral(sqrt(3*x + 2)*sqrt(5*x + 3)/sqrt(-2*x + 1), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}\sqrt{3\,x+2}}{\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*sqrt(3*x + 2)/sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)*sqrt(3*x + 2)/sqrt(-2*x + 1), x)
```

3.2801 $\int \frac{\sqrt{3+5x}}{\sqrt{1-2x}\sqrt{2+3x}}\,dx$

Optimal. Leaf size=31

$$-\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] -(Sqrt[11/3]*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])
```

Rubi [A] time = 0.0428812, antiderivative size = 31, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.036

$$-\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[3 + 5*x]/(Sqrt[1 - 2*x]*Sqrt[2 + 3*x]),x]
```

```
[Out] -(Sqrt[11/3]*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])
```

Rubi in Sympy [A] time = 5.18788, size = 27, normalized size = 0.87

$$-\frac{\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(1/2)/(1-2*x)**(1/2)/(2+3*x)**(1/2),x)
```

```
[Out] -sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/3
```

Mathematica [A] time = 0.084367, size = 56, normalized size = 1.81

$$\frac{1}{3}\sqrt{2}\left(E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[3 + 5*x]/(Sqrt[1 - 2*x]*Sqrt[2 + 3*x]),x]
```

```
[Out] (Sqrt[2]*(EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - El
lipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]))/3
```

Maple [C] time = 0.018, size = 65, normalized size = 2.1

$$-\frac{\sqrt{2}}{3}\left(\mathit{EllipticF}\left(\frac{\sqrt{11}\sqrt{2}}{11}\sqrt{3+5\,x},\frac{i}{2}\sqrt{11}\sqrt{3}\sqrt{2}\right)-\mathit{EllipticE}\left(\frac{\sqrt{11}\sqrt{2}}{11}\sqrt{3+5\,x},\frac{i}{2}\sqrt{11}\sqrt{3}\sqrt{2}\right)\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(1/2)/(1-2*x)^(1/2)/(2+3*x)^(1/2),x)
```

```
[Out] -1/3*(EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2
)*3^(1/2)*2^(1/2))-EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),
1/2*I*11^(1/2)*3^(1/2)*2^(1/2)))*2^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5x+3}}{\sqrt{3x+2}\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)/(sqrt(3*x + 2)*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(5*x + 3)/(sqrt(3*x + 2)*sqrt(-2*x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{5x+3}}{\sqrt{3x+2}\sqrt{-2x+1}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)/(sqrt(3*x + 2)*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] integral(sqrt(5*x + 3)/(sqrt(3*x + 2)*sqrt(-2*x + 1)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5x+3}}{\sqrt{-2x+1}\sqrt{3x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(1/2)/(1-2*x)**(1/2)/(2+3*x)**(1/2),x)
```

```
[Out] Integral(sqrt(5*x + 3)/(sqrt(-2*x + 1)*sqrt(3*x + 2)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5x+3}}{\sqrt{3x+2}\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)/(sqrt(3*x + 2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)/(sqrt(3*x + 2)*sqrt(-2*x + 1)), x)
```

3.2802 $\int \frac{\sqrt{3+5x}}{\sqrt{1-2x}(2+3x)^{3/2}}\,dx$

Optimal. Leaf size=81

$$\frac{2\sqrt{\frac{5}{7}}\sqrt{-5x-3}E\left(\sin^{-1}\left(\sqrt{5}\sqrt{3x+2}\right)|\frac{2}{35}\right)}{3\sqrt{5x+3}}-\frac{2\sqrt{1-2x}\sqrt{5x+3}}{7\sqrt{3x+2}}$$

```
[Out] (-2*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(7*Sqrt[2 + 3*x]) + (2*Sqrt[5/7]
*Sqrt[-3 - 5*x]*EllipticE[ArcSin[Sqrt[5]*Sqrt[2 + 3*x]], 2/35])/(
3*Sqrt[3 + 5*x])
```

Rubi [A] time = 0.140498, antiderivative size = 81, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.143

$$\frac{2\sqrt{\frac{5}{7}}\sqrt{-5x-3}E\left(\sin^{-1}\left(\sqrt{5}\sqrt{3x+2}\right)|\frac{2}{35}\right)}{3\sqrt{5x+3}}-\frac{2\sqrt{1-2x}\sqrt{5x+3}}{7\sqrt{3x+2}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[3 + 5*x]/(Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)),x]
```

```
[Out] (-2*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(7*Sqrt[2 + 3*x]) + (2*Sqrt[5/7]
*Sqrt[-3 - 5*x]*EllipticE[ArcSin[Sqrt[5]*Sqrt[2 + 3*x]], 2/35])/(
3*Sqrt[3 + 5*x])
```

Rubi in Sympy [A] time = 14.1759, size = 94, normalized size = 1.16

$$\frac{2\sqrt{5}\sqrt{-15x-9}\sqrt{-2x+1}E\left(\operatorname{asin}\left(\sqrt{5}\sqrt{3x+2}\right)\middle|\frac{2}{35}\right)}{21\sqrt{-\frac{6x}{7}+\frac{3}{7}}\sqrt{5x+3}}-\frac{2\sqrt{-2x+1}\sqrt{5x+3}}{7\sqrt{3x+2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(1/2)/(2+3*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] 2*sqrt(5)*sqrt(-15*x - 9)*sqrt(-2*x + 1)*elliptic_e(asin(sqrt(5)*
sqrt(3*x + 2)), 2/35)/(21*sqrt(-6*x/7 + 3/7)*sqrt(5*x + 3)) - 2*s
qrt(-2*x + 1)*sqrt(5*x + 3)/(7*sqrt(3*x + 2))
```

Mathematica [C] time = 0.149255, size = 70, normalized size = 0.86

$$\frac{-6\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}-2i\sqrt{33}(3x+2)E\left(i\sinh^{-1}\left(\sqrt{15x+9}\right)|-\frac{2}{33}\right)}{63x+42}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[3 + 5*x]/(Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)),x]
```

```
[Out] (-6*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x] - (2*I)*Sqrt[33]*(2
 + 3*x)*EllipticE[I*ArcSinh[Sqrt[9 + 15*x]], -2/33])/(42 + 63*x)
```

Maple [C] time = 0.026, size = 159, normalized size = 2.

$$-\frac{1}{630\,x^{3}+483\,x^{2}-147\,x-126}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(35\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(1/2)/(2+3*x)^(3/2)/(1-2*x)^(1/2),x)
```

```
[Out] -1/21*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*(35*2^(1/2)*(3+5*
x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1
/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-2*2^(1/2)*(3+5*
x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1
/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+60*x^2+6*x-18)/
(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}}{(3\,x+2)^{\frac{3}{2}}\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/((3*x + 2)^(3/2)*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(5*x + 3)/((3*x + 2)^(3/2)*sqrt(-2*x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\sqrt{5\,x+3}}{(3\,x+2)^{\frac{3}{2}}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/((3*x + 2)^(3/2)*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] integral(sqrt(5*x + 3)/((3*x + 2)^(3/2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(1/2)/(2+3*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}}{(3\,x+2)^{\frac{3}{2}}\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)/((3*x + 2)^(3/2)*sqrt(-2*x + 1)),x, algorithm="giac")

[Out] integrate(sqrt(5*x + 3)/((3*x + 2)^(3/2)*sqrt(-2*x + 1)), x)
```

3.2803 $\int \frac{\sqrt{3+5x}}{\sqrt{1-2x}(2+3x)^{5/2}}\,dx$

Optimal. Leaf size=129

$$\frac{62\sqrt{1-2x}\sqrt{5x+3}}{147\sqrt{3x+2}}-\frac{2\sqrt{1-2x}\sqrt{5x+3}}{21(3x+2)^{3/2}}-\frac{8}{147}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{62}{147}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (-2*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(21*(2 + 3*x)^(3/2)) + (62*Sqrt[
1 - 2*x]*Sqrt[3 + 5*x])/(147*Sqrt[2 + 3*x]) - (62*Sqrt[11/3]*Elli
pticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/147 - (8*Sqrt[11/3
]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/147
```

Rubi [A] time = 0.261818, antiderivative size = 129, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{62\sqrt{1-2x}\sqrt{5x+3}}{147\sqrt{3x+2}}-\frac{2\sqrt{1-2x}\sqrt{5x+3}}{21(3x+2)^{3/2}}-\frac{8}{147}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{62}{147}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[3 + 5*x]/(Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)),x]
```

```
[Out] (-2*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(21*(2 + 3*x)^(3/2)) + (62*Sqrt[
1 - 2*x]*Sqrt[3 + 5*x])/(147*Sqrt[2 + 3*x]) - (62*Sqrt[11/3]*Elli
pticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/147 - (8*Sqrt[11/3
]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/147
```

Rubi in Sympy [A] time = 25.0624, size = 114, normalized size = 0.88

$$\frac{62\sqrt{-2x+1}\sqrt{5x+3}}{147\sqrt{3x+2}}-\frac{2\sqrt{-2x+1}\sqrt{5x+3}}{21\,(3x+2)^{\frac{3}{2}}}-\frac{62\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{441}-\frac{8\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{441}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(1/2)/(2+3*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] 62*sqrt(-2*x + 1)*sqrt(5*x + 3)/(147*sqrt(3*x + 2)) - 2*sqrt(-2*x
 + 1)*sqrt(5*x + 3)/(21*(3*x + 2)**(3/2)) - 62*sqrt(33)*elliptic_
e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/441 - 8*sqrt(33)*ellipt
ic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/441
```

Mathematica [A] time = 0.217387, size = 97, normalized size = 0.75

$$\frac{2}{441}\left(\frac{3\sqrt{1-2x}\sqrt{5x+3}(93x+55)}{(3x+2)^{3/2}}+35\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+31\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[3 + 5*x]/(Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)),x]
```

```
[Out] (2*((3*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(55 + 93*x))/(2 + 3*x)^(3/2) +
 31*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] +
35*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]))/4
41
```

Maple [C] time = 0.029, size = 267, normalized size = 2.1

$$-\frac{2}{4410\,x^2+441\,x-1323}\left(105\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}+93\,\sqrt{2}Elliptic\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(1/2)/(2+3*x)^(5/2)/(1-2*x)^(1/2),x)
```

```
[Out] -2/441*(105*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2)
,1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1
-2*x)^(1/2)+93*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1
/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)
*(1-2*x)^(1/2)+70*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/
2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3
^(1/2)*2^(1/2))+62*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1
/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*
3^(1/2)*2^(1/2))-2790*x^3-1929*x^2+672*x+495)*(1-2*x)^(1/2)*(3+5*
x)^(1/2)/(10*x^2+x-3)/(2+3*x)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}}{(3\,x+2)^{\frac{5}{2}}\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/((3*x + 2)^(5/2)*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(5*x + 3)/((3*x + 2)^(5/2)*sqrt(-2*x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\sqrt{5\,x+3}}{(9\,x^2+12\,x+4)\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/((3*x + 2)^(5/2)*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] integral(sqrt(5*x + 3)/((9*x^2 + 12*x + 4)*sqrt(3*x + 2)*sqrt(-2*
x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(1/2)/(2+3*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5x+3}}{(3x+2)^{\frac{5}{2}}\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/((3*x + 2)^(5/2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)/((3*x + 2)^(5/2)*sqrt(-2*x + 1)), x)
```

3.2804 $\int \frac{\sqrt{3+5x}}{\sqrt{1-2x}(2+3x)^{7/2}}\,dx$

Optimal. Leaf size=158

$$\frac{1752\sqrt{1-2x}\sqrt{5x+3}}{1715\sqrt{3x+2}}+\frac{18\sqrt{1-2x}\sqrt{5x+3}}{245(3x+2)^{3/2}}-\frac{2\sqrt{1-2x}\sqrt{5x+3}}{35(3x+2)^{5/2}}-\frac{68\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1715}-\frac{584\sqrt{33}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1715}$$

```
[Out] (-2*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(35*(2 + 3*x)^(5/2)) + (18*Sqrt[
1 - 2*x]*Sqrt[3 + 5*x])/(245*(2 + 3*x)^(3/2)) + (1752*Sqrt[1 - 2*
x]*Sqrt[3 + 5*x])/(1715*Sqrt[2 + 3*x]) - (584*Sqrt[33]*EllipticE[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1715 - (68*Sqrt[11/3]*El
lipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1715
```

Rubi [A] time = 0.341106, antiderivative size = 158, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{1752\sqrt{1-2x}\sqrt{5x+3}}{1715\sqrt{3x+2}}+\frac{18\sqrt{1-2x}\sqrt{5x+3}}{245(3x+2)^{3/2}}-\frac{2\sqrt{1-2x}\sqrt{5x+3}}{35(3x+2)^{5/2}}-\frac{68\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1715}-\frac{584\sqrt{33}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1715}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[3 + 5*x]/(Sqrt[1 - 2*x]*(2 + 3*x)^(7/2)),x]
```

```
[Out] (-2*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(35*(2 + 3*x)^(5/2)) + (18*Sqrt[
1 - 2*x]*Sqrt[3 + 5*x])/(245*(2 + 3*x)^(3/2)) + (1752*Sqrt[1 - 2*
x]*Sqrt[3 + 5*x])/(1715*Sqrt[2 + 3*x]) - (584*Sqrt[33]*EllipticE[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1715 - (68*Sqrt[11/3]*El
lipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1715
```

Rubi in Sympy [A] time = 32.2061, size = 143, normalized size = 0.91

$$\frac{1752\sqrt{-2x+1}\sqrt{5x+3}}{1715\sqrt{3x+2}}+\frac{18\sqrt{-2x+1}\sqrt{5x+3}}{245\,(3x+2)^{\frac{3}{2}}}-\frac{2\sqrt{-2x+1}\sqrt{5x+3}}{35\,(3x+2)^{\frac{5}{2}}}-\frac{584\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{1715}-\frac{68\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{5145}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(1/2)/(2+3*x)**(7/2)/(1-2*x)**(1/2),x)
```

```
[Out] 1752*sqrt(-2*x + 1)*sqrt(5*x + 3)/(1715*sqrt(3*x + 2)) + 18*sqrt(
-2*x + 1)*sqrt(5*x + 3)/(245*(3*x + 2)**(3/2)) - 2*sqrt(-2*x + 1)
*sqrt(5*x + 3)/(35*(3*x + 2)**(5/2)) - 584*sqrt(33)*elliptic_e(as
in(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/1715 - 68*sqrt(33)*elliptic
_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/5145
```

Mathematica [A] time = 0.212458, size = 98, normalized size = 0.62

$$\frac{2\left(\frac{\sqrt{1-2x}\sqrt{5x+3}(7884x^2+10701x+3581)}{(3x+2)^{5/2}}+\sqrt{2}\left(292E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-105F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)\right)}{1715}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[3 + 5*x]/(Sqrt[1 - 2*x]*(2 + 3*x)^(7/2)),x]
```

```
[Out] (2*((Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(3581 + 10701*x + 7884*x^2))/(2
+ 3*x)^(5/2) + Sqrt[2]*(292*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 +
5*x]], -33/2] - 105*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -
33/2])))/1715
```

Maple [C] time = 0.031, size = 386, normalized size = 2.4

$$\frac{2}{17150\,x^2+1715\,x-5145}\left(945\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^2\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-2628\,\sqrt{2}Ell$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(1/2)/(2+3*x)^(7/2)/(1-2*x)^(1/2),x)
```

```
[Out] 2/1715*(945*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2)
,1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*
(1-2*x)^(1/2)-2628*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x
)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)
^(1/2)*(1-2*x)^(1/2)+1260*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)
*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2
+3*x)^(1/2)*(1-2*x)^(1/2)-3504*2^(1/2)*EllipticE(1/11*11^(1/2)*2^
(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/
2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+420*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^
(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2)
,1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-1168*2^(1/2)*(3+5*x)^(1/2)*(2+3*
x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1
/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+78840*x^4+114894*x^3+22859*x^
2-28522*x-10743)*(1-2*x)^(1/2)*(3+5*x)^(1/2)/(10*x^2+x-3)/(2+3*x)
^(5/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}}{(3\,x+2)^{\frac{7}{2}}\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/((3*x + 2)^(7/2)*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(5*x + 3)/((3*x + 2)^(7/2)*sqrt(-2*x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{5\,x+3}}{(27\,x^3+54\,x^2+36\,x+8)\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/((3*x + 2)^(7/2)*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] integral(sqrt(5*x + 3)/((27*x^3 + 54*x^2 + 36*x + 8)*sqrt(3*x + 2
)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(1/2)/(2+3*x)**(7/2)/(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5x+3}}{(3x+2)^{\frac{7}{2}}\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)/((3*x + 2)^(7/2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)/((3*x + 2)^(7/2)*sqrt(-2*x + 1)), x)
```

3.2805 $\int \frac{(2+3x)^{5/2}(3+5x)^{3/2}}{\sqrt{1-2x}}\,dx$

Optimal. Leaf size=191

$$-\frac{1}{9}\sqrt{1-2x}(5x+3)^{3/2}(3x+2)^{5/2}$$

$$-\frac{137}{315}\sqrt{1-2x}(5x+3)^{3/2}(3x+2)^{3/2}-\frac{9547\sqrt{1-2x}(5x+3)^{3/2}\sqrt{3x+2}}{5250}-\frac{663409\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{47250}-\frac{663409\sqrt{\frac{11}{3}}F\left(\sin^{-}\right.}{23}$$

```
[Out] (-663409*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/47250 - (9547
*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/5250 - (137*Sqrt[1
- 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2))/315 - (Sqrt[1 - 2*x]*(2 +
 3*x)^(5/2)*(3 + 5*x)^(3/2))/9 - (44109377*Sqrt[11/3]*EllipticE[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/472500 - (663409*Sqrt[11/
3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/236250
```

Rubi [A] time = 0.403233, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{1}{9}\sqrt{1-2x}(5x+3)^{3/2}(3x+2)^{5/2}$$

$$-\frac{137}{315}\sqrt{1-2x}(5x+3)^{3/2}(3x+2)^{3/2}-\frac{9547\sqrt{1-2x}(5x+3)^{3/2}\sqrt{3x+2}}{5250}-\frac{663409\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{47250}-\frac{663409\sqrt{\frac{11}{3}}F\left(\sin^{-}\right.}{23}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^(5/2)*(3 + 5*x)^(3/2))/Sqrt[1 - 2*x],x]
```

```
[Out] (-663409*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/47250 - (9547
*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/5250 - (137*Sqrt[1
- 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2))/315 - (Sqrt[1 - 2*x]*(2 +
 3*x)^(5/2)*(3 + 5*x)^(3/2))/9 - (44109377*Sqrt[11/3]*EllipticE[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/472500 - (663409*Sqrt[11/
3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/236250
```

Rubi in Sympy [A] time = 40.9908, size = 172, normalized size = 0.9

$$-\frac{\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}\,(5x+3)^{\frac{3}{2}}}{9}-\frac{137\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}\,\sqrt{5x+3}}{189}-\frac{27271\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\,\sqrt{5x+3}}{9450}-\frac{317384\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{23625}-\frac{44109377\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{1417500}-\frac{663409\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{708750}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(5/2)*(3+5*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] -sqrt(-2*x + 1)*(3*x + 2)**(5/2)*(5*x + 3)**(3/2)/9 - 137*sqrt(-2
*x + 1)*(3*x + 2)**(5/2)*sqrt(5*x + 3)/189 - 27271*sqrt(-2*x + 1)
*(3*x + 2)**(3/2)*sqrt(5*x + 3)/9450 - 317384*sqrt(-2*x + 1)*sqrt
(3*x + 2)*sqrt(5*x + 3)/23625 - 44109377*sqrt(33)*elliptic_e(asin
(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/1417500 - 663409*sqrt(33)*ell
iptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/708750
```

Mathematica [A] time = 0.348435, size = 105, normalized size = 0.55

$$\frac{44109377E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-5\left(3\sqrt{2-4x}\sqrt{3x+2}\sqrt{5x+3}\left(236250x^3+765000x^2+1114065x+1107478\right)+44\right.}{708750\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^(5/2)*(3 + 5*x)^(3/2))/Sqrt[1 - 2*x],x]
```

```
[Out] (44109377*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 5*
(3*Sqrt[2 - 4*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(1107478 + 1114065*x
 + 765000*x^2 + 236250*x^3) + 4443376*EllipticF[ArcSin[Sqrt[2/11]
*Sqrt[3 + 5*x]], -33/2]))/(708750*Sqrt[2])
```

Maple [C] time = 0.019, size = 179, normalized size = 0.9

$$\frac{1}{42525000\,x^3+32602500\,x^2-9922500\,x-8505000}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(-212625000\,x^6+22216880\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(5/2)*(3+5*x)^(3/2)/(1-2*x)^(1/2),x)
```

```
[Out] 1/1417500*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(-212625000*x
^6+22216880*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Ell
ipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)
*2^(1/2))-44109377*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1
/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*
3^(1/2)*2^(1/2))-851512500*x^5-1480896000*x^4-1562260050*x^3-3925
06170*x^2+433102080*x+199346040)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{3}{2}}(3\,x+2)^{\frac{5}{2}}}{\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)^(5/2)/sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] integrate((5*x + 3)^(3/2)*(3*x + 2)^(5/2)/sqrt(-2*x + 1), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(45\,x^3+87\,x^2+56\,x+12\right)\sqrt{5\,x+3}\sqrt{3\,x+2}}{\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)^(5/2)/sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] integral((45*x^3 + 87*x^2 + 56*x + 12)*sqrt(5*x + 3)*sqrt(3*x + 2
)/sqrt(-2*x + 1), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(5/2)*(3+5*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{3}{2}}(3x+2)^{\frac{5}{2}}}{\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(3*x + 2)^(5/2)/sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(3/2)*(3*x + 2)^(5/2)/sqrt(-2*x + 1), x)
```

3.2806 $\int \frac{(2+3x)^{3/2}(3+5x)^{3/2}}{\sqrt{1-2x}}\,dx$

Optimal. Leaf size=160

$$-\frac{1}{7}\sqrt{1-2x}(3x+2)^{3/2}(5x+3)^{3/2}-\frac{102}{175}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}-\frac{4721\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{1050}-\frac{4721\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{5250}-\frac{78472\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{2625}$$

```
[Out] (-4721*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/1050 - (102*Sqr
t[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/175 - (Sqrt[1 - 2*x]*(2
 + 3*x)^(3/2)*(3 + 5*x)^(3/2))/7 - (78472*Sqrt[11/3]*EllipticE[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/2625 - (4721*Sqrt[11/3]*El
lipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/5250
```

Rubi [A] time = 0.318257, antiderivative size = 160, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{1}{7}\sqrt{1-2x}(3x+2)^{3/2}(5x+3)^{3/2}-\frac{102}{175}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}-\frac{4721\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{1050}-\frac{4721\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{5250}-\frac{78472\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{2625}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^(3/2)*(3 + 5*x)^(3/2))/Sqrt[1 - 2*x],x]
```

```
[Out] (-4721*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/1050 - (102*Sqr
t[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/175 - (Sqrt[1 - 2*x]*(2
 + 3*x)^(3/2)*(3 + 5*x)^(3/2))/7 - (78472*Sqrt[11/3]*EllipticE[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/2625 - (4721*Sqrt[11/3]*El
lipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/5250
```

Rubi in Sympy [A] time = 33.4819, size = 143, normalized size = 0.89

$$-\frac{\sqrt{-2x+1}(3x+2)^{\frac{3}{2}}(5x+3)^{\frac{3}{2}}}{7}-\frac{34\sqrt{-2x+1}(3x+2)^{\frac{3}{2}}\sqrt{5x+3}}{35}-\frac{4517\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{1050}-\frac{78472\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{7875}-\frac{4721\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{15750}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(3/2)*(3+5*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] -sqrt(-2*x + 1)*(3*x + 2)**(3/2)*(5*x + 3)**(3/2)/7 - 34*sqrt(-2*
x + 1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/35 - 4517*sqrt(-2*x + 1)*sq
rt(3*x + 2)*sqrt(5*x + 3)/1050 - 78472*sqrt(33)*elliptic_e(asin(s
qrt(21)*sqrt(-2*x + 1)/7), 35/33)/7875 - 4721*sqrt(33)*elliptic_f
(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/15750
```

Mathematica [A] time = 0.302452, size = 100, normalized size = 0.62

$$\frac{313888E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-5\left(3\sqrt{2-4x}\sqrt{3x+2}\sqrt{5x+3}\left(2250x^2+5910x+7457\right)+31619F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x\right.\right.\right.}{15750\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^(3/2)*(3 + 5*x)^(3/2))/Sqrt[1 - 2*x],x]
```

```
[Out] (313888*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 5*(3
*Sqrt[2 - 4*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(7457 + 5910*x + 2250*
x^2) + 31619*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]))
/(15750*Sqrt[2])
```

Maple [C] time = 0.016, size = 174, normalized size = 1.1

$$\frac{1}{945000\,x^{3}+724500\,x^{2}-220500\,x-189000}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(158095\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(3/2)*(3+5*x)^(3/2)/(1-2*x)^(1/2),x)
```

```
[Out] 1/31500*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(158095*2^(1/2)
*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2
)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-313888*2^
(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11
^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-2025
000*x^5-6871500*x^4-10316700*x^3-3499230*x^2+2629770*x+1342260)/(
30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{3}{2}}(3\,x+2)^{\frac{3}{2}}}{\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)^(3/2)/sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] integrate((5*x + 3)^(3/2)*(3*x + 2)^(3/2)/sqrt(-2*x + 1), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(15\,x^{2}+19\,x+6\right)\sqrt{5\,x+3}\sqrt{3\,x+2}}{\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)^(3/2)/sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] integral((15*x^2 + 19*x + 6)*sqrt(5*x + 3)*sqrt(3*x + 2)/sqrt(-2*
x + 1), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(3/2)*(3+5*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{3}{2}}(3x+2)^{\frac{3}{2}}}{\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(3*x + 2)^(3/2)/sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(3/2)*(3*x + 2)^(3/2)/sqrt(-2*x + 1), x)
```

3.2807 $\int \frac{\sqrt{2+3x}(3+5x)^{3/2}}{\sqrt{1-2x}}\,dx$

Optimal. Leaf size=129

$$-\frac{1}{5}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}-\frac{67}{45}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}-\frac{67}{225}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{4451}{450}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (-67*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/45 - (Sqrt[1 - 2*
x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/5 - (4451*Sqrt[11/3]*EllipticE[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/450 - (67*Sqrt[11/3]*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/225
```

Rubi [A] time = 0.257354, antiderivative size = 129, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.179$

$$-\frac{1}{5}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}-\frac{67}{45}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}-\frac{67}{225}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{4451}{450}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/Sqrt[1 - 2*x],x]
```

```
[Out] (-67*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/45 - (Sqrt[1 - 2*
x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/5 - (4451*Sqrt[11/3]*EllipticE[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/450 - (67*Sqrt[11/3]*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/225
```

Rubi in Sympy [A] time = 25.4065, size = 114, normalized size = 0.88

$$-\frac{\sqrt{-2x+1}\sqrt{3x+2}\,(5x+3)^{\frac{3}{2}}}{5}-\frac{67\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{45}-\frac{4451\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{1350}-\frac{737\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{7875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(3/2)*(2+3*x)**(1/2)/(1-2*x)**(1/2),x)
```

```
[Out] -sqrt(-2*x + 1)*sqrt(3*x + 2)*(5*x + 3)**(3/2)/5 - 67*sqrt(-2*x +
 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/45 - 4451*sqrt(33)*elliptic_e(asi
n(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/1350 - 737*sqrt(35)*elliptic
_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/7875
```

Mathematica [A] time = 0.239582, size = 95, normalized size = 0.74

$$\frac{4451E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-5\left(3\sqrt{2-4x}\sqrt{3x+2}\sqrt{5x+3}(45x+94)+448F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)}{675\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/Sqrt[1 - 2*x],x]
```

```
[Out] (4451*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 5*(3*S
qrt[2 - 4*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(94 + 45*x) + 448*Ellipt
icF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]))/(675*Sqrt[2])
```

Maple [C] time = 0.016, size = 169, normalized size = 1.3

$$\frac{1}{40500\,x^{3}+31050\,x^{2}-9450\,x-8100}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(2240\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(3/2)*(2+3*x)^(1/2)/(1-2*x)^(1/2),x)
```

```
[Out] 1/1350*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*(2240*2^(1/2)*(3
+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2
^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-4451*2^(1/2)
*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2
)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-40500*x^4
-115650*x^3-55410*x^2+27840*x+16920)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{3}{2}}\sqrt{3\,x+2}}{\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*sqrt(3*x + 2)/sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] integrate((5*x + 3)^(3/2)*sqrt(3*x + 2)/sqrt(-2*x + 1), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{(5\,x+3)^{\frac{3}{2}}\sqrt{3\,x+2}}{\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*sqrt(3*x + 2)/sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] integral((5*x + 3)^(3/2)*sqrt(3*x + 2)/sqrt(-2*x + 1), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(3/2)*(2+3*x)**(1/2)/(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{3}{2}}\sqrt{3x+2}}{\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*sqrt(3*x + 2)/sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(3/2)*sqrt(3*x + 2)/sqrt(-2*x + 1), x)
```

3.2808 $\int \frac{(3+5x)^{3/2}}{\sqrt{1-2x}\sqrt{2+3x}}\,dx$

Optimal. Leaf size=98

$$-\frac{5}{9}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}-\frac{1}{9}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{31}{9}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (-5*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/9 - (31*Sqrt[11/3]
*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/9 - (Sqrt[11/
3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/9
```

Rubi [A] time = 0.193563, antiderivative size = 98, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.143

$$-\frac{5}{9}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}-\frac{1}{9}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{31}{9}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(3/2)/(Sqrt[1 - 2*x]*Sqrt[2 + 3*x]),x]
```

```
[Out] (-5*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/9 - (31*Sqrt[11/3]
*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/9 - (Sqrt[11/
3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/9
```

Rubi in Sympy [A] time = 17.9311, size = 85, normalized size = 0.87

$$-\frac{5\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{9}-\frac{31\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{27}-\frac{\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{27}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(3/2)/(1-2*x)**(1/2)/(2+3*x)**(1/2),x)
```

```
[Out] -5*sqrt(-2*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/9 - 31*sqrt(33)*ell
iptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/27 - sqrt(33)*ell
iptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/27
```

Mathematica [A] time = 0.084576, size = 92, normalized size = 0.94

$$\frac{1}{54}\left(-30\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}-29\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+62\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(3/2)/(Sqrt[1 - 2*x]*Sqrt[2 + 3*x]),x]
```

```
[Out] (-30*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x] + 62*Sqrt[2]*Ellip
ticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 29*Sqrt[2]*Ellipt
icF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/54
```

Maple [C] time = 0.02, size = 164, normalized size = 1.7

$$\frac{1}{1620\,x^{3}+1242\,x^{2}-378\,x-324}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(29\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(3/2)/(1-2*x)^(1/2)/(2+3*x)^(1/2),x)
```

```
[Out] 1/54*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(29*2^(1/2)*(3+5*x
)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/
2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-62*2^(1/2)*(3+5*
x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1
/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-900*x^3-690*x^2
+210*x+180)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{3}{2}}}{\sqrt{3\,x+2}\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)/(sqrt(3*x + 2)*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] integrate((5*x + 3)^(3/2)/(sqrt(3*x + 2)*sqrt(-2*x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{(5\,x+3)^{\frac{3}{2}}}{\sqrt{3\,x+2}\sqrt{-2\,x+1}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)/(sqrt(3*x + 2)*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] integral((5*x + 3)^(3/2)/(sqrt(3*x + 2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(3/2)/(1-2*x)**(1/2)/(2+3*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{3}{2}}}{\sqrt{3\,x+2}\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)/(sqrt(3*x + 2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(3/2)/(sqrt(3*x + 2)*sqrt(-2*x + 1)), x)
```

3.2809 $\int \frac{(3+5x)^{3/2}}{\sqrt{1-2x}(2+3x)^{3/2}}\,dx$

Optimal. Leaf size=98

$$\frac{2\sqrt{1-2x}\sqrt{5x+3}}{21\sqrt{3x+2}}+\frac{2}{21}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{37}{21}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (2*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(21*Sqrt[2 + 3*x]) - (37*Sqrt[11/
3]*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/21 + (2*Sqr
t[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/21
```

Rubi [A] time = 0.184923, antiderivative size = 98, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.143

$$\frac{2\sqrt{1-2x}\sqrt{5x+3}}{21\sqrt{3x+2}}+\frac{2}{21}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{37}{21}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(3/2)/(Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)),x]
```

```
[Out] (2*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(21*Sqrt[2 + 3*x]) - (37*Sqrt[11/
3]*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/21 + (2*Sqr
t[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/21
```

Rubi in Sympy [A] time = 18.1579, size = 85, normalized size = 0.87

$$\frac{2\sqrt{-2x+1}\sqrt{5x+3}}{21\sqrt{3x+2}}-\frac{37\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{63}+\frac{22\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{735}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(3/2)/(2+3*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] 2*sqrt(-2*x + 1)*sqrt(5*x + 3)/(21*sqrt(3*x + 2)) - 37*sqrt(33)*e
lliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/63 + 22*sqrt(35
)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/735
```

Mathematica [A] time = 0.163386, size = 92, normalized size = 0.94

$$\frac{1}{63}\left(\frac{6\sqrt{1-2x}\sqrt{5x+3}}{\sqrt{3x+2}}-70\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+37\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(3/2)/(Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)),x]
```

```
[Out] ((6*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/Sqrt[2 + 3*x] + 37*Sqrt[2]*Ellip
ticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 70*Sqrt[2]*Ellipt
icF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/63
```

Maple [C] time = 0.024, size = 159, normalized size = 1.6

$$\frac{1}{1890\,x^{3}+1449\,x^{2}-441\,x-378}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(70\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(3/2)/(2+3*x)^(3/2)/(1-2*x)^(1/2),x)
```

```
[Out] 1/63*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*(70*2^(1/2)*(3+5*x
)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/
2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-37*2^(1/2)*(3+5*
x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1
/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+60*x^2+6*x-18)/
(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{3}{2}}}{(3\,x+2)^{\frac{3}{2}}\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/((3*x + 2)^(3/2)*sqrt(-2*x + 1)),x, algorithm="maxima"
```

```
[Out] integrate((5*x + 3)^(3/2)/((3*x + 2)^(3/2)*sqrt(-2*x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{(5\,x+3)^{\frac{3}{2}}}{(3\,x+2)^{\frac{3}{2}}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/((3*x + 2)^(3/2)*sqrt(-2*x + 1)),x, algorithm="fricas"
```

```
[Out] integral((5*x + 3)^(3/2)/((3*x + 2)^(3/2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(3/2)/(2+3*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{3}{2}}}{(3\,x+2)^{\frac{3}{2}}\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)/((3*x + 2)^(3/2)*sqrt(-2*x + 1)),x, algorithm="giac")

[Out] integrate((5*x + 3)^(3/2)/((3*x + 2)^(3/2)*sqrt(-2*x + 1)), x)
```

3.2810 $\int \frac{(3+5x)^{3/2}}{\sqrt{1-2x}(2+3x)^{5/2}}\,dx$

Optimal. Leaf size=129

$$-\frac{272\sqrt{1-2x}\sqrt{5x+3}}{441\sqrt{3x+2}}+\frac{2\sqrt{1-2x}\sqrt{5x+3}}{63(3x+2)^{3/2}}-\frac{202}{441}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{272}{441}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (2*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(63*(2 + 3*x)^(3/2)) - (272*Sqrt[
1 - 2*x]*Sqrt[3 + 5*x])/(441*Sqrt[2 + 3*x]) + (272*Sqrt[11/3]*Ell
ipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/441 - (202*Sqrt[1
1/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/441
```

Rubi [A] time = 0.262089, antiderivative size = 129, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{272\sqrt{1-2x}\sqrt{5x+3}}{441\sqrt{3x+2}}+\frac{2\sqrt{1-2x}\sqrt{5x+3}}{63(3x+2)^{3/2}}-\frac{202}{441}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{272}{441}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(3/2)/(Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)),x]
```

```
[Out] (2*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(63*(2 + 3*x)^(3/2)) - (272*Sqrt[
1 - 2*x]*Sqrt[3 + 5*x])/(441*Sqrt[2 + 3*x]) + (272*Sqrt[11/3]*Ell
ipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/441 - (202*Sqrt[1
1/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/441
```

Rubi in Sympy [A] time = 25.4723, size = 114, normalized size = 0.88

$$-\frac{272\sqrt{-2x+1}\sqrt{5x+3}}{441\sqrt{3x+2}}+\frac{2\sqrt{-2x+1}\sqrt{5x+3}}{63\,(3x+2)^{\frac{3}{2}}}+\frac{272\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{1323}-\frac{202\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{1323}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(3/2)/(2+3*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] -272*sqrt(-2*x + 1)*sqrt(5*x + 3)/(441*sqrt(3*x + 2)) + 2*sqrt(-2
*x + 1)*sqrt(5*x + 3)/(63*(3*x + 2)**(3/2)) + 272*sqrt(33)*ellipt
ic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/1323 - 202*sqrt(33)*
elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/1323
```

Mathematica [A] time = 0.265843, size = 97, normalized size = 0.75

$$\frac{-\frac{6\sqrt{1-2x}\sqrt{5x+3}(408x+265)}{(3x+2)^{3/2}}+3605\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-272\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)}{1323}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(3/2)/(Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)),x]
```

```
[Out] ((-6*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(265 + 408*x))/(2 + 3*x)^(3/2) -
 272*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] +
 3605*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])
/1323
```

Maple [C] time = 0.029, size = 267, normalized size = 2.1

$$-\frac{1}{13230\,x^2+1323\,x-3969}\left(10815\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-816\,\sqrt{2}E\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(3/2)/(2+3*x)^(5/2)/(1-2*x)^(1/2),x)
```

```
[Out] -1/1323*(10815*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1
/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)
*(1-2*x)^(1/2)-816*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x
)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(
1/2)*(1-2*x)^(1/2)+7210*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*
x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(
1/2)*3^(1/2)*2^(1/2))-544*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-
2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11
^(1/2)*3^(1/2)*2^(1/2))+24480*x^3+18348*x^2-5754*x-4770)*(1-2*x)^
(1/2)*(3+5*x)^(1/2)/(10*x^2+x-3)/(2+3*x)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{3}{2}}}{(3\,x+2)^{\frac{5}{2}}\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/((3*x + 2)^(5/2)*sqrt(-2*x + 1)),x, algorithm="maxima"
```

```
[Out] integrate((5*x + 3)^(3/2)/((3*x + 2)^(5/2)*sqrt(-2*x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(5\,x+3)^{\frac{3}{2}}}{(9\,x^2+12\,x+4)\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/((3*x + 2)^(5/2)*sqrt(-2*x + 1)),x, algorithm="fricas"
```

```
[Out] integral((5*x + 3)^(3/2)/((9*x^2 + 12*x + 4)*sqrt(3*x + 2)*sqrt(-
2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(3/2)/(2+3*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{3}{2}}}{(3x+2)^{\frac{5}{2}}\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)/((3*x + 2)^(5/2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(3/2)/((3*x + 2)^(5/2)*sqrt(-2*x + 1)), x)
```

3.2811 $\int \frac{(3+5x)^{3/2}}{\sqrt{1-2x}(2+3x)^{7/2}}\,dx$

Optimal. Leaf size=160

$$\frac{5594\sqrt{1-2x}\sqrt{5x+3}}{15435\sqrt{3x+2}}-\frac{404\sqrt{1-2x}\sqrt{5x+3}}{2205(3x+2)^{3/2}}+\frac{2\sqrt{1-2x}\sqrt{5x+3}}{105(3x+2)^{5/2}}-\frac{1196\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{15435}-\frac{5594\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{15435}$$

```
[Out] (2*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(105*(2 + 3*x)^(5/2)) - (404*Sqrt
[1 - 2*x]*Sqrt[3 + 5*x])/(2205*(2 + 3*x)^(3/2)) + (5594*Sqrt[1 -
2*x]*Sqrt[3 + 5*x])/(15435*Sqrt[2 + 3*x]) - (5594*Sqrt[11/3]*Elli
pticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/15435 - (1196*Sqrt
[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/15435
```

Rubi [A] time = 0.341591, antiderivative size = 160, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{5594\sqrt{1-2x}\sqrt{5x+3}}{15435\sqrt{3x+2}}-\frac{404\sqrt{1-2x}\sqrt{5x+3}}{2205(3x+2)^{3/2}}+\frac{2\sqrt{1-2x}\sqrt{5x+3}}{105(3x+2)^{5/2}}-\frac{1196\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{15435}-\frac{5594\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{15435}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(3/2)/(Sqrt[1 - 2*x]*(2 + 3*x)^(7/2)),x]
```

```
[Out] (2*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(105*(2 + 3*x)^(5/2)) - (404*Sqrt
[1 - 2*x]*Sqrt[3 + 5*x])/(2205*(2 + 3*x)^(3/2)) + (5594*Sqrt[1 -
2*x]*Sqrt[3 + 5*x])/(15435*Sqrt[2 + 3*x]) - (5594*Sqrt[11/3]*Elli
pticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/15435 - (1196*Sqrt
[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/15435
```

Rubi in Sympy [A] time = 32.9317, size = 143, normalized size = 0.89

$$\frac{5594\sqrt{-2x+1}\sqrt{5x+3}}{15435\sqrt{3x+2}}-\frac{404\sqrt{-2x+1}\sqrt{5x+3}}{2205\,(3x+2)^{\frac{3}{2}}}+\frac{2\sqrt{-2x+1}\sqrt{5x+3}}{105\,(3x+2)^{\frac{5}{2}}}-\frac{5594\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{46305}-\frac{1196\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{46305}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(3/2)/(2+3*x)**(7/2)/(1-2*x)**(1/2),x)
```

```
[Out] 5594*sqrt(-2*x + 1)*sqrt(5*x + 3)/(15435*sqrt(3*x + 2)) - 404*sqr
t(-2*x + 1)*sqrt(5*x + 3)/(2205*(3*x + 2)**(3/2)) + 2*sqrt(-2*x +
 1)*sqrt(5*x + 3)/(105*(3*x + 2)**(5/2)) - 5594*sqrt(33)*elliptic
_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/46305 - 1196*sqrt(33)*
elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/46305
```

Mathematica [A] time = 0.22243, size = 99, normalized size = 0.62

$$\frac{2\left(\frac{3\sqrt{1-2x}\sqrt{5x+3}\left(25173x^2+29322x+8507\right)}{(3x+2)^{5/2}}+\sqrt{2}\left(7070F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+2797E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)\right)}{46305}$$

Antiderivative was successfully verified.

```
[In]   Integrate[(3 + 5*x)^(3/2)/(Sqrt[1 - 2*x]*(2 + 3*x)^(7/2)),x]
```

```
[Out] (2*((3*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(8507 + 29322*x + 25173*x^2))/
(2 + 3*x)^(5/2) + Sqrt[2]*(2797*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[
3 + 5*x]], -33/2] + 7070*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x
]], -33/2])))/46305
```

Maple [C] time = 0.03, size = 386, normalized size = 2.4

$$-\frac{2}{463050\,x^2+46305\,x-138915}\left(63630\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^2\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}+25\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((3+5*x)^(3/2)/(2+3*x)^(7/2)/(1-2*x)^(1/2),x)
```

```
[Out] -2/46305*(63630*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(
1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1
/2)*(1-2*x)^(1/2)+25173*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(
3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2
+3*x)^(1/2)*(1-2*x)^(1/2)+84840*2^(1/2)*EllipticF(1/11*11^(1/2)*2
^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1
/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+33564*2^(1/2)*EllipticE(1/11*11^(
1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5
*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+28280*2^(1/2)*(3+5*x)^(1/2)
*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5
*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+11188*2^(1/2)*(3+5*x)^(
1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*
(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-755190*x^4-955179*x
^3-116619*x^2+238377*x+76563)*(1-2*x)^(1/2)*(3+5*x)^(1/2)/(10*x^2
+x-3)/(2+3*x)^(5/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{3}{2}}}{(3\,x+2)^{\frac{7}{2}}\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/((3*x + 2)^(7/2)*sqrt(-2*x + 1)),x, algorithm="maxima"
```

```
[Out] integrate((5*x + 3)^(3/2)/((3*x + 2)^(7/2)*sqrt(-2*x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(5\,x+3)^{\frac{3}{2}}}{(27\,x^3+54\,x^2+36\,x+8)\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/((3*x + 2)^(7/2)*sqrt(-2*x + 1)),x, algorithm="fricas"
```

```
[Out] integral((5*x + 3)^(3/2)/((27*x^3 + 54*x^2 + 36*x + 8)*sqrt(3*x +
 2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(3/2)/(2+3*x)**(7/2)/(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{3}{2}}}{(3x+2)^{\frac{7}{2}}\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)/((3*x + 2)^(7/2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(3/2)/((3*x + 2)^(7/2)*sqrt(-2*x + 1)), x)
```

3.2812 $\int \frac{(3+5x)^{3/2}}{\sqrt{1-2x}(2+3x)^{9/2}} dx$

Optimal. Leaf size=191

$$\frac{184636\sqrt{1-2x}\sqrt{5x+3}}{252105\sqrt{3x+2}}+\frac{974\sqrt{1-2x}\sqrt{5x+3}}{36015(3x+2)^{3/2}}-\frac{536\sqrt{1-2x}\sqrt{5x+3}}{5145(3x+2)^{5/2}}+\frac{2\sqrt{1-2x}\sqrt{5x+3}}{147(3x+2)^{7/2}}-\frac{9124\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{252105}-\frac{184636\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{252105}$$

```
[Out] (2*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(147*(2 + 3*x)^(7/2)) - (536*Sqrt
[1 - 2*x]*Sqrt[3 + 5*x])/(5145*(2 + 3*x)^(5/2)) + (974*Sqrt[1 - 2
*x]*Sqrt[3 + 5*x])/(36015*(2 + 3*x)^(3/2)) + (184636*Sqrt[1 - 2*x
]*Sqrt[3 + 5*x])/(252105*Sqrt[2 + 3*x]) - (184636*Sqrt[11/3]*Elli
pticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/252105 - (9124*Sqr
t[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/252105
```

Rubi [A] time = 0.422659, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{184636\sqrt{1-2x}\sqrt{5x+3}}{252105\sqrt{3x+2}}+\frac{974\sqrt{1-2x}\sqrt{5x+3}}{36015(3x+2)^{3/2}}-\frac{536\sqrt{1-2x}\sqrt{5x+3}}{5145(3x+2)^{5/2}}+\frac{2\sqrt{1-2x}\sqrt{5x+3}}{147(3x+2)^{7/2}}-\frac{9124\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{252105}-\frac{184636\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{252105}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(3/2)/(Sqrt[1 - 2*x]*(2 + 3*x)^(9/2)),x]
```

```
[Out] (2*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(147*(2 + 3*x)^(7/2)) - (536*Sqrt
[1 - 2*x]*Sqrt[3 + 5*x])/(5145*(2 + 3*x)^(5/2)) + (974*Sqrt[1 - 2
*x]*Sqrt[3 + 5*x])/(36015*(2 + 3*x)^(3/2)) + (184636*Sqrt[1 - 2*x
]*Sqrt[3 + 5*x])/(252105*Sqrt[2 + 3*x]) - (184636*Sqrt[11/3]*Elli
pticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/252105 - (9124*Sqr
t[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/252105
```

Rubi in Sympy [A] time = 40.4077, size = 172, normalized size = 0.9

$$\frac{184636\sqrt{-2x+1}\sqrt{5x+3}}{252105\sqrt{3x+2}}+\frac{974\sqrt{-2x+1}\sqrt{5x+3}}{36015\,(3x+2)^{\frac{3}{2}}}-\frac{536\sqrt{-2x+1}\sqrt{5x+3}}{5145\,(3x+2)^{\frac{5}{2}}}+\frac{2\sqrt{-2x+1}\sqrt{5x+3}}{147\,(3x+2)^{\frac{7}{2}}}-\frac{184636\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{756315}-\frac{9124\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{756315}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(3/2)/(2+3*x)**(9/2)/(1-2*x)**(1/2),x)
```

```
[Out] 184636*sqrt(-2*x + 1)*sqrt(5*x + 3)/(252105*sqrt(3*x + 2)) + 974*
sqrt(-2*x + 1)*sqrt(5*x + 3)/(36015*(3*x + 2)**(3/2)) - 536*sqrt(
-2*x + 1)*sqrt(5*x + 3)/(5145*(3*x + 2)**(5/2)) + 2*sqrt(-2*x + 1
)*sqrt(5*x + 3)/(147*(3*x + 2)**(7/2)) - 184636*sqrt(33)*elliptic
_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/756315 - 9124*sqrt(33)
*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/756315
```

Mathematica [A] time = 0.264225, size = 104, normalized size = 0.54

$$\frac{2\left(\frac{3\sqrt{1-2x}\sqrt{5x+3}(2492586x^3+5015853x^2+3324960x+727631)}{(3x+2)^{7/2}}+\sqrt{2}\left(92318E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-17045F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right.\right.\right.}{756315}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(3/2)/(Sqrt[1 - 2*x]*(2 + 3*x)^(9/2)),x]
```

```
[Out] (2*((3*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(727631 + 3324960*x + 5015853*
x^2 + 2492586*x^3))/(2 + 3*x)^(7/2) + Sqrt[2]*(92318*EllipticE[Ar
cSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 17045*EllipticF[ArcSin[S
qrt[2/11]*Sqrt[3 + 5*x]], -33/2])))/756315
```

Maple [C] time = 0.031, size = 505, normalized size = 2.6

$$\frac{2}{7563150\,x^2+756315\,x-2268945}\left(460215\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^3\sqrt{1-2\,x}\sqrt{3+5\,x}\sqrt{2+3\,x}-\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(3/2)/(2+3*x)^(9/2)/(1-2*x)^(1/2),x)
```

```
[Out] 2/756315*(460215*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^
(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*x)^(
1/2)*(2+3*x)^(1/2)-2492586*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2
)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)
*(3+5*x)^(1/2)*(2+3*x)^(1/2)+920430*2^(1/2)*EllipticF(1/11*11^(1/
2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5
*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-4985172*2^(1/2)*EllipticE(1
/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2)
)*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+613620*2^(1/2)*El
lipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2
)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-3323448*2^
(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2
)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+13
6360*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(
1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2
))-738544*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Ellip
ticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2
^(1/2))+74777580*x^5+157953348*x^4+92363085*x^3-13338867*x^2-2774
1747*x-6548679)*(1-2*x)^(1/2)*(3+5*x)^(1/2)/(10*x^2+x-3)/(2+3*x)^
(7/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{3}{2}}}{(3\,x+2)^{\frac{9}{2}}\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/((3*x + 2)^(9/2)*sqrt(-2*x + 1)),x, algorithm="maxima"
```

```
[Out] integrate((5*x + 3)^(3/2)/((3*x + 2)^(9/2)*sqrt(-2*x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(5\,x+3)^{\frac{3}{2}}}{(81\,x^4+216\,x^3+216\,x^2+96\,x+16)\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)/((3*x + 2)^(9/2)*sqrt(-2*x + 1)),x, algorithm="fricas"
```

```
[Out] integral((5*x + 3)^(3/2)/((81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16
)*sqrt(3*x + 2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3+5*x)**(3/2)/(2+3*x)**(9/2)/(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{3}{2}}}{(3x+2)^{\frac{9}{2}}\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)/((3*x + 2)^(9/2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(3/2)/((3*x + 2)^(9/2)*sqrt(-2*x + 1)), x)
```

3.2813 $\int \frac{(2+3x)^{7/2}(3+5x)^{5/2}}{\sqrt{1-2x}}\,dx$

Optimal. Leaf size=249

$$-\frac{1}{13}\sqrt{1-2x}(5x+3)^{5/2}(3x+2)^{7/2}$$

$$-\frac{41}{143}\sqrt{1-2x}(5x+3)^{5/2}(3x+2)^{5/2}-\frac{14303\sqrt{1-2x}(5x+3)^{5/2}(3x+2)^{3/2}}{12870}-\frac{221673\sqrt{1-2x}(5x+3)^{5/2}\sqrt{3x+2}}{50050}-\frac{138809831\sqrt{}}{}$$

```
[Out] (-2295970088*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/10135125
- (138809831*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/4504500
 - (221673*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/50050 - (
14303*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(5/2))/12870 - (41*
Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)*(3 + 5*x)^(5/2))/143 - (Sqrt[1 - 2*
x]*(2 + 3*x)^(7/2)*(3 + 5*x)^(5/2))/13 - (610627101631*EllipticE[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(36855000*Sqrt[33]) - (2
295970088*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(460
6875*Sqrt[33])
```

Rubi [A] time = 0.572735, antiderivative size = 249, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.179$

$$-\frac{1}{13}\sqrt{1-2x}(5x+3)^{5/2}(3x+2)^{7/2}$$

$$-\frac{41}{143}\sqrt{1-2x}(5x+3)^{5/2}(3x+2)^{5/2}-\frac{14303\sqrt{1-2x}(5x+3)^{5/2}(3x+2)^{3/2}}{12870}-\frac{221673\sqrt{1-2x}(5x+3)^{5/2}\sqrt{3x+2}}{50050}-\frac{138809831\sqrt{}}{}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^(7/2)*(3 + 5*x)^(5/2))/Sqrt[1 - 2*x],x]
```


```
[Out] (-2295970088*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/10135125
- (138809831*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/4504500
 - (221673*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/50050 - (
14303*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(5/2))/12870 - (41*
Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)*(3 + 5*x)^(5/2))/143 - (Sqrt[1 - 2*
x]*(2 + 3*x)^(7/2)*(3 + 5*x)^(5/2))/13 - (610627101631*EllipticE[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(36855000*Sqrt[33]) - (2
295970088*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(460
6875*Sqrt[33])
```

Rubi in Sympy [A] time = 57.827, size = 230, normalized size = 0.92

$$-\frac{\sqrt{-2x+1}\,(3x+2)^{\frac{7}{2}}\,(5x+3)^{\frac{5}{2}}}{13}-\frac{205\sqrt{-2x+1}\,(3x+2)^{\frac{7}{2}}\,(5x+3)^{\frac{3}{2}}}{429}$$
$$-\frac{13565\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}\,(5x+3)^{\frac{3}{2}}}{7722}-\frac{947468\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}\,\sqrt{5x+3}}{81081}$$
$$-\frac{377529563\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\,\sqrt{5x+3}}{8108100}-\frac{8787401429\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{40540500}$$
$$-\frac{610627101631\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{1216215000}-\frac{2295970088\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{161240625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(7/2)*(3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] -sqrt(-2*x + 1)*(3*x + 2)**(7/2)*(5*x + 3)**(5/2)/13 - 205*sqrt(-
2*x + 1)*(3*x + 2)**(7/2)*(5*x + 3)**(3/2)/429 - 13565*sqrt(-2*x
```

```
+ 1)*(3*x + 2)**(5/2)*(5*x + 3)**(3/2)/7722 - 947468*sqrt(-2*x +
1)*(3*x + 2)**(5/2)*sqrt(5*x + 3)/81081 - 377529563*sqrt(-2*x + 1
)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/8108100 - 8787401429*sqrt(-2*x +
 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/40540500 - 610627101631*sqrt(33)*
elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/1216215000 - 2
295970088*sqrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 3
3/35)/161240625
```

Mathematica [A] time = 0.525774, size = 115, normalized size = 0.46

$$\frac{610627101631E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-5\left(3\sqrt{2-4x}\sqrt{3x+2}\sqrt{5x+3}\left(2104987500x^5+9351247500x^4+1862089425\right.\right.}{608107500\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^(7/2)*(3 + 5*x)^(5/2))/Sqrt[1 - 2*x],x]
```

```
[Out] (610627101631*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]
- 5*(3*Sqrt[2 - 4*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(16001700059 + 1
9961825445*x + 22592085750*x^2 + 18620894250*x^3 + 9351247500*x^4
 + 2104987500*x^5) + 61511810003*EllipticF[ArcSin[Sqrt[2/11]*Sqrt
[3 + 5*x]], -33/2]))/(608107500*Sqrt[2])
```

Maple [C] time = 0.019, size = 189, normalized size = 0.8

$$\frac{1}{36486450000\,x^3+27972945000\,x^2-8513505000\,x-7297290000}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(-1894488750000\,x^8-986856\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(7/2)*(3+5*x)^(5/2)/(1-2*x)^(1/2),x)
```

```
[Out] 1/1216215000*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(-18944887
50000*x^8-9868564125000*x^7-22769118225000*x^6+307559050015*2^(1/
2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1
/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-6106271
01631*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE
(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/
2))-30838634482500*x^5-27960569725500*x^4-20079090637650*x^3-2782
614262260*x^2+6953485592490*x+2880306010620)/(30*x^3+23*x^2-7*x-6
)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{5}{2}}(3\,x+2)^{\frac{7}{2}}}{\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(3*x + 2)^(7/2)/sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] integrate((5*x + 3)^(5/2)*(3*x + 2)^(7/2)/sqrt(-2*x + 1), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(675\,x^5+2160\,x^4+2763\,x^3+1766\,x^2+564\,x+72\right)\sqrt{5\,x+3}\sqrt{3\,x+2}}{\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(3*x + 2)^(7/2)/sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] integral((675*x^5 + 2160*x^4 + 2763*x^3 + 1766*x^2 + 564*x + 72)*
sqrt(5*x + 3)*sqrt(3*x + 2)/sqrt(-2*x + 1), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2+3*x)**(7/2)*(3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}(3x+2)^{\frac{7}{2}}}{\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(3*x + 2)^(7/2)/sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)*(3*x + 2)^(7/2)/sqrt(-2*x + 1), x)
```

3.2814 $\int \frac{(2+3x)^{5/2}(3+5x)^{5/2}}{\sqrt{1-2x}}\,dx$

Optimal. Leaf size=218

$$-\frac{1}{11}\sqrt{1-2x}(3x+2)^{5/2}(5x+3)^{5/2}$$

$$-\frac{34}{99}\sqrt{1-2x}(3x+2)^{3/2}(5x+3)^{5/2}-\frac{1053}{770}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}-\frac{329683\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}}{34650}-\frac{43624697\sqrt{1-2x}}{6237}$$

```
[Out] (-43624697*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/623700 - (3
29683*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/34650 - (1053*
Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/770 - (34*Sqrt[1 - 2
*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(5/2))/99 - (Sqrt[1 - 2*x]*(2 + 3*x
)^(5/2)*(3 + 5*x)^(5/2))/11 - (725140729*EllipticE[ArcSin[Sqrt[3/
7]*Sqrt[1 - 2*x]], 35/33])/(141750*Sqrt[33]) - (43624697*Elliptic
F[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(283500*Sqrt[33])
```

Rubi [A] time = 0.495028, antiderivative size = 218, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{1}{11}\sqrt{1-2x}(3x+2)^{5/2}(5x+3)^{5/2}$$

$$-\frac{34}{99}\sqrt{1-2x}(3x+2)^{3/2}(5x+3)^{5/2}-\frac{1053}{770}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}-\frac{329683\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}}{34650}-\frac{43624697\sqrt{1-2x}}{6237}$$

Antiderivative was successfully verified.

```
[In] Int[((2 + 3*x)^(5/2)*(3 + 5*x)^(5/2))/Sqrt[1 - 2*x],x]
```


```
[Out] (-43624697*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/623700 - (3
29683*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/34650 - (1053*
Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/770 - (34*Sqrt[1 - 2
*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(5/2))/99 - (Sqrt[1 - 2*x]*(2 + 3*x
)^(5/2)*(3 + 5*x)^(5/2))/11 - (725140729*EllipticE[ArcSin[Sqrt[3/
7]*Sqrt[1 - 2*x]], 35/33])/(141750*Sqrt[33]) - (43624697*Elliptic
F[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(283500*Sqrt[33])
```

Rubi in Sympy [A] time = 49.1627, size = 201, normalized size = 0.92

$$-\frac{\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}\,(5x+3)^{\frac{5}{2}}}{11}-\frac{170\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}\,(5x+3)^{\frac{3}{2}}}{297}-\frac{9001\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\,(5x+3)^{\frac{3}{2}}}{4158}-\frac{156944\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\,\sqrt{5x+3}}{10395}-\frac{41741369\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{623700}-\frac{725140729\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{4677750}-\frac{43624697\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{9355500}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**(5/2)*(3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] -sqrt(-2*x + 1)*(3*x + 2)**(5/2)*(5*x + 3)**(5/2)/11 - 170*sqrt(-
2*x + 1)*(3*x + 2)**(5/2)*(5*x + 3)**(3/2)/297 - 9001*sqrt(-2*x +
 1)*(3*x + 2)**(3/2)*(5*x + 3)**(3/2)/4158 - 156944*sqrt(-2*x + 1
)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/10395 - 41741369*sqrt(-2*x + 1)*
```

```
sqrt(3*x + 2)*sqrt(5*x + 3)/623700 - 725140729*sqrt(33)*elliptic_
e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/4677750 - 43624697*sqrt
(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/9355500
```

Mathematica [A] time = 0.375741, size = 110, normalized size = 0.5

$$\frac{2900562916E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-5\left(3\sqrt{2-4x}\sqrt{3x+2}\sqrt{5x+3}\left(12757500x^4+48384000x^3+81985950x^2+8682\right.\right.}{9355500\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^(5/2)*(3 + 5*x)^(5/2))/Sqrt[1 - 2*x],x]
```

```
[Out] (2900562916*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] -
5*(3*Sqrt[2 - 4*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(75000749 + 868223
70*x + 81985950*x^2 + 48384000*x^3 + 12757500*x^4) + 292189583*El
lipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]))/(9355500*Sqrt[
2])
```

Maple [C] time = 0.018, size = 184, normalized size = 0.8

$$\frac{1}{561330000x^3+430353000x^2-130977000x-112266000}\sqrt{1-2x}\sqrt{2+3x}\sqrt{3+5x}\left(-11481750000x^7-52348275000x^6\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(5/2)*(3+5*x)^(5/2)/(1-2*x)^(1/2),x)
```

```
[Out] 1/18711000*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(-1148175000
0*x^7-52348275000*x^6+1460947915*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1
/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1
/2*I*11^(1/2)*3^(1/2)*2^(1/2))-2900562916*2^(1/2)*(3+5*x)^(1/2)*(
2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x
)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-104493240000*x^5-12225344
8500*x^4-101481939900*x^3-18760348110*x^2+31378183890*x+135001348
20)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}(3x+2)^{\frac{5}{2}}}{\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)^(5/2)/sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] integrate((5*x + 3)^(5/2)*(3*x + 2)^(5/2)/sqrt(-2*x + 1), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(225x^4+570x^3+541x^2+228x+36\right)\sqrt{5x+3}\sqrt{3x+2}}{\sqrt{-2x+1}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(3*x + 2)^(5/2)/sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] integral((225*x^4 + 570*x^3 + 541*x^2 + 228*x + 36)*sqrt(5*x + 3)
*sqrt(3*x + 2)/sqrt(-2*x + 1), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2+3*x)**(5/2)*(3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}(3x+2)^{\frac{5}{2}}}{\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(3*x + 2)^(5/2)/sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)*(3*x + 2)^(5/2)/sqrt(-2*x + 1), x)
```

3.2815 $\int \frac{(2+3x)^{3/2}(3+5x)^{5/2}}{\sqrt{1-2x}}\,dx$

Optimal. Leaf size=191

$$-\frac{1}{9}\sqrt{1-2x}(3x+2)^{3/2}(5x+3)^{5/2}-\frac{3}{7}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}-\frac{1877}{630}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}-\frac{62092\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{2835}-\frac{62092\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{14175}-\frac{8256877\sqrt{\frac{11}{3}}E}{}$$

```
[Out] (-62092*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/2835 - (1877*S
qrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/630 - (3*Sqrt[1 - 2*x
]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/7 - (Sqrt[1 - 2*x]*(2 + 3*x)^(3/
2)*(3 + 5*x)^(5/2))/9 - (8256877*Sqrt[11/3]*EllipticE[ArcSin[Sqrt
[3/7]*Sqrt[1 - 2*x]], 35/33])/56700 - (62092*Sqrt[11/3]*EllipticF
[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/14175
```

Rubi [A] time = 0.406342, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{1}{9}\sqrt{1-2x}(3x+2)^{3/2}(5x+3)^{5/2}-\frac{3}{7}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}-\frac{1877}{630}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}-\frac{62092\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}{2835}-\frac{62092\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{14175}-\frac{8256877\sqrt{\frac{11}{3}}E}{}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^(3/2)*(3 + 5*x)^(5/2))/Sqrt[1 - 2*x],x]
```

```
[Out] (-62092*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/2835 - (1877*S
qrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/630 - (3*Sqrt[1 - 2*x
]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/7 - (Sqrt[1 - 2*x]*(2 + 3*x)^(3/
2)*(3 + 5*x)^(5/2))/9 - (8256877*Sqrt[11/3]*EllipticE[ArcSin[Sqrt
[3/7]*Sqrt[1 - 2*x]], 35/33])/56700 - (62092*Sqrt[11/3]*EllipticF
[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/14175
```

Rubi in Sympy [A] time = 40.6319, size = 172, normalized size = 0.9

$$-\frac{\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\,(5x+3)^{\frac{5}{2}}}{9}-\frac{5\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\,(5x+3)^{\frac{3}{2}}}{7}-\frac{1787\sqrt{-2x+1}\sqrt{3x+2}\,(5x+3)^{\frac{3}{2}}}{630}-\frac{62092\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{2835}-\frac{8256877\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{170100}-\frac{62092\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{42525}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(3/2)*(3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] -sqrt(-2*x + 1)*(3*x + 2)**(3/2)*(5*x + 3)**(5/2)/9 - 5*sqrt(-2*x
 + 1)*(3*x + 2)**(3/2)*(5*x + 3)**(3/2)/7 - 1787*sqrt(-2*x + 1)*s
qrt(3*x + 2)*(5*x + 3)**(3/2)/630 - 62092*sqrt(-2*x + 1)*sqrt(3*x
 + 2)*sqrt(5*x + 3)/2835 - 8256877*sqrt(33)*elliptic_e(asin(sqrt(
21)*sqrt(-2*x + 1)/7), 35/33)/170100 - 62092*sqrt(33)*elliptic_f(
asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/42525
```

Mathematica [A] time = 0.320563, size = 105, normalized size = 0.55

$$\frac{8256877E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-5\left(3\sqrt{2-4x}\sqrt{3x+2}\sqrt{5x+3}\left(47250x^3+148950x^2+212175x+208073\right)+831761\dots\right.}{85050\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^(3/2)*(3 + 5*x)^(5/2))/Sqrt[1 - 2*x],x]
```

```
[Out] (8256877*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 5*(
3*Sqrt[2 - 4*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(208073 + 212175*x +
148950*x^2 + 47250*x^3) + 831761*EllipticF[ArcSin[Sqrt[2/11]*Sqrt
[3 + 5*x]], -33/2]))/(85050*Sqrt[2])
```

Maple [C] time = 0.018, size = 179, normalized size = 0.9

$$\frac{1}{5103000\,x^3+3912300\,x^2-1190700\,x-1020600}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(-42525000\,x^6+4158805\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\dots\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(3/2)*(3+5*x)^(5/2)/(1-2*x)^(1/2),x)
```

```
[Out] 1/170100*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(-42525000*x^6
+4158805*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Ellipt
icF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^
(1/2))-8256877*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*
EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1
/2)*2^(1/2))-166657500*x^5-283810500*x^4-293881950*x^3-72202620*x
^2+81886830*x+37453140)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{5}{2}}(3\,x+2)^{\frac{3}{2}}}{\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)^(3/2)/sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] integrate((5*x + 3)^(5/2)*(3*x + 2)^(3/2)/sqrt(-2*x + 1), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(75\,x^3+140\,x^2+87\,x+18)\sqrt{5\,x+3}\sqrt{3\,x+2}}{\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)^(3/2)/sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] integral((75*x^3 + 140*x^2 + 87*x + 18)*sqrt(5*x + 3)*sqrt(3*x +
2)/sqrt(-2*x + 1), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(3/2)*(3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}(3x+2)^{\frac{3}{2}}}{\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(3*x + 2)^(3/2)/sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)*(3*x + 2)^(3/2)/sqrt(-2*x + 1), x)
```

3.2816 $\int \frac{\sqrt{2+3x}(3+5x)^{5/2}}{\sqrt{1-2x}}\,dx$

Optimal. Leaf size=160

$$-\frac{1}{7}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}-\frac{20}{21}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}-\frac{2645}{378}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}-\frac{529}{378}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{17587}{378}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (-2645*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/378 - (20*Sqrt[
1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/21 - (Sqrt[1 - 2*x]*Sqrt[
2 + 3*x]*(3 + 5*x)^(5/2))/7 - (17587*Sqrt[11/3]*EllipticE[ArcSin[
Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/378 - (529*Sqrt[11/3]*EllipticF
[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/378
```

Rubi [A] time = 0.325957, antiderivative size = 160, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{1}{7}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}-\frac{20}{21}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}-\frac{2645}{378}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}-\frac{529}{378}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{17587}{378}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/Sqrt[1 - 2*x],x]
```

```
[Out] (-2645*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/378 - (20*Sqrt[
1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/21 - (Sqrt[1 - 2*x]*Sqrt[
2 + 3*x]*(3 + 5*x)^(5/2))/7 - (17587*Sqrt[11/3]*EllipticE[ArcSin[
Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/378 - (529*Sqrt[11/3]*EllipticF
[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/378
```

Rubi in Sympy [A] time = 32.37, size = 143, normalized size = 0.89

$$-\frac{\sqrt{-2x+1}\sqrt{3x+2}\,(5x+3)^{\frac{5}{2}}}{7}-\frac{20\sqrt{-2x+1}\sqrt{3x+2}\,(5x+3)^{\frac{3}{2}}}{21}-\frac{2645\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{378}-\frac{17587\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{1134}-\frac{5819\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{13230}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)*(2+3*x)**(1/2)/(1-2*x)**(1/2),x)
```

```
[Out] -sqrt(-2*x + 1)*sqrt(3*x + 2)*(5*x + 3)**(5/2)/7 - 20*sqrt(-2*x +
 1)*sqrt(3*x + 2)*(5*x + 3)**(3/2)/21 - 2645*sqrt(-2*x + 1)*sqrt(
3*x + 2)*sqrt(5*x + 3)/378 - 17587*sqrt(33)*elliptic_e(asin(sqrt(
21)*sqrt(-2*x + 1)/7), 35/33)/1134 - 5819*sqrt(35)*elliptic_f(asi
n(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/13230
```

Mathematica [A] time = 0.252413, size = 97, normalized size = 0.61

$$\frac{-3\sqrt{2-4x}\sqrt{3x+2}\sqrt{5x+3}\left(1350x^2+3420x+4211\right)-17717F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+35174E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right.\right.}{1134\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/Sqrt[1 - 2*x],x]
```

```
[Out] (-3*Sqrt[2 - 4*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(4211 + 3420*x + 13
50*x^2) + 35174*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2
] - 17717*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/(11
34*Sqrt[2])
```

Maple [C] time = 0.018, size = 174, normalized size = 1.1

$$\frac{1}{68040\,x^3+52164\,x^2-15876\,x-13608}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(17717\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{11}\sqrt{}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)*(2+3*x)^(1/2)/(1-2*x)^(1/2),x)
```

```
[Out] 1/2268*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*(17717*2^(1/2)*(
3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*
2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-35174*2^(1/
2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1
/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-243000*
x^5-801900*x^4-1173240*x^3-388878*x^2+299982*x+151596)/(30*x^3+23
*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{5}{2}}\sqrt{3\,x+2}}{\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*sqrt(3*x + 2)/sqrt(-2*x + 1),x, algorithm="maxima")
```

```
[Out] integrate((5*x + 3)^(5/2)*sqrt(3*x + 2)/sqrt(-2*x + 1), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(25\,x^2+30\,x+9\right)\sqrt{5\,x+3}\sqrt{3\,x+2}}{\sqrt{-2\,x+1}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*sqrt(3*x + 2)/sqrt(-2*x + 1),x, algorithm="fricas")
```

```
[Out] integral((25*x^2 + 30*x + 9)*sqrt(5*x + 3)*sqrt(3*x + 2)/sqrt(-2*
x + 1), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(5/2)*(2+3*x)**(1/2)/(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}\sqrt{3x+2}}{\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*sqrt(3*x + 2)/sqrt(-2*x + 1),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)*sqrt(3*x + 2)/sqrt(-2*x + 1), x)
```

3.2817 $\int \frac{(3+5x)^{5/2}}{\sqrt{1-2x}\sqrt{2+3x}}\,dx$

Optimal. Leaf size=129

$$-\frac{1}{3}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}-\frac{62}{27}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}-\frac{62}{135}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{4141}{270}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (-62*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/27 - (Sqrt[1 - 2*
x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/3 - (4141*Sqrt[11/3]*EllipticE[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/270 - (62*Sqrt[11/3]*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/135
```

Rubi [A] time = 0.258203, antiderivative size = 129, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{1}{3}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}-\frac{62}{27}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}-\frac{62}{135}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{4141}{270}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(5/2)/(Sqrt[1 - 2*x]*Sqrt[2 + 3*x]),x]
```

```
[Out] (-62*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/27 - (Sqrt[1 - 2*
x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/3 - (4141*Sqrt[11/3]*EllipticE[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/270 - (62*Sqrt[11/3]*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/135
```

Rubi in Sympy [A] time = 24.6185, size = 114, normalized size = 0.88

$$-\frac{\sqrt{-2x+1}\sqrt{3x+2}\,(5x+3)^{\frac{3}{2}}}{3}-\frac{62\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{27}-\frac{4141\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{810}-\frac{682\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{4725}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)/(1-2*x)**(1/2)/(2+3*x)**(1/2),x)
```

```
[Out] -sqrt(-2*x + 1)*sqrt(3*x + 2)*(5*x + 3)**(3/2)/3 - 62*sqrt(-2*x +
 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/27 - 4141*sqrt(33)*elliptic_e(asi
n(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/810 - 682*sqrt(35)*elliptic_
f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/4725
```

Mathematica [A] time = 0.26801, size = 95, normalized size = 0.74

$$\frac{4141E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-5\left(3\sqrt{2-4x}\sqrt{3x+2}\sqrt{5x+3}(45x+89)+419F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)}{405\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(5/2)/(Sqrt[1 - 2*x]*Sqrt[2 + 3*x]),x]
```

```
[Out] (4141*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 5*(3*S
qrt[2 - 4*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(89 + 45*x) + 419*Ellipt
icF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]))/(405*Sqrt[2])
```

Maple [C] time = 0.023, size = 169, normalized size = 1.3

$$\frac{1}{24300\,x^3+18630\,x^2-5670\,x-4860}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(2095\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)/(1-2*x)^(1/2)/(2+3*x)^(1/2),x)
```

```
[Out] 1/810*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(2095*2^(1/2)*(3+
5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^
(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-4141*2^(1/2)*
(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)
*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-40500*x^4-
111150*x^3-51960*x^2+26790*x+16020)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{5}{2}}}{\sqrt{3\,x+2}\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/(sqrt(3*x + 2)*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] integrate((5*x + 3)^(5/2)/(sqrt(3*x + 2)*sqrt(-2*x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\left(25\,x^2+30\,x+9\right)\sqrt{5\,x+3}}{\sqrt{3\,x+2}\sqrt{-2\,x+1}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/(sqrt(3*x + 2)*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] integral((25*x^2 + 30*x + 9)*sqrt(5*x + 3)/(sqrt(3*x + 2)*sqrt(-2
*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(5/2)/(1-2*x)**(1/2)/(2+3*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}}{\sqrt{3x+2}\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/(sqrt(3*x + 2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)/(sqrt(3*x + 2)*sqrt(-2*x + 1)), x)
```

3.2818 $\int \frac{(3+5x)^{5/2}}{\sqrt{1-2x}(2+3x)^{3/2}}\,dx$

Optimal. Leaf size=129

$$\frac{2\sqrt{1-2x}(5x+3)^{3/2}}{21\sqrt{3x+2}}-\frac{205}{189}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}-\frac{41}{189}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{974}{189}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (-205*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/189 + (2*Sqrt[1
- 2*x]*(3 + 5*x)^(3/2))/(21*Sqrt[2 + 3*x]) - (974*Sqrt[11/3]*Elli
pticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/189 - (41*Sqrt[11/
3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/189
```

Rubi [A] time = 0.247893, antiderivative size = 129, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{2\sqrt{1-2x}(5x+3)^{3/2}}{21\sqrt{3x+2}}-\frac{205}{189}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}-\frac{41}{189}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{974}{189}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(5/2)/(Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)),x]
```

```
[Out] (-205*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/189 + (2*Sqrt[1
- 2*x]*(3 + 5*x)^(3/2))/(21*Sqrt[2 + 3*x]) - (974*Sqrt[11/3]*Elli
pticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/189 - (41*Sqrt[11/
3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/189
```

Rubi in Sympy [A] time = 24.8275, size = 114, normalized size = 0.88

$$-\frac{205\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{189}+\frac{2\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{21\sqrt{3x+2}}-\frac{974\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{567}-\frac{451\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{6615}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)/(2+3*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] -205*sqrt(-2*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/189 + 2*sqrt(-2*x
 + 1)*(5*x + 3)**(3/2)/(21*sqrt(3*x + 2)) - 974*sqrt(33)*elliptic
_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/567 - 451*sqrt(35)*ell
iptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/6615
```

Mathematica [A] time = 0.221964, size = 97, normalized size = 0.75

$$\frac{-\frac{6\sqrt{1-2x}\sqrt{5x+3}(525x+356)}{\sqrt{3x+2}}-595\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+1948\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)}{1134}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(5/2)/(Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)),x]
```

```
[Out] ((-6*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(356 + 525*x))/Sqrt[2 + 3*x] + 1
948*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] -
595*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/1
134
```

Maple [C] time = 0.025, size = 164, normalized size = 1.3

$$\frac{1}{34020\,x^3+26082\,x^2-7938\,x-6804}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(595\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)/(2+3*x)^(3/2)/(1-2*x)^(1/2),x)
```

```
[Out] 1/1134*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*(595*2^(1/2)*(3+
5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^
(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-1948*2^(1/2)*
(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)
*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-31500*x^3-
24510*x^2+7314*x+6408)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{5}{2}}}{(3\,x+2)^{\frac{3}{2}}\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)^(3/2)*sqrt(-2*x + 1)),x, algorithm="maxima"
```

```
[Out] integrate((5*x + 3)^(5/2)/((3*x + 2)^(3/2)*sqrt(-2*x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(25\,x^2+30\,x+9\right)\sqrt{5\,x+3}}{(3\,x+2)^{\frac{3}{2}}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)^(3/2)*sqrt(-2*x + 1)),x, algorithm="fricas"
```

```
[Out] integral((25*x^2 + 30*x + 9)*sqrt(5*x + 3)/((3*x + 2)^(3/2)*sqrt(
-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(5/2)/(2+3*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}}{(3x+2)^{\frac{3}{2}}\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)^(3/2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)/((3*x + 2)^(3/2)*sqrt(-2*x + 1)), x)
```

3.2819 $\int \frac{(3+5x)^{5/2}}{\sqrt{1-2x}(2+3x)^{5/2}}\,dx$

Optimal. Leaf size=129

$$\frac{2\sqrt{1-2x}(5x+3)^{3/2}}{63(3x+2)^{3/2}}+\frac{412\sqrt{1-2x}\sqrt{5x+3}}{1323\sqrt{3x+2}}+\frac{412\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1323}-\frac{4157\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1323}$$

```
[Out] (412*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(1323*Sqrt[2 + 3*x]) + (2*Sqrt[
1 - 2*x]*(3 + 5*x)^(3/2))/(63*(2 + 3*x)^(3/2)) - (4157*Sqrt[11/3]
*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1323 + (412*S
qrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1323
```

Rubi [A] time = 0.259003, antiderivative size = 129, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{2\sqrt{1-2x}(5x+3)^{3/2}}{63(3x+2)^{3/2}}+\frac{412\sqrt{1-2x}\sqrt{5x+3}}{1323\sqrt{3x+2}}+\frac{412\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1323}-\frac{4157\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1323}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(5/2)/(Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)),x]
```

```
[Out] (412*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(1323*Sqrt[2 + 3*x]) + (2*Sqrt[
1 - 2*x]*(3 + 5*x)^(3/2))/(63*(2 + 3*x)^(3/2)) - (4157*Sqrt[11/3]
*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1323 + (412*S
qrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1323
```

Rubi in Sympy [A] time = 25.4333, size = 114, normalized size = 0.88

$$\frac{412\sqrt{-2x+1}\sqrt{5x+3}}{1323\sqrt{3x+2}}+\frac{2\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{63\,(3x+2)^{\frac{3}{2}}}-\frac{4157\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{3969}+\frac{4532\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{46305}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)/(2+3*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] 412*sqrt(-2*x + 1)*sqrt(5*x + 3)/(1323*sqrt(3*x + 2)) + 2*sqrt(-2
*x + 1)*(5*x + 3)**(3/2)/(63*(3*x + 2)**(3/2)) - 4157*sqrt(33)*el
liptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/3969 + 4532*sqrt
(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/46305
```

Mathematica [A] time = 0.261942, size = 97, normalized size = 0.75

$$\frac{\frac{6\sqrt{1-2x}\sqrt{5x+3}(723x+475)}{(3x+2)^{3/2}}-10955\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+4157\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)}{3969}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(5/2)/(Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)),x]
```

```
[Out] ((6*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(475 + 723*x))/(2 + 3*x)^(3/2) +
4157*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] -
 10955*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]
)/3969
```

Maple [C] time = 0.03, size = 267, normalized size = 2.1

$$\frac{1}{39690\,x^2+3969\,x-11907}\left(32865\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-12471\,\sqrt{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)/(2+3*x)^(5/2)/(1-2*x)^(1/2),x)
```

```
[Out] 1/3969*(32865*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/
2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*
(1-2*x)^(1/2)-12471*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*
x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^
(1/2)*(1-2*x)^(1/2)+21910*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-
2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11
^(1/2)*3^(1/2)*2^(1/2))-8314*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*
(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I
*11^(1/2)*3^(1/2)*2^(1/2))+43380*x^3+32838*x^2-10164*x-8550)*(1-2
*x)^(1/2)*(3+5*x)^(1/2)/(10*x^2+x-3)/(2+3*x)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{5}{2}}}{(3\,x+2)^{\frac{5}{2}}\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)^(5/2)*sqrt(-2*x + 1)),x, algorithm="maxima"
```

```
[Out] integrate((5*x + 3)^(5/2)/((3*x + 2)^(5/2)*sqrt(-2*x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{(25\,x^2+30\,x+9)\sqrt{5\,x+3}}{(9\,x^2+12\,x+4)\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)^(5/2)*sqrt(-2*x + 1)),x, algorithm="fricas"
```

```
[Out] integral((25*x^2 + 30*x + 9)*sqrt(5*x + 3)/((9*x^2 + 12*x + 4)*sq
rt(3*x + 2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(5/2)/(2+3*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}}{(3x+2)^{\frac{5}{2}}\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)^(5/2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)/((3*x + 2)^(5/2)*sqrt(-2*x + 1)), x)
```

3.2820 $\int \frac{(3+5x)^{5/2}}{\sqrt{1-2x}(2+3x)^{7/2}}\,dx$

Optimal. Leaf size=160

$$\frac{2\sqrt{1-2x}(5x+3)^{3/2}}{105(3x+2)^{5/2}}-\frac{53194\sqrt{1-2x}\sqrt{5x+3}}{46305\sqrt{3x+2}}+\frac{544\sqrt{1-2x}\sqrt{5x+3}}{6615(3x+2)^{3/2}}-\frac{34154\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{46305}+\frac{53194\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{46305}$$

```
[Out] (544*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(6615*(2 + 3*x)^(3/2)) - (53194
*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(46305*Sqrt[2 + 3*x]) + (2*Sqrt[1 -
 2*x]*(3 + 5*x)^(3/2))/(105*(2 + 3*x)^(5/2)) + (53194*Sqrt[11/3]*
EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/46305 - (34154
*Sqrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/46
305
```

Rubi [A] time = 0.338527, antiderivative size = 160, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.214$

$$\frac{2\sqrt{1-2x}(5x+3)^{3/2}}{105(3x+2)^{5/2}}-\frac{53194\sqrt{1-2x}\sqrt{5x+3}}{46305\sqrt{3x+2}}+\frac{544\sqrt{1-2x}\sqrt{5x+3}}{6615(3x+2)^{3/2}}-\frac{34154\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{46305}+\frac{53194\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{46305}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(5/2)/(Sqrt[1 - 2*x]*(2 + 3*x)^(7/2)),x]
```


```
[Out] (544*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(6615*(2 + 3*x)^(3/2)) - (53194
*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(46305*Sqrt[2 + 3*x]) + (2*Sqrt[1 -
 2*x]*(3 + 5*x)^(3/2))/(105*(2 + 3*x)^(5/2)) + (53194*Sqrt[11/3]*
EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/46305 - (34154
*Sqrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/46
305
```

Rubi in Sympy [A] time = 33.1677, size = 143, normalized size = 0.89

$$-\frac{53194\sqrt{-2x+1}\sqrt{5x+3}}{46305\sqrt{3x+2}}+\frac{544\sqrt{-2x+1}\sqrt{5x+3}}{6615\,(3x+2)^{\frac{3}{2}}}+\frac{2\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{105\,(3x+2)^{\frac{5}{2}}}+\frac{53194\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{138915}-\frac{375694\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{1620675}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)/(2+3*x)**(7/2)/(1-2*x)**(1/2),x)
```

```
[Out] -53194*sqrt(-2*x + 1)*sqrt(5*x + 3)/(46305*sqrt(3*x + 2)) + 544*s
qrt(-2*x + 1)*sqrt(5*x + 3)/(6615*(3*x + 2)**(3/2)) + 2*sqrt(-2*x
 + 1)*(5*x + 3)**(3/2)/(105*(3*x + 2)**(5/2)) + 53194*sqrt(33)*el
liptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/138915 - 375694*
sqrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/1620
675
```

Mathematica [A] time = 0.245362, size = 99, normalized size = 0.62

$$\frac{\sqrt{2}\left(616735F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-53194E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)-\frac{6\sqrt{1-2x}\sqrt{5x+3}(239373x^2+311247x+101257)}{(3x+2)^{5/2}}}{138915}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(5/2)/(Sqrt[1 - 2*x]*(2 + 3*x)^(7/2)),x]
```

```
[Out] ((-6*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(101257 + 311247*x + 239373*x^2)
)/(2 + 3*x)^(5/2) + Sqrt[2]*(-53194*EllipticE[ArcSin[Sqrt[2/11]*S
qrt[3 + 5*x]], -33/2] + 616735*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3
 + 5*x]], -33/2]))/138915
```

Maple [C] time = 0.03, size = 386, normalized size = 2.4

$$-\frac{1}{1389150\,x^2+138915\,x-416745}\left(5550615\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^2\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)/(2+3*x)^(7/2)/(1-2*x)^(1/2),x)
```

```
[Out] -1/138915*(5550615*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x
)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)
^(1/2)*(1-2*x)^(1/2)-478746*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/
2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2
)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+7400820*2^(1/2)*EllipticF(1/11*11^(
1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5
*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-638328*2^(1/2)*EllipticE(1/
11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))
*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+2466940*2^(1/2)*(3+5
*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(
1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-212776*2^(1/2)
*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2
)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+14362380*
x^4+20111058*x^3+3634188*x^2-4994904*x-1822626)*(1-2*x)^(1/2)*(3+
5*x)^(1/2)/(10*x^2+x-3)/(2+3*x)^(5/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{5}{2}}}{(3\,x+2)^{\frac{7}{2}}\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)^(7/2)*sqrt(-2*x + 1)),x, algorithm="maxima"
```

```
[Out] integrate((5*x + 3)^(5/2)/((3*x + 2)^(7/2)*sqrt(-2*x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(25\,x^2+30\,x+9)\sqrt{5\,x+3}}{(27\,x^3+54\,x^2+36\,x+8)\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)^(7/2)*sqrt(-2*x + 1)),x, algorithm="fricas"
```

```
[Out] integral((25*x^2 + 30*x + 9)*sqrt(5*x + 3)/((27*x^3 + 54*x^2 + 36
*x + 8)*sqrt(3*x + 2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3+5*x)**(5/2)/(2+3*x)**(7/2)/(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}}{(3x+2)^{\frac{7}{2}}\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)^(7/2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)/((3*x + 2)^(7/2)*sqrt(-2*x + 1)), x)
```

3.2821 $\int \frac{(3+5x)^{5/2}}{\sqrt{1-2x}(2+3x)^{9/2}}\,dx$

Optimal. Leaf size=191

$$\frac{2\sqrt{1-2x}(5x+3)^{3/2}}{147(3x+2)^{7/2}}+\frac{816622\sqrt{1-2x}\sqrt{5x+3}}{2268945\sqrt{3x+2}}-\frac{101902\sqrt{1-2x}\sqrt{5x+3}}{324135(3x+2)^{3/2}}+\frac{676\sqrt{1-2x}\sqrt{5x+3}}{15435(3x+2)^{5/2}}-\frac{265648\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{2268945}-\frac{816622\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{2268945}$$

```
[Out] (676*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(15435*(2 + 3*x)^(5/2)) - (1019
02*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(324135*(2 + 3*x)^(3/2)) + (81662
2*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2268945*Sqrt[2 + 3*x]) + (2*Sqrt[
1 - 2*x]*(3 + 5*x)^(3/2))/(147*(2 + 3*x)^(7/2)) - (816622*Sqrt[11
/3]*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/2268945 -
(265648*Sqrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/
33])/2268945
```

Rubi [A] time = 0.408568, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.214$

$$\frac{2\sqrt{1-2x}(5x+3)^{3/2}}{147(3x+2)^{7/2}}+\frac{816622\sqrt{1-2x}\sqrt{5x+3}}{2268945\sqrt{3x+2}}-\frac{101902\sqrt{1-2x}\sqrt{5x+3}}{324135(3x+2)^{3/2}}+\frac{676\sqrt{1-2x}\sqrt{5x+3}}{15435(3x+2)^{5/2}}-\frac{265648\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{2268945}-\frac{816622\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{2268945}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(5/2)/(Sqrt[1 - 2*x]*(2 + 3*x)^(9/2)),x]
```

```
[Out] (676*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(15435*(2 + 3*x)^(5/2)) - (1019
02*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(324135*(2 + 3*x)^(3/2)) + (81662
2*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2268945*Sqrt[2 + 3*x]) + (2*Sqrt[
1 - 2*x]*(3 + 5*x)^(3/2))/(147*(2 + 3*x)^(7/2)) - (816622*Sqrt[11
/3]*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/2268945 -
(265648*Sqrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/
33])/2268945
```

Rubi in Sympy [A] time = 40.8204, size = 172, normalized size = 0.9

$$\frac{816622\sqrt{-2x+1}\sqrt{5x+3}}{2268945\sqrt{3x+2}}-\frac{101902\sqrt{-2x+1}\sqrt{5x+3}}{324135\left(3x+2\right)^{\frac{3}{2}}}+\frac{676\sqrt{-2x+1}\sqrt{5x+3}}{15435\left(3x+2\right)^{\frac{5}{2}}}+\frac{2\sqrt{-2x+1}\left(5x+3\right)^{\frac{3}{2}}}{147\left(3x+2\right)^{\frac{7}{2}}}-\frac{816622\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{6806835}-\frac{2922128\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{79413075}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)/(2+3*x)**(9/2)/(1-2*x)**(1/2),x)
```

```
[Out] 816622*sqrt(-2*x + 1)*sqrt(5*x + 3)/(2268945*sqrt(3*x + 2)) - 101
902*sqrt(-2*x + 1)*sqrt(5*x + 3)/(324135*(3*x + 2)**(3/2)) + 676*
sqrt(-2*x + 1)*sqrt(5*x + 3)/(15435*(3*x + 2)**(5/2)) + 2*sqrt(-2
*x + 1)*(5*x + 3)**(3/2)/(147*(3*x + 2)**(7/2)) - 816622*sqrt(33)
*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/6806835 - 292
2128*sqrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)
/79413075
```

Mathematica [A] time = 0.266369, size = 104, normalized size = 0.54

$$\frac{2\left(\frac{3\sqrt{1-2x}\sqrt{5x+3}(11024397x^3+18838881x^2+10645545x+1985537)}{(3x+2)^{7/2}}+\sqrt{2}\left(1783285F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+408311E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\right.\right.\right.\right.}{6806835}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(5/2)/(Sqrt[1 - 2*x]*(2 + 3*x)^(9/2)),x]
```

```
[Out] (2*((3*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(1985537 + 10645545*x + 188388
81*x^2 + 11024397*x^3))/(2 + 3*x)^(7/2) + Sqrt[2]*(408311*Ellipti
cE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 1783285*EllipticF[A
rcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])))/6806835
```

Maple [C] time = 0.032, size = 505, normalized size = 2.6

$$-\frac{2}{68068350x^2+6806835x-20420505}\left(48148695\sqrt{2}EllipticF\left(1/11\sqrt{11}\sqrt{2}\sqrt{3+5x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^3\sqrt{1-2x}\sqrt{3+5x}\sqrt{2}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)/(2+3*x)^(9/2)/(1-2*x)^(1/2),x)
```

```
[Out] -2/6806835*(48148695*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5
*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*
x)^(1/2)*(2+3*x)^(1/2)+11024397*2^(1/2)*EllipticE(1/11*11^(1/2)*2
^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^
(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)+96297390*2^(1/2)*EllipticF(1/11
*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x
^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+22048794*2^(1/2)*Ell
ipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)
*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+64198260*
2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1
/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+
14699196*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/
2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*
x)^(1/2)+14266280*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/
2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3
^(1/2)*2^(1/2))+3266488*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*
x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(
1/2)*3^(1/2)*2^(1/2))-330731910*x^5-598239621*x^4-276663420*x^3+7
8047184*x^2+89853294*x+17869833)*(1-2*x)^(1/2)*(3+5*x)^(1/2)/(10*
x^2+x-3)/(2+3*x)^(7/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}}{(3x+2)^{\frac{9}{2}}\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)^(9/2)*sqrt(-2*x + 1)),x, algorithm="maxima"
```

```
[Out] integrate((5*x + 3)^(5/2)/((3*x + 2)^(9/2)*sqrt(-2*x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(25x^2+30x+9\right)\sqrt{5x+3}}{(81x^4+216x^3+216x^2+96x+16)\sqrt{3x+2}\sqrt{-2x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)^(9/2)*sqrt(-2*x + 1)),x, algorithm="fricas"
```

```
[Out] integral((25*x^2 + 30*x + 9)*sqrt(5*x + 3)/((81*x^4 + 216*x^3 + 2
16*x^2 + 96*x + 16)*sqrt(3*x + 2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(5/2)/(2+3*x)**(9/2)/(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}}{(3x+2)^{\frac{9}{2}}\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)^(9/2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)/((3*x + 2)^(9/2)*sqrt(-2*x + 1)), x)
```

3.2822 $\int \frac{(3+5x)^{5/2}}{\sqrt{1-2x}(2+3x)^{11/2}}\,dx$

Optimal. Leaf size=222

$$\frac{2\sqrt{1-2x}(5x+3)^{3/2}}{189(3x+2)^{9/2}}+\frac{32098184\sqrt{1-2x}\sqrt{5x+3}}{47647845\sqrt{3x+2}}-\frac{43094\sqrt{1-2x}\sqrt{5x+3}}{6806835(3x+2)^{3/2}}-\frac{168034\sqrt{1-2x}\sqrt{5x+3}}{972405(3x+2)^{5/2}}+\frac{808\sqrt{1-2x}\sqrt{5x+3}}{27783(3x+2)^{7/2}}-\frac{2036756\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{47647845}-\frac{32098184\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{47647845}$$

```
[Out] (808*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(27783*(2 + 3*x)^(7/2)) - (1680
34*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(972405*(2 + 3*x)^(5/2)) - (43094
*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(6806835*(2 + 3*x)^(3/2)) + (320981
84*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(47647845*Sqrt[2 + 3*x]) + (2*Sqr
t[1 - 2*x]*(3 + 5*x)^(3/2))/(189*(2 + 3*x)^(9/2)) - (32098184*Sqr
t[11/3]*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/476478
45 - (2036756*Sqrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]
], 35/33])/47647845
```

Rubi [A] time = 0.498762, antiderivative size = 222, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{2\sqrt{1-2x}(5x+3)^{3/2}}{189(3x+2)^{9/2}}+\frac{32098184\sqrt{1-2x}\sqrt{5x+3}}{47647845\sqrt{3x+2}}-\frac{43094\sqrt{1-2x}\sqrt{5x+3}}{6806835(3x+2)^{3/2}}-\frac{168034\sqrt{1-2x}\sqrt{5x+3}}{972405(3x+2)^{5/2}}+\frac{808\sqrt{1-2x}\sqrt{5x+3}}{27783(3x+2)^{7/2}}-\frac{2036756\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{47647845}-\frac{32098184\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{47647845}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(5/2)/(Sqrt[1 - 2*x]*(2 + 3*x)^(11/2)),x]
```

```
[Out] (808*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(27783*(2 + 3*x)^(7/2)) - (1680
34*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(972405*(2 + 3*x)^(5/2)) - (43094
*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(6806835*(2 + 3*x)^(3/2)) + (320981
84*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(47647845*Sqrt[2 + 3*x]) + (2*Sqr
t[1 - 2*x]*(3 + 5*x)^(3/2))/(189*(2 + 3*x)^(9/2)) - (32098184*Sqr
t[11/3]*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/476478
45 - (2036756*Sqrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]
], 35/33])/47647845
```

Rubi in Sympy [A] time = 48.6461, size = 201, normalized size = 0.91

$$\frac{32098184\sqrt{-2x+1}\sqrt{5x+3}}{47647845\sqrt{3x+2}}-\frac{43094\sqrt{-2x+1}\sqrt{5x+3}}{6806835\,(3x+2)^{\frac{3}{2}}}-\frac{168034\sqrt{-2x+1}\sqrt{5x+3}}{972405\,(3x+2)^{\frac{5}{2}}}+\frac{808\sqrt{-2x+1}\sqrt{5x+3}}{27783\,(3x+2)^{\frac{7}{2}}}+\frac{2\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{189\,(3x+2)^{\frac{9}{2}}}-\frac{32098184\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{142943535}-\frac{2036756\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{142943535}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)/(2+3*x)**(11/2)/(1-2*x)**(1/2),x)
```

```
[Out] 32098184*sqrt(-2*x + 1)*sqrt(5*x + 3)/(47647845*sqrt(3*x + 2)) -
43094*sqrt(-2*x + 1)*sqrt(5*x + 3)/(6806835*(3*x + 2)**(3/2)) - 1
68034*sqrt(-2*x + 1)*sqrt(5*x + 3)/(972405*(3*x + 2)**(5/2)) + 80
8*sqrt(-2*x + 1)*sqrt(5*x + 3)/(27783*(3*x + 2)**(7/2)) + 2*sqrt(
-2*x + 1)*(5*x + 3)**(3/2)/(189*(3*x + 2)**(9/2)) - 32098184*sqrt
(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/142943535
 - 2036756*sqrt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 3
5/33)/142943535
```

Mathematica [A] time = 0.319356, size = 107, normalized size = 0.48

$$\frac{\frac{24\sqrt{2-4x}\sqrt{5x+3}(1299976452x^4+3462531489x^3+3421407609x^2+1489220097x+241253543)}{(3x+2)^{9/2}}+12066320F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+25678547}{571774140\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(5/2)/(Sqrt[1 - 2*x]*(2 + 3*x)^(11/2)),x]
```

```
[Out] ((24*Sqrt[2 - 4*x]*Sqrt[3 + 5*x]*(241253543 + 1489220097*x + 3421
407609*x^2 + 3462531489*x^3 + 1299976452*x^4))/(2 + 3*x)^(9/2) +
256785472*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 12
066320*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/(57177
4140*Sqrt[2])
```

Maple [C] time = 0.033, size = 624, normalized size = 2.8

$$-\frac{2}{1429435350x^2+142943535x-428830605}\left(61085745\sqrt{2}EllipticF\left(1/11\sqrt{11}\sqrt{2}\sqrt{3+5x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^4\sqrt{3+5x}\sqrt{2+}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)/(2+3*x)^(11/2)/(1-2*x)^(1/2),x)
```

```
[Out] -2/142943535*(61085745*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3
+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^4*(3+5*x)^(1/2)*(2+
3*x)^(1/2)*(1-2*x)^(1/2)+1299976452*2^(1/2)*EllipticE(1/11*11^(1/
2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^4*(3+5
*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+162895320*2^(1/2)*EllipticF
(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/
2))*x^3*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)+3466603872*2^(1
/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*
3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)+16
2895320*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2
*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2
*x)^(1/2)+3466603872*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5
*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*
x)^(1/2)*(1-2*x)^(1/2)+72397920*2^(1/2)*EllipticF(1/11*11^(1/2)*2
^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1
/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+1540712832*2^(1/2)*EllipticE(1/11
*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x
*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-38999293560*x^6+120663
20*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/
11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))
+256785472*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Elli
pticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*
2^(1/2))-107775874026*x^5-101330034669*x^4-23778042336*x^3+190874
01900*x^2+12679220244*x+2171281887)*(1-2*x)^(1/2)*(3+5*x)^(1/2)/(
10*x^2+x-3)/(2+3*x)^(9/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}}{(3x+2)^{\frac{11}{2}}\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)^(11/2)*sqrt(-2*x + 1)),x, algorithm="maxima
```

```
[Out] integrate((5*x + 3)^(5/2)/((3*x + 2)^(11/2)*sqrt(-2*x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(25x^2+30x+9)\sqrt{5x+3}}{(243x^5+810x^4+1080x^3+720x^2+240x+32)\sqrt{3x+2}\sqrt{-2x+1}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)^(11/2)*sqrt(-2*x + 1)),x, algorithm="fricas
```

```
[Out] integral((25*x^2 + 30*x + 9)*sqrt(5*x + 3)/((243*x^5 + 810*x^4 +
1080*x^3 + 720*x^2 + 240*x + 32)*sqrt(3*x + 2)*sqrt(-2*x + 1)), x
)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(5/2)/(2+3*x)**(11/2)/(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}}{(3x+2)^{\frac{11}{2}}\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)^(11/2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)/((3*x + 2)^(11/2)*sqrt(-2*x + 1)), x)
```

3.2823 $\int \frac{(3+5x)^{5/2}}{\sqrt{1-2x}(2+3x)^{13/2}}\,dx$

Optimal. Leaf size=249

$$\frac{2\sqrt{1-2x}(5x+3)^{3/2}}{231(3x+2)^{11/2}}+\frac{924247516\sqrt{1-2x}\sqrt{5x+3}}{733776813\sqrt{3x+2}}+\frac{11460644\sqrt{1-2x}\sqrt{5x+3}}{104825259(3x+2)^{3/2}}-\frac{362666\sqrt{1-2x}\sqrt{5x+3}}{14975037(3x+2)^{5/2}}-\frac{251590\sqrt{1-2x}\sqrt{5x+3}}{2139291(3x+2)^{7/2}}+\frac{940\sqrt{1-2x}\sqrt{5x+3}}{43659(3x+2)^{9/2}}-\frac{31704544F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{66706983\sqrt{33}}-\frac{924247516E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{66706983\sqrt{33}}$$

```
[Out] (940*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(43659*(2 + 3*x)^(9/2)) - (2515
90*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2139291*(2 + 3*x)^(7/2)) - (3626
66*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(14975037*(2 + 3*x)^(5/2)) + (114
60644*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(104825259*(2 + 3*x)^(3/2)) +
(924247516*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(733776813*Sqrt[2 + 3*x])
 + (2*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(231*(2 + 3*x)^(11/2)) - (92
4247516*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(66706
983*Sqrt[33]) - (31704544*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x
]], 35/33])/(66706983*Sqrt[33])
```

Rubi [A] time = 0.587936, antiderivative size = 249, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{2\sqrt{1-2x}(5x+3)^{3/2}}{231(3x+2)^{11/2}}+\frac{924247516\sqrt{1-2x}\sqrt{5x+3}}{733776813\sqrt{3x+2}}+\frac{11460644\sqrt{1-2x}\sqrt{5x+3}}{104825259(3x+2)^{3/2}}-\frac{362666\sqrt{1-2x}\sqrt{5x+3}}{14975037(3x+2)^{5/2}}-\frac{251590\sqrt{1-2x}\sqrt{5x+3}}{2139291(3x+2)^{7/2}}+\frac{940\sqrt{1-2x}\sqrt{5x+3}}{43659(3x+2)^{9/2}}-\frac{31704544F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{66706983\sqrt{33}}-\frac{924247516E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{66706983\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(5/2)/(Sqrt[1 - 2*x]*(2 + 3*x)^(13/2)),x]
```


```
[Out] (940*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(43659*(2 + 3*x)^(9/2)) - (2515
90*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(2139291*(2 + 3*x)^(7/2)) - (3626
66*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(14975037*(2 + 3*x)^(5/2)) + (114
60644*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(104825259*(2 + 3*x)^(3/2)) +
(924247516*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(733776813*Sqrt[2 + 3*x])
 + (2*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2))/(231*(2 + 3*x)^(11/2)) - (92
4247516*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(66706
983*Sqrt[33]) - (31704544*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x
]], 35/33])/(66706983*Sqrt[33])
```

Rubi in Sympy [A] time = 57.0011, size = 230, normalized size = 0.92

$$\frac{924247516\sqrt{-2x+1}\sqrt{5x+3}}{733776813\sqrt{3x+2}}+\frac{11460644\sqrt{-2x+1}\sqrt{5x+3}}{104825259\,(3x+2)^{\frac{3}{2}}}-\frac{362666\sqrt{-2x+1}\sqrt{5x+3}}{14975037\,(3x+2)^{\frac{5}{2}}}-\frac{251590\sqrt{-2x+1}\sqrt{5x+3}}{2139291\,(3x+2)^{\frac{7}{2}}}+\frac{940\sqrt{-2x+1}\sqrt{5x+3}}{43659\,(3x+2)^{\frac{9}{2}}}+\frac{2\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}{231\,(3x+2)^{\frac{11}{2}}}-\frac{924247516\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{2201330439}-\frac{31704544\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{2334744405}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)/(2+3*x)**(13/2)/(1-2*x)**(1/2),x)
```

```
[Out] 924247516*sqrt(-2*x + 1)*sqrt(5*x + 3)/(733776813*sqrt(3*x + 2))
+ 11460644*sqrt(-2*x + 1)*sqrt(5*x + 3)/(104825259*(3*x + 2)**(3/
2)) - 362666*sqrt(-2*x + 1)*sqrt(5*x + 3)/(14975037*(3*x + 2)**(5
/2)) - 251590*sqrt(-2*x + 1)*sqrt(5*x + 3)/(2139291*(3*x + 2)**(7
/2)) + 940*sqrt(-2*x + 1)*sqrt(5*x + 3)/(43659*(3*x + 2)**(9/2))
+ 2*sqrt(-2*x + 1)*(5*x + 3)**(3/2)/(231*(3*x + 2)**(11/2)) - 924
247516*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33
)/2201330439 - 31704544*sqrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2
*x + 1)/11), 33/35)/2334744405
```

Mathematica [A] time = 0.519498, size = 112, normalized size = 0.45

$$\frac{\frac{48\sqrt{2-4x}\sqrt{5x+3}\left(112296073194x^5+377569336554x^4+507518001945x^3+340525216341x^2+113962415157x+15211411193\right)}{(3x+2)^{11/2}}-6417960640F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5\cdots\right.\right.}{17610643512\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(5/2)/(Sqrt[1 - 2*x]*(2 + 3*x)^(13/2)),x]
```

```
[Out] ((48*Sqrt[2 - 4*x]*Sqrt[3 + 5*x]*(15211411193 + 113962415157*x +
340525216341*x^2 + 507518001945*x^3 + 377569336554*x^4 + 11229607
3194*x^5))/(2 + 3*x)^(11/2) + 14787960256*EllipticE[ArcSin[Sqrt[2
/11]*Sqrt[3 + 5*x]], -33/2] - 6417960640*EllipticF[ArcSin[Sqrt[2/
11]*Sqrt[3 + 5*x]], -33/2])/(17610643512*Sqrt[2])
```

Maple [C] time = 0.034, size = 743, normalized size = 3.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)/(2+3*x)^(13/2)/(1-2*x)^(1/2),x)
```

```
[Out] 2/2201330439*(48736388610*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)
*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^5*(3+5*x)^(1/2)*
(2+3*x)^(1/2)*(1-2*x)^(1/2)-112296073194*2^(1/2)*EllipticE(1/11*1
1^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^5
*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+162454628700*2^(1/2)*E
llipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/
2)*2^(1/2))*x^4*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-3743202
43980*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I
*11^(1/2)*3^(1/2)*2^(1/2))*x^4*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x
)^(1/2)+216606171600*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5
*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*
x)^(1/2)*(2+3*x)^(1/2)-499093658640*2^(1/2)*EllipticE(1/11*11^(1/
2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2
*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)+144404114400*2^(1/2)*Ellipt
icF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^
(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-332729105760
*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(
1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/
2)+3368882195820*x^7+48134704800*2^(1/2)*EllipticF(1/11*11^(1/2)*
2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(
1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-110909701920*2^(1/2)*EllipticE(1
/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2)
)*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+11663968316202*x^6+
6417960640*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Elli
pticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*
2^(1/2))-14787960256*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^
(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2
)*3^(1/2)*2^(1/2))+15347583409266*x^5+8340186467079*x^4-127213913
```

```
772*x^3-2266497365808*x^2-980027502834*x-136902700737)*(1-2*x)^(1
/2)*(3+5*x)^(1/2)/(10*x^2+x-3)/(2+3*x)^(11/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}}{(3x+2)^{\frac{13}{2}}\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)^(13/2)*sqrt(-2*x + 1)),x, algorithm="maxima
```

```
[Out] integrate((5*x + 3)^(5/2)/((3*x + 2)^(13/2)*sqrt(-2*x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(25x^2+30x+9)\sqrt{5x+3}}{(729x^6+2916x^5+4860x^4+4320x^3+2160x^2+576x+64)\sqrt{3x+2}\sqrt{-2x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)^(13/2)*sqrt(-2*x + 1)),x, algorithm="fricas
```

```
[Out] integral((25*x^2 + 30*x + 9)*sqrt(5*x + 3)/((729*x^6 + 2916*x^5 +
 4860*x^4 + 4320*x^3 + 2160*x^2 + 576*x + 64)*sqrt(3*x + 2)*sqrt(
-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(5/2)/(2+3*x)**(13/2)/(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}}{(3x+2)^{\frac{13}{2}}\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)^(13/2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)/((3*x + 2)^(13/2)*sqrt(-2*x + 1)), x)
```

3.2824 $\int \frac{1}{\sqrt{1+x}\sqrt{2+x}\sqrt{3+x}}\,dx$

Optimal. Leaf size=12

$$-2F\left(\sin^{-1}\left(\frac{1}{\sqrt{x+3}}\right)\middle|2\right)$$

```
[Out] -2*EllipticF[ArcSin[1/Sqrt[3 + x]], 2]
```

Rubi [A] time = 0.0304301, antiderivative size = 12, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-2F\left(\sin^{-1}\left(\frac{1}{\sqrt{x+3}}\right)\middle|2\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 + x]*Sqrt[2 + x]*Sqrt[3 + x]),x]
```

```
[Out] -2*EllipticF[ArcSin[1/Sqrt[3 + x]], 2]
```

Rubi in Sympy [A] time = 3.61239, size = 20, normalized size = 1.67

$$-\sqrt{2}iF\left(i\,\text{asinh}\left(\sqrt{x+1}\right)\middle|\frac{1}{2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1+x)**(1/2)/(2+x)**(1/2)/(3+x)**(1/2),x)
```

```
[Out] -sqrt(2)*I*elliptic_f(I*asinh(sqrt(x + 1)), 1/2)
```

Mathematica [C] time = 0.131143, size = 55, normalized size = 4.58

$$\frac{2i\sqrt{\frac{1}{x+1}+1}F\left(i\sinh^{-1}\left(\frac{1}{\sqrt{x+1}}\right)\middle|2\right)}{\sqrt{\frac{x+2}{x+3}}\sqrt{\frac{x+3}{x+1}}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 + x]*Sqrt[2 + x]*Sqrt[3 + x]),x]
```

```
[Out] ((2*I)*Sqrt[1 + (1 + x)^(-1)]*EllipticF[I*ArcSinh[1/Sqrt[1 + x]],
 2])/(Sqrt[(2 + x)/(3 + x)]*Sqrt[(3 + x)/(1 + x)])
```

Maple [B] time = 0.058, size = 30, normalized size = 2.5

$$\sqrt{2}\sqrt{1+x}EllipticF\left(\sqrt{-1-x},\frac{\sqrt{2}}{2}\right)\frac{1}{\sqrt{-1-x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1+x)^(1/2)/(2+x)^(1/2)/(3+x)^(1/2),x)
```

```
[Out] 1/(-1-x)^(1/2)*(1+x)^(1/2)*2^(1/2)*EllipticF((-1-x)^(1/2),1/2*2^(
1/2))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{x+3}\sqrt{x+2}\sqrt{x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(x + 3)*sqrt(x + 2)*sqrt(x + 1)),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(x + 3)*sqrt(x + 2)*sqrt(x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{\sqrt{x+3}\sqrt{x+2}\sqrt{x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(x + 3)*sqrt(x + 2)*sqrt(x + 1)),x, algorithm="fricas")
```

```
[Out] integral(1/(sqrt(x + 3)*sqrt(x + 2)*sqrt(x + 1)), x)
```

Sympy [A] time = 12.1144, size = 65, normalized size = 5.42

$$-\frac{G_{6,6}^{5,3}\left(\begin{matrix}\frac{1}{2},1,1 & \frac{3}{4},\frac{3}{4},\frac{5}{4}\\ \frac{1}{4},\frac{1}{2},\frac{3}{4},1,\frac{5}{4} & 0\end{matrix}\middle|\frac{1}{(x+2)^2}\right)}{4\pi^{\frac{3}{2}}}+\frac{G_{6,6}^{3,5}\left(\begin{matrix}-\frac{1}{4},0,\frac{1}{4},\frac{1}{2},\frac{3}{4} & 1\\ 0,\frac{1}{2},0 & -\frac{1}{4},\frac{1}{4},\frac{1}{4}\end{matrix}\middle|\frac{e^{2i\pi}}{(x+2)^2}\right)}{4\pi^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(1+x)**(1/2)/(2+x)**(1/2)/(3+x)**(1/2),x)
```

```
[Out] -meijerg(((1/2, 1, 1), (3/4, 3/4, 5/4)), ((1/4, 1/2, 3/4, 1, 5/4)
, (0,)), (x + 2)**(-2))/(4*pi**(3/2)) + meijerg(((-1/4, 0, 1/4, 1
/2, 3/4), (1,)), ((0, 1/2, 0), (-1/4, 1/4, 1/4)), exp_polar(2*I*p
i)/(x + 2)**2)/(4*pi**(3/2))
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{x+3}\sqrt{x+2}\sqrt{x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(x + 3)*sqrt(x + 2)*sqrt(x + 1)),x, algorithm="giac")
```

```
[Out] integrate(1/(sqrt(x + 3)*sqrt(x + 2)*sqrt(x + 1)), x)
```

3.2825 $\int \frac{1}{\sqrt{3-x}\sqrt{1+x}\sqrt{2+x}}\,dx$

Optimal. Leaf size=16

$$2F\left(\sin^{-1}\left(\frac{\sqrt{x+1}}{2}\right)\middle|-4\right)$$

```
[Out] 2*EllipticF[ArcSin[Sqrt[1 + x]/2], -4]
```

Rubi [A] time = 0.0379097, antiderivative size = 16, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.042

$$2F\left(\sin^{-1}\left(\frac{\sqrt{x+1}}{2}\right)\middle|-4\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[3 - x]*Sqrt[1 + x]*Sqrt[2 + x]),x]

[Out] 2*EllipticF[ArcSin[Sqrt[1 + x]/2], -4]
```

Rubi in Sympy [A] time = 4.0236, size = 14, normalized size = 0.88

$$2F\left(\operatorname{asin}\left(\frac{\sqrt{x+1}}{2}\right)\middle|-4\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(3-x)**(1/2)/(1+x)**(1/2)/(2+x)**(1/2),x)

[Out] 2*elliptic_f(asin(sqrt(x + 1)/2), -4)
```

Mathematica [C] time = 0.121041, size = 74, normalized size = 4.62

$$\frac{i\sqrt{\frac{4}{x-3}+1}\sqrt{\frac{5}{x-3}+1}(x-3)^{3/2}F\left(i\sinh^{-1}\left(\frac{2}{\sqrt{x-3}}\right)|\frac{5}{4}\right)}{\sqrt{-(x-3)(x+1)}\sqrt{x+2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[3 - x]*Sqrt[1 + x]*Sqrt[2 + x]),x]

[Out] (I*Sqrt[1 + 4/(-3 + x)]*Sqrt[1 + 5/(-3 + x)]*(-3 + x)^(3/2)*Ellip
ticF[I*ArcSinh[2/Sqrt[-3 + x]], 5/4])/(Sqrt[-((-3 + x)*(1 + x))]*
Sqrt[2 + x])
```

Maple [A] time = 0.089, size = 25, normalized size = 1.6

$$-1\mathit{EllipticF}\left(\sqrt{-1-x},\frac{i}{2}\right)\sqrt{-1-x}\frac{1}{\sqrt{1+x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(3-x)^(1/2)/(1+x)^(1/2)/(2+x)^(1/2),x)

[Out] -EllipticF((-1-x)^(1/2),1/2*I)*(-1-x)^(1/2)/(1+x)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{x+2}\sqrt{x+1}\sqrt{-x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(x + 2)*sqrt(x + 1)*sqrt(-x + 3)),x, algorithm="maxima")

[Out] integrate(1/(sqrt(x + 2)*sqrt(x + 1)*sqrt(-x + 3)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{\sqrt{x+2}\sqrt{x+1}\sqrt{-x+3}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(x + 2)*sqrt(x + 1)*sqrt(-x + 3)),x, algorithm="fricas")

[Out] integral(1/(sqrt(x + 2)*sqrt(x + 1)*sqrt(-x + 3)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{-x+3}\sqrt{x+1}\sqrt{x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(3-x)**(1/2)/(1+x)**(1/2)/(2+x)**(1/2),x)

[Out] Integral(1/(sqrt(-x + 3)*sqrt(x + 1)*sqrt(x + 2)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{x+2}\sqrt{x+1}\sqrt{-x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(x + 2)*sqrt(x + 1)*sqrt(-x + 3)),x, algorithm="giac")

[Out] integrate(1/(sqrt(x + 2)*sqrt(x + 1)*sqrt(-x + 3)), x)
```

3.2826 $\int \frac{1}{\sqrt{2-x}\sqrt{1+x}\sqrt{3+x}}\,dx$

Optimal. Leaf size=24

$$\sqrt{2}F\left(\sin^{-1}\left(\frac{\sqrt{x+1}}{\sqrt{3}}\right)|-\frac{3}{2}\right)$$

```
[Out] Sqrt[2]*EllipticF[ArcSin[Sqrt[1 + x]/Sqrt[3]], -3/2]
```

Rubi [A] time = 0.0407108, antiderivative size = 24, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.042

$$\sqrt{2}F\left(\sin^{-1}\left(\frac{\sqrt{x+1}}{\sqrt{3}}\right)|-\frac{3}{2}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[2 - x]*Sqrt[1 + x]*Sqrt[3 + x]),x]

[Out] Sqrt[2]*EllipticF[ArcSin[Sqrt[1 + x]/Sqrt[3]], -3/2]
```

Rubi in Sympy [A] time = 3.98597, size = 24, normalized size = 1.

$$\sqrt{2}F\left(\operatorname{asin}\left(\frac{\sqrt{3}\sqrt{x+1}}{3}\right)\middle|-\frac{3}{2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(2-x)**(1/2)/(1+x)**(1/2)/(3+x)**(1/2),x)

[Out] sqrt(2)*elliptic_f(asin(sqrt(3)*sqrt(x + 1)/3), -3/2)
```

Mathematica [B] time = 0.112191, size = 67, normalized size = 2.79

$$-\frac{2(x+3)\sqrt{1-\frac{5}{x+3}}\sqrt{1-\frac{2}{x+3}}F\left(\sin^{-1}\left(\frac{\sqrt{5}}{\sqrt{x+3}}\right)|\frac{2}{5}\right)}{\sqrt{-5(x+3)^2+35(x+3)-50}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[2 - x]*Sqrt[1 + x]*Sqrt[3 + x]),x]

[Out] (-2*(3 + x)*Sqrt[1 - 5/(3 + x)]*Sqrt[1 - 2/(3 + x)]*EllipticF[Arc
Sin[Sqrt[5]/Sqrt[3 + x]], 2/5])/Sqrt[-50 + 35*(3 + x) - 5*(3 + x)
^2]
```

Maple [B] time = 0.099, size = 44, normalized size = 1.8

$$-\frac{\sqrt{3}}{3+3x}\mathit{EllipticF}\left(\frac{1}{2}\sqrt{-2-2x},\frac{i}{3}\sqrt{3}\sqrt{2}\right)\sqrt{-2-2x}\sqrt{2+2x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(2-x)^(1/2)/(1+x)^(1/2)/(3+x)^(1/2),x)
```

```
[Out] -1/3*EllipticF(1/2*(-2-2*x)^(1/2),1/3*I*3^(1/2)*2^(1/2))*3^(1/2)*
(-2-2*x)^(1/2)*(2+2*x)^(1/2)/(1+x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{x+3}\sqrt{x+1}\sqrt{-x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(x + 3)*sqrt(x + 1)*sqrt(-x + 2)),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(x + 3)*sqrt(x + 1)*sqrt(-x + 2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{\sqrt{x+3}\sqrt{x+1}\sqrt{-x+2}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(x + 3)*sqrt(x + 1)*sqrt(-x + 2)),x, algorithm="fricas")
```

```
[Out] integral(1/(sqrt(x + 3)*sqrt(x + 1)*sqrt(-x + 2)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{-x+2}\sqrt{x+1}\sqrt{x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(2-x)**(1/2)/(1+x)**(1/2)/(3+x)**(1/2),x)
```

```
[Out] Integral(1/(sqrt(-x + 2)*sqrt(x + 1)*sqrt(x + 3)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{x+3}\sqrt{x+1}\sqrt{-x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(x + 3)*sqrt(x + 1)*sqrt(-x + 2)),x, algorithm="giac")
```

```
[Out] integrate(1/(sqrt(x + 3)*sqrt(x + 1)*sqrt(-x + 2)), x)
```

3.2827 $\int \frac{1}{\sqrt{2-x}\sqrt{3-x}\sqrt{1+x}}\,dx$

Optimal. Leaf size=18

$$F\left(\sin^{-1}\left(\frac{\sqrt{x+1}}{\sqrt{3}}\right)|\frac{3}{4}\right)$$

```
[Out] EllipticF[ArcSin[Sqrt[1 + x]/Sqrt[3]], 3/4]
```

Rubi [A] time = 0.0404446, antiderivative size = 18, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.038

$$F\left(\sin^{-1}\left(\frac{\sqrt{x+1}}{\sqrt{3}}\right)|\frac{3}{4}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[2 - x]*Sqrt[3 - x]*Sqrt[1 + x]),x]
```

```
[Out] EllipticF[ArcSin[Sqrt[1 + x]/Sqrt[3]], 3/4]
```

Rubi in Sympy [A] time = 4.68758, size = 17, normalized size = 0.94

$$F\left(\operatorname{asin}\left(\frac{\sqrt{3}\sqrt{x+1}}{3}\right)\middle|\frac{3}{4}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(2-x)**(1/2)/(3-x)**(1/2)/(1+x)**(1/2),x)
```

```
[Out] elliptic_f(asin(sqrt(3)*sqrt(x + 1)/3), 3/4)
```

Mathematica [C] time = 0.11947, size = 65, normalized size = 3.61

$$-\frac{2i\sqrt{1-\frac{3}{2-x}}\sqrt{\frac{1}{2-x}+1}(2-x)F\left(i\sinh^{-1}\left(\frac{1}{\sqrt{2-x}}\right)\middle|-3\right)}{\sqrt{-(x-3)(x+1)}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[2 - x]*Sqrt[3 - x]*Sqrt[1 + x]),x]
```

```
[Out] ((-2*I)*Sqrt[1 - 3/(2 - x)]*Sqrt[1 + (2 - x)^(-1)]*(2 - x)*Ellipt
icF[I*ArcSinh[1/Sqrt[2 - x]], -3])/Sqrt[-((-3 + x)*(1 + x))]
```

Maple [A] time = 0.089, size = 19, normalized size = 1.1

$$\frac{2\sqrt{3}}{3}\mathit{EllipticF}\left(\frac{1}{2}\sqrt{1+x},\frac{2\sqrt{3}}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(2-x)^(1/2)/(3-x)^(1/2)/(1+x)^(1/2),x)
```

```
[Out] 2/3*3^(1/2)*EllipticF(1/2*(1+x)^(1/2),2/3*3^(1/2))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{x+1}\sqrt{-x+3}\sqrt{-x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(x + 1)*sqrt(-x + 3)*sqrt(-x + 2)),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(x + 1)*sqrt(-x + 3)*sqrt(-x + 2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{\sqrt{x+1}\sqrt{-x+3}\sqrt{-x+2}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(x + 1)*sqrt(-x + 3)*sqrt(-x + 2)),x, algorithm="fricas")
```

```
[Out] integral(1/(sqrt(x + 1)*sqrt(-x + 3)*sqrt(-x + 2)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{-x+2}\sqrt{-x+3}\sqrt{x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(2-x)**(1/2)/(3-x)**(1/2)/(1+x)**(1/2),x)
```

```
[Out] Integral(1/(sqrt(-x + 2)*sqrt(-x + 3)*sqrt(x + 1)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{x+1}\sqrt{-x+3}\sqrt{-x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(x + 1)*sqrt(-x + 3)*sqrt(-x + 2)),x, algorithm="giac")
```

```
[Out] integrate(1/(sqrt(x + 1)*sqrt(-x + 3)*sqrt(-x + 2)), x)
```

3.2828 $\int \frac{1}{\sqrt{1-x}\sqrt{2+x}\sqrt{3+x}}\,dx$

Optimal. Leaf size=18

$$2F\left(\sin^{-1}\left(\frac{\sqrt{x+2}}{\sqrt{3}}\right)\middle|-3\right)$$

```
[Out] 2*EllipticF[ArcSin[Sqrt[2 + x]/Sqrt[3]], -3]
```

Rubi [A] time = 0.0375513, antiderivative size = 18, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.042

$$2F\left(\sin^{-1}\left(\frac{\sqrt{x+2}}{\sqrt{3}}\right)\middle|-3\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 - x]*Sqrt[2 + x]*Sqrt[3 + x]),x]
```

```
[Out] 2*EllipticF[ArcSin[Sqrt[2 + x]/Sqrt[3]], -3]
```

Rubi in Sympy [A] time = 4.07538, size = 19, normalized size = 1.06

$$-F\left(\operatorname{asin}\left(\frac{\sqrt{3}\sqrt{-x+1}}{3}\right)\middle|\frac{3}{4}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-x)**(1/2)/(2+x)**(1/2)/(3+x)**(1/2),x)
```

```
[Out] -elliptic_f(asin(sqrt(3)*sqrt(-x + 1)/3), 3/4)
```

Mathematica [C] time = 0.151251, size = 78, normalized size = 4.33

$$-\frac{2i\sqrt{-(x-1)(x+2)}\sqrt{x+3}F\left(i\sinh^{-1}\left(\frac{\sqrt{3}}{\sqrt{x-1}}\right)|\frac{4}{3}\right)}{\sqrt{\frac{9}{x-1}+3}(x-1)^{3/2}\sqrt{\frac{x+3}{x-1}}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 - x]*Sqrt[2 + x]*Sqrt[3 + x]),x]
```

```
[Out] ((-2*I)*Sqrt[-((-1 + x)*(2 + x))]*Sqrt[3 + x]*EllipticF[I*ArcSinh
[Sqrt[3]/Sqrt[-1 + x]], 4/3])/(Sqrt[3 + 9/(-1 + x)]*(-1 + x)^(3/2
)*Sqrt[(3 + x)/(-1 + x)])
```

Maple [A] time = 0.093, size = 32, normalized size = 1.8

$$-\frac{2\sqrt{3}}{3}\sqrt{-2-x}\mathit{EllipticF}\left(\sqrt{-2-x},\frac{i}{3}\sqrt{3}\right)\frac{1}{\sqrt{2+x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-x)^(1/2)/(2+x)^(1/2)/(3+x)^(1/2),x)
```

```
[Out] -2/3/(2+x)^(1/2)*(-2-x)^(1/2)*3^(1/2)*EllipticF((-2-x)^(1/2),1/3*
I*3^(1/2))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{x+3}\sqrt{x+2}\sqrt{-x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(x + 3)*sqrt(x + 2)*sqrt(-x + 1)),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(x + 3)*sqrt(x + 2)*sqrt(-x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{\sqrt{x+3}\sqrt{x+2}\sqrt{-x+1}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(x + 3)*sqrt(x + 2)*sqrt(-x + 1)),x, algorithm="fricas")
```

```
[Out] integral(1/(sqrt(x + 3)*sqrt(x + 2)*sqrt(-x + 1)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{-x+1}\sqrt{x+2}\sqrt{x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-x)**(1/2)/(2+x)**(1/2)/(3+x)**(1/2),x)
```

```
[Out] Integral(1/(sqrt(-x + 1)*sqrt(x + 2)*sqrt(x + 3)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{x+3}\sqrt{x+2}\sqrt{-x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(x + 3)*sqrt(x + 2)*sqrt(-x + 1)),x, algorithm="giac")
```

```
[Out] integrate(1/(sqrt(x + 3)*sqrt(x + 2)*sqrt(-x + 1)), x)
```

3.2829 $\int \frac{1}{\sqrt{1-x}\sqrt{3-x}\sqrt{2+x}}\,dx$

Optimal. Leaf size=25

$$\frac{2F\left(\sin^{-1}\left(\frac{\sqrt{x+2}}{\sqrt{3}}\right)|\frac{3}{5}\right)}{\sqrt{5}}$$

```
[Out] (2*EllipticF[ArcSin[Sqrt[2 + x]/Sqrt[3]], 3/5])/Sqrt[5]
```

Rubi [A] time = 0.0431427, antiderivative size = 25, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.038

$$\frac{2F\left(\sin^{-1}\left(\frac{\sqrt{x+2}}{\sqrt{3}}\right)|\frac{3}{5}\right)}{\sqrt{5}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 - x]*Sqrt[3 - x]*Sqrt[2 + x]),x]
```

```
[Out] (2*EllipticF[ArcSin[Sqrt[2 + x]/Sqrt[3]], 3/5])/Sqrt[5]
```

Rubi in Sympy [A] time = 4.73332, size = 26, normalized size = 1.04

$$-\sqrt{2}F\left(\operatorname{asin}\left(\frac{\sqrt{3}\sqrt{-x+1}}{3}\right)\middle|-\frac{3}{2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-x)**(1/2)/(3-x)**(1/2)/(2+x)**(1/2),x)
```

```
[Out] -sqrt(2)*elliptic_f(asin(sqrt(3)*sqrt(-x + 1)/3), -3/2)
```

Mathematica [B] time = 0.0964608, size = 68, normalized size = 2.72

$$-\frac{2\sqrt{\frac{x-3}{x-1}}(x-1)\sqrt{\frac{x+2}{x-1}}F\left(\sin^{-1}\left(\frac{\sqrt{3}}{\sqrt{1-x}}\right)|-\frac{2}{3}\right)}{\sqrt{3}\sqrt{-x^2+x+6}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 - x]*Sqrt[3 - x]*Sqrt[2 + x]),x]
```

```
[Out] (-2*Sqrt[(-3 + x)/(-1 + x)]*(-1 + x)*Sqrt[(2 + x)/(-1 + x)]*Ellip
ticF[ArcSin[Sqrt[3]/Sqrt[1 - x]], -2/3])/(Sqrt[3]*Sqrt[6 + x - x^
2])
```

Maple [A] time = 0.118, size = 25, normalized size = 1.

$$\frac{2\sqrt{3}}{3}EllipticF\left(\frac{\sqrt{5}}{5}\sqrt{2+x},\frac{\sqrt{5}\sqrt{3}}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-x)^(1/2)/(3-x)^(1/2)/(2+x)^(1/2),x)
```

```
[Out] 2/3*EllipticF(1/5*5^(1/2)*(2+x)^(1/2),1/3*5^(1/2)*3^(1/2))*3^(1/2
)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{x+2}\sqrt{-x+3}\sqrt{-x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(x + 2)*sqrt(-x + 3)*sqrt(-x + 1)),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(x + 2)*sqrt(-x + 3)*sqrt(-x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{\sqrt{x+2}\sqrt{-x+3}\sqrt{-x+1}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(x + 2)*sqrt(-x + 3)*sqrt(-x + 1)),x, algorithm="fricas")
```

```
[Out] integral(1/(sqrt(x + 2)*sqrt(-x + 3)*sqrt(-x + 1)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{-x+1}\sqrt{-x+3}\sqrt{x+2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-x)**(1/2)/(3-x)**(1/2)/(2+x)**(1/2),x)
```

```
[Out] Integral(1/(sqrt(-x + 1)*sqrt(-x + 3)*sqrt(x + 2)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{x+2}\sqrt{-x+3}\sqrt{-x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(x + 2)*sqrt(-x + 3)*sqrt(-x + 1)),x, algorithm="giac")
```

```
[Out] integrate(1/(sqrt(x + 2)*sqrt(-x + 3)*sqrt(-x + 1)), x)
```

3.2830 $\int \frac{1}{\sqrt{1-x}\sqrt{2-x}\sqrt{3+x}}\,dx$

Optimal. Leaf size=23

$$\frac{2F\left(\sin^{-1}\left(\frac{\sqrt{x+3}}{2}\right)\middle|\frac{4}{5}\right)}{\sqrt{5}}$$

```
[Out] (2*EllipticF[ArcSin[Sqrt[3 + x]/2], 4/5])/Sqrt[5]
```

Rubi [A] time = 0.0415293, antiderivative size = 23, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.038

$$\frac{2F\left(\sin^{-1}\left(\frac{\sqrt{x+3}}{2}\right)\middle|\frac{4}{5}\right)}{\sqrt{5}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 - x]*Sqrt[2 - x]*Sqrt[3 + x]),x]

[Out] (2*EllipticF[ArcSin[Sqrt[3 + x]/2], 4/5])/Sqrt[5]
```

Rubi in Sympy [A] time = 4.76603, size = 15, normalized size = 0.65

$$-2F\left(\operatorname{asin}\left(\frac{\sqrt{-x+1}}{2}\right)\middle|-4\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-x)**(1/2)/(2-x)**(1/2)/(3+x)**(1/2),x)

[Out] -2*elliptic_f(asin(sqrt(-x + 1)/2), -4)
```

Mathematica [C] time = 0.115298, size = 65, normalized size = 2.83

$$-\frac{2i\sqrt{1-\frac{4}{1-x}}\sqrt{\frac{1}{1-x}+1}(1-x)F\left(i\sinh^{-1}\left(\frac{1}{\sqrt{1-x}}\right)\middle|-4\right)}{\sqrt{-(x-2)(x+3)}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 - x]*Sqrt[2 - x]*Sqrt[3 + x]),x]

[Out] ((-2*I)*Sqrt[1 - 4/(1 - x)]*Sqrt[1 + (1 - x)^(-1)]*(1 - x)*Ellipt
icF[I*ArcSinh[1/Sqrt[1 - x]], -4])/Sqrt[-((-2 + x)*(3 + x))]
```

Maple [A] time = 0.095, size = 17, normalized size = 0.7

$$EllipticF\left(\frac{\sqrt{5}}{5}\sqrt{3+x},\frac{\sqrt{5}}{2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-x)^(1/2)/(2-x)^(1/2)/(3+x)^(1/2),x)
```

```
[Out] EllipticF(1/5*5^(1/2)*(3+x)^(1/2),1/2*5^(1/2))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{x+3}\sqrt{-x+2}\sqrt{-x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(x + 3)*sqrt(-x + 2)*sqrt(-x + 1)),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(x + 3)*sqrt(-x + 2)*sqrt(-x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{\sqrt{x+3}\sqrt{-x+2}\sqrt{-x+1}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(x + 3)*sqrt(-x + 2)*sqrt(-x + 1)),x, algorithm="fricas")
```

```
[Out] integral(1/(sqrt(x + 3)*sqrt(-x + 2)*sqrt(-x + 1)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{-x+1}\sqrt{-x+2}\sqrt{x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-x)**(1/2)/(2-x)**(1/2)/(3+x)**(1/2),x)
```

```
[Out] Integral(1/(sqrt(-x + 1)*sqrt(-x + 2)*sqrt(x + 3)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{x+3}\sqrt{-x+2}\sqrt{-x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(x + 3)*sqrt(-x + 2)*sqrt(-x + 1)),x, algorithm="giac")
```

```
[Out] integrate(1/(sqrt(x + 3)*sqrt(-x + 2)*sqrt(-x + 1)), x)
```

3.2831 $\int \frac{1}{\sqrt{1-x}\sqrt{2-x}\sqrt{3-x}}\,dx$

Optimal. Leaf size=14

$$2F\left(\sin^{-1}\left(\frac{1}{\sqrt{3-x}}\right)\middle|2\right)$$

```
[Out] 2*EllipticF[ArcSin[1/Sqrt[3 - x]], 2]
```

Rubi [A] time = 0.043583, antiderivative size = 14, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.036$

$$2F\left(\sin^{-1}\left(\frac{1}{\sqrt{3-x}}\right)\middle|2\right)$$

Antiderivative was successfully verified.

```
[In] Int[1/(Sqrt[1 - x]*Sqrt[2 - x]*Sqrt[3 - x]),x]
```

```
[Out] 2*EllipticF[ArcSin[1/Sqrt[3 - x]], 2]
```

Rubi in Sympy [A] time = 6.7179, size = 19, normalized size = 1.36

$$\sqrt{2}iF\left(i\,\text{asinh}\left(\sqrt{-x+1}\right)\middle|\frac{1}{2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(1/(1-x)**(1/2)/(2-x)**(1/2)/(3-x)**(1/2),x)
```

```
[Out] sqrt(2)*I*elliptic_f(I*asinh(sqrt(-x + 1)), 1/2)
```

Mathematica [C] time = 0.0471969, size = 67, normalized size = 4.79

$$\frac{2i\sqrt{\frac{x-3}{x-1}}\sqrt{\frac{x-2}{x-1}}(x-1)F\left(i\sinh^{-1}\left(\frac{1}{\sqrt{1-x}}\right)\middle|2\right)}{\sqrt{2-x}\sqrt{3-x}}$$

Antiderivative was successfully verified.

```
[In] Integrate[1/(Sqrt[1 - x]*Sqrt[2 - x]*Sqrt[3 - x]),x]
```

```
[Out] ((2*I)*Sqrt[(-3 + x)/(-1 + x)]*Sqrt[(-2 + x)/(-1 + x)]*(-1 + x)*E
llipticF[I*ArcSinh[1/Sqrt[1 - x]], 2])/(Sqrt[2 - x]*Sqrt[3 - x])
```

Maple [B] time = 0.059, size = 55, normalized size = 3.9

$$-\frac{\sqrt{2}}{2\,x^2-6\,x+4}\mathit{EllipticF}\left(\sqrt{3-x},\frac{\sqrt{2}}{2}\right)\sqrt{-2+x}\sqrt{-2+2\,x}\sqrt{2-x}\sqrt{2-2\,x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(1/(1-x)^(1/2)/(2-x)^(1/2)/(3-x)^(1/2),x)
```

```
[Out] -1/2*EllipticF((3-x)^(1/2),1/2*2^(1/2))*(-2+x)^(1/2)*(-2+2*x)^(1/
2)*(2-x)^(1/2)*2^(1/2)*(2-2*x)^(1/2)/(x^2-3*x+2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{-x+3}\sqrt{-x+2}\sqrt{-x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(-x + 3)*sqrt(-x + 2)*sqrt(-x + 1)),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(-x + 3)*sqrt(-x + 2)*sqrt(-x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{\sqrt{-x+3}\sqrt{-x+2}\sqrt{-x+1}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(-x + 3)*sqrt(-x + 2)*sqrt(-x + 1)),x, algorithm="fricas")
```

```
[Out] integral(1/(sqrt(-x + 3)*sqrt(-x + 2)*sqrt(-x + 1)), x)
```

Sympy [A] time = 11.7028, size = 66, normalized size = 4.71

$$\frac{G_{6,6}^{5,3}\left(\begin{matrix} \frac{1}{2}, 1, 1 & \frac{3}{4}, \frac{3}{4}, \frac{5}{4} \\ \frac{1}{4}, \frac{1}{2}, \frac{3}{4}, 1, \frac{5}{4} & 0 \end{matrix} \middle| \frac{e^{-2i\pi}}{(x-2)^2}\right)}{4\pi^{\frac{3}{2}}} - \frac{G_{6,6}^{3,5}\left(\begin{matrix} -\frac{1}{4}, 0, \frac{1}{4}, \frac{1}{2}, \frac{3}{4} & 1 \\ 0, \frac{1}{2}, 0 & -\frac{1}{4}, \frac{1}{4}, \frac{1}{4} \end{matrix} \middle| \frac{1}{(x-2)^2}\right)}{4\pi^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-x)**(1/2)/(2-x)**(1/2)/(3-x)**(1/2),x)
```

```
[Out] meijerg(((1/2, 1, 1), (3/4, 3/4, 5/4)), ((1/4, 1/2, 3/4, 1, 5/4),
 (0,)), exp_polar(-2*I*pi)/(x - 2)**2)/(4*pi**(3/2)) - meijerg(((
-1/4, 0, 1/4, 1/2, 3/4), (1,)), ((0, 1/2, 0), (-1/4, 1/4, 1/4)),
(x - 2)**(-2))/(4*pi**(3/2))
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{-x+3}\sqrt{-x+2}\sqrt{-x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(-x + 3)*sqrt(-x + 2)*sqrt(-x + 1)),x, algorithm="giac")
```

```
[Out] integrate(1/(sqrt(-x + 3)*sqrt(-x + 2)*sqrt(-x + 1)), x)
```

3.2832 $\int \frac{1}{\sqrt{-3+x}\sqrt{-2+x}\sqrt{-1+x}}\,dx$

Optimal. Leaf size=12

$$-2F\left(\sin^{-1}\left(\frac{1}{\sqrt{x-1}}\right)\middle|2\right)$$

```
[Out] -2*EllipticF[ArcSin[1/Sqrt[-1 + x]], 2]
```

Rubi [A] time = 0.0318751, antiderivative size = 12, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.045

$$-2F\left(\sin^{-1}\left(\frac{1}{\sqrt{x-1}}\right)\middle|2\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[-3 + x]*Sqrt[-2 + x]*Sqrt[-1 + x]),x]
```

```
[Out] -2*EllipticF[ArcSin[1/Sqrt[-1 + x]], 2]
```

Rubi in Sympy [A] time = 7.54925, size = 53, normalized size = 4.42

$$\frac{2\sqrt{2}\sqrt{-x+2}\sqrt{-\frac{x}{2}+\frac{3}{2}}F\left(\operatorname{asin}\left(\frac{\sqrt{2}\sqrt{x-1}}{2}\right)\middle|2\right)}{\sqrt{x-3}\sqrt{x-2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(-3+x)**(1/2)/(-2+x)**(1/2)/(-1+x)**(1/2),x)
```

```
[Out] 2*sqrt(2)*sqrt(-x + 2)*sqrt(-x/2 + 3/2)*elliptic_f(asin(sqrt(2)*s
qrt(x - 1)/2), 2)/(sqrt(x - 3)*sqrt(x - 2))
```

Mathematica [C] time = 0.0460203, size = 59, normalized size = 4.92

$$\frac{2i\sqrt{\frac{1}{x-3}+1}\sqrt{\frac{2}{x-3}+1}(x-3)F\left(i\sinh^{-1}\left(\frac{1}{\sqrt{x-3}}\right)\middle|2\right)}{\sqrt{x-2}\sqrt{x-1}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[-3 + x]*Sqrt[-2 + x]*Sqrt[-1 + x]),x]
```

```
[Out] ((2*I)*Sqrt[1 + (-3 + x)^(-1)]*Sqrt[1 + 2/(-3 + x)]*(-3 + x)*Elli
pticF[I*ArcSinh[1/Sqrt[-3 + x]], 2])/(Sqrt[-2 + x]*Sqrt[-1 + x])
```

Maple [B] time = 0.053, size = 30, normalized size = 2.5

$$\sqrt{2}\sqrt{-3+x}\,EllipticF\left(\sqrt{3-x},\frac{\sqrt{2}}{2}\right)\frac{1}{\sqrt{3-x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(-3+x)^(1/2)/(-2+x)^(1/2)/(-1+x)^(1/2),x)
```

```
[Out] 1/(3-x)^(1/2)*(-3+x)^(1/2)*2^(1/2)*EllipticF((3-x)^(1/2),1/2*2^(1
/2))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{x-1}\sqrt{x-2}\sqrt{x-3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(x - 1)*sqrt(x - 2)*sqrt(x - 3)),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(x - 1)*sqrt(x - 2)*sqrt(x - 3)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{1}{\sqrt{x-1}\sqrt{x-2}\sqrt{x-3}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(x - 1)*sqrt(x - 2)*sqrt(x - 3)),x, algorithm="fricas")
```

```
[Out] integral(1/(sqrt(x - 1)*sqrt(x - 2)*sqrt(x - 3)), x)
```

Sympy [A] time = 11.7461, size = 65, normalized size = 5.42

$$-\frac{G_{6,6}^{5,3}\left(\begin{matrix} \frac{1}{2}, 1, 1 & \frac{3}{4}, \frac{3}{4}, \frac{5}{4} \\ \frac{1}{4}, \frac{1}{2}, \frac{3}{4}, 1, \frac{5}{4} & 0 \end{matrix} \middle| {\frac{1}{(x-2)^{2}}} \right)}{4\pi^{\frac{3}{2}}} + \frac{G_{6,6}^{3,5}\left(\begin{matrix} -\frac{1}{4}, 0, \frac{1}{4}, \frac{1}{2}, \frac{3}{4} & 1 \\ 0, \frac{1}{2}, 0 & -\frac{1}{4}, \frac{1}{4}, \frac{1}{4} \end{matrix} \middle| {\frac{e^{2i\pi}}{(x-2)^{2}}} \right)}{4\pi^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(-3+x)**(1/2)/(-2+x)**(1/2)/(-1+x)**(1/2),x)
```

```
[Out] -meijerg(((1/2, 1, 1), (3/4, 3/4, 5/4)), ((1/4, 1/2, 3/4, 1, 5/4)
, (0,)), (x - 2)**(-2))/(4*pi**(3/2)) + meijerg(((-1/4, 0, 1/4, 1
/2, 3/4), (1,)), ((0, 1/2, 0), (-1/4, 1/4, 1/4)), exp_polar(2*I*p
i)/(x - 2)**2)/(4*pi**(3/2))
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{x-1}\sqrt{x-2}\sqrt{x-3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(x - 1)*sqrt(x - 2)*sqrt(x - 3)),x, algorithm="giac")
```

```
[Out] integrate(1/(sqrt(x - 1)*sqrt(x - 2)*sqrt(x - 3)), x)
```

3.2833 $\int \frac{1}{\sqrt{-3-x}\sqrt{-2+x}\sqrt{-1+x}}\,dx$

Optimal. Leaf size=57

$$-\frac{\sqrt{x+3}F\left(\sin^{-1}\left(\frac{2}{\sqrt{x+3}}\right)|\frac{5}{4}\right)}{\sqrt{-x-3}}-\frac{iK\left(-\frac{1}{4}\right)\sqrt{x+3}}{\sqrt{-x-3}}$$

```
[Out] -((Sqrt[3 + x]*EllipticF[ArcSin[2/Sqrt[3 + x]], 5/4])/Sqrt[-3 - x
]) - (I*Sqrt[3 + x]*EllipticK[-1/4])/Sqrt[-3 - x]
```

Rubi [A] time = 0.0717495, antiderivative size = 36, normalized size of antiderivative = 0.63, number of steps used = 2, number of rules used = 2, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.083$

$$-\frac{\sqrt{x+3}F\left(\sin^{-1}\left(\frac{1}{\sqrt{\frac{x}{4}+\frac{3}{4}}}\right)|\frac{5}{4}\right)}{\sqrt{-x-3}}$$

Warning: Unable to verify antiderivative.

```
[In]  Int[1/(Sqrt[-3 - x]*Sqrt[-2 + x]*Sqrt[-1 + x]),x]
```

```
[Out] -((Sqrt[3 + x]*EllipticF[ArcSin[1/Sqrt[3/4 + x/4]], 5/4])/Sqrt[-3
 - x])
```

Rubi in Sympy [A] time = 8.15629, size = 46, normalized size = 0.81

$$\frac{2\sqrt{-x+2}\sqrt{\frac{x}{4}+\frac{3}{4}}F\left(\operatorname{asin}\left(\sqrt{x-1}\right)\middle|-\frac{1}{4}\right)}{\sqrt{-x-3}\sqrt{x-2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(-3-x)**(1/2)/(-2+x)**(1/2)/(-1+x)**(1/2),x)
```

```
[Out] 2*sqrt(-x + 2)*sqrt(x/4 + 3/4)*elliptic_f(asin(sqrt(x - 1)), -1/4
)/(sqrt(-x - 3)*sqrt(x - 2))
```

Mathematica [A] time = 0.136148, size = 63, normalized size = 1.11

$$\frac{i\sqrt{\frac{x-2}{x-1}}\sqrt{\frac{x-1}{x+3}}F\left(i\sinh^{-1}\left(\frac{2}{\sqrt{-x-3}}\right)|\frac{5}{4}\right)}{\sqrt{\frac{x-2}{x+3}}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[-3 - x]*Sqrt[-2 + x]*Sqrt[-1 + x]),x]
```

```
[Out] (I*Sqrt[(-2 + x)/(-1 + x)]*Sqrt[(-1 + x)/(3 + x)]*EllipticF[I*Arc
Sinh[2/Sqrt[-3 - x]], 5/4])/Sqrt[(-2 + x)/(3 + x)]
```

Maple [A] time = 0.059, size = 66, normalized size = 1.2

$$\frac{1}{-x^3+7x-6}\sqrt{-3-x}\sqrt{-2+x}\sqrt{-1+x}\sqrt{3+x}\sqrt{1-x}\sqrt{2-x}\,EllipticF\left(\frac{\sqrt{5}}{5}\sqrt{3+x},\frac{\sqrt{5}}{2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(-3-x)^(1/2)/(-2+x)^(1/2)/(-1+x)^(1/2),x)
```

```
[Out] 1/(-x^3+7*x-6)*(-3-x)^(1/2)*(-2+x)^(1/2)*(-1+x)^(1/2)*(3+x)^(1/2)
*(1-x)^(1/2)*(2-x)^(1/2)*EllipticF(1/5*5^(1/2)*(3+x)^(1/2),1/2*5^
(1/2))
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{x-1}\sqrt{x-2}\sqrt{-x-3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(x - 1)*sqrt(x - 2)*sqrt(-x - 3)),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(x - 1)*sqrt(x - 2)*sqrt(-x - 3)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{\sqrt{x-1}\sqrt{x-2}\sqrt{-x-3}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(x - 1)*sqrt(x - 2)*sqrt(-x - 3)),x, algorithm="fricas")
```

```
[Out] integral(1/(sqrt(x - 1)*sqrt(x - 2)*sqrt(-x - 3)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{-x-3}\sqrt{x-2}\sqrt{x-1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(-3-x)**(1/2)/(-2+x)**(1/2)/(-1+x)**(1/2),x)
```

```
[Out] Integral(1/(sqrt(-x - 3)*sqrt(x - 2)*sqrt(x - 1)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{x-1}\sqrt{x-2}\sqrt{-x-3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(x - 1)*sqrt(x - 2)*sqrt(-x - 3)),x, algorithm="giac")
```

```
[Out] integrate(1/(sqrt(x - 1)*sqrt(x - 2)*sqrt(-x - 3)), x)
```

3.2834 $\int \frac{1}{\sqrt{-2-x}\sqrt{-3+x}\sqrt{-1+x}}\,dx$

Optimal. Leaf size=41

$$-\frac{2\sqrt{x+2}F\left(\sin^{-1}\left(\frac{1}{\sqrt{\frac{x}{3}+\frac{2}{3}}}\right)|\frac{5}{3}\right)}{\sqrt{3}\sqrt{-x-2}}$$

```
[Out] (-2*Sqrt[2 + x]*EllipticF[ArcSin[1/Sqrt[2/3 + x/3]], 5/3])/(Sqrt[
3]*Sqrt[-2 - x])
```

Rubi [A] time = 0.0721526, antiderivative size = 41, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.083

$$-\frac{2\sqrt{x+2}F\left(\sin^{-1}\left(\frac{1}{\sqrt{\frac{x}{3}+\frac{2}{3}}}\right)|\frac{5}{3}\right)}{\sqrt{3}\sqrt{-x-2}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[-2 - x]*Sqrt[-3 + x]*Sqrt[-1 + x]),x]
```

```
[Out] (-2*Sqrt[2 + x]*EllipticF[ArcSin[1/Sqrt[2/3 + x/3]], 5/3])/(Sqrt[
3]*Sqrt[-2 - x])
```

Rubi in Sympy [A] time = 8.02323, size = 61, normalized size = 1.49

$$\frac{2\sqrt{2}\sqrt{-\frac{x}{2}+\frac{3}{2}}\sqrt{\frac{x}{3}+\frac{2}{3}}F\left(\text{asin}\left(\frac{\sqrt{2}\sqrt{x-1}}{2}\right)\middle|-\frac{2}{3}\right)}{\sqrt{-x-2}\sqrt{x-3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(-2-x)**(1/2)/(-3+x)**(1/2)/(-1+x)**(1/2),x)
```

```
[Out] 2*sqrt(2)*sqrt(-x/2 + 3/2)*sqrt(x/3 + 2/3)*elliptic_f(asin(sqrt(2
)*sqrt(x - 1)/2), -2/3)/(sqrt(-x - 2)*sqrt(x - 3))
```

Mathematica [C] time = 0.149831, size = 72, normalized size = 1.76

$$\frac{2i\sqrt{\frac{x-3}{x-1}}\sqrt{\frac{x-1}{x+2}}F\left(i\sinh^{-1}\left(\frac{\sqrt{3}}{\sqrt{-x-2}}\right)|\frac{5}{3}\right)}{\sqrt{3}\sqrt{\frac{x-3}{x+2}}}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[1/(Sqrt[-2 - x]*Sqrt[-3 + x]*Sqrt[-1 + x]),x]
```

```
[Out] ((2*I)*Sqrt[(-3 + x)/(-1 + x)]*Sqrt[(-1 + x)/(2 + x)]*EllipticF[I
*ArcSinh[Sqrt[3]/Sqrt[-2 - x]], 5/3])/(Sqrt[3]*Sqrt[(-3 + x)/(2 +
 x)])
```

Maple [B] time = 0.059, size = 76, normalized size = 1.9

$$-\frac{2\sqrt{3}}{3x^3-6x^2-15x+18}\sqrt{-2-x}\sqrt{-3+x}\sqrt{-1+x}\sqrt{2+x}\sqrt{1-x}\sqrt{3-x}EllipticF\left(\frac{\sqrt{5}}{5}\sqrt{2+x},\frac{\sqrt{5}\sqrt{3}}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(-2-x)^(1/2)/(-3+x)^(1/2)/(-1+x)^(1/2),x)
```

```
[Out] -2/3*(-2-x)^(1/2)*(-3+x)^(1/2)*(-1+x)^(1/2)*(2+x)^(1/2)*3^(1/2)*(
1-x)^(1/2)*(3-x)^(1/2)*EllipticF(1/5*5^(1/2)*(2+x)^(1/2),1/3*5^(1
/2)*3^(1/2))/(x^3-2*x^2-5*x+6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{1}{\sqrt{x-1}\sqrt{x-3}\sqrt{-x-2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(x - 1)*sqrt(x - 3)*sqrt(-x - 2)),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(x - 1)*sqrt(x - 3)*sqrt(-x - 2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{1}{\sqrt{x-1}\sqrt{x-3}\sqrt{-x-2}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(x - 1)*sqrt(x - 3)*sqrt(-x - 2)),x, algorithm="fricas")
```

```
[Out] integral(1/(sqrt(x - 1)*sqrt(x - 3)*sqrt(-x - 2)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{1}{\sqrt{-x-2}\sqrt{x-3}\sqrt{x-1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(-2-x)**(1/2)/(-3+x)**(1/2)/(-1+x)**(1/2),x)
```

```
[Out] Integral(1/(sqrt(-x - 2)*sqrt(x - 3)*sqrt(x - 1)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{1}{\sqrt{x-1}\sqrt{x-3}\sqrt{-x-2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(x - 1)*sqrt(x - 3)*sqrt(-x - 2)),x, algorithm="giac")
```

```
[Out] integrate(1/(sqrt(x - 1)*sqrt(x - 3)*sqrt(-x - 2)), x)
```

3.2835 $\int \frac{1}{\sqrt{-3-x}\sqrt{-2-x}\sqrt{-1+x}}\,dx$

Optimal. Leaf size=92

$$-\frac{2iK(4)\sqrt{x+2}}{\sqrt{-x-2}}+\frac{K\left(\frac{3}{4}\right)\sqrt{x+3}}{\sqrt{-x-3}}-\frac{\sqrt{x+2}\sqrt{x+3}F\left(\sin^{-1}\left(\frac{2}{\sqrt{x+3}}\right)|\frac{1}{4}\right)}{\sqrt{-x-3}\sqrt{-x-2}}$$

```
[Out] -((Sqrt[2 + x]*Sqrt[3 + x]*EllipticF[ArcSin[2/Sqrt[3 + x]], 1/4])
/(Sqrt[-3 - x]*Sqrt[-2 - x])) + (Sqrt[3 + x]*EllipticK[3/4])/Sqrt
[-3 - x] - ((2*I)*Sqrt[2 + x]*EllipticK[4])/Sqrt[-2 - x]
```

Rubi [A] time = 0.114573, antiderivative size = 52, normalized size of antiderivative = 0.57, number of steps used = 3, number of rules used = 2, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.077

$$-\frac{\sqrt{x+2}\sqrt{x+3}F\left(\sin^{-1}\left(\frac{1}{\sqrt{\frac{x}{4}+\frac{3}{4}}}\right)|\frac{1}{4}\right)}{\sqrt{-x-3}\sqrt{-x-2}}$$

Warning: Unable to verify antiderivative.

```
[In]  Int[1/(Sqrt[-3 - x]*Sqrt[-2 - x]*Sqrt[-1 + x]),x]
```

```
[Out] -((Sqrt[2 + x]*Sqrt[3 + x]*EllipticF[ArcSin[1/Sqrt[3/4 + x/4]], 1
/4])/(Sqrt[-3 - x]*Sqrt[-2 - x]))
```

Rubi in Sympy [A] time = 9.38881, size = 56, normalized size = 0.61

$$-\frac{4i\sqrt{\frac{x}{4}+\frac{3}{4}}\sqrt{\frac{x}{3}+\frac{2}{3}}F\left(i\,\mathrm{asinh}\left(\frac{\sqrt{x-1}}{2}\right)\middle|\frac{4}{3}\right)}{\sqrt{-x-3}\sqrt{-x-2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(-3-x)**(1/2)/(-2-x)**(1/2)/(-1+x)**(1/2),x)
```

```
[Out] -4*I*sqrt(x/4 + 3/4)*sqrt(x/3 + 2/3)*elliptic_f(I*asinh(sqrt(x -
1)/2), 4/3)/(sqrt(-x - 3)*sqrt(-x - 2))
```

Mathematica [A] time = 0.121416, size = 75, normalized size = 0.82

$$\frac{2i\sqrt{\frac{3}{x-1}+1}\sqrt{\frac{4}{x-1}+1}(x-1)F\left(i\sinh^{-1}\left(\frac{\sqrt{3}}{\sqrt{x-1}}\right)|\frac{4}{3}\right)}{\sqrt{-3(x-1)-12}\sqrt{-x-2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[-3 - x]*Sqrt[-2 - x]*Sqrt[-1 + x]),x]
```

```
[Out] ((2*I)*Sqrt[1 + 3/(-1 + x)]*Sqrt[1 + 4/(-1 + x)]*(-1 + x)*Ellipti
cF[I*ArcSinh[Sqrt[3]/Sqrt[-1 + x]], 4/3])/(Sqrt[-12 - 3*(-1 + x)]
*Sqrt[-2 - x])
```

Maple [A] time = 0.053, size = 54, normalized size = 0.6

$$\frac{2\sqrt{3}}{3x^2+6x-9}\mathit{EllipticF}\left(\sqrt{-2-x},\frac{i}{3}\sqrt{3}\right)\sqrt{3+x}\sqrt{1-x}\sqrt{-1+x}\sqrt{-3-x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(-3-x)^(1/2)/(-2-x)^(1/2)/(-1+x)^(1/2),x)
```

```
[Out] 2/3*EllipticF((-2-x)^(1/2),1/3*I*3^(1/2))*(3+x)^(1/2)*3^(1/2)*(1-
x)^(1/2)*(-1+x)^(1/2)*(-3-x)^(1/2)/(x^2+2*x-3)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{1}{\sqrt{x-1}\sqrt{-x-2}\sqrt{-x-3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(x - 1)*sqrt(-x - 2)*sqrt(-x - 3)),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(x - 1)*sqrt(-x - 2)*sqrt(-x - 3)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{1}{\sqrt{x-1}\sqrt{-x-2}\sqrt{-x-3}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(x - 1)*sqrt(-x - 2)*sqrt(-x - 3)),x, algorithm="fricas")
```

```
[Out] integral(1/(sqrt(x - 1)*sqrt(-x - 2)*sqrt(-x - 3)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{1}{\sqrt{-x-3}\sqrt{-x-2}\sqrt{x-1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(-3-x)**(1/2)/(-2-x)**(1/2)/(-1+x)**(1/2),x)
```

```
[Out] Integral(1/(sqrt(-x - 3)*sqrt(-x - 2)*sqrt(x - 1)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{1}{\sqrt{x-1}\sqrt{-x-2}\sqrt{-x-3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(x - 1)*sqrt(-x - 2)*sqrt(-x - 3)),x, algorithm="giac")
```

```
[Out] integrate(1/(sqrt(x - 1)*sqrt(-x - 2)*sqrt(-x - 3)), x)
```

3.2836 $\int \frac{1}{\sqrt{-1-x}\sqrt{-3+x}\sqrt{-2+x}}\,dx$

Optimal. Leaf size=41

$$-\frac{2\sqrt{x+1}F\left(\sin^{-1}\left(\frac{1}{\sqrt{\frac{x}{3}+\frac{1}{3}}}\right)|\frac{4}{3}\right)}{\sqrt{3}\sqrt{-x-1}}$$

```
[Out] (-2*Sqrt[1 + x]*EllipticF[ArcSin[1/Sqrt[1/3 + x/3]], 4/3])/(Sqrt[
3]*Sqrt[-1 - x])
```

Rubi [A] time = 0.0739897, antiderivative size = 41, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.083

$$-\frac{2\sqrt{x+1}F\left(\sin^{-1}\left(\frac{1}{\sqrt{\frac{x}{3}+\frac{1}{3}}}\right)|\frac{4}{3}\right)}{\sqrt{3}\sqrt{-x-1}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[-1 - x]*Sqrt[-3 + x]*Sqrt[-2 + x]),x]
```

```
[Out] (-2*Sqrt[1 + x]*EllipticF[ArcSin[1/Sqrt[1/3 + x/3]], 4/3])/(Sqrt[
3]*Sqrt[-1 - x])
```

Rubi in Sympy [A] time = 8.63633, size = 53, normalized size = 1.29

$$\frac{4i\sqrt{-\frac{x}{3}+\frac{2}{3}}\sqrt{-\frac{x}{4}+\frac{3}{4}}F\left(i\operatorname{asinh}\left(\frac{\sqrt{-x-1}}{2}\right)\middle|\frac{4}{3}\right)}{\sqrt{x-3}\sqrt{x-2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(-1-x)**(1/2)/(-3+x)**(1/2)/(-2+x)**(1/2),x)
```

```
[Out] 4*I*sqrt(-x/3 + 2/3)*sqrt(-x/4 + 3/4)*elliptic_f(I*asinh(sqrt(-x
- 1)/2), 4/3)/(sqrt(x - 3)*sqrt(x - 2))
```

Mathematica [C] time = 0.0800732, size = 72, normalized size = 1.76

$$\frac{2i\sqrt{\frac{x-3}{x-2}}\sqrt{\frac{x-2}{x+1}}F\left(i\sinh^{-1}\left(\frac{\sqrt{3}}{\sqrt{-x-1}}\right)|\frac{4}{3}\right)}{\sqrt{3}\sqrt{\frac{x-3}{x+1}}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[-1 - x]*Sqrt[-3 + x]*Sqrt[-2 + x]),x]
```

```
[Out] ((2*I)*Sqrt[(-3 + x)/(-2 + x)]*Sqrt[(-2 + x)/(1 + x)]*EllipticF[I
*ArcSinh[Sqrt[3]/Sqrt[-1 - x]], 4/3])/(Sqrt[3]*Sqrt[(-3 + x)/(1 +
 x)])
```

Maple [B] time = 0.059, size = 68, normalized size = 1.7

$$-\frac{2\sqrt{3}}{3x^{3}-12x^{2}+3x+18}\sqrt{-1-x}\sqrt{-3+x}\sqrt{-2+x}\sqrt{1+x}\sqrt{2-x}\sqrt{3-x}\,EllipticF\left(\frac{1}{2}\sqrt{1+x},\frac{2\sqrt{3}}{3}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(-1-x)^(1/2)/(-3+x)^(1/2)/(-2+x)^(1/2),x)
```

```
[Out] -2/3*(-1-x)^(1/2)*(-3+x)^(1/2)*(-2+x)^(1/2)*(1+x)^(1/2)*3^(1/2)*(
2-x)^(1/2)*(3-x)^(1/2)*EllipticF(1/2*(1+x)^(1/2),2/3*3^(1/2))/(x^
3-4*x^2+x+6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{x-2}\sqrt{x-3}\sqrt{-x-1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(x - 2)*sqrt(x - 3)*sqrt(-x - 1)),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(x - 2)*sqrt(x - 3)*sqrt(-x - 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{\sqrt{x-2}\sqrt{x-3}\sqrt{-x-1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(x - 2)*sqrt(x - 3)*sqrt(-x - 1)),x, algorithm="fricas")
```

```
[Out] integral(1/(sqrt(x - 2)*sqrt(x - 3)*sqrt(-x - 1)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{-x-1}\sqrt{x-3}\sqrt{x-2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(-1-x)**(1/2)/(-3+x)**(1/2)/(-2+x)**(1/2),x)
```

```
[Out] Integral(1/(sqrt(-x - 1)*sqrt(x - 3)*sqrt(x - 2)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{x-2}\sqrt{x-3}\sqrt{-x-1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(x - 2)*sqrt(x - 3)*sqrt(-x - 1)),x, algorithm="giac")
```

```
[Out] integrate(1/(sqrt(x - 2)*sqrt(x - 3)*sqrt(-x - 1)), x)
```

3.2837 $\int \frac{1}{\sqrt{-3-x}\sqrt{-1-x}\sqrt{-2+x}}\,dx$

Optimal. Leaf size=57

$$-\frac{2\sqrt{x+1}\sqrt{x+3}F\left(\sin^{-1}\left(\frac{1}{\sqrt{\frac{x}{5}+\frac{3}{5}}}\right)|\frac{2}{5}\right)}{\sqrt{5}\sqrt{-x-3}\sqrt{-x-1}}$$

```
[Out] (-2*Sqrt[1 + x]*Sqrt[3 + x]*EllipticF[ArcSin[1/Sqrt[3/5 + x/5]],
2/5])/(Sqrt[5]*Sqrt[-3 - x]*Sqrt[-1 - x])
```

Rubi [A] time = 0.118975, antiderivative size = 57, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 2, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.077$

$$-\frac{2\sqrt{x+1}\sqrt{x+3}F\left(\sin^{-1}\left(\frac{1}{\sqrt{\frac{x}{5}+\frac{3}{5}}}\right)|\frac{2}{5}\right)}{\sqrt{5}\sqrt{-x-3}\sqrt{-x-1}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[-3 - x]*Sqrt[-1 - x]*Sqrt[-2 + x]),x]
```

```
[Out] (-2*Sqrt[1 + x]*Sqrt[3 + x]*EllipticF[ArcSin[1/Sqrt[3/5 + x/5]],
2/5])/(Sqrt[5]*Sqrt[-3 - x]*Sqrt[-1 - x])
```

Rubi in Sympy [A] time = 9.63543, size = 65, normalized size = 1.14

$$-\frac{2\sqrt{2}\sqrt{-\frac{x}{3}+\frac{2}{3}}\sqrt{\frac{x}{2}+\frac{3}{2}}F\left(\operatorname{asin}\left(\frac{\sqrt{2}\sqrt{-x-1}}{2}\right)\middle|-\frac{2}{3}\right)}{\sqrt{-x-3}\sqrt{x-2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(-3-x)**(1/2)/(-1-x)**(1/2)/(-2+x)**(1/2),x)
```

```
[Out] -2*sqrt(2)*sqrt(-x/3 + 2/3)*sqrt(x/2 + 3/2)*elliptic_f(asin(sqrt(
2)*sqrt(-x - 1)/2), -2/3)/(sqrt(-x - 3)*sqrt(x - 2))
```

Mathematica [C] time = 0.0534599, size = 75, normalized size = 1.32

$$\frac{2i\sqrt{\frac{3}{x-2}+1}\sqrt{\frac{5}{x-2}+1}(x-2)F\left(i\sinh^{-1}\left(\frac{\sqrt{3}}{\sqrt{x-2}}\right)|\frac{5}{3}\right)}{\sqrt{-3(x-2)-15}\sqrt{-x-1}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[-3 - x]*Sqrt[-1 - x]*Sqrt[-2 + x]),x]
```

```
[Out] ((2*I)*Sqrt[1 + 3/(-2 + x)]*Sqrt[1 + 5/(-2 + x)]*(-2 + x)*Ellipti
cF[I*ArcSinh[Sqrt[3]/Sqrt[-2 + x]], 5/3])/(Sqrt[-15 - 3*(-2 + x)]
*Sqrt[-1 - x])
```

Maple [C] time = 0.054, size = 57, normalized size = 1.

$$\frac{2\sqrt{3}}{3x^2+3x-18}\mathit{EllipticF}\left(\frac{1}{2}\sqrt{-2-2x},\frac{i}{3}\sqrt{3}\sqrt{2}\right)\sqrt{3+x}\sqrt{2-x}\sqrt{-2+x}\sqrt{-3-x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(-3-x)^(1/2)/(-1-x)^(1/2)/(-2+x)^(1/2),x)
```

```
[Out] 2/3*EllipticF(1/2*(-2-2*x)^(1/2),1/3*I*3^(1/2)*2^(1/2))*(3+x)^(1/
2)*(2-x)^(1/2)*3^(1/2)*(-2+x)^(1/2)*(-3-x)^(1/2)/(x^2+x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{x-2}\sqrt{-x-1}\sqrt{-x-3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(x - 2)*sqrt(-x - 1)*sqrt(-x - 3)),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(x - 2)*sqrt(-x - 1)*sqrt(-x - 3)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{\sqrt{x-2}\sqrt{-x-1}\sqrt{-x-3}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(x - 2)*sqrt(-x - 1)*sqrt(-x - 3)),x, algorithm="fricas")
```

```
[Out] integral(1/(sqrt(x - 2)*sqrt(-x - 1)*sqrt(-x - 3)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{-x-3}\sqrt{-x-1}\sqrt{x-2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(-3-x)**(1/2)/(-1-x)**(1/2)/(-2+x)**(1/2),x)
```

```
[Out] Integral(1/(sqrt(-x - 3)*sqrt(-x - 1)*sqrt(x - 2)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{x-2}\sqrt{-x-1}\sqrt{-x-3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(x - 2)*sqrt(-x - 1)*sqrt(-x - 3)),x, algorithm="giac")
```

```
[Out] integrate(1/(sqrt(x - 2)*sqrt(-x - 1)*sqrt(-x - 3)), x)
```

3.2838 $\int \frac{1}{\sqrt{-2-x}\sqrt{-1-x}\sqrt{-3+x}}\,dx$

Optimal. Leaf size=57

$$-\frac{2\sqrt{x+1}\sqrt{x+2}F\left(\sin^{-1}\left(\frac{1}{\sqrt{\frac{x}{5}+\frac{2}{5}}}\right)|\frac{1}{5}\right)}{\sqrt{5}\sqrt{-x-2}\sqrt{-x-1}}$$

```
[Out] (-2*Sqrt[1 + x]*Sqrt[2 + x]*EllipticF[ArcSin[1/Sqrt[2/5 + x/5]],
1/5])/(Sqrt[5]*Sqrt[-2 - x]*Sqrt[-1 - x])
```

Rubi [A] time = 0.12141, antiderivative size = 57, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 2, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.077$

$$-\frac{2\sqrt{x+1}\sqrt{x+2}F\left(\sin^{-1}\left(\frac{1}{\sqrt{\frac{x}{5}+\frac{2}{5}}}\right)|\frac{1}{5}\right)}{\sqrt{5}\sqrt{-x-2}\sqrt{-x-1}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[-2 - x]*Sqrt[-1 - x]*Sqrt[-3 + x]),x]
```

```
[Out] (-2*Sqrt[1 + x]*Sqrt[2 + x]*EllipticF[ArcSin[1/Sqrt[2/5 + x/5]],
1/5])/(Sqrt[5]*Sqrt[-2 - x]*Sqrt[-1 - x])
```

Rubi in Sympy [A] time = 9.04088, size = 49, normalized size = 0.86

$$-\frac{2\sqrt{-\frac{x}{4}+\frac{3}{4}}\sqrt{x+2}F\left(\operatorname{asin}\left(\sqrt{-x-1}\right)\middle|-\frac{1}{4}\right)}{\sqrt{-x-2}\sqrt{x-3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(-2-x)**(1/2)/(-1-x)**(1/2)/(-3+x)**(1/2),x)
```

```
[Out] -2*sqrt(-x/4 + 3/4)*sqrt(x + 2)*elliptic_f(asin(sqrt(-x - 1)), -1
/4)/(sqrt(-x - 2)*sqrt(x - 3))
```

Mathematica [C] time = 0.0568539, size = 69, normalized size = 1.21

$$\frac{i\sqrt{\frac{4}{x-3}+1}\sqrt{\frac{5}{x-3}+1}(x-3)F\left(i\sinh^{-1}\left(\frac{2}{\sqrt{x-3}}\right)|\frac{5}{4}\right)}{\sqrt{-x-2}\sqrt{-x-1}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[-2 - x]*Sqrt[-1 - x]*Sqrt[-3 + x]),x]
```

```
[Out] (I*Sqrt[1 + 4/(-3 + x)]*Sqrt[1 + 5/(-3 + x)]*(-3 + x)*EllipticF[I
*ArcSinh[2/Sqrt[-3 + x]], 5/4])/(Sqrt[-2 - x]*Sqrt[-1 - x])
```

Maple [C] time = 0.053, size = 46, normalized size = 0.8

$$\frac{1}{x^2-x-6}\mathit{EllipticF}\left(\sqrt{-1-x},\frac{i}{2}\right)\sqrt{2+x}\sqrt{3-x}\sqrt{-3+x}\sqrt{-2-x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(-2-x)^(1/2)/(-1-x)^(1/2)/(-3+x)^(1/2),x)
```

```
[Out] EllipticF((-1-x)^(1/2),1/2*I)*(2+x)^(1/2)*(3-x)^(1/2)*(-3+x)^(1/2
)*(-2-x)^(1/2)/(x^2-x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{x-3}\sqrt{-x-1}\sqrt{-x-2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(x - 3)*sqrt(-x - 1)*sqrt(-x - 2)),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(x - 3)*sqrt(-x - 1)*sqrt(-x - 2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{\sqrt{x-3}\sqrt{-x-1}\sqrt{-x-2}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(x - 3)*sqrt(-x - 1)*sqrt(-x - 2)),x, algorithm="fricas")
```

```
[Out] integral(1/(sqrt(x - 3)*sqrt(-x - 1)*sqrt(-x - 2)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{-x-2}\sqrt{-x-1}\sqrt{x-3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(-2-x)**(1/2)/(-1-x)**(1/2)/(-3+x)**(1/2),x)
```

```
[Out] Integral(1/(sqrt(-x - 2)*sqrt(-x - 1)*sqrt(x - 3)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{x-3}\sqrt{-x-1}\sqrt{-x-2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(x - 3)*sqrt(-x - 1)*sqrt(-x - 2)),x, algorithm="giac")
```

```
[Out] integrate(1/(sqrt(x - 3)*sqrt(-x - 1)*sqrt(-x - 2)), x)
```

3.2839 $\int \frac{1}{\sqrt{-3-x}\sqrt{-2-x}\sqrt{-1-x}}\,dx$

Optimal. Leaf size=14

$$2F\left(\sin^{-1}\left(\frac{1}{\sqrt{-x-1}}\right)\middle|2\right)$$

```
[Out] 2*EllipticF[ArcSin[1/Sqrt[-1 - x]], 2]
```

Rubi [A] time = 0.0440658, antiderivative size = 14, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.036

$$2F\left(\sin^{-1}\left(\frac{1}{\sqrt{-x-1}}\right)\middle|2\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[-3 - x]*Sqrt[-2 - x]*Sqrt[-1 - x]),x]

[Out] 2*EllipticF[ArcSin[1/Sqrt[-1 - x]], 2]
```

Rubi in Sympy [A] time = 12.7607, size = 60, normalized size = 4.29

$$-\frac{2\sqrt{2}\sqrt{\frac{x}{2}+\frac{3}{2}}\sqrt{x+2}F\left(\operatorname{asin}\left(\frac{\sqrt{2}\sqrt{-x-1}}{2}\right)\middle|2\right)}{\sqrt{-x-3}\sqrt{-x-2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(-3-x)**(1/2)/(-2-x)**(1/2)/(-1-x)**(1/2),x)

[Out] -2*sqrt(2)*sqrt(x/2 + 3/2)*sqrt(x + 2)*elliptic_f(asin(sqrt(2)*sq
rt(-x - 1)/2), 2)/(sqrt(-x - 3)*sqrt(-x - 2))
```

Mathematica [C] time = 0.0438489, size = 67, normalized size = 4.79

$$\frac{2i\sqrt{\frac{x+1}{x+3}}\sqrt{\frac{x+2}{x+3}}(x+3)F\left(i\sinh^{-1}\left(\frac{1}{\sqrt{-x-3}}\right)\middle|2\right)}{\sqrt{-x-2}\sqrt{-x-1}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[-3 - x]*Sqrt[-2 - x]*Sqrt[-1 - x]),x]

[Out] ((2*I)*Sqrt[(1 + x)/(3 + x)]*Sqrt[(2 + x)/(3 + x)]*(3 + x)*Ellipt
icF[I*ArcSinh[1/Sqrt[-3 - x]], 2])/(Sqrt[-2 - x]*Sqrt[-1 - x])
```

Maple [B] time = 0.057, size = 54, normalized size = 3.9

$$\frac{\sqrt{2}}{-x^2-5x-6}\mathit{EllipticF}\left(\sqrt{-1-x},\frac{\sqrt{2}}{2}\right)\sqrt{2+x}\sqrt{3+x}\sqrt{-2-x}\sqrt{-3-x}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(-3-x)^(1/2)/(-2-x)^(1/2)/(-1-x)^(1/2),x)
```

```
[Out] 1/(-x^2-5*x-6)*EllipticF((-1-x)^(1/2),1/2*2^(1/2))*(2+x)^(1/2)*2^
(1/2)*(3+x)^(1/2)*(-2-x)^(1/2)*(-3-x)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{-x-1}\sqrt{-x-2}\sqrt{-x-3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(-x - 1)*sqrt(-x - 2)*sqrt(-x - 3)),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(-x - 1)*sqrt(-x - 2)*sqrt(-x - 3)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{\sqrt{-x-1}\sqrt{-x-2}\sqrt{-x-3}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(-x - 1)*sqrt(-x - 2)*sqrt(-x - 3)),x, algorithm="fricas")
```

```
[Out] integral(1/(sqrt(-x - 1)*sqrt(-x - 2)*sqrt(-x - 3)), x)
```

Sympy [A] time = 12.3631, size = 66, normalized size = 4.71

$$\frac{G_{6,6}^{5,3}\left(\begin{matrix} \frac{1}{2}, 1, 1 & \frac{3}{4}, \frac{3}{4}, \frac{5}{4} \\ \frac{1}{4}, \frac{1}{2}, \frac{3}{4}, 1, \frac{5}{4} & 0 \end{matrix}\middle| \frac{e^{-2i\pi}}{(x+2)^2}\right)}{4\pi^{\frac{3}{2}}} - \frac{G_{6,6}^{3,5}\left(\begin{matrix} -\frac{1}{4}, 0, \frac{1}{4}, \frac{1}{2}, \frac{3}{4} & 1 \\ 0, \frac{1}{2}, 0 & -\frac{1}{4}, \frac{1}{4}, \frac{1}{4} \end{matrix}\middle| \frac{1}{(x+2)^2}\right)}{4\pi^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(-3-x)**(1/2)/(-2-x)**(1/2)/(-1-x)**(1/2),x)
```

```
[Out] meijerg(((1/2, 1, 1), (3/4, 3/4, 5/4)), ((1/4, 1/2, 3/4, 1, 5/4),
 (0,)), exp_polar(-2*I*pi)/(x + 2)**2)/(4*pi**(3/2)) - meijerg(((
-1/4, 0, 1/4, 1/2, 3/4), (1,)), ((0, 1/2, 0), (-1/4, 1/4, 1/4)),
(x + 2)**(-2))/(4*pi**(3/2))
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{-x-1}\sqrt{-x-2}\sqrt{-x-3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(-x - 1)*sqrt(-x - 2)*sqrt(-x - 3)),x, algorithm="giac")
```

```
[Out] integrate(1/(sqrt(-x - 1)*sqrt(-x - 2)*sqrt(-x - 3)), x)
```

3.2840 $\int \frac{1}{(a+bx)^{3/2}\sqrt{c+dx}\sqrt{e+fx}}\,dx$

Optimal. Leaf size=204

$$\frac{2\sqrt{f}\sqrt{a+bx}\sqrt{cf-de}\sqrt{\frac{d(e+fx)}{de-cf}}E\left(\sin^{-1}\left(\frac{\sqrt{f}\sqrt{c+dx}}{\sqrt{cf-de}}\right)|-\frac{b(de-cf)}{(bc-ad)f}\right)}{\sqrt{e+fx}(bc-ad)(be-af)\sqrt{-\frac{d(a+bx)}{bc-ad}}}-\frac{2b\sqrt{c+dx}\sqrt{e+fx}}{\sqrt{a+bx}(bc-ad)(be-af)}$$

```
[Out] (-2*b*Sqrt[c + d*x]*Sqrt[e + f*x])/((b*c - a*d)*(b*e - a*f)*Sqrt[
a + b*x]) + (2*Sqrt[f]*Sqrt[-(d*e) + c*f]*Sqrt[a + b*x]*Sqrt[(d*(
e + f*x))/(d*e - c*f)]*EllipticE[ArcSin[(Sqrt[f]*Sqrt[c + d*x])/S
qrt[-(d*e) + c*f]], -((b*(d*e - c*f))/((b*c - a*d)*f))])/((b*c -
a*d)*(b*e - a*f)*Sqrt[-((d*(a + b*x))/(b*c - a*d))]*Sqrt[e + f*x]
)
```

Rubi [A] time = 0.591382, antiderivative size = 204, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.143$

$$\frac{2\sqrt{f}\sqrt{a+bx}\sqrt{cf-de}\sqrt{\frac{d(e+fx)}{de-cf}}E\left(\sin^{-1}\left(\frac{\sqrt{f}\sqrt{c+dx}}{\sqrt{cf-de}}\right)|-\frac{b(de-cf)}{(bc-ad)f}\right)}{\sqrt{e+fx}(bc-ad)(be-af)\sqrt{-\frac{d(a+bx)}{bc-ad}}}-\frac{2b\sqrt{c+dx}\sqrt{e+fx}}{\sqrt{a+bx}(bc-ad)(be-af)}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((a + b*x)^(3/2)*Sqrt[c + d*x]*Sqrt[e + f*x]),x]
```

```
[Out] (-2*b*Sqrt[c + d*x]*Sqrt[e + f*x])/((b*c - a*d)*(b*e - a*f)*Sqrt[
a + b*x]) + (2*Sqrt[f]*Sqrt[-(d*e) + c*f]*Sqrt[a + b*x]*Sqrt[(d*(
e + f*x))/(d*e - c*f)]*EllipticE[ArcSin[(Sqrt[f]*Sqrt[c + d*x])/S
qrt[-(d*e) + c*f]], -((b*(d*e - c*f))/((b*c - a*d)*f))])/((b*c -
a*d)*(b*e - a*f)*Sqrt[-((d*(a + b*x))/(b*c - a*d))]*Sqrt[e + f*x]
)
```

Rubi in Sympy [A] time = 74.3414, size = 167, normalized size = 0.82

$$-\frac{2b\sqrt{c+dx}\sqrt{e+fx}}{\sqrt{a+bx}\,(ad-bc)\,(af-be)}+\frac{2\sqrt{f}\sqrt{\frac{d(-e-fx)}{cf-de}}\sqrt{a+bx}\sqrt{cf-de}E\left(\operatorname{asin}\left(\frac{\sqrt{f}\sqrt{c+dx}}{\sqrt{cf-de}}\right)\middle|\frac{b(-cf+de)}{f(ad-bc)}\right)}{\sqrt{\frac{d(a+bx)}{ad-bc}}\sqrt{e+fx}\,(ad-bc)\,(af-be)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(b*x+a)**(3/2)/(d*x+c)**(1/2)/(f*x+e)**(1/2),x)
```

```
[Out] -2*b*sqrt(c + d*x)*sqrt(e + f*x)/(sqrt(a + b*x)*(a*d - b*c)*(a*f
- b*e)) + 2*sqrt(f)*sqrt(d*(-e - f*x)/(c*f - d*e))*sqrt(a + b*x)*
sqrt(c*f - d*e)*elliptic_e(asin(sqrt(f)*sqrt(c + d*x)/sqrt(c*f -
d*e)), b*(-c*f + d*e)/(f*(a*d - b*c)))/(sqrt(d*(a + b*x)/(a*d - b
*c))*sqrt(e + f*x)*(a*d - b*c)*(a*f - b*e))
```

Mathematica [C] time = 1.75697, size = 201, normalized size = 0.99

$$\frac{2b\sqrt{c+dx}\sqrt{e+fx}\left(-1-\frac{i\sqrt{\frac{d(a+bx)}{b(c+dx)}}\left(E\left(i\sinh^{-1}\left(\sqrt{\frac{d(a+bx)}{bc-ad}}\right)|\frac{bcf-adf}{bde-adf}\right)-F\left(i\sinh^{-1}\left(\sqrt{\frac{d(a+bx)}{bc-ad}}\right)|\frac{bcf-adf}{bde-adf}\right)\right)}{\sqrt{\frac{b(e+fx)}{be-af}}}\right)}{\sqrt{a+bx}(bc-ad)(be-af)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((a + b*x)^(3/2)*Sqrt[c + d*x]*Sqrt[e + f*x]),x]
```

```
[Out] (2*b*Sqrt[c + d*x]*Sqrt[e + f*x]*(-1 - (I*Sqrt[(d*(a + b*x))/(b*(
c + d*x))]*(EllipticE[I*ArcSinh[Sqrt[(d*(a + b*x))/(b*c - a*d)]],
 (b*c*f - a*d*f)/(b*d*e - a*d*f)] - EllipticF[I*ArcSinh[Sqrt[(d*(
a + b*x))/(b*c - a*d)]], (b*c*f - a*d*f)/(b*d*e - a*d*f)]))/Sqrt[
(b*(e + f*x))/(b*e - a*f)]))/((b*c - a*d)*(b*e - a*f)*Sqrt[a + b*
x])
```

Maple [B] time = 0.049, size = 1011, normalized size = 5.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(b*x+a)^(3/2)/(d*x+c)^(1/2)/(f*x+e)^(1/2),x)
```

```
[Out] 2*(EllipticF((d*(b*x+a)/(a*d-b*c))^(1/2),((a*d-b*c)*f/d/(a*f-b*e)
)^(1/2))*a^2*d*f*(d*(b*x+a)/(a*d-b*c))^(1/2)*(-(f*x+e)*b/(a*f-b*e
))^(1/2)*(-(d*x+c)*b/(a*d-b*c))^(1/2)-EllipticF((d*(b*x+a)/(a*d-b
*c))^(1/2),((a*d-b*c)*f/d/(a*f-b*e))^(1/2))*a*b*c*f*(d*(b*x+a)/(a
*d-b*c))^(1/2)*(-(f*x+e)*b/(a*f-b*e))^(1/2)*(-(d*x+c)*b/(a*d-b*c)
)^(1/2)-EllipticF((d*(b*x+a)/(a*d-b*c))^(1/2),((a*d-b*c)*f/d/(a*f
-b*e))^(1/2))*a*b*d*e*(d*(b*x+a)/(a*d-b*c))^(1/2)*(-(f*x+e)*b/(a*
f-b*e))^(1/2)*(-(d*x+c)*b/(a*d-b*c))^(1/2)+EllipticF((d*(b*x+a)/(
a*d-b*c))^(1/2),((a*d-b*c)*f/d/(a*f-b*e))^(1/2))*b^2*c*e*(d*(b*x+
a)/(a*d-b*c))^(1/2)*(-(f*x+e)*b/(a*f-b*e))^(1/2)*(-(d*x+c)*b/(a*d
-b*c))^(1/2)-EllipticE((d*(b*x+a)/(a*d-b*c))^(1/2),((a*d-b*c)*f/d
/(a*f-b*e))^(1/2))*a^2*d*f*(d*(b*x+a)/(a*d-b*c))^(1/2)*(-(f*x+e)*
b/(a*f-b*e))^(1/2)*(-(d*x+c)*b/(a*d-b*c))^(1/2)+EllipticE((d*(b*x
+a)/(a*d-b*c))^(1/2),((a*d-b*c)*f/d/(a*f-b*e))^(1/2))*a*b*c*f*(d*
(b*x+a)/(a*d-b*c))^(1/2)*(-(f*x+e)*b/(a*f-b*e))^(1/2)*(-(d*x+c)*b
/(a*d-b*c))^(1/2)+EllipticE((d*(b*x+a)/(a*d-b*c))^(1/2),((a*d-b*c
)*f/d/(a*f-b*e))^(1/2))*a*b*d*e*(d*(b*x+a)/(a*d-b*c))^(1/2)*(-(f*
x+e)*b/(a*f-b*e))^(1/2)*(-(d*x+c)*b/(a*d-b*c))^(1/2)-EllipticE((d
*(b*x+a)/(a*d-b*c))^(1/2),((a*d-b*c)*f/d/(a*f-b*e))^(1/2))*b^2*c*
e*(d*(b*x+a)/(a*d-b*c))^(1/2)*(-(f*x+e)*b/(a*f-b*e))^(1/2)*(-(d*x
+c)*b/(a*d-b*c))^(1/2)-x^2*b^2*d*f-x*b^2*c*f-x*b^2*d*e-b^2*c*e)*(
f*x+e)^(1/2)*(d*x+c)^(1/2)*(b*x+a)^(1/2)/b/(a*f-b*e)/(a*d-b*c)/(b
*d*f*x^3+a*d*f*x^2+b*c*f*x^2+b*d*e*x^2+a*c*f*x+a*d*e*x+b*c*e*x+a*
c*e)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(bx+a)^{\frac{3}{2}}\sqrt{dx+c}\sqrt{fx+e}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^(3/2)*sqrt(d*x + c)*sqrt(f*x + e)),x, algorithm="maxima")
```

```
[Out] integrate(1/((b*x + a)^(3/2)*sqrt(d*x + c)*sqrt(f*x + e)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{(bx+a)^{\frac{3}{2}}\sqrt{dx+c}\sqrt{fx+e}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((b*x + a)^(3/2)*sqrt(d*x + c)*sqrt(f*x + e)),x, algorithm="fricas")
```

```
[Out] integral(1/((b*x + a)^(3/2)*sqrt(d*x + c)*sqrt(f*x + e)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(a+bx)^{\frac{3}{2}}\sqrt{c+dx}\sqrt{e+fx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(b*x+a)**(3/2)/(d*x+c)**(1/2)/(f*x+e)**(1/2),x)
```

```
[Out] Integral(1/((a + b*x)**(3/2)*sqrt(c + d*x)*sqrt(e + f*x)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(bx+a)^{\frac{3}{2}}\sqrt{dx+c}\sqrt{fx+e}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((b*x + a)^(3/2)*sqrt(d*x + c)*sqrt(f*x + e)),x, algorithm="giac")
```

```
[Out] integrate(1/((b*x + a)^(3/2)*sqrt(d*x + c)*sqrt(f*x + e)), x)
```

3.2841 $\int \frac{1}{(a+bx)^{5/2}\sqrt{c+dx}\sqrt{e+fx}}\,dx$

Optimal. Leaf size=437

$$\frac{4b\sqrt{c+dx}\sqrt{e+fx}(-2adf+bcf+bde)}{3\sqrt{a+bx}(bc-ad)^2(be-af)^2}-\frac{2b\sqrt{c+dx}\sqrt{e+fx}}{3(a+bx)^{3/2}(bc-ad)(be-af)}+\frac{2\sqrt{d}\sqrt{\frac{b(c+dx)}{bc-ad}}\sqrt{\frac{b(e+fx)}{be-af}}(-3adf+bcf+2bde)F\left(\sin^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{ad-bc}}\right)|\frac{(bc-ad)f}{d(be-af)}\right)}{3b\sqrt{c+dx}\sqrt{e+fx}(ad-bc)^{3/2}(be-af)}-\frac{4\sqrt{d}\sqrt{e+fx}\sqrt{\frac{b(c+dx)}{bc-ad}}(-2adf+bcf+bde)E\left(\sin^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{ad-bc}}\right)|\frac{(bc-ad)f}{d(be-af)}\right)}{3\sqrt{c+dx}(ad-bc)^{3/2}(be-af)^2\sqrt{\frac{b(e+fx)}{be-af}}}$$

```
[Out] (-2*b*Sqrt[c + d*x]*Sqrt[e + f*x])/(3*(b*c - a*d)*(b*e - a*f)*(a
+ b*x)^(3/2)) + (4*b*(b*d*e + b*c*f - 2*a*d*f)*Sqrt[c + d*x]*Sqrt
[e + f*x])/(3*(b*c - a*d)^2*(b*e - a*f)^2*Sqrt[a + b*x]) - (4*Sqr
t[d]*(b*d*e + b*c*f - 2*a*d*f)*Sqrt[(b*(c + d*x))/(b*c - a*d)]*Sq
rt[e + f*x]*EllipticE[ArcSin[(Sqrt[d]*Sqrt[a + b*x])/Sqrt[-(b*c)
+ a*d]], ((b*c - a*d)*f)/(d*(b*e - a*f))])/(3*(-(b*c) + a*d)^(3/2
)*(b*e - a*f)^2*Sqrt[c + d*x]*Sqrt[(b*(e + f*x))/(b*e - a*f)]) +
(2*Sqrt[d]*(2*b*d*e + b*c*f - 3*a*d*f)*Sqrt[(b*(c + d*x))/(b*c -
a*d)]*Sqrt[(b*(e + f*x))/(b*e - a*f)]*EllipticF[ArcSin[(Sqrt[d]*S
qrt[a + b*x])/Sqrt[-(b*c) + a*d]], ((b*c - a*d)*f)/(d*(b*e - a*f)
)])/(3*b*(-(b*c) + a*d)^(3/2)*(b*e - a*f)*Sqrt[c + d*x]*Sqrt[e +
f*x])
```

Rubi [A] time = 1.90828, antiderivative size = 437, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 7, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.25$

$$\frac{4b\sqrt{c+dx}\sqrt{e+fx}(-2adf+bcf+bde)}{3\sqrt{a+bx}(bc-ad)^2(be-af)^2}-\frac{2b\sqrt{c+dx}\sqrt{e+fx}}{3(a+bx)^{3/2}(bc-ad)(be-af)}+\frac{2\sqrt{d}\sqrt{\frac{b(c+dx)}{bc-ad}}\sqrt{\frac{b(e+fx)}{be-af}}(-3adf+bcf+2bde)F\left(\sin^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{ad-bc}}\right)|\frac{(bc-ad)f}{d(be-af)}\right)}{3b\sqrt{c+dx}\sqrt{e+fx}(ad-bc)^{3/2}(be-af)}-\frac{4\sqrt{d}\sqrt{e+fx}\sqrt{\frac{b(c+dx)}{bc-ad}}(-2adf+bcf+bde)E\left(\sin^{-1}\left(\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{ad-bc}}\right)|\frac{(bc-ad)f}{d(be-af)}\right)}{3\sqrt{c+dx}(ad-bc)^{3/2}(be-af)^2\sqrt{\frac{b(e+fx)}{be-af}}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((a + b*x)^(5/2)*Sqrt[c + d*x]*Sqrt[e + f*x]),x]
```


```
[Out] (-2*b*Sqrt[c + d*x]*Sqrt[e + f*x])/(3*(b*c - a*d)*(b*e - a*f)*(a
+ b*x)^(3/2)) + (4*b*(b*d*e + b*c*f - 2*a*d*f)*Sqrt[c + d*x]*Sqrt
[e + f*x])/(3*(b*c - a*d)^2*(b*e - a*f)^2*Sqrt[a + b*x]) - (4*Sqr
t[d]*(b*d*e + b*c*f - 2*a*d*f)*Sqrt[(b*(c + d*x))/(b*c - a*d)]*Sq
rt[e + f*x]*EllipticE[ArcSin[(Sqrt[d]*Sqrt[a + b*x])/Sqrt[-(b*c)
+ a*d]], ((b*c - a*d)*f)/(d*(b*e - a*f))])/(3*(-(b*c) + a*d)^(3/2
)*(b*e - a*f)^2*Sqrt[c + d*x]*Sqrt[(b*(e + f*x))/(b*e - a*f)]) +
(2*Sqrt[d]*(2*b*d*e + b*c*f - 3*a*d*f)*Sqrt[(b*(c + d*x))/(b*c -
a*d)]*Sqrt[(b*(e + f*x))/(b*e - a*f)]*EllipticF[ArcSin[(Sqrt[d]*S
qrt[a + b*x])/Sqrt[-(b*c) + a*d]], ((b*c - a*d)*f)/(d*(b*e - a*f)
)])/(3*b*(-(b*c) + a*d)^(3/2)*(b*e - a*f)*Sqrt[c + d*x]*Sqrt[e +
f*x])
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(b*x+a)**(5/2)/(d*x+c)**(1/2)/(f*x+e)**(1/2),x)
```

```
[Out] Timed out
```

Mathematica [C] time = 6.11028, size = 449, normalized size = 1.03

$$-\frac{2\left(b^2(c+dx)(e+fx)\sqrt{\frac{bc}{d}-a}((bc-ad)(be-af)-2(a+bx)(-2adf+bcf+bde))+(a+bx)\left(2b^2(c+dx)(e+fx)\sqrt{\frac{bc}{d}-}\right.\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((a + b*x)^(5/2)*Sqrt[c + d*x]*Sqrt[e + f*x]),x]
```

```
[Out] (-2*(b^2*Sqrt[-a + (b*c)/d]*(c + d*x)*(e + f*x)*((b*c - a*d)*(b*e
 - a*f) - 2*(b*d*e + b*c*f - 2*a*d*f)*(a + b*x)) + (a + b*x)*(2*b
^2*Sqrt[-a + (b*c)/d]*(b*d*e + b*c*f - 2*a*d*f)*(c + d*x)*(e + f*
x) + (2*I)*(b*c - a*d)*f*(b*d*e + b*c*f - 2*a*d*f)*(a + b*x)^(3/2
)*Sqrt[(b*(c + d*x))/(d*(a + b*x))]*Sqrt[(b*(e + f*x))/(f*(a + b*
x))]*EllipticE[I*ArcSinh[Sqrt[-a + (b*c)/d]/Sqrt[a + b*x]], (b*d*
e - a*d*f)/(b*c*f - a*d*f)] - I*(b*c - a*d)*f*(b*d*e + 2*b*c*f -
3*a*d*f)*(a + b*x)^(3/2)*Sqrt[(b*(c + d*x))/(d*(a + b*x))]*Sqrt[(
b*(e + f*x))/(f*(a + b*x))]*EllipticF[I*ArcSinh[Sqrt[-a + (b*c)/d
]/Sqrt[a + b*x]], (b*d*e - a*d*f)/(b*c*f - a*d*f)])))/(3*b*Sqrt[-
a + (b*c)/d]*(b*c - a*d)^2*(b*e - a*f)^2*(a + b*x)^(3/2)*Sqrt[c +
 d*x]*Sqrt[e + f*x])
```

Maple [B] time = 0.109, size = 4067, normalized size = 9.3

output too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(b*x+a)^(5/2)/(d*x+c)^(1/2)/(f*x+e)^(1/2),x)
```

```
[Out] 2/3*(d*x+c)^(1/2)*(f*x+e)^(1/2)*(-x^2*a*b^3*c*d*f^2-4*x^3*a*b^3*d
^2*f^2-4*EllipticF((d*(b*x+a)/(a*d-b*c))^(1/2),((a*d-b*c)*f/d/(a*
f-b*e))^(1/2))*x*a^2*b^2*c*d*f^2*(d*(b*x+a)/(a*d-b*c))^(1/2)*(-(f
*x+e)*b/(a*f-b*e))^(1/2)*(-(d*x+c)*b/(a*d-b*c))^(1/2)-5*EllipticF
((d*(b*x+a)/(a*d-b*c))^(1/2),((a*d-b*c)*f/d/(a*f-b*e))^(1/2))*x*a
^2*b^2*d^2*e*f*(d*(b*x+a)/(a*d-b*c))^(1/2)*(-(f*x+e)*b/(a*f-b*e))
^(1/2)*(-(d*x+c)*b/(a*d-b*c))^(1/2)+6*EllipticE((d*(b*x+a)/(a*d-b
*c))^(1/2),((a*d-b*c)*f/d/(a*f-b*e))^(1/2))*x*a^2*b^2*c*d*f^2*(d*
(b*x+a)/(a*d-b*c))^(1/2)*(-(f*x+e)*b/(a*f-b*e))^(1/2)*(-(d*x+c)*b
/(a*d-b*c))^(1/2)+6*EllipticE((d*(b*x+a)/(a*d-b*c))^(1/2),((a*d-b
*c)*f/d/(a*f-b*e))^(1/2))*x*a^2*b^2*d^2*e*f*(d*(b*x+a)/(a*d-b*c))
^(1/2)*(-(f*x+e)*b/(a*f-b*e))^(1/2)*(-(d*x+c)*b/(a*d-b*c))^(1/2)+
6*EllipticF((d*(b*x+a)/(a*d-b*c))^(1/2),((a*d-b*c)*f/d/(a*f-b*e))
^(1/2))*a^2*b^2*c*d*e*f*(d*(b*x+a)/(a*d-b*c))^(1/2)*(-(f*x+e)*b/(
a*f-b*e))^(1/2)*(-(d*x+c)*b/(a*d-b*c))^(1/2)-8*EllipticE((d*(b*x+
a)/(a*d-b*c))^(1/2),((a*d-b*c)*f/d/(a*f-b*e))^(1/2))*a^2*b^2*c*d*
e*f*(d*(b*x+a)/(a*d-b*c))^(1/2)*(-(f*x+e)*b/(a*f-b*e))^(1/2)*(-(d
*x+c)*b/(a*d-b*c))^(1/2)+6*EllipticE((d*(b*x+a)/(a*d-b*c))^(1/2),
((a*d-b*c)*f/d/(a*f-b*e))^(1/2))*a^3*b*d^2*e*f*(d*(b*x+a)/(a*d-b*
c))^(1/2)*(-(f*x+e)*b/(a*f-b*e))^(1/2)*(-(d*x+c)*b/(a*d-b*c))^(1/
2)+2*EllipticE((d*(b*x+a)/(a*d-b*c))^(1/2),((a*d-b*c)*f/d/(a*f-b*
e))^(1/2))*a*b^3*c^2*e*f*(d*(b*x+a)/(a*d-b*c))^(1/2)*(-(f*x+e)*b/
(a*f-b*e))^(1/2)*(-(d*x+c)*b/(a*d-b*c))^(1/2)+2*EllipticE((d*(b*x
+a)/(a*d-b*c))^(1/2),((a*d-b*c)*f/d/(a*f-b*e))^(1/2))*a*b^3*c*d*e
^2*(d*(b*x+a)/(a*d-b*c))^(1/2)*(-(f*x+e)*b/(a*f-b*e))^(1/2)*(-(d*
x+c)*b/(a*d-b*c))^(1/2)+3*EllipticF((d*(b*x+a)/(a*d-b*c))^(1/2),(
(a*d-b*c)*f/d/(a*f-b*e))^(1/2))*x*a^3*b*d^2*f^2*(d*(b*x+a)/(a*d-b
*c))^(1/2)*(-(f*x+e)*b/(a*f-b*e))^(1/2)*(-(d*x+c)*b/(a*d-b*c))^(1
```

```
/2)+EllipticF((d*(b*x+a)/(a*d-b*c))^(1/2),((a*d-b*c)*f/d/(a*f-b*e
))^(1/2))*x*a*b^3*c^2*f^2*(d*(b*x+a)/(a*d-b*c))^(1/2)*(-(f*x+e)*b
/(a*f-b*e))^(1/2)*(-(d*x+c)*b/(a*d-b*c))^(1/2)+2*EllipticF((d*(b*
x+a)/(a*d-b*c))^(1/2),((a*d-b*c)*f/d/(a*f-b*e))^(1/2))*x*a*b^3*d^
2*e^2*(d*(b*x+a)/(a*d-b*c))^(1/2)*(-(f*x+e)*b/(a*f-b*e))^(1/2)*(-
(d*x+c)*b/(a*d-b*c))^(1/2)-EllipticF((d*(b*x+a)/(a*d-b*c))^(1/2),
((a*d-b*c)*f/d/(a*f-b*e))^(1/2))*x*b^4*c^2*e*f*(d*(b*x+a)/(a*d-b*
c))^(1/2)*(-(f*x+e)*b/(a*f-b*e))^(1/2)*(-(d*x+c)*b/(a*d-b*c))^(1/
2)-2*EllipticF((d*(b*x+a)/(a*d-b*c))^(1/2),((a*d-b*c)*f/d/(a*f-b*
e))^(1/2))*x*b^4*c*d*e^2*(d*(b*x+a)/(a*d-b*c))^(1/2)*(-(f*x+e)*b/
(a*f-b*e))^(1/2)*(-(d*x+c)*b/(a*d-b*c))^(1/2)-4*EllipticE((d*(b*x
+a)/(a*d-b*c))^(1/2),((a*d-b*c)*f/d/(a*f-b*e))^(1/2))*x*a^3*b*d^2
*f^2*(d*(b*x+a)/(a*d-b*c))^(1/2)*(-(f*x+e)*b/(a*f-b*e))^(1/2)*(-(
d*x+c)*b/(a*d-b*c))^(1/2)-2*EllipticE((d*(b*x+a)/(a*d-b*c))^(1/2)
,((a*d-b*c)*f/d/(a*f-b*e))^(1/2))*x*a*b^3*c^2*f^2*(d*(b*x+a)/(a*d
-b*c))^(1/2)*(-(f*x+e)*b/(a*f-b*e))^(1/2)*(-(d*x+c)*b/(a*d-b*c))^
(1/2)-2*EllipticE((d*(b*x+a)/(a*d-b*c))^(1/2),((a*d-b*c)*f/d/(a*f
-b*e))^(1/2))*x*a*b^3*d^2*e^2*(d*(b*x+a)/(a*d-b*c))^(1/2)*(-(f*x+
e)*b/(a*f-b*e))^(1/2)*(-(d*x+c)*b/(a*d-b*c))^(1/2)+2*EllipticE((d
*(b*x+a)/(a*d-b*c))^(1/2),((a*d-b*c)*f/d/(a*f-b*e))^(1/2))*x*b^4*
c^2*e*f*(d*(b*x+a)/(a*d-b*c))^(1/2)*(-(f*x+e)*b/(a*f-b*e))^(1/2)*
(-(d*x+c)*b/(a*d-b*c))^(1/2)+2*EllipticE((d*(b*x+a)/(a*d-b*c))^(1
/2),((a*d-b*c)*f/d/(a*f-b*e))^(1/2))*x*b^4*c*d*e^2*(d*(b*x+a)/(a*
d-b*c))^(1/2)*(-(f*x+e)*b/(a*f-b*e))^(1/2)*(-(d*x+c)*b/(a*d-b*c))
^(1/2)-4*EllipticF((d*(b*x+a)/(a*d-b*c))^(1/2),((a*d-b*c)*f/d/(a*
f-b*e))^(1/2))*a^3*b*c*d*f^2*(d*(b*x+a)/(a*d-b*c))^(1/2)*(-(f*x+e
)*b/(a*f-b*e))^(1/2)*(-(d*x+c)*b/(a*d-b*c))^(1/2)-5*EllipticF((d*
(b*x+a)/(a*d-b*c))^(1/2),((a*d-b*c)*f/d/(a*f-b*e))^(1/2))*a^3*b*d
^2*e*f*(d*(b*x+a)/(a*d-b*c))^(1/2)*(-(f*x+e)*b/(a*f-b*e))^(1/2)*(
-(d*x+c)*b/(a*d-b*c))^(1/2)-EllipticF((d*(b*x+a)/(a*d-b*c))^(1/2)
,((a*d-b*c)*f/d/(a*f-b*e))^(1/2))*a*b^3*c^2*e*f*(d*(b*x+a)/(a*d-b
*c))^(1/2)*(-(f*x+e)*b/(a*f-b*e))^(1/2)*(-(d*x+c)*b/(a*d-b*c))^(1
/2)-2*EllipticF((d*(b*x+a)/(a*d-b*c))^(1/2),((a*d-b*c)*f/d/(a*f-b
*e))^(1/2))*a*b^3*c*d*e^2*(d*(b*x+a)/(a*d-b*c))^(1/2)*(-(f*x+e)*b
/(a*f-b*e))^(1/2)*(-(d*x+c)*b/(a*d-b*c))^(1/2)-b^4*c^2*e^2+2*x^2*
b^4*c^2*f^2+2*x^2*b^4*d^2*e^2+6*EllipticF((d*(b*x+a)/(a*d-b*c))^(
1/2),((a*d-b*c)*f/d/(a*f-b*e))^(1/2))*x*a*b^3*c*d*e*f*(d*(b*x+a)/
(a*d-b*c))^(1/2)*(-(f*x+e)*b/(a*f-b*e))^(1/2)*(-(d*x+c)*b/(a*d-b*
c))^(1/2)-8*EllipticE((d*(b*x+a)/(a*d-b*c))^(1/2),((a*d-b*c)*f/d/
(a*f-b*e))^(1/2))*x*a*b^3*c*d*e*f*(d*(b*x+a)/(a*d-b*c))^(1/2)*(-(
f*x+e)*b/(a*f-b*e))^(1/2)*(-(d*x+c)*b/(a*d-b*c))^(1/2)+6*Elliptic
E((d*(b*x+a)/(a*d-b*c))^(1/2),((a*d-b*c)*f/d/(a*f-b*e))^(1/2))*a^
3*b*c*d*f^2*(d*(b*x+a)/(a*d-b*c))^(1/2)*(-(f*x+e)*b/(a*f-b*e))^(1
/2)*(-(d*x+c)*b/(a*d-b*c))^(1/2)-x^2*a*b^3*d^2*e*f+3*x^2*b^4*c*d*
e*f-5*x*a^2*b^2*c*d*f^2-5*x*a^2*b^2*d^2*e*f+2*x*a*b^3*c*d*e*f+3*E
llipticF((d*(b*x+a)/(a*d-b*c))^(1/2),((a*d-b*c)*f/d/(a*f-b*e))^(1
/2))*a^4*d^2*f^2*(d*(b*x+a)/(a*d-b*c))^(1/2)*(-(f*x+e)*b/(a*f-b*e
))^(1/2)*(-(d*x+c)*b/(a*d-b*c))^(1/2)-4*EllipticE((d*(b*x+a)/(a*d
-b*c))^(1/2),((a*d-b*c)*f/d/(a*f-b*e))^(1/2))*a^4*d^2*f^2*(d*(b*x
+a)/(a*d-b*c))^(1/2)*(-(f*x+e)*b/(a*f-b*e))^(1/2)*(-(d*x+c)*b/(a*
d-b*c))^(1/2)+3*a*b^3*c^2*e*f+3*a*b^3*c*d*e^2+2*x^3*b^4*c*d*f^2+2
*x^3*b^4*d^2*e*f-5*x^2*a^2*b^2*d^2*f^2+3*x*a*b^3*c^2*f^2+3*x*a*b^
3*d^2*e^2+x*b^4*c^2*e*f+x*b^4*c*d*e^2+EllipticF((d*(b*x+a)/(a*d-b
*c))^(1/2),((a*d-b*c)*f/d/(a*f-b*e))^(1/2))*a^2*b^2*c^2*f^2*(d*(b
*x+a)/(a*d-b*c))^(1/2)*(-(f*x+e)*b/(a*f-b*e))^(1/2)*(-(d*x+c)*b/(
a*d-b*c))^(1/2)-5*a^2*b^2*c*d*e*f+2*EllipticF((d*(b*x+a)/(a*d-b*c
))^(1/2),((a*d-b*c)*f/d/(a*f-b*e))^(1/2))*a^2*b^2*d^2*e^2*(d*(b*x
+a)/(a*d-b*c))^(1/2)*(-(f*x+e)*b/(a*f-b*e))^(1/2)*(-(d*x+c)*b/(a*
d-b*c))^(1/2)-2*EllipticE((d*(b*x+a)/(a*d-b*c))^(1/2),((a*d-b*c)*
f/d/(a*f-b*e))^(1/2))*a^2*b^2*c^2*f^2*(d*(b*x+a)/(a*d-b*c))^(1/2)
*(-(f*x+e)*b/(a*f-b*e))^(1/2)*(-(d*x+c)*b/(a*d-b*c))^(1/2)-2*Elli
pticE((d*(b*x+a)/(a*d-b*c))^(1/2),((a*d-b*c)*f/d/(a*f-b*e))^(1/2)
)*a^2*b^2*d^2*e^2*(d*(b*x+a)/(a*d-b*c))^(1/2)*(-(f*x+e)*b/(a*f-b*
e))^(1/2)*(-(d*x+c)*b/(a*d-b*c))^(1/2))/(d*f*x^2+c*f*x+d*e*x+c*e)
/(a*d-b*c)/(a*f-b*e)/(a^2*d*f-a*b*c*f-a*b*d*e+b^2*c*e)/(b*x+a)^(3
/2)/b
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(bx+a)^{\frac{5}{2}}\sqrt{dx+c}\sqrt{fx+e}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^(5/2)*sqrt(d*x + c)*sqrt(f*x + e)),x, algorithm="maxima")
```

```
[Out] integrate(1/((b*x + a)^(5/2)*sqrt(d*x + c)*sqrt(f*x + e)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{(b^2x^2 + 2\,abx + a^2)\sqrt{bx + a}\sqrt{dx + c}\sqrt{fx + e}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^(5/2)*sqrt(d*x + c)*sqrt(f*x + e)),x, algorithm="fricas")
```

```
[Out] integral(1/((b^2*x^2 + 2*a*b*x + a^2)*sqrt(b*x + a)*sqrt(d*x + c)
*sqrt(f*x + e)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(b*x+a)**(5/2)/(d*x+c)**(1/2)/(f*x+e)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(bx + a)^{\frac{5}{2}}\sqrt{dx + c}\sqrt{fx + e}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^(5/2)*sqrt(d*x + c)*sqrt(f*x + e)),x, algorithm="giac")
```

```
[Out] integrate(1/((b*x + a)^(5/2)*sqrt(d*x + c)*sqrt(f*x + e)), x)
```

3.2842 $\int \frac{(2+3x)^{7/2}}{\sqrt{1-2x}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=158

$$-\frac{3}{35}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{5/2}-\frac{333}{875}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}-\frac{15553\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{8750}-\frac{178879F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{43750\sqrt{33}}-\frac{270248\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{21875}$$

```
[Out] (-15553*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/8750 - (333*Sq
rt[1 - 2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/875 - (3*Sqrt[1 - 2*x]
*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x])/35 - (270248*Sqrt[11/3]*EllipticE
[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/21875 - (178879*Ellipti
cF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(43750*Sqrt[33])
```

Rubi [A] time = 0.342113, antiderivative size = 158, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{3}{35}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{5/2}-\frac{333}{875}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}-\frac{15553\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{8750}-\frac{178879F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{43750\sqrt{33}}-\frac{270248\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{21875}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^(7/2)/(Sqrt[1 - 2*x]*Sqrt[3 + 5*x]),x]
```

```
[Out] (-15553*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/8750 - (333*Sq
rt[1 - 2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/875 - (3*Sqrt[1 - 2*x]
*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x])/35 - (270248*Sqrt[11/3]*EllipticE
[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/21875 - (178879*Ellipti
cF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(43750*Sqrt[33])
```

Rubi in Sympy [A] time = 33.2905, size = 144, normalized size = 0.91

$$-\frac{3\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}\,\sqrt{5x+3}}{35}-\frac{333\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\,\sqrt{5x+3}}{875}-\frac{15553\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{8750}-\frac{270248\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{65625}-\frac{178879\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{1443750}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(7/2)/(1-2*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] -3*sqrt(-2*x + 1)*(3*x + 2)**(5/2)*sqrt(5*x + 3)/35 - 333*sqrt(-2
*x + 1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/875 - 15553*sqrt(-2*x + 1)
*sqrt(3*x + 2)*sqrt(5*x + 3)/8750 - 270248*sqrt(33)*elliptic_e(as
in(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/65625 - 178879*sqrt(33)*ell
iptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/1443750
```

Mathematica [A] time = 0.318665, size = 97, normalized size = 0.61

$$\frac{-15\sqrt{2-4x}\sqrt{3x+2}\sqrt{5x+3}\left(6750x^2+18990x+25213\right)-544355F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+1080992E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\right.\right.}{131250\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^(7/2)/(Sqrt[1 - 2*x]*Sqrt[3 + 5*x]),x]
```

```
[Out] (-15*Sqrt[2 - 4*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(25213 + 18990*x +
 6750*x^2) + 1080992*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]],
-33/2] - 544355*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2
])/(131250*Sqrt[2])
```

Maple [C] time = 0.023, size = 174, normalized size = 1.1

$$-\frac{1}{7875000\,x^3+6037500\,x^2-1837500\,x-1575000}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(1080992\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}Elliptic\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(7/2)/(1-2*x)^(1/2)/(3+5*x)^(1/2),x)
```

```
[Out] -1/262500*(2+3*x)^(1/2)*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(1080992*2^(1
/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(
1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-544355
*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11
*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+6
075000*x^5+21748500*x^4+34377300*x^3+12194070*x^2-8712930*x-45383
40)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{7}{2}}}{\sqrt{5\,x+3}\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(7/2)/(sqrt(5*x + 3)*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] integrate((3*x + 2)^(7/2)/(sqrt(5*x + 3)*sqrt(-2*x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\left(27\,x^3+54\,x^2+36\,x+8\right)\sqrt{3\,x+2}}{\sqrt{5\,x+3}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(7/2)/(sqrt(5*x + 3)*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] integral((27*x^3 + 54*x^2 + 36*x + 8)*sqrt(3*x + 2)/(sqrt(5*x + 3
)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(7/2)/(1-2*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{7}{2}}}{\sqrt{5x+3}\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(7/2)/(sqrt(5*x + 3)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] integrate((3*x + 2)^(7/2)/(sqrt(5*x + 3)*sqrt(-2*x + 1)), x)
```

3.2843 $\int \frac{(2+3x)^{5/2}}{\sqrt{1-2x}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=127

$$-\frac{3}{25}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}-\frac{74}{125}\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}-\frac{857F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{625\sqrt{33}}-\frac{5161\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1250}$$

```
[Out] (-74*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/125 - (3*Sqrt[1 -
 2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/25 - (5161*Sqrt[11/3]*Ellipt
icE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1250 - (857*Elliptic
F[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(625*Sqrt[33])
```

Rubi [A] time = 0.263266, antiderivative size = 127, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{3}{25}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}-\frac{74}{125}\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}-\frac{857F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{625\sqrt{33}}-\frac{5161\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1250}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^(5/2)/(Sqrt[1 - 2*x]*Sqrt[3 + 5*x]),x]
```

```
[Out] (-74*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/125 - (3*Sqrt[1 -
 2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/25 - (5161*Sqrt[11/3]*Ellipt
icE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1250 - (857*Elliptic
F[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(625*Sqrt[33])
```

Rubi in Sympy [A] time = 25.5849, size = 116, normalized size = 0.91

$$-\frac{3\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\,\sqrt{5x+3}}{25}-\frac{74\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{125}-\frac{5161\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{3750}-\frac{857\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{20625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(5/2)/(1-2*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] -3*sqrt(-2*x + 1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/25 - 74*sqrt(-2*
x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/125 - 5161*sqrt(33)*elliptic_e
(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/3750 - 857*sqrt(33)*elli
ptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/20625
```

Mathematica [A] time = 0.267221, size = 95, normalized size = 0.75

$$\frac{5161E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-5\left(3\sqrt{2-4x}\sqrt{3x+2}\sqrt{5x+3}(45x+104)+518F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)}{1875\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^(5/2)/(Sqrt[1 - 2*x]*Sqrt[3 + 5*x]),x]
```

```
[Out] (5161*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 5*(3*S
qrt[2 - 4*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(104 + 45*x) + 518*Ellip
ticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]))/(1875*Sqrt[2])
```

Maple [C] time = 0.023, size = 169, normalized size = 1.3

$$\frac{1}{112500\,x^3+86250\,x^2-26250\,x-22500}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(2590\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{11}\sqrt{}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(5/2)/(1-2*x)^(1/2)/(3+5*x)^(1/2),x)
```

```
[Out] 1/3750*(2+3*x)^(1/2)*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2590*2^(1/2)*(3
+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2
^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-5161*2^(1/2)
*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2
)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-40500*x^4
-124650*x^3-62310*x^2+29940*x+18720)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{5}{2}}}{\sqrt{5\,x+3}\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(5/2)/(sqrt(5*x + 3)*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] integrate((3*x + 2)^(5/2)/(sqrt(5*x + 3)*sqrt(-2*x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(9\,x^2+12\,x+4\right)\sqrt{3\,x+2}}{\sqrt{5\,x+3}\sqrt{-2\,x+1}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(5/2)/(sqrt(5*x + 3)*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] integral((9*x^2 + 12*x + 4)*sqrt(3*x + 2)/(sqrt(5*x + 3)*sqrt(-2*
x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(5/2)/(1-2*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{5}{2}}}{\sqrt{5x+3}\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(5/2)/(sqrt(5*x + 3)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] integrate((3*x + 2)^(5/2)/(sqrt(5*x + 3)*sqrt(-2*x + 1)), x)
```

3.2844 $\int \frac{(2+3x)^{3/2}}{\sqrt{1-2x}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=96

$$-\frac{1}{5}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}-\frac{13F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{25\sqrt{33}}-\frac{37}{25}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] -(Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/5 - (37*Sqrt[11/3]*E
llipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/25 - (13*Ellipt
icF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(25*Sqrt[33])
```

Rubi [A] time = 0.190619, antiderivative size = 96, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.143

$$-\frac{1}{5}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}-\frac{13F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{25\sqrt{33}}-\frac{37}{25}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^(3/2)/(Sqrt[1 - 2*x]*Sqrt[3 + 5*x]),x]
```

```
[Out] -(Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/5 - (37*Sqrt[11/3]*E
llipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/25 - (13*Ellipt
icF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(25*Sqrt[33])
```

Rubi in Sympy [A] time = 18.1411, size = 85, normalized size = 0.89

$$-\frac{\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{5}-\frac{37\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{75}-\frac{13\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(3/2)/(1-2*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] -sqrt(-2*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/5 - 37*sqrt(33)*ellip
tic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/75 - 13*sqrt(35)*el
liptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/875
```

Mathematica [A] time = 0.0918466, size = 92, normalized size = 0.96

$$\frac{1}{150}\left(-30\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}-35\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+74\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^(3/2)/(Sqrt[1 - 2*x]*Sqrt[3 + 5*x]),x]
```

```
[Out] (-30*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x] + 74*Sqrt[2]*Ellip
ticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 35*Sqrt[2]*Ellipt
```

```
icF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/150
```

Maple [C] time = 0.02, size = 164, normalized size = 1.7

$$\frac{1}{4500\,x^{3}+3450\,x^{2}-1050\,x-900}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(35\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(3/2)/(1-2*x)^(1/2)/(3+5*x)^(1/2),x)
```

```
[Out] 1/150*(2+3*x)^(1/2)*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(35*2^(1/2)*(3+5*
x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1
/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-74*2^(1/2)*(3+5
*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(
1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-900*x^3-690*x^
2+210*x+180)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{3}{2}}}{\sqrt{5\,x+3}\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(3/2)/(sqrt(5*x + 3)*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] integrate((3*x + 2)^(3/2)/(sqrt(5*x + 3)*sqrt(-2*x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{(3\,x+2)^{\frac{3}{2}}}{\sqrt{5\,x+3}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(3/2)/(sqrt(5*x + 3)*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] integral((3*x + 2)^(3/2)/(sqrt(5*x + 3)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(3/2)/(1-2*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{3}{2}}}{\sqrt{5\,x+3}\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(3/2)/(sqrt(5*x + 3)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] integrate((3*x + 2)^(3/2)/(sqrt(5*x + 3)*sqrt(-2*x + 1)), x)
```

3.2845 $\int \frac{\sqrt{2+3x}}{\sqrt{1-2x}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=31

$$-\sqrt{\frac{7}{5}}E\left(\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)|\frac{33}{35}\right)$$

```
[Out] -(Sqrt[7/5]*EllipticE[ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]], 33/35])
```

Rubi [A] time = 0.0470253, antiderivative size = 31, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.036

$$-\sqrt{\frac{7}{5}}E\left(\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)|\frac{33}{35}\right)$$

Antiderivative was successfully verified.

```
[In] Int[Sqrt[2 + 3*x]/(Sqrt[1 - 2*x]*Sqrt[3 + 5*x]),x]

[Out] -(Sqrt[7/5]*EllipticE[ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]], 33/35])
```

Rubi in Sympy [A] time = 5.18315, size = 27, normalized size = 0.87

$$-\frac{\sqrt{35}E\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**(1/2)/(1-2*x)**(1/2)/(3+5*x)**(1/2),x)

[Out] -sqrt(35)*elliptic_e(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/5
```

Mathematica [C] time = 0.239119, size = 129, normalized size = 4.16

$$\frac{\sqrt{3x+2}\sqrt{\frac{2x-1}{5x+3}}\left(5\sqrt{\frac{2x-1}{5x+3}}\sqrt{\frac{3x+2}{5x+3}}\sqrt{5x+3}+i\sqrt{2}E\left(i\sinh^{-1}\left(\frac{1}{\sqrt{15x+9}}\right)|-\frac{33}{2}\right)\right)}{5\sqrt{1-2x}\sqrt{\frac{3x+2}{5x+3}}}$$

Antiderivative was successfully verified.

```
[In] Integrate[Sqrt[2 + 3*x]/(Sqrt[1 - 2*x]*Sqrt[3 + 5*x]),x]

[Out] (Sqrt[2 + 3*x]*Sqrt[(-1 + 2*x)/(3 + 5*x)]*(5*Sqrt[(-1 + 2*x)/(3 +
 5*x)]*Sqrt[(2 + 3*x)/(3 + 5*x)]*Sqrt[3 + 5*x] + I*Sqrt[2]*Ellipt
icE[I*ArcSinh[1/Sqrt[9 + 15*x]], -33/2]))/(5*Sqrt[1 - 2*x]*Sqrt[(
2 + 3*x)/(3 + 5*x)])
```

Maple [C] time = 0.017, size = 34, normalized size = 1.1

$$\frac{\sqrt{2}}{5}EllipticE\left(\frac{\sqrt{11}\sqrt{2}}{11}\sqrt{3+5\,x},\frac{i}{2}\sqrt{11}\sqrt{3}\sqrt{2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(1/2)/(1-2*x)^(1/2)/(3+5*x)^(1/2),x)
```

```
[Out] 1/5*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*
3^(1/2)*2^(1/2))*2^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{3x+2}}{\sqrt{5x+3}\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(3*x + 2)/(sqrt(5*x + 3)*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(3*x + 2)/(sqrt(5*x + 3)*sqrt(-2*x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{3x+2}}{\sqrt{5x+3}\sqrt{-2x+1}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(3*x + 2)/(sqrt(5*x + 3)*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] integral(sqrt(3*x + 2)/(sqrt(5*x + 3)*sqrt(-2*x + 1)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{3x+2}}{\sqrt{-2x+1}\sqrt{5x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(1/2)/(1-2*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] Integral(sqrt(3*x + 2)/(sqrt(-2*x + 1)*sqrt(5*x + 3)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{3x+2}}{\sqrt{5x+3}\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(3*x + 2)/(sqrt(5*x + 3)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] integrate(sqrt(3*x + 2)/(sqrt(5*x + 3)*sqrt(-2*x + 1)), x)
```

3.2846 $\int \frac{1}{\sqrt{1-2x}\sqrt{2+3x}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=29

$$-\frac{2F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{\sqrt{33}}$$

```
[Out] (-2*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/Sqrt[33]
```

Rubi [A] time = 0.0459777, antiderivative size = 29, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.036

$$-\frac{2F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]),x]
```

```
[Out] (-2*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/Sqrt[33]
```

Rubi in Sympy [A] time = 5.35424, size = 29, normalized size = 1.

$$-\frac{2\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{33}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(1/2)/(2+3*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] -2*sqrt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/33
```

Mathematica [C] time = 0.177449, size = 74, normalized size = 2.55

$$\frac{i\sqrt{3x+2}\sqrt{\frac{4x-2}{5x+3}}F\left(i\sinh^{-1}\left(\frac{1}{\sqrt{15x+9}}\right)|-\frac{33}{2}\right)}{\sqrt{1-2x}\sqrt{\frac{3x+2}{5x+3}}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]),x]
```

```
[Out] (I*Sqrt[2 + 3*x]*Sqrt[(-2 + 4*x)/(3 + 5*x)]*EllipticF[I*ArcSinh[1
/Sqrt[9 + 15*x]], -33/2])/(Sqrt[1 - 2*x]*Sqrt[(2 + 3*x)/(3 + 5*x)
])
```

Maple [C] time = 0.02, size = 33, normalized size = 1.1

$$\mathit{EllipticF}\left(\frac{\sqrt{11}\sqrt{2}}{11}\sqrt{3+5\,x},\frac{i}{2}\sqrt{11}\sqrt{3}\sqrt{2}\right)\sqrt{2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(1/2)/(2+3*x)^(1/2)/(3+5*x)^(1/2),x)
```

```
[Out] EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1
/2)*2^(1/2))*2^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{5x+3}\sqrt{3x+2}\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(5*x + 3)*sqrt(3*x + 2)*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(5*x + 3)*sqrt(3*x + 2)*sqrt(-2*x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{1}{\sqrt{5x+3}\sqrt{3x+2}\sqrt{-2x+1}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(5*x + 3)*sqrt(3*x + 2)*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] integral(1/(sqrt(5*x + 3)*sqrt(3*x + 2)*sqrt(-2*x + 1)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(1/2)/(2+3*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] Integral(1/(sqrt(-2*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{5x+3}\sqrt{3x+2}\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(5*x + 3)*sqrt(3*x + 2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] integrate(1/(sqrt(5*x + 3)*sqrt(3*x + 2)*sqrt(-2*x + 1)), x)
```

3.2847 $\int \frac{1}{\sqrt{1-2x}(2+3x)^{3/2}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=63

$$\frac{6\sqrt{1-2x}\sqrt{5x+3}}{7\sqrt{3x+2}}-2\sqrt{\frac{5}{7}}E\left(\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)|\frac{33}{35}\right)$$

```
[Out] (6*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(7*Sqrt[2 + 3*x]) - 2*Sqrt[5/7]*E
llipticE[ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]], 33/35]
```

Rubi [A] time = 0.0933349, antiderivative size = 63, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.107

$$\frac{6\sqrt{1-2x}\sqrt{5x+3}}{7\sqrt{3x+2}}-2\sqrt{\frac{5}{7}}E\left(\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)|\frac{33}{35}\right)$$

Antiderivative was successfully verified.

```
[In] Int[1/(Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (6*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(7*Sqrt[2 + 3*x]) - 2*Sqrt[5/7]*E
llipticE[ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]], 33/35]
```

Rubi in Sympy [A] time = 9.58066, size = 56, normalized size = 0.89

$$\frac{6\sqrt{-2x+1}\sqrt{5x+3}}{7\sqrt{3x+2}}-\frac{2\sqrt{35}E\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{7}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(1/(2+3*x)**(3/2)/(1-2*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] 6*sqrt(-2*x + 1)*sqrt(5*x + 3)/(7*sqrt(3*x + 2)) - 2*sqrt(35)*ell
iptic_e(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/7
```

Mathematica [A] time = 0.112447, size = 62, normalized size = 0.98

$$\frac{2}{7}\left(\frac{3\sqrt{1-2x}\sqrt{5x+3}}{\sqrt{3x+2}}+\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)$$

Antiderivative was successfully verified.

```
[In] Integrate[1/(Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (2*((3*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/Sqrt[2 + 3*x] + Sqrt[2]*Ellip
ticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]))/7
```

Maple [C] time = 0.027, size = 104, normalized size = 1.7

$$-\frac{2}{210x^3+161x^2-49x-42}\sqrt{1-2x}\sqrt{2+3x}\sqrt{3+5x}\left(\sqrt{2}\sqrt{3+5x}\sqrt{2+3x}\sqrt{1-2x}EllipticE\left(\frac{\sqrt{11}\sqrt{2}}{11}\sqrt{3+5x},\frac{i}{2}\sqrt{11}\sqrt{3}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(2+3*x)^(3/2)/(1-2*x)^(1/2)/(3+5*x)^(1/2),x)
```

```
[Out] -2/7*(2+3*x)^(1/2)*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2^(1/2)*(3+5*x)^(
1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*
(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-30*x^2-3*x+9)/(30*x
^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{5\,x+3}(3\,x+2)^{\frac{3}{2}}\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^(3/2)*sqrt(-2*x + 1)),x, algorithm="maxima"
```

```
[Out] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^(3/2)*sqrt(-2*x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{\sqrt{5\,x+3}(3\,x+2)^{\frac{3}{2}}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^(3/2)*sqrt(-2*x + 1)),x, algorithm="fricas"
```

```
[Out] integral(1/(sqrt(5*x + 3)*(3*x + 2)^(3/2)*sqrt(-2*x + 1)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\,\sqrt{5x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(2+3*x)**(3/2)/(1-2*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] Integral(1/(sqrt(-2*x + 1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{5\,x+3}(3\,x+2)^{\frac{3}{2}}\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^(3/2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^(3/2)*sqrt(-2*x + 1)), x)
```

3.2848 $\int \frac{1}{\sqrt{1-2x}(2+3x)^{5/2}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=127

$$\frac{148\sqrt{1-2x}\sqrt{5x+3}}{49\sqrt{3x+2}}+\frac{2\sqrt{1-2x}\sqrt{5x+3}}{7(3x+2)^{3/2}}-\frac{52F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{49\sqrt{33}}-\frac{148}{49}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (2*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(7*(2 + 3*x)^(3/2)) + (148*Sqrt[1
 - 2*x]*Sqrt[3 + 5*x])/(49*Sqrt[2 + 3*x]) - (148*Sqrt[11/3]*Ellip
ticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/49 - (52*EllipticF[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(49*Sqrt[33])
```

Rubi [A] time = 0.270109, antiderivative size = 127, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{148\sqrt{1-2x}\sqrt{5x+3}}{49\sqrt{3x+2}}+\frac{2\sqrt{1-2x}\sqrt{5x+3}}{7(3x+2)^{3/2}}-\frac{52F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{49\sqrt{33}}-\frac{148}{49}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x]),x]
```


```
[Out] (2*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(7*(2 + 3*x)^(3/2)) + (148*Sqrt[1
 - 2*x]*Sqrt[3 + 5*x])/(49*Sqrt[2 + 3*x]) - (148*Sqrt[11/3]*Ellip
ticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/49 - (52*EllipticF[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(49*Sqrt[33])
```

Rubi in Sympy [A] time = 25.1647, size = 114, normalized size = 0.9

$$\frac{148\sqrt{-2x+1}\sqrt{5x+3}}{49\sqrt{3x+2}}+\frac{2\sqrt{-2x+1}\sqrt{5x+3}}{7\,(3x+2)^{\frac{3}{2}}}-\frac{148\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{147}-\frac{52\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{1617}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(2+3*x)**(5/2)/(1-2*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] 148*sqrt(-2*x + 1)*sqrt(5*x + 3)/(49*sqrt(3*x + 2)) + 2*sqrt(-2*x
 + 1)*sqrt(5*x + 3)/(7*(3*x + 2)**(3/2)) - 148*sqrt(33)*elliptic_
e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/147 - 52*sqrt(33)*ellip
tic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/1617
```

Mathematica [A] time = 0.232014, size = 97, normalized size = 0.76

$$\frac{2}{147}\left(\frac{3\sqrt{1-2x}\sqrt{5x+3}(222x+155)}{(3x+2)^{3/2}}-35\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+74\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (2*((3*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(155 + 222*x))/(2 + 3*x)^(3/2)
 + 74*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]
- 35*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]))
/147
```

Maple [C] time = 0.031, size = 267, normalized size = 2.1

$$\frac{2}{1470\,x^2+147\,x-441}\left(105\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-222\,\sqrt{2}EllipticE$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(2+3*x)^(5/2)/(1-2*x)^(1/2)/(3+5*x)^(1/2),x)
```

```
[Out] 2/147*(105*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),
1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-
2*x)^(1/2)-222*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1
/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)
*(1-2*x)^(1/2)+70*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/
2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3
^(1/2)*2^(1/2))-148*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(
1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)
*3^(1/2)*2^(1/2))+6660*x^3+5316*x^2-1533*x-1395)*(3+5*x)^(1/2)*(1
-2*x)^(1/2)/(10*x^2+x-3)/(2+3*x)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{5\,x+3}(3\,x+2)^{\frac{5}{2}}\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(5*x + 3)*(3*x + 2)^(5/2)*sqrt(-2*x + 1)),x, algorithm="maxima"
```

```
[Out] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^(5/2)*sqrt(-2*x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{(9\,x^2+12\,x+4)\sqrt{5\,x+3}\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(5*x + 3)*(3*x + 2)^(5/2)*sqrt(-2*x + 1)),x, algorithm="fricas"
```

```
[Out] integral(1/((9*x^2 + 12*x + 4)*sqrt(5*x + 3)*sqrt(3*x + 2)*sqrt(-
2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(2+3*x)**(5/2)/(1-2*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{5x+3}(3x+2)^{\frac{5}{2}}\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^(5/2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^(5/2)*sqrt(-2*x + 1)), x)
```

3.2849 $\int \frac{1}{\sqrt{1-2x}(2+3x)^{7/2}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=158

$$\frac{20644\sqrt{1-2x}\sqrt{5x+3}}{1715\sqrt{3x+2}}+\frac{296\sqrt{1-2x}\sqrt{5x+3}}{245(3x+2)^{3/2}}+\frac{6\sqrt{1-2x}\sqrt{5x+3}}{35(3x+2)^{5/2}}-\frac{6856F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1715\sqrt{33}}-\frac{20644\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1715}$$

```
[Out] (6*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(35*(2 + 3*x)^(5/2)) + (296*Sqrt[
1 - 2*x]*Sqrt[3 + 5*x])/(245*(2 + 3*x)^(3/2)) + (20644*Sqrt[1 - 2
*x]*Sqrt[3 + 5*x])/(1715*Sqrt[2 + 3*x]) - (20644*Sqrt[11/3]*Ellip
ticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1715 - (6856*Ellipt
icF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(1715*Sqrt[33])
```

Rubi [A] time = 0.346188, antiderivative size = 158, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{20644\sqrt{1-2x}\sqrt{5x+3}}{1715\sqrt{3x+2}}+\frac{296\sqrt{1-2x}\sqrt{5x+3}}{245(3x+2)^{3/2}}+\frac{6\sqrt{1-2x}\sqrt{5x+3}}{35(3x+2)^{5/2}}-\frac{6856F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1715\sqrt{33}}-\frac{20644\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1715}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 - 2*x]*(2 + 3*x)^(7/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (6*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(35*(2 + 3*x)^(5/2)) + (296*Sqrt[
1 - 2*x]*Sqrt[3 + 5*x])/(245*(2 + 3*x)^(3/2)) + (20644*Sqrt[1 - 2
*x]*Sqrt[3 + 5*x])/(1715*Sqrt[2 + 3*x]) - (20644*Sqrt[11/3]*Ellip
ticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1715 - (6856*Ellipt
icF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(1715*Sqrt[33])
```

Rubi in Sympy [A] time = 32.3054, size = 143, normalized size = 0.91

$$\frac{20644\sqrt{-2x+1}\sqrt{5x+3}}{1715\sqrt{3x+2}}+\frac{296\sqrt{-2x+1}\sqrt{5x+3}}{245\,(3x+2)^{\frac{3}{2}}}+\frac{6\sqrt{-2x+1}\sqrt{5x+3}}{35\,(3x+2)^{\frac{5}{2}}}-\frac{20644\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{5145}-\frac{6856\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{56595}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(2+3*x)**(7/2)/(1-2*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] 20644*sqrt(-2*x + 1)*sqrt(5*x + 3)/(1715*sqrt(3*x + 2)) + 296*sqr
t(-2*x + 1)*sqrt(5*x + 3)/(245*(3*x + 2)**(3/2)) + 6*sqrt(-2*x +
1)*sqrt(5*x + 3)/(35*(3*x + 2)**(5/2)) - 20644*sqrt(33)*elliptic_
e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/5145 - 6856*sqrt(33)*el
liptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/56595
```

Mathematica [A] time = 0.315014, size = 101, normalized size = 0.64

$$\frac{4\left(\frac{3\sqrt{1-2x}\sqrt{5x+3}\left(92898x^2+126972x+43507\right)}{2(3x+2)^{5/2}}+\sqrt{2}\left(5161E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-2590F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)\right)}{5145}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 - 2*x]*(2 + 3*x)^(7/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (4*((3*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]*(43507 + 126972*x + 92898*x^2)
)/(2*(2 + 3*x)^(5/2)) + Sqrt[2]*(5161*EllipticE[ArcSin[Sqrt[2/11]
*Sqrt[3 + 5*x]], -33/2] - 2590*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3
 + 5*x]], -33/2])))/5145
```

Maple [C] time = 0.033, size = 386, normalized size = 2.4

$$-\frac{2}{51450\,x^2+5145\,x-15435}\left(92898\,\sqrt{2}EllipticE\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^2\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-46620$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(2+3*x)^(7/2)/(1-2*x)^(1/2)/(3+5*x)^(1/2),x)
```

```
[Out] -2/5145*(92898*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1
/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/
2)*(1-2*x)^(1/2)-46620*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3
+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+
3*x)^(1/2)*(1-2*x)^(1/2)+123864*2^(1/2)*EllipticE(1/11*11^(1/2)*2
^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1
/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-62160*2^(1/2)*EllipticF(1/11*11^(
1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5
*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+41288*2^(1/2)*(3+5*x)^(1/2)
*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5
*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-20720*2^(1/2)*(3+5*x)^(
1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*
(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-2786940*x^4-4087854
*x^3-850044*x^2+1012227*x+391563)*(3+5*x)^(1/2)*(1-2*x)^(1/2)/(10
*x^2+x-3)/(2+3*x)^(5/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{5\,x+3}(3\,x+2)^{\frac{7}{2}}\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(5*x + 3)*(3*x + 2)^(7/2)*sqrt(-2*x + 1)),x, algorithm="maxima"
```

```
[Out] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^(7/2)*sqrt(-2*x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{1}{(27\,x^3+54\,x^2+36\,x+8)\sqrt{5\,x+3}\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(5*x + 3)*(3*x + 2)^(7/2)*sqrt(-2*x + 1)),x, algorithm="fricas"
```

```
[Out] integral(1/((27*x^3 + 54*x^2 + 36*x + 8)*sqrt(5*x + 3)*sqrt(3*x +
 2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(2+3*x)**(7/2)/(1-2*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{5\,x+3}(3\,x+2)^{\frac{7}{2}}\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^(7/2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^(7/2)*sqrt(-2*x + 1)), x)
```

3.2850 $\int \frac{(2+3x)^{7/2}}{\sqrt{1-2x}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=160

$$-\frac{2\sqrt{1-2x}(3x+2)^{5/2}}{55\sqrt{5x+3}}-\frac{69\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}}{1375}-\frac{2577\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{6875}-\frac{942\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3125}-\frac{61151\sqrt{\frac{3}{11}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{6250}$$

```
[Out] (-2*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2))/(55*Sqrt[3 + 5*x]) - (2577*Sqr
t[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/6875 - (69*Sqrt[1 - 2*x]*
(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/1375 - (61151*Sqrt[3/11]*EllipticE
[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/6250 - (942*Sqrt[3/11]*
EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3125
```

Rubi [A] time = 0.334696, antiderivative size = 160, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{2\sqrt{1-2x}(3x+2)^{5/2}}{55\sqrt{5x+3}}-\frac{69\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}}{1375}-\frac{2577\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{6875}-\frac{942\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3125}-\frac{61151\sqrt{\frac{3}{11}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{6250}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^(7/2)/(Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-2*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2))/(55*Sqrt[3 + 5*x]) - (2577*Sqr
t[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/6875 - (69*Sqrt[1 - 2*x]*
(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/1375 - (61151*Sqrt[3/11]*EllipticE
[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/6250 - (942*Sqrt[3/11]*
EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3125
```

Rubi in Sympy [A] time = 34.3714, size = 144, normalized size = 0.9

$$-\frac{2\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}}{55\sqrt{5x+3}}-\frac{69\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\,\sqrt{5x+3}}{1375}-\frac{2577\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{6875}-\frac{61151\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{68750}-\frac{942\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{34375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(7/2)/(3+5*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] -2*sqrt(-2*x + 1)*(3*x + 2)**(5/2)/(55*sqrt(5*x + 3)) - 69*sqrt(-
2*x + 1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/1375 - 2577*sqrt(-2*x + 1
)*sqrt(3*x + 2)*sqrt(5*x + 3)/6875 - 61151*sqrt(33)*elliptic_e(as
in(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/68750 - 942*sqrt(33)*ellipt
ic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/34375
```

Mathematica [A] time = 0.280916, size = 122, normalized size = 0.76

$$\frac{61151\sqrt{2}(5x+3)E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-5\left(2\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}\left(7425x^2+22440x+10801\right)+6013\sqrt{2}(5x+\right.}{68750(5x+3)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^(7/2)/(Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)),x]
```

```
[Out] (61151*Sqrt[2]*(3 + 5*x)*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x
]], -33/2] - 5*(2*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(1080
1 + 22440*x + 7425*x^2) + 6013*Sqrt[2]*(3 + 5*x)*EllipticF[ArcSin
[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]))/(68750*(3 + 5*x))
```

Maple [C] time = 0.027, size = 169, normalized size = 1.1

$$\frac{1}{2062500\,x^3+1581250\,x^2-481250\,x-412500}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(30065\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}\mathit{EllipticF}\left(1/1\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(7/2)/(3+5*x)^(3/2)/(1-2*x)^(1/2),x)
```

```
[Out] 1/68750*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(30065*2^(1/2)*
(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)
*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-61151*2^(1
/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(
1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-445500
*x^4-1420650*x^3-723960*x^2+340790*x+216020)/(30*x^3+23*x^2-7*x-6
)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{7}{2}}}{(5\,x+3)^{\frac{3}{2}}\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(7/2)/((5*x + 3)^(3/2)*sqrt(-2*x + 1)),x, algorithm="maxima"
```

```
[Out] integrate((3*x + 2)^(7/2)/((5*x + 3)^(3/2)*sqrt(-2*x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\left(27\,x^3+54\,x^2+36\,x+8\right)\sqrt{3\,x+2}}{(5\,x+3)^{\frac{3}{2}}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(7/2)/((5*x + 3)^(3/2)*sqrt(-2*x + 1)),x, algorithm="fricas"
```

```
[Out] integral((27*x^3 + 54*x^2 + 36*x + 8)*sqrt(3*x + 2)/((5*x + 3)^(3
/2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(7/2)/(3+5*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{7}{2}}}{(5x+3)^{\frac{3}{2}}\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(7/2)/((5*x + 3)^(3/2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] integrate((3*x + 2)^(7/2)/((5*x + 3)^(3/2)*sqrt(-2*x + 1)), x)
```

3.2851 $\int \frac{(2+3x)^{5/2}}{\sqrt{1-2x}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=129

$$-\frac{2\sqrt{1-2x}(3x+2)^{3/2}}{55\sqrt{5x+3}}-\frac{27}{275}\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}-\frac{17}{125}\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{438}{125}\sqrt{\frac{3}{11}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (-2*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2))/(55*Sqrt[3 + 5*x]) - (27*Sqrt[
1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/275 - (438*Sqrt[3/11]*Ellip
ticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/125 - (17*Sqrt[3/11
]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/125
```

Rubi [A] time = 0.258571, antiderivative size = 129, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{2\sqrt{1-2x}(3x+2)^{3/2}}{55\sqrt{5x+3}}-\frac{27}{275}\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}-\frac{17}{125}\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{438}{125}\sqrt{\frac{3}{11}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^(5/2)/(Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-2*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2))/(55*Sqrt[3 + 5*x]) - (27*Sqrt[
1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/275 - (438*Sqrt[3/11]*Ellip
ticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/125 - (17*Sqrt[3/11
]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/125
```

Rubi in Sympy [A] time = 25.971, size = 116, normalized size = 0.9

$$-\frac{2\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}}{55\sqrt{5x+3}}-\frac{27\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{275}-\frac{438\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{1375}-\frac{17\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{1375}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(5/2)/(3+5*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] -2*sqrt(-2*x + 1)*(3*x + 2)**(3/2)/(55*sqrt(5*x + 3)) - 27*sqrt(-
2*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/275 - 438*sqrt(33)*elliptic_
e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/1375 - 17*sqrt(33)*elli
ptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/1375
```

Mathematica [A] time = 0.310461, size = 97, normalized size = 0.75

$$\frac{-\frac{10\sqrt{1-2x}\sqrt{3x+2}(165x+101)}{\sqrt{5x+3}}-315\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+876\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)}{2750}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^(5/2)/(Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)),x]
```

```
[Out] ((-10*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(101 + 165*x))/Sqrt[3 + 5*x] +
876*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] -
315*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/2
750
```

Maple [C] time = 0.027, size = 164, normalized size = 1.3

$$\frac{1}{82500\,x^3+63250\,x^2-19250\,x-16500}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(315\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(5/2)/(3+5*x)^(3/2)/(1-2*x)^(1/2),x)
```

```
[Out] 1/2750*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(315*2^(1/2)*(3+
5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^
(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-876*2^(1/2)*(
3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*
2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-9900*x^3-77
10*x^2+2290*x+2020)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{5}{2}}}{(5\,x+3)^{\frac{3}{2}}\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(5/2)/((5*x + 3)^(3/2)*sqrt(-2*x + 1)),x, algorithm="maxima"
```

```
[Out] integrate((3*x + 2)^(5/2)/((5*x + 3)^(3/2)*sqrt(-2*x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\left(9\,x^2+12\,x+4\right)\sqrt{3\,x+2}}{(5\,x+3)^{\frac{3}{2}}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(5/2)/((5*x + 3)^(3/2)*sqrt(-2*x + 1)),x, algorithm="fricas"
```

```
[Out] integral((9*x^2 + 12*x + 4)*sqrt(3*x + 2)/((5*x + 3)^(3/2)*sqrt(-
2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(5/2)/(3+5*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{5}{2}}}{(5x+3)^{\frac{3}{2}}\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(5/2)/((5*x + 3)^(3/2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] integrate((3*x + 2)^(5/2)/((5*x + 3)^(3/2)*sqrt(-2*x + 1)), x)
```

3.2852 $\int \frac{(2+3x)^{3/2}}{\sqrt{1-2x}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=98

$$-\frac{2\sqrt{1-2x}\sqrt{3x+2}}{55\sqrt{5x+3}}-\frac{4}{25}\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{31}{25}\sqrt{\frac{3}{11}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (-2*Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/(55*Sqrt[3 + 5*x]) - (31*Sqrt[3/
11]*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/25 - (4*Sq
rt[3/11]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/25
```

Rubi [A] time = 0.189557, antiderivative size = 98, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.143

$$-\frac{2\sqrt{1-2x}\sqrt{3x+2}}{55\sqrt{5x+3}}-\frac{4}{25}\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{31}{25}\sqrt{\frac{3}{11}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^(3/2)/(Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-2*Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/(55*Sqrt[3 + 5*x]) - (31*Sqrt[3/
11]*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/25 - (4*Sq
rt[3/11]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/25
```

Rubi in Sympy [A] time = 18.3756, size = 87, normalized size = 0.89

$$-\frac{2\sqrt{-2x+1}\sqrt{3x+2}}{55\sqrt{5x+3}}-\frac{31\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{275}-\frac{12\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{875}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(3/2)/(3+5*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] -2*sqrt(-2*x + 1)*sqrt(3*x + 2)/(55*sqrt(5*x + 3)) - 31*sqrt(33)*
elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/275 - 12*sqrt(
35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/875
```

Mathematica [A] time = 0.188827, size = 92, normalized size = 0.94

$$\frac{1}{275}\left(-\frac{10\sqrt{1-2x}\sqrt{3x+2}}{\sqrt{5x+3}}+35\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+31\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^(3/2)/(Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)),x]
```

```
[Out] ((-10*Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/Sqrt[3 + 5*x] + 31*Sqrt[2]*Ell
ipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 35*Sqrt[2]*Elli
pticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/275
```

Maple [C] time = 0.026, size = 159, normalized size = 1.6

$$-\frac{1}{8250\,x^{3}+6325\,x^{2}-1925\,x-1650}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(35\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(3/2)/(3+5*x)^(3/2)/(1-2*x)^(1/2),x)
```

```
[Out] -1/275*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(35*2^(1/2)*(3+5
*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(
1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+31*2^(1/2)*(3+
5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^
(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+60*x^2+10*x-2
0)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{3}{2}}}{(5\,x+3)^{\frac{3}{2}}\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(3/2)/((5*x + 3)^(3/2)*sqrt(-2*x + 1)),x, algorithm="maxima"
```

```
[Out] integrate((3*x + 2)^(3/2)/((5*x + 3)^(3/2)*sqrt(-2*x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{(3\,x+2)^{\frac{3}{2}}}{(5\,x+3)^{\frac{3}{2}}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(3/2)/((5*x + 3)^(3/2)*sqrt(-2*x + 1)),x, algorithm="fricas"
```

```
[Out] integral((3*x + 2)^(3/2)/((5*x + 3)^(3/2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(3/2)/(3+5*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{3}{2}}}{(5\,x+3)^{\frac{3}{2}}\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(3/2)/((5*x + 3)^(3/2)*sqrt(-2*x + 1)),x, algorithm="giac")

[Out] integrate((3*x + 2)^(3/2)/((5*x + 3)^(3/2)*sqrt(-2*x + 1)), x)
```

3.2853 $\int \frac{\sqrt{2+3x}}{\sqrt{1-2x}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=81

$$\frac{2\sqrt{\frac{7}{5}}\sqrt{-5x-3}E\left(\sin^{-1}\left(\sqrt{5}\sqrt{3x+2}\right)|\frac{2}{35}\right)}{11\sqrt{5x+3}}-\frac{2\sqrt{1-2x}\sqrt{3x+2}}{11\sqrt{5x+3}}$$

```
[Out] (-2*Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/(11*Sqrt[3 + 5*x]) + (2*Sqrt[7/5
]*Sqrt[-3 - 5*x]*EllipticE[ArcSin[Sqrt[5]*Sqrt[2 + 3*x]], 2/35])/
(11*Sqrt[3 + 5*x])
```

Rubi [A] time = 0.140416, antiderivative size = 81, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.143

$$\frac{2\sqrt{\frac{7}{5}}\sqrt{-5x-3}E\left(\sin^{-1}\left(\sqrt{5}\sqrt{3x+2}\right)|\frac{2}{35}\right)}{11\sqrt{5x+3}}-\frac{2\sqrt{1-2x}\sqrt{3x+2}}{11\sqrt{5x+3}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[2 + 3*x]/(Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-2*Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/(11*Sqrt[3 + 5*x]) + (2*Sqrt[7/5
]*Sqrt[-3 - 5*x]*EllipticE[ArcSin[Sqrt[5]*Sqrt[2 + 3*x]], 2/35])/
(11*Sqrt[3 + 5*x])
```

Rubi in Sympy [A] time = 14.0439, size = 94, normalized size = 1.16

$$\frac{2\sqrt{5}\sqrt{-15x-9}\sqrt{-2x+1}E\left(\operatorname{asin}\left(\sqrt{5}\sqrt{3x+2}\right)\middle|\frac{2}{35}\right)}{55\sqrt{-\frac{6x}{7}+\frac{3}{7}}\sqrt{5x+3}}-\frac{2\sqrt{-2x+1}\sqrt{3x+2}}{11\sqrt{5x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(1/2)/(3+5*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] 2*sqrt(5)*sqrt(-15*x - 9)*sqrt(-2*x + 1)*elliptic_e(asin(sqrt(5)*
sqrt(3*x + 2)), 2/35)/(55*sqrt(-6*x/7 + 3/7)*sqrt(5*x + 3)) - 2*s
qrt(-2*x + 1)*sqrt(3*x + 2)/(11*sqrt(5*x + 3))
```

Mathematica [C] time = 0.129661, size = 61, normalized size = 0.75

$$\frac{2}{55}\left(-\frac{5\sqrt{1-2x}\sqrt{3x+2}}{\sqrt{5x+3}}-i\sqrt{33}E\left(i\sinh^{-1}\left(\sqrt{15x+9}\right)|-\frac{2}{33}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[2 + 3*x]/(Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)),x]
```

```
[Out] (2*((-5*Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/Sqrt[3 + 5*x] - I*Sqrt[33]*E
llipticE[I*ArcSinh[Sqrt[9 + 15*x]], -2/33]))/55
```

Maple [C] time = 0.024, size = 159, normalized size = 2.

$$\frac{1}{1650\,x^3+1265\,x^2-385\,x-330}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(2\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticE\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(1/2)/(3+5*x)^(3/2)/(1-2*x)^(1/2),x)
```

```
[Out] 1/55*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(2*2^(1/2)*(3+5*x)
^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2
)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-35*2^(1/2)*(3+5*x
)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/
2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-60*x^2-10*x+20)/
(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{3\,x+2}}{(5\,x+3)^{\frac{3}{2}}\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(3*x + 2)/((5*x + 3)^(3/2)*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(3*x + 2)/((5*x + 3)^(3/2)*sqrt(-2*x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\sqrt{3\,x+2}}{(5\,x+3)^{\frac{3}{2}}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(3*x + 2)/((5*x + 3)^(3/2)*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] integral(sqrt(3*x + 2)/((5*x + 3)^(3/2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(1/2)/(3+5*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{3\,x+2}}{(5\,x+3)^{\frac{3}{2}}\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(3*x + 2)/((5*x + 3)^(3/2)*sqrt(-2*x + 1)),x, algorithm="giac")

[Out] integrate(sqrt(3*x + 2)/((5*x + 3)^(3/2)*sqrt(-2*x + 1)), x)
```

3.2854 $\int \frac{1}{\sqrt{1-2x}\sqrt{2+3x}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=63

$$2\sqrt{\frac{3}{11}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{10\sqrt{1-2x}\sqrt{3x+2}}{11\sqrt{5x+3}}$$

```
[Out] (-10*Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/(11*Sqrt[3 + 5*x]) + 2*Sqrt[3/1
1]*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33]
```

Rubi [A] time = 0.0950023, antiderivative size = 63, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.107

$$2\sqrt{\frac{3}{11}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{10\sqrt{1-2x}\sqrt{3x+2}}{11\sqrt{5x+3}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-10*Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/(11*Sqrt[3 + 5*x]) + 2*Sqrt[3/1
1]*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33]
```

Rubi in Sympy [A] time = 9.44459, size = 56, normalized size = 0.89

$$-\frac{10\sqrt{-2x+1}\sqrt{3x+2}}{11\sqrt{5x+3}}+\frac{2\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{11}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(3+5*x)**(3/2)/(1-2*x)**(1/2)/(2+3*x)**(1/2),x)
```

```
[Out] -10*sqrt(-2*x + 1)*sqrt(3*x + 2)/(11*sqrt(5*x + 3)) + 2*sqrt(33)*
elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/11
```

Mathematica [A] time = 0.114814, size = 106, normalized size = 1.68

$$-\frac{2\left(5\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}-\sqrt{2}(5x+3)F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+\sqrt{2}(5x+3)E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)}{55x+33}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-2*(5*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x] + Sqrt[2]*(3 + 5
*x)*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - Sqrt[2]*
(3 + 5*x)*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]))/(3
3 + 55*x)
```

Maple [C] time = 0.028, size = 158, normalized size = 2.5

$$-\frac{2}{330\,x^3+253\,x^2-77\,x-66}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(\frac{\sqrt{11}\sqrt{2}}{11}\sqrt{3+5\,x},\frac{i}{2}\sqrt{11}\sqrt{3}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int(1/(3+5*x)^(3/2)/(1-2*x)^(1/2)/(2+3*x)^(1/2),x)
```

```
[Out] -2/11*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(2^(1/2)*(3+5*x)^
(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)
*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-2^(1/2)*(3+5*x)^(1
/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(
3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+30*x^2+5*x-10)/(30*x
^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5x+3)^{\frac{3}{2}}\sqrt{3x+2}\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(3/2)*sqrt(3*x + 2)*sqrt(-2*x + 1)),x, algorithm="maxima"
```

```
[Out] integrate(1/((5*x + 3)^(3/2)*sqrt(3*x + 2)*sqrt(-2*x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{(5x+3)^{\frac{3}{2}}\sqrt{3x+2}\sqrt{-2x+1}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(3/2)*sqrt(3*x + 2)*sqrt(-2*x + 1)),x, algorithm="fricas"
```

```
[Out] integral(1/((5*x + 3)^(3/2)*sqrt(3*x + 2)*sqrt(-2*x + 1)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{-2x+1}\sqrt{3x+2}\,(5x+3)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   integrate(1/(3+5*x)**(3/2)/(1-2*x)**(1/2)/(2+3*x)**(1/2),x)
```

```
[Out] Integral(1/(sqrt(-2*x + 1)*sqrt(3*x + 2)*(5*x + 3)**(3/2)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5x+3)^{\frac{3}{2}}\sqrt{3x+2}\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(3/2)*sqrt(3*x + 2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] integrate(1/((5*x + 3)^(3/2)*sqrt(3*x + 2)*sqrt(-2*x + 1)), x)
```

3.2855 $\int \frac{1}{\sqrt{1-2x}(2+3x)^{3/2}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=129

$$-\frac{680\sqrt{1-2x}\sqrt{3x+2}}{77\sqrt{5x+3}}+\frac{6\sqrt{1-2x}}{7\sqrt{3x+2}\sqrt{5x+3}}+\frac{4}{7}\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{136}{7}\sqrt{\frac{3}{11}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (6*Sqrt[1 - 2*x])/(7*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) - (680*Sqrt[1 -
 2*x]*Sqrt[2 + 3*x])/(77*Sqrt[3 + 5*x]) + (136*Sqrt[3/11]*Ellipti
cE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/7 + (4*Sqrt[3/11]*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/7
```

Rubi [A] time = 0.266163, antiderivative size = 129, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{680\sqrt{1-2x}\sqrt{3x+2}}{77\sqrt{5x+3}}+\frac{6\sqrt{1-2x}}{7\sqrt{3x+2}\sqrt{5x+3}}+\frac{4}{7}\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{136}{7}\sqrt{\frac{3}{11}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (6*Sqrt[1 - 2*x])/(7*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) - (680*Sqrt[1 -
 2*x]*Sqrt[2 + 3*x])/(77*Sqrt[3 + 5*x]) + (136*Sqrt[3/11]*Ellipti
cE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/7 + (4*Sqrt[3/11]*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/7
```

Rubi in Sympy [A] time = 25.4708, size = 114, normalized size = 0.88

$$-\frac{680\sqrt{-2x+1}\sqrt{3x+2}}{77\sqrt{5x+3}}+\frac{6\sqrt{-2x+1}}{7\sqrt{3x+2}\sqrt{5x+3}}+\frac{136\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{77}+\frac{12\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{245}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(2+3*x)**(3/2)/(3+5*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] -680*sqrt(-2*x + 1)*sqrt(3*x + 2)/(77*sqrt(5*x + 3)) + 6*sqrt(-2*
x + 1)/(7*sqrt(3*x + 2)*sqrt(5*x + 3)) + 136*sqrt(33)*elliptic_e(
asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/77 + 12*sqrt(35)*elliptic
_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/245
```

Mathematica [A] time = 0.173814, size = 130, normalized size = 1.01

$$-\frac{2\left(-35\sqrt{2}\left(15x^2+19x+6\right)F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+68\sqrt{2}\left(15x^2+19x+6\right)E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+\sqrt{1-\right.}{77(3x+2)(5x+3)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-2*(Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(647 + 1020*x) + 6
8*Sqrt[2]*(6 + 19*x + 15*x^2)*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3
+ 5*x]], -33/2] - 35*Sqrt[2]*(6 + 19*x + 15*x^2)*EllipticF[ArcSin
[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]))/(77*(2 + 3*x)*(3 + 5*x))
```

Maple [C] time = 0.032, size = 159, normalized size = 1.2

$$-\frac{2}{2310\,x^3+1771\,x^2-539\,x-462}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(35\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(2+3*x)^(3/2)/(3+5*x)^(3/2)/(1-2*x)^(1/2),x)
```

```
[Out] -2/77*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(35*2^(1/2)*(3+5*
x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1
/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-68*2^(1/2)*(3+5
*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(
1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+2040*x^2+274*x
-647)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5\,x+3)^{\frac{3}{2}}(3\,x+2)^{\frac{3}{2}}\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^(3/2)*sqrt(-2*x + 1)),x, algorithm="maxima
```

```
[Out] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^(3/2)*sqrt(-2*x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{(15\,x^2+19\,x+6)\sqrt{5\,x+3}\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^(3/2)*sqrt(-2*x + 1)),x, algorithm="frica
```

```
[Out] integral(1/((15*x^2 + 19*x + 6)*sqrt(5*x + 3)*sqrt(3*x + 2)*sqrt(
-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(2+3*x)**(3/2)/(3+5*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5\,x+3)^{\frac{3}{2}}(3\,x+2)^{\frac{3}{2}}\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^(3/2)*sqrt(-2*x + 1)),x, algorithm="giac"
```

```
[Out] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^(3/2)*sqrt(-2*x + 1)), x)
```

3.2856 $\int \frac{1}{\sqrt{1-2x}(2+3x)^{5/2}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=160

$$-\frac{31940\sqrt{1-2x}\sqrt{3x+2}}{539\sqrt{5x+3}}+\frac{288\sqrt{1-2x}}{49\sqrt{3x+2}\sqrt{5x+3}}+\frac{2\sqrt{1-2x}}{7(3x+2)^{3/2}\sqrt{5x+3}}+\frac{192}{49}\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{6388}{49}\sqrt{\frac{3}{11}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (2*Sqrt[1 - 2*x])/(7*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x]) + (288*Sqrt[1
 - 2*x])/(49*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) - (31940*Sqrt[1 - 2*x]*
Sqrt[2 + 3*x])/(539*Sqrt[3 + 5*x]) + (6388*Sqrt[3/11]*EllipticE[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/49 + (192*Sqrt[3/11]*Elli
pticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/49
```

Rubi [A] time = 0.35179, antiderivative size = 160, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{31940\sqrt{1-2x}\sqrt{3x+2}}{539\sqrt{5x+3}}+\frac{288\sqrt{1-2x}}{49\sqrt{3x+2}\sqrt{5x+3}}+\frac{2\sqrt{1-2x}}{7(3x+2)^{3/2}\sqrt{5x+3}}+\frac{192}{49}\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{6388}{49}\sqrt{\frac{3}{11}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (2*Sqrt[1 - 2*x])/(7*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x]) + (288*Sqrt[1
 - 2*x])/(49*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) - (31940*Sqrt[1 - 2*x]*
Sqrt[2 + 3*x])/(539*Sqrt[3 + 5*x]) + (6388*Sqrt[3/11]*EllipticE[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/49 + (192*Sqrt[3/11]*Elli
pticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/49
```

Rubi in Sympy [A] time = 32.7397, size = 143, normalized size = 0.89

$$-\frac{31940\sqrt{-2x+1}\sqrt{3x+2}}{539\sqrt{5x+3}}+\frac{288\sqrt{-2x+1}}{49\sqrt{3x+2}\sqrt{5x+3}}+\frac{2\sqrt{-2x+1}}{7\left(3x+2\right)^{\frac{3}{2}}\sqrt{5x+3}}+\frac{6388\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{539}+\frac{576\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{1715}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(2+3*x)**(5/2)/(3+5*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] -31940*sqrt(-2*x + 1)*sqrt(3*x + 2)/(539*sqrt(5*x + 3)) + 288*sqr
t(-2*x + 1)/(49*sqrt(3*x + 2)*sqrt(5*x + 3)) + 2*sqrt(-2*x + 1)/(
7*(3*x + 2)**(3/2)*sqrt(5*x + 3)) + 6388*sqrt(33)*elliptic_e(asin
(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/539 + 576*sqrt(35)*elliptic_f
(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/1715
```

Mathematica [A] time = 0.196633, size = 100, normalized size = 0.62

$$\frac{2}{539}\left(-\frac{\sqrt{1-2x}\left(143730x^2+186888x+60635\right)}{(3x+2)^{3/2}\sqrt{5x+3}}-2\sqrt{2}\left(1597E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-805F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (2*(-((Sqrt[1 - 2*x]*(60635 + 186888*x + 143730*x^2))/((2 + 3*x)^
(3/2)*Sqrt[3 + 5*x])) - 2*Sqrt[2]*(1597*EllipticE[ArcSin[Sqrt[2/1
1]*Sqrt[3 + 5*x]], -33/2] - 805*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[
3 + 5*x]], -33/2])))/539
```

Maple [C] time = 0.034, size = 267, normalized size = 1.7

$$-\frac{2}{5390\,x^2+539\,x-1617}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(4830\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(2+3*x)^(5/2)/(3+5*x)^(3/2)/(1-2*x)^(1/2),x)
```

```
[Out] -2/539*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(4830*2^(1/2)*EllipticF(1/11*1
1^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(
3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-9582*2^(1/2)*EllipticE(1
/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2)
)*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+3220*2^(1/2)*(3+5*x
)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/
2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-6388*2^(1/2)*(3+
5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^
(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+287460*x^3+23
0046*x^2-65618*x-60635)/(2+3*x)^(3/2)/(10*x^2+x-3)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5\,x+3)^{\frac{3}{2}}(3\,x+2)^{\frac{5}{2}}\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^(5/2)*sqrt(-2*x + 1)),x, algorithm="maxima
```

```
[Out] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^(5/2)*sqrt(-2*x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{(45\,x^3+87\,x^2+56\,x+12)\sqrt{5\,x+3}\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^(5/2)*sqrt(-2*x + 1)),x, algorithm="frica
```

```
[Out] integral(1/((45*x^3 + 87*x^2 + 56*x + 12)*sqrt(5*x + 3)*sqrt(3*x
+ 2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(2+3*x)**(5/2)/(3+5*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5x+3)^{\frac{3}{2}}(3x+2)^{\frac{5}{2}}\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^(5/2)*sqrt(-2*x + 1)),x, algorithm="giac"
```

```
[Out] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^(5/2)*sqrt(-2*x + 1)), x)
```

3.2857 $\int \frac{1}{\sqrt{1-2x}(2+3x)^{7/2}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=191

$$-\frac{1344984\sqrt{1-2x}\sqrt{3x+2}}{3773\sqrt{5x+3}}+\frac{60684\sqrt{1-2x}}{1715\sqrt{3x+2}\sqrt{5x+3}}+\frac{436\sqrt{1-2x}}{245(3x+2)^{3/2}\sqrt{5x+3}}+\frac{6\sqrt{1-2x}}{35(3x+2)^{5/2}\sqrt{5x+3}}+\frac{40456\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1715}+\frac{1344984\sqrt{\frac{3}{11}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1715}$$

```
[Out] (6*Sqrt[1 - 2*x])/(35*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x]) + (436*Sqrt[
1 - 2*x])/(245*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x]) + (60684*Sqrt[1 - 2
*x])/(1715*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) - (1344984*Sqrt[1 - 2*x]*
Sqrt[2 + 3*x])/(3773*Sqrt[3 + 5*x]) + (1344984*Sqrt[3/11]*Ellipti
cE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1715 + (40456*Sqrt[3/
11]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1715
```

Rubi [A] time = 0.44351, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.179$

$$-\frac{1344984\sqrt{1-2x}\sqrt{3x+2}}{3773\sqrt{5x+3}}+\frac{60684\sqrt{1-2x}}{1715\sqrt{3x+2}\sqrt{5x+3}}+\frac{436\sqrt{1-2x}}{245(3x+2)^{3/2}\sqrt{5x+3}}+\frac{6\sqrt{1-2x}}{35(3x+2)^{5/2}\sqrt{5x+3}}+\frac{40456\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1715}+\frac{1344984\sqrt{\frac{3}{11}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1715}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 - 2*x]*(2 + 3*x)^(7/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (6*Sqrt[1 - 2*x])/(35*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x]) + (436*Sqrt[
1 - 2*x])/(245*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x]) + (60684*Sqrt[1 - 2
*x])/(1715*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) - (1344984*Sqrt[1 - 2*x]*
Sqrt[2 + 3*x])/(3773*Sqrt[3 + 5*x]) + (1344984*Sqrt[3/11]*Ellipti
cE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1715 + (40456*Sqrt[3/
11]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1715
```

Rubi in Sympy [A] time = 40.1686, size = 172, normalized size = 0.9

$$-\frac{1344984\sqrt{-2x+1}\sqrt{3x+2}}{3773\sqrt{5x+3}}+\frac{60684\sqrt{-2x+1}}{1715\sqrt{3x+2}\sqrt{5x+3}}+\frac{436\sqrt{-2x+1}}{245\left(3x+2\right)^{\frac{3}{2}}\sqrt{5x+3}}+\frac{6\sqrt{-2x+1}}{35\left(3x+2\right)^{\frac{5}{2}}\sqrt{5x+3}}+\frac{1344984\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{18865}+\frac{40456\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{18865}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(2+3*x)**(7/2)/(3+5*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] -1344984*sqrt(-2*x + 1)*sqrt(3*x + 2)/(3773*sqrt(5*x + 3)) + 6068
4*sqrt(-2*x + 1)/(1715*sqrt(3*x + 2)*sqrt(5*x + 3)) + 436*sqrt(-2
*x + 1)/(245*(3*x + 2)**(3/2)*sqrt(5*x + 3)) + 6*sqrt(-2*x + 1)/(
35*(3*x + 2)**(5/2)*sqrt(5*x + 3)) + 1344984*sqrt(33)*elliptic_e(
asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/18865 + 40456*sqrt(33)*el
liptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/18865
```

Mathematica [A] time = 0.307103, size = 105, normalized size = 0.55

$$\frac{2\left(-\frac{\sqrt{1-2x}(90786420x^3+178568982x^2+116993058x+25529443)}{(3x+2)^{5/2}\sqrt{5x+3}}-6\sqrt{2}\left(112082E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-56455F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x\right.\right.\right.\right.}{18865}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 - 2*x]*(2 + 3*x)^(7/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (2*(-((Sqrt[1 - 2*x]*(25529443 + 116993058*x + 178568982*x^2 + 90
786420*x^3))/((2 + 3*x)^(5/2)*Sqrt[3 + 5*x])) - 6*Sqrt[2]*(112082
*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 56455*Ellip
ticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])))/18865
```

Maple [C] time = 0.036, size = 386, normalized size = 2.

$$-\frac{2}{188650x^2+18865x-56595}\sqrt{1-2x}\sqrt{3+5x}\left(3048570\sqrt{2}EllipticF\left(1/11\sqrt{11}\sqrt{2}\sqrt{3+5x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^2\sqrt{3+5x}\sqrt{2}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(2+3*x)^(7/2)/(3+5*x)^(3/2)/(1-2*x)^(1/2),x)
```

```
[Out] -2/18865*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(3048570*2^(1/2)*EllipticF(1
/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2)
)*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-6052428*2^(1/2)*E
llipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/
2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+4064760
*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(
1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)
-8069904*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/
2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*
x)^(1/2)+1354920*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2
)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^
(1/2)*2^(1/2))-2689968*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x
)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1
/2)*3^(1/2)*2^(1/2))+181572840*x^4+266351544*x^3+55417134*x^2-659
34172*x-25529443)/(2+3*x)^(5/2)/(10*x^2+x-3)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5x+3)^{\frac{3}{2}}(3x+2)^{\frac{7}{2}}\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^(7/2)*sqrt(-2*x + 1)),x, algorithm="maxima
```

```
[Out] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^(7/2)*sqrt(-2*x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{(135x^4+351x^3+342x^2+148x+24)\sqrt{5x+3}\sqrt{3x+2}\sqrt{-2x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^(7/2)*sqrt(-2*x + 1)),x, algorithm="frica
```

```
[Out] integral(1/((135*x^4 + 351*x^3 + 342*x^2 + 148*x + 24)*sqrt(5*x +
 3)*sqrt(3*x + 2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(2+3*x)**(7/2)/(3+5*x)**(3/2)/(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5x+3)^{\frac{3}{2}}(3x+2)^{\frac{7}{2}}\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^(7/2)*sqrt(-2*x + 1)),x, algorithm="giac"
```

```
[Out] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^(7/2)*sqrt(-2*x + 1)), x)
```

3.2858 $\int \frac{(2+3x)^{9/2}}{\sqrt{1-2x}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=187

$$-\frac{2\sqrt{1-2x}(3x+2)^{7/2}}{165(5x+3)^{3/2}}-\frac{668\sqrt{1-2x}(3x+2)^{5/2}}{9075\sqrt{5x+3}}+\frac{403\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}}{75625}-\frac{87476\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{378125}-\frac{104663F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{171875\sqrt{33}}-\frac{6515539E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{343750\sqrt{33}}$$

```
[Out] (-2*Sqrt[1 - 2*x]*(2 + 3*x)^(7/2))/(165*(3 + 5*x)^(3/2)) - (668*S
qrt[1 - 2*x]*(2 + 3*x)^(5/2))/(9075*Sqrt[3 + 5*x]) - (87476*Sqrt[
1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/378125 + (403*Sqrt[1 - 2*x]
*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/75625 - (6515539*EllipticE[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(343750*Sqrt[33]) - (104663*El
lipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(171875*Sqrt[33]
)
```

Rubi [A] time = 0.417154, antiderivative size = 187, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.214$

$$-\frac{2\sqrt{1-2x}(3x+2)^{7/2}}{165(5x+3)^{3/2}}-\frac{668\sqrt{1-2x}(3x+2)^{5/2}}{9075\sqrt{5x+3}}+\frac{403\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}}{75625}-\frac{87476\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{378125}-\frac{104663F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{171875\sqrt{33}}-\frac{6515539E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{343750\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^(9/2)/(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2)),x]
```


```
[Out] (-2*Sqrt[1 - 2*x]*(2 + 3*x)^(7/2))/(165*(3 + 5*x)^(3/2)) - (668*S
qrt[1 - 2*x]*(2 + 3*x)^(5/2))/(9075*Sqrt[3 + 5*x]) - (87476*Sqrt[
1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/378125 + (403*Sqrt[1 - 2*x]
*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/75625 - (6515539*EllipticE[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(343750*Sqrt[33]) - (104663*El
lipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(171875*Sqrt[33]
)
```

Rubi in Sympy [A] time = 41.2601, size = 172, normalized size = 0.92

$$-\frac{2\sqrt{-2x+1}\,(3x+2)^{\frac{7}{2}}}{165\,(5x+3)^{\frac{3}{2}}}-\frac{668\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}}{9075\sqrt{5x+3}}+\frac{403\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\sqrt{5x+3}}{75625}-\frac{87476\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{378125}-\frac{6515539\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{11343750}-\frac{104663\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{6015625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(9/2)/(3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] -2*sqrt(-2*x + 1)*(3*x + 2)**(7/2)/(165*(5*x + 3)**(3/2)) - 668*s
qrt(-2*x + 1)*(3*x + 2)**(5/2)/(9075*sqrt(5*x + 3)) + 403*sqrt(-2
```

```
*x + 1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/75625 - 87476*sqrt(-2*x +
1)*sqrt(3*x + 2)*sqrt(5*x + 3)/378125 - 6515539*sqrt(33)*elliptic
_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/11343750 - 104663*sqrt
(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/6015625
```

Mathematica [A] time = 0.368333, size = 107, normalized size = 0.57

$$\frac{-\frac{10\sqrt{1-2x}\sqrt{3x+2}(3675375x^3+13721400x^2+12517925x+3365042)}{(5x+3)^{3/2}}-3061660\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+6515539\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\right.\right.}{11343750}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^(9/2)/(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2)),x]
```

```
[Out] ((-10*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3365042 + 12517925*x + 1372140
0*x^2 + 3675375*x^3))/(3 + 5*x)^(3/2) + 6515539*Sqrt[2]*EllipticE
[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 3061660*Sqrt[2]*Ellip
ticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/11343750
```

Maple [C] time = 0.03, size = 277, normalized size = 1.5

$$\frac{1}{68062500x^2+11343750x-22687500}\left(15308300\sqrt{2}EllipticF\left(1/11\sqrt{11}\sqrt{2}\sqrt{3+5x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5x}\sqrt{2+3x}\sqrt{1-}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(9/2)/(3+5*x)^(5/2)/(1-2*x)^(1/2),x)
```

```
[Out] 1/11343750*(15308300*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5
*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)
^(1/2)*(1-2*x)^(1/2)-32577695*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(
1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2
)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+9184980*2^(1/2)*(3+5*x)^(1/2)*(2+3*
x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1
/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-19546617*2^(1/2)*(3+5*x)^(1/2
)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+
5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-220522500*x^5-86003775
0*x^4-814782000*x^3-52653770*x^2+216708080*x+67300840)*(1-2*x)^(1
/2)*(2+3*x)^(1/2)/(6*x^2+x-2)/(3+5*x)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{9}{2}}}{(5x+3)^{\frac{5}{2}}\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(9/2)/((5*x + 3)^(5/2)*sqrt(-2*x + 1)),x, algorithm="maxima"
```

```
[Out] integrate((3*x + 2)^(9/2)/((5*x + 3)^(5/2)*sqrt(-2*x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(81x^4+216x^3+216x^2+96x+16)\sqrt{3x+2}}{(25x^2+30x+9)\sqrt{5x+3}\sqrt{-2x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(9/2)/((5*x + 3)^(5/2)*sqrt(-2*x + 1)),x, algorithm="fricas"
```

```
[Out] integral((81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16)*sqrt(3*x + 2)/(
(25*x^2 + 30*x + 9)*sqrt(5*x + 3)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(9/2)/(3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{9}{2}}}{(5x+3)^{\frac{5}{2}}\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(9/2)/((5*x + 3)^(5/2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] integrate((3*x + 2)^(9/2)/((5*x + 3)^(5/2)*sqrt(-2*x + 1)), x)
```

3.2859 $\int \frac{(2+3x)^{7/2}}{\sqrt{1-2x}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=156

$$-\frac{2\sqrt{1-2x}(3x+2)^{5/2}}{165(5x+3)^{3/2}}-\frac{536\sqrt{1-2x}(3x+2)^{3/2}}{9075\sqrt{5x+3}}-\frac{487\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{15125}-\frac{2281F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{6875\sqrt{33}}-\frac{46159E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{6875\sqrt{33}}$$

```
[Out] (-2*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2))/(165*(3 + 5*x)^(3/2)) - (536*S
qrt[1 - 2*x]*(2 + 3*x)^(3/2))/(9075*Sqrt[3 + 5*x]) - (487*Sqrt[1
- 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/15125 - (46159*EllipticE[ArcS
in[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(6875*Sqrt[33]) - (2281*Elli
pticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(6875*Sqrt[33])
```

Rubi [A] time = 0.335928, antiderivative size = 156, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$-\frac{2\sqrt{1-2x}(3x+2)^{5/2}}{165(5x+3)^{3/2}}-\frac{536\sqrt{1-2x}(3x+2)^{3/2}}{9075\sqrt{5x+3}}-\frac{487\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{15125}-\frac{2281F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{6875\sqrt{33}}-\frac{46159E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{6875\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^(7/2)/(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2)),x]
```

```
[Out] (-2*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2))/(165*(3 + 5*x)^(3/2)) - (536*S
qrt[1 - 2*x]*(2 + 3*x)^(3/2))/(9075*Sqrt[3 + 5*x]) - (487*Sqrt[1
- 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/15125 - (46159*EllipticE[ArcS
in[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(6875*Sqrt[33]) - (2281*Elli
pticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(6875*Sqrt[33])
```

Rubi in Sympy [A] time = 33.2552, size = 144, normalized size = 0.92

$$-\frac{2\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}}{165\,(5x+3)^{\frac{3}{2}}}-\frac{536\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}}{9075\sqrt{5x+3}}-\frac{487\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{15125}-\frac{46159\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{226875}-\frac{2281\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{240625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(7/2)/(3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] -2*sqrt(-2*x + 1)*(3*x + 2)**(5/2)/(165*(5*x + 3)**(3/2)) - 536*s
qrt(-2*x + 1)*(3*x + 2)**(3/2)/(9075*sqrt(5*x + 3)) - 487*sqrt(-2
*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/15125 - 46159*sqrt(33)*ellipt
ic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/226875 - 2281*sqrt(3
5)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/240625
```

Mathematica [A] time = 0.316742, size = 102, normalized size = 0.65

$$\frac{-\frac{10\sqrt{1-2x}\sqrt{3x+2}(81675x^2+101350x+31429)}{(5x+3)^{3/2}}-17045\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+92318\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)}{453750}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^(7/2)/(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2)),x]
```

```
[Out] ((-10*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(31429 + 101350*x + 81675*x^2))
/(3 + 5*x)^(3/2) + 92318*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt
[3 + 5*x]], -33/2] - 17045*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sq
rt[3 + 5*x]], -33/2])/453750
```

Maple [C] time = 0.029, size = 272, normalized size = 1.7

$$\frac{1}{2722500\,x^2+453750\,x-907500}\left(85225\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-46$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(7/2)/(3+5*x)^(5/2)/(1-2*x)^(1/2),x)
```

```
[Out] 1/453750*(85225*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(
1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2
)*(1-2*x)^(1/2)-461590*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3
+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*
x)^(1/2)*(1-2*x)^(1/2)+51135*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*
(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I
*11^(1/2)*3^(1/2)*2^(1/2))-276954*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(
1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),
1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-4900500*x^4-6897750*x^3-1265740*x
^2+1712710*x+628580)*(1-2*x)^(1/2)*(2+3*x)^(1/2)/(6*x^2+x-2)/(3+5
*x)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{7}{2}}}{(5\,x+3)^{\frac{5}{2}}\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(7/2)/((5*x + 3)^(5/2)*sqrt(-2*x + 1)),x, algorithm="maxima"
```

```
[Out] integrate((3*x + 2)^(7/2)/((5*x + 3)^(5/2)*sqrt(-2*x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(27\,x^3+54\,x^2+36\,x+8\right)\sqrt{3\,x+2}}{(25\,x^2+30\,x+9)\sqrt{5\,x+3}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(7/2)/((5*x + 3)^(5/2)*sqrt(-2*x + 1)),x, algorithm="fricas"
```

```
[Out] integral((27*x^3 + 54*x^2 + 36*x + 8)*sqrt(3*x + 2)/((25*x^2 + 30
*x + 9)*sqrt(5*x + 3)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(7/2)/(3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{7}{2}}}{(5x+3)^{\frac{5}{2}}\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(7/2)/((5*x + 3)^(5/2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] integrate((3*x + 2)^(7/2)/((5*x + 3)^(5/2)*sqrt(-2*x + 1)), x)
```

3.2860 $\int \frac{(2+3x)^{5/2}}{\sqrt{1-2x}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=125

$$-\frac{2\sqrt{1-2x}(3x+2)^{3/2}}{165(5x+3)^{3/2}}-\frac{404\sqrt{1-2x}\sqrt{3x+2}}{9075\sqrt{5x+3}}-\frac{598F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1375\sqrt{33}}-\frac{2797E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1375\sqrt{33}}$$

```
[Out] (-2*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2))/(165*(3 + 5*x)^(3/2)) - (404*S
qrt[1 - 2*x]*Sqrt[2 + 3*x])/(9075*Sqrt[3 + 5*x]) - (2797*Elliptic
E[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(1375*Sqrt[33]) - (598
*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(1375*Sqrt[33
])
```

Rubi [A] time = 0.261281, antiderivative size = 125, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{2\sqrt{1-2x}(3x+2)^{3/2}}{165(5x+3)^{3/2}}-\frac{404\sqrt{1-2x}\sqrt{3x+2}}{9075\sqrt{5x+3}}-\frac{598F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1375\sqrt{33}}-\frac{2797E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1375\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^(5/2)/(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2)),x]
```

```
[Out] (-2*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2))/(165*(3 + 5*x)^(3/2)) - (404*S
qrt[1 - 2*x]*Sqrt[2 + 3*x])/(9075*Sqrt[3 + 5*x]) - (2797*Elliptic
E[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(1375*Sqrt[33]) - (598
*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(1375*Sqrt[33
])
```

Rubi in Sympy [A] time = 25.6683, size = 116, normalized size = 0.93

$$-\frac{2\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}}{165\,(5x+3)^{\frac{3}{2}}}-\frac{404\sqrt{-2x+1}\sqrt{3x+2}}{9075\sqrt{5x+3}}-\frac{2797\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{45375}-\frac{598\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{48125}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(5/2)/(3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] -2*sqrt(-2*x + 1)*(3*x + 2)**(3/2)/(165*(5*x + 3)**(3/2)) - 404*s
qrt(-2*x + 1)*sqrt(3*x + 2)/(9075*sqrt(5*x + 3)) - 2797*sqrt(33)*
elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/45375 - 598*sq
rt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/48125
```

Mathematica [A] time = 0.384675, size = 97, normalized size = 0.78

$$\frac{-\frac{10\sqrt{1-2x}\sqrt{3x+2}(1175x+716)}{(5x+3)^{3/2}}+7070\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+2797\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)}{45375}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^(5/2)/(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2)),x]
```

```
[Out] ((-10*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(716 + 1175*x))/(3 + 5*x)^(3/2)
 + 2797*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2
] + 7070*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/
2])/45375
```

Maple [C] time = 0.03, size = 267, normalized size = 2.1

$$-\frac{1}{272250\,x^2+45375\,x-90750}\left(35350\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}+1398\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(5/2)/(3+5*x)^(5/2)/(1-2*x)^(1/2),x)
```

```
[Out] -1/45375*(35350*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(
1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2
)*(1-2*x)^(1/2)+13985*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+
5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x
)^(1/2)*(1-2*x)^(1/2)+21210*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(
1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*
11^(1/2)*3^(1/2)*2^(1/2))+8391*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2
)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2
*I*11^(1/2)*3^(1/2)*2^(1/2))+70500*x^3+54710*x^2-16340*x-14320)*(
1-2*x)^(1/2)*(2+3*x)^(1/2)/(6*x^2+x-2)/(3+5*x)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{5}{2}}}{(5\,x+3)^{\frac{5}{2}}\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(5/2)/((5*x + 3)^(5/2)*sqrt(-2*x + 1)),x, algorithm="maxima"
```

```
[Out] integrate((3*x + 2)^(5/2)/((5*x + 3)^(5/2)*sqrt(-2*x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(9\,x^2+12\,x+4\right)\sqrt{3\,x+2}}{(25\,x^2+30\,x+9)\sqrt{5\,x+3}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(5/2)/((5*x + 3)^(5/2)*sqrt(-2*x + 1)),x, algorithm="fricas"
```

```
[Out] integral((9*x^2 + 12*x + 4)*sqrt(3*x + 2)/((25*x^2 + 30*x + 9)*sq
rt(5*x + 3)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(5/2)/(3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{5}{2}}}{(5x+3)^{\frac{5}{2}}\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(5/2)/((5*x + 3)^(5/2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] integrate((3*x + 2)^(5/2)/((5*x + 3)^(5/2)*sqrt(-2*x + 1)), x)
```

3.2861 $\int \frac{(2+3x)^{3/2}}{\sqrt{1-2x}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=125

$$-\frac{272\sqrt{1-2x}\sqrt{3x+2}}{1815\sqrt{5x+3}}-\frac{2\sqrt{1-2x}\sqrt{3x+2}}{165(5x+3)^{3/2}}-\frac{202F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{275\sqrt{33}}+\frac{272E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{275\sqrt{33}}$$

```
[Out] (-2*Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/(165*(3 + 5*x)^(3/2)) - (272*Sqr
t[1 - 2*x]*Sqrt[2 + 3*x])/(1815*Sqrt[3 + 5*x]) + (272*EllipticE[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(275*Sqrt[33]) - (202*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(275*Sqrt[33])
```

Rubi [A] time = 0.267153, antiderivative size = 125, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{272\sqrt{1-2x}\sqrt{3x+2}}{1815\sqrt{5x+3}}-\frac{2\sqrt{1-2x}\sqrt{3x+2}}{165(5x+3)^{3/2}}-\frac{202F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{275\sqrt{33}}+\frac{272E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{275\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^(3/2)/(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2)),x]
```

```
[Out] (-2*Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/(165*(3 + 5*x)^(3/2)) - (272*Sqr
t[1 - 2*x]*Sqrt[2 + 3*x])/(1815*Sqrt[3 + 5*x]) + (272*EllipticE[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(275*Sqrt[33]) - (202*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(275*Sqrt[33])
```

Rubi in Sympy [A] time = 25.8418, size = 114, normalized size = 0.91

$$-\frac{272\sqrt{-2x+1}\sqrt{3x+2}}{1815\sqrt{5x+3}}-\frac{2\sqrt{-2x+1}\sqrt{3x+2}}{165\,(5x+3)^{\frac{3}{2}}}+\frac{272\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{9075}-\frac{202\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{9625}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(3/2)/(3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] -272*sqrt(-2*x + 1)*sqrt(3*x + 2)/(1815*sqrt(5*x + 3)) - 2*sqrt(-
2*x + 1)*sqrt(3*x + 2)/(165*(5*x + 3)**(3/2)) + 272*sqrt(33)*elli
ptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/9075 - 202*sqrt(35
)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/9625
```

Mathematica [A] time = 0.355548, size = 97, normalized size = 0.78

$$\frac{-\frac{10\sqrt{1-2x}\sqrt{3x+2}(680x+419)}{(5x+3)^{3/2}}+3605\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-272\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)}{9075}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^(3/2)/(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2)),x]
```

```
[Out] ((-10*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(419 + 680*x))/(3 + 5*x)^(3/2)
- 272*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]
+ 3605*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]
)/9075
```

Maple [C] time = 0.03, size = 267, normalized size = 2.1

$$-\frac{1}{54450\,x^2+9075\,x-18150}\left(18025\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-1360\,\sqrt{\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(3/2)/(3+5*x)^(5/2)/(1-2*x)^(1/2),x)
```

```
[Out] -1/9075*(18025*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1
/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)
*(1-2*x)^(1/2)-1360*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*
x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^
(1/2)*(1-2*x)^(1/2)+10815*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-
2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11
^(1/2)*3^(1/2)*2^(1/2))-816*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(
1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*
11^(1/2)*3^(1/2)*2^(1/2))+40800*x^3+31940*x^2-9410*x-8380)*(1-2*x
)^(1/2)*(2+3*x)^(1/2)/(6*x^2+x-2)/(3+5*x)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{3}{2}}}{(5\,x+3)^{\frac{5}{2}}\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(3/2)/((5*x + 3)^(5/2)*sqrt(-2*x + 1)),x, algorithm="maxima"
```

```
[Out] integrate((3*x + 2)^(3/2)/((5*x + 3)^(5/2)*sqrt(-2*x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(3\,x+2)^{\frac{3}{2}}}{(25\,x^2+30\,x+9)\sqrt{5\,x+3}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(3/2)/((5*x + 3)^(5/2)*sqrt(-2*x + 1)),x, algorithm="fricas"
```

```
[Out] integral((3*x + 2)^(3/2)/((25*x^2 + 30*x + 9)*sqrt(5*x + 3)*sqrt(
-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(3/2)/(3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{3}{2}}}{(5\,x+3)^{\frac{5}{2}}\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(3/2)/((5*x + 3)^(5/2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] integrate((3*x + 2)^(3/2)/((5*x + 3)^(5/2)*sqrt(-2*x + 1)), x)
```

3.2862 $\int \frac{\sqrt{2+3x}}{\sqrt{1-2x}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=125

$$-\frac{74\sqrt{1-2x}\sqrt{3x+2}}{363\sqrt{5x+3}}-\frac{2\sqrt{1-2x}\sqrt{3x+2}}{33(5x+3)^{3/2}}-\frac{4F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{55\sqrt{33}}+\frac{74E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{55\sqrt{33}}$$

```
[Out] (-2*Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/(33*(3 + 5*x)^(3/2)) - (74*Sqrt[
1 - 2*x]*Sqrt[2 + 3*x])/(363*Sqrt[3 + 5*x]) + (74*EllipticE[ArcSi
n[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(55*Sqrt[33]) - (4*EllipticF[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(55*Sqrt[33])
```

Rubi [A] time = 0.269414, antiderivative size = 125, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{74\sqrt{1-2x}\sqrt{3x+2}}{363\sqrt{5x+3}}-\frac{2\sqrt{1-2x}\sqrt{3x+2}}{33(5x+3)^{3/2}}-\frac{4F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{55\sqrt{33}}+\frac{74E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{55\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[2 + 3*x]/(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2)),x]
```

```
[Out] (-2*Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/(33*(3 + 5*x)^(3/2)) - (74*Sqrt[
1 - 2*x]*Sqrt[2 + 3*x])/(363*Sqrt[3 + 5*x]) + (74*EllipticE[ArcSi
n[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(55*Sqrt[33]) - (4*EllipticF[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(55*Sqrt[33])
```

Rubi in Sympy [A] time = 26.3493, size = 114, normalized size = 0.91

$$-\frac{74\sqrt{-2x+1}\sqrt{3x+2}}{363\sqrt{5x+3}}-\frac{2\sqrt{-2x+1}\sqrt{3x+2}}{33\,(5x+3)^{\frac{3}{2}}}+\frac{74\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{1815}-\frac{4\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{1925}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(1/2)/(3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] -74*sqrt(-2*x + 1)*sqrt(3*x + 2)/(363*sqrt(5*x + 3)) - 2*sqrt(-2*
x + 1)*sqrt(3*x + 2)/(33*(5*x + 3)**(3/2)) + 74*sqrt(33)*elliptic
_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/1815 - 4*sqrt(35)*elli
ptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/1925
```

Mathematica [A] time = 0.399205, size = 97, normalized size = 0.78

$$\frac{2\left(-\frac{5\sqrt{1-2x}\sqrt{3x+2}(185x+122)}{(5x+3)^{3/2}}+70\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-37\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)}{1815}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[2 + 3*x]/(Sqrt[1 - 2*x]*(3 + 5*x)^(5/2)),x]
```

```
[Out] (2*((-5*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(122 + 185*x))/(3 + 5*x)^(3/2
) - 37*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]
 + 70*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])
)/1815
```

Maple [C] time = 0.031, size = 267, normalized size = 2.1

$$-\frac{2}{10890\,x^2+1815\,x-3630}\left(350\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-185\,\sqrt{2}Elli\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(1/2)/(3+5*x)^(5/2)/(1-2*x)^(1/2),x)
```

```
[Out] -2/1815*(350*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2
),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(
1-2*x)^(1/2)-185*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^
(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/
2)*(1-2*x)^(1/2)+210*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^
(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2
)*3^(1/2)*2^(1/2))-111*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x
)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1
/2)*3^(1/2)*2^(1/2))+5550*x^3+4585*x^2-1240*x-1220)*(1-2*x)^(1/2)
*(2+3*x)^(1/2)/(6*x^2+x-2)/(3+5*x)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{3\,x+2}}{(5\,x+3)^{\frac{5}{2}}\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(3*x + 2)/((5*x + 3)^(5/2)*sqrt(-2*x + 1)),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(3*x + 2)/((5*x + 3)^(5/2)*sqrt(-2*x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{3\,x+2}}{(25\,x^2+30\,x+9)\sqrt{5\,x+3}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(3*x + 2)/((5*x + 3)^(5/2)*sqrt(-2*x + 1)),x, algorithm="fricas")
```

```
[Out] integral(sqrt(3*x + 2)/((25*x^2 + 30*x + 9)*sqrt(5*x + 3)*sqrt(-2
*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(1/2)/(3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{3x+2}}{(5x+3)^{\frac{5}{2}}\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(3*x + 2)/((5*x + 3)^(5/2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] integrate(sqrt(3*x + 2)/((5*x + 3)^(5/2)*sqrt(-2*x + 1)), x)
```

3.2863 $\int \frac{1}{\sqrt{1-2x}\sqrt{2+3x}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=125

$$\frac{620\sqrt{1-2x}\sqrt{3x+2}}{363\sqrt{5x+3}}-\frac{10\sqrt{1-2x}\sqrt{3x+2}}{33(5x+3)^{3/2}}-\frac{4F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{11\sqrt{33}}-\frac{124E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{11\sqrt{33}}$$

```
[Out] (-10*Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/(33*(3 + 5*x)^(3/2)) + (620*Sqr
t[1 - 2*x]*Sqrt[2 + 3*x])/(363*Sqrt[3 + 5*x]) - (124*EllipticE[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(11*Sqrt[33]) - (4*Ellipti
cF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(11*Sqrt[33])
```

Rubi [A] time = 0.265959, antiderivative size = 125, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{620\sqrt{1-2x}\sqrt{3x+2}}{363\sqrt{5x+3}}-\frac{10\sqrt{1-2x}\sqrt{3x+2}}{33(5x+3)^{3/2}}-\frac{4F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{11\sqrt{33}}-\frac{124E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{11\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2)),x]
```

```
[Out] (-10*Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/(33*(3 + 5*x)^(3/2)) + (620*Sqr
t[1 - 2*x]*Sqrt[2 + 3*x])/(363*Sqrt[3 + 5*x]) - (124*EllipticE[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(11*Sqrt[33]) - (4*Ellipti
cF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(11*Sqrt[33])
```

Rubi in Sympy [A] time = 25.3373, size = 114, normalized size = 0.91

$$\frac{620\sqrt{-2x+1}\sqrt{3x+2}}{363\sqrt{5x+3}}-\frac{10\sqrt{-2x+1}\sqrt{3x+2}}{33\,(5x+3)^{\frac{3}{2}}}-\frac{124\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{363}-\frac{4\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{385}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(3+5*x)**(5/2)/(1-2*x)**(1/2)/(2+3*x)**(1/2),x)
```

```
[Out] 620*sqrt(-2*x + 1)*sqrt(3*x + 2)/(363*sqrt(5*x + 3)) - 10*sqrt(-2
*x + 1)*sqrt(3*x + 2)/(33*(5*x + 3)**(3/2)) - 124*sqrt(33)*ellipt
ic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/363 - 4*sqrt(35)*ell
iptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/385
```

Mathematica [A] time = 0.324823, size = 97, normalized size = 0.78

$$\frac{2}{363}\left(\frac{25\sqrt{1-2x}\sqrt{3x+2}(62x+35)}{(5x+3)^{3/2}}-29\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+62\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2)),x]
```

```
[Out] (2*((25*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(35 + 62*x))/(3 + 5*x)^(3/2)
+ 62*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] -
 29*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]))/
363
```

Maple [C] time = 0.03, size = 267, normalized size = 2.1

$$-\frac{2}{2178\,x^2+363\,x-726}\left(310\,\sqrt{2}EllipticE\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-145\,\sqrt{2}Ellipti$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(3+5*x)^(5/2)/(1-2*x)^(1/2)/(2+3*x)^(1/2),x)
```

```
[Out] -2/363*(310*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2)
,1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1
-2*x)^(1/2)-145*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(
1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2
)*(1-2*x)^(1/2)+186*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(
1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)
*3^(1/2)*2^(1/2))-87*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^
(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2
)*3^(1/2)*2^(1/2))-9300*x^3-6800*x^2+2225*x+1750)*(2+3*x)^(1/2)*(
1-2*x)^(1/2)/(6*x^2+x-2)/(3+5*x)^(3/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5\,x+3)^{\frac{5}{2}}\sqrt{3\,x+2}\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(5/2)*sqrt(3*x + 2)*sqrt(-2*x + 1)),x, algorithm="maxima"
```

```
[Out] integrate(1/((5*x + 3)^(5/2)*sqrt(3*x + 2)*sqrt(-2*x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{(25\,x^2+30\,x+9)\sqrt{5\,x+3}\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(5/2)*sqrt(3*x + 2)*sqrt(-2*x + 1)),x, algorithm="fricas"
```

```
[Out] integral(1/((25*x^2 + 30*x + 9)*sqrt(5*x + 3)*sqrt(3*x + 2)*sqrt(
-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(3+5*x)**(5/2)/(1-2*x)**(1/2)/(2+3*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5x+3)^{\frac{5}{2}}\sqrt{3x+2}\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(5/2)*sqrt(3*x + 2)*sqrt(-2*x + 1)),x, algorithm="giac")
```

```
[Out] integrate(1/((5*x + 3)^(5/2)*sqrt(3*x + 2)*sqrt(-2*x + 1)), x)
```

3.2864 $\int \frac{1}{\sqrt{1-2x}(2+3x)^{3/2}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=156

$$\frac{89020\sqrt{1-2x}\sqrt{3x+2}}{2541\sqrt{5x+3}}-\frac{1340\sqrt{1-2x}\sqrt{3x+2}}{231(5x+3)^{3/2}}+\frac{6\sqrt{1-2x}}{7\sqrt{3x+2}(5x+3)^{3/2}}-\frac{536F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{77\sqrt{33}}-\frac{17804E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{77\sqrt{33}}$$

```
[Out] (6*Sqrt[1 - 2*x])/(7*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)) - (1340*Sqrt[
1 - 2*x]*Sqrt[2 + 3*x])/(231*(3 + 5*x)^(3/2)) + (89020*Sqrt[1 - 2
*x]*Sqrt[2 + 3*x])/(2541*Sqrt[3 + 5*x]) - (17804*EllipticE[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(77*Sqrt[33]) - (536*EllipticF
[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(77*Sqrt[33])
```

Rubi [A] time = 0.349413, antiderivative size = 156, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.179$

$$\frac{89020\sqrt{1-2x}\sqrt{3x+2}}{2541\sqrt{5x+3}}-\frac{1340\sqrt{1-2x}\sqrt{3x+2}}{231(5x+3)^{3/2}}+\frac{6\sqrt{1-2x}}{7\sqrt{3x+2}(5x+3)^{3/2}}-\frac{536F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{77\sqrt{33}}-\frac{17804E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{77\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (6*Sqrt[1 - 2*x])/(7*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)) - (1340*Sqrt[
1 - 2*x]*Sqrt[2 + 3*x])/(231*(3 + 5*x)^(3/2)) + (89020*Sqrt[1 - 2
*x]*Sqrt[2 + 3*x])/(2541*Sqrt[3 + 5*x]) - (17804*EllipticE[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(77*Sqrt[33]) - (536*EllipticF
[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(77*Sqrt[33])
```

Rubi in Sympy [A] time = 31.771, size = 143, normalized size = 0.92

$$\frac{89020\sqrt{-2x+1}\sqrt{3x+2}}{2541\sqrt{5x+3}}-\frac{1340\sqrt{-2x+1}\sqrt{3x+2}}{231\,(5x+3)^{\frac{3}{2}}}+\frac{6\sqrt{-2x+1}}{7\sqrt{3x+2}\,(5x+3)^{\frac{3}{2}}}-\frac{17804\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{2541}-\frac{536\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{2695}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(2+3*x)**(3/2)/(3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] 89020*sqrt(-2*x + 1)*sqrt(3*x + 2)/(2541*sqrt(5*x + 3)) - 1340*sq
rt(-2*x + 1)*sqrt(3*x + 2)/(231*(5*x + 3)**(3/2)) + 6*sqrt(-2*x +
 1)/(7*sqrt(3*x + 2)*(5*x + 3)**(3/2)) - 17804*sqrt(33)*elliptic_
e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/2541 - 536*sqrt(35)*ell
iptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/2695
```

Mathematica [A] time = 0.194814, size = 99, normalized size = 0.63

$$\frac{2\left(\frac{\sqrt{1-2x}(667650x^2+823580x+253409)}{\sqrt{3x+2}(5x+3)^{3/2}}+2\sqrt{2}\left(4451E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-2240F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)\right)}{2541}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (2*((Sqrt[1 - 2*x]*(253409 + 823580*x + 667650*x^2))/(Sqrt[2 + 3*
x]*(3 + 5*x)^(3/2)) + 2*Sqrt[2]*(4451*EllipticE[ArcSin[Sqrt[2/11]
*Sqrt[3 + 5*x]], -33/2] - 2240*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3
 + 5*x]], -33/2])))/2541
```

Maple [C] time = 0.034, size = 267, normalized size = 1.7

$$\frac{2}{15246\,x^2+2541\,x-5082}\sqrt{2+3\,x}\sqrt{1-2\,x}\left(22400\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(2+3*x)^(3/2)/(3+5*x)^(5/2)/(1-2*x)^(1/2),x)
```

```
[Out] 2/2541*(2+3*x)^(1/2)*(1-2*x)^(1/2)*(22400*2^(1/2)*EllipticF(1/11*
11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*
(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-44510*2^(1/2)*EllipticE
(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/
2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+13440*2^(1/2)*(3+
5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^
(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-26706*2^(1/2)
*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2
)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+1335300*x
^3+979510*x^2-316762*x-253409)/(3+5*x)^(3/2)/(6*x^2+x-2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5\,x+3)^{\frac{5}{2}}(3\,x+2)^{\frac{3}{2}}\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^(3/2)*sqrt(-2*x + 1)),x, algorithm="maxima
```

```
[Out] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^(3/2)*sqrt(-2*x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{(75\,x^3+140\,x^2+87\,x+18)\sqrt{5\,x+3}\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^(3/2)*sqrt(-2*x + 1)),x, algorithm="fricas
```

```
[Out] integral(1/((75*x^3 + 140*x^2 + 87*x + 18)*sqrt(5*x + 3)*sqrt(3*x
 + 2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(2+3*x)**(3/2)/(3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5x+3)^{\frac{5}{2}}(3x+2)^{\frac{3}{2}}\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^(3/2)*sqrt(-2*x + 1)),x, algorithm="giac"
```

```
[Out] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^(3/2)*sqrt(-2*x + 1)), x)
```

3.2865 $\int \frac{1}{\sqrt{1-2x}(2+3x)^{5/2}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=187

$$\frac{6277760\sqrt{1-2x}\sqrt{3x+2}}{17787\sqrt{5x+3}}-\frac{94420\sqrt{1-2x}\sqrt{3x+2}}{1617(5x+3)^{3/2}}+\frac{428\sqrt{1-2x}}{49\sqrt{3x+2}(5x+3)^{3/2}}+\frac{2\sqrt{1-2x}}{7(3x+2)^{3/2}(5x+3)^{3/2}}-\frac{37768F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)\middle|\frac{35}{33}\right)}{539\sqrt{33}}-\frac{1255552E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)\middle|\frac{35}{33}\right)}{539\sqrt{33}}$$

```
[Out] (2*Sqrt[1 - 2*x])/(7*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)) + (428*Sqrt
[1 - 2*x])/(49*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)) - (94420*Sqrt[1 - 2
*x]*Sqrt[2 + 3*x])/(1617*(3 + 5*x)^(3/2)) + (6277760*Sqrt[1 - 2*x
]*Sqrt[2 + 3*x])/(17787*Sqrt[3 + 5*x]) - (1255552*EllipticE[ArcSi
n[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(539*Sqrt[33]) - (37768*Ellip
ticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(539*Sqrt[33])
```

Rubi [A] time = 0.436999, antiderivative size = 187, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{6277760\sqrt{1-2x}\sqrt{3x+2}}{17787\sqrt{5x+3}}-\frac{94420\sqrt{1-2x}\sqrt{3x+2}}{1617(5x+3)^{3/2}}+\frac{428\sqrt{1-2x}}{49\sqrt{3x+2}(5x+3)^{3/2}}+\frac{2\sqrt{1-2x}}{7(3x+2)^{3/2}(5x+3)^{3/2}}-\frac{37768F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)\middle|\frac{35}{33}\right)}{539\sqrt{33}}-\frac{1255552E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)\middle|\frac{35}{33}\right)}{539\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (2*Sqrt[1 - 2*x])/(7*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)) + (428*Sqrt
[1 - 2*x])/(49*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)) - (94420*Sqrt[1 - 2
*x]*Sqrt[2 + 3*x])/(1617*(3 + 5*x)^(3/2)) + (6277760*Sqrt[1 - 2*x
]*Sqrt[2 + 3*x])/(17787*Sqrt[3 + 5*x]) - (1255552*EllipticE[ArcSi
n[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(539*Sqrt[33]) - (37768*Ellip
ticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(539*Sqrt[33])
```

Rubi in Sympy [A] time = 39.2292, size = 172, normalized size = 0.92

$$\frac{6277760\sqrt{-2x+1}\sqrt{3x+2}}{17787\sqrt{5x+3}}-\frac{94420\sqrt{-2x+1}\sqrt{3x+2}}{1617\,(5x+3)^{\frac{3}{2}}}+\frac{428\sqrt{-2x+1}}{49\sqrt{3x+2}\,(5x+3)^{\frac{3}{2}}}+\frac{2\sqrt{-2x+1}}{7\,(3x+2)^{\frac{3}{2}}\,(5x+3)^{\frac{3}{2}}}-\frac{1255552\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{17787}-\frac{37768\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{18865}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(2+3*x)**(5/2)/(3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] 6277760*sqrt(-2*x + 1)*sqrt(3*x + 2)/(17787*sqrt(5*x + 3)) - 9442
0*sqrt(-2*x + 1)*sqrt(3*x + 2)/(1617*(5*x + 3)**(3/2)) + 428*sqrt
(-2*x + 1)/(49*sqrt(3*x + 2)*(5*x + 3)**(3/2)) + 2*sqrt(-2*x + 1)
/(7*(3*x + 2)**(3/2)*(5*x + 3)**(3/2)) - 1255552*sqrt(33)*ellipti
c_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/17787 - 37768*sqrt(35
)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/18865
```

Mathematica [A] time = 0.232321, size = 104, normalized size = 0.56

$$\frac{2\left(\frac{\sqrt{1-2x}(141249600x^3+268408770x^2+169778606x+35747225)}{(3x+2)^{3/2}(5x+3)^{3/2}}+2\sqrt{2}\left(313888E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-158095F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x\right.\right.\right.\right.}{17787}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (2*((Sqrt[1 - 2*x]*(35747225 + 169778606*x + 268408770*x^2 + 1412
49600*x^3))/((2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)) + 2*Sqrt[2]*(313888
*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 158095*Elli
pticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])))/17787
```

Maple [C] time = 0.036, size = 383, normalized size = 2.1

$$\frac{2}{-17787+35574x}\sqrt{1-2x}\left(4742850\sqrt{2}EllipticF\left(1/11\sqrt{11}\sqrt{2}\sqrt{3+5x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^2\sqrt{3+5x}\sqrt{2+3x}\sqrt{1-2x}-9416\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(2+3*x)^(5/2)/(3+5*x)^(5/2)/(1-2*x)^(1/2),x)
```

```
[Out] 2/17787*(1-2*x)^(1/2)*(4742850*2^(1/2)*EllipticF(1/11*11^(1/2)*2^
(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(
1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-9416640*2^(1/2)*EllipticE(1/11*1
1^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2
*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+6007610*2^(1/2)*Ellipt
icF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^
(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-11927744*2^(1/
2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3
^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+18971
40*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/
11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))
-3766656*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Ellipt
icE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^
(1/2))+282499200*x^4+395567940*x^3+71148442*x^2-98284156*x-357472
25)/(2+3*x)^(3/2)/(3+5*x)^(3/2)/(-1+2*x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5x+3)^{\frac{5}{2}}(3x+2)^{\frac{5}{2}}\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^(5/2)*sqrt(-2*x + 1)),x, algorithm="maxima
```

```
[Out] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^(5/2)*sqrt(-2*x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{(225x^4+570x^3+541x^2+228x+36)\sqrt{5x+3}\sqrt{3x+2}\sqrt{-2x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^(5/2)*sqrt(-2*x + 1)),x, algorithm="frica
```

```
[Out] integral(1/((225*x^4 + 570*x^3 + 541*x^2 + 228*x + 36)*sqrt(5*x +
 3)*sqrt(3*x + 2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(2+3*x)**(5/2)/(3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5x+3)^{\frac{5}{2}}(3x+2)^{\frac{5}{2}}\sqrt{-2x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^(5/2)*sqrt(-2*x + 1)),x, algorithm="giac"
```

```
[Out] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^(5/2)*sqrt(-2*x + 1)), x)
```

3.2866 $\int \frac{1}{\sqrt{1-2x}(2+3x)^{7/2}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=218

$$\frac{352875016\sqrt{1-2x}\sqrt{3x+2}}{124509\sqrt{5x+3}}-\frac{5307272\sqrt{1-2x}\sqrt{3x+2}}{11319(5x+3)^{3/2}}+\frac{120324\sqrt{1-2x}}{1715\sqrt{3x+2}(5x+3)^{3/2}}+\frac{576\sqrt{1-2x}}{245(3x+2)^{3/2}(5x+3)^{3/2}}+\frac{6\sqrt{1-2x}}{35(3x+2)^{5/2}(5x+3)^{3/2}}-\frac{10614544F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{18865\sqrt{33}}-\frac{352875016E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{18865\sqrt{33}}$$

```
[Out] (6*Sqrt[1 - 2*x])/(35*(2 + 3*x)^(5/2)*(3 + 5*x)^(3/2)) + (576*Sqr
t[1 - 2*x])/(245*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)) + (120324*Sqrt[
1 - 2*x])/(1715*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)) - (5307272*Sqrt[1
- 2*x]*Sqrt[2 + 3*x])/(11319*(3 + 5*x)^(3/2)) + (352875016*Sqrt[1
 - 2*x]*Sqrt[2 + 3*x])/(124509*Sqrt[3 + 5*x]) - (352875016*Ellipt
icE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(18865*Sqrt[33]) - (
10614544*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(1886
5*Sqrt[33])
```

Rubi [A] time = 0.526557, antiderivative size = 218, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{352875016\sqrt{1-2x}\sqrt{3x+2}}{124509\sqrt{5x+3}}-\frac{5307272\sqrt{1-2x}\sqrt{3x+2}}{11319(5x+3)^{3/2}}+\frac{120324\sqrt{1-2x}}{1715\sqrt{3x+2}(5x+3)^{3/2}}+\frac{576\sqrt{1-2x}}{245(3x+2)^{3/2}(5x+3)^{3/2}}+\frac{6\sqrt{1-2x}}{35(3x+2)^{5/2}(5x+3)^{3/2}}-\frac{10614544F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{18865\sqrt{33}}-\frac{352875016E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{18865\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[1 - 2*x]*(2 + 3*x)^(7/2)*(3 + 5*x)^(5/2)),x]
```


```
[Out] (6*Sqrt[1 - 2*x])/(35*(2 + 3*x)^(5/2)*(3 + 5*x)^(3/2)) + (576*Sqr
t[1 - 2*x])/(245*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)) + (120324*Sqrt[
1 - 2*x])/(1715*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)) - (5307272*Sqrt[1
- 2*x]*Sqrt[2 + 3*x])/(11319*(3 + 5*x)^(3/2)) + (352875016*Sqrt[1
 - 2*x]*Sqrt[2 + 3*x])/(124509*Sqrt[3 + 5*x]) - (352875016*Ellipt
icE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(18865*Sqrt[33]) - (
10614544*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(1886
5*Sqrt[33])
```

Rubi in Sympy [A] time = 46.6249, size = 201, normalized size = 0.92

$$\frac{352875016\sqrt{-2x+1}\sqrt{3x+2}}{124509\sqrt{5x+3}}-\frac{5307272\sqrt{-2x+1}\sqrt{3x+2}}{11319\,(5x+3)^{\frac{3}{2}}}+\frac{120324\sqrt{-2x+1}}{1715\sqrt{3x+2}\,(5x+3)^{\frac{3}{2}}}+\frac{576\sqrt{-2x+1}}{245\,(3x+2)^{\frac{3}{2}}\,(5x+3)^{\frac{3}{2}}}+\frac{6\sqrt{-2x+1}}{35\,(3x+2)^{\frac{5}{2}}\,(5x+3)^{\frac{3}{2}}}-\frac{352875016\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{622545}-\frac{10614544\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{622545}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(2+3*x)**(7/2)/(3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] 352875016*sqrt(-2*x + 1)*sqrt(3*x + 2)/(124509*sqrt(5*x + 3)) - 5
307272*sqrt(-2*x + 1)*sqrt(3*x + 2)/(11319*(5*x + 3)**(3/2)) + 12
0324*sqrt(-2*x + 1)/(1715*sqrt(3*x + 2)*(5*x + 3)**(3/2)) + 576*s
qrt(-2*x + 1)/(245*(3*x + 2)**(3/2)*(5*x + 3)**(3/2)) + 6*sqrt(-2
*x + 1)/(35*(3*x + 2)**(5/2)*(5*x + 3)**(3/2)) - 352875016*sqrt(3
3)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/622545 - 10
614544*sqrt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33
)/622545
```

Mathematica [A] time = 0.349505, size = 109, normalized size = 0.5

$$\frac{2\left(\frac{\sqrt{1-2x}(119095317900x^4+305707177080x^3+294023389014x^2+125573817736x+20093773321)}{(3x+2)^{5/2}(5x+3)^{3/2}}+4\sqrt{2}\left(44109377E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-\right.\right.}{622545}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[1 - 2*x]*(2 + 3*x)^(7/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (2*((Sqrt[1 - 2*x]*(20093773321 + 125573817736*x + 294023389014*x
^2 + 305707177080*x^3 + 119095317900*x^4))/((2 + 3*x)^(5/2)*(3 +
5*x)^(3/2)) + 4*Sqrt[2]*(44109377*EllipticE[ArcSin[Sqrt[2/11]*Sqr
t[3 + 5*x]], -33/2] - 22216880*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3
 + 5*x]], -33/2])))/622545
```

Maple [C] time = 0.037, size = 502, normalized size = 2.3

$$\frac{2}{-622545+1245090\,x}\sqrt{1-2\,x}\left(3999038400\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^3\sqrt{1-2\,x}\sqrt{3+5\,x}\sqrt{2+3\,x}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(2+3*x)^(7/2)/(3+5*x)^(5/2)/(1-2*x)^(1/2),x)
```

```
[Out] 2/622545*(1-2*x)^(1/2)*(3999038400*2^(1/2)*EllipticF(1/11*11^(1/2
)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*
x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)-7939687860*2^(1/2)*EllipticE
(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/
2))*x^3*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)+7731474240*2^(1
/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*
3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-15
350063196*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1
/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1
-2*x)^(1/2)+4976581120*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3
+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*
x)^(1/2)*(1-2*x)^(1/2)-9880500448*2^(1/2)*EllipticE(1/11*11^(1/2)
*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^
(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+1066410240*2^(1/2)*(3+5*x)^(1/2
)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+
5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-2117250096*2^(1/2)*(3+
5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^
(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+238190635800*
x^5+492319036260*x^4+282339600948*x^3-42875753542*x^2-85386271094
*x-20093773321)/(2+3*x)^(5/2)/(3+5*x)^(3/2)/(-1+2*x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5\,x+3)^{\frac{5}{2}}(3\,x+2)^{\frac{7}{2}}\sqrt{-2\,x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^(7/2)*sqrt(-2*x + 1)),x, algorithm="maxima
```

```
[Out] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^(7/2)*sqrt(-2*x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{(675\,x^5 + 2160\,x^4 + 2763\,x^3 + 1766\,x^2 + 564\,x + 72)\sqrt{5\,x + 3}\sqrt{3\,x + 2}\sqrt{-2\,x + 1}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^(7/2)*sqrt(-2*x + 1)),x, algorithm="frica
```

```
[Out] integral(1/((675*x^5 + 2160*x^4 + 2763*x^3 + 1766*x^2 + 564*x + 7
2)*sqrt(5*x + 3)*sqrt(3*x + 2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(2+3*x)**(7/2)/(3+5*x)**(5/2)/(1-2*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5\,x + 3)^{\frac{5}{2}}(3\,x + 2)^{\frac{7}{2}}\sqrt{-2\,x + 1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^(7/2)*sqrt(-2*x + 1)),x, algorithm="giac"
```

```
[Out] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^(7/2)*sqrt(-2*x + 1)), x)
```

3.2867 $\int \frac{\sqrt{x}}{\sqrt{a+2x}\sqrt{c+2x}}\,dx$

Optimal. Leaf size=86

$$\frac{\sqrt{x}\sqrt{a-c}\sqrt{-\frac{c+2x}{a-c}}E\left(\sin^{-1}\left(\frac{\sqrt{a+2x}}{\sqrt{a-c}}\right)|1-\frac{c}{a}\right)}{\sqrt{2}\sqrt{-\frac{x}{a}}\sqrt{c+2x}}$$

```
[Out] (Sqrt[a - c]*Sqrt[x]*Sqrt[-((c + 2*x)/(a - c))]*EllipticE[ArcSin[
Sqrt[a + 2*x]/Sqrt[a - c]], 1 - c/a])/(Sqrt[2]*Sqrt[-(x/a)]*Sqrt[
c + 2*x])
```

Rubi [A] time = 0.166935, antiderivative size = 86, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.125$

$$\frac{\sqrt{x}\sqrt{a-c}\sqrt{-\frac{c+2x}{a-c}}E\left(\sin^{-1}\left(\frac{\sqrt{a+2x}}{\sqrt{a-c}}\right)|1-\frac{c}{a}\right)}{\sqrt{2}\sqrt{-\frac{x}{a}}\sqrt{c+2x}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[x]/(Sqrt[a + 2*x]*Sqrt[c + 2*x]),x]
```

```
[Out] (Sqrt[a - c]*Sqrt[x]*Sqrt[-((c + 2*x)/(a - c))]*EllipticE[ArcSin[
Sqrt[a + 2*x]/Sqrt[a - c]], 1 - c/a])/(Sqrt[2]*Sqrt[-(x/a)]*Sqrt[
c + 2*x])
```

Rubi in Sympy [A] time = 15.2992, size = 70, normalized size = 0.81

$$\frac{\sqrt{2}\sqrt{x}\sqrt{\frac{-c-2x}{a-c}}\sqrt{a-c}E\left(\operatorname{asin}\left(\frac{\sqrt{a+2x}}{\sqrt{a-c}}\right)\middle|\frac{a-c}{a}\right)}{2\sqrt{-\frac{x}{a}}\sqrt{c+2x}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(x**(1/2)/(a+2*x)**(1/2)/(c+2*x)**(1/2),x)
```

```
[Out] sqrt(2)*sqrt(x)*sqrt((-c - 2*x)/(a - c))*sqrt(a - c)*elliptic_e(a
sin(sqrt(a + 2*x)/sqrt(a - c)), (a - c)/a)/(2*sqrt(-x/a)*sqrt(c +
 2*x))
```

Mathematica [C] time = 0.181684, size = 120, normalized size = 1.4

$$-\frac{ic\sqrt{\frac{2x}{a}+1}\sqrt{\frac{2x}{c}+1}\left(E\left(i\sinh^{-1}\left(\sqrt{2}\sqrt{\frac{1}{a}}\sqrt{x}\right)|\frac{a}{c}\right)-F\left(i\sinh^{-1}\left(\sqrt{2}\sqrt{\frac{1}{a}}\sqrt{x}\right)|\frac{a}{c}\right)\right)}{\sqrt{2}\sqrt{\frac{1}{a}}\sqrt{a+2x}\sqrt{c+2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[x]/(Sqrt[a + 2*x]*Sqrt[c + 2*x]),x]
```

```
[Out] ((-I)*c*Sqrt[1 + (2*x)/a]*Sqrt[1 + (2*x)/c]*(EllipticE[I*ArcSinh[
Sqrt[2]*Sqrt[a^(-1)]*Sqrt[x]], a/c] - EllipticF[I*ArcSinh[Sqrt[2]
*Sqrt[a^(-1)]*Sqrt[x]], a/c]))/(Sqrt[2]*Sqrt[a^(-1)]*Sqrt[a + 2*x
]*Sqrt[c + 2*x])
```

Maple [B] time = 0.086, size = 155, normalized size = 1.8

$$-\frac{\sqrt{2}a}{2\,ac+4\,ax+4\,cx+8\,x^{2}}\left(cEllipticF\left(\sqrt{\frac{a+2\,x}{a}},\sqrt{\frac{a}{a-c}}\right)+EllipticE\left(\sqrt{\frac{a+2\,x}{a}},\sqrt{\frac{a}{a-c}}\right)a-EllipticE\left(\sqrt{\frac{a+2\,x}{a}},\sqrt{\frac{a}{a-}}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(x^(1/2)/(a+2*x)^(1/2)/(c+2*x)^(1/2),x)
```

```
[Out] -1/2*(c*EllipticF(((a+2*x)/a)^(1/2),(a/(a-c))^(1/2))+EllipticE(((
a+2*x)/a)^(1/2),(a/(a-c))^(1/2))*a-EllipticE(((a+2*x)/a)^(1/2),(a
/(a-c))^(1/2))*c)*2^(1/2)*(-x/a)^(1/2)*(-(c+2*x)/(a-c))^(1/2)*((a
+2*x)/a)^(1/2)*a*(c+2*x)^(1/2)*(a+2*x)^(1/2)/x^(1/2)/(a*c+2*a*x+2
*c*x+4*x^2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{x}}{\sqrt{a+2\,x}\sqrt{c+2\,x}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(x)/(sqrt(a + 2*x)*sqrt(c + 2*x)),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(x)/(sqrt(a + 2*x)*sqrt(c + 2*x)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\sqrt{x}}{\sqrt{a+2\,x}\sqrt{c+2\,x}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(x)/(sqrt(a + 2*x)*sqrt(c + 2*x)),x, algorithm="fricas")
```

```
[Out] integral(sqrt(x)/(sqrt(a + 2*x)*sqrt(c + 2*x)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{x}}{\sqrt{a+2x}\sqrt{c+2x}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(x**(1/2)/(a+2*x)**(1/2)/(c+2*x)**(1/2),x)
```

```
[Out] Integral(sqrt(x)/(sqrt(a + 2*x)*sqrt(c + 2*x)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{x}}{\sqrt{a+2\,x}\sqrt{c+2\,x}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(x)/(sqrt(a + 2*x)*sqrt(c + 2*x)),x, algorithm="giac")
```

```
[Out] integrate(sqrt(x)/(sqrt(a + 2*x)*sqrt(c + 2*x)), x)
```

3.2868 $\int \frac{1}{\sqrt{4-x}\sqrt{5-x}\sqrt{-3+x}}\,dx$

Optimal. Leaf size=18

$$\sqrt{2}F\left(\sin^{-1}\left(\sqrt{x-3}\right)|\frac{1}{2}\right)$$

```
[Out] Sqrt[2]*EllipticF[ArcSin[Sqrt[-3 + x]], 1/2]
```

Rubi [A] time = 0.0423021, antiderivative size = 18, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.038$

$$\sqrt{2}F\left(\sin^{-1}\left(\sqrt{x-3}\right)|\frac{1}{2}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[4 - x]*Sqrt[5 - x]*Sqrt[-3 + x]),x]
```

```
[Out] Sqrt[2]*EllipticF[ArcSin[Sqrt[-3 + x]], 1/2]
```

Rubi in Sympy [A] time = 4.55227, size = 15, normalized size = 0.83

$$\sqrt{2}F\left(\operatorname{asin}\left(\sqrt{x-3}\right)\middle|\frac{1}{2}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(4-x)**(1/2)/(5-x)**(1/2)/(-3+x)**(1/2),x)
```

```
[Out] sqrt(2)*elliptic_f(asin(sqrt(x - 3)), 1/2)
```

Mathematica [B] time = 0.137452, size = 46, normalized size = 2.56

$$\frac{2\sqrt{-x^2+8x-15}F\left(\sin^{-1}\left(\frac{1}{\sqrt{4-x}}\right)\middle|-1\right)}{\sqrt{1-\frac{1}{(x-4)^2}}(x-4)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[4 - x]*Sqrt[5 - x]*Sqrt[-3 + x]),x]
```

```
[Out] (2*Sqrt[-15 + 8*x - x^2]*EllipticF[ArcSin[1/Sqrt[4 - x]], -1])/(S
qrt[1 - (-4 + x)^(-2)]*(-4 + x))
```

Maple [C] time = 0.085, size = 13, normalized size = 0.7

$$-2\,\mathit{EllipticF}\left(\sqrt{4-x},i\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(4-x)^(1/2)/(5-x)^(1/2)/(-3+x)^(1/2),x)
```

```
[Out] -2*EllipticF((4-x)^(1/2),I)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{x-3}\sqrt{-x+5}\sqrt{-x+4}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(x - 3)*sqrt(-x + 5)*sqrt(-x + 4)),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(x - 3)*sqrt(-x + 5)*sqrt(-x + 4)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{\sqrt{x-3}\sqrt{-x+5}\sqrt{-x+4}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(x - 3)*sqrt(-x + 5)*sqrt(-x + 4)),x, algorithm="fricas")
```

```
[Out] integral(1/(sqrt(x - 3)*sqrt(-x + 5)*sqrt(-x + 4)), x)
```

Sympy [A] time = 13.0654, size = 66, normalized size = 3.67

$$\frac{G_{6,6}^{5,3}\left(\begin{matrix}\frac{1}{2}, 1, 1 & \frac{3}{4}, \frac{3}{4}, \frac{5}{4} \\ \frac{1}{4}, \frac{1}{2}, \frac{3}{4}, 1, \frac{5}{4} & 0 \end{matrix} \middle| {\frac{1}{(x-4)^{2}}} \right)}{4\pi^{\frac{3}{2}}} - \frac{G_{6,6}^{3,5}\left(\begin{matrix}-\frac{1}{4}, 0, \frac{1}{4}, \frac{1}{2}, \frac{3}{4} & 1 \\ 0, \frac{1}{2}, 0 & -\frac{1}{4}, \frac{1}{4}, \frac{1}{4} \end{matrix} \middle| {\frac{e^{-2i\pi}}{(x-4)^{2}}} \right)}{4\pi^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(4-x)**(1/2)/(5-x)**(1/2)/(-3+x)**(1/2),x)
```

```
[Out] meijerg(((1/2, 1, 1), (3/4, 3/4, 5/4)), ((1/4, 1/2, 3/4, 1, 5/4),
 (0,)), (x - 4)**(-2))/(4*pi**(3/2)) - meijerg(((-1/4, 0, 1/4, 1/
2, 3/4), (1,)), ((0, 1/2, 0), (-1/4, 1/4, 1/4)), exp_polar(-2*I*p
i)/(x - 4)**2)/(4*pi**(3/2))
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{x-3}\sqrt{-x+5}\sqrt{-x+4}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(x - 3)*sqrt(-x + 5)*sqrt(-x + 4)),x, algorithm="giac")
```

```
[Out] integrate(1/(sqrt(x - 3)*sqrt(-x + 5)*sqrt(-x + 4)), x)
```

3.2869 $\int \frac{1}{\sqrt{4-x}\sqrt{(5-x)(-3+x)}}\,dx$

Optimal. Leaf size=14

$$-2F\left(\sin^{-1}\left(\sqrt{4-x}\right)\middle|-1\right)$$

```
[Out] -2*EllipticF[ArcSin[Sqrt[4 - x]], -1]
```

Rubi [A] time = 0.0649002, antiderivative size = 14, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 23, $\frac{\text{number of rules}}{\text{integrand size}} = 0.13$

$$-2F\left(\sin^{-1}\left(\sqrt{4-x}\right)\middle|-1\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[4 - x]*Sqrt[(5 - x)*(-3 + x)]),x]
```

```
[Out] -2*EllipticF[ArcSin[Sqrt[4 - x]], -1]
```

Rubi in Sympy [A] time = 8.49995, size = 14, normalized size = 1.

$$-2F\left(\operatorname{asin}\left(\sqrt{-x+4}\right)\middle|-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(4-x)**(1/2)/((5-x)*(-3+x))**(1/2),x)
```

```
[Out] -2*elliptic_f(asin(sqrt(-x + 4)), -1)
```

Mathematica [B] time = 0.0248544, size = 46, normalized size = 3.29

$$\frac{2\sqrt{-x^2+8x-15}F\left(\sin^{-1}\left(\frac{1}{\sqrt{4-x}}\right)\middle|-1\right)}{\sqrt{1-\frac{1}{(x-4)^2}}(x-4)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[4 - x]*Sqrt[(5 - x)*(-3 + x)]),x]
```

```
[Out] (2*Sqrt[-15 + 8*x - x^2]*EllipticF[ArcSin[1/Sqrt[4 - x]], -1])/(S
qrt[1 - (-4 + x)^(-2)]*(-4 + x))
```

Maple [B] time = 0.023, size = 35, normalized size = 2.5

$$-2\,\frac{\mathit{EllipticF}\left(\sqrt{4-x},i\right)\sqrt{5-x}\sqrt{-3+x}}{\sqrt{-(-5+x)(-3+x)}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(4-x)^(1/2)/((5-x)*(-3+x))^(1/2),x)
```

```
[Out] -2*EllipticF((4-x)^(1/2),I)*(5-x)^(1/2)*(-3+x)^(1/2)/(-(-5+x)*(-3
+x))^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{-(x-3)(x-5)}\sqrt{-x+4}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(-(x - 3)*(x - 5))*sqrt(-x + 4)),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(-(x - 3)*(x - 5))*sqrt(-x + 4)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{\sqrt{-x^2+8x-15}\sqrt{-x+4}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(-(x - 3)*(x - 5))*sqrt(-x + 4)),x, algorithm="fricas")
```

```
[Out] integral(1/(sqrt(-x^2 + 8*x - 15)*sqrt(-x + 4)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{-(x-5)(x-3)}\sqrt{-x+4}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(4-x)**(1/2)/((5-x)*(-3+x))**(1/2),x)
```

```
[Out] Integral(1/(sqrt(-(x - 5)*(x - 3))*sqrt(-x + 4)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{-(x-3)(x-5)}\sqrt{-x+4}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(-(x - 3)*(x - 5))*sqrt(-x + 4)),x, algorithm="giac")
```

```
[Out] integrate(1/(sqrt(-(x - 3)*(x - 5))*sqrt(-x + 4)), x)
```

3.2870 $\int \frac{1}{\sqrt{4-x}\sqrt{-15+8x-x^2}}\,dx$

Optimal. Leaf size=14

$$-2F\left(\sin^{-1}\left(\sqrt{4-x}\right)\middle|-1\right)$$

```
[Out] -2*EllipticF[ArcSin[Sqrt[4 - x]], -1]
```

Rubi [A] time = 0.0344033, antiderivative size = 14, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.083$

$$-2F\left(\sin^{-1}\left(\sqrt{4-x}\right)\middle|-1\right)$$

Antiderivative was successfully verified.

```
[In] Int[1/(Sqrt[4 - x]*Sqrt[-15 + 8*x - x^2]),x]
```

```
[Out] -2*EllipticF[ArcSin[Sqrt[4 - x]], -1]
```

Rubi in Sympy [A] time = 7.60024, size = 14, normalized size = 1.

$$-2F\left(\operatorname{asin}\left(\sqrt{-x+4}\right)\middle|-1\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(1/(4-x)**(1/2)/(-x**2+8*x-15)**(1/2),x)
```

```
[Out] -2*elliptic_f(asin(sqrt(-x + 4)), -1)
```

Mathematica [B] time = 0.0697016, size = 44, normalized size = 3.14

$$-\frac{2\sqrt{1-\frac{1}{(x-4)^2}}(x-4)F\left(\sin^{-1}\left(\frac{1}{\sqrt{4-x}}\right)\middle|-1\right)}{\sqrt{-x^2+8x-15}}$$

Antiderivative was successfully verified.

```
[In] Integrate[1/(Sqrt[4 - x]*Sqrt[-15 + 8*x - x^2]),x]
```

```
[Out] (-2*Sqrt[1 - (-4 + x)^(-2)]*(-4 + x)*EllipticF[ArcSin[1/Sqrt[4 - 
x]], -1])/Sqrt[-15 + 8*x - x^2]
```

Maple [B] time = 0.017, size = 47, normalized size = 3.4

$$2\,{\frac{{\it EllipticF}\left(\sqrt{4-x},i\right)\sqrt{-3+x}\sqrt{5-x}\sqrt{-x^2+8\,x-15}}{x^2-8\,x+15}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(1/(4-x)^(1/2)/(-x^2+8*x-15)^(1/2),x)
```

```
[Out] 2*EllipticF((4-x)^(1/2),I)*(-3+x)^(1/2)*(5-x)^(1/2)*(-x^2+8*x-15)
^(1/2)/(x^2-8*x+15)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{-x^2 + 8x - 15}\sqrt{-x + 4}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(-x^2 + 8*x - 15)*sqrt(-x + 4)),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(-x^2 + 8*x - 15)*sqrt(-x + 4)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{\sqrt{-x^2 + 8x - 15}\sqrt{-x + 4}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(-x^2 + 8*x - 15)*sqrt(-x + 4)),x, algorithm="fricas")
```

```
[Out] integral(1/(sqrt(-x^2 + 8*x - 15)*sqrt(-x + 4)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{-(x-5)(x-3)}\sqrt{-x + 4}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(4-x)**(1/2)/(-x**2+8*x-15)**(1/2),x)
```

```
[Out] Integral(1/(sqrt(-(x - 5)*(x - 3))*sqrt(-x + 4)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{-x^2 + 8x - 15}\sqrt{-x + 4}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(-x^2 + 8*x - 15)*sqrt(-x + 4)),x, algorithm="giac")
```

```
[Out] integrate(1/(sqrt(-x^2 + 8*x - 15)*sqrt(-x + 4)), x)
```

3.2871 $\int \frac{1}{\sqrt{6-x}\sqrt{-2+x}\sqrt{-1+x}}\,dx$

Optimal. Leaf size=16

$$2F\left(\sin^{-1}\left(\frac{\sqrt{x-2}}{2}\right)\middle|-4\right)$$

```
[Out] 2*EllipticF[ArcSin[Sqrt[-2 + x]/2], -4]
```

Rubi [A] time = 0.0368924, antiderivative size = 16, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.042$

$$2F\left(\sin^{-1}\left(\frac{\sqrt{x-2}}{2}\right)\middle|-4\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[6 - x]*Sqrt[-2 + x]*Sqrt[-1 + x]),x]
```

```
[Out] 2*EllipticF[ArcSin[Sqrt[-2 + x]/2], -4]
```

Rubi in Sympy [A] time = 7.89702, size = 53, normalized size = 3.31

$$\frac{2\sqrt{5}\sqrt{-x+2}\sqrt{-\frac{x}{5}+\frac{6}{5}}F\left(\operatorname{asin}\left(\frac{\sqrt{5}\sqrt{x-1}}{5}\right)\middle|5\right)}{\sqrt{-x+6}\sqrt{x-2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(6-x)**(1/2)/(-2+x)**(1/2)/(-1+x)**(1/2),x)
```

```
[Out] 2*sqrt(5)*sqrt(-x + 2)*sqrt(-x/5 + 6/5)*elliptic_f(asin(sqrt(5)*s
qrt(x - 1)/5), 5)/(sqrt(-x + 6)*sqrt(x - 2))
```

Mathematica [C] time = 0.0565711, size = 74, normalized size = 4.62

$$\frac{i\sqrt{\frac{4}{x-6}+1}\sqrt{\frac{5}{x-6}+1}(x-6)^{3/2}F\left(i\sinh^{-1}\left(\frac{2}{\sqrt{x-6}}\right)|\frac{5}{4}\right)}{\sqrt{-(x-6)(x-2)}\sqrt{x-1}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[6 - x]*Sqrt[-2 + x]*Sqrt[-1 + x]),x]
```

```
[Out] (I*Sqrt[1 + 4/(-6 + x)]*Sqrt[1 + 5/(-6 + x)]*(-6 + x)^(3/2)*Ellip
ticF[I*ArcSinh[2/Sqrt[-6 + x]], 5/4])/(Sqrt[-((-6 + x)*(-2 + x))]
*Sqrt[-1 + x])
```

Maple [A] time = 0.119, size = 21, normalized size = 1.3

$$-\frac{2\sqrt{5}}{5}EllipticF\left(\frac{1}{2}\sqrt{6-x},\frac{2\sqrt{5}}{5}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(6-x)^(1/2)/(-2+x)^(1/2)/(-1+x)^(1/2),x)
```

```
[Out] -2/5*EllipticF(1/2*(6-x)^(1/2),2/5*5^(1/2))*5^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{x-1}\sqrt{x-2}\sqrt{-x+6}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(x - 1)*sqrt(x - 2)*sqrt(-x + 6)),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(x - 1)*sqrt(x - 2)*sqrt(-x + 6)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{\sqrt{x-1}\sqrt{x-2}\sqrt{-x+6}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(x - 1)*sqrt(x - 2)*sqrt(-x + 6)),x, algorithm="fricas")
```

```
[Out] integral(1/(sqrt(x - 1)*sqrt(x - 2)*sqrt(-x + 6)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{-x+6}\sqrt{x-2}\sqrt{x-1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(6-x)**(1/2)/(-2+x)**(1/2)/(-1+x)**(1/2),x)
```

```
[Out] Integral(1/(sqrt(-x + 6)*sqrt(x - 2)*sqrt(x - 1)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{x-1}\sqrt{x-2}\sqrt{-x+6}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(x - 1)*sqrt(x - 2)*sqrt(-x + 6)),x, algorithm="giac")
```

```
[Out] integrate(1/(sqrt(x - 1)*sqrt(x - 2)*sqrt(-x + 6)), x)
```

3.2872 $\int \frac{1}{\sqrt{(6-x)(-2+x)}\sqrt{-1+x}}\,dx$

Optimal. Leaf size=25

$$-\frac{2F\left(\sin^{-1}\left(\frac{\sqrt{6-x}}{2}\right)|\frac{4}{5}\right)}{\sqrt{5}}$$

```
[Out] (-2*EllipticF[ArcSin[Sqrt[6 - x]/2], 4/5])/Sqrt[5]
```

Rubi [A] time = 0.0866572, antiderivative size = 25, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 21, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.143

$$-\frac{2F\left(\sin^{-1}\left(\frac{\sqrt{6-x}}{2}\right)|\frac{4}{5}\right)}{\sqrt{5}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[(6 - x)*(-2 + x)]*Sqrt[-1 + x]),x]
```

```
[Out] (-2*EllipticF[ArcSin[Sqrt[6 - x]/2], 4/5])/Sqrt[5]
```

Rubi in Sympy [A] time = 13.0673, size = 66, normalized size = 2.64

$$-\frac{8\sqrt{\frac{x}{5}-\frac{1}{5}}\sqrt{-\frac{x^2}{16}+\frac{x}{2}-\frac{3}{4}}F\left(\operatorname{asin}\left(\frac{\sqrt{2}\sqrt{-\frac{x}{2}+3}}{2}\right)\middle|\frac{4}{5}\right)}{\sqrt{x-1}\sqrt{-x^2+8x-12}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/((6-x)*(-2+x))**(1/2)/(-1+x)**(1/2),x)
```

```
[Out] -8*sqrt(x/5 - 1/5)*sqrt(-x**2/16 + x/2 - 3/4)*elliptic_f(asin(sqr
t(2)*sqrt(-x/2 + 3)/2), 4/5)/(sqrt(x - 1)*sqrt(-x**2 + 8*x - 12))
```

Mathematica [C] time = 0.0225956, size = 74, normalized size = 2.96

$$\frac{i\sqrt{\frac{4}{x-6}+1}\sqrt{\frac{5}{x-6}+1}(x-6)^{3/2}F\left(i\sinh^{-1}\left(\frac{2}{\sqrt{x-6}}\right)|\frac{5}{4}\right)}{\sqrt{-(x-6)(x-2)}\sqrt{x-1}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[(6 - x)*(-2 + x)]*Sqrt[-1 + x]),x]
```

```
[Out] (I*Sqrt[1 + 4/(-6 + x)]*Sqrt[1 + 5/(-6 + x)]*(-6 + x)^(3/2)*Ellip
ticF[I*ArcSinh[2/Sqrt[-6 + x]], 5/4])/(Sqrt[-((-6 + x)*(-2 + x))]
*Sqrt[-1 + x])
```

Maple [B] time = 0.025, size = 43, normalized size = 1.7

$$-\frac{2\sqrt{5}}{5}\sqrt{-2+x}\sqrt{6-x}EllipticF\left(\frac{1}{2}\sqrt{6-x},\frac{2\sqrt{5}}{5}\right)\frac{1}{\sqrt{-(x-6)(-2+x)}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/((6-x)*(-2+x))^(1/2)/(-1+x)^(1/2),x)
```

```
[Out] -2/5*5^(1/2)*(-2+x)^(1/2)*(6-x)^(1/2)*EllipticF(1/2*(6-x)^(1/2),2
/5*5^(1/2))/(-(x-6)*(-2+x))^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{-(x-2)(x-6)}\sqrt{x-1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(-(x - 2)*(x - 6))*sqrt(x - 1)),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(-(x - 2)*(x - 6))*sqrt(x - 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{1}{\sqrt{-x^2+8\,x-12}\sqrt{x-1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(-(x - 2)*(x - 6))*sqrt(x - 1)),x, algorithm="fricas")
```

```
[Out] integral(1/(sqrt(-x^2 + 8*x - 12)*sqrt(x - 1)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{-\left(x-6\right)\left(x-2\right)}\sqrt{x-1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((6-x)*(-2+x))**(1/2)/(-1+x)**(1/2),x)
```

```
[Out] Integral(1/(sqrt(-(x - 6)*(x - 2))*sqrt(x - 1)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{-(x-2)(x-6)}\sqrt{x-1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(-(x - 2)*(x - 6))*sqrt(x - 1)),x, algorithm="giac")
```

```
[Out] integrate(1/(sqrt(-(x - 2)*(x - 6))*sqrt(x - 1)), x)
```

3.2873 $\int \frac{1}{\sqrt{-1+x}\sqrt{-12+8x-x^2}}\,dx$

Optimal. Leaf size=25

$$-\frac{2F\left(\sin^{-1}\left(\frac{\sqrt{6-x}}{2}\right)|\frac{4}{5}\right)}{\sqrt{5}}$$

```
[Out] (-2*EllipticF[ArcSin[Sqrt[6 - x]/2], 4/5])/Sqrt[5]
```

Rubi [A] time = 0.0573989, antiderivative size = 25, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.091

$$-\frac{2F\left(\sin^{-1}\left(\frac{\sqrt{6-x}}{2}\right)|\frac{4}{5}\right)}{\sqrt{5}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/(Sqrt[-1 + x]*Sqrt[-12 + 8*x - x^2]),x]

[Out] (-2*EllipticF[ArcSin[Sqrt[6 - x]/2], 4/5])/Sqrt[5]
```

Rubi in Sympy [A] time = 11.8463, size = 66, normalized size = 2.64

$$-\frac{8\sqrt{\frac{x}{5}-\frac{1}{5}}\sqrt{-\frac{x^2}{16}+\frac{x}{2}-\frac{3}{4}}F\left(\operatorname{asin}\left(\frac{\sqrt{2}\sqrt{-\frac{x}{2}+3}}{2}\right)\middle|\frac{4}{5}\right)}{\sqrt{x-1}\sqrt{-x^2+8x-12}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(-1+x)**(1/2)/(-x**2+8*x-12)**(1/2),x)

[Out] -8*sqrt(x/5 - 1/5)*sqrt(-x**2/16 + x/2 - 3/4)*elliptic_f(asin(sqr
t(2)*sqrt(-x/2 + 3)/2), 4/5)/(sqrt(x - 1)*sqrt(-x**2 + 8*x - 12))
```

Mathematica [B] time = 0.099588, size = 68, normalized size = 2.72

$$-\frac{2\sqrt{\frac{x-6}{x-1}}\sqrt{\frac{x-2}{x-1}}(x-1)F\left(\sin^{-1}\left(\frac{\sqrt{5}}{\sqrt{x-1}}\right)|\frac{1}{5}\right)}{\sqrt{5}\sqrt{-x^2+8x-12}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/(Sqrt[-1 + x]*Sqrt[-12 + 8*x - x^2]),x]

[Out] (-2*Sqrt[(-6 + x)/(-1 + x)]*Sqrt[(-2 + x)/(-1 + x)]*(-1 + x)*Elli
pticF[ArcSin[Sqrt[5]/Sqrt[-1 + x]], 1/5])/(Sqrt[5]*Sqrt[-12 + 8*x
 - x^2])
```

Maple [B] time = 0.02, size = 55, normalized size = 2.2

$$\frac{2\sqrt{5}}{5x^2-40x+60}\mathit{EllipticF}\left(\frac{1}{2}\sqrt{6-x},\frac{2\sqrt{5}}{5}\right)\sqrt{-2+x}\sqrt{6-x}\sqrt{-x^2+8x-12}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(-1+x)^(1/2)/(-x^2+8*x-12)^(1/2),x)
```

```
[Out] 2/5*EllipticF(1/2*(6-x)^(1/2),2/5*5^(1/2))*(-2+x)^(1/2)*(6-x)^(1/
2)*(-x^2+8*x-12)^(1/2)*5^(1/2)/(x^2-8*x+12)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{-x^2+8x-12}\sqrt{x-1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(-x^2 + 8*x - 12)*sqrt(x - 1)),x, algorithm="maxima")
```

```
[Out] integrate(1/(sqrt(-x^2 + 8*x - 12)*sqrt(x - 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{\sqrt{-x^2+8x-12}\sqrt{x-1}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(-x^2 + 8*x - 12)*sqrt(x - 1)),x, algorithm="fricas")
```

```
[Out] integral(1/(sqrt(-x^2 + 8*x - 12)*sqrt(x - 1)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{-(x-6)(x-2)}\sqrt{x-1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(-1+x)**(1/2)/(-x**2+8*x-12)**(1/2),x)
```

```
[Out] Integral(1/(sqrt(-(x - 6)*(x - 2))*sqrt(x - 1)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{-x^2+8x-12}\sqrt{x-1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(-x^2 + 8*x - 12)*sqrt(x - 1)),x, algorithm="giac")
```

```
[Out] integrate(1/(sqrt(-x^2 + 8*x - 12)*sqrt(x - 1)), x)
```

3.2874 $\int \frac{(2+3x)^{7/2}\sqrt{3+5x}}{(1-2x)^{3/2}}\,dx$

Optimal. Leaf size=186

$$\frac{\sqrt{5x+3}(3x+2)^{7/2}}{\sqrt{1-2x}}+\frac{12}{7}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{5/2}+\frac{2517}{350}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}+\frac{29293}{875}\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}+\frac{673523F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{8750\sqrt{33}}+\frac{4071079\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{17500}$$

```
[Out] (29293*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/875 + (2517*Sqr
t[1 - 2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/350 + (12*Sqrt[1 - 2*x]
*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x])/7 + ((2 + 3*x)^(7/2)*Sqrt[3 + 5*x
])/Sqrt[1 - 2*x] + (4071079*Sqrt[11/3]*EllipticE[ArcSin[Sqrt[3/7]
*Sqrt[1 - 2*x]], 35/33])/17500 + (673523*EllipticF[ArcSin[Sqrt[3/
7]*Sqrt[1 - 2*x]], 35/33])/(8750*Sqrt[33])
```

Rubi [A] time = 0.399235, antiderivative size = 186, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{\sqrt{5x+3}(3x+2)^{7/2}}{\sqrt{1-2x}}+\frac{12}{7}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{5/2}+\frac{2517}{350}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}+\frac{29293}{875}\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}+\frac{673523F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{8750\sqrt{33}}+\frac{4071079\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{17500}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^(7/2)*Sqrt[3 + 5*x])/(1 - 2*x)^(3/2),x]
```

```
[Out] (29293*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/875 + (2517*Sqr
t[1 - 2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/350 + (12*Sqrt[1 - 2*x]
*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x])/7 + ((2 + 3*x)^(7/2)*Sqrt[3 + 5*x
])/Sqrt[1 - 2*x] + (4071079*Sqrt[11/3]*EllipticE[ArcSin[Sqrt[3/7]
*Sqrt[1 - 2*x]], 35/33])/17500 + (673523*EllipticF[ArcSin[Sqrt[3/
7]*Sqrt[1 - 2*x]], 35/33])/(8750*Sqrt[33])
```

Rubi in Sympy [A] time = 39.1486, size = 168, normalized size = 0.9

$$\frac{12\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}\,\sqrt{5x+3}}{7}+\frac{2517\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\,\sqrt{5x+3}}{350}+\frac{29293\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{875}+\frac{4071079\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{52500}+\frac{673523\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{306250}+\frac{(3x+2)^{\frac{7}{2}}\sqrt{5x+3}}{\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(7/2)*(3+5*x)**(1/2)/(1-2*x)**(3/2),x)
```

```
[Out] 12*sqrt(-2*x + 1)*(3*x + 2)**(5/2)*sqrt(5*x + 3)/7 + 2517*sqrt(-2
*x + 1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/350 + 29293*sqrt(-2*x + 1)
*sqrt(3*x + 2)*sqrt(5*x + 3)/875 + 4071079*sqrt(33)*elliptic_e(as
in(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/52500 + 673523*sqrt(35)*ell
iptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/306250 + (3*x +
2)**(7/2)*sqrt(5*x + 3)/sqrt(-2*x + 1)
```

Mathematica [A] time = 0.296917, size = 115, normalized size = 0.62

$$\frac{-30\sqrt{3x+2}\sqrt{5x+3}\left(6750x^3+26010x^2+54757x-109756\right)+2050510\sqrt{2-4x}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-4071079\sqrt{}}{52500\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^(7/2)*Sqrt[3 + 5*x])/(1 - 2*x)^(3/2),x]
```

```
[Out] (-30*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(-109756 + 54757*x + 26010*x^2 +
 6750*x^3) - 4071079*Sqrt[2 - 4*x]*EllipticE[ArcSin[Sqrt[2/11]*Sq
rt[3 + 5*x]], -33/2] + 2050510*Sqrt[2 - 4*x]*EllipticF[ArcSin[Sqr
t[2/11]*Sqrt[3 + 5*x]], -33/2])/(52500*Sqrt[1 - 2*x])
```

Maple [C] time = 0.049, size = 174, normalized size = 0.9

$$-\frac{1}{1575000\,x^3+1207500\,x^2-367500\,x-315000}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(2050510\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(7/2)*(3+5*x)^(1/2)/(1-2*x)^(3/2),x)
```

```
[Out] -1/52500*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(2050510*2^(1/
2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1
/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-4071079
*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11
*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-3
037500*x^5-15552000*x^4-40681350*x^3+13496910*x^2+52704660*x+1975
6080)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}(3\,x+2)^{\frac{7}{2}}}{(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^(7/2)/(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(5*x + 3)*(3*x + 2)^(7/2)/(-2*x + 1)^(3/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(-\frac{\left(27\,x^3+54\,x^2+36\,x+8\right)\sqrt{5\,x+3}\sqrt{3\,x+2}}{(2\,x-1)\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^(7/2)/(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] integral(-(27*x^3 + 54*x^2 + 36*x + 8)*sqrt(5*x + 3)*sqrt(3*x + 2
)/((2*x - 1)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(7/2)*(3+5*x)**(1/2)/(1-2*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5x+3}(3x+2)^{\frac{7}{2}}}{(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(3*x + 2)^(7/2)/(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)*(3*x + 2)^(7/2)/(-2*x + 1)^(3/2), x)
```

3.2875 $\int \frac{(2+3x)^{5/2}\sqrt{3+5x}}{(1-2x)^{3/2}}\,dx$

Optimal. Leaf size=155

$$\frac{\sqrt{5x+3}(3x+2)^{5/2}}{\sqrt{1-2x}}+\frac{9}{5}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}+\frac{419}{50}\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}+\frac{4817F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{250\sqrt{33}}+\frac{7279}{125}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (419*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/50 + (9*Sqrt[1 -
2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/5 + ((2 + 3*x)^(5/2)*Sqrt[3 +
 5*x])/Sqrt[1 - 2*x] + (7279*Sqrt[11/3]*EllipticE[ArcSin[Sqrt[3/7
]*Sqrt[1 - 2*x]], 35/33])/125 + (4817*EllipticF[ArcSin[Sqrt[3/7]*
Sqrt[1 - 2*x]], 35/33])/(250*Sqrt[33])
```

Rubi [A] time = 0.316622, antiderivative size = 155, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{\sqrt{5x+3}(3x+2)^{5/2}}{\sqrt{1-2x}}+\frac{9}{5}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}+\frac{419}{50}\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}+\frac{4817F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{250\sqrt{33}}+\frac{7279}{125}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^(5/2)*Sqrt[3 + 5*x])/(1 - 2*x)^(3/2),x]
```

```
[Out] (419*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/50 + (9*Sqrt[1 -
2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/5 + ((2 + 3*x)^(5/2)*Sqrt[3 +
 5*x])/Sqrt[1 - 2*x] + (7279*Sqrt[11/3]*EllipticE[ArcSin[Sqrt[3/7
]*Sqrt[1 - 2*x]], 35/33])/125 + (4817*EllipticF[ArcSin[Sqrt[3/7]*
Sqrt[1 - 2*x]], 35/33])/(250*Sqrt[33])
```

Rubi in Sympy [A] time = 31.5326, size = 139, normalized size = 0.9

$$\frac{9\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\sqrt{5x+3}}{5}+\frac{419\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{50}+\frac{7279\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{375}+\frac{4817\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{8750}+\frac{(3x+2)^{\frac{5}{2}}\sqrt{5x+3}}{\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(5/2)*(3+5*x)**(1/2)/(1-2*x)**(3/2),x)
```

```
[Out] 9*sqrt(-2*x + 1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/5 + 419*sqrt(-2*x
 + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/50 + 7279*sqrt(33)*elliptic_e(a
sin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/375 + 4817*sqrt(35)*ellipt
ic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/8750 + (3*x + 2)**(
5/2)*sqrt(5*x + 3)/sqrt(-2*x + 1)
```

Mathematica [A] time = 0.257679, size = 110, normalized size = 0.71

$$\frac{-30\sqrt{3x+2}\sqrt{5x+3}\left(90x^2+328x-799\right)+14665\sqrt{2-4x}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-29116\sqrt{2-4x}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5\right.\right.}{1500\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^(5/2)*Sqrt[3 + 5*x])/(1 - 2*x)^(3/2),x]
```

```
[Out] (-30*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(-799 + 328*x + 90*x^2) - 29116*
Sqrt[2 - 4*x]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]
+ 14665*Sqrt[2 - 4*x]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]],
 -33/2])/(1500*Sqrt[1 - 2*x])
```

Maple [C] time = 0.024, size = 169, normalized size = 1.1

$$-\frac{1}{45000\,x^3+34500\,x^2-10500\,x-9000}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(14665\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{11}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(5/2)*(3+5*x)^(1/2)/(1-2*x)^(3/2),x)
```

```
[Out] -1/1500*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(14665*2^(1/2)*
(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)
*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-29116*2^(1
/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(
1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-40500*
x^4-198900*x^3+156390*x^2+396390*x+143820)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}(3\,x+2)^{\frac{5}{2}}}{(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^(5/2)/(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(5*x + 3)*(3*x + 2)^(5/2)/(-2*x + 1)^(3/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{\left(9\,x^2+12\,x+4\right)\sqrt{5\,x+3}\sqrt{3\,x+2}}{(2\,x-1)\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^(5/2)/(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] integral(-(9*x^2 + 12*x + 4)*sqrt(5*x + 3)*sqrt(3*x + 2)/((2*x -
1)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(5/2)*(3+5*x)**(1/2)/(1-2*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5x+3}(3x+2)^{\frac{5}{2}}}{(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(3*x + 2)^(5/2)/(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)*(3*x + 2)^(5/2)/(-2*x + 1)^(3/2), x)
```

3.2876 $\int \frac{(2+3x)^{3/2}\sqrt{3+5x}}{(1-2x)^{3/2}}\,dx$

Optimal. Leaf size=122

$$\frac{\sqrt{5x+3}(3x+2)^{3/2}}{\sqrt{1-2x}}+2\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}+\frac{23F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{5\sqrt{33}}+\frac{139}{10}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] 2*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x] + ((2 + 3*x)^(3/2)*Sq
rt[3 + 5*x])/Sqrt[1 - 2*x] + (139*Sqrt[11/3]*EllipticE[ArcSin[Sqr
t[3/7]*Sqrt[1 - 2*x]], 35/33])/10 + (23*EllipticF[ArcSin[Sqrt[3/7
]*Sqrt[1 - 2*x]], 35/33])/(5*Sqrt[33])
```

Rubi [A] time = 0.24398, antiderivative size = 122, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{\sqrt{5x+3}(3x+2)^{3/2}}{\sqrt{1-2x}}+2\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}+\frac{23F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{5\sqrt{33}}+\frac{139}{10}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/(1 - 2*x)^(3/2),x]
```

```
[Out] 2*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x] + ((2 + 3*x)^(3/2)*Sq
rt[3 + 5*x])/Sqrt[1 - 2*x] + (139*Sqrt[11/3]*EllipticE[ArcSin[Sqr
t[3/7]*Sqrt[1 - 2*x]], 35/33])/10 + (23*EllipticF[ArcSin[Sqrt[3/7
]*Sqrt[1 - 2*x]], 35/33])/(5*Sqrt[33])
```

Rubi in Sympy [A] time = 24.2159, size = 109, normalized size = 0.89

$$2\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}+\frac{139\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{30}+\frac{23\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{165}+\frac{(3x+2)^{\frac{3}{2}}\sqrt{5x+3}}{\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(3/2)*(3+5*x)**(1/2)/(1-2*x)**(3/2),x)
```

```
[Out] 2*sqrt(-2*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3) + 139*sqrt(33)*ellip
tic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/30 + 23*sqrt(33)*el
liptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/165 + (3*x + 2)*
*(3/2)*sqrt(5*x + 3)/sqrt(-2*x + 1)
```

Mathematica [A] time = 0.21864, size = 103, normalized size = 0.84

$$\frac{-30\sqrt{3x+2}\sqrt{5x+3}(x-4)+70\sqrt{2-4x}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-139\sqrt{2-4x}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)}{30\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/(1 - 2*x)^(3/2),x]
```

```
[Out] (-30*(-4 + x)*Sqrt[2 + 3*x]*Sqrt[3 + 5*x] - 139*Sqrt[2 - 4*x]*Ell
ipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 70*Sqrt[2 - 4*x
]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/(30*Sqrt[1
- 2*x])
```

Maple [C] time = 0.023, size = 164, normalized size = 1.3

$$-\frac{1}{900\,x^{3}+690\,x^{2}-210\,x-180}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(70\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(3/2)*(3+5*x)^(1/2)/(1-2*x)^(3/2),x)
```

```
[Out] -1/30*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(70*2^(1/2)*(3+5*
x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1
/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-139*2^(1/2)*(3+
5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^
(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-450*x^3+1230*
x^2+2100*x+720)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}(3\,x+2)^{\frac{3}{2}}}{(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^(3/2)/(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(5*x + 3)*(3*x + 2)^(3/2)/(-2*x + 1)^(3/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{\sqrt{5\,x+3}(3\,x+2)^{\frac{3}{2}}}{(2\,x-1)\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^(3/2)/(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] integral(-sqrt(5*x + 3)*(3*x + 2)^(3/2)/((2*x - 1)*sqrt(-2*x + 1)
), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(3/2)*(3+5*x)**(1/2)/(1-2*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}(3\,x+2)^{\frac{3}{2}}}{(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(3*x + 2)^(3/2)/(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)*(3*x + 2)^(3/2)/(-2*x + 1)^(3/2), x)
```

3.2877 $\int \frac{\sqrt{2+3x}\sqrt{3+5x}}{(1-2x)^{3/2}}\,dx$

Optimal. Leaf size=85

$$\frac{\sqrt{3x+2}\sqrt{5x+3}}{\sqrt{1-2x}}+\frac{F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{\sqrt{33}}+\sqrt{33}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/Sqrt[1 - 2*x] + Sqrt[33]*EllipticE[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33] + EllipticF[ArcSin[Sqrt[3
/7]*Sqrt[1 - 2*x]], 35/33]/Sqrt[33]
```

Rubi [A] time = 0.181584, antiderivative size = 85, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.143

$$\frac{\sqrt{3x+2}\sqrt{5x+3}}{\sqrt{1-2x}}+\frac{F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{\sqrt{33}}+\sqrt{33}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/(1 - 2*x)^(3/2),x]
```

```
[Out] (Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/Sqrt[1 - 2*x] + Sqrt[33]*EllipticE[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33] + EllipticF[ArcSin[Sqrt[3
/7]*Sqrt[1 - 2*x]], 35/33]/Sqrt[33]
```

Rubi in Sympy [A] time = 17.2916, size = 76, normalized size = 0.89

$$\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)+\frac{\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{35}+\frac{\sqrt{3x+2}\sqrt{5x+3}}{\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(1/2)*(3+5*x)**(1/2)/(1-2*x)**(3/2),x)
```

```
[Out] sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33) + sqr
t(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/35 + sq
rt(3*x + 2)*sqrt(5*x + 3)/sqrt(-2*x + 1)
```

Mathematica [A] time = 0.166639, size = 86, normalized size = 1.01

$$\frac{\sqrt{3x+2}\sqrt{5x+3}}{\sqrt{1-2x}}+\frac{F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)}{\sqrt{2}}-\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/(1 - 2*x)^(3/2),x]
```

```
[Out] (Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/Sqrt[1 - 2*x] - Sqrt[2]*EllipticE[A
rcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + EllipticF[ArcSin[Sqrt[2
/11]*Sqrt[3 + 5*x]], -33/2]/Sqrt[2]
```

Maple [C] time = 0.019, size = 158, normalized size = 1.9

$$-\frac{1}{60x^{3}+46x^{2}-14x-12}\sqrt{1-2x}\sqrt{2+3x}\sqrt{3+5x}\left(\sqrt{2}\sqrt{3+5x}\sqrt{2+3x}\sqrt{1-2x}EllipticF\left(\frac{\sqrt{11}\sqrt{2}}{11}\sqrt{3+5x},\frac{i}{2}\sqrt{11}\sqrt{3}\sqrt{2}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(1/2)*(3+5*x)^(1/2)/(1-2*x)^(3/2),x)
```

```
[Out] -1/2*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(2^(1/2)*(3+5*x)^(
1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*
(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-2*2^(1/2)*(3+5*x)^(
1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*
(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+30*x^2+38*x+12)/(30
*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5x+3}\sqrt{3x+2}}{(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*sqrt(3*x + 2)/(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(5*x + 3)*sqrt(3*x + 2)/(-2*x + 1)^(3/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{\sqrt{5x+3}\sqrt{3x+2}}{(2x-1)\sqrt{-2x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*sqrt(3*x + 2)/(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] integral(-sqrt(5*x + 3)*sqrt(3*x + 2)/((2*x - 1)*sqrt(-2*x + 1)),
 x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{3x+2}\sqrt{5x+3}}{(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(1/2)*(3+5*x)**(1/2)/(1-2*x)**(3/2),x)
```

```
[Out] Integral(sqrt(3*x + 2)*sqrt(5*x + 3)/(-2*x + 1)**(3/2), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5x+3}\sqrt{3x+2}}{(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*sqrt(3*x + 2)/(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)*sqrt(3*x + 2)/(-2*x + 1)^(3/2), x)
```

3.2878 $\int \frac{\sqrt{3+5x}}{(1-2x)^{3/2}\sqrt{2+3x}}\,dx$

Optimal. Leaf size=62

$$\frac{2\sqrt{3x+2}\sqrt{5x+3}}{7\sqrt{1-2x}}+\sqrt{\frac{5}{7}}E\left(\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)|\frac{33}{35}\right)$$

```
[Out] (2*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/(7*Sqrt[1 - 2*x]) + Sqrt[5/7]*Ell
ipticE[ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]], 33/35]
```

Rubi [A] time = 0.0889646, antiderivative size = 62, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.107

$$\frac{2\sqrt{3x+2}\sqrt{5x+3}}{7\sqrt{1-2x}}+\sqrt{\frac{5}{7}}E\left(\sin^{-1}\left(\sqrt{\frac{5}{11}}\sqrt{1-2x}\right)|\frac{33}{35}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[3 + 5*x]/((1 - 2*x)^(3/2)*Sqrt[2 + 3*x]),x]
```

```
[Out] (2*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/(7*Sqrt[1 - 2*x]) + Sqrt[5/7]*Ell
ipticE[ArcSin[Sqrt[5/11]*Sqrt[1 - 2*x]], 33/35]
```

Rubi in Sympy [A] time = 9.35258, size = 54, normalized size = 0.87

$$\frac{\sqrt{35}E\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{7}+\frac{2\sqrt{3x+2}\sqrt{5x+3}}{7\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(1/2)/(1-2*x)**(3/2)/(2+3*x)**(1/2),x)
```

```
[Out] sqrt(35)*elliptic_e(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/7 +
2*sqrt(3*x + 2)*sqrt(5*x + 3)/(7*sqrt(-2*x + 1))
```

Mathematica [A] time = 0.0779245, size = 63, normalized size = 1.02

$$\frac{1}{7}\left(\frac{2\sqrt{3x+2}\sqrt{5x+3}}{\sqrt{1-2x}}-\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[3 + 5*x]/((1 - 2*x)^(3/2)*Sqrt[2 + 3*x]),x]
```

```
[Out] ((2*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/Sqrt[1 - 2*x] - Sqrt[2]*Elliptic
E[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/7
```

Maple [C] time = 0.023, size = 104, normalized size = 1.7

$$\frac{1}{210x^3+161x^2-49x-42}\sqrt{1-2x}\sqrt{2+3x}\sqrt{3+5x}\left(\sqrt{2}\sqrt{3+5x}\sqrt{2+3x}\sqrt{1-2x}EllipticE\left(\frac{\sqrt{11}\sqrt{2}}{11}\sqrt{3+5x},\frac{i}{2}\sqrt{11}\sqrt{3}\sqrt{2}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(1/2)/(1-2*x)^(3/2)/(2+3*x)^(1/2),x)
```

```
[Out] 1/7*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(2^(1/2)*(3+5*x)^(1
/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(
3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-30*x^2-38*x-12)/(30*
x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5x+3}}{\sqrt{3x+2}(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/(sqrt(3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(5*x + 3)/(sqrt(3*x + 2)*(-2*x + 1)^(3/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{\sqrt{5x+3}}{\sqrt{3x+2}(2x-1)\sqrt{-2x+1}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/(sqrt(3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] integral(-sqrt(5*x + 3)/(sqrt(3*x + 2)*(2*x - 1)*sqrt(-2*x + 1)),
 x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(1/2)/(1-2*x)**(3/2)/(2+3*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5x+3}}{\sqrt{3x+2}(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/(sqrt(3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)/(sqrt(3*x + 2)*(-2*x + 1)^(3/2)), x)
```

3.2879 $\int \frac{\sqrt{3+5x}}{(1-2x)^{3/2}(2+3x)^{3/2}}\,dx$

Optimal. Leaf size=125

$$-\frac{12\sqrt{1-2x}\sqrt{5x+3}}{49\sqrt{3x+2}}+\frac{2\sqrt{5x+3}}{7\sqrt{1-2x}\sqrt{3x+2}}-\frac{62F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{49\sqrt{33}}+\frac{4}{49}\sqrt{33}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (2*Sqrt[3 + 5*x])/(7*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]) - (12*Sqrt[1 -
2*x]*Sqrt[3 + 5*x])/(49*Sqrt[2 + 3*x]) + (4*Sqrt[33]*EllipticE[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/49 - (62*EllipticF[ArcSin[
Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(49*Sqrt[33])
```

Rubi [A] time = 0.266459, antiderivative size = 125, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.179$

$$-\frac{12\sqrt{1-2x}\sqrt{5x+3}}{49\sqrt{3x+2}}+\frac{2\sqrt{5x+3}}{7\sqrt{1-2x}\sqrt{3x+2}}-\frac{62F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{49\sqrt{33}}+\frac{4}{49}\sqrt{33}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[3 + 5*x]/((1 - 2*x)^(3/2)*(2 + 3*x)^(3/2)),x]
```

```
[Out] (2*Sqrt[3 + 5*x])/(7*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]) - (12*Sqrt[1 -
2*x]*Sqrt[3 + 5*x])/(49*Sqrt[2 + 3*x]) + (4*Sqrt[33]*EllipticE[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/49 - (62*EllipticF[ArcSin[
Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(49*Sqrt[33])
```

Rubi in Sympy [A] time = 24.2113, size = 114, normalized size = 0.91

$$-\frac{12\sqrt{-2x+1}\sqrt{5x+3}}{49\sqrt{3x+2}}+\frac{4\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{49}-\frac{62\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{1715}+\frac{2\sqrt{5x+3}}{7\sqrt{-2x+1}\sqrt{3x+2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(1/2)/(1-2*x)**(3/2)/(2+3*x)**(3/2),x)
```

```
[Out] -12*sqrt(-2*x + 1)*sqrt(5*x + 3)/(49*sqrt(3*x + 2)) + 4*sqrt(33)*
elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/49 - 62*sqrt(3
5)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/1715 + 2*s
qrt(5*x + 3)/(7*sqrt(-2*x + 1)*sqrt(3*x + 2))
```

Mathematica [A] time = 0.182159, size = 122, normalized size = 0.98

$$\frac{2\sqrt{3x+2}\sqrt{5x+3}(12x+1)+35\sqrt{2-4x}(3x+2)F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-4\sqrt{2-4x}(3x+2)E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|\right.}{49\sqrt{1-2x}(3x+2)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[3 + 5*x]/((1 - 2*x)^(3/2)*(2 + 3*x)^(3/2)),x]
```

```
[Out] (2*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(1 + 12*x) - 4*Sqrt[2 - 4*x]*(2 +
3*x)*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 35*Sqrt
[2 - 4*x]*(2 + 3*x)*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -
33/2])/(49*Sqrt[1 - 2*x]*(2 + 3*x))
```

Maple [C] time = 0.027, size = 159, normalized size = 1.3

$$-\frac{1}{1470\,x^{3}+1127\,x^{2}-343\,x-294}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(35\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(1/2)/(1-2*x)^(3/2)/(2+3*x)^(3/2),x)
```

```
[Out] -1/49*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(35*2^(1/2)*(3+5*
x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1
/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-4*2^(1/2)*(3+5*
x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1
/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+120*x^2+82*x+6)
/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}}{(3\,x+2)^{\frac{3}{2}}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/((3*x + 2)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="maxima"
```

```
[Out] integrate(sqrt(5*x + 3)/((3*x + 2)^(3/2)*(-2*x + 1)^(3/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\operatorname{integral}\left(-\frac{\sqrt{5\,x+3}}{(6\,x^{2}+x-2)\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/((3*x + 2)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="fricas"
```

```
[Out] integral(-sqrt(5*x + 3)/((6*x^2 + x - 2)*sqrt(3*x + 2)*sqrt(-2*x
+ 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(1/2)/(1-2*x)**(3/2)/(2+3*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}}{(3\,x+2)^{\frac{3}{2}}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)/((3*x + 2)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)/((3*x + 2)^(3/2)*(-2*x + 1)^(3/2)), x)
```

3.2880 $\int \frac{\sqrt{3+5x}}{(1-2x)^{3/2}(2+3x)^{5/2}}\,dx$

Optimal. Leaf size=158

$$\frac{38\sqrt{1-2x}\sqrt{5x+3}}{343\sqrt{3x+2}}-\frac{8\sqrt{1-2x}\sqrt{5x+3}}{49(3x+2)^{3/2}}+\frac{2\sqrt{5x+3}}{7\sqrt{1-2x}(3x+2)^{3/2}}-\frac{212F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{343\sqrt{33}}-\frac{38}{343}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (2*Sqrt[3 + 5*x])/(7*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)) - (8*Sqrt[1 -
 2*x]*Sqrt[3 + 5*x])/(49*(2 + 3*x)^(3/2)) + (38*Sqrt[1 - 2*x]*Sqr
t[3 + 5*x])/(343*Sqrt[2 + 3*x]) - (38*Sqrt[11/3]*EllipticE[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/343 - (212*EllipticF[ArcSin[Sq
rt[3/7]*Sqrt[1 - 2*x]], 35/33])/(343*Sqrt[33])
```

Rubi [A] time = 0.345145, antiderivative size = 158, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.179$

$$\frac{38\sqrt{1-2x}\sqrt{5x+3}}{343\sqrt{3x+2}}-\frac{8\sqrt{1-2x}\sqrt{5x+3}}{49(3x+2)^{3/2}}+\frac{2\sqrt{5x+3}}{7\sqrt{1-2x}(3x+2)^{3/2}}-\frac{212F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{343\sqrt{33}}-\frac{38}{343}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[3 + 5*x]/((1 - 2*x)^(3/2)*(2 + 3*x)^(5/2)),x]
```

```
[Out] (2*Sqrt[3 + 5*x])/(7*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)) - (8*Sqrt[1 -
 2*x]*Sqrt[3 + 5*x])/(49*(2 + 3*x)^(3/2)) + (38*Sqrt[1 - 2*x]*Sqr
t[3 + 5*x])/(343*Sqrt[2 + 3*x]) - (38*Sqrt[11/3]*EllipticE[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/343 - (212*EllipticF[ArcSin[Sq
rt[3/7]*Sqrt[1 - 2*x]], 35/33])/(343*Sqrt[33])
```

Rubi in Sympy [A] time = 31.5641, size = 143, normalized size = 0.91

$$\frac{38\sqrt{-2x+1}\sqrt{5x+3}}{343\sqrt{3x+2}}-\frac{8\sqrt{-2x+1}\sqrt{5x+3}}{49\,(3x+2)^{\frac{3}{2}}}-\frac{38\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{1029}-\frac{212\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{11319}+\frac{2\sqrt{5x+3}}{7\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(1/2)/(1-2*x)**(3/2)/(2+3*x)**(5/2),x)
```

```
[Out] 38*sqrt(-2*x + 1)*sqrt(5*x + 3)/(343*sqrt(3*x + 2)) - 8*sqrt(-2*x
 + 1)*sqrt(5*x + 3)/(49*(3*x + 2)**(3/2)) - 38*sqrt(33)*elliptic_
e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/1029 - 212*sqrt(33)*ell
iptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/11319 + 2*sqrt(5*
x + 3)/(7*sqrt(-2*x + 1)*(3*x + 2)**(3/2))
```

Mathematica [A] time = 0.188817, size = 99, normalized size = 0.63

$$\frac{2\left(\sqrt{2}\left(140F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+19E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)-\frac{3\sqrt{5x+3}(114x^2-37x-59)}{\sqrt{1-2x}(3x+2)^{3/2}}\right)}{1029}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[3 + 5*x]/((1 - 2*x)^(3/2)*(2 + 3*x)^(5/2)),x]
```

```
[Out] (2*((-3*Sqrt[3 + 5*x]*(-59 - 37*x + 114*x^2))/(Sqrt[1 - 2*x]*(2 +
 3*x)^(3/2)) + Sqrt[2]*(19*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5
*x]], -33/2] + 140*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -3
3/2])))/1029
```

Maple [C] time = 0.033, size = 267, normalized size = 1.7

$$-\frac{2}{10290\,x^2+1029\,x-3087}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(420\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(1/2)/(1-2*x)^(3/2)/(2+3*x)^(5/2),x)
```

```
[Out] -2/1029*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(420*2^(1/2)*EllipticF(1/11*1
1^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(
3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+57*2^(1/2)*EllipticE(1/1
1*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*
x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+280*2^(1/2)*(3+5*x)^(
1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*
(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+38*2^(1/2)*(3+5*x)^
(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)
*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-1710*x^3-471*x^2+1
218*x+531)/(2+3*x)^(3/2)/(10*x^2+x-3)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}}{(3\,x+2)^{\frac{5}{2}}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/((3*x + 2)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="maxima"
```

```
[Out] integrate(sqrt(5*x + 3)/((3*x + 2)^(5/2)*(-2*x + 1)^(3/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(-\frac{\sqrt{5\,x+3}}{(18\,x^3+15\,x^2-4\,x-4)\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/((3*x + 2)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="fricas"
```

```
[Out] integral(-sqrt(5*x + 3)/((18*x^3 + 15*x^2 - 4*x - 4)*sqrt(3*x + 2
)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(1/2)/(1-2*x)**(3/2)/(2+3*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5x+3}}{(3x+2)^{\frac{5}{2}}(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)/((3*x + 2)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)/((3*x + 2)^(5/2)*(-2*x + 1)^(3/2)), x)
```

3.2881 $\int \frac{\sqrt{3+5x}}{(1-2x)^{3/2}(2+3x)^{7/2}}\,dx$

Optimal. Leaf size=189

$$\frac{5636\sqrt{1-2x}\sqrt{5x+3}}{12005\sqrt{3x+2}}-\frac{26\sqrt{1-2x}\sqrt{5x+3}}{1715(3x+2)^{3/2}}-\frac{36\sqrt{1-2x}\sqrt{5x+3}}{245(3x+2)^{5/2}}+\frac{2\sqrt{5x+3}}{7\sqrt{1-2x}(3x+2)^{5/2}}-\frac{4364F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{12005\sqrt{33}}-\frac{5636\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{12005}$$

```
[Out] (2*Sqrt[3 + 5*x])/(7*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)) - (36*Sqrt[1
- 2*x]*Sqrt[3 + 5*x])/(245*(2 + 3*x)^(5/2)) - (26*Sqrt[1 - 2*x]*S
qrt[3 + 5*x])/(1715*(2 + 3*x)^(3/2)) + (5636*Sqrt[1 - 2*x]*Sqrt[3
 + 5*x])/(12005*Sqrt[2 + 3*x]) - (5636*Sqrt[11/3]*EllipticE[ArcSi
n[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/12005 - (4364*EllipticF[ArcSi
n[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(12005*Sqrt[33])
```

Rubi [A] time = 0.426619, antiderivative size = 189, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{5636\sqrt{1-2x}\sqrt{5x+3}}{12005\sqrt{3x+2}}-\frac{26\sqrt{1-2x}\sqrt{5x+3}}{1715(3x+2)^{3/2}}-\frac{36\sqrt{1-2x}\sqrt{5x+3}}{245(3x+2)^{5/2}}+\frac{2\sqrt{5x+3}}{7\sqrt{1-2x}(3x+2)^{5/2}}-\frac{4364F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{12005\sqrt{33}}-\frac{5636\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{12005}$$

Antiderivative was successfully verified.

```
[In] Int[Sqrt[3 + 5*x]/((1 - 2*x)^(3/2)*(2 + 3*x)^(7/2)),x]
```

```
[Out] (2*Sqrt[3 + 5*x])/(7*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)) - (36*Sqrt[1
- 2*x]*Sqrt[3 + 5*x])/(245*(2 + 3*x)^(5/2)) - (26*Sqrt[1 - 2*x]*S
qrt[3 + 5*x])/(1715*(2 + 3*x)^(3/2)) + (5636*Sqrt[1 - 2*x]*Sqrt[3
 + 5*x])/(12005*Sqrt[2 + 3*x]) - (5636*Sqrt[11/3]*EllipticE[ArcSi
n[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/12005 - (4364*EllipticF[ArcSi
n[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(12005*Sqrt[33])
```

Rubi in Sympy [A] time = 38.9249, size = 172, normalized size = 0.91

$$\frac{5636\sqrt{-2x+1}\sqrt{5x+3}}{12005\sqrt{3x+2}}-\frac{26\sqrt{-2x+1}\sqrt{5x+3}}{1715\,(3x+2)^{\frac{3}{2}}}-\frac{36\sqrt{-2x+1}\sqrt{5x+3}}{245\,(3x+2)^{\frac{5}{2}}}-\frac{5636\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{36015}-\frac{4364\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{396165}+\frac{2\sqrt{5x+3}}{7\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((3+5*x)**(1/2)/(1-2*x)**(3/2)/(2+3*x)**(7/2),x)
```

```
[Out] 5636*sqrt(-2*x + 1)*sqrt(5*x + 3)/(12005*sqrt(3*x + 2)) - 26*sqrt
(-2*x + 1)*sqrt(5*x + 3)/(1715*(3*x + 2)**(3/2)) - 36*sqrt(-2*x +
 1)*sqrt(5*x + 3)/(245*(3*x + 2)**(5/2)) - 5636*sqrt(33)*elliptic
_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/36015 - 4364*sqrt(33)*
elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/396165 + 2*sqr
t(5*x + 3)/(7*sqrt(-2*x + 1)*(3*x + 2)**(5/2))
```

Mathematica [A] time = 0.257332, size = 104, normalized size = 0.55

$$\frac{2\left(\sqrt{2}\left(455F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+2818E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)-\frac{3\sqrt{5x+3}(50724x^3+41724x^2-13127x-11923)}{\sqrt{1-2x}(3x+2)^{5/2}}\right)}{36015}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[3 + 5*x]/((1 - 2*x)^(3/2)*(2 + 3*x)^(7/2)),x]
```

```
[Out] (2*((-3*Sqrt[3 + 5*x]*(-11923 - 13127*x + 41724*x^2 + 50724*x^3))
/(Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)) + Sqrt[2]*(2818*EllipticE[ArcSin
[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 455*EllipticF[ArcSin[Sqrt[2/
11]*Sqrt[3 + 5*x]], -33/2])))/36015
```

Maple [C] time = 0.036, size = 386, normalized size = 2.

$$-\frac{2}{360150\,x^2+36015\,x-108045}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(4095\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^2\sqrt{3+5\,x}\sqrt{2+3}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(1/2)/(1-2*x)^(3/2)/(2+3*x)^(7/2),x)
```

```
[Out] -2/36015*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(4095*2^(1/2)*EllipticF(1/11
*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x
^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+25362*2^(1/2)*Ellipt
icE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^
(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+5460*2^(1/2)
*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(
1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+33816*2
^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/
2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+1
820*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1
/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2)
)+11272*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Ellipti
cE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(
1/2))-760860*x^4-1082376*x^3-178611*x^2+296988*x+107307)/(2+3*x)^
(5/2)/(10*x^2+x-3)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}}{(3\,x+2)^{\frac{7}{2}}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/((3*x + 2)^(7/2)*(-2*x + 1)^(3/2)),x, algorithm="maxima"
```

```
[Out] integrate(sqrt(5*x + 3)/((3*x + 2)^(7/2)*(-2*x + 1)^(3/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{\sqrt{5\,x+3}}{(54\,x^4+81\,x^3+18\,x^2-20\,x-8)\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)/((3*x + 2)^(7/2)*(-2*x + 1)^(3/2)),x, algorithm="fricas"
```

```
[Out] integral(-sqrt(5*x + 3)/((54*x^4 + 81*x^3 + 18*x^2 - 20*x - 8)*sq
rt(3*x + 2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3+5*x)**(1/2)/(1-2*x)**(3/2)/(2+3*x)**(7/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}}{(3\,x+2)^{\frac{7}{2}}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)/((3*x + 2)^(7/2)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)/((3*x + 2)^(7/2)*(-2*x + 1)^(3/2)), x)
```

3.2882 $\int \frac{(2+3x)^{7/2}(3+5x)^{3/2}}{(1-2x)^{3/2}}\,dx$

Optimal. Leaf size=219

$$\frac{(5x+3)^{3/2}(3x+2)^{7/2}}{\sqrt{1-2x}}$$

$$+\frac{5}{3}\sqrt{1-2x}(5x+3)^{3/2}(3x+2)^{5/2}+\frac{1397}{210}\sqrt{1-2x}(5x+3)^{3/2}(3x+2)^{3/2}+\frac{24358}{875}\sqrt{1-2x}(5x+3)^{3/2}\sqrt{3x+2}+\frac{6770629\sqrt{1-2x}\sqrt{5x}}{31500}$$

```
[Out] (6770629*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/31500 + (2435
8*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/875 + (1397*Sqrt[1
 - 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2))/210 + (5*Sqrt[1 - 2*x]*(
2 + 3*x)^(5/2)*(3 + 5*x)^(3/2))/3 + ((2 + 3*x)^(7/2)*(3 + 5*x)^(3
/2))/Sqrt[1 - 2*x] + (112543103*Sqrt[11/3]*EllipticE[ArcSin[Sqrt[
3/7]*Sqrt[1 - 2*x]], 35/33])/78750 + (6770629*Sqrt[11/3]*Elliptic
F[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/157500
```

Rubi [A] time = 0.459204, antiderivative size = 219, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{(5x+3)^{3/2}(3x+2)^{7/2}}{\sqrt{1-2x}}$$

$$+\frac{5}{3}\sqrt{1-2x}(5x+3)^{3/2}(3x+2)^{5/2}+\frac{1397}{210}\sqrt{1-2x}(5x+3)^{3/2}(3x+2)^{3/2}+\frac{24358}{875}\sqrt{1-2x}(5x+3)^{3/2}\sqrt{3x+2}+\frac{6770629\sqrt{1-2x}\sqrt{5x}}{31500}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^(7/2)*(3 + 5*x)^(3/2))/(1 - 2*x)^(3/2),x]
```

```
[Out] (6770629*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/31500 + (2435
8*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/875 + (1397*Sqrt[1
 - 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2))/210 + (5*Sqrt[1 - 2*x]*(
2 + 3*x)^(5/2)*(3 + 5*x)^(3/2))/3 + ((2 + 3*x)^(7/2)*(3 + 5*x)^(3
/2))/Sqrt[1 - 2*x] + (112543103*Sqrt[11/3]*EllipticE[ArcSin[Sqrt[
3/7]*Sqrt[1 - 2*x]], 35/33])/78750 + (6770629*Sqrt[11/3]*Elliptic
F[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/157500
```

Rubi in Sympy [A] time = 46.7573, size = 197, normalized size = 0.9

$$\frac{5\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}\,(5x+3)^{\frac{3}{2}}}{3}+\frac{1397\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}\,\sqrt{5x+3}}{126}+\frac{139163\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\,\sqrt{5x+3}}{3150}+\frac{6478333\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{31500}+\frac{112543103\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{236250}+\frac{74476919\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{5512500}+\frac{(3x+2)^{\frac{7}{2}}\,(5x+3)^{\frac{3}{2}}}{\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(7/2)*(3+5*x)**(3/2)/(1-2*x)**(3/2),x)
```

```
[Out] 5*sqrt(-2*x + 1)*(3*x + 2)**(5/2)*(5*x + 3)**(3/2)/3 + 1397*sqrt(
-2*x + 1)*(3*x + 2)**(5/2)*sqrt(5*x + 3)/126 + 139163*sqrt(-2*x +
 1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/3150 + 6478333*sqrt(-2*x + 1)*
sqrt(3*x + 2)*sqrt(5*x + 3)/31500 + 112543103*sqrt(33)*elliptic_e
```

```
(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/236250 + 74476919*sqrt(3
5)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/5512500 +
(3*x + 2)**(7/2)*(5*x + 3)**(3/2)/sqrt(-2*x + 1)
```

Mathematica [A] time = 0.303697, size = 120, normalized size = 0.55

$$\frac{-30\sqrt{3x+2}\sqrt{5x+3}\left(472500x^4+2002500x^3+4128030x^2+6609296x-12044593\right)+226741655\sqrt{2-4x}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x\right.\right.}{945000\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^(7/2)*(3 + 5*x)^(3/2))/(1 - 2*x)^(3/2),x]
```

```
[Out] (-30*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(-12044593 + 6609296*x + 4128030
*x^2 + 2002500*x^3 + 472500*x^4) - 450172412*Sqrt[2 - 4*x]*Ellipt
icE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 226741655*Sqrt[2 -
 4*x]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/(945000
*Sqrt[1 - 2*x])
```

Maple [C] time = 0.026, size = 179, normalized size = 0.8

$$-\frac{1}{28350000\,x^3+21735000\,x^2-6615000\,x-5670000}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(-212625000\,x^6+226741655\,\sqrt{2}\sqrt{3+5\,x}\sqrt{\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(7/2)*(3+5*x)^(3/2)/(1-2*x)^(3/2),x)
```

```
[Out] -1/945000*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(-212625000*x
^6+226741655*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*El
lipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2
)*2^(1/2))-450172412*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^
(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2
)*3^(1/2)*2^(1/2))-1170450000*x^5-3084088500*x^4-5687610300*x^3+9
09722730*x^2+5675744730*x+2168026740)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{3}{2}}(3\,x+2)^{\frac{7}{2}}}{(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)^(7/2)/(-2*x + 1)^(3/2),x, algorithm="maxima"
```

```
[Out] integrate((5*x + 3)^(3/2)*(3*x + 2)^(7/2)/(-2*x + 1)^(3/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{(135\,x^4+351\,x^3+342\,x^2+148\,x+24)\sqrt{5\,x+3}\sqrt{3\,x+2}}{(2\,x-1)\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(3*x + 2)^(7/2)/(-2*x + 1)^(3/2),x, algorithm="fricas"
```

```
[Out] integral(-(135*x^4 + 351*x^3 + 342*x^2 + 148*x + 24)*sqrt(5*x + 3
)*sqrt(3*x + 2)/((2*x - 1)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2+3*x)**(7/2)*(3+5*x)**(3/2)/(1-2*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{3}{2}}(3\,x+2)^{\frac{7}{2}}}{(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(3*x + 2)^(7/2)/(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(3/2)*(3*x + 2)^(7/2)/(-2*x + 1)^(3/2), x)
```

3.2883 $\int \frac{(2+3x)^{5/2}(3+5x)^{3/2}}{(1-2x)^{3/2}}\,dx$

Optimal. Leaf size=188

$$\frac{(5x+3)^{3/2}(3x+2)^{5/2}}{\sqrt{1-2x}}$$

$$+\frac{12}{7}\sqrt{1-2x}(5x+3)^{3/2}(3x+2)^{3/2}+\frac{2511}{350}\sqrt{1-2x}(5x+3)^{3/2}\sqrt{3x+2}+\frac{9694}{175}\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}+\frac{9694}{875}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\right.\right.$$

```
[Out] (9694*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/175 + (2511*Sqrt
[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/350 + (12*Sqrt[1 - 2*x]*
(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2))/7 + ((2 + 3*x)^(5/2)*(3 + 5*x)^(
3/2))/Sqrt[1 - 2*x] + (1289089*Sqrt[11/3]*EllipticE[ArcSin[Sqrt[3
/7]*Sqrt[1 - 2*x]], 35/33])/3500 + (9694*Sqrt[11/3]*EllipticF[Arc
Sin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/875
```

Rubi [A] time = 0.380547, antiderivative size = 188, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{(5x+3)^{3/2}(3x+2)^{5/2}}{\sqrt{1-2x}}$$

$$+\frac{12}{7}\sqrt{1-2x}(5x+3)^{3/2}(3x+2)^{3/2}+\frac{2511}{350}\sqrt{1-2x}(5x+3)^{3/2}\sqrt{3x+2}+\frac{9694}{175}\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}+\frac{9694}{875}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\right.\right.$$

Antiderivative was successfully verified.

```
[In] Int[((2 + 3*x)^(5/2)*(3 + 5*x)^(3/2))/(1 - 2*x)^(3/2),x]
```

```
[Out] (9694*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/175 + (2511*Sqrt
[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/350 + (12*Sqrt[1 - 2*x]*
(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2))/7 + ((2 + 3*x)^(5/2)*(3 + 5*x)^(
3/2))/Sqrt[1 - 2*x] + (1289089*Sqrt[11/3]*EllipticE[ArcSin[Sqrt[3
/7]*Sqrt[1 - 2*x]], 35/33])/3500 + (9694*Sqrt[11/3]*EllipticF[Arc
Sin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/875
```

Rubi in Sympy [A] time = 39.3929, size = 168, normalized size = 0.89

$$\frac{12\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\,(5x+3)^{\frac{3}{2}}}{7}+\frac{837\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\,\sqrt{5x+3}}{70}+\frac{18551\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{350}+\frac{1289089\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{10500}+\frac{9694\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{2625}+\frac{(3x+2)^{\frac{5}{2}}\,(5x+3)^{\frac{3}{2}}}{\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**(5/2)*(3+5*x)**(3/2)/(1-2*x)**(3/2),x)
```

```
[Out] 12*sqrt(-2*x + 1)*(3*x + 2)**(3/2)*(5*x + 3)**(3/2)/7 + 837*sqrt(
-2*x + 1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/70 + 18551*sqrt(-2*x + 1
)*sqrt(3*x + 2)*sqrt(5*x + 3)/350 + 1289089*sqrt(33)*elliptic_e(a
sin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/10500 + 9694*sqrt(33)*elli
ptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/2625 + (3*x + 2)**
(5/2)*(5*x + 3)**(3/2)/sqrt(-2*x + 1)
```

Mathematica [A] time = 0.285382, size = 115, normalized size = 0.61

$$\frac{-30\sqrt{3x+2}\sqrt{5x+3}\left(2250x^3+8460x^2+17487x-34721\right)+649285\sqrt{2-4x}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-1289089\sqrt{2-}}{10500\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^(5/2)*(3 + 5*x)^(3/2))/(1 - 2*x)^(3/2),x]
```

```
[Out] (-30*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(-34721 + 17487*x + 8460*x^2 + 2
250*x^3) - 1289089*Sqrt[2 - 4*x]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt
[3 + 5*x]], -33/2] + 649285*Sqrt[2 - 4*x]*EllipticF[ArcSin[Sqrt[2
/11]*Sqrt[3 + 5*x]], -33/2])/(10500*Sqrt[1 - 2*x])
```

Maple [C] time = 0.025, size = 174, normalized size = 0.9

$$-\frac{1}{315000\,x^3+241500\,x^2-73500\,x-63000}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(649285\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(5/2)*(3+5*x)^(3/2)/(1-2*x)^(3/2),x)
```

```
[Out] -1/10500*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(649285*2^(1/2
)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/
2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-1289089*
2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*
11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-10
12500*x^5-5089500*x^4-13096350*x^3+4134060*x^2+16643310*x+6249780
)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{3}{2}}(3\,x+2)^{\frac{5}{2}}}{(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)^(5/2)/(-2*x + 1)^(3/2),x, algorithm="maxima"
```

```
[Out] integrate((5*x + 3)^(3/2)*(3*x + 2)^(5/2)/(-2*x + 1)^(3/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{\left(45\,x^3+87\,x^2+56\,x+12\right)\sqrt{5\,x+3}\sqrt{3\,x+2}}{(2\,x-1)\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)^(5/2)/(-2*x + 1)^(3/2),x, algorithm="fricas"
```

```
[Out] integral(-(45*x^3 + 87*x^2 + 56*x + 12)*sqrt(5*x + 3)*sqrt(3*x +
2)/((2*x - 1)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(5/2)*(3+5*x)**(3/2)/(1-2*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{3}{2}}(3\,x+2)^{\frac{5}{2}}}{(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(3*x + 2)^(5/2)/(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(3/2)*(3*x + 2)^(5/2)/(-2*x + 1)^(3/2), x)
```

3.2884 $\int \frac{(2+3x)^{3/2}(3+5x)^{3/2}}{(1-2x)^{3/2}}\,dx$

Optimal. Leaf size=157

$$\frac{(3x+2)^{3/2}(5x+3)^{3/2}}{\sqrt{1-2x}}+\frac{9}{5}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}+\frac{139}{10}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}+\frac{139}{50}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{4621}{50}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (139*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/10 + (9*Sqrt[1 -
2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/5 + ((2 + 3*x)^(3/2)*(3 + 5*x
)^(3/2))/Sqrt[1 - 2*x] + (4621*Sqrt[11/3]*EllipticE[ArcSin[Sqrt[3
/7]*Sqrt[1 - 2*x]], 35/33])/50 + (139*Sqrt[11/3]*EllipticF[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/50
```

Rubi [A] time = 0.310595, antiderivative size = 157, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{(3x+2)^{3/2}(5x+3)^{3/2}}{\sqrt{1-2x}}+\frac{9}{5}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}+\frac{139}{10}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}+\frac{139}{50}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{4621}{50}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^(3/2)*(3 + 5*x)^(3/2))/(1 - 2*x)^(3/2),x]
```

```
[Out] (139*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/10 + (9*Sqrt[1 -
2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/5 + ((2 + 3*x)^(3/2)*(3 + 5*x
)^(3/2))/Sqrt[1 - 2*x] + (4621*Sqrt[11/3]*EllipticE[ArcSin[Sqrt[3
/7]*Sqrt[1 - 2*x]], 35/33])/50 + (139*Sqrt[11/3]*EllipticF[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/50
```

Rubi in Sympy [A] time = 31.5143, size = 139, normalized size = 0.89

$$\frac{9\sqrt{-2x+1}\sqrt{3x+2}\,(5x+3)^{\frac{3}{2}}}{5}+\frac{139\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{10}+\frac{4621\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{150}+\frac{139\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{150}+\frac{(3x+2)^{\frac{3}{2}}\,(5x+3)^{\frac{3}{2}}}{\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(3/2)*(3+5*x)**(3/2)/(1-2*x)**(3/2),x)
```

```
[Out] 9*sqrt(-2*x + 1)*sqrt(3*x + 2)*(5*x + 3)**(3/2)/5 + 139*sqrt(-2*x
 + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/10 + 4621*sqrt(33)*elliptic_e(a
sin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/150 + 139*sqrt(33)*ellipti
c_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/150 + (3*x + 2)**(3/2
)*(5*x + 3)**(3/2)/sqrt(-2*x + 1)
```

Mathematica [A] time = 0.241802, size = 110, normalized size = 0.7

$$\frac{-30\sqrt{3x+2}\sqrt{5x+3}\left(30x^2+106x-253\right)+4655\sqrt{2-4x}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-9242\sqrt{2-4x}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x\right.\right.}{300\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^(3/2)*(3 + 5*x)^(3/2))/(1 - 2*x)^(3/2),x]
```

```
[Out] (-30*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(-253 + 106*x + 30*x^2) - 9242*S
qrt[2 - 4*x]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] +
 4655*Sqrt[2 - 4*x]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -
33/2])/(300*Sqrt[1 - 2*x])
```

Maple [C] time = 0.025, size = 169, normalized size = 1.1

$$-\frac{1}{9000\,x^3+6900\,x^2-2100\,x-1800}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(4655\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}\mathit{EllipticF}\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(3/2)*(3+5*x)^(3/2)/(1-2*x)^(3/2),x)
```

```
[Out] -1/300*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(4655*2^(1/2)*(3
+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2
^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-9242*2^(1/2)
*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2
)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-13500*x^4
-64800*x^3+48030*x^2+125130*x+45540)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{3}{2}}(3\,x+2)^{\frac{3}{2}}}{(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)^(3/2)/(-2*x + 1)^(3/2),x, algorithm="maxima"
```

```
[Out] integrate((5*x + 3)^(3/2)*(3*x + 2)^(3/2)/(-2*x + 1)^(3/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{\left(15\,x^2+19\,x+6\right)\sqrt{5\,x+3}\sqrt{3\,x+2}}{(2\,x-1)\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)^(3/2)/(-2*x + 1)^(3/2),x, algorithm="fricas"
```

```
[Out] integral(-(15*x^2 + 19*x + 6)*sqrt(5*x + 3)*sqrt(3*x + 2)/((2*x -
 1)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(3/2)*(3+5*x)**(3/2)/(1-2*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{3}{2}}(3x+2)^{\frac{3}{2}}}{(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(3*x + 2)^(3/2)/(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(3/2)*(3*x + 2)^(3/2)/(-2*x + 1)^(3/2), x)
```

3.2885 $\int \frac{\sqrt{2+3x}(3+5x)^{3/2}}{(1-2x)^{3/2}}\,dx$

Optimal. Leaf size=126

$$\frac{\sqrt{3x+2}(5x+3)^{3/2}}{\sqrt{1-2x}}+\frac{10}{3}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}+\frac{2}{3}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{133}{6}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (10*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/3 + (Sqrt[2 + 3*x]
*(3 + 5*x)^(3/2))/Sqrt[1 - 2*x] + (133*Sqrt[11/3]*EllipticE[ArcSi
n[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/6 + (2*Sqrt[11/3]*EllipticF[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3
```

Rubi [A] time = 0.246633, antiderivative size = 126, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.179$

$$\frac{\sqrt{3x+2}(5x+3)^{3/2}}{\sqrt{1-2x}}+\frac{10}{3}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}+\frac{2}{3}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{133}{6}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/(1 - 2*x)^(3/2),x]
```

```
[Out] (10*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/3 + (Sqrt[2 + 3*x]
*(3 + 5*x)^(3/2))/Sqrt[1 - 2*x] + (133*Sqrt[11/3]*EllipticE[ArcSi
n[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/6 + (2*Sqrt[11/3]*EllipticF[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3
```

Rubi in Sympy [A] time = 24.5207, size = 110, normalized size = 0.87

$$\frac{10\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{3}+\frac{133\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{18}+\frac{22\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{105}+\frac{\sqrt{3x+2}\,(5x+3)^{\frac{3}{2}}}{\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(3/2)*(2+3*x)**(1/2)/(1-2*x)**(3/2),x)
```

```
[Out] 10*sqrt(-2*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/3 + 133*sqrt(33)*el
liptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/18 + 22*sqrt(35)
*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/105 + sqrt(3
*x + 2)*(5*x + 3)**(3/2)/sqrt(-2*x + 1)
```

Mathematica [A] time = 0.185446, size = 105, normalized size = 0.83

$$\frac{6\sqrt{3x+2}\sqrt{5x+3}(19-5x)+67\sqrt{2-4x}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-133\sqrt{2-4x}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)}{18\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/(1 - 2*x)^(3/2),x]
```

```
[Out] (6*(19 - 5*x)*Sqrt[2 + 3*x]*Sqrt[3 + 5*x] - 133*Sqrt[2 - 4*x]*Ell
ipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 67*Sqrt[2 - 4*x
]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/(18*Sqrt[1
- 2*x])
```

Maple [C] time = 0.023, size = 164, normalized size = 1.3

$$-\frac{1}{540x^3+414x^2-126x-108}\sqrt{1-2x}\sqrt{2+3x}\sqrt{3+5x}\left(67\sqrt{2}\sqrt{3+5x}\sqrt{2+3x}\sqrt{1-2x}EllipticF\left(1/11\sqrt{11}\sqrt{2}\sqrt{3+5x},\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(3/2)*(2+3*x)^(1/2)/(1-2*x)^(3/2),x)
```

```
[Out] -1/18*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*(67*2^(1/2)*(3+5*
x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1
/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-133*2^(1/2)*(3+
5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^
(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-450*x^3+1140*
x^2+1986*x+684)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{3}{2}}\sqrt{3x+2}}{(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*sqrt(3*x + 2)/(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] integrate((5*x + 3)^(3/2)*sqrt(3*x + 2)/(-2*x + 1)^(3/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{(5x+3)^{\frac{3}{2}}\sqrt{3x+2}}{(2x-1)\sqrt{-2x+1}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*sqrt(3*x + 2)/(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] integral(-(5*x + 3)^(3/2)*sqrt(3*x + 2)/((2*x - 1)*sqrt(-2*x + 1)
), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(3/2)*(2+3*x)**(1/2)/(1-2*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{3}{2}}\sqrt{3x+2}}{(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*sqrt(3*x + 2)/(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(3/2)*sqrt(3*x + 2)/(-2*x + 1)^(3/2), x)
```

3.2886 $\int \frac{(3+5x)^{3/2}}{(1-2x)^{3/2}\sqrt{2+3x}}\,dx$

Optimal. Leaf size=98

$$\frac{11\sqrt{3x+2}\sqrt{5x+3}}{7\sqrt{1-2x}}+\frac{1}{7}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{34}{7}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (11*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/(7*Sqrt[1 - 2*x]) + (34*Sqrt[11/
3]*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/7 + (Sqrt[1
1/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/7
```

Rubi [A] time = 0.185797, antiderivative size = 98, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.143

$$\frac{11\sqrt{3x+2}\sqrt{5x+3}}{7\sqrt{1-2x}}+\frac{1}{7}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{34}{7}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(3/2)/((1 - 2*x)^(3/2)*Sqrt[2 + 3*x]),x]
```

```
[Out] (11*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/(7*Sqrt[1 - 2*x]) + (34*Sqrt[11/
3]*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/7 + (Sqrt[1
1/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/7
```

Rubi in Sympy [A] time = 17.4436, size = 83, normalized size = 0.85

$$\frac{34\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{21}+\frac{\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{21}+\frac{11\sqrt{3x+2}\sqrt{5x+3}}{7\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(3/2)/(1-2*x)**(3/2)/(2+3*x)**(1/2),x)
```

```
[Out] 34*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/21
 + sqrt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/21
 + 11*sqrt(3*x + 2)*sqrt(5*x + 3)/(7*sqrt(-2*x + 1))
```

Mathematica [A] time = 0.126796, size = 92, normalized size = 0.94

$$\frac{1}{42}\left(\frac{66\sqrt{3x+2}\sqrt{5x+3}}{\sqrt{1-2x}}+35\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-68\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(3/2)/((1 - 2*x)^(3/2)*Sqrt[2 + 3*x]),x]
```

```
[Out] ((66*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/Sqrt[1 - 2*x] - 68*Sqrt[2]*Elli
pticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 35*Sqrt[2]*Ellip
ticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/42
```

Maple [C] time = 0.025, size = 159, normalized size = 1.6

$$-\frac{1}{1260\,x^{3}+966\,x^{2}-294\,x-252}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(35\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(3/2)/(1-2*x)^(3/2)/(2+3*x)^(1/2),x)
```

```
[Out] -1/42*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(35*2^(1/2)*(3+5*
x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1
/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-68*2^(1/2)*(3+5
*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(
1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+990*x^2+1254*x
+396)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{3}{2}}}{\sqrt{3\,x+2}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)/(sqrt(3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="maxima"
```

```
[Out] integrate((5*x + 3)^(3/2)/(sqrt(3*x + 2)*(-2*x + 1)^(3/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(-\frac{(5\,x+3)^{\frac{3}{2}}}{\sqrt{3\,x+2}(2\,x-1)\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)/(sqrt(3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="fricas"
```

```
[Out] integral(-(5*x + 3)^(3/2)/(sqrt(3*x + 2)*(2*x - 1)*sqrt(-2*x + 1)
), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(3/2)/(1-2*x)**(3/2)/(2+3*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{3}{2}}}{\sqrt{3\,x+2}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)/(sqrt(3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(3/2)/(sqrt(3*x + 2)*(-2*x + 1)^(3/2)), x)
```

3.2887 $\int \frac{(3+5x)^{3/2}}{(1-2x)^{3/2}(2+3x)^{3/2}}\,dx$

Optimal. Leaf size=129

$$-\frac{31\sqrt{1-2x}\sqrt{5x+3}}{49\sqrt{3x+2}}+\frac{11\sqrt{5x+3}}{7\sqrt{1-2x}\sqrt{3x+2}}+\frac{4}{49}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{31}{49}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (11*Sqrt[3 + 5*x])/(7*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]) - (31*Sqrt[1 -
 2*x]*Sqrt[3 + 5*x])/(49*Sqrt[2 + 3*x]) + (31*Sqrt[11/3]*Elliptic
E[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/49 + (4*Sqrt[11/3]*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/49
```

Rubi [A] time = 0.264176, antiderivative size = 129, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{31\sqrt{1-2x}\sqrt{5x+3}}{49\sqrt{3x+2}}+\frac{11\sqrt{5x+3}}{7\sqrt{1-2x}\sqrt{3x+2}}+\frac{4}{49}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{31}{49}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(3/2)/((1 - 2*x)^(3/2)*(2 + 3*x)^(3/2)),x]
```

```
[Out] (11*Sqrt[3 + 5*x])/(7*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]) - (31*Sqrt[1 -
 2*x]*Sqrt[3 + 5*x])/(49*Sqrt[2 + 3*x]) + (31*Sqrt[11/3]*Elliptic
E[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/49 + (4*Sqrt[11/3]*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/49
```

Rubi in Sympy [A] time = 24.3364, size = 114, normalized size = 0.88

$$-\frac{31\sqrt{-2x+1}\sqrt{5x+3}}{49\sqrt{3x+2}}+\frac{31\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{147}+\frac{44\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{1715}+\frac{11\sqrt{5x+3}}{7\sqrt{-2x+1}\sqrt{3x+2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(3/2)/(1-2*x)**(3/2)/(2+3*x)**(3/2),x)
```

```
[Out] -31*sqrt(-2*x + 1)*sqrt(5*x + 3)/(49*sqrt(3*x + 2)) + 31*sqrt(33)
*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/147 + 44*sqrt
(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/1715 + 1
1*sqrt(5*x + 3)/(7*sqrt(-2*x + 1)*sqrt(3*x + 2))
```

Mathematica [A] time = 0.185852, size = 122, normalized size = 0.95

$$\frac{6\sqrt{3x+2}\sqrt{5x+3}(31x+23)-35\sqrt{2-4x}(3x+2)F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-31\sqrt{2-4x}(3x+2)E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right.\right.}{147\sqrt{1-2x}(3x+2)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(3/2)/((1 - 2*x)^(3/2)*(2 + 3*x)^(3/2)),x]
```

```
[Out] (6*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(23 + 31*x) - 31*Sqrt[2 - 4*x]*(2
+ 3*x)*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 35*Sq
rt[2 - 4*x]*(2 + 3*x)*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]],
 -33/2])/(147*Sqrt[1 - 2*x]*(2 + 3*x))
```

Maple [C] time = 0.027, size = 159, normalized size = 1.2

$$\frac{1}{4410\,x^3+3381\,x^2-1029\,x-882}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(35\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}\mathit{EllipticF}\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(3/2)/(1-2*x)^(3/2)/(2+3*x)^(3/2),x)
```

```
[Out] 1/147*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(35*2^(1/2)*(3+5*
x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1
/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+31*2^(1/2)*(3+5
*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(
1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-930*x^2-1248*x
-414)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{3}{2}}}{(3\,x+2)^{\frac{3}{2}}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/((3*x + 2)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="maxima
```

```
[Out] integrate((5*x + 3)^(3/2)/((3*x + 2)^(3/2)*(-2*x + 1)^(3/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{(5\,x+3)^{\frac{3}{2}}}{(6\,x^2+x-2)\sqrt{3\,x+2}\sqrt{-2\,x+1}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/((3*x + 2)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="fricas
```

```
[Out] integral(-(5*x + 3)^(3/2)/((6*x^2 + x - 2)*sqrt(3*x + 2)*sqrt(-2*
x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(3/2)/(1-2*x)**(3/2)/(2+3*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{3}{2}}}{(3x+2)^{\frac{3}{2}}(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)/((3*x + 2)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="giac"
```

```
[Out] integrate((5*x + 3)^(3/2)/((3*x + 2)^(3/2)*(-2*x + 1)^(3/2)), x)
```

3.2888 $\int \frac{(3+5x)^{3/2}}{(1-2x)^{3/2}(2+3x)^{5/2}}\,dx$

Optimal. Leaf size=160

$$-\frac{458\sqrt{1-2x}\sqrt{5x+3}}{1029\sqrt{3x+2}}-\frac{97\sqrt{1-2x}\sqrt{5x+3}}{147(3x+2)^{3/2}}+\frac{11\sqrt{5x+3}}{7\sqrt{1-2x}(3x+2)^{3/2}}-\frac{178\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1029}+\frac{458\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1029}$$

```
[Out] (11*Sqrt[3 + 5*x])/(7*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)) - (97*Sqrt[1
 - 2*x]*Sqrt[3 + 5*x])/(147*(2 + 3*x)^(3/2)) - (458*Sqrt[1 - 2*x]
*Sqrt[3 + 5*x])/(1029*Sqrt[2 + 3*x]) + (458*Sqrt[11/3]*EllipticE[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1029 - (178*Sqrt[11/3]*E
llipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1029
```

Rubi [A] time = 0.343574, antiderivative size = 160, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{458\sqrt{1-2x}\sqrt{5x+3}}{1029\sqrt{3x+2}}-\frac{97\sqrt{1-2x}\sqrt{5x+3}}{147(3x+2)^{3/2}}+\frac{11\sqrt{5x+3}}{7\sqrt{1-2x}(3x+2)^{3/2}}-\frac{178\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1029}+\frac{458\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1029}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(3/2)/((1 - 2*x)^(3/2)*(2 + 3*x)^(5/2)),x]
```

```
[Out] (11*Sqrt[3 + 5*x])/(7*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)) - (97*Sqrt[1
 - 2*x]*Sqrt[3 + 5*x])/(147*(2 + 3*x)^(3/2)) - (458*Sqrt[1 - 2*x]
*Sqrt[3 + 5*x])/(1029*Sqrt[2 + 3*x]) + (458*Sqrt[11/3]*EllipticE[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1029 - (178*Sqrt[11/3]*E
llipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1029
```

Rubi in Sympy [A] time = 31.4374, size = 143, normalized size = 0.89

$$-\frac{458\sqrt{-2x+1}\sqrt{5x+3}}{1029\sqrt{3x+2}}-\frac{97\sqrt{-2x+1}\sqrt{5x+3}}{147\,(3x+2)^{\frac{3}{2}}}+\frac{458\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{3087}-\frac{178\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{3087}+\frac{11\sqrt{5x+3}}{7\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(3/2)/(1-2*x)**(3/2)/(2+3*x)**(5/2),x)
```

```
[Out] -458*sqrt(-2*x + 1)*sqrt(5*x + 3)/(1029*sqrt(3*x + 2)) - 97*sqrt(
-2*x + 1)*sqrt(5*x + 3)/(147*(3*x + 2)**(3/2)) + 458*sqrt(33)*ell
iptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/3087 - 178*sqrt(3
3)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/3087 + 11*s
qrt(5*x + 3)/(7*sqrt(-2*x + 1)*(3*x + 2)**(3/2))
```

Mathematica [A] time = 0.354939, size = 97, normalized size = 0.61

$$\frac{\sqrt{2}\left(\frac{3\sqrt{10x+6}\left(1374x^2+908x+11\right)}{\sqrt{1-2x}(3x+2)^{3/2}}+3395F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-458E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)}{3087}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(3/2)/((1 - 2*x)^(3/2)*(2 + 3*x)^(5/2)),x]
```

```
[Out] (Sqrt[2]*((3*Sqrt[6 + 10*x]*(11 + 908*x + 1374*x^2))/(Sqrt[1 - 2*
x]*(2 + 3*x)^(3/2)) - 458*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*
x]], -33/2] + 3395*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -3
3/2]))/3087
```

Maple [C] time = 0.033, size = 267, normalized size = 1.7

$$-\frac{1}{30870\,x^2+3087\,x-9261}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(10185\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(3/2)/(1-2*x)^(3/2)/(2+3*x)^(5/2),x)
```

```
[Out] -1/3087*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(10185*2^(1/2)*EllipticF(1/11
*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x
*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-1374*2^(1/2)*EllipticE
(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/
2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+6790*2^(1/2)*(3+5
*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(
1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-916*2^(1/2)*(3
+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2
^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+41220*x^3+51
972*x^2+16674*x+198)/(2+3*x)^(3/2)/(10*x^2+x-3)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{3}{2}}}{(3\,x+2)^{\frac{5}{2}}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/((3*x + 2)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="maxima
```

```
[Out] integrate((5*x + 3)^(3/2)/((3*x + 2)^(5/2)*(-2*x + 1)^(3/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{(5\,x+3)^{\frac{3}{2}}}{(18\,x^3+15\,x^2-4\,x-4)\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/((3*x + 2)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="fricas
```

```
[Out] integral(-(5*x + 3)^(3/2)/((18*x^3 + 15*x^2 - 4*x - 4)*sqrt(3*x +
 2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(3/2)/(1-2*x)**(3/2)/(2+3*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{3}{2}}}{(3x+2)^{\frac{5}{2}}(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)/((3*x + 2)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="giac"
```

```
[Out] integrate((5*x + 3)^(3/2)/((3*x + 2)^(5/2)*(-2*x + 1)^(3/2)), x)
```

3.2889 $\int \frac{(3+5x)^{3/2}}{(1-2x)^{3/2}(2+3x)^{7/2}}\,dx$

Optimal. Leaf size=191

$$\frac{338\sqrt{1-2x}\sqrt{5x+3}}{12005\sqrt{3x+2}}-\frac{458\sqrt{1-2x}\sqrt{5x+3}}{1715(3x+2)^{3/2}}-\frac{163\sqrt{1-2x}\sqrt{5x+3}}{245(3x+2)^{5/2}}+\frac{11\sqrt{5x+3}}{7\sqrt{1-2x}(3x+2)^{5/2}}-\frac{992\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{12005}-\frac{338\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{12005}$$

```
[Out] (11*Sqrt[3 + 5*x])/(7*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)) - (163*Sqrt[
1 - 2*x]*Sqrt[3 + 5*x])/(245*(2 + 3*x)^(5/2)) - (458*Sqrt[1 - 2*x
]*Sqrt[3 + 5*x])/(1715*(2 + 3*x)^(3/2)) + (338*Sqrt[1 - 2*x]*Sqrt
[3 + 5*x])/(12005*Sqrt[2 + 3*x]) - (338*Sqrt[11/3]*EllipticE[ArcS
in[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/12005 - (992*Sqrt[11/3]*Elli
pticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/12005
```

Rubi [A] time = 0.433784, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{338\sqrt{1-2x}\sqrt{5x+3}}{12005\sqrt{3x+2}}-\frac{458\sqrt{1-2x}\sqrt{5x+3}}{1715(3x+2)^{3/2}}-\frac{163\sqrt{1-2x}\sqrt{5x+3}}{245(3x+2)^{5/2}}+\frac{11\sqrt{5x+3}}{7\sqrt{1-2x}(3x+2)^{5/2}}-\frac{992\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{12005}-\frac{338\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{12005}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(3/2)/((1 - 2*x)^(3/2)*(2 + 3*x)^(7/2)),x]
```


```
[Out] (11*Sqrt[3 + 5*x])/(7*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)) - (163*Sqrt[
1 - 2*x]*Sqrt[3 + 5*x])/(245*(2 + 3*x)^(5/2)) - (458*Sqrt[1 - 2*x
]*Sqrt[3 + 5*x])/(1715*(2 + 3*x)^(3/2)) + (338*Sqrt[1 - 2*x]*Sqrt
[3 + 5*x])/(12005*Sqrt[2 + 3*x]) - (338*Sqrt[11/3]*EllipticE[ArcS
in[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/12005 - (992*Sqrt[11/3]*Elli
pticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/12005
```

Rubi in Sympy [A] time = 38.6245, size = 172, normalized size = 0.9

$$\frac{338\sqrt{-2x+1}\sqrt{5x+3}}{12005\sqrt{3x+2}}-\frac{458\sqrt{-2x+1}\sqrt{5x+3}}{1715\,(3x+2)^{\frac{3}{2}}}-\frac{163\sqrt{-2x+1}\sqrt{5x+3}}{245\,(3x+2)^{\frac{5}{2}}}-\frac{338\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{36015}-\frac{992\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{36015}+\frac{11\sqrt{5x+3}}{7\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(3/2)/(1-2*x)**(3/2)/(2+3*x)**(7/2),x)
```

```
[Out] 338*sqrt(-2*x + 1)*sqrt(5*x + 3)/(12005*sqrt(3*x + 2)) - 458*sqrt
(-2*x + 1)*sqrt(5*x + 3)/(1715*(3*x + 2)**(3/2)) - 163*sqrt(-2*x
+ 1)*sqrt(5*x + 3)/(245*(3*x + 2)**(5/2)) - 338*sqrt(33)*elliptic
_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/36015 - 992*sqrt(33)*e
lliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/36015 + 11*sqrt
(5*x + 3)/(7*sqrt(-2*x + 1)*(3*x + 2)**(5/2))
```

Mathematica [A] time = 0.243253, size = 104, normalized size = 0.54

$$\frac{2\left(\sqrt{2}\left(8015F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)\middle|-\frac{33}{2}\right)+169E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)\middle|-\frac{33}{2}\right)\right)-\frac{3\sqrt{5x+3}(3042x^3-7083x^2-10266x-2909)}{\sqrt{1-2x}(3x+2)^{5/2}}\right)}{36015}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(3/2)/((1 - 2*x)^(3/2)*(2 + 3*x)^(7/2)),x]
```

```
[Out] (2*((-3*Sqrt[3 + 5*x]*(-2909 - 10266*x - 7083*x^2 + 3042*x^3))/(S
qrt[1 - 2*x]*(2 + 3*x)^(5/2)) + Sqrt[2]*(169*EllipticE[ArcSin[Sqr
t[2/11]*Sqrt[3 + 5*x]], -33/2] + 8015*EllipticF[ArcSin[Sqrt[2/11]
*Sqrt[3 + 5*x]], -33/2])))/36015
```

Maple [C] time = 0.036, size = 386, normalized size = 2.

$$-\frac{2}{360150x^2+36015x-108045}\sqrt{1-2x}\sqrt{3+5x}\left(72135\sqrt{2}EllipticF\left(1/11\sqrt{11}\sqrt{2}\sqrt{3+5x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^2\sqrt{3+5x}\sqrt{2+$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(3/2)/(1-2*x)^(3/2)/(2+3*x)^(7/2),x)
```

```
[Out] -2/36015*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(72135*2^(1/2)*EllipticF(1/1
1*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*
x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+1521*2^(1/2)*Ellipt
icE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^
(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+96180*2^(1/2
)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^
(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+2028*2
^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/
2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+3
2060*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(
1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2
))+676*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Elliptic
E(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1
/2))-45630*x^4+78867*x^3+217737*x^2+136029*x+26181)/(2+3*x)^(5/2)
/(10*x^2+x-3)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{3}{2}}}{(3x+2)^{\frac{7}{2}}(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/((3*x + 2)^(7/2)*(-2*x + 1)^(3/2)),x, algorithm="maxima
```

```
[Out] integrate((5*x + 3)^(3/2)/((3*x + 2)^(7/2)*(-2*x + 1)^(3/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{(5x+3)^{\frac{3}{2}}}{(54x^4+81x^3+18x^2-20x-8)\sqrt{3x+2}\sqrt{-2x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)/((3*x + 2)^(7/2)*(-2*x + 1)^(3/2)),x, algorithm="frica
```

```
[Out] integral(-(5*x + 3)^(3/2)/((54*x^4 + 81*x^3 + 18*x^2 - 20*x - 8)*
sqrt(3*x + 2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(3/2)/(1-2*x)**(3/2)/(2+3*x)**(7/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{3}{2}}}{(3x+2)^{\frac{7}{2}}(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)/((3*x + 2)^(7/2)*(-2*x + 1)^(3/2)),x, algorithm="giac"
```

```
[Out] integrate((5*x + 3)^(3/2)/((3*x + 2)^(7/2)*(-2*x + 1)^(3/2)), x)
```

3.2890 $\int \frac{(3+5x)^{3/2}}{(1-2x)^{3/2}(2+3x)^{9/2}}\,dx$

Optimal. Leaf size=222

$$\frac{189368\sqrt{1-2x}\sqrt{5x+3}}{588245\sqrt{3x+2}}-\frac{5438\sqrt{1-2x}\sqrt{5x+3}}{84035(3x+2)^{3/2}}-\frac{2818\sqrt{1-2x}\sqrt{5x+3}}{12005(3x+2)^{5/2}}-\frac{229\sqrt{1-2x}\sqrt{5x+3}}{343(3x+2)^{7/2}}+\frac{11\sqrt{5x+3}}{7\sqrt{1-2x}(3x+2)^{7/2}}-\frac{23012\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{588245}-\frac{189368\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{588245}$$

```
[Out] (11*Sqrt[3 + 5*x])/(7*Sqrt[1 - 2*x]*(2 + 3*x)^(7/2)) - (229*Sqrt[
1 - 2*x]*Sqrt[3 + 5*x])/(343*(2 + 3*x)^(7/2)) - (2818*Sqrt[1 - 2*
x]*Sqrt[3 + 5*x])/(12005*(2 + 3*x)^(5/2)) - (5438*Sqrt[1 - 2*x]*S
qrt[3 + 5*x])/(84035*(2 + 3*x)^(3/2)) + (189368*Sqrt[1 - 2*x]*Sqr
t[3 + 5*x])/(588245*Sqrt[2 + 3*x]) - (189368*Sqrt[11/3]*EllipticE
[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/588245 - (23012*Sqrt[11
/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/588245
```

Rubi [A] time = 0.519858, antiderivative size = 222, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{189368\sqrt{1-2x}\sqrt{5x+3}}{588245\sqrt{3x+2}}-\frac{5438\sqrt{1-2x}\sqrt{5x+3}}{84035(3x+2)^{3/2}}-\frac{2818\sqrt{1-2x}\sqrt{5x+3}}{12005(3x+2)^{5/2}}-\frac{229\sqrt{1-2x}\sqrt{5x+3}}{343(3x+2)^{7/2}}+\frac{11\sqrt{5x+3}}{7\sqrt{1-2x}(3x+2)^{7/2}}-\frac{23012\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{588245}-\frac{189368\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{588245}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(3/2)/((1 - 2*x)^(3/2)*(2 + 3*x)^(9/2)),x]
```

```
[Out] (11*Sqrt[3 + 5*x])/(7*Sqrt[1 - 2*x]*(2 + 3*x)^(7/2)) - (229*Sqrt[
1 - 2*x]*Sqrt[3 + 5*x])/(343*(2 + 3*x)^(7/2)) - (2818*Sqrt[1 - 2*
x]*Sqrt[3 + 5*x])/(12005*(2 + 3*x)^(5/2)) - (5438*Sqrt[1 - 2*x]*S
qrt[3 + 5*x])/(84035*(2 + 3*x)^(3/2)) + (189368*Sqrt[1 - 2*x]*Sqr
t[3 + 5*x])/(588245*Sqrt[2 + 3*x]) - (189368*Sqrt[11/3]*EllipticE
[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/588245 - (23012*Sqrt[11
/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/588245
```

Rubi in Sympy [A] time = 46.2887, size = 201, normalized size = 0.91

$$\frac{189368\sqrt{-2x+1}\sqrt{5x+3}}{588245\sqrt{3x+2}}-\frac{5438\sqrt{-2x+1}\sqrt{5x+3}}{84035\,(3x+2)^{\frac{3}{2}}}-\frac{2818\sqrt{-2x+1}\sqrt{5x+3}}{12005\,(3x+2)^{\frac{5}{2}}}-\frac{229\sqrt{-2x+1}\sqrt{5x+3}}{343\,(3x+2)^{\frac{7}{2}}}-\frac{189368\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{1764735}-\frac{23012\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{1764735}+\frac{11\sqrt{5x+3}}{7\sqrt{-2x+1}\,(3x+2)^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(3/2)/(1-2*x)**(3/2)/(2+3*x)**(9/2),x)
```

```
[Out] 189368*sqrt(-2*x + 1)*sqrt(5*x + 3)/(588245*sqrt(3*x + 2)) - 5438
*sqrt(-2*x + 1)*sqrt(5*x + 3)/(84035*(3*x + 2)**(3/2)) - 2818*sqr
t(-2*x + 1)*sqrt(5*x + 3)/(12005*(3*x + 2)**(5/2)) - 229*sqrt(-2*
```

```
x + 1)*sqrt(5*x + 3)/(343*(3*x + 2)**(7/2)) - 189368*sqrt(33)*ell
iptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/1764735 - 23012*s
qrt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/176473
5 + 11*sqrt(5*x + 3)/(7*sqrt(-2*x + 1)*(3*x + 2)**(7/2))
```

Mathematica [A] time = 0.31307, size = 109, normalized size = 0.49

$$\frac{2\left(\sqrt{2}\left(95165F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)\middle|-\frac{33}{2}\right)+94684E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)\middle|-\frac{33}{2}\right)\right)-\frac{3\sqrt{5x+3}(5112936x^4+7326810x^3+1004571x^2-22}{\sqrt{1-2x}(3x+2)^{7/2}}\right.}{1764735}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(3/2)/((1 - 2*x)^(3/2)*(2 + 3*x)^(9/2)),x]
```

```
[Out] (2*((-3*Sqrt[3 + 5*x]*(-809083 - 2279324*x + 1004571*x^2 + 732681
0*x^3 + 5112936*x^4))/(Sqrt[1 - 2*x]*(2 + 3*x)^(7/2)) + Sqrt[2]*(
94684*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 95165*
EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])))/1764735
```

Maple [C] time = 0.036, size = 505, normalized size = 2.3

$$-\frac{2}{17647350\,x^2+1764735\,x-5294205}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(2556468\,\sqrt{2}EllipticE\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^3\sqrt{1-\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(3/2)/(1-2*x)^(3/2)/(2+3*x)^(9/2),x)
```

```
[Out] -2/1764735*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(2556468*2^(1/2)*EllipticE
(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/
2))*x^3*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)+2569455*2^(1/2)
*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(
1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)+51129
36*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11
^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(
1/2)+5138910*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2
),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)
*(1-2*x)^(1/2)+3408624*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3
+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*
x)^(1/2)*(1-2*x)^(1/2)+3425940*2^(1/2)*EllipticF(1/11*11^(1/2)*2^
(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/
2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+757472*2^(1/2)*(3+5*x)^(1/2)*(2+3*
x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1
/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+761320*2^(1/2)*(3+5*x)^(1/2)*
(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*
x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-76694040*x^5-155918574*x
^4-81009855*x^3+25148721*x^2+32650161*x+7281747)/(2+3*x)^(7/2)/(1
0*x^2+x-3)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{3}{2}}}{(3\,x+2)^{\frac{9}{2}}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/((3*x + 2)^(9/2)*(-2*x + 1)^(3/2)),x, algorithm="maxima
```

```
[Out] integrate((5*x + 3)^(3/2)/((3*x + 2)^(9/2)*(-2*x + 1)^(3/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{(5x+3)^{\frac{3}{2}}}{(162x^5+351x^4+216x^3-24x^2-64x-16)\sqrt{3x+2}\sqrt{-2x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)/((3*x + 2)^(9/2)*(-2*x + 1)^(3/2)),x, algorithm="fricas
```

```
[Out] integral(-(5*x + 3)^(3/2)/((162*x^5 + 351*x^4 + 216*x^3 - 24*x^2
- 64*x - 16)*sqrt(3*x + 2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(3/2)/(1-2*x)**(3/2)/(2+3*x)**(9/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{3}{2}}}{(3x+2)^{\frac{9}{2}}(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)/((3*x + 2)^(9/2)*(-2*x + 1)^(3/2)),x, algorithm="giac"
```

```
[Out] integrate((5*x + 3)^(3/2)/((3*x + 2)^(9/2)*(-2*x + 1)^(3/2)), x)
```

3.2891 $\int \frac{(2+3x)^{7/2}(3+5x)^{5/2}}{(1-2x)^{3/2}}\,dx$

Optimal. Leaf size=246

$$\frac{(5x+3)^{5/2}(3x+2)^{7/2}}{\sqrt{1-2x}}$$

$$+\frac{18}{11}\sqrt{1-2x}(5x+3)^{5/2}(3x+2)^{5/2}+\frac{419}{66}\sqrt{1-2x}(5x+3)^{5/2}(3x+2)^{3/2}+\frac{9741}{385}\sqrt{1-2x}(5x+3)^{5/2}\sqrt{3x+2}+\frac{4066493\sqrt{1-2x}(5x+}{23100}$$

```
[Out] (269045681*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/207900 + (4
066493*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/23100 + (9741
*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/385 + (419*Sqrt[1 -
 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(5/2))/66 + (18*Sqrt[1 - 2*x]*(2
+ 3*x)^(5/2)*(3 + 5*x)^(5/2))/11 + ((2 + 3*x)^(7/2)*(3 + 5*x)^(5/
2))/Sqrt[1 - 2*x] + (17888580643*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[
1 - 2*x]], 35/33])/(189000*Sqrt[33]) + (269045681*EllipticF[ArcSi
n[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(94500*Sqrt[33])
```

Rubi [A] time = 0.553857, antiderivative size = 246, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{(5x+3)^{5/2}(3x+2)^{7/2}}{\sqrt{1-2x}}$$

$$+\frac{18}{11}\sqrt{1-2x}(5x+3)^{5/2}(3x+2)^{5/2}+\frac{419}{66}\sqrt{1-2x}(5x+3)^{5/2}(3x+2)^{3/2}+\frac{9741}{385}\sqrt{1-2x}(5x+3)^{5/2}\sqrt{3x+2}+\frac{4066493\sqrt{1-2x}(5x+}{23100}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^(7/2)*(3 + 5*x)^(5/2))/(1 - 2*x)^(3/2),x]
```

```
[Out] (269045681*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/207900 + (4
066493*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/23100 + (9741
*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/385 + (419*Sqrt[1 -
 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(5/2))/66 + (18*Sqrt[1 - 2*x]*(2
+ 3*x)^(5/2)*(3 + 5*x)^(5/2))/11 + ((2 + 3*x)^(7/2)*(3 + 5*x)^(5/
2))/Sqrt[1 - 2*x] + (17888580643*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[
1 - 2*x]], 35/33])/(189000*Sqrt[33]) + (269045681*EllipticF[ArcSi
n[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(94500*Sqrt[33])
```

Rubi in Sympy [A] time = 54.7932, size = 226, normalized size = 0.92

$$\frac{18\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}\,(5x+3)^{\frac{5}{2}}}{11}+\frac{2095\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}\,(5x+3)^{\frac{3}{2}}}{198}+\frac{277565\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}\,\sqrt{5x+3}}{4158}+\frac{11059889\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\,\sqrt{5x+3}}{41580}+\frac{128715331\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{103950}+\frac{17888580643\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{6237000}+\frac{269045681\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{3118500}+\frac{(3x+2)^{\frac{7}{2}}\,(5x+3)^{\frac{5}{2}}}{\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(7/2)*(3+5*x)**(5/2)/(1-2*x)**(3/2),x)
```

```
[Out] 18*sqrt(-2*x + 1)*(3*x + 2)**(5/2)*(5*x + 3)**(5/2)/11 + 2095*sqr
t(-2*x + 1)*(3*x + 2)**(5/2)*(5*x + 3)**(3/2)/198 + 277565*sqrt(-
```

```
2*x + 1)*(3*x + 2)**(5/2)*sqrt(5*x + 3)/4158 + 11059889*sqrt(-2*x
 + 1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/41580 + 128715331*sqrt(-2*x
+ 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/103950 + 17888580643*sqrt(33)*el
liptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/6237000 + 269045
681*sqrt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/3
118500 + (3*x + 2)**(7/2)*(5*x + 3)**(5/2)/sqrt(-2*x + 1)
```

Mathematica [A] time = 0.342632, size = 125, normalized size = 0.51

$$\frac{-30\sqrt{3x+2}\sqrt{5x+3}\left(12757500x^5+60196500x^4+133330950x^3+198895770x^2+273928969x-477155552\right)+9010073170}{6237000\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^(7/2)*(3 + 5*x)^(5/2))/(1 - 2*x)^(3/2),x]
```

```
[Out] (-30*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(-477155552 + 273928969*x + 1988
95770*x^2 + 133330950*x^3 + 60196500*x^4 + 12757500*x^5) - 178885
80643*Sqrt[2 - 4*x]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -
33/2] + 9010073170*Sqrt[2 - 4*x]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt
[3 + 5*x]], -33/2])/(6237000*Sqrt[1 - 2*x])
```

Maple [C] time = 0.025, size = 184, normalized size = 0.8

$$-\frac{1}{187110000\,x^3+143451000\,x^2-43659000\,x-37422000}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(-5740875000\,x^7-34360200000\,x^6+\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(7/2)*(3+5*x)^(5/2)/(1-2*x)^(3/2),x)
```

```
[Out] -1/6237000*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(-5740875000
*x^7-34360200000*x^6+9010073170*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/
2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/
2*I*11^(1/2)*3^(1/2)*2^(1/2))-17888580643*2^(1/2)*(3+5*x)^(1/2)*(
2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x
)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-96607282500*x^5-176337108
000*x^4-260638195950*x^3+22779247470*x^2+222671450220*x+858879993
60)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{5}{2}}(3\,x+2)^{\frac{7}{2}}}{(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)^(7/2)/(-2*x + 1)^(3/2),x, algorithm="maxima"
```

```
[Out] integrate((5*x + 3)^(5/2)*(3*x + 2)^(7/2)/(-2*x + 1)^(3/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{\left(675\,x^5+2160\,x^4+2763\,x^3+1766\,x^2+564\,x+72\right)\sqrt{5\,x+3}\sqrt{3\,x+2}}{(2\,x-1)\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)^(7/2)/(-2*x + 1)^(3/2),x, algorithm="fricas"
```

```
[Out] integral(-(675*x^5 + 2160*x^4 + 2763*x^3 + 1766*x^2 + 564*x + 72)
*sqrt(5*x + 3)*sqrt(3*x + 2)/((2*x - 1)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(7/2)*(3+5*x)**(5/2)/(1-2*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}(3x+2)^{\frac{7}{2}}}{(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)^(7/2)/(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)*(3*x + 2)^(7/2)/(-2*x + 1)^(3/2), x)
```

3.2892 $\int \frac{(2+3x)^{5/2}(3+5x)^{5/2}}{(1-2x)^{3/2}}\,dx$

Optimal. Leaf size=219

$$\frac{(3x+2)^{5/2}(5x+3)^{5/2}}{\sqrt{1-2x}}$$

$$+\frac{5}{3}\sqrt{1-2x}(3x+2)^{3/2}(5x+3)^{5/2}+\frac{93}{14}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}+\frac{4853}{105}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}+\frac{1284329\sqrt{1-2x}\sqrt{3x+2}\sqrt{}}{3780}$$

```
[Out] (1284329*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/3780 + (4853*
Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/105 + (93*Sqrt[1 - 2
*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/14 + (5*Sqrt[1 - 2*x]*(2 + 3*x
)^(3/2)*(3 + 5*x)^(5/2))/3 + ((2 + 3*x)^(5/2)*(3 + 5*x)^(5/2))/Sq
rt[1 - 2*x] + (42696881*Sqrt[11/3]*EllipticE[ArcSin[Sqrt[3/7]*Sqr
t[1 - 2*x]], 35/33])/18900 + (1284329*Sqrt[11/3]*EllipticF[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/18900
```

Rubi [A] time = 0.476191, antiderivative size = 219, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{(3x+2)^{5/2}(5x+3)^{5/2}}{\sqrt{1-2x}}$$

$$+\frac{5}{3}\sqrt{1-2x}(3x+2)^{3/2}(5x+3)^{5/2}+\frac{93}{14}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}+\frac{4853}{105}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}+\frac{1284329\sqrt{1-2x}\sqrt{3x+2}\sqrt{}}{3780}$$

Antiderivative was successfully verified.

```
[In] Int[((2 + 3*x)^(5/2)*(3 + 5*x)^(5/2))/(1 - 2*x)^(3/2),x]
```

```
[Out] (1284329*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/3780 + (4853*
Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/105 + (93*Sqrt[1 - 2
*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/14 + (5*Sqrt[1 - 2*x]*(2 + 3*x
)^(3/2)*(3 + 5*x)^(5/2))/3 + ((2 + 3*x)^(5/2)*(3 + 5*x)^(5/2))/Sq
rt[1 - 2*x] + (42696881*Sqrt[11/3]*EllipticE[ArcSin[Sqrt[3/7]*Sqr
t[1 - 2*x]], 35/33])/18900 + (1284329*Sqrt[11/3]*EllipticF[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/18900
```

Rubi in Sympy [A] time = 46.7852, size = 197, normalized size = 0.9

$$\frac{5\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\,(5x+3)^{\frac{5}{2}}}{3}+\frac{155\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\,(5x+3)^{\frac{3}{2}}}{14}+\frac{9241\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\,\sqrt{5x+3}}{126}+\frac{1228883\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{3780}+\frac{42696881\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{56700}+\frac{1284329\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{56700}+\frac{(3x+2)^{\frac{5}{2}}\,(5x+3)^{\frac{5}{2}}}{\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**(5/2)*(3+5*x)**(5/2)/(1-2*x)**(3/2),x)
```

```
[Out] 5*sqrt(-2*x + 1)*(3*x + 2)**(3/2)*(5*x + 3)**(5/2)/3 + 155*sqrt(-
2*x + 1)*(3*x + 2)**(3/2)*(5*x + 3)**(3/2)/14 + 9241*sqrt(-2*x +
1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/126 + 1228883*sqrt(-2*x + 1)*sq
rt(3*x + 2)*sqrt(5*x + 3)/3780 + 42696881*sqrt(33)*elliptic_e(asi
```

```
n(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/56700 + 1284329*sqrt(33)*ell
iptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/56700 + (3*x + 2)
**(5/2)*(5*x + 3)**(5/2)/sqrt(-2*x + 1)
```

Mathematica [A] time = 0.340544, size = 120, normalized size = 0.55

$$\frac{-30\sqrt{3x+2}\sqrt{5x+3}\left(94500x^4+392400x^3+795150x^2+1258906x-2283923\right)+43010905\sqrt{2-4x}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)\right.}{113400\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^(5/2)*(3 + 5*x)^(5/2))/(1 - 2*x)^(3/2),x]
```

```
[Out] (-30*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(-2283923 + 1258906*x + 795150*x
^2 + 392400*x^3 + 94500*x^4) - 85393762*Sqrt[2 - 4*x]*EllipticE[A
rcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 43010905*Sqrt[2 - 4*x]*
EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/(113400*Sqrt[
1 - 2*x])
```

Maple [C] time = 0.026, size = 179, normalized size = 0.8

$$-\frac{1}{3402000\,x^3+2608200\,x^2-793800\,x-680400}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(-42525000\,x^6+43010905\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(5/2)*(3+5*x)^(5/2)/(1-2*x)^(3/2),x)
```

```
[Out] -1/113400*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(-42525000*x^
6+43010905*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Elli
pticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*
2^(1/2))-85393762*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/
2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3
^(1/2)*2^(1/2))-230445000*x^5-598495500*x^4-1090375200*x^3+167061
930*x^2+1075233030*x+411106140)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{5}{2}}(3\,x+2)^{\frac{5}{2}}}{(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)^(5/2)/(-2*x + 1)^(3/2),x, algorithm="maxima"
```

```
[Out] integrate((5*x + 3)^(5/2)*(3*x + 2)^(5/2)/(-2*x + 1)^(3/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{\left(225\,x^4+570\,x^3+541\,x^2+228\,x+36\right)\sqrt{5\,x+3}\sqrt{3\,x+2}}{(2\,x-1)\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(3*x + 2)^(5/2)/(-2*x + 1)^(3/2),x, algorithm="fricas"
```

```
[Out] integral(-(225*x^4 + 570*x^3 + 541*x^2 + 228*x + 36)*sqrt(5*x + 3
)*sqrt(3*x + 2)/((2*x - 1)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2+3*x)**(5/2)*(3+5*x)**(5/2)/(1-2*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}(3x+2)^{\frac{5}{2}}}{(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(3*x + 2)^(5/2)/(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)*(3*x + 2)^(5/2)/(-2*x + 1)^(3/2), x)
```

3.2893 $\int \frac{(2+3x)^{3/2}(3+5x)^{5/2}}{(1-2x)^{3/2}}\,dx$

Optimal. Leaf size=188

$$\frac{(3x+2)^{3/2}(5x+3)^{5/2}}{\sqrt{1-2x}}+\frac{12}{7}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}$$
$$+\frac{167}{14}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}+\frac{3683}{42}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}+\frac{3683}{210}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{244879}{420}\sqrt{\frac{11}{3}}E\Big($$

```
[Out] (3683*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/42 + (167*Sqrt[1
 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/14 + (12*Sqrt[1 - 2*x]*Sqr
t[2 + 3*x]*(3 + 5*x)^(5/2))/7 + ((2 + 3*x)^(3/2)*(3 + 5*x)^(5/2))
/Sqrt[1 - 2*x] + (244879*Sqrt[11/3]*EllipticE[ArcSin[Sqrt[3/7]*Sq
rt[1 - 2*x]], 35/33])/420 + (3683*Sqrt[11/3]*EllipticF[ArcSin[Sqr
t[3/7]*Sqrt[1 - 2*x]], 35/33])/210
```

Rubi [A] time = 0.390352, antiderivative size = 188, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{(3x+2)^{3/2}(5x+3)^{5/2}}{\sqrt{1-2x}}+\frac{12}{7}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}$$
$$+\frac{167}{14}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}+\frac{3683}{42}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}+\frac{3683}{210}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{244879}{420}\sqrt{\frac{11}{3}}E\Big($$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^(3/2)*(3 + 5*x)^(5/2))/(1 - 2*x)^(3/2),x]
```

```
[Out] (3683*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/42 + (167*Sqrt[1
 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/14 + (12*Sqrt[1 - 2*x]*Sqr
t[2 + 3*x]*(3 + 5*x)^(5/2))/7 + ((2 + 3*x)^(3/2)*(3 + 5*x)^(5/2))
/Sqrt[1 - 2*x] + (244879*Sqrt[11/3]*EllipticE[ArcSin[Sqrt[3/7]*Sq
rt[1 - 2*x]], 35/33])/420 + (3683*Sqrt[11/3]*EllipticF[ArcSin[Sqr
t[3/7]*Sqrt[1 - 2*x]], 35/33])/210
```

Rubi in Sympy [A] time = 38.8181, size = 168, normalized size = 0.89

$$\frac{12\sqrt{-2x+1}\sqrt{3x+2}\,(5x+3)^{\frac{5}{2}}}{7}+\frac{167\sqrt{-2x+1}\sqrt{3x+2}\,(5x+3)^{\frac{3}{2}}}{14}+\frac{3683\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{42}$$
$$+\frac{244879\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{1260}+\frac{3683\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{630}+\frac{(3x+2)^{\frac{3}{2}}\,(5x+3)^{\frac{5}{2}}}{\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(3/2)*(3+5*x)**(5/2)/(1-2*x)**(3/2),x)
```

```
[Out] 12*sqrt(-2*x + 1)*sqrt(3*x + 2)*(5*x + 3)**(5/2)/7 + 167*sqrt(-2*
x + 1)*sqrt(3*x + 2)*(5*x + 3)**(3/2)/14 + 3683*sqrt(-2*x + 1)*sq
rt(3*x + 2)*sqrt(5*x + 3)/42 + 244879*sqrt(33)*elliptic_e(asin(sq
rt(21)*sqrt(-2*x + 1)/7), 35/33)/1260 + 3683*sqrt(33)*elliptic_f(
asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/630 + (3*x + 2)**(3/2)*(5
*x + 3)**(5/2)/sqrt(-2*x + 1)
```

Mathematica [A] time = 0.278442, size = 115, normalized size = 0.61

$$\frac{-30\sqrt{3x+2}\sqrt{5x+3}\left(450x^3+1650x^2+3349x-6590\right)+123340\sqrt{2-4x}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-244879\sqrt{2-4x}E}{1260\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^(3/2)*(3 + 5*x)^(5/2))/(1 - 2*x)^(3/2),x]
```

```
[Out] (-30*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(-6590 + 3349*x + 1650*x^2 + 450
*x^3) - 244879*Sqrt[2 - 4*x]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 +
 5*x]], -33/2] + 123340*Sqrt[2 - 4*x]*EllipticF[ArcSin[Sqrt[2/11]
*Sqrt[3 + 5*x]], -33/2])/(1260*Sqrt[1 - 2*x])
```

Maple [C] time = 0.026, size = 174, normalized size = 0.9

$$-\frac{1}{37800\,x^3+28980\,x^2-8820\,x-7560}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(123340\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{11}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(3/2)*(3+5*x)^(5/2)/(1-2*x)^(3/2),x)
```

```
[Out] -1/1260*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(123340*2^(1/2)
*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2
)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-244879*2^
(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11
^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-2025
00*x^5-999000*x^4-2528550*x^3+759570*x^2+3153480*x+1186200)/(30*x
^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{5}{2}}(3\,x+2)^{\frac{3}{2}}}{(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)^(3/2)/(-2*x + 1)^(3/2),x, algorithm="maxima"
```

```
[Out] integrate((5*x + 3)^(5/2)*(3*x + 2)^(3/2)/(-2*x + 1)^(3/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{\left(75\,x^3+140\,x^2+87\,x+18\right)\sqrt{5\,x+3}\sqrt{3\,x+2}}{(2\,x-1)\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)^(3/2)/(-2*x + 1)^(3/2),x, algorithm="fricas"
```

```
[Out] integral(-(75*x^3 + 140*x^2 + 87*x + 18)*sqrt(5*x + 3)*sqrt(3*x +
 2)/((2*x - 1)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(3/2)*(3+5*x)**(5/2)/(1-2*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{5}{2}}(3\,x+2)^{\frac{3}{2}}}{(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(3*x + 2)^(3/2)/(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)*(3*x + 2)^(3/2)/(-2*x + 1)^(3/2), x)
```

3.2894 $\int \frac{\sqrt{2+3x}(3+5x)^{5/2}}{(1-2x)^{3/2}} \, dx$

Optimal. Leaf size=155

$$\frac{\sqrt{3x+2}(5x+3)^{5/2}}{\sqrt{1-2x}}+3\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}+\frac{397}{18}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}+\frac{397}{90}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{6599}{45}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (397*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/18 + 3*Sqrt[1 - 2
*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2) + (Sqrt[2 + 3*x]*(3 + 5*x)^(5/2
))/Sqrt[1 - 2*x] + (6599*Sqrt[11/3]*EllipticE[ArcSin[Sqrt[3/7]*Sq
rt[1 - 2*x]], 35/33])/45 + (397*Sqrt[11/3]*EllipticF[ArcSin[Sqrt[
3/7]*Sqrt[1 - 2*x]], 35/33])/90
```

Rubi [A] time = 0.315608, antiderivative size = 155, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.179$

$$\frac{\sqrt{3x+2}(5x+3)^{5/2}}{\sqrt{1-2x}}+3\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}+\frac{397}{18}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}+\frac{397}{90}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{6599}{45}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/(1 - 2*x)^(3/2),x]
```

```
[Out] (397*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/18 + 3*Sqrt[1 - 2
*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2) + (Sqrt[2 + 3*x]*(3 + 5*x)^(5/2
))/Sqrt[1 - 2*x] + (6599*Sqrt[11/3]*EllipticE[ArcSin[Sqrt[3/7]*Sq
rt[1 - 2*x]], 35/33])/45 + (397*Sqrt[11/3]*EllipticF[ArcSin[Sqrt[
3/7]*Sqrt[1 - 2*x]], 35/33])/90
```

Rubi in Sympy [A] time = 31.697, size = 138, normalized size = 0.89

$$3\sqrt{-2x+1}\sqrt{3x+2}\,(5x+3)^{\frac{3}{2}}+\frac{397\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{18}+\frac{6599\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{135}+\frac{397\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{270}+\frac{\sqrt{3x+2}\,(5x+3)^{\frac{5}{2}}}{\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)*(2+3*x)**(1/2)/(1-2*x)**(3/2),x)
```

```
[Out] 3*sqrt(-2*x + 1)*sqrt(3*x + 2)*(5*x + 3)**(3/2) + 397*sqrt(-2*x +
 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/18 + 6599*sqrt(33)*elliptic_e(asi
n(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/135 + 397*sqrt(33)*elliptic_
f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/270 + sqrt(3*x + 2)*(5*
x + 3)**(5/2)/sqrt(-2*x + 1)
```

Mathematica [A] time = 0.257352, size = 110, normalized size = 0.71

$$\frac{-30\sqrt{3x+2}\sqrt{5x+3}\left(90x^2+308x-721\right)+13295\sqrt{2-4x}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-26396\sqrt{2-4x}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5\right.\right.}{540\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/(1 - 2*x)^(3/2),x]
```

```
[Out] (-30*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(-721 + 308*x + 90*x^2) - 26396*
Sqrt[2 - 4*x]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]
+ 13295*Sqrt[2 - 4*x]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]],
 -33/2])/(540*Sqrt[1 - 2*x])
```

Maple [C] time = 0.023, size = 169, normalized size = 1.1

$$-\frac{1}{16200\,x^{3}+12420\,x^{2}-3780\,x-3240}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(13295\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}\mathit{EllipticF}\left(1/11\,\sqrt{11}\sqrt{2}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)*(2+3*x)^(1/2)/(1-2*x)^(3/2),x)
```

```
[Out] -1/540*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*(13295*2^(1/2)*(
3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*
2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-26396*2^(1/
2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1
/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-40500*x
^4-189900*x^3+132690*x^2+355530*x+129780)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{5}{2}}\sqrt{3\,x+2}}{(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*sqrt(3*x + 2)/(-2*x + 1)^(3/2),x, algorithm="maxima")
```

```
[Out] integrate((5*x + 3)^(5/2)*sqrt(3*x + 2)/(-2*x + 1)^(3/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(-\frac{(25\,x^{2}+30\,x+9)\sqrt{5\,x+3}\sqrt{3\,x+2}}{(2\,x-1)\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*sqrt(3*x + 2)/(-2*x + 1)^(3/2),x, algorithm="fricas")
```

```
[Out] integral(-(25*x^2 + 30*x + 9)*sqrt(5*x + 3)*sqrt(3*x + 2)/((2*x -
 1)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(5/2)*(2+3*x)**(1/2)/(1-2*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}\sqrt{3x+2}}{(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*sqrt(3*x + 2)/(-2*x + 1)^(3/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)*sqrt(3*x + 2)/(-2*x + 1)^(3/2), x)
```

3.2895 $\int \frac{(3+5x)^{5/2}}{(1-2x)^{3/2}\sqrt{2+3x}}\,dx$

Optimal. Leaf size=129

$$\frac{11\sqrt{3x+2}(5x+3)^{3/2}}{7\sqrt{1-2x}}+\frac{335}{63}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}+\frac{67}{63}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{4451}{126}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (335*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/63 + (11*Sqrt[2 +
 3*x]*(3 + 5*x)^(3/2))/(7*Sqrt[1 - 2*x]) + (4451*Sqrt[11/3]*Ellip
ticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/126 + (67*Sqrt[11/3
]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/63
```

Rubi [A] time = 0.258495, antiderivative size = 129, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{11\sqrt{3x+2}(5x+3)^{3/2}}{7\sqrt{1-2x}}+\frac{335}{63}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}+\frac{67}{63}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{4451}{126}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(5/2)/((1 - 2*x)^(3/2)*Sqrt[2 + 3*x]),x]
```

```
[Out] (335*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/63 + (11*Sqrt[2 +
 3*x]*(3 + 5*x)^(3/2))/(7*Sqrt[1 - 2*x]) + (4451*Sqrt[11/3]*Ellip
ticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/126 + (67*Sqrt[11/3
]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/63
```

Rubi in Sympy [A] time = 24.2255, size = 114, normalized size = 0.88

$$\frac{335\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{63}+\frac{4451\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{378}+\frac{737\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{2205}+\frac{11\sqrt{3x+2}\,(5x+3)^{\frac{3}{2}}}{7\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)/(1-2*x)**(3/2)/(2+3*x)**(1/2),x)
```

```
[Out] 335*sqrt(-2*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/63 + 4451*sqrt(33)
*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/378 + 737*sqr
t(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/2205 +
11*sqrt(3*x + 2)*(5*x + 3)**(3/2)/(7*sqrt(-2*x + 1))
```

Mathematica [A] time = 0.143931, size = 105, normalized size = 0.81

$$\frac{6\sqrt{3x+2}\sqrt{5x+3}(632-175x)+2240\sqrt{2-4x}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-4451\sqrt{2-4x}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)}{378\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(5/2)/((1 - 2*x)^(3/2)*Sqrt[2 + 3*x]),x]
```

```
[Out] (6*(632 - 175*x)*Sqrt[2 + 3*x]*Sqrt[3 + 5*x] - 4451*Sqrt[2 - 4*x]
*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 2240*Sqrt[2
 - 4*x]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/(378*
Sqrt[1 - 2*x])
```

Maple [C] time = 0.027, size = 164, normalized size = 1.3

$$-\frac{1}{11340\,x^3+8694\,x^2-2646\,x-2268}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(2240\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)/(1-2*x)^(3/2)/(2+3*x)^(1/2),x)
```

```
[Out] -1/378*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(2240*2^(1/2)*(3
+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2
^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-4451*2^(1/2)
*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2
)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-15750*x^3
+36930*x^2+65748*x+22752)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{5}{2}}}{\sqrt{3\,x+2}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/(sqrt(3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="maxima"
```

```
[Out] integrate((5*x + 3)^(5/2)/(sqrt(3*x + 2)*(-2*x + 1)^(3/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(-\frac{\left(25\,x^2+30\,x+9\right)\sqrt{5\,x+3}}{\sqrt{3\,x+2}(2\,x-1)\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/(sqrt(3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="fricas"
```

```
[Out] integral(-(25*x^2 + 30*x + 9)*sqrt(5*x + 3)/(sqrt(3*x + 2)*(2*x -
 1)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(5/2)/(1-2*x)**(3/2)/(2+3*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}}{\sqrt{3x+2}(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/(sqrt(3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)/(sqrt(3*x + 2)*(-2*x + 1)^(3/2)), x)
```

3.2896 $\int \frac{(3+5x)^{5/2}}{(1-2x)^{3/2}(2+3x)^{3/2}}\,dx$

Optimal. Leaf size=129

$$\frac{11(5x+3)^{3/2}}{7\sqrt{1-2x}\sqrt{3x+2}}+\frac{31\sqrt{1-2x}\sqrt{5x+3}}{147\sqrt{3x+2}}+\frac{31}{147}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{1159}{147}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (31*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(147*Sqrt[2 + 3*x]) + (11*(3 + 5
*x)^(3/2))/(7*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]) + (1159*Sqrt[11/3]*Ell
ipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/147 + (31*Sqrt[11
/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/147
```

Rubi [A] time = 0.260727, antiderivative size = 129, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{11(5x+3)^{3/2}}{7\sqrt{1-2x}\sqrt{3x+2}}+\frac{31\sqrt{1-2x}\sqrt{5x+3}}{147\sqrt{3x+2}}+\frac{31}{147}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{1159}{147}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(5/2)/((1 - 2*x)^(3/2)*(2 + 3*x)^(3/2)),x]
```

```
[Out] (31*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(147*Sqrt[2 + 3*x]) + (11*(3 + 5
*x)^(3/2))/(7*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]) + (1159*Sqrt[11/3]*Ell
ipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/147 + (31*Sqrt[11
/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/147
```

Rubi in Sympy [A] time = 24.1795, size = 114, normalized size = 0.88

$$\frac{31\sqrt{-2x+1}\sqrt{5x+3}}{147\sqrt{3x+2}}+\frac{1159\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{441}+\frac{341\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{5145}+\frac{11\left(5x+3\right)^{\frac{3}{2}}}{7\sqrt{-2x+1}\sqrt{3x+2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)/(1-2*x)**(3/2)/(2+3*x)**(3/2),x)
```

```
[Out] 31*sqrt(-2*x + 1)*sqrt(5*x + 3)/(147*sqrt(3*x + 2)) + 1159*sqrt(3
3)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/441 + 341*s
qrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/5145
+ 11*(5*x + 3)**(3/2)/(7*sqrt(-2*x + 1)*sqrt(3*x + 2))
```

Mathematica [A] time = 0.196196, size = 122, normalized size = 0.95

$$\frac{6\sqrt{3x+2}\sqrt{5x+3}(1093x+724)+1295\sqrt{2-4x}(3x+2)F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-2318\sqrt{2-4x}(3x+2)E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\right.\right.}{882\sqrt{1-2x}(3x+2)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(5/2)/((1 - 2*x)^(3/2)*(2 + 3*x)^(3/2)),x]
```

```
[Out] (6*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(724 + 1093*x) - 2318*Sqrt[2 - 4*x
]*(2 + 3*x)*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] +
1295*Sqrt[2 - 4*x]*(2 + 3*x)*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 +
 5*x]], -33/2])/(882*Sqrt[1 - 2*x]*(2 + 3*x))
```

Maple [C] time = 0.027, size = 159, normalized size = 1.2

$$-\frac{1}{26460\,x^{3}+20286\,x^{2}-6174\,x-5292}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(1295\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)/(1-2*x)^(3/2)/(2+3*x)^(3/2),x)
```

```
[Out] -1/882*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(1295*2^(1/2)*(3
+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2
^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-2318*2^(1/2)
*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2
)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+32790*x^2
+41394*x+13032)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{5}{2}}}{(3\,x+2)^{\frac{3}{2}}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="maxima
```

```
[Out] integrate((5*x + 3)^(5/2)/((3*x + 2)^(3/2)*(-2*x + 1)^(3/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(-\frac{\left(25\,x^{2}+30\,x+9\right)\sqrt{5\,x+3}}{(6\,x^{2}+x-2)\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="frica
```

```
[Out] integral(-(25*x^2 + 30*x + 9)*sqrt(5*x + 3)/((6*x^2 + x - 2)*sqrt
(3*x + 2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(5/2)/(1-2*x)**(3/2)/(2+3*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}}{(3x+2)^{\frac{3}{2}}(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="giac"
```

```
[Out] integrate((5*x + 3)^(5/2)/((3*x + 2)^(3/2)*(-2*x + 1)^(3/2)), x)
```

3.2897 $\int \frac{(3+5x)^{5/2}}{(1-2x)^{3/2}(2+3x)^{5/2}}\,dx$

Optimal. Leaf size=160

$$\frac{11(5x+3)^{3/2}}{7\sqrt{1-2x}(3x+2)^{3/2}}-\frac{2797\sqrt{1-2x}\sqrt{5x+3}}{3087\sqrt{3x+2}}+\frac{97\sqrt{1-2x}\sqrt{5x+3}}{441(3x+2)^{3/2}}+\frac{598\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3087}+\frac{2797\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3087}$$

```
[Out] (97*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(441*(2 + 3*x)^(3/2)) - (2797*Sq
rt[1 - 2*x]*Sqrt[3 + 5*x])/(3087*Sqrt[2 + 3*x]) + (11*(3 + 5*x)^(
3/2))/(7*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)) + (2797*Sqrt[11/3]*Ellipt
icE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3087 + (598*Sqrt[11/
3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3087
```

Rubi [A] time = 0.336866, antiderivative size = 160, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{11(5x+3)^{3/2}}{7\sqrt{1-2x}(3x+2)^{3/2}}-\frac{2797\sqrt{1-2x}\sqrt{5x+3}}{3087\sqrt{3x+2}}+\frac{97\sqrt{1-2x}\sqrt{5x+3}}{441(3x+2)^{3/2}}+\frac{598\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3087}+\frac{2797\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3087}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(5/2)/((1 - 2*x)^(3/2)*(2 + 3*x)^(5/2)),x]
```

```
[Out] (97*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(441*(2 + 3*x)^(3/2)) - (2797*Sq
rt[1 - 2*x]*Sqrt[3 + 5*x])/(3087*Sqrt[2 + 3*x]) + (11*(3 + 5*x)^(
3/2))/(7*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)) + (2797*Sqrt[11/3]*Ellipt
icE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3087 + (598*Sqrt[11/
3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3087
```

Rubi in Sympy [A] time = 30.7608, size = 143, normalized size = 0.89

$$-\frac{2797\sqrt{-2x+1}\sqrt{5x+3}}{3087\sqrt{3x+2}}+\frac{97\sqrt{-2x+1}\sqrt{5x+3}}{441\left(3x+2\right)^{\frac{3}{2}}}+\frac{2797\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{9261}+\frac{6578\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{108045}+\frac{11\left(5x+3\right)^{\frac{3}{2}}}{7\sqrt{-2x+1}\left(3x+2\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)/(1-2*x)**(3/2)/(2+3*x)**(5/2),x)
```

```
[Out] -2797*sqrt(-2*x + 1)*sqrt(5*x + 3)/(3087*sqrt(3*x + 2)) + 97*sqrt
(-2*x + 1)*sqrt(5*x + 3)/(441*(3*x + 2)**(3/2)) + 2797*sqrt(33)*e
lliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/9261 + 6578*sqr
t(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/108045
+ 11*(5*x + 3)**(3/2)/(7*sqrt(-2*x + 1)*(3*x + 2)**(3/2))
```

Mathematica [A] time = 0.201984, size = 100, normalized size = 0.62

$$\frac{\frac{6\sqrt{5x+3}(8391x^2+12847x+4819)}{\sqrt{1-2x}(3x+2)^{3/2}}-\sqrt{2}\left(7070F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+2797E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)}{9261}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(5/2)/((1 - 2*x)^(3/2)*(2 + 3*x)^(5/2)),x]
```

```
[Out] ((6*Sqrt[3 + 5*x]*(4819 + 12847*x + 8391*x^2))/(Sqrt[1 - 2*x]*(2
+ 3*x)^(3/2)) - Sqrt[2]*(2797*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3
+ 5*x]], -33/2] + 7070*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]]
, -33/2]))/9261
```

Maple [C] time = 0.034, size = 267, normalized size = 1.7

$$\frac{1}{92610\,x^2+9261\,x-27783}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(21210\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)/(1-2*x)^(3/2)/(2+3*x)^(5/2),x)
```

```
[Out] 1/9261*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(21210*2^(1/2)*EllipticF(1/11*
11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*
(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+8391*2^(1/2)*EllipticE(
1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2
))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+14140*2^(1/2)*(3+5
*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(
1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+5594*2^(1/2)*(
3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*
2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-251730*x^3-
536448*x^2-375816*x-86742)/(2+3*x)^(3/2)/(10*x^2+x-3)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{5}{2}}}{(3\,x+2)^{\frac{5}{2}}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="maxima
```

```
[Out] integrate((5*x + 3)^(5/2)/((3*x + 2)^(5/2)*(-2*x + 1)^(3/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(-\frac{(25\,x^2+30\,x+9)\sqrt{5\,x+3}}{(18\,x^3+15\,x^2-4\,x-4)\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="frica
```

```
[Out] integral(-(25*x^2 + 30*x + 9)*sqrt(5*x + 3)/((18*x^3 + 15*x^2 - 4
*x - 4)*sqrt(3*x + 2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(5/2)/(1-2*x)**(3/2)/(2+3*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}}{(3x+2)^{\frac{5}{2}}(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="giac"
```

```
[Out] integrate((5*x + 3)^(5/2)/((3*x + 2)^(5/2)*(-2*x + 1)^(3/2)), x)
```

3.2898 $\int \frac{(3+5x)^{5/2}}{(1-2x)^{3/2}(2+3x)^{7/2}}\,dx$

Optimal. Leaf size=191

$$\frac{11(5x+3)^{3/2}}{7\sqrt{1-2x}(3x+2)^{5/2}}-\frac{81164\sqrt{1-2x}\sqrt{5x+3}}{108045\sqrt{3x+2}}-\frac{15601\sqrt{1-2x}\sqrt{5x+3}}{15435(3x+2)^{3/2}}+\frac{163\sqrt{1-2x}\sqrt{5x+3}}{735(3x+2)^{5/2}}-\frac{28174\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{108045}+\frac{81164\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{108045}$$

```
[Out] (163*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(735*(2 + 3*x)^(5/2)) - (15601*
Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(15435*(2 + 3*x)^(3/2)) - (81164*Sqr
t[1 - 2*x]*Sqrt[3 + 5*x])/(108045*Sqrt[2 + 3*x]) + (11*(3 + 5*x)^
(3/2))/(7*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)) + (81164*Sqrt[11/3]*Elli
pticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/108045 - (28174*Sq
rt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/10804
5
```

Rubi [A] time = 0.423821, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{11(5x+3)^{3/2}}{7\sqrt{1-2x}(3x+2)^{5/2}}-\frac{81164\sqrt{1-2x}\sqrt{5x+3}}{108045\sqrt{3x+2}}-\frac{15601\sqrt{1-2x}\sqrt{5x+3}}{15435(3x+2)^{3/2}}+\frac{163\sqrt{1-2x}\sqrt{5x+3}}{735(3x+2)^{5/2}}-\frac{28174\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{108045}+\frac{81164\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{108045}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(5/2)/((1 - 2*x)^(3/2)*(2 + 3*x)^(7/2)),x]
```

```
[Out] (163*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(735*(2 + 3*x)^(5/2)) - (15601*
Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(15435*(2 + 3*x)^(3/2)) - (81164*Sqr
t[1 - 2*x]*Sqrt[3 + 5*x])/(108045*Sqrt[2 + 3*x]) + (11*(3 + 5*x)^
(3/2))/(7*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)) + (81164*Sqrt[11/3]*Elli
pticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/108045 - (28174*Sq
rt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/10804
5
```

Rubi in Sympy [A] time = 38.2695, size = 172, normalized size = 0.9

$$-\frac{81164\sqrt{-2x+1}\sqrt{5x+3}}{108045\sqrt{3x+2}}-\frac{15601\sqrt{-2x+1}\sqrt{5x+3}}{15435\,(3x+2)^{\frac{3}{2}}}+\frac{163\sqrt{-2x+1}\sqrt{5x+3}}{735\,(3x+2)^{\frac{5}{2}}}+\frac{81164\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{324135}-\frac{309914\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{3781575}+\frac{11\,(5x+3)^{\frac{3}{2}}}{7\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)/(1-2*x)**(3/2)/(2+3*x)**(7/2),x)
```

```
[Out] -81164*sqrt(-2*x + 1)*sqrt(5*x + 3)/(108045*sqrt(3*x + 2)) - 1560
1*sqrt(-2*x + 1)*sqrt(5*x + 3)/(15435*(3*x + 2)**(3/2)) + 163*sqr
t(-2*x + 1)*sqrt(5*x + 3)/(735*(3*x + 2)**(5/2)) + 81164*sqrt(33)
*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/324135 - 3099
14*sqrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/3
781575 + 11*(5*x + 3)**(3/2)/(7*sqrt(-2*x + 1)*(3*x + 2)**(5/2))
```

Mathematica [A] time = 0.250031, size = 104, normalized size = 0.54

$$\frac{\frac{6\sqrt{5x+3}(730476x^3+936351x^2+292777x-4877)}{\sqrt{1-2x}(3x+2)^{5/2}}+\sqrt{2}\left(546035F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-81164E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)}{324135}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(5/2)/((1 - 2*x)^(3/2)*(2 + 3*x)^(7/2)),x]
```

```
[Out] ((6*Sqrt[3 + 5*x]*(-4877 + 292777*x + 936351*x^2 + 730476*x^3))/(
Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)) + Sqrt[2]*(-81164*EllipticE[ArcSin
[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 546035*EllipticF[ArcSin[Sqrt
[2/11]*Sqrt[3 + 5*x]], -33/2]))/324135
```

Maple [C] time = 0.036, size = 386, normalized size = 2.

$$-\frac{1}{3241350\,x^2+324135\,x-972405}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(4914315\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^2\sqrt{3+5\,x}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)/(1-2*x)^(3/2)/(2+3*x)^(7/2),x)
```

```
[Out] -1/324135*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(4914315*2^(1/2)*EllipticF(
1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2
))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-730476*2^(1/2)*E
llipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/
2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+6552420
*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(
1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)
-973968*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2
*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x
)^(1/2)+2184140*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)
*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(
1/2)*2^(1/2))-324656*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^
(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2
)*3^(1/2)*2^(1/2))+21914280*x^4+41239098*x^3+25637628*x^2+5123676
*x-87786)/(2+3*x)^(5/2)/(10*x^2+x-3)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{5}{2}}}{(3\,x+2)^{\frac{7}{2}}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)^(7/2)*(-2*x + 1)^(3/2)),x, algorithm="maxima
```

```
[Out] integrate((5*x + 3)^(5/2)/((3*x + 2)^(7/2)*(-2*x + 1)^(3/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{(25\,x^2+30\,x+9)\sqrt{5\,x+3}}{(54\,x^4+81\,x^3+18\,x^2-20\,x-8)\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)^(7/2)*(-2*x + 1)^(3/2)),x, algorithm="frica
```

```
[Out] integral(-(25*x^2 + 30*x + 9)*sqrt(5*x + 3)/((54*x^4 + 81*x^3 + 1
8*x^2 - 20*x - 8)*sqrt(3*x + 2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3+5*x)**(5/2)/(1-2*x)**(3/2)/(2+3*x)**(7/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}}{(3x+2)^{\frac{7}{2}}(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)^(7/2)*(-2*x + 1)^(3/2)),x, algorithm="giac"
```

```
[Out] integrate((5*x + 3)^(5/2)/((3*x + 2)^(7/2)*(-2*x + 1)^(3/2)), x)
```

3.2899 $\int \frac{(3+5x)^{5/2}}{(1-2x)^{3/2}(2+3x)^{9/2}}\,dx$

Optimal. Leaf size=222

$$\frac{11(5x+3)^{3/2}}{7\sqrt{1-2x}(3x+2)^{7/2}}-\frac{106558\sqrt{1-2x}\sqrt{5x+3}}{1764735\sqrt{3x+2}}-\frac{106772\sqrt{1-2x}\sqrt{5x+3}}{252105(3x+2)^{3/2}}-\frac{37117\sqrt{1-2x}\sqrt{5x+3}}{36015(3x+2)^{5/2}}+\frac{229\sqrt{1-2x}\sqrt{5x+3}}{1029(3x+2)^{7/2}}-\frac{220028\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1764735}+\frac{106558\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1764735}$$

```
[Out] (229*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(1029*(2 + 3*x)^(7/2)) - (37117
*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(36015*(2 + 3*x)^(5/2)) - (106772*S
qrt[1 - 2*x]*Sqrt[3 + 5*x])/(252105*(2 + 3*x)^(3/2)) - (106558*Sq
rt[1 - 2*x]*Sqrt[3 + 5*x])/(1764735*Sqrt[2 + 3*x]) + (11*(3 + 5*x
)^(3/2))/(7*Sqrt[1 - 2*x]*(2 + 3*x)^(7/2)) + (106558*Sqrt[11/3]*E
llipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1764735 - (2200
28*Sqrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/
1764735
```

Rubi [A] time = 0.518302, antiderivative size = 222, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.214$

$$\frac{11(5x+3)^{3/2}}{7\sqrt{1-2x}(3x+2)^{7/2}}-\frac{106558\sqrt{1-2x}\sqrt{5x+3}}{1764735\sqrt{3x+2}}-\frac{106772\sqrt{1-2x}\sqrt{5x+3}}{252105(3x+2)^{3/2}}-\frac{37117\sqrt{1-2x}\sqrt{5x+3}}{36015(3x+2)^{5/2}}+\frac{229\sqrt{1-2x}\sqrt{5x+3}}{1029(3x+2)^{7/2}}-\frac{220028\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1764735}+\frac{106558\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1764735}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(5/2)/((1 - 2*x)^(3/2)*(2 + 3*x)^(9/2)),x]
```


```
[Out] (229*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(1029*(2 + 3*x)^(7/2)) - (37117
*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(36015*(2 + 3*x)^(5/2)) - (106772*S
qrt[1 - 2*x]*Sqrt[3 + 5*x])/(252105*(2 + 3*x)^(3/2)) - (106558*Sq
rt[1 - 2*x]*Sqrt[3 + 5*x])/(1764735*Sqrt[2 + 3*x]) + (11*(3 + 5*x
)^(3/2))/(7*Sqrt[1 - 2*x]*(2 + 3*x)^(7/2)) + (106558*Sqrt[11/3]*E
llipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1764735 - (2200
28*Sqrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/
1764735
```

Rubi in Sympy [A] time = 45.6285, size = 201, normalized size = 0.91

$$-\frac{106558\sqrt{-2x+1}\sqrt{5x+3}}{1764735\sqrt{3x+2}}-\frac{106772\sqrt{-2x+1}\sqrt{5x+3}}{252105\,(3x+2)^{\frac{3}{2}}}-\frac{37117\sqrt{-2x+1}\sqrt{5x+3}}{36015\,(3x+2)^{\frac{5}{2}}}+\frac{229\sqrt{-2x+1}\sqrt{5x+3}}{1029\,(3x+2)^{\frac{7}{2}}}+\frac{106558\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{5294205}-\frac{220028\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{5294205}+\frac{11\,(5x+3)^{\frac{3}{2}}}{7\sqrt{-2x+1}\,(3x+2)^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)/(1-2*x)**(3/2)/(2+3*x)**(9/2),x)
```

```
[Out] -106558*sqrt(-2*x + 1)*sqrt(5*x + 3)/(1764735*sqrt(3*x + 2)) - 10
6772*sqrt(-2*x + 1)*sqrt(5*x + 3)/(252105*(3*x + 2)**(3/2)) - 371
17*sqrt(-2*x + 1)*sqrt(5*x + 3)/(36015*(3*x + 2)**(5/2)) + 229*sq
rt(-2*x + 1)*sqrt(5*x + 3)/(1029*(3*x + 2)**(7/2)) + 106558*sqrt(
33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/5294205 -
220028*sqrt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33
)/5294205 + 11*(5*x + 3)**(3/2)/(7*sqrt(-2*x + 1)*(3*x + 2)**(7/2
))
```

Mathematica [A] time = 0.308878, size = 109, normalized size = 0.49

$$\frac{2\left(\frac{3\sqrt{5x+3}\left(2877066x^4+11042235x^3+12020751x^2+4889131x+616327\right)}{\sqrt{1-2x}(3x+2)^{7/2}}+\sqrt{2}\left(1868510F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-53279E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\right.\right.\right.\right.}{5294205}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(5/2)/((1 - 2*x)^(3/2)*(2 + 3*x)^(9/2)),x]
```

```
[Out] (2*((3*Sqrt[3 + 5*x]*(616327 + 4889131*x + 12020751*x^2 + 1104223
5*x^3 + 2877066*x^4))/(Sqrt[1 - 2*x]*(2 + 3*x)^(7/2)) + Sqrt[2]*(
-53279*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 18685
10*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])))/5294205
```

Maple [C] time = 0.037, size = 505, normalized size = 2.3

$$-\frac{2}{52942050\,x^2+5294205\,x-15882615}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(50449770\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^3\sqrt{1\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)/(1-2*x)^(3/2)/(2+3*x)^(9/2),x)
```

```
[Out] -2/5294205*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(50449770*2^(1/2)*Elliptic
F(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1
/2))*x^3*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)-1438533*2^(1/2
)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^
(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)+1008
99540*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I
*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x
)^(1/2)-2877066*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(
1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1
/2)*(1-2*x)^(1/2)+67266360*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2
)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(
2+3*x)^(1/2)*(1-2*x)^(1/2)-1918044*2^(1/2)*EllipticE(1/11*11^(1/2
)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)
^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+14948080*2^(1/2)*(3+5*x)^(1/2)
*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5
*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-426232*2^(1/2)*(3+5*x)^
(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)
*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+43155990*x^5+19152
7119*x^4+279691380*x^3+181523724*x^2+53247084*x+5546943)/(2+3*x)^
(7/2)/(10*x^2+x-3)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{5}{2}}}{(3\,x+2)^{\frac{9}{2}}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)^(9/2)*(-2*x + 1)^(3/2)),x, algorithm="maxima
```

```
[Out] integrate((5*x + 3)^(5/2)/((3*x + 2)^(9/2)*(-2*x + 1)^(3/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{\left(25\,x^2+30\,x+9\right)\sqrt{5\,x+3}}{\left(162\,x^5+351\,x^4+216\,x^3-24\,x^2-64\,x-16\right)\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)^(9/2)*(-2*x + 1)^(3/2)),x, algorithm="fricas
```

```
[Out] integral(-(25*x^2 + 30*x + 9)*sqrt(5*x + 3)/((162*x^5 + 351*x^4 +
 216*x^3 - 24*x^2 - 64*x - 16)*sqrt(3*x + 2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(5/2)/(1-2*x)**(3/2)/(2+3*x)**(9/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{5}{2}}}{(3\,x+2)^{\frac{9}{2}}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)^(9/2)*(-2*x + 1)^(3/2)),x, algorithm="giac"
```

```
[Out] integrate((5*x + 3)^(5/2)/((3*x + 2)^(9/2)*(-2*x + 1)^(3/2)), x)
```

3.2900 $\int \frac{(3+5x)^{5/2}}{(1-2x)^{3/2}(2+3x)^{11/2}}\,dx$

Optimal. Leaf size=253

$$\frac{11(5x+3)^{3/2}}{7\sqrt{1-2x}(3x+2)^{9/2}}+\frac{6036028\sqrt{1-2x}\sqrt{5x+3}}{22235661\sqrt{3x+2}}-\frac{392998\sqrt{1-2x}\sqrt{5x+3}}{3176523(3x+2)^{3/2}}-\frac{167228\sqrt{1-2x}\sqrt{5x+3}}{453789(3x+2)^{5/2}}-\frac{67345\sqrt{1-2x}\sqrt{5x+3}}{64827(3x+2)^{7/2}}+\frac{295\sqrt{1-2x}\sqrt{5x+3}}{1323(3x+2)^{9/2}}-\frac{1199452\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{22235661}-\frac{6036028\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{22235661}$$

```
[Out] (295*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(1323*(2 + 3*x)^(9/2)) - (67345
*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(64827*(2 + 3*x)^(7/2)) - (167228*S
qrt[1 - 2*x]*Sqrt[3 + 5*x])/(453789*(2 + 3*x)^(5/2)) - (392998*Sq
rt[1 - 2*x]*Sqrt[3 + 5*x])/(3176523*(2 + 3*x)^(3/2)) + (6036028*S
qrt[1 - 2*x]*Sqrt[3 + 5*x])/(22235661*Sqrt[2 + 3*x]) + (11*(3 + 5
*x)^(3/2))/(7*Sqrt[1 - 2*x]*(2 + 3*x)^(9/2)) - (6036028*Sqrt[11/3
]*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/22235661 - (
1199452*Sqrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/
33])/22235661
```

Rubi [A] time = 0.603719, antiderivative size = 253, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{11(5x+3)^{3/2}}{7\sqrt{1-2x}(3x+2)^{9/2}}+\frac{6036028\sqrt{1-2x}\sqrt{5x+3}}{22235661\sqrt{3x+2}}-\frac{392998\sqrt{1-2x}\sqrt{5x+3}}{3176523(3x+2)^{3/2}}-\frac{167228\sqrt{1-2x}\sqrt{5x+3}}{453789(3x+2)^{5/2}}-\frac{67345\sqrt{1-2x}\sqrt{5x+3}}{64827(3x+2)^{7/2}}+\frac{295\sqrt{1-2x}\sqrt{5x+3}}{1323(3x+2)^{9/2}}-\frac{1199452\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{22235661}-\frac{6036028\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{22235661}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(5/2)/((1 - 2*x)^(3/2)*(2 + 3*x)^(11/2)),x]
```


```
[Out] (295*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(1323*(2 + 3*x)^(9/2)) - (67345
*Sqrt[1 - 2*x]*Sqrt[3 + 5*x])/(64827*(2 + 3*x)^(7/2)) - (167228*S
qrt[1 - 2*x]*Sqrt[3 + 5*x])/(453789*(2 + 3*x)^(5/2)) - (392998*Sq
rt[1 - 2*x]*Sqrt[3 + 5*x])/(3176523*(2 + 3*x)^(3/2)) + (6036028*S
qrt[1 - 2*x]*Sqrt[3 + 5*x])/(22235661*Sqrt[2 + 3*x]) + (11*(3 + 5
*x)^(3/2))/(7*Sqrt[1 - 2*x]*(2 + 3*x)^(9/2)) - (6036028*Sqrt[11/3
]*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/22235661 - (
1199452*Sqrt[11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/
33])/22235661
```

Rubi in Sympy [A] time = 53.7903, size = 230, normalized size = 0.91

$$\frac{6036028\sqrt{-2x+1}\sqrt{5x+3}}{22235661\sqrt{3x+2}}-\frac{392998\sqrt{-2x+1}\sqrt{5x+3}}{3176523\,(3x+2)^{\frac{3}{2}}}-\frac{167228\sqrt{-2x+1}\sqrt{5x+3}}{453789\,(3x+2)^{\frac{5}{2}}}-\frac{67345\sqrt{-2x+1}\sqrt{5x+3}}{64827\,(3x+2)^{\frac{7}{2}}}+\frac{295\sqrt{-2x+1}\sqrt{5x+3}}{1323\,(3x+2)^{\frac{9}{2}}}-\frac{6036028\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{66706983}-\frac{13193972\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{778248135}+\frac{11\,(5x+3)^{\frac{3}{2}}}{7\sqrt{-2x+1}\,(3x+2)^{\frac{9}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)/(1-2*x)**(3/2)/(2+3*x)**(11/2),x)
```

```
[Out] 6036028*sqrt(-2*x + 1)*sqrt(5*x + 3)/(22235661*sqrt(3*x + 2)) - 3
92998*sqrt(-2*x + 1)*sqrt(5*x + 3)/(3176523*(3*x + 2)**(3/2)) - 1
67228*sqrt(-2*x + 1)*sqrt(5*x + 3)/(453789*(3*x + 2)**(5/2)) - 67
345*sqrt(-2*x + 1)*sqrt(5*x + 3)/(64827*(3*x + 2)**(7/2)) + 295*s
qrt(-2*x + 1)*sqrt(5*x + 3)/(1323*(3*x + 2)**(9/2)) - 6036028*sqr
t(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/66706983
 - 13193972*sqrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11),
 33/35)/778248135 + 11*(5*x + 3)**(3/2)/(7*sqrt(-2*x + 1)*(3*x +
2)**(9/2))
```

Mathematica [A] time = 0.386087, size = 115, normalized size = 0.45

$$\frac{8\sqrt{2}\left(6877465F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+3018014E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)-\frac{24\sqrt{5x+3}(488918268x^5+985046292x^4+4667}{\sqrt{1-2}}}{266827932}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(5/2)/((1 - 2*x)^(3/2)*(2 + 3*x)^(11/2)),x]
```

```
[Out] ((-24*Sqrt[3 + 5*x]*(-52688263 - 243200677*x - 227945505*x^2 + 46
6728543*x^3 + 985046292*x^4 + 488918268*x^5))/(Sqrt[1 - 2*x]*(2 +
 3*x)^(9/2)) + 8*Sqrt[2]*(3018014*EllipticE[ArcSin[Sqrt[2/11]*Sqr
t[3 + 5*x]], -33/2] + 6877465*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3
+ 5*x]], -33/2]))/266827932
```

Maple [C] time = 0.039, size = 624, normalized size = 2.5

$$-\frac{2}{667069830\,x^2+66706983\,x-200120949}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(557074665\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)/(1-2*x)^(3/2)/(2+3*x)^(11/2),x)
```

```
[Out] -2/66706983*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(557074665*2^(1/2)*Ellipt
icF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^
(1/2))*x^4*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+244459134*2^
(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2
)*3^(1/2)*2^(1/2))*x^4*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+
1485532440*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),
1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(
2+3*x)^(1/2)+651891024*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3
+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+
5*x)^(1/2)*(2+3*x)^(1/2)+1485532440*2^(1/2)*EllipticF(1/11*11^(1/
2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5
*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+651891024*2^(1/2)*EllipticE
(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/
2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+660236640*2^(1/
2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3
^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+28972
9344*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*
11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(
1/2)-7333774020*x^6+110039440*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)
*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*
I*11^(1/2)*3^(1/2)*2^(1/2))+48288224*2^(1/2)*(3+5*x)^(1/2)*(2+3*x
)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/
2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-19175958792*x^5-15866344773*x^
4-781374312*x^3+5699519700*x^2+2979130038*x+474194367)/(2+3*x)^(9
/2)/(10*x^2+x-3)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{5}{2}}}{(3\,x+2)^{\frac{11}{2}}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)^(11/2)*(-2*x + 1)^(3/2)),x, algorithm="maxi
```

```
[Out] integrate((5*x + 3)^(5/2)/((3*x + 2)^(11/2)*(-2*x + 1)^(3/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(-\frac{\left(25\,x^{2}+30\,x+9\right)\sqrt{5\,x+3}}{(486\,x^{6}+1377\,x^{5}+1350\,x^{4}+360\,x^{3}-240\,x^{2}-176\,x-32)\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)^(11/2)*(-2*x + 1)^(3/2)),x, algorithm="fric
```

```
[Out] integral(-(25*x^2 + 30*x + 9)*sqrt(5*x + 3)/((486*x^6 + 1377*x^5
+ 1350*x^4 + 360*x^3 - 240*x^2 - 176*x - 32)*sqrt(3*x + 2)*sqrt(-
2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(5/2)/(1-2*x)**(3/2)/(2+3*x)**(11/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{5}{2}}}{(3\,x+2)^{\frac{11}{2}}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)^(11/2)*(-2*x + 1)^(3/2)),x, algorithm="giac
```

```
[Out] integrate((5*x + 3)^(5/2)/((3*x + 2)^(11/2)*(-2*x + 1)^(3/2)), x)
```

3.2901 $\int \frac{(2+3x)^{7/2}}{(1-2x)^{3/2}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=160

$$\frac{7\sqrt{5x+3}(3x+2)^{5/2}}{11\sqrt{1-2x}}+\frac{312}{275}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}+\frac{14517\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{2750}+\frac{5057\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1250}+\frac{168123\sqrt{\frac{3}{11}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1250}$$

```
[Out] (14517*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/2750 + (312*Sqr
t[1 - 2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/275 + (7*(2 + 3*x)^(5/2
)*Sqrt[3 + 5*x])/(11*Sqrt[1 - 2*x]) + (168123*Sqrt[3/11]*Elliptic
E[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1250 + (5057*Sqrt[3/11
]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1250
```

Rubi [A] time = 0.335423, antiderivative size = 160, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{7\sqrt{5x+3}(3x+2)^{5/2}}{11\sqrt{1-2x}}+\frac{312}{275}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}+\frac{14517\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{2750}+\frac{5057\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1250}+\frac{168123\sqrt{\frac{3}{11}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1250}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^(7/2)/((1 - 2*x)^(3/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (14517*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/2750 + (312*Sqr
t[1 - 2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/275 + (7*(2 + 3*x)^(5/2
)*Sqrt[3 + 5*x])/(11*Sqrt[1 - 2*x]) + (168123*Sqrt[3/11]*Elliptic
E[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1250 + (5057*Sqrt[3/11
]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1250
```

Rubi in Sympy [A] time = 31.9538, size = 143, normalized size = 0.89

$$\frac{312\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\,\sqrt{5x+3}}{275}+\frac{14517\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{2750}+\frac{168123\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{13750}+\frac{15171\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{43750}+\frac{7\,(3x+2)^{\frac{5}{2}}\,\sqrt{5x+3}}{11\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(7/2)/(1-2*x)**(3/2)/(3+5*x)**(1/2),x)
```

```
[Out] 312*sqrt(-2*x + 1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/275 + 14517*sqr
t(-2*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/2750 + 168123*sqrt(33)*el
liptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/13750 + 15171*sq
rt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/43750
+ 7*(3*x + 2)**(5/2)*sqrt(5*x + 3)/(11*sqrt(-2*x + 1))
```

Mathematica [A] time = 0.188605, size = 110, normalized size = 0.69

$$\frac{-10\sqrt{3x+2}\sqrt{5x+3}\left(2970x^2+11154x-27757\right)+169365\sqrt{2-4x}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-336246\sqrt{2-4x}E\left(\sin^{-1}\right.}{27500\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^(7/2)/((1 - 2*x)^(3/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (-10*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(-27757 + 11154*x + 2970*x^2) -
336246*Sqrt[2 - 4*x]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]],
-33/2] + 169365*Sqrt[2 - 4*x]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3
+ 5*x]], -33/2])/(27500*Sqrt[1 - 2*x])
```

Maple [C] time = 0.025, size = 169, normalized size = 1.1

$$-\frac{1}{825000\,x^3+632500\,x^2-192500\,x-165000}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(169365\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/1\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(7/2)/(1-2*x)^(3/2)/(3+5*x)^(1/2),x)
```

```
[Out] -1/27500*(2+3*x)^(1/2)*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(169365*2^(1/2
)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/
2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-336246*2
^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*1
1^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-445
500*x^4-2237400*x^3+1866090*x^2+4604590*x+1665420)/(30*x^3+23*x^2
-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{7}{2}}}{\sqrt{5\,x+3}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(7/2)/(sqrt(5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="maxima"
```

```
[Out] integrate((3*x + 2)^(7/2)/(sqrt(5*x + 3)*(-2*x + 1)^(3/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{\left(27\,x^3+54\,x^2+36\,x+8\right)\sqrt{3\,x+2}}{\sqrt{5\,x+3}(2\,x-1)\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(7/2)/(sqrt(5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="fricas"
```

```
[Out] integral(-(27*x^3 + 54*x^2 + 36*x + 8)*sqrt(3*x + 2)/(sqrt(5*x +
3)*(2*x - 1)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(7/2)/(1-2*x)**(3/2)/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{7}{2}}}{\sqrt{5x+3}(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(7/2)/(sqrt(5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] integrate((3*x + 2)^(7/2)/(sqrt(5*x + 3)*(-2*x + 1)^(3/2)), x)
```

3.2902 $\int \frac{(2+3x)^{5/2}}{(1-2x)^{3/2}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=129

$$\frac{7\sqrt{5x+3}(3x+2)^{3/2}}{11\sqrt{1-2x}}+\frac{69}{55}\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}+\frac{24}{25}\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{1597}{50}\sqrt{\frac{3}{11}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (69*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/55 + (7*(2 + 3*x)^
(3/2)*Sqrt[3 + 5*x])/(11*Sqrt[1 - 2*x]) + (1597*Sqrt[3/11]*Ellipt
icE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/50 + (24*Sqrt[3/11]*
EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/25
```

Rubi [A] time = 0.257777, antiderivative size = 129, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{7\sqrt{5x+3}(3x+2)^{3/2}}{11\sqrt{1-2x}}+\frac{69}{55}\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}+\frac{24}{25}\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{1597}{50}\sqrt{\frac{3}{11}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^(5/2)/((1 - 2*x)^(3/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (69*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/55 + (7*(2 + 3*x)^
(3/2)*Sqrt[3 + 5*x])/(11*Sqrt[1 - 2*x]) + (1597*Sqrt[3/11]*Ellipt
icE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/50 + (24*Sqrt[3/11]*
EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/25
```

Rubi in Sympy [A] time = 24.7397, size = 114, normalized size = 0.88

$$\frac{69\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{55}+\frac{1597\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{550}+\frac{24\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{275}+\frac{7\left(3x+2\right)^{\frac{3}{2}}\sqrt{5x+3}}{11\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(5/2)/(1-2*x)**(3/2)/(3+5*x)**(1/2),x)
```

```
[Out] 69*sqrt(-2*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/55 + 1597*sqrt(33)*
elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/550 + 24*sqrt(
33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/275 + 7*(3
*x + 2)**(3/2)*sqrt(5*x + 3)/(11*sqrt(-2*x + 1))
```

Mathematica [A] time = 0.139226, size = 105, normalized size = 0.81

$$\frac{10\sqrt{3x+2}\sqrt{5x+3}(139-33x)+805\sqrt{2-4x}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-1597\sqrt{2-4x}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)}{550\sqrt{1-2x}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^(5/2)/((1 - 2*x)^(3/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (10*(139 - 33*x)*Sqrt[2 + 3*x]*Sqrt[3 + 5*x] - 1597*Sqrt[2 - 4*x]
*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 805*Sqrt[2
- 4*x]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/(550*S
qrt[1 - 2*x])
```

Maple [C] time = 0.026, size = 164, normalized size = 1.3

$$-\frac{1}{16500\,x^3+12650\,x^2-3850\,x-3300}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(805\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(5/2)/(1-2*x)^(3/2)/(3+5*x)^(1/2),x)
```

```
[Out] -1/550*(2+3*x)^(1/2)*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(805*2^(1/2)*(3+
5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^
(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-1597*2^(1/2)*
(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)
*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-4950*x^3+1
4580*x^2+24430*x+8340)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{5}{2}}}{\sqrt{5\,x+3}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(5/2)/(sqrt(5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="maxima"
```

```
[Out] integrate((3*x + 2)^(5/2)/(sqrt(5*x + 3)*(-2*x + 1)^(3/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{\left(9\,x^2+12\,x+4\right)\sqrt{3\,x+2}}{\sqrt{5\,x+3}(2\,x-1)\sqrt{-2\,x+1}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(5/2)/(sqrt(5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="fricas"
```

```
[Out] integral(-(9*x^2 + 12*x + 4)*sqrt(3*x + 2)/(sqrt(5*x + 3)*(2*x -
1)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(5/2)/(1-2*x)**(3/2)/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{5}{2}}}{\sqrt{5x+3}(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(5/2)/(sqrt(5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] integrate((3*x + 2)^(5/2)/(sqrt(5*x + 3)*(-2*x + 1)^(3/2)), x)
```

3.2903 $\int \frac{(2+3x)^{3/2}}{(1-2x)^{3/2}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=98

$$\frac{7\sqrt{3x+2}\sqrt{5x+3}}{11\sqrt{1-2x}}+\frac{1}{5}\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{34}{5}\sqrt{\frac{3}{11}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (7*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/(11*Sqrt[1 - 2*x]) + (34*Sqrt[3/1
1]*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/5 + (Sqrt[3
/11]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/5
```

Rubi [A] time = 0.187934, antiderivative size = 98, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.143

$$\frac{7\sqrt{3x+2}\sqrt{5x+3}}{11\sqrt{1-2x}}+\frac{1}{5}\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{34}{5}\sqrt{\frac{3}{11}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^(3/2)/((1 - 2*x)^(3/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (7*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/(11*Sqrt[1 - 2*x]) + (34*Sqrt[3/1
1]*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/5 + (Sqrt[3
/11]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/5
```

Rubi in Sympy [A] time = 17.4275, size = 85, normalized size = 0.87

$$\frac{34\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{55}+\frac{3\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{175}+\frac{7\sqrt{3x+2}\sqrt{5x+3}}{11\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(3/2)/(1-2*x)**(3/2)/(3+5*x)**(1/2),x)
```

```
[Out] 34*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/55
 + 3*sqrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)
/175 + 7*sqrt(3*x + 2)*sqrt(5*x + 3)/(11*sqrt(-2*x + 1))
```

Mathematica [A] time = 0.134409, size = 92, normalized size = 0.94

$$\frac{1}{110}\left(\frac{70\sqrt{3x+2}\sqrt{5x+3}}{\sqrt{1-2x}}+35\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-68\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^(3/2)/((1 - 2*x)^(3/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] ((70*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/Sqrt[1 - 2*x] - 68*Sqrt[2]*Elli
pticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 35*Sqrt[2]*Ellip
ticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/110
```

Maple [C] time = 0.027, size = 159, normalized size = 1.6

$$-\frac{1}{3300\,x^{3}+2530\,x^{2}-770\,x-660}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(35\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}\mathit{EllipticF}\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(3/2)/(1-2*x)^(3/2)/(3+5*x)^(1/2),x)
```

```
[Out] -1/110*(2+3*x)^(1/2)*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(35*2^(1/2)*(3+5
*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(
1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-68*2^(1/2)*(3+
5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^
(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+1050*x^2+1330
*x+420)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{3}{2}}}{\sqrt{5\,x+3}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(3/2)/(sqrt(5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="maxima"
```

```
[Out] integrate((3*x + 2)^(3/2)/(sqrt(5*x + 3)*(-2*x + 1)^(3/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(-\frac{(3\,x+2)^{\frac{3}{2}}}{\sqrt{5\,x+3}(2\,x-1)\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(3/2)/(sqrt(5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="fricas"
```

```
[Out] integral(-(3*x + 2)^(3/2)/(sqrt(5*x + 3)*(2*x - 1)*sqrt(-2*x + 1)
), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(3/2)/(1-2*x)**(3/2)/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{3}{2}}}{\sqrt{5\,x+3}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(3/2)/(sqrt(5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] integrate((3*x + 2)^(3/2)/(sqrt(5*x + 3)*(-2*x + 1)^(3/2)), x)
```

3.2904 $\int \frac{\sqrt{2+3x}}{(1-2x)^{3/2}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=62

$$\frac{2\sqrt{3x+2}\sqrt{5x+3}}{11\sqrt{1-2x}}+\sqrt{\frac{3}{11}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (2*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/(11*Sqrt[1 - 2*x]) + Sqrt[3/11]*E
llipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33]
```

Rubi [A] time = 0.0885502, antiderivative size = 62, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.107

$$\frac{2\sqrt{3x+2}\sqrt{5x+3}}{11\sqrt{1-2x}}+\sqrt{\frac{3}{11}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In] Int[Sqrt[2 + 3*x]/((1 - 2*x)^(3/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (2*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/(11*Sqrt[1 - 2*x]) + Sqrt[3/11]*E
llipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33]
```

Rubi in Sympy [A] time = 9.10118, size = 54, normalized size = 0.87

$$\frac{\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{11}+\frac{2\sqrt{3x+2}\sqrt{5x+3}}{11\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**(1/2)/(1-2*x)**(3/2)/(3+5*x)**(1/2),x)
```

```
[Out] sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/11 +
2*sqrt(3*x + 2)*sqrt(5*x + 3)/(11*sqrt(-2*x + 1))
```

Mathematica [A] time = 0.0864648, size = 91, normalized size = 1.47

$$\frac{1}{11}\left(\frac{2\sqrt{3x+2}\sqrt{5x+3}}{\sqrt{1-2x}}+\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)$$

Antiderivative was successfully verified.

```
[In] Integrate[Sqrt[2 + 3*x]/((1 - 2*x)^(3/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] ((2*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/Sqrt[1 - 2*x] - Sqrt[2]*Elliptic
E[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + Sqrt[2]*EllipticF[Ar
cSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/11
```

Maple [C] time = 0.026, size = 158, normalized size = 2.6

$$-\frac{1}{330x^3+253x^2-77x-66}\sqrt{1-2x}\sqrt{2+3x}\sqrt{3+5x}\left(\sqrt{2}\sqrt{3+5x}\sqrt{2+3x}\sqrt{1-2x}\,EllipticF\left(\frac{\sqrt{11}\sqrt{2}}{11}\sqrt{3+5x},\frac{i}{2}\sqrt{11}\sqrt{3}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(1/2)/(1-2*x)^(3/2)/(3+5*x)^(1/2),x)
```

```
[Out] -1/11*(2+3*x)^(1/2)*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2^(1/2)*(3+5*x)^
(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)
*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-2^(1/2)*(3+5*x)^(1
/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(
3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+30*x^2+38*x+12)/(30*
x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{3\,x+2}}{\sqrt{5\,x+3}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(3*x + 2)/(sqrt(5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(3*x + 2)/(sqrt(5*x + 3)*(-2*x + 1)^(3/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{\sqrt{3\,x+2}}{\sqrt{5\,x+3}(2\,x-1)\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(3*x + 2)/(sqrt(5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] integral(-sqrt(3*x + 2)/(sqrt(5*x + 3)*(2*x - 1)*sqrt(-2*x + 1)),
 x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(1/2)/(1-2*x)**(3/2)/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{3\,x+2}}{\sqrt{5\,x+3}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(3*x + 2)/(sqrt(5*x + 3)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] integrate(sqrt(3*x + 2)/(sqrt(5*x + 3)*(-2*x + 1)^(3/2)), x)
```

3.2905 $\int \frac{1}{(1-2x)^{3/2}\sqrt{2+3x}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=81

$$\frac{4\sqrt{3x+2}\sqrt{5x+3}}{77\sqrt{1-2x}}+\frac{2\sqrt{\frac{5}{7}}\sqrt{-5x-3}E\left(\sin^{-1}\left(\sqrt{5}\sqrt{3x+2}\right)|\frac{2}{35}\right)}{11\sqrt{5x+3}}$$

```
[Out] (4*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/(77*Sqrt[1 - 2*x]) + (2*Sqrt[5/7]
*Sqrt[-3 - 5*x]*EllipticE[ArcSin[Sqrt[5]*Sqrt[2 + 3*x]], 2/35])/(
11*Sqrt[3 + 5*x])
```

Rubi [A] time = 0.142527, antiderivative size = 81, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.143

$$\frac{4\sqrt{3x+2}\sqrt{5x+3}}{77\sqrt{1-2x}}+\frac{2\sqrt{\frac{5}{7}}\sqrt{-5x-3}E\left(\sin^{-1}\left(\sqrt{5}\sqrt{3x+2}\right)|\frac{2}{35}\right)}{11\sqrt{5x+3}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(3/2)*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]),x]
```

```
[Out] (4*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/(77*Sqrt[1 - 2*x]) + (2*Sqrt[5/7]
*Sqrt[-3 - 5*x]*EllipticE[ArcSin[Sqrt[5]*Sqrt[2 + 3*x]], 2/35])/(
11*Sqrt[3 + 5*x])
```

Rubi in Sympy [A] time = 13.0168, size = 94, normalized size = 1.16

$$\frac{2\sqrt{5}\sqrt{-15x-9}\sqrt{-2x+1}E\left(\operatorname{asin}\left(\sqrt{5}\sqrt{3x+2}\right)\middle|\frac{2}{35}\right)}{77\sqrt{-\frac{6x}{7}+\frac{3}{7}}\sqrt{5x+3}}+\frac{4\sqrt{3x+2}\sqrt{5x+3}}{77\sqrt{-2x+1}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(3/2)/(2+3*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] 2*sqrt(5)*sqrt(-15*x - 9)*sqrt(-2*x + 1)*elliptic_e(asin(sqrt(5)*
sqrt(3*x + 2)), 2/35)/(77*sqrt(-6*x/7 + 3/7)*sqrt(5*x + 3)) + 4*s
qrt(3*x + 2)*sqrt(5*x + 3)/(77*sqrt(-2*x + 1))
```

Mathematica [C] time = 0.0992059, size = 61, normalized size = 0.75

$$\frac{2}{77}\left(\frac{2\sqrt{3x+2}\sqrt{5x+3}}{\sqrt{1-2x}}-i\sqrt{33}E\left(i\sinh^{-1}\left(\sqrt{15x+9}\right)|-\frac{2}{33}\right)\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(3/2)*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]),x]
```

```
[Out] (2*((2*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/Sqrt[1 - 2*x] - I*Sqrt[33]*El
lipticE[I*ArcSinh[Sqrt[9 + 15*x]], -2/33]))/77
```

Maple [C] time = 0.027, size = 159, normalized size = 2.

$$-\frac{1}{2310\,x^{3}+1771\,x^{2}-539\,x-462}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(35\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(3/2)/(2+3*x)^(1/2)/(3+5*x)^(1/2),x)
```

```
[Out] -1/77*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(35*2^(1/2)*(3+5*
x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1
/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-2*2^(1/2)*(3+5*
x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1
/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+60*x^2+76*x+24)
/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{5\,x+3}\sqrt{3\,x+2}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(5*x + 3)*sqrt(3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="maxima"
```

```
[Out] integrate(1/(sqrt(5*x + 3)*sqrt(3*x + 2)*(-2*x + 1)^(3/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(-\frac{1}{\sqrt{5\,x+3}\sqrt{3\,x+2}(2\,x-1)\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(5*x + 3)*sqrt(3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="fricas"
```

```
[Out] integral(-1/(sqrt(5*x + 3)*sqrt(3*x + 2)*(2*x - 1)*sqrt(-2*x + 1)
), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(-2x+1)^{\frac{3}{2}}\sqrt{3x+2}\sqrt{5x+3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(3/2)/(2+3*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] Integral(1/((-2*x + 1)**(3/2)*sqrt(3*x + 2)*sqrt(5*x + 3)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{5\,x+3}\sqrt{3\,x+2}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(5*x + 3)*sqrt(3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] integrate(1/(sqrt(5*x + 3)*sqrt(3*x + 2)*(-2*x + 1)^(3/2)), x)
```

3.2906 $\int \frac{1}{(1-2x)^{3/2}(2+3x)^{3/2}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=129

$$\frac{186\sqrt{1-2x}\sqrt{5x+3}}{539\sqrt{3x+2}}+\frac{4\sqrt{5x+3}}{77\sqrt{1-2x}\sqrt{3x+2}}-\frac{8}{49}\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{62}{49}\sqrt{\frac{3}{11}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (4*Sqrt[3 + 5*x])/(77*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]) + (186*Sqrt[1
- 2*x]*Sqrt[3 + 5*x])/(539*Sqrt[2 + 3*x]) - (62*Sqrt[3/11]*Ellipt
icE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/49 - (8*Sqrt[3/11]*E
llipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/49
```

Rubi [A] time = 0.263799, antiderivative size = 129, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{186\sqrt{1-2x}\sqrt{5x+3}}{539\sqrt{3x+2}}+\frac{4\sqrt{5x+3}}{77\sqrt{1-2x}\sqrt{3x+2}}-\frac{8}{49}\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{62}{49}\sqrt{\frac{3}{11}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(3/2)*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (4*Sqrt[3 + 5*x])/(77*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]) + (186*Sqrt[1
- 2*x]*Sqrt[3 + 5*x])/(539*Sqrt[2 + 3*x]) - (62*Sqrt[3/11]*Ellipt
icE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/49 - (8*Sqrt[3/11]*E
llipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/49
```

Rubi in Sympy [A] time = 23.8424, size = 114, normalized size = 0.88

$$\frac{186\sqrt{-2x+1}\sqrt{5x+3}}{539\sqrt{3x+2}}-\frac{62\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{539}-\frac{8\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{539}+\frac{4\sqrt{5x+3}}{77\sqrt{-2x+1}\sqrt{3x+2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(3/2)/(2+3*x)**(3/2)/(3+5*x)**(1/2),x)
```

```
[Out] 186*sqrt(-2*x + 1)*sqrt(5*x + 3)/(539*sqrt(3*x + 2)) - 62*sqrt(33
)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/539 - 8*sqrt
(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/539 + 4*s
qrt(5*x + 3)/(77*sqrt(-2*x + 1)*sqrt(3*x + 2))
```

Mathematica [A] time = 0.267403, size = 122, normalized size = 0.95

$$\frac{2\sqrt{3x+2}\sqrt{5x+3}(107-186x)+70\sqrt{2-4x}(3x+2)F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+62\sqrt{2-4x}(3x+2)E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+\right.\right.}{539\sqrt{1-2x}(3x+2)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(3/2)*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (2*(107 - 186*x)*Sqrt[2 + 3*x]*Sqrt[3 + 5*x] + 62*Sqrt[2 - 4*x]*(
2 + 3*x)*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 70*
Sqrt[2 - 4*x]*(2 + 3*x)*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]
], -33/2])/(539*Sqrt[1 - 2*x]*(2 + 3*x))
```

Maple [C] time = 0.03, size = 159, normalized size = 1.2

$$-\frac{2}{16170\,x^3+12397\,x^2-3773\,x-3234}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(35\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(3/2)/(2+3*x)^(3/2)/(3+5*x)^(1/2),x)
```

```
[Out] -2/539*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(35*2^(1/2)*(3+5
*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(
1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+31*2^(1/2)*(3+
5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^
(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-930*x^2-23*x+
321)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{5\,x+3}(3\,x+2)^{\frac{3}{2}}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(5*x + 3)*(3*x + 2)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="maxima
```

```
[Out] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^(3/2)*(-2*x + 1)^(3/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(-\frac{1}{(6\,x^2+x-2)\sqrt{5\,x+3}\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(5*x + 3)*(3*x + 2)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="fricas
```

```
[Out] integral(-1/((6*x^2 + x - 2)*sqrt(5*x + 3)*sqrt(3*x + 2)*sqrt(-2*
x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(3/2)/(2+3*x)**(3/2)/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{5\,x+3}(3\,x+2)^{\frac{3}{2}}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="giac"
```

```
[Out] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^(3/2)*(-2*x + 1)^(3/2)), x)
```

3.2907 $\int \frac{1}{(1-2x)^{3/2}(2+3x)^{5/2}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=160

$$\frac{5256\sqrt{1-2x}\sqrt{5x+3}}{3773\sqrt{3x+2}}+\frac{54\sqrt{1-2x}\sqrt{5x+3}}{539(3x+2)^{3/2}}+\frac{4\sqrt{5x+3}}{77\sqrt{1-2x}(3x+2)^{3/2}}-\frac{68}{343}\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{1752}{343}\sqrt{\frac{3}{11}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (4*Sqrt[3 + 5*x])/(77*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)) + (54*Sqrt[1
 - 2*x]*Sqrt[3 + 5*x])/(539*(2 + 3*x)^(3/2)) + (5256*Sqrt[1 - 2*x
]*Sqrt[3 + 5*x])/(3773*Sqrt[2 + 3*x]) - (1752*Sqrt[3/11]*Elliptic
E[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/343 - (68*Sqrt[3/11]*E
llipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/343
```

Rubi [A] time = 0.340875, antiderivative size = 160, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{5256\sqrt{1-2x}\sqrt{5x+3}}{3773\sqrt{3x+2}}+\frac{54\sqrt{1-2x}\sqrt{5x+3}}{539(3x+2)^{3/2}}+\frac{4\sqrt{5x+3}}{77\sqrt{1-2x}(3x+2)^{3/2}}-\frac{68}{343}\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{1752}{343}\sqrt{\frac{3}{11}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(3/2)*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (4*Sqrt[3 + 5*x])/(77*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)) + (54*Sqrt[1
 - 2*x]*Sqrt[3 + 5*x])/(539*(2 + 3*x)^(3/2)) + (5256*Sqrt[1 - 2*x
]*Sqrt[3 + 5*x])/(3773*Sqrt[2 + 3*x]) - (1752*Sqrt[3/11]*Elliptic
E[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/343 - (68*Sqrt[3/11]*E
llipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/343
```

Rubi in Sympy [A] time = 30.7215, size = 143, normalized size = 0.89

$$\frac{5256\sqrt{-2x+1}\sqrt{5x+3}}{3773\sqrt{3x+2}}+\frac{54\sqrt{-2x+1}\sqrt{5x+3}}{539\,(3x+2)^{\frac{3}{2}}}-\frac{1752\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{3773}-\frac{204\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{12005}+\frac{4\sqrt{5x+3}}{77\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(3/2)/(2+3*x)**(5/2)/(3+5*x)**(1/2),x)
```

```
[Out] 5256*sqrt(-2*x + 1)*sqrt(5*x + 3)/(3773*sqrt(3*x + 2)) + 54*sqrt(
-2*x + 1)*sqrt(5*x + 3)/(539*(3*x + 2)**(3/2)) - 1752*sqrt(33)*el
liptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/3773 - 204*sqrt(
35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/12005 + 4
*sqrt(5*x + 3)/(77*sqrt(-2*x + 1)*(3*x + 2)**(3/2))
```

Mathematica [A] time = 0.22698, size = 99, normalized size = 0.62

$$\frac{2\left(\frac{\sqrt{5x+3}(-15768x^2-3006x+5543)}{\sqrt{1-2x}(3x+2)^{3/2}}+3\sqrt{2}\left(292E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-105F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)\right)}{3773}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(3/2)*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (2*((Sqrt[3 + 5*x]*(5543 - 3006*x - 15768*x^2))/(Sqrt[1 - 2*x]*(2
 + 3*x)^(3/2)) + 3*Sqrt[2]*(292*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[
3 + 5*x]], -33/2] - 105*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]
], -33/2])))/3773
```

Maple [C] time = 0.036, size = 267, normalized size = 1.7

$$\frac{2}{37730\,x^2+3773\,x-11319}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(945\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(3/2)/(2+3*x)^(5/2)/(3+5*x)^(1/2),x)
```

```
[Out] 2/3773*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(945*2^(1/2)*EllipticF(1/11*11
^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3
+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-2628*2^(1/2)*EllipticE(1/
11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))
*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+630*2^(1/2)*(3+5*x)^
(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)
*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-1752*2^(1/2)*(3+5*
x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1
/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+78840*x^3+62334
*x^2-18697*x-16629)/(2+3*x)^(3/2)/(10*x^2+x-3)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{5\,x+3}(3\,x+2)^{\frac{5}{2}}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(5*x + 3)*(3*x + 2)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="maxima
```

```
[Out] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^(5/2)*(-2*x + 1)^(3/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{1}{(18\,x^3+15\,x^2-4\,x-4)\sqrt{5\,x+3}\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(5*x + 3)*(3*x + 2)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="fricas
```

```
[Out] integral(-1/((18*x^3 + 15*x^2 - 4*x - 4)*sqrt(5*x + 3)*sqrt(3*x +
 2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(3/2)/(2+3*x)**(5/2)/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{5x+3}(3x+2)^{\frac{5}{2}}(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="giac"
```

```
[Out] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^(5/2)*(-2*x + 1)^(3/2)), x)
```

3.2908 $\int \frac{1}{(1-2x)^{3/2}(2+3x)^{7/2}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=191

$$\frac{733812\sqrt{1-2x}\sqrt{5x+3}}{132055\sqrt{3x+2}}+\frac{10308\sqrt{1-2x}\sqrt{5x+3}}{18865(3x+2)^{3/2}}+\frac{138\sqrt{1-2x}\sqrt{5x+3}}{2695(3x+2)^{5/2}}+\frac{4\sqrt{5x+3}}{77\sqrt{1-2x}(3x+2)^{5/2}}-\frac{7536\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{12005}-\frac{244604\sqrt{\frac{3}{11}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{12005}$$

```
[Out] (4*Sqrt[3 + 5*x])/(77*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)) + (138*Sqrt[
1 - 2*x]*Sqrt[3 + 5*x])/(2695*(2 + 3*x)^(5/2)) + (10308*Sqrt[1 -
2*x]*Sqrt[3 + 5*x])/(18865*(2 + 3*x)^(3/2)) + (733812*Sqrt[1 - 2*
x]*Sqrt[3 + 5*x])/(132055*Sqrt[2 + 3*x]) - (244604*Sqrt[3/11]*Ell
ipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/12005 - (7536*Sqr
t[3/11]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/12005
```

Rubi [A] time = 0.422974, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{733812\sqrt{1-2x}\sqrt{5x+3}}{132055\sqrt{3x+2}}+\frac{10308\sqrt{1-2x}\sqrt{5x+3}}{18865(3x+2)^{3/2}}+\frac{138\sqrt{1-2x}\sqrt{5x+3}}{2695(3x+2)^{5/2}}+\frac{4\sqrt{5x+3}}{77\sqrt{1-2x}(3x+2)^{5/2}}-\frac{7536\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{12005}-\frac{244604\sqrt{\frac{3}{11}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{12005}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(3/2)*(2 + 3*x)^(7/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (4*Sqrt[3 + 5*x])/(77*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)) + (138*Sqrt[
1 - 2*x]*Sqrt[3 + 5*x])/(2695*(2 + 3*x)^(5/2)) + (10308*Sqrt[1 -
2*x]*Sqrt[3 + 5*x])/(18865*(2 + 3*x)^(3/2)) + (733812*Sqrt[1 - 2*
x]*Sqrt[3 + 5*x])/(132055*Sqrt[2 + 3*x]) - (244604*Sqrt[3/11]*Ell
ipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/12005 - (7536*Sqr
t[3/11]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/12005
```

Rubi in Sympy [A] time = 39.2183, size = 172, normalized size = 0.9

$$\frac{733812\sqrt{-2x+1}\sqrt{5x+3}}{132055\sqrt{3x+2}}+\frac{10308\sqrt{-2x+1}\sqrt{5x+3}}{18865\,(3x+2)^{\frac{3}{2}}}+\frac{138\sqrt{-2x+1}\sqrt{5x+3}}{2695\,(3x+2)^{\frac{5}{2}}}-\frac{244604\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{132055}-\frac{22608\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{420175}+\frac{4\sqrt{5x+3}}{77\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(3/2)/(2+3*x)**(7/2)/(3+5*x)**(1/2),x)
```

```
[Out] 733812*sqrt(-2*x + 1)*sqrt(5*x + 3)/(132055*sqrt(3*x + 2)) + 1030
8*sqrt(-2*x + 1)*sqrt(5*x + 3)/(18865*(3*x + 2)**(3/2)) + 138*sqr
t(-2*x + 1)*sqrt(5*x + 3)/(2695*(3*x + 2)**(5/2)) - 244604*sqrt(3
3)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/132055 - 22
608*sqrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/
420175 + 4*sqrt(5*x + 3)/(77*sqrt(-2*x + 1)*(3*x + 2)**(5/2))
```

Mathematica [A] time = 0.257628, size = 106, normalized size = 0.55

$$\frac{4\left(\frac{\sqrt{5x+3}(-6604308x^3-5720058x^2+1424784x+1546591)}{2\sqrt{1-2x}(3x+2)^{5/2}}+\sqrt{2}\left(61151E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-30065F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\right.\right.\right.}{132055}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(3/2)*(2 + 3*x)^(7/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (4*((Sqrt[3 + 5*x]*(1546591 + 1424784*x - 5720058*x^2 - 6604308*x
^3))/(2*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)) + Sqrt[2]*(61151*EllipticE
[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 30065*EllipticF[ArcSi
n[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])))/132055
```

Maple [C] time = 0.039, size = 386, normalized size = 2.

$$\frac{2}{1320550\,x^2+132055\,x-396165}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(541170\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^2\sqrt{3+5\,x}\sqrt{2}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(3/2)/(2+3*x)^(7/2)/(3+5*x)^(1/2),x)
```

```
[Out] 2/132055*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(541170*2^(1/2)*EllipticF(1/
11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))
*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-1100718*2^(1/2)*El
lipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2
)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+721560*2
^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/
2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-1
467624*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*
I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)
^(1/2)+240520*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*E
llipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/
2)*2^(1/2))-489208*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1
/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*
3^(1/2)*2^(1/2))+33021540*x^4+48413214*x^3+10036254*x^2-12007307*
x-4639773)/(2+3*x)^(5/2)/(10*x^2+x-3)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{5\,x+3}(3\,x+2)^{\frac{7}{2}}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(5*x + 3)*(3*x + 2)^(7/2)*(-2*x + 1)^(3/2)),x, algorithm="maxima
```

```
[Out] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^(7/2)*(-2*x + 1)^(3/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(-\frac{1}{(54\,x^4+81\,x^3+18\,x^2-20\,x-8)\sqrt{5\,x+3}\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(5*x + 3)*(3*x + 2)^(7/2)*(-2*x + 1)^(3/2)),x, algorithm="fricas
```

```
[Out] integral(-1/((54*x^4 + 81*x^3 + 18*x^2 - 20*x - 8)*sqrt(5*x + 3)*
sqrt(3*x + 2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(3/2)/(2+3*x)**(7/2)/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{5x+3}(3x+2)^{\frac{7}{2}}(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(5*x + 3)*(3*x + 2)^(7/2)*(-2*x + 1)^(3/2)),x, algorithm="giac"
```

```
[Out] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^(7/2)*(-2*x + 1)^(3/2)), x)
```

3.2909 $\int \frac{(2+3x)^{9/2}}{(1-2x)^{3/2}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=191

$$\frac{7(3x+2)^{7/2}}{11\sqrt{1-2x}\sqrt{5x+3}}-\frac{37\sqrt{1-2x}(3x+2)^{5/2}}{605\sqrt{5x+3}}+\frac{10851\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}}{15125}+\frac{502941\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{151250}+\frac{175111\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{68750}+\frac{2911577\sqrt{\frac{3}{11}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{34375}$$

```
[Out] (-37*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2))/(605*Sqrt[3 + 5*x]) + (7*(2 +
 3*x)^(7/2))/(11*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) + (502941*Sqrt[1 -
2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/151250 + (10851*Sqrt[1 - 2*x]*(
2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/15125 + (2911577*Sqrt[3/11]*Ellipti
cE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/34375 + (175111*Sqrt[
3/11]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/68750
```

Rubi [A] time = 0.407807, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{7(3x+2)^{7/2}}{11\sqrt{1-2x}\sqrt{5x+3}}-\frac{37\sqrt{1-2x}(3x+2)^{5/2}}{605\sqrt{5x+3}}+\frac{10851\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}}{15125}+\frac{502941\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{151250}+\frac{175111\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{68750}+\frac{2911577\sqrt{\frac{3}{11}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{34375}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^(9/2)/((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)),x]
```


```
[Out] (-37*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2))/(605*Sqrt[3 + 5*x]) + (7*(2 +
 3*x)^(7/2))/(11*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) + (502941*Sqrt[1 -
2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/151250 + (10851*Sqrt[1 - 2*x]*(
2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/15125 + (2911577*Sqrt[3/11]*Ellipti
cE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/34375 + (175111*Sqrt[
3/11]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/68750
```

Rubi in Sympy [A] time = 40.977, size = 172, normalized size = 0.9

$$-\frac{37\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}}{605\sqrt{5x+3}}+\frac{10851\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\,\sqrt{5x+3}}{15125}+\frac{502941\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{151250}+\frac{2911577\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{378125}+\frac{525333\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{2406250}+\frac{7\,(3x+2)^{\frac{7}{2}}}{11\sqrt{-2x+1}\sqrt{5x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(9/2)/(1-2*x)**(3/2)/(3+5*x)**(3/2),x)
```

```
[Out] -37*sqrt(-2*x + 1)*(3*x + 2)**(5/2)/(605*sqrt(5*x + 3)) + 10851*s
qrt(-2*x + 1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/15125 + 502941*sqrt(
-2*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/151250 + 2911577*sqrt(33)*e
lliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/378125 + 525333
```

```
*sqrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/240
6250 + 7*(3*x + 2)**(7/2)/(11*sqrt(-2*x + 1)*sqrt(5*x + 3))
```

Mathematica [A] time = 0.372633, size = 132, normalized size = 0.69

$$\frac{10\sqrt{3x+2}\sqrt{5x+3}\left(-490050x^3-2188890x^2+3684629x+2892883\right)+5867645\sqrt{2-4x}(5x+3)F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\right.}{1512500\sqrt{1-2x}(5x+3)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^(9/2)/((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (10*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(2892883 + 3684629*x - 2188890*x^
2 - 490050*x^3) - 11646308*Sqrt[2 - 4*x]*(3 + 5*x)*EllipticE[ArcS
in[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 5867645*Sqrt[2 - 4*x]*(3 +
 5*x)*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/(151250
0*Sqrt[1 - 2*x]*(3 + 5*x))
```

Maple [C] time = 0.035, size = 169, normalized size = 0.9

$$-\frac{1}{45375000\,x^3+34787500\,x^2-10587500\,x-9075000}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(5867645\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}Elli\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(9/2)/(1-2*x)^(3/2)/(3+5*x)^(3/2),x)
```

```
[Out] -1/1512500*(2+3*x)^(1/2)*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(5867645*2^(
1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^
(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-11646
308*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1
/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2)
)-14701500*x^4-75467700*x^3+66761070*x^2+160479070*x+57857660)/(3
0*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{9}{2}}}{(5\,x+3)^{\frac{3}{2}}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(9/2)/((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="maxima
```

```
[Out] integrate((3*x + 2)^(9/2)/((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{\left(81\,x^4+216\,x^3+216\,x^2+96\,x+16\right)\sqrt{3\,x+2}}{(10\,x^2+x-3)\sqrt{5\,x+3}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(9/2)/((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="frica
```

```
[Out] integral(-(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16)*sqrt(3*x + 2)/
((10*x^2 + x - 3)*sqrt(5*x + 3)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(9/2)/(1-2*x)**(3/2)/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{9}{2}}}{(5x+3)^{\frac{3}{2}}(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(9/2)/((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="giac"
```

```
[Out] integrate((3*x + 2)^(9/2)/((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)), x)
```

3.2910 $\int \frac{(2+3x)^{7/2}}{(1-2x)^{3/2}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=160

$$\frac{7(3x+2)^{5/2}}{11\sqrt{1-2x}\sqrt{5x+3}}-\frac{37\sqrt{1-2x}(3x+2)^{3/2}}{605\sqrt{5x+3}}+\frac{2388\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{3025}+\frac{823\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1375}+\frac{55019\sqrt{\frac{3}{11}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{2750}$$

```
[Out] (-37*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2))/(605*Sqrt[3 + 5*x]) + (7*(2 +
 3*x)^(5/2))/(11*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) + (2388*Sqrt[1 - 2*
x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/3025 + (55019*Sqrt[3/11]*Elliptic
E[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/2750 + (823*Sqrt[3/11]
*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1375
```

Rubi [A] time = 0.330499, antiderivative size = 160, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{7(3x+2)^{5/2}}{11\sqrt{1-2x}\sqrt{5x+3}}-\frac{37\sqrt{1-2x}(3x+2)^{3/2}}{605\sqrt{5x+3}}+\frac{2388\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{3025}+\frac{823\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1375}+\frac{55019\sqrt{\frac{3}{11}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{2750}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^(7/2)/((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-37*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2))/(605*Sqrt[3 + 5*x]) + (7*(2 +
 3*x)^(5/2))/(11*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) + (2388*Sqrt[1 - 2*
x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/3025 + (55019*Sqrt[3/11]*Elliptic
E[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/2750 + (823*Sqrt[3/11]
*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/1375
```

Rubi in Sympy [A] time = 32.6835, size = 143, normalized size = 0.89

$$-\frac{37\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}}{605\sqrt{5x+3}}+\frac{2388\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{3025}+\frac{55019\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{30250}+\frac{2469\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{48125}+\frac{7\,(3x+2)^{\frac{5}{2}}}{11\sqrt{-2x+1}\sqrt{5x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(7/2)/(1-2*x)**(3/2)/(3+5*x)**(3/2),x)
```

```
[Out] -37*sqrt(-2*x + 1)*(3*x + 2)**(3/2)/(605*sqrt(5*x + 3)) + 2388*sq
rt(-2*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/3025 + 55019*sqrt(33)*el
liptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/30250 + 2469*sqr
t(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/48125 +
 7*(3*x + 2)**(5/2)/(11*sqrt(-2*x + 1)*sqrt(5*x + 3))
```

Mathematica [A] time = 0.236323, size = 127, normalized size = 0.79

$$\frac{10\sqrt{3x+2}\sqrt{5x+3}\left(-5445x^2+20897x+14494\right)+27860\sqrt{2-4x}(5x+3)F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-55019\sqrt{2-4x}(5x}{30250\sqrt{1-2x}(5x+3)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^(7/2)/((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (10*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(14494 + 20897*x - 5445*x^2) - 55
019*Sqrt[2 - 4*x]*(3 + 5*x)*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 +
5*x]], -33/2] + 27860*Sqrt[2 - 4*x]*(3 + 5*x)*EllipticF[ArcSin[Sq
rt[2/11]*Sqrt[3 + 5*x]], -33/2])/(30250*Sqrt[1 - 2*x]*(3 + 5*x))
```

Maple [C] time = 0.03, size = 164, normalized size = 1.

$$-\frac{1}{907500\,x^3+695750\,x^2-211750\,x-181500}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(27860\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}\mathit{EllipticF}\left(1/11\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(7/2)/(1-2*x)^(3/2)/(3+5*x)^(3/2),x)
```

```
[Out] -1/30250*(2+3*x)^(1/2)*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(27860*2^(1/2)
*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2
)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-55019*2^(
1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^
(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-16335
0*x^3+518010*x^2+852760*x+289880)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{7}{2}}}{(5\,x+3)^{\frac{3}{2}}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(7/2)/((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="maxima
```

```
[Out] integrate((3*x + 2)^(7/2)/((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(-\frac{\left(27\,x^3+54\,x^2+36\,x+8\right)\sqrt{3\,x+2}}{\left(10\,x^2+x-3\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(7/2)/((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="fricas
```

```
[Out] integral(-(27*x^3 + 54*x^2 + 36*x + 8)*sqrt(3*x + 2)/((10*x^2 + x
 - 3)*sqrt(5*x + 3)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(7/2)/(1-2*x)**(3/2)/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{7}{2}}}{(5x+3)^{\frac{3}{2}}(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(7/2)/((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="giac"
```

```
[Out] integrate((3*x + 2)^(7/2)/((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)), x)
```

3.2911 $\int \frac{(2+3x)^{5/2}}{(1-2x)^{3/2}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=129

$$\frac{7(3x+2)^{3/2}}{11\sqrt{1-2x}\sqrt{5x+3}}-\frac{37\sqrt{1-2x}\sqrt{3x+2}}{605\sqrt{5x+3}}+\frac{31}{275}\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{1159}{275}\sqrt{\frac{3}{11}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (-37*Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/(605*Sqrt[3 + 5*x]) + (7*(2 + 3
*x)^(3/2))/(11*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) + (1159*Sqrt[3/11]*El
lipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/275 + (31*Sqrt[3
/11]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/275
```

Rubi [A] time = 0.258724, antiderivative size = 129, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{7(3x+2)^{3/2}}{11\sqrt{1-2x}\sqrt{5x+3}}-\frac{37\sqrt{1-2x}\sqrt{3x+2}}{605\sqrt{5x+3}}+\frac{31}{275}\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{1159}{275}\sqrt{\frac{3}{11}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^(5/2)/((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-37*Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/(605*Sqrt[3 + 5*x]) + (7*(2 + 3
*x)^(3/2))/(11*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) + (1159*Sqrt[3/11]*El
lipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/275 + (31*Sqrt[3
/11]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/275
```

Rubi in Sympy [A] time = 25.5945, size = 114, normalized size = 0.88

$$-\frac{37\sqrt{-2x+1}\sqrt{3x+2}}{605\sqrt{5x+3}}+\frac{1159\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{3025}+\frac{93\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{9625}+\frac{7\left(3x+2\right)^{\frac{3}{2}}}{11\sqrt{-2x+1}\sqrt{5x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(5/2)/(1-2*x)**(3/2)/(3+5*x)**(3/2),x)
```

```
[Out] -37*sqrt(-2*x + 1)*sqrt(3*x + 2)/(605*sqrt(5*x + 3)) + 1159*sqrt(
33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/3025 + 93*
sqrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/9625
 + 7*(3*x + 2)**(3/2)/(11*sqrt(-2*x + 1)*sqrt(5*x + 3))
```

Mathematica [A] time = 0.21645, size = 122, normalized size = 0.95

$$\frac{10\sqrt{3x+2}\sqrt{5x+3}(1229x+733)+1295\sqrt{2-4x}(5x+3)F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-2318\sqrt{2-4x}(5x+3)E\left(\sin^{-1}\left(\sqrt{\frac{3}{1}}\right.\right.}{6050\sqrt{1-2x}(5x+3)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^(5/2)/((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (10*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(733 + 1229*x) - 2318*Sqrt[2 - 4*
x]*(3 + 5*x)*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] +
 1295*Sqrt[2 - 4*x]*(3 + 5*x)*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3
+ 5*x]], -33/2])/(6050*Sqrt[1 - 2*x]*(3 + 5*x))
```

Maple [C] time = 0.029, size = 159, normalized size = 1.2

$$-\frac{1}{181500\,x^3+139150\,x^2-42350\,x-36300}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(1295\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}\mathit{EllipticF}\left(1/11\,\sqrt{1}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(5/2)/(1-2*x)^(3/2)/(3+5*x)^(3/2),x)
```

```
[Out] -1/6050*(2+3*x)^(1/2)*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(1295*2^(1/2)*(
3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*
2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-2318*2^(1/2
)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/
2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+36870*x^
2+46570*x+14660)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{5}{2}}}{(5\,x+3)^{\frac{3}{2}}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(5/2)/((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="maxima
```

```
[Out] integrate((3*x + 2)^(5/2)/((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(-\frac{\left(9\,x^2+12\,x+4\right)\sqrt{3\,x+2}}{(10\,x^2+x-3)\sqrt{5\,x+3}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(5/2)/((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="fricas
```

```
[Out] integral(-(9*x^2 + 12*x + 4)*sqrt(3*x + 2)/((10*x^2 + x - 3)*sqrt
(5*x + 3)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(5/2)/(1-2*x)**(3/2)/(3+5*x)**(3/2),x)
```

[Out] Timed out

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{5}{2}}}{(5x+3)^{\frac{3}{2}}(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(5/2)/((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="giac"
```

```
[Out] integrate((3*x + 2)^(5/2)/((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)), x)
```

3.2912 $\int \frac{(2+3x)^{3/2}}{(1-2x)^{3/2}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=129

$$-\frac{37\sqrt{1-2x}\sqrt{3x+2}}{121\sqrt{5x+3}}+\frac{7\sqrt{3x+2}}{11\sqrt{1-2x}\sqrt{5x+3}}-\frac{2}{55}\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{37}{55}\sqrt{\frac{3}{11}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (7*Sqrt[2 + 3*x])/(11*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) - (37*Sqrt[1 -
 2*x]*Sqrt[2 + 3*x])/(121*Sqrt[3 + 5*x]) + (37*Sqrt[3/11]*Ellipti
cE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/55 - (2*Sqrt[3/11]*El
lipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/55
```

Rubi [A] time = 0.259615, antiderivative size = 129, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.179$

$$-\frac{37\sqrt{1-2x}\sqrt{3x+2}}{121\sqrt{5x+3}}+\frac{7\sqrt{3x+2}}{11\sqrt{1-2x}\sqrt{5x+3}}-\frac{2}{55}\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{37}{55}\sqrt{\frac{3}{11}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^(3/2)/((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (7*Sqrt[2 + 3*x])/(11*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) - (37*Sqrt[1 -
 2*x]*Sqrt[2 + 3*x])/(121*Sqrt[3 + 5*x]) + (37*Sqrt[3/11]*Ellipti
cE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/55 - (2*Sqrt[3/11]*El
lipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/55
```

Rubi in Sympy [A] time = 24.7184, size = 114, normalized size = 0.88

$$-\frac{37\sqrt{-2x+1}\sqrt{3x+2}}{121\sqrt{5x+3}}+\frac{37\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{605}-\frac{6\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{1925}+\frac{7\sqrt{3x+2}}{11\sqrt{-2x+1}\sqrt{5x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(3/2)/(1-2*x)**(3/2)/(3+5*x)**(3/2),x)
```

```
[Out] -37*sqrt(-2*x + 1)*sqrt(3*x + 2)/(121*sqrt(5*x + 3)) + 37*sqrt(33
)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/605 - 6*sqrt
(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/1925 + 7
*sqrt(3*x + 2)/(11*sqrt(-2*x + 1)*sqrt(5*x + 3))
```

Mathematica [A] time = 0.205113, size = 122, normalized size = 0.95

$$\frac{10\sqrt{3x+2}\sqrt{5x+3}(37x+20)+70\sqrt{2-4x}(5x+3)F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-37\sqrt{2-4x}(5x+3)E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+\right.\right.}{605\sqrt{1-2x}(5x+3)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^(3/2)/((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (10*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(20 + 37*x) - 37*Sqrt[2 - 4*x]*(3
 + 5*x)*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 70*S
qrt[2 - 4*x]*(3 + 5*x)*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]]
, -33/2])/(605*Sqrt[1 - 2*x]*(3 + 5*x))
```

Maple [C] time = 0.028, size = 159, normalized size = 1.2

$$-\frac{1}{18150\,x^3+13915\,x^2-4235\,x-3630}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(70\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(3/2)/(1-2*x)^(3/2)/(3+5*x)^(3/2),x)
```

```
[Out] -1/605*(2+3*x)^(1/2)*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(70*2^(1/2)*(3+5
*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(
1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-37*2^(1/2)*(3+
5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^
(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+1110*x^2+1340
*x+400)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{3}{2}}}{(5\,x+3)^{\frac{3}{2}}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(3/2)/((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="maxima
```

```
[Out] integrate((3*x + 2)^(3/2)/((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(-\frac{(3\,x+2)^{\frac{3}{2}}}{(10\,x^2+x-3)\sqrt{5\,x+3}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(3/2)/((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="fricas
```

```
[Out] integral(-(3*x + 2)^(3/2)/((10*x^2 + x - 3)*sqrt(5*x + 3)*sqrt(-2
*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(3/2)/(1-2*x)**(3/2)/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{3}{2}}}{(5x+3)^{\frac{3}{2}}(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(3/2)/((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="giac"

[Out] integrate((3*x + 2)^(3/2)/((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)), x)
```

3.2913 $\int \frac{\sqrt{2+3x}}{(1-2x)^{3/2}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=129

$$-\frac{20\sqrt{1-2x}\sqrt{3x+2}}{121\sqrt{5x+3}}+\frac{2\sqrt{3x+2}}{11\sqrt{1-2x}\sqrt{5x+3}}-\frac{2}{11}\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{4}{11}\sqrt{\frac{3}{11}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (2*Sqrt[2 + 3*x])/(11*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) - (20*Sqrt[1 -
 2*x]*Sqrt[2 + 3*x])/(121*Sqrt[3 + 5*x]) + (4*Sqrt[3/11]*Elliptic
E[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/11 - (2*Sqrt[3/11]*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/11
```

Rubi [A] time = 0.260769, antiderivative size = 129, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.179$

$$-\frac{20\sqrt{1-2x}\sqrt{3x+2}}{121\sqrt{5x+3}}+\frac{2\sqrt{3x+2}}{11\sqrt{1-2x}\sqrt{5x+3}}-\frac{2}{11}\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{4}{11}\sqrt{\frac{3}{11}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[2 + 3*x]/((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (2*Sqrt[2 + 3*x])/(11*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) - (20*Sqrt[1 -
 2*x]*Sqrt[2 + 3*x])/(121*Sqrt[3 + 5*x]) + (4*Sqrt[3/11]*Elliptic
E[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/11 - (2*Sqrt[3/11]*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/11
```

Rubi in Sympy [A] time = 24.3621, size = 114, normalized size = 0.88

$$-\frac{20\sqrt{-2x+1}\sqrt{3x+2}}{121\sqrt{5x+3}}+\frac{4\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{121}-\frac{6\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{385}+\frac{2\sqrt{3x+2}}{11\sqrt{-2x+1}\sqrt{5x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(1/2)/(1-2*x)**(3/2)/(3+5*x)**(3/2),x)
```

```
[Out] -20*sqrt(-2*x + 1)*sqrt(3*x + 2)/(121*sqrt(5*x + 3)) + 4*sqrt(33)
*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/121 - 6*sqrt(
35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/385 + 2*s
qrt(3*x + 2)/(11*sqrt(-2*x + 1)*sqrt(5*x + 3))
```

Mathematica [A] time = 0.183314, size = 122, normalized size = 0.95

$$\frac{2\sqrt{3x+2}\sqrt{5x+3}(20x+1)+37\sqrt{2-4x}(5x+3)F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-4\sqrt{2-4x}(5x+3)E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|\right.}{121\sqrt{1-2x}(5x+3)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[2 + 3*x]/((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (2*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(1 + 20*x) - 4*Sqrt[2 - 4*x]*(3 +
5*x)*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 37*Sqrt
[2 - 4*x]*(3 + 5*x)*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -
33/2])/(121*Sqrt[1 - 2*x]*(3 + 5*x))
```

Maple [C] time = 0.029, size = 159, normalized size = 1.2

$$-\frac{1}{3630\,x^3+2783\,x^2-847\,x-726}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(37\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(1/2)/(1-2*x)^(3/2)/(3+5*x)^(3/2),x)
```

```
[Out] -1/121*(2+3*x)^(1/2)*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(37*2^(1/2)*(3+5
*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(
1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-4*2^(1/2)*(3+5
*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(
1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+120*x^2+86*x+4
)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{3\,x+2}}{(5\,x+3)^{\frac{3}{2}}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(3*x + 2)/((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="maxima"
```

```
[Out] integrate(sqrt(3*x + 2)/((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{\sqrt{3\,x+2}}{(10\,x^2+x-3)\sqrt{5\,x+3}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(3*x + 2)/((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="fricas"
```

```
[Out] integral(-sqrt(3*x + 2)/((10*x^2 + x - 3)*sqrt(5*x + 3)*sqrt(-2*x
 + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(1/2)/(1-2*x)**(3/2)/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{3\,x+2}}{(5\,x+3)^{\frac{3}{2}}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(3*x + 2)/((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] integrate(sqrt(3*x + 2)/((5*x + 3)^(3/2)*(-2*x + 1)^(3/2)), x)
```

3.2914 $\int \frac{1}{(1-2x)^{3/2}\sqrt{2+3x}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=129

$$-\frac{370\sqrt{1-2x}\sqrt{3x+2}}{847\sqrt{5x+3}}+\frac{4\sqrt{3x+2}}{77\sqrt{1-2x}\sqrt{5x+3}}-\frac{4}{77}\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{74}{77}\sqrt{\frac{3}{11}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (4*Sqrt[2 + 3*x])/(77*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) - (370*Sqrt[1
- 2*x]*Sqrt[2 + 3*x])/(847*Sqrt[3 + 5*x]) + (74*Sqrt[3/11]*Ellipt
icE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/77 - (4*Sqrt[3/11]*E
llipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/77
```

Rubi [A] time = 0.260963, antiderivative size = 129, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{370\sqrt{1-2x}\sqrt{3x+2}}{847\sqrt{5x+3}}+\frac{4\sqrt{3x+2}}{77\sqrt{1-2x}\sqrt{5x+3}}-\frac{4}{77}\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{74}{77}\sqrt{\frac{3}{11}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(3/2)*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)),x]
```


```
[Out] (4*Sqrt[2 + 3*x])/(77*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) - (370*Sqrt[1
- 2*x]*Sqrt[2 + 3*x])/(847*Sqrt[3 + 5*x]) + (74*Sqrt[3/11]*Ellipt
icE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/77 - (4*Sqrt[3/11]*E
llipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/77
```

Rubi in Sympy [A] time = 24.7778, size = 114, normalized size = 0.88

$$-\frac{370\sqrt{-2x+1}\sqrt{3x+2}}{847\sqrt{5x+3}}+\frac{74\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{847}-\frac{12\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{2695}+\frac{4\sqrt{3x+2}}{77\sqrt{-2x+1}\sqrt{5x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(3/2)/(3+5*x)**(3/2)/(2+3*x)**(1/2),x)
```

```
[Out] -370*sqrt(-2*x + 1)*sqrt(3*x + 2)/(847*sqrt(5*x + 3)) + 74*sqrt(3
3)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/847 - 12*sq
rt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/2695 +
 4*sqrt(3*x + 2)/(77*sqrt(-2*x + 1)*sqrt(5*x + 3))
```

Mathematica [A] time = 0.201761, size = 122, normalized size = 0.95

$$\frac{2\sqrt{3x+2}\sqrt{5x+3}(370x-163)+140\sqrt{2-4x}(5x+3)F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-74\sqrt{2-4x}(5x+3)E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x\right.\right.}{847\sqrt{1-2x}(5x+3)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(3/2)*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)),x]
```

```
[Out] (2*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(-163 + 370*x) - 74*Sqrt[2 - 4*x]*
(3 + 5*x)*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 14
0*Sqrt[2 - 4*x]*(3 + 5*x)*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*
x]], -33/2])/(847*Sqrt[1 - 2*x]*(3 + 5*x))
```

Maple [C] time = 0.032, size = 159, normalized size = 1.2

$$-\frac{2}{25410\,x^3+19481\,x^2-5929\,x-5082}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(70\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}\mathit{EllipticF}\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(3/2)/(3+5*x)^(3/2)/(2+3*x)^(1/2),x)
```

```
[Out] -2/847*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(70*2^(1/2)*(3+5
*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(
1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-37*2^(1/2)*(3+
5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^
(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+1110*x^2+251*
x-326)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5\,x+3)^{\frac{3}{2}}\sqrt{3\,x+2}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(3/2)*sqrt(3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="maxima
```

```
[Out] integrate(1/((5*x + 3)^(3/2)*sqrt(3*x + 2)*(-2*x + 1)^(3/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{1}{(10\,x^2+x-3)\sqrt{5\,x+3}\sqrt{3\,x+2}\sqrt{-2\,x+1}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(3/2)*sqrt(3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="fricas
```

```
[Out] integral(-1/((10*x^2 + x - 3)*sqrt(5*x + 3)*sqrt(3*x + 2)*sqrt(-2
*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(3/2)/(3+5*x)**(3/2)/(2+3*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5\,x+3)^{\frac{3}{2}}\sqrt{3\,x+2}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(3/2)*sqrt(3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="giac"
```

```
[Out] integrate(1/((5*x + 3)^(3/2)*sqrt(3*x + 2)*(-2*x + 1)^(3/2)), x)
```

3.2915 $\int \frac{1}{(1-2x)^{3/2}(2+3x)^{3/2}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=160

$$-\frac{23180\sqrt{1-2x}\sqrt{3x+2}}{5929\sqrt{5x+3}}+\frac{186\sqrt{1-2x}}{539\sqrt{3x+2}\sqrt{5x+3}}+\frac{4}{77\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}+\frac{124}{539}\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{4636}{539}\sqrt{\frac{3}{11}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] 4/(77*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) + (186*Sqrt[1 -
2*x])/(539*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) - (23180*Sqrt[1 - 2*x]*Sq
rt[2 + 3*x])/(5929*Sqrt[3 + 5*x]) + (4636*Sqrt[3/11]*EllipticE[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/539 + (124*Sqrt[3/11]*Elli
pticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/539
```

Rubi [A] time = 0.348393, antiderivative size = 160, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{23180\sqrt{1-2x}\sqrt{3x+2}}{5929\sqrt{5x+3}}+\frac{186\sqrt{1-2x}}{539\sqrt{3x+2}\sqrt{5x+3}}+\frac{4}{77\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}+\frac{124}{539}\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)+\frac{4636}{539}\sqrt{\frac{3}{11}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(3/2)*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] 4/(77*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) + (186*Sqrt[1 -
2*x])/(539*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) - (23180*Sqrt[1 - 2*x]*Sq
rt[2 + 3*x])/(5929*Sqrt[3 + 5*x]) + (4636*Sqrt[3/11]*EllipticE[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/539 + (124*Sqrt[3/11]*Elli
pticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/539
```

Rubi in Sympy [A] time = 32.7121, size = 143, normalized size = 0.89

$$-\frac{23180\sqrt{-2x+1}\sqrt{3x+2}}{5929\sqrt{5x+3}}+\frac{186\sqrt{-2x+1}}{539\sqrt{3x+2}\sqrt{5x+3}}+\frac{4636\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{5929}+\frac{124\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{5929}+\frac{4}{77\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(3/2)/(2+3*x)**(3/2)/(3+5*x)**(3/2),x)
```

```
[Out] -23180*sqrt(-2*x + 1)*sqrt(3*x + 2)/(5929*sqrt(5*x + 3)) + 186*sq
rt(-2*x + 1)/(539*sqrt(3*x + 2)*sqrt(5*x + 3)) + 4636*sqrt(33)*el
liptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/5929 + 124*sqrt(
33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/5929 + 4/(
77*sqrt(-2*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3))
```

Mathematica [A] time = 0.266626, size = 98, normalized size = 0.61

$$\frac{2\left(\frac{69540x^2+9544x-22003}{\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}+\sqrt{2}\left(1295F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-2318E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)\right)}{5929}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(3/2)*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (2*((-22003 + 9544*x + 69540*x^2)/(Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sq
rt[3 + 5*x]) + Sqrt[2]*(-2318*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3
+ 5*x]], -33/2] + 1295*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]]
, -33/2])))/5929
```

Maple [C] time = 0.033, size = 159, normalized size = 1.

$$-\frac{2}{177870\,x^3+136367\,x^2-41503\,x-35574}\left(1295\,\sqrt{2}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(3/2)/(2+3*x)^(3/2)/(3+5*x)^(3/2),x)
```

```
[Out] -2/5929*(1295*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*E
llipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/
2)*2^(1/2))-2318*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2
)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^
(1/2)*2^(1/2))+69540*x^2+9544*x-22003)*(3+5*x)^(1/2)*(2+3*x)^(1/2
)*(1-2*x)^(1/2)/(30*x^3+23*x^2-7*x-6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5\,x+3)^{\frac{3}{2}}(3\,x+2)^{\frac{3}{2}}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="max
```

```
[Out] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^(3/2)*(-2*x + 1)^(3/2)), x
)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(-\frac{1}{(30\,x^3+23\,x^2-7\,x-6)\sqrt{5\,x+3}\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="fri
```

```
[Out] integral(-1/((30*x^3 + 23*x^2 - 7*x - 6)*sqrt(5*x + 3)*sqrt(3*x +
 2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(3/2)/(2+3*x)**(3/2)/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5x+3)^{\frac{3}{2}}(3x+2)^{\frac{3}{2}}(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="gia
```

```
[Out] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^(3/2)*(-2*x + 1)^(3/2)), x
)
```

3.2916 $\int \frac{1}{(1-2x)^{3/2}(2+3x)^{5/2}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=191

$$-\frac{1100380\sqrt{1-2x}\sqrt{3x+2}}{41503\sqrt{5x+3}}+\frac{9876\sqrt{1-2x}}{3773\sqrt{3x+2}\sqrt{5x+3}}+\frac{54\sqrt{1-2x}}{539(3x+2)^{3/2}\sqrt{5x+3}}+\frac{4}{77\sqrt{1-2x}(3x+2)^{3/2}\sqrt{5x+3}}+\frac{6584\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3773}+\frac{220076\sqrt{\frac{3}{11}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3773}$$

```
[Out] 4/(77*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x]) + (54*Sqrt[1 -
 2*x])/(539*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x]) + (9876*Sqrt[1 - 2*x])
/(3773*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) - (1100380*Sqrt[1 - 2*x]*Sqrt
[2 + 3*x])/(41503*Sqrt[3 + 5*x]) + (220076*Sqrt[3/11]*EllipticE[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3773 + (6584*Sqrt[3/11]*E
llipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3773
```

Rubi [A] time = 0.434406, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.179$

$$-\frac{1100380\sqrt{1-2x}\sqrt{3x+2}}{41503\sqrt{5x+3}}+\frac{9876\sqrt{1-2x}}{3773\sqrt{3x+2}\sqrt{5x+3}}+\frac{54\sqrt{1-2x}}{539(3x+2)^{3/2}\sqrt{5x+3}}+\frac{4}{77\sqrt{1-2x}(3x+2)^{3/2}\sqrt{5x+3}}+\frac{6584\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3773}+\frac{220076\sqrt{\frac{3}{11}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3773}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(3/2)*(2 + 3*x)^(5/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] 4/(77*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x]) + (54*Sqrt[1 -
 2*x])/(539*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x]) + (9876*Sqrt[1 - 2*x])
/(3773*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) - (1100380*Sqrt[1 - 2*x]*Sqrt
[2 + 3*x])/(41503*Sqrt[3 + 5*x]) + (220076*Sqrt[3/11]*EllipticE[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3773 + (6584*Sqrt[3/11]*E
llipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3773
```

Rubi in Sympy [A] time = 39.0499, size = 172, normalized size = 0.9

$$-\frac{1100380\sqrt{-2x+1}\sqrt{3x+2}}{41503\sqrt{5x+3}}+\frac{9876\sqrt{-2x+1}}{3773\sqrt{3x+2}\sqrt{5x+3}}+\frac{54\sqrt{-2x+1}}{539\,(3x+2)^{\frac{3}{2}}\,\sqrt{5x+3}}+\frac{220076\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{41503}+\frac{6584\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{41503}+\frac{4}{77\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\,\sqrt{5x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(3/2)/(2+3*x)**(5/2)/(3+5*x)**(3/2),x)
```

```
[Out] -1100380*sqrt(-2*x + 1)*sqrt(3*x + 2)/(41503*sqrt(5*x + 3)) + 987
6*sqrt(-2*x + 1)/(3773*sqrt(3*x + 2)*sqrt(5*x + 3)) + 54*sqrt(-2*
```

```
x + 1)/(539*(3*x + 2)**(3/2)*sqrt(5*x + 3)) + 220076*sqrt(33)*ell
iptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/41503 + 6584*sqrt
(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/41503 + 4
/(77*sqrt(-2*x + 1)*(3*x + 2)**(3/2)*sqrt(5*x + 3))
```

Mathematica [A] time = 0.226827, size = 104, normalized size = 0.54

$$\frac{2\left(\frac{9903420x^3+7926942x^2-2259236x-2088967}{\sqrt{1-2x}(3x+2)^{3/2}\sqrt{5x+3}}-2\sqrt{2}\left(55019E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-27860F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)\right)}{41503}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(3/2)*(2 + 3*x)^(5/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (2*((-2088967 - 2259236*x + 7926942*x^2 + 9903420*x^3)/(Sqrt[1 -
2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x]) - 2*Sqrt[2]*(55019*EllipticE[
ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 27860*EllipticF[ArcSin
[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])))/41503
```

Maple [C] time = 0.037, size = 267, normalized size = 1.4

$$-\frac{2}{415030\,x^2+41503\,x-124509}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(167160\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(3/2)/(2+3*x)^(5/2)/(3+5*x)^(3/2),x)
```

```
[Out] -2/41503*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(167160*2^(1/2)*EllipticF(1/
11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))
*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-330114*2^(1/2)*Ellip
ticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2
^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+111440*2^(1/2
)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/
2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-220076*2
^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*1
1^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+990
3420*x^3+7926942*x^2-2259236*x-2088967)/(2+3*x)^(3/2)/(10*x^2+x-3
)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5\,x+3)^{\frac{3}{2}}(3\,x+2)^{\frac{5}{2}}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="max
```

```
[Out] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^(5/2)*(-2*x + 1)^(3/2)), x
)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{1}{(90\,x^4+129\,x^3+25\,x^2-32\,x-12)\sqrt{5\,x+3}\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="fri
```

```
[Out] integral(-1/((90*x^4 + 129*x^3 + 25*x^2 - 32*x - 12)*sqrt(5*x + 3
)*sqrt(3*x + 2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(1-2*x)**(3/2)/(2+3*x)**(5/2)/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5\,x+3)^{\frac{3}{2}}(3\,x+2)^{\frac{5}{2}}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="gia
```

```
[Out] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^(5/2)*(-2*x + 1)^(3/2)), x
)
```

3.2917 $\int \frac{1}{(1-2x)^{3/2}(2+3x)^{7/2}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=222

$$-\frac{46585232\sqrt{1-2x}\sqrt{3x+2}}{290521\sqrt{5x+3}}+\frac{2101332\sqrt{1-2x}}{132055\sqrt{3x+2}\sqrt{5x+3}}+\frac{14928\sqrt{1-2x}}{18865(3x+2)^{3/2}\sqrt{5x+3}}+\frac{138\sqrt{1-2x}}{2695(3x+2)^{5/2}\sqrt{5x+3}}+\frac{4}{77\sqrt{1-2x}(3x+2)^{5/2}\sqrt{5x+3}}+\frac{1400888\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{132055}+\frac{46585232\sqrt{\frac{3}{11}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{132055}$$

```
[Out] 4/(77*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x]) + (138*Sqrt[1
- 2*x])/(2695*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x]) + (14928*Sqrt[1 - 2*
x])/(18865*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x]) + (2101332*Sqrt[1 - 2*x
])/(132055*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) - (46585232*Sqrt[1 - 2*x]
*Sqrt[2 + 3*x])/(290521*Sqrt[3 + 5*x]) + (46585232*Sqrt[3/11]*Ell
ipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/132055 + (1400888
*Sqrt[3/11]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/13
2055
```

Rubi [A] time = 0.523662, antiderivative size = 222, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.179$

$$-\frac{46585232\sqrt{1-2x}\sqrt{3x+2}}{290521\sqrt{5x+3}}+\frac{2101332\sqrt{1-2x}}{132055\sqrt{3x+2}\sqrt{5x+3}}+\frac{14928\sqrt{1-2x}}{18865(3x+2)^{3/2}\sqrt{5x+3}}+\frac{138\sqrt{1-2x}}{2695(3x+2)^{5/2}\sqrt{5x+3}}+\frac{4}{77\sqrt{1-2x}(3x+2)^{5/2}\sqrt{5x+3}}+\frac{1400888\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{132055}+\frac{46585232\sqrt{\frac{3}{11}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{132055}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(3/2)*(2 + 3*x)^(7/2)*(3 + 5*x)^(3/2)),x]
```


```
[Out] 4/(77*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x]) + (138*Sqrt[1
- 2*x])/(2695*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x]) + (14928*Sqrt[1 - 2*
x])/(18865*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x]) + (2101332*Sqrt[1 - 2*x
])/(132055*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) - (46585232*Sqrt[1 - 2*x]
*Sqrt[2 + 3*x])/(290521*Sqrt[3 + 5*x]) + (46585232*Sqrt[3/11]*Ell
ipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/132055 + (1400888
*Sqrt[3/11]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/13
2055
```

Rubi in Sympy [A] time = 45.9111, size = 201, normalized size = 0.91

$$-\frac{46585232\sqrt{-2x+1}\sqrt{3x+2}}{290521\sqrt{5x+3}}+\frac{2101332\sqrt{-2x+1}}{132055\sqrt{3x+2}\sqrt{5x+3}}+\frac{14928\sqrt{-2x+1}}{18865\,(3x+2)^{\frac{3}{2}}\,\sqrt{5x+3}}+\frac{138\sqrt{-2x+1}}{2695\,(3x+2)^{\frac{5}{2}}\,\sqrt{5x+3}}+\frac{46585232\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{1452605}+\frac{1400888\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{1452605}+\frac{4}{77\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}\,\sqrt{5x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(3/2)/(2+3*x)**(7/2)/(3+5*x)**(3/2),x)
```

```
[Out] -46585232*sqrt(-2*x + 1)*sqrt(3*x + 2)/(290521*sqrt(5*x + 3)) + 2
101332*sqrt(-2*x + 1)/(132055*sqrt(3*x + 2)*sqrt(5*x + 3)) + 1492
8*sqrt(-2*x + 1)/(18865*(3*x + 2)**(3/2)*sqrt(5*x + 3)) + 138*sqr
t(-2*x + 1)/(2695*(3*x + 2)**(5/2)*sqrt(5*x + 3)) + 46585232*sqrt
(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/1452605 +
 1400888*sqrt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/
33)/1452605 + 4/(77*sqrt(-2*x + 1)*(3*x + 2)**(5/2)*sqrt(5*x + 3)
)
```

Mathematica [A] time = 0.268343, size = 109, normalized size = 0.49

$$\frac{2\left(\frac{6289006320x^4+9225477612x^3+1919527182x^2-2283681406x-884250959}{\sqrt{1-2x}(3x+2)^{5/2}\sqrt{5x+3}}-2\sqrt{2}\left(11646308E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-5867645F\left(\sin\right.\right.\right.}{1452605}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(3/2)*(2 + 3*x)^(7/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (2*((-884250959 - 2283681406*x + 1919527182*x^2 + 9225477612*x^3
+ 6289006320*x^4)/(Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x]) -
 2*Sqrt[2]*(11646308*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]],
-33/2] - 5867645*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/
2])))/1452605
```

Maple [C] time = 0.041, size = 386, normalized size = 1.7

$$\frac{2}{14526050\,x^2+1452605\,x-4357815}\sqrt{1-2\,x}\sqrt{3+5\,x}\left(209633544\,\sqrt{2}EllipticE\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^2\sqrt{3+\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(3/2)/(2+3*x)^(7/2)/(3+5*x)^(3/2),x)
```

```
[Out] 2/1452605*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(209633544*2^(1/2)*Elliptic
E(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1
/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-105617610*2^(1
/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*
3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+27
9511392*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2
*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x
)^(1/2)-140823480*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)
^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1
/2)*(1-2*x)^(1/2)+93170464*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1
-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*1
1^(1/2)*3^(1/2)*2^(1/2))-46941160*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(
1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),
1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-6289006320*x^4-9225477612*x^3-191
9527182*x^2+2283681406*x+884250959)/(2+3*x)^(5/2)/(10*x^2+x-3)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5\,x+3)^{\frac{3}{2}}(3\,x+2)^{\frac{7}{2}}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^(7/2)*(-2*x + 1)^(3/2)),x, algorithm="max
```

```
[Out] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^(7/2)*(-2*x + 1)^(3/2)), x
)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{1}{\left(270\,x^{5}+567\,x^{4}+333\,x^{3}-46\,x^{2}-100\,x-24\right)\sqrt{5\,x+3}\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^(7/2)*(-2*x + 1)^(3/2)),x, algorithm="fri
```

```
[Out] integral(-1/((270*x^5 + 567*x^4 + 333*x^3 - 46*x^2 - 100*x - 24)*
sqrt(5*x + 3)*sqrt(3*x + 2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(3/2)/(2+3*x)**(7/2)/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5\,x+3)^{\frac{3}{2}}(3\,x+2)^{\frac{7}{2}}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^(7/2)*(-2*x + 1)^(3/2)),x, algorithm="gia
```

```
[Out] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^(7/2)*(-2*x + 1)^(3/2)), x
)
```

3.2918 $\int \frac{(2+3x)^{11/2}}{(1-2x)^{3/2}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=218

$$\frac{7(3x+2)^{9/2}}{11\sqrt{1-2x}(5x+3)^{3/2}}-\frac{107\sqrt{1-2x}(3x+2)^{7/2}}{1815(5x+3)^{3/2}}-\frac{4553\sqrt{1-2x}(3x+2)^{5/2}}{99825\sqrt{5x+3}}+\frac{380188\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}}{831875}+\frac{17427983\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{8318750}+\frac{18177329F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3781250\sqrt{33}}+\frac{604915631E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3781250\sqrt{33}}$$

```
[Out] (-107*Sqrt[1 - 2*x]*(2 + 3*x)^(7/2))/(1815*(3 + 5*x)^(3/2)) + (7*
(2 + 3*x)^(9/2))/(11*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) - (4553*Sqrt[
1 - 2*x]*(2 + 3*x)^(5/2))/(99825*Sqrt[3 + 5*x]) + (17427983*Sqrt[
1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/8318750 + (380188*Sqrt[1 -
2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/831875 + (604915631*EllipticE
[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(3781250*Sqrt[33]) + (1
8177329*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(37812
50*Sqrt[33])
```

Rubi [A] time = 0.495051, antiderivative size = 218, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.214$

$$\frac{7(3x+2)^{9/2}}{11\sqrt{1-2x}(5x+3)^{3/2}}-\frac{107\sqrt{1-2x}(3x+2)^{7/2}}{1815(5x+3)^{3/2}}-\frac{4553\sqrt{1-2x}(3x+2)^{5/2}}{99825\sqrt{5x+3}}+\frac{380188\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}}{831875}+\frac{17427983\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{8318750}+\frac{18177329F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3781250\sqrt{33}}+\frac{604915631E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3781250\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^(11/2)/((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (-107*Sqrt[1 - 2*x]*(2 + 3*x)^(7/2))/(1815*(3 + 5*x)^(3/2)) + (7*
(2 + 3*x)^(9/2))/(11*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) - (4553*Sqrt[
1 - 2*x]*(2 + 3*x)^(5/2))/(99825*Sqrt[3 + 5*x]) + (17427983*Sqrt[
1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/8318750 + (380188*Sqrt[1 -
2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/831875 + (604915631*EllipticE
[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(3781250*Sqrt[33]) + (1
8177329*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(37812
50*Sqrt[33])
```

Rubi in Sympy [A] time = 47.6246, size = 201, normalized size = 0.92

$$-\frac{107\sqrt{-2x+1}\,(3x+2)^{\frac{7}{2}}}{1815\,(5x+3)^{\frac{3}{2}}}-\frac{4553\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}}{99825\sqrt{5x+3}}+\frac{380188\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\sqrt{5x+3}}{831875}+\frac{17427983\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{8318750}+\frac{604915631\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{124781250}+\frac{18177329\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{124781250}+\frac{7\,(3x+2)^{\frac{9}{2}}}{11\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(11/2)/(1-2*x)**(3/2)/(3+5*x)**(5/2),x)
```

```
[Out] -107*sqrt(-2*x + 1)*(3*x + 2)**(7/2)/(1815*(5*x + 3)**(3/2)) - 45
53*sqrt(-2*x + 1)*(3*x + 2)**(5/2)/(99825*sqrt(5*x + 3)) + 380188
*sqrt(-2*x + 1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/831875 + 17427983*
sqrt(-2*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/8318750 + 604915631*sq
rt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/1247812
50 + 18177329*sqrt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7)
, 35/33)/124781250 + 7*(3*x + 2)**(9/2)/(11*sqrt(-2*x + 1)*(5*x +
 3)**(3/2))
```

Mathematica [A] time = 0.346092, size = 141, normalized size = 0.65

$$\frac{10\sqrt{3x+2}\left(-242574750x^4-1255998150x^3+1267558775x^2+2667846028x+904528061\right)\sqrt{5x+3}+609979405\sqrt{2-4x}(5\ldots}{249562500\sqrt{1-2x}(5x+3\ldots}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^(11/2)/((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (10*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(904528061 + 2667846028*x + 12675
58775*x^2 - 1255998150*x^3 - 242574750*x^4) - 1209831262*Sqrt[2 -
 4*x]*(3 + 5*x)^2*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33
/2] + 609979405*Sqrt[2 - 4*x]*(3 + 5*x)^2*EllipticF[ArcSin[Sqrt[2
/11]*Sqrt[3 + 5*x]], -33/2])/(249562500*Sqrt[1 - 2*x]*(3 + 5*x)^2
)
```

Maple [C] time = 0.036, size = 277, normalized size = 1.3

$$-\frac{1}{1497375000\,x^2+249562500\,x-499125000}\sqrt{2+3\,x}\sqrt{1-2\,x}\left(3049897025\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\ldots\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(11/2)/(1-2*x)^(3/2)/(3+5*x)^(5/2),x)
```

```
[Out] -1/249562500*(2+3*x)^(1/2)*(1-2*x)^(1/2)*(3049897025*2^(1/2)*Elli
pticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*
2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-6049156310*2
^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/
2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+1
829938215*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Ellip
ticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2
^(1/2))-3629493786*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1
/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*
3^(1/2)*2^(1/2))-7277242500*x^5-42531439500*x^4+12906800250*x^3+1
05386556340*x^2+80492762390*x+18090561220)/(3+5*x)^(3/2)/(6*x^2+x
-2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{11}{2}}}{(5\,x+3)^{\frac{5}{2}}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(11/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="maxi
```

```
[Out] integrate((3*x + 2)^(11/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{\left(243\,x^{5}+810\,x^{4}+1080\,x^{3}+720\,x^{2}+240\,x+32\right)\sqrt{3\,x+2}}{\left(50\,x^{3}+35\,x^{2}-12\,x-9\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(11/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="frica
```

```
[Out] integral(-(243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)*s
qrt(3*x + 2)/((50*x^3 + 35*x^2 - 12*x - 9)*sqrt(5*x + 3)*sqrt(-2*
x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(11/2)/(1-2*x)**(3/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{11}{2}}}{(5\,x+3)^{\frac{5}{2}}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(11/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="giac
```

```
[Out] integrate((3*x + 2)^(11/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)), x)
```

3.2919 $\int \frac{(2+3x)^{9/2}}{(1-2x)^{3/2}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=187

$$\frac{7(3x+2)^{7/2}}{11\sqrt{1-2x}(5x+3)^{3/2}}-\frac{107\sqrt{1-2x}(3x+2)^{5/2}}{1815(5x+3)^{3/2}}-\frac{4421\sqrt{1-2x}(3x+2)^{3/2}}{99825\sqrt{5x+3}}+\frac{83093\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{166375}+\frac{84134F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{75625\sqrt{33}}+\frac{5684677E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{151250\sqrt{33}}$$

```
[Out] (-107*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2))/(1815*(3 + 5*x)^(3/2)) + (7*
(2 + 3*x)^(7/2))/(11*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) - (4421*Sqrt[
1 - 2*x]*(2 + 3*x)^(3/2))/(99825*Sqrt[3 + 5*x]) + (83093*Sqrt[1 -
 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/166375 + (5684677*EllipticE[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(151250*Sqrt[33]) + (84134
*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(75625*Sqrt[3
3])
```

Rubi [A] time = 0.414265, antiderivative size = 187, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{7(3x+2)^{7/2}}{11\sqrt{1-2x}(5x+3)^{3/2}}-\frac{107\sqrt{1-2x}(3x+2)^{5/2}}{1815(5x+3)^{3/2}}-\frac{4421\sqrt{1-2x}(3x+2)^{3/2}}{99825\sqrt{5x+3}}+\frac{83093\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{166375}+\frac{84134F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{75625\sqrt{33}}+\frac{5684677E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{151250\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^(9/2)/((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2)),x]
```


```
[Out] (-107*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2))/(1815*(3 + 5*x)^(3/2)) + (7*
(2 + 3*x)^(7/2))/(11*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) - (4421*Sqrt[
1 - 2*x]*(2 + 3*x)^(3/2))/(99825*Sqrt[3 + 5*x]) + (83093*Sqrt[1 -
 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/166375 + (5684677*EllipticE[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(151250*Sqrt[33]) + (84134
*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(75625*Sqrt[3
3])
```

Rubi in Sympy [A] time = 39.6059, size = 172, normalized size = 0.92

$$-\frac{107\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}}{1815\,(5x+3)^{\frac{3}{2}}}-\frac{4421\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}}{99825\sqrt{5x+3}}+\frac{83093\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{166375}+\frac{5684677\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{4991250}+\frac{84134\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{2646875}+\frac{7\,(3x+2)^{\frac{7}{2}}}{11\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(9/2)/(1-2*x)**(3/2)/(3+5*x)**(5/2),x)
```

```
[Out] -107*sqrt(-2*x + 1)*(3*x + 2)**(5/2)/(1815*(5*x + 3)**(3/2)) - 44
21*sqrt(-2*x + 1)*(3*x + 2)**(3/2)/(99825*sqrt(5*x + 3)) + 83093*
```

```
sqrt(-2*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/166375 + 5684677*sqrt(
33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/4991250 +
84134*sqrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35
)/2646875 + 7*(3*x + 2)**(7/2)/(11*sqrt(-2*x + 1)*(5*x + 3)**(3/2
))
```

Mathematica [A] time = 0.263221, size = 136, normalized size = 0.73

$$\frac{10\sqrt{3x+2}\left(-2695275x^3+9376775x^2+14153413x+4534181\right)\sqrt{5x+3}+2908255\sqrt{2-4x}(5x+3)^2F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)\right.}{4991250\sqrt{1-2x}(5x+3)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^(9/2)/((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (10*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(4534181 + 14153413*x + 9376775*x
^2 - 2695275*x^3) - 5684677*Sqrt[2 - 4*x]*(3 + 5*x)^2*EllipticE[A
rcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 2908255*Sqrt[2 - 4*x]*(
3 + 5*x)^2*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/(4
991250*Sqrt[1 - 2*x]*(3 + 5*x)^2)
```

Maple [C] time = 0.033, size = 272, normalized size = 1.5

$$-\frac{1}{29947500\,x^2+4991250\,x-9982500}\sqrt{2+3\,x}\sqrt{1-2\,x}\left(14541275\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(9/2)/(1-2*x)^(3/2)/(3+5*x)^(5/2),x)
```

```
[Out] -1/4991250*(2+3*x)^(1/2)*(1-2*x)^(1/2)*(14541275*2^(1/2)*Elliptic
F(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1
/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-28423385*2^(1/2)
*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(
1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+8724765
*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11
*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-1
7054031*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Ellipti
cE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(
1/2))-80858250*x^4+227397750*x^3+612137890*x^2+419093690*x+906836
20)/(3+5*x)^(3/2)/(6*x^2+x-2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(3\,x+2)^{\frac{9}{2}}}{(5\,x+3)^{\frac{5}{2}}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(9/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="maxim
```

```
[Out] integrate((3*x + 2)^(9/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(-\frac{\left(81\,x^4+216\,x^3+216\,x^2+96\,x+16\right)\sqrt{3\,x+2}}{(50\,x^3+35\,x^2-12\,x-9)\sqrt{5\,x+3}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(9/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="fricas")
```

```
[Out] integral(-(81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16)*sqrt(3*x + 2)/
((50*x^3 + 35*x^2 - 12*x - 9)*sqrt(5*x + 3)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(9/2)/(1-2*x)**(3/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{9}{2}}}{(5x+3)^{\frac{5}{2}}(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(9/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] integrate((3*x + 2)^(9/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)), x)
```

3.2920 $\int \frac{(2+3x)^{7/2}}{(1-2x)^{3/2}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=156

$$\frac{7(3x+2)^{5/2}}{11\sqrt{1-2x}(5x+3)^{3/2}}-\frac{107\sqrt{1-2x}(3x+2)^{3/2}}{1815(5x+3)^{3/2}}-\frac{4289\sqrt{1-2x}\sqrt{3x+2}}{99825\sqrt{5x+3}}+\frac{2657F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{15125\sqrt{33}}+\frac{118898E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{15125\sqrt{33}}$$

```
[Out] (-107*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2))/(1815*(3 + 5*x)^(3/2)) + (7*
(2 + 3*x)^(5/2))/(11*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) - (4289*Sqrt[
1 - 2*x]*Sqrt[2 + 3*x])/(99825*Sqrt[3 + 5*x]) + (118898*EllipticE
[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(15125*Sqrt[33]) + (265
7*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(15125*Sqrt[
33])
```

Rubi [A] time = 0.340687, antiderivative size = 156, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{7(3x+2)^{5/2}}{11\sqrt{1-2x}(5x+3)^{3/2}}-\frac{107\sqrt{1-2x}(3x+2)^{3/2}}{1815(5x+3)^{3/2}}-\frac{4289\sqrt{1-2x}\sqrt{3x+2}}{99825\sqrt{5x+3}}+\frac{2657F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{15125\sqrt{33}}+\frac{118898E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{15125\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^(7/2)/((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (-107*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2))/(1815*(3 + 5*x)^(3/2)) + (7*
(2 + 3*x)^(5/2))/(11*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) - (4289*Sqrt[
1 - 2*x]*Sqrt[2 + 3*x])/(99825*Sqrt[3 + 5*x]) + (118898*EllipticE
[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(15125*Sqrt[33]) + (265
7*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(15125*Sqrt[
33])
```

Rubi in Sympy [A] time = 32.058, size = 143, normalized size = 0.92

$$-\frac{107\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}}{1815\,(5x+3)^{\frac{3}{2}}}-\frac{4289\sqrt{-2x+1}\sqrt{3x+2}}{99825\sqrt{5x+3}}+\frac{118898\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{499125}+\frac{2657\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{529375}+\frac{7\,(3x+2)^{\frac{5}{2}}}{11\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(7/2)/(1-2*x)**(3/2)/(3+5*x)**(5/2),x)
```

```
[Out] -107*sqrt(-2*x + 1)*(3*x + 2)**(3/2)/(1815*(5*x + 3)**(3/2)) - 42
89*sqrt(-2*x + 1)*sqrt(3*x + 2)/(99825*sqrt(5*x + 3)) + 118898*sq
rt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/499125
+ 2657*sqrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/3
5)/529375 + 7*(3*x + 2)**(5/2)/(11*sqrt(-2*x + 1)*(5*x + 3)**(3/2
))
```

Mathematica [A] time = 0.212499, size = 102, normalized size = 0.65

$$\frac{\frac{10\sqrt{3x+2}(649925x^2+772474x+229463)}{\sqrt{1-2x}(5x+3)^{3/2}}+150115\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-237796\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)}{998250}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^(7/2)/((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] ((10*Sqrt[2 + 3*x]*(229463 + 772474*x + 649925*x^2))/(Sqrt[1 - 2*
x]*(3 + 5*x)^(3/2)) - 237796*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*
Sqrt[3 + 5*x]], -33/2] + 150115*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/1
1]*Sqrt[3 + 5*x]], -33/2])/998250
```

Maple [C] time = 0.035, size = 267, normalized size = 1.7

$$-\frac{1}{5989500x^2+998250x-1996500}\sqrt{2+3x}\sqrt{1-2x}\left(750575\sqrt{2}EllipticF\left(1/11\sqrt{11}\sqrt{2}\sqrt{3+5x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5x}\sqrt{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(7/2)/(1-2*x)^(3/2)/(3+5*x)^(5/2),x)
```

```
[Out] -1/998250*(2+3*x)^(1/2)*(1-2*x)^(1/2)*(750575*2^(1/2)*EllipticF(1
/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2)
)*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-1188980*2^(1/2)*Ell
ipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)
*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+450345*2^(1
/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(
1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-713388
*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11
*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+1
9497750*x^3+36172720*x^2+22333370*x+4589260)/(3+5*x)^(3/2)/(6*x^2
+x-2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(3x+2)^{\frac{7}{2}}}{(5x+3)^{\frac{5}{2}}(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(7/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="maxima
```

```
[Out] integrate((3*x + 2)^(7/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{(27x^3+54x^2+36x+8)\sqrt{3x+2}}{(50x^3+35x^2-12x-9)\sqrt{5x+3}\sqrt{-2x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(7/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="fricas
```

```
[Out] integral(-(27*x^3 + 54*x^2 + 36*x + 8)*sqrt(3*x + 2)/((50*x^3 + 3
5*x^2 - 12*x - 9)*sqrt(5*x + 3)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(7/2)/(1-2*x)**(3/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{7}{2}}}{(5x+3)^{\frac{5}{2}}(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(7/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="giac"
```

```
[Out] integrate((3*x + 2)^(7/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)), x)
```

3.2921 $\int \frac{(2+3x)^{5/2}}{(1-2x)^{3/2}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=156

$$\frac{7(3x+2)^{3/2}}{11\sqrt{1-2x}(5x+3)^{3/2}}-\frac{4157\sqrt{1-2x}\sqrt{3x+2}}{19965\sqrt{5x+3}}-\frac{107\sqrt{1-2x}\sqrt{3x+2}}{1815(5x+3)^{3/2}}-\frac{412F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3025\sqrt{33}}+\frac{4157E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3025\sqrt{33}}$$

```
[Out] (-107*Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/(1815*(3 + 5*x)^(3/2)) + (7*(2
 + 3*x)^(3/2))/(11*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) - (4157*Sqrt[1
- 2*x]*Sqrt[2 + 3*x])/(19965*Sqrt[3 + 5*x]) + (4157*EllipticE[Arc
Sin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(3025*Sqrt[33]) - (412*Elli
pticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(3025*Sqrt[33])
```

Rubi [A] time = 0.337073, antiderivative size = 156, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{7(3x+2)^{3/2}}{11\sqrt{1-2x}(5x+3)^{3/2}}-\frac{4157\sqrt{1-2x}\sqrt{3x+2}}{19965\sqrt{5x+3}}-\frac{107\sqrt{1-2x}\sqrt{3x+2}}{1815(5x+3)^{3/2}}-\frac{412F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3025\sqrt{33}}+\frac{4157E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3025\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^(5/2)/((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (-107*Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/(1815*(3 + 5*x)^(3/2)) + (7*(2
 + 3*x)^(3/2))/(11*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) - (4157*Sqrt[1
- 2*x]*Sqrt[2 + 3*x])/(19965*Sqrt[3 + 5*x]) + (4157*EllipticE[Arc
Sin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(3025*Sqrt[33]) - (412*Elli
pticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(3025*Sqrt[33])
```

Rubi in Sympy [A] time = 31.4805, size = 143, normalized size = 0.92

$$-\frac{4157\sqrt{-2x+1}\sqrt{3x+2}}{19965\sqrt{5x+3}}-\frac{107\sqrt{-2x+1}\sqrt{3x+2}}{1815\,(5x+3)^{\frac{3}{2}}}+\frac{4157\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{99825}-\frac{412\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{105875}+\frac{7\,(3x+2)^{\frac{3}{2}}}{11\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(5/2)/(1-2*x)**(3/2)/(3+5*x)**(5/2),x)
```

```
[Out] -4157*sqrt(-2*x + 1)*sqrt(3*x + 2)/(19965*sqrt(5*x + 3)) - 107*sq
rt(-2*x + 1)*sqrt(3*x + 2)/(1815*(5*x + 3)**(3/2)) + 4157*sqrt(33
)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/99825 - 412*
sqrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/1058
75 + 7*(3*x + 2)**(3/2)/(11*sqrt(-2*x + 1)*(5*x + 3)**(3/2))
```

Mathematica [A] time = 0.378212, size = 97, normalized size = 0.62

$$\frac{\sqrt{2}\left(\frac{5\sqrt{6x+4}(20785x^2+22313x+5881)}{\sqrt{1-2x}(5x+3)^{3/2}}+10955F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-4157E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)}{99825}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^(5/2)/((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (Sqrt[2]*((5*Sqrt[4 + 6*x]*(5881 + 22313*x + 20785*x^2))/(Sqrt[1
- 2*x]*(3 + 5*x)^(3/2)) - 4157*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3
 + 5*x]], -33/2] + 10955*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x
]], -33/2]))/99825
```

Maple [C] time = 0.033, size = 267, normalized size = 1.7

$$-\frac{1}{598950\,x^{2}+99825\,x-199650}\sqrt{2+3\,x}\sqrt{1-2\,x}\left(54775\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(5/2)/(1-2*x)^(3/2)/(3+5*x)^(5/2),x)
```

```
[Out] -1/99825*(2+3*x)^(1/2)*(1-2*x)^(1/2)*(54775*2^(1/2)*EllipticF(1/1
1*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*
x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-20785*2^(1/2)*Ellipti
cE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(
1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+32865*2^(1/2)*(
3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*
2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-12471*2^(1/
2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1
/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+623550*
x^3+1085090*x^2+622690*x+117620)/(3+5*x)^(3/2)/(6*x^2+x-2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{5}{2}}}{(5\,x+3)^{\frac{5}{2}}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(5/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="maxima
```

```
[Out] integrate((3*x + 2)^(5/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(-\frac{(9\,x^{2}+12\,x+4)\sqrt{3\,x+2}}{(50\,x^{3}+35\,x^{2}-12\,x-9)\sqrt{5\,x+3}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(5/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="fricas
```

```
[Out] integral(-(9*x^2 + 12*x + 4)*sqrt(3*x + 2)/((50*x^3 + 35*x^2 - 12
*x - 9)*sqrt(5*x + 3)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(5/2)/(1-2*x)**(3/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{5}{2}}}{(5\,x+3)^{\frac{5}{2}}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(5/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="giac"
```

```
[Out] integrate((3*x + 2)^(5/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)), x)
```

3.2922 $\int \frac{(2+3x)^{3/2}}{(1-2x)^{3/2}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=156

$$-\frac{494\sqrt{1-2x}\sqrt{3x+2}}{3993\sqrt{5x+3}}-\frac{107\sqrt{1-2x}\sqrt{3x+2}}{363(5x+3)^{3/2}}+\frac{7\sqrt{3x+2}}{11\sqrt{1-2x}(5x+3)^{3/2}}-\frac{214F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{605\sqrt{33}}+\frac{494E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{605\sqrt{33}}$$

```
[Out] (7*Sqrt[2 + 3*x])/(11*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) - (107*Sqrt[
1 - 2*x]*Sqrt[2 + 3*x])/(363*(3 + 5*x)^(3/2)) - (494*Sqrt[1 - 2*x
]*Sqrt[2 + 3*x])/(3993*Sqrt[3 + 5*x]) + (494*EllipticE[ArcSin[Sqr
t[3/7]*Sqrt[1 - 2*x]], 35/33])/(605*Sqrt[33]) - (214*EllipticF[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(605*Sqrt[33])
```

Rubi [A] time = 0.34212, antiderivative size = 156, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.179$

$$-\frac{494\sqrt{1-2x}\sqrt{3x+2}}{3993\sqrt{5x+3}}-\frac{107\sqrt{1-2x}\sqrt{3x+2}}{363(5x+3)^{3/2}}+\frac{7\sqrt{3x+2}}{11\sqrt{1-2x}(5x+3)^{3/2}}-\frac{214F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{605\sqrt{33}}+\frac{494E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{605\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^(3/2)/((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (7*Sqrt[2 + 3*x])/(11*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) - (107*Sqrt[
1 - 2*x]*Sqrt[2 + 3*x])/(363*(3 + 5*x)^(3/2)) - (494*Sqrt[1 - 2*x
]*Sqrt[2 + 3*x])/(3993*Sqrt[3 + 5*x]) + (494*EllipticE[ArcSin[Sqr
t[3/7]*Sqrt[1 - 2*x]], 35/33])/(605*Sqrt[33]) - (214*EllipticF[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(605*Sqrt[33])
```

Rubi in Sympy [A] time = 31.1274, size = 143, normalized size = 0.92

$$-\frac{494\sqrt{-2x+1}\sqrt{3x+2}}{3993\sqrt{5x+3}}-\frac{107\sqrt{-2x+1}\sqrt{3x+2}}{363\,(5x+3)^{\frac{3}{2}}}+\frac{494\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{19965}-\frac{214\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{21175}+\frac{7\sqrt{3x+2}}{11\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(3/2)/(1-2*x)**(3/2)/(3+5*x)**(5/2),x)
```

```
[Out] -494*sqrt(-2*x + 1)*sqrt(3*x + 2)/(3993*sqrt(5*x + 3)) - 107*sqrt
(-2*x + 1)*sqrt(3*x + 2)/(363*(5*x + 3)**(3/2)) + 494*sqrt(33)*el
liptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/19965 - 214*sqrt
(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/21175 +
7*sqrt(3*x + 2)/(11*sqrt(-2*x + 1)*(5*x + 3)**(3/2))
```

Mathematica [A] time = 0.392732, size = 97, normalized size = 0.62

$$\frac{\sqrt{2}\left(\frac{5\sqrt{6x+4}(2470x^2+1424x-59)}{\sqrt{1-2x}(5x+3)^{3/2}}+4025F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-494E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)}{19965}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^(3/2)/((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (Sqrt[2]*((5*Sqrt[4 + 6*x]*(-59 + 1424*x + 2470*x^2))/(Sqrt[1 - 2
*x]*(3 + 5*x)^(3/2)) - 494*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5
*x]], -33/2] + 4025*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -
33/2]))/19965
```

Maple [C] time = 0.035, size = 267, normalized size = 1.7

$$-\frac{1}{119790\,x^2+19965\,x-39930}\sqrt{2+3\,x}\sqrt{1-2\,x}\left(20125\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(3/2)/(1-2*x)^(3/2)/(3+5*x)^(5/2),x)
```

```
[Out] -1/19965*(2+3*x)^(1/2)*(1-2*x)^(1/2)*(20125*2^(1/2)*EllipticF(1/1
1*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*
x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-2470*2^(1/2)*Elliptic
E(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1
/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+12075*2^(1/2)*(3
+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2
^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-1482*2^(1/2)
*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2
)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+74100*x^3
+92120*x^2+26710*x-1180)/(3+5*x)^(3/2)/(6*x^2+x-2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{3}{2}}}{(5\,x+3)^{\frac{5}{2}}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(3/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="maxima
```

```
[Out] integrate((3*x + 2)^(3/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{(3\,x+2)^{\frac{3}{2}}}{(50\,x^3+35\,x^2-12\,x-9)\sqrt{5\,x+3}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(3/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="fricas
```

```
[Out] integral(-(3*x + 2)^(3/2)/((50*x^3 + 35*x^2 - 12*x - 9)*sqrt(5*x
+ 3)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(3/2)/(1-2*x)**(3/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{3}{2}}}{(5x+3)^{\frac{5}{2}}(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(3/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="giac"
```

```
[Out] integrate((3*x + 2)^(3/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)), x)
```

3.2923 $\int \frac{\sqrt{2+3x}}{(1-2x)^{3/2}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=156

$$-\frac{490\sqrt{1-2x}\sqrt{3x+2}}{3993\sqrt{5x+3}}-\frac{40\sqrt{1-2x}\sqrt{3x+2}}{363(5x+3)^{3/2}}+\frac{2\sqrt{3x+2}}{11\sqrt{1-2x}(5x+3)^{3/2}}-\frac{16F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)\middle|\frac{35}{33}\right)}{121\sqrt{33}}+\frac{98E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)\middle|\frac{35}{33}\right)}{121\sqrt{33}}$$

```
[Out] (2*Sqrt[2 + 3*x])/(11*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) - (40*Sqrt[1
 - 2*x]*Sqrt[2 + 3*x])/(363*(3 + 5*x)^(3/2)) - (490*Sqrt[1 - 2*x]
*Sqrt[2 + 3*x])/(3993*Sqrt[3 + 5*x]) + (98*EllipticE[ArcSin[Sqrt[
3/7]*Sqrt[1 - 2*x]], 35/33])/(121*Sqrt[33]) - (16*EllipticF[ArcSi
n[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(121*Sqrt[33])
```

Rubi [A] time = 0.34258, antiderivative size = 156, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.179$

$$-\frac{490\sqrt{1-2x}\sqrt{3x+2}}{3993\sqrt{5x+3}}-\frac{40\sqrt{1-2x}\sqrt{3x+2}}{363(5x+3)^{3/2}}+\frac{2\sqrt{3x+2}}{11\sqrt{1-2x}(5x+3)^{3/2}}-\frac{16F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)\middle|\frac{35}{33}\right)}{121\sqrt{33}}+\frac{98E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)\middle|\frac{35}{33}\right)}{121\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[2 + 3*x]/((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (2*Sqrt[2 + 3*x])/(11*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) - (40*Sqrt[1
 - 2*x]*Sqrt[2 + 3*x])/(363*(3 + 5*x)^(3/2)) - (490*Sqrt[1 - 2*x]
*Sqrt[2 + 3*x])/(3993*Sqrt[3 + 5*x]) + (98*EllipticE[ArcSin[Sqrt[
3/7]*Sqrt[1 - 2*x]], 35/33])/(121*Sqrt[33]) - (16*EllipticF[ArcSi
n[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(121*Sqrt[33])
```

Rubi in Sympy [A] time = 31.483, size = 143, normalized size = 0.92

$$-\frac{490\sqrt{-2x+1}\sqrt{3x+2}}{3993\sqrt{5x+3}}-\frac{40\sqrt{-2x+1}\sqrt{3x+2}}{363\,(5x+3)^{\frac{3}{2}}}+\frac{98\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{3993}-\frac{16\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{4235}+\frac{2\sqrt{3x+2}}{11\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(1/2)/(1-2*x)**(3/2)/(3+5*x)**(5/2),x)
```

```
[Out] -490*sqrt(-2*x + 1)*sqrt(3*x + 2)/(3993*sqrt(5*x + 3)) - 40*sqrt(
-2*x + 1)*sqrt(3*x + 2)/(363*(5*x + 3)**(3/2)) + 98*sqrt(33)*elli
ptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/3993 - 16*sqrt(35)
*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/4235 + 2*sqr
t(3*x + 2)/(11*sqrt(-2*x + 1)*(5*x + 3)**(3/2))
```

Mathematica [A] time = 0.341213, size = 96, normalized size = 0.62

$$\frac{\sqrt{2}\left(\frac{\sqrt{6x+4}\left(2450x^2+685x-592\right)}{\sqrt{1-2x}(5x+3)^{3/2}}+362F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)\middle|-\frac{33}{2}\right)-98E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)\middle|-\frac{33}{2}\right)\right)}{3993}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[2 + 3*x]/((1 - 2*x)^(3/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (Sqrt[2]*((Sqrt[4 + 6*x]*(-592 + 685*x + 2450*x^2))/(Sqrt[1 - 2*x
]*(3 + 5*x)^(3/2)) - 98*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]
], -33/2] + 362*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2
]))/3993
```

Maple [C] time = 0.033, size = 267, normalized size = 1.7

$$-\frac{2}{23958\,x^2+3993\,x-7986}\sqrt{2+3\,x}\sqrt{1-2\,x}\left(905\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(1/2)/(1-2*x)^(3/2)/(3+5*x)^(5/2),x)
```

```
[Out] -2/3993*(2+3*x)^(1/2)*(1-2*x)^(1/2)*(905*2^(1/2)*EllipticF(1/11*1
1^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(
3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-245*2^(1/2)*EllipticE(1/
11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))
*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+543*2^(1/2)*(3+5*x)^
(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)
*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-147*2^(1/2)*(3+5*x
)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/
2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+7350*x^3+6955*x^
2-406*x-1184)/(3+5*x)^(3/2)/(6*x^2+x-2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{\sqrt{3\,x+2}}{(5\,x+3)^{\frac{5}{2}}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(3*x + 2)/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="maxima"
```

```
[Out] integrate(sqrt(3*x + 2)/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{\sqrt{3\,x+2}}{(50\,x^3+35\,x^2-12\,x-9)\sqrt{5\,x+3}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(3*x + 2)/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="fricas"
```

```
[Out] integral(-sqrt(3*x + 2)/((50*x^3 + 35*x^2 - 12*x - 9)*sqrt(5*x +
3)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(1/2)/(1-2*x)**(3/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{3\,x+2}}{(5\,x+3)^{\frac{5}{2}}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(3*x + 2)/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="giac")
```

```
[Out] integrate(sqrt(3*x + 2)/((5*x + 3)^(5/2)*(-2*x + 1)^(3/2)), x)
```

3.2924 $\int \frac{1}{(1-2x)^{3/2}\sqrt{2+3x}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=156

$$\frac{19480\sqrt{1-2x}\sqrt{3x+2}}{27951\sqrt{5x+3}}-\frac{410\sqrt{1-2x}\sqrt{3x+2}}{2541(5x+3)^{3/2}}+\frac{4\sqrt{3x+2}}{77\sqrt{1-2x}(5x+3)^{3/2}}-\frac{164F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{847\sqrt{33}}-\frac{3896E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{847\sqrt{33}}$$

```
[Out] (4*Sqrt[2 + 3*x])/(77*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) - (410*Sqrt[
1 - 2*x]*Sqrt[2 + 3*x])/(2541*(3 + 5*x)^(3/2)) + (19480*Sqrt[1 -
2*x]*Sqrt[2 + 3*x])/(27951*Sqrt[3 + 5*x]) - (3896*EllipticE[ArcSi
n[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(847*Sqrt[33]) - (164*Ellipti
cF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(847*Sqrt[33])
```

Rubi [A] time = 0.344218, antiderivative size = 156, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{19480\sqrt{1-2x}\sqrt{3x+2}}{27951\sqrt{5x+3}}-\frac{410\sqrt{1-2x}\sqrt{3x+2}}{2541(5x+3)^{3/2}}+\frac{4\sqrt{3x+2}}{77\sqrt{1-2x}(5x+3)^{3/2}}-\frac{164F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{847\sqrt{33}}-\frac{3896E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{847\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(3/2)*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2)),x]
```

```
[Out] (4*Sqrt[2 + 3*x])/(77*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) - (410*Sqrt[
1 - 2*x]*Sqrt[2 + 3*x])/(2541*(3 + 5*x)^(3/2)) + (19480*Sqrt[1 -
2*x]*Sqrt[2 + 3*x])/(27951*Sqrt[3 + 5*x]) - (3896*EllipticE[ArcSi
n[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(847*Sqrt[33]) - (164*Ellipti
cF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(847*Sqrt[33])
```

Rubi in Sympy [A] time = 31.7713, size = 143, normalized size = 0.92

$$\frac{19480\sqrt{-2x+1}\sqrt{3x+2}}{27951\sqrt{5x+3}}-\frac{410\sqrt{-2x+1}\sqrt{3x+2}}{2541\,(5x+3)^{\frac{3}{2}}}-\frac{3896\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{27951}-\frac{164\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{29645}+\frac{4\sqrt{3x+2}}{77\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(3/2)/(3+5*x)**(5/2)/(2+3*x)**(1/2),x)
```

```
[Out] 19480*sqrt(-2*x + 1)*sqrt(3*x + 2)/(27951*sqrt(5*x + 3)) - 410*sq
rt(-2*x + 1)*sqrt(3*x + 2)/(2541*(5*x + 3)**(3/2)) - 3896*sqrt(33
)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/27951 - 164*
sqrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/2964
5 + 4*sqrt(3*x + 2)/(77*sqrt(-2*x + 1)*(5*x + 3)**(3/2))
```

Mathematica [A] time = 0.237936, size = 98, normalized size = 0.63

$$\frac{2\left(\frac{\sqrt{3x+2}\left(-97400x^2-5230x+27691\right)}{\sqrt{1-2x}(5x+3)^{3/2}}+\sqrt{2}\left(1948E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-595F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)\right)}{27951}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(3/2)*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2)),x]
```

```
[Out] (2*((Sqrt[2 + 3*x]*(27691 - 5230*x - 97400*x^2))/(Sqrt[1 - 2*x]*(
3 + 5*x)^(3/2)) + Sqrt[2]*(1948*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[
3 + 5*x]], -33/2] - 595*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]
], -33/2])))/27951
```

Maple [C] time = 0.034, size = 267, normalized size = 1.7

$$\frac{2}{167706\,x^2+27951\,x-55902}\sqrt{1-2\,x}\sqrt{2+3\,x}\left(2975\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(3/2)/(3+5*x)^(5/2)/(2+3*x)^(1/2),x)
```

```
[Out] 2/27951*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(2975*2^(1/2)*EllipticF(1/11*
11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*
(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-9740*2^(1/2)*EllipticE(
1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2
))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+1785*2^(1/2)*(3+5*
x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1
/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-5844*2^(1/2)*(3
+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2
^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+292200*x^3+2
10490*x^2-72613*x-55382)/(3+5*x)^(3/2)/(6*x^2+x-2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5\,x+3)^{\frac{5}{2}}\sqrt{3\,x+2}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(5/2)*sqrt(3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="maxima
```

```
[Out] integrate(1/((5*x + 3)^(5/2)*sqrt(3*x + 2)*(-2*x + 1)^(3/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{1}{(50\,x^3+35\,x^2-12\,x-9)\sqrt{5\,x+3}\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(5/2)*sqrt(3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="fricas
```

```
[Out] integral(-1/((50*x^3 + 35*x^2 - 12*x - 9)*sqrt(5*x + 3)*sqrt(3*x
+ 2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(3/2)/(3+5*x)**(5/2)/(2+3*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5x+3)^{\frac{5}{2}}\sqrt{3x+2}(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(5/2)*sqrt(3*x + 2)*(-2*x + 1)^(3/2)),x, algorithm="giac"
```

```
[Out] integrate(1/((5*x + 3)^(5/2)*sqrt(3*x + 2)*(-2*x + 1)^(3/2)), x)
```

3.2925 $\int \frac{1}{(1-2x)^{3/2}(2+3x)^{3/2}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=187

$$\frac{2976620\sqrt{1-2x}\sqrt{3x+2}}{195657\sqrt{5x+3}}-\frac{45040\sqrt{1-2x}\sqrt{3x+2}}{17787(5x+3)^{3/2}}+\frac{186\sqrt{1-2x}}{539\sqrt{3x+2}(5x+3)^{3/2}}+\frac{4}{77\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}}-\frac{18016F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{5929\sqrt{33}}-\frac{595324E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{5929\sqrt{33}}$$

```
[Out] 4/(77*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)) + (186*Sqrt[1
- 2*x])/(539*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)) - (45040*Sqrt[1 - 2*x
]*Sqrt[2 + 3*x])/(17787*(3 + 5*x)^(3/2)) + (2976620*Sqrt[1 - 2*x]
*Sqrt[2 + 3*x])/(195657*Sqrt[3 + 5*x]) - (595324*EllipticE[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(5929*Sqrt[33]) - (18016*Ellip
ticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(5929*Sqrt[33])
```

Rubi [A] time = 0.429534, antiderivative size = 187, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{2976620\sqrt{1-2x}\sqrt{3x+2}}{195657\sqrt{5x+3}}-\frac{45040\sqrt{1-2x}\sqrt{3x+2}}{17787(5x+3)^{3/2}}+\frac{186\sqrt{1-2x}}{539\sqrt{3x+2}(5x+3)^{3/2}}+\frac{4}{77\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}}-\frac{18016F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{5929\sqrt{33}}-\frac{595324E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{5929\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(3/2)*(2 + 3*x)^(3/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] 4/(77*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)) + (186*Sqrt[1
- 2*x])/(539*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)) - (45040*Sqrt[1 - 2*x
]*Sqrt[2 + 3*x])/(17787*(3 + 5*x)^(3/2)) + (2976620*Sqrt[1 - 2*x]
*Sqrt[2 + 3*x])/(195657*Sqrt[3 + 5*x]) - (595324*EllipticE[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(5929*Sqrt[33]) - (18016*Ellip
ticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(5929*Sqrt[33])
```

Rubi in Sympy [A] time = 39.6028, size = 172, normalized size = 0.92

$$\frac{2976620\sqrt{-2x+1}\sqrt{3x+2}}{195657\sqrt{5x+3}}-\frac{45040\sqrt{-2x+1}\sqrt{3x+2}}{17787\,(5x+3)^{\frac{3}{2}}}+\frac{186\sqrt{-2x+1}}{539\sqrt{3x+2}\,(5x+3)^{\frac{3}{2}}}-\frac{595324\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{195657}-\frac{18016\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{207515}+\frac{4}{77\sqrt{-2x+1}\sqrt{3x+2}\,(5x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(3/2)/(2+3*x)**(3/2)/(3+5*x)**(5/2),x)
```

```
[Out] 2976620*sqrt(-2*x + 1)*sqrt(3*x + 2)/(195657*sqrt(5*x + 3)) - 450
40*sqrt(-2*x + 1)*sqrt(3*x + 2)/(17787*(5*x + 3)**(3/2)) + 186*sq
```

```
rt(-2*x + 1)/(539*sqrt(3*x + 2)*(5*x + 3)**(3/2)) - 595324*sqrt(3
3)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/195657 - 18
016*sqrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/
207515 + 4/(77*sqrt(-2*x + 1)*sqrt(3*x + 2)*(5*x + 3)**(3/2))
```

Mathematica [A] time = 0.29631, size = 104, normalized size = 0.56

$$\frac{2\left(\frac{-44649300x^3-32744810x^2+10598372x+8473261}{\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}}+2\sqrt{2}\left(148831E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-74515F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)\right)}{195657}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(3/2)*(2 + 3*x)^(3/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (2*((8473261 + 10598372*x - 32744810*x^2 - 44649300*x^3)/(Sqrt[1
- 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)) + 2*Sqrt[2]*(148831*Ellipti
cE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 74515*EllipticF[Arc
Sin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])))/195657
```

Maple [C] time = 0.037, size = 267, normalized size = 1.4

$$\frac{2}{1173942\,x^2+195657\,x-391314}\sqrt{1-2\,x}\sqrt{2+3\,x}\left(745150\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+\ldots}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(3/2)/(2+3*x)^(3/2)/(3+5*x)^(5/2),x)
```

```
[Out] 2/195657*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(745150*2^(1/2)*EllipticF(1/
11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))
*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-1488310*2^(1/2)*Elli
pticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*
2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+447090*2^(1/
2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1
/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-892986*
2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*
11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+44
649300*x^3+32744810*x^2-10598372*x-8473261)/(3+5*x)^(3/2)/(6*x^2+
x-2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5\,x+3)^{\frac{5}{2}}(3\,x+2)^{\frac{3}{2}}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="max
```

```
[Out] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^(3/2)*(-2*x + 1)^(3/2)), x
)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(-\frac{1}{(150\,x^4+205\,x^3+34\,x^2-51\,x-18)\sqrt{5\,x+3}\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="fri
```

```
[Out] integral(-1/((150*x^4 + 205*x^3 + 34*x^2 - 51*x - 18)*sqrt(5*x +
3)*sqrt(3*x + 2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(3/2)/(2+3*x)**(3/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5x+3)^{\frac{5}{2}}(3x+2)^{\frac{3}{2}}(-2x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^(3/2)*(-2*x + 1)^(3/2)),x, algorithm="gia
```

```
[Out] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^(3/2)*(-2*x + 1)^(3/2)), x
)
```

3.2926 $\int \frac{1}{(1-2x)^{3/2}(2+3x)^{5/2}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=218

$$\frac{213119320\sqrt{1-2x}\sqrt{3x+2}}{1369599\sqrt{5x+3}}-\frac{3205940\sqrt{1-2x}\sqrt{3x+2}}{124509(5x+3)^{3/2}}+\frac{14496\sqrt{1-2x}}{3773\sqrt{3x+2}(5x+3)^{3/2}}+\frac{54\sqrt{1-2x}}{539(3x+2)^{3/2}(5x+3)^{3/2}}+\frac{4}{77\sqrt{1-2x}(3x+2)^{3/2}(5x+3)^{3/2}}-\frac{1282376F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{41503\sqrt{33}}-\frac{42623864E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{41503\sqrt{33}}$$

```
[Out] 4/(77*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)) + (54*Sqrt[1
 - 2*x])/(539*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)) + (14496*Sqrt[1 -
2*x])/(3773*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)) - (3205940*Sqrt[1 - 2*
x]*Sqrt[2 + 3*x])/(124509*(3 + 5*x)^(3/2)) + (213119320*Sqrt[1 -
2*x]*Sqrt[2 + 3*x])/(1369599*Sqrt[3 + 5*x]) - (42623864*EllipticE
[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(41503*Sqrt[33]) - (128
2376*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(41503*Sq
rt[33])
```

Rubi [A] time = 0.520714, antiderivative size = 218, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{213119320\sqrt{1-2x}\sqrt{3x+2}}{1369599\sqrt{5x+3}}-\frac{3205940\sqrt{1-2x}\sqrt{3x+2}}{124509(5x+3)^{3/2}}+\frac{14496\sqrt{1-2x}}{3773\sqrt{3x+2}(5x+3)^{3/2}}+\frac{54\sqrt{1-2x}}{539(3x+2)^{3/2}(5x+3)^{3/2}}+\frac{4}{77\sqrt{1-2x}(3x+2)^{3/2}(5x+3)^{3/2}}-\frac{1282376F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{41503\sqrt{33}}-\frac{42623864E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{41503\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(3/2)*(2 + 3*x)^(5/2)*(3 + 5*x)^(5/2)),x]
```


```
[Out] 4/(77*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)) + (54*Sqrt[1
 - 2*x])/(539*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)) + (14496*Sqrt[1 -
2*x])/(3773*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)) - (3205940*Sqrt[1 - 2*
x]*Sqrt[2 + 3*x])/(124509*(3 + 5*x)^(3/2)) + (213119320*Sqrt[1 -
2*x]*Sqrt[2 + 3*x])/(1369599*Sqrt[3 + 5*x]) - (42623864*EllipticE
[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(41503*Sqrt[33]) - (128
2376*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(41503*Sq
rt[33])
```

Rubi in Sympy [A] time = 46.0602, size = 201, normalized size = 0.92

$$\frac{213119320\sqrt{-2x+1}\sqrt{3x+2}}{1369599\sqrt{5x+3}}-\frac{3205940\sqrt{-2x+1}\sqrt{3x+2}}{124509\,(5x+3)^{\frac{3}{2}}}+\frac{14496\sqrt{-2x+1}}{3773\sqrt{3x+2}\,(5x+3)^{\frac{3}{2}}}+\frac{54\sqrt{-2x+1}}{539\,(3x+2)^{\frac{3}{2}}\,(5x+3)^{\frac{3}{2}}}-\frac{42623864\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{1369599}-\frac{1282376\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{1369599}+\frac{4}{77\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\,(5x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(3/2)/(2+3*x)**(5/2)/(3+5*x)**(5/2),x)
```

```
[Out] 213119320*sqrt(-2*x + 1)*sqrt(3*x + 2)/(1369599*sqrt(5*x + 3)) -
3205940*sqrt(-2*x + 1)*sqrt(3*x + 2)/(124509*(5*x + 3)**(3/2)) +
14496*sqrt(-2*x + 1)/(3773*sqrt(3*x + 2)*(5*x + 3)**(3/2)) + 54*s
qrt(-2*x + 1)/(539*(3*x + 2)**(3/2)*(5*x + 3)**(3/2)) - 42623864*
sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/13695
99 - 1282376*sqrt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7),
 35/33)/1369599 + 4/(77*sqrt(-2*x + 1)*(3*x + 2)**(3/2)*(5*x + 3)
**(3/2))
```

Mathematica [A] time = 0.328807, size = 109, normalized size = 0.5

$$\frac{2\left(\frac{-9590369400x^4-13428808080x^3-2415287594x^2+3336610202x+1213551469}{\sqrt{1-2x}(3x+2)^{3/2}(5x+3)^{3/2}}+2\sqrt{2}\left(10655966E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-5366165F\left(\right.\right.\right.}{1369599}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(3/2)*(2 + 3*x)^(5/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (2*((1213551469 + 3336610202*x - 2415287594*x^2 - 13428808080*x^3
 - 9590369400*x^4)/(Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)
) + 2*Sqrt[2]*(10655966*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]
], -33/2] - 5366165*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -
33/2])))/1369599
```

Maple [C] time = 0.037, size = 383, normalized size = 1.8

$$-\frac{2}{-1369599+2739198\,x}\sqrt{1-2\,x}\left(319678980\,\sqrt{2}EllipticE\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^2\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(3/2)/(2+3*x)^(5/2)/(3+5*x)^(5/2),x)
```

```
[Out] -2/1369599*(1-2*x)^(1/2)*(319678980*2^(1/2)*EllipticE(1/11*11^(1/
2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5
*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-160984950*2^(1/2)*EllipticF
(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/
2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+404926708*2^(1/
2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3
^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-20391
4270*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*
11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(
1/2)+127871592*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*
EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1
/2)*2^(1/2))-64393980*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)
^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/
2)*3^(1/2)*2^(1/2))-9590369400*x^4-13428808080*x^3-2415287594*x^2
+3336610202*x+1213551469)/(2+3*x)^(3/2)/(3+5*x)^(3/2)/(-1+2*x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5\,x+3)^{\frac{5}{2}}(3\,x+2)^{\frac{5}{2}}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="max
```

```
[Out] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^(5/2)*(-2*x + 1)^(3/2)), x
)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{1}{(450\,x^5+915\,x^4+512\,x^3-85\,x^2-156\,x-36)\sqrt{5\,x+3}\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="fri
```

```
[Out] integral(-1/((450*x^5 + 915*x^4 + 512*x^3 - 85*x^2 - 156*x - 36)*
sqrt(5*x + 3)*sqrt(3*x + 2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(3/2)/(2+3*x)**(5/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5\,x+3)^{\frac{5}{2}}(3\,x+2)^{\frac{5}{2}}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^(5/2)*(-2*x + 1)^(3/2)),x, algorithm="gia
```

```
[Out] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^(5/2)*(-2*x + 1)^(3/2)), x
)
```

3.2927 $\int \frac{1}{(1-2x)^{3/2}(2+3x)^{7/2}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=249

$$\frac{12071114168\sqrt{1-2x}\sqrt{3x+2}}{9587193\sqrt{5x+3}}-\frac{181551856\sqrt{1-2x}\sqrt{3x+2}}{871563(5x+3)^{3/2}}+\frac{4115652\sqrt{1-2x}}{132055\sqrt{3x+2}(5x+3)^{3/2}}+\frac{19548\sqrt{1-2x}}{18865(3x+2)^{3/2}(5x+3)^{3/2}}+\frac{138\sqrt{1-2x}}{2695(3x+2)^{5/2}(5x+3)^{3/2}}+\frac{4}{77\sqrt{1-2x}(3x+2)^{5/2}(5x+3)^{3/2}}-\frac{363103712F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1452605\sqrt{33}}-\frac{12071114168E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1452605\sqrt{33}}$$

```
[Out] 4/(77*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)*(3 + 5*x)^(3/2)) + (138*Sqrt[
1 - 2*x])/(2695*(2 + 3*x)^(5/2)*(3 + 5*x)^(3/2)) + (19548*Sqrt[1
- 2*x])/(18865*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)) + (4115652*Sqrt[1
 - 2*x])/(132055*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)) - (181551856*Sqrt
[1 - 2*x]*Sqrt[2 + 3*x])/(871563*(3 + 5*x)^(3/2)) + (12071114168*
Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/(9587193*Sqrt[3 + 5*x]) - (120711141
68*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(1452605*Sq
rt[33]) - (363103712*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 3
5/33])/(1452605*Sqrt[33])
```

Rubi [A] time = 0.610648, antiderivative size = 249, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{12071114168\sqrt{1-2x}\sqrt{3x+2}}{9587193\sqrt{5x+3}}-\frac{181551856\sqrt{1-2x}\sqrt{3x+2}}{871563(5x+3)^{3/2}}+\frac{4115652\sqrt{1-2x}}{132055\sqrt{3x+2}(5x+3)^{3/2}}+\frac{19548\sqrt{1-2x}}{18865(3x+2)^{3/2}(5x+3)^{3/2}}+\frac{138\sqrt{1-2x}}{2695(3x+2)^{5/2}(5x+3)^{3/2}}+\frac{4}{77\sqrt{1-2x}(3x+2)^{5/2}(5x+3)^{3/2}}-\frac{363103712F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1452605\sqrt{33}}-\frac{12071114168E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1452605\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(3/2)*(2 + 3*x)^(7/2)*(3 + 5*x)^(5/2)),x]
```


```
[Out] 4/(77*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)*(3 + 5*x)^(3/2)) + (138*Sqrt[
1 - 2*x])/(2695*(2 + 3*x)^(5/2)*(3 + 5*x)^(3/2)) + (19548*Sqrt[1
- 2*x])/(18865*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)) + (4115652*Sqrt[1
 - 2*x])/(132055*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)) - (181551856*Sqrt
[1 - 2*x]*Sqrt[2 + 3*x])/(871563*(3 + 5*x)^(3/2)) + (12071114168*
Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/(9587193*Sqrt[3 + 5*x]) - (120711141
68*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(1452605*Sq
rt[33]) - (363103712*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 3
5/33])/(1452605*Sqrt[33])
```

Rubi in Sympy [A] time = 54.2296, size = 230, normalized size = 0.92

$$\frac{12071114168\sqrt{-2x+1}\sqrt{3x+2}}{9587193\sqrt{5x+3}}-\frac{181551856\sqrt{-2x+1}\sqrt{3x+2}}{871563\,(5x+3)^{\frac{3}{2}}}+\frac{4115652\sqrt{-2x+1}}{132055\sqrt{3x+2}\,(5x+3)^{\frac{3}{2}}}+\frac{19548\sqrt{-2x+1}}{18865\,(3x+2)^{\frac{3}{2}}\,(5x+3)^{\frac{3}{2}}}+\frac{138\sqrt{-2x+1}}{2695\,(3x+2)^{\frac{5}{2}}\,(5x+3)^{\frac{3}{2}}}-\frac{12071114168\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{47935965}-\frac{363103712\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{50841175}+\frac{4}{77\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}\,(5x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(3/2)/(2+3*x)**(7/2)/(3+5*x)**(5/2),x)
```

```
[Out] 12071114168*sqrt(-2*x + 1)*sqrt(3*x + 2)/(9587193*sqrt(5*x + 3))
- 181551856*sqrt(-2*x + 1)*sqrt(3*x + 2)/(871563*(5*x + 3)**(3/2)
) + 4115652*sqrt(-2*x + 1)/(132055*sqrt(3*x + 2)*(5*x + 3)**(3/2)
) + 19548*sqrt(-2*x + 1)/(18865*(3*x + 2)**(3/2)*(5*x + 3)**(3/2)
) + 138*sqrt(-2*x + 1)/(2695*(3*x + 2)**(5/2)*(5*x + 3)**(3/2)) -
 12071114168*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7),
 35/33)/47935965 - 363103712*sqrt(35)*elliptic_f(asin(sqrt(55)*sq
rt(-2*x + 1)/11), 33/35)/50841175 + 4/(77*sqrt(-2*x + 1)*(3*x + 2
)**(5/2)*(5*x + 3)**(3/2))
```

Mathematica [A] time = 0.432978, size = 114, normalized size = 0.46

$$\frac{2\left(\frac{-8148002063400x^5-16841199826980x^4-9658241620704x^3+1466692421066x^2+2920885694212x+687365548973}{\sqrt{1-2x}(3x+2)^{5/2}(5x+3)^{3/2}}+4\sqrt{2}\left(1508889271E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{\right.\right.\right.\right.}{47935965}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(3/2)*(2 + 3*x)^(7/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (2*((687365548973 + 2920885694212*x + 1466692421066*x^2 - 9658241
620704*x^3 - 16841199826980*x^4 - 8148002063400*x^5)/(Sqrt[1 - 2*
x]*(2 + 3*x)^(5/2)*(3 + 5*x)^(3/2)) + 4*Sqrt[2]*(1508889271*Ellip
ticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 759987865*Ellipti
cF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])))/47935965
```

Maple [C] time = 0.039, size = 502, normalized size = 2.

$$\frac{2}{-47935965+95871930\,x}\sqrt{1-2\,x}\left(136797815700\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^3\sqrt{1-2\,x}\sqrt{3+5\,x}\sqrt{2}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(3/2)/(2+3*x)^(7/2)/(3+5*x)^(5/2),x)
```

```
[Out] 2/47935965*(1-2*x)^(1/2)*(136797815700*2^(1/2)*EllipticF(1/11*11^
(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(
1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)-271600068780*2^(1/2)*Ell
ipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)
*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)+264475777
020*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*1
1^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^
(1/2)-525093466308*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x
)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)
^(1/2)*(1-2*x)^(1/2)+170237281760*2^(1/2)*EllipticF(1/11*11^(1/2)
*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^
(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-337991196704*2^(1/2)*EllipticE(
1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2
))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+36479417520*2^(1/2
)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/
2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-72426685
008*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1
/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2)
)+8148002063400*x^5+16841199826980*x^4+9658241620704*x^3-14666924
21066*x^2-2920885694212*x-687365548973)/(2+3*x)^(5/2)/(3+5*x)^(3/
2)/(-1+2*x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5\,x+3)^{\frac{5}{2}}(3\,x+2)^{\frac{7}{2}}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^(7/2)*(-2*x + 1)^(3/2)),x, algorithm="max
```

```
[Out] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^(7/2)*(-2*x + 1)^(3/2)), x
)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{1}{(1350\,x^6+3645\,x^5+3366\,x^4+769\,x^3-638\,x^2-420\,x-72)\sqrt{5\,x+3}\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^(7/2)*(-2*x + 1)^(3/2)),x, algorithm="fri
```

```
[Out] integral(-1/((1350*x^6 + 3645*x^5 + 3366*x^4 + 769*x^3 - 638*x^2
- 420*x - 72)*sqrt(5*x + 3)*sqrt(3*x + 2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(3/2)/(2+3*x)**(7/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5\,x+3)^{\frac{5}{2}}(3\,x+2)^{\frac{7}{2}}(-2\,x+1)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^(7/2)*(-2*x + 1)^(3/2)),x, algorithm="gia
```

```
[Out] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^(7/2)*(-2*x + 1)^(3/2)), x
)
```

3.2928 $\int \frac{(2+3x)^{9/2}\sqrt{3+5x}}{(1-2x)^{5/2}}\,dx$

Optimal. Leaf size=218

$$\frac{\sqrt{5x+3}(3x+2)^{9/2}}{3(1-2x)^{3/2}}-\frac{166\sqrt{5x+3}(3x+2)^{7/2}}{33\sqrt{1-2x}}-\frac{1327}{154}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{5/2}-\frac{139163\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}}{3850}-\frac{6478333\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{38500}-\frac{6770629F\left(\sin^{-}\right.}{175}$$

```
[Out] (-6478333*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/38500 - (139
163*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/3850 - (1327*Sqr
t[1 - 2*x]*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x])/154 - (166*(2 + 3*x)^(7
/2)*Sqrt[3 + 5*x])/(33*Sqrt[1 - 2*x]) + ((2 + 3*x)^(9/2)*Sqrt[3 +
 5*x])/(3*(1 - 2*x)^(3/2)) - (112543103*EllipticE[ArcSin[Sqrt[3/7
]*Sqrt[1 - 2*x]], 35/33])/(8750*Sqrt[33]) - (6770629*EllipticF[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(17500*Sqrt[33])
```

Rubi [A] time = 0.491654, antiderivative size = 218, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.214$

$$\frac{\sqrt{5x+3}(3x+2)^{9/2}}{3(1-2x)^{3/2}}-\frac{166\sqrt{5x+3}(3x+2)^{7/2}}{33\sqrt{1-2x}}-\frac{1327}{154}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{5/2}-\frac{139163\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}}{3850}-\frac{6478333\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{38500}-\frac{6770629F\left(\sin^{-}\right.}{175}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^(9/2)*Sqrt[3 + 5*x])/(1 - 2*x)^(5/2),x]
```

```
[Out] (-6478333*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/38500 - (139
163*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/3850 - (1327*Sqr
t[1 - 2*x]*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x])/154 - (166*(2 + 3*x)^(7
/2)*Sqrt[3 + 5*x])/(33*Sqrt[1 - 2*x]) + ((2 + 3*x)^(9/2)*Sqrt[3 +
 5*x])/(3*(1 - 2*x)^(3/2)) - (112543103*EllipticE[ArcSin[Sqrt[3/7
]*Sqrt[1 - 2*x]], 35/33])/(8750*Sqrt[33]) - (6770629*EllipticF[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(17500*Sqrt[33])
```

Rubi in Sympy [A] time = 47.8461, size = 199, normalized size = 0.91

$$-\frac{1327\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}\sqrt{5x+3}}{154}-\frac{139163\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\sqrt{5x+3}}{3850}-\frac{6478333\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{38500}-\frac{112543103\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{288750}-\frac{6770629\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{612500}-\frac{166\,(3x+2)^{\frac{7}{2}}\sqrt{5x+3}}{33\sqrt{-2x+1}}+\frac{(3x+2)^{\frac{9}{2}}\sqrt{5x+3}}{3\,(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(9/2)*(3+5*x)**(1/2)/(1-2*x)**(5/2),x)
```

```
[Out] -1327*sqrt(-2*x + 1)*(3*x + 2)**(5/2)*sqrt(5*x + 3)/154 - 139163*
sqrt(-2*x + 1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/3850 - 6478333*sqrt
(-2*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/38500 - 112543103*sqrt(33)
*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/288750 - 6770
629*sqrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/
```

```
612500 - 166*(3*x + 2)**(7/2)*sqrt(5*x + 3)/(33*sqrt(-2*x + 1)) +
 (3*x + 2)**(9/2)*sqrt(5*x + 3)/(3*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.361109, size = 130, normalized size = 0.6

$$-\frac{10\sqrt{3x+2}\sqrt{5x+3}\left(1336500x^4+6664680x^3+19375686x^2-94671446x+35797779\right)-226741655\sqrt{2-4x}(2x-1)F\left(\sin\right.}{1155000(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^(9/2)*Sqrt[3 + 5*x])/(1 - 2*x)^(5/2),x]
```

```
[Out] -(10*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(35797779 - 94671446*x + 1937568
6*x^2 + 6664680*x^3 + 1336500*x^4) + 450172412*Sqrt[2 - 4*x]*(-1
+ 2*x)*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 22674
1655*Sqrt[2 - 4*x]*(-1 + 2*x)*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3
+ 5*x]], -33/2])/(1155000*(1 - 2*x)^(3/2))
```

Maple [C] time = 0.053, size = 291, normalized size = 1.3

$$-\frac{1}{1155000\,(-1+2\,x)^2\,(15\,x^2+19\,x+6)}\left(900344824\,\sqrt{2}EllipticE\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(9/2)*(3+5*x)^(1/2)/(1-2*x)^(5/2),x)
```

```
[Out] -1/1155000*(900344824*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+
5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x
)^(1/2)*(1-2*x)^(1/2)-453483310*2^(1/2)*EllipticF(1/11*11^(1/2)*2
^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1
/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+200475000*x^6-450172412*2^(1/2)*(
3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*
2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+226741655*2
^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*1
1^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+125
3637000*x^5+4252832100*x^4-10119455760*x^3-11455366730*x^2+112129
1250*x+2147866740)*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)/(-1+
2*x)^2/(15*x^2+19*x+6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}(3\,x+2)^{\frac{9}{2}}}{(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(3*x + 2)^(9/2)/(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(5*x + 3)*(3*x + 2)^(9/2)/(-2*x + 1)^(5/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(81\,x^4+216\,x^3+216\,x^2+96\,x+16\right)\sqrt{5\,x+3}\sqrt{3\,x+2}}{(4\,x^2-4\,x+1)\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^(9/2)/(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] integral((81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16)*sqrt(5*x + 3)*s
qrt(3*x + 2)/((4*x^2 - 4*x + 1)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(9/2)*(3+5*x)**(1/2)/(1-2*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5x+3}(3x+2)^{\frac{9}{2}}}{(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^(9/2)/(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)*(3*x + 2)^(9/2)/(-2*x + 1)^(5/2), x)
```

3.2929 $\int \frac{(2+3x)^{7/2}\sqrt{3+5x}}{(1-2x)^{5/2}}\,dx$

Optimal. Leaf size=187

$$\frac{\sqrt{5x+3}(3x+2)^{7/2}}{3(1-2x)^{3/2}}-\frac{133\sqrt{5x+3}(3x+2)^{5/2}}{33\sqrt{1-2x}}-\frac{797}{110}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}-\frac{18551}{550}\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}-\frac{9694F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{125\sqrt{33}}-\frac{1289089E\left(\sin^{-1}\left(\sqrt{\right.\right.}{500\sqrt{3}}$$

```
[Out] (-18551*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/550 - (797*Sqr
t[1 - 2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/110 - (133*(2 + 3*x)^(5
/2)*Sqrt[3 + 5*x])/(33*Sqrt[1 - 2*x]) + ((2 + 3*x)^(7/2)*Sqrt[3 +
 5*x])/(3*(1 - 2*x)^(3/2)) - (1289089*EllipticE[ArcSin[Sqrt[3/7]*
Sqrt[1 - 2*x]], 35/33])/(500*Sqrt[33]) - (9694*EllipticF[ArcSin[S
qrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(125*Sqrt[33])
```

Rubi [A] time = 0.405214, antiderivative size = 187, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{\sqrt{5x+3}(3x+2)^{7/2}}{3(1-2x)^{3/2}}-\frac{133\sqrt{5x+3}(3x+2)^{5/2}}{33\sqrt{1-2x}}-\frac{797}{110}\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}-\frac{18551}{550}\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}-\frac{9694F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{125\sqrt{33}}-\frac{1289089E\left(\sin^{-1}\left(\sqrt{\right.\right.}{500\sqrt{3}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^(7/2)*Sqrt[3 + 5*x])/(1 - 2*x)^(5/2),x]
```

```
[Out] (-18551*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/550 - (797*Sqr
t[1 - 2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/110 - (133*(2 + 3*x)^(5
/2)*Sqrt[3 + 5*x])/(33*Sqrt[1 - 2*x]) + ((2 + 3*x)^(7/2)*Sqrt[3 +
 5*x])/(3*(1 - 2*x)^(3/2)) - (1289089*EllipticE[ArcSin[Sqrt[3/7]*
Sqrt[1 - 2*x]], 35/33])/(500*Sqrt[33]) - (9694*EllipticF[ArcSin[S
qrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(125*Sqrt[33])
```

Rubi in Sympy [A] time = 40.3536, size = 170, normalized size = 0.91

$$-\frac{797\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\sqrt{5x+3}}{110}-\frac{18551\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{550}-\frac{1289089\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{16500}-\frac{9694\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{4125}-\frac{133\,(3x+2)^{\frac{5}{2}}\sqrt{5x+3}}{33\sqrt{-2x+1}}+\frac{(3x+2)^{\frac{7}{2}}\sqrt{5x+3}}{3\,(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(7/2)*(3+5*x)**(1/2)/(1-2*x)**(5/2),x)
```

```
[Out] -797*sqrt(-2*x + 1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/110 - 18551*sq
rt(-2*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/550 - 1289089*sqrt(33)*e
lliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/16500 - 9694*sq
rt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/4125 -
133*(3*x + 2)**(5/2)*sqrt(5*x + 3)/(33*sqrt(-2*x + 1)) + (3*x + 2
)**(7/2)*sqrt(5*x + 3)/(3*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.325446, size = 125, normalized size = 0.67

$$-\frac{10\sqrt{3x+2}\sqrt{5x+3}\left(8910x^3+45342x^2-275587x+101763\right)-649285\sqrt{2-4x}(2x-1)F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+12}{16500(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^(7/2)*Sqrt[3 + 5*x])/(1 - 2*x)^(5/2),x]
```

```
[Out] -(10*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(101763 - 275587*x + 45342*x^2 +
 8910*x^3) + 1289089*Sqrt[2 - 4*x]*(-1 + 2*x)*EllipticE[ArcSin[Sq
rt[2/11]*Sqrt[3 + 5*x]], -33/2] - 649285*Sqrt[2 - 4*x]*(-1 + 2*x)
*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/(16500*(1 -
2*x)^(3/2))
```

Maple [C] time = 0.029, size = 286, normalized size = 1.5

$$\frac{1}{16500\,(-1+2\,x)^2\,(15\,x^2+19\,x+6)}\left(1298570\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(7/2)*(3+5*x)^(1/2)/(1-2*x)^(5/2),x)
```

```
[Out] 1/16500*(1298570*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^
(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/
2)*(1-2*x)^(1/2)-2578178*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*
(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+
3*x)^(1/2)*(1-2*x)^(1/2)-649285*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/
2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/
2*I*11^(1/2)*3^(1/2)*2^(1/2))+1289089*2^(1/2)*(3+5*x)^(1/2)*(2+3*
x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1
/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-1336500*x^5-8494200*x^4+32188
470*x^3+34376560*x^2-2799750*x-6105780)*(1-2*x)^(1/2)*(3+5*x)^(1/
2)*(2+3*x)^(1/2)/(-1+2*x)^2/(15*x^2+19*x+6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}(3\,x+2)^{\frac{7}{2}}}{(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^(7/2)/(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(5*x + 3)*(3*x + 2)^(7/2)/(-2*x + 1)^(5/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(27\,x^3+54\,x^2+36\,x+8)\,\sqrt{5\,x+3}\sqrt{3\,x+2}}{(4\,x^2-4\,x+1)\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^(7/2)/(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] integral((27*x^3 + 54*x^2 + 36*x + 8)*sqrt(5*x + 3)*sqrt(3*x + 2)
/((4*x^2 - 4*x + 1)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(7/2)*(3+5*x)**(1/2)/(1-2*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}(3\,x+2)^{\frac{7}{2}}}{(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^(7/2)/(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)*(3*x + 2)^(7/2)/(-2*x + 1)^(5/2), x)
```

3.2930 $\int \frac{(2+3x)^{5/2}\sqrt{3+5x}}{(1-2x)^{5/2}}\,dx$

Optimal. Leaf size=156

$$\frac{\sqrt{5x+3}(3x+2)^{5/2}}{3(1-2x)^{3/2}}-\frac{100\sqrt{5x+3}(3x+2)^{3/2}}{33\sqrt{1-2x}}-\frac{133}{22}\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}-\frac{139F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{10\sqrt{33}}-\frac{4621E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{10\sqrt{33}}$$

```
[Out] (-133*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/22 - (100*(2 + 3
*x)^(3/2)*Sqrt[3 + 5*x])/(33*Sqrt[1 - 2*x]) + ((2 + 3*x)^(5/2)*Sq
rt[3 + 5*x])/(3*(1 - 2*x)^(3/2)) - (4621*EllipticE[ArcSin[Sqrt[3/
7]*Sqrt[1 - 2*x]], 35/33])/(10*Sqrt[33]) - (139*EllipticF[ArcSin[
Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(10*Sqrt[33])
```

Rubi [A] time = 0.332967, antiderivative size = 156, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{\sqrt{5x+3}(3x+2)^{5/2}}{3(1-2x)^{3/2}}-\frac{100\sqrt{5x+3}(3x+2)^{3/2}}{33\sqrt{1-2x}}-\frac{133}{22}\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}-\frac{139F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{10\sqrt{33}}-\frac{4621E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{10\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^(5/2)*Sqrt[3 + 5*x])/(1 - 2*x)^(5/2),x]
```


```
[Out] (-133*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/22 - (100*(2 + 3
*x)^(3/2)*Sqrt[3 + 5*x])/(33*Sqrt[1 - 2*x]) + ((2 + 3*x)^(5/2)*Sq
rt[3 + 5*x])/(3*(1 - 2*x)^(3/2)) - (4621*EllipticE[ArcSin[Sqrt[3/
7]*Sqrt[1 - 2*x]], 35/33])/(10*Sqrt[33]) - (139*EllipticF[ArcSin[
Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(10*Sqrt[33])
```

Rubi in Sympy [A] time = 31.723, size = 141, normalized size = 0.9

$$-\frac{133\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{22}-\frac{4621\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{330}-\frac{139\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{330}-\frac{100\,(3x+2)^{\frac{3}{2}}\sqrt{5x+3}}{33\sqrt{-2x+1}}+\frac{(3x+2)^{\frac{5}{2}}\sqrt{5x+3}}{3\,(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(5/2)*(3+5*x)**(1/2)/(1-2*x)**(5/2),x)
```

```
[Out] -133*sqrt(-2*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/22 - 4621*sqrt(33
)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/330 - 139*sq
rt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/330 - 1
00*(3*x + 2)**(3/2)*sqrt(5*x + 3)/(33*sqrt(-2*x + 1)) + (3*x + 2)
**(5/2)*sqrt(5*x + 3)/(3*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.312573, size = 120, normalized size = 0.77

$$-\frac{10\sqrt{3x+2}\sqrt{5x+3}\left(198x^2-2060x+711\right)-4655\sqrt{2-4x}(2x-1)F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+9242\sqrt{2-4x}(2x-1)E}{660(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^(5/2)*Sqrt[3 + 5*x])/(1 - 2*x)^(5/2),x]
```

```
[Out] -(10*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(711 - 2060*x + 198*x^2) + 9242*
Sqrt[2 - 4*x]*(-1 + 2*x)*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x
]], -33/2] - 4655*Sqrt[2 - 4*x]*(-1 + 2*x)*EllipticF[ArcSin[Sqrt[
2/11]*Sqrt[3 + 5*x]], -33/2])/(660*(1 - 2*x)^(3/2))
```

Maple [C] time = 0.028, size = 286, normalized size = 1.8

$$\frac{1}{(19800\,x^3+15180\,x^2-4620\,x-3960)\,(-1+2\,x)}\left(9310\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(5/2)*(3+5*x)^(1/2)/(1-2*x)^(5/2),x)
```

```
[Out] 1/660*(9310*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2)
,1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1
-2*x)^(1/2)-18484*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)
^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1
/2)*(1-2*x)^(1/2)-4655*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x
)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1
/2)*3^(1/2)*2^(1/2))+9242*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-
2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11
^(1/2)*3^(1/2)*2^(1/2))-29700*x^4+271380*x^3+272870*x^2-11490*x-4
2660)*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)/(30*x^3+23*x^2-7*
x-6)/(-1+2*x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}(3\,x+2)^{\frac{5}{2}}}{(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^(5/2)/(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(5*x + 3)*(3*x + 2)^(5/2)/(-2*x + 1)^(5/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{(9\,x^2+12\,x+4)\,\sqrt{5\,x+3}\sqrt{3\,x+2}}{(4\,x^2-4\,x+1)\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^(5/2)/(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] integral((9*x^2 + 12*x + 4)*sqrt(5*x + 3)*sqrt(3*x + 2)/((4*x^2 -
 4*x + 1)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(5/2)*(3+5*x)**(1/2)/(1-2*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5x+3}(3x+2)^{\frac{5}{2}}}{(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(3*x + 2)^(5/2)/(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)*(3*x + 2)^(5/2)/(-2*x + 1)^(5/2), x)
```

3.2931 $\int \frac{(2+3x)^{3/2}\sqrt{3+5x}}{(1-2x)^{5/2}}\,dx$

Optimal. Leaf size=123

$$\frac{\sqrt{5x+3}(3x+2)^{3/2}}{3(1-2x)^{3/2}}-\frac{67\sqrt{5x+3}\sqrt{3x+2}}{33\sqrt{1-2x}}-\frac{2F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{\sqrt{33}}-\frac{133E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{2\sqrt{33}}$$

```
[Out] (-67*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/(33*Sqrt[1 - 2*x]) + ((2 + 3*x)
^(3/2)*Sqrt[3 + 5*x])/(3*(1 - 2*x)^(3/2)) - (133*EllipticE[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(2*Sqrt[33]) - (2*EllipticF[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/Sqrt[33]
```

Rubi [A] time = 0.257972, antiderivative size = 123, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{\sqrt{5x+3}(3x+2)^{3/2}}{3(1-2x)^{3/2}}-\frac{67\sqrt{5x+3}\sqrt{3x+2}}{33\sqrt{1-2x}}-\frac{2F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{\sqrt{33}}-\frac{133E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{2\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In] Int[((2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/(1 - 2*x)^(5/2),x]
```


```
[Out] (-67*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/(33*Sqrt[1 - 2*x]) + ((2 + 3*x)
^(3/2)*Sqrt[3 + 5*x])/(3*(1 - 2*x)^(3/2)) - (133*EllipticE[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(2*Sqrt[33]) - (2*EllipticF[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/Sqrt[33]
```

Rubi in Sympy [A] time = 24.1358, size = 112, normalized size = 0.91

$$-\frac{133\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{66}-\frac{2\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{33}-\frac{67\sqrt{3x+2}\sqrt{5x+3}}{33\sqrt{-2x+1}}+\frac{(3x+2)^{\frac{3}{2}}\sqrt{5x+3}}{3(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**(3/2)*(3+5*x)**(1/2)/(1-2*x)**(5/2),x)
```

```
[Out] -133*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/
66 - 2*sqrt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33
)/33 - 67*sqrt(3*x + 2)*sqrt(5*x + 3)/(33*sqrt(-2*x + 1)) + (3*x
+ 2)**(3/2)*sqrt(5*x + 3)/(3*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.238522, size = 115, normalized size = 0.93

$$-\frac{2\sqrt{3x+2}\sqrt{5x+3}(45-167x)-67\sqrt{2-4x}(2x-1)F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+133\sqrt{2-4x}(2x-1)E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x\right.\right.}{66(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In] Integrate[((2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/(1 - 2*x)^(5/2),x]
```

```
[Out] -(2*(45 - 167*x)*Sqrt[2 + 3*x]*Sqrt[3 + 5*x] + 133*Sqrt[2 - 4*x]*
(-1 + 2*x)*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 6
```

```
7*Sqrt[2 - 4*x]*(-1 + 2*x)*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5
*x]], -33/2])/(66*(1 - 2*x)^(3/2))
```

Maple [C] time = 0.028, size = 276, normalized size = 2.2

$$\frac{1}{66\left(-1+2x\right)^{2}\left(15x^{2}+19x+6\right)}\left(134\sqrt{2}EllipticF\left(1/11\sqrt{11}\sqrt{2}\sqrt{3+5x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5x}\sqrt{2+3x}\sqrt{1-2x}-266\sqrt{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(3/2)*(3+5*x)^(1/2)/(1-2*x)^(5/2),x)
```

```
[Out] 1/66*(134*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1
/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2
*x)^(1/2)-266*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/
2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*
(1-2*x)^(1/2)-67*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2
)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^
(1/2)*2^(1/2))+133*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1
/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*
3^(1/2)*2^(1/2))+5010*x^3+4996*x^2+294*x-540)*(1-2*x)^(1/2)*(3+5*
x)^(1/2)*(2+3*x)^(1/2)/(-1+2*x)^2/(15*x^2+19*x+6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{\sqrt{5x+3}(3x+2)^{\frac{3}{2}}}{(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^(3/2)/(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(5*x + 3)*(3*x + 2)^(3/2)/(-2*x + 1)^(5/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{5x+3}(3x+2)^{\frac{3}{2}}}{(4x^{2}-4x+1)\sqrt{-2x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*(3*x + 2)^(3/2)/(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] integral(sqrt(5*x + 3)*(3*x + 2)^(3/2)/((4*x^2 - 4*x + 1)*sqrt(-2
*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(3/2)*(3+5*x)**(1/2)/(1-2*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5x+3}(3x+2)^{\frac{3}{2}}}{(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*(3*x + 2)^(3/2)/(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)*(3*x + 2)^(3/2)/(-2*x + 1)^(5/2), x)
```

3.2932 $\int \frac{\sqrt{2+3x}\sqrt{3+5x}}{(1-2x)^{5/2}}\,dx$

Optimal. Leaf size=125

$$-\frac{68\sqrt{3x+2}\sqrt{5x+3}}{231\sqrt{1-2x}}+\frac{\sqrt{3x+2}\sqrt{5x+3}}{3(1-2x)^{3/2}}-\frac{F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{7\sqrt{33}}-\frac{34E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{7\sqrt{33}}$$

```
[Out] (Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/(3*(1 - 2*x)^(3/2)) - (68*Sqrt[2 +
3*x]*Sqrt[3 + 5*x])/(231*Sqrt[1 - 2*x]) - (34*EllipticE[ArcSin[Sq
rt[3/7]*Sqrt[1 - 2*x]], 35/33])/(7*Sqrt[33]) - EllipticF[ArcSin[S
qrt[3/7]*Sqrt[1 - 2*x]], 35/33]/(7*Sqrt[33])
```

Rubi [A] time = 0.258712, antiderivative size = 125, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.179$

$$-\frac{68\sqrt{3x+2}\sqrt{5x+3}}{231\sqrt{1-2x}}+\frac{\sqrt{3x+2}\sqrt{5x+3}}{3(1-2x)^{3/2}}-\frac{F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{7\sqrt{33}}-\frac{34E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{7\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/(1 - 2*x)^(5/2),x]
```

```
[Out] (Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/(3*(1 - 2*x)^(3/2)) - (68*Sqrt[2 +
3*x]*Sqrt[3 + 5*x])/(231*Sqrt[1 - 2*x]) - (34*EllipticE[ArcSin[Sq
rt[3/7]*Sqrt[1 - 2*x]], 35/33])/(7*Sqrt[33]) - EllipticF[ArcSin[S
qrt[3/7]*Sqrt[1 - 2*x]], 35/33]/(7*Sqrt[33])
```

Rubi in Sympy [A] time = 23.841, size = 110, normalized size = 0.88

$$-\frac{34\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{231}-\frac{\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{231}-\frac{68\sqrt{3x+2}\sqrt{5x+3}}{231\sqrt{-2x+1}}+\frac{\sqrt{3x+2}\sqrt{5x+3}}{3\left(-2x+1\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(1/2)*(3+5*x)**(1/2)/(1-2*x)**(5/2),x)
```

```
[Out] -34*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/2
31 - sqrt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/
231 - 68*sqrt(3*x + 2)*sqrt(5*x + 3)/(231*sqrt(-2*x + 1)) + sqrt(
3*x + 2)*sqrt(5*x + 3)/(3*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.241114, size = 115, normalized size = 0.92

$$\frac{2\sqrt{3x+2}\sqrt{5x+3}(136x+9)+35\sqrt{2-4x}(2x-1)F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-68\sqrt{2-4x}(2x-1)E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right.\right.}{462(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/(1 - 2*x)^(5/2),x]
```

```
[Out] (2*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(9 + 136*x) - 68*Sqrt[2 - 4*x]*(-1
 + 2*x)*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 35*S
```

```
qrt[2 - 4*x]*(-1 + 2*x)*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]
], -33/2])/(462*(1 - 2*x)^(3/2))
```

Maple [C] time = 0.024, size = 276, normalized size = 2.2

$$\frac{1}{462\,(-1+2\,x)^2\,(15\,x^2+19\,x+6)}\left(70\,\sqrt{2}\mathit{EllipticF}\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-136\,\sqrt{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(1/2)*(3+5*x)^(1/2)/(1-2*x)^(5/2),x)
```

```
[Out] 1/462*(70*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1
/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2
*x)^(1/2)-136*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/
2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*
(1-2*x)^(1/2)-35*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2
)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^
(1/2)*2^(1/2))+68*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/
2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3
^(1/2)*2^(1/2))+4080*x^3+5438*x^2+1974*x+108)*(1-2*x)^(1/2)*(2+3*
x)^(1/2)*(3+5*x)^(1/2)/(-1+2*x)^2/(15*x^2+19*x+6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}\sqrt{3\,x+2}}{(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*sqrt(3*x + 2)/(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(5*x + 3)*sqrt(3*x + 2)/(-2*x + 1)^(5/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{5\,x+3}\sqrt{3\,x+2}}{(4\,x^2-4\,x+1)\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)*sqrt(3*x + 2)/(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] integral(sqrt(5*x + 3)*sqrt(3*x + 2)/((4*x^2 - 4*x + 1)*sqrt(-2*x
 + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(1/2)*(3+5*x)**(1/2)/(1-2*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}\sqrt{3\,x+2}}{(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)*sqrt(3*x + 2)/(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)*sqrt(3*x + 2)/(-2*x + 1)^(5/2), x)
```

3.2933 $\int \frac{\sqrt{3+5x}}{(1-2x)^{5/2}\sqrt{2+3x}}\,dx$

Optimal. Leaf size=125

$$\frac{62\sqrt{3x+2}\sqrt{5x+3}}{1617\sqrt{1-2x}}+\frac{2\sqrt{3x+2}\sqrt{5x+3}}{21(1-2x)^{3/2}}+\frac{4F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{49\sqrt{33}}+\frac{31E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{49\sqrt{33}}$$

```
[Out] (2*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/(21*(1 - 2*x)^(3/2)) + (62*Sqrt[2
 + 3*x]*Sqrt[3 + 5*x])/(1617*Sqrt[1 - 2*x]) + (31*EllipticE[ArcSi
n[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(49*Sqrt[33]) + (4*EllipticF[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(49*Sqrt[33])
```

Rubi [A] time = 0.262843, antiderivative size = 125, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{62\sqrt{3x+2}\sqrt{5x+3}}{1617\sqrt{1-2x}}+\frac{2\sqrt{3x+2}\sqrt{5x+3}}{21(1-2x)^{3/2}}+\frac{4F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{49\sqrt{33}}+\frac{31E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{49\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[3 + 5*x]/((1 - 2*x)^(5/2)*Sqrt[2 + 3*x]),x]
```

```
[Out] (2*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/(21*(1 - 2*x)^(3/2)) + (62*Sqrt[2
 + 3*x]*Sqrt[3 + 5*x])/(1617*Sqrt[1 - 2*x]) + (31*EllipticE[ArcSi
n[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(49*Sqrt[33]) + (4*EllipticF[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(49*Sqrt[33])
```

Rubi in Sympy [A] time = 24.0679, size = 114, normalized size = 0.91

$$\frac{31\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{1617}+\frac{4\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{1617}+\frac{62\sqrt{3x+2}\sqrt{5x+3}}{1617\sqrt{-2x+1}}+\frac{2\sqrt{3x+2}\sqrt{5x+3}}{21\left(-2x+1\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(1/2)/(1-2*x)**(5/2)/(2+3*x)**(1/2),x)
```

```
[Out] 31*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/16
17 + 4*sqrt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33
)/1617 + 62*sqrt(3*x + 2)*sqrt(5*x + 3)/(1617*sqrt(-2*x + 1)) + 2
*sqrt(3*x + 2)*sqrt(5*x + 3)/(21*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.304002, size = 115, normalized size = 0.92

$$\frac{4\sqrt{3x+2}\sqrt{5x+3}(54-31x)+35\sqrt{2-4x}(2x-1)F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+31\sqrt{2-4x}(2x-1)E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right.\right.}{1617(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[3 + 5*x]/((1 - 2*x)^(5/2)*Sqrt[2 + 3*x]),x]
```

```
[Out] (4*(54 - 31*x)*Sqrt[2 + 3*x]*Sqrt[3 + 5*x] + 31*Sqrt[2 - 4*x]*(-1
 + 2*x)*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 35*S
```

```
qrt[2 - 4*x]*(-1 + 2*x)*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]
], -33/2])/(1617*(1 - 2*x)^(3/2))
```

Maple [C] time = 0.029, size = 276, normalized size = 2.2

$$\frac{1}{1617(-1+2x)^2(15x^2+19x+6)}\left(70\sqrt{2}EllipticF\left(1/11\sqrt{11}\sqrt{2}\sqrt{3+5x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5x}\sqrt{2+3x}\sqrt{1-2x}+62\sqrt{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(1/2)/(1-2*x)^(5/2)/(2+3*x)^(1/2),x)
```

```
[Out] 1/1617*(70*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),
1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-
2*x)^(1/2)+62*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/
2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*
(1-2*x)^(1/2)-35*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2
)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^
(1/2)*2^(1/2))-31*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/
2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3
^(1/2)*2^(1/2))-1860*x^3+884*x^2+3360*x+1296)*(2+3*x)^(1/2)*(1-2*
x)^(1/2)*(3+5*x)^(1/2)/(-1+2*x)^2/(15*x^2+19*x+6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5x+3}}{\sqrt{3x+2}(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/(sqrt(3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(5*x + 3)/(sqrt(3*x + 2)*(-2*x + 1)^(5/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\operatorname{integral}\left(\frac{\sqrt{5x+3}}{(4x^2-4x+1)\sqrt{3x+2}\sqrt{-2x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/(sqrt(3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] integral(sqrt(5*x + 3)/((4*x^2 - 4*x + 1)*sqrt(3*x + 2)*sqrt(-2*x
 + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(1/2)/(1-2*x)**(5/2)/(2+3*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5x+3}}{\sqrt{3x+2}(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)/(sqrt(3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)/(sqrt(3*x + 2)*(-2*x + 1)^(5/2)), x)
```

3.2934 $\int \frac{\sqrt{3+5x}}{(1-2x)^{5/2}(2+3x)^{3/2}}\,dx$

Optimal. Leaf size=156

$$-\frac{458\sqrt{1-2x}\sqrt{5x+3}}{3773\sqrt{3x+2}}+\frac{194\sqrt{5x+3}}{1617\sqrt{1-2x}\sqrt{3x+2}}+\frac{2\sqrt{5x+3}}{21(1-2x)^{3/2}\sqrt{3x+2}}-\frac{178F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{343\sqrt{33}}+\frac{458E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{343\sqrt{33}}$$

```
[Out] (2*Sqrt[3 + 5*x])/(21*(1 - 2*x)^(3/2)*Sqrt[2 + 3*x]) + (194*Sqrt[
3 + 5*x])/(1617*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]) - (458*Sqrt[1 - 2*x]
*Sqrt[3 + 5*x])/(3773*Sqrt[2 + 3*x]) + (458*EllipticE[ArcSin[Sqrt
[3/7]*Sqrt[1 - 2*x]], 35/33])/(343*Sqrt[33]) - (178*EllipticF[Arc
Sin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(343*Sqrt[33])
```

Rubi [A] time = 0.345364, antiderivative size = 156, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{458\sqrt{1-2x}\sqrt{5x+3}}{3773\sqrt{3x+2}}+\frac{194\sqrt{5x+3}}{1617\sqrt{1-2x}\sqrt{3x+2}}+\frac{2\sqrt{5x+3}}{21(1-2x)^{3/2}\sqrt{3x+2}}-\frac{178F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{343\sqrt{33}}+\frac{458E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{343\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[3 + 5*x]/((1 - 2*x)^(5/2)*(2 + 3*x)^(3/2)),x]
```

```
[Out] (2*Sqrt[3 + 5*x])/(21*(1 - 2*x)^(3/2)*Sqrt[2 + 3*x]) + (194*Sqrt[
3 + 5*x])/(1617*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]) - (458*Sqrt[1 - 2*x]
*Sqrt[3 + 5*x])/(3773*Sqrt[2 + 3*x]) + (458*EllipticE[ArcSin[Sqrt
[3/7]*Sqrt[1 - 2*x]], 35/33])/(343*Sqrt[33]) - (178*EllipticF[Arc
Sin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(343*Sqrt[33])
```

Rubi in Sympy [A] time = 30.1843, size = 143, normalized size = 0.92

$$\frac{458\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{11319}-\frac{178\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{11319}+\frac{916\sqrt{3x+2}\sqrt{5x+3}}{11319\sqrt{-2x+1}}-\frac{8\sqrt{5x+3}}{49\sqrt{-2x+1}\sqrt{3x+2}}+\frac{2\sqrt{5x+3}}{21\left(-2x+1\right)^{\frac{3}{2}}\sqrt{3x+2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(1/2)/(1-2*x)**(5/2)/(2+3*x)**(3/2),x)
```

```
[Out] 458*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/1
1319 - 178*sqrt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 3
5/33)/11319 + 916*sqrt(3*x + 2)*sqrt(5*x + 3)/(11319*sqrt(-2*x +
1)) - 8*sqrt(5*x + 3)/(49*sqrt(-2*x + 1)*sqrt(3*x + 2)) + 2*sqrt(
5*x + 3)/(21*(-2*x + 1)**(3/2)*sqrt(3*x + 2))
```

Mathematica [A] time = 0.196073, size = 99, normalized size = 0.63

$$\frac{\sqrt{2}\left(3395F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-458E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)-\frac{2\sqrt{5x+3}(2748x^2-1390x-531)}{(1-2x)^{3/2}\sqrt{3x+2}}}{11319}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[3 + 5*x]/((1 - 2*x)^(5/2)*(2 + 3*x)^(3/2)),x]
```

```
[Out] ((-2*Sqrt[3 + 5*x]*(-531 - 1390*x + 2748*x^2))/((1 - 2*x)^(3/2)*S
qrt[2 + 3*x]) + Sqrt[2]*(-458*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3
+ 5*x]], -33/2] + 3395*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]]
, -33/2]))/11319
```

Maple [C] time = 0.033, size = 276, normalized size = 1.8

$$-\frac{1}{(169785\,x^2+215061\,x+67914)\,(-1+2\,x)^2}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(6790\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(1/2)/(1-2*x)^(5/2)/(2+3*x)^(3/2),x)
```

```
[Out] -1/11319*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(6790*2^(1/2)*
EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1
/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-916*2^(1
/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*
3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-3395
*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11
*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+4
58*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/
11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))
+27480*x^3+2588*x^2-13650*x-3186)/(15*x^2+19*x+6)/(-1+2*x)^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}}{(3\,x+2)^{\frac{3}{2}}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/((3*x + 2)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="maxima"
```

```
[Out] integrate(sqrt(5*x + 3)/((3*x + 2)^(3/2)*(-2*x + 1)^(5/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\sqrt{5\,x+3}}{(12\,x^3-4\,x^2-5\,x+2)\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/((3*x + 2)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="fricas"
```

```
[Out] integral(sqrt(5*x + 3)/((12*x^3 - 4*x^2 - 5*x + 2)*sqrt(3*x + 2)*
sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(1/2)/(1-2*x)**(5/2)/(2+3*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5x+3}}{(3x+2)^{\frac{3}{2}}(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)/((3*x + 2)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)/((3*x + 2)^(3/2)*(-2*x + 1)^(5/2)), x)
```

3.2935 $\int \frac{\sqrt{3+5x}}{(1-2x)^{5/2}(2+3x)^{5/2}}\,dx$

Optimal. Leaf size=187

$$\frac{338\sqrt{1-2x}\sqrt{5x+3}}{26411\sqrt{3x+2}}-\frac{458\sqrt{1-2x}\sqrt{5x+3}}{3773(3x+2)^{3/2}}+\frac{326\sqrt{5x+3}}{1617\sqrt{1-2x}(3x+2)^{3/2}}+\frac{2\sqrt{5x+3}}{21(1-2x)^{3/2}(3x+2)^{3/2}}-\frac{992F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{2401\sqrt{33}}-\frac{338E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{2401\sqrt{33}}$$

```
[Out] (2*Sqrt[3 + 5*x])/(21*(1 - 2*x)^(3/2)*(2 + 3*x)^(3/2)) + (326*Sqr
t[3 + 5*x])/(1617*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)) - (458*Sqrt[1 -
2*x]*Sqrt[3 + 5*x])/(3773*(2 + 3*x)^(3/2)) + (338*Sqrt[1 - 2*x]*S
qrt[3 + 5*x])/(26411*Sqrt[2 + 3*x]) - (338*EllipticE[ArcSin[Sqrt[
3/7]*Sqrt[1 - 2*x]], 35/33])/(2401*Sqrt[33]) - (992*EllipticF[Arc
Sin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(2401*Sqrt[33])
```

Rubi [A] time = 0.424335, antiderivative size = 187, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{338\sqrt{1-2x}\sqrt{5x+3}}{26411\sqrt{3x+2}}-\frac{458\sqrt{1-2x}\sqrt{5x+3}}{3773(3x+2)^{3/2}}+\frac{326\sqrt{5x+3}}{1617\sqrt{1-2x}(3x+2)^{3/2}}+\frac{2\sqrt{5x+3}}{21(1-2x)^{3/2}(3x+2)^{3/2}}-\frac{992F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{2401\sqrt{33}}-\frac{338E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{2401\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[3 + 5*x]/((1 - 2*x)^(5/2)*(2 + 3*x)^(5/2)),x]
```

```
[Out] (2*Sqrt[3 + 5*x])/(21*(1 - 2*x)^(3/2)*(2 + 3*x)^(3/2)) + (326*Sqr
t[3 + 5*x])/(1617*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)) - (458*Sqrt[1 -
2*x]*Sqrt[3 + 5*x])/(3773*(2 + 3*x)^(3/2)) + (338*Sqrt[1 - 2*x]*S
qrt[3 + 5*x])/(26411*Sqrt[2 + 3*x]) - (338*EllipticE[ArcSin[Sqrt[
3/7]*Sqrt[1 - 2*x]], 35/33])/(2401*Sqrt[33]) - (992*EllipticF[Arc
Sin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(2401*Sqrt[33])
```

Rubi in Sympy [A] time = 37.3234, size = 172, normalized size = 0.92

$$\frac{338\sqrt{-2x+1}\sqrt{5x+3}}{26411\sqrt{3x+2}}-\frac{338\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{79233}-\frac{992\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{79233}+\frac{916\sqrt{5x+3}}{11319\sqrt{-2x+1}\sqrt{3x+2}}-\frac{4\sqrt{5x+3}}{49\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}}+\frac{2\sqrt{5x+3}}{21\,(-2x+1)^{\frac{3}{2}}\,(3x+2)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(1/2)/(1-2*x)**(5/2)/(2+3*x)**(5/2),x)
```

```
[Out] 338*sqrt(-2*x + 1)*sqrt(5*x + 3)/(26411*sqrt(3*x + 2)) - 338*sqrt
(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/79233 - 9
92*sqrt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/79
233 + 916*sqrt(5*x + 3)/(11319*sqrt(-2*x + 1)*sqrt(3*x + 2)) - 4*
sqrt(5*x + 3)/(49*sqrt(-2*x + 1)*(3*x + 2)**(3/2)) + 2*sqrt(5*x +
 3)/(21*(-2*x + 1)**(3/2)*(3*x + 2)**(3/2))
```

Mathematica [A] time = 0.27618, size = 103, normalized size = 0.55

$$\frac{2\left(\frac{\sqrt{5x+3}(6084x^3-21264x^2+727x+7965)}{(1-2x)^{3/2}(3x+2)^{3/2}}+\sqrt{2}\left(8015F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+169E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)\right)}{79233}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[3 + 5*x]/((1 - 2*x)^(5/2)*(2 + 3*x)^(5/2)),x]
```

```
[Out] (2*((Sqrt[3 + 5*x]*(7965 + 727*x - 21264*x^2 + 6084*x^3))/((1 - 2
*x)^(3/2)*(2 + 3*x)^(3/2)) + Sqrt[2]*(169*EllipticE[ArcSin[Sqrt[2
/11]*Sqrt[3 + 5*x]], -33/2] + 8015*EllipticF[ArcSin[Sqrt[2/11]*Sq
rt[3 + 5*x]], -33/2])))/79233
```

Maple [C] time = 0.034, size = 383, normalized size = 2.1

$$-\frac{2}{79233\,(-1+2\,x)^2}\sqrt{1-2\,x}\left(48090\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^2\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}+1014\,$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(1/2)/(1-2*x)^(5/2)/(2+3*x)^(5/2),x)
```

```
[Out] -2/79233*(1-2*x)^(1/2)*(48090*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(
1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1
/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+1014*2^(1/2)*EllipticE(1/11*11^(1
/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+
5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+8015*2^(1/2)*EllipticF(1/1
1*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*
x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+169*2^(1/2)*EllipticE
(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/
2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-16030*2^(1/2)*(3+
5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^
(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-338*2^(1/2)*(
3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*
2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-30420*x^4+8
8068*x^3+60157*x^2-42006*x-23895)/(2+3*x)^(3/2)/(-1+2*x)^2/(3+5*x
)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}}{(3\,x+2)^{\frac{5}{2}}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(5*x + 3)/((3*x + 2)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="maxima"
```

```
[Out] integrate(sqrt(5*x + 3)/((3*x + 2)^(5/2)*(-2*x + 1)^(5/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{5\,x+3}}{(36\,x^4+12\,x^3-23\,x^2-4\,x+4)\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)/((3*x + 2)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="fricas"
```

```
[Out] integral(sqrt(5*x + 3)/((36*x^4 + 12*x^3 - 23*x^2 - 4*x + 4)*sqrt
(3*x + 2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3+5*x)**(1/2)/(1-2*x)**(5/2)/(2+3*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}}{(3\,x+2)^{\frac{5}{2}}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)/((3*x + 2)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)/((3*x + 2)^(5/2)*(-2*x + 1)^(5/2)), x)
```

3.2936 $\int \frac{\sqrt{3+5x}}{(1-2x)^{5/2}(2+3x)^{7/2}}\,dx$

Optimal. Leaf size=220

$$\frac{189368\sqrt{1-2x}\sqrt{5x+3}}{924385\sqrt{3x+2}}-\frac{5438\sqrt{1-2x}\sqrt{5x+3}}{132055(3x+2)^{3/2}}-\frac{2818\sqrt{1-2x}\sqrt{5x+3}}{18865(3x+2)^{5/2}}+\frac{458\sqrt{5x+3}}{1617\sqrt{1-2x}(3x+2)^{5/2}}+\frac{2\sqrt{5x+3}}{21(1-2x)^{3/2}(3x+2)^{5/2}}-\frac{2092\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{84035}-\frac{189368E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{84035\sqrt{33}}$$

```
[Out] (2*Sqrt[3 + 5*x])/(21*(1 - 2*x)^(3/2)*(2 + 3*x)^(5/2)) + (458*Sqr
t[3 + 5*x])/(1617*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)) - (2818*Sqrt[1 -
 2*x]*Sqrt[3 + 5*x])/(18865*(2 + 3*x)^(5/2)) - (5438*Sqrt[1 - 2*x
]*Sqrt[3 + 5*x])/(132055*(2 + 3*x)^(3/2)) + (189368*Sqrt[1 - 2*x]
*Sqrt[3 + 5*x])/(924385*Sqrt[2 + 3*x]) - (189368*EllipticE[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(84035*Sqrt[33]) - (2092*Sqrt[
11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/84035
```

Rubi [A] time = 0.505976, antiderivative size = 220, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{189368\sqrt{1-2x}\sqrt{5x+3}}{924385\sqrt{3x+2}}-\frac{5438\sqrt{1-2x}\sqrt{5x+3}}{132055(3x+2)^{3/2}}-\frac{2818\sqrt{1-2x}\sqrt{5x+3}}{18865(3x+2)^{5/2}}+\frac{458\sqrt{5x+3}}{1617\sqrt{1-2x}(3x+2)^{5/2}}+\frac{2\sqrt{5x+3}}{21(1-2x)^{3/2}(3x+2)^{5/2}}-\frac{2092\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{84035}-\frac{189368E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{84035\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[3 + 5*x]/((1 - 2*x)^(5/2)*(2 + 3*x)^(7/2)),x]
```


```
[Out] (2*Sqrt[3 + 5*x])/(21*(1 - 2*x)^(3/2)*(2 + 3*x)^(5/2)) + (458*Sqr
t[3 + 5*x])/(1617*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)) - (2818*Sqrt[1 -
 2*x]*Sqrt[3 + 5*x])/(18865*(2 + 3*x)^(5/2)) - (5438*Sqrt[1 - 2*x
]*Sqrt[3 + 5*x])/(132055*(2 + 3*x)^(3/2)) + (189368*Sqrt[1 - 2*x]
*Sqrt[3 + 5*x])/(924385*Sqrt[2 + 3*x]) - (189368*EllipticE[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(84035*Sqrt[33]) - (2092*Sqrt[
11/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/84035
```

Rubi in Sympy [A] time = 44.553, size = 201, normalized size = 0.91

$$\frac{189368\sqrt{-2x+1}\sqrt{5x+3}}{924385\sqrt{3x+2}}-\frac{5438\sqrt{-2x+1}\sqrt{5x+3}}{132055\,(3x+2)^{\frac{3}{2}}}-\frac{189368\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{2773155}-\frac{2092\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{252105}+\frac{5636\sqrt{5x+3}}{56595\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}}-\frac{16\sqrt{5x+3}}{245\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}}+\frac{2\sqrt{5x+3}}{21\,(-2x+1)^{\frac{3}{2}}\,(3x+2)^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(1/2)/(1-2*x)**(5/2)/(2+3*x)**(7/2),x)
```

```
[Out] 189368*sqrt(-2*x + 1)*sqrt(5*x + 3)/(924385*sqrt(3*x + 2)) - 5438
*sqrt(-2*x + 1)*sqrt(5*x + 3)/(132055*(3*x + 2)**(3/2)) - 189368*
sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/27731
55 - 2092*sqrt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35
/33)/252105 + 5636*sqrt(5*x + 3)/(56595*sqrt(-2*x + 1)*(3*x + 2)*
*(3/2)) - 16*sqrt(5*x + 3)/(245*sqrt(-2*x + 1)*(3*x + 2)**(5/2))
+ 2*sqrt(5*x + 3)/(21*(-2*x + 1)**(3/2)*(3*x + 2)**(5/2))
```

Mathematica [A] time = 0.300575, size = 108, normalized size = 0.49

$$\frac{2\left(\frac{\sqrt{5x+3}(10225872x^4+2723436x^3-7133292x^2-807691x+1339677)}{(1-2x)^{3/2}(3x+2)^{5/2}}+\sqrt{2}\left(95165F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+94684E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x\right.\right.\right.\right.}{2773155}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[3 + 5*x]/((1 - 2*x)^(5/2)*(2 + 3*x)^(7/2)),x]
```

```
[Out] (2*((Sqrt[3 + 5*x]*(1339677 - 807691*x - 7133292*x^2 + 2723436*x^
3 + 10225872*x^4))/((1 - 2*x)^(3/2)*(2 + 3*x)^(5/2)) + Sqrt[2]*(9
4684*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 95165*E
llipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])))/2773155
```

Maple [C] time = 0.036, size = 502, normalized size = 2.3

$$-\frac{2}{2773155\,(-1+2\,x)^2}\sqrt{1-2\,x}\left(1712970\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^3\sqrt{1-2\,x}\sqrt{3+5\,x}\sqrt{2+3\,x}+1$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(1/2)/(1-2*x)^(5/2)/(2+3*x)^(7/2),x)
```

```
[Out] -2/2773155*(1-2*x)^(1/2)*(1712970*2^(1/2)*EllipticF(1/11*11^(1/2)
*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x
)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)+1704312*2^(1/2)*EllipticE(1/1
1*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*
x^3*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)+1427475*2^(1/2)*Ell
ipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)
*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+1420260*2
^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/
2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)
-380660*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2
*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x
)^(1/2)-378736*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1
/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)
*(1-2*x)^(1/2)-380660*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)
^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/
2)*3^(1/2)*2^(1/2))-378736*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1
-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*1
1^(1/2)*3^(1/2)*2^(1/2))-51129360*x^5-44294796*x^4+27496152*x^3+2
5438331*x^2-4275312*x-4019031)/(2+3*x)^(5/2)/(-1+2*x)^2/(3+5*x)^(
1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}}{(3\,x+2)^{\frac{7}{2}}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)/((3*x + 2)^(7/2)*(-2*x + 1)^(5/2)),x, algorithm="maxima"
```

```
[Out] integrate(sqrt(5*x + 3)/((3*x + 2)^(7/2)*(-2*x + 1)^(5/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{5\,x+3}}{(108\,x^5+108\,x^4-45\,x^3-58\,x^2+4\,x+8)\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)/((3*x + 2)^(7/2)*(-2*x + 1)^(5/2)),x, algorithm="fricas"
```

```
[Out] integral(sqrt(5*x + 3)/((108*x^5 + 108*x^4 - 45*x^3 - 58*x^2 + 4*
x + 8)*sqrt(3*x + 2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3+5*x)**(1/2)/(1-2*x)**(5/2)/(2+3*x)**(7/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{5\,x+3}}{(3\,x+2)^{\frac{7}{2}}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(5*x + 3)/((3*x + 2)^(7/2)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] integrate(sqrt(5*x + 3)/((3*x + 2)^(7/2)*(-2*x + 1)^(5/2)), x)
```

3.2937 $\int \frac{(2+3x)^{7/2}(3+5x)^{3/2}}{(1-2x)^{5/2}}\,dx$

Optimal. Leaf size=222

$$\frac{(5x+3)^{3/2}(3x+2)^{7/2}}{3(1-2x)^{3/2}}-\frac{56(5x+3)^{3/2}(3x+2)^{5/2}}{11\sqrt{1-2x}}$$
$$-\frac{1341}{154}\sqrt{1-2x}(5x+3)^{3/2}(3x+2)^{3/2}-\frac{140289\sqrt{1-2x}(5x+3)^{3/2}\sqrt{3x+2}}{3850}-\frac{2166399\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{7700}-\frac{722133\sqrt{\frac{3}{11}}F\left(\right.}{}$$

```
[Out] (-2166399*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/7700 - (1402
89*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/3850 - (1341*Sqrt
[1 - 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2))/154 - (56*(2 + 3*x)^(5
/2)*(3 + 5*x)^(3/2))/(11*Sqrt[1 - 2*x]) + ((2 + 3*x)^(7/2)*(3 + 5
*x)^(3/2))/(3*(1 - 2*x)^(3/2)) - (6547351*Sqrt[11/3]*EllipticE[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3500 - (722133*Sqrt[3/11]*
EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3500
```

Rubi [A] time = 0.468229, antiderivative size = 222, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{(5x+3)^{3/2}(3x+2)^{7/2}}{3(1-2x)^{3/2}}-\frac{56(5x+3)^{3/2}(3x+2)^{5/2}}{11\sqrt{1-2x}}$$
$$-\frac{1341}{154}\sqrt{1-2x}(5x+3)^{3/2}(3x+2)^{3/2}-\frac{140289\sqrt{1-2x}(5x+3)^{3/2}\sqrt{3x+2}}{3850}-\frac{2166399\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{7700}-\frac{722133\sqrt{\frac{3}{11}}F\left(\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^(7/2)*(3 + 5*x)^(3/2))/(1 - 2*x)^(5/2),x]
```

```
[Out] (-2166399*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/7700 - (1402
89*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/3850 - (1341*Sqrt
[1 - 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2))/154 - (56*(2 + 3*x)^(5
/2)*(3 + 5*x)^(3/2))/(11*Sqrt[1 - 2*x]) + ((2 + 3*x)^(7/2)*(3 + 5
*x)^(3/2))/(3*(1 - 2*x)^(3/2)) - (6547351*Sqrt[11/3]*EllipticE[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3500 - (722133*Sqrt[3/11]*
EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3500
```

Rubi in Sympy [A] time = 45.7676, size = 197, normalized size = 0.89

$$-\frac{193\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}\sqrt{5x+3}}{14}-\frac{2024\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\sqrt{5x+3}}{35}-\frac{188443\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{700}-\frac{6547351\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{10500}-\frac{2166399\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{122500}-\frac{8\,(3x+2)^{\frac{7}{2}}\sqrt{5x+3}}{\sqrt{-2x+1}}+\frac{(3x+2)^{\frac{7}{2}}(5x+3)^{\frac{3}{2}}}{3\,(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(7/2)*(3+5*x)**(3/2)/(1-2*x)**(5/2),x)
```

```
[Out] -193*sqrt(-2*x + 1)*(3*x + 2)**(5/2)*sqrt(5*x + 3)/14 - 2024*sqrt
(-2*x + 1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/35 - 188443*sqrt(-2*x +
 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/700 - 6547351*sqrt(33)*elliptic_e
(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/10500 - 2166399*sqrt(35)
*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/122500 - 8*(
3*x + 2)**(7/2)*sqrt(5*x + 3)/sqrt(-2*x + 1) + (3*x + 2)**(7/2)*(
```

```
5*x + 3)**(3/2)/(3*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.361144, size = 130, normalized size = 0.59

$$-\frac{10\sqrt{3x+2}\sqrt{5x+3}\left(40500x^4+198180x^3+567906x^2-2751916x+1041609\right)-6595505\sqrt{2-4x}(2x-1)F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5\right.\right.}{21000(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^(7/2)*(3 + 5*x)^(3/2))/(1 - 2*x)^(5/2),x]
```

```
[Out] -(10*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(1041609 - 2751916*x + 567906*x^
2 + 198180*x^3 + 40500*x^4) + 13094702*Sqrt[2 - 4*x]*(-1 + 2*x)*E
llipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 6595505*Sqrt[
2 - 4*x]*(-1 + 2*x)*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -
33/2])/(21000*(1 - 2*x)^(3/2))
```

Maple [C] time = 0.03, size = 291, normalized size = 1.3

$$\frac{1}{21000\,(-1+2\,x)^2\,(15\,x^2+19\,x+6)}\left(13191010\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},\,i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(7/2)*(3+5*x)^(3/2)/(1-2*x)^(5/2),x)
```

```
[Out] 1/21000*(13191010*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)
^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1
/2)*(1-2*x)^(1/2)-26189404*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2
)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(
2+3*x)^(1/2)*(1-2*x)^(1/2)-6075000*x^6-6595505*2^(1/2)*(3+5*x)^(1
/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(
3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+13094702*2^(1/2)*(3+
5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^
(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-37422000*x^5-
125270100*x^4+292994460*x^3+332548330*x^2-32790750*x-62496540)*(1
-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)/(-1+2*x)^2/(15*x^2+19*x+6
)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{3}{2}}(3\,x+2)^{\frac{7}{2}}}{(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(3*x + 2)^(7/2)/(-2*x + 1)^(5/2),x, algorithm="maxima"
```

```
[Out] integrate((5*x + 3)^(3/2)*(3*x + 2)^(7/2)/(-2*x + 1)^(5/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\left(135\,x^4+351\,x^3+342\,x^2+148\,x+24\right)\sqrt{5\,x+3}\sqrt{3\,x+2}}{(4\,x^2-4\,x+1)\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)^(7/2)/(-2*x + 1)^(5/2),x, algorithm="fricas"
```

```
[Out] integral((135*x^4 + 351*x^3 + 342*x^2 + 148*x + 24)*sqrt(5*x + 3)
*sqrt(3*x + 2)/((4*x^2 - 4*x + 1)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(7/2)*(3+5*x)**(3/2)/(1-2*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{3}{2}}(3\,x+2)^{\frac{7}{2}}}{(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)^(7/2)/(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(3/2)*(3*x + 2)^(7/2)/(-2*x + 1)^(5/2), x)
```

3.2938 $\int \frac{(2+3x)^{5/2}(3+5x)^{3/2}}{(1-2x)^{5/2}}\,dx$

Optimal. Leaf size=191

$$\frac{(5x+3)^{3/2}(3x+2)^{5/2}}{3(1-2x)^{3/2}}-\frac{45(5x+3)^{3/2}(3x+2)^{3/2}}{11\sqrt{1-2x}}-\frac{807}{110}\sqrt{1-2x}(5x+3)^{3/2}\sqrt{3x+2}-\frac{6231}{110}\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}-\frac{2077}{50}\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{37663}{100}\sqrt{\frac{11}{3}}E\left(s\right.$$

```
[Out] (-6231*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/110 - (807*Sqrt
[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/110 - (45*(2 + 3*x)^(3/2
)*(3 + 5*x)^(3/2))/(11*Sqrt[1 - 2*x]) + ((2 + 3*x)^(5/2)*(3 + 5*x
)^(3/2))/(3*(1 - 2*x)^(3/2)) - (37663*Sqrt[11/3]*EllipticE[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/100 - (2077*Sqrt[3/11]*Ellipti
cF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/50
```

Rubi [A] time = 0.395255, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{(5x+3)^{3/2}(3x+2)^{5/2}}{3(1-2x)^{3/2}}-\frac{45(5x+3)^{3/2}(3x+2)^{3/2}}{11\sqrt{1-2x}}-\frac{807}{110}\sqrt{1-2x}(5x+3)^{3/2}\sqrt{3x+2}-\frac{6231}{110}\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}-\frac{2077}{50}\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{37663}{100}\sqrt{\frac{11}{3}}E\left(s\right.$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^(5/2)*(3 + 5*x)^(3/2))/(1 - 2*x)^(5/2),x]
```


```
[Out] (-6231*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/110 - (807*Sqrt
[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/110 - (45*(2 + 3*x)^(3/2
)*(3 + 5*x)^(3/2))/(11*Sqrt[1 - 2*x]) + ((2 + 3*x)^(5/2)*(3 + 5*x
)^(3/2))/(3*(1 - 2*x)^(3/2)) - (37663*Sqrt[11/3]*EllipticE[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/100 - (2077*Sqrt[3/11]*Ellipti
cF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/50
```

Rubi in Sympy [A] time = 38.1935, size = 170, normalized size = 0.89

$$-\frac{163\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\,\sqrt{5x+3}}{14}-\frac{271\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{5}-\frac{37663\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{300}-\frac{2077\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{550}-\frac{45\,(3x+2)^{\frac{5}{2}}\,\sqrt{5x+3}}{7\sqrt{-2x+1}}+\frac{(3x+2)^{\frac{5}{2}}\,(5x+3)^{\frac{3}{2}}}{3\,(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(5/2)*(3+5*x)**(3/2)/(1-2*x)**(5/2),x)
```

```
[Out] -163*sqrt(-2*x + 1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/14 - 271*sqrt(
-2*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/5 - 37663*sqrt(33)*elliptic
_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/300 - 2077*sqrt(33)*el
liptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/550 - 45*(3*x +
2)**(5/2)*sqrt(5*x + 3)/(7*sqrt(-2*x + 1)) + (3*x + 2)**(5/2)*(5*
x + 3)**(3/2)/(3*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.317014, size = 125, normalized size = 0.65

$$-\frac{10\sqrt{3x+2}\sqrt{5x+3}\left(270x^3+1344x^2-8039x+2976\right)-18970\sqrt{2-4x}(2x-1)F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+37663\sqrt{2-}}{300(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^(5/2)*(3 + 5*x)^(3/2))/(1 - 2*x)^(5/2),x]
```

```
[Out] -(10*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(2976 - 8039*x + 1344*x^2 + 270*
x^3) + 37663*Sqrt[2 - 4*x]*(-1 + 2*x)*EllipticE[ArcSin[Sqrt[2/11]
*Sqrt[3 + 5*x]], -33/2] - 18970*Sqrt[2 - 4*x]*(-1 + 2*x)*Elliptic
F[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/(300*(1 - 2*x)^(3/2))
```

Maple [C] time = 0.029, size = 286, normalized size = 1.5

$$\frac{1}{300\,(-1+2\,x)^2\,(15\,x^2+19\,x+6)}\left(37940\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-75\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(5/2)*(3+5*x)^(3/2)/(1-2*x)^(5/2),x)
```

```
[Out] 1/300*(37940*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2
),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(
1-2*x)^(1/2)-75326*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x
)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(
1/2)*(1-2*x)^(1/2)-18970*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2
*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^
(1/2)*3^(1/2)*2^(1/2))+37663*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*
(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I
*11^(1/2)*3^(1/2)*2^(1/2))-40500*x^5-252900*x^4+934290*x^3+100037
0*x^2-83100*x-178560)*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)/(
-1+2*x)^2/(15*x^2+19*x+6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{3}{2}}(3\,x+2)^{\frac{5}{2}}}{(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)^(5/2)/(-2*x + 1)^(5/2),x, algorithm="maxima"
```

```
[Out] integrate((5*x + 3)^(3/2)*(3*x + 2)^(5/2)/(-2*x + 1)^(5/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(45\,x^3+87\,x^2+56\,x+12)\sqrt{5\,x+3}\sqrt{3\,x+2}}{(4\,x^2-4\,x+1)\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)^(5/2)/(-2*x + 1)^(5/2),x, algorithm="fricas"
```

```
[Out] integral((45*x^3 + 87*x^2 + 56*x + 12)*sqrt(5*x + 3)*sqrt(3*x + 2
)/((4*x^2 - 4*x + 1)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(5/2)*(3+5*x)**(3/2)/(1-2*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{3}{2}}(3\,x+2)^{\frac{5}{2}}}{(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(3*x + 2)^(5/2)/(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(3/2)*(3*x + 2)^(5/2)/(-2*x + 1)^(5/2), x)
```

3.2939 $\int \frac{(2+3x)^{3/2}(3+5x)^{3/2}}{(1-2x)^{5/2}}\,dx$

Optimal. Leaf size=158

$$\frac{(3x+2)^{3/2}(5x+3)^{3/2}}{3(1-2x)^{3/2}}-\frac{34\sqrt{3x+2}(5x+3)^{3/2}}{11\sqrt{1-2x}}-\frac{225}{22}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}-\frac{15}{2}\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-68\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (-225*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/22 - (34*Sqrt[2
+ 3*x]*(3 + 5*x)^(3/2))/(11*Sqrt[1 - 2*x]) + ((2 + 3*x)^(3/2)*(3
+ 5*x)^(3/2))/(3*(1 - 2*x)^(3/2)) - 68*Sqrt[11/3]*EllipticE[ArcSi
n[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33] - (15*Sqrt[3/11]*EllipticF[Arc
Sin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/2
```

Rubi [A] time = 0.319269, antiderivative size = 158, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.214$

$$\frac{(3x+2)^{3/2}(5x+3)^{3/2}}{3(1-2x)^{3/2}}-\frac{34\sqrt{3x+2}(5x+3)^{3/2}}{11\sqrt{1-2x}}-\frac{225}{22}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}-\frac{15}{2}\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-68\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In] Int[((2 + 3*x)^(3/2)*(3 + 5*x)^(3/2))/(1 - 2*x)^(5/2),x]
```

```
[Out] (-225*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/22 - (34*Sqrt[2
+ 3*x]*(3 + 5*x)^(3/2))/(11*Sqrt[1 - 2*x]) + ((2 + 3*x)^(3/2)*(3
+ 5*x)^(3/2))/(3*(1 - 2*x)^(3/2)) - 68*Sqrt[11/3]*EllipticE[ArcSi
n[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33] - (15*Sqrt[3/11]*EllipticF[Arc
Sin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/2
```

Rubi in Sympy [A] time = 30.8067, size = 141, normalized size = 0.89

$$-\frac{137\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{14}-\frac{68\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{3}-\frac{9\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{14}-\frac{34\left(3x+2\right)^{\frac{3}{2}}\sqrt{5x+3}}{7\sqrt{-2x+1}}+\frac{\left(3x+2\right)^{\frac{3}{2}}\left(5x+3\right)^{\frac{3}{2}}}{3\left(-2x+1\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((2+3*x)**(3/2)*(3+5*x)**(3/2)/(1-2*x)**(5/2),x)
```

```
[Out] -137*sqrt(-2*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/14 - 68*sqrt(33)*
elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/3 - 9*sqrt(35)
*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/14 - 34*(3*x
 + 2)**(3/2)*sqrt(5*x + 3)/(7*sqrt(-2*x + 1)) + (3*x + 2)**(3/2)*
(5*x + 3)**(3/2)/(3*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.272116, size = 120, normalized size = 0.76

$$-\frac{2\sqrt{3x+2}\sqrt{5x+3}\left(30x^2-302x+105\right)-137\sqrt{2-4x}(2x-1)F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+272\sqrt{2-4x}(2x-1)E\left(\sin^{-}\right.}{12(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^(3/2)*(3 + 5*x)^(3/2))/(1 - 2*x)^(5/2),x]
```

```
[Out] -(2*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(105 - 302*x + 30*x^2) + 272*Sqrt
[2 - 4*x]*(-1 + 2*x)*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]],
-33/2] - 137*Sqrt[2 - 4*x]*(-1 + 2*x)*EllipticF[ArcSin[Sqrt[2/11]
*Sqrt[3 + 5*x]], -33/2])/(12*(1 - 2*x)^(3/2))
```

Maple [C] time = 0.027, size = 286, normalized size = 1.8

$$\frac{1}{(360x^3+276x^2-84x-72)(-1+2x)}\left(274\sqrt{2}EllipticF\left(1/11\sqrt{11}\sqrt{2}\sqrt{3+5x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5x}\sqrt{2+3x}\sqrt{1-2x}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(3/2)*(3+5*x)^(3/2)/(1-2*x)^(5/2),x)
```

```
[Out] 1/12*(274*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1
/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2
*x)^(1/2)-544*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/
2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*
(1-2*x)^(1/2)-137*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/
2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3
^(1/2)*2^(1/2))+272*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(
1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)
*3^(1/2)*2^(1/2))-900*x^4+7920*x^3+7966*x^2-366*x-1260)*(1-2*x)^(
1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)/(30*x^3+23*x^2-7*x-6)/(-1+2*x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{3}{2}}(3x+2)^{\frac{3}{2}}}{(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)^(3/2)/(-2*x + 1)^(5/2),x, algorithm="maxima"
```

```
[Out] integrate((5*x + 3)^(3/2)*(3*x + 2)^(3/2)/(-2*x + 1)^(5/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(15x^2+19x+6)\sqrt{5x+3}\sqrt{3x+2}}{(4x^2-4x+1)\sqrt{-2x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*(3*x + 2)^(3/2)/(-2*x + 1)^(5/2),x, algorithm="fricas"
```

```
[Out] integral((15*x^2 + 19*x + 6)*sqrt(5*x + 3)*sqrt(3*x + 2)/((4*x^2
- 4*x + 1)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(3/2)*(3+5*x)**(3/2)/(1-2*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{3}{2}}(3x+2)^{\frac{3}{2}}}{(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*(3*x + 2)^(3/2)/(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(3/2)*(3*x + 2)^(3/2)/(-2*x + 1)^(5/2), x)
```

3.2940 $\int \frac{\sqrt{2+3x}(3+5x)^{3/2}}{(1-2x)^{5/2}}\,dx$

Optimal. Leaf size=127

$$\frac{\sqrt{3x+2}(5x+3)^{3/2}}{3(1-2x)^{3/2}}-\frac{23\sqrt{3x+2}\sqrt{5x+3}}{7\sqrt{1-2x}}-\frac{23F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{7\sqrt{33}}-\frac{139}{14}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (-23*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/(7*Sqrt[1 - 2*x]) + (Sqrt[2 + 3
*x]*(3 + 5*x)^(3/2))/(3*(1 - 2*x)^(3/2)) - (139*Sqrt[11/3]*Ellipt
icE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/14 - (23*EllipticF[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(7*Sqrt[33])
```

Rubi [A] time = 0.254951, antiderivative size = 127, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{\sqrt{3x+2}(5x+3)^{3/2}}{3(1-2x)^{3/2}}-\frac{23\sqrt{3x+2}\sqrt{5x+3}}{7\sqrt{1-2x}}-\frac{23F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{7\sqrt{33}}-\frac{139}{14}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/(1 - 2*x)^(5/2),x]
```

```
[Out] (-23*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/(7*Sqrt[1 - 2*x]) + (Sqrt[2 + 3
*x]*(3 + 5*x)^(3/2))/(3*(1 - 2*x)^(3/2)) - (139*Sqrt[11/3]*Ellipt
icE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/14 - (23*EllipticF[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(7*Sqrt[33])
```

Rubi in Sympy [A] time = 23.8978, size = 112, normalized size = 0.88

$$-\frac{139\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{42}-\frac{23\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{231}-\frac{23\sqrt{3x+2}\sqrt{5x+3}}{7\sqrt{-2x+1}}+\frac{\sqrt{3x+2}\,(5x+3)^{\frac{3}{2}}}{3\,(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(3/2)*(2+3*x)**(1/2)/(1-2*x)**(5/2),x)
```

```
[Out] -139*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/
42 - 23*sqrt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/3
3)/231 - 23*sqrt(3*x + 2)*sqrt(5*x + 3)/(7*sqrt(-2*x + 1)) + sqrt
(3*x + 2)*(5*x + 3)**(3/2)/(3*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.189167, size = 115, normalized size = 0.91

$$-\frac{2\sqrt{3x+2}\sqrt{5x+3}(48-173x)-70\sqrt{2-4x}(2x-1)F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+139\sqrt{2-4x}(2x-1)E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x\right.\right.}{42(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/(1 - 2*x)^(5/2),x]
```

```
[Out] -(2*(48 - 173*x)*Sqrt[2 + 3*x]*Sqrt[3 + 5*x] + 139*Sqrt[2 - 4*x]*
(-1 + 2*x)*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 7
0*Sqrt[2 - 4*x]*(-1 + 2*x)*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5
*x]], -33/2])/(42*(1 - 2*x)^(3/2))
```

Maple [C] time = 0.027, size = 276, normalized size = 2.2

$$\frac{1}{42\left(-1+2x\right)^{2}\left(15x^{2}+19x+6\right)}\left(140\sqrt{2}EllipticF\left(1/11\sqrt{11}\sqrt{2}\sqrt{3+5x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5x}\sqrt{2+3x}\sqrt{1-2x}-278\sqrt{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(3/2)*(2+3*x)^(1/2)/(1-2*x)^(5/2),x)
```

```
[Out] 1/42*(140*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1
/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2
*x)^(1/2)-278*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/
2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*
(1-2*x)^(1/2)-70*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2
)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^
(1/2)*2^(1/2))+139*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1
/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*
3^(1/2)*2^(1/2))+5190*x^3+5134*x^2+252*x-576)*(1-2*x)^(1/2)*(2+3*
x)^(1/2)*(3+5*x)^(1/2)/(-1+2*x)^2/(15*x^2+19*x+6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{3}{2}}\sqrt{3x+2}}{(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*sqrt(3*x + 2)/(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] integrate((5*x + 3)^(3/2)*sqrt(3*x + 2)/(-2*x + 1)^(5/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{(5x+3)^{\frac{3}{2}}\sqrt{3x+2}}{(4x^{2}-4x+1)\sqrt{-2x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)*sqrt(3*x + 2)/(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] integral((5*x + 3)^(3/2)*sqrt(3*x + 2)/((4*x^2 - 4*x + 1)*sqrt(-2
*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(3/2)*(2+3*x)**(1/2)/(1-2*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{3}{2}}\sqrt{3x+2}}{(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)*sqrt(3*x + 2)/(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(3/2)*sqrt(3*x + 2)/(-2*x + 1)^(5/2), x)
```

3.2941 $\int \frac{(3+5x)^{3/2}}{(1-2x)^{5/2}\sqrt{2+3x}}\,dx$

Optimal. Leaf size=127

$$-\frac{74\sqrt{3x+2}\sqrt{5x+3}}{147\sqrt{1-2x}}+\frac{11\sqrt{3x+2}\sqrt{5x+3}}{21(1-2x)^{3/2}}-\frac{13F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{49\sqrt{33}}-\frac{37}{49}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (11*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/(21*(1 - 2*x)^(3/2)) - (74*Sqrt[
2 + 3*x]*Sqrt[3 + 5*x])/(147*Sqrt[1 - 2*x]) - (37*Sqrt[11/3]*Elli
pticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/49 - (13*EllipticF
[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(49*Sqrt[33])
```

Rubi [A] time = 0.256445, antiderivative size = 127, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{74\sqrt{3x+2}\sqrt{5x+3}}{147\sqrt{1-2x}}+\frac{11\sqrt{3x+2}\sqrt{5x+3}}{21(1-2x)^{3/2}}-\frac{13F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{49\sqrt{33}}-\frac{37}{49}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(3/2)/((1 - 2*x)^(5/2)*Sqrt[2 + 3*x]),x]
```


```
[Out] (11*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/(21*(1 - 2*x)^(3/2)) - (74*Sqrt[
2 + 3*x]*Sqrt[3 + 5*x])/(147*Sqrt[1 - 2*x]) - (37*Sqrt[11/3]*Elli
pticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/49 - (13*EllipticF
[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(49*Sqrt[33])
```

Rubi in Sympy [A] time = 23.791, size = 114, normalized size = 0.9

$$-\frac{37\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{147}-\frac{13\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{1617}-\frac{74\sqrt{3x+2}\sqrt{5x+3}}{147\sqrt{-2x+1}}+\frac{11\sqrt{3x+2}\sqrt{5x+3}}{21\left(-2x+1\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(3/2)/(1-2*x)**(5/2)/(2+3*x)**(1/2),x)
```

```
[Out] -37*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/1
47 - 13*sqrt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/3
3)/1617 - 74*sqrt(3*x + 2)*sqrt(5*x + 3)/(147*sqrt(-2*x + 1)) + 1
1*sqrt(3*x + 2)*sqrt(5*x + 3)/(21*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.25014, size = 115, normalized size = 0.91

$$\frac{2\sqrt{3x+2}\sqrt{5x+3}(148x+3)+35\sqrt{2-4x}(2x-1)F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-74\sqrt{2-4x}(2x-1)E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right.\right.}{294(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(3/2)/((1 - 2*x)^(5/2)*Sqrt[2 + 3*x]),x]
```

```
[Out] (2*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(3 + 148*x) - 74*Sqrt[2 - 4*x]*(-1
 + 2*x)*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 35*S
qrt[2 - 4*x]*(-1 + 2*x)*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]
], -33/2])/(294*(1 - 2*x)^(3/2))
```

Maple [C] time = 0.03, size = 276, normalized size = 2.2

$$\frac{1}{294\,(-1+2\,x)^{2}\,(15\,x^{2}+19\,x+6)}\left(70\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-148\,\sqrt{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(3/2)/(1-2*x)^(5/2)/(2+3*x)^(1/2),x)
```

```
[Out] 1/294*(70*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1
/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2
*x)^(1/2)-148*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/
2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*
(1-2*x)^(1/2)-35*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2
)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^
(1/2)*2^(1/2))+74*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/
2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3
^(1/2)*2^(1/2))+4440*x^3+5714*x^2+1890*x+36)*(2+3*x)^(1/2)*(1-2*x
)^(1/2)*(3+5*x)^(1/2)/(-1+2*x)^2/(15*x^2+19*x+6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{3}{2}}}{\sqrt{3\,x+2}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/(sqrt(3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="maxima"
```

```
[Out] integrate((5*x + 3)^(3/2)/(sqrt(3*x + 2)*(-2*x + 1)^(5/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(5\,x+3)^{\frac{3}{2}}}{(4\,x^{2}-4\,x+1)\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/(sqrt(3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="fricas"
```

```
[Out] integral((5*x + 3)^(3/2)/((4*x^2 - 4*x + 1)*sqrt(3*x + 2)*sqrt(-2
*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(3/2)/(1-2*x)**(5/2)/(2+3*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{3}{2}}}{\sqrt{3x+2}(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)/(sqrt(3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(3/2)/(sqrt(3*x + 2)*(-2*x + 1)^(5/2)), x)
```

3.2942 $\int \frac{(3+5x)^{3/2}}{(1-2x)^{5/2}(2+3x)^{3/2}}\,dx$

Optimal. Leaf size=158

$$-\frac{19\sqrt{1-2x}\sqrt{5x+3}}{343\sqrt{3x+2}}-\frac{8\sqrt{5x+3}}{147\sqrt{1-2x}\sqrt{3x+2}}+\frac{11\sqrt{5x+3}}{21(1-2x)^{3/2}\sqrt{3x+2}}+\frac{106F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{343\sqrt{33}}+\frac{19}{343}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (11*Sqrt[3 + 5*x])/(21*(1 - 2*x)^(3/2)*Sqrt[2 + 3*x]) - (8*Sqrt[3
 + 5*x])/(147*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]) - (19*Sqrt[1 - 2*x]*Sq
rt[3 + 5*x])/(343*Sqrt[2 + 3*x]) + (19*Sqrt[11/3]*EllipticE[ArcSi
n[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/343 + (106*EllipticF[ArcSin[S
qrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(343*Sqrt[33])
```

Rubi [A] time = 0.338605, antiderivative size = 158, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{19\sqrt{1-2x}\sqrt{5x+3}}{343\sqrt{3x+2}}-\frac{8\sqrt{5x+3}}{147\sqrt{1-2x}\sqrt{3x+2}}+\frac{11\sqrt{5x+3}}{21(1-2x)^{3/2}\sqrt{3x+2}}+\frac{106F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{343\sqrt{33}}+\frac{19}{343}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(3/2)/((1 - 2*x)^(5/2)*(2 + 3*x)^(3/2)),x]
```

```
[Out] (11*Sqrt[3 + 5*x])/(21*(1 - 2*x)^(3/2)*Sqrt[2 + 3*x]) - (8*Sqrt[3
 + 5*x])/(147*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]) - (19*Sqrt[1 - 2*x]*Sq
rt[3 + 5*x])/(343*Sqrt[2 + 3*x]) + (19*Sqrt[11/3]*EllipticE[ArcSi
n[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/343 + (106*EllipticF[ArcSin[S
qrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(343*Sqrt[33])
```

Rubi in Sympy [A] time = 30.737, size = 143, normalized size = 0.91

$$\frac{19\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{1029}+\frac{106\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{11319}+\frac{38\sqrt{3x+2}\sqrt{5x+3}}{1029\sqrt{-2x+1}}-\frac{9\sqrt{5x+3}}{49\sqrt{-2x+1}\sqrt{3x+2}}+\frac{11\sqrt{5x+3}}{21\left(-2x+1\right)^{\frac{3}{2}}\sqrt{3x+2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(3/2)/(1-2*x)**(5/2)/(2+3*x)**(3/2),x)
```

```
[Out] 19*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/10
29 + 106*sqrt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/
33)/11319 + 38*sqrt(3*x + 2)*sqrt(5*x + 3)/(1029*sqrt(-2*x + 1))
- 9*sqrt(5*x + 3)/(49*sqrt(-2*x + 1)*sqrt(3*x + 2)) + 11*sqrt(5*x
 + 3)/(21*(-2*x + 1)**(3/2)*sqrt(3*x + 2))
```

Mathematica [A] time = 0.226752, size = 100, normalized size = 0.63

$$\frac{-\frac{2\sqrt{5x+3}(114x^2-170x-213)}{(1-2x)^{3/2}\sqrt{3x+2}}-\sqrt{2}\left(140F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+19E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)}{1029}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(3/2)/((1 - 2*x)^(5/2)*(2 + 3*x)^(3/2)),x]
```

```
[Out] ((-2*Sqrt[3 + 5*x]*(-213 - 170*x + 114*x^2))/((1 - 2*x)^(3/2)*Sqr
t[2 + 3*x]) - Sqrt[2]*(19*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*
x]], -33/2] + 140*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33
/2]))/1029
```

Maple [C] time = 0.035, size = 276, normalized size = 1.8

$$\frac{1}{(15435\,x^2+19551\,x+6174)(-1+2\,x)^2}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(280\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(3/2)/(1-2*x)^(5/2)/(2+3*x)^(3/2),x)
```

```
[Out] 1/1029*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(280*2^(1/2)*Ell
ipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)
*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+38*2^(1/2)*
EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1
/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-140*2^(1
/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(
1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-19*2^(
1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^
(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-1140*
x^3+1016*x^2+3150*x+1278)/(15*x^2+19*x+6)/(-1+2*x)^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{3}{2}}}{(3\,x+2)^{\frac{3}{2}}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/((3*x + 2)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="maxima
```

```
[Out] integrate((5*x + 3)^(3/2)/((3*x + 2)^(3/2)*(-2*x + 1)^(5/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{(5\,x+3)^{\frac{3}{2}}}{(12\,x^3-4\,x^2-5\,x+2)\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/((3*x + 2)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="fricas
```

```
[Out] integral((5*x + 3)^(3/2)/((12*x^3 - 4*x^2 - 5*x + 2)*sqrt(3*x + 2
)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(3/2)/(1-2*x)**(5/2)/(2+3*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{3}{2}}}{(3x+2)^{\frac{3}{2}}(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)/((3*x + 2)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="giac"
```

```
[Out] integrate((5*x + 3)^(3/2)/((3*x + 2)^(3/2)*(-2*x + 1)^(5/2)), x)
```

3.2943 $\int \frac{(3+5x)^{3/2}}{(1-2x)^{5/2}(2+3x)^{5/2}}\,dx$

Optimal. Leaf size=191

$$-\frac{496\sqrt{1-2x}\sqrt{5x+3}}{2401\sqrt{3x+2}}-\frac{89\sqrt{1-2x}\sqrt{5x+3}}{343(3x+2)^{3/2}}+\frac{58\sqrt{5x+3}}{147\sqrt{1-2x}(3x+2)^{3/2}}+\frac{11\sqrt{5x+3}}{21(1-2x)^{3/2}(3x+2)^{3/2}}-\frac{582\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{2401}+\frac{496\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{2401}$$

```
[Out] (11*Sqrt[3 + 5*x])/(21*(1 - 2*x)^(3/2)*(2 + 3*x)^(3/2)) + (58*Sqr
t[3 + 5*x])/(147*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)) - (89*Sqrt[1 - 2*
x]*Sqrt[3 + 5*x])/(343*(2 + 3*x)^(3/2)) - (496*Sqrt[1 - 2*x]*Sqrt
[3 + 5*x])/(2401*Sqrt[2 + 3*x]) + (496*Sqrt[11/3]*EllipticE[ArcSi
n[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/2401 - (582*Sqrt[3/11]*Ellipt
icF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/2401
```

Rubi [A] time = 0.429901, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.179$

$$-\frac{496\sqrt{1-2x}\sqrt{5x+3}}{2401\sqrt{3x+2}}-\frac{89\sqrt{1-2x}\sqrt{5x+3}}{343(3x+2)^{3/2}}+\frac{58\sqrt{5x+3}}{147\sqrt{1-2x}(3x+2)^{3/2}}+\frac{11\sqrt{5x+3}}{21(1-2x)^{3/2}(3x+2)^{3/2}}-\frac{582\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{2401}+\frac{496\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{2401}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(3/2)/((1 - 2*x)^(5/2)*(2 + 3*x)^(5/2)),x]
```

```
[Out] (11*Sqrt[3 + 5*x])/(21*(1 - 2*x)^(3/2)*(2 + 3*x)^(3/2)) + (58*Sqr
t[3 + 5*x])/(147*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)) - (89*Sqrt[1 - 2*
x]*Sqrt[3 + 5*x])/(343*(2 + 3*x)^(3/2)) - (496*Sqrt[1 - 2*x]*Sqrt
[3 + 5*x])/(2401*Sqrt[2 + 3*x]) + (496*Sqrt[11/3]*EllipticE[ArcSi
n[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/2401 - (582*Sqrt[3/11]*Ellipt
icF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/2401
```

Rubi in Sympy [A] time = 37.7118, size = 172, normalized size = 0.9

$$-\frac{496\sqrt{-2x+1}\sqrt{5x+3}}{2401\sqrt{3x+2}}+\frac{496\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{7203}-\frac{582\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{26411}+\frac{178\sqrt{5x+3}}{1029\sqrt{-2x+1}\sqrt{3x+2}}-\frac{31\sqrt{5x+3}}{147\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}}+\frac{11\sqrt{5x+3}}{21\,(-2x+1)^{\frac{3}{2}}\,(3x+2)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(3/2)/(1-2*x)**(5/2)/(2+3*x)**(5/2),x)
```

```
[Out] -496*sqrt(-2*x + 1)*sqrt(5*x + 3)/(2401*sqrt(3*x + 2)) + 496*sqrt
(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/7203 - 58
2*sqrt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/264
11 + 178*sqrt(5*x + 3)/(1029*sqrt(-2*x + 1)*sqrt(3*x + 2)) - 31*s
qrt(5*x + 3)/(147*sqrt(-2*x + 1)*(3*x + 2)**(3/2)) + 11*sqrt(5*x
+ 3)/(21*(-2*x + 1)**(3/2)*(3*x + 2)**(3/2))
```

Mathematica [A] time = 0.258588, size = 104, normalized size = 0.54

$$\frac{\sqrt{2}\left(3115F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)\middle|-\frac{33}{2}\right)-496E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)\middle|-\frac{33}{2}\right)\right)-\frac{2\sqrt{5x+3}(8928x^3+762x^2-4616x-885)}{(1-2x)^{3/2}(3x+2)^{3/2}}}{7203}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(3/2)/((1 - 2*x)^(5/2)*(2 + 3*x)^(5/2)),x]
```

```
[Out] ((-2*Sqrt[3 + 5*x]*(-885 - 4616*x + 762*x^2 + 8928*x^3))/((1 - 2*
x)^(3/2)*(2 + 3*x)^(3/2)) + Sqrt[2]*(-496*EllipticE[ArcSin[Sqrt[2
/11]*Sqrt[3 + 5*x]], -33/2] + 3115*EllipticF[ArcSin[Sqrt[2/11]*Sq
rt[3 + 5*x]], -33/2]))/7203
```

Maple [C] time = 0.035, size = 383, normalized size = 2.

$$-\frac{1}{7203\,(-1+2\,x)^2}\sqrt{1-2\,x}\left(18690\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^2\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-2976\,\surd$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(3/2)/(1-2*x)^(5/2)/(2+3*x)^(5/2),x)
```

```
[Out] -1/7203*(1-2*x)^(1/2)*(18690*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1
/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/
2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-2976*2^(1/2)*EllipticE(1/11*11^(1/
2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5
*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+3115*2^(1/2)*EllipticF(1/11
*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x
*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-496*2^(1/2)*EllipticE(
1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2
))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-6230*2^(1/2)*(3+5*
x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1
/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+992*2^(1/2)*(3+
5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^
(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+89280*x^4+611
88*x^3-41588*x^2-36546*x-5310)/(2+3*x)^(3/2)/(-1+2*x)^2/(3+5*x)^(
1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{3}{2}}}{(3\,x+2)^{\frac{5}{2}}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)/((3*x + 2)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="maxima
```

```
[Out] integrate((5*x + 3)^(3/2)/((3*x + 2)^(5/2)*(-2*x + 1)^(5/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(5\,x+3)^{\frac{3}{2}}}{(36\,x^4+12\,x^3-23\,x^2-4\,x+4)\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)/((3*x + 2)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="frica
```

```
[Out] integral((5*x + 3)^(3/2)/((36*x^4 + 12*x^3 - 23*x^2 - 4*x + 4)*sq
rt(3*x + 2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3+5*x)**(3/2)/(1-2*x)**(5/2)/(2+3*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{3}{2}}}{(3\,x+2)^{\frac{5}{2}}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)/((3*x + 2)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="giac"
```

```
[Out] integrate((5*x + 3)^(3/2)/((3*x + 2)^(5/2)*(-2*x + 1)^(5/2)), x)
```

3.2944 $\int \frac{(3+5x)^{3/2}}{(1-2x)^{5/2}(2+3x)^{7/2}}\,dx$

Optimal. Leaf size=222

$$-\frac{3946\sqrt{1-2x}\sqrt{5x+3}}{84035\sqrt{3x+2}}-\frac{2264\sqrt{1-2x}\sqrt{5x+3}}{12005(3x+2)^{3/2}}-\frac{779\sqrt{1-2x}\sqrt{5x+3}}{1715(3x+2)^{5/2}}+\frac{124\sqrt{5x+3}}{147\sqrt{1-2x}(3x+2)^{5/2}}+\frac{11\sqrt{5x+3}}{21(1-2x)^{3/2}(3x+2)^{5/2}}-\frac{16732\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{84035}+\frac{3946\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{84035}$$

```
[Out] (11*Sqrt[3 + 5*x])/(21*(1 - 2*x)^(3/2)*(2 + 3*x)^(5/2)) + (124*Sq
rt[3 + 5*x])/(147*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)) - (779*Sqrt[1 -
2*x]*Sqrt[3 + 5*x])/(1715*(2 + 3*x)^(5/2)) - (2264*Sqrt[1 - 2*x]*
Sqrt[3 + 5*x])/(12005*(2 + 3*x)^(3/2)) - (3946*Sqrt[1 - 2*x]*Sqrt
[3 + 5*x])/(84035*Sqrt[2 + 3*x]) + (3946*Sqrt[11/3]*EllipticE[Arc
Sin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/84035 - (16732*Sqrt[3/11]*E
llipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/84035
```

Rubi [A] time = 0.518239, antiderivative size = 222, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{3946\sqrt{1-2x}\sqrt{5x+3}}{84035\sqrt{3x+2}}-\frac{2264\sqrt{1-2x}\sqrt{5x+3}}{12005(3x+2)^{3/2}}-\frac{779\sqrt{1-2x}\sqrt{5x+3}}{1715(3x+2)^{5/2}}+\frac{124\sqrt{5x+3}}{147\sqrt{1-2x}(3x+2)^{5/2}}+\frac{11\sqrt{5x+3}}{21(1-2x)^{3/2}(3x+2)^{5/2}}-\frac{16732\sqrt{\frac{3}{11}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{84035}+\frac{3946\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{84035}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(3/2)/((1 - 2*x)^(5/2)*(2 + 3*x)^(7/2)),x]
```



```
[Out] (11*Sqrt[3 + 5*x])/(21*(1 - 2*x)^(3/2)*(2 + 3*x)^(5/2)) + (124*Sq
rt[3 + 5*x])/(147*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)) - (779*Sqrt[1 -
2*x]*Sqrt[3 + 5*x])/(1715*(2 + 3*x)^(5/2)) - (2264*Sqrt[1 - 2*x]*
Sqrt[3 + 5*x])/(12005*(2 + 3*x)^(3/2)) - (3946*Sqrt[1 - 2*x]*Sqrt
[3 + 5*x])/(84035*Sqrt[2 + 3*x]) + (3946*Sqrt[11/3]*EllipticE[Arc
Sin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/84035 - (16732*Sqrt[3/11]*E
llipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/84035
```

Rubi in Sympy [A] time = 46.2316, size = 201, normalized size = 0.91

$$-\frac{3946\sqrt{-2x+1}\sqrt{5x+3}}{84035\sqrt{3x+2}}-\frac{2264\sqrt{-2x+1}\sqrt{5x+3}}{12005\left(3x+2\right)^{\frac{3}{2}}}+\frac{3946\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{252105}-\frac{16732\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{924385}+\frac{1558\sqrt{5x+3}}{5145\sqrt{-2x+1}\left(3x+2\right)^{\frac{3}{2}}}-\frac{53\sqrt{5x+3}}{245\sqrt{-2x+1}\left(3x+2\right)^{\frac{5}{2}}}+\frac{11\sqrt{5x+3}}{21\left(-2x+1\right)^{\frac{3}{2}}\left(3x+2\right)^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(3/2)/(1-2*x)**(5/2)/(2+3*x)**(7/2),x)
```

```
[Out] -3946*sqrt(-2*x + 1)*sqrt(5*x + 3)/(84035*sqrt(3*x + 2)) - 2264*s
qrt(-2*x + 1)*sqrt(5*x + 3)/(12005*(3*x + 2)**(3/2)) + 3946*sqrt(
33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/252105 - 1
6732*sqrt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/
924385 + 1558*sqrt(5*x + 3)/(5145*sqrt(-2*x + 1)*(3*x + 2)**(3/2)
) - 53*sqrt(5*x + 3)/(245*sqrt(-2*x + 1)*(3*x + 2)**(5/2)) + 11*s
qrt(5*x + 3)/(21*(-2*x + 1)**(3/2)*(3*x + 2)**(5/2))
```

Mathematica [A] time = 0.345098, size = 108, normalized size = 0.49

$$\frac{2\left(\frac{\sqrt{5x+3}\left(-213084x^4-356292x^3+2199x^2+158902x+43881\right)}{(1-2x)^{3/2}(3x+2)^{5/2}}+\sqrt{2}\left(39620F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-1973E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\right.\right.}{252105}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(3/2)/((1 - 2*x)^(5/2)*(2 + 3*x)^(7/2)),x]
```

```
[Out] (2*((Sqrt[3 + 5*x]*(43881 + 158902*x + 2199*x^2 - 356292*x^3 - 21
3084*x^4))/((1 - 2*x)^(3/2)*(2 + 3*x)^(5/2)) + Sqrt[2]*(-1973*Ell
ipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 39620*EllipticF
[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])))/252105
```

Maple [C] time = 0.036, size = 502, normalized size = 2.3

$$-\frac{2}{252105\,(-1+2\,x)^2}\sqrt{1-2\,x}\left(713160\,\sqrt{2}\mathit{EllipticF}\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^3\sqrt{1-2\,x}\sqrt{3+5\,x}\sqrt{2+3\,x}-355\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(3/2)/(1-2*x)^(5/2)/(2+3*x)^(7/2),x)
```

```
[Out] -2/252105*(1-2*x)^(1/2)*(713160*2^(1/2)*EllipticF(1/11*11^(1/2)*2
^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^
(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)-35514*2^(1/2)*EllipticE(1/11*11
^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*
(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)+594300*2^(1/2)*Elliptic
F(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1
/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-29595*2^(1/2)*
EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1
/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-158480
*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(
1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)
+7892*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I
*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^
(1/2)-158480*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*El
lipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2
)*2^(1/2))+7892*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)
*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(
1/2)*2^(1/2))+1065420*x^5+2420712*x^4+1057881*x^3-801107*x^2-6961
11*x-131643)/(2+3*x)^(5/2)/(-1+2*x)^2/(3+5*x)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{3}{2}}}{(3\,x+2)^{\frac{7}{2}}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(3/2)/((3*x + 2)^(7/2)*(-2*x + 1)^(5/2)),x, algorithm="maxima
```

```
[Out] integrate((5*x + 3)^(3/2)/((3*x + 2)^(7/2)*(-2*x + 1)^(5/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(5x+3)^{\frac{3}{2}}}{(108x^5+108x^4-45x^3-58x^2+4x+8)\sqrt{3x+2}\sqrt{-2x+1}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)/((3*x + 2)^(7/2)*(-2*x + 1)^(5/2)),x, algorithm="frica
```

```
[Out] integral((5*x + 3)^(3/2)/((108*x^5 + 108*x^4 - 45*x^3 - 58*x^2 +
4*x + 8)*sqrt(3*x + 2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(3/2)/(1-2*x)**(5/2)/(2+3*x)**(7/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{3}{2}}}{(3x+2)^{\frac{7}{2}}(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(3/2)/((3*x + 2)^(7/2)*(-2*x + 1)^(5/2)),x, algorithm="giac"
```

```
[Out] integrate((5*x + 3)^(3/2)/((3*x + 2)^(7/2)*(-2*x + 1)^(5/2)), x)
```

3.2945 $\int \frac{(2+3x)^{7/2}(3+5x)^{5/2}}{(1-2x)^{5/2}}\,dx$

Optimal. Leaf size=253

$$\frac{(5x+3)^{5/2}(3x+2)^{7/2}}{3(1-2x)^{3/2}}-\frac{203(5x+3)^{5/2}(3x+2)^{5/2}}{33\sqrt{1-2x}}$$

$$-\frac{225}{22}\sqrt{1-2x}(5x+3)^{5/2}(3x+2)^{3/2}-\frac{6277}{154}\sqrt{1-2x}(5x+3)^{5/2}\sqrt{3x+2}-\frac{1310203\sqrt{1-2x}(5x+3)^{3/2}\sqrt{3x+2}}{4620}-\frac{1313411}{630}\sqrt{1-2x}$$

```
[Out] (-1313411*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/630 - (13102
03*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/4620 - (6277*Sqrt
[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/154 - (225*Sqrt[1 - 2*x]
*(2 + 3*x)^(3/2)*(3 + 5*x)^(5/2))/22 - (203*(2 + 3*x)^(5/2)*(3 +
5*x)^(5/2))/(33*Sqrt[1 - 2*x]) + ((2 + 3*x)^(7/2)*(3 + 5*x)^(5/2)
)/(3*(1 - 2*x)^(3/2)) - (174654791*Sqrt[11/3]*EllipticE[ArcSin[Sq
rt[3/7]*Sqrt[1 - 2*x]], 35/33])/12600 - (1313411*Sqrt[11/3]*Ellip
ticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3150
```

Rubi [A] time = 0.569912, antiderivative size = 253, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{(5x+3)^{5/2}(3x+2)^{7/2}}{3(1-2x)^{3/2}}-\frac{203(5x+3)^{5/2}(3x+2)^{5/2}}{33\sqrt{1-2x}}$$

$$-\frac{225}{22}\sqrt{1-2x}(5x+3)^{5/2}(3x+2)^{3/2}-\frac{6277}{154}\sqrt{1-2x}(5x+3)^{5/2}\sqrt{3x+2}-\frac{1310203\sqrt{1-2x}(5x+3)^{3/2}\sqrt{3x+2}}{4620}-\frac{1313411}{630}\sqrt{1-2x}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^(7/2)*(3 + 5*x)^(5/2))/(1 - 2*x)^(5/2),x]
```

```
[Out] (-1313411*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/630 - (13102
03*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/4620 - (6277*Sqrt
[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/154 - (225*Sqrt[1 - 2*x]
*(2 + 3*x)^(3/2)*(3 + 5*x)^(5/2))/22 - (203*(2 + 3*x)^(5/2)*(3 +
5*x)^(5/2))/(33*Sqrt[1 - 2*x]) + ((2 + 3*x)^(7/2)*(3 + 5*x)^(5/2)
)/(3*(1 - 2*x)^(3/2)) - (174654791*Sqrt[11/3]*EllipticE[ArcSin[Sq
rt[3/7]*Sqrt[1 - 2*x]], 35/33])/12600 - (1313411*Sqrt[11/3]*Ellip
ticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/3150
```

Rubi in Sympy [A] time = 54.22, size = 228, normalized size = 0.9

$$-\frac{485\sqrt{-2x+1}\,(3x+2)^{\frac{7}{2}}\sqrt{5x+3}}{18}-\frac{12871\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}\sqrt{5x+3}}{126}-\frac{107983\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\sqrt{5x+3}}{252}-\frac{2513419\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{1260}-\frac{174654791\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{37800}-\frac{1313411\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{9450}-\frac{29\,(3x+2)^{\frac{7}{2}}\,(5x+3)^{\frac{3}{2}}}{3\sqrt{-2x+1}}+\frac{(3x+2)^{\frac{7}{2}}\,(5x+3)^{\frac{5}{2}}}{3\,(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(7/2)*(3+5*x)**(5/2)/(1-2*x)**(5/2),x)
```

```
[Out] -485*sqrt(-2*x + 1)*(3*x + 2)**(7/2)*sqrt(5*x + 3)/18 - 12871*sqr
t(-2*x + 1)*(3*x + 2)**(5/2)*sqrt(5*x + 3)/126 - 107983*sqrt(-2*x
```

```
 + 1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/252 - 2513419*sqrt(-2*x + 1)
*sqrt(3*x + 2)*sqrt(5*x + 3)/1260 - 174654791*sqrt(33)*elliptic_e
(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/37800 - 1313411*sqrt(33)
*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/9450 - 29*(3*
x + 2)**(7/2)*(5*x + 3)**(3/2)/(3*sqrt(-2*x + 1)) + (3*x + 2)**(7
/2)*(5*x + 3)**(5/2)/(3*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.341317, size = 135, normalized size = 0.53

$$-\frac{30\sqrt{3x+2}\sqrt{5x+3}\left(94500x^5+486900x^4+1279350x^3+2783146x^2-12151171x+4641769\right)-87969665\sqrt{2-4x}(2x-1)}{37800(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^(7/2)*(3 + 5*x)^(5/2))/(1 - 2*x)^(5/2),x]
```

```
[Out] -(30*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(4641769 - 12151171*x + 2783146*
x^2 + 1279350*x^3 + 486900*x^4 + 94500*x^5) + 174654791*Sqrt[2 -
4*x]*(-1 + 2*x)*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2
] - 87969665*Sqrt[2 - 4*x]*(-1 + 2*x)*EllipticF[ArcSin[Sqrt[2/11]
*Sqrt[3 + 5*x]], -33/2])/(37800*(1 - 2*x)^(3/2))
```

Maple [C] time = 0.03, size = 296, normalized size = 1.2

$$\frac{1}{37800\,(-1+2\,x)^2\,(15\,x^2+19\,x+6)}\left(-42525000\,x^7+175939330\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(7/2)*(3+5*x)^(5/2)/(1-2*x)^(5/2),x)
```

```
[Out] 1/37800*(-42525000*x^7+175939330*2^(1/2)*EllipticF(1/11*11^(1/2)*
2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(
1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-349309582*2^(1/2)*EllipticE(1/11
*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x
*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-272970000*x^6-87969665
*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11
*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+1
74654791*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Ellipt
icE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^
(1/2))-870250500*x^5-2069287200*x^4+3651350730*x^3+4336405140*x^2
-458597550*x-835518420)*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)
/(-1+2*x)^2/(15*x^2+19*x+6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{5}{2}}(3\,x+2)^{\frac{7}{2}}}{(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(3*x + 2)^(7/2)/(-2*x + 1)^(5/2),x, algorithm="maxima"
```

```
[Out] integrate((5*x + 3)^(5/2)*(3*x + 2)^(7/2)/(-2*x + 1)^(5/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(675\,x^{5}+2160\,x^{4}+2763\,x^{3}+1766\,x^{2}+564\,x+72\right)\sqrt{5\,x+3}\sqrt{3\,x+2}}{\left(4\,x^{2}-4\,x+1\right)\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(3*x + 2)^(7/2)/(-2*x + 1)^(5/2),x, algorithm="fricas"
```

```
[Out] integral((675*x^5 + 2160*x^4 + 2763*x^3 + 1766*x^2 + 564*x + 72)*
sqrt(5*x + 3)*sqrt(3*x + 2)/((4*x^2 - 4*x + 1)*sqrt(-2*x + 1)), x
)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(7/2)*(3+5*x)**(5/2)/(1-2*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{5}{2}}(3\,x+2)^{\frac{7}{2}}}{(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(3*x + 2)^(7/2)/(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)*(3*x + 2)^(7/2)/(-2*x + 1)^(5/2), x)
```

3.2946 $\int \frac{(2+3x)^{5/2}(3+5x)^{5/2}}{(1-2x)^{5/2}} dx$

Optimal. Leaf size=220

$$\frac{(3x+2)^{5/2}(5x+3)^{5/2}}{3(1-2x)^{3/2}}-\frac{170(3x+2)^{3/2}(5x+3)^{5/2}}{33\sqrt{1-2x}}$$
$$-\frac{1355}{154}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}-\frac{28283}{462}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}-\frac{12601}{28}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}-\frac{12601}{140}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\right.$$

```
[Out] (-12601*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/28 - (28283*Sq
rt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/462 - (1355*Sqrt[1 - 2
*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/154 - (170*(2 + 3*x)^(3/2)*(3
+ 5*x)^(5/2))/(33*Sqrt[1 - 2*x]) + ((2 + 3*x)^(5/2)*(3 + 5*x)^(5/
2))/(3*(1 - 2*x)^(3/2)) - (69819*Sqrt[33]*EllipticE[ArcSin[Sqrt[3
/7]*Sqrt[1 - 2*x]], 35/33])/70 - (12601*Sqrt[11/3]*EllipticF[ArcS
in[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/140
```

Rubi [A] time = 0.489052, antiderivative size = 220, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{(3x+2)^{5/2}(5x+3)^{5/2}}{3(1-2x)^{3/2}}-\frac{170(3x+2)^{3/2}(5x+3)^{5/2}}{33\sqrt{1-2x}}$$
$$-\frac{1355}{154}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{5/2}-\frac{28283}{462}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}-\frac{12601}{28}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}-\frac{12601}{140}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\right.$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^(5/2)*(3 + 5*x)^(5/2))/(1 - 2*x)^(5/2),x]
```

```
[Out] (-12601*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/28 - (28283*Sq
rt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/462 - (1355*Sqrt[1 - 2
*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/154 - (170*(2 + 3*x)^(3/2)*(3
+ 5*x)^(5/2))/(33*Sqrt[1 - 2*x]) + ((2 + 3*x)^(5/2)*(3 + 5*x)^(5/
2))/(3*(1 - 2*x)^(3/2)) - (69819*Sqrt[33]*EllipticE[ArcSin[Sqrt[3
/7]*Sqrt[1 - 2*x]], 35/33])/70 - (12601*Sqrt[11/3]*EllipticF[ArcS
in[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/140
```

Rubi in Sympy [A] time = 46.116, size = 199, normalized size = 0.9

$$-\frac{325\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}\sqrt{5x+3}}{14}-\frac{185\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\sqrt{5x+3}}{2}-\frac{12057\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{28}-\frac{69819\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{70}-\frac{138611\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{4900}-\frac{170\,(3x+2)^{\frac{5}{2}}\,(5x+3)^{\frac{3}{2}}}{21\sqrt{-2x+1}}+\frac{(3x+2)^{\frac{5}{2}}\,(5x+3)^{\frac{5}{2}}}{3\,(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(5/2)*(3+5*x)**(5/2)/(1-2*x)**(5/2),x)
```

```
[Out] -325*sqrt(-2*x + 1)*(3*x + 2)**(5/2)*sqrt(5*x + 3)/14 - 185*sqrt(
-2*x + 1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/2 - 12057*sqrt(-2*x + 1)
*sqrt(3*x + 2)*sqrt(5*x + 3)/28 - 69819*sqrt(33)*elliptic_e(asin(
sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/70 - 138611*sqrt(35)*elliptic_
f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/4900 - 170*(3*x + 2)**
(5/2)*(5*x + 3)**(3/2)/(21*sqrt(-2*x + 1)) + (3*x + 2)**(5/2)*(5*
x + 3)**(5/2)/(3*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.342712, size = 130, normalized size = 0.59

$$-\frac{10\sqrt{3x+2}\sqrt{5x+3}\left(2700x^4+12960x^3+36606x^2-175958x+66663\right)-421995\sqrt{2-4x}(2x-1)F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|\right.}{840(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^(5/2)*(3 + 5*x)^(5/2))/(1 - 2*x)^(5/2),x]
```

```
[Out] -(10*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(66663 - 175958*x + 36606*x^2 +
12960*x^3 + 2700*x^4) + 837828*Sqrt[2 - 4*x]*(-1 + 2*x)*EllipticE
[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 421995*Sqrt[2 - 4*x]*
(-1 + 2*x)*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/(8
40*(1 - 2*x)^(3/2))
```

Maple [C] time = 0.03, size = 291, normalized size = 1.3

$$\frac{1}{840\,(-1+2\,x)^2\,(15\,x^2+19\,x+6)}\left(843990\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-1\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(5/2)*(3+5*x)^(5/2)/(1-2*x)^(5/2),x)
```

```
[Out] 1/840*(843990*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/
2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*
(1-2*x)^(1/2)-1675656*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+
5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x
)^(1/2)*(1-2*x)^(1/2)-405000*x^6-421995*2^(1/2)*(3+5*x)^(1/2)*(2+
3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^
(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+837828*2^(1/2)*(3+5*x)^(1/2
)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+
5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-2457000*x^5-8115300*x^
4+18660960*x^3+21236210*x^2-2108490*x-3999780)*(1-2*x)^(1/2)*(3+5
*x)^(1/2)*(2+3*x)^(1/2)/(-1+2*x)^2/(15*x^2+19*x+6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{5}{2}}(3\,x+2)^{\frac{5}{2}}}{(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)^(5/2)/(-2*x + 1)^(5/2),x, algorithm="maxima"
```

```
[Out] integrate((5*x + 3)^(5/2)*(3*x + 2)^(5/2)/(-2*x + 1)^(5/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(225\,x^4+570\,x^3+541\,x^2+228\,x+36\right)\sqrt{5\,x+3}\sqrt{3\,x+2}}{(4\,x^2-4\,x+1)\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)^(5/2)/(-2*x + 1)^(5/2),x, algorithm="fricas"
```

```
[Out] integral((225*x^4 + 570*x^3 + 541*x^2 + 228*x + 36)*sqrt(5*x + 3)
*sqrt(3*x + 2)/((4*x^2 - 4*x + 1)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(5/2)*(3+5*x)**(5/2)/(1-2*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}(3x+2)^{\frac{5}{2}}}{(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)^(5/2)/(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)*(3*x + 2)^(5/2)/(-2*x + 1)^(5/2), x)
```

3.2947 $\int \frac{(2+3x)^{3/2}(3+5x)^{5/2}}{(1-2x)^{5/2}}\,dx$

Optimal. Leaf size=189

$$\frac{(3x+2)^{3/2}(5x+3)^{5/2}}{3(1-2x)^{3/2}}-\frac{137\sqrt{3x+2}(5x+3)^{5/2}}{33\sqrt{1-2x}}-\frac{817}{66}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}-91\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}-\frac{91}{5}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{12101}{20}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\right.$$

```
[Out] -91*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x] - (817*Sqrt[1 - 2*x
]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/66 - (137*Sqrt[2 + 3*x]*(3 + 5*x
)^(5/2))/(33*Sqrt[1 - 2*x]) + ((2 + 3*x)^(3/2)*(3 + 5*x)^(5/2))/(
3*(1 - 2*x)^(3/2)) - (12101*Sqrt[11/3]*EllipticE[ArcSin[Sqrt[3/7]
*Sqrt[1 - 2*x]], 35/33])/20 - (91*Sqrt[11/3]*EllipticF[ArcSin[Sqr
t[3/7]*Sqrt[1 - 2*x]], 35/33])/5
```

Rubi [A] time = 0.404504, antiderivative size = 189, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{(3x+2)^{3/2}(5x+3)^{5/2}}{3(1-2x)^{3/2}}-\frac{137\sqrt{3x+2}(5x+3)^{5/2}}{33\sqrt{1-2x}}-\frac{817}{66}\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}-91\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}-\frac{91}{5}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{12101}{20}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\right.$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^(3/2)*(3 + 5*x)^(5/2))/(1 - 2*x)^(5/2),x]
```

```
[Out] -91*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x] - (817*Sqrt[1 - 2*x
]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2))/66 - (137*Sqrt[2 + 3*x]*(3 + 5*x
)^(5/2))/(33*Sqrt[1 - 2*x]) + ((2 + 3*x)^(3/2)*(3 + 5*x)^(5/2))/(
3*(1 - 2*x)^(3/2)) - (12101*Sqrt[11/3]*EllipticE[ArcSin[Sqrt[3/7]
*Sqrt[1 - 2*x]], 35/33])/20 - (91*Sqrt[11/3]*EllipticF[ArcSin[Sqr
t[3/7]*Sqrt[1 - 2*x]], 35/33])/5
```

Rubi in Sympy [A] time = 38.4149, size = 170, normalized size = 0.9

$$-\frac{275\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\,\sqrt{5x+3}}{14}-\frac{1219\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{14}-\frac{12101\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{60}-\frac{91\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{15}-\frac{137\,(3x+2)^{\frac{3}{2}}\,(5x+3)^{\frac{3}{2}}}{21\sqrt{-2x+1}}+\frac{(3x+2)^{\frac{3}{2}}\,(5x+3)^{\frac{5}{2}}}{3\,(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(3/2)*(3+5*x)**(5/2)/(1-2*x)**(5/2),x)
```

```
[Out] -275*sqrt(-2*x + 1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/14 - 1219*sqrt
(-2*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/14 - 12101*sqrt(33)*ellipt
ic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/60 - 91*sqrt(33)*ell
iptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/15 - 137*(3*x + 2
)**(3/2)*(5*x + 3)**(3/2)/(21*sqrt(-2*x + 1)) + (3*x + 2)**(3/2)*
(5*x + 3)**(5/2)/(3*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.359931, size = 125, normalized size = 0.66

$$-\frac{10\sqrt{3x+2}\sqrt{5x+3}\left(90x^3+438x^2-2579x+957\right)-6095\sqrt{2-4x}(2x-1)F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+12101\sqrt{2-4x}(}{60(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^(3/2)*(3 + 5*x)^(5/2))/(1 - 2*x)^(5/2),x]
```

```
[Out] -(10*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(957 - 2579*x + 438*x^2 + 90*x^3
) + 12101*Sqrt[2 - 4*x]*(-1 + 2*x)*EllipticE[ArcSin[Sqrt[2/11]*Sq
rt[3 + 5*x]], -33/2] - 6095*Sqrt[2 - 4*x]*(-1 + 2*x)*EllipticF[Ar
cSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/(60*(1 - 2*x)^(3/2))
```

Maple [C] time = 0.03, size = 286, normalized size = 1.5

$$\frac{1}{60\,(-1+2\,x)^2\,(15\,x^2+19\,x+6)}\left(12190\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-242\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(3/2)*(3+5*x)^(5/2)/(1-2*x)^(5/2),x)
```

```
[Out] 1/60*(12190*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2)
,1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1
-2*x)^(1/2)-24202*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)
^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1
/2)*(1-2*x)^(1/2)-6095*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x
)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1
/2)*3^(1/2)*2^(1/2))+12101*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1
-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*1
1^(1/2)*3^(1/2)*2^(1/2))-13500*x^5-82800*x^4+298230*x^3+320180*x^
2-27090*x-57420)*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)/(-1+2*
x)^2/(15*x^2+19*x+6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{5}{2}}(3\,x+2)^{\frac{3}{2}}}{(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)^(3/2)/(-2*x + 1)^(5/2),x, algorithm="maxima"
```

```
[Out] integrate((5*x + 3)^(5/2)*(3*x + 2)^(3/2)/(-2*x + 1)^(5/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{(75\,x^3+140\,x^2+87\,x+18)\sqrt{5\,x+3}\sqrt{3\,x+2}}{(4\,x^2-4\,x+1)\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*(3*x + 2)^(3/2)/(-2*x + 1)^(5/2),x, algorithm="fricas"
```

```
[Out] integral((75*x^3 + 140*x^2 + 87*x + 18)*sqrt(5*x + 3)*sqrt(3*x +
2)/((4*x^2 - 4*x + 1)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2+3*x)**(3/2)*(3+5*x)**(5/2)/(1-2*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{5}{2}}(3\,x+2)^{\frac{3}{2}}}{(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*(3*x + 2)^(3/2)/(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)*(3*x + 2)^(3/2)/(-2*x + 1)^(5/2), x)
```

3.2948 $\int \frac{\sqrt{2+3x}(3+5x)^{5/2}}{(1-2x)^{5/2}}\,dx$

Optimal. Leaf size=160

$$\frac{\sqrt{3x+2}(5x+3)^{5/2}}{3(1-2x)^{3/2}}-\frac{104\sqrt{3x+2}(5x+3)^{3/2}}{21\sqrt{1-2x}}-\frac{695}{42}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}-\frac{139}{42}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{4621}{42}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (-695*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/42 - (104*Sqrt[2
 + 3*x]*(3 + 5*x)^(3/2))/(21*Sqrt[1 - 2*x]) + (Sqrt[2 + 3*x]*(3 +
 5*x)^(5/2))/(3*(1 - 2*x)^(3/2)) - (4621*Sqrt[11/3]*EllipticE[Arc
Sin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/42 - (139*Sqrt[11/3]*Ellipt
icF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/42
```

Rubi [A] time = 0.331876, antiderivative size = 160, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{\sqrt{3x+2}(5x+3)^{5/2}}{3(1-2x)^{3/2}}-\frac{104\sqrt{3x+2}(5x+3)^{3/2}}{21\sqrt{1-2x}}-\frac{695}{42}\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}-\frac{139}{42}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{4621}{42}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/(1 - 2*x)^(5/2),x]
```

```
[Out] (-695*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/42 - (104*Sqrt[2
 + 3*x]*(3 + 5*x)^(3/2))/(21*Sqrt[1 - 2*x]) + (Sqrt[2 + 3*x]*(3 +
 5*x)^(5/2))/(3*(1 - 2*x)^(3/2)) - (4621*Sqrt[11/3]*EllipticE[Arc
Sin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/42 - (139*Sqrt[11/3]*Ellipt
icF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/42
```

Rubi in Sympy [A] time = 31.0433, size = 141, normalized size = 0.88

$$-\frac{695\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{42}-\frac{4621\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{126}-\frac{139\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{126}-\frac{104\sqrt{3x+2}\,(5x+3)^{\frac{3}{2}}}{21\sqrt{-2x+1}}+\frac{\sqrt{3x+2}\,(5x+3)^{\frac{5}{2}}}{3\,(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)*(2+3*x)**(1/2)/(1-2*x)**(5/2),x)
```

```
[Out] -695*sqrt(-2*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/42 - 4621*sqrt(33
)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/126 - 139*sq
rt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/126 - 1
04*sqrt(3*x + 2)*(5*x + 3)**(3/2)/(21*sqrt(-2*x + 1)) + sqrt(3*x
+ 2)*(5*x + 3)**(5/2)/(3*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.208972, size = 120, normalized size = 0.75

$$-\frac{6\sqrt{3x+2}\sqrt{5x+3}\left(350x^2-3408x+1193\right)-4655\sqrt{2-4x}(2x-1)F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+9242\sqrt{2-4x}(2x-1)E}{252(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(Sqrt[2 + 3*x]*(3 + 5*x)^(5/2))/(1 - 2*x)^(5/2),x]
```

```
[Out] -(6*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(1193 - 3408*x + 350*x^2) + 9242*
Sqrt[2 - 4*x]*(-1 + 2*x)*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x
]], -33/2] - 4655*Sqrt[2 - 4*x]*(-1 + 2*x)*EllipticF[ArcSin[Sqrt[
2/11]*Sqrt[3 + 5*x]], -33/2])/(252*(1 - 2*x)^(3/2))
```

Maple [C] time = 0.028, size = 286, normalized size = 1.8

$$\frac{1}{(7560x^3+5796x^2-1764x-1512)(-1+2x)}\left(9310\sqrt{2}EllipticF\left(1/11\sqrt{11}\sqrt{2}\sqrt{3+5x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5x}\sqrt{2+3x}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)*(2+3*x)^(1/2)/(1-2*x)^(5/2),x)
```

```
[Out] 1/252*(9310*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2)
,1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1
-2*x)^(1/2)-18484*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)
^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1
/2)*(1-2*x)^(1/2)-4655*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x
)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1
/2)*3^(1/2)*2^(1/2))+9242*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-
2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11
^(1/2)*3^(1/2)*2^(1/2))-31500*x^4+266820*x^3+268542*x^2-13314*x-4
2948)*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(3+5*x)^(1/2)/(30*x^3+23*x^2-7*
x-6)/(-1+2*x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}\sqrt{3x+2}}{(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*sqrt(3*x + 2)/(-2*x + 1)^(5/2),x, algorithm="maxima")
```

```
[Out] integrate((5*x + 3)^(5/2)*sqrt(3*x + 2)/(-2*x + 1)^(5/2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(25x^2+30x+9)\sqrt{5x+3}\sqrt{3x+2}}{(4x^2-4x+1)\sqrt{-2x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)*sqrt(3*x + 2)/(-2*x + 1)^(5/2),x, algorithm="fricas")
```

```
[Out] integral((25*x^2 + 30*x + 9)*sqrt(5*x + 3)*sqrt(3*x + 2)/((4*x^2
- 4*x + 1)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(5/2)*(2+3*x)**(1/2)/(1-2*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}\sqrt{3x+2}}{(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)*sqrt(3*x + 2)/(-2*x + 1)^(5/2),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)*sqrt(3*x + 2)/(-2*x + 1)^(5/2), x)
```

3.2949 $\int \frac{(3+5x)^{5/2}}{(1-2x)^{5/2}\sqrt{2+3x}}\,dx$

Optimal. Leaf size=127

$$\frac{11\sqrt{3x+2}(5x+3)^{3/2}}{21(1-2x)^{3/2}}-\frac{264\sqrt{3x+2}\sqrt{5x+3}}{49\sqrt{1-2x}}-\frac{8}{49}\sqrt{33}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{1597}{98}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (-264*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/(49*Sqrt[1 - 2*x]) + (11*Sqrt[
2 + 3*x]*(3 + 5*x)^(3/2))/(21*(1 - 2*x)^(3/2)) - (1597*Sqrt[11/3]
*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/98 - (8*Sqrt[
33]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/49
```

Rubi [A] time = 0.261373, antiderivative size = 127, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{11\sqrt{3x+2}(5x+3)^{3/2}}{21(1-2x)^{3/2}}-\frac{264\sqrt{3x+2}\sqrt{5x+3}}{49\sqrt{1-2x}}-\frac{8}{49}\sqrt{33}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{1597}{98}\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(5/2)/((1 - 2*x)^(5/2)*Sqrt[2 + 3*x]),x]
```

```
[Out] (-264*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/(49*Sqrt[1 - 2*x]) + (11*Sqrt[
2 + 3*x]*(3 + 5*x)^(3/2))/(21*(1 - 2*x)^(3/2)) - (1597*Sqrt[11/3]
*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/98 - (8*Sqrt[
33]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/49
```

Rubi in Sympy [A] time = 23.6192, size = 114, normalized size = 0.9

$$-\frac{1597\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{294}-\frac{264\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{1715}-\frac{264\sqrt{3x+2}\sqrt{5x+3}}{49\sqrt{-2x+1}}+\frac{11\sqrt{3x+2}\,(5x+3)^{\frac{3}{2}}}{21\,(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)/(1-2*x)**(5/2)/(2+3*x)**(1/2),x)
```

```
[Out] -1597*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)
/294 - 264*sqrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11),
33/35)/1715 - 264*sqrt(3*x + 2)*sqrt(5*x + 3)/(49*sqrt(-2*x + 1))
 + 11*sqrt(3*x + 2)*(5*x + 3)**(3/2)/(21*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.200791, size = 115, normalized size = 0.91

$$-\frac{22\sqrt{3x+2}\sqrt{5x+3}(51-179x)-805\sqrt{2-4x}(2x-1)F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+1597\sqrt{2-4x}(2x-1)E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\right.\right.}{294(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(5/2)/((1 - 2*x)^(5/2)*Sqrt[2 + 3*x]),x]
```

```
[Out] -(22*(51 - 179*x)*Sqrt[2 + 3*x]*Sqrt[3 + 5*x] + 1597*Sqrt[2 - 4*x
]*(-1 + 2*x)*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] -
 805*Sqrt[2 - 4*x]*(-1 + 2*x)*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3
+ 5*x]], -33/2])/(294*(1 - 2*x)^(3/2))
```

Maple [C] time = 0.03, size = 276, normalized size = 2.2

$$\frac{1}{294\,(-1+2\,x)^2\,(15\,x^2+19\,x+6)}\left(1610\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-319$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)/(1-2*x)^(5/2)/(2+3*x)^(1/2),x)
```

```
[Out] 1/294*(1610*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2)
,1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1
-2*x)^(1/2)-3194*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^
(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/
2)*(1-2*x)^(1/2)-805*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^
(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2
)*3^(1/2)*2^(1/2))+1597*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*
x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(
1/2)*3^(1/2)*2^(1/2))+59070*x^3+57992*x^2+2310*x-6732)*(2+3*x)^(1
/2)*(1-2*x)^(1/2)*(3+5*x)^(1/2)/(-1+2*x)^2/(15*x^2+19*x+6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{5}{2}}}{\sqrt{3\,x+2}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/(sqrt(3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="maxima"
```

```
[Out] integrate((5*x + 3)^(5/2)/(sqrt(3*x + 2)*(-2*x + 1)^(5/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(25\,x^2+30\,x+9\right)\sqrt{5\,x+3}}{(4\,x^2-4\,x+1)\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/(sqrt(3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="fricas"
```

```
[Out] integral((25*x^2 + 30*x + 9)*sqrt(5*x + 3)/((4*x^2 - 4*x + 1)*sqr
t(3*x + 2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(5/2)/(1-2*x)**(5/2)/(2+3*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}}{\sqrt{3x+2}(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/(sqrt(3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)/(sqrt(3*x + 2)*(-2*x + 1)^(5/2)), x)
```

3.2950 $\int \frac{(3+5x)^{5/2}}{(1-2x)^{5/2}(2+3x)^{3/2}}\,dx$

Optimal. Leaf size=158

$$\frac{11(5x+3)^{3/2}}{21(1-2x)^{3/2}\sqrt{3x+2}}+\frac{438\sqrt{1-2x}\sqrt{5x+3}}{343\sqrt{3x+2}}-\frac{143\sqrt{5x+3}}{49\sqrt{1-2x}\sqrt{3x+2}}-\frac{17}{343}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{146}{343}\sqrt{33}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

```
[Out] (-143*Sqrt[3 + 5*x])/(49*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]) + (438*Sqrt
[1 - 2*x]*Sqrt[3 + 5*x])/(343*Sqrt[2 + 3*x]) + (11*(3 + 5*x)^(3/2
))/(21*(1 - 2*x)^(3/2)*Sqrt[2 + 3*x]) - (146*Sqrt[33]*EllipticE[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/343 - (17*Sqrt[11/3]*Elli
pticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/343
```

Rubi [A] time = 0.34163, antiderivative size = 158, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{11(5x+3)^{3/2}}{21(1-2x)^{3/2}\sqrt{3x+2}}+\frac{438\sqrt{1-2x}\sqrt{5x+3}}{343\sqrt{3x+2}}-\frac{143\sqrt{5x+3}}{49\sqrt{1-2x}\sqrt{3x+2}}-\frac{17}{343}\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)-\frac{146}{343}\sqrt{33}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(5/2)/((1 - 2*x)^(5/2)*(2 + 3*x)^(3/2)),x]
```

```
[Out] (-143*Sqrt[3 + 5*x])/(49*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]) + (438*Sqrt
[1 - 2*x]*Sqrt[3 + 5*x])/(343*Sqrt[2 + 3*x]) + (11*(3 + 5*x)^(3/2
))/(21*(1 - 2*x)^(3/2)*Sqrt[2 + 3*x]) - (146*Sqrt[33]*EllipticE[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/343 - (17*Sqrt[11/3]*Elli
pticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/343
```

Rubi in Sympy [A] time = 30.0254, size = 143, normalized size = 0.91

$$-\frac{146\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{343}-\frac{187\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{12005}-\frac{292\sqrt{3x+2}\sqrt{5x+3}}{343\sqrt{-2x+1}}+\frac{3\sqrt{5x+3}}{49\sqrt{-2x+1}\sqrt{3x+2}}+\frac{11\left(5x+3\right)^{\frac{3}{2}}}{21\left(-2x+1\right)^{\frac{3}{2}}\sqrt{3x+2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)/(1-2*x)**(5/2)/(2+3*x)**(3/2),x)
```

```
[Out] -146*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/
343 - 187*sqrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 3
3/35)/12005 - 292*sqrt(3*x + 2)*sqrt(5*x + 3)/(343*sqrt(-2*x + 1)
) + 3*sqrt(5*x + 3)/(49*sqrt(-2*x + 1)*sqrt(3*x + 2)) + 11*(5*x +
 3)**(3/2)/(21*(-2*x + 1)**(3/2)*sqrt(3*x + 2))
```

Mathematica [A] time = 0.230418, size = 102, normalized size = 0.65

$$\frac{\frac{2\sqrt{5x+3}(5256x^2+3445x-72)}{(1-2x)^{3/2}\sqrt{3x+2}}-315\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+876\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)}{2058}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(5/2)/((1 - 2*x)^(5/2)*(2 + 3*x)^(3/2)),x]
```

```
[Out] ((2*Sqrt[3 + 5*x]*(-72 + 3445*x + 5256*x^2))/((1 - 2*x)^(3/2)*Sqr
t[2 + 3*x]) + 876*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*
x]], -33/2] - 315*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*
x]], -33/2])/2058
```

Maple [C] time = 0.034, size = 276, normalized size = 1.8

$$\frac{1}{(30870\,x^2+39102\,x+12348)\,(-1+2\,x)^2}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(630\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)/(1-2*x)^(5/2)/(2+3*x)^(3/2),x)
```

```
[Out] 1/2058*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(630*2^(1/2)*Ell
ipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)
*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-1752*2^(1/2
)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^
(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-315*2^
(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11
^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+876*
2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*
11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+52
560*x^3+65986*x^2+19950*x-432)/(15*x^2+19*x+6)/(-1+2*x)^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{5}{2}}}{(3\,x+2)^{\frac{3}{2}}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="maxima
```

```
[Out] integrate((5*x + 3)^(5/2)/((3*x + 2)^(3/2)*(-2*x + 1)^(5/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(25\,x^2+30\,x+9)\sqrt{5\,x+3}}{(12\,x^3-4\,x^2-5\,x+2)\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="fricas
```

```
[Out] integral((25*x^2 + 30*x + 9)*sqrt(5*x + 3)/((12*x^3 - 4*x^2 - 5*x
 + 2)*sqrt(3*x + 2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(5/2)/(1-2*x)**(5/2)/(2+3*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}}{(3x+2)^{\frac{3}{2}}(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="giac"
```

```
[Out] integrate((5*x + 3)^(5/2)/((3*x + 2)^(3/2)*(-2*x + 1)^(5/2)), x)
```

3.2951 $\int \frac{(3+5x)^{5/2}}{(1-2x)^{5/2}(2+3x)^{5/2}}\,dx$

Optimal. Leaf size=191

$$\frac{11(5x+3)^{3/2}}{21(1-2x)^{3/2}(3x+2)^{3/2}}-\frac{169\sqrt{1-2x}\sqrt{5x+3}}{7203\sqrt{3x+2}}+\frac{229\sqrt{1-2x}\sqrt{5x+3}}{1029(3x+2)^{3/2}}-\frac{22\sqrt{5x+3}}{49\sqrt{1-2x}(3x+2)^{3/2}}+\frac{496\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{7203}+\frac{169\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{7203}$$

```
[Out] (-22*Sqrt[3 + 5*x])/(49*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)) + (229*Sqr
t[1 - 2*x]*Sqrt[3 + 5*x])/(1029*(2 + 3*x)^(3/2)) - (169*Sqrt[1 -
2*x]*Sqrt[3 + 5*x])/(7203*Sqrt[2 + 3*x]) + (11*(3 + 5*x)^(3/2))/(
21*(1 - 2*x)^(3/2)*(2 + 3*x)^(3/2)) + (169*Sqrt[11/3]*EllipticE[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/7203 + (496*Sqrt[11/3]*El
lipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/7203
```

Rubi [A] time = 0.421442, antiderivative size = 191, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{11(5x+3)^{3/2}}{21(1-2x)^{3/2}(3x+2)^{3/2}}-\frac{169\sqrt{1-2x}\sqrt{5x+3}}{7203\sqrt{3x+2}}+\frac{229\sqrt{1-2x}\sqrt{5x+3}}{1029(3x+2)^{3/2}}-\frac{22\sqrt{5x+3}}{49\sqrt{1-2x}(3x+2)^{3/2}}+\frac{496\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{7203}+\frac{169\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{7203}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(5/2)/((1 - 2*x)^(5/2)*(2 + 3*x)^(5/2)),x]
```

```
[Out] (-22*Sqrt[3 + 5*x])/(49*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)) + (229*Sqr
t[1 - 2*x]*Sqrt[3 + 5*x])/(1029*(2 + 3*x)^(3/2)) - (169*Sqrt[1 -
2*x]*Sqrt[3 + 5*x])/(7203*Sqrt[2 + 3*x]) + (11*(3 + 5*x)^(3/2))/(
21*(1 - 2*x)^(3/2)*(2 + 3*x)^(3/2)) + (169*Sqrt[11/3]*EllipticE[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/7203 + (496*Sqrt[11/3]*El
lipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/7203
```

Rubi in Sympy [A] time = 37.5768, size = 172, normalized size = 0.9

$$\frac{169\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{21609}+\frac{5456\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{252105}+\frac{338\sqrt{3x+2}\sqrt{5x+3}}{21609\sqrt{-2x+1}}-\frac{209\sqrt{5x+3}}{1029\sqrt{-2x+1}\sqrt{3x+2}}+\frac{31\sqrt{5x+3}}{441\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}}+\frac{11\,(5x+3)^{\frac{3}{2}}}{21\,(-2x+1)^{\frac{3}{2}}\,(3x+2)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)/(1-2*x)**(5/2)/(2+3*x)**(5/2),x)
```

```
[Out] 169*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/2
1609 + 5456*sqrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11),
 33/35)/252105 + 338*sqrt(3*x + 2)*sqrt(5*x + 3)/(21609*sqrt(-2*x
 + 1)) - 209*sqrt(5*x + 3)/(1029*sqrt(-2*x + 1)*sqrt(3*x + 2)) +
31*sqrt(5*x + 3)/(441*sqrt(-2*x + 1)*(3*x + 2)**(3/2)) + 11*(5*x
+ 3)**(3/2)/(21*(-2*x + 1)**(3/2)*(3*x + 2)**(3/2))
```

Mathematica [A] time = 0.279892, size = 105, normalized size = 0.55

$$\frac{-\frac{6\sqrt{5x+3}(1014x^3-3544x^2-9883x-4675)}{(1-2x)^{3/2}(3x+2)^{3/2}}-\sqrt{2}\left(8015F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+169E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)}{21609}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(5/2)/((1 - 2*x)^(5/2)*(2 + 3*x)^(5/2)),x]
```

```
[Out] ((-6*Sqrt[3 + 5*x]*(-4675 - 9883*x - 3544*x^2 + 1014*x^3))/((1 -
2*x)^(3/2)*(2 + 3*x)^(3/2)) - Sqrt[2]*(169*EllipticE[ArcSin[Sqrt[
2/11]*Sqrt[3 + 5*x]], -33/2] + 8015*EllipticF[ArcSin[Sqrt[2/11]*S
qrt[3 + 5*x]], -33/2]))/21609
```

Maple [C] time = 0.034, size = 383, normalized size = 2.

$$\frac{1}{21609\left(-1+2x\right)^2}\sqrt{1-2x}\left(1014\sqrt{2}EllipticE\left(1/11\sqrt{11}\sqrt{2}\sqrt{3+5x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^2\sqrt{3+5x}\sqrt{2+3x}\sqrt{1-2x}+48090\sqrt{2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)/(1-2*x)^(5/2)/(2+3*x)^(5/2),x)
```

```
[Out] 1/21609*(1-2*x)^(1/2)*(1014*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/
2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2
)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+48090*2^(1/2)*EllipticF(1/11*11^(1/
2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5
*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+169*2^(1/2)*EllipticE(1/11*
11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*
(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+8015*2^(1/2)*EllipticF(
1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2
))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-338*2^(1/2)*(3+5*x
)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/
2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-16030*2^(1/2)*(3
+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2
^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-30420*x^4+88
068*x^3+360282*x^2+318144*x+84150)/(2+3*x)^(3/2)/(-1+2*x)^2/(3+5*
x)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}}{(3x+2)^{\frac{5}{2}}(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="maxima
```

```
[Out] integrate((5*x + 3)^(5/2)/((3*x + 2)^(5/2)*(-2*x + 1)^(5/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(25x^2+30x+9\right)\sqrt{5x+3}}{\left(36x^4+12x^3-23x^2-4x+4\right)\sqrt{3x+2}\sqrt{-2x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="frica
```

```
[Out] integral((25*x^2 + 30*x + 9)*sqrt(5*x + 3)/((36*x^4 + 12*x^3 - 23
*x^2 - 4*x + 4)*sqrt(3*x + 2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(5/2)/(1-2*x)**(5/2)/(2+3*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5x+3)^{\frac{5}{2}}}{(3x+2)^{\frac{5}{2}}(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="giac"
```

```
[Out] integrate((5*x + 3)^(5/2)/((3*x + 2)^(5/2)*(-2*x + 1)^(5/2)), x)
```

3.2952 $\int \frac{(3+5x)^{5/2}}{(1-2x)^{5/2}(2+3x)^{7/2}}\,dx$

Optimal. Leaf size=220

$$\frac{11(5x+3)^{3/2}}{21(1-2x)^{3/2}(3x+2)^{5/2}}-\frac{27618\sqrt{1-2x}\sqrt{5x+3}}{84035\sqrt{3x+2}}-\frac{4437\sqrt{1-2x}\sqrt{5x+3}}{12005(3x+2)^{3/2}}-\frac{1432\sqrt{1-2x}\sqrt{5x+3}}{1715(3x+2)^{5/2}}+\frac{99\sqrt{5x+3}}{49\sqrt{1-2x}(3x+2)^{5/2}}-\frac{7738\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{84035}+\frac{9206\sqrt{33}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{84035}$$

```
[Out] (99*Sqrt[3 + 5*x])/(49*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)) - (1432*Sqr
t[1 - 2*x]*Sqrt[3 + 5*x])/(1715*(2 + 3*x)^(5/2)) - (4437*Sqrt[1 -
 2*x]*Sqrt[3 + 5*x])/(12005*(2 + 3*x)^(3/2)) - (27618*Sqrt[1 - 2*
x]*Sqrt[3 + 5*x])/(84035*Sqrt[2 + 3*x]) + (11*(3 + 5*x)^(3/2))/(2
1*(1 - 2*x)^(3/2)*(2 + 3*x)^(5/2)) + (9206*Sqrt[33]*EllipticE[Arc
Sin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/84035 - (7738*Sqrt[11/3]*El
lipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/84035
```

Rubi [A] time = 0.50505, antiderivative size = 220, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{11(5x+3)^{3/2}}{21(1-2x)^{3/2}(3x+2)^{5/2}}-\frac{27618\sqrt{1-2x}\sqrt{5x+3}}{84035\sqrt{3x+2}}-\frac{4437\sqrt{1-2x}\sqrt{5x+3}}{12005(3x+2)^{3/2}}-\frac{1432\sqrt{1-2x}\sqrt{5x+3}}{1715(3x+2)^{5/2}}+\frac{99\sqrt{5x+3}}{49\sqrt{1-2x}(3x+2)^{5/2}}-\frac{7738\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{84035}+\frac{9206\sqrt{33}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{84035}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(5/2)/((1 - 2*x)^(5/2)*(2 + 3*x)^(7/2)),x]
```

```
[Out] (99*Sqrt[3 + 5*x])/(49*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)) - (1432*Sqr
t[1 - 2*x]*Sqrt[3 + 5*x])/(1715*(2 + 3*x)^(5/2)) - (4437*Sqrt[1 -
 2*x]*Sqrt[3 + 5*x])/(12005*(2 + 3*x)^(3/2)) - (27618*Sqrt[1 - 2*
x]*Sqrt[3 + 5*x])/(84035*Sqrt[2 + 3*x]) + (11*(3 + 5*x)^(3/2))/(2
1*(1 - 2*x)^(3/2)*(2 + 3*x)^(5/2)) + (9206*Sqrt[33]*EllipticE[Arc
Sin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/84035 - (7738*Sqrt[11/3]*El
lipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/84035
```

Rubi in Sympy [A] time = 44.9761, size = 201, normalized size = 0.91

$$\frac{9206\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{84035}-\frac{85118\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{2941225}+\frac{18412\sqrt{3x+2}\sqrt{5x+3}}{84035\sqrt{-2x+1}}-\frac{6248\sqrt{5x+3}}{12005\sqrt{-2x+1}\sqrt{3x+2}}-\frac{1573\sqrt{5x+3}}{5145\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}}+\frac{53\sqrt{5x+3}}{735\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}}+\frac{11\,(5x+3)^{\frac{3}{2}}}{21\,(-2x+1)^{\frac{3}{2}}\,(3x+2)^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)/(1-2*x)**(5/2)/(2+3*x)**(7/2),x)
```

```
[Out] 9206*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/
84035 - 85118*sqrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11
```

```
), 33/35)/2941225 + 18412*sqrt(3*x + 2)*sqrt(5*x + 3)/(84035*sqrt
(-2*x + 1)) - 6248*sqrt(5*x + 3)/(12005*sqrt(-2*x + 1)*sqrt(3*x +
 2)) - 1573*sqrt(5*x + 3)/(5145*sqrt(-2*x + 1)*(3*x + 2)**(3/2))
+ 53*sqrt(5*x + 3)/(735*sqrt(-2*x + 1)*(3*x + 2)**(5/2)) + 11*(5*
x + 3)**(3/2)/(21*(-2*x + 1)**(3/2)*(3*x + 2)**(5/2))
```

Mathematica [A] time = 0.300704, size = 110, normalized size = 0.5

$$\frac{3\sqrt{2}\left(51765F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-9206E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)-\frac{2\sqrt{5x+3}(1491372x^4+1056186x^3-718167x^2-640441}{(1-2x)^{3/2}(3x+2)^{5/2}}}{252105}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(5/2)/((1 - 2*x)^(5/2)*(2 + 3*x)^(7/2)),x]
```

```
[Out] ((-2*Sqrt[3 + 5*x]*(-88623 - 640441*x - 718167*x^2 + 1056186*x^3
+ 1491372*x^4))/((1 - 2*x)^(3/2)*(2 + 3*x)^(5/2)) + 3*Sqrt[2]*(-9
206*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 51765*El
lipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]))/252105
```

Maple [C] time = 0.036, size = 502, normalized size = 2.3

$$-\frac{1}{252105\,(-1+2\,x)^2}\sqrt{1-2\,x}\left(2795310\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^3\sqrt{1-2\,x}\sqrt{3+5\,x}\sqrt{2+3\,x}-49$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)/(1-2*x)^(5/2)/(2+3*x)^(7/2),x)
```

```
[Out] -1/252105*(1-2*x)^(1/2)*(2795310*2^(1/2)*EllipticF(1/11*11^(1/2)*
2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)
^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)-497124*2^(1/2)*EllipticE(1/11*
11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^
3*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)+2329425*2^(1/2)*Ellip
ticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2
^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-414270*2^(1
/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*
3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-62
1180*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*
11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(
1/2)+110472*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2)
,1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1
-2*x)^(1/2)-621180*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1
/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*
3^(1/2)*2^(1/2))+110472*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*
x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(
1/2)*3^(1/2)*2^(1/2))+14913720*x^5+19510092*x^4-844554*x^3-107134
12*x^2-4728876*x-531738)/(2+3*x)^(5/2)/(-1+2*x)^2/(3+5*x)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{5}{2}}}{(3\,x+2)^{\frac{7}{2}}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5*x + 3)^(5/2)/((3*x + 2)^(7/2)*(-2*x + 1)^(5/2)),x, algorithm="maxima
```

```
[Out] integrate((5*x + 3)^(5/2)/((3*x + 2)^(7/2)*(-2*x + 1)^(5/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(25\,x^2+30\,x+9\right)\sqrt{5\,x+3}}{\left(108\,x^5+108\,x^4-45\,x^3-58\,x^2+4\,x+8\right)\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)^(7/2)*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] integral((25*x^2 + 30*x + 9)*sqrt(5*x + 3)/((108*x^5 + 108*x^4 -
45*x^3 - 58*x^2 + 4*x + 8)*sqrt(3*x + 2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(5/2)/(1-2*x)**(5/2)/(2+3*x)**(7/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{5}{2}}}{(3\,x+2)^{\frac{7}{2}}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)^(7/2)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] integrate((5*x + 3)^(5/2)/((3*x + 2)^(7/2)*(-2*x + 1)^(5/2)), x)
```

3.2953 $\int \frac{(3+5x)^{5/2}}{(1-2x)^{5/2}(2+3x)^{9/2}}\,dx$

Optimal. Leaf size=253

$$\frac{11(5x+3)^{3/2}}{21(1-2x)^{3/2}(3x+2)^{7/2}}-\frac{98642\sqrt{1-2x}\sqrt{5x+3}}{823543\sqrt{3x+2}}-\frac{33778\sqrt{1-2x}\sqrt{5x+3}}{117649(3x+2)^{3/2}}-\frac{11433\sqrt{1-2x}\sqrt{5x+3}}{16807(3x+2)^{5/2}}-\frac{4545\sqrt{1-2x}\sqrt{5x+3}}{2401(3x+2)^{7/2}}+\frac{220\sqrt{5x+3}}{49\sqrt{1-2x}(3x+2)^{7/2}}-\frac{65672\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{823543}+\frac{98642\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{823543}$$

```
[Out] (220*Sqrt[3 + 5*x])/(49*Sqrt[1 - 2*x]*(2 + 3*x)^(7/2)) - (4545*Sq
rt[1 - 2*x]*Sqrt[3 + 5*x])/(2401*(2 + 3*x)^(7/2)) - (11433*Sqrt[1
 - 2*x]*Sqrt[3 + 5*x])/(16807*(2 + 3*x)^(5/2)) - (33778*Sqrt[1 -
2*x]*Sqrt[3 + 5*x])/(117649*(2 + 3*x)^(3/2)) - (98642*Sqrt[1 - 2*
x]*Sqrt[3 + 5*x])/(823543*Sqrt[2 + 3*x]) + (11*(3 + 5*x)^(3/2))/(
21*(1 - 2*x)^(3/2)*(2 + 3*x)^(7/2)) + (98642*Sqrt[11/3]*EllipticE
[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/823543 - (65672*Sqrt[11
/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/823543
```

Rubi [A] time = 0.592929, antiderivative size = 253, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{11(5x+3)^{3/2}}{21(1-2x)^{3/2}(3x+2)^{7/2}}-\frac{98642\sqrt{1-2x}\sqrt{5x+3}}{823543\sqrt{3x+2}}-\frac{33778\sqrt{1-2x}\sqrt{5x+3}}{117649(3x+2)^{3/2}}-\frac{11433\sqrt{1-2x}\sqrt{5x+3}}{16807(3x+2)^{5/2}}-\frac{4545\sqrt{1-2x}\sqrt{5x+3}}{2401(3x+2)^{7/2}}+\frac{220\sqrt{5x+3}}{49\sqrt{1-2x}(3x+2)^{7/2}}-\frac{65672\sqrt{\frac{11}{3}}F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{823543}+\frac{98642\sqrt{\frac{11}{3}}E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{823543}$$

Antiderivative was successfully verified.

```
[In]  Int[(3 + 5*x)^(5/2)/((1 - 2*x)^(5/2)*(2 + 3*x)^(9/2)),x]
```


```
[Out] (220*Sqrt[3 + 5*x])/(49*Sqrt[1 - 2*x]*(2 + 3*x)^(7/2)) - (4545*Sq
rt[1 - 2*x]*Sqrt[3 + 5*x])/(2401*(2 + 3*x)^(7/2)) - (11433*Sqrt[1
 - 2*x]*Sqrt[3 + 5*x])/(16807*(2 + 3*x)^(5/2)) - (33778*Sqrt[1 -
2*x]*Sqrt[3 + 5*x])/(117649*(2 + 3*x)^(3/2)) - (98642*Sqrt[1 - 2*
x]*Sqrt[3 + 5*x])/(823543*Sqrt[2 + 3*x]) + (11*(3 + 5*x)^(3/2))/(
21*(1 - 2*x)^(3/2)*(2 + 3*x)^(7/2)) + (98642*Sqrt[11/3]*EllipticE
[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/823543 - (65672*Sqrt[11
/3]*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/823543
```

Rubi in Sympy [A] time = 53.1269, size = 230, normalized size = 0.91

$$-\frac{98642\sqrt{-2x+1}\sqrt{5x+3}}{823543\sqrt{3x+2}}+\frac{98642\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{2470629}-\frac{722392\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{28824005}+\frac{67556\sqrt{5x+3}}{352947\sqrt{-2x+1}\sqrt{3x+2}}-\frac{10912\sqrt{5x+3}}{50421\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}}-\frac{781\sqrt{5x+3}}{2401\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}}+\frac{25\sqrt{5x+3}}{343\sqrt{-2x+1}\,(3x+2)^{\frac{7}{2}}}+\frac{11\,(5x+3)^{\frac{3}{2}}}{21\,(-2x+1)^{\frac{3}{2}}\,(3x+2)^{\frac{7}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3+5*x)**(5/2)/(1-2*x)**(5/2)/(2+3*x)**(9/2),x)
```

```
[Out] -98642*sqrt(-2*x + 1)*sqrt(5*x + 3)/(823543*sqrt(3*x + 2)) + 9864
2*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/247
0629 - 722392*sqrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11
), 33/35)/28824005 + 67556*sqrt(5*x + 3)/(352947*sqrt(-2*x + 1)*s
qrt(3*x + 2)) - 10912*sqrt(5*x + 3)/(50421*sqrt(-2*x + 1)*(3*x +
2)**(3/2)) - 781*sqrt(5*x + 3)/(2401*sqrt(-2*x + 1)*(3*x + 2)**(5
/2)) + 25*sqrt(5*x + 3)/(343*sqrt(-2*x + 1)*(3*x + 2)**(7/2)) + 1
1*(5*x + 3)**(3/2)/(21*(-2*x + 1)**(3/2)*(3*x + 2)**(7/2))
```

Mathematica [A] time = 0.439288, size = 113, normalized size = 0.45

$$\frac{2\left(\frac{\sqrt{5x+3}(-15980004x^5-28748088x^4-7681599x^3+10746933x^2+6524789x+866085)}{(1-2x)^{3/2}(3x+2)^{7/2}}+\sqrt{2}\left(591115F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)\middle|-\frac{33}{2}\right)-49321E\left(\sin\right.\right.\right.}{2470629}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(3 + 5*x)^(5/2)/((1 - 2*x)^(5/2)*(2 + 3*x)^(9/2)),x]
```

```
[Out] (2*((Sqrt[3 + 5*x]*(866085 + 6524789*x + 10746933*x^2 - 7681599*x
^3 - 28748088*x^4 - 15980004*x^5))/((1 - 2*x)^(3/2)*(2 + 3*x)^(7/
2)) + Sqrt[2]*(-49321*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]],
 -33/2] + 591115*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/
2])))/2470629
```

Maple [C] time = 0.037, size = 621, normalized size = 2.5

$$-\frac{2}{2470629\,(-1+2\,x)^{2}}\sqrt{1-2\,x}\left(31920210\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^{4}\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+5*x)^(5/2)/(1-2*x)^(5/2)/(2+3*x)^(9/2),x)
```

```
[Out] -2/2470629*(1-2*x)^(1/2)*(31920210*2^(1/2)*EllipticF(1/11*11^(1/2
)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^4*(3+5*
x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-2663334*2^(1/2)*EllipticE(1/
11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))
*x^4*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+47880315*2^(1/2)*E
llipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/
2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)-3995001
*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(
1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/
2)+10640070*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2)
,1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*
(1-2*x)^(1/2)-887778*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5
*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*
x)^(1/2)*(1-2*x)^(1/2)-11822300*2^(1/2)*EllipticF(1/11*11^(1/2)*2
^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1
/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+986420*2^(1/2)*EllipticE(1/11*11^
(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+
5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+79900020*x^6-4728920*2^(1/
2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1
/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+394568*
2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*
11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+19
1680452*x^5+124652259*x^4-30689868*x^3-64864744*x^2-23904792*x-25
98255)/(2+3*x)^(7/2)/(-1+2*x)^2/(3+5*x)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{5}{2}}}{(3\,x+2)^{\frac{9}{2}}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)^(9/2)*(-2*x + 1)^(5/2)),x, algorithm="maxima
```

```
[Out] integrate((5*x + 3)^(5/2)/((3*x + 2)^(9/2)*(-2*x + 1)^(5/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(25\,x^{2}+30\,x+9\right)\sqrt{5\,x+3}}{\left(324\,x^{6}+540\,x^{5}+81\,x^{4}-264\,x^{3}-104\,x^{2}+32\,x+16\right)\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)^(9/2)*(-2*x + 1)^(5/2)),x, algorithm="frica
```

```
[Out] integral((25*x^2 + 30*x + 9)*sqrt(5*x + 3)/((324*x^6 + 540*x^5 +
81*x^4 - 264*x^3 - 104*x^2 + 32*x + 16)*sqrt(3*x + 2)*sqrt(-2*x +
 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+5*x)**(5/2)/(1-2*x)**(5/2)/(2+3*x)**(9/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(5\,x+3)^{\frac{5}{2}}}{(3\,x+2)^{\frac{9}{2}}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5*x + 3)^(5/2)/((3*x + 2)^(9/2)*(-2*x + 1)^(5/2)),x, algorithm="giac"
```

```
[Out] integrate((5*x + 3)^(5/2)/((3*x + 2)^(9/2)*(-2*x + 1)^(5/2)), x)
```

3.2954 $\int \frac{(2+3x)^{9/2}}{(1-2x)^{5/2}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=187

$$\frac{7\sqrt{5x+3}(3x+2)^{7/2}}{33(1-2x)^{3/2}}-\frac{910\sqrt{5x+3}(3x+2)^{5/2}}{363\sqrt{1-2x}}-\frac{27271\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}}{6050}-\frac{317384\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{15125}-\frac{663409F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{13750\sqrt{33}}-\frac{44109377E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{27500\sqrt{33}}$$

```
[Out] (-317384*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/15125 - (2727
1*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/6050 - (910*(2 + 3
*x)^(5/2)*Sqrt[3 + 5*x])/(363*Sqrt[1 - 2*x]) + (7*(2 + 3*x)^(7/2)
*Sqrt[3 + 5*x])/(33*(1 - 2*x)^(3/2)) - (44109377*EllipticE[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(27500*Sqrt[33]) - (663409*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(13750*Sqrt[33])
```

Rubi [A] time = 0.413924, antiderivative size = 187, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{7\sqrt{5x+3}(3x+2)^{7/2}}{33(1-2x)^{3/2}}-\frac{910\sqrt{5x+3}(3x+2)^{5/2}}{363\sqrt{1-2x}}-\frac{27271\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}}{6050}-\frac{317384\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{15125}-\frac{663409F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{13750\sqrt{33}}-\frac{44109377E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{27500\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^(9/2)/((1 - 2*x)^(5/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (-317384*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/15125 - (2727
1*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/6050 - (910*(2 + 3
*x)^(5/2)*Sqrt[3 + 5*x])/(363*Sqrt[1 - 2*x]) + (7*(2 + 3*x)^(7/2)
*Sqrt[3 + 5*x])/(33*(1 - 2*x)^(3/2)) - (44109377*EllipticE[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(27500*Sqrt[33]) - (663409*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(13750*Sqrt[33])
```

Rubi in Sympy [A] time = 38.6434, size = 172, normalized size = 0.92

$$-\frac{27271\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\,\sqrt{5x+3}}{6050}-\frac{317384\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{15125}-\frac{44109377\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{907500}-\frac{663409\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{481250}-\frac{910\,(3x+2)^{\frac{5}{2}}\,\sqrt{5x+3}}{363\sqrt{-2x+1}}+\frac{7\,(3x+2)^{\frac{7}{2}}\,\sqrt{5x+3}}{33\,(-2x+1)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(9/2)/(1-2*x)**(5/2)/(3+5*x)**(1/2),x)
```

```
[Out] -27271*sqrt(-2*x + 1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/6050 - 31738
4*sqrt(-2*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/15125 - 44109377*sqr
t(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/907500 -
```

```
 663409*sqrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/
35)/481250 - 910*(3*x + 2)**(5/2)*sqrt(5*x + 3)/(363*sqrt(-2*x +
1)) + 7*(3*x + 2)**(7/2)*sqrt(5*x + 3)/(33*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.358094, size = 125, normalized size = 0.67

$$-\frac{10\sqrt{3x+2}\sqrt{5x+3}\left(294030x^3+1528956x^2-9445541x+3478434\right)-22216880\sqrt{2-4x}(2x-1)F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)\right|}{907500(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^(9/2)/((1 - 2*x)^(5/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] -(10*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(3478434 - 9445541*x + 1528956*x
^2 + 294030*x^3) + 44109377*Sqrt[2 - 4*x]*(-1 + 2*x)*EllipticE[Ar
cSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 22216880*Sqrt[2 - 4*x]*(
-1 + 2*x)*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/(90
7500*(1 - 2*x)^(3/2))
```

Maple [C] time = 0.03, size = 286, normalized size = 1.5

$$\frac{1}{907500\left(-1+2x\right)^{2}\left(15x^{2}+19x+6\right)}\left(44433760\sqrt{2}EllipticF\left(1/11\sqrt{11}\sqrt{2}\sqrt{3+5x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5x}\sqrt{2+3x}\sqrt{1-2}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(9/2)/(1-2*x)^(5/2)/(3+5*x)^(1/2),x)
```

```
[Out] 1/907500*(44433760*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x
)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(
1/2)*(1-2*x)^(1/2)-88218754*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/
2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*
(2+3*x)^(1/2)*(1-2*x)^(1/2)-22216880*2^(1/2)*(3+5*x)^(1/2)*(2+3*x
)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/
2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+44109377*2^(1/2)*(3+5*x)^(1/2)
*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5
*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-44104500*x^5-285209100*
x^4+1108687710*x^3+1181150330*x^2-94170000*x-208706040)*(3+5*x)^(
1/2)*(1-2*x)^(1/2)*(2+3*x)^(1/2)/(-1+2*x)^2/(15*x^2+19*x+6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{9}{2}}}{\sqrt{5x+3}(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(9/2)/(sqrt(5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="maxima"
```

```
[Out] integrate((3*x + 2)^(9/2)/(sqrt(5*x + 3)*(-2*x + 1)^(5/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(81x^4+216x^3+216x^2+96x+16\right)\sqrt{3x+2}}{\left(4x^2-4x+1\right)\sqrt{5x+3}\sqrt{-2x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(9/2)/(sqrt(5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="fricas"
```

```
[Out] integral((81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16)*sqrt(3*x + 2)/(
(4*x^2 - 4*x + 1)*sqrt(5*x + 3)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2+3*x)**(9/2)/(1-2*x)**(5/2)/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{9}{2}}}{\sqrt{5x+3}(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(9/2)/(sqrt(5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] integrate((3*x + 2)^(9/2)/(sqrt(5*x + 3)*(-2*x + 1)^(5/2)), x)
```

3.2955 $\int \frac{(2+3x)^{7/2}}{(1-2x)^{5/2}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=156

$$\frac{7\sqrt{5x+3}(3x+2)^{5/2}}{33(1-2x)^{3/2}}-\frac{679\sqrt{5x+3}(3x+2)^{3/2}}{363\sqrt{1-2x}}-\frac{4517\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{1210}-\frac{4721F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{550\sqrt{33}}-\frac{78472E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{275\sqrt{33}}$$

```
[Out] (-4517*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/1210 - (679*(2
+ 3*x)^(3/2)*Sqrt[3 + 5*x])/(363*Sqrt[1 - 2*x]) + (7*(2 + 3*x)^(5
/2)*Sqrt[3 + 5*x])/(33*(1 - 2*x)^(3/2)) - (78472*EllipticE[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(275*Sqrt[33]) - (4721*Ellipti
cF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(550*Sqrt[33])
```

Rubi [A] time = 0.332968, antiderivative size = 156, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{7\sqrt{5x+3}(3x+2)^{5/2}}{33(1-2x)^{3/2}}-\frac{679\sqrt{5x+3}(3x+2)^{3/2}}{363\sqrt{1-2x}}-\frac{4517\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{1210}-\frac{4721F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{550\sqrt{33}}-\frac{78472E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{275\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^(7/2)/((1 - 2*x)^(5/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (-4517*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/1210 - (679*(2
+ 3*x)^(3/2)*Sqrt[3 + 5*x])/(363*Sqrt[1 - 2*x]) + (7*(2 + 3*x)^(5
/2)*Sqrt[3 + 5*x])/(33*(1 - 2*x)^(3/2)) - (78472*EllipticE[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(275*Sqrt[33]) - (4721*Ellipti
cF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(550*Sqrt[33])
```

Rubi in Sympy [A] time = 31.0858, size = 143, normalized size = 0.92

$$-\frac{4517\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{1210}-\frac{78472\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{9075}-\frac{4721\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{19250}-\frac{679\left(3x+2\right)^{\frac{3}{2}}\sqrt{5x+3}}{363\sqrt{-2x+1}}+\frac{7\left(3x+2\right)^{\frac{5}{2}}\sqrt{5x+3}}{33\left(-2x+1\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(7/2)/(1-2*x)**(5/2)/(3+5*x)**(1/2),x)
```

```
[Out] -4517*sqrt(-2*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/1210 - 78472*sqr
t(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/9075 - 4
721*sqrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/
19250 - 679*(3*x + 2)**(3/2)*sqrt(5*x + 3)/(363*sqrt(-2*x + 1)) +
 7*(3*x + 2)**(5/2)*sqrt(5*x + 3)/(33*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.320229, size = 120, normalized size = 0.77

$$-\frac{10\sqrt{3x+2}\sqrt{5x+3}\left(6534x^2-70234x+24051\right)-158095\sqrt{2-4x}(2x-1)F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+313888\sqrt{2-4x}}{36300(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^(7/2)/((1 - 2*x)^(5/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] -(10*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(24051 - 70234*x + 6534*x^2) + 3
13888*Sqrt[2 - 4*x]*(-1 + 2*x)*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3
 + 5*x]], -33/2] - 158095*Sqrt[2 - 4*x]*(-1 + 2*x)*EllipticF[ArcS
in[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/(36300*(1 - 2*x)^(3/2))
```

Maple [C] time = 0.03, size = 281, normalized size = 1.8

$$\frac{1}{36300\,(-1+2\,x)^{2}\,(15\,x^{2}+19\,x+6)}\left(316190\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(7/2)/(1-2*x)^(5/2)/(3+5*x)^(1/2),x)
```

```
[Out] 1/36300*(316190*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(
1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2
)*(1-2*x)^(1/2)-627776*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3
+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*
x)^(1/2)*(1-2*x)^(1/2)-158095*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)
*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*
I*11^(1/2)*3^(1/2)*2^(1/2))+313888*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^
(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2)
,1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-980100*x^4+9293640*x^3+9344770*x
^2-355650*x-1443060)*(3+5*x)^(1/2)*(1-2*x)^(1/2)*(2+3*x)^(1/2)/(-
1+2*x)^2/(15*x^2+19*x+6)
```

Maple [F] time = 0., size = 0, normalized size = 0.

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{7}{2}}}{\sqrt{5\,x+3}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(7/2)/(sqrt(5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="maxima"
```

```
[Out] integrate((3*x + 2)^(7/2)/(sqrt(5*x + 3)*(-2*x + 1)^(5/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(27\,x^{3}+54\,x^{2}+36\,x+8\right)\sqrt{3\,x+2}}{(4\,x^{2}-4\,x+1)\sqrt{5\,x+3}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(7/2)/(sqrt(5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="fricas"
```

```
[Out] integral((27*x^3 + 54*x^2 + 36*x + 8)*sqrt(3*x + 2)/((4*x^2 - 4*x
 + 1)*sqrt(5*x + 3)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(7/2)/(1-2*x)**(5/2)/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{7}{2}}}{\sqrt{5x+3}(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(7/2)/(sqrt(5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] integrate((3*x + 2)^(7/2)/(sqrt(5*x + 3)*(-2*x + 1)^(5/2)), x)
```

3.2956 $\int \frac{(2+3x)^{5/2}}{(1-2x)^{5/2}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=125

$$\frac{7\sqrt{5x+3}(3x+2)^{3/2}}{33(1-2x)^{3/2}}-\frac{448\sqrt{5x+3}\sqrt{3x+2}}{363\sqrt{1-2x}}-\frac{67F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{55\sqrt{33}}-\frac{4451E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{110\sqrt{33}}$$

```
[Out] (-448*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/(363*Sqrt[1 - 2*x]) + (7*(2 +
3*x)^(3/2)*Sqrt[3 + 5*x])/(33*(1 - 2*x)^(3/2)) - (4451*EllipticE[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(110*Sqrt[33]) - (67*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(55*Sqrt[33])
```

Rubi [A] time = 0.260752, antiderivative size = 125, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{7\sqrt{5x+3}(3x+2)^{3/2}}{33(1-2x)^{3/2}}-\frac{448\sqrt{5x+3}\sqrt{3x+2}}{363\sqrt{1-2x}}-\frac{67F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{55\sqrt{33}}-\frac{4451E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{110\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^(5/2)/((1 - 2*x)^(5/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (-448*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/(363*Sqrt[1 - 2*x]) + (7*(2 +
3*x)^(3/2)*Sqrt[3 + 5*x])/(33*(1 - 2*x)^(3/2)) - (4451*EllipticE[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(110*Sqrt[33]) - (67*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(55*Sqrt[33])
```

Rubi in Sympy [A] time = 23.8243, size = 114, normalized size = 0.91

$$-\frac{4451\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{3630}-\frac{67\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{1925}-\frac{448\sqrt{3x+2}\sqrt{5x+3}}{363\sqrt{-2x+1}}+\frac{7\left(3x+2\right)^{\frac{3}{2}}\sqrt{5x+3}}{33\left(-2x+1\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(5/2)/(1-2*x)**(5/2)/(3+5*x)**(1/2),x)
```

```
[Out] -4451*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)
/3630 - 67*sqrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11),
33/35)/1925 - 448*sqrt(3*x + 2)*sqrt(5*x + 3)/(363*sqrt(-2*x + 1)
) + 7*(3*x + 2)**(3/2)*sqrt(5*x + 3)/(33*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.358694, size = 120, normalized size = 0.96

$$-\frac{1}{2}\sqrt{11-5(1-2x)}\sqrt{7-3(1-2x)}\left(\frac{1127}{726\sqrt{1-2x}}-\frac{49}{66(1-2x)^{3/2}}\right)-\frac{2240F\left(\sin^{-1}\left(\frac{\sqrt{11-5(1-2x)}}{\sqrt{11}}\right)|-\frac{33}{2}\right)-4451E\left(\sin^{-1}\left(\frac{\sqrt{11-5(1-2x)}}{\sqrt{11}}\right)|-\frac{33}{2}\right)}{1815\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^(5/2)/((1 - 2*x)^(5/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] -((-49/(66*(1 - 2*x)^(3/2)) + 1127/(726*Sqrt[1 - 2*x]))*Sqrt[11 -
 5*(1 - 2*x)]*Sqrt[7 - 3*(1 - 2*x)])/2 - (-4451*EllipticE[ArcSin[
Sqrt[11 - 5*(1 - 2*x)]/Sqrt[11]], -33/2] + 2240*EllipticF[ArcSin[
Sqrt[11 - 5*(1 - 2*x)]/Sqrt[11]], -33/2])/(1815*Sqrt[2])
```

Maple [C] time = 0.03, size = 276, normalized size = 2.2

$$\frac{1}{3630 \left(-1+2 x\right)^{2} \left(15 x^{2}+19 x+6\right)}\left(4480 \sqrt{2} EllipticF \left(1/11 \sqrt{11}\sqrt{2}\sqrt{3+5 x}, i/2\sqrt{11}\sqrt{3}\sqrt{2}\right) x\sqrt{3+5 x}\sqrt{2+3 x}\sqrt{1-2 x}-89$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(5/2)/(1-2*x)^(5/2)/(3+5*x)^(1/2),x)
```

```
[Out] 1/3630*(4480*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2
),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(
1-2*x)^(1/2)-8902*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)
^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1
/2)*(1-2*x)^(1/2)-2240*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x
)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1
/2)*3^(1/2)*2^(1/2))+4451*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-
2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11
^(1/2)*3^(1/2)*2^(1/2))+169050*x^3+170030*x^2+11760*x-17640)*(3+5
*x)^(1/2)*(1-2*x)^(1/2)*(2+3*x)^(1/2)/(-1+2*x)^2/(15*x^2+19*x+6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3 x+2)^{\frac{5}{2}}}{\sqrt{5 x+3}(-2 x+1)^{\frac{5}{2}}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(5/2)/(sqrt(5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="maxima"
```

```
[Out] integrate((3*x + 2)^(5/2)/(sqrt(5*x + 3)*(-2*x + 1)^(5/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\left(9 x^{2}+12 x+4\right)\sqrt{3 x+2}}{(4 x^{2}-4 x+1)\sqrt{5 x+3}\sqrt{-2 x+1}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(5/2)/(sqrt(5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="fricas"
```

```
[Out] integral((9*x^2 + 12*x + 4)*sqrt(3*x + 2)/((4*x^2 - 4*x + 1)*sqrt
(5*x + 3)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(5/2)/(1-2*x)**(5/2)/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{5}{2}}}{\sqrt{5x+3}(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(5/2)/(sqrt(5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] integrate((3*x + 2)^(5/2)/(sqrt(5*x + 3)*(-2*x + 1)^(5/2)), x)
```

3.2957 $\int \frac{(2+3x)^{3/2}}{(1-2x)^{5/2}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=125

$$-\frac{62\sqrt{3x+2}\sqrt{5x+3}}{363\sqrt{1-2x}}+\frac{7\sqrt{3x+2}\sqrt{5x+3}}{33(1-2x)^{3/2}}-\frac{F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{11\sqrt{33}}-\frac{31E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{11\sqrt{33}}$$

```
[Out] (7*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/(33*(1 - 2*x)^(3/2)) - (62*Sqrt[2
 + 3*x]*Sqrt[3 + 5*x])/(363*Sqrt[1 - 2*x]) - (31*EllipticE[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(11*Sqrt[33]) - EllipticF[ArcS
in[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33]/(11*Sqrt[33])
```

Rubi [A] time = 0.262152, antiderivative size = 125, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{62\sqrt{3x+2}\sqrt{5x+3}}{363\sqrt{1-2x}}+\frac{7\sqrt{3x+2}\sqrt{5x+3}}{33(1-2x)^{3/2}}-\frac{F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{11\sqrt{33}}-\frac{31E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{11\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^(3/2)/((1 - 2*x)^(5/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (7*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/(33*(1 - 2*x)^(3/2)) - (62*Sqrt[2
 + 3*x]*Sqrt[3 + 5*x])/(363*Sqrt[1 - 2*x]) - (31*EllipticE[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(11*Sqrt[33]) - EllipticF[ArcS
in[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33]/(11*Sqrt[33])
```

Rubi in Sympy [A] time = 23.4718, size = 112, normalized size = 0.9

$$-\frac{31\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{363}-\frac{\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{385}-\frac{62\sqrt{3x+2}\sqrt{5x+3}}{363\sqrt{-2x+1}}+\frac{7\sqrt{3x+2}\sqrt{5x+3}}{33\left(-2x+1\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(3/2)/(1-2*x)**(5/2)/(3+5*x)**(1/2),x)
```

```
[Out] -31*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/3
63 - sqrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)
/385 - 62*sqrt(3*x + 2)*sqrt(5*x + 3)/(363*sqrt(-2*x + 1)) + 7*sq
rt(3*x + 2)*sqrt(5*x + 3)/(33*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.251364, size = 115, normalized size = 0.92

$$\frac{2\sqrt{3x+2}\sqrt{5x+3}(124x+15)+29\sqrt{2-4x}(2x-1)F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-62\sqrt{2-4x}(2x-1)E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+\right.\right.}{726(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^(3/2)/((1 - 2*x)^(5/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (2*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(15 + 124*x) - 62*Sqrt[2 - 4*x]*(-
1 + 2*x)*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 29*
```

```
Sqrt[2 - 4*x]*(-1 + 2*x)*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x
]], -33/2])/(726*(1 - 2*x)^(3/2))
```

Maple [C] time = 0.032, size = 276, normalized size = 2.2

$$\frac{1}{726\,(-1+2\,x)^{2}\,(15\,x^{2}+19\,x+6)}\left(58\,\sqrt{2}\mathit{EllipticF}\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-124\,\sqrt{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(3/2)/(1-2*x)^(5/2)/(3+5*x)^(1/2),x)
```

```
[Out] 1/726*(58*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1
/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2
*x)^(1/2)-124*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/
2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*
(1-2*x)^(1/2)-29*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2
)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^
(1/2)*2^(1/2))+62*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/
2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3
^(1/2)*2^(1/2))+3720*x^3+5162*x^2+2058*x+180)*(3+5*x)^(1/2)*(1-2*
x)^(1/2)*(2+3*x)^(1/2)/(-1+2*x)^2/(15*x^2+19*x+6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{3}{2}}}{\sqrt{5\,x+3}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(3/2)/(sqrt(5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="maxima"
```

```
[Out] integrate((3*x + 2)^(3/2)/(sqrt(5*x + 3)*(-2*x + 1)^(5/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{(3\,x+2)^{\frac{3}{2}}}{(4\,x^{2}-4\,x+1)\sqrt{5\,x+3}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(3/2)/(sqrt(5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="fricas"
```

```
[Out] integral((3*x + 2)^(3/2)/((4*x^2 - 4*x + 1)*sqrt(5*x + 3)*sqrt(-2
*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(3/2)/(1-2*x)**(5/2)/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{3}{2}}}{\sqrt{5x+3}(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(3/2)/(sqrt(5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] integrate((3*x + 2)^(3/2)/(sqrt(5*x + 3)*(-2*x + 1)^(5/2)), x)
```

3.2958 $\int \frac{\sqrt{2+3x}}{(1-2x)^{5/2}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=125

$$\frac{74\sqrt{3x+2}\sqrt{5x+3}}{2541\sqrt{1-2x}}+\frac{2\sqrt{3x+2}\sqrt{5x+3}}{33(1-2x)^{3/2}}-\frac{2F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{77\sqrt{33}}+\frac{37E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{77\sqrt{33}}$$

```
[Out] (2*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/(33*(1 - 2*x)^(3/2)) + (74*Sqrt[2
 + 3*x]*Sqrt[3 + 5*x])/(2541*Sqrt[1 - 2*x]) + (37*EllipticE[ArcSi
n[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(77*Sqrt[33]) - (2*EllipticF[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(77*Sqrt[33])
```

Rubi [A] time = 0.264263, antiderivative size = 125, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{74\sqrt{3x+2}\sqrt{5x+3}}{2541\sqrt{1-2x}}+\frac{2\sqrt{3x+2}\sqrt{5x+3}}{33(1-2x)^{3/2}}-\frac{2F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{77\sqrt{33}}+\frac{37E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{77\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[2 + 3*x]/((1 - 2*x)^(5/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (2*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/(33*(1 - 2*x)^(3/2)) + (74*Sqrt[2
 + 3*x]*Sqrt[3 + 5*x])/(2541*Sqrt[1 - 2*x]) + (37*EllipticE[ArcSi
n[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(77*Sqrt[33]) - (2*EllipticF[
ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(77*Sqrt[33])
```

Rubi in Sympy [A] time = 23.7677, size = 114, normalized size = 0.91

$$\frac{37\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{2541}-\frac{2\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{2695}+\frac{74\sqrt{3x+2}\sqrt{5x+3}}{2541\sqrt{-2x+1}}+\frac{2\sqrt{3x+2}\sqrt{5x+3}}{33\left(-2x+1\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(1/2)/(1-2*x)**(5/2)/(3+5*x)**(1/2),x)
```

```
[Out] 37*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/25
41 - 2*sqrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/3
5)/2695 + 74*sqrt(3*x + 2)*sqrt(5*x + 3)/(2541*sqrt(-2*x + 1)) +
2*sqrt(3*x + 2)*sqrt(5*x + 3)/(33*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.203294, size = 115, normalized size = 0.92

$$-\frac{4\sqrt{3x+2}\sqrt{5x+3}(37x-57)+70\sqrt{2-4x}(2x-1)F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-37\sqrt{2-4x}(2x-1)E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+\right.\right.}{2541(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[2 + 3*x]/((1 - 2*x)^(5/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] -(4*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(-57 + 37*x) - 37*Sqrt[2 - 4*x]*(
-1 + 2*x)*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 70
```

```
*Sqrt[2 - 4*x]*(-1 + 2*x)*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*
x]], -33/2])/(2541*(1 - 2*x)^(3/2))
```

Maple [C] time = 0.03, size = 276, normalized size = 2.2

$$-\frac{1}{2541\left(-1+2x\right)^{2}\left(15x^{2}+19x+6\right)}\left(140\sqrt{2}EllipticF\left(1/11\sqrt{11}\sqrt{2}\sqrt{3+5x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5x}\sqrt{2+3x}\sqrt{1-2x}-7\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(1/2)/(1-2*x)^(5/2)/(3+5*x)^(1/2),x)
```

```
[Out] -1/2541*(140*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2
),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(
1-2*x)^(1/2)-74*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(
1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2
)*(1-2*x)^(1/2)-70*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1
/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*
3^(1/2)*2^(1/2))+37*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(
1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)
*3^(1/2)*2^(1/2))+2220*x^3-608*x^2-3444*x-1368)*(3+5*x)^(1/2)*(1-
2*x)^(1/2)*(2+3*x)^(1/2)/(-1+2*x)^2/(15*x^2+19*x+6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{3x+2}}{\sqrt{5x+3}(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(3*x + 2)/(sqrt(5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(3*x + 2)/(sqrt(5*x + 3)*(-2*x + 1)^(5/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{3x+2}}{(4x^2-4x+1)\sqrt{5x+3}\sqrt{-2x+1}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(3*x + 2)/(sqrt(5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="fricas")
```

```
[Out] integral(sqrt(3*x + 2)/((4*x^2 - 4*x + 1)*sqrt(5*x + 3)*sqrt(-2*x
 + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(1/2)/(1-2*x)**(5/2)/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{3x+2}}{\sqrt{5x+3}(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(3*x + 2)/(sqrt(5*x + 3)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] integrate(sqrt(3*x + 2)/(sqrt(5*x + 3)*(-2*x + 1)^(5/2)), x)
```

3.2959 $\int \frac{1}{(1-2x)^{5/2}\sqrt{2+3x}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=125

$$\frac{544\sqrt{3x+2}\sqrt{5x+3}}{17787\sqrt{1-2x}}+\frac{4\sqrt{3x+2}\sqrt{5x+3}}{231(1-2x)^{3/2}}-\frac{202F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{539\sqrt{33}}+\frac{272E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{539\sqrt{33}}$$

```
[Out] (4*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/(231*(1 - 2*x)^(3/2)) + (544*Sqrt
[2 + 3*x]*Sqrt[3 + 5*x])/(17787*Sqrt[1 - 2*x]) + (272*EllipticE[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(539*Sqrt[33]) - (202*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(539*Sqrt[33])
```

Rubi [A] time = 0.269793, antiderivative size = 125, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{544\sqrt{3x+2}\sqrt{5x+3}}{17787\sqrt{1-2x}}+\frac{4\sqrt{3x+2}\sqrt{5x+3}}{231(1-2x)^{3/2}}-\frac{202F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{539\sqrt{33}}+\frac{272E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{539\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(5/2)*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]),x]
```

```
[Out] (4*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/(231*(1 - 2*x)^(3/2)) + (544*Sqrt
[2 + 3*x]*Sqrt[3 + 5*x])/(17787*Sqrt[1 - 2*x]) + (272*EllipticE[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(539*Sqrt[33]) - (202*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(539*Sqrt[33])
```

Rubi in Sympy [A] time = 23.6227, size = 114, normalized size = 0.91

$$\frac{272\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{17787}-\frac{202\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{17787}+\frac{544\sqrt{3x+2}\sqrt{5x+3}}{17787\sqrt{-2x+1}}+\frac{4\sqrt{3x+2}\sqrt{5x+3}}{231\left(-2x+1\right)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(5/2)/(2+3*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] 272*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/1
7787 - 202*sqrt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 3
5/33)/17787 + 544*sqrt(3*x + 2)*sqrt(5*x + 3)/(17787*sqrt(-2*x +
1)) + 4*sqrt(3*x + 2)*sqrt(5*x + 3)/(231*(-2*x + 1)**(3/2))
```

Mathematica [A] time = 0.19446, size = 115, normalized size = 0.92

$$-\frac{4\sqrt{3x+2}\sqrt{5x+3}(272x-213)+3605\sqrt{2-4x}(2x-1)F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-272\sqrt{2-4x}(2x-1)E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\right.\right.}{17787(1-2x)^{3/2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(5/2)*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]),x]
```

```
[Out] -(4*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]*(-213 + 272*x) - 272*Sqrt[2 - 4*x
]*(-1 + 2*x)*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] +
 3605*Sqrt[2 - 4*x]*(-1 + 2*x)*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3
 + 5*x]], -33/2])/(17787*(1 - 2*x)^(3/2))
```

Maple [C] time = 0.033, size = 276, normalized size = 2.2

$$-\frac{1}{17787\,(-1+2\,x)^{2}\,(15\,x^{2}+19\,x+6)}\left(7210\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(5/2)/(2+3*x)^(1/2)/(3+5*x)^(1/2),x)
```

```
[Out] -1/17787*(7210*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1
/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)
*(1-2*x)^(1/2)-544*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x
)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(
1/2)*(1-2*x)^(1/2)-3605*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*
x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(
1/2)*3^(1/2)*2^(1/2))+272*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-
2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11
^(1/2)*3^(1/2)*2^(1/2))+16320*x^3+7892*x^2-9660*x-5112)*(3+5*x)^(
1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)/(-1+2*x)^2/(15*x^2+19*x+6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{5\,x+3}\sqrt{3\,x+2}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(5*x + 3)*sqrt(3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="maxima"
```

```
[Out] integrate(1/(sqrt(5*x + 3)*sqrt(3*x + 2)*(-2*x + 1)^(5/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{1}{(4\,x^{2}-4\,x+1)\sqrt{5\,x+3}\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(5*x + 3)*sqrt(3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="fricas"
```

```
[Out] integral(1/((4*x^2 - 4*x + 1)*sqrt(5*x + 3)*sqrt(3*x + 2)*sqrt(-2
*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(5/2)/(2+3*x)**(1/2)/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{5x+3}\sqrt{3x+2}(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(5*x + 3)*sqrt(3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] integrate(1/(sqrt(5*x + 3)*sqrt(3*x + 2)*(-2*x + 1)^(5/2)), x)
```

3.2960 $\int \frac{1}{(1-2x)^{5/2}(2+3x)^{3/2}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=156

$$\frac{5594\sqrt{1-2x}\sqrt{5x+3}}{41503\sqrt{3x+2}}+\frac{808\sqrt{5x+3}}{17787\sqrt{1-2x}\sqrt{3x+2}}+\frac{4\sqrt{5x+3}}{231(1-2x)^{3/2}\sqrt{3x+2}}-\frac{1196F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3773\sqrt{33}}-\frac{5594E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3773\sqrt{33}}$$

```
[Out] (4*Sqrt[3 + 5*x])/(231*(1 - 2*x)^(3/2)*Sqrt[2 + 3*x]) + (808*Sqrt
[3 + 5*x])/(17787*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]) + (5594*Sqrt[1 - 2
*x]*Sqrt[3 + 5*x])/(41503*Sqrt[2 + 3*x]) - (5594*EllipticE[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(3773*Sqrt[33]) - (1196*Ellipt
icF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(3773*Sqrt[33])
```

Rubi [A] time = 0.349597, antiderivative size = 156, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{5594\sqrt{1-2x}\sqrt{5x+3}}{41503\sqrt{3x+2}}+\frac{808\sqrt{5x+3}}{17787\sqrt{1-2x}\sqrt{3x+2}}+\frac{4\sqrt{5x+3}}{231(1-2x)^{3/2}\sqrt{3x+2}}-\frac{1196F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3773\sqrt{33}}-\frac{5594E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3773\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(5/2)*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (4*Sqrt[3 + 5*x])/(231*(1 - 2*x)^(3/2)*Sqrt[2 + 3*x]) + (808*Sqrt
[3 + 5*x])/(17787*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]) + (5594*Sqrt[1 - 2
*x]*Sqrt[3 + 5*x])/(41503*Sqrt[2 + 3*x]) - (5594*EllipticE[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(3773*Sqrt[33]) - (1196*Ellipt
icF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(3773*Sqrt[33])
```

Rubi in Sympy [A] time = 30.4918, size = 143, normalized size = 0.92

$$-\frac{5594\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{124509}-\frac{1196\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{124509}-\frac{11188\sqrt{3x+2}\sqrt{5x+3}}{124509\sqrt{-2x+1}}+\frac{194\sqrt{5x+3}}{539\sqrt{-2x+1}\sqrt{3x+2}}+\frac{4\sqrt{5x+3}}{231\left(-2x+1\right)^{\frac{3}{2}}\sqrt{3x+2}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(5/2)/(2+3*x)**(3/2)/(3+5*x)**(1/2),x)
```

```
[Out] -5594*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)
/124509 - 1196*sqrt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7
), 35/33)/124509 - 11188*sqrt(3*x + 2)*sqrt(5*x + 3)/(124509*sqrt
(-2*x + 1)) + 194*sqrt(5*x + 3)/(539*sqrt(-2*x + 1)*sqrt(3*x + 2)
) + 4*sqrt(5*x + 3)/(231*(-2*x + 1)**(3/2)*sqrt(3*x + 2))
```

Mathematica [A] time = 0.203302, size = 98, normalized size = 0.63

$$\frac{2\left(\frac{\sqrt{5x+3}(33564x^2-39220x+12297)}{(1-2x)^{3/2}\sqrt{3x+2}}+\sqrt{2}\left(7070F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+2797E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)\right)}{124509}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(5/2)*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (2*((Sqrt[3 + 5*x]*(12297 - 39220*x + 33564*x^2))/((1 - 2*x)^(3/2
)*Sqrt[2 + 3*x]) + Sqrt[2]*(2797*EllipticE[ArcSin[Sqrt[2/11]*Sqrt
[3 + 5*x]], -33/2] + 7070*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*
x]], -33/2])))/124509
```

Maple [C] time = 0.038, size = 276, normalized size = 1.8

$$-\frac{2}{(1867635\,x^2+2365671\,x+747054)(-1+2\,x)^2}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(14140\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{1}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(5/2)/(2+3*x)^(3/2)/(3+5*x)^(1/2),x)
```

```
[Out] -2/124509*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(14140*2^(1/2
)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^
(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+5594*2
^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/
2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-7
070*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1
/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2)
)-2797*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Elliptic
E(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1
/2))-167820*x^3+95408*x^2+56175*x-36891)/(15*x^2+19*x+6)/(-1+2*x)
^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{5\,x+3}(3\,x+2)^{\frac{3}{2}}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(5*x + 3)*(3*x + 2)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="maxima
```

```
[Out] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^(3/2)*(-2*x + 1)^(5/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{(12\,x^3-4\,x^2-5\,x+2)\sqrt{5\,x+3}\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(5*x + 3)*(3*x + 2)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="fricas
```

```
[Out] integral(1/((12*x^3 - 4*x^2 - 5*x + 2)*sqrt(5*x + 3)*sqrt(3*x + 2
)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(5/2)/(2+3*x)**(3/2)/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{5x+3}(3x+2)^{\frac{3}{2}}(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="giac"
```

```
[Out] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^(3/2)*(-2*x + 1)^(5/2)), x)
```

3.2961 $\int \frac{1}{(1-2x)^{5/2}(2+3x)^{5/2}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=187

$$\frac{184636\sqrt{1-2x}\sqrt{5x+3}}{290521\sqrt{3x+2}}+\frac{974\sqrt{1-2x}\sqrt{5x+3}}{41503(3x+2)^{3/2}}+\frac{1072\sqrt{5x+3}}{17787\sqrt{1-2x}(3x+2)^{3/2}}+\frac{4\sqrt{5x+3}}{231(1-2x)^{3/2}(3x+2)^{3/2}}-\frac{9124F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{26411\sqrt{33}}-\frac{184636E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{26411\sqrt{33}}$$

```
[Out] (4*Sqrt[3 + 5*x])/(231*(1 - 2*x)^(3/2)*(2 + 3*x)^(3/2)) + (1072*S
qrt[3 + 5*x])/(17787*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)) + (974*Sqrt[1
 - 2*x]*Sqrt[3 + 5*x])/(41503*(2 + 3*x)^(3/2)) + (184636*Sqrt[1 -
 2*x]*Sqrt[3 + 5*x])/(290521*Sqrt[2 + 3*x]) - (184636*EllipticE[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(26411*Sqrt[33]) - (9124*
EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(26411*Sqrt[33
])
```

Rubi [A] time = 0.429983, antiderivative size = 187, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.179$

$$\frac{184636\sqrt{1-2x}\sqrt{5x+3}}{290521\sqrt{3x+2}}+\frac{974\sqrt{1-2x}\sqrt{5x+3}}{41503(3x+2)^{3/2}}+\frac{1072\sqrt{5x+3}}{17787\sqrt{1-2x}(3x+2)^{3/2}}+\frac{4\sqrt{5x+3}}{231(1-2x)^{3/2}(3x+2)^{3/2}}-\frac{9124F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{26411\sqrt{33}}-\frac{184636E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{26411\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(5/2)*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (4*Sqrt[3 + 5*x])/(231*(1 - 2*x)^(3/2)*(2 + 3*x)^(3/2)) + (1072*S
qrt[3 + 5*x])/(17787*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)) + (974*Sqrt[1
 - 2*x]*Sqrt[3 + 5*x])/(41503*(2 + 3*x)^(3/2)) + (184636*Sqrt[1 -
 2*x]*Sqrt[3 + 5*x])/(290521*Sqrt[2 + 3*x]) - (184636*EllipticE[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(26411*Sqrt[33]) - (9124*
EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(26411*Sqrt[33
])
```

Rubi in Sympy [A] time = 37.49, size = 172, normalized size = 0.92

$$-\frac{184636\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{871563}-\frac{9124\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{871563}-\frac{369272\sqrt{3x+2}\sqrt{5x+3}}{871563\sqrt{-2x+1}}+\frac{5536\sqrt{5x+3}}{3773\sqrt{-2x+1}\sqrt{3x+2}}+\frac{62\sqrt{5x+3}}{539\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}}+\frac{4\sqrt{5x+3}}{231\,(-2x+1)^{\frac{3}{2}}\,(3x+2)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(5/2)/(2+3*x)**(5/2)/(3+5*x)**(1/2),x)
```

```
[Out] -184636*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/3
3)/871563 - 9124*sqrt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)
/7), 35/33)/871563 - 369272*sqrt(3*x + 2)*sqrt(5*x + 3)/(871563*s
qrt(-2*x + 1)) + 5536*sqrt(5*x + 3)/(3773*sqrt(-2*x + 1)*sqrt(3*x
 + 2)) + 62*sqrt(5*x + 3)/(539*sqrt(-2*x + 1)*(3*x + 2)**(3/2)) +
 4*sqrt(5*x + 3)/(231*(-2*x + 1)**(3/2)*(3*x + 2)**(3/2))
```

Mathematica [A] time = 0.298264, size = 103, normalized size = 0.55

$$\frac{2\left(\frac{\sqrt{5x+3}(3323448x^3-1066908x^2-1478206x+597945)}{(1-2x)^{3/2}(3x+2)^{3/2}}+\sqrt{2}\left(92318E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-17045F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right.\right.\right.}{871563}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(5/2)*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] (2*((Sqrt[3 + 5*x]*(597945 - 1478206*x - 1066908*x^2 + 3323448*x^
3))/((1 - 2*x)^(3/2)*(2 + 3*x)^(3/2)) + Sqrt[2]*(92318*EllipticE[
ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 17045*EllipticF[ArcSin
[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])))/871563
```

Maple [C] time = 0.036, size = 383, normalized size = 2.1

$$\frac{2}{871563\,(-1+2\,x)^2}\sqrt{1-2\,x}\left(102270\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^2\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-5539$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(5/2)/(2+3*x)^(5/2)/(3+5*x)^(1/2),x)
```

```
[Out] 2/871563*(1-2*x)^(1/2)*(102270*2^(1/2)*EllipticF(1/11*11^(1/2)*2^
(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(
1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-553908*2^(1/2)*EllipticE(1/11*11
^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*
(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+17045*2^(1/2)*EllipticF
(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/
2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-92318*2^(1/2)*Ell
ipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)
*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-34090*2^(1/
2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1
/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+184636*
2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*
11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+16
617240*x^4+4635804*x^3-10591754*x^2-1444893*x+1793835)/(2+3*x)^(3
/2)/(-1+2*x)^2/(3+5*x)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{5\,x+3}(3\,x+2)^{\frac{5}{2}}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(5*x + 3)*(3*x + 2)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="maxima
```

```
[Out] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^(5/2)*(-2*x + 1)^(5/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{(36\,x^4+12\,x^3-23\,x^2-4\,x+4)\sqrt{5\,x+3}\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(sqrt(5*x + 3)*(3*x + 2)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="frica
```

```
[Out] integral(1/((36*x^4 + 12*x^3 - 23*x^2 - 4*x + 4)*sqrt(5*x + 3)*sq
rt(3*x + 2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(1-2*x)**(5/2)/(2+3*x)**(5/2)/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{5\,x+3}(3\,x+2)^{\frac{5}{2}}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="giac"
```

```
[Out] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^(5/2)*(-2*x + 1)^(5/2)), x)
```

3.2962 $\int \frac{1}{(1-2x)^{5/2}(2+3x)^{7/2}\sqrt{3+5x}}\,dx$

Optimal. Leaf size=218

$$\frac{26062156\sqrt{1-2x}\sqrt{5x+3}}{10168235\sqrt{3x+2}}+\frac{349904\sqrt{1-2x}\sqrt{5x+3}}{1452605(3x+2)^{3/2}}-\frac{806\sqrt{1-2x}\sqrt{5x+3}}{207515(3x+2)^{5/2}}+\frac{1336\sqrt{5x+3}}{17787\sqrt{1-2x}(3x+2)^{5/2}}+\frac{4\sqrt{5x+3}}{231(1-2x)^{3/2}(3x+2)^{5/2}}-\frac{837304F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{924385\sqrt{33}}-\frac{26062156E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{924385\sqrt{33}}$$

```
[Out] (4*Sqrt[3 + 5*x])/(231*(1 - 2*x)^(3/2)*(2 + 3*x)^(5/2)) + (1336*S
qrt[3 + 5*x])/(17787*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)) - (806*Sqrt[1
 - 2*x]*Sqrt[3 + 5*x])/(207515*(2 + 3*x)^(5/2)) + (349904*Sqrt[1
- 2*x]*Sqrt[3 + 5*x])/(1452605*(2 + 3*x)^(3/2)) + (26062156*Sqrt[
1 - 2*x]*Sqrt[3 + 5*x])/(10168235*Sqrt[2 + 3*x]) - (26062156*Elli
pticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(924385*Sqrt[33])
- (837304*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(924
385*Sqrt[33])
```

Rubi [A] time = 0.515687, antiderivative size = 218, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{26062156\sqrt{1-2x}\sqrt{5x+3}}{10168235\sqrt{3x+2}}+\frac{349904\sqrt{1-2x}\sqrt{5x+3}}{1452605(3x+2)^{3/2}}-\frac{806\sqrt{1-2x}\sqrt{5x+3}}{207515(3x+2)^{5/2}}+\frac{1336\sqrt{5x+3}}{17787\sqrt{1-2x}(3x+2)^{5/2}}+\frac{4\sqrt{5x+3}}{231(1-2x)^{3/2}(3x+2)^{5/2}}-\frac{837304F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{924385\sqrt{33}}-\frac{26062156E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{924385\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(5/2)*(2 + 3*x)^(7/2)*Sqrt[3 + 5*x]),x]
```


```
[Out] (4*Sqrt[3 + 5*x])/(231*(1 - 2*x)^(3/2)*(2 + 3*x)^(5/2)) + (1336*S
qrt[3 + 5*x])/(17787*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)) - (806*Sqrt[1
 - 2*x]*Sqrt[3 + 5*x])/(207515*(2 + 3*x)^(5/2)) + (349904*Sqrt[1
- 2*x]*Sqrt[3 + 5*x])/(1452605*(2 + 3*x)^(3/2)) + (26062156*Sqrt[
1 - 2*x]*Sqrt[3 + 5*x])/(10168235*Sqrt[2 + 3*x]) - (26062156*Elli
pticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(924385*Sqrt[33])
- (837304*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(924
385*Sqrt[33])
```

Rubi in Sympy [A] time = 45.4901, size = 201, normalized size = 0.92

$$-\frac{26062156\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{30504705}-\frac{837304\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{32353475}-\frac{52124312\sqrt{3x+2}\sqrt{5x+3}}{30504705\sqrt{-2x+1}}+\frac{768556\sqrt{5x+3}}{132055\sqrt{-2x+1}\sqrt{3x+2}}+\frac{10652\sqrt{5x+3}}{18865\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}}+\frac{178\sqrt{5x+3}}{2695\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}}+\frac{4\sqrt{5x+3}}{231\,(-2x+1)^{\frac{3}{2}}\,(3x+2)^{\frac{5}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(5/2)/(2+3*x)**(7/2)/(3+5*x)**(1/2),x)
```

```
[Out] -26062156*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35
/33)/30504705 - 837304*sqrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*
x + 1)/11), 33/35)/32353475 - 52124312*sqrt(3*x + 2)*sqrt(5*x + 3
)/(30504705*sqrt(-2*x + 1)) + 768556*sqrt(5*x + 3)/(132055*sqrt(-
2*x + 1)*sqrt(3*x + 2)) + 10652*sqrt(5*x + 3)/(18865*sqrt(-2*x +
1)*(3*x + 2)**(3/2)) + 178*sqrt(5*x + 3)/(2695*sqrt(-2*x + 1)*(3*
x + 2)**(5/2)) + 4*sqrt(5*x + 3)/(231*(-2*x + 1)**(3/2)*(3*x + 2)
**(5/2))
```

Mathematica [A] time = 0.433269, size = 107, normalized size = 0.49

$$\frac{\frac{2\sqrt{10x+6}(1407356424x^4+513206712x^3-914077314x^2-176797172x+165071409)}{(1-2x)^{3/2}(3x+2)^{5/2}} - 24493280F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right) + 52124312E\left(\sin^{-}\right.}{30504705\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(5/2)*(2 + 3*x)^(7/2)*Sqrt[3 + 5*x]),x]
```

```
[Out] ((2*Sqrt[6 + 10*x]*(165071409 - 176797172*x - 914077314*x^2 + 513
206712*x^3 + 1407356424*x^4))/((1 - 2*x)^(3/2)*(2 + 3*x)^(5/2)) +
 52124312*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 24
493280*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/(30504
705*Sqrt[2])
```

Maple [C] time = 0.038, size = 502, normalized size = 2.3

$$\frac{2}{30504705\,(-1+2\,x)^2}\sqrt{1-2\,x}\left(110219760\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^3\sqrt{1-2\,x}\sqrt{3+5\,x}\sqrt{2+3\,x}-\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(5/2)/(2+3*x)^(7/2)/(3+5*x)^(1/2),x)
```

```
[Out] 2/30504705*(1-2*x)^(1/2)*(110219760*2^(1/2)*EllipticF(1/11*11^(1/
2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2
*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)-234559404*2^(1/2)*EllipticE
(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/
2))*x^3*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)+91849800*2^(1/2
)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^
(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-1954
66170*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I
*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x
)^(1/2)-24493280*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^
(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/
2)*(1-2*x)^(1/2)+52124312*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)
*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2
+3*x)^(1/2)*(1-2*x)^(1/2)-24493280*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^
(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2)
,1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+52124312*2^(1/2)*(3+5*x)^(1/2)*(
2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x
)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+7036782120*x^5+6788102832
*x^4-3030766434*x^3-3626217802*x^2+294965529*x+495214227)/(2+3*x)
^(5/2)/(-1+2*x)^2/(3+5*x)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{5\,x+3}(3\,x+2)^{\frac{7}{2}}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^(7/2)*(-2*x + 1)^(5/2)),x, algorithm="maxima
```

```
[Out] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^(7/2)*(-2*x + 1)^(5/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{(108\,x^5 + 108\,x^4 - 45\,x^3 - 58\,x^2 + 4\,x + 8)\sqrt{5\,x + 3}\sqrt{3\,x + 2}\sqrt{-2\,x + 1}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^(7/2)*(-2*x + 1)^(5/2)),x, algorithm="fricas
```

```
[Out] integral(1/((108*x^5 + 108*x^4 - 45*x^3 - 58*x^2 + 4*x + 8)*sqrt(
5*x + 3)*sqrt(3*x + 2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(5/2)/(2+3*x)**(7/2)/(3+5*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt{5\,x + 3}(3\,x + 2)^{\frac{7}{2}}(-2\,x + 1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^(7/2)*(-2*x + 1)^(5/2)),x, algorithm="giac"
```

```
[Out] integrate(1/(sqrt(5*x + 3)*(3*x + 2)^(7/2)*(-2*x + 1)^(5/2)), x)
```

3.2963 $\int \frac{(2+3x)^{11/2}}{(1-2x)^{5/2}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=218

$$\frac{7(3x+2)^{9/2}}{33(1-2x)^{3/2}\sqrt{5x+3}}-\frac{896(3x+2)^{7/2}}{363\sqrt{1-2x}\sqrt{5x+3}}+\frac{4439\sqrt{1-2x}(3x+2)^{5/2}}{19965\sqrt{5x+3}}-\frac{932783\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}}{332750}-\frac{21713939\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{1663750}-\frac{11346991F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{378125\sqrt{33}}-\frac{1508889271E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1512500\sqrt{33}}$$

```
[Out] (4439*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2))/(19965*Sqrt[3 + 5*x]) - (896
*(2 + 3*x)^(7/2))/(363*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) + (7*(2 + 3*x
)^(9/2))/(33*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x]) - (21713939*Sqrt[1 -
2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/1663750 - (932783*Sqrt[1 - 2*x]
*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/332750 - (1508889271*EllipticE[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(1512500*Sqrt[33]) - (1134
6991*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(378125*S
qrt[33])
```

Rubi [A] time = 0.493724, antiderivative size = 218, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{7(3x+2)^{9/2}}{33(1-2x)^{3/2}\sqrt{5x+3}}-\frac{896(3x+2)^{7/2}}{363\sqrt{1-2x}\sqrt{5x+3}}+\frac{4439\sqrt{1-2x}(3x+2)^{5/2}}{19965\sqrt{5x+3}}-\frac{932783\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}}{332750}-\frac{21713939\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{1663750}-\frac{11346991F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{378125\sqrt{33}}-\frac{1508889271E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1512500\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^(11/2)/((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (4439*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2))/(19965*Sqrt[3 + 5*x]) - (896
*(2 + 3*x)^(7/2))/(363*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) + (7*(2 + 3*x
)^(9/2))/(33*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x]) - (21713939*Sqrt[1 -
2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/1663750 - (932783*Sqrt[1 - 2*x]
*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/332750 - (1508889271*EllipticE[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(1512500*Sqrt[33]) - (1134
6991*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(378125*S
qrt[33])
```

Rubi in Sympy [A] time = 46.2477, size = 201, normalized size = 0.92

$$\frac{4439\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}}{19965\sqrt{5x+3}}-\frac{932783\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\,\sqrt{5x+3}}{332750}-\frac{21713939\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{1663750}-\frac{1508889271\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{49912500}-\frac{11346991\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{12478125}-\frac{896\,(3x+2)^{\frac{7}{2}}}{363\sqrt{-2x+1}\sqrt{5x+3}}+\frac{7\,(3x+2)^{\frac{9}{2}}}{33\,(-2x+1)^{\frac{3}{2}}\,\sqrt{5x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(11/2)/(1-2*x)**(5/2)/(3+5*x)**(3/2),x)
```

```
[Out] 4439*sqrt(-2*x + 1)*(3*x + 2)**(5/2)/(19965*sqrt(5*x + 3)) - 9327
83*sqrt(-2*x + 1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/332750 - 2171393
9*sqrt(-2*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/1663750 - 1508889271
*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/4991
2500 - 11346991*sqrt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/
7), 35/33)/12478125 - 896*(3*x + 2)**(7/2)/(363*sqrt(-2*x + 1)*sq
rt(5*x + 3)) + 7*(3*x + 2)**(9/2)/(33*(-2*x + 1)**(3/2)*sqrt(5*x
+ 3))
```

Mathematica [A] time = 0.403644, size = 107, normalized size = 0.49

$$\frac{-\frac{5\sqrt{6x+4}\left(48514950x^4+286777260x^3-1463754851x^2-376752444x+356556921\right)}{(1-2x)^{3/2}\sqrt{5x+3}}-759987865F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+1508889271E\left(s\right.}{24956250\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^(11/2)/((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] ((-5*Sqrt[4 + 6*x]*(356556921 - 376752444*x - 1463754851*x^2 + 28
6777260*x^3 + 48514950*x^4))/((1 - 2*x)^(3/2)*Sqrt[3 + 5*x]) + 15
08889271*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 759
987865*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/(24956
250*Sqrt[2])
```

Maple [C] time = 0.037, size = 286, normalized size = 1.3

$$\frac{1}{(748687500\,x^2+948337500\,x+299475000)\,(-1+2\,x)^2}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(1519975730\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(11/2)/(1-2*x)^(5/2)/(3+5*x)^(3/2),x)
```

```
[Out] 1/49912500*(2+3*x)^(1/2)*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(1519975730*
2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1
/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-
3017778542*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),
1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-
2*x)^(1/2)-759987865*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^
(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2
)*3^(1/2)*2^(1/2))+1508889271*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)
*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*
I*11^(1/2)*3^(1/2)*2^(1/2))-1455448500*x^5-9573616800*x^4+3817710
0330*x^3+40577670340*x^2-3161658750*x-7131138420)/(15*x^2+19*x+6)
/(-1+2*x)^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{11}{2}}}{(5\,x+3)^{\frac{3}{2}}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(11/2)/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="maxi
```

```
[Out] integrate((3*x + 2)^(11/2)/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240\,x+32\right)\sqrt{3\,x+2}}{\left(20\,x^3-8\,x^2-7\,x+3\right)\sqrt{5\,x+3}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(11/2)/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="fric
```

```
[Out] integral((243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)*sq
rt(3*x + 2)/((20*x^3 - 8*x^2 - 7*x + 3)*sqrt(5*x + 3)*sqrt(-2*x +
 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(11/2)/(1-2*x)**(5/2)/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{11}{2}}}{(5\,x+3)^{\frac{3}{2}}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(11/2)/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="giac
```

```
[Out] integrate((3*x + 2)^(11/2)/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)), x)
```

3.2964 $\int \frac{(2+3x)^{9/2}}{(1-2x)^{5/2}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=187

$$\frac{7(3x+2)^{7/2}}{33(1-2x)^{3/2}\sqrt{5x+3}}-\frac{665(3x+2)^{5/2}}{363\sqrt{1-2x}\sqrt{5x+3}}+\frac{3284\sqrt{1-2x}(3x+2)^{3/2}}{19965\sqrt{5x+3}}-\frac{153319\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{66550}-\frac{160297F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{30250\sqrt{33}}-\frac{5327983E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{30250\sqrt{33}}$$

```
[Out] (3284*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2))/(19965*Sqrt[3 + 5*x]) - (665
*(2 + 3*x)^(5/2))/(363*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) + (7*(2 + 3*x
)^(7/2))/(33*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x]) - (153319*Sqrt[1 - 2*
x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/66550 - (5327983*EllipticE[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(30250*Sqrt[33]) - (160297*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(30250*Sqrt[33])
```

Rubi [A] time = 0.415272, antiderivative size = 187, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.214$

$$\frac{7(3x+2)^{7/2}}{33(1-2x)^{3/2}\sqrt{5x+3}}-\frac{665(3x+2)^{5/2}}{363\sqrt{1-2x}\sqrt{5x+3}}+\frac{3284\sqrt{1-2x}(3x+2)^{3/2}}{19965\sqrt{5x+3}}-\frac{153319\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{66550}-\frac{160297F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{30250\sqrt{33}}-\frac{5327983E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{30250\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^(9/2)/((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (3284*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2))/(19965*Sqrt[3 + 5*x]) - (665
*(2 + 3*x)^(5/2))/(363*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) + (7*(2 + 3*x
)^(7/2))/(33*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x]) - (153319*Sqrt[1 - 2*
x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/66550 - (5327983*EllipticE[ArcSin
[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(30250*Sqrt[33]) - (160297*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(30250*Sqrt[33])
```

Rubi in Sympy [A] time = 38.7033, size = 172, normalized size = 0.92

$$\frac{3284\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}}{19965\sqrt{5x+3}}-\frac{153319\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{66550}-\frac{5327983\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{998250}-\frac{160297\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{1058750}-\frac{665\,(3x+2)^{\frac{5}{2}}}{363\sqrt{-2x+1}\sqrt{5x+3}}+\frac{7\,(3x+2)^{\frac{7}{2}}}{33\,(-2x+1)^{\frac{3}{2}}\,\sqrt{5x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(9/2)/(1-2*x)**(5/2)/(3+5*x)**(3/2),x)
```

```
[Out] 3284*sqrt(-2*x + 1)*(3*x + 2)**(3/2)/(19965*sqrt(5*x + 3)) - 1533
19*sqrt(-2*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/66550 - 5327983*sqr
t(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/998250 -
 160297*sqrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/
```

```
35)/1058750 - 665*(3*x + 2)**(5/2)/(363*sqrt(-2*x + 1)*sqrt(5*x +
 3)) + 7*(3*x + 2)**(7/2)/(33*(-2*x + 1)**(3/2)*sqrt(5*x + 3))
```

Mathematica [A] time = 0.378951, size = 102, normalized size = 0.55

$$\frac{-\frac{5\sqrt{6x+4}(1078110x^3-11321446x^2-3117099x+2438391)}{(1-2x)^{3/2}\sqrt{5x+3}} - 5366165F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right) + 10655966E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\right.}{998250\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^(9/2)/((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] ((-5*Sqrt[4 + 6*x]*(2438391 - 3117099*x - 11321446*x^2 + 1078110*
x^3))/((1 - 2*x)^(3/2)*Sqrt[3 + 5*x]) + 10655966*EllipticE[ArcSin
[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 5366165*EllipticF[ArcSin[Sqr
t[2/11]*Sqrt[3 + 5*x]], -33/2])/(998250*Sqrt[2])
```

Maple [C] time = 0.036, size = 281, normalized size = 1.5

$$\frac{1}{(29947500\,x^2+37933500\,x+11979000)(-1+2\,x)^2}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(10732330\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(9/2)/(1-2*x)^(5/2)/(3+5*x)^(3/2),x)
```

```
[Out] 1/1996500*(2+3*x)^(1/2)*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(10732330*2^(
1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)
*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-213
11932*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I
*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^
(1/2)-5366165*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*E
llipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/
2)*2^(1/2))+10655966*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^
(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2
)*3^(1/2)*2^(1/2))-32343300*x^4+318081180*x^3+319941890*x^2-10809
750*x-48767820)/(15*x^2+19*x+6)/(-1+2*x)^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{9}{2}}}{(5\,x+3)^{\frac{3}{2}}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(9/2)/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="maxima
```

```
[Out] integrate((3*x + 2)^(9/2)/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(81\,x^4+216\,x^3+216\,x^2+96\,x+16)\sqrt{3\,x+2}}{(20\,x^3-8\,x^2-7\,x+3)\sqrt{5\,x+3}\sqrt{-2\,x+1}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(9/2)/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="frica
```

```
[Out] integral((81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16)*sqrt(3*x + 2)/(
(20*x^3 - 8*x^2 - 7*x + 3)*sqrt(5*x + 3)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(9/2)/(1-2*x)**(5/2)/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{9}{2}}}{(5x+3)^{\frac{3}{2}}(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(9/2)/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="giac"
```

```
[Out] integrate((3*x + 2)^(9/2)/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)), x)
```

3.2965 $\int \frac{(2+3x)^{7/2}}{(1-2x)^{5/2}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=156

$$\frac{7(3x+2)^{5/2}}{33(1-2x)^{3/2}\sqrt{5x+3}}-\frac{434(3x+2)^{3/2}}{363\sqrt{1-2x}\sqrt{5x+3}}+\frac{2129\sqrt{1-2x}\sqrt{3x+2}}{19965\sqrt{5x+3}}-\frac{2252F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3025\sqrt{33}}-\frac{148831E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{6050\sqrt{33}}$$

```
[Out] (2129*Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/(19965*Sqrt[3 + 5*x]) - (434*(
2 + 3*x)^(3/2))/(363*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) + (7*(2 + 3*x)^
(5/2))/(33*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x]) - (148831*EllipticE[Arc
Sin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(6050*Sqrt[33]) - (2252*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(3025*Sqrt[33])
```

Rubi [A] time = 0.337265, antiderivative size = 156, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{7(3x+2)^{5/2}}{33(1-2x)^{3/2}\sqrt{5x+3}}-\frac{434(3x+2)^{3/2}}{363\sqrt{1-2x}\sqrt{5x+3}}+\frac{2129\sqrt{1-2x}\sqrt{3x+2}}{19965\sqrt{5x+3}}-\frac{2252F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3025\sqrt{33}}-\frac{148831E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{6050\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^(7/2)/((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2)),x]
```


```
[Out] (2129*Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/(19965*Sqrt[3 + 5*x]) - (434*(
2 + 3*x)^(3/2))/(363*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) + (7*(2 + 3*x)^
(5/2))/(33*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x]) - (148831*EllipticE[Arc
Sin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(6050*Sqrt[33]) - (2252*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(3025*Sqrt[33])
```

Rubi in Sympy [A] time = 31.0929, size = 143, normalized size = 0.92

$$\frac{2129\sqrt{-2x+1}\sqrt{3x+2}}{19965\sqrt{5x+3}}-\frac{148831\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{199650}-\frac{2252\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{105875}-\frac{434\,(3x+2)^{\frac{3}{2}}}{363\sqrt{-2x+1}\sqrt{5x+3}}+\frac{7\,(3x+2)^{\frac{5}{2}}}{33\,(-2x+1)^{\frac{3}{2}}\sqrt{5x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(7/2)/(1-2*x)**(5/2)/(3+5*x)**(3/2),x)
```

```
[Out] 2129*sqrt(-2*x + 1)*sqrt(3*x + 2)/(19965*sqrt(5*x + 3)) - 148831*
sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/19965
0 - 2252*sqrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33
/35)/105875 - 434*(3*x + 2)**(3/2)/(363*sqrt(-2*x + 1)*sqrt(5*x +
 3)) + 7*(3*x + 2)**(5/2)/(33*(-2*x + 1)**(3/2)*sqrt(5*x + 3))
```

Mathematica [A] time = 0.337097, size = 97, normalized size = 0.62

$$\frac{\frac{5\sqrt{6x+4}\left(189851x^2+66174x-28671\right)}{(1-2x)^{3/2}\sqrt{5x+3}}-74515F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+148831E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)}{99825\sqrt{2}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^(7/2)/((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] ((5*Sqrt[4 + 6*x]*(-28671 + 66174*x + 189851*x^2))/((1 - 2*x)^(3/
2)*Sqrt[3 + 5*x]) + 148831*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5
*x]], -33/2] - 74515*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]],
-33/2])/(99825*Sqrt[2])
```

Maple [C] time = 0.034, size = 276, normalized size = 1.8

$$\frac{1}{(2994750\,x^2+3793350\,x+1197900)(-1+2\,x)^2}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(149030\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(7/2)/(1-2*x)^(5/2)/(3+5*x)^(3/2),x)
```

```
[Out] 1/199650*(2+3*x)^(1/2)*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(149030*2^(1/2
)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^
(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-297662
*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(
1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)
-74515*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Elliptic
F(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1
/2))+148831*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Ell
ipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)
*2^(1/2))+5695530*x^3+5782240*x^2+463350*x-573420)/(15*x^2+19*x+6
)/(-1+2*x)^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{7}{2}}}{(5\,x+3)^{\frac{3}{2}}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(7/2)/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="maxima
```

```
[Out] integrate((3*x + 2)^(7/2)/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(27\,x^3+54\,x^2+36\,x+8)\sqrt{3\,x+2}}{(20\,x^3-8\,x^2-7\,x+3)\sqrt{5\,x+3}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(7/2)/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="fricas
```

```
[Out] integral((27*x^3 + 54*x^2 + 36*x + 8)*sqrt(3*x + 2)/((20*x^3 - 8*
x^2 - 7*x + 3)*sqrt(5*x + 3)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(7/2)/(1-2*x)**(5/2)/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{7}{2}}}{(5\,x+3)^{\frac{3}{2}}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(7/2)/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="giac"
```

```
[Out] integrate((3*x + 2)^(7/2)/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)), x)
```

3.2966 $\int \frac{(2+3x)^{5/2}}{(1-2x)^{5/2}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=156

$$\frac{7(3x+2)^{3/2}}{33(1-2x)^{3/2}\sqrt{5x+3}}+\frac{974\sqrt{1-2x}\sqrt{3x+2}}{3993\sqrt{5x+3}}-\frac{203\sqrt{3x+2}}{363\sqrt{1-2x}\sqrt{5x+3}}-\frac{41F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{605\sqrt{33}}-\frac{974E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{605\sqrt{33}}$$

```
[Out] (-203*Sqrt[2 + 3*x])/(363*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) + (974*Sqr
t[1 - 2*x]*Sqrt[2 + 3*x])/(3993*Sqrt[3 + 5*x]) + (7*(2 + 3*x)^(3/
2))/(33*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x]) - (974*EllipticE[ArcSin[Sq
rt[3/7]*Sqrt[1 - 2*x]], 35/33])/(605*Sqrt[33]) - (41*EllipticF[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(605*Sqrt[33])
```

Rubi [A] time = 0.341992, antiderivative size = 156, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{7(3x+2)^{3/2}}{33(1-2x)^{3/2}\sqrt{5x+3}}+\frac{974\sqrt{1-2x}\sqrt{3x+2}}{3993\sqrt{5x+3}}-\frac{203\sqrt{3x+2}}{363\sqrt{1-2x}\sqrt{5x+3}}-\frac{41F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{605\sqrt{33}}-\frac{974E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{605\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^(5/2)/((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (-203*Sqrt[2 + 3*x])/(363*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) + (974*Sqr
t[1 - 2*x]*Sqrt[2 + 3*x])/(3993*Sqrt[3 + 5*x]) + (7*(2 + 3*x)^(3/
2))/(33*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x]) - (974*EllipticE[ArcSin[Sq
rt[3/7]*Sqrt[1 - 2*x]], 35/33])/(605*Sqrt[33]) - (41*EllipticF[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(605*Sqrt[33])
```

Rubi in Sympy [A] time = 30.6082, size = 143, normalized size = 0.92

$$\frac{974\sqrt{-2x+1}\sqrt{3x+2}}{3993\sqrt{5x+3}}-\frac{974\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{19965}-\frac{41\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{21175}-\frac{203\sqrt{3x+2}}{363\sqrt{-2x+1}\sqrt{5x+3}}+\frac{7\,(3x+2)^{\frac{3}{2}}}{33\,(-2x+1)^{\frac{3}{2}}\,\sqrt{5x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(5/2)/(1-2*x)**(5/2)/(3+5*x)**(3/2),x)
```

```
[Out] 974*sqrt(-2*x + 1)*sqrt(3*x + 2)/(3993*sqrt(5*x + 3)) - 974*sqrt(
33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/19965 - 41
*sqrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/35)/211
75 - 203*sqrt(3*x + 2)/(363*sqrt(-2*x + 1)*sqrt(5*x + 3)) + 7*(3*
x + 2)**(3/2)/(33*(-2*x + 1)**(3/2)*sqrt(5*x + 3))
```

Mathematica [A] time = 0.219056, size = 102, normalized size = 0.65

$$\frac{\frac{10\sqrt{3x+2}\left(3896x^2+3111x+435\right)}{(1-2x)^{3/2}\sqrt{5x+3}}-595\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)+1948\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)}{39930}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^(5/2)/((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] ((10*Sqrt[2 + 3*x]*(435 + 3111*x + 3896*x^2))/((1 - 2*x)^(3/2)*Sq
rt[3 + 5*x]) + 1948*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 +
5*x]], -33/2] - 595*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 +
5*x]], -33/2])/39930
```

Maple [C] time = 0.034, size = 276, normalized size = 1.8

$$\frac{1}{(598950\,x^2+758670\,x+239580)\,(-1+2\,x)^2}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(1190\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(5/2)/(1-2*x)^(5/2)/(3+5*x)^(3/2),x)
```

```
[Out] 1/39930*(2+3*x)^(1/2)*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(1190*2^(1/2)*E
llipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/
2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-3896*2^(1
/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*
3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-595*
2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*
11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+19
48*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/
11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))
+116880*x^3+171250*x^2+75270*x+8700)/(15*x^2+19*x+6)/(-1+2*x)^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{5}{2}}}{(5\,x+3)^{\frac{3}{2}}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(5/2)/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="maxima
```

```
[Out] integrate((3*x + 2)^(5/2)/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{(9\,x^2+12\,x+4)\sqrt{3\,x+2}}{(20\,x^3-8\,x^2-7\,x+3)\sqrt{5\,x+3}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(5/2)/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="frica
```

```
[Out] integral((9*x^2 + 12*x + 4)*sqrt(3*x + 2)/((20*x^3 - 8*x^2 - 7*x
+ 3)*sqrt(5*x + 3)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(5/2)/(1-2*x)**(5/2)/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{5}{2}}}{(5x+3)^{\frac{3}{2}}(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(5/2)/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="giac"
```

```
[Out] integrate((3*x + 2)^(5/2)/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)), x)
```

3.2967 $\int \frac{(2+3x)^{3/2}}{(1-2x)^{5/2}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=156

$$-\frac{245\sqrt{1-2x}\sqrt{3x+2}}{3993\sqrt{5x+3}}+\frac{8\sqrt{3x+2}}{363\sqrt{1-2x}\sqrt{5x+3}}+\frac{7\sqrt{3x+2}}{33(1-2x)^{3/2}\sqrt{5x+3}}-\frac{8F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{121\sqrt{33}}+\frac{49E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{121\sqrt{33}}$$

```
[Out] (7*Sqrt[2 + 3*x])/(33*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x]) + (8*Sqrt[2
+ 3*x])/(363*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) - (245*Sqrt[1 - 2*x]*Sq
rt[2 + 3*x])/(3993*Sqrt[3 + 5*x]) + (49*EllipticE[ArcSin[Sqrt[3/7
]*Sqrt[1 - 2*x]], 35/33])/(121*Sqrt[33]) - (8*EllipticF[ArcSin[Sq
rt[3/7]*Sqrt[1 - 2*x]], 35/33])/(121*Sqrt[33])
```

Rubi [A] time = 0.34398, antiderivative size = 156, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{245\sqrt{1-2x}\sqrt{3x+2}}{3993\sqrt{5x+3}}+\frac{8\sqrt{3x+2}}{363\sqrt{1-2x}\sqrt{5x+3}}+\frac{7\sqrt{3x+2}}{33(1-2x)^{3/2}\sqrt{5x+3}}-\frac{8F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{121\sqrt{33}}+\frac{49E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{121\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^(3/2)/((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2)),x]
```



```
[Out] (7*Sqrt[2 + 3*x])/(33*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x]) + (8*Sqrt[2
+ 3*x])/(363*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) - (245*Sqrt[1 - 2*x]*Sq
rt[2 + 3*x])/(3993*Sqrt[3 + 5*x]) + (49*EllipticE[ArcSin[Sqrt[3/7
]*Sqrt[1 - 2*x]], 35/33])/(121*Sqrt[33]) - (8*EllipticF[ArcSin[Sq
rt[3/7]*Sqrt[1 - 2*x]], 35/33])/(121*Sqrt[33])
```

Rubi in Sympy [A] time = 30.6182, size = 143, normalized size = 0.92

$$\frac{49\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{3993}-\frac{8\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{4235}+\frac{98\sqrt{3x+2}\sqrt{5x+3}}{3993\sqrt{-2x+1}}-\frac{41\sqrt{3x+2}}{363\sqrt{-2x+1}\sqrt{5x+3}}+\frac{7\sqrt{3x+2}}{33\,(-2x+1)^{\frac{3}{2}}\,\sqrt{5x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(3/2)/(1-2*x)**(5/2)/(3+5*x)**(3/2),x)
```

```
[Out] 49*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/39
93 - 8*sqrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11), 33/3
5)/4235 + 98*sqrt(3*x + 2)*sqrt(5*x + 3)/(3993*sqrt(-2*x + 1)) -
41*sqrt(3*x + 2)/(363*sqrt(-2*x + 1)*sqrt(5*x + 3)) + 7*sqrt(3*x
+ 2)/(33*(-2*x + 1)**(3/2)*sqrt(5*x + 3))
```

Mathematica [A] time = 0.200524, size = 99, normalized size = 0.63

$$\frac{\sqrt{2}\left(181F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-49E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)-\frac{2\sqrt{3x+2}(490x^2-402x-345)}{(1-2x)^{3/2}\sqrt{5x+3}}}{3993}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^(3/2)/((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] ((-2*Sqrt[2 + 3*x]*(-345 - 402*x + 490*x^2))/((1 - 2*x)^(3/2)*Sqr
t[3 + 5*x]) + Sqrt[2]*(-49*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5
*x]], -33/2] + 181*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -3
3/2]))/3993
```

Maple [C] time = 0.034, size = 276, normalized size = 1.8

$$-\frac{1}{(59895\,x^2+75867\,x+23958)\,(-1+2\,x)^2}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(362\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(3/2)/(1-2*x)^(5/2)/(3+5*x)^(3/2),x)
```

```
[Out] -1/3993*(2+3*x)^(1/2)*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(362*2^(1/2)*El
lipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2
)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-98*2^(1/2)
*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(
1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-181*2^(
1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^
(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+49*2^
(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11
^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+2940
*x^3-452*x^2-3678*x-1380)/(15*x^2+19*x+6)/(-1+2*x)^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{3}{2}}}{(5\,x+3)^{\frac{3}{2}}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(3/2)/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="maxima
```

```
[Out] integrate((3*x + 2)^(3/2)/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(3\,x+2)^{\frac{3}{2}}}{(20\,x^3-8\,x^2-7\,x+3)\sqrt{5\,x+3}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(3/2)/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="frica
```

```
[Out] integral((3*x + 2)^(3/2)/((20*x^3 - 8*x^2 - 7*x + 3)*sqrt(5*x + 3
)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(3/2)/(1-2*x)**(5/2)/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{3}{2}}}{(5x+3)^{\frac{3}{2}}(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(3/2)/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="giac"
```

```
[Out] integrate((3*x + 2)^(3/2)/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)), x)
```

3.2968 $\int \frac{\sqrt{2+3x}}{(1-2x)^{5/2}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=156

$$-\frac{2470\sqrt{1-2x}\sqrt{3x+2}}{27951\sqrt{5x+3}}+\frac{214\sqrt{3x+2}}{2541\sqrt{1-2x}\sqrt{5x+3}}+\frac{2\sqrt{3x+2}}{33(1-2x)^{3/2}\sqrt{5x+3}}-\frac{214F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{847\sqrt{33}}+\frac{494E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{847\sqrt{33}}$$

```
[Out] (2*Sqrt[2 + 3*x])/(33*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x]) + (214*Sqrt[
2 + 3*x])/(2541*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) - (2470*Sqrt[1 - 2*x
]*Sqrt[2 + 3*x])/(27951*Sqrt[3 + 5*x]) + (494*EllipticE[ArcSin[Sq
rt[3/7]*Sqrt[1 - 2*x]], 35/33])/(847*Sqrt[33]) - (214*EllipticF[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(847*Sqrt[33])
```

Rubi [A] time = 0.343505, antiderivative size = 156, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{2470\sqrt{1-2x}\sqrt{3x+2}}{27951\sqrt{5x+3}}+\frac{214\sqrt{3x+2}}{2541\sqrt{1-2x}\sqrt{5x+3}}+\frac{2\sqrt{3x+2}}{33(1-2x)^{3/2}\sqrt{5x+3}}-\frac{214F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{847\sqrt{33}}+\frac{494E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{847\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[2 + 3*x]/((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (2*Sqrt[2 + 3*x])/(33*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x]) + (214*Sqrt[
2 + 3*x])/(2541*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) - (2470*Sqrt[1 - 2*x
]*Sqrt[2 + 3*x])/(27951*Sqrt[3 + 5*x]) + (494*EllipticE[ArcSin[Sq
rt[3/7]*Sqrt[1 - 2*x]], 35/33])/(847*Sqrt[33]) - (214*EllipticF[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(847*Sqrt[33])
```

Rubi in Sympy [A] time = 31.4802, size = 143, normalized size = 0.92

$$\frac{494\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{27951}-\frac{214\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{29645}+\frac{988\sqrt{3x+2}\sqrt{5x+3}}{27951\sqrt{-2x+1}}-\frac{40\sqrt{3x+2}}{363\sqrt{-2x+1}\sqrt{5x+3}}+\frac{2\sqrt{3x+2}}{33\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(1/2)/(1-2*x)**(5/2)/(3+5*x)**(3/2),x)
```

```
[Out] 494*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/2
7951 - 214*sqrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/11),
33/35)/29645 + 988*sqrt(3*x + 2)*sqrt(5*x + 3)/(27951*sqrt(-2*x +
 1)) - 40*sqrt(3*x + 2)/(363*sqrt(-2*x + 1)*sqrt(5*x + 3)) + 2*sq
rt(3*x + 2)/(33*(-2*x + 1)**(3/2)*sqrt(5*x + 3))
```

Mathematica [A] time = 0.190041, size = 99, normalized size = 0.63

$$\frac{\sqrt{2}\left(4025F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-494E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)-\frac{2\sqrt{3x+2}\left(4940x^2-2586x-789\right)}{(1-2x)^{3/2}\sqrt{5x+3}}}{27951}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[2 + 3*x]/((1 - 2*x)^(5/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] ((-2*Sqrt[2 + 3*x]*(-789 - 2586*x + 4940*x^2))/((1 - 2*x)^(3/2)*S
qrt[3 + 5*x]) + Sqrt[2]*(-494*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3
+ 5*x]], -33/2] + 4025*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]]
, -33/2]))/27951
```

Maple [C] time = 0.035, size = 276, normalized size = 1.8

$$-\frac{1}{(419265\,x^2+531069\,x+167706)\,(-1+2\,x)^2}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(8050\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},\,i/2\sqrt{11}\sqrt{3}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(1/2)/(1-2*x)^(5/2)/(3+5*x)^(3/2),x)
```

```
[Out] -1/27951*(2+3*x)^(1/2)*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(8050*2^(1/2)*
EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1
/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-988*2^(1
/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*
3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-4025
*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11
*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+4
94*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/
11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))
+29640*x^3+4244*x^2-15078*x-3156)/(15*x^2+19*x+6)/(-1+2*x)^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{3\,x+2}}{(5\,x+3)^{\frac{3}{2}}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(3*x + 2)/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="maxima"
```

```
[Out] integrate(sqrt(3*x + 2)/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\sqrt{3\,x+2}}{(20\,x^3-8\,x^2-7\,x+3)\sqrt{5\,x+3}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(3*x + 2)/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="fricas"
```

```
[Out] integral(sqrt(3*x + 2)/((20*x^3 - 8*x^2 - 7*x + 3)*sqrt(5*x + 3)*
sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(1/2)/(1-2*x)**(5/2)/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{3\,x+2}}{(5\,x+3)^{\frac{3}{2}}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(3*x + 2)/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] integrate(sqrt(3*x + 2)/((5*x + 3)^(3/2)*(-2*x + 1)^(5/2)), x)
```

3.2969 $\int \frac{1}{(1-2x)^{5/2}\sqrt{2+3x}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=156

$$-\frac{41570\sqrt{1-2x}\sqrt{3x+2}}{195657\sqrt{5x+3}}+\frac{824\sqrt{3x+2}}{17787\sqrt{1-2x}\sqrt{5x+3}}+\frac{4\sqrt{3x+2}}{231(1-2x)^{3/2}\sqrt{5x+3}}-\frac{824F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{5929\sqrt{33}}+\frac{8314E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{5929\sqrt{33}}$$

```
[Out] (4*Sqrt[2 + 3*x])/(231*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x]) + (824*Sqrt
[2 + 3*x])/(17787*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) - (41570*Sqrt[1 -
2*x]*Sqrt[2 + 3*x])/(195657*Sqrt[3 + 5*x]) + (8314*EllipticE[ArcS
in[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(5929*Sqrt[33]) - (824*Ellip
ticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(5929*Sqrt[33])
```

Rubi [A] time = 0.349203, antiderivative size = 156, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{41570\sqrt{1-2x}\sqrt{3x+2}}{195657\sqrt{5x+3}}+\frac{824\sqrt{3x+2}}{17787\sqrt{1-2x}\sqrt{5x+3}}+\frac{4\sqrt{3x+2}}{231(1-2x)^{3/2}\sqrt{5x+3}}-\frac{824F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{5929\sqrt{33}}+\frac{8314E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{5929\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(5/2)*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)),x]
```

```
[Out] (4*Sqrt[2 + 3*x])/(231*(1 - 2*x)^(3/2)*Sqrt[3 + 5*x]) + (824*Sqrt
[2 + 3*x])/(17787*Sqrt[1 - 2*x]*Sqrt[3 + 5*x]) - (41570*Sqrt[1 -
2*x]*Sqrt[2 + 3*x])/(195657*Sqrt[3 + 5*x]) + (8314*EllipticE[ArcS
in[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(5929*Sqrt[33]) - (824*Ellip
ticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(5929*Sqrt[33])
```

Rubi in Sympy [A] time = 30.5882, size = 143, normalized size = 0.92

$$\frac{8314\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{195657}-\frac{824\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{195657}+\frac{16628\sqrt{3x+2}\sqrt{5x+3}}{195657\sqrt{-2x+1}}-\frac{1070\sqrt{3x+2}}{2541\sqrt{-2x+1}\sqrt{5x+3}}+\frac{4\sqrt{3x+2}}{231\left(-2x+1\right)^{\frac{3}{2}}\sqrt{5x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(5/2)/(3+5*x)**(3/2)/(2+3*x)**(1/2),x)
```

```
[Out] 8314*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/
195657 - 824*sqrt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7),
 35/33)/195657 + 16628*sqrt(3*x + 2)*sqrt(5*x + 3)/(195657*sqrt(-
2*x + 1)) - 1070*sqrt(3*x + 2)/(2541*sqrt(-2*x + 1)*sqrt(5*x + 3)
) + 4*sqrt(3*x + 2)/(231*(-2*x + 1)**(3/2)*sqrt(5*x + 3))
```

Mathematica [A] time = 0.245662, size = 98, normalized size = 0.63

$$\frac{2\left(\frac{\sqrt{3x+2}\left(-83140x^2+74076x-14559\right)}{(1-2x)^{3/2}\sqrt{5x+3}}+\sqrt{2}\left(10955F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-4157E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)\right)}{195657}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(5/2)*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)),x]
```

```
[Out] (2*((Sqrt[2 + 3*x]*(-14559 + 74076*x - 83140*x^2))/((1 - 2*x)^(3/
2)*Sqrt[3 + 5*x]) + Sqrt[2]*(-4157*EllipticE[ArcSin[Sqrt[2/11]*Sq
rt[3 + 5*x]], -33/2] + 10955*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 +
 5*x]], -33/2])))/195657
```

Maple [C] time = 0.036, size = 276, normalized size = 1.8

$$-\frac{2}{(2934855\,x^2+3717483\,x+1173942)\,(-1+2\,x)^2}\sqrt{1-2\,x}\sqrt{2+3\,x}\sqrt{3+5\,x}\left(21910\,\sqrt{2}\mathit{EllipticF}\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},\,i/2\sqrt{}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(5/2)/(3+5*x)^(3/2)/(2+3*x)^(1/2),x)
```

```
[Out] -2/195657*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(21910*2^(1/2
)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^
(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-8314*2
^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/
2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-1
0955*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(
1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2
))+4157*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Ellipti
cE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(
1/2))+249420*x^3-55948*x^2-104475*x+29118)/(15*x^2+19*x+6)/(-1+2*
x)^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5\,x+3)^{\frac{3}{2}}\sqrt{3\,x+2}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(3/2)*sqrt(3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="maxima
```

```
[Out] integrate(1/((5*x + 3)^(3/2)*sqrt(3*x + 2)*(-2*x + 1)^(5/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{(20\,x^3-8\,x^2-7\,x+3)\sqrt{5\,x+3}\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(3/2)*sqrt(3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="frica
```

```
[Out] integral(1/((20*x^3 - 8*x^2 - 7*x + 3)*sqrt(5*x + 3)*sqrt(3*x + 2
)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(5/2)/(3+5*x)**(3/2)/(2+3*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5x+3)^{\frac{3}{2}}\sqrt{3x+2}(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(3/2)*sqrt(3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="giac"
```

```
[Out] integrate(1/((5*x + 3)^(3/2)*sqrt(3*x + 2)*(-2*x + 1)^(5/2)), x)
```

3.2970 $\int \frac{1}{(1-2x)^{5/2}(2+3x)^{3/2}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=187

$$-\frac{2377960\sqrt{1-2x}\sqrt{3x+2}}{1369599\sqrt{5x+3}}+\frac{5314\sqrt{1-2x}}{41503\sqrt{3x+2}\sqrt{5x+3}}+\frac{1088}{17787\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}+\frac{4}{231(1-2x)^{3/2}\sqrt{3x+2}\sqrt{5x+3}}+\frac{10628F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{41503\sqrt{33}}+\frac{475592E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{41503\sqrt{33}}$$

```
[Out] 4/(231*(1 - 2*x)^(3/2)*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) + 1088/(17787
*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) + (5314*Sqrt[1 - 2*x]
)/(41503*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) - (2377960*Sqrt[1 - 2*x]*Sq
rt[2 + 3*x])/(1369599*Sqrt[3 + 5*x]) + (475592*EllipticE[ArcSin[S
qrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(41503*Sqrt[33]) + (10628*Ellipt
icF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(41503*Sqrt[33])
```

Rubi [A] time = 0.438862, antiderivative size = 187, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.179$

$$-\frac{2377960\sqrt{1-2x}\sqrt{3x+2}}{1369599\sqrt{5x+3}}+\frac{5314\sqrt{1-2x}}{41503\sqrt{3x+2}\sqrt{5x+3}}+\frac{1088}{17787\sqrt{1-2x}\sqrt{3x+2}\sqrt{5x+3}}+\frac{4}{231(1-2x)^{3/2}\sqrt{3x+2}\sqrt{5x+3}}+\frac{10628F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{41503\sqrt{33}}+\frac{475592E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{41503\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(5/2)*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)),x]
```


```
[Out] 4/(231*(1 - 2*x)^(3/2)*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) + 1088/(17787
*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) + (5314*Sqrt[1 - 2*x]
)/(41503*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) - (2377960*Sqrt[1 - 2*x]*Sq
rt[2 + 3*x])/(1369599*Sqrt[3 + 5*x]) + (475592*EllipticE[ArcSin[S
qrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(41503*Sqrt[33]) + (10628*Ellipt
icF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(41503*Sqrt[33])
```

Rubi in Sympy [A] time = 37.3872, size = 172, normalized size = 0.92

$$\frac{475592\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{1369599}+\frac{10628\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{1452605}+\frac{951184\sqrt{3x+2}\sqrt{5x+3}}{1369599\sqrt{-2x+1}}-\frac{69460\sqrt{3x+2}}{17787\sqrt{-2x+1}\sqrt{5x+3}}+\frac{194}{539\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}+\frac{4}{231\left(-2x+1\right)^{\frac{3}{2}}\sqrt{3x+2}\sqrt{5x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(5/2)/(2+3*x)**(3/2)/(3+5*x)**(3/2),x)
```

```
[Out] 475592*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33
)/1369599 + 10628*sqrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1
)/11), 33/35)/1452605 + 951184*sqrt(3*x + 2)*sqrt(5*x + 3)/(13695
99*sqrt(-2*x + 1)) - 69460*sqrt(3*x + 2)/(17787*sqrt(-2*x + 1)*sq
rt(5*x + 3)) + 194/(539*sqrt(-2*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3
```

```
)) + 4/(231*(-2*x + 1)**(3/2)*sqrt(3*x + 2)*sqrt(5*x + 3))
```

Mathematica [A] time = 0.322208, size = 103, normalized size = 0.55

$$\frac{2\left(\frac{-14267760x^3+5106644x^2+5510400x-2236533}{(1-2x)^{3/2}\sqrt{3x+2}\sqrt{5x+3}}+\sqrt{2}\left(150115F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-237796E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right.\right.}{1369599}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(5/2)*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (2*((-2236533 + 5510400*x + 5106644*x^2 - 14267760*x^3)/((1 - 2*x
)^(3/2)*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) + Sqrt[2]*(-237796*EllipticE
[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 150115*EllipticF[ArcS
in[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])))/1369599
```

Maple [C] time = 0.039, size = 276, normalized size = 1.5

$$-\frac{2}{(20543985x^2+26022381x+8217594)(-1+2x)^2}\sqrt{1-2x}\sqrt{2+3x}\sqrt{3+5x}\left(300230\sqrt{2}EllipticF\left(1/11\sqrt{11}\sqrt{2}\sqrt{3+5x},i\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(5/2)/(2+3*x)^(3/2)/(3+5*x)^(3/2),x)
```

```
[Out] -2/1369599*(1-2*x)^(1/2)*(2+3*x)^(1/2)*(3+5*x)^(1/2)*(300230*2^(1
/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*
3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-4755
92*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11
^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/
2)-150115*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Ellip
ticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2
^(1/2))+237796*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*
EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1
/2)*2^(1/2))+14267760*x^3-5106644*x^2-5510400*x+2236533)/(15*x^2+
19*x+6)/(-1+2*x)^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5x+3)^{\frac{3}{2}}(3x+2)^{\frac{3}{2}}(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="max
```

```
[Out] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^(3/2)*(-2*x + 1)^(5/2)), x
)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{(60x^4+16x^3-37x^2-5x+6)\sqrt{5x+3}\sqrt{3x+2}\sqrt{-2x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="fri
```

```
[Out] integral(1/((60*x^4 + 16*x^3 - 37*x^2 - 5*x + 6)*sqrt(5*x + 3)*sq
rt(3*x + 2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(1-2*x)**(5/2)/(2+3*x)**(3/2)/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5x+3)^{\frac{3}{2}}(3x+2)^{\frac{3}{2}}(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="gia
```

```
[Out] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^(3/2)*(-2*x + 1)^(5/2)), x
)
```

3.2971 $\int \frac{1}{(1-2x)^{5/2}(2+3x)^{5/2}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=218

$$-\frac{113693540\sqrt{1-2x}\sqrt{3x+2}}{9587193\sqrt{5x+3}}+\frac{336536\sqrt{1-2x}}{290521\sqrt{3x+2}\sqrt{5x+3}}+\frac{694\sqrt{1-2x}}{41503(3x+2)^{3/2}\sqrt{5x+3}}+\frac{1352}{17787\sqrt{1-2x}(3x+2)^{3/2}\sqrt{5x+3}}+\frac{4}{231(1-2x)^{3/2}(3x+2)^{3/2}\sqrt{5x+3}}+\frac{673072F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{290521\sqrt{33}}+\frac{22738708E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{290521\sqrt{33}}$$

```
[Out] 4/(231*(1 - 2*x)^(3/2)*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x]) + 1352/(177
87*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x]) + (694*Sqrt[1 - 2
*x])/(41503*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x]) + (336536*Sqrt[1 - 2*x
])/(290521*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) - (113693540*Sqrt[1 - 2*x
]*Sqrt[2 + 3*x])/(9587193*Sqrt[3 + 5*x]) + (22738708*EllipticE[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(290521*Sqrt[33]) + (67307
2*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(290521*Sqrt
[33])
```

Rubi [A] time = 0.53128, antiderivative size = 218, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.179$

$$-\frac{113693540\sqrt{1-2x}\sqrt{3x+2}}{9587193\sqrt{5x+3}}+\frac{336536\sqrt{1-2x}}{290521\sqrt{3x+2}\sqrt{5x+3}}+\frac{694\sqrt{1-2x}}{41503(3x+2)^{3/2}\sqrt{5x+3}}+\frac{1352}{17787\sqrt{1-2x}(3x+2)^{3/2}\sqrt{5x+3}}+\frac{4}{231(1-2x)^{3/2}(3x+2)^{3/2}\sqrt{5x+3}}+\frac{673072F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{290521\sqrt{33}}+\frac{22738708E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{290521\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(5/2)*(2 + 3*x)^(5/2)*(3 + 5*x)^(3/2)),x]
```


```
[Out] 4/(231*(1 - 2*x)^(3/2)*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x]) + 1352/(177
87*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x]) + (694*Sqrt[1 - 2
*x])/(41503*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x]) + (336536*Sqrt[1 - 2*x
])/(290521*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) - (113693540*Sqrt[1 - 2*x
]*Sqrt[2 + 3*x])/(9587193*Sqrt[3 + 5*x]) + (22738708*EllipticE[Ar
cSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(290521*Sqrt[33]) + (67307
2*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(290521*Sqrt
[33])
```

Rubi in Sympy [A] time = 45.2212, size = 201, normalized size = 0.92

$$\frac{22738708\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{9587193}+\frac{673072\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{9587193}+\frac{45477416\sqrt{3x+2}\sqrt{5x+3}}{9587193\sqrt{-2x+1}}-\frac{3344540\sqrt{3x+2}}{124509\sqrt{-2x+1}\sqrt{5x+3}}+\frac{10156}{3773\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}+\frac{62}{539\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\sqrt{5x+3}}+\frac{4}{231\,(-2x+1)^{\frac{3}{2}}\,(3x+2)^{\frac{3}{2}}\sqrt{5x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(5/2)/(2+3*x)**(5/2)/(3+5*x)**(3/2),x)
```

```
[Out] 22738708*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/
33)/9587193 + 673072*sqrt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x
+ 1)/7), 35/33)/9587193 + 45477416*sqrt(3*x + 2)*sqrt(5*x + 3)/(9
587193*sqrt(-2*x + 1)) - 3344540*sqrt(3*x + 2)/(124509*sqrt(-2*x
+ 1)*sqrt(5*x + 3)) + 10156/(3773*sqrt(-2*x + 1)*sqrt(3*x + 2)*sq
rt(5*x + 3)) + 62/(539*sqrt(-2*x + 1)*(3*x + 2)**(3/2)*sqrt(5*x +
 3)) + 4/(231*(-2*x + 1)**(3/2)*(3*x + 2)**(3/2)*sqrt(5*x + 3))
```

Mathematica [A] time = 0.348684, size = 109, normalized size = 0.5

$$\frac{\frac{-4092967440x^4-1231054224x^3+2571169924x^2+397147008x-431507730}{(1-2x)^{3/2}(3x+2)^{3/2}\sqrt{5x+3}}-4\sqrt{2}\left(5684677E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-2908255F\left(\sin^{-1}\left(\right.\right.\right.}{9587193}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(5/2)*(2 + 3*x)^(5/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] ((-431507730 + 397147008*x + 2571169924*x^2 - 1231054224*x^3 - 40
92967440*x^4)/((1 - 2*x)^(3/2)*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x]) - 4
*Sqrt[2]*(5684677*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33
/2] - 2908255*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])
)/9587193
```

Maple [C] time = 0.039, size = 383, normalized size = 1.8

$$-\frac{2}{9587193\,(-1+2\,x)^2}\sqrt{1-2\,x}\left(34899060\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^2\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(5/2)/(2+3*x)^(5/2)/(3+5*x)^(3/2),x)
```

```
[Out] -2/9587193*(1-2*x)^(1/2)*(34899060*2^(1/2)*EllipticF(1/11*11^(1/2
)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*
x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-68216124*2^(1/2)*EllipticE(1
/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2)
)*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+5816510*2^(1/2)*E
llipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/
2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-11369354*
2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1
/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-
11633020*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Ellipt
icF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^
(1/2))+22738708*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)
*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(
1/2)*2^(1/2))+2046483720*x^4+615527112*x^3-1285584962*x^2-1985735
04*x+215753865)/(2+3*x)^(3/2)/(-1+2*x)^2/(3+5*x)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5\,x+3)^{\frac{3}{2}}(3\,x+2)^{\frac{5}{2}}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="max
```

```
[Out] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^(5/2)*(-2*x + 1)^(5/2)), x
)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{(180\,x^5+168\,x^4-79\,x^3-89\,x^2+8\,x+12)\sqrt{5\,x+3}\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="fri
```

```
[Out] integral(1/((180*x^5 + 168*x^4 - 79*x^3 - 89*x^2 + 8*x + 12)*sqrt
(5*x + 3)*sqrt(3*x + 2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(5/2)/(2+3*x)**(5/2)/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5\,x+3)^{\frac{3}{2}}(3\,x+2)^{\frac{5}{2}}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="gia
```

```
[Out] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^(5/2)*(-2*x + 1)^(5/2)), x
)
```

3.2972 $\int \frac{1}{(1-2x)^{5/2}(2+3x)^{7/2}(3+5x)^{3/2}}\,dx$

Optimal. Leaf size=249

$$-\frac{4839325048\sqrt{1-2x}\sqrt{3x+2}}{67110351\sqrt{5x+3}}+\frac{72709316\sqrt{1-2x}}{10168235\sqrt{3x+2}\sqrt{5x+3}}+\frac{499564\sqrt{1-2x}}{1452605(3x+2)^{3/2}\sqrt{5x+3}}-\frac{2206\sqrt{1-2x}}{207515(3x+2)^{5/2}\sqrt{5x+3}}+\frac{1616}{17787\sqrt{1-2x}(3x+2)^{5/2}\sqrt{5x+3}}+\frac{4}{231(1-2x)^{3/2}(3x+2)^{5/2}\sqrt{5x+3}}+\frac{145418632F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{10168235\sqrt{33}}+\frac{4839325048E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{10168235\sqrt{33}}$$

```
[Out] 4/(231*(1 - 2*x)^(3/2)*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x]) + 1616/(177
87*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x]) - (2206*Sqrt[1 -
2*x])/(207515*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x]) + (499564*Sqrt[1 - 2
*x])/(1452605*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x]) + (72709316*Sqrt[1 -
 2*x])/(10168235*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) - (4839325048*Sqrt[
1 - 2*x]*Sqrt[2 + 3*x])/(67110351*Sqrt[3 + 5*x]) + (4839325048*El
lipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(10168235*Sqrt[3
3]) + (145418632*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33
])/(10168235*Sqrt[33])
```

Rubi [A] time = 0.619701, antiderivative size = 249, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.179$

$$-\frac{4839325048\sqrt{1-2x}\sqrt{3x+2}}{67110351\sqrt{5x+3}}+\frac{72709316\sqrt{1-2x}}{10168235\sqrt{3x+2}\sqrt{5x+3}}+\frac{499564\sqrt{1-2x}}{1452605(3x+2)^{3/2}\sqrt{5x+3}}-\frac{2206\sqrt{1-2x}}{207515(3x+2)^{5/2}\sqrt{5x+3}}+\frac{1616}{17787\sqrt{1-2x}(3x+2)^{5/2}\sqrt{5x+3}}+\frac{4}{231(1-2x)^{3/2}(3x+2)^{5/2}\sqrt{5x+3}}+\frac{145418632F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{10168235\sqrt{33}}+\frac{4839325048E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{10168235\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(5/2)*(2 + 3*x)^(7/2)*(3 + 5*x)^(3/2)),x]
```


```
[Out] 4/(231*(1 - 2*x)^(3/2)*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x]) + 1616/(177
87*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x]) - (2206*Sqrt[1 -
2*x])/(207515*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x]) + (499564*Sqrt[1 - 2
*x])/(1452605*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x]) + (72709316*Sqrt[1 -
 2*x])/(10168235*Sqrt[2 + 3*x]*Sqrt[3 + 5*x]) - (4839325048*Sqrt[
1 - 2*x]*Sqrt[2 + 3*x])/(67110351*Sqrt[3 + 5*x]) + (4839325048*El
lipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(10168235*Sqrt[3
3]) + (145418632*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33
])/(10168235*Sqrt[33])
```

Rubi in Sympy [A] time = 52.1771, size = 230, normalized size = 0.92

$$\frac{4839325048\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{335551755}+\frac{145418632\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{335551755}+\frac{9678650096\sqrt{3x+2}\sqrt{5x+3}}{335551755\sqrt{-2x+1}}-\frac{142421248\sqrt{3x+2}}{871563\sqrt{-2x+1}\sqrt{5x+3}}+\frac{2173036}{132055\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}+\frac{15272}{18865\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\sqrt{5x+3}}+\frac{178}{2695\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}\sqrt{5x+3}}+\frac{4}{231\,(-2x+1)^{\frac{3}{2}}\,(3x+2)^{\frac{5}{2}}\sqrt{5x+3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(5/2)/(2+3*x)**(7/2)/(3+5*x)**(3/2),x)
```

```
[Out] 4839325048*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 3
5/33)/335551755 + 145418632*sqrt(33)*elliptic_f(asin(sqrt(21)*sqr
t(-2*x + 1)/7), 35/33)/335551755 + 9678650096*sqrt(3*x + 2)*sqrt(
5*x + 3)/(335551755*sqrt(-2*x + 1)) - 142421248*sqrt(3*x + 2)/(87
1563*sqrt(-2*x + 1)*sqrt(5*x + 3)) + 2173036/(132055*sqrt(-2*x +
1)*sqrt(3*x + 2)*sqrt(5*x + 3)) + 15272/(18865*sqrt(-2*x + 1)*(3*
x + 2)**(3/2)*sqrt(5*x + 3)) + 178/(2695*sqrt(-2*x + 1)*(3*x + 2)
**(5/2)*sqrt(5*x + 3)) + 4/(231*(-2*x + 1)**(3/2)*(3*x + 2)**(5/2
)*sqrt(5*x + 3))
```

Mathematica [A] time = 0.329322, size = 115, normalized size = 0.46

$$\frac{2\left(-\frac{1306617762960x^5+1263428429256x^4-559512908172x^3-673871013766x^2+53503915182x+91855922241}{(1-2x)^{3/2}(3x+2)^{5/2}\sqrt{5x+3}}-2\sqrt{2}\left(1209831262E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+\right.\right.\right.\right.}{335551755}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(5/2)*(2 + 3*x)^(7/2)*(3 + 5*x)^(3/2)),x]
```

```
[Out] (2*(-((91855922241 + 53503915182*x - 673871013766*x^2 - 559512908
172*x^3 + 1263428429256*x^4 + 1306617762960*x^5)/((1 - 2*x)^(3/2)
*(2 + 3*x)^(5/2)*Sqrt[3 + 5*x])) - 2*Sqrt[2]*(1209831262*Elliptic
E[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 609979405*EllipticF[
ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])))/335551755
```

Maple [C] time = 0.043, size = 502, normalized size = 2.

$$-\frac{2}{335551755\,(-1+2\,x)^2}\sqrt{1-2\,x}\left(21959258580\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^3\sqrt{1-2\,x}\sqrt{3+5\,x}\sqrt{2+\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(5/2)/(2+3*x)^(7/2)/(3+5*x)^(3/2),x)
```

```
[Out] -2/335551755*(1-2*x)^(1/2)*(21959258580*2^(1/2)*EllipticF(1/11*11
^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*
(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)-43553925432*2^(1/2)*Ell
ipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)
*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)+182993821
50*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11
^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(
1/2)-36294937860*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^
(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(
1/2)*(1-2*x)^(1/2)-4879835240*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(
1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2
)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+9678650096*2^(1/2)*EllipticE(1/11*1
1^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(
3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-4879835240*2^(1/2)*(3+5*
x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1
/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+9678650096*2^(1
/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(
1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+130661
7762960*x^5+1263428429256*x^4-559512908172*x^3-673871013766*x^2+5
3503915182*x+91855922241)/(2+3*x)^(5/2)/(-1+2*x)^2/(3+5*x)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5x+3)^{\frac{3}{2}}(3x+2)^{\frac{7}{2}}(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^(7/2)*(-2*x + 1)^(5/2)),x, algorithm="max
```

```
[Out] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^(7/2)*(-2*x + 1)^(5/2)), x
)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{(540x^6+864x^5+99x^4-425x^3-154x^2+52x+24)\sqrt{5x+3}\sqrt{3x+2}\sqrt{-2x+1}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^(7/2)*(-2*x + 1)^(5/2)),x, algorithm="fri
```

```
[Out] integral(1/((540*x^6 + 864*x^5 + 99*x^4 - 425*x^3 - 154*x^2 + 52*
x + 24)*sqrt(5*x + 3)*sqrt(3*x + 2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(5/2)/(2+3*x)**(7/2)/(3+5*x)**(3/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5x+3)^{\frac{3}{2}}(3x+2)^{\frac{7}{2}}(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^(7/2)*(-2*x + 1)^(5/2)),x, algorithm="gia
```

```
[Out] integrate(1/((5*x + 3)^(3/2)*(3*x + 2)^(7/2)*(-2*x + 1)^(5/2)), x
)
```

3.2973 $\int \frac{(2+3x)^{13/2}}{(1-2x)^{5/2}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=249

$$\frac{7(3x+2)^{11/2}}{33(1-2x)^{3/2}(5x+3)^{3/2}}-\frac{294(3x+2)^{9/2}}{121\sqrt{1-2x}(5x+3)^{3/2}}+\frac{4373\sqrt{1-2x}(3x+2)^{7/2}}{19965(5x+3)^{3/2}}+\frac{150812\sqrt{1-2x}(3x+2)^{5/2}}{1098075\sqrt{5x+3}}-\frac{31887029\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}}{18301250}-\frac{371279941\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{45753125}-\frac{776112041F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{41593750\sqrt{33}}-\frac{51601293223E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{83187500\sqrt{33}}$$

```
[Out] (4373*Sqrt[1 - 2*x]*(2 + 3*x)^(7/2))/(19965*(3 + 5*x)^(3/2)) - (2
94*(2 + 3*x)^(9/2))/(121*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) + (7*(2 +
 3*x)^(11/2))/(33*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)) + (150812*Sqrt
[1 - 2*x]*(2 + 3*x)^(5/2))/(1098075*Sqrt[3 + 5*x]) - (371279941*S
qrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/45753125 - (31887029*Sq
rt[1 - 2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/18301250 - (5160129322
3*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(83187500*Sq
rt[33]) - (776112041*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 3
5/33])/(41593750*Sqrt[33])
```

Rubi [A] time = 0.584363, antiderivative size = 249, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{7(3x+2)^{11/2}}{33(1-2x)^{3/2}(5x+3)^{3/2}}-\frac{294(3x+2)^{9/2}}{121\sqrt{1-2x}(5x+3)^{3/2}}+\frac{4373\sqrt{1-2x}(3x+2)^{7/2}}{19965(5x+3)^{3/2}}+\frac{150812\sqrt{1-2x}(3x+2)^{5/2}}{1098075\sqrt{5x+3}}-\frac{31887029\sqrt{1-2x}\sqrt{5x+3}(3x+2)^{3/2}}{18301250}-\frac{371279941\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{45753125}-\frac{776112041F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{41593750\sqrt{33}}-\frac{51601293223E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{83187500\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^(13/2)/((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2)),x]
```


```
[Out] (4373*Sqrt[1 - 2*x]*(2 + 3*x)^(7/2))/(19965*(3 + 5*x)^(3/2)) - (2
94*(2 + 3*x)^(9/2))/(121*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) + (7*(2 +
 3*x)^(11/2))/(33*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)) + (150812*Sqrt
[1 - 2*x]*(2 + 3*x)^(5/2))/(1098075*Sqrt[3 + 5*x]) - (371279941*S
qrt[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/45753125 - (31887029*Sq
rt[1 - 2*x]*(2 + 3*x)^(3/2)*Sqrt[3 + 5*x])/18301250 - (5160129322
3*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(83187500*Sq
rt[33]) - (776112041*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 3
5/33])/(41593750*Sqrt[33])
```

Rubi in Sympy [A] time = 56.7269, size = 230, normalized size = 0.92

$$\frac{4373\sqrt{-2x+1}\,(3x+2)^{\frac{7}{2}}}{19965\,(5x+3)^{\frac{3}{2}}}+\frac{150812\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}}{1098075\sqrt{5x+3}}-\frac{31887029\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}\sqrt{5x+3}}{18301250}-\frac{371279941\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{45753125}-\frac{51601293223\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{2745187500}-\frac{776112041\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{1455781250}-\frac{294\,(3x+2)^{\frac{9}{2}}}{121\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}+\frac{7\,(3x+2)^{\frac{11}{2}}}{33\,(-2x+1)^{\frac{3}{2}}\,(5x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(13/2)/(1-2*x)**(5/2)/(3+5*x)**(5/2),x)
```

```
[Out] 4373*sqrt(-2*x + 1)*(3*x + 2)**(7/2)/(19965*(5*x + 3)**(3/2)) + 1
50812*sqrt(-2*x + 1)*(3*x + 2)**(5/2)/(1098075*sqrt(5*x + 3)) - 3
1887029*sqrt(-2*x + 1)*(3*x + 2)**(3/2)*sqrt(5*x + 3)/18301250 -
371279941*sqrt(-2*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/45753125 - 5
1601293223*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 3
5/33)/2745187500 - 776112041*sqrt(35)*elliptic_f(asin(sqrt(55)*sq
rt(-2*x + 1)/11), 33/35)/1455781250 - 294*(3*x + 2)**(9/2)/(121*s
qrt(-2*x + 1)*(5*x + 3)**(3/2)) + 7*(3*x + 2)**(11/2)/(33*(-2*x +
 1)**(3/2)*(5*x + 3)**(3/2))
```

Mathematica [A] time = 0.420166, size = 117, normalized size = 0.47

$$\frac{-\frac{10\sqrt{3x+2}\left(8004966750x^5+53010668700x^4-222254370925x^3-215557803774x^2+21979664649x+36533948644\right)}{(1-2x)^{3/2}(5x+3)^{3/2}}-25989595870\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+\right.\right.}{2745187500}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^(13/2)/((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] ((-10*Sqrt[2 + 3*x]*(36533948644 + 21979664649*x - 215557803774*x
^2 - 222254370925*x^3 + 53010668700*x^4 + 8004966750*x^5))/((1 -
2*x)^(3/2)*(3 + 5*x)^(3/2)) + 51601293223*Sqrt[2]*EllipticE[ArcSi
n[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 25989595870*Sqrt[2]*Ellipti
cF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/2745187500
```

Maple [C] time = 0.038, size = 393, normalized size = 1.6

$$\frac{1}{2745187500\,(-1+2x)^2}\sqrt{1-2x}\left(259895958700\sqrt{2}EllipticF\left(1/11\sqrt{11}\sqrt{2}\sqrt{3+5x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^2\sqrt{3+5x}\sqrt{2+3x}\sqrt{1-\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(13/2)/(1-2*x)^(5/2)/(3+5*x)^(5/2),x)
```

```
[Out] 1/2745187500*(1-2*x)^(1/2)*(259895958700*2^(1/2)*EllipticF(1/11*1
1^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2
*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-516012932230*2^(1/2)*E
llipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/
2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+2598959
5870*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*
11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(
1/2)-51601293223*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^
(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/
2)*(1-2*x)^(1/2)-240149002500*x^6-77968787610*2^(1/2)*(3+5*x)^(1/
2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3
```

```
+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+154803879669*2^(1/2)*
(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)
*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-1750419396
000*x^5+5607417753750*x^4+10911821531720*x^3+3651766136010*x^2-15
35611752300*x-730678972880)/(3+5*x)^(3/2)/(-1+2*x)^2/(2+3*x)^(1/2
)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{13}{2}}}{(5x+3)^{\frac{5}{2}}(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(13/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="maxi
```

```
[Out] integrate((3*x + 2)^(13/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(729\,x^6+2916\,x^5+4860\,x^4+4320\,x^3+2160\,x^2+576\,x+64)\sqrt{3\,x+2}}{(100\,x^4+20\,x^3-59\,x^2-6\,x+9)\sqrt{5\,x+3}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(13/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="fric
```

```
[Out] integral((729*x^6 + 2916*x^5 + 4860*x^4 + 4320*x^3 + 2160*x^2 + 5
76*x + 64)*sqrt(3*x + 2)/((100*x^4 + 20*x^3 - 59*x^2 - 6*x + 9)*s
qrt(5*x + 3)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(13/2)/(1-2*x)**(5/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{13}{2}}}{(5x+3)^{\frac{5}{2}}(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(13/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="giac
```

```
[Out] integrate((3*x + 2)^(13/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)), x)
```

3.2974 $\int \frac{(2+3x)^{11/2}}{(1-2x)^{5/2}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=218

$$\frac{7(3x+2)^{9/2}}{33(1-2x)^{3/2}(5x+3)^{3/2}}-\frac{217(3x+2)^{7/2}}{121\sqrt{1-2x}(5x+3)^{3/2}}+\frac{3218\sqrt{1-2x}(3x+2)^{5/2}}{19965(5x+3)^{3/2}}+\frac{110519\sqrt{1-2x}(3x+2)^{3/2}}{1098075\sqrt{5x+3}}-\frac{5199979\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{3660250}-\frac{5442127F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1663750\sqrt{33}}-\frac{90397364E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{831875\sqrt{33}}$$

```
[Out] (3218*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2))/(19965*(3 + 5*x)^(3/2)) - (2
17*(2 + 3*x)^(7/2))/(121*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) + (7*(2 +
 3*x)^(9/2))/(33*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)) + (110519*Sqrt[
1 - 2*x]*(2 + 3*x)^(3/2))/(1098075*Sqrt[3 + 5*x]) - (5199979*Sqrt
[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/3660250 - (90397364*Ellipt
icE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(831875*Sqrt[33]) -
(5442127*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(1663
750*Sqrt[33])
```

Rubi [A] time = 0.504048, antiderivative size = 218, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{7(3x+2)^{9/2}}{33(1-2x)^{3/2}(5x+3)^{3/2}}-\frac{217(3x+2)^{7/2}}{121\sqrt{1-2x}(5x+3)^{3/2}}+\frac{3218\sqrt{1-2x}(3x+2)^{5/2}}{19965(5x+3)^{3/2}}+\frac{110519\sqrt{1-2x}(3x+2)^{3/2}}{1098075\sqrt{5x+3}}-\frac{5199979\sqrt{1-2x}\sqrt{5x+3}\sqrt{3x+2}}{3660250}-\frac{5442127F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1663750\sqrt{33}}-\frac{90397364E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{831875\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^(11/2)/((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (3218*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2))/(19965*(3 + 5*x)^(3/2)) - (2
17*(2 + 3*x)^(7/2))/(121*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) + (7*(2 +
 3*x)^(9/2))/(33*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)) + (110519*Sqrt[
1 - 2*x]*(2 + 3*x)^(3/2))/(1098075*Sqrt[3 + 5*x]) - (5199979*Sqrt
[1 - 2*x]*Sqrt[2 + 3*x]*Sqrt[3 + 5*x])/3660250 - (90397364*Ellipt
icE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(831875*Sqrt[33]) -
(5442127*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(1663
750*Sqrt[33])
```

Rubi in Sympy [A] time = 45.6203, size = 201, normalized size = 0.92

$$\frac{3218\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}}{19965\,(5x+3)^{\frac{3}{2}}}+\frac{110519\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}}{1098075\sqrt{5x+3}}-\frac{5199979\sqrt{-2x+1}\sqrt{3x+2}\sqrt{5x+3}}{3660250}-\frac{90397364\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{27451875}-\frac{5442127\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{54903750}-\frac{217\,(3x+2)^{\frac{7}{2}}}{121\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}+\frac{7\,(3x+2)^{\frac{9}{2}}}{33\,(-2x+1)^{\frac{3}{2}}\,(5x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(11/2)/(1-2*x)**(5/2)/(3+5*x)**(5/2),x)
```

```
[Out] 3218*sqrt(-2*x + 1)*(3*x + 2)**(5/2)/(19965*(5*x + 3)**(3/2)) + 1
10519*sqrt(-2*x + 1)*(3*x + 2)**(3/2)/(1098075*sqrt(5*x + 3)) - 5
199979*sqrt(-2*x + 1)*sqrt(3*x + 2)*sqrt(5*x + 3)/3660250 - 90397
364*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/2
7451875 - 5442127*sqrt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1
)/7), 35/33)/54903750 - 217*(3*x + 2)**(7/2)/(121*sqrt(-2*x + 1)*
(5*x + 3)**(3/2)) + 7*(3*x + 2)**(9/2)/(33*(-2*x + 1)**(3/2)*(5*x
 + 3)**(3/2))
```

Mathematica [A] time = 0.40428, size = 112, normalized size = 0.51

$$\frac{-\frac{10\sqrt{3x+2}(177888150x^4-1825153850x^3-1696384053x^2+89252928x+246962693)}{(1-2x)^{3/2}(5x+3)^{3/2}} - 181999265\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right) + 361589456}{109807500}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^(11/2)/((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] ((-10*Sqrt[2 + 3*x]*(246962693 + 89252928*x - 1696384053*x^2 - 18
25153850*x^3 + 177888150*x^4))/((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2))
+ 361589456*Sqrt[2]*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -
33/2] - 181999265*Sqrt[2]*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*
x]], -33/2])/109807500
```

Maple [C] time = 0.034, size = 388, normalized size = 1.8

$$\frac{1}{109807500\,(-1+2\,x)^2}\sqrt{1-2\,x}\left(1819992650\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^2\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(11/2)/(1-2*x)^(5/2)/(3+5*x)^(5/2),x)
```

```
[Out] 1/109807500*(1-2*x)^(1/2)*(1819992650*2^(1/2)*EllipticF(1/11*11^(
1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3
+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-3615894560*2^(1/2)*Ellipt
icE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^
(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+181999265*2^
(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2
)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-36
1589456*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2
*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x
)^(1/2)-545997795*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/
2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3
^(1/2)*2^(1/2))+1084768368*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1
-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*1
1^(1/2)*3^(1/2)*2^(1/2))-5336644500*x^5+51196852500*x^4+873945985
90*x^3+31250093220*x^2-9193939350*x-4939253860)/(3+5*x)^(3/2)/(-1
+2*x)^2/(2+3*x)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{11}{2}}}{(5\,x+3)^{\frac{5}{2}}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(11/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="maxi
```

```
[Out] integrate((3*x + 2)^(11/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(243\,x^5+810\,x^4+1080\,x^3+720\,x^2+240\,x+32\right)\sqrt{3\,x+2}}{(100\,x^4+20\,x^3-59\,x^2-6\,x+9)\sqrt{5\,x+3}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(11/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="fric
```

```
[Out] integral((243*x^5 + 810*x^4 + 1080*x^3 + 720*x^2 + 240*x + 32)*sq
rt(3*x + 2)/((100*x^4 + 20*x^3 - 59*x^2 - 6*x + 9)*sqrt(5*x + 3)*
sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(11/2)/(1-2*x)**(5/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{11}{2}}}{(5\,x+3)^{\frac{5}{2}}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(11/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="giac
```

```
[Out] integrate((3*x + 2)^(11/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)), x)
```

3.2975 $\int \frac{(2+3x)^{9/2}}{(1-2x)^{5/2}(3+5x)^{5/2}} dx$

Optimal. Leaf size=187

$$\frac{7(3x+2)^{7/2}}{33(1-2x)^{3/2}(5x+3)^{3/2}}-\frac{140(3x+2)^{5/2}}{121\sqrt{1-2x}(5x+3)^{3/2}}+\frac{2063\sqrt{1-2x}(3x+2)^{3/2}}{19965(5x+3)^{3/2}}+\frac{70226\sqrt{1-2x}\sqrt{3x+2}}{1098075\sqrt{5x+3}}-\frac{76163F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{166375\sqrt{33}}-\frac{4971289E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{332750\sqrt{33}}$$

```
[Out] (2063*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2))/(19965*(3 + 5*x)^(3/2)) - (1
40*(2 + 3*x)^(5/2))/(121*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) + (7*(2 +
 3*x)^(7/2))/(33*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)) + (70226*Sqrt[1
 - 2*x]*Sqrt[2 + 3*x])/(1098075*Sqrt[3 + 5*x]) - (4971289*Ellipti
cE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(332750*Sqrt[33]) - (
76163*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(166375*
Sqrt[33])
```

Rubi [A] time = 0.428905, antiderivative size = 187, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.179$

$$\frac{7(3x+2)^{7/2}}{33(1-2x)^{3/2}(5x+3)^{3/2}}-\frac{140(3x+2)^{5/2}}{121\sqrt{1-2x}(5x+3)^{3/2}}+\frac{2063\sqrt{1-2x}(3x+2)^{3/2}}{19965(5x+3)^{3/2}}+\frac{70226\sqrt{1-2x}\sqrt{3x+2}}{1098075\sqrt{5x+3}}-\frac{76163F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{166375\sqrt{33}}-\frac{4971289E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{332750\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^(9/2)/((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (2063*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2))/(19965*(3 + 5*x)^(3/2)) - (1
40*(2 + 3*x)^(5/2))/(121*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) + (7*(2 +
 3*x)^(7/2))/(33*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)) + (70226*Sqrt[1
 - 2*x]*Sqrt[2 + 3*x])/(1098075*Sqrt[3 + 5*x]) - (4971289*Ellipti
cE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(332750*Sqrt[33]) - (
76163*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(166375*
Sqrt[33])
```

Rubi in Sympy [A] time = 38.3454, size = 172, normalized size = 0.92

$$\frac{2063\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}}{19965\,(5x+3)^{\frac{3}{2}}}+\frac{70226\sqrt{-2x+1}\sqrt{3x+2}}{1098075\sqrt{5x+3}}-\frac{4971289\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{10980750}-\frac{76163\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{5823125}-\frac{140\,(3x+2)^{\frac{5}{2}}}{121\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}+\frac{7\,(3x+2)^{\frac{7}{2}}}{33\,(-2x+1)^{\frac{3}{2}}\,(5x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(9/2)/(1-2*x)**(5/2)/(3+5*x)**(5/2),x)
```

```
[Out] 2063*sqrt(-2*x + 1)*(3*x + 2)**(3/2)/(19965*(5*x + 3)**(3/2)) + 7
0226*sqrt(-2*x + 1)*sqrt(3*x + 2)/(1098075*sqrt(5*x + 3)) - 49712
89*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/10
980750 - 76163*sqrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*x + 1)/1
1), 33/35)/5823125 - 140*(3*x + 2)**(5/2)/(121*sqrt(-2*x + 1)*(5*
x + 3)**(3/2)) + 7*(3*x + 2)**(7/2)/(33*(-2*x + 1)**(3/2)*(5*x +
3)**(3/2))
```

Mathematica [A] time = 0.367931, size = 107, normalized size = 0.57

$$\frac{\frac{10\sqrt{3x+2}(31924075x^3+30619782x^2+2244393x-2780992)}{(1-2x)^{3/2}(5x+3)^{3/2}} - 2457910\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right) + 4971289\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+\right.\right.}{10980750}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^(9/2)/((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] ((10*Sqrt[2 + 3*x]*(-2780992 + 2244393*x + 30619782*x^2 + 3192407
5*x^3))/((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)) + 4971289*Sqrt[2]*Ellip
ticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 2457910*Sqrt[2]*E
llipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/10980750
```

Maple [C] time = 0.034, size = 383, normalized size = 2.1

$$\frac{1}{10980750\,(-1+2\,x)^2}\sqrt{1-2\,x}\left(24579100\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^2\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(9/2)/(1-2*x)^(5/2)/(3+5*x)^(5/2),x)
```

```
[Out] 1/10980750*(1-2*x)^(1/2)*(24579100*2^(1/2)*EllipticF(1/11*11^(1/2
)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*
x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-49712890*2^(1/2)*EllipticE(1
/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2)
)*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+2457910*2^(1/2)*E
llipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/
2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-4971289*2
^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/
2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-7
373730*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Elliptic
F(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1
/2))+14913867*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*E
llipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/
2)*2^(1/2))+957722250*x^4+1557074960*x^3+679727430*x^2-38541900*x
-55619840)/(3+5*x)^(3/2)/(-1+2*x)^2/(2+3*x)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{9}{2}}}{(5\,x+3)^{\frac{5}{2}}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(9/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="maxima
```

```
[Out] integrate((3*x + 2)^(9/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(81\,x^4+216\,x^3+216\,x^2+96\,x+16)\sqrt{3\,x+2}}{(100\,x^4+20\,x^3-59\,x^2-6\,x+9)\sqrt{5\,x+3}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(9/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="frica
```

```
[Out] integral((81*x^4 + 216*x^3 + 216*x^2 + 96*x + 16)*sqrt(3*x + 2)/(
(100*x^4 + 20*x^3 - 59*x^2 - 6*x + 9)*sqrt(5*x + 3)*sqrt(-2*x + 1
)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**(9/2)/(1-2*x)**(5/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{9}{2}}}{(5x+3)^{\frac{5}{2}}(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(9/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="giac"
```

```
[Out] integrate((3*x + 2)^(9/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)), x)
```

3.2976 $\int \frac{(2+3x)^{7/2}}{(1-2x)^{5/2}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=187

$$\frac{7(3x+2)^{5/2}}{33(1-2x)^{3/2}(5x+3)^{3/2}}-\frac{63(3x+2)^{3/2}}{121\sqrt{1-2x}(5x+3)^{3/2}}+\frac{29933\sqrt{1-2x}\sqrt{3x+2}}{219615\sqrt{5x+3}}+\frac{908\sqrt{1-2x}\sqrt{3x+2}}{19965(5x+3)^{3/2}}-\frac{1847F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{33275\sqrt{33}}-\frac{29933E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{33275\sqrt{33}}$$

```
[Out] (908*Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/(19965*(3 + 5*x)^(3/2)) - (63*(
2 + 3*x)^(3/2))/(121*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) + (7*(2 + 3*x
)^(5/2))/(33*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)) + (29933*Sqrt[1 - 2
*x]*Sqrt[2 + 3*x])/(219615*Sqrt[3 + 5*x]) - (29933*EllipticE[ArcS
in[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(33275*Sqrt[33]) - (1847*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(33275*Sqrt[33])
```

Rubi [A] time = 0.426841, antiderivative size = 187, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{7(3x+2)^{5/2}}{33(1-2x)^{3/2}(5x+3)^{3/2}}-\frac{63(3x+2)^{3/2}}{121\sqrt{1-2x}(5x+3)^{3/2}}+\frac{29933\sqrt{1-2x}\sqrt{3x+2}}{219615\sqrt{5x+3}}+\frac{908\sqrt{1-2x}\sqrt{3x+2}}{19965(5x+3)^{3/2}}-\frac{1847F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{33275\sqrt{33}}-\frac{29933E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{33275\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^(7/2)/((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (908*Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/(19965*(3 + 5*x)^(3/2)) - (63*(
2 + 3*x)^(3/2))/(121*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) + (7*(2 + 3*x
)^(5/2))/(33*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)) + (29933*Sqrt[1 - 2
*x]*Sqrt[2 + 3*x])/(219615*Sqrt[3 + 5*x]) - (29933*EllipticE[ArcS
in[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(33275*Sqrt[33]) - (1847*Ell
ipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(33275*Sqrt[33])
```

Rubi in Sympy [A] time = 38.9856, size = 172, normalized size = 0.92

$$\frac{29933\sqrt{-2x+1}\sqrt{3x+2}}{219615\sqrt{5x+3}}+\frac{908\sqrt{-2x+1}\sqrt{3x+2}}{19965\,(5x+3)^{\frac{3}{2}}}-\frac{29933\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{1098075}-\frac{1847\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{1098075}-\frac{63\,(3x+2)^{\frac{3}{2}}}{121\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}+\frac{7\,(3x+2)^{\frac{5}{2}}}{33\,(-2x+1)^{\frac{3}{2}}\,(5x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(7/2)/(1-2*x)**(5/2)/(3+5*x)**(5/2),x)
```

```
[Out] 29933*sqrt(-2*x + 1)*sqrt(3*x + 2)/(219615*sqrt(5*x + 3)) + 908*s
qrt(-2*x + 1)*sqrt(3*x + 2)/(19965*(5*x + 3)**(3/2)) - 29933*sqrt
(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/1098075 -
 1847*sqrt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)
/1098075 - 63*(3*x + 2)**(3/2)/(121*sqrt(-2*x + 1)*(5*x + 3)**(3/
2)) + 7*(3*x + 2)**(5/2)/(33*(-2*x + 1)**(3/2)*(5*x + 3)**(3/2))
```

Mathematica [A] time = 0.312553, size = 107, normalized size = 0.57

$$\frac{\frac{10\sqrt{3x+2}(598660x^3+905823x^2+423882x+57437)}{(1-2x)^{3/2}(5x+3)^{3/2}} + 1085\sqrt{2}F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)\middle|-\frac{33}{2}\right) + 59866\sqrt{2}E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)\middle|-\frac{33}{2}\right)}{2196150}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^(7/2)/((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] ((10*Sqrt[2 + 3*x]*(57437 + 423882*x + 905823*x^2 + 598660*x^3))/
((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)) + 59866*Sqrt[2]*EllipticE[ArcSi
n[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 1085*Sqrt[2]*EllipticF[ArcS
in[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])/2196150
```

Maple [C] time = 0.036, size = 383, normalized size = 2.1

$$-\frac{1}{2196150\,(-1+2\,x)^2}\sqrt{1-2\,x}\left(10850\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^2\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}+598$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(7/2)/(1-2*x)^(5/2)/(3+5*x)^(5/2),x)
```

```
[Out] -1/2196150*(1-2*x)^(1/2)*(10850*2^(1/2)*EllipticF(1/11*11^(1/2)*2
^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^
(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+598660*2^(1/2)*EllipticE(1/11*1
1^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2
*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+1085*2^(1/2)*EllipticF
(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/
2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+59866*2^(1/2)*Ell
ipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)
*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-3255*2^(1/2
)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/
2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-179598*2
^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*1
1^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-179
59800*x^4-39147890*x^3-30832920*x^2-10200750*x-1148740)/(3+5*x)^(
3/2)/(-1+2*x)^2/(2+3*x)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{7}{2}}}{(5\,x+3)^{\frac{5}{2}}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(7/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="maxima
```

```
[Out] integrate((3*x + 2)^(7/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\left(27\,x^3+54\,x^2+36\,x+8\right)\sqrt{3\,x+2}}{(100\,x^4+20\,x^3-59\,x^2-6\,x+9)\sqrt{5\,x+3}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(7/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="frica
```

```
[Out] integral((27*x^3 + 54*x^2 + 36*x + 8)*sqrt(3*x + 2)/((100*x^4 + 2
0*x^3 - 59*x^2 - 6*x + 9)*sqrt(5*x + 3)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2+3*x)**(7/2)/(1-2*x)**(5/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{7}{2}}}{(5x+3)^{\frac{5}{2}}(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(7/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="giac"
```

```
[Out] integrate((3*x + 2)^(7/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)), x)
```

3.2977 $\int \frac{(2+3x)^{5/2}}{(1-2x)^{5/2}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=187

$$\frac{7(3x+2)^{3/2}}{33(1-2x)^{3/2}(5x+3)^{3/2}}-\frac{2209\sqrt{1-2x}\sqrt{3x+2}}{43923\sqrt{5x+3}}-\frac{247\sqrt{1-2x}\sqrt{3x+2}}{3993(5x+3)^{3/2}}+\frac{14\sqrt{3x+2}}{121\sqrt{1-2x}(5x+3)^{3/2}}-\frac{494F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{6655\sqrt{33}}+\frac{2209E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{6655\sqrt{33}}$$

```
[Out] (14*Sqrt[2 + 3*x])/(121*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) - (247*Sqr
t[1 - 2*x]*Sqrt[2 + 3*x])/(3993*(3 + 5*x)^(3/2)) + (7*(2 + 3*x)^(
3/2))/(33*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)) - (2209*Sqrt[1 - 2*x]*
Sqrt[2 + 3*x])/(43923*Sqrt[3 + 5*x]) + (2209*EllipticE[ArcSin[Sqr
t[3/7]*Sqrt[1 - 2*x]], 35/33])/(6655*Sqrt[33]) - (494*EllipticF[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(6655*Sqrt[33])
```

Rubi [A] time = 0.419861, antiderivative size = 187, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 6, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.214

$$\frac{7(3x+2)^{3/2}}{33(1-2x)^{3/2}(5x+3)^{3/2}}-\frac{2209\sqrt{1-2x}\sqrt{3x+2}}{43923\sqrt{5x+3}}-\frac{247\sqrt{1-2x}\sqrt{3x+2}}{3993(5x+3)^{3/2}}+\frac{14\sqrt{3x+2}}{121\sqrt{1-2x}(5x+3)^{3/2}}-\frac{494F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{6655\sqrt{33}}+\frac{2209E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{6655\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^(5/2)/((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (14*Sqrt[2 + 3*x])/(121*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) - (247*Sqr
t[1 - 2*x]*Sqrt[2 + 3*x])/(3993*(3 + 5*x)^(3/2)) + (7*(2 + 3*x)^(
3/2))/(33*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)) - (2209*Sqrt[1 - 2*x]*
Sqrt[2 + 3*x])/(43923*Sqrt[3 + 5*x]) + (2209*EllipticE[ArcSin[Sqr
t[3/7]*Sqrt[1 - 2*x]], 35/33])/(6655*Sqrt[33]) - (494*EllipticF[A
rcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(6655*Sqrt[33])
```

Rubi in Sympy [A] time = 38.4638, size = 172, normalized size = 0.92

$$-\frac{2209\sqrt{-2x+1}\sqrt{3x+2}}{43923\sqrt{5x+3}}-\frac{247\sqrt{-2x+1}\sqrt{3x+2}}{3993\,(5x+3)^{\frac{3}{2}}}+\frac{2209\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{219615}-\frac{494\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{219615}+\frac{14\sqrt{3x+2}}{121\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}+\frac{7\,(3x+2)^{\frac{3}{2}}}{33\,(-2x+1)^{\frac{3}{2}}\,(5x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(5/2)/(1-2*x)**(5/2)/(3+5*x)**(5/2),x)
```

```
[Out] -2209*sqrt(-2*x + 1)*sqrt(3*x + 2)/(43923*sqrt(5*x + 3)) - 247*sq
rt(-2*x + 1)*sqrt(3*x + 2)/(3993*(5*x + 3)**(3/2)) + 2209*sqrt(33
)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/219615 - 494
*sqrt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/2196
15 + 14*sqrt(3*x + 2)/(121*sqrt(-2*x + 1)*(5*x + 3)**(3/2)) + 7*(
3*x + 2)**(3/2)/(33*(-2*x + 1)**(3/2)*(5*x + 3)**(3/2))
```

Mathematica [A] time = 0.281928, size = 104, normalized size = 0.56

$$\frac{\sqrt{2}\left(10360F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-2209E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)-\frac{10\sqrt{3x+2}(22090x^3-3402x^2-22059x-7186)}{(1-2x)^{3/2}(5x+3)^{3/2}}}{219615}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^(5/2)/((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] ((-10*Sqrt[2 + 3*x]*(-7186 - 22059*x - 3402*x^2 + 22090*x^3))/((1
 - 2*x)^(3/2)*(3 + 5*x)^(3/2)) + Sqrt[2]*(-2209*EllipticE[ArcSin[
Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 10360*EllipticF[ArcSin[Sqrt[2
/11]*Sqrt[3 + 5*x]], -33/2]))/219615
```

Maple [C] time = 0.035, size = 383, normalized size = 2.1

$$-\frac{1}{219615\,(-1+2\,x)^2}\sqrt{1-2\,x}\left(103600\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^2\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-220$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(5/2)/(1-2*x)^(5/2)/(3+5*x)^(5/2),x)
```

```
[Out] -1/219615*(1-2*x)^(1/2)*(103600*2^(1/2)*EllipticF(1/11*11^(1/2)*2
^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^
(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-22090*2^(1/2)*EllipticE(1/11*11
^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*
(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+10360*2^(1/2)*EllipticF
(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/
2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-2209*2^(1/2)*Elli
pticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*
2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-31080*2^(1/2
)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/
2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+6627*2^(
1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^
(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+66270
0*x^4+339740*x^3-729810*x^2-656760*x-143720)/(3+5*x)^(3/2)/(-1+2*
x)^2/(2+3*x)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3\,x+2)^{\frac{5}{2}}}{(5\,x+3)^{\frac{5}{2}}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(5/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="maxima
```

```
[Out] integrate((3*x + 2)^(5/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(9\,x^2+12\,x+4)\sqrt{3\,x+2}}{(100\,x^4+20\,x^3-59\,x^2-6\,x+9)\sqrt{5\,x+3}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(5/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="frica
```

```
[Out] integral((9*x^2 + 12*x + 4)*sqrt(3*x + 2)/((100*x^4 + 20*x^3 - 59
*x^2 - 6*x + 9)*sqrt(5*x + 3)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2+3*x)**(5/2)/(1-2*x)**(5/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{5}{2}}}{(5x+3)^{\frac{5}{2}}(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(5/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="giac"
```

```
[Out] integrate((3*x + 2)^(5/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)), x)
```

3.2978 $\int \frac{(2+3x)^{3/2}}{(1-2x)^{5/2}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=187

$$-\frac{2960\sqrt{1-2x}\sqrt{3x+2}}{43923\sqrt{5x+3}}-\frac{575\sqrt{1-2x}\sqrt{3x+2}}{3993(5x+3)^{3/2}}+\frac{26\sqrt{3x+2}}{121\sqrt{1-2x}(5x+3)^{3/2}}+\frac{7\sqrt{3x+2}}{33(1-2x)^{3/2}(5x+3)^{3/2}}-\frac{230F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1331\sqrt{33}}+\frac{592E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1331\sqrt{33}}$$

```
[Out] (7*Sqrt[2 + 3*x])/(33*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)) + (26*Sqrt
[2 + 3*x])/(121*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) - (575*Sqrt[1 - 2*
x]*Sqrt[2 + 3*x])/(3993*(3 + 5*x)^(3/2)) - (2960*Sqrt[1 - 2*x]*Sq
rt[2 + 3*x])/(43923*Sqrt[3 + 5*x]) + (592*EllipticE[ArcSin[Sqrt[3
/7]*Sqrt[1 - 2*x]], 35/33])/(1331*Sqrt[33]) - (230*EllipticF[ArcS
in[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(1331*Sqrt[33])
```

Rubi [A] time = 0.424312, antiderivative size = 187, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$-\frac{2960\sqrt{1-2x}\sqrt{3x+2}}{43923\sqrt{5x+3}}-\frac{575\sqrt{1-2x}\sqrt{3x+2}}{3993(5x+3)^{3/2}}+\frac{26\sqrt{3x+2}}{121\sqrt{1-2x}(5x+3)^{3/2}}+\frac{7\sqrt{3x+2}}{33(1-2x)^{3/2}(5x+3)^{3/2}}-\frac{230F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1331\sqrt{33}}+\frac{592E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{1331\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^(3/2)/((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2)),x]
```



```
[Out] (7*Sqrt[2 + 3*x])/(33*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)) + (26*Sqrt
[2 + 3*x])/(121*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) - (575*Sqrt[1 - 2*
x]*Sqrt[2 + 3*x])/(3993*(3 + 5*x)^(3/2)) - (2960*Sqrt[1 - 2*x]*Sq
rt[2 + 3*x])/(43923*Sqrt[3 + 5*x]) + (592*EllipticE[ArcSin[Sqrt[3
/7]*Sqrt[1 - 2*x]], 35/33])/(1331*Sqrt[33]) - (230*EllipticF[ArcS
in[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(1331*Sqrt[33])
```

Rubi in Sympy [A] time = 38.033, size = 172, normalized size = 0.92

$$\frac{592\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{43923}-\frac{230\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{43923}+\frac{1184\sqrt{3x+2}\sqrt{5x+3}}{43923\sqrt{-2x+1}}-\frac{362\sqrt{3x+2}}{3993\sqrt{-2x+1}\sqrt{5x+3}}-\frac{37\sqrt{3x+2}}{363\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}+\frac{7\sqrt{3x+2}}{33\,(-2x+1)^{\frac{3}{2}}\,(5x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(3/2)/(1-2*x)**(5/2)/(3+5*x)**(5/2),x)
```

```
[Out] 592*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/4
3923 - 230*sqrt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7), 3
5/33)/43923 + 1184*sqrt(3*x + 2)*sqrt(5*x + 3)/(43923*sqrt(-2*x +
 1)) - 362*sqrt(3*x + 2)/(3993*sqrt(-2*x + 1)*sqrt(5*x + 3)) - 37
*sqrt(3*x + 2)/(363*sqrt(-2*x + 1)*(5*x + 3)**(3/2)) + 7*sqrt(3*x
 + 2)/(33*(-2*x + 1)**(3/2)*(5*x + 3)**(3/2))
```

Mathematica [A] time = 0.257283, size = 104, normalized size = 0.56

$$\frac{\sqrt{2}\left(4387F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-592E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)-\frac{2\sqrt{3x+2}(29600x^3+810x^2-13572x-1775)}{(1-2x)^{3/2}(5x+3)^{3/2}}}{43923}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^(3/2)/((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] ((-2*Sqrt[2 + 3*x]*(-1775 - 13572*x + 810*x^2 + 29600*x^3))/((1 -
 2*x)^(3/2)*(3 + 5*x)^(3/2)) + Sqrt[2]*(-592*EllipticE[ArcSin[Sqr
t[2/11]*Sqrt[3 + 5*x]], -33/2] + 4387*EllipticF[ArcSin[Sqrt[2/11]
*Sqrt[3 + 5*x]], -33/2]))/43923
```

Maple [C] time = 0.033, size = 383, normalized size = 2.1

$$-\frac{1}{43923(-1+2x)^2}\sqrt{1-2x}\left(43870\sqrt{2}EllipticF\left(1/11\sqrt{11}\sqrt{2}\sqrt{3+5x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^2\sqrt{3+5x}\sqrt{2+3x}\sqrt{1-2x}-5920$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(3/2)/(1-2*x)^(5/2)/(3+5*x)^(5/2),x)
```

```
[Out] -1/43923*(1-2*x)^(1/2)*(43870*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(
1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1
/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-5920*2^(1/2)*EllipticE(1/11*11^(1
/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+
5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+4387*2^(1/2)*EllipticF(1/1
1*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*
x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-592*2^(1/2)*EllipticE
(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/
2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-13161*2^(1/2)*(3+
5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/2)*2^
(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+1776*2^(1/2)*
(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)
*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+177600*x^4
+123260*x^3-78192*x^2-64938*x-7100)/(3+5*x)^(3/2)/(-1+2*x)^2/(2+3
*x)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int\frac{(3x+2)^{\frac{3}{2}}}{(5x+3)^{\frac{5}{2}}(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^(3/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="maxima
```

```
[Out] integrate((3*x + 2)^(3/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(3x+2)^{\frac{3}{2}}}{(100x^4+20x^3-59x^2-6x+9)\sqrt{5x+3}\sqrt{-2x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(3/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="frica
```

```
[Out] integral((3*x + 2)^(3/2)/((100*x^4 + 20*x^3 - 59*x^2 - 6*x + 9)*s
qrt(5*x + 3)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2+3*x)**(3/2)/(1-2*x)**(5/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^{\frac{3}{2}}}{(5x+3)^{\frac{5}{2}}(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^(3/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="giac"
```

```
[Out] integrate((3*x + 2)^(3/2)/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)), x)
```

3.2979 $\int \frac{\sqrt{2+3x}}{(1-2x)^{5/2}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=187

$$-\frac{22090\sqrt{1-2x}\sqrt{3x+2}}{307461\sqrt{5x+3}}-\frac{2470\sqrt{1-2x}\sqrt{3x+2}}{27951(5x+3)^{3/2}}+\frac{118\sqrt{3x+2}}{847\sqrt{1-2x}(5x+3)^{3/2}}+\frac{2\sqrt{3x+2}}{33(1-2x)^{3/2}(5x+3)^{3/2}}-\frac{988F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{9317\sqrt{33}}+\frac{4418E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{9317\sqrt{33}}$$

```
[Out] (2*Sqrt[2 + 3*x])/(33*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)) + (118*Sqr
t[2 + 3*x])/(847*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) - (2470*Sqrt[1 -
2*x]*Sqrt[2 + 3*x])/(27951*(3 + 5*x)^(3/2)) - (22090*Sqrt[1 - 2*x
]*Sqrt[2 + 3*x])/(307461*Sqrt[3 + 5*x]) + (4418*EllipticE[ArcSin[
Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(9317*Sqrt[33]) - (988*Elliptic
F[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(9317*Sqrt[33])
```

Rubi [A] time = 0.429626, antiderivative size = 187, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.179$

$$-\frac{22090\sqrt{1-2x}\sqrt{3x+2}}{307461\sqrt{5x+3}}-\frac{2470\sqrt{1-2x}\sqrt{3x+2}}{27951(5x+3)^{3/2}}+\frac{118\sqrt{3x+2}}{847\sqrt{1-2x}(5x+3)^{3/2}}+\frac{2\sqrt{3x+2}}{33(1-2x)^{3/2}(5x+3)^{3/2}}-\frac{988F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{9317\sqrt{33}}+\frac{4418E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{9317\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[2 + 3*x]/((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (2*Sqrt[2 + 3*x])/(33*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)) + (118*Sqr
t[2 + 3*x])/(847*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) - (2470*Sqrt[1 -
2*x]*Sqrt[2 + 3*x])/(27951*(3 + 5*x)^(3/2)) - (22090*Sqrt[1 - 2*x
]*Sqrt[2 + 3*x])/(307461*Sqrt[3 + 5*x]) + (4418*EllipticE[ArcSin[
Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(9317*Sqrt[33]) - (988*Elliptic
F[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(9317*Sqrt[33])
```

Rubi in Sympy [A] time = 38.5524, size = 172, normalized size = 0.92

$$\frac{4418\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{307461}-\frac{988\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{307461}+\frac{8836\sqrt{3x+2}\sqrt{5x+3}}{307461\sqrt{-2x+1}}-\frac{490\sqrt{3x+2}}{3993\sqrt{-2x+1}\sqrt{5x+3}}-\frac{20\sqrt{3x+2}}{363\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}+\frac{2\sqrt{3x+2}}{33\,(-2x+1)^{\frac{3}{2}}\,(5x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**(1/2)/(1-2*x)**(5/2)/(3+5*x)**(5/2),x)
```

```
[Out] 4418*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/33)/
307461 - 988*sqrt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1)/7),
 35/33)/307461 + 8836*sqrt(3*x + 2)*sqrt(5*x + 3)/(307461*sqrt(-2
*x + 1)) - 490*sqrt(3*x + 2)/(3993*sqrt(-2*x + 1)*sqrt(5*x + 3))
- 20*sqrt(3*x + 2)/(363*sqrt(-2*x + 1)*(5*x + 3)**(3/2)) + 2*sqrt
(3*x + 2)/(33*(-2*x + 1)**(3/2)*(5*x + 3)**(3/2))
```

Mathematica [A] time = 0.28685, size = 103, normalized size = 0.55

$$\frac{2\left(\frac{\sqrt{3x+2}(-220900x^3+34020x^2+88821x-15986)}{(1-2x)^{3/2}(5x+3)^{3/2}}+\sqrt{2}\left(10360F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-2209E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)\right)\right)}{307461}$$

Antiderivative was successfully verified.

```
[In]  Integrate[Sqrt[2 + 3*x]/((1 - 2*x)^(5/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (2*((Sqrt[2 + 3*x]*(-15986 + 88821*x + 34020*x^2 - 220900*x^3))/(
(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)) + Sqrt[2]*(-2209*EllipticE[ArcSi
n[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 10360*EllipticF[ArcSin[Sqrt
[2/11]*Sqrt[3 + 5*x]], -33/2])))/307461
```

Maple [C] time = 0.035, size = 383, normalized size = 2.1

$$-\frac{2}{307461\,(-1+2\,x)^2}\sqrt{1-2\,x}\left(103600\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^2\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-220$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^(1/2)/(1-2*x)^(5/2)/(3+5*x)^(5/2),x)
```

```
[Out] -2/307461*(1-2*x)^(1/2)*(103600*2^(1/2)*EllipticF(1/11*11^(1/2)*2
^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^
(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-22090*2^(1/2)*EllipticE(1/11*11
^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*
(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+10360*2^(1/2)*EllipticF
(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/
2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-2209*2^(1/2)*Elli
pticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*
2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-31080*2^(1/2
)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/
2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+6627*2^(
1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^
(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+66270
0*x^4+339740*x^3-334503*x^2-129684*x+31972)/(3+5*x)^(3/2)/(-1+2*x
)^2/(2+3*x)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{3\,x+2}}{(5\,x+3)^{\frac{5}{2}}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(3*x + 2)/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="maxima"
```

```
[Out] integrate(sqrt(3*x + 2)/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{3\,x+2}}{(100\,x^4+20\,x^3-59\,x^2-6\,x+9)\sqrt{5\,x+3}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(3*x + 2)/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="fricas"
```

```
[Out] integral(sqrt(3*x + 2)/((100*x^4 + 20*x^3 - 59*x^2 - 6*x + 9)*sqr
t(5*x + 3)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2+3*x)**(1/2)/(1-2*x)**(5/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{3x+2}}{(5x+3)^{\frac{5}{2}}(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(3*x + 2)/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="giac")
```

```
[Out] integrate(sqrt(3*x + 2)/((5*x + 3)^(5/2)*(-2*x + 1)^(5/2)), x)
```

3.2980 $\int \frac{1}{(1-2x)^{5/2}\sqrt{2+3x}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=187

$$\frac{598660\sqrt{1-2x}\sqrt{3x+2}}{2152227\sqrt{5x+3}}-\frac{18470\sqrt{1-2x}\sqrt{3x+2}}{195657(5x+3)^{3/2}}+\frac{368\sqrt{3x+2}}{5929\sqrt{1-2x}(5x+3)^{3/2}}+\frac{4\sqrt{3x+2}}{231(1-2x)^{3/2}(5x+3)^{3/2}}-\frac{7388F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{65219\sqrt{33}}-\frac{119732E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{65219\sqrt{33}}$$

```
[Out] (4*Sqrt[2 + 3*x])/(231*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)) + (368*Sq
rt[2 + 3*x])/(5929*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) - (18470*Sqrt[1
 - 2*x]*Sqrt[2 + 3*x])/(195657*(3 + 5*x)^(3/2)) + (598660*Sqrt[1
- 2*x]*Sqrt[2 + 3*x])/(2152227*Sqrt[3 + 5*x]) - (119732*EllipticE
[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(65219*Sqrt[33]) - (738
8*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(65219*Sqrt[
33])
```

Rubi [A] time = 0.431198, antiderivative size = 187, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{598660\sqrt{1-2x}\sqrt{3x+2}}{2152227\sqrt{5x+3}}-\frac{18470\sqrt{1-2x}\sqrt{3x+2}}{195657(5x+3)^{3/2}}+\frac{368\sqrt{3x+2}}{5929\sqrt{1-2x}(5x+3)^{3/2}}+\frac{4\sqrt{3x+2}}{231(1-2x)^{3/2}(5x+3)^{3/2}}-\frac{7388F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{65219\sqrt{33}}-\frac{119732E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{65219\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(5/2)*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2)),x]
```

```
[Out] (4*Sqrt[2 + 3*x])/(231*(1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)) + (368*Sq
rt[2 + 3*x])/(5929*Sqrt[1 - 2*x]*(3 + 5*x)^(3/2)) - (18470*Sqrt[1
 - 2*x]*Sqrt[2 + 3*x])/(195657*(3 + 5*x)^(3/2)) + (598660*Sqrt[1
- 2*x]*Sqrt[2 + 3*x])/(2152227*Sqrt[3 + 5*x]) - (119732*EllipticE
[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(65219*Sqrt[33]) - (738
8*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(65219*Sqrt[
33])
```

Rubi in Sympy [A] time = 41.6047, size = 172, normalized size = 0.92

$$-\frac{119732\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{2152227}-\frac{7388\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{2152227}-\frac{239464\sqrt{3x+2}\sqrt{5x+3}}{2152227\sqrt{-2x+1}}+\frac{18160\sqrt{3x+2}}{27951\sqrt{-2x+1}\sqrt{5x+3}}-\frac{370\sqrt{3x+2}}{2541\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}+\frac{4\sqrt{3x+2}}{231\,(-2x+1)^{\frac{3}{2}}\,(5x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(5/2)/(3+5*x)**(5/2)/(2+3*x)**(1/2),x)
```

```
[Out] -119732*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35/3
3)/2152227 - 7388*sqrt(33)*elliptic_f(asin(sqrt(21)*sqrt(-2*x + 1
)/7), 35/33)/2152227 - 239464*sqrt(3*x + 2)*sqrt(5*x + 3)/(215222
7*sqrt(-2*x + 1)) + 18160*sqrt(3*x + 2)/(27951*sqrt(-2*x + 1)*sqr
t(5*x + 3)) - 370*sqrt(3*x + 2)/(2541*sqrt(-2*x + 1)*(5*x + 3)**(
3/2)) + 4*sqrt(3*x + 2)/(231*(-2*x + 1)**(3/2)*(5*x + 3)**(3/2))
```

Mathematica [A] time = 0.257881, size = 103, normalized size = 0.55

$$\frac{2\left(\frac{\sqrt{3x+2}(5986600x^3-2800980x^2-1822554x+881831)}{(1-2x)^{3/2}(5x+3)^{3/2}}+\sqrt{2}\left(1085F\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)\middle|-\frac{33}{2}\right)+59866E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)\middle|-\frac{33}{2}\right)\right.\right.}{2152227}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(5/2)*Sqrt[2 + 3*x]*(3 + 5*x)^(5/2)),x]
```

```
[Out] (2*((Sqrt[2 + 3*x]*(881831 - 1822554*x - 2800980*x^2 + 5986600*x^
3))/((1 - 2*x)^(3/2)*(3 + 5*x)^(3/2)) + Sqrt[2]*(59866*EllipticE[
ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] + 1085*EllipticF[ArcSin[
Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])))/2152227
```

Maple [C] time = 0.038, size = 383, normalized size = 2.1

$$-\frac{2}{2152227\,(-1+2\,x)^2}\sqrt{1-2\,x}\left(10850\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^2\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}+598\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(5/2)/(3+5*x)^(5/2)/(2+3*x)^(1/2),x)
```

```
[Out] -2/2152227*(1-2*x)^(1/2)*(10850*2^(1/2)*EllipticF(1/11*11^(1/2)*2
^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^
(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+598660*2^(1/2)*EllipticE(1/11*1
1^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2
*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+1085*2^(1/2)*EllipticF
(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/
2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+59866*2^(1/2)*Ell
ipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)
*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-3255*2^(1/2
)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1/
2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-179598*2
^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*1
1^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-179
59800*x^4-3570260*x^3+11069622*x^2+999615*x-1763662)/(3+5*x)^(3/2
)/(-1+2*x)^2/(2+3*x)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5\,x+3)^{\frac{5}{2}}\sqrt{3\,x+2}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(5/2)*sqrt(3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="maxima
```

```
[Out] integrate(1/((5*x + 3)^(5/2)*sqrt(3*x + 2)*(-2*x + 1)^(5/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{1}{(100\,x^4+20\,x^3-59\,x^2-6\,x+9)\sqrt{5\,x+3}\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(5/2)*sqrt(3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="fricas
```

```
[Out] integral(1/((100*x^4 + 20*x^3 - 59*x^2 - 6*x + 9)*sqrt(5*x + 3)*s
qrt(3*x + 2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(5/2)/(3+5*x)**(5/2)/(2+3*x)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5\,x+3)^{\frac{5}{2}}\sqrt{3\,x+2}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(5/2)*sqrt(3*x + 2)*(-2*x + 1)^(5/2)),x, algorithm="giac"
```

```
[Out] integrate(1/((5*x + 3)^(5/2)*sqrt(3*x + 2)*(-2*x + 1)^(5/2)), x)
```

3.2981 $\int \frac{1}{(1-2x)^{5/2}(2+3x)^{3/2}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=218

$$\frac{99425780\sqrt{1-2x}\sqrt{3x+2}}{15065589\sqrt{5x+3}}-\frac{1523260\sqrt{1-2x}\sqrt{3x+2}}{1369599(5x+3)^{3/2}}+\frac{5034\sqrt{1-2x}}{41503\sqrt{3x+2}(5x+3)^{3/2}}+\frac{456}{5929\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}}+\frac{4}{231(1-2x)^{3/2}\sqrt{3x+2}(5x+3)^{3/2}}-\frac{609304F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{456533\sqrt{33}}-\frac{19885156E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{456533\sqrt{33}}$$

```
[Out] 4/(231*(1 - 2*x)^(3/2)*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)) + 456/(5929
*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)) + (5034*Sqrt[1 - 2*
x])/(41503*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)) - (1523260*Sqrt[1 - 2*x
]*Sqrt[2 + 3*x])/(1369599*(3 + 5*x)^(3/2)) + (99425780*Sqrt[1 - 2
*x]*Sqrt[2 + 3*x])/(15065589*Sqrt[3 + 5*x]) - (19885156*EllipticE
[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(456533*Sqrt[33]) - (60
9304*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(456533*S
qrt[33])
```

Rubi [A] time = 0.521696, antiderivative size = 218, normalized size of antiderivative = 1., number of steps used = 8, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{99425780\sqrt{1-2x}\sqrt{3x+2}}{15065589\sqrt{5x+3}}-\frac{1523260\sqrt{1-2x}\sqrt{3x+2}}{1369599(5x+3)^{3/2}}+\frac{5034\sqrt{1-2x}}{41503\sqrt{3x+2}(5x+3)^{3/2}}+\frac{456}{5929\sqrt{1-2x}\sqrt{3x+2}(5x+3)^{3/2}}+\frac{4}{231(1-2x)^{3/2}\sqrt{3x+2}(5x+3)^{3/2}}-\frac{609304F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{456533\sqrt{33}}-\frac{19885156E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{456533\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(5/2)*(2 + 3*x)^(3/2)*(3 + 5*x)^(5/2)),x]
```


```
[Out] 4/(231*(1 - 2*x)^(3/2)*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)) + 456/(5929
*Sqrt[1 - 2*x]*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)) + (5034*Sqrt[1 - 2*
x])/(41503*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)) - (1523260*Sqrt[1 - 2*x
]*Sqrt[2 + 3*x])/(1369599*(3 + 5*x)^(3/2)) + (99425780*Sqrt[1 - 2
*x]*Sqrt[2 + 3*x])/(15065589*Sqrt[3 + 5*x]) - (19885156*EllipticE
[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(456533*Sqrt[33]) - (60
9304*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(456533*S
qrt[33])
```

Rubi in Sympy [A] time = 47.9497, size = 201, normalized size = 0.92

$$-\frac{19885156\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{15065589}-\frac{609304\sqrt{35}F\left(\operatorname{asin}\left(\frac{\sqrt{55}\sqrt{-2x+1}}{11}\right)\middle|\frac{33}{35}\right)}{15978655}-\frac{39770312\sqrt{3x+2}\sqrt{5x+3}}{15065589\sqrt{-2x+1}}+\frac{2927780\sqrt{3x+2}}{195657\sqrt{-2x+1}\sqrt{5x+3}}-\frac{44960\sqrt{3x+2}}{17787\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}+\frac{194}{539\sqrt{-2x+1}\sqrt{3x+2}\,(5x+3)^{\frac{3}{2}}}+\frac{4}{231\,(-2x+1)^{\frac{3}{2}}\sqrt{3x+2}\,(5x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(5/2)/(2+3*x)**(3/2)/(3+5*x)**(5/2),x)
```

```
[Out] -19885156*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7), 35
/33)/15065589 - 609304*sqrt(35)*elliptic_f(asin(sqrt(55)*sqrt(-2*
x + 1)/11), 33/35)/15978655 - 39770312*sqrt(3*x + 2)*sqrt(5*x + 3
)/(15065589*sqrt(-2*x + 1)) + 2927780*sqrt(3*x + 2)/(195657*sqrt(
-2*x + 1)*sqrt(5*x + 3)) - 44960*sqrt(3*x + 2)/(17787*sqrt(-2*x +
 1)*(5*x + 3)**(3/2)) + 194/(539*sqrt(-2*x + 1)*sqrt(3*x + 2)*(5*
x + 3)**(3/2)) + 4/(231*(-2*x + 1)**(3/2)*sqrt(3*x + 2)*(5*x + 3)
**(3/2))
```

Mathematica [A] time = 0.304142, size = 109, normalized size = 0.5

$$\frac{\frac{5965546800x^4+1389742160x^3-3604421052x^2-422976360x+566289874}{(1-2x)^{3/2}\sqrt{3x+2}(5x+3)^{3/2}}+4\sqrt{2}\left(4971289E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)|-\frac{33}{2}\right)-2457910F\left(\sin^{-1}\left(\sqrt{\right.\right.\right.}{15065589}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(5/2)*(2 + 3*x)^(3/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] ((566289874 - 422976360*x - 3604421052*x^2 + 1389742160*x^3 + 596
5546800*x^4)/((1 - 2*x)^(3/2)*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)) + 4*
Sqrt[2]*(4971289*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/
2] - 2457910*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2]))
/15065589
```

Maple [C] time = 0.037, size = 383, normalized size = 1.8

$$\frac{2}{15065589\,(-1+2\,x)^2}\sqrt{1-2\,x}\left(49158200\,\sqrt{2}EllipticF\left(1/11\,\sqrt{11}\sqrt{2}\sqrt{3+5\,x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^2\sqrt{3+5\,x}\sqrt{2+3\,x}\sqrt{1-2\,x}-\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(5/2)/(2+3*x)^(3/2)/(3+5*x)^(5/2),x)
```

```
[Out] 2/15065589*(1-2*x)^(1/2)*(49158200*2^(1/2)*EllipticF(1/11*11^(1/2
)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*
x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-99425780*2^(1/2)*EllipticE(1
/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2)
)*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+4915820*2^(1/2)*E
llipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/
2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-9942578*2
^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/
2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-1
4747460*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Ellipti
cF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(
1/2))+29827734*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*
EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1
/2)*2^(1/2))+2982773400*x^4+694871080*x^3-1802210526*x^2-21148818
0*x+283144937)/(3+5*x)^(3/2)/(-1+2*x)^2/(2+3*x)^(1/2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5\,x+3)^{\frac{5}{2}}(3\,x+2)^{\frac{3}{2}}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="max
```

```
[Out] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^(3/2)*(-2*x + 1)^(5/2)), x
)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{(300\,x^5+260\,x^4-137\,x^3-136\,x^2+15\,x+18)\sqrt{5\,x+3}\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="fri
```

```
[Out] integral(1/((300*x^5 + 260*x^4 - 137*x^3 - 136*x^2 + 15*x + 18)*s
qrt(5*x + 3)*sqrt(3*x + 2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(1-2*x)**(5/2)/(2+3*x)**(3/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5\,x+3)^{\frac{5}{2}}(3\,x+2)^{\frac{3}{2}}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^(3/2)*(-2*x + 1)^(5/2)),x, algorithm="gia
```

```
[Out] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^(3/2)*(-2*x + 1)^(5/2)), x
)
```

3.2982 $\int \frac{1}{(1-2x)^{5/2}(2+3x)^{5/2}(3+5x)^{5/2}} \, dx$

Optimal. Leaf size=249

$$\frac{7231789120\sqrt{1-2x}\sqrt{3x+2}}{105459123\sqrt{5x+3}}-\frac{108842540\sqrt{1-2x}\sqrt{3x+2}}{9587193(5x+3)^{3/2}}+\frac{488436\sqrt{1-2x}}{290521\sqrt{3x+2}(5x+3)^{3/2}}+\frac{414\sqrt{1-2x}}{41503(3x+2)^{3/2}(5x+3)^{3/2}}+\frac{544}{5929\sqrt{1-2x}(3x+2)^{3/2}(5x+3)^{3/2}}+\frac{4}{231(1-2x)^{3/2}(3x+2)^{3/2}(5x+3)^{3/2}}-\frac{43537016F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3195731\sqrt{33}}-\frac{1446357824E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3195731\sqrt{33}}$$

```
[Out] 4/(231*(1 - 2*x)^(3/2)*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)) + 544/(59
29*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)) + (414*Sqrt[1 -
 2*x])/(41503*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)) + (488436*Sqrt[1 -
 2*x])/(290521*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)) - (108842540*Sqrt[1
 - 2*x]*Sqrt[2 + 3*x])/(9587193*(3 + 5*x)^(3/2)) + (7231789120*Sq
rt[1 - 2*x]*Sqrt[2 + 3*x])/(105459123*Sqrt[3 + 5*x]) - (144635782
4*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(3195731*Sqr
t[33]) - (43537016*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/
33])/(3195731*Sqrt[33])
```

Rubi [A] time = 0.615761, antiderivative size = 249, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{7231789120\sqrt{1-2x}\sqrt{3x+2}}{105459123\sqrt{5x+3}}-\frac{108842540\sqrt{1-2x}\sqrt{3x+2}}{9587193(5x+3)^{3/2}}+\frac{488436\sqrt{1-2x}}{290521\sqrt{3x+2}(5x+3)^{3/2}}+\frac{414\sqrt{1-2x}}{41503(3x+2)^{3/2}(5x+3)^{3/2}}+\frac{544}{5929\sqrt{1-2x}(3x+2)^{3/2}(5x+3)^{3/2}}+\frac{4}{231(1-2x)^{3/2}(3x+2)^{3/2}(5x+3)^{3/2}}-\frac{43537016F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3195731\sqrt{33}}-\frac{1446357824E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{3195731\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(5/2)*(2 + 3*x)^(5/2)*(3 + 5*x)^(5/2)),x]
```


```
[Out] 4/(231*(1 - 2*x)^(3/2)*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)) + 544/(59
29*Sqrt[1 - 2*x]*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)) + (414*Sqrt[1 -
 2*x])/(41503*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)) + (488436*Sqrt[1 -
 2*x])/(290521*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)) - (108842540*Sqrt[1
 - 2*x]*Sqrt[2 + 3*x])/(9587193*(3 + 5*x)^(3/2)) + (7231789120*Sq
rt[1 - 2*x]*Sqrt[2 + 3*x])/(105459123*Sqrt[3 + 5*x]) - (144635782
4*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33])/(3195731*Sqr
t[33]) - (43537016*EllipticF[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/
33])/(3195731*Sqrt[33])
```

Rubi in Sympy [A] time = 53.7012, size = 230, normalized size = 0.92

$$-\frac{1446357824\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{105459123}-\frac{43537016\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{105459123}-\frac{2892715648\sqrt{3x+2}\sqrt{5x+3}}{105459123\sqrt{-2x+1}}+\frac{212842120\sqrt{3x+2}}{1369599\sqrt{-2x+1}\sqrt{5x+3}}-\frac{3249340\sqrt{3x+2}}{124509\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}+\frac{14776}{3773\sqrt{-2x+1}\sqrt{3x+2}\,(5x+3)^{\frac{3}{2}}}+\frac{62}{539\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}(5x+3)^{\frac{3}{2}}}+\frac{4}{231\,(-2x+1)^{\frac{3}{2}}(3x+2)^{\frac{3}{2}}(5x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   rubi_integrate(1/(1-2*x)**(5/2)/(2+3*x)**(5/2)/(3+5*x)**(5/2),x)
```

```
[Out] -1446357824*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7),
35/33)/105459123 - 43537016*sqrt(33)*elliptic_f(asin(sqrt(21)*sqr
t(-2*x + 1)/7), 35/33)/105459123 - 2892715648*sqrt(3*x + 2)*sqrt(
5*x + 3)/(105459123*sqrt(-2*x + 1)) + 212842120*sqrt(3*x + 2)/(13
69599*sqrt(-2*x + 1)*sqrt(5*x + 3)) - 3249340*sqrt(3*x + 2)/(1245
09*sqrt(-2*x + 1)*(5*x + 3)**(3/2)) + 14776/(3773*sqrt(-2*x + 1)*
sqrt(3*x + 2)*(5*x + 3)**(3/2)) + 62/(539*sqrt(-2*x + 1)*(3*x + 2
)**(3/2)*(5*x + 3)**(3/2)) + 4/(231*(-2*x + 1)**(3/2)*(3*x + 2)**
(3/2)*(5*x + 3)**(3/2))
```

Mathematica [A] time = 0.365125, size = 114, normalized size = 0.46

$$\frac{2\left(\frac{650861020800x^5+585919463160x^4-291775464272x^3-308398535118x^2+30866656614x+41179778225}{(1-2x)^{3/2}(3x+2)^{3/2}(5x+3)^{3/2}}+2\sqrt{2}\left(361589456E\left(\sin^{-1}\left(\sqrt{\frac{2}{11}}\sqrt{5x+3}\right)\right|\right.\right.}{105459123}$$

Antiderivative was successfully verified.

```
[In]   Integrate[1/((1 - 2*x)^(5/2)*(2 + 3*x)^(5/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (2*((41179778225 + 30866656614*x - 308398535118*x^2 - 29177546427
2*x^3 + 585919463160*x^4 + 650861020800*x^5)/((1 - 2*x)^(3/2)*(2
+ 3*x)^(3/2)*(3 + 5*x)^(3/2)) + 2*Sqrt[2]*(361589456*EllipticE[Ar
cSin[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2] - 181999265*EllipticF[ArcS
in[Sqrt[2/11]*Sqrt[3 + 5*x]], -33/2])))/105459123
```

Maple [C] time = 0.038, size = 502, normalized size = 2.

$$-\frac{2}{105459123\,(-1+2x)^2}\sqrt{1-2x}\left(21695367360\sqrt{2}EllipticE\left(1/11\sqrt{11}\sqrt{2}\sqrt{3+5x},i/2\sqrt{11}\sqrt{3}\sqrt{2}\right)x^3\sqrt{1-2x}\sqrt{3+5x}\sqrt{2+\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int(1/(1-2*x)^(5/2)/(2+3*x)^(5/2)/(3+5*x)^(5/2),x)
```

```
[Out] -2/105459123*(1-2*x)^(1/2)*(21695367360*2^(1/2)*EllipticE(1/11*11
^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*
(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)-10919955900*2^(1/2)*Ell
ipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)
*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)+166331149
76*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11
^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(
1/2)-8371966190*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(
1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1
/2)*(1-2*x)^(1/2)-5062252384*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1
```

```
/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)
*(2+3*x)^(1/2)*(1-2*x)^(1/2)+2547989710*2^(1/2)*EllipticF(1/11*11
^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3
+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-4339073472*2^(1/2)*(3+5*x
)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/
2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+2183991180*2^(1/
2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticF(1/11*11^(1
/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))-6508610
20800*x^5-585919463160*x^4+291775464272*x^3+308398535118*x^2-3086
6656614*x-41179778225)/(2+3*x)^(3/2)/(3+5*x)^(3/2)/(-1+2*x)^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5\,x+3)^{\frac{5}{2}}(3\,x+2)^{\frac{5}{2}}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="max
```

```
[Out] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^(5/2)*(-2*x + 1)^(5/2)), x
)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{1}{(900\,x^6+1380\,x^5+109\,x^4-682\,x^3-227\,x^2+84\,x+36)\sqrt{5\,x+3}\sqrt{3\,x+2}\sqrt{-2\,x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="fri
```

```
[Out] integral(1/((900*x^6 + 1380*x^5 + 109*x^4 - 682*x^3 - 227*x^2 + 8
4*x + 36)*sqrt(5*x + 3)*sqrt(3*x + 2)*sqrt(-2*x + 1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(1-2*x)**(5/2)/(2+3*x)**(5/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5\,x+3)^{\frac{5}{2}}(3\,x+2)^{\frac{5}{2}}(-2\,x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^(5/2)*(-2*x + 1)^(5/2)),x, algorithm="gia
```

```
[Out] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^(5/2)*(-2*x + 1)^(5/2)), x
)
```

3.2983 $\int \frac{1}{(1-2x)^{5/2}(2+3x)^{7/2}(3+5x)^{5/2}}\,dx$

Optimal. Leaf size=280

$$\frac{412810345784\sqrt{1-2x}\sqrt{3x+2}}{738213861\sqrt{5x+3}}-\frac{6208896328\sqrt{1-2x}\sqrt{3x+2}}{67110351(5x+3)^{3/2}}+\frac{140700876\sqrt{1-2x}}{10168235\sqrt{3x+2}(5x+3)^{3/2}}+\frac{649224\sqrt{1-2x}}{1452605(3x+2)^{3/2}(5x+3)^{3/2}}-\frac{3606\sqrt{1-2x}}{207515(3x+2)^{5/2}(5x+3)^{3/2}}+\frac{632}{5929\sqrt{1-2x}(3x+2)^{5/2}(5x+3)^{3/2}}+\frac{4}{231(1-2x)^{3/2}(3x+2)^{5/2}(5x+3)^{3/2}}-\frac{12417792656F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{111850585\sqrt{33}}-\frac{412810345784E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{111850585\sqrt{33}}$$

```
[Out] 4/(231*(1 - 2*x)^(3/2)*(2 + 3*x)^(5/2)*(3 + 5*x)^(3/2)) + 632/(59
29*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)*(3 + 5*x)^(3/2)) - (3606*Sqrt[1
- 2*x])/(207515*(2 + 3*x)^(5/2)*(3 + 5*x)^(3/2)) + (649224*Sqrt[1
 - 2*x])/(1452605*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)) + (140700876*S
qrt[1 - 2*x])/(10168235*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)) - (6208896
328*Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/(67110351*(3 + 5*x)^(3/2)) + (41
2810345784*Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/(738213861*Sqrt[3 + 5*x])
 - (412810345784*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33
])/(111850585*Sqrt[33]) - (12417792656*EllipticF[ArcSin[Sqrt[3/7]
*Sqrt[1 - 2*x]], 35/33])/(111850585*Sqrt[33])
```

Rubi [A] time = 0.709606, antiderivative size = 280, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 5, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.179

$$\frac{412810345784\sqrt{1-2x}\sqrt{3x+2}}{738213861\sqrt{5x+3}}-\frac{6208896328\sqrt{1-2x}\sqrt{3x+2}}{67110351(5x+3)^{3/2}}+\frac{140700876\sqrt{1-2x}}{10168235\sqrt{3x+2}(5x+3)^{3/2}}+\frac{649224\sqrt{1-2x}}{1452605(3x+2)^{3/2}(5x+3)^{3/2}}-\frac{3606\sqrt{1-2x}}{207515(3x+2)^{5/2}(5x+3)^{3/2}}+\frac{632}{5929\sqrt{1-2x}(3x+2)^{5/2}(5x+3)^{3/2}}+\frac{4}{231(1-2x)^{3/2}(3x+2)^{5/2}(5x+3)^{3/2}}-\frac{12417792656F\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{111850585\sqrt{33}}-\frac{412810345784E\left(\sin^{-1}\left(\sqrt{\frac{3}{7}}\sqrt{1-2x}\right)|\frac{35}{33}\right)}{111850585\sqrt{33}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((1 - 2*x)^(5/2)*(2 + 3*x)^(7/2)*(3 + 5*x)^(5/2)),x]
```


```
[Out] 4/(231*(1 - 2*x)^(3/2)*(2 + 3*x)^(5/2)*(3 + 5*x)^(3/2)) + 632/(59
29*Sqrt[1 - 2*x]*(2 + 3*x)^(5/2)*(3 + 5*x)^(3/2)) - (3606*Sqrt[1
- 2*x])/(207515*(2 + 3*x)^(5/2)*(3 + 5*x)^(3/2)) + (649224*Sqrt[1
 - 2*x])/(1452605*(2 + 3*x)^(3/2)*(3 + 5*x)^(3/2)) + (140700876*S
qrt[1 - 2*x])/(10168235*Sqrt[2 + 3*x]*(3 + 5*x)^(3/2)) - (6208896
328*Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/(67110351*(3 + 5*x)^(3/2)) + (41
2810345784*Sqrt[1 - 2*x]*Sqrt[2 + 3*x])/(738213861*Sqrt[3 + 5*x])
 - (412810345784*EllipticE[ArcSin[Sqrt[3/7]*Sqrt[1 - 2*x]], 35/33
])/(111850585*Sqrt[33]) - (12417792656*EllipticF[ArcSin[Sqrt[3/7]
*Sqrt[1 - 2*x]], 35/33])/(111850585*Sqrt[33])
```

Rubi in Sympy [A] time = 61.5598, size = 258, normalized size = 0.92

$$-\frac{412810345784\sqrt{33}E\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{3691069305}-\frac{12417792656\sqrt{33}F\left(\operatorname{asin}\left(\frac{\sqrt{21}\sqrt{-2x+1}}{7}\right)\middle|\frac{35}{33}\right)}{3691069305}-\frac{825620691568\sqrt{3x+2}\sqrt{5x+3}}{3691069305\sqrt{-2x+1}}+\frac{12149375384\sqrt{3x+2}}{9587193\sqrt{-2x+1}\sqrt{5x+3}}-\frac{185437088\sqrt{3x+2}}{871563\sqrt{-2x+1}\,(5x+3)^{\frac{3}{2}}}+\frac{4224316}{132055\sqrt{-2x+1}\sqrt{3x+2}\,(5x+3)^{\frac{3}{2}}}+\frac{19892}{18865\sqrt{-2x+1}\,(3x+2)^{\frac{3}{2}}(5x+3)^{\frac{3}{2}}}+\frac{178}{2695\sqrt{-2x+1}\,(3x+2)^{\frac{5}{2}}(5x+3)^{\frac{3}{2}}}+\frac{4}{231\,(-2x+1)^{\frac{3}{2}}(3x+2)^{\frac{5}{2}}(5x+3)^{\frac{3}{2}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(1-2*x)**(5/2)/(2+3*x)**(7/2)/(3+5*x)**(5/2),x)
```

```
[Out] -412810345784*sqrt(33)*elliptic_e(asin(sqrt(21)*sqrt(-2*x + 1)/7)
, 35/33)/3691069305 - 12417792656*sqrt(33)*elliptic_f(asin(sqrt(2
1)*sqrt(-2*x + 1)/7), 35/33)/3691069305 - 825620691568*sqrt(3*x +
 2)*sqrt(5*x + 3)/(3691069305*sqrt(-2*x + 1)) + 12149375384*sqrt(
3*x + 2)/(9587193*sqrt(-2*x + 1)*sqrt(5*x + 3)) - 185437088*sqrt(
3*x + 2)/(871563*sqrt(-2*x + 1)*(5*x + 3)**(3/2)) + 4224316/(1320
55*sqrt(-2*x + 1)*sqrt(3*x + 2)*(5*x + 3)**(3/2)) + 19892/(18865*
sqrt(-2*x + 1)*(3*x + 2)**(3/2)*(5*x + 3)**(3/2)) + 178/(2695*sqr
t(-2*x + 1)*(3*x + 2)**(5/2)*(5*x + 3)**(3/2)) + 4/(231*(-2*x + 1
)**(3/2)*(3*x + 2)**(5/2)*(5*x + 3)**(3/2))
```

Mathematica [A] time = 0.482319, size = 119, normalized size = 0.42

$$\frac{2\left(\frac{557293966808400x^6+873229924799280x^5+84649478011164x^4-430611138612568x^3-149619576926754x^2+52875828155808x+23506658680609}{(1-2x)^{3/2}(3x+2)^{5/2}(5x+3)^{3/2}}+4\sqrt{2}\left(5160\right.\right.}{3691069305}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((1 - 2*x)^(5/2)*(2 + 3*x)^(7/2)*(3 + 5*x)^(5/2)),x]
```

```
[Out] (2*((23506658680609 + 52875828155808*x - 149619576926754*x^2 - 43
0611138612568*x^3 + 84649478011164*x^4 + 873229924799280*x^5 + 55
7293966808400*x^6)/((1 - 2*x)^(3/2)*(2 + 3*x)^(5/2)*(3 + 5*x)^(3/
2)) + 4*Sqrt[2]*(51601293223*EllipticE[ArcSin[Sqrt[2/11]*Sqrt[3 +
 5*x]], -33/2] - 25989595870*EllipticF[ArcSin[Sqrt[2/11]*Sqrt[3 +
 5*x]], -33/2])))/3691069305
```

Maple [C] time = 0.04, size = 621, normalized size = 2.2

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(1-2*x)^(5/2)/(2+3*x)^(7/2)/(3+5*x)^(5/2),x)
```

```
[Out] -2/3691069305*(1-2*x)^(1/2)*(18576465560280*2^(1/2)*EllipticE(1/1
1*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*
x^4*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-9356254513200*2^(1/
2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3
^(1/2)*2^(1/2))*x^4*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)+266
26267303068*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2)
,1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/2)*(3+5*x)^(1/2)*
(2+3*x)^(1/2)-13410631468920*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1
/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x^3*(1-2*x)^(1/
```

```
2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)+5160129322300*2^(1/2)*EllipticE(1/
11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))
*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-2598959587000*2^(1
/2)*EllipticF(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*
3^(1/2)*2^(1/2))*x^2*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)-66
04965532544*2^(1/2)*EllipticE(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2)
,1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1
-2*x)^(1/2)+3326668271360*2^(1/2)*EllipticF(1/11*11^(1/2)*2^(1/2)
*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))*x*(3+5*x)^(1/2)*(2
+3*x)^(1/2)*(1-2*x)^(1/2)-557293966808400*x^6-2476862074704*2^(1/
2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*EllipticE(1/11*11^(1
/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1/2))+1247500
601760*2^(1/2)*(3+5*x)^(1/2)*(2+3*x)^(1/2)*(1-2*x)^(1/2)*Elliptic
F(1/11*11^(1/2)*2^(1/2)*(3+5*x)^(1/2),1/2*I*11^(1/2)*3^(1/2)*2^(1
/2))-873229924799280*x^5-84649478011164*x^4+430611138612568*x^3+1
49619576926754*x^2-52875828155808*x-23506658680609)/(2+3*x)^(5/2)
/(3+5*x)^(3/2)/(-1+2*x)^2
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5x+3)^{\frac{5}{2}}(3x+2)^{\frac{7}{2}}(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^(7/2)*(-2*x + 1)^(5/2)),x, algorithm="max
```

```
[Out] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^(7/2)*(-2*x + 1)^(5/2)), x
)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{(2700x^7+5940x^6+3087x^5-1828x^4-2045x^3-202x^2+276x+72)\sqrt{5x+3}\sqrt{3x+2}\sqrt{-2x+1}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^(7/2)*(-2*x + 1)^(5/2)),x, algorithm="fri
```

```
[Out] integral(1/((2700*x^7 + 5940*x^6 + 3087*x^5 - 1828*x^4 - 2045*x^3
 - 202*x^2 + 276*x + 72)*sqrt(5*x + 3)*sqrt(3*x + 2)*sqrt(-2*x +
1)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(1-2*x)**(5/2)/(2+3*x)**(7/2)/(3+5*x)**(5/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(5x+3)^{\frac{5}{2}}(3x+2)^{\frac{7}{2}}(-2x+1)^{\frac{5}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^(7/2)*(-2*x + 1)^(5/2)),x, algorithm="gia
```

```
[Out] integrate(1/((5*x + 3)^(5/2)*(3*x + 2)^(7/2)*(-2*x + 1)^(5/2)), x
)
```

3.2984 $\int \sqrt[3]{a+bx}(c+dx)^{2/3}(e+fx)^2\,dx$

Optimal. Leaf size=571

$$\frac{(bc-ad)^2\log(a+bx)\left(10a^2d^2f^2-10abdf(3de-cf)+b^2\left(7c^2f^2-24cdef+27d^2e^2\right)\right)}{486b^{11/3}d^{10/3}}+\frac{(bc-ad)^2\left(10a^2d^2f^2-10abdf(3de-cf)+b^2\left(7c^2f^2-24cdef+27d^2e^2\right)\right)\log\left(\frac{\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt[3]{d}\sqrt[3]{a+bx}}-1\right)}{162b^{11/3}d^{10/3}}+\frac{(bc-ad)^2\left(10a^2d^2f^2-10abdf(3de-cf)+b^2\left(7c^2f^2-24cdef+27d^2e^2\right)\right)\tan^{-1}\left(\frac{2\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt{3}\sqrt[3]{d}\sqrt[3]{a+bx}}+\frac{1}{\sqrt{3}}\right)}{81\sqrt{3}b^{11/3}d^{10/3}}+\frac{(a+bx)^{4/3}(c+dx)^{2/3}\left(10a^2d^2f^2-10abdf(3de-cf)+b^2\left(7c^2f^2-24cdef+27d^2e^2\right)\right)}{54b^3d^2}+\frac{\sqrt[3]{a+bx}(c+dx)^{2/3}(bc-ad)\left(10a^2d^2f^2-10abdf(3de-cf)+b^2\left(7c^2f^2-24cdef+27d^2e^2\right)\right)}{81b^3d^3}+\frac{f(a+bx)^{4/3}(c+dx)^{5/3}(-8adf-7bcf+15bde)}{36b^2d^2}+\frac{f(a+bx)^{4/3}(c+dx)^{5/3}(e+fx)}{4bd}$$

```
[Out] ((b*c - a*d)*(10*a^2*d^2*f^2 - 10*a*b*d*f*(3*d*e - c*f) + b^2*(27
*d^2*e^2 - 24*c*d*e*f + 7*c^2*f^2))*(a + b*x)^(1/3)*(c + d*x)^(2/
3))/(81*b^3*d^3) + ((10*a^2*d^2*f^2 - 10*a*b*d*f*(3*d*e - c*f) +
b^2*(27*d^2*e^2 - 24*c*d*e*f + 7*c^2*f^2))*(a + b*x)^(4/3)*(c + d
*x)^(2/3))/(54*b^3*d^2) + (f*(15*b*d*e - 7*b*c*f - 8*a*d*f)*(a +
b*x)^(4/3)*(c + d*x)^(5/3))/(36*b^2*d^2) + (f*(a + b*x)^(4/3)*(c
+ d*x)^(5/3)*(e + f*x))/(4*b*d) + ((b*c - a*d)^2*(10*a^2*d^2*f^2
- 10*a*b*d*f*(3*d*e - c*f) + b^2*(27*d^2*e^2 - 24*c*d*e*f + 7*c^2
*f^2))*ArcTan[1/Sqrt[3] + (2*b^(1/3)*(c + d*x)^(1/3))/(Sqrt[3]*d^
(1/3)*(a + b*x)^(1/3))])/(81*Sqrt[3]*b^(11/3)*d^(10/3)) + ((b*c -
 a*d)^2*(10*a^2*d^2*f^2 - 10*a*b*d*f*(3*d*e - c*f) + b^2*(27*d^2*
e^2 - 24*c*d*e*f + 7*c^2*f^2))*Log[a + b*x])/(486*b^(11/3)*d^(10/
3)) + ((b*c - a*d)^2*(10*a^2*d^2*f^2 - 10*a*b*d*f*(3*d*e - c*f) +
 b^2*(27*d^2*e^2 - 24*c*d*e*f + 7*c^2*f^2))*Log[-1 + (b^(1/3)*(c
+ d*x)^(1/3))/(d^(1/3)*(a + b*x)^(1/3))])/(162*b^(11/3)*d^(10/3))
```

Rubi [A] time = 1.40729, antiderivative size = 571, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.154$

$$\frac{(bc-ad)^2\log(a+bx)\left(10a^2d^2f^2-10abdf(3de-cf)+b^2\left(7c^2f^2-24cdef+27d^2e^2\right)\right)}{486b^{11/3}d^{10/3}}+\frac{(bc-ad)^2\left(10a^2d^2f^2-10abdf(3de-cf)+b^2\left(7c^2f^2-24cdef+27d^2e^2\right)\right)\log\left(\frac{\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt[3]{d}\sqrt[3]{a+bx}}-1\right)}{162b^{11/3}d^{10/3}}+\frac{(bc-ad)^2\left(10a^2d^2f^2-10abdf(3de-cf)+b^2\left(7c^2f^2-24cdef+27d^2e^2\right)\right)\tan^{-1}\left(\frac{2\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt{3}\sqrt[3]{d}\sqrt[3]{a+bx}}+\frac{1}{\sqrt{3}}\right)}{81\sqrt{3}b^{11/3}d^{10/3}}+\frac{(a+bx)^{4/3}(c+dx)^{2/3}\left(10a^2d^2f^2-10abdf(3de-cf)+b^2\left(7c^2f^2-24cdef+27d^2e^2\right)\right)}{54b^3d^2}+\frac{\sqrt[3]{a+bx}(c+dx)^{2/3}(bc-ad)\left(10a^2d^2f^2-10abdf(3de-cf)+b^2\left(7c^2f^2-24cdef+27d^2e^2\right)\right)}{81b^3d^3}+\frac{f(a+bx)^{4/3}(c+dx)^{5/3}(-8adf-7bcf+15bde)}{36b^2d^2}+\frac{f(a+bx)^{4/3}(c+dx)^{5/3}(e+fx)}{4bd}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(1/3)*(c + d*x)^(2/3)*(e + f*x)^2,x]
```

```
[Out] ((b*c - a*d)*(10*a^2*d^2*f^2 - 10*a*b*d*f*(3*d*e - c*f) + b^2*(27
*d^2*e^2 - 24*c*d*e*f + 7*c^2*f^2))*(a + b*x)^(1/3)*(c + d*x)^(2/
3))/(81*b^3*d^3) + ((10*a^2*d^2*f^2 - 10*a*b*d*f*(3*d*e - c*f) +
b^2*(27*d^2*e^2 - 24*c*d*e*f + 7*c^2*f^2))*(a + b*x)^(4/3)*(c + d
*x)^(2/3))/(54*b^3*d^2) + (f*(15*b*d*e - 7*b*c*f - 8*a*d*f)*(a +
```

```
b*x)^(4/3)*(c + d*x)^(5/3))/(36*b^2*d^2) + (f*(a + b*x)^(4/3)*(c
+ d*x)^(5/3)*(e + f*x))/(4*b*d) + ((b*c - a*d)^2*(10*a^2*d^2*f^2
- 10*a*b*d*f*(3*d*e - c*f) + b^2*(27*d^2*e^2 - 24*c*d*e*f + 7*c^2
*f^2))*ArcTan[1/Sqrt[3] + (2*b^(1/3)*(c + d*x)^(1/3))/(Sqrt[3]*d^
(1/3)*(a + b*x)^(1/3))])/(81*Sqrt[3]*b^(11/3)*d^(10/3)) + ((b*c -
 a*d)^2*(10*a^2*d^2*f^2 - 10*a*b*d*f*(3*d*e - c*f) + b^2*(27*d^2*
e^2 - 24*c*d*e*f + 7*c^2*f^2))*Log[a + b*x])/(486*b^(11/3)*d^(10/
3)) + ((b*c - a*d)^2*(10*a^2*d^2*f^2 - 10*a*b*d*f*(3*d*e - c*f) +
 b^2*(27*d^2*e^2 - 24*c*d*e*f + 7*c^2*f^2))*Log[-1 + (b^(1/3)*(c
+ d*x)^(1/3))/(d^(1/3)*(a + b*x)^(1/3))])/(162*b^(11/3)*d^(10/3))
```

Rubi in Sympy [A] time = 96.5362, size = 612, normalized size = 1.07

$$\frac{f(a+bx)^{\frac{4}{3}}(c+dx)^{\frac{5}{3}}(e+fx)}{4bd}-\frac{f(a+bx)^{\frac{4}{3}}(c+dx)^{\frac{5}{3}}(8adf+7bcf-15bde)}{36b^2d^2}$$
$$-\frac{\sqrt[3]{a+bx}\,(c+dx)^{\frac{5}{3}}\left(9bd\left(-12bde^2+f\left(3acf+e\left(5ad+4bc\right)\right)\right)-f\left(5ad+4bc\right)\left(8adf+7bcf-15bde\right)\right)}{216b^2d^3}$$
$$-\frac{\sqrt[3]{a+bx}\,(c+dx)^{\frac{2}{3}}(ad-bc)\left(9bd\left(-12bde^2+f\left(3acf+e\left(5ad+4bc\right)\right)\right)-f\left(5ad+4bc\right)\left(8adf+7bcf-15bde\right)\right)}{648b^3d^3}$$
$$-\frac{(ad-bc)^2\left(9bd\left(-12bde^2+f\left(3acf+e\left(5ad+4bc\right)\right)\right)-f\left(5ad+4bc\right)\left(8adf+7bcf-15bde\right)\right)\log(a+bx)}{1944b^{\frac{11}{3}}d^{\frac{10}{3}}}$$
$$-\frac{(ad-bc)^2\left(9bd\left(-12bde^2+f\left(3acf+e\left(5ad+4bc\right)\right)\right)-f\left(5ad+4bc\right)\left(8adf+7bcf-15bde\right)\right)\log\left(\frac{\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt[3]{d}\sqrt[3]{a+bx}}-1\right)}{648b^{\frac{11}{3}}d^{\frac{10}{3}}}$$
$$-\frac{\sqrt{3}(ad-bc)^2\left(9bd\left(-12bde^2+f\left(3acf+e\left(5ad+4bc\right)\right)\right)-f\left(5ad+4bc\right)\left(8adf+7bcf-15bde\right)\right)\operatorname{atan}\left(\frac{2\sqrt{3}\sqrt[3]{b}\sqrt[3]{c+dx}}{3\sqrt[3]{d}\sqrt[3]{a+bx}}+\right.}{972b^{\frac{11}{3}}d^{\frac{10}{3}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/3)*(d*x+c)**(2/3)*(f*x+e)**2,x)
```

```
[Out] f*(a + b*x)**(4/3)*(c + d*x)**(5/3)*(e + f*x)/(4*b*d) - f*(a + b*
x)**(4/3)*(c + d*x)**(5/3)*(8*a*d*f + 7*b*c*f - 15*b*d*e)/(36*b**
2*d**2) - (a + b*x)**(1/3)*(c + d*x)**(5/3)*(9*b*d*(-12*b*d*e**2
+ f*(3*a*c*f + e*(5*a*d + 4*b*c))) - f*(5*a*d + 4*b*c)*(8*a*d*f +
 7*b*c*f - 15*b*d*e))/(216*b**2*d**3) - (a + b*x)**(1/3)*(c + d*x
)**(2/3)*(a*d - b*c)*(9*b*d*(-12*b*d*e**2 + f*(3*a*c*f + e*(5*a*d
 + 4*b*c))) - f*(5*a*d + 4*b*c)*(8*a*d*f + 7*b*c*f - 15*b*d*e))/(
648*b**3*d**3) - (a*d - b*c)**2*(9*b*d*(-12*b*d*e**2 + f*(3*a*c*f
 + e*(5*a*d + 4*b*c))) - f*(5*a*d + 4*b*c)*(8*a*d*f + 7*b*c*f - 1
5*b*d*e))*log(a + b*x)/(1944*b**(11/3)*d**(10/3)) - (a*d - b*c)**
2*(9*b*d*(-12*b*d*e**2 + f*(3*a*c*f + e*(5*a*d + 4*b*c))) - f*(5*
a*d + 4*b*c)*(8*a*d*f + 7*b*c*f - 15*b*d*e))*log(b**(1/3)*(c + d*
x)**(1/3)/(d**(1/3)*(a + b*x)**(1/3)) - 1)/(648*b**(11/3)*d**(10/
3)) - sqrt(3)*(a*d - b*c)**2*(9*b*d*(-12*b*d*e**2 + f*(3*a*c*f +
e*(5*a*d + 4*b*c))) - f*(5*a*d + 4*b*c)*(8*a*d*f + 7*b*c*f - 15*b
*d*e))*atan(2*sqrt(3)*b**(1/3)*(c + d*x)**(1/3)/(3*d**(1/3)*(a +
b*x)**(1/3)) + sqrt(3)/3)/(972*b**(11/3)*d**(10/3))
```

Mathematica [C] time = 0.592612, size = 311, normalized size = 0.54

$$(c+dx)^{2/3}\left(d(a+bx)\left(20a^3d^3f^2-12a^2bd^2f(cf+5de+dfx)+3ab^2d\left(-3c^2f^2+2cdf(8e+fx)+3d^2\left(6e^2+4efx+f^2x^2\right.\right.\right.\right.$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(1/3)*(c + d*x)^(2/3)*(e + f*x)^2,x]
```

```
[Out] ((c + d*x)^(2/3)*(d*(a + b*x)*(20*a^3*d^3*f^2 - 12*a^2*b*d^2*f*(5
*d*e + c*f + d*f*x) + 3*a*b^2*d*(-3*c^2*f^2 + 2*c*d*f*(8*e + f*x)
```

```
 + 3*d^2*(6*e^2 + 4*e*f*x + f^2*x^2)) + b^3*(28*c^3*f^2 - 3*c^2*d
*f*(32*e + 7*f*x) + 18*c*d^2*(6*e^2 + 4*e*f*x + f^2*x^2) + 27*d^3
*x*(6*e^2 + 8*e*f*x + 3*f^2*x^2))) - 2*(b*c - a*d)^2*(10*a^2*d^2*
f^2 + 10*a*b*d*f*(-3*d*e + c*f) + b^2*(27*d^2*e^2 - 24*c*d*e*f +
7*c^2*f^2))*((d*(a + b*x))/(-(b*c) + a*d))^(2/3)*Hypergeometric2F
1[2/3, 2/3, 5/3, (b*(c + d*x))/(b*c - a*d)]))/(324*b^3*d^4*(a + b
*x)^(2/3))
```

Maple [F] time = 0.056, size = 0, normalized size = 0.

$$\int \sqrt[3]{bx+a}\,(dx+c)^{\frac{2}{3}}\,(fx+e)^{2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/3)*(d*x+c)^(2/3)*(f*x+e)^2,x)
```

```
[Out] int((b*x+a)^(1/3)*(d*x+c)^(2/3)*(f*x+e)^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^{\frac{1}{3}}(dx+c)^{\frac{2}{3}}(fx+e)^{2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(1/3)*(d*x + c)^(2/3)*(f*x + e)^2,x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^(1/3)*(d*x + c)^(2/3)*(f*x + e)^2, x)
```

Fricas [A] time = 0.370796, size = 1153, normalized size = 2.02

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(1/3)*(d*x + c)^(2/3)*(f*x + e)^2,x, algorithm="fricas")
```

```
[Out] 1/2916*sqrt(3)*(3*sqrt(3)*(81*b^3*d^3*f^2*x^3 + 54*(2*b^3*c*d^2 +
 a*b^2*d^3)*e^2 - 12*(8*b^3*c^2*d - 4*a*b^2*c*d^2 + 5*a^2*b*d^3)*
e*f + (28*b^3*c^3 - 9*a*b^2*c^2*d - 12*a^2*b*c*d^2 + 20*a^3*d^3)*
f^2 + 9*(24*b^3*d^3*e*f + (2*b^3*c*d^2 + a*b^2*d^3)*f^2)*x^2 + 3*
(54*b^3*d^3*e^2 + 12*(2*b^3*c*d^2 + a*b^2*d^3)*e*f - (7*b^3*c^2*d
 - 2*a*b^2*c*d^2 + 4*a^2*b*d^3)*f^2)*x)*(b^2*d)^(1/3)*(b*x + a)^(
1/3)*(d*x + c)^(2/3) - 2*sqrt(3)*(27*(b^4*c^2*d^2 - 2*a*b^3*c*d^3
 + a^2*b^2*d^4)*e^2 - 6*(4*b^4*c^3*d - 3*a*b^3*c^2*d^2 - 6*a^2*b^
2*c*d^3 + 5*a^3*b*d^4)*e*f + (7*b^4*c^4 - 4*a*b^3*c^3*d - 3*a^2*b
^2*c^2*d^2 - 10*a^3*b*c*d^3 + 10*a^4*d^4)*f^2)*log((b^2*d*x + b^2
*c + (b^2*d)^(1/3)*(b*x + a)^(1/3)*(d*x + c)^(2/3)*b + (b^2*d)^(2
/3)*(b*x + a)^(2/3)*(d*x + c)^(1/3))/(d*x + c)) + 4*sqrt(3)*(27*(
b^4*c^2*d^2 - 2*a*b^3*c*d^3 + a^2*b^2*d^4)*e^2 - 6*(4*b^4*c^3*d -
 3*a*b^3*c^2*d^2 - 6*a^2*b^2*c*d^3 + 5*a^3*b*d^4)*e*f + (7*b^4*c^
4 - 4*a*b^3*c^3*d - 3*a^2*b^2*c^2*d^2 - 10*a^3*b*c*d^3 + 10*a^4*d
^4)*f^2)*log(-(b*d*x + b*c - (b^2*d)^(1/3)*(b*x + a)^(1/3)*(d*x +
 c)^(2/3))/(d*x + c)) - 12*(27*(b^4*c^2*d^2 - 2*a*b^3*c*d^3 + a^2
*b^2*d^4)*e^2 - 6*(4*b^4*c^3*d - 3*a*b^3*c^2*d^2 - 6*a^2*b^2*c*d^
3 + 5*a^3*b*d^4)*e*f + (7*b^4*c^4 - 4*a*b^3*c^3*d - 3*a^2*b^2*c^2
*d^2 - 10*a^3*b*c*d^3 + 10*a^4*d^4)*f^2)*arctan(1/3*(2*sqrt(3)*(b
^2*d)^(1/3)*(b*x + a)^(1/3)*(d*x + c)^(2/3) + sqrt(3)*(b*d*x + b*
c))/(b*d*x + b*c)))/((b^2*d)^(1/3)*b^3*d^3)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \sqrt[3]{a+bx}\,(c+dx)^{\frac{2}{3}}\,(e+fx)^2\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(1/3)*(d*x+c)**(2/3)*(f*x+e)**2,x)
```

```
[Out] Integral((a + b*x)**(1/3)*(c + d*x)**(2/3)*(e + f*x)**2, x)
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(1/3)*(d*x + c)^(2/3)*(f*x + e)^2,x, algorithm="giac")
```

```
[Out] Exception raised: NotImplementedError
```

3.2985 $\int \sqrt[3]{a+bx}(c+dx)^{2/3}(e+fx)\,dx$

Optimal. Leaf size=331

$$\frac{(bc-ad)^2\log(a+bx)(-5adf-4bcf+9bde)}{162b^{8/3}d^{7/3}}+\frac{(bc-ad)^2(-5adf-4bcf+9bde)\log\left(\frac{\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt[3]{d}\sqrt[3]{a+bx}}-1\right)}{54b^{8/3}d^{7/3}}+\frac{(bc-ad)^2(-5adf-4bcf+9bde)\tan^{-1}\left(\frac{2\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt{3}\sqrt[3]{d}\sqrt[3]{a+bx}}+\frac{1}{\sqrt{3}}\right)}{27\sqrt{3}b^{8/3}d^{7/3}}+\frac{\sqrt[3]{a+bx}(c+dx)^{2/3}(bc-ad)(-5adf-4bcf+9bde)}{27b^2d^2}+\frac{(a+bx)^{4/3}(c+dx)^{2/3}(-5adf-4bcf+9bde)}{18b^2d}+\frac{f(a+bx)^{4/3}(c+dx)^{5/3}}{3bd}$$

```
[Out] ((b*c - a*d)*(9*b*d*e - 4*b*c*f - 5*a*d*f)*(a + b*x)^(1/3)*(c + d
*x)^(2/3))/(27*b^2*d^2) + ((9*b*d*e - 4*b*c*f - 5*a*d*f)*(a + b*x
)^(4/3)*(c + d*x)^(2/3))/(18*b^2*d) + (f*(a + b*x)^(4/3)*(c + d*x
)^(5/3))/(3*b*d) + ((b*c - a*d)^2*(9*b*d*e - 4*b*c*f - 5*a*d*f)*A
rcTan[1/Sqrt[3] + (2*b^(1/3)*(c + d*x)^(1/3))/(Sqrt[3]*d^(1/3)*(a
 + b*x)^(1/3))])/(27*Sqrt[3]*b^(8/3)*d^(7/3)) + ((b*c - a*d)^2*(9
*b*d*e - 4*b*c*f - 5*a*d*f)*Log[a + b*x])/(162*b^(8/3)*d^(7/3)) +
 ((b*c - a*d)^2*(9*b*d*e - 4*b*c*f - 5*a*d*f)*Log[-1 + (b^(1/3)*(
c + d*x)^(1/3))/(d^(1/3)*(a + b*x)^(1/3))])/(54*b^(8/3)*d^(7/3))
```

Rubi [A] time = 0.595837, antiderivative size = 331, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.125$

$$\frac{(bc-ad)^2\log(a+bx)(-5adf-4bcf+9bde)}{162b^{8/3}d^{7/3}}+\frac{(bc-ad)^2(-5adf-4bcf+9bde)\log\left(\frac{\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt[3]{d}\sqrt[3]{a+bx}}-1\right)}{54b^{8/3}d^{7/3}}+\frac{(bc-ad)^2(-5adf-4bcf+9bde)\tan^{-1}\left(\frac{2\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt{3}\sqrt[3]{d}\sqrt[3]{a+bx}}+\frac{1}{\sqrt{3}}\right)}{27\sqrt{3}b^{8/3}d^{7/3}}+\frac{\sqrt[3]{a+bx}(c+dx)^{2/3}(bc-ad)(-5adf-4bcf+9bde)}{27b^2d^2}+\frac{(a+bx)^{4/3}(c+dx)^{2/3}(-5adf-4bcf+9bde)}{18b^2d}+\frac{f(a+bx)^{4/3}(c+dx)^{5/3}}{3bd}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(1/3)*(c + d*x)^(2/3)*(e + f*x),x]
```


```
[Out] ((b*c - a*d)*(9*b*d*e - 4*b*c*f - 5*a*d*f)*(a + b*x)^(1/3)*(c + d
*x)^(2/3))/(27*b^2*d^2) + ((9*b*d*e - 4*b*c*f - 5*a*d*f)*(a + b*x
)^(4/3)*(c + d*x)^(2/3))/(18*b^2*d) + (f*(a + b*x)^(4/3)*(c + d*x
)^(5/3))/(3*b*d) + ((b*c - a*d)^2*(9*b*d*e - 4*b*c*f - 5*a*d*f)*A
rcTan[1/Sqrt[3] + (2*b^(1/3)*(c + d*x)^(1/3))/(Sqrt[3]*d^(1/3)*(a
 + b*x)^(1/3))])/(27*Sqrt[3]*b^(8/3)*d^(7/3)) + ((b*c - a*d)^2*(9
*b*d*e - 4*b*c*f - 5*a*d*f)*Log[a + b*x])/(162*b^(8/3)*d^(7/3)) +
 ((b*c - a*d)^2*(9*b*d*e - 4*b*c*f - 5*a*d*f)*Log[-1 + (b^(1/3)*(
c + d*x)^(1/3))/(d^(1/3)*(a + b*x)^(1/3))])/(54*b^(8/3)*d^(7/3))
```

Rubi in Sympy [A] time = 44.7123, size = 328, normalized size = 0.99

$$\frac{f(a+bx)^{\frac{4}{3}}(c+dx)^{\frac{5}{3}}}{3bd} - \frac{\sqrt[3]{a+bx}(c+dx)^{\frac{5}{3}}(5adf+4bcf-9bde)}{18bd^2} - \frac{\sqrt[3]{a+bx}(c+dx)^{\frac{2}{3}}(ad-bc)(5adf+4bcf-9bde)}{54b^2d^2} - \frac{(ad-bc)^2(5adf+4bcf-9bde)\log(a+bx)}{162b^{\frac{8}{3}}d^{\frac{7}{3}}} - \frac{(ad-bc)^2(5adf+4bcf-9bde)\log\left(\frac{\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt[3]{d}\sqrt[3]{a+bx}}-1\right)}{54b^{\frac{8}{3}}d^{\frac{7}{3}}} - \frac{\sqrt{3}(ad-bc)^2(5adf+4bcf-9bde)\operatorname{atan}\left(\frac{2\sqrt{3}\sqrt[3]{b}\sqrt[3]{c+dx}}{3\sqrt[3]{d}\sqrt[3]{a+bx}}+\frac{\sqrt{3}}{3}\right)}{81b^{\frac{8}{3}}d^{\frac{7}{3}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/3)*(d*x+c)**(2/3)*(f*x+e),x)
```

```
[Out] f*(a + b*x)**(4/3)*(c + d*x)**(5/3)/(3*b*d) - (a + b*x)**(1/3)*(c
 + d*x)**(5/3)*(5*a*d*f + 4*b*c*f - 9*b*d*e)/(18*b*d**2) - (a + b
*x)**(1/3)*(c + d*x)**(2/3)*(a*d - b*c)*(5*a*d*f + 4*b*c*f - 9*b*
d*e)/(54*b**2*d**2) - (a*d - b*c)**2*(5*a*d*f + 4*b*c*f - 9*b*d*e
)*log(a + b*x)/(162*b**(8/3)*d**(7/3)) - (a*d - b*c)**2*(5*a*d*f
+ 4*b*c*f - 9*b*d*e)*log(b**(1/3)*(c + d*x)**(1/3)/(d**(1/3)*(a +
 b*x)**(1/3)) - 1)/(54*b**(8/3)*d**(7/3)) - sqrt(3)*(a*d - b*c)**
2*(5*a*d*f + 4*b*c*f - 9*b*d*e)*atan(2*sqrt(3)*b**(1/3)*(c + d*x)
**(1/3)/(3*d**(1/3)*(a + b*x)**(1/3)) + sqrt(3)/3)/(81*b**(8/3)*d
**(7/3))
```

Mathematica [C] time = 0.284676, size = 175, normalized size = 0.53

$$\frac{(c+dx)^{2/3}\left(d(a+bx)\left(-5a^2d^2f+abd(4cf+9de+3dfx)+b^2\left(-8c^2f+6cd(3e+fx)+9d^2x(3e+2fx)\right)\right)+(bc-ad)^2\left(\frac{d(\ldots}{a\ldots}\right.\right.}{54b^2d^3(a+bx)^{2/3}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(1/3)*(c + d*x)^(2/3)*(e + f*x),x]
```

```
[Out] ((c + d*x)^(2/3)*(d*(a + b*x)*(-5*a^2*d^2*f + a*b*d*(9*d*e + 4*c*
f + 3*d*f*x) + b^2*(-8*c^2*f + 6*c*d*(3*e + f*x) + 9*d^2*x*(3*e +
 2*f*x))) + (b*c - a*d)^2*(-9*b*d*e + 4*b*c*f + 5*a*d*f)*((d*(a +
 b*x))/(-(b*c) + a*d))^(2/3)*Hypergeometric2F1[2/3, 2/3, 5/3, (b*
(c + d*x))/(b*c - a*d)]))/(54*b^2*d^3*(a + b*x)^(2/3))
```

Maple [F] time = 0.04, size = 0, normalized size = 0.

$$\int \sqrt[3]{bx+a}\,(dx+c)^{\frac{2}{3}}\,(fx+e)\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/3)*(d*x+c)^(2/3)*(f*x+e),x)
```

```
[Out] int((b*x+a)^(1/3)*(d*x+c)^(2/3)*(f*x+e),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^{\frac{1}{3}}(dx+c)^{\frac{2}{3}}(fx+e)\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(1/3)*(d*x + c)^(2/3)*(f*x + e),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^(1/3)*(d*x + c)^(2/3)*(f*x + e), x)
```

Fricas [A] time = 0.2433, size = 701, normalized size = 2.12

$$\sqrt{3}\Big(3\sqrt{3}\left(18\,b^2d^2fx^2+9\left(2\,b^2cd+abd^2\right)e-\left(8\,b^2c^2-4\,abcd+5\,a^2d^2\right)f+3\left(9\,b^2d^2e+\left(2\,b^2cd+abd^2\right)f\right)x\right)\left(-b^2d\right)^{\frac{1}{3}}(bx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(1/3)*(d*x + c)^(2/3)*(f*x + e),x, algorithm="fricas")
```

```
[Out] 1/486*sqrt(3)*(3*sqrt(3)*(18*b^2*d^2*f*x^2 + 9*(2*b^2*c*d + a*b*d
^2)*e - (8*b^2*c^2 - 4*a*b*c*d + 5*a^2*d^2)*f + 3*(9*b^2*d^2*e +
(2*b^2*c*d + a*b*d^2)*f)*x)*(-b^2*d)^(1/3)*(b*x + a)^(1/3)*(d*x +
 c)^(2/3) + sqrt(3)*(9*(b^3*c^2*d - 2*a*b^2*c*d^2 + a^2*b*d^3)*e
- (4*b^3*c^3 - 3*a*b^2*c^2*d - 6*a^2*b*c*d^2 + 5*a^3*d^3)*f)*log(
(b^2*d*x + b^2*c - (-b^2*d)^(1/3)*(b*x + a)^(1/3)*(d*x + c)^(2/3)
*b + (-b^2*d)^(2/3)*(b*x + a)^(2/3)*(d*x + c)^(1/3))/(d*x + c)) -
 2*sqrt(3)*(9*(b^3*c^2*d - 2*a*b^2*c*d^2 + a^2*b*d^3)*e - (4*b^3*
c^3 - 3*a*b^2*c^2*d - 6*a^2*b*c*d^2 + 5*a^3*d^3)*f)*log((b*d*x +
b*c + (-b^2*d)^(1/3)*(b*x + a)^(1/3)*(d*x + c)^(2/3))/(d*x + c))
- 6*(9*(b^3*c^2*d - 2*a*b^2*c*d^2 + a^2*b*d^3)*e - (4*b^3*c^3 - 3
*a*b^2*c^2*d - 6*a^2*b*c*d^2 + 5*a^3*d^3)*f)*arctan(1/3*(2*sqrt(3
)*(-b^2*d)^(1/3)*(b*x + a)^(1/3)*(d*x + c)^(2/3) - sqrt(3)*(b*d*x
 + b*c))/(b*d*x + b*c)))/((-b^2*d)^(1/3)*b^2*d^2)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \sqrt[3]{a+bx}\,(c+dx)^{\frac{2}{3}}\,(e+fx)\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(1/3)*(d*x+c)**(2/3)*(f*x+e),x)
```

```
[Out] Integral((a + b*x)**(1/3)*(c + d*x)**(2/3)*(e + f*x), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^{\frac{1}{3}}(dx+c)^{\frac{2}{3}}(fx+e)\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(1/3)*(d*x + c)^(2/3)*(f*x + e),x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^(1/3)*(d*x + c)^(2/3)*(f*x + e), x)
```

3.2986 $\int \sqrt[3]{a+bx}(c+dx)^{2/3}\,dx$

Optimal. Leaf size=219

$$\frac{(bc-ad)^2\log(a+bx)}{18b^{5/3}d^{4/3}}+\frac{(bc-ad)^2\log\left(\frac{\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt[3]{d}\sqrt[3]{a+bx}}-1\right)}{6b^{5/3}d^{4/3}}+\frac{(bc-ad)^2\tan^{-1}\left(\frac{2\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt{3}\sqrt[3]{d}\sqrt[3]{a+bx}}+\frac{1}{\sqrt{3}}\right)}{3\sqrt{3}b^{5/3}d^{4/3}}+\frac{\sqrt[3]{a+bx}(c+dx)^{2/3}(bc-ad)}{3bd}+\frac{(a+bx)^{4/3}(c+dx)^{2/3}}{2b}$$

```
[Out] ((b*c - a*d)*(a + b*x)^(1/3)*(c + d*x)^(2/3))/(3*b*d) + ((a + b*x
)^(4/3)*(c + d*x)^(2/3))/(2*b) + ((b*c - a*d)^2*ArcTan[1/Sqrt[3]
+ (2*b^(1/3)*(c + d*x)^(1/3))/(Sqrt[3]*d^(1/3)*(a + b*x)^(1/3))])
/(3*Sqrt[3]*b^(5/3)*d^(4/3)) + ((b*c - a*d)^2*Log[a + b*x])/(18*b
^(5/3)*d^(4/3)) + ((b*c - a*d)^2*Log[-1 + (b^(1/3)*(c + d*x)^(1/3
))/(d^(1/3)*(a + b*x)^(1/3))])/(6*b^(5/3)*d^(4/3))
```

Rubi [A] time = 0.239257, antiderivative size = 219, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 2, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}} = 0.105$

$$\frac{(bc-ad)^2\log(a+bx)}{18b^{5/3}d^{4/3}}+\frac{(bc-ad)^2\log\left(\frac{\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt[3]{d}\sqrt[3]{a+bx}}-1\right)}{6b^{5/3}d^{4/3}}+\frac{(bc-ad)^2\tan^{-1}\left(\frac{2\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt{3}\sqrt[3]{d}\sqrt[3]{a+bx}}+\frac{1}{\sqrt{3}}\right)}{3\sqrt{3}b^{5/3}d^{4/3}}+\frac{\sqrt[3]{a+bx}(c+dx)^{2/3}(bc-ad)}{3bd}+\frac{(a+bx)^{4/3}(c+dx)^{2/3}}{2b}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(1/3)*(c + d*x)^(2/3),x]
```

```
[Out] ((b*c - a*d)*(a + b*x)^(1/3)*(c + d*x)^(2/3))/(3*b*d) + ((a + b*x
)^(4/3)*(c + d*x)^(2/3))/(2*b) + ((b*c - a*d)^2*ArcTan[1/Sqrt[3]
+ (2*b^(1/3)*(c + d*x)^(1/3))/(Sqrt[3]*d^(1/3)*(a + b*x)^(1/3))])
/(3*Sqrt[3]*b^(5/3)*d^(4/3)) + ((b*c - a*d)^2*Log[a + b*x])/(18*b
^(5/3)*d^(4/3)) + ((b*c - a*d)^2*Log[-1 + (b^(1/3)*(c + d*x)^(1/3
))/(d^(1/3)*(a + b*x)^(1/3))])/(6*b^(5/3)*d^(4/3))
```

Rubi in Sympy [A] time = 23.8958, size = 196, normalized size = 0.89

$$\frac{\sqrt[3]{a+bx}\,(c+dx)^{\frac{5}{3}}}{2d}+\frac{\sqrt[3]{a+bx}\,(c+dx)^{\frac{2}{3}}\,(ad-bc)}{6bd}+\frac{(ad-bc)^2\log(a+bx)}{18b^{\frac{5}{3}}d^{\frac{4}{3}}}+\frac{(ad-bc)^2\log\left(\frac{\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt[3]{d}\sqrt[3]{a+bx}}-1\right)}{6b^{\frac{5}{3}}d^{\frac{4}{3}}}+\frac{\sqrt{3}\,(ad-bc)^2\operatorname{atan}\left(\frac{2\sqrt{3}\sqrt[3]{b}\sqrt[3]{c+dx}}{3\sqrt[3]{d}\sqrt[3]{a+bx}}+\frac{\sqrt{3}}{3}\right)}{9b^{\frac{5}{3}}d^{\frac{4}{3}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/3)*(d*x+c)**(2/3),x)
```

```
[Out] (a + b*x)**(1/3)*(c + d*x)**(5/3)/(2*d) + (a + b*x)**(1/3)*(c + d
*x)**(2/3)*(a*d - b*c)/(6*b*d) + (a*d - b*c)**2*log(a + b*x)/(18*
b**(5/3)*d**(4/3)) + (a*d - b*c)**2*log(b**(1/3)*(c + d*x)**(1/3)
/(d**(1/3)*(a + b*x)**(1/3)) - 1)/(6*b**(5/3)*d**(4/3)) + sqrt(3)
*(a*d - b*c)**2*atan(2*sqrt(3)*b**(1/3)*(c + d*x)**(1/3)/(3*d**(1
/3)*(a + b*x)**(1/3)) + sqrt(3)/3)/(9*b**(5/3)*d**(4/3))
```

Mathematica [C] time = 0.198991, size = 109, normalized size = 0.5

$$\frac{(c+dx)^{2/3}\left(d(a+bx)(ad+2bc+3bdx)-(bc-ad)^2\left(\frac{d(a+bx)}{ad-bc}\right)^{2/3}{}_2F_1\left(\frac{2}{3},\frac{2}{3};\frac{5}{3};\frac{b(c+dx)}{bc-ad}\right)\right)}{6bd^2(a+bx)^{2/3}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(1/3)*(c + d*x)^(2/3),x]
```

```
[Out] ((c + d*x)^(2/3)*(d*(a + b*x)*(2*b*c + a*d + 3*b*d*x) - (b*c - a*
d)^2*((d*(a + b*x))/(-(b*c) + a*d))^(2/3)*Hypergeometric2F1[2/3,
2/3, 5/3, (b*(c + d*x))/(b*c - a*d)]))/(6*b*d^2*(a + b*x)^(2/3))
```

Maple [F] time = 0.035, size = 0, normalized size = 0.

$$\int \sqrt[3]{bx+a}\,(dx+c)^{\frac{2}{3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/3)*(d*x+c)^(2/3),x)
```

```
[Out] int((b*x+a)^(1/3)*(d*x+c)^(2/3),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^{\frac{1}{3}}(dx+c)^{\frac{2}{3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(1/3)*(d*x + c)^(2/3),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^(1/3)*(d*x + c)^(2/3), x)
```

Fricas [A] time = 0.227112, size = 394, normalized size = 1.8

$$\sqrt{3}\left(3\sqrt{3}\left(b^2d\right)^{\frac{1}{3}}(3\,bdx+2\,bc+ad)(bx+a)^{\frac{1}{3}}(dx+c)^{\frac{2}{3}}-\sqrt{3}\left(b^2c^2-2\,abcd+a^2d^2\right)\log\left(\frac{b^2dx+b^2c+\left(b^2d\right)^{\frac{1}{3}}(bx+a)^{\frac{1}{3}}(dx+c)^{\frac{2}{3}}b+(b^2d)}{dx+c}\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(1/3)*(d*x + c)^(2/3),x, algorithm="fricas")
```

```
[Out] 1/54*sqrt(3)*(3*sqrt(3)*(b^2*d)^(1/3)*(3*b*d*x + 2*b*c + a*d)*(b*
x + a)^(1/3)*(d*x + c)^(2/3) - sqrt(3)*(b^2*c^2 - 2*a*b*c*d + a^2
*d^2)*log((b^2*d*x + b^2*c + (b^2*d)^(1/3)*(b*x + a)^(1/3)*(d*x +
 c)^(2/3)*b + (b^2*d)^(2/3)*(b*x + a)^(2/3)*(d*x + c)^(1/3))/(d*x
 + c)) + 2*sqrt(3)*(b^2*c^2 - 2*a*b*c*d + a^2*d^2)*log(-(b*d*x +
b*c - (b^2*d)^(1/3)*(b*x + a)^(1/3)*(d*x + c)^(2/3))/(d*x + c)) -
 6*(b^2*c^2 - 2*a*b*c*d + a^2*d^2)*arctan(1/3*(2*sqrt(3)*(b^2*d)^
(1/3)*(b*x + a)^(1/3)*(d*x + c)^(2/3) + sqrt(3)*(b*d*x + b*c))/(b
*d*x + b*c)))/((b^2*d)^(1/3)*b*d)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \sqrt[3]{a + bx}\,(c + dx)^{\frac{2}{3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(1/3)*(d*x+c)**(2/3),x)

[Out] Integral((a + b*x)**(1/3)*(c + d*x)**(2/3), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (bx + a)^{\frac{1}{3}}(dx + c)^{\frac{2}{3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(1/3)*(d*x + c)^(2/3),x, algorithm="giac")

[Out] integrate((b*x + a)^(1/3)*(d*x + c)^(2/3), x)
```

3.2987 $\int \frac{\sqrt[3]{a+bx}(c+dx)^{2/3}}{e+fx}\,dx$

Optimal. Leaf size=409

$$\frac{\log(a+bx)(-adf-2bcf+3bde)}{6b^{2/3}\sqrt[3]{d}f^2}+\frac{(-adf-2bcf+3bde)\log\left(\frac{\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt[3]{d}\sqrt[3]{a+bx}}-1\right)}{2b^{2/3}\sqrt[3]{d}f^2}+\frac{(-adf-2bcf+3bde)\tan^{-1}\left(\frac{2\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt{3}\sqrt[3]{d}\sqrt[3]{a+bx}}+\frac{1}{\sqrt{3}}\right)}{\sqrt{3}b^{2/3}\sqrt[3]{d}f^2}+\frac{\sqrt[3]{be-af}(de-cf)^{2/3}\log(e+fx)}{2f^2}-\frac{3\sqrt[3]{be-af}(de-cf)^{2/3}\log\left(\frac{\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt[3]{de-cf}}-\sqrt[3]{a+bx}\right)}{2f^2}-\frac{\sqrt{3}\sqrt[3]{be-af}(de-cf)^{2/3}\tan^{-1}\left(\frac{2\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt{3}\sqrt[3]{a+bx}\sqrt[3]{de-cf}}+\frac{1}{\sqrt{3}}\right)}{f^2}+\frac{\sqrt[3]{a+bx}(c+dx)^{2/3}}{f}$$

```
[Out] ((a + b*x)^(1/3)*(c + d*x)^(2/3))/f + ((3*b*d*e - 2*b*c*f - a*d*f
)*ArcTan[1/Sqrt[3] + (2*b^(1/3)*(c + d*x)^(1/3))/(Sqrt[3]*d^(1/3)
*(a + b*x)^(1/3))])/(Sqrt[3]*b^(2/3)*d^(1/3)*f^2) - (Sqrt[3]*(b*e
 - a*f)^(1/3)*(d*e - c*f)^(2/3)*ArcTan[1/Sqrt[3] + (2*(b*e - a*f)
^(1/3)*(c + d*x)^(1/3))/(Sqrt[3]*(d*e - c*f)^(1/3)*(a + b*x)^(1/3
))])/f^2 + ((3*b*d*e - 2*b*c*f - a*d*f)*Log[a + b*x])/(6*b^(2/3)*
d^(1/3)*f^2) + ((b*e - a*f)^(1/3)*(d*e - c*f)^(2/3)*Log[e + f*x])
/(2*f^2) - (3*(b*e - a*f)^(1/3)*(d*e - c*f)^(2/3)*Log[-(a + b*x)^
(1/3) + ((b*e - a*f)^(1/3)*(c + d*x)^(1/3))/(d*e - c*f)^(1/3)])/(
2*f^2) + ((3*b*d*e - 2*b*c*f - a*d*f)*Log[-1 + (b^(1/3)*(c + d*x)
^(1/3))/(d^(1/3)*(a + b*x)^(1/3))])/(2*b^(2/3)*d^(1/3)*f^2)
```

Rubi [A] time = 1.04945, antiderivative size = 409, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.154$

$$\frac{\log(a+bx)(-adf-2bcf+3bde)}{6b^{2/3}\sqrt[3]{d}f^2}+\frac{(-adf-2bcf+3bde)\log\left(\frac{\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt[3]{d}\sqrt[3]{a+bx}}-1\right)}{2b^{2/3}\sqrt[3]{d}f^2}+\frac{(-adf-2bcf+3bde)\tan^{-1}\left(\frac{2\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt{3}\sqrt[3]{d}\sqrt[3]{a+bx}}+\frac{1}{\sqrt{3}}\right)}{\sqrt{3}b^{2/3}\sqrt[3]{d}f^2}+\frac{\sqrt[3]{be-af}(de-cf)^{2/3}\log(e+fx)}{2f^2}-\frac{3\sqrt[3]{be-af}(de-cf)^{2/3}\log\left(\frac{\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt[3]{de-cf}}-\sqrt[3]{a+bx}\right)}{2f^2}-\frac{\sqrt{3}\sqrt[3]{be-af}(de-cf)^{2/3}\tan^{-1}\left(\frac{2\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt{3}\sqrt[3]{a+bx}\sqrt[3]{de-cf}}+\frac{1}{\sqrt{3}}\right)}{f^2}+\frac{\sqrt[3]{a+bx}(c+dx)^{2/3}}{f}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(1/3)*(c + d*x)^(2/3))/(e + f*x),x]
```


```
[Out] ((a + b*x)^(1/3)*(c + d*x)^(2/3))/f + ((3*b*d*e - 2*b*c*f - a*d*f
)*ArcTan[1/Sqrt[3] + (2*b^(1/3)*(c + d*x)^(1/3))/(Sqrt[3]*d^(1/3)
*(a + b*x)^(1/3))])/(Sqrt[3]*b^(2/3)*d^(1/3)*f^2) - (Sqrt[3]*(b*e
 - a*f)^(1/3)*(d*e - c*f)^(2/3)*ArcTan[1/Sqrt[3] + (2*(b*e - a*f)
^(1/3)*(c + d*x)^(1/3))/(Sqrt[3]*(d*e - c*f)^(1/3)*(a + b*x)^(1/3
))])/f^2 + ((3*b*d*e - 2*b*c*f - a*d*f)*Log[a + b*x])/(6*b^(2/3)*
d^(1/3)*f^2) + ((b*e - a*f)^(1/3)*(d*e - c*f)^(2/3)*Log[e + f*x])
/(2*f^2) - (3*(b*e - a*f)^(1/3)*(d*e - c*f)^(2/3)*Log[-(a + b*x)^
(1/3) + ((b*e - a*f)^(1/3)*(c + d*x)^(1/3))/(d*e - c*f)^(1/3)])/(
```

```
2*f^2) + ((3*b*d*e - 2*b*c*f - a*d*f)*Log[-1 + (b^(1/3)*(c + d*x)
^(1/3))/(d^(1/3)*(a + b*x)^(1/3))])/(2*b^(2/3)*d^(1/3)*f^2)
```

Rubi in Sympy [A] time = 99.9272, size = 388, normalized size = 0.95

$$\frac{\sqrt[3]{a+bx}\,(c+dx)^{\frac{2}{3}}}{f}-\frac{\sqrt[3]{af-be}\,(cf-de)^{\frac{2}{3}}\log(e+fx)}{2f^2}+\frac{3\sqrt[3]{af-be}\,(cf-de)^{\frac{2}{3}}\log\left(-\sqrt[3]{a+bx}+\frac{\sqrt[3]{c+dx}\sqrt[3]{af-be}}{\sqrt[3]{cf-de}}\right)}{2f^2}+\frac{\sqrt{3}\sqrt[3]{af-be}\,(cf-de)^{\frac{2}{3}}\operatorname{atan}\left(\frac{\sqrt{3}}{3}+\frac{2\sqrt{3}\sqrt[3]{c+dx}\sqrt[3]{af-be}}{3\sqrt[3]{a+bx}\sqrt[3]{cf-de}}\right)}{f^2}-\frac{(adf+2bcf-3bde)\log(a+bx)}{6b^{\frac{2}{3}}\sqrt[3]{d}f^2}-\frac{(adf+2bcf-3bde)\log\left(\frac{\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt[3]{d}\sqrt[3]{a+bx}}-1\right)}{2b^{\frac{2}{3}}\sqrt[3]{d}f^2}-\frac{\sqrt{3}(adf+2bcf-3bde)\operatorname{atan}\left(\frac{2\sqrt{3}\sqrt[3]{b}\sqrt[3]{c+dx}}{3\sqrt[3]{d}\sqrt[3]{a+bx}}+\frac{\sqrt{3}}{3}\right)}{3b^{\frac{2}{3}}\sqrt[3]{d}f^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/3)*(d*x+c)**(2/3)/(f*x+e),x)
```

```
[Out] (a + b*x)**(1/3)*(c + d*x)**(2/3)/f - (a*f - b*e)**(1/3)*(c*f - d
*e)**(2/3)*log(e + f*x)/(2*f**2) + 3*(a*f - b*e)**(1/3)*(c*f - d*
e)**(2/3)*log(-(a + b*x)**(1/3) + (c + d*x)**(1/3)*(a*f - b*e)**(
1/3)/(c*f - d*e)**(1/3))/(2*f**2) + sqrt(3)*(a*f - b*e)**(1/3)*(c
*f - d*e)**(2/3)*atan(sqrt(3)/3 + 2*sqrt(3)*(c + d*x)**(1/3)*(a*f
 - b*e)**(1/3)/(3*(a + b*x)**(1/3)*(c*f - d*e)**(1/3)))/f**2 - (a
*d*f + 2*b*c*f - 3*b*d*e)*log(a + b*x)/(6*b**(2/3)*d**(1/3)*f**2)
 - (a*d*f + 2*b*c*f - 3*b*d*e)*log(b**(1/3)*(c + d*x)**(1/3)/(d**
(1/3)*(a + b*x)**(1/3)) - 1)/(2*b**(2/3)*d**(1/3)*f**2) - sqrt(3)
*(a*d*f + 2*b*c*f - 3*b*d*e)*atan(2*sqrt(3)*b**(1/3)*(c + d*x)**(
1/3)/(3*d**(1/3)*(a + b*x)**(1/3)) + sqrt(3)/3)/(3*b**(2/3)*d**(1
/3)*f**2)
```

Mathematica [C] time = 6.06163, size = 541, normalized size = 1.32

$$\frac{(c+dx)^{2/3}\left(5(a+bx)-\frac{4(bc-ad)\left(-\frac{5bf(c+dx)(cf-de)F_1\left(1;\frac{2}{3},1;2;\frac{bc-ad}{bc+bdx},\frac{cf-de}{f(c+dx)}\right)}{6bf(c+dx)F_1\left(1;\frac{2}{3},1;2;\frac{bc-ad}{bc+bdx},\frac{cf-de}{f(c+dx)}\right)+b(3cf-3de)F_1\left(2;\frac{2}{3},2;3;\frac{bc-ad}{bc+bdx},\frac{cf-de}{f(c+dx)}\right)+2f(bc-ad)F_1\left(2;\frac{5}{3},1;3;\frac{bc-ad}{bc+bdx},\frac{cf-de}{f(c+dx)}\right)}-\cdots\right)}{d^2(e+fx\cdots}\cdots\right)}{5f(a+bx)^{2/3}}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[((a + b*x)^(1/3)*(c + d*x)^(2/3))/(e + f*x),x]
```

```
[Out] ((c + d*x)^(2/3)*(5*(a + b*x) - (4*(b*c - a*d)*((-5*b*f*(-(d*e) +
 c*f)*(c + d*x)*AppellF1[1, 2/3, 1, 2, (b*c - a*d)/(b*c + b*d*x),
 (-(d*e) + c*f)/(f*(c + d*x))])/(6*b*f*(c + d*x)*AppellF1[1, 2/3,
 1, 2, (b*c - a*d)/(b*c + b*d*x), (-(d*e) + c*f)/(f*(c + d*x))] +
 b*(-3*d*e + 3*c*f)*AppellF1[2, 2/3, 2, 3, (b*c - a*d)/(b*c + b*d
*x), (-(d*e) + c*f)/(f*(c + d*x))] + 2*(b*c - a*d)*f*AppellF1[2,
5/3, 1, 3, (b*c - a*d)/(b*c + b*d*x), (-(d*e) + c*f)/(f*(c + d*x)
```

```
)]) - (2*(d*e - c*f)*(3*b*d*e - 2*b*c*f - a*d*f)*AppellF1[5/3, 2/
3, 1, 8/3, (b*(c + d*x))/(b*c - a*d), (f*(c + d*x))/(-(d*e) + c*f
)])/((8*(b*c - a*d)*(-(d*e) + c*f)*AppellF1[5/3, 2/3, 1, 8/3, (b*
(c + d*x))/(b*c - a*d), (f*(c + d*x))/(-(d*e) + c*f)])/(c + d*x)
+ 3*(b*c - a*d)*f*AppellF1[8/3, 2/3, 2, 11/3, (b*(c + d*x))/(b*c
- a*d), (f*(c + d*x))/(-(d*e) + c*f)] + 2*b*(-(d*e) + c*f)*Appell
F1[8/3, 5/3, 1, 11/3, (b*(c + d*x))/(b*c - a*d), (f*(c + d*x))/(-
(d*e) + c*f)])))/(d^2*(e + f*x))))/(5*f*(a + b*x)^(2/3))
```

Maple [F] time = 0.079, size = 0, normalized size = 0.

$$\int \frac{1}{fx+e}\sqrt[3]{bx+a}\,(dx+c)^{\frac{2}{3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/3)*(d*x+c)^(2/3)/(f*x+e),x)
```

```
[Out] int((b*x+a)^(1/3)*(d*x+c)^(2/3)/(f*x+e),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^{\frac{1}{3}}(dx+c)^{\frac{2}{3}}}{fx+e}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(1/3)*(d*x + c)^(2/3)/(f*x + e),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^(1/3)*(d*x + c)^(2/3)/(f*x + e), x)
```

Fricas [A] time = 4.21405, size = 1206, normalized size = 2.95

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(1/3)*(d*x + c)^(2/3)/(f*x + e),x, algorithm="fricas")
```

```
[Out] 1/18*sqrt(3)*(6*sqrt(3)*(-b^2*d)^(1/3)*(b*x + a)^(1/3)*(d*x + c)^
(2/3)*f + sqrt(3)*(3*b*d*e - (2*b*c + a*d)*f)*log((b^2*d*x + b^2*
c - (-b^2*d)^(1/3)*(b*x + a)^(1/3)*(d*x + c)^(2/3)*b + (-b^2*d)^(
2/3)*(b*x + a)^(2/3)*(d*x + c)^(1/3))/(d*x + c)) - 2*sqrt(3)*(3*b
*d*e - (2*b*c + a*d)*f)*log((b*d*x + b*c + (-b^2*d)^(1/3)*(b*x +
a)^(1/3)*(d*x + c)^(2/3))/(d*x + c)) - 3*sqrt(3)*(-b*d^2*e^3 + a*
c^2*f^3 + (2*b*c*d + a*d^2)*e^2*f - (b*c^2 + 2*a*c*d)*e*f^2)^(1/3
)*(-b^2*d)^(1/3)*log(-((-b*d^2*e^3 + a*c^2*f^3 + (2*b*c*d + a*d^2
)*e^2*f - (b*c^2 + 2*a*c*d)*e*f^2)^(1/3)*(d*e - c*f)*(b*x + a)^(1
/3)*(d*x + c)^(2/3) - (d^2*e^2 - 2*c*d*e*f + c^2*f^2)*(b*x + a)^(
2/3)*(d*x + c)^(1/3) - (-b*d^2*e^3 + a*c^2*f^3 + (2*b*c*d + a*d^2
)*e^2*f - (b*c^2 + 2*a*c*d)*e*f^2)^(2/3)*(d*x + c))/(d*x + c)) +
6*sqrt(3)*(-b*d^2*e^3 + a*c^2*f^3 + (2*b*c*d + a*d^2)*e^2*f - (b*
c^2 + 2*a*c*d)*e*f^2)^(1/3)*(-b^2*d)^(1/3)*log(-((d*e - c*f)*(b*x
 + a)^(1/3)*(d*x + c)^(2/3) + (-b*d^2*e^3 + a*c^2*f^3 + (2*b*c*d
+ a*d^2)*e^2*f - (b*c^2 + 2*a*c*d)*e*f^2)^(1/3)*(d*x + c))/(d*x +
 c)) - 6*(3*b*d*e - (2*b*c + a*d)*f)*arctan(1/3*(2*sqrt(3)*(-b^2*
d)^(1/3)*(b*x + a)^(1/3)*(d*x + c)^(2/3) - sqrt(3)*(b*d*x + b*c))
/(b*d*x + b*c)) - 18*(-b*d^2*e^3 + a*c^2*f^3 + (2*b*c*d + a*d^2)*
e^2*f - (b*c^2 + 2*a*c*d)*e*f^2)^(1/3)*(-b^2*d)^(1/3)*arctan(-1/3
*sqrt(3)*(2*(d*e - c*f)*(b*x + a)^(1/3)*(d*x + c)^(2/3) - (-b*d^2
```

```
*e^3 + a*c^2*f^3 + (2*b*c*d + a*d^2)*e^2*f - (b*c^2 + 2*a*c*d)*e*
f^2)^(1/3)*(d*x + c))/((-b*d^2*e^3 + a*c^2*f^3 + (2*b*c*d + a*d^2
)*e^2*f - (b*c^2 + 2*a*c*d)*e*f^2)^(1/3)*(d*x + c))))/((-b^2*d)^(
1/3)*f^2)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt[3]{a + bx}\,(c + dx)^{\frac{2}{3}}}{e + fx}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(1/3)*(d*x+c)**(2/3)/(f*x+e),x)
```

```
[Out] Integral((a + b*x)**(1/3)*(c + d*x)**(2/3)/(e + f*x), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx + a)^{\frac{1}{3}}(dx + c)^{\frac{2}{3}}}{fx + e}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(1/3)*(d*x + c)^(2/3)/(f*x + e),x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^(1/3)*(d*x + c)^(2/3)/(f*x + e), x)
```

3.2988 $\int \frac{\sqrt[3]{a+bx}(c+dx)^{2/3}}{(e+fx)^2}\,dx$

Optimal. Leaf size=417

$$-\frac{3\sqrt[3]{b}d^{2/3}\log\left(\frac{\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt[3]{d}\sqrt[3]{a+bx}}-1\right)}{2f^2}-\frac{\sqrt{3}\sqrt[3]{b}d^{2/3}\tan^{-1}\left(\frac{2\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt{3}\sqrt[3]{d}\sqrt[3]{a+bx}}+\frac{1}{\sqrt{3}}\right)}{f^2}-\frac{\log(e+fx)(-2adf-bcf+3bde)}{6f^2(be-af)^{2/3}\sqrt[3]{de-cf}}+\frac{(-2adf-bcf+3bde)\log\left(\frac{\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt[3]{de-cf}}-\sqrt[3]{a+bx}\right)}{2f^2(be-af)^{2/3}\sqrt[3]{de-cf}}+\frac{(-2adf-bcf+3bde)\tan^{-1}\left(\frac{2\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt{3}\sqrt[3]{a+bx}\sqrt[3]{de-cf}}+\frac{1}{\sqrt{3}}\right)}{\sqrt{3}f^2(be-af)^{2/3}\sqrt[3]{de-cf}}-\frac{\sqrt[3]{a+bx}(c+dx)^{2/3}}{f(e+fx)}-\frac{\sqrt[3]{b}d^{2/3}\log(a+bx)}{2f^2}$$

```
[Out] -(((a + b*x)^(1/3)*(c + d*x)^(2/3))/(f*(e + f*x))) - (Sqrt[3]*b^(
1/3)*d^(2/3)*ArcTan[1/Sqrt[3] + (2*b^(1/3)*(c + d*x)^(1/3))/(Sqrt
[3]*d^(1/3)*(a + b*x)^(1/3))])/f^2 + ((3*b*d*e - b*c*f - 2*a*d*f)
*ArcTan[1/Sqrt[3] + (2*(b*e - a*f)^(1/3)*(c + d*x)^(1/3))/(Sqrt[3
]*(d*e - c*f)^(1/3)*(a + b*x)^(1/3))])/(Sqrt[3]*f^2*(b*e - a*f)^(
2/3)*(d*e - c*f)^(1/3)) - (b^(1/3)*d^(2/3)*Log[a + b*x])/(2*f^2)
- ((3*b*d*e - b*c*f - 2*a*d*f)*Log[e + f*x])/(6*f^2*(b*e - a*f)^(
2/3)*(d*e - c*f)^(1/3)) + ((3*b*d*e - b*c*f - 2*a*d*f)*Log[-(a +
b*x)^(1/3) + ((b*e - a*f)^(1/3)*(c + d*x)^(1/3))/(d*e - c*f)^(1/3
)])/(2*f^2*(b*e - a*f)^(2/3)*(d*e - c*f)^(1/3)) - (3*b^(1/3)*d^(2
/3)*Log[-1 + (b^(1/3)*(c + d*x)^(1/3))/(d^(1/3)*(a + b*x)^(1/3))]
)/(2*f^2)
```

Rubi [A] time = 0.883703, antiderivative size = 417, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.154$

$$-\frac{3\sqrt[3]{b}d^{2/3}\log\left(\frac{\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt[3]{d}\sqrt[3]{a+bx}}-1\right)}{2f^2}-\frac{\sqrt{3}\sqrt[3]{b}d^{2/3}\tan^{-1}\left(\frac{2\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt{3}\sqrt[3]{d}\sqrt[3]{a+bx}}+\frac{1}{\sqrt{3}}\right)}{f^2}-\frac{\log(e+fx)(-2adf-bcf+3bde)}{6f^2(be-af)^{2/3}\sqrt[3]{de-cf}}+\frac{(-2adf-bcf+3bde)\log\left(\frac{\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt[3]{de-cf}}-\sqrt[3]{a+bx}\right)}{2f^2(be-af)^{2/3}\sqrt[3]{de-cf}}+\frac{(-2adf-bcf+3bde)\tan^{-1}\left(\frac{2\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt{3}\sqrt[3]{a+bx}\sqrt[3]{de-cf}}+\frac{1}{\sqrt{3}}\right)}{\sqrt{3}f^2(be-af)^{2/3}\sqrt[3]{de-cf}}-\frac{\sqrt[3]{a+bx}(c+dx)^{2/3}}{f(e+fx)}-\frac{\sqrt[3]{b}d^{2/3}\log(a+bx)}{2f^2}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(1/3)*(c + d*x)^(2/3))/(e + f*x)^2,x]
```

```
[Out] -(((a + b*x)^(1/3)*(c + d*x)^(2/3))/(f*(e + f*x))) - (Sqrt[3]*b^(
1/3)*d^(2/3)*ArcTan[1/Sqrt[3] + (2*b^(1/3)*(c + d*x)^(1/3))/(Sqrt
[3]*d^(1/3)*(a + b*x)^(1/3))])/f^2 + ((3*b*d*e - b*c*f - 2*a*d*f)
*ArcTan[1/Sqrt[3] + (2*(b*e - a*f)^(1/3)*(c + d*x)^(1/3))/(Sqrt[3
]*(d*e - c*f)^(1/3)*(a + b*x)^(1/3))])/(Sqrt[3]*f^2*(b*e - a*f)^(
2/3)*(d*e - c*f)^(1/3)) - (b^(1/3)*d^(2/3)*Log[a + b*x])/(2*f^2)
- ((3*b*d*e - b*c*f - 2*a*d*f)*Log[e + f*x])/(6*f^2*(b*e - a*f)^(
2/3)*(d*e - c*f)^(1/3)) + ((3*b*d*e - b*c*f - 2*a*d*f)*Log[-(a +
b*x)^(1/3) + ((b*e - a*f)^(1/3)*(c + d*x)^(1/3))/(d*e - c*f)^(1/3
)])/(2*f^2*(b*e - a*f)^(2/3)*(d*e - c*f)^(1/3)) - (3*b^(1/3)*d^(2
```

```
/3)*Log[-1 + (b^(1/3)*(c + d*x)^(1/3))/(d^(1/3)*(a + b*x)^(1/3))]
)/(2*f^2)
```

Rubi in Sympy [A] time = 86.202, size = 393, normalized size = 0.94

$$
-\frac{\sqrt[3]{b}d^{\frac{2}{3}}\log(a+bx)}{2f^2}-\frac{3\sqrt[3]{b}d^{\frac{2}{3}}\log\left(\frac{\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt[3]{d}\sqrt[3]{a+bx}}-1\right)}{2f^2}-\frac{\sqrt{3}\sqrt[3]{b}d^{\frac{2}{3}}\operatorname{atan}\left(\frac{2\sqrt{3}\sqrt[3]{b}\sqrt[3]{c+dx}}{3\sqrt[3]{d}\sqrt[3]{a+bx}}+\frac{\sqrt{3}}{3}\right)}{f^2}
-\frac{\sqrt[3]{a+bx}(c+dx)^{\frac{2}{3}}}{f(e+fx)}-\frac{(2adf+bcf-3bde)\log(e+fx)}{6f^2(af-be)^{\frac{2}{3}}\sqrt[3]{cf-de}}
+\frac{(2adf+bcf-3bde)\log\left(-\sqrt[3]{a+bx}+\frac{\sqrt[3]{c+dx}\sqrt[3]{af-be}}{\sqrt[3]{cf-de}}\right)}{2f^2(af-be)^{\frac{2}{3}}\sqrt[3]{cf-de}}
+\frac{\sqrt{3}(2adf+bcf-3bde)\operatorname{atan}\left(\frac{\sqrt{3}}{3}+\frac{2\sqrt{3}\sqrt[3]{c+dx}\sqrt[3]{af-be}}{3\sqrt[3]{a+bx}\sqrt[3]{cf-de}}\right)}{3f^2(af-be)^{\frac{2}{3}}\sqrt[3]{cf-de}}
$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/3)*(d*x+c)**(2/3)/(f*x+e)**2,x)
```

```
[Out] -b**(1/3)*d**(2/3)*log(a + b*x)/(2*f**2) - 3*b**(1/3)*d**(2/3)*lo
g(b**(1/3)*(c + d*x)**(1/3)/(d**(1/3)*(a + b*x)**(1/3)) - 1)/(2*f
**2) - sqrt(3)*b**(1/3)*d**(2/3)*atan(2*sqrt(3)*b**(1/3)*(c + d*x
)**(1/3)/(3*d**(1/3)*(a + b*x)**(1/3)) + sqrt(3)/3)/f**2 - (a + b
*x)**(1/3)*(c + d*x)**(2/3)/(f*(e + f*x)) - (2*a*d*f + b*c*f - 3*
b*d*e)*log(e + f*x)/(6*f**2*(a*f - b*e)**(2/3)*(c*f - d*e)**(1/3)
) + (2*a*d*f + b*c*f - 3*b*d*e)*log(-(a + b*x)**(1/3) + (c + d*x)
**(1/3)*(a*f - b*e)**(1/3)/(c*f - d*e)**(1/3))/(2*f**2*(a*f - b*e
)**(2/3)*(c*f - d*e)**(1/3)) + sqrt(3)*(2*a*d*f + b*c*f - 3*b*d*e
)*atan(sqrt(3)/3 + 2*sqrt(3)*(c + d*x)**(1/3)*(a*f - b*e)**(1/3)/
(3*(a + b*x)**(1/3)*(c*f - d*e)**(1/3)))/(3*f**2*(a*f - b*e)**(2/
3)*(c*f - d*e)**(1/3))
```

Mathematica [C] time = 2.6108, size = 743, normalized size = 1.78

$$
\frac{(c+dx)^{2/3}\left(-\frac{4b\left(-\frac{5bcf(c+dx)F_1\left(1;\frac{2}{3},1;2;\frac{bc-ad}{bc+bdx},\frac{cf-de}{f(c+dx)}\right)}{6bf(c+dx)F_1\left(1;\frac{2}{3},1;2;\frac{bc-ad}{bc+bdx},\frac{cf-de}{f(c+dx)}\right)+b(3cf-3de)F_1\left(2;\frac{2}{3},2;3;\frac{bc-ad}{bc+bdx},\frac{cf-de}{f(c+dx)}\right)+2f(bc-ad)F_1\left(2;\frac{5}{3},1;3;\frac{bc-ad}{bc+bdx},\frac{cf-de}{f(c+dx)}\right)}-\frac{\cdots}{-6bf(c+dx)F_1\left(1;\frac{2}{3},1;2;\frac{bc\cdots}{bc+\cdots}\cdots\right)\cdots}\cdots\right)}{\cdots}\cdots\right)}{\cdots}
$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[((a + b*x)^(1/3)*(c + d*x)^(2/3))/(e + f*x)^2,x]
```

```
[Out] ((c + d*x)^(2/3)*(-5*(a + b*x) - (4*b*((-5*b*c*f*(c + d*x)*Appell
F1[1, 2/3, 1, 2, (b*c - a*d)/(b*c + b*d*x), (-(d*e) + c*f)/(f*(c
+ d*x))])/(6*b*f*(c + d*x)*AppellF1[1, 2/3, 1, 2, (b*c - a*d)/(b*
c + b*d*x), (-(d*e) + c*f)/(f*(c + d*x))] + b*(-3*d*e + 3*c*f)*Ap
pellF1[2, 2/3, 2, 3, (b*c - a*d)/(b*c + b*d*x), (-(d*e) + c*f)/(f
*(c + d*x))] + 2*(b*c - a*d)*f*AppellF1[2, 5/3, 1, 3, (b*c - a*d)
/(b*c + b*d*x), (-(d*e) + c*f)/(f*(c + d*x))]) - (5*a*d*f*(c + d*
x)*AppellF1[1, 2/3, 1, 2, (b*c - a*d)/(b*c + b*d*x), (-(d*e) + c*
f)/(f*(c + d*x))])/(-6*b*f*(c + d*x)*AppellF1[1, 2/3, 1, 2, (b*c
- a*d)/(b*c + b*d*x), (-(d*e) + c*f)/(f*(c + d*x))] + 3*b*(d*e -
c*f)*AppellF1[2, 2/3, 2, 3, (b*c - a*d)/(b*c + b*d*x), (-(d*e) +
```

```
c*f)/(f*(c + d*x))] + 2*(-(b*c) + a*d)*f*AppellF1[2, 5/3, 1, 3, (
b*c - a*d)/(b*c + b*d*x), (-(d*e) + c*f)/(f*(c + d*x))]) - (6*(b*
c - a*d)*(-(d*e) + c*f)*AppellF1[5/3, 2/3, 1, 8/3, (b*(c + d*x))/
(b*c - a*d), (f*(c + d*x))/(-(d*e) + c*f)])/((8*(b*c - a*d)*(-(d*
e) + c*f)*AppellF1[5/3, 2/3, 1, 8/3, (b*(c + d*x))/(b*c - a*d), (
f*(c + d*x))/(-(d*e) + c*f)])/(c + d*x) + 3*(b*c - a*d)*f*AppellF
1[8/3, 2/3, 2, 11/3, (b*(c + d*x))/(b*c - a*d), (f*(c + d*x))/(-(
d*e) + c*f)] + 2*b*(-(d*e) + c*f)*AppellF1[8/3, 5/3, 1, 11/3, (b*
(c + d*x))/(b*c - a*d), (f*(c + d*x))/(-(d*e) + c*f)])))/d))/(5*f
*(a + b*x)^(2/3)*(e + f*x))
```

Maple [F] time = 0.088, size = 0, normalized size = 0.

$$\int \frac{1}{(fx+e)^2}\sqrt[3]{bx+a}\,(dx+c)^{\frac{2}{3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/3)*(d*x+c)^(2/3)/(f*x+e)^2,x)
```

```
[Out] int((b*x+a)^(1/3)*(d*x+c)^(2/3)/(f*x+e)^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^{\frac{1}{3}}(dx+c)^{\frac{2}{3}}}{(fx+e)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(1/3)*(d*x + c)^(2/3)/(f*x + e)^2,x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^(1/3)*(d*x + c)^(2/3)/(f*x + e)^2, x)
```

Fricas [A] time = 4.5821, size = 1463, normalized size = 3.51

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(1/3)*(d*x + c)^(2/3)/(f*x + e)^2,x, algorithm="fricas")
```

```
[Out] -1/18*sqrt(3)*(3*sqrt(3)*(-b^2*d*e^3 + a^2*c*f^3 + (b^2*c + 2*a*b
*d)*e^2*f - (2*a*b*c + a^2*d)*e*f^2)^(1/3)*(-b*d^2)^(1/3)*(f*x +
e)*log(((b*x + a)^(2/3)*(d*x + c)^(1/3)*d^2 - (-b*d^2)^(1/3)*(b*x
 + a)^(1/3)*(d*x + c)^(2/3)*d + (-b*d^2)^(2/3)*(d*x + c))/(d*x +
c)) - 6*sqrt(3)*(-b^2*d*e^3 + a^2*c*f^3 + (b^2*c + 2*a*b*d)*e^2*f
 - (2*a*b*c + a^2*d)*e*f^2)^(1/3)*(-b*d^2)^(1/3)*(f*x + e)*log(((
b*x + a)^(1/3)*(d*x + c)^(2/3)*d + (-b*d^2)^(1/3)*(d*x + c))/(d*x
 + c)) + 6*sqrt(3)*(-b^2*d*e^3 + a^2*c*f^3 + (b^2*c + 2*a*b*d)*e^
2*f - (2*a*b*c + a^2*d)*e*f^2)^(1/3)*(b*x + a)^(1/3)*(d*x + c)^(2
/3)*f - 18*(-b^2*d*e^3 + a^2*c*f^3 + (b^2*c + 2*a*b*d)*e^2*f - (2
*a*b*c + a^2*d)*e*f^2)^(1/3)*(-b*d^2)^(1/3)*(f*x + e)*arctan(1/3*
sqrt(3)*(2*(b*x + a)^(1/3)*(d*x + c)^(2/3)*d - (-b*d^2)^(1/3)*(d*
x + c))/((-b*d^2)^(1/3)*(d*x + c))) - sqrt(3)*(3*b*d*e^2 - (b*c +
 2*a*d)*e*f + (3*b*d*e*f - (b*c + 2*a*d)*f^2)*x)*log((b^2*c*e^2 -
 2*a*b*c*e*f + a^2*c*f^2 - (-b^2*d*e^3 + a^2*c*f^3 + (b^2*c + 2*a
*b*d)*e^2*f - (2*a*b*c + a^2*d)*e*f^2)^(1/3)*(b*e - a*f)*(b*x + a
)^(1/3)*(d*x + c)^(2/3) + (b^2*d*e^2 - 2*a*b*d*e*f + a^2*d*f^2)*x
 + (-b^2*d*e^3 + a^2*c*f^3 + (b^2*c + 2*a*b*d)*e^2*f - (2*a*b*c +
 a^2*d)*e*f^2)^(2/3)*(b*x + a)^(2/3)*(d*x + c)^(1/3))/(d*x + c))
```

```
+ 2*sqrt(3)*(3*b*d*e^2 - (b*c + 2*a*d)*e*f + (3*b*d*e*f - (b*c +
2*a*d)*f^2)*x)*log((b*c*e - a*c*f + (b*d*e - a*d*f)*x + (-b^2*d*e
^3 + a^2*c*f^3 + (b^2*c + 2*a*b*d)*e^2*f - (2*a*b*c + a^2*d)*e*f^
2)^(1/3)*(b*x + a)^(1/3)*(d*x + c)^(2/3))/(d*x + c)) - 6*(3*b*d*e
^2 - (b*c + 2*a*d)*e*f + (3*b*d*e*f - (b*c + 2*a*d)*f^2)*x)*arcta
n(-1/3*(2*sqrt(3)*(-b^2*d*e^3 + a^2*c*f^3 + (b^2*c + 2*a*b*d)*e^2
*f - (2*a*b*c + a^2*d)*e*f^2)^(1/3)*(b*x + a)^(1/3)*(d*x + c)^(2/
3) - sqrt(3)*(b*c*e - a*c*f + (b*d*e - a*d*f)*x))/(b*c*e - a*c*f
+ (b*d*e - a*d*f)*x)))/((-b^2*d*e^3 + a^2*c*f^3 + (b^2*c + 2*a*b*
d)*e^2*f - (2*a*b*c + a^2*d)*e*f^2)^(1/3)*(f^3*x + e*f^2))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt[3]{a+bx}\,(c+dx)^{\frac{2}{3}}}{(e+fx)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(1/3)*(d*x+c)**(2/3)/(f*x+e)**2,x)
```

```
[Out] Integral((a + b*x)**(1/3)*(c + d*x)**(2/3)/(e + f*x)**2, x)
```

GIAC/XCAS [A] time = 0.853726, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(1/3)*(d*x + c)^(2/3)/(f*x + e)^2,x, algorithm="giac")
```

```
[Out] Done
```

3.2989 $\int \frac{\sqrt[3]{a+bx}(c+dx)^{2/3}}{(e+fx)^3} \, dx$

Optimal. Leaf size=325

$$-\frac{\sqrt[3]{a+bx}(c+dx)^{2/3}(bc-ad)}{6(e+fx)(be-af)(de-cf)}+\frac{\sqrt[3]{a+bx}(c+dx)^{5/3}}{2(e+fx)^2(de-cf)}-\frac{(bc-ad)^2\log(e+fx)}{18(be-af)^{5/3}(de-cf)^{4/3}}+\frac{(bc-ad)^2\log\left(\frac{\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt[3]{de-cf}}-\sqrt[3]{a+bx}\right)}{6(be-af)^{5/3}(de-cf)^{4/3}}+\frac{(bc-ad)^2\tan^{-1}\left(\frac{2\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt{3}\sqrt[3]{a+bx}\sqrt[3]{de-cf}}+\frac{1}{\sqrt{3}}\right)}{3\sqrt{3}(be-af)^{5/3}(de-cf)^{4/3}}$$

```
[Out] ((a + b*x)^(1/3)*(c + d*x)^(5/3))/(2*(d*e - c*f)*(e + f*x)^2) - (
(b*c - a*d)*(a + b*x)^(1/3)*(c + d*x)^(2/3))/(6*(b*e - a*f)*(d*e
- c*f)*(e + f*x)) + ((b*c - a*d)^2*ArcTan[1/Sqrt[3] + (2*(b*e - a
*f)^(1/3)*(c + d*x)^(1/3))/(Sqrt[3]*(d*e - c*f)^(1/3)*(a + b*x)^(
1/3))])/(3*Sqrt[3]*(b*e - a*f)^(5/3)*(d*e - c*f)^(4/3)) - ((b*c -
 a*d)^2*Log[e + f*x])/(18*(b*e - a*f)^(5/3)*(d*e - c*f)^(4/3)) +
((b*c - a*d)^2*Log[-(a + b*x)^(1/3) + ((b*e - a*f)^(1/3)*(c + d*x
)^(1/3))/(d*e - c*f)^(1/3)])/(6*(b*e - a*f)^(5/3)*(d*e - c*f)^(4/
3))
```

Rubi [A] time = 0.818368, antiderivative size = 325, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 2, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.077

$$-\frac{\sqrt[3]{a+bx}(c+dx)^{2/3}(bc-ad)}{6(e+fx)(be-af)(de-cf)}+\frac{\sqrt[3]{a+bx}(c+dx)^{5/3}}{2(e+fx)^2(de-cf)}-\frac{(bc-ad)^2\log(e+fx)}{18(be-af)^{5/3}(de-cf)^{4/3}}+\frac{(bc-ad)^2\log\left(\frac{\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt[3]{de-cf}}-\sqrt[3]{a+bx}\right)}{6(be-af)^{5/3}(de-cf)^{4/3}}+\frac{(bc-ad)^2\tan^{-1}\left(\frac{2\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt{3}\sqrt[3]{a+bx}\sqrt[3]{de-cf}}+\frac{1}{\sqrt{3}}\right)}{3\sqrt{3}(be-af)^{5/3}(de-cf)^{4/3}}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(1/3)*(c + d*x)^(2/3))/(e + f*x)^3,x]
```

```
[Out] ((a + b*x)^(1/3)*(c + d*x)^(5/3))/(2*(d*e - c*f)*(e + f*x)^2) - (
(b*c - a*d)*(a + b*x)^(1/3)*(c + d*x)^(2/3))/(6*(b*e - a*f)*(d*e
- c*f)*(e + f*x)) + ((b*c - a*d)^2*ArcTan[1/Sqrt[3] + (2*(b*e - a
*f)^(1/3)*(c + d*x)^(1/3))/(Sqrt[3]*(d*e - c*f)^(1/3)*(a + b*x)^(
1/3))])/(3*Sqrt[3]*(b*e - a*f)^(5/3)*(d*e - c*f)^(4/3)) - ((b*c -
 a*d)^2*Log[e + f*x])/(18*(b*e - a*f)^(5/3)*(d*e - c*f)^(4/3)) +
((b*c - a*d)^2*Log[-(a + b*x)^(1/3) + ((b*e - a*f)^(1/3)*(c + d*x
)^(1/3))/(d*e - c*f)^(1/3)])/(6*(b*e - a*f)^(5/3)*(d*e - c*f)^(4/
3))
```

Rubi in Sympy [A] time = 54.7115, size = 272, normalized size = 0.84

$$-\frac{\sqrt[3]{a+bx}\left(c+dx\right)^{\frac{5}{3}}}{2\left(e+fx\right)^{2}\left(cf-de\right)}+\frac{\sqrt[3]{a+bx}\left(c+dx\right)^{\frac{2}{3}}\left(ad-bc\right)}{6\left(e+fx\right)\left(af-be\right)\left(cf-de\right)}+\frac{\left(ad-bc\right)^{2}\log\left(e+fx\right)}{18\left(af-be\right)^{\frac{5}{3}}\left(cf-de\right)^{\frac{4}{3}}}-\frac{\left(ad-bc\right)^{2}\log\left(-\sqrt[3]{a+bx}+\frac{\sqrt[3]{c+dx}\sqrt[3]{af-be}}{\sqrt[3]{cf-de}}\right)}{6\left(af-be\right)^{\frac{5}{3}}\left(cf-de\right)^{\frac{4}{3}}}-\frac{\sqrt{3}\left(ad-bc\right)^{2}\operatorname{atan}\left(\frac{\sqrt{3}}{3}+\frac{2\sqrt{3}\sqrt[3]{c+dx}\sqrt[3]{af-be}}{3\sqrt[3]{a+bx}\sqrt[3]{cf-de}}\right)}{9\left(af-be\right)^{\frac{5}{3}}\left(cf-de\right)^{\frac{4}{3}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/3)*(d*x+c)**(2/3)/(f*x+e)**3,x)
```

```
[Out] -(a + b*x)**(1/3)*(c + d*x)**(5/3)/(2*(e + f*x)**2*(c*f - d*e)) +
 (a + b*x)**(1/3)*(c + d*x)**(2/3)*(a*d - b*c)/(6*(e + f*x)*(a*f
- b*e)*(c*f - d*e)) + (a*d - b*c)**2*log(e + f*x)/(18*(a*f - b*e)
**(5/3)*(c*f - d*e)**(4/3)) - (a*d - b*c)**2*log(-(a + b*x)**(1/3
) + (c + d*x)**(1/3)*(a*f - b*e)**(1/3)/(c*f - d*e)**(1/3))/(6*(a
*f - b*e)**(5/3)*(c*f - d*e)**(4/3)) - sqrt(3)*(a*d - b*c)**2*ata
n(sqrt(3)/3 + 2*sqrt(3)*(c + d*x)**(1/3)*(a*f - b*e)**(1/3)/(3*(a
 + b*x)**(1/3)*(c*f - d*e)**(1/3)))/(9*(a*f - b*e)**(5/3)*(c*f -
d*e)**(4/3))
```

Mathematica [C] time = 1.24338, size = 196, normalized size = 0.6

$$\frac{\sqrt[3]{a+bx}\left(f(c+dx)(be-af)(-3acf+ad(e-2fx)+b(2ce-cfx+3dex))-2f(e+fx)^2(bc-ad)^2\sqrt[3]{\frac{(c+dx)(be-af)}{(e+fx)(bc-ad)}}\,{}_2F_1\right.}{6f\sqrt[3]{c+dx}(e+fx)^2(be-af)^2(de-cf)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(1/3)*(c + d*x)^(2/3))/(e + f*x)^3,x]
```

```
[Out] ((a + b*x)^(1/3)*(f*(b*e - a*f)*(c + d*x)*(-3*a*c*f + a*d*(e - 2*
f*x) + b*(2*c*e + 3*d*e*x - c*f*x)) - 2*(b*c - a*d)^2*f*(((b*e -
a*f)*(c + d*x))/((b*c - a*d)*(e + f*x)))^(1/3)*(e + f*x)^2*Hyperg
eometric2F1[1/3, 1/3, 4/3, ((-(d*e) + c*f)*(a + b*x))/((b*c - a*d
)*(e + f*x))]))/(6*f*(b*e - a*f)^2*(d*e - c*f)*(c + d*x)^(1/3)*(e
 + f*x)^2)
```

Maple [F] time = 0.076, size = 0, normalized size = 0.

$$\int \frac{1}{(fx+e)^3}\sqrt[3]{bx+a}\,(dx+c)^{\frac{2}{3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/3)*(d*x+c)^(2/3)/(f*x+e)^3,x)
```

```
[Out] int((b*x+a)^(1/3)*(d*x+c)^(2/3)/(f*x+e)^3,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^{\frac{1}{3}}(dx+c)^{\frac{2}{3}}}{(fx+e)^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(1/3)*(d*x + c)^(2/3)/(f*x + e)^3,x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^(1/3)*(d*x + c)^(2/3)/(f*x + e)^3, x)
```

Fricas [A] time = 0.243014, size = 1278, normalized size = 3.93

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(1/3)*(d*x + c)^(2/3)/(f*x + e)^3,x, algorithm="fricas")
```

```
[Out] -1/54*sqrt(3)*(3*sqrt(3)*(-b^2*d*e^3 + a^2*c*f^3 + (b^2*c + 2*a*b
*d)*e^2*f - (2*a*b*c + a^2*d)*e*f^2)^(1/3)*(3*a*c*f - (2*b*c + a*
d)*e - (3*b*d*e - (b*c + 2*a*d)*f)*x)*(b*x + a)^(1/3)*(d*x + c)^(
2/3) - sqrt(3)*((b^2*c^2 - 2*a*b*c*d + a^2*d^2)*f^2*x^2 + 2*(b^2*
c^2 - 2*a*b*c*d + a^2*d^2)*e*f*x + (b^2*c^2 - 2*a*b*c*d + a^2*d^2
)*e^2)*log((b^2*c*e^2 - 2*a*b*c*e*f + a^2*c*f^2 - (-b^2*d*e^3 + a
^2*c*f^3 + (b^2*c + 2*a*b*d)*e^2*f - (2*a*b*c + a^2*d)*e*f^2)^(1/
3)*(b*e - a*f)*(b*x + a)^(1/3)*(d*x + c)^(2/3) + (b^2*d*e^2 - 2*a
*b*d*e*f + a^2*d*f^2)*x + (-b^2*d*e^3 + a^2*c*f^3 + (b^2*c + 2*a*
b*d)*e^2*f - (2*a*b*c + a^2*d)*e*f^2)^(2/3)*(b*x + a)^(2/3)*(d*x
+ c)^(1/3))/(d*x + c)) + 2*sqrt(3)*((b^2*c^2 - 2*a*b*c*d + a^2*d^
2)*f^2*x^2 + 2*(b^2*c^2 - 2*a*b*c*d + a^2*d^2)*e*f*x + (b^2*c^2 -
 2*a*b*c*d + a^2*d^2)*e^2)*log((b*c*e - a*c*f + (b*d*e - a*d*f)*x
 + (-b^2*d*e^3 + a^2*c*f^3 + (b^2*c + 2*a*b*d)*e^2*f - (2*a*b*c +
 a^2*d)*e*f^2)^(1/3)*(b*x + a)^(1/3)*(d*x + c)^(2/3))/(d*x + c))
- 6*((b^2*c^2 - 2*a*b*c*d + a^2*d^2)*f^2*x^2 + 2*(b^2*c^2 - 2*a*b
*c*d + a^2*d^2)*e*f*x + (b^2*c^2 - 2*a*b*c*d + a^2*d^2)*e^2)*arct
an(-1/3*(2*sqrt(3)*(-b^2*d*e^3 + a^2*c*f^3 + (b^2*c + 2*a*b*d)*e^
2*f - (2*a*b*c + a^2*d)*e*f^2)^(1/3)*(b*x + a)^(1/3)*(d*x + c)^(2
/3) - sqrt(3)*(b*c*e - a*c*f + (b*d*e - a*d*f)*x))/(b*c*e - a*c*f
 + (b*d*e - a*d*f)*x)))/((-b^2*d*e^3 + a^2*c*f^3 + (b^2*c + 2*a*b
*d)*e^2*f - (2*a*b*c + a^2*d)*e*f^2)^(1/3)*(b*d*e^4 + a*c*e^2*f^2
 - (b*c + a*d)*e^3*f + (b*d*e^2*f^2 + a*c*f^4 - (b*c + a*d)*e*f^3
)*x^2 + 2*(b*d*e^3*f + a*c*e*f^3 - (b*c + a*d)*e^2*f^2)*x))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt[3]{a+bx}\,(c+dx)^{\frac{2}{3}}}{(e+fx)^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**(1/3)*(d*x+c)**(2/3)/(f*x+e)**3,x)
```

```
[Out] Integral((a + b*x)**(1/3)*(c + d*x)**(2/3)/(e + f*x)**3, x)
```

GIAC/XCAS [A] time = 0.953667, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(1/3)*(d*x + c)^(2/3)/(f*x + e)^3,x, algorithm="giac")
```

```
[Out] Done
```

3.2990 $\int \frac{\sqrt[3]{a+bx}(c+dx)^{2/3}}{(e+fx)^4} dx$

Optimal. Leaf size=465

$$-\frac{\sqrt[3]{a+bx}(c+dx)^{2/3}(bc-ad)(-4adf-5bcf+9bde)}{54(e+fx)(be-af)^2(de-cf)^2}+\frac{\sqrt[3]{a+bx}(c+dx)^{5/3}(-4adf-5bcf+9bde)}{18(e+fx)^2(be-af)(de-cf)^2}-\frac{f(a+bx)^{4/3}(c+dx)^{5/3}}{3(e+fx)^3(be-af)(de-cf)}-\frac{(bc-ad)^2\log(e+fx)(-4adf-5bcf+9bde)}{162(be-af)^{8/3}(de-cf)^{7/3}}+\frac{(bc-ad)^2(-4adf-5bcf+9bde)\log\left(\frac{\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt[3]{de-cf}}-\sqrt[3]{a+bx}\right)}{54(be-af)^{8/3}(de-cf)^{7/3}}+\frac{(bc-ad)^2(-4adf-5bcf+9bde)\tan^{-1}\left(\frac{2\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt{3}\sqrt[3]{a+bx}\sqrt[3]{de-cf}}+\frac{1}{\sqrt{3}}\right)}{27\sqrt{3}(be-af)^{8/3}(de-cf)^{7/3}}$$

```
[Out] -(f*(a + b*x)^(4/3)*(c + d*x)^(5/3))/(3*(b*e - a*f)*(d*e - c*f)*(
e + f*x)^3) + ((9*b*d*e - 5*b*c*f - 4*a*d*f)*(a + b*x)^(1/3)*(c +
 d*x)^(5/3))/(18*(b*e - a*f)*(d*e - c*f)^2*(e + f*x)^2) - ((b*c -
 a*d)*(9*b*d*e - 5*b*c*f - 4*a*d*f)*(a + b*x)^(1/3)*(c + d*x)^(2/
3))/(54*(b*e - a*f)^2*(d*e - c*f)^2*(e + f*x)) + ((b*c - a*d)^2*(
9*b*d*e - 5*b*c*f - 4*a*d*f)*ArcTan[1/Sqrt[3] + (2*(b*e - a*f)^(1
/3)*(c + d*x)^(1/3))/(Sqrt[3]*(d*e - c*f)^(1/3)*(a + b*x)^(1/3))]
)/(27*Sqrt[3]*(b*e - a*f)^(8/3)*(d*e - c*f)^(7/3)) - ((b*c - a*d)
^2*(9*b*d*e - 5*b*c*f - 4*a*d*f)*Log[e + f*x])/(162*(b*e - a*f)^(
8/3)*(d*e - c*f)^(7/3)) + ((b*c - a*d)^2*(9*b*d*e - 5*b*c*f - 4*a
*d*f)*Log[-(a + b*x)^(1/3) + ((b*e - a*f)^(1/3)*(c + d*x)^(1/3))/
(d*e - c*f)^(1/3)])/(54*(b*e - a*f)^(8/3)*(d*e - c*f)^(7/3))
```

Rubi [A] time = 1.46312, antiderivative size = 465, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.115$

$$-\frac{\sqrt[3]{a+bx}(c+dx)^{2/3}(bc-ad)(-4adf-5bcf+9bde)}{54(e+fx)(be-af)^2(de-cf)^2}+\frac{\sqrt[3]{a+bx}(c+dx)^{5/3}(-4adf-5bcf+9bde)}{18(e+fx)^2(be-af)(de-cf)^2}-\frac{f(a+bx)^{4/3}(c+dx)^{5/3}}{3(e+fx)^3(be-af)(de-cf)}-\frac{(bc-ad)^2\log(e+fx)(-4adf-5bcf+9bde)}{162(be-af)^{8/3}(de-cf)^{7/3}}+\frac{(bc-ad)^2(-4adf-5bcf+9bde)\log\left(\frac{\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt[3]{de-cf}}-\sqrt[3]{a+bx}\right)}{54(be-af)^{8/3}(de-cf)^{7/3}}+\frac{(bc-ad)^2(-4adf-5bcf+9bde)\tan^{-1}\left(\frac{2\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt{3}\sqrt[3]{a+bx}\sqrt[3]{de-cf}}+\frac{1}{\sqrt{3}}\right)}{27\sqrt{3}(be-af)^{8/3}(de-cf)^{7/3}}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(1/3)*(c + d*x)^(2/3))/(e + f*x)^4,x]
```

```
[Out] -(f*(a + b*x)^(4/3)*(c + d*x)^(5/3))/(3*(b*e - a*f)*(d*e - c*f)*(
e + f*x)^3) + ((9*b*d*e - 5*b*c*f - 4*a*d*f)*(a + b*x)^(1/3)*(c +
 d*x)^(5/3))/(18*(b*e - a*f)*(d*e - c*f)^2*(e + f*x)^2) - ((b*c -
 a*d)*(9*b*d*e - 5*b*c*f - 4*a*d*f)*(a + b*x)^(1/3)*(c + d*x)^(2/
3))/(54*(b*e - a*f)^2*(d*e - c*f)^2*(e + f*x)) + ((b*c - a*d)^2*(
9*b*d*e - 5*b*c*f - 4*a*d*f)*ArcTan[1/Sqrt[3] + (2*(b*e - a*f)^(1
/3)*(c + d*x)^(1/3))/(Sqrt[3]*(d*e - c*f)^(1/3)*(a + b*x)^(1/3))]
)/(27*Sqrt[3]*(b*e - a*f)^(8/3)*(d*e - c*f)^(7/3)) - ((b*c - a*d)
```

```
^2*(9*b*d*e - 5*b*c*f - 4*a*d*f)*Log[e + f*x])/(162*(b*e - a*f)^(
8/3)*(d*e - c*f)^(7/3)) + ((b*c - a*d)^2*(9*b*d*e - 5*b*c*f - 4*a
*d*f)*Log[-(a + b*x)^(1/3) + ((b*e - a*f)^(1/3)*(c + d*x)^(1/3))/
(d*e - c*f)^(1/3)])/(54*(b*e - a*f)^(8/3)*(d*e - c*f)^(7/3))
```

Rubi in Sympy [A] time = 123.763, size = 427, normalized size = 0.92

$$-\frac{f(a+bx)^{\frac{4}{3}}(c+dx)^{\frac{5}{3}}}{3(e+fx)^3(af-be)(cf-de)}+\frac{(a+bx)^{\frac{4}{3}}(c+dx)^{\frac{2}{3}}(4adf+5bcf-9bde)}{18(e+fx)^2(af-be)^2(cf-de)}+\frac{\sqrt[3]{a+bx}(c+dx)^{\frac{2}{3}}(ad-bc)(4adf+5bcf-9bde)}{27(e+fx)(af-be)^2(cf-de)^2}-\frac{(ad-bc)^2(4adf+5bcf-9bde)\log(e+fx)}{162(af-be)^{\frac{8}{3}}(cf-de)^{\frac{7}{3}}}+\frac{(ad-bc)^2(4adf+5bcf-9bde)\log\left(-\sqrt[3]{a+bx}+\frac{\sqrt[3]{c+dx}\sqrt[3]{af-be}}{\sqrt[3]{cf-de}}\right)}{54(af-be)^{\frac{8}{3}}(cf-de)^{\frac{7}{3}}}+\frac{\sqrt{3}(ad-bc)^2(4adf+5bcf-9bde)\operatorname{atan}\left(\frac{\sqrt{3}}{3}+\frac{2\sqrt{3}\sqrt[3]{c+dx}\sqrt[3]{af-be}}{3\sqrt[3]{a+bx}\sqrt[3]{cf-de}}\right)}{81(af-be)^{\frac{8}{3}}(cf-de)^{\frac{7}{3}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/3)*(d*x+c)**(2/3)/(f*x+e)**4,x)
```

```
[Out] -f*(a + b*x)**(4/3)*(c + d*x)**(5/3)/(3*(e + f*x)**3*(a*f - b*e)*
(c*f - d*e)) + (a + b*x)**(4/3)*(c + d*x)**(2/3)*(4*a*d*f + 5*b*c
*f - 9*b*d*e)/(18*(e + f*x)**2*(a*f - b*e)**2*(c*f - d*e)) + (a +
 b*x)**(1/3)*(c + d*x)**(2/3)*(a*d - b*c)*(4*a*d*f + 5*b*c*f - 9*
b*d*e)/(27*(e + f*x)*(a*f - b*e)**2*(c*f - d*e)**2) - (a*d - b*c)
**2*(4*a*d*f + 5*b*c*f - 9*b*d*e)*log(e + f*x)/(162*(a*f - b*e)**
(8/3)*(c*f - d*e)**(7/3)) + (a*d - b*c)**2*(4*a*d*f + 5*b*c*f - 9
*b*d*e)*log(-(a + b*x)**(1/3) + (c + d*x)**(1/3)*(a*f - b*e)**(1/
3)/(c*f - d*e)**(1/3))/(54*(a*f - b*e)**(8/3)*(c*f - d*e)**(7/3))
 + sqrt(3)*(a*d - b*c)**2*(4*a*d*f + 5*b*c*f - 9*b*d*e)*atan(sqrt
(3)/3 + 2*sqrt(3)*(c + d*x)**(1/3)*(a*f - b*e)**(1/3)/(3*(a + b*x
)**(1/3)*(c*f - d*e)**(1/3)))/(81*(a*f - b*e)**(8/3)*(c*f - d*e)*
*(7/3))
```

Mathematica [C] time = 1.34406, size = 304, normalized size = 0.65

$$\frac{\sqrt[3]{a+bx}\left(2f(e+fx)^3(bc-ad)^2(4adf+5bcf-9bde)\sqrt[3]{\frac{(c+dx)(be-af)}{(e+fx)(bc-ad)}}\,{}_2F_1\left(\frac{1}{3},\frac{1}{3};\frac{4}{3};\frac{(cf-de)(a+bx)}{(bc-ad)(e+fx)}\right)-(c+dx)(be-af)\left(-\right.\right.}{54f\sqrt[3]{}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(1/3)*(c + d*x)^(2/3))/(e + f*x)^4,x]
```

```
[Out] ((a + b*x)^(1/3)*(-((b*e - a*f)*(c + d*x)*(18*(b*e - a*f)^2*(d*e
- c*f)^2 - 3*(b*e - a*f)*(d*e - c*f)*(3*b*d*e - b*c*f - 2*a*d*f)*
(e + f*x) - (8*a^2*d^2*f^2 - 4*a*b*d*f*(3*d*e + c*f) + b^2*(9*d^2
*e^2 - 6*c*d*e*f + 5*c^2*f^2))*(e + f*x)^2)) + 2*(b*c - a*d)^2*f*
(-9*b*d*e + 5*b*c*f + 4*a*d*f)*(((b*e - a*f)*(c + d*x))/((b*c - a
*d)*(e + f*x)))^(1/3)*(e + f*x)^3*Hypergeometric2F1[1/3, 1/3, 4/3
, ((-(d*e) + c*f)*(a + b*x))/((b*c - a*d)*(e + f*x))]))/(54*f*(b*
e - a*f)^3*(d*e - c*f)^2*(c + d*x)^(1/3)*(e + f*x)^3)
```

Maple [F] time = 0.077, size = 0, normalized size = 0.

$$\int \frac{1}{(fx+e)^4}\sqrt[3]{bx+a}\,(dx+c)^{\frac{2}{3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/3)*(d*x+c)^(2/3)/(f*x+e)^4,x)

[Out] int((b*x+a)^(1/3)*(d*x+c)^(2/3)/(f*x+e)^4,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^{\frac{1}{3}}(dx+c)^{\frac{2}{3}}}{(fx+e)^4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(1/3)*(d*x + c)^(2/3)/(f*x + e)^4,x, algorithm="maxima")

[Out] integrate((b*x + a)^(1/3)*(d*x + c)^(2/3)/(f*x + e)^4, x)
```

Fricas [A] time = 0.301861, size = 2911, normalized size = 6.26

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(1/3)*(d*x + c)^(2/3)/(f*x + e)^4,x, algorithm="fricas")

[Out] -1/486*sqrt(3)*(3*sqrt(3)*(18*a^2*c^2*f^3 - 9*(2*b^2*c*d + a*b*d^
2)*e^3 + 2*(5*b^2*c^2 + 29*a*b*c*d + 2*a^2*d^2)*e^2*f - 3*(11*a*b
*c^2 + 10*a^2*c*d)*e*f^2 - (9*b^2*d^2*e^2*f - 6*(b^2*c*d + 2*a*b*
d^2)*e*f^2 + (5*b^2*c^2 - 4*a*b*c*d + 8*a^2*d^2)*f^3)*x^2 - (27*b
^2*d^2*e^3 - 3*(8*b^2*c*d + 13*a*b*d^2)*e^2*f + (13*b^2*c^2 + 10*
a*b*c*d + 22*a^2*d^2)*e*f^2 - 3*(a*b*c^2 + 2*a^2*c*d)*f^3)*x)*(-b
^2*d*e^3 + a^2*c*f^3 + (b^2*c + 2*a*b*d)*e^2*f - (2*a*b*c + a^2*d
)*e*f^2)^(1/3)*(b*x + a)^(1/3)*(d*x + c)^(2/3) - sqrt(3)*(9*(b^3*
c^2*d - 2*a*b^2*c*d^2 + a^2*b*d^3)*e^4 - (5*b^3*c^3 - 6*a*b^2*c^2
*d - 3*a^2*b*c*d^2 + 4*a^3*d^3)*e^3*f + (9*(b^3*c^2*d - 2*a*b^2*c
*d^2 + a^2*b*d^3)*e*f^3 - (5*b^3*c^3 - 6*a*b^2*c^2*d - 3*a^2*b*c*
d^2 + 4*a^3*d^3)*f^4)*x^3 + 3*(9*(b^3*c^2*d - 2*a*b^2*c*d^2 + a^2
*b*d^3)*e^2*f^2 - (5*b^3*c^3 - 6*a*b^2*c^2*d - 3*a^2*b*c*d^2 + 4*
a^3*d^3)*e*f^3)*x^2 + 3*(9*(b^3*c^2*d - 2*a*b^2*c*d^2 + a^2*b*d^3
)*e^3*f - (5*b^3*c^3 - 6*a*b^2*c^2*d - 3*a^2*b*c*d^2 + 4*a^3*d^3)
*e^2*f^2)*x)*log((b^2*c*e^2 - 2*a*b*c*e*f + a^2*c*f^2 - (-b^2*d*e
^3 + a^2*c*f^3 + (b^2*c + 2*a*b*d)*e^2*f - (2*a*b*c + a^2*d)*e*f^
2)^(1/3)*(b*e - a*f)*(b*x + a)^(1/3)*(d*x + c)^(2/3) + (b^2*d*e^2
 - 2*a*b*d*e*f + a^2*d*f^2)*x + (-b^2*d*e^3 + a^2*c*f^3 + (b^2*c
+ 2*a*b*d)*e^2*f - (2*a*b*c + a^2*d)*e*f^2)^(2/3)*(b*x + a)^(2/3)
*(d*x + c)^(1/3))/(d*x + c)) + 2*sqrt(3)*(9*(b^3*c^2*d - 2*a*b^2*
c*d^2 + a^2*b*d^3)*e^4 - (5*b^3*c^3 - 6*a*b^2*c^2*d - 3*a^2*b*c*d
^2 + 4*a^3*d^3)*e^3*f + (9*(b^3*c^2*d - 2*a*b^2*c*d^2 + a^2*b*d^3
)*e*f^3 - (5*b^3*c^3 - 6*a*b^2*c^2*d - 3*a^2*b*c*d^2 + 4*a^3*d^3)
*f^4)*x^3 + 3*(9*(b^3*c^2*d - 2*a*b^2*c*d^2 + a^2*b*d^3)*e^2*f^2
- (5*b^3*c^3 - 6*a*b^2*c^2*d - 3*a^2*b*c*d^2 + 4*a^3*d^3)*e*f^3)*
x^2 + 3*(9*(b^3*c^2*d - 2*a*b^2*c*d^2 + a^2*b*d^3)*e^3*f - (5*b^3
*c^3 - 6*a*b^2*c^2*d - 3*a^2*b*c*d^2 + 4*a^3*d^3)*e^2*f^2)*x)*log
((b*c*e - a*c*f + (b*d*e - a*d*f)*x + (-b^2*d*e^3 + a^2*c*f^3 + (
b^2*c + 2*a*b*d)*e^2*f - (2*a*b*c + a^2*d)*e*f^2)^(1/3)*(b*x + a)
^(1/3)*(d*x + c)^(2/3))/(d*x + c)) - 6*(9*(b^3*c^2*d - 2*a*b^2*c*
d^2 + a^2*b*d^3)*e^4 - (5*b^3*c^3 - 6*a*b^2*c^2*d - 3*a^2*b*c*d^2
```

```
 + 4*a^3*d^3)*e^3*f + (9*(b^3*c^2*d - 2*a*b^2*c*d^2 + a^2*b*d^3)*
e*f^3 - (5*b^3*c^3 - 6*a*b^2*c^2*d - 3*a^2*b*c*d^2 + 4*a^3*d^3)*f
^4)*x^3 + 3*(9*(b^3*c^2*d - 2*a*b^2*c*d^2 + a^2*b*d^3)*e^2*f^2 -
(5*b^3*c^3 - 6*a*b^2*c^2*d - 3*a^2*b*c*d^2 + 4*a^3*d^3)*e*f^3)*x^
2 + 3*(9*(b^3*c^2*d - 2*a*b^2*c*d^2 + a^2*b*d^3)*e^3*f - (5*b^3*c
^3 - 6*a*b^2*c^2*d - 3*a^2*b*c*d^2 + 4*a^3*d^3)*e^2*f^2)*x)*arcta
n(-1/3*(2*sqrt(3)*(-b^2*d*e^3 + a^2*c*f^3 + (b^2*c + 2*a*b*d)*e^2
*f - (2*a*b*c + a^2*d)*e*f^2)^(1/3)*(b*x + a)^(1/3)*(d*x + c)^(2/
3) - sqrt(3)*(b*c*e - a*c*f + (b*d*e - a*d*f)*x))/(b*c*e - a*c*f
+ (b*d*e - a*d*f)*x)))/((b^2*d^2*e^7 + a^2*c^2*e^3*f^4 - 2*(b^2*c
*d + a*b*d^2)*e^6*f + (b^2*c^2 + 4*a*b*c*d + a^2*d^2)*e^5*f^2 - 2
*(a*b*c^2 + a^2*c*d)*e^4*f^3 + (b^2*d^2*e^4*f^3 + a^2*c^2*f^7 - 2
*(b^2*c*d + a*b*d^2)*e^3*f^4 + (b^2*c^2 + 4*a*b*c*d + a^2*d^2)*e^
2*f^5 - 2*(a*b*c^2 + a^2*c*d)*e*f^6)*x^3 + 3*(b^2*d^2*e^5*f^2 + a
^2*c^2*e*f^6 - 2*(b^2*c*d + a*b*d^2)*e^4*f^3 + (b^2*c^2 + 4*a*b*c
*d + a^2*d^2)*e^3*f^4 - 2*(a*b*c^2 + a^2*c*d)*e^2*f^5)*x^2 + 3*(b
^2*d^2*e^6*f + a^2*c^2*e^2*f^5 - 2*(b^2*c*d + a*b*d^2)*e^5*f^2 +
(b^2*c^2 + 4*a*b*c*d + a^2*d^2)*e^4*f^3 - 2*(a*b*c^2 + a^2*c*d)*e
^3*f^4)*x)*(-b^2*d*e^3 + a^2*c*f^3 + (b^2*c + 2*a*b*d)*e^2*f - (2
*a*b*c + a^2*d)*e*f^2)^(1/3))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(1/3)*(d*x+c)**(2/3)/(f*x+e)**4,x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 1.05762, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(1/3)*(d*x + c)^(2/3)/(f*x + e)^4,x, algorithm="giac")
```

```
[Out] Done
```

3.2991 $\int \frac{\sqrt[3]{a+bx}(e+fx)^2}{\sqrt[3]{c+dx}}\,dx$

Optimal. Leaf size=475

$$\frac{\sqrt[3]{a+bx}(c+dx)^{2/3}\left(5a^2d^2f^2-2abdf(9de-4cf)+b^2\left(14c^2f^2-36cdef+27d^2e^2\right)\right)}{27b^2d^3}+\frac{(bc-ad)\log(a+bx)\left(5a^2d^2f^2-2abdf(9de-4cf)+b^2\left(14c^2f^2-36cdef+27d^2e^2\right)\right)}{162b^{8/3}d^{10/3}}+\frac{(bc-ad)\left(5a^2d^2f^2-2abdf(9de-4cf)+b^2\left(14c^2f^2-36cdef+27d^2e^2\right)\right)\log\left(\frac{\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt[3]{d}\sqrt[3]{a+bx}}-1\right)}{54b^{8/3}d^{10/3}}+\frac{(bc-ad)\left(5a^2d^2f^2-2abdf(9de-4cf)+b^2\left(14c^2f^2-36cdef+27d^2e^2\right)\right)\tan^{-1}\left(\frac{2\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt{3}\sqrt[3]{d}\sqrt[3]{a+bx}}+\frac{1}{\sqrt{3}}\right)}{27\sqrt{3}b^{8/3}d^{10/3}}+\frac{f(a+bx)^{4/3}(c+dx)^{2/3}(-5adf-7bcf+12bde)}{18b^2d^2}+\frac{f(a+bx)^{4/3}(c+dx)^{2/3}(e+fx)}{3bd}$$

```
[Out] ((5*a^2*d^2*f^2 - 2*a*b*d*f*(9*d*e - 4*c*f) + b^2*(27*d^2*e^2 - 3
6*c*d*e*f + 14*c^2*f^2))*(a + b*x)^(1/3)*(c + d*x)^(2/3))/(27*b^2
*d^3) + (f*(12*b*d*e - 7*b*c*f - 5*a*d*f)*(a + b*x)^(4/3)*(c + d*
x)^(2/3))/(18*b^2*d^2) + (f*(a + b*x)^(4/3)*(c + d*x)^(2/3)*(e +
f*x))/(3*b*d) + ((b*c - a*d)*(5*a^2*d^2*f^2 - 2*a*b*d*f*(9*d*e -
4*c*f) + b^2*(27*d^2*e^2 - 36*c*d*e*f + 14*c^2*f^2))*ArcTan[1/Sqr
t[3] + (2*b^(1/3)*(c + d*x)^(1/3))/(Sqrt[3]*d^(1/3)*(a + b*x)^(1/
3))])/(27*Sqrt[3]*b^(8/3)*d^(10/3)) + ((b*c - a*d)*(5*a^2*d^2*f^2
 - 2*a*b*d*f*(9*d*e - 4*c*f) + b^2*(27*d^2*e^2 - 36*c*d*e*f + 14*
c^2*f^2))*Log[a + b*x])/(162*b^(8/3)*d^(10/3)) + ((b*c - a*d)*(5*
a^2*d^2*f^2 - 2*a*b*d*f*(9*d*e - 4*c*f) + b^2*(27*d^2*e^2 - 36*c*
d*e*f + 14*c^2*f^2))*Log[-1 + (b^(1/3)*(c + d*x)^(1/3))/(d^(1/3)*
(a + b*x)^(1/3))])/(54*b^(8/3)*d^(10/3))
```

Rubi [A] time = 1.0738, antiderivative size = 475, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$\frac{\sqrt[3]{a+bx}(c+dx)^{2/3}\left(5a^2d^2f^2-2abdf(9de-4cf)+b^2\left(14c^2f^2-36cdef+27d^2e^2\right)\right)}{27b^2d^3}+\frac{(bc-ad)\log(a+bx)\left(5a^2d^2f^2-2abdf(9de-4cf)+b^2\left(14c^2f^2-36cdef+27d^2e^2\right)\right)}{162b^{8/3}d^{10/3}}+\frac{(bc-ad)\left(5a^2d^2f^2-2abdf(9de-4cf)+b^2\left(14c^2f^2-36cdef+27d^2e^2\right)\right)\log\left(\frac{\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt[3]{d}\sqrt[3]{a+bx}}-1\right)}{54b^{8/3}d^{10/3}}+\frac{(bc-ad)\left(5a^2d^2f^2-2abdf(9de-4cf)+b^2\left(14c^2f^2-36cdef+27d^2e^2\right)\right)\tan^{-1}\left(\frac{2\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt{3}\sqrt[3]{d}\sqrt[3]{a+bx}}+\frac{1}{\sqrt{3}}\right)}{27\sqrt{3}b^{8/3}d^{10/3}}+\frac{f(a+bx)^{4/3}(c+dx)^{2/3}(-5adf-7bcf+12bde)}{18b^2d^2}+\frac{f(a+bx)^{4/3}(c+dx)^{2/3}(e+fx)}{3bd}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(1/3)*(e + f*x)^2)/(c + d*x)^(1/3),x]
```


```
[Out] ((5*a^2*d^2*f^2 - 2*a*b*d*f*(9*d*e - 4*c*f) + b^2*(27*d^2*e^2 - 3
6*c*d*e*f + 14*c^2*f^2))*(a + b*x)^(1/3)*(c + d*x)^(2/3))/(27*b^2
*d^3) + (f*(12*b*d*e - 7*b*c*f - 5*a*d*f)*(a + b*x)^(4/3)*(c + d*
x)^(2/3))/(18*b^2*d^2) + (f*(a + b*x)^(4/3)*(c + d*x)^(2/3)*(e +
f*x))/(3*b*d) + ((b*c - a*d)*(5*a^2*d^2*f^2 - 2*a*b*d*f*(9*d*e -
4*c*f) + b^2*(27*d^2*e^2 - 36*c*d*e*f + 14*c^2*f^2))*ArcTan[1/Sqr
t[3] + (2*b^(1/3)*(c + d*x)^(1/3))/(Sqrt[3]*d^(1/3)*(a + b*x)^(1/
3))])/(27*Sqrt[3]*b^(8/3)*d^(10/3)) + ((b*c - a*d)*(5*a^2*d^2*f^2
 - 2*a*b*d*f*(9*d*e - 4*c*f) + b^2*(27*d^2*e^2 - 36*c*d*e*f + 14*
c^2*f^2))*Log[a + b*x])/(162*b^(8/3)*d^(10/3)) + ((b*c - a*d)*(5*
a^2*d^2*f^2 - 2*a*b*d*f*(9*d*e - 4*c*f) + b^2*(27*d^2*e^2 - 36*c*
```

```
d*e*f + 14*c^2*f^2))*Log[-1 + (b^(1/3)*(c + d*x)^(1/3))/(d^(1/3)*
(a + b*x)^(1/3))])/(54*b^(8/3)*d^(10/3))
```

Rubi in Sympy [A] time = 62.6763, size = 502, normalized size = 1.06

$$\frac{f(a+bx)^{\frac{4}{3}}(c+dx)^{\frac{2}{3}}(e+fx)}{3bd}-\frac{f(a+bx)^{\frac{4}{3}}(c+dx)^{\frac{2}{3}}(5adf+7bcf-12bde)}{18b^2d^2}-\frac{\sqrt[3]{a+bx}\,(c+dx)^{\frac{2}{3}}\left(3bd\left(-9bde^2+f\left(3acf+2e\left(ad+2bc\right)\right)\right)-f\left(ad+2bc\right)\left(5adf+7bcf-12bde\right)\right)}{27b^2d^3}+\frac{(ad-bc)\left(3bd\left(-9bde^2+f\left(3acf+2e\left(ad+2bc\right)\right)\right)-f\left(ad+2bc\right)\left(5adf+7bcf-12bde\right)\right)\log\left(a+bx\right)}{162b^{\frac{8}{3}}d^{\frac{10}{3}}}+\frac{(ad-bc)\left(3bd\left(-9bde^2+f\left(3acf+2e\left(ad+2bc\right)\right)\right)-f\left(ad+2bc\right)\left(5adf+7bcf-12bde\right)\right)\log\left(\frac{\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt[3]{d}\sqrt[3]{a+bx}}-1\right)}{54b^{\frac{8}{3}}d^{\frac{10}{3}}}+\frac{\sqrt{3}(ad-bc)\left(3bd\left(-9bde^2+f\left(3acf+2e\left(ad+2bc\right)\right)\right)-f\left(ad+2bc\right)\left(5adf+7bcf-12bde\right)\right)\operatorname{atan}\left(\frac{2\sqrt{3}\sqrt[3]{b}\sqrt[3]{c+dx}}{3\sqrt[3]{d}\sqrt[3]{a+bx}}+\frac{\sqrt{3}}{3}\right)}{81b^{\frac{8}{3}}d^{\frac{10}{3}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/3)*(f*x+e)**2/(d*x+c)**(1/3),x)
```

```
[Out] f*(a + b*x)**(4/3)*(c + d*x)**(2/3)*(e + f*x)/(3*b*d) - f*(a + b*
x)**(4/3)*(c + d*x)**(2/3)*(5*a*d*f + 7*b*c*f - 12*b*d*e)/(18*b**
2*d**2) - (a + b*x)**(1/3)*(c + d*x)**(2/3)*(3*b*d*(-9*b*d*e**2 +
 f*(3*a*c*f + 2*e*(a*d + 2*b*c))) - f*(a*d + 2*b*c)*(5*a*d*f + 7*
b*c*f - 12*b*d*e))/(27*b**2*d**3) + (a*d - b*c)*(3*b*d*(-9*b*d*e*
*2 + f*(3*a*c*f + 2*e*(a*d + 2*b*c))) - f*(a*d + 2*b*c)*(5*a*d*f
+ 7*b*c*f - 12*b*d*e))*log(a + b*x)/(162*b**(8/3)*d**(10/3)) + (a
*d - b*c)*(3*b*d*(-9*b*d*e**2 + f*(3*a*c*f + 2*e*(a*d + 2*b*c)))
- f*(a*d + 2*b*c)*(5*a*d*f + 7*b*c*f - 12*b*d*e))*log(b**(1/3)*(c
 + d*x)**(1/3)/(d**(1/3)*(a + b*x)**(1/3)) - 1)/(54*b**(8/3)*d**(
10/3)) + sqrt(3)*(a*d - b*c)*(3*b*d*(-9*b*d*e**2 + f*(3*a*c*f + 2
*e*(a*d + 2*b*c))) - f*(a*d + 2*b*c)*(5*a*d*f + 7*b*c*f - 12*b*d*
e))*atan(2*sqrt(3)*b**(1/3)*(c + d*x)**(1/3)/(3*d**(1/3)*(a + b*x
)**(1/3)) + sqrt(3)/3)/(81*b**(8/3)*d**(10/3))
```

Mathematica [C] time = 0.451907, size = 229, normalized size = 0.48

$$\frac{(c+dx)^{2/3}\left(d(a+bx)\left(-5a^2d^2f^2+abdf(3d(6e+fx)-5cf)+b^2\left(28c^2f^2-3cdf(24e+7fx)+18d^2\left(3e^2+3efx+f^2x^2\right)\right)\right)\ldots\right.}{54b^2d^4(a+b\ldots}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(1/3)*(e + f*x)^2)/(c + d*x)^(1/3),x]
```

```
[Out] ((c + d*x)^(2/3)*(d*(a + b*x)*(-5*a^2*d^2*f^2 + a*b*d*f*(-5*c*f +
 3*d*(6*e + f*x)) + b^2*(28*c^2*f^2 - 3*c*d*f*(24*e + 7*f*x) + 18
*d^2*(3*e^2 + 3*e*f*x + f^2*x^2))) - (b*c - a*d)*(5*a^2*d^2*f^2 +
 2*a*b*d*f*(-9*d*e + 4*c*f) + b^2*(27*d^2*e^2 - 36*c*d*e*f + 14*c
^2*f^2))*((d*(a + b*x))/(-(b*c) + a*d))^(2/3)*Hypergeometric2F1[2
/3, 2/3, 5/3, (b*(c + d*x))/(b*c - a*d)]))/(54*b^2*d^4*(a + b*x)^
(2/3))
```

Maple [F] time = 0.048, size = 0, normalized size = 0.

$$\int (fx+e)^2\sqrt[3]{bx+a}\frac{1}{\sqrt[3]{dx+c}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((b*x+a)^(1/3)*(f*x+e)^2/(d*x+c)^(1/3),x)

[Out] int((b*x+a)^(1/3)*(f*x+e)^2/(d*x+c)^(1/3),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^{\frac{1}{3}}(fx+e)^2}{(dx+c)^{\frac{1}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(1/3)*(f*x + e)^2/(d*x + c)^(1/3),x, algorithm="maxima")

[Out] integrate((b*x + a)^(1/3)*(f*x + e)^2/(d*x + c)^(1/3), x)
```

Fricas [A] time = 0.287787, size = 838, normalized size = 1.76

$$\frac{\sqrt{3}\left(3\sqrt{3}\left(18\,b^2d^2f^2x^2+54\,b^2d^2e^2-18\left(4\,b^2cd-abd^2\right)ef+\left(28\,b^2c^2-5\,abcd-5\,a^2d^2\right)f^2+3\left(18\,b^2d^2ef-\left(7\,b^2cd-abd\right.\right.\right.\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(1/3)*(f*x + e)^2/(d*x + c)^(1/3),x, algorithm="fricas")

[Out] 1/486*sqrt(3)*(3*sqrt(3)*(18*b^2*d^2*f^2*x^2 + 54*b^2*d^2*e^2 - 1
8*(4*b^2*c*d - a*b*d^2)*e*f + (28*b^2*c^2 - 5*a*b*c*d - 5*a^2*d^2
)*f^2 + 3*(18*b^2*d^2*e*f - (7*b^2*c*d - a*b*d^2)*f^2)*x)*(-b^2*d
)^(1/3)*(b*x + a)^(1/3)*(d*x + c)^(2/3) + sqrt(3)*(27*(b^3*c*d^2
- a*b^2*d^3)*e^2 - 18*(2*b^3*c^2*d - a*b^2*c*d^2 - a^2*b*d^3)*e*f
 + (14*b^3*c^3 - 6*a*b^2*c^2*d - 3*a^2*b*c*d^2 - 5*a^3*d^3)*f^2)*
log((b^2*d*x + b^2*c - (-b^2*d)^(1/3)*(b*x + a)^(1/3)*(d*x + c)^(
2/3)*b + (-b^2*d)^(2/3)*(b*x + a)^(2/3)*(d*x + c)^(1/3))/(d*x + c
)) - 2*sqrt(3)*(27*(b^3*c*d^2 - a*b^2*d^3)*e^2 - 18*(2*b^3*c^2*d
- a*b^2*c*d^2 - a^2*b*d^3)*e*f + (14*b^3*c^3 - 6*a*b^2*c^2*d - 3*
a^2*b*c*d^2 - 5*a^3*d^3)*f^2)*log((b*d*x + b*c + (-b^2*d)^(1/3)*(
b*x + a)^(1/3)*(d*x + c)^(2/3))/(d*x + c)) - 6*(27*(b^3*c*d^2 - a
*b^2*d^3)*e^2 - 18*(2*b^3*c^2*d - a*b^2*c*d^2 - a^2*b*d^3)*e*f +
(14*b^3*c^3 - 6*a*b^2*c^2*d - 3*a^2*b*c*d^2 - 5*a^3*d^3)*f^2)*arc
tan(1/3*(2*sqrt(3)*(-b^2*d)^(1/3)*(b*x + a)^(1/3)*(d*x + c)^(2/3)
 - sqrt(3)*(b*d*x + b*c))/(b*d*x + b*c)))/((-b^2*d)^(1/3)*b^2*d^3
)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt[3]{a+bx}\,(e+fx)^2}{\sqrt[3]{c+dx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**(1/3)*(f*x+e)**2/(d*x+c)**(1/3),x)

[Out] Integral((a + b*x)**(1/3)*(e + f*x)**2/(c + d*x)**(1/3), x)
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(1/3)*(f*x + e)^2/(d*x + c)^(1/3),x, algorithm="giac")
```

```
[Out] Exception raised: NotImplementedError
```

3.2992 $\int \frac{\sqrt[3]{a+bx}(e+fx)}{\sqrt[3]{c+dx}}\,dx$

Optimal. Leaf size=273

$$\frac{(bc-ad)\log(a+bx)(-adf-2bcf+3bde)}{18b^{5/3}d^{7/3}}+\frac{(bc-ad)(-adf-2bcf+3bde)\log\left(\frac{\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt[3]{d}\sqrt[3]{a+bx}}-1\right)}{6b^{5/3}d^{7/3}}+\frac{(bc-ad)(-adf-2bcf+3bde)\tan^{-1}\left(\frac{2\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt{3}\sqrt[3]{d}\sqrt[3]{a+bx}}+\frac{1}{\sqrt{3}}\right)}{3\sqrt{3}b^{5/3}d^{7/3}}+\frac{\sqrt[3]{a+bx}(c+dx)^{2/3}(-adf-2bcf+3bde)}{3bd^2}+\frac{f(a+bx)^{4/3}(c+dx)^{2/3}}{2bd}$$

```
[Out] ((3*b*d*e - 2*b*c*f - a*d*f)*(a + b*x)^(1/3)*(c + d*x)^(2/3))/(3*
b*d^2) + (f*(a + b*x)^(4/3)*(c + d*x)^(2/3))/(2*b*d) + ((b*c - a*
d)*(3*b*d*e - 2*b*c*f - a*d*f)*ArcTan[1/Sqrt[3] + (2*b^(1/3)*(c +
 d*x)^(1/3))/(Sqrt[3]*d^(1/3)*(a + b*x)^(1/3))])/(3*Sqrt[3]*b^(5/
3)*d^(7/3)) + ((b*c - a*d)*(3*b*d*e - 2*b*c*f - a*d*f)*Log[a + b*
x])/(18*b^(5/3)*d^(7/3)) + ((b*c - a*d)*(3*b*d*e - 2*b*c*f - a*d*
f)*Log[-1 + (b^(1/3)*(c + d*x)^(1/3))/(d^(1/3)*(a + b*x)^(1/3))])
/(6*b^(5/3)*d^(7/3))
```

Rubi [A] time = 0.446681, antiderivative size = 273, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$\frac{(bc-ad)\log(a+bx)(-adf-2bcf+3bde)}{18b^{5/3}d^{7/3}}+\frac{(bc-ad)(-adf-2bcf+3bde)\log\left(\frac{\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt[3]{d}\sqrt[3]{a+bx}}-1\right)}{6b^{5/3}d^{7/3}}+\frac{(bc-ad)(-adf-2bcf+3bde)\tan^{-1}\left(\frac{2\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt{3}\sqrt[3]{d}\sqrt[3]{a+bx}}+\frac{1}{\sqrt{3}}\right)}{3\sqrt{3}b^{5/3}d^{7/3}}+\frac{\sqrt[3]{a+bx}(c+dx)^{2/3}(-adf-2bcf+3bde)}{3bd^2}+\frac{f(a+bx)^{4/3}(c+dx)^{2/3}}{2bd}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(1/3)*(e + f*x))/(c + d*x)^(1/3),x]
```


```
[Out] ((3*b*d*e - 2*b*c*f - a*d*f)*(a + b*x)^(1/3)*(c + d*x)^(2/3))/(3*
b*d^2) + (f*(a + b*x)^(4/3)*(c + d*x)^(2/3))/(2*b*d) + ((b*c - a*
d)*(3*b*d*e - 2*b*c*f - a*d*f)*ArcTan[1/Sqrt[3] + (2*b^(1/3)*(c +
 d*x)^(1/3))/(Sqrt[3]*d^(1/3)*(a + b*x)^(1/3))])/(3*Sqrt[3]*b^(5/
3)*d^(7/3)) + ((b*c - a*d)*(3*b*d*e - 2*b*c*f - a*d*f)*Log[a + b*
x])/(18*b^(5/3)*d^(7/3)) + ((b*c - a*d)*(3*b*d*e - 2*b*c*f - a*d*
f)*Log[-1 + (b^(1/3)*(c + d*x)^(1/3))/(d^(1/3)*(a + b*x)^(1/3))])
/(6*b^(5/3)*d^(7/3))
```

Rubi in Sympy [A] time = 27.6713, size = 260, normalized size = 0.95

$$\frac{f(a+bx)^{\frac{4}{3}}(c+dx)^{\frac{2}{3}}}{2bd}-\frac{\sqrt[3]{a+bx}\,(c+dx)^{\frac{2}{3}}\left(-bde+\frac{f(ad+2bc)}{3}\right)}{bd^2}+\frac{(ad-bc)(adf+2bcf-3bde)\log(a+bx)}{18b^{\frac{5}{3}}d^{\frac{7}{3}}}+\frac{(ad-bc)(adf+2bcf-3bde)\log\left(\frac{\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt[3]{d}\sqrt[3]{a+bx}}-1\right)}{6b^{\frac{5}{3}}d^{\frac{7}{3}}}+\frac{\sqrt{3}(ad-bc)(adf+2bcf-3bde)\operatorname{atan}\left(\frac{2\sqrt{3}\sqrt[3]{b}\sqrt[3]{c+dx}}{3\sqrt[3]{d}\sqrt[3]{a+bx}}+\frac{\sqrt{3}}{3}\right)}{9b^{\frac{5}{3}}d^{\frac{7}{3}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/3)*(f*x+e)/(d*x+c)**(1/3),x)
```

```
[Out] f*(a + b*x)**(4/3)*(c + d*x)**(2/3)/(2*b*d) - (a + b*x)**(1/3)*(c
 + d*x)**(2/3)*(-b*d*e + f*(a*d + 2*b*c)/3)/(b*d**2) + (a*d - b*c
)*(a*d*f + 2*b*c*f - 3*b*d*e)*log(a + b*x)/(18*b**(5/3)*d**(7/3))
 + (a*d - b*c)*(a*d*f + 2*b*c*f - 3*b*d*e)*log(b**(1/3)*(c + d*x)
**(1/3)/(d**(1/3)*(a + b*x)**(1/3)) - 1)/(6*b**(5/3)*d**(7/3)) +
sqrt(3)*(a*d - b*c)*(a*d*f + 2*b*c*f - 3*b*d*e)*atan(2*sqrt(3)*b*
*(1/3)*(c + d*x)**(1/3)/(3*d**(1/3)*(a + b*x)**(1/3)) + sqrt(3)/3
)/(9*b**(5/3)*d**(7/3))
```

Mathematica [C] time = 0.214958, size = 129, normalized size = 0.47

$$\frac{(c+dx)^{2/3}\left((bc-ad)\left(\frac{d(a+bx)}{ad-bc}\right)^{2/3}(adf+2bcf-3bde)\,{}_2F_1\left(\frac{2}{3},\frac{2}{3};\frac{5}{3};\frac{b(c+dx)}{bc-ad}\right)+d(a+bx)(adf+b(-4cf+6de+3dfx))\right)}{6bd^3(a+bx)^{2/3}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(1/3)*(e + f*x))/(c + d*x)^(1/3),x]
```

```
[Out] ((c + d*x)^(2/3)*(d*(a + b*x)*(a*d*f + b*(6*d*e - 4*c*f + 3*d*f*x
)) + (b*c - a*d)*(-3*b*d*e + 2*b*c*f + a*d*f)*((d*(a + b*x))/(-(b
*c) + a*d))^(2/3)*Hypergeometric2F1[2/3, 2/3, 5/3, (b*(c + d*x))/
(b*c - a*d)]))/(6*b*d^3*(a + b*x)^(2/3))
```

Maple [F] time = 0.044, size = 0, normalized size = 0.

$$\int (fx+e)\sqrt[3]{bx+a}\frac{1}{\sqrt[3]{dx+c}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/3)*(f*x+e)/(d*x+c)^(1/3),x)
```

```
[Out] int((b*x+a)^(1/3)*(f*x+e)/(d*x+c)^(1/3),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^{\frac{1}{3}}(fx+e)}{(dx+c)^{\frac{1}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(1/3)*(f*x + e)/(d*x + c)^(1/3),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^(1/3)*(f*x + e)/(d*x + c)^(1/3), x)
```

Fricas [A] time = 0.230982, size = 502, normalized size = 1.84

$$\sqrt{3}\left(3\sqrt{3}(3\,bdfx + 6\,bde - (4\,bc - ad)f)\left(b^2d\right)^{\frac{1}{3}}(bx + a)^{\frac{1}{3}}(dx + c)^{\frac{2}{3}} - \sqrt{3}\left(3\left(b^2cd - abd^2\right)e - \left(2\,b^2c^2 - abcd - a^2d^2\right)f\right)\log$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(1/3)*(f*x + e)/(d*x + c)^(1/3),x, algorithm="fricas")
```

```
[Out] 1/54*sqrt(3)*(3*sqrt(3)*(3*b*d*f*x + 6*b*d*e - (4*b*c - a*d)*f)*(
b^2*d)^(1/3)*(b*x + a)^(1/3)*(d*x + c)^(2/3) - sqrt(3)*(3*(b^2*c*
d - a*b*d^2)*e - (2*b^2*c^2 - a*b*c*d - a^2*d^2)*f)*log((b^2*d*x
+ b^2*c + (b^2*d)^(1/3)*(b*x + a)^(1/3)*(d*x + c)^(2/3)*b + (b^2*
d)^(2/3)*(b*x + a)^(2/3)*(d*x + c)^(1/3))/(d*x + c)) + 2*sqrt(3)*
(3*(b^2*c*d - a*b*d^2)*e - (2*b^2*c^2 - a*b*c*d - a^2*d^2)*f)*log
(-(b*d*x + b*c - (b^2*d)^(1/3)*(b*x + a)^(1/3)*(d*x + c)^(2/3))/(
d*x + c)) - 6*(3*(b^2*c*d - a*b*d^2)*e - (2*b^2*c^2 - a*b*c*d - a
^2*d^2)*f)*arctan(1/3*(2*sqrt(3)*(b^2*d)^(1/3)*(b*x + a)^(1/3)*(d
*x + c)^(2/3) + sqrt(3)*(b*d*x + b*c))/(b*d*x + b*c)))/((b^2*d)^(
1/3)*b*d^2)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt[3]{a + bx}\,(e + fx)}{\sqrt[3]{c + dx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**(1/3)*(f*x+e)/(d*x+c)**(1/3),x)
```

```
[Out] Integral((a + b*x)**(1/3)*(e + f*x)/(c + d*x)**(1/3), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx + a)^{\frac{1}{3}}(fx + e)}{(dx + c)^{\frac{1}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(1/3)*(f*x + e)/(d*x + c)^(1/3),x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^(1/3)*(f*x + e)/(d*x + c)^(1/3), x)
```

3.2993 $\int \frac{\sqrt[3]{a+bx}}{\sqrt[3]{c+dx}}\,dx$

Optimal. Leaf size=171

$$\frac{(bc-ad)\log(a+bx)}{6b^{2/3}d^{4/3}}+\frac{(bc-ad)\log\left(\frac{\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt[3]{d}\sqrt[3]{a+bx}}-1\right)}{2b^{2/3}d^{4/3}}+\frac{(bc-ad)\tan^{-1}\left(\frac{2\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt{3}\sqrt[3]{d}\sqrt[3]{a+bx}}+\frac{1}{\sqrt{3}}\right)}{\sqrt{3}b^{2/3}d^{4/3}}+\frac{\sqrt[3]{a+bx}(c+dx)^{2/3}}{d}$$

```
[Out] ((a + b*x)^(1/3)*(c + d*x)^(2/3))/d + ((b*c - a*d)*ArcTan[1/Sqrt[
3] + (2*b^(1/3)*(c + d*x)^(1/3))/(Sqrt[3]*d^(1/3)*(a + b*x)^(1/3)
)])/(Sqrt[3]*b^(2/3)*d^(4/3)) + ((b*c - a*d)*Log[a + b*x])/(6*b^(
2/3)*d^(4/3)) + ((b*c - a*d)*Log[-1 + (b^(1/3)*(c + d*x)^(1/3))/(
d^(1/3)*(a + b*x)^(1/3))])/(2*b^(2/3)*d^(4/3))
```

Rubi [A] time = 0.154576, antiderivative size = 171, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.105

$$\frac{(bc-ad)\log(a+bx)}{6b^{2/3}d^{4/3}}+\frac{(bc-ad)\log\left(\frac{\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt[3]{d}\sqrt[3]{a+bx}}-1\right)}{2b^{2/3}d^{4/3}}+\frac{(bc-ad)\tan^{-1}\left(\frac{2\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt{3}\sqrt[3]{d}\sqrt[3]{a+bx}}+\frac{1}{\sqrt{3}}\right)}{\sqrt{3}b^{2/3}d^{4/3}}+\frac{\sqrt[3]{a+bx}(c+dx)^{2/3}}{d}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(1/3)/(c + d*x)^(1/3),x]
```

```
[Out] ((a + b*x)^(1/3)*(c + d*x)^(2/3))/d + ((b*c - a*d)*ArcTan[1/Sqrt[
3] + (2*b^(1/3)*(c + d*x)^(1/3))/(Sqrt[3]*d^(1/3)*(a + b*x)^(1/3)
)])/(Sqrt[3]*b^(2/3)*d^(4/3)) + ((b*c - a*d)*Log[a + b*x])/(6*b^(
2/3)*d^(4/3)) + ((b*c - a*d)*Log[-1 + (b^(1/3)*(c + d*x)^(1/3))/(
d^(1/3)*(a + b*x)^(1/3))])/(2*b^(2/3)*d^(4/3))
```

Rubi in Sympy [A] time = 12.8837, size = 160, normalized size = 0.94

$$\frac{\sqrt[3]{a+bx}\,(c+dx)^{\frac{2}{3}}}{d}-\frac{(ad-bc)\log(a+bx)}{6b^{\frac{2}{3}}d^{\frac{4}{3}}}-\frac{(ad-bc)\log\left(\frac{\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt[3]{d}\sqrt[3]{a+bx}}-1\right)}{2b^{\frac{2}{3}}d^{\frac{4}{3}}}-\frac{\sqrt{3}\,(ad-bc)\operatorname{atan}\left(\frac{2\sqrt{3}\sqrt[3]{b}\sqrt[3]{c+dx}}{3\sqrt[3]{d}\sqrt[3]{a+bx}}+\frac{\sqrt{3}}{3}\right)}{3b^{\frac{2}{3}}d^{\frac{4}{3}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/3)/(d*x+c)**(1/3),x)
```

```
[Out] (a + b*x)**(1/3)*(c + d*x)**(2/3)/d - (a*d - b*c)*log(a + b*x)/(6
*b**(2/3)*d**(4/3)) - (a*d - b*c)*log(b**(1/3)*(c + d*x)**(1/3)/(
d**(1/3)*(a + b*x)**(1/3)) - 1)/(2*b**(2/3)*d**(4/3)) - sqrt(3)*(
a*d - b*c)*atan(2*sqrt(3)*b**(1/3)*(c + d*x)**(1/3)/(3*d**(1/3)*(
a + b*x)**(1/3)) + sqrt(3)/3)/(3*b**(2/3)*d**(4/3))
```

Mathematica [C] time = 0.191563, size = 76, normalized size = 0.44

$$\frac{\sqrt[3]{a+bx}(c+dx)^{2/3}\left(\frac{{}_2F_1\left(\frac{2}{3},\frac{2}{3};\frac{5}{3};\frac{b(c+dx)}{bc-ad}\right)}{\sqrt[3]{\frac{d(a+bx)}{ad-bc}}}+2\right)}{2d}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(1/3)/(c + d*x)^(1/3),x]
```

```
[Out] ((a + b*x)^(1/3)*(c + d*x)^(2/3)*(2 + Hypergeometric2F1[2/3, 2/3,
 5/3, (b*(c + d*x))/(b*c - a*d)]/((d*(a + b*x))/(-(b*c) + a*d))^(
1/3)))/(2*d)
```

Maple [F] time = 0., size = 0, normalized size = 0.

$$\int 1\sqrt[3]{bx+a}\frac{1}{\sqrt[3]{dx+c}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/3)/(d*x+c)^(1/3),x)
```

```
[Out] int((b*x+a)^(1/3)/(d*x+c)^(1/3),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^{\frac{1}{3}}}{(dx+c)^{\frac{1}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(1/3)/(d*x + c)^(1/3),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^(1/3)/(d*x + c)^(1/3), x)
```

Fricas [A] time = 0.22397, size = 327, normalized size = 1.91

$$\frac{\sqrt{3}\left(\sqrt{3}(bc-ad)\log\left(\frac{b^2dx+b^2c-(-b^2d)^{\frac{1}{3}}(bx+a)^{\frac{1}{3}}(dx+c)^{\frac{2}{3}}b+(-b^2d)^{\frac{2}{3}}(bx+a)^{\frac{2}{3}}(dx+c)^{\frac{1}{3}}}{dx+c}\right)-2\sqrt{3}(bc-ad)\log\left(\frac{bdx+bc+(-b^2d)^{\frac{1}{3}}(bx+a)^{\frac{1}{3}}(dx}{dx+c}\right.\right.}{18\,(-b^2d)^{\frac{1}{3}}\,d}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(1/3)/(d*x + c)^(1/3),x, algorithm="fricas")
```

```
[Out] 1/18*sqrt(3)*(sqrt(3)*(b*c - a*d)*log((b^2*d*x + b^2*c - (-b^2*d)
^(1/3)*(b*x + a)^(1/3)*(d*x + c)^(2/3)*b + (-b^2*d)^(2/3)*(b*x +
a)^(2/3)*(d*x + c)^(1/3))/(d*x + c)) - 2*sqrt(3)*(b*c - a*d)*log(
(b*d*x + b*c + (-b^2*d)^(1/3)*(b*x + a)^(1/3)*(d*x + c)^(2/3))/(d
*x + c)) - 6*(b*c - a*d)*arctan(1/3*(2*sqrt(3)*(-b^2*d)^(1/3)*(b*
x + a)^(1/3)*(d*x + c)^(2/3) - sqrt(3)*(b*d*x + b*c))/(b*d*x + b*
c)) + 6*sqrt(3)*(-b^2*d)^(1/3)*(b*x + a)^(1/3)*(d*x + c)^(2/3))/(
(-b^2*d)^(1/3)*d)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt[3]{a+bx}}{\sqrt[3]{c+dx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(1/3)/(d*x+c)**(1/3),x)

[Out] Integral((a + b*x)**(1/3)/(c + d*x)**(1/3), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^{\frac{1}{3}}}{(dx+c)^{\frac{1}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(1/3)/(d*x + c)^(1/3),x, algorithm="giac")

[Out] integrate((b*x + a)^(1/3)/(d*x + c)^(1/3), x)
```

3.2994 $\int \frac{\sqrt[3]{a+bx}}{\sqrt[3]{c+dx}(e+fx)}\,dx$

Optimal. Leaf size=339

$$-\frac{\sqrt[3]{be-af}\log(e+fx)}{2f\sqrt[3]{de-cf}}+\frac{3\sqrt[3]{be-af}\log\left(\frac{\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt[3]{de-cf}}-\sqrt[3]{a+bx}\right)}{2f\sqrt[3]{de-cf}}+\frac{\sqrt{3}\sqrt[3]{be-af}\tan^{-1}\left(\frac{2\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt{3}\sqrt[3]{a+bx}\sqrt[3]{de-cf}}+\frac{1}{\sqrt{3}}\right)}{f\sqrt[3]{de-cf}}-\frac{3\sqrt[3]{b}\log\left(\frac{\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt[3]{d}\sqrt[3]{a+bx}}-1\right)}{2\sqrt[3]{d}f}-\frac{\sqrt{3}\sqrt[3]{b}\tan^{-1}\left(\frac{2\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt{3}\sqrt[3]{d}\sqrt[3]{a+bx}}+\frac{1}{\sqrt{3}}\right)}{\sqrt[3]{d}f}-\frac{\sqrt[3]{b}\log(a+bx)}{2\sqrt[3]{d}f}$$

```
[Out] -((Sqrt[3]*b^(1/3)*ArcTan[1/Sqrt[3] + (2*b^(1/3)*(c + d*x)^(1/3))
/(Sqrt[3]*d^(1/3)*(a + b*x)^(1/3))])/(d^(1/3)*f)) + (Sqrt[3]*(b*e
 - a*f)^(1/3)*ArcTan[1/Sqrt[3] + (2*(b*e - a*f)^(1/3)*(c + d*x)^(
1/3))/(Sqrt[3]*(d*e - c*f)^(1/3)*(a + b*x)^(1/3))])/(f*(d*e - c*f
)^(1/3)) - (b^(1/3)*Log[a + b*x])/(2*d^(1/3)*f) - ((b*e - a*f)^(1
/3)*Log[e + f*x])/(2*f*(d*e - c*f)^(1/3)) + (3*(b*e - a*f)^(1/3)*
Log[-(a + b*x)^(1/3) + ((b*e - a*f)^(1/3)*(c + d*x)^(1/3))/(d*e -
 c*f)^(1/3)])/(2*f*(d*e - c*f)^(1/3)) - (3*b^(1/3)*Log[-1 + (b^(1
/3)*(c + d*x)^(1/3))/(d^(1/3)*(a + b*x)^(1/3))])/(2*d^(1/3)*f)
```

Rubi [A] time = 0.418196, antiderivative size = 339, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.115$

$$-\frac{\sqrt[3]{be-af}\log(e+fx)}{2f\sqrt[3]{de-cf}}+\frac{3\sqrt[3]{be-af}\log\left(\frac{\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt[3]{de-cf}}-\sqrt[3]{a+bx}\right)}{2f\sqrt[3]{de-cf}}+\frac{\sqrt{3}\sqrt[3]{be-af}\tan^{-1}\left(\frac{2\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt{3}\sqrt[3]{a+bx}\sqrt[3]{de-cf}}+\frac{1}{\sqrt{3}}\right)}{f\sqrt[3]{de-cf}}-\frac{3\sqrt[3]{b}\log\left(\frac{\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt[3]{d}\sqrt[3]{a+bx}}-1\right)}{2\sqrt[3]{d}f}-\frac{\sqrt{3}\sqrt[3]{b}\tan^{-1}\left(\frac{2\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt{3}\sqrt[3]{d}\sqrt[3]{a+bx}}+\frac{1}{\sqrt{3}}\right)}{\sqrt[3]{d}f}-\frac{\sqrt[3]{b}\log(a+bx)}{2\sqrt[3]{d}f}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(1/3)/((c + d*x)^(1/3)*(e + f*x)),x]
```


```
[Out] -((Sqrt[3]*b^(1/3)*ArcTan[1/Sqrt[3] + (2*b^(1/3)*(c + d*x)^(1/3))
/(Sqrt[3]*d^(1/3)*(a + b*x)^(1/3))])/(d^(1/3)*f)) + (Sqrt[3]*(b*e
 - a*f)^(1/3)*ArcTan[1/Sqrt[3] + (2*(b*e - a*f)^(1/3)*(c + d*x)^(
1/3))/(Sqrt[3]*(d*e - c*f)^(1/3)*(a + b*x)^(1/3))])/(f*(d*e - c*f
)^(1/3)) - (b^(1/3)*Log[a + b*x])/(2*d^(1/3)*f) - ((b*e - a*f)^(1
/3)*Log[e + f*x])/(2*f*(d*e - c*f)^(1/3)) + (3*(b*e - a*f)^(1/3)*
Log[-(a + b*x)^(1/3) + ((b*e - a*f)^(1/3)*(c + d*x)^(1/3))/(d*e -
 c*f)^(1/3)])/(2*f*(d*e - c*f)^(1/3)) - (3*b^(1/3)*Log[-1 + (b^(1
/3)*(c + d*x)^(1/3))/(d^(1/3)*(a + b*x)^(1/3))])/(2*d^(1/3)*f)
```

Rubi in Sympy [A] time = 33.4676, size = 303, normalized size = 0.89

$$-\frac{\sqrt[3]{b}\log(a+bx)}{2\sqrt[3]{d}f}-\frac{3\sqrt[3]{b}\log\left(\frac{\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt[3]{d}\sqrt[3]{a+bx}}-1\right)}{2\sqrt[3]{d}f}-\frac{\sqrt{3}\sqrt[3]{b}\operatorname{atan}\left(\frac{2\sqrt{3}\sqrt[3]{b}\sqrt[3]{c+dx}}{3\sqrt[3]{d}\sqrt[3]{a+bx}}+\frac{\sqrt{3}}{3}\right)}{\sqrt[3]{d}f}$$
$$-\frac{\sqrt[3]{af-be}\log(e+fx)}{2f\sqrt[3]{cf-de}}+\frac{3\sqrt[3]{af-be}\log\left(-\sqrt[3]{a+bx}+\frac{\sqrt[3]{c+dx}\sqrt[3]{af-be}}{\sqrt[3]{cf-de}}\right)}{2f\sqrt[3]{cf-de}}$$
$$+\frac{\sqrt{3}\sqrt[3]{af-be}\operatorname{atan}\left(\frac{\sqrt{3}}{3}+\frac{2\sqrt{3}\sqrt[3]{c+dx}\sqrt[3]{af-be}}{3\sqrt[3]{a+bx}\sqrt[3]{cf-de}}\right)}{f\sqrt[3]{cf-de}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/3)/(d*x+c)**(1/3)/(f*x+e),x)
```

```
[Out] -b**(1/3)*log(a + b*x)/(2*d**(1/3)*f) - 3*b**(1/3)*log(b**(1/3)*(
c + d*x)**(1/3)/(d**(1/3)*(a + b*x)**(1/3)) - 1)/(2*d**(1/3)*f) -
 sqrt(3)*b**(1/3)*atan(2*sqrt(3)*b**(1/3)*(c + d*x)**(1/3)/(3*d**
(1/3)*(a + b*x)**(1/3)) + sqrt(3)/3)/(d**(1/3)*f) - (a*f - b*e)**
(1/3)*log(e + f*x)/(2*f*(c*f - d*e)**(1/3)) + 3*(a*f - b*e)**(1/3
)*log(-(a + b*x)**(1/3) + (c + d*x)**(1/3)*(a*f - b*e)**(1/3)/(c*
f - d*e)**(1/3))/(2*f*(c*f - d*e)**(1/3)) + sqrt(3)*(a*f - b*e)**
(1/3)*atan(sqrt(3)/3 + 2*sqrt(3)*(c + d*x)**(1/3)*(a*f - b*e)**(1
/3)/(3*(a + b*x)**(1/3)*(c*f - d*e)**(1/3)))/(f*(c*f - d*e)**(1/3
))
```

Mathematica [C] time = 1.04861, size = 290, normalized size = 0.86

$$-\frac{21(a+bx)^{4/3}(bc-ad)(be-af)^2F_1\left(\frac{4}{3};\frac{1}{3},1;\frac{7}{3};\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right.}{4b\sqrt[3]{c+dx}(e+fx)(af-be)\left(7(bc-ad)(be-af)F_1\left(\frac{4}{3};\frac{1}{3},1;\frac{7}{3};\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)+(a+bx)\left((3adf-3bcf)F_1\left(\frac{7}{3};\frac{1}{3},2;\frac{10}{3};\right.\right.\right.}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^(1/3)/((c + d*x)^(1/3)*(e + f*x)),x]
```

```
[Out] (-21*(b*c - a*d)*(b*e - a*f)^2*(a + b*x)^(4/3)*AppellF1[4/3, 1/3,
 1, 7/3, (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*
f)])/(4*b*(-(b*e) + a*f)*(c + d*x)^(1/3)*(e + f*x)*(7*(b*c - a*d)
*(b*e - a*f)*AppellF1[4/3, 1/3, 1, 7/3, (d*(a + b*x))/(-(b*c) + a
*d), (f*(a + b*x))/(-(b*e) + a*f)] + (a + b*x)*((-3*b*c*f + 3*a*d
*f)*AppellF1[7/3, 1/3, 2, 10/3, (d*(a + b*x))/(-(b*c) + a*d), (f*
(a + b*x))/(-(b*e) + a*f)] + d*(-(b*e) + a*f)*AppellF1[7/3, 4/3,
1, 10/3, (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*
f)])))
```

Maple [F] time = 0.077, size = 0, normalized size = 0.

$$\int\frac{1}{fx+e}\sqrt[3]{bx+a}\frac{1}{\sqrt[3]{dx+c}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/3)/(d*x+c)^(1/3)/(f*x+e),x)
```

```
[Out] int((b*x+a)^(1/3)/(d*x+c)^(1/3)/(f*x+e),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^{\frac{1}{3}}}{(dx+c)^{\frac{1}{3}}(fx+e)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(1/3)/((d*x + c)^(1/3)*(f*x + e)),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^(1/3)/((d*x + c)^(1/3)*(f*x + e)), x)
```

Fricas [A] time = 0.273083, size = 652, normalized size = 1.92

$$-\Big(2\sqrt{3}\left(\frac{be-af}{de-cf}\right)^{\frac{1}{3}}\arctan\left(\frac{\sqrt{3}\left((dx+c)\left(\frac{be-af}{de-cf}\right)^{\frac{1}{3}}+2(bx+a)^{\frac{1}{3}}(dx+c)^{\frac{2}{3}}\right)}{3(dx+c)\left(\frac{be-af}{de-cf}\right)^{\frac{1}{3}}}\right)-2\sqrt{3}\left(-\frac{b}{d}\right)^{\frac{1}{3}}\arctan\left(-\frac{\sqrt{3}\left((dx+c)\left(-\frac{b}{d}\right)^{\frac{1}{3}}-2(bx+a)^{\frac{1}{3}}(dx+c)^{\frac{2}{3}}\right)}{3(dx+c)\left(-\frac{b}{d}\right)^{\frac{1}{3}}}\right)+\Big(\cdots$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(1/3)/((d*x + c)^(1/3)*(f*x + e)),x, algorithm="fricas")
```

```
[Out] -1/2*(2*sqrt(3)*((b*e - a*f)/(d*e - c*f))^(1/3)*arctan(1/3*sqrt(3
)*((d*x + c)*((b*e - a*f)/(d*e - c*f))^(1/3) + 2*(b*x + a)^(1/3)*
(d*x + c)^(2/3))/((d*x + c)*((b*e - a*f)/(d*e - c*f))^(1/3))) - 2
*sqrt(3)*(-b/d)^(1/3)*arctan(-1/3*sqrt(3)*((d*x + c)*(-b/d)^(1/3)
 - 2*(b*x + a)^(1/3)*(d*x + c)^(2/3))/((d*x + c)*(-b/d)^(1/3))) +
 ((b*e - a*f)/(d*e - c*f))^(1/3)*log(((d*x + c)*((b*e - a*f)/(d*e
 - c*f))^(2/3) + (b*x + a)^(1/3)*(d*x + c)^(2/3)*((b*e - a*f)/(d*
e - c*f))^(1/3) + (b*x + a)^(2/3)*(d*x + c)^(1/3))/(d*x + c)) + (
-b/d)^(1/3)*log(((d*x + c)*(-b/d)^(2/3) - (b*x + a)^(1/3)*(d*x +
c)^(2/3)*(-b/d)^(1/3) + (b*x + a)^(2/3)*(d*x + c)^(1/3))/(d*x + c
)) - 2*((b*e - a*f)/(d*e - c*f))^(1/3)*log(-((d*x + c)*((b*e - a*
f)/(d*e - c*f))^(1/3) - (b*x + a)^(1/3)*(d*x + c)^(2/3))/(d*x + c
)) - 2*(-b/d)^(1/3)*log(((d*x + c)*(-b/d)^(1/3) + (b*x + a)^(1/3)
*(d*x + c)^(2/3))/(d*x + c)))/f
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt[3]{a+bx}}{\sqrt[3]{c+dx}\,(e+fx)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**(1/3)/(d*x+c)**(1/3)/(f*x+e),x)
```

```
[Out] Integral((a + b*x)**(1/3)/((c + d*x)**(1/3)*(e + f*x)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^{\frac{1}{3}}}{(dx+c)^{\frac{1}{3}}(fx+e)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(1/3)/((d*x + c)^(1/3)*(f*x + e)),x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^(1/3)/((d*x + c)^(1/3)*(f*x + e)), x)
```

3.2995 $\int \frac{\sqrt[3]{a+bx}}{\sqrt[3]{c+dx}(e+fx)^2}\,dx$

Optimal. Leaf size=256

$$\frac{\sqrt[3]{a+bx}(c+dx)^{2/3}}{(e+fx)(de-cf)}-\frac{(bc-ad)\log(e+fx)}{6(be-af)^{2/3}(de-cf)^{4/3}}+\frac{(bc-ad)\log\left(\frac{\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt[3]{de-cf}}-\sqrt[3]{a+bx}\right)}{2(be-af)^{2/3}(de-cf)^{4/3}}+\frac{(bc-ad)\tan^{-1}\left(\frac{2\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt{3}\sqrt[3]{a+bx}\sqrt[3]{de-cf}}+\frac{1}{\sqrt{3}}\right)}{\sqrt{3}(be-af)^{2/3}(de-cf)^{4/3}}$$

```
[Out] ((a + b*x)^(1/3)*(c + d*x)^(2/3))/((d*e - c*f)*(e + f*x)) + ((b*c
 - a*d)*ArcTan[1/Sqrt[3] + (2*(b*e - a*f)^(1/3)*(c + d*x)^(1/3))/
(Sqrt[3]*(d*e - c*f)^(1/3)*(a + b*x)^(1/3))])/(Sqrt[3]*(b*e - a*f
)^(2/3)*(d*e - c*f)^(4/3)) - ((b*c - a*d)*Log[e + f*x])/(6*(b*e -
 a*f)^(2/3)*(d*e - c*f)^(4/3)) + ((b*c - a*d)*Log[-(a + b*x)^(1/3
) + ((b*e - a*f)^(1/3)*(c + d*x)^(1/3))/(d*e - c*f)^(1/3)])/(2*(b
*e - a*f)^(2/3)*(d*e - c*f)^(4/3))
```

Rubi [A] time = 0.310589, antiderivative size = 256, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.077

$$\frac{\sqrt[3]{a+bx}(c+dx)^{2/3}}{(e+fx)(de-cf)}-\frac{(bc-ad)\log(e+fx)}{6(be-af)^{2/3}(de-cf)^{4/3}}+\frac{(bc-ad)\log\left(\frac{\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt[3]{de-cf}}-\sqrt[3]{a+bx}\right)}{2(be-af)^{2/3}(de-cf)^{4/3}}+\frac{(bc-ad)\tan^{-1}\left(\frac{2\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt{3}\sqrt[3]{a+bx}\sqrt[3]{de-cf}}+\frac{1}{\sqrt{3}}\right)}{\sqrt{3}(be-af)^{2/3}(de-cf)^{4/3}}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(1/3)/((c + d*x)^(1/3)*(e + f*x)^2),x]
```

```
[Out] ((a + b*x)^(1/3)*(c + d*x)^(2/3))/((d*e - c*f)*(e + f*x)) + ((b*c
 - a*d)*ArcTan[1/Sqrt[3] + (2*(b*e - a*f)^(1/3)*(c + d*x)^(1/3))/
(Sqrt[3]*(d*e - c*f)^(1/3)*(a + b*x)^(1/3))])/(Sqrt[3]*(b*e - a*f
)^(2/3)*(d*e - c*f)^(4/3)) - ((b*c - a*d)*Log[e + f*x])/(6*(b*e -
 a*f)^(2/3)*(d*e - c*f)^(4/3)) + ((b*c - a*d)*Log[-(a + b*x)^(1/3
) + ((b*e - a*f)^(1/3)*(c + d*x)^(1/3))/(d*e - c*f)^(1/3)])/(2*(b
*e - a*f)^(2/3)*(d*e - c*f)^(4/3))
```

Rubi in Sympy [A] time = 28.1614, size = 219, normalized size = 0.86

$$-\frac{\sqrt[3]{a+bx}\,(c+dx)^{\frac{2}{3}}}{(e+fx)\,(cf-de)}+\frac{(ad-bc)\log\,(e+fx)}{6\,(af-be)^{\frac{2}{3}}\,(cf-de)^{\frac{4}{3}}}-\frac{(ad-bc)\log\left(-\sqrt[3]{a+bx}+\frac{\sqrt[3]{c+dx}\sqrt[3]{af-be}}{\sqrt[3]{cf-de}}\right)}{2\,(af-be)^{\frac{2}{3}}\,(cf-de)^{\frac{4}{3}}}-\frac{\sqrt{3}\,(ad-bc)\,\mathrm{atan}\left(\frac{\sqrt{3}}{3}+\frac{2\sqrt{3}\sqrt[3]{c+dx}\sqrt[3]{af-be}}{3\sqrt[3]{a+bx}\sqrt[3]{cf-de}}\right)}{3\,(af-be)^{\frac{2}{3}}\,(cf-de)^{\frac{4}{3}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/3)/(d*x+c)**(1/3)/(f*x+e)**2,x)
```

```
[Out] -(a + b*x)**(1/3)*(c + d*x)**(2/3)/((e + f*x)*(c*f - d*e)) + (a*d
 - b*c)*log(e + f*x)/(6*(a*f - b*e)**(2/3)*(c*f - d*e)**(4/3)) -
(a*d - b*c)*log(-(a + b*x)**(1/3) + (c + d*x)**(1/3)*(a*f - b*e)*
```

```
*(1/3)/(c*f - d*e)**(1/3))/(2*(a*f - b*e)**(2/3)*(c*f - d*e)**(4/
3)) - sqrt(3)*(a*d - b*c)*atan(sqrt(3)/3 + 2*sqrt(3)*(c + d*x)**(
1/3)*(a*f - b*e)**(1/3)/(3*(a + b*x)**(1/3)*(c*f - d*e)**(1/3)))/
(3*(a*f - b*e)**(2/3)*(c*f - d*e)**(4/3))
```

Mathematica [C] time = 1.1572, size = 124, normalized size = 0.48

$$\frac{\sqrt[3]{a+bx}(c+dx)^{2/3}\left(\frac{{}_2F_1\left(\frac{1}{3},\frac{1}{3};\frac{4}{3};\frac{(cf-de)(a+bx)}{(bc-ad)(e+fx)}\right)}{(cf-de)\left(\frac{(c+dx)(be-af)}{(e+fx)(bc-ad)}\right)^{2/3}}+\frac{1}{de-cf}\right)}{e+fx}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(1/3)/((c + d*x)^(1/3)*(e + f*x)^2),x]
```

```
[Out] ((a + b*x)^(1/3)*(c + d*x)^(2/3)*((d*e - c*f)^(-1) + Hypergeometr
ic2F1[1/3, 1/3, 4/3, ((-(d*e) + c*f)*(a + b*x))/((b*c - a*d)*(e +
 f*x))]/((-(d*e) + c*f)*(((b*e - a*f)*(c + d*x))/((b*c - a*d)*(e
+ f*x)))^(2/3))))/(e + f*x)
```

Maple [F] time = 0.08, size = 0, normalized size = 0.

$$\int \frac{1}{(fx+e)^2}\sqrt[3]{bx+a}\frac{1}{\sqrt[3]{dx+c}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/3)/(d*x+c)^(1/3)/(f*x+e)^2,x)
```

```
[Out] int((b*x+a)^(1/3)/(d*x+c)^(1/3)/(f*x+e)^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^{\frac{1}{3}}}{(dx+c)^{\frac{1}{3}}(fx+e)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(1/3)/((d*x + c)^(1/3)*(f*x + e)^2),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^(1/3)/((d*x + c)^(1/3)*(f*x + e)^2), x)
```

Fricas [A] time = 0.231159, size = 896, normalized size = 3.5

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(1/3)/((d*x + c)^(1/3)*(f*x + e)^2),x, algorithm="fricas")
```

```
[Out] -1/18*sqrt(3)*(sqrt(3)*((b*c - a*d)*f*x + (b*c - a*d)*e)*log((b^2
*c*e^2 - 2*a*b*c*e*f + a^2*c*f^2 + (b^2*d*e^3 - a^2*c*f^3 - (b^2*
c + 2*a*b*d)*e^2*f + (2*a*b*c + a^2*d)*e*f^2)^(1/3)*(b*e - a*f)*(
b*x + a)^(1/3)*(d*x + c)^(2/3) + (b^2*d*e^2 - 2*a*b*d*e*f + a^2*d
```

```
*f^2)*x + (b^2*d*e^3 - a^2*c*f^3 - (b^2*c + 2*a*b*d)*e^2*f + (2*a
*b*c + a^2*d)*e*f^2)^(2/3)*(b*x + a)^(2/3)*(d*x + c)^(1/3))/(d*x
+ c)) - 2*sqrt(3)*((b*c - a*d)*f*x + (b*c - a*d)*e)*log(-(b*c*e -
 a*c*f + (b*d*e - a*d*f)*x - (b^2*d*e^3 - a^2*c*f^3 - (b^2*c + 2*
a*b*d)*e^2*f + (2*a*b*c + a^2*d)*e*f^2)^(1/3)*(b*x + a)^(1/3)*(d*
x + c)^(2/3))/(d*x + c)) - 6*((b*c - a*d)*f*x + (b*c - a*d)*e)*ar
ctan(-1/3*(2*sqrt(3)*(b^2*d*e^3 - a^2*c*f^3 - (b^2*c + 2*a*b*d)*e
^2*f + (2*a*b*c + a^2*d)*e*f^2)^(1/3)*(b*x + a)^(1/3)*(d*x + c)^(
2/3) + sqrt(3)*(b*c*e - a*c*f + (b*d*e - a*d*f)*x))/(b*c*e - a*c*
f + (b*d*e - a*d*f)*x)) - 6*sqrt(3)*(b^2*d*e^3 - a^2*c*f^3 - (b^2
*c + 2*a*b*d)*e^2*f + (2*a*b*c + a^2*d)*e*f^2)^(1/3)*(b*x + a)^(1
/3)*(d*x + c)^(2/3))/((b^2*d*e^3 - a^2*c*f^3 - (b^2*c + 2*a*b*d)*
e^2*f + (2*a*b*c + a^2*d)*e*f^2)^(1/3)*(d*e^2 - c*e*f + (d*e*f -
c*f^2)*x))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(1/3)/(d*x+c)**(1/3)/(f*x+e)**2,x)

[Out] Exception raised: ValueError
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(1/3)/((d*x + c)^(1/3)*(f*x + e)^2),x, algorithm="giac")

[Out] Exception raised: NotImplementedError
```

3.2996 $\int \frac{\sqrt[3]{a+bx}}{\sqrt[3]{c+dx}(e+fx)^3}\,dx$

Optimal. Leaf size=386

$$-\frac{f(a+bx)^{4/3}(c+dx)^{2/3}}{2(e+fx)^2(be-af)(de-cf)}+\frac{\sqrt[3]{a+bx}(c+dx)^{2/3}(-2adf-bcf+3bde)}{3(e+fx)(be-af)(de-cf)^2}-\frac{(bc-ad)\log(e+fx)(-2adf-bcf+3bde)}{18(be-af)^{5/3}(de-cf)^{7/3}}+\frac{(bc-ad)(-2adf-bcf+3bde)\log\left(\frac{\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt[3]{de-cf}}-\sqrt[3]{a+bx}\right)}{6(be-af)^{5/3}(de-cf)^{7/3}}+\frac{(bc-ad)(-2adf-bcf+3bde)\tan^{-1}\left(\frac{2\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt{3}\sqrt[3]{a+bx}\sqrt[3]{de-cf}}+\frac{1}{\sqrt{3}}\right)}{3\sqrt{3}(be-af)^{5/3}(de-cf)^{7/3}}$$

```
[Out] -(f*(a + b*x)^(4/3)*(c + d*x)^(2/3))/(2*(b*e - a*f)*(d*e - c*f)*(
e + f*x)^2) + ((3*b*d*e - b*c*f - 2*a*d*f)*(a + b*x)^(1/3)*(c + d
*x)^(2/3))/(3*(b*e - a*f)*(d*e - c*f)^2*(e + f*x)) + ((b*c - a*d)
*(3*b*d*e - b*c*f - 2*a*d*f)*ArcTan[1/Sqrt[3] + (2*(b*e - a*f)^(1
/3)*(c + d*x)^(1/3))/(Sqrt[3]*(d*e - c*f)^(1/3)*(a + b*x)^(1/3))]
)/(3*Sqrt[3]*(b*e - a*f)^(5/3)*(d*e - c*f)^(7/3)) - ((b*c - a*d)*
(3*b*d*e - b*c*f - 2*a*d*f)*Log[e + f*x])/(18*(b*e - a*f)^(5/3)*(
d*e - c*f)^(7/3)) + ((b*c - a*d)*(3*b*d*e - b*c*f - 2*a*d*f)*Log[
-(a + b*x)^(1/3) + ((b*e - a*f)^(1/3)*(c + d*x)^(1/3))/(d*e - c*f
)^(1/3)])/(6*(b*e - a*f)^(5/3)*(d*e - c*f)^(7/3))
```

Rubi [A] time = 0.672101, antiderivative size = 386, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.115$

$$-\frac{f(a+bx)^{4/3}(c+dx)^{2/3}}{2(e+fx)^2(be-af)(de-cf)}+\frac{\sqrt[3]{a+bx}(c+dx)^{2/3}(-2adf-bcf+3bde)}{3(e+fx)(be-af)(de-cf)^2}-\frac{(bc-ad)\log(e+fx)(-2adf-bcf+3bde)}{18(be-af)^{5/3}(de-cf)^{7/3}}+\frac{(bc-ad)(-2adf-bcf+3bde)\log\left(\frac{\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt[3]{de-cf}}-\sqrt[3]{a+bx}\right)}{6(be-af)^{5/3}(de-cf)^{7/3}}+\frac{(bc-ad)(-2adf-bcf+3bde)\tan^{-1}\left(\frac{2\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt{3}\sqrt[3]{a+bx}\sqrt[3]{de-cf}}+\frac{1}{\sqrt{3}}\right)}{3\sqrt{3}(be-af)^{5/3}(de-cf)^{7/3}}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(1/3)/((c + d*x)^(1/3)*(e + f*x)^3),x]
```


```
[Out] -(f*(a + b*x)^(4/3)*(c + d*x)^(2/3))/(2*(b*e - a*f)*(d*e - c*f)*(
e + f*x)^2) + ((3*b*d*e - b*c*f - 2*a*d*f)*(a + b*x)^(1/3)*(c + d
*x)^(2/3))/(3*(b*e - a*f)*(d*e - c*f)^2*(e + f*x)) + ((b*c - a*d)
*(3*b*d*e - b*c*f - 2*a*d*f)*ArcTan[1/Sqrt[3] + (2*(b*e - a*f)^(1
/3)*(c + d*x)^(1/3))/(Sqrt[3]*(d*e - c*f)^(1/3)*(a + b*x)^(1/3))]
)/(3*Sqrt[3]*(b*e - a*f)^(5/3)*(d*e - c*f)^(7/3)) - ((b*c - a*d)*
(3*b*d*e - b*c*f - 2*a*d*f)*Log[e + f*x])/(18*(b*e - a*f)^(5/3)*(
d*e - c*f)^(7/3)) + ((b*c - a*d)*(3*b*d*e - b*c*f - 2*a*d*f)*Log[
-(a + b*x)^(1/3) + ((b*e - a*f)^(1/3)*(c + d*x)^(1/3))/(d*e - c*f
)^(1/3)])/(6*(b*e - a*f)^(5/3)*(d*e - c*f)^(7/3))
```

Rubi in Sympy [A] time = 76.2613, size = 345, normalized size = 0.89

$$-\frac{f(a+bx)^{\frac{4}{3}}(c+dx)^{\frac{2}{3}}}{2(e+fx)^2(af-be)(cf-de)}+\frac{\sqrt[3]{a+bx}(c+dx)^{\frac{2}{3}}(2adf+bcf-3bde)}{3(e+fx)(af-be)(cf-de)^2}-\frac{(ad-bc)(2adf+bcf-3bde)\log(e+fx)}{18(af-be)^{\frac{5}{3}}(cf-de)^{\frac{7}{3}}}+\frac{(ad-bc)(2adf+bcf-3bde)\log\left(-\sqrt[3]{a+bx}+\frac{\sqrt[3]{c+dx}\sqrt[3]{af-be}}{\sqrt[3]{cf-de}}\right)}{6(af-be)^{\frac{5}{3}}(cf-de)^{\frac{7}{3}}}+\frac{\sqrt{3}(ad-bc)(2adf+bcf-3bde)\operatorname{atan}\left(\frac{\sqrt{3}}{3}+\frac{2\sqrt{3}\sqrt[3]{c+dx}\sqrt[3]{af-be}}{3\sqrt[3]{a+bx}\sqrt[3]{cf-de}}\right)}{9(af-be)^{\frac{5}{3}}(cf-de)^{\frac{7}{3}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/3)/(d*x+c)**(1/3)/(f*x+e)**3,x)
```

```
[Out] -f*(a + b*x)**(4/3)*(c + d*x)**(2/3)/(2*(e + f*x)**2*(a*f - b*e)*
(c*f - d*e)) + (a + b*x)**(1/3)*(c + d*x)**(2/3)*(2*a*d*f + b*c*f
 - 3*b*d*e)/(3*(e + f*x)*(a*f - b*e)*(c*f - d*e)**2) - (a*d - b*c
)*(2*a*d*f + b*c*f - 3*b*d*e)*log(e + f*x)/(18*(a*f - b*e)**(5/3)
*(c*f - d*e)**(7/3)) + (a*d - b*c)*(2*a*d*f + b*c*f - 3*b*d*e)*lo
g(-(a + b*x)**(1/3) + (c + d*x)**(1/3)*(a*f - b*e)**(1/3)/(c*f -
d*e)**(1/3))/(6*(a*f - b*e)**(5/3)*(c*f - d*e)**(7/3)) + sqrt(3)*
(a*d - b*c)*(2*a*d*f + b*c*f - 3*b*d*e)*atan(sqrt(3)/3 + 2*sqrt(3
)*(c + d*x)**(1/3)*(a*f - b*e)**(1/3)/(3*(a + b*x)**(1/3)*(c*f -
d*e)**(1/3)))/(9*(a*f - b*e)**(5/3)*(c*f - d*e)**(7/3))
```

Mathematica [C] time = 1.16912, size = 212, normalized size = 0.55

$$\frac{\sqrt[3]{a+bx}\left(2(e+fx)^2(bc-ad)(2adf+bcf-3bde)\sqrt[3]{\frac{(c+dx)(be-af)}{(e+fx)(bc-ad)}}\,{}_2F_1\left(\frac{1}{3},\frac{1}{3};\frac{4}{3};\frac{(cf-de)(a+bx)}{(bc-ad)(e+fx)}\right)+(c+dx)(be-af)((e+f$$
$$\overline{6\sqrt[3]{c+dx}(e+fx)^2(be-af)^2(de-cf)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(1/3)/((c + d*x)^(1/3)*(e + f*x)^3),x]
```

```
[Out] ((a + b*x)^(1/3)*((b*e - a*f)*(c + d*x)*(3*(b*e - a*f)*(d*e - c*f
) + (3*b*d*e + b*c*f - 4*a*d*f)*(e + f*x)) + 2*(b*c - a*d)*(-3*b*
d*e + b*c*f + 2*a*d*f)*(((b*e - a*f)*(c + d*x))/((b*c - a*d)*(e +
 f*x)))^(1/3)*(e + f*x)^2*Hypergeometric2F1[1/3, 1/3, 4/3, ((-(d*
e) + c*f)*(a + b*x))/((b*c - a*d)*(e + f*x))]))/(6*(b*e - a*f)^2*
(d*e - c*f)^2*(c + d*x)^(1/3)*(e + f*x)^2)
```

Maple [F] time = 0.082, size = 0, normalized size = 0.

$$\int \frac{1}{(fx+e)^3}\sqrt[3]{bx+a}\frac{1}{\sqrt[3]{dx+c}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/3)/(d*x+c)^(1/3)/(f*x+e)^3,x)
```

```
[Out] int((b*x+a)^(1/3)/(d*x+c)^(1/3)/(f*x+e)^3,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^{\frac{1}{3}}}{(dx+c)^{\frac{1}{3}}(fx+e)^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(1/3)/((d*x + c)^(1/3)*(f*x + e)^3),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^(1/3)/((d*x + c)^(1/3)*(f*x + e)^3), x)
```

Fricas [A] time = 0.258156, size = 1683, normalized size = 4.36

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(1/3)/((d*x + c)^(1/3)*(f*x + e)^3),x, algorithm="fricas")
```

```
[Out] 1/54*sqrt(3)*(3*sqrt(3)*(b^2*d*e^3 - a^2*c*f^3 - (b^2*c + 2*a*b*d
)*e^2*f + (2*a*b*c + a^2*d)*e*f^2)^(1/3)*(6*b*d*e^2 + 3*a*c*f^2 -
 (2*b*c + 7*a*d)*e*f + (3*b*d*e*f + (b*c - 4*a*d)*f^2)*x)*(b*x +
a)^(1/3)*(d*x + c)^(2/3) - sqrt(3)*(3*(b^2*c*d - a*b*d^2)*e^3 - (
b^2*c^2 + a*b*c*d - 2*a^2*d^2)*e^2*f + (3*(b^2*c*d - a*b*d^2)*e*f
^2 - (b^2*c^2 + a*b*c*d - 2*a^2*d^2)*f^3)*x^2 + 2*(3*(b^2*c*d - a
*b*d^2)*e^2*f - (b^2*c^2 + a*b*c*d - 2*a^2*d^2)*e*f^2)*x)*log((b^
2*c*e^2 - 2*a*b*c*e*f + a^2*c*f^2 + (b^2*d*e^3 - a^2*c*f^3 - (b^2
*c + 2*a*b*d)*e^2*f + (2*a*b*c + a^2*d)*e*f^2)^(1/3)*(b*e - a*f)*
(b*x + a)^(1/3)*(d*x + c)^(2/3) + (b^2*d*e^2 - 2*a*b*d*e*f + a^2*
d*f^2)*x + (b^2*d*e^3 - a^2*c*f^3 - (b^2*c + 2*a*b*d)*e^2*f + (2*
a*b*c + a^2*d)*e*f^2)^(2/3)*(b*x + a)^(2/3)*(d*x + c)^(1/3))/(d*x
 + c)) + 2*sqrt(3)*(3*(b^2*c*d - a*b*d^2)*e^3 - (b^2*c^2 + a*b*c*
d - 2*a^2*d^2)*e^2*f + (3*(b^2*c*d - a*b*d^2)*e*f^2 - (b^2*c^2 +
a*b*c*d - 2*a^2*d^2)*f^3)*x^2 + 2*(3*(b^2*c*d - a*b*d^2)*e^2*f -
(b^2*c^2 + a*b*c*d - 2*a^2*d^2)*e*f^2)*x)*log(-(b*c*e - a*c*f + (
b*d*e - a*d*f)*x - (b^2*d*e^3 - a^2*c*f^3 - (b^2*c + 2*a*b*d)*e^2
*f + (2*a*b*c + a^2*d)*e*f^2)^(1/3)*(b*x + a)^(1/3)*(d*x + c)^(2/
3))/(d*x + c)) + 6*(3*(b^2*c*d - a*b*d^2)*e^3 - (b^2*c^2 + a*b*c*
d - 2*a^2*d^2)*e^2*f + (3*(b^2*c*d - a*b*d^2)*e*f^2 - (b^2*c^2 +
a*b*c*d - 2*a^2*d^2)*f^3)*x^2 + 2*(3*(b^2*c*d - a*b*d^2)*e^2*f -
(b^2*c^2 + a*b*c*d - 2*a^2*d^2)*e*f^2)*x)*arctan(-1/3*(2*sqrt(3)*
(b^2*d*e^3 - a^2*c*f^3 - (b^2*c + 2*a*b*d)*e^2*f + (2*a*b*c + a^2
*d)*e*f^2)^(1/3)*(b*x + a)^(1/3)*(d*x + c)^(2/3) + sqrt(3)*(b*c*e
 - a*c*f + (b*d*e - a*d*f)*x))/(b*c*e - a*c*f + (b*d*e - a*d*f)*x
)))/((b*d^2*e^5 - a*c^2*e^2*f^3 - (2*b*c*d + a*d^2)*e^4*f + (b*c^
2 + 2*a*c*d)*e^3*f^2 + (b*d^2*e^3*f^2 - a*c^2*f^5 - (2*b*c*d + a*
d^2)*e^2*f^3 + (b*c^2 + 2*a*c*d)*e*f^4)*x^2 + 2*(b*d^2*e^4*f - a*
c^2*e*f^4 - (2*b*c*d + a*d^2)*e^3*f^2 + (b*c^2 + 2*a*c*d)*e^2*f^3
)*x)*(b^2*d*e^3 - a^2*c*f^3 - (b^2*c + 2*a*b*d)*e^2*f + (2*a*b*c
+ a^2*d)*e*f^2)^(1/3))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt[3]{a+bx}}{\sqrt[3]{c+dx}\,(e+fx)^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**(1/3)/(d*x+c)**(1/3)/(f*x+e)**3,x)
```

```
[Out] Integral((a + b*x)**(1/3)/((c + d*x)**(1/3)*(e + f*x)**3), x)
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(1/3)/((d*x + c)^(1/3)*(f*x + e)^3),x, algorithm="giac")
```

```
[Out] Exception raised: NotImplementedError
```

3.2997 $\int \frac{\sqrt[3]{a+bx}}{\sqrt[3]{c+dx}(e+fx)^4}\,dx$

Optimal. Leaf size=591

$$\frac{\sqrt[3]{a+bx}(c+dx)^{2/3}\left(28a^2d^2f^2-abdf(5cf+51de)+b^2\left(-5c^2f^2+15cdef+18d^2e^2\right)\right)}{54(e+fx)(be-af)^2(de-cf)^3}-\frac{(bc-ad)\log(e+fx)\left(14a^2d^2f^2-4abdf(9de-2cf)+b^2\left(5c^2f^2-18cdef+27d^2e^2\right)\right)}{162(be-af)^{8/3}(de-cf)^{10/3}}+\frac{(bc-ad)\left(14a^2d^2f^2-4abdf(9de-2cf)+b^2\left(5c^2f^2-18cdef+27d^2e^2\right)\right)\log\left(\frac{\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt[3]{de-cf}}-\sqrt[3]{a+bx}\right)}{54(be-af)^{8/3}(de-cf)^{10/3}}+\frac{(bc-ad)\left(14a^2d^2f^2-4abdf(9de-2cf)+b^2\left(5c^2f^2-18cdef+27d^2e^2\right)\right)\tan^{-1}\left(\frac{2\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt{3}\sqrt[3]{a+bx}\sqrt[3]{de-cf}}+\frac{1}{\sqrt{3}}\right)}{27\sqrt{3}(be-af)^{8/3}(de-cf)^{10/3}}+\frac{\sqrt[3]{a+bx}(c+dx)^{2/3}(-7adf+bcf+6bde)}{18(e+fx)^2(be-af)(de-cf)^2}+\frac{\sqrt[3]{a+bx}(c+dx)^{2/3}}{3(e+fx)^3(de-cf)}$$

```
[Out] ((a + b*x)^(1/3)*(c + d*x)^(2/3))/(3*(d*e - c*f)*(e + f*x)^3) + (
(6*b*d*e + b*c*f - 7*a*d*f)*(a + b*x)^(1/3)*(c + d*x)^(2/3))/(18*
(b*e - a*f)*(d*e - c*f)^2*(e + f*x)^2) + ((28*a^2*d^2*f^2 - a*b*d
*f*(51*d*e + 5*c*f) + b^2*(18*d^2*e^2 + 15*c*d*e*f - 5*c^2*f^2))*
(a + b*x)^(1/3)*(c + d*x)^(2/3))/(54*(b*e - a*f)^2*(d*e - c*f)^3*
(e + f*x)) + ((b*c - a*d)*(14*a^2*d^2*f^2 - 4*a*b*d*f*(9*d*e - 2*
c*f) + b^2*(27*d^2*e^2 - 18*c*d*e*f + 5*c^2*f^2))*ArcTan[1/Sqrt[3
] + (2*(b*e - a*f)^(1/3)*(c + d*x)^(1/3))/(Sqrt[3]*(d*e - c*f)^(1
/3)*(a + b*x)^(1/3))])/(27*Sqrt[3]*(b*e - a*f)^(8/3)*(d*e - c*f)^
(10/3)) - ((b*c - a*d)*(14*a^2*d^2*f^2 - 4*a*b*d*f*(9*d*e - 2*c*f
) + b^2*(27*d^2*e^2 - 18*c*d*e*f + 5*c^2*f^2))*Log[e + f*x])/(162
*(b*e - a*f)^(8/3)*(d*e - c*f)^(10/3)) + ((b*c - a*d)*(14*a^2*d^2
*f^2 - 4*a*b*d*f*(9*d*e - 2*c*f) + b^2*(27*d^2*e^2 - 18*c*d*e*f +
 5*c^2*f^2))*Log[-(a + b*x)^(1/3) + ((b*e - a*f)^(1/3)*(c + d*x)^
(1/3))/(d*e - c*f)^(1/3)])/(54*(b*e - a*f)^(8/3)*(d*e - c*f)^(10/
3))
```

Rubi [A] time = 2.68231, antiderivative size = 591, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.154$

$$\frac{\sqrt[3]{a+bx}(c+dx)^{2/3}\left(28a^2d^2f^2-abdf(5cf+51de)+b^2\left(-5c^2f^2+15cdef+18d^2e^2\right)\right)}{54(e+fx)(be-af)^2(de-cf)^3}-\frac{(bc-ad)\log(e+fx)\left(14a^2d^2f^2-4abdf(9de-2cf)+b^2\left(5c^2f^2-18cdef+27d^2e^2\right)\right)}{162(be-af)^{8/3}(de-cf)^{10/3}}+\frac{(bc-ad)\left(14a^2d^2f^2-4abdf(9de-2cf)+b^2\left(5c^2f^2-18cdef+27d^2e^2\right)\right)\log\left(\frac{\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt[3]{de-cf}}-\sqrt[3]{a+bx}\right)}{54(be-af)^{8/3}(de-cf)^{10/3}}+\frac{(bc-ad)\left(14a^2d^2f^2-4abdf(9de-2cf)+b^2\left(5c^2f^2-18cdef+27d^2e^2\right)\right)\tan^{-1}\left(\frac{2\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt{3}\sqrt[3]{a+bx}\sqrt[3]{de-cf}}+\frac{1}{\sqrt{3}}\right)}{27\sqrt{3}(be-af)^{8/3}(de-cf)^{10/3}}+\frac{\sqrt[3]{a+bx}(c+dx)^{2/3}(-7adf+bcf+6bde)}{18(e+fx)^2(be-af)(de-cf)^2}+\frac{\sqrt[3]{a+bx}(c+dx)^{2/3}}{3(e+fx)^3(de-cf)}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(1/3)/((c + d*x)^(1/3)*(e + f*x)^4),x]
```


```
[Out] ((a + b*x)^(1/3)*(c + d*x)^(2/3))/(3*(d*e - c*f)*(e + f*x)^3) + (
(6*b*d*e + b*c*f - 7*a*d*f)*(a + b*x)^(1/3)*(c + d*x)^(2/3))/(18*
(b*e - a*f)*(d*e - c*f)^2*(e + f*x)^2) + ((28*a^2*d^2*f^2 - a*b*d
```

```
*f*(51*d*e + 5*c*f) + b^2*(18*d^2*e^2 + 15*c*d*e*f - 5*c^2*f^2))*
(a + b*x)^(1/3)*(c + d*x)^(2/3))/(54*(b*e - a*f)^2*(d*e - c*f)^3*
(e + f*x)) + ((b*c - a*d)*(14*a^2*d^2*f^2 - 4*a*b*d*f*(9*d*e - 2*
c*f) + b^2*(27*d^2*e^2 - 18*c*d*e*f + 5*c^2*f^2))*ArcTan[1/Sqrt[3
] + (2*(b*e - a*f)^(1/3)*(c + d*x)^(1/3))/(Sqrt[3]*(d*e - c*f)^(1
/3)*(a + b*x)^(1/3))])/(27*Sqrt[3]*(b*e - a*f)^(8/3)*(d*e - c*f)^
(10/3)) - ((b*c - a*d)*(14*a^2*d^2*f^2 - 4*a*b*d*f*(9*d*e - 2*c*f
) + b^2*(27*d^2*e^2 - 18*c*d*e*f + 5*c^2*f^2))*Log[e + f*x])/(162
*(b*e - a*f)^(8/3)*(d*e - c*f)^(10/3)) + ((b*c - a*d)*(14*a^2*d^2
*f^2 - 4*a*b*d*f*(9*d*e - 2*c*f) + b^2*(27*d^2*e^2 - 18*c*d*e*f +
 5*c^2*f^2))*Log[-(a + b*x)^(1/3) + ((b*e - a*f)^(1/3)*(c + d*x)^
(1/3))/(d*e - c*f)^(1/3)])/(54*(b*e - a*f)^(8/3)*(d*e - c*f)^(10/
3))
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/3)/(d*x+c)**(1/3)/(f*x+e)**4,x)
```

```
[Out] Timed out
```

Mathematica [C] time = 1.4343, size = 334, normalized size = 0.57

$$\frac{\sqrt[3]{a+bx}\left((c+dx)(be-af)\left((e+fx)^2\left(28a^2d^2f^2-abdf(5cf+51de)+b^2\left(-5c^2f^2+15cdef+18d^2e^2\right)\right)+3(e+fx)(be-\right.\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(1/3)/((c + d*x)^(1/3)*(e + f*x)^4),x]
```

```
[Out] ((a + b*x)^(1/3)*((b*e - a*f)*(c + d*x)*(18*(b*e - a*f)^2*(d*e -
c*f)^2 + 3*(b*e - a*f)*(d*e - c*f)*(6*b*d*e + b*c*f - 7*a*d*f)*(e
 + f*x) + (28*a^2*d^2*f^2 - a*b*d*f*(51*d*e + 5*c*f) + b^2*(18*d^
2*e^2 + 15*c*d*e*f - 5*c^2*f^2))*(e + f*x)^2) - 2*(b*c - a*d)*(14
*a^2*d^2*f^2 + 4*a*b*d*f*(-9*d*e + 2*c*f) + b^2*(27*d^2*e^2 - 18*
c*d*e*f + 5*c^2*f^2))*(((b*e - a*f)*(c + d*x))/((b*c - a*d)*(e +
f*x)))^(1/3)*(e + f*x)^3*Hypergeometric2F1[1/3, 1/3, 4/3, ((-(d*e
) + c*f)*(a + b*x))/((b*c - a*d)*(e + f*x))]))/(54*(b*e - a*f)^3*
(d*e - c*f)^3*(c + d*x)^(1/3)*(e + f*x)^3)
```

Maple [F] time = 0.083, size = 0, normalized size = 0.

$$\int \frac{1}{(fx+e)^4}\sqrt[3]{bx+a}\frac{1}{\sqrt[3]{dx+c}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/3)/(d*x+c)^(1/3)/(f*x+e)^4,x)
```

```
[Out] int((b*x+a)^(1/3)/(d*x+c)^(1/3)/(f*x+e)^4,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^{\frac{1}{3}}}{(dx+c)^{\frac{1}{3}}(fx+e)^4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(1/3)/((d*x + c)^(1/3)*(f*x + e)^4),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^(1/3)/((d*x + c)^(1/3)*(f*x + e)^4), x)
```

Fricas [A] time = 0.363699, size = 3586, normalized size = 6.07

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(1/3)/((d*x + c)^(1/3)*(f*x + e)^4),x, algorithm="fricas")
```

```
[Out] 1/486*sqrt(3)*(3*sqrt(3)*(54*b^2*d^2*e^4 + 18*a^2*c^2*f^4 - 18*(2
*b^2*c*d + 7*a*b*d^2)*e^3*f + (10*b^2*c^2 + 103*a*b*c*d + 67*a^2*
d^2)*e^2*f^2 - 3*(11*a*b*c^2 + 19*a^2*c*d)*e*f^3 + (18*b^2*d^2*e^
2*f^2 + 3*(5*b^2*c*d - 17*a*b*d^2)*e*f^3 - (5*b^2*c^2 + 5*a*b*c*d
 - 28*a^2*d^2)*f^4)*x^2 + (54*b^2*d^2*e^3*f + 3*(5*b^2*c*d - 47*a
*b*d^2)*e^2*f^2 - (13*b^2*c^2 - 26*a*b*c*d - 77*a^2*d^2)*e*f^3 +
3*(a*b*c^2 - 7*a^2*c*d)*f^4)*x)*(b^2*d*e^3 - a^2*c*f^3 - (b^2*c +
 2*a*b*d)*e^2*f + (2*a*b*c + a^2*d)*e*f^2)^(1/3)*(b*x + a)^(1/3)*
(d*x + c)^(2/3) - sqrt(3)*(27*(b^3*c*d^2 - a*b^2*d^3)*e^5 - 18*(b
^3*c^2*d + a*b^2*c*d^2 - 2*a^2*b*d^3)*e^4*f + (5*b^3*c^3 + 3*a*b^
2*c^2*d + 6*a^2*b*c*d^2 - 14*a^3*d^3)*e^3*f^2 + (27*(b^3*c*d^2 -
a*b^2*d^3)*e^2*f^3 - 18*(b^3*c^2*d + a*b^2*c*d^2 - 2*a^2*b*d^3)*e
*f^4 + (5*b^3*c^3 + 3*a*b^2*c^2*d + 6*a^2*b*c*d^2 - 14*a^3*d^3)*f
^5)*x^3 + 3*(27*(b^3*c*d^2 - a*b^2*d^3)*e^3*f^2 - 18*(b^3*c^2*d +
 a*b^2*c*d^2 - 2*a^2*b*d^3)*e^2*f^3 + (5*b^3*c^3 + 3*a*b^2*c^2*d
+ 6*a^2*b*c*d^2 - 14*a^3*d^3)*e*f^4)*x^2 + 3*(27*(b^3*c*d^2 - a*b
^2*d^3)*e^4*f - 18*(b^3*c^2*d + a*b^2*c*d^2 - 2*a^2*b*d^3)*e^3*f^
2 + (5*b^3*c^3 + 3*a*b^2*c^2*d + 6*a^2*b*c*d^2 - 14*a^3*d^3)*e^2*
f^3)*x)*log((b^2*c*e^2 - 2*a*b*c*e*f + a^2*c*f^2 + (b^2*d*e^3 - a
^2*c*f^3 - (b^2*c + 2*a*b*d)*e^2*f + (2*a*b*c + a^2*d)*e*f^2)^(1/
3)*(b*e - a*f)*(b*x + a)^(1/3)*(d*x + c)^(2/3) + (b^2*d*e^2 - 2*a
*b*d*e*f + a^2*d*f^2)*x + (b^2*d*e^3 - a^2*c*f^3 - (b^2*c + 2*a*b
*d)*e^2*f + (2*a*b*c + a^2*d)*e*f^2)^(2/3)*(b*x + a)^(2/3)*(d*x +
 c)^(1/3))/(d*x + c)) + 2*sqrt(3)*(27*(b^3*c*d^2 - a*b^2*d^3)*e^5
 - 18*(b^3*c^2*d + a*b^2*c*d^2 - 2*a^2*b*d^3)*e^4*f + (5*b^3*c^3
+ 3*a*b^2*c^2*d + 6*a^2*b*c*d^2 - 14*a^3*d^3)*e^3*f^2 + (27*(b^3*
c*d^2 - a*b^2*d^3)*e^2*f^3 - 18*(b^3*c^2*d + a*b^2*c*d^2 - 2*a^2*
b*d^3)*e*f^4 + (5*b^3*c^3 + 3*a*b^2*c^2*d + 6*a^2*b*c*d^2 - 14*a^
3*d^3)*f^5)*x^3 + 3*(27*(b^3*c*d^2 - a*b^2*d^3)*e^3*f^2 - 18*(b^3
*c^2*d + a*b^2*c*d^2 - 2*a^2*b*d^3)*e^2*f^3 + (5*b^3*c^3 + 3*a*b^
2*c^2*d + 6*a^2*b*c*d^2 - 14*a^3*d^3)*e*f^4)*x^2 + 3*(27*(b^3*c*d
^2 - a*b^2*d^3)*e^4*f - 18*(b^3*c^2*d + a*b^2*c*d^2 - 2*a^2*b*d^3
)*e^3*f^2 + (5*b^3*c^3 + 3*a*b^2*c^2*d + 6*a^2*b*c*d^2 - 14*a^3*d
^3)*e^2*f^3)*x)*log(-(b*c*e - a*c*f + (b*d*e - a*d*f)*x - (b^2*d*
e^3 - a^2*c*f^3 - (b^2*c + 2*a*b*d)*e^2*f + (2*a*b*c + a^2*d)*e*f
^2)^(1/3)*(b*x + a)^(1/3)*(d*x + c)^(2/3))/(d*x + c)) + 6*(27*(b^
3*c*d^2 - a*b^2*d^3)*e^5 - 18*(b^3*c^2*d + a*b^2*c*d^2 - 2*a^2*b*
d^3)*e^4*f + (5*b^3*c^3 + 3*a*b^2*c^2*d + 6*a^2*b*c*d^2 - 14*a^3*
d^3)*e^3*f^2 + (27*(b^3*c*d^2 - a*b^2*d^3)*e^2*f^3 - 18*(b^3*c^2*
d + a*b^2*c*d^2 - 2*a^2*b*d^3)*e*f^4 + (5*b^3*c^3 + 3*a*b^2*c^2*d
 + 6*a^2*b*c*d^2 - 14*a^3*d^3)*f^5)*x^3 + 3*(27*(b^3*c*d^2 - a*b^
2*d^3)*e^3*f^2 - 18*(b^3*c^2*d + a*b^2*c*d^2 - 2*a^2*b*d^3)*e^2*f
^3 + (5*b^3*c^3 + 3*a*b^2*c^2*d + 6*a^2*b*c*d^2 - 14*a^3*d^3)*e*f
^4)*x^2 + 3*(27*(b^3*c*d^2 - a*b^2*d^3)*e^4*f - 18*(b^3*c^2*d + a
*b^2*c*d^2 - 2*a^2*b*d^3)*e^3*f^2 + (5*b^3*c^3 + 3*a*b^2*c^2*d +
6*a^2*b*c*d^2 - 14*a^3*d^3)*e^2*f^3)*x)*arctan(-1/3*(2*sqrt(3)*(b
^2*d*e^3 - a^2*c*f^3 - (b^2*c + 2*a*b*d)*e^2*f + (2*a*b*c + a^2*d
)*e*f^2)^(1/3)*(b*x + a)^(1/3)*(d*x + c)^(2/3) + sqrt(3)*(b*c*e -
```

```
 a*c*f + (b*d*e - a*d*f)*x))/(b*c*e - a*c*f + (b*d*e - a*d*f)*x))
)/((b^2*d^3*e^8 - a^2*c^3*e^3*f^5 - (3*b^2*c*d^2 + 2*a*b*d^3)*e^7
*f + (3*b^2*c^2*d + 6*a*b*c*d^2 + a^2*d^3)*e^6*f^2 - (b^2*c^3 + 6
*a*b*c^2*d + 3*a^2*c*d^2)*e^5*f^3 + (2*a*b*c^3 + 3*a^2*c^2*d)*e^4
*f^4 + (b^2*d^3*e^5*f^3 - a^2*c^3*f^8 - (3*b^2*c*d^2 + 2*a*b*d^3)
*e^4*f^4 + (3*b^2*c^2*d + 6*a*b*c*d^2 + a^2*d^3)*e^3*f^5 - (b^2*c
^3 + 6*a*b*c^2*d + 3*a^2*c*d^2)*e^2*f^6 + (2*a*b*c^3 + 3*a^2*c^2*
d)*e*f^7)*x^3 + 3*(b^2*d^3*e^6*f^2 - a^2*c^3*e*f^7 - (3*b^2*c*d^2
 + 2*a*b*d^3)*e^5*f^3 + (3*b^2*c^2*d + 6*a*b*c*d^2 + a^2*d^3)*e^4
*f^4 - (b^2*c^3 + 6*a*b*c^2*d + 3*a^2*c*d^2)*e^3*f^5 + (2*a*b*c^3
 + 3*a^2*c^2*d)*e^2*f^6)*x^2 + 3*(b^2*d^3*e^7*f - a^2*c^3*e^2*f^6
 - (3*b^2*c*d^2 + 2*a*b*d^3)*e^6*f^2 + (3*b^2*c^2*d + 6*a*b*c*d^2
 + a^2*d^3)*e^5*f^3 - (b^2*c^3 + 6*a*b*c^2*d + 3*a^2*c*d^2)*e^4*f
^4 + (2*a*b*c^3 + 3*a^2*c^2*d)*e^3*f^5)*x)*(b^2*d*e^3 - a^2*c*f^3
 - (b^2*c + 2*a*b*d)*e^2*f + (2*a*b*c + a^2*d)*e*f^2)^(1/3))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(1/3)/(d*x+c)**(1/3)/(f*x+e)**4,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(1/3)/((d*x + c)^(1/3)*(f*x + e)^4),x, algorithm="giac")
```

```
[Out] Exception raised: NotImplementedError
```

3.2998 $\int \frac{(e+fx)^3}{\sqrt[3]{a+bx}(c+dx)^{2/3}}\,dx$

Optimal. Leaf size=587

$$\frac{f(a+bx)^{2/3}\sqrt[3]{c+dx}\left(28a^2d^2f^2+3bdfx(-7adf-8bcf+15bde)-abdf(108de-31cf)+b^2\left(40c^2f^2-135cdef+144d^2e\right.\right.}{54b^3d^3}$$
$$+\frac{\log(c+dx)\left(14a^3d^3f^3-6a^2bd^2f^2(9de-2cf)+3ab^2df\left(5c^2f^2-18cdef+27d^2e^2\right)+b^3\left(-\left(-40c^3f^3+135c^2def^2-162\right.\right.\right.}{162b^{10/3}d^{11/3}}$$
$$+\frac{\left(14a^3d^3f^3-6a^2bd^2f^2(9de-2cf)+3ab^2df\left(5c^2f^2-18cdef+27d^2e^2\right)+b^3\left(-\left(-40c^3f^3+135c^2def^2-162cd^2e^2f+81\right.\right.\right.}{54b^{10/3}d^{11/3}}$$
$$+\frac{\left(14a^3d^3f^3-6a^2bd^2f^2(9de-2cf)+3ab^2df\left(5c^2f^2-18cdef+27d^2e^2\right)+b^3\left(-\left(-40c^3f^3+135c^2def^2-162cd^2e^2f+81\right.\right.\right.}{27\sqrt{3}b^{10/3}d^{11/3}}$$
$$+\frac{f(a+bx)^{2/3}\sqrt[3]{c+dx}(e+fx)^2}{3bd}$$

```
[Out] (f*(a + b*x)^(2/3)*(c + d*x)^(1/3)*(e + f*x)^2)/(3*b*d) + (f*(a +
 b*x)^(2/3)*(c + d*x)^(1/3)*(28*a^2*d^2*f^2 - a*b*d*f*(108*d*e -
31*c*f) + b^2*(144*d^2*e^2 - 135*c*d*e*f + 40*c^2*f^2) + 3*b*d*f*
(15*b*d*e - 8*b*c*f - 7*a*d*f)*x))/(54*b^3*d^3) + ((14*a^3*d^3*f^
3 - 6*a^2*b*d^2*f^2*(9*d*e - 2*c*f) + 3*a*b^2*d*f*(27*d^2*e^2 - 1
8*c*d*e*f + 5*c^2*f^2) - b^3*(81*d^3*e^3 - 162*c*d^2*e^2*f + 135*
c^2*d*e*f^2 - 40*c^3*f^3))*ArcTan[1/Sqrt[3] + (2*d^(1/3)*(a + b*x
)^(1/3))/(Sqrt[3]*b^(1/3)*(c + d*x)^(1/3))])/(27*Sqrt[3]*b^(10/3)
*d^(11/3)) + ((14*a^3*d^3*f^3 - 6*a^2*b*d^2*f^2*(9*d*e - 2*c*f) +
 3*a*b^2*d*f*(27*d^2*e^2 - 18*c*d*e*f + 5*c^2*f^2) - b^3*(81*d^3*
e^3 - 162*c*d^2*e^2*f + 135*c^2*d*e*f^2 - 40*c^3*f^3))*Log[c + d*
x])/(162*b^(10/3)*d^(11/3)) + ((14*a^3*d^3*f^3 - 6*a^2*b*d^2*f^2*
(9*d*e - 2*c*f) + 3*a*b^2*d*f*(27*d^2*e^2 - 18*c*d*e*f + 5*c^2*f^
2) - b^3*(81*d^3*e^3 - 162*c*d^2*e^2*f + 135*c^2*d*e*f^2 - 40*c^3
*f^3))*Log[-1 + (d^(1/3)*(a + b*x)^(1/3))/(b^(1/3)*(c + d*x)^(1/3
))])/(54*b^(10/3)*d^(11/3))
```

Rubi [A] time = 1.17511, antiderivative size = 587, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.115$

$$\frac{f(a+bx)^{2/3}\sqrt[3]{c+dx}\left(28a^2d^2f^2+3bdfx(-7adf-8bcf+15bde)-abdf(108de-31cf)+b^2\left(40c^2f^2-135cdef+144d^2e\right.\right.}{54b^3d^3}$$
$$+\frac{\log(c+dx)\left(14a^3d^3f^3-6a^2bd^2f^2(9de-2cf)+3ab^2df\left(5c^2f^2-18cdef+27d^2e^2\right)+b^3\left(-\left(-40c^3f^3+135c^2def^2-162\right.\right.\right.}{162b^{10/3}d^{11/3}}$$
$$+\frac{\left(14a^3d^3f^3-6a^2bd^2f^2(9de-2cf)+3ab^2df\left(5c^2f^2-18cdef+27d^2e^2\right)+b^3\left(-\left(-40c^3f^3+135c^2def^2-162cd^2e^2f+81\right.\right.\right.}{54b^{10/3}d^{11/3}}$$
$$+\frac{\left(14a^3d^3f^3-6a^2bd^2f^2(9de-2cf)+3ab^2df\left(5c^2f^2-18cdef+27d^2e^2\right)+b^3\left(-\left(-40c^3f^3+135c^2def^2-162cd^2e^2f+81\right.\right.\right.}{27\sqrt{3}b^{10/3}d^{11/3}}$$
$$+\frac{f(a+bx)^{2/3}\sqrt[3]{c+dx}(e+fx)^2}{3bd}$$

Antiderivative was successfully verified.

```
[In]  Int[(e + f*x)^3/((a + b*x)^(1/3)*(c + d*x)^(2/3)),x]
```

```
[Out] (f*(a + b*x)^(2/3)*(c + d*x)^(1/3)*(e + f*x)^2)/(3*b*d) + (f*(a +
 b*x)^(2/3)*(c + d*x)^(1/3)*(28*a^2*d^2*f^2 - a*b*d*f*(108*d*e -
31*c*f) + b^2*(144*d^2*e^2 - 135*c*d*e*f + 40*c^2*f^2) + 3*b*d*f*
(15*b*d*e - 8*b*c*f - 7*a*d*f)*x))/(54*b^3*d^3) + ((14*a^3*d^3*f^
3 - 6*a^2*b*d^2*f^2*(9*d*e - 2*c*f) + 3*a*b^2*d*f*(27*d^2*e^2 - 1
8*c*d*e*f + 5*c^2*f^2) - b^3*(81*d^3*e^3 - 162*c*d^2*e^2*f + 135*
c^2*d*e*f^2 - 40*c^3*f^3))*ArcTan[1/Sqrt[3] + (2*d^(1/3)*(a + b*x
)^(1/3))/(Sqrt[3]*b^(1/3)*(c + d*x)^(1/3))])/(27*Sqrt[3]*b^(10/3)
```

```
*d^(11/3)) + ((14*a^3*d^3*f^3 - 6*a^2*b*d^2*f^2*(9*d*e - 2*c*f) +
 3*a*b^2*d*f*(27*d^2*e^2 - 18*c*d*e*f + 5*c^2*f^2) - b^3*(81*d^3*
e^3 - 162*c*d^2*e^2*f + 135*c^2*d*e*f^2 - 40*c^3*f^3))*Log[c + d*
x])/(162*b^(10/3)*d^(11/3)) + ((14*a^3*d^3*f^3 - 6*a^2*b*d^2*f^2*
(9*d*e - 2*c*f) + 3*a*b^2*d*f*(27*d^2*e^2 - 18*c*d*e*f + 5*c^2*f^
2) - b^3*(81*d^3*e^3 - 162*c*d^2*e^2*f + 135*c^2*d*e*f^2 - 40*c^3
*f^3))*Log[-1 + (d^(1/3)*(a + b*x)^(1/3))/(b^(1/3)*(c + d*x)^(1/3
))])/(54*b^(10/3)*d^(11/3))
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((f*x+e)**3/(b*x+a)**(1/3)/(d*x+c)**(2/3),x)
```

```
[Out] Timed out
```

Mathematica [C] time = 0.54581, size = 275, normalized size = 0.47

$$\frac{\sqrt[3]{c+dx}\left(df(a+bx)\left(28a^2d^2f^2+abdf(31cf-3d(36e+7fx))+b^2\left(40c^2f^2-3cdf(45e+8fx)+9d^2\left(18e^2+9efx+2f^2x\right.\right.\right.\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(e + f*x)^3/((a + b*x)^(1/3)*(c + d*x)^(2/3)),x]
```

```
[Out] ((c + d*x)^(1/3)*(d*f*(a + b*x)*(28*a^2*d^2*f^2 + a*b*d*f*(31*c*f
 - 3*d*(36*e + 7*f*x)) + b^2*(40*c^2*f^2 - 3*c*d*f*(45*e + 8*f*x)
 + 9*d^2*(18*e^2 + 9*e*f*x + 2*f^2*x^2))) + 2*(-14*a^3*d^3*f^3 +
6*a^2*b*d^2*f^2*(9*d*e - 2*c*f) - 3*a*b^2*d*f*(27*d^2*e^2 - 18*c*
d*e*f + 5*c^2*f^2) + b^3*(81*d^3*e^3 - 162*c*d^2*e^2*f + 135*c^2*
d*e*f^2 - 40*c^3*f^3))*((d*(a + b*x))/(-(b*c) + a*d))^(1/3)*Hyper
geometric2F1[1/3, 1/3, 4/3, (b*(c + d*x))/(b*c - a*d)]))/(54*b^3*
d^4*(a + b*x)^(1/3))
```

Maple [F] time = 0.063, size = 0, normalized size = 0.

$$\int (fx+e)^3 \frac{1}{\sqrt[3]{bx+a}} (dx+c)^{-\frac{2}{3}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((f*x+e)^3/(b*x+a)^(1/3)/(d*x+c)^(2/3),x)
```

```
[Out] int((f*x+e)^3/(b*x+a)^(1/3)/(d*x+c)^(2/3),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(fx+e)^3}{(bx+a)^{\frac{1}{3}}(dx+c)^{\frac{2}{3}}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)^3/((b*x + a)^(1/3)*(d*x + c)^(2/3)),x, algorithm="maxima")
```

```
[Out] integrate((f*x + e)^3/((b*x + a)^(1/3)*(d*x + c)^(2/3)), x)
```

Fricas [A] time = 0.579854, size = 898, normalized size = 1.53

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)^3/((b*x + a)^(1/3)*(d*x + c)^(2/3)),x, algorithm="fricas")
```

```
[Out] 1/486*sqrt(3)*(3*sqrt(3)*(18*b^2*d^2*f^3*x^2 + 162*b^2*d^2*e^2*f
- 27*(5*b^2*c*d + 4*a*b*d^2)*e*f^2 + (40*b^2*c^2 + 31*a*b*c*d + 2
8*a^2*d^2)*f^3 + 3*(27*b^2*d^2*e*f^2 - (8*b^2*c*d + 7*a*b*d^2)*f^
3)*x)*(b*d^2)^(1/3)*(b*x + a)^(2/3)*(d*x + c)^(1/3) + sqrt(3)*(81
*b^3*d^3*e^3 - 81*(2*b^3*c*d^2 + a*b^2*d^3)*e^2*f + 27*(5*b^3*c^2
*d + 2*a*b^2*c*d^2 + 2*a^2*b*d^3)*e*f^2 - (40*b^3*c^3 + 15*a*b^2*
c^2*d + 12*a^2*b*c*d^2 + 14*a^3*d^3)*f^3)*log((b*d^2*x + a*d^2 +
(b*d^2)^(1/3)*(b*x + a)^(2/3)*(d*x + c)^(1/3)*d + (b*d^2)^(2/3)*(
b*x + a)^(1/3)*(d*x + c)^(2/3))/(b*x + a)) - 2*sqrt(3)*(81*b^3*d^
3*e^3 - 81*(2*b^3*c*d^2 + a*b^2*d^3)*e^2*f + 27*(5*b^3*c^2*d + 2*
a*b^2*c*d^2 + 2*a^2*b*d^3)*e*f^2 - (40*b^3*c^3 + 15*a*b^2*c^2*d +
 12*a^2*b*c*d^2 + 14*a^3*d^3)*f^3)*log(-(b*d*x + a*d - (b*d^2)^(1
/3)*(b*x + a)^(2/3)*(d*x + c)^(1/3))/(b*x + a)) + 6*(81*b^3*d^3*e
^3 - 81*(2*b^3*c*d^2 + a*b^2*d^3)*e^2*f + 27*(5*b^3*c^2*d + 2*a*b
^2*c*d^2 + 2*a^2*b*d^3)*e*f^2 - (40*b^3*c^3 + 15*a*b^2*c^2*d + 12
*a^2*b*c*d^2 + 14*a^3*d^3)*f^3)*arctan(1/3*(2*sqrt(3)*(b*d^2)^(1/
3)*(b*x + a)^(2/3)*(d*x + c)^(1/3) + sqrt(3)*(b*d*x + a*d))/(b*d*
x + a*d)))/((b*d^2)^(1/3)*b^3*d^3)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(e + fx)^3}{\sqrt[3]{a + bx}\,(c + dx)^{\frac{2}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x+e)**3/(b*x+a)**(1/3)/(d*x+c)**(2/3),x)
```

```
[Out] Integral((e + f*x)**3/((a + b*x)**(1/3)*(c + d*x)**(2/3)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(fx + e)^3}{(bx + a)^{\frac{1}{3}}(dx + c)^{\frac{2}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)^3/((b*x + a)^(1/3)*(d*x + c)^(2/3)),x, algorithm="giac")
```

```
[Out] integrate((f*x + e)^3/((b*x + a)^(1/3)*(d*x + c)^(2/3)), x)
```

3.2999 $\int \frac{(e+fx)^2}{\sqrt[3]{a+bx}(c+dx)^{2/3}}\,dx$

Optimal. Leaf size=369

$$-\frac{\log(c+dx)\left(2a^2d^2f^2-2abdf(3de-cf)+b^2\left(5c^2f^2-12cdef+9d^2e^2\right)\right)}{18b^{7/3}d^{8/3}}-\frac{\left(2a^2d^2f^2-2abdf(3de-cf)+b^2\left(5c^2f^2-12cdef+9d^2e^2\right)\right)\log\left(\frac{\sqrt[3]{d}\sqrt[3]{a+bx}}{\sqrt[3]{b}\sqrt[3]{c+dx}}-1\right)}{6b^{7/3}d^{8/3}}-\frac{\left(2a^2d^2f^2-2abdf(3de-cf)+b^2\left(5c^2f^2-12cdef+9d^2e^2\right)\right)\tan^{-1}\left(\frac{2\sqrt[3]{d}\sqrt[3]{a+bx}}{\sqrt{3}\sqrt[3]{b}\sqrt[3]{c+dx}}+\frac{1}{\sqrt{3}}\right)}{3\sqrt{3}b^{7/3}d^{8/3}}+\frac{f(a+bx)^{2/3}\sqrt[3]{c+dx}(-4adf-5bcf+9bde)}{6b^2d^2}+\frac{f(a+bx)^{2/3}\sqrt[3]{c+dx}(e+fx)}{2bd}$$

```
[Out] (f*(9*b*d*e - 5*b*c*f - 4*a*d*f)*(a + b*x)^(2/3)*(c + d*x)^(1/3))
/(6*b^2*d^2) + (f*(a + b*x)^(2/3)*(c + d*x)^(1/3)*(e + f*x))/(2*b
*d) - ((2*a^2*d^2*f^2 - 2*a*b*d*f*(3*d*e - c*f) + b^2*(9*d^2*e^2
- 12*c*d*e*f + 5*c^2*f^2))*ArcTan[1/Sqrt[3] + (2*d^(1/3)*(a + b*x
)^(1/3))/(Sqrt[3]*b^(1/3)*(c + d*x)^(1/3))])/(3*Sqrt[3]*b^(7/3)*d
^(8/3)) - ((2*a^2*d^2*f^2 - 2*a*b*d*f*(3*d*e - c*f) + b^2*(9*d^2*
e^2 - 12*c*d*e*f + 5*c^2*f^2))*Log[c + d*x])/(18*b^(7/3)*d^(8/3))
 - ((2*a^2*d^2*f^2 - 2*a*b*d*f*(3*d*e - c*f) + b^2*(9*d^2*e^2 - 1
2*c*d*e*f + 5*c^2*f^2))*Log[-1 + (d^(1/3)*(a + b*x)^(1/3))/(b^(1/
3)*(c + d*x)^(1/3))])/(6*b^(7/3)*d^(8/3))
```

Rubi [A] time = 0.829032, antiderivative size = 369, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.115

$$-\frac{\log(c+dx)\left(2a^2d^2f^2-2abdf(3de-cf)+b^2\left(5c^2f^2-12cdef+9d^2e^2\right)\right)}{18b^{7/3}d^{8/3}}-\frac{\left(2a^2d^2f^2-2abdf(3de-cf)+b^2\left(5c^2f^2-12cdef+9d^2e^2\right)\right)\log\left(\frac{\sqrt[3]{d}\sqrt[3]{a+bx}}{\sqrt[3]{b}\sqrt[3]{c+dx}}-1\right)}{6b^{7/3}d^{8/3}}-\frac{\left(2a^2d^2f^2-2abdf(3de-cf)+b^2\left(5c^2f^2-12cdef+9d^2e^2\right)\right)\tan^{-1}\left(\frac{2\sqrt[3]{d}\sqrt[3]{a+bx}}{\sqrt{3}\sqrt[3]{b}\sqrt[3]{c+dx}}+\frac{1}{\sqrt{3}}\right)}{3\sqrt{3}b^{7/3}d^{8/3}}+\frac{f(a+bx)^{2/3}\sqrt[3]{c+dx}(-4adf-5bcf+9bde)}{6b^2d^2}+\frac{f(a+bx)^{2/3}\sqrt[3]{c+dx}(e+fx)}{2bd}$$

Antiderivative was successfully verified.

```
[In]  Int[(e + f*x)^2/((a + b*x)^(1/3)*(c + d*x)^(2/3)),x]
```

```
[Out] (f*(9*b*d*e - 5*b*c*f - 4*a*d*f)*(a + b*x)^(2/3)*(c + d*x)^(1/3))
/(6*b^2*d^2) + (f*(a + b*x)^(2/3)*(c + d*x)^(1/3)*(e + f*x))/(2*b
*d) - ((2*a^2*d^2*f^2 - 2*a*b*d*f*(3*d*e - c*f) + b^2*(9*d^2*e^2
- 12*c*d*e*f + 5*c^2*f^2))*ArcTan[1/Sqrt[3] + (2*d^(1/3)*(a + b*x
)^(1/3))/(Sqrt[3]*b^(1/3)*(c + d*x)^(1/3))])/(3*Sqrt[3]*b^(7/3)*d
^(8/3)) - ((2*a^2*d^2*f^2 - 2*a*b*d*f*(3*d*e - c*f) + b^2*(9*d^2*
e^2 - 12*c*d*e*f + 5*c^2*f^2))*Log[c + d*x])/(18*b^(7/3)*d^(8/3))
 - ((2*a^2*d^2*f^2 - 2*a*b*d*f*(3*d*e - c*f) + b^2*(9*d^2*e^2 - 1
2*c*d*e*f + 5*c^2*f^2))*Log[-1 + (d^(1/3)*(a + b*x)^(1/3))/(b^(1/
3)*(c + d*x)^(1/3))])/(6*b^(7/3)*d^(8/3))
```

Rubi in Sympy [A] time = 45.6673, size = 386, normalized size = 1.05

$$\frac{f(a+bx)^{\frac{2}{3}}\sqrt[3]{c+dx}\,(e+fx)}{2bd}-\frac{f(a+bx)^{\frac{2}{3}}\sqrt[3]{c+dx}\,(4adf+5bcf-9bde)}{6b^2d^2}+\frac{\left(3bd\left(-6bde^2+f\left(3acf+e\left(ad+2bc\right)\right)\right)-f\left(ad+2bc\right)\left(4adf+5bcf-9bde\right)\right)\log\left(-1+\frac{\sqrt[3]{d}\sqrt[3]{a+bx}}{\sqrt[3]{b}\sqrt[3]{c+dx}}\right)}{12b^{\frac{7}{3}}d^{\frac{8}{3}}}+\frac{\left(3bd\left(-6bde^2+f\left(3acf+e\left(ad+2bc\right)\right)\right)-f\left(ad+2bc\right)\left(4adf+5bcf-9bde\right)\right)\log\left(c+dx\right)}{36b^{\frac{7}{3}}d^{\frac{8}{3}}}+\frac{\sqrt{3}\left(3bd\left(-6bde^2+f\left(3acf+e\left(ad+2bc\right)\right)\right)-f\left(ad+2bc\right)\left(4adf+5bcf-9bde\right)\right)\operatorname{atan}\left(\frac{\sqrt{3}}{3}+\frac{2\sqrt{3}\sqrt[3]{d}\sqrt[3]{a+bx}}{3\sqrt[3]{b}\sqrt[3]{c+dx}}\right)}{18b^{\frac{7}{3}}d^{\frac{8}{3}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   rubi_integrate((f*x+e)**2/(b*x+a)**(1/3)/(d*x+c)**(2/3),x)
```

```
[Out] f*(a + b*x)**(2/3)*(c + d*x)**(1/3)*(e + f*x)/(2*b*d) - f*(a + b*
x)**(2/3)*(c + d*x)**(1/3)*(4*a*d*f + 5*b*c*f - 9*b*d*e)/(6*b**2*
d**2) + (3*b*d*(-6*b*d*e**2 + f*(3*a*c*f + e*(a*d + 2*b*c))) - f*
(a*d + 2*b*c)*(4*a*d*f + 5*b*c*f - 9*b*d*e))*log(-1 + d**(1/3)*(a
 + b*x)**(1/3)/(b**(1/3)*(c + d*x)**(1/3)))/(12*b**(7/3)*d**(8/3)
) + (3*b*d*(-6*b*d*e**2 + f*(3*a*c*f + e*(a*d + 2*b*c))) - f*(a*d
 + 2*b*c)*(4*a*d*f + 5*b*c*f - 9*b*d*e))*log(c + d*x)/(36*b**(7/3
)*d**(8/3)) + sqrt(3)*(3*b*d*(-6*b*d*e**2 + f*(3*a*c*f + e*(a*d +
 2*b*c))) - f*(a*d + 2*b*c)*(4*a*d*f + 5*b*c*f - 9*b*d*e))*atan(s
qrt(3)/3 + 2*sqrt(3)*d**(1/3)*(a + b*x)**(1/3)/(3*b**(1/3)*(c + d
*x)**(1/3)))/(18*b**(7/3)*d**(8/3))
```

Mathematica [C] time = 0.30363, size = 162, normalized size = 0.44

$$\frac{\sqrt[3]{c+dx}\left(2\sqrt[3]{\frac{d(a+bx)}{ad-bc}}\left(2a^2d^2f^2+2abdf(cf-3de)+b^2\left(5c^2f^2-12cdef+9d^2e^2\right)\right){}_2F_1\left(\frac{1}{3},\frac{1}{3};\frac{4}{3};\frac{b(c+dx)}{bc-ad}\right)+df(a+bx)(-\right.}{6b^2d^3\sqrt[3]{a+bx}}$$

Antiderivative was successfully verified.

```
[In]   Integrate[(e + f*x)^2/((a + b*x)^(1/3)*(c + d*x)^(2/3)),x]
```

```
[Out] ((c + d*x)^(1/3)*(d*f*(a + b*x)*(-5*b*c*f - 4*a*d*f + 3*b*d*(4*e
+ f*x)) + 2*(2*a^2*d^2*f^2 + 2*a*b*d*f*(-3*d*e + c*f) + b^2*(9*d^
2*e^2 - 12*c*d*e*f + 5*c^2*f^2))*((d*(a + b*x))/(-(b*c) + a*d))^(
1/3)*Hypergeometric2F1[1/3, 1/3, 4/3, (b*(c + d*x))/(b*c - a*d)])
)/(6*b^2*d^3*(a + b*x)^(1/3))
```

Maple [F] time = 0.047, size = 0, normalized size = 0.

$$\int (fx+e)^2\frac{1}{\sqrt[3]{bx+a}}(dx+c)^{-\frac{2}{3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((f*x+e)^2/(b*x+a)^(1/3)/(d*x+c)^(2/3),x)
```

```
[Out] int((f*x+e)^2/(b*x+a)^(1/3)/(d*x+c)^(2/3),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(fx+e)^2}{(bx+a)^{\frac{1}{3}}(dx+c)^{\frac{2}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)^2/((b*x + a)^(1/3)*(d*x + c)^(2/3)),x, algorithm="maxima")
```

```
[Out] integrate((f*x + e)^2/((b*x + a)^(1/3)*(d*x + c)^(2/3)), x)
```

Fricas [A] time = 0.264257, size = 570, normalized size = 1.54

$$\sqrt{3}\left(3\sqrt{3}\left(3\,bdf^2x+12\,bdef-(5\,bc+4\,ad)f^2\right)\left(-bd^2\right)^{\frac{1}{3}}(bx+a)^{\frac{2}{3}}(dx+c)^{\frac{1}{3}}-\sqrt{3}\left(9\,b^2d^2e^2-6\left(2\,b^2cd+abd^2\right)ef+\left(5\,b^2c^2\right.\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)^2/((b*x + a)^(1/3)*(d*x + c)^(2/3)),x, algorithm="fricas")
```

```
[Out] 1/54*sqrt(3)*(3*sqrt(3)*(3*b*d*f^2*x + 12*b*d*e*f - (5*b*c + 4*a*
d)*f^2)*(-b*d^2)^(1/3)*(b*x + a)^(2/3)*(d*x + c)^(1/3) - sqrt(3)*
(9*b^2*d^2*e^2 - 6*(2*b^2*c*d + a*b*d^2)*e*f + (5*b^2*c^2 + 2*a*b
*c*d + 2*a^2*d^2)*f^2)*log((b*d^2*x + a*d^2 - (-b*d^2)^(1/3)*(b*x
 + a)^(2/3)*(d*x + c)^(1/3)*d + (-b*d^2)^(2/3)*(b*x + a)^(1/3)*(d
*x + c)^(2/3))/(b*x + a)) + 2*sqrt(3)*(9*b^2*d^2*e^2 - 6*(2*b^2*c
*d + a*b*d^2)*e*f + (5*b^2*c^2 + 2*a*b*c*d + 2*a^2*d^2)*f^2)*log(
(b*d*x + a*d + (-b*d^2)^(1/3)*(b*x + a)^(2/3)*(d*x + c)^(1/3))/(b
*x + a)) + 6*(9*b^2*d^2*e^2 - 6*(2*b^2*c*d + a*b*d^2)*e*f + (5*b^
2*c^2 + 2*a*b*c*d + 2*a^2*d^2)*f^2)*arctan(1/3*(2*sqrt(3)*(-b*d^2
)^(1/3)*(b*x + a)^(2/3)*(d*x + c)^(1/3) - sqrt(3)*(b*d*x + a*d))/
(b*d*x + a*d)))/((-b*d^2)^(1/3)*b^2*d^2)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(e+fx)^2}{\sqrt[3]{a+bx}\,(c+dx)^{\frac{2}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x+e)**2/(b*x+a)**(1/3)/(d*x+c)**(2/3),x)
```

```
[Out] Integral((e + f*x)**2/((a + b*x)**(1/3)*(c + d*x)**(2/3)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(fx+e)^2}{(bx+a)^{\frac{1}{3}}(dx+c)^{\frac{2}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)^2/((b*x + a)^(1/3)*(d*x + c)^(2/3)),x, algorithm="giac")
```

```
[Out] integrate((f*x + e)^2/((b*x + a)^(1/3)*(d*x + c)^(2/3)), x)
```

3.3000 $\int \frac{e+fx}{\sqrt[3]{a+bx}(c+dx)^{2/3}}\,dx$

Optimal. Leaf size=200

$$-\frac{\log(c+dx)(-adf-2bcf+3bde)}{6b^{4/3}d^{5/3}}-\frac{(-adf-2bcf+3bde)\log\left(\frac{\sqrt[3]{d}\sqrt[3]{a+bx}}{\sqrt[3]{b}\sqrt[3]{c+dx}}-1\right)}{2b^{4/3}d^{5/3}}-\frac{(-adf-2bcf+3bde)\tan^{-1}\left(\frac{2\sqrt[3]{d}\sqrt[3]{a+bx}}{\sqrt{3}\sqrt[3]{b}\sqrt[3]{c+dx}}+\frac{1}{\sqrt{3}}\right)}{\sqrt{3}b^{4/3}d^{5/3}}+\frac{f(a+bx)^{2/3}\sqrt[3]{c+dx}}{bd}$$

```
[Out] (f*(a + b*x)^(2/3)*(c + d*x)^(1/3))/(b*d) - ((3*b*d*e - 2*b*c*f -
 a*d*f)*ArcTan[1/Sqrt[3] + (2*d^(1/3)*(a + b*x)^(1/3))/(Sqrt[3]*b
^(1/3)*(c + d*x)^(1/3))])/(Sqrt[3]*b^(4/3)*d^(5/3)) - ((3*b*d*e -
 2*b*c*f - a*d*f)*Log[c + d*x])/(6*b^(4/3)*d^(5/3)) - ((3*b*d*e -
 2*b*c*f - a*d*f)*Log[-1 + (d^(1/3)*(a + b*x)^(1/3))/(b^(1/3)*(c
+ d*x)^(1/3))])/(2*b^(4/3)*d^(5/3))
```

Rubi [A] time = 0.297264, antiderivative size = 200, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.083$

$$-\frac{\log(c+dx)(-adf-2bcf+3bde)}{6b^{4/3}d^{5/3}}-\frac{(-adf-2bcf+3bde)\log\left(\frac{\sqrt[3]{d}\sqrt[3]{a+bx}}{\sqrt[3]{b}\sqrt[3]{c+dx}}-1\right)}{2b^{4/3}d^{5/3}}-\frac{(-adf-2bcf+3bde)\tan^{-1}\left(\frac{2\sqrt[3]{d}\sqrt[3]{a+bx}}{\sqrt{3}\sqrt[3]{b}\sqrt[3]{c+dx}}+\frac{1}{\sqrt{3}}\right)}{\sqrt{3}b^{4/3}d^{5/3}}+\frac{f(a+bx)^{2/3}\sqrt[3]{c+dx}}{bd}$$

Antiderivative was successfully verified.

```
[In]  Int[(e + f*x)/((a + b*x)^(1/3)*(c + d*x)^(2/3)),x]
```

```
[Out] (f*(a + b*x)^(2/3)*(c + d*x)^(1/3))/(b*d) - ((3*b*d*e - 2*b*c*f -
 a*d*f)*ArcTan[1/Sqrt[3] + (2*d^(1/3)*(a + b*x)^(1/3))/(Sqrt[3]*b
^(1/3)*(c + d*x)^(1/3))])/(Sqrt[3]*b^(4/3)*d^(5/3)) - ((3*b*d*e -
 2*b*c*f - a*d*f)*Log[c + d*x])/(6*b^(4/3)*d^(5/3)) - ((3*b*d*e -
 2*b*c*f - a*d*f)*Log[-1 + (d^(1/3)*(a + b*x)^(1/3))/(b^(1/3)*(c
+ d*x)^(1/3))])/(2*b^(4/3)*d^(5/3))
```

Rubi in Sympy [A] time = 17.0718, size = 194, normalized size = 0.97

$$\frac{f\,(a+bx)^{\frac{2}{3}}\sqrt[3]{c+dx}}{bd}+\frac{3\left(-bde+\frac{f(ad+2bc)}{3}\right)\log\left(-1+\frac{\sqrt[3]{d}\sqrt[3]{a+bx}}{\sqrt[3]{b}\sqrt[3]{c+dx}}\right)}{2b^{\frac{4}{3}}d^{\frac{5}{3}}}+\frac{\left(-bde+\frac{f(ad+2bc)}{3}\right)\log\left(c+dx\right)}{2b^{\frac{4}{3}}d^{\frac{5}{3}}}+\frac{\sqrt{3}\left(-bde+\frac{f(ad+2bc)}{3}\right)\operatorname{atan}\left(\frac{\sqrt{3}}{3}+\frac{2\sqrt{3}\sqrt[3]{d}\sqrt[3]{a+bx}}{3\sqrt[3]{b}\sqrt[3]{c+dx}}\right)}{b^{\frac{4}{3}}d^{\frac{5}{3}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((f*x+e)/(b*x+a)**(1/3)/(d*x+c)**(2/3),x)
```

```
[Out] f*(a + b*x)**(2/3)*(c + d*x)**(1/3)/(b*d) + 3*(-b*d*e + f*(a*d +
2*b*c)/3)*log(-1 + d**(1/3)*(a + b*x)**(1/3)/(b**(1/3)*(c + d*x)*
*(1/3)))/(2*b**(4/3)*d**(5/3)) + (-b*d*e + f*(a*d + 2*b*c)/3)*log
(c + d*x)/(2*b**(4/3)*d**(5/3)) + sqrt(3)*(-b*d*e + f*(a*d + 2*b*
c)/3)*atan(sqrt(3)/3 + 2*sqrt(3)*d**(1/3)*(a + b*x)**(1/3)/(3*b**
(1/3)*(c + d*x)**(1/3)))/(b**(4/3)*d**(5/3))
```

Mathematica [C] time = 0.222653, size = 99, normalized size = 0.5

$$\frac{\sqrt[3]{c+dx}\left(\sqrt[3]{\frac{d(a+bx)}{ad-bc}}(-adf-2bcf+3bde)\,{}_2F_1\left(\frac{1}{3},\frac{1}{3};\frac{4}{3};\frac{b(c+dx)}{bc-ad}\right)+df(a+bx)\right)}{bd^2\sqrt[3]{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(e + f*x)/((a + b*x)^(1/3)*(c + d*x)^(2/3)),x]
```

```
[Out] ((c + d*x)^(1/3)*(d*f*(a + b*x) + (3*b*d*e - 2*b*c*f - a*d*f)*((d
*(a + b*x))/(-(b*c) + a*d))^(1/3)*Hypergeometric2F1[1/3, 1/3, 4/3
, (b*(c + d*x))/(b*c - a*d)]))/(b*d^2*(a + b*x)^(1/3))
```

Maple [F] time = 0.042, size = 0, normalized size = 0.

$$\int (fx+e)\frac{1}{\sqrt[3]{bx+a}}(dx+c)^{-\frac{2}{3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((f*x+e)/(b*x+a)^(1/3)/(d*x+c)^(2/3),x)
```

```
[Out] int((f*x+e)/(b*x+a)^(1/3)/(d*x+c)^(2/3),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{fx+e}{(bx+a)^{\frac{1}{3}}(dx+c)^{\frac{2}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((f*x + e)/((b*x + a)^(1/3)*(d*x + c)^(2/3)),x, algorithm="maxima")
```

```
[Out] integrate((f*x + e)/((b*x + a)^(1/3)*(d*x + c)^(2/3)), x)
```

Fricas [A] time = 0.231874, size = 360, normalized size = 1.8

$$\sqrt{3}\left(6\sqrt{3}\left(bd^2\right)^{\frac{1}{3}}(bx+a)^{\frac{2}{3}}(dx+c)^{\frac{1}{3}}f+\sqrt{3}(3\,bde-(2\,bc+ad)f)\log\left(\frac{bd^2x+ad^2+\left(bd^2\right)^{\frac{1}{3}}(bx+a)^{\frac{2}{3}}(dx+c)^{\frac{1}{3}}d+\left(bd^2\right)^{\frac{2}{3}}(bx+a)^{\frac{1}{3}}(dx+c)^{\frac{2}{3}}}{bx+a}\right)\cdot$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((f*x + e)/((b*x + a)^(1/3)*(d*x + c)^(2/3)),x, algorithm="fricas")
```

```
[Out] 1/18*sqrt(3)*(6*sqrt(3)*(b*d^2)^(1/3)*(b*x + a)^(2/3)*(d*x + c)^(
1/3)*f + sqrt(3)*(3*b*d*e - (2*b*c + a*d)*f)*log((b*d^2*x + a*d^2
 + (b*d^2)^(1/3)*(b*x + a)^(2/3)*(d*x + c)^(1/3)*d + (b*d^2)^(2/3
)*(b*x + a)^(1/3)*(d*x + c)^(2/3))/(b*x + a)) - 2*sqrt(3)*(3*b*d*
e - (2*b*c + a*d)*f)*log(-(b*d*x + a*d - (b*d^2)^(1/3)*(b*x + a)^
(2/3)*(d*x + c)^(1/3))/(b*x + a)) + 6*(3*b*d*e - (2*b*c + a*d)*f)
*arctan(1/3*(2*sqrt(3)*(b*d^2)^(1/3)*(b*x + a)^(2/3)*(d*x + c)^(1
/3) + sqrt(3)*(b*d*x + a*d))/(b*d*x + a*d)))/((b*d^2)^(1/3)*b*d)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{e + fx}{\sqrt[3]{a + bx}\,(c + dx)^{\frac{2}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((f*x+e)/(b*x+a)**(1/3)/(d*x+c)**(2/3),x)
```

```
[Out] Integral((e + f*x)/((a + b*x)**(1/3)*(c + d*x)**(2/3)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{fx + e}{(bx + a)^{\frac{1}{3}}(dx + c)^{\frac{2}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((f*x + e)/((b*x + a)^(1/3)*(d*x + c)^(2/3)),x, algorithm="giac")
```

```
[Out] integrate((f*x + e)/((b*x + a)^(1/3)*(d*x + c)^(2/3)), x)
```

3.3001 $\int \frac{1}{\sqrt[3]{a+bx}(c+dx)^{2/3}}\,dx$

Optimal. Leaf size=126

$$-\frac{3\log\left(\frac{\sqrt[3]{d}\sqrt[3]{a+bx}}{\sqrt[3]{b}\sqrt[3]{c+dx}}-1\right)}{2\sqrt[3]{b}d^{2/3}}-\frac{\sqrt{3}\tan^{-1}\left(\frac{2\sqrt[3]{d}\sqrt[3]{a+bx}}{\sqrt{3}\sqrt[3]{b}\sqrt[3]{c+dx}}+\frac{1}{\sqrt{3}}\right)}{\sqrt[3]{b}d^{2/3}}-\frac{\log(c+dx)}{2\sqrt[3]{b}d^{2/3}}$$

```
[Out] -((Sqrt[3]*ArcTan[1/Sqrt[3] + (2*d^(1/3)*(a + b*x)^(1/3))/(Sqrt[3
]*b^(1/3)*(c + d*x)^(1/3))])/(b^(1/3)*d^(2/3))) - Log[c + d*x]/(2
*b^(1/3)*d^(2/3)) - (3*Log[-1 + (d^(1/3)*(a + b*x)^(1/3))/(b^(1/3
)*(c + d*x)^(1/3))])/(2*b^(1/3)*d^(2/3))
```

Rubi [A] time = 0.0695051, antiderivative size = 126, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}} = 0.053$

$$-\frac{3\log\left(\frac{\sqrt[3]{d}\sqrt[3]{a+bx}}{\sqrt[3]{b}\sqrt[3]{c+dx}}-1\right)}{2\sqrt[3]{b}d^{2/3}}-\frac{\sqrt{3}\tan^{-1}\left(\frac{2\sqrt[3]{d}\sqrt[3]{a+bx}}{\sqrt{3}\sqrt[3]{b}\sqrt[3]{c+dx}}+\frac{1}{\sqrt{3}}\right)}{\sqrt[3]{b}d^{2/3}}-\frac{\log(c+dx)}{2\sqrt[3]{b}d^{2/3}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((a + b*x)^(1/3)*(c + d*x)^(2/3)),x]
```

```
[Out] -((Sqrt[3]*ArcTan[1/Sqrt[3] + (2*d^(1/3)*(a + b*x)^(1/3))/(Sqrt[3
]*b^(1/3)*(c + d*x)^(1/3))])/(b^(1/3)*d^(2/3))) - Log[c + d*x]/(2
*b^(1/3)*d^(2/3)) - (3*Log[-1 + (d^(1/3)*(a + b*x)^(1/3))/(b^(1/3
)*(c + d*x)^(1/3))])/(2*b^(1/3)*d^(2/3))
```

Rubi in Sympy [A] time = 6.11854, size = 122, normalized size = 0.97

$$-\frac{3\log\left(-1+\frac{\sqrt[3]{d}\sqrt[3]{a+bx}}{\sqrt[3]{b}\sqrt[3]{c+dx}}\right)}{2\sqrt[3]{b}d^{\frac{2}{3}}}-\frac{\log(c+dx)}{2\sqrt[3]{b}d^{\frac{2}{3}}}-\frac{\sqrt{3}\,\mathrm{atan}\left(\frac{\sqrt{3}}{3}+\frac{2\sqrt{3}\sqrt[3]{d}\sqrt[3]{a+bx}}{3\sqrt[3]{b}\sqrt[3]{c+dx}}\right)}{\sqrt[3]{b}d^{\frac{2}{3}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(b*x+a)**(1/3)/(d*x+c)**(2/3),x)
```

```
[Out] -3*log(-1 + d**(1/3)*(a + b*x)**(1/3)/(b**(1/3)*(c + d*x)**(1/3))
)/(2*b**(1/3)*d**(2/3)) - log(c + d*x)/(2*b**(1/3)*d**(2/3)) - sq
rt(3)*atan(sqrt(3)/3 + 2*sqrt(3)*d**(1/3)*(a + b*x)**(1/3)/(3*b**
(1/3)*(c + d*x)**(1/3)))/(b**(1/3)*d**(2/3))
```

Mathematica [C] time = 0.0746757, size = 71, normalized size = 0.56

$$\frac{3\sqrt[3]{c+dx}\sqrt[3]{\frac{d(a+bx)}{ad-bc}}\,{}_2F_1\left(\frac{1}{3},\frac{1}{3};\frac{4}{3};\frac{b(c+dx)}{bc-ad}\right)}{d\sqrt[3]{a+bx}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((a + b*x)^(1/3)*(c + d*x)^(2/3)),x]
```

```
[Out] (3*((d*(a + b*x))/(-(b*c) + a*d))^(1/3)*(c + d*x)^(1/3)*Hypergeom
etric2F1[1/3, 1/3, 4/3, (b*(c + d*x))/(b*c - a*d)])/(d*(a + b*x)^
```

```
(1/3))
```

Maple [F] time = 0., size = 0, normalized size = 0.

$$\int 1\frac{1}{\sqrt[3]{bx+a}}\left(dx+c\right)^{-\frac{2}{3}}dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(b*x+a)^(1/3)/(d*x+c)^(2/3),x)
```

```
[Out] int(1/(b*x+a)^(1/3)/(d*x+c)^(2/3),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\left(bx+a\right)^{\frac{1}{3}}\left(dx+c\right)^{\frac{2}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^(1/3)*(d*x + c)^(2/3)),x, algorithm="maxima")
```

```
[Out] integrate(1/((b*x + a)^(1/3)*(d*x + c)^(2/3)), x)
```

Fricas [A] time = 0.220395, size = 239, normalized size = 1.9

$$\frac{2\,\sqrt{3}\arctan\left(-\frac{\sqrt{3}\left(bdx+ad-2\,\left(-bd^{2}\right)^{\frac{1}{3}}\left(bx+a\right)^{\frac{2}{3}}\left(dx+c\right)^{\frac{1}{3}}\right)}{3\,\left(bdx+ad\right)}\right)-\log\left(\frac{bd^{2}x+ad^{2}-\left(-bd^{2}\right)^{\frac{1}{3}}\left(bx+a\right)^{\frac{2}{3}}\left(dx+c\right)^{\frac{1}{3}}d+\left(-bd^{2}\right)^{\frac{2}{3}}\left(bx+a\right)^{\frac{1}{3}}\left(dx+c\right)^{\frac{2}{3}}}{bx+a}\right)+2\,\log\left(\right.}{2\,\left(-bd^{2}\right)^{\frac{1}{3}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^(1/3)*(d*x + c)^(2/3)),x, algorithm="fricas")
```

```
[Out] 1/2*(2*sqrt(3)*arctan(-1/3*sqrt(3)*(b*d*x + a*d - 2*(-b*d^2)^(1/3
)*(b*x + a)^(2/3)*(d*x + c)^(1/3))/(b*d*x + a*d)) - log((b*d^2*x
+ a*d^2 - (-b*d^2)^(1/3)*(b*x + a)^(2/3)*(d*x + c)^(1/3)*d + (-b*
d^2)^(2/3)*(b*x + a)^(1/3)*(d*x + c)^(2/3))/(b*x + a)) + 2*log((b
*d*x + a*d + (-b*d^2)^(1/3)*(b*x + a)^(2/3)*(d*x + c)^(1/3))/(b*x
 + a)))/(-b*d^2)^(1/3)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt[3]{a+bx}\left(c+dx\right)^{\frac{2}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(b*x+a)**(1/3)/(d*x+c)**(2/3),x)
```

```
[Out] Integral(1/((a + b*x)**(1/3)*(c + d*x)**(2/3)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(bx+a)^{\frac{1}{3}}(dx+c)^{\frac{2}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^(1/3)*(d*x + c)^(2/3)),x, algorithm="giac")

[Out] integrate(1/((b*x + a)^(1/3)*(d*x + c)^(2/3)), x)
```

3.3002 $\int \frac{1}{\sqrt[3]{a+bx}(c+dx)^{2/3}(e+fx)}\,dx$

Optimal. Leaf size=197

$$\frac{\log(e+fx)}{2\sqrt[3]{be-af}(de-cf)^{2/3}}-\frac{3\log\left(\frac{\sqrt[3]{a+bx}\sqrt[3]{de-cf}}{\sqrt[3]{be-af}}-\sqrt[3]{c+dx}\right)}{2\sqrt[3]{be-af}(de-cf)^{2/3}}-\frac{\sqrt{3}\tan^{-1}\left(\frac{2\sqrt[3]{a+bx}\sqrt[3]{de-cf}}{\sqrt{3}\sqrt[3]{c+dx}\sqrt[3]{be-af}}+\frac{1}{\sqrt{3}}\right)}{\sqrt[3]{be-af}(de-cf)^{2/3}}$$

```
[Out] -((Sqrt[3]*ArcTan[1/Sqrt[3] + (2*(d*e - c*f)^(1/3)*(a + b*x)^(1/3
))/(Sqrt[3]*(b*e - a*f)^(1/3)*(c + d*x)^(1/3))]])/((b*e - a*f)^(1/
3)*(d*e - c*f)^(2/3))) + Log[e + f*x]/(2*(b*e - a*f)^(1/3)*(d*e -
 c*f)^(2/3)) - (3*Log[((d*e - c*f)^(1/3)*(a + b*x)^(1/3))/(b*e -
a*f)^(1/3) - (c + d*x)^(1/3)])/(2*(b*e - a*f)^(1/3)*(d*e - c*f)^(
2/3))
```

Rubi [A] time = 0.223432, antiderivative size = 197, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.038$

$$\frac{\log(e+fx)}{2\sqrt[3]{be-af}(de-cf)^{2/3}}-\frac{3\log\left(\frac{\sqrt[3]{a+bx}\sqrt[3]{de-cf}}{\sqrt[3]{be-af}}-\sqrt[3]{c+dx}\right)}{2\sqrt[3]{be-af}(de-cf)^{2/3}}-\frac{\sqrt{3}\tan^{-1}\left(\frac{2\sqrt[3]{a+bx}\sqrt[3]{de-cf}}{\sqrt{3}\sqrt[3]{c+dx}\sqrt[3]{be-af}}+\frac{1}{\sqrt{3}}\right)}{\sqrt[3]{be-af}(de-cf)^{2/3}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((a + b*x)^(1/3)*(c + d*x)^(2/3)*(e + f*x)),x]
```

```
[Out] -((Sqrt[3]*ArcTan[1/Sqrt[3] + (2*(d*e - c*f)^(1/3)*(a + b*x)^(1/3
))/(Sqrt[3]*(b*e - a*f)^(1/3)*(c + d*x)^(1/3))]])/((b*e - a*f)^(1/
3)*(d*e - c*f)^(2/3))) + Log[e + f*x]/(2*(b*e - a*f)^(1/3)*(d*e -
 c*f)^(2/3)) - (3*Log[((d*e - c*f)^(1/3)*(a + b*x)^(1/3))/(b*e -
a*f)^(1/3) - (c + d*x)^(1/3)])/(2*(b*e - a*f)^(1/3)*(d*e - c*f)^(
2/3))
```

Rubi in Sympy [A] time = 12.0507, size = 170, normalized size = 0.86

$$-\frac{\log\left(e+fx\right)}{2\sqrt[3]{af-be}\left(cf-de\right)^{\frac{2}{3}}}+\frac{3\log\left(\frac{\sqrt[3]{a+bx}\sqrt[3]{cf-de}}{\sqrt[3]{af-be}}-\sqrt[3]{c+dx}\right)}{2\sqrt[3]{af-be}\left(cf-de\right)^{\frac{2}{3}}}+\frac{\sqrt{3}\,\mathrm{atan}\left(\frac{2\sqrt{3}\sqrt[3]{a+bx}\sqrt[3]{cf-de}}{3\sqrt[3]{c+dx}\sqrt[3]{af-be}}+\frac{\sqrt{3}}{3}\right)}{\sqrt[3]{af-be}\left(cf-de\right)^{\frac{2}{3}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(b*x+a)**(1/3)/(d*x+c)**(2/3)/(f*x+e),x)
```

```
[Out] -log(e + f*x)/(2*(a*f - b*e)**(1/3)*(c*f - d*e)**(2/3)) + 3*log((
a + b*x)**(1/3)*(c*f - d*e)**(1/3)/(a*f - b*e)**(1/3) - (c + d*x)
**(1/3))/(2*(a*f - b*e)**(1/3)*(c*f - d*e)**(2/3)) + sqrt(3)*atan
(2*sqrt(3)*(a + b*x)**(1/3)*(c*f - d*e)**(1/3)/(3*(c + d*x)**(1/3
)*(a*f - b*e)**(1/3)) + sqrt(3)/3)/((a*f - b*e)**(1/3)*(c*f - d*e
)**(2/3))
```

Mathematica [C] time = 1.50156, size = 108, normalized size = 0.55

$$\frac{3(a+bx)^{2/3}\left(\frac{(c+dx)(be-af)}{(e+fx)(bc-ad)}\right)^{2/3}{}_2F_1\left(\frac{2}{3},\frac{2}{3};\frac{5}{3};\frac{(cf-de)(a+bx)}{(bc-ad)(e+fx)}\right)}{2(c+dx)^{2/3}(be-af)}$$

Antiderivative was successfully verified.

```
[In]   Integrate[1/((a + b*x)^(1/3)*(c + d*x)^(2/3)*(e + f*x)),x]
```

```
[Out] (3*(a + b*x)^(2/3)*(((b*e - a*f)*(c + d*x))/((b*c - a*d)*(e + f*x
)))^(2/3)*Hypergeometric2F1[2/3, 2/3, 5/3, ((-(d*e) + c*f)*(a + b
*x))/((b*c - a*d)*(e + f*x))])/(2*(b*e - a*f)*(c + d*x)^(2/3))
```

Maple [F] time = 0.081, size = 0, normalized size = 0.

$$\int \frac{1}{fx+e}\frac{1}{\sqrt[3]{bx+a}}(dx+c)^{-\frac{2}{3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int(1/(b*x+a)^(1/3)/(d*x+c)^(2/3)/(f*x+e),x)
```

```
[Out] int(1/(b*x+a)^(1/3)/(d*x+c)^(2/3)/(f*x+e),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(bx+a)^{\frac{1}{3}}(dx+c)^{\frac{2}{3}}(fx+e)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^(1/3)*(d*x + c)^(2/3)*(f*x + e)),x, algorithm="maxima")
```

```
[Out] integrate(1/((b*x + a)^(1/3)*(d*x + c)^(2/3)*(f*x + e)), x)
```

Fricas [A] time = 0.229965, size = 657, normalized size = 3.34

$$-\frac{2\sqrt{3}\arctan\left(\frac{\sqrt{3}\left(ade-acf+(bde-bcf)x-2\left(-bd^2e^3+ac^2f^3+\left(2bcd+ad^2\right)e^2f-\left(bc^2+2acd\right)ef^2\right)^{\frac{1}{3}}(bx+a)^{\frac{2}{3}}(dx+c)^{\frac{1}{3}}\right)}{3(ade-acf+(bde-bcf)x)}\right)+\log\left(\frac{ad^2e^2-2acdef+ac^2f\cdots}{\cdots}\right)\cdots}{\cdots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^(1/3)*(d*x + c)^(2/3)*(f*x + e)),x, algorithm="fricas")
```

```
[Out] -1/2*(2*sqrt(3)*arctan(1/3*sqrt(3)*(a*d*e - a*c*f + (b*d*e - b*c*
f)*x - 2*(-b*d^2*e^3 + a*c^2*f^3 + (2*b*c*d + a*d^2)*e^2*f - (b*c
^2 + 2*a*c*d)*e*f^2)^(1/3)*(b*x + a)^(2/3)*(d*x + c)^(1/3))/(a*d*
e - a*c*f + (b*d*e - b*c*f)*x)) + log((a*d^2*e^2 - 2*a*c*d*e*f +
a*c^2*f^2 - (-b*d^2*e^3 + a*c^2*f^3 + (2*b*c*d + a*d^2)*e^2*f - (
b*c^2 + 2*a*c*d)*e*f^2)^(1/3)*(d*e - c*f)*(b*x + a)^(2/3)*(d*x +
c)^(1/3) + (b*d^2*e^2 - 2*b*c*d*e*f + b*c^2*f^2)*x + (-b*d^2*e^3
+ a*c^2*f^3 + (2*b*c*d + a*d^2)*e^2*f - (b*c^2 + 2*a*c*d)*e*f^2)^
(2/3)*(b*x + a)^(1/3)*(d*x + c)^(2/3))/(b*x + a)) - 2*log((a*d*e
- a*c*f + (b*d*e - b*c*f)*x + (-b*d^2*e^3 + a*c^2*f^3 + (2*b*c*d
+ a*d^2)*e^2*f - (b*c^2 + 2*a*c*d)*e*f^2)^(1/3)*(b*x + a)^(2/3)*(
d*x + c)^(1/3))/(b*x + a)))/(-b*d^2*e^3 + a*c^2*f^3 + (2*b*c*d +
a*d^2)*e^2*f - (b*c^2 + 2*a*c*d)*e*f^2)^(1/3)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt[3]{a+bx}\,(c+dx)^{\frac{2}{3}}\,(e+fx)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(b*x+a)**(1/3)/(d*x+c)**(2/3)/(f*x+e),x)
```

```
[Out] Integral(1/((a + b*x)**(1/3)*(c + d*x)**(2/3)*(e + f*x)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(bx+a)^{\frac{1}{3}}(dx+c)^{\frac{2}{3}}(fx+e)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^(1/3)*(d*x + c)^(2/3)*(f*x + e)),x, algorithm="giac")
```

```
[Out] integrate(1/((b*x + a)^(1/3)*(d*x + c)^(2/3)*(f*x + e)), x)
```

3.3003 $\int \frac{1}{\sqrt[3]{a+bx}(c+dx)^{2/3}(e+fx)^2} dx$

Optimal. Leaf size=293

$$-\frac{f(a+bx)^{2/3}\sqrt[3]{c+dx}}{(e+fx)(be-af)(de-cf)}+\frac{\log(e+fx)(-2adf-bcf+3bde)}{6(be-af)^{4/3}(de-cf)^{5/3}}-\frac{(-2adf-bcf+3bde)\log\left(\frac{\sqrt[3]{a+bx}\sqrt[3]{de-cf}}{\sqrt[3]{be-af}}-\sqrt[3]{c+dx}\right)}{2(be-af)^{4/3}(de-cf)^{5/3}}-\frac{(-2adf-bcf+3bde)\tan^{-1}\left(\frac{2\sqrt[3]{a+bx}\sqrt[3]{de-cf}}{\sqrt{3}\sqrt[3]{c+dx}\sqrt[3]{be-af}}+\frac{1}{\sqrt{3}}\right)}{\sqrt{3}(be-af)^{4/3}(de-cf)^{5/3}}$$

```
[Out] -((f*(a + b*x)^(2/3)*(c + d*x)^(1/3))/((b*e - a*f)*(d*e - c*f)*(e
 + f*x))) - ((3*b*d*e - b*c*f - 2*a*d*f)*ArcTan[1/Sqrt[3] + (2*(d
*e - c*f)^(1/3)*(a + b*x)^(1/3))/(Sqrt[3]*(b*e - a*f)^(1/3)*(c +
d*x)^(1/3))])/(Sqrt[3]*(b*e - a*f)^(4/3)*(d*e - c*f)^(5/3)) + ((3
*b*d*e - b*c*f - 2*a*d*f)*Log[e + f*x])/(6*(b*e - a*f)^(4/3)*(d*e
 - c*f)^(5/3)) - ((3*b*d*e - b*c*f - 2*a*d*f)*Log[((d*e - c*f)^(1
/3)*(a + b*x)^(1/3))/(b*e - a*f)^(1/3) - (c + d*x)^(1/3)])/(2*(b*
e - a*f)^(4/3)*(d*e - c*f)^(5/3))
```

Rubi [A] time = 0.559468, antiderivative size = 293, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.077$

$$-\frac{f(a+bx)^{2/3}\sqrt[3]{c+dx}}{(e+fx)(be-af)(de-cf)}+\frac{\log(e+fx)(-2adf-bcf+3bde)}{6(be-af)^{4/3}(de-cf)^{5/3}}-\frac{(-2adf-bcf+3bde)\log\left(\frac{\sqrt[3]{a+bx}\sqrt[3]{de-cf}}{\sqrt[3]{be-af}}-\sqrt[3]{c+dx}\right)}{2(be-af)^{4/3}(de-cf)^{5/3}}-\frac{(-2adf-bcf+3bde)\tan^{-1}\left(\frac{2\sqrt[3]{a+bx}\sqrt[3]{de-cf}}{\sqrt{3}\sqrt[3]{c+dx}\sqrt[3]{be-af}}+\frac{1}{\sqrt{3}}\right)}{\sqrt{3}(be-af)^{4/3}(de-cf)^{5/3}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((a + b*x)^(1/3)*(c + d*x)^(2/3)*(e + f*x)^2),x]
```

```
[Out] -((f*(a + b*x)^(2/3)*(c + d*x)^(1/3))/((b*e - a*f)*(d*e - c*f)*(e
 + f*x))) - ((3*b*d*e - b*c*f - 2*a*d*f)*ArcTan[1/Sqrt[3] + (2*(d
*e - c*f)^(1/3)*(a + b*x)^(1/3))/(Sqrt[3]*(b*e - a*f)^(1/3)*(c +
d*x)^(1/3))])/(Sqrt[3]*(b*e - a*f)^(4/3)*(d*e - c*f)^(5/3)) + ((3
*b*d*e - b*c*f - 2*a*d*f)*Log[e + f*x])/(6*(b*e - a*f)^(4/3)*(d*e
 - c*f)^(5/3)) - ((3*b*d*e - b*c*f - 2*a*d*f)*Log[((d*e - c*f)^(1
/3)*(a + b*x)^(1/3))/(b*e - a*f)^(1/3) - (c + d*x)^(1/3)])/(2*(b*
e - a*f)^(4/3)*(d*e - c*f)^(5/3))
```

Rubi in Sympy [A] time = 47.5826, size = 264, normalized size = 0.9

$$-\frac{f(a+bx)^{\frac{2}{3}}\sqrt[3]{c+dx}}{(e+fx)(af-be)(cf-de)}+\frac{(2adf+bcf-3bde)\log(e+fx)}{6(af-be)^{\frac{4}{3}}(cf-de)^{\frac{5}{3}}}-\frac{(2adf+bcf-3bde)\log\left(\frac{\sqrt[3]{a+bx}\sqrt[3]{cf-de}}{\sqrt[3]{af-be}}-\sqrt[3]{c+dx}\right)}{2(af-be)^{\frac{4}{3}}(cf-de)^{\frac{5}{3}}}-\frac{\sqrt{3}(2adf+bcf-3bde)\operatorname{atan}\left(\frac{2\sqrt{3}\sqrt[3]{a+bx}\sqrt[3]{cf-de}}{3\sqrt[3]{c+dx}\sqrt[3]{af-be}}+\frac{\sqrt{3}}{3}\right)}{3(af-be)^{\frac{4}{3}}(cf-de)^{\frac{5}{3}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(b*x+a)**(1/3)/(d*x+c)**(2/3)/(f*x+e)**2,x)
```

```
[Out] -f*(a + b*x)**(2/3)*(c + d*x)**(1/3)/((e + f*x)*(a*f - b*e)*(c*f
- d*e)) + (2*a*d*f + b*c*f - 3*b*d*e)*log(e + f*x)/(6*(a*f - b*e)
**(4/3)*(c*f - d*e)**(5/3)) - (2*a*d*f + b*c*f - 3*b*d*e)*log((a
+ b*x)**(1/3)*(c*f - d*e)**(1/3)/(a*f - b*e)**(1/3) - (c + d*x)**
(1/3))/(2*(a*f - b*e)**(4/3)*(c*f - d*e)**(5/3)) - sqrt(3)*(2*a*d
*f + b*c*f - 3*b*d*e)*atan(2*sqrt(3)*(a + b*x)**(1/3)*(c*f - d*e)
**(1/3)/(3*(c + d*x)**(1/3)*(a*f - b*e)**(1/3)) + sqrt(3)/3)/(3*(
a*f - b*e)**(4/3)*(c*f - d*e)**(5/3))
```

Mathematica [C] time = 0.823068, size = 171, normalized size = 0.58

$$\frac{(a+bx)^{2/3}\left(\frac{(-2adf-bcf+3bde)\left(\frac{(c+dx)(be-af)}{(e+fx)(bc-ad)}\right)^{2/3}{}_2F_1\left(\frac{2}{3},\frac{2}{3};\frac{5}{3};\frac{(cf-de)(a+bx)}{(bc-ad)(e+fx)}\right)}{(be-af)(de-cf)}+\frac{2f(c+dx)}{(e+fx)(cf-de)}\right)}{2(c+dx)^{2/3}(be-af)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((a + b*x)^(1/3)*(c + d*x)^(2/3)*(e + f*x)^2),x]
```

```
[Out] ((a + b*x)^(2/3)*((2*f*(c + d*x))/((-(d*e) + c*f)*(e + f*x)) + ((
3*b*d*e - b*c*f - 2*a*d*f)*(((b*e - a*f)*(c + d*x))/((b*c - a*d)*
(e + f*x)))^(2/3)*Hypergeometric2F1[2/3, 2/3, 5/3, ((-(d*e) + c*f
)*(a + b*x))/((b*c - a*d)*(e + f*x))])/((b*e - a*f)*(d*e - c*f)))
)/(2*(b*e - a*f)*(c + d*x)^(2/3))
```

Maple [F] time = 0.086, size = 0, normalized size = 0.

$$\int \frac{1}{(fx+e)^2}\frac{1}{\sqrt[3]{bx+a}}(dx+c)^{-\frac{2}{3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(b*x+a)^(1/3)/(d*x+c)^(2/3)/(f*x+e)^2,x)
```

```
[Out] int(1/(b*x+a)^(1/3)/(d*x+c)^(2/3)/(f*x+e)^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(bx+a)^{\frac{1}{3}}(dx+c)^{\frac{2}{3}}(fx+e)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((b*x + a)^(1/3)*(d*x + c)^(2/3)*(f*x + e)^2),x, algorithm="maxima")
```

```
[Out] integrate(1/((b*x + a)^(1/3)*(d*x + c)^(2/3)*(f*x + e)^2), x)
```

Fricas [A] time = 0.243797, size = 1022, normalized size = 3.49

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((b*x + a)^(1/3)*(d*x + c)^(2/3)*(f*x + e)^2),x, algorithm="fricas")
```

```
[Out] -1/18*sqrt(3)*(6*sqrt(3)*(-b*d^2*e^3 + a*c^2*f^3 + (2*b*c*d + a*d
^2)*e^2*f - (b*c^2 + 2*a*c*d)*e*f^2)^(1/3)*(b*x + a)^(2/3)*(d*x +
 c)^(1/3)*f + sqrt(3)*(3*b*d*e^2 - (b*c + 2*a*d)*e*f + (3*b*d*e*f
 - (b*c + 2*a*d)*f^2)*x)*log((a*d^2*e^2 - 2*a*c*d*e*f + a*c^2*f^2
 - (-b*d^2*e^3 + a*c^2*f^3 + (2*b*c*d + a*d^2)*e^2*f - (b*c^2 + 2
*a*c*d)*e*f^2)^(1/3)*(d*e - c*f)*(b*x + a)^(2/3)*(d*x + c)^(1/3)
+ (b*d^2*e^2 - 2*b*c*d*e*f + b*c^2*f^2)*x + (-b*d^2*e^3 + a*c^2*f
^3 + (2*b*c*d + a*d^2)*e^2*f - (b*c^2 + 2*a*c*d)*e*f^2)^(2/3)*(b*
x + a)^(1/3)*(d*x + c)^(2/3))/(b*x + a)) - 2*sqrt(3)*(3*b*d*e^2 -
 (b*c + 2*a*d)*e*f + (3*b*d*e*f - (b*c + 2*a*d)*f^2)*x)*log((a*d*
e - a*c*f + (b*d*e - b*c*f)*x + (-b*d^2*e^3 + a*c^2*f^3 + (2*b*c*
d + a*d^2)*e^2*f - (b*c^2 + 2*a*c*d)*e*f^2)^(1/3)*(b*x + a)^(2/3)
*(d*x + c)^(1/3))/(b*x + a)) + 6*(3*b*d*e^2 - (b*c + 2*a*d)*e*f +
 (3*b*d*e*f - (b*c + 2*a*d)*f^2)*x)*arctan(-1/3*(2*sqrt(3)*(-b*d^
2*e^3 + a*c^2*f^3 + (2*b*c*d + a*d^2)*e^2*f - (b*c^2 + 2*a*c*d)*e
*f^2)^(1/3)*(b*x + a)^(2/3)*(d*x + c)^(1/3) - sqrt(3)*(a*d*e - a*
c*f + (b*d*e - b*c*f)*x))/(a*d*e - a*c*f + (b*d*e - b*c*f)*x)))/(
(-b*d^2*e^3 + a*c^2*f^3 + (2*b*c*d + a*d^2)*e^2*f - (b*c^2 + 2*a*
c*d)*e*f^2)^(1/3)*(b*d*e^3 + a*c*e*f^2 - (b*c + a*d)*e^2*f + (b*d
*e^2*f + a*c*f^3 - (b*c + a*d)*e*f^2)*x))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(b*x+a)**(1/3)/(d*x+c)**(2/3)/(f*x+e)**2,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(bx+a)^{\frac{1}{3}}(dx+c)^{\frac{2}{3}}(fx+e)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((b*x + a)^(1/3)*(d*x + c)^(2/3)*(f*x + e)^2),x, algorithm="giac")
```

```
[Out] integrate(1/((b*x + a)^(1/3)*(d*x + c)^(2/3)*(f*x + e)^2), x)
```

3.3004 $\int \frac{1}{\sqrt[3]{a+bx}(c+dx)^{2/3}(e+fx)^3}\,dx$

Optimal. Leaf size=477

$$\frac{\log(e+fx)\left(5a^2d^2f^2-2abdf(6de-cf)+b^2\left(2c^2f^2-6cdef+9d^2e^2\right)\right)}{18(be-af)^{7/3}(de-cf)^{8/3}}-\frac{\left(5a^2d^2f^2-2abdf(6de-cf)+b^2\left(2c^2f^2-6cdef+9d^2e^2\right)\right)\log\left(\frac{\sqrt[3]{a+bx}\sqrt[3]{de-cf}}{\sqrt[3]{be-af}}-\sqrt[3]{c+dx}\right)}{6(be-af)^{7/3}(de-cf)^{8/3}}-\frac{\left(5a^2d^2f^2-2abdf(6de-cf)+b^2\left(2c^2f^2-6cdef+9d^2e^2\right)\right)\tan^{-1}\left(\frac{2\sqrt[3]{a+bx}\sqrt[3]{de-cf}}{\sqrt{3}\sqrt[3]{c+dx}\sqrt[3]{be-af}}+\frac{1}{\sqrt{3}}\right)}{3\sqrt{3}(be-af)^{7/3}(de-cf)^{8/3}}-\frac{f(a+bx)^{2/3}\sqrt[3]{c+dx}(-5adf-4bcf+9bde)}{6(e+fx)(be-af)^2(de-cf)^2}-\frac{f(a+bx)^{2/3}\sqrt[3]{c+dx}}{2(e+fx)^2(be-af)(de-cf)}$$

```
[Out] -(f*(a + b*x)^(2/3)*(c + d*x)^(1/3))/(2*(b*e - a*f)*(d*e - c*f)*(
e + f*x)^2) - (f*(9*b*d*e - 4*b*c*f - 5*a*d*f)*(a + b*x)^(2/3)*(c
 + d*x)^(1/3))/(6*(b*e - a*f)^2*(d*e - c*f)^2*(e + f*x)) - ((5*a^
2*d^2*f^2 - 2*a*b*d*f*(6*d*e - c*f) + b^2*(9*d^2*e^2 - 6*c*d*e*f
+ 2*c^2*f^2))*ArcTan[1/Sqrt[3] + (2*(d*e - c*f)^(1/3)*(a + b*x)^(
1/3))/(Sqrt[3]*(b*e - a*f)^(1/3)*(c + d*x)^(1/3))])/(3*Sqrt[3]*(b
*e - a*f)^(7/3)*(d*e - c*f)^(8/3)) + ((5*a^2*d^2*f^2 - 2*a*b*d*f*
(6*d*e - c*f) + b^2*(9*d^2*e^2 - 6*c*d*e*f + 2*c^2*f^2))*Log[e +
f*x])/(18*(b*e - a*f)^(7/3)*(d*e - c*f)^(8/3)) - ((5*a^2*d^2*f^2
- 2*a*b*d*f*(6*d*e - c*f) + b^2*(9*d^2*e^2 - 6*c*d*e*f + 2*c^2*f^
2))*Log[((d*e - c*f)^(1/3)*(a + b*x)^(1/3))/(b*e - a*f)^(1/3) - (
c + d*x)^(1/3)])/(6*(b*e - a*f)^(7/3)*(d*e - c*f)^(8/3))
```

Rubi [A] time = 1.75664, antiderivative size = 477, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$\frac{\log(e+fx)\left(5a^2d^2f^2-2abdf(6de-cf)+b^2\left(2c^2f^2-6cdef+9d^2e^2\right)\right)}{18(be-af)^{7/3}(de-cf)^{8/3}}-\frac{\left(5a^2d^2f^2-2abdf(6de-cf)+b^2\left(2c^2f^2-6cdef+9d^2e^2\right)\right)\log\left(\frac{\sqrt[3]{a+bx}\sqrt[3]{de-cf}}{\sqrt[3]{be-af}}-\sqrt[3]{c+dx}\right)}{6(be-af)^{7/3}(de-cf)^{8/3}}-\frac{\left(5a^2d^2f^2-2abdf(6de-cf)+b^2\left(2c^2f^2-6cdef+9d^2e^2\right)\right)\tan^{-1}\left(\frac{2\sqrt[3]{a+bx}\sqrt[3]{de-cf}}{\sqrt{3}\sqrt[3]{c+dx}\sqrt[3]{be-af}}+\frac{1}{\sqrt{3}}\right)}{3\sqrt{3}(be-af)^{7/3}(de-cf)^{8/3}}-\frac{f(a+bx)^{2/3}\sqrt[3]{c+dx}(-5adf-4bcf+9bde)}{6(e+fx)(be-af)^2(de-cf)^2}-\frac{f(a+bx)^{2/3}\sqrt[3]{c+dx}}{2(e+fx)^2(be-af)(de-cf)}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((a + b*x)^(1/3)*(c + d*x)^(2/3)*(e + f*x)^3),x]
```


```
[Out] -(f*(a + b*x)^(2/3)*(c + d*x)^(1/3))/(2*(b*e - a*f)*(d*e - c*f)*(
e + f*x)^2) - (f*(9*b*d*e - 4*b*c*f - 5*a*d*f)*(a + b*x)^(2/3)*(c
 + d*x)^(1/3))/(6*(b*e - a*f)^2*(d*e - c*f)^2*(e + f*x)) - ((5*a^
2*d^2*f^2 - 2*a*b*d*f*(6*d*e - c*f) + b^2*(9*d^2*e^2 - 6*c*d*e*f
+ 2*c^2*f^2))*ArcTan[1/Sqrt[3] + (2*(d*e - c*f)^(1/3)*(a + b*x)^(
1/3))/(Sqrt[3]*(b*e - a*f)^(1/3)*(c + d*x)^(1/3))])/(3*Sqrt[3]*(b
*e - a*f)^(7/3)*(d*e - c*f)^(8/3)) + ((5*a^2*d^2*f^2 - 2*a*b*d*f*
(6*d*e - c*f) + b^2*(9*d^2*e^2 - 6*c*d*e*f + 2*c^2*f^2))*Log[e +
f*x])/(18*(b*e - a*f)^(7/3)*(d*e - c*f)^(8/3)) - ((5*a^2*d^2*f^2
- 2*a*b*d*f*(6*d*e - c*f) + b^2*(9*d^2*e^2 - 6*c*d*e*f + 2*c^2*f^
2))*Log[((d*e - c*f)^(1/3)*(a + b*x)^(1/3))/(b*e - a*f)^(1/3) - (
c + d*x)^(1/3)])/(6*(b*e - a*f)^(7/3)*(d*e - c*f)^(8/3))
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(b*x+a)**(1/3)/(d*x+c)**(2/3)/(f*x+e)**3,x)
```

```
[Out] Timed out
```

Mathematica [C] time = 1.2835, size = 244, normalized size = 0.51

$$\frac{(a+bx)^{2/3}\left((e+fx)^2\left(5a^2d^2f^2+2abdf(cf-6de)+b^2\left(2c^2f^2-6cdef+9d^2e^2\right)\right)\left(\frac{(c+dx)(be-af)}{(e+fx)(bc-ad)}\right)^{2/3}{}_2F_1\left(\frac{2}{3},\frac{2}{3};\frac{5}{3};\frac{(cf-de)(a\cdots}{(bc-ad)(e\cdots}\right.\right.}{6(c+dx)^{2/3}(e+fx)^2(be-af)^3(de-cf\cdots}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((a + b*x)^(1/3)*(c + d*x)^(2/3)*(e + f*x)^3),x]
```

```
[Out] ((a + b*x)^(2/3)*(-(f*(b*e - a*f)*(c + d*x)*(3*(b*e - a*f)*(d*e -
 c*f) + (9*b*d*e - 4*b*c*f - 5*a*d*f)*(e + f*x))) + (5*a^2*d^2*f^
2 + 2*a*b*d*f*(-6*d*e + c*f) + b^2*(9*d^2*e^2 - 6*c*d*e*f + 2*c^2
*f^2))*(((b*e - a*f)*(c + d*x))/((b*c - a*d)*(e + f*x)))^(2/3)*(e
 + f*x)^2*Hypergeometric2F1[2/3, 2/3, 5/3, ((-(d*e) + c*f)*(a + b
*x))/((b*c - a*d)*(e + f*x))]))/(6*(b*e - a*f)^3*(d*e - c*f)^2*(c
 + d*x)^(2/3)*(e + f*x)^2)
```

Maple [F] time = 0.112, size = 0, normalized size = 0.

$$\int \frac{1}{(fx+e)^3}\frac{1}{\sqrt[3]{bx+a}}(dx+c)^{-\frac{2}{3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(b*x+a)^(1/3)/(d*x+c)^(2/3)/(f*x+e)^3,x)
```

```
[Out] int(1/(b*x+a)^(1/3)/(d*x+c)^(2/3)/(f*x+e)^3,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(bx+a)^{\frac{1}{3}}(dx+c)^{\frac{2}{3}}(fx+e)^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)^(1/3)*(d*x + c)^(2/3)*(f*x + e)^3),x, algorithm="maxima")
```

```
[Out] integrate(1/((b*x + a)^(1/3)*(d*x + c)^(2/3)*(f*x + e)^3), x)
```

Fricas [A] time = 0.304093, size = 2020, normalized size = 4.23

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((b*x + a)^(1/3)*(d*x + c)^(2/3)*(f*x + e)^3),x, algorithm="fricas")
```

```
[Out] -1/54*sqrt(3)*(3*sqrt(3)*(-b*d^2*e^3 + a*c^2*f^3 + (2*b*c*d + a*d
^2)*e^2*f - (b*c^2 + 2*a*c*d)*e*f^2)^(1/3)*(12*b*d*e^2*f + 3*a*c*
f^3 - (7*b*c + 8*a*d)*e*f^2 + (9*b*d*e*f^2 - (4*b*c + 5*a*d)*f^3)
*x)*(b*x + a)^(2/3)*(d*x + c)^(1/3) + sqrt(3)*(9*b^2*d^2*e^4 - 6*
(b^2*c*d + 2*a*b*d^2)*e^3*f + (2*b^2*c^2 + 2*a*b*c*d + 5*a^2*d^2)
*e^2*f^2 + (9*b^2*d^2*e^2*f^2 - 6*(b^2*c*d + 2*a*b*d^2)*e*f^3 + (
2*b^2*c^2 + 2*a*b*c*d + 5*a^2*d^2)*f^4)*x^2 + 2*(9*b^2*d^2*e^3*f
- 6*(b^2*c*d + 2*a*b*d^2)*e^2*f^2 + (2*b^2*c^2 + 2*a*b*c*d + 5*a^
2*d^2)*e*f^3)*x)*log((a*d^2*e^2 - 2*a*c*d*e*f + a*c^2*f^2 - (-b*d
^2*e^3 + a*c^2*f^3 + (2*b*c*d + a*d^2)*e^2*f - (b*c^2 + 2*a*c*d)*
e*f^2)^(1/3)*(d*e - c*f)*(b*x + a)^(2/3)*(d*x + c)^(1/3) + (b*d^2
*e^2 - 2*b*c*d*e*f + b*c^2*f^2)*x + (-b*d^2*e^3 + a*c^2*f^3 + (2*
b*c*d + a*d^2)*e^2*f - (b*c^2 + 2*a*c*d)*e*f^2)^(2/3)*(b*x + a)^(
1/3)*(d*x + c)^(2/3))/(b*x + a)) - 2*sqrt(3)*(9*b^2*d^2*e^4 - 6*(
b^2*c*d + 2*a*b*d^2)*e^3*f + (2*b^2*c^2 + 2*a*b*c*d + 5*a^2*d^2)*
e^2*f^2 + (9*b^2*d^2*e^2*f^2 - 6*(b^2*c*d + 2*a*b*d^2)*e*f^3 + (2
*b^2*c^2 + 2*a*b*c*d + 5*a^2*d^2)*f^4)*x^2 + 2*(9*b^2*d^2*e^3*f -
 6*(b^2*c*d + 2*a*b*d^2)*e^2*f^2 + (2*b^2*c^2 + 2*a*b*c*d + 5*a^2
*d^2)*e*f^3)*x)*log((a*d*e - a*c*f + (b*d*e - b*c*f)*x + (-b*d^2*
e^3 + a*c^2*f^3 + (2*b*c*d + a*d^2)*e^2*f - (b*c^2 + 2*a*c*d)*e*f
^2)^(1/3)*(b*x + a)^(2/3)*(d*x + c)^(1/3))/(b*x + a)) + 6*(9*b^2*
d^2*e^4 - 6*(b^2*c*d + 2*a*b*d^2)*e^3*f + (2*b^2*c^2 + 2*a*b*c*d
+ 5*a^2*d^2)*e^2*f^2 + (9*b^2*d^2*e^2*f^2 - 6*(b^2*c*d + 2*a*b*d^
2)*e*f^3 + (2*b^2*c^2 + 2*a*b*c*d + 5*a^2*d^2)*f^4)*x^2 + 2*(9*b^
2*d^2*e^3*f - 6*(b^2*c*d + 2*a*b*d^2)*e^2*f^2 + (2*b^2*c^2 + 2*a*
b*c*d + 5*a^2*d^2)*e*f^3)*x)*arctan(-1/3*(2*sqrt(3)*(-b*d^2*e^3 +
 a*c^2*f^3 + (2*b*c*d + a*d^2)*e^2*f - (b*c^2 + 2*a*c*d)*e*f^2)^(
1/3)*(b*x + a)^(2/3)*(d*x + c)^(1/3) - sqrt(3)*(a*d*e - a*c*f + (
b*d*e - b*c*f)*x))/(a*d*e - a*c*f + (b*d*e - b*c*f)*x)))/((b^2*d^
2*e^6 + a^2*c^2*e^2*f^4 - 2*(b^2*c*d + a*b*d^2)*e^5*f + (b^2*c^2
+ 4*a*b*c*d + a^2*d^2)*e^4*f^2 - 2*(a*b*c^2 + a^2*c*d)*e^3*f^3 +
(b^2*d^2*e^4*f^2 + a^2*c^2*f^6 - 2*(b^2*c*d + a*b*d^2)*e^3*f^3 +
(b^2*c^2 + 4*a*b*c*d + a^2*d^2)*e^2*f^4 - 2*(a*b*c^2 + a^2*c*d)*e
*f^5)*x^2 + 2*(b^2*d^2*e^5*f + a^2*c^2*e*f^5 - 2*(b^2*c*d + a*b*d
^2)*e^4*f^2 + (b^2*c^2 + 4*a*b*c*d + a^2*d^2)*e^3*f^3 - 2*(a*b*c^
2 + a^2*c*d)*e^2*f^4)*x)*(-b*d^2*e^3 + a*c^2*f^3 + (2*b*c*d + a*d
^2)*e^2*f - (b*c^2 + 2*a*c*d)*e*f^2)^(1/3))
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(b*x+a)**(1/3)/(d*x+c)**(2/3)/(f*x+e)**3,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(bx+a)^{\frac{1}{3}}(dx+c)^{\frac{2}{3}}(fx+e)^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((b*x + a)^(1/3)*(d*x + c)^(2/3)*(f*x + e)^3),x, algorithm="giac")
```

```
[Out] integrate(1/((b*x + a)^(1/3)*(d*x + c)^(2/3)*(f*x + e)^3), x)
```

3.3005 $\int \frac{(a+bx)^3}{\sqrt[3]{c+dx}\sqrt[3]{bc+ad+2bdx}}\,dx$

Optimal. Leaf size=1389

result too large to display

```
[Out] (3*(a + b*x)^2*(c + d*x)^(2/3)*(b*c + a*d + 2*b*d*x)^(2/3))/(20*d
^2) + (9*(b*c - a*d)*(c + d*x)^(2/3)*(23*b*c - 39*a*d - 16*b*d*x)
*(b*c + a*d + 2*b*d*x)^(2/3))/(560*d^4) - (81*(b*c - a*d)^3*((c +
 d*x)*(b*c + a*d + 2*b*d*x))^(1/3)*Sqrt[d^2*(3*b*c + a*d + 4*b*d*
x)^2]*Sqrt[(d*(3*b*c + a*d) + 4*b*d^2*x)^2])/(112*b^(2/3)*d^6*(c
+ d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3)*(3*b*c + a*d + 4*b*d*x)*
((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*
(c + 2*d*x)))^(1/3))) + (81*3^(1/4)*Sqrt[2 - Sqrt[3]]*(b*c - a*d)
^(11/3)*((c + d*x)*(b*c + a*d + 2*b*d*x))^(1/3)*Sqrt[(d*(3*b*c +
a*d) + 4*b*d^2*x)^2]*((b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a
*d + b*(c + 2*d*x)))^(1/3))*Sqrt[((b*c - a*d)^(4/3) - 2*b^(1/3)*(
b*c - a*d)^(2/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3) + 4*b^(2
/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(2/3))/((1 + Sqrt[3])*(b*c
- a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))
^2]*EllipticE[ArcSin[((1 - Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)
*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))/((1 + Sqrt[3])*(b*c - a
*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))],
-7 - 4*Sqrt[3]])/(224*b^(2/3)*d^4*(c + d*x)^(1/3)*(b*c + a*d + 2*
b*d*x)^(1/3)*(3*b*c + a*d + 4*b*d*x)*Sqrt[d^2*(3*b*c + a*d + 4*b*
d*x)^2]*Sqrt[((b*c - a*d)^(2/3)*((b*c - a*d)^(2/3) + 2*b^(1/3)*((
c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3)))/((1 + Sqrt[3])*(b*c - a*d
)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))^2])
- (27*3^(3/4)*(b*c - a*d)^(11/3)*((c + d*x)*(b*c + a*d + 2*b*d*x)
)^(1/3)*Sqrt[(d*(3*b*c + a*d) + 4*b*d^2*x)^2]*((b*c - a*d)^(2/3)
+ 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))*Sqrt[((b*c -
 a*d)^(4/3) - 2*b^(1/3)*(b*c - a*d)^(2/3)*((c + d*x)*(a*d + b*(c
+ 2*d*x)))^(1/3) + 4*b^(2/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(2
/3))/((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d
 + b*(c + 2*d*x)))^(1/3))^2]*EllipticF[ArcSin[((1 - Sqrt[3])*(b*c
 - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3)
)/((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d +
b*(c + 2*d*x)))^(1/3))], -7 - 4*Sqrt[3]])/(56*Sqrt[2]*b^(2/3)*d^4
*(c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3)*(3*b*c + a*d + 4*b*d
*x)*Sqrt[d^2*(3*b*c + a*d + 4*b*d*x)^2]*Sqrt[((b*c - a*d)^(2/3)*(
(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(
1/3)))/((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a
*d + b*(c + 2*d*x)))^(1/3))^2])
```

Rubi [A] time = 5.17954, antiderivative size = 1389, normalized size of antiderivative = 1., number

of steps used = 7, number of rules used = 7, integrand size = 33, $\frac{\text{number of rules}}{\text{integrand size}} = 0.212$

$$\frac{81\sqrt[4]{3}\sqrt{2-\sqrt{3}}\sqrt[3]{(c+dx)(bc+ad+2bdx)}\sqrt{(4bxd^2+(3bc+ad)d)^2}\left((bc-ad)^{2/3}+2\sqrt[3]{b}\sqrt[3]{(c+dx)(ad+b(c+2dx))}\right)\sqrt{\frac{(bc-ad)}{}}}{224b^{2/3}d^4\sqrt[3]{c+dx}\sqrt[3]{bc+ad+2bdx}(3bc+ad+4bc}$$

$$-\frac{27\,3^{3/4}\sqrt[3]{(c+dx)(bc+ad+2bdx)}\sqrt{(4bxd^2+(3bc+ad)d)^2}\left((bc-ad)^{2/3}+2\sqrt[3]{b}\sqrt[3]{(c+dx)(ad+b(c+2dx))}\right)\sqrt{\frac{(bc-ad)^{4/3}-2\sqrt[3]{}}{}}}{56\sqrt{2}b^{2/3}d^4\sqrt[3]{c+dx}\sqrt[3]{bc+ad+2bdx}(3bc+ad+4bd}$$

$$-\frac{81\sqrt[3]{(c+dx)(bc+ad+2bdx)}\sqrt{d^2(3bc+ad+4bdx)^2}\sqrt{(4bxd^2+(3bc+ad)d)^2}(bc-ad)^3}{112b^{2/3}d^6\sqrt[3]{c+dx}\sqrt[3]{bc+ad+2bdx}(3bc+ad+4bdx)\left(\left(1+\sqrt{3}\right)(bc-ad)^{2/3}+2\sqrt[3]{b}\sqrt[3]{(c+dx)(ad+b(c+2dx))}\right)}$$
$$+\frac{9(c+dx)^{2/3}(23bc-39ad-16bdx)(bc+ad+2bdx)^{2/3}(bc-ad)}{560d^4}$$
$$+\frac{3(a+bx)^2(c+dx)^{2/3}(bc+ad+2bdx)^{2/3}}{20d^2}$$

Warning: Unable to verify antiderivative.

```
[In]  Int[(a + b*x)^3/((c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3)),x]
```

```
[Out] (3*(a + b*x)^2*(c + d*x)^(2/3)*(b*c + a*d + 2*b*d*x)^(2/3))/(20*d
^2) + (9*(b*c - a*d)*(c + d*x)^(2/3)*(23*b*c - 39*a*d - 16*b*d*x)
*(b*c + a*d + 2*b*d*x)^(2/3))/(560*d^4) - (81*(b*c - a*d)^3*((c +
 d*x)*(b*c + a*d + 2*b*d*x))^(1/3)*Sqrt[d^2*(3*b*c + a*d + 4*b*d*
x)^2]*Sqrt[(d*(3*b*c + a*d) + 4*b*d^2*x)^2])/(112*b^(2/3)*d^6*(c
+ d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3)*(3*b*c + a*d + 4*b*d*x)*
((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*
(c + 2*d*x)))^(1/3))) + (81*3^(1/4)*Sqrt[2 - Sqrt[3]]*(b*c - a*d)
^(11/3)*((c + d*x)*(b*c + a*d + 2*b*d*x))^(1/3)*Sqrt[(d*(3*b*c +
a*d) + 4*b*d^2*x)^2]*((b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a
*d + b*(c + 2*d*x)))^(1/3))*Sqrt[((b*c - a*d)^(4/3) - 2*b^(1/3)*(
b*c - a*d)^(2/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3) + 4*b^(2
/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(2/3))/((1 + Sqrt[3])*(b*c
- a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))
^2]*EllipticE[ArcSin[((1 - Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)
*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))/((1 + Sqrt[3])*(b*c - a
*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))],
-7 - 4*Sqrt[3]])/(224*b^(2/3)*d^4*(c + d*x)^(1/3)*(b*c + a*d + 2*
b*d*x)^(1/3)*(3*b*c + a*d + 4*b*d*x)*Sqrt[d^2*(3*b*c + a*d + 4*b*
d*x)^2]*Sqrt[((b*c - a*d)^(2/3)*((b*c - a*d)^(2/3) + 2*b^(1/3)*((
c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3)))/((1 + Sqrt[3])*(b*c - a*d
)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))^2])
- (27*3^(3/4)*(b*c - a*d)^(11/3)*((c + d*x)*(b*c + a*d + 2*b*d*x)
)^(1/3)*Sqrt[(d*(3*b*c + a*d) + 4*b*d^2*x)^2]*((b*c - a*d)^(2/3)
+ 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))*Sqrt[((b*c -
 a*d)^(4/3) - 2*b^(1/3)*(b*c - a*d)^(2/3)*((c + d*x)*(a*d + b*(c
+ 2*d*x)))^(1/3) + 4*b^(2/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(2
/3))/((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d
 + b*(c + 2*d*x)))^(1/3))^2]*EllipticF[ArcSin[((1 - Sqrt[3])*(b*c
 - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3)
)/((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d +
b*(c + 2*d*x)))^(1/3))], -7 - 4*Sqrt[3]])/(56*Sqrt[2]*b^(2/3)*d^4
*(c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3)*(3*b*c + a*d + 4*b*d
*x)*Sqrt[d^2*(3*b*c + a*d + 4*b*d*x)^2]*Sqrt[((b*c - a*d)^(2/3)*(
(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(
1/3)))/((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a
*d + b*(c + 2*d*x)))^(1/3))^2])
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)**3/(d*x+c)**(1/3)/(2*b*d*x+a*d+b*c)**(1/3),x)
```

```
[Out] Timed out
```

Mathematica [C] time = 0.493509, size = 160, normalized size = 0.12

$$-\frac{3(ad+b(c+2dx))^{2/3}\left(135\sqrt[3]{2}(bc-ad)^3\sqrt[3]{\frac{b(c+dx)}{bc-ad}}\,{}_2F_1\left(\frac{1}{3},\frac{2}{3};\frac{5}{3};\frac{ad+b(c+2dx)}{ad-bc}\right)-2b(c+dx)\left(145a^2d^2+2abd(52dx-93c)+\right.\right.}{1120bd^4\sqrt[3]{c+dx}}$$

Antiderivative was successfully verified.

```
[In] Integrate[(a + b*x)^3/((c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3)),x]
```

```
[Out] (-3*(a*d + b*(c + 2*d*x))^(2/3)*(-2*b*(c + d*x)*(145*a^2*d^2 + 2*
a*b*d*(-93*c + 52*d*x) + b^2*(69*c^2 - 48*c*d*x + 28*d^2*x^2)) +
135*2^(1/3)*(b*c - a*d)^3*((b*(c + d*x))/(b*c - a*d))^(1/3)*Hyper
geometric2F1[1/3, 2/3, 5/3, (a*d + b*(c + 2*d*x))/(-(b*c) + a*d)]
))/(1120*b*d^4*(c + d*x)^(1/3))
```

Maple [F] time = 0.098, size = 0, normalized size = 0.

$$\int (bx+a)^3\frac{1}{\sqrt[3]{dx+c}}\frac{1}{\sqrt[3]{2\,bdx+ad+bc}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((b*x+a)^3/(d*x+c)^(1/3)/(2*b*d*x+a*d+b*c)^(1/3),x)
```

```
[Out] int((b*x+a)^3/(d*x+c)^(1/3)/(2*b*d*x+a*d+b*c)^(1/3),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^3}{(2\,bdx+bc+ad)^{\frac{1}{3}}(dx+c)^{\frac{1}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^3/((2*b*d*x + b*c + a*d)^(1/3)*(d*x + c)^(1/3)),x, algorithm=
```

```
[Out] integrate((b*x + a)^3/((2*b*d*x + b*c + a*d)^(1/3)*(d*x + c)^(1/3
)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{b^3x^3+3\,ab^2x^2+3\,a^2bx+a^3}{(2\,bdx+bc+ad)^{\frac{1}{3}}(dx+c)^{\frac{1}{3}}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^3/((2*b*d*x + b*c + a*d)^(1/3)*(d*x + c)^(1/3)),x, algorithm=
```

```
[Out] integral((b^3*x^3 + 3*a*b^2*x^2 + 3*a^2*b*x + a^3)/((2*b*d*x + b*
c + a*d)^(1/3)*(d*x + c)^(1/3)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**3/(d*x+c)**(1/3)/(2*b*d*x+a*d+b*c)**(1/3),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^3}{(2\,bdx+bc+ad)^{\frac{1}{3}}(dx+c)^{\frac{1}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^3/((2*b*d*x + b*c + a*d)^(1/3)*(d*x + c)^(1/3)),x, algorithm=
```

```
[Out] integrate((b*x + a)^3/((2*b*d*x + b*c + a*d)^(1/3)*(d*x + c)^(1/3
)), x)
```

3.3006 $\int \frac{(a+bx)^2}{\sqrt[3]{c+dx}\sqrt[3]{bc+ad+2bdx}}\,dx$

Optimal. Leaf size=1373

result too large to display

```
[Out] (-45*(b*c - a*d)*(c + d*x)^(2/3)*(b*c + a*d + 2*b*d*x)^(2/3))/(11
2*d^3) + (3*(a + b*x)*(c + d*x)^(2/3)*(b*c + a*d + 2*b*d*x)^(2/3)
)/(14*d^2) + (99*(b*c - a*d)^2*((c + d*x)*(b*c + a*d + 2*b*d*x))^
(1/3)*Sqrt[d^2*(3*b*c + a*d + 4*b*d*x)^2]*Sqrt[(d*(3*b*c + a*d) +
 4*b*d^2*x)^2])/(112*b^(2/3)*d^5*(c + d*x)^(1/3)*(b*c + a*d + 2*b
*d*x)^(1/3)*(3*b*c + a*d + 4*b*d*x)*((1 + Sqrt[3])*(b*c - a*d)^(2
/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))) - (99*3
^(1/4)*Sqrt[2 - Sqrt[3]]*(b*c - a*d)^(8/3)*((c + d*x)*(b*c + a*d
+ 2*b*d*x))^(1/3)*Sqrt[(d*(3*b*c + a*d) + 4*b*d^2*x)^2]*((b*c - a
*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))*Sq
rt[((b*c - a*d)^(4/3) - 2*b^(1/3)*(b*c - a*d)^(2/3)*((c + d*x)*(a
*d + b*(c + 2*d*x)))^(1/3) + 4*b^(2/3)*((c + d*x)*(a*d + b*(c + 2
*d*x)))^(2/3))/((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c +
 d*x)*(a*d + b*(c + 2*d*x)))^(1/3))^2]*EllipticE[ArcSin[((1 - Sqr
t[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*
x)))^(1/3))/((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*
x)*(a*d + b*(c + 2*d*x)))^(1/3))], -7 - 4*Sqrt[3]])/(224*b^(2/3)*
d^3*(c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3)*(3*b*c + a*d + 4*
b*d*x)*Sqrt[d^2*(3*b*c + a*d + 4*b*d*x)^2]*Sqrt[((b*c - a*d)^(2/3
)*((b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x))
)^(1/3)))/((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)
*(a*d + b*(c + 2*d*x)))^(1/3))^2]) + (33*3^(3/4)*(b*c - a*d)^(8/3
)*((c + d*x)*(b*c + a*d + 2*b*d*x))^(1/3)*Sqrt[(d*(3*b*c + a*d) +
 4*b*d^2*x)^2]*((b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b
*(c + 2*d*x)))^(1/3))*Sqrt[((b*c - a*d)^(4/3) - 2*b^(1/3)*(b*c -
a*d)^(2/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3) + 4*b^(2/3)*((
c + d*x)*(a*d + b*(c + 2*d*x)))^(2/3))/((1 + Sqrt[3])*(b*c - a*d)
^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))^2]*El
lipticF[ArcSin[((1 - Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c +
 d*x)*(a*d + b*(c + 2*d*x)))^(1/3))/((1 + Sqrt[3])*(b*c - a*d)^(2
/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))], -7 - 4
*Sqrt[3]])/(56*Sqrt[2]*b^(2/3)*d^3*(c + d*x)^(1/3)*(b*c + a*d + 2
*b*d*x)^(1/3)*(3*b*c + a*d + 4*b*d*x)*Sqrt[d^2*(3*b*c + a*d + 4*b
*d*x)^2]*Sqrt[((b*c - a*d)^(2/3)*((b*c - a*d)^(2/3) + 2*b^(1/3)*(
(c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3)))/((1 + Sqrt[3])*(b*c - a*
d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))^2])
```

Rubi [A] time = 4.42352, antiderivative size = 1373, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 7, integrand size = 33, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.212

$$-\frac{99\sqrt[4]{3}\sqrt{2-\sqrt{3}}\sqrt[3]{(c+dx)(bc+ad+2bdx)}\sqrt{(4bxd^2+(3bc+ad)d)^2}\left((bc-ad)^{2/3}+2\sqrt[3]{b}\sqrt[3]{(c+dx)(ad+b(c+2dx))}\right)\sqrt{\frac{(bc-a\cdots}{\cdots}}}{224b^{2/3}d^3\sqrt[3]{c+dx}\sqrt[3]{bc+ad+2bdx}(3bc+ad+4b\cdots}$$

$$+\frac{33\,3^{3/4}\sqrt[3]{(c+dx)(bc+ad+2bdx)}\sqrt{(4bxd^2+(3bc+ad)d)^2}\left((bc-ad)^{2/3}+2\sqrt[3]{b}\sqrt[3]{(c+dx)(ad+b(c+2dx))}\right)\sqrt{\frac{(bc-ad)^{4/3}-2\sqrt[3]{\cdots}}{\cdots}}}{56\sqrt{2}b^{2/3}d^3\sqrt[3]{c+dx}\sqrt[3]{bc+ad+2bdx}(3bc+ad+4bdx\cdots}$$

$$+\frac{99\sqrt[3]{(c+dx)(bc+ad+2bdx)}\sqrt{d^2(3bc+ad+4bdx)^2}\sqrt{(4bxd^2+(3bc+ad)d)^2}(bc-ad)^2}{112b^{2/3}d^5\sqrt[3]{c+dx}\sqrt[3]{bc+ad+2bdx}(3bc+ad+4bdx)\left(\left(1+\sqrt{3}\right)(bc-ad)^{2/3}+2\sqrt[3]{b}\sqrt[3]{(c+dx)(ad+b(c+2dx))}\right)}$$
$$-\frac{45(c+dx)^{2/3}(bc+ad+2bdx)^{2/3}(bc-ad)}{112d^3}+\frac{3(a+bx)(c+dx)^{2/3}(bc+ad+2bdx)^{2/3}}{14d^2}$$

Warning: Unable to verify antiderivative.

```
[In]  Int[(a + b*x)^2/((c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3)),x]
```

```
[Out] (-45*(b*c - a*d)*(c + d*x)^(2/3)*(b*c + a*d + 2*b*d*x)^(2/3))/(11
2*d^3) + (3*(a + b*x)*(c + d*x)^(2/3)*(b*c + a*d + 2*b*d*x)^(2/3)
)/(14*d^2) + (99*(b*c - a*d)^2*((c + d*x)*(b*c + a*d + 2*b*d*x))^
(1/3)*Sqrt[d^2*(3*b*c + a*d + 4*b*d*x)^2]*Sqrt[(d*(3*b*c + a*d) +
 4*b*d^2*x)^2])/(112*b^(2/3)*d^5*(c + d*x)^(1/3)*(b*c + a*d + 2*b
*d*x)^(1/3)*(3*b*c + a*d + 4*b*d*x)*((1 + Sqrt[3])*(b*c - a*d)^(2
/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))) - (99*3
^(1/4)*Sqrt[2 - Sqrt[3]]*(b*c - a*d)^(8/3)*((c + d*x)*(b*c + a*d
+ 2*b*d*x))^(1/3)*Sqrt[(d*(3*b*c + a*d) + 4*b*d^2*x)^2]*((b*c - a
*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))*Sq
rt[((b*c - a*d)^(4/3) - 2*b^(1/3)*(b*c - a*d)^(2/3)*((c + d*x)*(a
*d + b*(c + 2*d*x)))^(1/3) + 4*b^(2/3)*((c + d*x)*(a*d + b*(c + 2
*d*x)))^(2/3))/((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c +
 d*x)*(a*d + b*(c + 2*d*x)))^(1/3))^2]*EllipticE[ArcSin[((1 - Sqr
t[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*
x)))^(1/3))/((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*
x)*(a*d + b*(c + 2*d*x)))^(1/3))], -7 - 4*Sqrt[3]])/(224*b^(2/3)*
d^3*(c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3)*(3*b*c + a*d + 4*
b*d*x)*Sqrt[d^2*(3*b*c + a*d + 4*b*d*x)^2]*Sqrt[((b*c - a*d)^(2/3
)*((b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x))
)^(1/3)))/((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)
*(a*d + b*(c + 2*d*x)))^(1/3))^2]) + (33*3^(3/4)*(b*c - a*d)^(8/3
)*((c + d*x)*(b*c + a*d + 2*b*d*x))^(1/3)*Sqrt[(d*(3*b*c + a*d) +
 4*b*d^2*x)^2]*((b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b
*(c + 2*d*x)))^(1/3))*Sqrt[((b*c - a*d)^(4/3) - 2*b^(1/3)*(b*c -
a*d)^(2/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3) + 4*b^(2/3)*((
c + d*x)*(a*d + b*(c + 2*d*x)))^(2/3))/((1 + Sqrt[3])*(b*c - a*d)
^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))^2]*El
lipticF[ArcSin[((1 - Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c +
 d*x)*(a*d + b*(c + 2*d*x)))^(1/3))/((1 + Sqrt[3])*(b*c - a*d)^(2
/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))], -7 - 4
*Sqrt[3]])/(56*Sqrt[2]*b^(2/3)*d^3*(c + d*x)^(1/3)*(b*c + a*d + 2
*b*d*x)^(1/3)*(3*b*c + a*d + 4*b*d*x)*Sqrt[d^2*(3*b*c + a*d + 4*b
*d*x)^2]*Sqrt[((b*c - a*d)^(2/3)*((b*c - a*d)^(2/3) + 2*b^(1/3)*(
(c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3)))/((1 + Sqrt[3])*(b*c - a*
d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))^2])
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)**2/(d*x+c)**(1/3)/(2*b*d*x+a*d+b*c)**(1/3),x)
```

```
[Out] Timed out
```

Mathematica [C] time = 0.33746, size = 129, normalized size = 0.09

$$\frac{3(ad+b(c+2dx))^{2/3}\left(33\sqrt[3]{2}(bc-ad)^2\sqrt[3]{\frac{b(c+dx)}{bc-ad}}\,{}_2F_1\left(\frac{1}{3},\frac{2}{3};\frac{5}{3};\frac{ad+b(c+2dx)}{ad-bc}\right)-2b(c+dx)(-23ad+15bc-8bdx)\right)}{224bd^3\sqrt[3]{c+dx}}$$

Antiderivative was successfully verified.

```
[In] Integrate[(a + b*x)^2/((c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3)),x]
```

```
[Out] (3*(a*d + b*(c + 2*d*x))^(2/3)*(-2*b*(c + d*x)*(15*b*c - 23*a*d -
 8*b*d*x) + 33*2^(1/3)*(b*c - a*d)^2*((b*(c + d*x))/(b*c - a*d))^
(1/3)*Hypergeometric2F1[1/3, 2/3, 5/3, (a*d + b*(c + 2*d*x))/(-(b
*c) + a*d)]))/(224*b*d^3*(c + d*x)^(1/3))
```

Maple [F] time = 0.089, size = 0, normalized size = 0.

$$\int (bx+a)^2 \frac{1}{\sqrt[3]{dx+c}} \frac{1}{\sqrt[3]{2\,bdx+ad+bc}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^2/(d*x+c)^(1/3)/(2*b*d*x+a*d+b*c)^(1/3),x)
```

```
[Out] int((b*x+a)^2/(d*x+c)^(1/3)/(2*b*d*x+a*d+b*c)^(1/3),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^2}{(2\,bdx+bc+ad)^{\frac{1}{3}}(dx+c)^{\frac{1}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^2/((2*b*d*x + b*c + a*d)^(1/3)*(d*x + c)^(1/3)),x, algorithm=
```

```
[Out] integrate((b*x + a)^2/((2*b*d*x + b*c + a*d)^(1/3)*(d*x + c)^(1/3
)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{b^2x^2+2\,abx+a^2}{(2\,bdx+bc+ad)^{\frac{1}{3}}(dx+c)^{\frac{1}{3}}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^2/((2*b*d*x + b*c + a*d)^(1/3)*(d*x + c)^(1/3)),x, algorithm=
```

```
[Out] integral((b^2*x^2 + 2*a*b*x + a^2)/((2*b*d*x + b*c + a*d)^(1/3)*(
d*x + c)^(1/3)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a+bx)^2}{\sqrt[3]{c+dx}\sqrt[3]{ad+bc+2bdx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**2/(d*x+c)**(1/3)/(2*b*d*x+a*d+b*c)**(1/3),x)
```

```
[Out] Integral((a + b*x)**2/((c + d*x)**(1/3)*(a*d + b*c + 2*b*d*x)**(1
/3)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^2}{(2\,bdx+bc+ad)^{\frac{1}{3}}(dx+c)^{\frac{1}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^2/((2*b*d*x + b*c + a*d)^(1/3)*(d*x + c)^(1/3)),x, algorithm=
```

```
[Out] integrate((b*x + a)^2/((2*b*d*x + b*c + a*d)^(1/3)*(d*x + c)^(1/3
)), x)
```

3.3007 $\int \frac{a+bx}{\sqrt[3]{c+dx}\sqrt[3]{bc+ad+2bdx}}\,dx$

Optimal. Leaf size=1326

result too large to display

```
[Out] (3*(c + d*x)^(2/3)*(b*c + a*d + 2*b*d*x)^(2/3))/(8*d^2) - (9*(b*c
 - a*d)*((c + d*x)*(b*c + a*d + 2*b*d*x))^(1/3)*Sqrt[d^2*(3*b*c +
 a*d + 4*b*d*x)^2]*Sqrt[(d*(3*b*c + a*d) + 4*b*d^2*x)^2])/(8*b^(2
/3)*d^4*(c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3)*(3*b*c + a*d
+ 4*b*d*x)*((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x
)*(a*d + b*(c + 2*d*x)))^(1/3))) + (9*3^(1/4)*Sqrt[2 - Sqrt[3]]*(
b*c - a*d)^(5/3)*((c + d*x)*(b*c + a*d + 2*b*d*x))^(1/3)*Sqrt[(d*
(3*b*c + a*d) + 4*b*d^2*x)^2]*((b*c - a*d)^(2/3) + 2*b^(1/3)*((c
+ d*x)*(a*d + b*(c + 2*d*x)))^(1/3))*Sqrt[((b*c - a*d)^(4/3) - 2*
b^(1/3)*(b*c - a*d)^(2/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3)
 + 4*b^(2/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(2/3))/((1 + Sqrt[
3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)
))^(1/3))^2]*EllipticE[ArcSin[((1 - Sqrt[3])*(b*c - a*d)^(2/3) +
2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))/((1 + Sqrt[3])
*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^
(1/3))], -7 - 4*Sqrt[3]])/(16*b^(2/3)*d^2*(c + d*x)^(1/3)*(b*c +
a*d + 2*b*d*x)^(1/3)*(3*b*c + a*d + 4*b*d*x)*Sqrt[d^2*(3*b*c + a*
d + 4*b*d*x)^2]*Sqrt[((b*c - a*d)^(2/3)*((b*c - a*d)^(2/3) + 2*b^
(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3)))/((1 + Sqrt[3])*(b
*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/
3))^2]) - (3*3^(3/4)*(b*c - a*d)^(5/3)*((c + d*x)*(b*c + a*d + 2*
b*d*x))^(1/3)*Sqrt[(d*(3*b*c + a*d) + 4*b*d^2*x)^2]*((b*c - a*d)^
(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))*Sqrt[(
(b*c - a*d)^(4/3) - 2*b^(1/3)*(b*c - a*d)^(2/3)*((c + d*x)*(a*d +
 b*(c + 2*d*x)))^(1/3) + 4*b^(2/3)*((c + d*x)*(a*d + b*(c + 2*d*x
)))^(2/3))/((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x
)*(a*d + b*(c + 2*d*x)))^(1/3))^2]*EllipticF[ArcSin[((1 - Sqrt[3]
)*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))
^(1/3))/((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(
a*d + b*(c + 2*d*x)))^(1/3))], -7 - 4*Sqrt[3]])/(4*Sqrt[2]*b^(2/3
)*d^2*(c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3)*(3*b*c + a*d +
4*b*d*x)*Sqrt[d^2*(3*b*c + a*d + 4*b*d*x)^2]*Sqrt[((b*c - a*d)^(2
/3)*((b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x
)))^(1/3)))/((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*
x)*(a*d + b*(c + 2*d*x)))^(1/3))^2])
```

Rubi [A] time = 3.6158, antiderivative size = 1326, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 31, $\frac{\text{number of rules}}{\text{integrand size}} = 0.194$

$$\frac{9\sqrt[4]{3}\sqrt{2-\sqrt{3}}\sqrt[3]{(c+dx)(bc+ad+2bdx)}\sqrt{(4bxd^2+(3bc+ad)d)^2}\left((bc-ad)^{2/3}+2\sqrt[3]{b}\sqrt[3]{(c+dx)(ad+b(c+2dx))}\right)\sqrt{\frac{(bc-ad)^{4/}\cdots}{\cdots}}\cdots}{16b^{2/3}d^2\sqrt[3]{c+dx}\sqrt[3]{bc+ad+2bdx}(3bc+ad+4bdx\cdots}$$

$$-\frac{3\,3^{3/4}\sqrt[3]{(c+dx)(bc+ad+2bdx)}\sqrt{(4bxd^2+(3bc+ad)d)^2}\left((bc-ad)^{2/3}+2\sqrt[3]{b}\sqrt[3]{(c+dx)(ad+b(c+2dx))}\right)\sqrt{\frac{(bc-ad)^{4/3}-2\sqrt[3]{\cdots}}{\cdots}}\cdots}{4\sqrt{2}b^{2/3}d^2\sqrt[3]{c+dx}\sqrt[3]{bc+ad+2bdx}(3bc+ad+4bdx\cdots}$$

$$-\frac{9\sqrt[3]{(c+dx)(bc+ad+2bdx)}\sqrt{d^2(3bc+ad+4bdx)^2}\sqrt{(4bxd^2+(3bc+ad)d)^2}(bc-ad)}{8b^{2/3}d^4\sqrt[3]{c+dx}\sqrt[3]{bc+ad+2bdx}(3bc+ad+4bdx)\left(\left(1+\sqrt{3}\right)(bc-ad)^{2/3}+2\sqrt[3]{b}\sqrt[3]{(c+dx)(ad+b(c+2dx))}\right)}$$

$$+\frac{3(c+dx)^{2/3}(bc+ad+2bdx)^{2/3}}{8d^2}$$

Warning: Unable to verify antiderivative.

```
[In]  Int[(a + b*x)/((c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3)),x]
```

```
[Out] (3*(c + d*x)^(2/3)*(b*c + a*d + 2*b*d*x)^(2/3))/(8*d^2) - (9*(b*c
 - a*d)*((c + d*x)*(b*c + a*d + 2*b*d*x))^(1/3)*Sqrt[d^2*(3*b*c +
 a*d + 4*b*d*x)^2]*Sqrt[(d*(3*b*c + a*d) + 4*b*d^2*x)^2])/(8*b^(2
/3)*d^4*(c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3)*(3*b*c + a*d
+ 4*b*d*x)*((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x
)*(a*d + b*(c + 2*d*x)))^(1/3))) + (9*3^(1/4)*Sqrt[2 - Sqrt[3]]*(
b*c - a*d)^(5/3)*((c + d*x)*(b*c + a*d + 2*b*d*x))^(1/3)*Sqrt[(d*
(3*b*c + a*d) + 4*b*d^2*x)^2]*((b*c - a*d)^(2/3) + 2*b^(1/3)*((c
+ d*x)*(a*d + b*(c + 2*d*x)))^(1/3))*Sqrt[((b*c - a*d)^(4/3) - 2*
b^(1/3)*(b*c - a*d)^(2/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3)
 + 4*b^(2/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(2/3))/((1 + Sqrt[
3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)
))^(1/3))^2]*EllipticE[ArcSin[((1 - Sqrt[3])*(b*c - a*d)^(2/3) +
2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))/((1 + Sqrt[3])
*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^
(1/3))], -7 - 4*Sqrt[3]])/(16*b^(2/3)*d^2*(c + d*x)^(1/3)*(b*c +
a*d + 2*b*d*x)^(1/3)*(3*b*c + a*d + 4*b*d*x)*Sqrt[d^2*(3*b*c + a*
d + 4*b*d*x)^2]*Sqrt[((b*c - a*d)^(2/3)*((b*c - a*d)^(2/3) + 2*b^
(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3)))/((1 + Sqrt[3])*(b
*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/
3))^2]) - (3*3^(3/4)*(b*c - a*d)^(5/3)*((c + d*x)*(b*c + a*d + 2*
b*d*x))^(1/3)*Sqrt[(d*(3*b*c + a*d) + 4*b*d^2*x)^2]*((b*c - a*d)^
(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))*Sqrt[(
(b*c - a*d)^(4/3) - 2*b^(1/3)*(b*c - a*d)^(2/3)*((c + d*x)*(a*d +
 b*(c + 2*d*x)))^(1/3) + 4*b^(2/3)*((c + d*x)*(a*d + b*(c + 2*d*x
)))^(2/3))/((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x
)*(a*d + b*(c + 2*d*x)))^(1/3))^2]*EllipticF[ArcSin[((1 - Sqrt[3]
)*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))
^(1/3))/((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(
a*d + b*(c + 2*d*x)))^(1/3))], -7 - 4*Sqrt[3]])/(4*Sqrt[2]*b^(2/3
)*d^2*(c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3)*(3*b*c + a*d +
4*b*d*x)*Sqrt[d^2*(3*b*c + a*d + 4*b*d*x)^2]*Sqrt[((b*c - a*d)^(2
/3)*((b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x
)))^(1/3)))/((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*
x)*(a*d + b*(c + 2*d*x)))^(1/3))^2])
```

Rubi in Sympy [A] time = 179.283, size = 1571, normalized size = 1.18

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)/(d*x+c)**(1/3)/(2*b*d*x+a*d+b*c)**(1/3),x)
```

```
[Out] 3*(c + d*x)**(2/3)*(a*d + b*c + 2*b*d*x)**(2/3)/(8*d**2) - 9*3**(
1/4)*sqrt((4*b**(2/3)*(2*b*d**2*x**2 + c*(a*d + b*c) + d*x*(a*d +
 3*b*c))**(2/3) - 2*b**(1/3)*(a*d - b*c)**(2/3)*(2*b*d**2*x**2 +
c*(a*d + b*c) + d*x*(a*d + 3*b*c))**(1/3) + (a*d - b*c)**(4/3))/(
2*b**(1/3)*(2*b*d**2*x**2 + c*(a*d + b*c) + d*x*(a*d + 3*b*c))**(
1/3) + (1 + sqrt(3))*(a*d - b*c)**(2/3))**2)*sqrt(-sqrt(3) + 2)*(
a*d - b*c)**(5/3)*(2*b**(1/3)*(2*b*d**2*x**2 + c*(a*d + b*c) + d*
x*(a*d + 3*b*c))**(1/3) + (a*d - b*c)**(2/3))*(2*b*d**2*x**2 + c*
(a*d + b*c) + d*x*(a*d + 3*b*c))**(1/3)*sqrt((4*b*d**2*x + d*(a*d
 + 3*b*c))**2)*elliptic_e(asin((2*b**(1/3)*(2*b*d**2*x**2 + c*(a*
d + b*c) + d*x*(a*d + 3*b*c))**(1/3) - (-1 + sqrt(3))*(a*d - b*c)
**(2/3))/(2*b**(1/3)*(2*b*d**2*x**2 + c*(a*d + b*c) + d*x*(a*d +
3*b*c))**(1/3) + (1 + sqrt(3))*(a*d - b*c)**(2/3))), -7 - 4*sqrt(
3))/(16*b**(2/3)*d**2*sqrt((a*d - b*c)**(2/3)*(2*b**(1/3)*(2*b*d*
*2*x**2 + c*(a*d + b*c) + d*x*(a*d + 3*b*c))**(1/3) + (a*d - b*c)
**(2/3))/(2*b**(1/3)*(2*b*d**2*x**2 + c*(a*d + b*c) + d*x*(a*d +
3*b*c))**(1/3) + (1 + sqrt(3))*(a*d - b*c)**(2/3))**2)*(c + d*x)*
*(1/3)*sqrt(b*d**2*(16*b*d**2*x**2 + 8*c*(a*d + b*c) + 8*d*x*(a*d
 + 3*b*c)) + d**2*(a*d - b*c)**2)*(a*d + b*c + 2*b*d*x)**(1/3)*(a
*d + 3*b*c + 4*b*d*x)) + 3*sqrt(2)*3**(3/4)*sqrt((4*b**(2/3)*(2*b
*d**2*x**2 + c*(a*d + b*c) + d*x*(a*d + 3*b*c))**(2/3) - 2*b**(1/
3)*(a*d - b*c)**(2/3)*(2*b*d**2*x**2 + c*(a*d + b*c) + d*x*(a*d +
 3*b*c))**(1/3) + (a*d - b*c)**(4/3))/(2*b**(1/3)*(2*b*d**2*x**2
```

```
+ c*(a*d + b*c) + d*x*(a*d + 3*b*c))**(1/3) + (1 + sqrt(3))*(a*d
- b*c)**(2/3))**2)*(a*d - b*c)**(5/3)*(2*b**(1/3)*(2*b*d**2*x**2
+ c*(a*d + b*c) + d*x*(a*d + 3*b*c))**(1/3) + (a*d - b*c)**(2/3))
*(2*b*d**2*x**2 + c*(a*d + b*c) + d*x*(a*d + 3*b*c))**(1/3)*sqrt(
(4*b*d**2*x + d*(a*d + 3*b*c))**2)*elliptic_f(asin((2*b**(1/3)*(2
*b*d**2*x**2 + c*(a*d + b*c) + d*x*(a*d + 3*b*c))**(1/3) - (-1 +
sqrt(3))*(a*d - b*c)**(2/3))/(2*b**(1/3)*(2*b*d**2*x**2 + c*(a*d
+ b*c) + d*x*(a*d + 3*b*c))**(1/3) + (1 + sqrt(3))*(a*d - b*c)**(
2/3))), -7 - 4*sqrt(3))/(8*b**(2/3)*d**2*sqrt((a*d - b*c)**(2/3)*
(2*b**(1/3)*(2*b*d**2*x**2 + c*(a*d + b*c) + d*x*(a*d + 3*b*c))**
(1/3) + (a*d - b*c)**(2/3))/(2*b**(1/3)*(2*b*d**2*x**2 + c*(a*d +
 b*c) + d*x*(a*d + 3*b*c))**(1/3) + (1 + sqrt(3))*(a*d - b*c)**(2
/3))**2)*(c + d*x)**(1/3)*sqrt(b*d**2*(16*b*d**2*x**2 + 8*c*(a*d
+ b*c) + 8*d*x*(a*d + 3*b*c)) + d**2*(a*d - b*c)**2)*(a*d + b*c +
 2*b*d*x)**(1/3)*(a*d + 3*b*c + 4*b*d*x)) + 9*(a*d - b*c)*sqrt(b*
d**2*(16*b*d**2*x**2 + 8*c*(a*d + b*c) + 8*d*x*(a*d + 3*b*c)) + d
**2*(a*d - b*c)**2)*(2*b*d**2*x**2 + c*(a*d + b*c) + d*x*(a*d + 3
*b*c))**(1/3)*sqrt((4*b*d**2*x + d*(a*d + 3*b*c))**2)/(8*b**(2/3)
*d**4*(c + d*x)**(1/3)*(2*b**(1/3)*(2*b*d**2*x**2 + c*(a*d + b*c)
 + d*x*(a*d + 3*b*c))**(1/3) + (1 + sqrt(3))*(a*d - b*c)**(2/3))*
(a*d + b*c + 2*b*d*x)**(1/3)*(a*d + 3*b*c + 4*b*d*x))
```

Mathematica [C] time = 0.30403, size = 95, normalized size = 0.07

$$-\frac{3(c+dx)^{2/3}(ad+b(c+2dx))^{2/3}\left(\frac{3\sqrt[3]{2}\,{}_2F_1\left(\frac{1}{3},\frac{2}{3};\frac{5}{3};\frac{ad+b(c+2dx)}{ad-bc}\right)}{\left(\frac{b(c+dx)}{bc-ad}\right)^{2/3}}-2\right)}{16d^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)/((c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3)),x]
```

```
[Out] (-3*(c + d*x)^(2/3)*(a*d + b*(c + 2*d*x))^(2/3)*(-2 + (3*2^(1/3)*
Hypergeometric2F1[1/3, 2/3, 5/3, (a*d + b*(c + 2*d*x))/(-(b*c) +
a*d)])/((b*(c + d*x))/(b*c - a*d))^(2/3)))/(16*d^2)
```

Maple [F] time = 0.07, size = 0, normalized size = 0.

$$\int (bx+a)\frac{1}{\sqrt[3]{dx+c}}\frac{1}{\sqrt[3]{2\,bdx+ad+bc}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)/(d*x+c)^(1/3)/(2*b*d*x+a*d+b*c)^(1/3),x)
```

```
[Out] int((b*x+a)/(d*x+c)^(1/3)/(2*b*d*x+a*d+b*c)^(1/3),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{bx+a}{(2\,bdx+bc+ad)^{\frac{1}{3}}(dx+c)^{\frac{1}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)/((2*b*d*x + b*c + a*d)^(1/3)*(d*x + c)^(1/3)),x, algorithm="m
```

```
[Out] integrate((b*x + a)/((2*b*d*x + b*c + a*d)^(1/3)*(d*x + c)^(1/3))
, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{bx+a}{(2\,bdx+bc+ad)^{\frac{1}{3}}(dx+c)^{\frac{1}{3}}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)/((2*b*d*x + b*c + a*d)^(1/3)*(d*x + c)^(1/3)),x, algorithm="f
```

```
[Out] integral((b*x + a)/((2*b*d*x + b*c + a*d)^(1/3)*(d*x + c)^(1/3)),
 x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{a+bx}{\sqrt[3]{c+dx}\sqrt[3]{ad+bc+2bdx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)/(d*x+c)**(1/3)/(2*b*d*x+a*d+b*c)**(1/3),x)
```

```
[Out] Integral((a + b*x)/((c + d*x)**(1/3)*(a*d + b*c + 2*b*d*x)**(1/3)
), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{bx+a}{(2\,bdx+bc+ad)^{\frac{1}{3}}(dx+c)^{\frac{1}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)/((2*b*d*x + b*c + a*d)^(1/3)*(d*x + c)^(1/3)),x, algorithm="g
```

```
[Out] integrate((b*x + a)/((2*b*d*x + b*c + a*d)^(1/3)*(d*x + c)^(1/3))
, x)
```

3.3008 $\int \frac{1}{\sqrt[3]{c+dx}\sqrt[3]{bc+ad+2bdx}}\,dx$

Optimal. Leaf size=1283

result too large to display

```
[Out] (3*((c + d*x)*(b*c + a*d + 2*b*d*x))^(1/3)*Sqrt[d^2*(3*b*c + a*d
+ 4*b*d*x)^2]*Sqrt[(d*(3*b*c + a*d) + 4*b*d^2*x)^2])/(2*b^(2/3)*d
^3*(c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3)*(3*b*c + a*d + 4*b
*d*x)*((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*
d + b*(c + 2*d*x)))^(1/3))) - (3*3^(1/4)*Sqrt[2 - Sqrt[3]]*(b*c -
 a*d)^(2/3)*((c + d*x)*(b*c + a*d + 2*b*d*x))^(1/3)*Sqrt[(d*(3*b*
c + a*d) + 4*b*d^2*x)^2]*((b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x
)*(a*d + b*(c + 2*d*x)))^(1/3))*Sqrt[((b*c - a*d)^(4/3) - 2*b^(1/
3)*(b*c - a*d)^(2/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3) + 4*
b^(2/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(2/3))/((1 + Sqrt[3])*(
b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1
/3))^2]*EllipticE[ArcSin[((1 - Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(
1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))/((1 + Sqrt[3])*(b*c
 - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3)
)], -7 - 4*Sqrt[3]])/(4*b^(2/3)*d*(c + d*x)^(1/3)*(b*c + a*d + 2*
b*d*x)^(1/3)*(3*b*c + a*d + 4*b*d*x)*Sqrt[d^2*(3*b*c + a*d + 4*b*
d*x)^2]*Sqrt[((b*c - a*d)^(2/3)*((b*c - a*d)^(2/3) + 2*b^(1/3)*((
c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3)))/((1 + Sqrt[3])*(b*c - a*d
)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))^2])
+ (3^(3/4)*(b*c - a*d)^(2/3)*((c + d*x)*(b*c + a*d + 2*b*d*x))^(1
/3)*Sqrt[(d*(3*b*c + a*d) + 4*b*d^2*x)^2]*((b*c - a*d)^(2/3) + 2*
b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))*Sqrt[((b*c - a*d
)^(4/3) - 2*b^(1/3)*(b*c - a*d)^(2/3)*((c + d*x)*(a*d + b*(c + 2*
d*x)))^(1/3) + 4*b^(2/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(2/3))
/((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b
*(c + 2*d*x)))^(1/3))^2]*EllipticF[ArcSin[((1 - Sqrt[3])*(b*c - a
*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))/((
1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c
 + 2*d*x)))^(1/3))], -7 - 4*Sqrt[3]])/(Sqrt[2]*b^(2/3)*d*(c + d*x
)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3)*(3*b*c + a*d + 4*b*d*x)*Sqrt[
d^2*(3*b*c + a*d + 4*b*d*x)^2]*Sqrt[((b*c - a*d)^(2/3)*((b*c - a*
d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3)))/((
1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c
 + 2*d*x)))^(1/3))^2])
```

Rubi [A] time = 2.57359, antiderivative size = 1283, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$-\frac{3\sqrt[4]{3}\sqrt{2-\sqrt{3}}(bc-ad)^{2/3}\sqrt[3]{(c+dx)(bc+ad+2bdx)}\sqrt{(4bxd^2+(3bc+ad)d)^2}\left((bc-ad)^{2/3}+2\sqrt[3]{b}\sqrt[3]{(c+dx)(ad+b(c+2dx)}\right.}{4b^{2/3}d\sqrt[3]{c+dx}\sqrt[3]{bc+ad+2bdx}(3bc+ad+4bdx}$$

$$+\frac{3^{3/4}(bc-ad)^{2/3}\sqrt[3]{(c+dx)(bc+ad+2bdx)}\sqrt{(4bxd^2+(3bc+ad)d)^2}\left((bc-ad)^{2/3}+2\sqrt[3]{b}\sqrt[3]{(c+dx)(ad+b(c+2dx))}\right)\sqrt{\frac{(bc-}{}}}{\sqrt{2}b^{2/3}d\sqrt[3]{c+dx}\sqrt[3]{bc+ad+2bdx}(3bc+ad+4bdx)\sqrt{d}}$$

$$+\frac{3\sqrt[3]{(c+dx)(bc+ad+2bdx)}\sqrt{d^2(3bc+ad+4bdx)^2}\sqrt{(4bxd^2+(3bc+ad)d)^2}}{2b^{2/3}d^3\sqrt[3]{c+dx}\sqrt[3]{bc+ad+2bdx}(3bc+ad+4bdx)\left(\left(1+\sqrt{3}\right)(bc-ad)^{2/3}+2\sqrt[3]{b}\sqrt[3]{(c+dx)(ad+b(c+2dx))}\right)}$$

Warning: Unable to verify antiderivative.

```
[In]  Int[1/((c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3)),x]
```

```
[Out] (3*((c + d*x)*(b*c + a*d + 2*b*d*x))^(1/3)*Sqrt[d^2*(3*b*c + a*d
+ 4*b*d*x)^2]*Sqrt[(d*(3*b*c + a*d) + 4*b*d^2*x)^2])/(2*b^(2/3)*d
^3*(c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3)*(3*b*c + a*d + 4*b
*d*x)*((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*
d + b*(c + 2*d*x)))^(1/3))) - (3*3^(1/4)*Sqrt[2 - Sqrt[3]]*(b*c -
 a*d)^(2/3)*((c + d*x)*(b*c + a*d + 2*b*d*x))^(1/3)*Sqrt[(d*(3*b*
c + a*d) + 4*b*d^2*x)^2]*((b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x
)*(a*d + b*(c + 2*d*x)))^(1/3))*Sqrt[((b*c - a*d)^(4/3) - 2*b^(1/
3)*(b*c - a*d)^(2/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3) + 4*
b^(2/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(2/3))/((1 + Sqrt[3])*(
b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1
/3))^2]*EllipticE[ArcSin[((1 - Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(
1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))/((1 + Sqrt[3])*(b*c
 - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3)
)], -7 - 4*Sqrt[3]])/(4*b^(2/3)*d*(c + d*x)^(1/3)*(b*c + a*d + 2*
b*d*x)^(1/3)*(3*b*c + a*d + 4*b*d*x)*Sqrt[d^2*(3*b*c + a*d + 4*b*
d*x)^2]*Sqrt[((b*c - a*d)^(2/3)*((b*c - a*d)^(2/3) + 2*b^(1/3)*((
c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3)))/((1 + Sqrt[3])*(b*c - a*d
)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))^2])
+ (3^(3/4)*(b*c - a*d)^(2/3)*((c + d*x)*(b*c + a*d + 2*b*d*x))^(1
/3)*Sqrt[(d*(3*b*c + a*d) + 4*b*d^2*x)^2]*((b*c - a*d)^(2/3) + 2*
b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))*Sqrt[((b*c - a*d
)^(4/3) - 2*b^(1/3)*(b*c - a*d)^(2/3)*((c + d*x)*(a*d + b*(c + 2*
d*x)))^(1/3) + 4*b^(2/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(2/3))
/((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b
*(c + 2*d*x)))^(1/3))^2]*EllipticF[ArcSin[((1 - Sqrt[3])*(b*c - a
*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))/((
1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c
 + 2*d*x)))^(1/3))], -7 - 4*Sqrt[3]])/(Sqrt[2]*b^(2/3)*d*(c + d*x
)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3)*(3*b*c + a*d + 4*b*d*x)*Sqrt[
d^2*(3*b*c + a*d + 4*b*d*x)^2]*Sqrt[((b*c - a*d)^(2/3)*((b*c - a*
d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3)))/((
1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c
 + 2*d*x)))^(1/3))^2])
```

Rubi in Sympy [A] time = 138.341, size = 1527, normalized size = 1.19

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(d*x+c)**(1/3)/(2*b*d*x+a*d+b*c)**(1/3),x)
```

```
[Out] -3*3**(1/4)*sqrt((4*b**(2/3)*(2*b*d**2*x**2 + c*(a*d + b*c) + d*x
*(a*d + 3*b*c))**(2/3) - 2*b**(1/3)*(a*d - b*c)**(2/3)*(2*b*d**2*
x**2 + c*(a*d + b*c) + d*x*(a*d + 3*b*c))**(1/3) + (a*d - b*c)**(
4/3))/(2*b**(1/3)*(2*b*d**2*x**2 + c*(a*d + b*c) + d*x*(a*d + 3*b
*c))**(1/3) + (1 + sqrt(3))*(a*d - b*c)**(2/3))**2)*sqrt(-sqrt(3)
 + 2)*(a*d - b*c)**(2/3)*(2*b**(1/3)*(2*b*d**2*x**2 + c*(a*d + b*
c) + d*x*(a*d + 3*b*c))**(1/3) + (a*d - b*c)**(2/3))*(2*b*d**2*x*
*2 + c*(a*d + b*c) + d*x*(a*d + 3*b*c))**(1/3)*sqrt((4*b*d**2*x +
 d*(a*d + 3*b*c))**2)*elliptic_e(asin((2*b**(1/3)*(2*b*d**2*x**2
+ c*(a*d + b*c) + d*x*(a*d + 3*b*c))**(1/3) - (-1 + sqrt(3))*(a*d
 - b*c)**(2/3))/(2*b**(1/3)*(2*b*d**2*x**2 + c*(a*d + b*c) + d*x*
(a*d + 3*b*c))**(1/3) + (1 + sqrt(3))*(a*d - b*c)**(2/3))), -7 -
4*sqrt(3))/(4*b**(2/3)*d*sqrt((a*d - b*c)**(2/3)*(2*b**(1/3)*(2*b
*d**2*x**2 + c*(a*d + b*c) + d*x*(a*d + 3*b*c))**(1/3) + (a*d - b
*c)**(2/3))/(2*b**(1/3)*(2*b*d**2*x**2 + c*(a*d + b*c) + d*x*(a*d
 + 3*b*c))**(1/3) + (1 + sqrt(3))*(a*d - b*c)**(2/3))**2)*(c + d*
x)**(1/3)*sqrt(b*d**2*(16*b*d**2*x**2 + 8*c*(a*d + b*c) + 8*d*x*(
a*d + 3*b*c)) + d**2*(a*d - b*c)**2)*(a*d + b*c + 2*b*d*x)**(1/3)
*(a*d + 3*b*c + 4*b*d*x)) + sqrt(2)*3**(3/4)*sqrt((4*b**(2/3)*(2*
b*d**2*x**2 + c*(a*d + b*c) + d*x*(a*d + 3*b*c))**(2/3) - 2*b**(1
/3)*(a*d - b*c)**(2/3)*(2*b*d**2*x**2 + c*(a*d + b*c) + d*x*(a*d
+ 3*b*c))**(1/3) + (a*d - b*c)**(4/3))/(2*b**(1/3)*(2*b*d**2*x**2
 + c*(a*d + b*c) + d*x*(a*d + 3*b*c))**(1/3) + (1 + sqrt(3))*(a*d
 - b*c)**(2/3))**2)*(a*d - b*c)**(2/3)*(2*b**(1/3)*(2*b*d**2*x**2
 + c*(a*d + b*c) + d*x*(a*d + 3*b*c))**(1/3) + (a*d - b*c)**(2/3)
)*(2*b*d**2*x**2 + c*(a*d + b*c) + d*x*(a*d + 3*b*c))**(1/3)*sqrt
((4*b*d**2*x + d*(a*d + 3*b*c))**2)*elliptic_f(asin((2*b**(1/3)*(
```

```
2*b*d**2*x**2 + c*(a*d + b*c) + d*x*(a*d + 3*b*c))**(1/3) - (-1 +
 sqrt(3))*(a*d - b*c)**(2/3))/(2*b**(1/3)*(2*b*d**2*x**2 + c*(a*d
 + b*c) + d*x*(a*d + 3*b*c))**(1/3) + (1 + sqrt(3))*(a*d - b*c)**
(2/3))), -7 - 4*sqrt(3))/(2*b**(2/3)*d*sqrt((a*d - b*c)**(2/3)*(2
*b**(1/3)*(2*b*d**2*x**2 + c*(a*d + b*c) + d*x*(a*d + 3*b*c))**(1
/3) + (a*d - b*c)**(2/3))/(2*b**(1/3)*(2*b*d**2*x**2 + c*(a*d + b
*c) + d*x*(a*d + 3*b*c))**(1/3) + (1 + sqrt(3))*(a*d - b*c)**(2/3
))**2)*(c + d*x)**(1/3)*sqrt(b*d**2*(16*b*d**2*x**2 + 8*c*(a*d +
b*c) + 8*d*x*(a*d + 3*b*c)) + d**2*(a*d - b*c)**2)*(a*d + b*c + 2
*b*d*x)**(1/3)*(a*d + 3*b*c + 4*b*d*x)) + 3*sqrt(b*d**2*(16*b*d**
2*x**2 + 8*c*(a*d + b*c) + 8*d*x*(a*d + 3*b*c)) + d**2*(a*d - b*c
)**2)*(2*b*d**2*x**2 + c*(a*d + b*c) + d*x*(a*d + 3*b*c))**(1/3)*
sqrt((4*b*d**2*x + d*(a*d + 3*b*c))**2)/(2*b**(2/3)*d**3*(c + d*x
)**(1/3)*(2*b**(1/3)*(2*b*d**2*x**2 + c*(a*d + b*c) + d*x*(a*d +
3*b*c))**(1/3) + (1 + sqrt(3))*(a*d - b*c)**(2/3))*(a*d + b*c + 2
*b*d*x)**(1/3)*(a*d + 3*b*c + 4*b*d*x))
```

Mathematica [C] time = 0.109817, size = 94, normalized size = 0.07

$$\frac{3\sqrt[3]{\frac{b(c+dx)}{bc-ad}}(ad+b(c+2dx))^{2/3}\,{}_2F_1\left(\frac{1}{3},\frac{2}{3};\frac{5}{3};\frac{ad+b(c+2dx)}{ad-bc}\right)}{2\,2^{2/3}bd\sqrt[3]{c+dx}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3)),x]
```

```
[Out] (3*((b*(c + d*x))/(b*c - a*d))^(1/3)*(a*d + b*(c + 2*d*x))^(2/3)*
Hypergeometric2F1[1/3, 2/3, 5/3, (a*d + b*(c + 2*d*x))/(-(b*c) +
a*d)])/(2*2^(2/3)*b*d*(c + d*x)^(1/3))
```

Maple [F] time = 0.056, size = 0, normalized size = 0.

$$\int 1\frac{1}{\sqrt[3]{dx+c}}\frac{1}{\sqrt[3]{2\,bdx+ad+bc}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(d*x+c)^(1/3)/(2*b*d*x+a*d+b*c)^(1/3),x)
```

```
[Out] int(1/(d*x+c)^(1/3)/(2*b*d*x+a*d+b*c)^(1/3),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(2\,bdx+bc+ad)^{\frac{1}{3}}(dx+c)^{\frac{1}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((2*b*d*x + b*c + a*d)^(1/3)*(d*x + c)^(1/3)),x, algorithm="maxima")
```

```
[Out] integrate(1/((2*b*d*x + b*c + a*d)^(1/3)*(d*x + c)^(1/3)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{1}{(2\,bdx+bc+ad)^{\frac{1}{3}}(dx+c)^{\frac{1}{3}}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((2*b*d*x + b*c + a*d)^(1/3)*(d*x + c)^(1/3)),x, algorithm="fricas")
```

```
[Out] integral(1/((2*b*d*x + b*c + a*d)^(1/3)*(d*x + c)^(1/3)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt[3]{c+dx}\sqrt[3]{ad+bc+2bdx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(d*x+c)**(1/3)/(2*b*d*x+a*d+b*c)**(1/3),x)
```

```
[Out] Integral(1/((c + d*x)**(1/3)*(a*d + b*c + 2*b*d*x)**(1/3)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(2\,bdx+bc+ad)^{\frac{1}{3}}(dx+c)^{\frac{1}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((2*b*d*x + b*c + a*d)^(1/3)*(d*x + c)^(1/3)),x, algorithm="giac")
```

```
[Out] integrate(1/((2*b*d*x + b*c + a*d)^(1/3)*(d*x + c)^(1/3)), x)
```

3.3009 $\int \frac{1}{(a+bx)\sqrt[3]{c+dx}\sqrt[3]{bc+ad+2bdx}}\,dx$

Optimal. Leaf size=178

$$-\frac{\log(a+bx)}{2b^{2/3}(bc-ad)^{2/3}}+\frac{3\log\left(\frac{b^{2/3}(c+dx)^{2/3}}{\sqrt[3]{bc-ad}}-\sqrt[3]{ad+bc+2bdx}\right)}{4b^{2/3}(bc-ad)^{2/3}}-\frac{\sqrt{3}\tan^{-1}\left(\frac{2b^{2/3}(c+dx)^{2/3}}{\sqrt{3}\sqrt[3]{bc-ad}\sqrt[3]{ad+bc+2bdx}}+\frac{1}{\sqrt{3}}\right)}{2b^{2/3}(bc-ad)^{2/3}}$$

```
[Out] -(Sqrt[3]*ArcTan[1/Sqrt[3] + (2*b^(2/3)*(c + d*x)^(2/3))/(Sqrt[3]
*(b*c - a*d)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3))])/(2*b^(2/3)*(b*c
 - a*d)^(2/3)) - Log[a + b*x]/(2*b^(2/3)*(b*c - a*d)^(2/3)) + (3*
Log[(b^(2/3)*(c + d*x)^(2/3))/(b*c - a*d)^(1/3) - (b*c + a*d + 2*
b*d*x)^(1/3)])/(4*b^(2/3)*(b*c - a*d)^(2/3))
```

Rubi [A] time = 0.223969, antiderivative size = 178, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 33, $\frac{\text{number of rules}}{\text{integrand size}} = 0.03$

$$-\frac{\log(a+bx)}{2b^{2/3}(bc-ad)^{2/3}}+\frac{3\log\left(\frac{b^{2/3}(c+dx)^{2/3}}{\sqrt[3]{bc-ad}}-\sqrt[3]{ad+bc+2bdx}\right)}{4b^{2/3}(bc-ad)^{2/3}}-\frac{\sqrt{3}\tan^{-1}\left(\frac{2b^{2/3}(c+dx)^{2/3}}{\sqrt{3}\sqrt[3]{bc-ad}\sqrt[3]{ad+bc+2bdx}}+\frac{1}{\sqrt{3}}\right)}{2b^{2/3}(bc-ad)^{2/3}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((a + b*x)*(c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3)),x]
```

```
[Out] -(Sqrt[3]*ArcTan[1/Sqrt[3] + (2*b^(2/3)*(c + d*x)^(2/3))/(Sqrt[3]
*(b*c - a*d)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3))])/(2*b^(2/3)*(b*c
 - a*d)^(2/3)) - Log[a + b*x]/(2*b^(2/3)*(b*c - a*d)^(2/3)) + (3*
Log[(b^(2/3)*(c + d*x)^(2/3))/(b*c - a*d)^(1/3) - (b*c + a*d + 2*
b*d*x)^(1/3)])/(4*b^(2/3)*(b*c - a*d)^(2/3))
```

Rubi in Sympy [A] time = 16.4917, size = 165, normalized size = 0.93

$$-\frac{\log(a+bx)}{2b^{\frac{2}{3}}(ad-bc)^{\frac{2}{3}}}+\frac{3\log\left(-\frac{b^{\frac{2}{3}}(c+dx)^{\frac{2}{3}}}{\sqrt[3]{ad-bc}}-\sqrt[3]{ad+bc+2bdx}\right)}{4b^{\frac{2}{3}}(ad-bc)^{\frac{2}{3}}}+\frac{\sqrt{3}\operatorname{atan}\left(\frac{2\sqrt{3}b^{\frac{2}{3}}(c+dx)^{\frac{2}{3}}}{3\sqrt[3]{ad-bc}\sqrt[3]{ad+bc+2bdx}}-\frac{\sqrt{3}}{3}\right)}{2b^{\frac{2}{3}}(ad-bc)^{\frac{2}{3}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(b*x+a)/(d*x+c)**(1/3)/(2*b*d*x+a*d+b*c)**(1/3),x)
```

```
[Out] -log(a + b*x)/(2*b**(2/3)*(a*d - b*c)**(2/3)) + 3*log(-b**(2/3)*(
c + d*x)**(2/3)/(a*d - b*c)**(1/3) - (a*d + b*c + 2*b*d*x)**(1/3)
)/(4*b**(2/3)*(a*d - b*c)**(2/3)) + sqrt(3)*atan(2*sqrt(3)*b**(2/
3)*(c + d*x)**(2/3)/(3*(a*d - b*c)**(1/3)*(a*d + b*c + 2*b*d*x)**
(1/3)) - sqrt(3)/3)/(2*b**(2/3)*(a*d - b*c)**(2/3))
```

Mathematica [C] time = 1.15527, size = 276, normalized size = 1.55

$$-\frac{15d(a+bx)F_1\left(\frac{2}{3};\frac{1}{3},\frac{1}{3};\frac{5}{3};\frac{ad-bc}{d(a+bx)},-\frac{bc-ad}{2ad+2bxd}\right)}{b\sqrt[3]{c+dx}\sqrt[3]{ad+b(c+2dx)}\Bigl(10d(a+bx)F_1\left(\frac{2}{3};\frac{1}{3},\frac{1}{3};\frac{5}{3};\frac{ad-bc}{d(a+bx)},-\frac{bc-ad}{2ad+2bxd}\right)-(bc-ad)\Bigl(F_1\left(\frac{5}{3};\frac{1}{3},\frac{4}{3};\frac{8}{3};\frac{ad-bc}{d(a+bx)},-\frac{bc-ad}{2ad+2bxd}\right)}$$

Warning: Unable to verify antiderivative.

```
[In] Integrate[1/((a + b*x)*(c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3)),x]
```

```
[Out] (-15*d*(a + b*x)*AppellF1[2/3, 1/3, 1/3, 5/3, (-(b*c) + a*d)/(d*(
a + b*x)), -((b*c - a*d)/(2*a*d + 2*b*d*x))])/(b*(c + d*x)^(1/3)*
(a*d + b*(c + 2*d*x))^(1/3)*(10*d*(a + b*x)*AppellF1[2/3, 1/3, 1/
3, 5/3, (-(b*c) + a*d)/(d*(a + b*x)), -((b*c - a*d)/(2*a*d + 2*b*
d*x))] - (b*c - a*d)*(AppellF1[5/3, 1/3, 4/3, 8/3, (-(b*c) + a*d)
/(d*(a + b*x)), -((b*c - a*d)/(2*a*d + 2*b*d*x))] + 2*AppellF1[5/
3, 4/3, 1/3, 8/3, (-(b*c) + a*d)/(d*(a + b*x)), -((b*c - a*d)/(2*
a*d + 2*b*d*x))])))
```

Maple [F] time = 0.076, size = 0, normalized size = 0.

$$\int \frac{1}{bx+a}\frac{1}{\sqrt[3]{dx+c}}\frac{1}{\sqrt[3]{2\,bdx+ad+bc}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(1/(b*x+a)/(d*x+c)^(1/3)/(2*b*d*x+a*d+b*c)^(1/3),x)
```

```
[Out] int(1/(b*x+a)/(d*x+c)^(1/3)/(2*b*d*x+a*d+b*c)^(1/3),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(2\,bdx+bc+ad)^{\frac{1}{3}}(bx+a)(dx+c)^{\frac{1}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((2*b*d*x + b*c + a*d)^(1/3)*(b*x + a)*(d*x + c)^(1/3)),x, algorithm=
```

```
[Out] integrate(1/((2*b*d*x + b*c + a*d)^(1/3)*(b*x + a)*(d*x + c)^(1/3
)), x)
```

Fricas [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((2*b*d*x + b*c + a*d)^(1/3)*(b*x + a)*(d*x + c)^(1/3)),x, algorithm=
```

```
[Out] Timed out
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(a+bx)\sqrt[3]{c+dx}\sqrt[3]{ad+bc+2bdx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(b*x+a)/(d*x+c)**(1/3)/(2*b*d*x+a*d+b*c)**(1/3),x)
```

```
[Out] Integral(1/((a + b*x)*(c + d*x)**(1/3)*(a*d + b*c + 2*b*d*x)**(1/
3)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(2\,bdx+bc+ad)^{\frac{1}{3}}(bx+a)(dx+c)^{\frac{1}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((2*b*d*x + b*c + a*d)^(1/3)*(b*x + a)*(d*x + c)^(1/3)),x, algorithm=
```

```
[Out] integrate(1/((2*b*d*x + b*c + a*d)^(1/3)*(b*x + a)*(d*x + c)^(1/3
)), x)
```

3.3010 $\int \frac{1}{(a+bx)^2 \sqrt[3]{c+dx} \sqrt[3]{bc+ad+2bdx}} \, dx$

Optimal. Leaf size=1510

result too large to display

```
[Out] -(((c + d*x)^(2/3)*(b*c + a*d + 2*b*d*x)^(2/3))/((b*c - a*d)^2*(a
 + b*x))) + (((c + d*x)*(b*c + a*d + 2*b*d*x))^(1/3)*Sqrt[d^2*(3*
b*c + a*d + 4*b*d*x)^2]*Sqrt[(d*(3*b*c + a*d) + 4*b*d^2*x)^2])/(b
^(2/3)*d*(b*c - a*d)^2*(c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3
)*(3*b*c + a*d + 4*b*d*x)*((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^
(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))) + (Sqrt[3]*d*ArcT
an[1/Sqrt[3] + (2*b^(2/3)*(c + d*x)^(2/3))/(Sqrt[3]*(b*c - a*d)^(
1/3)*(b*c + a*d + 2*b*d*x)^(1/3))])/(2*b^(2/3)*(b*c - a*d)^(5/3))
 - (3^(1/4)*Sqrt[2 - Sqrt[3]]*d*((c + d*x)*(b*c + a*d + 2*b*d*x))
^(1/3)*Sqrt[(d*(3*b*c + a*d) + 4*b*d^2*x)^2]*((b*c - a*d)^(2/3) +
 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))*Sqrt[((b*c -
a*d)^(4/3) - 2*b^(1/3)*(b*c - a*d)^(2/3)*((c + d*x)*(a*d + b*(c +
 2*d*x)))^(1/3) + 4*b^(2/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(2/
3))/((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d
+ b*(c + 2*d*x)))^(1/3))^2]*EllipticE[ArcSin[((1 - Sqrt[3])*(b*c
- a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))
/((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b
*(c + 2*d*x)))^(1/3))], -7 - 4*Sqrt[3]])/(2*b^(2/3)*(b*c - a*d)^(
4/3)*(c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3)*(3*b*c + a*d + 4
*b*d*x)*Sqrt[d^2*(3*b*c + a*d + 4*b*d*x)^2]*Sqrt[((b*c - a*d)^(2/
3)*((b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)
))^(1/3)))/((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x
)*(a*d + b*(c + 2*d*x)))^(1/3))^2]) + (Sqrt[2]*d*((c + d*x)*(b*c
+ a*d + 2*b*d*x))^(1/3)*Sqrt[(d*(3*b*c + a*d) + 4*b*d^2*x)^2]*((b
*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/
3))*Sqrt[((b*c - a*d)^(4/3) - 2*b^(1/3)*(b*c - a*d)^(2/3)*((c + d
*x)*(a*d + b*(c + 2*d*x)))^(1/3) + 4*b^(2/3)*((c + d*x)*(a*d + b*
(c + 2*d*x)))^(2/3))/((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)
*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))^2]*EllipticF[ArcSin[((1
 - Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c
+ 2*d*x)))^(1/3))/((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((
c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))], -7 - 4*Sqrt[3]])/(3^(1/4
)*b^(2/3)*(b*c - a*d)^(4/3)*(c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)
^(1/3)*(3*b*c + a*d + 4*b*d*x)*Sqrt[d^2*(3*b*c + a*d + 4*b*d*x)^2
]*Sqrt[((b*c - a*d)^(2/3)*((b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*
x)*(a*d + b*(c + 2*d*x)))^(1/3)))/((1 + Sqrt[3])*(b*c - a*d)^(2/3
) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))^2]) + (d*L
og[a + b*x])/(2*b^(2/3)*(b*c - a*d)^(5/3)) - (3*d*Log[(b^(2/3)*(c
 + d*x)^(2/3))/(b*c - a*d)^(1/3) - (b*c + a*d + 2*b*d*x)^(1/3)])/
(4*b^(2/3)*(b*c - a*d)^(5/3))
```

Rubi [A] time = 4.48089, antiderivative size = 1510, normalized size of antiderivative = 1., number

of steps used = 8, number of rules used = 8, integrand size = 33, $\frac{\text{number of rules}}{\text{integrand size}} = 0.242$

$$\frac{\sqrt{3}d\tan^{-1}\left(\frac{2b^{2/3}(c+dx)^{2/3}}{\sqrt{3}\sqrt[3]{bc-ad}\sqrt[3]{bc+ad+2bdx}}+\frac{1}{\sqrt{3}}\right)}{2b^{2/3}(bc-ad)^{5/3}}$$

$$-\frac{\sqrt[4]{3}\sqrt{2-\sqrt{3}}d\sqrt[3]{(c+dx)(bc+ad+2bdx)}\sqrt{(4bxd^2+(3bc+ad)d)^2}\left((bc-ad)^{2/3}+2\sqrt[3]{b}\sqrt[3]{(c+dx)(ad+b(c+2dx))}\right)\sqrt{\frac{(bc-ad}{}}}{2b^{2/3}(bc-ad)^{4/3}\sqrt[3]{c+dx}\sqrt[3]{bc+ad+2bdx}(3bc+ad+4bdx}$$

$$+\frac{\sqrt{2}d\sqrt[3]{(c+dx)(bc+ad+2bdx)}\sqrt{(4bxd^2+(3bc+ad)d)^2}\left((bc-ad)^{2/3}+2\sqrt[3]{b}\sqrt[3]{(c+dx)(ad+b(c+2dx))}\right)\sqrt{\frac{(bc-ad)^{4/3}-2\sqrt[3]{b}\sqrt[3]{}}{((}}}{\sqrt[4]{3}b^{2/3}(bc-ad)^{4/3}\sqrt[3]{c+dx}\sqrt[3]{bc+ad+2bdx}(3bc+ad+4bdx)\sqrt{d}}$$

$$+\frac{d\log(a+bx)}{2b^{2/3}(bc-ad)^{5/3}}-\frac{3d\log\left(\frac{b^{2/3}(c+dx)^{2/3}}{\sqrt[3]{bc-ad}}-\sqrt[3]{bc+ad+2bdx}\right)}{4b^{2/3}(bc-ad)^{5/3}}-\frac{(c+dx)^{2/3}(bc+ad+2bdx)^{2/3}}{(bc-ad)^2(a+bx)}$$

$$+\frac{\sqrt[3]{(c+dx)(bc+ad+2bdx)}\sqrt{d^2(3bc+ad+4bdx)^2}\sqrt{(4bxd^2+(3bc+ad)d)^2}}{b^{2/3}d(bc-ad)^2\sqrt[3]{c+dx}\sqrt[3]{bc+ad+2bdx}(3bc+ad+4bdx)\left(\left(1+\sqrt{3}\right)(bc-ad)^{2/3}+2\sqrt[3]{b}\sqrt[3]{(c+dx)(ad+b(c+2dx))}\right)}$$

Warning: Unable to verify antiderivative.

```
[In]  Int[1/((a + b*x)^2*(c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3)),x]
```

```
[Out] -(((c + d*x)^(2/3)*(b*c + a*d + 2*b*d*x)^(2/3))/((b*c - a*d)^2*(a
 + b*x))) + (((c + d*x)*(b*c + a*d + 2*b*d*x))^(1/3)*Sqrt[d^2*(3*
b*c + a*d + 4*b*d*x)^2]*Sqrt[(d*(3*b*c + a*d) + 4*b*d^2*x)^2])/(b
^(2/3)*d*(b*c - a*d)^2*(c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3
)*(3*b*c + a*d + 4*b*d*x)*((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^
(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))) + (Sqrt[3]*d*ArcT
an[1/Sqrt[3] + (2*b^(2/3)*(c + d*x)^(2/3))/(Sqrt[3]*(b*c - a*d)^(
1/3)*(b*c + a*d + 2*b*d*x)^(1/3))]])/(2*b^(2/3)*(b*c - a*d)^(5/3))
 - (3^(1/4)*Sqrt[2 - Sqrt[3]]*d*((c + d*x)*(b*c + a*d + 2*b*d*x))
^(1/3)*Sqrt[(d*(3*b*c + a*d) + 4*b*d^2*x)^2]*((b*c - a*d)^(2/3) +
 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))*Sqrt[((b*c -
a*d)^(4/3) - 2*b^(1/3)*(b*c - a*d)^(2/3)*((c + d*x)*(a*d + b*(c +
 2*d*x)))^(1/3) + 4*b^(2/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(2/
3))/((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d
+ b*(c + 2*d*x)))^(1/3))^2]*EllipticE[ArcSin[((1 - Sqrt[3])*(b*c
- a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))
/((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b
*(c + 2*d*x)))^(1/3))], -7 - 4*Sqrt[3]])/(2*b^(2/3)*(b*c - a*d)^(
4/3)*(c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3)*(3*b*c + a*d + 4
*b*d*x)*Sqrt[d^2*(3*b*c + a*d + 4*b*d*x)^2]*Sqrt[((b*c - a*d)^(2/
3)*((b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)
))^(1/3)))/((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x
)*(a*d + b*(c + 2*d*x)))^(1/3))^2]) + (Sqrt[2]*d*((c + d*x)*(b*c
+ a*d + 2*b*d*x))^(1/3)*Sqrt[(d*(3*b*c + a*d) + 4*b*d^2*x)^2]*((b
*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/
3))*Sqrt[((b*c - a*d)^(4/3) - 2*b^(1/3)*(b*c - a*d)^(2/3)*((c + d
*x)*(a*d + b*(c + 2*d*x)))^(1/3) + 4*b^(2/3)*((c + d*x)*(a*d + b*
(c + 2*d*x)))^(2/3))/((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)
*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))^2]*EllipticF[ArcSin[((1
 - Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c
+ 2*d*x)))^(1/3))/((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((
c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))], -7 - 4*Sqrt[3]])/(3^(1/4
)*b^(2/3)*(b*c - a*d)^(4/3)*(c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)
^(1/3)*(3*b*c + a*d + 4*b*d*x)*Sqrt[d^2*(3*b*c + a*d + 4*b*d*x)^2
]*Sqrt[((b*c - a*d)^(2/3)*((b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*
x)*(a*d + b*(c + 2*d*x)))^(1/3)))/((1 + Sqrt[3])*(b*c - a*d)^(2/3
) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))^2]) + (d*L
og[a + b*x])/(2*b^(2/3)*(b*c - a*d)^(5/3)) - (3*d*Log[(b^(2/3)*(c
 + d*x)^(2/3))/(b*c - a*d)^(1/3) - (b*c + a*d + 2*b*d*x)^(1/3)])/
```

```
(4*b^(2/3)*(b*c - a*d)^(5/3))
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(1/(b*x+a)**2/(d*x+c)**(1/3)/(2*b*d*x+a*d+b*c)**(1/3),x)
```

```
[Out] Timed out
```

Mathematica [C] time = 4.38205, size = 593, normalized size = 0.39

$$\frac{(c+dx)^{2/3}(ad+b(c+2dx))^{2/3}\left(d\left(-\frac{16(bc-ad)^2F_1\left(\frac{5}{3};\frac{1}{3},1;\frac{8}{3};\frac{bc-ad}{2bc+2bdx},\frac{bc-ad}{bc+bdx}\right)}{d(a+bx)\left(16b(c+dx)F_1\left(\frac{5}{3};\frac{1}{3},1;\frac{8}{3};\frac{bc-ad}{2bc+2bdx},\frac{bc-ad}{bc+bdx}\right)+(bc-ad)\left(6F_1\left(\frac{8}{3};\frac{1}{3},2;\frac{11}{3};\frac{bc-ad}{2bc+2bdx},\frac{bc-ad}{bc+bdx}\right)+F_1\left(\frac{8}{3};\frac{4}{3},1;\frac{11}{3};\frac{bc-ad}{2bc+2bdx},\frac{b}{bc}\right.\right.\right.}\right.\right.}{5(bc}$$

Warning: Unable to verify antiderivative.

```
[In] Integrate[1/((a + b*x)^2*(c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3)),x]
```

```
[Out] ((c + d*x)^(2/3)*(a*d + b*(c + 2*d*x))^(2/3)*(-5/(a + b*x) + (d*(
10 - (5*c)/(c + d*x) + (5*a*d)/(b*c + b*d*x) + (100*b*(b*c - a*d)
*(c + d*x)*AppellF1[2/3, 1/3, 1, 5/3, (b*c - a*d)/(2*b*c + 2*b*d*
x), (b*c - a*d)/(b*c + b*d*x)])/(d*(a + b*x)*(10*b*(c + d*x)*Appe
llF1[2/3, 1/3, 1, 5/3, (b*c - a*d)/(2*b*c + 2*b*d*x), (b*c - a*d)
/(b*c + b*d*x)] + (b*c - a*d)*(6*AppellF1[5/3, 1/3, 2, 8/3, (b*c
- a*d)/(2*b*c + 2*b*d*x), (b*c - a*d)/(b*c + b*d*x)] + AppellF1[5
/3, 4/3, 1, 8/3, (b*c - a*d)/(2*b*c + 2*b*d*x), (b*c - a*d)/(b*c
+ b*d*x)]))) - (16*(b*c - a*d)^2*AppellF1[5/3, 1/3, 1, 8/3, (b*c
- a*d)/(2*b*c + 2*b*d*x), (b*c - a*d)/(b*c + b*d*x)])/(d*(a + b*x
)*(16*b*(c + d*x)*AppellF1[5/3, 1/3, 1, 8/3, (b*c - a*d)/(2*b*c +
 2*b*d*x), (b*c - a*d)/(b*c + b*d*x)] + (b*c - a*d)*(6*AppellF1[8
/3, 1/3, 2, 11/3, (b*c - a*d)/(2*b*c + 2*b*d*x), (b*c - a*d)/(b*c
 + b*d*x)] + AppellF1[8/3, 4/3, 1, 11/3, (b*c - a*d)/(2*b*c + 2*b
*d*x), (b*c - a*d)/(b*c + b*d*x)])))))/(b*c + a*d + 2*b*d*x)))/(5
*(b*c - a*d)^2)
```

Maple [F] time = 0.083, size = 0, normalized size = 0.

$$\int \frac{1}{(bx+a)^2}\frac{1}{\sqrt[3]{dx+c}}\frac{1}{\sqrt[3]{2\,bdx+ad+bc}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(1/(b*x+a)^2/(d*x+c)^(1/3)/(2*b*d*x+a*d+b*c)^(1/3),x)
```

```
[Out] int(1/(b*x+a)^2/(d*x+c)^(1/3)/(2*b*d*x+a*d+b*c)^(1/3),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(2\,bdx+bc+ad)^{\frac{1}{3}}(bx+a)^2(dx+c)^{\frac{1}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((2*b*d*x + b*c + a*d)^(1/3)*(b*x + a)^2*(d*x + c)^(1/3)),x, algorith
```

```
[Out] integrate(1/((2*b*d*x + b*c + a*d)^(1/3)*(b*x + a)^2*(d*x + c)^(1
/3)), x)
```

Fricas [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((2*b*d*x + b*c + a*d)^(1/3)*(b*x + a)^2*(d*x + c)^(1/3)),x, algorith
```

```
[Out] Timed out
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(b*x+a)**2/(d*x+c)**(1/3)/(2*b*d*x+a*d+b*c)**(1/3),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(2\,bdx + bc + ad)^{\frac{1}{3}}(bx + a)^{2}(dx + c)^{\frac{1}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((2*b*d*x + b*c + a*d)^(1/3)*(b*x + a)^2*(d*x + c)^(1/3)),x, algorith
```

```
[Out] integrate(1/((2*b*d*x + b*c + a*d)^(1/3)*(b*x + a)^2*(d*x + c)^(1
/3)), x)
```

3.3011 $\int \frac{1}{(a+bx)^3 \sqrt[3]{c+dx} \sqrt[3]{bc+ad+2bdx}} \, dx$

Optimal. Leaf size=1558

result too large to display

```
[Out] -((c + d*x)^(2/3)*(b*c + a*d + 2*b*d*x)^(2/3))/(2*(b*c - a*d)^2*(
a + b*x)^2) + (2*d*(c + d*x)^(2/3)*(b*c + a*d + 2*b*d*x)^(2/3))/(
(b*c - a*d)^3*(a + b*x)) - (2*((c + d*x)*(b*c + a*d + 2*b*d*x))^(
1/3)*Sqrt[d^2*(3*b*c + a*d + 4*b*d*x)^2]*Sqrt[(d*(3*b*c + a*d) +
4*b*d^2*x)^2])/(b^(2/3)*(b*c - a*d)^3*(c + d*x)^(1/3)*(b*c + a*d
+ 2*b*d*x)^(1/3)*(3*b*c + a*d + 4*b*d*x)*((1 + Sqrt[3])*(b*c - a*
d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))) -
(2*d^2*ArcTan[1/Sqrt[3] + (2*b^(2/3)*(c + d*x)^(2/3))/(Sqrt[3]*(b
*c - a*d)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3))]])/(Sqrt[3]*b^(2/3)*(
b*c - a*d)^(8/3)) + (3^(1/4)*Sqrt[2 - Sqrt[3]]*d^2*((c + d*x)*(b*
c + a*d + 2*b*d*x))^(1/3)*Sqrt[(d*(3*b*c + a*d) + 4*b*d^2*x)^2]*(
(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(
1/3))*Sqrt[((b*c - a*d)^(4/3) - 2*b^(1/3)*(b*c - a*d)^(2/3)*((c +
 d*x)*(a*d + b*(c + 2*d*x)))^(1/3) + 4*b^(2/3)*((c + d*x)*(a*d +
b*(c + 2*d*x)))^(2/3))/((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/
3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))^2]*EllipticE[ArcSin[(
(1 - Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(
c + 2*d*x)))^(1/3))/((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*
((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))], -7 - 4*Sqrt[3]])/(b^(2
/3)*(b*c - a*d)^(7/3)*(c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3)
*(3*b*c + a*d + 4*b*d*x)*Sqrt[d^2*(3*b*c + a*d + 4*b*d*x)^2]*Sqrt
[((b*c - a*d)^(2/3)*((b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*
d + b*(c + 2*d*x)))^(1/3)))/((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*
b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))^2]) - (2*Sqrt[2]
*d^2*((c + d*x)*(b*c + a*d + 2*b*d*x))^(1/3)*Sqrt[(d*(3*b*c + a*d
) + 4*b*d^2*x)^2]*((b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d
+ b*(c + 2*d*x)))^(1/3))*Sqrt[((b*c - a*d)^(4/3) - 2*b^(1/3)*(b*c
 - a*d)^(2/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3) + 4*b^(2/3)
*((c + d*x)*(a*d + b*(c + 2*d*x)))^(2/3))/((1 + Sqrt[3])*(b*c - a
*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))^2]
*EllipticF[ArcSin[((1 - Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((
c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))/((1 + Sqrt[3])*(b*c - a*d)
^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))], -7
- 4*Sqrt[3]])/(3^(1/4)*b^(2/3)*(b*c - a*d)^(7/3)*(c + d*x)^(1/3)*
(b*c + a*d + 2*b*d*x)^(1/3)*(3*b*c + a*d + 4*b*d*x)*Sqrt[d^2*(3*b
*c + a*d + 4*b*d*x)^2]*Sqrt[((b*c - a*d)^(2/3)*((b*c - a*d)^(2/3)
 + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3)))/((1 + Sqrt
[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x
)))^(1/3))^2]) - (2*d^2*Log[a + b*x])/(3*b^(2/3)*(b*c - a*d)^(8/3
)) + (d^2*Log[(b^(2/3)*(c + d*x)^(2/3))/(b*c - a*d)^(1/3) - (b*c
+ a*d + 2*b*d*x)^(1/3)]])/(b^(2/3)*(b*c - a*d)^(8/3))
```

Rubi [A] time = 6.09666, antiderivative size = 1558, normalized size of antiderivative = 1., number

of steps used = 9, number of rules used = 9, integrand size = 33, $\frac{\text{number of rules}}{\text{integrand size}} = 0.273$

$$-\frac{2\tan^{-1}\left(\frac{2b^{2/3}(c+dx)^{2/3}}{\sqrt{3}\sqrt[3]{bc-ad}\sqrt[3]{bc+ad+2bdx}}+\frac{1}{\sqrt{3}}\right)d^2}{\sqrt{3}b^{2/3}(bc-ad)^{8/3}}$$

$$+\frac{\sqrt[4]{3}\sqrt{2-\sqrt{3}}\sqrt[3]{(c+dx)(bc+ad+2bdx)}\sqrt{(4bxd^2+(3bc+ad)d)^2}\left((bc-ad)^{2/3}+2\sqrt[3]{b}\sqrt[3]{(c+dx)(ad+b(c+2dx))}\right)\sqrt{\frac{(bc-ad)^{4/}\cdots}{\cdots}}\cdots}{b^{2/3}(bc-ad)^{7/3}\sqrt[3]{c+dx}\sqrt[3]{bc+ad+2bdx}(3bc+ad+4bdx\cdots}$$

$$-\frac{2\sqrt{2}\sqrt[3]{(c+dx)(bc+ad+2bdx)}\sqrt{(4bxd^2+(3bc+ad)d)^2}\left((bc-ad)^{2/3}+2\sqrt[3]{b}\sqrt[3]{(c+dx)(ad+b(c+2dx))}\right)\sqrt{\frac{(bc-ad)^{4/3}-2\sqrt[3]{b}\cdots}{((\cdots}}\cdots}{\sqrt[4]{3}b^{2/3}(bc-ad)^{7/3}\sqrt[3]{c+dx}\sqrt[3]{bc+ad+2bdx}(3bc+ad+4bdx)\cdots}$$

$$-\frac{2\log(a+bx)d^2}{3b^{2/3}(bc-ad)^{8/3}}+\frac{\log\left(\frac{b^{2/3}(c+dx)^{2/3}}{\sqrt[3]{bc-ad}}-\sqrt[3]{bc+ad+2bdx}\right)d^2}{b^{2/3}(bc-ad)^{8/3}}$$

$$+\frac{2(c+dx)^{2/3}(bc+ad+2bdx)^{2/3}d}{(bc-ad)^3(a+bx)}-\frac{(c+dx)^{2/3}(bc+ad+2bdx)^{2/3}}{2(bc-ad)^2(a+bx)^2}$$

$$-\frac{2\sqrt[3]{(c+dx)(bc+ad+2bdx)}\sqrt{d^2(3bc+ad+4bdx)^2}\sqrt{(4bxd^2+(3bc+ad)d)^2}}{b^{2/3}(bc-ad)^3\sqrt[3]{c+dx}\sqrt[3]{bc+ad+2bdx}(3bc+ad+4bdx)\left(\left(1+\sqrt{3}\right)(bc-ad)^{2/3}+2\sqrt[3]{b}\sqrt[3]{(c+dx)(ad+b(c+2dx))}\right)}$$

Warning: Unable to verify antiderivative.

```
[In]  Int[1/((a + b*x)^3*(c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3)),x]
```

```
[Out] -((c + d*x)^(2/3)*(b*c + a*d + 2*b*d*x)^(2/3))/(2*(b*c - a*d)^2*(
a + b*x)^2) + (2*d*(c + d*x)^(2/3)*(b*c + a*d + 2*b*d*x)^(2/3))/(
(b*c - a*d)^3*(a + b*x)) - (2*((c + d*x)*(b*c + a*d + 2*b*d*x))^(
1/3)*Sqrt[d^2*(3*b*c + a*d + 4*b*d*x)^2]*Sqrt[(d*(3*b*c + a*d) +
4*b*d^2*x)^2])/(b^(2/3)*(b*c - a*d)^3*(c + d*x)^(1/3)*(b*c + a*d
+ 2*b*d*x)^(1/3)*(3*b*c + a*d + 4*b*d*x)*((1 + Sqrt[3])*(b*c - a*
d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))) -
(2*d^2*ArcTan[1/Sqrt[3] + (2*b^(2/3)*(c + d*x)^(2/3))/(Sqrt[3]*(b
*c - a*d)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3))])/(Sqrt[3]*b^(2/3)*(
b*c - a*d)^(8/3)) + (3^(1/4)*Sqrt[2 - Sqrt[3]]*d^2*((c + d*x)*(b*
c + a*d + 2*b*d*x))^(1/3)*Sqrt[(d*(3*b*c + a*d) + 4*b*d^2*x)^2]*(
(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(
1/3))*Sqrt[((b*c - a*d)^(4/3) - 2*b^(1/3)*(b*c - a*d)^(2/3)*((c +
 d*x)*(a*d + b*(c + 2*d*x)))^(1/3) + 4*b^(2/3)*((c + d*x)*(a*d +
b*(c + 2*d*x)))^(2/3))/((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/
3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))^2]*EllipticE[ArcSin[(
(1 - Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(
c + 2*d*x)))^(1/3))/((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*
((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))], -7 - 4*Sqrt[3]])/(b^(2
/3)*(b*c - a*d)^(7/3)*(c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3)
*(3*b*c + a*d + 4*b*d*x)*Sqrt[d^2*(3*b*c + a*d + 4*b*d*x)^2]*Sqrt
[((b*c - a*d)^(2/3)*((b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*
d + b*(c + 2*d*x)))^(1/3)))/((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*
b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))^2]) - (2*Sqrt[2]
*d^2*((c + d*x)*(b*c + a*d + 2*b*d*x))^(1/3)*Sqrt[(d*(3*b*c + a*d
) + 4*b*d^2*x)^2]*((b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d
+ b*(c + 2*d*x)))^(1/3))*Sqrt[((b*c - a*d)^(4/3) - 2*b^(1/3)*(b*c
 - a*d)^(2/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3) + 4*b^(2/3)
*((c + d*x)*(a*d + b*(c + 2*d*x)))^(2/3))/((1 + Sqrt[3])*(b*c - a
*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))^2]
*EllipticF[ArcSin[((1 - Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((
c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))/((1 + Sqrt[3])*(b*c - a*d)
^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))], -7
- 4*Sqrt[3]])/(3^(1/4)*b^(2/3)*(b*c - a*d)^(7/3)*(c + d*x)^(1/3)*
(b*c + a*d + 2*b*d*x)^(1/3)*(3*b*c + a*d + 4*b*d*x)*Sqrt[d^2*(3*b
*c + a*d + 4*b*d*x)^2]*Sqrt[((b*c - a*d)^(2/3)*((b*c - a*d)^(2/3)
 + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3)))/((1 + Sqrt
```

```
[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x
)))^(1/3))^2]) - (2*d^2*Log[a + b*x])/(3*b^(2/3)*(b*c - a*d)^(8/3
)) + (d^2*Log[(b^(2/3)*(c + d*x)^(2/3))/(b*c - a*d)^(1/3) - (b*c
+ a*d + 2*b*d*x)^(1/3)])/(b^(2/3)*(b*c - a*d)^(8/3))
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(1/(b*x+a)**3/(d*x+c)**(1/3)/(2*b*d*x+a*d+b*c)**(1/3),x)
```

```
[Out] Timed out
```

Mathematica [C] time = 3.57654, size = 620, normalized size = 0.4

$$\frac{1}{10}(c+dx)^{2/3}(ad+b(c+2dx))^{2/3}\left(4d^2\left(-\frac{16(bc-ad)^2F_1\left(\frac{5}{3};\frac{1}{3},1;\frac{8}{3};\frac{bc-ad}{2bc+2bdx},\frac{bc-ad}{bc+bdx}\right)}{d(a+bx)\left(16b(c+dx)F_1\left(\frac{5}{3};\frac{1}{3},1;\frac{8}{3};\frac{bc-ad}{2bc+2bdx},\frac{bc-ad}{bc+bdx}\right)+(bc-ad)\left(6F_1\left(\frac{8}{3};\frac{1}{3},2;\frac{11}{3};\frac{bc-ad}{2bc+2bdx},\frac{bc-ad}{bc+bdx}\right)+F_1\left(\frac{8}{3};\frac{4}{3},1;\frac{11}{3};\frac{bc-ad}{2bc+2bdx},\frac{bc-ad}{bc+bdx}\right)\right)\right)} \right.\right.$$

Warning: Unable to verify antiderivative.

```
[In] Integrate[1/((a + b*x)^3*(c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3)),x]
```

```
[Out] ((c + d*x)^(2/3)*(a*d + b*(c + 2*d*x))^(2/3)*((5*(-(b*c) + 5*a*d
+ 4*b*d*x))/((b*c - a*d)^3*(a + b*x)^2) + (4*d^2*(10 - (5*c)/(c +
 d*x) + (5*a*d)/(b*c + b*d*x) + (75*b*(b*c - a*d)*(c + d*x)*Appel
lF1[2/3, 1/3, 1, 5/3, (b*c - a*d)/(2*b*c + 2*b*d*x), (b*c - a*d)/
(b*c + b*d*x)])/(d*(a + b*x)*(10*b*(c + d*x)*AppellF1[2/3, 1/3, 1
, 5/3, (b*c - a*d)/(2*b*c + 2*b*d*x), (b*c - a*d)/(b*c + b*d*x)]
+ (b*c - a*d)*(6*AppellF1[5/3, 1/3, 2, 8/3, (b*c - a*d)/(2*b*c +
2*b*d*x), (b*c - a*d)/(b*c + b*d*x)] + AppellF1[5/3, 4/3, 1, 8/3,
 (b*c - a*d)/(2*b*c + 2*b*d*x), (b*c - a*d)/(b*c + b*d*x)]))) - (
16*(b*c - a*d)^2*AppellF1[5/3, 1/3, 1, 8/3, (b*c - a*d)/(2*b*c +
2*b*d*x), (b*c - a*d)/(b*c + b*d*x)])/(d*(a + b*x)*(16*b*(c + d*x
)*AppellF1[5/3, 1/3, 1, 8/3, (b*c - a*d)/(2*b*c + 2*b*d*x), (b*c
- a*d)/(b*c + b*d*x)] + (b*c - a*d)*(6*AppellF1[8/3, 1/3, 2, 11/3
, (b*c - a*d)/(2*b*c + 2*b*d*x), (b*c - a*d)/(b*c + b*d*x)] + App
ellF1[8/3, 4/3, 1, 11/3, (b*c - a*d)/(2*b*c + 2*b*d*x), (b*c - a*
d)/(b*c + b*d*x)])))))/((-(b*c) + a*d)^3*(a*d + b*(c + 2*d*x))))
/10
```

Maple [F] time = 0.083, size = 0, normalized size = 0.

$$\int \frac{1}{(bx+a)^3}\frac{1}{\sqrt[3]{dx+c}}\frac{1}{\sqrt[3]{2\,bdx+ad+bc}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(1/(b*x+a)^3/(d*x+c)^(1/3)/(2*b*d*x+a*d+b*c)^(1/3),x)
```

```
[Out] int(1/(b*x+a)^3/(d*x+c)^(1/3)/(2*b*d*x+a*d+b*c)^(1/3),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(2\,bdx + bc + ad)^{\frac{1}{3}}(bx + a)^{3}(dx + c)^{\frac{1}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((2*b*d*x + b*c + a*d)^(1/3)*(b*x + a)^3*(d*x + c)^(1/3)),x, algorith
```

```
[Out] integrate(1/((2*b*d*x + b*c + a*d)^(1/3)*(b*x + a)^3*(d*x + c)^(1
/3)), x)
```

Fricas [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((2*b*d*x + b*c + a*d)^(1/3)*(b*x + a)^3*(d*x + c)^(1/3)),x, algorith
```

```
[Out] Timed out
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(b*x+a)**3/(d*x+c)**(1/3)/(2*b*d*x+a*d+b*c)**(1/3),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((2*b*d*x + b*c + a*d)^(1/3)*(b*x + a)^3*(d*x + c)^(1/3)),x, algorith
```

```
[Out] Exception raised: NotImplementedError
```

3.3012 $\int \frac{(a+bx)^3}{\sqrt[3]{c+dx}(bc+ad+2bdx)^{4/3}}\,dx$

Optimal. Leaf size=1388

result too large to display

```
[Out] (3*(a + b*x)^2*(c + d*x)^(2/3))/(14*d^2*(b*c + a*d + 2*b*d*x)^(1/
3)) + (9*(b*c - a*d)*(c + d*x)^(2/3)*(b*c - 7*a*d - 6*b*d*x))/(11
2*d^4*(b*c + a*d + 2*b*d*x)^(1/3)) + (81*(b*c - a*d)^2*((c + d*x)
*(b*c + a*d + 2*b*d*x))^(1/3)*Sqrt[d^2*(3*b*c + a*d + 4*b*d*x)^2]
*Sqrt[(d*(3*b*c + a*d) + 4*b*d^2*x)^2])/(112*b^(2/3)*d^6*(c + d*x
)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3)*(3*b*c + a*d + 4*b*d*x)*((1 +
 Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c +
2*d*x)))^(1/3))) - (81*3^(1/4)*Sqrt[2 - Sqrt[3]]*(b*c - a*d)^(8/3
)*((c + d*x)*(b*c + a*d + 2*b*d*x))^(1/3)*Sqrt[(d*(3*b*c + a*d) +
 4*b*d^2*x)^2]*((b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b
*(c + 2*d*x)))^(1/3))*Sqrt[((b*c - a*d)^(4/3) - 2*b^(1/3)*(b*c -
a*d)^(2/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3) + 4*b^(2/3)*((
c + d*x)*(a*d + b*(c + 2*d*x)))^(2/3))/((1 + Sqrt[3])*(b*c - a*d)
^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))^2]*El
lipticE[ArcSin[((1 - Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c +
 d*x)*(a*d + b*(c + 2*d*x)))^(1/3))/((1 + Sqrt[3])*(b*c - a*d)^(2
/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))], -7 - 4
*Sqrt[3]])/(224*b^(2/3)*d^4*(c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)
^(1/3)*(3*b*c + a*d + 4*b*d*x)*Sqrt[d^2*(3*b*c + a*d + 4*b*d*x)^2
]*Sqrt[((b*c - a*d)^(2/3)*((b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*
x)*(a*d + b*(c + 2*d*x)))^(1/3)))/((1 + Sqrt[3])*(b*c - a*d)^(2/3
) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))^2]) + (27*
3^(3/4)*(b*c - a*d)^(8/3)*((c + d*x)*(b*c + a*d + 2*b*d*x))^(1/3)
*Sqrt[(d*(3*b*c + a*d) + 4*b*d^2*x)^2]*((b*c - a*d)^(2/3) + 2*b^(
1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))*Sqrt[((b*c - a*d)^(
4/3) - 2*b^(1/3)*(b*c - a*d)^(2/3)*((c + d*x)*(a*d + b*(c + 2*d*x
)))^(1/3) + 4*b^(2/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(2/3))/((
1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c
 + 2*d*x)))^(1/3))^2]*EllipticF[ArcSin[((1 - Sqrt[3])*(b*c - a*d)
^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))/((1 +
 Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c +
2*d*x)))^(1/3))], -7 - 4*Sqrt[3]])/(56*Sqrt[2]*b^(2/3)*d^4*(c + d
*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3)*(3*b*c + a*d + 4*b*d*x)*Sqr
t[d^2*(3*b*c + a*d + 4*b*d*x)^2]*Sqrt[((b*c - a*d)^(2/3)*((b*c -
a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3)))/
((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*
(c + 2*d*x)))^(1/3))^2])
```

Rubi [A] time = 4.96443, antiderivative size = 1388, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 7, integrand size = 33, $\frac{\text{number of rules}}{\text{integrand size}} = 0.212$

$$-\frac{81\sqrt[4]{3}\sqrt{2-\sqrt{3}}\sqrt[3]{(c+dx)(bc+ad+2bdx)}\sqrt{(4bxd^2+(3bc+ad)d)^2}\left((bc-ad)^{2/3}+2\sqrt[3]{b}\sqrt[3]{(c+dx)(ad+b(c+2dx))}\right)\sqrt{\frac{(bc-a\cdots}{\cdots}}\cdots}{224b^{2/3}d^4\sqrt[3]{c+dx}\sqrt[3]{bc+ad+2bdx}(3bc+ad+4b\cdots}$$

$$+\frac{27\,3^{3/4}\sqrt[3]{(c+dx)(bc+ad+2bdx)}\sqrt{(4bxd^2+(3bc+ad)d)^2}\left((bc-ad)^{2/3}+2\sqrt[3]{b}\sqrt[3]{(c+dx)(ad+b(c+2dx))}\right)\sqrt{\frac{(bc-ad)^{4/3}-2\sqrt[3]{\cdots}}{\cdots}}\cdots}{56\sqrt{2}b^{2/3}d^4\sqrt[3]{c+dx}\sqrt[3]{bc+ad+2bdx}(3bc+ad+4bdx\cdots}$$

$$+\frac{81\sqrt[3]{(c+dx)(bc+ad+2bdx)}\sqrt{d^2(3bc+ad+4bdx)^2}\sqrt{(4bxd^2+(3bc+ad)d)^2}(bc-ad)^2}{112b^{2/3}d^6\sqrt[3]{c+dx}\sqrt[3]{bc+ad+2bdx}(3bc+ad+4bdx)\left(\left(1+\sqrt{3}\right)(bc-ad)^{2/3}+2\sqrt[3]{b}\sqrt[3]{(c+dx)(ad+b(c+2dx))}\right)}$$

$$+\frac{9(c+dx)^{2/3}(bc-7ad-6bdx)(bc-ad)}{112d^4\sqrt[3]{bc+ad+2bdx}}+\frac{3(a+bx)^2(c+dx)^{2/3}}{14d^2\sqrt[3]{bc+ad+2bdx}}$$

Warning: Unable to verify antiderivative.

```
[In]  Int[(a + b*x)^3/((c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(4/3)),x]
```

```
[Out] (3*(a + b*x)^2*(c + d*x)^(2/3))/(14*d^2*(b*c + a*d + 2*b*d*x)^(1/
3)) + (9*(b*c - a*d)*(c + d*x)^(2/3)*(b*c - 7*a*d - 6*b*d*x))/(11
2*d^4*(b*c + a*d + 2*b*d*x)^(1/3)) + (81*(b*c - a*d)^2*((c + d*x)
*(b*c + a*d + 2*b*d*x))^(1/3)*Sqrt[d^2*(3*b*c + a*d + 4*b*d*x)^2]
*Sqrt[(d*(3*b*c + a*d) + 4*b*d^2*x)^2])/(112*b^(2/3)*d^6*(c + d*x
)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3)*(3*b*c + a*d + 4*b*d*x)*((1 +
 Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c +
2*d*x)))^(1/3))) - (81*3^(1/4)*Sqrt[2 - Sqrt[3]]*(b*c - a*d)^(8/3
)*((c + d*x)*(b*c + a*d + 2*b*d*x))^(1/3)*Sqrt[(d*(3*b*c + a*d) +
 4*b*d^2*x)^2]*((b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b
*(c + 2*d*x)))^(1/3))*Sqrt[((b*c - a*d)^(4/3) - 2*b^(1/3)*(b*c -
a*d)^(2/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3) + 4*b^(2/3)*((
c + d*x)*(a*d + b*(c + 2*d*x)))^(2/3))/((1 + Sqrt[3])*(b*c - a*d)
^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))^2]*El
lipticE[ArcSin[((1 - Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c +
 d*x)*(a*d + b*(c + 2*d*x)))^(1/3))/((1 + Sqrt[3])*(b*c - a*d)^(2
/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))], -7 - 4
*Sqrt[3]])/(224*b^(2/3)*d^4*(c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)
^(1/3)*(3*b*c + a*d + 4*b*d*x)*Sqrt[d^2*(3*b*c + a*d + 4*b*d*x)^2
]*Sqrt[((b*c - a*d)^(2/3)*((b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*
x)*(a*d + b*(c + 2*d*x)))^(1/3)))/((1 + Sqrt[3])*(b*c - a*d)^(2/3
) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))^2]) + (27*
3^(3/4)*(b*c - a*d)^(8/3)*((c + d*x)*(b*c + a*d + 2*b*d*x))^(1/3)
*Sqrt[(d*(3*b*c + a*d) + 4*b*d^2*x)^2]*((b*c - a*d)^(2/3) + 2*b^(
1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))*Sqrt[((b*c - a*d)^(
4/3) - 2*b^(1/3)*(b*c - a*d)^(2/3)*((c + d*x)*(a*d + b*(c + 2*d*x
)))^(1/3) + 4*b^(2/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(2/3))/((
1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c
 + 2*d*x)))^(1/3))^2]*EllipticF[ArcSin[((1 - Sqrt[3])*(b*c - a*d)
^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))/((1 +
 Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c +
2*d*x)))^(1/3))], -7 - 4*Sqrt[3]])/(56*Sqrt[2]*b^(2/3)*d^4*(c + d
*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3)*(3*b*c + a*d + 4*b*d*x)*Sqr
t[d^2*(3*b*c + a*d + 4*b*d*x)^2]*Sqrt[((b*c - a*d)^(2/3)*((b*c -
a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3)))/
((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*
(c + 2*d*x)))^(1/3))^2])
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)**3/(d*x+c)**(1/3)/(2*b*d*x+a*d+b*c)**(4/3),x)
```

```
[Out] Timed out
```

Mathematica [C] time = 0.602512, size = 157, normalized size = 0.11

$$\frac{(ad + b(c + 2dx))^{2/3}\left(\frac{81\sqrt[3]{2}(bc-ad)^2\sqrt[3]{\frac{b(c + dx)}{bc - ad}}\,{}_2F_1\left(\frac{1}{3},\frac{2}{3};\frac{5}{3};\frac{ad+b(c+2dx)}{ad-bc}\right)}{bd^4} + \frac{6(c+dx)\left(\frac{14(bc-ad)^2}{ad+b(c+2dx)}+15ad-11bc+4bdx\right)}{d^4}\right)}{224\sqrt[3]{c + dx}}$$

Antiderivative was successfully verified.

```
[In] Integrate[(a + b*x)^3/((c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(4/3)),x]
```

```
[Out] ((a*d + b*(c + 2*d*x))^(2/3)*((6*(c + d*x)*(-11*b*c + 15*a*d + 4*
b*d*x + (14*(b*c - a*d)^2)/(a*d + b*(c + 2*d*x))))/d^4 + (81*2^(1
/3)*(b*c - a*d)^2*((b*(c + d*x))/(b*c - a*d))^(1/3)*Hypergeometri
c2F1[1/3, 2/3, 5/3, (a*d + b*(c + 2*d*x))/(-(b*c) + a*d)])/(b*d^4
)))/(224*(c + d*x)^(1/3))
```

Maple [F] time = 0.083, size = 0, normalized size = 0.

$$\int (bx+a)^3 \frac{1}{\sqrt[3]{dx+c}} (2\,bdx+ad+bc)^{-\frac{4}{3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3/(d*x+c)^(1/3)/(2*b*d*x+a*d+b*c)^(4/3),x)
```

```
[Out] int((b*x+a)^3/(d*x+c)^(1/3)/(2*b*d*x+a*d+b*c)^(4/3),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^3}{(2\,bdx+bc+ad)^{\frac{4}{3}}(dx+c)^{\frac{1}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^3/((2*b*d*x + b*c + a*d)^(4/3)*(d*x + c)^(1/3)),x, algorithm=
```

```
[Out] integrate((b*x + a)^3/((2*b*d*x + b*c + a*d)^(4/3)*(d*x + c)^(1/3
)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{b^3x^3+3\,ab^2x^2+3\,a^2bx+a^3}{(2\,bdx+bc+ad)^{\frac{4}{3}}(dx+c)^{\frac{1}{3}}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^3/((2*b*d*x + b*c + a*d)^(4/3)*(d*x + c)^(1/3)),x, algorithm=
```

```
[Out] integral((b^3*x^3 + 3*a*b^2*x^2 + 3*a^2*b*x + a^3)/((2*b*d*x + b*
c + a*d)^(4/3)*(d*x + c)^(1/3)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a+bx)^3}{\sqrt[3]{c+dx}\,(ad+bc+2bdx)^{\frac{4}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**3/(d*x+c)**(1/3)/(2*b*d*x+a*d+b*c)**(4/3),x)
```

```
[Out] Integral((a + b*x)**3/((c + d*x)**(1/3)*(a*d + b*c + 2*b*d*x)**(4
/3)), x)
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^3/((2*b*d*x + b*c + a*d)^(4/3)*(d*x + c)^(1/3)),x, algorithm=
```

```
[Out] Exception raised: NotImplementedError
```

3.3013 $\int \frac{(a+bx)^2}{\sqrt[3]{c+dx}(bc+ad+2bdx)^{4/3}} dx$

Optimal. Leaf size=1366

result too large to display

```
[Out] (-3*(b*c - a*d)*(c + d*x)^(2/3))/(4*d^3*(b*c + a*d + 2*b*d*x)^(1/
3)) + (3*(c + d*x)^(2/3)*(b*c + a*d + 2*b*d*x)^(2/3))/(16*d^3) -
(9*(b*c - a*d)*((c + d*x)*(b*c + a*d + 2*b*d*x))^(1/3)*Sqrt[d^2*(
3*b*c + a*d + 4*b*d*x)^2]*Sqrt[(d*(3*b*c + a*d) + 4*b*d^2*x)^2])/
(16*b^(2/3)*d^5*(c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3)*(3*b*
c + a*d + 4*b*d*x)*((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*(
(c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))) + (9*3^(1/4)*Sqrt[2 - Sq
rt[3]]*(b*c - a*d)^(5/3)*((c + d*x)*(b*c + a*d + 2*b*d*x))^(1/3)*
Sqrt[(d*(3*b*c + a*d) + 4*b*d^2*x)^2]*((b*c - a*d)^(2/3) + 2*b^(1
/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))*Sqrt[((b*c - a*d)^(4
/3) - 2*b^(1/3)*(b*c - a*d)^(2/3)*((c + d*x)*(a*d + b*(c + 2*d*x)
))^(1/3) + 4*b^(2/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(2/3))/((1
 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c
+ 2*d*x)))^(1/3))^2]*EllipticE[ArcSin[((1 - Sqrt[3])*(b*c - a*d)^
(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))/((1 +
Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2
*d*x)))^(1/3))], -7 - 4*Sqrt[3]])/(32*b^(2/3)*d^3*(c + d*x)^(1/3)
*(b*c + a*d + 2*b*d*x)^(1/3)*(3*b*c + a*d + 4*b*d*x)*Sqrt[d^2*(3*
b*c + a*d + 4*b*d*x)^2]*Sqrt[((b*c - a*d)^(2/3)*((b*c - a*d)^(2/3
) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3)))/((1 + Sqr
t[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*
x)))^(1/3))^2]) - (3*3^(3/4)*(b*c - a*d)^(5/3)*((c + d*x)*(b*c +
a*d + 2*b*d*x))^(1/3)*Sqrt[(d*(3*b*c + a*d) + 4*b*d^2*x)^2]*((b*c
 - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3)
)*Sqrt[((b*c - a*d)^(4/3) - 2*b^(1/3)*(b*c - a*d)^(2/3)*((c + d*x
)*(a*d + b*(c + 2*d*x)))^(1/3) + 4*b^(2/3)*((c + d*x)*(a*d + b*(c
 + 2*d*x)))^(2/3))/((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*(
(c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))^2]*EllipticF[ArcSin[((1 -
 Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c +
2*d*x)))^(1/3))/((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c
+ d*x)*(a*d + b*(c + 2*d*x)))^(1/3))], -7 - 4*Sqrt[3]])/(8*Sqrt[2
]*b^(2/3)*d^3*(c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3)*(3*b*c
+ a*d + 4*b*d*x)*Sqrt[d^2*(3*b*c + a*d + 4*b*d*x)^2]*Sqrt[((b*c -
 a*d)^(2/3)*((b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c
 + 2*d*x)))^(1/3)))/((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*
((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))^2])
```

Rubi [A] time = 4.13017, antiderivative size = 1366, normalized size of antiderivative = 1., number

of steps used = 7, number of rules used = 7, integrand size = 33, $\frac{\text{number of rules}}{\text{integrand size}} = 0.212$

$$\frac{9\sqrt[4]{3}\sqrt{2-\sqrt{3}}\sqrt[3]{(c+dx)(bc+ad+2bdx)}\sqrt{(4bxd^2+(3bc+ad)d)^2}\left((bc-ad)^{2/3}+2\sqrt[3]{b}\sqrt[3]{(c+dx)(ad+b(c+2dx))}\right)\sqrt{\frac{(bc-ad)^{4/}\cdots}{\cdots}}}{32b^{2/3}d^3\sqrt[3]{c+dx}\sqrt[3]{bc+ad+2bdx}(3bc+ad+4bdx\cdots}$$

$$-\frac{3\,3^{3/4}\sqrt[3]{(c+dx)(bc+ad+2bdx)}\sqrt{(4bxd^2+(3bc+ad)d)^2}\left((bc-ad)^{2/3}+2\sqrt[3]{b}\sqrt[3]{(c+dx)(ad+b(c+2dx))}\right)\sqrt{\frac{(bc-ad)^{4/3}-2\sqrt[3]{\cdots}}{\cdots}}}{8\sqrt{2}b^{2/3}d^3\sqrt[3]{c+dx}\sqrt[3]{bc+ad+2bdx}(3bc+ad+4bdx\cdots}$$

$$-\frac{3(c+dx)^{2/3}(bc-ad)}{4d^3\sqrt[3]{bc+ad+2bdx}}$$

$$-\frac{9\sqrt[3]{(c+dx)(bc+ad+2bdx)}\sqrt{d^2(3bc+ad+4bdx)^2}\sqrt{(4bxd^2+(3bc+ad)d)^2}(bc-ad)}{16b^{2/3}d^5\sqrt[3]{c+dx}\sqrt[3]{bc+ad+2bdx}(3bc+ad+4bdx)\left(\left(1+\sqrt{3}\right)(bc-ad)^{2/3}+2\sqrt[3]{b}\sqrt[3]{(c+dx)(ad+b(c+2dx))}\right)}$$

$$+\frac{3(c+dx)^{2/3}(bc+ad+2bdx)^{2/3}}{16d^3}$$

Warning: Unable to verify antiderivative.

```
[In]  Int[(a + b*x)^2/((c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(4/3)),x]
```

```
[Out] (-3*(b*c - a*d)*(c + d*x)^(2/3))/(4*d^3*(b*c + a*d + 2*b*d*x)^(1/
3)) + (3*(c + d*x)^(2/3)*(b*c + a*d + 2*b*d*x)^(2/3))/(16*d^3) -
(9*(b*c - a*d)*((c + d*x)*(b*c + a*d + 2*b*d*x))^(1/3)*Sqrt[d^2*(
3*b*c + a*d + 4*b*d*x)^2]*Sqrt[(d*(3*b*c + a*d) + 4*b*d^2*x)^2])/
(16*b^(2/3)*d^5*(c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3)*(3*b*
c + a*d + 4*b*d*x)*((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*(
(c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))) + (9*3^(1/4)*Sqrt[2 - Sq
rt[3]]*(b*c - a*d)^(5/3)*((c + d*x)*(b*c + a*d + 2*b*d*x))^(1/3)*
Sqrt[(d*(3*b*c + a*d) + 4*b*d^2*x)^2]*((b*c - a*d)^(2/3) + 2*b^(1
/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))*Sqrt[((b*c - a*d)^(4
/3) - 2*b^(1/3)*(b*c - a*d)^(2/3)*((c + d*x)*(a*d + b*(c + 2*d*x)
))^(1/3) + 4*b^(2/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(2/3))/((1
 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c
+ 2*d*x)))^(1/3))^2]*EllipticE[ArcSin[((1 - Sqrt[3])*(b*c - a*d)^
(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))/((1 +
Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2
*d*x)))^(1/3))], -7 - 4*Sqrt[3]])/(32*b^(2/3)*d^3*(c + d*x)^(1/3)
*(b*c + a*d + 2*b*d*x)^(1/3)*(3*b*c + a*d + 4*b*d*x)*Sqrt[d^2*(3*
b*c + a*d + 4*b*d*x)^2]*Sqrt[((b*c - a*d)^(2/3)*((b*c - a*d)^(2/3
) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3)))/((1 + Sqr
t[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*
x)))^(1/3))^2]) - (3*3^(3/4)*(b*c - a*d)^(5/3)*((c + d*x)*(b*c +
a*d + 2*b*d*x))^(1/3)*Sqrt[(d*(3*b*c + a*d) + 4*b*d^2*x)^2]*((b*c
 - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3)
)*Sqrt[((b*c - a*d)^(4/3) - 2*b^(1/3)*(b*c - a*d)^(2/3)*((c + d*x
)*(a*d + b*(c + 2*d*x)))^(1/3) + 4*b^(2/3)*((c + d*x)*(a*d + b*(c
 + 2*d*x)))^(2/3))/((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*(
(c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))^2]*EllipticF[ArcSin[((1 -
 Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c +
2*d*x)))^(1/3))/((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c
+ d*x)*(a*d + b*(c + 2*d*x)))^(1/3))], -7 - 4*Sqrt[3]])/(8*Sqrt[2
]*b^(2/3)*d^3*(c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3)*(3*b*c
+ a*d + 4*b*d*x)*Sqrt[d^2*(3*b*c + a*d + 4*b*d*x)^2]*Sqrt[((b*c -
 a*d)^(2/3)*((b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c
 + 2*d*x)))^(1/3)))/((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*
((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))^2])
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)**2/(d*x+c)**(1/3)/(2*b*d*x+a*d+b*c)**(4/3),x)
```

```
[Out] Timed out
```

Mathematica [C] time = 0.460539, size = 119, normalized size = 0.09

$$-\frac{3(c+dx)^{2/3}\left(\frac{3\sqrt[3]{2}(ad+b(c+2dx))\,{}_2F_1\left(\frac{1}{3},\frac{2}{3};\frac{5}{3};\frac{ad+b(c+2dx)}{ad-bc}\right)}{\left(\frac{b(c+dx)}{bc-ad}\right)^{2/3}}-10ad+6bc-4bdx\right)}{32d^3\sqrt[3]{ad+b(c+2dx)}}$$

Antiderivative was successfully verified.

```
[In] Integrate[(a + b*x)^2/((c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(4/3)),x]
```

```
[Out] (-3*(c + d*x)^(2/3)*(6*b*c - 10*a*d - 4*b*d*x + (3*2^(1/3)*(a*d +
 b*(c + 2*d*x))*Hypergeometric2F1[1/3, 2/3, 5/3, (a*d + b*(c + 2*
d*x))/(-(b*c) + a*d)])/((b*(c + d*x))/(b*c - a*d))^(2/3)))/(32*d^
3*(a*d + b*(c + 2*d*x))^(1/3))
```

Maple [F] time = 0.088, size = 0, normalized size = 0.

$$\int (bx+a)^2 \frac{1}{\sqrt[3]{dx+c}} (2\,bdx+ad+bc)^{-\frac{4}{3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((b*x+a)^2/(d*x+c)^(1/3)/(2*b*d*x+a*d+b*c)^(4/3),x)
```

```
[Out] int((b*x+a)^2/(d*x+c)^(1/3)/(2*b*d*x+a*d+b*c)^(4/3),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^2}{(2\,bdx+bc+ad)^{\frac{4}{3}}(dx+c)^{\frac{1}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^2/((2*b*d*x + b*c + a*d)^(4/3)*(d*x + c)^(1/3)),x, algorithm=
```

```
[Out] integrate((b*x + a)^2/((2*b*d*x + b*c + a*d)^(4/3)*(d*x + c)^(1/3
)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{b^2x^2+2\,abx+a^2}{(2\,bdx+bc+ad)^{\frac{4}{3}}(dx+c)^{\frac{1}{3}}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^2/((2*b*d*x + b*c + a*d)^(4/3)*(d*x + c)^(1/3)),x, algorithm=
```

```
[Out] integral((b^2*x^2 + 2*a*b*x + a^2)/((2*b*d*x + b*c + a*d)^(4/3)*(
d*x + c)^(1/3)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a+bx)^2}{\sqrt[3]{c+dx}\,(ad+bc+2bdx)^{\frac{4}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**2/(d*x+c)**(1/3)/(2*b*d*x+a*d+b*c)**(4/3),x)
```

```
[Out] Integral((a + b*x)**2/((c + d*x)**(1/3)*(a*d + b*c + 2*b*d*x)**(4
/3)), x)
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^2/((2*b*d*x + b*c + a*d)^(4/3)*(d*x + c)^(1/3)),x, algorithm=
```

```
[Out] Exception raised: NotImplementedError
```

3.3014 $\int \frac{a+bx}{\sqrt[3]{c+dx}(bc+ad+2bdx)^{4/3}}\,dx$

Optimal. Leaf size=32

$$\frac{3(c+dx)^{2/3}}{2d^2\sqrt[3]{ad+bc+2bdx}}$$

```
[Out] (3*(c + d*x)^(2/3))/(2*d^2*(b*c + a*d + 2*b*d*x)^(1/3))
```

Rubi [A] time = 0.0431683, antiderivative size = 32, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 31, $\frac{\text{number of rules}}{\text{integrand size}} = 0.032$

$$\frac{3(c+dx)^{2/3}}{2d^2\sqrt[3]{ad+bc+2bdx}}$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*x)/((c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(4/3)),x]

[Out] (3*(c + d*x)^(2/3))/(2*d^2*(b*c + a*d + 2*b*d*x)^(1/3))
```

Rubi in Sympy [A] time = 7.89092, size = 31, normalized size = 0.97

$$\frac{3\left(c+dx\right)^{\frac{2}{3}}}{2d^2\sqrt[3]{ad+bc+2bdx}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)/(d*x+c)**(1/3)/(2*b*d*x+a*d+b*c)**(4/3),x)

[Out] 3*(c + d*x)**(2/3)/(2*d**2*(a*d + b*c + 2*b*d*x)**(1/3))
```

Mathematica [A] time = 0.096631, size = 32, normalized size = 1.

$$\frac{3(c+dx)^{2/3}}{2d^2\sqrt[3]{ad+b(c+2dx)}}$$

Antiderivative was successfully verified.

```
[In] Integrate[(a + b*x)/((c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(4/3)),x]

[Out] (3*(c + d*x)^(2/3))/(2*d^2*(a*d + b*(c + 2*d*x))^(1/3))
```

Maple [A] time = 0.009, size = 27, normalized size = 0.8

$$\frac{3}{2\,d^2}\left(dx+c\right)^{\frac{2}{3}}\frac{1}{\sqrt[3]{2\,bdx+ad+bc}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((b*x+a)/(d*x+c)^(1/3)/(2*b*d*x+a*d+b*c)^(4/3),x)
```

```
[Out] 3/2*(d*x+c)^(2/3)/d^2/(2*b*d*x+a*d+b*c)^(1/3)
```

Maxima [A] time = 1.52187, size = 35, normalized size = 1.09

$$\frac{3\,(dx+c)^{\frac{2}{3}}}{2\,(2\,bdx+bc+ad)^{\frac{1}{3}}d^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)/((2*b*d*x + b*c + a*d)^(4/3)*(d*x + c)^(1/3)),x, algorithm="m

[Out] 3/2*(d*x + c)^(2/3)/((2*b*d*x + b*c + a*d)^(1/3)*d^2)
```

Fricas [A] time = 0.321613, size = 59, normalized size = 1.84

$$\frac{3\,(2\,bdx+bc+ad)^{\frac{2}{3}}(dx+c)^{\frac{2}{3}}}{2\,(2\,bd^3x+bcd^2+ad^3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)/((2*b*d*x + b*c + a*d)^(4/3)*(d*x + c)^(1/3)),x, algorithm="f

[Out] 3/2*(2*b*d*x + b*c + a*d)^(2/3)*(d*x + c)^(2/3)/(2*b*d^3*x + b*c*
d^2 + a*d^3)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{a+bx}{\sqrt[3]{c+dx}\,(ad+bc+2bdx)^{\frac{4}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)/(d*x+c)**(1/3)/(2*b*d*x+a*d+b*c)**(4/3),x)

[Out] Integral((a + b*x)/((c + d*x)**(1/3)*(a*d + b*c + 2*b*d*x)**(4/3)
), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{bx+a}{(2\,bdx+bc+ad)^{\frac{4}{3}}(dx+c)^{\frac{1}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)/((2*b*d*x + b*c + a*d)^(4/3)*(d*x + c)^(1/3)),x, algorithm="g

[Out] integrate((b*x + a)/((2*b*d*x + b*c + a*d)^(4/3)*(d*x + c)^(1/3))
, x)
```

3.3015 $\int \frac{1}{\sqrt[3]{c+dx}(bc+ad+2bdx)^{4/3}}\,dx$

Optimal. Leaf size=1333

result too large to display

```
[Out] (-3*(c + d*x)^(2/3))/(d*(b*c - a*d)*(b*c + a*d + 2*b*d*x)^(1/3))
+ (3*((c + d*x)*(b*c + a*d + 2*b*d*x))^(1/3)*Sqrt[d^2*(3*b*c + a*
d + 4*b*d*x)^2]*Sqrt[(d*(3*b*c + a*d) + 4*b*d^2*x)^2])/(2*b^(2/3)
*d^3*(b*c - a*d)*(c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3)*(3*b
*c + a*d + 4*b*d*x)*((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*
((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))) - (3*3^(1/4)*Sqrt[2 - S
qrt[3]]*((c + d*x)*(b*c + a*d + 2*b*d*x))^(1/3)*Sqrt[(d*(3*b*c +
a*d) + 4*b*d^2*x)^2]*((b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a
*d + b*(c + 2*d*x)))^(1/3))*Sqrt[((b*c - a*d)^(4/3) - 2*b^(1/3)*(
b*c - a*d)^(2/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3) + 4*b^(2
/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(2/3))/((1 + Sqrt[3])*(b*c
- a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))
^2]*EllipticE[ArcSin[((1 - Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)
*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))/((1 + Sqrt[3])*(b*c - a
*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))],
-7 - 4*Sqrt[3]])/(4*b^(2/3)*d*(b*c - a*d)^(1/3)*(c + d*x)^(1/3)*(
b*c + a*d + 2*b*d*x)^(1/3)*(3*b*c + a*d + 4*b*d*x)*Sqrt[d^2*(3*b*
c + a*d + 4*b*d*x)^2]*Sqrt[((b*c - a*d)^(2/3)*((b*c - a*d)^(2/3)
+ 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3)))/((1 + Sqrt[
3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)
))^(1/3))^2]) + (3^(3/4)*((c + d*x)*(b*c + a*d + 2*b*d*x))^(1/3)*
Sqrt[(d*(3*b*c + a*d) + 4*b*d^2*x)^2]*((b*c - a*d)^(2/3) + 2*b^(1
/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))*Sqrt[((b*c - a*d)^(4
/3) - 2*b^(1/3)*(b*c - a*d)^(2/3)*((c + d*x)*(a*d + b*(c + 2*d*x)
))^(1/3) + 4*b^(2/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(2/3))/((1
 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c
+ 2*d*x)))^(1/3))^2]*EllipticF[ArcSin[((1 - Sqrt[3])*(b*c - a*d)^
(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))/((1 +
Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2
*d*x)))^(1/3))], -7 - 4*Sqrt[3]])/(Sqrt[2]*b^(2/3)*d*(b*c - a*d)^
(1/3)*(c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3)*(3*b*c + a*d +
4*b*d*x)*Sqrt[d^2*(3*b*c + a*d + 4*b*d*x)^2]*Sqrt[((b*c - a*d)^(2
/3)*((b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x
)))^(1/3)))/((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*
x)*(a*d + b*(c + 2*d*x)))^(1/3))^2])
```

Rubi [A] time = 3.43295, antiderivative size = 1333, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 6, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.231$

$$-\frac{3\sqrt[4]{3}\sqrt{2-\sqrt{3}}\sqrt[3]{(c+dx)(bc+ad+2bdx)}\sqrt{(4bxd^2+(3bc+ad)d)^2}\left((bc-ad)^{2/3}+2\sqrt[3]{b}\sqrt[3]{(c+dx)(ad+b(c+2dx))}\right)\sqrt{\frac{(bc-ad}{\cdots}}\cdots}{4b^{2/3}d\sqrt[3]{bc-ad}\sqrt[3]{c+dx}\sqrt[3]{bc+ad+2bdx}(3bc+ad+4bdx)\cdots}$$

$$+\frac{3^{3/4}\sqrt[3]{(c+dx)(bc+ad+2bdx)}\sqrt{(4bxd^2+(3bc+ad)d)^2}\left((bc-ad)^{2/3}+2\sqrt[3]{b}\sqrt[3]{(c+dx)(ad+b(c+2dx))}\right)\sqrt{\frac{(bc-ad)^{4/3}-2\sqrt[3]{b}\sqrt[3]{\cdots}}{\left((1\cdots\right.}}\cdots}{\sqrt{2}b^{2/3}d\sqrt[3]{bc-ad}\sqrt[3]{c+dx}\sqrt[3]{bc+ad+2bdx}(3bc+ad+4bdx)\sqrt{d^2\cdots}}$$

$$-\frac{3(c+dx)^{2/3}}{d(bc-ad)\sqrt[3]{bc+ad+2bdx}}$$

$$+\frac{3\sqrt[3]{(c+dx)(bc+ad+2bdx)}\sqrt{d^2(3bc+ad+4bdx)^2}\sqrt{(4bxd^2+(3bc+ad)d)^2}}{2b^{2/3}d^3(bc-ad)\sqrt[3]{c+dx}\sqrt[3]{bc+ad+2bdx}(3bc+ad+4bdx)\left(\left(1+\sqrt{3}\right)(bc-ad)^{2/3}+2\sqrt[3]{b}\sqrt[3]{(c+dx)(ad+b(c+2dx))}\right)}$$

Warning: Unable to verify antiderivative.

```
[In]  Int[1/((c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(4/3)),x]
```

```
[Out] (-3*(c + d*x)^(2/3))/(d*(b*c - a*d)*(b*c + a*d + 2*b*d*x)^(1/3))
+ (3*((c + d*x)*(b*c + a*d + 2*b*d*x))^(1/3)*Sqrt[d^2*(3*b*c + a*
d + 4*b*d*x)^2]*Sqrt[(d*(3*b*c + a*d) + 4*b*d^2*x)^2])/(2*b^(2/3)
*d^3*(b*c - a*d)*(c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3)*(3*b
*c + a*d + 4*b*d*x)*((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*
((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))) - (3*3^(1/4)*Sqrt[2 - S
qrt[3]]*((c + d*x)*(b*c + a*d + 2*b*d*x))^(1/3)*Sqrt[(d*(3*b*c +
a*d) + 4*b*d^2*x)^2]*((b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a
*d + b*(c + 2*d*x)))^(1/3))*Sqrt[((b*c - a*d)^(4/3) - 2*b^(1/3)*(
b*c - a*d)^(2/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3) + 4*b^(2
/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(2/3))/((1 + Sqrt[3])*(b*c
- a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))
^2]*EllipticE[ArcSin[((1 - Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)
*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))/((1 + Sqrt[3])*(b*c - a
*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))],
-7 - 4*Sqrt[3]])/(4*b^(2/3)*d*(b*c - a*d)^(1/3)*(c + d*x)^(1/3)*(
b*c + a*d + 2*b*d*x)^(1/3)*(3*b*c + a*d + 4*b*d*x)*Sqrt[d^2*(3*b*
c + a*d + 4*b*d*x)^2]*Sqrt[((b*c - a*d)^(2/3)*((b*c - a*d)^(2/3)
+ 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3)))/((1 + Sqrt[
3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)
))^(1/3))^2]) + (3^(3/4)*((c + d*x)*(b*c + a*d + 2*b*d*x))^(1/3)*
Sqrt[(d*(3*b*c + a*d) + 4*b*d^2*x)^2]*((b*c - a*d)^(2/3) + 2*b^(1
/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))*Sqrt[((b*c - a*d)^(4
/3) - 2*b^(1/3)*(b*c - a*d)^(2/3)*((c + d*x)*(a*d + b*(c + 2*d*x)
))^(1/3) + 4*b^(2/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(2/3))/((1
 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c
+ 2*d*x)))^(1/3))^2]*EllipticF[ArcSin[((1 - Sqrt[3])*(b*c - a*d)^
(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x)))^(1/3))/((1 +
Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2
*d*x)))^(1/3))], -7 - 4*Sqrt[3]])/(Sqrt[2]*b^(2/3)*d*(b*c - a*d)^
(1/3)*(c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(1/3)*(3*b*c + a*d +
4*b*d*x)*Sqrt[d^2*(3*b*c + a*d + 4*b*d*x)^2]*Sqrt[((b*c - a*d)^(2
/3)*((b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*x)*(a*d + b*(c + 2*d*x
)))^(1/3)))/((1 + Sqrt[3])*(b*c - a*d)^(2/3) + 2*b^(1/3)*((c + d*
x)*(a*d + b*(c + 2*d*x)))^(1/3))^2])
```

Rubi in Sympy [A] time = 178.159, size = 1569, normalized size = 1.18

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(d*x+c)**(1/3)/(2*b*d*x+a*d+b*c)**(4/3),x)
```

```
[Out] 3*(c + d*x)**(2/3)/(d*(a*d - b*c)*(a*d + b*c + 2*b*d*x)**(1/3)) +
 3*3**(1/4)*sqrt((4*b**(2/3)*(2*b*d**2*x**2 + c*(a*d + b*c) + d*x
*(a*d + 3*b*c))**(2/3) - 2*b**(1/3)*(a*d - b*c)**(2/3)*(2*b*d**2*
x**2 + c*(a*d + b*c) + d*x*(a*d + 3*b*c))**(1/3) + (a*d - b*c)**(
4/3))/(2*b**(1/3)*(2*b*d**2*x**2 + c*(a*d + b*c) + d*x*(a*d + 3*b
*c))**(1/3) + (1 + sqrt(3))*(a*d - b*c)**(2/3))**2)*sqrt(-sqrt(3)
 + 2)*(2*b**(1/3)*(2*b*d**2*x**2 + c*(a*d + b*c) + d*x*(a*d + 3*b
*c))**(1/3) + (a*d - b*c)**(2/3))*(2*b*d**2*x**2 + c*(a*d + b*c)
+ d*x*(a*d + 3*b*c))**(1/3)*sqrt((4*b*d**2*x + d*(a*d + 3*b*c))**
2)*elliptic_e(asin((2*b**(1/3)*(2*b*d**2*x**2 + c*(a*d + b*c) + d
*x*(a*d + 3*b*c))**(1/3) - (-1 + sqrt(3))*(a*d - b*c)**(2/3))/(2*
b**(1/3)*(2*b*d**2*x**2 + c*(a*d + b*c) + d*x*(a*d + 3*b*c))**(1/
3) + (1 + sqrt(3))*(a*d - b*c)**(2/3))), -7 - 4*sqrt(3))/(4*b**(2
/3)*d*sqrt((a*d - b*c)**(2/3)*(2*b**(1/3)*(2*b*d**2*x**2 + c*(a*d
 + b*c) + d*x*(a*d + 3*b*c))**(1/3) + (a*d - b*c)**(2/3))/(2*b**(
1/3)*(2*b*d**2*x**2 + c*(a*d + b*c) + d*x*(a*d + 3*b*c))**(1/3) +
 (1 + sqrt(3))*(a*d - b*c)**(2/3))**2)*(c + d*x)**(1/3)*(a*d - b*
c)**(1/3)*sqrt(b*d**2*(16*b*d**2*x**2 + 8*c*(a*d + b*c) + 8*d*x*(
a*d + 3*b*c)) + d**2*(a*d - b*c)**2)*(a*d + b*c + 2*b*d*x)**(1/3)
*(a*d + 3*b*c + 4*b*d*x)) - sqrt(2)*3**(3/4)*sqrt((4*b**(2/3)*(2*
b*d**2*x**2 + c*(a*d + b*c) + d*x*(a*d + 3*b*c))**(2/3) - 2*b**(1
/3)*(a*d - b*c)**(2/3)*(2*b*d**2*x**2 + c*(a*d + b*c) + d*x*(a*d
+ 3*b*c))**(1/3) + (a*d - b*c)**(4/3))/(2*b**(1/3)*(2*b*d**2*x**2
```

```
 + c*(a*d + b*c) + d*x*(a*d + 3*b*c))**(1/3) + (1 + sqrt(3))*(a*d
 - b*c)**(2/3))**2)*(2*b**(1/3)*(2*b*d**2*x**2 + c*(a*d + b*c) +
d*x*(a*d + 3*b*c))**(1/3) + (a*d - b*c)**(2/3))*(2*b*d**2*x**2 +
c*(a*d + b*c) + d*x*(a*d + 3*b*c))**(1/3)*sqrt((4*b*d**2*x + d*(a
*d + 3*b*c))**2)*elliptic_f(asin((2*b**(1/3)*(2*b*d**2*x**2 + c*(
a*d + b*c) + d*x*(a*d + 3*b*c))**(1/3) - (-1 + sqrt(3))*(a*d - b*
c)**(2/3))/(2*b**(1/3)*(2*b*d**2*x**2 + c*(a*d + b*c) + d*x*(a*d
+ 3*b*c))**(1/3) + (1 + sqrt(3))*(a*d - b*c)**(2/3))), -7 - 4*sqr
t(3))/(2*b**(2/3)*d*sqrt((a*d - b*c)**(2/3)*(2*b**(1/3)*(2*b*d**2
*x**2 + c*(a*d + b*c) + d*x*(a*d + 3*b*c))**(1/3) + (a*d - b*c)**
(2/3))/(2*b**(1/3)*(2*b*d**2*x**2 + c*(a*d + b*c) + d*x*(a*d + 3*
b*c))**(1/3) + (1 + sqrt(3))*(a*d - b*c)**(2/3))**2)*(c + d*x)**(
1/3)*(a*d - b*c)**(1/3)*sqrt(b*d**2*(16*b*d**2*x**2 + 8*c*(a*d +
b*c) + 8*d*x*(a*d + 3*b*c)) + d**2*(a*d - b*c)**2)*(a*d + b*c + 2
*b*d*x)**(1/3)*(a*d + 3*b*c + 4*b*d*x)) - 3*sqrt(b*d**2*(16*b*d**
2*x**2 + 8*c*(a*d + b*c) + 8*d*x*(a*d + 3*b*c)) + d**2*(a*d - b*c
)**2)*(2*b*d**2*x**2 + c*(a*d + b*c) + d*x*(a*d + 3*b*c))**(1/3)*
sqrt((4*b*d**2*x + d*(a*d + 3*b*c))**2)/(2*b**(2/3)*d**3*(c + d*x
)**(1/3)*(a*d - b*c)*(2*b**(1/3)*(2*b*d**2*x**2 + c*(a*d + b*c) +
 d*x*(a*d + 3*b*c))**(1/3) + (1 + sqrt(3))*(a*d - b*c)**(2/3))*(a
*d + b*c + 2*b*d*x)**(1/3)*(a*d + 3*b*c + 4*b*d*x))
```

Mathematica [C] time = 0.318428, size = 127, normalized size = 0.1

$$\frac{12b(c+dx)-3\sqrt[3]{2}\sqrt[3]{\frac{b(c+dx)}{bc-ad}}(ad+b(c+2dx))\,{}_2F_1\left(\frac{1}{3},\frac{2}{3};\frac{5}{3};\frac{ad+b(c+2dx)}{ad-bc}\right)}{4bd\sqrt[3]{c+dx}(ad-bc)\sqrt[3]{ad+b(c+2dx)}}$$

Antiderivative was successfully verified.

```
[In]  Integrate[1/((c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(4/3)),x]
```

```
[Out] (12*b*(c + d*x) - 3*2^(1/3)*((b*(c + d*x))/(b*c - a*d))^(1/3)*(a*
d + b*(c + 2*d*x))*Hypergeometric2F1[1/3, 2/3, 5/3, (a*d + b*(c +
 2*d*x))/(-(b*c) + a*d)])/(4*b*d*(-(b*c) + a*d)*(c + d*x)^(1/3)*(
a*d + b*(c + 2*d*x))^(1/3))
```

Maple [F] time = 0.06, size = 0, normalized size = 0.

$$\int 1\frac{1}{\sqrt[3]{dx+c}}\left(2\,bdx+ad+bc\right)^{-\frac{4}{3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(d*x+c)^(1/3)/(2*b*d*x+a*d+b*c)^(4/3),x)
```

```
[Out] int(1/(d*x+c)^(1/3)/(2*b*d*x+a*d+b*c)^(4/3),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\left(2\,bdx+bc+ad\right)^{\frac{4}{3}}\left(dx+c\right)^{\frac{1}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((2*b*d*x + b*c + a*d)^(4/3)*(d*x + c)^(1/3)),x, algorithm="maxima")
```

```
[Out] integrate(1/((2*b*d*x + b*c + a*d)^(4/3)*(d*x + c)^(1/3)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{1}{(2\,bdx+bc+ad)^{\frac{4}{3}}(dx+c)^{\frac{1}{3}}},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((2*b*d*x + b*c + a*d)^(4/3)*(d*x + c)^(1/3)),x, algorithm="fricas")
```

```
[Out] integral(1/((2*b*d*x + b*c + a*d)^(4/3)*(d*x + c)^(1/3)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt[3]{c+dx}\,(ad+bc+2bdx)^{\frac{4}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/(d*x+c)**(1/3)/(2*b*d*x+a*d+b*c)**(4/3),x)
```

```
[Out] Integral(1/((c + d*x)**(1/3)*(a*d + b*c + 2*b*d*x)**(4/3)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(2\,bdx+bc+ad)^{\frac{4}{3}}(dx+c)^{\frac{1}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((2*b*d*x + b*c + a*d)^(4/3)*(d*x + c)^(1/3)),x, algorithm="giac")
```

```
[Out] integrate(1/((2*b*d*x + b*c + a*d)^(4/3)*(d*x + c)^(1/3)), x)
```

3.3016 $\int \frac{1}{(a+bx)\sqrt[3]{c+dx}(bc+ad+2bdx)^{4/3}}\,dx$

Optimal. Leaf size=113

$$\frac{3(c+dx)^{2/3}\sqrt[3]{-\frac{ad+bc+2bdx}{bc-ad}}F_1\left(\frac{2}{3};\frac{4}{3},1;\frac{5}{3};\frac{2b(c+dx)}{bc-ad},\frac{b(c+dx)}{bc-ad}\right)}{2(bc-ad)^2\sqrt[3]{ad+bc+2bdx}}$$

```
[Out] (3*(c + d*x)^(2/3)*(-((b*c + a*d + 2*b*d*x)/(b*c - a*d)))^(1/3)*A
ppellF1[2/3, 4/3, 1, 5/3, (2*b*(c + d*x))/(b*c - a*d), (b*(c + d*
x))/(b*c - a*d)])/(2*(b*c - a*d)^2*(b*c + a*d + 2*b*d*x)^(1/3))
```

Rubi [A] time = 0.373524, antiderivative size = 113, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 33, $\frac{\text{number of rules}}{\text{integrand size}} = 0.061$

$$\frac{3(c+dx)^{2/3}\sqrt[3]{-\frac{ad+bc+2bdx}{bc-ad}}F_1\left(\frac{2}{3};\frac{4}{3},1;\frac{5}{3};\frac{2b(c+dx)}{bc-ad},\frac{b(c+dx)}{bc-ad}\right)}{2(bc-ad)^2\sqrt[3]{ad+bc+2bdx}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((a + b*x)*(c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(4/3)),x]
```

```
[Out] (3*(c + d*x)^(2/3)*(-((b*c + a*d + 2*b*d*x)/(b*c - a*d)))^(1/3)*A
ppellF1[2/3, 4/3, 1, 5/3, (2*b*(c + d*x))/(b*c - a*d), (b*(c + d*
x))/(b*c - a*d)])/(2*(b*c - a*d)^2*(b*c + a*d + 2*b*d*x)^(1/3))
```

Rubi in Sympy [A] time = 31.2635, size = 99, normalized size = 0.88

$$\frac{3\left(c+dx\right)^{\frac{2}{3}}\left(ad+bc+2bdx\right)^{\frac{2}{3}}\operatorname{appellf}_1\left(\frac{2}{3},1,\frac{4}{3},\frac{5}{3},\frac{b(-c-dx)}{ad-bc},\frac{b(-2c-2dx)}{ad-bc}\right)}{2\left(\frac{ad+bc+2bdx}{ad-bc}\right)^{\frac{2}{3}}(ad-bc)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(b*x+a)/(d*x+c)**(1/3)/(2*b*d*x+a*d+b*c)**(4/3),x)
```

```
[Out] 3*(c + d*x)**(2/3)*(a*d + b*c + 2*b*d*x)**(2/3)*appellf1(2/3, 1,
4/3, 5/3, b*(-c - d*x)/(a*d - b*c), b*(-2*c - 2*d*x)/(a*d - b*c))
/(2*((a*d + b*c + 2*b*d*x)/(a*d - b*c))**(2/3)*(a*d - b*c)**3)
```

Mathematica [B] time = 1.37733, size = 395, normalized size = 3.5

$$\frac{6d(a+bx)\left(3F_1\left(\frac{5}{3};-\frac{2}{3},2;\frac{8}{3};\frac{bc-ad}{2bc+2bdx},\frac{bc-ad}{bc+bdx}\right)-F_1\left(\frac{5}{3};\frac{1}{3},1;\frac{8}{3};\frac{bc-ad}{2bc+2bdx},\frac{bc-ad}{bc+bdx}\right)\right)-15b(c+dx)F_1\left(\frac{2}{3};-\right.}{2bd(a+bx)\sqrt[3]{c+dx}\sqrt[3]{ad+b(c+2dx)}\left(5b(c+dx)F_1\left(\frac{2}{3};-\frac{2}{3},1;\frac{5}{3};\frac{bc-ad}{2bc+2bdx},\frac{bc-ad}{bc+bdx}\right)+(bc-ad)\left(3F_1\left(\frac{5}{3};-\frac{2}{3},2;\frac{8}{3};\frac{bc-ad}{2bc+2bdx},\right.\right.\right.}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[1/((a + b*x)*(c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(4/3)),x]
```

```
[Out] (-15*b*(c + d*x)*AppellF1[2/3, -2/3, 1, 5/3, (b*c - a*d)/(2*b*c +
 2*b*d*x), (b*c - a*d)/(b*c + b*d*x)] + 6*d*(a + b*x)*(3*AppellF1
[5/3, -2/3, 2, 8/3, (b*c - a*d)/(2*b*c + 2*b*d*x), (b*c - a*d)/(b
```

```
*c + b*d*x)] - AppellF1[5/3, 1/3, 1, 8/3, (b*c - a*d)/(2*b*c + 2*
b*d*x), (b*c - a*d)/(b*c + b*d*x)]))/(2*b*d*(a + b*x)*(c + d*x)^(
1/3)*(a*d + b*(c + 2*d*x))^(1/3)*(5*b*(c + d*x)*AppellF1[2/3, -2/
3, 1, 5/3, (b*c - a*d)/(2*b*c + 2*b*d*x), (b*c - a*d)/(b*c + b*d*
x)] + (b*c - a*d)*(3*AppellF1[5/3, -2/3, 2, 8/3, (b*c - a*d)/(2*b
*c + 2*b*d*x), (b*c - a*d)/(b*c + b*d*x)] - AppellF1[5/3, 1/3, 1,
 8/3, (b*c - a*d)/(2*b*c + 2*b*d*x), (b*c - a*d)/(b*c + b*d*x)]))
)
```

Maple [F] time = 0.078, size = 0, normalized size = 0.

$$\int \frac{1}{bx+a}\frac{1}{\sqrt[3]{dx+c}}\left(2\,bdx+ad+bc\right)^{-\frac{4}{3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(b*x+a)/(d*x+c)^(1/3)/(2*b*d*x+a*d+b*c)^(4/3),x)
```

```
[Out] int(1/(b*x+a)/(d*x+c)^(1/3)/(2*b*d*x+a*d+b*c)^(4/3),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\left(2\,bdx+bc+ad\right)^{\frac{4}{3}}\left(bx+a\right)\left(dx+c\right)^{\frac{1}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((2*b*d*x + b*c + a*d)^(4/3)*(b*x + a)*(d*x + c)^(1/3)),x, algorithm=
```

```
[Out] integrate(1/((2*b*d*x + b*c + a*d)^(4/3)*(b*x + a)*(d*x + c)^(1/3
)), x)
```

Fricas [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((2*b*d*x + b*c + a*d)^(4/3)*(b*x + a)*(d*x + c)^(1/3)),x, algorithm=
```

```
[Out] Timed out
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\left(a+bx\right)\sqrt[3]{c+dx}\left(ad+bc+2bdx\right)^{\frac{4}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(b*x+a)/(d*x+c)**(1/3)/(2*b*d*x+a*d+b*c)**(4/3),x)
```

```
[Out] Integral(1/((a + b*x)*(c + d*x)**(1/3)*(a*d + b*c + 2*b*d*x)**(4/
3)), x)
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((2*b*d*x + b*c + a*d)^(4/3)*(b*x + a)*(d*x + c)^(1/3)),x, algorithm=

[Out] Exception raised: NotImplementedError
```

3.3017 $\int \frac{1}{(a+bx)^2 \sqrt[3]{c+dx}(bc+ad+2bdx)^{4/3}} \, dx$

Optimal. Leaf size=114

$$-\frac{3d(c+dx)^{2/3} \sqrt[3]{-\frac{ad+bc+2bdx}{bc-ad}} F_1\left(\frac{2}{3}; \frac{4}{3}, 2; \frac{5}{3}; \frac{2b(c+dx)}{bc-ad}, \frac{b(c+dx)}{bc-ad}\right)}{2(bc-ad)^3 \sqrt[3]{ad+bc+2bdx}}$$

```
[Out] (-3*d*(c + d*x)^(2/3)*(-((b*c + a*d + 2*b*d*x)/(b*c - a*d)))^(1/3
)*AppellF1[2/3, 4/3, 2, 5/3, (2*b*(c + d*x))/(b*c - a*d), (b*(c +
 d*x))/(b*c - a*d)])/(2*(b*c - a*d)^3*(b*c + a*d + 2*b*d*x)^(1/3)
)
```

Rubi [A] time = 0.345246, antiderivative size = 114, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 33, $\frac{\text{number of rules}}{\text{integrand size}} = 0.061$

$$-\frac{3d(c+dx)^{2/3} \sqrt[3]{-\frac{ad+bc+2bdx}{bc-ad}} F_1\left(\frac{2}{3}; \frac{4}{3}, 2; \frac{5}{3}; \frac{2b(c+dx)}{bc-ad}, \frac{b(c+dx)}{bc-ad}\right)}{2(bc-ad)^3 \sqrt[3]{ad+bc+2bdx}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((a + b*x)^2*(c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(4/3)),x]
```

```
[Out] (-3*d*(c + d*x)^(2/3)*(-((b*c + a*d + 2*b*d*x)/(b*c - a*d)))^(1/3
)*AppellF1[2/3, 4/3, 2, 5/3, (2*b*(c + d*x))/(b*c - a*d), (b*(c +
 d*x))/(b*c - a*d)])/(2*(b*c - a*d)^3*(b*c + a*d + 2*b*d*x)^(1/3)
)
```

Rubi in Sympy [A] time = 31.2905, size = 100, normalized size = 0.88

$$\frac{3d\left(c+dx\right)^{\frac{2}{3}}\left(ad+bc+2bdx\right)^{\frac{2}{3}} \operatorname{appellf}_1\left(\frac{2}{3}, \frac{4}{3}, 2, \frac{5}{3}, \frac{b(-2c-2dx)}{ad-bc}, \frac{b(-c-dx)}{ad-bc}\right)}{2\left(\frac{ad+bc+2bdx}{ad-bc}\right)^{\frac{2}{3}}\left(ad-bc\right)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate(1/(b*x+a)**2/(d*x+c)**(1/3)/(2*b*d*x+a*d+b*c)**(4/3),x)
```

```
[Out] 3*d*(c + d*x)**(2/3)*(a*d + b*c + 2*b*d*x)**(2/3)*appellf1(2/3, 4
/3, 2, 5/3, b*(-2*c - 2*d*x)/(a*d - b*c), b*(-c - d*x)/(a*d - b*c
))/(2*((a*d + b*c + 2*b*d*x)/(a*d - b*c))**(2/3)*(a*d - b*c)**4)
```

Mathematica [B] time = 3.66909, size = 605, normalized size = 5.31

$$\frac{(c+dx)^{2/3}\left(\frac{d\left(7\left(\frac{16(bc-ad)^2 F_1\left(\frac{5}{3};\frac{1}{3},1;\frac{8}{3};\frac{bc-ad}{2bc+2bdx},\frac{bc-ad}{bc+bdx}\right)}{d(a+bx)\left(16b(c+dx)F_1\left(\frac{5}{3};\frac{1}{3},1;\frac{8}{3};\frac{bc-ad}{2bc+2bdx},\frac{bc-ad}{bc+bdx}\right)+(bc-ad)\left(6F_1\left(\frac{8}{3};\frac{1}{3},2;\frac{11}{3};\frac{bc-ad}{2bc+2bdx},\frac{bc-ad}{bc+bdx}\right)+F_1\left(\frac{8}{3};\frac{4}{3},1;\frac{11}{3};\frac{bc-ad}{2bc+2bdx},\frac{bc-ad}{bc+bdx}\right)\right)\right)}-\frac{5ad}{bc+bdx}+\frac{5c}{c+dx}\cdots}{(ad-bc)^3}\cdots\right)}{5\sqrt[3]{ad+b(c\cdots}}$$

Warning: Unable to verify antiderivative.

```
[In] Integrate[1/((a + b*x)^2*(c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(4/3)),x]
```

```
[Out] ((c + d*x)^(2/3)*((-5*(13*a*d + b*(c + 14*d*x)))/((b*c - a*d)^3*(
a + b*x)) + (d*((-400*b*(b*c - a*d)*(c + d*x)*AppellF1[2/3, 1/3,
1, 5/3, (b*c - a*d)/(2*b*c + 2*b*d*x), (b*c - a*d)/(b*c + b*d*x)]
)/(d*(a + b*x)*(10*b*(c + d*x)*AppellF1[2/3, 1/3, 1, 5/3, (b*c -
a*d)/(2*b*c + 2*b*d*x), (b*c - a*d)/(b*c + b*d*x)] + (b*c - a*d)*
(6*AppellF1[5/3, 1/3, 2, 8/3, (b*c - a*d)/(2*b*c + 2*b*d*x), (b*c
 - a*d)/(b*c + b*d*x)] + AppellF1[5/3, 4/3, 1, 8/3, (b*c - a*d)/(
2*b*c + 2*b*d*x), (b*c - a*d)/(b*c + b*d*x)]))) + 7*(-10 + (5*c)/
(c + d*x) - (5*a*d)/(b*c + b*d*x) + (16*(b*c - a*d)^2*AppellF1[5/
3, 1/3, 1, 8/3, (b*c - a*d)/(2*b*c + 2*b*d*x), (b*c - a*d)/(b*c +
 b*d*x)])/(d*(a + b*x)*(16*b*(c + d*x)*AppellF1[5/3, 1/3, 1, 8/3,
 (b*c - a*d)/(2*b*c + 2*b*d*x), (b*c - a*d)/(b*c + b*d*x)] + (b*c
 - a*d)*(6*AppellF1[8/3, 1/3, 2, 11/3, (b*c - a*d)/(2*b*c + 2*b*d
*x), (b*c - a*d)/(b*c + b*d*x)] + AppellF1[8/3, 4/3, 1, 11/3, (b*
c - a*d)/(2*b*c + 2*b*d*x), (b*c - a*d)/(b*c + b*d*x)]))))))/(-(b
*c) + a*d)^3))/(5*(a*d + b*(c + 2*d*x))^(1/3))
```

Maple [F] time = 0.079, size = 0, normalized size = 0.

$$\int \frac{1}{(bx+a)^2}\frac{1}{\sqrt[3]{dx+c}}(2\,bdx+ad+bc)^{-\frac{4}{3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(1/(b*x+a)^2/(d*x+c)^(1/3)/(2*b*d*x+a*d+b*c)^(4/3),x)
```

```
[Out] int(1/(b*x+a)^2/(d*x+c)^(1/3)/(2*b*d*x+a*d+b*c)^(4/3),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(2\,bdx+bc+ad)^{\frac{4}{3}}(bx+a)^2(dx+c)^{\frac{1}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((2*b*d*x + b*c + a*d)^(4/3)*(b*x + a)^2*(d*x + c)^(1/3)),x, algorith
```

```
[Out] integrate(1/((2*b*d*x + b*c + a*d)^(4/3)*(b*x + a)^2*(d*x + c)^(1
/3)), x)
```

Fricas [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((2*b*d*x + b*c + a*d)^(4/3)*(b*x + a)^2*(d*x + c)^(1/3)),x, algorith
```

```
[Out] Timed out
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(b*x+a)**2/(d*x+c)**(1/3)/(2*b*d*x+a*d+b*c)**(4/3),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((2*b*d*x + b*c + a*d)^(4/3)*(b*x + a)^2*(d*x + c)^(1/3)),x, algorith
```

```
[Out] Exception raised: NotImplementedError
```

3.3018 $\int \frac{1}{(a+bx)^3 \sqrt[3]{c+dx}(bc+ad+2bdx)^{4/3}}\,dx$

Optimal. Leaf size=116

$$\frac{3d^2(c+dx)^{2/3}\sqrt[3]{-\frac{ad+bc+2bdx}{bc-ad}}F_1\left(\frac{2}{3};\frac{4}{3},3;\frac{5}{3};\frac{2b(c+dx)}{bc-ad},\frac{b(c+dx)}{bc-ad}\right)}{2(bc-ad)^4\sqrt[3]{ad+bc+2bdx}}$$

```
[Out] (3*d^2*(c + d*x)^(2/3)*(-((b*c + a*d + 2*b*d*x)/(b*c - a*d)))^(1/
3)*AppellF1[2/3, 4/3, 3, 5/3, (2*b*(c + d*x))/(b*c - a*d), (b*(c
+ d*x))/(b*c - a*d)])/(2*(b*c - a*d)^4*(b*c + a*d + 2*b*d*x)^(1/3
))
```

Rubi [A] time = 0.348811, antiderivative size = 116, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 33, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.061

$$\frac{3d^2(c+dx)^{2/3}\sqrt[3]{-\frac{ad+bc+2bdx}{bc-ad}}F_1\left(\frac{2}{3};\frac{4}{3},3;\frac{5}{3};\frac{2b(c+dx)}{bc-ad},\frac{b(c+dx)}{bc-ad}\right)}{2(bc-ad)^4\sqrt[3]{ad+bc+2bdx}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((a + b*x)^3*(c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(4/3)),x]
```

```
[Out] (3*d^2*(c + d*x)^(2/3)*(-((b*c + a*d + 2*b*d*x)/(b*c - a*d)))^(1/
3)*AppellF1[2/3, 4/3, 3, 5/3, (2*b*(c + d*x))/(b*c - a*d), (b*(c
+ d*x))/(b*c - a*d)])/(2*(b*c - a*d)^4*(b*c + a*d + 2*b*d*x)^(1/3
))
```

Rubi in Sympy [A] time = 32.6547, size = 102, normalized size = 0.88

$$\frac{3d^2\left(c+dx\right)^{\frac{2}{3}}\left(ad+bc+2bdx\right)^{\frac{2}{3}}\operatorname{appellf}_1\left(\frac{2}{3},\frac{4}{3},3,\frac{5}{3},\frac{b(-2c-2dx)}{ad-bc},\frac{b(-c-dx)}{ad-bc}\right)}{2\left(\frac{ad+bc+2bdx}{ad-bc}\right)^{\frac{2}{3}}\left(ad-bc\right)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(b*x+a)**3/(d*x+c)**(1/3)/(2*b*d*x+a*d+b*c)**(4/3),x)
```

```
[Out] 3*d**2*(c + d*x)**(2/3)*(a*d + b*c + 2*b*d*x)**(2/3)*appellf1(2/3
, 4/3, 3, 5/3, b*(-2*c - 2*d*x)/(a*d - b*c), b*(-c - d*x)/(a*d -
b*c))/(2*((a*d + b*c + 2*b*d*x)/(a*d - b*c))**(2/3)*(a*d - b*c)**
5)
```

Mathematica [B] time = 4.1167, size = 638, normalized size = 5.5

$$(c+dx)^{2/3}(ad+b(c+2dx))^{2/3}\left(5\left(\frac{48d^2}{ad+bc+2bdx}+\frac{ad-bc}{(a+bx)^2}+\frac{8d}{a+bx}\right)-\frac{4d^2\left(\frac{475b(c+dx)(bc-ad)F_1\left(\frac{2}{3};\frac{1}{3},1;\frac{5}{3};\frac{b}{2bc}\right.}{d(a+bx)\left(10b(c+dx)F_1\left(\frac{2}{3};\frac{1}{3},1;\frac{5}{3};\frac{bc-ad}{2bc+2bdx},\frac{bc-ad}{bc+bdx}\right)+(bc-ad)\left(6F_1\left(\frac{5}{3};\frac{1}{3},2;\frac{8}{3}\right.\right.\right.}\right.}{}\right.$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[1/((a + b*x)^3*(c + d*x)^(1/3)*(b*c + a*d + 2*b*d*x)^(4/3)),x]
```

```
[Out] ((c + d*x)^(2/3)*(a*d + b*(c + 2*d*x))^(2/3)*(5*((-(b*c) + a*d)/(
a + b*x)^2 + (8*d)/(a + b*x) + (48*d^2)/(b*c + a*d + 2*b*d*x)) -
(4*d^2*((475*b*(b*c - a*d)*(c + d*x)*AppellF1[2/3, 1/3, 1, 5/3, (
b*c - a*d)/(2*b*c + 2*b*d*x), (b*c - a*d)/(b*c + b*d*x)])/(d*(a +
 b*x)*(10*b*(c + d*x)*AppellF1[2/3, 1/3, 1, 5/3, (b*c - a*d)/(2*b
*c + 2*b*d*x), (b*c - a*d)/(b*c + b*d*x)] + (b*c - a*d)*(6*Appell
F1[5/3, 1/3, 2, 8/3, (b*c - a*d)/(2*b*c + 2*b*d*x), (b*c - a*d)/(
b*c + b*d*x)] + AppellF1[5/3, 4/3, 1, 8/3, (b*c - a*d)/(2*b*c + 2
*b*d*x), (b*c - a*d)/(b*c + b*d*x)]))) + 8*(10 - (5*c)/(c + d*x)
+ (5*a*d)/(b*c + b*d*x) - (16*(b*c - a*d)^2*AppellF1[5/3, 1/3, 1,
 8/3, (b*c - a*d)/(2*b*c + 2*b*d*x), (b*c - a*d)/(b*c + b*d*x)])/
(d*(a + b*x)*(16*b*(c + d*x)*AppellF1[5/3, 1/3, 1, 8/3, (b*c - a*
d)/(2*b*c + 2*b*d*x), (b*c - a*d)/(b*c + b*d*x)] + (b*c - a*d)*(6
*AppellF1[8/3, 1/3, 2, 11/3, (b*c - a*d)/(2*b*c + 2*b*d*x), (b*c
- a*d)/(b*c + b*d*x)] + AppellF1[8/3, 4/3, 1, 11/3, (b*c - a*d)/(
2*b*c + 2*b*d*x), (b*c - a*d)/(b*c + b*d*x)])))))))/(b*c + a*d + 2
*b*d*x)))/(10*(b*c - a*d)^4)
```

Maple [F] time = 0.08, size = 0, normalized size = 0.

$$\int \frac{1}{(bx+a)^{3}} \frac{1}{\sqrt[3]{dx+c}} (2\,bdx+ad+bc)^{-\frac{4}{3}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int(1/(b*x+a)^3/(d*x+c)^(1/3)/(2*b*d*x+a*d+b*c)^(4/3),x)
```

```
[Out] int(1/(b*x+a)^3/(d*x+c)^(1/3)/(2*b*d*x+a*d+b*c)^(4/3),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(2\,bdx+bc+ad)^{\frac{4}{3}}(bx+a)^{3}(dx+c)^{\frac{1}{3}}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((2*b*d*x + b*c + a*d)^(4/3)*(b*x + a)^3*(d*x + c)^(1/3)),x, algorith
```

```
[Out] integrate(1/((2*b*d*x + b*c + a*d)^(4/3)*(b*x + a)^3*(d*x + c)^(1
/3)), x)
```

Fricas [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((2*b*d*x + b*c + a*d)^(4/3)*(b*x + a)^3*(d*x + c)^(1/3)),x, algorith
```

```
[Out] Timed out
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(b*x+a)**3/(d*x+c)**(1/3)/(2*b*d*x+a*d+b*c)**(4/3),x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((2*b*d*x + b*c + a*d)^(4/3)*(b*x + a)^3*(d*x + c)^(1/3)),x, algorith
```

```
[Out] Exception raised: NotImplementedError
```

3.3019 $\int \frac{1}{\sqrt[3]{d-3ex}(d+ex)\sqrt[3]{d+3ex}}\,dx$

Optimal. Leaf size=120

$$\frac{\log(d+ex)}{4d^{2/3}e}-\frac{3\log\left(-\frac{(d-3ex)^{2/3}}{2\sqrt[3]{d}}-\sqrt[3]{d+3ex}\right)}{8d^{2/3}e}+\frac{\sqrt{3}\tan^{-1}\left(\frac{1}{\sqrt{3}}-\frac{(d-3ex)^{2/3}}{\sqrt{3}\sqrt[3]{d}\sqrt[3]{d+3ex}}\right)}{4d^{2/3}e}$$

```
[Out] (Sqrt[3]*ArcTan[1/Sqrt[3] - (d - 3*e*x)^(2/3)/(Sqrt[3]*d^(1/3)*(d
 + 3*e*x)^(1/3))])/(4*d^(2/3)*e) + Log[d + e*x]/(4*d^(2/3)*e) - (
3*Log[-(d - 3*e*x)^(2/3)/(2*d^(1/3)) - (d + 3*e*x)^(1/3)])/(8*d^(
2/3)*e)
```

Rubi [A] time = 0.117647, antiderivative size = 120, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.036

$$\frac{\log(d+ex)}{4d^{2/3}e}-\frac{3\log\left(-\frac{(d-3ex)^{2/3}}{2\sqrt[3]{d}}-\sqrt[3]{d+3ex}\right)}{8d^{2/3}e}+\frac{\sqrt{3}\tan^{-1}\left(\frac{1}{\sqrt{3}}-\frac{(d-3ex)^{2/3}}{\sqrt{3}\sqrt[3]{d}\sqrt[3]{d+3ex}}\right)}{4d^{2/3}e}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((d - 3*e*x)^(1/3)*(d + e*x)*(d + 3*e*x)^(1/3)),x]
```

```
[Out] (Sqrt[3]*ArcTan[1/Sqrt[3] - (d - 3*e*x)^(2/3)/(Sqrt[3]*d^(1/3)*(d
 + 3*e*x)^(1/3))])/(4*d^(2/3)*e) + Log[d + e*x]/(4*d^(2/3)*e) - (
3*Log[-(d - 3*e*x)^(2/3)/(2*d^(1/3)) - (d + 3*e*x)^(1/3)])/(8*d^(
2/3)*e)
```

Rubi in Sympy [A] time = 10.0373, size = 109, normalized size = 0.91

$$\frac{\log(d+ex)}{4d^{\frac{2}{3}}e}-\frac{3\log\left(-\sqrt[3]{d+3ex}-\frac{(d-3ex)^{\frac{2}{3}}}{2\sqrt[3]{d}}\right)}{8d^{\frac{2}{3}}e}+\frac{\sqrt{3}\,\mathrm{atan}\left(\frac{\sqrt{3}}{3}-\frac{\sqrt{3}(d-3ex)^{\frac{2}{3}}}{3\sqrt[3]{d}\sqrt[3]{d+3ex}}\right)}{4d^{\frac{2}{3}}e}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(-3*e*x+d)**(1/3)/(e*x+d)/(3*e*x+d)**(1/3),x)
```

```
[Out] log(d + e*x)/(4*d**(2/3)*e) - 3*log(-(d + 3*e*x)**(1/3) - (d - 3*
e*x)**(2/3)/(2*d**(1/3)))/(8*d**(2/3)*e) + sqrt(3)*atan(sqrt(3)/3
 - sqrt(3)*(d - 3*e*x)**(2/3)/(3*d**(1/3)*(d + 3*e*x)**(1/3)))/(4
*d**(2/3)*e)
```

Mathematica [C] time = 0.489244, size = 196, normalized size = 1.63

$$-\frac{45(d+ex)F_1\left(\frac{2}{3};\frac{1}{3},\frac{1}{3};\frac{5}{3};\frac{4d}{3(d+ex)},\frac{2d}{3(d+ex)}\right)}{2e\sqrt[3]{d-3ex}\sqrt[3]{d+3ex}\left(15(d+ex)F_1\left(\frac{2}{3};\frac{1}{3},\frac{1}{3};\frac{5}{3};\frac{4d}{3(d+ex)},\frac{2d}{3(d+ex)}\right)+2d\left(F_1\left(\frac{5}{3};\frac{1}{3},\frac{4}{3};\frac{8}{3};\frac{4d}{3(d+ex)},\frac{2d}{3(d+ex)}\right)+2F_1\left(\frac{5}{3};\frac{4}{3},\frac{1}{3};\frac{8}{3};\frac{4d}{3(d+e}\right.\right.\right.}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[1/((d - 3*e*x)^(1/3)*(d + e*x)*(d + 3*e*x)^(1/3)),x]
```

```
[Out] (-45*(d + e*x)*AppellF1[2/3, 1/3, 1/3, 5/3, (4*d)/(3*(d + e*x)),
(2*d)/(3*(d + e*x))])/(2*e*(d - 3*e*x)^(1/3)*(d + 3*e*x)^(1/3)*(1
```

```
5*(d + e*x)*AppellF1[2/3, 1/3, 1/3, 5/3, (4*d)/(3*(d + e*x)), (2*
d)/(3*(d + e*x))] + 2*d*(AppellF1[5/3, 1/3, 4/3, 8/3, (4*d)/(3*(d
 + e*x)), (2*d)/(3*(d + e*x))] + 2*AppellF1[5/3, 4/3, 1/3, 8/3, (
4*d)/(3*(d + e*x)), (2*d)/(3*(d + e*x))])))
```

Maple [F] time = 0.095, size = 0, normalized size = 0.

$$\int \frac{1}{ex+d}\frac{1}{\sqrt[3]{-3\,ex+d}}\frac{1}{\sqrt[3]{3\,ex+d}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(-3*e*x+d)^(1/3)/(e*x+d)/(3*e*x+d)^(1/3),x)
```

```
[Out] int(1/(-3*e*x+d)^(1/3)/(e*x+d)/(3*e*x+d)^(1/3),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(3\,ex+d)^{\frac{1}{3}}(ex+d)(-3\,ex+d)^{\frac{1}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((3*e*x + d)^(1/3)*(e*x + d)*(-3*e*x + d)^(1/3)),x, algorithm="maxima
```

```
[Out] integrate(1/((3*e*x + d)^(1/3)*(e*x + d)*(-3*e*x + d)^(1/3)), x)
```

Fricas [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((3*e*x + d)^(1/3)*(e*x + d)*(-3*e*x + d)^(1/3)),x, algorithm="fricas
```

```
[Out] Timed out
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{\sqrt[3]{d-3ex}\,(d+ex)\,\sqrt[3]{d+3ex}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(-3*e*x+d)**(1/3)/(e*x+d)/(3*e*x+d)**(1/3),x)
```

```
[Out] Integral(1/((d - 3*e*x)**(1/3)*(d + e*x)*(d + 3*e*x)**(1/3)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(3\,ex+d)^{\frac{1}{3}}(ex+d)(-3\,ex+d)^{\frac{1}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((3*e*x + d)^(1/3)*(e*x + d)*(-3*e*x + d)^(1/3)),x, algorithm="giac"
```

```
[Out] integrate(1/((3*e*x + d)^(1/3)*(e*x + d)*(-3*e*x + d)^(1/3)), x)
```

3.3020 $\int \frac{(a+bx)^{4/3}(e+fx)^2}{(c+dx)^{4/3}} dx$

Optimal. Leaf size=562

$$-\frac{4\sqrt[3]{a+bx}(c+dx)^{2/3}\left(a^2d^2f^2-abdf(9de-7cf)+b^2\left(-\left(35c^2f^2-63cdef+27d^2e^2\right)\right)\right)}{27bd^4}+\frac{(a+bx)^{4/3}(c+dx)^{2/3}\left(a^2d^2f^2-abdf(9de-7cf)+b^2\left(-\left(35c^2f^2-63cdef+27d^2e^2\right)\right)\right)}{9bd^3(bc-ad)}-\frac{2(bc-ad)\log(a+bx)\left(a^2d^2f^2-abdf(9de-7cf)+b^2\left(-\left(35c^2f^2-63cdef+27d^2e^2\right)\right)\right)}{81b^{5/3}d^{13/3}}-\frac{2(bc-ad)\left(a^2d^2f^2-abdf(9de-7cf)+b^2\left(-\left(35c^2f^2-63cdef+27d^2e^2\right)\right)\right)\log\left(\frac{\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt[3]{d}\sqrt[3]{a+bx}}-1\right)}{27b^{5/3}d^{13/3}}-\frac{4(bc-ad)\left(a^2d^2f^2-abdf(9de-7cf)+b^2\left(-\left(35c^2f^2-63cdef+27d^2e^2\right)\right)\right)\tan^{-1}\left(\frac{2\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt{3}\sqrt[3]{d}\sqrt[3]{a+bx}}+\frac{1}{\sqrt{3}}\right)}{27\sqrt{3}b^{5/3}d^{13/3}}+\frac{3(a+bx)^{7/3}(de-cf)^2}{d^2\sqrt[3]{c+dx}(bc-ad)}+\frac{f^2(a+bx)^{7/3}(c+dx)^{2/3}}{3bd^2}$$

```
[Out] (3*(d*e - c*f)^2*(a + b*x)^(7/3))/(d^2*(b*c - a*d)*(c + d*x)^(1/3
)) - (4*(a^2*d^2*f^2 - a*b*d*f*(9*d*e - 7*c*f) - b^2*(27*d^2*e^2
- 63*c*d*e*f + 35*c^2*f^2))*(a + b*x)^(1/3)*(c + d*x)^(2/3))/(27*
b*d^4) + ((a^2*d^2*f^2 - a*b*d*f*(9*d*e - 7*c*f) - b^2*(27*d^2*e^
2 - 63*c*d*e*f + 35*c^2*f^2))*(a + b*x)^(4/3)*(c + d*x)^(2/3))/(9
*b*d^3*(b*c - a*d)) + (f^2*(a + b*x)^(7/3)*(c + d*x)^(2/3))/(3*b*
d^2) - (4*(b*c - a*d)*(a^2*d^2*f^2 - a*b*d*f*(9*d*e - 7*c*f) - b^
2*(27*d^2*e^2 - 63*c*d*e*f + 35*c^2*f^2))*ArcTan[1/Sqrt[3] + (2*b
^(1/3)*(c + d*x)^(1/3))/(Sqrt[3]*d^(1/3)*(a + b*x)^(1/3))])/(27*S
qrt[3]*b^(5/3)*d^(13/3)) - (2*(b*c - a*d)*(a^2*d^2*f^2 - a*b*d*f*
(9*d*e - 7*c*f) - b^2*(27*d^2*e^2 - 63*c*d*e*f + 35*c^2*f^2))*Log
[a + b*x])/(81*b^(5/3)*d^(13/3)) - (2*(b*c - a*d)*(a^2*d^2*f^2 -
a*b*d*f*(9*d*e - 7*c*f) - b^2*(27*d^2*e^2 - 63*c*d*e*f + 35*c^2*f
^2))*Log[-1 + (b^(1/3)*(c + d*x)^(1/3))/(d^(1/3)*(a + b*x)^(1/3))
])/(27*b^(5/3)*d^(13/3))
```

Rubi [A] time = 1.51129, antiderivative size = 562, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.154$

$$-\frac{4\sqrt[3]{a+bx}(c+dx)^{2/3}\left(a^2d^2f^2-abdf(9de-7cf)+b^2\left(-\left(35c^2f^2-63cdef+27d^2e^2\right)\right)\right)}{27bd^4}+\frac{(a+bx)^{4/3}(c+dx)^{2/3}\left(a^2d^2f^2-abdf(9de-7cf)+b^2\left(-\left(35c^2f^2-63cdef+27d^2e^2\right)\right)\right)}{9bd^3(bc-ad)}-\frac{2(bc-ad)\log(a+bx)\left(a^2d^2f^2-abdf(9de-7cf)+b^2\left(-\left(35c^2f^2-63cdef+27d^2e^2\right)\right)\right)}{81b^{5/3}d^{13/3}}-\frac{2(bc-ad)\left(a^2d^2f^2-abdf(9de-7cf)+b^2\left(-\left(35c^2f^2-63cdef+27d^2e^2\right)\right)\right)\log\left(\frac{\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt[3]{d}\sqrt[3]{a+bx}}-1\right)}{27b^{5/3}d^{13/3}}-\frac{4(bc-ad)\left(a^2d^2f^2-abdf(9de-7cf)+b^2\left(-\left(35c^2f^2-63cdef+27d^2e^2\right)\right)\right)\tan^{-1}\left(\frac{2\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt{3}\sqrt[3]{d}\sqrt[3]{a+bx}}+\frac{1}{\sqrt{3}}\right)}{27\sqrt{3}b^{5/3}d^{13/3}}+\frac{3(a+bx)^{7/3}(de-cf)^2}{d^2\sqrt[3]{c+dx}(bc-ad)}+\frac{f^2(a+bx)^{7/3}(c+dx)^{2/3}}{3bd^2}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(4/3)*(e + f*x)^2)/(c + d*x)^(4/3),x]
```

```
[Out] (3*(d*e - c*f)^2*(a + b*x)^(7/3))/(d^2*(b*c - a*d)*(c + d*x)^(1/3
)) - (4*(a^2*d^2*f^2 - a*b*d*f*(9*d*e - 7*c*f) - b^2*(27*d^2*e^2
- 63*c*d*e*f + 35*c^2*f^2))*(a + b*x)^(1/3)*(c + d*x)^(2/3))/(27*
b*d^4) + ((a^2*d^2*f^2 - a*b*d*f*(9*d*e - 7*c*f) - b^2*(27*d^2*e^
```

```
2 - 63*c*d*e*f + 35*c^2*f^2))*(a + b*x)^(4/3)*(c + d*x)^(2/3))/(9
*b*d^3*(b*c - a*d)) + (f^2*(a + b*x)^(7/3)*(c + d*x)^(2/3))/(3*b*
d^2) - (4*(b*c - a*d)*(a^2*d^2*f^2 - a*b*d*f*(9*d*e - 7*c*f) - b^
2*(27*d^2*e^2 - 63*c*d*e*f + 35*c^2*f^2))*ArcTan[1/Sqrt[3] + (2*b
^(1/3)*(c + d*x)^(1/3))/(Sqrt[3]*d^(1/3)*(a + b*x)^(1/3))])/(27*S
qrt[3]*b^(5/3)*d^(13/3)) - (2*(b*c - a*d)*(a^2*d^2*f^2 - a*b*d*f*
(9*d*e - 7*c*f) - b^2*(27*d^2*e^2 - 63*c*d*e*f + 35*c^2*f^2))*Log
[a + b*x])/(81*b^(5/3)*d^(13/3)) - (2*(b*c - a*d)*(a^2*d^2*f^2 -
a*b*d*f*(9*d*e - 7*c*f) - b^2*(27*d^2*e^2 - 63*c*d*e*f + 35*c^2*f
^2))*Log[-1 + (b^(1/3)*(c + d*x)^(1/3))/(d^(1/3)*(a + b*x)^(1/3))
])/(27*b^(5/3)*d^(13/3))
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(4/3)*(f*x+e)**2/(d*x+c)**(4/3),x)

[Out] Timed out
```

Mathematica [C] time = 0.916456, size = 282, normalized size = 0.5

$$\frac{\sqrt[3]{a+bx}(c+dx)^{2/3}\left(\frac{2\left(-a^2d^2f^2+abdf(9de-7cf)+b^2\left(35c^2f^2-63cdef+27d^2e^2\right)\right)\,{}_2F_1\left(\frac{2}{3},\frac{2}{3};\frac{5}{3};\frac{b(c+dx)}{bc-ad}\right)}{\sqrt[3]{\frac{d(a+bx)}{ad-bc}}}+\frac{2a^2d^2f^2(c+dx)+abd\left(-133c^2f^2+cdf(225e-37f\right.}{}\right.}{27bd^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(4/3)*(e + f*x)^2)/(c + d*x)^(4/3),x]

[Out] ((a + b*x)^(1/3)*(c + d*x)^(2/3)*((2*a^2*d^2*f^2*(c + d*x) + b^2*
(140*c^3*f^2 + 7*c^2*d*f*(-36*e + 5*f*x) + 3*c*d^2*(36*e^2 - 21*e
*f*x - 5*f^2*x^2) + 9*d^3*x*(3*e^2 + 3*e*f*x + f^2*x^2)) + a*b*d*
(-133*c^2*f^2 + c*d*f*(225*e - 37*f*x) + d^2*(-81*e^2 + 63*e*f*x
+ 15*f^2*x^2)))/(c + d*x) + (2*(-(a^2*d^2*f^2) + a*b*d*f*(9*d*e -
 7*c*f) + b^2*(27*d^2*e^2 - 63*c*d*e*f + 35*c^2*f^2))*Hypergeomet
ric2F1[2/3, 2/3, 5/3, (b*(c + d*x))/(b*c - a*d)])/((d*(a + b*x))/
(-(b*c) + a*d))^(1/3)))/(27*b*d^4)
```

Maple [F] time = 0.112, size = 0, normalized size = 0.

$$\int (fx+e)^2(bx+a)^{\frac{4}{3}}(dx+c)^{-\frac{4}{3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(4/3)*(f*x+e)^2/(d*x+c)^(4/3),x)

[Out] int((b*x+a)^(4/3)*(f*x+e)^2/(d*x+c)^(4/3),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^{\frac{4}{3}}(fx+e)^2}{(dx+c)^{\frac{4}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(4/3)*(f*x + e)^2/(d*x + c)^(4/3),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^(4/3)*(f*x + e)^2/(d*x + c)^(4/3), x)
```

Fricas [A] time = 0.317482, size = 1403, normalized size = 2.5

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(4/3)*(f*x + e)^2/(d*x + c)^(4/3),x, algorithm="fricas")
```

```
[Out] 1/243*sqrt(3)*(3*sqrt(3)*(9*b^2*d^3*f^2*x^3 + 27*(4*b^2*c*d^2 - 3
*a*b*d^3)*e^2 - 9*(28*b^2*c^2*d - 25*a*b*c*d^2)*e*f + (140*b^2*c^
3 - 133*a*b*c^2*d + 2*a^2*c*d^2)*f^2 + 3*(9*b^2*d^3*e*f - 5*(b^2*
c*d^2 - a*b*d^3)*f^2)*x^2 + (27*b^2*d^3*e^2 - 63*(b^2*c*d^2 - a*b
*d^3)*e*f + (35*b^2*c^2*d - 37*a*b*c*d^2 + 2*a^2*d^3)*f^2)*x)*(b^
2*d)^(1/3)*(b*x + a)^(1/3)*(d*x + c)^(2/3) - 2*sqrt(3)*(27*(b^3*c
^2*d^2 - a*b^2*c*d^3)*e^2 - 9*(7*b^3*c^3*d - 8*a*b^2*c^2*d^2 + a^
2*b*c*d^3)*e*f + (35*b^3*c^4 - 42*a*b^2*c^3*d + 6*a^2*b*c^2*d^2 +
 a^3*c*d^3)*f^2 + (27*(b^3*c*d^3 - a*b^2*d^4)*e^2 - 9*(7*b^3*c^2*
d^2 - 8*a*b^2*c*d^3 + a^2*b*d^4)*e*f + (35*b^3*c^3*d - 42*a*b^2*c
^2*d^2 + 6*a^2*b*c*d^3 + a^3*d^4)*f^2)*x)*log((b^2*d*x + b^2*c +
(b^2*d)^(1/3)*(b*x + a)^(1/3)*(d*x + c)^(2/3)*b + (b^2*d)^(2/3)*(
b*x + a)^(2/3)*(d*x + c)^(1/3))/(d*x + c)) + 4*sqrt(3)*(27*(b^3*c
^2*d^2 - a*b^2*c*d^3)*e^2 - 9*(7*b^3*c^3*d - 8*a*b^2*c^2*d^2 + a^
2*b*c*d^3)*e*f + (35*b^3*c^4 - 42*a*b^2*c^3*d + 6*a^2*b*c^2*d^2 +
 a^3*c*d^3)*f^2 + (27*(b^3*c*d^3 - a*b^2*d^4)*e^2 - 9*(7*b^3*c^2*
d^2 - 8*a*b^2*c*d^3 + a^2*b*d^4)*e*f + (35*b^3*c^3*d - 42*a*b^2*c
^2*d^2 + 6*a^2*b*c*d^3 + a^3*d^4)*f^2)*x)*log(-(b*d*x + b*c - (b^
2*d)^(1/3)*(b*x + a)^(1/3)*(d*x + c)^(2/3))/(d*x + c)) - 12*(27*(
b^3*c^2*d^2 - a*b^2*c*d^3)*e^2 - 9*(7*b^3*c^3*d - 8*a*b^2*c^2*d^2
 + a^2*b*c*d^3)*e*f + (35*b^3*c^4 - 42*a*b^2*c^3*d + 6*a^2*b*c^2*
d^2 + a^3*c*d^3)*f^2 + (27*(b^3*c*d^3 - a*b^2*d^4)*e^2 - 9*(7*b^3
*c^2*d^2 - 8*a*b^2*c*d^3 + a^2*b*d^4)*e*f + (35*b^3*c^3*d - 42*a*
b^2*c^2*d^2 + 6*a^2*b*c*d^3 + a^3*d^4)*f^2)*x)*arctan(1/3*(2*sqrt
(3)*(b^2*d)^(1/3)*(b*x + a)^(1/3)*(d*x + c)^(2/3) + sqrt(3)*(b*d*
x + b*c))/(b*d*x + b*c)))/((b*d^5*x + b*c*d^4)*(b^2*d)^(1/3))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a + bx)^{\frac{4}{3}} (e + fx)^2}{(c + dx)^{\frac{4}{3}}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**(4/3)*(f*x+e)**2/(d*x+c)**(4/3),x)
```

```
[Out] Integral((a + b*x)**(4/3)*(e + f*x)**2/(c + d*x)**(4/3), x)
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(4/3)*(f*x + e)^2/(d*x + c)^(4/3),x, algorithm="giac")
```

```
[Out] Exception raised: NotImplementedError
```

3.3021 $\int \frac{(a+bx)^{4/3}(e+fx)}{(c+dx)^{4/3}}\,dx$

Optimal. Leaf size=328

$$\frac{(bc-ad)\log(a+bx)(adf-7bcf+6bde)}{9b^{2/3}d^{10/3}}+\frac{(bc-ad)(adf-7bcf+6bde)\log\left(\frac{\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt[3]{d}\sqrt[3]{a+bx}}-1\right)}{3b^{2/3}d^{10/3}}+\frac{2(bc-ad)(adf-7bcf+6bde)\tan^{-1}\left(\frac{2\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt{3}\sqrt[3]{d}\sqrt[3]{a+bx}}+\frac{1}{\sqrt{3}}\right)}{3\sqrt{3}b^{2/3}d^{10/3}}+\frac{2\sqrt[3]{a+bx}(c+dx)^{2/3}(adf-7bcf+6bde)}{3d^3}-\frac{(a+bx)^{4/3}(c+dx)^{2/3}(adf-7bcf+6bde)}{2d^2(bc-ad)}+\frac{3(a+bx)^{7/3}(de-cf)}{d\sqrt[3]{c+dx}(bc-ad)}$$

```
[Out] (3*(d*e - c*f)*(a + b*x)^(7/3))/(d*(b*c - a*d)*(c + d*x)^(1/3)) +
 (2*(6*b*d*e - 7*b*c*f + a*d*f)*(a + b*x)^(1/3)*(c + d*x)^(2/3))/
(3*d^3) - ((6*b*d*e - 7*b*c*f + a*d*f)*(a + b*x)^(4/3)*(c + d*x)^
(2/3))/(2*d^2*(b*c - a*d)) + (2*(b*c - a*d)*(6*b*d*e - 7*b*c*f +
a*d*f)*ArcTan[1/Sqrt[3] + (2*b^(1/3)*(c + d*x)^(1/3))/(Sqrt[3]*d^
(1/3)*(a + b*x)^(1/3))])/(3*Sqrt[3]*b^(2/3)*d^(10/3)) + ((b*c - a
*d)*(6*b*d*e - 7*b*c*f + a*d*f)*Log[a + b*x])/(9*b^(2/3)*d^(10/3)
) + ((b*c - a*d)*(6*b*d*e - 7*b*c*f + a*d*f)*Log[-1 + (b^(1/3)*(c
 + d*x)^(1/3))/(d^(1/3)*(a + b*x)^(1/3))])/(3*b^(2/3)*d^(10/3))
```

Rubi [A] time = 0.670102, antiderivative size = 328, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$\frac{(bc-ad)\log(a+bx)(adf-7bcf+6bde)}{9b^{2/3}d^{10/3}}+\frac{(bc-ad)(adf-7bcf+6bde)\log\left(\frac{\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt[3]{d}\sqrt[3]{a+bx}}-1\right)}{3b^{2/3}d^{10/3}}+\frac{2(bc-ad)(adf-7bcf+6bde)\tan^{-1}\left(\frac{2\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt{3}\sqrt[3]{d}\sqrt[3]{a+bx}}+\frac{1}{\sqrt{3}}\right)}{3\sqrt{3}b^{2/3}d^{10/3}}+\frac{2\sqrt[3]{a+bx}(c+dx)^{2/3}(adf-7bcf+6bde)}{3d^3}-\frac{(a+bx)^{4/3}(c+dx)^{2/3}(adf-7bcf+6bde)}{2d^2(bc-ad)}+\frac{3(a+bx)^{7/3}(de-cf)}{d\sqrt[3]{c+dx}(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(4/3)*(e + f*x))/(c + d*x)^(4/3),x]
```


```
[Out] (3*(d*e - c*f)*(a + b*x)^(7/3))/(d*(b*c - a*d)*(c + d*x)^(1/3)) +
 (2*(6*b*d*e - 7*b*c*f + a*d*f)*(a + b*x)^(1/3)*(c + d*x)^(2/3))/
(3*d^3) - ((6*b*d*e - 7*b*c*f + a*d*f)*(a + b*x)^(4/3)*(c + d*x)^
(2/3))/(2*d^2*(b*c - a*d)) + (2*(b*c - a*d)*(6*b*d*e - 7*b*c*f +
a*d*f)*ArcTan[1/Sqrt[3] + (2*b^(1/3)*(c + d*x)^(1/3))/(Sqrt[3]*d^
(1/3)*(a + b*x)^(1/3))])/(3*Sqrt[3]*b^(2/3)*d^(10/3)) + ((b*c - a
*d)*(6*b*d*e - 7*b*c*f + a*d*f)*Log[a + b*x])/(9*b^(2/3)*d^(10/3)
) + ((b*c - a*d)*(6*b*d*e - 7*b*c*f + a*d*f)*Log[-1 + (b^(1/3)*(c
 + d*x)^(1/3))/(d^(1/3)*(a + b*x)^(1/3))])/(3*b^(2/3)*d^(10/3))
```

Rubi in Sympy [A] time = 50.5985, size = 323, normalized size = 0.98

$$\frac{3(a+bx)^{\frac{7}{3}}(cf-de)}{d\sqrt[3]{c+dx}\,(ad-bc)}+\frac{(a+bx)^{\frac{4}{3}}(c+dx)^{\frac{2}{3}}(adf-7bcf+6bde)}{2d^2(ad-bc)}+\frac{2\sqrt[3]{a+bx}\,(c+dx)^{\frac{2}{3}}(adf-7bcf+6bde)}{3d^3}-\frac{(ad-bc)(adf-7bcf+6bde)\log(a+bx)}{9b^{\frac{2}{3}}d^{\frac{10}{3}}}-\frac{(ad-bc)(adf-7bcf+6bde)\log\left(\frac{\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt[3]{d}\sqrt[3]{a+bx}}-1\right)}{3b^{\frac{2}{3}}d^{\frac{10}{3}}}-\frac{2\sqrt{3}(ad-bc)(adf-7bcf+6bde)\,\mathrm{atan}\left(\frac{2\sqrt{3}\sqrt[3]{b}\sqrt[3]{c+dx}}{3\sqrt[3]{d}\sqrt[3]{a+bx}}+\frac{\sqrt{3}}{3}\right)}{9b^{\frac{2}{3}}d^{\frac{10}{3}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(4/3)*(f*x+e)/(d*x+c)**(4/3),x)
```

```
[Out] 3*(a + b*x)**(7/3)*(c*f - d*e)/(d*(c + d*x)**(1/3)*(a*d - b*c)) +
 (a + b*x)**(4/3)*(c + d*x)**(2/3)*(a*d*f - 7*b*c*f + 6*b*d*e)/(2
*d**2*(a*d - b*c)) + 2*(a + b*x)**(1/3)*(c + d*x)**(2/3)*(a*d*f -
 7*b*c*f + 6*b*d*e)/(3*d**3) - (a*d - b*c)*(a*d*f - 7*b*c*f + 6*b
*d*e)*log(a + b*x)/(9*b**(2/3)*d**(10/3)) - (a*d - b*c)*(a*d*f -
7*b*c*f + 6*b*d*e)*log(b**(1/3)*(c + d*x)**(1/3)/(d**(1/3)*(a + b
*x)**(1/3)) - 1)/(3*b**(2/3)*d**(10/3)) - 2*sqrt(3)*(a*d - b*c)*(
a*d*f - 7*b*c*f + 6*b*d*e)*atan(2*sqrt(3)*b**(1/3)*(c + d*x)**(1/
3)/(3*d**(1/3)*(a + b*x)**(1/3)) + sqrt(3)/3)/(9*b**(2/3)*d**(10/
3))
```

Mathematica [C] time = 0.463672, size = 137, normalized size = 0.42

$$\frac{\sqrt[3]{a+bx}(c+dx)^{2/3}\left(\frac{2(adf-7bcf+6bde)\,{}_2F_1\left(\frac{2}{3},\frac{2}{3};\frac{5}{3};\frac{b(c+dx)}{bc-ad}\right)}{\sqrt[3]{\frac{d(a+bx)}{ad-bc}}}-\frac{18(bc-ad)(cf-de)}{c+dx}+7adf-10bcf+6bde+3bdfx\right)}{6d^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^(4/3)*(e + f*x))/(c + d*x)^(4/3),x]
```

```
[Out] ((a + b*x)^(1/3)*(c + d*x)^(2/3)*(6*b*d*e - 10*b*c*f + 7*a*d*f +
3*b*d*f*x - (18*(b*c - a*d)*(-(d*e) + c*f))/(c + d*x) + (2*(6*b*d
*e - 7*b*c*f + a*d*f)*Hypergeometric2F1[2/3, 2/3, 5/3, (b*(c + d*
x))/(b*c - a*d)])/((d*(a + b*x))/(-(b*c) + a*d))^(1/3)))/(6*d^3)
```

Maple [F] time = 0.091, size = 0, normalized size = 0.

$$\int (fx+e)(bx+a)^{\frac{4}{3}}(dx+c)^{-\frac{4}{3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(4/3)*(f*x+e)/(d*x+c)^(4/3),x)
```

```
[Out] int((b*x+a)^(4/3)*(f*x+e)/(d*x+c)^(4/3),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^{\frac{4}{3}}(fx+e)}{(dx+c)^{\frac{4}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(4/3)*(f*x + e)/(d*x + c)^(4/3),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^(4/3)*(f*x + e)/(d*x + c)^(4/3), x)
```

Fricas [A] time = 0.253114, size = 798, normalized size = 2.43

$$\sqrt{3}\Big(3\sqrt{3}\big(3\,bd^2fx^2+6\left(4\,bcd-3\,ad^2\right)e-\left(28\,bc^2-25\,acd\right)f+\left(6\,bd^2e-7\left(bcd-ad^2\right)f\right)x\big)\left(-b^2d\right)^{\frac{1}{3}}(bx+a)^{\frac{1}{3}}(dx+c)^{\frac{2}{3}}+$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(4/3)*(f*x + e)/(d*x + c)^(4/3),x, algorithm="fricas")
```

```
[Out] 1/54*sqrt(3)*(3*sqrt(3)*(3*b*d^2*f*x^2 + 6*(4*b*c*d - 3*a*d^2)*e
- (28*b*c^2 - 25*a*c*d)*f + (6*b*d^2*e - 7*(b*c*d - a*d^2)*f)*x)*
(-b^2*d)^(1/3)*(b*x + a)^(1/3)*(d*x + c)^(2/3) + 2*sqrt(3)*(6*(b^
2*c^2*d - a*b*c*d^2)*e - (7*b^2*c^3 - 8*a*b*c^2*d + a^2*c*d^2)*f
+ (6*(b^2*c*d^2 - a*b*d^3)*e - (7*b^2*c^2*d - 8*a*b*c*d^2 + a^2*d
^3)*f)*x)*log((b^2*d*x + b^2*c - (-b^2*d)^(1/3)*(b*x + a)^(1/3)*(
d*x + c)^(2/3)*b + (-b^2*d)^(2/3)*(b*x + a)^(2/3)*(d*x + c)^(1/3)
)/(d*x + c)) - 4*sqrt(3)*(6*(b^2*c^2*d - a*b*c*d^2)*e - (7*b^2*c^
3 - 8*a*b*c^2*d + a^2*c*d^2)*f + (6*(b^2*c*d^2 - a*b*d^3)*e - (7*
b^2*c^2*d - 8*a*b*c*d^2 + a^2*d^3)*f)*x)*log((b*d*x + b*c + (-b^2
*d)^(1/3)*(b*x + a)^(1/3)*(d*x + c)^(2/3))/(d*x + c)) - 12*(6*(b^
2*c^2*d - a*b*c*d^2)*e - (7*b^2*c^3 - 8*a*b*c^2*d + a^2*c*d^2)*f
+ (6*(b^2*c*d^2 - a*b*d^3)*e - (7*b^2*c^2*d - 8*a*b*c*d^2 + a^2*d
^3)*f)*x)*arctan(1/3*(2*sqrt(3)*(-b^2*d)^(1/3)*(b*x + a)^(1/3)*(d
*x + c)^(2/3) - sqrt(3)*(b*d*x + b*c))/(b*d*x + b*c)))/((d^4*x +
c*d^3)*(-b^2*d)^(1/3))
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a+bx)^{\frac{4}{3}}(e+fx)}{(c+dx)^{\frac{4}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(4/3)*(f*x+e)/(d*x+c)**(4/3),x)
```

```
[Out] Integral((a + b*x)**(4/3)*(e + f*x)/(c + d*x)**(4/3), x)
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(4/3)*(f*x + e)/(d*x + c)^(4/3),x, algorithm="giac")
```

```
[Out] Exception raised: NotImplementedError
```

3.3022 $\int \frac{(a+bx)^{4/3}}{(c+dx)^{4/3}}\,dx$

Optimal. Leaf size=195

$$\frac{2\sqrt[3]{b}(bc-ad)\log(a+bx)}{3d^{7/3}}+\frac{2\sqrt[3]{b}(bc-ad)\log\left(\frac{\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt[3]{d}\sqrt[3]{a+bx}}-1\right)}{d^{7/3}}+\frac{4\sqrt[3]{b}(bc-ad)\tan^{-1}\left(\frac{2\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt{3}\sqrt[3]{d}\sqrt[3]{a+bx}}+\frac{1}{\sqrt{3}}\right)}{\sqrt{3}d^{7/3}}+\frac{4b\sqrt[3]{a+bx}(c+dx)^{2/3}}{d^2}-\frac{3(a+bx)^{4/3}}{d\sqrt[3]{c+dx}}$$

```
[Out] (-3*(a + b*x)^(4/3))/(d*(c + d*x)^(1/3)) + (4*b*(a + b*x)^(1/3)*(
c + d*x)^(2/3))/d^2 + (4*b^(1/3)*(b*c - a*d)*ArcTan[1/Sqrt[3] + (
2*b^(1/3)*(c + d*x)^(1/3))/(Sqrt[3]*d^(1/3)*(a + b*x)^(1/3))])/(S
qrt[3]*d^(7/3)) + (2*b^(1/3)*(b*c - a*d)*Log[a + b*x])/(3*d^(7/3)
) + (2*b^(1/3)*(b*c - a*d)*Log[-1 + (b^(1/3)*(c + d*x)^(1/3))/(d^
(1/3)*(a + b*x)^(1/3))])/d^(7/3)
```

Rubi [A] time = 0.225016, antiderivative size = 195, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.158

$$\frac{2\sqrt[3]{b}(bc-ad)\log(a+bx)}{3d^{7/3}}+\frac{2\sqrt[3]{b}(bc-ad)\log\left(\frac{\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt[3]{d}\sqrt[3]{a+bx}}-1\right)}{d^{7/3}}+\frac{4\sqrt[3]{b}(bc-ad)\tan^{-1}\left(\frac{2\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt{3}\sqrt[3]{d}\sqrt[3]{a+bx}}+\frac{1}{\sqrt{3}}\right)}{\sqrt{3}d^{7/3}}+\frac{4b\sqrt[3]{a+bx}(c+dx)^{2/3}}{d^2}-\frac{3(a+bx)^{4/3}}{d\sqrt[3]{c+dx}}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(4/3)/(c + d*x)^(4/3),x]
```

```
[Out] (-3*(a + b*x)^(4/3))/(d*(c + d*x)^(1/3)) + (4*b*(a + b*x)^(1/3)*(
c + d*x)^(2/3))/d^2 + (4*b^(1/3)*(b*c - a*d)*ArcTan[1/Sqrt[3] + (
2*b^(1/3)*(c + d*x)^(1/3))/(Sqrt[3]*d^(1/3)*(a + b*x)^(1/3))])/(S
qrt[3]*d^(7/3)) + (2*b^(1/3)*(b*c - a*d)*Log[a + b*x])/(3*d^(7/3)
) + (2*b^(1/3)*(b*c - a*d)*Log[-1 + (b^(1/3)*(c + d*x)^(1/3))/(d^
(1/3)*(a + b*x)^(1/3))])/d^(7/3)
```

Rubi in Sympy [A] time = 19.6301, size = 189, normalized size = 0.97

$$-\frac{2\sqrt[3]{b}\,(ad-bc)\log\,(a+bx)}{3d^{\frac{7}{3}}}-\frac{2\sqrt[3]{b}\,(ad-bc)\log\left(\frac{\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt[3]{d}\sqrt[3]{a+bx}}-1\right)}{d^{\frac{7}{3}}}-\frac{4\sqrt{3}\sqrt[3]{b}\,(ad-bc)\,\mathrm{atan}\left(\frac{2\sqrt{3}\sqrt[3]{b}\sqrt[3]{c+dx}}{3\sqrt[3]{d}\sqrt[3]{a+bx}}+\frac{\sqrt{3}}{3}\right)}{3d^{\frac{7}{3}}}+\frac{4b\sqrt[3]{a+bx}\,(c+dx)^{\frac{2}{3}}}{d^2}-\frac{3\,(a+bx)^{\frac{4}{3}}}{d\sqrt[3]{c+dx}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(4/3)/(d*x+c)**(4/3),x)
```

```
[Out] -2*b**(1/3)*(a*d - b*c)*log(a + b*x)/(3*d**(7/3)) - 2*b**(1/3)*(a
*d - b*c)*log(b**(1/3)*(c + d*x)**(1/3)/(d**(1/3)*(a + b*x)**(1/3
)) - 1)/d**(7/3) - 4*sqrt(3)*b**(1/3)*(a*d - b*c)*atan(2*sqrt(3)*
b**(1/3)*(c + d*x)**(1/3)/(3*d**(1/3)*(a + b*x)**(1/3)) + sqrt(3)
/3)/(3*d**(7/3)) + 4*b*(a + b*x)**(1/3)*(c + d*x)**(2/3)/d**2 - 3
*(a + b*x)**(4/3)/(d*(c + d*x)**(1/3))
```

Mathematica [C] time = 0.361199, size = 95, normalized size = 0.49

$$\frac{\sqrt[3]{a+bx}(c+dx)^{2/3}\left(\frac{2b\,{}_2F_1\left(\frac{2}{3},\frac{2}{3};\frac{5}{3};\frac{b(c+dx)}{bc-ad}\right)}{\sqrt[3]{\frac{d(a+bx)}{ad-bc}}}+\frac{-3ad+4bc+bdx}{c+dx}\right)}{d^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(4/3)/(c + d*x)^(4/3),x]
```

```
[Out] ((a + b*x)^(1/3)*(c + d*x)^(2/3)*((4*b*c - 3*a*d + b*d*x)/(c + d*
x) + (2*b*Hypergeometric2F1[2/3, 2/3, 5/3, (b*(c + d*x))/(b*c - a
*d)])/((d*(a + b*x))/(-(b*c) + a*d))^(1/3)))/d^2
```

Maple [F] time = 0., size = 0, normalized size = 0.

$$\int 1\,(bx+a)^{\frac{4}{3}}\,(dx+c)^{-\frac{4}{3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(4/3)/(d*x+c)^(4/3),x)
```

```
[Out] int((b*x+a)^(4/3)/(d*x+c)^(4/3),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^{\frac{4}{3}}}{(dx+c)^{\frac{4}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(4/3)/(d*x + c)^(4/3),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^(4/3)/(d*x + c)^(4/3), x)
```

Fricas [A] time = 0.242802, size = 427, normalized size = 2.19

$$\sqrt{3}\left(2\sqrt{3}\left(bc^2-acd+\left(bcd-ad^2\right)x\right)\left(-\frac{b}{d}\right)^{\frac{1}{3}}\log\left(\frac{(dx+c)\left(-\frac{b}{d}\right)^{\frac{2}{3}}-(bx+a)^{\frac{1}{3}}(dx+c)^{\frac{2}{3}}\left(-\frac{b}{d}\right)^{\frac{1}{3}}+(bx+a)^{\frac{2}{3}}(dx+c)^{\frac{1}{3}}}{dx+c}\right)-4\sqrt{3}\left(bc^2-acd+\left(bc\right.\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(4/3)/(d*x + c)^(4/3),x, algorithm="fricas")
```

```
[Out] 1/9*sqrt(3)*(2*sqrt(3)*(b*c^2 - a*c*d + (b*c*d - a*d^2)*x)*(-b/d)
^(1/3)*log(((d*x + c)*(-b/d)^(2/3) - (b*x + a)^(1/3)*(d*x + c)^(2
/3)*(-b/d)^(1/3) + (b*x + a)^(2/3)*(d*x + c)^(1/3))/(d*x + c)) -
4*sqrt(3)*(b*c^2 - a*c*d + (b*c*d - a*d^2)*x)*(-b/d)^(1/3)*log(((
d*x + c)*(-b/d)^(1/3) + (b*x + a)^(1/3)*(d*x + c)^(2/3))/(d*x + c
)) + 3*sqrt(3)*(b*d*x + 4*b*c - 3*a*d)*(b*x + a)^(1/3)*(d*x + c)^
```

```
(2/3) - 12*(b*c^2 - a*c*d + (b*c*d - a*d^2)*x)*(-b/d)^(1/3)*arcta
n(-1/3*(sqrt(3)*(d*x + c)*(-b/d)^(1/3) - 2*sqrt(3)*(b*x + a)^(1/3
)*(d*x + c)^(2/3))/((d*x + c)*(-b/d)^(1/3))))/(d^3*x + c*d^2)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a+bx)^{\frac{4}{3}}}{(c+dx)^{\frac{4}{3}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(4/3)/(d*x+c)**(4/3),x)
```

```
[Out] Integral((a + b*x)**(4/3)/(c + d*x)**(4/3), x)
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(4/3)/(d*x + c)^(4/3),x, algorithm="giac")
```

```
[Out] Exception raised: NotImplementedError
```

3.3023 $\int \frac{(a+bx)^{4/3}}{(c+dx)^{4/3}(e+fx)}\,dx$

Optimal. Leaf size=380

$$-\frac{3b^{4/3}\log\left(\frac{\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt[3]{d}\sqrt[3]{a+bx}}-1\right)}{2d^{4/3}f}-\frac{\sqrt{3}b^{4/3}\tan^{-1}\left(\frac{2\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt{3}\sqrt[3]{d}\sqrt[3]{a+bx}}+\frac{1}{\sqrt{3}}\right)}{d^{4/3}f}-\frac{b^{4/3}\log(a+bx)}{2d^{4/3}f}+\frac{3\sqrt[3]{a+bx}(bc-ad)}{d\sqrt[3]{c+dx}(de-cf)}-\frac{(be-af)^{4/3}\log(e+fx)}{2f(de-cf)^{4/3}}+\frac{3(be-af)^{4/3}\log\left(\frac{\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt[3]{de-cf}}-\sqrt[3]{a+bx}\right)}{2f(de-cf)^{4/3}}+\frac{\sqrt{3}(be-af)^{4/3}\tan^{-1}\left(\frac{2\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt{3}\sqrt[3]{a+bx}\sqrt[3]{de-cf}}+\frac{1}{\sqrt{3}}\right)}{f(de-cf)^{4/3}}$$

```
[Out] (3*(b*c - a*d)*(a + b*x)^(1/3))/(d*(d*e - c*f)*(c + d*x)^(1/3)) -
 (Sqrt[3]*b^(4/3)*ArcTan[1/Sqrt[3] + (2*b^(1/3)*(c + d*x)^(1/3))/
(Sqrt[3]*d^(1/3)*(a + b*x)^(1/3))])/(d^(4/3)*f) + (Sqrt[3]*(b*e -
 a*f)^(4/3)*ArcTan[1/Sqrt[3] + (2*(b*e - a*f)^(1/3)*(c + d*x)^(1/
3))/(Sqrt[3]*(d*e - c*f)^(1/3)*(a + b*x)^(1/3))])/(f*(d*e - c*f)^
(4/3)) - (b^(4/3)*Log[a + b*x])/(2*d^(4/3)*f) - ((b*e - a*f)^(4/3
)*Log[e + f*x])/(2*f*(d*e - c*f)^(4/3)) + (3*(b*e - a*f)^(4/3)*Lo
g[-(a + b*x)^(1/3) + ((b*e - a*f)^(1/3)*(c + d*x)^(1/3))/(d*e - c
*f)^(1/3)])/(2*f*(d*e - c*f)^(4/3)) - (3*b^(4/3)*Log[-1 + (b^(1/3
)*(c + d*x)^(1/3))/(d^(1/3)*(a + b*x)^(1/3))])/(2*d^(4/3)*f)
```

Rubi [A] time = 1.08057, antiderivative size = 380, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.154$

$$-\frac{3b^{4/3}\log\left(\frac{\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt[3]{d}\sqrt[3]{a+bx}}-1\right)}{2d^{4/3}f}-\frac{\sqrt{3}b^{4/3}\tan^{-1}\left(\frac{2\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt{3}\sqrt[3]{d}\sqrt[3]{a+bx}}+\frac{1}{\sqrt{3}}\right)}{d^{4/3}f}-\frac{b^{4/3}\log(a+bx)}{2d^{4/3}f}+\frac{3\sqrt[3]{a+bx}(bc-ad)}{d\sqrt[3]{c+dx}(de-cf)}-\frac{(be-af)^{4/3}\log(e+fx)}{2f(de-cf)^{4/3}}+\frac{3(be-af)^{4/3}\log\left(\frac{\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt[3]{de-cf}}-\sqrt[3]{a+bx}\right)}{2f(de-cf)^{4/3}}+\frac{\sqrt{3}(be-af)^{4/3}\tan^{-1}\left(\frac{2\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt{3}\sqrt[3]{a+bx}\sqrt[3]{de-cf}}+\frac{1}{\sqrt{3}}\right)}{f(de-cf)^{4/3}}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(4/3)/((c + d*x)^(4/3)*(e + f*x)),x]
```


```
[Out] (3*(b*c - a*d)*(a + b*x)^(1/3))/(d*(d*e - c*f)*(c + d*x)^(1/3)) -
 (Sqrt[3]*b^(4/3)*ArcTan[1/Sqrt[3] + (2*b^(1/3)*(c + d*x)^(1/3))/
(Sqrt[3]*d^(1/3)*(a + b*x)^(1/3))])/(d^(4/3)*f) + (Sqrt[3]*(b*e -
 a*f)^(4/3)*ArcTan[1/Sqrt[3] + (2*(b*e - a*f)^(1/3)*(c + d*x)^(1/
3))/(Sqrt[3]*(d*e - c*f)^(1/3)*(a + b*x)^(1/3))])/(f*(d*e - c*f)^
(4/3)) - (b^(4/3)*Log[a + b*x])/(2*d^(4/3)*f) - ((b*e - a*f)^(4/3
)*Log[e + f*x])/(2*f*(d*e - c*f)^(4/3)) + (3*(b*e - a*f)^(4/3)*Lo
g[-(a + b*x)^(1/3) + ((b*e - a*f)^(1/3)*(c + d*x)^(1/3))/(d*e - c
*f)^(1/3)])/(2*f*(d*e - c*f)^(4/3)) - (3*b^(4/3)*Log[-1 + (b^(1/3
)*(c + d*x)^(1/3))/(d^(1/3)*(a + b*x)^(1/3))])/(2*d^(4/3)*f)
```

Rubi in Sympy [A] time = 100.821, size = 337, normalized size = 0.89

$$-\frac{b^{\frac{4}{3}}\log(a+bx)}{2d^{\frac{4}{3}}f}-\frac{3b^{\frac{4}{3}}\log\left(\frac{\sqrt[3]{b}\sqrt[3]{c+dx}}{\sqrt[3]{d}\sqrt[3]{a+bx}}-1\right)}{2d^{\frac{4}{3}}f}-\frac{\sqrt{3}b^{\frac{4}{3}}\operatorname{atan}\left(\frac{2\sqrt{3}\sqrt[3]{b}\sqrt[3]{c+dx}}{3\sqrt[3]{d}\sqrt[3]{a+bx}}+\frac{\sqrt{3}}{3}\right)}{d^{\frac{4}{3}}f}$$
$$-\frac{(af-be)^{\frac{4}{3}}\log(e+fx)}{2f(cf-de)^{\frac{4}{3}}}+\frac{3(af-be)^{\frac{4}{3}}\log\left(-\sqrt[3]{a+bx}+\frac{\sqrt[3]{c+dx}\sqrt[3]{af-be}}{\sqrt[3]{cf-de}}\right)}{2f(cf-de)^{\frac{4}{3}}}$$
$$+\frac{\sqrt{3}(af-be)^{\frac{4}{3}}\operatorname{atan}\left(\frac{\sqrt{3}}{3}+\frac{2\sqrt{3}\sqrt[3]{c+dx}\sqrt[3]{af-be}}{3\sqrt[3]{a+bx}\sqrt[3]{cf-de}}\right)}{f(cf-de)^{\frac{4}{3}}}+\frac{3\sqrt[3]{a+bx}(ad-bc)}{d\sqrt[3]{c+dx}(cf-de)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(4/3)/(d*x+c)**(4/3)/(f*x+e),x)
```

```
[Out] -b**(4/3)*log(a + b*x)/(2*d**(4/3)*f) - 3*b**(4/3)*log(b**(1/3)*(
c + d*x)**(1/3)/(d**(1/3)*(a + b*x)**(1/3)) - 1)/(2*d**(4/3)*f) -
 sqrt(3)*b**(4/3)*atan(2*sqrt(3)*b**(1/3)*(c + d*x)**(1/3)/(3*d**
(1/3)*(a + b*x)**(1/3)) + sqrt(3)/3)/(d**(4/3)*f) - (a*f - b*e)**
(4/3)*log(e + f*x)/(2*f*(c*f - d*e)**(4/3)) + 3*(a*f - b*e)**(4/3
)*log(-(a + b*x)**(1/3) + (c + d*x)**(1/3)*(a*f - b*e)**(1/3)/(c*
f - d*e)**(1/3))/(2*f*(c*f - d*e)**(4/3)) + sqrt(3)*(a*f - b*e)**
(4/3)*atan(sqrt(3)/3 + 2*sqrt(3)*(c + d*x)**(1/3)*(a*f - b*e)**(1
/3)/(3*(a + b*x)**(1/3)*(c*f - d*e)**(1/3)))/(f*(c*f - d*e)**(4/3
)) + 3*(a + b*x)**(1/3)*(a*d - b*c)/(d*(c + d*x)**(1/3)*(c*f - d*
e))
```

Mathematica [C] time = 3.42915, size = 559, normalized size = 1.47

$$\frac{3\left(-\frac{2b(c+dx)(bc-ad)\left(\frac{5f(c+dx)(adf+bcf-2bde)F_1\left(1;\frac{2}{3},1;2;\frac{bc-ad}{bc+bdx},\frac{cf-de}{f(c+dx)}\right)}{6bf(c+dx)F_1\left(1;\frac{2}{3},1;2;\frac{bc-ad}{bc+bdx},\frac{cf-de}{f(c+dx)}\right)+b(3cf-3de)F_1\left(2;\frac{2}{3},2;3;\frac{bc-ad}{bc+bdx},\frac{cf-de}{f(c+dx)}\right)+2f(bc-ad)F_1\left(2;\frac{5}{3},1;3;\frac{bc-ad}{bc+bdx},\frac{cf-de}{f(c+dx)}\right)}-\frac{8(bc-ad)(cf-de)F_1\left(\frac{5}{3}\cdots\right.}{\cdots}\right)}{d(e+fx)}\cdots\right)}{5d^2(a+bx)^{2/3}\sqrt[3]{c+dx}(d\cdots}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^(4/3)/((c + d*x)^(4/3)*(e + f*x)),x]
```

```
[Out] (3*(-5*d*(-(b*c) + a*d)*(a + b*x) - (2*b*(b*c - a*d)*(c + d*x)*((
5*f*(-2*b*d*e + b*c*f + a*d*f)*(c + d*x)*AppellF1[1, 2/3, 1, 2, (
b*c - a*d)/(b*c + b*d*x), (-(d*e) + c*f)/(f*(c + d*x))])/(6*b*f*(
c + d*x)*AppellF1[1, 2/3, 1, 2, (b*c - a*d)/(b*c + b*d*x), (-(d*e
) + c*f)/(f*(c + d*x))] + b*(-3*d*e + 3*c*f)*AppellF1[2, 2/3, 2,
3, (b*c - a*d)/(b*c + b*d*x), (-(d*e) + c*f)/(f*(c + d*x))] + 2*(
b*c - a*d)*f*AppellF1[2, 5/3, 1, 3, (b*c - a*d)/(b*c + b*d*x), (-
(d*e) + c*f)/(f*(c + d*x))]) - (4*b*(d*e - c*f)^2*AppellF1[5/3, 2
/3, 1, 8/3, (b*(c + d*x))/(b*c - a*d), (f*(c + d*x))/(-(d*e) + c*
f)])/((-8*(b*c - a*d)*(-(d*e) + c*f)*AppellF1[5/3, 2/3, 1, 8/3, (
b*(c + d*x))/(b*c - a*d), (f*(c + d*x))/(-(d*e) + c*f)])/(c + d*x
) + (-3*b*c*f + 3*a*d*f)*AppellF1[8/3, 2/3, 2, 11/3, (b*(c + d*x)
)/(b*c - a*d), (f*(c + d*x))/(-(d*e) + c*f)] + 2*b*(d*e - c*f)*Ap
pellF1[8/3, 5/3, 1, 11/3, (b*(c + d*x))/(b*c - a*d), (f*(c + d*x)
)/(-(d*e) + c*f)])))/(d*(e + f*x))))/(5*d^2*(d*e - c*f)*(a + b*x)
^(2/3)*(c + d*x)^(1/3))
```

Maple [F] time = 0.096, size = 0, normalized size = 0.

$$\int \frac{1}{fx+e} (bx+a)^{\frac{4}{3}} (dx+c)^{-\frac{4}{3}} dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(4/3)/(d*x+c)^(4/3)/(f*x+e),x)

[Out] int((b*x+a)^(4/3)/(d*x+c)^(4/3)/(f*x+e),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^{\frac{4}{3}}}{(dx+c)^{\frac{4}{3}}(fx+e)} dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(4/3)/((d*x + c)^(4/3)*(f*x + e)),x, algorithm="maxima")

[Out] integrate((b*x + a)^(4/3)/((d*x + c)^(4/3)*(f*x + e)), x)
```

Fricas [A] time = 0.502872, size = 961, normalized size = 2.53

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(4/3)/((d*x + c)^(4/3)*(f*x + e)),x, algorithm="fricas")

[Out] 1/2*(6*(b*c - a*d)*(b*x + a)^(1/3)*(d*x + c)^(2/3)*f - 2*sqrt(3)*
(b*c*d*e - a*c*d*f + (b*d^2*e - a*d^2*f)*x)*((b*e - a*f)/(d*e - c
*f))^(1/3)*arctan(1/3*sqrt(3)*((d*x + c)*((b*e - a*f)/(d*e - c*f)
)^(1/3) + 2*(b*x + a)^(1/3)*(d*x + c)^(2/3))/((d*x + c)*((b*e - a
*f)/(d*e - c*f))^(1/3))) + 2*sqrt(3)*(b*c*d*e - b*c^2*f + (b*d^2*
e - b*c*d*f)*x)*(-b/d)^(1/3)*arctan(-1/3*sqrt(3)*((d*x + c)*(-b/d
)^(1/3) - 2*(b*x + a)^(1/3)*(d*x + c)^(2/3))/((d*x + c)*(-b/d)^(1
/3))) - (b*c*d*e - a*c*d*f + (b*d^2*e - a*d^2*f)*x)*((b*e - a*f)/
(d*e - c*f))^(1/3)*log(((d*x + c)*((b*e - a*f)/(d*e - c*f))^(2/3)
 + (b*x + a)^(1/3)*(d*x + c)^(2/3)*((b*e - a*f)/(d*e - c*f))^(1/3
) + (b*x + a)^(2/3)*(d*x + c)^(1/3))/(d*x + c)) - (b*c*d*e - b*c^
2*f + (b*d^2*e - b*c*d*f)*x)*(-b/d)^(1/3)*log(((d*x + c)*(-b/d)^(
2/3) - (b*x + a)^(1/3)*(d*x + c)^(2/3)*(-b/d)^(1/3) + (b*x + a)^(
2/3)*(d*x + c)^(1/3))/(d*x + c)) + 2*(b*c*d*e - a*c*d*f + (b*d^2*
e - a*d^2*f)*x)*((b*e - a*f)/(d*e - c*f))^(1/3)*log(-((d*x + c)*(
(b*e - a*f)/(d*e - c*f))^(1/3) - (b*x + a)^(1/3)*(d*x + c)^(2/3))
/(d*x + c)) + 2*(b*c*d*e - b*c^2*f + (b*d^2*e - b*c*d*f)*x)*(-b/d
)^(1/3)*log(((d*x + c)*(-b/d)^(1/3) + (b*x + a)^(1/3)*(d*x + c)^(
2/3))/(d*x + c)))/(c*d^2*e*f - c^2*d*f^2 + (d^3*e*f - c*d^2*f^2)*
x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a+bx)^{\frac{4}{3}}}{(c+dx)^{\frac{4}{3}}(e+fx)} dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(4/3)/(d*x+c)**(4/3)/(f*x+e),x)
```

```
[Out] Integral((a + b*x)**(4/3)/((c + d*x)**(4/3)*(e + f*x)), x)
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(4/3)/((d*x + c)^(4/3)*(f*x + e)),x, algorithm="giac")
```

```
[Out] Exception raised: NotImplementedError
```

3.3024 $\int \frac{(a+bx)^{4/3}}{(c+dx)^{4/3}(e+fx)^2}\,dx$

Optimal. Leaf size=301

$$-\frac{3(a+bx)^{4/3}}{\sqrt[3]{c+dx}(e+fx)(de-cf)}+\frac{4\sqrt[3]{a+bx}(c+dx)^{2/3}(be-af)}{(e+fx)(de-cf)^2}-\frac{2(bc-ad)\sqrt[3]{be-af}\log(e+fx)}{3(de-cf)^{7/3}}+\frac{2(bc-ad)\sqrt[3]{be-af}\log\left(\frac{\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt[3]{de-cf}}-\sqrt[3]{a+bx}\right)}{(de-cf)^{7/3}}+\frac{4(bc-ad)\sqrt[3]{be-af}\tan^{-1}\left(\frac{2\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt{3}\sqrt[3]{a+bx}\sqrt[3]{de-cf}}+\frac{1}{\sqrt{3}}\right)}{\sqrt{3}(de-cf)^{7/3}}$$

```
[Out] (-3*(a + b*x)^(4/3))/((d*e - c*f)*(c + d*x)^(1/3)*(e + f*x)) + (4
*(b*e - a*f)*(a + b*x)^(1/3)*(c + d*x)^(2/3))/((d*e - c*f)^2*(e +
 f*x)) + (4*(b*c - a*d)*(b*e - a*f)^(1/3)*ArcTan[1/Sqrt[3] + (2*(
b*e - a*f)^(1/3)*(c + d*x)^(1/3))/(Sqrt[3]*(d*e - c*f)^(1/3)*(a +
 b*x)^(1/3))])/(Sqrt[3]*(d*e - c*f)^(7/3)) - (2*(b*c - a*d)*(b*e
- a*f)^(1/3)*Log[e + f*x])/(3*(d*e - c*f)^(7/3)) + (2*(b*c - a*d)
*(b*e - a*f)^(1/3)*Log[-(a + b*x)^(1/3) + ((b*e - a*f)^(1/3)*(c +
 d*x)^(1/3))/(d*e - c*f)^(1/3)])/(d*e - c*f)^(7/3)
```

Rubi [A] time = 0.547817, antiderivative size = 301, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 2, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.077

$$-\frac{3(a+bx)^{4/3}}{\sqrt[3]{c+dx}(e+fx)(de-cf)}+\frac{4\sqrt[3]{a+bx}(c+dx)^{2/3}(be-af)}{(e+fx)(de-cf)^2}-\frac{2(bc-ad)\sqrt[3]{be-af}\log(e+fx)}{3(de-cf)^{7/3}}+\frac{2(bc-ad)\sqrt[3]{be-af}\log\left(\frac{\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt[3]{de-cf}}-\sqrt[3]{a+bx}\right)}{(de-cf)^{7/3}}+\frac{4(bc-ad)\sqrt[3]{be-af}\tan^{-1}\left(\frac{2\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt{3}\sqrt[3]{a+bx}\sqrt[3]{de-cf}}+\frac{1}{\sqrt{3}}\right)}{\sqrt{3}(de-cf)^{7/3}}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(4/3)/((c + d*x)^(4/3)*(e + f*x)^2),x]
```

```
[Out] (-3*(a + b*x)^(4/3))/((d*e - c*f)*(c + d*x)^(1/3)*(e + f*x)) + (4
*(b*e - a*f)*(a + b*x)^(1/3)*(c + d*x)^(2/3))/((d*e - c*f)^2*(e +
 f*x)) + (4*(b*c - a*d)*(b*e - a*f)^(1/3)*ArcTan[1/Sqrt[3] + (2*(
b*e - a*f)^(1/3)*(c + d*x)^(1/3))/(Sqrt[3]*(d*e - c*f)^(1/3)*(a +
 b*x)^(1/3))])/(Sqrt[3]*(d*e - c*f)^(7/3)) - (2*(b*c - a*d)*(b*e
- a*f)^(1/3)*Log[e + f*x])/(3*(d*e - c*f)^(7/3)) + (2*(b*c - a*d)
*(b*e - a*f)^(1/3)*Log[-(a + b*x)^(1/3) + ((b*e - a*f)^(1/3)*(c +
 d*x)^(1/3))/(d*e - c*f)^(1/3)])/(d*e - c*f)^(7/3)
```

Rubi in Sympy [A] time = 44.57, size = 257, normalized size = 0.85

$$-\frac{(a+bx)^{\frac{4}{3}}}{\sqrt[3]{c+dx}\,(e+fx)\,(cf-de)}-\frac{4\sqrt[3]{a+bx}\,(ad-bc)}{\sqrt[3]{c+dx}\,(cf-de)^{2}}+\frac{2\,(ad-bc)\,\sqrt[3]{af-be}\log\left(e+fx\right)}{3\,(cf-de)^{\frac{7}{3}}}-\frac{2\,(ad-bc)\,\sqrt[3]{af-be}\log\left(-\sqrt[3]{a+bx}+\frac{\sqrt[3]{c+dx}\,\sqrt[3]{af-be}}{\sqrt[3]{cf-de}}\right)}{(cf-de)^{\frac{7}{3}}}-\frac{4\sqrt{3}\,(ad-bc)\,\sqrt[3]{af-be}\,\mathrm{atan}\left(\frac{\sqrt{3}}{3}+\frac{2\sqrt{3}\sqrt[3]{c+dx}\,\sqrt[3]{af-be}}{3\sqrt[3]{a+bx}\,\sqrt[3]{cf-de}}\right)}{3\,(cf-de)^{\frac{7}{3}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(4/3)/(d*x+c)**(4/3)/(f*x+e)**2,x)
```

```
[Out] -(a + b*x)**(4/3)/((c + d*x)**(1/3)*(e + f*x)*(c*f - d*e)) - 4*(a
 + b*x)**(1/3)*(a*d - b*c)/((c + d*x)**(1/3)*(c*f - d*e)**2) + 2*
(a*d - b*c)*(a*f - b*e)**(1/3)*log(e + f*x)/(3*(c*f - d*e)**(7/3)
) - 2*(a*d - b*c)*(a*f - b*e)**(1/3)*log(-(a + b*x)**(1/3) + (c +
 d*x)**(1/3)*(a*f - b*e)**(1/3)/(c*f - d*e)**(1/3))/(c*f - d*e)**
(7/3) - 4*sqrt(3)*(a*d - b*c)*(a*f - b*e)**(1/3)*atan(sqrt(3)/3 +
 2*sqrt(3)*(c + d*x)**(1/3)*(a*f - b*e)**(1/3)/(3*(a + b*x)**(1/3
)*(c*f - d*e)**(1/3)))/(3*(c*f - d*e)**(7/3))
```

Mathematica [C] time = 1.10472, size = 160, normalized size = 0.53

$$\frac{\sqrt[3]{a+bx}\left(-4(e+fx)(bc-ad)\sqrt[3]{\frac{(c+dx)(be-af)}{(e+fx)(bc-ad)}}\,{}_2F_1\left(\frac{1}{3},\frac{1}{3};\frac{4}{3};\frac{(cf-de)(a+bx)}{(bc-ad)(e+fx)}\right)-a(cf+3de+4dfx)+b(4ce+3cfx+dex)\right)}{\sqrt[3]{c+dx}(e+fx)(de-cf)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(4/3)/((c + d*x)^(4/3)*(e + f*x)^2),x]
```

```
[Out] ((a + b*x)^(1/3)*(b*(4*c*e + d*e*x + 3*c*f*x) - a*(3*d*e + c*f +
4*d*f*x) - 4*(b*c - a*d)*(((b*e - a*f)*(c + d*x))/((b*c - a*d)*(e
 + f*x)))^(1/3)*(e + f*x)*Hypergeometric2F1[1/3, 1/3, 4/3, ((-(d*
e) + c*f)*(a + b*x))/((b*c - a*d)*(e + f*x))]))/((d*e - c*f)^2*(c
 + d*x)^(1/3)*(e + f*x))
```

Maple [F] time = 0.085, size = 0, normalized size = 0.

$$\int \frac{1}{(fx+e)^{2}}(bx+a)^{\frac{4}{3}}(dx+c)^{-\frac{4}{3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(4/3)/(d*x+c)^(4/3)/(f*x+e)^2,x)
```

```
[Out] int((b*x+a)^(4/3)/(d*x+c)^(4/3)/(f*x+e)^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^{\frac{4}{3}}}{(dx+c)^{\frac{4}{3}}(fx+e)^{2}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(4/3)/((d*x + c)^(4/3)*(f*x + e)^2),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^(4/3)/((d*x + c)^(4/3)*(f*x + e)^2), x)
```

Fricas [A] time = 0.268119, size = 864, normalized size = 2.87

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(4/3)/((d*x + c)^(4/3)*(f*x + e)^2),x, algorithm="fricas")
```

```
[Out] 1/9*sqrt(3)*(2*sqrt(3)*((b*c*d - a*d^2)*f*x^2 + (b*c^2 - a*c*d)*e
 + ((b*c*d - a*d^2)*e + (b*c^2 - a*c*d)*f)*x)*(-(b*e - a*f)/(d*e
- c*f))^(1/3)*log(((d*x + c)*(-(b*e - a*f)/(d*e - c*f))^(2/3) - (
b*x + a)^(1/3)*(d*x + c)^(2/3)*(-(b*e - a*f)/(d*e - c*f))^(1/3) +
 (b*x + a)^(2/3)*(d*x + c)^(1/3))/(d*x + c)) - 4*sqrt(3)*((b*c*d
- a*d^2)*f*x^2 + (b*c^2 - a*c*d)*e + ((b*c*d - a*d^2)*e + (b*c^2
- a*c*d)*f)*x)*(-(b*e - a*f)/(d*e - c*f))^(1/3)*log(((d*x + c)*(-
(b*e - a*f)/(d*e - c*f))^(1/3) + (b*x + a)^(1/3)*(d*x + c)^(2/3))
/(d*x + c)) - 3*sqrt(3)*(a*c*f - (4*b*c - 3*a*d)*e - (b*d*e + (3*
b*c - 4*a*d)*f)*x)*(b*x + a)^(1/3)*(d*x + c)^(2/3) - 12*((b*c*d -
 a*d^2)*f*x^2 + (b*c^2 - a*c*d)*e + ((b*c*d - a*d^2)*e + (b*c^2 -
 a*c*d)*f)*x)*(-(b*e - a*f)/(d*e - c*f))^(1/3)*arctan(-1/3*(sqrt(
3)*(d*x + c)*(-(b*e - a*f)/(d*e - c*f))^(1/3) - 2*sqrt(3)*(b*x +
a)^(1/3)*(d*x + c)^(2/3))/((d*x + c)*(-(b*e - a*f)/(d*e - c*f))^(
1/3))))/(c*d^2*e^3 - 2*c^2*d*e^2*f + c^3*e*f^2 + (d^3*e^2*f - 2*c
*d^2*e*f^2 + c^2*d*f^3)*x^2 + (d^3*e^3 - c*d^2*e^2*f - c^2*d*e*f^
2 + c^3*f^3)*x)
```

Sympy [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(4/3)/(d*x+c)**(4/3)/(f*x+e)**2,x)
```

```
[Out] Exception raised: ValueError
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(4/3)/((d*x + c)^(4/3)*(f*x + e)^2),x, algorithm="giac")
```

```
[Out] Exception raised: NotImplementedError
```

3.3025 $\int \frac{(a+bx)^{4/3}}{(c+dx)^{4/3}(e+fx)^3}\,dx$

Optimal. Leaf size=434

$$\frac{3d(a+bx)^{7/3}}{\sqrt[3]{c+dx}(e+fx)^2(bc-ad)(de-cf)}-\frac{(a+bx)^{4/3}(c+dx)^{2/3}(-7adf+bcf+6bde)}{2(e+fx)^2(bc-ad)(de-cf)^2}+\frac{2\sqrt[3]{a+bx}(c+dx)^{2/3}(-7adf+bcf+6bde)}{3(e+fx)(de-cf)^3}-\frac{(bc-ad)\log(e+fx)(-7adf+bcf+6bde)}{9(be-af)^{2/3}(de-cf)^{10/3}}+\frac{(bc-ad)(-7adf+bcf+6bde)\log\left(\frac{\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt[3]{de-cf}}-\sqrt[3]{a+bx}\right)}{3(be-af)^{2/3}(de-cf)^{10/3}}+\frac{2(bc-ad)(-7adf+bcf+6bde)\tan^{-1}\left(\frac{2\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt{3}\sqrt[3]{a+bx}\sqrt[3]{de-cf}}+\frac{1}{\sqrt{3}}\right)}{3\sqrt{3}(be-af)^{2/3}(de-cf)^{10/3}}$$

```
[Out] (3*d*(a + b*x)^(7/3))/((b*c - a*d)*(d*e - c*f)*(c + d*x)^(1/3)*(e
 + f*x)^2) - ((6*b*d*e + b*c*f - 7*a*d*f)*(a + b*x)^(4/3)*(c + d*
x)^(2/3))/(2*(b*c - a*d)*(d*e - c*f)^2*(e + f*x)^2) + (2*(6*b*d*e
 + b*c*f - 7*a*d*f)*(a + b*x)^(1/3)*(c + d*x)^(2/3))/(3*(d*e - c*
f)^3*(e + f*x)) + (2*(b*c - a*d)*(6*b*d*e + b*c*f - 7*a*d*f)*ArcT
an[1/Sqrt[3] + (2*(b*e - a*f)^(1/3)*(c + d*x)^(1/3))/(Sqrt[3]*(d*
e - c*f)^(1/3)*(a + b*x)^(1/3))])/(3*Sqrt[3]*(b*e - a*f)^(2/3)*(d
*e - c*f)^(10/3)) - ((b*c - a*d)*(6*b*d*e + b*c*f - 7*a*d*f)*Log[
e + f*x])/(9*(b*e - a*f)^(2/3)*(d*e - c*f)^(10/3)) + ((b*c - a*d)
*(6*b*d*e + b*c*f - 7*a*d*f)*Log[-(a + b*x)^(1/3) + ((b*e - a*f)^
(1/3)*(c + d*x)^(1/3))/(d*e - c*f)^(1/3)])/(3*(b*e - a*f)^(2/3)*(
d*e - c*f)^(10/3))
```

Rubi [A] time = 0.912767, antiderivative size = 434, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.115$

$$\frac{3d(a+bx)^{7/3}}{\sqrt[3]{c+dx}(e+fx)^2(bc-ad)(de-cf)}-\frac{(a+bx)^{4/3}(c+dx)^{2/3}(-7adf+bcf+6bde)}{2(e+fx)^2(bc-ad)(de-cf)^2}+\frac{2\sqrt[3]{a+bx}(c+dx)^{2/3}(-7adf+bcf+6bde)}{3(e+fx)(de-cf)^3}-\frac{(bc-ad)\log(e+fx)(-7adf+bcf+6bde)}{9(be-af)^{2/3}(de-cf)^{10/3}}+\frac{(bc-ad)(-7adf+bcf+6bde)\log\left(\frac{\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt[3]{de-cf}}-\sqrt[3]{a+bx}\right)}{3(be-af)^{2/3}(de-cf)^{10/3}}+\frac{2(bc-ad)(-7adf+bcf+6bde)\tan^{-1}\left(\frac{2\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt{3}\sqrt[3]{a+bx}\sqrt[3]{de-cf}}+\frac{1}{\sqrt{3}}\right)}{3\sqrt{3}(be-af)^{2/3}(de-cf)^{10/3}}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(4/3)/((c + d*x)^(4/3)*(e + f*x)^3),x]
```

```
[Out] (3*d*(a + b*x)^(7/3))/((b*c - a*d)*(d*e - c*f)*(c + d*x)^(1/3)*(e
 + f*x)^2) - ((6*b*d*e + b*c*f - 7*a*d*f)*(a + b*x)^(4/3)*(c + d*
x)^(2/3))/(2*(b*c - a*d)*(d*e - c*f)^2*(e + f*x)^2) + (2*(6*b*d*e
 + b*c*f - 7*a*d*f)*(a + b*x)^(1/3)*(c + d*x)^(2/3))/(3*(d*e - c*
f)^3*(e + f*x)) + (2*(b*c - a*d)*(6*b*d*e + b*c*f - 7*a*d*f)*ArcT
an[1/Sqrt[3] + (2*(b*e - a*f)^(1/3)*(c + d*x)^(1/3))/(Sqrt[3]*(d*
e - c*f)^(1/3)*(a + b*x)^(1/3))])/(3*Sqrt[3]*(b*e - a*f)^(2/3)*(d
*e - c*f)^(10/3)) - ((b*c - a*d)*(6*b*d*e + b*c*f - 7*a*d*f)*Log[
e + f*x])/(9*(b*e - a*f)^(2/3)*(d*e - c*f)^(10/3)) + ((b*c - a*d)
*(6*b*d*e + b*c*f - 7*a*d*f)*Log[-(a + b*x)^(1/3) + ((b*e - a*f)^
(1/3)*(c + d*x)^(1/3))/(d*e - c*f)^(1/3)])/(3*(b*e - a*f)^(2/3)*(
d*e - c*f)^(10/3))
```

Rubi in Sympy [A] time = 101.335, size = 408, normalized size = 0.94

$$-\frac{f(a+bx)^{\frac{7}{3}}}{2\sqrt[3]{c+dx}\,(e+fx)^2\,(af-be)\,(cf-de)}+\frac{(a+bx)^{\frac{4}{3}}\,(7adf-bcf-6bde)}{6\sqrt[3]{c+dx}\,(e+fx)\,(af-be)\,(cf-de)^2}+\frac{2\sqrt[3]{a+bx}\,(ad-bc)\,(7adf-bcf-6bde)}{3\sqrt[3]{c+dx}\,(af-be)\,(cf-de)^3}-\frac{(ad-bc)\,(7adf-bcf-6bde)\log{(e+fx)}}{9\,(af-be)^{\frac{2}{3}}\,(cf-de)^{\frac{10}{3}}}+\frac{(ad-bc)\,(7adf-bcf-6bde)\log{\left(-\sqrt[3]{a+bx}+\frac{\sqrt[3]{c+dx}\,\sqrt[3]{af-be}}{\sqrt[3]{cf-de}}\right)}}{3\,(af-be)^{\frac{2}{3}}\,(cf-de)^{\frac{10}{3}}}+\frac{2\sqrt{3}\,(ad-bc)\,(7adf-bcf-6bde)\operatorname{atan}{\left(\frac{\sqrt{3}}{3}+\frac{2\sqrt{3}\sqrt[3]{c+dx}\,\sqrt[3]{af-be}}{3\sqrt[3]{a+bx}\,\sqrt[3]{cf-de}}\right)}}{9\,(af-be)^{\frac{2}{3}}\,(cf-de)^{\frac{10}{3}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(4/3)/(d*x+c)**(4/3)/(f*x+e)**3,x)
```

```
[Out] -f*(a + b*x)**(7/3)/(2*(c + d*x)**(1/3)*(e + f*x)**2*(a*f - b*e)*
(c*f - d*e)) + (a + b*x)**(4/3)*(7*a*d*f - b*c*f - 6*b*d*e)/(6*(c
 + d*x)**(1/3)*(e + f*x)*(a*f - b*e)*(c*f - d*e)**2) + 2*(a + b*x
)**(1/3)*(a*d - b*c)*(7*a*d*f - b*c*f - 6*b*d*e)/(3*(c + d*x)**(1
/3)*(a*f - b*e)*(c*f - d*e)**3) - (a*d - b*c)*(7*a*d*f - b*c*f -
6*b*d*e)*log(e + f*x)/(9*(a*f - b*e)**(2/3)*(c*f - d*e)**(10/3))
+ (a*d - b*c)*(7*a*d*f - b*c*f - 6*b*d*e)*log(-(a + b*x)**(1/3) +
 (c + d*x)**(1/3)*(a*f - b*e)**(1/3)/(c*f - d*e)**(1/3))/(3*(a*f
- b*e)**(2/3)*(c*f - d*e)**(10/3)) + 2*sqrt(3)*(a*d - b*c)*(7*a*d
*f - b*c*f - 6*b*d*e)*atan(sqrt(3)/3 + 2*sqrt(3)*(c + d*x)**(1/3)
*(a*f - b*e)**(1/3)/(3*(a + b*x)**(1/3)*(c*f - d*e)**(1/3)))/(9*(
a*f - b*e)**(2/3)*(c*f - d*e)**(10/3))
```

Mathematica [C] time = 1.30708, size = 208, normalized size = 0.48

$$\frac{\sqrt[3]{a+bx}\left(-\frac{4(c+dx)(-7adf+bcf+6bde)\,{}_2F_1\left(\frac{1}{3},\frac{1}{3};\frac{4}{3};\frac{(cf-de)(a+bx)}{(bc-ad)(e+fx)}\right)}{(e+fx)\left(\frac{(c+dx)(be-af)}{(e+fx)(bc-ad)}\right)^{2/3}}+\frac{(c+dx)(-10adf+7bcf+3bde)}{e+fx}+\frac{3(c+dx)(be-af)(de-cf)}{(e+fx)^2}+18d(bc-ad)\right)}{6\sqrt[3]{c+dx}(de-cf)^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(4/3)/((c + d*x)^(4/3)*(e + f*x)^3),x]
```

```
[Out] ((a + b*x)^(1/3)*(18*d*(b*c - a*d) + (3*(b*e - a*f)*(d*e - c*f)*(
c + d*x))/(e + f*x)^2 + ((3*b*d*e + 7*b*c*f - 10*a*d*f)*(c + d*x)
)/(e + f*x) - (4*(6*b*d*e + b*c*f - 7*a*d*f)*(c + d*x)*Hypergeome
tric2F1[1/3, 1/3, 4/3, ((-(d*e) + c*f)*(a + b*x))/((b*c - a*d)*(e
 + f*x))])/((((b*e - a*f)*(c + d*x))/((b*c - a*d)*(e + f*x)))^(2/
3)*(e + f*x))))/(6*(d*e - c*f)^3*(c + d*x)^(1/3))
```

Maple [F] time = 0.091, size = 0, normalized size = 0.

$$\int \frac{1}{(fx+e)^3}(bx+a)^{\frac{4}{3}}(dx+c)^{-\frac{4}{3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(4/3)/(d*x+c)^(4/3)/(f*x+e)^3,x)
```

```
[Out] int((b*x+a)^(4/3)/(d*x+c)^(4/3)/(f*x+e)^3,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^{\frac{4}{3}}}{(dx+c)^{\frac{4}{3}}(fx+e)^{3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(4/3)/((d*x + c)^(4/3)*(f*x + e)^3),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^(4/3)/((d*x + c)^(4/3)*(f*x + e)^3), x)
```

Fricas [A] time = 0.323267, size = 2352, normalized size = 5.42

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(4/3)/((d*x + c)^(4/3)*(f*x + e)^3),x, algorithm="fricas")
```

```
[Out] 1/54*sqrt(3)*(3*sqrt(3)*(-b^2*d*e^3 + a^2*c*f^3 + (b^2*c + 2*a*b*
d)*e^2*f - (2*a*b*c + a^2*d)*e*f^2)^(1/3)*(3*a*c^2*f^2 + 6*(4*b*c
*d - 3*a*d^2)*e^2 + (4*b*c^2 - 13*a*c*d)*e*f + (3*b*d^2*e*f + (25
*b*c*d - 28*a*d^2)*f^2)*x^2 + (6*b*d^2*e^2 + (43*b*c*d - 49*a*d^2
)*e*f + 7*(b*c^2 - a*c*d)*f^2)*x)*(b*x + a)^(1/3)*(d*x + c)^(2/3)
 + 2*sqrt(3)*(6*(b^2*c^2*d - a*b*c*d^2)*e^3 + (b^2*c^3 - 8*a*b*c^
2*d + 7*a^2*c*d^2)*e^2*f + (6*(b^2*c*d^2 - a*b*d^3)*e*f^2 + (b^2*
c^2*d - 8*a*b*c*d^2 + 7*a^2*d^3)*f^3)*x^3 + (12*(b^2*c*d^2 - a*b*
d^3)*e^2*f + 2*(4*b^2*c^2*d - 11*a*b*c*d^2 + 7*a^2*d^3)*e*f^2 + (
b^2*c^3 - 8*a*b*c^2*d + 7*a^2*c*d^2)*f^3)*x^2 + (6*(b^2*c*d^2 - a
*b*d^3)*e^3 + (13*b^2*c^2*d - 20*a*b*c*d^2 + 7*a^2*d^3)*e^2*f + 2
*(b^2*c^3 - 8*a*b*c^2*d + 7*a^2*c*d^2)*e*f^2)*x)*log((b^2*c*e^2 -
 2*a*b*c*e*f + a^2*c*f^2 - (-b^2*d*e^3 + a^2*c*f^3 + (b^2*c + 2*a
*b*d)*e^2*f - (2*a*b*c + a^2*d)*e*f^2)^(1/3)*(b*e - a*f)*(b*x + a
)^(1/3)*(d*x + c)^(2/3) + (b^2*d*e^2 - 2*a*b*d*e*f + a^2*d*f^2)*x
 + (-b^2*d*e^3 + a^2*c*f^3 + (b^2*c + 2*a*b*d)*e^2*f - (2*a*b*c +
 a^2*d)*e*f^2)^(2/3)*(b*x + a)^(2/3)*(d*x + c)^(1/3))/(d*x + c))
- 4*sqrt(3)*(6*(b^2*c^2*d - a*b*c*d^2)*e^3 + (b^2*c^3 - 8*a*b*c^2
*d + 7*a^2*c*d^2)*e^2*f + (6*(b^2*c*d^2 - a*b*d^3)*e*f^2 + (b^2*c
^2*d - 8*a*b*c*d^2 + 7*a^2*d^3)*f^3)*x^3 + (12*(b^2*c*d^2 - a*b*d
^3)*e^2*f + 2*(4*b^2*c^2*d - 11*a*b*c*d^2 + 7*a^2*d^3)*e*f^2 + (b
^2*c^3 - 8*a*b*c^2*d + 7*a^2*c*d^2)*f^3)*x^2 + (6*(b^2*c*d^2 - a*
b*d^3)*e^3 + (13*b^2*c^2*d - 20*a*b*c*d^2 + 7*a^2*d^3)*e^2*f + 2*
(b^2*c^3 - 8*a*b*c^2*d + 7*a^2*c*d^2)*e*f^2)*x)*log((b*c*e - a*c*
f + (b*d*e - a*d*f)*x + (-b^2*d*e^3 + a^2*c*f^3 + (b^2*c + 2*a*b*
d)*e^2*f - (2*a*b*c + a^2*d)*e*f^2)^(1/3)*(b*x + a)^(1/3)*(d*x +
c)^(2/3))/(d*x + c)) + 12*(6*(b^2*c^2*d - a*b*c*d^2)*e^3 + (b^2*c
^3 - 8*a*b*c^2*d + 7*a^2*c*d^2)*e^2*f + (6*(b^2*c*d^2 - a*b*d^3)*
e*f^2 + (b^2*c^2*d - 8*a*b*c*d^2 + 7*a^2*d^3)*f^3)*x^3 + (12*(b^2
*c*d^2 - a*b*d^3)*e^2*f + 2*(4*b^2*c^2*d - 11*a*b*c*d^2 + 7*a^2*d
^3)*e*f^2 + (b^2*c^3 - 8*a*b*c^2*d + 7*a^2*c*d^2)*f^3)*x^2 + (6*(
b^2*c*d^2 - a*b*d^3)*e^3 + (13*b^2*c^2*d - 20*a*b*c*d^2 + 7*a^2*d
^3)*e^2*f + 2*(b^2*c^3 - 8*a*b*c^2*d + 7*a^2*c*d^2)*e*f^2)*x)*arc
tan(-1/3*(2*sqrt(3)*(-b^2*d*e^3 + a^2*c*f^3 + (b^2*c + 2*a*b*d)*e
^2*f - (2*a*b*c + a^2*d)*e*f^2)^(1/3)*(b*x + a)^(1/3)*(d*x + c)^(
2/3) - sqrt(3)*(b*c*e - a*c*f + (b*d*e - a*d*f)*x))/(b*c*e - a*c*
f + (b*d*e - a*d*f)*x)))/((c*d^3*e^5 - 3*c^2*d^2*e^4*f + 3*c^3*d*
e^3*f^2 - c^4*e^2*f^3 + (d^4*e^3*f^2 - 3*c*d^3*e^2*f^3 + 3*c^2*d^
2*e*f^4 - c^3*d*f^5)*x^3 + (2*d^4*e^4*f - 5*c*d^3*e^3*f^2 + 3*c^2
*d^2*e^2*f^3 + c^3*d*e*f^4 - c^4*f^5)*x^2 + (d^4*e^5 - c*d^3*e^4*
f - 3*c^2*d^2*e^3*f^2 + 5*c^3*d*e^2*f^3 - 2*c^4*e*f^4)*x)*(-b^2*d
*e^3 + a^2*c*f^3 + (b^2*c + 2*a*b*d)*e^2*f - (2*a*b*c + a^2*d)*e*
f^2)^(1/3))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(4/3)/(d*x+c)**(4/3)/(f*x+e)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(4/3)/((d*x + c)^(4/3)*(f*x + e)^3),x, algorithm="giac")
```

```
[Out] Exception raised: NotImplementedError
```

3.3026 $\int \frac{(a+bx)^{4/3}}{(c+dx)^{4/3}(e+fx)^4}\,dx$

Optimal. Leaf size=645

$$\frac{\sqrt[3]{a+bx}(c+dx)^{2/3}\left(140a^2d^2f^2-7abdf(19cf+21de)+b^2\left(2c^2f^2+129cdef+9d^2e^2\right)\right)}{27(e+fx)(be-af)(de-cf)^4}-\frac{2(bc-ad)\log(e+fx)\left(35a^2d^2f^2-7abdf(cf+9de)+b^2\left(-c^2f^2+9cdef+27d^2e^2\right)\right)}{81(be-af)^{5/3}(de-cf)^{13/3}}+\frac{2(bc-ad)\left(35a^2d^2f^2-7abdf(cf+9de)+b^2\left(-c^2f^2+9cdef+27d^2e^2\right)\right)\log\left(\frac{\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt[3]{de-cf}}-\sqrt[3]{a+bx}\right)}{27(be-af)^{5/3}(de-cf)^{13/3}}+\frac{4(bc-ad)\left(35a^2d^2f^2-7abdf(cf+9de)+b^2\left(-c^2f^2+9cdef+27d^2e^2\right)\right)\tan^{-1}\left(\frac{2\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt{3}\sqrt[3]{a+bx}\sqrt[3]{de-cf}}+\frac{1}{\sqrt{3}}\right)}{27\sqrt{3}(be-af)^{5/3}(de-cf)^{13/3}}+\frac{3\sqrt[3]{a+bx}(bc-ad)}{d\sqrt[3]{c+dx}(e+fx)^3(de-cf)}+\frac{\sqrt[3]{a+bx}(c+dx)^{2/3}(-35adf+32bcf+3bde)}{9(e+fx)^2(de-cf)^3}+\frac{\sqrt[3]{a+bx}(c+dx)^{2/3}(-10adf+9bcf+bde)}{3d(e+fx)^3(de-cf)^2}$$

```
[Out] (3*(b*c - a*d)*(a + b*x)^(1/3))/(d*(d*e - c*f)*(c + d*x)^(1/3)*(e
 + f*x)^3) + ((b*d*e + 9*b*c*f - 10*a*d*f)*(a + b*x)^(1/3)*(c + d
*x)^(2/3))/(3*d*(d*e - c*f)^2*(e + f*x)^3) + ((3*b*d*e + 32*b*c*f
 - 35*a*d*f)*(a + b*x)^(1/3)*(c + d*x)^(2/3))/(9*(d*e - c*f)^3*(e
 + f*x)^2) + ((140*a^2*d^2*f^2 - 7*a*b*d*f*(21*d*e + 19*c*f) + b^
2*(9*d^2*e^2 + 129*c*d*e*f + 2*c^2*f^2))*(a + b*x)^(1/3)*(c + d*x
)^(2/3))/(27*(b*e - a*f)*(d*e - c*f)^4*(e + f*x)) + (4*(b*c - a*d
)*(35*a^2*d^2*f^2 - 7*a*b*d*f*(9*d*e + c*f) + b^2*(27*d^2*e^2 + 9
*c*d*e*f - c^2*f^2))*ArcTan[1/Sqrt[3] + (2*(b*e - a*f)^(1/3)*(c +
 d*x)^(1/3))/(Sqrt[3]*(d*e - c*f)^(1/3)*(a + b*x)^(1/3))])/(27*Sq
rt[3]*(b*e - a*f)^(5/3)*(d*e - c*f)^(13/3)) - (2*(b*c - a*d)*(35*
a^2*d^2*f^2 - 7*a*b*d*f*(9*d*e + c*f) + b^2*(27*d^2*e^2 + 9*c*d*e
*f - c^2*f^2))*Log[e + f*x])/(81*(b*e - a*f)^(5/3)*(d*e - c*f)^(1
3/3)) + (2*(b*c - a*d)*(35*a^2*d^2*f^2 - 7*a*b*d*f*(9*d*e + c*f)
+ b^2*(27*d^2*e^2 + 9*c*d*e*f - c^2*f^2))*Log[-(a + b*x)^(1/3) +
((b*e - a*f)^(1/3)*(c + d*x)^(1/3))/(d*e - c*f)^(1/3)])/(27*(b*e
- a*f)^(5/3)*(d*e - c*f)^(13/3))
```

Rubi [A] time = 3.83432, antiderivative size = 645, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.154$

$$\frac{\sqrt[3]{a+bx}(c+dx)^{2/3}\left(140a^2d^2f^2-7abdf(19cf+21de)+b^2\left(2c^2f^2+129cdef+9d^2e^2\right)\right)}{27(e+fx)(be-af)(de-cf)^4}-\frac{2(bc-ad)\log(e+fx)\left(35a^2d^2f^2-7abdf(cf+9de)+b^2\left(-c^2f^2+9cdef+27d^2e^2\right)\right)}{81(be-af)^{5/3}(de-cf)^{13/3}}+\frac{2(bc-ad)\left(35a^2d^2f^2-7abdf(cf+9de)+b^2\left(-c^2f^2+9cdef+27d^2e^2\right)\right)\log\left(\frac{\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt[3]{de-cf}}-\sqrt[3]{a+bx}\right)}{27(be-af)^{5/3}(de-cf)^{13/3}}+\frac{4(bc-ad)\left(35a^2d^2f^2-7abdf(cf+9de)+b^2\left(-c^2f^2+9cdef+27d^2e^2\right)\right)\tan^{-1}\left(\frac{2\sqrt[3]{c+dx}\sqrt[3]{be-af}}{\sqrt{3}\sqrt[3]{a+bx}\sqrt[3]{de-cf}}+\frac{1}{\sqrt{3}}\right)}{27\sqrt{3}(be-af)^{5/3}(de-cf)^{13/3}}+\frac{3\sqrt[3]{a+bx}(bc-ad)}{d\sqrt[3]{c+dx}(e+fx)^3(de-cf)}+\frac{\sqrt[3]{a+bx}(c+dx)^{2/3}(-35adf+32bcf+3bde)}{9(e+fx)^2(de-cf)^3}+\frac{\sqrt[3]{a+bx}(c+dx)^{2/3}(-10adf+9bcf+bde)}{3d(e+fx)^3(de-cf)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(4/3)/((c + d*x)^(4/3)*(e + f*x)^4),x]
```

```
[Out] (3*(b*c - a*d)*(a + b*x)^(1/3))/(d*(d*e - c*f)*(c + d*x)^(1/3)*(e
 + f*x)^3) + ((b*d*e + 9*b*c*f - 10*a*d*f)*(a + b*x)^(1/3)*(c + d
*x)^(2/3))/(3*d*(d*e - c*f)^2*(e + f*x)^3) + ((3*b*d*e + 32*b*c*f
 - 35*a*d*f)*(a + b*x)^(1/3)*(c + d*x)^(2/3))/(9*(d*e - c*f)^3*(e
 + f*x)^2) + ((140*a^2*d^2*f^2 - 7*a*b*d*f*(21*d*e + 19*c*f) + b^
2*(9*d^2*e^2 + 129*c*d*e*f + 2*c^2*f^2))*(a + b*x)^(1/3)*(c + d*x
)^(2/3))/(27*(b*e - a*f)*(d*e - c*f)^4*(e + f*x)) + (4*(b*c - a*d
)*(35*a^2*d^2*f^2 - 7*a*b*d*f*(9*d*e + c*f) + b^2*(27*d^2*e^2 + 9
*c*d*e*f - c^2*f^2))*ArcTan[1/Sqrt[3] + (2*(b*e - a*f)^(1/3)*(c +
 d*x)^(1/3))/(Sqrt[3]*(d*e - c*f)^(1/3)*(a + b*x)^(1/3))])/(27*Sq
rt[3]*(b*e - a*f)^(5/3)*(d*e - c*f)^(13/3)) - (2*(b*c - a*d)*(35*
a^2*d^2*f^2 - 7*a*b*d*f*(9*d*e + c*f) + b^2*(27*d^2*e^2 + 9*c*d*e
*f - c^2*f^2))*Log[e + f*x])/(81*(b*e - a*f)^(5/3)*(d*e - c*f)^(1
3/3)) + (2*(b*c - a*d)*(35*a^2*d^2*f^2 - 7*a*b*d*f*(9*d*e + c*f)
+ b^2*(27*d^2*e^2 + 9*c*d*e*f - c^2*f^2))*Log[-(a + b*x)^(1/3) +
((b*e - a*f)^(1/3)*(c + d*x)^(1/3))/(d*e - c*f)^(1/3)])/(27*(b*e
- a*f)^(5/3)*(d*e - c*f)^(13/3))
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(4/3)/(d*x+c)**(4/3)/(f*x+e)**4,x)
```

```
[Out] Timed out
```

Mathematica [C] time = 1.63467, size = 371, normalized size = 0.58

$$\sqrt[3]{a+bx}\left(4(e+fx)^3(bc-ad)\left(-35a^2d^2f^2+7abdf(cf+9de)+b^2\left(c^2f^2-9cdef-27d^2e^2\right)\right)\sqrt[3]{\frac{(c+dx)(be-af)}{(e+fx)(bc-ad)}}\,{}_2F_1\left(\frac{1}{3},\frac{1}{3}\right.\right.$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^(4/3)/((c + d*x)^(4/3)*(e + f*x)^4),x]
```

```
[Out] ((a + b*x)^(1/3)*((b*e - a*f)*(9*(b*e - a*f)^2*(d*e - c*f)^2*(c +
 d*x) + 3*(b*e - a*f)*(d*e - c*f)*(3*b*d*e + 5*b*c*f - 8*a*d*f)*(
c + d*x)*(e + f*x) + (59*a^2*d^2*f^2 - 2*a*b*d*f*(33*d*e + 26*c*f
) + b^2*(9*d^2*e^2 + 48*c*d*e*f + 2*c^2*f^2))*(c + d*x)*(e + f*x)
^2 + 81*d^2*(b*c - a*d)*(b*e - a*f)*(e + f*x)^3) + 4*(b*c - a*d)*
(-35*a^2*d^2*f^2 + 7*a*b*d*f*(9*d*e + c*f) + b^2*(-27*d^2*e^2 - 9
*c*d*e*f + c^2*f^2))*(((b*e - a*f)*(c + d*x))/((b*c - a*d)*(e + f
*x)))^(1/3)*(e + f*x)^3*Hypergeometric2F1[1/3, 1/3, 4/3, ((-(d*e)
 + c*f)*(a + b*x))/((b*c - a*d)*(e + f*x))]))/(27*(b*e - a*f)^2*(
d*e - c*f)^4*(c + d*x)^(1/3)*(e + f*x)^3)
```

Maple [F] time = 0.091, size = 0, normalized size = 0.

$$\int \frac{1}{(fx+e)^4}(bx+a)^{\frac{4}{3}}(dx+c)^{-\frac{4}{3}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(4/3)/(d*x+c)^(4/3)/(f*x+e)^4,x)
```

```
[Out] int((b*x+a)^(4/3)/(d*x+c)^(4/3)/(f*x+e)^4,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^{\frac{4}{3}}}{(dx+c)^{\frac{4}{3}}(fx+e)^4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(4/3)/((d*x + c)^(4/3)*(f*x + e)^4),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^(4/3)/((d*x + c)^(4/3)*(f*x + e)^4), x)
```

Fricas [A] time = 0.483369, size = 5064, normalized size = 7.85

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(4/3)/((d*x + c)^(4/3)*(f*x + e)^4),x, algorithm="fricas")
```

```
[Out] 1/243*sqrt(3)*(3*sqrt(3)*(9*a^2*c^3*f^4 + 27*(4*b^2*c*d^2 - 3*a*b
*d^3)*e^4 + 9*(4*b^2*c^2*d - 22*a*b*c*d^2 + 9*a^2*d^3)*e^3*f - 2*
(2*b^2*c^3 - a*b*c^2*d - 46*a^2*c*d^2)*e^2*f^2 - 3*(a*b*c^3 + 14*
a^2*c^2*d)*e*f^3 + (9*b^2*d^3*e^2*f^2 + 3*(43*b^2*c*d^2 - 49*a*b*
d^3)*e*f^3 + (2*b^2*c^2*d - 133*a*b*c*d^2 + 140*a^2*d^3)*f^4)*x^3
 + (27*b^2*d^3*e^3*f + 6*(59*b^2*c*d^2 - 68*a*b*d^3)*e^2*f^2 + (3
7*b^2*c^2*d - 395*a*b*c*d^2 + 385*a^2*d^3)*e*f^3 + (2*b^2*c^3 - 3
7*a*b*c^2*d + 35*a^2*c*d^2)*f^4)*x^2 + (27*b^2*d^3*e^4 + 18*(17*b
^2*c*d^2 - 20*a*b*d^3)*e^3*f + (98*b^2*c^2*d - 406*a*b*c*d^2 + 33
5*a^2*d^3)*e^2*f^2 - (11*b^2*c^3 + 89*a*b*c^2*d - 100*a^2*c*d^2)*
e*f^3 + 15*(a*b*c^3 - a^2*c^2*d)*f^4)*x)*(-b^2*d*e^3 + a^2*c*f^3
+ (b^2*c + 2*a*b*d)*e^2*f - (2*a*b*c + a^2*d)*e*f^2)^(1/3)*(b*x +
 a)^(1/3)*(d*x + c)^(2/3) + 2*sqrt(3)*(27*(b^3*c^2*d^2 - a*b^2*c*
d^3)*e^5 + 9*(b^3*c^3*d - 8*a*b^2*c^2*d^2 + 7*a^2*b*c*d^3)*e^4*f
- (b^3*c^4 + 6*a*b^2*c^3*d - 42*a^2*b*c^2*d^2 + 35*a^3*c*d^3)*e^3
*f^2 + (27*(b^3*c*d^3 - a*b^2*d^4)*e^2*f^3 + 9*(b^3*c^2*d^2 - 8*a
*b^2*c*d^3 + 7*a^2*b*d^4)*e*f^4 - (b^3*c^3*d + 6*a*b^2*c^2*d^2 -
42*a^2*b*c*d^3 + 35*a^3*d^4)*f^5)*x^4 + (81*(b^3*c*d^3 - a*b^2*d^
4)*e^3*f^2 + 27*(2*b^3*c^2*d^2 - 9*a*b^2*c*d^3 + 7*a^2*b*d^4)*e^2
*f^3 + 3*(2*b^3*c^3*d - 30*a*b^2*c^2*d^2 + 63*a^2*b*c*d^3 - 35*a^
3*d^4)*e*f^4 - (b^3*c^4 + 6*a*b^2*c^3*d - 42*a^2*b*c^2*d^2 + 35*a
^3*c*d^3)*f^5)*x^3 + 3*(27*(b^3*c*d^3 - a*b^2*d^4)*e^4*f + 9*(4*b
^3*c^2*d^2 - 11*a*b^2*c*d^3 + 7*a^2*b*d^4)*e^3*f^2 + (8*b^3*c^3*d
 - 78*a*b^2*c^2*d^2 + 105*a^2*b*c*d^3 - 35*a^3*d^4)*e^2*f^3 - (b^
3*c^4 + 6*a*b^2*c^3*d - 42*a^2*b*c^2*d^2 + 35*a^3*c*d^3)*e*f^4)*x
^2 + (27*(b^3*c*d^3 - a*b^2*d^4)*e^5 + 9*(10*b^3*c^2*d^2 - 17*a*b
^2*c*d^3 + 7*a^2*b*d^4)*e^4*f + (26*b^3*c^3*d - 222*a*b^2*c^2*d^2
 + 231*a^2*b*c*d^3 - 35*a^3*d^4)*e^3*f^2 - 3*(b^3*c^4 + 6*a*b^2*c
^3*d - 42*a^2*b*c^2*d^2 + 35*a^3*c*d^3)*e^2*f^3)*x)*log((b^2*c*e^
2 - 2*a*b*c*e*f + a^2*c*f^2 - (-b^2*d*e^3 + a^2*c*f^3 + (b^2*c +
2*a*b*d)*e^2*f - (2*a*b*c + a^2*d)*e*f^2)^(1/3)*(b*e - a*f)*(b*x
+ a)^(1/3)*(d*x + c)^(2/3) + (b^2*d*e^2 - 2*a*b*d*e*f + a^2*d*f^2
)*x + (-b^2*d*e^3 + a^2*c*f^3 + (b^2*c + 2*a*b*d)*e^2*f - (2*a*b*
c + a^2*d)*e*f^2)^(2/3)*(b*x + a)^(2/3)*(d*x + c)^(1/3))/(d*x + c
)) - 4*sqrt(3)*(27*(b^3*c^2*d^2 - a*b^2*c*d^3)*e^5 + 9*(b^3*c^3*d
 - 8*a*b^2*c^2*d^2 + 7*a^2*b*c*d^3)*e^4*f - (b^3*c^4 + 6*a*b^2*c^
3*d - 42*a^2*b*c^2*d^2 + 35*a^3*c*d^3)*e^3*f^2 + (27*(b^3*c*d^3 -
 a*b^2*d^4)*e^2*f^3 + 9*(b^3*c^2*d^2 - 8*a*b^2*c*d^3 + 7*a^2*b*d^
4)*e*f^4 - (b^3*c^3*d + 6*a*b^2*c^2*d^2 - 42*a^2*b*c*d^3 + 35*a^3
*d^4)*f^5)*x^4 + (81*(b^3*c*d^3 - a*b^2*d^4)*e^3*f^2 + 27*(2*b^3*
c^2*d^2 - 9*a*b^2*c*d^3 + 7*a^2*b*d^4)*e^2*f^3 + 3*(2*b^3*c^3*d -
 30*a*b^2*c^2*d^2 + 63*a^2*b*c*d^3 - 35*a^3*d^4)*e*f^4 - (b^3*c^4
 + 6*a*b^2*c^3*d - 42*a^2*b*c^2*d^2 + 35*a^3*c*d^3)*f^5)*x^3 + 3*
(27*(b^3*c*d^3 - a*b^2*d^4)*e^4*f + 9*(4*b^3*c^2*d^2 - 11*a*b^2*c
```

```
*d^3 + 7*a^2*b*d^4)*e^3*f^2 + (8*b^3*c^3*d - 78*a*b^2*c^2*d^2 + 1
05*a^2*b*c*d^3 - 35*a^3*d^4)*e^2*f^3 - (b^3*c^4 + 6*a*b^2*c^3*d -
 42*a^2*b*c^2*d^2 + 35*a^3*c*d^3)*e*f^4)*x^2 + (27*(b^3*c*d^3 - a
*b^2*d^4)*e^5 + 9*(10*b^3*c^2*d^2 - 17*a*b^2*c*d^3 + 7*a^2*b*d^4)
*e^4*f + (26*b^3*c^3*d - 222*a*b^2*c^2*d^2 + 231*a^2*b*c*d^3 - 35
*a^3*d^4)*e^3*f^2 - 3*(b^3*c^4 + 6*a*b^2*c^3*d - 42*a^2*b*c^2*d^2
 + 35*a^3*c*d^3)*e^2*f^3)*x)*log((b*c*e - a*c*f + (b*d*e - a*d*f)
*x + (-b^2*d*e^3 + a^2*c*f^3 + (b^2*c + 2*a*b*d)*e^2*f - (2*a*b*c
 + a^2*d)*e*f^2)^(1/3)*(b*x + a)^(1/3)*(d*x + c)^(2/3))/(d*x + c)
) + 12*(27*(b^3*c^2*d^2 - a*b^2*c*d^3)*e^5 + 9*(b^3*c^3*d - 8*a*b
^2*c^2*d^2 + 7*a^2*b*c*d^3)*e^4*f - (b^3*c^4 + 6*a*b^2*c^3*d - 42
*a^2*b*c^2*d^2 + 35*a^3*c*d^3)*e^3*f^2 + (27*(b^3*c*d^3 - a*b^2*d
^4)*e^2*f^3 + 9*(b^3*c^2*d^2 - 8*a*b^2*c*d^3 + 7*a^2*b*d^4)*e*f^4
 - (b^3*c^3*d + 6*a*b^2*c^2*d^2 - 42*a^2*b*c*d^3 + 35*a^3*d^4)*f^
5)*x^4 + (81*(b^3*c*d^3 - a*b^2*d^4)*e^3*f^2 + 27*(2*b^3*c^2*d^2
- 9*a*b^2*c*d^3 + 7*a^2*b*d^4)*e^2*f^3 + 3*(2*b^3*c^3*d - 30*a*b^
2*c^2*d^2 + 63*a^2*b*c*d^3 - 35*a^3*d^4)*e*f^4 - (b^3*c^4 + 6*a*b
^2*c^3*d - 42*a^2*b*c^2*d^2 + 35*a^3*c*d^3)*f^5)*x^3 + 3*(27*(b^3
*c*d^3 - a*b^2*d^4)*e^4*f + 9*(4*b^3*c^2*d^2 - 11*a*b^2*c*d^3 + 7
*a^2*b*d^4)*e^3*f^2 + (8*b^3*c^3*d - 78*a*b^2*c^2*d^2 + 105*a^2*b
*c*d^3 - 35*a^3*d^4)*e^2*f^3 - (b^3*c^4 + 6*a*b^2*c^3*d - 42*a^2*
b*c^2*d^2 + 35*a^3*c*d^3)*e*f^4)*x^2 + (27*(b^3*c*d^3 - a*b^2*d^4
)*e^5 + 9*(10*b^3*c^2*d^2 - 17*a*b^2*c*d^3 + 7*a^2*b*d^4)*e^4*f +
 (26*b^3*c^3*d - 222*a*b^2*c^2*d^2 + 231*a^2*b*c*d^3 - 35*a^3*d^4
)*e^3*f^2 - 3*(b^3*c^4 + 6*a*b^2*c^3*d - 42*a^2*b*c^2*d^2 + 35*a^
3*c*d^3)*e^2*f^3)*x)*arctan(-1/3*(2*sqrt(3)*(-b^2*d*e^3 + a^2*c*f
^3 + (b^2*c + 2*a*b*d)*e^2*f - (2*a*b*c + a^2*d)*e*f^2)^(1/3)*(b*
x + a)^(1/3)*(d*x + c)^(2/3) - sqrt(3)*(b*c*e - a*c*f + (b*d*e -
a*d*f)*x))/(b*c*e - a*c*f + (b*d*e - a*d*f)*x)))/((b*c*d^4*e^8 -
a*c^5*e^3*f^5 - (4*b*c^2*d^3 + a*c*d^4)*e^7*f + 2*(3*b*c^3*d^2 +
2*a*c^2*d^3)*e^6*f^2 - 2*(2*b*c^4*d + 3*a*c^3*d^2)*e^5*f^3 + (b*c
^5 + 4*a*c^4*d)*e^4*f^4 + (b*d^5*e^5*f^3 - a*c^4*d*f^8 - (4*b*c*d
^4 + a*d^5)*e^4*f^4 + 2*(3*b*c^2*d^3 + 2*a*c*d^4)*e^3*f^5 - 2*(2*
b*c^3*d^2 + 3*a*c^2*d^3)*e^2*f^6 + (b*c^4*d + 4*a*c^3*d^2)*e*f^7)
*x^4 + (3*b*d^5*e^6*f^2 - a*c^5*f^8 - (11*b*c*d^4 + 3*a*d^5)*e^5*
f^3 + (14*b*c^2*d^3 + 11*a*c*d^4)*e^4*f^4 - 2*(3*b*c^3*d^2 + 7*a*
c^2*d^3)*e^3*f^5 - (b*c^4*d - 6*a*c^3*d^2)*e^2*f^6 + (b*c^5 + a*c
^4*d)*e*f^7)*x^3 + 3*(b*d^5*e^7*f - a*c^5*e*f^7 - (3*b*c*d^4 + a*
d^5)*e^6*f^2 + (2*b*c^2*d^3 + 3*a*c*d^4)*e^5*f^3 + 2*(b*c^3*d^2 -
 a*c^2*d^3)*e^4*f^4 - (3*b*c^4*d + 2*a*c^3*d^2)*e^3*f^5 + (b*c^5
+ 3*a*c^4*d)*e^2*f^6)*x^2 + (b*d^5*e^8 - 3*a*c^5*e^2*f^6 - (b*c*d
^4 + a*d^5)*e^7*f - (6*b*c^2*d^3 - a*c*d^4)*e^6*f^2 + 2*(7*b*c^3*
d^2 + 3*a*c^2*d^3)*e^5*f^3 - (11*b*c^4*d + 14*a*c^3*d^2)*e^4*f^4
+ (3*b*c^5 + 11*a*c^4*d)*e^3*f^5)*x)*(-b^2*d*e^3 + a^2*c*f^3 + (b
^2*c + 2*a*b*d)*e^2*f - (2*a*b*c + a^2*d)*e*f^2)^(1/3))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(4/3)/(d*x+c)**(4/3)/(f*x+e)**4,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(4/3)/((d*x + c)^(4/3)*(f*x + e)^4),x, algorithm="giac")
```

```
[Out] Exception raised: NotImplementedError
```

3.3027 $\int \frac{1}{(a+bx)\sqrt{c+dx}\sqrt[4]{e+fx}}\,dx$

Optimal. Leaf size=266

$$\frac{2\sqrt[4]{de-cf}\sqrt{-\frac{f(c+dx)}{de-cf}}\Pi\left(-\frac{\sqrt{b}\sqrt{de-cf}}{\sqrt{d}\sqrt{be-af}};\sin^{-1}\left(\frac{\sqrt[4]{d}\sqrt[4]{e+fx}}{\sqrt[4]{de-cf}}\right)\middle|-1\right)}{\sqrt{b}\sqrt[4]{d}\sqrt{c+dx}\sqrt{be-af}}-\frac{2\sqrt[4]{de-cf}\sqrt{-\frac{f(c+dx)}{de-cf}}\Pi\left(\frac{\sqrt{b}\sqrt{de-cf}}{\sqrt{d}\sqrt{be-af}};\sin^{-1}\left(\frac{\sqrt[4]{d}\sqrt[4]{e+fx}}{\sqrt[4]{de-cf}}\right)\middle|-1\right)}{\sqrt{b}\sqrt[4]{d}\sqrt{c+dx}\sqrt{be-af}}$$

```
[Out] (2*(d*e - c*f)^(1/4)*Sqrt[-((f*(c + d*x))/(d*e - c*f))]*EllipticP
i[-((Sqrt[b]*Sqrt[d*e - c*f])/(Sqrt[d]*Sqrt[b*e - a*f])), ArcSin[
(d^(1/4)*(e + f*x)^(1/4))/(d*e - c*f)^(1/4)], -1])/(Sqrt[b]*d^(1/
4)*Sqrt[b*e - a*f]*Sqrt[c + d*x]) - (2*(d*e - c*f)^(1/4)*Sqrt[-((
f*(c + d*x))/(d*e - c*f))]*EllipticPi[(Sqrt[b]*Sqrt[d*e - c*f])/(
Sqrt[d]*Sqrt[b*e - a*f]), ArcSin[(d^(1/4)*(e + f*x)^(1/4))/(d*e -
 c*f)^(1/4)], -1])/(Sqrt[b]*d^(1/4)*Sqrt[b*e - a*f]*Sqrt[c + d*x]
)
```

Rubi [A] time = 1.21152, antiderivative size = 266, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.154$

$$\frac{2\sqrt[4]{de-cf}\sqrt{-\frac{f(c+dx)}{de-cf}}\Pi\left(-\frac{\sqrt{b}\sqrt{de-cf}}{\sqrt{d}\sqrt{be-af}};\sin^{-1}\left(\frac{\sqrt[4]{d}\sqrt[4]{e+fx}}{\sqrt[4]{de-cf}}\right)\middle|-1\right)}{\sqrt{b}\sqrt[4]{d}\sqrt{c+dx}\sqrt{be-af}}-\frac{2\sqrt[4]{de-cf}\sqrt{-\frac{f(c+dx)}{de-cf}}\Pi\left(\frac{\sqrt{b}\sqrt{de-cf}}{\sqrt{d}\sqrt{be-af}};\sin^{-1}\left(\frac{\sqrt[4]{d}\sqrt[4]{e+fx}}{\sqrt[4]{de-cf}}\right)\middle|-1\right)}{\sqrt{b}\sqrt[4]{d}\sqrt{c+dx}\sqrt{be-af}}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((a + b*x)*Sqrt[c + d*x]*(e + f*x)^(1/4)),x]
```

```
[Out] (2*(d*e - c*f)^(1/4)*Sqrt[-((f*(c + d*x))/(d*e - c*f))]*EllipticP
i[-((Sqrt[b]*Sqrt[d*e - c*f])/(Sqrt[d]*Sqrt[b*e - a*f])), ArcSin[
(d^(1/4)*(e + f*x)^(1/4))/(d*e - c*f)^(1/4)], -1])/(Sqrt[b]*d^(1/
4)*Sqrt[b*e - a*f]*Sqrt[c + d*x]) - (2*(d*e - c*f)^(1/4)*Sqrt[-((
f*(c + d*x))/(d*e - c*f))]*EllipticPi[(Sqrt[b]*Sqrt[d*e - c*f])/(
Sqrt[d]*Sqrt[b*e - a*f]), ArcSin[(d^(1/4)*(e + f*x)^(1/4))/(d*e -
 c*f)^(1/4)], -1])/(Sqrt[b]*d^(1/4)*Sqrt[b*e - a*f]*Sqrt[c + d*x]
)
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(b*x+a)/(f*x+e)**(1/4)/(d*x+c)**(1/2),x)
```

```
[Out] Timed out
```

Mathematica [C] time = 0.889217, size = 270, normalized size = 1.02

$$-\frac{28df(a+bx)F_1\left(\frac{3}{4};\frac{1}{2},\frac{1}{4};\frac{7}{4};\frac{ad-bc}{d(a+bx)},\frac{af-be}{f(a+bx)}\right)}{3b\sqrt{c+dx}\sqrt[4]{e+fx}\left(7df(a+bx)F_1\left(\frac{3}{4};\frac{1}{2},\frac{1}{4};\frac{7}{4};\frac{ad-bc}{d(a+bx)},\frac{af-be}{f(a+bx)}\right)+(adf-bde)F_1\left(\frac{7}{4};\frac{1}{2},\frac{5}{4};\frac{11}{4};\frac{ad-bc}{d(a+bx)},\frac{af-be}{f(a+bx)}\right)+2f(ad-b$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[1/((a + b*x)*Sqrt[c + d*x]*(e + f*x)^(1/4)),x]
```

```
[Out] (-28*d*f*(a + b*x)*AppellF1[3/4, 1/2, 1/4, 7/4, (-(b*c) + a*d)/(d
*(a + b*x)), (-(b*e) + a*f)/(f*(a + b*x))])/(3*b*Sqrt[c + d*x]*(e
 + f*x)^(1/4)*(7*d*f*(a + b*x)*AppellF1[3/4, 1/2, 1/4, 7/4, (-(b*
c) + a*d)/(d*(a + b*x)), (-(b*e) + a*f)/(f*(a + b*x))] + (-(b*d*e
) + a*d*f)*AppellF1[7/4, 1/2, 5/4, 11/4, (-(b*c) + a*d)/(d*(a + b
*x)), (-(b*e) + a*f)/(f*(a + b*x))] + 2*(-(b*c) + a*d)*f*AppellF1
[7/4, 3/2, 1/4, 11/4, (-(b*c) + a*d)/(d*(a + b*x)), (-(b*e) + a*f
)/(f*(a + b*x))]))
```

Maple [F] time = 0.098, size = 0, normalized size = 0.

$$\int \frac{1}{bx+a}\frac{1}{\sqrt{dx+c}}\frac{1}{\sqrt[4]{fx+e}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(b*x+a)/(f*x+e)^(1/4)/(d*x+c)^(1/2),x)
```

```
[Out] int(1/(b*x+a)/(f*x+e)^(1/4)/(d*x+c)^(1/2),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(bx+a)\sqrt{dx+c}(fx+e)^{\frac{1}{4}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)*sqrt(d*x + c)*(f*x + e)^(1/4)),x, algorithm="maxima")
```

```
[Out] integrate(1/((b*x + a)*sqrt(d*x + c)*(f*x + e)^(1/4)), x)
```

Fricas [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)*sqrt(d*x + c)*(f*x + e)^(1/4)),x, algorithm="fricas")
```

```
[Out] Timed out
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(a+bx)\sqrt{c+dx}\sqrt[4]{e+fx}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(b*x+a)/(f*x+e)**(1/4)/(d*x+c)**(1/2),x)
```

```
[Out] Integral(1/((a + b*x)*sqrt(c + d*x)*(e + f*x)**(1/4)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(bx+a)\sqrt{dx+c}(fx+e)^{\frac{1}{4}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)*sqrt(d*x + c)*(f*x + e)^(1/4)),x, algorithm="giac")
```

```
[Out] integrate(1/((b*x + a)*sqrt(d*x + c)*(f*x + e)^(1/4)), x)
```

3.3028 $\int \frac{1}{(a+bx)\sqrt{c+dx}(e+fx)^{3/4}}\,dx$

Optimal. Leaf size=252

$$-\frac{2\sqrt[4]{de-cf}\sqrt{-\frac{f(c+dx)}{de-cf}}\left(-\frac{\sqrt{b}\sqrt{de-cf}}{\sqrt{d}\sqrt{be-af}};\sin^{-1}\left(\frac{\sqrt[4]{d}\sqrt[4]{e+fx}}{\sqrt[4]{de-cf}}\right)\middle|-1\right)}{\sqrt[4]{d}\sqrt{c+dx}(be-af)}-\frac{2\sqrt[4]{de-cf}\sqrt{-\frac{f(c+dx)}{de-cf}}\left(\frac{\sqrt{b}\sqrt{de-cf}}{\sqrt{d}\sqrt{be-af}};\sin^{-1}\left(\frac{\sqrt[4]{d}\sqrt[4]{e+fx}}{\sqrt[4]{de-cf}}\right)\middle|-1\right)}{\sqrt[4]{d}\sqrt{c+dx}(be-af)}$$

```
[Out] (-2*(d*e - c*f)^(1/4)*Sqrt[-((f*(c + d*x))/(d*e - c*f))]*Elliptic
Pi[-((Sqrt[b]*Sqrt[d*e - c*f])/(Sqrt[d]*Sqrt[b*e - a*f])), ArcSin
[(d^(1/4)*(e + f*x)^(1/4))/(d*e - c*f)^(1/4)], -1])/(d^(1/4)*(b*e
 - a*f)*Sqrt[c + d*x]) - (2*(d*e - c*f)^(1/4)*Sqrt[-((f*(c + d*x)
)/(d*e - c*f))]*EllipticPi[(Sqrt[b]*Sqrt[d*e - c*f])/(Sqrt[d]*Sqr
t[b*e - a*f]), ArcSin[(d^(1/4)*(e + f*x)^(1/4))/(d*e - c*f)^(1/4)
], -1])/(d^(1/4)*(b*e - a*f)*Sqrt[c + d*x])
```

Rubi [A] time = 0.958862, antiderivative size = 252, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$-\frac{2\sqrt[4]{de-cf}\sqrt{-\frac{f(c+dx)}{de-cf}}\left(-\frac{\sqrt{b}\sqrt{de-cf}}{\sqrt{d}\sqrt{be-af}};\sin^{-1}\left(\frac{\sqrt[4]{d}\sqrt[4]{e+fx}}{\sqrt[4]{de-cf}}\right)\middle|-1\right)}{\sqrt[4]{d}\sqrt{c+dx}(be-af)}-\frac{2\sqrt[4]{de-cf}\sqrt{-\frac{f(c+dx)}{de-cf}}\left(\frac{\sqrt{b}\sqrt{de-cf}}{\sqrt{d}\sqrt{be-af}};\sin^{-1}\left(\frac{\sqrt[4]{d}\sqrt[4]{e+fx}}{\sqrt[4]{de-cf}}\right)\middle|-1\right)}{\sqrt[4]{d}\sqrt{c+dx}(be-af)}$$

Antiderivative was successfully verified.

```
[In]  Int[1/((a + b*x)*Sqrt[c + d*x]*(e + f*x)^(3/4)),x]
```

```
[Out] (-2*(d*e - c*f)^(1/4)*Sqrt[-((f*(c + d*x))/(d*e - c*f))]*Elliptic
Pi[-((Sqrt[b]*Sqrt[d*e - c*f])/(Sqrt[d]*Sqrt[b*e - a*f])), ArcSin
[(d^(1/4)*(e + f*x)^(1/4))/(d*e - c*f)^(1/4)], -1])/(d^(1/4)*(b*e
 - a*f)*Sqrt[c + d*x]) - (2*(d*e - c*f)^(1/4)*Sqrt[-((f*(c + d*x)
)/(d*e - c*f))]*EllipticPi[(Sqrt[b]*Sqrt[d*e - c*f])/(Sqrt[d]*Sqr
t[b*e - a*f]), ArcSin[(d^(1/4)*(e + f*x)^(1/4))/(d*e - c*f)^(1/4)
], -1])/(d^(1/4)*(b*e - a*f)*Sqrt[c + d*x])
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate(1/(b*x+a)/(f*x+e)**(3/4)/(d*x+c)**(1/2),x)
```

```
[Out] Timed out
```

Mathematica [C] time = 0.918661, size = 271, normalized size = 1.08

$$-\frac{36df(a+bx)F_1\left(\frac{5}{4};\frac{1}{2},\frac{3}{4};\frac{9}{4};\frac{ad-bc}{d(a+bx)},\frac{af-be}{f(a+bx)}\right)}{5b\sqrt{c+dx}(e+fx)^{3/4}\left(9df(a+bx)F_1\left(\frac{5}{4};\frac{1}{2},\frac{3}{4};\frac{9}{4};\frac{ad-bc}{d(a+bx)},\frac{af-be}{f(a+bx)}\right)+(3adf-3bde)F_1\left(\frac{9}{4};\frac{1}{2},\frac{7}{4};\frac{13}{4};\frac{ad-bc}{d(a+bx)},\frac{af-be}{f(a+bx)}\right)+2f(a\right.}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[1/((a + b*x)*Sqrt[c + d*x]*(e + f*x)^(3/4)),x]
```

```
[Out] (-36*d*f*(a + b*x)*AppellF1[5/4, 1/2, 3/4, 9/4, (-(b*c) + a*d)/(d
*(a + b*x)), (-(b*e) + a*f)/(f*(a + b*x))])/(5*b*Sqrt[c + d*x]*(e
 + f*x)^(3/4)*(9*d*f*(a + b*x)*AppellF1[5/4, 1/2, 3/4, 9/4, (-(b*
c) + a*d)/(d*(a + b*x)), (-(b*e) + a*f)/(f*(a + b*x))] + (-3*b*d*
e + 3*a*d*f)*AppellF1[9/4, 1/2, 7/4, 13/4, (-(b*c) + a*d)/(d*(a +
 b*x)), (-(b*e) + a*f)/(f*(a + b*x))] + 2*(-(b*c) + a*d)*f*Appell
F1[9/4, 3/2, 3/4, 13/4, (-(b*c) + a*d)/(d*(a + b*x)), (-(b*e) + a
*f)/(f*(a + b*x))]))
```

Maple [F] time = 0.098, size = 0, normalized size = 0.

$$\int \frac{1}{bx+a}\frac{1}{\sqrt{dx+c}}\left(fx+e\right)^{-\frac{3}{4}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int(1/(b*x+a)/(f*x+e)^(3/4)/(d*x+c)^(1/2),x)
```

```
[Out] int(1/(b*x+a)/(f*x+e)^(3/4)/(d*x+c)^(1/2),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(bx+a)\sqrt{dx+c}(fx+e)^{\frac{3}{4}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)*sqrt(d*x + c)*(f*x + e)^(3/4)),x, algorithm="maxima")
```

```
[Out] integrate(1/((b*x + a)*sqrt(d*x + c)*(f*x + e)^(3/4)), x)
```

Fricas [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/((b*x + a)*sqrt(d*x + c)*(f*x + e)^(3/4)),x, algorithm="fricas")
```

```
[Out] Timed out
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(a+bx)\sqrt{c+dx}\,(e+fx)^{\frac{3}{4}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(1/(b*x+a)/(f*x+e)**(3/4)/(d*x+c)**(1/2),x)
```

```
[Out] Integral(1/((a + b*x)*sqrt(c + d*x)*(e + f*x)**(3/4)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{1}{(bx+a)\sqrt{dx+c}(fx+e)^{\frac{3}{4}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(1/((b*x + a)*sqrt(d*x + c)*(f*x + e)^(3/4)),x, algorithm="giac")
```

```
[Out] integrate(1/((b*x + a)*sqrt(d*x + c)*(f*x + e)^(3/4)), x)
```

3.3029 $\int (a+bx)^p (A+Bx)(d+ex)^{-2-p}\,dx$

Optimal. Leaf size=125

$$-\frac{(a+bx)^{p+1}(Bd-Ae)(d+ex)^{-p-1}}{e(p+1)(bd-ae)}-\frac{B(a+bx)^p(d+ex)^{-p}\left(-\frac{e(a+bx)}{bd-ae}\right)^{-p}{}_2F_1\left(-p,-p;1-p;\frac{b(d+ex)}{bd-ae}\right)}{e^2p}$$

```
[Out] -(((B*d - A*e)*(a + b*x)^(1 + p)*(d + e*x)^(-1 - p))/(e*(b*d - a*
e)*(1 + p))) - (B*(a + b*x)^p*Hypergeometric2F1[-p, -p, 1 - p, (b
*(d + e*x))/(b*d - a*e)])/(e^2*p*(-((e*(a + b*x))/(b*d - a*e)))^p
*(d + e*x)^p)
```

Rubi [A] time = 0.206315, antiderivative size = 125, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.125$

$$-\frac{(a+bx)^{p+1}(Bd-Ae)(d+ex)^{-p-1}}{e(p+1)(bd-ae)}-\frac{B(a+bx)^p(d+ex)^{-p}\left(-\frac{e(a+bx)}{bd-ae}\right)^{-p}{}_2F_1\left(-p,-p;1-p;\frac{b(d+ex)}{bd-ae}\right)}{e^2p}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^p*(A + B*x)*(d + e*x)^(-2 - p),x]
```

```
[Out] -(((B*d - A*e)*(a + b*x)^(1 + p)*(d + e*x)^(-1 - p))/(e*(b*d - a*
e)*(1 + p))) - (B*(a + b*x)^p*Hypergeometric2F1[-p, -p, 1 - p, (b
*(d + e*x))/(b*d - a*e)])/(e^2*p*(-((e*(a + b*x))/(b*d - a*e)))^p
*(d + e*x)^p)
```

Rubi in Sympy [A] time = 22.3429, size = 95, normalized size = 0.76

$$-\frac{B\left(\frac{e(a+bx)}{ae-bd}\right)^{-p}(a+bx)^p(d+ex)^{-p}{}_2F_1\left(\begin{matrix}-p,-p\\-p+1\end{matrix}\middle|\frac{b(-d-ex)}{ae-bd}\right)}{e^2p}-\frac{(a+bx)^{p+1}(d+ex)^{-p-1}(Ae-Bd)}{e(p+1)(ae-bd)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**p*(B*x+A)*(e*x+d)**(-2-p),x)
```

```
[Out] -B*(e*(a + b*x)/(a*e - b*d))**(-p)*(a + b*x)**p*(d + e*x)**(-p)*h
yper((-p, -p), (-p + 1,), b*(-d - e*x)/(a*e - b*d))/(e**2*p) - (a
 + b*x)**(p + 1)*(d + e*x)**(-p - 1)*(A*e - B*d)/(e*(p + 1)*(a*e
- b*d))
```

Mathematica [A] time = 0.355286, size = 132, normalized size = 1.06

$$\frac{(a+bx)^p(d+ex)^{-p-1}\left(Ae^2p(a+bx)-B(p+1)(d+ex)(bd-ae)\left(\frac{e(a+bx)}{ae-bd}\right)^{-p}{}_2F_1\left(-p,-p;1-p;\frac{b(d+ex)}{bd-ae}\right)-Bdep(a+bx)\right)}{e^2p(p+1)(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^p*(A + B*x)*(d + e*x)^(-2 - p),x]
```

```
[Out] ((a + b*x)^p*(d + e*x)^(-1 - p)*(-(B*d*e*p*(a + b*x)) + A*e^2*p*(
a + b*x) - (B*(b*d - a*e)*(1 + p)*(d + e*x)*Hypergeometric2F1[-p,
 -p, 1 - p, (b*(d + e*x))/(b*d - a*e)])/((e*(a + b*x))/(-(b*d) +
```

```
a*e))^p))/(e^2*(b*d - a*e)*p*(1 + p))
```

Maple [F] time = 0.077, size = 0, normalized size = 0.

$$\int (bx+a)^p (Bx+A) (ex+d)^{-2-p} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^p*(B*x+A)*(e*x+d)^(-2-p),x)
```

```
[Out] int((b*x+a)^p*(B*x+A)*(e*x+d)^(-2-p),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (Bx+A)(bx+a)^p(ex+d)^{-p-2} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^p*(e*x + d)^(-p - 2),x, algorithm="maxima")
```

```
[Out] integrate((B*x + A)*(b*x + a)^p*(e*x + d)^(-p - 2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left((Bx+A)(bx+a)^p(ex+d)^{-p-2}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^p*(e*x + d)^(-p - 2),x, algorithm="fricas")
```

```
[Out] integral((B*x + A)*(b*x + a)^p*(e*x + d)^(-p - 2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**p*(B*x+A)*(e*x+d)**(-2-p),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (Bx+A)(bx+a)^p(ex+d)^{-p-2} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^p*(e*x + d)^(-p - 2),x, algorithm="giac")
```

```
[Out] integrate((B*x + A)*(b*x + a)^p*(e*x + d)^(-p - 2), x)
```

3.3030 $\int (a+bx)(c+dx)^n(e+fx)^{-n}\,dx$

Optimal. Leaf size=134

$$\frac{(c+dx)^{n+1}(e+fx)^{-n}\left(\frac{d(e+fx)}{de-cf}\right)^n(2adf-b(cf(1-n)+de(n+1)))\,{}_2F_1\left(n,n+1;n+2;-\frac{f(c+dx)}{de-cf}\right)}{2d^2f(n+1)}+\frac{b(c+dx)^{n+1}(e+fx)^{1-n}}{2df}$$

```
[Out] (b*(c + d*x)^(1 + n)*(e + f*x)^(1 - n))/(2*d*f) + ((2*a*d*f - b*(
c*f*(1 - n) + d*e*(1 + n)))*(c + d*x)^(1 + n)*((d*(e + f*x))/(d*e
 - c*f))^n*Hypergeometric2F1[n, 1 + n, 2 + n, -((f*(c + d*x))/(d*
e - c*f))])/(2*d^2*f*(1 + n)*(e + f*x)^n)
```

Rubi [A] time = 0.2355, antiderivative size = 134, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.136

$$\frac{(c+dx)^{n+1}(e+fx)^{-n}\left(\frac{d(e+fx)}{de-cf}\right)^n(2adf-bcf(1-n)-bde(n+1))\,{}_2F_1\left(n,n+1;n+2;-\frac{f(c+dx)}{de-cf}\right)}{2d^2f(n+1)}+\frac{b(c+dx)^{n+1}(e+fx)^{1-n}}{2df}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(c + d*x)^n)/(e + f*x)^n,x]
```

```
[Out] (b*(c + d*x)^(1 + n)*(e + f*x)^(1 - n))/(2*d*f) + ((2*a*d*f - b*c
*f*(1 - n) - b*d*e*(1 + n))*(c + d*x)^(1 + n)*((d*(e + f*x))/(d*e
 - c*f))^n*Hypergeometric2F1[n, 1 + n, 2 + n, -((f*(c + d*x))/(d*
e - c*f))])/(2*d^2*f*(1 + n)*(e + f*x)^n)
```

Rubi in Sympy [A] time = 22.8304, size = 105, normalized size = 0.78

$$\frac{b\,(c+dx)^{n+1}\,(e+fx)^{-n+1}}{2df}-\frac{\left(\frac{d(-e-fx)}{cf-de}\right)^n(c+dx)^{n+1}\,(e+fx)^{-n}\,(-2adf+b\,(cf\,(-n+1)+de\,(n+1)))\,{}_2F_1\left(\begin{matrix}n,n+1\\n+2\end{matrix}\middle|\frac{f(c+dx)}{cf-de}\right)}{2d^2f\,(n+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(d*x+c)**n/((f*x+e)**n),x)
```

```
[Out] b*(c + d*x)**(n + 1)*(e + f*x)**(-n + 1)/(2*d*f) - (d*(-e - f*x)/
(c*f - d*e))**n*(c + d*x)**(n + 1)*(e + f*x)**(-n)*(-2*a*d*f + b*
(c*f*(-n + 1) + d*e*(n + 1)))*hyper((n, n + 1), (n + 2,), f*(c +
d*x)/(c*f - d*e))/(2*d**2*f*(n + 1))
```

Mathematica [C] time = 0.688552, size = 201, normalized size = 1.5

$$(c+dx)^n(e+fx)^{-n}\left(\frac{3bcex^2F_1\left(2;-n,n;3;-\frac{dx}{c},-\frac{fx}{e}\right)}{6ceF_1\left(2;-n,n;3;-\frac{dx}{c},-\frac{fx}{e}\right)+2nx\left(deF_1\left(3;1-n,n;4;-\frac{dx}{c},-\frac{fx}{e}\right)-cfF_1\left(3;-n,n+1;4;-\frac{dx}{c},-\frac{fx}{e}\right)\right)}-\frac{a(e+fx)\left(\frac{f(c+dx)}{cf-de}\right)^{-n}\,{}_2F_1\left(1-n,-n;2-n;\frac{d(e+fx)}{de-cf}\right)}{f(n-1)}\right)$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[((a + b*x)*(c + d*x)^n)/(e + f*x)^n,x]
```

```
[Out] ((c + d*x)^n*((3*b*c*e*x^2*AppellF1[2, -n, n, 3, -((d*x)/c), -((f
*x)/e)])/(6*c*e*AppellF1[2, -n, n, 3, -((d*x)/c), -((f*x)/e)] + 2
*n*x*(d*e*AppellF1[3, 1 - n, n, 4, -((d*x)/c), -((f*x)/e)] - c*f*
AppellF1[3, -n, 1 + n, 4, -((d*x)/c), -((f*x)/e)])) - (a*(e + f*x
)*Hypergeometric2F1[1 - n, -n, 2 - n, (d*(e + f*x))/(d*e - c*f)])
/(f*(-1 + n)*((f*(c + d*x))/(-(d*e) + c*f))^n)))/(e + f*x)^n
```

Maple [F] time = 0.086, size = 0, normalized size = 0.

$$\int \frac{(bx+a)\,(dx+c)^n}{(fx+e)^n}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(d*x+c)^n/((f*x+e)^n),x)
```

```
[Out] int((b*x+a)*(d*x+c)^n/((f*x+e)^n),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)(dx+c)^n(fx+e)^{-n}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)*(d*x + c)^n/(f*x + e)^n,x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)*(d*x + c)^n*(f*x + e)^(-n), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)(dx+c)^n}{(fx+e)^n}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)*(d*x + c)^n/(f*x + e)^n,x, algorithm="fricas")
```

```
[Out] integral((b*x + a)*(d*x + c)^n/(f*x + e)^n, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(d*x+c)**n/((f*x+e)**n),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)(dx+c)^n}{(fx+e)^n}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)*(d*x + c)^n/(f*x + e)^n,x, algorithm="giac")
```

```
[Out] integrate((b*x + a)*(d*x + c)^n/(f*x + e)^n, x)
```

3.3031 $\int (a+bx)(c+dx)^{-1+n}(e+fx)^{-n}\,dx$

Optimal. Leaf size=152

$$-\frac{(c+dx)^{n+1}(e+fx)^{-n}\left(\frac{d(e+fx)}{de-cf}\right)^n(adf-b(cf(1-n)+den))\,{}_2F_1\left(n,n+1;n+2;-\frac{f(c+dx)}{de-cf}\right)}{d^2n(n+1)(de-cf)}-\frac{(bc-ad)(c+dx)^n(e+fx)^{1-n}}{dn(de-cf)}$$

```
[Out] -(((b*c - a*d)*(c + d*x)^n*(e + f*x)^(1 - n))/(d*(d*e - c*f)*n))
- ((a*d*f - b*(c*f*(1 - n) + d*e*n))*(c + d*x)^(1 + n)*((d*(e + f
*x))/(d*e - c*f))^n*Hypergeometric2F1[n, 1 + n, 2 + n, -((f*(c +
d*x))/(d*e - c*f))])/(d^2*(d*e - c*f)*n*(1 + n)*(e + f*x)^n)
```

Rubi [A] time = 0.232721, antiderivative size = 152, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.125$

$$-\frac{(c+dx)^{n+1}(e+fx)^{-n}\left(\frac{d(e+fx)}{de-cf}\right)^n(adf-bcf(1-n)-bden)\,{}_2F_1\left(n,n+1;n+2;-\frac{f(c+dx)}{de-cf}\right)}{d^2n(n+1)(de-cf)}-\frac{(bc-ad)(c+dx)^n(e+fx)^{1-n}}{dn(de-cf)}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(c + d*x)^(-1 + n))/(e + f*x)^n,x]
```

```
[Out] -(((b*c - a*d)*(c + d*x)^n*(e + f*x)^(1 - n))/(d*(d*e - c*f)*n))
- ((a*d*f - b*c*f*(1 - n) - b*d*e*n)*(c + d*x)^(1 + n)*((d*(e + f
*x))/(d*e - c*f))^n*Hypergeometric2F1[n, 1 + n, 2 + n, -((f*(c +
d*x))/(d*e - c*f))])/(d^2*(d*e - c*f)*n*(1 + n)*(e + f*x)^n)
```

Rubi in Sympy [A] time = 28.5923, size = 117, normalized size = 0.77

$$-\frac{(c+dx)^n\,(e+fx)^{-n+1}\,(ad-bc)}{dn\,(cf-de)}-\frac{\left(\frac{d(-e-fx)}{cf-de}\right)^n(c+dx)^{n+1}\,(e+fx)^{-n}\,(-adf+b\,(cf\,(-n+1)+den))\,{}_2F_1\left(\begin{matrix}n,n+1\\n+2\end{matrix}\middle|\frac{f(c+dx)}{cf-de}\right)}{d^2n\,(n+1)\,(cf-de)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(d*x+c)**(-1+n)/((f*x+e)**n),x)
```

```
[Out] -(c + d*x)**n*(e + f*x)**(-n + 1)*(a*d - b*c)/(d*n*(c*f - d*e)) -
 (d*(-e - f*x)/(c*f - d*e))**n*(c + d*x)**(n + 1)*(e + f*x)**(-n)
*(-a*d*f + b*(c*f*(-n + 1) + d*e*n))*hyper((n, n + 1), (n + 2,),
f*(c + d*x)/(c*f - d*e))/(d**2*n*(n + 1)*(c*f - d*e))
```

Mathematica [A] time = 0.199788, size = 147, normalized size = 0.97

$$\frac{(c+dx)^n(e+fx)^{1-n}\left(\frac{f(c+dx)}{cf-de}\right)^{-n}\left((adf-bcf)\,{}_2F_1\left(1-n,1-n;2-n;\frac{d(e+fx)}{de-cf}\right)+b(cf-de)\,{}_2F_1\left(1-n,-n;2-n;\frac{d(e+fx)}{de-cf}\right)\right)}{df(n-1)(de-cf)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(c + d*x)^(-1 + n))/(e + f*x)^n,x]
```

```
[Out] ((c + d*x)^n*(e + f*x)^(1 - n)*((-(b*c*f) + a*d*f)*Hypergeometric
2F1[1 - n, 1 - n, 2 - n, (d*(e + f*x))/(d*e - c*f)] + b*(-(d*e) +
 c*f)*Hypergeometric2F1[1 - n, -n, 2 - n, (d*(e + f*x))/(d*e - c*
f)]))/(d*f*(d*e - c*f)*(-1 + n)*((f*(c + d*x))/(-(d*e) + c*f))^n)
```

Maple [F] time = 0.08, size = 0, normalized size = 0.

$$\int \frac{(bx+a)\,(dx+c)^{-1+n}}{(fx+e)^{n}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(d*x+c)^(-1+n)/((f*x+e)^n),x)
```

```
[Out] int((b*x+a)*(d*x+c)^(-1+n)/((f*x+e)^n),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)(dx+c)^{n-1}(fx+e)^{-n}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)*(d*x + c)^(n - 1)/(f*x + e)^n,x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)*(d*x + c)^(n - 1)*(f*x + e)^(-n), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{(bx+a)(dx+c)^{n-1}}{(fx+e)^{n}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)*(d*x + c)^(n - 1)/(f*x + e)^n,x, algorithm="fricas")
```

```
[Out] integral((b*x + a)*(d*x + c)^(n - 1)/(f*x + e)^n, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(d*x+c)**(-1+n)/((f*x+e)**n),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)(dx+c)^{n-1}}{(fx+e)^{n}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)*(d*x + c)^(n - 1)/(f*x + e)^n,x, algorithm="giac")
```

```
[Out] integrate((b*x + a)*(d*x + c)^(n - 1)/(f*x + e)^n, x)
```

3.3032 $\int (a+bx)(c+dx)^{-2+n}(e+fx)^{-n}\,dx$

Optimal. Leaf size=117

$$\frac{(bc-ad)(c+dx)^{n-1}(e+fx)^{1-n}}{d(1-n)(de-cf)}+\frac{b(c+dx)^n(e+fx)^{-n}\left(\frac{d(e+fx)}{de-cf}\right)^n {}_2F_1\left(n,n;n+1;-\frac{f(c+dx)}{de-cf}\right)}{d^2n}$$

```
[Out] ((b*c - a*d)*(c + d*x)^(-1 + n)*(e + f*x)^(1 - n))/(d*(d*e - c*f)
*(1 - n)) + (b*(c + d*x)^n*((d*(e + f*x))/(d*e - c*f))^n*Hypergeo
metric2F1[n, n, 1 + n, -((f*(c + d*x))/(d*e - c*f))])/(d^2*n*(e +
 f*x)^n)
```

Rubi [A] time = 0.177895, antiderivative size = 117, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.125$

$$\frac{(bc-ad)(c+dx)^{n-1}(e+fx)^{1-n}}{d(1-n)(de-cf)}+\frac{b(c+dx)^n(e+fx)^{-n}\left(\frac{d(e+fx)}{de-cf}\right)^n {}_2F_1\left(n,n;n+1;-\frac{f(c+dx)}{de-cf}\right)}{d^2n}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(c + d*x)^(-2 + n))/(e + f*x)^n,x]
```

```
[Out] ((b*c - a*d)*(c + d*x)^(-1 + n)*(e + f*x)^(1 - n))/(d*(d*e - c*f)
*(1 - n)) + (b*(c + d*x)^n*((d*(e + f*x))/(d*e - c*f))^n*Hypergeo
metric2F1[n, n, 1 + n, -((f*(c + d*x))/(d*e - c*f))])/(d^2*n*(e +
 f*x)^n)
```

Rubi in Sympy [A] time = 22.8221, size = 88, normalized size = 0.75

$$\frac{b\left(\frac{d(-e-fx)}{cf-de}\right)^n (c+dx)^n (e+fx)^{-n} {}_2F_1\left(\begin{matrix} n,n \\ n+1 \end{matrix}\middle| \frac{f(c+dx)}{cf-de}\right)}{d^2n}+\frac{(c+dx)^{n-1}(e+fx)^{-n+1}(ad-bc)}{d(-n+1)(cf-de)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(d*x+c)**(-2+n)/((f*x+e)**n),x)
```

```
[Out] b*(d*(-e - f*x)/(c*f - d*e))**n*(c + d*x)**n*(e + f*x)**(-n)*hype
r((n, n), (n + 1,), f*(c + d*x)/(c*f - d*e))/(d**2*n) + (c + d*x)
**(n - 1)*(e + f*x)**(-n + 1)*(a*d - b*c)/(d*(-n + 1)*(c*f - d*e)
)
```

Mathematica [A] time = 0.254743, size = 129, normalized size = 1.1

$$\frac{(c+dx)^{n-1}(e+fx)^{1-n}\left(\frac{f(c+dx)}{cf-de}\right)^{-n}\left((ad-bc)\left(\frac{f(c+dx)}{cf-de}\right)^n+b(c+dx)\,{}_2F_1\left(1-n,1-n;2-n;\frac{d(e+fx)}{de-cf}\right)\right)}{d(n-1)(de-cf)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(c + d*x)^(-2 + n))/(e + f*x)^n,x]
```

```
[Out] ((c + d*x)^(-1 + n)*(e + f*x)^(1 - n)*((-(b*c) + a*d)*((f*(c + d*
x))/(-(d*e) + c*f))^n + b*(c + d*x)*Hypergeometric2F1[1 - n, 1 -
n, 2 - n, (d*(e + f*x))/(d*e - c*f)]))/(d*(d*e - c*f)*(-1 + n)*((
```

```
f*(c + d*x))/(-(d*e) + c*f))^n)
```

Maple [F] time = 0.075, size = 0, normalized size = 0.

$$\int \frac{(bx+a)(dx+c)^{-2+n}}{(fx+e)^{n}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(d*x+c)^(-2+n)/((f*x+e)^n),x)

[Out] int((b*x+a)*(d*x+c)^(-2+n)/((f*x+e)^n),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)(dx+c)^{n-2}(fx+e)^{-n}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)*(d*x + c)^(n - 2)/(f*x + e)^n,x, algorithm="maxima")

[Out] integrate((b*x + a)*(d*x + c)^(n - 2)*(f*x + e)^(-n), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{(bx+a)(dx+c)^{n-2}}{(fx+e)^{n}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)*(d*x + c)^(n - 2)/(f*x + e)^n,x, algorithm="fricas")

[Out] integral((b*x + a)*(d*x + c)^(n - 2)/(f*x + e)^n, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(d*x+c)**(-2+n)/((f*x+e)**n),x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)(dx+c)^{n-2}}{(fx+e)^{n}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)*(d*x + c)^(n - 2)/(f*x + e)^n,x, algorithm="giac")

[Out] integrate((b*x + a)*(d*x + c)^(n - 2)/(f*x + e)^n, x)
```

3.3033 $\int (a+bx)(c+dx)^{-3+n}(e+fx)^{-n}\,dx$

Optimal. Leaf size=123

$$\frac{(bc-ad)(c+dx)^{n-2}(e+fx)^{1-n}}{d(2-n)(de-cf)}+\frac{(c+dx)^{n-1}(e+fx)^{1-n}(adf+b(cf(1-n)-de(2-n)))}{d(1-n)(2-n)(de-cf)^2}$$

```
[Out] ((b*c - a*d)*(c + d*x)^(-2 + n)*(e + f*x)^(1 - n))/(d*(d*e - c*f)
*(2 - n)) + ((a*d*f + b*(c*f*(1 - n) - d*e*(2 - n)))*(c + d*x)^(-
1 + n)*(e + f*x)^(1 - n))/(d*(d*e - c*f)^2*(1 - n)*(2 - n))
```

Rubi [A] time = 0.194123, antiderivative size = 122, normalized size of antiderivative = 0.99, number of steps used = 2, number of rules used = 2, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.083

$$\frac{(bc-ad)(c+dx)^{n-2}(e+fx)^{1-n}}{d(2-n)(de-cf)}+\frac{(c+dx)^{n-1}(e+fx)^{1-n}(adf+bcf(1-n)-bde(2-n))}{d(1-n)(2-n)(de-cf)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(c + d*x)^(-3 + n))/(e + f*x)^n,x]
```

```
[Out] ((b*c - a*d)*(c + d*x)^(-2 + n)*(e + f*x)^(1 - n))/(d*(d*e - c*f)
*(2 - n)) + ((a*d*f + b*c*f*(1 - n) - b*d*e*(2 - n))*(c + d*x)^(-
1 + n)*(e + f*x)^(1 - n))/(d*(d*e - c*f)^2*(1 - n)*(2 - n))
```

Rubi in Sympy [A] time = 23.7484, size = 88, normalized size = 0.72

$$\frac{(c+dx)^{n-2}(e+fx)^{-n+1}(ad-bc)}{d(-n+2)(cf-de)}+\frac{(c+dx)^{n-1}(e+fx)^{-n+1}(adf+b(cf(-n+1)-de(-n+2)))}{d(-n+1)(-n+2)(cf-de)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(d*x+c)**(-3+n)/((f*x+e)**n),x)
```

```
[Out] (c + d*x)**(n - 2)*(e + f*x)**(-n + 1)*(a*d - b*c)/(d*(-n + 2)*(c
*f - d*e)) + (c + d*x)**(n - 1)*(e + f*x)**(-n + 1)*(a*d*f + b*(c
*f*(-n + 1) - d*e*(-n + 2)))/(d*(-n + 1)*(-n + 2)*(c*f - d*e)**2)
```

Mathematica [A] time = 0.247603, size = 82, normalized size = 0.67

$$\frac{(c+dx)^{n-2}(e+fx)^{1-n}(-acf(n-2)+ade(n-1)+adfx-bc(e+f(n-1)x)+bde(n-2)x)}{(n-2)(n-1)(de-cf)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(c + d*x)^(-3 + n))/(e + f*x)^n,x]
```

```
[Out] ((c + d*x)^(-2 + n)*(e + f*x)^(1 - n)*(-(a*c*f*(-2 + n)) + a*d*e*
(-1 + n) + a*d*f*x + b*d*e*(-2 + n)*x - b*c*(e + f*(-1 + n)*x)))/
((d*e - c*f)^2*(-2 + n)*(-1 + n))
```

Maple [A] time = 0.008, size = 161, normalized size = 1.3

$$-\frac{(dx+c)^{-2+n}(fx+e)(bcfnx-bdenx+acfn-aden-adfx-bcfx+2\,bdex-2\,acf+ade+bce)}{(c^2f^2n^2-2\,cdefn^2+d^2e^2n^2-3\,c^2f^2n+6\,cdefn-3\,d^2e^2n+2\,c^2f^2-4\,cdef+2\,d^2e^2)(fx+e)^n}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(d*x+c)^(-3+n)/((f*x+e)^n),x)
```

```
[Out] -(d*x+c)^(-2+n)*(f*x+e)*(b*c*f*n*x-b*d*e*n*x+a*c*f*n-a*d*e*n-a*d*
f*x-b*c*f*x+2*b*d*e*x-2*a*c*f+a*d*e+b*c*e)/(c^2*f^2*n^2-2*c*d*e*f
*n^2+d^2*e^2*n^2-3*c^2*f^2*n+6*c*d*e*f*n-3*d^2*e^2*n+2*c^2*f^2-4*
c*d*e*f+2*d^2*e^2)/((f*x+e)^n)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)(dx+c)^{n-3}(fx+e)^{-n}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)*(d*x + c)^(n - 3)/(f*x + e)^n,x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)*(d*x + c)^(n - 3)*(f*x + e)^(-n), x)
```

Fricas [A] time = 0.278419, size = 437, normalized size = 3.55

$$\frac{\left(2\,ac^{2}ef-\left(2\,bd^{2}ef-\left(bcd+ad^{2}\right)f^{2}-\left(bd^{2}ef-bcdf^{2}\right)n\right)x^{3}-\left(bc^{2}+acd\right)e^{2}-\left(2\,bd^{2}e^{2}+2\,bcdef-\left(bc^{2}+3\,acd\right)f^{2}-\right.\right.}{\left(2\,d^{2}e^{2}-4\,cdef+2\,c^{2}f^{2}+(d^{2}e\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)*(d*x + c)^(n - 3)/(f*x + e)^n,x, algorithm="fricas")
```

```
[Out] (2*a*c^2*e*f - (2*b*d^2*e*f - (b*c*d + a*d^2)*f^2 - (b*d^2*e*f -
b*c*d*f^2)*n)*x^3 - (b*c^2 + a*c*d)*e^2 - (2*b*d^2*e^2 + 2*b*c*d*
e*f - (b*c^2 + 3*a*c*d)*f^2 - (b*d^2*e^2 + a*d^2*e*f - (b*c^2 + a
*c*d)*f^2)*n)*x^2 + (a*c*d*e^2 - a*c^2*e*f)*n + (2*a*c*d*e*f + 2*
a*c^2*f^2 - (3*b*c*d + a*d^2)*e^2 - (b*c^2*e*f + a*c^2*f^2 - (b*c
*d + a*d^2)*e^2)*n)*x)*(d*x + c)^(n - 3)/((2*d^2*e^2 - 4*c*d*e*f
+ 2*c^2*f^2 + (d^2*e^2 - 2*c*d*e*f + c^2*f^2)*n^2 - 3*(d^2*e^2 -
2*c*d*e*f + c^2*f^2)*n)*(f*x + e)^n)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(d*x+c)**(-3+n)/((f*x+e)**n),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.229009, size = 1, normalized size = 0.01

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)*(d*x + c)^(n - 3)/(f*x + e)^n,x, algorithm="giac")
```

```
[Out] Done
```

3.3034 $\int (a+bx)(c+dx)^{-4+n}(e+fx)^{-n}\,dx$

Optimal. Leaf size=207

$$\frac{(bc-ad)(c+dx)^{n-3}(e+fx)^{1-n}}{d(3-n)(de-cf)}+\frac{(c+dx)^{n-2}(e+fx)^{1-n}(2adf+b(cf(1-n)-de(3-n)))}{d(2-n)(3-n)(de-cf)^2}-\frac{f(c+dx)^{n-1}(e+fx)^{1-n}(2adf+b(cf(1-n)-de(3-n)))}{d(1-n)(2-n)(3-n)(de-cf)^3}$$

```
[Out] ((b*c - a*d)*(c + d*x)^(-3 + n)*(e + f*x)^(1 - n))/(d*(d*e - c*f)
*(3 - n)) + ((2*a*d*f + b*(c*f*(1 - n) - d*e*(3 - n)))*(c + d*x)^
(-2 + n)*(e + f*x)^(1 - n))/(d*(d*e - c*f)^2*(2 - n)*(3 - n)) - (
f*(2*a*d*f + b*(c*f*(1 - n) - d*e*(3 - n)))*(c + d*x)^(-1 + n)*(e
 + f*x)^(1 - n))/(d*(d*e - c*f)^3*(1 - n)*(2 - n)*(3 - n))
```

Rubi [A] time = 0.359864, antiderivative size = 205, normalized size of antiderivative = 0.99, number of steps used = 3, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$\frac{(bc-ad)(c+dx)^{n-3}(e+fx)^{1-n}}{d(3-n)(de-cf)}+\frac{(c+dx)^{n-2}(e+fx)^{1-n}(2adf+bcf(1-n)-bde(3-n))}{d(2-n)(3-n)(de-cf)^2}-\frac{f(c+dx)^{n-1}(e+fx)^{1-n}(2adf+bcf(1-n)-bde(3-n))}{d(1-n)(2-n)(3-n)(de-cf)^3}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(c + d*x)^(-4 + n))/(e + f*x)^n,x]
```

```
[Out] ((b*c - a*d)*(c + d*x)^(-3 + n)*(e + f*x)^(1 - n))/(d*(d*e - c*f)
*(3 - n)) + ((2*a*d*f + b*c*f*(1 - n) - b*d*e*(3 - n))*(c + d*x)^
(-2 + n)*(e + f*x)^(1 - n))/(d*(d*e - c*f)^2*(2 - n)*(3 - n)) - (
f*(2*a*d*f + b*c*f*(1 - n) - b*d*e*(3 - n))*(c + d*x)^(-1 + n)*(e
 + f*x)^(1 - n))/(d*(d*e - c*f)^3*(1 - n)*(2 - n)*(3 - n))
```

Rubi in Sympy [A] time = 47.347, size = 151, normalized size = 0.73

$$\frac{f(c+dx)^{n-1}(e+fx)^{-n+1}(2adf+b(cf(-n+1)-de(-n+3)))}{d(-n+1)(-n+2)(-n+3)(cf-de)^3}+\frac{(c+dx)^{n-3}(e+fx)^{-n+1}(ad-bc)}{d(-n+3)(cf-de)}+\frac{(c+dx)^{n-2}(e+fx)^{-n+1}(2adf+b(cf(-n+1)-de(-n+3)))}{d(-n+2)(-n+3)(cf-de)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(d*x+c)**(-4+n)/((f*x+e)**n),x)
```

```
[Out] f*(c + d*x)**(n - 1)*(e + f*x)**(-n + 1)*(2*a*d*f + b*(c*f*(-n +
1) - d*e*(-n + 3)))/(d*(-n + 1)*(-n + 2)*(-n + 3)*(c*f - d*e)**3)
 + (c + d*x)**(n - 3)*(e + f*x)**(-n + 1)*(a*d - b*c)/(d*(-n + 3)
*(c*f - d*e)) + (c + d*x)**(n - 2)*(e + f*x)**(-n + 1)*(2*a*d*f +
 b*(c*f*(-n + 1) - d*e*(-n + 3)))/(d*(-n + 2)*(-n + 3)*(c*f - d*e
)**2)
```

Mathematica [A] time = 0.560298, size = 198, normalized size = 0.96

$$\frac{(c+dx)^n(e+fx)^{-n}\left(\frac{f^2(2adf-bcf(n-1)+bde(n-3))}{(n-3)(n-2)(n-1)(de-cf)^3}+\frac{fn(2adf-bcf(n-1)+bde(n-3))}{(n-1)(n^2-5n+6)(c+dx)(de-cf)^2}+\frac{adfn+bcf(3-2n)+bde(n-3)}{(n-3)(n-2)(c+dx)^2(de-cf)}+\frac{ad-bc}{(n-3)(c+dx)^3}\right)}{d^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(c + d*x)^(-4 + n))/(e + f*x)^n,x]
```

```
[Out] ((c + d*x)^n*((f^2*(2*a*d*f + b*d*e*(-3 + n) - b*c*f*(-1 + n)))/(
(d*e - c*f)^3*(-3 + n)*(-2 + n)*(-1 + n)) + (-(b*c) + a*d)/((-3 +
 n)*(c + d*x)^3) + (b*c*f*(3 - 2*n) + b*d*e*(-3 + n) + a*d*f*n)/(
(d*e - c*f)*(-3 + n)*(-2 + n)*(c + d*x)^2) + (f*(2*a*d*f + b*d*e*
(-3 + n) - b*c*f*(-1 + n))*n)/((d*e - c*f)^2*(-1 + n)*(6 - 5*n +
n^2)*(c + d*x))))/(d^2*(e + f*x)^n)
```

Maple [B] time = 0.01, size = 506, normalized size = 2.4

$$-\frac{(dx+c)^{-3+n}(fx+e)(bc^2f^2n^2x - 2bcdefn^2x - bcdf^2nx^2 + bd^2e^2n^2x + bd^2efnx^2 + ac^2f^2n^2 - 2acdefn^2 - 2acdf^2nx +}{(c^3f^3n^3 - 3c^2def^2n^3 + 3cd^2e}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(d*x+c)^(-4+n)/((f*x+e)^n),x)
```

```
[Out] -(d*x+c)^(-3+n)*(f*x+e)*(b*c^2*f^2*n^2*x-2*b*c*d*e*f*n^2*x-b*c*d*
f^2*n*x^2+b*d^2*e^2*n^2*x+b*d^2*e*f*n*x^2+a*c^2*f^2*n^2-2*a*c*d*e
*f*n^2-2*a*c*d*f^2*n*x+a*d^2*e^2*n^2+2*a*d^2*e*f*n*x+2*a*d^2*f^2*
x^2-4*b*c^2*f^2*n*x+8*b*c*d*e*f*n*x+b*c*d*f^2*x^2-4*b*d^2*e^2*n*x
-3*b*d^2*e*f*x^2-5*a*c^2*f^2*n+8*a*c*d*e*f*n+6*a*c*d*f^2*x-3*a*d^
2*e^2*n-2*a*d^2*e*f*x+b*c^2*e*f*n+3*b*c^2*f^2*x-b*c*d*e^2*n-10*b*
c*d*e*f*x+3*b*d^2*e^2*x+6*a*c^2*f^2-6*a*c*d*e*f+2*a*d^2*e^2-3*b*c
^2*e*f+b*c*d*e^2)/(c^3*f^3*n^3-3*c^2*d*e*f^2*n^3+3*c*d^2*e^2*f*n^
3-d^3*e^3*n^3-6*c^3*f^3*n^2+18*c^2*d*e*f^2*n^2-18*c*d^2*e^2*f*n^2
+6*d^3*e^3*n^2+11*c^3*f^3*n-33*c^2*d*e*f^2*n+33*c*d^2*e^2*f*n-11*
d^3*e^3*n-6*c^3*f^3+18*c^2*d*e*f^2-18*c*d^2*e^2*f+6*d^3*e^3)/((f*
x+e)^n)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)(dx+c)^{n-4}(fx+e)^{-n}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)*(d*x + c)^(n - 4)/(f*x + e)^n,x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)*(d*x + c)^(n - 4)*(f*x + e)^(-n), x)
```

Fricas [A] time = 0.268368, size = 1193, normalized size = 5.76

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)*(d*x + c)^(n - 4)/(f*x + e)^n,x, algorithm="fricas")
```

```
[Out] -(6*a*c^3*e*f^2 - (3*b*d^3*e*f^2 - (b*c*d^2 + 2*a*d^3)*f^3 - (b*d
^3*e*f^2 - b*c*d^2*f^3)*n)*x^4 + (b*c^2*d + 2*a*c*d^2)*e^3 - 3*(b
*c^3 + 2*a*c^2*d)*e^2*f - (12*b*c*d^2*e*f^2 - 4*(b*c^2*d + 2*a*c*
d^2)*f^3 - (b*d^3*e^2*f - 2*b*c*d^2*e*f^2 + b*c^2*d*f^3)*n^2 + (3
*b*d^3*e^2*f - 2*(4*b*c*d^2 + a*d^3)*e*f^2 + (5*b*c^2*d + 2*a*c*d
^2)*f^3)*n)*x^3 + (a*c*d^2*e^3 - 2*a*c^2*d*e^2*f + a*c^3*e*f^2)*n
^2 + (3*b*d^3*e^3 - 9*b*c*d^2*e^2*f - 9*b*c^2*d*e*f^2 + 3*(b*c^3
+ 4*a*c^2*d)*f^3 + (b*d^3*e^3 - (b*c*d^2 - a*d^3)*e^2*f - (b*c^2*
d + 2*a*c*d^2)*e*f^2 + (b*c^3 + a*c^2*d)*f^3)*n^2 - (4*b*d^3*e^3
```

```
- (4*b*c*d^2 - a*d^3)*e^2*f - 4*(b*c^2*d + 2*a*c*d^2)*e*f^2 + (4*
b*c^3 + 7*a*c^2*d)*f^3)*n)*x^2 - (5*a*c^3*e*f^2 + (b*c^2*d + 3*a*
c*d^2)*e^3 - (b*c^3 + 8*a*c^2*d)*e^2*f)*n + (6*a*c^2*d*e*f^2 + 6*
a*c^3*f^3 + 2*(2*b*c*d^2 + a*d^3)*e^3 - 6*(2*b*c^2*d + a*c*d^2)*e
^2*f + (a*c^3*f^3 + (b*c*d^2 + a*d^3)*e^3 - (2*b*c^2*d + a*c*d^2)
*e^2*f + (b*c^3 - a*c^2*d)*e*f^2)*n^2 - (5*a*c^3*f^3 + (5*b*c*d^2
 + 3*a*d^3)*e^3 - (8*b*c^2*d + 7*a*c*d^2)*e^2*f + (3*b*c^3 - a*c^
2*d)*e*f^2)*n)*x)*(d*x + c)^(n - 4)/((6*d^3*e^3 - 18*c*d^2*e^2*f
+ 18*c^2*d*e*f^2 - 6*c^3*f^3 - (d^3*e^3 - 3*c*d^2*e^2*f + 3*c^2*d
*e*f^2 - c^3*f^3)*n^3 + 6*(d^3*e^3 - 3*c*d^2*e^2*f + 3*c^2*d*e*f^
2 - c^3*f^3)*n^2 - 11*(d^3*e^3 - 3*c*d^2*e^2*f + 3*c^2*d*e*f^2 -
c^3*f^3)*n)*(f*x + e)^n)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(d*x+c)**(-4+n)/((f*x+e)**n),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)(dx+c)^{n-4}}{(fx+e)^n}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)*(d*x + c)^(n - 4)/(f*x + e)^n,x, algorithm="giac")
```

```
[Out] integrate((b*x + a)*(d*x + c)^(n - 4)/(f*x + e)^n, x)
```

3.3035 $\int (a+bx)(c+dx)^{-5+n}(e+fx)^{-n}\,dx$

Optimal. Leaf size=299

$$\frac{2f^2(c+dx)^{n-1}(e+fx)^{1-n}(3adf+b(cf(1-n)-de(4-n)))}{d(1-n)(2-n)(3-n)(4-n)(de-cf)^4}+\frac{(bc-ad)(c+dx)^{n-4}(e+fx)^{1-n}}{d(4-n)(de-cf)}+\frac{(c+dx)^{n-3}(e+fx)^{1-n}(3adf+b(cf(1-n)-de(4-n)))}{d(3-n)(4-n)(de-cf)^2}-\frac{2f(c+dx)^{n-2}(e+fx)^{1-n}(3adf+b(cf(1-n)-de(4-n)))}{d(2-n)(3-n)(4-n)(de-cf)^3}$$

```
[Out] ((b*c - a*d)*(c + d*x)^(-4 + n)*(e + f*x)^(1 - n))/(d*(d*e - c*f)
*(4 - n)) + ((3*a*d*f + b*(c*f*(1 - n) - d*e*(4 - n)))*(c + d*x)^
(-3 + n)*(e + f*x)^(1 - n))/(d*(d*e - c*f)^2*(3 - n)*(4 - n)) - (
2*f*(3*a*d*f + b*(c*f*(1 - n) - d*e*(4 - n)))*(c + d*x)^(-2 + n)*
(e + f*x)^(1 - n))/(d*(d*e - c*f)^3*(2 - n)*(3 - n)*(4 - n)) + (2
*f^2*(3*a*d*f + b*(c*f*(1 - n) - d*e*(4 - n)))*(c + d*x)^(-1 + n)
*(e + f*x)^(1 - n))/(d*(d*e - c*f)^4*(1 - n)*(2 - n)*(3 - n)*(4 -
 n))
```

Rubi [A] time = 0.590912, antiderivative size = 296, normalized size of antiderivative = 0.99, number of steps used = 4, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$\frac{2f^2(c+dx)^{n-1}(e+fx)^{1-n}(3adf+bcf(1-n)-bde(4-n))}{d(1-n)(2-n)(3-n)(4-n)(de-cf)^4}+\frac{(bc-ad)(c+dx)^{n-4}(e+fx)^{1-n}}{d(4-n)(de-cf)}+\frac{(c+dx)^{n-3}(e+fx)^{1-n}(3adf+bcf(1-n)-bde(4-n))}{d(3-n)(4-n)(de-cf)^2}-\frac{2f(c+dx)^{n-2}(e+fx)^{1-n}(3adf+bcf(1-n)-bde(4-n))}{d(2-n)(3-n)(4-n)(de-cf)^3}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)*(c + d*x)^(-5 + n))/(e + f*x)^n,x]
```

```
[Out] ((b*c - a*d)*(c + d*x)^(-4 + n)*(e + f*x)^(1 - n))/(d*(d*e - c*f)
*(4 - n)) + ((3*a*d*f + b*c*f*(1 - n) - b*d*e*(4 - n))*(c + d*x)^
(-3 + n)*(e + f*x)^(1 - n))/(d*(d*e - c*f)^2*(3 - n)*(4 - n)) - (
2*f*(3*a*d*f + b*c*f*(1 - n) - b*d*e*(4 - n))*(c + d*x)^(-2 + n)*
(e + f*x)^(1 - n))/(d*(d*e - c*f)^3*(2 - n)*(3 - n)*(4 - n)) + (2
*f^2*(3*a*d*f + b*c*f*(1 - n) - b*d*e*(4 - n))*(c + d*x)^(-1 + n)
*(e + f*x)^(1 - n))/(d*(d*e - c*f)^4*(1 - n)*(2 - n)*(3 - n)*(4 -
 n))
```

Rubi in Sympy [A] time = 82.1127, size = 221, normalized size = 0.74

$$\frac{2f^2\left(c+dx\right)^{n-1}\left(e+fx\right)^{-n+1}\left(3adf+b\left(cf\left(-n+1\right)-de\left(-n+4\right)\right)\right)}{d\left(-n+1\right)\left(-n+2\right)\left(-n+3\right)\left(-n+4\right)\left(cf-de\right)^4}+\frac{2f\left(c+dx\right)^{n-2}\left(e+fx\right)^{-n+1}\left(3adf+b\left(cf\left(-n+1\right)-de\left(-n+4\right)\right)\right)}{d\left(-n+2\right)\left(-n+3\right)\left(-n+4\right)\left(cf-de\right)^3}+\frac{\left(c+dx\right)^{n-4}\left(e+fx\right)^{-n+1}\left(ad-bc\right)}{d\left(-n+4\right)\left(cf-de\right)}+\frac{\left(c+dx\right)^{n-3}\left(e+fx\right)^{-n+1}\left(3adf+b\left(cf\left(-n+1\right)-de\left(-n+4\right)\right)\right)}{d\left(-n+3\right)\left(-n+4\right)\left(cf-de\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(d*x+c)**(-5+n)/((f*x+e)**n),x)
```

```
[Out] 2*f**2*(c + d*x)**(n - 1)*(e + f*x)**(-n + 1)*(3*a*d*f + b*(c*f*(
-n + 1) - d*e*(-n + 4)))/(d*(-n + 1)*(-n + 2)*(-n + 3)*(-n + 4)*(
c*f - d*e)**4) + 2*f*(c + d*x)**(n - 2)*(e + f*x)**(-n + 1)*(3*a*
d*f + b*(c*f*(-n + 1) - d*e*(-n + 4)))/(d*(-n + 2)*(-n + 3)*(-n +
 4)*(c*f - d*e)**3) + (c + d*x)**(n - 4)*(e + f*x)**(-n + 1)*(a*d
 - b*c)/(d*(-n + 4)*(c*f - d*e)) + (c + d*x)**(n - 3)*(e + f*x)**
(-n + 1)*(3*a*d*f + b*(c*f*(-n + 1) - d*e*(-n + 4)))/(d*(-n + 3)*
(-n + 4)*(c*f - d*e)**2)
```

Mathematica [A] time = 0.855908, size = 267, normalized size = 0.89

$$\frac{(c+dx)^n(e+fx)^{-n}\left(\frac{2f^3(3adf-bcf(n-1)+bde(n-4))}{(n-4)(n-3)(n-2)(n-1)(de-cf)^4}+\frac{2f^2n(3adf-bcf(n-1)+bde(n-4))}{(n-1)(n^3-9n^2+26n-24)(c+dx)(de-cf)^3}+\frac{fn(3adf-bcf(n-1)+bde(n-4))}{(n-2)(n^2-7n+12)(c+dx)^2(de-cf)^2}+\frac{adfn-2bc}{(n-4)(n-3)}\right.}{d^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)*(c + d*x)^(-5 + n))/(e + f*x)^n,x]
```

```
[Out] ((c + d*x)^n*((2*f^3*(3*a*d*f + b*d*e*(-4 + n) - b*c*f*(-1 + n)))
/((d*e - c*f)^4*(-4 + n)*(-3 + n)*(-2 + n)*(-1 + n)) + (-(b*c) +
a*d)/((-4 + n)*(c + d*x)^4) + (b*d*e*(-4 + n) - 2*b*c*f*(-2 + n)
+ a*d*f*n)/((d*e - c*f)*(-4 + n)*(-3 + n)*(c + d*x)^3) + (f*(3*a*
d*f + b*d*e*(-4 + n) - b*c*f*(-1 + n))*n)/((d*e - c*f)^2*(-2 + n)
*(12 - 7*n + n^2)*(c + d*x)^2) + (2*f^2*(3*a*d*f + b*d*e*(-4 + n)
 - b*c*f*(-1 + n))*n)/((d*e - c*f)^3*(-1 + n)*(-24 + 26*n - 9*n^2
 + n^3)*(c + d*x))))/(d^2*(e + f*x)^n)
```

Maple [B] time = 0.013, size = 1187, normalized size = 4.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(d*x+c)^(-5+n)/((f*x+e)^n),x)
```

```
[Out] -(d*x+c)^(-4+n)*(f*x+e)*(b*c^3*f^3*n^3*x-3*b*c^2*d*e*f^2*n^3*x-2*
b*c^2*d*f^3*n^2*x^2+3*b*c*d^2*e^2*f*n^3*x+4*b*c*d^2*e*f^2*n^2*x^2
+2*b*c*d^2*f^3*n*x^3-b*d^3*e^3*n^3*x-2*b*d^3*e^2*f*n^2*x^2-2*b*d^
3*e*f^2*n*x^3+a*c^3*f^3*n^3-3*a*c^2*d*e*f^2*n^3-3*a*c^2*d*f^3*n^2
*x+3*a*c*d^2*e^2*f*n^3+6*a*c*d^2*e*f^2*n^2*x+6*a*c*d^2*f^3*n*x^2-
a*d^3*e^3*n^3-3*a*d^3*e^2*f*n^2*x-6*a*d^3*e*f^2*n*x^2-6*a*d^3*f^3
*x^3-8*b*c^3*f^3*n^2*x+23*b*c^2*d*e*f^2*n^2*x+10*b*c^2*d*f^3*n*x^
2-22*b*c*d^2*e^2*f*n^2*x-20*b*c*d^2*e*f^2*n*x^2-2*b*c*d^2*f^3*x^3
+7*b*d^3*e^3*n^2*x+10*b*d^3*e^2*f*n*x^2+8*b*d^3*e*f^2*x^3-9*a*c^3
*f^3*n^2+24*a*c^2*d*e*f^2*n^2+21*a*c^2*d*f^3*n*x-21*a*c*d^2*e^2*f
*n^2-30*a*c*d^2*e*f^2*n*x-24*a*c*d^2*f^3*x^2+6*a*d^3*e^3*n^2+9*a*
d^3*e^2*f*n*x+6*a*d^3*e*f^2*x^2+b*c^3*e*f^2*n^2+19*b*c^3*f^3*n*x-
2*b*c^2*d*e^2*f*n^2-58*b*c^2*d*e*f^2*n*x-8*b*c^2*d*f^3*x^2+b*c*d^
2*e^3*n^2+53*b*c*d^2*e^2*f*n*x+34*b*c*d^2*e*f^2*x^2-14*b*d^3*e^3*
n*x-8*b*d^3*e^2*f*x^2+26*a*c^3*f^3*n-57*a*c^2*d*e*f^2*n-36*a*c^2*
d*f^3*x+42*a*c*d^2*e^2*f*n+24*a*c*d^2*e*f^2*x-11*a*d^3*e^3*n-6*a*
d^3*e^2*f*x-7*b*c^3*e*f^2*n-12*b*c^3*f^3*x+10*b*c^2*d*e^2*f*n+56*
b*c^2*d*e*f^2*x-3*b*c*d^2*e^3*n-34*b*c*d^2*e^2*f*x+8*b*d^3*e^3*x-
24*a*c^3*f^3+36*a*c^2*d*e*f^2-24*a*c*d^2*e^2*f+6*a*d^3*e^3+12*b*c
^3*e*f^2-8*b*c^2*d*e^2*f+2*b*c*d^2*e^3)/(c^4*f^4*n^4-4*c^3*d*e*f^
3*n^4+6*c^2*d^2*e^2*f^2*n^4-4*c*d^3*e^3*f*n^4+d^4*e^4*n^4-10*c^4*
f^4*n^3+40*c^3*d*e*f^3*n^3-60*c^2*d^2*e^2*f^2*n^3+40*c*d^3*e^3*f*
n^3-10*d^4*e^4*n^3+35*c^4*f^4*n^2-140*c^3*d*e*f^3*n^2+210*c^2*d^2
*e^2*f^2*n^2-140*c*d^3*e^3*f*n^2+35*d^4*e^4*n^2-50*c^4*f^4*n+200*
c^3*d*e*f^3*n-300*c^2*d^2*e^2*f^2*n+200*c*d^3*e^3*f*n-50*d^4*e^4*
n+24*c^4*f^4-96*c^3*d*e*f^3+144*c^2*d^2*e^2*f^2-96*c*d^3*e^3*f+24
*d^4*e^4)/((f*x+e)^n)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx + a)(dx + c)^{n-5}(fx + e)^{-n} dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)*(d*x + c)^(n - 5)/(f*x + e)^n,x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)*(d*x + c)^(n - 5)*(f*x + e)^(-n), x)
```

Fricas [A] time = 0.267873, size = 2350, normalized size = 7.86

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)*(d*x + c)^(n - 5)/(f*x + e)^n,x, algorithm="fricas")
```

```
[Out] (24*a*c^4*e*f^3 - 2*(4*b*d^4*e*f^3 - (b*c*d^3 + 3*a*d^4)*f^4 - (b
*d^4*e*f^3 - b*c*d^3*f^4)*n)*x^5 - 2*(b*c^2*d^2 + 3*a*c*d^3)*e^4
+ 8*(b*c^3*d + 3*a*c^2*d^2)*e^3*f - 12*(b*c^4 + 3*a*c^3*d)*e^2*f^
2 - 2*(20*b*c*d^3*e*f^3 - 5*(b*c^2*d^2 + 3*a*c*d^3)*f^4 - (b*d^4*
e^2*f^2 - 2*b*c*d^3*e*f^3 + b*c^2*d^2*f^4)*n^2 + (4*b*d^4*e^2*f^2
 - (10*b*c*d^3 + 3*a*d^4)*e*f^3 + 3*(2*b*c^2*d^2 + a*c*d^3)*f^4)*
n)*x^4 + (a*c*d^3*e^4 - 3*a*c^2*d^2*e^3*f + 3*a*c^3*d*e^2*f^2 - a
*c^4*e*f^3)*n^3 - (80*b*c^2*d^2*e*f^3 - 20*(b*c^3*d + 3*a*c^2*d^2
)*f^4 - (b*d^4*e^3*f - 3*b*c*d^3*e^2*f^2 + 3*b*c^2*d^2*e*f^3 - b*
c^3*d*f^4)*n^3 + (5*b*d^4*e^3*f - (20*b*c*d^3 + 3*a*d^4)*e^2*f^2
+ (25*b*c^2*d^2 + 6*a*c*d^3)*e*f^3 - (10*b*c^3*d + 3*a*c^2*d^2)*f
^4)*n^2 - (4*b*d^4*e^3*f - (41*b*c*d^3 + 3*a*d^4)*e^2*f^2 + 6*(11
*b*c^2*d^2 + 5*a*c*d^3)*e*f^3 - (29*b*c^3*d + 27*a*c^2*d^2)*f^4)*
n)*x^3 + (9*a*c^4*e*f^3 - (b*c^2*d^2 + 6*a*c*d^3)*e^4 + (2*b*c^3*
d + 21*a*c^2*d^2)*e^3*f - (b*c^4 + 24*a*c^3*d)*e^2*f^2)*n^2 - (8*
b*d^4*e^4 - 32*b*c*d^3*e^3*f + 48*b*c^2*d^2*e^2*f^2 + 48*b*c^3*d*
e*f^3 - 12*(b*c^4 + 5*a*c^3*d)*f^4 - (b*d^4*e^4 - 3*a*c*d^3*e^2*f
^2 - (2*b*c*d^3 - a*d^4)*e^3*f + (2*b*c^3*d + 3*a*c^2*d^2)*e*f^3
- (b*c^4 + a*c^3*d)*f^4)*n^3 + (7*b*d^4*e^4 - (16*b*c*d^3 - 3*a*d
^4)*e^3*f + 3*(b*c^2*d^2 - 6*a*c*d^3)*e^2*f^2 + (14*b*c^3*d + 27*
a*c^2*d^2)*e*f^3 - 4*(2*b*c^4 + 3*a*c^3*d)*f^4)*n^2 - (14*b*d^4*e
^4 - 2*(23*b*c*d^3 - a*d^4)*e^3*f + 15*(b*c^2*d^2 - a*c*d^3)*e^2*
f^2 + 12*(3*b*c^3*d + 5*a*c^2*d^2)*e*f^3 - (19*b*c^4 + 47*a*c^3*d
)*f^4)*n)*x^2 - (26*a*c^4*e*f^3 - (3*b*c^2*d^2 + 11*a*c*d^3)*e^4
+ 2*(5*b*c^3*d + 21*a*c^2*d^2)*e^3*f - (7*b*c^4 + 57*a*c^3*d)*e^2
*f^2)*n + (24*a*c^3*d*e*f^3 + 24*a*c^4*f^4 - 2*(5*b*c*d^3 + 3*a*d
^4)*e^4 + 8*(5*b*c^2*d^2 + 3*a*c*d^3)*e^3*f - 12*(5*b*c^3*d + 3*a
*c^2*d^2)*e^2*f^2 + (3*b*c^3*d*e^2*f^2 - a*c^4*f^4 + (b*c*d^3 + a
*d^4)*e^4 - (3*b*c^2*d^2 + 2*a*c*d^3)*e^3*f - (b*c^4 - 2*a*c^3*d)
*e*f^3)*n^3 + (9*a*c^4*f^4 - 2*(4*b*c*d^3 + 3*a*d^4)*e^4 + (23*b*
c^2*d^2 + 18*a*c*d^3)*e^3*f - (22*b*c^3*d + 9*a*c^2*d^2)*e^2*f^2
+ (7*b*c^4 - 12*a*c^3*d)*e*f^3)*n^2 - (26*a*c^4*f^4 - (17*b*c*d^3
 + 11*a*d^4)*e^4 + 20*(3*b*c^2*d^2 + 2*a*c*d^3)*e^3*f - 5*(11*b*c
^3*d + 9*a*c^2*d^2)*e^2*f^2 + 2*(6*b*c^4 - 5*a*c^3*d)*e*f^3)*n)*x
)*(d*x + c)^(n - 5)/((24*d^4*e^4 - 96*c*d^3*e^3*f + 144*c^2*d^2*e
^2*f^2 - 96*c^3*d*e*f^3 + 24*c^4*f^4 + (d^4*e^4 - 4*c*d^3*e^3*f +
 6*c^2*d^2*e^2*f^2 - 4*c^3*d*e*f^3 + c^4*f^4)*n^4 - 10*(d^4*e^4 -
 4*c*d^3*e^3*f + 6*c^2*d^2*e^2*f^2 - 4*c^3*d*e*f^3 + c^4*f^4)*n^3
 + 35*(d^4*e^4 - 4*c*d^3*e^3*f + 6*c^2*d^2*e^2*f^2 - 4*c^3*d*e*f^
3 + c^4*f^4)*n^2 - 50*(d^4*e^4 - 4*c*d^3*e^3*f + 6*c^2*d^2*e^2*f^
2 - 4*c^3*d*e*f^3 + c^4*f^4)*n)*(f*x + e)^n)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(d*x+c)**(-5+n)/((f*x+e)**n),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)(dx+c)^{n-5}}{(fx+e)^{n}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)*(d*x + c)^(n - 5)/(f*x + e)^n,x, algorithm="giac")
```

```
[Out] integrate((b*x + a)*(d*x + c)^(n - 5)/(f*x + e)^n, x)
```

3.3036 $\int (a+bx)^{-n}(c+dx)(e+fx)^n\,dx$

Optimal. Leaf size=135

$$\frac{(a+bx)^{-n}(e+fx)^{n+1}\left(-\frac{f(a+bx)}{be-af}\right)^n(b(2cf-de(1-n))-adf(n+1))\,{}_2F_1\left(n,n+1;n+2;\frac{b(e+fx)}{be-af}\right)}{2bf^2(n+1)}+\frac{d(a+bx)^{1-n}(e+fx)^{n+1}}{2bf}$$

```
[Out] (d*(a + b*x)^(1 - n)*(e + f*x)^(1 + n))/(2*b*f) + ((b*(2*c*f - d*
e*(1 - n)) - a*d*f*(1 + n))*(-((f*(a + b*x))/(b*e - a*f)))^n*(e +
 f*x)^(1 + n)*Hypergeometric2F1[n, 1 + n, 2 + n, (b*(e + f*x))/(b
*e - a*f)])/(2*b*f^2*(1 + n)*(a + b*x)^n)
```

Rubi [A] time = 0.215309, antiderivative size = 134, normalized size of antiderivative = 0.99, number of steps used = 3, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.136

$$\frac{(a+bx)^{-n}(e+fx)^{n+1}\left(-\frac{f(a+bx)}{be-af}\right)^n(-adf(n+1)+2bcf-bde(1-n))\,{}_2F_1\left(n,n+1;n+2;\frac{b(e+fx)}{be-af}\right)}{2bf^2(n+1)}+\frac{d(a+bx)^{1-n}(e+fx)^{n+1}}{2bf}$$

Antiderivative was successfully verified.

```
[In]  Int[((c + d*x)*(e + f*x)^n)/(a + b*x)^n,x]
```

```
[Out] (d*(a + b*x)^(1 - n)*(e + f*x)^(1 + n))/(2*b*f) + ((2*b*c*f - b*d
*e*(1 - n) - a*d*f*(1 + n))*(-((f*(a + b*x))/(b*e - a*f)))^n*(e +
 f*x)^(1 + n)*Hypergeometric2F1[n, 1 + n, 2 + n, (b*(e + f*x))/(b
*e - a*f)])/(2*b*f^2*(1 + n)*(a + b*x)^n)
```

Rubi in Sympy [A] time = 21.8258, size = 105, normalized size = 0.78

$$\frac{d\,(a+bx)^{-n+1}\,(e+fx)^{n+1}}{2bf}-\frac{\left(\frac{f(a+bx)}{af-be}\right)^n(a+bx)^{-n}\,(e+fx)^{n+1}\,(-2bcf+d\,(af\,(n+1)+be\,(-n+1)))\,{}_2F_1\left(\begin{matrix}n,n+1\\n+2\end{matrix}\middle|\frac{b(-e-fx)}{af-be}\right)}{2bf^2\,(n+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)*(f*x+e)**n/((b*x+a)**n),x)
```

```
[Out] d*(a + b*x)**(-n + 1)*(e + f*x)**(n + 1)/(2*b*f) - (f*(a + b*x)/(
a*f - b*e))**n*(a + b*x)**(-n)*(e + f*x)**(n + 1)*(-2*b*c*f + d*(
a*f*(n + 1) + b*e*(-n + 1)))*hyper((n, n + 1), (n + 2,), b*(-e -
f*x)/(a*f - b*e))/(2*b*f**2*(n + 1))
```

Mathematica [C] time = 0.607406, size = 192, normalized size = 1.42

$$(a+bx)^{-n}(e+fx)^n\left(\frac{3adex^2F_1\left(2;n,-n;3;-\frac{bx}{a},-\frac{fx}{e}\right)}{6aeF_1\left(2;n,-n;3;-\frac{bx}{a},-\frac{fx}{e}\right)+2nx\left(afF_1\left(3;n,1-n;4;-\frac{bx}{a},-\frac{fx}{e}\right)-beF_1\left(3;n+1,-n;4;-\frac{bx}{a},-\frac{fx}{e}\right)\right)}+\frac{c(e+fx)\left(\frac{f(a+bx)}{af-be}\right)^n{}_2F_1\left(n,n+1;n+2;\frac{b(e+fx)}{be-af}\right)}{f(n+1)}\right)$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[((c + d*x)*(e + f*x)^n)/(a + b*x)^n,x]
```

```
[Out] ((e + f*x)^n*((3*a*d*e*x^2*AppellF1[2, n, -n, 3, -((b*x)/a), -((f
*x)/e)])/(6*a*e*AppellF1[2, n, -n, 3, -((b*x)/a), -((f*x)/e)] + 2
*n*x*(a*f*AppellF1[3, n, 1 - n, 4, -((b*x)/a), -((f*x)/e)] - b*e*
AppellF1[3, 1 + n, -n, 4, -((b*x)/a), -((f*x)/e)])) + (c*((f*(a +
 b*x))/(-(b*e) + a*f))^n*(e + f*x)*Hypergeometric2F1[n, 1 + n, 2
+ n, (b*(e + f*x))/(b*e - a*f)])/(f*(1 + n))))/(a + b*x)^n
```

Maple [F] time = 0.086, size = 0, normalized size = 0.

$$\int \frac{(dx+c)\,(fx+e)^{n}}{(bx+a)^{n}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)*(f*x+e)^n/((b*x+a)^n),x)
```

```
[Out] int((d*x+c)*(f*x+e)^n/((b*x+a)^n),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (dx+c)(bx+a)^{-n}(fx+e)^{n}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)*(f*x + e)^n/(b*x + a)^n,x, algorithm="maxima")
```

```
[Out] integrate((d*x + c)*(b*x + a)^(-n)*(f*x + e)^n, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\operatorname{integral}\left(\frac{(dx+c)(fx+e)^{n}}{(bx+a)^{n}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)*(f*x + e)^n/(b*x + a)^n,x, algorithm="fricas")
```

```
[Out] integral((d*x + c)*(f*x + e)^n/(b*x + a)^n, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)*(f*x+e)**n/((b*x+a)**n),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(dx + c)(fx + e)^n}{(bx + a)^n}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)*(f*x + e)^n/(b*x + a)^n,x, algorithm="giac")
```

```
[Out] integrate((d*x + c)*(f*x + e)^n/(b*x + a)^n, x)
```

3.3037 $\int (a+bx)^{-n}(c+dx)(e+fx)^{-1+n}\,dx$

Optimal. Leaf size=151

$$\frac{(a+bx)^{-n}(e+fx)^{n+1}\left(-\frac{f(a+bx)}{be-af}\right)^n(b(cf-de(1-n))-adfn)\,{}_2F_1\left(n,n+1;n+2;\frac{b(e+fx)}{be-af}\right)}{f^2n(n+1)(be-af)}+\frac{(a+bx)^{1-n}(de-cf)(e+fx)^n}{fn(be-af)}$$

```
[Out] ((d*e - c*f)*(a + b*x)^(1 - n)*(e + f*x)^n)/(f*(b*e - a*f)*n) + (
(b*(c*f - d*e*(1 - n)) - a*d*f*n)*(-((f*(a + b*x))/(b*e - a*f)))^
n*(e + f*x)^(1 + n)*Hypergeometric2F1[n, 1 + n, 2 + n, (b*(e + f*
x))/(b*e - a*f)])/(f^2*(b*e - a*f)*n*(1 + n)*(a + b*x)^n)
```

Rubi [A] time = 0.236443, antiderivative size = 150, normalized size of antiderivative = 0.99, number of steps used = 3, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.125$

$$\frac{(a+bx)^{-n}(e+fx)^{n+1}\left(-\frac{f(a+bx)}{be-af}\right)^n(-adfn+bcf-bde(1-n))\,{}_2F_1\left(n,n+1;n+2;\frac{b(e+fx)}{be-af}\right)}{f^2n(n+1)(be-af)}+\frac{(a+bx)^{1-n}(de-cf)(e+fx)^n}{fn(be-af)}$$

Antiderivative was successfully verified.

```
[In]  Int[((c + d*x)*(e + f*x)^(-1 + n))/(a + b*x)^n,x]
```

```
[Out] ((d*e - c*f)*(a + b*x)^(1 - n)*(e + f*x)^n)/(f*(b*e - a*f)*n) + (
(b*c*f - b*d*e*(1 - n) - a*d*f*n)*(-((f*(a + b*x))/(b*e - a*f)))^
n*(e + f*x)^(1 + n)*Hypergeometric2F1[n, 1 + n, 2 + n, (b*(e + f*
x))/(b*e - a*f)])/(f^2*(b*e - a*f)*n*(1 + n)*(a + b*x)^n)
```

Rubi in Sympy [A] time = 27.5053, size = 116, normalized size = 0.77

$$\frac{(a+bx)^{-n+1}(e+fx)^n(cf-de)}{fn(af-be)}+\frac{\left(\frac{f(a+bx)}{af-be}\right)^n(a+bx)^{-n}(e+fx)^{n+1}(-bcf+d(afn+be(-n+1)))\,{}_2F_1\left(\begin{matrix}n,n+1\\n+2\end{matrix}\middle|\frac{b(-e-fx)}{af-be}\right)}{f^2n(n+1)(af-be)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)*(f*x+e)**(-1+n)/((b*x+a)**n),x)
```

```
[Out] (a + b*x)**(-n + 1)*(e + f*x)**n*(c*f - d*e)/(f*n*(a*f - b*e)) +
(f*(a + b*x)/(a*f - b*e))**n*(a + b*x)**(-n)*(e + f*x)**(n + 1)*(
-b*c*f + d*(a*f*n + b*e*(-n + 1)))*hyper((n, n + 1), (n + 2,), b*
(-e - f*x)/(a*f - b*e))/(f**2*n*(n + 1)*(a*f - b*e))
```

Mathematica [A] time = 0.174802, size = 117, normalized size = 0.77

$$\frac{(a+bx)^{-n}(e+fx)^n\left(\frac{f(a+bx)}{af-be}\right)^n\left(dn(e+fx)\,{}_2F_1\left(n,n+1;n+2;\frac{b(e+fx)}{be-af}\right)-(n+1)(de-cf)\,{}_2F_1\left(n,n;n+1;\frac{b(e+fx)}{be-af}\right)\right)}{f^2n(n+1)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((c + d*x)*(e + f*x)^(-1 + n))/(a + b*x)^n,x]
```

```
[Out] (((f*(a + b*x))/(-(b*e) + a*f))^n*(e + f*x)^n*(-((d*e - c*f)*(1 +
 n)*Hypergeometric2F1[n, n, 1 + n, (b*(e + f*x))/(b*e - a*f)]) +
d*n*(e + f*x)*Hypergeometric2F1[n, 1 + n, 2 + n, (b*(e + f*x))/(b
*e - a*f)]))/(f^2*n*(1 + n)*(a + b*x)^n)
```

Maple [F] time = 0.079, size = 0, normalized size = 0.

$$\int \frac{(dx+c)\,(fx+e)^{-1+n}}{(bx+a)^{n}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)*(f*x+e)^(-1+n)/((b*x+a)^n),x)
```

```
[Out] int((d*x+c)*(f*x+e)^(-1+n)/((b*x+a)^n),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (dx+c)(bx+a)^{-n}(fx+e)^{n-1}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)*(f*x + e)^(n - 1)/(b*x + a)^n,x, algorithm="maxima")
```

```
[Out] integrate((d*x + c)*(b*x + a)^(-n)*(f*x + e)^(n - 1), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(dx+c)(fx+e)^{n-1}}{(bx+a)^{n}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)*(f*x + e)^(n - 1)/(b*x + a)^n,x, algorithm="fricas")
```

```
[Out] integral((d*x + c)*(f*x + e)^(n - 1)/(b*x + a)^n, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)*(f*x+e)**(-1+n)/((b*x+a)**n),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(dx+c)(fx+e)^{n-1}}{(bx+a)^{n}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)*(f*x + e)^(n - 1)/(b*x + a)^n,x, algorithm="giac")
```

```
[Out] integrate((d*x + c)*(f*x + e)^(n - 1)/(b*x + a)^n, x)
```

3.3038 $\int (a+bx)^{-n}(c+dx)(e+fx)^{-2+n}\,dx$

Optimal. Leaf size=118

$$\frac{d(a+bx)^{-n}(e+fx)^n\left(-\frac{f(a+bx)}{be-af}\right)^n {}_2F_1\left(n,n;n+1;\frac{b(e+fx)}{be-af}\right)}{f^2n}-\frac{(a+bx)^{1-n}(de-cf)(e+fx)^{n-1}}{f(1-n)(be-af)}$$

```
[Out] -(((d*e - c*f)*(a + b*x)^(1 - n)*(e + f*x)^(-1 + n))/(f*(b*e - a*
f)*(1 - n))) + (d*(-((f*(a + b*x))/(b*e - a*f)))^n*(e + f*x)^n*Hy
pergeometric2F1[n, n, 1 + n, (b*(e + f*x))/(b*e - a*f)])/(f^2*n*(
a + b*x)^n)
```

Rubi [A] time = 0.179949, antiderivative size = 118, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$\frac{d(a+bx)^{-n}(e+fx)^n\left(-\frac{f(a+bx)}{be-af}\right)^n {}_2F_1\left(n,n;n+1;\frac{b(e+fx)}{be-af}\right)}{f^2n}-\frac{(a+bx)^{1-n}(de-cf)(e+fx)^{n-1}}{f(1-n)(be-af)}$$

Antiderivative was successfully verified.

```
[In]  Int[((c + d*x)*(e + f*x)^(-2 + n))/(a + b*x)^n,x]
```

```
[Out] -(((d*e - c*f)*(a + b*x)^(1 - n)*(e + f*x)^(-1 + n))/(f*(b*e - a*
f)*(1 - n))) + (d*(-((f*(a + b*x))/(b*e - a*f)))^n*(e + f*x)^n*Hy
pergeometric2F1[n, n, 1 + n, (b*(e + f*x))/(b*e - a*f)])/(f^2*n*(
a + b*x)^n)
```

Rubi in Sympy [A] time = 22.5997, size = 88, normalized size = 0.75

$$\frac{d\left(\frac{f(a+bx)}{af-be}\right)^n(a+bx)^{-n}(e+fx)^n {}_2F_1\left(\begin{matrix} n,n \\ n+1 \end{matrix}\middle|\frac{b(-e-fx)}{af-be}\right)}{f^2n}-\frac{(a+bx)^{-n+1}(e+fx)^{n-1}(cf-de)}{f(-n+1)(af-be)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)*(f*x+e)**(-2+n)/((b*x+a)**n),x)
```

```
[Out] d*(f*(a + b*x)/(a*f - b*e))**n*(a + b*x)**(-n)*(e + f*x)**n*hyper
((n, n), (n + 1,), b*(-e - f*x)/(a*f - b*e))/(f**2*n) - (a + b*x)
**(-n + 1)*(e + f*x)**(n - 1)*(c*f - d*e)/(f*(-n + 1)*(a*f - b*e)
)
```

Mathematica [A] time = 0.269086, size = 125, normalized size = 1.06

$$-\frac{(a+bx)^{-n}(e+fx)^{n-1}\left(cf^2n(a+bx)-d(n-1)(e+fx)(be-af)\left(\frac{f(a+bx)}{af-be}\right)^n {}_2F_1\left(n,n;n+1;\frac{b(e+fx)}{be-af}\right)-defn(a+bx)\right)}{f^2(n-1)n(be-af)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((c + d*x)*(e + f*x)^(-2 + n))/(a + b*x)^n,x]
```

```
[Out] -(((e + f*x)^(-1 + n)*(-(d*e*f*n*(a + b*x)) + c*f^2*n*(a + b*x) -
 d*(b*e - a*f)*(-1 + n)*((f*(a + b*x))/(-(b*e) + a*f))^n*(e + f*x
)*Hypergeometric2F1[n, n, 1 + n, (b*(e + f*x))/(b*e - a*f)]))/(f^
```

```
2*(b*e - a*f)*(-1 + n)*n*(a + b*x)^n))
```

Maple [F] time = 0.076, size = 0, normalized size = 0.

$$\int \frac{(dx+c)(fx+e)^{-2+n}}{(bx+a)^n}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)*(f*x+e)^(-2+n)/((b*x+a)^n),x)

[Out] int((d*x+c)*(f*x+e)^(-2+n)/((b*x+a)^n),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (dx+c)(bx+a)^{-n}(fx+e)^{n-2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)*(f*x + e)^(n - 2)/(b*x + a)^n,x, algorithm="maxima")

[Out] integrate((d*x + c)*(b*x + a)^(-n)*(f*x + e)^(n - 2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(dx+c)(fx+e)^{n-2}}{(bx+a)^n}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)*(f*x + e)^(n - 2)/(b*x + a)^n,x, algorithm="fricas")

[Out] integral((d*x + c)*(f*x + e)^(n - 2)/(b*x + a)^n, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)*(f*x+e)**(-2+n)/((b*x+a)**n),x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(dx+c)(fx+e)^{n-2}}{(bx+a)^n}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)*(f*x + e)^(n - 2)/(b*x + a)^n,x, algorithm="giac")

[Out] integrate((d*x + c)*(f*x + e)^(n - 2)/(b*x + a)^n, x)
```

3.3039 $\int (a+bx)^{-n}(c+dx)(e+fx)^{-3+n}\,dx$

Optimal. Leaf size=125

$$-\frac{(a+bx)^{1-n}(de-cf)(e+fx)^{n-2}}{f(2-n)(be-af)}-\frac{(a+bx)^{1-n}(e+fx)^{n-1}(adf(2-n)-b(cf+d(e-en)))}{f(1-n)(2-n)(be-af)^2}$$

```
[Out] -(((d*e - c*f)*(a + b*x)^(1 - n)*(e + f*x)^(-2 + n))/(f*(b*e - a*
f)*(2 - n))) - ((a*d*f*(2 - n) - b*(c*f + d*(e - e*n)))*(a + b*x)
^(1 - n)*(e + f*x)^(-1 + n))/(f*(b*e - a*f)^2*(1 - n)*(2 - n))
```

Rubi [A] time = 0.203014, antiderivative size = 123, normalized size of antiderivative = 0.98, number of steps used = 2, number of rules used = 2, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.083$

$$\frac{(a+bx)^{1-n}(e+fx)^{n-1}(-adf(2-n)+bcf+bd(e-en))}{f(1-n)(2-n)(be-af)^2}-\frac{(a+bx)^{1-n}(de-cf)(e+fx)^{n-2}}{f(2-n)(be-af)}$$

Antiderivative was successfully verified.

```
[In]  Int[((c + d*x)*(e + f*x)^(-3 + n))/(a + b*x)^n,x]
```

```
[Out] -(((d*e - c*f)*(a + b*x)^(1 - n)*(e + f*x)^(-2 + n))/(f*(b*e - a*
f)*(2 - n))) + ((b*c*f - a*d*f*(2 - n) + b*d*(e - e*n))*(a + b*x)
^(1 - n)*(e + f*x)^(-1 + n))/(f*(b*e - a*f)^2*(1 - n)*(2 - n))
```

Rubi in Sympy [A] time = 25.1949, size = 90, normalized size = 0.72

$$-\frac{(a+bx)^{-n+1}(e+fx)^{n-2}(cf-de)}{f(-n+2)(af-be)}-\frac{(a+bx)^{-n+1}(e+fx)^{n-1}(-bcf+d(af(-n+2)-be(-n+1)))}{f(-n+1)(-n+2)(af-be)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)*(f*x+e)**(-3+n)/((b*x+a)**n),x)
```

```
[Out] -(a + b*x)**(-n + 1)*(e + f*x)**(n - 2)*(c*f - d*e)/(f*(-n + 2)*(
a*f - b*e)) - (a + b*x)**(-n + 1)*(e + f*x)**(n - 1)*(-b*c*f + d*
(a*f*(-n + 2) - b*e*(-n + 1)))/(f*(-n + 1)*(-n + 2)*(a*f - b*e)**
2)
```

Mathematica [A] time = 0.256532, size = 84, normalized size = 0.67

$$\frac{(a+bx)^{1-n}(e+fx)^{n-2}(acf(n-1)-ade+adf(n-2)x+bc(fx-e(n-2))-bde(n-1)x)}{(n-2)(n-1)(be-af)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((c + d*x)*(e + f*x)^(-3 + n))/(a + b*x)^n,x]
```

```
[Out] ((a + b*x)^(1 - n)*(e + f*x)^(-2 + n)*(-(a*d*e) + a*c*f*(-1 + n)
+ a*d*f*(-2 + n)*x - b*d*e*(-1 + n)*x + b*c*(-(e*(-2 + n)) + f*x)
))/((b*e - a*f)^2*(-2 + n)*(-1 + n))
```

Maple [A] time = 0.009, size = 160, normalized size = 1.3

$$\frac{(bx+a)(fx+e)^{-2+n}(adfnx-bdenx+acfn-2adfx-bcen+bcfx+bdex-acf-ade+2bce)}{(a^2f^2n^2-2abefn^2+b^2e^2n^2-3a^2f^2n+6abefn-3b^2e^2n+2a^2f^2-4abef+2b^2e^2)(bx+a)^n}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)*(f*x+e)^(-3+n)/((b*x+a)^n),x)
```

```
[Out] (b*x+a)*(f*x+e)^(-2+n)*(a*d*f*n*x-b*d*e*n*x+a*c*f*n-2*a*d*f*x-b*c
*e*n+b*c*f*x+b*d*e*x-a*c*f-a*d*e+2*b*c*e)/(a^2*f^2*n^2-2*a*b*e*f*
n^2+b^2*e^2*n^2-3*a^2*f^2*n+6*a*b*e*f*n-3*b^2*e^2*n+2*a^2*f^2-4*a
*b*e*f+2*b^2*e^2)/((b*x+a)^n)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (dx+c)(bx+a)^{-n}(fx+e)^{n-3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)*(f*x + e)^(n - 3)/(b*x + a)^n,x, algorithm="maxima")
```

```
[Out] integrate((d*x + c)*(b*x + a)^(-n)*(f*x + e)^(n - 3), x)
```

Fricas [A] time = 0.258246, size = 440, normalized size = 3.52

$$-\frac{\left(a^2cef-\left(b^2def+\left(b^2c-2\,abd\right)f^2-\left(b^2def-abdf^2\right)n\right)x^3-\left(2\,abc-a^2d\right)e^2-\left(b^2de^2-2\,a^2df^2+\left(3\,b^2c-2\,abd\right)ef\cdots\right.}{\left(2\,b^2e^2-4\,abef+2\,a^2f^2+\left(b\cdots\right.\right.}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)*(f*x + e)^(n - 3)/(b*x + a)^n,x, algorithm="fricas")
```

```
[Out] -(a^2*c*e*f - (b^2*d*e*f + (b^2*c - 2*a*b*d)*f^2 - (b^2*d*e*f - a
*b*d*f^2)*n)*x^3 - (2*a*b*c - a^2*d)*e^2 - (b^2*d*e^2 - 2*a^2*d*f
^2 + (3*b^2*c - 2*a*b*d)*e*f - (b^2*d*e^2 + b^2*c*e*f - (a*b*c +
a^2*d)*f^2)*n)*x^2 + (a*b*c*e^2 - a^2*c*e*f)*n - (2*b^2*c*e^2 - a
^2*c*f^2 + (2*a*b*c - 3*a^2*d)*e*f + (a^2*d*e*f + a^2*c*f^2 - (b^
2*c + a*b*d)*e^2)*n)*x)*(f*x + e)^(n - 3)/((2*b^2*e^2 - 4*a*b*e*f
 + 2*a^2*f^2 + (b^2*e^2 - 2*a*b*e*f + a^2*f^2)*n^2 - 3*(b^2*e^2 -
 2*a*b*e*f + a^2*f^2)*n)*(b*x + a)^n)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)*(f*x+e)**(-3+n)/((b*x+a)**n),x)
```

```
[Out] Timed out
```

GIAC/XCAS [A] time = 0.228602, size = 1, normalized size = 0.01

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)*(f*x + e)^(n - 3)/(b*x + a)^n,x, algorithm="giac")
```

```
[Out] Done
```

3.3040 $\int (a+bx)^{-n}(c+dx)(e+fx)^{-4+n}\,dx$

Optimal. Leaf size=207

$$-\frac{(a+bx)^{1-n}(de-cf)(e+fx)^{n-3}}{f(3-n)(be-af)}+\frac{(a+bx)^{1-n}(e+fx)^{n-2}(b(2cf+de(1-n))-adf(3-n))}{f(2-n)(3-n)(be-af)^2}+\frac{b(a+bx)^{1-n}(e+fx)^{n-1}(b(2cf+de(1-n))-adf(3-n))}{f(1-n)(2-n)(3-n)(be-af)^3}$$

```
[Out] -(((d*e - c*f)*(a + b*x)^(1 - n)*(e + f*x)^(-3 + n))/(f*(b*e - a*
f)*(3 - n))) + ((b*(2*c*f + d*e*(1 - n)) - a*d*f*(3 - n))*(a + b*
x)^(1 - n)*(e + f*x)^(-2 + n))/(f*(b*e - a*f)^2*(2 - n)*(3 - n))
+ (b*(b*(2*c*f + d*e*(1 - n)) - a*d*f*(3 - n))*(a + b*x)^(1 - n)*
(e + f*x)^(-1 + n))/(f*(b*e - a*f)^3*(1 - n)*(2 - n)*(3 - n))
```

Rubi [A] time = 0.373809, antiderivative size = 205, normalized size of antiderivative = 0.99, number of steps used = 3, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$-\frac{(a+bx)^{1-n}(de-cf)(e+fx)^{n-3}}{f(3-n)(be-af)}+\frac{(a+bx)^{1-n}(e+fx)^{n-2}(-adf(3-n)+2bcf+bd(e-en))}{f(2-n)(3-n)(be-af)^2}+\frac{b(a+bx)^{1-n}(e+fx)^{n-1}(-adf(3-n)+2bcf+bd(e-en))}{f(1-n)(2-n)(3-n)(be-af)^3}$$

Antiderivative was successfully verified.

```
[In]  Int[((c + d*x)*(e + f*x)^(-4 + n))/(a + b*x)^n,x]
```

```
[Out] -(((d*e - c*f)*(a + b*x)^(1 - n)*(e + f*x)^(-3 + n))/(f*(b*e - a*
f)*(3 - n))) + ((2*b*c*f - a*d*f*(3 - n) + b*d*(e - e*n))*(a + b*
x)^(1 - n)*(e + f*x)^(-2 + n))/(f*(b*e - a*f)^2*(2 - n)*(3 - n))
+ (b*(2*b*c*f - a*d*f*(3 - n) + b*d*(e - e*n))*(a + b*x)^(1 - n)*
(e + f*x)^(-1 + n))/(f*(b*e - a*f)^3*(1 - n)*(2 - n)*(3 - n))
```

Rubi in Sympy [A] time = 48.8952, size = 151, normalized size = 0.73

$$\frac{b(a+bx)^{-n+1}(e+fx)^{n-1}(-2bcf+d(af(-n+3)-be(-n+1)))}{f(-n+1)(-n+2)(-n+3)(af-be)^3}-\frac{(a+bx)^{-n+1}(e+fx)^{n-3}(cf-de)}{f(-n+3)(af-be)}-\frac{(a+bx)^{-n+1}(e+fx)^{n-2}(-2bcf+d(af(-n+3)-be(-n+1)))}{f(-n+2)(-n+3)(af-be)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)*(f*x+e)**(-4+n)/((b*x+a)**n),x)
```

```
[Out] b*(a + b*x)**(-n + 1)*(e + f*x)**(n - 1)*(-2*b*c*f + d*(a*f*(-n +
 3) - b*e*(-n + 1)))/(f*(-n + 1)*(-n + 2)*(-n + 3)*(a*f - b*e)**3
) - (a + b*x)**(-n + 1)*(e + f*x)**(n - 3)*(c*f - d*e)/(f*(-n + 3
)*(a*f - b*e)) - (a + b*x)**(-n + 1)*(e + f*x)**(n - 2)*(-2*b*c*f
 + d*(a*f*(-n + 3) - b*e*(-n + 1)))/(f*(-n + 2)*(-n + 3)*(a*f - b
*e)**2)
```

Mathematica [A] time = 0.618447, size = 201, normalized size = 0.97

$$\frac{(a+bx)^{-n}(e+fx)^n\left(\frac{b^2(-adf(n-3)-2bcf+bde(n-1))}{(n-3)(n-2)(n-1)(be-af)^3}+\frac{bn(adf(n-3)+2bcf+bd(e-en))}{(n-1)(n^2-5n+6)(e+fx)(be-af)^2}+\frac{-adf(n-3)-bcfn+bde(2n-3)}{(n-3)(n-2)(e+fx)^2(be-af)}+\frac{cf-de}{(n-3)(e+fx)^3}\right)}{f^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((c + d*x)*(e + f*x)^(-4 + n))/(a + b*x)^n,x]
```

```
[Out] ((e + f*x)^n*((b^2*(-2*b*c*f - a*d*f*(-3 + n) + b*d*e*(-1 + n)))/
((b*e - a*f)^3*(-3 + n)*(-2 + n)*(-1 + n)) + (-(d*e) + c*f)/((-3
+ n)*(e + f*x)^3) + (-(a*d*f*(-3 + n)) - b*c*f*n + b*d*e*(-3 + 2*
n))/((b*e - a*f)*(-3 + n)*(-2 + n)*(e + f*x)^2) + (b*n*(2*b*c*f +
 a*d*f*(-3 + n) + b*d*(e - e*n)))/((b*e - a*f)^2*(-1 + n)*(6 - 5*
n + n^2)*(e + f*x))))/(f^2*(a + b*x)^n)
```

Maple [B] time = 0.012, size = 505, normalized size = 2.4

$$\frac{(bx+a)(fx+e)^{-3+n}\left(a^2df^2n^2x-2\,abdefn^2x+abdf^2nx^2+b^2de^2n^2x-b^2defnx^2+a^2cf^2n^2-4\,a^2df^2nx-2\,abcefn^2+\right.}{(a^3f^3n^3-3\,a^2bef^2n^3+3\,ab^2e^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)*(f*x+e)^(-4+n)/((b*x+a)^n),x)
```

```
[Out] (b*x+a)*(f*x+e)^(-3+n)*(a^2*d*f^2*n^2*x-2*a*b*d*e*f*n^2*x+a*b*d*f
^2*n*x^2+b^2*d*e^2*n^2*x-b^2*d*e*f*n*x^2+a^2*c*f^2*n^2-4*a^2*d*f^
2*n*x-2*a*b*c*e*f*n^2+2*a*b*c*f^2*n*x+8*a*b*d*e*f*n*x-3*a*b*d*f^2
*x^2+b^2*c*e^2*n^2-2*b^2*c*e*f*n*x+2*b^2*c*f^2*x^2-4*b^2*d*e^2*n*
x+b^2*d*e*f*x^2-3*a^2*c*f^2*n-a^2*d*e*f*n+3*a^2*d*f^2*x+8*a*b*c*e
*f*n-2*a*b*c*f^2*x+a*b*d*e^2*n-10*a*b*d*e*f*x-5*b^2*c*e^2*n+6*b^2
*c*e*f*x+3*b^2*d*e^2*x+2*a^2*c*f^2+a^2*d*e*f-6*a*b*c*e*f-3*a*b*d*
e^2+6*b^2*c*e^2)/(a^3*f^3*n^3-3*a^2*b*e*f^2*n^3+3*a*b^2*e^2*f*n^3
-b^3*e^3*n^3-6*a^3*f^3*n^2+18*a^2*b*e*f^2*n^2-18*a*b^2*e^2*f*n^2+
6*b^3*e^3*n^2+11*a^3*f^3*n-33*a^2*b*e*f^2*n+33*a*b^2*e^2*f*n-11*b
^3*e^3*n-6*a^3*f^3+18*a^2*b*e*f^2-18*a*b^2*e^2*f+6*b^3*e^3)/((b*x
+a)^n)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (dx+c)(bx+a)^{-n}(fx+e)^{n-4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)*(f*x + e)^(n - 4)/(b*x + a)^n,x, algorithm="maxima")
```

```
[Out] integrate((d*x + c)*(b*x + a)^(-n)*(f*x + e)^(n - 4), x)
```

Fricas [A] time = 0.258467, size = 1193, normalized size = 5.76

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)*(f*x + e)^(n - 4)/(b*x + a)^n,x, algorithm="fricas")
```

```
[Out] (2*a^3*c*e*f^2 + (b^3*d*e*f^2 + (2*b^3*c - 3*a*b^2*d)*f^3 - (b^3*
d*e*f^2 - a*b^2*d*f^3)*n)*x^4 + 3*(2*a*b^2*c - a^2*b*d)*e^3 - (6*
a^2*b*c - a^3*d)*e^2*f + (4*b^3*d*e^2*f + 4*(2*b^3*c - 3*a*b^2*d)
*e*f^2 + (b^3*d*e^2*f - 2*a*b^2*d*e*f^2 + a^2*b*d*f^3)*n^2 - (5*b
^3*d*e^2*f + 2*(b^3*c - 4*a*b^2*d)*e*f^2 - (2*a*b^2*c - 3*a^2*b*d
)*f^3)*n)*x^3 + (a*b^2*c*e^3 - 2*a^2*b*c*e^2*f + a^3*c*e*f^2)*n^2
 + (3*b^3*d*e^3 - 9*a^2*b*d*e*f^2 + 3*a^3*d*f^3 + 3*(4*b^3*c - 3*
```

```
a*b^2*d)*e^2*f + (b^3*d*e^3 + (b^3*c - a*b^2*d)*e^2*f - (2*a*b^2*
c + a^2*b*d)*e*f^2 + (a^2*b*c + a^3*d)*f^3)*n^2 - (4*b^3*d*e^3 +
(7*b^3*c - 4*a*b^2*d)*e^2*f - 4*(2*a*b^2*c + a^2*b*d)*e*f^2 + (a^
2*b*c + 4*a^3*d)*f^3)*n)*x^2 - (3*a^3*c*e*f^2 + (5*a*b^2*c - a^2*
b*d)*e^3 - (8*a^2*b*c - a^3*d)*e^2*f)*n + (6*b^3*c*e^3 + 2*a^3*c*
f^3 + 6*(a*b^2*c - 2*a^2*b*d)*e^2*f - 2*(3*a^2*b*c - 2*a^3*d)*e*f
^2 + (a^3*c*f^3 + (b^3*c + a*b^2*d)*e^3 - (a*b^2*c + 2*a^2*b*d)*e
^2*f - (a^2*b*c - a^3*d)*e*f^2)*n^2 - (3*a^3*c*f^3 + (5*b^3*c + 3
*a*b^2*d)*e^3 - (a*b^2*c + 8*a^2*b*d)*e^2*f - (7*a^2*b*c - 5*a^3*
d)*e*f^2)*n)*x)*(f*x + e)^(n - 4)/((6*b^3*e^3 - 18*a*b^2*e^2*f +
18*a^2*b*e*f^2 - 6*a^3*f^3 - (b^3*e^3 - 3*a*b^2*e^2*f + 3*a^2*b*e
*f^2 - a^3*f^3)*n^3 + 6*(b^3*e^3 - 3*a*b^2*e^2*f + 3*a^2*b*e*f^2
- a^3*f^3)*n^2 - 11*(b^3*e^3 - 3*a*b^2*e^2*f + 3*a^2*b*e*f^2 - a^
3*f^3)*n)*(b*x + a)^n)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)*(f*x+e)**(-4+n)/((b*x+a)**n),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(dx+c)(fx+e)^{n-4}}{(bx+a)^n}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)*(f*x + e)^(n - 4)/(b*x + a)^n,x, algorithm="giac")
```

```
[Out] integrate((d*x + c)*(f*x + e)^(n - 4)/(b*x + a)^n, x)
```

3.3041 $\int (a+bx)^{-n}(c+dx)(e+fx)^{-5+n}\,dx$

Optimal. Leaf size=300

$$\frac{2b^2(a+bx)^{1-n}(e+fx)^{n-1}(b(3cf+de(1-n))-adf(4-n))}{f(1-n)(2-n)(3-n)(4-n)(be-af)^4} - \frac{(a+bx)^{1-n}(de-cf)(e+fx)^{n-4}}{f(4-n)(be-af)} + \frac{(a+bx)^{1-n}(e+fx)^{n-3}(b(3cf+de(1-n))-adf(4-n))}{f(3-n)(4-n)(be-af)^2} + \frac{2b(a+bx)^{1-n}(e+fx)^{n-2}(b(3cf+de(1-n))-adf(4-n))}{f(2-n)(3-n)(4-n)(be-af)^3}$$

```
[Out] -(((d*e - c*f)*(a + b*x)^(1 - n)*(e + f*x)^(-4 + n))/(f*(b*e - a*
f)*(4 - n))) + ((b*(3*c*f + d*e*(1 - n)) - a*d*f*(4 - n))*(a + b*
x)^(1 - n)*(e + f*x)^(-3 + n))/(f*(b*e - a*f)^2*(3 - n)*(4 - n))
+ (2*b*(b*(3*c*f + d*e*(1 - n)) - a*d*f*(4 - n))*(a + b*x)^(1 - n
)*(e + f*x)^(-2 + n))/(f*(b*e - a*f)^3*(2 - n)*(3 - n)*(4 - n)) +
 (2*b^2*(b*(3*c*f + d*e*(1 - n)) - a*d*f*(4 - n))*(a + b*x)^(1 -
n)*(e + f*x)^(-1 + n))/(f*(b*e - a*f)^4*(1 - n)*(2 - n)*(3 - n)*(
4 - n))
```

Rubi [A] time = 0.572703, antiderivative size = 297, normalized size of antiderivative = 0.99, number of steps used = 4, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.125$

$$\frac{2b^2(a+bx)^{1-n}(e+fx)^{n-1}(-adf(4-n)+3bcf+bd(e-en))}{f(1-n)(2-n)(3-n)(4-n)(be-af)^4} - \frac{(a+bx)^{1-n}(de-cf)(e+fx)^{n-4}}{f(4-n)(be-af)} + \frac{(a+bx)^{1-n}(e+fx)^{n-3}(-adf(4-n)+3bcf+bd(e-en))}{f(3-n)(4-n)(be-af)^2} + \frac{2b(a+bx)^{1-n}(e+fx)^{n-2}(-adf(4-n)+3bcf+bd(e-en))}{f(2-n)(3-n)(4-n)(be-af)^3}$$

Antiderivative was successfully verified.

```
[In]  Int[((c + d*x)*(e + f*x)^(-5 + n))/(a + b*x)^n,x]
```

```
[Out] -(((d*e - c*f)*(a + b*x)^(1 - n)*(e + f*x)^(-4 + n))/(f*(b*e - a*
f)*(4 - n))) + ((3*b*c*f - a*d*f*(4 - n) + b*d*(e - e*n))*(a + b*
x)^(1 - n)*(e + f*x)^(-3 + n))/(f*(b*e - a*f)^2*(3 - n)*(4 - n))
+ (2*b*(3*b*c*f - a*d*f*(4 - n) + b*d*(e - e*n))*(a + b*x)^(1 - n
)*(e + f*x)^(-2 + n))/(f*(b*e - a*f)^3*(2 - n)*(3 - n)*(4 - n)) +
 (2*b^2*(3*b*c*f - a*d*f*(4 - n) + b*d*(e - e*n))*(a + b*x)^(1 -
n)*(e + f*x)^(-1 + n))/(f*(b*e - a*f)^4*(1 - n)*(2 - n)*(3 - n)*(
4 - n))
```

Rubi in Sympy [A] time = 81.0724, size = 221, normalized size = 0.74

$$-\frac{2b^2(a+bx)^{-n+1}(e+fx)^{n-1}(-3bcf+d(af(-n+4)-be(-n+1)))}{f(-n+1)(-n+2)(-n+3)(-n+4)(af-be)^4} + \frac{2b(a+bx)^{-n+1}(e+fx)^{n-2}(-3bcf+d(af(-n+4)-be(-n+1)))}{f(-n+2)(-n+3)(-n+4)(af-be)^3} - \frac{(a+bx)^{-n+1}(e+fx)^{n-4}(cf-de)}{f(-n+4)(af-be)} - \frac{(a+bx)^{-n+1}(e+fx)^{n-3}(-3bcf+d(af(-n+4)-be(-n+1)))}{f(-n+3)(-n+4)(af-be)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)*(f*x+e)**(-5+n)/((b*x+a)**n),x)
```

```
[Out] -2*b**2*(a + b*x)**(-n + 1)*(e + f*x)**(n - 1)*(-3*b*c*f + d*(a*f
*(-n + 4) - b*e*(-n + 1)))/(f*(-n + 1)*(-n + 2)*(-n + 3)*(-n + 4)
*(a*f - b*e)**4) + 2*b*(a + b*x)**(-n + 1)*(e + f*x)**(n - 2)*(-3
*b*c*f + d*(a*f*(-n + 4) - b*e*(-n + 1)))/(f*(-n + 2)*(-n + 3)*(-
n + 4)*(a*f - b*e)**3) - (a + b*x)**(-n + 1)*(e + f*x)**(n - 4)*(
c*f - d*e)/(f*(-n + 4)*(a*f - b*e)) - (a + b*x)**(-n + 1)*(e + f*
x)**(n - 3)*(-3*b*c*f + d*(a*f*(-n + 4) - b*e*(-n + 1)))/(f*(-n +
 3)*(-n + 4)*(a*f - b*e)**2)
```

Mathematica [A] time = 1.18335, size = 270, normalized size = 0.9

$$\frac{(a+bx)^{-n}(e+fx)^n\left(-\frac{2b^3(-adf(n-4)-3bcf+bde(n-1))}{(n-4)(n-3)(n-2)(n-1)(be-af)^4}-\frac{2b^2n(adf(n-4)+3bcf+bd(e-en))}{(n-1)(n^3-9n^2+26n-24)(e+fx)(be-af)^3}+\frac{bn(adf(n-4)+3bcf+bd(e-en))}{(n-2)(n^2-7n+12)(e+fx)^2(be-af)^2}-\frac{adf(n-}{(n-4)(}\right.}{f^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((c + d*x)*(e + f*x)^(-5 + n))/(a + b*x)^n,x]
```

```
[Out] ((e + f*x)^n*((-2*b^3*(-3*b*c*f - a*d*f*(-4 + n) + b*d*e*(-1 + n)
))/((b*e - a*f)^4*(-4 + n)*(-3 + n)*(-2 + n)*(-1 + n)) + (-(d*e)
+ c*f)/((-4 + n)*(e + f*x)^4) - (a*d*f*(-4 + n) - 2*b*d*e*(-2 + n
) + b*c*f*n)/((b*e - a*f)*(-4 + n)*(-3 + n)*(e + f*x)^3) + (b*n*(
3*b*c*f + a*d*f*(-4 + n) + b*d*(e - e*n)))/((b*e - a*f)^2*(-2 + n
)*(12 - 7*n + n^2)*(e + f*x)^2) - (2*b^2*n*(3*b*c*f + a*d*f*(-4 +
 n) + b*d*(e - e*n)))/((b*e - a*f)^3*(-1 + n)*(-24 + 26*n - 9*n^2
 + n^3)*(e + f*x))))/(f^2*(a + b*x)^n)
```

Maple [B] time = 0.015, size = 1188, normalized size = 4.

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)*(f*x+e)^(-5+n)/((b*x+a)^n),x)
```

```
[Out] (b*x+a)*(f*x+e)^(-4+n)*(a^3*d*f^3*n^3*x-3*a^2*b*d*e*f^2*n^3*x+2*a
^2*b*d*f^3*n^2*x^2+3*a*b^2*d*e^2*f*n^3*x-4*a*b^2*d*e*f^2*n^2*x^2+
2*a*b^2*d*f^3*n*x^3-b^3*d*e^3*n^3*x+2*b^3*d*e^2*f*n^2*x^2-2*b^3*d
*e*f^2*n*x^3+a^3*c*f^3*n^3-7*a^3*d*f^3*n^2*x-3*a^2*b*c*e*f^2*n^3+
3*a^2*b*c*f^3*n^2*x+22*a^2*b*d*e*f^2*n^2*x-10*a^2*b*d*f^3*n*x^2+3
*a*b^2*c*e^2*f*n^3-6*a*b^2*c*e*f^2*n^2*x+6*a*b^2*c*f^3*n*x^2-23*a
*b^2*d*e^2*f*n^2*x+20*a*b^2*d*e*f^2*n*x^2-8*a*b^2*d*f^3*x^3-b^3*c
*e^3*n^3+3*b^3*c*e^2*f*n^2*x-6*b^3*c*e*f^2*n*x^2+6*b^3*c*f^3*x^3+
8*b^3*d*e^3*n^2*x-10*b^3*d*e^2*f*n*x^2+2*b^3*d*e*f^2*x^3-6*a^3*c*
f^3*n^2-a^3*d*e*f^2*n^2+14*a^3*d*f^3*n*x+21*a^2*b*c*e*f^2*n^2-9*a
^2*b*c*f^3*n*x+2*a^2*b*d*e^2*f*n^2-53*a^2*b*d*e*f^2*n*x+8*a^2*b*d
*f^3*x^2-24*a*b^2*c*e^2*f*n^2+30*a*b^2*c*e*f^2*n*x-6*a*b^2*c*f^3*
x^2-a*b^2*d*e^3*n^2+58*a*b^2*d*e^2*f*n*x-34*a*b^2*d*e*f^2*x^2+9*b
^3*c*e^3*n^2-21*b^3*c*e^2*f*n*x+24*b^3*c*e*f^2*x^2-19*b^3*d*e^3*n
*x+8*b^3*d*e^2*f*x^2+11*a^3*c*f^3*n+3*a^3*d*e*f^2*n-8*a^3*d*f^3*x
-42*a^2*b*c*e*f^2*n+6*a^2*b*c*f^3*x-10*a^2*b*d*e^2*f*n+34*a^2*b*d
*e*f^2*x+57*a*b^2*c*e^2*f*n-24*a*b^2*c*e*f^2*x+7*a*b^2*d*e^3*n-56
*a*b^2*d*e^2*f*x-26*b^3*c*e^3*n+36*b^3*c*e^2*f*x+12*b^3*d*e^3*x-6
*a^3*c*f^3-2*a^3*d*e*f^2+24*a^2*b*c*e*f^2+8*a^2*b*d*e^2*f-36*a*b^
2*c*e^2*f-12*a*b^2*d*e^3+24*b^3*c*e^3)/(a^4*f^4*n^4-4*a^3*b*e*f^3
*n^4+6*a^2*b^2*e^2*f^2*n^4-4*a*b^3*e^3*f*n^4+b^4*e^4*n^4-10*a^4*f
^4*n^3+40*a^3*b*e*f^3*n^3-60*a^2*b^2*e^2*f^2*n^3+40*a*b^3*e^3*f*n
^3-10*b^4*e^4*n^3+35*a^4*f^4*n^2-140*a^3*b*e*f^3*n^2+210*a^2*b^2*
e^2*f^2*n^2-140*a*b^3*e^3*f*n^2+35*b^4*e^4*n^2-50*a^4*f^4*n+200*a
^3*b*e*f^3*n-300*a^2*b^2*e^2*f^2*n+200*a*b^3*e^3*f*n-50*b^4*e^4*n
+24*a^4*f^4-96*a^3*b*e*f^3+144*a^2*b^2*e^2*f^2-96*a*b^3*e^3*f+24*
b^4*e^4)/((b*x+a)^n)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (dx+c)(bx+a)^{-n}(fx+e)^{n-5}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)*(f*x + e)^(n - 5)/(b*x + a)^n,x, algorithm="maxima")
```

```
[Out] integrate((d*x + c)*(b*x + a)^(-n)*(f*x + e)^(n - 5), x)
```

Fricas [A] time = 0.272249, size = 2349, normalized size = 7.83

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)*(f*x + e)^(n - 5)/(b*x + a)^n,x, algorithm="fricas")
```

```
[Out] -(6*a^4*c*e*f^3 - 2*(b^4*d*e*f^3 + (3*b^4*c - 4*a*b^3*d)*f^4 - (b
^4*d*e*f^3 - a*b^3*d*f^4)*n)*x^5 - 12*(2*a*b^3*c - a^2*b^2*d)*e^4
 + 4*(9*a^2*b^2*c - 2*a^3*b*d)*e^3*f - 2*(12*a^3*b*c - a^4*d)*e^2
*f^2 - 2*(5*b^4*d*e^2*f^2 + 5*(3*b^4*c - 4*a*b^3*d)*e*f^3 + (b^4*
d*e^2*f^2 - 2*a*b^3*d*e*f^3 + a^2*b^2*d*f^4)*n^2 - (6*b^4*d*e^2*f
^2 + (3*b^4*c - 10*a*b^3*d)*e*f^3 - (3*a*b^3*c - 4*a^2*b^2*d)*f^4
)*n)*x^4 + (a*b^3*c*e^4 - 3*a^2*b^2*c*e^3*f + 3*a^3*b*c*e^2*f^2 -
 a^4*c*e*f^3)*n^3 - (20*b^4*d*e^3*f + 20*(3*b^4*c - 4*a*b^3*d)*e^
2*f^2 - (b^4*d*e^3*f - 3*a*b^3*d*e^2*f^2 + 3*a^2*b^2*d*e*f^3 - a^
3*b*d*f^4)*n^3 + (10*b^4*d*e^3*f + (3*b^4*c - 25*a*b^3*d)*e^2*f^2
 - 2*(3*a*b^3*c - 10*a^2*b^2*d)*e*f^3 + (3*a^2*b^2*c - 5*a^3*b*d)
*f^4)*n^2 - (29*b^4*d*e^3*f + 3*(9*b^4*c - 22*a*b^3*d)*e^2*f^2 -
(30*a*b^3*c - 41*a^2*b^2*d)*e*f^3 + (3*a^2*b^2*c - 4*a^3*b*d)*f^4
)*n)*x^3 + (6*a^4*c*e*f^3 - (9*a*b^3*c - a^2*b^2*d)*e^4 + 2*(12*a
^2*b^2*c - a^3*b*d)*e^3*f - (21*a^3*b*c - a^4*d)*e^2*f^2)*n^2 - (
12*b^4*d*e^4 - 48*a^2*b^2*d*e^2*f^2 + 32*a^3*b*d*e*f^3 - 8*a^4*d*
f^4 + 12*(5*b^4*c - 4*a*b^3*d)*e^3*f - (b^4*d*e^4 - 3*a*b^3*c*e^2
*f^2 + (b^4*c - 2*a*b^3*d)*e^3*f + (3*a^2*b^2*c + 2*a^3*b*d)*e*f^
3 - (a^3*b*c + a^4*d)*f^4)*n^3 + (8*b^4*d*e^4 + 2*(6*b^4*c - 7*a*
b^3*d)*e^3*f - 3*(9*a*b^3*c + a^2*b^2*d)*e^2*f^2 + 2*(9*a^2*b^2*c
 + 8*a^3*b*d)*e*f^3 - (3*a^3*b*c + 7*a^4*d)*f^4)*n^2 - (19*b^4*d*
e^4 + (47*b^4*c - 36*a*b^3*d)*e^3*f - 15*(4*a*b^3*c + a^2*b^2*d)*
e^2*f^2 + (15*a^2*b^2*c + 46*a^3*b*d)*e*f^3 - 2*(a^3*b*c + 7*a^4*
d)*f^4)*n)*x^2 - (11*a^4*c*e*f^3 - (26*a*b^3*c - 7*a^2*b^2*d)*e^4
 + (57*a^2*b^2*c - 10*a^3*b*d)*e^3*f - 3*(14*a^3*b*c - a^4*d)*e^2
*f^2)*n - (24*b^4*c*e^4 - 6*a^4*c*f^4 + 12*(2*a*b^3*c - 5*a^2*b^2
*d)*e^3*f - 4*(9*a^2*b^2*c - 10*a^3*b*d)*e^2*f^2 + 2*(12*a^3*b*c
- 5*a^4*d)*e*f^3 - (3*a^3*b*d*e^2*f^2 - a^4*c*f^4 + (b^4*c + a*b^
3*d)*e^4 - (2*a*b^3*c + 3*a^2*b^2*d)*e^3*f + (2*a^3*b*c - a^4*d)*
e*f^3)*n^3 - (6*a^4*c*f^4 - (9*b^4*c + 7*a*b^3*d)*e^4 + 2*(6*a*b^
3*c + 11*a^2*b^2*d)*e^3*f + (9*a^2*b^2*c - 23*a^3*b*d)*e^2*f^2 -
2*(9*a^3*b*c - 4*a^4*d)*e*f^3)*n^2 + (11*a^4*c*f^4 - 2*(13*b^4*c
+ 6*a*b^3*d)*e^4 + 5*(2*a*b^3*c + 11*a^2*b^2*d)*e^3*f + 15*(3*a^2
*b^2*c - 4*a^3*b*d)*e^2*f^2 - (40*a^3*b*c - 17*a^4*d)*e*f^3)*n)*x
)*(f*x + e)^(n - 5)/((24*b^4*e^4 - 96*a*b^3*e^3*f + 144*a^2*b^2*e
^2*f^2 - 96*a^3*b*e*f^3 + 24*a^4*f^4 + (b^4*e^4 - 4*a*b^3*e^3*f +
 6*a^2*b^2*e^2*f^2 - 4*a^3*b*e*f^3 + a^4*f^4)*n^4 - 10*(b^4*e^4 -
 4*a*b^3*e^3*f + 6*a^2*b^2*e^2*f^2 - 4*a^3*b*e*f^3 + a^4*f^4)*n^3
 + 35*(b^4*e^4 - 4*a*b^3*e^3*f + 6*a^2*b^2*e^2*f^2 - 4*a^3*b*e*f^
3 + a^4*f^4)*n^2 - 50*(b^4*e^4 - 4*a*b^3*e^3*f + 6*a^2*b^2*e^2*f^
2 - 4*a^3*b*e*f^3 + a^4*f^4)*n)*(b*x + a)^n)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)*(f*x+e)**(-5+n)/((b*x+a)**n),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(dx+c)(fx+e)^{n-5}}{(bx+a)^n}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)*(f*x + e)^(n - 5)/(b*x + a)^n,x, algorithm="giac")
```

```
[Out] integrate((d*x + c)*(f*x + e)^(n - 5)/(b*x + a)^n, x)
```

3.3042 $\int (a+bx)^m (c+dx)^{-m} (e+fx)^p \, dx$

Optimal. Leaf size=121

$$\frac{(a+bx)^{m+1}(c+dx)^{-m}(e+fx)^p \left(\frac{b(c+dx)}{bc-ad}\right)^m \left(\frac{b(e+fx)}{be-af}\right)^{-p} F_1\left(m+1;m,-p;m+2;-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{b(m+1)}$$

```
[Out] ((a + b*x)^(1 + m)*((b*(c + d*x))/(b*c - a*d))^m*(e + f*x)^p*Appe
llF1[1 + m, m, -p, 2 + m, -((d*(a + b*x))/(b*c - a*d)), -((f*(a +
 b*x))/(b*e - a*f))])/(b*(1 + m)*(c + d*x)^m*((b*(e + f*x))/(b*e
- a*f))^p)
```

Rubi [A] time = 0.307606, antiderivative size = 121, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$\frac{(a+bx)^{m+1}(c+dx)^{-m}(e+fx)^p \left(\frac{b(c+dx)}{bc-ad}\right)^m \left(\frac{b(e+fx)}{be-af}\right)^{-p} F_1\left(m+1;m,-p;m+2;-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{b(m+1)}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^m*(e + f*x)^p)/(c + d*x)^m,x]
```

```
[Out] ((a + b*x)^(1 + m)*((b*(c + d*x))/(b*c - a*d))^m*(e + f*x)^p*Appe
llF1[1 + m, m, -p, 2 + m, -((d*(a + b*x))/(b*c - a*d)), -((f*(a +
 b*x))/(b*e - a*f))])/(b*(1 + m)*(c + d*x)^m*((b*(e + f*x))/(b*e
- a*f))^p)
```

Rubi in Sympy [A] time = 75.0046, size = 92, normalized size = 0.76

$$\frac{\left(\frac{b(-c-dx)}{ad-bc}\right)^m \left(\frac{b(-e-fx)}{af-be}\right)^{-p} (a+bx)^{m+1} (c+dx)^{-m} (e+fx)^p \operatorname{appellf}_1\left(m+1,m,-p,m+2,\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)}{b\,(m+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(f*x+e)**p/((d*x+c)**m),x)
```

```
[Out] (b*(-c - d*x)/(a*d - b*c))**m*(b*(-e - f*x)/(a*f - b*e))**(-p)*(a
 + b*x)**(m + 1)*(c + d*x)**(-m)*(e + f*x)**p*appellf1(m + 1, m,
-p, m + 2, d*(a + b*x)/(a*d - b*c), f*(a + b*x)/(a*f - b*e))/(b*(
m + 1))
```

Mathematica [B] time = 0.974467, size = 290, normalized size = 2.4

$$\frac{(m+2)(bc-ad)(be-af)(a+bx)^{m+1}(c+dx)^{-m}(e+fx)^p F_1\left(m+1;\right.}{b(m+1)\left((m+2)(bc-ad)(be-af)F_1\left(m+1;m,-p;m+2;\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)-(a+bx)\left(fp(ad-bc)F_1\left(m+2;m,1-p;m\right.\right.\right.}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[((a + b*x)^m*(e + f*x)^p)/(c + d*x)^m,x]
```

```
[Out] ((b*c - a*d)*(b*e - a*f)*(2 + m)*(a + b*x)^(1 + m)*(e + f*x)^p*Ap
pellF1[1 + m, m, -p, 2 + m, (d*(a + b*x))/(-(b*c) + a*d), (f*(a +
 b*x))/(-(b*e) + a*f)])/(b*(1 + m)*(c + d*x)^m*((b*c - a*d)*(b*e
- a*f)*(2 + m)*AppellF1[1 + m, m, -p, 2 + m, (d*(a + b*x))/(-(b*c
```

```
) + a*d), (f*(a + b*x))/(-(b*e) + a*f)] - (a + b*x)*((-(b*c) + a*
d)*f*p*AppellF1[2 + m, m, 1 - p, 3 + m, (d*(a + b*x))/(-(b*c) + a
*d), (f*(a + b*x))/(-(b*e) + a*f)] + d*(b*e - a*f)*m*AppellF1[2 +
 m, 1 + m, -p, 3 + m, (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x))
/(-(b*e) + a*f)])))
```

Maple [F] time = 0.225, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (fx+e)^p}{(dx+c)^m}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(f*x+e)^p/((d*x+c)^m),x)

[Out] int((b*x+a)^m*(f*x+e)^p/((d*x+c)^m),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^{-m} (fx+e)^p\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(f*x + e)^p/(d*x + c)^m,x, algorithm="maxima")

[Out] integrate((b*x + a)^m*(d*x + c)^(-m)*(f*x + e)^p, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)^m (fx+e)^p}{(dx+c)^m}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(f*x + e)^p/(d*x + c)^m,x, algorithm="fricas")

[Out] integral((b*x + a)^m*(f*x + e)^p/(d*x + c)^m, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(f*x+e)**p/((d*x+c)**m),x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (fx+e)^p}{(dx+c)^m}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(f*x + e)^p/(d*x + c)^m,x, algorithm="giac")

[Out] integrate((b*x + a)^m*(f*x + e)^p/(d*x + c)^m, x)
```

3.3043 $\int (5-4x)^4(1+2x)^{-m}(2+3x)^m\,dx$

Optimal. Leaf size=188

$$\frac{2^{-m-1}\left(2m^4-440m^3+29050m^2-639760m+3528363\right)(2x+1)^{1-m}\,{}_2F_1(1-m,-m;2-m;-3(2x+1))}{1215(1-m)}-\frac{(3x+2)^{m+1}\left(-2m^3-24\left(m^2-154m+4359\right)x+426m^2-25441m+386850\right)(2x+1)^{1-m}}{1215}-\frac{2}{15}(5-4x)^3(3x+2)^{m+1}(2x+1)^{1-m}-\frac{1}{45}(88-m)(5-4x)^2(3x+2)^{m+1}(2x+1)^{1-m}$$

```
[Out] -((88 - m)*(5 - 4*x)^2*(1 + 2*x)^(1 - m)*(2 + 3*x)^(1 + m))/45 -
(2*(5 - 4*x)^3*(1 + 2*x)^(1 - m)*(2 + 3*x)^(1 + m))/15 - ((1 + 2*
x)^(1 - m)*(2 + 3*x)^(1 + m)*(386850 - 25441*m + 426*m^2 - 2*m^3
- 24*(4359 - 154*m + m^2)*x))/1215 + (2^(-1 - m)*(3528363 - 63976
0*m + 29050*m^2 - 440*m^3 + 2*m^4)*(1 + 2*x)^(1 - m)*Hypergeometr
ic2F1[1 - m, -m, 2 - m, -3*(1 + 2*x)])/(1215*(1 - m))
```

Rubi [A] time = 0.540879, antiderivative size = 188, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$\frac{2^{-m-1}\left(2m^4-440m^3+29050m^2-639760m+3528363\right)(2x+1)^{1-m}\,{}_2F_1(1-m,-m;2-m;-3(2x+1))}{1215(1-m)}-\frac{(3x+2)^{m+1}\left(-2m^3-24\left(m^2-154m+4359\right)x+426m^2-25441m+386850\right)(2x+1)^{1-m}}{1215}-\frac{2}{15}(5-4x)^3(3x+2)^{m+1}(2x+1)^{1-m}-\frac{1}{45}(88-m)(5-4x)^2(3x+2)^{m+1}(2x+1)^{1-m}$$

Antiderivative was successfully verified.

```
[In]  Int[((5 - 4*x)^4*(2 + 3*x)^m)/(1 + 2*x)^m,x]
```

```
[Out] -((88 - m)*(5 - 4*x)^2*(1 + 2*x)^(1 - m)*(2 + 3*x)^(1 + m))/45 -
(2*(5 - 4*x)^3*(1 + 2*x)^(1 - m)*(2 + 3*x)^(1 + m))/15 - ((1 + 2*
x)^(1 - m)*(2 + 3*x)^(1 + m)*(386850 - 25441*m + 426*m^2 - 2*m^3
- 24*(4359 - 154*m + m^2)*x))/1215 + (2^(-1 - m)*(3528363 - 63976
0*m + 29050*m^2 - 440*m^3 + 2*m^4)*(1 + 2*x)^(1 - m)*Hypergeometr
ic2F1[1 - m, -m, 2 - m, -3*(1 + 2*x)])/(1215*(1 - m))
```

Rubi in Sympy [A] time = 48.6082, size = 153, normalized size = 0.81

$$-\left(-\frac{m}{45}+\frac{88}{45}\right)(-4x+5)^2(2x+1)^{-m+1}(3x+2)^{m+1}-\frac{2(-4x+5)^3(2x+1)^{-m+1}(3x+2)^{m+1}}{15}-\frac{(2x+1)^{-m+1}(3x+2)^{m+1}\left(-256m^3+54528m^2-3256448m-x\left(3072m^2-473088m+13390848\right)+49516800\right)}{155520}+\frac{2^{-m}(2x+1)^{-m+1}\left(2m^4-440m^3+29050m^2-639760m+3528363\right){}_2F_1\left(\begin{matrix}-m,-m+1\\-m+2\end{matrix}\middle|-6x-3\right)}{2430(-m+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((5-4*x)**4*(2+3*x)**m/((1+2*x)**m),x)
```

```
[Out] -(-m/45 + 88/45)*(-4*x + 5)**2*(2*x + 1)**(-m + 1)*(3*x + 2)**(m
+ 1) - 2*(-4*x + 5)**3*(2*x + 1)**(-m + 1)*(3*x + 2)**(m + 1)/15
- (2*x + 1)**(-m + 1)*(3*x + 2)**(m + 1)*(-256*m**3 + 54528*m**2
- 3256448*m - x*(3072*m**2 - 473088*m + 13390848) + 49516800)/155
520 + 2**(-m)*(2*x + 1)**(-m + 1)*(2*m**4 - 440*m**3 + 29050*m**2
 - 639760*m + 3528363)*hyper((-m, -m + 1), (-m + 2,), -6*x - 3)/(
```

```
2430*(-m + 1))
```

Mathematica [C] time = 0.252948, size = 155, normalized size = 0.82

$$\frac{483\ 2^{-m-1}(4x-5)^5(4x+2)^{-m}(12x+8)^m F_1\left(5;-m,m;6;\frac{3}{23}(5-4x),\frac{1}{7}(5-4x)\right)}{5\left(966F_1\left(5;-m,m;6;\frac{3}{23}(5-4x),\frac{1}{7}(5-4x)\right)+m(4x-5)\left(21F_1\left(6;1-m,m;7;\frac{3}{23}(5-4x),\frac{1}{7}(5-4x)\right)-23F_1\left(6;-m,m+1;\right.\right.\right.}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[((5 - 4*x)^4*(2 + 3*x)^m)/(1 + 2*x)^m,x]
```

```
[Out] (483*2^(-1 - m)*(-5 + 4*x)^5*(8 + 12*x)^m*AppellF1[5, -m, m, 6, (
3*(5 - 4*x))/23, (5 - 4*x)/7])/(5*(2 + 4*x)^m*(966*AppellF1[5, -m
, m, 6, (3*(5 - 4*x))/23, (5 - 4*x)/7] + m*(-5 + 4*x)*(21*AppellF
1[6, 1 - m, m, 7, (3*(5 - 4*x))/23, (5 - 4*x)/7] - 23*AppellF1[6,
 -m, 1 + m, 7, (3*(5 - 4*x))/23, (5 - 4*x)/7])))
```

Maple [F] time = 0.109, size = 0, normalized size = 0.

$$\int \frac{(5-4x)^4(2+3x)^m}{(1+2x)^m}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((5-4*x)^4*(2+3*x)^m/((1+2*x)^m),x)
```

```
[Out] int((5-4*x)^4*(2+3*x)^m/((1+2*x)^m),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (3x+2)^m(2x+1)^{-m}(4x-5)^4\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^m*(4*x - 5)^4/(2*x + 1)^m,x, algorithm="maxima")
```

```
[Out] integrate((3*x + 2)^m*(2*x + 1)^(-m)*(4*x - 5)^4, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{(256x^4-1280x^3+2400x^2-2000x+625)(3x+2)^m}{(2x+1)^m},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^m*(4*x - 5)^4/(2*x + 1)^m,x, algorithm="fricas")
```

```
[Out] integral((256*x^4 - 1280*x^3 + 2400*x^2 - 2000*x + 625)*(3*x + 2)
^m/(2*x + 1)^m, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5-4*x)**4*(2+3*x)**m/((1+2*x)**m),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(3x+2)^m(4x-5)^4}{(2x+1)^m}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^m*(4*x - 5)^4/(2*x + 1)^m,x, algorithm="giac")
```

```
[Out] integrate((3*x + 2)^m*(4*x - 5)^4/(2*x + 1)^m, x)
```

3.3044 $\int (a+bx)^m (c+dx)^{-m} (e+fx)^3 \, dx$

Optimal. Leaf size=432

$$\frac{f(a+bx)^{m+1}(c+dx)^{1-m}\left(a^2d^2f^2\left(m^2-5m+6\right)-2abdf\left(6de(2-m)-cf\left(3-m^2\right)\right)-2bdfx(adf(3-m)-b(6de-cf(\cdots}{24b^3d^3}$$

$$-\frac{(a+bx)^{m+1}(c+dx)^{-m}\left(\frac{b(c+dx)}{bc-ad}\right)^m\left(a^3d^3f^3\left(-m^3+6m^2-11m+6\right)-3a^2bd^2f^2\left(m^2-3m+2\right)(4de-cf(m+1))+3ab^2d\cdots\right.}{\cdots}$$

$$+\frac{f(e+fx)^2(a+bx)^{m+1}(c+dx)^{1-m}}{4bd}$$

```
[Out] (f*(a + b*x)^(1 + m)*(c + d*x)^(1 - m)*(e + f*x)^2)/(4*b*d) + (f*
(a + b*x)^(1 + m)*(c + d*x)^(1 - m)*(a^2*d^2*f^2*(6 - 5*m + m^2)
- 2*a*b*d*f*(6*d*e*(2 - m) - c*f*(3 - m^2)) + b^2*(30*d^2*e^2 - 1
2*c*d*e*f*(2 + m) + c^2*f^2*(6 + 5*m + m^2)) - 2*b*d*f*(a*d*f*(3
- m) - b*(6*d*e - c*f*(3 + m)))*x))/(24*b^3*d^3) - ((a^3*d^3*f^3*
(6 - 11*m + 6*m^2 - m^3) - 3*a^2*b*d^2*f^2*(2 - 3*m + m^2)*(4*d*e
 - c*f*(1 + m)) + 3*a*b^2*d*f*(1 - m)*(12*d^2*e^2 - 8*c*d*e*f*(1
+ m) + c^2*f^2*(2 + 3*m + m^2)) - b^3*(24*d^3*e^3 - 36*c*d^2*e^2*
f*(1 + m) + 12*c^2*d*e*f^2*(2 + 3*m + m^2) - c^3*f^3*(6 + 11*m +
6*m^2 + m^3)))*(a + b*x)^(1 + m)*((b*(c + d*x))/(b*c - a*d))^m*Hy
pergeometric2F1[m, 1 + m, 2 + m, -((d*(a + b*x))/(b*c - a*d))])/(
24*b^4*d^3*(1 + m)*(c + d*x)^m)
```

Rubi [A] time = 1.25691, antiderivative size = 431, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$\frac{f(a+bx)^{m+1}(c+dx)^{1-m}\left(a^2d^2f^2\left(m^2-5m+6\right)-2abdf\left(6de(2-m)-cf\left(3-m^2\right)\right)+2bdfx(-adf(3-m)-bcf(m+3\cdots}{24b^3d^3}$$

$$-\frac{(a+bx)^{m+1}(c+dx)^{-m}\left(\frac{b(c+dx)}{bc-ad}\right)^m\left(a^3d^3f^3\left(-m^3+6m^2-11m+6\right)-3a^2bd^2f^2\left(m^2-3m+2\right)(4de-cf(m+1))+3ab^2d\cdots\right.}{\cdots}$$

$$+\frac{f(e+fx)^2(a+bx)^{m+1}(c+dx)^{1-m}}{4bd}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^m*(e + f*x)^3)/(c + d*x)^m,x]
```

```
[Out] (f*(a + b*x)^(1 + m)*(c + d*x)^(1 - m)*(e + f*x)^2)/(4*b*d) + (f*
(a + b*x)^(1 + m)*(c + d*x)^(1 - m)*(a^2*d^2*f^2*(6 - 5*m + m^2)
- 2*a*b*d*f*(6*d*e*(2 - m) - c*f*(3 - m^2)) + b^2*(30*d^2*e^2 - 1
2*c*d*e*f*(2 + m) + c^2*f^2*(6 + 5*m + m^2)) + 2*b*d*f*(6*b*d*e -
 a*d*f*(3 - m) - b*c*f*(3 + m))*x))/(24*b^3*d^3) - ((a^3*d^3*f^3*
(6 - 11*m + 6*m^2 - m^3) - 3*a^2*b*d^2*f^2*(2 - 3*m + m^2)*(4*d*e
 - c*f*(1 + m)) + 3*a*b^2*d*f*(1 - m)*(12*d^2*e^2 - 8*c*d*e*f*(1
+ m) + c^2*f^2*(2 + 3*m + m^2)) - b^3*(24*d^3*e^3 - 36*c*d^2*e^2*
f*(1 + m) + 12*c^2*d*e*f^2*(2 + 3*m + m^2) - c^3*f^3*(6 + 11*m +
6*m^2 + m^3)))*(a + b*x)^(1 + m)*((b*(c + d*x))/(b*c - a*d))^m*Hy
pergeometric2F1[m, 1 + m, 2 + m, -((d*(a + b*x))/(b*c - a*d))])/(
24*b^4*d^3*(1 + m)*(c + d*x)^m)
```

Rubi in Sympy [A] time = 138.712, size = 556, normalized size = 1.29

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(f*x+e)**3/((d*x+c)**m),x)
```

```
[Out] f*(a + b*x)**(m + 1)*(c + d*x)**(-m + 1)*(e + f*x)**2/(4*b*d) - f
*(a + b*x)**(m + 1)*(c + d*x)**(-m + 1)*(-a*d*f*(-m + 2)*(-6*b*d*
```

```
e + f*(a*d*(-m + 3) + b*c*(m + 3))) - b*c*f*(m + 2)*(-6*b*d*e + f
*(a*d*(-m + 3) + b*c*(m + 3))) + 2*b*d*f*x*(-6*b*d*e + f*(a*d*(-m
 + 3) + b*c*(m + 3))) + 3*b*d*(-4*b*d*e**2 + e*(-6*b*d*e + f*(a*d
*(-m + 3) + b*c*(m + 3))) + f*(2*a*c*f + e*(a*d*(-m + 1) + b*c*(m
 + 1)))))/(24*b**3*d**3) - (b*(-c - d*x)/(a*d - b*c))**m*(a + b*x
)**(m + 1)*(c + d*x)**(-m)*(a**2*d**2*f**2*(-m + 1)*(-m + 2)*(-6*
b*d*e + f*(a*d*(-m + 3) + b*c*(m + 3))) - a*b*d*f*(-m + 1)*(-2*c*
f*(m + 1)*(-6*b*d*e + f*(a*d*(-m + 3) + b*c*(m + 3))) + 3*d*(-4*b
*d*e**2 + e*(-6*b*d*e + f*(a*d*(-m + 3) + b*c*(m + 3))) + f*(2*a*
c*f + e*(a*d*(-m + 1) + b*c*(m + 1))))) + b**2*(c**2*f**2*(m + 1)
*(m + 2)*(-6*b*d*e + f*(a*d*(-m + 3) + b*c*(m + 3))) - 3*c*d*f*(m
 + 1)*(-4*b*d*e**2 + e*(-6*b*d*e + f*(a*d*(-m + 3) + b*c*(m + 3))
) + f*(2*a*c*f + e*(a*d*(-m + 1) + b*c*(m + 1)))) + 6*d**2*e*(-4*
b*d*e**2 + f*(2*a*c*f + e*(a*d*(-m + 1) + b*c*(m + 1))))))*hyper(
(m, m + 1), (m + 2,), d*(a + b*x)/(a*d - b*c))/(24*b**4*d**3*(m +
 1))
```

Mathematica [C] time = 2.98784, size = 440, normalized size = 1.02

$$(a+bx)^m(c+dx)^{-m}\left(\frac{9ace^2fx^2F_1\left(2;-m,m;3;-\frac{bx}{a},-\frac{dx}{c}\right)}{6acF_1\left(2;-m,m;3;-\frac{bx}{a},-\frac{dx}{c}\right)+2mx\left(bcF_1\left(3;1-m,m;4;-\frac{bx}{a},-\frac{dx}{c}\right)-adF_1\left(3;-m,m+1;4;-\frac{bx}{a},-\frac{dx}{c}\right)\right)}+\frac{4acef^2x^3F_1\left(3;-m,m;4;-\frac{bx}{a},-\frac{dx}{c}\right)}{4acF_1\left(3;-m,m;4;-\frac{bx}{a},-\frac{dx}{c}\right)+mx\left(bcF_1\left(4;1-m,m;5;-\frac{bx}{a},-\frac{dx}{c}\right)-adF_1\left(4;-m,m+1;5;-\frac{bx}{a},-\frac{dx}{c}\right)\right)}+\frac{5acf^3x^4F_1\left(4;-m,m;5;-\frac{bx}{a},-\frac{dx}{c}\right)}{20acF_1\left(4;-m,m;5;-\frac{bx}{a},-\frac{dx}{c}\right)+4bcmxF_1\left(5;1-m,m;6;-\frac{bx}{a},-\frac{dx}{c}\right)-4admxF_1\left(5;-m,m+1;6;-\frac{bx}{a},-\frac{dx}{c}\right)}-\frac{e^3(c+dx)\left(\frac{d(a+bx)}{ad-bc}\right)^{-m}{}_2F_1\left(1-m,-m;2-m;\frac{b(c+dx)}{bc-ad}\right)}{d(m-1)}\right)$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[((a + b*x)^m*(e + f*x)^3)/(c + d*x)^m,x]
```

```
[Out] ((a + b*x)^m*((9*a*c*e^2*f*x^2*AppellF1[2, -m, m, 3, -((b*x)/a),
-((d*x)/c)])/(6*a*c*AppellF1[2, -m, m, 3, -((b*x)/a), -((d*x)/c)]
 + 2*m*x*(b*c*AppellF1[3, 1 - m, m, 4, -((b*x)/a), -((d*x)/c)] -
a*d*AppellF1[3, -m, 1 + m, 4, -((b*x)/a), -((d*x)/c)])) + (4*a*c*
e*f^2*x^3*AppellF1[3, -m, m, 4, -((b*x)/a), -((d*x)/c)])/(4*a*c*A
ppellF1[3, -m, m, 4, -((b*x)/a), -((d*x)/c)] + m*x*(b*c*AppellF1[
4, 1 - m, m, 5, -((b*x)/a), -((d*x)/c)] - a*d*AppellF1[4, -m, 1 +
 m, 5, -((b*x)/a), -((d*x)/c)])) + (5*a*c*f^3*x^4*AppellF1[4, -m,
 m, 5, -((b*x)/a), -((d*x)/c)])/(20*a*c*AppellF1[4, -m, m, 5, -((
b*x)/a), -((d*x)/c)] + 4*b*c*m*x*AppellF1[5, 1 - m, m, 6, -((b*x)
/a), -((d*x)/c)] - 4*a*d*m*x*AppellF1[5, -m, 1 + m, 6, -((b*x)/a)
, -((d*x)/c)]) - (e^3*(c + d*x)*Hypergeometric2F1[1 - m, -m, 2 -
m, (b*(c + d*x))/(b*c - a*d)])/(d*(-1 + m)*((d*(a + b*x))/(-(b*c)
 + a*d))^m)))/(c + d*x)^m
```

Maple [F] time = 0.1, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (fx+e)^3}{(dx+c)^m}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(f*x+e)^3/((d*x+c)^m),x)
```

```
[Out] int((b*x+a)^m*(f*x+e)^3/((d*x+c)^m),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (fx+e)^3(bx+a)^m(dx+c)^{-m}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)^3*(b*x + a)^m/(d*x + c)^m,x, algorithm="maxima")
```

```
[Out] integrate((f*x + e)^3*(b*x + a)^m*(d*x + c)^(-m), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\left(f^3x^3+3\,ef^2x^2+3\,e^2fx+e^3\right)(bx+a)^m}{(dx+c)^m},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)^3*(b*x + a)^m/(d*x + c)^m,x, algorithm="fricas")
```

```
[Out] integral((f^3*x^3 + 3*e*f^2*x^2 + 3*e^2*f*x + e^3)*(b*x + a)^m/(d
*x + c)^m, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**m*(f*x+e)**3/((d*x+c)**m),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(fx+e)^3(bx+a)^m}{(dx+c)^m}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)^3*(b*x + a)^m/(d*x + c)^m,x, algorithm="giac")
```

```
[Out] integrate((f*x + e)^3*(b*x + a)^m/(d*x + c)^m, x)
```

3.3045 $\int (a+bx)^m (c+dx)^{-m} (e+fx)^2 \, dx$

Optimal. Leaf size=250

$$\frac{(a+bx)^{m+1}(c+dx)^{-m}\left(\frac{b(c+dx)}{bc-ad}\right)^m \left(a^2d^2f^2\left(m^2-3m+2\right)-2abdf(1-m)(3de-cf(m+1))+b^2\left(c^2f^2\left(m^2+3m+2\right)-6c\right.\right.}{6b^3d^2(m+1)}$$
$$-\frac{f(a+bx)^{m+1}(c+dx)^{1-m}(adf(2-m)-b(4de-cf(m+2)))}{6b^2d^2}+\frac{f(e+fx)(a+bx)^{m+1}(c+dx)^{1-m}}{3bd}$$

```
[Out] -(f*(a*d*f*(2 - m) - b*(4*d*e - c*f*(2 + m)))*(a + b*x)^(1 + m)*(
c + d*x)^(1 - m))/(6*b^2*d^2) + (f*(a + b*x)^(1 + m)*(c + d*x)^(1
 - m)*(e + f*x))/(3*b*d) + ((a^2*d^2*f^2*(2 - 3*m + m^2) - 2*a*b*
d*f*(1 - m)*(3*d*e - c*f*(1 + m)) + b^2*(6*d^2*e^2 - 6*c*d*e*f*(1
 + m) + c^2*f^2*(2 + 3*m + m^2)))*(a + b*x)^(1 + m)*((b*(c + d*x)
)/(b*c - a*d))^m*Hypergeometric2F1[m, 1 + m, 2 + m, -((d*(a + b*x
))/(b*c - a*d))])/(6*b^3*d^2*(1 + m)*(c + d*x)^m)
```

Rubi [A] time = 0.553645, antiderivative size = 249, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.167$

$$\frac{(a+bx)^{m+1}(c+dx)^{-m}\left(\frac{b(c+dx)}{bc-ad}\right)^m \left(a^2d^2f^2\left(m^2-3m+2\right)-2abdf(1-m)(3de-cf(m+1))+b^2\left(c^2f^2\left(m^2+3m+2\right)-6c\right.\right.}{6b^3d^2(m+1)}$$
$$+\frac{f(a+bx)^{m+1}(c+dx)^{1-m}(-adf(2-m)-bcf(m+2)+4bde)}{6b^2d^2}+\frac{f(e+fx)(a+bx)^{m+1}(c+dx)^{1-m}}{3bd}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^m*(e + f*x)^2)/(c + d*x)^m,x]
```

```
[Out] (f*(4*b*d*e - a*d*f*(2 - m) - b*c*f*(2 + m))*(a + b*x)^(1 + m)*(c
 + d*x)^(1 - m))/(6*b^2*d^2) + (f*(a + b*x)^(1 + m)*(c + d*x)^(1
- m)*(e + f*x))/(3*b*d) + ((a^2*d^2*f^2*(2 - 3*m + m^2) - 2*a*b*d
*f*(1 - m)*(3*d*e - c*f*(1 + m)) + b^2*(6*d^2*e^2 - 6*c*d*e*f*(1
+ m) + c^2*f^2*(2 + 3*m + m^2)))*(a + b*x)^(1 + m)*((b*(c + d*x))
/(b*c - a*d))^m*Hypergeometric2F1[m, 1 + m, 2 + m, -((d*(a + b*x)
)/(b*c - a*d))])/(6*b^3*d^2*(1 + m)*(c + d*x)^m)
```

Rubi in Sympy [A] time = 49.9279, size = 212, normalized size = 0.85

$$\frac{f\left(a+bx\right)^{m+1}\left(c+dx\right)^{-m+1}\left(e+fx\right)}{3bd}-\frac{f\left(a+bx\right)^{m+1}\left(c+dx\right)^{-m+1}\left(-4bde+f\left(ad\left(-m+2\right)+bc\left(m+2\right)\right)\right)}{6b^2d^2}$$
$$-\frac{\left(\frac{b(-c-dx)}{ad-bc}\right)^m\left(a+bx\right)^{m+1}\left(c+dx\right)^{-m}\left(2bd\left(-3bde^2+f\left(acf+e\left(ad\left(-m+1\right)+bc\left(m+1\right)\right)\right)\right)-f\left(ad\left(-m+1\right)+bc\left(m+1\right)\right)\right.}{6b^3d^2\left(m+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(f*x+e)**2/((d*x+c)**m),x)
```

```
[Out] f*(a + b*x)**(m + 1)*(c + d*x)**(-m + 1)*(e + f*x)/(3*b*d) - f*(a
 + b*x)**(m + 1)*(c + d*x)**(-m + 1)*(-4*b*d*e + f*(a*d*(-m + 2)
+ b*c*(m + 2)))/(6*b**2*d**2) - (b*(-c - d*x)/(a*d - b*c))**m*(a
+ b*x)**(m + 1)*(c + d*x)**(-m)*(2*b*d*(-3*b*d*e**2 + f*(a*c*f +
e*(a*d*(-m + 1) + b*c*(m + 1)))) - f*(a*d*(-m + 1) + b*c*(m + 1))
*(-4*b*d*e + f*(a*d*(-m + 2) + b*c*(m + 2))))*hyper((m, m + 1), (
m + 2,), d*(a + b*x)/(a*d - b*c))/(6*b**3*d**2*(m + 1))
```

Mathematica [C] time = 0.858867, size = 320, normalized size = 1.28

$$(a+bx)^m(c+dx)^{-m}\left(\frac{3acefx^2F_1\left(2;-m,m;3;-\frac{bx}{a},-\frac{dx}{c}\right)}{3acF_1\left(2;-m,m;3;-\frac{bx}{a},-\frac{dx}{c}\right)+mx\left(bcF_1\left(3;1-m,m;4;-\frac{bx}{a},-\frac{dx}{c}\right)-adF_1\left(3;-m,m+1;4;-\frac{bx}{a},-\frac{dx}{c}\right)\right)}+\frac{4acf^2x^3F_1\left(3;-m,m;4;-\frac{bx}{a},-\frac{dx}{c}\right)}{12acF_1\left(3;-m,m;4;-\frac{bx}{a},-\frac{dx}{c}\right)+3bcmxF_1\left(4;1-m,m;5;-\frac{bx}{a},-\frac{dx}{c}\right)-3admxF_1\left(4;-m,m+1;5;-\frac{bx}{a},-\frac{dx}{c}\right)}-\frac{e^2(c+dx)\left(\frac{d(a+bx)}{ad-bc}\right)^{-m}{}_2F_1\left(1-m,-m;2-m;\frac{b(c+dx)}{bc-ad}\right)}{d(m-1)}\right)$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[((a + b*x)^m*(e + f*x)^2)/(c + d*x)^m,x]
```

```
[Out] ((a + b*x)^m*((3*a*c*e*f*x^2*AppellF1[2, -m, m, 3, -((b*x)/a), -(
(d*x)/c)])/(3*a*c*AppellF1[2, -m, m, 3, -((b*x)/a), -((d*x)/c)] +
 m*x*(b*c*AppellF1[3, 1 - m, m, 4, -((b*x)/a), -((d*x)/c)] - a*d*
AppellF1[3, -m, 1 + m, 4, -((b*x)/a), -((d*x)/c)])) + (4*a*c*f^2*
x^3*AppellF1[3, -m, m, 4, -((b*x)/a), -((d*x)/c)])/(12*a*c*Appell
F1[3, -m, m, 4, -((b*x)/a), -((d*x)/c)] + 3*b*c*m*x*AppellF1[4, 1
 - m, m, 5, -((b*x)/a), -((d*x)/c)] - 3*a*d*m*x*AppellF1[4, -m, 1
 + m, 5, -((b*x)/a), -((d*x)/c)]) - (e^2*(c + d*x)*Hypergeometric
2F1[1 - m, -m, 2 - m, (b*(c + d*x))/(b*c - a*d)])/(d*(-1 + m)*((d
*(a + b*x))/(-(b*c) + a*d))^m)))/(c + d*x)^m
```

Maple [F] time = 0.093, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m(fx+e)^2}{(dx+c)^m}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(f*x+e)^2/((d*x+c)^m),x)
```

```
[Out] int((b*x+a)^m*(f*x+e)^2/((d*x+c)^m),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (fx+e)^2(bx+a)^m(dx+c)^{-m}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((f*x + e)^2*(b*x + a)^m/(d*x + c)^m,x, algorithm="maxima")
```

```
[Out] integrate((f*x + e)^2*(b*x + a)^m*(d*x + c)^(-m), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{\left(f^2x^2+2\,efx+e^2\right)(bx+a)^m}{(dx+c)^m},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((f*x + e)^2*(b*x + a)^m/(d*x + c)^m,x, algorithm="fricas")
```

```
[Out] integral((f^2*x^2 + 2*e*f*x + e^2)*(b*x + a)^m/(d*x + c)^m, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(f*x+e)**2/((d*x+c)**m),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(fx+e)^2(bx+a)^m}{(dx+c)^m}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((f*x + e)^2*(b*x + a)^m/(d*x + c)^m,x, algorithm="giac")
```

```
[Out] integrate((f*x + e)^2*(b*x + a)^m/(d*x + c)^m, x)
```

3.3046 $\int (a+bx)^m (c+dx)^{-m} (e+fx)\,dx$

Optimal. Leaf size=135

$$\frac{f(a+bx)^{m+1}(c+dx)^{1-m}}{2bd} - \frac{(a+bx)^{m+1}(c+dx)^{-m}\left(\frac{b(c+dx)}{bc-ad}\right)^m (adf(1-m)-b(2de-cf(m+1)))\,{}_2F_1\left(m,m+1;m+2;-\frac{d(a+bx)}{bc-ad}\right)}{2b^2d(m+1)}$$

```
[Out] (f*(a + b*x)^(1 + m)*(c + d*x)^(1 - m))/(2*b*d) - ((a*d*f*(1 - m)
 - b*(2*d*e - c*f*(1 + m)))*(a + b*x)^(1 + m)*((b*(c + d*x))/(b*c
 - a*d))^m*Hypergeometric2F1[m, 1 + m, 2 + m, -((d*(a + b*x))/(b*
c - a*d))])/(2*b^2*d*(1 + m)*(c + d*x)^m)
```

Rubi [A] time = 0.187967, antiderivative size = 134, normalized size of antiderivative = 0.99, number of steps used = 3, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.136$

$$\frac{(a+bx)^{m+1}(c+dx)^{-m}\left(\frac{b(c+dx)}{bc-ad}\right)^m (-adf(1-m)-bcf(m+1)+2bde)\,{}_2F_1\left(m,m+1;m+2;-\frac{d(a+bx)}{bc-ad}\right)}{2b^2d(m+1)} + \frac{f(a+bx)^{m+1}(c+dx)^{1-m}}{2bd}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^m*(e + f*x))/(c + d*x)^m,x]
```

```
[Out] (f*(a + b*x)^(1 + m)*(c + d*x)^(1 - m))/(2*b*d) + ((2*b*d*e - a*d
*f*(1 - m) - b*c*f*(1 + m))*(a + b*x)^(1 + m)*((b*(c + d*x))/(b*c
 - a*d))^m*Hypergeometric2F1[m, 1 + m, 2 + m, -((d*(a + b*x))/(b*
c - a*d))])/(2*b^2*d*(1 + m)*(c + d*x)^m)
```

Rubi in Sympy [A] time = 21.9422, size = 105, normalized size = 0.78

$$\frac{f\left(a+bx\right)^{m+1}\left(c+dx\right)^{-m+1}}{2bd} - \frac{\left(\frac{b(-c-dx)}{ad-bc}\right)^m \left(a+bx\right)^{m+1}\left(c+dx\right)^{-m}\left(-2bde+f\left(ad\left(-m+1\right)+bc\left(m+1\right)\right)\right){}_2F_1\left(\begin{matrix} m, m+1 \\ m+2 \end{matrix}\middle| \frac{d(a+bx)}{ad-bc}\right)}{2b^2d\left(m+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(f*x+e)/((d*x+c)**m),x)
```

```
[Out] f*(a + b*x)**(m + 1)*(c + d*x)**(-m + 1)/(2*b*d) - (b*(-c - d*x)/
(a*d - b*c))**m*(a + b*x)**(m + 1)*(c + d*x)**(-m)*(-2*b*d*e + f*
(a*d*(-m + 1) + b*c*(m + 1)))*hyper((m, m + 1), (m + 2,), d*(a +
b*x)/(a*d - b*c))/(2*b**2*d*(m + 1))
```

Mathematica [C] time = 0.368438, size = 201, normalized size = 1.49

$$(a+bx)^m(c+dx)^{-m}\left(\frac{3acfx^2F_1\left(2;-m,m;3;-\frac{bx}{a},-\frac{dx}{c}\right)}{6acF_1\left(2;-m,m;3;-\frac{bx}{a},-\frac{dx}{c}\right)+2mx\left(bcF_1\left(3;1-m,m;4;-\frac{bx}{a},-\frac{dx}{c}\right)-adF_1\left(3;-m,m+1;4;-\frac{bx}{a},-\frac{dx}{c}\right)\right)} - \frac{e(c+dx)\left(\frac{d(a+bx)}{ad-bc}\right)^{-m}{}_2F_1\left(1-m,-m;2-m;\frac{b(c+dx)}{bc-ad}\right)}{d(m-1)}\right)$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[((a + b*x)^m*(e + f*x))/(c + d*x)^m,x]
```

```
[Out] ((a + b*x)^m*((3*a*c*f*x^2*AppellF1[2, -m, m, 3, -((b*x)/a), -((d
*x)/c)])/(6*a*c*AppellF1[2, -m, m, 3, -((b*x)/a), -((d*x)/c)] + 2
*m*x*(b*c*AppellF1[3, 1 - m, m, 4, -((b*x)/a), -((d*x)/c)] - a*d*
AppellF1[3, -m, 1 + m, 4, -((b*x)/a), -((d*x)/c)])) - (e*(c + d*x
)*Hypergeometric2F1[1 - m, -m, 2 - m, (b*(c + d*x))/(b*c - a*d)])
/(d*(-1 + m)*((d*(a + b*x))/(-(b*c) + a*d))^m)))/(c + d*x)^m
```

Maple [F] time = 0.083, size = 0, normalized size = 0.

$$\int \frac{(bx + a)^m (fx + e)}{(dx + c)^m}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(f*x+e)/((d*x+c)^m),x)
```

```
[Out] int((b*x+a)^m*(f*x+e)/((d*x+c)^m),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (fx + e)(bx + a)^m (dx + c)^{-m}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((f*x + e)*(b*x + a)^m/(d*x + c)^m,x, algorithm="maxima")
```

```
[Out] integrate((f*x + e)*(b*x + a)^m*(d*x + c)^(-m), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(fx + e)(bx + a)^m}{(dx + c)^m}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((f*x + e)*(b*x + a)^m/(d*x + c)^m,x, algorithm="fricas")
```

```
[Out] integral((f*x + e)*(b*x + a)^m/(d*x + c)^m, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(f*x+e)/((d*x+c)**m),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(fx+e)(bx+a)^m}{(dx+c)^m}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((f*x + e)*(b*x + a)^m/(d*x + c)^m,x, algorithm="giac")
```

```
[Out] integrate((f*x + e)*(b*x + a)^m/(d*x + c)^m, x)
```

3.3047 $\int (a+bx)^m (c+dx)^{-m}\,dx$

Optimal. Leaf size=72

$$\frac{(a+bx)^{m+1}(c+dx)^{-m}\left(\frac{b(c+dx)}{bc-ad}\right)^m {}_2F_1\left(m,m+1;m+2;-\frac{d(a+bx)}{bc-ad}\right)}{b(m+1)}$$

```
[Out] ((a + b*x)^(1 + m)*((b*(c + d*x))/(b*c - a*d))^m*Hypergeometric2F
1[m, 1 + m, 2 + m, -((d*(a + b*x))/(b*c - a*d))])/(b*(1 + m)*(c +
 d*x)^m)
```

Rubi [A] time = 0.076857, antiderivative size = 72, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 17, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.118

$$\frac{(a+bx)^{m+1}(c+dx)^{-m}\left(\frac{b(c+dx)}{bc-ad}\right)^m {}_2F_1\left(m,m+1;m+2;-\frac{d(a+bx)}{bc-ad}\right)}{b(m+1)}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m/(c + d*x)^m,x]
```

```
[Out] ((a + b*x)^(1 + m)*((b*(c + d*x))/(b*c - a*d))^m*Hypergeometric2F
1[m, 1 + m, 2 + m, -((d*(a + b*x))/(b*c - a*d))])/(b*(1 + m)*(c +
 d*x)^m)
```

Rubi in Sympy [A] time = 14.82, size = 54, normalized size = 0.75

$$\frac{\left(\frac{b(-c-dx)}{ad-bc}\right)^m (a+bx)^{m+1}(c+dx)^{-m}\,{}_2F_1\left(\begin{matrix} m, m+1 \\ m+2 \end{matrix}\middle| \frac{d(a+bx)}{ad-bc}\right)}{b\,(m+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m/((d*x+c)**m),x)
```

```
[Out] (b*(-c - d*x)/(a*d - b*c))**m*(a + b*x)**(m + 1)*(c + d*x)**(-m)*
hyper((m, m + 1), (m + 2,), d*(a + b*x)/(a*d - b*c))/(b*(m + 1))
```

Mathematica [A] time = 0.0670995, size = 80, normalized size = 1.11

$$-\frac{(a+bx)^m(c+dx)^{1-m}\left(\frac{d(a+bx)}{ad-bc}\right)^{-m} {}_2F_1\left(1-m,-m;2-m;\frac{b(c+dx)}{bc-ad}\right)}{d(m-1)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^m/(c + d*x)^m,x]
```

```
[Out] -(((a + b*x)^m*(c + d*x)^(1 - m)*Hypergeometric2F1[1 - m, -m, 2 -
 m, (b*(c + d*x))/(b*c - a*d)])/(d*(-1 + m)*((d*(a + b*x))/(-(b*c
) + a*d))^m))
```

Maple [F] time = 0.106, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m}{(dx+c)^m}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m/((d*x+c)^m),x)

[Out] int((b*x+a)^m/((d*x+c)^m),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^{-m}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m/(d*x + c)^m,x, algorithm="maxima")

[Out] integrate((b*x + a)^m*(d*x + c)^(-m), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)^m}{(dx+c)^m}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m/(d*x + c)^m,x, algorithm="fricas")

[Out] integral((b*x + a)^m/(d*x + c)^m, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m/((d*x+c)**m),x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m}{(dx+c)^m}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m/(d*x + c)^m,x, algorithm="giac")

[Out] integrate((b*x + a)^m/(d*x + c)^m, x)
```

3.3048 $\int \frac{(a+bx)^m(c+dx)^{-m}}{e+fx}\,dx$

Optimal. Leaf size=128

$$\frac{(a+bx)^m(c+dx)^{-m}\left(\frac{b(c+dx)}{bc-ad}\right)^m {}_2F_1\left(m,m;m+1;-\frac{d(a+bx)}{bc-ad}\right)}{fm} - \frac{(a+bx)^m(c+dx)^{-m}\,{}_2F_1\left(1,m;m+1;\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}\right)}{fm}$$

```
[Out] -(((a + b*x)^m*Hypergeometric2F1[1, m, 1 + m, ((d*e - c*f)*(a + b
*x))/((b*e - a*f)*(c + d*x))])/(f*m*(c + d*x)^m)) + ((a + b*x)^m*
((b*(c + d*x))/(b*c - a*d))^m*Hypergeometric2F1[m, m, 1 + m, -((d
*(a + b*x))/(b*c - a*d))])/(f*m*(c + d*x)^m)
```

Rubi [A] time = 0.228846, antiderivative size = 128, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$\frac{(a+bx)^m(c+dx)^{-m}\left(\frac{b(c+dx)}{bc-ad}\right)^m {}_2F_1\left(m,m;m+1;-\frac{d(a+bx)}{bc-ad}\right)}{fm} - \frac{(a+bx)^m(c+dx)^{-m}\,{}_2F_1\left(1,m;m+1;\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}\right)}{fm}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m/((c + d*x)^m*(e + f*x)),x]
```

```
[Out] -(((a + b*x)^m*Hypergeometric2F1[1, m, 1 + m, ((d*e - c*f)*(a + b
*x))/((b*e - a*f)*(c + d*x))])/(f*m*(c + d*x)^m)) + ((a + b*x)^m*
((b*(c + d*x))/(b*c - a*d))^m*Hypergeometric2F1[m, m, 1 + m, -((d
*(a + b*x))/(b*c - a*d))])/(f*m*(c + d*x)^m)
```

Rubi in Sympy [A] time = 29.0179, size = 95, normalized size = 0.74

$$\frac{\left(\frac{b(-c-dx)}{ad-bc}\right)^m (a+bx)^m (c+dx)^{-m}\,{}_2F_1\left(\left.\begin{matrix} m,m \\ m+1 \end{matrix}\right| \frac{d(a+bx)}{ad-bc}\right)}{fm} - \frac{(a+bx)^m (c+dx)^{-m}\,{}_2F_1\left(\left.\begin{matrix} m,1 \\ m+1 \end{matrix}\right| \frac{(-a-bx)(-cf+de)}{(c+dx)(af-be)}\right)}{fm}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m/((d*x+c)**m)/(f*x+e),x)
```

```
[Out] (b*(-c - d*x)/(a*d - b*c))**m*(a + b*x)**m*(c + d*x)**(-m)*hyper(
(m, m), (m + 1,), d*(a + b*x)/(a*d - b*c))/(f*m) - (a + b*x)**m*(
c + d*x)**(-m)*hyper((m, 1), (m + 1,), (-a - b*x)*(-c*f + d*e)/((
c + d*x)*(a*f - b*e)))/(f*m)
```

Mathematica [C] time = 0.868285, size = 292, normalized size = 2.28

$$-\frac{(m+2)(bc-ad)(be-af)^2(a+bx)^{m+1}(c+dx)^{-m}F_1\left(m+\ldots\right.}{b(m+1)(e+fx)(af-be)\left((m+2)(bc-ad)(be-af)F_1\left(m+1;m,1;m+2;\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)+(a+bx)\left((adf-bcf)F_1\left(\ldots\right.\right.\right.}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^m/((c + d*x)^m*(e + f*x)),x]
```

```
[Out] -(((b*c - a*d)*(b*e - a*f)^2*(2 + m)*(a + b*x)^(1 + m)*AppellF1[1
 + m, m, 1, 2 + m, (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-
(b*e) + a*f)])/(b*(-(b*e) + a*f)*(1 + m)*(c + d*x)^m*(e + f*x)*((
b*c - a*d)*(b*e - a*f)*(2 + m)*AppellF1[1 + m, m, 1, 2 + m, (d*(a
 + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)] + (a + b*x
)*((-(b*c*f) + a*d*f)*AppellF1[2 + m, m, 2, 3 + m, (d*(a + b*x))/
(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)] + d*(-(b*e) + a*f)*
m*AppellF1[2 + m, 1 + m, 1, 3 + m, (d*(a + b*x))/(-(b*c) + a*d),
(f*(a + b*x))/(-(b*e) + a*f)]))))
```

Maple [F] time = 0.092, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m}{(dx+c)^m (fx+e)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m/((d*x+c)^m)/(f*x+e),x)
```

```
[Out] int((b*x+a)^m/((d*x+c)^m)/(f*x+e),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{-m}}{fx+e}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m/((f*x + e)*(d*x + c)^m),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m)/(f*x + e), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)^m}{(fx+e)(dx+c)^m}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m/((f*x + e)*(d*x + c)^m),x, algorithm="fricas")
```

```
[Out] integral((b*x + a)^m/((f*x + e)*(d*x + c)^m), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m/((d*x+c)**m)/(f*x+e),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m}{(fx+e)(dx+c)^m}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m/((f*x + e)*(d*x + c)^m),x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m/((f*x + e)*(d*x + c)^m), x)
```

3.3049 $\int \frac{(a+bx)^m(c+dx)^{-m}}{(e+fx)^2} dx$

Optimal. Leaf size=83

$$\frac{(bc-ad)(a+bx)^{m+1}(c+dx)^{-m-1}\,{}_2F_1\left(2,m+1;m+2;\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}\right)}{(m+1)(be-af)^2}$$

```
[Out] ((b*c - a*d)*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m)*Hypergeometric2
F1[2, 1 + m, 2 + m, ((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x
))])/((b*e - a*f)^2*(1 + m))
```

Rubi [A] time = 0.0840944, antiderivative size = 83, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.042

$$\frac{(bc-ad)(a+bx)^{m+1}(c+dx)^{-m-1}\,{}_2F_1\left(2,m+1;m+2;\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}\right)}{(m+1)(be-af)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m/((c + d*x)^m*(e + f*x)^2),x]
```

```
[Out] ((b*c - a*d)*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m)*Hypergeometric2
F1[2, 1 + m, 2 + m, ((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x
))])/((b*e - a*f)^2*(1 + m))
```

Rubi in Sympy [A] time = 10.4965, size = 65, normalized size = 0.78

$$\frac{(a+bx)^{m-1}(c+dx)^{-m+1}(ad-bc)\,{}_2F_1\left(\begin{matrix}-m+1,2\\-m+2\end{matrix}\middle|\frac{(-c-dx)(-af+be)}{(a+bx)(cf-de)}\right)}{(-m+1)(cf-de)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m/((d*x+c)**m)/(f*x+e)**2,x)
```

```
[Out] (a + b*x)**(m - 1)*(c + d*x)**(-m + 1)*(a*d - b*c)*hyper((-m + 1,
 2), (-m + 2,), (-c - d*x)*(-a*f + b*e)/((a + b*x)*(c*f - d*e)))/
((-m + 1)*(c*f - d*e)**2)
```

Mathematica [A] time = 0.625097, size = 113, normalized size = 1.36

$$\frac{(a+bx)^{m+1}(c+dx)^{-m}\left(\frac{(c+dx)(be-af)}{(e+fx)(bc-ad)}\right)^m\,{}_2F_1\left(m,m+1;m+2;\frac{(cf-de)(a+bx)}{(bc-ad)(e+fx)}\right)}{(m+1)(e+fx)(be-af)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^m/((c + d*x)^m*(e + f*x)^2),x]
```

```
[Out] ((a + b*x)^(1 + m)*(((b*e - a*f)*(c + d*x))/((b*c - a*d)*(e + f*x
)))^m*Hypergeometric2F1[m, 1 + m, 2 + m, ((-(d*e) + c*f)*(a + b*x
))/((b*c - a*d)*(e + f*x))])/((b*e - a*f)*(1 + m)*(c + d*x)^m*(e
+ f*x))
```

Maple [F] time = 0.117, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m}{(dx+c)^m (fx+e)^2}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m/((d*x+c)^m)/(f*x+e)^2,x)

[Out] int((b*x+a)^m/((d*x+c)^m)/(f*x+e)^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m(dx+c)^{-m}}{(fx+e)^2}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m/((f*x + e)^2*(d*x + c)^m),x, algorithm="maxima")

[Out] integrate((b*x + a)^m*(d*x + c)^(-m)/(f*x + e)^2, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)^m}{(f^2x^2+2\,efx+e^2)(dx+c)^m}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m/((f*x + e)^2*(d*x + c)^m),x, algorithm="fricas")

[Out] integral((b*x + a)^m/((f^2*x^2 + 2*e*f*x + e^2)*(d*x + c)^m), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m/((d*x+c)**m)/(f*x+e)**2,x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m}{(fx+e)^2(dx+c)^m}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m/((f*x + e)^2*(d*x + c)^m),x, algorithm="giac")

[Out] integrate((b*x + a)^m/((f*x + e)^2*(d*x + c)^m), x)
```

3.3050 $\int \frac{(a+bx)^m(c+dx)^{-m}}{(e+fx)^3}\,dx$

Optimal. Leaf size=174

$$\frac{(bc-ad)(a+bx)^{m+1}(c+dx)^{-m-1}(b(2de-cf(1-m))-adf(m+1))\,{}_2F_1\left(2,m+1;m+2;\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}\right)}{2(m+1)(be-af)^3(de-cf)}-\frac{f(a+bx)^{m+1}(c+dx)^{1-m}}{2(e+fx)^2(be-af)(de-cf)}$$

```
[Out] -(f*(a + b*x)^(1 + m)*(c + d*x)^(1 - m))/(2*(b*e - a*f)*(d*e - c*
f)*(e + f*x)^2) + ((b*c - a*d)*(b*(2*d*e - c*f*(1 - m)) - a*d*f*(
1 + m))*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m)*Hypergeometric2F1[2,
 1 + m, 2 + m, ((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x))])/
(2*(b*e - a*f)^3*(d*e - c*f)*(1 + m))
```

Rubi [A] time = 0.273, antiderivative size = 173, normalized size of antiderivative = 0.99, number of steps used = 2, number of rules used = 2, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.083

$$\frac{(bc-ad)(a+bx)^{m+1}(c+dx)^{-m-1}(-adf(m+1)-bcf(1-m)+2bde)\,{}_2F_1\left(2,m+1;m+2;\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}\right)}{2(m+1)(be-af)^3(de-cf)}-\frac{f(a+bx)^{m+1}(c+dx)^{1-m}}{2(e+fx)^2(be-af)(de-cf)}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m/((c + d*x)^m*(e + f*x)^3),x]
```

```
[Out] -(f*(a + b*x)^(1 + m)*(c + d*x)^(1 - m))/(2*(b*e - a*f)*(d*e - c*
f)*(e + f*x)^2) + ((b*c - a*d)*(2*b*d*e - b*c*f*(1 - m) - a*d*f*(
1 + m))*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m)*Hypergeometric2F1[2,
 1 + m, 2 + m, ((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x))])/
(2*(b*e - a*f)^3*(d*e - c*f)*(1 + m))
```

Rubi in Sympy [A] time = 32.6892, size = 141, normalized size = 0.81

$$-\frac{f\left(a+bx\right)^{m+1}\left(c+dx\right)^{-m+1}}{2\left(e+fx\right)^{2}\left(af-be\right)\left(cf-de\right)}-\frac{\left(a+bx\right)^{m+1}\left(c+dx\right)^{-m-1}\left(ad-bc\right)\left(-adf\left(m+1\right)-bcf\left(-m+1\right)+2bde\right){}_2F_1\left(\begin{matrix}m+1,2\\m+2\end{matrix}\middle|\frac{(-a-bx)(-cf+de)}{(c+dx)(af-be)}\right)}{2\left(m+1\right)\left(af-be\right)^{3}\left(cf-de\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m/((d*x+c)**m)/(f*x+e)**3,x)
```

```
[Out] -f*(a + b*x)**(m + 1)*(c + d*x)**(-m + 1)/(2*(e + f*x)**2*(a*f -
b*e)*(c*f - d*e)) - (a + b*x)**(m + 1)*(c + d*x)**(-m - 1)*(a*d -
 b*c)*(-a*d*f*(m + 1) - b*c*f*(-m + 1) + 2*b*d*e)*hyper((m + 1, 2
), (m + 2,), (-a - b*x)*(-c*f + d*e)/((c + d*x)*(a*f - b*e)))/(2*
(m + 1)*(a*f - b*e)**3*(c*f - d*e))
```

Mathematica [C] time = 3.01598, size = 432, normalized size = 2.48

$$\frac{(be-af)^4(a+bx)^{m+1}(c+dx)^{-m}\left((af(m+1)-2be+bf(m-1)x)\left(\frac{(de-cf)(a+bx)}{(be-af)(c+dx)},1,m\right)-2(af(m+1)+b(fmx\right.}{(e+fx)^2(2be-2af)(af-be)^3\left((be-af)(b(e-fmx)-af(m+1))\left(\frac{(de-cf)(a+bx)}{(be-af)(c+dx)},1,m\right)+\frac{(a+bx)\left((af(m+1)(d(e-fx)-2cf)+b(cf(\right.}{}\right.}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^m/((c + d*x)^m*(e + f*x)^3),x]
```

```
[Out] ((b*e - a*f)^4*(a + b*x)^(1 + m)*((-2*b*e + a*f*(1 + m) + b*f*(-1
 + m)*x)*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c
+ d*x)), 1, m] - 2*(a*f*(1 + m) + b*(-e + f*m*x))*HurwitzLerchPhi
[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 1 + m] + f*(
1 + m)*(a + b*x)*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e -
a*f)*(c + d*x)), 1, 2 + m]))/((2*b*e - 2*a*f)*(-(b*e) + a*f)^3*(c
 + d*x)^m*(e + f*x)^2*((b*e - a*f)*(-(a*f*(1 + m)) + b*(e - f*m*x
))*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)
), 1, m] + ((a + b*x)*((a*f*(1 + m)*(-2*c*f + d*(e - f*x)) + b*(c
*f*(e*(2 + m) - f*m*x) + d*e*(-e + f*(1 + 2*m)*x)))*HurwitzLerchP
hi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 1 + m] + f
*(-(d*e) + c*f)*(1 + m)*(a + b*x)*HurwitzLerchPhi[((d*e - c*f)*(a
 + b*x))/((b*e - a*f)*(c + d*x)), 1, 2 + m]))/(c + d*x)))
```

Maple [F] time = 0.118, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m}{(dx+c)^m (fx+e)^3}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m/((d*x+c)^m)/(f*x+e)^3,x)
```

```
[Out] int((b*x+a)^m/((d*x+c)^m)/(f*x+e)^3,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{-m}}{(fx+e)^3}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m/((f*x + e)^3*(d*x + c)^m),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m)/(f*x + e)^3, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)^m}{(f^3x^3+3\,ef^2x^2+3\,e^2fx+e^3)(dx+c)^m}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m/((f*x + e)^3*(d*x + c)^m),x, algorithm="fricas")
```

```
[Out] integral((b*x + a)^m/((f^3*x^3 + 3*e*f^2*x^2 + 3*e^2*f*x + e^3)*(
d*x + c)^m), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m/((d*x+c)**m)/(f*x+e)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m}{(fx+e)^3(dx+c)^m}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m/((f*x + e)^3*(d*x + c)^m),x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m/((f*x + e)^3*(d*x + c)^m), x)
```

3.3051 $\int \frac{(a+bx)^m(c+dx)^{-m}}{(e+fx)^4} dx$

Optimal. Leaf size=309

$$-\frac{(bc-ad)(a+bx)^{m+1}(c+dx)^{-m-1}\left(-a^2d^2f^2\left(m^2+3m+2\right)+2abdf(m+1)(3de-cf(1-m))+b^2\left(-\left(c^2f^2\left(m^2-3m+2\right)\right.\right.\right.}{6(m+1)(be-af)^4(de-cf)^2}$$
$$-\frac{f(a+bx)^{m+1}(c+dx)^{1-m}(b(4de-cf(2-m))-adf(m+2))}{6(e+fx)^2(be-af)^2(de-cf)^2}-\frac{f(a+bx)^{m+1}(c+dx)^{1-m}}{3(e+fx)^3(be-af)(de-cf)}$$

```
[Out] -(f*(a + b*x)^(1 + m)*(c + d*x)^(1 - m))/(3*(b*e - a*f)*(d*e - c*
f)*(e + f*x)^3) - (f*(b*(4*d*e - c*f*(2 - m)) - a*d*f*(2 + m))*(a
 + b*x)^(1 + m)*(c + d*x)^(1 - m))/(6*(b*e - a*f)^2*(d*e - c*f)^2
*(e + f*x)^2) - ((b*c - a*d)*(2*a*b*d*f*(3*d*e - c*f*(1 - m))*(1
+ m) - a^2*d^2*f^2*(2 + 3*m + m^2) - b^2*(6*d^2*e^2 - 6*c*d*e*f*(
1 - m) + c^2*f^2*(2 - 3*m + m^2)))*(a + b*x)^(1 + m)*(c + d*x)^(-
1 - m)*Hypergeometric2F1[2, 1 + m, 2 + m, ((d*e - c*f)*(a + b*x))
/((b*e - a*f)*(c + d*x))])/(6*(b*e - a*f)^4*(d*e - c*f)^2*(1 + m)
)
```

Rubi [A] time = 0.892802, antiderivative size = 308, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$-\frac{(bc-ad)(a+bx)^{m+1}(c+dx)^{-m-1}\left(-a^2d^2f^2\left(m^2+3m+2\right)+2abdf(m+1)(3de-cf(1-m))+b^2\left(-\left(c^2f^2\left(m^2-3m+2\right)\right.\right.\right.}{6(m+1)(be-af)^4(de-cf)^2}$$
$$-\frac{f(a+bx)^{m+1}(c+dx)^{1-m}(-adf(m+2)-bcf(2-m)+4bde)}{6(e+fx)^2(be-af)^2(de-cf)^2}-\frac{f(a+bx)^{m+1}(c+dx)^{1-m}}{3(e+fx)^3(be-af)(de-cf)}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m/((c + d*x)^m*(e + f*x)^4),x]
```

```
[Out] -(f*(a + b*x)^(1 + m)*(c + d*x)^(1 - m))/(3*(b*e - a*f)*(d*e - c*
f)*(e + f*x)^3) - (f*(4*b*d*e - b*c*f*(2 - m) - a*d*f*(2 + m))*(a
 + b*x)^(1 + m)*(c + d*x)^(1 - m))/(6*(b*e - a*f)^2*(d*e - c*f)^2
*(e + f*x)^2) - ((b*c - a*d)*(2*a*b*d*f*(3*d*e - c*f*(1 - m))*(1
+ m) - a^2*d^2*f^2*(2 + 3*m + m^2) - b^2*(6*d^2*e^2 - 6*c*d*e*f*(
1 - m) + c^2*f^2*(2 - 3*m + m^2)))*(a + b*x)^(1 + m)*(c + d*x)^(-
1 - m)*Hypergeometric2F1[2, 1 + m, 2 + m, ((d*e - c*f)*(a + b*x))
/((b*e - a*f)*(c + d*x))])/(6*(b*e - a*f)^4*(d*e - c*f)^2*(1 + m)
)
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m/((d*x+c)**m)/(f*x+e)**4,x)
```

```
[Out] Timed out
```

Mathematica [C] time = 7.46575, size = 1697, normalized size = 5.49

result too large to display

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^m/((c + d*x)^m*(e + f*x)^4),x]
```

```
[Out] ((a + b*x)^(1 + m)*(c + d*x)^(1 - m)*(6*(b*e - a*f)^2*HurwitzLerc
hPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, m] + 6*(
b*e - a*f)^2*m*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*
f)*(c + d*x)), 1, m] + 6*f*(b*e - a*f)*(a + b*x)*HurwitzLerchPhi[
((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, m] + 6*f*(-(b
*e) + a*f)*m^2*(a + b*x)*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/
((b*e - a*f)*(c + d*x)), 1, m] + 2*f^2*(a + b*x)^2*HurwitzLerchPh
i[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, m] - f^2*m*
(a + b*x)^2*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*
(c + d*x)), 1, m] - 2*f^2*m^2*(a + b*x)^2*HurwitzLerchPhi[((d*e -
 c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, m] + f^2*m^3*(a + b*
x)^2*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*
x)), 1, m] - 6*(b*e - a*f)^2*HurwitzLerchPhi[((d*e - c*f)*(a + b*
x))/((b*e - a*f)*(c + d*x)), 1, 1 + m] - 6*(b*e - a*f)^2*m*Hurwit
zLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 1 +
 m] + 12*f*(b*e - a*f)*m*(a + b*x)*HurwitzLerchPhi[((d*e - c*f)*(
a + b*x))/((b*e - a*f)*(c + d*x)), 1, 1 + m] + 12*f*(b*e - a*f)*m
^2*(a + b*x)*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)
*(c + d*x)), 1, 1 + m] + 3*f^2*m*(a + b*x)^2*HurwitzLerchPhi[((d*
e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 1 + m] - 3*f^2*m^
3*(a + b*x)^2*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f
)*(c + d*x)), 1, 1 + m] + 6*f*(-(b*e) + a*f)*(a + b*x)*HurwitzLer
chPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 2 + m]
+ 12*f*(-(b*e) + a*f)*m*(a + b*x)*HurwitzLerchPhi[((d*e - c*f)*(a
 + b*x))/((b*e - a*f)*(c + d*x)), 1, 2 + m] + 6*f*(-(b*e) + a*f)*
m^2*(a + b*x)*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f
)*(c + d*x)), 1, 2 + m] + 3*f^2*m*(a + b*x)^2*HurwitzLerchPhi[((d
*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 2 + m] + 6*f^2*m
^2*(a + b*x)^2*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*
f)*(c + d*x)), 1, 2 + m] + 3*f^2*m^3*(a + b*x)^2*HurwitzLerchPhi[
((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 2 + m] - 2*f^
2*(a + b*x)^2*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f
)*(c + d*x)), 1, 3 + m] - 5*f^2*m*(a + b*x)^2*HurwitzLerchPhi[((d
*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 3 + m] - 4*f^2*m
^2*(a + b*x)^2*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*
f)*(c + d*x)), 1, 3 + m] - f^2*m^3*(a + b*x)^2*HurwitzLerchPhi[((
d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 3 + m]))/(3*(1
+ m)*(e + f*x)^3*((b*e - a*f)*(c + d*x)*(a^2*f^2*(2 + 3*m + m^2)
+ 2*a*b*f*(1 + m)*(-2*e + f*m*x) + b^2*(2*e^2 - 4*e*f*m*x + f^2*(
-1 + m)*m*x^2))*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a
*f)*(c + d*x)), 1, m] - (a + b*x)*((a^2*f^2*(2 + 3*m + m^2)*(-3*c
*f + d*(e - 2*f*x)) - 2*a*b*f*(1 + m)*(c*f*(-(e*(6 + m)) + 2*f*m*
x) + d*(2*e^2 - 2*e*f*(2 + m)*x + f^2*m*x^2)) + b^2*(c*f*(-2*e^2*
(3 + 2*m) + 2*e*f*m*(3 + m)*x - f^2*(-1 + m)*m*x^2) + d*e*(2*e^2
- 4*e*f*(1 + 2*m)*x + f^2*m*(1 + 3*m)*x^2)))*HurwitzLerchPhi[((d*
e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 1 + m] + f*(1 + m
)*(a + b*x)*((a*f*(2 + m)*(-2*d*e + 3*c*f + d*f*x) + b*c*f*(-(e*(
6 + m)) + 2*f*m*x) + b*d*e*(4*e - f*(2 + 3*m)*x))*HurwitzLerchPhi
[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 2 + m] + f*(
d*e - c*f)*(2 + m)*(a + b*x)*HurwitzLerchPhi[((d*e - c*f)*(a + b*
x))/((b*e - a*f)*(c + d*x)), 1, 3 + m])))
```

Maple [F] time = 0.167, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m}{(dx+c)^m (fx+e)^4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m/((d*x+c)^m)/(f*x+e)^4,x)
```

```
[Out] int((b*x+a)^m/((d*x+c)^m)/(f*x+e)^4,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m(dx+c)^{-m}}{(fx+e)^4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m/((f*x + e)^4*(d*x + c)^m),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m)/(f*x + e)^4, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)^m}{(f^4x^4+4\,ef^3x^3+6\,e^2f^2x^2+4\,e^3fx+e^4)(dx+c)^m},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m/((f*x + e)^4*(d*x + c)^m),x, algorithm="fricas")
```

```
[Out] integral((b*x + a)^m/((f^4*x^4 + 4*e*f^3*x^3 + 6*e^2*f^2*x^2 + 4*
e^3*f*x + e^4)*(d*x + c)^m), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m/((d*x+c)**m)/(f*x+e)**4,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m}{(fx+e)^4(dx+c)^m}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m/((f*x + e)^4*(d*x + c)^m),x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m/((f*x + e)^4*(d*x + c)^m), x)
```

3.3052 $\int \frac{(1+2x)^{-m}(2+3x)^m}{(5-4x)^5}\,dx$

Optimal. Leaf size=179

$$\frac{(m^3+132m^2+4358m+32010)(3x+2)^{m-1}(2x+1)^{1-m}\,{}_2F_1\left(2,1-m;2-m;\frac{23(2x+1)}{14(3x+2)}\right)}{2453889228(1-m)}+\frac{(2m^2+220m+4359)(3x+2)^{m+1}(2x+1)^{1-m}}{25039686(5-4x)^2}+\frac{(m+66)(3x+2)^{m+1}(2x+1)^{1-m}}{77763(5-4x)^3}+\frac{(3x+2)^{m+1}(2x+1)^{1-m}}{322(5-4x)^4}$$

```
[Out] ((1 + 2*x)^(1 - m)*(2 + 3*x)^(1 + m))/(322*(5 - 4*x)^4) + ((66 +
m)*(1 + 2*x)^(1 - m)*(2 + 3*x)^(1 + m))/(77763*(5 - 4*x)^3) + ((4
359 + 220*m + 2*m^2)*(1 + 2*x)^(1 - m)*(2 + 3*x)^(1 + m))/(250396
86*(5 - 4*x)^2) + ((32010 + 4358*m + 132*m^2 + m^3)*(1 + 2*x)^(1
- m)*(2 + 3*x)^(-1 + m)*Hypergeometric2F1[2, 1 - m, 2 - m, (23*(1
 + 2*x))/(14*(2 + 3*x))])/(2453889228*(1 - m))
```

Rubi [A] time = 0.326122, antiderivative size = 179, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.167

$$\frac{(m^3+132m^2+4358m+32010)(3x+2)^{m-1}(2x+1)^{1-m}\,{}_2F_1\left(2,1-m;2-m;\frac{23(2x+1)}{14(3x+2)}\right)}{2453889228(1-m)}+\frac{(2m^2+220m+4359)(3x+2)^{m+1}(2x+1)^{1-m}}{25039686(5-4x)^2}+\frac{(m+66)(3x+2)^{m+1}(2x+1)^{1-m}}{77763(5-4x)^3}+\frac{(3x+2)^{m+1}(2x+1)^{1-m}}{322(5-4x)^4}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^m/((5 - 4*x)^5*(1 + 2*x)^m),x]
```

```
[Out] ((1 + 2*x)^(1 - m)*(2 + 3*x)^(1 + m))/(322*(5 - 4*x)^4) + ((66 +
m)*(1 + 2*x)^(1 - m)*(2 + 3*x)^(1 + m))/(77763*(5 - 4*x)^3) + ((4
359 + 220*m + 2*m^2)*(1 + 2*x)^(1 - m)*(2 + 3*x)^(1 + m))/(250396
86*(5 - 4*x)^2) + ((32010 + 4358*m + 132*m^2 + m^3)*(1 + 2*x)^(1
- m)*(2 + 3*x)^(-1 + m)*Hypergeometric2F1[2, 1 - m, 2 - m, (23*(1
 + 2*x))/(14*(2 + 3*x))])/(2453889228*(1 - m))
```

Rubi in Sympy [A] time = 43.0198, size = 143, normalized size = 0.8

$$\frac{\left(\frac{m}{77763}+\frac{22}{25921}\right)(2x+1)^{-m+1}(3x+2)^{m+1}}{(-4x+5)^3}+\frac{(2x+1)^{-m+1}(3x+2)^{m+1}\left(\frac{m^2}{12519843}+\frac{110m}{12519843}+\frac{1453}{8346562}\right)}{(-4x+5)^2}+\frac{(2x+1)^{-m+1}(3x+2)^{m+1}}{322(-4x+5)^4}+\frac{(2x+1)^{-m+1}(3x+2)^{m-1}(m^3+132m^2+4358m+32010)\,{}_2F_1\left(\begin{matrix}-m+1,2\\-m+2\end{matrix}\middle|\frac{46x+23}{42x+28}\right)}{2453889228(-m+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**m/(5-4*x)**5/((1+2*x)**m),x)
```

```
[Out] (m/77763 + 22/25921)*(2*x + 1)**(-m + 1)*(3*x + 2)**(m + 1)/(-4*x
 + 5)**3 + (2*x + 1)**(-m + 1)*(3*x + 2)**(m + 1)*(m**2/12519843
+ 110*m/12519843 + 1453/8346562)/(-4*x + 5)**2 + (2*x + 1)**(-m +
```

```
1)*(3*x + 2)**(m + 1)/(322*(-4*x + 5)**4) + (2*x + 1)**(-m + 1)*
(3*x + 2)**(m - 1)*(m**3 + 132*m**2 + 4358*m + 32010)*hyper((-m +
1, 2), (-m + 2,), (46*x + 23)/(42*x + 28))/(2453889228*(-m + 1))
```

Mathematica [C] time = 0.417887, size = 153, normalized size = 0.85

$$\frac{15\,2^{-m-4}(4x+2)^{-m}(12x+8)^m F_1\left(4;-m,m;5;\frac{23}{15-12x},\frac{7}{5-4x}\right)}{(4x-5)^3\left(15(4x-5)F_1\left(4;-m,m;5;\frac{23}{15-12x},\frac{7}{5-4x}\right)+m\left(23F_1\left(5;1-m,m;6;\frac{23}{15-12x},\frac{7}{5-4x}\right)-21F_1\left(5;-m,m+1;6;\frac{23}{15-12x},\frac{7}{5-4x}\right)\right)\right)}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(2 + 3*x)^m/((5 - 4*x)^5*(1 + 2*x)^m),x]
```

```
[Out] (15*2^(-4 - m)*(8 + 12*x)^m*AppellF1[4, -m, m, 5, 23/(15 - 12*x),
 7/(5 - 4*x)])/((-5 + 4*x)^3*(2 + 4*x)^m*(15*(-5 + 4*x)*AppellF1[
4, -m, m, 5, 23/(15 - 12*x), 7/(5 - 4*x)] + m*(23*AppellF1[5, 1 -
 m, m, 6, 23/(15 - 12*x), 7/(5 - 4*x)] - 21*AppellF1[5, -m, 1 + m
, 6, 23/(15 - 12*x), 7/(5 - 4*x)])))
```

Maple [F] time = 0.108, size = 0, normalized size = 0.

$$\int \frac{(2+3x)^m}{(5-4x)^5(1+2x)^m}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^m/(5-4*x)^5/((1+2*x)^m),x)
```

```
[Out] int((2+3*x)^m/(5-4*x)^5/((1+2*x)^m),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$-\int \frac{(3x+2)^m(2x+1)^{-m}}{(4x-5)^5}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^m/((2*x + 1)^m*(4*x - 5)^5),x, algorithm="maxima")
```

```
[Out] -integrate((3*x + 2)^m*(2*x + 1)^(-m)/(4*x - 5)^5, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{(3x+2)^m}{(1024x^5-6400x^4+16000x^3-20000x^2+12500x-3125)(2x+1)^m}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^m/((2*x + 1)^m*(4*x - 5)^5),x, algorithm="fricas")
```

```
[Out] integral(-(3*x + 2)^m/((1024*x^5 - 6400*x^4 + 16000*x^3 - 20000*x
^2 + 12500*x - 3125)*(2*x + 1)^m), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**m/(5-4*x)**5/((1+2*x)**m),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int -\frac{(3\,x+2)^m}{(2\,x+1)^m(4\,x-5)^5}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^m/((2*x + 1)^m*(4*x - 5)^5),x, algorithm="giac")
```

```
[Out] integrate(-(3*x + 2)^m/((2*x + 1)^m*(4*x - 5)^5), x)
```

3.3053 $\int (a+bx)^m (c+dx)^{-1-m} (e+fx)^p \, dx$

Optimal. Leaf size=130

$$\frac{(a+bx)^{m+1}(c+dx)^{-m}(e+fx)^p \left(\frac{b(c+dx)}{bc-ad}\right)^m \left(\frac{b(e+fx)}{be-af}\right)^{-p} F_1\left(m+1;m+1,-p;m+2;-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{(m+1)(bc-ad)}$$

```
[Out] ((a + b*x)^(1 + m)*((b*(c + d*x))/(b*c - a*d))^m*(e + f*x)^p*Appe
llF1[1 + m, 1 + m, -p, 2 + m, -((d*(a + b*x))/(b*c - a*d)), -((f*
(a + b*x))/(b*e - a*f))])/((b*c - a*d)*(1 + m)*(c + d*x)^m*((b*(e
 + f*x))/(b*e - a*f))^p)
```

Rubi [A] time = 0.359804, antiderivative size = 130, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.115$

$$\frac{(a+bx)^{m+1}(c+dx)^{-m}(e+fx)^p \left(\frac{b(c+dx)}{bc-ad}\right)^m \left(\frac{b(e+fx)}{be-af}\right)^{-p} F_1\left(m+1;m+1,-p;m+2;-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{(m+1)(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^(-1 - m)*(e + f*x)^p,x]
```

```
[Out] ((a + b*x)^(1 + m)*((b*(c + d*x))/(b*c - a*d))^m*(e + f*x)^p*Appe
llF1[1 + m, 1 + m, -p, 2 + m, -((d*(a + b*x))/(b*c - a*d)), -((f*
(a + b*x))/(b*e - a*f))])/((b*c - a*d)*(1 + m)*(c + d*x)^m*((b*(e
 + f*x))/(b*e - a*f))^p)
```

Rubi in Sympy [A] time = 79.2664, size = 100, normalized size = 0.77

$$-\frac{\left(\frac{b(-c-dx)}{ad-bc}\right)^m \left(\frac{b(-e-fx)}{af-be}\right)^{-p} (a+bx)^{m+1} (c+dx)^{-m} (e+fx)^p \operatorname{appellf}_1\left(m+1,-p,m+1,m+2,\frac{f(a+bx)}{af-be},\frac{d(a+bx)}{ad-bc}\right)}{(m+1)(ad-bc)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(-1-m)*(f*x+e)**p,x)
```

```
[Out] -(b*(-c - d*x)/(a*d - b*c))**m*(b*(-e - f*x)/(a*f - b*e))**(-p)*(
a + b*x)**(m + 1)*(c + d*x)**(-m)*(e + f*x)**p*appellf1(m + 1, -p
, m + 1, m + 2, f*(a + b*x)/(a*f - b*e), d*(a + b*x)/(a*d - b*c))
/((m + 1)*(a*d - b*c))
```

Mathematica [B] time = 1.34997, size = 300, normalized size = 2.31

$$\frac{(m+2)(bc-ad)(be-af)(a+bx)^{m+1}(c+dx)^{-m-1}(e+fx)^p F_1\left(m\right.}{b(m+1)\left((m+2)(bc-ad)(be-af)F_1\left(m+1;m+1,-p;m+2;\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)-(a+bx)\left(fp(ad-bc)F_1\left(m+2;m+1,1\right.\right.\right.}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^(-1 - m)*(e + f*x)^p,x]
```

```
[Out] ((b*c - a*d)*(b*e - a*f)*(2 + m)*(a + b*x)^(1 + m)*(c + d*x)^(-1
- m)*(e + f*x)^p*AppellF1[1 + m, 1 + m, -p, 2 + m, (d*(a + b*x))/
(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)])/(b*(1 + m)*((b*c -
 a*d)*(b*e - a*f)*(2 + m)*AppellF1[1 + m, 1 + m, -p, 2 + m, (d*(a
```

```
 + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)] - (a + b*x
)*((-(b*c) + a*d)*f*p*AppellF1[2 + m, 1 + m, 1 - p, 3 + m, (d*(a
+ b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)] + d*(b*e -
a*f)*(1 + m)*AppellF1[2 + m, 2 + m, -p, 3 + m, (d*(a + b*x))/(-(b
*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)])))
```

Maple [F] time = 0.221, size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^{-1-m} (fx+e)^p \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(-1-m)*(f*x+e)^p,x)

[Out] int((b*x+a)^m*(d*x+c)^(-1-m)*(f*x+e)^p,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^{-m-1} (fx+e)^p \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - 1)*(f*x + e)^p,x, algorithm="maxima")

[Out] integrate((b*x + a)^m*(d*x + c)^(-m - 1)*(f*x + e)^p, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left((bx+a)^m (dx+c)^{-m-1} (fx+e)^p, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - 1)*(f*x + e)^p,x, algorithm="fricas")

[Out] integral((b*x + a)^m*(d*x + c)^(-m - 1)*(f*x + e)^p, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(-1-m)*(f*x+e)**p,x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^{-m-1} (fx+e)^p \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m - 1)*(f*x + e)^p,x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m - 1)*(f*x + e)^p, x)
```

3.3054 $\int (5-4x)^3(1+2x)^{-1-m}(2+3x)^m\,dx$

Optimal. Leaf size=142

$$\frac{2^{-m-1}\left(-4m^3+390m^2-8324m+27783\right)(2x+1)^{1-m}{}_2F_1(1-m,-m;2-m;-3(2x+1))}{27(1-m)m}-\frac{(3x+2)^{m+1}\left(4m^2-4(109-2m)mx-512m+9261\right)(2x+1)^{-m}}{27m}-\frac{2}{9}(5-4x)^2(3x+2)^{m+1}(2x+1)^{-m}$$

```
[Out] (-2*(5 - 4*x)^2*(2 + 3*x)^(1 + m))/(9*(1 + 2*x)^m) - ((2 + 3*x)^(
1 + m)*(9261 - 512*m + 4*m^2 - 4*(109 - 2*m)*m*x))/(27*m*(1 + 2*x
)^m) + (2^(-1 - m)*(27783 - 8324*m + 390*m^2 - 4*m^3)*(1 + 2*x)^(
1 - m)*Hypergeometric2F1[1 - m, -m, 2 - m, -3*(1 + 2*x)])/(27*(1
- m)*m)
```

Rubi [A] time = 0.434518, antiderivative size = 142, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.115

$$\frac{2^{-m-1}\left(-4m^3+390m^2-8324m+27783\right)(2x+1)^{1-m}{}_2F_1(1-m,-m;2-m;-3(2x+1))}{27(1-m)m}-\frac{(3x+2)^{m+1}\left(4m^2-4(109-2m)mx-512m+9261\right)(2x+1)^{-m}}{27m}-\frac{2}{9}(5-4x)^2(3x+2)^{m+1}(2x+1)^{-m}$$

Antiderivative was successfully verified.

```
[In]  Int[(5 - 4*x)^3*(1 + 2*x)^(-1 - m)*(2 + 3*x)^m,x]
```

```
[Out] (-2*(5 - 4*x)^2*(2 + 3*x)^(1 + m))/(9*(1 + 2*x)^m) - ((2 + 3*x)^(
1 + m)*(9261 - 512*m + 4*m^2 - 4*(109 - 2*m)*m*x))/(27*m*(1 + 2*x
)^m) + (2^(-1 - m)*(27783 - 8324*m + 390*m^2 - 4*m^3)*(1 + 2*x)^(
1 - m)*Hypergeometric2F1[1 - m, -m, 2 - m, -3*(1 + 2*x)])/(27*(1
- m)*m)
```

Rubi in Sympy [A] time = 27.1491, size = 110, normalized size = 0.77

$$-\frac{2\left(-4x+5\right)^2\left(2x+1\right)^{-m}\left(3x+2\right)^{m+1}}{9}-\frac{\left(2x+1\right)^{-m}\left(3x+2\right)^{m+1}\left(64m^2-64mx\left(-2m+109\right)-8192m+148176\right)}{432m}+\frac{2^{-m}\left(2x+1\right)^{-m+1}\left(-4m^3+390m^2-8324m+27783\right){}_2F_1\left(\begin{matrix}-m,-m+1\\-m+2\end{matrix}\middle|-6x-3\right)}{54m\left(-m+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((5-4*x)**3*(1+2*x)**(-1-m)*(2+3*x)**m,x)
```

```
[Out] -2*(-4*x + 5)**2*(2*x + 1)**(-m)*(3*x + 2)**(m + 1)/9 - (2*x + 1)
**(-m)*(3*x + 2)**(m + 1)*(64*m**2 - 64*m*x*(-2*m + 109) - 8192*m
 + 148176)/(432*m) + 2**(-m)*(2*x + 1)**(-m + 1)*(-4*m**3 + 390*m
**2 - 8324*m + 27783)*hyper((-m, -m + 1), (-m + 2,), -6*x - 3)/(5
4*m*(-m + 1))
```

Mathematica [C] time = 1.66145, size = 395, normalized size = 2.78

$$\frac{7}{4}\left(\frac{483(5-4x)^2(8x+4)^{-m}(12x+8)^m F_1\left(2;-m,m;3;\frac{3}{23}(5-4x),\frac{1}{7}(5-4x)\right)}{483F_1\left(2;-m,m;3;\frac{3}{23}(5-4x),\frac{1}{7}(5-4x)\right)+m(4x-5)\left(21F_1\left(3;1-m,m;4;\frac{3}{23}(5-4x),\frac{1}{7}(5-4x)\right)-23F_1\left(3;-m,m+1;\right.\right.}\right.$$
$$-\frac{23\,2^{m+3}(4x-5)^3(3x+2)^m(4x+2)^{-m}F_1\left(3;-m,m;4;-\frac{3}{23}(4x-5),\frac{1}{7}(5-4x)\right)}{3\left(644F_1\left(3;-m,m;4;\frac{3}{23}(5-4x),\frac{1}{7}(5-4x)\right)+m(4x-5)\left(21F_1\left(4;1-m,m;5;\frac{3}{23}(5-4x),\frac{1}{7}(5-4x)\right)-23F_1\left(4;-m,m+1\right.\right.\right.}$$
$$+\frac{7\,2^{2-m}(2x+1)^{1-m}\,{}_2F_1(1-m,-m;2-m;-6x-3)}{m-1}$$
$$\left.-\frac{196(-6x-3)^m(3x+2)^{m+1}(2x+1)^{-m}\,{}_2F_1(m+1,m+1;m+2;6x+4)}{m+1}\right)$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(5 - 4*x)^3*(1 + 2*x)^(-1 - m)*(2 + 3*x)^m,x]
```

```
[Out] (7*((483*(5 - 4*x)^2*(8 + 12*x)^m*AppellF1[2, -m, m, 3, (3*(5 - 4
*x))/23, (5 - 4*x)/7])/((4 + 8*x)^m*(483*AppellF1[2, -m, m, 3, (3
*(5 - 4*x))/23, (5 - 4*x)/7] + m*(-5 + 4*x)*(21*AppellF1[3, 1 - m
, m, 4, (3*(5 - 4*x))/23, (5 - 4*x)/7] - 23*AppellF1[3, -m, 1 + m
, 4, (3*(5 - 4*x))/23, (5 - 4*x)/7]))) - (23*2^(3 + m)*(2 + 3*x)^
m*(-5 + 4*x)^3*AppellF1[3, -m, m, 4, (-3*(-5 + 4*x))/23, (5 - 4*x
)/7])/(3*(2 + 4*x)^m*(644*AppellF1[3, -m, m, 4, (3*(5 - 4*x))/23,
 (5 - 4*x)/7] + m*(-5 + 4*x)*(21*AppellF1[4, 1 - m, m, 5, (3*(5 -
 4*x))/23, (5 - 4*x)/7] - 23*AppellF1[4, -m, 1 + m, 5, (3*(5 - 4*
x))/23, (5 - 4*x)/7]))) + (7*2^(2 - m)*(1 + 2*x)^(1 - m)*Hypergeo
metric2F1[1 - m, -m, 2 - m, -3 - 6*x])/(-1 + m) - (196*(-3 - 6*x)
^m*(2 + 3*x)^(1 + m)*Hypergeometric2F1[1 + m, 1 + m, 2 + m, 4 + 6
*x])/((1 + m)*(1 + 2*x)^m)))/4
```

Maple [F] time = 0.084, size = 0, normalized size = 0.

$$\int (5-4\,x)^3\,(1+2\,x)^{-1-m}\,(2+3\,x)^m\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((5-4*x)^3*(1+2*x)^(-1-m)*(2+3*x)^m,x)
```

```
[Out] int((5-4*x)^3*(1+2*x)^(-1-m)*(2+3*x)^m,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$-\int (3\,x+2)^m(2\,x+1)^{-m-1}(4\,x-5)^3\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^m*(2*x + 1)^(-m - 1)*(4*x - 5)^3,x, algorithm="maxima")
```

```
[Out] -integrate((3*x + 2)^m*(2*x + 1)^(-m - 1)*(4*x - 5)^3, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(-\left(64\,x^3-240\,x^2+300\,x-125\right)(3\,x+2)^m(2\,x+1)^{-m-1},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^m*(2*x + 1)^(-m - 1)*(4*x - 5)^3,x, algorithm="fricas")
```

```
[Out] integral(-(64*x^3 - 240*x^2 + 300*x - 125)*(3*x + 2)^m*(2*x + 1)^
(-m - 1), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5-4*x)**3*(1+2*x)**(-1-m)*(2+3*x)**m,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int -(3\,x + 2)^{m}(2\,x + 1)^{-m-1}(4\,x - 5)^{3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^m*(2*x + 1)^(-m - 1)*(4*x - 5)^3,x, algorithm="giac")
```

```
[Out] integrate(-(3*x + 2)^m*(2*x + 1)^(-m - 1)*(4*x - 5)^3, x)
```

3.3055 $\int (5-4x)^2(1+2x)^{-1-m}(2+3x)^m\,dx$

Optimal. Leaf size=121

$$\frac{2^{-m-1}\left(2m^2-86m+441\right)(2x+1)^{1-m}\,{}_2F_1(1-m,-m;2-m;-3(2x+1))}{3(1-m)m}-\frac{1}{3}(5-4x)(3x+2)^{m+1}(2x+1)^{-m}-\frac{7(21-m)(3x+2)^{m+1}(2x+1)^{-m}}{3m}$$

```
[Out] (-7*(21 - m)*(2 + 3*x)^(1 + m))/(3*m*(1 + 2*x)^m) - ((5 - 4*x)*(2
 + 3*x)^(1 + m))/(3*(1 + 2*x)^m) + (2^(-1 - m)*(441 - 86*m + 2*m^
2)*(1 + 2*x)^(1 - m)*Hypergeometric2F1[1 - m, -m, 2 - m, -3*(1 +
2*x)])/(3*(1 - m)*m)
```

Rubi [A] time = 0.267255, antiderivative size = 121, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.115$

$$\frac{2^{-m-1}\left(2m^2-86m+441\right)(2x+1)^{1-m}\,{}_2F_1(1-m,-m;2-m;-3(2x+1))}{3(1-m)m}-\frac{1}{3}(5-4x)(3x+2)^{m+1}(2x+1)^{-m}-\frac{7(21-m)(3x+2)^{m+1}(2x+1)^{-m}}{3m}$$

Antiderivative was successfully verified.

```
[In]  Int[(5 - 4*x)^2*(1 + 2*x)^(-1 - m)*(2 + 3*x)^m,x]
```

```
[Out] (-7*(21 - m)*(2 + 3*x)^(1 + m))/(3*m*(1 + 2*x)^m) - ((5 - 4*x)*(2
 + 3*x)^(1 + m))/(3*(1 + 2*x)^m) + (2^(-1 - m)*(441 - 86*m + 2*m^
2)*(1 + 2*x)^(1 - m)*Hypergeometric2F1[1 - m, -m, 2 - m, -3*(1 +
2*x)])/(3*(1 - m)*m)
```

Rubi in Sympy [A] time = 17.5722, size = 87, normalized size = 0.72

$$-\frac{(-16x+20)(2x+1)^{-m}(3x+2)^{m+1}}{12}-\frac{7(-m+21)(2x+1)^{-m}(3x+2)^{m+1}}{3m}+\frac{2^{-m}(2x+1)^{-m+1}\left(2m^2-86m+441\right){}_2F_1\left(\begin{matrix}-m,-m+1\\-m+2\end{matrix}\middle|-6x-3\right)}{6m(-m+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((5-4*x)**2*(1+2*x)**(-1-m)*(2+3*x)**m,x)
```

```
[Out] -(-16*x + 20)*(2*x + 1)**(-m)*(3*x + 2)**(m + 1)/12 - 7*(-m + 21)
*(2*x + 1)**(-m)*(3*x + 2)**(m + 1)/(3*m) + 2**(-m)*(2*x + 1)**(-
m + 1)*(2*m**2 - 86*m + 441)*hyper((-m, -m + 1), (-m + 2,), -6*x
- 3)/(6*m*(-m + 1))
```

Mathematica [C] time = 0.406355, size = 241, normalized size = 1.99

$$\frac{7}{4}\left(\frac{69(5-4x)^2(8x+4)^{-m}(12x+8)^mF_1\left(2;-m,m;3;\frac{3}{23}(5-4x),\frac{1}{7}(5-4x)\right)}{483F_1\left(2;-m,m;3;\frac{3}{23}(5-4x),\frac{1}{7}(5-4x)\right)+m(4x-5)\left(21F_1\left(3;1-m,m;4;\frac{3}{23}(5-4x),\frac{1}{7}(5-4x)\right)-23F_1\left(3;-m,m+1;\right.\right.}+\frac{2^{2-m}(2x+1)^{1-m}\,{}_2F_1(1-m,-m;2-m;-6x-3)}{m-1}-\frac{28(-6x-3)^m(3x+2)^{m+1}(2x+1)^{-m}\,{}_2F_1(m+1,m+1;m+2;6x+4)}{m+1}\right)$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(5 - 4*x)^2*(1 + 2*x)^(-1 - m)*(2 + 3*x)^m,x]
```

```
[Out] (7*((69*(5 - 4*x)^2*(8 + 12*x)^m*AppellF1[2, -m, m, 3, (3*(5 - 4*
x))/23, (5 - 4*x)/7])/((4 + 8*x)^m*(483*AppellF1[2, -m, m, 3, (3*
(5 - 4*x))/23, (5 - 4*x)/7] + m*(-5 + 4*x)*(21*AppellF1[3, 1 - m,
 m, 4, (3*(5 - 4*x))/23, (5 - 4*x)/7] - 23*AppellF1[3, -m, 1 + m,
 4, (3*(5 - 4*x))/23, (5 - 4*x)/7]))) + (2^(2 - m)*(1 + 2*x)^(1 -
 m)*Hypergeometric2F1[1 - m, -m, 2 - m, -3 - 6*x])/(-1 + m) - (28
*(-3 - 6*x)^m*(2 + 3*x)^(1 + m)*Hypergeometric2F1[1 + m, 1 + m, 2
 + m, 4 + 6*x])/((1 + m)*(1 + 2*x)^m)))/4
```

Maple [F] time = 0.082, size = 0, normalized size = 0.

$$\int (5-4x)^2 (1+2x)^{-1-m} (2+3x)^m \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((5-4*x)^2*(1+2*x)^(-1-m)*(2+3*x)^m,x)
```

```
[Out] int((5-4*x)^2*(1+2*x)^(-1-m)*(2+3*x)^m,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (3x+2)^m (2x+1)^{-m-1} (4x-5)^2 \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^m*(2*x + 1)^(-m - 1)*(4*x - 5)^2,x, algorithm="maxima")
```

```
[Out] integrate((3*x + 2)^m*(2*x + 1)^(-m - 1)*(4*x - 5)^2, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\left(16x^2-40x+25\right)(3x+2)^m (2x+1)^{-m-1}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^m*(2*x + 1)^(-m - 1)*(4*x - 5)^2,x, algorithm="fricas")
```

```
[Out] integral((16*x^2 - 40*x + 25)*(3*x + 2)^m*(2*x + 1)^(-m - 1), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5-4*x)**2*(1+2*x)**(-1-m)*(2+3*x)**m,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (3x+2)^m (2x+1)^{-m-1} (4x-5)^2 \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^m*(2*x + 1)^(-m - 1)*(4*x - 5)^2,x, algorithm="giac")
```

```
[Out] integrate((3*x + 2)^m*(2*x + 1)^(-m - 1)*(4*x - 5)^2, x)
```

3.3056 $\int (a+bx)^m (c+dx)^{-1-m}(e+fx)\,dx$

Optimal. Leaf size=152

$$\frac{(a+bx)^{m+1}(de-cf)(c+dx)^{-m}}{dm(bc-ad)}-\frac{(a+bx)^{m+1}(c+dx)^{-m}\left(\frac{b(c+dx)}{bc-ad}\right)^m(adfm+b(de-cf(m+1)))\,{}_2F_1\left(m,m+1;m+2;-\frac{d(a+bx)}{bc-ad}\right)}{bdm(m+1)(bc-ad)}$$

```
[Out] ((d*e - c*f)*(a + b*x)^(1 + m))/(d*(b*c - a*d)*m*(c + d*x)^m) - (
(a*d*f*m + b*(d*e - c*f*(1 + m)))*(a + b*x)^(1 + m)*((b*(c + d*x)
)/(b*c - a*d))^m*Hypergeometric2F1[m, 1 + m, 2 + m, -((d*(a + b*x
))/(b*c - a*d))])/(b*d*(b*c - a*d)*m*(1 + m)*(c + d*x)^m)
```

Rubi [A] time = 0.253092, antiderivative size = 151, normalized size of antiderivative = 0.99, number of steps used = 3, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$\frac{(a+bx)^{m+1}(de-cf)(c+dx)^{-m}}{dm(bc-ad)}-\frac{(a+bx)^{m+1}(c+dx)^{-m}\left(\frac{b(c+dx)}{bc-ad}\right)^m(adfm-bcf(m+1)+bde)\,{}_2F_1\left(m,m+1;m+2;-\frac{d(a+bx)}{bc-ad}\right)}{bdm(m+1)(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^(-1 - m)*(e + f*x),x]
```

```
[Out] ((d*e - c*f)*(a + b*x)^(1 + m))/(d*(b*c - a*d)*m*(c + d*x)^m) - (
(b*d*e + a*d*f*m - b*c*f*(1 + m))*(a + b*x)^(1 + m)*((b*(c + d*x)
)/(b*c - a*d))^m*Hypergeometric2F1[m, 1 + m, 2 + m, -((d*(a + b*x
))/(b*c - a*d))])/(b*d*(b*c - a*d)*m*(1 + m)*(c + d*x)^m)
```

Rubi in Sympy [A] time = 33.5743, size = 116, normalized size = 0.76

$$\frac{(a+bx)^{m+1}(c+dx)^{-m}(cf-de)}{dm(ad-bc)}+\frac{\left(\frac{b(-c-dx)}{ad-bc}\right)^m(a+bx)^{m+1}(c+dx)^{-m}(bde+f(adm-bc(m+1)))\,{}_2F_1\left(\begin{matrix}m,m+1\\m+2\end{matrix}\middle|\frac{d(a+bx)}{ad-bc}\right)}{bdm(m+1)(ad-bc)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(-1-m)*(f*x+e),x)
```

```
[Out] (a + b*x)**(m + 1)*(c + d*x)**(-m)*(c*f - d*e)/(d*m*(a*d - b*c))
+ (b*(-c - d*x)/(a*d - b*c))**m*(a + b*x)**(m + 1)*(c + d*x)**(-m
)*(b*d*e + f*(a*d*m - b*c*(m + 1)))*hyper((m, m + 1), (m + 2,), d
*(a + b*x)/(a*d - b*c))/(b*d*m*(m + 1)*(a*d - b*c))
```

Mathematica [A] time = 0.165928, size = 131, normalized size = 0.86

$$-\frac{(a+bx)^m(c+dx)^{-m}\left(\frac{d(a+bx)}{ad-bc}\right)^{-m}\left((m-1)(de-cf)\,{}_2F_1\left(-m,-m;1-m;\frac{b(c+dx)}{bc-ad}\right)+fm(c+dx)\,{}_2F_1\left(1-m,-m;2-m;\frac{b(}{b}\right.\right.}{d^2(m-1)m}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^(-1 - m)*(e + f*x),x]
```

```
[Out] -(((a + b*x)^m*(f*m*(c + d*x)*Hypergeometric2F1[1 - m, -m, 2 - m,
 (b*(c + d*x))/(b*c - a*d)] + (d*e - c*f)*(-1 + m)*Hypergeometric
2F1[-m, -m, 1 - m, (b*(c + d*x))/(b*c - a*d)]))/(d^2*(-1 + m)*m*(
(d*(a + b*x))/(-(b*c) + a*d))^m*(c + d*x)^m))
```

Maple [F]   time = 0.076, size = 0, normalized size = 0.

$$\int (bx+a)^{m} (dx+c)^{-1-m} (fx+e)\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(-1-m)*(f*x+e),x)
```

```
[Out] int((b*x+a)^m*(d*x+c)^(-1-m)*(f*x+e),x)
```

Maxima [F]   time = 0., size = 0, normalized size = 0.

$$\int (fx+e)(bx+a)^{m}(dx+c)^{-m-1}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)*(b*x + a)^m*(d*x + c)^(-m - 1),x, algorithm="maxima")
```

```
[Out] integrate((f*x + e)*(b*x + a)^m*(d*x + c)^(-m - 1), x)
```

Fricas [F]   time = 0., size = 0, normalized size = 0.

$$\text{integral}\left((fx+e)(bx+a)^{m}(dx+c)^{-m-1}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)*(b*x + a)^m*(d*x + c)^(-m - 1),x, algorithm="fricas")
```

```
[Out] integral((f*x + e)*(b*x + a)^m*(d*x + c)^(-m - 1), x)
```

Sympy [F(-1)]   time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(-1-m)*(f*x+e),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F]   time = 0., size = 0, normalized size = 0.

$$\int (fx+e)(bx+a)^{m}(dx+c)^{-m-1}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)*(b*x + a)^m*(d*x + c)^(-m - 1),x, algorithm="giac")
```

```
[Out] integrate((f*x + e)*(b*x + a)^m*(d*x + c)^(-m - 1), x)
```

3.3057 $\int (a+bx)^m (c+dx)^{-1-m}\,dx$

Optimal. Leaf size=75

$$-\frac{(a+bx)^m(c+dx)^{-m}\left(-\frac{d(a+bx)}{bc-ad}\right)^{-m}\,{}_2F_1\left(-m,-m;1-m;\frac{b(c+dx)}{bc-ad}\right)}{dm}$$

```
[Out] -(((a + b*x)^m*Hypergeometric2F1[-m, -m, 1 - m, (b*(c + d*x))/(b*
c - a*d)])/(d*m*(-((d*(a + b*x))/(b*c - a*d)))^m*(c + d*x)^m))
```

Rubi [A] time = 0.0940878, antiderivative size = 75, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.105

$$-\frac{(a+bx)^m(c+dx)^{-m}\left(-\frac{d(a+bx)}{bc-ad}\right)^{-m}\,{}_2F_1\left(-m,-m;1-m;\frac{b(c+dx)}{bc-ad}\right)}{dm}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^(-1 - m),x]
```

```
[Out] -(((a + b*x)^m*Hypergeometric2F1[-m, -m, 1 - m, (b*(c + d*x))/(b*
c - a*d)])/(d*m*(-((d*(a + b*x))/(b*c - a*d)))^m*(c + d*x)^m))
```

Rubi in Sympy [A] time = 15.346, size = 54, normalized size = 0.72

$$-\frac{\left(\frac{d(a+bx)}{ad-bc}\right)^{-m}(a+bx)^m\,(c+dx)^{-m}\,{}_2F_1\left(\left.\begin{matrix}-m,-m\\-m+1\end{matrix}\right|\frac{b(-c-dx)}{ad-bc}\right)}{dm}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(-1-m),x)
```

```
[Out] -(d*(a + b*x)/(a*d - b*c))**(-m)*(a + b*x)**m*(c + d*x)**(-m)*hyp
er((-m, -m), (-m + 1,), b*(-c - d*x)/(a*d - b*c))/(d*m)
```

Mathematica [A] time = 0.0516315, size = 74, normalized size = 0.99

$$-\frac{(a+bx)^m(c+dx)^{-m}\left(\frac{d(a+bx)}{ad-bc}\right)^{-m}\,{}_2F_1\left(-m,-m;1-m;\frac{b(c+dx)}{bc-ad}\right)}{dm}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^(-1 - m),x]
```

```
[Out] -(((a + b*x)^m*Hypergeometric2F1[-m, -m, 1 - m, (b*(c + d*x))/(b*
c - a*d)])/(d*m*((d*(a + b*x))/(-(b*c) + a*d))^m*(c + d*x)^m))
```

Maple [F] time = 0.102, size = 0, normalized size = 0.

$$\int (bx+a)^m\,(dx+c)^{-1-m}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(-1-m),x)

[Out] int((b*x+a)^m*(d*x+c)^(-1-m),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^{-m-1}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - 1),x, algorithm="maxima")

[Out] integrate((b*x + a)^m*(d*x + c)^(-m - 1), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left((bx+a)^m (dx+c)^{-m-1}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - 1),x, algorithm="fricas")

[Out] integral((b*x + a)^m*(d*x + c)^(-m - 1), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(-1-m),x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^{-m-1}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - 1),x, algorithm="giac")

[Out] integrate((b*x + a)^m*(d*x + c)^(-m - 1), x)
```

3.3058 $\int \frac{(a+bx)^m(c+dx)^{-1-m}}{e+fx}\,dx$

Optimal. Leaf size=75

$$\frac{(a+bx)^{m+1}(c+dx)^{-m-1}\,{}_2F_1\left(1,m+1;m+2;\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}\right)}{(m+1)(be-af)}$$

```
[Out] ((a + b*x)^(1 + m)*(c + d*x)^(-1 - m)*Hypergeometric2F1[1, 1 + m,
 2 + m, ((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x))])/((b*e -
 a*f)*(1 + m))
```

Rubi [A] time = 0.0878635, antiderivative size = 75, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.038

$$\frac{(a+bx)^{m+1}(c+dx)^{-m-1}\,{}_2F_1\left(1,m+1;m+2;\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}\right)}{(m+1)(be-af)}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^m*(c + d*x)^(-1 - m))/(e + f*x),x]
```

```
[Out] ((a + b*x)^(1 + m)*(c + d*x)^(-1 - m)*Hypergeometric2F1[1, 1 + m,
 2 + m, ((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x))])/((b*e -
 a*f)*(1 + m))
```

Rubi in Sympy [A] time = 9.09276, size = 51, normalized size = 0.68

$$\frac{(a+bx)^m\,(c+dx)^{-m}\,{}_2F_1\left(\begin{matrix}-m,1\\-m+1\end{matrix}\middle|\frac{(-c-dx)(-af+be)}{(a+bx)(cf-de)}\right)}{m\,(cf-de)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(-1-m)/(f*x+e),x)
```

```
[Out] (a + b*x)**m*(c + d*x)**(-m)*hyper((-m, 1), (-m + 1,), (-c - d*x)
*(-a*f + b*e)/((a + b*x)*(c*f - d*e)))/(m*(c*f - d*e))
```

Mathematica [C] time = 0.708028, size = 362, normalized size = 4.83

$$\frac{(a+bx)^m(c+dx)^{-m}\left(\frac{f(m+2)(a+bx)(bc-ad)(be-af)^2F_1\left(m+1;m,1;m+2;\frac{d(a+bx)}{ad-bc},\frac{f(a+bx}{af-be}\right.}{b(m+1)(e+fx)(af-be)\left((m+2)(bc-ad)(be-af)F_1\left(m+1;m,1;m+2;\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)+(a+bx)\left((adf-bcf)F_1\left(m+2;m,2;m+3;\frac{d(a+bx}{ad-bc}\right.\right.\right.}\right.}{de-cf}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[((a + b*x)^m*(c + d*x)^(-1 - m))/(e + f*x),x]
```

```
[Out] ((a + b*x)^m*(((b*c - a*d)*f*(b*e - a*f)^2*(2 + m)*(a + b*x)*Appe
llF1[1 + m, m, 1, 2 + m, (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*
x))/(-(b*e) + a*f)])/(b*(-(b*e) + a*f)*(1 + m)*(e + f*x)*((b*c -
a*d)*(b*e - a*f)*(2 + m)*AppellF1[1 + m, m, 1, 2 + m, (d*(a + b*x
))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)] + (a + b*x)*((-(
b*c*f) + a*d*f)*AppellF1[2 + m, m, 2, 3 + m, (d*(a + b*x))/(-(b*c
```

```
) + a*d), (f*(a + b*x))/(-(b*e) + a*f)] + d*(-(b*e) + a*f)*m*Appe
llF1[2 + m, 1 + m, 1, 3 + m, (d*(a + b*x))/(-(b*c) + a*d), (f*(a
+ b*x))/(-(b*e) + a*f)])) - Hypergeometric2F1[-m, -m, 1 - m, (b*
(c + d*x))/(b*c - a*d)]/(m*((d*(a + b*x))/(-(b*c) + a*d))^m)))/((
d*e - c*f)*(c + d*x)^m)
```

Maple [F] time = 0.091, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{-1-m}}{fx+e}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(-1-m)/(f*x+e),x)
```

```
[Out] int((b*x+a)^m*(d*x+c)^(-1-m)/(f*x+e),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{-m-1}}{fx+e}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - 1)/(f*x + e),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m - 1)/(f*x + e), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{(bx+a)^m (dx+c)^{-m-1}}{fx+e}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - 1)/(f*x + e),x, algorithm="fricas")
```

```
[Out] integral((b*x + a)^m*(d*x + c)^(-m - 1)/(f*x + e), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(-1-m)/(f*x+e),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{-m-1}}{fx+e}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - 1)/(f*x + e),x, algorithm="giac")

[Out] integrate((b*x + a)^m*(d*x + c)^(-m - 1)/(f*x + e), x)
```

3.3059 $\int \frac{(a+bx)^m(c+dx)^{-1-m}}{(e+fx)^2}\,dx$

Optimal. Leaf size=158

$$\frac{(a+bx)^{m+1}(c+dx)^{-m-1}(adf(m+1)-b(cfm+de))\,{}_2F_1\left(2,m+1;m+2;\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}\right)}{m(m+1)(be-af)^2(de-cf)}+\frac{d(a+bx)^{m+1}(c+dx)^{-m}}{m(e+fx)(bc-ad)(de-cf)}$$

```
[Out] (d*(a + b*x)^(1 + m))/((b*c - a*d)*(d*e - c*f)*m*(c + d*x)^m*(e +
 f*x)) + ((a*d*f*(1 + m) - b*(d*e + c*f*m))*(a + b*x)^(1 + m)*(c
+ d*x)^(-1 - m)*Hypergeometric2F1[2, 1 + m, 2 + m, ((d*e - c*f)*(
a + b*x))/((b*e - a*f)*(c + d*x))])/((b*e - a*f)^2*(d*e - c*f)*m*
(1 + m))
```

Rubi [A] time = 0.271747, antiderivative size = 158, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.077

$$\frac{(a+bx)^{m+1}(c+dx)^{-m-1}(adf(m+1)-b(cfm+de))\,{}_2F_1\left(2,m+1;m+2;\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}\right)}{m(m+1)(be-af)^2(de-cf)}+\frac{d(a+bx)^{m+1}(c+dx)^{-m}}{m(e+fx)(bc-ad)(de-cf)}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^m*(c + d*x)^(-1 - m))/(e + f*x)^2,x]
```

```
[Out] (d*(a + b*x)^(1 + m))/((b*c - a*d)*(d*e - c*f)*m*(c + d*x)^m*(e +
 f*x)) + ((a*d*f*(1 + m) - b*(d*e + c*f*m))*(a + b*x)^(1 + m)*(c
+ d*x)^(-1 - m)*Hypergeometric2F1[2, 1 + m, 2 + m, ((d*e - c*f)*(
a + b*x))/((b*e - a*f)*(c + d*x))])/((b*e - a*f)^2*(d*e - c*f)*m*
(1 + m))
```

Rubi in Sympy [A] time = 28.3313, size = 124, normalized size = 0.78

$$-\frac{f\,(a+bx)^{m+1}\,(c+dx)^{-m}}{(e+fx)\,(af-be)\,(cf-de)}-\frac{(a+bx)^{m+1}\,(c+dx)^{-m-1}\,(-adf\,(m+1)+bcfm+bde)\,{}_2F_1\left(\begin{matrix}m+1,1\\m+2\end{matrix}\middle|\frac{(-a-bx)(-cf+de)}{(c+dx)(af-be)}\right)}{(m+1)\,(af-be)^2\,(cf-de)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(-1-m)/(f*x+e)**2,x)
```

```
[Out] -f*(a + b*x)**(m + 1)*(c + d*x)**(-m)/((e + f*x)*(a*f - b*e)*(c*f
 - d*e)) - (a + b*x)**(m + 1)*(c + d*x)**(-m - 1)*(-a*d*f*(m + 1)
 + b*c*f*m + b*d*e)*hyper((m + 1, 1), (m + 2,), (-a - b*x)*(-c*f
+ d*e)/((c + d*x)*(a*f - b*e)))/((m + 1)*(a*f - b*e)**2*(c*f - d*
e))
```

Mathematica [C] time = 1.9125, size = 286, normalized size = 1.81

$$-\frac{(be-af)^3(a+bx)^{m+1}(c+dx)^{-m}\left((b(e-fmx)-af(m+1))\left(\frac{(de-cf)(a+bx)}{(be-af)(c+dx)},1,m+1\right)+f(m+1)(a+bx)\right.}{(e+fx)(af-be)^3\left(f(m+1)(a+bx)^2(de-cf)\left(\frac{(de-cf)(a+bx)}{(be-af)(c+dx)},1,m+2\right)+f(m+1)(a+bx)(c+dx)(af-be)\left(\frac{(de-cf)(a+bx}{(be-af)(c+dx}\right.\right.}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[((a + b*x)^m*(c + d*x)^(-1 - m))/(e + f*x)^2,x]
```

```
[Out] -(((b*e - a*f)^3*(a + b*x)^(1 + m)*((-(a*f*(1 + m)) + b*(e - f*m*
x))*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x
)), 1, 1 + m] + f*(1 + m)*(a + b*x)*HurwitzLerchPhi[((d*e - c*f)*
(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 2 + m]))/((-(b*e) + a*f)^3
*(c + d*x)^m*(e + f*x)*(b*(b*e - a*f)*(c + d*x)*(e + f*x) + f*(-(
b*e) + a*f)*(1 + m)*(a + b*x)*(c + d*x)*HurwitzLerchPhi[((d*e - c
*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 1 + m] + f*(d*e - c*f)
*(1 + m)*(a + b*x)^2*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*
e - a*f)*(c + d*x)), 1, 2 + m])))
```

Maple [F] time = 0.122, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^{m} (dx+c)^{-1-m}}{(fx+e)^{2}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(-1-m)/(f*x+e)^2,x)
```

```
[Out] int((b*x+a)^m*(d*x+c)^(-1-m)/(f*x+e)^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^{m}(dx+c)^{-m-1}}{(fx+e)^{2}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - 1)/(f*x + e)^2,x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m - 1)/(f*x + e)^2, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)^{m}(dx+c)^{-m-1}}{f^{2}x^{2}+2\,efx+e^{2}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - 1)/(f*x + e)^2,x, algorithm="fricas")
```

```
[Out] integral((b*x + a)^m*(d*x + c)^(-m - 1)/(f^2*x^2 + 2*e*f*x + e^2)
, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(-1-m)/(f*x+e)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m(dx+c)^{-m-1}}{(fx+e)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m - 1)/(f*x + e)^2,x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m - 1)/(f*x + e)^2, x)
```

3.3060 $\int \frac{(a+bx)^m(c+dx)^{-1-m}}{(e+fx)^3} dx$

Optimal. Leaf size=300

$$\frac{(a+bx)^{m+1}(c+dx)^{-m-1}\left(-a^2d^2f^2\left(m^2+3m+2\right)+2abdf(m+1)(cfm+2de)+b^2\left(-\left(-c^2f^2(1-m)m+4cdefm+2d^2e^2\right)\right)\right)}{2m(m+1)(be-af)^3(de-cf)^2}$$
$$-\frac{f(a+bx)^{m+1}(c+dx)^{1-m}(adf(m+2)-b(cfm+2de))}{2m(e+fx)^2(bc-ad)(be-af)(de-cf)^2}+\frac{d(a+bx)^{m+1}(c+dx)^{-m}}{m(e+fx)^2(bc-ad)(de-cf)}$$

```
[Out] -(f*(a*d*f*(2 + m) - b*(2*d*e + c*f*m))*(a + b*x)^(1 + m)*(c + d*
x)^(1 - m))/(2*(b*c - a*d)*(b*e - a*f)*(d*e - c*f)^2*m*(e + f*x)^
2) + (d*(a + b*x)^(1 + m))/((b*c - a*d)*(d*e - c*f)*m*(c + d*x)^m
*(e + f*x)^2) + ((2*a*b*d*f*(1 + m)*(2*d*e + c*f*m) - b^2*(2*d^2*
e^2 + 4*c*d*e*f*m - c^2*f^2*(1 - m)*m) - a^2*d^2*f^2*(2 + 3*m + m
^2))*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m)*Hypergeometric2F1[2, 1
+ m, 2 + m, ((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x))])/(2*
(b*e - a*f)^3*(d*e - c*f)^2*m*(1 + m))
```

Rubi [A] time = 0.868818, antiderivative size = 300, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.154$

$$\frac{(a+bx)^{m+1}(c+dx)^{-m-1}\left(-a^2d^2f^2\left(m^2+3m+2\right)+2abdf(m+1)(cfm+2de)+b^2\left(-\left(-c^2f^2(1-m)m+4cdefm+2d^2e^2\right)\right)\right)}{2m(m+1)(be-af)^3(de-cf)^2}$$
$$-\frac{f(a+bx)^{m+1}(c+dx)^{1-m}(adf(m+2)-b(cfm+2de))}{2m(e+fx)^2(bc-ad)(be-af)(de-cf)^2}+\frac{d(a+bx)^{m+1}(c+dx)^{-m}}{m(e+fx)^2(bc-ad)(de-cf)}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^m*(c + d*x)^(-1 - m))/(e + f*x)^3,x]
```


```
[Out] -(f*(a*d*f*(2 + m) - b*(2*d*e + c*f*m))*(a + b*x)^(1 + m)*(c + d*
x)^(1 - m))/(2*(b*c - a*d)*(b*e - a*f)*(d*e - c*f)^2*m*(e + f*x)^
2) + (d*(a + b*x)^(1 + m))/((b*c - a*d)*(d*e - c*f)*m*(c + d*x)^m
*(e + f*x)^2) + ((2*a*b*d*f*(1 + m)*(2*d*e + c*f*m) - b^2*(2*d^2*
e^2 + 4*c*d*e*f*m - c^2*f^2*(1 - m)*m) - a^2*d^2*f^2*(2 + 3*m + m
^2))*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m)*Hypergeometric2F1[2, 1
+ m, 2 + m, ((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x))])/(2*
(b*e - a*f)^3*(d*e - c*f)^2*m*(1 + m))
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(-1-m)/(f*x+e)**3,x)
```

```
[Out] Timed out
```

Mathematica [C] time = 5.73855, size = 2361, normalized size = 7.87

Result too large to show

Warning: Unable to verify antiderivative.

```
[In]  Integrate[((a + b*x)^m*(c + d*x)^(-1 - m))/(e + f*x)^3,x]
```

```
[Out] -((b*e - a*f)^3*(a + b*x)^(1 + m)*(2*(b*e - a*f)^2*HurwitzLerchPh
i[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 1 + m] + 2*
(b*e - a*f)^2*m*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a
*f)*(c + d*x)), 1, 1 + m] + 4*f*(-(b*e) + a*f)*m*(a + b*x)*Hurwit
zLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 1 +
 m] + 4*f*(-(b*e) + a*f)*m^2*(a + b*x)*HurwitzLerchPhi[((d*e - c*
f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 1 + m] - f^2*m*(a + b*x
)^2*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x
)), 1, 1 + m] + f^2*m^3*(a + b*x)^2*HurwitzLerchPhi[((d*e - c*f)*
(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 1 + m] + 4*f*(b*e - a*f)*(
a + b*x)*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c
+ d*x)), 1, 2 + m] + 8*f*(b*e - a*f)*m*(a + b*x)*HurwitzLerchPhi[
((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 2 + m] + 4*f*
(b*e - a*f)*m^2*(a + b*x)*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))
/((b*e - a*f)*(c + d*x)), 1, 2 + m] - 2*f^2*m*(a + b*x)^2*Hurwitz
LerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 2 +
m] - 4*f^2*m^2*(a + b*x)^2*HurwitzLerchPhi[((d*e - c*f)*(a + b*x)
)/((b*e - a*f)*(c + d*x)), 1, 2 + m] - 2*f^2*m^3*(a + b*x)^2*Hurw
itzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 2
 + m] + 2*f^2*(a + b*x)^2*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))
/((b*e - a*f)*(c + d*x)), 1, 3 + m] + 5*f^2*m*(a + b*x)^2*Hurwitz
LerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 3 +
m] + 4*f^2*m^2*(a + b*x)^2*HurwitzLerchPhi[((d*e - c*f)*(a + b*x)
)/((b*e - a*f)*(c + d*x)), 1, 3 + m] + f^2*m^3*(a + b*x)^2*Hurwit
zLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 3 +
 m]))/(2*(-(b*e) + a*f)^3*(1 + m)*(c + d*x)^m*(e + f*x)^2*(b^3*c*
e^3 - a*b^2*c*e^2*f + b^3*d*e^3*x + 2*b^3*c*e^2*f*x - a*b^2*d*e^2
*f*x - 2*a*b^2*c*e*f^2*x + 2*b^3*d*e^2*f*x^2 + b^3*c*e*f^2*x^2 -
2*a*b^2*d*e*f^2*x^2 - a*b^2*c*f^3*x^2 + b^3*d*e*f^2*x^3 - a*b^2*d
*f^3*x^3 - f*(-(b*e) + a*f)*(1 + m)*(a + b*x)*(c + d*x)*(a*f*(2 +
 m) + b*(-2*e + f*m*x))*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/(
(b*e - a*f)*(c + d*x)), 1, 1 + m] + f*(1 + m)*(a + b*x)^2*(a*f*(2
 + m)*(-(d*e) + 2*c*f + d*f*x) + b*c*f*(-(e*(4 + m)) + f*m*x) + 2
*b*d*e*(e - f*(1 + m)*x))*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))
/((b*e - a*f)*(c + d*x)), 1, 2 + m] + 2*a^3*d*e*f^2*HurwitzLerchP
hi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 3 + m] - 2
*a^3*c*f^3*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(
c + d*x)), 1, 3 + m] + 3*a^3*d*e*f^2*m*HurwitzLerchPhi[((d*e - c*
f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 3 + m] - 3*a^3*c*f^3*m*
HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)),
1, 3 + m] + a^3*d*e*f^2*m^2*HurwitzLerchPhi[((d*e - c*f)*(a + b*x
))/((b*e - a*f)*(c + d*x)), 1, 3 + m] - a^3*c*f^3*m^2*HurwitzLerc
hPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 3 + m] +
 6*a^2*b*d*e*f^2*x*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e
- a*f)*(c + d*x)), 1, 3 + m] - 6*a^2*b*c*f^3*x*HurwitzLerchPhi[((
d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 3 + m] + 9*a^2*
b*d*e*f^2*m*x*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f
)*(c + d*x)), 1, 3 + m] - 9*a^2*b*c*f^3*m*x*HurwitzLerchPhi[((d*e
 - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 3 + m] + 3*a^2*b*d
*e*f^2*m^2*x*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)
*(c + d*x)), 1, 3 + m] - 3*a^2*b*c*f^3*m^2*x*HurwitzLerchPhi[((d*
e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 3 + m] + 6*a*b^2*
d*e*f^2*x^2*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*
(c + d*x)), 1, 3 + m] - 6*a*b^2*c*f^3*x^2*HurwitzLerchPhi[((d*e -
 c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 3 + m] + 9*a*b^2*d*e
*f^2*m*x^2*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(
c + d*x)), 1, 3 + m] - 9*a*b^2*c*f^3*m*x^2*HurwitzLerchPhi[((d*e
- c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 3 + m] + 3*a*b^2*d*
e*f^2*m^2*x^2*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f
)*(c + d*x)), 1, 3 + m] - 3*a*b^2*c*f^3*m^2*x^2*HurwitzLerchPhi[(
(d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 3 + m] + 2*b^3
*d*e*f^2*x^3*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)
*(c + d*x)), 1, 3 + m] - 2*b^3*c*f^3*x^3*HurwitzLerchPhi[((d*e -
c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 3 + m] + 3*b^3*d*e*f^
2*m*x^3*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c +
 d*x)), 1, 3 + m] - 3*b^3*c*f^3*m*x^3*HurwitzLerchPhi[((d*e - c*f
)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 3 + m] + b^3*d*e*f^2*m^2
*x^3*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*
x)), 1, 3 + m] - b^3*c*f^3*m^2*x^3*HurwitzLerchPhi[((d*e - c*f)*(
a + b*x))/((b*e - a*f)*(c + d*x)), 1, 3 + m]))
```

Maple [F] time = 0.125, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{-1-m}}{(fx+e)^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(-1-m)/(f*x+e)^3,x)

[Out] int((b*x+a)^m*(d*x+c)^(-1-m)/(f*x+e)^3,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{-m-1}}{(fx+e)^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - 1)/(f*x + e)^3,x, algorithm="maxima")

[Out] integrate((b*x + a)^m*(d*x + c)^(-m - 1)/(f*x + e)^3, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)^m (dx+c)^{-m-1}}{f^3x^3 + 3\,ef^2x^2 + 3\,e^2fx + e^3}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - 1)/(f*x + e)^3,x, algorithm="fricas")

[Out] integral((b*x + a)^m*(d*x + c)^(-m - 1)/(f^3*x^3 + 3*e*f^2*x^2 +
3*e^2*f*x + e^3), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(-1-m)/(f*x+e)**3,x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{-m-1}}{(fx+e)^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - 1)/(f*x + e)^3,x, algorithm="giac")

[Out] integrate((b*x + a)^m*(d*x + c)^(-m - 1)/(f*x + e)^3, x)
```

3.3061 $\int \frac{(a+bx)^m(c+dx)^{-1-m}}{(e+fx)^4}\,dx$

Optimal. Leaf size=520

$$\frac{f(a+bx)^{m+1}(c+dx)^{1-m}\left(a^2d^2f^2\left(m^2+5m+6\right)-abdf(cfm(2m+3)+de(7m+12))+b^2\left(-c^2f^2(2-m)m+7cdefm+6d\right.\right.}{6m(e+fx)^2(bc-ad)(be-af)^2(de-cf)^3}$$
$$+\frac{(a+bx)^{m+1}(c+dx)^{-m-1}\left(a^3d^3f^3\left(m^3+6m^2+11m+6\right)-3a^2bd^2f^2\left(m^2+3m+2\right)(cfm+3de)+3ab^2df(m+1)\left(-c^2f^2(\right.\right.}{6m(m}$$
$$-\frac{f(a+bx)^{m+1}(c+dx)^{1-m}(adf(m+3)-b(cfm+3de))}{3m(e+fx)^3(bc-ad)(be-af)(de-cf)^2}+\frac{d(a+bx)^{m+1}(c+dx)^{-m}}{m(e+fx)^3(bc-ad)(de-cf)}$$

```
[Out] -(f*(a*d*f*(3 + m) - b*(3*d*e + c*f*m))*(a + b*x)^(1 + m)*(c + d*
x)^(1 - m))/(3*(b*c - a*d)*(b*e - a*f)*(d*e - c*f)^2*m*(e + f*x)^
3) + (d*(a + b*x)^(1 + m))/((b*c - a*d)*(d*e - c*f)*m*(c + d*x)^m
*(e + f*x)^3) + (f*(b^2*(6*d^2*e^2 + 7*c*d*e*f*m - c^2*f^2*(2 - m
)*m) + a^2*d^2*f^2*(6 + 5*m + m^2) - a*b*d*f*(c*f*m*(3 + 2*m) + d
*e*(12 + 7*m)))*(a + b*x)^(1 + m)*(c + d*x)^(1 - m))/(6*(b*c - a*
d)*(b*e - a*f)^2*(d*e - c*f)^3*m*(e + f*x)^2) + ((3*a*b^2*d*f*(1
+ m)*(6*d^2*e^2 + 6*c*d*e*f*m - c^2*f^2*(1 - m)*m) - 3*a^2*b*d^2*
f^2*(3*d*e + c*f*m)*(2 + 3*m + m^2) + a^3*d^3*f^3*(6 + 11*m + 6*m
^2 + m^3) - b^3*(6*d^3*e^3 + 18*c*d^2*e^2*f*m - 9*c^2*d*e*f^2*(1
- m)*m + c^3*f^3*m*(2 - 3*m + m^2)))*(a + b*x)^(1 + m)*(c + d*x)^
(-1 - m)*Hypergeometric2F1[2, 1 + m, 2 + m, ((d*e - c*f)*(a + b*x
))/((b*e - a*f)*(c + d*x))])/(6*(b*e - a*f)^4*(d*e - c*f)^3*m*(1
+ m))
```

Rubi [A] time = 2.47722, antiderivative size = 520, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.154$

$$\frac{f(a+bx)^{m+1}(c+dx)^{1-m}\left(a^2d^2f^2\left(m^2+5m+6\right)-abdf(cfm(2m+3)+de(7m+12))+b^2\left(-c^2f^2(2-m)m+7cdefm+6d\right.\right.}{6m(e+fx)^2(bc-ad)(be-af)^2(de-cf)^3}$$
$$+\frac{(a+bx)^{m+1}(c+dx)^{-m-1}\left(a^3d^3f^3\left(m^3+6m^2+11m+6\right)-3a^2bd^2f^2\left(m^2+3m+2\right)(cfm+3de)+3ab^2df(m+1)\left(-c^2f^2(\right.\right.}{6m(m}$$
$$-\frac{f(a+bx)^{m+1}(c+dx)^{1-m}(adf(m+3)-b(cfm+3de))}{3m(e+fx)^3(bc-ad)(be-af)(de-cf)^2}+\frac{d(a+bx)^{m+1}(c+dx)^{-m}}{m(e+fx)^3(bc-ad)(de-cf)}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^m*(c + d*x)^(-1 - m))/(e + f*x)^4,x]
```


```
[Out] -(f*(a*d*f*(3 + m) - b*(3*d*e + c*f*m))*(a + b*x)^(1 + m)*(c + d*
x)^(1 - m))/(3*(b*c - a*d)*(b*e - a*f)*(d*e - c*f)^2*m*(e + f*x)^
3) + (d*(a + b*x)^(1 + m))/((b*c - a*d)*(d*e - c*f)*m*(c + d*x)^m
*(e + f*x)^3) + (f*(b^2*(6*d^2*e^2 + 7*c*d*e*f*m - c^2*f^2*(2 - m
)*m) + a^2*d^2*f^2*(6 + 5*m + m^2) - a*b*d*f*(c*f*m*(3 + 2*m) + d
*e*(12 + 7*m)))*(a + b*x)^(1 + m)*(c + d*x)^(1 - m))/(6*(b*c - a*
d)*(b*e - a*f)^2*(d*e - c*f)^3*m*(e + f*x)^2) + ((3*a*b^2*d*f*(1
+ m)*(6*d^2*e^2 + 6*c*d*e*f*m - c^2*f^2*(1 - m)*m) - 3*a^2*b*d^2*
f^2*(3*d*e + c*f*m)*(2 + 3*m + m^2) + a^3*d^3*f^3*(6 + 11*m + 6*m
^2 + m^3) - b^3*(6*d^3*e^3 + 18*c*d^2*e^2*f*m - 9*c^2*d*e*f^2*(1
- m)*m + c^3*f^3*m*(2 - 3*m + m^2)))*(a + b*x)^(1 + m)*(c + d*x)^
(-1 - m)*Hypergeometric2F1[2, 1 + m, 2 + m, ((d*e - c*f)*(a + b*x
))/((b*e - a*f)*(c + d*x))])/(6*(b*e - a*f)^4*(d*e - c*f)^3*m*(1
+ m))
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(-1-m)/(f*x+e)**4,x)
```

```
[Out] Timed out
```

Mathematica [C] time = 19.7115, size = 7153, normalized size = 13.76

Result too large to show

Warning: Unable to verify antiderivative.

```
[In]  Integrate[((a + b*x)^m*(c + d*x)^(-1 - m))/(e + f*x)^4,x]
```

```
[Out] Result too large to show
```

Maple [F] time = 0.187, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{-1-m}}{(fx+e)^4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(-1-m)/(f*x+e)^4,x)
```

```
[Out] int((b*x+a)^m*(d*x+c)^(-1-m)/(f*x+e)^4,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{-m-1}}{(fx+e)^4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - 1)/(f*x + e)^4,x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m - 1)/(f*x + e)^4, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)^m (dx+c)^{-m-1}}{f^4x^4 + 4\,ef^3x^3 + 6\,e^2f^2x^2 + 4\,e^3fx + e^4}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - 1)/(f*x + e)^4,x, algorithm="fricas")
```

```
[Out] integral((b*x + a)^m*(d*x + c)^(-m - 1)/(f^4*x^4 + 4*e*f^3*x^3 +
6*e^2*f^2*x^2 + 4*e^3*f*x + e^4), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(-1-m)/(f*x+e)**4,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m(dx+c)^{-m-1}}{(fx+e)^4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m - 1)/(f*x + e)^4,x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m - 1)/(f*x + e)^4, x)
```

3.3062 $\int (a+bx)^m (c+dx)^{-2-m} (e+fx)^p \, dx$

Optimal. Leaf size=131

$$\frac{b(a+bx)^{m+1}(c+dx)^{-m}(e+fx)^p \left(\frac{b(c+dx)}{bc-ad}\right)^m \left(\frac{b(e+fx)}{be-af}\right)^{-p} F_1\left(m+1;m+2,-p;m+2;-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{(m+1)(bc-ad)^2}$$

```
[Out] (b*(a + b*x)^(1 + m)*((b*(c + d*x))/(b*c - a*d))^m*(e + f*x)^p*Ap
pellF1[1 + m, 2 + m, -p, 2 + m, -((d*(a + b*x))/(b*c - a*d)), -((
f*(a + b*x))/(b*e - a*f))])/((b*c - a*d)^2*(1 + m)*(c + d*x)^m*((
b*(e + f*x))/(b*e - a*f))^p)
```

Rubi [A] time = 0.368352, antiderivative size = 131, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.115$

$$\frac{b(a+bx)^{m+1}(c+dx)^{-m}(e+fx)^p \left(\frac{b(c+dx)}{bc-ad}\right)^m \left(\frac{b(e+fx)}{be-af}\right)^{-p} F_1\left(m+1;m+2,-p;m+2;-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{(m+1)(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^(-2 - m)*(e + f*x)^p,x]
```

```
[Out] (b*(a + b*x)^(1 + m)*((b*(c + d*x))/(b*c - a*d))^m*(e + f*x)^p*Ap
pellF1[1 + m, 2 + m, -p, 2 + m, -((d*(a + b*x))/(b*c - a*d)), -((
f*(a + b*x))/(b*e - a*f))])/((b*c - a*d)^2*(1 + m)*(c + d*x)^m*((
b*(e + f*x))/(b*e - a*f))^p)
```

Rubi in Sympy [A] time = 76.4257, size = 102, normalized size = 0.78

$$\frac{b\left(\frac{b(-c-dx)}{ad-bc}\right)^m \left(\frac{b(-e-fx)}{af-be}\right)^{-p} (a+bx)^{m+1} (c+dx)^{-m} (e+fx)^p \operatorname{appellf}_1\left(m+1,-p,m+2,m+2,\frac{f(a+bx)}{af-be},\frac{d(a+bx)}{ad-bc}\right)}{(m+1)(ad-bc)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(-2-m)*(f*x+e)**p,x)
```

```
[Out] b*(b*(-c - d*x)/(a*d - b*c))**m*(b*(-e - f*x)/(a*f - b*e))**(-p)*
(a + b*x)**(m + 1)*(c + d*x)**(-m)*(e + f*x)**p*appellf1(m + 1, -
p, m + 2, m + 2, f*(a + b*x)/(a*f - b*e), d*(a + b*x)/(a*d - b*c)
)/((m + 1)*(a*d - b*c)**2)
```

Mathematica [B] time = 1.51097, size = 300, normalized size = 2.29

$$\frac{(m+2)(bc-ad)(be-af)(a+bx)^{m+1}(c+dx)^{-m-2}(e+fx)^p F_1\left(m\right.}{b(m+1)\left((m+2)(bc-ad)(be-af)F_1\left(m+1;m+2,-p;m+2;\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)-(a+bx)\left(fp(ad-bc)F_1\left(m+2;m+2,1\right.\right.\right.}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^(-2 - m)*(e + f*x)^p,x]
```

```
[Out] ((b*c - a*d)*(b*e - a*f)*(2 + m)*(a + b*x)^(1 + m)*(c + d*x)^(-2
- m)*(e + f*x)^p*AppellF1[1 + m, 2 + m, -p, 2 + m, (d*(a + b*x))/
(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)])/(b*(1 + m)*((b*c -
```

```
a*d)*(b*e - a*f)*(2 + m)*AppellF1[1 + m, 2 + m, -p, 2 + m, (d*(a
 + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)] - (a + b*x
)*((-(b*c) + a*d)*f*p*AppellF1[2 + m, 2 + m, 1 - p, 3 + m, (d*(a
+ b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)] + d*(b*e -
a*f)*(2 + m)*AppellF1[2 + m, 3 + m, -p, 3 + m, (d*(a + b*x))/(-(b
*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)])))
```

Maple [F] time = 0.236, size = 0, normalized size = 0.

$$\int (bx+a)^{m} (dx+c)^{-2-m} (fx+e)^{p}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(-2-m)*(f*x+e)^p,x)

[Out] int((b*x+a)^m*(d*x+c)^(-2-m)*(f*x+e)^p,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^{m}(dx+c)^{-m-2}(fx+e)^{p}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - 2)*(f*x + e)^p,x, algorithm="maxima")

[Out] integrate((b*x + a)^m*(d*x + c)^(-m - 2)*(f*x + e)^p, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left((bx+a)^{m}(dx+c)^{-m-2}(fx+e)^{p}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - 2)*(f*x + e)^p,x, algorithm="fricas")

[Out] integral((b*x + a)^m*(d*x + c)^(-m - 2)*(f*x + e)^p, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(-2-m)*(f*x+e)**p,x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^{m}(dx+c)^{-m-2}(fx+e)^{p}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m - 2)*(f*x + e)^p,x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m - 2)*(f*x + e)^p, x)
```

3.3063 $\int (5-4x)^3(1+2x)^{-2-m}(2+3x)^m\,dx$

Optimal. Leaf size=132

$$\frac{2^{-m}\left(2m^2-128m+1323\right)(2x+1)^{-m}\,{}_2F_1(-m,-m;1-m;-3(2x+1))}{9m}-\frac{(3x+2)^{m+1}\left(4m^2-8(43-m)(m+1)x-315m+2768\right)(2x+1)^{-m-1}}{9(m+1)}-\frac{1}{3}(5-4x)^2(3x+2)^{m+1}(2x+1)^{-m-1}$$

```
[Out] -((5 - 4*x)^2*(1 + 2*x)^(-1 - m)*(2 + 3*x)^(1 + m))/3 - ((1 + 2*x
)^(-1 - m)*(2 + 3*x)^(1 + m)*(2768 - 315*m + 4*m^2 - 8*(43 - m)*(
1 + m)*x))/(9*(1 + m)) + ((1323 - 128*m + 2*m^2)*Hypergeometric2F
1[-m, -m, 1 - m, -3*(1 + 2*x)])/(9*2^m*m*(1 + 2*x)^m)
```

Rubi [A] time = 0.342759, antiderivative size = 132, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.115$

$$\frac{2^{-m}\left(2m^2-128m+1323\right)(2x+1)^{-m}\,{}_2F_1(-m,-m;1-m;-3(2x+1))}{9m}-\frac{(3x+2)^{m+1}\left(4m^2-8(43-m)(m+1)x-315m+2768\right)(2x+1)^{-m-1}}{9(m+1)}-\frac{1}{3}(5-4x)^2(3x+2)^{m+1}(2x+1)^{-m-1}$$

Antiderivative was successfully verified.

```
[In]  Int[(5 - 4*x)^3*(1 + 2*x)^(-2 - m)*(2 + 3*x)^m,x]
```

```
[Out] -((5 - 4*x)^2*(1 + 2*x)^(-1 - m)*(2 + 3*x)^(1 + m))/3 - ((1 + 2*x
)^(-1 - m)*(2 + 3*x)^(1 + m)*(2768 - 315*m + 4*m^2 - 8*(43 - m)*(
1 + m)*x))/(9*(1 + m)) + ((1323 - 128*m + 2*m^2)*Hypergeometric2F
1[-m, -m, 1 - m, -3*(1 + 2*x)])/(9*2^m*m*(1 + 2*x)^m)
```

Rubi in Sympy [A] time = 20.1208, size = 107, normalized size = 0.81

$$-\frac{(-4x+5)^2(2x+1)^{-m-1}(3x+2)^{m+1}}{3}-\frac{(2x+1)^{-m-1}(3x+2)^{m+1}\left(64m^2-5040m-128x(-m+43)(m+1)+44288\right)}{144(m+1)}+\frac{2^{-m}(2x+1)^{-m}\left(2m^2-128m+1323\right)\,{}_2F_1\left(\begin{matrix}-m,-m\\-m+1\end{matrix}\middle|-6x-3\right)}{9m}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((5-4*x)**3*(1+2*x)**(-2-m)*(2+3*x)**m,x)
```

```
[Out] -(-4*x + 5)**2*(2*x + 1)**(-m - 1)*(3*x + 2)**(m + 1)/3 - (2*x +
1)**(-m - 1)*(3*x + 2)**(m + 1)*(64*m**2 - 5040*m - 128*x*(-m + 4
3)*(m + 1) + 44288)/(144*(m + 1)) + 2**(-m)*(2*x + 1)**(-m)*(2*m*
*2 - 128*m + 1323)*hyper((-m, -m), (-m + 1,), -6*x - 3)/(9*m)
```

Mathematica [C] time = 0.796228, size = 273, normalized size = 2.07

$$\frac{7}{2}\left(-\frac{69(5-4x)^2(4x+2)^{-m}(6x+4)^m F_1\left(2;-m,m;3;-\frac{3}{23}(4x-5),\frac{1}{7}(5-4x)\right)}{483F_1\left(2;-m,m;3;\frac{3}{23}(5-4x),\frac{1}{7}(5-4x)\right)+m(4x-5)\left(21F_1\left(3;1-m,m;4;\frac{3}{23}(5-4x),\frac{1}{7}(5-4x)\right)-23F_1\left(3;-m,m+\right.\right.}\right.$$
$$+\frac{2^{3-m}(2x+1)^{1-m}\,{}_2F_1(1-m,-m;2-m;-6x-3)}{1-m}$$
$$\left.+\frac{84(3x+2)(-2x-1)^m(9x+6)^m(2x+1)^{-m}\,{}_2F_1(m+1,m+1;m+2;6x+4)}{m+1}-\frac{98(3x+2)^{m+1}(2x+1)^{-m-1}}{m+1}\right)$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(5 - 4*x)^3*(1 + 2*x)^(-2 - m)*(2 + 3*x)^m,x]
```

```
[Out] (7*((-98*(1 + 2*x)^(-1 - m)*(2 + 3*x)^(1 + m))/(1 + m) - (69*(5 -
 4*x)^2*(4 + 6*x)^m*AppellF1[2, -m, m, 3, (-3*(-5 + 4*x))/23, (5
- 4*x)/7])/((2 + 4*x)^m*(483*AppellF1[2, -m, m, 3, (3*(5 - 4*x))/
23, (5 - 4*x)/7] + m*(-5 + 4*x)*(21*AppellF1[3, 1 - m, m, 4, (3*(
5 - 4*x))/23, (5 - 4*x)/7] - 23*AppellF1[3, -m, 1 + m, 4, (3*(5 -
 4*x))/23, (5 - 4*x)/7]))) + (2^(3 - m)*(1 + 2*x)^(1 - m)*Hyperge
ometric2F1[1 - m, -m, 2 - m, -3 - 6*x])/(1 - m) + (84*(-1 - 2*x)^
m*(2 + 3*x)*(6 + 9*x)^m*Hypergeometric2F1[1 + m, 1 + m, 2 + m, 4
+ 6*x])/((1 + m)*(1 + 2*x)^m)))/2
```

Maple [F] time = 0.085, size = 0, normalized size = 0.

$$\int (5-4x)^3 (1+2x)^{-2-m} (2+3x)^m \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((5-4*x)^3*(1+2*x)^(-2-m)*(2+3*x)^m,x)
```

```
[Out] int((5-4*x)^3*(1+2*x)^(-2-m)*(2+3*x)^m,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$-\int (3x+2)^m (2x+1)^{-m-2} (4x-5)^3 \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^m*(2*x + 1)^(-m - 2)*(4*x - 5)^3,x, algorithm="maxima")
```

```
[Out] -integrate((3*x + 2)^m*(2*x + 1)^(-m - 2)*(4*x - 5)^3, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(-\left(64x^3-240x^2+300x-125\right)(3x+2)^m(2x+1)^{-m-2}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^m*(2*x + 1)^(-m - 2)*(4*x - 5)^3,x, algorithm="fricas")
```

```
[Out] integral(-(64*x^3 - 240*x^2 + 300*x - 125)*(3*x + 2)^m*(2*x + 1)^
(-m - 2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5-4*x)**3*(1+2*x)**(-2-m)*(2+3*x)**m,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int -(3x+2)^m (2x+1)^{-m-2} (4x-5)^3 \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^m*(2*x + 1)^(-m - 2)*(4*x - 5)^3,x, algorithm="giac")
```

```
[Out] integrate(-(3*x + 2)^m*(2*x + 1)^(-m - 2)*(4*x - 5)^3, x)
```

3.3064 $\int (a+bx)^m (c+dx)^{-2-m} (e+fx)^2\,dx$

Optimal. Leaf size=204

$$-\frac{f(a+bx)^m(c+dx)^{-m}\left(-\frac{d(a+bx)}{bc-ad}\right)^{-m}(adfm+b(2de-cf(m+2)))\,{}_2F_1\left(-m,-m;1-m;\frac{b(c+dx)}{bc-ad}\right)}{bd^3m}+\frac{(a+bx)^{m+1}(de-cf)(c+dx)^{-m-1}(adf(m+1)+b(de-cf(m+2)))}{bd^2(m+1)(bc-ad)}+\frac{f(e+fx)(a+bx)^{m+1}(c+dx)^{-m-1}}{bd}$$

```
[Out] ((d*e - c*f)*(a*d*f*(1 + m) + b*(d*e - c*f*(2 + m)))*(a + b*x)^(1
 + m)*(c + d*x)^(-1 - m))/(b*d^2*(b*c - a*d)*(1 + m)) + (f*(a + b
*x)^(1 + m)*(c + d*x)^(-1 - m)*(e + f*x))/(b*d) - (f*(a*d*f*m + b
*(2*d*e - c*f*(2 + m)))*(a + b*x)^m*Hypergeometric2F1[-m, -m, 1 -
 m, (b*(c + d*x))/(b*c - a*d)])/(b*d^3*m*(-((d*(a + b*x))/(b*c -
a*d)))^m*(c + d*x)^m)
```

Rubi [A] time = 0.498389, antiderivative size = 202, normalized size of antiderivative = 0.99, number of steps used = 4, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$-\frac{f(a+bx)^m(c+dx)^{-m}\left(-\frac{d(a+bx)}{bc-ad}\right)^{-m}(adfm-bcf(m+2)+2bde)\,{}_2F_1\left(-m,-m;1-m;\frac{b(c+dx)}{bc-ad}\right)}{bd^3m}+\frac{(a+bx)^{m+1}(de-cf)(c+dx)^{-m-1}(adf(m+1)-bcf(m+2)+bde)}{bd^2(m+1)(bc-ad)}+\frac{f(e+fx)(a+bx)^{m+1}(c+dx)^{-m-1}}{bd}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^(-2 - m)*(e + f*x)^2,x]
```

```
[Out] ((d*e - c*f)*(b*d*e + a*d*f*(1 + m) - b*c*f*(2 + m))*(a + b*x)^(1
 + m)*(c + d*x)^(-1 - m))/(b*d^2*(b*c - a*d)*(1 + m)) + (f*(a + b
*x)^(1 + m)*(c + d*x)^(-1 - m)*(e + f*x))/(b*d) - (f*(2*b*d*e + a
*d*f*m - b*c*f*(2 + m))*(a + b*x)^m*Hypergeometric2F1[-m, -m, 1 -
 m, (b*(c + d*x))/(b*c - a*d)])/(b*d^3*m*(-((d*(a + b*x))/(b*c -
a*d)))^m*(c + d*x)^m)
```

Rubi in Sympy [A] time = 66.8433, size = 178, normalized size = 0.87

$$\frac{f\left(a+bx\right)^{m+1}\left(c+dx\right)^{-m-1}\left(e+fx\right)}{bd}+\frac{\left(a+bx\right)^{m+1}\left(c+dx\right)^{-m-1}\left(cf-de\right)\left(adfm+adf-bcfm-2bcf+bde\right)}{bd^2\left(m+1\right)\left(ad-bc\right)}-\frac{f\left(\frac{d(a+bx)}{ad-bc}\right)^{-m}\left(a+bx\right)^m\left(c+dx\right)^{-m}\left(2bde+f\left(adm-bc\left(m+2\right)\right)\right){}_2F_1\left(\left.\begin{matrix}-m,-m\\-m+1\end{matrix}\right|\frac{b(-c-dx)}{ad-bc}\right)}{bd^3m}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(-2-m)*(f*x+e)**2,x)
```

```
[Out] f*(a + b*x)**(m + 1)*(c + d*x)**(-m - 1)*(e + f*x)/(b*d) + (a + b
*x)**(m + 1)*(c + d*x)**(-m - 1)*(c*f - d*e)*(a*d*f*m + a*d*f - b
*c*f*m - 2*b*c*f + b*d*e)/(b*d**2*(m + 1)*(a*d - b*c)) - f*(d*(a
+ b*x)/(a*d - b*c))**(-m)*(a + b*x)**m*(c + d*x)**(-m)*(2*b*d*e +
 f*(a*d*m - b*c*(m + 2)))*hyper((-m, -m), (-m + 1,), b*(-c - d*x)
```

```
/(a*d - b*c))/(b*d**3*m)
```

Mathematica [C] time = 1.6592, size = 300, normalized size = 1.47

$$\frac{1}{3}(a+bx)^m(c+dx)^{-m-2}\left(-\frac{9acefx^2F_1\left(2;-m,m+2;3;-\frac{bx}{a},-\frac{dx}{c}\right)}{-3acF_1\left(2;-m,m+2;3;-\frac{bx}{a},-\frac{dx}{c}\right)-bcmxF_1\left(3;1-m,m+2;4;-\frac{bx}{a},-\frac{dx}{c}\right)+ad(m+2)xF_1\left(3;-m,m+3;4;-\frac{bx}{a},-\frac{dx}{c}\right)}-\frac{4acf^2x^3F_1\left(3;-m,m+2;4;-\frac{bx}{a},-\frac{dx}{c}\right)}{-4acF_1\left(3;-m,m+2;4;-\frac{bx}{a},-\frac{dx}{c}\right)-bcmxF_1\left(4;1-m,m+2;5;-\frac{bx}{a},-\frac{dx}{c}\right)+ad(m+2)xF_1\left(4;-m,m+3;5;-\frac{bx}{a},-\frac{dx}{c}\right)}+\frac{3e^2(a+bx)(c+dx)}{(m+1)(bc-ad)}\right)$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^(-2 - m)*(e + f*x)^2,x]
```

```
[Out] ((a + b*x)^m*(c + d*x)^(-2 - m)*((3*e^2*(a + b*x)*(c + d*x))/((b*
c - a*d)*(1 + m)) - (9*a*c*e*f*x^2*AppellF1[2, -m, 2 + m, 3, -((b
*x)/a), -((d*x)/c)])/(-3*a*c*AppellF1[2, -m, 2 + m, 3, -((b*x)/a)
, -((d*x)/c)] - b*c*m*x*AppellF1[3, 1 - m, 2 + m, 4, -((b*x)/a),
-((d*x)/c)] + a*d*(2 + m)*x*AppellF1[3, -m, 3 + m, 4, -((b*x)/a),
 -((d*x)/c)]) - (4*a*c*f^2*x^3*AppellF1[3, -m, 2 + m, 4, -((b*x)/
a), -((d*x)/c)])/(-4*a*c*AppellF1[3, -m, 2 + m, 4, -((b*x)/a), -(
(d*x)/c)] - b*c*m*x*AppellF1[4, 1 - m, 2 + m, 5, -((b*x)/a), -((d
*x)/c)] + a*d*(2 + m)*x*AppellF1[4, -m, 3 + m, 5, -((b*x)/a), -((
d*x)/c)])))/3
```

Maple [F] time = 0.083, size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^{-2-m} (fx+e)^2 \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(-2-m)*(f*x+e)^2,x)
```

```
[Out] int((b*x+a)^m*(d*x+c)^(-2-m)*(f*x+e)^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (fx+e)^2(bx+a)^m(dx+c)^{-m-2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((f*x + e)^2*(b*x + a)^m*(d*x + c)^(-m - 2),x, algorithm="maxima")
```

```
[Out] integrate((f*x + e)^2*(b*x + a)^m*(d*x + c)^(-m - 2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\left(f^2x^2+2\,efx+e^2\right)(bx+a)^m(dx+c)^{-m-2},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)^2*(b*x + a)^m*(d*x + c)^(-m - 2),x, algorithm="fricas")
```

```
[Out] integral((f^2*x^2 + 2*e*f*x + e^2)*(b*x + a)^m*(d*x + c)^(-m - 2)
, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**m*(d*x+c)**(-2-m)*(f*x+e)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (fx+e)^2(bx+a)^m(dx+c)^{-m-2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)^2*(b*x + a)^m*(d*x + c)^(-m - 2),x, algorithm="giac")
```

```
[Out] integrate((f*x + e)^2*(b*x + a)^m*(d*x + c)^(-m - 2), x)
```

3.3065 $\int (a+bx)^m (c+dx)^{-2-m} (e+fx)\,dx$

Optimal. Leaf size=124

$$\frac{(a+bx)^{m+1}(de-cf)(c+dx)^{-m-1}}{d(m+1)(bc-ad)}-\frac{f(a+bx)^m(c+dx)^{-m}\left(-\frac{d(a+bx)}{bc-ad}\right)^{-m}{}_2F_1\left(-m,-m;1-m;\frac{b(c+dx)}{bc-ad}\right)}{d^2m}$$

```
[Out] ((d*e - c*f)*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m))/(d*(b*c - a*d)
*(1 + m)) - (f*(a + b*x)^m*Hypergeometric2F1[-m, -m, 1 - m, (b*(c
 + d*x))/(b*c - a*d)])/(d^2*m*(-((d*(a + b*x))/(b*c - a*d)))^m*(c
 + d*x)^m)
```

Rubi [A] time = 0.183302, antiderivative size = 124, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.125$

$$\frac{(a+bx)^{m+1}(de-cf)(c+dx)^{-m-1}}{d(m+1)(bc-ad)}-\frac{f(a+bx)^m(c+dx)^{-m}\left(-\frac{d(a+bx)}{bc-ad}\right)^{-m}{}_2F_1\left(-m,-m;1-m;\frac{b(c+dx)}{bc-ad}\right)}{d^2m}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^(-2 - m)*(e + f*x),x]
```

```
[Out] ((d*e - c*f)*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m))/(d*(b*c - a*d)
*(1 + m)) - (f*(a + b*x)^m*Hypergeometric2F1[-m, -m, 1 - m, (b*(c
 + d*x))/(b*c - a*d)])/(d^2*m*(-((d*(a + b*x))/(b*c - a*d)))^m*(c
 + d*x)^m)
```

Rubi in Sympy [A] time = 22.0852, size = 94, normalized size = 0.76

$$\frac{(a+bx)^{m+1}(c+dx)^{-m-1}(cf-de)}{d(m+1)(ad-bc)}-\frac{f\left(\frac{d(a+bx)}{ad-bc}\right)^{-m}(a+bx)^m(c+dx)^{-m}{}_2F_1\left(\begin{matrix}-m,-m\\-m+1\end{matrix}\middle|\frac{b(-c-dx)}{ad-bc}\right)}{d^2m}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(-2-m)*(f*x+e),x)
```

```
[Out] (a + b*x)**(m + 1)*(c + d*x)**(-m - 1)*(c*f - d*e)/(d*(m + 1)*(a*
d - b*c)) - f*(d*(a + b*x)/(a*d - b*c))**(-m)*(a + b*x)**m*(c + d
*x)**(-m)*hyper((-m, -m), (-m + 1,), b*(-c - d*x)/(a*d - b*c))/(d
**2*m)
```

Mathematica [A] time = 0.331011, size = 132, normalized size = 1.06

$$\frac{(a+bx)^m(c+dx)^{-m-1}\left(f(m+1)(c+dx)(-(bc-ad))\left(\frac{d(a+bx)}{ad-bc}\right)^{-m}{}_2F_1\left(-m,-m;1-m;\frac{b(c+dx)}{bc-ad}\right)-cdfm(a+bx)+d^2em(a\right.}{d^2m(m+1)(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^(-2 - m)*(e + f*x),x]
```

```
[Out] ((a + b*x)^m*(c + d*x)^(-1 - m)*(d^2*e*m*(a + b*x) - c*d*f*m*(a +
 b*x) - ((b*c - a*d)*f*(1 + m)*(c + d*x)*Hypergeometric2F1[-m, -m
, 1 - m, (b*(c + d*x))/(b*c - a*d)])/((d*(a + b*x))/(-(b*c) + a*d
```

```
))^m))/(d^2*(b*c - a*d)*m*(1 + m))
```

Maple [F] time = 0.075, size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^{-2-m} (fx+e)\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(-2-m)*(f*x+e),x)
```

```
[Out] int((b*x+a)^m*(d*x+c)^(-2-m)*(f*x+e),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (fx+e)(bx+a)^m(dx+c)^{-m-2}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((f*x + e)*(b*x + a)^m*(d*x + c)^(-m - 2),x, algorithm="maxima")
```

```
[Out] integrate((f*x + e)*(b*x + a)^m*(d*x + c)^(-m - 2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left((fx+e)(bx+a)^m(dx+c)^{-m-2}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((f*x + e)*(b*x + a)^m*(d*x + c)^(-m - 2),x, algorithm="fricas")
```

```
[Out] integral((f*x + e)*(b*x + a)^m*(d*x + c)^(-m - 2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(-2-m)*(f*x+e),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (fx+e)(bx+a)^m(dx+c)^{-m-2}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((f*x + e)*(b*x + a)^m*(d*x + c)^(-m - 2),x, algorithm="giac")
```

```
[Out] integrate((f*x + e)*(b*x + a)^m*(d*x + c)^(-m - 2), x)
```

3.3066 $\int (a+bx)^m (c+dx)^{-2-m} \, dx$

Optimal. Leaf size=36

$$\frac{(a+bx)^{m+1}(c+dx)^{-m-1}}{(m+1)(bc-ad)}$$

```
[Out] ((a + b*x)^(1 + m)*(c + d*x)^(-1 - m))/((b*c - a*d)*(1 + m))
```

Rubi [A] time = 0.0281099, antiderivative size = 36, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}} = 0.053$

$$\frac{(a+bx)^{m+1}(c+dx)^{-m-1}}{(m+1)(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^(-2 - m),x]

[Out] ((a + b*x)^(1 + m)*(c + d*x)^(-1 - m))/((b*c - a*d)*(1 + m))
```

Rubi in Sympy [A] time = 4.71946, size = 29, normalized size = 0.81

$$-\frac{(a+bx)^{m+1}(c+dx)^{-m-1}}{(m+1)(ad-bc)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(-2-m),x)

[Out] -(a + b*x)**(m + 1)*(c + d*x)**(-m - 1)/((m + 1)*(a*d - b*c))
```

Mathematica [A] time = 0.0589156, size = 36, normalized size = 1.

$$\frac{(a+bx)^{m+1}(c+dx)^{-m-1}}{(m+1)(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^(-2 - m),x]

[Out] ((a + b*x)^(1 + m)*(c + d*x)^(-1 - m))/((b*c - a*d)*(1 + m))
```

Maple [A] time = 0.006, size = 42, normalized size = 1.2

$$-\frac{(bx+a)^{1+m}(dx+c)^{-1-m}}{adm-bcm+ad-bc}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(-2-m),x)

[Out] -(b*x+a)^(1+m)*(d*x+c)^(-1-m)/(a*d*m-b*c*m+a*d-b*c)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx + a)^m (dx + c)^{-m-2}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - 2),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m - 2), x)
```

Fricas [A] time = 0.249782, size = 78, normalized size = 2.17

$$\frac{\left(bdx^2 + ac + (bc + ad)x\right)(bx + a)^m (dx + c)^{-m-2}}{bc - ad + (bc - ad)m}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - 2),x, algorithm="fricas")
```

```
[Out] (b*d*x^2 + a*c + (b*c + a*d)*x)*(b*x + a)^m*(d*x + c)^(-m - 2)/(b
*c - a*d + (b*c - a*d)*m)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(-2-m),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (bx + a)^m (dx + c)^{-m-2}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - 2),x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m - 2), x)
```

3.3067 $\int \frac{(a+bx)^m(c+dx)^{-2-m}}{e+fx}\,dx$

Optimal. Leaf size=135

$$\frac{d(a+bx)^{m+1}(c+dx)^{-m-1}}{(m+1)(bc-ad)(de-cf)}-\frac{f(a+bx)^{m+1}(c+dx)^{-m-1}\,{}_2F_1\left(1,m+1;m+2;\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}\right)}{(m+1)(be-af)(de-cf)}$$

```
[Out] (d*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m))/((b*c - a*d)*(d*e - c*f)
*(1 + m)) - (f*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m)*Hypergeometri
c2F1[1, 1 + m, 2 + m, ((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d
*x))])/((b*e - a*f)*(d*e - c*f)*(1 + m))
```

Rubi [A] time = 0.218258, antiderivative size = 135, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.077

$$\frac{d(a+bx)^{m+1}(c+dx)^{-m-1}}{(m+1)(bc-ad)(de-cf)}-\frac{f(a+bx)^{m+1}(c+dx)^{-m-1}\,{}_2F_1\left(1,m+1;m+2;\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}\right)}{(m+1)(be-af)(de-cf)}$$

Antiderivative was successfully verified.

```
[In] Int[((a + b*x)^m*(c + d*x)^(-2 - m))/(e + f*x),x]
```

```
[Out] (d*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m))/((b*c - a*d)*(d*e - c*f)
*(1 + m)) - (f*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m)*Hypergeometri
c2F1[1, 1 + m, 2 + m, ((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d
*x))])/((b*e - a*f)*(d*e - c*f)*(1 + m))
```

Rubi in Sympy [A] time = 20.206, size = 104, normalized size = 0.77

$$\frac{d\,(a+bx)^{m+1}\,(c+dx)^{-m-1}}{(m+1)\,(ad-bc)\,(cf-de)}-\frac{f\,(a+bx)^{m+1}\,(c+dx)^{-m-1}\,{}_2F_1\left(\begin{matrix}m+1,1\\m+2\end{matrix}\middle|\frac{(-a-bx)(-cf+de)}{(c+dx)(af-be)}\right)}{(m+1)\,(af-be)\,(cf-de)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)**m*(d*x+c)**(-2-m)/(f*x+e),x)
```

```
[Out] d*(a + b*x)**(m + 1)*(c + d*x)**(-m - 1)/((m + 1)*(a*d - b*c)*(c*
f - d*e)) - f*(a + b*x)**(m + 1)*(c + d*x)**(-m - 1)*hyper((m + 1
, 1), (m + 2,), (-a - b*x)*(-c*f + d*e)/((c + d*x)*(a*f - b*e)))/
((m + 1)*(a*f - b*e)*(c*f - d*e))
```

Mathematica [C] time = 6.67473, size = 578, normalized size = 4.28

$$-\frac{(a+bx)^{m+1}(c+dx)^{-m-2}\left(m^2\left(\frac{(de-cf)(a+bx)}{(be-af)(c+dx)},1,m+2\right)-\frac{fm(a+bx)\left(\frac{(de-cf)(a+bx)}{(be-af)(c+dx)},1,m+2\right)}{af-be}+5m\left(\frac{(de-cf)(a+bx)}{(be-af)(c+dx)},1,m+2\right)-\frac{3f(a+}{}\right.}{(m+3)(af-be)\left(-\frac{b(m+2)(e+fx)\left(\frac{(de-cf)(a+bx)}{(be-af)(c+dx)},1,m+2\right)}{be-af}+\frac{b(}{}\right.}$$

Warning: Unable to verify antiderivative.

```
[In] Integrate[((a + b*x)^m*(c + d*x)^(-2 - m))/(e + f*x),x]
```

```
[Out] -(((a + b*x)^(1 + m)*(c + d*x)^(-2 - m)*(6*HurwitzLerchPhi[((d*e
- c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 2 + m] + 5*m*Hurwit
zLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 2 +
 m] + m^2*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c
 + d*x)), 1, 2 + m] - (3*f*(a + b*x)*HurwitzLerchPhi[((d*e - c*f)
*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 2 + m])/(-(b*e) + a*f) -
(f*m*(a + b*x)*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*
f)*(c + d*x)), 1, 2 + m])/(-(b*e) + a*f) + ((d*e - c*f)*(a + b*x)
*Hypergeometric2F1[2, 3 + m, 4 + m, ((d*e - c*f)*(a + b*x))/((b*e
 - a*f)*(c + d*x))])/((b*e - a*f)*(c + d*x)) - (f*(-(d*e) + c*f)*
(a + b*x)^2*Hypergeometric2F1[2, 3 + m, 4 + m, ((d*e - c*f)*(a +
b*x))/((b*e - a*f)*(c + d*x))])/((b*e - a*f)^2*(c + d*x))))/((-(b
*e) + a*f)*(3 + m)*((-(a*d*(1 + m)) + b*c*(2 + m) + b*d*x)/(b*c -
 a*d) - (b*(2 + m)*(e + f*x)*HurwitzLerchPhi[((d*e - c*f)*(a + b*
x))/((b*e - a*f)*(c + d*x)), 1, 2 + m])/(b*e - a*f) + (b*(-(d*e)
+ c*f)*(a + b*x)*(e + f*x)*Hypergeometric2F1[2, 3 + m, 4 + m, ((d
*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x))])/((b*e - a*f)^2*(3
+ m)*(c + d*x)))))
```

Maple [F] time = 0.093, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{-2-m}}{fx+e}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((b*x+a)^m*(d*x+c)^(-2-m)/(f*x+e),x)
```

```
[Out] int((b*x+a)^m*(d*x+c)^(-2-m)/(f*x+e),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{-m-2}}{fx+e}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m - 2)/(f*x + e),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m - 2)/(f*x + e), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)^m (dx+c)^{-m-2}}{fx+e}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m - 2)/(f*x + e),x, algorithm="fricas")
```

```
[Out] integral((b*x + a)^m*(d*x + c)^(-m - 2)/(f*x + e), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(-2-m)/(f*x+e),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m(dx+c)^{-m-2}}{fx+e}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m - 2)/(f*x + e),x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m - 2)/(f*x + e), x)
```

3.3068 $\int \frac{(a+bx)^m(c+dx)^{-2-m}}{(e+fx)^2}\,dx$

Optimal. Leaf size=245

$$\frac{f(a+bx)^{m+1}(c+dx)^{-m-1}(adf(m+2)-b(cfm+2de))\,{}_2F_1\left(1,m+1;m+2;\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}\right)}{(m+1)(be-af)^2(de-cf)^2}+\frac{d(a+bx)^{m+1}(c+dx)^{-m-1}}{(m+1)(e+fx)(bc-ad)(de-cf)}-\frac{f(a+bx)^{m+1}(c+dx)^{-m}(adf(m+2)-b(cf(m+1)+de))}{(m+1)(e+fx)(bc-ad)(be-af)(de-cf)^2}$$

```
[Out] (d*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m))/((b*c - a*d)*(d*e - c*f)
*(1 + m)*(e + f*x)) - (f*(a*d*f*(2 + m) - b*(d*e + c*f*(1 + m)))*
(a + b*x)^(1 + m))/((b*c - a*d)*(b*e - a*f)*(d*e - c*f)^2*(1 + m)
*(c + d*x)^m*(e + f*x)) + (f*(a*d*f*(2 + m) - b*(2*d*e + c*f*m))*
(a + b*x)^(1 + m)*(c + d*x)^(-1 - m)*Hypergeometric2F1[1, 1 + m,
2 + m, ((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x))])/((b*e -
a*f)^2*(d*e - c*f)^2*(1 + m))
```

Rubi [A] time = 0.645786, antiderivative size = 243, normalized size of antiderivative = 0.99, number of steps used = 4, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.154$

$$\frac{f(a+bx)^{m+1}(c+dx)^{-m-1}(adf(m+2)-b(cfm+2de))\,{}_2F_1\left(1,m+1;m+2;\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}\right)}{(m+1)(be-af)^2(de-cf)^2}+\frac{d(a+bx)^{m+1}(c+dx)^{-m-1}}{(m+1)(e+fx)(bc-ad)(de-cf)}+\frac{f(a+bx)^{m+1}(c+dx)^{-m}(-adf(m+2)+bcf(m+1)+bde)}{(m+1)(e+fx)(bc-ad)(be-af)(de-cf)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^m*(c + d*x)^(-2 - m))/(e + f*x)^2,x]
```

```
[Out] (d*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m))/((b*c - a*d)*(d*e - c*f)
*(1 + m)*(e + f*x)) + (f*(b*d*e + b*c*f*(1 + m) - a*d*f*(2 + m))*
(a + b*x)^(1 + m))/((b*c - a*d)*(b*e - a*f)*(d*e - c*f)^2*(1 + m)
*(c + d*x)^m*(e + f*x)) + (f*(a*d*f*(2 + m) - b*(2*d*e + c*f*m))*
(a + b*x)^(1 + m)*(c + d*x)^(-1 - m)*Hypergeometric2F1[1, 1 + m,
2 + m, ((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x))])/((b*e -
a*f)^2*(d*e - c*f)^2*(1 + m))
```

Rubi in Sympy [A] time = 115.884, size = 199, normalized size = 0.81

$$-\frac{d\left(a+bx\right)^{m+1}\left(c+dx\right)^{-m-1}\left(-bcf-bde+f\left(ad\left(m+2\right)-bcm\right)\right)}{\left(m+1\right)\left(ad-bc\right)\left(af-be\right)\left(cf-de\right)^{2}}-\frac{f\left(a+bx\right)^{m+1}\left(c+dx\right)^{-m-1}}{\left(e+fx\right)\left(af-be\right)\left(cf-de\right)}-\frac{f\left(a+bx\right)^{m}\left(c+dx\right)^{-m}\left(adfm+2adf-bcfm-2bde\right){}_{2}F_{1}\left(\begin{matrix}-m,1\\-m+1\end{matrix}\middle|\frac{(-c-dx)(-af+be)}{(a+bx)(cf-de)}\right)}{m\left(af-be\right)\left(cf-de\right)^{3}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(-2-m)/(f*x+e)**2,x)
```

```
[Out] -d*(a + b*x)**(m + 1)*(c + d*x)**(-m - 1)*(-b*c*f - b*d*e + f*(a*
d*(m + 2) - b*c*m))/((m + 1)*(a*d - b*c)*(a*f - b*e)*(c*f - d*e)*
*2) - f*(a + b*x)**(m + 1)*(c + d*x)**(-m - 1)/((e + f*x)*(a*f -
b*e)*(c*f - d*e)) - f*(a + b*x)**m*(c + d*x)**(-m)*(a*d*f*m + 2*a
*d*f - b*c*f*m - 2*b*d*e)*hyper((-m, 1), (-m + 1,), (-c - d*x)*(-
a*f + b*e)/((a + b*x)*(c*f - d*e)))/(m*(a*f - b*e)*(c*f - d*e)**3
)
```

Mathematica [C] time = 21.4809, size = 21480, normalized size = 87.67

Result too large to show

Warning: Unable to verify antiderivative.

```
[In]  Integrate[((a + b*x)^m*(c + d*x)^(-2 - m))/(e + f*x)^2,x]
```

```
[Out] Result too large to show
```

Maple [F] time = 0.101, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{-2-m}}{(fx+e)^2}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(-2-m)/(f*x+e)^2,x)
```

```
[Out] int((b*x+a)^m*(d*x+c)^(-2-m)/(f*x+e)^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{-m-2}}{(fx+e)^2}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m - 2)/(f*x + e)^2,x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m - 2)/(f*x + e)^2, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{(bx+a)^m (dx+c)^{-m-2}}{f^2x^2+2\,efx+e^2}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m - 2)/(f*x + e)^2,x, algorithm="fricas")
```

```
[Out] integral((b*x + a)^m*(d*x + c)^(-m - 2)/(f^2*x^2 + 2*e*f*x + e^2)
, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(-2-m)/(f*x+e)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{-m-2}}{(fx+e)^2}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m - 2)/(f*x + e)^2,x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m - 2)/(f*x + e)^2, x)
```

3.3069 $\int \frac{(a+bx)^m(c+dx)^{-2-m}}{(e+fx)^3}\,dx$

Optimal. Leaf size=453

$$\frac{f(a+bx)^{m+1}(c+dx)^{-m-1}\left(-a^2d^2f^2\left(m^2+5m+6\right)+2abdf(m+2)(cfm+3de)+b^2\left(-\left(-c^2f^2(1-m)m+6cdefm+6d^2e^2\right.\right.\right.}{2(m+1)(be-af)^3(de-cf)^3}$$
$$+\frac{f(a+bx)^{m+1}(c+dx)^{-m}\left(a^2d^2f^2\left(m^2+5m+6\right)-abdf\left(cf\left(2m^2+5m+3\right)+de(5m+9)\right)+b^2\left(-c^2f^2\left(1-m^2\right)+5cdef\right.\right.}{2(m+1)(e+fx)(bc-ad)(be-af)^2(de-cf)^3}$$
$$+\frac{d(a+bx)^{m+1}(c+dx)^{-m-1}}{(m+1)(e+fx)^2(bc-ad)(de-cf)}-\frac{f(a+bx)^{m+1}(c+dx)^{-m}(adf(m+3)-b(cf(m+1)+2de))}{2(m+1)(e+fx)^2(bc-ad)(be-af)(de-cf)^2}$$

```
[Out] (d*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m))/((b*c - a*d)*(d*e - c*f)
*(1 + m)*(e + f*x)^2) - (f*(a*d*f*(3 + m) - b*(2*d*e + c*f*(1 + m
)))*(a + b*x)^(1 + m))/(2*(b*c - a*d)*(b*e - a*f)*(d*e - c*f)^2*(
1 + m)*(c + d*x)^m*(e + f*x)^2) + (f*(a^2*d^2*f^2*(6 + 5*m + m^2)
 + b^2*(2*d^2*e^2 + 5*c*d*e*f*(1 + m) - c^2*f^2*(1 - m^2)) - a*b*
d*f*(d*e*(9 + 5*m) + c*f*(3 + 5*m + 2*m^2)))*(a + b*x)^(1 + m))/(
2*(b*c - a*d)*(b*e - a*f)^2*(d*e - c*f)^3*(1 + m)*(c + d*x)^m*(e
+ f*x)) + (f*(2*a*b*d*f*(2 + m)*(3*d*e + c*f*m) - b^2*(6*d^2*e^2
+ 6*c*d*e*f*m - c^2*f^2*(1 - m)*m) - a^2*d^2*f^2*(6 + 5*m + m^2))
*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m)*Hypergeometric2F1[1, 1 + m,
 2 + m, ((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x))])/(2*(b*e
 - a*f)^3*(d*e - c*f)^3*(1 + m))
```

Rubi [A] time = 1.70044, antiderivative size = 452, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$\frac{f(a+bx)^{m+1}(c+dx)^{-m-1}\left(-a^2d^2f^2\left(m^2+5m+6\right)+2abdf(m+2)(cfm+3de)+b^2\left(-\left(-c^2f^2(1-m)m+6cdefm+6d^2e^2\right.\right.\right.}{2(m+1)(be-af)^3(de-cf)^3}$$
$$+\frac{f(a+bx)^{m+1}(c+dx)^{-m}\left(a^2d^2f^2\left(m^2+5m+6\right)-abdf\left(cf\left(2m^2+5m+3\right)+de(5m+9)\right)+b^2\left(-c^2f^2\left(1-m^2\right)+5cdef\right.\right.}{2(m+1)(e+fx)(bc-ad)(be-af)^2(de-cf)^3}$$
$$+\frac{d(a+bx)^{m+1}(c+dx)^{-m-1}}{(m+1)(e+fx)^2(bc-ad)(de-cf)}+\frac{f(a+bx)^{m+1}(c+dx)^{-m}(-adf(m+3)+bcf(m+1)+2bde)}{2(m+1)(e+fx)^2(bc-ad)(be-af)(de-cf)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^m*(c + d*x)^(-2 - m))/(e + f*x)^3,x]
```

```
[Out] (d*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m))/((b*c - a*d)*(d*e - c*f)
*(1 + m)*(e + f*x)^2) + (f*(2*b*d*e + b*c*f*(1 + m) - a*d*f*(3 +
m))*(a + b*x)^(1 + m))/(2*(b*c - a*d)*(b*e - a*f)*(d*e - c*f)^2*(
1 + m)*(c + d*x)^m*(e + f*x)^2) + (f*(a^2*d^2*f^2*(6 + 5*m + m^2)
 + b^2*(2*d^2*e^2 + 5*c*d*e*f*(1 + m) - c^2*f^2*(1 - m^2)) - a*b*
d*f*(d*e*(9 + 5*m) + c*f*(3 + 5*m + 2*m^2)))*(a + b*x)^(1 + m))/(
2*(b*c - a*d)*(b*e - a*f)^2*(d*e - c*f)^3*(1 + m)*(c + d*x)^m*(e
+ f*x)) + (f*(2*a*b*d*f*(2 + m)*(3*d*e + c*f*m) - b^2*(6*d^2*e^2
+ 6*c*d*e*f*m - c^2*f^2*(1 - m)*m) - a^2*d^2*f^2*(6 + 5*m + m^2))
*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m)*Hypergeometric2F1[1, 1 + m,
 2 + m, ((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x))])/(2*(b*e
 - a*f)^3*(d*e - c*f)^3*(1 + m))
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(-2-m)/(f*x+e)**3,x)
```

```
[Out] Timed out
```

Mathematica [C] time = 25.2963, size = 57971, normalized size = 127.97

Result too large to show

Warning: Unable to verify antiderivative.

```
[In] Integrate[((a + b*x)^m*(c + d*x)^(-2 - m))/(e + f*x)^3,x]
```

```
[Out] Result too large to show
```

Maple [F] time = 0.135, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{-2-m}}{(fx+e)^3}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((b*x+a)^m*(d*x+c)^(-2-m)/(f*x+e)^3,x)
```

```
[Out] int((b*x+a)^m*(d*x+c)^(-2-m)/(f*x+e)^3,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{-m-2}}{(fx+e)^3}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m - 2)/(f*x + e)^3,x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m - 2)/(f*x + e)^3, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)^m (dx+c)^{-m-2}}{f^3x^3 + 3\,ef^2x^2 + 3\,e^2fx + e^3}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m - 2)/(f*x + e)^3,x, algorithm="fricas")
```

```
[Out] integral((b*x + a)^m*(d*x + c)^(-m - 2)/(f^3*x^3 + 3*e*f^2*x^2 +
3*e^2*f*x + e^3), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(-2-m)/(f*x+e)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m(dx+c)^{-m-2}}{(fx+e)^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - 2)/(f*x + e)^3,x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m - 2)/(f*x + e)^3, x)
```

3.3070 $\int (a+bx)^m (c+dx)^{-3-m} (e+fx)^p \, dx$

Optimal. Leaf size=133

$$\frac{b^2(a+bx)^{m+1}(c+dx)^{-m}(e+fx)^p \left(\frac{b(c+dx)}{bc-ad}\right)^m \left(\frac{b(e+fx)}{be-af}\right)^{-p} F_1\left(m+1;m+3,-p;m+2;-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{(m+1)(bc-ad)^3}$$

```
[Out] (b^2*(a + b*x)^(1 + m)*((b*(c + d*x))/(b*c - a*d))^m*(e + f*x)^p*
AppellF1[1 + m, 3 + m, -p, 2 + m, -((d*(a + b*x))/(b*c - a*d)), -
((f*(a + b*x))/(b*e - a*f))])/((b*c - a*d)^3*(1 + m)*(c + d*x)^m*
((b*(e + f*x))/(b*e - a*f))^p)
```

Rubi [A] time = 0.368053, antiderivative size = 133, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.115$

$$\frac{b^2(a+bx)^{m+1}(c+dx)^{-m}(e+fx)^p \left(\frac{b(c+dx)}{bc-ad}\right)^m \left(\frac{b(e+fx)}{be-af}\right)^{-p} F_1\left(m+1;m+3,-p;m+2;-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{(m+1)(bc-ad)^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^(-3 - m)*(e + f*x)^p,x]
```

```
[Out] (b^2*(a + b*x)^(1 + m)*((b*(c + d*x))/(b*c - a*d))^m*(e + f*x)^p*
AppellF1[1 + m, 3 + m, -p, 2 + m, -((d*(a + b*x))/(b*c - a*d)), -
((f*(a + b*x))/(b*e - a*f))])/((b*c - a*d)^3*(1 + m)*(c + d*x)^m*
((b*(e + f*x))/(b*e - a*f))^p)
```

Rubi in Sympy [A] time = 76.4394, size = 105, normalized size = 0.79

$$-\frac{b^2\left(\frac{b(-c-dx)}{ad-bc}\right)^m \left(\frac{b(-e-fx)}{af-be}\right)^{-p} (a+bx)^{m+1} (c+dx)^{-m} (e+fx)^p \operatorname{appellf}_1\left(m+1,-p,m+3,m+2,\frac{f(a+bx)}{af-be},\frac{d(a+bx)}{ad-bc}\right)}{(m+1)(ad-bc)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(-3-m)*(f*x+e)**p,x)
```

```
[Out] -b**2*(b*(-c - d*x)/(a*d - b*c))**m*(b*(-e - f*x)/(a*f - b*e))**(
-p)*(a + b*x)**(m + 1)*(c + d*x)**(-m)*(e + f*x)**p*appellf1(m +
1, -p, m + 3, m + 2, f*(a + b*x)/(a*f - b*e), d*(a + b*x)/(a*d -
b*c))/((m + 1)*(a*d - b*c)**3)
```

Mathematica [B] time = 2.09133, size = 300, normalized size = 2.26

$$\frac{(m+2)(bc-ad)(be-af)(a+bx)^{m+1}(c+dx)^{-m-3}(e+fx)^p F_1\left(m\right.}{b(m+1)\left((m+2)(bc-ad)(be-af)F_1\left(m+1;m+3,-p;m+2;\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)-(a+bx)\left(fp(ad-bc)F_1\left(m+2;m+3,1\right.\right.\right.}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^(-3 - m)*(e + f*x)^p,x]
```

```
[Out] ((b*c - a*d)*(b*e - a*f)*(2 + m)*(a + b*x)^(1 + m)*(c + d*x)^(-3
- m)*(e + f*x)^p*AppellF1[1 + m, 3 + m, -p, 2 + m, (d*(a + b*x))/
(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)])/(b*(1 + m)*((b*c -
```

```
 a*d)*(b*e - a*f)*(2 + m)*AppellF1[1 + m, 3 + m, -p, 2 + m, (d*(a
 + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)] - (a + b*x
)*((-(b*c) + a*d)*f*p*AppellF1[2 + m, 3 + m, 1 - p, 3 + m, (d*(a
+ b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)] + d*(b*e -
a*f)*(3 + m)*AppellF1[2 + m, 4 + m, -p, 3 + m, (d*(a + b*x))/(-(b
*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)])))
```

Maple [F] time = 0.223, size = 0, normalized size = 0.

$$\int (bx + a)^m (dx + c)^{-3-m} (fx + e)^p \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(-3-m)*(f*x+e)^p,x)

[Out] int((b*x+a)^m*(d*x+c)^(-3-m)*(f*x+e)^p,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx + a)^m (dx + c)^{-m-3} (fx + e)^p \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - 3)*(f*x + e)^p,x, algorithm="maxima")

[Out] integrate((b*x + a)^m*(d*x + c)^(-m - 3)*(f*x + e)^p, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left((bx + a)^m (dx + c)^{-m-3} (fx + e)^p, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - 3)*(f*x + e)^p,x, algorithm="fricas")

[Out] integral((b*x + a)^m*(d*x + c)^(-m - 3)*(f*x + e)^p, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(-3-m)*(f*x+e)**p,x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (bx + a)^m (dx + c)^{-m-3} (fx + e)^p \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - 3)*(f*x + e)^p,x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m - 3)*(f*x + e)^p, x)
```

3.3071 $\int (5-4x)^4(1+2x)^{-3-m}(2+3x)^m\,dx$

Optimal. Leaf size=188

$$-\frac{2^{2-m}\left(m^2-85m+1323\right)(2x+1)^{-m}\,{}_2F_1(-m,-m;1-m;-3(2x+1))}{9m}+\frac{7(3x+2)^{m+1}\left(2\left(8m^3-530m^2+1882m+15209\right)x+3\left(-2m^3+108m^2+485m+4638\right)\right)(2x+1)^{-m-2}}{9\left(m^2+3m+2\right)}-\frac{1}{3}(5-4x)^3(3x+2)^{m+1}(2x+1)^{-m-2}-\frac{1}{9}(107-2m)(5-4x)^2(3x+2)^{m+1}(2x+1)^{-m-2}$$

```
[Out] -((107 - 2*m)*(5 - 4*x)^2*(1 + 2*x)^(-2 - m)*(2 + 3*x)^(1 + m))/9
 - ((5 - 4*x)^3*(1 + 2*x)^(-2 - m)*(2 + 3*x)^(1 + m))/3 + (7*(1 +
 2*x)^(-2 - m)*(2 + 3*x)^(1 + m)*(3*(4638 + 485*m + 108*m^2 - 2*m
^3) + 2*(15209 + 1882*m - 530*m^2 + 8*m^3)*x))/(9*(2 + 3*m + m^2)
) - (2^(2 - m)*(1323 - 85*m + m^2)*Hypergeometric2F1[-m, -m, 1 -
m, -3*(1 + 2*x)])/(9*m*(1 + 2*x)^m)
```

Rubi [A] time = 0.508245, antiderivative size = 188, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$-\frac{2^{2-m}\left(m^2-85m+1323\right)(2x+1)^{-m}\,{}_2F_1(-m,-m;1-m;-3(2x+1))}{9m}+\frac{7(3x+2)^{m+1}\left(2\left(8m^3-530m^2+1882m+15209\right)x+3\left(-2m^3+108m^2+485m+4638\right)\right)(2x+1)^{-m-2}}{9\left(m^2+3m+2\right)}-\frac{1}{3}(5-4x)^3(3x+2)^{m+1}(2x+1)^{-m-2}-\frac{1}{9}(107-2m)(5-4x)^2(3x+2)^{m+1}(2x+1)^{-m-2}$$

Antiderivative was successfully verified.

```
[In]  Int[(5 - 4*x)^4*(1 + 2*x)^(-3 - m)*(2 + 3*x)^m,x]
```

```
[Out] -((107 - 2*m)*(5 - 4*x)^2*(1 + 2*x)^(-2 - m)*(2 + 3*x)^(1 + m))/9
 - ((5 - 4*x)^3*(1 + 2*x)^(-2 - m)*(2 + 3*x)^(1 + m))/3 + (7*(1 +
 2*x)^(-2 - m)*(2 + 3*x)^(1 + m)*(3*(4638 + 485*m + 108*m^2 - 2*m
^3) + 2*(15209 + 1882*m - 530*m^2 + 8*m^3)*x))/(9*(2 + 3*m + m^2)
) - (2^(2 - m)*(1323 - 85*m + m^2)*Hypergeometric2F1[-m, -m, 1 -
m, -3*(1 + 2*x)])/(9*m*(1 + 2*x)^m)
```

Rubi in Sympy [A] time = 38.1065, size = 156, normalized size = 0.83

$$-\left(-\frac{2m}{9}+\frac{107}{9}\right)(-4x+5)^2(2x+1)^{-m-2}(3x+2)^{m+1}-\frac{(-4x+5)^3(2x+1)^{-m-2}(3x+2)^{m+1}}{3}+\frac{(2x+1)^{-m-2}(3x+2)^{m+1}\left(-1344m^3+72576m^2+325920m+x\left(3584m^3-237440m^2+843136m+6813632\right)+3116736\right)}{288(m+1)(m+2)}-\frac{4\cdot 2^{-m}(2x+1)^{-m}\left(m^2-85m+1323\right)\,{}_2F_1\left(\begin{matrix}-m,-m\\-m+1\end{matrix}\middle|-6x-3\right)}{9m}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((5-4*x)**4*(1+2*x)**(-3-m)*(2+3*x)**m,x)
```

```
[Out] -(-2*m/9 + 107/9)*(-4*x + 5)**2*(2*x + 1)**(-m - 2)*(3*x + 2)**(m
 + 1) - (-4*x + 5)**3*(2*x + 1)**(-m - 2)*(3*x + 2)**(m + 1)/3 +
(2*x + 1)**(-m - 2)*(3*x + 2)**(m + 1)*(-1344*m**3 + 72576*m**2 +
 325920*m + x*(3584*m**3 - 237440*m**2 + 843136*m + 6813632) + 31
16736)/(288*(m + 1)*(m + 2)) - 4*2**(-m)*(2*x + 1)**(-m)*(m**2 -
85*m + 1323)*hyper((-m, -m), (-m + 1,), -6*x - 3)/(9*m)
```

Mathematica [C] time = 0.964708, size = 318, normalized size = 1.69

$$21\left(\frac{23(5-4x)^2(4x+2)^{-m}(6x+4)^m F_1\left(2;-m,m;3;-\frac{3}{23}(4x-5),\frac{1}{7}(5-4x)\right)}{483F_1\left(2;-m,m;3;\frac{3}{23}(5-4x),\frac{1}{7}(5-4x)\right)+m(4x-5)\left(21F_1\left(3;1-m,m;4;\frac{3}{23}(5-4x),\frac{1}{7}(5-4x)\right)-23F_1\left(3;-m,m+1\right.\right.}\right.$$
$$+\frac{2^{2-m}(2x+1)^{1-m}\,{}_2F_1(1-m,-m;2-m;-6x-3)}{m-1}$$
$$-\frac{56(-6x-3)^m(3x+2)^{m+1}(2x+1)^{-m}\,{}_2F_1(m+1,m+1;m+2;6x+4)}{m+1}$$
$$-\frac{1029(3x+2)(-2x-1)^m(9x+6)^m(2x+1)^{-m}\,{}_2F_1(m+1,m+3;m+2;6x+4)}{m+1}$$
$$\left.+\frac{392(3x+2)^{m+1}(2x+1)^{-m-1}}{3m+3}\right)$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(5 - 4*x)^4*(1 + 2*x)^(-3 - m)*(2 + 3*x)^m,x]
```

```
[Out] 21*((392*(1 + 2*x)^(-1 - m)*(2 + 3*x)^(1 + m))/(3 + 3*m) + (23*(5
 - 4*x)^2*(4 + 6*x)^m*AppellF1[2, -m, m, 3, (-3*(-5 + 4*x))/23, (
5 - 4*x)/7])/((2 + 4*x)^m*(483*AppellF1[2, -m, m, 3, (3*(5 - 4*x)
)/23, (5 - 4*x)/7] + m*(-5 + 4*x)*(21*AppellF1[3, 1 - m, m, 4, (3
*(5 - 4*x))/23, (5 - 4*x)/7] - 23*AppellF1[3, -m, 1 + m, 4, (3*(5
 - 4*x))/23, (5 - 4*x)/7]))) + (2^(2 - m)*(1 + 2*x)^(1 - m)*Hyper
geometric2F1[1 - m, -m, 2 - m, -3 - 6*x])/(-1 + m) - (56*(-3 - 6*
x)^m*(2 + 3*x)^(1 + m)*Hypergeometric2F1[1 + m, 1 + m, 2 + m, 4 +
 6*x])/((1 + m)*(1 + 2*x)^m) - (1029*(-1 - 2*x)^m*(2 + 3*x)*(6 +
9*x)^m*Hypergeometric2F1[1 + m, 3 + m, 2 + m, 4 + 6*x])/((1 + m)*
(1 + 2*x)^m))
```

Maple [F] time = 0.084, size = 0, normalized size = 0.

$$\int (5-4x)^4 (1+2x)^{-3-m} (2+3x)^m \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((5-4*x)^4*(1+2*x)^(-3-m)*(2+3*x)^m,x)
```

```
[Out] int((5-4*x)^4*(1+2*x)^(-3-m)*(2+3*x)^m,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (3x+2)^m (2x+1)^{-m-3} (4x-5)^4 \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3*x + 2)^m*(2*x + 1)^(-m - 3)*(4*x - 5)^4,x, algorithm="maxima")
```

```
[Out] integrate((3*x + 2)^m*(2*x + 1)^(-m - 3)*(4*x - 5)^4, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\left(256x^4-1280x^3+2400x^2-2000x+625\right)(3x+2)^m(2x+1)^{-m-3},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^m*(2*x + 1)^(-m - 3)*(4*x - 5)^4,x, algorithm="fricas")
```

```
[Out] integral((256*x^4 - 1280*x^3 + 2400*x^2 - 2000*x + 625)*(3*x + 2)
^m*(2*x + 1)^(-m - 3), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((5-4*x)**4*(1+2*x)**(-3-m)*(2+3*x)**m,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (3x+2)^m (2x+1)^{-m-3} (4x-5)^4 \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^m*(2*x + 1)^(-m - 3)*(4*x - 5)^4,x, algorithm="giac")
```

```
[Out] integrate((3*x + 2)^m*(2*x + 1)^(-m - 3)*(4*x - 5)^4, x)
```

3.3072 $\int (5-4x)^3(1+2x)^{-3-m}(2+3x)^m\,dx$

Optimal. Leaf size=139

$$-\frac{2^{1-m}(63-2m)(2x+1)^{-m}\,{}_2F_1(-m,-m;1-m;-3(2x+1))}{3m}+\frac{7(3x+2)^{m+1}\left(2\left(-8m^2+102m+677\right)x+3\left(2m^2-m+186\right)\right)(2x+1)^{-m-2}}{3\left(m^2+3m+2\right)}-\frac{2}{3}(5-4x)^2(3x+2)^{m+1}(2x+1)^{-m-2}$$

```
[Out] (-2*(5 - 4*x)^2*(1 + 2*x)^(-2 - m)*(2 + 3*x)^(1 + m))/3 + (7*(1 +
 2*x)^(-2 - m)*(2 + 3*x)^(1 + m)*(3*(186 - m + 2*m^2) + 2*(677 +
102*m - 8*m^2)*x))/(3*(2 + 3*m + m^2)) - (2^(1 - m)*(63 - 2*m)*Hy
pergeometric2F1[-m, -m, 1 - m, -3*(1 + 2*x)])/(3*m*(1 + 2*x)^m)
```

Rubi [A] time = 0.284684, antiderivative size = 139, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.115$

$$-\frac{2^{1-m}(63-2m)(2x+1)^{-m}\,{}_2F_1(-m,-m;1-m;-3(2x+1))}{3m}+\frac{7(3x+2)^{m+1}\left(2\left(-8m^2+102m+677\right)x+3\left(2m^2-m+186\right)\right)(2x+1)^{-m-2}}{3\left(m^2+3m+2\right)}-\frac{2}{3}(5-4x)^2(3x+2)^{m+1}(2x+1)^{-m-2}$$

Antiderivative was successfully verified.

```
[In]  Int[(5 - 4*x)^3*(1 + 2*x)^(-3 - m)*(2 + 3*x)^m,x]
```

```
[Out] (-2*(5 - 4*x)^2*(1 + 2*x)^(-2 - m)*(2 + 3*x)^(1 + m))/3 + (7*(1 +
 2*x)^(-2 - m)*(2 + 3*x)^(1 + m)*(3*(186 - m + 2*m^2) + 2*(677 +
102*m - 8*m^2)*x))/(3*(2 + 3*m + m^2)) - (2^(1 - m)*(63 - 2*m)*Hy
pergeometric2F1[-m, -m, 1 - m, -3*(1 + 2*x)])/(3*m*(1 + 2*x)^m)
```

Rubi in Sympy [A] time = 21.505, size = 121, normalized size = 0.87

$$-\frac{2\left(-4x+5\right)^2\left(2x+1\right)^{-m-2}\left(3x+2\right)^{m+1}}{3}+\frac{\left(2x+1\right)^{-m-2}\left(3x+2\right)^{m+1}\left(644m^2+2990m+x\left(-2208m^2+31464m+179676\right)+75348\right)}{54\left(m+1\right)\left(m+2\right)}-\frac{2\cdot 2^{-m}\left(-2m+63\right)\left(2x+1\right)^{-m-2}\,{}_2F_1\left(\begin{matrix}-m-2,-m-2\\-m-1\end{matrix}\middle|-6x-3\right)}{27\left(m+2\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((5-4*x)**3*(1+2*x)**(-3-m)*(2+3*x)**m,x)
```

```
[Out] -2*(-4*x + 5)**2*(2*x + 1)**(-m - 2)*(3*x + 2)**(m + 1)/3 + (2*x
+ 1)**(-m - 2)*(3*x + 2)**(m + 1)*(644*m**2 + 2990*m + x*(-2208*m
**2 + 31464*m + 179676) + 75348)/(54*(m + 1)*(m + 2)) - 2*2**(-m)
*(-2*m + 63)*(2*x + 1)**(-m - 2)*hyper((-m - 2, -m - 2), (-m - 1,
), -6*x - 3)/(27*(m + 2))
```

Mathematica [A] time = 0.486791, size = 131, normalized size = 0.94

$$(2x+1)^{-m}\left(\frac{2^{2-m}(2x+1)\,{}_2F_1(1-m,-m;2-m;-6x-3)}{m-1}\right.$$
$$-\frac{21(3x+2)^{m+1}\left(4(2x+1)(-6x-3)^m\,{}_2F_1(m+1,m+1;m+2;6x+4)+7\left(-7(-6x-3)^{m+1}\,{}_2F_1(m+1,m+3;m+2;6x+4)\right.\right.}{(m+1)(2x+1)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(5 - 4*x)^3*(1 + 2*x)^(-3 - m)*(2 + 3*x)^m,x]
```

```
[Out] ((2^(2 - m)*(1 + 2*x)*Hypergeometric2F1[1 - m, -m, 2 - m, -3 - 6*
x])/(-1 + m) - (21*(2 + 3*x)^(1 + m)*(4*(-3 - 6*x)^m*(1 + 2*x)*Hy
pergeometric2F1[1 + m, 1 + m, 2 + m, 4 + 6*x] + 7*(-2 - 7*(-3 - 6
*x)^(1 + m)*Hypergeometric2F1[1 + m, 3 + m, 2 + m, 4 + 6*x])))/((
1 + m)*(1 + 2*x)))/(1 + 2*x)^m
```

Maple [F] time = 0.079, size = 0, normalized size = 0.

$$\int (5-4x)^3 (1+2x)^{-3-m} (2+3x)^m \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((5-4*x)^3*(1+2*x)^(-3-m)*(2+3*x)^m,x)
```

```
[Out] int((5-4*x)^3*(1+2*x)^(-3-m)*(2+3*x)^m,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$-\int (3x+2)^m (2x+1)^{-m-3} (4x-5)^3 \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^m*(2*x + 1)^(-m - 3)*(4*x - 5)^3,x, algorithm="maxima")
```

```
[Out] -integrate((3*x + 2)^m*(2*x + 1)^(-m - 3)*(4*x - 5)^3, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\left(64x^3-240x^2+300x-125\right)(3x+2)^m(2x+1)^{-m-3}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^m*(2*x + 1)^(-m - 3)*(4*x - 5)^3,x, algorithm="fricas")
```

```
[Out] integral(-(64*x^3 - 240*x^2 + 300*x - 125)*(3*x + 2)^m*(2*x + 1)^
(-m - 3), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5-4*x)**3*(1+2*x)**(-3-m)*(2+3*x)**m,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int -(3x+2)^{m}(2x+1)^{-m-3}(4x-5)^{3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^m*(2*x + 1)^(-m - 3)*(4*x - 5)^3,x, algorithm="giac")
```

```
[Out] integrate(-(3*x + 2)^m*(2*x + 1)^(-m - 3)*(4*x - 5)^3, x)
```

3.3073 $\int (a+bx)^m(c+dx)^{-3-m}(e+fx)^2\,dx$

Optimal. Leaf size=205

$$-\frac{f^2(a+bx)^m(c+dx)^{-m}\left(-\frac{d(a+bx)}{bc-ad}\right)^{-m}{}_2F_1\left(-m,-m;1-m;\frac{b(c+dx)}{bc-ad}\right)}{d^3m}+\frac{(a+bx)^{m+1}(de-cf)^2(c+dx)^{-m-2}}{d^2(m+2)(bc-ad)}-\frac{(a+bx)^{m+1}(de-cf)(c+dx)^{-m-1}(2adf(m+2)-b(cf(2m+3)+de))}{d^2(m+1)(m+2)(bc-ad)^2}$$

```
[Out] ((d*e - c*f)^2*(a + b*x)^(1 + m)*(c + d*x)^(-2 - m))/(d^2*(b*c -
a*d)*(2 + m)) - ((d*e - c*f)*(2*a*d*f*(2 + m) - b*(d*e + c*f*(3 +
 2*m)))*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m))/(d^2*(b*c - a*d)^2*
(1 + m)*(2 + m)) - (f^2*(a + b*x)^m*Hypergeometric2F1[-m, -m, 1 -
 m, (b*(c + d*x))/(b*c - a*d)])/(d^3*m*(-((d*(a + b*x))/(b*c - a*
d)))^m*(c + d*x)^m)
```

Rubi [A] time = 0.542107, antiderivative size = 202, normalized size of antiderivative = 0.99, number of steps used = 4, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.154$

$$-\frac{f^2(a+bx)^m(c+dx)^{-m}\left(-\frac{d(a+bx)}{bc-ad}\right)^{-m}{}_2F_1\left(-m,-m;1-m;\frac{b(c+dx)}{bc-ad}\right)}{d^3m}+\frac{(a+bx)^{m+1}(de-cf)^2(c+dx)^{-m-2}}{d^2(m+2)(bc-ad)}+\frac{(a+bx)^{m+1}(de-cf)(c+dx)^{-m-1}(-2adf(m+2)+bcf(2m+3)+bde)}{d^2(m+1)(m+2)(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^(-3 - m)*(e + f*x)^2,x]
```

```
[Out] ((d*e - c*f)^2*(a + b*x)^(1 + m)*(c + d*x)^(-2 - m))/(d^2*(b*c -
a*d)*(2 + m)) + ((d*e - c*f)*(b*d*e - 2*a*d*f*(2 + m) + b*c*f*(3
+ 2*m))*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m))/(d^2*(b*c - a*d)^2*
(1 + m)*(2 + m)) - (f^2*(a + b*x)^m*Hypergeometric2F1[-m, -m, 1 -
 m, (b*(c + d*x))/(b*c - a*d)])/(d^3*m*(-((d*(a + b*x))/(b*c - a*
d)))^m*(c + d*x)^m)
```

Rubi in Sympy [A] time = 93.0442, size = 178, normalized size = 0.87

$$-\frac{(a+bx)^{m+1}(c+dx)^{-m-2}(cf-de)^2}{d^2(m+2)(ad-bc)}+\frac{(a+bx)^{m+1}(c+dx)^{-m-1}(cf-de)(2adfm+4adf-2bcfm-3bcf-bde)}{d^2(m+1)(m+2)(ad-bc)^2}-\frac{f^2\left(\frac{d(a+bx)}{ad-bc}\right)^{-m}(a+bx)^m(c+dx)^{-m}{}_2F_1\left(\begin{matrix}-m,-m\\-m+1\end{matrix}\middle|\frac{b(-c-dx)}{ad-bc}\right)}{d^3m}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(-3-m)*(f*x+e)**2,x)
```

```
[Out] -(a + b*x)**(m + 1)*(c + d*x)**(-m - 2)*(c*f - d*e)**2/(d**2*(m +
 2)*(a*d - b*c)) + (a + b*x)**(m + 1)*(c + d*x)**(-m - 1)*(c*f -
d*e)*(2*a*d*f*m + 4*a*d*f - 2*b*c*f*m - 3*b*c*f - b*d*e)/(d**2*(m
 + 1)*(m + 2)*(a*d - b*c)**2) - f**2*(d*(a + b*x)/(a*d - b*c))**(
-m)*(a + b*x)**m*(c + d*x)**(-m)*hyper((-m, -m), (-m + 1,), b*(-c
```

```
- d*x)/(a*d - b*c))/(d**3*m)
```

Mathematica [C] time = 2.69463, size = 426, normalized size = 2.08

$$\frac{1}{3}(a+bx)^m(c+dx)^{-m-3}\left(\frac{6ef(c+dx)\left(\frac{c(a+bx)}{a(c+dx)}\right)^{-m}\left(a^2\left(c^2\left(-\left(\left(\frac{c(a+bx)}{a(c+dx)}\right)^m-1\right)\right)-cdx\left(m\left(\frac{c(a+bx)}{a(c+dx)}\right)^m+2\left(\frac{c(a+bx)}{a(c+dx)}\right)^m-2\right)+d^2x^2\right)+b^2 \ldots}{c(m+1)(m+2)(bc-ad)^2}\right.$$
$$-\frac{4acf^2x^3F_1\left(3;-m,m+3;4;-\frac{bx}{a},-\frac{dx}{c}\right)}{-4acF_1\left(3;-m,m+3;4;-\frac{bx}{a},-\frac{dx}{c}\right)-bcmxF_1\left(4;1-m,m+3;5;-\frac{bx}{a},-\frac{dx}{c}\right)+ad(m+3)xF_1\left(4;-m,m+4;5;-\frac{bx}{a},-\frac{dx}{c}\right)}$$
$$\left.-\frac{3e^2(c+dx)\left(\frac{d(a+bx)}{ad-bc}\right)^{-m}{}_2F_1\left(-m-2,-m;-m-1;\frac{b(c+dx)}{bc-ad}\right)}{d(m+2)}\right)$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^(-3 - m)*(e + f*x)^2,x]
```

```
[Out] ((a + b*x)^m*(c + d*x)^(-3 - m)*((6*e*f*(c + d*x)*(b^2*c^2*(1 + m
)*x^2*((c*(a + b*x))/(a*(c + d*x)))^m - a*b*c*x*((c*(a + b*x))/(a
*(c + d*x)))^m*(-(c*m) + d*(2 + m)*x) + a^2*(d^2*x^2 - c^2*(-1 +
((c*(a + b*x))/(a*(c + d*x)))^m) - c*d*x*(-2 + 2*((c*(a + b*x))/(
a*(c + d*x)))^m + m*((c*(a + b*x))/(a*(c + d*x)))^m))))/(c*(b*c -
 a*d)^2*(1 + m)*(2 + m)*((c*(a + b*x))/(a*(c + d*x)))^m) - (4*a*c
*f^2*x^3*AppellF1[3, -m, 3 + m, 4, -((b*x)/a), -((d*x)/c)])/(-4*a
*c*AppellF1[3, -m, 3 + m, 4, -((b*x)/a), -((d*x)/c)] - b*c*m*x*Ap
pellF1[4, 1 - m, 3 + m, 5, -((b*x)/a), -((d*x)/c)] + a*d*(3 + m)*
x*AppellF1[4, -m, 4 + m, 5, -((b*x)/a), -((d*x)/c)]) - (3*e^2*(c
+ d*x)*Hypergeometric2F1[-2 - m, -m, -1 - m, (b*(c + d*x))/(b*c -
 a*d)])/(d*(2 + m)*((d*(a + b*x))/(-(b*c) + a*d))^m)))/3
```

Maple [F] time = 0.089, size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^{-3-m} (fx+e)^2 \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(-3-m)*(f*x+e)^2,x)
```

```
[Out] int((b*x+a)^m*(d*x+c)^(-3-m)*(f*x+e)^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (fx+e)^2(bx+a)^m(dx+c)^{-m-3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)^2*(b*x + a)^m*(d*x + c)^(-m - 3),x, algorithm="maxima")
```

```
[Out] integrate((f*x + e)^2*(b*x + a)^m*(d*x + c)^(-m - 3), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\left(f^2x^2 + 2\,efx + e^2\right)(bx + a)^m(dx + c)^{-m-3}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)^2*(b*x + a)^m*(d*x + c)^(-m - 3),x, algorithm="fricas")
```

```
[Out] integral((f^2*x^2 + 2*e*f*x + e^2)*(b*x + a)^m*(d*x + c)^(-m - 3)
, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**m*(d*x+c)**(-3-m)*(f*x+e)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (fx + e)^2(bx + a)^m(dx + c)^{-m-3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)^2*(b*x + a)^m*(d*x + c)^(-m - 3),x, algorithm="giac")
```

```
[Out] integrate((f*x + e)^2*(b*x + a)^m*(d*x + c)^(-m - 3), x)
```

3.3074 $\int (a+bx)^m (c+dx)^{-3-m} (e+fx)\,dx$

Optimal. Leaf size=114

$$\frac{(a+bx)^{m+1}(de-cf)(c+dx)^{-m-2}}{d(m+2)(bc-ad)}-\frac{(a+bx)^{m+1}(c+dx)^{-m-1}(adf(m+2)-b(cf(m+1)+de))}{d(m+1)(m+2)(bc-ad)^2}$$

```
[Out] ((d*e - c*f)*(a + b*x)^(1 + m)*(c + d*x)^(-2 - m))/(d*(b*c - a*d)
*(2 + m)) - ((a*d*f*(2 + m) - b*(d*e + c*f*(1 + m)))*(a + b*x)^(1
 + m)*(c + d*x)^(-1 - m))/(d*(b*c - a*d)^2*(1 + m)*(2 + m))
```

Rubi [A] time = 0.171169, antiderivative size = 112, normalized size of antiderivative = 0.98, number of steps used = 2, number of rules used = 2, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.083$

$$\frac{(a+bx)^{m+1}(de-cf)(c+dx)^{-m-2}}{d(m+2)(bc-ad)}+\frac{(a+bx)^{m+1}(c+dx)^{-m-1}(-adf(m+2)+bcf(m+1)+bde)}{d(m+1)(m+2)(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^(-3 - m)*(e + f*x),x]
```

```
[Out] ((d*e - c*f)*(a + b*x)^(1 + m)*(c + d*x)^(-2 - m))/(d*(b*c - a*d)
*(2 + m)) + ((b*d*e + b*c*f*(1 + m) - a*d*f*(2 + m))*(a + b*x)^(1
 + m)*(c + d*x)^(-1 - m))/(d*(b*c - a*d)^2*(1 + m)*(2 + m))
```

Rubi in Sympy [A] time = 23.3263, size = 92, normalized size = 0.81

$$\frac{(a+bx)^{m+1}(c+dx)^{-m-2}(cf-de)}{d(m+2)(ad-bc)}-\frac{(a+bx)^{m+1}(c+dx)^{-m-1}(-bde+f(ad(m+2)-bc(m+1)))}{d(m+1)(m+2)(ad-bc)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(-3-m)*(f*x+e),x)
```

```
[Out] (a + b*x)**(m + 1)*(c + d*x)**(-m - 2)*(c*f - d*e)/(d*(m + 2)*(a*
d - b*c)) - (a + b*x)**(m + 1)*(c + d*x)**(-m - 1)*(-b*d*e + f*(a
*d*(m + 2) - b*c*(m + 1)))/(d*(m + 1)*(m + 2)*(a*d - b*c)**2)
```

Mathematica [A] time = 0.254548, size = 82, normalized size = 0.72

$$\frac{(a+bx)^{m+1}(c+dx)^{-m-2}(b(ce(m+2)+cf(m+1)x+dex)-a(cf+de(m+1)+df(m+2)x))}{(m+1)(m+2)(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^(-3 - m)*(e + f*x),x]
```

```
[Out] ((a + b*x)^(1 + m)*(c + d*x)^(-2 - m)*(b*(c*e*(2 + m) + d*e*x + c
*f*(1 + m)*x) - a*(c*f + d*e*(1 + m) + d*f*(2 + m)*x)))/((b*c - a
*d)^2*(1 + m)*(2 + m))
```

Maple [A] time = 0.008, size = 158, normalized size = 1.4

$$-\frac{(bx+a)^{1+m}(dx+c)^{-2-m}(adfmx-bcfmx+adem+2\,adfx-bcem-bcfx-bdex+acf+ade-2\,bce)}{a^2d^2m^2-2\,abcdm^2+b^2c^2m^2+3\,a^2d^2m-6\,abcdm+3\,b^2c^2m+2\,a^2d^2-4\,abcd+2\,b^2c^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(-3-m)*(f*x+e),x)
```

```
[Out] -(b*x+a)^(1+m)*(d*x+c)^(-2-m)*(a*d*f*m*x-b*c*f*m*x+a*d*e*m+2*a*d*
f*x-b*c*e*m-b*c*f*x-b*d*e*x+a*c*f+a*d*e-2*b*c*e)/(a^2*d^2*m^2-2*a
*b*c*d*m^2+b^2*c^2*m^2+3*a^2*d^2*m-6*a*b*c*d*m+3*b^2*c^2*m+2*a^2*
d^2-4*a*b*c*d+2*b^2*c^2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (fx+e)(bx+a)^m(dx+c)^{-m-3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)*(b*x + a)^m*(d*x + c)^(-m - 3),x, algorithm="maxima")
```

```
[Out] integrate((f*x + e)*(b*x + a)^m*(d*x + c)^(-m - 3), x)
```

Fricas [A] time = 0.241899, size = 454, normalized size = 3.98

$$-\frac{\left(a^2c^2f-\left(b^2d^2e+\left(b^2cd-abd^2\right)fm+\left(b^2cd-2\,abd^2\right)f\right)x^3-\left(abc^2-a^2cd\right)em-\left(3\,b^2cde+\left(b^2c^2-2\,abcd-2\,a^2d^2\right)f\right.}{2\,b^2c^2-4\,abcd}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)*(b*x + a)^m*(d*x + c)^(-m - 3),x, algorithm="fricas")
```

```
[Out] -(a^2*c^2*f - (b^2*d^2*e + (b^2*c*d - a*b*d^2)*f*m + (b^2*c*d - 2
*a*b*d^2)*f)*x^3 - (a*b*c^2 - a^2*c*d)*e*m - (3*b^2*c*d*e + (b^2*
c^2 - 2*a*b*c*d - 2*a^2*d^2)*f + ((b^2*c*d - a*b*d^2)*e + (b^2*c^
2 - a^2*d^2)*f)*m)*x^2 - (2*a*b*c^2 - a^2*c*d)*e + (3*a^2*c*d*f -
 (2*b^2*c^2 + 2*a*b*c*d - a^2*d^2)*e - ((b^2*c^2 - a^2*d^2)*e + (
a*b*c^2 - a^2*c*d)*f)*m)*x)*(b*x + a)^m*(d*x + c)^(-m - 3)/(2*b^2
*c^2 - 4*a*b*c*d + 2*a^2*d^2 + (b^2*c^2 - 2*a*b*c*d + a^2*d^2)*m^
2 + 3*(b^2*c^2 - 2*a*b*c*d + a^2*d^2)*m)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(-3-m)*(f*x+e),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (fx+e)(bx+a)^m(dx+c)^{-m-3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)*(b*x + a)^m*(d*x + c)^(-m - 3),x, algorithm="giac")
```

```
[Out] integrate((f*x + e)*(b*x + a)^m*(d*x + c)^(-m - 3), x)
```

3.3075 $\int (a+bx)^m (c+dx)^{-3-m}\,dx$

Optimal. Leaf size=79

$$\frac{(a+bx)^{m+1}(c+dx)^{-m-2}}{(m+2)(bc-ad)}+\frac{b(a+bx)^{m+1}(c+dx)^{-m-1}}{(m+1)(m+2)(bc-ad)^2}$$

```
[Out] ((a + b*x)^(1 + m)*(c + d*x)^(-2 - m))/((b*c - a*d)*(2 + m)) + (b
*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m))/((b*c - a*d)^2*(1 + m)*(2
+ m))
```

Rubi [A] time = 0.0702366, antiderivative size = 79, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}} = 0.105$

$$\frac{(a+bx)^{m+1}(c+dx)^{-m-2}}{(m+2)(bc-ad)}+\frac{b(a+bx)^{m+1}(c+dx)^{-m-1}}{(m+1)(m+2)(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^(-3 - m),x]
```

```
[Out] ((a + b*x)^(1 + m)*(c + d*x)^(-2 - m))/((b*c - a*d)*(2 + m)) + (b
*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m))/((b*c - a*d)^2*(1 + m)*(2
+ m))
```

Rubi in Sympy [A] time = 13.6061, size = 63, normalized size = 0.8

$$\frac{b\,(a+bx)^{m+1}\,(c+dx)^{-m-1}}{(m+1)\,(m+2)\,(ad-bc)^2}-\frac{(a+bx)^{m+1}\,(c+dx)^{-m-2}}{(m+2)\,(ad-bc)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(-3-m),x)
```

```
[Out] b*(a + b*x)**(m + 1)*(c + d*x)**(-m - 1)/((m + 1)*(m + 2)*(a*d -
b*c)**2) - (a + b*x)**(m + 1)*(c + d*x)**(-m - 2)/((m + 2)*(a*d -
 b*c))
```

Mathematica [A] time = 0.10147, size = 59, normalized size = 0.75

$$\frac{(a+bx)^{m+1}(c+dx)^{-m-2}(-ad(m+1)+bc(m+2)+bdx)}{(m+1)(m+2)(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^(-3 - m),x]
```

```
[Out] ((a + b*x)^(1 + m)*(c + d*x)^(-2 - m)*(-(a*d*(1 + m)) + b*c*(2 +
m) + b*d*x))/((b*c - a*d)^2*(1 + m)*(2 + m))
```

Maple [A] time = 0.006, size = 124, normalized size = 1.6

$$-\frac{(bx+a)^{1+m}\,(dx+c)^{-2-m}\,(adm-bcm-bdx+ad-2\,bc)}{a^2d^2m^2-2\,abcdm^2+b^2c^2m^2+3\,a^2d^2m-6\,abcdm+3\,b^2c^2m+2\,a^2d^2-4\,abcd+2\,b^2c^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(-3-m),x)
```

```
[Out] -(b*x+a)^(1+m)*(d*x+c)^(-2-m)*(a*d*m-b*c*m-b*d*x+a*d-2*b*c)/(a^2*
d^2*m^2-2*a*b*c*d*m^2+b^2*c^2*m^2+3*a^2*d^2*m-6*a*b*c*d*m+3*b^2*c
^2*m+2*a^2*d^2-4*a*b*c*d+2*b^2*c^2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^{-m-3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - 3),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m - 3), x)
```

Fricas [A] time = 0.229824, size = 277, normalized size = 3.51

$$\frac{\left(b^2d^2x^3 + 2\,abc^2 - a^2cd + \left(3\,b^2cd + \left(b^2cd - abd^2\right)m\right)x^2 + \left(abc^2 - a^2cd\right)m + \left(2\,b^2c^2 + 2\,abcd - a^2d^2 + \left(b^2c^2 - a^2d^2\right)m\right)x\right)}{2\,b^2c^2 - 4\,abcd + 2\,a^2d^2 + (b^2c^2 - 2\,abcd + a^2d^2)m^2 + 3\,(b^2c^2 - 2\,abcd + a^2d^2)m}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - 3),x, algorithm="fricas")
```

```
[Out] (b^2*d^2*x^3 + 2*a*b*c^2 - a^2*c*d + (3*b^2*c*d + (b^2*c*d - a*b*
d^2)*m)*x^2 + (a*b*c^2 - a^2*c*d)*m + (2*b^2*c^2 + 2*a*b*c*d - a^
2*d^2 + (b^2*c^2 - a^2*d^2)*m)*x)*(b*x + a)^m*(d*x + c)^(-m - 3)/
(2*b^2*c^2 - 4*a*b*c*d + 2*a^2*d^2 + (b^2*c^2 - 2*a*b*c*d + a^2*d
^2)*m^2 + 3*(b^2*c^2 - 2*a*b*c*d + a^2*d^2)*m)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(-3-m),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^{-m-3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - 3),x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m - 3), x)
```

3.3076 $\int \frac{(a+bx)^m(c+dx)^{-3-m}}{e+fx}\,dx$

Optimal. Leaf size=209

$$\frac{f^2(a+bx)^{m+1}(c+dx)^{-m-1}\,{}_2F_1\left(1,m+1;m+2;\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}\right)}{(m+1)(be-af)(de-cf)^2}+\frac{d(a+bx)^{m+1}(c+dx)^{-m-2}}{(m+2)(bc-ad)(de-cf)}+\frac{d(a+bx)^{m+1}(c+dx)^{-m-1}(adf(m+2)+b(de-cf(m+3)))}{(m+1)(m+2)(bc-ad)^2(de-cf)^2}$$

```
[Out] (d*(a + b*x)^(1 + m)*(c + d*x)^(-2 - m))/((b*c - a*d)*(d*e - c*f)
*(2 + m)) + (d*(a*d*f*(2 + m) + b*(d*e - c*f*(3 + m)))*(a + b*x)^
(1 + m)*(c + d*x)^(-1 - m))/((b*c - a*d)^2*(d*e - c*f)^2*(1 + m)*
(2 + m)) + (f^2*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m)*Hypergeometr
ic2F1[1, 1 + m, 2 + m, ((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c +
d*x))])/((b*e - a*f)*(d*e - c*f)^2*(1 + m))
```

Rubi [A] time = 0.602126, antiderivative size = 208, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$\frac{f^2(a+bx)^{m+1}(c+dx)^{-m-1}\,{}_2F_1\left(1,m+1;m+2;\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}\right)}{(m+1)(be-af)(de-cf)^2}+\frac{d(a+bx)^{m+1}(c+dx)^{-m-2}}{(m+2)(bc-ad)(de-cf)}+\frac{d(a+bx)^{m+1}(c+dx)^{-m-1}(adf(m+2)-bcf(m+3)+bde)}{(m+1)(m+2)(bc-ad)^2(de-cf)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^m*(c + d*x)^(-3 - m))/(e + f*x),x]
```

```
[Out] (d*(a + b*x)^(1 + m)*(c + d*x)^(-2 - m))/((b*c - a*d)*(d*e - c*f)
*(2 + m)) + (d*(b*d*e + a*d*f*(2 + m) - b*c*f*(3 + m))*(a + b*x)^
(1 + m)*(c + d*x)^(-1 - m))/((b*c - a*d)^2*(d*e - c*f)^2*(1 + m)*
(2 + m)) + (f^2*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m)*Hypergeometr
ic2F1[1, 1 + m, 2 + m, ((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c +
d*x))])/((b*e - a*f)*(d*e - c*f)^2*(1 + m))
```

Rubi in Sympy [A] time = 122.084, size = 177, normalized size = 0.85

$$\frac{d\,(a+bx)^{m+1}\,(c+dx)^{-m-2}}{(m+2)\,(ad-bc)\,(cf-de)}+\frac{d\,(a+bx)^{m+1}\,(c+dx)^{-m-1}\,(-bcf\,(m+2)-bcf+d\,(af\,(m+2)+be))}{(m+1)\,(m+2)\,(ad-bc)^2\,(cf-de)^2}-\frac{f^2\,(a+bx)^{m+1}\,(c+dx)^{-m-1}\,{}_2F_1\left(\left.\begin{matrix}m+1,1\\m+2\end{matrix}\right|\frac{(-a-bx)(-cf+de)}{(c+dx)(af-be)}\right)}{(m+1)\,(af-be)\,(cf-de)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(-3-m)/(f*x+e),x)
```

```
[Out] d*(a + b*x)**(m + 1)*(c + d*x)**(-m - 2)/((m + 2)*(a*d - b*c)*(c*
f - d*e)) + d*(a + b*x)**(m + 1)*(c + d*x)**(-m - 1)*(-b*c*f*(m +
 2) - b*c*f + d*(a*f*(m + 2) + b*e))/((m + 1)*(m + 2)*(a*d - b*c)
**2*(c*f - d*e)**2) - f**2*(a + b*x)**(m + 1)*(c + d*x)**(-m - 1)
*hyper((m + 1, 1), (m + 2,), (-a - b*x)*(-c*f + d*e)/((c + d*x)*(
a*f - b*e)))/((m + 1)*(a*f - b*e)*(c*f - d*e)**2)
```

Mathematica [C] time = 27.4659, size = 12578, normalized size = 60.18

Result too large to show

Warning: Unable to verify antiderivative.

```
[In]  Integrate[((a + b*x)^m*(c + d*x)^(-3 - m))/(e + f*x),x]
```

```
[Out] Result too large to show
```

Maple [F] time = 0.095, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{-3-m}}{fx+e}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(-3-m)/(f*x+e),x)
```

```
[Out] int((b*x+a)^m*(d*x+c)^(-3-m)/(f*x+e),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{-m-3}}{fx+e}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m - 3)/(f*x + e),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m - 3)/(f*x + e), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{(bx+a)^m (dx+c)^{-m-3}}{fx+e}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m - 3)/(f*x + e),x, algorithm="fricas")
```

```
[Out] integral((b*x + a)^m*(d*x + c)^(-m - 3)/(f*x + e), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(-3-m)/(f*x+e),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{-m-3}}{fx+e}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - 3)/(f*x + e),x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m - 3)/(f*x + e), x)
```

3.3077 $\int \frac{(a+bx)^m(c+dx)^{-3-m}}{(e+fx)^2} \, dx$

Optimal. Leaf size=400

$$-\frac{d(a+bx)^{m+1}(c+dx)^{-m-1}\left(a^2d^2f^2\left(m^2+5m+6\right)-abdf\left(cf\left(2m^2+8m+9\right)+de(2m+3)\right)+b^2\left(-\left(-c^2f^2\left(m^2+3m+2\right.\right.\right.\right.}{(m+1)(m+2)(bc-ad)^2(be-af)(de-cf)^3}$$
$$-\frac{f^2(a+bx)^{m+1}(c+dx)^{-m-1}(adf(m+3)-b(cfm+3de))\,{}_2F_1\left(1,m+1;m+2;\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}\right)}{(m+1)(be-af)^2(de-cf)^3}$$
$$+\frac{d(a+bx)^{m+1}(c+dx)^{-m-2}}{(m+2)(e+fx)(bc-ad)(de-cf)}-\frac{f(a+bx)^{m+1}(c+dx)^{-m-1}(adf(m+3)-b(cf(m+2)+de))}{(m+2)(e+fx)(bc-ad)(be-af)(de-cf)^2}$$

```
[Out] -((d*(a^2*d^2*f^2*(6 + 5*m + m^2) - b^2*(d^2*e^2 - c*d*e*f*(5 + 2
*m) - c^2*f^2*(2 + 3*m + m^2)) - a*b*d*f*(d*e*(3 + 2*m) + c*f*(9
+ 8*m + 2*m^2)))*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m))/((b*c - a*
d)^2*(b*e - a*f)*(d*e - c*f)^3*(1 + m)*(2 + m))) + (d*(a + b*x)^(
1 + m)*(c + d*x)^(-2 - m))/((b*c - a*d)*(d*e - c*f)*(2 + m)*(e +
f*x)) - (f*(a*d*f*(3 + m) - b*(d*e + c*f*(2 + m)))*(a + b*x)^(1 +
 m)*(c + d*x)^(-1 - m))/((b*c - a*d)*(b*e - a*f)*(d*e - c*f)^2*(2
 + m)*(e + f*x)) - (f^2*(a*d*f*(3 + m) - b*(3*d*e + c*f*m))*(a +
b*x)^(1 + m)*(c + d*x)^(-1 - m)*Hypergeometric2F1[1, 1 + m, 2 + m
, ((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x))])/((b*e - a*f)^
2*(d*e - c*f)^3*(1 + m))
```

Rubi [A] time = 1.73184, antiderivative size = 398, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.192

$$-\frac{d(a+bx)^{m+1}(c+dx)^{-m-1}\left(a^2d^2f^2\left(m^2+5m+6\right)-abdf\left(cf\left(2m^2+8m+9\right)+de(2m+3)\right)+b^2\left(-\left(-c^2f^2\left(m^2+3m+2\right.\right.\right.\right.}{(m+1)(m+2)(bc-ad)^2(be-af)(de-cf)^3}$$
$$-\frac{f^2(a+bx)^{m+1}(c+dx)^{-m-1}(adf(m+3)-b(cfm+3de))\,{}_2F_1\left(1,m+1;m+2;\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}\right)}{(m+1)(be-af)^2(de-cf)^3}$$
$$+\frac{d(a+bx)^{m+1}(c+dx)^{-m-2}}{(m+2)(e+fx)(bc-ad)(de-cf)}+\frac{f(a+bx)^{m+1}(c+dx)^{-m-1}(-adf(m+3)+bcf(m+2)+bde)}{(m+2)(e+fx)(bc-ad)(be-af)(de-cf)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^m*(c + d*x)^(-3 - m))/(e + f*x)^2,x]
```

```
[Out] -((d*(a^2*d^2*f^2*(6 + 5*m + m^2) - b^2*(d^2*e^2 - c*d*e*f*(5 + 2
*m) - c^2*f^2*(2 + 3*m + m^2)) - a*b*d*f*(d*e*(3 + 2*m) + c*f*(9
+ 8*m + 2*m^2)))*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m))/((b*c - a*
d)^2*(b*e - a*f)*(d*e - c*f)^3*(1 + m)*(2 + m))) + (d*(a + b*x)^(
1 + m)*(c + d*x)^(-2 - m))/((b*c - a*d)*(d*e - c*f)*(2 + m)*(e +
f*x)) + (f*(b*d*e + b*c*f*(2 + m) - a*d*f*(3 + m))*(a + b*x)^(1 +
 m)*(c + d*x)^(-1 - m))/((b*c - a*d)*(b*e - a*f)*(d*e - c*f)^2*(2
 + m)*(e + f*x)) - (f^2*(a*d*f*(3 + m) - b*(3*d*e + c*f*m))*(a +
b*x)^(1 + m)*(c + d*x)^(-1 - m)*Hypergeometric2F1[1, 1 + m, 2 + m
, ((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x))])/((b*e - a*f)^
2*(d*e - c*f)^3*(1 + m))
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(-3-m)/(f*x+e)**2,x)
```

```
[Out] Timed out
```

Mathematica [C] time = 26.8199, size = 38673, normalized size = 96.68

Result too large to show

Warning: Unable to verify antiderivative.

```
[In]  Integrate[((a + b*x)^m*(c + d*x)^(-3 - m))/(e + f*x)^2,x]
```

```
[Out] Result too large to show
```

Maple [F] time = 180., size = 0, normalized size = 0.

hanged

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(-3-m)/(f*x+e)^2,x)
```

```
[Out] int((b*x+a)^m*(d*x+c)^(-3-m)/(f*x+e)^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{-m-3}}{(fx+e)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m - 3)/(f*x + e)^2,x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m - 3)/(f*x + e)^2, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)^m (dx+c)^{-m-3}}{f^2x^2+2\,efx+e^2}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m - 3)/(f*x + e)^2,x, algorithm="fricas")
```

```
[Out] integral((b*x + a)^m*(d*x + c)^(-m - 3)/(f^2*x^2 + 2*e*f*x + e^2)
, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(-3-m)/(f*x+e)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m(dx+c)^{-m-3}}{(fx+e)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m - 3)/(f*x + e)^2,x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m - 3)/(f*x + e)^2, x)
```

3.3078 $\int (a+bx)^m(c+dx)^{-4-m}(e+fx)^p\,dx$

Optimal. Leaf size=133

$$\frac{b^3(a+bx)^{m+1}(c+dx)^{-m}(e+fx)^p\left(\frac{b(c+dx)}{bc-ad}\right)^m\left(\frac{b(e+fx)}{be-af}\right)^{-p}F_1\left(m+1;m+4,-p;m+2;-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{(m+1)(bc-ad)^4}$$

```
[Out] (b^3*(a + b*x)^(1 + m)*((b*(c + d*x))/(b*c - a*d))^m*(e + f*x)^p*
AppellF1[1 + m, 4 + m, -p, 2 + m, -((d*(a + b*x))/(b*c - a*d)), -
((f*(a + b*x))/(b*e - a*f))])/((b*c - a*d)^4*(1 + m)*(c + d*x)^m*
((b*(e + f*x))/(b*e - a*f))^p)
```

Rubi [A] time = 0.375191, antiderivative size = 133, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.115$

$$\frac{b^3(a+bx)^{m+1}(c+dx)^{-m}(e+fx)^p\left(\frac{b(c+dx)}{bc-ad}\right)^m\left(\frac{b(e+fx)}{be-af}\right)^{-p}F_1\left(m+1;m+4,-p;m+2;-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{(m+1)(bc-ad)^4}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^(-4 - m)*(e + f*x)^p,x]
```

```
[Out] (b^3*(a + b*x)^(1 + m)*((b*(c + d*x))/(b*c - a*d))^m*(e + f*x)^p*
AppellF1[1 + m, 4 + m, -p, 2 + m, -((d*(a + b*x))/(b*c - a*d)), -
((f*(a + b*x))/(b*e - a*f))])/((b*c - a*d)^4*(1 + m)*(c + d*x)^m*
((b*(e + f*x))/(b*e - a*f))^p)
```

Rubi in Sympy [A] time = 76.7409, size = 104, normalized size = 0.78

$$\frac{b^3\left(\frac{b(-c-dx)}{ad-bc}\right)^m\left(\frac{b(-e-fx)}{af-be}\right)^{-p}(a+bx)^{m+1}(c+dx)^{-m}(e+fx)^p\operatorname{appellf}_1\left(m+1,-p,m+4,m+2,\frac{f(a+bx)}{af-be},\frac{d(a+bx)}{ad-bc}\right)}{(m+1)(ad-bc)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(-4-m)*(f*x+e)**p,x)
```

```
[Out] b**3*(b*(-c - d*x)/(a*d - b*c))**m*(b*(-e - f*x)/(a*f - b*e))**(-
p)*(a + b*x)**(m + 1)*(c + d*x)**(-m)*(e + f*x)**p*appellf1(m + 1
, -p, m + 4, m + 2, f*(a + b*x)/(a*f - b*e), d*(a + b*x)/(a*d - b
*c))/((m + 1)*(a*d - b*c)**4)
```

Mathematica [B] time = 3.44702, size = 300, normalized size = 2.26

$$\frac{(m+2)(bc-ad)(be-af)(a+bx)^{m+1}(c+dx)^{-m-4}(e+fx)^pF_1\left(m\right.}{b(m+1)\left((m+2)(bc-ad)(be-af)F_1\left(m+1;m+4,-p;m+2;\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)-(a+bx)\left(fp(ad-bc)F_1\left(m+2;m+4,1\right.\right.\right.}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^(-4 - m)*(e + f*x)^p,x]
```

```
[Out] ((b*c - a*d)*(b*e - a*f)*(2 + m)*(a + b*x)^(1 + m)*(c + d*x)^(-4
- m)*(e + f*x)^p*AppellF1[1 + m, 4 + m, -p, 2 + m, (d*(a + b*x))/
(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)])/(b*(1 + m)*((b*c -
```

```
 a*d)*(b*e - a*f)*(2 + m)*AppellF1[1 + m, 4 + m, -p, 2 + m, (d*(a
 + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)] - (a + b*x
)*((-(b*c) + a*d)*f*p*AppellF1[2 + m, 4 + m, 1 - p, 3 + m, (d*(a
+ b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)] + d*(b*e -
a*f)*(4 + m)*AppellF1[2 + m, 5 + m, -p, 3 + m, (d*(a + b*x))/(-(b
*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)])))
```

Maple [F] time = 0.375, size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^{-4-m} (fx+e)^p \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(-4-m)*(f*x+e)^p,x)

[Out] int((b*x+a)^m*(d*x+c)^(-4-m)*(f*x+e)^p,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^{-m-4} (fx+e)^p \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - 4)*(f*x + e)^p,x, algorithm="maxima")

[Out] integrate((b*x + a)^m*(d*x + c)^(-m - 4)*(f*x + e)^p, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left((bx+a)^m (dx+c)^{-m-4} (fx+e)^p, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - 4)*(f*x + e)^p,x, algorithm="fricas")

[Out] integral((b*x + a)^m*(d*x + c)^(-m - 4)*(f*x + e)^p, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(-4-m)*(f*x+e)**p,x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^{-m-4} (fx+e)^p \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m - 4)*(f*x + e)^p,x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m - 4)*(f*x + e)^p, x)
```

3.3079 $\int (5-4x)^4(1+2x)^{-4-m}(2+3x)^m\,dx$

Optimal. Leaf size=333

$$\frac{2^{3-m}(42-m)(2x+1)^{-m}\,{}_2F_1(-m,-m;1-m;-3(2x+1))}{3m}+\frac{14(15-2m)\left(2m^2+52m+579\right)(3x+2)^{m+1}(2x+1)^{-m-2}}{9(m+2)(m+3)}-\frac{14(15-2m)\left(2m^2+52m+579\right)(3x+2)^{m+1}(2x+1)^{-m-1}}{3(m+3)\left(m^2+3m+2\right)}-\frac{2}{3}(5-4x)^3(3x+2)^{m+1}(2x+1)^{-m-3}-\frac{49(15-2m)(2m+27)(3x+2)^{m+1}(2x+1)^{-m-3}}{9(m+3)}+\frac{14}{9}(15-2m)(5-4x)(3x+2)^{m+1}(2x+1)^{-m-3}+\frac{196(42-m)(3x+2)^{m+1}(2x+1)^{-m-2}}{3(m+2)}-\frac{28(42-m)(4m+29)(3x+2)^{m+1}(2x+1)^{-m-1}}{3(m+1)(m+2)}$$

```
[Out] (-49*(15 - 2*m)*(27 + 2*m)*(1 + 2*x)^(-3 - m)*(2 + 3*x)^(1 + m))/
(9*(3 + m)) + (14*(15 - 2*m)*(5 - 4*x)*(1 + 2*x)^(-3 - m)*(2 + 3*
x)^(1 + m))/9 - (2*(5 - 4*x)^3*(1 + 2*x)^(-3 - m)*(2 + 3*x)^(1 +
m))/3 + (196*(42 - m)*(1 + 2*x)^(-2 - m)*(2 + 3*x)^(1 + m))/(3*(2
 + m)) + (14*(15 - 2*m)*(579 + 52*m + 2*m^2)*(1 + 2*x)^(-2 - m)*(
2 + 3*x)^(1 + m))/(9*(2 + m)*(3 + m)) - (28*(42 - m)*(29 + 4*m)*(
1 + 2*x)^(-1 - m)*(2 + 3*x)^(1 + m))/(3*(1 + m)*(2 + m)) - (14*(1
5 - 2*m)*(579 + 52*m + 2*m^2)*(1 + 2*x)^(-1 - m)*(2 + 3*x)^(1 + m
))/(3*(3 + m)*(2 + 3*m + m^2)) + (2^(3 - m)*(42 - m)*Hypergeometr
ic2F1[-m, -m, 1 - m, -3*(1 + 2*x)])/(3*m*(1 + 2*x)^m)
```

Rubi [A] time = 0.816337, antiderivative size = 333, normalized size of antiderivative = 1., number of steps used = 9, number of rules used = 8, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.308

$$\frac{2^{3-m}(42-m)(2x+1)^{-m}\,{}_2F_1(-m,-m;1-m;-3(2x+1))}{3m}+\frac{14(15-2m)\left(2m^2+52m+579\right)(3x+2)^{m+1}(2x+1)^{-m-2}}{9(m+2)(m+3)}-\frac{14(15-2m)\left(2m^2+52m+579\right)(3x+2)^{m+1}(2x+1)^{-m-1}}{3(m+3)\left(m^2+3m+2\right)}-\frac{2}{3}(5-4x)^3(3x+2)^{m+1}(2x+1)^{-m-3}-\frac{49(15-2m)(2m+27)(3x+2)^{m+1}(2x+1)^{-m-3}}{9(m+3)}+\frac{14}{9}(15-2m)(5-4x)(3x+2)^{m+1}(2x+1)^{-m-3}+\frac{196(42-m)(3x+2)^{m+1}(2x+1)^{-m-2}}{3(m+2)}-\frac{28(42-m)(4m+29)(3x+2)^{m+1}(2x+1)^{-m-1}}{3(m+1)(m+2)}$$

Antiderivative was successfully verified.

```
[In]  Int[(5 - 4*x)^4*(1 + 2*x)^(-4 - m)*(2 + 3*x)^m,x]
```

```
[Out] (-49*(15 - 2*m)*(27 + 2*m)*(1 + 2*x)^(-3 - m)*(2 + 3*x)^(1 + m))/
(9*(3 + m)) + (14*(15 - 2*m)*(5 - 4*x)*(1 + 2*x)^(-3 - m)*(2 + 3*
x)^(1 + m))/9 - (2*(5 - 4*x)^3*(1 + 2*x)^(-3 - m)*(2 + 3*x)^(1 +
m))/3 + (196*(42 - m)*(1 + 2*x)^(-2 - m)*(2 + 3*x)^(1 + m))/(3*(2
 + m)) + (14*(15 - 2*m)*(579 + 52*m + 2*m^2)*(1 + 2*x)^(-2 - m)*(
2 + 3*x)^(1 + m))/(9*(2 + m)*(3 + m)) - (28*(42 - m)*(29 + 4*m)*(
1 + 2*x)^(-1 - m)*(2 + 3*x)^(1 + m))/(3*(1 + m)*(2 + m)) - (14*(1
5 - 2*m)*(579 + 52*m + 2*m^2)*(1 + 2*x)^(-1 - m)*(2 + 3*x)^(1 + m
))/(3*(3 + m)*(2 + 3*m + m^2)) + (2^(3 - m)*(42 - m)*Hypergeometr
ic2F1[-m, -m, 1 - m, -3*(1 + 2*x)])/(3*m*(1 + 2*x)^m)
```

Rubi in Sympy [A] time = 79.323, size = 286, normalized size = 0.86

$$-\frac{49(-2m+15)(2m+27)(2x+1)^{-m-3}(3x+2)^{m+1}}{9(m+3)}+\frac{14(-2m+15)(2x+1)^{-m-2}(3x+2)^{m+1}(2m^2+52m+579)}{9(m+2)(m+3)}-\frac{14(-2m+15)(2x+1)^{-m-1}(3x+2)^{m+1}(2m^2+52m+579)}{3(m+1)(m+2)(m+3)}+\frac{196(-m+42)(2x+1)^{-m-2}(3x+2)^{m+1}}{3(m+2)}-\frac{28(-m+42)(4m+29)(2x+1)^{-m-1}(3x+2)^{m+1}}{3(m+1)(m+2)}+\left(-\frac{7m}{9}+\frac{35}{6}\right)(-16x+20)(2x+1)^{-m-3}(3x+2)^{m+1}-\frac{2(-4x+5)^3(2x+1)^{-m-3}(3x+2)^{m+1}}{3}+\frac{8\cdot 2^{-m}(-m+42)(2x+1)^{-m}\,{}_2F_1\left(\begin{matrix}-m,-m\\-m+1\end{matrix}\middle|-6x-3\right)}{3m}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((5-4*x)**4*(1+2*x)**(-4-m)*(2+3*x)**m,x)
```

```
[Out] -49*(-2*m + 15)*(2*m + 27)*(2*x + 1)**(-m - 3)*(3*x + 2)**(m + 1)
/(9*(m + 3)) + 14*(-2*m + 15)*(2*x + 1)**(-m - 2)*(3*x + 2)**(m +
 1)*(2*m**2 + 52*m + 579)/(9*(m + 2)*(m + 3)) - 14*(-2*m + 15)*(2
*x + 1)**(-m - 1)*(3*x + 2)**(m + 1)*(2*m**2 + 52*m + 579)/(3*(m
+ 1)*(m + 2)*(m + 3)) + 196*(-m + 42)*(2*x + 1)**(-m - 2)*(3*x +
2)**(m + 1)/(3*(m + 2)) - 28*(-m + 42)*(4*m + 29)*(2*x + 1)**(-m
- 1)*(3*x + 2)**(m + 1)/(3*(m + 1)*(m + 2)) + (-7*m/9 + 35/6)*(-1
6*x + 20)*(2*x + 1)**(-m - 3)*(3*x + 2)**(m + 1) - 2*(-4*x + 5)**
3*(2*x + 1)**(-m - 3)*(3*x + 2)**(m + 1)/3 + 8*2**(-m)*(-m + 42)*
(2*x + 1)**(-m)*hyper((-m, -m), (-m + 1,), -6*x - 3)/(3*m)
```

Mathematica [A] time = 0.742909, size = 166, normalized size = 0.5

$$(2x+1)^{-m}\left(\frac{7(3x+2)^{m+1}\left(32(2x+1)(-6x-3)^m\,{}_2F_1(m+1,m+1;m+2;6x+4)+21\left(168(2x+1)(-6x-3)^m\,{}_2F_1(m+1,m+3;m\right.\right.}{(m+1)(2x+1)}-\frac{2^{3-m}(2x+1)\,{}_2F_1(1-m,-m;2-m;-6x-3)}{m-1}\right)$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(5 - 4*x)^4*(1 + 2*x)^(-4 - m)*(2 + 3*x)^m,x]
```

```
[Out] (-((2^(3 - m)*(1 + 2*x)*Hypergeometric2F1[1 - m, -m, 2 - m, -3 -
6*x])/(-1 + m)) + (7*(2 + 3*x)^(1 + m)*(32*(-3 - 6*x)^m*(1 + 2*x)
*Hypergeometric2F1[1 + m, 1 + m, 2 + m, 4 + 6*x] + 21*(-8 + 168*(
-3 - 6*x)^m*(1 + 2*x)*Hypergeometric2F1[1 + m, 3 + m, 2 + m, 4 +
6*x] - 49*3^(2 + m)*(-1 - 2*x)^(1 + m)*Hypergeometric2F1[1 + m, 4
 + m, 2 + m, 4 + 6*x])))/((1 + m)*(1 + 2*x)))/(1 + 2*x)^m
```

Maple [F] time = 0.094, size = 0, normalized size = 0.

$$\int (5-4x)^4(1+2x)^{-4-m}(2+3x)^m\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((5-4*x)^4*(1+2*x)^(-4-m)*(2+3*x)^m,x)
```

```
[Out] int((5-4*x)^4*(1+2*x)^(-4-m)*(2+3*x)^m,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (3x+2)^m (2x+1)^{-m-4} (4x-5)^4 \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^m*(2*x + 1)^(-m - 4)*(4*x - 5)^4,x, algorithm="maxima")
```

```
[Out] integrate((3*x + 2)^m*(2*x + 1)^(-m - 4)*(4*x - 5)^4, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\left(256\,x^4 - 1280\,x^3 + 2400\,x^2 - 2000\,x + 625\right)(3\,x+2)^m (2\,x+1)^{-m-4}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^m*(2*x + 1)^(-m - 4)*(4*x - 5)^4,x, algorithm="fricas")
```

```
[Out] integral((256*x^4 - 1280*x^3 + 2400*x^2 - 2000*x + 625)*(3*x + 2)
^m*(2*x + 1)^(-m - 4), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5-4*x)**4*(1+2*x)**(-4-m)*(2+3*x)**m,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (3x+2)^m (2x+1)^{-m-4} (4x-5)^4 \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((3*x + 2)^m*(2*x + 1)^(-m - 4)*(4*x - 5)^4,x, algorithm="giac")
```

```
[Out] integrate((3*x + 2)^m*(2*x + 1)^(-m - 4)*(4*x - 5)^4, x)
```

3.3080 $\int (a+bx)^m (c+dx)^{-4-m} (e+fx)^3 \, dx$

Optimal. Leaf size=406

$$\frac{2b^2(a+bx)^{m+1}(de-cf)^3(c+dx)^{-m-1}}{d^3(m+1)(m+2)(m+3)(bc-ad)^3} - \frac{f^3(a+bx)^m(c+dx)^{-m}\left(-\frac{d(a+bx)}{bc-ad}\right)^{-m} {}_2F_1\left(-m,-m;1-m;\frac{b(c+dx)}{bc-ad}\right)}{d^4m} + \frac{3f^2(a+bx)^{m+1}(de-cf)(c+dx)^{-m-1}}{d^3(m+1)(bc-ad)} + \frac{(a+bx)^{m+1}(de-cf)^3(c+dx)^{-m-3}}{d^3(m+3)(bc-ad)} + \frac{3f(a+bx)^{m+1}(de-cf)^2(c+dx)^{-m-2}}{d^3(m+2)(bc-ad)} + \frac{2b(a+bx)^{m+1}(de-cf)^3(c+dx)^{-m-2}}{d^3(m+2)(m+3)(bc-ad)^2} + \frac{3bf(a+bx)^{m+1}(de-cf)^2(c+dx)^{-m-1}}{d^3(m+1)(m+2)(bc-ad)^2}$$

```
[Out] ((d*e - c*f)^3*(a + b*x)^(1 + m)*(c + d*x)^(-3 - m))/(d^3*(b*c -
a*d)*(3 + m)) + (3*f*(d*e - c*f)^2*(a + b*x)^(1 + m)*(c + d*x)^(-
2 - m))/(d^3*(b*c - a*d)*(2 + m)) + (2*b*(d*e - c*f)^3*(a + b*x)^
(1 + m)*(c + d*x)^(-2 - m))/(d^3*(b*c - a*d)^2*(2 + m)*(3 + m)) +
 (3*f^2*(d*e - c*f)*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m))/(d^3*(b
*c - a*d)*(1 + m)) + (3*b*f*(d*e - c*f)^2*(a + b*x)^(1 + m)*(c +
d*x)^(-1 - m))/(d^3*(b*c - a*d)^2*(1 + m)*(2 + m)) + (2*b^2*(d*e
- c*f)^3*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m))/(d^3*(b*c - a*d)^3
*(1 + m)*(2 + m)*(3 + m)) - (f^3*(a + b*x)^m*Hypergeometric2F1[-m
, -m, 1 - m, (b*(c + d*x))/(b*c - a*d)])/(d^4*m*(-((d*(a + b*x))/
(b*c - a*d)))^m*(c + d*x)^m)
```

Rubi [A] time = 0.741184, antiderivative size = 406, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.192$

$$\frac{2b^2(a+bx)^{m+1}(de-cf)^3(c+dx)^{-m-1}}{d^3(m+1)(m+2)(m+3)(bc-ad)^3} - \frac{f^3(a+bx)^m(c+dx)^{-m}\left(-\frac{d(a+bx)}{bc-ad}\right)^{-m} {}_2F_1\left(-m,-m;1-m;\frac{b(c+dx)}{bc-ad}\right)}{d^4m} + \frac{3f^2(a+bx)^{m+1}(de-cf)(c+dx)^{-m-1}}{d^3(m+1)(bc-ad)} + \frac{(a+bx)^{m+1}(de-cf)^3(c+dx)^{-m-3}}{d^3(m+3)(bc-ad)} + \frac{3f(a+bx)^{m+1}(de-cf)^2(c+dx)^{-m-2}}{d^3(m+2)(bc-ad)} + \frac{2b(a+bx)^{m+1}(de-cf)^3(c+dx)^{-m-2}}{d^3(m+2)(m+3)(bc-ad)^2} + \frac{3bf(a+bx)^{m+1}(de-cf)^2(c+dx)^{-m-1}}{d^3(m+1)(m+2)(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^(-4 - m)*(e + f*x)^3,x]
```


```
[Out] ((d*e - c*f)^3*(a + b*x)^(1 + m)*(c + d*x)^(-3 - m))/(d^3*(b*c -
a*d)*(3 + m)) + (3*f*(d*e - c*f)^2*(a + b*x)^(1 + m)*(c + d*x)^(-
2 - m))/(d^3*(b*c - a*d)*(2 + m)) + (2*b*(d*e - c*f)^3*(a + b*x)^
(1 + m)*(c + d*x)^(-2 - m))/(d^3*(b*c - a*d)^2*(2 + m)*(3 + m)) +
 (3*f^2*(d*e - c*f)*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m))/(d^3*(b
*c - a*d)*(1 + m)) + (3*b*f*(d*e - c*f)^2*(a + b*x)^(1 + m)*(c +
d*x)^(-1 - m))/(d^3*(b*c - a*d)^2*(1 + m)*(2 + m)) + (2*b^2*(d*e
- c*f)^3*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m))/(d^3*(b*c - a*d)^3
*(1 + m)*(2 + m)*(3 + m)) - (f^3*(a + b*x)^m*Hypergeometric2F1[-m
, -m, 1 - m, (b*(c + d*x))/(b*c - a*d)])/(d^4*m*(-((d*(a + b*x))/
(b*c - a*d)))^m*(c + d*x)^m)
```

Rubi in Sympy [A] time = 141.596, size = 342, normalized size = 0.84

$$\frac{2b^2(a+bx)^{m+1}(c+dx)^{-m-1}(cf-de)^3}{d^3(m+1)(m+2)(m+3)(ad-bc)^3}+\frac{3bf(a+bx)^{m+1}(c+dx)^{-m-1}(cf-de)^2}{d^3(m+1)(m+2)(ad-bc)^2}-\frac{2b(a+bx)^{m+1}(c+dx)^{-m-2}(cf-de)^3}{d^3(m+2)(m+3)(ad-bc)^2}+\frac{3f^2(a+bx)^{m+1}(c+dx)^{-m-1}(cf-de)}{d^3(m+1)(ad-bc)}-\frac{3f(a+bx)^{m+1}(c+dx)^{-m-2}(cf-de)^2}{d^3(m+2)(ad-bc)}+\frac{(a+bx)^{m+1}(c+dx)^{-m-3}(cf-de)^3}{d^3(m+3)(ad-bc)}-\frac{f^3\left(\frac{d(a+bx)}{ad-bc}\right)^{-m}(a+bx)^m(c+dx)^{-m}\,{}_2F_1\left(\begin{matrix}-m,-m\\-m+1\end{matrix}\middle|\frac{b(-c-dx)}{ad-bc}\right)}{d^4m}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(-4-m)*(f*x+e)**3,x)
```

```
[Out] 2*b**2*(a + b*x)**(m + 1)*(c + d*x)**(-m - 1)*(c*f - d*e)**3/(d**
3*(m + 1)*(m + 2)*(m + 3)*(a*d - b*c)**3) + 3*b*f*(a + b*x)**(m +
 1)*(c + d*x)**(-m - 1)*(c*f - d*e)**2/(d**3*(m + 1)*(m + 2)*(a*d
 - b*c)**2) - 2*b*(a + b*x)**(m + 1)*(c + d*x)**(-m - 2)*(c*f - d
*e)**3/(d**3*(m + 2)*(m + 3)*(a*d - b*c)**2) + 3*f**2*(a + b*x)**
(m + 1)*(c + d*x)**(-m - 1)*(c*f - d*e)/(d**3*(m + 1)*(a*d - b*c)
) - 3*f*(a + b*x)**(m + 1)*(c + d*x)**(-m - 2)*(c*f - d*e)**2/(d*
*3*(m + 2)*(a*d - b*c)) + (a + b*x)**(m + 1)*(c + d*x)**(-m - 3)*
(c*f - d*e)**3/(d**3*(m + 3)*(a*d - b*c)) - f**3*(d*(a + b*x)/(a*
d - b*c))**(-m)*(a + b*x)**m*(c + d*x)**(-m)*hyper((-m, -m), (-m
+ 1,), b*(-c - d*x)/(a*d - b*c))/(d**4*m)
```

Mathematica [C] time = 57.4284, size = 1833, normalized size = 4.51

result too large to display

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^(-4 - m)*(e + f*x)^3,x]
```

```
[Out] (3*e*f^2*(a + b*x)^m*(c + d*x)^(-3 - m)*(b^3*c^3*(2 + 3*m + m^2)*
x^3*((c*(a + b*x))/(a*(c + d*x)))^m - a*b^2*c^2*(1 + m)*x^2*((c*(
a + b*x))/(a*(c + d*x)))^m*(-(c*m) + 2*d*(3 + m)*x) + a^2*b*c*x*(
(c*(a + b*x))/(a*(c + d*x)))^m*(-2*c^2*m - 2*c*d*m*(3 + m)*x + d^
2*(6 + 5*m + m^2)*x^2) + a^3*(-2*d^3*x^3 + 2*c^3*(-1 + ((c*(a + b
*x))/(a*(c + d*x)))^m) + 2*c^2*d*x*(-3 + 3*((c*(a + b*x))/(a*(c +
 d*x)))^m + m*((c*(a + b*x))/(a*(c + d*x)))^m) + c*d^2*x^2*(-6 +
6*((c*(a + b*x))/(a*(c + d*x)))^m + 5*m*((c*(a + b*x))/(a*(c + d*
x)))^m + m^2*((c*(a + b*x))/(a*(c + d*x)))^m))))/(c*(b*c - a*d)^3
*(1 + m)*(2 + m)*(3 + m)*((c*(a + b*x))/(a*(c + d*x)))^m) - (5*a*
c*f^3*x^4*(a + b*x)^m*(c + d*x)^(-4 - m)*AppellF1[4, -m, 4 + m, 5
, -((b*x)/a), -((d*x)/c)])/(4*(-5*a*c*AppellF1[4, -m, 4 + m, 5, -
((b*x)/a), -((d*x)/c)] - b*c*m*x*AppellF1[5, 1 - m, 4 + m, 6, -((
b*x)/a), -((d*x)/c)] + a*d*(4 + m)*x*AppellF1[5, -m, 5 + m, 6, -(
(b*x)/a), -((d*x)/c)])) + (3*e^2*f*x^2*(a + b*x)^m*(c + d*x)^(-4
- m)*(1 + (d*x)/c)*((c + d*x)*(b^3*c^3*m*(1 + m)*x^3 + a*b^2*c^2*
m*x^2*(c*(-3 + m) - 2*d*(3 + m)*x) - a^2*b*c*x*(d^2*(3 + m)*x^2*(
-2 - m + 2*((a*(c + d*x))/(c*(a + b*x)))^m) + 2*c*d*(3 + m)*x*(-2
 + m + 2*((a*(c + d*x))/(c*(a + b*x)))^m) + 2*c^2*(-3 + 2*m + 3*(
(a*(c + d*x))/(c*(a + b*x)))^m + m*((a*(c + d*x))/(c*(a + b*x)))^
m)) + a^3*(2*d^3*m*x^3*((a*(c + d*x))/(c*(a + b*x)))^m - 6*c^3*(-
1 + ((a*(c + d*x))/(c*(a + b*x)))^m) + 2*c^2*d*x*(6 - 6*((a*(c +
d*x))/(c*(a + b*x)))^m + m*(2 + ((a*(c + d*x))/(c*(a + b*x)))^m))
 + c*d^2*x^2*(6 + m^2 - 6*((a*(c + d*x))/(c*(a + b*x)))^m + m*(5
+ 4*((a*(c + d*x))/(c*(a + b*x)))^m))))*Gamma[1 - m] + m*(3*c + d
*x)*(b^3*c^3*(2 + 3*m + m^2)*x^3 + a*b^2*c^2*(1 + m)*x^2*(c*m - 2
*d*(3 + m)*x) + a^2*b*c*x*(-2*c^2*m - 2*c*d*m*(3 + m)*x + d^2*(6
+ 5*m + m^2)*x^2) + a^3*(-2*d^3*x^3*((a*(c + d*x))/(c*(a + b*x)))
^m - 2*c^3*(-1 + ((a*(c + d*x))/(c*(a + b*x)))^m) - 2*c^2*d*x*(-3
```

```
 - m + 3*((a*(c + d*x))/(c*(a + b*x)))^m) - c*d^2*x^2*(-6 - 5*m -
 m^2 + 6*((a*(c + d*x))/(c*(a + b*x)))^m)))*Gamma[-m]))/((c + d*x
)*(b^3*c^3*m*(2 + 3*m + m^2)*x^3 - 3*a*b^2*c^2*m*(1 + m)*x^2*(c +
 d*(3 + m)*x) + 3*a^2*b*c*m*x*(2*c^2 + 2*c*d*(3 + m)*x + d^2*(6 +
 5*m + m^2)*x^2) + a^3*(6*c^3*(-1 + ((a*(c + d*x))/(c*(a + b*x)))
^m) + 6*c^2*d*x*(-3 - m + 3*((a*(c + d*x))/(c*(a + b*x)))^m) + 3*
c*d^2*x^2*(-6 - 5*m - m^2 + 6*((a*(c + d*x))/(c*(a + b*x)))^m) +
d^3*x^3*(-6 - 11*m - 6*m^2 - m^3 + 6*((a*(c + d*x))/(c*(a + b*x))
)^m)))*Gamma[1 - m] + m*(b^3*c^3*(2 + 3*m + m^2)*x^3*(3*c*(2 + m)
 + d*m*x) - 3*a*b^2*c^2*(1 + m)*x^2*(c^2*m + c*d*(12 + 14*m + 3*m
^2)*x + d^2*m*(3 + m)*x^2) + 3*a^2*b*c*x*(2*c^3*m + 2*c^2*d*m*(4
+ m)*x + c*d^2*(12 + 34*m + 19*m^2 + 3*m^3)*x^2 + d^3*m*(6 + 5*m
+ m^2)*x^3) + a^3*(6*c^4*(-1 + ((a*(c + d*x))/(c*(a + b*x)))^m) +
 6*c^3*d*x*(-4 - m + 4*((a*(c + d*x))/(c*(a + b*x)))^m) + d^4*x^4
*(-6 - 11*m - 6*m^2 - m^3 + 6*((a*(c + d*x))/(c*(a + b*x)))^m) +
3*c*d^3*x^3*(-12 - 16*m - 7*m^2 - m^3 + 8*((a*(c + d*x))/(c*(a +
b*x)))^m) + 3*c^2*d^2*x^2*(-7*m - m^2 + 12*(-1 + ((a*(c + d*x))/(
c*(a + b*x)))^m))))*Gamma[-m]) - (e^3*(c + d*x)^(-3 - m)*(a - (b*
c)/d + (b*(c + d*x))/d)^m*Hypergeometric2F1[-3 - m, -m, -2 - m, -
((b*(c + d*x))/((a - (b*c)/d)*d))])/(d*(3 + m)*(1 + (b*(c + d*x))
/((a - (b*c)/d)*d))^m)
```

Maple [F] time = 0.085, size = 0, normalized size = 0.

$$\int (bx + a)^m (dx + c)^{-4-m} (fx + e)^3 \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((b*x+a)^m*(d*x+c)^(-4-m)*(f*x+e)^3,x)
```

```
[Out] int((b*x+a)^m*(d*x+c)^(-4-m)*(f*x+e)^3,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (fx + e)^3 (bx + a)^m (dx + c)^{-m-4} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)^3*(b*x + a)^m*(d*x + c)^(-m - 4),x, algorithm="maxima")
```

```
[Out] integrate((f*x + e)^3*(b*x + a)^m*(d*x + c)^(-m - 4), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\left(f^3x^3 + 3\,ef^2x^2 + 3\,e^2fx + e^3\right)(bx + a)^m(dx + c)^{-m-4}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)^3*(b*x + a)^m*(d*x + c)^(-m - 4),x, algorithm="fricas")
```

```
[Out] integral((f^3*x^3 + 3*e*f^2*x^2 + 3*e^2*f*x + e^3)*(b*x + a)^m*(d
*x + c)^(-m - 4), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(-4-m)*(f*x+e)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (fx+e)^3(bx+a)^m(dx+c)^{-m-4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)^3*(b*x + a)^m*(d*x + c)^(-m - 4),x, algorithm="giac")
```

```
[Out] integrate((f*x + e)^3*(b*x + a)^m*(d*x + c)^(-m - 4), x)
```

3.3081 $\int (a+bx)^m (c+dx)^{-4-m} (e+fx)^2 \, dx$

Optimal. Leaf size=353

$$\frac{(a+bx)^{m+1}(c+dx)^{-m-2}\left(a^2d^2f^2\left(m^2+5m+6\right)-2abdf(m+3)(cf(m+1)+de)+b^2\left(c^2f^2\left(m^2+3m+2\right)+2cdef(m+1)\right.\right.}{bd^2(m+2)(m+3)(bc-ad)^2}$$
$$+\frac{(a+bx)^{m+1}(c+dx)^{-m-1}\left(a^2d^2f^2\left(m^2+5m+6\right)-2abdf(m+3)(cf(m+1)+de)+b^2\left(c^2f^2\left(m^2+3m+2\right)+2cdef(m+1\right.\right.}{d^2(m+1)(m+2)(m+3)(bc-ad)^3}$$
$$-\frac{(a+bx)^{m+1}(de-cf)(c+dx)^{-m-3}(adf(m+3)-b(cf(m+2)+de))}{bd^2(m+3)(bc-ad)}-\frac{f(e+fx)(a+bx)^{m+1}(c+dx)^{-m-3}}{bd}$$

```
[Out] -(((d*e - c*f)*(a*d*f*(3 + m) - b*(d*e + c*f*(2 + m)))*(a + b*x)^
(1 + m)*(c + d*x)^(-3 - m))/(b*d^2*(b*c - a*d)*(3 + m))) + ((a^2*
d^2*f^2*(6 + 5*m + m^2) - 2*a*b*d*f*(3 + m)*(d*e + c*f*(1 + m)) +
 b^2*(2*d^2*e^2 + 2*c*d*e*f*(1 + m) + c^2*f^2*(2 + 3*m + m^2)))*(
a + b*x)^(1 + m)*(c + d*x)^(-2 - m))/(b*d^2*(b*c - a*d)^2*(2 + m)
*(3 + m)) + ((a^2*d^2*f^2*(6 + 5*m + m^2) - 2*a*b*d*f*(3 + m)*(d*
e + c*f*(1 + m)) + b^2*(2*d^2*e^2 + 2*c*d*e*f*(1 + m) + c^2*f^2*(
2 + 3*m + m^2)))*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m))/(d^2*(b*c
- a*d)^3*(1 + m)*(2 + m)*(3 + m)) - (f*(a + b*x)^(1 + m)*(c + d*x
)^(-3 - m)*(e + f*x))/(b*d)
```

Rubi [A] time = 0.871428, antiderivative size = 351, normalized size of antiderivative = 0.99, number of steps used = 4, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.154$

$$\frac{(a+bx)^{m+1}(c+dx)^{-m-2}\left(a^2d^2f^2\left(m^2+5m+6\right)-2abdf(m+3)(cf(m+1)+de)+b^2\left(c^2f^2\left(m^2+3m+2\right)+2cdef(m+1)\right.\right.}{bd^2(m+2)(m+3)(bc-ad)^2}$$
$$+\frac{(a+bx)^{m+1}(c+dx)^{-m-1}\left(a^2d^2f^2\left(m^2+5m+6\right)-2abdf(m+3)(cf(m+1)+de)+b^2\left(c^2f^2\left(m^2+3m+2\right)+2cdef(m+1\right.\right.}{d^2(m+1)(m+2)(m+3)(bc-ad)^3}$$
$$+\frac{(a+bx)^{m+1}(de-cf)(c+dx)^{-m-3}(-adf(m+3)+bcf(m+2)+bde)}{bd^2(m+3)(bc-ad)}-\frac{f(e+fx)(a+bx)^{m+1}(c+dx)^{-m-3}}{bd}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^(-4 - m)*(e + f*x)^2,x]
```

```
[Out] ((d*e - c*f)*(b*d*e + b*c*f*(2 + m) - a*d*f*(3 + m))*(a + b*x)^(1
 + m)*(c + d*x)^(-3 - m))/(b*d^2*(b*c - a*d)*(3 + m)) + ((a^2*d^2
*f^2*(6 + 5*m + m^2) - 2*a*b*d*f*(3 + m)*(d*e + c*f*(1 + m)) + b^
2*(2*d^2*e^2 + 2*c*d*e*f*(1 + m) + c^2*f^2*(2 + 3*m + m^2)))*(a +
 b*x)^(1 + m)*(c + d*x)^(-2 - m))/(b*d^2*(b*c - a*d)^2*(2 + m)*(3
 + m)) + ((a^2*d^2*f^2*(6 + 5*m + m^2) - 2*a*b*d*f*(3 + m)*(d*e +
 c*f*(1 + m)) + b^2*(2*d^2*e^2 + 2*c*d*e*f*(1 + m) + c^2*f^2*(2 +
 3*m + m^2)))*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m))/(d^2*(b*c - a
*d)^3*(1 + m)*(2 + m)*(3 + m)) - (f*(a + b*x)^(1 + m)*(c + d*x)^(
-3 - m)*(e + f*x))/(b*d)
```

Rubi in Sympy [A] time = 142.791, size = 303, normalized size = 0.86

$$\frac{(a+bx)^{m+1}(c+dx)^{-m-1}\left(2bd\left(-bde^2+f\left(-acf+e\left(ad\left(m+3\right)-bc\left(m+1\right)\right)\right)\right)-f^2\left(m+2\right)\left(ad-bc\right)\left(ad\left(m+3\right)-bc\left(m+\right.\right.\right.}{d^2\left(m+1\right)\left(m+2\right)\left(m+3\right)\left(ad-bc\right)^3}$$
$$-\frac{f\left(a+bx\right)^{m+1}\left(c+dx\right)^{-m-3}\left(e+fx\right)}{bd}$$
$$-\frac{(a+bx)^{m+1}\left(c+dx\right)^{-m-3}\left(cf-de\right)\left(adfm+3adf-bcfm-2bcf-bde\right)}{bd^2\left(m+3\right)\left(ad-bc\right)}$$
$$-\frac{(a+bx)^{m+1}\left(c+dx\right)^{-m-2}\left(2bd\left(-bde^2+f\left(-acf+e\left(ad\left(m+3\right)-bc\left(m+1\right)\right)\right)\right)-f^2\left(m+2\right)\left(ad-bc\right)\left(ad\left(m+3\right)-bc\left(m\right.\right.\right.}{bd^2\left(m+2\right)\left(m+3\right)\left(ad-bc\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(-4-m)*(f*x+e)**2,x)
```

```
[Out] (a + b*x)**(m + 1)*(c + d*x)**(-m - 1)*(2*b*d*(-b*d*e**2 + f*(-a*
c*f + e*(a*d*(m + 3) - b*c*(m + 1)))) - f**2*(m + 2)*(a*d - b*c)*
(a*d*(m + 3) - b*c*(m + 1)))/(d**2*(m + 1)*(m + 2)*(m + 3)*(a*d -
 b*c)**3) - f*(a + b*x)**(m + 1)*(c + d*x)**(-m - 3)*(e + f*x)/(b
*d) - (a + b*x)**(m + 1)*(c + d*x)**(-m - 3)*(c*f - d*e)*(a*d*f*m
 + 3*a*d*f - b*c*f*m - 2*b*c*f - b*d*e)/(b*d**2*(m + 3)*(a*d - b*
c)) - (a + b*x)**(m + 1)*(c + d*x)**(-m - 2)*(2*b*d*(-b*d*e**2 +
f*(-a*c*f + e*(a*d*(m + 3) - b*c*(m + 1)))) - f**2*(m + 2)*(a*d -
 b*c)*(a*d*(m + 3) - b*c*(m + 1)))/(b*d**2*(m + 2)*(m + 3)*(a*d -
 b*c)**2)
```

Mathematica [A] time = 0.743083, size = 285, normalized size = 0.81

$$\frac{(a+bx)^{m+1}(c+dx)^{-m-3}\left(a^2\left(2c^2f^2+2cdf(e(m+1)+f(m+3)x)+d^2\left(e^2\left(m^2+3m+2\right)+2ef\left(m^2+4m+3\right)x+f^2\left(m^2 -\right.\right.\right.\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^(-4 - m)*(e + f*x)^2,x]
```

```
[Out] ((a + b*x)^(1 + m)*(c + d*x)^(-3 - m)*(b^2*(2*d^2*e^2*x^2 + 2*c*d
*e*x*(e*(3 + m) + f*(1 + m)*x) + c^2*(e^2*(6 + 5*m + m^2) + 2*e*f
*(3 + 4*m + m^2)*x + f^2*(2 + 3*m + m^2)*x^2)) - 2*a*b*(c^2*f*(e*
(3 + m) + f*(1 + m)*x) + d^2*e*x*(e*(1 + m) + f*(3 + m)*x) + c*d*
(e^2*(3 + 4*m + m^2) + 2*e*f*(5 + 4*m + m^2)*x + f^2*(3 + 4*m + m
^2)*x^2)) + a^2*(2*c^2*f^2 + 2*c*d*f*(e*(1 + m) + f*(3 + m)*x) +
d^2*(e^2*(2 + 3*m + m^2) + 2*e*f*(3 + 4*m + m^2)*x + f^2*(6 + 5*m
 + m^2)*x^2))))/((b*c - a*d)^3*(1 + m)*(2 + m)*(3 + m))
```

Maple [B] time = 0.018, size = 741, normalized size = 2.1

$$-\frac{(bx+a)^{1+m}(dx+c)^{-3-m}\left(a^2d^2f^2m^2x^2-2\,abcdf^2m^2x^2+b^2c^2f^2m^2x^2+2\,a^2d^2efm^2x+5\,a^2d^2f^2mx^2-4\,abcdefm^2x-8\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(-4-m)*(f*x+e)^2,x)
```

```
[Out] -(b*x+a)^(1+m)*(d*x+c)^(-3-m)*(a^2*d^2*f^2*m^2*x^2-2*a*b*c*d*f^2*
m^2*x^2+b^2*c^2*f^2*m^2*x^2+2*a^2*d^2*e*f*m^2*x+5*a^2*d^2*f^2*m*x
^2-4*a*b*c*d*e*f*m^2*x-8*a*b*c*d*f^2*m*x^2-2*a*b*d^2*e*f*m*x^2+2*
b^2*c^2*e*f*m^2*x+3*b^2*c^2*f^2*m*x^2+2*b^2*c*d*e*f*m*x^2+2*a^2*c
*d*f^2*m*x+a^2*d^2*e^2*m^2+8*a^2*d^2*e*f*m*x+6*a^2*d^2*f^2*x^2-2*
a*b*c^2*f^2*m*x-2*a*b*c*d*e^2*m^2-16*a*b*c*d*e*f*m*x-6*a*b*c*d*f^
2*x^2-2*a*b*d^2*e^2*m*x-6*a*b*d^2*e*f*x^2+b^2*c^2*e^2*m^2+8*b^2*c
^2*e*f*m*x+2*b^2*c^2*f^2*x^2+2*b^2*c*d*e^2*m*x+2*b^2*c*d*e*f*x^2+
2*b^2*d^2*e^2*x^2+2*a^2*c*d*e*f*m+6*a^2*c*d*f^2*x+3*a^2*d^2*e^2*m
+6*a^2*d^2*e*f*x-2*a*b*c^2*e*f*m-2*a*b*c^2*f^2*x-8*a*b*c*d*e^2*m-
20*a*b*c*d*e*f*x-2*a*b*d^2*e^2*x+5*b^2*c^2*e^2*m+6*b^2*c^2*e*f*x+
6*b^2*c*d*e^2*x+2*a^2*c^2*f^2+2*a^2*c*d*e*f+2*a^2*d^2*e^2-6*a*b*c
^2*e*f-6*a*b*c*d*e^2+6*b^2*c^2*e^2)/(a^3*d^3*m^3-3*a^2*b*c*d^2*m^
3+3*a*b^2*c^2*d*m^3-b^3*c^3*m^3+6*a^3*d^3*m^2-18*a^2*b*c*d^2*m^2+
18*a*b^2*c^2*d*m^2-6*b^3*c^3*m^2+11*a^3*d^3*m-33*a^2*b*c*d^2*m+33
*a*b^2*c^2*d*m-11*b^3*c^3*m+6*a^3*d^3-18*a^2*b*c*d^2+18*a*b^2*c^2
*d-6*b^3*c^3)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (fx+e)^2(bx+a)^m(dx+c)^{-m-4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)^2*(b*x + a)^m*(d*x + c)^(-m - 4),x, algorithm="maxima")
```

```
[Out] integrate((f*x + e)^2*(b*x + a)^m*(d*x + c)^(-m - 4), x)
```

Fricas [A] time = 0.25222, size = 1744, normalized size = 4.94

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)^2*(b*x + a)^m*(d*x + c)^(-m - 4),x, algorithm="fricas")
```

```
[Out] (2*a^3*c^3*f^2 + (a*b^2*c^3 - 2*a^2*b*c^2*d + a^3*c*d^2)*e^2*m^2
+ (2*b^3*d^3*e^2 + (b^3*c^2*d - 2*a*b^2*c*d^2 + a^2*b*d^3)*f^2*m^
2 + 2*(b^3*c*d^2 - 3*a*b^2*d^3)*e*f + 2*(b^3*c^2*d - 3*a*b^2*c*d^
2 + 3*a^2*b*d^3)*f^2 + (2*(b^3*c*d^2 - a*b^2*d^3)*e*f + (3*b^3*c^
2*d - 8*a*b^2*c*d^2 + 5*a^2*b*d^3)*f^2)*m)*x^4 + (8*b^3*c*d^2*e^2
 + 8*(b^3*c^2*d - 3*a*b^2*c*d^2)*e*f + 2*(b^3*c^3 - 3*a*b^2*c^2*d
 + 3*a^2*b*c*d^2 + 3*a^3*d^3)*f^2 + (2*(b^3*c^2*d - 2*a*b^2*c*d^2
 + a^2*b*d^3)*e*f + (b^3*c^3 - a*b^2*c^2*d - a^2*b*c*d^2 + a^3*d^
3)*f^2)*m^2 + (2*(b^3*c*d^2 - a*b^2*d^3)*e^2 + 2*(5*b^3*c^2*d - 8
*a*b^2*c*d^2 + 3*a^2*b*d^3)*e*f + (3*b^3*c^3 - 7*a*b^2*c^2*d - a^
2*b*c*d^2 + 5*a^3*d^3)*f^2)*m)*x^3 + 2*(3*a*b^2*c^3 - 3*a^2*b*c^2
*d + a^3*c*d^2)*e^2 - 2*(3*a^2*b*c^3 - a^3*c^2*d)*e*f + (12*b^3*c
^2*d*e^2 + 12*a^3*c*d^2*f^2 + 6*(b^3*c^3 - 3*a*b^2*c^2*d - 3*a^2*
b*c*d^2 + a^3*d^3)*e*f + ((b^3*c^2*d - 2*a*b^2*c*d^2 + a^2*b*d^3)
*e^2 + 2*(b^3*c^3 - a*b^2*c^2*d - a^2*b*c*d^2 + a^3*d^3)*e*f + (a
*b^2*c^3 - 2*a^2*b*c^2*d + a^3*c*d^2)*f^2)*m^2 + ((7*b^3*c^2*d -
8*a*b^2*c*d^2 + a^2*b*d^3)*e^2 + 8*(b^3*c^3 - a*b^2*c^2*d - a^2*b
*c*d^2 + a^3*d^3)*e*f + (a*b^2*c^3 - 8*a^2*b*c^2*d + 7*a^3*c*d^2)
*f^2)*m)*x^2 + ((5*a*b^2*c^3 - 8*a^2*b*c^2*d + 3*a^3*c*d^2)*e^2 -
 2*(a^2*b*c^3 - a^3*c^2*d)*e*f)*m + (8*a^3*c^2*d*f^2 + 2*(3*b^3*c
^3 + 3*a*b^2*c^2*d - 3*a^2*b*c*d^2 + a^3*d^3)*e^2 - 8*(3*a^2*b*c^
2*d - a^3*c*d^2)*e*f + ((b^3*c^3 - a*b^2*c^2*d - a^2*b*c*d^2 + a^
3*d^3)*e^2 + 2*(a*b^2*c^3 - 2*a^2*b*c^2*d + a^3*c*d^2)*e*f)*m^2 +
 ((5*b^3*c^3 - a*b^2*c^2*d - 7*a^2*b*c*d^2 + 3*a^3*d^3)*e^2 + 2*(
3*a*b^2*c^3 - 8*a^2*b*c^2*d + 5*a^3*c*d^2)*e*f - 2*(a^2*b*c^3 - a
^3*c^2*d)*f^2)*m)*x)*(b*x + a)^m*(d*x + c)^(-m - 4)/(6*b^3*c^3 -
18*a*b^2*c^2*d + 18*a^2*b*c*d^2 - 6*a^3*d^3 + (b^3*c^3 - 3*a*b^2*
c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*m^3 + 6*(b^3*c^3 - 3*a*b^2*c^2*d
 + 3*a^2*b*c*d^2 - a^3*d^3)*m^2 + 11*(b^3*c^3 - 3*a*b^2*c^2*d + 3
*a^2*b*c*d^2 - a^3*d^3)*m)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**m*(d*x+c)**(-4-m)*(f*x+e)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (fx+e)^2 (bx+a)^m (dx+c)^{-m-4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)^2*(b*x + a)^m*(d*x + c)^(-m - 4),x, algorithm="giac")
```

```
[Out] integrate((f*x + e)^2*(b*x + a)^m*(d*x + c)^(-m - 4), x)
```

3.3082 $\int (a+bx)^m (c+dx)^{-4-m} (e+fx)\,dx$

Optimal. Leaf size=188

$$\frac{(a+bx)^{m+1}(de-cf)(c+dx)^{-m-3}}{d(m+3)(bc-ad)}-\frac{(a+bx)^{m+1}(c+dx)^{-m-2}(adf(m+3)-b(cf(m+1)+2de))}{d(m+2)(m+3)(bc-ad)^2}-\frac{b(a+bx)^{m+1}(c+dx)^{-m-1}(adf(m+3)-b(cf(m+1)+2de))}{d(m+1)(m+2)(m+3)(bc-ad)^3}$$

```
[Out] ((d*e - c*f)*(a + b*x)^(1 + m)*(c + d*x)^(-3 - m))/(d*(b*c - a*d)
*(3 + m)) - ((a*d*f*(3 + m) - b*(2*d*e + c*f*(1 + m)))*(a + b*x)^
(1 + m)*(c + d*x)^(-2 - m))/(d*(b*c - a*d)^2*(2 + m)*(3 + m)) - (
b*(a*d*f*(3 + m) - b*(2*d*e + c*f*(1 + m)))*(a + b*x)^(1 + m)*(c
+ d*x)^(-1 - m))/(d*(b*c - a*d)^3*(1 + m)*(2 + m)*(3 + m))
```

Rubi [A] time = 0.304577, antiderivative size = 184, normalized size of antiderivative = 0.98, number of steps used = 3, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.125

$$\frac{(a+bx)^{m+1}(de-cf)(c+dx)^{-m-3}}{d(m+3)(bc-ad)}+\frac{(a+bx)^{m+1}(c+dx)^{-m-2}(-adf(m+3)+bcf(m+1)+2bde)}{d(m+2)(m+3)(bc-ad)^2}+\frac{b(a+bx)^{m+1}(c+dx)^{-m-1}(-adf(m+3)+bcf(m+1)+2bde)}{d(m+1)(m+2)(m+3)(bc-ad)^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^(-4 - m)*(e + f*x),x]
```

```
[Out] ((d*e - c*f)*(a + b*x)^(1 + m)*(c + d*x)^(-3 - m))/(d*(b*c - a*d)
*(3 + m)) + ((2*b*d*e + b*c*f*(1 + m) - a*d*f*(3 + m))*(a + b*x)^
(1 + m)*(c + d*x)^(-2 - m))/(d*(b*c - a*d)^2*(2 + m)*(3 + m)) + (
b*(2*b*d*e + b*c*f*(1 + m) - a*d*f*(3 + m))*(a + b*x)^(1 + m)*(c
+ d*x)^(-1 - m))/(d*(b*c - a*d)^3*(1 + m)*(2 + m)*(3 + m))
```

Rubi in Sympy [A] time = 46.252, size = 156, normalized size = 0.83

$$\frac{b\,(a+bx)^{m+1}\,(c+dx)^{-m-1}\,(-2bde+f\,(ad\,(m+3)-bc\,(m+1)))}{d\,(m+1)\,(m+2)\,(m+3)\,(ad-bc)^3}+\frac{(a+bx)^{m+1}\,(c+dx)^{-m-3}\,(cf-de)}{d\,(m+3)\,(ad-bc)}-\frac{(a+bx)^{m+1}\,(c+dx)^{-m-2}\,(-2bde+f\,(ad\,(m+3)-bc\,(m+1)))}{d\,(m+2)\,(m+3)\,(ad-bc)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(-4-m)*(f*x+e),x)
```

```
[Out] b*(a + b*x)**(m + 1)*(c + d*x)**(-m - 1)*(-2*b*d*e + f*(a*d*(m +
3) - b*c*(m + 1)))/(d*(m + 1)*(m + 2)*(m + 3)*(a*d - b*c)**3) + (
a + b*x)**(m + 1)*(c + d*x)**(-m - 3)*(c*f - d*e)/(d*(m + 3)*(a*d
 - b*c)) - (a + b*x)**(m + 1)*(c + d*x)**(-m - 2)*(-2*b*d*e + f*(
a*d*(m + 3) - b*c*(m + 1)))/(d*(m + 2)*(m + 3)*(a*d - b*c)**2)
```

Mathematica [A] time = 0.615199, size = 199, normalized size = 1.06

$$\frac{(a+bx)^m(c+dx)^{-m}\left(\frac{b^2(-adf(m+3)+bcf(m+1)+2bde)}{(m+1)(m+2)(m+3)(bc-ad)^3}+\frac{bm(-adf(m+3)+bcf(m+1)+2bde)}{(m+1)(m^2+5m+6)(c+dx)(bc-ad)^2}+\frac{adf(m+3)-bcf(2m+3)+bdem}{(m+2)(m+3)(c+dx)^2(bc-ad)}+\frac{cf-de}{(m+3)(c+dx)^3}\right)}{d^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^(-4 - m)*(e + f*x),x]
```

```
[Out] ((a + b*x)^m*((b^2*(2*b*d*e + b*c*f*(1 + m) - a*d*f*(3 + m)))/((b
*c - a*d)^3*(1 + m)*(2 + m)*(3 + m)) + (-(d*e) + c*f)/((3 + m)*(c
 + d*x)^3) + (b*d*e*m + a*d*f*(3 + m) - b*c*f*(3 + 2*m))/((b*c -
a*d)*(2 + m)*(3 + m)*(c + d*x)^2) + (b*m*(2*b*d*e + b*c*f*(1 + m)
 - a*d*f*(3 + m)))/((b*c - a*d)^2*(1 + m)*(6 + 5*m + m^2)*(c + d*
x))))/(d^2*(c + d*x)^m)
```

Maple [B] time = 0.017, size = 503, normalized size = 2.7

$$-\frac{(bx+a)^{1+m}(dx+c)^{-3-m}\left(a^2d^2fm^2x-2abcdfm^2x-abd^2fmx^2+b^2c^2fm^2x+b^2cdfmx^2+a^2d^2em^2+4a^2d^2fmx-2a\right.}{a^3d^3m^3-3a^2bcd^2r}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(-4-m)*(f*x+e),x)
```

```
[Out] -(b*x+a)^(1+m)*(d*x+c)^(-3-m)*(a^2*d^2*f*m^2*x-2*a*b*c*d*f*m^2*x-
a*b*d^2*f*m*x^2+b^2*c^2*f*m^2*x+b^2*c*d*f*m*x^2+a^2*d^2*e*m^2+4*a
^2*d^2*f*m*x-2*a*b*c*d*e*m^2-8*a*b*c*d*f*m*x-2*a*b*d^2*e*m*x-3*a*
b*d^2*f*x^2+b^2*c^2*e*m^2+4*b^2*c^2*f*m*x+2*b^2*c*d*e*m*x+b^2*c*d
*f*x^2+2*b^2*d^2*e*x^2+a^2*c*d*f*m+3*a^2*d^2*e*m+3*a^2*d^2*f*x-a*
b*c^2*f*m-8*a*b*c*d*e*m-10*a*b*c*d*f*x-2*a*b*d^2*e*x+5*b^2*c^2*e*
m+3*b^2*c^2*f*x+6*b^2*c*d*e*x+a^2*c*d*f+2*a^2*d^2*e-3*a*b*c^2*f-6
*a*b*c*d*e+6*b^2*c^2*e)/(a^3*d^3*m^3-3*a^2*b*c*d^2*m^3+3*a*b^2*c^
2*d*m^3-b^3*c^3*m^3+6*a^3*d^3*m^2-18*a^2*b*c*d^2*m^2+18*a*b^2*c^2
*d*m^2-6*b^3*c^3*m^2+11*a^3*d^3*m-33*a^2*b*c*d^2*m+33*a*b^2*c^2*d
*m-11*b^3*c^3*m+6*a^3*d^3-18*a^2*b*c*d^2+18*a*b^2*c^2*d-6*b^3*c^3
)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (fx+e)(bx+a)^m(dx+c)^{-m-4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((f*x + e)*(b*x + a)^m*(d*x + c)^(-m - 4),x, algorithm="maxima")
```

```
[Out] integrate((f*x + e)*(b*x + a)^m*(d*x + c)^(-m - 4), x)
```

Fricas [A] time = 0.238807, size = 1218, normalized size = 6.48

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((f*x + e)*(b*x + a)^m*(d*x + c)^(-m - 4),x, algorithm="fricas")
```

```
[Out] ((2*b^3*d^3*e + (b^3*c*d^2 - a*b^2*d^3)*f*m + (b^3*c*d^2 - 3*a*b^
2*d^3)*f)*x^4 + (a*b^2*c^3 - 2*a^2*b*c^2*d + a^3*c*d^2)*e*m^2 + (
8*b^3*c*d^2*e + (b^3*c^2*d - 2*a*b^2*c*d^2 + a^2*b*d^3)*f*m^2 + 4
*(b^3*c^2*d - 3*a*b^2*c*d^2)*f + (2*(b^3*c*d^2 - a*b^2*d^3)*e + (
5*b^3*c^2*d - 8*a*b^2*c*d^2 + 3*a^2*b*d^3)*f)*m)*x^3 + (12*b^3*c^
2*d*e + ((b^3*c^2*d - 2*a*b^2*c*d^2 + a^2*b*d^3)*e + (b^3*c^3 - a
*b^2*c^2*d - a^2*b*c*d^2 + a^3*d^3)*f)*m^2 + 3*(b^3*c^3 - 3*a*b^2
```

```
*c^2*d - 3*a^2*b*c*d^2 + a^3*d^3)*f + ((7*b^3*c^2*d - 8*a*b^2*c*d
^2 + a^2*b*d^3)*e + 4*(b^3*c^3 - a*b^2*c^2*d - a^2*b*c*d^2 + a^3*
d^3)*f)*m)*x^2 + 2*(3*a*b^2*c^3 - 3*a^2*b*c^2*d + a^3*c*d^2)*e -
(3*a^2*b*c^3 - a^3*c^2*d)*f + ((5*a*b^2*c^3 - 8*a^2*b*c^2*d + 3*a
^3*c*d^2)*e - (a^2*b*c^3 - a^3*c^2*d)*f)*m + (((b^3*c^3 - a*b^2*c
^2*d - a^2*b*c*d^2 + a^3*d^3)*e + (a*b^2*c^3 - 2*a^2*b*c^2*d + a^
3*c*d^2)*f)*m^2 + 2*(3*b^3*c^3 + 3*a*b^2*c^2*d - 3*a^2*b*c*d^2 +
a^3*d^3)*e - 4*(3*a^2*b*c^2*d - a^3*c*d^2)*f + ((5*b^3*c^3 - a*b^
2*c^2*d - 7*a^2*b*c*d^2 + 3*a^3*d^3)*e + (3*a*b^2*c^3 - 8*a^2*b*c
^2*d + 5*a^3*c*d^2)*f)*m)*x)*(b*x + a)^m*(d*x + c)^(-m - 4)/(6*b^
3*c^3 - 18*a*b^2*c^2*d + 18*a^2*b*c*d^2 - 6*a^3*d^3 + (b^3*c^3 -
3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*m^3 + 6*(b^3*c^3 - 3*a*b
^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*m^2 + 11*(b^3*c^3 - 3*a*b^2*c
^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*m)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(-4-m)*(f*x+e),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (fx+e)(bx+a)^m(dx+c)^{-m-4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)*(b*x + a)^m*(d*x + c)^(-m - 4),x, algorithm="giac")
```

```
[Out] integrate((f*x + e)*(b*x + a)^m*(d*x + c)^(-m - 4), x)
```

3.3083 $\int (a+bx)^m (c+dx)^{-4-m}\,dx$

Optimal. Leaf size=130

$$\frac{2b^2(a+bx)^{m+1}(c+dx)^{-m-1}}{(m+1)(m+2)(m+3)(bc-ad)^3}+\frac{(a+bx)^{m+1}(c+dx)^{-m-3}}{(m+3)(bc-ad)}+\frac{2b(a+bx)^{m+1}(c+dx)^{-m-2}}{(m+2)(m+3)(bc-ad)^2}$$

```
[Out] ((a + b*x)^(1 + m)*(c + d*x)^(-3 - m))/((b*c - a*d)*(3 + m)) + (2
*b*(a + b*x)^(1 + m)*(c + d*x)^(-2 - m))/((b*c - a*d)^2*(2 + m)*(
3 + m)) + (2*b^2*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m))/((b*c - a*
d)^3*(1 + m)*(2 + m)*(3 + m))
```

Rubi [A] time = 0.133298, antiderivative size = 130, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 2, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.105

$$\frac{2b^2(a+bx)^{m+1}(c+dx)^{-m-1}}{(m+1)(m+2)(m+3)(bc-ad)^3}+\frac{(a+bx)^{m+1}(c+dx)^{-m-3}}{(m+3)(bc-ad)}+\frac{2b(a+bx)^{m+1}(c+dx)^{-m-2}}{(m+2)(m+3)(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^(-4 - m),x]
```

```
[Out] ((a + b*x)^(1 + m)*(c + d*x)^(-3 - m))/((b*c - a*d)*(3 + m)) + (2
*b*(a + b*x)^(1 + m)*(c + d*x)^(-2 - m))/((b*c - a*d)^2*(2 + m)*(
3 + m)) + (2*b^2*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m))/((b*c - a*
d)^3*(1 + m)*(2 + m)*(3 + m))
```

Rubi in Sympy [A] time = 29.7014, size = 107, normalized size = 0.82

$$-\frac{2b^2\left(a+bx\right)^{m+1}\left(c+dx\right)^{-m-1}}{\left(m+1\right)\left(m+2\right)\left(m+3\right)\left(ad-bc\right)^3}+\frac{2b\left(a+bx\right)^{m+1}\left(c+dx\right)^{-m-2}}{\left(m+2\right)\left(m+3\right)\left(ad-bc\right)^2}-\frac{\left(a+bx\right)^{m+1}\left(c+dx\right)^{-m-3}}{\left(m+3\right)\left(ad-bc\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(-4-m),x)
```

```
[Out] -2*b**2*(a + b*x)**(m + 1)*(c + d*x)**(-m - 1)/((m + 1)*(m + 2)*(
m + 3)*(a*d - b*c)**3) + 2*b*(a + b*x)**(m + 1)*(c + d*x)**(-m -
2)/((m + 2)*(m + 3)*(a*d - b*c)**2) - (a + b*x)**(m + 1)*(c + d*x
)**(-m - 3)/((m + 3)*(a*d - b*c))
```

Mathematica [A] time = 0.202245, size = 112, normalized size = 0.86

$$\frac{(a+bx)^{m+1}(c+dx)^{-m-3}\left(a^2d^2\left(m^2+3m+2\right)-2abd(m+1)(c(m+3)+dx)+b^2\left(c^2\left(m^2+5m+6\right)+2cd(m+3)x+2d^2x^2\right)\right)}{(m+1)(m+2)(m+3)(bc-ad)^3}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^(-4 - m),x]
```

```
[Out] ((a + b*x)^(1 + m)*(c + d*x)^(-3 - m)*(a^2*d^2*(2 + 3*m + m^2) -
2*a*b*d*(1 + m)*(c*(3 + m) + d*x) + b^2*(c^2*(6 + 5*m + m^2) + 2*
c*d*(3 + m)*x + 2*d^2*x^2)))/((b*c - a*d)^3*(1 + m)*(2 + m)*(3 +
m))
```

Maple [B] time = 0.009, size = 319, normalized size = 2.5

$$-\frac{(bx+a)^{1+m}(dx+c)^{-3-m}\left(a^2d^2m^2-2\,abcdm^2-2\,abd^2mx+b^2c^2m^2+2\,b^2cdmx+2\,b^2d^2x^2+3\,a^2d^2m-8\,abcd\right.}{a^3d^3m^3-3\,a^2bcd^2m^3+3\,ab^2c^2dm^3-b^3c^3m^3+6\,a^3d^3m^2-18\,a^2bcd^2m^2+18\,ab^2c^2dm^2-6\,b^3c^3m^2+11\,a^3d^3m-33\,a^2bcd}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(-4-m),x)
```

```
[Out] -(b*x+a)^(1+m)*(d*x+c)^(-3-m)*(a^2*d^2*m^2-2*a*b*c*d*m^2-2*a*b*d^
2*m*x+b^2*c^2*m^2+2*b^2*c*d*m*x+2*b^2*d^2*x^2+3*a^2*d^2*m-8*a*b*c
*d*m-2*a*b*d^2*x+5*b^2*c^2*m+6*b^2*c*d*x+2*a^2*d^2-6*a*b*c*d+6*b^
2*c^2)/(a^3*d^3*m^3-3*a^2*b*c*d^2*m^3+3*a*b^2*c^2*d*m^3-b^3*c^3*m
^3+6*a^3*d^3*m^2-18*a^2*b*c*d^2*m^2+18*a*b^2*c^2*d*m^2-6*b^3*c^3*
m^2+11*a^3*d^3*m-33*a^2*b*c*d^2*m+33*a*b^2*c^2*d*m-11*b^3*c^3*m+6
*a^3*d^3-18*a^2*b*c*d^2+18*a*b^2*c^2*d-6*b^3*c^3)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^m(dx+c)^{-m-4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - 4),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m - 4), x)
```

Fricas [A] time = 0.233267, size = 684, normalized size = 5.26

$$\frac{\left(2\,b^3d^3x^4+6\,ab^2c^3-6\,a^2bc^2d+2\,a^3cd^2+2\left(4\,b^3cd^2+\left(b^3cd^2-ab^2d^3\right)m\right)x^3+\left(ab^2c^3-2\,a^2bc^2d+a^3cd^2\right)m^2+\left(12\,b^3c^2d+\right.\right.}{6\,b^3c^3-18\,ab^2c^2d}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - 4),x, algorithm="fricas")
```

```
[Out] (2*b^3*d^3*x^4 + 6*a*b^2*c^3 - 6*a^2*b*c^2*d + 2*a^3*c*d^2 + 2*(4
*b^3*c*d^2 + (b^3*c*d^2 - a*b^2*d^3)*m)*x^3 + (a*b^2*c^3 - 2*a^2*
b*c^2*d + a^3*c*d^2)*m^2 + (12*b^3*c^2*d + (b^3*c^2*d - 2*a*b^2*c
*d^2 + a^2*b*d^3)*m^2 + (7*b^3*c^2*d - 8*a*b^2*c*d^2 + a^2*b*d^3)
*m)*x^2 + (5*a*b^2*c^3 - 8*a^2*b*c^2*d + 3*a^3*c*d^2)*m + (6*b^3*
c^3 + 6*a*b^2*c^2*d - 6*a^2*b*c*d^2 + 2*a^3*d^3 + (b^3*c^3 - a*b^
2*c^2*d - a^2*b*c*d^2 + a^3*d^3)*m^2 + (5*b^3*c^3 - a*b^2*c^2*d -
 7*a^2*b*c*d^2 + 3*a^3*d^3)*m)*x)*(b*x + a)^m*(d*x + c)^(-m - 4)/
(6*b^3*c^3 - 18*a*b^2*c^2*d + 18*a^2*b*c*d^2 - 6*a^3*d^3 + (b^3*c
^3 - 3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*m^3 + 6*(b^3*c^3 -
3*a*b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*m^2 + 11*(b^3*c^3 - 3*a*
b^2*c^2*d + 3*a^2*b*c*d^2 - a^3*d^3)*m)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(-4-m),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^{-m-4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - 4),x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m - 4), x)
```

3.3084 $\int \frac{(a+bx)^m(c+dx)^{-4-m}}{e+fx}\,dx$

Optimal. Leaf size=345

$$\frac{d(a+bx)^{m+1}(c+dx)^{-m-1}\left(a^2d^2f^2\left(m^2+5m+6\right)+abdf(m+3)(de-cf(2m+5))+b^2\left(c^2f^2\left(m^2+6m+11\right)-cdef(m+7\right.\right.}{(m+1)(m+2)(m+3)(bc-ad)^3(de-cf)^3}$$
$$-\frac{f^3(a+bx)^{m+1}(c+dx)^{-m-1}\,{}_2F_1\left(1,m+1;m+2;\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}\right)}{(m+1)(be-af)(de-cf)^3}+\frac{d(a+bx)^{m+1}(c+dx)^{-m-3}}{(m+3)(bc-ad)(de-cf)}$$
$$+\frac{d(a+bx)^{m+1}(c+dx)^{-m-2}(adf(m+3)+b(2de-cf(m+5)))}{(m+2)(m+3)(bc-ad)^2(de-cf)^2}$$

```
[Out] (d*(a + b*x)^(1 + m)*(c + d*x)^(-3 - m))/((b*c - a*d)*(d*e - c*f)
*(3 + m)) + (d*(a*d*f*(3 + m) + b*(2*d*e - c*f*(5 + m)))*(a + b*x
)^(1 + m)*(c + d*x)^(-2 - m))/((b*c - a*d)^2*(d*e - c*f)^2*(2 + m
)*(3 + m)) + (d*(a^2*d^2*f^2*(6 + 5*m + m^2) + a*b*d*f*(3 + m)*(d
*e - c*f*(5 + 2*m)) + b^2*(2*d^2*e^2 - c*d*e*f*(7 + m) + c^2*f^2*
(11 + 6*m + m^2)))*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m))/((b*c -
a*d)^3*(d*e - c*f)^3*(1 + m)*(2 + m)*(3 + m)) - (f^3*(a + b*x)^(1
 + m)*(c + d*x)^(-1 - m)*Hypergeometric2F1[1, 1 + m, 2 + m, ((d*e
 - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x))])/((b*e - a*f)*(d*e -
c*f)^3*(1 + m))
```

Rubi [A] time = 1.44726, antiderivative size = 344, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$\frac{d(a+bx)^{m+1}(c+dx)^{-m-1}\left(a^2d^2f^2\left(m^2+5m+6\right)+abdf(m+3)(de-cf(2m+5))+b^2\left(c^2f^2\left(m^2+6m+11\right)-cdef(m+7\right.\right.}{(m+1)(m+2)(m+3)(bc-ad)^3(de-cf)^3}$$
$$-\frac{f^3(a+bx)^{m+1}(c+dx)^{-m-1}\,{}_2F_1\left(1,m+1;m+2;\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}\right)}{(m+1)(be-af)(de-cf)^3}$$
$$+\frac{d(a+bx)^{m+1}(c+dx)^{-m-3}}{(m+3)(bc-ad)(de-cf)}+\frac{d(a+bx)^{m+1}(c+dx)^{-m-2}(adf(m+3)-bcf(m+5)+2bde)}{(m+2)(m+3)(bc-ad)^2(de-cf)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^m*(c + d*x)^(-4 - m))/(e + f*x),x]
```

```
[Out] (d*(a + b*x)^(1 + m)*(c + d*x)^(-3 - m))/((b*c - a*d)*(d*e - c*f)
*(3 + m)) + (d*(2*b*d*e + a*d*f*(3 + m) - b*c*f*(5 + m))*(a + b*x
)^(1 + m)*(c + d*x)^(-2 - m))/((b*c - a*d)^2*(d*e - c*f)^2*(2 + m
)*(3 + m)) + (d*(a^2*d^2*f^2*(6 + 5*m + m^2) + a*b*d*f*(3 + m)*(d
*e - c*f*(5 + 2*m)) + b^2*(2*d^2*e^2 - c*d*e*f*(7 + m) + c^2*f^2*
(11 + 6*m + m^2)))*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m))/((b*c -
a*d)^3*(d*e - c*f)^3*(1 + m)*(2 + m)*(3 + m)) - (f^3*(a + b*x)^(1
 + m)*(c + d*x)^(-1 - m)*Hypergeometric2F1[1, 1 + m, 2 + m, ((d*e
 - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x))])/((b*e - a*f)*(d*e -
c*f)^3*(1 + m))
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(-4-m)/(f*x+e),x)
```

```
[Out] Timed out
```

Mathematica [C] time = 35.8479, size = 26263, normalized size = 76.12

Result too large to show

Warning: Unable to verify antiderivative.

```
[In]  Integrate[((a + b*x)^m*(c + d*x)^(-4 - m))/(e + f*x),x]
```

```
[Out] Result too large to show
```

Maple [F] time = 0.099, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{-4-m}}{fx+e}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(-4-m)/(f*x+e),x)
```

```
[Out] int((b*x+a)^m*(d*x+c)^(-4-m)/(f*x+e),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{-m-4}}{fx+e}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - 4)/(f*x + e),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m - 4)/(f*x + e), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)^m (dx+c)^{-m-4}}{fx+e}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - 4)/(f*x + e),x, algorithm="fricas")
```

```
[Out] integral((b*x + a)^m*(d*x + c)^(-m - 4)/(f*x + e), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(-4-m)/(f*x+e),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{-m-4}}{fx+e}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m - 4)/(f*x + e),x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m - 4)/(f*x + e), x)
```

3.3085 $\int \frac{(a+bx)^m(c+dx)^{-4-m}}{(e+fx)^2}\,dx$

Optimal. Leaf size=648

$$-\frac{d(a+bx)^{m+1}(c+dx)^{-m-2}\left(a^2d^2f^2\left(m^2+7m+12\right)-2abdf\left(cf\left(m^2+6m+10\right)+de(m+2)\right)+b^2\left(-\left(-c^2f^2\left(m^2+5m+\right.\right.\right.}{(m+2)(m+3)(bc-ad)^2(be-af)(de-cf)^3}$$
$$-\frac{d(a+bx)^{m+1}(c+dx)^{-m-1}\left(a^3d^3f^3\left(m^3+9m^2+26m+24\right)-a^2bd^2f^2(m+3)\left(cf\left(3m^2+15m+20\right)+de(3m+4)\right)-ab^2d\right.}{}$$
$$+\frac{f^3(a+bx)^{m+1}(c+dx)^{-m-1}(adf(m+4)-b(cfm+4de))\,{}_2F_1\left(1,m+1;m+2;\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}\right)}{(m+1)(be-af)^2(de-cf)^4}$$
$$+\frac{d(a+bx)^{m+1}(c+dx)^{-m-3}}{(m+3)(e+fx)(bc-ad)(de-cf)}-\frac{f(a+bx)^{m+1}(c+dx)^{-m-2}(adf(m+4)-b(cf(m+3)+de))}{(m+3)(e+fx)(bc-ad)(be-af)(de-cf)^2}$$

```
[Out] -((d*(a^2*d^2*f^2*(12 + 7*m + m^2) - b^2*(2*d^2*e^2 - 2*c*d*e*f*(
4 + m) - c^2*f^2*(6 + 5*m + m^2)) - 2*a*b*d*f*(d*e*(2 + m) + c*f*
(10 + 6*m + m^2)))*(a + b*x)^(1 + m)*(c + d*x)^(-2 - m))/((b*c -
a*d)^2*(b*e - a*f)*(d*e - c*f)^3*(2 + m)*(3 + m))) - (d*(a^3*d^3*
f^3*(24 + 26*m + 9*m^2 + m^3) - a^2*b*d^2*f^2*(3 + m)*(d*e*(4 + 3
*m) + c*f*(20 + 15*m + 3*m^2)) - b^3*(2*d^3*e^3 - 2*c*d^2*e^2*f*(
5 + m) + c^2*d*e*f^2*(26 + 17*m + 3*m^2) + c^3*f^3*(6 + 11*m + 6*
m^2 + m^3)) - a*b^2*d*f*(2*d^2*e^2*(2 + m) - 2*c*d*e*f*(16 + 15*m
 + 3*m^2) - c^2*f^2*(44 + 50*m + 21*m^2 + 3*m^3)))*(a + b*x)^(1 +
 m)*(c + d*x)^(-1 - m))/((b*c - a*d)^3*(b*e - a*f)*(d*e - c*f)^4*
(1 + m)*(2 + m)*(3 + m)) + (d*(a + b*x)^(1 + m)*(c + d*x)^(-3 - m
))/((b*c - a*d)*(d*e - c*f)*(3 + m)*(e + f*x)) - (f*(a*d*f*(4 + m
) - b*(d*e + c*f*(3 + m)))*(a + b*x)^(1 + m)*(c + d*x)^(-2 - m))/
((b*c - a*d)*(b*e - a*f)*(d*e - c*f)^2*(3 + m)*(e + f*x)) + (f^3*
(a*d*f*(4 + m) - b*(4*d*e + c*f*m))*(a + b*x)^(1 + m)*(c + d*x)^(
-1 - m)*Hypergeometric2F1[1, 1 + m, 2 + m, ((d*e - c*f)*(a + b*x)
)/((b*e - a*f)*(c + d*x))])/((b*e - a*f)^2*(d*e - c*f)^4*(1 + m))
```

Rubi [A] time = 4.49424, antiderivative size = 646, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.192$

$$-\frac{d(a+bx)^{m+1}(c+dx)^{-m-2}\left(a^2d^2f^2\left(m^2+7m+12\right)-2abdf\left(cf\left(m^2+6m+10\right)+de(m+2)\right)+b^2\left(-\left(-c^2f^2\left(m^2+5m+\right.\right.\right.}{(m+2)(m+3)(bc-ad)^2(be-af)(de-cf)^3}$$
$$-\frac{d(a+bx)^{m+1}(c+dx)^{-m-1}\left(a^3d^3f^3\left(m^3+9m^2+26m+24\right)-a^2bd^2f^2(m+3)\left(cf\left(3m^2+15m+20\right)+de(3m+4)\right)-ab^2d\right.}{}$$
$$+\frac{f^3(a+bx)^{m+1}(c+dx)^{-m-1}(adf(m+4)-b(cfm+4de))\,{}_2F_1\left(1,m+1;m+2;\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}\right)}{(m+1)(be-af)^2(de-cf)^4}$$
$$+\frac{d(a+bx)^{m+1}(c+dx)^{-m-3}}{(m+3)(e+fx)(bc-ad)(de-cf)}+\frac{f(a+bx)^{m+1}(c+dx)^{-m-2}(-adf(m+4)+bcf(m+3)+bde)}{(m+3)(e+fx)(bc-ad)(be-af)(de-cf)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^m*(c + d*x)^(-4 - m))/(e + f*x)^2,x]
```

```
[Out] -((d*(a^2*d^2*f^2*(12 + 7*m + m^2) - b^2*(2*d^2*e^2 - 2*c*d*e*f*(
4 + m) - c^2*f^2*(6 + 5*m + m^2)) - 2*a*b*d*f*(d*e*(2 + m) + c*f*
(10 + 6*m + m^2)))*(a + b*x)^(1 + m)*(c + d*x)^(-2 - m))/((b*c -
a*d)^2*(b*e - a*f)*(d*e - c*f)^3*(2 + m)*(3 + m))) - (d*(a^3*d^3*
f^3*(24 + 26*m + 9*m^2 + m^3) - a^2*b*d^2*f^2*(3 + m)*(d*e*(4 + 3
*m) + c*f*(20 + 15*m + 3*m^2)) - b^3*(2*d^3*e^3 - 2*c*d^2*e^2*f*(
5 + m) + c^2*d*e*f^2*(26 + 17*m + 3*m^2) + c^3*f^3*(6 + 11*m + 6*
m^2 + m^3)) - a*b^2*d*f*(2*d^2*e^2*(2 + m) - 2*c*d*e*f*(16 + 15*m
 + 3*m^2) - c^2*f^2*(44 + 50*m + 21*m^2 + 3*m^3)))*(a + b*x)^(1 +
 m)*(c + d*x)^(-1 - m))/((b*c - a*d)^3*(b*e - a*f)*(d*e - c*f)^4*
(1 + m)*(2 + m)*(3 + m)) + (d*(a + b*x)^(1 + m)*(c + d*x)^(-3 - m
))/((b*c - a*d)*(d*e - c*f)*(3 + m)*(e + f*x)) + (f*(b*d*e + b*c*
f*(3 + m) - a*d*f*(4 + m))*(a + b*x)^(1 + m)*(c + d*x)^(-2 - m))/
((b*c - a*d)*(b*e - a*f)*(d*e - c*f)^2*(3 + m)*(e + f*x)) + (f^3*
(a*d*f*(4 + m) - b*(4*d*e + c*f*m))*(a + b*x)^(1 + m)*(c + d*x)^(
```

```
-1 - m)*Hypergeometric2F1[1, 1 + m, 2 + m, ((d*e - c*f)*(a + b*x)
)/((b*e - a*f)*(c + d*x))])/((b*e - a*f)^2*(d*e - c*f)^4*(1 + m))
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)**m*(d*x+c)**(-4-m)/(f*x+e)**2,x)

[Out] Timed out
```

Mathematica [C] time = 39.3011, size = 64249, normalized size = 99.15

Result too large to show

Warning: Unable to verify antiderivative.

```
[In] Integrate[((a + b*x)^m*(c + d*x)^(-4 - m))/(e + f*x)^2,x]

[Out] Result too large to show
```

Maple [F] time = 0.13, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{-4-m}}{(fx+e)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((b*x+a)^m*(d*x+c)^(-4-m)/(f*x+e)^2,x)

[Out] int((b*x+a)^m*(d*x+c)^(-4-m)/(f*x+e)^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{-m-4}}{(fx+e)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m - 4)/(f*x + e)^2,x, algorithm="maxima")

[Out] integrate((b*x + a)^m*(d*x + c)^(-m - 4)/(f*x + e)^2, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)^m (dx+c)^{-m-4}}{f^2x^2+2\,efx+e^2}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m - 4)/(f*x + e)^2,x, algorithm="fricas")
```

```
[Out] integral((b*x + a)^m*(d*x + c)^(-m - 4)/(f^2*x^2 + 2*e*f*x + e^2)
, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**m*(d*x+c)**(-4-m)/(f*x+e)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m(dx+c)^{-m-4}}{(fx+e)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m - 4)/(f*x + e)^2,x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m - 4)/(f*x + e)^2, x)
```

3.3086 $\int (a+bx)^m (c+dx)^{-5-m} (e+fx)^p \, dx$

Optimal. Leaf size=133

$$\frac{b^4 (a+bx)^{m+1} (c+dx)^{-m} (e+fx)^p \left(\frac{b(c+dx)}{bc-ad}\right)^m \left(\frac{b(e+fx)}{be-af}\right)^{-p} F_1\left(m+1;m+5,-p;m+2;-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{(m+1)(bc-ad)^5}$$

```
[Out] (b^4*(a + b*x)^(1 + m)*((b*(c + d*x))/(b*c - a*d))^m*(e + f*x)^p*
AppellF1[1 + m, 5 + m, -p, 2 + m, -((d*(a + b*x))/(b*c - a*d)), -
((f*(a + b*x))/(b*e - a*f))])/((b*c - a*d)^5*(1 + m)*(c + d*x)^m*
((b*(e + f*x))/(b*e - a*f))^p)
```

Rubi [A] time = 0.367576, antiderivative size = 133, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.115$

$$\frac{b^4 (a+bx)^{m+1} (c+dx)^{-m} (e+fx)^p \left(\frac{b(c+dx)}{bc-ad}\right)^m \left(\frac{b(e+fx)}{be-af}\right)^{-p} F_1\left(m+1;m+5,-p;m+2;-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{(m+1)(bc-ad)^5}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^(-5 - m)*(e + f*x)^p,x]
```

```
[Out] (b^4*(a + b*x)^(1 + m)*((b*(c + d*x))/(b*c - a*d))^m*(e + f*x)^p*
AppellF1[1 + m, 5 + m, -p, 2 + m, -((d*(a + b*x))/(b*c - a*d)), -
((f*(a + b*x))/(b*e - a*f))])/((b*c - a*d)^5*(1 + m)*(c + d*x)^m*
((b*(e + f*x))/(b*e - a*f))^p)
```

Rubi in Sympy [A] time = 79.2172, size = 105, normalized size = 0.79

$$-\frac{b^4 \left(\frac{b(-c-dx)}{ad-bc}\right)^m \left(\frac{b(-e-fx)}{af-be}\right)^{-p} (a+bx)^{m+1} (c+dx)^{-m} (e+fx)^p \operatorname{appellf}_1\left(m+1,-p,m+5,m+2,\frac{f(a+bx)}{af-be},\frac{d(a+bx)}{ad-bc}\right)}{(m+1)(ad-bc)^5}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(-5-m)*(f*x+e)**p,x)
```

```
[Out] -b**4*(b*(-c - d*x)/(a*d - b*c))**m*(b*(-e - f*x)/(a*f - b*e))**(
-p)*(a + b*x)**(m + 1)*(c + d*x)**(-m)*(e + f*x)**p*appellf1(m +
1, -p, m + 5, m + 2, f*(a + b*x)/(a*f - b*e), d*(a + b*x)/(a*d -
b*c))/((m + 1)*(a*d - b*c)**5)
```

Mathematica [B] time = 6.75823, size = 300, normalized size = 2.26

$$\frac{(m+2)(bc-ad)(be-af)(a+bx)^{m+1}(c+dx)^{-m-5}(e+fx)^p F_1\left(m\right.}{b(m+1)\left((m+2)(bc-ad)(be-af)F_1\left(m+1;m+5,-p;m+2;\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)-(a+bx)\left(fp(ad-bc)F_1\left(m+2;m+5,1\right.\right.\right.}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^(-5 - m)*(e + f*x)^p,x]
```

```
[Out] ((b*c - a*d)*(b*e - a*f)*(2 + m)*(a + b*x)^(1 + m)*(c + d*x)^(-5
- m)*(e + f*x)^p*AppellF1[1 + m, 5 + m, -p, 2 + m, (d*(a + b*x))/
(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)])/(b*(1 + m)*((b*c -
```

```
a*d)*(b*e - a*f)*(2 + m)*AppellF1[1 + m, 5 + m, -p, 2 + m, (d*(a
+ b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)] - (a + b*x
)*((-(b*c) + a*d)*f*p*AppellF1[2 + m, 5 + m, 1 - p, 3 + m, (d*(a
+ b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)] + d*(b*e -
a*f)*(5 + m)*AppellF1[2 + m, 6 + m, -p, 3 + m, (d*(a + b*x))/(-(b
*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)])))
```

Maple [F] time = 0.226, size = 0, normalized size = 0.

$$\int (bx+a)^{m} (dx+c)^{-5-m} (fx+e)^{p}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(-5-m)*(f*x+e)^p,x)

[Out] int((b*x+a)^m*(d*x+c)^(-5-m)*(f*x+e)^p,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^{m}(dx+c)^{-m-5}(fx+e)^{p}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - 5)*(f*x + e)^p,x, algorithm="maxima")

[Out] integrate((b*x + a)^m*(d*x + c)^(-m - 5)*(f*x + e)^p, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left((bx+a)^{m}(dx+c)^{-m-5}(fx+e)^{p}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - 5)*(f*x + e)^p,x, algorithm="fricas")

[Out] integral((b*x + a)^m*(d*x + c)^(-m - 5)*(f*x + e)^p, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(-5-m)*(f*x+e)**p,x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^{m}(dx+c)^{-m-5}(fx+e)^{p}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - 5)*(f*x + e)^p,x, algorithm="giac")

[Out] integrate((b*x + a)^m*(d*x + c)^(-m - 5)*(f*x + e)^p, x)
```

3.3087 $\int (5-4x)^5(1+2x)^{-5-m}(2+3x)^m\,dx$

Optimal. Leaf size=546

$$-\frac{2^{3-m}(105-2m)(2x+1)^{-m-3}\,{}_2F_1(-m-3,-m-3;-m-2;-3(2x+1))}{81(m+3)} - \frac{322(13-2m)\left(2m^2+52m+579\right)(3x+2)^{m+1}(2x+1)^{-m-2}}{3(m+2)(m+3)(m+4)} - \frac{48668(105-2m)(3x+2)^{m+1}(2x+1)^{-m-2}}{27\left(m^2+5m+6\right)} + \frac{4232(105-2m)(3x+2)^{m+2}(2x+1)^{-m-2}}{9\left(m^2+5m+6\right)} + \frac{322(13-2m)\left(2m^2+52m+579\right)(3x+2)^{m+1}(2x+1)^{-m-1}}{(m+3)(m+4)\left(m^2+3m+2\right)} + \frac{48668(105-2m)(3x+2)^{m+1}(2x+1)^{-m-1}}{9\left(m^3+6m^2+11m+6\right)} - \frac{2}{3}(5-4x)^4(3x+2)^{m+1}(2x+1)^{-m-4} - \frac{7(13-2m)(5-4x)^3(3x+2)^{m+1}(2x+1)^{-m-4}}{3(m+4)} + \frac{1127(13-2m)(2m+27)(3x+2)^{m+1}(2x+1)^{-m-3}}{3(m+3)(m+4)} - \frac{322(13-2m)(5-4x)(3x+2)^{m+1}(2x+1)^{-m-3}}{3(m+4)} + \frac{24334(105-2m)(3x+2)^{m+1}(2x+1)^{-m-3}}{81(m+3)} - \frac{4232(105-2m)(3x+2)^{m+2}(2x+1)^{-m-3}}{27(m+3)} + \frac{736(105-2m)(3x+2)^{m+3}(2x+1)^{-m-3}}{27(m+3)}$$

```
[Out] (-7*(13 - 2*m)*(5 - 4*x)^3*(1 + 2*x)^(-4 - m)*(2 + 3*x)^(1 + m))/
(3*(4 + m)) - (2*(5 - 4*x)^4*(1 + 2*x)^(-4 - m)*(2 + 3*x)^(1 + m)
)/3 + (24334*(105 - 2*m)*(1 + 2*x)^(-3 - m)*(2 + 3*x)^(1 + m))/(8
1*(3 + m)) + (1127*(13 - 2*m)*(27 + 2*m)*(1 + 2*x)^(-3 - m)*(2 +
3*x)^(1 + m))/(3*(3 + m)*(4 + m)) - (322*(13 - 2*m)*(5 - 4*x)*(1
+ 2*x)^(-3 - m)*(2 + 3*x)^(1 + m))/(3*(4 + m)) - (48668*(105 - 2*
m)*(1 + 2*x)^(-2 - m)*(2 + 3*x)^(1 + m))/(27*(6 + 5*m + m^2)) - (
322*(13 - 2*m)*(579 + 52*m + 2*m^2)*(1 + 2*x)^(-2 - m)*(2 + 3*x)^
(1 + m))/(3*(2 + m)*(3 + m)*(4 + m)) + (322*(13 - 2*m)*(579 + 52*
m + 2*m^2)*(1 + 2*x)^(-1 - m)*(2 + 3*x)^(1 + m))/((3 + m)*(4 + m)
*(2 + 3*m + m^2)) + (48668*(105 - 2*m)*(1 + 2*x)^(-1 - m)*(2 + 3*
x)^(1 + m))/(9*(6 + 11*m + 6*m^2 + m^3)) - (4232*(105 - 2*m)*(1 +
 2*x)^(-3 - m)*(2 + 3*x)^(2 + m))/(27*(3 + m)) + (4232*(105 - 2*m
)*(1 + 2*x)^(-2 - m)*(2 + 3*x)^(2 + m))/(9*(6 + 5*m + m^2)) + (73
6*(105 - 2*m)*(1 + 2*x)^(-3 - m)*(2 + 3*x)^(3 + m))/(27*(3 + m))
- (2^(3 - m)*(105 - 2*m)*(1 + 2*x)^(-3 - m)*Hypergeometric2F1[-3
- m, -3 - m, -2 - m, -3*(1 + 2*x)])/(81*(3 + m))
```

Rubi [A] time = 1.15352, antiderivative size = 546, normalized size of antiderivative = 1., number of

steps used = 16, number of rules used = 9, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.346$

$$-\frac{2^{3-m}(105-2m)(2x+1)^{-m-3}\,{}_2F_1(-m-3,-m-3;-m-2;-3(2x+1))}{81(m+3)}$$
$$-\frac{322(13-2m)\left(2m^2+52m+579\right)(3x+2)^{m+1}(2x+1)^{-m-2}}{3(m+2)(m+3)(m+4)}$$
$$-\frac{48668(105-2m)(3x+2)^{m+1}(2x+1)^{-m-2}}{27\left(m^2+5m+6\right)}+\frac{4232(105-2m)(3x+2)^{m+2}(2x+1)^{-m-2}}{9\left(m^2+5m+6\right)}$$
$$+\frac{322(13-2m)\left(2m^2+52m+579\right)(3x+2)^{m+1}(2x+1)^{-m-1}}{(m+3)(m+4)\left(m^2+3m+2\right)}$$
$$+\frac{48668(105-2m)(3x+2)^{m+1}(2x+1)^{-m-1}}{9\left(m^3+6m^2+11m+6\right)}-\frac{2}{3}(5-4x)^4(3x+2)^{m+1}(2x+1)^{-m-4}$$
$$-\frac{7(13-2m)(5-4x)^3(3x+2)^{m+1}(2x+1)^{-m-4}}{3(m+4)}$$
$$+\frac{1127(13-2m)(2m+27)(3x+2)^{m+1}(2x+1)^{-m-3}}{3(m+3)(m+4)}$$
$$-\frac{322(13-2m)(5-4x)(3x+2)^{m+1}(2x+1)^{-m-3}}{3(m+4)}$$
$$+\frac{24334(105-2m)(3x+2)^{m+1}(2x+1)^{-m-3}}{81(m+3)}$$
$$-\frac{4232(105-2m)(3x+2)^{m+2}(2x+1)^{-m-3}}{27(m+3)}+\frac{736(105-2m)(3x+2)^{m+3}(2x+1)^{-m-3}}{27(m+3)}$$

Antiderivative was successfully verified.

```
[In]  Int[(5 - 4*x)^5*(1 + 2*x)^(-5 - m)*(2 + 3*x)^m,x]
```

```
[Out] (-7*(13 - 2*m)*(5 - 4*x)^3*(1 + 2*x)^(-4 - m)*(2 + 3*x)^(1 + m))/
(3*(4 + m)) - (2*(5 - 4*x)^4*(1 + 2*x)^(-4 - m)*(2 + 3*x)^(1 + m)
)/3 + (24334*(105 - 2*m)*(1 + 2*x)^(-3 - m)*(2 + 3*x)^(1 + m))/(8
1*(3 + m)) + (1127*(13 - 2*m)*(27 + 2*m)*(1 + 2*x)^(-3 - m)*(2 +
3*x)^(1 + m))/(3*(3 + m)*(4 + m)) - (322*(13 - 2*m)*(5 - 4*x)*(1
+ 2*x)^(-3 - m)*(2 + 3*x)^(1 + m))/(3*(4 + m)) - (48668*(105 - 2*
m)*(1 + 2*x)^(-2 - m)*(2 + 3*x)^(1 + m))/(27*(6 + 5*m + m^2)) - (
322*(13 - 2*m)*(579 + 52*m + 2*m^2)*(1 + 2*x)^(-2 - m)*(2 + 3*x)^
(1 + m))/(3*(2 + m)*(3 + m)*(4 + m)) + (322*(13 - 2*m)*(579 + 52*
m + 2*m^2)*(1 + 2*x)^(-1 - m)*(2 + 3*x)^(1 + m))/((3 + m)*(4 + m)
*(2 + 3*m + m^2)) + (48668*(105 - 2*m)*(1 + 2*x)^(-1 - m)*(2 + 3*
x)^(1 + m))/(9*(6 + 11*m + 6*m^2 + m^3)) - (4232*(105 - 2*m)*(1 +
 2*x)^(-3 - m)*(2 + 3*x)^(2 + m))/(27*(3 + m)) + (4232*(105 - 2*m
)*(1 + 2*x)^(-2 - m)*(2 + 3*x)^(2 + m))/(9*(6 + 5*m + m^2)) + (73
6*(105 - 2*m)*(1 + 2*x)^(-3 - m)*(2 + 3*x)^(3 + m))/(27*(3 + m))
- (2^(3 - m)*(105 - 2*m)*(1 + 2*x)^(-3 - m)*Hypergeometric2F1[-3
- m, -3 - m, -2 - m, -3*(1 + 2*x)])/(81*(3 + m))
```

Rubi in Sympy [A] time = 139.688, size = 479, normalized size = 0.88

$$-\frac{161(-2m+13)(-16x+20)(2x+1)^{-m-3}(3x+2)^{m+1}}{6(m+4)}-\frac{7(-2m+13)(-4x+5)^3(2x+1)^{-m-4}(3x+2)^{m+1}}{3(m+4)}-\frac{322(-2m+13)(2x+1)^{-m-2}(3x+2)^{m+1}(2m^2+52m+579)}{3(m+4)(m^2+5m+6)}+\frac{1127(-2m+13)(2m+27)(2x+1)^{-m-3}(3x+2)^{m+1}}{3(m+3)(m+4)}+\frac{322(-2m+13)(2x+1)^{-m-1}(3x+2)^{m+1}(2m^2+52m+579)}{(m+1)(m+2)(m+3)(m+4)}+\frac{24334(-2m+105)(2x+1)^{-m-3}(3x+2)^{m+1}}{81(m+3)}-\frac{4232(-2m+105)(2x+1)^{-m-3}(3x+2)^{m+2}}{27(m+3)}+\frac{736(-2m+105)(2x+1)^{-m-3}(3x+2)^{m+3}}{27(m+3)}-\frac{48668(-2m+105)(2x+1)^{-m-2}(3x+2)^{m+1}}{27(m+2)(m+3)}+\frac{4232(-2m+105)(2x+1)^{-m-2}(3x+2)^{m+2}}{9(m+2)(m+3)}+\frac{48668(-2m+105)(2x+1)^{-m-1}(3x+2)^{m+1}}{9(m+1)(m+2)(m+3)}-\frac{2(-4x+5)^4(2x+1)^{-m-4}(3x+2)^{m+1}}{3}-\frac{8\cdot 2^{-m}(-2m+105)(2x+1)^{-m-3}\,{}_2F_1\left(\begin{matrix}-m-3,-m-3\\-m-2\end{matrix}\middle|-6x-3\right)}{81(m+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   rubi_integrate((5-4*x)**5*(1+2*x)**(-5-m)*(2+3*x)**m,x)
```

```
[Out] -161*(-2*m + 13)*(-16*x + 20)*(2*x + 1)**(-m - 3)*(3*x + 2)**(m +
 1)/(6*(m + 4)) - 7*(-2*m + 13)*(-4*x + 5)**3*(2*x + 1)**(-m - 4)
*(3*x + 2)**(m + 1)/(3*(m + 4)) - 322*(-2*m + 13)*(2*x + 1)**(-m
- 2)*(3*x + 2)**(m + 1)*(2*m**2 + 52*m + 579)/(3*(m + 4)*(m**2 +
5*m + 6)) + 1127*(-2*m + 13)*(2*m + 27)*(2*x + 1)**(-m - 3)*(3*x
+ 2)**(m + 1)/(3*(m + 3)*(m + 4)) + 322*(-2*m + 13)*(2*x + 1)**(-
m - 1)*(3*x + 2)**(m + 1)*(2*m**2 + 52*m + 579)/((m + 1)*(m + 2)*
(m + 3)*(m + 4)) + 24334*(-2*m + 105)*(2*x + 1)**(-m - 3)*(3*x +
2)**(m + 1)/(81*(m + 3)) - 4232*(-2*m + 105)*(2*x + 1)**(-m - 3)*
(3*x + 2)**(m + 2)/(27*(m + 3)) + 736*(-2*m + 105)*(2*x + 1)**(-m
 - 3)*(3*x + 2)**(m + 3)/(27*(m + 3)) - 48668*(-2*m + 105)*(2*x +
 1)**(-m - 2)*(3*x + 2)**(m + 1)/(27*(m + 2)*(m + 3)) + 4232*(-2*
m + 105)*(2*x + 1)**(-m - 2)*(3*x + 2)**(m + 2)/(9*(m + 2)*(m + 3
)) + 48668*(-2*m + 105)*(2*x + 1)**(-m - 1)*(3*x + 2)**(m + 1)/(9
*(m + 1)*(m + 2)*(m + 3)) - 2*(-4*x + 5)**4*(2*x + 1)**(-m - 4)*(
3*x + 2)**(m + 1)/3 - 8*2**(-m)*(-2*m + 105)*(2*x + 1)**(-m - 3)*
hyper((-m - 3, -m - 3), (-m - 2,), -6*x - 3)/(81*(m + 3))
```

Mathematica [A] time = 0.869329, size = 274, normalized size = 0.5

$$\frac{2^{4-m}(2x+1)^{1-m}\,{}_2F_1(1-m,-m;2-m;-6x-3)}{m-1}-\frac{560(-6x-3)^m(3x+2)^{m+1}(2x+1)^{-m}\,{}_2F_1(m+1,m+1;m+2;6x+4)}{m+1}-\frac{13720\,3^{m+2}(-2x-1)^m(3x+2)^{m+1}(2x+1)^{-m}\,{}_2F_1(m+1,m+3;m+2;6x+4)}{m+1}-\frac{16807\,3^{m+4}(-2x-1)^m(3x+2)^{m+1}(2x+1)^{-m}\,{}_2F_1(m+1,m+5;m+2;6x+4)}{m+1}-\frac{12005\,3^{m+3}(-2x-1)^m(4x+2)^{-m}(6x+4)^{m+1}\,{}_2F_1(m+1,m+4;m+2;6x+4)}{m+1}+\frac{3920(3x+2)^{m+1}(2x+1)^{-m-1}}{m+1}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(5 - 4*x)^5*(1 + 2*x)^(-5 - m)*(2 + 3*x)^m,x]
```

```
[Out] (3920*(1 + 2*x)^(-1 - m)*(2 + 3*x)^(1 + m))/(1 + m) + (2^(4 - m)*
(1 + 2*x)^(1 - m)*Hypergeometric2F1[1 - m, -m, 2 - m, -3 - 6*x])/
(-1 + m) - (560*(-3 - 6*x)^m*(2 + 3*x)^(1 + m)*Hypergeometric2F1[
1 + m, 1 + m, 2 + m, 4 + 6*x])/((1 + m)*(1 + 2*x)^m) - (13720*3^(
2 + m)*(-1 - 2*x)^m*(2 + 3*x)^(1 + m)*Hypergeometric2F1[1 + m, 3
+ m, 2 + m, 4 + 6*x])/((1 + m)*(1 + 2*x)^m) - (12005*3^(3 + m)*(-
1 - 2*x)^m*(4 + 6*x)^(1 + m)*Hypergeometric2F1[1 + m, 4 + m, 2 +
m, 4 + 6*x])/((1 + m)*(2 + 4*x)^m) - (16807*3^(4 + m)*(-1 - 2*x)^
m*(2 + 3*x)^(1 + m)*Hypergeometric2F1[1 + m, 5 + m, 2 + m, 4 + 6*
x])/((1 + m)*(1 + 2*x)^m)
```

Maple [F] time = 0.083, size = 0, normalized size = 0.

$$\int (5-4x)^5 (1+2x)^{-5-m} (2+3x)^m \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((5-4*x)^5*(1+2*x)^(-5-m)*(2+3*x)^m,x)
```

```
[Out] int((5-4*x)^5*(1+2*x)^(-5-m)*(2+3*x)^m,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$-\int (3x+2)^m (2x+1)^{-m-5} (4x-5)^5 \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^m*(2*x + 1)^(-m - 5)*(4*x - 5)^5,x, algorithm="maxima")
```

```
[Out] -integrate((3*x + 2)^m*(2*x + 1)^(-m - 5)*(4*x - 5)^5, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\left(1024x^5 - 6400x^4 + 16000x^3 - 20000x^2 + 12500x - 3125\right)(3x+2)^m (2x+1)^{-m-5}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^m*(2*x + 1)^(-m - 5)*(4*x - 5)^5,x, algorithm="fricas")
```

```
[Out] integral(-(1024*x^5 - 6400*x^4 + 16000*x^3 - 20000*x^2 + 12500*x
- 3125)*(3*x + 2)^m*(2*x + 1)^(-m - 5), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((5-4*x)**5*(1+2*x)**(-5-m)*(2+3*x)**m,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int -(3x+2)^m(2x+1)^{-m-5}(4x-5)^5\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^m*(2*x + 1)^(-m - 5)*(4*x - 5)^5,x, algorithm="giac")
```

```
[Out] integrate(-(3*x + 2)^m*(2*x + 1)^(-m - 5)*(4*x - 5)^5, x)
```

3.3088 $\int (a+bx)^m (c+dx)^{-5-m} (e+fx)^4 \, dx$

Optimal. Leaf size=650

$$\frac{6b^3(a+bx)^{m+1}(de-cf)^4(c+dx)^{-m-1}}{d^4(m+1)(m+2)(m+3)(m+4)(bc-ad)^4}+\frac{6b^2(a+bx)^{m+1}(de-cf)^4(c+dx)^{-m-2}}{d^4(m+2)(m+3)(m+4)(bc-ad)^3}+\frac{8b^2f(a+bx)^{m+1}(de-cf)^3(c+dx)^{-m-1}}{d^4(m+1)(m+2)(m+3)(bc-ad)^3}-\frac{f^4(a+bx)^m(c+dx)^{-m}\left(-\frac{d(a+bx)}{bc-ad}\right)^{-m}{}_2F_1\left(-m,-m;1-m;\frac{b(c+dx)}{bc-ad}\right)}{d^5m}+\frac{4f^3(a+bx)^{m+1}(de-cf)(c+dx)^{-m-1}}{d^4(m+1)(bc-ad)}+\frac{6f^2(a+bx)^{m+1}(de-cf)^2(c+dx)^{-m-2}}{d^4(m+2)(bc-ad)}+\frac{6bf^2(a+bx)^{m+1}(de-cf)^2(c+dx)^{-m-1}}{d^4(m+1)(m+2)(bc-ad)^2}+\frac{(a+bx)^{m+1}(de-cf)^4(c+dx)^{-m-4}}{d^4(m+4)(bc-ad)}+\frac{4f(a+bx)^{m+1}(de-cf)^3(c+dx)^{-m-3}}{d^4(m+3)(bc-ad)}+\frac{3b(a+bx)^{m+1}(de-cf)^4(c+dx)^{-m-3}}{d^4(m+3)(m+4)(bc-ad)^2}+\frac{8bf(a+bx)^{m+1}(de-cf)^3(c+dx)^{-m-2}}{d^4(m+2)(m+3)(bc-ad)^2}$$

```
[Out] ((d*e - c*f)^4*(a + b*x)^(1 + m)*(c + d*x)^(-4 - m))/(d^4*(b*c -
a*d)*(4 + m)) + (4*f*(d*e - c*f)^3*(a + b*x)^(1 + m)*(c + d*x)^(-
3 - m))/(d^4*(b*c - a*d)*(3 + m)) + (3*b*(d*e - c*f)^4*(a + b*x)^
(1 + m)*(c + d*x)^(-3 - m))/(d^4*(b*c - a*d)^2*(3 + m)*(4 + m)) +
 (6*f^2*(d*e - c*f)^2*(a + b*x)^(1 + m)*(c + d*x)^(-2 - m))/(d^4*
(b*c - a*d)*(2 + m)) + (8*b*f*(d*e - c*f)^3*(a + b*x)^(1 + m)*(c
+ d*x)^(-2 - m))/(d^4*(b*c - a*d)^2*(2 + m)*(3 + m)) + (6*b^2*(d*
e - c*f)^4*(a + b*x)^(1 + m)*(c + d*x)^(-2 - m))/(d^4*(b*c - a*d)
^3*(2 + m)*(3 + m)*(4 + m)) + (4*f^3*(d*e - c*f)*(a + b*x)^(1 + m
)*(c + d*x)^(-1 - m))/(d^4*(b*c - a*d)*(1 + m)) + (6*b*f^2*(d*e -
 c*f)^2*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m))/(d^4*(b*c - a*d)^2*
(1 + m)*(2 + m)) + (8*b^2*f*(d*e - c*f)^3*(a + b*x)^(1 + m)*(c +
d*x)^(-1 - m))/(d^4*(b*c - a*d)^3*(1 + m)*(2 + m)*(3 + m)) + (6*b
^3*(d*e - c*f)^4*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m))/(d^4*(b*c
- a*d)^4*(1 + m)*(2 + m)*(3 + m)*(4 + m)) - (f^4*(a + b*x)^m*Hype
rgeometric2F1[-m, -m, 1 - m, (b*(c + d*x))/(b*c - a*d)])/(d^5*m*(
-((d*(a + b*x))/(b*c - a*d)))^m*(c + d*x)^m)
```

Rubi [A] time = 1.32347, antiderivative size = 650, normalized size of antiderivative = 1., number of steps used = 14, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.192$

$$\frac{6b^3(a+bx)^{m+1}(de-cf)^4(c+dx)^{-m-1}}{d^4(m+1)(m+2)(m+3)(m+4)(bc-ad)^4}+\frac{6b^2(a+bx)^{m+1}(de-cf)^4(c+dx)^{-m-2}}{d^4(m+2)(m+3)(m+4)(bc-ad)^3}+\frac{8b^2f(a+bx)^{m+1}(de-cf)^3(c+dx)^{-m-1}}{d^4(m+1)(m+2)(m+3)(bc-ad)^3}-\frac{f^4(a+bx)^m(c+dx)^{-m}\left(-\frac{d(a+bx)}{bc-ad}\right)^{-m}{}_2F_1\left(-m,-m;1-m;\frac{b(c+dx)}{bc-ad}\right)}{d^5m}+\frac{4f^3(a+bx)^{m+1}(de-cf)(c+dx)^{-m-1}}{d^4(m+1)(bc-ad)}+\frac{6f^2(a+bx)^{m+1}(de-cf)^2(c+dx)^{-m-2}}{d^4(m+2)(bc-ad)}+\frac{6bf^2(a+bx)^{m+1}(de-cf)^2(c+dx)^{-m-1}}{d^4(m+1)(m+2)(bc-ad)^2}+\frac{(a+bx)^{m+1}(de-cf)^4(c+dx)^{-m-4}}{d^4(m+4)(bc-ad)}+\frac{4f(a+bx)^{m+1}(de-cf)^3(c+dx)^{-m-3}}{d^4(m+3)(bc-ad)}+\frac{3b(a+bx)^{m+1}(de-cf)^4(c+dx)^{-m-3}}{d^4(m+3)(m+4)(bc-ad)^2}+\frac{8bf(a+bx)^{m+1}(de-cf)^3(c+dx)^{-m-2}}{d^4(m+2)(m+3)(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^(-5 - m)*(e + f*x)^4,x]
```

```
[Out] ((d*e - c*f)^4*(a + b*x)^(1 + m)*(c + d*x)^(-4 - m))/(d^4*(b*c -
a*d)*(4 + m)) + (4*f*(d*e - c*f)^3*(a + b*x)^(1 + m)*(c + d*x)^(-
```

```
3 - m))/(d^4*(b*c - a*d)*(3 + m)) + (3*b*(d*e - c*f)^4*(a + b*x)^
(1 + m)*(c + d*x)^(-3 - m))/(d^4*(b*c - a*d)^2*(3 + m)*(4 + m)) +
 (6*f^2*(d*e - c*f)^2*(a + b*x)^(1 + m)*(c + d*x)^(-2 - m))/(d^4*
(b*c - a*d)*(2 + m)) + (8*b*f*(d*e - c*f)^3*(a + b*x)^(1 + m)*(c
+ d*x)^(-2 - m))/(d^4*(b*c - a*d)^2*(2 + m)*(3 + m)) + (6*b^2*(d*
e - c*f)^4*(a + b*x)^(1 + m)*(c + d*x)^(-2 - m))/(d^4*(b*c - a*d)
^3*(2 + m)*(3 + m)*(4 + m)) + (4*f^3*(d*e - c*f)*(a + b*x)^(1 + m
)*(c + d*x)^(-1 - m))/(d^4*(b*c - a*d)*(1 + m)) + (6*b*f^2*(d*e -
 c*f)^2*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m))/(d^4*(b*c - a*d)^2*
(1 + m)*(2 + m)) + (8*b^2*f*(d*e - c*f)^3*(a + b*x)^(1 + m)*(c +
d*x)^(-1 - m))/(d^4*(b*c - a*d)^3*(1 + m)*(2 + m)*(3 + m)) + (6*b
^3*(d*e - c*f)^4*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m))/(d^4*(b*c
- a*d)^4*(1 + m)*(2 + m)*(3 + m)*(4 + m)) - (f^4*(a + b*x)^m*Hype
rgeometric2F1[-m, -m, 1 - m, (b*(c + d*x))/(b*c - a*d)])/(d^5*m*(
-((d*(a + b*x))/(b*c - a*d)))^m*(c + d*x)^m)
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(-5-m)*(f*x+e)**4,x)

[Out] Timed out
```

Mathematica [C] time = 168.581, size = 5118, normalized size = 7.87

Result too large to show

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^(-5 - m)*(e + f*x)^4,x]

[Out] Result too large to show
```

Maple [F] time = 0.082, size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^{-5-m} (fx+e)^4 \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(-5-m)*(f*x+e)^4,x)

[Out] int((b*x+a)^m*(d*x+c)^(-5-m)*(f*x+e)^4,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (fx+e)^4 (bx+a)^m (dx+c)^{-m-5} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)^4*(b*x + a)^m*(d*x + c)^(-m - 5),x, algorithm="maxima")
```

```
[Out] integrate((f*x + e)^4*(b*x + a)^m*(d*x + c)^(-m - 5), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\left(f^4x^4 + 4\,ef^3x^3 + 6\,e^2f^2x^2 + 4\,e^3fx + e^4\right)(bx + a)^m(dx + c)^{-m-5}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)^4*(b*x + a)^m*(d*x + c)^(-m - 5),x, algorithm="fricas")
```

```
[Out] integral((f^4*x^4 + 4*e*f^3*x^3 + 6*e^2*f^2*x^2 + 4*e^3*f*x + e^4
)*(b*x + a)^m*(d*x + c)^(-m - 5), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(-5-m)*(f*x+e)**4,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)^4*(b*x + a)^m*(d*x + c)^(-m - 5),x, algorithm="giac")
```

```
[Out] Exception raised: NotImplementedError
```

3.3089 $\int (a+bx)^m (c+dx)^{-5-m} (e+fx)^3 \, dx$

Optimal. Leaf size=460

$$\frac{3(be-af)(a+bx)^{m+1}(c+dx)^{-m-2}\left(a^2d^2f^2\left(m^2+5m+6\right)-2abdf(m+3)(cf(m+1)+de)+b^2\left(c^2f^2\left(m^2+3m+2\right)+2cd\right.\right.}{bd^2(m+2)(m+3)(m+4)(bc-ad)^3}$$
$$+\frac{3(be-af)(a+bx)^{m+1}(c+dx)^{-m-1}\left(a^2d^2f^2\left(m^2+5m+6\right)-2abdf(m+3)(cf(m+1)+de)+b^2\left(c^2f^2\left(m^2+3m+2\right)+2c\right.\right.}{d^2(m+1)(m+2)(m+3)(m+4)(bc-ad)^4}$$
$$-\frac{3(be-af)(a+bx)^{m+1}(de-cf)(c+dx)^{-m-3}(adf(m+3)-b(cf(m+2)+de))}{bd^2(m+3)(m+4)(bc-ad)^2}$$
$$+\frac{(e+fx)^3(a+bx)^{m+1}(c+dx)^{-m-4}}{(m+4)(bc-ad)}-\frac{3f(e+fx)(be-af)(a+bx)^{m+1}(c+dx)^{-m-3}}{bd(m+4)(bc-ad)}$$

```
[Out] (-3*(b*e - a*f)*(d*e - c*f)*(a*d*f*(3 + m) - b*(d*e + c*f*(2 + m)
))*(a + b*x)^(1 + m)*(c + d*x)^(-3 - m))/(b*d^2*(b*c - a*d)^2*(3
+ m)*(4 + m)) + (3*(b*e - a*f)*(a^2*d^2*f^2*(6 + 5*m + m^2) - 2*a
*b*d*f*(3 + m)*(d*e + c*f*(1 + m)) + b^2*(2*d^2*e^2 + 2*c*d*e*f*(
1 + m) + c^2*f^2*(2 + 3*m + m^2)))*(a + b*x)^(1 + m)*(c + d*x)^(-
2 - m))/(b*d^2*(b*c - a*d)^3*(2 + m)*(3 + m)*(4 + m)) + (3*(b*e -
 a*f)*(a^2*d^2*f^2*(6 + 5*m + m^2) - 2*a*b*d*f*(3 + m)*(d*e + c*f
*(1 + m)) + b^2*(2*d^2*e^2 + 2*c*d*e*f*(1 + m) + c^2*f^2*(2 + 3*m
 + m^2)))*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m))/(d^2*(b*c - a*d)^
4*(1 + m)*(2 + m)*(3 + m)*(4 + m)) - (3*f*(b*e - a*f)*(a + b*x)^(
1 + m)*(c + d*x)^(-3 - m)*(e + f*x))/(b*d*(b*c - a*d)*(4 + m)) +
((a + b*x)^(1 + m)*(c + d*x)^(-4 - m)*(e + f*x)^3)/((b*c - a*d)*(
4 + m))
```

Rubi [A] time = 1.34051, antiderivative size = 459, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.192$

$$\frac{3(be-af)(a+bx)^{m+1}(c+dx)^{-m-2}\left(a^2d^2f^2\left(m^2+5m+6\right)-2abdf(m+3)(cf(m+1)+de)+b^2\left(c^2f^2\left(m^2+3m+2\right)+2cd\right.\right.}{bd^2(m+2)(m+3)(m+4)(bc-ad)^3}$$
$$+\frac{3(be-af)(a+bx)^{m+1}(c+dx)^{-m-1}\left(a^2d^2f^2\left(m^2+5m+6\right)-2abdf(m+3)(cf(m+1)+de)+b^2\left(c^2f^2\left(m^2+3m+2\right)+2c\right.\right.}{d^2(m+1)(m+2)(m+3)(m+4)(bc-ad)^4}$$
$$+\frac{3(be-af)(a+bx)^{m+1}(de-cf)(c+dx)^{-m-3}(-adf(m+3)+bcf(m+2)+bde)}{bd^2(m+3)(m+4)(bc-ad)^2}$$
$$+\frac{(e+fx)^3(a+bx)^{m+1}(c+dx)^{-m-4}}{(m+4)(bc-ad)}-\frac{3f(e+fx)(be-af)(a+bx)^{m+1}(c+dx)^{-m-3}}{bd(m+4)(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^(-5 - m)*(e + f*x)^3,x]
```

```
[Out] (3*(b*e - a*f)*(d*e - c*f)*(b*d*e + b*c*f*(2 + m) - a*d*f*(3 + m)
)*(a + b*x)^(1 + m)*(c + d*x)^(-3 - m))/(b*d^2*(b*c - a*d)^2*(3 +
 m)*(4 + m)) + (3*(b*e - a*f)*(a^2*d^2*f^2*(6 + 5*m + m^2) - 2*a*
b*d*f*(3 + m)*(d*e + c*f*(1 + m)) + b^2*(2*d^2*e^2 + 2*c*d*e*f*(1
 + m) + c^2*f^2*(2 + 3*m + m^2)))*(a + b*x)^(1 + m)*(c + d*x)^(-2
 - m))/(b*d^2*(b*c - a*d)^3*(2 + m)*(3 + m)*(4 + m)) + (3*(b*e -
a*f)*(a^2*d^2*f^2*(6 + 5*m + m^2) - 2*a*b*d*f*(3 + m)*(d*e + c*f*
(1 + m)) + b^2*(2*d^2*e^2 + 2*c*d*e*f*(1 + m) + c^2*f^2*(2 + 3*m
+ m^2)))*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m))/(d^2*(b*c - a*d)^4
*(1 + m)*(2 + m)*(3 + m)*(4 + m)) - (3*f*(b*e - a*f)*(a + b*x)^(1
 + m)*(c + d*x)^(-3 - m)*(e + f*x))/(b*d*(b*c - a*d)*(4 + m)) + (
(a + b*x)^(1 + m)*(c + d*x)^(-4 - m)*(e + f*x)^3)/((b*c - a*d)*(4
 + m))
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(-5-m)*(f*x+e)**3,x)
```

```
[Out] Timed out
```

Mathematica [A] time = 2.9627, size = 610, normalized size = 1.33

$$\frac{(a+bx)^m(c+dx)^{-m-4}\left(3(m+1)(c+dx)^2(bc-ad)^2(cf-de)\left(a^2d^2f^2\left(m^2+7m+12\right)+abdf(m+4)(dem-3cf(m+2))+\ldots\right.\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^(-5 - m)*(e + f*x)^3,x]
```

```
[Out] ((a + b*x)^m*(c + d*x)^(-4 - m)*((b*c - a*d)^4*(-(d*e) + c*f)^3*(
1 + m)*(2 + m)*(3 + m) - (b*c - a*d)^3*(d*e - c*f)^2*(1 + m)*(2 +
 m)*(-(b*d*e*m) + 4*b*c*f*(3 + m) - 3*a*d*f*(4 + m))*(c + d*x) +
3*(b*c - a*d)^2*(-(d*e) + c*f)*(1 + m)*(a^2*d^2*f^2*(12 + 7*m + m
^2) + a*b*d*f*(4 + m)*(d*e*m - 3*c*f*(2 + m)) + b^2*(-(d^2*e^2*m)
 - c*d*e*f*m*(2 + m) + 2*c^2*f^2*(6 + 5*m + m^2)))*(c + d*x)^2 -
(b*c - a*d)*(-(a^3*d^3*f^3*(24 + 26*m + 9*m^2 + m^3)) + 3*a^2*b*d
^2*f^2*(12 + 7*m + m^2)*(-(d*e*m) + 2*c*f*(1 + m)) - 3*a*b^2*d*f*
(4 + m)*(-2*d^2*e^2*m - 2*c*d*e*f*m*(1 + m) + 3*c^2*f^2*(2 + 3*m
+ m^2)) + b^3*(-6*d^3*e^3*m - 6*c*d^2*e^2*f*m*(1 + m) - 3*c^2*d*e
*f^2*m*(2 + 3*m + m^2) + 4*c^3*f^3*(6 + 11*m + 6*m^2 + m^3)))*(c
+ d*x)^3 + b*(-(a^3*d^3*f^3*(24 + 26*m + 9*m^2 + m^3)) + 3*a^2*b*
d^2*f^2*(12 + 7*m + m^2)*(d*e + c*f*(1 + m)) - 3*a*b^2*d*f*(4 + m
)*(2*d^2*e^2 + 2*c*d*e*f*(1 + m) + c^2*f^2*(2 + 3*m + m^2)) + b^3
*(6*d^3*e^3 + 6*c*d^2*e^2*f*(1 + m) + 3*c^2*d*e*f^2*(2 + 3*m + m^
2) + c^3*f^3*(6 + 11*m + 6*m^2 + m^3)))*(c + d*x)^4))/(d^4*(b*c -
 a*d)^4*(1 + m)*(2 + m)*(3 + m)*(4 + m))
```

Maple [B] time = 0.017, size = 2481, normalized size = 5.4

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(-5-m)*(f*x+e)^3,x)
```

```
[Out] -(b*x+a)^(1+m)*(d*x+c)^(-4-m)*(a^3*d^3*f^3*m^3*x^3-3*a^2*b*c*d^2*
f^3*m^3*x^3+3*a*b^2*c^2*d*f^3*m^3*x^3-b^3*c^3*f^3*m^3*x^3+3*a^3*d
^3*e*f^2*m^3*x^2+9*a^3*d^3*f^3*m^2*x^3-9*a^2*b*c*d^2*e*f^2*m^3*x^
2-24*a^2*b*c*d^2*f^3*m^2*x^3-3*a^2*b*d^3*e*f^2*m^2*x^3+9*a*b^2*c^
2*d*e*f^2*m^3*x^2+21*a*b^2*c^2*d*f^3*m^2*x^3+6*a*b^2*c*d^2*e*f^2*
m^2*x^3-3*b^3*c^3*e*f^2*m^3*x^2-6*b^3*c^3*f^3*m^2*x^3-3*b^3*c^2*d
*e*f^2*m^2*x^3+3*a^3*c*d^2*f^3*m^2*x^2+3*a^3*d^3*e^2*f*m^3*x+24*a
^3*d^3*e*f^2*m^2*x^2+26*a^3*d^3*f^3*m*x^3-6*a^2*b*c^2*d*f^3*m^2*x
^2-9*a^2*b*c*d^2*e^2*f*m^3*x-69*a^2*b*c*d^2*e*f^2*m^2*x^2-57*a^2*
b*c*d^2*f^3*m*x^3-6*a^2*b*d^3*e^2*f*m^2*x^2-21*a^2*b*d^3*e*f^2*m*
x^3+3*a*b^2*c^3*f^3*m^2*x^2+9*a*b^2*c^2*d*e^2*f*m^3*x+66*a*b^2*c^
2*d*e*f^2*m^2*x^2+42*a*b^2*c^2*d*f^3*m*x^3+12*a*b^2*c*d^2*e^2*f*m
^2*x^2+30*a*b^2*c*d^2*e*f^2*m*x^3+6*a*b^2*d^3*e^2*f*m*x^3-3*b^3*c
^3*e^2*f*m^3*x-21*b^3*c^3*e*f^2*m^2*x^2-11*b^3*c^3*f^3*m*x^3-6*b^
3*c^2*d*e^2*f*m^2*x^2-9*b^3*c^2*d*e*f^2*m*x^3-6*b^3*c*d^2*e^2*f*m
*x^3+6*a^3*c*d^2*e*f^2*m^2*x+21*a^3*c*d^2*f^3*m*x^2+a^3*d^3*e^3*m
^3+21*a^3*d^3*e^2*f*m^2*x+57*a^3*d^3*e*f^2*m*x^2+24*a^3*d^3*f^3*x
^3-12*a^2*b*c^2*d*e*f^2*m^2*x-30*a^2*b*c^2*d*f^3*m*x^2-3*a^2*b*c*
d^2*e^3*m^3-66*a^2*b*c*d^2*e^2*f*m^2*x-174*a^2*b*c*d^2*e*f^2*m*x^
2-36*a^2*b*c*d^2*f^3*x^3-3*a^2*b*d^3*e^3*m^2*x-30*a^2*b*d^3*e^2*f
*m*x^2-36*a^2*b*d^3*e*f^2*x^3+6*a*b^2*c^3*e*f^2*m^2*x+9*a*b^2*c^3
*f^3*m*x^2+3*a*b^2*c^2*d*e^3*m^3+69*a*b^2*c^2*d*e^2*f*m^2*x+159*a
*b^2*c^2*d*e*f^2*m*x^2+24*a*b^2*c^2*d*f^3*x^3+6*a*b^2*c*d^2*e^3*m
^2*x+60*a*b^2*c*d^2*e^2*f*m*x^2+24*a*b^2*c*d^2*e*f^2*x^3+6*a*b^2*
d^3*e^3*m*x^2+24*a*b^2*d^3*e^2*f*x^3-b^3*c^3*e^3*m^3-24*b^3*c^3*e
```

```
^2*f*m^2*x-42*b^3*c^3*e*f^2*m*x^2-6*b^3*c^3*f^3*x^3-3*b^3*c^2*d*e
^3*m^2*x-30*b^3*c^2*d*e^2*f*m*x^2-6*b^3*c^2*d*e*f^2*x^3-6*b^3*c*d
^2*e^3*m*x^2-6*b^3*c*d^2*e^2*f*x^3-6*b^3*d^3*e^3*x^3+6*a^3*c^2*d*
f^3*m*x+3*a^3*c*d^2*e^2*f*m^2+30*a^3*c*d^2*e*f^2*m*x+36*a^3*c*d^2
*f^3*x^2+6*a^3*d^3*e^3*m^2+42*a^3*d^3*e^2*f*m*x+36*a^3*d^3*e*f^2*
x^2-6*a^2*b*c^3*f^3*m*x-6*a^2*b*c^2*d*e^2*f*m^2-60*a^2*b*c^2*d*e*
f^2*m*x-24*a^2*b*c^2*d*f^3*x^2-21*a^2*b*c*d^2*e^3*m^2-159*a^2*b*c
*d^2*e^2*f*m*x-168*a^2*b*c*d^2*e*f^2*x^2-9*a^2*b*d^3*e^3*m*x-24*a
^2*b*d^3*e^2*f*x^2+3*a*b^2*c^3*e^2*f*m^2+30*a*b^2*c^3*e*f^2*m*x+6
*a*b^2*c^3*f^3*x^2+24*a*b^2*c^2*d*e^3*m^2+174*a*b^2*c^2*d*e^2*f*m
*x+102*a*b^2*c^2*d*e*f^2*x^2+30*a*b^2*c*d^2*e^3*m*x+102*a*b^2*c*d
^2*e^2*f*x^2+6*a*b^2*d^3*e^3*x^2-9*b^3*c^3*e^3*m^2-57*b^3*c^3*e^2
*f*m*x-24*b^3*c^3*e*f^2*x^2-21*b^3*c^2*d*e^3*m*x-24*b^3*c^2*d*e^2
*f*x^2-24*b^3*c*d^2*e^3*x^2+6*a^3*c^2*d*e*f^2*m+24*a^3*c^2*d*f^3*
x+9*a^3*c*d^2*e^2*f*m+24*a^3*c*d^2*e*f^2*x+11*a^3*d^3*e^3*m+24*a^
3*d^3*e^2*f*x-6*a^2*b*c^3*e*f^2*m-6*a^2*b*c^3*f^3*x-30*a^2*b*c^2*
d*e^2*f*m-102*a^2*b*c^2*d*e*f^2*x-42*a^2*b*c*d^2*e^3*m-102*a^2*b*
c*d^2*e^2*f*x-6*a^2*b*d^3*e^3*x+21*a*b^2*c^3*e^2*f*m+24*a*b^2*c^3
*e*f^2*x+57*a*b^2*c^2*d*e^3*m+168*a*b^2*c^2*d*e^2*f*x+24*a*b^2*c*
d^2*e^3*x-26*b^3*c^3*e^3*m-36*b^3*c^3*e^2*f*x-36*b^3*c^2*d*e^3*x+
6*a^3*c^3*f^3+6*a^3*c^2*d*e*f^2+6*a^3*c*d^2*e^2*f+6*a^3*d^3*e^3-2
4*a^2*b*c^3*e*f^2-24*a^2*b*c^2*d*e^2*f-24*a^2*b*c*d^2*e^3+36*a*b^
2*c^3*e^2*f+36*a*b^2*c^2*d*e^3-24*b^3*c^3*e^3)/(a^4*d^4*m^4-4*a^3
*b*c*d^3*m^4+6*a^2*b^2*c^2*d^2*m^4-4*a*b^3*c^3*d*m^4+b^4*c^4*m^4+
10*a^4*d^4*m^3-40*a^3*b*c*d^3*m^3+60*a^2*b^2*c^2*d^2*m^3-40*a*b^3
*c^3*d*m^3+10*b^4*c^4*m^3+35*a^4*d^4*m^2-140*a^3*b*c*d^3*m^2+210*
a^2*b^2*c^2*d^2*m^2-140*a*b^3*c^3*d*m^2+35*b^4*c^4*m^2+50*a^4*d^4
*m-200*a^3*b*c*d^3*m+300*a^2*b^2*c^2*d^2*m-200*a*b^3*c^3*d*m+50*b
^4*c^4*m+24*a^4*d^4-96*a^3*b*c*d^3+144*a^2*b^2*c^2*d^2-96*a*b^3*c
^3*d+24*b^4*c^4)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (fx+e)^3(bx+a)^m(dx+c)^{-m-5}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)^3*(b*x + a)^m*(d*x + c)^(-m - 5),x, algorithm="maxima")
```

```
[Out] integrate((f*x + e)^3*(b*x + a)^m*(d*x + c)^(-m - 5), x)
```

Fricas [A] time = 0.268794, size = 4618, normalized size = 10.04

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)^3*(b*x + a)^m*(d*x + c)^(-m - 5),x, algorithm="fricas")
```

```
[Out] -(6*a^4*c^4*f^3 - (a*b^3*c^4 - 3*a^2*b^2*c^3*d + 3*a^3*b*c^2*d^2
- a^4*c*d^3)*e^3*m^3 - (6*b^4*d^4*e^3 + (b^4*c^3*d - 3*a*b^3*c^2*
d^2 + 3*a^2*b^2*c*d^3 - a^3*b*d^4)*f^3*m^3 + 6*(b^4*c*d^3 - 4*a*b
^3*d^4)*e^2*f + 6*(b^4*c^2*d^2 - 4*a*b^3*c*d^3 + 6*a^2*b^2*d^4)*e
*f^2 + 6*(b^4*c^3*d - 4*a*b^3*c^2*d^2 + 6*a^2*b^2*c*d^3 - 4*a^3*b
*d^4)*f^3 + 3*((b^4*c^2*d^2 - 2*a*b^3*c*d^3 + a^2*b^2*d^4)*e*f^2
+ (2*b^4*c^3*d - 7*a*b^3*c^2*d^2 + 8*a^2*b^2*c*d^3 - 3*a^3*b*d^4)
*f^3)*m^2 + (6*(b^4*c*d^3 - a*b^3*d^4)*e^2*f + 3*(3*b^4*c^2*d^2 -
 10*a*b^3*c*d^3 + 7*a^2*b^2*d^4)*e*f^2 + (11*b^4*c^3*d - 42*a*b^3
*c^2*d^2 + 57*a^2*b^2*c*d^3 - 26*a^3*b*d^4)*f^3)*m)*x^5 - (30*b^4
*c*d^3*e^3 + 30*(b^4*c^2*d^2 - 4*a*b^3*c*d^3)*e^2*f + 30*(b^4*c^3
*d - 4*a*b^3*c^2*d^2 + 6*a^2*b^2*c*d^3)*e*f^2 + 6*(b^4*c^4 - 4*a*
b^3*c^3*d + 6*a^2*b^2*c^2*d^2 - 4*a^3*b*c*d^3 - 4*a^4*d^4)*f^3 +
(3*(b^4*c^3*d - 3*a*b^3*c^2*d^2 + 3*a^2*b^2*c*d^3 - a^3*b*d^4)*e*
f^2 + (b^4*c^4 - 2*a*b^3*c^3*d + 2*a^3*b*c*d^3 - a^4*d^4)*f^3)*m^
```

```
3 + 3*(2*(b^4*c^2*d^2 - 2*a*b^3*c*d^3 + a^2*b^2*d^4)*e^2*f + (8*b
^4*c^3*d - 23*a*b^3*c^2*d^2 + 22*a^2*b^2*c*d^3 - 7*a^3*b*d^4)*e*f
^2 + (2*b^4*c^4 - 6*a*b^3*c^3*d + 3*a^2*b^2*c^2*d^2 + 4*a^3*b*c*d
^3 - 3*a^4*d^4)*f^3)*m^2 + (6*(b^4*c*d^3 - a*b^3*d^4)*e^3 + 12*(3
*b^4*c^2*d^2 - 5*a*b^3*c*d^3 + 2*a^2*b^2*d^4)*e^2*f + 3*(17*b^4*c
^3*d - 60*a*b^3*c^2*d^2 + 55*a^2*b^2*c*d^3 - 12*a^3*b*d^4)*e*f^2
+ (11*b^4*c^4 - 40*a*b^3*c^3*d + 45*a^2*b^2*c^2*d^2 + 10*a^3*b*c*
d^3 - 26*a^4*d^4)*f^3)*m)*x^4 - 6*(4*a*b^3*c^4 - 6*a^2*b^2*c^3*d
+ 4*a^3*b*c^2*d^2 - a^4*c*d^3)*e^3 + 6*(6*a^2*b^2*c^4 - 4*a^3*b*c
^3*d + a^4*c^2*d^2)*e^2*f - 6*(4*a^3*b*c^4 - a^4*c^3*d)*e*f^2 - (
60*b^4*c^2*d^2*e^3 - 60*a^4*c*d^3*f^3 + 60*(b^4*c^3*d - 4*a*b^3*c
^2*d^2)*e^2*f + 12*(2*b^4*c^4 - 8*a*b^3*c^3*d + 12*a^2*b^2*c^2*d^
2 + 12*a^3*b*c*d^3 - 3*a^4*d^4)*e*f^2 + (3*(b^4*c^3*d - 3*a*b^3*c
^2*d^2 + 3*a^2*b^2*c*d^3 - a^3*b*d^4)*e^2*f + 3*(b^4*c^4 - 2*a*b^
3*c^3*d + 2*a^3*b*c*d^3 - a^4*d^4)*e*f^2 + (a*b^3*c^4 - 3*a^2*b^2
*c^3*d + 3*a^3*b*c^2*d^2 - a^4*c*d^3)*f^3)*m^3 + 3*((b^4*c^2*d^2
- 2*a*b^3*c*d^3 + a^2*b^2*d^4)*e^3 + 5*(2*b^4*c^3*d - 5*a*b^3*c^2
*d^2 + 4*a^2*b^2*c*d^3 - a^3*b*d^4)*e^2*f + (7*b^4*c^4 - 16*a*b^3
*c^3*d + 3*a^2*b^2*c^2*d^2 + 14*a^3*b*c*d^3 - 8*a^4*d^4)*e*f^2 +
(a*b^3*c^4 - 6*a^2*b^2*c^3*d + 9*a^3*b*c^2*d^2 - 4*a^4*c*d^3)*f^3
)*m^2 + (3*(9*b^4*c^2*d^2 - 10*a*b^3*c*d^3 + a^2*b^2*d^4)*e^3 + 3
*(29*b^4*c^3*d - 66*a*b^3*c^2*d^2 + 41*a^2*b^2*c*d^3 - 4*a^3*b*d^
4)*e^2*f + 3*(14*b^4*c^4 - 46*a*b^3*c^3*d + 15*a^2*b^2*c^2*d^2 +
36*a^3*b*c*d^3 - 19*a^4*d^4)*e*f^2 + (2*a*b^3*c^4 - 15*a^2*b^2*c^
3*d + 60*a^3*b*c^2*d^2 - 47*a^4*c*d^3)*f^3)*m)*x^3 - 3*((3*a*b^3*
c^4 - 8*a^2*b^2*c^3*d + 7*a^3*b*c^2*d^2 - 2*a^4*c*d^3)*e^3 - (a^2
*b^2*c^4 - 2*a^3*b*c^3*d + a^4*c^2*d^2)*e^2*f)*m^2 - (60*b^4*c^3*
d*e^3 - 60*a^4*c^2*d^2*f^3 + 12*(3*b^4*c^4 - 12*a*b^3*c^3*d - 12*
a^2*b^2*c^2*d^2 + 8*a^3*b*c*d^3 - 2*a^4*d^4)*e^2*f + 60*(4*a^3*b*
c^2*d^2 - a^4*c*d^3)*e*f^2 + ((b^4*c^3*d - 3*a*b^3*c^2*d^2 + 3*a^
2*b^2*c*d^3 - a^3*b*d^4)*e^3 + 3*(b^4*c^4 - 2*a*b^3*c^3*d + 2*a^3
*b*c*d^3 - a^4*d^4)*e^2*f + 3*(a*b^3*c^4 - 3*a^2*b^2*c^3*d + 3*a^
3*b*c^2*d^2 - a^4*c*d^3)*e*f^2)*m^3 + 3*((4*b^4*c^3*d - 9*a*b^3*c
^2*d^2 + 6*a^2*b^2*c*d^3 - a^3*b*d^4)*e^3 + (8*b^4*c^4 - 14*a*b^3
*c^3*d - 3*a^2*b^2*c^2*d^2 + 16*a^3*b*c*d^3 - 7*a^4*d^4)*e^2*f +
5*(a*b^3*c^4 - 4*a^2*b^2*c^3*d + 5*a^3*b*c^2*d^2 - 2*a^4*c*d^3)*e
*f^2 - (a^2*b^2*c^4 - 2*a^3*b*c^3*d + a^4*c^2*d^2)*f^3)*m^2 + ((4
7*b^4*c^3*d - 60*a*b^3*c^2*d^2 + 15*a^2*b^2*c*d^3 - 2*a^3*b*d^4)*
e^3 + 3*(19*b^4*c^4 - 36*a*b^3*c^3*d - 15*a^2*b^2*c^2*d^2 + 46*a^
3*b*c*d^3 - 14*a^4*d^4)*e^2*f + 3*(4*a*b^3*c^4 - 41*a^2*b^2*c^3*d
 + 66*a^3*b*c^2*d^2 - 29*a^4*c*d^3)*e*f^2 - 3*(a^2*b^2*c^4 - 10*a
^3*b*c^3*d + 9*a^4*c^2*d^2)*f^3)*m)*x^2 - ((26*a*b^3*c^4 - 57*a^2
*b^2*c^3*d + 42*a^3*b*c^2*d^2 - 11*a^4*c*d^3)*e^3 - 3*(7*a^2*b^2*
c^4 - 10*a^3*b*c^3*d + 3*a^4*c^2*d^2)*e^2*f + 6*(a^3*b*c^4 - a^4*
c^3*d)*e*f^2)*m + (30*a^4*c^3*d*f^3 - 6*(4*b^4*c^4 + 4*a*b^3*c^3*
d - 6*a^2*b^2*c^2*d^2 + 4*a^3*b*c*d^3 - a^4*d^4)*e^3 + 30*(6*a^2*
b^2*c^3*d - 4*a^3*b*c^2*d^2 + a^4*c*d^3)*e^2*f - 30*(4*a^3*b*c^3*
d - a^4*c^2*d^2)*e*f^2 - ((b^4*c^4 - 2*a*b^3*c^3*d + 2*a^3*b*c*d^
3 - a^4*d^4)*e^3 + 3*(a*b^3*c^4 - 3*a^2*b^2*c^3*d + 3*a^3*b*c^2*d
^2 - a^4*c*d^3)*e^2*f)*m^3 - 3*((3*b^4*c^4 - 4*a*b^3*c^3*d - 3*a^
2*b^2*c^2*d^2 + 6*a^3*b*c*d^3 - 2*a^4*d^4)*e^3 + (7*a*b^3*c^4 - 2
2*a^2*b^2*c^3*d + 23*a^3*b*c^2*d^2 - 8*a^4*c*d^3)*e^2*f - 2*(a^2*
b^2*c^4 - 2*a^3*b*c^3*d + a^4*c^2*d^2)*e*f^2)*m^2 - ((26*b^4*c^4
- 10*a*b^3*c^3*d - 45*a^2*b^2*c^2*d^2 + 40*a^3*b*c*d^3 - 11*a^4*d
^4)*e^3 + 3*(12*a*b^3*c^4 - 55*a^2*b^2*c^3*d + 60*a^3*b*c^2*d^2 -
 17*a^4*c*d^3)*e^2*f - 12*(2*a^2*b^2*c^4 - 5*a^3*b*c^3*d + 3*a^4*
c^2*d^2)*e*f^2 + 6*(a^3*b*c^4 - a^4*c^3*d)*f^3)*m)*x)*(b*x + a)^m
*(d*x + c)^(-m - 5)/(24*b^4*c^4 - 96*a*b^3*c^3*d + 144*a^2*b^2*c^
2*d^2 - 96*a^3*b*c*d^3 + 24*a^4*d^4 + (b^4*c^4 - 4*a*b^3*c^3*d +
6*a^2*b^2*c^2*d^2 - 4*a^3*b*c*d^3 + a^4*d^4)*m^4 + 10*(b^4*c^4 -
4*a*b^3*c^3*d + 6*a^2*b^2*c^2*d^2 - 4*a^3*b*c*d^3 + a^4*d^4)*m^3
+ 35*(b^4*c^4 - 4*a*b^3*c^3*d + 6*a^2*b^2*c^2*d^2 - 4*a^3*b*c*d^3
 + a^4*d^4)*m^2 + 50*(b^4*c^4 - 4*a*b^3*c^3*d + 6*a^2*b^2*c^2*d^2
 - 4*a^3*b*c*d^3 + a^4*d^4)*m)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(-5-m)*(f*x+e)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-2)] time = 0., size = 0, normalized size = 0.

Exception raised: NotImplementedError

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)^3*(b*x + a)^m*(d*x + c)^(-m - 5),x, algorithm="giac")
```

```
[Out] Exception raised: NotImplementedError
```

3.3090 $\int (a+bx)^m (c+dx)^{-5-m} (e+fx)^2 \, dx$

Optimal. Leaf size=494

$$\frac{(a+bx)^{m+1}(c+dx)^{-m-3}\left(a^2d^2f^2\left(m^2+7m+12\right)-2abdf(m+4)(cf(m+1)+2de)+b^2\left(c^2f^2\left(m^2+3m+2\right)+4cdef(m+\right.\right.}{2bd^2(m+3)(m+4)(bc-ad)^2}$$
$$+\frac{(a+bx)^{m+1}(c+dx)^{-m-2}\left(a^2d^2f^2\left(m^2+7m+12\right)-2abdf(m+4)(cf(m+1)+2de)+b^2\left(c^2f^2\left(m^2+3m+2\right)+4cdef(m-\right.\right.}{d^2(m+2)(m+3)(m+4)(bc-ad)^3}$$
$$+\frac{b(a+bx)^{m+1}(c+dx)^{-m-1}\left(a^2d^2f^2\left(m^2+7m+12\right)-2abdf(m+4)(cf(m+1)+2de)+b^2\left(c^2f^2\left(m^2+3m+2\right)+4cdef(m\right.\right.}{d^2(m+1)(m+2)(m+3)(m+4)(bc-ad)^4}$$
$$-\frac{(a+bx)^{m+1}(de-cf)(c+dx)^{-m-4}(adf(m+4)-b(cf(m+2)+2de))}{2bd^2(m+4)(bc-ad)}$$
$$-\frac{f(e+fx)(a+bx)^{m+1}(c+dx)^{-m-4}}{2bd}$$

```
[Out] -((d*e - c*f)*(a*d*f*(4 + m) - b*(2*d*e + c*f*(2 + m)))*(a + b*x)
^(1 + m)*(c + d*x)^(-4 - m))/(2*b*d^2*(b*c - a*d)*(4 + m)) + ((a^
2*d^2*f^2*(12 + 7*m + m^2) - 2*a*b*d*f*(4 + m)*(2*d*e + c*f*(1 +
m)) + b^2*(6*d^2*e^2 + 4*c*d*e*f*(1 + m) + c^2*f^2*(2 + 3*m + m^2
)))*(a + b*x)^(1 + m)*(c + d*x)^(-3 - m))/(2*b*d^2*(b*c - a*d)^2*
(3 + m)*(4 + m)) + ((a^2*d^2*f^2*(12 + 7*m + m^2) - 2*a*b*d*f*(4
+ m)*(2*d*e + c*f*(1 + m)) + b^2*(6*d^2*e^2 + 4*c*d*e*f*(1 + m) +
 c^2*f^2*(2 + 3*m + m^2)))*(a + b*x)^(1 + m)*(c + d*x)^(-2 - m))/
(d^2*(b*c - a*d)^3*(2 + m)*(3 + m)*(4 + m)) + (b*(a^2*d^2*f^2*(12
 + 7*m + m^2) - 2*a*b*d*f*(4 + m)*(2*d*e + c*f*(1 + m)) + b^2*(6*
d^2*e^2 + 4*c*d*e*f*(1 + m) + c^2*f^2*(2 + 3*m + m^2)))*(a + b*x)
^(1 + m)*(c + d*x)^(-1 - m))/(d^2*(b*c - a*d)^4*(1 + m)*(2 + m)*(
3 + m)*(4 + m)) - (f*(a + b*x)^(1 + m)*(c + d*x)^(-4 - m)*(e + f*
x))/(2*b*d)
```

Rubi [A] time = 1.45797, antiderivative size = 493, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.154$

$$\frac{(a+bx)^{m+1}(c+dx)^{-m-3}\left(a^2d^2f^2\left(m^2+7m+12\right)-2abdf(m+4)(cf(m+1)+2de)+b^2\left(c^2f^2\left(m^2+3m+2\right)+4cdef(m+\right.\right.}{2bd^2(m+3)(m+4)(bc-ad)^2}$$
$$+\frac{(a+bx)^{m+1}(c+dx)^{-m-2}\left(a^2d^2f^2\left(m^2+7m+12\right)-2abdf(m+4)(cf(m+1)+2de)+b^2\left(c^2f^2\left(m^2+3m+2\right)+4cdef(m-\right.\right.}{d^2(m+2)(m+3)(m+4)(bc-ad)^3}$$
$$+\frac{b(a+bx)^{m+1}(c+dx)^{-m-1}\left(a^2d^2f^2\left(m^2+7m+12\right)-2abdf(m+4)(cf(m+1)+2de)+b^2\left(c^2f^2\left(m^2+3m+2\right)+4cdef(m\right.\right.}{d^2(m+1)(m+2)(m+3)(m+4)(bc-ad)^4}$$
$$+\frac{(a+bx)^{m+1}(de-cf)(c+dx)^{-m-4}(-adf(m+4)+bcf(m+2)+2bde)}{2bd^2(m+4)(bc-ad)}$$
$$-\frac{f(e+fx)(a+bx)^{m+1}(c+dx)^{-m-4}}{2bd}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^(-5 - m)*(e + f*x)^2,x]
```

```
[Out] ((d*e - c*f)*(2*b*d*e + b*c*f*(2 + m) - a*d*f*(4 + m))*(a + b*x)^
(1 + m)*(c + d*x)^(-4 - m))/(2*b*d^2*(b*c - a*d)*(4 + m)) + ((a^2
*d^2*f^2*(12 + 7*m + m^2) - 2*a*b*d*f*(4 + m)*(2*d*e + c*f*(1 + m
)) + b^2*(6*d^2*e^2 + 4*c*d*e*f*(1 + m) + c^2*f^2*(2 + 3*m + m^2)
))*(a + b*x)^(1 + m)*(c + d*x)^(-3 - m))/(2*b*d^2*(b*c - a*d)^2*(
3 + m)*(4 + m)) + ((a^2*d^2*f^2*(12 + 7*m + m^2) - 2*a*b*d*f*(4 +
 m)*(2*d*e + c*f*(1 + m)) + b^2*(6*d^2*e^2 + 4*c*d*e*f*(1 + m) +
c^2*f^2*(2 + 3*m + m^2)))*(a + b*x)^(1 + m)*(c + d*x)^(-2 - m))/(
d^2*(b*c - a*d)^3*(2 + m)*(3 + m)*(4 + m)) + (b*(a^2*d^2*f^2*(12
+ 7*m + m^2) - 2*a*b*d*f*(4 + m)*(2*d*e + c*f*(1 + m)) + b^2*(6*d
^2*e^2 + 4*c*d*e*f*(1 + m) + c^2*f^2*(2 + 3*m + m^2)))*(a + b*x)^
(1 + m)*(c + d*x)^(-1 - m))/(d^2*(b*c - a*d)^4*(1 + m)*(2 + m)*(3
 + m)*(4 + m)) - (f*(a + b*x)^(1 + m)*(c + d*x)^(-4 - m)*(e + f*x
))/(2*b*d)
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(-5-m)*(f*x+e)**2,x)
```

```
[Out] Timed out
```

Mathematica [A] time = 1.70017, size = 444, normalized size = 0.9

$$(a+bx)^m(c+dx)^{-m}\left(\frac{-a^2d^2f^2(m^2+7m+12)+2abdf(m+4)(cf(2m+3)-dem)+b^2(-3c^2f^2(m+2)^2+2cdefm(m+1)+3d^2e^2m)}{(m+2)(m^2+7m+12)(c+dx)^2(bc-ad)^2}+\frac{b^2(a^2d^2f^2(m^2+7m+12)-\cdots}{\cdots}\right.$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^(-5 - m)*(e + f*x)^2,x]
```

```
[Out] ((a + b*x)^m*((b^2*(a^2*d^2*f^2*(12 + 7*m + m^2) - 2*a*b*d*f*(4 +
 m)*(2*d*e + c*f*(1 + m)) + b^2*(6*d^2*e^2 + 4*c*d*e*f*(1 + m) +
c^2*f^2*(2 + 3*m + m^2))))/((b*c - a*d)^4*(1 + m)*(2 + m)*(3 + m)
*(4 + m)) - (d*e - c*f)^2/((4 + m)*(c + d*x)^4) + ((d*e - c*f)*(b
*d*e*m + 2*a*d*f*(4 + m) - b*c*f*(8 + 3*m)))/((b*c - a*d)*(3 + m)
*(4 + m)*(c + d*x)^3) + (-(a^2*d^2*f^2*(12 + 7*m + m^2)) + b^2*(3
*d^2*e^2*m + 2*c*d*e*f*m*(1 + m) - 3*c^2*f^2*(2 + m)^2) + 2*a*b*d
*f*(4 + m)*(-(d*e*m) + c*f*(3 + 2*m)))/((b*c - a*d)^2*(2 + m)*(12
 + 7*m + m^2)*(c + d*x)^2) + (b*m*(a^2*d^2*f^2*(12 + 7*m + m^2) -
 2*a*b*d*f*(4 + m)*(2*d*e + c*f*(1 + m)) + b^2*(6*d^2*e^2 + 4*c*d
*e*f*(1 + m) + c^2*f^2*(2 + 3*m + m^2))))/((b*c - a*d)^3*(1 + m)*
(24 + 26*m + 9*m^2 + m^3)*(c + d*x))))/(d^3*(c + d*x)^m)
```

Maple [B] time = 0.02, size = 1884, normalized size = 3.8

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(-5-m)*(f*x+e)^2,x)
```

```
[Out] -(b*x+a)^(1+m)*(d*x+c)^(-4-m)*(a^3*d^3*f^2*m^3*x^2-3*a^2*b*c*d^2*
f^2*m^3*x^2-a^2*b*d^3*f^2*m^2*x^3+3*a*b^2*c^2*d*f^2*m^3*x^2+2*a*b
^2*c*d^2*f^2*m^2*x^3-b^3*c^3*f^2*m^3*x^2-b^3*c^2*d*f^2*m^2*x^3+2*
a^3*d^3*e*f*m^3*x+8*a^3*d^3*f^2*m^2*x^2-6*a^2*b*c*d^2*e*f*m^3*x-2
3*a^2*b*c*d^2*f^2*m^2*x^2-4*a^2*b*d^3*e*f*m^2*x^2-7*a^2*b*d^3*f^2
*m*x^3+6*a*b^2*c^2*d*e*f*m^3*x+22*a*b^2*c^2*d*f^2*m^2*x^2+8*a*b^2
*c*d^2*e*f*m^2*x^2+10*a*b^2*c*d^2*f^2*m*x^3+4*a*b^2*d^3*e*f*m*x^3
-2*b^3*c^3*e*f*m^3*x-7*b^3*c^3*f^2*m^2*x^2-4*b^3*c^2*d*e*f*m^2*x^
2-3*b^3*c^2*d*f^2*m*x^3-4*b^3*c*d^2*e*f*m*x^3+2*a^3*c*d^2*f^2*m^2
*x+a^3*d^3*e^2*m^3+14*a^3*d^3*e*f*m^2*x+19*a^3*d^3*f^2*m*x^2-4*a^
2*b*c^2*d*f^2*m^2*x-3*a^2*b*c*d^2*e^2*m^3-44*a^2*b*c*d^2*e*f*m^2*
x-58*a^2*b*c*d^2*f^2*m*x^2-3*a^2*b*d^3*e^2*m^2*x-20*a^2*b*d^3*e*f
*m*x^2-12*a^2*b*d^3*f^2*x^3+2*a*b^2*c^3*f^2*m^2*x+3*a*b^2*c^2*d*e
^2*m^3+46*a*b^2*c^2*d*e*f*m^2*x+53*a*b^2*c^2*d*f^2*m*x^2+6*a*b^2*
c*d^2*e^2*m^2*x+40*a*b^2*c*d^2*e*f*m*x^2+8*a*b^2*c*d^2*f^2*x^3+6*
a*b^2*d^3*e^2*m*x^2+16*a*b^2*d^3*e*f*x^3-b^3*c^3*e^2*m^3-16*b^3*c
^3*e*f*m^2*x-14*b^3*c^3*f^2*m*x^2-3*b^3*c^2*d*e^2*m^2*x-20*b^3*c^
2*d*e*f*m*x^2-2*b^3*c^2*d*f^2*x^3-6*b^3*c*d^2*e^2*m*x^2-4*b^3*c*d
^2*e*f*x^3-6*b^3*d^3*e^2*x^3+2*a^3*c*d^2*e*f*m^2+10*a^3*c*d^2*f^2
*m*x+6*a^3*d^3*e^2*m^2+28*a^3*d^3*e*f*m*x+12*a^3*d^3*f^2*x^2-4*a^
```

```
2*b*c^2*d*e*f*m^2-20*a^2*b*c^2*d*f^2*m*x-21*a^2*b*c*d^2*e^2*m^2-1
06*a^2*b*c*d^2*e*f*m*x-56*a^2*b*c*d^2*f^2*x^2-9*a^2*b*d^3*e^2*m*x
-16*a^2*b*d^3*e*f*x^2+2*a*b^2*c^3*e*f*m^2+10*a*b^2*c^3*f^2*m*x+24
*a*b^2*c^2*d*e^2*m^2+116*a*b^2*c^2*d*e*f*m*x+34*a*b^2*c^2*d*f^2*x
^2+30*a*b^2*c*d^2*e^2*m*x+68*a*b^2*c*d^2*e*f*x^2+6*a*b^2*d^3*e^2*
x^2-9*b^3*c^3*e^2*m^2-38*b^3*c^3*e*f*m*x-8*b^3*c^3*f^2*x^2-21*b^3
*c^2*d*e^2*m*x-16*b^3*c^2*d*e*f*x^2-24*b^3*c*d^2*e^2*x^2+2*a^3*c^
2*d*f^2*m+6*a^3*c*d^2*e*f*m+8*a^3*c*d^2*f^2*x+11*a^3*d^3*e^2*m+16
*a^3*d^3*e*f*x-2*a^2*b*c^3*f^2*m-20*a^2*b*c^2*d*e*f*m-34*a^2*b*c^
2*d*f^2*x-42*a^2*b*c*d^2*e^2*m-68*a^2*b*c*d^2*e*f*x-6*a^2*b*d^3*e
^2*x+14*a*b^2*c^3*e*f*m+8*a*b^2*c^3*f^2*x+57*a*b^2*c^2*d*e^2*m+11
2*a*b^2*c^2*d*e*f*x+24*a*b^2*c*d^2*e^2*x-26*b^3*c^3*e^2*m-24*b^3*
c^3*e*f*x-36*b^3*c^2*d*e^2*x+2*a^3*c^2*d*f^2+4*a^3*c*d^2*e*f+6*a^
3*d^3*e^2-8*a^2*b*c^3*f^2-16*a^2*b*c^2*d*e*f-24*a^2*b*c*d^2*e^2+2
4*a*b^2*c^3*e*f+36*a*b^2*c^2*d*e^2-24*b^3*c^3*e^2)/(a^4*d^4*m^4-4
*a^3*b*c*d^3*m^4+6*a^2*b^2*c^2*d^2*m^4-4*a*b^3*c^3*d*m^4+b^4*c^4*
m^4+10*a^4*d^4*m^3-40*a^3*b*c*d^3*m^3+60*a^2*b^2*c^2*d^2*m^3-40*a
*b^3*c^3*d*m^3+10*b^4*c^4*m^3+35*a^4*d^4*m^2-140*a^3*b*c*d^3*m^2+
210*a^2*b^2*c^2*d^2*m^2-140*a*b^3*c^3*d*m^2+35*b^4*c^4*m^2+50*a^4
*d^4*m-200*a^3*b*c*d^3*m+300*a^2*b^2*c^2*d^2*m-200*a*b^3*c^3*d*m+
50*b^4*c^4*m+24*a^4*d^4-96*a^3*b*c*d^3+144*a^2*b^2*c^2*d^2-96*a*b
^3*c^3*d+24*b^4*c^4)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (fx+e)^2 (bx+a)^m (dx+c)^{-m-5}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)^2*(b*x + a)^m*(d*x + c)^(-m - 5),x, algorithm="maxima")
```

```
[Out] integrate((f*x + e)^2*(b*x + a)^m*(d*x + c)^(-m - 5), x)
```

Fricas [A] time = 0.266098, size = 3594, normalized size = 7.28

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)^2*(b*x + a)^m*(d*x + c)^(-m - 5),x, algorithm="fricas")
```

```
[Out] ((a*b^3*c^4 - 3*a^2*b^2*c^3*d + 3*a^3*b*c^2*d^2 - a^4*c*d^3)*e^2*
m^3 + (6*b^4*d^4*e^2 + (b^4*c^2*d^2 - 2*a*b^3*c*d^3 + a^2*b^2*d^4
)*f^2*m^2 + 4*(b^4*c*d^3 - 4*a*b^3*d^4)*e*f + 2*(b^4*c^2*d^2 - 4*
a*b^3*c*d^3 + 6*a^2*b^2*d^4)*f^2 + (4*(b^4*c*d^3 - a*b^3*d^4)*e*f
 + (3*b^4*c^2*d^2 - 10*a*b^3*c*d^3 + 7*a^2*b^2*d^4)*f^2)*m)*x^5 +
 (30*b^4*c*d^3*e^2 + (b^4*c^3*d - 3*a*b^3*c^2*d^2 + 3*a^2*b^2*c*d
^3 - a^3*b*d^4)*f^2*m^3 + 20*(b^4*c^2*d^2 - 4*a*b^3*c*d^3)*e*f +
10*(b^4*c^3*d - 4*a*b^3*c^2*d^2 + 6*a^2*b^2*c*d^3)*f^2 + (4*(b^4*
c^2*d^2 - 2*a*b^3*c*d^3 + a^2*b^2*d^4)*e*f + (8*b^4*c^3*d - 23*a*
b^3*c^2*d^2 + 22*a^2*b^2*c*d^3 - 7*a^3*b*d^4)*f^2)*m^2 + (6*(b^4*
c*d^3 - a*b^3*d^4)*e^2 + 8*(3*b^4*c^2*d^2 - 5*a*b^3*c*d^3 + 2*a^2
*b^2*d^4)*e*f + (17*b^4*c^3*d - 60*a*b^3*c^2*d^2 + 55*a^2*b^2*c*d
^3 - 12*a^3*b*d^4)*f^2)*m)*x^4 + (60*b^4*c^2*d^2*e^2 + (2*(b^4*c^
3*d - 3*a*b^3*c^2*d^2 + 3*a^2*b^2*c*d^3 - a^3*b*d^4)*e*f + (b^4*c
^4 - 2*a*b^3*c^3*d + 2*a^3*b*c*d^3 - a^4*d^4)*f^2)*m^3 + 40*(b^4*
c^3*d - 4*a*b^3*c^2*d^2)*e*f + 4*(2*b^4*c^4 - 8*a*b^3*c^3*d + 12*
a^2*b^2*c^2*d^2 + 12*a^3*b*c*d^3 - 3*a^4*d^4)*f^2 + (3*(b^4*c^2*d
^2 - 2*a*b^3*c*d^3 + a^2*b^2*d^4)*e^2 + 10*(2*b^4*c^3*d - 5*a*b^3
*c^2*d^2 + 4*a^2*b^2*c*d^3 - a^3*b*d^4)*e*f + (7*b^4*c^4 - 16*a*b
^3*c^3*d + 3*a^2*b^2*c^2*d^2 + 14*a^3*b*c*d^3 - 8*a^4*d^4)*f^2)*m
^2 + (3*(9*b^4*c^2*d^2 - 10*a*b^3*c*d^3 + a^2*b^2*d^4)*e^2 + 2*(2
9*b^4*c^3*d - 66*a*b^3*c^2*d^2 + 41*a^2*b^2*c*d^3 - 4*a^3*b*d^4)*
e*f + (14*b^4*c^4 - 46*a*b^3*c^3*d + 15*a^2*b^2*c^2*d^2 + 36*a^3*
```

```
b*c*d^3 - 19*a^4*d^4)*f^2)*m)*x^3 + 6*(4*a*b^3*c^4 - 6*a^2*b^2*c^
3*d + 4*a^3*b*c^2*d^2 - a^4*c*d^3)*e^2 - 4*(6*a^2*b^2*c^4 - 4*a^3
*b*c^3*d + a^4*c^2*d^2)*e*f + 2*(4*a^3*b*c^4 - a^4*c^3*d)*f^2 + (
3*(3*a*b^3*c^4 - 8*a^2*b^2*c^3*d + 7*a^3*b*c^2*d^2 - 2*a^4*c*d^3)
*e^2 - 2*(a^2*b^2*c^4 - 2*a^3*b*c^3*d + a^4*c^2*d^2)*e*f)*m^2 + (
60*b^4*c^3*d*e^2 + ((b^4*c^3*d - 3*a*b^3*c^2*d^2 + 3*a^2*b^2*c*d^
3 - a^3*b*d^4)*e^2 + 2*(b^4*c^4 - 2*a*b^3*c^3*d + 2*a^3*b*c*d^3 -
 a^4*d^4)*e*f + (a*b^3*c^4 - 3*a^2*b^2*c^3*d + 3*a^3*b*c^2*d^2 -
a^4*c*d^3)*f^2)*m^3 + 8*(3*b^4*c^4 - 12*a*b^3*c^3*d - 12*a^2*b^2*
c^2*d^2 + 8*a^3*b*c*d^3 - 2*a^4*d^4)*e*f + 20*(4*a^3*b*c^2*d^2 -
a^4*c*d^3)*f^2 + (3*(4*b^4*c^3*d - 9*a*b^3*c^2*d^2 + 6*a^2*b^2*c*
d^3 - a^3*b*d^4)*e^2 + 2*(8*b^4*c^4 - 14*a*b^3*c^3*d - 3*a^2*b^2*
c^2*d^2 + 16*a^3*b*c*d^3 - 7*a^4*d^4)*e*f + 5*(a*b^3*c^4 - 4*a^2*
b^2*c^3*d + 5*a^3*b*c^2*d^2 - 2*a^4*c*d^3)*f^2)*m^2 + ((47*b^4*c^
3*d - 60*a*b^3*c^2*d^2 + 15*a^2*b^2*c*d^3 - 2*a^3*b*d^4)*e^2 + 2*
(19*b^4*c^4 - 36*a*b^3*c^3*d - 15*a^2*b^2*c^2*d^2 + 46*a^3*b*c*d^
3 - 14*a^4*d^4)*e*f + (4*a*b^3*c^4 - 41*a^2*b^2*c^3*d + 66*a^3*b*
c^2*d^2 - 29*a^4*c*d^3)*f^2)*m)*x^2 + ((26*a*b^3*c^4 - 57*a^2*b^2
*c^3*d + 42*a^3*b*c^2*d^2 - 11*a^4*c*d^3)*e^2 - 2*(7*a^2*b^2*c^4
- 10*a^3*b*c^3*d + 3*a^4*c^2*d^2)*e*f + 2*(a^3*b*c^4 - a^4*c^3*d)
*f^2)*m + (((b^4*c^4 - 2*a*b^3*c^3*d + 2*a^3*b*c*d^3 - a^4*d^4)*e
^2 + 2*(a*b^3*c^4 - 3*a^2*b^2*c^3*d + 3*a^3*b*c^2*d^2 - a^4*c*d^3
)*e*f)*m^3 + 6*(4*b^4*c^4 + 4*a*b^3*c^3*d - 6*a^2*b^2*c^2*d^2 + 4
*a^3*b*c*d^3 - a^4*d^4)*e^2 - 20*(6*a^2*b^2*c^3*d - 4*a^3*b*c^2*d
^2 + a^4*c*d^3)*e*f + 10*(4*a^3*b*c^3*d - a^4*c^2*d^2)*f^2 + (3*(
3*b^4*c^4 - 4*a*b^3*c^3*d - 3*a^2*b^2*c^2*d^2 + 6*a^3*b*c*d^3 - 2
*a^4*d^4)*e^2 + 2*(7*a*b^3*c^4 - 22*a^2*b^2*c^3*d + 23*a^3*b*c^2*
d^2 - 8*a^4*c*d^3)*e*f - 2*(a^2*b^2*c^4 - 2*a^3*b*c^3*d + a^4*c^2
*d^2)*f^2)*m^2 + ((26*b^4*c^4 - 10*a*b^3*c^3*d - 45*a^2*b^2*c^2*d
^2 + 40*a^3*b*c*d^3 - 11*a^4*d^4)*e^2 + 2*(12*a*b^3*c^4 - 55*a^2*
b^2*c^3*d + 60*a^3*b*c^2*d^2 - 17*a^4*c*d^3)*e*f - 4*(2*a^2*b^2*c
^4 - 5*a^3*b*c^3*d + 3*a^4*c^2*d^2)*f^2)*m)*x)*(b*x + a)^m*(d*x +
 c)^(-m - 5)/(24*b^4*c^4 - 96*a*b^3*c^3*d + 144*a^2*b^2*c^2*d^2 -
 96*a^3*b*c*d^3 + 24*a^4*d^4 + (b^4*c^4 - 4*a*b^3*c^3*d + 6*a^2*b
^2*c^2*d^2 - 4*a^3*b*c*d^3 + a^4*d^4)*m^4 + 10*(b^4*c^4 - 4*a*b^3
*c^3*d + 6*a^2*b^2*c^2*d^2 - 4*a^3*b*c*d^3 + a^4*d^4)*m^3 + 35*(b
^4*c^4 - 4*a*b^3*c^3*d + 6*a^2*b^2*c^2*d^2 - 4*a^3*b*c*d^3 + a^4*
d^4)*m^2 + 50*(b^4*c^4 - 4*a*b^3*c^3*d + 6*a^2*b^2*c^2*d^2 - 4*a^
3*b*c*d^3 + a^4*d^4)*m)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(-5-m)*(f*x+e)**2,x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (fx+e)^2(bx+a)^m(dx+c)^{-m-5}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)^2*(b*x + a)^m*(d*x + c)^(-m - 5),x, algorithm="giac")

[Out] integrate((f*x + e)^2*(b*x + a)^m*(d*x + c)^(-m - 5), x)
```

3.3091 $\int (a+bx)^m (c+dx)^{-5-m} (e+fx)\,dx$

Optimal. Leaf size=268

$$-\frac{2b^2(a+bx)^{m+1}(c+dx)^{-m-1}(adf(m+4)-b(cf(m+1)+3de))}{d(m+1)(m+2)(m+3)(m+4)(bc-ad)^4}+\frac{(a+bx)^{m+1}(de-cf)(c+dx)^{-m-4}}{d(m+4)(bc-ad)}-\frac{(a+bx)^{m+1}(c+dx)^{-m-3}(adf(m+4)-b(cf(m+1)+3de))}{d(m+3)(m+4)(bc-ad)^2}-\frac{2b(a+bx)^{m+1}(c+dx)^{-m-2}(adf(m+4)-b(cf(m+1)+3de))}{d(m+2)(m+3)(m+4)(bc-ad)^3}$$

```
[Out] ((d*e - c*f)*(a + b*x)^(1 + m)*(c + d*x)^(-4 - m))/(d*(b*c - a*d)
*(4 + m)) - ((a*d*f*(4 + m) - b*(3*d*e + c*f*(1 + m)))*(a + b*x)^
(1 + m)*(c + d*x)^(-3 - m))/(d*(b*c - a*d)^2*(3 + m)*(4 + m)) - (
2*b*(a*d*f*(4 + m) - b*(3*d*e + c*f*(1 + m)))*(a + b*x)^(1 + m)*(
c + d*x)^(-2 - m))/(d*(b*c - a*d)^3*(2 + m)*(3 + m)*(4 + m)) - (2
*b^2*(a*d*f*(4 + m) - b*(3*d*e + c*f*(1 + m)))*(a + b*x)^(1 + m)*
(c + d*x)^(-1 - m))/(d*(b*c - a*d)^4*(1 + m)*(2 + m)*(3 + m)*(4 +
 m))
```

Rubi [A] time = 0.487891, antiderivative size = 264, normalized size of antiderivative = 0.99, number of steps used = 4, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.125$

$$\frac{2b^2(a+bx)^{m+1}(c+dx)^{-m-1}(-adf(m+4)+bcf(m+1)+3bde)}{d(m+1)(m+2)(m+3)(m+4)(bc-ad)^4}+\frac{(a+bx)^{m+1}(de-cf)(c+dx)^{-m-4}}{d(m+4)(bc-ad)}+\frac{(a+bx)^{m+1}(c+dx)^{-m-3}(-adf(m+4)+bcf(m+1)+3bde)}{d(m+3)(m+4)(bc-ad)^2}+\frac{2b(a+bx)^{m+1}(c+dx)^{-m-2}(-adf(m+4)+bcf(m+1)+3bde)}{d(m+2)(m+3)(m+4)(bc-ad)^3}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^(-5 - m)*(e + f*x),x]
```

```
[Out] ((d*e - c*f)*(a + b*x)^(1 + m)*(c + d*x)^(-4 - m))/(d*(b*c - a*d)
*(4 + m)) + ((3*b*d*e + b*c*f*(1 + m) - a*d*f*(4 + m))*(a + b*x)^
(1 + m)*(c + d*x)^(-3 - m))/(d*(b*c - a*d)^2*(3 + m)*(4 + m)) + (
2*b*(3*b*d*e + b*c*f*(1 + m) - a*d*f*(4 + m))*(a + b*x)^(1 + m)*(
c + d*x)^(-2 - m))/(d*(b*c - a*d)^3*(2 + m)*(3 + m)*(4 + m)) + (2
*b^2*(3*b*d*e + b*c*f*(1 + m) - a*d*f*(4 + m))*(a + b*x)^(1 + m)*
(c + d*x)^(-1 - m))/(d*(b*c - a*d)^4*(1 + m)*(2 + m)*(3 + m)*(4 +
 m))
```

Rubi in Sympy [A] time = 77.9362, size = 228, normalized size = 0.85

$$-\frac{2b^2\left(a+bx\right)^{m+1}\left(c+dx\right)^{-m-1}\left(-3bde+f\left(ad\left(m+4\right)-bc\left(m+1\right)\right)\right)}{d\left(m+1\right)\left(m+2\right)\left(m+3\right)\left(m+4\right)\left(ad-bc\right)^4}+\frac{2b\left(a+bx\right)^{m+1}\left(c+dx\right)^{-m-2}\left(-3bde+f\left(ad\left(m+4\right)-bc\left(m+1\right)\right)\right)}{d\left(m+2\right)\left(m+3\right)\left(m+4\right)\left(ad-bc\right)^3}+\frac{\left(a+bx\right)^{m+1}\left(c+dx\right)^{-m-4}\left(cf-de\right)}{d\left(m+4\right)\left(ad-bc\right)}-\frac{\left(a+bx\right)^{m+1}\left(c+dx\right)^{-m-3}\left(-3bde+f\left(ad\left(m+4\right)-bc\left(m+1\right)\right)\right)}{d\left(m+3\right)\left(m+4\right)\left(ad-bc\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(-5-m)*(f*x+e),x)
```

```
[Out] -2*b**2*(a + b*x)**(m + 1)*(c + d*x)**(-m - 1)*(-3*b*d*e + f*(a*d
*(m + 4) - b*c*(m + 1)))/(d*(m + 1)*(m + 2)*(m + 3)*(m + 4)*(a*d
- b*c)**4) + 2*b*(a + b*x)**(m + 1)*(c + d*x)**(-m - 2)*(-3*b*d*e
 + f*(a*d*(m + 4) - b*c*(m + 1)))/(d*(m + 2)*(m + 3)*(m + 4)*(a*d
 - b*c)**3) + (a + b*x)**(m + 1)*(c + d*x)**(-m - 4)*(c*f - d*e)/
(d*(m + 4)*(a*d - b*c)) - (a + b*x)**(m + 1)*(c + d*x)**(-m - 3)*
(-3*b*d*e + f*(a*d*(m + 4) - b*c*(m + 1)))/(d*(m + 3)*(m + 4)*(a*
d - b*c)**2)
```

Mathematica [A] time = 0.919652, size = 267, normalized size = 1.

$$\frac{(a+bx)^m(c+dx)^{-m}\left(\frac{2b^3(-adf(m+4)+bcf(m+1)+3bde)}{(m+1)(m+2)(m+3)(m+4)(bc-ad)^4}+\frac{2b^2m(-adf(m+4)+bcf(m+1)+3bde)}{(m+1)(m^3+9m^2+26m+24)(c+dx)(bc-ad)^3}+\frac{bm(-adf(m+4)+bcf(m+1)+3bde)}{(m+2)(m^2+7m+12)(c+dx)^2(bc-ad)^2}+\frac{adf(}{(m+}\right.}{d^2}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^(-5 - m)*(e + f*x),x]
```

```
[Out] ((a + b*x)^m*((2*b^3*(3*b*d*e + b*c*f*(1 + m) - a*d*f*(4 + m)))/(
(b*c - a*d)^4*(1 + m)*(2 + m)*(3 + m)*(4 + m)) + (-(d*e) + c*f)/(
(4 + m)*(c + d*x)^4) + (b*d*e*m - 2*b*c*f*(2 + m) + a*d*f*(4 + m)
)/((b*c - a*d)*(3 + m)*(4 + m)*(c + d*x)^3) + (b*m*(3*b*d*e + b*c
*f*(1 + m) - a*d*f*(4 + m)))/((b*c - a*d)^2*(2 + m)*(12 + 7*m + m
^2)*(c + d*x)^2) + (2*b^2*m*(3*b*d*e + b*c*f*(1 + m) - a*d*f*(4 +
 m)))/((b*c - a*d)^3*(1 + m)*(24 + 26*m + 9*m^2 + m^3)*(c + d*x))
))/(d^2*(c + d*x)^m)
```

Maple [B] time = 0.013, size = 1184, normalized size = 4.4

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(-5-m)*(f*x+e),x)
```

```
[Out] -(b*x+a)^(1+m)*(d*x+c)^(-4-m)*(a^3*d^3*f*m^3*x-3*a^2*b*c*d^2*f*m^
3*x-2*a^2*b*d^3*f*m^2*x^2+3*a*b^2*c^2*d*f*m^3*x+4*a*b^2*c*d^2*f*m
^2*x^2+2*a*b^2*d^3*f*m*x^3-b^3*c^3*f*m^3*x-2*b^3*c^2*d*f*m^2*x^2-
2*b^3*c*d^2*f*m*x^3+a^3*d^3*e*m^3+7*a^3*d^3*f*m^2*x-3*a^2*b*c*d^2
*e*m^3-22*a^2*b*c*d^2*f*m^2*x-3*a^2*b*d^3*e*m^2*x-10*a^2*b*d^3*f*
m*x^2+3*a*b^2*c^2*d*e*m^3+23*a*b^2*c^2*d*f*m^2*x+6*a*b^2*c*d^2*e*
m^2*x+20*a*b^2*c*d^2*f*m*x^2+6*a*b^2*d^3*e*m*x^2+8*a*b^2*d^3*f*x^
3-b^3*c^3*e*m^3-8*b^3*c^3*f*m^2*x-3*b^3*c^2*d*e*m^2*x-10*b^3*c^2*
d*f*m*x^2-6*b^3*c*d^2*e*m*x^2-2*b^3*c*d^2*f*x^3-6*b^3*d^3*e*x^3+a
^3*c*d^2*f*m^2+6*a^3*d^3*e*m^2+14*a^3*d^3*f*m*x-2*a^2*b*c^2*d*f*m
^2-21*a^2*b*c*d^2*e*m^2-53*a^2*b*c*d^2*f*m*x-9*a^2*b*d^3*e*m*x-8*
a^2*b*d^3*f*x^2+a*b^2*c^3*f*m^2+24*a*b^2*c^2*d*e*m^2+58*a*b^2*c^2
*d*f*m*x+30*a*b^2*c*d^2*e*m*x+34*a*b^2*c*d^2*f*x^2+6*a*b^2*d^3*e*
x^2-9*b^3*c^3*e*m^2-19*b^3*c^3*f*m*x-21*b^3*c^2*d*e*m*x-8*b^3*c^2
*d*f*x^2-24*b^3*c*d^2*e*x^2+3*a^3*c*d^2*f*m+11*a^3*d^3*e*m+8*a^3*
d^3*f*x-10*a^2*b*c^2*d*f*m-42*a^2*b*c*d^2*e*m-34*a^2*b*c*d^2*f*x-
6*a^2*b*d^3*e*x+7*a*b^2*c^3*f*m+57*a*b^2*c^2*d*e*m+56*a*b^2*c^2*d
*f*x+24*a*b^2*c*d^2*e*x-26*b^3*c^3*e*m-12*b^3*c^3*f*x-36*b^3*c^2*
d*e*x+2*a^3*c*d^2*f+6*a^3*d^3*e-8*a^2*b*c^2*d*f-24*a^2*b*c*d^2*e+
12*a*b^2*c^3*f+36*a*b^2*c^2*d*e-24*b^3*c^3*e)/(a^4*d^4*m^4-4*a^3*
b*c*d^3*m^4+6*a^2*b^2*c^2*d^2*m^4-4*a*b^3*c^3*d*m^4+b^4*c^4*m^4+1
0*a^4*d^4*m^3-40*a^3*b*c*d^3*m^3+60*a^2*b^2*c^2*d^2*m^3-40*a*b^3*
c^3*d*m^3+10*b^4*c^4*m^3+35*a^4*d^4*m^2-140*a^3*b*c*d^3*m^2+210*a
^2*b^2*c^2*d^2*m^2-140*a*b^3*c^3*d*m^2+35*b^4*c^4*m^2+50*a^4*d^4*
m-200*a^3*b*c*d^3*m+300*a^2*b^2*c^2*d^2*m-200*a*b^3*c^3*d*m+50*b^
4*c^4*m+24*a^4*d^4-96*a^3*b*c*d^3+144*a^2*b^2*c^2*d^2-96*a*b^3*c^
3*d+24*b^4*c^4)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (fx + e)(bx + a)^m (dx + c)^{-m-5} dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)*(b*x + a)^m*(d*x + c)^(-m - 5),x, algorithm="maxima")
```

```
[Out] integrate((f*x + e)*(b*x + a)^m*(d*x + c)^(-m - 5), x)
```

Fricas [A] time = 0.24947, size = 2399, normalized size = 8.95

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)*(b*x + a)^m*(d*x + c)^(-m - 5),x, algorithm="fricas")
```

```
[Out] (2*(3*b^4*d^4*e + (b^4*c*d^3 - a*b^3*d^4)*f*m + (b^4*c*d^3 - 4*a*
b^3*d^4)*f)*x^5 + (a*b^3*c^4 - 3*a^2*b^2*c^3*d + 3*a^3*b*c^2*d^2
- a^4*c*d^3)*e*m^3 + 2*(15*b^4*c*d^3*e + (b^4*c^2*d^2 - 2*a*b^3*c
*d^3 + a^2*b^2*d^4)*f*m^2 + 5*(b^4*c^2*d^2 - 4*a*b^3*c*d^3)*f + (
3*(b^4*c*d^3 - a*b^3*d^4)*e + 2*(3*b^4*c^2*d^2 - 5*a*b^3*c*d^3 +
2*a^2*b^2*d^4)*f)*m)*x^4 + (60*b^4*c^2*d^2*e + (b^4*c^3*d - 3*a*b
^3*c^2*d^2 + 3*a^2*b^2*c*d^3 - a^3*b*d^4)*f*m^3 + (3*(b^4*c^2*d^2
 - 2*a*b^3*c*d^3 + a^2*b^2*d^4)*e + 5*(2*b^4*c^3*d - 5*a*b^3*c^2*
d^2 + 4*a^2*b^2*c*d^3 - a^3*b*d^4)*f)*m^2 + 20*(b^4*c^3*d - 4*a*b
^3*c^2*d^2)*f + (3*(9*b^4*c^2*d^2 - 10*a*b^3*c*d^3 + a^2*b^2*d^4)
*e + (29*b^4*c^3*d - 66*a*b^3*c^2*d^2 + 41*a^2*b^2*c*d^3 - 4*a^3*
b*d^4)*f)*m)*x^3 + (3*(3*a*b^3*c^4 - 8*a^2*b^2*c^3*d + 7*a^3*b*c^
2*d^2 - 2*a^4*c*d^3)*e - (a^2*b^2*c^4 - 2*a^3*b*c^3*d + a^4*c^2*d
^2)*f)*m^2 + (60*b^4*c^3*d*e + ((b^4*c^3*d - 3*a*b^3*c^2*d^2 + 3*
a^2*b^2*c*d^3 - a^3*b*d^4)*e + (b^4*c^4 - 2*a*b^3*c^3*d + 2*a^3*b
*c*d^3 - a^4*d^4)*f)*m^3 + (3*(4*b^4*c^3*d - 9*a*b^3*c^2*d^2 + 6*
a^2*b^2*c*d^3 - a^3*b*d^4)*e + (8*b^4*c^4 - 14*a*b^3*c^3*d - 3*a^
2*b^2*c^2*d^2 + 16*a^3*b*c*d^3 - 7*a^4*d^4)*f)*m^2 + 4*(3*b^4*c^4
 - 12*a*b^3*c^3*d - 12*a^2*b^2*c^2*d^2 + 8*a^3*b*c*d^3 - 2*a^4*d^
4)*f + ((47*b^4*c^3*d - 60*a*b^3*c^2*d^2 + 15*a^2*b^2*c*d^3 - 2*a
^3*b*d^4)*e + (19*b^4*c^4 - 36*a*b^3*c^3*d - 15*a^2*b^2*c^2*d^2 +
 46*a^3*b*c*d^3 - 14*a^4*d^4)*f)*m)*x^2 + 6*(4*a*b^3*c^4 - 6*a^2*
b^2*c^3*d + 4*a^3*b*c^2*d^2 - a^4*c*d^3)*e - 2*(6*a^2*b^2*c^4 - 4
*a^3*b*c^3*d + a^4*c^2*d^2)*f + ((26*a*b^3*c^4 - 57*a^2*b^2*c^3*d
 + 42*a^3*b*c^2*d^2 - 11*a^4*c*d^3)*e - (7*a^2*b^2*c^4 - 10*a^3*b
*c^3*d + 3*a^4*c^2*d^2)*f)*m + (((b^4*c^4 - 2*a*b^3*c^3*d + 2*a^3
*b*c*d^3 - a^4*d^4)*e + (a*b^3*c^4 - 3*a^2*b^2*c^3*d + 3*a^3*b*c^
2*d^2 - a^4*c*d^3)*f)*m^3 + (3*(3*b^4*c^4 - 4*a*b^3*c^3*d - 3*a^2
*b^2*c^2*d^2 + 6*a^3*b*c*d^3 - 2*a^4*d^4)*e + (7*a*b^3*c^4 - 22*a
^2*b^2*c^3*d + 23*a^3*b*c^2*d^2 - 8*a^4*c*d^3)*f)*m^2 + 6*(4*b^4*
c^4 + 4*a*b^3*c^3*d - 6*a^2*b^2*c^2*d^2 + 4*a^3*b*c*d^3 - a^4*d^4
)*e - 10*(6*a^2*b^2*c^3*d - 4*a^3*b*c^2*d^2 + a^4*c*d^3)*f + ((26
*b^4*c^4 - 10*a*b^3*c^3*d - 45*a^2*b^2*c^2*d^2 + 40*a^3*b*c*d^3 -
 11*a^4*d^4)*e + (12*a*b^3*c^4 - 55*a^2*b^2*c^3*d + 60*a^3*b*c^2*
d^2 - 17*a^4*c*d^3)*f)*m)*x)*(b*x + a)^m*(d*x + c)^(-m - 5)/(24*b
^4*c^4 - 96*a*b^3*c^3*d + 144*a^2*b^2*c^2*d^2 - 96*a^3*b*c*d^3 +
24*a^4*d^4 + (b^4*c^4 - 4*a*b^3*c^3*d + 6*a^2*b^2*c^2*d^2 - 4*a^3
*b*c*d^3 + a^4*d^4)*m^4 + 10*(b^4*c^4 - 4*a*b^3*c^3*d + 6*a^2*b^2
*c^2*d^2 - 4*a^3*b*c*d^3 + a^4*d^4)*m^3 + 35*(b^4*c^4 - 4*a*b^3*c
^3*d + 6*a^2*b^2*c^2*d^2 - 4*a^3*b*c*d^3 + a^4*d^4)*m^2 + 50*(b^4
*c^4 - 4*a*b^3*c^3*d + 6*a^2*b^2*c^2*d^2 - 4*a^3*b*c*d^3 + a^4*d^
4)*m)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(-5-m)*(f*x+e),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (fx+e)(bx+a)^m(dx+c)^{-m-5}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)*(b*x + a)^m*(d*x + c)^(-m - 5),x, algorithm="giac")
```

```
[Out] integrate((f*x + e)*(b*x + a)^m*(d*x + c)^(-m - 5), x)
```

3.3092 $\int (a+bx)^m(c+dx)^{-5-m}\,dx$

Optimal. Leaf size=185

$$\frac{6b^3(a+bx)^{m+1}(c+dx)^{-m-1}}{(m+1)(m+2)(m+3)(m+4)(bc-ad)^4}+\frac{6b^2(a+bx)^{m+1}(c+dx)^{-m-2}}{(m+2)(m+3)(m+4)(bc-ad)^3}+\frac{(a+bx)^{m+1}(c+dx)^{-m-4}}{(m+4)(bc-ad)}+\frac{3b(a+bx)^{m+1}(c+dx)^{-m-3}}{(m+3)(m+4)(bc-ad)^2}$$

```
[Out] ((a + b*x)^(1 + m)*(c + d*x)^(-4 - m))/((b*c - a*d)*(4 + m)) + (3
*b*(a + b*x)^(1 + m)*(c + d*x)^(-3 - m))/((b*c - a*d)^2*(3 + m)*(
4 + m)) + (6*b^2*(a + b*x)^(1 + m)*(c + d*x)^(-2 - m))/((b*c - a*
d)^3*(2 + m)*(3 + m)*(4 + m)) + (6*b^3*(a + b*x)^(1 + m)*(c + d*x
)^(-1 - m))/((b*c - a*d)^4*(1 + m)*(2 + m)*(3 + m)*(4 + m))
```

Rubi [A] time = 0.23568, antiderivative size = 185, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 2, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.105

$$\frac{6b^3(a+bx)^{m+1}(c+dx)^{-m-1}}{(m+1)(m+2)(m+3)(m+4)(bc-ad)^4}+\frac{6b^2(a+bx)^{m+1}(c+dx)^{-m-2}}{(m+2)(m+3)(m+4)(bc-ad)^3}+\frac{(a+bx)^{m+1}(c+dx)^{-m-4}}{(m+4)(bc-ad)}+\frac{3b(a+bx)^{m+1}(c+dx)^{-m-3}}{(m+3)(m+4)(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^(-5 - m),x]
```

```
[Out] ((a + b*x)^(1 + m)*(c + d*x)^(-4 - m))/((b*c - a*d)*(4 + m)) + (3
*b*(a + b*x)^(1 + m)*(c + d*x)^(-3 - m))/((b*c - a*d)^2*(3 + m)*(
4 + m)) + (6*b^2*(a + b*x)^(1 + m)*(c + d*x)^(-2 - m))/((b*c - a*
d)^3*(2 + m)*(3 + m)*(4 + m)) + (6*b^3*(a + b*x)^(1 + m)*(c + d*x
)^(-1 - m))/((b*c - a*d)^4*(1 + m)*(2 + m)*(3 + m)*(4 + m))
```

Rubi in Sympy [A] time = 57.4559, size = 153, normalized size = 0.83

$$\frac{6b^3\left(a+bx\right)^{m+1}\left(c+dx\right)^{-m-1}}{\left(m+1\right)\left(m+2\right)\left(m+3\right)\left(m+4\right)\left(ad-bc\right)^4}-\frac{6b^2\left(a+bx\right)^{m+1}\left(c+dx\right)^{-m-2}}{\left(m+2\right)\left(m+3\right)\left(m+4\right)\left(ad-bc\right)^3}+\frac{3b\left(a+bx\right)^{m+1}\left(c+dx\right)^{-m-3}}{\left(m+3\right)\left(m+4\right)\left(ad-bc\right)^2}-\frac{\left(a+bx\right)^{m+1}\left(c+dx\right)^{-m-4}}{\left(m+4\right)\left(ad-bc\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(-5-m),x)
```

```
[Out] 6*b**3*(a + b*x)**(m + 1)*(c + d*x)**(-m - 1)/((m + 1)*(m + 2)*(m
 + 3)*(m + 4)*(a*d - b*c)**4) - 6*b**2*(a + b*x)**(m + 1)*(c + d*
x)**(-m - 2)/((m + 2)*(m + 3)*(m + 4)*(a*d - b*c)**3) + 3*b*(a +
b*x)**(m + 1)*(c + d*x)**(-m - 3)/((m + 3)*(m + 4)*(a*d - b*c)**2
) - (a + b*x)**(m + 1)*(c + d*x)**(-m - 4)/((m + 4)*(a*d - b*c))
```

Mathematica [A] time = 0.493276, size = 181, normalized size = 0.98

$$\frac{(a+bx)^m(c+dx)^{-m}\left(\frac{6b^4}{(m+1)(m+2)(m+3)(m+4)(bc-ad)^4}+\frac{6b^3m}{(m+1)(m^3+9m^2+26m+24)(c+dx)(bc-ad)^3}+\frac{3b^2m}{(m+2)(m^2+7m+12)(c+dx)^2(bc-ad)^2}+\frac{\cdots}{(m+3)\cdots}\right.}{d}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^(-5 - m),x]
```

```
[Out] ((a + b*x)^m*((6*b^4)/((b*c - a*d)^4*(1 + m)*(2 + m)*(3 + m)*(4 +
 m)) - 1/((4 + m)*(c + d*x)^4) + (b*m)/((b*c - a*d)*(3 + m)*(4 +
m)*(c + d*x)^3) + (3*b^2*m)/((b*c - a*d)^2*(2 + m)*(12 + 7*m + m^
2)*(c + d*x)^2) + (6*b^3*m)/((b*c - a*d)^3*(1 + m)*(24 + 26*m + 9
*m^2 + m^3)*(c + d*x))))/(d*(c + d*x)^m)
```

Maple [B] time = 0.013, size = 662, normalized size = 3.6

$$-\frac{(bx+a)^{1+m}(dx+c)^{-4-m}\left(a^3d^3m^3-3a^2bcd^2m^3-3a^2bd^3m^2x+3ab^2c^2dm^3+6ab^2cd^2m^2x+6ab^2d^3mx^2-b^3c^3m^3-3b\right.}{a^4d^4m^4-4a^3bcd^3m^4+6a^2b^2c^2d^2m^4-4ab^3c^3dm^4+b^4c^4m^4+10a^4d^4m^3-40a^3bcd^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(-5-m),x)
```

```
[Out] -(b*x+a)^(1+m)*(d*x+c)^(-4-m)*(a^3*d^3*m^3-3*a^2*b*c*d^2*m^3-3*a^
2*b*d^3*m^2*x+3*a*b^2*c^2*d*m^3+6*a*b^2*c*d^2*m^2*x+6*a*b^2*d^3*m
*x^2-b^3*c^3*m^3-3*b^3*c^2*d*m^2*x-6*b^3*c*d^2*m*x^2-6*b^3*d^3*x^
3+6*a^3*d^3*m^2-21*a^2*b*c*d^2*m^2-9*a^2*b*d^3*m*x+24*a*b^2*c^2*d
*m^2+30*a*b^2*c*d^2*m*x+6*a*b^2*d^3*x^2-9*b^3*c^3*m^2-21*b^3*c^2*
d*m*x-24*b^3*c*d^2*x^2+11*a^3*d^3*m-42*a^2*b*c*d^2*m-6*a^2*b*d^3*
x+57*a*b^2*c^2*d*m+24*a*b^2*c*d^2*x-26*b^3*c^3*m-36*b^3*c^2*d*x+6
*a^3*d^3-24*a^2*b*c*d^2+36*a*b^2*c^2*d-24*b^3*c^3)/(a^4*d^4*m^4-4
*a^3*b*c*d^3*m^4+6*a^2*b^2*c^2*d^2*m^4-4*a*b^3*c^3*d*m^4+b^4*c^4*
m^4+10*a^4*d^4*m^3-40*a^3*b*c*d^3*m^3+60*a^2*b^2*c^2*d^2*m^3-40*a
*b^3*c^3*d*m^3+10*b^4*c^4*m^3+35*a^4*d^4*m^2-140*a^3*b*c*d^3*m^2+
210*a^2*b^2*c^2*d^2*m^2-140*a*b^3*c^3*d*m^2+35*b^4*c^4*m^2+50*a^4
*d^4*m-200*a^3*b*c*d^3*m+300*a^2*b^2*c^2*d^2*m-200*a*b^3*c^3*d*m+
50*b^4*c^4*m+24*a^4*d^4-96*a^3*b*c*d^3+144*a^2*b^2*c^2*d^2-96*a*b
^3*c^3*d+24*b^4*c^4)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^m(dx+c)^{-m-5}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - 5),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m - 5), x)
```

Fricas [A] time = 0.24129, size = 1288, normalized size = 6.96

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - 5),x, algorithm="fricas")
```

```
[Out] (6*b^4*d^4*x^5 + 24*a*b^3*c^4 - 36*a^2*b^2*c^3*d + 24*a^3*b*c^2*d
^2 - 6*a^4*c*d^3 + 6*(5*b^4*c*d^3 + (b^4*c*d^3 - a*b^3*d^4)*m)*x^
4 + (a*b^3*c^4 - 3*a^2*b^2*c^3*d + 3*a^3*b*c^2*d^2 - a^4*c*d^3)*m
^3 + 3*(20*b^4*c^2*d^2 + (b^4*c^2*d^2 - 2*a*b^3*c*d^3 + a^2*b^2*d
^4)*m^2 + (9*b^4*c^2*d^2 - 10*a*b^3*c*d^3 + a^2*b^2*d^4)*m)*x^3 +
 3*(3*a*b^3*c^4 - 8*a^2*b^2*c^3*d + 7*a^3*b*c^2*d^2 - 2*a^4*c*d^3
)*m^2 + (60*b^4*c^3*d + (b^4*c^3*d - 3*a*b^3*c^2*d^2 + 3*a^2*b^2*
c*d^3 - a^3*b*d^4)*m^3 + 3*(4*b^4*c^3*d - 9*a*b^3*c^2*d^2 + 6*a^2
```

```
*b^2*c*d^3 - a^3*b*d^4)*m^2 + (47*b^4*c^3*d - 60*a*b^3*c^2*d^2 +
15*a^2*b^2*c*d^3 - 2*a^3*b*d^4)*m)*x^2 + (26*a*b^3*c^4 - 57*a^2*b
^2*c^3*d + 42*a^3*b*c^2*d^2 - 11*a^4*c*d^3)*m + (24*b^4*c^4 + 24*
a*b^3*c^3*d - 36*a^2*b^2*c^2*d^2 + 24*a^3*b*c*d^3 - 6*a^4*d^4 + (
b^4*c^4 - 2*a*b^3*c^3*d + 2*a^3*b*c*d^3 - a^4*d^4)*m^3 + 3*(3*b^4
*c^4 - 4*a*b^3*c^3*d - 3*a^2*b^2*c^2*d^2 + 6*a^3*b*c*d^3 - 2*a^4*
d^4)*m^2 + (26*b^4*c^4 - 10*a*b^3*c^3*d - 45*a^2*b^2*c^2*d^2 + 40
*a^3*b*c*d^3 - 11*a^4*d^4)*m)*x)*(b*x + a)^m*(d*x + c)^(-m - 5)/(
24*b^4*c^4 - 96*a*b^3*c^3*d + 144*a^2*b^2*c^2*d^2 - 96*a^3*b*c*d^
3 + 24*a^4*d^4 + (b^4*c^4 - 4*a*b^3*c^3*d + 6*a^2*b^2*c^2*d^2 - 4
*a^3*b*c*d^3 + a^4*d^4)*m^4 + 10*(b^4*c^4 - 4*a*b^3*c^3*d + 6*a^2
*b^2*c^2*d^2 - 4*a^3*b*c*d^3 + a^4*d^4)*m^3 + 35*(b^4*c^4 - 4*a*b
^3*c^3*d + 6*a^2*b^2*c^2*d^2 - 4*a^3*b*c*d^3 + a^4*d^4)*m^2 + 50*
(b^4*c^4 - 4*a*b^3*c^3*d + 6*a^2*b^2*c^2*d^2 - 4*a^3*b*c*d^3 + a^
4*d^4)*m)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(-5-m),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^{-m-5}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - 5),x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m - 5), x)
```

3.3093 $\int \frac{(a+bx)^m(c+dx)^{-5-m}}{e+fx}\,dx$

Optimal. Leaf size=570

$$\frac{d(a+bx)^{m+1}(c+dx)^{-m-2}\left(a^2d^2f^2\left(m^2+7m+12\right)+2abdf(m+4)(de-cf(m+4))+b^2\left(c^2f^2\left(m^2+9m+26\right)-2cdef(m\right.\right.}{(m+2)(m+3)(m+4)(bc-ad)^3(de-cf)^3}$$
$$+\frac{d(a+bx)^{m+1}(c+dx)^{-m-1}\left(a^3d^3f^3\left(m^3+9m^2+26m+24\right)+a^2bd^2f^2\left(m^2+7m+12\right)(de-cf(3m+7))+ab^2df(m+4)\left(\right.\right.}{(m+1)(m+2)}$$
$$+\frac{f^4(a+bx)^{m+1}(c+dx)^{-m-1}\,{}_2F_1\left(1,m+1;m+2;\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}\right)}{(m+1)(be-af)(de-cf)^4}+\frac{d(a+bx)^{m+1}(c+dx)^{-m-4}}{(m+4)(bc-ad)(de-cf)}$$
$$+\frac{d(a+bx)^{m+1}(c+dx)^{-m-3}(adf(m+4)+b(3de-cf(m+7)))}{(m+3)(m+4)(bc-ad)^2(de-cf)^2}$$

```
[Out] (d*(a + b*x)^(1 + m)*(c + d*x)^(-4 - m))/((b*c - a*d)*(d*e - c*f)
*(4 + m)) + (d*(a*d*f*(4 + m) + b*(3*d*e - c*f*(7 + m)))*(a + b*x
)^(1 + m)*(c + d*x)^(-3 - m))/((b*c - a*d)^2*(d*e - c*f)^2*(3 + m
)*(4 + m)) + (d*(a^2*d^2*f^2*(12 + 7*m + m^2) + 2*a*b*d*f*(4 + m)
*(d*e - c*f*(4 + m)) + b^2*(6*d^2*e^2 - 2*c*d*e*f*(10 + m) + c^2*
f^2*(26 + 9*m + m^2)))*(a + b*x)^(1 + m)*(c + d*x)^(-2 - m))/((b*
c - a*d)^3*(d*e - c*f)^3*(2 + m)*(3 + m)*(4 + m)) + (d*(a^3*d^3*f
^3*(24 + 26*m + 9*m^2 + m^3) + a^2*b*d^2*f^2*(12 + 7*m + m^2)*(d*
e - c*f*(7 + 3*m)) + a*b^2*d*f*(4 + m)*(2*d^2*e^2 - 2*c*d*e*f*(5
+ m) + c^2*f^2*(26 + 17*m + 3*m^2)) + b^3*(6*d^3*e^3 - 2*c*d^2*e^
2*f*(13 + m) + c^2*d*e*f^2*(46 + 11*m + m^2) - c^3*f^3*(50 + 35*m
 + 10*m^2 + m^3)))*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m))/((b*c -
a*d)^4*(d*e - c*f)^4*(1 + m)*(2 + m)*(3 + m)*(4 + m)) + (f^4*(a +
 b*x)^(1 + m)*(c + d*x)^(-1 - m)*Hypergeometric2F1[1, 1 + m, 2 +
m, ((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x))])/((b*e - a*f)
*(d*e - c*f)^4*(1 + m))
```

Rubi [A] time = 3.51892, antiderivative size = 569, normalized size of antiderivative = 1., number of steps used = 6, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.154$

$$\frac{d(a+bx)^{m+1}(c+dx)^{-m-2}\left(a^2d^2f^2\left(m^2+7m+12\right)+2abdf(m+4)(de-cf(m+4))+b^2\left(c^2f^2\left(m^2+9m+26\right)-2cdef(m\right.\right.}{(m+2)(m+3)(m+4)(bc-ad)^3(de-cf)^3}$$
$$+\frac{d(a+bx)^{m+1}(c+dx)^{-m-1}\left(a^3d^3f^3\left(m^3+9m^2+26m+24\right)+a^2bd^2f^2\left(m^2+7m+12\right)(de-cf(3m+7))+ab^2df(m+4)\left(\right.\right.}{(m+1)(m+2)}$$
$$+\frac{f^4(a+bx)^{m+1}(c+dx)^{-m-1}\,{}_2F_1\left(1,m+1;m+2;\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}\right)}{(m+1)(be-af)(de-cf)^4}+\frac{d(a+bx)^{m+1}(c+dx)^{-m-4}}{(m+4)(bc-ad)(de-cf)}$$
$$+\frac{d(a+bx)^{m+1}(c+dx)^{-m-3}(adf(m+4)-bcf(m+7)+3bde)}{(m+3)(m+4)(bc-ad)^2(de-cf)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^m*(c + d*x)^(-5 - m))/(e + f*x),x]
```

```
[Out] (d*(a + b*x)^(1 + m)*(c + d*x)^(-4 - m))/((b*c - a*d)*(d*e - c*f)
*(4 + m)) + (d*(3*b*d*e + a*d*f*(4 + m) - b*c*f*(7 + m))*(a + b*x
)^(1 + m)*(c + d*x)^(-3 - m))/((b*c - a*d)^2*(d*e - c*f)^2*(3 + m
)*(4 + m)) + (d*(a^2*d^2*f^2*(12 + 7*m + m^2) + 2*a*b*d*f*(4 + m)
*(d*e - c*f*(4 + m)) + b^2*(6*d^2*e^2 - 2*c*d*e*f*(10 + m) + c^2*
f^2*(26 + 9*m + m^2)))*(a + b*x)^(1 + m)*(c + d*x)^(-2 - m))/((b*
c - a*d)^3*(d*e - c*f)^3*(2 + m)*(3 + m)*(4 + m)) + (d*(a^3*d^3*f
^3*(24 + 26*m + 9*m^2 + m^3) + a^2*b*d^2*f^2*(12 + 7*m + m^2)*(d*
e - c*f*(7 + 3*m)) + a*b^2*d*f*(4 + m)*(2*d^2*e^2 - 2*c*d*e*f*(5
+ m) + c^2*f^2*(26 + 17*m + 3*m^2)) + b^3*(6*d^3*e^3 - 2*c*d^2*e^
2*f*(13 + m) + c^2*d*e*f^2*(46 + 11*m + m^2) - c^3*f^3*(50 + 35*m
 + 10*m^2 + m^3)))*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m))/((b*c -
a*d)^4*(d*e - c*f)^4*(1 + m)*(2 + m)*(3 + m)*(4 + m)) + (f^4*(a +
 b*x)^(1 + m)*(c + d*x)^(-1 - m)*Hypergeometric2F1[1, 1 + m, 2 +
m, ((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x))])/((b*e - a*f)
*(d*e - c*f)^4*(1 + m))
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(-5-m)/(f*x+e),x)
```

```
[Out] Timed out
```

Mathematica [C] time = 43.6279, size = 50481, normalized size = 88.56

Result too large to show

Warning: Unable to verify antiderivative.

```
[In]  Integrate[((a + b*x)^m*(c + d*x)^(-5 - m))/(e + f*x),x]
```

```
[Out] Result too large to show
```

Maple [F] time = 0.103, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{-5-m}}{fx+e}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(-5-m)/(f*x+e),x)
```

```
[Out] int((b*x+a)^m*(d*x+c)^(-5-m)/(f*x+e),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{-m-5}}{fx+e}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m - 5)/(f*x + e),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m - 5)/(f*x + e), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)^m (dx+c)^{-m-5}}{fx+e}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m - 5)/(f*x + e),x, algorithm="fricas")
```

```
[Out] integral((b*x + a)^m*(d*x + c)^(-m - 5)/(f*x + e), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(-5-m)/(f*x+e),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{-m-5}}{fx+e}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - 5)/(f*x + e),x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m - 5)/(f*x + e), x)
```

3.3094 $\int (a+bx)^m (c+dx)^{1-m} (e+fx)^p \, dx$

Optimal. Leaf size=131

$$\frac{(bc-ad)(a+bx)^{m+1}(c+dx)^{-m}(e+fx)^p\left(\frac{b(c+dx)}{bc-ad}\right)^m\left(\frac{b(e+fx)}{be-af}\right)^{-p}F_1\left(m+1;m-1,-p;m+2;-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{b^2(m+1)}$$

```
[Out] ((b*c - a*d)*(a + b*x)^(1 + m)*((b*(c + d*x))/(b*c - a*d))^m*(e +
 f*x)^p*AppellF1[1 + m, -1 + m, -p, 2 + m, -((d*(a + b*x))/(b*c -
 a*d)), -((f*(a + b*x))/(b*e - a*f))])/(b^2*(1 + m)*(c + d*x)^m*(
(b*(e + f*x))/(b*e - a*f))^p)
```

Rubi [A] time = 0.357873, antiderivative size = 131, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.115

$$\frac{(bc-ad)(a+bx)^{m+1}(c+dx)^{-m}(e+fx)^p\left(\frac{b(c+dx)}{bc-ad}\right)^m\left(\frac{b(e+fx)}{be-af}\right)^{-p}F_1\left(m+1;m-1,-p;m+2;-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{b^2(m+1)}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^(1 - m)*(e + f*x)^p,x]
```

```
[Out] ((b*c - a*d)*(a + b*x)^(1 + m)*((b*(c + d*x))/(b*c - a*d))^m*(e +
 f*x)^p*AppellF1[1 + m, -1 + m, -p, 2 + m, -((d*(a + b*x))/(b*c -
 a*d)), -((f*(a + b*x))/(b*e - a*f))])/(b^2*(1 + m)*(c + d*x)^m*(
(b*(e + f*x))/(b*e - a*f))^p)
```

Rubi in Sympy [A] time = 75.3091, size = 104, normalized size = 0.79

$$-\frac{\left(\frac{b(-c-dx)}{ad-bc}\right)^m\left(\frac{b(-e-fx)}{af-be}\right)^{-p}(a+bx)^{m+1}(c+dx)^{-m}(e+fx)^p(ad-bc)\,\text{appellf}_1\left(m+1,-p,m-1,m+2,\frac{f(a+bx)}{af-be},\frac{d(a+bx)}{ad-bc}\right)}{b^2(m+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(1-m)*(f*x+e)**p,x)
```

```
[Out] -(b*(-c - d*x)/(a*d - b*c))**m*(b*(-e - f*x)/(a*f - b*e))**(-p)*(
a + b*x)**(m + 1)*(c + d*x)**(-m)*(e + f*x)**p*(a*d - b*c)*appell
f1(m + 1, -p, m - 1, m + 2, f*(a + b*x)/(a*f - b*e), d*(a + b*x)/
(a*d - b*c))/(b**2*(m + 1))
```

Mathematica [B] time = 1.38122, size = 298, normalized size = 2.27

$$\frac{(m+2)(bc-ad)(be-af)(a+bx)^{m+1}(c+dx)^{1-m}(e+fx)^pF_1\left(m+\right.}{b(m+1)\left((m+2)(bc-ad)(be-af)F_1\left(m+1;m-1,-p;m+2;\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)-(a+bx)\left(fp(ad-bc)F_1\left(m+2;m-1,\right.\right.\right.}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^(1 - m)*(e + f*x)^p,x]
```

```
[Out] ((b*c - a*d)*(b*e - a*f)*(2 + m)*(a + b*x)^(1 + m)*(c + d*x)^(1 -
 m)*(e + f*x)^p*AppellF1[1 + m, -1 + m, -p, 2 + m, (d*(a + b*x))/
(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)])/(b*(1 + m)*((b*c -
 a*d)*(b*e - a*f)*(2 + m)*AppellF1[1 + m, -1 + m, -p, 2 + m, (d*(
```

```
a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)] - (a + b*
x)*((-(b*c) + a*d)*f*p*AppellF1[2 + m, -1 + m, 1 - p, 3 + m, (d*(
a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)] + d*(b*e
- a*f)*(-1 + m)*AppellF1[2 + m, m, -p, 3 + m, (d*(a + b*x))/(-(b*
c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)])))
```

Maple [F] time = 0.229, size = 0, normalized size = 0.

$$\int (bx+a)^{m} (dx+c)^{1-m} (fx+e)^{p}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(1-m)*(f*x+e)^p,x)

[Out] int((b*x+a)^m*(d*x+c)^(1-m)*(f*x+e)^p,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^{m}(dx+c)^{-m+1}(fx+e)^{p}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m + 1)*(f*x + e)^p,x, algorithm="maxima")

[Out] integrate((b*x + a)^m*(d*x + c)^(-m + 1)*(f*x + e)^p, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left((bx+a)^{m}(dx+c)^{-m+1}(fx+e)^{p}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m + 1)*(f*x + e)^p,x, algorithm="fricas")

[Out] integral((b*x + a)^m*(d*x + c)^(-m + 1)*(f*x + e)^p, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(1-m)*(f*x+e)**p,x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^{m}(dx+c)^{-m+1}(fx+e)^{p}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m + 1)*(f*x + e)^p,x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m + 1)*(f*x + e)^p, x)
```

3.3095 $\int (a+bx)^m (c+dx)^{1-m} (e+fx)^4 \, dx$

Optimal. Leaf size=803

$$\frac{f(a+bx)^{m+1}(e+fx)^3(c+dx)^{2-m}}{6bd} - \frac{f(adf(5-m)-b(9de-cf(m+4)))(a+bx)^{m+1}(e+fx)^2(c+dx)^{2-m}}{30b^2d^2}$$
$$-\frac{f(a+bx)^{m+1}\left(-\left(312d^3e^3-24cd^2f(7m+13)e^2+24c^2df^2\left(m^2+5m+6\right)e-c^3f^3\left(m^3+9m^2+26m+24\right)\right)b^3+3adf\left(8c\right.\right.}{}$$
$$+\frac{(bc-ad)\left(\left(360d^4e^4-480cd^3f(m+1)e^3+180c^2d^2f^2\left(m^2+3m+2\right)e^2-24c^3df^3\left(m^3+6m^2+11m+6\right)e+c^4f^4\left(m^4+10\right.\right.\right.}{}$$

```
[Out] -(f*(a*d*f*(5 - m) - b*(9*d*e - c*f*(4 + m)))*(a + b*x)^(1 + m)*(
c + d*x)^(2 - m)*(e + f*x)^2)/(30*b^2*d^2) + (f*(a + b*x)^(1 + m)
*(c + d*x)^(2 - m)*(e + f*x)^3)/(6*b*d) - (f*(a + b*x)^(1 + m)*(c
 + d*x)^(2 - m)*(a^3*d^3*f^3*(60 - 47*m + 12*m^2 - m^3) - 3*a^2*b
*d^2*f^2*(4 - m)*(8*d*e*(3 - m) - c*f*(4 + m - m^2)) + 3*a*b^2*d*
f*(8*d^2*e^2*(20 - 7*m) - 8*c*d*e*f*(9 + 2*m - 2*m^2) + c^2*f^2*(
12 + 7*m - 2*m^2 - m^3)) - b^3*(312*d^3*e^3 - 24*c*d^2*e^2*f*(13
+ 7*m) + 24*c^2*d*e*f^2*(6 + 5*m + m^2) - c^3*f^3*(24 + 26*m + 9*
m^2 + m^3)) + 3*b*d*f*(5*b*d*(a*f*(3*c*f + d*e*(2 - m)) - b*e*(6*
d*e - c*f*(1 + m))) - (a*d*f*(4 - m) - b*(2*d*e - c*f*(3 + m)))*(
a*d*f*(5 - m) - b*(9*d*e - c*f*(4 + m))))*x))/(360*b^4*d^4) + ((b
*c - a*d)*(a^4*d^4*f^4*(120 - 154*m + 71*m^2 - 14*m^3 + m^4) - 4*
a^3*b*d^3*f^3*(24 - 26*m + 9*m^2 - m^3)*(6*d*e - c*f*(1 + m)) + 6
*a^2*b^2*d^2*f^2*(6 - 5*m + m^2)*(30*d^2*e^2 - 12*c*d*e*f*(1 + m)
 + c^2*f^2*(2 + 3*m + m^2)) - 4*a*b^3*d*f*(2 - m)*(120*d^3*e^3 -
90*c*d^2*e^2*f*(1 + m) + 18*c^2*d*e*f^2*(2 + 3*m + m^2) - c^3*f^3
*(6 + 11*m + 6*m^2 + m^3)) + b^4*(360*d^4*e^4 - 480*c*d^3*e^3*f*(
1 + m) + 180*c^2*d^2*e^2*f^2*(2 + 3*m + m^2) - 24*c^3*d*e*f^3*(6
+ 11*m + 6*m^2 + m^3) + c^4*f^4*(24 + 50*m + 35*m^2 + 10*m^3 + m^
4)))*(a + b*x)^(1 + m)*((b*(c + d*x))/(b*c - a*d))^m*Hypergeometr
ic2F1[-1 + m, 1 + m, 2 + m, -((d*(a + b*x))/(b*c - a*d))])/(360*b
^6*d^4*(1 + m)*(c + d*x)^m)
```

Rubi [A] time = 7.38695, antiderivative size = 799, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 5, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.192$

$$\frac{f(a+bx)^{m+1}(e+fx)^3(c+dx)^{2-m}}{6bd} + \frac{f(9bde-adf(5-m)-bcf(m+4))(a+bx)^{m+1}(e+fx)^2(c+dx)^{2-m}}{30b^2d^2}$$
$$-\frac{f(a+bx)^{m+1}\left(-\left(312d^3e^3-24cd^2f(7m+13)e^2+24c^2df^2\left(m^2+5m+6\right)e-c^3f^3\left(m^3+9m^2+26m+24\right)\right)b^3+3adf\left(8c\right.\right.}{}$$
$$+\frac{(bc-ad)\left(\left(360d^4e^4-480cd^3f(m+1)e^3+180c^2d^2f^2\left(m^2+3m+2\right)e^2-24c^3df^3\left(m^3+6m^2+11m+6\right)e+c^4f^4\left(m^4+10\right.\right.\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^(1 - m)*(e + f*x)^4,x]
```

```
[Out] (f*(9*b*d*e - a*d*f*(5 - m) - b*c*f*(4 + m))*(a + b*x)^(1 + m)*(c
 + d*x)^(2 - m)*(e + f*x)^2)/(30*b^2*d^2) + (f*(a + b*x)^(1 + m)*
(c + d*x)^(2 - m)*(e + f*x)^3)/(6*b*d) - (f*(a + b*x)^(1 + m)*(c
+ d*x)^(2 - m)*(a^3*d^3*f^3*(60 - 47*m + 12*m^2 - m^3) - 3*a^2*b*
d^2*f^2*(4 - m)*(8*d*e*(3 - m) - c*f*(4 + m - m^2)) + 3*a*b^2*d*f
*(8*d^2*e^2*(20 - 7*m) - 8*c*d*e*f*(9 + 2*m - 2*m^2) + c^2*f^2*(1
2 + 7*m - 2*m^2 - m^3)) - b^3*(312*d^3*e^3 - 24*c*d^2*e^2*f*(13 +
 7*m) + 24*c^2*d*e*f^2*(6 + 5*m + m^2) - c^3*f^3*(24 + 26*m + 9*m
^2 + m^3)) - 3*b*d*f*((2*b*d*e - a*d*f*(4 - m) - b*c*f*(3 + m))*(
9*b*d*e - a*d*f*(5 - m) - b*c*f*(4 + m)) - 5*b*d*(a*f*(3*c*f + d*
e*(2 - m)) - b*e*(6*d*e - c*f*(1 + m))))*x))/(360*b^4*d^4) + ((b*
c - a*d)*(a^4*d^4*f^4*(120 - 154*m + 71*m^2 - 14*m^3 + m^4) - 4*a
^3*b*d^3*f^3*(24 - 26*m + 9*m^2 - m^3)*(6*d*e - c*f*(1 + m)) + 6*
a^2*b^2*d^2*f^2*(6 - 5*m + m^2)*(30*d^2*e^2 - 12*c*d*e*f*(1 + m)
+ c^2*f^2*(2 + 3*m + m^2)) - 4*a*b^3*d*f*(2 - m)*(120*d^3*e^3 - 9
0*c*d^2*e^2*f*(1 + m) + 18*c^2*d*e*f^2*(2 + 3*m + m^2) - c^3*f^3*
(6 + 11*m + 6*m^2 + m^3)) + b^4*(360*d^4*e^4 - 480*c*d^3*e^3*f*(1
```

```
 + m) + 180*c^2*d^2*e^2*f^2*(2 + 3*m + m^2) - 24*c^3*d*e*f^3*(6 +
 11*m + 6*m^2 + m^3) + c^4*f^4*(24 + 50*m + 35*m^2 + 10*m^3 + m^4
)))*(a + b*x)^(1 + m)*((b*(c + d*x))/(b*c - a*d))^m*Hypergeometri
c2F1[-1 + m, 1 + m, 2 + m, -((d*(a + b*x))/(b*c - a*d))])/(360*b^
6*d^4*(1 + m)*(c + d*x)^m)
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(1-m)*(f*x+e)**4,x)
```

```
[Out] Timed out
```

Mathematica [C] time = 7.24836, size = 676, normalized size = 0.84

$$\frac{6ace^3fx^2(a+bx)^m(c+dx)^{1-m}F_1\left(2;-m,m-1;3;-\frac{bx}{a},-\frac{dx}{c}\right)}{3acF_1\left(2;-m,m-1;3;-\frac{bx}{a},-\frac{dx}{c}\right)+bcmxF_1\left(3;1-m,m-1;4;-\frac{bx}{a},-\frac{dx}{c}\right)-ad(m-1)xF_1\left(3;-m,m;4;-\frac{bx}{a},-\frac{dx}{c}\right)}+\frac{8ace^2f^2x^3(a+bx)^m(c+dx)^{1-m}F_1\left(3;-m,m-1;4;-\frac{bx}{a},-\frac{dx}{c}\right)}{4acF_1\left(3;-m,m-1;4;-\frac{bx}{a},-\frac{dx}{c}\right)+bcmxF_1\left(4;1-m,m-1;5;-\frac{bx}{a},-\frac{dx}{c}\right)-ad(m-1)xF_1\left(4;-m,m;5;-\frac{bx}{a},-\frac{dx}{c}\right)}+\frac{5acef^3x^4(a+bx)^m(c+dx)^{1-m}F_1\left(4;-m,m-1;5;-\frac{bx}{a},-\frac{dx}{c}\right)}{5acF_1\left(4;-m,m-1;5;-\frac{bx}{a},-\frac{dx}{c}\right)+bcmxF_1\left(5;1-m,m-1;6;-\frac{bx}{a},-\frac{dx}{c}\right)-ad(m-1)xF_1\left(5;-m,m;6;-\frac{bx}{a},-\frac{dx}{c}\right)}+\frac{6acf^4x^5(a+bx)^m(c+dx)^{1-m}F_1\left(5;-m,m-1;6;-\frac{bx}{a},-\frac{dx}{c}\right)}{5\left(6acF_1\left(5;-m,m-1;6;-\frac{bx}{a},-\frac{dx}{c}\right)+bcmxF_1\left(6;1-m,m-1;7;-\frac{bx}{a},-\frac{dx}{c}\right)-ad(m-1)xF_1\left(6;-m,m;7;-\frac{bx}{a},-\frac{dx}{c}\right)\right)}-\frac{e^4(c+dx)^{2-m}\left(a+\frac{b(c+dx)}{d}-\frac{bc}{d}\right)^m\left(\frac{b(c+dx)}{d\left(a-\frac{bc}{d}\right)}+1\right)^{-m}{}_2F_1\left(2-m,-m;3-m;-\frac{b(c+dx)}{\left(a-\frac{bc}{d}\right)d}\right)}{d(m-2)}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^(1 - m)*(e + f*x)^4,x]
```

```
[Out] (6*a*c*e^3*f*x^2*(a + b*x)^m*(c + d*x)^(1 - m)*AppellF1[2, -m, -1
 + m, 3, -((b*x)/a), -((d*x)/c)])/(3*a*c*AppellF1[2, -m, -1 + m,
3, -((b*x)/a), -((d*x)/c)] + b*c*m*x*AppellF1[3, 1 - m, -1 + m, 4
, -((b*x)/a), -((d*x)/c)] - a*d*(-1 + m)*x*AppellF1[3, -m, m, 4,
-((b*x)/a), -((d*x)/c)]) + (8*a*c*e^2*f^2*x^3*(a + b*x)^m*(c + d*
x)^(1 - m)*AppellF1[3, -m, -1 + m, 4, -((b*x)/a), -((d*x)/c)])/(4
*a*c*AppellF1[3, -m, -1 + m, 4, -((b*x)/a), -((d*x)/c)] + b*c*m*x
*AppellF1[4, 1 - m, -1 + m, 5, -((b*x)/a), -((d*x)/c)] - a*d*(-1
+ m)*x*AppellF1[4, -m, m, 5, -((b*x)/a), -((d*x)/c)]) + (5*a*c*e*
f^3*x^4*(a + b*x)^m*(c + d*x)^(1 - m)*AppellF1[4, -m, -1 + m, 5,
-((b*x)/a), -((d*x)/c)])/(5*a*c*AppellF1[4, -m, -1 + m, 5, -((b*x
)/a), -((d*x)/c)] + b*c*m*x*AppellF1[5, 1 - m, -1 + m, 6, -((b*x)
/a), -((d*x)/c)] - a*d*(-1 + m)*x*AppellF1[5, -m, m, 6, -((b*x)/a
), -((d*x)/c)]) + (6*a*c*f^4*x^5*(a + b*x)^m*(c + d*x)^(1 - m)*Ap
pellF1[5, -m, -1 + m, 6, -((b*x)/a), -((d*x)/c)])/(5*(6*a*c*Appel
lF1[5, -m, -1 + m, 6, -((b*x)/a), -((d*x)/c)] + b*c*m*x*AppellF1[
6, 1 - m, -1 + m, 7, -((b*x)/a), -((d*x)/c)] - a*d*(-1 + m)*x*App
ellF1[6, -m, m, 7, -((b*x)/a), -((d*x)/c)])) - (e^4*(c + d*x)^(2
- m)*(a - (b*c)/d + (b*(c + d*x))/d)^m*Hypergeometric2F1[2 - m, -
m, 3 - m, -((b*(c + d*x))/((a - (b*c)/d)*d))])/(d*(-2 + m)*(1 + (
b*(c + d*x))/((a - (b*c)/d)*d))^m)
```

Maple [F] time = 0.11, size = 0, normalized size = 0.

$$\int (bx+a)^{m} (dx+c)^{1-m} (fx+e)^{4}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(1-m)*(f*x+e)^4,x)
```

```
[Out] int((b*x+a)^m*(d*x+c)^(1-m)*(f*x+e)^4,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (fx+e)^{4}(bx+a)^{m}(dx+c)^{-m+1}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((f*x + e)^4*(b*x + a)^m*(d*x + c)^(-m + 1),x, algorithm="maxima")
```

```
[Out] integrate((f*x + e)^4*(b*x + a)^m*(d*x + c)^(-m + 1), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\left(f^{4}x^{4}+4\,ef^{3}x^{3}+6\,e^{2}f^{2}x^{2}+4\,e^{3}fx+e^{4}\right)(bx+a)^{m}(dx+c)^{-m+1}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((f*x + e)^4*(b*x + a)^m*(d*x + c)^(-m + 1),x, algorithm="fricas")
```

```
[Out] integral((f^4*x^4 + 4*e*f^3*x^3 + 6*e^2*f^2*x^2 + 4*e^3*f*x + e^4
)*(b*x + a)^m*(d*x + c)^(-m + 1), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(1-m)*(f*x+e)**4,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (fx+e)^{4}(bx+a)^{m}(dx+c)^{-m+1}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((f*x + e)^4*(b*x + a)^m*(d*x + c)^(-m + 1),x, algorithm="giac")
```

```
[Out] integrate((f*x + e)^4*(b*x + a)^m*(d*x + c)^(-m + 1), x)
```

3.3096 $\int (a+bx)^m(c+dx)^{1-m}(e+fx)^3\,dx$

Optimal. Leaf size=445

$$\frac{f(a+bx)^{m+1}(c+dx)^{2-m}\left(a^2d^2f^2\left(m^2-7m+12\right)-abdf\left(15de(3-m)-cf\left(-2m^2+2m+9\right)\right)-3bdfx(adf(4-m)-b(\cdots}{60b^3d^3}$$

$$-\frac{(bc-ad)(a+bx)^{m+1}(c+dx)^{-m}\left(\frac{b(c+dx)}{bc-ad}\right)^m\left(a^3d^3f^3\left(-m^3+9m^2-26m+24\right)-3a^2bd^2f^2\left(m^2-5m+6\right)(5de-cf(m+\cdots}{\cdots}$$

$$+\frac{f(e+fx)^2(a+bx)^{m+1}(c+dx)^{2-m}}{5bd}$$

```
[Out] (f*(a + b*x)^(1 + m)*(c + d*x)^(2 - m)*(e + f*x)^2)/(5*b*d) + (f*
(a + b*x)^(1 + m)*(c + d*x)^(2 - m)*(a^2*d^2*f^2*(12 - 7*m + m^2)
 - a*b*d*f*(15*d*e*(3 - m) - c*f*(9 + 2*m - 2*m^2)) + b^2*(48*d^2
*e^2 - 15*c*d*e*f*(2 + m) + c^2*f^2*(6 + 5*m + m^2)) - 3*b*d*f*(a
*d*f*(4 - m) - b*(7*d*e - c*f*(3 + m)))*x))/(60*b^3*d^3) - ((b*c
- a*d)*(a^3*d^3*f^3*(24 - 26*m + 9*m^2 - m^3) - 3*a^2*b*d^2*f^2*(
6 - 5*m + m^2)*(5*d*e - c*f*(1 + m)) + 3*a*b^2*d*f*(2 - m)*(20*d^
2*e^2 - 10*c*d*e*f*(1 + m) + c^2*f^2*(2 + 3*m + m^2)) - b^3*(60*d
^3*e^3 - 60*c*d^2*e^2*f*(1 + m) + 15*c^2*d*e*f^2*(2 + 3*m + m^2)
- c^3*f^3*(6 + 11*m + 6*m^2 + m^3)))*(a + b*x)^(1 + m)*((b*(c + d
*x))/(b*c - a*d))^m*Hypergeometric2F1[-1 + m, 1 + m, 2 + m, -((d*
(a + b*x))/(b*c - a*d))])/(60*b^5*d^3*(1 + m)*(c + d*x)^m)
```

Rubi [A] time = 1.30579, antiderivative size = 444, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.154$

$$\frac{f(a+bx)^{m+1}(c+dx)^{2-m}\left(a^2d^2f^2\left(m^2-7m+12\right)-abdf\left(15de(3-m)-cf\left(-2m^2+2m+9\right)\right)+3bdfx(-adf(4-m)-b\cdots}{60b^3d^3}$$

$$-\frac{(bc-ad)(a+bx)^{m+1}(c+dx)^{-m}\left(\frac{b(c+dx)}{bc-ad}\right)^m\left(a^3d^3f^3\left(-m^3+9m^2-26m+24\right)-3a^2bd^2f^2\left(m^2-5m+6\right)(5de-cf(m+\cdots}{\cdots}$$

$$+\frac{f(e+fx)^2(a+bx)^{m+1}(c+dx)^{2-m}}{5bd}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^(1 - m)*(e + f*x)^3,x]
```

```
[Out] (f*(a + b*x)^(1 + m)*(c + d*x)^(2 - m)*(e + f*x)^2)/(5*b*d) + (f*
(a + b*x)^(1 + m)*(c + d*x)^(2 - m)*(a^2*d^2*f^2*(12 - 7*m + m^2)
 - a*b*d*f*(15*d*e*(3 - m) - c*f*(9 + 2*m - 2*m^2)) + b^2*(48*d^2
*e^2 - 15*c*d*e*f*(2 + m) + c^2*f^2*(6 + 5*m + m^2)) + 3*b*d*f*(7
*b*d*e - a*d*f*(4 - m) - b*c*f*(3 + m))*x))/(60*b^3*d^3) - ((b*c
- a*d)*(a^3*d^3*f^3*(24 - 26*m + 9*m^2 - m^3) - 3*a^2*b*d^2*f^2*(
6 - 5*m + m^2)*(5*d*e - c*f*(1 + m)) + 3*a*b^2*d*f*(2 - m)*(20*d^
2*e^2 - 10*c*d*e*f*(1 + m) + c^2*f^2*(2 + 3*m + m^2)) - b^3*(60*d
^3*e^3 - 60*c*d^2*e^2*f*(1 + m) + 15*c^2*d*e*f^2*(2 + 3*m + m^2)
- c^3*f^3*(6 + 11*m + 6*m^2 + m^3)))*(a + b*x)^(1 + m)*((b*(c + d
*x))/(b*c - a*d))^m*Hypergeometric2F1[-1 + m, 1 + m, 2 + m, -((d*
(a + b*x))/(b*c - a*d))])/(60*b^5*d^3*(1 + m)*(c + d*x)^m)
```

Rubi in Sympy [A] time = 138.72, size = 564, normalized size = 1.27

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(1-m)*(f*x+e)**3,x)
```

```
[Out] f*(a + b*x)**(m + 1)*(c + d*x)**(-m + 2)*(e + f*x)**2/(5*b*d) - f
*(a + b*x)**(m + 1)*(c + d*x)**(-m + 2)*(-a*d*f*(-m + 3)*(-7*b*d*
```

```
e + f*(a*d*(-m + 4) + b*c*(m + 3))) - b*c*f*(m + 2)*(-7*b*d*e + f
*(a*d*(-m + 4) + b*c*(m + 3))) + 3*b*d*f*x*(-7*b*d*e + f*(a*d*(-m
 + 4) + b*c*(m + 3))) + 4*b*d*(-5*b*d*e**2 + e*(-7*b*d*e + f*(a*d
*(-m + 4) + b*c*(m + 3))) + f*(2*a*c*f + e*(a*d*(-m + 2) + b*c*(m
 + 1)))))/(60*b**3*d**3) + (b*(-c - d*x)/(a*d - b*c))**m*(a + b*x
)**(m + 1)*(c + d*x)**(-m)*(a*d - b*c)*(a**2*d**2*f**2*(-m + 2)*(
-m + 3)*(-7*b*d*e + f*(a*d*(-m + 4) + b*c*(m + 3))) - 2*a*b*d*f*(
-m + 2)*(-c*f*(m + 1)*(-7*b*d*e + f*(a*d*(-m + 4) + b*c*(m + 3)))
 + 2*d*(-5*b*d*e**2 + e*(-7*b*d*e + f*(a*d*(-m + 4) + b*c*(m + 3)
)) + f*(2*a*c*f + e*(a*d*(-m + 2) + b*c*(m + 1))))) + b**2*(c**2*
f**2*(m + 1)*(m + 2)*(-7*b*d*e + f*(a*d*(-m + 4) + b*c*(m + 3)))
- 4*c*d*f*(m + 1)*(-5*b*d*e**2 + e*(-7*b*d*e + f*(a*d*(-m + 4) +
b*c*(m + 3))) + f*(2*a*c*f + e*(a*d*(-m + 2) + b*c*(m + 1)))) + 1
2*d**2*e*(-5*b*d*e**2 + f*(2*a*c*f + e*(a*d*(-m + 2) + b*c*(m + 1
))))))*hyper((m - 1, m + 1), (m + 2,), d*(a + b*x)/(a*d - b*c))/(
60*b**5*d**3*(m + 1))
```

Mathematica [C] time = 3.346, size = 461, normalized size = 1.04

$$\frac{1}{4}(a+bx)^m(c+dx)^{1-m}\left(\frac{18ace^2fx^2F_1\left(2;-m,m-1;3;-\frac{bx}{a},-\frac{dx}{c}\right)}{3acF_1\left(2;-m,m-1;3;-\frac{bx}{a},-\frac{dx}{c}\right)+bcmxF_1\left(3;1-m,m-1;4;-\frac{bx}{a},-\frac{dx}{c}\right)-ad(m-1)xF_1\left(3;-m,m;4;-\frac{bx}{a},-\right.}\right.$$
$$+\frac{16acef^2x^3F_1\left(3;-m,m-1;4;-\frac{bx}{a},-\frac{dx}{c}\right)}{4acF_1\left(3;-m,m-1;4;-\frac{bx}{a},-\frac{dx}{c}\right)+bcmxF_1\left(4;1-m,m-1;5;-\frac{bx}{a},-\frac{dx}{c}\right)-ad(m-1)xF_1\left(4;-m,m;5;-\frac{bx}{a},-\frac{dx}{c}\right)}$$
$$+\frac{5acf^3x^4F_1\left(4;-m,m-1;5;-\frac{bx}{a},-\frac{dx}{c}\right)}{5acF_1\left(4;-m,m-1;5;-\frac{bx}{a},-\frac{dx}{c}\right)+bcmxF_1\left(5;1-m,m-1;6;-\frac{bx}{a},-\frac{dx}{c}\right)-ad(m-1)xF_1\left(5;-m,m;6;-\frac{bx}{a},-\frac{dx}{c}\right)}$$
$$\left.-\frac{4e^3(c+dx)\left(\frac{d(a+bx)}{ad-bc}\right)^{-m}{}_2F_1\left(2-m,-m;3-m;\frac{b(c+dx)}{bc-ad}\right)}{d(m-2)}\right)$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^(1 - m)*(e + f*x)^3,x]
```

```
[Out] ((a + b*x)^m*(c + d*x)^(1 - m)*((18*a*c*e^2*f*x^2*AppellF1[2, -m,
 -1 + m, 3, -((b*x)/a), -((d*x)/c)])/(3*a*c*AppellF1[2, -m, -1 +
m, 3, -((b*x)/a), -((d*x)/c)] + b*c*m*x*AppellF1[3, 1 - m, -1 + m
, 4, -((b*x)/a), -((d*x)/c)] - a*d*(-1 + m)*x*AppellF1[3, -m, m,
4, -((b*x)/a), -((d*x)/c)]) + (16*a*c*e*f^2*x^3*AppellF1[3, -m, -
1 + m, 4, -((b*x)/a), -((d*x)/c)])/(4*a*c*AppellF1[3, -m, -1 + m,
 4, -((b*x)/a), -((d*x)/c)] + b*c*m*x*AppellF1[4, 1 - m, -1 + m,
5, -((b*x)/a), -((d*x)/c)] - a*d*(-1 + m)*x*AppellF1[4, -m, m, 5,
 -((b*x)/a), -((d*x)/c)]) + (5*a*c*f^3*x^4*AppellF1[4, -m, -1 + m
, 5, -((b*x)/a), -((d*x)/c)])/(5*a*c*AppellF1[4, -m, -1 + m, 5, -
((b*x)/a), -((d*x)/c)] + b*c*m*x*AppellF1[5, 1 - m, -1 + m, 6, -(
(b*x)/a), -((d*x)/c)] - a*d*(-1 + m)*x*AppellF1[5, -m, m, 6, -((b
*x)/a), -((d*x)/c)]) - (4*e^3*(c + d*x)*Hypergeometric2F1[2 - m,
-m, 3 - m, (b*(c + d*x))/(b*c - a*d)])/(d*(-2 + m)*((d*(a + b*x))
/(-(b*c) + a*d))^m)))/4
```

Maple [F] time = 0.099, size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^{1-m} (fx+e)^3 \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(1-m)*(f*x+e)^3,x)
```

```
[Out] int((b*x+a)^m*(d*x+c)^(1-m)*(f*x+e)^3,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (fx+e)^3(bx+a)^m(dx+c)^{-m+1}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)^3*(b*x + a)^m*(d*x + c)^(-m + 1),x, algorithm="maxima")
```

```
[Out] integrate((f*x + e)^3*(b*x + a)^m*(d*x + c)^(-m + 1), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\left(f^3x^3+3\,ef^2x^2+3\,e^2fx+e^3\right)(bx+a)^m(dx+c)^{-m+1},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)^3*(b*x + a)^m*(d*x + c)^(-m + 1),x, algorithm="fricas")
```

```
[Out] integral((f^3*x^3 + 3*e*f^2*x^2 + 3*e^2*f*x + e^3)*(b*x + a)^m*(d
*x + c)^(-m + 1), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(1-m)*(f*x+e)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (fx+e)^3(bx+a)^m(dx+c)^{-m+1}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)^3*(b*x + a)^m*(d*x + c)^(-m + 1),x, algorithm="giac")
```

```
[Out] integrate((f*x + e)^3*(b*x + a)^m*(d*x + c)^(-m + 1), x)
```

3.3097 $\int (a+bx)^m (c+dx)^{1-m} (e+fx)^2\,dx$

Optimal. Leaf size=260

$$\frac{(bc-ad)(a+bx)^{m+1}(c+dx)^{-m}\left(\frac{b(c+dx)}{bc-ad}\right)^m\left(a^2d^2f^2\left(m^2-5m+6\right)-2abdf(2-m)(4de-cf(m+1))+b^2\left(c^2f^2\left(m^2+3m\right.\right.\right.}{12b^4d^2(m+1)}$$
$$-\frac{f(a+bx)^{m+1}(c+dx)^{2-m}(adf(3-m)-b(5de-cf(m+2)))}{12b^2d^2}+\frac{f(e+fx)(a+bx)^{m+1}(c+dx)^{2-m}}{4bd}$$

```
[Out] -(f*(a*d*f*(3 - m) - b*(5*d*e - c*f*(2 + m)))*(a + b*x)^(1 + m)*(
c + d*x)^(2 - m))/(12*b^2*d^2) + (f*(a + b*x)^(1 + m)*(c + d*x)^(
2 - m)*(e + f*x))/(4*b*d) + ((b*c - a*d)*(a^2*d^2*f^2*(6 - 5*m +
m^2) - 2*a*b*d*f*(2 - m)*(4*d*e - c*f*(1 + m)) + b^2*(12*d^2*e^2
- 8*c*d*e*f*(1 + m) + c^2*f^2*(2 + 3*m + m^2)))*(a + b*x)^(1 + m)
*((b*(c + d*x))/(b*c - a*d))^m*Hypergeometric2F1[-1 + m, 1 + m, 2
 + m, -((d*(a + b*x))/(b*c - a*d))])/(12*b^4*d^2*(1 + m)*(c + d*x
)^m)
```

Rubi [A] time = 0.638674, antiderivative size = 259, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.154$

$$\frac{(bc-ad)(a+bx)^{m+1}(c+dx)^{-m}\left(\frac{b(c+dx)}{bc-ad}\right)^m\left(a^2d^2f^2\left(m^2-5m+6\right)-2abdf(2-m)(4de-cf(m+1))+b^2\left(c^2f^2\left(m^2+3m\right.\right.\right.}{12b^4d^2(m+1)}$$
$$+\frac{f(a+bx)^{m+1}(c+dx)^{2-m}(-adf(3-m)-bcf(m+2)+5bde)}{12b^2d^2}+\frac{f(e+fx)(a+bx)^{m+1}(c+dx)^{2-m}}{4bd}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^(1 - m)*(e + f*x)^2,x]
```

```
[Out] (f*(5*b*d*e - a*d*f*(3 - m) - b*c*f*(2 + m))*(a + b*x)^(1 + m)*(c
 + d*x)^(2 - m))/(12*b^2*d^2) + (f*(a + b*x)^(1 + m)*(c + d*x)^(2
 - m)*(e + f*x))/(4*b*d) + ((b*c - a*d)*(a^2*d^2*f^2*(6 - 5*m + m
^2) - 2*a*b*d*f*(2 - m)*(4*d*e - c*f*(1 + m)) + b^2*(12*d^2*e^2 -
 8*c*d*e*f*(1 + m) + c^2*f^2*(2 + 3*m + m^2)))*(a + b*x)^(1 + m)*
((b*(c + d*x))/(b*c - a*d))^m*Hypergeometric2F1[-1 + m, 1 + m, 2
+ m, -((d*(a + b*x))/(b*c - a*d))])/(12*b^4*d^2*(1 + m)*(c + d*x)
^m)
```

Rubi in Sympy [A] time = 52.5514, size = 221, normalized size = 0.85

$$\frac{f\left(a+bx\right)^{m+1}\left(c+dx\right)^{-m+2}\left(e+fx\right)}{4bd}-\frac{f\left(a+bx\right)^{m+1}\left(c+dx\right)^{-m+2}\left(-5bde+f\left(ad\left(-m+3\right)+bc\left(m+2\right)\right)\right)}{12b^2d^2}$$
$$+\frac{\left(\frac{b(-c-dx)}{ad-bc}\right)^m\left(a+bx\right)^{m+1}\left(c+dx\right)^{-m}\left(ad-bc\right)\left(3bd\left(-4bde^2+f\left(acf+e\left(ad\left(-m+2\right)+bc\left(m+1\right)\right)\right)\right)-f\left(ad\left(-m+2\right)+b\right.\right.}{12b^4d^2\left(m+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(1-m)*(f*x+e)**2,x)
```

```
[Out] f*(a + b*x)**(m + 1)*(c + d*x)**(-m + 2)*(e + f*x)/(4*b*d) - f*(a
 + b*x)**(m + 1)*(c + d*x)**(-m + 2)*(-5*b*d*e + f*(a*d*(-m + 3)
+ b*c*(m + 2)))/(12*b**2*d**2) + (b*(-c - d*x)/(a*d - b*c))**m*(a
 + b*x)**(m + 1)*(c + d*x)**(-m)*(a*d - b*c)*(3*b*d*(-4*b*d*e**2
+ f*(a*c*f + e*(a*d*(-m + 2) + b*c*(m + 1)))) - f*(a*d*(-m + 2) +
 b*c*(m + 1))*(-5*b*d*e + f*(a*d*(-m + 3) + b*c*(m + 2))))*hyper(
(m - 1, m + 1), (m + 2,), d*(a + b*x)/(a*d - b*c))/(12*b**4*d**2*
(m + 1))
```

Mathematica [C] time = 5.86664, size = 510, normalized size = 1.96

$$c(a+bx)^m(c+dx)^{-m}\left(\frac{4afx^3(cf+2de)F_1\left(3;-m,m;4;-\frac{bx}{a},-\frac{dx}{c}\right)}{3\left(4acF_1\left(3;-m,m;4;-\frac{bx}{a},-\frac{dx}{c}\right)+bcmxF_1\left(4;1-m,m;5;-\frac{bx}{a},-\frac{dx}{c}\right)-admxF_1\left(4;-m,m+1;5;-\frac{bx}{a},-\frac{dx}{c}\right)\right)}+\frac{3aex^2(2cf+de)F_1\left(2;-m,m;3;-\frac{bx}{a},-\frac{dx}{c}\right)}{6acF_1\left(2;-m,m;3;-\frac{bx}{a},-\frac{dx}{c}\right)+2mx\left(bcF_1\left(3;1-m,m;4;-\frac{bx}{a},-\frac{dx}{c}\right)-adF_1\left(3;-m,m+1;4;-\frac{bx}{a},-\frac{dx}{c}\right)\right)}+\frac{5adf^2x^4F_1\left(4;-m,m;5;-\frac{bx}{a},-\frac{dx}{c}\right)}{20acF_1\left(4;-m,m;5;-\frac{bx}{a},-\frac{dx}{c}\right)+4bcmxF_1\left(5;1-m,m;6;-\frac{bx}{a},-\frac{dx}{c}\right)-4admxF_1\left(5;-m,m+1;6;-\frac{bx}{a},-\frac{dx}{c}\right)}-\frac{e^2x\left(\frac{d(a+bx)}{ad-bc}\right)^{-m}{}_2F_1\left(1-m,-m;2-m;\frac{b(c+dx)}{bc-ad}\right)}{m-1}-\frac{ce^2\left(\frac{d(a+bx)}{ad-bc}\right)^{-m}{}_2F_1\left(1-m,-m;2-m;\frac{b(c+dx)}{bc-ad}\right)}{d(m-1)}\right)$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^(1 - m)*(e + f*x)^2,x]
```

```
[Out] (c*(a + b*x)^m*((3*a*e*(d*e + 2*c*f)*x^2*AppellF1[2, -m, m, 3, -(
(b*x)/a), -((d*x)/c)])/(6*a*c*AppellF1[2, -m, m, 3, -((b*x)/a), -
((d*x)/c)] + 2*m*x*(b*c*AppellF1[3, 1 - m, m, 4, -((b*x)/a), -((d
*x)/c)] - a*d*AppellF1[3, -m, 1 + m, 4, -((b*x)/a), -((d*x)/c)]))
 + (4*a*f*(2*d*e + c*f)*x^3*AppellF1[3, -m, m, 4, -((b*x)/a), -((
d*x)/c)])/(3*(4*a*c*AppellF1[3, -m, m, 4, -((b*x)/a), -((d*x)/c)]
 + b*c*m*x*AppellF1[4, 1 - m, m, 5, -((b*x)/a), -((d*x)/c)] - a*d
*m*x*AppellF1[4, -m, 1 + m, 5, -((b*x)/a), -((d*x)/c)])) + (5*a*d
*f^2*x^4*AppellF1[4, -m, m, 5, -((b*x)/a), -((d*x)/c)])/(20*a*c*A
ppellF1[4, -m, m, 5, -((b*x)/a), -((d*x)/c)] + 4*b*c*m*x*AppellF1
[5, 1 - m, m, 6, -((b*x)/a), -((d*x)/c)] - 4*a*d*m*x*AppellF1[5,
-m, 1 + m, 6, -((b*x)/a), -((d*x)/c)]) - (c*e^2*Hypergeometric2F1
[1 - m, -m, 2 - m, (b*(c + d*x))/(b*c - a*d)])/(d*(-1 + m)*((d*(a
 + b*x))/(-(b*c) + a*d))^m) - (e^2*x*Hypergeometric2F1[1 - m, -m,
 2 - m, (b*(c + d*x))/(b*c - a*d)])/((-1 + m)*((d*(a + b*x))/(-(b
*c) + a*d))^m)))/(c + d*x)^m
```

Maple [F] time = 0.097, size = 0, normalized size = 0.

$$\int (bx+a)^m\,(dx+c)^{1-m}\,(fx+e)^2\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(1-m)*(f*x+e)^2,x)
```

```
[Out] int((b*x+a)^m*(d*x+c)^(1-m)*(f*x+e)^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (fx+e)^2(bx+a)^m(dx+c)^{-m+1}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((f*x + e)^2*(b*x + a)^m*(d*x + c)^(-m + 1),x, algorithm="maxima")
```

```
[Out] integrate((f*x + e)^2*(b*x + a)^m*(d*x + c)^(-m + 1), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\left(f^2x^2 + 2\,efx + e^2\right)(bx + a)^m(dx + c)^{-m+1}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)^2*(b*x + a)^m*(d*x + c)^(-m + 1),x, algorithm="fricas")
```

```
[Out] integral((f^2*x^2 + 2*e*f*x + e^2)*(b*x + a)^m*(d*x + c)^(-m + 1)
, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(1-m)*(f*x+e)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (fx + e)^2(bx + a)^m(dx + c)^{-m+1}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)^2*(b*x + a)^m*(d*x + c)^(-m + 1),x, algorithm="giac")
```

```
[Out] integrate((f*x + e)^2*(b*x + a)^m*(d*x + c)^(-m + 1), x)
```

3.3098 $\int (a+bx)^m (c+dx)^{1-m} (e+fx)\,dx$

Optimal. Leaf size=145

$$\frac{f(a+bx)^{m+1}(c+dx)^{2-m}}{3bd} - \frac{(bc-ad)(a+bx)^{m+1}(c+dx)^{-m}\left(\frac{b(c+dx)}{bc-ad}\right)^m (adf(2-m)-b(3de-cf(m+1)))\,{}_2F_1\left(m-1,m+1;m+2;-\frac{d(a+bx)}{bc-ad}\right)}{3b^3d(m+1)}$$

```
[Out] (f*(a + b*x)^(1 + m)*(c + d*x)^(2 - m))/(3*b*d) - ((b*c - a*d)*(a
*d*f*(2 - m) - b*(3*d*e - c*f*(1 + m)))*(a + b*x)^(1 + m)*((b*(c
+ d*x))/(b*c - a*d))^m*Hypergeometric2F1[-1 + m, 1 + m, 2 + m, -(
(d*(a + b*x))/(b*c - a*d))])/(3*b^3*d*(1 + m)*(c + d*x)^m)
```

Rubi [A] time = 0.240527, antiderivative size = 144, normalized size of antiderivative = 0.99, number of steps used = 3, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.125$

$$\frac{(bc-ad)(a+bx)^{m+1}(c+dx)^{-m}\left(\frac{b(c+dx)}{bc-ad}\right)^m (-adf(2-m)-bcf(m+1)+3bde)\,{}_2F_1\left(m-1,m+1;m+2;-\frac{d(a+bx)}{bc-ad}\right)}{3b^3d(m+1)} + \frac{f(a+bx)^{m+1}(c+dx)^{2-m}}{3bd}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^(1 - m)*(e + f*x),x]
```

```
[Out] (f*(a + b*x)^(1 + m)*(c + d*x)^(2 - m))/(3*b*d) + ((b*c - a*d)*(3
*b*d*e - a*d*f*(2 - m) - b*c*f*(1 + m))*(a + b*x)^(1 + m)*((b*(c
+ d*x))/(b*c - a*d))^m*Hypergeometric2F1[-1 + m, 1 + m, 2 + m, -(
(d*(a + b*x))/(b*c - a*d))])/(3*b^3*d*(1 + m)*(c + d*x)^m)
```

Rubi in Sympy [A] time = 23.8967, size = 114, normalized size = 0.79

$$\frac{f\,(a+bx)^{m+1}\,(c+dx)^{-m+2}}{3bd} + \frac{\left(\frac{b(-c-dx)}{ad-bc}\right)^m (a+bx)^{m+1}\,(c+dx)^{-m}\,(ad-bc)\,(-3bde+f\,(ad\,(-m+2)+bc\,(m+1)))\,{}_2F_1\left(\begin{matrix} m-1,m+1 \\ m+2 \end{matrix}\middle|\frac{d(a+bx)}{ad-bc}\right)}{3b^3d\,(m+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(1-m)*(f*x+e),x)
```

```
[Out] f*(a + b*x)**(m + 1)*(c + d*x)**(-m + 2)/(3*b*d) + (b*(-c - d*x)/
(a*d - b*c))**m*(a + b*x)**(m + 1)*(c + d*x)**(-m)*(a*d - b*c)*(-
3*b*d*e + f*(a*d*(-m + 2) + b*c*(m + 1)))*hyper((m - 1, m + 1), (
m + 2,), d*(a + b*x)/(a*d - b*c))/(3*b**3*d*(m + 1))
```

Mathematica [C] time = 1.06977, size = 322, normalized size = 2.22

$$c(a+bx)^m(c+dx)^{-m}\left(\frac{3ax^2(cf+de)F_1\left(2;-m,m;3;-\frac{bx}{a},-\frac{dx}{c}\right)}{6acF_1\left(2;-m,m;3;-\frac{bx}{a},-\frac{dx}{c}\right)+2mx\left(bcF_1\left(3;1-m,m;4;-\frac{bx}{a},-\frac{dx}{c}\right)-adF_1\left(3;-m,m+1;4;-\frac{bx}{a},-\frac{dx}{c}\right)\right)}+\frac{4adfx^3F_1\left(3;-m,m;4;-\frac{bx}{a},-\frac{dx}{c}\right)}{12acF_1\left(3;-m,m;4;-\frac{bx}{a},-\frac{dx}{c}\right)+3bcmxF_1\left(4;1-m,m;5;-\frac{bx}{a},-\frac{dx}{c}\right)-3admxF_1\left(4;-m,m+1;5;-\frac{bx}{a},-\frac{dx}{c}\right)}-\frac{e(c+dx)\left(\frac{d(a+bx)}{ad-bc}\right)^{-m}{}_2F_1\left(1-m,-m;2-m;\frac{b(c+dx)}{bc-ad}\right)}{d(m-1)}\right)$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^(1 - m)*(e + f*x),x]
```

```
[Out] (c*(a + b*x)^m*((3*a*(d*e + c*f)*x^2*AppellF1[2, -m, m, 3, -((b*x
)/a), -((d*x)/c)])/(6*a*c*AppellF1[2, -m, m, 3, -((b*x)/a), -((d*
x)/c)] + 2*m*x*(b*c*AppellF1[3, 1 - m, m, 4, -((b*x)/a), -((d*x)/
c)] - a*d*AppellF1[3, -m, 1 + m, 4, -((b*x)/a), -((d*x)/c)])) + (
4*a*d*f*x^3*AppellF1[3, -m, m, 4, -((b*x)/a), -((d*x)/c)])/(12*a*
c*AppellF1[3, -m, m, 4, -((b*x)/a), -((d*x)/c)] + 3*b*c*m*x*Appel
lF1[4, 1 - m, m, 5, -((b*x)/a), -((d*x)/c)] - 3*a*d*m*x*AppellF1[
4, -m, 1 + m, 5, -((b*x)/a), -((d*x)/c)]) - (e*(c + d*x)*Hypergeo
metric2F1[1 - m, -m, 2 - m, (b*(c + d*x))/(b*c - a*d)])/(d*(-1 +
m)*((d*(a + b*x))/(-(b*c) + a*d))^m)))/(c + d*x)^m
```

Maple [F] time = 0.087, size = 0, normalized size = 0.

$$\int (bx+a)^m\,(dx+c)^{1-m}\,(fx+e)\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(1-m)*(f*x+e),x)
```

```
[Out] int((b*x+a)^m*(d*x+c)^(1-m)*(f*x+e),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (fx+e)(bx+a)^m(dx+c)^{-m+1}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)*(b*x + a)^m*(d*x + c)^(-m + 1),x, algorithm="maxima")
```

```
[Out] integrate((f*x + e)*(b*x + a)^m*(d*x + c)^(-m + 1), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left((fx+e)(bx+a)^m(dx+c)^{-m+1},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((f*x + e)*(b*x + a)^m*(d*x + c)^(-m + 1),x, algorithm="fricas")
```

```
[Out] integral((f*x + e)*(b*x + a)^m*(d*x + c)^(-m + 1), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(1-m)*(f*x+e),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (fx+e)(bx+a)^m(dx+c)^{-m+1}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((f*x + e)*(b*x + a)^m*(d*x + c)^(-m + 1),x, algorithm="giac")
```

```
[Out] integrate((f*x + e)*(b*x + a)^m*(d*x + c)^(-m + 1), x)
```

3.3099 $\int (a+bx)^m (c+dx)^{1-m}\,dx$

Optimal. Leaf size=82

$$\frac{(bc-ad)(a+bx)^{m+1}(c+dx)^{-m}\left(\frac{b(c+dx)}{bc-ad}\right)^m {}_2F_1\left(m-1,m+1;m+2;-\frac{d(a+bx)}{bc-ad}\right)}{b^2(m+1)}$$

```
[Out] ((b*c - a*d)*(a + b*x)^(1 + m)*((b*(c + d*x))/(b*c - a*d))^m*Hype
rgeometric2F1[-1 + m, 1 + m, 2 + m, -((d*(a + b*x))/(b*c - a*d))]
)/(b^2*(1 + m)*(c + d*x)^m)
```

Rubi [A] time = 0.0970032, antiderivative size = 82, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}} = 0.105$

$$\frac{(bc-ad)(a+bx)^{m+1}(c+dx)^{-m}\left(\frac{b(c+dx)}{bc-ad}\right)^m {}_2F_1\left(m-1,m+1;m+2;-\frac{d(a+bx)}{bc-ad}\right)}{b^2(m+1)}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^(1 - m),x]
```

```
[Out] ((b*c - a*d)*(a + b*x)^(1 + m)*((b*(c + d*x))/(b*c - a*d))^m*Hype
rgeometric2F1[-1 + m, 1 + m, 2 + m, -((d*(a + b*x))/(b*c - a*d))]
)/(b^2*(1 + m)*(c + d*x)^m)
```

Rubi in Sympy [A] time = 15.9931, size = 66, normalized size = 0.8

$$-\frac{\left(\frac{b(-c-dx)}{ad-bc}\right)^m (a+bx)^{m+1}(c+dx)^{-m}(ad-bc)\,{}_2F_1\left(\begin{matrix} m-1, m+1 \\ m+2 \end{matrix}\middle| \frac{d(a+bx)}{ad-bc}\right)}{b^2(m+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(1-m),x)
```

```
[Out] -(b*(-c - d*x)/(a*d - b*c))**m*(a + b*x)**(m + 1)*(c + d*x)**(-m)
*(a*d - b*c)*hyper((m - 1, m + 1), (m + 2,), d*(a + b*x)/(a*d - b
*c))/(b**2*(m + 1))
```

Mathematica [C] time = 0.32624, size = 202, normalized size = 2.46

$$\frac{c(a+bx)^m(c+dx)^{-m}\left(\frac{3ad^2x^2F_1\left(2;-m,m;3;-\frac{bx}{a},-\frac{dx}{c}\right)}{6acF_1\left(2;-m,m;3;-\frac{bx}{a},-\frac{dx}{c}\right)+2mx\left(bcF_1\left(3;1-m,m;4;-\frac{bx}{a},-\frac{dx}{c}\right)-adF_1\left(3;-m,m+1;4;-\frac{bx}{a},-\frac{dx}{c}\right)\right)}-\frac{(c+dx)\left(\frac{d(a+bx)}{ad-bc}\right)^{-m}{}_2F\ldots}{m\ldots}\right)}{d}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^(1 - m),x]
```

```
[Out] (c*(a + b*x)^m*((3*a*d^2*x^2*AppellF1[2, -m, m, 3, -((b*x)/a), -(
(d*x)/c)])/(6*a*c*AppellF1[2, -m, m, 3, -((b*x)/a), -((d*x)/c)] +
 2*m*x*(b*c*AppellF1[3, 1 - m, m, 4, -((b*x)/a), -((d*x)/c)] - a*
d*AppellF1[3, -m, 1 + m, 4, -((b*x)/a), -((d*x)/c)])) - ((c + d*x
)*Hypergeometric2F1[1 - m, -m, 2 - m, (b*(c + d*x))/(b*c - a*d)])
```

```
/((-1 + m)*((d*(a + b*x))/(-(b*c) + a*d))^m)))/(d*(c + d*x)^m)
```

Maple [F] time = 0.11, size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^{1-m}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(1-m),x)

[Out] int((b*x+a)^m*(d*x+c)^(1-m),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^{-m+1}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m + 1),x, algorithm="maxima")

[Out] integrate((b*x + a)^m*(d*x + c)^(-m + 1), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left((bx+a)^m (dx+c)^{-m+1}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m + 1),x, algorithm="fricas")

[Out] integral((b*x + a)^m*(d*x + c)^(-m + 1), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(1-m),x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^{-m+1}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m + 1),x, algorithm="giac")

[Out] integrate((b*x + a)^m*(d*x + c)^(-m + 1), x)
```

3.3100 $\int \frac{(a+bx)^m(c+dx)^{1-m}}{e+fx}\,dx$

Optimal. Leaf size=220

$$\frac{(a+bx)^m(de-cf)(c+dx)^{-m}\,{}_2F_1\left(1,m;m+1;\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}\right)}{f^2m} - \frac{(a+bx)^m(de-cf)(c+dx)^{-m}\left(\frac{b(c+dx)}{bc-ad}\right)^m\,{}_2F_1\left(m,m;m+1;-\frac{d(a+bx)}{bc-ad}\right)}{f^2m} + \frac{d(a+bx)^{m+1}(c+dx)^{-m}\left(\frac{b(c+dx)}{bc-ad}\right)^m\,{}_2F_1\left(m,m+1;m+2;-\frac{d(a+bx)}{bc-ad}\right)}{bf(m+1)}$$

```
[Out] ((d*e - c*f)*(a + b*x)^m*Hypergeometric2F1[1, m, 1 + m, ((d*e - c
*f)*(a + b*x))/((b*e - a*f)*(c + d*x))])/(f^2*m*(c + d*x)^m) - ((
d*e - c*f)*(a + b*x)^m*((b*(c + d*x))/(b*c - a*d))^m*Hypergeometr
ic2F1[m, m, 1 + m, -((d*(a + b*x))/(b*c - a*d))])/(f^2*m*(c + d*x
)^m) + (d*(a + b*x)^(1 + m)*((b*(c + d*x))/(b*c - a*d))^m*Hyperge
ometric2F1[m, 1 + m, 2 + m, -((d*(a + b*x))/(b*c - a*d))])/(b*f*(
1 + m)*(c + d*x)^m)
```

Rubi [A] time = 0.39908, antiderivative size = 220, normalized size of antiderivative = 1., number of steps used = 7, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$\frac{(a+bx)^m(de-cf)(c+dx)^{-m}\,{}_2F_1\left(1,m;m+1;\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}\right)}{f^2m} - \frac{(a+bx)^m(de-cf)(c+dx)^{-m}\left(\frac{b(c+dx)}{bc-ad}\right)^m\,{}_2F_1\left(m,m;m+1;-\frac{d(a+bx)}{bc-ad}\right)}{f^2m} + \frac{d(a+bx)^{m+1}(c+dx)^{-m}\left(\frac{b(c+dx)}{bc-ad}\right)^m\,{}_2F_1\left(m,m+1;m+2;-\frac{d(a+bx)}{bc-ad}\right)}{bf(m+1)}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^m*(c + d*x)^(1 - m))/(e + f*x),x]
```

```
[Out] ((d*e - c*f)*(a + b*x)^m*Hypergeometric2F1[1, m, 1 + m, ((d*e - c
*f)*(a + b*x))/((b*e - a*f)*(c + d*x))])/(f^2*m*(c + d*x)^m) - ((
d*e - c*f)*(a + b*x)^m*((b*(c + d*x))/(b*c - a*d))^m*Hypergeometr
ic2F1[m, m, 1 + m, -((d*(a + b*x))/(b*c - a*d))])/(f^2*m*(c + d*x
)^m) + (d*(a + b*x)^(1 + m)*((b*(c + d*x))/(b*c - a*d))^m*Hyperge
ometric2F1[m, 1 + m, 2 + m, -((d*(a + b*x))/(b*c - a*d))])/(b*f*(
1 + m)*(c + d*x)^m)
```

Rubi in Sympy [A] time = 53.7334, size = 178, normalized size = 0.81

$$-\frac{(a+bx)^{m-1}(c+dx)^{-m+1}(af-be)\,{}_2F_1\left(\begin{matrix}-m+1,1\\-m+2\end{matrix}\middle|\frac{(-c-dx)(-af+be)}{(a+bx)(cf-de)}\right)}{f^2(-m+1)} + \frac{\left(\frac{b(-c-dx)}{ad-bc}\right)^m(a+bx)^m(c+dx)^{-m}(cf-de)\,{}_2F_1\left(\begin{matrix}m,m\\m+1\end{matrix}\middle|\frac{d(a+bx)}{ad-bc}\right)}{f^2m} + \frac{d\left(\frac{b(-c-dx)}{ad-bc}\right)^m(a+bx)^{m+1}(c+dx)^{-m}\,{}_2F_1\left(\begin{matrix}m,m+1\\m+2\end{matrix}\middle|\frac{d(a+bx)}{ad-bc}\right)}{bf(m+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(1-m)/(f*x+e),x)
```

```
[Out] -(a + b*x)**(m - 1)*(c + d*x)**(-m + 1)*(a*f - b*e)*hyper((-m + 1
, 1), (-m + 2,), (-c - d*x)*(-a*f + b*e)/((a + b*x)*(c*f - d*e)))
/(f**2*(-m + 1)) + (b*(-c - d*x)/(a*d - b*c))**m*(a + b*x)**m*(c
+ d*x)**(-m)*(c*f - d*e)*hyper((m, m), (m + 1,), d*(a + b*x)/(a*d
 - b*c))/(f**2*m) + d*(b*(-c - d*x)/(a*d - b*c))**m*(a + b*x)**(m
 + 1)*(c + d*x)**(-m)*hyper((m, m + 1), (m + 2,), d*(a + b*x)/(a*
d - b*c))/(b*f*(m + 1))
```

Mathematica [C] time = 1.35865, size = 622, normalized size = 2.83

$$\frac{(a+bx)^m(c+dx)^{-m}\left(b(m+1)(c+dx)(e+fx)\left(\frac{d(a+bx)}{ad-bc}\right)^{-m}{}_2F_1\left(1-m,-m;2-m;\frac{b(c+dx)}{bc-ad}\right)\left((m+2)(bc-ad)(be-af)F_1\left(\right.\right.\right.}{bf(}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[((a + b*x)^m*(c + d*x)^(1 - m))/(e + f*x),x]
```

```
[Out] ((a + b*x)^m*(-(d*(-(b*c) + a*d)*e*(b*e - a*f)*(-1 + m)*(2 + m)*(
a + b*x)*AppellF1[1 + m, m, 1, 2 + m, (d*(a + b*x))/(-(b*c) + a*d
), (f*(a + b*x))/(-(b*e) + a*f)]) - c*(b*c - a*d)*f*(b*e - a*f)*(
-1 + m)*(2 + m)*(a + b*x)*AppellF1[1 + m, m, 1, 2 + m, (d*(a + b*
x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)] + (b*(1 + m)*(c
 + d*x)*(e + f*x)*((b*c - a*d)*(b*e - a*f)*(2 + m)*AppellF1[1 + m
, m, 1, 2 + m, (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e
) + a*f)] + (a + b*x)*((-(b*c*f) + a*d*f)*AppellF1[2 + m, m, 2, 3
 + m, (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)]
 + d*(-(b*e) + a*f)*m*AppellF1[2 + m, 1 + m, 1, 3 + m, (d*(a + b*
x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)]))*Hypergeometri
c2F1[1 - m, -m, 2 - m, (b*(c + d*x))/(b*c - a*d)])/((d*(a + b*x))
/(-(b*c) + a*d))^m))/(b*f*(1 - m)*(1 + m)*(c + d*x)^m*(e + f*x)*(
(b*c - a*d)*(b*e - a*f)*(2 + m)*AppellF1[1 + m, m, 1, 2 + m, (d*(
a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)] + (a + b*
x)*((-(b*c*f) + a*d*f)*AppellF1[2 + m, m, 2, 3 + m, (d*(a + b*x))
/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)] + d*(-(b*e) + a*f)
*m*AppellF1[2 + m, 1 + m, 1, 3 + m, (d*(a + b*x))/(-(b*c) + a*d),
 (f*(a + b*x))/(-(b*e) + a*f)])))
```

Maple [F] time = 0.095, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{1-m}}{fx+e}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(1-m)/(f*x+e),x)
```

```
[Out] int((b*x+a)^m*(d*x+c)^(1-m)/(f*x+e),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m(dx+c)^{-m+1}}{fx+e}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m + 1)/(f*x + e),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m + 1)/(f*x + e), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)^m(dx+c)^{-m+1}}{fx+e}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m + 1)/(f*x + e),x, algorithm="fricas")
```

```
[Out] integral((b*x + a)^m*(d*x + c)^(-m + 1)/(f*x + e), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**m*(d*x+c)**(1-m)/(f*x+e),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m(dx+c)^{-m+1}}{fx+e}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m + 1)/(f*x + e),x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m + 1)/(f*x + e), x)
```

3.3101 $\int \frac{(a+bx)^m(c+dx)^{1-m}}{(e+fx)^2} dx$

Optimal. Leaf size=108

$$\frac{(bc-ad)(a+bx)^{m+1}(c+dx)^{-m}\left(\frac{b(c+dx)}{bc-ad}\right)^m F_1\left(m+1;m-1,2;m+2;-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{(m+1)(be-af)^2}$$

```
[Out] ((b*c - a*d)*(a + b*x)^(1 + m)*((b*(c + d*x))/(b*c - a*d))^m*Appe
llF1[1 + m, -1 + m, 2, 2 + m, -((d*(a + b*x))/(b*c - a*d)), -((f*
(a + b*x))/(b*e - a*f))])/((b*e - a*f)^2*(1 + m)*(c + d*x)^m)
```

Rubi [A] time = 0.216053, antiderivative size = 108, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.077$

$$\frac{(bc-ad)(a+bx)^{m+1}(c+dx)^{-m}\left(\frac{b(c+dx)}{bc-ad}\right)^m F_1\left(m+1;m-1,2;m+2;-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{(m+1)(be-af)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^m*(c + d*x)^(1 - m))/(e + f*x)^2,x]
```

```
[Out] ((b*c - a*d)*(a + b*x)^(1 + m)*((b*(c + d*x))/(b*c - a*d))^m*Appe
llF1[1 + m, -1 + m, 2, 2 + m, -((d*(a + b*x))/(b*c - a*d)), -((f*
(a + b*x))/(b*e - a*f))])/((b*e - a*f)^2*(1 + m)*(c + d*x)^m)
```

Rubi in Sympy [A] time = 26.1598, size = 83, normalized size = 0.77

$$-\frac{\left(\frac{b(-c-dx)}{ad-bc}\right)^m (a+bx)^{m+1}(c+dx)^{-m}(ad-bc)\,\text{appellf}_1\left(m+1,2,m-1,m+2,\frac{f(a+bx)}{af-be},\frac{d(a+bx)}{ad-bc}\right)}{(m+1)(af-be)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(1-m)/(f*x+e)**2,x)
```

```
[Out] -(b*(-c - d*x)/(a*d - b*c))**m*(a + b*x)**(m + 1)*(c + d*x)**(-m)
*(a*d - b*c)*appellf1(m + 1, 2, m - 1, m + 2, f*(a + b*x)/(a*f -
b*e), d*(a + b*x)/(a*d - b*c))/((m + 1)*(a*f - b*e)**2)
```

Mathematica [B] time = 0.540565, size = 461, normalized size = 4.27

$$(a+bx)^{m+1}(c+dx)^{-m}\left(-\frac{d(m+2)(bc-ad)(be-af)^3F_1\left(m+1;m,1;m+2;\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)}{bf(af-be)\left((m+2)(bc-ad)(be-af)F_1\left(m+1;m,1;m+2;\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)+(a+bx)\left((adf-bcf)F_1\left(m+2;m,2;m+3;\frac{d(a+bx)}{ad-bc},\frac{f(a+b}{af-b}\right.\right.\right.}\right.$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[((a + b*x)^m*(c + d*x)^(1 - m))/(e + f*x)^2,x]
```

```
[Out] ((a + b*x)^(1 + m)*(-((d*(b*c - a*d)*(b*e - a*f)^3*(2 + m)*Appell
F1[1 + m, m, 1, 2 + m, (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x)
)/(-(b*e) + a*f)])/(b*f*(-(b*e) + a*f)*((b*c - a*d)*(b*e - a*f)*(
2 + m)*AppellF1[1 + m, m, 1, 2 + m, (d*(a + b*x))/(-(b*c) + a*d),
 (f*(a + b*x))/(-(b*e) + a*f)] + (a + b*x)*((-(b*c*f) + a*d*f)*Ap
pellF1[2 + m, m, 2, 3 + m, (d*(a + b*x))/(-(b*c) + a*d), (f*(a +
```

```
b*x))/(-(b*e) + a*f)] + d*(-(b*e) + a*f)*m*AppellF1[2 + m, 1 + m,
 1, 3 + m, (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) +
a*f)])))) + c*(((b*e - a*f)*(c + d*x))/((b*c - a*d)*(e + f*x)))^m
*Hypergeometric2F1[m, 1 + m, 2 + m, ((-(d*e) + c*f)*(a + b*x))/((
b*c - a*d)*(e + f*x))] - (d*e*(((b*e - a*f)*(c + d*x))/((b*c - a*
d)*(e + f*x)))^m*Hypergeometric2F1[m, 1 + m, 2 + m, ((-(d*e) + c*
f)*(a + b*x))/((b*c - a*d)*(e + f*x))])/f))/((b*e - a*f)*(1 + m)*
(c + d*x)^m*(e + f*x))
```

Maple [F] time = 0.102, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{1-m}}{(fx+e)^2}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(1-m)/(f*x+e)^2,x)

[Out] int((b*x+a)^m*(d*x+c)^(1-m)/(f*x+e)^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{-m+1}}{(fx+e)^2}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m + 1)/(f*x + e)^2,x, algorithm="maxima")

[Out] integrate((b*x + a)^m*(d*x + c)^(-m + 1)/(f*x + e)^2, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)^m (dx+c)^{-m+1}}{f^2x^2 + 2\,efx + e^2}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m + 1)/(f*x + e)^2,x, algorithm="fricas")

[Out] integral((b*x + a)^m*(d*x + c)^(-m + 1)/(f^2*x^2 + 2*e*f*x + e^2)
, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(1-m)/(f*x+e)**2,x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m(dx+c)^{-m+1}}{(fx+e)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m + 1)/(f*x + e)^2,x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m + 1)/(f*x + e)^2, x)
```

3.3102 $\int \frac{(a+bx)^m(c+dx)^{1-m}}{(e+fx)^3}\,dx$

Optimal. Leaf size=85

$$\frac{(bc-ad)^2(a+bx)^{m+1}(c+dx)^{-m-1}\,{}_2F_1\left(3,m+1;m+2;\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}\right)}{(m+1)(be-af)^3}$$

```
[Out] ((b*c - a*d)^2*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m)*Hypergeometri
c2F1[3, 1 + m, 2 + m, ((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d
*x))])/((b*e - a*f)^3*(1 + m))
```

Rubi [A] time = 0.101297, antiderivative size = 85, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.038

$$\frac{(bc-ad)^2(a+bx)^{m+1}(c+dx)^{-m-1}\,{}_2F_1\left(3,m+1;m+2;\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}\right)}{(m+1)(be-af)^3}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^m*(c + d*x)^(1 - m))/(e + f*x)^3,x]
```

```
[Out] ((b*c - a*d)^2*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m)*Hypergeometri
c2F1[3, 1 + m, 2 + m, ((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d
*x))])/((b*e - a*f)^3*(1 + m))
```

Rubi in Sympy [A] time = 11.751, size = 68, normalized size = 0.8

$$-\frac{(a+bx)^{m-2}(c+dx)^{-m+2}(ad-bc)^2\,{}_2F_1\left(\begin{matrix}-m+2,3\\-m+3\end{matrix}\middle|\frac{(-c-dx)(-af+be)}{(a+bx)(cf-de)}\right)}{(-m+2)(cf-de)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(1-m)/(f*x+e)**3,x)
```

```
[Out] -(a + b*x)**(m - 2)*(c + d*x)**(-m + 2)*(a*d - b*c)**2*hyper((-m
+ 2, 3), (-m + 3,), (-c - d*x)*(-a*f + b*e)/((a + b*x)*(c*f - d*e
)))/((-m + 2)*(c*f - d*e)**3)
```

Mathematica [C] time = 2.84042, size = 933, normalized size = 10.98

$$\frac{(a+bx)^{m+1}(c+dx)^{-m}\left(d(2be-2af)(e+fx)\left((be-af)(c+dx)(af(m+1)+b(fmx-e))\left(\frac{(de-cf)(a+bx)}{(be-af)(c+dx)},1,m\right)-(a+bx)\left(\right.\right.\right.}{}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[((a + b*x)^m*(c + d*x)^(1 - m))/(e + f*x)^3,x]
```

```
[Out] ((a + b*x)^(1 + m)*(-(d*e*(b*e - a*f)^2*(1 + m)*(c + d*x)*((-2*b*
e + a*f*(1 + m) + b*f*(-1 + m)*x)*HurwitzLerchPhi[((d*e - c*f)*(a
 + b*x))/((b*e - a*f)*(c + d*x)), 1, m] - 2*(a*f*(1 + m) + b*(-e
+ f*m*x))*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c
 + d*x)), 1, 1 + m] + f*(1 + m)*(a + b*x)*HurwitzLerchPhi[((d*e -
```

```
c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 2 + m])) + c*f*(b*e
- a*f)^2*(1 + m)*(c + d*x)*((-2*b*e + a*f*(1 + m) + b*f*(-1 + m)*
x)*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)
), 1, m] - 2*(a*f*(1 + m) + b*(-e + f*m*x))*HurwitzLerchPhi[((d*e
 - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 1 + m] + f*(1 + m)
*(a + b*x)*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(
c + d*x)), 1, 2 + m]) + d*(2*b*e - 2*a*f)*(((b*e - a*f)*(c + d*x)
)/((b*c - a*d)*(e + f*x)))^m*(e + f*x)*((b*e - a*f)*(c + d*x)*(a*
f*(1 + m) + b*(-e + f*m*x))*HurwitzLerchPhi[((d*e - c*f)*(a + b*x
))/((b*e - a*f)*(c + d*x)), 1, m] - (a + b*x)*((a*f*(1 + m)*(-2*c
*f + d*(e - f*x)) + b*(c*f*(e*(2 + m) - f*m*x) + d*e*(-e + f*(1 +
 2*m)*x)))*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(
c + d*x)), 1, 1 + m] + f*(-(d*e) + c*f)*(1 + m)*(a + b*x)*Hurwitz
LerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 2 +
m]))*Hypergeometric2F1[m, 1 + m, 2 + m, ((-(d*e) + c*f)*(a + b*x)
)/((b*c - a*d)*(e + f*x))]))/(f*(2*b*e - 2*a*f)*(b*e - a*f)*(1 +
m)*(c + d*x)^m*(e + f*x)^2*((b*e - a*f)*(c + d*x)*(a*f*(1 + m) +
b*(-e + f*m*x))*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a
*f)*(c + d*x)), 1, m] - (a + b*x)*((a*f*(1 + m)*(-2*c*f + d*(e -
f*x)) + b*(c*f*(e*(2 + m) - f*m*x) + d*e*(-e + f*(1 + 2*m)*x)))*H
urwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1
, 1 + m] + f*(-(d*e) + c*f)*(1 + m)*(a + b*x)*HurwitzLerchPhi[((d
*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 2 + m])))
```

Maple [F] time = 0.124, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{1-m}}{(fx+e)^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(1-m)/(f*x+e)^3,x)

[Out] int((b*x+a)^m*(d*x+c)^(1-m)/(f*x+e)^3,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{-m+1}}{(fx+e)^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m + 1)/(f*x + e)^3,x, algorithm="maxima")

[Out] integrate((b*x + a)^m*(d*x + c)^(-m + 1)/(f*x + e)^3, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{(bx+a)^m (dx+c)^{-m+1}}{f^3x^3+3\,ef^2x^2+3\,e^2fx+e^3}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m + 1)/(f*x + e)^3,x, algorithm="fricas")

[Out] integral((b*x + a)^m*(d*x + c)^(-m + 1)/(f^3*x^3 + 3*e*f^2*x^2 +
3*e^2*f*x + e^3), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(1-m)/(f*x+e)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m(dx+c)^{-m+1}}{(fx+e)^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m + 1)/(f*x + e)^3,x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m + 1)/(f*x + e)^3, x)
```

3.3103 $\int \frac{(a+bx)^m(c+dx)^{1-m}}{(e+fx)^4} dx$

Optimal. Leaf size=176

$$\frac{(bc-ad)^2(a+bx)^{m+1}(c+dx)^{-m-1}(b(3de-cf(2-m))-adf(m+1))\,{}_2F_1\left(3,m+1;m+2;\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}\right)}{3(m+1)(be-af)^4(de-cf)} - \frac{f(a+bx)^{m+1}(c+dx)^{2-m}}{3(e+fx)^3(be-af)(de-cf)}$$

```
[Out] -(f*(a + b*x)^(1 + m)*(c + d*x)^(2 - m))/(3*(b*e - a*f)*(d*e - c*
f)*(e + f*x)^3) + ((b*c - a*d)^2*(b*(3*d*e - c*f*(2 - m)) - a*d*f
*(1 + m))*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m)*Hypergeometric2F1[
3, 1 + m, 2 + m, ((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x))]
)/(3*(b*e - a*f)^4*(d*e - c*f)*(1 + m))
```

Rubi [A] time = 0.280649, antiderivative size = 175, normalized size of antiderivative = 0.99, number of steps used = 2, number of rules used = 2, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.077$

$$\frac{(bc-ad)^2(a+bx)^{m+1}(c+dx)^{-m-1}(-adf(m+1)-bcf(2-m)+3bde)\,{}_2F_1\left(3,m+1;m+2;\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}\right)}{3(m+1)(be-af)^4(de-cf)} - \frac{f(a+bx)^{m+1}(c+dx)^{2-m}}{3(e+fx)^3(be-af)(de-cf)}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^m*(c + d*x)^(1 - m))/(e + f*x)^4,x]
```

```
[Out] -(f*(a + b*x)^(1 + m)*(c + d*x)^(2 - m))/(3*(b*e - a*f)*(d*e - c*
f)*(e + f*x)^3) + ((b*c - a*d)^2*(3*b*d*e - b*c*f*(2 - m) - a*d*f
*(1 + m))*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m)*Hypergeometric2F1[
3, 1 + m, 2 + m, ((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x))]
)/(3*(b*e - a*f)^4*(d*e - c*f)*(1 + m))
```

Rubi in Sympy [A] time = 37.6556, size = 143, normalized size = 0.81

$$-\frac{f(a+bx)^{m+1}(c+dx)^{-m+2}}{3(e+fx)^3(af-be)(cf-de)} - \frac{(a+bx)^{m+1}(c+dx)^{-m-1}(ad-bc)^2(-adf(m+1)-bcf(-m+2)+3bde)\,{}_2F_1\left(\begin{matrix} m+1,3 \\ m+2 \end{matrix}\middle|\frac{(-a-bx)(-cf+de)}{(c+dx)(af-be)}\right)}{3(m+1)(af-be)^4(cf-de)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(1-m)/(f*x+e)**4,x)
```

```
[Out] -f*(a + b*x)**(m + 1)*(c + d*x)**(-m + 2)/(3*(e + f*x)**3*(a*f -
b*e)*(c*f - d*e)) - (a + b*x)**(m + 1)*(c + d*x)**(-m - 1)*(a*d -
 b*c)**2*(-a*d*f*(m + 1) - b*c*f*(-m + 2) + 3*b*d*e)*hyper((m + 1
, 3), (m + 2,), (-a - b*x)*(-c*f + d*e)/((c + d*x)*(a*f - b*e)))/
(3*(m + 1)*(a*f - b*e)**4*(c*f - d*e))
```

Mathematica [C] time = 6.19156, size = 3798, normalized size = 21.58

Result too large to show

Warning: Unable to verify antiderivative.

```
[In]  Integrate[((a + b*x)^m*(c + d*x)^(1 - m))/(e + f*x)^4,x]
```

```
[Out] ((a + b*x)^(1 + m)*((3*d*(b*e - a*f)^4*(e + f*x)*((-2*b*e + a*f*(
1 + m) + b*f*(-1 + m)*x)*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/
((b*e - a*f)*(c + d*x)), 1, m] - 2*(a*f*(1 + m) + b*(-e + f*m*x))
*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)),
 1, 1 + m] + f*(1 + m)*(a + b*x)*HurwitzLerchPhi[((d*e - c*f)*(a
+ b*x))/((b*e - a*f)*(c + d*x)), 1, 2 + m]))/(f*(2*b*e - 2*a*f)*(
-(b*e) + a*f)^3*((b*e - a*f)*(-(a*f*(1 + m)) + b*(e - f*m*x))*Hur
witzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1,
m] + ((a + b*x)*((a*f*(1 + m)*(-2*c*f + d*(e - f*x)) + b*(c*f*(e*
(2 + m) - f*m*x) + d*e*(-e + f*(1 + 2*m)*x)))*HurwitzLerchPhi[((d
*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 1 + m] + f*(-(d*
e) + c*f)*(1 + m)*(a + b*x)*HurwitzLerchPhi[((d*e - c*f)*(a + b*x
))/((b*e - a*f)*(c + d*x)), 1, 2 + m]))/(c + d*x))) + (c*(c + d*x
)*(6*(b*e - a*f)^2*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e
- a*f)*(c + d*x)), 1, m] + 6*(b*e - a*f)^2*m*HurwitzLerchPhi[((d*
e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, m] + 6*f*(b*e - a
*f)*(a + b*x)*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f
)*(c + d*x)), 1, m] + 6*f*(-(b*e) + a*f)*m^2*(a + b*x)*HurwitzLer
chPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, m] + 2*
f^2*(a + b*x)^2*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a
*f)*(c + d*x)), 1, m] - f^2*m*(a + b*x)^2*HurwitzLerchPhi[((d*e -
 c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, m] - 2*f^2*m^2*(a +
b*x)^2*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c +
d*x)), 1, m] + f^2*m^3*(a + b*x)^2*HurwitzLerchPhi[((d*e - c*f)*(
a + b*x))/((b*e - a*f)*(c + d*x)), 1, m] - 6*(b*e - a*f)^2*Hurwit
zLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 1 +
 m] - 6*(b*e - a*f)^2*m*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/(
(b*e - a*f)*(c + d*x)), 1, 1 + m] + 12*f*(b*e - a*f)*m*(a + b*x)*
HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)),
1, 1 + m] + 12*f*(b*e - a*f)*m^2*(a + b*x)*HurwitzLerchPhi[((d*e
- c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 1 + m] + 3*f^2*m*(a
 + b*x)^2*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c
 + d*x)), 1, 1 + m] - 3*f^2*m^3*(a + b*x)^2*HurwitzLerchPhi[((d*e
 - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 1 + m] + 6*f*(-(b*
e) + a*f)*(a + b*x)*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e
 - a*f)*(c + d*x)), 1, 2 + m] + 12*f*(-(b*e) + a*f)*m*(a + b*x)*H
urwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1
, 2 + m] + 6*f*(-(b*e) + a*f)*m^2*(a + b*x)*HurwitzLerchPhi[((d*e
 - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 2 + m] + 3*f^2*m*(
a + b*x)^2*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(
c + d*x)), 1, 2 + m] + 6*f^2*m^2*(a + b*x)^2*HurwitzLerchPhi[((d*
e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 2 + m] + 3*f^2*m^
3*(a + b*x)^2*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f
)*(c + d*x)), 1, 2 + m] - 2*f^2*(a + b*x)^2*HurwitzLerchPhi[((d*e
 - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 3 + m] - 5*f^2*m*(
a + b*x)^2*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(
c + d*x)), 1, 3 + m] - 4*f^2*m^2*(a + b*x)^2*HurwitzLerchPhi[((d*
e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 3 + m] - f^2*m^3*
(a + b*x)^2*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*
(c + d*x)), 1, 3 + m]))/((1 + m)*((b*e - a*f)*(c + d*x)*(a^2*f^2*
(2 + 3*m + m^2) + 2*a*b*f*(1 + m)*(-2*e + f*m*x) + b^2*(2*e^2 - 4
*e*f*m*x + f^2*(-1 + m)*m*x^2))*HurwitzLerchPhi[((d*e - c*f)*(a +
 b*x))/((b*e - a*f)*(c + d*x)), 1, m] - (a + b*x)*((a^2*f^2*(2 +
3*m + m^2)*(-3*c*f + d*(e - 2*f*x)) - 2*a*b*f*(1 + m)*(c*f*(-(e*(
6 + m)) + 2*f*m*x) + d*(2*e^2 - 2*e*f*(2 + m)*x + f^2*m*x^2)) + b
^2*(c*f*(-2*e^2*(3 + 2*m) + 2*e*f*m*(3 + m)*x - f^2*(-1 + m)*m*x^
2) + d*e*(2*e^2 - 4*e*f*(1 + 2*m)*x + f^2*m*(1 + 3*m)*x^2)))*Hurw
itzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 1
 + m] + f*(1 + m)*(a + b*x)*((a*f*(2 + m)*(-2*d*e + 3*c*f + d*f*x
) + b*c*f*(-(e*(6 + m)) + 2*f*m*x) + b*d*e*(4*e - f*(2 + 3*m)*x))
*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)),
 1, 2 + m] + f*(d*e - c*f)*(2 + m)*(a + b*x)*HurwitzLerchPhi[((d*
e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 3 + m])))) - (d*e
*(c + d*x)*(6*(b*e - a*f)^2*HurwitzLerchPhi[((d*e - c*f)*(a + b*x
))/((b*e - a*f)*(c + d*x)), 1, m] + 6*(b*e - a*f)^2*m*HurwitzLerc
hPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, m] + 6*f
*(b*e - a*f)*(a + b*x)*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((
b*e - a*f)*(c + d*x)), 1, m] + 6*f*(-(b*e) + a*f)*m^2*(a + b*x)*H
urwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1
```

```
, m] + 2*f^2*(a + b*x)^2*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/
((b*e - a*f)*(c + d*x)), 1, m] - f^2*m*(a + b*x)^2*HurwitzLerchPh
i[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, m] - 2*f^2*
m^2*(a + b*x)^2*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a
*f)*(c + d*x)), 1, m] + f^2*m^3*(a + b*x)^2*HurwitzLerchPhi[((d*e
 - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, m] - 6*(b*e - a*f)
^2*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)
), 1, 1 + m] - 6*(b*e - a*f)^2*m*HurwitzLerchPhi[((d*e - c*f)*(a
+ b*x))/((b*e - a*f)*(c + d*x)), 1, 1 + m] + 12*f*(b*e - a*f)*m*(
a + b*x)*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c
+ d*x)), 1, 1 + m] + 12*f*(b*e - a*f)*m^2*(a + b*x)*HurwitzLerchP
hi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 1 + m] + 3
*f^2*m*(a + b*x)^2*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e
- a*f)*(c + d*x)), 1, 1 + m] - 3*f^2*m^3*(a + b*x)^2*HurwitzLerch
Phi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 1 + m] +
6*f*(-(b*e) + a*f)*(a + b*x)*HurwitzLerchPhi[((d*e - c*f)*(a + b*
x))/((b*e - a*f)*(c + d*x)), 1, 2 + m] + 12*f*(-(b*e) + a*f)*m*(a
 + b*x)*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c +
 d*x)), 1, 2 + m] + 6*f*(-(b*e) + a*f)*m^2*(a + b*x)*HurwitzLerch
Phi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 2 + m] +
3*f^2*m*(a + b*x)^2*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e
 - a*f)*(c + d*x)), 1, 2 + m] + 6*f^2*m^2*(a + b*x)^2*HurwitzLerc
hPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 2 + m] +
 3*f^2*m^3*(a + b*x)^2*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((
b*e - a*f)*(c + d*x)), 1, 2 + m] - 2*f^2*(a + b*x)^2*HurwitzLerch
Phi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 3 + m] -
5*f^2*m*(a + b*x)^2*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e
 - a*f)*(c + d*x)), 1, 3 + m] - 4*f^2*m^2*(a + b*x)^2*HurwitzLerc
hPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 3 + m] -
 f^2*m^3*(a + b*x)^2*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*
e - a*f)*(c + d*x)), 1, 3 + m]))/(f*(1 + m)*((b*e - a*f)*(c + d*x
)*(a^2*f^2*(2 + 3*m + m^2) + 2*a*b*f*(1 + m)*(-2*e + f*m*x) + b^2
*(2*e^2 - 4*e*f*m*x + f^2*(-1 + m)*m*x^2))*HurwitzLerchPhi[((d*e
- c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, m] - (a + b*x)*((a^
2*f^2*(2 + 3*m + m^2)*(-3*c*f + d*(e - 2*f*x)) - 2*a*b*f*(1 + m)*
(c*f*(-(e*(6 + m)) + 2*f*m*x) + d*(2*e^2 - 2*e*f*(2 + m)*x + f^2*
m*x^2)) + b^2*(c*f*(-2*e^2*(3 + 2*m) + 2*e*f*m*(3 + m)*x - f^2*(-
1 + m)*m*x^2) + d*e*(2*e^2 - 4*e*f*(1 + 2*m)*x + f^2*m*(1 + 3*m)*
x^2)))*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c +
d*x)), 1, 1 + m] + f*(1 + m)*(a + b*x)*((a*f*(2 + m)*(-2*d*e + 3*
c*f + d*f*x) + b*c*f*(-(e*(6 + m)) + 2*f*m*x) + b*d*e*(4*e - f*(2
 + 3*m)*x))*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*
(c + d*x)), 1, 2 + m] + f*(d*e - c*f)*(2 + m)*(a + b*x)*HurwitzLe
rchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 3 + m]
))))))/(3*(c + d*x)^m*(e + f*x)^3)
```

Maple [F] time = 0.185, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^{m} (dx+c)^{1-m}}{(fx+e)^{4}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(1-m)/(f*x+e)^4,x)
```

```
[Out] int((b*x+a)^m*(d*x+c)^(1-m)/(f*x+e)^4,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^{m}(dx+c)^{-m+1}}{(fx+e)^{4}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m + 1)/(f*x + e)^4,x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m + 1)/(f*x + e)^4, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)^m(dx+c)^{-m+1}}{f^4x^4+4\,ef^3x^3+6\,e^2f^2x^2+4\,e^3fx+e^4},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m + 1)/(f*x + e)^4,x, algorithm="fricas")
```

```
[Out] integral((b*x + a)^m*(d*x + c)^(-m + 1)/(f^4*x^4 + 4*e*f^3*x^3 +
6*e^2*f^2*x^2 + 4*e^3*f*x + e^4), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(1-m)/(f*x+e)**4,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m(dx+c)^{-m+1}}{(fx+e)^4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m + 1)/(f*x + e)^4,x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m + 1)/(f*x + e)^4, x)
```

3.3104 $\int \frac{(a+bx)^m(c+dx)^{1-m}}{(e+fx)^5}\,dx$

Optimal. Leaf size=311

$$-\frac{(bc-ad)^2(a+bx)^{m+1}(c+dx)^{-m-1}\left(-a^2d^2f^2\left(m^2+3m+2\right)+2abdf(m+1)(4de-cf(2-m))+b^2\left(-\left(c^2f^2\left(m^2-5m+6\right)\right.\right.\right.}{12(m+1)(be-af)^5(de-cf)^2}-\frac{f(a+bx)^{m+1}(c+dx)^{2-m}(b(5de-cf(3-m))-adf(m+2))}{12(e+fx)^3(be-af)^2(de-cf)^2}-\frac{f(a+bx)^{m+1}(c+dx)^{2-m}}{4(e+fx)^4(be-af)(de-cf)}$$

```
[Out] -(f*(a + b*x)^(1 + m)*(c + d*x)^(2 - m))/(4*(b*e - a*f)*(d*e - c*
f)*(e + f*x)^4) - (f*(b*(5*d*e - c*f*(3 - m)) - a*d*f*(2 + m))*(a
 + b*x)^(1 + m)*(c + d*x)^(2 - m))/(12*(b*e - a*f)^2*(d*e - c*f)^
2*(e + f*x)^3) - ((b*c - a*d)^2*(2*a*b*d*f*(4*d*e - c*f*(2 - m))*
(1 + m) - a^2*d^2*f^2*(2 + 3*m + m^2) - b^2*(12*d^2*e^2 - 8*c*d*e
*f*(2 - m) + c^2*f^2*(6 - 5*m + m^2)))*(a + b*x)^(1 + m)*(c + d*x
)^(-1 - m)*Hypergeometric2F1[3, 1 + m, 2 + m, ((d*e - c*f)*(a + b
*x))/((b*e - a*f)*(c + d*x))])/(12*(b*e - a*f)^5*(d*e - c*f)^2*(1
 + m))
```

Rubi [A] time = 0.928158, antiderivative size = 310, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$-\frac{(bc-ad)^2(a+bx)^{m+1}(c+dx)^{-m-1}\left(-a^2d^2f^2\left(m^2+3m+2\right)+2abdf(m+1)(4de-cf(2-m))+b^2\left(-\left(c^2f^2\left(m^2-5m+6\right)\right.\right.\right.}{12(m+1)(be-af)^5(de-cf)^2}-\frac{f(a+bx)^{m+1}(c+dx)^{2-m}(-adf(m+2)-bcf(3-m)+5bde)}{12(e+fx)^3(be-af)^2(de-cf)^2}-\frac{f(a+bx)^{m+1}(c+dx)^{2-m}}{4(e+fx)^4(be-af)(de-cf)}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^m*(c + d*x)^(1 - m))/(e + f*x)^5,x]
```

```
[Out] -(f*(a + b*x)^(1 + m)*(c + d*x)^(2 - m))/(4*(b*e - a*f)*(d*e - c*
f)*(e + f*x)^4) - (f*(5*b*d*e - b*c*f*(3 - m) - a*d*f*(2 + m))*(a
 + b*x)^(1 + m)*(c + d*x)^(2 - m))/(12*(b*e - a*f)^2*(d*e - c*f)^
2*(e + f*x)^3) - ((b*c - a*d)^2*(2*a*b*d*f*(4*d*e - c*f*(2 - m))*
(1 + m) - a^2*d^2*f^2*(2 + 3*m + m^2) - b^2*(12*d^2*e^2 - 8*c*d*e
*f*(2 - m) + c^2*f^2*(6 - 5*m + m^2)))*(a + b*x)^(1 + m)*(c + d*x
)^(-1 - m)*Hypergeometric2F1[3, 1 + m, 2 + m, ((d*e - c*f)*(a + b
*x))/((b*e - a*f)*(c + d*x))])/(12*(b*e - a*f)^5*(d*e - c*f)^2*(1
 + m))
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(1-m)/(f*x+e)**5,x)
```

```
[Out] Timed out
```

Mathematica [C] time = 22.6485, size = 61774, normalized size = 198.63

Result too large to show

Warning: Unable to verify antiderivative.

```
[In]  Integrate[((a + b*x)^m*(c + d*x)^(1 - m))/(e + f*x)^5,x]
```

```
[Out] Result too large to show
```

Maple [F] time = 0.301, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{1-m}}{(fx+e)^5}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(1-m)/(f*x+e)^5,x)
```

```
[Out] int((b*x+a)^m*(d*x+c)^(1-m)/(f*x+e)^5,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{-m+1}}{(fx+e)^5}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m + 1)/(f*x + e)^5,x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m + 1)/(f*x + e)^5, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)^m (dx+c)^{-m+1}}{f^5x^5 + 5\,ef^4x^4 + 10\,e^2f^3x^3 + 10\,e^3f^2x^2 + 5\,e^4fx + e^5}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m + 1)/(f*x + e)^5,x, algorithm="fricas")
```

```
[Out] integral((b*x + a)^m*(d*x + c)^(-m + 1)/(f^5*x^5 + 5*e*f^4*x^4 +
10*e^2*f^3*x^3 + 10*e^3*f^2*x^2 + 5*e^4*f*x + e^5), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(1-m)/(f*x+e)**5,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{-m+1}}{(fx+e)^5}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m + 1)/(f*x + e)^5,x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m + 1)/(f*x + e)^5, x)
```

3.3105 $\int (a+bx)^m(c+dx)^{2-m}(e+fx)^p\,dx$

Optimal. Leaf size=133

$$\frac{(bc-ad)^2(a+bx)^{m+1}(c+dx)^{-m}(e+fx)^p\left(\frac{b(c+dx)}{bc-ad}\right)^m\left(\frac{b(e+fx)}{be-af}\right)^{-p}F_1\left(m+1;m-2,-p;m+2;-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{b^3(m+1)}$$

```
[Out] ((b*c - a*d)^2*(a + b*x)^(1 + m)*((b*(c + d*x))/(b*c - a*d))^m*(e
 + f*x)^p*AppellF1[1 + m, -2 + m, -p, 2 + m, -((d*(a + b*x))/(b*c
 - a*d)), -((f*(a + b*x))/(b*e - a*f))])/(b^3*(1 + m)*(c + d*x)^m
*((b*(e + f*x))/(b*e - a*f))^p)
```

Rubi [A] time = 0.355204, antiderivative size = 133, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.115$

$$\frac{(bc-ad)^2(a+bx)^{m+1}(c+dx)^{-m}(e+fx)^p\left(\frac{b(c+dx)}{bc-ad}\right)^m\left(\frac{b(e+fx)}{be-af}\right)^{-p}F_1\left(m+1;m-2,-p;m+2;-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{b^3(m+1)}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^(2 - m)*(e + f*x)^p,x]
```

```
[Out] ((b*c - a*d)^2*(a + b*x)^(1 + m)*((b*(c + d*x))/(b*c - a*d))^m*(e
 + f*x)^p*AppellF1[1 + m, -2 + m, -p, 2 + m, -((d*(a + b*x))/(b*c
 - a*d)), -((f*(a + b*x))/(b*e - a*f))])/(b^3*(1 + m)*(c + d*x)^m
*((b*(e + f*x))/(b*e - a*f))^p)
```

Rubi in Sympy [A] time = 75.6544, size = 104, normalized size = 0.78

$$\frac{\left(\frac{b(-c-dx)}{ad-bc}\right)^m\left(\frac{b(-e-fx)}{af-be}\right)^{-p}(a+bx)^{m+1}(c+dx)^{-m}(e+fx)^p(ad-bc)^2\,\text{appellf}_1\left(m+1,-p,m-2,m+2,\frac{f(a+bx)}{af-be},\frac{d(a+bx)}{ad-bc}\right)}{b^3(m+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(2-m)*(f*x+e)**p,x)
```

```
[Out] (b*(-c - d*x)/(a*d - b*c))**m*(b*(-e - f*x)/(a*f - b*e))**(-p)*(a
 + b*x)**(m + 1)*(c + d*x)**(-m)*(e + f*x)**p*(a*d - b*c)**2*appe
llf1(m + 1, -p, m - 2, m + 2, f*(a + b*x)/(a*f - b*e), d*(a + b*x
)/(a*d - b*c))/(b**3*(m + 1))
```

Mathematica [B] time = 1.88256, size = 300, normalized size = 2.26

$$\frac{(m+2)(bc-ad)(be-af)(a+bx)^{m+1}(c+dx)^{2-m}(e+fx)^pF_1\left(m\right.}{b(m+1)\left((m+2)(bc-ad)(be-af)F_1\left(m+1;m-2,-p;m+2;\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)-(a+bx)\left(fp(ad-bc)F_1\left(m+2;m-2,\right.\right.\right.}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^(2 - m)*(e + f*x)^p,x]
```

```
[Out] ((b*c - a*d)*(b*e - a*f)*(2 + m)*(a + b*x)^(1 + m)*(c + d*x)^(2 -
 m)*(e + f*x)^p*AppellF1[1 + m, -2 + m, -p, 2 + m, (d*(a + b*x))/
(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)])/(b*(1 + m)*((b*c -
 a*d)*(b*e - a*f)*(2 + m)*AppellF1[1 + m, -2 + m, -p, 2 + m, (d*(
```

```
a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)] - (a + b*
x)*((-(b*c) + a*d)*f*p*AppellF1[2 + m, -2 + m, 1 - p, 3 + m, (d*(
a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)] + d*(b*e
- a*f)*(-2 + m)*AppellF1[2 + m, -1 + m, -p, 3 + m, (d*(a + b*x))/
(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)])))
```

Maple [F] time = 0.228, size = 0, normalized size = 0.

$$\int (bx+a)^{m}(dx+c)^{2-m}(fx+e)^{p}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(2-m)*(f*x+e)^p,x)

[Out] int((b*x+a)^m*(d*x+c)^(2-m)*(f*x+e)^p,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^{m}(dx+c)^{-m+2}(fx+e)^{p}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m + 2)*(f*x + e)^p,x, algorithm="maxima")

[Out] integrate((b*x + a)^m*(d*x + c)^(-m + 2)*(f*x + e)^p, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left((bx+a)^{m}(dx+c)^{-m+2}(fx+e)^{p}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m + 2)*(f*x + e)^p,x, algorithm="fricas")

[Out] integral((b*x + a)^m*(d*x + c)^(-m + 2)*(f*x + e)^p, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(2-m)*(f*x+e)**p,x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^{m}(dx+c)^{-m+2}(fx+e)^{p}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m + 2)*(f*x + e)^p,x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m + 2)*(f*x + e)^p, x)
```

3.3106 $\int (a+bx)^m (c+dx)^{2-m} (e+fx)^3 \, dx$

Optimal. Leaf size=447

$$\frac{f(a+bx)^{m+1}(c+dx)^{3-m}\left(a^2d^2f^2\left(m^2-9m+20\right)-2abdf\left(9de(4-m)-cf\left(-m^2+2m+6\right)\right)-4bdfx(adf(5-m)-b(8\right.}{120b^3d^3}$$

$$-\frac{(bc-ad)^2(a+bx)^{m+1}(c+dx)^{-m}\left(\frac{b(c+dx)}{bc-ad}\right)^m\left(a^3d^3f^3\left(-m^3+12m^2-47m+60\right)-3a^2bd^2f^2\left(m^2-7m+12\right)(6de-cf(m\right.}{}$$

$$+\frac{f(e+fx)^2(a+bx)^{m+1}(c+dx)^{3-m}}{6bd}$$

```
[Out] (f*(a + b*x)^(1 + m)*(c + d*x)^(3 - m)*(e + f*x)^2)/(6*b*d) + (f*
(a + b*x)^(1 + m)*(c + d*x)^(3 - m)*(a^2*d^2*f^2*(20 - 9*m + m^2)
 - 2*a*b*d*f*(9*d*e*(4 - m) - c*f*(6 + 2*m - m^2)) + b^2*(70*d^2*
e^2 - 18*c*d*e*f*(2 + m) + c^2*f^2*(6 + 5*m + m^2)) - 4*b*d*f*(a*
d*f*(5 - m) - b*(8*d*e - c*f*(3 + m)))*x))/(120*b^3*d^3) - ((b*c
- a*d)^2*(a^3*d^3*f^3*(60 - 47*m + 12*m^2 - m^3) - 3*a^2*b*d^2*f^
2*(12 - 7*m + m^2)*(6*d*e - c*f*(1 + m)) + 3*a*b^2*d*f*(3 - m)*(3
0*d^2*e^2 - 12*c*d*e*f*(1 + m) + c^2*f^2*(2 + 3*m + m^2)) - b^3*(
120*d^3*e^3 - 90*c*d^2*e^2*f*(1 + m) + 18*c^2*d*e*f^2*(2 + 3*m +
m^2) - c^3*f^3*(6 + 11*m + 6*m^2 + m^3)))*(a + b*x)^(1 + m)*((b*(
c + d*x))/(b*c - a*d))^m*Hypergeometric2F1[-2 + m, 1 + m, 2 + m,
-((d*(a + b*x))/(b*c - a*d))])/(120*b^6*d^3*(1 + m)*(c + d*x)^m)
```

Rubi [A] time = 1.36539, antiderivative size = 446, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.154$

$$\frac{f(a+bx)^{m+1}(c+dx)^{3-m}\left(a^2d^2f^2\left(m^2-9m+20\right)-2abdf\left(9de(4-m)-cf\left(-m^2+2m+6\right)\right)+4bdfx(-adf(5-m)-bc\right.}{120b^3d^3}$$

$$-\frac{(bc-ad)^2(a+bx)^{m+1}(c+dx)^{-m}\left(\frac{b(c+dx)}{bc-ad}\right)^m\left(a^3d^3f^3\left(-m^3+12m^2-47m+60\right)-3a^2bd^2f^2\left(m^2-7m+12\right)(6de-cf(m\right.}{}$$

$$+\frac{f(e+fx)^2(a+bx)^{m+1}(c+dx)^{3-m}}{6bd}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^(2 - m)*(e + f*x)^3,x]
```

```
[Out] (f*(a + b*x)^(1 + m)*(c + d*x)^(3 - m)*(e + f*x)^2)/(6*b*d) + (f*
(a + b*x)^(1 + m)*(c + d*x)^(3 - m)*(a^2*d^2*f^2*(20 - 9*m + m^2)
 - 2*a*b*d*f*(9*d*e*(4 - m) - c*f*(6 + 2*m - m^2)) + b^2*(70*d^2*
e^2 - 18*c*d*e*f*(2 + m) + c^2*f^2*(6 + 5*m + m^2)) + 4*b*d*f*(8*
b*d*e - a*d*f*(5 - m) - b*c*f*(3 + m))*x))/(120*b^3*d^3) - ((b*c
- a*d)^2*(a^3*d^3*f^3*(60 - 47*m + 12*m^2 - m^3) - 3*a^2*b*d^2*f^
2*(12 - 7*m + m^2)*(6*d*e - c*f*(1 + m)) + 3*a*b^2*d*f*(3 - m)*(3
0*d^2*e^2 - 12*c*d*e*f*(1 + m) + c^2*f^2*(2 + 3*m + m^2)) - b^3*(
120*d^3*e^3 - 90*c*d^2*e^2*f*(1 + m) + 18*c^2*d*e*f^2*(2 + 3*m +
m^2) - c^3*f^3*(6 + 11*m + 6*m^2 + m^3)))*(a + b*x)^(1 + m)*((b*(
c + d*x))/(b*c - a*d))^m*Hypergeometric2F1[-2 + m, 1 + m, 2 + m,
-((d*(a + b*x))/(b*c - a*d))])/(120*b^6*d^3*(1 + m)*(c + d*x)^m)
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(2-m)*(f*x+e)**3,x)
```

```
[Out] Timed out
```

Mathematica [C] time = 4.29928, size = 467, normalized size = 1.04

$$\frac{1}{4}(a+bx)^m(c+dx)^{2-m}\left(\frac{18ace^2fx^2F_1\left(2;-m,m-2;3;-\frac{bx}{a},-\frac{dx}{c}\right)}{3acF_1\left(2;-m,m-2;3;-\frac{bx}{a},-\frac{dx}{c}\right)+bcmxF_1\left(3;1-m,m-2;4;-\frac{bx}{a},-\frac{dx}{c}\right)-ad(m-2)xF_1\left(3;-m,m-1;4;-\frac{bx}{a},-\frac{dx}{c}\right)}+\frac{16acef^2x^3F_1\left(3;-m,m-2;4;-\frac{bx}{a},-\frac{dx}{c}\right)}{4acF_1\left(3;-m,m-2;4;-\frac{bx}{a},-\frac{dx}{c}\right)+bcmxF_1\left(4;1-m,m-2;5;-\frac{bx}{a},-\frac{dx}{c}\right)-ad(m-2)xF_1\left(4;-m,m-1;5;-\frac{bx}{a},-\frac{dx}{c}\right)}+\frac{5acf^3x^4F_1\left(4;-m,m-2;5;-\frac{bx}{a},-\frac{dx}{c}\right)}{5acF_1\left(4;-m,m-2;5;-\frac{bx}{a},-\frac{dx}{c}\right)+bcmxF_1\left(5;1-m,m-2;6;-\frac{bx}{a},-\frac{dx}{c}\right)-ad(m-2)xF_1\left(5;-m,m-1;6;-\frac{bx}{a},-\frac{dx}{c}\right)}-\frac{4e^3(c+dx)\left(\frac{d(a+bx)}{ad-bc}\right)^{-m}{}_2F_1\left(3-m,-m;4-m;\frac{b(c+dx)}{bc-ad}\right)}{d(m-3)}\right)$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^(2 - m)*(e + f*x)^3,x]
```

```
[Out] ((a + b*x)^m*(c + d*x)^(2 - m)*((18*a*c*e^2*f*x^2*AppellF1[2, -m,
 -2 + m, 3, -((b*x)/a), -((d*x)/c)])/(3*a*c*AppellF1[2, -m, -2 +
m, 3, -((b*x)/a), -((d*x)/c)] + b*c*m*x*AppellF1[3, 1 - m, -2 + m
, 4, -((b*x)/a), -((d*x)/c)] - a*d*(-2 + m)*x*AppellF1[3, -m, -1
+ m, 4, -((b*x)/a), -((d*x)/c)]) + (16*a*c*e*f^2*x^3*AppellF1[3,
-m, -2 + m, 4, -((b*x)/a), -((d*x)/c)])/(4*a*c*AppellF1[3, -m, -2
 + m, 4, -((b*x)/a), -((d*x)/c)] + b*c*m*x*AppellF1[4, 1 - m, -2
+ m, 5, -((b*x)/a), -((d*x)/c)] - a*d*(-2 + m)*x*AppellF1[4, -m,
-1 + m, 5, -((b*x)/a), -((d*x)/c)]) + (5*a*c*f^3*x^4*AppellF1[4,
-m, -2 + m, 5, -((b*x)/a), -((d*x)/c)])/(5*a*c*AppellF1[4, -m, -2
 + m, 5, -((b*x)/a), -((d*x)/c)] + b*c*m*x*AppellF1[5, 1 - m, -2
+ m, 6, -((b*x)/a), -((d*x)/c)] - a*d*(-2 + m)*x*AppellF1[5, -m,
-1 + m, 6, -((b*x)/a), -((d*x)/c)]) - (4*e^3*(c + d*x)*Hypergeome
tric2F1[3 - m, -m, 4 - m, (b*(c + d*x))/(b*c - a*d)])/(d*(-3 + m)
*((d*(a + b*x))/(-(b*c) + a*d))^m)))/4
```

Maple [F] time = 0.099, size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^{2-m} (fx+e)^3 \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(2-m)*(f*x+e)^3,x)
```

```
[Out] int((b*x+a)^m*(d*x+c)^(2-m)*(f*x+e)^3,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (fx+e)^3(bx+a)^m(dx+c)^{-m+2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((f*x + e)^3*(b*x + a)^m*(d*x + c)^(-m + 2),x, algorithm="maxima")
```

```
[Out] integrate((f*x + e)^3*(b*x + a)^m*(d*x + c)^(-m + 2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\left(f^3x^3 + 3\,ef^2x^2 + 3\,e^2fx + e^3\right)(bx + a)^m(dx + c)^{-m+2}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)^3*(b*x + a)^m*(d*x + c)^(-m + 2),x, algorithm="fricas")
```

```
[Out] integral((f^3*x^3 + 3*e*f^2*x^2 + 3*e^2*f*x + e^3)*(b*x + a)^m*(d
*x + c)^(-m + 2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**m*(d*x+c)**(2-m)*(f*x+e)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (fx + e)^3(bx + a)^m(dx + c)^{-m+2}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)^3*(b*x + a)^m*(d*x + c)^(-m + 2),x, algorithm="giac")
```

```
[Out] integrate((f*x + e)^3*(b*x + a)^m*(d*x + c)^(-m + 2), x)
```

3.3107 $\int (a+bx)^m(c+dx)^{2-m}(e+fx)^2\,dx$

Optimal. Leaf size=262

$$\frac{(bc-ad)^2(a+bx)^{m+1}(c+dx)^{-m}\left(\frac{b(c+dx)}{bc-ad}\right)^m\left(a^2d^2f^2\left(m^2-7m+12\right)-2abdf(3-m)(5de-cf(m+1))+b^2\left(c^2f^2\left(m^2+3\right.\right.\right.}{20b^5d^2(m+1)}$$
$$-\frac{f(a+bx)^{m+1}(c+dx)^{3-m}(adf(4-m)-b(6de-cf(m+2)))}{20b^2d^2}+\frac{f(e+fx)(a+bx)^{m+1}(c+dx)^{3-m}}{5bd}$$

```
[Out] -(f*(a*d*f*(4 - m) - b*(6*d*e - c*f*(2 + m)))*(a + b*x)^(1 + m)*(
c + d*x)^(3 - m))/(20*b^2*d^2) + (f*(a + b*x)^(1 + m)*(c + d*x)^(
3 - m)*(e + f*x))/(5*b*d) + ((b*c - a*d)^2*(a^2*d^2*f^2*(12 - 7*m
 + m^2) - 2*a*b*d*f*(3 - m)*(5*d*e - c*f*(1 + m)) + b^2*(20*d^2*e
^2 - 10*c*d*e*f*(1 + m) + c^2*f^2*(2 + 3*m + m^2)))*(a + b*x)^(1
+ m)*((b*(c + d*x))/(b*c - a*d))^m*Hypergeometric2F1[-2 + m, 1 +
m, 2 + m, -((d*(a + b*x))/(b*c - a*d))])/(20*b^5*d^2*(1 + m)*(c +
 d*x)^m)
```

Rubi [A] time = 0.634567, antiderivative size = 261, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.154$

$$\frac{(bc-ad)^2(a+bx)^{m+1}(c+dx)^{-m}\left(\frac{b(c+dx)}{bc-ad}\right)^m\left(a^2d^2f^2\left(m^2-7m+12\right)-2abdf(3-m)(5de-cf(m+1))+b^2\left(c^2f^2\left(m^2+3\right.\right.\right.}{20b^5d^2(m+1)}$$
$$+\frac{f(a+bx)^{m+1}(c+dx)^{3-m}(-adf(4-m)-bcf(m+2)+6bde)}{20b^2d^2}+\frac{f(e+fx)(a+bx)^{m+1}(c+dx)^{3-m}}{5bd}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^(2 - m)*(e + f*x)^2,x]
```

```
[Out] (f*(6*b*d*e - a*d*f*(4 - m) - b*c*f*(2 + m))*(a + b*x)^(1 + m)*(c
 + d*x)^(3 - m))/(20*b^2*d^2) + (f*(a + b*x)^(1 + m)*(c + d*x)^(3
 - m)*(e + f*x))/(5*b*d) + ((b*c - a*d)^2*(a^2*d^2*f^2*(12 - 7*m
+ m^2) - 2*a*b*d*f*(3 - m)*(5*d*e - c*f*(1 + m)) + b^2*(20*d^2*e^
2 - 10*c*d*e*f*(1 + m) + c^2*f^2*(2 + 3*m + m^2)))*(a + b*x)^(1 +
 m)*((b*(c + d*x))/(b*c - a*d))^m*Hypergeometric2F1[-2 + m, 1 + m
, 2 + m, -((d*(a + b*x))/(b*c - a*d))])/(20*b^5*d^2*(1 + m)*(c +
d*x)^m)
```

Rubi in Sympy [A] time = 62.4157, size = 223, normalized size = 0.85

$$\frac{f(a+bx)^{m+1}(c+dx)^{-m+3}(e+fx)}{5bd}-\frac{f(a+bx)^{m+1}(c+dx)^{-m+3}(-6bde+f(ad(-m+4)+bc(m+2)))}{20b^2d^2}$$
$$-\frac{\left(\frac{b(-c-dx)}{ad-bc}\right)^m(a+bx)^{m+1}(c+dx)^{-m}(ad-bc)^2\left(4bd\left(-5bde^2+f(acf+e(ad(-m+3)+bc(m+1)))\right)-f(ad(-m+3)+\right.}{20b^5d^2(m+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(2-m)*(f*x+e)**2,x)
```

```
[Out] f*(a + b*x)**(m + 1)*(c + d*x)**(-m + 3)*(e + f*x)/(5*b*d) - f*(a
 + b*x)**(m + 1)*(c + d*x)**(-m + 3)*(-6*b*d*e + f*(a*d*(-m + 4)
+ b*c*(m + 2)))/(20*b**2*d**2) - (b*(-c - d*x)/(a*d - b*c))**m*(a
 + b*x)**(m + 1)*(c + d*x)**(-m)*(a*d - b*c)**2*(4*b*d*(-5*b*d*e*
*2 + f*(a*c*f + e*(a*d*(-m + 3) + b*c*(m + 1)))) - f*(a*d*(-m + 3
) + b*c*(m + 1))*(-6*b*d*e + f*(a*d*(-m + 4) + b*c*(m + 2))))*hyp
er((m - 2, m + 1), (m + 2,), d*(a + b*x)/(a*d - b*c))/(20*b**5*d*
*2*(m + 1))
```

Mathematica [C] time = 0.894274, size = 340, normalized size = 1.3

$$\frac{1}{3}(a+bx)^m(c+dx)^{2-m}\left(\frac{9acefx^2F_1\left(2;-m,m-2;3;-\frac{bx}{a},-\frac{dx}{c}\right)}{3acF_1\left(2;-m,m-2;3;-\frac{bx}{a},-\frac{dx}{c}\right)+bcmxF_1\left(3;1-m,m-2;4;-\frac{bx}{a},-\frac{dx}{c}\right)-ad(m-2)xF_1\left(3;-m,m-1;4;-\frac{b}{}\right.}+\frac{4acf^2x^3F_1\left(3;-m,m-2;4;-\frac{bx}{a},-\frac{dx}{c}\right)}{4acF_1\left(3;-m,m-2;4;-\frac{bx}{a},-\frac{dx}{c}\right)+bcmxF_1\left(4;1-m,m-2;5;-\frac{bx}{a},-\frac{dx}{c}\right)-ad(m-2)xF_1\left(4;-m,m-1;5;-\frac{bx}{a},-\frac{dx}{c}\right)}-\frac{3e^2(c+dx)\left(\frac{d(a+bx)}{ad-bc}\right)^{-m}{}_2F_1\left(3-m,-m;4-m;\frac{b(c+dx)}{bc-ad}\right)}{d(m-3)}\right)$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^(2 - m)*(e + f*x)^2,x]
```

```
[Out] ((a + b*x)^m*(c + d*x)^(2 - m)*((9*a*c*e*f*x^2*AppellF1[2, -m, -2
 + m, 3, -((b*x)/a), -((d*x)/c)])/(3*a*c*AppellF1[2, -m, -2 + m,
3, -((b*x)/a), -((d*x)/c)] + b*c*m*x*AppellF1[3, 1 - m, -2 + m, 4
, -((b*x)/a), -((d*x)/c)] - a*d*(-2 + m)*x*AppellF1[3, -m, -1 + m
, 4, -((b*x)/a), -((d*x)/c)]) + (4*a*c*f^2*x^3*AppellF1[3, -m, -2
 + m, 4, -((b*x)/a), -((d*x)/c)])/(4*a*c*AppellF1[3, -m, -2 + m,
4, -((b*x)/a), -((d*x)/c)] + b*c*m*x*AppellF1[4, 1 - m, -2 + m, 5
, -((b*x)/a), -((d*x)/c)] - a*d*(-2 + m)*x*AppellF1[4, -m, -1 + m
, 5, -((b*x)/a), -((d*x)/c)]) - (3*e^2*(c + d*x)*Hypergeometric2F
1[3 - m, -m, 4 - m, (b*(c + d*x))/(b*c - a*d)])/(d*(-3 + m)*((d*(
a + b*x))/(-(b*c) + a*d))^m)))/3
```

Maple [F] time = 0.098, size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^{2-m} (fx+e)^2 \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(2-m)*(f*x+e)^2,x)
```

```
[Out] int((b*x+a)^m*(d*x+c)^(2-m)*(f*x+e)^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (fx+e)^2(bx+a)^m(dx+c)^{-m+2} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)^2*(b*x + a)^m*(d*x + c)^(-m + 2),x, algorithm="maxima")
```

```
[Out] integrate((f*x + e)^2*(b*x + a)^m*(d*x + c)^(-m + 2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\left(f^2x^2+2\,efx+e^2\right)(bx+a)^m(dx+c)^{-m+2},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)^2*(b*x + a)^m*(d*x + c)^(-m + 2),x, algorithm="fricas")
```

```
[Out] integral((f^2*x^2 + 2*e*f*x + e^2)*(b*x + a)^m*(d*x + c)^(-m + 2)
, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**m*(d*x+c)**(2-m)*(f*x+e)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (fx + e)^2 (bx + a)^m (dx + c)^{-m+2}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)^2*(b*x + a)^m*(d*x + c)^(-m + 2),x, algorithm="giac")
```

```
[Out] integrate((f*x + e)^2*(b*x + a)^m*(d*x + c)^(-m + 2), x)
```

3.3108 $\int (a+bx)^m (c+dx)^{2-m} (e+fx)\, dx$

Optimal. Leaf size=147

$$\frac{f(a+bx)^{m+1}(c+dx)^{3-m}}{4bd} - \frac{(bc-ad)^2(a+bx)^{m+1}(c+dx)^{-m}\left(\frac{b(c+dx)}{bc-ad}\right)^m (adf(3-m)-b(4de-cf(m+1)))\,{}_2F_1\left(m-2,m+1;m+2;-\frac{d(a+bx)}{bc-ad}\right)}{4b^4d(m+1)}$$

```
[Out] (f*(a + b*x)^(1 + m)*(c + d*x)^(3 - m))/(4*b*d) - ((b*c - a*d)^2*
(a*d*f*(3 - m) - b*(4*d*e - c*f*(1 + m)))*(a + b*x)^(1 + m)*((b*(
c + d*x))/(b*c - a*d))^m*Hypergeometric2F1[-2 + m, 1 + m, 2 + m,
-((d*(a + b*x))/(b*c - a*d))])/(4*b^4*d*(1 + m)*(c + d*x)^m)
```

Rubi [A] time = 0.24438, antiderivative size = 146, normalized size of antiderivative = 0.99, number of steps used = 3, number of rules used = 3, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.125$

$$\frac{(bc-ad)^2(a+bx)^{m+1}(c+dx)^{-m}\left(\frac{b(c+dx)}{bc-ad}\right)^m (-adf(3-m)-bcf(m+1)+4bde)\,{}_2F_1\left(m-2,m+1;m+2;-\frac{d(a+bx)}{bc-ad}\right)}{4b^4d(m+1)} + \frac{f(a+bx)^{m+1}(c+dx)^{3-m}}{4bd}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^(2 - m)*(e + f*x),x]
```

```
[Out] (f*(a + b*x)^(1 + m)*(c + d*x)^(3 - m))/(4*b*d) + ((b*c - a*d)^2*
(4*b*d*e - a*d*f*(3 - m) - b*c*f*(1 + m))*(a + b*x)^(1 + m)*((b*(
c + d*x))/(b*c - a*d))^m*Hypergeometric2F1[-2 + m, 1 + m, 2 + m,
-((d*(a + b*x))/(b*c - a*d))])/(4*b^4*d*(1 + m)*(c + d*x)^m)
```

Rubi in Sympy [A] time = 27.7612, size = 116, normalized size = 0.79

$$\frac{f(a+bx)^{m+1}(c+dx)^{-m+3}}{4bd} - \frac{\left(\frac{b(-c-dx)}{ad-bc}\right)^m (a+bx)^{m+1}(c+dx)^{-m}(ad-bc)^2(-4bde+f(ad(-m+3)+bc(m+1)))\,{}_2F_1\left(\begin{matrix} m-2, m+1 \\ m+2 \end{matrix}\middle| \frac{d(a+bx)}{ad-bc}\right)}{4b^4d(m+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(2-m)*(f*x+e),x)
```

```
[Out] f*(a + b*x)**(m + 1)*(c + d*x)**(-m + 3)/(4*b*d) - (b*(-c - d*x)/
(a*d - b*c))**m*(a + b*x)**(m + 1)*(c + d*x)**(-m)*(a*d - b*c)**2
*(-4*b*d*e + f*(a*d*(-m + 3) + b*c*(m + 1)))*hyper((m - 2, m + 1)
, (m + 2,), d*(a + b*x)/(a*d - b*c))/(4*b**4*d*(m + 1))
```

Mathematica [C] time = 5.43263, size = 509, normalized size = 3.46

$$c(a+bx)^m(c+dx)^{-m}\left(\frac{5ad^2fx^4F_1\left(4;-m,m;5;-\frac{bx}{a},-\frac{dx}{c}\right)}{20acF_1\left(4;-m,m;5;-\frac{bx}{a},-\frac{dx}{c}\right)+4bcmxF_1\left(5;1-m,m;6;-\frac{bx}{a},-\frac{dx}{c}\right)-4admxF_1\left(5;-m,m+1;6;-\frac{bx}{a},-\frac{dx}{c}\right)}+\frac{4adx^3(2cf+de)F_1\left(3;-m,m;4;-\frac{bx}{a},-\frac{dx}{c}\right)}{3\left(4acF_1\left(3;-m,m;4;-\frac{bx}{a},-\frac{dx}{c}\right)+bcmxF_1\left(4;1-m,m;5;-\frac{bx}{a},-\frac{dx}{c}\right)-admxF_1\left(4;-m,m+1;5;-\frac{bx}{a},-\frac{dx}{c}\right)\right)}+\frac{3acx^2(cf+2de)F_1\left(2;-m,m;3;-\frac{bx}{a},-\frac{dx}{c}\right)}{6acF_1\left(2;-m,m;3;-\frac{bx}{a},-\frac{dx}{c}\right)+2mx\left(bcF_1\left(3;1-m,m;4;-\frac{bx}{a},-\frac{dx}{c}\right)-adF_1\left(3;-m,m+1;4;-\frac{bx}{a},-\frac{dx}{c}\right)\right)}-\frac{c^2e\left(\frac{d(a+bx)}{ad-bc}\right)^{-m}{}_2F_1\left(1-m,-m;2-m;\frac{b(c+dx)}{bc-ad}\right)}{d(m-1)}-\frac{cex\left(\frac{d(a+bx)}{ad-bc}\right)^{-m}{}_2F_1\left(1-m,-m;2-m;\frac{b(c+dx)}{bc-ad}\right)}{m-1}\right)$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^(2 - m)*(e + f*x),x]
```

```
[Out] (c*(a + b*x)^m*((3*a*c*(2*d*e + c*f)*x^2*AppellF1[2, -m, m, 3, -(
(b*x)/a), -((d*x)/c)])/(6*a*c*AppellF1[2, -m, m, 3, -((b*x)/a), -
((d*x)/c)] + 2*m*x*(b*c*AppellF1[3, 1 - m, m, 4, -((b*x)/a), -((d
*x)/c)] - a*d*AppellF1[3, -m, 1 + m, 4, -((b*x)/a), -((d*x)/c)]))
 + (4*a*d*(d*e + 2*c*f)*x^3*AppellF1[3, -m, m, 4, -((b*x)/a), -((
d*x)/c)])/(3*(4*a*c*AppellF1[3, -m, m, 4, -((b*x)/a), -((d*x)/c)]
 + b*c*m*x*AppellF1[4, 1 - m, m, 5, -((b*x)/a), -((d*x)/c)] - a*d
*m*x*AppellF1[4, -m, 1 + m, 5, -((b*x)/a), -((d*x)/c)])) + (5*a*d
^2*f*x^4*AppellF1[4, -m, m, 5, -((b*x)/a), -((d*x)/c)])/(20*a*c*A
ppellF1[4, -m, m, 5, -((b*x)/a), -((d*x)/c)] + 4*b*c*m*x*AppellF1
[5, 1 - m, m, 6, -((b*x)/a), -((d*x)/c)] - 4*a*d*m*x*AppellF1[5,
-m, 1 + m, 6, -((b*x)/a), -((d*x)/c)]) - (c^2*e*Hypergeometric2F1
[1 - m, -m, 2 - m, (b*(c + d*x))/(b*c - a*d)])/(d*(-1 + m)*((d*(a
 + b*x))/(-(b*c) + a*d))^m) - (c*e*x*Hypergeometric2F1[1 - m, -m,
 2 - m, (b*(c + d*x))/(b*c - a*d)])/((-1 + m)*((d*(a + b*x))/(-(b
*c) + a*d))^m)))/(c + d*x)^m
```

Maple [F] time = 0.088, size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^{2-m} (fx+e)\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(2-m)*(f*x+e),x)
```

```
[Out] int((b*x+a)^m*(d*x+c)^(2-m)*(f*x+e),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (fx+e)(bx+a)^m(dx+c)^{-m+2}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)*(b*x + a)^m*(d*x + c)^(-m + 2),x, algorithm="maxima")
```

```
[Out] integrate((f*x + e)*(b*x + a)^m*(d*x + c)^(-m + 2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left((fx+e)(bx+a)^m(dx+c)^{-m+2},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)*(b*x + a)^m*(d*x + c)^(-m + 2),x, algorithm="fricas")
```

```
[Out] integral((f*x + e)*(b*x + a)^m*(d*x + c)^(-m + 2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**m*(d*x+c)**(2-m)*(f*x+e),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (fx+e)(bx+a)^m(dx+c)^{-m+2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)*(b*x + a)^m*(d*x + c)^(-m + 2),x, algorithm="giac")
```

```
[Out] integrate((f*x + e)*(b*x + a)^m*(d*x + c)^(-m + 2), x)
```

3.3109 $\int (a+bx)^m (c+dx)^{2-m}\,dx$

Optimal. Leaf size=84

$$\frac{(bc-ad)^2(a+bx)^{m+1}(c+dx)^{-m}\left(\frac{b(c+dx)}{bc-ad}\right)^m {}_2F_1\left(m-2,m+1;m+2;-\frac{d(a+bx)}{bc-ad}\right)}{b^3(m+1)}$$

```
[Out] ((b*c - a*d)^2*(a + b*x)^(1 + m)*((b*(c + d*x))/(b*c - a*d))^m*Hy
pergeometric2F1[-2 + m, 1 + m, 2 + m, -((d*(a + b*x))/(b*c - a*d)
)])/(b^3*(1 + m)*(c + d*x)^m)
```

Rubi [A] time = 0.0875489, antiderivative size = 84, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 19, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.105

$$\frac{(bc-ad)^2(a+bx)^{m+1}(c+dx)^{-m}\left(\frac{b(c+dx)}{bc-ad}\right)^m {}_2F_1\left(m-2,m+1;m+2;-\frac{d(a+bx)}{bc-ad}\right)}{b^3(m+1)}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^(2 - m),x]
```

```
[Out] ((b*c - a*d)^2*(a + b*x)^(1 + m)*((b*(c + d*x))/(b*c - a*d))^m*Hy
pergeometric2F1[-2 + m, 1 + m, 2 + m, -((d*(a + b*x))/(b*c - a*d)
)])/(b^3*(1 + m)*(c + d*x)^m)
```

Rubi in Sympy [A] time = 18.0035, size = 66, normalized size = 0.79

$$\frac{\left(\frac{b(-c-dx)}{ad-bc}\right)^m (a+bx)^{m+1}(c+dx)^{-m}(ad-bc)^2\,{}_2F_1\left(\begin{matrix} m-2, m+1 \\ m+2 \end{matrix}\middle| \frac{d(a+bx)}{ad-bc}\right)}{b^3(m+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(2-m),x)
```

```
[Out] (b*(-c - d*x)/(a*d - b*c))**m*(a + b*x)**(m + 1)*(c + d*x)**(-m)*
(a*d - b*c)**2*hyper((m - 2, m + 1), (m + 2,), d*(a + b*x)/(a*d -
 b*c))/(b**3*(m + 1))
```

Mathematica [C] time = 0.77389, size = 319, normalized size = 3.8

$$\frac{c(a+bx)^m(c+dx)^{-m}\left(\frac{4ad^3x^3F_1\left(3;-m,m;4;-\frac{bx}{a},-\frac{dx}{c}\right)}{12acF_1\left(3;-m,m;4;-\frac{bx}{a},-\frac{dx}{c}\right)+3bcmxF_1\left(4;1-m,m;5;-\frac{bx}{a},-\frac{dx}{c}\right)-3admxF_1\left(4;-m,m+1;5;-\frac{bx}{a},-\frac{dx}{c}\right)} + \frac{\cdots}{3acF_1\left(2;-m,m;3;-\frac{b}{\cdots}\right.}\right.}{d}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^(2 - m),x]
```

```
[Out] (c*(a + b*x)^m*((3*a*c*d^2*x^2*AppellF1[2, -m, m, 3, -((b*x)/a),
-((d*x)/c)])/(3*a*c*AppellF1[2, -m, m, 3, -((b*x)/a), -((d*x)/c)]
 + m*x*(b*c*AppellF1[3, 1 - m, m, 4, -((b*x)/a), -((d*x)/c)] - a*
d*AppellF1[3, -m, 1 + m, 4, -((b*x)/a), -((d*x)/c)])) + (4*a*d^3*
x^3*AppellF1[3, -m, m, 4, -((b*x)/a), -((d*x)/c)])/(12*a*c*Appell
F1[3, -m, m, 4, -((b*x)/a), -((d*x)/c)] + 3*b*c*m*x*AppellF1[4, 1
```

```
 - m, m, 5, -((b*x)/a), -((d*x)/c)] - 3*a*d*m*x*AppellF1[4, -m, 1
 + m, 5, -((b*x)/a), -((d*x)/c)]) - (c*(c + d*x)*Hypergeometric2F
1[1 - m, -m, 2 - m, (b*(c + d*x))/(b*c - a*d)])/((-1 + m)*((d*(a
+ b*x))/(-(b*c) + a*d))^m)))/(d*(c + d*x)^m)
```

Maple [F] time = 0.113, size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^{2-m}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(2-m),x)

[Out] int((b*x+a)^m*(d*x+c)^(2-m),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^{-m+2}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m + 2),x, algorithm="maxima")

[Out] integrate((b*x + a)^m*(d*x + c)^(-m + 2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left((bx+a)^m (dx+c)^{-m+2}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m + 2),x, algorithm="fricas")

[Out] integral((b*x + a)^m*(d*x + c)^(-m + 2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(2-m),x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^{-m+2}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m + 2),x, algorithm="giac")

[Out] integrate((b*x + a)^m*(d*x + c)^(-m + 2), x)
```

3.3110 $\int \frac{(a+bx)^m(c+dx)^{2-m}}{e+fx}\,dx$

Optimal. Leaf size=319

$$\frac{d(bc-ad)(a+bx)^{m+1}(c+dx)^{-m}\left(\frac{b(c+dx)}{bc-ad}\right)^m {}_2F_1\left(m-1,m+1;m+2;-\frac{d(a+bx)}{bc-ad}\right)}{b^2f(m+1)} - \frac{(a+bx)^m(de-cf)^2(c+dx)^{-m}\,{}_2F_1\left(1,m;m+1;\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}\right)}{f^3m} + \frac{(a+bx)^m(de-cf)^2(c+dx)^{-m}\left(\frac{b(c+dx)}{bc-ad}\right)^m {}_2F_1\left(m,m;m+1;-\frac{d(a+bx)}{bc-ad}\right)}{f^3m} - \frac{d(a+bx)^{m+1}(de-cf)(c+dx)^{-m}\left(\frac{b(c+dx)}{bc-ad}\right)^m {}_2F_1\left(m,m+1;m+2;-\frac{d(a+bx)}{bc-ad}\right)}{bf^2(m+1)}$$

```
[Out] -(((d*e - c*f)^2*(a + b*x)^m*Hypergeometric2F1[1, m, 1 + m, ((d*e
 - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x))])/(f^3*m*(c + d*x)^m))
 + (d*(b*c - a*d)*(a + b*x)^(1 + m)*((b*(c + d*x))/(b*c - a*d))^m
*Hypergeometric2F1[-1 + m, 1 + m, 2 + m, -((d*(a + b*x))/(b*c - a
*d))])/(b^2*f*(1 + m)*(c + d*x)^m) + ((d*e - c*f)^2*(a + b*x)^m*(
(b*(c + d*x))/(b*c - a*d))^m*Hypergeometric2F1[m, m, 1 + m, -((d*
(a + b*x))/(b*c - a*d))])/(f^3*m*(c + d*x)^m) - (d*(d*e - c*f)*(a
 + b*x)^(1 + m)*((b*(c + d*x))/(b*c - a*d))^m*Hypergeometric2F1[m
, 1 + m, 2 + m, -((d*(a + b*x))/(b*c - a*d))])/(b*f^2*(1 + m)*(c
+ d*x)^m)
```

Rubi [A] time = 0.61728, antiderivative size = 319, normalized size of antiderivative = 1., number of steps used = 10, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.154$

$$\frac{d(bc-ad)(a+bx)^{m+1}(c+dx)^{-m}\left(\frac{b(c+dx)}{bc-ad}\right)^m {}_2F_1\left(m-1,m+1;m+2;-\frac{d(a+bx)}{bc-ad}\right)}{b^2f(m+1)} - \frac{(a+bx)^m(de-cf)^2(c+dx)^{-m}\,{}_2F_1\left(1,m;m+1;\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}\right)}{f^3m} + \frac{(a+bx)^m(de-cf)^2(c+dx)^{-m}\left(\frac{b(c+dx)}{bc-ad}\right)^m {}_2F_1\left(m,m;m+1;-\frac{d(a+bx)}{bc-ad}\right)}{f^3m} - \frac{d(a+bx)^{m+1}(de-cf)(c+dx)^{-m}\left(\frac{b(c+dx)}{bc-ad}\right)^m {}_2F_1\left(m,m+1;m+2;-\frac{d(a+bx)}{bc-ad}\right)}{bf^2(m+1)}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^m*(c + d*x)^(2 - m))/(e + f*x),x]
```


```
[Out] -(((d*e - c*f)^2*(a + b*x)^m*Hypergeometric2F1[1, m, 1 + m, ((d*e
 - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x))])/(f^3*m*(c + d*x)^m))
 + (d*(b*c - a*d)*(a + b*x)^(1 + m)*((b*(c + d*x))/(b*c - a*d))^m
*Hypergeometric2F1[-1 + m, 1 + m, 2 + m, -((d*(a + b*x))/(b*c - a
*d))])/(b^2*f*(1 + m)*(c + d*x)^m) + ((d*e - c*f)^2*(a + b*x)^m*(
(b*(c + d*x))/(b*c - a*d))^m*Hypergeometric2F1[m, m, 1 + m, -((d*
(a + b*x))/(b*c - a*d))])/(f^3*m*(c + d*x)^m) - (d*(d*e - c*f)*(a
 + b*x)^(1 + m)*((b*(c + d*x))/(b*c - a*d))^m*Hypergeometric2F1[m
, 1 + m, 2 + m, -((d*(a + b*x))/(b*c - a*d))])/(b*f^2*(1 + m)*(c
+ d*x)^m)
```

Rubi in Sympy [A] time = 82.9083, size = 258, normalized size = 0.81

$$\frac{(a+bx)^m(c+dx)^{-m}(cf-de)^2\,{}_2F_1\left(\begin{matrix}-m,1\\-m+1\end{matrix}\middle|\frac{(-c-dx)(-af+be)}{(a+bx)(cf-de)}\right)}{f^3m}-\frac{\left(\frac{d(a+bx)}{ad-bc}\right)^{-m}(a+bx)^m(c+dx)^{-m}(cf-de)^2\,{}_2F_1\left(\begin{matrix}-m,-m\\-m+1\end{matrix}\middle|\frac{b(-c-dx)}{ad-bc}\right)}{f^3m}+\frac{d\left(\frac{b(-c-dx)}{ad-bc}\right)^m(a+bx)^{m+1}(c+dx)^{-m}(cf-de)\,{}_2F_1\left(\begin{matrix}m,m+1\\m+2\end{matrix}\middle|\frac{d(a+bx)}{ad-bc}\right)}{bf^2(m+1)}-\frac{d\left(\frac{b(-c-dx)}{ad-bc}\right)^m(a+bx)^{m+1}(c+dx)^{-m}(ad-bc)\,{}_2F_1\left(\begin{matrix}m-1,m+1\\m+2\end{matrix}\middle|\frac{d(a+bx)}{ad-bc}\right)}{b^2f(m+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(2-m)/(f*x+e),x)
```

```
[Out] (a + b*x)**m*(c + d*x)**(-m)*(c*f - d*e)**2*hyper((-m, 1), (-m +
1,), (-c - d*x)*(-a*f + b*e)/((a + b*x)*(c*f - d*e)))/(f**3*m) -
(d*(a + b*x)/(a*d - b*c))**(-m)*(a + b*x)**m*(c + d*x)**(-m)*(c*f
 - d*e)**2*hyper((-m, -m), (-m + 1,), b*(-c - d*x)/(a*d - b*c))/(
f**3*m) + d*(b*(-c - d*x)/(a*d - b*c))**m*(a + b*x)**(m + 1)*(c +
 d*x)**(-m)*(c*f - d*e)*hyper((m, m + 1), (m + 2,), d*(a + b*x)/(
a*d - b*c))/(b*f**2*(m + 1)) - d*(b*(-c - d*x)/(a*d - b*c))**m*(a
 + b*x)**(m + 1)*(c + d*x)**(-m)*(a*d - b*c)*hyper((m - 1, m + 1)
, (m + 2,), d*(a + b*x)/(a*d - b*c))/(b**2*f*(m + 1))
```

Mathematica [C] time = 1.79532, size = 303, normalized size = 0.95

$$-\frac{(m+2)(bc-ad)(be-af)^2(a+bx)^{m+1}(c+dx)^{2-m}F_1}{b(m+1)(e+fx)(af-be)\left((m+2)(bc-ad)(be-af)F_1\left(m+1;m-2,1;m+2;\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)+(a+bx)\left((adf-bcf)\right.\right.}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[((a + b*x)^m*(c + d*x)^(2 - m))/(e + f*x),x]
```

```
[Out] -(((b*c - a*d)*(b*e - a*f)^2*(2 + m)*(a + b*x)^(1 + m)*(c + d*x)^
(2 - m)*AppellF1[1 + m, -2 + m, 1, 2 + m, (d*(a + b*x))/(-(b*c) +
 a*d), (f*(a + b*x))/(-(b*e) + a*f)])/(b*(-(b*e) + a*f)*(1 + m)*(
e + f*x)*((b*c - a*d)*(b*e - a*f)*(2 + m)*AppellF1[1 + m, -2 + m,
 1, 2 + m, (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) +
a*f)] + (a + b*x)*((-(b*c*f) + a*d*f)*AppellF1[2 + m, -2 + m, 2,
3 + m, (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)
] - d*(b*e - a*f)*(-2 + m)*AppellF1[2 + m, -1 + m, 1, 3 + m, (d*(
a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)]))))
```

Maple [F] time = 0.091, size = 0, normalized size = 0.

$$\int\frac{(bx+a)^m(dx+c)^{2-m}}{fx+e}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(2-m)/(f*x+e),x)
```

```
[Out] int((b*x+a)^m*(d*x+c)^(2-m)/(f*x+e),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m(dx+c)^{-m+2}}{fx+e}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m + 2)/(f*x + e),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m + 2)/(f*x + e), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)^m(dx+c)^{-m+2}}{fx+e}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m + 2)/(f*x + e),x, algorithm="fricas")
```

```
[Out] integral((b*x + a)^m*(d*x + c)^(-m + 2)/(f*x + e), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**m*(d*x+c)**(2-m)/(f*x+e),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m(dx+c)^{-m+2}}{fx+e}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m + 2)/(f*x + e),x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m + 2)/(f*x + e), x)
```

3.3111 $\int \frac{(a+bx)^m(c+dx)^{2-m}}{(e+fx)^2} dx$

Optimal. Leaf size=113

$$\frac{(bc-ad)^2(a+bx)^{m+1}(c+dx)^{-m}\left(\frac{b(c+dx)}{bc-ad}\right)^m F_1\left(m+1;m-2,2;m+2;-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{b(m+1)(be-af)^2}$$

```
[Out] ((b*c - a*d)^2*(a + b*x)^(1 + m)*((b*(c + d*x))/(b*c - a*d))^m*Ap
pellF1[1 + m, -2 + m, 2, 2 + m, -((d*(a + b*x))/(b*c - a*d)), -((
f*(a + b*x))/(b*e - a*f))])/(b*(b*e - a*f)^2*(1 + m)*(c + d*x)^m)
```

Rubi [A] time = 0.218876, antiderivative size = 113, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.077$

$$\frac{(bc-ad)^2(a+bx)^{m+1}(c+dx)^{-m}\left(\frac{b(c+dx)}{bc-ad}\right)^m F_1\left(m+1;m-2,2;m+2;-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{b(m+1)(be-af)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^m*(c + d*x)^(2 - m))/(e + f*x)^2,x]
```

```
[Out] ((b*c - a*d)^2*(a + b*x)^(1 + m)*((b*(c + d*x))/(b*c - a*d))^m*Ap
pellF1[1 + m, -2 + m, 2, 2 + m, -((d*(a + b*x))/(b*c - a*d)), -((
f*(a + b*x))/(b*e - a*f))])/(b*(b*e - a*f)^2*(1 + m)*(c + d*x)^m)
```

Rubi in Sympy [A] time = 29.5031, size = 85, normalized size = 0.75

$$\frac{\left(\frac{b(-c-dx)}{ad-bc}\right)^m (a+bx)^{m+1}(c+dx)^{-m}(ad-bc)^2 \operatorname{appellf_1}\left(m+1,2,m-2,m+2,\frac{f(a+bx)}{af-be},\frac{d(a+bx)}{ad-bc}\right)}{b(m+1)(af-be)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(2-m)/(f*x+e)**2,x)
```

```
[Out] (b*(-c - d*x)/(a*d - b*c))**m*(a + b*x)**(m + 1)*(c + d*x)**(-m)*
(a*d - b*c)**2*appellf1(m + 1, 2, m - 2, m + 2, f*(a + b*x)/(a*f
- b*e), d*(a + b*x)/(a*d - b*c))/(b*(m + 1)*(a*f - b*e)**2)
```

Mathematica [B] time = 1.88473, size = 291, normalized size = 2.58

$$\frac{(m+2)(bc-ad)(be-af)(a+bx)^{m+1}(c+dx)^{2-m}F_1\left(m+\right.}{b(m+1)(e+fx)^2\left((m+2)(bc-ad)(be-af)F_1\left(m+1;m-2,2;m+2;\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)+(a+bx)\left((2adf-2bcf)F_1\left(m+\right.\right.\right.}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[((a + b*x)^m*(c + d*x)^(2 - m))/(e + f*x)^2,x]
```

```
[Out] ((b*c - a*d)*(b*e - a*f)*(2 + m)*(a + b*x)^(1 + m)*(c + d*x)^(2 -
 m)*AppellF1[1 + m, -2 + m, 2, 2 + m, (d*(a + b*x))/(-(b*c) + a*d
), (f*(a + b*x))/(-(b*e) + a*f)])/(b*(1 + m)*(e + f*x)^2*((b*c -
a*d)*(b*e - a*f)*(2 + m)*AppellF1[1 + m, -2 + m, 2, 2 + m, (d*(a
+ b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)] + (a + b*x)
*((-2*b*c*f + 2*a*d*f)*AppellF1[2 + m, -2 + m, 3, 3 + m, (d*(a +
```

```
b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)] - d*(b*e - a*
f)*(-2 + m)*AppellF1[2 + m, -1 + m, 2, 3 + m, (d*(a + b*x))/(-(b*
c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)]))
```

Maple [F] time = 0.101, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{2-m}}{(fx+e)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(2-m)/(f*x+e)^2,x)

[Out] int((b*x+a)^m*(d*x+c)^(2-m)/(f*x+e)^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{-m+2}}{(fx+e)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m + 2)/(f*x + e)^2,x, algorithm="maxima")

[Out] integrate((b*x + a)^m*(d*x + c)^(-m + 2)/(f*x + e)^2, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)^m (dx+c)^{-m+2}}{f^2x^2+2\,efx+e^2}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m + 2)/(f*x + e)^2,x, algorithm="fricas")

[Out] integral((b*x + a)^m*(d*x + c)^(-m + 2)/(f^2*x^2 + 2*e*f*x + e^2)
, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(2-m)/(f*x+e)**2,x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{-m+2}}{(fx+e)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m + 2)/(f*x + e)^2,x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m + 2)/(f*x + e)^2, x)
```

3.3112 $\int \frac{(a+bx)^m(c+dx)^{2-m}}{(e+fx)^3}\,dx$

Optimal. Leaf size=110

$$\frac{(bc-ad)^2(a+bx)^{m+1}(c+dx)^{-m}\left(\frac{b(c+dx)}{bc-ad}\right)^m F_1\left(m+1;m-2,3;m+2;-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{(m+1)(be-af)^3}$$

```
[Out] ((b*c - a*d)^2*(a + b*x)^(1 + m)*((b*(c + d*x))/(b*c - a*d))^m*Ap
pellF1[1 + m, -2 + m, 3, 2 + m, -((d*(a + b*x))/(b*c - a*d)), -((
f*(a + b*x))/(b*e - a*f))])/((b*e - a*f)^3*(1 + m)*(c + d*x)^m)
```

Rubi [A] time = 0.21213, antiderivative size = 110, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.077

$$\frac{(bc-ad)^2(a+bx)^{m+1}(c+dx)^{-m}\left(\frac{b(c+dx)}{bc-ad}\right)^m F_1\left(m+1;m-2,3;m+2;-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{(m+1)(be-af)^3}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^m*(c + d*x)^(2 - m))/(e + f*x)^3,x]
```


```
[Out] ((b*c - a*d)^2*(a + b*x)^(1 + m)*((b*(c + d*x))/(b*c - a*d))^m*Ap
pellF1[1 + m, -2 + m, 3, 2 + m, -((d*(a + b*x))/(b*c - a*d)), -((
f*(a + b*x))/(b*e - a*f))])/((b*e - a*f)^3*(1 + m)*(c + d*x)^m)
```

Rubi in Sympy [A] time = 29.5629, size = 85, normalized size = 0.77

$$-\frac{\left(\frac{b(-c-dx)}{ad-bc}\right)^m(a+bx)^{m+1}(c+dx)^{-m}(ad-bc)^2\operatorname{appellf}_1\left(m+1,3,m-2,m+2,\frac{f(a+bx)}{af-be},\frac{d(a+bx)}{ad-bc}\right)}{(m+1)(af-be)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(2-m)/(f*x+e)**3,x)
```

```
[Out] -(b*(-c - d*x)/(a*d - b*c))**m*(a + b*x)**(m + 1)*(c + d*x)**(-m)
*(a*d - b*c)**2*appellf1(m + 1, 3, m - 2, m + 2, f*(a + b*x)/(a*f
 - b*e), d*(a + b*x)/(a*d - b*c))/((m + 1)*(a*f - b*e)**3)
```

Mathematica [B] time = 2.5513, size = 304, normalized size = 2.76

$$-\frac{(m+2)(bc-ad)(be-af)^4(a+bx)^{m+1}(c+dx)^{2-m}}{b(m+1)(e+fx)^3(af-be)^3\left((m+2)(bc-ad)(be-af)F_1\left(m+1;m-2,3;m+2;\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)+(a+bx)\left((3adf-3b\right.\right.}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[((a + b*x)^m*(c + d*x)^(2 - m))/(e + f*x)^3,x]
```

```
[Out] -(((b*c - a*d)*(b*e - a*f)^4*(2 + m)*(a + b*x)^(1 + m)*(c + d*x)^
(2 - m)*AppellF1[1 + m, -2 + m, 3, 2 + m, (d*(a + b*x))/(-(b*c) +
 a*d), (f*(a + b*x))/(-(b*e) + a*f)])/(b*(-(b*e) + a*f)^3*(1 + m)
*(e + f*x)^3*((b*c - a*d)*(b*e - a*f)*(2 + m)*AppellF1[1 + m, -2
+ m, 3, 2 + m, (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e
) + a*f)] + (a + b*x)*((-3*b*c*f + 3*a*d*f)*AppellF1[2 + m, -2 +
```

```
m, 4, 3 + m, (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e)
+ a*f)] - d*(b*e - a*f)*(-2 + m)*AppellF1[2 + m, -1 + m, 3, 3 + m
, (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)])))
```

Maple [F] time = 0.127, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{2-m}}{(fx+e)^3}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(2-m)/(f*x+e)^3,x)
```

```
[Out] int((b*x+a)^m*(d*x+c)^(2-m)/(f*x+e)^3,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{-m+2}}{(fx+e)^3}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m + 2)/(f*x + e)^3,x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m + 2)/(f*x + e)^3, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)^m (dx+c)^{-m+2}}{f^3x^3 + 3\,ef^2x^2 + 3\,e^2fx + e^3}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m + 2)/(f*x + e)^3,x, algorithm="fricas")
```

```
[Out] integral((b*x + a)^m*(d*x + c)^(-m + 2)/(f^3*x^3 + 3*e*f^2*x^2 +
3*e^2*f*x + e^3), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(2-m)/(f*x+e)**3,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{-m+2}}{(fx+e)^3}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m + 2)/(f*x + e)^3,x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m + 2)/(f*x + e)^3, x)
```

3.3113 $\int \frac{(a+bx)^m(c+dx)^{2-m}}{(e+fx)^4}\,dx$

Optimal. Leaf size=85

$$\frac{(bc-ad)^3(a+bx)^{m+1}(c+dx)^{-m-1}\,{}_2F_1\left(4,m+1;m+2;\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}\right)}{(m+1)(be-af)^4}$$

```
[Out] ((b*c - a*d)^3*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m)*Hypergeometri
c2F1[4, 1 + m, 2 + m, ((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d
*x))])/((b*e - a*f)^4*(1 + m))
```

Rubi [A] time = 0.104042, antiderivative size = 85, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.038

$$\frac{(bc-ad)^3(a+bx)^{m+1}(c+dx)^{-m-1}\,{}_2F_1\left(4,m+1;m+2;\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}\right)}{(m+1)(be-af)^4}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^m*(c + d*x)^(2 - m))/(e + f*x)^4,x]
```

```
[Out] ((b*c - a*d)^3*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m)*Hypergeometri
c2F1[4, 1 + m, 2 + m, ((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d
*x))])/((b*e - a*f)^4*(1 + m))
```

Rubi in Sympy [A] time = 12.0146, size = 66, normalized size = 0.78

$$\frac{(a+bx)^{m-3}(c+dx)^{-m+3}(ad-bc)^3\,{}_2F_1\left(\begin{matrix}-m+3,4\\-m+4\end{matrix}\middle|\frac{(-c-dx)(-af+be)}{(a+bx)(cf-de)}\right)}{(-m+3)(cf-de)^4}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(2-m)/(f*x+e)**4,x)
```

```
[Out] (a + b*x)**(m - 3)*(c + d*x)**(-m + 3)*(a*d - b*c)**3*hyper((-m +
 3, 4), (-m + 4,), (-c - d*x)*(-a*f + b*e)/((a + b*x)*(c*f - d*e)
))/((-m + 3)*(c*f - d*e)**4)
```

Mathematica [A] time = 1.85442, size = 122, normalized size = 1.44

$$\frac{(bc-ad)^3(a+bx)^{m+1}(c+dx)^{-m-1}\left(\frac{(c+dx)(be-af)}{(e+fx)(bc-ad)}\right)^{m+1}{}_2F_1\left(m-2,m+1;m+2;\frac{(cf-de)(a+bx)}{(bc-ad)(e+fx)}\right)}{(m+1)(be-af)^4}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((a + b*x)^m*(c + d*x)^(2 - m))/(e + f*x)^4,x]
```

```
[Out] ((b*c - a*d)^3*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m)*(((b*e - a*f)
*(c + d*x))/((b*c - a*d)*(e + f*x)))^(1 + m)*Hypergeometric2F1[-2
 + m, 1 + m, 2 + m, ((-(d*e) + c*f)*(a + b*x))/((b*c - a*d)*(e +
f*x))])/((b*e - a*f)^4*(1 + m))
```

Maple [F] time = 0.185, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{2-m}}{(fx+e)^4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(2-m)/(f*x+e)^4,x)
```

```
[Out] int((b*x+a)^m*(d*x+c)^(2-m)/(f*x+e)^4,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{-m+2}}{(fx+e)^4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m + 2)/(f*x + e)^4,x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m + 2)/(f*x + e)^4, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)^m (dx+c)^{-m+2}}{f^4x^4 + 4\,ef^3x^3 + 6\,e^2f^2x^2 + 4\,e^3fx + e^4}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m + 2)/(f*x + e)^4,x, algorithm="fricas")
```

```
[Out] integral((b*x + a)^m*(d*x + c)^(-m + 2)/(f^4*x^4 + 4*e*f^3*x^3 +
6*e^2*f^2*x^2 + 4*e^3*f*x + e^4), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(2-m)/(f*x+e)**4,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{-m+2}}{(fx+e)^4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m + 2)/(f*x + e)^4,x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m + 2)/(f*x + e)^4, x)
```

3.3114 $\int \frac{(a+bx)^m(c+dx)^{2-m}}{(e+fx)^5}\,dx$

Optimal. Leaf size=176

$$\frac{(bc-ad)^3(a+bx)^{m+1}(c+dx)^{-m-1}(b(4de-cf(3-m))-adf(m+1))\,{}_2F_1\left(4,m+1;m+2;\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}\right)}{4(m+1)(be-af)^5(de-cf)} - \frac{f(a+bx)^{m+1}(c+dx)^{3-m}}{4(e+fx)^4(be-af)(de-cf)}$$

```
[Out] -(f*(a + b*x)^(1 + m)*(c + d*x)^(3 - m))/(4*(b*e - a*f)*(d*e - c*
f)*(e + f*x)^4) + ((b*c - a*d)^3*(b*(4*d*e - c*f*(3 - m)) - a*d*f
*(1 + m))*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m)*Hypergeometric2F1[
4, 1 + m, 2 + m, ((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x))]
)/(4*(b*e - a*f)^5*(d*e - c*f)*(1 + m))
```

Rubi [A] time = 0.250943, antiderivative size = 175, normalized size of antiderivative = 0.99, number of steps used = 2, number of rules used = 2, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.077$

$$\frac{(bc-ad)^3(a+bx)^{m+1}(c+dx)^{-m-1}(-adf(m+1)-bcf(3-m)+4bde)\,{}_2F_1\left(4,m+1;m+2;\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}\right)}{4(m+1)(be-af)^5(de-cf)} - \frac{f(a+bx)^{m+1}(c+dx)^{3-m}}{4(e+fx)^4(be-af)(de-cf)}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^m*(c + d*x)^(2 - m))/(e + f*x)^5,x]
```

```
[Out] -(f*(a + b*x)^(1 + m)*(c + d*x)^(3 - m))/(4*(b*e - a*f)*(d*e - c*
f)*(e + f*x)^4) + ((b*c - a*d)^3*(4*b*d*e - b*c*f*(3 - m) - a*d*f
*(1 + m))*(a + b*x)^(1 + m)*(c + d*x)^(-1 - m)*Hypergeometric2F1[
4, 1 + m, 2 + m, ((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x))]
)/(4*(b*e - a*f)^5*(d*e - c*f)*(1 + m))
```

Rubi in Sympy [A] time = 37.5742, size = 143, normalized size = 0.81

$$-\frac{f\left(a+bx\right)^{m+1}\left(c+dx\right)^{-m+3}}{4\left(e+fx\right)^{4}\left(af-be\right)\left(cf-de\right)} - \frac{\left(a+bx\right)^{m+1}\left(c+dx\right)^{-m-1}\left(ad-bc\right)^{3}\left(-adf\left(m+1\right)-bcf\left(-m+3\right)+4bde\right){}_{2}F_{1}\left(\begin{matrix}m+1,4\\m+2\end{matrix}\middle|\frac{(-a-bx)(-cf+de)}{(c+dx)(af-be)}\right)}{4\left(m+1\right)\left(af-be\right)^{5}\left(cf-de\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(2-m)/(f*x+e)**5,x)
```

```
[Out] -f*(a + b*x)**(m + 1)*(c + d*x)**(-m + 3)/(4*(e + f*x)**4*(a*f -
b*e)*(c*f - d*e)) - (a + b*x)**(m + 1)*(c + d*x)**(-m - 1)*(a*d -
 b*c)**3*(-a*d*f*(m + 1) - b*c*f*(-m + 3) + 4*b*d*e)*hyper((m + 1
, 4), (m + 2,), (-a - b*x)*(-c*f + d*e)/((c + d*x)*(a*f - b*e)))/
(4*(m + 1)*(a*f - b*e)**5*(c*f - d*e))
```

Mathematica [C] time = 17.2614, size = 3314, normalized size = 18.83

Result too large to show

Warning: Unable to verify antiderivative.

```
[In]  Integrate[((a + b*x)^m*(c + d*x)^(2 - m))/(e + f*x)^5,x]
```

```
[Out] -((a + b*x)^(1 + m)*(c + d*x)^(3 - m)*((-4*b*e + a*f*(1 + m) + b*
f*(-3 + m)*x)*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f
)*(c + d*x)), 1, -2 + m] + 4*(3*b*e - a*f*(1 + m) - b*f*(-2 + m)*
x)*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)
), 1, -1 + m] - 12*b*e*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((
b*e - a*f)*(c + d*x)), 1, m] + 6*a*f*HurwitzLerchPhi[((d*e - c*f)
*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, m] + 6*a*f*m*HurwitzLerch
Phi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, m] - 6*b*
f*x*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x
)), 1, m] + 6*b*f*m*x*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b
*e - a*f)*(c + d*x)), 1, m] + 4*b*e*HurwitzLerchPhi[((d*e - c*f)*
(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 1 + m] - 4*a*f*HurwitzLerc
hPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 1 + m] -
 4*a*f*m*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c
+ d*x)), 1, 1 + m] - 4*b*f*m*x*HurwitzLerchPhi[((d*e - c*f)*(a +
b*x))/((b*e - a*f)*(c + d*x)), 1, 1 + m] + a*f*HurwitzLerchPhi[((
d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 2 + m] + a*f*m*
HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)),
1, 2 + m] + b*f*x*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e -
 a*f)*(c + d*x)), 1, 2 + m] + b*f*m*x*HurwitzLerchPhi[((d*e - c*f
)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 2 + m]))/(4*(e + f*x)^4*
((b*e - a*f)*(c + d*x)*(3*b*e - a*f*(1 + m) - b*f*(-2 + m)*x)*Hur
witzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1,
-2 + m] + (a^2*f*(1 + m)*(-4*c*f + d*(e - 3*f*x)) - b^2*(d*e*x*(9
*e + f*(5 - 4*m)*x) + c*(6*e^2 - 3*e*f*m*x + f^2*(-2 + m)*x^2)) +
 a*b*(c*f*(3*e*(4 + m) + f*(4 - 5*m)*x) + d*(-3*e^2 + e*f*(8 + 5*
m)*x - 3*f^2*(-1 + m)*x^2)))*HurwitzLerchPhi[((d*e - c*f)*(a + b*
x))/((b*e - a*f)*(c + d*x)), 1, -1 + m] + 3*b^2*c*e^2*HurwitzLerc
hPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, m] + 6*a
*b*d*e^2*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c
+ d*x)), 1, m] - 12*a*b*c*e*f*HurwitzLerchPhi[((d*e - c*f)*(a + b
*x))/((b*e - a*f)*(c + d*x)), 1, m] - 3*a^2*d*e*f*HurwitzLerchPhi
[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, m] + 6*a^2*c
*f^2*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*
x)), 1, m] - 3*a*b*c*e*f*m*HurwitzLerchPhi[((d*e - c*f)*(a + b*x)
)/((b*e - a*f)*(c + d*x)), 1, m] - 3*a^2*d*e*f*m*HurwitzLerchPhi[
((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, m] + 6*a^2*c*
f^2*m*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d
*x)), 1, m] + 9*b^2*d*e^2*x*HurwitzLerchPhi[((d*e - c*f)*(a + b*x
))/((b*e - a*f)*(c + d*x)), 1, m] - 6*b^2*c*e*f*x*HurwitzLerchPhi
[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, m] - 6*a*b*d
*e*f*x*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c +
d*x)), 1, m] + 3*a^2*d*f^2*x*HurwitzLerchPhi[((d*e - c*f)*(a + b*
x))/((b*e - a*f)*(c + d*x)), 1, m] - 3*b^2*c*e*f*m*x*HurwitzLerch
Phi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, m] - 9*a*
b*d*e*f*m*x*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*
(c + d*x)), 1, m] + 9*a*b*c*f^2*m*x*HurwitzLerchPhi[((d*e - c*f)*
(a + b*x))/((b*e - a*f)*(c + d*x)), 1, m] + 3*a^2*d*f^2*m*x*Hurwi
tzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, m]
 + 3*b^2*d*e*f*x^2*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e
- a*f)*(c + d*x)), 1, m] - 3*b^2*c*f^2*x^2*HurwitzLerchPhi[((d*e
- c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, m] - 6*b^2*d*e*f*m*
x^2*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x
)), 1, m] + 3*b^2*c*f^2*m*x^2*HurwitzLerchPhi[((d*e - c*f)*(a + b
*x))/((b*e - a*f)*(c + d*x)), 1, m] + 3*a*b*d*f^2*m*x^2*HurwitzLe
rchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, m] - 3
*a*b*d*e^2*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(
c + d*x)), 1, 1 + m] + 4*a*b*c*e*f*HurwitzLerchPhi[((d*e - c*f)*(
a + b*x))/((b*e - a*f)*(c + d*x)), 1, 1 + m] + 3*a^2*d*e*f*Hurwit
zLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 1 +
 m] - 4*a^2*c*f^2*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e -
 a*f)*(c + d*x)), 1, 1 + m] + a*b*c*e*f*m*HurwitzLerchPhi[((d*e -
 c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 1 + m] + 3*a^2*d*e*f
*m*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)
), 1, 1 + m] - 4*a^2*c*f^2*m*HurwitzLerchPhi[((d*e - c*f)*(a + b*
x))/((b*e - a*f)*(c + d*x)), 1, 1 + m] - 3*b^2*d*e^2*x*HurwitzLer
chPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 1 + m]
+ 4*b^2*c*e*f*x*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a
*f)*(c + d*x)), 1, 1 + m] + 4*a*b*d*e*f*x*HurwitzLerchPhi[((d*e -
```

```
c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 1 + m] - 4*a*b*c*f^2
*x*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)
), 1, 1 + m] - a^2*d*f^2*x*HurwitzLerchPhi[((d*e - c*f)*(a + b*x)
)/((b*e - a*f)*(c + d*x)), 1, 1 + m] + b^2*c*e*f*m*x*HurwitzLerch
Phi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 1 + m] +
7*a*b*d*e*f*m*x*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a
*f)*(c + d*x)), 1, 1 + m] - 7*a*b*c*f^2*m*x*HurwitzLerchPhi[((d*e
 - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 1 + m] - a^2*d*f^2
*m*x*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*
x)), 1, 1 + m] + b^2*d*e*f*x^2*HurwitzLerchPhi[((d*e - c*f)*(a +
b*x))/((b*e - a*f)*(c + d*x)), 1, 1 + m] - a*b*d*f^2*x^2*HurwitzL
erchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 1 + m
] + 4*b^2*d*e*f*m*x^2*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b
*e - a*f)*(c + d*x)), 1, 1 + m] - 3*b^2*c*f^2*m*x^2*HurwitzLerchP
hi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 1 + m] - a
*b*d*f^2*m*x^2*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*
f)*(c + d*x)), 1, 1 + m] - a^2*d*e*f*HurwitzLerchPhi[((d*e - c*f)
*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 2 + m] + a^2*c*f^2*Hurwit
zLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 2 +
 m] - a^2*d*e*f*m*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e -
 a*f)*(c + d*x)), 1, 2 + m] + a^2*c*f^2*m*HurwitzLerchPhi[((d*e -
 c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 2 + m] - 2*a*b*d*e*f
*x*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)
), 1, 2 + m] + 2*a*b*c*f^2*x*HurwitzLerchPhi[((d*e - c*f)*(a + b*
x))/((b*e - a*f)*(c + d*x)), 1, 2 + m] - 2*a*b*d*e*f*m*x*HurwitzL
erchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 2 + m
] + 2*a*b*c*f^2*m*x*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e
 - a*f)*(c + d*x)), 1, 2 + m] - b^2*d*e*f*x^2*HurwitzLerchPhi[((d
*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1, 2 + m] + b^2*c*f
^2*x^2*HurwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c +
d*x)), 1, 2 + m] - b^2*d*e*f*m*x^2*HurwitzLerchPhi[((d*e - c*f)*(
a + b*x))/((b*e - a*f)*(c + d*x)), 1, 2 + m] + b^2*c*f^2*m*x^2*Hu
rwitzLerchPhi[((d*e - c*f)*(a + b*x))/((b*e - a*f)*(c + d*x)), 1,
 2 + m]))
```

Maple [F] time = 0.273, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{2-m}}{(fx+e)^5}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(2-m)/(f*x+e)^5,x)

[Out] int((b*x+a)^m*(d*x+c)^(2-m)/(f*x+e)^5,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{-m+2}}{(fx+e)^5}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m + 2)/(f*x + e)^5,x, algorithm="maxima")

[Out] integrate((b*x + a)^m*(d*x + c)^(-m + 2)/(f*x + e)^5, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)^m (dx+c)^{-m+2}}{f^5x^5 + 5\,ef^4x^4 + 10\,e^2f^3x^3 + 10\,e^3f^2x^2 + 5\,e^4fx + e^5}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m + 2)/(f*x + e)^5,x, algorithm="fricas")
```

```
[Out] integral((b*x + a)^m*(d*x + c)^(-m + 2)/(f^5*x^5 + 5*e*f^4*x^4 +
10*e^2*f^3*x^3 + 10*e^3*f^2*x^2 + 5*e^4*f*x + e^5), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(2-m)/(f*x+e)**5,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{-m+2}}{(fx+e)^5}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m + 2)/(f*x + e)^5,x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m + 2)/(f*x + e)^5, x)
```

3.3115 $\int \frac{(a+bx)^m(c+dx)^{2-m}}{(e+fx)^6} dx$

Optimal. Leaf size=311

$$-\frac{(bc-ad)^3(a+bx)^{m+1}(c+dx)^{-m-1}\left(-a^2d^2f^2\left(m^2+3m+2\right)+2abdf(m+1)(5de-cf(3-m))+b^2\left(-\left(c^2f^2\left(m^2-7m+\right.\right.\right.}{20(m+1)(be-af)^6(de-cf)^2}$$
$$-\frac{f(a+bx)^{m+1}(c+dx)^{3-m}(b(6de-cf(4-m))-adf(m+2))}{20(e+fx)^4(be-af)^2(de-cf)^2}-\frac{f(a+bx)^{m+1}(c+dx)^{3-m}}{5(e+fx)^5(be-af)(de-cf)}$$

```
[Out] -(f*(a + b*x)^(1 + m)*(c + d*x)^(3 - m))/(5*(b*e - a*f)*(d*e - c*
f)*(e + f*x)^5) - (f*(b*(6*d*e - c*f*(4 - m)) - a*d*f*(2 + m))*(a
 + b*x)^(1 + m)*(c + d*x)^(3 - m))/(20*(b*e - a*f)^2*(d*e - c*f)^
2*(e + f*x)^4) - ((b*c - a*d)^3*(2*a*b*d*f*(5*d*e - c*f*(3 - m))*
(1 + m) - a^2*d^2*f^2*(2 + 3*m + m^2) - b^2*(20*d^2*e^2 - 10*c*d*
e*f*(3 - m) + c^2*f^2*(12 - 7*m + m^2)))*(a + b*x)^(1 + m)*(c + d
*x)^(-1 - m)*Hypergeometric2F1[4, 1 + m, 2 + m, ((d*e - c*f)*(a +
 b*x))/((b*e - a*f)*(c + d*x))])/(20*(b*e - a*f)^6*(d*e - c*f)^2*
(1 + m))
```

Rubi [A] time = 0.927891, antiderivative size = 310, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.154$

$$-\frac{(bc-ad)^3(a+bx)^{m+1}(c+dx)^{-m-1}\left(-a^2d^2f^2\left(m^2+3m+2\right)+2abdf(m+1)(5de-cf(3-m))+b^2\left(-\left(c^2f^2\left(m^2-7m+\right.\right.\right.}{20(m+1)(be-af)^6(de-cf)^2}$$
$$-\frac{f(a+bx)^{m+1}(c+dx)^{3-m}(-adf(m+2)-bcf(4-m)+6bde)}{20(e+fx)^4(be-af)^2(de-cf)^2}-\frac{f(a+bx)^{m+1}(c+dx)^{3-m}}{5(e+fx)^5(be-af)(de-cf)}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^m*(c + d*x)^(2 - m))/(e + f*x)^6,x]
```

```
[Out] -(f*(a + b*x)^(1 + m)*(c + d*x)^(3 - m))/(5*(b*e - a*f)*(d*e - c*
f)*(e + f*x)^5) - (f*(6*b*d*e - b*c*f*(4 - m) - a*d*f*(2 + m))*(a
 + b*x)^(1 + m)*(c + d*x)^(3 - m))/(20*(b*e - a*f)^2*(d*e - c*f)^
2*(e + f*x)^4) - ((b*c - a*d)^3*(2*a*b*d*f*(5*d*e - c*f*(3 - m))*
(1 + m) - a^2*d^2*f^2*(2 + 3*m + m^2) - b^2*(20*d^2*e^2 - 10*c*d*
e*f*(3 - m) + c^2*f^2*(12 - 7*m + m^2)))*(a + b*x)^(1 + m)*(c + d
*x)^(-1 - m)*Hypergeometric2F1[4, 1 + m, 2 + m, ((d*e - c*f)*(a +
 b*x))/((b*e - a*f)*(c + d*x))])/(20*(b*e - a*f)^6*(d*e - c*f)^2*
(1 + m))
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(2-m)/(f*x+e)**6,x)
```

```
[Out] Timed out
```

Mathematica [C] time = 30.3431, size = 29088, normalized size = 93.53

Result too large to show

Warning: Unable to verify antiderivative.

```
[In]  Integrate[((a + b*x)^m*(c + d*x)^(2 - m))/(e + f*x)^6,x]
```

```
[Out] Result too large to show
```

Maple [F] time = 0.469, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{2-m}}{(fx+e)^6}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(2-m)/(f*x+e)^6,x)
```

```
[Out] int((b*x+a)^m*(d*x+c)^(2-m)/(f*x+e)^6,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{-m+2}}{(fx+e)^6}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m + 2)/(f*x + e)^6,x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m + 2)/(f*x + e)^6, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)^m (dx+c)^{-m+2}}{f^6x^6 + 6\,ef^5x^5 + 15\,e^2f^4x^4 + 20\,e^3f^3x^3 + 15\,e^4f^2x^2 + 6\,e^5fx + e^6}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m + 2)/(f*x + e)^6,x, algorithm="fricas")
```

```
[Out] integral((b*x + a)^m*(d*x + c)^(-m + 2)/(f^6*x^6 + 6*e*f^5*x^5 +
15*e^2*f^4*x^4 + 20*e^3*f^3*x^3 + 15*e^4*f^2*x^2 + 6*e^5*f*x + e^
6), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(2-m)/(f*x+e)**6,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{-m+2}}{(fx+e)^6}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m + 2)/(f*x + e)^6,x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m + 2)/(f*x + e)^6, x)
```

3.3116 $\int \frac{(a+bx)^m(c+dx)^{2-m}}{(e+fx)^7}\,dx$

Optimal. Leaf size=541

$$-\frac{f(a+bx)^{m+1}(c+dx)^{3-m}\left(a^2d^2f^2\left(m^2+5m+6\right)-2abdf\left(de(7m+12)-cf\left(-m^2+2m+6\right)\right)+b^2\left(c^2f^2\left(m^2-9m+20\right)\right.\right.}{120(e+fx)^4(be-af)^3(de-cf)^3}$$
$$+\frac{(bc-ad)^3(a+bx)^{m+1}(c+dx)^{-m-1}\left(-a^3d^3f^3\left(m^3+6m^2+11m+6\right)+3a^2bd^2f^2\left(m^2+3m+2\right)(6de-cf(3-m))-3ab^2d\right.}{}$$
$$-\frac{f(a+bx)^{m+1}(c+dx)^{3-m}(b(8de-cf(5-m))-adf(m+3))}{30(e+fx)^5(be-af)^2(de-cf)^2}-\frac{f(a+bx)^{m+1}(c+dx)^{3-m}}{6(e+fx)^6(be-af)(de-cf)}$$

```
[Out] -(f*(a + b*x)^(1 + m)*(c + d*x)^(3 - m))/(6*(b*e - a*f)*(d*e - c*
f)*(e + f*x)^6) - (f*(b*(8*d*e - c*f*(5 - m)) - a*d*f*(3 + m))*(a
 + b*x)^(1 + m)*(c + d*x)^(3 - m))/(30*(b*e - a*f)^2*(d*e - c*f)^
2*(e + f*x)^5) - (f*(a^2*d^2*f^2*(6 + 5*m + m^2) - 2*a*b*d*f*(d*e
*(12 + 7*m) - c*f*(6 + 2*m - m^2)) + b^2*(38*d^2*e^2 - 2*c*d*e*f*
(26 - 7*m) + c^2*f^2*(20 - 9*m + m^2)))*(a + b*x)^(1 + m)*(c + d*
x)^(3 - m))/(120*(b*e - a*f)^3*(d*e - c*f)^3*(e + f*x)^4) + ((b*c
 - a*d)^3*(3*a^2*b*d^2*f^2*(6*d*e - c*f*(3 - m))*(2 + 3*m + m^2)
- a^3*d^3*f^3*(6 + 11*m + 6*m^2 + m^3) - 3*a*b^2*d*f*(1 + m)*(30*
d^2*e^2 - 12*c*d*e*f*(3 - m) + c^2*f^2*(12 - 7*m + m^2)) + b^3*(1
20*d^3*e^3 - 90*c*d^2*e^2*f*(3 - m) + 18*c^2*d*e*f^2*(12 - 7*m +
m^2) - c^3*f^3*(60 - 47*m + 12*m^2 - m^3)))*(a + b*x)^(1 + m)*(c
+ d*x)^(-1 - m)*Hypergeometric2F1[4, 1 + m, 2 + m, ((d*e - c*f)*(
a + b*x))/((b*e - a*f)*(c + d*x))])/(120*(b*e - a*f)^7*(d*e - c*f
)^3*(1 + m))
```

Rubi [A] time = 2.87726, antiderivative size = 540, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.154

$$-\frac{f(a+bx)^{m+1}(c+dx)^{3-m}\left(a^2d^2f^2\left(m^2+5m+6\right)-2abdf\left(de(7m+12)-cf\left(-m^2+2m+6\right)\right)+b^2\left(c^2f^2\left(m^2-9m+20\right)\right.\right.}{120(e+fx)^4(be-af)^3(de-cf)^3}$$
$$+\frac{(bc-ad)^3(a+bx)^{m+1}(c+dx)^{-m-1}\left(-a^3d^3f^3\left(m^3+6m^2+11m+6\right)+3a^2bd^2f^2\left(m^2+3m+2\right)(6de-cf(3-m))-3ab^2d\right.}{}$$
$$-\frac{f(a+bx)^{m+1}(c+dx)^{3-m}(-adf(m+3)-bcf(5-m)+8bde)}{30(e+fx)^5(be-af)^2(de-cf)^2}-\frac{f(a+bx)^{m+1}(c+dx)^{3-m}}{6(e+fx)^6(be-af)(de-cf)}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^m*(c + d*x)^(2 - m))/(e + f*x)^7,x]
```

```
[Out] -(f*(a + b*x)^(1 + m)*(c + d*x)^(3 - m))/(6*(b*e - a*f)*(d*e - c*
f)*(e + f*x)^6) - (f*(8*b*d*e - b*c*f*(5 - m) - a*d*f*(3 + m))*(a
 + b*x)^(1 + m)*(c + d*x)^(3 - m))/(30*(b*e - a*f)^2*(d*e - c*f)^
2*(e + f*x)^5) - (f*(a^2*d^2*f^2*(6 + 5*m + m^2) - 2*a*b*d*f*(d*e
*(12 + 7*m) - c*f*(6 + 2*m - m^2)) + b^2*(38*d^2*e^2 - 2*c*d*e*f*
(26 - 7*m) + c^2*f^2*(20 - 9*m + m^2)))*(a + b*x)^(1 + m)*(c + d*
x)^(3 - m))/(120*(b*e - a*f)^3*(d*e - c*f)^3*(e + f*x)^4) + ((b*c
 - a*d)^3*(3*a^2*b*d^2*f^2*(6*d*e - c*f*(3 - m))*(2 + 3*m + m^2)
- a^3*d^3*f^3*(6 + 11*m + 6*m^2 + m^3) - 3*a*b^2*d*f*(1 + m)*(30*
d^2*e^2 - 12*c*d*e*f*(3 - m) + c^2*f^2*(12 - 7*m + m^2)) + b^3*(1
20*d^3*e^3 - 90*c*d^2*e^2*f*(3 - m) + 18*c^2*d*e*f^2*(12 - 7*m +
m^2) - c^3*f^3*(60 - 47*m + 12*m^2 - m^3)))*(a + b*x)^(1 + m)*(c
+ d*x)^(-1 - m)*Hypergeometric2F1[4, 1 + m, 2 + m, ((d*e - c*f)*(
a + b*x))/((b*e - a*f)*(c + d*x))])/(120*(b*e - a*f)^7*(d*e - c*f
)^3*(1 + m))
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   rubi_integrate((b*x+a)**m*(d*x+c)**(2-m)/(f*x+e)**7,x)
```

```
[Out] Timed out
```

Mathematica [C] time = 34.6289, size = 79140, normalized size = 146.28

Result too large to show

Warning: Unable to verify antiderivative.

```
[In]   Integrate[((a + b*x)^m*(c + d*x)^(2 - m))/(e + f*x)^7,x]
```

```
[Out] Result too large to show
```

Maple [F] time = 0.836, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{2-m}}{(fx+e)^7} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]   int((b*x+a)^m*(d*x+c)^(2-m)/(f*x+e)^7,x)
```

```
[Out] int((b*x+a)^m*(d*x+c)^(2-m)/(f*x+e)^7,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{-m+2}}{(fx+e)^7} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m + 2)/(f*x + e)^7,x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m + 2)/(f*x + e)^7, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)^m (dx+c)^{-m+2}}{f^7x^7 + 7\,ef^6x^6 + 21\,e^2f^5x^5 + 35\,e^3f^4x^4 + 35\,e^4f^3x^3 + 21\,e^5f^2x^2 + 7\,e^6fx + e^7}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m + 2)/(f*x + e)^7,x, algorithm="fricas")
```

```
[Out] integral((b*x + a)^m*(d*x + c)^(-m + 2)/(f^7*x^7 + 7*e*f^6*x^6 +
21*e^2*f^5*x^5 + 35*e^3*f^4*x^4 + 35*e^4*f^3*x^3 + 21*e^5*f^2*x^2
 + 7*e^6*f*x + e^7), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(2-m)/(f*x+e)**7,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^{-m+2}}{(fx+e)^7}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m + 2)/(f*x + e)^7,x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m + 2)/(f*x + e)^7, x)
```

3.3117 $\int (a+bx)^m (c+dx)^{-m-n} (e+fx)^{n+p} \, dx$

Optimal. Leaf size=139

$$\frac{(a+bx)^{m+1}(c+dx)^{-m-n}(e+fx)^{n+p}\left(\frac{b(c+dx)}{bc-ad}\right)^{m+n}\left(\frac{b(e+fx)}{be-af}\right)^{-n-p}F_1\left(m+1;m+n,-n-p;m+2;-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{b(m+1)}$$

```
[Out] ((a + b*x)^(1 + m)*(c + d*x)^(-m - n)*((b*(c + d*x))/(b*c - a*d))
^(m + n)*(e + f*x)^(n + p)*((b*(e + f*x))/(b*e - a*f))^(-n - p)*A
ppellF1[1 + m, m + n, -n - p, 2 + m, -((d*(a + b*x))/(b*c - a*d))
, -((f*(a + b*x))/(b*e - a*f))])/(b*(1 + m))
```

Rubi [A] time = 0.325344, antiderivative size = 139, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 30, $\frac{\text{number of rules}}{\text{integrand size}} = 0.1$

$$\frac{(a+bx)^{m+1}(c+dx)^{-m-n}(e+fx)^{n+p}\left(\frac{b(c+dx)}{bc-ad}\right)^{m+n}\left(\frac{b(e+fx)}{be-af}\right)^{-n-p}F_1\left(m+1;m+n,-n-p;m+2;-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{b(m+1)}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^(-m - n)*(e + f*x)^(n + p),x]
```

```
[Out] ((a + b*x)^(1 + m)*(c + d*x)^(-m - n)*((b*(c + d*x))/(b*c - a*d))
^(m + n)*(e + f*x)^(n + p)*((b*(e + f*x))/(b*e - a*f))^(-n - p)*A
ppellF1[1 + m, m + n, -n - p, 2 + m, -((d*(a + b*x))/(b*c - a*d))
, -((f*(a + b*x))/(b*e - a*f))])/(b*(1 + m))
```

Rubi in Sympy [A] time = 79.4405, size = 105, normalized size = 0.76

$$\frac{\left(\frac{b(-c-dx)}{ad-bc}\right)^{m+n}\left(\frac{b(-e-fx)}{af-be}\right)^{-n-p}(a+bx)^{m+1}(c+dx)^{-m-n}(e+fx)^{n+p}\operatorname{appellf}_1\left(m+1,m+n,-n-p,m+2,\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)}{b(m+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(-m-n)*(f*x+e)**(n+p),x)
```

```
[Out] (b*(-c - d*x)/(a*d - b*c))**(m + n)*(b*(-e - f*x)/(a*f - b*e))**(
-n - p)*(a + b*x)**(m + 1)*(c + d*x)**(-m - n)*(e + f*x)**(n + p)
*appellf1(m + 1, m + n, -n - p, m + 2, d*(a + b*x)/(a*d - b*c), f
*(a + b*x)/(a*f - b*e))/(b*(m + 1))
```

Mathematica [B] time = 1.53639, size = 323, normalized size = 2.32

$$\frac{(m+2)(bc-ad)(be-af)(a+bx)^{m+1}(c+dx)^{-m-n}(e+f}{b(m+1)\left((m+2)(bc-ad)(be-af)F_1\left(m+1;m+n,-n-p;m+2;\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)-(a+bx)\left(d(m+n)(be-af)F_1\left(m+\right.\right.\right.}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^(-m - n)*(e + f*x)^(n + p),x]
```

```
[Out] ((b*c - a*d)*(b*e - a*f)*(2 + m)*(a + b*x)^(1 + m)*(c + d*x)^(-m
- n)*(e + f*x)^(n + p)*AppellF1[1 + m, m + n, -n - p, 2 + m, (d*(
a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)])/(b*(1 +
m)*((b*c - a*d)*(b*e - a*f)*(2 + m)*AppellF1[1 + m, m + n, -n - p
```

```
, 2 + m, (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*
f)] - (a + b*x)*(-((b*c - a*d)*f*(n + p)*AppellF1[2 + m, m + n, 1
 - n - p, 3 + m, (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b
*e) + a*f)]) + d*(b*e - a*f)*(m + n)*AppellF1[2 + m, 1 + m + n, -
n - p, 3 + m, (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e)
 + a*f)])))
```

Maple [F] time = 0.229, size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^{-m-n} (fx+e)^{n+p}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(-m-n)*(f*x+e)^(n+p),x)

[Out] int((b*x+a)^m*(d*x+c)^(-m-n)*(f*x+e)^(n+p),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^{-m-n} (fx+e)^{n+p}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - n)*(f*x + e)^(n + p),x, algorithm="maxima")

[Out] integrate((b*x + a)^m*(d*x + c)^(-m - n)*(f*x + e)^(n + p), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left((bx+a)^m (dx+c)^{-m-n} (fx+e)^{n+p}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - n)*(f*x + e)^(n + p),x, algorithm="fricas")

[Out] integral((b*x + a)^m*(d*x + c)^(-m - n)*(f*x + e)^(n + p), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(-m-n)*(f*x+e)**(n+p),x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^{-m-n} (fx+e)^{n+p}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m - n)*(f*x + e)^(n + p),x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m - n)*(f*x + e)^(n + p), x)
```

3.3118 $\int (a+bx)^m (c+dx)^{-m-n} (e+fx)^{1+n}\,dx$

Optimal. Leaf size=139

$$\frac{(be-af)(a+bx)^{m+1}(e+fx)^n(c+dx)^{-m-n}\left(\frac{b(e+fx)}{be-af}\right)^{-n}\left(\frac{b(c+dx)}{bc-ad}\right)^{m+n}F_1\left(m+1;m+n,-n-1;m+2;-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{b^2(m+1)}$$

```
[Out] ((b*e - a*f)*(a + b*x)^(1 + m)*(c + d*x)^(-m - n)*((b*(c + d*x))/
(b*c - a*d))^(m + n)*(e + f*x)^n*AppellF1[1 + m, m + n, -1 - n, 2
 + m, -((d*(a + b*x))/(b*c - a*d)), -((f*(a + b*x))/(b*e - a*f))]
)/(b^2*(1 + m)*((b*(e + f*x))/(b*e - a*f))^n)
```

Rubi [A] time = 0.341896, antiderivative size = 139, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 30, $\frac{\text{number of rules}}{\text{integrand size}} = 0.1$

$$\frac{(be-af)(a+bx)^{m+1}(e+fx)^n(c+dx)^{-m-n}\left(\frac{b(e+fx)}{be-af}\right)^{-n}\left(\frac{b(c+dx)}{bc-ad}\right)^{m+n}F_1\left(m+1;m+n,-n-1;m+2;-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{b^2(m+1)}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^(-m - n)*(e + f*x)^(1 + n),x]
```

```
[Out] ((b*e - a*f)*(a + b*x)^(1 + m)*(c + d*x)^(-m - n)*((b*(c + d*x))/
(b*c - a*d))^(m + n)*(e + f*x)^n*AppellF1[1 + m, m + n, -1 - n, 2
 + m, -((d*(a + b*x))/(b*c - a*d)), -((f*(a + b*x))/(b*e - a*f))]
)/(b^2*(1 + m)*((b*(e + f*x))/(b*e - a*f))^n)
```

Rubi in Sympy [A] time = 77.0073, size = 110, normalized size = 0.79

$$-\frac{\left(\frac{b(-c-dx)}{ad-bc}\right)^{m+n}\left(\frac{b(-e-fx)}{af-be}\right)^{-n}(a+bx)^{m+1}(c+dx)^{-m-n}(e+fx)^n(af-be)\,\mathrm{appellf_1}\left(m+1,m+n,-n-1,m+2,\frac{d(a+bx)}{ad-bc},\frac{f}{}\right.}{b^2(m+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(-m-n)*(f*x+e)**(1+n),x)
```

```
[Out] -(b*(-c - d*x)/(a*d - b*c))**(m + n)*(b*(-e - f*x)/(a*f - b*e))**
(-n)*(a + b*x)**(m + 1)*(c + d*x)**(-m - n)*(e + f*x)**n*(a*f - b
*e)*appellf1(m + 1, m + n, -n - 1, m + 2, d*(a + b*x)/(a*d - b*c)
, f*(a + b*x)/(a*f - b*e))/(b**2*(m + 1))
```

Mathematica [B] time = 2.27421, size = 312, normalized size = 2.24

$$\frac{(m+2)(bc-ad)(be-af)(a+bx)^{m+1}(e+fx)^{n+1}(c+dx)^{-m-}}{b(m+1)\left((m+2)(bc-ad)(be-af)F_1\left(m+1;m+n,-n-1;m+2;\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)-(a+bx)\left(d(m+n)(be-af)F_1\left(m+\right.\right.\right.}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^(-m - n)*(e + f*x)^(1 + n),x]
```

```
[Out] ((b*c - a*d)*(b*e - a*f)*(2 + m)*(a + b*x)^(1 + m)*(c + d*x)^(-m
- n)*(e + f*x)^(1 + n)*AppellF1[1 + m, m + n, -1 - n, 2 + m, (d*(
a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)])/(b*(1 +
m)*((b*c - a*d)*(b*e - a*f)*(2 + m)*AppellF1[1 + m, m + n, -1 - n
```

```
, 2 + m, (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*
f)] - (a + b*x)*(-((b*c - a*d)*f*(1 + n)*AppellF1[2 + m, m + n, -
n, 3 + m, (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a
*f)]) + d*(b*e - a*f)*(m + n)*AppellF1[2 + m, 1 + m + n, -1 - n,
3 + m, (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)
])))
```

Maple [F] time = 0.235, size = 0, normalized size = 0.

$$\int (bx + a)^{m} (dx + c)^{-m-n} (fx + e)^{1+n} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(-m-n)*(f*x+e)^(1+n),x)

[Out] int((b*x+a)^m*(d*x+c)^(-m-n)*(f*x+e)^(1+n),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx + a)^{m}(dx + c)^{-m-n}(fx + e)^{n+1} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - n)*(f*x + e)^(n + 1),x, algorithm="maxima")

[Out] integrate((b*x + a)^m*(d*x + c)^(-m - n)*(f*x + e)^(n + 1), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left((bx + a)^{m}(dx + c)^{-m-n}(fx + e)^{n+1}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - n)*(f*x + e)^(n + 1),x, algorithm="fricas")

[Out] integral((b*x + a)^m*(d*x + c)^(-m - n)*(f*x + e)^(n + 1), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(-m-n)*(f*x+e)**(1+n),x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (bx + a)^{m}(dx + c)^{-m-n}(fx + e)^{n+1} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m - n)*(f*x + e)^(n + 1),x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m - n)*(f*x + e)^(n + 1), x)
```

3.3119 $\int (a+bx)^m(c+dx)^{-m-n}(e+fx)^n\,dx$

Optimal. Leaf size=129

$$\frac{(a+bx)^{m+1}(e+fx)^n(c+dx)^{-m-n}\left(\frac{b(e+fx)}{be-af}\right)^{-n}\left(\frac{b(c+dx)}{bc-ad}\right)^{m+n}F_1\left(m+1;m+n,-n;m+2;-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{b(m+1)}$$

```
[Out] ((a + b*x)^(1 + m)*(c + d*x)^(-m - n)*((b*(c + d*x))/(b*c - a*d))
^(m + n)*(e + f*x)^n*AppellF1[1 + m, m + n, -n, 2 + m, -((d*(a +
b*x))/(b*c - a*d)), -((f*(a + b*x))/(b*e - a*f))])/(b*(1 + m)*((b
*(e + f*x))/(b*e - a*f))^n)
```

Rubi [A] time = 0.282389, antiderivative size = 129, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.107$

$$\frac{(a+bx)^{m+1}(e+fx)^n(c+dx)^{-m-n}\left(\frac{b(e+fx)}{be-af}\right)^{-n}\left(\frac{b(c+dx)}{bc-ad}\right)^{m+n}F_1\left(m+1;m+n,-n;m+2;-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{b(m+1)}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^(-m - n)*(e + f*x)^n,x]
```

```
[Out] ((a + b*x)^(1 + m)*(c + d*x)^(-m - n)*((b*(c + d*x))/(b*c - a*d))
^(m + n)*(e + f*x)^n*AppellF1[1 + m, m + n, -n, 2 + m, -((d*(a +
b*x))/(b*c - a*d)), -((f*(a + b*x))/(b*e - a*f))])/(b*(1 + m)*((b
*(e + f*x))/(b*e - a*f))^n)
```

Rubi in Sympy [A] time = 73.2246, size = 99, normalized size = 0.77

$$\frac{\left(\frac{b(-c-dx)}{ad-bc}\right)^{m+n}\left(\frac{b(-e-fx)}{af-be}\right)^{-n}(a+bx)^{m+1}(c+dx)^{-m-n}(e+fx)^n\operatorname{appellf}_1\left(m+1,-n,m+n,m+2,\frac{f(a+bx)}{af-be},\frac{d(a+bx)}{ad-bc}\right)}{b\,(m+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(-m-n)*(f*x+e)**n,x)
```

```
[Out] (b*(-c - d*x)/(a*d - b*c))**(m + n)*(b*(-e - f*x)/(a*f - b*e))**(
-n)*(a + b*x)**(m + 1)*(c + d*x)**(-m - n)*(e + f*x)**n*appellf1(
m + 1, -n, m + n, m + 2, f*(a + b*x)/(a*f - b*e), d*(a + b*x)/(a*
d - b*c))/(b*(m + 1))
```

Mathematica [B] time = 0.261803, size = 303, normalized size = 2.35

$$\frac{(m+2)(bc-ad)(be-af)(a+bx)^{m+1}(e+fx)^n(c+dx)^{-m-n}F_1\left(\right.}{b(m+1)\left((m+2)(bc-ad)(be-af)F_1\left(m+1;m+n,-n;m+2;\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)-(a+bx)\left(fn(ad-bc)F_1\left(m+2;m+n,1\right.\right.\right.}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^(-m - n)*(e + f*x)^n,x]
```

```
[Out] ((b*c - a*d)*(b*e - a*f)*(2 + m)*(a + b*x)^(1 + m)*(c + d*x)^(-m
- n)*(e + f*x)^n*AppellF1[1 + m, m + n, -n, 2 + m, (d*(a + b*x))/
(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)])/(b*(1 + m)*((b*c -
 a*d)*(b*e - a*f)*(2 + m)*AppellF1[1 + m, m + n, -n, 2 + m, (d*(a
```

```
 + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)] - (a + b*x
)*((-(b*c) + a*d)*f*n*AppellF1[2 + m, m + n, 1 - n, 3 + m, (d*(a
+ b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)] + d*(b*e -
a*f)*(m + n)*AppellF1[2 + m, 1 + m + n, -n, 3 + m, (d*(a + b*x))/
(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)])))
```

Maple [F] time = 0.222, size = 0, normalized size = 0.

$$\int (bx + a)^m (dx + c)^{-m-n} (fx + e)^n \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(-m-n)*(f*x+e)^n,x)

[Out] int((b*x+a)^m*(d*x+c)^(-m-n)*(f*x+e)^n,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx + a)^m (dx + c)^{-m-n} (fx + e)^n \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - n)*(f*x + e)^n,x, algorithm="maxima")

[Out] integrate((b*x + a)^m*(d*x + c)^(-m - n)*(f*x + e)^n, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left((bx + a)^m (dx + c)^{-m-n} (fx + e)^n, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - n)*(f*x + e)^n,x, algorithm="fricas")

[Out] integral((b*x + a)^m*(d*x + c)^(-m - n)*(f*x + e)^n, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(-m-n)*(f*x+e)**n,x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (bx + a)^m (dx + c)^{-m-n} (fx + e)^n \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - n)*(f*x + e)^n,x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m - n)*(f*x + e)^n, x)
```

3.3120 $\int (a+bx)^m (c+dx)^{-m-n} (e+fx)^{-1+n}\,dx$

Optimal. Leaf size=138

$$\frac{(a+bx)^{m+1}(e+fx)^n(c+dx)^{-m-n}\left(\frac{b(e+fx)}{be-af}\right)^{-n}\left(\frac{b(c+dx)}{bc-ad}\right)^{m+n}F_1\left(m+1;m+n,1-n;m+2;-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{(m+1)(be-af)}$$

```
[Out] ((a + b*x)^(1 + m)*(c + d*x)^(-m - n)*((b*(c + d*x))/(b*c - a*d))
^(m + n)*(e + f*x)^n*AppellF1[1 + m, m + n, 1 - n, 2 + m, -((d*(a
 + b*x))/(b*c - a*d)), -((f*(a + b*x))/(b*e - a*f))])/((b*e - a*f
)*(1 + m)*((b*(e + f*x))/(b*e - a*f))^n)
```

Rubi [A] time = 0.333286, antiderivative size = 138, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 30, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.1

$$\frac{(a+bx)^{m+1}(e+fx)^n(c+dx)^{-m-n}\left(\frac{b(e+fx)}{be-af}\right)^{-n}\left(\frac{b(c+dx)}{bc-ad}\right)^{m+n}F_1\left(m+1;m+n,1-n;m+2;-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{(m+1)(be-af)}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^(-m - n)*(e + f*x)^(-1 + n),x]
```

```
[Out] ((a + b*x)^(1 + m)*(c + d*x)^(-m - n)*((b*(c + d*x))/(b*c - a*d))
^(m + n)*(e + f*x)^n*AppellF1[1 + m, m + n, 1 - n, 2 + m, -((d*(a
 + b*x))/(b*c - a*d)), -((f*(a + b*x))/(b*e - a*f))])/((b*e - a*f
)*(1 + m)*((b*(e + f*x))/(b*e - a*f))^n)
```

Rubi in Sympy [A] time = 77.4004, size = 105, normalized size = 0.76

$$-\frac{\left(\frac{b(-c-dx)}{ad-bc}\right)^{m+n}\left(\frac{b(-e-fx)}{af-be}\right)^{-n}(a+bx)^{m+1}(c+dx)^{-m-n}(e+fx)^n\,\mathrm{appellf}_1\left(m+1,m+n,-n+1,m+2,\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)}{(m+1)(af-be)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(-m-n)*(f*x+e)**(-1+n),x)
```

```
[Out] -(b*(-c - d*x)/(a*d - b*c))**(m + n)*(b*(-e - f*x)/(a*f - b*e))**
(-n)*(a + b*x)**(m + 1)*(c + d*x)**(-m - n)*(e + f*x)**n*appellf1
(m + 1, m + n, -n + 1, m + 2, d*(a + b*x)/(a*d - b*c), f*(a + b*x
)/(a*f - b*e))/((m + 1)*(a*f - b*e))
```

Mathematica [B] time = 1.55274, size = 315, normalized size = 2.28

$$-\frac{(m+2)(bc-ad)(be-af)(a+bx)^{m+1}(e+fx)^{n-1}(c+dx)^{-n}}{b(m+1)\left((a+bx)\left(d(m+n)(be-af)F_1\left(m+2;m+n+1,1-n;m+3;\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)-f(n-1)(bc-ad)F_1\left(m+2;m\right.\right.\right.}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^(-m - n)*(e + f*x)^(-1 + n),x]
```

```
[Out] -(((b*c - a*d)*(b*e - a*f)*(2 + m)*(a + b*x)^(1 + m)*(c + d*x)^(-
m - n)*(e + f*x)^(-1 + n)*AppellF1[1 + m, m + n, 1 - n, 2 + m, (d
*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)])/(b*(1
+ m)*(-((b*c - a*d)*(b*e - a*f)*(2 + m)*AppellF1[1 + m, m + n, 1
```

```
- n, 2 + m, (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) +
 a*f)]) + (a + b*x)*(-((b*c - a*d)*f*(-1 + n)*AppellF1[2 + m, m +
 n, 2 - n, 3 + m, (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(
b*e) + a*f)]) + d*(b*e - a*f)*(m + n)*AppellF1[2 + m, 1 + m + n,
1 - n, 3 + m, (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e)
 + a*f)]))))
```

Maple [F] time = 0.237, size = 0, normalized size = 0.

$$\int (bx+a)^{m} (dx+c)^{-m-n} (fx+e)^{-1+n} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(-m-n)*(f*x+e)^(-1+n),x)

[Out] int((b*x+a)^m*(d*x+c)^(-m-n)*(f*x+e)^(-1+n),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^{m}(dx+c)^{-m-n}(fx+e)^{n-1}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - n)*(f*x + e)^(n - 1),x, algorithm="maxima")

[Out] integrate((b*x + a)^m*(d*x + c)^(-m - n)*(f*x + e)^(n - 1), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left((bx+a)^{m}(dx+c)^{-m-n}(fx+e)^{n-1}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - n)*(f*x + e)^(n - 1),x, algorithm="fricas")

[Out] integral((b*x + a)^m*(d*x + c)^(-m - n)*(f*x + e)^(n - 1), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(-m-n)*(f*x+e)**(-1+n),x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^{m}(dx+c)^{-m-n}(fx+e)^{n-1}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m - n)*(f*x + e)^(n - 1),x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m - n)*(f*x + e)^(n - 1), x)
```

3.3121 $\int (a+bx)^m (c+dx)^{-m-n} (e+fx)^{-2+n}\, dx$

Optimal. Leaf size=124

$$\frac{(a+bx)^{m+1}(e+fx)^{n-1}(c+dx)^{-m-n}\left(\frac{(c+dx)(be-af)}{(e+fx)(bc-ad)}\right)^{m+n}{}_2F_1\left(m+1,m+n;m+2;-\frac{(de-cf)(a+bx)}{(bc-ad)(e+fx)}\right)}{(m+1)(be-af)}$$

```
[Out] ((a + b*x)^(1 + m)*(c + d*x)^(-m - n)*(((b*e - a*f)*(c + d*x))/((
b*c - a*d)*(e + f*x)))^(m + n)*(e + f*x)^(-1 + n)*Hypergeometric2
F1[1 + m, m + n, 2 + m, -(((d*e - c*f)*(a + b*x))/((b*c - a*d)*(e
 + f*x)))])/((b*e - a*f)*(1 + m))
```

Rubi [A] time = 0.113879, antiderivative size = 124, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 30, $\frac{\text{number of rules}}{\text{integrand size}} = 0.033$

$$\frac{(a+bx)^{m+1}(e+fx)^{n-1}(c+dx)^{-m-n}\left(\frac{(c+dx)(be-af)}{(e+fx)(bc-ad)}\right)^{m+n}{}_2F_1\left(m+1,m+n;m+2;-\frac{(de-cf)(a+bx)}{(bc-ad)(e+fx)}\right)}{(m+1)(be-af)}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^(-m - n)*(e + f*x)^(-2 + n),x]
```

```
[Out] ((a + b*x)^(1 + m)*(c + d*x)^(-m - n)*(((b*e - a*f)*(c + d*x))/((
b*c - a*d)*(e + f*x)))^(m + n)*(e + f*x)^(-1 + n)*Hypergeometric2
F1[1 + m, m + n, 2 + m, -(((d*e - c*f)*(a + b*x))/((b*c - a*d)*(e
 + f*x)))])/((b*e - a*f)*(1 + m))
```

Rubi in Sympy [A] time = 11.0015, size = 97, normalized size = 0.78

$$-\frac{\left(\frac{(c+dx)(af-be)}{(e+fx)(ad-bc)}\right)^{m+n}(a+bx)^{m+1}(c+dx)^{-m-n}(e+fx)^{n-1}{}_2F_1\left(\begin{matrix}m+1,m+n\\m+2\end{matrix}\middle|\frac{(-a-bx)(cf-de)}{(e+fx)(ad-bc)}\right)}{(m+1)(af-be)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(-m-n)*(f*x+e)**(-2+n),x)
```

```
[Out] -((c + d*x)*(a*f - b*e)/((e + f*x)*(a*d - b*c)))**(m + n)*(a + b*
x)**(m + 1)*(c + d*x)**(-m - n)*(e + f*x)**(n - 1)*hyper((m + 1,
m + n), (m + 2,), (-a - b*x)*(c*f - d*e)/((e + f*x)*(a*d - b*c)))
/((m + 1)*(a*f - b*e))
```

Mathematica [A] time = 1.07769, size = 123, normalized size = 0.99

$$\frac{(a+bx)^{m+1}(e+fx)^{n-1}(c+dx)^{-m-n}\left(\frac{(c+dx)(be-af)}{(e+fx)(bc-ad)}\right)^{m+n}{}_2F_1\left(m+1,m+n;m+2;\frac{(cf-de)(a+bx)}{(bc-ad)(e+fx)}\right)}{(m+1)(be-af)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^(-m - n)*(e + f*x)^(-2 + n),x]
```

```
[Out] ((a + b*x)^(1 + m)*(c + d*x)^(-m - n)*(((b*e - a*f)*(c + d*x))/((
b*c - a*d)*(e + f*x)))^(m + n)*(e + f*x)^(-1 + n)*Hypergeometric2
F1[1 + m, m + n, 2 + m, ((-(d*e) + c*f)*(a + b*x))/((b*c - a*d)*(
```

```
e + f*x))])/((b*e - a*f)*(1 + m))
```

Maple [F] time = 0.249, size = 0, normalized size = 0.

$$\int (bx+a)^{m} (dx+c)^{-m-n} (fx+e)^{-2+n} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(-m-n)*(f*x+e)^(-2+n),x)

[Out] int((b*x+a)^m*(d*x+c)^(-m-n)*(f*x+e)^(-2+n),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^{m}(dx+c)^{-m-n}(fx+e)^{n-2} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - n)*(f*x + e)^(n - 2),x, algorithm="maxima")

[Out] integrate((b*x + a)^m*(d*x + c)^(-m - n)*(f*x + e)^(n - 2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left((bx+a)^{m}(dx+c)^{-m-n}(fx+e)^{n-2}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - n)*(f*x + e)^(n - 2),x, algorithm="fricas")

[Out] integral((b*x + a)^m*(d*x + c)^(-m - n)*(f*x + e)^(n - 2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(-m-n)*(f*x+e)**(-2+n),x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^{m}(dx+c)^{-m-n}(fx+e)^{n-2} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - n)*(f*x + e)^(n - 2),x, algorithm="giac")

[Out] integrate((b*x + a)^m*(d*x + c)^(-m - n)*(f*x + e)^(n - 2), x)
```

3.3122 $\int (a+bx)^m (c+dx)^{-m-n} (e+fx)^{-3+n} \, dx$

Optimal. Leaf size=237

$$-\frac{(a+bx)^{m+1}(e+fx)^{n-1}(c+dx)^{-m-n}(adf(m+1)-b(de(2-n)-cf(-m-n+1)))\left(\frac{(c+dx)(be-af)}{(e+fx)(bc-ad)}\right)^{m+n} {}_2F_1\left(m+1,m+n;\right.}{(m+1)(2-n)(be-af)^2(de-cf)}$$
$$-\frac{f(a+bx)^{m+1}(e+fx)^{n-2}(c+dx)^{-m-n+1}}{(2-n)(be-af)(de-cf)}$$

```
[Out] -((f*(a + b*x)^(1 + m)*(c + d*x)^(1 - m - n)*(e + f*x)^(-2 + n))/
((b*e - a*f)*(d*e - c*f)*(2 - n))) - ((a*d*f*(1 + m) - b*(d*e*(2
- n) - c*f*(1 - m - n)))*(a + b*x)^(1 + m)*(c + d*x)^(-m - n)*(((
b*e - a*f)*(c + d*x))/((b*c - a*d)*(e + f*x)))^(m + n)*(e + f*x)^
(-1 + n)*Hypergeometric2F1[1 + m, m + n, 2 + m, -(((d*e - c*f)*(a
 + b*x))/((b*c - a*d)*(e + f*x)))])/((b*e - a*f)^2*(d*e - c*f)*(1
 + m)*(2 - n))
```

Rubi [A] time = 0.300035, antiderivative size = 235, normalized size of antiderivative = 0.99, number of steps used = 2, number of rules used = 2, integrand size = 30, $\frac{\text{number of rules}}{\text{integrand size}} = 0.067$

$$-\frac{(a+bx)^{m+1}(e+fx)^{n-1}(c+dx)^{-m-n}(adf(m+1)+bcf(-m-n+1)-bde(2-n))\left(\frac{(c+dx)(be-af)}{(e+fx)(bc-ad)}\right)^{m+n} {}_2F_1\left(m+1,m+n;\right.}{(m+1)(2-n)(be-af)^2(de-cf)}$$
$$-\frac{f(a+bx)^{m+1}(e+fx)^{n-2}(c+dx)^{-m-n+1}}{(2-n)(be-af)(de-cf)}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^(-m - n)*(e + f*x)^(-3 + n),x]
```

```
[Out] -((f*(a + b*x)^(1 + m)*(c + d*x)^(1 - m - n)*(e + f*x)^(-2 + n))/
((b*e - a*f)*(d*e - c*f)*(2 - n))) - ((a*d*f*(1 + m) - b*d*e*(2 -
 n) + b*c*f*(1 - m - n))*(a + b*x)^(1 + m)*(c + d*x)^(-m - n)*(((
b*e - a*f)*(c + d*x))/((b*c - a*d)*(e + f*x)))^(m + n)*(e + f*x)^
(-1 + n)*Hypergeometric2F1[1 + m, m + n, 2 + m, -(((d*e - c*f)*(a
 + b*x))/((b*c - a*d)*(e + f*x)))])/((b*e - a*f)^2*(d*e - c*f)*(1
 + m)*(2 - n))
```

Rubi in Sympy [A] time = 54.6796, size = 192, normalized size = 0.81

$$-\frac{f(a+bx)^{m+1}(c+dx)^{-m-n+1}(e+fx)^{n-2}}{(-n+2)(af-be)(cf-de)}$$
$$-\frac{\left(\frac{(e+fx)(-ad+bc)}{(a+bx)(cf-de)}\right)^{-n+2}(a+bx)^{m+1}(c+dx)^{-m-n+1}(e+fx)^{n-2}(adf(m+1)+bcf(-m-n+1)-bde(-n+2))\,{}_2F_1\left(\begin{matrix}-m-n \\ -m\end{matrix}\right.}{(-n+2)(ad-bc)(af-be)(cf-de)(-m-n+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(-m-n)*(f*x+e)**(-3+n),x)
```

```
[Out] -f*(a + b*x)**(m + 1)*(c + d*x)**(-m - n + 1)*(e + f*x)**(n - 2)/
((-n + 2)*(a*f - b*e)*(c*f - d*e)) - ((e + f*x)*(-a*d + b*c)/((a
+ b*x)*(c*f - d*e)))**(-n + 2)*(a + b*x)**(m + 1)*(c + d*x)**(-m
- n + 1)*(e + f*x)**(n - 2)*(a*d*f*(m + 1) + b*c*f*(-m - n + 1) -
 b*d*e*(-n + 2))*hyper((-m - n + 1, -n + 2), (-m - n + 2,), (-c -
 d*x)*(-a*f + b*e)/((a + b*x)*(c*f - d*e)))/((-n + 2)*(a*d - b*c)
*(a*f - b*e)*(c*f - d*e)*(-m - n + 1))
```

Mathematica [B] time = 73.0204, size = 5197, normalized size = 21.93

Result too large to show

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^(-m - n)*(e + f*x)^(-3 + n),x]
```

```
[Out] Result too large to show
```

Maple [F] time = 0.237, size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^{-m-n} (fx+e)^{-3+n}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(-m-n)*(f*x+e)^(-3+n),x)
```

```
[Out] int((b*x+a)^m*(d*x+c)^(-m-n)*(f*x+e)^(-3+n),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^{-m-n} (fx+e)^{n-3}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - n)*(f*x + e)^(n - 3),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m - n)*(f*x + e)^(n - 3), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left((bx+a)^m (dx+c)^{-m-n} (fx+e)^{n-3}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - n)*(f*x + e)^(n - 3),x, algorithm="fricas")
```

```
[Out] integral((b*x + a)^m*(d*x + c)^(-m - n)*(f*x + e)^(n - 3), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(-m-n)*(f*x+e)**(-3+n),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^{-m-n} (fx+e)^{n-3} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m - n)*(f*x + e)^(n - 3),x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m - n)*(f*x + e)^(n - 3), x)
```

3.3123 $\int (a+bx)^m (c+dx)^{-m-n} (e+fx)^{-4+n}\,dx$

Optimal. Leaf size=428

$$\frac{(a+bx)^{m+1}(e+fx)^{n-1}(c+dx)^{-m-n}\left(a^2d^2f^2\left(m^2+3m+2\right)-2abdf(m+1)(de(3-n)-cf(-m-n+1))+b^2\left(-\left(-c^2f^2\left(n\right.\right.\right.\right.}{(m+1)(2}$$

$$-\frac{f(a+bx)^{m+1}(e+fx)^{n-3}(c+dx)^{-m-n+1}}{(3-n)(be-af)(de-cf)}$$

$$+\frac{f(a+bx)^{m+1}(e+fx)^{n-2}(c+dx)^{-m-n+1}(adf(m+2)-b(de(4-n)-cf(-m-n+2)))}{(2-n)(3-n)(be-af)^2(de-cf)^2}$$

```
[Out] -((f*(a + b*x)^(1 + m)*(c + d*x)^(1 - m - n)*(e + f*x)^(-3 + n))/
((b*e - a*f)*(d*e - c*f)*(3 - n))) + (f*(a*d*f*(2 + m) - b*(d*e*(
4 - n) - c*f*(2 - m - n)))*(a + b*x)^(1 + m)*(c + d*x)^(1 - m - n
)*(e + f*x)^(-2 + n))/((b*e - a*f)^2*(d*e - c*f)^2*(2 - n)*(3 - n
)) + ((a^2*d^2*f^2*(2 + 3*m + m^2) - 2*a*b*d*f*(1 + m)*(d*e*(3 -
n) - c*f*(1 - m - n)) - b^2*(2*c*d*e*f*(3 - n)*(1 - m - n) - d^2*
e^2*(6 - 5*n + n^2) - c^2*f^2*(2 + m^2 - m*(3 - 2*n) - 3*n + n^2)
))*(a + b*x)^(1 + m)*(c + d*x)^(-m - n)*(((b*e - a*f)*(c + d*x))/
((b*c - a*d)*(e + f*x)))^(m + n)*(e + f*x)^(-1 + n)*Hypergeometri
c2F1[1 + m, m + n, 2 + m, -(((d*e - c*f)*(a + b*x))/((b*c - a*d)*
(e + f*x)))])/((b*e - a*f)^3*(d*e - c*f)^2*(1 + m)*(2 - n)*(3 - n
))
```

Rubi [A] time = 1.54613, antiderivative size = 426, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 30, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.133

$$\frac{(a+bx)^{m+1}(e+fx)^{n-1}(c+dx)^{-m-n}\left(a^2d^2f^2\left(m^2+3m+2\right)-2abdf(m+1)(de(3-n)-cf(-m-n+1))+b^2\left(-\left(-c^2f^2\left(n\right.\right.\right.\right.}{(m+1)(2}$$

$$-\frac{f(a+bx)^{m+1}(e+fx)^{n-3}(c+dx)^{-m-n+1}}{(3-n)(be-af)(de-cf)}$$

$$+\frac{f(a+bx)^{m+1}(e+fx)^{n-2}(c+dx)^{-m-n+1}(adf(m+2)+bcf(-m-n+2)-bde(4-n))}{(2-n)(3-n)(be-af)^2(de-cf)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^(-m - n)*(e + f*x)^(-4 + n),x]
```

```
[Out] -((f*(a + b*x)^(1 + m)*(c + d*x)^(1 - m - n)*(e + f*x)^(-3 + n))/
((b*e - a*f)*(d*e - c*f)*(3 - n))) + (f*(a*d*f*(2 + m) - b*d*e*(4
 - n) + b*c*f*(2 - m - n))*(a + b*x)^(1 + m)*(c + d*x)^(1 - m - n
)*(e + f*x)^(-2 + n))/((b*e - a*f)^2*(d*e - c*f)^2*(2 - n)*(3 - n
)) + ((a^2*d^2*f^2*(2 + 3*m + m^2) - 2*a*b*d*f*(1 + m)*(d*e*(3 -
n) - c*f*(1 - m - n)) - b^2*(2*c*d*e*f*(3 - n)*(1 - m - n) - d^2*
e^2*(6 - 5*n + n^2) - c^2*f^2*(2 + m^2 - m*(3 - 2*n) - 3*n + n^2)
))*(a + b*x)^(1 + m)*(c + d*x)^(-m - n)*(((b*e - a*f)*(c + d*x))/
((b*c - a*d)*(e + f*x)))^(m + n)*(e + f*x)^(-1 + n)*Hypergeometri
c2F1[1 + m, m + n, 2 + m, -(((d*e - c*f)*(a + b*x))/((b*c - a*d)*
(e + f*x)))])/((b*e - a*f)^3*(d*e - c*f)^2*(1 + m)*(2 - n)*(3 - n
))
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**(-m-n)*(f*x+e)**(-4+n),x)
```

```
[Out] Timed out
```

Mathematica [B] time = 169.05, size = 12876, normalized size = 30.08

Result too large to show

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^(-m - n)*(e + f*x)^(-4 + n),x]

[Out] Result too large to show
```

Maple [F] time = 0.237, size = 0, normalized size = 0.

$$\int (bx+a)^{m} (dx+c)^{-m-n} (fx+e)^{-4+n} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^(-m-n)*(f*x+e)^(-4+n),x)

[Out] int((b*x+a)^m*(d*x+c)^(-m-n)*(f*x+e)^(-4+n),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^{m}(dx+c)^{-m-n}(fx+e)^{n-4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - n)*(f*x + e)^(n - 4),x, algorithm="maxima")

[Out] integrate((b*x + a)^m*(d*x + c)^(-m - n)*(f*x + e)^(n - 4), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left((bx+a)^{m}(dx+c)^{-m-n}(fx+e)^{n-4}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^(-m - n)*(f*x + e)^(n - 4),x, algorithm="fricas")

[Out] integral((b*x + a)^m*(d*x + c)^(-m - n)*(f*x + e)^(n - 4), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**(-m-n)*(f*x+e)**(-4+n),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^m(dx+c)^{-m-n}(fx+e)^{n-4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-m - n)*(f*x + e)^(n - 4),x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-m - n)*(f*x + e)^(n - 4), x)
```

3.3124 $\int (a+bx)^m (c+dx)^n \left(\frac{bcf+adf+adfm+bcfn}{bd(2+m+n)}+fx\right)^{-3-m-n} dx$

Optimal. Leaf size=88

$$\frac{bd(m+n+2)(a+bx)^{m+1}(c+dx)^{n+1}\left(\frac{f(ad(m+1)+bc(n+1))}{bd(m+n+2)}+fx\right)^{-m-n-2}}{f(m+1)(n+1)(bc-ad)^2}$$

```
[Out] (b*d*(2 + m + n)*(a + b*x)^(1 + m)*(c + d*x)^(1 + n)*((f*(a*d*(1
+ m) + b*c*(1 + n)))/(b*d*(2 + m + n)) + f*x)^(-2 - m - n))/((b*c
 - a*d)^2*f*(1 + m)*(1 + n))
```

Rubi [A] time = 0.227201, antiderivative size = 88, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 60, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.017

$$\frac{bd(m+n+2)(a+bx)^{m+1}(c+dx)^{n+1}\left(\frac{f(ad(m+1)+bc(n+1))}{bd(m+n+2)}+fx\right)^{-m-n-2}}{f(m+1)(n+1)(bc-ad)^2}$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*x)^m*(c + d*x)^n*((b*c*f + a*d*f + a*d*f*m + b*c*f*n)/(b*d*(2 + m + n))
3 - m - n),x]
```

```
[Out] (b*d*(2 + m + n)*(a + b*x)^(1 + m)*(c + d*x)^(1 + n)*((f*(a*d*(1
+ m) + b*c*(1 + n)))/(b*d*(2 + m + n)) + f*x)^(-2 - m - n))/((b*c
 - a*d)^2*f*(1 + m)*(1 + n))
```

Rubi in Sympy [A] time = 22.9425, size = 78, normalized size = 0.89

$$\frac{bd\,(a+bx)^{m+1}\,(c+dx)^{n+1}\left(fx+\frac{f(adm+ad+bcn+bc)}{bd(m+n+2)}\right)^{-m-n-2}(m+n+2)}{f\,(m+1)\,(n+1)\,(ad-bc)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)**m*(d*x+c)**n*((a*d*f*m+b*c*f*n+a*d*f+b*c*f)/b/d/(2+m+n
3-m-n),x)
```

```
[Out] b*d*(a + b*x)**(m + 1)*(c + d*x)**(n + 1)*(f*x + f*(a*d*m + a*d +
 b*c*n + b*c)/(b*d*(m + n + 2)))**(-m - n - 2)*(m + n + 2)/(f*(m
+ 1)*(n + 1)*(a*d - b*c)**2)
```

Mathematica [C] time = 74.2053, size = 5681, normalized size = 64.56

Result too large to show

Warning: Unable to verify antiderivative.

```
[In] Integrate[(a + b*x)^m*(c + d*x)^n*((b*c*f + a*d*f + a*d*f*m + b*c*f*n)/(b*d*(2 + m
3 - m - n),x]
```

```
[Out] Result too large to show
```

Maple [B] time = 0.01, size = 198, normalized size = 2.3

$$\frac{(bx+a)^{1+m}(dx+c)^{1+n}(bdxm+bdxn+adm+bcn+2bdx+ad+bc)}{a^2d^2mn-2abcdmn+b^2c^2mn+a^2d^2m+a^2d^2n-2abcdm-2abcdn+b^2c^2m+b^2c^2n+a^2d^2-2abcd+b^2c^2}\left(\frac{f(bdxm+\ldots}{}\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((b*x+a)^m*(d*x+c)^n*((a*d*f*m+b*c*f*n+a*d*f+b*c*f)/b/d/(2+m+n)+f*x)^(-
3-m-n),x)
```

```
[Out] (b*x+a)^(1+m)*(d*x+c)^(1+n)*(b*d*m*x+b*d*n*x+a*d*m+b*c*n+2*b*d*x+
a*d+b*c)/(a^2*d^2*m*n-2*a*b*c*d*m*n+b^2*c^2*m*n+a^2*d^2*m+a^2*d^2
*n-2*a*b*c*d*m-2*a*b*c*d*n+b^2*c^2*m+b^2*c^2*n+a^2*d^2-2*a*b*c*d+
b^2*c^2)*(f*(b*d*m*x+b*d*n*x+a*d*m+b*c*n+2*b*d*x+a*d+b*c)/b/d/(2+
m+n))^(-3-m-n)
```

Maxima [A] time = 4.00643, size = 1380, normalized size = 15.68

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^n*(f*x + (a*d*f*m + b*c*f*n + b*c*f + a*d*f)/(b*d*
m - n - 3),x, algorithm="maxima")
```

```
[Out] ((m^3 + 3*m^2*(n + 2) + n^3 + 3*(n^2 + 4*n + 4)*m + 6*n^2 + 12*n
+ 8)*a*b^(m + n + 3)*c*d^(m + n + 3)*(m + n + 2)^(m + n) + (m^3 +
 3*m^2*(n + 2) + n^3 + 3*(n^2 + 4*n + 4)*m + 6*n^2 + 12*n + 8)*b^
(m + n + 4)*d^(m + n + 4)*(m + n + 2)^(m + n)*x^2 + ((m^3 + 3*m^2
*(n + 2) + n^3 + 3*(n^2 + 4*n + 4)*m + 6*n^2 + 12*n + 8)*a*b^(m +
 n + 3)*d^(m + n + 4) + (m^3 + 3*m^2*(n + 2) + n^3 + 3*(n^2 + 4*n
 + 4)*m + 6*n^2 + 12*n + 8)*b^(m + n + 4)*c*d^(m + n + 3))*(m + n
 + 2)^(m + n)*x)*e^(-m*log(a*d*m + b*c*n + b*c + a*d + (b*d*m + b
*d*n + 2*b*d)*x) - n*log(a*d*m + b*c*n + b*c + a*d + (b*d*m + b*d
*n + 2*b*d)*x) + m*log(b*x + a) + n*log(d*x + c))/((n^3 + (n^3 +
3*n^2 + 3*n + 1)*m + 3*n^2 + 3*n + 1)*b^4*c^4*f^(m + n + 3) + 2*(
(n^2 + 2*n + 1)*m^2 - n^3 - (n^3 + n^2 - n - 1)*m - 2*n^2 - n)*a*
b^3*c^3*d*f^(m + n + 3) + (m^3*(n + 1) - (4*n^2 + 5*n + 1)*m^2 +
n^3 + (n^3 - 5*n^2 - 10*n - 4)*m - n^2 - 4*n - 2)*a^2*b^2*c^2*d^2
*f^(m + n + 3) - 2*(m^3*(n + 1) - (n^2 - n - 2)*m^2 - (2*n^2 + n
- 1)*m - n^2 - n)*a^3*b*c*d^3*f^(m + n + 3) + (m^3*(n + 1) + 3*m^
2*(n + 1) + 3*m*(n + 1) + n + 1)*a^4*d^4*f^(m + n + 3) + ((m^3*(n
 + 1) + (2*n^2 + 7*n + 5)*m^2 + n^3 + (n^3 + 7*n^2 + 14*n + 8)*m
+ 5*n^2 + 8*n + 4)*b^4*c^2*d^2*f^(m + n + 3) - 2*(m^3*(n + 1) + (
2*n^2 + 7*n + 5)*m^2 + n^3 + (n^3 + 7*n^2 + 14*n + 8)*m + 5*n^2 +
 8*n + 4)*a*b^3*c*d^3*f^(m + n + 3) + (m^3*(n + 1) + (2*n^2 + 7*n
 + 5)*m^2 + n^3 + (n^3 + 7*n^2 + 14*n + 8)*m + 5*n^2 + 8*n + 4)*a
^2*b^2*d^4*f^(m + n + 3))*x^2 + 2*(((n^2 + 2*n + 1)*m^2 + n^3 + (
n^3 + 5*n^2 + 7*n + 3)*m + 4*n^2 + 5*n + 2)*b^4*c^3*d*f^(m + n +
3) + (m^3*(n + 1) - (n^2 - n - 2)*m^2 - 2*n^3 - (2*n^3 + 8*n^2 +
7*n + 1)*m - 7*n^2 - 7*n - 2)*a*b^3*c^2*d^2*f^(m + n + 3) - (2*m^
3*(n + 1) + (n^2 + 8*n + 7)*m^2 - n^3 - (n^3 + n^2 - 7*n - 7)*m -
 2*n^2 + n + 2)*a^2*b^2*c*d^3*f^(m + n + 3) + (m^3*(n + 1) + (n^2
 + 5*n + 4)*m^2 + (2*n^2 + 7*n + 5)*m + n^2 + 3*n + 2)*a^3*b*d^4*
f^(m + n + 3))*x)
```

Fricas [A] time = 0.33788, size = 448, normalized size = 5.09

$$\frac{\left(a^2cdm+abc^2n+abc^2+a^2cd+\left(b^2d^2m+b^2d^2n+2\,b^2d^2\right)x^3+\left(3\,b^2cd+3\,abd^2+\left(b^2cd+2\,abd^2\right)m+\left(2\,b^2cd+abd^2\right)n\right)x^2\ldots}{b^2c^2-2\,abcd+a^2d^2+\left(b^2c^2-2\,abcd+a^2d\ldots}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^n*(f*x + (a*d*f*m + b*c*f*n + b*c*f + a*d*f)/(b*d*
m - n - 3),x, algorithm="fricas")
```

```
[Out] (a^2*c*d*m + a*b*c^2*n + a*b*c^2 + a^2*c*d + (b^2*d^2*m + b^2*d^2
*n + 2*b^2*d^2)*x^3 + (3*b^2*c*d + 3*a*b*d^2 + (b^2*c*d + 2*a*b*d
^2)*m + (2*b^2*c*d + a*b*d^2)*n)*x^2 + (b^2*c^2 + 4*a*b*c*d + a^2
*d^2 + (2*a*b*c*d + a^2*d^2)*m + (b^2*c^2 + 2*a*b*c*d)*n)*x)*(b*x
 + a)^m*(d*x + c)^n*((a*d*f*m + b*c*f*n + (b*c + a*d)*f + (b*d*f*
m + b*d*f*n + 2*b*d*f)*x)/(b*d*m + b*d*n + 2*b*d))^(-m - n - 3)/(
b^2*c^2 - 2*a*b*c*d + a^2*d^2 + (b^2*c^2 - 2*a*b*c*d + a^2*d^2)*m
 + (b^2*c^2 - 2*a*b*c*d + a^2*d^2 + (b^2*c^2 - 2*a*b*c*d + a^2*d^
2)*m)*n)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**m*(d*x+c)**n*((a*d*f*m+b*c*f*n+a*d*f+b*c*f)/b/d/(2+m+n)+f*x
3-m-n),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^n \left(fx + \frac{adfm + bcfn + bcf + adf}{bd(m+n+2)}\right)^{-m-n-3} dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^n*(f*x + (a*d*f*m + b*c*f*n + b*c*f + a*d*f)/(b*d*
m - n - 3),x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^n*(f*x + (a*d*f*m + b*c*f*n + b*c
*f + a*d*f)/(b*d*(m + n + 2)))^(-m - n - 3), x)
```

3.3125 $\int (a+bx)^m (c+dx)^{-1-\frac{d(be-af)(1+m)}{b(de-cf)}} (e+fx)^{-1+\frac{(bc-ad)f(1+m)}{b(de-cf)}} \, dx$

Optimal. Leaf size=101

$$\frac{b(a+bx)^{m+1}(c+dx)^{-\frac{d(m+1)(be-af)}{b(de-cf)}}(e+fx)^{\frac{f(m+1)(bc-ad)}{b(de-cf)}}}{(m+1)(bc-ad)(be-af)}$$

```
[Out] (b*(a + b*x)^(1 + m)*(e + f*x)^(((b*c - a*d)*f*(1 + m))/(b*(d*e -
 c*f))))/((b*c - a*d)*(b*e - a*f)*(1 + m)*(c + d*x)^((d*(b*e - a*
f)*(1 + m))/(b*(d*e - c*f))))
```

Rubi [A] time = 0.134797, antiderivative size = 101, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 77, $\frac{\text{number of rules}}{\text{integrand size}} = 0.013$

$$\frac{b(a+bx)^{m+1}(c+dx)^{-\frac{d(m+1)(be-af)}{b(de-cf)}}(e+fx)^{\frac{f(m+1)(bc-ad)}{b(de-cf)}}}{(m+1)(bc-ad)(be-af)}$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*x)^m*(c + d*x)^(-1 - (d*(b*e - a*f)*(1 + m))/(b*(d*e - c*f)))*(e + f*x)^(-
1 + ((b*c - a*d)*f*(1 + m))/(b*(d*e - c*f))),x]
```

```
[Out] (b*(a + b*x)^(1 + m)*(e + f*x)^(((b*c - a*d)*f*(1 + m))/(b*(d*e -
 c*f))))/((b*c - a*d)*(b*e - a*f)*(1 + m)*(c + d*x)^((d*(b*e - a*
f)*(1 + m))/(b*(d*e - c*f))))
```

Rubi in Sympy [A] time = 18.4627, size = 76, normalized size = 0.75

$$\frac{b\,(a+bx)^{m+1}\,(c+dx)^{-\frac{d(m+1)(af-be)}{b(cf-de)}}\,(e+fx)^{\frac{f(m+1)(ad-bc)}{b(cf-de)}}}{(m+1)\,(ad-bc)\,(af-be)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)**m*(d*x+c)**(-1-d*(-a*f+b*e)*(1+m)/b/(-c*f+d*e))*(f*x+e
1+(-a*d+b*c)*f*(1+m)/b/(-c*f+d*e)),x)
```

```
[Out] b*(a + b*x)**(m + 1)*(c + d*x)**(-d*(m + 1)*(a*f - b*e)/(b*(c*f -
 d*e)))*(e + f*x)**(f*(m + 1)*(a*d - b*c)/(b*(c*f - d*e)))/((m +
1)*(a*d - b*c)*(a*f - b*e))
```

Mathematica [C] time = 18.3187, size = 1732, normalized size = 17.15

$$-\frac{}{(be-af)(cf-de)(m+1)\left(\frac{f\left(\frac{(bc-ad)f(m+1)}{b(cf-de)}+1\right)(a+bx)F_1\left(m+1;\frac{d(be-af)(m+1)}{b(de-cf)},\frac{(bc-ad)f(m+1)}{b(cf-de)}+1;m+2;\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)}{m+1}+\frac{f(-bde-adf(m+1)+bcf(\cdots}{\cdots}\right.}$$

$$-\frac{}{(bc-ad)(de-cf)(m+1)\left(\frac{d\left(\frac{d(be-af)(m+1)}{b(de-cf)}+1\right)(a+bx)F_1\left(m+1;\frac{d(be-af)(m+1)}{b(de-cf)}+1,\frac{(bc-ad)f(m+1)}{b(cf-de)};m+2;\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)}{m+1}-\frac{d(-bcf-ad(m+1)f+bde(\cdots}{\cdots}\right.}$$

Warning: Unable to verify antiderivative.

```
[In] Integrate[(a + b*x)^m*(c + d*x)^(-1 - (d*(b*e - a*f)*(1 + m))/(b*(d*e - c*f)))*(e +
1 + ((b*c - a*d)*f*(1 + m))/(b*(d*e - c*f))),x]
```

```
[Out] -((f*(-(b*e) + a*f)*(a + b*x)^(1 + m)*(e + f*x)^(((b*c - a*d)*f*(
1 + m))/(b*(d*e - c*f)))*AppellF1[1 + m, (d*(b*e - a*f)*(1 + m))/
(b*(d*e - c*f)), 1 + ((b*c - a*d)*f*(1 + m))/(b*(-(d*e) + c*f)),
2 + m, (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)
])/((b*e - a*f)*(-(d*e) + c*f)*(1 + m)*(c + d*x)^((d*(b*e - a*f)*
(1 + m))/(b*(d*e - c*f)))*((f*(1 + ((b*c - a*d)*f*(1 + m))/(b*(-(
d*e) + c*f)))*(a + b*x)*AppellF1[1 + m, (d*(b*e - a*f)*(1 + m))/(
b*(d*e - c*f)), 1 + ((b*c - a*d)*f*(1 + m))/(b*(-(d*e) + c*f)), 2
 + m, (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)]
)/(1 + m) + (f*(-(b*d*e) - a*d*f*(1 + m) + b*c*f*(2 + m))*(a + b*
x)*AppellF1[1 + m, (d*(b*e - a*f)*(1 + m))/(b*(d*e - c*f)), 1 + (
(b*c - a*d)*f*(1 + m))/(b*(-(d*e) + c*f)), 2 + m, (d*(a + b*x))/(
-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)])/(b*(d*e - c*f)*(1 +
 m)) + b*(e + f*x)*AppellF1[1 + m, (d*(b*e - a*f)*(1 + m))/(b*(d*
e - c*f)), 1 + ((b*c - a*d)*f*(1 + m))/(b*(-(d*e) + c*f)), 2 + m,
 (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)] + ((
a + b*x)*(e + f*x)*(f*(b*d*e + a*d*f*(1 + m) - b*c*f*(2 + m))*App
ellF1[2 + m, (d*(b*e - a*f)*(1 + m))/(b*(d*e - c*f)), 2 + ((b*c -
 a*d)*f*(1 + m))/(b*(-(d*e) + c*f)), 3 + m, (d*(a + b*x))/(-(b*c)
 + a*d), (f*(a + b*x))/(-(b*e) + a*f)] + (d^2*(b*e - a*f)^2*(1 +
m)*AppellF1[2 + m, 1 + (d*(b*e - a*f)*(1 + m))/(b*(d*e - c*f)), 1
 + ((b*c - a*d)*f*(1 + m))/(b*(-(d*e) + c*f)), 3 + m, (d*(a + b*x
))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)])/(b*c - a*d)))/(
(b*e - a*f)*(-(d*e) + c*f)*(2 + m))))) - (d*(-(b*c) + a*d)*(a + b
*x)^(1 + m)*(e + f*x)^(((b*c - a*d)*f*(1 + m))/(b*(d*e - c*f)))*A
ppellF1[1 + m, 1 + (d*(b*e - a*f)*(1 + m))/(b*(d*e - c*f)), ((b*c
 - a*d)*f*(1 + m))/(b*(-(d*e) + c*f)), 2 + m, (d*(a + b*x))/(-(b*
c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)])/((b*c - a*d)*(d*e - c*f
)*(1 + m)*(c + d*x)^((d*(b*e - a*f)*(1 + m))/(b*(d*e - c*f)))*((d
*(1 + (d*(b*e - a*f)*(1 + m))/(b*(d*e - c*f)))*(a + b*x)*AppellF1
[1 + m, 1 + (d*(b*e - a*f)*(1 + m))/(b*(d*e - c*f)), ((b*c - a*d)
*f*(1 + m))/(b*(-(d*e) + c*f)), 2 + m, (d*(a + b*x))/(-(b*c) + a*
d), (f*(a + b*x))/(-(b*e) + a*f)])/(1 + m) - (d*(-(b*c*f) - a*d*f
*(1 + m) + b*d*e*(2 + m))*(a + b*x)*AppellF1[1 + m, 1 + (d*(b*e -
 a*f)*(1 + m))/(b*(d*e - c*f)), ((b*c - a*d)*f*(1 + m))/(b*(-(d*e
) + c*f)), 2 + m, (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(
b*e) + a*f)])/(b*(d*e - c*f)*(1 + m)) + b*(c + d*x)*AppellF1[1 +
m, 1 + (d*(b*e - a*f)*(1 + m))/(b*(d*e - c*f)), ((b*c - a*d)*f*(1
 + m))/(b*(-(d*e) + c*f)), 2 + m, (d*(a + b*x))/(-(b*c) + a*d), (
f*(a + b*x))/(-(b*e) + a*f)] + ((a + b*x)*(c + d*x)*(((b*c - a*d)
^2*f^2*(1 + m)*AppellF1[2 + m, 1 + (d*(b*e - a*f)*(1 + m))/(b*(d*
e - c*f)), 1 + ((b*c - a*d)*f*(1 + m))/(b*(-(d*e) + c*f)), 3 + m,
 (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)])/(b*
e - a*f) - d*(-(b*c*f) - a*d*f*(1 + m) + b*d*e*(2 + m))*AppellF1[
2 + m, 2 + (d*(b*e - a*f)*(1 + m))/(b*(d*e - c*f)), ((b*c - a*d)*
f*(1 + m))/(b*(-(d*e) + c*f)), 3 + m, (d*(a + b*x))/(-(b*c) + a*d
), (f*(a + b*x))/(-(b*e) + a*f)]))/((b*c - a*d)*(d*e - c*f)*(2 +
m))))
```

Maple [A] time = 0.008, size = 162, normalized size = 1.6

$$\frac{b\left(bx+a\right)^{1+m}}{a^{2}dfm-abcfm-abdem+b^{2}cem+a^{2}df-abcf-abde+b^{2}ce}\left(fx+e\right)^{1+\frac{adfm-bcfm+adf-2\,bcf+bde}{b(cf-de)}}\left(dx+c\right)^{1-\frac{adfm-bdem+adf+}{b(cf-de)}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((b*x+a)^m*(d*x+c)^(-1-d*(-a*f+b*e)*(1+m)/b/(-c*f+d*e))*(f*x+e)^(-
1+(-a*d+b*c)*f*(1+m)/b/(-c*f+d*e)),x)
```

```
[Out] (f*x+e)^(1+(a*d*f*m-b*c*f*m+a*d*f-2*b*c*f+b*d*e)/b/(c*f-d*e))*(d*
x+c)^(1-(a*d*f*m-b*d*e*m+a*d*f+b*c*f-2*b*d*e)/b/(c*f-d*e))*b*(b*x
+a)^(1+m)/(a^2*d*f*m-a*b*c*f*m-a*b*d*e*m+b^2*c*e*m+a^2*d*f-a*b*c*
f-a*b*d*e+b^2*c*e)
```

Maxima [A] time = 1.61304, size = 311, normalized size = 3.08

$$\frac{\left(b^2x+ab\right)e^{\left(\frac{adfm\log(dx+c)}{bde-bcf}-\frac{adfm\log(fx+e)}{bde-bcf}+\frac{adf\log(dx+c)}{bde-bcf}-\frac{dem\log(dx+c)}{de-cf}-\frac{adf\log(fx+e)}{bde-bcf}+\frac{cfm\log(fx+e)}{de-cf}+m\log(bx+a)-\frac{de\log(dx+c)}{de-cf}+\frac{cf\log(fx+e)}{de-cf}\right)}}{b^2ce(m+1)+a^2df(m+1)-(de(m+1)+cf(m+1))ab}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-(b*e - a*f)*d*(m + 1)/((d*e - c*f)*b) - 1)*(f*x +
```

```
[Out] (b^2*x + a*b)*e^(a*d*f*m*log(d*x + c)/(b*d*e - b*c*f) - a*d*f*m*l
og(f*x + e)/(b*d*e - b*c*f) + a*d*f*log(d*x + c)/(b*d*e - b*c*f)
- d*e*m*log(d*x + c)/(d*e - c*f) - a*d*f*log(f*x + e)/(b*d*e - b*
c*f) + c*f*m*log(f*x + e)/(d*e - c*f) + m*log(b*x + a) - d*e*log(
d*x + c)/(d*e - c*f) + c*f*log(f*x + e)/(d*e - c*f))/(b^2*c*e*(m
+ 1) + a^2*d*f*(m + 1) - (d*e*(m + 1) + c*f*(m + 1))*a*b)
```

Fricas [A] time = 0.38499, size = 304, normalized size = 3.01

$$\frac{\left(b^2dfx^3+abce+\left(b^2de+\left(b^2c+abd\right)f\right)x^2+\left(abcf+\left(b^2c+abd\right)e\right)x\right)(bx+a)^m}{((b^2c-abd)e-(abc-a^2d)f+((b^2c-abd)e-(abc-a^2d)f)m)(dx+c)^{\frac{2bde-(bc+ad)f+(bde-adf)m}{bde-bcf}}(fx+e)^{\frac{bde-(bc-ad)fm-(2bc-ad)f}{bde-bcf}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-(b*e - a*f)*d*(m + 1)/((d*e - c*f)*b) - 1)*(f*x +
```

```
[Out] (b^2*d*f*x^3 + a*b*c*e + (b^2*d*e + (b^2*c + a*b*d)*f)*x^2 + (a*b
*c*f + (b^2*c + a*b*d)*e)*x)*(b*x + a)^m/(((b^2*c - a*b*d)*e - (a
*b*c - a^2*d)*f + ((b^2*c - a*b*d)*e - (a*b*c - a^2*d)*f)*m)*(d*x
 + c)^((2*b*d*e - (b*c + a*d)*f + (b*d*e - a*d*f)*m)/(b*d*e - b*c
*f))*(f*x + e)^((b*d*e - (b*c - a*d)*f*m - (2*b*c - a*d)*f)/(b*d*
e - b*c*f)))
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**m*(d*x+c)**(-1-d*(-a*f+b*e)*(1+m)/b/(-c*f+d*e))*(f*x+e)**(-
1+(-a*d+b*c)*f*(1+m)/b/(-c*f+d*e)),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^m(dx+c)^{-\frac{(be-af)d(m+1)}{(de-cf)b}-1}(fx+e)^{\frac{(bc-ad)f(m+1)}{(de-cf)b}-1}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^(-(b*e - a*f)*d*(m + 1)/((d*e - c*f)*b) - 1)*(f*x +
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^(-(b*e - a*f)*d*(m + 1)/((d*e - c
*f)*b) - 1)*(f*x + e)^((b*c - a*d)*f*(m + 1)/((d*e - c*f)*b) - 1)
, x)
```

3.3126 $\int (a+bx)^m(c+dx)^n(e+fx)^{-m-n}\,dx$

Optimal. Leaf size=129

$$\frac{(a+bx)^{m+1}(c+dx)^n(e+fx)^{-m-n}\left(\frac{b(c+dx)}{bc-ad}\right)^{-n}\left(\frac{b(e+fx)}{be-af}\right)^{m+n}F_1\left(m+1;-n,m+n;m+2;-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{b(m+1)}$$

```
[Out] ((a + b*x)^(1 + m)*(c + d*x)^n*(e + f*x)^(-m - n)*((b*(e + f*x))/
(b*e - a*f))^(m + n)*AppellF1[1 + m, -n, m + n, 2 + m, -((d*(a +
b*x))/(b*c - a*d)), -((f*(a + b*x))/(b*e - a*f))])/(b*(1 + m)*((b
*(c + d*x))/(b*c - a*d))^n)
```

Rubi [A] time = 0.29094, antiderivative size = 129, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.107

$$\frac{(a+bx)^{m+1}(c+dx)^n(e+fx)^{-m-n}\left(\frac{b(c+dx)}{bc-ad}\right)^{-n}\left(\frac{b(e+fx)}{be-af}\right)^{m+n}F_1\left(m+1;-n,m+n;m+2;-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{b(m+1)}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^n*(e + f*x)^(-m - n),x]
```

```
[Out] ((a + b*x)^(1 + m)*(c + d*x)^n*(e + f*x)^(-m - n)*((b*(e + f*x))/
(b*e - a*f))^(m + n)*AppellF1[1 + m, -n, m + n, 2 + m, -((d*(a +
b*x))/(b*c - a*d)), -((f*(a + b*x))/(b*e - a*f))])/(b*(1 + m)*((b
*(c + d*x))/(b*c - a*d))^n)
```

Rubi in Sympy [A] time = 71.4476, size = 99, normalized size = 0.77

$$\frac{\left(\frac{b(-c-dx)}{ad-bc}\right)^{-n}\left(\frac{b(-e-fx)}{af-be}\right)^{m+n}(a+bx)^{m+1}(c+dx)^n(e+fx)^{-m-n}\operatorname{appellf}_1\left(m+1,-n,m+n,m+2,\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)}{b(m+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**n*(f*x+e)**(-m-n),x)
```

```
[Out] (b*(-c - d*x)/(a*d - b*c))**(-n)*(b*(-e - f*x)/(a*f - b*e))**(m +
 n)*(a + b*x)**(m + 1)*(c + d*x)**n*(e + f*x)**(-m - n)*appellf1(
m + 1, -n, m + n, m + 2, d*(a + b*x)/(a*d - b*c), f*(a + b*x)/(a*
f - b*e))/(b*(m + 1))
```

Mathematica [B] time = 1.04533, size = 303, normalized size = 2.35

$$\frac{(m+2)(bc-ad)(be-af)(a+bx)^{m+1}(c+dx)^n(e+fx)^{-m-n}F_1\left(\right.}{b(m+1)\left((m+2)(bc-ad)(be-af)F_1\left(m+1;-n,m+n;m+2;\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)-(a+bx)\left(dn(af-be)F_1\left(m+2;1-n,n\right.\right.\right.}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^n*(e + f*x)^(-m - n),x]
```

```
[Out] ((b*c - a*d)*(b*e - a*f)*(2 + m)*(a + b*x)^(1 + m)*(c + d*x)^n*(e
 + f*x)^(-m - n)*AppellF1[1 + m, -n, m + n, 2 + m, (d*(a + b*x))/
(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)])/(b*(1 + m)*((b*c -
 a*d)*(b*e - a*f)*(2 + m)*AppellF1[1 + m, -n, m + n, 2 + m, (d*(a
```

```
 + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)] - (a + b*x
)*(d*(-(b*e) + a*f)*n*AppellF1[2 + m, 1 - n, m + n, 3 + m, (d*(a
+ b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)] + (b*c - a*
d)*f*(m + n)*AppellF1[2 + m, -n, 1 + m + n, 3 + m, (d*(a + b*x))/
(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)])))
```

Maple [F] time = 0.225, size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^n (fx+e)^{-m-n}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^n*(f*x+e)^(-m-n),x)

[Out] int((b*x+a)^m*(d*x+c)^n*(f*x+e)^(-m-n),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^n (fx+e)^{-m-n}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^n*(f*x + e)^(-m - n),x, algorithm="maxima")

[Out] integrate((b*x + a)^m*(d*x + c)^n*(f*x + e)^(-m - n), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left((bx+a)^m (dx+c)^n (fx+e)^{-m-n}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^n*(f*x + e)^(-m - n),x, algorithm="fricas")

[Out] integral((b*x + a)^m*(d*x + c)^n*(f*x + e)^(-m - n), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**n*(f*x+e)**(-m-n),x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^n (fx+e)^{-m-n}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^n*(f*x + e)^(-m - n),x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^n*(f*x + e)^(-m - n), x)
```

3.3127 $\int (a+bx)^m(c+dx)^n(e+fx)^{-1-m-n}\,dx$

Optimal. Leaf size=137

$$\frac{(a+bx)^{m+1}(c+dx)^n(e+fx)^{-m-n}\left(\frac{b(c+dx)}{bc-ad}\right)^{-n}\left(\frac{b(e+fx)}{be-af}\right)^{m+n}F_1\left(m+1;-n,m+n+1;m+2;-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{(m+1)(be-af)}$$

```
[Out] ((a + b*x)^(1 + m)*(c + d*x)^n*(e + f*x)^(-m - n)*((b*(e + f*x))/
(b*e - a*f))^(m + n)*AppellF1[1 + m, -n, 1 + m + n, 2 + m, -((d*(
a + b*x))/(b*c - a*d)), -((f*(a + b*x))/(b*e - a*f))])/((b*e - a*
f)*(1 + m)*((b*(c + d*x))/(b*c - a*d))^n)
```

Rubi [A] time = 0.349168, antiderivative size = 137, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 29, $\frac{\text{number of rules}}{\text{integrand size}} = 0.103$

$$\frac{(a+bx)^{m+1}(c+dx)^n(e+fx)^{-m-n}\left(\frac{b(c+dx)}{bc-ad}\right)^{-n}\left(\frac{b(e+fx)}{be-af}\right)^{m+n}F_1\left(m+1;-n,m+n+1;m+2;-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{(m+1)(be-af)}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^n*(e + f*x)^(-1 - m - n),x]
```

```
[Out] ((a + b*x)^(1 + m)*(c + d*x)^n*(e + f*x)^(-m - n)*((b*(e + f*x))/
(b*e - a*f))^(m + n)*AppellF1[1 + m, -n, 1 + m + n, 2 + m, -((d*(
a + b*x))/(b*c - a*d)), -((f*(a + b*x))/(b*e - a*f))])/((b*e - a*
f)*(1 + m)*((b*(c + d*x))/(b*c - a*d))^n)
```

Rubi in Sympy [A] time = 74.0837, size = 107, normalized size = 0.78

$$-\frac{\left(\frac{b(-c-dx)}{ad-bc}\right)^{-n}\left(\frac{b(-e-fx)}{af-be}\right)^{m+n}(a+bx)^{m+1}(c+dx)^n(e+fx)^{-m-n}\operatorname{appellf}_1\left(m+1,-n,m+n+1,m+2,\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)}{(m+1)(af-be)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**n*(f*x+e)**(-1-m-n),x)
```

```
[Out] -(b*(-c - d*x)/(a*d - b*c))**(-n)*(b*(-e - f*x)/(a*f - b*e))**(m
+ n)*(a + b*x)**(m + 1)*(c + d*x)**n*(e + f*x)**(-m - n)*appellf1
(m + 1, -n, m + n + 1, m + 2, d*(a + b*x)/(a*d - b*c), f*(a + b*x
)/(a*f - b*e))/((m + 1)*(a*f - b*e))
```

Mathematica [B] time = 1.47679, size = 308, normalized size = 2.25

$$\frac{(m+2)(bc-ad)(be-af)(a+bx)^{m+1}(c+dx)^n(e+fx)^{-m-n-}}{b(m+1)\left((m+2)(bc-ad)(be-af)F_1\left(m+1;-n,m+n+1;m+2;\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)-(a+bx)\left(dn(af-be)F_1\left(m+2;1-\right.\right.\right.}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^n*(e + f*x)^(-1 - m - n),x]
```

```
[Out] ((b*c - a*d)*(b*e - a*f)*(2 + m)*(a + b*x)^(1 + m)*(c + d*x)^n*(e
 + f*x)^(-1 - m - n)*AppellF1[1 + m, -n, 1 + m + n, 2 + m, (d*(a
+ b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)])/(b*(1 + m)
*((b*c - a*d)*(b*e - a*f)*(2 + m)*AppellF1[1 + m, -n, 1 + m + n,
```

```
2 + m, (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)
] - (a + b*x)*(d*(-(b*e) + a*f)*n*AppellF1[2 + m, 1 - n, 1 + m +
n, 3 + m, (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a
*f)] + (b*c - a*d)*f*(1 + m + n)*AppellF1[2 + m, -n, 2 + m + n, 3
 + m, (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)]
)))
```

Maple [F] time = 0.212, size = 0, normalized size = 0.

$$\int (bx+a)^{m} (dx+c)^{n} (fx+e)^{-1-m-n} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^n*(f*x+e)^(-1-m-n),x)

[Out] int((b*x+a)^m*(d*x+c)^n*(f*x+e)^(-1-m-n),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^{m}(dx+c)^{n}(fx+e)^{-m-n-1} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^n*(f*x + e)^(-m - n - 1),x, algorithm="maxima")

[Out] integrate((b*x + a)^m*(d*x + c)^n*(f*x + e)^(-m - n - 1), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left((bx+a)^{m}(dx+c)^{n}(fx+e)^{-m-n-1}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^n*(f*x + e)^(-m - n - 1),x, algorithm="fricas")

[Out] integral((b*x + a)^m*(d*x + c)^n*(f*x + e)^(-m - n - 1), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**n*(f*x+e)**(-1-m-n),x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^{m}(dx+c)^{n}(fx+e)^{-m-n-1} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^n*(f*x + e)^(-m - n - 1),x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^n*(f*x + e)^(-m - n - 1), x)
```

3.3128 $\int (a+bx)^m(c+dx)^n(e+fx)^{-2-m-n}\,dx$

Optimal. Leaf size=123

$$\frac{(a+bx)^{m+1}(c+dx)^n(e+fx)^{-m-n-1}\left(\frac{(c+dx)(be-af)}{(e+fx)(bc-ad)}\right)^{-n}\,{}_2F_1\left(m+1,-n;m+2;-\frac{(de-cf)(a+bx)}{(bc-ad)(e+fx)}\right)}{(m+1)(be-af)}$$

```
[Out] ((a + b*x)^(1 + m)*(c + d*x)^n*(e + f*x)^(-1 - m - n)*Hypergeomet
ric2F1[1 + m, -n, 2 + m, -(((d*e - c*f)*(a + b*x))/((b*c - a*d)*(
e + f*x)))])/((b*e - a*f)*(1 + m)*(((b*e - a*f)*(c + d*x))/((b*c
- a*d)*(e + f*x)))^n)
```

Rubi [A] time = 0.105173, antiderivative size = 123, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 29, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.034

$$\frac{(a+bx)^{m+1}(c+dx)^n(e+fx)^{-m-n-1}\left(\frac{(c+dx)(be-af)}{(e+fx)(bc-ad)}\right)^{-n}\,{}_2F_1\left(m+1,-n;m+2;-\frac{(de-cf)(a+bx)}{(bc-ad)(e+fx)}\right)}{(m+1)(be-af)}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^n*(e + f*x)^(-2 - m - n),x]
```

```
[Out] ((a + b*x)^(1 + m)*(c + d*x)^n*(e + f*x)^(-1 - m - n)*Hypergeomet
ric2F1[1 + m, -n, 2 + m, -(((d*e - c*f)*(a + b*x))/((b*c - a*d)*(
e + f*x)))])/((b*e - a*f)*(1 + m)*(((b*e - a*f)*(c + d*x))/((b*c
- a*d)*(e + f*x)))^n)
```

Rubi in Sympy [A] time = 10.5188, size = 95, normalized size = 0.77

$$-\frac{\left(\frac{(c+dx)(af-be)}{(e+fx)(ad-bc)}\right)^{-n}(a+bx)^{m+1}(c+dx)^n(e+fx)^{-m-n-1}\,{}_2F_1\left(\begin{matrix}m+1,-n\\m+2\end{matrix}\middle|\frac{(-a-bx)(cf-de)}{(e+fx)(ad-bc)}\right)}{(m+1)(af-be)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**n*(f*x+e)**(-2-m-n),x)
```

```
[Out] -((c + d*x)*(a*f - b*e)/((e + f*x)*(a*d - b*c)))**(-n)*(a + b*x)*
*(m + 1)*(c + d*x)**n*(e + f*x)**(-m - n - 1)*hyper((m + 1, -n),
(m + 2,), (-a - b*x)*(c*f - d*e)/((e + f*x)*(a*d - b*c)))/((m + 1
)*(a*f - b*e))
```

Mathematica [A] time = 0.968004, size = 122, normalized size = 0.99

$$\frac{(a+bx)^{m+1}(c+dx)^n(e+fx)^{-m-n-1}\left(\frac{(c+dx)(be-af)}{(e+fx)(bc-ad)}\right)^{-n}\,{}_2F_1\left(m+1,-n;m+2;\frac{(cf-de)(a+bx)}{(bc-ad)(e+fx)}\right)}{(m+1)(be-af)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^n*(e + f*x)^(-2 - m - n),x]
```

```
[Out] ((a + b*x)^(1 + m)*(c + d*x)^n*(e + f*x)^(-1 - m - n)*Hypergeomet
ric2F1[1 + m, -n, 2 + m, ((-(d*e) + c*f)*(a + b*x))/((b*c - a*d)*
(e + f*x))])/((b*e - a*f)*(1 + m)*(((b*e - a*f)*(c + d*x))/((b*c
```

```
- a*d)*(e + f*x)))^n)
```

Maple [F] time = 0.227, size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^n (fx+e)^{-2-m-n}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^n*(f*x+e)^(-2-m-n),x)

[Out] int((b*x+a)^m*(d*x+c)^n*(f*x+e)^(-2-m-n),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^n (fx+e)^{-m-n-2}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^n*(f*x + e)^(-m - n - 2),x, algorithm="maxima")

[Out] integrate((b*x + a)^m*(d*x + c)^n*(f*x + e)^(-m - n - 2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left((bx+a)^m (dx+c)^n (fx+e)^{-m-n-2}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^n*(f*x + e)^(-m - n - 2),x, algorithm="fricas")

[Out] integral((b*x + a)^m*(d*x + c)^n*(f*x + e)^(-m - n - 2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**n*(f*x+e)**(-2-m-n),x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^n (fx+e)^{-m-n-2}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^n*(f*x + e)^(-m - n - 2),x, algorithm="giac")

[Out] integrate((b*x + a)^m*(d*x + c)^n*(f*x + e)^(-m - n - 2), x)
```

3.3129 $\int (a+bx)^m(c+dx)^n(e+fx)^{-3-m-n}\,dx$

Optimal. Leaf size=227

$$-\frac{(a+bx)^{m+1}(c+dx)^n(e+fx)^{-m-n-1}(adf(m+1)+b(cf(n+1)-de(m+n+2)))\left(\frac{(c+dx)(be-af)}{(e+fx)(bc-ad)}\right)^{-n}\,{}_2F_1\left(m+1,-n;m+2;-\right.}{(m+1)(m+n+2)(be-af)^2(de-cf)}$$
$$-\frac{f(a+bx)^{m+1}(c+dx)^{n+1}(e+fx)^{-m-n-2}}{(m+n+2)(be-af)(de-cf)}$$

```
[Out] -((f*(a + b*x)^(1 + m)*(c + d*x)^(1 + n)*(e + f*x)^(-2 - m - n))/
((b*e - a*f)*(d*e - c*f)*(2 + m + n))) - ((a*d*f*(1 + m) + b*(c*f
*(1 + n) - d*e*(2 + m + n)))*(a + b*x)^(1 + m)*(c + d*x)^n*(e + f
*x)^(-1 - m - n)*Hypergeometric2F1[1 + m, -n, 2 + m, -(((d*e - c*
f)*(a + b*x))/((b*c - a*d)*(e + f*x)))])/((b*e - a*f)^2*(d*e - c*
f)*(1 + m)*(2 + m + n)*(((b*e - a*f)*(c + d*x))/((b*c - a*d)*(e +
 f*x)))^n)
```

Rubi [A] time = 0.332869, antiderivative size = 226, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 29, $\frac{\text{number of rules}}{\text{integrand size}} = 0.069$

$$-\frac{(a+bx)^{m+1}(c+dx)^n(e+fx)^{-m-n-1}(adf(m+1)+bcf(n+1)-bde(m+n+2))\left(\frac{(c+dx)(be-af)}{(e+fx)(bc-ad)}\right)^{-n}\,{}_2F_1\left(m+1,-n;m+2;-\right.}{(m+1)(m+n+2)(be-af)^2(de-cf)}$$
$$-\frac{f(a+bx)^{m+1}(c+dx)^{n+1}(e+fx)^{-m-n-2}}{(m+n+2)(be-af)(de-cf)}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^n*(e + f*x)^(-3 - m - n),x]
```

```
[Out] -((f*(a + b*x)^(1 + m)*(c + d*x)^(1 + n)*(e + f*x)^(-2 - m - n))/
((b*e - a*f)*(d*e - c*f)*(2 + m + n))) - ((a*d*f*(1 + m) + b*c*f*
(1 + n) - b*d*e*(2 + m + n))*(a + b*x)^(1 + m)*(c + d*x)^n*(e + f
*x)^(-1 - m - n)*Hypergeometric2F1[1 + m, -n, 2 + m, -(((d*e - c*
f)*(a + b*x))/((b*c - a*d)*(e + f*x)))])/((b*e - a*f)^2*(d*e - c*
f)*(1 + m)*(2 + m + n)*(((b*e - a*f)*(c + d*x))/((b*c - a*d)*(e +
 f*x)))^n)
```

Rubi in Sympy [A] time = 58.9355, size = 197, normalized size = 0.87

$$-\frac{f\,(a+bx)^{m+1}\,(c+dx)^{n+1}\,(e+fx)^{-m-n-2}}{(af-be)\,(cf-de)\,(m+n+2)}$$
$$-\frac{\left(\frac{(e+fx)(-ad+bc)}{(a+bx)(cf-de)}\right)^{m+n+2}(a+bx)^{m+1}\,(c+dx)^{n+1}\,(e+fx)^{-m-n-2}\,(adf\,(m+1)+bcf\,(n+1)-bde\,(m+n+2))\,{}_2F_1\left(\begin{matrix}n+1,m+\\n+\end{matrix}\right.}{(n+1)\,(ad-bc)\,(af-be)\,(cf-de)\,(m+n+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**n*(f*x+e)**(-3-m-n),x)
```

```
[Out] -f*(a + b*x)**(m + 1)*(c + d*x)**(n + 1)*(e + f*x)**(-m - n - 2)/
((a*f - b*e)*(c*f - d*e)*(m + n + 2)) - ((e + f*x)*(-a*d + b*c)/(
(a + b*x)*(c*f - d*e)))**(m + n + 2)*(a + b*x)**(m + 1)*(c + d*x)
**(n + 1)*(e + f*x)**(-m - n - 2)*(a*d*f*(m + 1) + b*c*f*(n + 1)
- b*d*e*(m + n + 2))*hyper((n + 1, m + n + 2), (n + 2,), (-c - d*
x)*(-a*f + b*e)/((a + b*x)*(c*f - d*e)))/((n + 1)*(a*d - b*c)*(a*
f - b*e)*(c*f - d*e)*(m + n + 2))
```

Mathematica [B] time = 18.9999, size = 5212, normalized size = 22.96

Result too large to show

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^n*(e + f*x)^(-3 - m - n),x]
```

```
[Out] Result too large to show
```

Maple [F] time = 0.224, size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^n (fx+e)^{-3-m-n} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^n*(f*x+e)^(-3-m-n),x)
```

```
[Out] int((b*x+a)^m*(d*x+c)^n*(f*x+e)^(-3-m-n),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^n (fx+e)^{-m-n-3} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^n*(f*x + e)^(-m - n - 3),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^n*(f*x + e)^(-m - n - 3), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left((bx+a)^m (dx+c)^n (fx+e)^{-m-n-3}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^n*(f*x + e)^(-m - n - 3),x, algorithm="fricas")
```

```
[Out] integral((b*x + a)^m*(d*x + c)^n*(f*x + e)^(-m - n - 3), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**n*(f*x+e)**(-3-m-n),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (bx + a)^m (dx + c)^n (fx + e)^{-m-n-3} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^n*(f*x + e)^(-m - n - 3),x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^n*(f*x + e)^(-m - n - 3), x)
```

3.3130 $\int (a+bx)^m (c+dx)^n (e+fx)^{-4-m-n}\,dx$

Optimal. Leaf size=402

$$\frac{(a+bx)^{m+1}(c+dx)^n(e+fx)^{-m-n-1}\left(a^2d^2f^2\left(m^2+3m+2\right)+2abdf(m+1)(cf(n+1)-de(m+n+3))+b^2\left(-\left(-c^2f^2\left(n^2\right.\right.\right.}{(m+1)(m+n+2)(}$$

$$-\frac{f(a+bx)^{m+1}(c+dx)^{n+1}(e+fx)^{-m-n-3}}{(m+n+3)(be-af)(de-cf)}$$

$$+\frac{f(a+bx)^{m+1}(c+dx)^{n+1}(e+fx)^{-m-n-2}(adf(m+2)+b(cf(n+2)-de(m+n+4)))}{(m+n+2)(m+n+3)(be-af)^2(de-cf)^2}$$

```
[Out] -((f*(a + b*x)^(1 + m)*(c + d*x)^(1 + n)*(e + f*x)^(-3 - m - n))/
((b*e - a*f)*(d*e - c*f)*(3 + m + n))) + (f*(a*d*f*(2 + m) + b*(c
*f*(2 + n) - d*e*(4 + m + n)))*(a + b*x)^(1 + m)*(c + d*x)^(1 + n
)*(e + f*x)^(-2 - m - n))/((b*e - a*f)^2*(d*e - c*f)^2*(2 + m + n
)*(3 + m + n)) + ((a^2*d^2*f^2*(2 + 3*m + m^2) + 2*a*b*d*f*(1 + m
)*(c*f*(1 + n) - d*e*(3 + m + n)) - b^2*(2*c*d*e*f*(1 + n)*(3 + m
 + n) - c^2*f^2*(2 + 3*n + n^2) - d^2*e^2*(6 + m^2 + 5*n + n^2 +
m*(5 + 2*n))))*(a + b*x)^(1 + m)*(c + d*x)^n*(e + f*x)^(-1 - m -
n)*Hypergeometric2F1[1 + m, -n, 2 + m, -(((d*e - c*f)*(a + b*x))/
((b*c - a*d)*(e + f*x)))])/((b*e - a*f)^3*(d*e - c*f)^2*(1 + m)*(
2 + m + n)*(3 + m + n)*(((b*e - a*f)*(c + d*x))/((b*c - a*d)*(e +
 f*x)))^n)
```

Rubi [A] time = 1.47261, antiderivative size = 401, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 4, integrand size = 29, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.138

$$\frac{(a+bx)^{m+1}(c+dx)^n(e+fx)^{-m-n-1}\left(a^2d^2f^2\left(m^2+3m+2\right)+2abdf(m+1)(cf(n+1)-de(m+n+3))+b^2\left(-\left(-c^2f^2\left(n^2\right.\right.\right.}{(m+1)(m+n+2)(}$$

$$-\frac{f(a+bx)^{m+1}(c+dx)^{n+1}(e+fx)^{-m-n-3}}{(m+n+3)(be-af)(de-cf)}$$

$$+\frac{f(a+bx)^{m+1}(c+dx)^{n+1}(e+fx)^{-m-n-2}(adf(m+2)+bcf(n+2)-bde(m+n+4))}{(m+n+2)(m+n+3)(be-af)^2(de-cf)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^n*(e + f*x)^(-4 - m - n),x]
```

```
[Out] -((f*(a + b*x)^(1 + m)*(c + d*x)^(1 + n)*(e + f*x)^(-3 - m - n))/
((b*e - a*f)*(d*e - c*f)*(3 + m + n))) + (f*(a*d*f*(2 + m) + b*c*
f*(2 + n) - b*d*e*(4 + m + n))*(a + b*x)^(1 + m)*(c + d*x)^(1 + n
)*(e + f*x)^(-2 - m - n))/((b*e - a*f)^2*(d*e - c*f)^2*(2 + m + n
)*(3 + m + n)) + ((a^2*d^2*f^2*(2 + 3*m + m^2) + 2*a*b*d*f*(1 + m
)*(c*f*(1 + n) - d*e*(3 + m + n)) - b^2*(2*c*d*e*f*(1 + n)*(3 + m
 + n) - c^2*f^2*(2 + 3*n + n^2) - d^2*e^2*(6 + m^2 + 5*n + n^2 +
m*(5 + 2*n))))*(a + b*x)^(1 + m)*(c + d*x)^n*(e + f*x)^(-1 - m -
n)*Hypergeometric2F1[1 + m, -n, 2 + m, -(((d*e - c*f)*(a + b*x))/
((b*c - a*d)*(e + f*x)))])/((b*e - a*f)^3*(d*e - c*f)^2*(1 + m)*(
2 + m + n)*(3 + m + n)*(((b*e - a*f)*(c + d*x))/((b*c - a*d)*(e +
 f*x)))^n)
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**n*(f*x+e)**(-4-m-n),x)
```

```
[Out] Timed out
```

Mathematica [B] time = 168.072, size = 13018, normalized size = 32.38

Result too large to show

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^n*(e + f*x)^(-4 - m - n),x]
```

```
[Out] Result too large to show
```

Maple [F] time = 0.227, size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^n (fx+e)^{-4-m-n}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^n*(f*x+e)^(-4-m-n),x)
```

```
[Out] int((b*x+a)^m*(d*x+c)^n*(f*x+e)^(-4-m-n),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^n (fx+e)^{-m-n-4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^n*(f*x + e)^(-m - n - 4),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^n*(f*x + e)^(-m - n - 4), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left((bx+a)^m (dx+c)^n (fx+e)^{-m-n-4}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^n*(f*x + e)^(-m - n - 4),x, algorithm="fricas")
```

```
[Out] integral((b*x + a)^m*(d*x + c)^n*(f*x + e)^(-m - n - 4), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**n*(f*x+e)**(-4-m-n),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^n (fx+e)^{-m-n-4}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^m*(d*x + c)^n*(f*x + e)^(-m - n - 4),x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^n*(f*x + e)^(-m - n - 4), x)
```

3.3131 $\int (a+bx)^m (c+dx)^n (e+fx)^p \, dx$

Optimal. Leaf size=123

$$\frac{(a+bx)^{m+1}(c+dx)^n(e+fx)^p \left(\frac{b(c+dx)}{bc-ad}\right)^{-n} \left(\frac{b(e+fx)}{be-af}\right)^{-p} F_1\left(m+1;-n,-p;m+2;-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{b(m+1)}$$

```
[Out] ((a + b*x)^(1 + m)*(c + d*x)^n*(e + f*x)^p*AppellF1[1 + m, -n, -p
, 2 + m, -((d*(a + b*x))/(b*c - a*d)), -((f*(a + b*x))/(b*e - a*f
))])/(b*(1 + m)*((b*(c + d*x))/(b*c - a*d))^n*((b*(e + f*x))/(b*e
 - a*f))^p)
```

Rubi [A] time = 0.276691, antiderivative size = 123, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.136$

$$\frac{(a+bx)^{m+1}(c+dx)^n(e+fx)^p \left(\frac{b(c+dx)}{bc-ad}\right)^{-n} \left(\frac{b(e+fx)}{be-af}\right)^{-p} F_1\left(m+1;-n,-p;m+2;-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{b(m+1)}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^n*(e + f*x)^p,x]
```

```
[Out] ((a + b*x)^(1 + m)*(c + d*x)^n*(e + f*x)^p*AppellF1[1 + m, -n, -p
, 2 + m, -((d*(a + b*x))/(b*c - a*d)), -((f*(a + b*x))/(b*e - a*f
))])/(b*(1 + m)*((b*(c + d*x))/(b*c - a*d))^n*((b*(e + f*x))/(b*e
 - a*f))^p)
```

Rubi in Sympy [A] time = 69.9242, size = 94, normalized size = 0.76

$$\frac{\left(\frac{b(-c-dx)}{ad-bc}\right)^{-n} \left(\frac{b(-e-fx)}{af-be}\right)^{-p} (a+bx)^{m+1} (c+dx)^n (e+fx)^p \operatorname{appellf}_1\left(m+1,-n,-p,m+2,\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)}{b(m+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**n*(f*x+e)**p,x)
```

```
[Out] (b*(-c - d*x)/(a*d - b*c))**(-n)*(b*(-e - f*x)/(a*f - b*e))**(-p)
*(a + b*x)**(m + 1)*(c + d*x)**n*(e + f*x)**p*appellf1(m + 1, -n,
 -p, m + 2, d*(a + b*x)/(a*d - b*c), f*(a + b*x)/(a*f - b*e))/(b*
(m + 1))
```

Mathematica [B] time = 1.05869, size = 296, normalized size = 2.41

$$\frac{(m+2)(bc-ad)(be-af)(a+bx)^{m+1}(c+dx)^n(e+fx)^p F_1\left(m+1;-\right.}{b(m+1)\left((m+2)(bc-ad)(be-af)F_1\left(m+1;-n,-p;m+2;\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)-(a+bx)\left(dn(af-be)F_1\left(m+2;1-n,-p;\right.\right.\right.}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^n*(e + f*x)^p,x]
```

```
[Out] ((b*c - a*d)*(b*e - a*f)*(2 + m)*(a + b*x)^(1 + m)*(c + d*x)^n*(e
 + f*x)^p*AppellF1[1 + m, -n, -p, 2 + m, (d*(a + b*x))/(-(b*c) +
a*d), (f*(a + b*x))/(-(b*e) + a*f)])/(b*(1 + m)*((b*c - a*d)*(b*e
 - a*f)*(2 + m)*AppellF1[1 + m, -n, -p, 2 + m, (d*(a + b*x))/(-(b
```

```
*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)] - (a + b*x)*(d*(-(b*e)
+ a*f)*n*AppellF1[2 + m, 1 - n, -p, 3 + m, (d*(a + b*x))/(-(b*c)
+ a*d), (f*(a + b*x))/(-(b*e) + a*f)] + (-(b*c) + a*d)*f*p*Appell
F1[2 + m, -n, 1 - p, 3 + m, (d*(a + b*x))/(-(b*c) + a*d), (f*(a +
 b*x))/(-(b*e) + a*f)])))
```

Maple [F] time = 0.218, size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^n (fx+e)^p \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^n*(f*x+e)^p,x)

[Out] int((b*x+a)^m*(d*x+c)^n*(f*x+e)^p,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^n (fx+e)^p \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^n*(f*x + e)^p,x, algorithm="maxima")

[Out] integrate((b*x + a)^m*(d*x + c)^n*(f*x + e)^p, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left((bx+a)^m (dx+c)^n (fx+e)^p, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^n*(f*x + e)^p,x, algorithm="fricas")

[Out] integral((b*x + a)^m*(d*x + c)^n*(f*x + e)^p, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**n*(f*x+e)**p,x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^n (fx+e)^p \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^n*(f*x + e)^p,x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^n*(f*x + e)^p, x)
```

3.3132 $\int (a+bx)^m(c+dx)^n(e+fx)^2\,dx$

Optimal. Leaf size=259

$$\frac{(a+bx)^{m+1}(c+dx)^{n+1}(f(ad(n+1)+bc(m+1))(bde(m+n+4)-f(ad(n+2)+bc(m+2)))+bd(m+n+2)(af(cf+de(n+}{b^2d^2(n+1)(m+n+2)(m+n+3)(bc-ad)}$$
$$+\frac{f(a+bx)^{m+1}(c+dx)^{n+1}(bde(m+n+4)-f(ad(n+2)+bc(m+2)))}{b^2d^2(m+n+2)(m+n+3)}+\frac{f(e+fx)(a+bx)^{m+1}(c+dx)^{n+1}}{bd(m+n+3)}$$

```
[Out] (f*(b*d*e*(4 + m + n) - f*(b*c*(2 + m) + a*d*(2 + n)))*(a + b*x)^
(1 + m)*(c + d*x)^(1 + n))/(b^2*d^2*(2 + m + n)*(3 + m + n)) + (f
*(a + b*x)^(1 + m)*(c + d*x)^(1 + n)*(e + f*x))/(b*d*(3 + m + n))
 + ((f*(b*c*(1 + m) + a*d*(1 + n))*(b*d*e*(4 + m + n) - f*(b*c*(2
 + m) + a*d*(2 + n))) + b*d*(2 + m + n)*(a*f*(c*f + d*e*(1 + n))
+ b*e*(c*f*(1 + m) - d*e*(3 + m + n))))*(a + b*x)^(1 + m)*(c + d*
x)^(1 + n)*Hypergeometric2F1[1, 2 + m + n, 2 + n, (b*(c + d*x))/(
b*c - a*d)])/(b^2*d^2*(b*c - a*d)*(1 + n)*(2 + m + n)*(3 + m + n)
)
```

Rubi [A] time = 0.92876, antiderivative size = 272, normalized size of antiderivative = 1.05, number of steps used = 4, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.182$

$$\frac{(a+bx)^{m+1}(c+dx)^n\left(\frac{b(c+dx)}{bc-ad}\right)^{-n}\left(bd(m+n+2)\left(bde^2(m+n+3)-f(acf+ade(n+1)+bce(m+1))\right)-f(ad(n+1)+bc(}{b^3d^2(m+1)(m+n+2)(m+n+3)}$$
$$+\frac{f(a+bx)^{m+1}(c+dx)^{n+1}(bde(m+n+4)-f(ad(n+2)+bc(m+2)))}{b^2d^2(m+n+2)(m+n+3)}+\frac{f(e+fx)(a+bx)^{m+1}(c+dx)^{n+1}}{bd(m+n+3)}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^n*(e + f*x)^2,x]
```

```
[Out] (f*(b*d*e*(4 + m + n) - f*(b*c*(2 + m) + a*d*(2 + n)))*(a + b*x)^
(1 + m)*(c + d*x)^(1 + n))/(b^2*d^2*(2 + m + n)*(3 + m + n)) + (f
*(a + b*x)^(1 + m)*(c + d*x)^(1 + n)*(e + f*x))/(b*d*(3 + m + n))
 + ((b*d*(2 + m + n)*(b*d*e^2*(3 + m + n) - f*(a*c*f + b*c*e*(1 +
 m) + a*d*e*(1 + n))) - f*(b*c*(1 + m) + a*d*(1 + n))*(b*d*e*(4 +
 m + n) - f*(b*c*(2 + m) + a*d*(2 + n))))*(a + b*x)^(1 + m)*(c +
d*x)^n*Hypergeometric2F1[1 + m, -n, 2 + m, -((d*(a + b*x))/(b*c -
 a*d))])/(b^3*d^2*(1 + m)*(2 + m + n)*(3 + m + n)*((b*(c + d*x))/
(b*c - a*d))^n)
```

Rubi in Sympy [A] time = 99.0872, size = 248, normalized size = 0.96

$$\frac{f(a+bx)^{m+1}(c+dx)^{n+1}(e+fx)}{bd(m+n+3)}$$
$$-\frac{f(a+bx)^{m+1}(c+dx)^{n+1}(-bde(m+n+4)+f(ad(n+2)+bc(m+2)))}{b^2d^2(m+n+2)(m+n+3)}$$
$$+\frac{\left(\frac{b(-c-dx)}{ad-bc}\right)^{-n}(a+bx)^{m+1}(c+dx)^n\left(-bd\left(-bde^2(m+n+3)+f(acf+e(ad(n+1)+bc(m+1)))\right)(m+n+2)+f(ad(n+}{b^3d^2(m+1)(m+n+2)(m+n+3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**n*(f*x+e)**2,x)
```

```
[Out] f*(a + b*x)**(m + 1)*(c + d*x)**(n + 1)*(e + f*x)/(b*d*(m + n + 3
)) - f*(a + b*x)**(m + 1)*(c + d*x)**(n + 1)*(-b*d*e*(m + n + 4)
+ f*(a*d*(n + 2) + b*c*(m + 2)))/(b**2*d**2*(m + n + 2)*(m + n +
```

```
3)) + (b*(-c - d*x)/(a*d - b*c))**(-n)*(a + b*x)**(m + 1)*(c + d*
x)**n*(-b*d*(-b*d*e**2*(m + n + 3) + f*(a*c*f + e*(a*d*(n + 1) +
b*c*(m + 1))))*(m + n + 2) + f*(a*d*(n + 1) + b*c*(m + 1))*(-b*d*
e*(m + n + 4) + f*(a*d*(n + 2) + b*c*(m + 2))))*hyper((-n, m + 1)
, (m + 2,), d*(a + b*x)/(a*d - b*c))/(b**3*d**2*(m + 1)*(m + n +
2)*(m + n + 3))
```

Mathematica [C] time = 1.375, size = 330, normalized size = 1.27

$$\frac{1}{3}(a+bx)^m(c+dx)^n\left(\frac{9acefx^2F_1\left(2;-m,-n;3;-\frac{bx}{a},-\frac{dx}{c}\right)}{3acF_1\left(2;-m,-n;3;-\frac{bx}{a},-\frac{dx}{c}\right)+bcmxF_1\left(3;1-m,-n;4;-\frac{bx}{a},-\frac{dx}{c}\right)+adnxF_1\left(3;-m,1-n;4;-\frac{bx}{a},-\frac{dx}{c}\right)}+\frac{4acf^2x^3F_1\left(3;-m,-n;4;-\frac{bx}{a},-\frac{dx}{c}\right)}{4acF_1\left(3;-m,-n;4;-\frac{bx}{a},-\frac{dx}{c}\right)+bcmxF_1\left(4;1-m,-n;5;-\frac{bx}{a},-\frac{dx}{c}\right)+adnxF_1\left(4;-m,1-n;5;-\frac{bx}{a},-\frac{dx}{c}\right)}+\frac{3e^2(c+dx)\left(\frac{d(a+bx)}{ad-bc}\right)^{-m}{}_2F_1\left(-m,n+1;n+2;\frac{b(c+dx)}{bc-ad}\right)}{d(n+1)}\right)$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^n*(e + f*x)^2,x]
```

```
[Out] ((a + b*x)^m*(c + d*x)^n*((9*a*c*e*f*x^2*AppellF1[2, -m, -n, 3, -
((b*x)/a), -((d*x)/c)])/(3*a*c*AppellF1[2, -m, -n, 3, -((b*x)/a),
 -((d*x)/c)] + b*c*m*x*AppellF1[3, 1 - m, -n, 4, -((b*x)/a), -((d
*x)/c)] + a*d*n*x*AppellF1[3, -m, 1 - n, 4, -((b*x)/a), -((d*x)/c
)]) + (4*a*c*f^2*x^3*AppellF1[3, -m, -n, 4, -((b*x)/a), -((d*x)/c
)])/(4*a*c*AppellF1[3, -m, -n, 4, -((b*x)/a), -((d*x)/c)] + b*c*m
*x*AppellF1[4, 1 - m, -n, 5, -((b*x)/a), -((d*x)/c)] + a*d*n*x*Ap
pellF1[4, -m, 1 - n, 5, -((b*x)/a), -((d*x)/c)]) + (3*e^2*(c + d*
x)*Hypergeometric2F1[-m, 1 + n, 2 + n, (b*(c + d*x))/(b*c - a*d)]
)/(d*(1 + n)*((d*(a + b*x))/(-(b*c) + a*d))^m)))/3
```

Maple [F] time = 0.098, size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^n (fx+e)^2 \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^n*(f*x+e)^2,x)
```

```
[Out] int((b*x+a)^m*(d*x+c)^n*(f*x+e)^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (fx+e)^2(bx+a)^m(dx+c)^n \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((f*x + e)^2*(b*x + a)^m*(d*x + c)^n,x, algorithm="maxima")
```

```
[Out] integrate((f*x + e)^2*(b*x + a)^m*(d*x + c)^n, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\left(f^2x^2 + 2\,efx + e^2\right)(bx + a)^m(dx + c)^n, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((f*x + e)^2*(b*x + a)^m*(d*x + c)^n,x, algorithm="fricas")
```

```
[Out] integral((f^2*x^2 + 2*e*f*x + e^2)*(b*x + a)^m*(d*x + c)^n, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**n*(f*x+e)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (fx + e)^2(bx + a)^m(dx + c)^n\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((f*x + e)^2*(b*x + a)^m*(d*x + c)^n,x, algorithm="giac")
```

```
[Out] integrate((f*x + e)^2*(b*x + a)^m*(d*x + c)^n, x)
```

3.3133 $\int (a+bx)^m (c+dx)^n (e+fx)\, dx$

Optimal. Leaf size=131

$$\frac{f(a+bx)^{m+1}(c+dx)^{n+1}}{bd(m+n+2)} - \frac{(a+bx)^{m+1}(c+dx)^{n+1}(bde(m+n+2)-f(ad(n+1)+bc(m+1)))\,{}_2F_1\left(1,m+n+2;n+2;\frac{b(c+dx)}{bc-ad}\right)}{bd(n+1)(m+n+2)(bc-ad)}$$

```
[Out] (f*(a + b*x)^(1 + m)*(c + d*x)^(1 + n))/(b*d*(2 + m + n)) - ((b*d
*e*(2 + m + n) - f*(b*c*(1 + m) + a*d*(1 + n)))*(a + b*x)^(1 + m)
*(c + d*x)^(1 + n)*Hypergeometric2F1[1, 2 + m + n, 2 + n, (b*(c +
 d*x))/(b*c - a*d)])/(b*d*(b*c - a*d)*(1 + n)*(2 + m + n))
```

Rubi [A] time = 0.234711, antiderivative size = 141, normalized size of antiderivative = 1.08, number of steps used = 3, number of rules used = 3, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.15$

$$\frac{(a+bx)^{m+1}(c+dx)^n\left(\frac{b(c+dx)}{bc-ad}\right)^{-n}(bde(m+n+2)-f(ad(n+1)+bc(m+1)))\,{}_2F_1\left(m+1,-n;m+2;-\frac{d(a+bx)}{bc-ad}\right)}{b^2d(m+1)(m+n+2)} + \frac{f(a+bx)^{m+1}(c+dx)^{n+1}}{bd(m+n+2)}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^n*(e + f*x),x]
```

```
[Out] (f*(a + b*x)^(1 + m)*(c + d*x)^(1 + n))/(b*d*(2 + m + n)) + ((b*d
*e*(2 + m + n) - f*(b*c*(1 + m) + a*d*(1 + n)))*(a + b*x)^(1 + m)
*(c + d*x)^n*Hypergeometric2F1[1 + m, -n, 2 + m, -((d*(a + b*x))/
(b*c - a*d))])/(b^2*d*(1 + m)*(2 + m + n)*((b*(c + d*x))/(b*c - a
*d))^n)
```

Rubi in Sympy [A] time = 27.7638, size = 117, normalized size = 0.89

$$\frac{f\,(a+bx)^{m+1}\,(c+dx)^{n+1}}{bd\,(m+n+2)} - \frac{\left(\frac{b(-c-dx)}{ad-bc}\right)^{-n}(a+bx)^{m+1}\,(c+dx)^n\,(-bde\,(m+n+2)+f\,(ad\,(n+1)+bc\,(m+1)))\,{}_2F_1\left(\begin{matrix}-n,m+1\\m+2\end{matrix}\middle|\frac{d(a+bx)}{ad-bc}\right)}{b^2d\,(m+1)\,(m+n+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**n*(f*x+e),x)
```

```
[Out] f*(a + b*x)**(m + 1)*(c + d*x)**(n + 1)/(b*d*(m + n + 2)) - (b*(-
c - d*x)/(a*d - b*c))**(-n)*(a + b*x)**(m + 1)*(c + d*x)**n*(-b*d
*e*(m + n + 2) + f*(a*d*(n + 1) + b*c*(m + 1)))*hyper((-n, m + 1)
, (m + 2,), d*(a + b*x)/(a*d - b*c))/(b**2*d*(m + 1)*(m + n + 2))
```

Mathematica [C] time = 0.408829, size = 202, normalized size = 1.54

$$(a+bx)^m(c+dx)^n\left(\frac{3acfx^2F_1\left(2;-m,-n;3;-\frac{bx}{a},-\frac{dx}{c}\right)}{6acF_1\left(2;-m,-n;3;-\frac{bx}{a},-\frac{dx}{c}\right)+2bcmxF_1\left(3;1-m,-n;4;-\frac{bx}{a},-\frac{dx}{c}\right)+2adnxF_1\left(3;-m,1-n;4;-\frac{bx}{a},-\frac{dx}{c}\right)}+\frac{e(c+dx)\left(\frac{d(a+bx)}{ad-bc}\right)^{-m}{}_2F_1\left(-m,n+1;n+2;\frac{b(c+dx)}{bc-ad}\right)}{d(n+1)}\right)$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^n*(e + f*x),x]
```

```
[Out] (a + b*x)^m*(c + d*x)^n*((3*a*c*f*x^2*AppellF1[2, -m, -n, 3, -((b
*x)/a), -((d*x)/c)])/(6*a*c*AppellF1[2, -m, -n, 3, -((b*x)/a), -(
(d*x)/c)] + 2*b*c*m*x*AppellF1[3, 1 - m, -n, 4, -((b*x)/a), -((d*
x)/c)] + 2*a*d*n*x*AppellF1[3, -m, 1 - n, 4, -((b*x)/a), -((d*x)/
c)]) + (e*(c + d*x)*Hypergeometric2F1[-m, 1 + n, 2 + n, (b*(c + d
*x))/(b*c - a*d)])/(d*(1 + n)*((d*(a + b*x))/(-(b*c) + a*d))^m))
```

Maple [F] time = 0.085, size = 0, normalized size = 0.

$$\int (bx+a)^m\,(dx+c)^n\,(fx+e)\;dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^n*(f*x+e),x)
```

```
[Out] int((b*x+a)^m*(d*x+c)^n*(f*x+e),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (fx+e)(bx+a)^m(dx+c)^n\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((f*x + e)*(b*x + a)^m*(d*x + c)^n,x, algorithm="maxima")
```

```
[Out] integrate((f*x + e)*(b*x + a)^m*(d*x + c)^n, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left((fx+e)(bx+a)^m(dx+c)^n, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((f*x + e)*(b*x + a)^m*(d*x + c)^n,x, algorithm="fricas")
```

```
[Out] integral((f*x + e)*(b*x + a)^m*(d*x + c)^n, x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**n*(f*x+e),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (fx+e)(bx+a)^m(dx+c)^n\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((f*x + e)*(b*x + a)^m*(d*x + c)^n,x, algorithm="giac")
```

```
[Out] integrate((f*x + e)*(b*x + a)^m*(d*x + c)^n, x)
```

3.3134 $\int (a+bx)^m (c+dx)^n\,dx$

Optimal. Leaf size=61

$$-\frac{(a+bx)^{m+1}(c+dx)^{n+1}\,{}_2F_1\left(1,m+n+2;n+2;\frac{b(c+dx)}{bc-ad}\right)}{(n+1)(bc-ad)}$$

```
[Out] -(((a + b*x)^(1 + m)*(c + d*x)^(1 + n)*Hypergeometric2F1[1, 2 + m
 + n, 2 + n, (b*(c + d*x))/(b*c - a*d)])/((b*c - a*d)*(1 + n)))
```

Rubi [A] time = 0.0740607, antiderivative size = 74, normalized size of antiderivative = 1.21, number of steps used = 2, number of rules used = 2, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}} = 0.133$

$$\frac{(a+bx)^{m+1}(c+dx)^n\left(\frac{b(c+dx)}{bc-ad}\right)^{-n}\,{}_2F_1\left(m+1,-n;m+2;-\frac{d(a+bx)}{bc-ad}\right)}{b(m+1)}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m*(c + d*x)^n,x]
```

```
[Out] ((a + b*x)^(1 + m)*(c + d*x)^n*Hypergeometric2F1[1 + m, -n, 2 + m
, -((d*(a + b*x))/(b*c - a*d))])/(b*(1 + m)*((b*(c + d*x))/(b*c -
 a*d))^n)
```

Rubi in Sympy [A] time = 14.4892, size = 56, normalized size = 0.92

$$\frac{\left(\frac{b(-c-dx)}{ad-bc}\right)^{-n}(a+bx)^{m+1}(c+dx)^n\,{}_2F_1\left(\begin{matrix}-n,m+1\\m+2\end{matrix}\middle|\frac{d(a+bx)}{ad-bc}\right)}{b\,(m+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**n,x)
```

```
[Out] (b*(-c - d*x)/(a*d - b*c))**(-n)*(a + b*x)**(m + 1)*(c + d*x)**n*
hyper((-n, m + 1), (m + 2,), d*(a + b*x)/(a*d - b*c))/(b*(m + 1))
```

Mathematica [A] time = 0.0828212, size = 73, normalized size = 1.2

$$\frac{(a+bx)^m(c+dx)^{n+1}\left(\frac{d(a+bx)}{ad-bc}\right)^{-m}\,{}_2F_1\left(-m,n+1;n+2;\frac{b(c+dx)}{bc-ad}\right)}{d(n+1)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^m*(c + d*x)^n,x]
```

```
[Out] ((a + b*x)^m*(c + d*x)^(1 + n)*Hypergeometric2F1[-m, 1 + n, 2 + n
, (b*(c + d*x))/(b*c - a*d)])/(d*(1 + n)*((d*(a + b*x))/(-(b*c) +
 a*d))^m)
```

Maple [F] time = 0.137, size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^n\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^n,x)

[Out] int((b*x+a)^m*(d*x+c)^n,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^n \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^n,x, algorithm="maxima")

[Out] integrate((b*x + a)^m*(d*x + c)^n, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left((bx+a)^m (dx+c)^n, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^n,x, algorithm="fricas")

[Out] integral((b*x + a)^m*(d*x + c)^n, x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int (a+bx)^m (c+dx)^n \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**n,x)

[Out] Integral((a + b*x)**m*(c + d*x)**n, x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^m (dx+c)^n \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^n,x, algorithm="giac")

[Out] integrate((b*x + a)^m*(d*x + c)^n, x)
```

3.3135 $\int \frac{(a+bx)^m(c+dx)^n}{e+fx}\,dx$

Optimal. Leaf size=100

$$\frac{(a+bx)^{m+1}(c+dx)^n\left(\frac{b(c+dx)}{bc-ad}\right)^{-n}F_1\left(m+1;-n,1;m+2;-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{(m+1)(be-af)}$$

```
[Out] ((a + b*x)^(1 + m)*(c + d*x)^n*AppellF1[1 + m, -n, 1, 2 + m, -((d
*(a + b*x))/(b*c - a*d)), -((f*(a + b*x))/(b*e - a*f))])/((b*e -
a*f)*(1 + m)*((b*(c + d*x))/(b*c - a*d))^n)
```

Rubi [A] time = 0.165327, antiderivative size = 100, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.091

$$\frac{(a+bx)^{m+1}(c+dx)^n\left(\frac{b(c+dx)}{bc-ad}\right)^{-n}F_1\left(m+1;-n,1;m+2;-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{(m+1)(be-af)}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^m*(c + d*x)^n)/(e + f*x),x]
```

```
[Out] ((a + b*x)^(1 + m)*(c + d*x)^n*AppellF1[1 + m, -n, 1, 2 + m, -((d
*(a + b*x))/(b*c - a*d)), -((f*(a + b*x))/(b*e - a*f))])/((b*e -
a*f)*(1 + m)*((b*(c + d*x))/(b*c - a*d))^n)
```

Rubi in Sympy [A] time = 24.2416, size = 75, normalized size = 0.75

$$-\frac{\left(\frac{b(-c-dx)}{ad-bc}\right)^{-n}(a+bx)^{m+1}(c+dx)^n\operatorname{appellf}_1\left(m+1,1,-n,m+2,\frac{f(a+bx)}{af-be},\frac{d(a+bx)}{ad-bc}\right)}{(m+1)(af-be)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**n/(f*x+e),x)
```

```
[Out] -(b*(-c - d*x)/(a*d - b*c))**(-n)*(a + b*x)**(m + 1)*(c + d*x)**n
*appellf1(m + 1, 1, -n, m + 2, f*(a + b*x)/(a*f - b*e), d*(a + b*
x)/(a*d - b*c))/((m + 1)*(a*f - b*e))
```

Mathematica [B] time = 0.979739, size = 298, normalized size = 2.98

$$-\frac{(m+2)(bc-ad)(be-af)^2(a+bx)^{m+1}(c+dx)^nF_1\left(m+1\right.}{b(m+1)(e+fx)(af-be)\left((m+2)(bc-ad)(be-af)F_1\left(m+1;-n,1;m+2;\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)-(a+bx)\left(dn(af-be)F_1\right.\right.}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[((a + b*x)^m*(c + d*x)^n)/(e + f*x),x]
```

```
[Out] -(((b*c - a*d)*(b*e - a*f)^2*(2 + m)*(a + b*x)^(1 + m)*(c + d*x)^
n*AppellF1[1 + m, -n, 1, 2 + m, (d*(a + b*x))/(-(b*c) + a*d), (f*
(a + b*x))/(-(b*e) + a*f)])/(b*(-(b*e) + a*f)*(1 + m)*(e + f*x)*(
(b*c - a*d)*(b*e - a*f)*(2 + m)*AppellF1[1 + m, -n, 1, 2 + m, (d*
(a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)] - (a + b
*x)*(d*(-(b*e) + a*f)*n*AppellF1[2 + m, 1 - n, 1, 3 + m, (d*(a +
```

```
b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)] + (b*c - a*d)
*f*AppellF1[2 + m, -n, 2, 3 + m, (d*(a + b*x))/(-(b*c) + a*d), (f
*(a + b*x))/(-(b*e) + a*f)]))))
```

Maple [F] time = 0.094, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^n}{fx+e}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^n/(f*x+e),x)

[Out] int((b*x+a)^m*(d*x+c)^n/(f*x+e),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m(dx+c)^n}{fx+e}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^n/(f*x + e),x, algorithm="maxima")

[Out] integrate((b*x + a)^m*(d*x + c)^n/(f*x + e), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{(bx+a)^m(dx+c)^n}{fx+e}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^n/(f*x + e),x, algorithm="fricas")

[Out] integral((b*x + a)^m*(d*x + c)^n/(f*x + e), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**n/(f*x+e),x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m(dx+c)^n}{fx+e}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^n/(f*x + e),x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^n/(f*x + e), x)
```

3.3136 $\int \frac{(a+bx)^m(c+dx)^n}{(e+fx)^2}\,dx$

Optimal. Leaf size=101

$$\frac{b(a+bx)^{m+1}(c+dx)^n\left(\frac{b(c+dx)}{bc-ad}\right)^{-n}F_1\left(m+1;-n,2;m+2;-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{(m+1)(be-af)^2}$$

```
[Out] (b*(a + b*x)^(1 + m)*(c + d*x)^n*AppellF1[1 + m, -n, 2, 2 + m, -(
(d*(a + b*x))/(b*c - a*d)), -((f*(a + b*x))/(b*e - a*f))])/((b*e
- a*f)^2*(1 + m)*((b*(c + d*x))/(b*c - a*d))^n)
```

Rubi [A] time = 0.170328, antiderivative size = 101, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.091

$$\frac{b(a+bx)^{m+1}(c+dx)^n\left(\frac{b(c+dx)}{bc-ad}\right)^{-n}F_1\left(m+1;-n,2;m+2;-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{(m+1)(be-af)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^m*(c + d*x)^n)/(e + f*x)^2,x]
```

```
[Out] (b*(a + b*x)^(1 + m)*(c + d*x)^n*AppellF1[1 + m, -n, 2, 2 + m, -(
(d*(a + b*x))/(b*c - a*d)), -((f*(a + b*x))/(b*e - a*f))])/((b*e
- a*f)^2*(1 + m)*((b*(c + d*x))/(b*c - a*d))^n)
```

Rubi in Sympy [A] time = 24.5091, size = 76, normalized size = 0.75

$$\frac{b\left(\frac{b(-c-dx)}{ad-bc}\right)^{-n}(a+bx)^{m+1}(c+dx)^n\operatorname{appellf}_1\left(m+1,2,-n,m+2,\frac{f(a+bx)}{af-be},\frac{d(a+bx)}{ad-bc}\right)}{(m+1)(af-be)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**n/(f*x+e)**2,x)
```

```
[Out] b*(b*(-c - d*x)/(a*d - b*c))**(-n)*(a + b*x)**(m + 1)*(c + d*x)**
n*appellf1(m + 1, 2, -n, m + 2, f*(a + b*x)/(a*f - b*e), d*(a + b
*x)/(a*d - b*c))/((m + 1)*(a*f - b*e)**2)
```

Mathematica [B] time = 1.07068, size = 286, normalized size = 2.83

$$\frac{(m+2)(bc-ad)(be-af)(a+bx)^{m+1}(c+dx)^nF_1\left(m+1;-n,2\right.}{b(m+1)(e+fx)^2\left((m+2)(bc-ad)(be-af)F_1\left(m+1;-n,2;m+2;\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)-(a+bx)\left(dn(af-be)F_1\left(m+2;1-\right.\right.\right.}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[((a + b*x)^m*(c + d*x)^n)/(e + f*x)^2,x]
```

```
[Out] ((b*c - a*d)*(b*e - a*f)*(2 + m)*(a + b*x)^(1 + m)*(c + d*x)^n*Ap
pellF1[1 + m, -n, 2, 2 + m, (d*(a + b*x))/(-(b*c) + a*d), (f*(a +
 b*x))/(-(b*e) + a*f)])/(b*(1 + m)*(e + f*x)^2*((b*c - a*d)*(b*e
- a*f)*(2 + m)*AppellF1[1 + m, -n, 2, 2 + m, (d*(a + b*x))/(-(b*c
) + a*d), (f*(a + b*x))/(-(b*e) + a*f)] - (a + b*x)*(d*(-(b*e) +
a*f)*n*AppellF1[2 + m, 1 - n, 2, 3 + m, (d*(a + b*x))/(-(b*c) + a
```

```
*d), (f*(a + b*x))/(-(b*e) + a*f)] + 2*(b*c - a*d)*f*AppellF1[2 +
 m, -n, 3, 3 + m, (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(
b*e) + a*f)]))
```

Maple [F] time = 0.11, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^{m} (dx+c)^{n}}{(fx+e)^{2}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^n/(f*x+e)^2,x)
```

```
[Out] int((b*x+a)^m*(d*x+c)^n/(f*x+e)^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^{m}(dx+c)^{n}}{(fx+e)^{2}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^n/(f*x + e)^2,x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^n/(f*x + e)^2, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)^{m}(dx+c)^{n}}{f^{2}x^{2}+2\,efx+e^{2}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^n/(f*x + e)^2,x, algorithm="fricas")
```

```
[Out] integral((b*x + a)^m*(d*x + c)^n/(f^2*x^2 + 2*e*f*x + e^2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**n/(f*x+e)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^{m}(dx+c)^{n}}{(fx+e)^{2}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^n/(f*x + e)^2,x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^n/(f*x + e)^2, x)
```

3.3137 $\int \frac{(a+bx)^m(c+dx)^n}{(e+fx)^3}\,dx$

Optimal. Leaf size=103

$$\frac{b^2(a+bx)^{m+1}(c+dx)^n\left(\frac{b(c+dx)}{bc-ad}\right)^{-n}F_1\left(m+1;-n,3;m+2;-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{(m+1)(be-af)^3}$$

```
[Out] (b^2*(a + b*x)^(1 + m)*(c + d*x)^n*AppellF1[1 + m, -n, 3, 2 + m,
-((d*(a + b*x))/(b*c - a*d)), -((f*(a + b*x))/(b*e - a*f))])/((b*
e - a*f)^3*(1 + m)*((b*(c + d*x))/(b*c - a*d))^n)
```

Rubi [A] time = 0.175304, antiderivative size = 103, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.091$

$$\frac{b^2(a+bx)^{m+1}(c+dx)^n\left(\frac{b(c+dx)}{bc-ad}\right)^{-n}F_1\left(m+1;-n,3;m+2;-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{(m+1)(be-af)^3}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^m*(c + d*x)^n)/(e + f*x)^3,x]
```

```
[Out] (b^2*(a + b*x)^(1 + m)*(c + d*x)^n*AppellF1[1 + m, -n, 3, 2 + m,
-((d*(a + b*x))/(b*c - a*d)), -((f*(a + b*x))/(b*e - a*f))])/((b*
e - a*f)^3*(1 + m)*((b*(c + d*x))/(b*c - a*d))^n)
```

Rubi in Sympy [A] time = 26.1831, size = 80, normalized size = 0.78

$$-\frac{b^2\left(\frac{b(-c-dx)}{ad-bc}\right)^{-n}(a+bx)^{m+1}(c+dx)^n\operatorname{appellf_1}\left(m+1,3,-n,m+2,\frac{f(a+bx)}{af-be},\frac{d(a+bx)}{ad-bc}\right)}{(m+1)(af-be)^3}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m*(d*x+c)**n/(f*x+e)**3,x)
```

```
[Out] -b**2*(b*(-c - d*x)/(a*d - b*c))**(-n)*(a + b*x)**(m + 1)*(c + d*
x)**n*appellf1(m + 1, 3, -n, m + 2, f*(a + b*x)/(a*f - b*e), d*(a
 + b*x)/(a*d - b*c))/((m + 1)*(a*f - b*e)**3)
```

Mathematica [B] time = 1.53198, size = 299, normalized size = 2.9

$$-\frac{(m+2)(bc-ad)(be-af)^4(a+bx)^{m+1}(c+dx)^nF_1\left(m+\right.}{b(m+1)(e+fx)^3(af-be)^3\left((m+2)(bc-ad)(be-af)F_1\left(m+1;-n,3;m+2;\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)-(a+bx)\left(dn(af-be)F\right.\right.}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[((a + b*x)^m*(c + d*x)^n)/(e + f*x)^3,x]
```

```
[Out] -(((b*c - a*d)*(b*e - a*f)^4*(2 + m)*(a + b*x)^(1 + m)*(c + d*x)^
n*AppellF1[1 + m, -n, 3, 2 + m, (d*(a + b*x))/(-(b*c) + a*d), (f*
(a + b*x))/(-(b*e) + a*f)])/(b*(-(b*e) + a*f)^3*(1 + m)*(e + f*x)
^3*((b*c - a*d)*(b*e - a*f)*(2 + m)*AppellF1[1 + m, -n, 3, 2 + m,
 (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)] - (a
 + b*x)*(d*(-(b*e) + a*f)*n*AppellF1[2 + m, 1 - n, 3, 3 + m, (d*(
```

```
a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)] + 3*(b*c
- a*d)*f*AppellF1[2 + m, -n, 4, 3 + m, (d*(a + b*x))/(-(b*c) + a*
d), (f*(a + b*x))/(-(b*e) + a*f)])))
```

Maple [F] time = 0.129, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^n}{(fx+e)^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m*(d*x+c)^n/(f*x+e)^3,x)

[Out] int((b*x+a)^m*(d*x+c)^n/(f*x+e)^3,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^n}{(fx+e)^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^n/(f*x + e)^3,x, algorithm="maxima")

[Out] integrate((b*x + a)^m*(d*x + c)^n/(f*x + e)^3, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)^m (dx+c)^n}{f^3x^3+3\,ef^2x^2+3\,e^2fx+e^3}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^n/(f*x + e)^3,x, algorithm="fricas")

[Out] integral((b*x + a)^m*(d*x + c)^n/(f^3*x^3 + 3*e*f^2*x^2 + 3*e^2*f
*x + e^3), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m*(d*x+c)**n/(f*x+e)**3,x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m (dx+c)^n}{(fx+e)^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m*(d*x + c)^n/(f*x + e)^3,x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m*(d*x + c)^n/(f*x + e)^3, x)
```

3.3138 $\int \frac{(3+4x)^n}{\sqrt{1-x}\sqrt{1+x}}\,dx$

Optimal. Leaf size=50

$$-\sqrt{2}7^n\sqrt{1-x}F_1\left(\frac{1}{2};\frac{1}{2},-n;\frac{3}{2};\frac{1-x}{2},\frac{4(1-x)}{7}\right)$$

```
[Out] -(Sqrt[2]*7^n*Sqrt[1 - x]*AppellF1[1/2, 1/2, -n, 3/2, (1 - x)/2,
(4*(1 - x))/7])
```

Rubi [A] time = 0.0583057, antiderivative size = 50, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.042

$$-\sqrt{2}7^n\sqrt{1-x}F_1\left(\frac{1}{2};\frac{1}{2},-n;\frac{3}{2};\frac{1-x}{2},\frac{4(1-x)}{7}\right)$$

Antiderivative was successfully verified.

```
[In] Int[(3 + 4*x)^n/(Sqrt[1 - x]*Sqrt[1 + x]),x]
```

```
[Out] -(Sqrt[2]*7^n*Sqrt[1 - x]*AppellF1[1/2, 1/2, -n, 3/2, (1 - x)/2,
(4*(1 - x))/7])
```

Rubi in Sympy [A] time = 5.41709, size = 37, normalized size = 0.74

$$-\sqrt{2}\cdot 7^n\sqrt{-x+1}\,\text{appellf}_1\left(\frac{1}{2},\frac{1}{2},-n,\frac{3}{2},-\frac{x}{2}+\frac{1}{2},-\frac{4x}{7}+\frac{4}{7}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((3+4*x)**n/(1-x)**(1/2)/(1+x)**(1/2),x)
```

```
[Out] -sqrt(2)*7**n*sqrt(-x + 1)*appellf1(1/2, 1/2, -n, 3/2, -x/2 + 1/2
, -4*x/7 + 4/7)
```

Mathematica [A] time = 0.0499337, size = 47, normalized size = 0.94

$$\frac{(4x+3)^{n+1}F_1\left(n+1;\frac{1}{2},\frac{1}{2};n+2;-4x-3,\frac{1}{7}(4x+3)\right)}{\sqrt{7}(n+1)}$$

Warning: Unable to verify antiderivative.

```
[In] Integrate[(3 + 4*x)^n/(Sqrt[1 - x]*Sqrt[1 + x]),x]
```

```
[Out] ((3 + 4*x)^(1 + n)*AppellF1[1 + n, 1/2, 1/2, 2 + n, -3 - 4*x, (3
+ 4*x)/7])/(Sqrt[7]*(1 + n))
```

Maple [F] time = 0.06, size = 0, normalized size = 0.

$$\int (3+4x)^n\frac{1}{\sqrt{1-x}}\frac{1}{\sqrt{1+x}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3+4*x)^n/(1-x)^(1/2)/(1+x)^(1/2),x)
```

```
[Out] int((3+4*x)^n/(1-x)^(1/2)/(1+x)^(1/2),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(4x+3)^n}{\sqrt{x+1}\sqrt{-x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((4*x + 3)^n/(sqrt(x + 1)*sqrt(-x + 1)),x, algorithm="maxima")
```

```
[Out] integrate((4*x + 3)^n/(sqrt(x + 1)*sqrt(-x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(4x+3)^n}{\sqrt{x+1}\sqrt{-x+1}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((4*x + 3)^n/(sqrt(x + 1)*sqrt(-x + 1)),x, algorithm="fricas")
```

```
[Out] integral((4*x + 3)^n/(sqrt(x + 1)*sqrt(-x + 1)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(4x+3)^n}{\sqrt{-x+1}\sqrt{x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3+4*x)**n/(1-x)**(1/2)/(1+x)**(1/2),x)
```

```
[Out] Integral((4*x + 3)**n/(sqrt(-x + 1)*sqrt(x + 1)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(4x+3)^n}{\sqrt{x+1}\sqrt{-x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((4*x + 3)^n/(sqrt(x + 1)*sqrt(-x + 1)),x, algorithm="giac")
```

```
[Out] integrate((4*x + 3)^n/(sqrt(x + 1)*sqrt(-x + 1)), x)
```

3.3139 $\int \frac{(3-4x)^n}{\sqrt{1-x}\sqrt{1+x}}\,dx$

Optimal. Leaf size=43

$$\sqrt{2}7^n\sqrt{x+1}F_1\left(\frac{1}{2};-n,\frac{1}{2};\frac{3}{2};\frac{4(x+1)}{7},\frac{x+1}{2}\right)$$

```
[Out] Sqrt[2]*7^n*Sqrt[1 + x]*AppellF1[1/2, -n, 1/2, 3/2, (4*(1 + x))/7
, (1 + x)/2]
```

Rubi [A] time = 0.0567957, antiderivative size = 43, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.042

$$\sqrt{2}7^n\sqrt{x+1}F_1\left(\frac{1}{2};-n,\frac{1}{2};\frac{3}{2};\frac{4(x+1)}{7},\frac{x+1}{2}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(3 - 4*x)^n/(Sqrt[1 - x]*Sqrt[1 + x]),x]
```

```
[Out] Sqrt[2]*7^n*Sqrt[1 + x]*AppellF1[1/2, -n, 1/2, 3/2, (4*(1 + x))/7
, (1 + x)/2]
```

Rubi in Sympy [A] time = 5.44373, size = 36, normalized size = 0.84

$$\sqrt{2}\cdot 7^n\sqrt{x+1}\,\mathrm{appellf}_1\left(\frac{1}{2},\frac{1}{2},-n,\frac{3}{2},\frac{x}{2}+\frac{1}{2},\frac{4x}{7}+\frac{4}{7}\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((3-4*x)**n/(1-x)**(1/2)/(1+x)**(1/2),x)
```

```
[Out] sqrt(2)*7**n*sqrt(x + 1)*appellf1(1/2, 1/2, -n, 3/2, x/2 + 1/2, 4
*x/7 + 4/7)
```

Mathematica [A] time = 0.056621, size = 48, normalized size = 1.12

$$-\frac{(3-4x)^{n+1}F_1\left(n+1;\frac{1}{2},\frac{1}{2};n+2;\frac{1}{7}(3-4x),4x-3\right)}{\sqrt{7}(n+1)}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(3 - 4*x)^n/(Sqrt[1 - x]*Sqrt[1 + x]),x]
```

```
[Out] -(((3 - 4*x)^(1 + n)*AppellF1[1 + n, 1/2, 1/2, 2 + n, (3 - 4*x)/7
, -3 + 4*x])/(Sqrt[7]*(1 + n)))
```

Maple [F] time = 0.06, size = 0, normalized size = 0.

$$\int (3-4x)^n\frac{1}{\sqrt{1-x}}\frac{1}{\sqrt{1+x}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((3-4*x)^n/(1-x)^(1/2)/(1+x)^(1/2),x)

[Out] int((3-4*x)^n/(1-x)^(1/2)/(1+x)^(1/2),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-4x+3)^n}{\sqrt{x+1}\sqrt{-x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-4*x + 3)^n/(sqrt(x + 1)*sqrt(-x + 1)),x, algorithm="maxima")

[Out] integrate((-4*x + 3)^n/(sqrt(x + 1)*sqrt(-x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(-4x+3)^n}{\sqrt{x+1}\sqrt{-x+1}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-4*x + 3)^n/(sqrt(x + 1)*sqrt(-x + 1)),x, algorithm="fricas")

[Out] integral((-4*x + 3)^n/(sqrt(x + 1)*sqrt(-x + 1)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-4x+3)^n}{\sqrt{-x+1}\sqrt{x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((3-4*x)**n/(1-x)**(1/2)/(1+x)**(1/2),x)

[Out] Integral((-4*x + 3)**n/(sqrt(-x + 1)*sqrt(x + 1)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-4x+3)^n}{\sqrt{x+1}\sqrt{-x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-4*x + 3)^n/(sqrt(x + 1)*sqrt(-x + 1)),x, algorithm="giac")

[Out] integrate((-4*x + 3)^n/(sqrt(x + 1)*sqrt(-x + 1)), x)
```

3.3140 $\int \frac{(-3+4x)^n}{\sqrt{1-x}\sqrt{1+x}} \, dx$

Optimal. Leaf size=45

$$-\sqrt{2}\sqrt{1-x}F_1\left(\frac{1}{2};\frac{1}{2},-n;\frac{3}{2};\frac{1-x}{2},4(1-x)\right)$$

```
[Out] -(Sqrt[2]*Sqrt[1 - x]*AppellF1[1/2, 1/2, -n, 3/2, (1 - x)/2, 4*(1
 - x)])
```

Rubi [A] time = 0.0611376, antiderivative size = 45, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.042

$$-\sqrt{2}\sqrt{1-x}F_1\left(\frac{1}{2};\frac{1}{2},-n;\frac{3}{2};\frac{1-x}{2},4(1-x)\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(-3 + 4*x)^n/(Sqrt[1 - x]*Sqrt[1 + x]),x]
```

```
[Out] -(Sqrt[2]*Sqrt[1 - x]*AppellF1[1/2, 1/2, -n, 3/2, (1 - x)/2, 4*(1
 - x)])
```

Rubi in Sympy [A] time = 5.36534, size = 31, normalized size = 0.69

$$-\sqrt{2}\sqrt{-x+1}\,\text{appellf}_1\left(\frac{1}{2},\frac{1}{2},-n,\frac{3}{2},-\frac{x}{2}+\frac{1}{2},-4x+4\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((-3+4*x)**n/(1-x)**(1/2)/(1+x)**(1/2),x)
```

```
[Out] -sqrt(2)*sqrt(-x + 1)*appellf1(1/2, 1/2, -n, 3/2, -x/2 + 1/2, -4*
x + 4)
```

Mathematica [A] time = 0.0483507, size = 47, normalized size = 1.04

$$\frac{(4x-3)^{n+1}F_1\left(n+1;\frac{1}{2},\frac{1}{2};n+2;\frac{1}{7}(3-4x),4x-3\right)}{\sqrt{7}(n+1)}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(-3 + 4*x)^n/(Sqrt[1 - x]*Sqrt[1 + x]),x]
```

```
[Out] ((-3 + 4*x)^(1 + n)*AppellF1[1 + n, 1/2, 1/2, 2 + n, (3 - 4*x)/7,
 -3 + 4*x])/(Sqrt[7]*(1 + n))
```

Maple [F] time = 0.081, size = 0, normalized size = 0.

$$\int (-3+4x)^n \frac{1}{\sqrt{1-x}} \frac{1}{\sqrt{1+x}} \, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((-3+4*x)^n/(1-x)^(1/2)/(1+x)^(1/2),x)

[Out] int((-3+4*x)^n/(1-x)^(1/2)/(1+x)^(1/2),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(4x-3)^n}{\sqrt{x+1}\sqrt{-x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((4*x - 3)^n/(sqrt(x + 1)*sqrt(-x + 1)),x, algorithm="maxima")

[Out] integrate((4*x - 3)^n/(sqrt(x + 1)*sqrt(-x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(4x-3)^n}{\sqrt{x+1}\sqrt{-x+1}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((4*x - 3)^n/(sqrt(x + 1)*sqrt(-x + 1)),x, algorithm="fricas")

[Out] integral((4*x - 3)^n/(sqrt(x + 1)*sqrt(-x + 1)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(4x-3)^n}{\sqrt{-x+1}\sqrt{x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-3+4*x)**n/(1-x)**(1/2)/(1+x)**(1/2),x)

[Out] Integral((4*x - 3)**n/(sqrt(-x + 1)*sqrt(x + 1)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(4x-3)^n}{\sqrt{x+1}\sqrt{-x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((4*x - 3)^n/(sqrt(x + 1)*sqrt(-x + 1)),x, algorithm="giac")

[Out] integrate((4*x - 3)^n/(sqrt(x + 1)*sqrt(-x + 1)), x)
```

3.3141 $\int \frac{(-3-4x)^n}{\sqrt{1-x}\sqrt{1+x}} dx$

Optimal. Leaf size=38

$$\sqrt{2}\sqrt{x+1}F_1\left(\frac{1}{2}; -n, \frac{1}{2}; \frac{3}{2}; 4(x+1), \frac{x+1}{2}\right)$$

```
[Out] Sqrt[2]*Sqrt[1 + x]*AppellF1[1/2, -n, 1/2, 3/2, 4*(1 + x), (1 + x
)/2]
```

Rubi [A] time = 0.0550025, antiderivative size = 38, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 24, $\frac{\text{number of rules}}{\text{integrand size}} = 0.042$

$$\sqrt{2}\sqrt{x+1}F_1\left(\frac{1}{2}; -n, \frac{1}{2}; \frac{3}{2}; 4(x+1), \frac{x+1}{2}\right)$$

Antiderivative was successfully verified.

```
[In]  Int[(-3 - 4*x)^n/(Sqrt[1 - x]*Sqrt[1 + x]),x]
```

```
[Out] Sqrt[2]*Sqrt[1 + x]*AppellF1[1/2, -n, 1/2, 3/2, 4*(1 + x), (1 + x
)/2]
```

Rubi in Sympy [A] time = 5.34981, size = 29, normalized size = 0.76

$$\sqrt{2}\sqrt{x+1}\,\mathrm{appellf}_1\left(\frac{1}{2}, \frac{1}{2}, -n, \frac{3}{2}, \frac{x}{2}+\frac{1}{2}, 4x+4\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((-3-4*x)**n/(1-x)**(1/2)/(1+x)**(1/2),x)
```

```
[Out] sqrt(2)*sqrt(x + 1)*appellf1(1/2, 1/2, -n, 3/2, x/2 + 1/2, 4*x +
4)
```

Mathematica [A] time = 0.049471, size = 48, normalized size = 1.26

$$-\frac{(-4x-3)^{n+1}F_1\left(n+1; \frac{1}{2}, \frac{1}{2}; n+2; -4x-3, \frac{1}{7}(4x+3)\right)}{\sqrt{7}(n+1)}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(-3 - 4*x)^n/(Sqrt[1 - x]*Sqrt[1 + x]),x]
```

```
[Out] -(((-3 - 4*x)^(1 + n)*AppellF1[1 + n, 1/2, 1/2, 2 + n, -3 - 4*x,
(3 + 4*x)/7])/(Sqrt[7]*(1 + n)))
```

Maple [F] time = 0.049, size = 0, normalized size = 0.

$$\int (-3-4x)^n \frac{1}{\sqrt{1-x}} \frac{1}{\sqrt{1+x}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((-3-4*x)^n/(1-x)^(1/2)/(1+x)^(1/2),x)
```

```
[Out] int((-3-4*x)^n/(1-x)^(1/2)/(1+x)^(1/2),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-4x-3)^n}{\sqrt{x+1}\sqrt{-x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-4*x - 3)^n/(sqrt(x + 1)*sqrt(-x + 1)),x, algorithm="maxima")
```

```
[Out] integrate((-4*x - 3)^n/(sqrt(x + 1)*sqrt(-x + 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{(-4x-3)^n}{\sqrt{x+1}\sqrt{-x+1}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-4*x - 3)^n/(sqrt(x + 1)*sqrt(-x + 1)),x, algorithm="fricas")
```

```
[Out] integral((-4*x - 3)^n/(sqrt(x + 1)*sqrt(-x + 1)), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-4x-3)^n}{\sqrt{-x+1}\sqrt{x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((-3-4*x)**n/(1-x)**(1/2)/(1+x)**(1/2),x)
```

```
[Out] Integral((-4*x - 3)**n/(sqrt(-x + 1)*sqrt(x + 1)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(-4x-3)^n}{\sqrt{x+1}\sqrt{-x+1}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((-4*x - 3)^n/(sqrt(x + 1)*sqrt(-x + 1)),x, algorithm="giac")
```

```
[Out] integrate((-4*x - 3)^n/(sqrt(x + 1)*sqrt(-x + 1)), x)
```

3.3142 $\int \frac{(a+bx)^{4/3}}{\sqrt{c+dx}(e+fx)}\,dx$

Optimal. Leaf size=100

$$\frac{3(a+bx)^{7/3}\sqrt{\frac{b(c+dx)}{bc-ad}}F_1\left(\frac{7}{3};\frac{1}{2},1;\frac{10}{3};-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{7\sqrt{c+dx}(be-af)}$$

```
[Out] (3*(a + b*x)^(7/3)*Sqrt[(b*(c + d*x))/(b*c - a*d)]*AppellF1[7/3,
1/2, 1, 10/3, -((d*(a + b*x))/(b*c - a*d)), -((f*(a + b*x))/(b*e
- a*f))])/(7*(b*e - a*f)*Sqrt[c + d*x])
```

Rubi [A] time = 0.275224, antiderivative size = 100, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.077

$$\frac{3(a+bx)^{7/3}\sqrt{\frac{b(c+dx)}{bc-ad}}F_1\left(\frac{7}{3};\frac{1}{2},1;\frac{10}{3};-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{7\sqrt{c+dx}(be-af)}$$

Antiderivative was successfully verified.

```
[In] Int[(a + b*x)^(4/3)/(Sqrt[c + d*x]*(e + f*x)),x]
```

```
[Out] (3*(a + b*x)^(7/3)*Sqrt[(b*(c + d*x))/(b*c - a*d)]*AppellF1[7/3,
1/2, 1, 10/3, -((d*(a + b*x))/(b*c - a*d)), -((f*(a + b*x))/(b*e
- a*f))])/(7*(b*e - a*f)*Sqrt[c + d*x])
```

Rubi in Sympy [A] time = 23.2661, size = 85, normalized size = 0.85

$$\frac{3b\,(a+bx)^{\frac{7}{3}}\,\sqrt{c+dx}\,\operatorname{appellf_1}\left(\frac{7}{3},\frac{1}{2},1,\frac{10}{3},\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)}{7\sqrt{\frac{b(-c-dx)}{ad-bc}}\,(ad-bc)\,(af-be)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((b*x+a)**(4/3)/(f*x+e)/(d*x+c)**(1/2),x)
```

```
[Out] 3*b*(a + b*x)**(7/3)*sqrt(c + d*x)*appellf1(7/3, 1/2, 1, 10/3, d*
(a + b*x)/(a*d - b*c), f*(a + b*x)/(a*f - b*e))/(7*sqrt(b*(-c - d
*x)/(a*d - b*c))*(a*d - b*c)*(a*f - b*e))
```

Mathematica [B] time = 5.09939, size = 921, normalized size = 9.21

$$6b\sqrt{c+dx}\left(\frac{7d(a+bx)}{f}+\frac{(c+dx)\left(-26(bc-ad)(3bde+2bcf-5adf)F_1\left(\frac{7}{6};\frac{2}{3},1;\frac{13}{6};\frac{bc-ad}{bc+bdx},\frac{cf-de}{f(c+dx)}\right)\left(b(3cf-3de)F_1\left(\frac{7}{6};\frac{2}{3},2;\frac{13}{6};\frac{bc-ad}{bc+bdx},\frac{cf-de}{f(c+dx)}\right)+2(bc-ad)fF\right.\right.}{d(e+fx)\left(7bf(c+dx)F_1\left(\frac{1}{6};\frac{2}{3},1;\frac{7}{6};\frac{bc-ad}{bc+bdx},\frac{cf-de}{f(c+dx)}\right)+b\right.}\right.$$

Warning: Unable to verify antiderivative.

```
[In] Integrate[(a + b*x)^(4/3)/(Sqrt[c + d*x]*(e + f*x)),x]
```

```
[Out] (6*b*Sqrt[c + d*x]*((7*d*(a + b*x))/f + ((c + d*x)*(-26*(b*c - a*
d)*(3*b*d*e + 2*b*c*f - 5*a*d*f)*AppellF1[7/6, 2/3, 1, 13/6, (b*c
 - a*d)/(b*c + b*d*x), (-(d*e) + c*f)/(f*(c + d*x))]*(b*(-3*d*e +
 3*c*f)*AppellF1[7/6, 2/3, 2, 13/6, (b*c - a*d)/(b*c + b*d*x), (-
```

```
(d*e) + c*f)/(f*(c + d*x))] + 2*(b*c - a*d)*f*AppellF1[7/6, 5/3,
1, 13/6, (b*c - a*d)/(b*c + b*d*x), (-(d*e) + c*f)/(f*(c + d*x))]
) - 7*b*(c + d*x)*AppellF1[1/6, 2/3, 1, 7/6, (b*c - a*d)/(b*c + b
*d*x), (-(d*e) + c*f)/(f*(c + d*x))]*(13*f*(5*a^2*d^2*f + a*b*d*(
-3*d*e + 42*c*f + 49*d*f*x) - b^2*(12*c^2*f + 35*d^2*e*x + 2*c*d*
(16*e + 7*f*x)))*AppellF1[7/6, 2/3, 1, 13/6, (b*c - a*d)/(b*c + b
*d*x), (-(d*e) + c*f)/(f*(c + d*x))] + 14*(5*b*d*e + 2*b*c*f - 7*
a*d*f)*(3*b*(d*e - c*f)*AppellF1[13/6, 2/3, 2, 19/6, (b*c - a*d)/
(b*c + b*d*x), (-(d*e) + c*f)/(f*(c + d*x))] + 2*(-(b*c) + a*d)*f
*AppellF1[13/6, 5/3, 1, 19/6, (b*c - a*d)/(b*c + b*d*x), (-(d*e)
+ c*f)/(f*(c + d*x))]))))/(d*(e + f*x)*(7*b*f*(c + d*x)*AppellF1[
1/6, 2/3, 1, 7/6, (b*c - a*d)/(b*c + b*d*x), (-(d*e) + c*f)/(f*(c
 + d*x))] + b*(-6*d*e + 6*c*f)*AppellF1[7/6, 2/3, 2, 13/6, (b*c -
 a*d)/(b*c + b*d*x), (-(d*e) + c*f)/(f*(c + d*x))] + 4*(b*c - a*d
)*f*AppellF1[7/6, 5/3, 1, 13/6, (b*c - a*d)/(b*c + b*d*x), (-(d*e
) + c*f)/(f*(c + d*x))])*(13*b*f*(c + d*x)*AppellF1[7/6, 2/3, 1,
13/6, (b*c - a*d)/(b*c + b*d*x), (-(d*e) + c*f)/(f*(c + d*x))] +
b*(-6*d*e + 6*c*f)*AppellF1[13/6, 2/3, 2, 19/6, (b*c - a*d)/(b*c
+ b*d*x), (-(d*e) + c*f)/(f*(c + d*x))] + 4*(b*c - a*d)*f*AppellF
1[13/6, 5/3, 1, 19/6, (b*c - a*d)/(b*c + b*d*x), (-(d*e) + c*f)/(
f*(c + d*x))]))))/(35*d^2*(a + b*x)^(2/3))
```

Maple [F] time = 0.132, size = 0, normalized size = 0.

$$\int \frac{1}{fx+e}\left(bx+a\right)^{\frac{4}{3}}\frac{1}{\sqrt{dx+c}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(4/3)/(f*x+e)/(d*x+c)^(1/2),x)

[Out] int((b*x+a)^(4/3)/(f*x+e)/(d*x+c)^(1/2),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\left(bx+a\right)^{\frac{4}{3}}}{\sqrt{dx+c}(fx+e)}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(4/3)/(sqrt(d*x + c)*(f*x + e)),x, algorithm="maxima")

[Out] integrate((b*x + a)^(4/3)/(sqrt(d*x + c)*(f*x + e)), x)
```

Fricas [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(4/3)/(sqrt(d*x + c)*(f*x + e)),x, algorithm="fricas")

[Out] Timed out
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\left(a+bx\right)^{\frac{4}{3}}}{\sqrt{c+dx}\,(e+fx)}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(4/3)/(f*x+e)/(d*x+c)**(1/2),x)
```

```
[Out] Integral((a + b*x)**(4/3)/(sqrt(c + d*x)*(e + f*x)), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^{\frac{4}{3}}}{\sqrt{dx+c}(fx+e)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(4/3)/(sqrt(d*x + c)*(f*x + e)),x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^(4/3)/(sqrt(d*x + c)*(f*x + e)), x)
```

3.3143 $\int \frac{(c+dx)^{2/5}(e+fx)^{3/5}}{\sqrt{a+bx}}\,dx$

Optimal. Leaf size=123

$$\frac{2\sqrt{a+bx}(c+dx)^{2/5}(e+fx)^{3/5}F_1\left(\frac{1}{2};-\frac{2}{5},-\frac{3}{5};\frac{3}{2};-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{b\left(\frac{b(c+dx)}{bc-ad}\right)^{2/5}\left(\frac{b(e+fx)}{be-af}\right)^{3/5}}$$

```
[Out] (2*Sqrt[a + b*x]*(c + d*x)^(2/5)*(e + f*x)^(3/5)*AppellF1[1/2, -2
/5, -3/5, 3/2, -((d*(a + b*x))/(b*c - a*d)), -((f*(a + b*x))/(b*e
 - a*f))])/(b*((b*(c + d*x))/(b*c - a*d))^(2/5)*((b*(e + f*x))/(b
*e - a*f))^(3/5))
```

Rubi [A] time = 0.501148, antiderivative size = 123, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.107

$$\frac{2\sqrt{a+bx}(c+dx)^{2/5}(e+fx)^{3/5}F_1\left(\frac{1}{2};-\frac{2}{5},-\frac{3}{5};\frac{3}{2};-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{b\left(\frac{b(c+dx)}{bc-ad}\right)^{2/5}\left(\frac{b(e+fx)}{be-af}\right)^{3/5}}$$

Antiderivative was successfully verified.

```
[In]  Int[((c + d*x)^(2/5)*(e + f*x)^(3/5))/Sqrt[a + b*x],x]
```

```
[Out] (2*Sqrt[a + b*x]*(c + d*x)^(2/5)*(e + f*x)^(3/5)*AppellF1[1/2, -2
/5, -3/5, 3/2, -((d*(a + b*x))/(b*c - a*d)), -((f*(a + b*x))/(b*e
 - a*f))])/(b*((b*(c + d*x))/(b*c - a*d))^(2/5)*((b*(e + f*x))/(b
*e - a*f))^(3/5))
```

Rubi in Sympy [A] time = 63.4715, size = 102, normalized size = 0.83

$$\frac{2\sqrt{a+bx}\,(c+dx)^{\frac{2}{5}}\,(e+fx)^{\frac{3}{5}}\operatorname{appellf_1}\left(\frac{1}{2},-\frac{3}{5},-\frac{2}{5},\frac{3}{2},\frac{f(a+bx)}{af-be},\frac{d(a+bx)}{ad-bc}\right)}{b\left(\frac{b(-c-dx)}{ad-bc}\right)^{\frac{2}{5}}\left(\frac{b(-e-fx)}{af-be}\right)^{\frac{3}{5}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((d*x+c)**(2/5)*(f*x+e)**(3/5)/(b*x+a)**(1/2),x)
```

```
[Out] 2*sqrt(a + b*x)*(c + d*x)**(2/5)*(e + f*x)**(3/5)*appellf1(1/2, -
3/5, -2/5, 3/2, f*(a + b*x)/(a*f - b*e), d*(a + b*x)/(a*d - b*c))
/(b*(b*(-c - d*x)/(a*d - b*c))**(2/5)*(b*(-e - f*x)/(a*f - b*e))*
*(3/5))
```

Mathematica [B] time = 10.7698, size = 661, normalized size = 5.37

$$2\sqrt{a+bx}\left(15b^2(c+dx)(e+fx)-2(a+bx)\left(\frac{9\left(25a^2d^2f^2-10abdf(2cf+3de)+b^2\left(-2c^2f^2+24cdef+3d^2e^2\right)\right)F_1\left(\frac{1}{2};\frac{3}{5},\frac{2}{5};\frac{3}{2};\frac{ad-bc}{d(a+bx)},\ldots\right.}{15df(a+bx)F_1\left(\frac{1}{2};\frac{3}{5},\frac{2}{5};\frac{3}{2};\frac{ad-bc}{d(a+bx)},\frac{af-be}{f(a+bx)}\right)+(4adf-4bde)F_1\left(\frac{3}{2};\frac{3}{5},\frac{7}{5};\frac{5}{2};\frac{ad-bc}{d(a+bx)},\frac{af-be}{f(a+bx)}\right)+6f(ad-bc)\ldots}\right.\right.$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[((c + d*x)^(2/5)*(e + f*x)^(3/5))/Sqrt[a + b*x],x]
```

```
[Out] (2*Sqrt[a + b*x]*(15*b^2*(c + d*x)*(e + f*x) - 2*(a + b*x)*((9*(2
5*a^2*d^2*f^2 - 10*a*b*d*f*(3*d*e + 2*c*f) + b^2*(3*d^2*e^2 + 24*
c*d*e*f - 2*c^2*f^2))*AppellF1[1/2, 3/5, 2/5, 3/2, (-(b*c) + a*d)
/(d*(a + b*x)), (-(b*e) + a*f)/(f*(a + b*x))])/(15*d*f*(a + b*x)*
AppellF1[1/2, 3/5, 2/5, 3/2, (-(b*c) + a*d)/(d*(a + b*x)), (-(b*e
) + a*f)/(f*(a + b*x))] + (-4*b*d*e + 4*a*d*f)*AppellF1[3/2, 3/5,
 7/5, 5/2, (-(b*c) + a*d)/(d*(a + b*x)), (-(b*e) + a*f)/(f*(a + b
*x))] + 6*(-(b*c) + a*d)*f*AppellF1[3/2, 8/5, 2/5, 5/2, (-(b*c) +
 a*d)/(d*(a + b*x)), (-(b*e) + a*f)/(f*(a + b*x))]) + ((3*b*d*e +
 2*b*c*f - 5*a*d*f)*((-3*b^2*(c + d*x)*(e + f*x))/(d*f) + (25*(b*
c - a*d)*(b*e - a*f)*(a + b*x)*AppellF1[3/2, 3/5, 2/5, 5/2, (-(b*
c) + a*d)/(d*(a + b*x)), (-(b*e) + a*f)/(f*(a + b*x))])/(25*d*f*(
a + b*x)*AppellF1[3/2, 3/5, 2/5, 5/2, (-(b*c) + a*d)/(d*(a + b*x)
), (-(b*e) + a*f)/(f*(a + b*x))] + (-4*b*d*e + 4*a*d*f)*AppellF1[
5/2, 3/5, 7/5, 7/2, (-(b*c) + a*d)/(d*(a + b*x)), (-(b*e) + a*f)/
(f*(a + b*x))] + 6*(-(b*c) + a*d)*f*AppellF1[5/2, 8/5, 2/5, 7/2,
(-(b*c) + a*d)/(d*(a + b*x)), (-(b*e) + a*f)/(f*(a + b*x))]))))/(a
 + b*x)^2)))/(45*b^3*(c + d*x)^(3/5)*(e + f*x)^(2/5))
```

Maple [F] time = 0.116, size = 0, normalized size = 0.

$$\int 1\,(dx+c)^{\frac{2}{5}}\,(fx+e)^{\frac{3}{5}}\,\frac{1}{\sqrt{bx+a}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((d*x+c)^(2/5)*(f*x+e)^(3/5)/(b*x+a)^(1/2),x)
```

```
[Out] int((d*x+c)^(2/5)*(f*x+e)^(3/5)/(b*x+a)^(1/2),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(dx+c)^{\frac{2}{5}}(fx+e)^{\frac{3}{5}}}{\sqrt{bx+a}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(2/5)*(f*x + e)^(3/5)/sqrt(b*x + a),x, algorithm="maxima")
```

```
[Out] integrate((d*x + c)^(2/5)*(f*x + e)^(3/5)/sqrt(b*x + a), x)
```

Fricas [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x + c)^(2/5)*(f*x + e)^(3/5)/sqrt(b*x + a),x, algorithm="fricas")
```

```
[Out] Timed out
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((d*x+c)**(2/5)*(f*x+e)**(3/5)/(b*x+a)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(dx+c)^{\frac{2}{5}}(fx+e)^{\frac{3}{5}}}{\sqrt{bx+a}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((d*x + c)^(2/5)*(f*x + e)^(3/5)/sqrt(b*x + a),x, algorithm="giac")
```

```
[Out] integrate((d*x + c)^(2/5)*(f*x + e)^(3/5)/sqrt(b*x + a), x)
```

3.3144 $\int \frac{\sqrt{a+bx}(e+fx)^n}{\sqrt{c+dx}}\,dx$

Optimal. Leaf size=123

$$\frac{2(a+bx)^{3/2}(e+fx)^n\sqrt{\frac{b(c+dx)}{bc-ad}}\left(\frac{b(e+fx)}{be-af}\right)^{-n}F_1\left(\frac{3}{2};\frac{1}{2},-n;\frac{5}{2};-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{3b\sqrt{c+dx}}$$

```
[Out] (2*(a + b*x)^(3/2)*Sqrt[(b*(c + d*x))/(b*c - a*d)]*(e + f*x)^n*Ap
pellF1[3/2, 1/2, -n, 5/2, -((d*(a + b*x))/(b*c - a*d)), -((f*(a +
 b*x))/(b*e - a*f))])/(3*b*Sqrt[c + d*x]*((b*(e + f*x))/(b*e - a*
f))^n)
```

Rubi [A] time = 0.430036, antiderivative size = 123, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.115$

$$\frac{2(a+bx)^{3/2}(e+fx)^n\sqrt{\frac{b(c+dx)}{bc-ad}}\left(\frac{b(e+fx)}{be-af}\right)^{-n}F_1\left(\frac{3}{2};\frac{1}{2},-n;\frac{5}{2};-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{3b\sqrt{c+dx}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[a + b*x]*(e + f*x)^n)/Sqrt[c + d*x],x]
```

```
[Out] (2*(a + b*x)^(3/2)*Sqrt[(b*(c + d*x))/(b*c - a*d)]*(e + f*x)^n*Ap
pellF1[3/2, 1/2, -n, 5/2, -((d*(a + b*x))/(b*c - a*d)), -((f*(a +
 b*x))/(b*e - a*f))])/(3*b*Sqrt[c + d*x]*((b*(e + f*x))/(b*e - a*
f))^n)
```

Rubi in Sympy [A] time = 67.5214, size = 104, normalized size = 0.85

$$-\frac{2\left(\frac{b(-e-fx)}{af-be}\right)^{-n}(a+bx)^{\frac{3}{2}}\sqrt{c+dx}\,(e+fx)^n\operatorname{appellf}_1\left(\frac{3}{2},\frac{1}{2},-n,\frac{5}{2},\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)}{3\sqrt{\frac{b(-c-dx)}{ad-bc}}\,(ad-bc)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((f*x+e)**n*(b*x+a)**(1/2)/(d*x+c)**(1/2),x)
```

```
[Out] -2*(b*(-e - f*x)/(a*f - b*e))**(-n)*(a + b*x)**(3/2)*sqrt(c + d*x
)*(e + f*x)**n*appellf1(3/2, 1/2, -n, 5/2, d*(a + b*x)/(a*d - b*c
), f*(a + b*x)/(a*f - b*e))/(3*sqrt(b*(-c - d*x)/(a*d - b*c))*(a*
d - b*c))
```

Mathematica [B] time = 1.1406, size = 289, normalized size = 2.35

$$\frac{10(a+bx)^{3/2}(bc-ad)(be-af)(e+fx)^nF_1\left(\frac{3}{2};\frac{1}{2},-n;\frac{5}{2};\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)}{3b\sqrt{c+dx}\left(5(bc-ad)(be-af)F_1\left(\frac{3}{2};\frac{1}{2},-n;\frac{5}{2};\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)-(a+bx)\left(2fn(ad-bc)F_1\left(\frac{5}{2};\frac{1}{2},1-n;\frac{7}{2};\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right.\right.\right.}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(Sqrt[a + b*x]*(e + f*x)^n)/Sqrt[c + d*x],x]
```

```
[Out] (10*(b*c - a*d)*(b*e - a*f)*(a + b*x)^(3/2)*(e + f*x)^n*AppellF1[
3/2, 1/2, -n, 5/2, (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-
```

```
(b*e) + a*f)])/(3*b*Sqrt[c + d*x]*(5*(b*c - a*d)*(b*e - a*f)*Appe
llF1[3/2, 1/2, -n, 5/2, (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x
))/(-(b*e) + a*f)] - (a + b*x)*(2*(-(b*c) + a*d)*f*n*AppellF1[5/2
, 1/2, 1 - n, 7/2, (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-
(b*e) + a*f)] + d*(b*e - a*f)*AppellF1[5/2, 3/2, -n, 7/2, (d*(a +
 b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)])))
```

Maple [F] time = 0.061, size = 0, normalized size = 0.

$$\int (fx+e)^n \sqrt{bx+a}\frac{1}{\sqrt{dx+c}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((f*x+e)^n*(b*x+a)^(1/2)/(d*x+c)^(1/2),x)

[Out] int((f*x+e)^n*(b*x+a)^(1/2)/(d*x+c)^(1/2),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{bx+a}(fx+e)^n}{\sqrt{dx+c}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(b*x + a)*(f*x + e)^n/sqrt(d*x + c),x, algorithm="maxima")

[Out] integrate(sqrt(b*x + a)*(f*x + e)^n/sqrt(d*x + c), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{bx+a}(fx+e)^n}{\sqrt{dx+c}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(b*x + a)*(f*x + e)^n/sqrt(d*x + c),x, algorithm="fricas")

[Out] integral(sqrt(b*x + a)*(f*x + e)^n/sqrt(d*x + c), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((f*x+e)**n*(b*x+a)**(1/2)/(d*x+c)**(1/2),x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{bx+a}(fx+e)^n}{\sqrt{dx+c}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(f*x + e)^n/sqrt(d*x + c),x, algorithm="giac")
```

```
[Out] integrate(sqrt(b*x + a)*(f*x + e)^n/sqrt(d*x + c), x)
```

3.3145 $\int \frac{\sqrt{c+dx}(e+fx)^n}{\sqrt{a+bx}}\,dx$

Optimal. Leaf size=121

$$\frac{2\sqrt{a+bx}\sqrt{c+dx}(e+fx)^n\left(\frac{b(e+fx)}{be-af}\right)^{-n}F_1\left(\frac{1}{2};-\frac{1}{2},-n;\frac{3}{2};-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{b\sqrt{\frac{b(c+dx)}{bc-ad}}}$$

```
[Out] (2*Sqrt[a + b*x]*Sqrt[c + d*x]*(e + f*x)^n*AppellF1[1/2, -1/2, -n
, 3/2, -((d*(a + b*x))/(b*c - a*d)), -((f*(a + b*x))/(b*e - a*f))
])/(b*Sqrt[(b*(c + d*x))/(b*c - a*d)]*((b*(e + f*x))/(b*e - a*f))
^n)
```

Rubi [A] time = 0.42387, antiderivative size = 121, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.115

$$\frac{2\sqrt{a+bx}\sqrt{c+dx}(e+fx)^n\left(\frac{b(e+fx)}{be-af}\right)^{-n}F_1\left(\frac{1}{2};-\frac{1}{2},-n;\frac{3}{2};-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{b\sqrt{\frac{b(c+dx)}{bc-ad}}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[c + d*x]*(e + f*x)^n)/Sqrt[a + b*x],x]
```

```
[Out] (2*Sqrt[a + b*x]*Sqrt[c + d*x]*(e + f*x)^n*AppellF1[1/2, -1/2, -n
, 3/2, -((d*(a + b*x))/(b*c - a*d)), -((f*(a + b*x))/(b*e - a*f))
])/(b*Sqrt[(b*(c + d*x))/(b*c - a*d)]*((b*(e + f*x))/(b*e - a*f))
^n)
```

Rubi in Sympy [A] time = 66.8471, size = 97, normalized size = 0.8

$$\frac{2\left(\frac{b(-e-fx)}{af-be}\right)^{-n}\sqrt{a+bx}\sqrt{c+dx}\,(e+fx)^n\,\text{appellf}_1\left(\frac{1}{2},-\frac{1}{2},-n,\frac{3}{2},\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)}{b\sqrt{\frac{b(-c-dx)}{ad-bc}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((f*x+e)**n*(d*x+c)**(1/2)/(b*x+a)**(1/2),x)
```

```
[Out] 2*(b*(-e - f*x)/(a*f - b*e))**(-n)*sqrt(a + b*x)*sqrt(c + d*x)*(e
 + f*x)**n*appellf1(1/2, -1/2, -n, 3/2, d*(a + b*x)/(a*d - b*c),
f*(a + b*x)/(a*f - b*e))/(b*sqrt(b*(-c - d*x)/(a*d - b*c)))
```

Mathematica [B] time = 0.912902, size = 287, normalized size = 2.37

$$\frac{6\sqrt{a+bx}\sqrt{c+dx}(bc-ad)(be-af)(e+fx)^nF_1\left(\frac{1}{2};-\frac{1}{2},-n;\frac{3}{2};\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)}{b\left(3(bc-ad)(be-af)F_1\left(\frac{1}{2};-\frac{1}{2},-n;\frac{3}{2};\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)-(a+bx)\left(2fn(ad-bc)F_1\left(\frac{3}{2};-\frac{1}{2},1-n;\frac{5}{2};\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)+d(\right.\right.}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(Sqrt[c + d*x]*(e + f*x)^n)/Sqrt[a + b*x],x]
```

```
[Out] (6*(b*c - a*d)*(b*e - a*f)*Sqrt[a + b*x]*Sqrt[c + d*x]*(e + f*x)^
n*AppellF1[1/2, -1/2, -n, 3/2, (d*(a + b*x))/(-(b*c) + a*d), (f*(
```

```
a + b*x))/(-(b*e) + a*f)])/(b*(3*(b*c - a*d)*(b*e - a*f)*AppellF1
[1/2, -1/2, -n, 3/2, (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/
(-(b*e) + a*f)] - (a + b*x)*(2*(-(b*c) + a*d)*f*n*AppellF1[3/2, -
1/2, 1 - n, 5/2, (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b
*e) + a*f)] + d*(-(b*e) + a*f)*AppellF1[3/2, 1/2, -n, 5/2, (d*(a
+ b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)])))
```

Maple [F] time = 0.06, size = 0, normalized size = 0.

$$\int (fx+e)^n \sqrt{dx+c}\,\frac{1}{\sqrt{bx+a}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((f*x+e)^n*(d*x+c)^(1/2)/(b*x+a)^(1/2),x)
```

```
[Out] int((f*x+e)^n*(d*x+c)^(1/2)/(b*x+a)^(1/2),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{dx+c}(fx+e)^n}{\sqrt{bx+a}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(d*x + c)*(f*x + e)^n/sqrt(b*x + a),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(d*x + c)*(f*x + e)^n/sqrt(b*x + a), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{\sqrt{dx+c}(fx+e)^n}{\sqrt{bx+a}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(d*x + c)*(f*x + e)^n/sqrt(b*x + a),x, algorithm="fricas")
```

```
[Out] integral(sqrt(d*x + c)*(f*x + e)^n/sqrt(b*x + a), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((f*x+e)**n*(d*x+c)**(1/2)/(b*x+a)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{dx+c}(fx+e)^n}{\sqrt{bx+a}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(d*x + c)*(f*x + e)^n/sqrt(b*x + a),x, algorithm="giac")
```

```
[Out] integrate(sqrt(d*x + c)*(f*x + e)^n/sqrt(b*x + a), x)
```

3.3146 $\int \frac{(e+fx)^n}{\sqrt{a+bx}(c+dx)^{3/2}}\,dx$

Optimal. Leaf size=128

$$\frac{2\sqrt{a+bx}(e+fx)^n\sqrt{\frac{b(c+dx)}{bc-ad}}\left(\frac{b(e+fx)}{be-af}\right)^{-n}F_1\left(\frac{1}{2};\frac{3}{2},-n;\frac{3}{2};-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{\sqrt{c+dx}(bc-ad)}$$

```
[Out] (2*Sqrt[a + b*x]*Sqrt[(b*(c + d*x))/(b*c - a*d)]*(e + f*x)^n*Appe
llF1[1/2, 3/2, -n, 3/2, -((d*(a + b*x))/(b*c - a*d)), -((f*(a + b
*x))/(b*e - a*f))])/((b*c - a*d)*Sqrt[c + d*x]*((b*(e + f*x))/(b*
e - a*f))^n)
```

Rubi [A] time = 0.432806, antiderivative size = 128, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.115

$$\frac{2\sqrt{a+bx}(e+fx)^n\sqrt{\frac{b(c+dx)}{bc-ad}}\left(\frac{b(e+fx)}{be-af}\right)^{-n}F_1\left(\frac{1}{2};\frac{3}{2},-n;\frac{3}{2};-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{\sqrt{c+dx}(bc-ad)}$$

Antiderivative was successfully verified.

```
[In]  Int[(e + f*x)^n/(Sqrt[a + b*x]*(c + d*x)^(3/2)),x]
```

```
[Out] (2*Sqrt[a + b*x]*Sqrt[(b*(c + d*x))/(b*c - a*d)]*(e + f*x)^n*Appe
llF1[1/2, 3/2, -n, 3/2, -((d*(a + b*x))/(b*c - a*d)), -((f*(a + b
*x))/(b*e - a*f))])/((b*c - a*d)*Sqrt[c + d*x]*((b*(e + f*x))/(b*
e - a*f))^n)
```

Rubi in Sympy [A] time = 66.9227, size = 104, normalized size = 0.81

$$\frac{2b\left(\frac{b(-e-fx)}{af-be}\right)^{-n}\sqrt{a+bx}\sqrt{c+dx}\,(e+fx)^n\,\mathrm{appellf}_1\left(\frac{1}{2},\frac{3}{2},-n,\frac{3}{2},\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)}{\sqrt{\frac{b(-c-dx)}{ad-bc}}\,(ad-bc)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((f*x+e)**n/(d*x+c)**(3/2)/(b*x+a)**(1/2),x)
```

```
[Out] 2*b*(b*(-e - f*x)/(a*f - b*e))**(-n)*sqrt(a + b*x)*sqrt(c + d*x)*
(e + f*x)**n*appellf1(1/2, 3/2, -n, 3/2, d*(a + b*x)/(a*d - b*c),
 f*(a + b*x)/(a*f - b*e))/(sqrt(b*(-c - d*x)/(a*d - b*c))*(a*d -
b*c)**2)
```

Mathematica [B] time = 5.56215, size = 816, normalized size = 6.38

$$2(be-af)\sqrt{a+bx}(e+fx)^n\left(\frac{9bF_1\left(\frac{1}{2};-\frac{1}{2},-n;\frac{3}{2};\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)(c+dx)^2}{(bc-ad)\left(3(bc-ad)(be-af)F_1\left(\frac{1}{2};-\frac{1}{2},-n;\frac{3}{2};\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)-(a+bx)\left(2(ad-bc)fnF_1\left(\frac{3}{2};-\frac{1}{2},1-n;\frac{5}{2};\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)+\cdots\right.\right.}\right.$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(e + f*x)^n/(Sqrt[a + b*x]*(c + d*x)^(3/2)),x]
```

```
[Out] (2*(b*e - a*f)*Sqrt[a + b*x]*(e + f*x)^n*((9*b*(c + d*x)^2*Appell
F1[1/2, -1/2, -n, 3/2, (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x)
```

```
)/(-(b*e) + a*f)])/((b*c - a*d)*(3*(b*c - a*d)*(b*e - a*f)*Appell
F1[1/2, -1/2, -n, 3/2, (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x)
)/(-(b*e) + a*f)] - (a + b*x)*(2*(-(b*c) + a*d)*f*n*AppellF1[3/2,
 -1/2, 1 - n, 5/2, (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-
(b*e) + a*f)] + d*(-(b*e) + a*f)*AppellF1[3/2, 1/2, -n, 5/2, (d*(
a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)]))) - (5*d
*(a + b*x)*(c + d*x)*AppellF1[3/2, 1/2, -n, 5/2, (d*(a + b*x))/(-
(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)])/((b*c - a*d)*(5*(b*c
 - a*d)*(b*e - a*f)*AppellF1[3/2, 1/2, -n, 5/2, (d*(a + b*x))/(-(
b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)] - (a + b*x)*(2*(-(b*c)
 + a*d)*f*n*AppellF1[5/2, 1/2, 1 - n, 7/2, (d*(a + b*x))/(-(b*c)
+ a*d), (f*(a + b*x))/(-(b*e) + a*f)] + d*(b*e - a*f)*AppellF1[5/
2, 3/2, -n, 7/2, (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b
*e) + a*f)]))) - (5*d*(a + b*x)*AppellF1[3/2, 3/2, -n, 5/2, (d*(a
 + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)])/(b*(5*(b*
c - a*d)*(b*e - a*f)*AppellF1[3/2, 3/2, -n, 5/2, (d*(a + b*x))/(-
(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)] - (a + b*x)*(2*(-(b*c
) + a*d)*f*n*AppellF1[5/2, 3/2, 1 - n, 7/2, (d*(a + b*x))/(-(b*c)
 + a*d), (f*(a + b*x))/(-(b*e) + a*f)] + 3*d*(b*e - a*f)*AppellF1
[5/2, 5/2, -n, 7/2, (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(
-(b*e) + a*f)])))))/(3*(c + d*x)^(3/2))
```

Maple [F] time = 0.06, size = 0, normalized size = 0.

$$\int (fx+e)^{n} (dx+c)^{-\frac{3}{2}} \frac{1}{\sqrt{bx+a}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((f*x+e)^n/(d*x+c)^(3/2)/(b*x+a)^(1/2),x)
```

```
[Out] int((f*x+e)^n/(d*x+c)^(3/2)/(b*x+a)^(1/2),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(fx+e)^{n}}{\sqrt{bx+a}(dx+c)^{\frac{3}{2}}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((f*x + e)^n/(sqrt(b*x + a)*(d*x + c)^(3/2)),x, algorithm="maxima")
```

```
[Out] integrate((f*x + e)^n/(sqrt(b*x + a)*(d*x + c)^(3/2)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(fx+e)^{n}}{\sqrt{bx+a}(dx+c)^{\frac{3}{2}}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((f*x + e)^n/(sqrt(b*x + a)*(d*x + c)^(3/2)),x, algorithm="fricas")
```

```
[Out] integral((f*x + e)^n/(sqrt(b*x + a)*(d*x + c)^(3/2)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((f*x+e)**n/(d*x+c)**(3/2)/(b*x+a)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F]   time = 0., size = 0, normalized size = 0.

$$\int \frac{(fx+e)^n}{\sqrt{bx+a}(dx+c)^{\frac{3}{2}}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)^n/(sqrt(b*x + a)*(d*x + c)^(3/2)),x, algorithm="giac")
```

```
[Out] integrate((f*x + e)^n/(sqrt(b*x + a)*(d*x + c)^(3/2)), x)
```

3.3147 $\int \frac{(e+fx)^n}{(a+bx)^{3/2}\sqrt{c+dx}}\,dx$

Optimal. Leaf size=121

$$-\frac{2(e+fx)^n\sqrt{\frac{b(c+dx)}{bc-ad}}\left(\frac{b(e+fx)}{be-af}\right)^{-n}F_1\left(-\frac{1}{2};\frac{1}{2},-n;\frac{1}{2};-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{b\sqrt{a+bx}\sqrt{c+dx}}$$

```
[Out] (-2*Sqrt[(b*(c + d*x))/(b*c - a*d)]*(e + f*x)^n*AppellF1[-1/2, 1/
2, -n, 1/2, -((d*(a + b*x))/(b*c - a*d)), -((f*(a + b*x))/(b*e -
a*f))])/(b*Sqrt[a + b*x]*Sqrt[c + d*x]*((b*(e + f*x))/(b*e - a*f)
)^n)
```

Rubi [A] time = 0.427611, antiderivative size = 121, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.115

$$-\frac{2(e+fx)^n\sqrt{\frac{b(c+dx)}{bc-ad}}\left(\frac{b(e+fx)}{be-af}\right)^{-n}F_1\left(-\frac{1}{2};\frac{1}{2},-n;\frac{1}{2};-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{b\sqrt{a+bx}\sqrt{c+dx}}$$

Antiderivative was successfully verified.

```
[In]  Int[(e + f*x)^n/((a + b*x)^(3/2)*Sqrt[c + d*x]),x]
```

```
[Out] (-2*Sqrt[(b*(c + d*x))/(b*c - a*d)]*(e + f*x)^n*AppellF1[-1/2, 1/
2, -n, 1/2, -((d*(a + b*x))/(b*c - a*d)), -((f*(a + b*x))/(b*e -
a*f))])/(b*Sqrt[a + b*x]*Sqrt[c + d*x]*((b*(e + f*x))/(b*e - a*f)
)^n)
```

Rubi in Sympy [A] time = 66.2878, size = 102, normalized size = 0.84

$$\frac{2\left(\frac{b(-e-fx)}{af-be}\right)^{-n}\sqrt{c+dx}\,(e+fx)^n\operatorname{appellf_1}\left(-\frac{1}{2},\frac{1}{2},-n,\frac{1}{2},\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)}{\sqrt{\frac{b(-c-dx)}{ad-bc}}\sqrt{a+bx}\,(ad-bc)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((f*x+e)**n/(b*x+a)**(3/2)/(d*x+c)**(1/2),x)
```

```
[Out] 2*(b*(-e - f*x)/(a*f - b*e))**(-n)*sqrt(c + d*x)*(e + f*x)**n*app
ellf1(-1/2, 1/2, -n, 1/2, d*(a + b*x)/(a*d - b*c), f*(a + b*x)/(a
*f - b*e))/(sqrt(b*(-c - d*x)/(a*d - b*c))*sqrt(a + b*x)*(a*d - b
*c))
```

Mathematica [B] time = 4.01153, size = 825, normalized size = 6.82

$$\frac{2(be-af)(e+fx)^n\left(\frac{3(c+dx)F_1\left(-\frac{1}{2};-\frac{1}{2},-n;\frac{1}{2};\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)(bc-ad)^2}{(ad-bc)\left((bc-ad)(be-af)F_1\left(-\frac{1}{2};-\frac{1}{2},-n;\frac{1}{2};\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)-(a+bx)\left(2(ad-bc)fnF_1\left(\frac{1}{2};-\frac{1}{2},1-n;\frac{3}{2};\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)+d(af-be)F\right.\right.}\right.}{}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(e + f*x)^n/((a + b*x)^(3/2)*Sqrt[c + d*x]),x]
```

```
[Out] (2*(b*e - a*f)*(e + f*x)^n*((3*(b*c - a*d)^2*(c + d*x)*AppellF1[-
1/2, -1/2, -n, 1/2, (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(
```

```
-(b*e) + a*f)])/((-(b*c) + a*d)*((b*c - a*d)*(b*e - a*f)*AppellF1
[-1/2, -1/2, -n, 1/2, (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x))
/(-(b*e) + a*f)] - (a + b*x)*(2*(-(b*c) + a*d)*f*n*AppellF1[1/2,
-1/2, 1 - n, 3/2, (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(
b*e) + a*f)] + d*(-(b*e) + a*f)*AppellF1[1/2, 1/2, -n, 3/2, (d*(a
 + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)]))) - (9*d*
(a + b*x)*(c + d*x)*AppellF1[1/2, -1/2, -n, 3/2, (d*(a + b*x))/(-
(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)])/(3*(b*c - a*d)*(b*e
- a*f)*AppellF1[1/2, -1/2, -n, 3/2, (d*(a + b*x))/(-(b*c) + a*d),
 (f*(a + b*x))/(-(b*e) + a*f)] - (a + b*x)*(2*(-(b*c) + a*d)*f*n*
AppellF1[3/2, -1/2, 1 - n, 5/2, (d*(a + b*x))/(-(b*c) + a*d), (f*
(a + b*x))/(-(b*e) + a*f)] + d*(-(b*e) + a*f)*AppellF1[3/2, 1/2,
-n, 5/2, (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*
f)])) + (5*d^2*(a + b*x)^2*AppellF1[3/2, 1/2, -n, 5/2, (d*(a + b*
x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e) + a*f)])/(b*(5*(b*c - a
*d)*(b*e - a*f)*AppellF1[3/2, 1/2, -n, 5/2, (d*(a + b*x))/(-(b*c)
 + a*d), (f*(a + b*x))/(-(b*e) + a*f)] - (a + b*x)*(2*(-(b*c) + a
*d)*f*n*AppellF1[5/2, 1/2, 1 - n, 7/2, (d*(a + b*x))/(-(b*c) + a*
d), (f*(a + b*x))/(-(b*e) + a*f)] + d*(b*e - a*f)*AppellF1[5/2, 3
/2, -n, 7/2, (d*(a + b*x))/(-(b*c) + a*d), (f*(a + b*x))/(-(b*e)
+ a*f)])))))/(3*(b*c - a*d)*Sqrt[a + b*x]*Sqrt[c + d*x])
```

Maple [F] time = 0.061, size = 0, normalized size = 0.

$$\int (fx+e)^n (bx+a)^{-\frac{3}{2}} \frac{1}{\sqrt{dx+c}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((f*x+e)^n/(b*x+a)^(3/2)/(d*x+c)^(1/2),x)

[Out] int((f*x+e)^n/(b*x+a)^(3/2)/(d*x+c)^(1/2),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(fx+e)^n}{(bx+a)^{\frac{3}{2}}\sqrt{dx+c}}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)^n/((b*x + a)^(3/2)*sqrt(d*x + c)),x, algorithm="maxima")

[Out] integrate((f*x + e)^n/((b*x + a)^(3/2)*sqrt(d*x + c)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(fx+e)^n}{(bx+a)^{\frac{3}{2}}\sqrt{dx+c}}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)^n/((b*x + a)^(3/2)*sqrt(d*x + c)),x, algorithm="fricas")

[Out] integral((f*x + e)^n/((b*x + a)^(3/2)*sqrt(d*x + c)), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((f*x+e)**n/(b*x+a)**(3/2)/(d*x+c)**(1/2),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(fx+e)^n}{(bx+a)^{\frac{3}{2}}\sqrt{dx+c}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((f*x + e)^n/((b*x + a)^(3/2)*sqrt(d*x + c)),x, algorithm="giac")
```

```
[Out] integrate((f*x + e)^n/((b*x + a)^(3/2)*sqrt(d*x + c)), x)
```

3.3148 $\int \frac{\sqrt{a+bx}\sqrt[3]{c+dx}}{e+fx}\,dx$

Optimal. Leaf size=100

$$\frac{2(a+bx)^{3/2}\sqrt[3]{c+dx}F_1\left(\frac{3}{2};-\frac{1}{3},1;\frac{5}{2};-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{3(be-af)\sqrt[3]{\frac{b(c+dx)}{bc-ad}}}$$

```
[Out] (2*(a + b*x)^(3/2)*(c + d*x)^(1/3)*AppellF1[3/2, -1/3, 1, 5/2, -(
(d*(a + b*x))/(b*c - a*d)), -((f*(a + b*x))/(b*e - a*f))])/(3*(b*
e - a*f)*((b*(c + d*x))/(b*c - a*d))^(1/3))
```

Rubi [A] time = 0.248875, antiderivative size = 100, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.077

$$\frac{2(a+bx)^{3/2}\sqrt[3]{c+dx}F_1\left(\frac{3}{2};-\frac{1}{3},1;\frac{5}{2};-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{3(be-af)\sqrt[3]{\frac{b(c+dx)}{bc-ad}}}$$

Antiderivative was successfully verified.

```
[In]  Int[(Sqrt[a + b*x]*(c + d*x)^(1/3))/(e + f*x),x]
```

```
[Out] (2*(a + b*x)^(3/2)*(c + d*x)^(1/3)*AppellF1[3/2, -1/3, 1, 5/2, -(
(d*(a + b*x))/(b*c - a*d)), -((f*(a + b*x))/(b*e - a*f))])/(3*(b*
e - a*f)*((b*(c + d*x))/(b*c - a*d))^(1/3))
```

Rubi in Sympy [A] time = 21.4712, size = 80, normalized size = 0.8

$$-\frac{2\left(a+bx\right)^{\frac{3}{2}}\sqrt[3]{c+dx}\,\mathrm{appellf}_1\left(\frac{3}{2},-\frac{1}{3},1,\frac{5}{2},\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)}{3\sqrt[3]{\frac{b\left(-c-dx\right)}{ad-bc}}\left(af-be\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/2)*(d*x+c)**(1/3)/(f*x+e),x)
```

```
[Out] -2*(a + b*x)**(3/2)*(c + d*x)**(1/3)*appellf1(3/2, -1/3, 1, 5/2,
d*(a + b*x)/(a*d - b*c), f*(a + b*x)/(a*f - b*e))/(3*(b*(-c - d*x
)/(a*d - b*c))**(1/3)*(a*f - b*e))
```

Mathematica [B] time = 4.85267, size = 901, normalized size = 9.01

$$6\sqrt{a+bx}\left(\frac{7(c+dx)}{f}-\frac{d(a+bx)\left(78(bc-ad)(be-af)F_1\left(\frac{7}{6};\frac{2}{3},1;\frac{13}{6};\frac{ad-bc}{d(a+bx)},\frac{af-be}{f(a+bx)}\right)\left(3d(be-af)F_1\left(\frac{7}{6};\frac{2}{3},2;\frac{13}{6};\frac{ad-bc}{d(a+bx)},\frac{af-be}{f(a+bx)}\right)+2(bc-ad)fF_1\left(\frac{7}{6};\frac{5}{3},1;\frac{13}{6};\frac{ad-}{d(a+}\right.\right.\right.}{b^2(e+fx)\left(7df(a+bx)F_1\left(\frac{1}{6};\frac{2}{3},1;\frac{7}{6};\frac{ad-bc}{d(a+bx)},\frac{af-be}{f(a+bx)}\right)+(6adf-6bde)F_1\left(\frac{7}{6}\right.\right.}\right.$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(Sqrt[a + b*x]*(c + d*x)^(1/3))/(e + f*x),x]
```

```
[Out] (6*Sqrt[a + b*x]*((7*(c + d*x))/f - (d*(a + b*x)*(78*(b*c - a*d)*
(b*e - a*f)*AppellF1[7/6, 2/3, 1, 13/6, (-(b*c) + a*d)/(d*(a + b*
```

```
x)), (-(b*e) + a*f)/(f*(a + b*x))]*(3*d*(b*e - a*f)*AppellF1[7/6,
 2/3, 2, 13/6, (-(b*c) + a*d)/(d*(a + b*x)), (-(b*e) + a*f)/(f*(a
 + b*x))] + 2*(b*c - a*d)*f*AppellF1[7/6, 5/3, 1, 13/6, (-(b*c) +
 a*d)/(d*(a + b*x)), (-(b*e) + a*f)/(f*(a + b*x))]) - 7*(a + b*x)
*AppellF1[1/6, 2/3, 1, 7/6, (-(b*c) + a*d)/(d*(a + b*x)), (-(b*e)
 + a*f)/(f*(a + b*x))]*(13*d*f*(3*b^2*c*e - 3*a*d*f*(6*a + 7*b*x)
 + b*(a*(32*d*e - 17*c*f) + 7*b*(5*d*e - 2*c*f)*x))*AppellF1[7/6,
 2/3, 1, 13/6, (-(b*c) + a*d)/(d*(a + b*x)), (-(b*e) + a*f)/(f*(a
 + b*x))] - 14*(5*b*d*e - 2*b*c*f - 3*a*d*f)*(3*d*(b*e - a*f)*App
ellF1[13/6, 2/3, 2, 19/6, (-(b*c) + a*d)/(d*(a + b*x)), (-(b*e) +
 a*f)/(f*(a + b*x))] + 2*(b*c - a*d)*f*AppellF1[13/6, 5/3, 1, 19/
6, (-(b*c) + a*d)/(d*(a + b*x)), (-(b*e) + a*f)/(f*(a + b*x))])))
)/(b^2*(e + f*x)*(7*d*f*(a + b*x)*AppellF1[1/6, 2/3, 1, 7/6, (-(b
*c) + a*d)/(d*(a + b*x)), (-(b*e) + a*f)/(f*(a + b*x))] + (-6*b*d
*e + 6*a*d*f)*AppellF1[7/6, 2/3, 2, 13/6, (-(b*c) + a*d)/(d*(a +
b*x)), (-(b*e) + a*f)/(f*(a + b*x))] + 4*(-(b*c) + a*d)*f*AppellF
1[7/6, 5/3, 1, 13/6, (-(b*c) + a*d)/(d*(a + b*x)), (-(b*e) + a*f)
/(f*(a + b*x))])*(13*d*f*(a + b*x)*AppellF1[7/6, 2/3, 1, 13/6, (-
(b*c) + a*d)/(d*(a + b*x)), (-(b*e) + a*f)/(f*(a + b*x))] + (-6*b
*d*e + 6*a*d*f)*AppellF1[13/6, 2/3, 2, 19/6, (-(b*c) + a*d)/(d*(a
 + b*x)), (-(b*e) + a*f)/(f*(a + b*x))] + 4*(-(b*c) + a*d)*f*Appe
llF1[13/6, 5/3, 1, 19/6, (-(b*c) + a*d)/(d*(a + b*x)), (-(b*e) +
a*f)/(f*(a + b*x))]))))/(35*(c + d*x)^(2/3))
```

Maple [F] time = 0.095, size = 0, normalized size = 0.

$$\int \frac{1}{fx+e}\sqrt{bx+a}\,\sqrt[3]{dx+c}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/2)*(d*x+c)^(1/3)/(f*x+e),x)
```

```
[Out] int((b*x+a)^(1/2)*(d*x+c)^(1/3)/(f*x+e),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{bx+a}(dx+c)^{\frac{1}{3}}}{fx+e}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(b*x + a)*(d*x + c)^(1/3)/(f*x + e),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(b*x + a)*(d*x + c)^(1/3)/(f*x + e), x)
```

Fricas [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(b*x + a)*(d*x + c)^(1/3)/(f*x + e),x, algorithm="fricas")
```

```
[Out] Timed out
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{a+bx}\sqrt[3]{c+dx}}{e+fx}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(1/2)*(d*x+c)**(1/3)/(f*x+e),x)
```

```
[Out] Integral(sqrt(a + b*x)*(c + d*x)**(1/3)/(e + f*x), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt{bx+a}(dx+c)^{\frac{1}{3}}}{fx+e}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(1/3)/(f*x + e),x, algorithm="giac")
```

```
[Out] integrate(sqrt(b*x + a)*(d*x + c)^(1/3)/(f*x + e), x)
```

3.3149 $\int \frac{\sqrt[3]{a+bx}\sqrt{c+dx}}{e+fx}\,dx$

Optimal. Leaf size=100

$$\frac{3(a+bx)^{4/3}\sqrt{c+dx}F_1\left(\frac{4}{3};-\frac{1}{2},1;\frac{7}{3};-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{4(be-af)\sqrt{\frac{b(c+dx)}{bc-ad}}}$$

```
[Out] (3*(a + b*x)^(4/3)*Sqrt[c + d*x]*AppellF1[4/3, -1/2, 1, 7/3, -((d
*(a + b*x))/(b*c - a*d)), -((f*(a + b*x))/(b*e - a*f))])/(4*(b*e
- a*f)*Sqrt[(b*(c + d*x))/(b*c - a*d)])
```

Rubi [A] time = 0.240913, antiderivative size = 100, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 26, $\frac{\text{number of rules}}{\text{integrand size}} = 0.077$

$$\frac{3(a+bx)^{4/3}\sqrt{c+dx}F_1\left(\frac{4}{3};-\frac{1}{2},1;\frac{7}{3};-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{4(be-af)\sqrt{\frac{b(c+dx)}{bc-ad}}}$$

Antiderivative was successfully verified.

```
[In]  Int[((a + b*x)^(1/3)*Sqrt[c + d*x])/(e + f*x),x]
```


```
[Out] (3*(a + b*x)^(4/3)*Sqrt[c + d*x]*AppellF1[4/3, -1/2, 1, 7/3, -((d
*(a + b*x))/(b*c - a*d)), -((f*(a + b*x))/(b*e - a*f))])/(4*(b*e
- a*f)*Sqrt[(b*(c + d*x))/(b*c - a*d)])
```

Rubi in Sympy [A] time = 21.4789, size = 80, normalized size = 0.8

$$-\frac{3\left(a+bx\right)^{\frac{4}{3}}\sqrt{c+dx}\operatorname{appellf}_{1}\left(\frac{4}{3},-\frac{1}{2},1,\frac{7}{3},\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)}{4\sqrt{\frac{b(-c-dx)}{ad-bc}}\left(af-be\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/3)*(d*x+c)**(1/2)/(f*x+e),x)
```

```
[Out] -3*(a + b*x)**(4/3)*sqrt(c + d*x)*appellf1(4/3, -1/2, 1, 7/3, d*(
a + b*x)/(a*d - b*c), f*(a + b*x)/(a*f - b*e))/(4*sqrt(b*(-c - d*
x)/(a*d - b*c))*(a*f - b*e))
```

Mathematica [B] time = 3.03309, size = 895, normalized size = 8.95

$$6\sqrt{c+dx}\left(\frac{7(a+bx)}{f}+\frac{b(c+dx)\left(-78(bc-ad)(de-cf)F_1\left(\frac{7}{6};\frac{2}{3},1;\frac{13}{6};\frac{bc-ad}{bc+bdx},\frac{cf-de}{f(c+dx)}\right)\left(b(3cf-3de)F_1\left(\frac{7}{6};\frac{2}{3},2;\frac{13}{6};\frac{bc-ad}{bc+bdx},\frac{cf-de}{f(c+dx)}\right)+2(bc-ad)fF_1\left(\frac{7}{6};\frac{5}{3},1;\frac{13}{6};\frac{b\cdots}{bc\cdots}\right.\right.\right.}{d^2(e+fx)\left(7bf(c+dx)F_1\left(\frac{1}{6};\frac{2}{3},1;\frac{7}{6};\frac{bc-ad}{bc+bdx},\frac{cf-de}{f(c+dx)}\right)+b(6cf-6de)F_1\cdots\right.}\right.$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[((a + b*x)^(1/3)*Sqrt[c + d*x])/(e + f*x),x]
```

```
[Out] (6*Sqrt[c + d*x]*((7*(a + b*x))/f + (b*(c + d*x)*(-78*(b*c - a*d)
*(d*e - c*f)*AppellF1[7/6, 2/3, 1, 13/6, (b*c - a*d)/(b*c + b*d*x
), (-(d*e) + c*f)/(f*(c + d*x))]*(b*(-3*d*e + 3*c*f)*AppellF1[7/6
```

```
, 2/3, 2, 13/6, (b*c - a*d)/(b*c + b*d*x), (-(d*e) + c*f)/(f*(c +
 d*x))] + 2*(b*c - a*d)*f*AppellF1[7/6, 5/3, 1, 13/6, (b*c - a*d)
/(b*c + b*d*x), (-(d*e) + c*f)/(f*(c + d*x))]) - 7*(c + d*x)*Appe
llF1[1/6, 2/3, 1, 7/6, (b*c - a*d)/(b*c + b*d*x), (-(d*e) + c*f)/
(f*(c + d*x))]*(13*b*f*(a*d*(-3*d*e + 17*c*f + 14*d*f*x) + b*(-32
*c*d*e + 18*c^2*f - 35*d^2*e*x + 21*c*d*f*x))*AppellF1[7/6, 2/3,
1, 13/6, (b*c - a*d)/(b*c + b*d*x), (-(d*e) + c*f)/(f*(c + d*x))]
 + 14*(5*b*d*e - 3*b*c*f - 2*a*d*f)*(3*b*(d*e - c*f)*AppellF1[13/
6, 2/3, 2, 19/6, (b*c - a*d)/(b*c + b*d*x), (-(d*e) + c*f)/(f*(c
+ d*x))] + 2*(-(b*c) + a*d)*f*AppellF1[13/6, 5/3, 1, 19/6, (b*c -
 a*d)/(b*c + b*d*x), (-(d*e) + c*f)/(f*(c + d*x))]))))/(d^2*(e +
f*x)*(7*b*f*(c + d*x)*AppellF1[1/6, 2/3, 1, 7/6, (b*c - a*d)/(b*c
 + b*d*x), (-(d*e) + c*f)/(f*(c + d*x))] + b*(-6*d*e + 6*c*f)*App
ellF1[7/6, 2/3, 2, 13/6, (b*c - a*d)/(b*c + b*d*x), (-(d*e) + c*f
)/(f*(c + d*x))] + 4*(b*c - a*d)*f*AppellF1[7/6, 5/3, 1, 13/6, (b
*c - a*d)/(b*c + b*d*x), (-(d*e) + c*f)/(f*(c + d*x))])*(13*b*f*(
c + d*x)*AppellF1[7/6, 2/3, 1, 13/6, (b*c - a*d)/(b*c + b*d*x), (
-(d*e) + c*f)/(f*(c + d*x))] + b*(-6*d*e + 6*c*f)*AppellF1[13/6,
2/3, 2, 19/6, (b*c - a*d)/(b*c + b*d*x), (-(d*e) + c*f)/(f*(c + d
*x))] + 4*(b*c - a*d)*f*AppellF1[13/6, 5/3, 1, 19/6, (b*c - a*d)/
(b*c + b*d*x), (-(d*e) + c*f)/(f*(c + d*x))])))/(35*(a + b*x)^(2
/3))
```

Maple [F] time = 0.082, size = 0, normalized size = 0.

$$\int \frac{1}{fx+e}\sqrt[3]{bx+a}\sqrt{dx+c}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/3)*(d*x+c)^(1/2)/(f*x+e),x)

[Out] int((b*x+a)^(1/3)*(d*x+c)^(1/2)/(f*x+e),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^{\frac{1}{3}}\sqrt{dx+c}}{fx+e}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(1/3)*sqrt(d*x + c)/(f*x + e),x, algorithm="maxima")

[Out] integrate((b*x + a)^(1/3)*sqrt(d*x + c)/(f*x + e), x)
```

Fricas [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(1/3)*sqrt(d*x + c)/(f*x + e),x, algorithm="fricas")

[Out] Timed out
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{\sqrt[3]{a+bx}\sqrt{c+dx}}{e+fx}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**(1/3)*(d*x+c)**(1/2)/(f*x+e),x)
```

```
[Out] Integral((a + b*x)**(1/3)*sqrt(c + d*x)/(e + f*x), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^{\frac{1}{3}}\sqrt{dx+c}}{fx+e}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(1/3)*sqrt(d*x + c)/(f*x + e),x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^(1/3)*sqrt(d*x + c)/(f*x + e), x)
```

3.3150 $\int \sqrt{a+bx}\sqrt[3]{c+dx}\sqrt[4]{e+fx}\,dx$

Optimal. Leaf size=125

$$\frac{2(a+bx)^{3/2}\sqrt[3]{c+dx}\sqrt[4]{e+fx}F_1\left(\frac{3}{2};-\frac{1}{3},-\frac{1}{4};\frac{5}{2};-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{3b\sqrt[3]{\frac{b(c+dx)}{bc-ad}}\sqrt[4]{\frac{b(e+fx)}{be-af}}}$$

```
[Out] (2*(a + b*x)^(3/2)*(c + d*x)^(1/3)*(e + f*x)^(1/4)*AppellF1[3/2,
-1/3, -1/4, 5/2, -((d*(a + b*x))/(b*c - a*d)), -((f*(a + b*x))/(b
*e - a*f))])/(3*b*((b*(c + d*x))/(b*c - a*d))^(1/3)*((b*(e + f*x)
)/(b*e - a*f))^(1/4))
```

Rubi [A] time = 0.487757, antiderivative size = 125, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}} = 0.107$

$$\frac{2(a+bx)^{3/2}\sqrt[3]{c+dx}\sqrt[4]{e+fx}F_1\left(\frac{3}{2};-\frac{1}{3},-\frac{1}{4};\frac{5}{2};-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{3b\sqrt[3]{\frac{b(c+dx)}{bc-ad}}\sqrt[4]{\frac{b(e+fx)}{be-af}}}$$

Antiderivative was successfully verified.

```
[In]  Int[Sqrt[a + b*x]*(c + d*x)^(1/3)*(e + f*x)^(1/4),x]
```

```
[Out] (2*(a + b*x)^(3/2)*(c + d*x)^(1/3)*(e + f*x)^(1/4)*AppellF1[3/2,
-1/3, -1/4, 5/2, -((d*(a + b*x))/(b*c - a*d)), -((f*(a + b*x))/(b
*e - a*f))])/(3*b*((b*(c + d*x))/(b*c - a*d))^(1/3)*((b*(e + f*x)
)/(b*e - a*f))^(1/4))
```

Rubi in Sympy [A] time = 63.3689, size = 104, normalized size = 0.83

$$\frac{2\left(a+bx\right)^{\frac{3}{2}}\sqrt[3]{c+dx}\sqrt[4]{e+fx}\,\mathrm{appellf}_1\left(\frac{3}{2},-\frac{1}{3},-\frac{1}{4},\frac{5}{2},\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)}{3b\sqrt[3]{\frac{b\left(-c-dx\right)}{ad-bc}}\sqrt[4]{\frac{b\left(-e-fx\right)}{af-be}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/2)*(d*x+c)**(1/3)*(f*x+e)**(1/4),x)
```

```
[Out] 2*(a + b*x)**(3/2)*(c + d*x)**(1/3)*(e + f*x)**(1/4)*appellf1(3/2
, -1/3, -1/4, 5/2, d*(a + b*x)/(a*d - b*c), f*(a + b*x)/(a*f - b*
e))/(3*b*(b*(-c - d*x)/(a*d - b*c))**(1/3)*(b*(-e - f*x)/(a*f - b
*e))**(1/4))
```

Mathematica [B] time = 13.8262, size = 1077, normalized size = 8.62

$$\left(\frac{12(3bde+4bcf+6adf)}{325bdf}+\frac{12x}{25}\right)\sqrt{a+bx}\sqrt[3]{c+dx}\sqrt[4]{e+fx}$$

$$-\frac{72(a+bx)^{3/2}\left(\frac{1058\left(\left(5d^3e^3+5cd^2fe^2+2c^2df^2e+9c^3f^3\right)b^3-adf\left(20d^2e^2+14cdfe+29c^2f^2\right)b^2+9a^2d^2f^2(3de+4cf)b-21a^3d^3f^3\right)F_1\left(\frac{11}{12};\frac{2}{3},\frac{3}{4};\frac{23}{12};\frac{ad-bc}{d(a+bx)},\frac{af}{f(a}\right.}{(a+bx)\left(\frac{9d(be-af)F_1\left(\frac{23}{12};\frac{2}{3},\frac{7}{4};\frac{35}{12};\frac{ad-bc}{d(a+bx)},\frac{af-be}{f(a+bx)}\right)+8(bc-ad)fF_1\left(\frac{23}{12};\frac{5}{3},\frac{3}{4};\frac{35}{12};\frac{ad-bc}{d(a+bx)},\frac{af-be}{f(a+bx)}\right)}{a+bx}-23dfF_1\left(\frac{11}{12};\frac{2}{3},\frac{3}{4};\frac{23}{12};\frac{ad-bc}{d(a+bx)},\frac{af-be}{f(a+bx)}\right)\right)}\right.}{}$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[Sqrt[a + b*x]*(c + d*x)^(1/3)*(e + f*x)^(1/4),x]
```

```
[Out] ((12*(3*b*d*e + 4*b*c*f + 6*a*d*f))/(325*b*d*f) + (12*x)/25)*Sqrt
[a + b*x]*(c + d*x)^(1/3)*(e + f*x)^(1/4) - (72*(a + b*x)^(3/2)*(
(1058*(-21*a^3*d^3*f^3 + 9*a^2*b*d^2*f^2*(3*d*e + 4*c*f) - a*b^2*
d*f*(20*d^2*e^2 + 14*c*d*e*f + 29*c^2*f^2) + b^3*(5*d^3*e^3 + 5*c
*d^2*e^2*f + 2*c^2*d*e*f^2 + 9*c^3*f^3))*AppellF1[11/12, 2/3, 3/4
, 23/12, (-(b*c) + a*d)/(d*(a + b*x)), (-(b*e) + a*f)/(f*(a + b*x
))])/((a + b*x)*(-23*d*f*AppellF1[11/12, 2/3, 3/4, 23/12, (-(b*c)
 + a*d)/(d*(a + b*x)), (-(b*e) + a*f)/(f*(a + b*x))] + (9*d*(b*e
- a*f)*AppellF1[23/12, 2/3, 7/4, 35/12, (-(b*c) + a*d)/(d*(a + b*
x)), (-(b*e) + a*f)/(f*(a + b*x))] + 8*(b*c - a*d)*f*AppellF1[23/
12, 5/3, 3/4, 35/12, (-(b*c) + a*d)/(d*(a + b*x)), (-(b*e) + a*f)
/(f*(a + b*x))])/(a + b*x))) + (11*(7*a^2*d^2*f^2 - 2*a*b*d*f*(3*
d*e + 4*c*f) + b^2*(5*d^2*e^2 - 4*c*d*e*f + 6*c^2*f^2))*(35*d*f*(
(b*c*((17*b*e)/(a + b*x) + f*(23 - (17*a)/(a + b*x))))/(a + b*x)
+ d*(f*(23 + (17*a^2)/(a + b*x)^2 - (46*a)/(a + b*x)) + (b*e*(23
- (17*a)/(a + b*x)))/(a + b*x)))*AppellF1[23/12, 2/3, 3/4, 35/12,
 (-(b*c) + a*d)/(d*(a + b*x)), (-(b*e) + a*f)/(f*(a + b*x))] - (2
3*(d + (b*c)/(a + b*x) - (a*d)/(a + b*x))*(f + (b*e)/(a + b*x) -
(a*f)/(a + b*x))*(9*d*(b*e - a*f)*AppellF1[35/12, 2/3, 7/4, 47/12
, (-(b*c) + a*d)/(d*(a + b*x)), (-(b*e) + a*f)/(f*(a + b*x))] + 8
*(b*c - a*d)*f*AppellF1[35/12, 5/3, 3/4, 47/12, (-(b*c) + a*d)/(d
*(a + b*x)), (-(b*e) + a*f)/(f*(a + b*x))]))/(a + b*x)))/(d*f*(35
*d*f*AppellF1[23/12, 2/3, 3/4, 35/12, (-(b*c) + a*d)/(d*(a + b*x)
), (-(b*e) + a*f)/(f*(a + b*x))] + ((-9*b*d*e + 9*a*d*f)*AppellF1
[35/12, 2/3, 7/4, 47/12, (-(b*c) + a*d)/(d*(a + b*x)), (-(b*e) +
a*f)/(f*(a + b*x))] + 8*(-(b*c) + a*d)*f*AppellF1[35/12, 5/3, 3/4
, 47/12, (-(b*c) + a*d)/(d*(a + b*x)), (-(b*e) + a*f)/(f*(a + b*x
))])/(a + b*x)))))/(82225*b^3*d*f*(c + ((a + b*x)*(d - (a*d)/(a +
 b*x)))/b)^(2/3)*(e + ((a + b*x)*(f - (a*f)/(a + b*x)))/b)^(3/4))
```

Maple [F] time = 0.145, size = 0, normalized size = 0.

$$\int \sqrt{bx+a}\,\sqrt[3]{dx+c}\,\sqrt[4]{fx+e}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/2)*(d*x+c)^(1/3)*(f*x+e)^(1/4),x)
```

```
[Out] int((b*x+a)^(1/2)*(d*x+c)^(1/3)*(f*x+e)^(1/4),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \sqrt{bx+a}(dx+c)^{\frac{1}{3}}(fx+e)^{\frac{1}{4}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(sqrt(b*x + a)*(d*x + c)^(1/3)*(f*x + e)^(1/4),x, algorithm="maxima")
```

```
[Out] integrate(sqrt(b*x + a)*(d*x + c)^(1/3)*(f*x + e)^(1/4), x)
```

Fricas [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(b*x + a)*(d*x + c)^(1/3)*(f*x + e)^(1/4),x, algorithm="fricas")
```

```
[Out] Timed out
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**(1/2)*(d*x+c)**(1/3)*(f*x+e)**(1/4),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \sqrt{bx+a}(dx+c)^{\frac{1}{3}}(fx+e)^{\frac{1}{4}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(sqrt(b*x + a)*(d*x + c)^(1/3)*(f*x + e)^(1/4),x, algorithm="giac")
```

```
[Out] integrate(sqrt(b*x + a)*(d*x + c)^(1/3)*(f*x + e)^(1/4), x)
```

3.3151 $\int \sqrt[3]{a+bx}\sqrt{c+dx}\sqrt[4]{e+fx}\,dx$

Optimal. Leaf size=125

$$\frac{3(a+bx)^{4/3}\sqrt{c+dx}\sqrt[4]{e+fx}F_1\left(\frac{4}{3};-\frac{1}{2},-\frac{1}{4};\frac{7}{3};-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{4b\sqrt{\frac{b(c+dx)}{bc-ad}}\sqrt[4]{\frac{b(e+fx)}{be-af}}}$$

```
[Out] (3*(a + b*x)^(4/3)*Sqrt[c + d*x]*(e + f*x)^(1/4)*AppellF1[4/3, -1
/2, -1/4, 7/3, -((d*(a + b*x))/(b*c - a*d)), -((f*(a + b*x))/(b*e
 - a*f))])/(4*b*Sqrt[(b*(c + d*x))/(b*c - a*d)]*((b*(e + f*x))/(b
*e - a*f))^(1/4))
```

Rubi [A] time = 0.500113, antiderivative size = 125, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 3, integrand size = 28, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.107

$$\frac{3(a+bx)^{4/3}\sqrt{c+dx}\sqrt[4]{e+fx}F_1\left(\frac{4}{3};-\frac{1}{2},-\frac{1}{4};\frac{7}{3};-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right)}{4b\sqrt{\frac{b(c+dx)}{bc-ad}}\sqrt[4]{\frac{b(e+fx)}{be-af}}}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^(1/3)*Sqrt[c + d*x]*(e + f*x)^(1/4),x]
```

```
[Out] (3*(a + b*x)^(4/3)*Sqrt[c + d*x]*(e + f*x)^(1/4)*AppellF1[4/3, -1
/2, -1/4, 7/3, -((d*(a + b*x))/(b*c - a*d)), -((f*(a + b*x))/(b*e
 - a*f))])/(4*b*Sqrt[(b*(c + d*x))/(b*c - a*d)]*((b*(e + f*x))/(b
*e - a*f))^(1/4))
```

Rubi in Sympy [A] time = 63.5351, size = 104, normalized size = 0.83

$$\frac{3\left(a+bx\right)^{\frac{4}{3}}\sqrt{c+dx}\sqrt[4]{e+fx}\,\mathrm{appellf}_1\left(\frac{4}{3},-\frac{1}{2},-\frac{1}{4},\frac{7}{3},\frac{d(a+bx)}{ad-bc},\frac{f(a+bx)}{af-be}\right)}{4b\sqrt{\frac{b(-c-dx)}{ad-bc}}\sqrt[4]{\frac{b\left(-e-fx\right)}{af-be}}}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**(1/3)*(d*x+c)**(1/2)*(f*x+e)**(1/4),x)
```

```
[Out] 3*(a + b*x)**(4/3)*sqrt(c + d*x)*(e + f*x)**(1/4)*appellf1(4/3, -
1/2, -1/4, 7/3, d*(a + b*x)/(a*d - b*c), f*(a + b*x)/(a*f - b*e))
/(4*b*sqrt(b*(-c - d*x)/(a*d - b*c))*(b*(-e - f*x)/(a*f - b*e))**
(1/4))
```

Mathematica [B] time = 9.86585, size = 1078, normalized size = 8.62

$$\sqrt{c+dx}\left(\frac{132(a+bx)(e+fx)(4adf+b(3de+6cf+13dfx))}{bdf}-\frac{72(c+dx)\left(-23(bc-ad)(de-cf)(3bde-7bcf+4adf)F_1\left(\frac{11}{12};\frac{2}{3},\frac{3}{4};\frac{23}{12};\frac{bc-ad}{bc+bdx},\frac{cf-de}{f(c+dx)}\right)\left(9b(de-cf)F\right.}{}\right.$$

Warning: Unable to verify antiderivative.

```
[In]  Integrate[(a + b*x)^(1/3)*Sqrt[c + d*x]*(e + f*x)^(1/4),x]
```

```
[Out] (Sqrt[c + d*x]*((132*(a + b*x)*(e + f*x)*(4*a*d*f + b*(3*d*e + 6*
c*f + 13*d*f*x)))/(b*d*f) - (72*(c + d*x)*(-23*(b*c - a*d)*(d*e -
 c*f)*(3*b*d*e - 7*b*c*f + 4*a*d*f)*AppellF1[11/12, 2/3, 3/4, 23/
12, (b*c - a*d)/(b*c + b*d*x), (-(d*e) + c*f)/(f*(c + d*x))]*(9*b
*(d*e - c*f)*AppellF1[11/12, 2/3, 7/4, 23/12, (b*c - a*d)/(b*c +
b*d*x), (-(d*e) + c*f)/(f*(c + d*x))] + 8*(-(b*c) + a*d)*f*Appell
F1[11/12, 5/3, 3/4, 23/12, (b*c - a*d)/(b*c + b*d*x), (-(d*e) + c
*f)/(f*(c + d*x))]) - 11*(c + d*x)*AppellF1[-1/12, 2/3, 3/4, 11/1
2, (b*c - a*d)/(b*c + b*d*x), (-(d*e) + c*f)/(f*(c + d*x))]*(23*b
*f*(-2*a^2*d^2*f*(-2*d*e + 35*c*f + 33*d*f*x) - b^2*(7*c^2*f^2*(1
2*c + 11*d*x) - 2*c*d*e*f*(38*c + 33*d*x) + d^2*e^2*(58*c + 55*d*
x)) + a*b*d*(99*c^2*f^2 + d^2*e*(3*e + 44*f*x) + 2*c*d*f*(15*e +
44*f*x)))*AppellF1[11/12, 2/3, 3/4, 23/12, (b*c - a*d)/(b*c + b*d
*x), (-(d*e) + c*f)/(f*(c + d*x))] + 11*(6*a^2*d^2*f^2 - 4*a*b*d*
f*(d*e + 2*c*f) + b^2*(5*d^2*e^2 - 6*c*d*e*f + 7*c^2*f^2))*(9*b*(
d*e - c*f)*AppellF1[23/12, 2/3, 7/4, 35/12, (b*c - a*d)/(b*c + b*
d*x), (-(d*e) + c*f)/(f*(c + d*x))] + 8*(-(b*c) + a*d)*f*AppellF1
[23/12, 5/3, 3/4, 35/12, (b*c - a*d)/(b*c + b*d*x), (-(d*e) + c*f
)/(f*(c + d*x))]))))/(d^3*(11*b*f*(c + d*x)*AppellF1[-1/12, 2/3,
3/4, 11/12, (b*c - a*d)/(b*c + b*d*x), (-(d*e) + c*f)/(f*(c + d*x
))] + b*(-9*d*e + 9*c*f)*AppellF1[11/12, 2/3, 7/4, 23/12, (b*c -
a*d)/(b*c + b*d*x), (-(d*e) + c*f)/(f*(c + d*x))] + 8*(b*c - a*d)
*f*AppellF1[11/12, 5/3, 3/4, 23/12, (b*c - a*d)/(b*c + b*d*x), (-
(d*e) + c*f)/(f*(c + d*x))])*(23*b*f*(c + d*x)*AppellF1[11/12, 2/
3, 3/4, 23/12, (b*c - a*d)/(b*c + b*d*x), (-(d*e) + c*f)/(f*(c +
d*x))] + b*(-9*d*e + 9*c*f)*AppellF1[23/12, 2/3, 7/4, 35/12, (b*c
 - a*d)/(b*c + b*d*x), (-(d*e) + c*f)/(f*(c + d*x))] + 8*(b*c - a
*d)*f*AppellF1[23/12, 5/3, 3/4, 35/12, (b*c - a*d)/(b*c + b*d*x),
 (-(d*e) + c*f)/(f*(c + d*x))]))))/(3575*(a + b*x)^(2/3)*(e + f*x
)^(3/4))
```

Maple [F] time = 0.139, size = 0, normalized size = 0.

$$\int \sqrt[3]{bx+a}\sqrt{dx+c}\sqrt[4]{fx+e}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^(1/3)*(d*x+c)^(1/2)*(f*x+e)^(1/4),x)
```

```
[Out] int((b*x+a)^(1/3)*(d*x+c)^(1/2)*(f*x+e)^(1/4),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int (bx+a)^{\frac{1}{3}}\sqrt{dx+c}(fx+e)^{\frac{1}{4}}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(1/3)*sqrt(d*x + c)*(f*x + e)^(1/4),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^(1/3)*sqrt(d*x + c)*(f*x + e)^(1/4), x)
```

Fricas [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^(1/3)*sqrt(d*x + c)*(f*x + e)^(1/4),x, algorithm="fricas")
```

```
[Out] Timed out
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x+a)**(1/3)*(d*x+c)**(1/2)*(f*x+e)**(1/4),x)
```

```
[Out] Timed out
```

GIAC/XCAS [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((b*x + a)^(1/3)*sqrt(d*x + c)*(f*x + e)^(1/4),x, algorithm="giac")
```

```
[Out] Timed out
```

3.3152 $\int (a+bx)^4(A+Bx)(d+ex)^m\,dx$

Optimal. Leaf size=234

$$-\frac{b^3(d+ex)^{m+5}(-4aBe-Abe+5bBd)}{e^6(m+5)}+\frac{2b^2(bd-ae)(d+ex)^{m+4}(-3aBe-2Abe+5bBd)}{e^6(m+4)}-\frac{(bd-ae)^4(Bd-Ae)(d+ex)^{m+1}}{e^6(m+1)}+\frac{(bd-ae)^3(d+ex)^{m+2}(-aBe-4Abe+5bBd)}{e^6(m+2)}-\frac{2b(bd-ae)^2(d+ex)^{m+3}(-2aBe-3Abe+5bBd)}{e^6(m+3)}+\frac{b^4B(d+ex)^{m+6}}{e^6(m+6)}$$

```
[Out] -(((b*d - a*e)^4*(B*d - A*e)*(d + e*x)^(1 + m))/(e^6*(1 + m))) +
((b*d - a*e)^3*(5*b*B*d - 4*A*b*e - a*B*e)*(d + e*x)^(2 + m))/(e^
6*(2 + m)) - (2*b*(b*d - a*e)^2*(5*b*B*d - 3*A*b*e - 2*a*B*e)*(d
+ e*x)^(3 + m))/(e^6*(3 + m)) + (2*b^2*(b*d - a*e)*(5*b*B*d - 2*A
*b*e - 3*a*B*e)*(d + e*x)^(4 + m))/(e^6*(4 + m)) - (b^3*(5*b*B*d
- A*b*e - 4*a*B*e)*(d + e*x)^(5 + m))/(e^6*(5 + m)) + (b^4*B*(d +
 e*x)^(6 + m))/(e^6*(6 + m))
```

Rubi [A] time = 0.461223, antiderivative size = 234, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{b^3(d+ex)^{m+5}(-4aBe-Abe+5bBd)}{e^6(m+5)}+\frac{2b^2(bd-ae)(d+ex)^{m+4}(-3aBe-2Abe+5bBd)}{e^6(m+4)}-\frac{(bd-ae)^4(Bd-Ae)(d+ex)^{m+1}}{e^6(m+1)}+\frac{(bd-ae)^3(d+ex)^{m+2}(-aBe-4Abe+5bBd)}{e^6(m+2)}-\frac{2b(bd-ae)^2(d+ex)^{m+3}(-2aBe-3Abe+5bBd)}{e^6(m+3)}+\frac{b^4B(d+ex)^{m+6}}{e^6(m+6)}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^4*(A + B*x)*(d + e*x)^m,x]
```

```
[Out] -(((b*d - a*e)^4*(B*d - A*e)*(d + e*x)^(1 + m))/(e^6*(1 + m))) +
((b*d - a*e)^3*(5*b*B*d - 4*A*b*e - a*B*e)*(d + e*x)^(2 + m))/(e^
6*(2 + m)) - (2*b*(b*d - a*e)^2*(5*b*B*d - 3*A*b*e - 2*a*B*e)*(d
+ e*x)^(3 + m))/(e^6*(3 + m)) + (2*b^2*(b*d - a*e)*(5*b*B*d - 2*A
*b*e - 3*a*B*e)*(d + e*x)^(4 + m))/(e^6*(4 + m)) - (b^3*(5*b*B*d
- A*b*e - 4*a*B*e)*(d + e*x)^(5 + m))/(e^6*(5 + m)) + (b^4*B*(d +
 e*x)^(6 + m))/(e^6*(6 + m))
```

Rubi in Sympy [A] time = 86.8218, size = 224, normalized size = 0.96

$$\frac{Bb^4\left(d+ex\right)^{m+6}}{e^6\left(m+6\right)}+\frac{b^3\left(d+ex\right)^{m+5}\left(Abe+4Bae-5Bbd\right)}{e^6\left(m+5\right)}+\frac{2b^2\left(d+ex\right)^{m+4}\left(ae-bd\right)\left(2Abe+3Bae-5Bbd\right)}{e^6\left(m+4\right)}+\frac{2b\left(d+ex\right)^{m+3}\left(ae-bd\right)^2\left(3Abe+2Bae-5Bbd\right)}{e^6\left(m+3\right)}+\frac{\left(d+ex\right)^{m+1}\left(Ae-Bd\right)\left(ae-bd\right)^4}{e^6\left(m+1\right)}+\frac{\left(d+ex\right)^{m+2}\left(ae-bd\right)^3\left(4Abe+Bae-5Bbd\right)}{e^6\left(m+2\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**4*(B*x+A)*(e*x+d)**m,x)
```

```
[Out] B*b**4*(d + e*x)**(m + 6)/(e**6*(m + 6)) + b**3*(d + e*x)**(m + 5
)*(A*b*e + 4*B*a*e - 5*B*b*d)/(e**6*(m + 5)) + 2*b**2*(d + e*x)**
(m + 4)*(a*e - b*d)*(2*A*b*e + 3*B*a*e - 5*B*b*d)/(e**6*(m + 4))
```

```
+ 2*b*(d + e*x)**(m + 3)*(a*e - b*d)**2*(3*A*b*e + 2*B*a*e - 5*B*
b*d)/(e**6*(m + 3)) + (d + e*x)**(m + 1)*(A*e - B*d)*(a*e - b*d)*
*4/(e**6*(m + 1)) + (d + e*x)**(m + 2)*(a*e - b*d)**3*(4*A*b*e +
B*a*e - 5*B*b*d)/(e**6*(m + 2))
```

Mathematica [B] time = 1.3319, size = 635, normalized size = 2.71

$$(d+ex)^{m+1}\left(a^4e^4\left(m^4+18m^3+119m^2+342m+360\right)(Ae(m+2)-Bd+Be(m+1)x)+4a^3be^3\left(m^3+15m^2+74m+120\right)(\ldots$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^4*(A + B*x)*(d + e*x)^m,x]
```

```
[Out] ((d + e*x)^(1 + m)*(a^4*e^4*(360 + 342*m + 119*m^2 + 18*m^3 + m^4
)*(-(B*d) + A*e*(2 + m) + B*e*(1 + m)*x) + 4*a^3*b*e^3*(120 + 74*
m + 15*m^2 + m^3)*(A*e*(3 + m)*(-d + e*(1 + m)*x) + B*(2*d^2 - 2*
d*e*(1 + m)*x + e^2*(2 + 3*m + m^2)*x^2)) + 6*a^2*b^2*e^2*(30 + 1
1*m + m^2)*(A*e*(4 + m)*(2*d^2 - 2*d*e*(1 + m)*x + e^2*(2 + 3*m +
 m^2)*x^2) + B*(-6*d^3 + 6*d^2*e*(1 + m)*x - 3*d*e^2*(2 + 3*m + m
^2)*x^2 + e^3*(6 + 11*m + 6*m^2 + m^3)*x^3)) + 4*a*b^3*e*(6 + m)*
(A*e*(5 + m)*(-6*d^3 + 6*d^2*e*(1 + m)*x - 3*d*e^2*(2 + 3*m + m^2
)*x^2 + e^3*(6 + 11*m + 6*m^2 + m^3)*x^3) + B*(24*d^4 - 24*d^3*e*
(1 + m)*x + 12*d^2*e^2*(2 + 3*m + m^2)*x^2 - 4*d*e^3*(6 + 11*m +
6*m^2 + m^3)*x^3 + e^4*(24 + 50*m + 35*m^2 + 10*m^3 + m^4)*x^4))
- b^4*(-(A*e*(6 + m)*(24*d^4 - 24*d^3*e*(1 + m)*x + 12*d^2*e^2*(2
 + 3*m + m^2)*x^2 - 4*d*e^3*(6 + 11*m + 6*m^2 + m^3)*x^3 + e^4*(2
4 + 50*m + 35*m^2 + 10*m^3 + m^4)*x^4)) + B*(120*d^5 - 120*d^4*e*
(1 + m)*x + 60*d^3*e^2*(2 + 3*m + m^2)*x^2 - 20*d^2*e^3*(6 + 11*m
 + 6*m^2 + m^3)*x^3 + 5*d*e^4*(24 + 50*m + 35*m^2 + 10*m^3 + m^4)
*x^4 - e^5*(120 + 274*m + 225*m^2 + 85*m^3 + 15*m^4 + m^5)*x^5)))
)/(e^6*(1 + m)*(2 + m)*(3 + m)*(4 + m)*(5 + m)*(6 + m))
```

Maple [B] time = 0.019, size = 2355, normalized size = 10.1

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^4*(B*x+A)*(e*x+d)^m,x)
```

```
[Out] (e*x+d)^(1+m)*(B*b^4*e^5*m^5*x^5+A*b^4*e^5*m^5*x^4+4*B*a*b^3*e^5*
m^5*x^4+15*B*b^4*e^5*m^4*x^5+4*A*a*b^3*e^5*m^5*x^3+16*A*b^4*e^5*m
^4*x^4+6*B*a^2*b^2*e^5*m^5*x^3+64*B*a*b^3*e^5*m^4*x^4-5*B*b^4*d*e
^4*m^4*x^4+85*B*b^4*e^5*m^3*x^5+6*A*a^2*b^2*e^5*m^5*x^2+68*A*a*b^
3*e^5*m^4*x^3-4*A*b^4*d*e^4*m^4*x^3+95*A*b^4*e^5*m^3*x^4+4*B*a^3*
b*e^5*m^5*x^2+102*B*a^2*b^2*e^5*m^4*x^3-16*B*a*b^3*d*e^4*m^4*x^3+
380*B*a*b^3*e^5*m^3*x^4-50*B*b^4*d*e^4*m^3*x^4+225*B*b^4*e^5*m^2*
x^5+4*A*a^3*b*e^5*m^5*x+108*A*a^2*b^2*e^5*m^4*x^2-12*A*a*b^3*d*e^
4*m^4*x^2+428*A*a*b^3*e^5*m^3*x^3-48*A*b^4*d*e^4*m^3*x^3+260*A*b^
4*e^5*m^2*x^4+B*a^4*e^5*m^5*x+72*B*a^3*b*e^5*m^4*x^2-18*B*a^2*b^2
*d*e^4*m^4*x^2+642*B*a^2*b^2*e^5*m^3*x^3-192*B*a*b^3*d*e^4*m^3*x^
3+1040*B*a*b^3*e^5*m^2*x^4+20*B*b^4*d^2*e^3*m^3*x^3-175*B*b^4*d*e
^4*m^2*x^4+274*B*b^4*e^5*m*x^5+A*a^4*e^5*m^5+76*A*a^3*b*e^5*m^4*x
-12*A*a^2*b^2*d*e^4*m^4*x+726*A*a^2*b^2*e^5*m^3*x^2-168*A*a*b^3*d
*e^4*m^3*x^2+1228*A*a*b^3*e^5*m^2*x^3+12*A*b^4*d^2*e^3*m^3*x^2-18
8*A*b^4*d*e^4*m^2*x^3+324*A*b^4*e^5*m*x^4+19*B*a^4*e^5*m^4*x-8*B*
a^3*b*d*e^4*m^4*x+484*B*a^3*b*e^5*m^3*x^2-252*B*a^2*b^2*d*e^4*m^3
*x^2+1842*B*a^2*b^2*e^5*m^2*x^3+48*B*a*b^3*d^2*e^3*m^3*x^2-752*B*
a*b^3*d*e^4*m^2*x^3+1296*B*a*b^3*e^5*m*x^4+120*B*b^4*d^2*e^3*m^2*
x^3-250*B*b^4*d*e^4*m*x^4+120*B*b^4*e^5*x^5+20*A*a^4*e^5*m^4-4*A*
a^3*b*d*e^4*m^4+548*A*a^3*b*e^5*m^3*x-192*A*a^2*b^2*d*e^4*m^3*x+2
232*A*a^2*b^2*e^5*m^2*x^2+24*A*a*b^3*d^2*e^3*m^3*x-780*A*a*b^3*d*
e^4*m^2*x^2+1584*A*a*b^3*e^5*m*x^3+108*A*b^4*d^2*e^3*m^2*x^2-288*
A*b^4*d*e^4*m*x^3+144*A*b^4*e^5*x^4-B*a^4*d*e^4*m^4+137*B*a^4*e^5
```

```
*m^3*x-128*B*a^3*b*d*e^4*m^3*x+1488*B*a^3*b*e^5*m^2*x^2+36*B*a^2*
b^2*d^2*e^3*m^3*x-1170*B*a^2*b^2*d*e^4*m^2*x^2+2376*B*a^2*b^2*e^5
*m*x^3+432*B*a*b^3*d^2*e^3*m^2*x^2-1152*B*a*b^3*d*e^4*m*x^3+576*B
*a*b^3*e^5*x^4-60*B*b^4*d^3*e^2*m^2*x^2+220*B*b^4*d^2*e^3*m*x^3-1
20*B*b^4*d*e^4*x^4+155*A*a^4*e^5*m^3-72*A*a^3*b*d*e^4*m^3+1844*A*
a^3*b*e^5*m^2*x+12*A*a^2*b^2*d^2*e^3*m^3-1068*A*a^2*b^2*d*e^4*m^2
*x+3048*A*a^2*b^2*e^5*m*x^2+288*A*a*b^3*d^2*e^3*m^2*x-1344*A*a*b^
3*d*e^4*m*x^2+720*A*a*b^3*e^5*x^3-24*A*b^4*d^3*e^2*m^2*x+240*A*b^
4*d^2*e^3*m*x^2-144*A*b^4*d*e^4*x^3-18*B*a^4*d*e^4*m^3+461*B*a^4*
e^5*m^2*x+8*B*a^3*b*d^2*e^3*m^3-712*B*a^3*b*d*e^4*m^2*x+2032*B*a^
3*b*e^5*m*x^2+432*B*a^2*b^2*d^2*e^3*m^2*x-2016*B*a^2*b^2*d*e^4*m*
x^2+1080*B*a^2*b^2*e^5*x^3-96*B*a*b^3*d^3*e^2*m^2*x+960*B*a*b^3*d
^2*e^3*m*x^2-576*B*a*b^3*d*e^4*x^3-180*B*b^4*d^3*e^2*m*x^2+120*B*
b^4*d^2*e^3*x^3+580*A*a^4*e^5*m^2-476*A*a^3*b*d*e^4*m^2+2808*A*a^
3*b*e^5*m*x+180*A*a^2*b^2*d^2*e^3*m^2-2328*A*a^2*b^2*d*e^4*m*x+14
40*A*a^2*b^2*e^5*x^2-24*A*a*b^3*d^3*e^2*m^2+984*A*a*b^3*d^2*e^3*m
*x-720*A*a*b^3*d*e^4*x^2-168*A*b^4*d^3*e^2*m*x+144*A*b^4*d^2*e^3*
x^2-119*B*a^4*d*e^4*m^2+702*B*a^4*e^5*m*x+120*B*a^3*b*d^2*e^3*m^2
-1552*B*a^3*b*d*e^4*m*x+960*B*a^3*b*e^5*x^2-36*B*a^2*b^2*d^3*e^2*
m^2+1476*B*a^2*b^2*d^2*e^3*m*x-1080*B*a^2*b^2*d*e^4*x^2-672*B*a*b
^3*d^3*e^2*m*x+576*B*a*b^3*d^2*e^3*x^2+120*B*b^4*d^4*e*m*x-120*B*
b^4*d^3*e^2*x^2+1044*A*a^4*e^5*m-1368*A*a^3*b*d*e^4*m+1440*A*a^3*
b*e^5*x+888*A*a^2*b^2*d^2*e^3*m-1440*A*a^2*b^2*d*e^4*x-264*A*a*b^
3*d^3*e^2*m+720*A*a*b^3*d^2*e^3*x+24*A*b^4*d^4*e*m-144*A*b^4*d^3*
e^2*x-342*B*a^4*d*e^4*m+360*B*a^4*e^5*x+592*B*a^3*b*d^2*e^3*m-960
*B*a^3*b*d*e^4*x-396*B*a^2*b^2*d^3*e^2*m+1080*B*a^2*b^2*d^2*e^3*x
+96*B*a*b^3*d^4*e*m-576*B*a*b^3*d^3*e^2*x+120*B*b^4*d^4*e*x+720*A
*a^4*e^5-1440*A*a^3*b*d*e^4+1440*A*a^2*b^2*d^2*e^3-720*A*a*b^3*d^
3*e^2+144*A*b^4*d^4*e-360*B*a^4*d*e^4+960*B*a^3*b*d^2*e^3-1080*B*
a^2*b^2*d^3*e^2+576*B*a*b^3*d^4*e-120*B*b^4*d^5)/e^6/(m^6+21*m^5+
175*m^4+735*m^3+1624*m^2+1764*m+720)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^4*(e*x + d)^m,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.332078, size = 3070, normalized size = 13.12

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^4*(e*x + d)^m,x, algorithm="fricas")
```

```
[Out] (A*a^4*d*e^5*m^5 - 120*B*b^4*d^6 + 720*A*a^4*d*e^5 + 144*(4*B*a*b
^3 + A*b^4)*d^5*e - 360*(3*B*a^2*b^2 + 2*A*a*b^3)*d^4*e^2 + 480*(
2*B*a^3*b + 3*A*a^2*b^2)*d^3*e^3 - 360*(B*a^4 + 4*A*a^3*b)*d^2*e^
4 + (B*b^4*e^6*m^5 + 15*B*b^4*e^6*m^4 + 85*B*b^4*e^6*m^3 + 225*B*
b^4*e^6*m^2 + 274*B*b^4*e^6*m + 120*B*b^4*e^6)*x^6 + (144*(4*B*a*
b^3 + A*b^4)*e^6 + (B*b^4*d*e^5 + (4*B*a*b^3 + A*b^4)*e^6)*m^5 +
2*(5*B*b^4*d*e^5 + 8*(4*B*a*b^3 + A*b^4)*e^6)*m^4 + 5*(7*B*b^4*d*
e^5 + 19*(4*B*a*b^3 + A*b^4)*e^6)*m^3 + 10*(5*B*b^4*d*e^5 + 26*(4
*B*a*b^3 + A*b^4)*e^6)*m^2 + 12*(2*B*b^4*d*e^5 + 27*(4*B*a*b^3 +
A*b^4)*e^6)*m)*x^5 + (20*A*a^4*d*e^5 - (B*a^4 + 4*A*a^3*b)*d^2*e^
4)*m^4 + (360*(3*B*a^2*b^2 + 2*A*a*b^3)*e^6 + ((4*B*a*b^3 + A*b^4
)*d*e^5 + 2*(3*B*a^2*b^2 + 2*A*a*b^3)*e^6)*m^5 - (5*B*b^4*d^2*e^4
 - 12*(4*B*a*b^3 + A*b^4)*d*e^5 - 34*(3*B*a^2*b^2 + 2*A*a*b^3)*e^
6)*m^4 - (30*B*b^4*d^2*e^4 - 47*(4*B*a*b^3 + A*b^4)*d*e^5 - 214*(
3*B*a^2*b^2 + 2*A*a*b^3)*e^6)*m^3 - (55*B*b^4*d^2*e^4 - 72*(4*B*a
```

```
*b^3 + A*b^4)*d*e^5 - 614*(3*B*a^2*b^2 + 2*A*a*b^3)*e^6)*m^2 - 6*
(5*B*b^4*d^2*e^4 - 6*(4*B*a*b^3 + A*b^4)*d*e^5 - 132*(3*B*a^2*b^2
 + 2*A*a*b^3)*e^6)*m)*x^4 + (155*A*a^4*d*e^5 + 4*(2*B*a^3*b + 3*A
*a^2*b^2)*d^3*e^3 - 18*(B*a^4 + 4*A*a^3*b)*d^2*e^4)*m^3 + 2*(240*
(2*B*a^3*b + 3*A*a^2*b^2)*e^6 + ((3*B*a^2*b^2 + 2*A*a*b^3)*d*e^5
+ (2*B*a^3*b + 3*A*a^2*b^2)*e^6)*m^5 - 2*((4*B*a*b^3 + A*b^4)*d^2
*e^4 - 7*(3*B*a^2*b^2 + 2*A*a*b^3)*d*e^5 - 9*(2*B*a^3*b + 3*A*a^2
*b^2)*e^6)*m^4 + (10*B*b^4*d^3*e^3 - 18*(4*B*a*b^3 + A*b^4)*d^2*e
^4 + 65*(3*B*a^2*b^2 + 2*A*a*b^3)*d*e^5 + 121*(2*B*a^3*b + 3*A*a^
2*b^2)*e^6)*m^3 + 2*(15*B*b^4*d^3*e^3 - 20*(4*B*a*b^3 + A*b^4)*d^
2*e^4 + 56*(3*B*a^2*b^2 + 2*A*a*b^3)*d*e^5 + 186*(2*B*a^3*b + 3*A
*a^2*b^2)*e^6)*m^2 + 4*(5*B*b^4*d^3*e^3 - 6*(4*B*a*b^3 + A*b^4)*d
^2*e^4 + 15*(3*B*a^2*b^2 + 2*A*a*b^3)*d*e^5 + 127*(2*B*a^3*b + 3*
A*a^2*b^2)*e^6)*m)*x^3 + (580*A*a^4*d*e^5 - 12*(3*B*a^2*b^2 + 2*A
*a*b^3)*d^4*e^2 + 60*(2*B*a^3*b + 3*A*a^2*b^2)*d^3*e^3 - 119*(B*a
^4 + 4*A*a^3*b)*d^2*e^4)*m^2 + (360*(B*a^4 + 4*A*a^3*b)*e^6 + (2*
(2*B*a^3*b + 3*A*a^2*b^2)*d*e^5 + (B*a^4 + 4*A*a^3*b)*e^6)*m^5 -
(6*(3*B*a^2*b^2 + 2*A*a*b^3)*d^2*e^4 - 32*(2*B*a^3*b + 3*A*a^2*b^
2)*d*e^5 - 19*(B*a^4 + 4*A*a^3*b)*e^6)*m^4 + (12*(4*B*a*b^3 + A*b
^4)*d^3*e^3 - 72*(3*B*a^2*b^2 + 2*A*a*b^3)*d^2*e^4 + 178*(2*B*a^3
*b + 3*A*a^2*b^2)*d*e^5 + 137*(B*a^4 + 4*A*a^3*b)*e^6)*m^3 - (60*
B*b^4*d^4*e^2 - 84*(4*B*a*b^3 + A*b^4)*d^3*e^3 + 246*(3*B*a^2*b^2
 + 2*A*a*b^3)*d^2*e^4 - 388*(2*B*a^3*b + 3*A*a^2*b^2)*d*e^5 - 461
*(B*a^4 + 4*A*a^3*b)*e^6)*m^2 - 6*(10*B*b^4*d^4*e^2 - 12*(4*B*a*b
^3 + A*b^4)*d^3*e^3 + 30*(3*B*a^2*b^2 + 2*A*a*b^3)*d^2*e^4 - 40*(
2*B*a^3*b + 3*A*a^2*b^2)*d*e^5 - 117*(B*a^4 + 4*A*a^3*b)*e^6)*m)*
x^2 + 2*(522*A*a^4*d*e^5 + 12*(4*B*a*b^3 + A*b^4)*d^5*e - 66*(3*B
*a^2*b^2 + 2*A*a*b^3)*d^4*e^2 + 148*(2*B*a^3*b + 3*A*a^2*b^2)*d^3
*e^3 - 171*(B*a^4 + 4*A*a^3*b)*d^2*e^4)*m + (720*A*a^4*e^6 + (A*a
^4*e^6 + (B*a^4 + 4*A*a^3*b)*d*e^5)*m^5 + 2*(10*A*a^4*e^6 - 2*(2*
B*a^3*b + 3*A*a^2*b^2)*d^2*e^4 + 9*(B*a^4 + 4*A*a^3*b)*d*e^5)*m^4
 + (155*A*a^4*e^6 + 12*(3*B*a^2*b^2 + 2*A*a*b^3)*d^3*e^3 - 60*(2*
B*a^3*b + 3*A*a^2*b^2)*d^2*e^4 + 119*(B*a^4 + 4*A*a^3*b)*d*e^5)*m
^3 + 2*(290*A*a^4*e^6 - 12*(4*B*a*b^3 + A*b^4)*d^4*e^2 + 66*(3*B*
a^2*b^2 + 2*A*a*b^3)*d^3*e^3 - 148*(2*B*a^3*b + 3*A*a^2*b^2)*d^2*
e^4 + 171*(B*a^4 + 4*A*a^3*b)*d*e^5)*m^2 + 12*(10*B*b^4*d^5*e + 8
7*A*a^4*e^6 - 12*(4*B*a*b^3 + A*b^4)*d^4*e^2 + 30*(3*B*a^2*b^2 +
2*A*a*b^3)*d^3*e^3 - 40*(2*B*a^3*b + 3*A*a^2*b^2)*d^2*e^4 + 30*(B
*a^4 + 4*A*a^3*b)*d*e^5)*m)*x)*(e*x + d)^m/(e^6*m^6 + 21*e^6*m^5
+ 175*e^6*m^4 + 735*e^6*m^3 + 1624*e^6*m^2 + 1764*e^6*m + 720*e^6
)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**4*(B*x+A)*(e*x+d)**m,x)

[Out] Timed out
```

GIAC/XCAS [A] time = 0.259358, size = 1, normalized size = 0.

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^4*(e*x + d)^m,x, algorithm="giac")

[Out] Done
```

3.3153 $\int (a + bx)^3 (A + Bx)(d + ex)^m \, dx$

Optimal. Leaf size=186

$$-\frac{b^2(d+ex)^{m+4}(-3aBe-Abe+4bBd)}{e^5(m+4)}+\frac{(bd-ae)^3(Bd-Ae)(d+ex)^{m+1}}{e^5(m+1)}-\frac{(bd-ae)^2(d+ex)^{m+2}(-aBe-3Abe+4bBd)}{e^5(m+2)}+\frac{3b(bd-ae)(d+ex)^{m+3}(-aBe-Abe+2bBd)}{e^5(m+3)}+\frac{b^3B(d+ex)^{m+5}}{e^5(m+5)}$$

```
[Out] ((b*d - a*e)^3*(B*d - A*e)*(d + e*x)^(1 + m))/(e^5*(1 + m)) - ((b
*d - a*e)^2*(4*b*B*d - 3*A*b*e - a*B*e)*(d + e*x)^(2 + m))/(e^5*(
2 + m)) + (3*b*(b*d - a*e)*(2*b*B*d - A*b*e - a*B*e)*(d + e*x)^(3
 + m))/(e^5*(3 + m)) - (b^2*(4*b*B*d - A*b*e - 3*a*B*e)*(d + e*x)
^(4 + m))/(e^5*(4 + m)) + (b^3*B*(d + e*x)^(5 + m))/(e^5*(5 + m))
```

Rubi [A] time = 0.340239, antiderivative size = 186, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{b^2(d+ex)^{m+4}(-3aBe-Abe+4bBd)}{e^5(m+4)}+\frac{(bd-ae)^3(Bd-Ae)(d+ex)^{m+1}}{e^5(m+1)}-\frac{(bd-ae)^2(d+ex)^{m+2}(-aBe-3Abe+4bBd)}{e^5(m+2)}+\frac{3b(bd-ae)(d+ex)^{m+3}(-aBe-Abe+2bBd)}{e^5(m+3)}+\frac{b^3B(d+ex)^{m+5}}{e^5(m+5)}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^3*(A + B*x)*(d + e*x)^m,x]
```

```
[Out] ((b*d - a*e)^3*(B*d - A*e)*(d + e*x)^(1 + m))/(e^5*(1 + m)) - ((b
*d - a*e)^2*(4*b*B*d - 3*A*b*e - a*B*e)*(d + e*x)^(2 + m))/(e^5*(
2 + m)) + (3*b*(b*d - a*e)*(2*b*B*d - A*b*e - a*B*e)*(d + e*x)^(3
 + m))/(e^5*(3 + m)) - (b^2*(4*b*B*d - A*b*e - 3*a*B*e)*(d + e*x)
^(4 + m))/(e^5*(4 + m)) + (b^3*B*(d + e*x)^(5 + m))/(e^5*(5 + m))
```

Rubi in Sympy [A] time = 62.3375, size = 172, normalized size = 0.92

$$\frac{Bb^3\left(d+ex\right)^{m+5}}{e^5\left(m+5\right)}+\frac{b^2\left(d+ex\right)^{m+4}\left(Abe+3Bae-4Bbd\right)}{e^5\left(m+4\right)}+\frac{3b\left(d+ex\right)^{m+3}\left(ae-bd\right)\left(Abe+Bae-2Bbd\right)}{e^5\left(m+3\right)}+\frac{\left(d+ex\right)^{m+1}\left(Ae-Bd\right)\left(ae-bd\right)^3}{e^5\left(m+1\right)}+\frac{\left(d+ex\right)^{m+2}\left(ae-bd\right)^2\left(3Abe+Bae-4Bbd\right)}{e^5\left(m+2\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**3*(B*x+A)*(e*x+d)**m,x)
```

```
[Out] B*b**3*(d + e*x)**(m + 5)/(e**5*(m + 5)) + b**2*(d + e*x)**(m + 4
)*(A*b*e + 3*B*a*e - 4*B*b*d)/(e**5*(m + 4)) + 3*b*(d + e*x)**(m
+ 3)*(a*e - b*d)*(A*b*e + B*a*e - 2*B*b*d)/(e**5*(m + 3)) + (d +
e*x)**(m + 1)*(A*e - B*d)*(a*e - b*d)**3/(e**5*(m + 1)) + (d + e*
x)**(m + 2)*(a*e - b*d)**2*(3*A*b*e + B*a*e - 4*B*b*d)/(e**5*(m +
 2))
```

Mathematica [B] time = 0.596716, size = 391, normalized size = 2.1

$$\frac{(d+ex)^{m+1}\left(a^3e^3\left(m^3+12m^2+47m+60\right)(Ae(m+2)-Bd+Be(m+1)x)+3a^2be^2\left(m^2+9m+20\right)\left(Ae(m+3)(e(m+1)x-\right.\right.}{}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^3*(A + B*x)*(d + e*x)^m,x]
```

```
[Out] ((d + e*x)^(1 + m)*(a^3*e^3*(60 + 47*m + 12*m^2 + m^3)*(-(B*d) +
A*e*(2 + m) + B*e*(1 + m)*x) + 3*a^2*b*e^2*(20 + 9*m + m^2)*(A*e*
(3 + m)*(-d + e*(1 + m)*x) + B*(2*d^2 - 2*d*e*(1 + m)*x + e^2*(2
+ 3*m + m^2)*x^2)) + 3*a*b^2*e*(5 + m)*(A*e*(4 + m)*(2*d^2 - 2*d*
e*(1 + m)*x + e^2*(2 + 3*m + m^2)*x^2) + B*(-6*d^3 + 6*d^2*e*(1 +
 m)*x - 3*d*e^2*(2 + 3*m + m^2)*x^2 + e^3*(6 + 11*m + 6*m^2 + m^3
)*x^3)) + b^3*(A*e*(5 + m)*(-6*d^3 + 6*d^2*e*(1 + m)*x - 3*d*e^2*
(2 + 3*m + m^2)*x^2 + e^3*(6 + 11*m + 6*m^2 + m^3)*x^3) + B*(24*d
^4 - 24*d^3*e*(1 + m)*x + 12*d^2*e^2*(2 + 3*m + m^2)*x^2 - 4*d*e^
3*(6 + 11*m + 6*m^2 + m^3)*x^3 + e^4*(24 + 50*m + 35*m^2 + 10*m^3
 + m^4)*x^4))))/(e^5*(1 + m)*(2 + m)*(3 + m)*(4 + m)*(5 + m))
```

Maple [B] time = 0.017, size = 1270, normalized size = 6.8

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^3*(B*x+A)*(e*x+d)^m,x)
```

```
[Out] (e*x+d)^(1+m)*(B*b^3*e^4*m^4*x^4+A*b^3*e^4*m^4*x^3+3*B*a*b^2*e^4*
m^4*x^3+10*B*b^3*e^4*m^3*x^4+3*A*a*b^2*e^4*m^4*x^2+11*A*b^3*e^4*m
^3*x^3+3*B*a^2*b*e^4*m^4*x^2+33*B*a*b^2*e^4*m^3*x^3-4*B*b^3*d*e^3
*m^3*x^3+35*B*b^3*e^4*m^2*x^4+3*A*a^2*b*e^4*m^4*x+36*A*a*b^2*e^4*
m^3*x^2-3*A*b^3*d*e^3*m^3*x^2+41*A*b^3*e^4*m^2*x^3+B*a^3*e^4*m^4*
x+36*B*a^2*b*e^4*m^3*x^2-9*B*a*b^2*d*e^3*m^3*x^2+123*B*a*b^2*e^4*
m^2*x^3-24*B*b^3*d*e^3*m^2*x^3+50*B*b^3*e^4*m*x^4+A*a^3*e^4*m^4+3
9*A*a^2*b*e^4*m^3*x-6*A*a*b^2*d*e^3*m^3*x+147*A*a*b^2*e^4*m^2*x^2
-24*A*b^3*d*e^3*m^2*x^2+61*A*b^3*e^4*m*x^3+13*B*a^3*e^4*m^3*x-6*B
*a^2*b*d*e^3*m^3*x+147*B*a^2*b*e^4*m^2*x^2-72*B*a*b^2*d*e^3*m^2*x
^2+183*B*a*b^2*e^4*m*x^3+12*B*b^3*d^2*e^2*m^2*x^2-44*B*b^3*d*e^3*
m*x^3+24*B*b^3*e^4*x^4+14*A*a^3*e^4*m^3-3*A*a^2*b*d*e^3*m^3+177*A
*a^2*b*e^4*m^2*x-60*A*a*b^2*d*e^3*m^2*x+234*A*a*b^2*e^4*m*x^2+6*A
*b^3*d^2*e^2*m^2*x-51*A*b^3*d*e^3*m*x^2+30*A*b^3*e^4*x^3-B*a^3*d*
e^3*m^3+59*B*a^3*e^4*m^2*x-60*B*a^2*b*d*e^3*m^2*x+234*B*a^2*b*e^4
*m*x^2+18*B*a*b^2*d^2*e^2*m^2*x-153*B*a*b^2*d*e^3*m*x^2+90*B*a*b^
2*e^4*x^3+36*B*b^3*d^2*e^2*m*x^2-24*B*b^3*d*e^3*x^3+71*A*a^3*e^4*
m^2-36*A*a^2*b*d*e^3*m^2+321*A*a^2*b*e^4*m*x+6*A*a*b^2*d^2*e^2*m^
2-174*A*a*b^2*d*e^3*m*x+120*A*a*b^2*e^4*x^2+36*A*b^3*d^2*e^2*m*x-
30*A*b^3*d*e^3*x^2-12*B*a^3*d*e^3*m^2+107*B*a^3*e^4*m*x+6*B*a^2*b
*d^2*e^2*m^2-174*B*a^2*b*d*e^3*m*x+120*B*a^2*b*e^4*x^2+108*B*a*b^
2*d^2*e^2*m*x-90*B*a*b^2*d*e^3*x^2-24*B*b^3*d^3*e*m*x+24*B*b^3*d^
2*e^2*x^2+154*A*a^3*e^4*m-141*A*a^2*b*d*e^3*m+180*A*a^2*b*e^4*x+5
4*A*a*b^2*d^2*e^2*m-120*A*a*b^2*d*e^3*x-6*A*b^3*d^3*e*m+30*A*b^3*
d^2*e^2*x-47*B*a^3*d*e^3*m+60*B*a^3*e^4*x+54*B*a^2*b*d^2*e^2*m-12
0*B*a^2*b*d*e^3*x-18*B*a*b^2*d^3*e*m+90*B*a*b^2*d^2*e^2*x-24*B*b^
3*d^3*e*x+120*A*a^3*e^4-180*A*a^2*b*d*e^3+120*A*a*b^2*d^2*e^2-30*
A*b^3*d^3*e-60*B*a^3*d*e^3+120*B*a^2*b*d^2*e^2-90*B*a*b^2*d^3*e+2
4*B*b^3*d^4)/e^5/(m^5+15*m^4+85*m^3+225*m^2+274*m+120)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*(e*x + d)^m,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.320357, size = 1731, normalized size = 9.31

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*(e*x + d)^m,x, algorithm="fricas")
```

```
[Out] (A*a^3*d*e^4*m^4 + 24*B*b^3*d^5 + 120*A*a^3*d*e^4 - 30*(3*B*a*b^2
 + A*b^3)*d^4*e + 120*(B*a^2*b + A*a*b^2)*d^3*e^2 - 60*(B*a^3 + 3
*A*a^2*b)*d^2*e^3 + (B*b^3*e^5*m^4 + 10*B*b^3*e^5*m^3 + 35*B*b^3*
e^5*m^2 + 50*B*b^3*e^5*m + 24*B*b^3*e^5)*x^5 + (30*(3*B*a*b^2 + A
*b^3)*e^5 + (B*b^3*d*e^4 + (3*B*a*b^2 + A*b^3)*e^5)*m^4 + (6*B*b^
3*d*e^4 + 11*(3*B*a*b^2 + A*b^3)*e^5)*m^3 + (11*B*b^3*d*e^4 + 41*
(3*B*a*b^2 + A*b^3)*e^5)*m^2 + (6*B*b^3*d*e^4 + 61*(3*B*a*b^2 + A
*b^3)*e^5)*m)*x^4 + (14*A*a^3*d*e^4 - (B*a^3 + 3*A*a^2*b)*d^2*e^3
)*m^3 + (120*(B*a^2*b + A*a*b^2)*e^5 + ((3*B*a*b^2 + A*b^3)*d*e^4
 + 3*(B*a^2*b + A*a*b^2)*e^5)*m^4 - 4*(B*b^3*d^2*e^3 - 2*(3*B*a*b
^2 + A*b^3)*d*e^4 - 9*(B*a^2*b + A*a*b^2)*e^5)*m^3 - (12*B*b^3*d^
2*e^3 - 17*(3*B*a*b^2 + A*b^3)*d*e^4 - 147*(B*a^2*b + A*a*b^2)*e^
5)*m^2 - 2*(4*B*b^3*d^2*e^3 - 5*(3*B*a*b^2 + A*b^3)*d*e^4 - 117*(
B*a^2*b + A*a*b^2)*e^5)*m)*x^3 + (71*A*a^3*d*e^4 + 6*(B*a^2*b + A
*a*b^2)*d^3*e^2 - 12*(B*a^3 + 3*A*a^2*b)*d^2*e^3)*m^2 + (60*(B*a^
3 + 3*A*a^2*b)*e^5 + (3*(B*a^2*b + A*a*b^2)*d*e^4 + (B*a^3 + 3*A*
a^2*b)*e^5)*m^4 - (3*(3*B*a*b^2 + A*b^3)*d^2*e^3 - 30*(B*a^2*b +
A*a*b^2)*d*e^4 - 13*(B*a^3 + 3*A*a^2*b)*e^5)*m^3 + (12*B*b^3*d^3*
e^2 - 18*(3*B*a*b^2 + A*b^3)*d^2*e^3 + 87*(B*a^2*b + A*a*b^2)*d*e
^4 + 59*(B*a^3 + 3*A*a^2*b)*e^5)*m^2 + (12*B*b^3*d^3*e^2 - 15*(3*
B*a*b^2 + A*b^3)*d^2*e^3 + 60*(B*a^2*b + A*a*b^2)*d*e^4 + 107*(B*
a^3 + 3*A*a^2*b)*e^5)*m)*x^2 + (154*A*a^3*d*e^4 - 6*(3*B*a*b^2 +
A*b^3)*d^4*e + 54*(B*a^2*b + A*a*b^2)*d^3*e^2 - 47*(B*a^3 + 3*A*a
^2*b)*d^2*e^3)*m + (120*A*a^3*e^5 + (A*a^3*e^5 + (B*a^3 + 3*A*a^2
*b)*d*e^4)*m^4 + 2*(7*A*a^3*e^5 - 3*(B*a^2*b + A*a*b^2)*d^2*e^3 +
 6*(B*a^3 + 3*A*a^2*b)*d*e^4)*m^3 + (71*A*a^3*e^5 + 6*(3*B*a*b^2
+ A*b^3)*d^3*e^2 - 54*(B*a^2*b + A*a*b^2)*d^2*e^3 + 47*(B*a^3 + 3
*A*a^2*b)*d*e^4)*m^2 - 2*(12*B*b^3*d^4*e - 77*A*a^3*e^5 - 15*(3*B
*a*b^2 + A*b^3)*d^3*e^2 + 60*(B*a^2*b + A*a*b^2)*d^2*e^3 - 30*(B*
a^3 + 3*A*a^2*b)*d*e^4)*m)*x)*(e*x + d)^m/(e^5*m^5 + 15*e^5*m^4 +
 85*e^5*m^3 + 225*e^5*m^2 + 274*e^5*m + 120*e^5)
```

Sympy [A] time = 26.4004, size = 14073, normalized size = 75.66

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**3*(B*x+A)*(e*x+d)**m,x)
```

```
[Out] Piecewise((d**m*(A*a**3*x + 3*A*a**2*b*x**2/2 + A*a*b**2*x**3 + A
*b**3*x**4/4 + B*a**3*x**2/2 + B*a**2*b*x**3 + 3*B*a*b**2*x**4/4
+ B*b**3*x**5/5), Eq(e, 0)), (-3*A*a**3*d**3*e**4/(12*d**7*e**5 +
 48*d**6*e**6*x + 72*d**5*e**7*x**2 + 48*d**4*e**8*x**3 + 12*d**3
*e**9*x**4) + 18*A*a**2*b*d**2*e**5*x**2/(12*d**7*e**5 + 48*d**6*
e**6*x + 72*d**5*e**7*x**2 + 48*d**4*e**8*x**3 + 12*d**3*e**9*x**
4) + 12*A*a**2*b*d*e**6*x**3/(12*d**7*e**5 + 48*d**6*e**6*x + 72*
d**5*e**7*x**2 + 48*d**4*e**8*x**3 + 12*d**3*e**9*x**4) + 3*A*a**
2*b*e**7*x**4/(12*d**7*e**5 + 48*d**6*e**6*x + 72*d**5*e**7*x**2
+ 48*d**4*e**8*x**3 + 12*d**3*e**9*x**4) + 12*A*a*b**2*d**2*e**5*
x**3/(12*d**7*e**5 + 48*d**6*e**6*x + 72*d**5*e**7*x**2 + 48*d**4
*e**8*x**3 + 12*d**3*e**9*x**4) + 3*A*a*b**2*d*e**6*x**4/(12*d**7
```

```
*e**5 + 48*d**6*e**6*x + 72*d**5*e**7*x**2 + 48*d**4*e**8*x**3 +
12*d**3*e**9*x**4) + 3*A*b**3*d**2*e**5*x**4/(12*d**7*e**5 + 48*d
**6*e**6*x + 72*d**5*e**7*x**2 + 48*d**4*e**8*x**3 + 12*d**3*e**9
*x**4) + 6*B*a**3*d**2*e**5*x**2/(12*d**7*e**5 + 48*d**6*e**6*x +
 72*d**5*e**7*x**2 + 48*d**4*e**8*x**3 + 12*d**3*e**9*x**4) + 4*B
*a**3*d*e**6*x**3/(12*d**7*e**5 + 48*d**6*e**6*x + 72*d**5*e**7*x
**2 + 48*d**4*e**8*x**3 + 12*d**3*e**9*x**4) + B*a**3*e**7*x**4/(
12*d**7*e**5 + 48*d**6*e**6*x + 72*d**5*e**7*x**2 + 48*d**4*e**8*
x**3 + 12*d**3*e**9*x**4) + 12*B*a**2*b*d**2*e**5*x**3/(12*d**7*e
**5 + 48*d**6*e**6*x + 72*d**5*e**7*x**2 + 48*d**4*e**8*x**3 + 12
*d**3*e**9*x**4) + 3*B*a**2*b*d*e**6*x**4/(12*d**7*e**5 + 48*d**6
*e**6*x + 72*d**5*e**7*x**2 + 48*d**4*e**8*x**3 + 12*d**3*e**9*x*
*4) + 9*B*a*b**2*d**2*e**5*x**4/(12*d**7*e**5 + 48*d**6*e**6*x +
72*d**5*e**7*x**2 + 48*d**4*e**8*x**3 + 12*d**3*e**9*x**4) + 12*B
*b**3*d**7*log(d/e + x)/(12*d**7*e**5 + 48*d**6*e**6*x + 72*d**5*
e**7*x**2 + 48*d**4*e**8*x**3 + 12*d**3*e**9*x**4) + 3*B*b**3*d**
7/(12*d**7*e**5 + 48*d**6*e**6*x + 72*d**5*e**7*x**2 + 48*d**4*e*
*8*x**3 + 12*d**3*e**9*x**4) + 48*B*b**3*d**6*e*x*log(d/e + x)/(1
2*d**7*e**5 + 48*d**6*e**6*x + 72*d**5*e**7*x**2 + 48*d**4*e**8*x
**3 + 12*d**3*e**9*x**4) + 72*B*b**3*d**5*e**2*x**2*log(d/e + x)/
(12*d**7*e**5 + 48*d**6*e**6*x + 72*d**5*e**7*x**2 + 48*d**4*e**8
*x**3 + 12*d**3*e**9*x**4) - 24*B*b**3*d**5*e**2*x**2/(12*d**7*e*
*5 + 48*d**6*e**6*x + 72*d**5*e**7*x**2 + 48*d**4*e**8*x**3 + 12*
d**3*e**9*x**4) + 48*B*b**3*d**4*e**3*x**3*log(d/e + x)/(12*d**7*
e**5 + 48*d**6*e**6*x + 72*d**5*e**7*x**2 + 48*d**4*e**8*x**3 + 1
2*d**3*e**9*x**4) - 40*B*b**3*d**4*e**3*x**3/(12*d**7*e**5 + 48*d
**6*e**6*x + 72*d**5*e**7*x**2 + 48*d**4*e**8*x**3 + 12*d**3*e**9
*x**4) + 12*B*b**3*d**3*e**4*x**4*log(d/e + x)/(12*d**7*e**5 + 48
*d**6*e**6*x + 72*d**5*e**7*x**2 + 48*d**4*e**8*x**3 + 12*d**3*e*
*9*x**4) - 22*B*b**3*d**3*e**4*x**4/(12*d**7*e**5 + 48*d**6*e**6*
x + 72*d**5*e**7*x**2 + 48*d**4*e**8*x**3 + 12*d**3*e**9*x**4), E
q(m, -5)), (-2*A*a**3*d**2*e**4/(6*d**5*e**5 + 18*d**4*e**6*x + 1
8*d**3*e**7*x**2 + 6*d**2*e**8*x**3) + 9*A*a**2*b*d*e**5*x**2/(6*
d**5*e**5 + 18*d**4*e**6*x + 18*d**3*e**7*x**2 + 6*d**2*e**8*x**3
) + 3*A*a**2*b*e**6*x**3/(6*d**5*e**5 + 18*d**4*e**6*x + 18*d**3*
e**7*x**2 + 6*d**2*e**8*x**3) + 6*A*a*b**2*d*e**5*x**3/(6*d**5*e*
*5 + 18*d**4*e**6*x + 18*d**3*e**7*x**2 + 6*d**2*e**8*x**3) + 6*A
*b**3*d**5*e*log(d/e + x)/(6*d**5*e**5 + 18*d**4*e**6*x + 18*d**3
*e**7*x**2 + 6*d**2*e**8*x**3) + 2*A*b**3*d**5*e/(6*d**5*e**5 + 1
8*d**4*e**6*x + 18*d**3*e**7*x**2 + 6*d**2*e**8*x**3) + 18*A*b**3
*d**4*e**2*x*log(d/e + x)/(6*d**5*e**5 + 18*d**4*e**6*x + 18*d**3
*e**7*x**2 + 6*d**2*e**8*x**3) + 18*A*b**3*d**3*e**3*x**2*log(d/e
 + x)/(6*d**5*e**5 + 18*d**4*e**6*x + 18*d**3*e**7*x**2 + 6*d**2*
e**8*x**3) - 9*A*b**3*d**3*e**3*x**2/(6*d**5*e**5 + 18*d**4*e**6*
x + 18*d**3*e**7*x**2 + 6*d**2*e**8*x**3) + 6*A*b**3*d**2*e**4*x*
*3*log(d/e + x)/(6*d**5*e**5 + 18*d**4*e**6*x + 18*d**3*e**7*x**2
 + 6*d**2*e**8*x**3) - 9*A*b**3*d**2*e**4*x**3/(6*d**5*e**5 + 18*
d**4*e**6*x + 18*d**3*e**7*x**2 + 6*d**2*e**8*x**3) + 3*B*a**3*d*
e**5*x**2/(6*d**5*e**5 + 18*d**4*e**6*x + 18*d**3*e**7*x**2 + 6*d
**2*e**8*x**3) + B*a**3*e**6*x**3/(6*d**5*e**5 + 18*d**4*e**6*x +
 18*d**3*e**7*x**2 + 6*d**2*e**8*x**3) + 6*B*a**2*b*d*e**5*x**3/(
6*d**5*e**5 + 18*d**4*e**6*x + 18*d**3*e**7*x**2 + 6*d**2*e**8*x*
*3) + 18*B*a*b**2*d**5*e*log(d/e + x)/(6*d**5*e**5 + 18*d**4*e**6
*x + 18*d**3*e**7*x**2 + 6*d**2*e**8*x**3) + 6*B*a*b**2*d**5*e/(6
*d**5*e**5 + 18*d**4*e**6*x + 18*d**3*e**7*x**2 + 6*d**2*e**8*x**
3) + 54*B*a*b**2*d**4*e**2*x*log(d/e + x)/(6*d**5*e**5 + 18*d**4*
e**6*x + 18*d**3*e**7*x**2 + 6*d**2*e**8*x**3) + 54*B*a*b**2*d**3
*e**3*x**2*log(d/e + x)/(6*d**5*e**5 + 18*d**4*e**6*x + 18*d**3*e
**7*x**2 + 6*d**2*e**8*x**3) - 27*B*a*b**2*d**3*e**3*x**2/(6*d**5
*e**5 + 18*d**4*e**6*x + 18*d**3*e**7*x**2 + 6*d**2*e**8*x**3) +
18*B*a*b**2*d**2*e**4*x**3*log(d/e + x)/(6*d**5*e**5 + 18*d**4*e*
*6*x + 18*d**3*e**7*x**2 + 6*d**2*e**8*x**3) - 27*B*a*b**2*d**2*e
**4*x**3/(6*d**5*e**5 + 18*d**4*e**6*x + 18*d**3*e**7*x**2 + 6*d*
*2*e**8*x**3) - 24*B*b**3*d**6*log(d/e + x)/(6*d**5*e**5 + 18*d**
4*e**6*x + 18*d**3*e**7*x**2 + 6*d**2*e**8*x**3) - 8*B*b**3*d**6/
(6*d**5*e**5 + 18*d**4*e**6*x + 18*d**3*e**7*x**2 + 6*d**2*e**8*x
**3) - 72*B*b**3*d**5*e*x*log(d/e + x)/(6*d**5*e**5 + 18*d**4*e**
6*x + 18*d**3*e**7*x**2 + 6*d**2*e**8*x**3) - 72*B*b**3*d**4*e**2
*x**2*log(d/e + x)/(6*d**5*e**5 + 18*d**4*e**6*x + 18*d**3*e**7*x
**2 + 6*d**2*e**8*x**3) + 36*B*b**3*d**4*e**2*x**2/(6*d**5*e**5 +
 18*d**4*e**6*x + 18*d**3*e**7*x**2 + 6*d**2*e**8*x**3) - 24*B*b*
*3*d**3*e**3*x**3*log(d/e + x)/(6*d**5*e**5 + 18*d**4*e**6*x + 18
*d**3*e**7*x**2 + 6*d**2*e**8*x**3) + 36*B*b**3*d**3*e**3*x**3/(6
*d**5*e**5 + 18*d**4*e**6*x + 18*d**3*e**7*x**2 + 6*d**2*e**8*x**
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3) + 6*B*b**3*d**2*e**4*x**4/(6*d**5*e**5 + 18*d**4*e**6*x + 18*d
**3*e**7*x**2 + 6*d**2*e**8*x**3), Eq(m, -4)), (-A*a**3*d*e**4/(2
*d**3*e**5 + 4*d**2*e**6*x + 2*d*e**7*x**2) + 3*A*a**2*b*e**5*x**
2/(2*d**3*e**5 + 4*d**2*e**6*x + 2*d*e**7*x**2) + 6*A*a*b**2*d**3
*e**2*log(d/e + x)/(2*d**3*e**5 + 4*d**2*e**6*x + 2*d*e**7*x**2)
+ 3*A*a*b**2*d**3*e**2/(2*d**3*e**5 + 4*d**2*e**6*x + 2*d*e**7*x*
*2) + 12*A*a*b**2*d**2*e**3*x*log(d/e + x)/(2*d**3*e**5 + 4*d**2*
e**6*x + 2*d*e**7*x**2) + 6*A*a*b**2*d*e**4*x**2*log(d/e + x)/(2*
d**3*e**5 + 4*d**2*e**6*x + 2*d*e**7*x**2) - 6*A*a*b**2*d*e**4*x*
*2/(2*d**3*e**5 + 4*d**2*e**6*x + 2*d*e**7*x**2) - 6*A*b**3*d**4*
e*log(d/e + x)/(2*d**3*e**5 + 4*d**2*e**6*x + 2*d*e**7*x**2) - 3*
A*b**3*d**4*e/(2*d**3*e**5 + 4*d**2*e**6*x + 2*d*e**7*x**2) - 12*
A*b**3*d**3*e**2*x*log(d/e + x)/(2*d**3*e**5 + 4*d**2*e**6*x + 2*
d*e**7*x**2) - 6*A*b**3*d**2*e**3*x**2*log(d/e + x)/(2*d**3*e**5
+ 4*d**2*e**6*x + 2*d*e**7*x**2) + 6*A*b**3*d**2*e**3*x**2/(2*d**
3*e**5 + 4*d**2*e**6*x + 2*d*e**7*x**2) + 2*A*b**3*d*e**4*x**3/(2
*d**3*e**5 + 4*d**2*e**6*x + 2*d*e**7*x**2) + B*a**3*e**5*x**2/(2
*d**3*e**5 + 4*d**2*e**6*x + 2*d*e**7*x**2) + 6*B*a**2*b*d**3*e**
2*log(d/e + x)/(2*d**3*e**5 + 4*d**2*e**6*x + 2*d*e**7*x**2) + 3*
B*a**2*b*d**3*e**2/(2*d**3*e**5 + 4*d**2*e**6*x + 2*d*e**7*x**2)
+ 12*B*a**2*b*d**2*e**3*x*log(d/e + x)/(2*d**3*e**5 + 4*d**2*e**6
*x + 2*d*e**7*x**2) + 6*B*a**2*b*d*e**4*x**2*log(d/e + x)/(2*d**3
*e**5 + 4*d**2*e**6*x + 2*d*e**7*x**2) - 6*B*a**2*b*d*e**4*x**2/(
2*d**3*e**5 + 4*d**2*e**6*x + 2*d*e**7*x**2) - 18*B*a*b**2*d**4*e
*log(d/e + x)/(2*d**3*e**5 + 4*d**2*e**6*x + 2*d*e**7*x**2) - 9*B
*a*b**2*d**4*e/(2*d**3*e**5 + 4*d**2*e**6*x + 2*d*e**7*x**2) - 36
*B*a*b**2*d**3*e**2*x*log(d/e + x)/(2*d**3*e**5 + 4*d**2*e**6*x +
 2*d*e**7*x**2) - 18*B*a*b**2*d**2*e**3*x**2*log(d/e + x)/(2*d**3
*e**5 + 4*d**2*e**6*x + 2*d*e**7*x**2) + 18*B*a*b**2*d**2*e**3*x*
*2/(2*d**3*e**5 + 4*d**2*e**6*x + 2*d*e**7*x**2) + 6*B*a*b**2*d*e
**4*x**3/(2*d**3*e**5 + 4*d**2*e**6*x + 2*d*e**7*x**2) + 12*B*b**
3*d**5*log(d/e + x)/(2*d**3*e**5 + 4*d**2*e**6*x + 2*d*e**7*x**2)
 + 6*B*b**3*d**5/(2*d**3*e**5 + 4*d**2*e**6*x + 2*d*e**7*x**2) +
24*B*b**3*d**4*e*x*log(d/e + x)/(2*d**3*e**5 + 4*d**2*e**6*x + 2*
d*e**7*x**2) + 12*B*b**3*d**3*e**2*x**2*log(d/e + x)/(2*d**3*e**5
 + 4*d**2*e**6*x + 2*d*e**7*x**2) - 12*B*b**3*d**3*e**2*x**2/(2*d
**3*e**5 + 4*d**2*e**6*x + 2*d*e**7*x**2) - 4*B*b**3*d**2*e**3*x*
*3/(2*d**3*e**5 + 4*d**2*e**6*x + 2*d*e**7*x**2) + B*b**3*d*e**4*
x**4/(2*d**3*e**5 + 4*d**2*e**6*x + 2*d*e**7*x**2), Eq(m, -3)), (
-6*A*a**3*e**4/(6*d*e**5 + 6*e**6*x) + 18*A*a**2*b*d*e**3*log(d/e
 + x)/(6*d*e**5 + 6*e**6*x) + 18*A*a**2*b*d*e**3/(6*d*e**5 + 6*e*
*6*x) + 18*A*a**2*b*e**4*x*log(d/e + x)/(6*d*e**5 + 6*e**6*x) - 3
6*A*a*b**2*d**2*e**2*log(d/e + x)/(6*d*e**5 + 6*e**6*x) - 36*A*a*
b**2*d**2*e**2/(6*d*e**5 + 6*e**6*x) - 36*A*a*b**2*d*e**3*x*log(d
/e + x)/(6*d*e**5 + 6*e**6*x) + 18*A*a*b**2*e**4*x**2/(6*d*e**5 +
 6*e**6*x) + 18*A*b**3*d**3*e*log(d/e + x)/(6*d*e**5 + 6*e**6*x)
+ 18*A*b**3*d**3*e/(6*d*e**5 + 6*e**6*x) + 18*A*b**3*d**2*e**2*x*
log(d/e + x)/(6*d*e**5 + 6*e**6*x) - 9*A*b**3*d*e**3*x**2/(6*d*e*
*5 + 6*e**6*x) + 3*A*b**3*e**4*x**3/(6*d*e**5 + 6*e**6*x) + 6*B*a
**3*d*e**3*log(d/e + x)/(6*d*e**5 + 6*e**6*x) + 6*B*a**3*d*e**3/(
6*d*e**5 + 6*e**6*x) + 6*B*a**3*e**4*x*log(d/e + x)/(6*d*e**5 + 6
*e**6*x) - 36*B*a**2*b*d**2*e**2*log(d/e + x)/(6*d*e**5 + 6*e**6*
x) - 36*B*a**2*b*d**2*e**2/(6*d*e**5 + 6*e**6*x) - 36*B*a**2*b*d*
e**3*x*log(d/e + x)/(6*d*e**5 + 6*e**6*x) + 18*B*a**2*b*e**4*x**2
/(6*d*e**5 + 6*e**6*x) + 54*B*a*b**2*d**3*e*log(d/e + x)/(6*d*e**
5 + 6*e**6*x) + 54*B*a*b**2*d**3*e/(6*d*e**5 + 6*e**6*x) + 54*B*a
*b**2*d**2*e**2*x*log(d/e + x)/(6*d*e**5 + 6*e**6*x) - 27*B*a*b**
2*d*e**3*x**2/(6*d*e**5 + 6*e**6*x) + 9*B*a*b**2*e**4*x**3/(6*d*e
**5 + 6*e**6*x) - 24*B*b**3*d**4*log(d/e + x)/(6*d*e**5 + 6*e**6*
x) - 24*B*b**3*d**4/(6*d*e**5 + 6*e**6*x) - 24*B*b**3*d**3*e*x*lo
g(d/e + x)/(6*d*e**5 + 6*e**6*x) + 12*B*b**3*d**2*e**2*x**2/(6*d*
e**5 + 6*e**6*x) - 4*B*b**3*d*e**3*x**3/(6*d*e**5 + 6*e**6*x) + 2
*B*b**3*e**4*x**4/(6*d*e**5 + 6*e**6*x), Eq(m, -2)), (A*a**3*log(
d/e + x)/e - 3*A*a**2*b*d*log(d/e + x)/e**2 + 3*A*a**2*b*x/e + 3*
A*a*b**2*d**2*log(d/e + x)/e**3 - 3*A*a*b**2*d*x/e**2 + 3*A*a*b**
2*x**2/(2*e) - A*b**3*d**3*log(d/e + x)/e**4 + A*b**3*d**2*x/e**3
 - A*b**3*d*x**2/(2*e**2) + A*b**3*x**3/(3*e) - B*a**3*d*log(d/e
+ x)/e**2 + B*a**3*x/e + 3*B*a**2*b*d**2*log(d/e + x)/e**3 - 3*B*
a**2*b*d*x/e**2 + 3*B*a**2*b*x**2/(2*e) - 3*B*a*b**2*d**3*log(d/e
 + x)/e**4 + 3*B*a*b**2*d**2*x/e**3 - 3*B*a*b**2*d*x**2/(2*e**2)
+ B*a*b**2*x**3/e + B*b**3*d**4*log(d/e + x)/e**5 - B*b**3*d**3*x
/e**4 + B*b**3*d**2*x**2/(2*e**3) - B*b**3*d*x**3/(3*e**2) + B*b*
*3*x**4/(4*e), Eq(m, -1)), (A*a**3*d*e**4*m**4*(d + e*x)**m/(e**5
*m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m
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+ 120*e**5) + 14*A*a**3*d*e**4*m**3*(d + e*x)**m/(e**5*m**5 + 15*
e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m + 120*e**5)
 + 71*A*a**3*d*e**4*m**2*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4 +
 85*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m + 120*e**5) + 154*A*a*
*3*d*e**4*m*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3
 + 225*e**5*m**2 + 274*e**5*m + 120*e**5) + 120*A*a**3*d*e**4*(d
+ e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**
2 + 274*e**5*m + 120*e**5) + A*a**3*e**5*m**4*x*(d + e*x)**m/(e**
5*m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m
 + 120*e**5) + 14*A*a**3*e**5*m**3*x*(d + e*x)**m/(e**5*m**5 + 15
*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m + 120*e**5
) + 71*A*a**3*e**5*m**2*x*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4
+ 85*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m + 120*e**5) + 154*A*a
**3*e**5*m*x*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**
3 + 225*e**5*m**2 + 274*e**5*m + 120*e**5) + 120*A*a**3*e**5*x*(d
 + e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m*
*2 + 274*e**5*m + 120*e**5) - 3*A*a**2*b*d**2*e**3*m**3*(d + e*x)
**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 27
4*e**5*m + 120*e**5) - 36*A*a**2*b*d**2*e**3*m**2*(d + e*x)**m/(e
**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274*e**5
*m + 120*e**5) - 141*A*a**2*b*d**2*e**3*m*(d + e*x)**m/(e**5*m**5
 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m + 120
*e**5) - 180*A*a**2*b*d**2*e**3*(d + e*x)**m/(e**5*m**5 + 15*e**5
*m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m + 120*e**5) + 3
*A*a**2*b*d*e**4*m**4*x*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4 +
85*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m + 120*e**5) + 36*A*a**2
*b*d*e**4*m**3*x*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5
*m**3 + 225*e**5*m**2 + 274*e**5*m + 120*e**5) + 141*A*a**2*b*d*e
**4*m**2*x*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3
+ 225*e**5*m**2 + 274*e**5*m + 120*e**5) + 180*A*a**2*b*d*e**4*m*
x*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e**
5*m**2 + 274*e**5*m + 120*e**5) + 3*A*a**2*b*e**5*m**4*x**2*(d +
e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**2
+ 274*e**5*m + 120*e**5) + 39*A*a**2*b*e**5*m**3*x**2*(d + e*x)**
m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274*
e**5*m + 120*e**5) + 177*A*a**2*b*e**5*m**2*x**2*(d + e*x)**m/(e*
*5*m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274*e**5*
m + 120*e**5) + 321*A*a**2*b*e**5*m*x**2*(d + e*x)**m/(e**5*m**5
+ 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m + 120*
e**5) + 180*A*a**2*b*e**5*x**2*(d + e*x)**m/(e**5*m**5 + 15*e**5*
m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m + 120*e**5) + 6*
A*a*b**2*d**3*e**2*m**2*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4 +
85*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m + 120*e**5) + 54*A*a*b*
*2*d**3*e**2*m*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m
**3 + 225*e**5*m**2 + 274*e**5*m + 120*e**5) + 120*A*a*b**2*d**3*
e**2*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*
e**5*m**2 + 274*e**5*m + 120*e**5) - 6*A*a*b**2*d**2*e**3*m**3*x*
(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*
m**2 + 274*e**5*m + 120*e**5) - 54*A*a*b**2*d**2*e**3*m**2*x*(d +
 e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**2
 + 274*e**5*m + 120*e**5) - 120*A*a*b**2*d**2*e**3*m*x*(d + e*x)*
*m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274
*e**5*m + 120*e**5) + 3*A*a*b**2*d*e**4*m**4*x**2*(d + e*x)**m/(e
**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274*e**5
*m + 120*e**5) + 30*A*a*b**2*d*e**4*m**3*x**2*(d + e*x)**m/(e**5*
m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m +
 120*e**5) + 87*A*a*b**2*d*e**4*m**2*x**2*(d + e*x)**m/(e**5*m**5
 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m + 120
*e**5) + 60*A*a*b**2*d*e**4*m*x**2*(d + e*x)**m/(e**5*m**5 + 15*e
**5*m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m + 120*e**5)
+ 3*A*a*b**2*e**5*m**4*x**3*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**
4 + 85*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m + 120*e**5) + 36*A*
a*b**2*e**5*m**3*x**3*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85
*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m + 120*e**5) + 147*A*a*b**
2*e**5*m**2*x**3*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5
*m**3 + 225*e**5*m**2 + 274*e**5*m + 120*e**5) + 234*A*a*b**2*e**
5*m*x**3*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3 +
225*e**5*m**2 + 274*e**5*m + 120*e**5) + 120*A*a*b**2*e**5*x**3*(
d + e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m
**2 + 274*e**5*m + 120*e**5) - 6*A*b**3*d**4*e*m*(d + e*x)**m/(e*
*5*m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274*e**5*
m + 120*e**5) - 30*A*b**3*d**4*e*(d + e*x)**m/(e**5*m**5 + 15*e**
5*m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m + 120*e**5) +
6*A*b**3*d**3*e**2*m**2*x*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4
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+ 85*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m + 120*e**5) + 30*A*b*
*3*d**3*e**2*m*x*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5
*m**3 + 225*e**5*m**2 + 274*e**5*m + 120*e**5) - 3*A*b**3*d**2*e*
*3*m**3*x**2*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**
3 + 225*e**5*m**2 + 274*e**5*m + 120*e**5) - 18*A*b**3*d**2*e**3*
m**2*x**2*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3 +
 225*e**5*m**2 + 274*e**5*m + 120*e**5) - 15*A*b**3*d**2*e**3*m*x
**2*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e
**5*m**2 + 274*e**5*m + 120*e**5) + A*b**3*d*e**4*m**4*x**3*(d +
e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**2
+ 274*e**5*m + 120*e**5) + 8*A*b**3*d*e**4*m**3*x**3*(d + e*x)**m
/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274*e
**5*m + 120*e**5) + 17*A*b**3*d*e**4*m**2*x**3*(d + e*x)**m/(e**5
*m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m
+ 120*e**5) + 10*A*b**3*d*e**4*m*x**3*(d + e*x)**m/(e**5*m**5 + 1
5*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m + 120*e**
5) + A*b**3*e**5*m**4*x**4*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4
 + 85*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m + 120*e**5) + 11*A*b
**3*e**5*m**3*x**4*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e*
*5*m**3 + 225*e**5*m**2 + 274*e**5*m + 120*e**5) + 41*A*b**3*e**5
*m**2*x**4*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3
+ 225*e**5*m**2 + 274*e**5*m + 120*e**5) + 61*A*b**3*e**5*m*x**4*
(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*
m**2 + 274*e**5*m + 120*e**5) + 30*A*b**3*e**5*x**4*(d + e*x)**m/
(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274*e*
*5*m + 120*e**5) - B*a**3*d**2*e**3*m**3*(d + e*x)**m/(e**5*m**5
+ 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m + 120*
e**5) - 12*B*a**3*d**2*e**3*m**2*(d + e*x)**m/(e**5*m**5 + 15*e**
5*m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m + 120*e**5) -
47*B*a**3*d**2*e**3*m*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85
*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m + 120*e**5) - 60*B*a**3*d
**2*e**3*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3 +
225*e**5*m**2 + 274*e**5*m + 120*e**5) + B*a**3*d*e**4*m**4*x*(d
+ e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**
2 + 274*e**5*m + 120*e**5) + 12*B*a**3*d*e**4*m**3*x*(d + e*x)**m
/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274*e
**5*m + 120*e**5) + 47*B*a**3*d*e**4*m**2*x*(d + e*x)**m/(e**5*m*
*5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m + 1
20*e**5) + 60*B*a**3*d*e**4*m*x*(d + e*x)**m/(e**5*m**5 + 15*e**5
*m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m + 120*e**5) + B
*a**3*e**5*m**4*x**2*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*
e**5*m**3 + 225*e**5*m**2 + 274*e**5*m + 120*e**5) + 13*B*a**3*e*
*5*m**3*x**2*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**
3 + 225*e**5*m**2 + 274*e**5*m + 120*e**5) + 59*B*a**3*e**5*m**2*
x**2*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*
e**5*m**2 + 274*e**5*m + 120*e**5) + 107*B*a**3*e**5*m*x**2*(d +
e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**2
+ 274*e**5*m + 120*e**5) + 60*B*a**3*e**5*x**2*(d + e*x)**m/(e**5
*m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m
+ 120*e**5) + 6*B*a**2*b*d**3*e**2*m**2*(d + e*x)**m/(e**5*m**5 +
 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m + 120*e
**5) + 54*B*a**2*b*d**3*e**2*m*(d + e*x)**m/(e**5*m**5 + 15*e**5*
m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m + 120*e**5) + 12
0*B*a**2*b*d**3*e**2*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*
e**5*m**3 + 225*e**5*m**2 + 274*e**5*m + 120*e**5) - 6*B*a**2*b*d
**2*e**3*m**3*x*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*
m**3 + 225*e**5*m**2 + 274*e**5*m + 120*e**5) - 54*B*a**2*b*d**2*
e**3*m**2*x*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3
 + 225*e**5*m**2 + 274*e**5*m + 120*e**5) - 120*B*a**2*b*d**2*e**
3*m*x*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225
*e**5*m**2 + 274*e**5*m + 120*e**5) + 3*B*a**2*b*d*e**4*m**4*x**2
*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5
*m**2 + 274*e**5*m + 120*e**5) + 30*B*a**2*b*d*e**4*m**3*x**2*(d
+ e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**
2 + 274*e**5*m + 120*e**5) + 87*B*a**2*b*d*e**4*m**2*x**2*(d + e*
x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**2 +
274*e**5*m + 120*e**5) + 60*B*a**2*b*d*e**4*m*x**2*(d + e*x)**m/(
e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274*e**
5*m + 120*e**5) + 3*B*a**2*b*e**5*m**4*x**3*(d + e*x)**m/(e**5*m*
*5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m + 1
20*e**5) + 36*B*a**2*b*e**5*m**3*x**3*(d + e*x)**m/(e**5*m**5 + 1
5*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m + 120*e**
5) + 147*B*a**2*b*e**5*m**2*x**3*(d + e*x)**m/(e**5*m**5 + 15*e**
5*m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m + 120*e**5) +
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234*B*a**2*b*e**5*m*x**3*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4 +
 85*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m + 120*e**5) + 120*B*a*
*2*b*e**5*x**3*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m
**3 + 225*e**5*m**2 + 274*e**5*m + 120*e**5) - 18*B*a*b**2*d**4*e
*m*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e*
*5*m**2 + 274*e**5*m + 120*e**5) - 90*B*a*b**2*d**4*e*(d + e*x)**
m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274*
e**5*m + 120*e**5) + 18*B*a*b**2*d**3*e**2*m**2*x*(d + e*x)**m/(e
**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274*e**5
*m + 120*e**5) + 90*B*a*b**2*d**3*e**2*m*x*(d + e*x)**m/(e**5*m**
5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m + 12
0*e**5) - 9*B*a*b**2*d**2*e**3*m**3*x**2*(d + e*x)**m/(e**5*m**5
+ 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m + 120*
e**5) - 54*B*a*b**2*d**2*e**3*m**2*x**2*(d + e*x)**m/(e**5*m**5 +
 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m + 120*e
**5) - 45*B*a*b**2*d**2*e**3*m*x**2*(d + e*x)**m/(e**5*m**5 + 15*
e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m + 120*e**5)
 + 3*B*a*b**2*d*e**4*m**4*x**3*(d + e*x)**m/(e**5*m**5 + 15*e**5*
m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m + 120*e**5) + 24
*B*a*b**2*d*e**4*m**3*x**3*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4
 + 85*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m + 120*e**5) + 51*B*a
*b**2*d*e**4*m**2*x**3*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 8
5*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m + 120*e**5) + 30*B*a*b**
2*d*e**4*m*x**3*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*
m**3 + 225*e**5*m**2 + 274*e**5*m + 120*e**5) + 3*B*a*b**2*e**5*m
**4*x**4*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3 +
225*e**5*m**2 + 274*e**5*m + 120*e**5) + 33*B*a*b**2*e**5*m**3*x*
*4*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e*
*5*m**2 + 274*e**5*m + 120*e**5) + 123*B*a*b**2*e**5*m**2*x**4*(d
 + e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m*
*2 + 274*e**5*m + 120*e**5) + 183*B*a*b**2*e**5*m*x**4*(d + e*x)*
*m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274
*e**5*m + 120*e**5) + 90*B*a*b**2*e**5*x**4*(d + e*x)**m/(e**5*m*
*5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m + 1
20*e**5) + 24*B*b**3*d**5*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4
+ 85*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m + 120*e**5) - 24*B*b*
*3*d**4*e*m*x*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m*
*3 + 225*e**5*m**2 + 274*e**5*m + 120*e**5) + 12*B*b**3*d**3*e**2
*m**2*x**2*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3
+ 225*e**5*m**2 + 274*e**5*m + 120*e**5) + 12*B*b**3*d**3*e**2*m*
x**2*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*
e**5*m**2 + 274*e**5*m + 120*e**5) - 4*B*b**3*d**2*e**3*m**3*x**3
*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5
*m**2 + 274*e**5*m + 120*e**5) - 12*B*b**3*d**2*e**3*m**2*x**3*(d
 + e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m*
*2 + 274*e**5*m + 120*e**5) - 8*B*b**3*d**2*e**3*m*x**3*(d + e*x)
**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 27
4*e**5*m + 120*e**5) + B*b**3*d*e**4*m**4*x**4*(d + e*x)**m/(e**5
*m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m
+ 120*e**5) + 6*B*b**3*d*e**4*m**3*x**4*(d + e*x)**m/(e**5*m**5 +
 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m + 120*e
**5) + 11*B*b**3*d*e**4*m**2*x**4*(d + e*x)**m/(e**5*m**5 + 15*e*
*5*m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m + 120*e**5) +
 6*B*b**3*d*e**4*m*x**4*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4 +
85*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m + 120*e**5) + B*b**3*e*
*5*m**4*x**5*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**
3 + 225*e**5*m**2 + 274*e**5*m + 120*e**5) + 10*B*b**3*e**5*m**3*
x**5*(d + e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*
e**5*m**2 + 274*e**5*m + 120*e**5) + 35*B*b**3*e**5*m**2*x**5*(d
+ e*x)**m/(e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**
2 + 274*e**5*m + 120*e**5) + 50*B*b**3*e**5*m*x**5*(d + e*x)**m/(
e**5*m**5 + 15*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274*e**
5*m + 120*e**5) + 24*B*b**3*e**5*x**5*(d + e*x)**m/(e**5*m**5 + 1
5*e**5*m**4 + 85*e**5*m**3 + 225*e**5*m**2 + 274*e**5*m + 120*e**
5), True))
```

GIAC/XCAS [A] time = 0.227875, size = 1, normalized size = 0.01

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^3*(e*x + d)^m,x, algorithm="giac")
```

```
[Out] Done
```

3.3154 $\int (a+bx)^2(A+Bx)(d+ex)^m\,dx$

Optimal. Leaf size=138

$$-\frac{(bd-ae)^2(Bd-Ae)(d+ex)^{m+1}}{e^4(m+1)}+\frac{(bd-ae)(d+ex)^{m+2}(-aBe-2Abe+3bBd)}{e^4(m+2)}-\frac{b(d+ex)^{m+3}(-2aBe-Abe+3bBd)}{e^4(m+3)}+\frac{b^2B(d+ex)^{m+4}}{e^4(m+4)}$$

```
[Out] -(((b*d - a*e)^2*(B*d - A*e)*(d + e*x)^(1 + m))/(e^4*(1 + m))) +
((b*d - a*e)*(3*b*B*d - 2*A*b*e - a*B*e)*(d + e*x)^(2 + m))/(e^4*
(2 + m)) - (b*(3*b*B*d - A*b*e - 2*a*B*e)*(d + e*x)^(3 + m))/(e^4
*(3 + m)) + (b^2*B*(d + e*x)^(4 + m))/(e^4*(4 + m))
```

Rubi [A] time = 0.248719, antiderivative size = 138, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$-\frac{(bd-ae)^2(Bd-Ae)(d+ex)^{m+1}}{e^4(m+1)}+\frac{(bd-ae)(d+ex)^{m+2}(-aBe-2Abe+3bBd)}{e^4(m+2)}-\frac{b(d+ex)^{m+3}(-2aBe-Abe+3bBd)}{e^4(m+3)}+\frac{b^2B(d+ex)^{m+4}}{e^4(m+4)}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^2*(A + B*x)*(d + e*x)^m,x]
```

```
[Out] -(((b*d - a*e)^2*(B*d - A*e)*(d + e*x)^(1 + m))/(e^4*(1 + m))) +
((b*d - a*e)*(3*b*B*d - 2*A*b*e - a*B*e)*(d + e*x)^(2 + m))/(e^4*
(2 + m)) - (b*(3*b*B*d - A*b*e - 2*a*B*e)*(d + e*x)^(3 + m))/(e^4
*(3 + m)) + (b^2*B*(d + e*x)^(4 + m))/(e^4*(4 + m))
```

Rubi in Sympy [A] time = 42.1774, size = 126, normalized size = 0.91

$$\frac{Bb^2\left(d+ex\right)^{m+4}}{e^4\left(m+4\right)}+\frac{b\left(d+ex\right)^{m+3}\left(Abe+2Bae-3Bbd\right)}{e^4\left(m+3\right)}+\frac{\left(d+ex\right)^{m+1}\left(Ae-Bd\right)\left(ae-bd\right)^2}{e^4\left(m+1\right)}+\frac{\left(d+ex\right)^{m+2}\left(ae-bd\right)\left(2Abe+Bae-3Bbd\right)}{e^4\left(m+2\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**2*(B*x+A)*(e*x+d)**m,x)
```

```
[Out] B*b**2*(d + e*x)**(m + 4)/(e**4*(m + 4)) + b*(d + e*x)**(m + 3)*(
A*b*e + 2*B*a*e - 3*B*b*d)/(e**4*(m + 3)) + (d + e*x)**(m + 1)*(A
*e - B*d)*(a*e - b*d)**2/(e**4*(m + 1)) + (d + e*x)**(m + 2)*(a*e
 - b*d)*(2*A*b*e + B*a*e - 3*B*b*d)/(e**4*(m + 2))
```

Mathematica [A] time = 0.344285, size = 221, normalized size = 1.6

$$(d+ex)^{m+1}\left(a^2e^2\left(m^2+7m+12\right)\left(Ae(m+2)-Bd+Be(m+1)x\right)+2abe(m+4)\left(Ae(m+3)(e(m+1)x-d)+B\left(2d^2-2de(r\right.\right.\right.$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)^2*(A + B*x)*(d + e*x)^m,x]
```

```
[Out] ((d + e*x)^(1 + m)*(a^2*e^2*(12 + 7*m + m^2)*(-(B*d) + A*e*(2 + m
) + B*e*(1 + m)*x) + 2*a*b*e*(4 + m)*(A*e*(3 + m)*(-d + e*(1 + m)
*x) + B*(2*d^2 - 2*d*e*(1 + m)*x + e^2*(2 + 3*m + m^2)*x^2)) - b^
2*(-(A*e*(4 + m)*(2*d^2 - 2*d*e*(1 + m)*x + e^2*(2 + 3*m + m^2)*x
^2)) + B*(6*d^3 - 6*d^2*e*(1 + m)*x + 3*d*e^2*(2 + 3*m + m^2)*x^2
 - e^3*(6 + 11*m + 6*m^2 + m^3)*x^3))))/(e^4*(1 + m)*(2 + m)*(3 +
 m)*(4 + m))
```

Maple [B] time = 0.014, size = 576, normalized size = 4.2

$$(ex+d)^{1+m}\left(Bb^2e^3m^3x^3+Ab^2e^3m^3x^2+2\,Babe^3m^3x^2+6\,Bb^2e^3m^2x^3+2\,Aabe^3m^3x+7\,Ab^2e^3m^2x^2+Ba^2e^3m^3x+14\,Babe^3\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^2*(B*x+A)*(e*x+d)^m,x)
```

```
[Out] (e*x+d)^(1+m)*(B*b^2*e^3*m^3*x^3+A*b^2*e^3*m^3*x^2+2*B*a*b*e^3*m^
3*x^2+6*B*b^2*e^3*m^2*x^3+2*A*a*b*e^3*m^3*x+7*A*b^2*e^3*m^2*x^2+B
*a^2*e^3*m^3*x+14*B*a*b*e^3*m^2*x^2-3*B*b^2*d*e^2*m^2*x^2+11*B*b^
2*e^3*m*x^3+A*a^2*e^3*m^3+16*A*a*b*e^3*m^2*x-2*A*b^2*d*e^2*m^2*x+
14*A*b^2*e^3*m*x^2+8*B*a^2*e^3*m^2*x-4*B*a*b*d*e^2*m^2*x+28*B*a*b
*e^3*m*x^2-9*B*b^2*d*e^2*m*x^2+6*B*b^2*e^3*x^3+9*A*a^2*e^3*m^2-2*
A*a*b*d*e^2*m^2+38*A*a*b*e^3*m*x-10*A*b^2*d*e^2*m*x+8*A*b^2*e^3*x
^2-B*a^2*d*e^2*m^2+19*B*a^2*e^3*m*x-20*B*a*b*d*e^2*m*x+16*B*a*b*e
^3*x^2+6*B*b^2*d^2*e*m*x-6*B*b^2*d*e^2*x^2+26*A*a^2*e^3*m-14*A*a*
b*d*e^2*m+24*A*a*b*e^3*x+2*A*b^2*d^2*e*m-8*A*b^2*d*e^2*x-7*B*a^2*
d*e^2*m+12*B*a^2*e^3*x+4*B*a*b*d^2*e*m-16*B*a*b*d*e^2*x+6*B*b^2*d
^2*e*x+24*A*a^2*e^3-24*A*a*b*d*e^2+8*A*b^2*d^2*e-12*B*a^2*d*e^2+1
6*B*a*b*d^2*e-6*B*b^2*d^3)/e^4/(m^4+10*m^3+35*m^2+50*m+24)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*(e*x + d)^m,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.288519, size = 891, normalized size = 6.46

$$\left(Aa^2de^3m^3-6\,Bb^2d^4+24\,Aa^2de^3+8\,\left(2\,Bab+Ab^2\right)d^3e-12\,\left(Ba^2+2\,Aab\right)d^2e^2+\left(Bb^2e^4m^3+6\,Bb^2e^4m^2+11\,Bb^2e^4m+6\right.\right.$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*(e*x + d)^m,x, algorithm="fricas")
```

```
[Out] (A*a^2*d*e^3*m^3 - 6*B*b^2*d^4 + 24*A*a^2*d*e^3 + 8*(2*B*a*b + A*
b^2)*d^3*e - 12*(B*a^2 + 2*A*a*b)*d^2*e^2 + (B*b^2*e^4*m^3 + 6*B*
b^2*e^4*m^2 + 11*B*b^2*e^4*m + 6*B*b^2*e^4)*x^4 + (8*(2*B*a*b + A
*b^2)*e^4 + (B*b^2*d*e^3 + (2*B*a*b + A*b^2)*e^4)*m^3 + (3*B*b^2*
d*e^3 + 7*(2*B*a*b + A*b^2)*e^4)*m^2 + 2*(B*b^2*d*e^3 + 7*(2*B*a*
b + A*b^2)*e^4)*m)*x^3 + (9*A*a^2*d*e^3 - (B*a^2 + 2*A*a*b)*d^2*e
^2)*m^2 + (12*(B*a^2 + 2*A*a*b)*e^4 + ((2*B*a*b + A*b^2)*d*e^3 +
(B*a^2 + 2*A*a*b)*e^4)*m^3 - (3*B*b^2*d^2*e^2 - 5*(2*B*a*b + A*b^
2)*d*e^3 - 8*(B*a^2 + 2*A*a*b)*e^4)*m^2 - (3*B*b^2*d^2*e^2 - 4*(2
*B*a*b + A*b^2)*d*e^3 - 19*(B*a^2 + 2*A*a*b)*e^4)*m)*x^2 + (26*A*
```

```
a^2*d*e^3 + 2*(2*B*a*b + A*b^2)*d^3*e - 7*(B*a^2 + 2*A*a*b)*d^2*e
^2)*m + (24*A*a^2*e^4 + (A*a^2*e^4 + (B*a^2 + 2*A*a*b)*d*e^3)*m^3
 + (9*A*a^2*e^4 - 2*(2*B*a*b + A*b^2)*d^2*e^2 + 7*(B*a^2 + 2*A*a*
b)*d*e^3)*m^2 + 2*(3*B*b^2*d^3*e + 13*A*a^2*e^4 - 4*(2*B*a*b + A*
b^2)*d^2*e^2 + 6*(B*a^2 + 2*A*a*b)*d*e^3)*m)*x)*(e*x + d)^m/(e^4*
m^4 + 10*e^4*m^3 + 35*e^4*m^2 + 50*e^4*m + 24*e^4)
```

Sympy [A] time = 10.0918, size = 6094, normalized size = 44.16

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**2*(B*x+A)*(e*x+d)**m,x)
```

```
[Out] Piecewise((d**m*(A*a**2*x + A*a*b*x**2 + A*b**2*x**3/3 + B*a**2*x
**2/2 + 2*B*a*b*x**3/3 + B*b**2*x**4/4), Eq(e, 0)), (-2*A*a**2*d*
*2*e**3/(6*d**5*e**4 + 18*d**4*e**5*x + 18*d**3*e**6*x**2 + 6*d**
2*e**7*x**3) + 6*A*a*b*d*e**4*x**2/(6*d**5*e**4 + 18*d**4*e**5*x
+ 18*d**3*e**6*x**2 + 6*d**2*e**7*x**3) + 2*A*a*b*e**5*x**3/(6*d*
*5*e**4 + 18*d**4*e**5*x + 18*d**3*e**6*x**2 + 6*d**2*e**7*x**3)
+ 2*A*b**2*d*e**4*x**3/(6*d**5*e**4 + 18*d**4*e**5*x + 18*d**3*e*
*6*x**2 + 6*d**2*e**7*x**3) + 3*B*a**2*d*e**4*x**2/(6*d**5*e**4 +
 18*d**4*e**5*x + 18*d**3*e**6*x**2 + 6*d**2*e**7*x**3) + B*a**2*
e**5*x**3/(6*d**5*e**4 + 18*d**4*e**5*x + 18*d**3*e**6*x**2 + 6*d
**2*e**7*x**3) + 4*B*a*b*d*e**4*x**3/(6*d**5*e**4 + 18*d**4*e**5*
x + 18*d**3*e**6*x**2 + 6*d**2*e**7*x**3) + 6*B*b**2*d**5*log(d/e
 + x)/(6*d**5*e**4 + 18*d**4*e**5*x + 18*d**3*e**6*x**2 + 6*d**2*
e**7*x**3) + 2*B*b**2*d**5/(6*d**5*e**4 + 18*d**4*e**5*x + 18*d**
3*e**6*x**2 + 6*d**2*e**7*x**3) + 18*B*b**2*d**4*e*x*log(d/e + x)
/(6*d**5*e**4 + 18*d**4*e**5*x + 18*d**3*e**6*x**2 + 6*d**2*e**7*
x**3) + 18*B*b**2*d**3*e**2*x**2*log(d/e + x)/(6*d**5*e**4 + 18*d
**4*e**5*x + 18*d**3*e**6*x**2 + 6*d**2*e**7*x**3) - 9*B*b**2*d**
3*e**2*x**2/(6*d**5*e**4 + 18*d**4*e**5*x + 18*d**3*e**6*x**2 + 6
*d**2*e**7*x**3) + 6*B*b**2*d**2*e**3*x**3*log(d/e + x)/(6*d**5*e
**4 + 18*d**4*e**5*x + 18*d**3*e**6*x**2 + 6*d**2*e**7*x**3) - 9*
B*b**2*d**2*e**3*x**3/(6*d**5*e**4 + 18*d**4*e**5*x + 18*d**3*e**
6*x**2 + 6*d**2*e**7*x**3), Eq(m, -4)), (-A*a**2*d*e**3/(2*d**3*e
**4 + 4*d**2*e**5*x + 2*d*e**6*x**2) + 2*A*a*b*e**4*x**2/(2*d**3*
e**4 + 4*d**2*e**5*x + 2*d*e**6*x**2) + 2*A*b**2*d**3*e*log(d/e +
 x)/(2*d**3*e**4 + 4*d**2*e**5*x + 2*d*e**6*x**2) + A*b**2*d**3*e
/(2*d**3*e**4 + 4*d**2*e**5*x + 2*d*e**6*x**2) + 4*A*b**2*d**2*e*
*2*x*log(d/e + x)/(2*d**3*e**4 + 4*d**2*e**5*x + 2*d*e**6*x**2) +
 2*A*b**2*d*e**3*x**2*log(d/e + x)/(2*d**3*e**4 + 4*d**2*e**5*x +
 2*d*e**6*x**2) - 2*A*b**2*d*e**3*x**2/(2*d**3*e**4 + 4*d**2*e**5
*x + 2*d*e**6*x**2) + B*a**2*e**4*x**2/(2*d**3*e**4 + 4*d**2*e**5
*x + 2*d*e**6*x**2) + 4*B*a*b*d**3*e*log(d/e + x)/(2*d**3*e**4 +
4*d**2*e**5*x + 2*d*e**6*x**2) + 2*B*a*b*d**3*e/(2*d**3*e**4 + 4*
d**2*e**5*x + 2*d*e**6*x**2) + 8*B*a*b*d**2*e**2*x*log(d/e + x)/(
2*d**3*e**4 + 4*d**2*e**5*x + 2*d*e**6*x**2) + 4*B*a*b*d*e**3*x**
2*log(d/e + x)/(2*d**3*e**4 + 4*d**2*e**5*x + 2*d*e**6*x**2) - 4*
B*a*b*d*e**3*x**2/(2*d**3*e**4 + 4*d**2*e**5*x + 2*d*e**6*x**2) -
 6*B*b**2*d**4*log(d/e + x)/(2*d**3*e**4 + 4*d**2*e**5*x + 2*d*e*
*6*x**2) - 3*B*b**2*d**4/(2*d**3*e**4 + 4*d**2*e**5*x + 2*d*e**6*
x**2) - 12*B*b**2*d**3*e*x*log(d/e + x)/(2*d**3*e**4 + 4*d**2*e**
5*x + 2*d*e**6*x**2) - 6*B*b**2*d**2*e**2*x**2*log(d/e + x)/(2*d*
*3*e**4 + 4*d**2*e**5*x + 2*d*e**6*x**2) + 6*B*b**2*d**2*e**2*x**
2/(2*d**3*e**4 + 4*d**2*e**5*x + 2*d*e**6*x**2) + 2*B*b**2*d*e**3
*x**3/(2*d**3*e**4 + 4*d**2*e**5*x + 2*d*e**6*x**2), Eq(m, -3)),
(-2*A*a**2*e**3/(2*d*e**4 + 2*e**5*x) + 4*A*a*b*d*e**2*log(d/e +
x)/(2*d*e**4 + 2*e**5*x) + 4*A*a*b*d*e**2/(2*d*e**4 + 2*e**5*x) +
 4*A*a*b*e**3*x*log(d/e + x)/(2*d*e**4 + 2*e**5*x) - 4*A*b**2*d**
2*e*log(d/e + x)/(2*d*e**4 + 2*e**5*x) - 4*A*b**2*d**2*e/(2*d*e**
4 + 2*e**5*x) - 4*A*b**2*d*e**2*x*log(d/e + x)/(2*d*e**4 + 2*e**5
*x) + 2*A*b**2*e**3*x**2/(2*d*e**4 + 2*e**5*x) + 2*B*a**2*d*e**2*
log(d/e + x)/(2*d*e**4 + 2*e**5*x) + 2*B*a**2*d*e**2/(2*d*e**4 +
2*e**5*x) + 2*B*a**2*e**3*x*log(d/e + x)/(2*d*e**4 + 2*e**5*x) -
8*B*a*b*d**2*e*log(d/e + x)/(2*d*e**4 + 2*e**5*x) - 8*B*a*b*d**2*
e/(2*d*e**4 + 2*e**5*x) - 8*B*a*b*d*e**2*x*log(d/e + x)/(2*d*e**4
 + 2*e**5*x) + 4*B*a*b*e**3*x**2/(2*d*e**4 + 2*e**5*x) + 6*B*b**2
```

```
*d**3*log(d/e + x)/(2*d*e**4 + 2*e**5*x) + 6*B*b**2*d**3/(2*d*e**
4 + 2*e**5*x) + 6*B*b**2*d**2*e*x*log(d/e + x)/(2*d*e**4 + 2*e**5
*x) - 3*B*b**2*d*e**2*x**2/(2*d*e**4 + 2*e**5*x) + B*b**2*e**3*x*
*3/(2*d*e**4 + 2*e**5*x), Eq(m, -2)), (A*a**2*log(d/e + x)/e - 2*
A*a*b*d*log(d/e + x)/e**2 + 2*A*a*b*x/e + A*b**2*d**2*log(d/e + x
)/e**3 - A*b**2*d*x/e**2 + A*b**2*x**2/(2*e) - B*a**2*d*log(d/e +
 x)/e**2 + B*a**2*x/e + 2*B*a*b*d**2*log(d/e + x)/e**3 - 2*B*a*b*
d*x/e**2 + B*a*b*x**2/e - B*b**2*d**3*log(d/e + x)/e**4 + B*b**2*
d**2*x/e**3 - B*b**2*d*x**2/(2*e**2) + B*b**2*x**3/(3*e), Eq(m, -
1)), (A*a**2*d*e**3*m**3*(d + e*x)**m/(e**4*m**4 + 10*e**4*m**3 +
 35*e**4*m**2 + 50*e**4*m + 24*e**4) + 9*A*a**2*d*e**3*m**2*(d +
e*x)**m/(e**4*m**4 + 10*e**4*m**3 + 35*e**4*m**2 + 50*e**4*m + 24
*e**4) + 26*A*a**2*d*e**3*m*(d + e*x)**m/(e**4*m**4 + 10*e**4*m**
3 + 35*e**4*m**2 + 50*e**4*m + 24*e**4) + 24*A*a**2*d*e**3*(d + e
*x)**m/(e**4*m**4 + 10*e**4*m**3 + 35*e**4*m**2 + 50*e**4*m + 24*
e**4) + A*a**2*e**4*m**3*x*(d + e*x)**m/(e**4*m**4 + 10*e**4*m**3
 + 35*e**4*m**2 + 50*e**4*m + 24*e**4) + 9*A*a**2*e**4*m**2*x*(d
+ e*x)**m/(e**4*m**4 + 10*e**4*m**3 + 35*e**4*m**2 + 50*e**4*m +
24*e**4) + 26*A*a**2*e**4*m*x*(d + e*x)**m/(e**4*m**4 + 10*e**4*m
**3 + 35*e**4*m**2 + 50*e**4*m + 24*e**4) + 24*A*a**2*e**4*x*(d +
 e*x)**m/(e**4*m**4 + 10*e**4*m**3 + 35*e**4*m**2 + 50*e**4*m + 2
4*e**4) - 2*A*a*b*d**2*e**2*m**2*(d + e*x)**m/(e**4*m**4 + 10*e**
4*m**3 + 35*e**4*m**2 + 50*e**4*m + 24*e**4) - 14*A*a*b*d**2*e**2
*m*(d + e*x)**m/(e**4*m**4 + 10*e**4*m**3 + 35*e**4*m**2 + 50*e**
4*m + 24*e**4) - 24*A*a*b*d**2*e**2*(d + e*x)**m/(e**4*m**4 + 10*
e**4*m**3 + 35*e**4*m**2 + 50*e**4*m + 24*e**4) + 2*A*a*b*d*e**3*
m**3*x*(d + e*x)**m/(e**4*m**4 + 10*e**4*m**3 + 35*e**4*m**2 + 50
*e**4*m + 24*e**4) + 14*A*a*b*d*e**3*m**2*x*(d + e*x)**m/(e**4*m*
*4 + 10*e**4*m**3 + 35*e**4*m**2 + 50*e**4*m + 24*e**4) + 24*A*a*
b*d*e**3*m*x*(d + e*x)**m/(e**4*m**4 + 10*e**4*m**3 + 35*e**4*m**
2 + 50*e**4*m + 24*e**4) + 2*A*a*b*e**4*m**3*x**2*(d + e*x)**m/(e
**4*m**4 + 10*e**4*m**3 + 35*e**4*m**2 + 50*e**4*m + 24*e**4) + 1
6*A*a*b*e**4*m**2*x**2*(d + e*x)**m/(e**4*m**4 + 10*e**4*m**3 + 3
5*e**4*m**2 + 50*e**4*m + 24*e**4) + 38*A*a*b*e**4*m*x**2*(d + e*
x)**m/(e**4*m**4 + 10*e**4*m**3 + 35*e**4*m**2 + 50*e**4*m + 24*e
**4) + 24*A*a*b*e**4*x**2*(d + e*x)**m/(e**4*m**4 + 10*e**4*m**3
 + 35*e**4*m**2 + 50*e**4*m + 24*e**4) + 2*A*b**2*d**3*e*m*(d + e*
x)**m/(e**4*m**4 + 10*e**4*m**3 + 35*e**4*m**2 + 50*e**4*m + 24*e
**4) + 8*A*b**2*d**3*e*(d + e*x)**m/(e**4*m**4 + 10*e**4*m**3 + 3
5*e**4*m**2 + 50*e**4*m + 24*e**4) - 2*A*b**2*d**2*e**2*m**2*x*(d
 + e*x)**m/(e**4*m**4 + 10*e**4*m**3 + 35*e**4*m**2 + 50*e**4*m +
 24*e**4) - 8*A*b**2*d**2*e**2*m*x*(d + e*x)**m/(e**4*m**4 + 10*e
**4*m**3 + 35*e**4*m**2 + 50*e**4*m + 24*e**4) + A*b**2*d*e**3*m*
*3*x**2*(d + e*x)**m/(e**4*m**4 + 10*e**4*m**3 + 35*e**4*m**2 + 5
0*e**4*m + 24*e**4) + 5*A*b**2*d*e**3*m**2*x**2*(d + e*x)**m/(e**
4*m**4 + 10*e**4*m**3 + 35*e**4*m**2 + 50*e**4*m + 24*e**4) + 4*A
*b**2*d*e**3*m*x**2*(d + e*x)**m/(e**4*m**4 + 10*e**4*m**3 + 35*e
**4*m**2 + 50*e**4*m + 24*e**4) + A*b**2*e**4*m**3*x**3*(d + e*x)
**m/(e**4*m**4 + 10*e**4*m**3 + 35*e**4*m**2 + 50*e**4*m + 24*e**
4) + 7*A*b**2*e**4*m**2*x**3*(d + e*x)**m/(e**4*m**4 + 10*e**4*m*
*3 + 35*e**4*m**2 + 50*e**4*m + 24*e**4) + 14*A*b**2*e**4*m*x**3*
(d + e*x)**m/(e**4*m**4 + 10*e**4*m**3 + 35*e**4*m**2 + 50*e**4*m
 + 24*e**4) + 8*A*b**2*e**4*x**3*(d + e*x)**m/(e**4*m**4 + 10*e**
4*m**3 + 35*e**4*m**2 + 50*e**4*m + 24*e**4) - B*a**2*d**2*e**2*m
**2*(d + e*x)**m/(e**4*m**4 + 10*e**4*m**3 + 35*e**4*m**2 + 50*e*
*4*m + 24*e**4) - 7*B*a**2*d**2*e**2*m*(d + e*x)**m/(e**4*m**4 +
10*e**4*m**3 + 35*e**4*m**2 + 50*e**4*m + 24*e**4) - 12*B*a**2*d*
*2*e**2*(d + e*x)**m/(e**4*m**4 + 10*e**4*m**3 + 35*e**4*m**2 + 5
0*e**4*m + 24*e**4) + B*a**2*d*e**3*m**3*x*(d + e*x)**m/(e**4*m**
4 + 10*e**4*m**3 + 35*e**4*m**2 + 50*e**4*m + 24*e**4) + 7*B*a**2
*d*e**3*m**2*x*(d + e*x)**m/(e**4*m**4 + 10*e**4*m**3 + 35*e**4*m
**2 + 50*e**4*m + 24*e**4) + 12*B*a**2*d*e**3*m*x*(d + e*x)**m/(e
**4*m**4 + 10*e**4*m**3 + 35*e**4*m**2 + 50*e**4*m + 24*e**4) + B
*a**2*e**4*m**3*x**2*(d + e*x)**m/(e**4*m**4 + 10*e**4*m**3 + 35*
e**4*m**2 + 50*e**4*m + 24*e**4) + 8*B*a**2*e**4*m**2*x**2*(d + e
*x)**m/(e**4*m**4 + 10*e**4*m**3 + 35*e**4*m**2 + 50*e**4*m + 24*
e**4) + 19*B*a**2*e**4*m*x**2*(d + e*x)**m/(e**4*m**4 + 10*e**4*m
**3 + 35*e**4*m**2 + 50*e**4*m + 24*e**4) + 12*B*a**2*e**4*x**2*(
d + e*x)**m/(e**4*m**4 + 10*e**4*m**3 + 35*e**4*m**2 + 50*e**4*m
+ 24*e**4) + 4*B*a*b*d**3*e*m*(d + e*x)**m/(e**4*m**4 + 10*e**4*m
**3 + 35*e**4*m**2 + 50*e**4*m + 24*e**4) + 16*B*a*b*d**3*e*(d +
e*x)**m/(e**4*m**4 + 10*e**4*m**3 + 35*e**4*m**2 + 50*e**4*m + 24
*e**4) - 4*B*a*b*d**2*e**2*m**2*x*(d + e*x)**m/(e**4*m**4 + 10*e*
*4*m**3 + 35*e**4*m**2 + 50*e**4*m + 24*e**4) - 16*B*a*b*d**2*e**
```

```
2*m*x*(d + e*x)**m/(e**4*m**4 + 10*e**4*m**3 + 35*e**4*m**2 + 50*
e**4*m + 24*e**4) + 2*B*a*b*d*e**3*m**3*x**2*(d + e*x)**m/(e**4*m
**4 + 10*e**4*m**3 + 35*e**4*m**2 + 50*e**4*m + 24*e**4) + 10*B*a
*b*d*e**3*m**2*x**2*(d + e*x)**m/(e**4*m**4 + 10*e**4*m**3 + 35*e
**4*m**2 + 50*e**4*m + 24*e**4) + 8*B*a*b*d*e**3*m*x**2*(d + e*x)
**m/(e**4*m**4 + 10*e**4*m**3 + 35*e**4*m**2 + 50*e**4*m + 24*e**
4) + 2*B*a*b*e**4*m**3*x**3*(d + e*x)**m/(e**4*m**4 + 10*e**4*m**
3 + 35*e**4*m**2 + 50*e**4*m + 24*e**4) + 14*B*a*b*e**4*m**2*x**3
*(d + e*x)**m/(e**4*m**4 + 10*e**4*m**3 + 35*e**4*m**2 + 50*e**4*
m + 24*e**4) + 28*B*a*b*e**4*m*x**3*(d + e*x)**m/(e**4*m**4 + 10*
e**4*m**3 + 35*e**4*m**2 + 50*e**4*m + 24*e**4) + 16*B*a*b*e**4*x
**3*(d + e*x)**m/(e**4*m**4 + 10*e**4*m**3 + 35*e**4*m**2 + 50*e*
*4*m + 24*e**4) - 6*B*b**2*d**4*(d + e*x)**m/(e**4*m**4 + 10*e**4
*m**3 + 35*e**4*m**2 + 50*e**4*m + 24*e**4) + 6*B*b**2*d**3*e*m*x
*(d + e*x)**m/(e**4*m**4 + 10*e**4*m**3 + 35*e**4*m**2 + 50*e**4*
m + 24*e**4) - 3*B*b**2*d**2*e**2*m**2*x**2*(d + e*x)**m/(e**4*m*
*4 + 10*e**4*m**3 + 35*e**4*m**2 + 50*e**4*m + 24*e**4) - 3*B*b**
2*d**2*e**2*m*x**2*(d + e*x)**m/(e**4*m**4 + 10*e**4*m**3 + 35*e*
*4*m**2 + 50*e**4*m + 24*e**4) + B*b**2*d*e**3*m**3*x**3*(d + e*x
)**m/(e**4*m**4 + 10*e**4*m**3 + 35*e**4*m**2 + 50*e**4*m + 24*e*
*4) + 3*B*b**2*d*e**3*m**2*x**3*(d + e*x)**m/(e**4*m**4 + 10*e**4
*m**3 + 35*e**4*m**2 + 50*e**4*m + 24*e**4) + 2*B*b**2*d*e**3*m*x
**3*(d + e*x)**m/(e**4*m**4 + 10*e**4*m**3 + 35*e**4*m**2 + 50*e*
*4*m + 24*e**4) + B*b**2*e**4*m**3*x**4*(d + e*x)**m/(e**4*m**4 +
 10*e**4*m**3 + 35*e**4*m**2 + 50*e**4*m + 24*e**4) + 6*B*b**2*e*
*4*m**2*x**4*(d + e*x)**m/(e**4*m**4 + 10*e**4*m**3 + 35*e**4*m**
2 + 50*e**4*m + 24*e**4) + 11*B*b**2*e**4*m*x**4*(d + e*x)**m/(e*
*4*m**4 + 10*e**4*m**3 + 35*e**4*m**2 + 50*e**4*m + 24*e**4) + 6*
B*b**2*e**4*x**4*(d + e*x)**m/(e**4*m**4 + 10*e**4*m**3 + 35*e**4
*m**2 + 50*e**4*m + 24*e**4), True))
```

GIAC/XCAS [A] time = 0.23825, size = 1, normalized size = 0.01

Done

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)^2*(e*x + d)^m,x, algorithm="giac")
```

```
[Out] Done
```

3.3155 $\int (a+bx)(A+Bx)(d+ex)^m\,dx$

Optimal. Leaf size=90

$$\frac{(bd-ae)(Bd-Ae)(d+ex)^{m+1}}{e^3(m+1)}-\frac{(d+ex)^{m+2}(-aBe-Abe+2bBd)}{e^3(m+2)}+\frac{bB(d+ex)^{m+3}}{e^3(m+3)}$$

```
[Out] ((b*d - a*e)*(B*d - A*e)*(d + e*x)^(1 + m))/(e^3*(1 + m)) - ((2*b
*B*d - A*b*e - a*B*e)*(d + e*x)^(2 + m))/(e^3*(2 + m)) + (b*B*(d
+ e*x)^(3 + m))/(e^3*(3 + m))
```

Rubi [A] time = 0.138235, antiderivative size = 90, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}} = 0.056$

$$\frac{(bd-ae)(Bd-Ae)(d+ex)^{m+1}}{e^3(m+1)}-\frac{(d+ex)^{m+2}(-aBe-Abe+2bBd)}{e^3(m+2)}+\frac{bB(d+ex)^{m+3}}{e^3(m+3)}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)*(A + B*x)*(d + e*x)^m,x]
```

```
[Out] ((b*d - a*e)*(B*d - A*e)*(d + e*x)^(1 + m))/(e^3*(1 + m)) - ((2*b
*B*d - A*b*e - a*B*e)*(d + e*x)^(2 + m))/(e^3*(2 + m)) + (b*B*(d
+ e*x)^(3 + m))/(e^3*(3 + m))
```

Rubi in Sympy [A] time = 23.6966, size = 78, normalized size = 0.87

$$\frac{Bb\,(d+ex)^{m+3}}{e^3\,(m+3)}+\frac{(d+ex)^{m+1}\,(Ae-Bd)\,(ae-bd)}{e^3\,(m+1)}+\frac{(d+ex)^{m+2}\,(Abe+Bae-2Bbd)}{e^3\,(m+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)*(B*x+A)*(e*x+d)**m,x)
```

```
[Out] B*b*(d + e*x)**(m + 3)/(e**3*(m + 3)) + (d + e*x)**(m + 1)*(A*e -
 B*d)*(a*e - b*d)/(e**3*(m + 1)) + (d + e*x)**(m + 2)*(A*b*e + B*
a*e - 2*B*b*d)/(e**3*(m + 2))
```

Mathematica [A] time = 0.13304, size = 103, normalized size = 1.14

$$\frac{(d+ex)^{m+1}\left(ae(m+3)(Ae(m+2)-Bd+Be(m+1)x)+b\left(Ae(m+3)(e(m+1)x-d)+B\left(2d^2-2de(m+1)x+e^2\left(m^2+3m\right.\right.\right.\right.}{e^3(m+1)(m+2)(m+3)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(a + b*x)*(A + B*x)*(d + e*x)^m,x]
```

```
[Out] ((d + e*x)^(1 + m)*(a*e*(3 + m)*(-(B*d) + A*e*(2 + m) + B*e*(1 +
m)*x) + b*(A*e*(3 + m)*(-d + e*(1 + m)*x) + B*(2*d^2 - 2*d*e*(1 +
 m)*x + e^2*(2 + 3*m + m^2)*x^2))))/(e^3*(1 + m)*(2 + m)*(3 + m))
```

Maple [B] time = 0.008, size = 189, normalized size = 2.1

$$\frac{(ex+d)^{1+m}\left(Bbe^2m^2x^2+Abe^2m^2x+Bae^2m^2x+3\,Bbe^2mx^2+Aae^2m^2+4\,Abe^2mx+4\,Bae^2mx-2\,Bbdemx+2\,bBx^2e^2+5\right.}{e^3\left(m^3+6\,m^2+11\,m+6\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)*(B*x+A)*(e*x+d)^m,x)
```

```
[Out] (e*x+d)^(1+m)*(B*b*e^2*m^2*x^2+A*b*e^2*m^2*x+B*a*e^2*m^2*x+3*B*b*
e^2*m*x^2+A*a*e^2*m^2+4*A*b*e^2*m*x+4*B*a*e^2*m*x-2*B*b*d*e*m*x+2
*B*b*e^2*x^2+5*A*a*e^2*m-A*b*d*e*m+3*A*b*e^2*x-B*a*d*e*m+3*B*a*e^
2*x-2*B*b*d*e*x+6*A*a*e^2-3*A*b*d*e-3*B*a*d*e+2*B*b*d^2)/e^3/(m^3
+6*m^2+11*m+6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*(e*x + d)^m,x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.266113, size = 346, normalized size = 3.84

$$\frac{\left(Aade^2m^2 + 2\,Bbd^3 + 6\,Aade^2 - 3\,(Ba + Ab)d^2e + \left(Bbe^3m^2 + 3\,Bbe^3m + 2\,Bbe^3\right)x^3 + \left(3\,(Ba + Ab)e^3 + \left(Bbde^2 + (Ba + Ab)e^3\right.\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*(e*x + d)^m,x, algorithm="fricas")
```

```
[Out] (A*a*d*e^2*m^2 + 2*B*b*d^3 + 6*A*a*d*e^2 - 3*(B*a + A*b)*d^2*e +
(B*b*e^3*m^2 + 3*B*b*e^3*m + 2*B*b*e^3)*x^3 + (3*(B*a + A*b)*e^3
+ (B*b*d*e^2 + (B*a + A*b)*e^3)*m^2 + (B*b*d*e^2 + 4*(B*a + A*b)*
e^3)*m)*x^2 + (5*A*a*d*e^2 - (B*a + A*b)*d^2*e)*m + (6*A*a*e^3 +
(A*a*e^3 + (B*a + A*b)*d*e^2)*m^2 - (2*B*b*d^2*e - 5*A*a*e^3 - 3*
(B*a + A*b)*d*e^2)*m)*x)*(e*x + d)^m/(e^3*m^3 + 6*e^3*m^2 + 11*e^
3*m + 6*e^3)
```

Sympy [A] time = 3.96574, size = 1952, normalized size = 21.69

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)*(B*x+A)*(e*x+d)**m,x)
```

```
[Out] Piecewise((d**m*(A*a*x + A*b*x**2/2 + B*a*x**2/2 + B*b*x**3/3), E
q(e, 0)), (-A*a*d*e**2/(2*d**3*e**3 + 4*d**2*e**4*x + 2*d*e**5*x*
*2) + A*b*e**3*x**2/(2*d**3*e**3 + 4*d**2*e**4*x + 2*d*e**5*x**2)
 + B*a*e**3*x**2/(2*d**3*e**3 + 4*d**2*e**4*x + 2*d*e**5*x**2) +
2*B*b*d**3*log(d/e + x)/(2*d**3*e**3 + 4*d**2*e**4*x + 2*d*e**5*x
**2) + B*b*d**3/(2*d**3*e**3 + 4*d**2*e**4*x + 2*d*e**5*x**2) + 4
*B*b*d**2*e*x*log(d/e + x)/(2*d**3*e**3 + 4*d**2*e**4*x + 2*d*e**
5*x**2) + 2*B*b*d*e**2*x**2*log(d/e + x)/(2*d**3*e**3 + 4*d**2*e*
*4*x + 2*d*e**5*x**2) - 2*B*b*d*e**2*x**2/(2*d**3*e**3 + 4*d**2*e
**4*x + 2*d*e**5*x**2), Eq(m, -3)), (-A*a*e**2/(d*e**3 + e**4*x)
+ A*b*d*e*log(d/e + x)/(d*e**3 + e**4*x) + A*b*d*e/(d*e**3 + e**4
*x) + A*b*e**2*x*log(d/e + x)/(d*e**3 + e**4*x) + B*a*d*e*log(d/e
 + x)/(d*e**3 + e**4*x) + B*a*d*e/(d*e**3 + e**4*x) + B*a*e**2*x*
log(d/e + x)/(d*e**3 + e**4*x) - 2*B*b*d**2*log(d/e + x)/(d*e**3
```

```
+ e**4*x) - 2*B*b*d**2/(d*e**3 + e**4*x) - 2*B*b*d*e*x*log(d/e +
x)/(d*e**3 + e**4*x) + B*b*e**2*x**2/(d*e**3 + e**4*x), Eq(m, -2)
), (A*a*log(d/e + x)/e - A*b*d*log(d/e + x)/e**2 + A*b*x/e - B*a*
d*log(d/e + x)/e**2 + B*a*x/e + B*b*d**2*log(d/e + x)/e**3 - B*b*
d*x/e**2 + B*b*x**2/(2*e), Eq(m, -1)), (A*a*d*e**2*m**2*(d + e*x)
**m/(e**3*m**3 + 6*e**3*m**2 + 11*e**3*m + 6*e**3) + 5*A*a*d*e**2
*m*(d + e*x)**m/(e**3*m**3 + 6*e**3*m**2 + 11*e**3*m + 6*e**3) +
6*A*a*d*e**2*(d + e*x)**m/(e**3*m**3 + 6*e**3*m**2 + 11*e**3*m +
6*e**3) + A*a*e**3*m**2*x*(d + e*x)**m/(e**3*m**3 + 6*e**3*m**2 +
 11*e**3*m + 6*e**3) + 5*A*a*e**3*m*x*(d + e*x)**m/(e**3*m**3 + 6
*e**3*m**2 + 11*e**3*m + 6*e**3) + 6*A*a*e**3*x*(d + e*x)**m/(e**
3*m**3 + 6*e**3*m**2 + 11*e**3*m + 6*e**3) - A*b*d**2*e*m*(d + e*
x)**m/(e**3*m**3 + 6*e**3*m**2 + 11*e**3*m + 6*e**3) - 3*A*b*d**2
*e*(d + e*x)**m/(e**3*m**3 + 6*e**3*m**2 + 11*e**3*m + 6*e**3) +
A*b*d*e**2*m**2*x*(d + e*x)**m/(e**3*m**3 + 6*e**3*m**2 + 11*e**3
*m + 6*e**3) + 3*A*b*d*e**2*m*x*(d + e*x)**m/(e**3*m**3 + 6*e**3*
m**2 + 11*e**3*m + 6*e**3) + A*b*e**3*m**2*x**2*(d + e*x)**m/(e**
3*m**3 + 6*e**3*m**2 + 11*e**3*m + 6*e**3) + 4*A*b*e**3*m*x**2*(d
 + e*x)**m/(e**3*m**3 + 6*e**3*m**2 + 11*e**3*m + 6*e**3) + 3*A*b
*e**3*x**2*(d + e*x)**m/(e**3*m**3 + 6*e**3*m**2 + 11*e**3*m + 6*
e**3) - B*a*d**2*e*m*(d + e*x)**m/(e**3*m**3 + 6*e**3*m**2 + 11*e
**3*m + 6*e**3) - 3*B*a*d**2*e*(d + e*x)**m/(e**3*m**3 + 6*e**3*m
**2 + 11*e**3*m + 6*e**3) + B*a*d*e**2*m**2*x*(d + e*x)**m/(e**3*
m**3 + 6*e**3*m**2 + 11*e**3*m + 6*e**3) + 3*B*a*d*e**2*m*x*(d +
e*x)**m/(e**3*m**3 + 6*e**3*m**2 + 11*e**3*m + 6*e**3) + B*a*e**3
*m**2*x**2*(d + e*x)**m/(e**3*m**3 + 6*e**3*m**2 + 11*e**3*m + 6*
e**3) + 4*B*a*e**3*m*x**2*(d + e*x)**m/(e**3*m**3 + 6*e**3*m**2 +
 11*e**3*m + 6*e**3) + 3*B*a*e**3*x**2*(d + e*x)**m/(e**3*m**3 +
6*e**3*m**2 + 11*e**3*m + 6*e**3) + 2*B*b*d**3*(d + e*x)**m/(e**3
*m**3 + 6*e**3*m**2 + 11*e**3*m + 6*e**3) - 2*B*b*d**2*e*m*x*(d +
 e*x)**m/(e**3*m**3 + 6*e**3*m**2 + 11*e**3*m + 6*e**3) + B*b*d*e
**2*m**2*x**2*(d + e*x)**m/(e**3*m**3 + 6*e**3*m**2 + 11*e**3*m +
 6*e**3) + B*b*d*e**2*m*x**2*(d + e*x)**m/(e**3*m**3 + 6*e**3*m**
2 + 11*e**3*m + 6*e**3) + B*b*e**3*m**2*x**3*(d + e*x)**m/(e**3*m
**3 + 6*e**3*m**2 + 11*e**3*m + 6*e**3) + 3*B*b*e**3*m*x**3*(d +
e*x)**m/(e**3*m**3 + 6*e**3*m**2 + 11*e**3*m + 6*e**3) + 2*B*b*e*
*3*x**3*(d + e*x)**m/(e**3*m**3 + 6*e**3*m**2 + 11*e**3*m + 6*e**
3), True))
```

GIAC/XCAS [A] time = 0.235472, size = 744, normalized size = 8.27

$$Bbm^2x^3e^{(m\ln(xe+d)+3)} + Bbdm^2x^2e^{(m\ln(xe+d)+2)} + Bam^2x^2e^{(m\ln(xe+d)+3)} + Abm^2x^2e^{(m\ln(xe+d)+3)} + 3\,Bbmx^3e^{(m\ln(xe+d)+3)} + Bad$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(b*x + a)*(e*x + d)^m,x, algorithm="giac")
```

```
[Out] (B*b*m^2*x^3*e^(m*ln(x*e + d) + 3) + B*b*d*m^2*x^2*e^(m*ln(x*e +
d) + 2) + B*a*m^2*x^2*e^(m*ln(x*e + d) + 3) + A*b*m^2*x^2*e^(m*ln
(x*e + d) + 3) + 3*B*b*m*x^3*e^(m*ln(x*e + d) + 3) + B*a*d*m^2*x*
e^(m*ln(x*e + d) + 2) + A*b*d*m^2*x*e^(m*ln(x*e + d) + 2) + B*b*d
*m*x^2*e^(m*ln(x*e + d) + 2) - 2*B*b*d^2*m*x*e^(m*ln(x*e + d) + 1
) + A*a*m^2*x*e^(m*ln(x*e + d) + 3) + 4*B*a*m*x^2*e^(m*ln(x*e + d
) + 3) + 4*A*b*m*x^2*e^(m*ln(x*e + d) + 3) + 2*B*b*x^3*e^(m*ln(x*
e + d) + 3) + A*a*d*m^2*e^(m*ln(x*e + d) + 2) + 3*B*a*d*m*x*e^(m*
ln(x*e + d) + 2) + 3*A*b*d*m*x*e^(m*ln(x*e + d) + 2) - B*a*d^2*m*
e^(m*ln(x*e + d) + 1) - A*b*d^2*m*e^(m*ln(x*e + d) + 1) + 2*B*b*d
^3*e^(m*ln(x*e + d)) + 5*A*a*m*x*e^(m*ln(x*e + d) + 3) + 3*B*a*x^
2*e^(m*ln(x*e + d) + 3) + 3*A*b*x^2*e^(m*ln(x*e + d) + 3) + 5*A*a
*d*m*e^(m*ln(x*e + d) + 2) - 3*B*a*d^2*e^(m*ln(x*e + d) + 1) - 3*
A*b*d^2*e^(m*ln(x*e + d) + 1) + 6*A*a*x*e^(m*ln(x*e + d) + 3) + 6
*A*a*d*e^(m*ln(x*e + d) + 2))/(m^3*e^3 + 6*m^2*e^3 + 11*m*e^3 + 6
*e^3)
```

3.3156 $\int (A+Bx)(d+ex)^m\,dx$

Optimal. Leaf size=47

$$\frac{B(d+ex)^{m+2}}{e^2(m+2)}-\frac{(Bd-Ae)(d+ex)^{m+1}}{e^2(m+1)}$$

```
[Out] -(((B*d - A*e)*(d + e*x)^(1 + m))/(e^2*(1 + m))) + (B*(d + e*x)^(
2 + m))/(e^2*(2 + m))
```

Rubi [A] time = 0.059418, antiderivative size = 47, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 13, $\frac{\text{number of rules}}{\text{integrand size}} = 0.077$

$$\frac{B(d+ex)^{m+2}}{e^2(m+2)}-\frac{(Bd-Ae)(d+ex)^{m+1}}{e^2(m+1)}$$

Antiderivative was successfully verified.

```
[In]  Int[(A + B*x)*(d + e*x)^m,x]
```

```
[Out] -(((B*d - A*e)*(d + e*x)^(1 + m))/(e^2*(1 + m))) + (B*(d + e*x)^(
2 + m))/(e^2*(2 + m))
```

Rubi in Sympy [A] time = 10.2659, size = 37, normalized size = 0.79

$$\frac{B\,(d+ex)^{m+2}}{e^2\,(m+2)}+\frac{(d+ex)^{m+1}\,(Ae-Bd)}{e^2\,(m+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(e*x+d)**m,x)
```

```
[Out] B*(d + e*x)**(m + 2)/(e**2*(m + 2)) + (d + e*x)**(m + 1)*(A*e - B
*d)/(e**2*(m + 1))
```

Mathematica [A] time = 0.0362918, size = 41, normalized size = 0.87

$$\frac{(d+ex)^{m+1}(Ae(m+2)-Bd+Be(m+1)x)}{e^2(m+1)(m+2)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(A + B*x)*(d + e*x)^m,x]
```

```
[Out] ((d + e*x)^(1 + m)*(-(B*d) + A*e*(2 + m) + B*e*(1 + m)*x))/(e^2*(
1 + m)*(2 + m))
```

Maple [A] time = 0.004, size = 46, normalized size = 1.

$$\frac{(ex+d)^{1+m}\,(Bemx+Aem+Bex+2\,Ae-Bd)}{e^2\,(m^2+3\,m+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(e*x+d)^m,x)

[Out] (e*x+d)^(1+m)*(B*e*m*x+A*e*m+B*e*x+2*A*e-B*d)/e^2/(m^2+3*m+2)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^m,x, algorithm="maxima")

[Out] Exception raised: ValueError
```

Fricas [A] time = 0.307022, size = 112, normalized size = 2.38

$$\frac{\left(Adem - Bd^2 + 2\,Ade + \left(Be^2m + Be^2\right)x^2 + \left(2\,Ae^2 + \left(Bde + Ae^2\right)m\right)x\right)(ex + d)^m}{e^2m^2 + 3\,e^2m + 2\,e^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^m,x, algorithm="fricas")

[Out] (A*d*e*m - B*d^2 + 2*A*d*e + (B*e^2*m + B*e^2)*x^2 + (2*A*e^2 + (
B*d*e + A*e^2)*m)*x)*(e*x + d)^m/(e^2*m^2 + 3*e^2*m + 2*e^2)
```

Sympy [A] time = 1.20854, size = 377, normalized size = 8.02

$$\begin{cases} d^m\left(Ax + \frac{Bx^2}{2}\right) \\ -\frac{Ae}{de^2+e^3x} + \frac{Bd\log\left(\frac{d}{e}+x\right)}{de^2+e^3x} + \frac{Bd}{de^2+e^3x} + \frac{Bex\log\left(\frac{d}{e}+x\right)}{de^2+e^3x} \\ \frac{A\log\left(\frac{d}{e}+x\right)}{e} - \frac{Bd\log\left(\frac{d}{e}+x\right)}{e^2} + \frac{Bx}{e} \\ \frac{Adem(d+ex)^m}{e^2m^2+3e^2m+2e^2} + \frac{2Ade(d+ex)^m}{e^2m^2+3e^2m+2e^2} + \frac{Ae^2mx(d+ex)^m}{e^2m^2+3e^2m+2e^2} + \frac{2Ae^2x(d+ex)^m}{e^2m^2+3e^2m+2e^2} - \frac{Bd^2(d+ex)^m}{e^2m^2+3e^2m+2e^2} + \frac{Bdemx(d+ex)^m}{e^2m^2+3e^2m+2e^2} + \frac{Be^2mx^2(d+ex)^m}{e^2m^2+3e^2m+2e^2} + \frac{Be^2x^2(\cdot}{e^2m^2+3\cdot} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(e*x+d)**m,x)

[Out] Piecewise((d**m*(A*x + B*x**2/2), Eq(e, 0)), (-A*e/(d*e**2 + e**3
*x) + B*d*log(d/e + x)/(d*e**2 + e**3*x) + B*d/(d*e**2 + e**3*x)
+ B*e*x*log(d/e + x)/(d*e**2 + e**3*x), Eq(m, -2)), (A*log(d/e +
x)/e - B*d*log(d/e + x)/e**2 + B*x/e, Eq(m, -1)), (A*d*e*m*(d + e
*x)**m/(e**2*m**2 + 3*e**2*m + 2*e**2) + 2*A*d*e*(d + e*x)**m/(e*
*2*m**2 + 3*e**2*m + 2*e**2) + A*e**2*m*x*(d + e*x)**m/(e**2*m**2
 + 3*e**2*m + 2*e**2) + 2*A*e**2*x*(d + e*x)**m/(e**2*m**2 + 3*e*
*2*m + 2*e**2) - B*d**2*(d + e*x)**m/(e**2*m**2 + 3*e**2*m + 2*e*
*2) + B*d*e*m*x*(d + e*x)**m/(e**2*m**2 + 3*e**2*m + 2*e**2) + B*
e**2*m*x**2*(d + e*x)**m/(e**2*m**2 + 3*e**2*m + 2*e**2) + B*e**2
*x**2*(d + e*x)**m/(e**2*m**2 + 3*e**2*m + 2*e**2), True))
```

GIAC/XCAS [A] time = 0.229354, size = 205, normalized size = 4.36

$$\frac{Bmx^2e^{(m\ln(xe+d)+2)} + Bdmxe^{(m\ln(xe+d)+1)} + Amxe^{(m\ln(xe+d)+2)} + Bx^2e^{(m\ln(xe+d)+2)} + Adme^{(m\ln(xe+d)+1)} - Bd^2e^{(m\ln(xe+d))} + 2\,A}{m^2e^2 + 3\,me^2 + 2\,e^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^m,x, algorithm="giac")
```

```
[Out] (B*m*x^2*e^(m*ln(x*e + d) + 2) + B*d*m*x*e^(m*ln(x*e + d) + 1) +
A*m*x*e^(m*ln(x*e + d) + 2) + B*x^2*e^(m*ln(x*e + d) + 2) + A*d*m
*e^(m*ln(x*e + d) + 1) - B*d^2*e^(m*ln(x*e + d)) + 2*A*x*e^(m*ln(
x*e + d) + 2) + 2*A*d*e^(m*ln(x*e + d) + 1))/(m^2*e^2 + 3*m*e^2 +
 2*e^2)
```

3.3157 $\int \frac{(A+Bx)(d+ex)^m}{a+bx} dx$

Optimal. Leaf size=85

$$\frac{B(d+ex)^{m+1}}{be(m+1)} - \frac{(Ab-aB)(d+ex)^{m+1} {}_2F_1\left(1,m+1;m+2;\frac{b(d+ex)}{bd-ae}\right)}{b(m+1)(bd-ae)}$$

```
[Out] (B*(d + e*x)^(1 + m))/(b*e*(1 + m)) - ((A*b - a*B)*(d + e*x)^(1 +
 m)*Hypergeometric2F1[1, 1 + m, 2 + m, (b*(d + e*x))/(b*d - a*e)]
)/(b*(b*d - a*e)*(1 + m))
```

Rubi [A] time = 0.122028, antiderivative size = 85, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.1$

$$\frac{B(d+ex)^{m+1}}{be(m+1)} - \frac{(Ab-aB)(d+ex)^{m+1} {}_2F_1\left(1,m+1;m+2;\frac{b(d+ex)}{bd-ae}\right)}{b(m+1)(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[((A + B*x)*(d + e*x)^m)/(a + b*x),x]
```

```
[Out] (B*(d + e*x)^(1 + m))/(b*e*(1 + m)) - ((A*b - a*B)*(d + e*x)^(1 +
 m)*Hypergeometric2F1[1, 1 + m, 2 + m, (b*(d + e*x))/(b*d - a*e)]
)/(b*(b*d - a*e)*(1 + m))
```

Rubi in Sympy [A] time = 12.6737, size = 63, normalized size = 0.74

$$\frac{B\left(d+ex\right)^{m+1}}{be\left(m+1\right)} + \frac{\left(d+ex\right)^{m+1}\left(Ab-Ba\right){}_2F_1\left(\begin{matrix}1, m+1 \\ m+2\end{matrix}\middle|\frac{b(-d-ex)}{ae-bd}\right)}{b\left(m+1\right)\left(ae-bd\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(e*x+d)**m/(b*x+a),x)
```

```
[Out] B*(d + e*x)**(m + 1)/(b*e*(m + 1)) + (d + e*x)**(m + 1)*(A*b - B*
a)*hyper((1, m + 1), (m + 2,), b*(-d - e*x)/(a*e - b*d))/(b*(m +
1)*(a*e - b*d))
```

Mathematica [A] time = 0.110255, size = 78, normalized size = 0.92

$$\frac{(d+ex)^{m+1}\left((aBe-Abe)\,{}_2F_1\left(1,m+1;m+2;\frac{b(d+ex)}{bd-ae}\right)+B(bd-ae)\right)}{be(m+1)(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((A + B*x)*(d + e*x)^m)/(a + b*x),x]
```

```
[Out] ((d + e*x)^(1 + m)*(B*(b*d - a*e) + (-(A*b*e) + a*B*e)*Hypergeome
tric2F1[1, 1 + m, 2 + m, (b*(d + e*x))/(b*d - a*e)]))/(b*e*(b*d -
 a*e)*(1 + m))
```

Maple [F] time = 0.069, size = 0, normalized size = 0.

$$\int \frac{(Bx + A)(ex + d)^m}{bx + a}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(e*x+d)^m/(b*x+a),x)

[Out] int((B*x+A)*(e*x+d)^m/(b*x+a),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(Bx + A)(ex + d)^m}{bx + a}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^m/(b*x + a),x, algorithm="maxima")

[Out] integrate((B*x + A)*(e*x + d)^m/(b*x + a), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(Bx + A)(ex + d)^m}{bx + a}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^m/(b*x + a),x, algorithm="fricas")

[Out] integral((B*x + A)*(e*x + d)^m/(b*x + a), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(A + Bx)(d + ex)^m}{a + bx}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(e*x+d)**m/(b*x+a),x)

[Out] Integral((A + B*x)*(d + e*x)**m/(a + b*x), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(Bx + A)(ex + d)^m}{bx + a}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^m/(b*x + a),x, algorithm="giac")

[Out] integrate((B*x + A)*(e*x + d)^m/(b*x + a), x)
```

3.3158 $\int \frac{(A+Bx)(d+ex)^m}{(a+bx)^2} dx$

Optimal. Leaf size=112

$$\frac{(d+ex)^{m+1}(aBe(m+1)-b(Aem+Bd))\,{}_2F_1\left(1,m+1;m+2;\frac{b(d+ex)}{bd-ae}\right)}{b(m+1)(bd-ae)^2}-\frac{(Ab-aB)(d+ex)^{m+1}}{b(a+bx)(bd-ae)}$$

```
[Out] -(((A*b - a*B)*(d + e*x)^(1 + m))/(b*(b*d - a*e)*(a + b*x))) + ((
a*B*e*(1 + m) - b*(B*d + A*e*m))*(d + e*x)^(1 + m)*Hypergeometric
2F1[1, 1 + m, 2 + m, (b*(d + e*x))/(b*d - a*e)])/(b*(b*d - a*e)^2
*(1 + m))
```

Rubi [A] time = 0.183353, antiderivative size = 112, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.1$

$$\frac{(d+ex)^{m+1}(aBe(m+1)-b(Aem+Bd))\,{}_2F_1\left(1,m+1;m+2;\frac{b(d+ex)}{bd-ae}\right)}{b(m+1)(bd-ae)^2}-\frac{(Ab-aB)(d+ex)^{m+1}}{b(a+bx)(bd-ae)}$$

Antiderivative was successfully verified.

```
[In]  Int[((A + B*x)*(d + e*x)^m)/(a + b*x)^2,x]
```

```
[Out] -(((A*b - a*B)*(d + e*x)^(1 + m))/(b*(b*d - a*e)*(a + b*x))) + ((
a*B*e*(1 + m) - b*(B*d + A*e*m))*(d + e*x)^(1 + m)*Hypergeometric
2F1[1, 1 + m, 2 + m, (b*(d + e*x))/(b*d - a*e)])/(b*(b*d - a*e)^2
*(1 + m))
```

Rubi in Sympy [A] time = 17.9156, size = 88, normalized size = 0.79

$$-\frac{(d+ex)^{m+1}\left(Abem+B\left(-ae\left(m+1\right)+bd\right)\right){}_2F_1\left(\begin{matrix}1,m+1\\m+2\end{matrix}\middle|\frac{b(-d-ex)}{ae-bd}\right)}{b\left(m+1\right)\left(ae-bd\right)^2}+\frac{(d+ex)^{m+1}\left(Ab-Ba\right)}{b\left(a+bx\right)\left(ae-bd\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((B*x+A)*(e*x+d)**m/(b*x+a)**2,x)
```

```
[Out] -(d + e*x)**(m + 1)*(A*b*e*m + B*(-a*e*(m + 1) + b*d))*hyper((1,
m + 1), (m + 2,), b*(-d - e*x)/(a*e - b*d))/(b*(m + 1)*(a*e - b*d
)**2) + (d + e*x)**(m + 1)*(A*b - B*a)/(b*(a + b*x)*(a*e - b*d))
```

Mathematica [A] time = 0.144774, size = 0, normalized size = 0.

$$\int \frac{(A+Bx)(d+ex)^m}{(a+bx)^2}\,dx$$

Verification is Not applicable to the result.

```
[In]  Integrate[((A + B*x)*(d + e*x)^m)/(a + b*x)^2,x]
```

```
[Out] Integrate[((A + B*x)*(d + e*x)^m)/(a + b*x)^2, x]
```

Maple [F] time = 0.078, size = 0, normalized size = 0.

$$\int \frac{(Bx+A)(ex+d)^m}{(bx+a)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((B*x+A)*(e*x+d)^m/(b*x+a)^2,x)

[Out] int((B*x+A)*(e*x+d)^m/(b*x+a)^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(Bx+A)(ex+d)^m}{(bx+a)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^m/(b*x + a)^2,x, algorithm="maxima")

[Out] integrate((B*x + A)*(e*x + d)^m/(b*x + a)^2, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(Bx+A)(ex+d)^m}{b^2x^2+2\,abx+a^2},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^m/(b*x + a)^2,x, algorithm="fricas")

[Out] integral((B*x + A)*(e*x + d)^m/(b^2*x^2 + 2*a*b*x + a^2), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x+A)*(e*x+d)**m/(b*x+a)**2,x)

[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(Bx+A)(ex+d)^m}{(bx+a)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((B*x + A)*(e*x + d)^m/(b*x + a)^2,x, algorithm="giac")

[Out] integrate((B*x + A)*(e*x + d)^m/(b*x + a)^2, x)
```

3.3159 $\int (1-2x)(2+3x)^m(3+5x)^3\,dx$

Optimal. Leaf size=91

$$-\frac{7(3x+2)^{m+1}}{243(m+1)}+\frac{107(3x+2)^{m+2}}{243(m+2)}-\frac{185(3x+2)^{m+3}}{81(m+3)}+\frac{1025(3x+2)^{m+4}}{243(m+4)}-\frac{250(3x+2)^{m+5}}{243(m+5)}$$

```
[Out] (-7*(2 + 3*x)^(1 + m))/(243*(1 + m)) + (107*(2 + 3*x)^(2 + m))/(2
43*(2 + m)) - (185*(2 + 3*x)^(3 + m))/(81*(3 + m)) + (1025*(2 + 3
*x)^(4 + m))/(243*(4 + m)) - (250*(2 + 3*x)^(5 + m))/(243*(5 + m)
)
```

Rubi [A] time = 0.0728176, antiderivative size = 91, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.05$

$$-\frac{7(3x+2)^{m+1}}{243(m+1)}+\frac{107(3x+2)^{m+2}}{243(m+2)}-\frac{185(3x+2)^{m+3}}{81(m+3)}+\frac{1025(3x+2)^{m+4}}{243(m+4)}-\frac{250(3x+2)^{m+5}}{243(m+5)}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)*(2 + 3*x)^m*(3 + 5*x)^3,x]
```

```
[Out] (-7*(2 + 3*x)^(1 + m))/(243*(1 + m)) + (107*(2 + 3*x)^(2 + m))/(2
43*(2 + m)) - (185*(2 + 3*x)^(3 + m))/(81*(3 + m)) + (1025*(2 + 3
*x)^(4 + m))/(243*(4 + m)) - (250*(2 + 3*x)^(5 + m))/(243*(5 + m)
)
```

Rubi in Sympy [A] time = 11.6902, size = 75, normalized size = 0.82

$$-\frac{250\left(3x+2\right)^{m+5}}{243\left(m+5\right)}+\frac{1025\left(3x+2\right)^{m+4}}{243\left(m+4\right)}-\frac{185\left(3x+2\right)^{m+3}}{81\left(m+3\right)}+\frac{107\left(3x+2\right)^{m+2}}{243\left(m+2\right)}-\frac{7\left(3x+2\right)^{m+1}}{243\left(m+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(2+3*x)**m*(3+5*x)**3,x)
```

```
[Out] -250*(3*x + 2)**(m + 5)/(243*(m + 5)) + 1025*(3*x + 2)**(m + 4)/(
243*(m + 4)) - 185*(3*x + 2)**(m + 3)/(81*(m + 3)) + 107*(3*x + 2
)**(m + 2)/(243*(m + 2)) - 7*(3*x + 2)**(m + 1)/(243*(m + 1))
```

Mathematica [A] time = 0.0745736, size = 148, normalized size = 1.63

$$-\frac{(3x+2)^{m+1}\left(27m^4(2x-1)(5x+3)^3+9m^3(5x+3)^2\left(300x^2-11x-108\right)+9m^2\left(26250x^4+27975x^3-4985x^2-13537x-\right.\right.}{81(m+1)(m+2)(m}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)*(2 + 3*x)^m*(3 + 5*x)^3,x]
```

```
[Out] -((2 + 3*x)^(1 + m)*(27*m^4*(-1 + 2*x)*(3 + 5*x)^3 + 9*m^3*(3 + 5
*x)^2*(-108 - 11*x + 300*x^2) + 10*(-2440 - 9462*x - 5490*x^2 + 1
5525*x^3 + 16200*x^4) + 9*m^2*(-3687 - 13537*x - 4985*x^2 + 27975
*x^3 + 26250*x^4) + 3*m*(-16540 - 62863*x - 31860*x^2 + 112425*x^
3 + 112500*x^4)))/(81*(1 + m)*(2 + m)*(3 + m)*(4 + m)*(5 + m))
```

Maple [B] time = 0.011, size = 187, normalized size = 2.1

$$-\frac{(2+3x)^{1+m}\left(6750m^4x^4+8775m^4x^3+67500m^3x^4+1215m^4x^2+78525m^3x^3+236250m^2x^4-2187m^4x-2970m^3x^2+\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(2+3*x)^m*(3+5*x)^3,x)
```

```
[Out] -1/81*(2+3*x)^(1+m)*(6750*m^4*x^4+8775*m^4*x^3+67500*m^3*x^4+1215
*m^4*x^2+78525*m^3*x^3+236250*m^2*x^4-2187*m^4*x-2970*m^3*x^2+251
775*m^2*x^3+337500*m*x^4-729*m^4-30051*m^3*x-44865*m^2*x^2+337275
*m*x^3+162000*x^4-8748*m^3-121833*m^2*x-95580*m*x^2+155250*x^3-33
183*m^2-188589*m*x-54900*x^2-49620*m-94620*x-24400)/(m^5+15*m^4+8
5*m^3+225*m^2+274*m+120)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^m*(5*x + 3)^3*(2*x - 1),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.237402, size = 236, normalized size = 2.59

$$-\frac{\left(20250\left(m^4+10m^3+35m^2+50m+24\right)x^5+675\left(59m^4+549m^3+1819m^2+2499m+1170\right)x^4-1458m^4+45\left(471m^4\right.\right.}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^m*(5*x + 3)^3*(2*x - 1),x, algorithm="fricas")
```

```
[Out] -1/81*(20250*(m^4 + 10*m^3 + 35*m^2 + 50*m + 24)*x^5 + 675*(59*m^
4 + 549*m^3 + 1819*m^2 + 2499*m + 1170)*x^4 - 1458*m^4 + 45*(471*
m^4 + 3292*m^3 + 8199*m^2 + 8618*m + 3240)*x^3 - 17496*m^3 - 9*(4
59*m^4 + 10677*m^3 + 50581*m^2 + 84103*m + 43740)*x^2 - 66366*m^2
 - 3*(2187*m^4 + 28782*m^3 + 114405*m^2 + 175346*m + 87480)*x - 9
9240*m - 48800)*(3*x + 2)^m/(m^5 + 15*m^4 + 85*m^3 + 225*m^2 + 27
4*m + 120)
```

Sympy [A] time = 3.41923, size = 1826, normalized size = 20.07

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)**m*(3+5*x)**3,x)
```

```
[Out] Piecewise((-648000*x**4*log(x + 2/3)/(629856*x**4 + 1679616*x**3
+ 1679616*x**2 + 746496*x + 124416) + 909279*x**4/(629856*x**4 +
1679616*x**3 + 1679616*x**2 + 746496*x + 124416) - 1728000*x**3*l
og(x + 2/3)/(629856*x**4 + 1679616*x**3 + 1679616*x**2 + 746496*x
 + 124416) + 1539144*x**3/(629856*x**4 + 1679616*x**3 + 1679616*x
**2 + 746496*x + 124416) - 1728000*x**2*log(x + 2/3)/(629856*x**4
 + 1679616*x**3 + 1679616*x**2 + 746496*x + 124416) + 733464*x**2
```

```
/(629856*x**4 + 1679616*x**3 + 1679616*x**2 + 746496*x + 124416)
- 768000*x*log(x + 2/3)/(629856*x**4 + 1679616*x**3 + 1679616*x**
2 + 746496*x + 124416) - 128000*log(x + 2/3)/(629856*x**4 + 16796
16*x**3 + 1679616*x**2 + 746496*x + 124416) - 49496/(629856*x**4
+ 1679616*x**3 + 1679616*x**2 + 746496*x + 124416), Eq(m, -5)), (
-486000*x**4/(157464*x**3 + 314928*x**2 + 209952*x + 46656) + 664
200*x**3*log(x + 2/3)/(157464*x**3 + 314928*x**2 + 209952*x + 466
56) - 980991*x**3/(157464*x**3 + 314928*x**2 + 209952*x + 46656)
+ 1328400*x**2*log(x + 2/3)/(157464*x**3 + 314928*x**2 + 209952*x
 + 46656) - 546102*x**2/(157464*x**3 + 314928*x**2 + 209952*x + 4
6656) + 885600*x*log(x + 2/3)/(157464*x**3 + 314928*x**2 + 209952
*x + 46656) + 196800*log(x + 2/3)/(157464*x**3 + 314928*x**2 + 20
9952*x + 46656) + 48104/(157464*x**3 + 314928*x**2 + 209952*x + 4
6656), Eq(m, -4)), (-13500*x**4/(2916*x**2 + 3888*x + 1296) + 900
*x**3/(2916*x**2 + 3888*x + 1296) - 6660*x**2*log(x + 2/3)/(2916*
x**2 + 3888*x + 1296) + 13221*x**2/(2916*x**2 + 3888*x + 1296) -
8880*x*log(x + 2/3)/(2916*x**2 + 3888*x + 1296) - 2960*log(x + 2/
3)/(2916*x**2 + 3888*x + 1296) - 2938/(2916*x**2 + 3888*x + 1296)
, Eq(m, -3)), (-13500*x**4/(1458*x + 972) - 8325*x**3/(1458*x + 9
72) + 9360*x**2/(1458*x + 972) + 642*x*log(x + 2/3)/(1458*x + 972
) + 428*log(x + 2/3)/(1458*x + 972) - 3946/(1458*x + 972), Eq(m,
-2)), (-125*x**4/6 - 475*x**3/27 + 545*x**2/54 + 1097*x/81 - 7*lo
g(x + 2/3)/243, Eq(m, -1)), (-20250*m**4*x**5*(3*x + 2)**m/(81*m*
*5 + 1215*m**4 + 6885*m**3 + 18225*m**2 + 22194*m + 9720) - 39825
*m**4*x**4*(3*x + 2)**m/(81*m**5 + 1215*m**4 + 6885*m**3 + 18225*
m**2 + 22194*m + 9720) - 21195*m**4*x**3*(3*x + 2)**m/(81*m**5 +
1215*m**4 + 6885*m**3 + 18225*m**2 + 22194*m + 9720) + 4131*m**4*
x**2*(3*x + 2)**m/(81*m**5 + 1215*m**4 + 6885*m**3 + 18225*m**2 +
 22194*m + 9720) + 6561*m**4*x*(3*x + 2)**m/(81*m**5 + 1215*m**4
+ 6885*m**3 + 18225*m**2 + 22194*m + 9720) + 1458*m**4*(3*x + 2)*
*m/(81*m**5 + 1215*m**4 + 6885*m**3 + 18225*m**2 + 22194*m + 9720
) - 202500*m**3*x**5*(3*x + 2)**m/(81*m**5 + 1215*m**4 + 6885*m**
3 + 18225*m**2 + 22194*m + 9720) - 370575*m**3*x**4*(3*x + 2)**m/
(81*m**5 + 1215*m**4 + 6885*m**3 + 18225*m**2 + 22194*m + 9720) -
 148140*m**3*x**3*(3*x + 2)**m/(81*m**5 + 1215*m**4 + 6885*m**3 +
 18225*m**2 + 22194*m + 9720) + 96093*m**3*x**2*(3*x + 2)**m/(81*
m**5 + 1215*m**4 + 6885*m**3 + 18225*m**2 + 22194*m + 9720) + 863
46*m**3*x*(3*x + 2)**m/(81*m**5 + 1215*m**4 + 6885*m**3 + 18225*m
**2 + 22194*m + 9720) + 17496*m**3*(3*x + 2)**m/(81*m**5 + 1215*m
**4 + 6885*m**3 + 18225*m**2 + 22194*m + 9720) - 708750*m**2*x**5
*(3*x + 2)**m/(81*m**5 + 1215*m**4 + 6885*m**3 + 18225*m**2 + 221
94*m + 9720) - 1227825*m**2*x**4*(3*x + 2)**m/(81*m**5 + 1215*m**
4 + 6885*m**3 + 18225*m**2 + 22194*m + 9720) - 368955*m**2*x**3*(
3*x + 2)**m/(81*m**5 + 1215*m**4 + 6885*m**3 + 18225*m**2 + 22194
*m + 9720) + 455229*m**2*x**2*(3*x + 2)**m/(81*m**5 + 1215*m**4 +
 6885*m**3 + 18225*m**2 + 22194*m + 9720) + 343215*m**2*x*(3*x +
2)**m/(81*m**5 + 1215*m**4 + 6885*m**3 + 18225*m**2 + 22194*m + 9
720) + 66366*m**2*(3*x + 2)**m/(81*m**5 + 1215*m**4 + 6885*m**3 +
 18225*m**2 + 22194*m + 9720) - 1012500*m*x**5*(3*x + 2)**m/(81*m
**5 + 1215*m**4 + 6885*m**3 + 18225*m**2 + 22194*m + 9720) - 1686
825*m*x**4*(3*x + 2)**m/(81*m**5 + 1215*m**4 + 6885*m**3 + 18225*
m**2 + 22194*m + 9720) - 387810*m*x**3*(3*x + 2)**m/(81*m**5 + 12
15*m**4 + 6885*m**3 + 18225*m**2 + 22194*m + 9720) + 756927*m*x**
2*(3*x + 2)**m/(81*m**5 + 1215*m**4 + 6885*m**3 + 18225*m**2 + 22
194*m + 9720) + 526038*m*x*(3*x + 2)**m/(81*m**5 + 1215*m**4 + 68
85*m**3 + 18225*m**2 + 22194*m + 9720) + 99240*m*(3*x + 2)**m/(81
*m**5 + 1215*m**4 + 6885*m**3 + 18225*m**2 + 22194*m + 9720) - 48
6000*x**5*(3*x + 2)**m/(81*m**5 + 1215*m**4 + 6885*m**3 + 18225*m
**2 + 22194*m + 9720) - 789750*x**4*(3*x + 2)**m/(81*m**5 + 1215*
m**4 + 6885*m**3 + 18225*m**2 + 22194*m + 9720) - 145800*x**3*(3*
x + 2)**m/(81*m**5 + 1215*m**4 + 6885*m**3 + 18225*m**2 + 22194*m
 + 9720) + 393660*x**2*(3*x + 2)**m/(81*m**5 + 1215*m**4 + 6885*m
**3 + 18225*m**2 + 22194*m + 9720) + 262440*x*(3*x + 2)**m/(81*m*
*5 + 1215*m**4 + 6885*m**3 + 18225*m**2 + 22194*m + 9720) + 48800
*(3*x + 2)**m/(81*m**5 + 1215*m**4 + 6885*m**3 + 18225*m**2 + 221
94*m + 9720), True))
```

GIAC/XCAS [A] time = 0.228427, size = 652, normalized size = 7.16

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^m*(5*x + 3)^3*(2*x - 1),x, algorithm="giac")
```

```
[Out] -1/81*(20250*m^4*x^5*e^(m*ln(3*x + 2)) + 39825*m^4*x^4*e^(m*ln(3*
x + 2)) + 202500*m^3*x^5*e^(m*ln(3*x + 2)) + 21195*m^4*x^3*e^(m*l
n(3*x + 2)) + 370575*m^3*x^4*e^(m*ln(3*x + 2)) + 708750*m^2*x^5*e
^(m*ln(3*x + 2)) - 4131*m^4*x^2*e^(m*ln(3*x + 2)) + 148140*m^3*x^
3*e^(m*ln(3*x + 2)) + 1227825*m^2*x^4*e^(m*ln(3*x + 2)) + 1012500
*m*x^5*e^(m*ln(3*x + 2)) - 6561*m^4*x*e^(m*ln(3*x + 2)) - 96093*m
^3*x^2*e^(m*ln(3*x + 2)) + 368955*m^2*x^3*e^(m*ln(3*x + 2)) + 168
6825*m*x^4*e^(m*ln(3*x + 2)) + 486000*x^5*e^(m*ln(3*x + 2)) - 145
8*m^4*e^(m*ln(3*x + 2)) - 86346*m^3*x*e^(m*ln(3*x + 2)) - 455229*
m^2*x^2*e^(m*ln(3*x + 2)) + 387810*m*x^3*e^(m*ln(3*x + 2)) + 7897
50*x^4*e^(m*ln(3*x + 2)) - 17496*m^3*e^(m*ln(3*x + 2)) - 343215*m
^2*x*e^(m*ln(3*x + 2)) - 756927*m*x^2*e^(m*ln(3*x + 2)) + 145800*
x^3*e^(m*ln(3*x + 2)) - 66366*m^2*e^(m*ln(3*x + 2)) - 526038*m*x*
e^(m*ln(3*x + 2)) - 393660*x^2*e^(m*ln(3*x + 2)) - 99240*m*e^(m*l
n(3*x + 2)) - 262440*x*e^(m*ln(3*x + 2)) - 48800*e^(m*ln(3*x + 2)
))/(m^5 + 15*m^4 + 85*m^3 + 225*m^2 + 274*m + 120)
```

3.3160 $\int (1-2x)(2+3x)^m(3+5x)^2\,dx$

Optimal. Leaf size=73

$$\frac{7(3x+2)^{m+1}}{81(m+1)}-\frac{8(3x+2)^{m+2}}{9(m+2)}+\frac{65(3x+2)^{m+3}}{27(m+3)}-\frac{50(3x+2)^{m+4}}{81(m+4)}$$

```
[Out] (7*(2 + 3*x)^(1 + m))/(81*(1 + m)) - (8*(2 + 3*x)^(2 + m))/(9*(2
+ m)) + (65*(2 + 3*x)^(3 + m))/(27*(3 + m)) - (50*(2 + 3*x)^(4 +
m))/(81*(4 + m))
```

Rubi [A] time = 0.0644679, antiderivative size = 73, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.05

$$\frac{7(3x+2)^{m+1}}{81(m+1)}-\frac{8(3x+2)^{m+2}}{9(m+2)}+\frac{65(3x+2)^{m+3}}{27(m+3)}-\frac{50(3x+2)^{m+4}}{81(m+4)}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)*(2 + 3*x)^m*(3 + 5*x)^2,x]
```

```
[Out] (7*(2 + 3*x)^(1 + m))/(81*(1 + m)) - (8*(2 + 3*x)^(2 + m))/(9*(2
+ m)) + (65*(2 + 3*x)^(3 + m))/(27*(3 + m)) - (50*(2 + 3*x)^(4 +
m))/(81*(4 + m))
```

Rubi in Sympy [A] time = 10.0384, size = 60, normalized size = 0.82

$$-\frac{50\left(3x+2\right)^{m+4}}{81\left(m+4\right)}+\frac{65\left(3x+2\right)^{m+3}}{27\left(m+3\right)}-\frac{8\left(3x+2\right)^{m+2}}{9\left(m+2\right)}+\frac{7\left(3x+2\right)^{m+1}}{81\left(m+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(2+3*x)**m*(3+5*x)**2,x)
```

```
[Out] -50*(3*x + 2)**(m + 4)/(81*(m + 4)) + 65*(3*x + 2)**(m + 3)/(27*(
m + 3)) - 8*(3*x + 2)**(m + 2)/(9*(m + 2)) + 7*(3*x + 2)**(m + 1)
/(81*(m + 1))
```

Mathematica [A] time = 0.0499164, size = 106, normalized size = 1.45

$$-\frac{(3x+2)^{m+1}\left(9m^3(2x-1)(5x+3)^2+3m^2\left(900x^3+435x^2-428x-219\right)+2m\left(2475x^3+855x^2-1476x-661\right)+4\left(675x^3\right.\right.}{27(m+1)(m+2)(m+3)(m+4)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)*(2 + 3*x)^m*(3 + 5*x)^2,x]
```

```
[Out] -((2 + 3*x)^(1 + m)*(9*m^3*(-1 + 2*x)*(3 + 5*x)^2 + 4*(-190 - 444
*x + 180*x^2 + 675*x^3) + 3*m^2*(-219 - 428*x + 435*x^2 + 900*x^3
) + 2*m*(-661 - 1476*x + 855*x^2 + 2475*x^3)))/(27*(1 + m)*(2 + m
)*(3 + m)*(4 + m))
```

Maple [A] time = 0.01, size = 120, normalized size = 1.6

$$-\frac{(2+3x)^{1+m}\left(450m^3x^3+315m^3x^2+2700m^2x^3-108m^3x+1305m^2x^2+4950mx^3-81m^3-1284m^2x+1710mx^2+27\right.}{27m^4+270m^3+945m^2+1350m+648}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(2+3*x)^m*(3+5*x)^2,x)
```

```
[Out] -1/27*(2+3*x)^(1+m)*(450*m^3*x^3+315*m^3*x^2+2700*m^2*x^3-108*m^3
*x+1305*m^2*x^2+4950*m*x^3-81*m^3-1284*m^2*x+1710*m*x^2+2700*x^3-
657*m^2-2952*m*x+720*x^2-1322*m-1776*x-760)/(m^4+10*m^3+35*m^2+50
*m+24)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^m*(5*x + 3)^2*(2*x - 1),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.236186, size = 162, normalized size = 2.22

$$-\frac{\left(1350\left(m^{3}+6\,m^{2}+11\,m+6\right)x^{4}+45\left(41\,m^{3}+207\,m^{2}+334\,m+168\right)x^{3}-162\,m^{3}+18\left(17\,m^{3}-69\,m^{2}-302\,m-216\right)x^{2}\cdots}{27\left(m^{4}+10\,m^{3}+35\,m^{2}+50\,m+24\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^m*(5*x + 3)^2*(2*x - 1),x, algorithm="fricas")
```

```
[Out] -1/27*(1350*(m^3 + 6*m^2 + 11*m + 6)*x^4 + 45*(41*m^3 + 207*m^2 +
 334*m + 168)*x^3 - 162*m^3 + 18*(17*m^3 - 69*m^2 - 302*m - 216)*
x^2 - 1314*m^2 - 3*(153*m^3 + 1513*m^2 + 3290*m + 1944)*x - 2644*
m - 1520)*(3*x + 2)^m/(m^4 + 10*m^3 + 35*m^2 + 50*m + 24)
```

Sympy [A] time = 2.17886, size = 1018, normalized size = 13.95

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)**m*(3+5*x)**2,x)
```

```
[Out] Piecewise((-4050*x**3*log(x + 2/3)/(6561*x**3 + 13122*x**2 + 8748
*x + 1944) + 5022*x**3/(6561*x**3 + 13122*x**2 + 8748*x + 1944) -
 8100*x**2*log(x + 2/3)/(6561*x**3 + 13122*x**2 + 8748*x + 1944)
+ 4779*x**2/(6561*x**3 + 13122*x**2 + 8748*x + 1944) - 5400*x*log
(x + 2/3)/(6561*x**3 + 13122*x**2 + 8748*x + 1944) - 1200*log(x +
 2/3)/(6561*x**3 + 13122*x**2 + 8748*x + 1944) - 643/(6561*x**3 +
 13122*x**2 + 8748*x + 1944), Eq(m, -4)), (-900*x**3/(486*x**2 +
648*x + 216) + 1170*x**2*log(x + 2/3)/(486*x**2 + 648*x + 216) -
1008*x**2/(486*x**2 + 648*x + 216) + 1560*x*log(x + 2/3)/(486*x**
2 + 648*x + 216) + 520*log(x + 2/3)/(486*x**2 + 648*x + 216) + 17
9/(486*x**2 + 648*x + 216), Eq(m, -3)), (-75*x**3/(27*x + 18) + 4
5*x**2/(27*x + 18) - 24*x*log(x + 2/3)/(27*x + 18) - 16*log(x + 2
/3)/(27*x + 18) - 43/(27*x + 18), Eq(m, -2)), (-50*x**3/9 - 5*x**
2/18 + 118*x/27 + 7*log(x + 2/3)/81, Eq(m, -1)), (-1350*m**3*x**4
*(3*x + 2)**m/(27*m**4 + 270*m**3 + 945*m**2 + 1350*m + 648) - 18
45*m**3*x**3*(3*x + 2)**m/(27*m**4 + 270*m**3 + 945*m**2 + 1350*m
 + 648) - 306*m**3*x**2*(3*x + 2)**m/(27*m**4 + 270*m**3 + 945*m*
*2 + 1350*m + 648) + 459*m**3*x*(3*x + 2)**m/(27*m**4 + 270*m**3
```

```
+ 945*m**2 + 1350*m + 648) + 162*m**3*(3*x + 2)**m/(27*m**4 + 270
*m**3 + 945*m**2 + 1350*m + 648) - 8100*m**2*x**4*(3*x + 2)**m/(2
7*m**4 + 270*m**3 + 945*m**2 + 1350*m + 648) - 9315*m**2*x**3*(3*
x + 2)**m/(27*m**4 + 270*m**3 + 945*m**2 + 1350*m + 648) + 1242*m
**2*x**2*(3*x + 2)**m/(27*m**4 + 270*m**3 + 945*m**2 + 1350*m + 6
48) + 4539*m**2*x*(3*x + 2)**m/(27*m**4 + 270*m**3 + 945*m**2 + 1
350*m + 648) + 1314*m**2*(3*x + 2)**m/(27*m**4 + 270*m**3 + 945*m
**2 + 1350*m + 648) - 14850*m*x**4*(3*x + 2)**m/(27*m**4 + 270*m*
*3 + 945*m**2 + 1350*m + 648) - 15030*m*x**3*(3*x + 2)**m/(27*m**
4 + 270*m**3 + 945*m**2 + 1350*m + 648) + 5436*m*x**2*(3*x + 2)**
m/(27*m**4 + 270*m**3 + 945*m**2 + 1350*m + 648) + 9870*m*x*(3*x
+ 2)**m/(27*m**4 + 270*m**3 + 945*m**2 + 1350*m + 648) + 2644*m*(
3*x + 2)**m/(27*m**4 + 270*m**3 + 945*m**2 + 1350*m + 648) - 8100
*x**4*(3*x + 2)**m/(27*m**4 + 270*m**3 + 945*m**2 + 1350*m + 648)
 - 7560*x**3*(3*x + 2)**m/(27*m**4 + 270*m**3 + 945*m**2 + 1350*m
 + 648) + 3888*x**2*(3*x + 2)**m/(27*m**4 + 270*m**3 + 945*m**2 +
 1350*m + 648) + 5832*x*(3*x + 2)**m/(27*m**4 + 270*m**3 + 945*m*
*2 + 1350*m + 648) + 1520*(3*x + 2)**m/(27*m**4 + 270*m**3 + 945*
m**2 + 1350*m + 648), True))
```

GIAC/XCAS [A] time = 0.228423, size = 429, normalized size = 5.88

$$-\frac{1350\,m^3x^4e^{(m\ln(3\,x+2))} + 1845\,m^3x^3e^{(m\ln(3\,x+2))} + 8100\,m^2x^4e^{(m\ln(3\,x+2))} + 306\,m^3x^2e^{(m\ln(3\,x+2))} + 9315\,m^2x^3e^{(m\ln(3\,x+2))} + 148}{}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^m*(5*x + 3)^2*(2*x - 1),x, algorithm="giac")
```

```
[Out] -1/27*(1350*m^3*x^4*e^(m*ln(3*x + 2)) + 1845*m^3*x^3*e^(m*ln(3*x
+ 2)) + 8100*m^2*x^4*e^(m*ln(3*x + 2)) + 306*m^3*x^2*e^(m*ln(3*x
+ 2)) + 9315*m^2*x^3*e^(m*ln(3*x + 2)) + 14850*m*x^4*e^(m*ln(3*x
+ 2)) - 459*m^3*x*e^(m*ln(3*x + 2)) - 1242*m^2*x^2*e^(m*ln(3*x +
2)) + 15030*m*x^3*e^(m*ln(3*x + 2)) + 8100*x^4*e^(m*ln(3*x + 2))
- 162*m^3*e^(m*ln(3*x + 2)) - 4539*m^2*x*e^(m*ln(3*x + 2)) - 5436
*m*x^2*e^(m*ln(3*x + 2)) + 7560*x^3*e^(m*ln(3*x + 2)) - 1314*m^2*
e^(m*ln(3*x + 2)) - 9870*m*x*e^(m*ln(3*x + 2)) - 3888*x^2*e^(m*ln
(3*x + 2)) - 2644*m*e^(m*ln(3*x + 2)) - 5832*x*e^(m*ln(3*x + 2))
- 1520*e^(m*ln(3*x + 2)))/(m^4 + 10*m^3 + 35*m^2 + 50*m + 24)
```

3.3161 $\int (1-2x)(2+3x)^m(3+5x)\,dx$

Optimal. Leaf size=55

$$-\frac{7(3x+2)^{m+1}}{27(m+1)}+\frac{37(3x+2)^{m+2}}{27(m+2)}-\frac{10(3x+2)^{m+3}}{27(m+3)}$$

```
[Out] (-7*(2 + 3*x)^(1 + m))/(27*(1 + m)) + (37*(2 + 3*x)^(2 + m))/(27*
(2 + m)) - (10*(2 + 3*x)^(3 + m))/(27*(3 + m))
```

Rubi [A] time = 0.0467358, antiderivative size = 55, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 1, integrand size = 18, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.056

$$-\frac{7(3x+2)^{m+1}}{27(m+1)}+\frac{37(3x+2)^{m+2}}{27(m+2)}-\frac{10(3x+2)^{m+3}}{27(m+3)}$$

Antiderivative was successfully verified.

```
[In]  Int[(1 - 2*x)*(2 + 3*x)^m*(3 + 5*x),x]
```

```
[Out] (-7*(2 + 3*x)^(1 + m))/(27*(1 + m)) + (37*(2 + 3*x)^(2 + m))/(27*
(2 + m)) - (10*(2 + 3*x)^(3 + m))/(27*(3 + m))
```

Rubi in Sympy [A] time = 8.08648, size = 44, normalized size = 0.8

$$-\frac{10\,(3x+2)^{m+3}}{27\,(m+3)}+\frac{37\,(3x+2)^{m+2}}{27\,(m+2)}-\frac{7\,(3x+2)^{m+1}}{27\,(m+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(2+3*x)**m*(3+5*x),x)
```

```
[Out] -10*(3*x + 2)**(m + 3)/(27*(m + 3)) + 37*(3*x + 2)**(m + 2)/(27*(
m + 2)) - 7*(3*x + 2)**(m + 1)/(27*(m + 1))
```

Mathematica [A] time = 0.0365385, size = 63, normalized size = 1.15

$$\frac{(3x+2)^{m+1}\left(-9m^2\left(10x^2+x-3\right)+m\left(-270x^2+84x+141\right)-180x^2+93x+100\right)}{27(m+1)(m+2)(m+3)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(1 - 2*x)*(2 + 3*x)^m*(3 + 5*x),x]
```

```
[Out] ((2 + 3*x)^(1 + m)*(100 + 93*x - 180*x^2 + m*(141 + 84*x - 270*x^
2) - 9*m^2*(-3 + x + 10*x^2)))/(27*(1 + m)*(2 + m)*(3 + m))
```

Maple [A] time = 0.005, size = 69, normalized size = 1.3

$$-\frac{(2+3\,x)^{1+m}\left(90\,m^2x^2+9\,m^2x+270\,mx^2-27\,m^2-84\,mx+180\,x^2-141\,m-93\,x-100\right)}{27\,m^3+162\,m^2+297\,m+162}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(2+3*x)^m*(3+5*x),x)
```

```
[Out] -1/27*(2+3*x)^(1+m)*(90*m^2*x^2+9*m^2*x+270*m*x^2-27*m^2-84*m*x+1
80*x^2-141*m-93*x-100)/(m^3+6*m^2+11*m+6)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

Exception raised: ValueError

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^m*(5*x + 3)*(2*x - 1),x, algorithm="maxima")
```

```
[Out] Exception raised: ValueError
```

Fricas [A] time = 0.239321, size = 101, normalized size = 1.84

$$-\frac{\left(270\,\left(m^{2}+3\,m+2\right)x^{3}+9\,\left(23\,m^{2}+32\,m+9\right)x^{2}-54\,m^{2}-3\,\left(21\,m^{2}+197\,m+162\right)x-282\,m-200\right)\left(3\,x+2\right)^{m}}{27\,\left(m^{3}+6\,m^{2}+11\,m+6\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^m*(5*x + 3)*(2*x - 1),x, algorithm="fricas")
```

```
[Out] -1/27*(270*(m^2 + 3*m + 2)*x^3 + 9*(23*m^2 + 32*m + 9)*x^2 - 54*m
^2 - 3*(21*m^2 + 197*m + 162)*x - 282*m - 200)*(3*x + 2)^m/(m^3 +
 6*m^2 + 11*m + 6)
```

Sympy [A] time = 1.30094, size = 488, normalized size = 8.87

$$\begin{cases} -\frac{360x^2\log\left(x+\frac{2}{3}\right)}{972x^2+1296x+432}+\frac{333x^2}{972x^2+1296x+432}-\frac{480x\log\left(x+\frac{2}{3}\right)}{972x^2+1296x+432}-\frac{160\log\left(x+\frac{2}{3}\right)}{972x^2+1296x+432}-\frac{134}{972x^2+1296x+432} \\ -\frac{90x^2}{81x+54}+\frac{111x\log\left(x+\frac{2}{3}\right)}{81x+54}+\frac{74\log\left(x+\frac{2}{3}\right)}{81x+54}+\frac{47}{81x+54} \\ -\frac{5x^2}{3}+\frac{17x}{9}-\frac{7\log\left(x+\frac{2}{3}\right)}{27} \\ -\frac{270m^2x^3(3x+2)^m}{27m^3+162m^2+297m+162}-\frac{207m^2x^2(3x+2)^m}{27m^3+162m^2+297m+162}+\frac{63m^2x(3x+2)^m}{27m^3+162m^2+297m+162}+\frac{54m^2(3x+2)^m}{27m^3+162m^2+297m+162}-\frac{810mx^3(3x+2)^m}{27m^3+162m^2+297m+162}-\frac{288mx}{27m^3+162} \end{cases}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)**m*(3+5*x),x)
```

```
[Out] Piecewise((-360*x**2*log(x + 2/3)/(972*x**2 + 1296*x + 432) + 333
*x**2/(972*x**2 + 1296*x + 432) - 480*x*log(x + 2/3)/(972*x**2 +
1296*x + 432) - 160*log(x + 2/3)/(972*x**2 + 1296*x + 432) - 134/
(972*x**2 + 1296*x + 432), Eq(m, -3)), (-90*x**2/(81*x + 54) + 11
1*x*log(x + 2/3)/(81*x + 54) + 74*log(x + 2/3)/(81*x + 54) + 47/(
81*x + 54), Eq(m, -2)), (-5*x**2/3 + 17*x/9 - 7*log(x + 2/3)/27,
Eq(m, -1)), (-270*m**2*x**3*(3*x + 2)**m/(27*m**3 + 162*m**2 + 29
7*m + 162) - 207*m**2*x**2*(3*x + 2)**m/(27*m**3 + 162*m**2 + 297
*m + 162) + 63*m**2*x*(3*x + 2)**m/(27*m**3 + 162*m**2 + 297*m +
162) + 54*m**2*(3*x + 2)**m/(27*m**3 + 162*m**2 + 297*m + 162) -
810*m*x**3*(3*x + 2)**m/(27*m**3 + 162*m**2 + 297*m + 162) - 288*
m*x**2*(3*x + 2)**m/(27*m**3 + 162*m**2 + 297*m + 162) + 591*m*x*
(3*x + 2)**m/(27*m**3 + 162*m**2 + 297*m + 162) + 282*m*(3*x + 2)
**m/(27*m**3 + 162*m**2 + 297*m + 162) - 540*x**3*(3*x + 2)**m/(2
7*m**3 + 162*m**2 + 297*m + 162) - 81*x**2*(3*x + 2)**m/(27*m**3
+ 162*m**2 + 297*m + 162) + 486*x*(3*x + 2)**m/(27*m**3 + 162*m**
2 + 297*m + 162) + 200*(3*x + 2)**m/(27*m**3 + 162*m**2 + 297*m +
 162), True))
```

GIAC/XCAS [A] time = 0.235533, size = 252, normalized size = 4.58

$$-\frac{270\,m^2x^3e^{(m\ln(3\,x+2))} + 207\,m^2x^2e^{(m\ln(3\,x+2))} + 810\,mx^3e^{(m\ln(3\,x+2))} - 63\,m^2xe^{(m\ln(3\,x+2))} + 288\,mx^2e^{(m\ln(3\,x+2))} + 540\,x^3e^{(m\ln(}}{27\,(m^3 + 6\,m^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^m*(5*x + 3)*(2*x - 1),x, algorithm="giac")
```

```
[Out] -1/27*(270*m^2*x^3*e^(m*ln(3*x + 2)) + 207*m^2*x^2*e^(m*ln(3*x +
2)) + 810*m*x^3*e^(m*ln(3*x + 2)) - 63*m^2*x*e^(m*ln(3*x + 2)) +
288*m*x^2*e^(m*ln(3*x + 2)) + 540*x^3*e^(m*ln(3*x + 2)) - 54*m^2*
e^(m*ln(3*x + 2)) - 591*m*x*e^(m*ln(3*x + 2)) + 81*x^2*e^(m*ln(3*
x + 2)) - 282*m*e^(m*ln(3*x + 2)) - 486*x*e^(m*ln(3*x + 2)) - 200
*e^(m*ln(3*x + 2)))/(m^3 + 6*m^2 + 11*m + 6)
```

3.3162 $\int \frac{(1-2x)(2+3x)^m}{3+5x} dx$

Optimal. Leaf size=52

$$-\frac{11(3x+2)^{m+1}\,{}_2F_1(1,m+1;m+2;5(3x+2))}{5(m+1)}-\frac{2(3x+2)^{m+1}}{15(m+1)}$$

```
[Out] (-2*(2 + 3*x)^(1 + m))/(15*(1 + m)) - (11*(2 + 3*x)^(1 + m)*Hyper
geometric2F1[1, 1 + m, 2 + m, 5*(2 + 3*x)])/(5*(1 + m))
```

Rubi [A] time = 0.051404, antiderivative size = 52, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.1

$$-\frac{11(3x+2)^{m+1}\,{}_2F_1(1,m+1;m+2;5(3x+2))}{5(m+1)}-\frac{2(3x+2)^{m+1}}{15(m+1)}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)*(2 + 3*x)^m)/(3 + 5*x),x]
```

```
[Out] (-2*(2 + 3*x)^(1 + m))/(15*(1 + m)) - (11*(2 + 3*x)^(1 + m)*Hyper
geometric2F1[1, 1 + m, 2 + m, 5*(2 + 3*x)])/(5*(1 + m))
```

Rubi in Sympy [A] time = 6.5881, size = 41, normalized size = 0.79

$$-\frac{11\,(3x+2)^{m+1}\,{}_2F_1\left(\begin{matrix}1,m+1\\m+2\end{matrix}\middle|15x+10\right)}{5\,(m+1)}-\frac{2\,(3x+2)^{m+1}}{15\,(m+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(2+3*x)**m/(3+5*x),x)
```

```
[Out] -11*(3*x + 2)**(m + 1)*hyper((1, m + 1), (m + 2,), 15*x + 10)/(5*
(m + 1)) - 2*(3*x + 2)**(m + 1)/(15*(m + 1))
```

Mathematica [A] time = 0.114688, size = 63, normalized size = 1.21

$$\frac{1}{75}(3x+2)^m\left(\frac{33\left(\frac{1}{15x+9}+1\right)^{-m}\,{}_2F_1\left(-m,-m;1-m;-\frac{1}{15x+9}\right)}{m}-\frac{10(3x+2)}{m+1}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)*(2 + 3*x)^m)/(3 + 5*x),x]
```

```
[Out] ((2 + 3*x)^m*((-10*(2 + 3*x))/(1 + m) + (33*Hypergeometric2F1[-m,
 -m, 1 - m, -(9 + 15*x)^(-1)])/(m*(1 + (9 + 15*x)^(-1))^m)))/75
```

Maple [F] time = 0.047, size = 0, normalized size = 0.

$$\int \frac{(1-2x)(2+3x)^m}{3+5x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(2+3*x)^m/(3+5*x),x)
```

```
[Out] int((1-2*x)*(2+3*x)^m/(3+5*x),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$-\int \frac{(3\,x+2)^m(2\,x-1)}{5\,x+3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^m*(2*x - 1)/(5*x + 3),x, algorithm="maxima")
```

```
[Out] -integrate((3*x + 2)^m*(2*x - 1)/(5*x + 3), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(-\frac{(3\,x+2)^m(2\,x-1)}{5\,x+3},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^m*(2*x - 1)/(5*x + 3),x, algorithm="fricas")
```

```
[Out] integral(-(3*x + 2)^m*(2*x - 1)/(5*x + 3), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\int\left(-\frac{(3x+2)^m}{5x+3}\right)dx-\int\frac{2x\,(3x+2)^m}{5x+3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)**m/(3+5*x),x)
```

```
[Out] -Integral(-(3*x + 2)**m/(5*x + 3), x) - Integral(2*x*(3*x + 2)**m
/(5*x + 3), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int -\frac{(3\,x+2)^m(2\,x-1)}{5\,x+3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^m*(2*x - 1)/(5*x + 3),x, algorithm="giac")
```

```
[Out] integrate(-(3*x + 2)^m*(2*x - 1)/(5*x + 3), x)
```

3.3163 $\int \frac{(1-2x)(2+3x)^m}{(3+5x)^2} dx$

Optimal. Leaf size=59

$$\frac{(2-33m)(3x+2)^{m+1}{}_2F_1(1,m+1;m+2;5(3x+2))}{5(m+1)}-\frac{11(3x+2)^{m+1}}{5(5x+3)}$$

```
[Out] (-11*(2 + 3*x)^(1 + m))/(5*(3 + 5*x)) + ((2 - 33*m)*(2 + 3*x)^(1
+ m)*Hypergeometric2F1[1, 1 + m, 2 + m, 5*(2 + 3*x)])/(5*(1 + m))
```

Rubi [A] time = 0.0667315, antiderivative size = 59, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.1$

$$\frac{(2-33m)(3x+2)^{m+1}{}_2F_1(1,m+1;m+2;5(3x+2))}{5(m+1)}-\frac{11(3x+2)^{m+1}}{5(5x+3)}$$

Antiderivative was successfully verified.

```
[In]  Int[((1 - 2*x)*(2 + 3*x)^m)/(3 + 5*x)^2,x]
```

```
[Out] (-11*(2 + 3*x)^(1 + m))/(5*(3 + 5*x)) + ((2 - 33*m)*(2 + 3*x)^(1
+ m)*Hypergeometric2F1[1, 1 + m, 2 + m, 5*(2 + 3*x)])/(5*(1 + m))
```

Rubi in Sympy [A] time = 6.98372, size = 42, normalized size = 0.71

$$\frac{(-33m+2)\,(3x+2)^{m+1}\,{}_2F_1\left(\begin{matrix}1,m+1\\m+2\end{matrix}\middle|15x+10\right)}{5\,(m+1)}-\frac{11\,(3x+2)^{m+1}}{5\,(5x+3)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((1-2*x)*(2+3*x)**m/(3+5*x)**2,x)
```

```
[Out] (-33*m + 2)*(3*x + 2)**(m + 1)*hyper((1, m + 1), (m + 2,), 15*x +
 10)/(5*(m + 1)) - 11*(3*x + 2)**(m + 1)/(5*(5*x + 3))
```

Mathematica [A] time = 0.073326, size = 97, normalized size = 1.64

$$\frac{(3x+2)^m\left(\frac{1}{15x+9}+1\right)^{-m}\left(11m\,{}_2F_1\left(1-m,-m;2-m;-\frac{1}{15x+9}\right)-2(m-1)(5x+3)\,{}_2F_1\left(-m,-m;1-m;-\frac{1}{15x+9}\right)\right)}{25(m-1)m(5x+3)}$$

Antiderivative was successfully verified.

```
[In]  Integrate[((1 - 2*x)*(2 + 3*x)^m)/(3 + 5*x)^2,x]
```

```
[Out] ((2 + 3*x)^m*(11*m*Hypergeometric2F1[1 - m, -m, 2 - m, -(9 + 15*x
)^(-1)] - 2*(-1 + m)*(3 + 5*x)*Hypergeometric2F1[-m, -m, 1 - m, -
(9 + 15*x)^(-1)]))/(25*(-1 + m)*m*(3 + 5*x)*(1 + (9 + 15*x)^(-1))
^m)
```

Maple [F] time = 0.056, size = 0, normalized size = 0.

$$\int \frac{(1-2\,x)\,(2+3\,x)^m}{(3+5\,x)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(2+3*x)^m/(3+5*x)^2,x)
```

```
[Out] int((1-2*x)*(2+3*x)^m/(3+5*x)^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$-\int \frac{(3\,x+2)^m(2\,x-1)}{(5\,x+3)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^m*(2*x - 1)/(5*x + 3)^2,x, algorithm="maxima")
```

```
[Out] -integrate((3*x + 2)^m*(2*x - 1)/(5*x + 3)^2, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(-\frac{(3\,x+2)^m(2\,x-1)}{25\,x^2+30\,x+9}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^m*(2*x - 1)/(5*x + 3)^2,x, algorithm="fricas")
```

```
[Out] integral(-(3*x + 2)^m*(2*x - 1)/(25*x^2 + 30*x + 9), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\int\left(-\frac{(3x+2)^m}{25x^2+30x+9}\right)dx-\int\frac{2x\,(3x+2)^m}{25x^2+30x+9}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)**m/(3+5*x)**2,x)
```

```
[Out] -Integral(-(3*x + 2)**m/(25*x**2 + 30*x + 9), x) - Integral(2*x*(
3*x + 2)**m/(25*x**2 + 30*x + 9), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int -\frac{(3\,x+2)^m(2\,x-1)}{(5\,x+3)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^m*(2*x - 1)/(5*x + 3)^2,x, algorithm="giac")
```

```
[Out] integrate(-(3*x + 2)^m*(2*x - 1)/(5*x + 3)^2, x)
```

3.3164 $\int \frac{(1-2x)(2+3x)^m}{(3+5x)^3} dx$

Optimal. Leaf size=59

$$-\frac{3(37-33m)(3x+2)^{m+1}{}_2F_1(2,m+1;m+2;5(3x+2))}{10(m+1)}-\frac{11(3x+2)^{m+1}}{10(5x+3)^2}$$

```
[Out] (-11*(2 + 3*x)^(1 + m))/(10*(3 + 5*x)^2) - (3*(37 - 33*m)*(2 + 3*
x)^(1 + m)*Hypergeometric2F1[2, 1 + m, 2 + m, 5*(2 + 3*x)])/(10*(
1 + m))
```

Rubi [A] time = 0.0706887, antiderivative size = 59, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.1

$$-\frac{3(37-33m)(3x+2)^{m+1}{}_2F_1(2,m+1;m+2;5(3x+2))}{10(m+1)}-\frac{11(3x+2)^{m+1}}{10(5x+3)^2}$$

Antiderivative was successfully verified.

```
[In] Int[((1 - 2*x)*(2 + 3*x)^m)/(3 + 5*x)^3,x]
```

```
[Out] (-11*(2 + 3*x)^(1 + m))/(10*(3 + 5*x)^2) - (3*(37 - 33*m)*(2 + 3*
x)^(1 + m)*Hypergeometric2F1[2, 1 + m, 2 + m, 5*(2 + 3*x)])/(10*(
1 + m))
```

Rubi in Sympy [A] time = 6.78721, size = 49, normalized size = 0.83

$$-\frac{3\left(-33m+37\right)\left(3x+2\right)^{m+1}{}_2F_1\left(\begin{matrix}2,m+1\\m+2\end{matrix}\middle|15x+10\right)}{10\left(m+1\right)}-\frac{11\left(3x+2\right)^{m+1}}{10\left(5x+3\right)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] rubi_integrate((1-2*x)*(2+3*x)**m/(3+5*x)**3,x)
```

```
[Out] -3*(-33*m + 37)*(3*x + 2)**(m + 1)*hyper((2, m + 1), (m + 2,), 15
*x + 10)/(10*(m + 1)) - 11*(3*x + 2)**(m + 1)/(10*(5*x + 3)**2)
```

Mathematica [A] time = 0.08822, size = 103, normalized size = 1.75

$$\frac{(3x+2)^m\left(\frac{1}{15x+9}+1\right)^{-m}\left(11(m-1)\,{}_2F_1\left(2-m,-m;3-m;-\frac{1}{15x+9}\right)-2(m-2)(5x+3)\,{}_2F_1\left(1-m,-m;2-m;-\frac{1}{15x+9}\right)\right)}{25(m-2)(m-1)(5x+3)^2}$$

Antiderivative was successfully verified.

```
[In] Integrate[((1 - 2*x)*(2 + 3*x)^m)/(3 + 5*x)^3,x]
```

```
[Out] ((2 + 3*x)^m*(-2*(-2 + m)*(3 + 5*x)*Hypergeometric2F1[1 - m, -m,
2 - m, -(9 + 15*x)^(-1)] + 11*(-1 + m)*Hypergeometric2F1[2 - m, -
m, 3 - m, -(9 + 15*x)^(-1)]))/(25*(-2 + m)*(-1 + m)*(3 + 5*x)^2*(
1 + (9 + 15*x)^(-1))^m)
```

Maple [F] time = 0.069, size = 0, normalized size = 0.

$$\int \frac{(1-2\,x)\left(2+3\,x\right)^m}{\left(3+5\,x\right)^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((1-2*x)*(2+3*x)^m/(3+5*x)^3,x)
```

```
[Out] int((1-2*x)*(2+3*x)^m/(3+5*x)^3,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$-\int \frac{(3x+2)^m(2x-1)}{(5x+3)^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^m*(2*x - 1)/(5*x + 3)^3,x, algorithm="maxima")
```

```
[Out] -integrate((3*x + 2)^m*(2*x - 1)/(5*x + 3)^3, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(-\frac{(3x+2)^m(2x-1)}{125x^3+225x^2+135x+27}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^m*(2*x - 1)/(5*x + 3)^3,x, algorithm="fricas")
```

```
[Out] integral(-(3*x + 2)^m*(2*x - 1)/(125*x^3 + 225*x^2 + 135*x + 27),
 x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\int \left(-\frac{(3x+2)^m}{125x^3+225x^2+135x+27}\right)dx - \int \frac{2x(3x+2)^m}{125x^3+225x^2+135x+27}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((1-2*x)*(2+3*x)**m/(3+5*x)**3,x)
```

```
[Out] -Integral(-(3*x + 2)**m/(125*x**3 + 225*x**2 + 135*x + 27), x) -
Integral(2*x*(3*x + 2)**m/(125*x**3 + 225*x**2 + 135*x + 27), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int -\frac{(3x+2)^m(2x-1)}{(5x+3)^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^m*(2*x - 1)/(5*x + 3)^3,x, algorithm="giac")
```

```
[Out] integrate(-(3*x + 2)^m*(2*x - 1)/(5*x + 3)^3, x)
```

3.3165 $\int \frac{(2+3x)^m(3+5x)^3}{1-2x}\,dx$

Optimal. Leaf size=90

$$\frac{1331(3x+2)^{m+1}\,{}_2F_1\left(1,m+1;m+2;\frac{2}{7}(3x+2)\right)}{56(m+1)}-\frac{5135(3x+2)^{m+1}}{216(m+1)}-\frac{725(3x+2)^{m+2}}{108(m+2)}-\frac{125(3x+2)^{m+3}}{54(m+3)}$$

```
[Out] (-5135*(2 + 3*x)^(1 + m))/(216*(1 + m)) - (725*(2 + 3*x)^(2 + m))
/(108*(2 + m)) - (125*(2 + 3*x)^(3 + m))/(54*(3 + m)) + (1331*(2
+ 3*x)^(1 + m)*Hypergeometric2F1[1, 1 + m, 2 + m, (2*(2 + 3*x))/7
])/(56*(1 + m))
```

Rubi [A] time = 0.0934411, antiderivative size = 90, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 2, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.091

$$\frac{1331(3x+2)^{m+1}\,{}_2F_1\left(1,m+1;m+2;\frac{2}{7}(3x+2)\right)}{56(m+1)}-\frac{5135(3x+2)^{m+1}}{216(m+1)}-\frac{725(3x+2)^{m+2}}{108(m+2)}-\frac{125(3x+2)^{m+3}}{54(m+3)}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^m*(3 + 5*x)^3)/(1 - 2*x),x]
```

```
[Out] (-5135*(2 + 3*x)^(1 + m))/(216*(1 + m)) - (725*(2 + 3*x)^(2 + m))
/(108*(2 + m)) - (125*(2 + 3*x)^(3 + m))/(54*(3 + m)) + (1331*(2
+ 3*x)^(1 + m)*Hypergeometric2F1[1, 1 + m, 2 + m, (2*(2 + 3*x))/7
])/(56*(1 + m))
```

Rubi in Sympy [A] time = 11.6814, size = 73, normalized size = 0.81

$$-\frac{125\,(3x+2)^{m+3}}{54\,(m+3)}-\frac{725\,(3x+2)^{m+2}}{108\,(m+2)}+\frac{1331\,(3x+2)^{m+1}\,{}_2F_1\left(\left.\begin{matrix}1,m+1\\m+2\end{matrix}\right|\frac{6x}{7}+\frac{4}{7}\right)}{56\,(m+1)}-\frac{5135\,(3x+2)^{m+1}}{216\,(m+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**m*(3+5*x)**3/(1-2*x),x)
```

```
[Out] -125*(3*x + 2)**(m + 3)/(54*(m + 3)) - 725*(3*x + 2)**(m + 2)/(10
8*(m + 2)) + 1331*(3*x + 2)**(m + 1)*hyper((1, m + 1), (m + 2,),
6*x/7 + 4/7)/(56*(m + 1)) - 5135*(3*x + 2)**(m + 1)/(216*(m + 1))
```

Mathematica [B] time = 0.569363, size = 240, normalized size = 2.67

$$\frac{1}{432}(3x+2)^m\left(-\frac{35937\left(\frac{6x+4}{6x-3}\right)^{-m}\,{}_2F_1\left(-m,-m;1-m;\frac{7}{3-6x}\right)}{m}\right.$$
$$+\frac{2475\left(-6m\left(6x^2+x-2\right)-7^{m+2}(6x+4)^{-m}-36x^2+36x+40\right)}{m^2+3m+2}$$
$$+\frac{250\left(-9m^2(1-2x)^2(3x+2)(6x+4)^m-216x^3(6x+4)^m+324x^2(6x+4)^m-3m\left(108x^3-120x^2-59x+46\right)(6x+4)^m-1\right.}{(m+1)(m+2)(m+3)}$$
$$\left.-\frac{32670(3x+2)}{m+1}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^m*(3 + 5*x)^3)/(1 - 2*x),x]
```

```
[Out] ((2 + 3*x)^m*((-32670*(2 + 3*x))/(1 + m) + (2475*(40 + 36*x - 36*
x^2 - 7^(2 + m)/(4 + 6*x)^m - 6*m*(-2 + x + 6*x^2)))/(2 + 3*m + m
^2) + (250*(7^(3 + m) - 316*(4 + 6*x)^m - 162*x*(4 + 6*x)^m + 324
*x^2*(4 + 6*x)^m - 216*x^3*(4 + 6*x)^m - 9*m^2*(1 - 2*x)^2*(2 + 3
*x)*(4 + 6*x)^m - 3*m*(4 + 6*x)^m*(46 - 59*x - 120*x^2 + 108*x^3)
))/((1 + m)*(2 + m)*(3 + m)*(4 + 6*x)^m) - (35937*Hypergeometric2
F1[-m, -m, 1 - m, 7/(3 - 6*x)])/(m*((4 + 6*x)/(-3 + 6*x))^m)))/43
2
```

Maple [F] time = 0.073, size = 0, normalized size = 0.

$$\int \frac{(2+3x)^m (3+5x)^3}{1-2x}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] int((2+3*x)^m*(3+5*x)^3/(1-2*x),x)
```

```
[Out] int((2+3*x)^m*(3+5*x)^3/(1-2*x),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$-\int \frac{(3x+2)^m (5x+3)^3}{2x-1}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^m*(5*x + 3)^3/(2*x - 1),x, algorithm="maxima")
```

```
[Out] -integrate((3*x + 2)^m*(5*x + 3)^3/(2*x - 1), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{(125x^3 + 225x^2 + 135x + 27)(3x+2)^m}{2x-1}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^m*(5*x + 3)^3/(2*x - 1),x, algorithm="fricas")
```

```
[Out] integral(-(125*x^3 + 225*x^2 + 135*x + 27)*(3*x + 2)^m/(2*x - 1),
 x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\int \frac{27(3x+2)^m}{2x-1}\, dx - \int \frac{135x(3x+2)^m}{2x-1}\, dx - \int \frac{225x^2(3x+2)^m}{2x-1}\, dx - \int \frac{125x^3(3x+2)^m}{2x-1}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate((2+3*x)**m*(3+5*x)**3/(1-2*x),x)
```

```
[Out] -Integral(27*(3*x + 2)**m/(2*x - 1), x) - Integral(135*x*(3*x + 2
)**m/(2*x - 1), x) - Integral(225*x**2*(3*x + 2)**m/(2*x - 1), x)
```

```
 - Integral(125*x**3*(3*x + 2)**m/(2*x - 1), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int -\frac{(3\,x+2)^{m}(5\,x+3)^{3}}{2\,x-1}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^m*(5*x + 3)^3/(2*x - 1),x, algorithm="giac")

[Out] integrate(-(3*x + 2)^m*(5*x + 3)^3/(2*x - 1), x)
```

3.3166 $\int \frac{(2+3x)^m(3+5x)^2}{1-2x}\,dx$

Optimal. Leaf size=72

$$\frac{121(3x+2)^{m+1}\,{}_2F_1\left(1,m+1;m+2;\frac{2}{7}(3x+2)\right)}{28(m+1)}-\frac{155(3x+2)^{m+1}}{36(m+1)}-\frac{25(3x+2)^{m+2}}{18(m+2)}$$

```
[Out] (-155*(2 + 3*x)^(1 + m))/(36*(1 + m)) - (25*(2 + 3*x)^(2 + m))/(1
8*(2 + m)) + (121*(2 + 3*x)^(1 + m)*Hypergeometric2F1[1, 1 + m, 2
 + m, (2*(2 + 3*x))/7])/(28*(1 + m))
```

Rubi [A] time = 0.081636, antiderivative size = 72, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 2, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.091

$$\frac{121(3x+2)^{m+1}\,{}_2F_1\left(1,m+1;m+2;\frac{2}{7}(3x+2)\right)}{28(m+1)}-\frac{155(3x+2)^{m+1}}{36(m+1)}-\frac{25(3x+2)^{m+2}}{18(m+2)}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^m*(3 + 5*x)^2)/(1 - 2*x),x]
```

```
[Out] (-155*(2 + 3*x)^(1 + m))/(36*(1 + m)) - (25*(2 + 3*x)^(2 + m))/(1
8*(2 + m)) + (121*(2 + 3*x)^(1 + m)*Hypergeometric2F1[1, 1 + m, 2
 + m, (2*(2 + 3*x))/7])/(28*(1 + m))
```

Rubi in Sympy [A] time = 10.2567, size = 58, normalized size = 0.81

$$-\frac{25\,(3x+2)^{m+2}}{18\,(m+2)}+\frac{121\,(3x+2)^{m+1}\,{}_2F_1\left(\begin{matrix}1, m+1\\ m+2\end{matrix}\middle|\frac{6x}{7}+\frac{4}{7}\right)}{28\,(m+1)}-\frac{155\,(3x+2)^{m+1}}{36\,(m+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**m*(3+5*x)**2/(1-2*x),x)
```

```
[Out] -25*(3*x + 2)**(m + 2)/(18*(m + 2)) + 121*(3*x + 2)**(m + 1)*hype
r((1, m + 1), (m + 2,), 6*x/7 + 4/7)/(28*(m + 1)) - 155*(3*x + 2)
**(m + 1)/(36*(m + 1))
```

Mathematica [A] time = 0.448318, size = 106, normalized size = 1.47

$$\frac{1}{72}(3x+2)^m\left(-\frac{1089\left(\frac{6x+4}{6x-3}\right)^{-m}\,{}_2F_1\left(-m,-m;1-m;\frac{7}{3-6x}\right)}{m}-\frac{5\left(6m\left(30x^2+71x+34\right)+5\,7^{m+2}(6x+4)^{-m}+180x^2+612x+328\right)}{m^2+3m+2}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^m*(3 + 5*x)^2)/(1 - 2*x),x]
```

```
[Out] ((2 + 3*x)^m*((-5*(328 + 612*x + 180*x^2 + (5*7^(2 + m))/(4 + 6*x
)^m + 6*m*(34 + 71*x + 30*x^2)))/(2 + 3*m + m^2) - (1089*Hypergeo
metric2F1[-m, -m, 1 - m, 7/(3 - 6*x)])/(m*((4 + 6*x)/(-3 + 6*x))^
m)))/72
```

Maple [F] time = 0.064, size = 0, normalized size = 0.

$$\int \frac{(2+3x)^m (3+5x)^2}{1-2x}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^m*(3+5*x)^2/(1-2*x),x)
```

```
[Out] int((2+3*x)^m*(3+5*x)^2/(1-2*x),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$-\int \frac{(3x+2)^m (5x+3)^2}{2x-1}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^m*(5*x + 3)^2/(2*x - 1),x, algorithm="maxima")
```

```
[Out] -integrate((3*x + 2)^m*(5*x + 3)^2/(2*x - 1), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{\left(25x^2+30x+9\right)(3x+2)^m}{2x-1}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^m*(5*x + 3)^2/(2*x - 1),x, algorithm="fricas")
```

```
[Out] integral(-(25*x^2 + 30*x + 9)*(3*x + 2)^m/(2*x - 1), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\int \frac{9(3x+2)^m}{2x-1}\, dx - \int \frac{30x(3x+2)^m}{2x-1}\, dx - \int \frac{25x^2(3x+2)^m}{2x-1}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**m*(3+5*x)**2/(1-2*x),x)
```

```
[Out] -Integral(9*(3*x + 2)**m/(2*x - 1), x) - Integral(30*x*(3*x + 2)*
*m/(2*x - 1), x) - Integral(25*x**2*(3*x + 2)**m/(2*x - 1), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int -\frac{(3x+2)^m (5x+3)^2}{2x-1}\, dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^m*(5*x + 3)^2/(2*x - 1),x, algorithm="giac")

[Out] integrate(-(3*x + 2)^m*(5*x + 3)^2/(2*x - 1), x)
```

3.3167 $\int \frac{(2+3x)^m(3+5x)}{1-2x}\,dx$

Optimal. Leaf size=54

$$\frac{11(3x+2)^{m+1}\,{}_2F_1\left(1,m+1;m+2;\frac{2}{7}(3x+2)\right)}{14(m+1)}-\frac{5(3x+2)^{m+1}}{6(m+1)}$$

```
[Out] (-5*(2 + 3*x)^(1 + m))/(6*(1 + m)) + (11*(2 + 3*x)^(1 + m)*Hyperg
eometric2F1[1, 1 + m, 2 + m, (2*(2 + 3*x))/7])/(14*(1 + m))
```

Rubi [A] time = 0.0471738, antiderivative size = 54, normalized size of antiderivative = 1., number of steps used = 2, number of rules used = 2, integrand size = 20, $\frac{\text{number of rules}}{\text{integrand size}} = 0.1$

$$\frac{11(3x+2)^{m+1}\,{}_2F_1\left(1,m+1;m+2;\frac{2}{7}(3x+2)\right)}{14(m+1)}-\frac{5(3x+2)^{m+1}}{6(m+1)}$$

Antiderivative was successfully verified.

```
[In]  Int[((2 + 3*x)^m*(3 + 5*x))/(1 - 2*x),x]
```

```
[Out] (-5*(2 + 3*x)^(1 + m))/(6*(1 + m)) + (11*(2 + 3*x)^(1 + m)*Hyperg
eometric2F1[1, 1 + m, 2 + m, (2*(2 + 3*x))/7])/(14*(1 + m))
```

Rubi in Sympy [A] time = 6.47515, size = 42, normalized size = 0.78

$$\frac{11\left(3x+2\right)^{m+1}{}_2F_1\left(\begin{matrix}1,m+1\\m+2\end{matrix}\middle|\frac{6x}{7}+\frac{4}{7}\right)}{14\left(m+1\right)}-\frac{5\left(3x+2\right)^{m+1}}{6\left(m+1\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**m*(3+5*x)/(1-2*x),x)
```

```
[Out] 11*(3*x + 2)**(m + 1)*hyper((1, m + 1), (m + 2,), 6*x/7 + 4/7)/(1
4*(m + 1)) - 5*(3*x + 2)**(m + 1)/(6*(m + 1))
```

Mathematica [A] time = 0.112026, size = 67, normalized size = 1.24

$$\frac{1}{12}(3x+2)^m\left(-\frac{33\left(\frac{6x+4}{6x-3}\right)^{-m}\,{}_2F_1\left(-m,-m;1-m;\frac{7}{3-6x}\right)}{m}-\frac{10(3x+2)}{m+1}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[((2 + 3*x)^m*(3 + 5*x))/(1 - 2*x),x]
```

```
[Out] ((2 + 3*x)^m*((-10*(2 + 3*x))/(1 + m) - (33*Hypergeometric2F1[-m,
 -m, 1 - m, 7/(3 - 6*x)])/(m*((4 + 6*x)/(-3 + 6*x))^m)))/12
```

Maple [F] time = 0.054, size = 0, normalized size = 0.

$$\int \frac{(2+3x)^m(3+5x)}{1-2x}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^m*(3+5*x)/(1-2*x),x)
```

```
[Out] int((2+3*x)^m*(3+5*x)/(1-2*x),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$-\int \frac{(3\,x+2)^m (5\,x+3)}{2\,x-1}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^m*(5*x + 3)/(2*x - 1),x, algorithm="maxima")
```

```
[Out] -integrate((3*x + 2)^m*(5*x + 3)/(2*x - 1), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{(3\,x+2)^m (5\,x+3)}{2\,x-1}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^m*(5*x + 3)/(2*x - 1),x, algorithm="fricas")
```

```
[Out] integral(-(3*x + 2)^m*(5*x + 3)/(2*x - 1), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$-\int \frac{3\,(3x+2)^m}{2x-1}\,dx - \int \frac{5x\,(3x+2)^m}{2x-1}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**m*(3+5*x)/(1-2*x),x)
```

```
[Out] -Integral(3*(3*x + 2)**m/(2*x - 1), x) - Integral(5*x*(3*x + 2)**
m/(2*x - 1), x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int -\frac{(3\,x+2)^m (5\,x+3)}{2\,x-1}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^m*(5*x + 3)/(2*x - 1),x, algorithm="giac")
```

```
[Out] integrate(-(3*x + 2)^m*(5*x + 3)/(2*x - 1), x)
```

3.3168 $\int \frac{(2+3x)^m}{(1-2x)(3+5x)}\,dx$

Optimal. Leaf size=69

$$\frac{2(3x+2)^{m+1}\,{}_2F_1\left(1,m+1;m+2;\frac{2}{7}(3x+2)\right)}{77(m+1)}-\frac{5(3x+2)^{m+1}\,{}_2F_1(1,m+1;m+2;5(3x+2))}{11(m+1)}$$

```
[Out] (2*(2 + 3*x)^(1 + m)*Hypergeometric2F1[1, 1 + m, 2 + m, (2*(2 + 3
*x))/7])/(77*(1 + m)) - (5*(2 + 3*x)^(1 + m)*Hypergeometric2F1[1,
 1 + m, 2 + m, 5*(2 + 3*x)])/(11*(1 + m))
```

Rubi [A] time = 0.0741557, antiderivative size = 69, normalized size of antiderivative = 1., number of steps used = 3, number of rules used = 2, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.091

$$\frac{2(3x+2)^{m+1}\,{}_2F_1\left(1,m+1;m+2;\frac{2}{7}(3x+2)\right)}{77(m+1)}-\frac{5(3x+2)^{m+1}\,{}_2F_1(1,m+1;m+2;5(3x+2))}{11(m+1)}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^m/((1 - 2*x)*(3 + 5*x)),x]
```

```
[Out] (2*(2 + 3*x)^(1 + m)*Hypergeometric2F1[1, 1 + m, 2 + m, (2*(2 + 3
*x))/7])/(77*(1 + m)) - (5*(2 + 3*x)^(1 + m)*Hypergeometric2F1[1,
 1 + m, 2 + m, 5*(2 + 3*x)])/(11*(1 + m))
```

Rubi in Sympy [A] time = 8.35858, size = 53, normalized size = 0.77

$$\frac{2\,(3x+2)^{m+1}\,{}_2F_1\left(\begin{matrix}1,m+1\\m+2\end{matrix}\middle|\frac{6x}{7}+\frac{4}{7}\right)}{77\,(m+1)}-\frac{5\,(3x+2)^{m+1}\,{}_2F_1\left(\begin{matrix}1,m+1\\m+2\end{matrix}\middle|15x+10\right)}{11\,(m+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**m/(1-2*x)/(3+5*x),x)
```

```
[Out] 2*(3*x + 2)**(m + 1)*hyper((1, m + 1), (m + 2,), 6*x/7 + 4/7)/(77
*(m + 1)) - 5*(3*x + 2)**(m + 1)*hyper((1, m + 1), (m + 2,), 15*x
 + 10)/(11*(m + 1))
```

Mathematica [A] time = 0.15552, size = 96, normalized size = 1.39

$$-\frac{(3x+2)^m\left(\left(\frac{6x+4}{6x-3}\right)^{-m}\,{}_2F_1\left(-m,-m;1-m;\frac{7}{3-6x}\right)-\left(\frac{3x+2}{3x+\frac{9}{5}}\right)^{-m}\,{}_2F_1\left(-m,-m;1-m;-\frac{1}{15x+9}\right)\right)}{11m}$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^m/((1 - 2*x)*(3 + 5*x)),x]
```

```
[Out] -((2 + 3*x)^m*(Hypergeometric2F1[-m, -m, 1 - m, 7/(3 - 6*x)]/((4
+ 6*x)/(-3 + 6*x))^m - Hypergeometric2F1[-m, -m, 1 - m, -(9 + 15*
x)^(-1)]/((2 + 3*x)/(9/5 + 3*x))^m))/(11*m)
```

Maple [F] time = 0.063, size = 0, normalized size = 0.

$$\int \frac{(2+3x)^m}{(1-2x)(3+5x)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^m/(1-2*x)/(3+5*x),x)

[Out] int((2+3*x)^m/(1-2*x)/(3+5*x),x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$-\int \frac{(3x+2)^m}{(5x+3)(2x-1)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^m/((5*x + 3)*(2*x - 1)),x, algorithm="maxima")

[Out] -integrate((3*x + 2)^m/((5*x + 3)*(2*x - 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{(3x+2)^m}{10x^2+x-3}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^m/((5*x + 3)*(2*x - 1)),x, algorithm="fricas")

[Out] integral(-(3*x + 2)^m/(10*x^2 + x - 3), x)
```

Sympy [A] time = 2.35217, size = 112, normalized size = 1.62

$$-\frac{3^m m\left(x+\frac{2}{3}\right)^m \Phi\left(\frac{7}{6\left(x+\frac{2}{3}\right)}, 1, me^{i\pi}\right)\Gamma(-m)}{11\,\Gamma(-m+1)}+\frac{3^m m\left(x+\frac{2}{3}\right)^m \Phi\left(\frac{1}{15\left(x+\frac{2}{3}\right)}, 1, -m+1\right)\Gamma(-m+1)}{165\left(x+\frac{2}{3}\right)\Gamma(-m+2)} - \frac{3^m\left(x+\frac{2}{3}\right)^m \Phi\left(\frac{1}{15\left(x+\frac{2}{3}\right)}, 1, -m+1\right)\Gamma(-m+1)}{165\left(x+\frac{2}{3}\right)\Gamma(-m+2)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**m/(1-2*x)/(3+5*x),x)

[Out] -3**m*m*(x + 2/3)**m*lerchphi(7/(6*(x + 2/3)), 1, m*exp_polar(I*p
i))*gamma(-m)/(11*gamma(-m + 1)) + 3**m*m*(x + 2/3)**m*lerchphi(1
/(15*(x + 2/3)), 1, -m + 1)*gamma(-m + 1)/(165*(x + 2/3)*gamma(-m
 + 2)) - 3**m*(x + 2/3)**m*lerchphi(1/(15*(x + 2/3)), 1, -m + 1)*
gamma(-m + 1)/(165*(x + 2/3)*gamma(-m + 2))
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int -\frac{(3x+2)^m}{(5x+3)(2x-1)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^m/((5*x + 3)*(2*x - 1)),x, algorithm="giac")
```

```
[Out] integrate(-(3*x + 2)^m/((5*x + 3)*(2*x - 1)), x)
```

3.3169 $\int \frac{(2+3x)^m}{(1-2x)(3+5x)^2}\,dx$

Optimal. Leaf size=94

$$\frac{4(3x+2)^{m+1}\,{}_2F_1\left(1,m+1;m+2;\frac{2}{7}(3x+2)\right)}{847(m+1)} - \frac{5(33m+2)(3x+2)^{m+1}\,{}_2F_1(1,m+1;m+2;5(3x+2))}{121(m+1)} - \frac{5(3x+2)^{m+1}}{11(5x+3)}$$

```
[Out] (-5*(2 + 3*x)^(1 + m))/(11*(3 + 5*x)) + (4*(2 + 3*x)^(1 + m)*Hype
rgeometric2F1[1, 1 + m, 2 + m, (2*(2 + 3*x))/7])/(847*(1 + m)) -
(5*(2 + 33*m)*(2 + 3*x)^(1 + m)*Hypergeometric2F1[1, 1 + m, 2 + m
, 5*(2 + 3*x)])/(121*(1 + m))
```

Rubi [A] time = 0.170146, antiderivative size = 94, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.136$

$$\frac{4(3x+2)^{m+1}\,{}_2F_1\left(1,m+1;m+2;\frac{2}{7}(3x+2)\right)}{847(m+1)} - \frac{5(33m+2)(3x+2)^{m+1}\,{}_2F_1(1,m+1;m+2;5(3x+2))}{121(m+1)} - \frac{5(3x+2)^{m+1}}{11(5x+3)}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^m/((1 - 2*x)*(3 + 5*x)^2),x]
```

```
[Out] (-5*(2 + 3*x)^(1 + m))/(11*(3 + 5*x)) + (4*(2 + 3*x)^(1 + m)*Hype
rgeometric2F1[1, 1 + m, 2 + m, (2*(2 + 3*x))/7])/(847*(1 + m)) -
(5*(2 + 33*m)*(2 + 3*x)^(1 + m)*Hypergeometric2F1[1, 1 + m, 2 + m
, 5*(2 + 3*x)])/(121*(1 + m))
```

Rubi in Sympy [A] time = 22.6106, size = 73, normalized size = 0.78

$$-\frac{5\,(3x+2)^{m+1}}{11\,(5x+3)} - \frac{5\,(33m+2)\,(3x+2)^{m+1}\,{}_2F_1\left(\begin{matrix}1, m+1\\ m+2\end{matrix}\middle|15x+10\right)}{121\,(m+1)} + \frac{4\,(3x+2)^{m+1}\,{}_2F_1\left(\begin{matrix}1, m+1\\ m+2\end{matrix}\middle|\frac{6x}{7}+\frac{4}{7}\right)}{847\,(m+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**m/(1-2*x)/(3+5*x)**2,x)
```

```
[Out] -5*(3*x + 2)**(m + 1)/(11*(5*x + 3)) - 5*(33*m + 2)*(3*x + 2)**(m
 + 1)*hyper((1, m + 1), (m + 2,), 15*x + 10)/(121*(m + 1)) + 4*(3
*x + 2)**(m + 1)*hyper((1, m + 1), (m + 2,), 6*x/7 + 4/7)/(847*(m
 + 1))
```

Mathematica [A] time = 0.332874, size = 161, normalized size = 1.71

$$\frac{1}{121}(3x+2)^m\left(\frac{11\left(\frac{3}{5}\right)^m\left(\frac{3x+2}{5x+3}\right)^{-m}\,{}_2F_1\left(1-m,-m;2-m;-\frac{1}{15x+9}\right)}{(m-1)(5x+3)} + \frac{2\left(\left(\frac{3}{5}\right)^m\left(\frac{3x+2}{5x+3}\right)^{-m}\,{}_2F_1\left(-m,-m;1-m;-\frac{1}{15x+9}\right)-\left(\frac{6x+4}{6x-3}\right)^{-m}\,{}_2F_1\left(-m,-m;1-m;\frac{7}{3-6x}\right)\right)}{m}\right)$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^m/((1 - 2*x)*(3 + 5*x)^2),x]
```

```
[Out] ((2 + 3*x)^m*((11*(3/5)^m*Hypergeometric2F1[1 - m, -m, 2 - m, -(9
 + 15*x)^(-1)])/((-1 + m)*((2 + 3*x)/(3 + 5*x))^m*(3 + 5*x)) + (2
*(-(Hypergeometric2F1[-m, -m, 1 - m, 7/(3 - 6*x)]/((4 + 6*x)/(-3
+ 6*x))^m) + ((3/5)^m*Hypergeometric2F1[-m, -m, 1 - m, -(9 + 15*x
)^(-1)])/((2 + 3*x)/(3 + 5*x))^m))/m))/121
```

Maple [F] time = 0.077, size = 0, normalized size = 0.

$$\int \frac{(2+3x)^m}{(1-2x)(3+5x)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^m/(1-2*x)/(3+5*x)^2,x)
```

```
[Out] int((2+3*x)^m/(1-2*x)/(3+5*x)^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$-\int \frac{(3x+2)^m}{(5x+3)^2(2x-1)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^m/((5*x + 3)^2*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -integrate((3*x + 2)^m/((5*x + 3)^2*(2*x - 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{(3x+2)^m}{50x^3+35x^2-12x-9}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In] integrate(-(3*x + 2)^m/((5*x + 3)^2*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] integral(-(3*x + 2)^m/(50*x^3 + 35*x^2 - 12*x - 9), x)
```

Sympy [A] time = 4.50268, size = 447, normalized size = 4.76

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**m/(1-2*x)/(3+5*x)**2,x)
```

```
[Out] -30*15**(2*m)*3**m*m*(x + 2/3)*(x + 2/3)**m*lerchphi(7/(6*(x + 2/
3)), 1, m*exp_polar(I*pi))*gamma(-m)/(1815*15**(2*m)*(x + 2/3)*ga
mma(-m + 1) - 121*15**(2*m)*gamma(-m + 1)) + 2*15**(2*m)*3**m*m*(
x + 2/3)**m*lerchphi(7/(6*(x + 2/3)), 1, m*exp_polar(I*pi))*gamma
(-m)/(1815*15**(2*m)*(x + 2/3)*gamma(-m + 1) - 121*15**(2*m)*gamm
```

```
a(-m + 1)) + 495*675**m*m**2*(x + 2/3)*(x + 2/3)**m*lerchphi(1/(1
5*(x + 2/3)), 1, m*exp_polar(I*pi))*gamma(-m)/(1815*15**(2*m)*(x
+ 2/3)*gamma(-m + 1) - 121*15**(2*m)*gamma(-m + 1)) - 33*675**m*m
**2*(x + 2/3)**m*lerchphi(1/(15*(x + 2/3)), 1, m*exp_polar(I*pi))
*gamma(-m)/(1815*15**(2*m)*(x + 2/3)*gamma(-m + 1) - 121*15**(2*m
)*gamma(-m + 1)) + 30*675**m*m*(x + 2/3)*(x + 2/3)**m*lerchphi(1/
(15*(x + 2/3)), 1, m*exp_polar(I*pi))*gamma(-m)/(1815*15**(2*m)*(
x + 2/3)*gamma(-m + 1) - 121*15**(2*m)*gamma(-m + 1)) + 495*675**
m*m*(x + 2/3)*(x + 2/3)**m*gamma(-m)/(1815*15**(2*m)*(x + 2/3)*ga
mma(-m + 1) - 121*15**(2*m)*gamma(-m + 1)) - 2*675**m*m*(x + 2/3)
**m*lerchphi(1/(15*(x + 2/3)), 1, m*exp_polar(I*pi))*gamma(-m)/(1
815*15**(2*m)*(x + 2/3)*gamma(-m + 1) - 121*15**(2*m)*gamma(-m +
1))
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int -\frac{(3x+2)^m}{(5x+3)^2(2x-1)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^m/((5*x + 3)^2*(2*x - 1)),x, algorithm="giac")
```

```
[Out] integrate(-(3*x + 2)^m/((5*x + 3)^2*(2*x - 1)), x)
```

3.3170 $\int \frac{(2+3x)^m}{(1-2x)(3+5x)^3}\,dx$

Optimal. Leaf size=124

$$-\frac{5\left(1089m^2-957m+8\right)(3x+2)^{m+1}\,{}_2F_1(1,m+1;m+2;5(3x+2))}{2662(m+1)}+\frac{8(3x+2)^{m+1}\,{}_2F_1\left(1,m+1;m+2;\frac{2}{7}(3x+2)\right)}{9317(m+1)}+\frac{5(29-33m)(3x+2)^{m+1}}{242(5x+3)}-\frac{5(3x+2)^{m+1}}{22(5x+3)^2}$$

```
[Out] (-5*(2 + 3*x)^(1 + m))/(22*(3 + 5*x)^2) + (5*(29 - 33*m)*(2 + 3*x
)^(1 + m))/(242*(3 + 5*x)) + (8*(2 + 3*x)^(1 + m)*Hypergeometric2
F1[1, 1 + m, 2 + m, (2*(2 + 3*x))/7])/(9317*(1 + m)) - (5*(8 - 95
7*m + 1089*m^2)*(2 + 3*x)^(1 + m)*Hypergeometric2F1[1, 1 + m, 2 +
 m, 5*(2 + 3*x)])/(2662*(1 + m))
```

Rubi [A] time = 0.316209, antiderivative size = 124, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.182

$$-\frac{5\left(1089m^2-957m+8\right)(3x+2)^{m+1}\,{}_2F_1(1,m+1;m+2;5(3x+2))}{2662(m+1)}+\frac{8(3x+2)^{m+1}\,{}_2F_1\left(1,m+1;m+2;\frac{2}{7}(3x+2)\right)}{9317(m+1)}+\frac{5(29-33m)(3x+2)^{m+1}}{242(5x+3)}-\frac{5(3x+2)^{m+1}}{22(5x+3)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(2 + 3*x)^m/((1 - 2*x)*(3 + 5*x)^3),x]
```

```
[Out] (-5*(2 + 3*x)^(1 + m))/(22*(3 + 5*x)^2) + (5*(29 - 33*m)*(2 + 3*x
)^(1 + m))/(242*(3 + 5*x)) + (8*(2 + 3*x)^(1 + m)*Hypergeometric2
F1[1, 1 + m, 2 + m, (2*(2 + 3*x))/7])/(9317*(1 + m)) - (5*(8 - 95
7*m + 1089*m^2)*(2 + 3*x)^(1 + m)*Hypergeometric2F1[1, 1 + m, 2 +
 m, 5*(2 + 3*x)])/(2662*(1 + m))
```

Rubi in Sympy [A] time = 43.1896, size = 104, normalized size = 0.84

$$\frac{\left(-\frac{15m}{22}+\frac{145}{242}\right)(3x+2)^{m+1}}{5x+3}-\frac{5(3x+2)^{m+1}}{22(5x+3)^2}-\frac{5(3x+2)^{m+1}\left(1089m^2-957m+8\right){}_2F_1\left(\begin{matrix}1,m+1\\m+2\end{matrix}\middle|15x+10\right)}{2662(m+1)}+\frac{8(3x+2)^{m+1}\,{}_2F_1\left(\begin{matrix}1,m+1\\m+2\end{matrix}\middle|\frac{6x}{7}+\frac{4}{7}\right)}{9317(m+1)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((2+3*x)**m/(1-2*x)/(3+5*x)**3,x)
```

```
[Out] (-15*m/22 + 145/242)*(3*x + 2)**(m + 1)/(5*x + 3) - 5*(3*x + 2)**
(m + 1)/(22*(5*x + 3)**2) - 5*(3*x + 2)**(m + 1)*(1089*m**2 - 957
*m + 8)*hyper((1, m + 1), (m + 2,), 15*x + 10)/(2662*(m + 1)) + 8
*(3*x + 2)**(m + 1)*hyper((1, m + 1), (m + 2,), 6*x/7 + 4/7)/(931
7*(m + 1))
```

Mathematica [A] time = 0.699722, size = 220, normalized size = 1.77

$$(3x+2)^m\left(\frac{22\left(\frac{3}{5}\right)^m\left(\frac{3x+2}{5x+3}\right)^{-m}{}_2F_1\left(1-m,-m;2-m;-\frac{1}{15x+9}\right)}{(m-1)(5x+3)}+\frac{121\left(\frac{3}{5}\right)^m\left(\frac{3x+2}{5x+3}\right)^{-m}{}_2F_1\left(2-m,-m;3-m;-\frac{1}{15x+9}\right)}{(m-2)(5x+3)^2}+\frac{4\left(\left(\frac{3}{5}\right)^m\left(\frac{3x+2}{5x+3}\right)^{-m}{}_2F_1\left(-m,-m;1-m;-\frac{1}{15x\ldots}\right.}{m\ldots}\right.$$

Antiderivative was successfully verified.

```
[In]  Integrate[(2 + 3*x)^m/((1 - 2*x)*(3 + 5*x)^3),x]
```

```
[Out] ((2 + 3*x)^m*((22*(3/5)^m*Hypergeometric2F1[1 - m, -m, 2 - m, -(9
 + 15*x)^(-1)])/((-1 + m)*((2 + 3*x)/(3 + 5*x))^m*(3 + 5*x)) + (1
21*(3/5)^m*Hypergeometric2F1[2 - m, -m, 3 - m, -(9 + 15*x)^(-1)])
/((-2 + m)*((2 + 3*x)/(3 + 5*x))^m*(3 + 5*x)^2) + (4*(-(Hypergeom
etric2F1[-m, -m, 1 - m, 7/(3 - 6*x)]/((4 + 6*x)/(-3 + 6*x))^m) +
((3/5)^m*Hypergeometric2F1[-m, -m, 1 - m, -(9 + 15*x)^(-1)])/((2
+ 3*x)/(3 + 5*x))^m))/m))/1331
```

Maple [F] time = 0.095, size = 0, normalized size = 0.

$$\int \frac{(2+3x)^m}{(1-2x)(3+5x)^3}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((2+3*x)^m/(1-2*x)/(3+5*x)^3,x)
```

```
[Out] int((2+3*x)^m/(1-2*x)/(3+5*x)^3,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$-\int \frac{(3x+2)^m}{(5x+3)^3(2x-1)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^m/((5*x + 3)^3*(2*x - 1)),x, algorithm="maxima")
```

```
[Out] -integrate((3*x + 2)^m/((5*x + 3)^3*(2*x - 1)), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(-\frac{(3x+2)^m}{250x^4+325x^3+45x^2-81x-27}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^m/((5*x + 3)^3*(2*x - 1)),x, algorithm="fricas")
```

```
[Out] integral(-(3*x + 2)^m/(250*x^4 + 325*x^3 + 45*x^2 - 81*x - 27), x
)
```

Sympy [A] time = 6.59582, size = 1226, normalized size = 9.89

result too large to display

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((2+3*x)**m/(1-2*x)/(3+5*x)**3,x)
```

```
[Out] 245025*45**m*m**3*(x + 2/3)**2*(x + 2/3)**m*lerchphi(1/(15*(x + 2
/3)), 1, m*exp_polar(I*pi))*gamma(-m)/(598950*15**m*(x + 2/3)**2*
gamma(-m + 1) - 79860*15**m*(x + 2/3)*gamma(-m + 1) + 2662*15**m*
gamma(-m + 1)) - 32670*45**m*m**3*(x + 2/3)*(x + 2/3)**m*lerchphi
(1/(15*(x + 2/3)), 1, m*exp_polar(I*pi))*gamma(-m)/(598950*15**m*
(x + 2/3)**2*gamma(-m + 1) - 79860*15**m*(x + 2/3)*gamma(-m + 1)
+ 2662*15**m*gamma(-m + 1)) + 1089*45**m*m**3*(x + 2/3)**m*lerchp
hi(1/(15*(x + 2/3)), 1, m*exp_polar(I*pi))*gamma(-m)/(598950*15**
m*(x + 2/3)**2*gamma(-m + 1) - 79860*15**m*(x + 2/3)*gamma(-m + 1
) + 2662*15**m*gamma(-m + 1)) - 215325*45**m*m**2*(x + 2/3)**2*(x
 + 2/3)**m*lerchphi(1/(15*(x + 2/3)), 1, m*exp_polar(I*pi))*gamma
(-m)/(598950*15**m*(x + 2/3)**2*gamma(-m + 1) - 79860*15**m*(x +
2/3)*gamma(-m + 1) + 2662*15**m*gamma(-m + 1)) + 245025*45**m*m**
2*(x + 2/3)**2*(x + 2/3)**m*gamma(-m)/(598950*15**m*(x + 2/3)**2*
gamma(-m + 1) - 79860*15**m*(x + 2/3)*gamma(-m + 1) + 2662*15**m*
gamma(-m + 1)) + 28710*45**m*m**2*(x + 2/3)*(x + 2/3)**m*lerchphi
(1/(15*(x + 2/3)), 1, m*exp_polar(I*pi))*gamma(-m)/(598950*15**m*
(x + 2/3)**2*gamma(-m + 1) - 79860*15**m*(x + 2/3)*gamma(-m + 1)
+ 2662*15**m*gamma(-m + 1)) - 16335*45**m*m**2*(x + 2/3)*(x + 2/3
)**m*gamma(-m)/(598950*15**m*(x + 2/3)**2*gamma(-m + 1) - 79860*1
5**m*(x + 2/3)*gamma(-m + 1) + 2662*15**m*gamma(-m + 1)) - 957*45
**m*m**2*(x + 2/3)**m*lerchphi(1/(15*(x + 2/3)), 1, m*exp_polar(I
*pi))*gamma(-m)/(598950*15**m*(x + 2/3)**2*gamma(-m + 1) - 79860*
15**m*(x + 2/3)*gamma(-m + 1) + 2662*15**m*gamma(-m + 1)) + 1800*
45**m*m*(x + 2/3)**2*(x + 2/3)**m*lerchphi(1/(15*(x + 2/3)), 1, m
*exp_polar(I*pi))*gamma(-m)/(598950*15**m*(x + 2/3)**2*gamma(-m +
 1) - 79860*15**m*(x + 2/3)*gamma(-m + 1) + 2662*15**m*gamma(-m +
 1)) - 1800*45**m*m*(x + 2/3)**2*(x + 2/3)**m*lerchphi(7/(6*(x +
2/3)), 1, m*exp_polar(I*pi))*gamma(-m)/(598950*15**m*(x + 2/3)**2
*gamma(-m + 1) - 79860*15**m*(x + 2/3)*gamma(-m + 1) + 2662*15**m
*gamma(-m + 1)) - 215325*45**m*m*(x + 2/3)**2*(x + 2/3)**m*gamma(
-m)/(598950*15**m*(x + 2/3)**2*gamma(-m + 1) - 79860*15**m*(x + 2
/3)*gamma(-m + 1) + 2662*15**m*gamma(-m + 1)) - 240*45**m*m*(x +
2/3)*(x + 2/3)**m*lerchphi(1/(15*(x + 2/3)), 1, m*exp_polar(I*pi)
)*gamma(-m)/(598950*15**m*(x + 2/3)**2*gamma(-m + 1) - 79860*15**
m*(x + 2/3)*gamma(-m + 1) + 2662*15**m*gamma(-m + 1)) + 240*45**m
*m*(x + 2/3)*(x + 2/3)**m*lerchphi(7/(6*(x + 2/3)), 1, m*exp_pola
r(I*pi))*gamma(-m)/(598950*15**m*(x + 2/3)**2*gamma(-m + 1) - 798
60*15**m*(x + 2/3)*gamma(-m + 1) + 2662*15**m*gamma(-m + 1)) + 30
690*45**m*m*(x + 2/3)*(x + 2/3)**m*gamma(-m)/(598950*15**m*(x + 2
/3)**2*gamma(-m + 1) - 79860*15**m*(x + 2/3)*gamma(-m + 1) + 2662
*15**m*gamma(-m + 1)) + 8*45**m*m*(x + 2/3)**m*lerchphi(1/(15*(x
+ 2/3)), 1, m*exp_polar(I*pi))*gamma(-m)/(598950*15**m*(x + 2/3)*
*2*gamma(-m + 1) - 79860*15**m*(x + 2/3)*gamma(-m + 1) + 2662*15*
*m*gamma(-m + 1)) - 8*45**m*m*(x + 2/3)**m*lerchphi(7/(6*(x + 2/3
)), 1, m*exp_polar(I*pi))*gamma(-m)/(598950*15**m*(x + 2/3)**2*ga
mma(-m + 1) - 79860*15**m*(x + 2/3)*gamma(-m + 1) + 2662*15**m*ga
mma(-m + 1))
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int -\frac{(3x+2)^m}{(5x+3)^3(2x-1)}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate(-(3*x + 2)^m/((5*x + 3)^3*(2*x - 1)),x, algorithm="giac")
```

```
[Out] integrate(-(3*x + 2)^m/((5*x + 3)^3*(2*x - 1)), x)
```

3.3171 $\int \frac{(a+bx)^m}{(e+fx)^2}\,dx$

Optimal. Leaf size=52

$$\frac{b(a+bx)^{m+1}\,{}_2F_1\left(2,m+1;m+2;-\frac{f(a+bx)}{be-af}\right)}{(m+1)(be-af)^2}$$

```
[Out] (b*(a + b*x)^(1 + m)*Hypergeometric2F1[2, 1 + m, 2 + m, -((f*(a +
 b*x))/(b*e - a*f))])/((b*e - a*f)^2*(1 + m))
```

Rubi [A] time = 0.0461492, antiderivative size = 52, normalized size of antiderivative = 1., number of steps used = 1, number of rules used = 1, integrand size = 15, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.067

$$\frac{b(a+bx)^{m+1}\,{}_2F_1\left(2,m+1;m+2;-\frac{f(a+bx)}{be-af}\right)}{(m+1)(be-af)^2}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m/(e + f*x)^2,x]
```

```
[Out] (b*(a + b*x)^(1 + m)*Hypergeometric2F1[2, 1 + m, 2 + m, -((f*(a +
 b*x))/(b*e - a*f))])/((b*e - a*f)^2*(1 + m))
```

Rubi in Sympy [A] time = 5.462, size = 39, normalized size = 0.75

$$\frac{b\,(a+bx)^{m+1}\,{}_2F_1\left(\begin{matrix}2,m+1\\m+2\end{matrix}\middle|\frac{f(a+bx)}{af-be}\right)}{(m+1)\,(af-be)^2}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m/(f*x+e)**2,x)
```

```
[Out] b*(a + b*x)**(m + 1)*hyper((2, m + 1), (m + 2,), f*(a + b*x)/(a*f
 - b*e))/((m + 1)*(a*f - b*e)**2)
```

Mathematica [A] time = 0.0479917, size = 0, normalized size = 0.

$$\int \frac{(a+bx)^m}{(e+fx)^2}\,dx$$

Verification is Not applicable to the result.

```
[In]  Integrate[(a + b*x)^m/(e + f*x)^2,x]
```

```
[Out] Integrate[(a + b*x)^m/(e + f*x)^2, x]
```

Maple [F] time = 0.071, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m}{(fx+e)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m/(f*x+e)^2,x)
```

```
[Out] int((b*x+a)^m/(f*x+e)^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m}{(fx+e)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m/(f*x + e)^2,x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^m/(f*x + e)^2, x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{(bx+a)^m}{f^2x^2+2\,efx+e^2},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m/(f*x + e)^2,x, algorithm="fricas")
```

```
[Out] integral((b*x + a)^m/(f^2*x^2 + 2*e*f*x + e^2), x)
```

Sympy [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(a+bx)^m}{(e+fx)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m/(f*x+e)**2,x)
```

```
[Out] Integral((a + b*x)**m/(e + f*x)**2, x)
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m}{(fx+e)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m/(f*x + e)^2,x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m/(f*x + e)^2, x)
```

3.3172 $\int \frac{(a+bx)^m}{(c+dx)(e+fx)^2}\,dx$

Optimal. Leaf size=187

$$\frac{d^2(a+bx)^{m+1}\,{}_2F_1\left(1,m+1;m+2;-\frac{d(a+bx)}{bc-ad}\right)}{(m+1)(bc-ad)(de-cf)^2}+\frac{f(a+bx)^{m+1}(adf-b(cfm+de(1-m)))\,{}_2F_1\left(1,m+1;m+2;-\frac{f(a+bx)}{be-af}\right)}{(m+1)(be-af)^2(de-cf)^2}-\frac{f(a+bx)^{m+1}}{(e+fx)(be-af)(de-cf)}$$

```
[Out] -((f*(a + b*x)^(1 + m))/((b*e - a*f)*(d*e - c*f)*(e + f*x))) + (d
^2*(a + b*x)^(1 + m)*Hypergeometric2F1[1, 1 + m, 2 + m, -((d*(a +
 b*x))/(b*c - a*d))])/((b*c - a*d)*(d*e - c*f)^2*(1 + m)) + (f*(a
*d*f - b*(d*e*(1 - m) + c*f*m))*(a + b*x)^(1 + m)*Hypergeometric2
F1[1, 1 + m, 2 + m, -((f*(a + b*x))/(b*e - a*f))])/((b*e - a*f)^2
*(d*e - c*f)^2*(1 + m))
```

Rubi [A] time = 0.545902, antiderivative size = 187, normalized size of antiderivative = 1., number of steps used = 4, number of rules used = 3, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}}$ = 0.136

$$\frac{d^2(a+bx)^{m+1}\,{}_2F_1\left(1,m+1;m+2;-\frac{d(a+bx)}{bc-ad}\right)}{(m+1)(bc-ad)(de-cf)^2}+\frac{f(a+bx)^{m+1}(adf-bcfm-bde(1-m))\,{}_2F_1\left(1,m+1;m+2;-\frac{f(a+bx)}{be-af}\right)}{(m+1)(be-af)^2(de-cf)^2}-\frac{f(a+bx)^{m+1}}{(e+fx)(be-af)(de-cf)}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m/((c + d*x)*(e + f*x)^2),x]
```

```
[Out] -((f*(a + b*x)^(1 + m))/((b*e - a*f)*(d*e - c*f)*(e + f*x))) + (d
^2*(a + b*x)^(1 + m)*Hypergeometric2F1[1, 1 + m, 2 + m, -((d*(a +
 b*x))/(b*c - a*d))])/((b*c - a*d)*(d*e - c*f)^2*(1 + m)) + (f*(a
*d*f - b*d*e*(1 - m) - b*c*f*m)*(a + b*x)^(1 + m)*Hypergeometric2
F1[1, 1 + m, 2 + m, -((f*(a + b*x))/(b*e - a*f))])/((b*e - a*f)^2
*(d*e - c*f)^2*(1 + m))
```

Rubi in Sympy [A] time = 145.93, size = 150, normalized size = 0.8

$$-\frac{d^2\left(a+bx\right)^{m+1}{}_2F_1\left(\begin{matrix}1,m+1\\ m+2\end{matrix}\middle|\frac{d(a+bx)}{ad-bc}\right)}{(m+1)\left(ad-bc\right)\left(cf-de\right)^2}+\frac{f\left(a+bx\right)^{m+1}\left(adf-bcfm+bdem-bde\right){}_2F_1\left(\begin{matrix}1,m+1\\ m+2\end{matrix}\middle|\frac{f(a+bx)}{af-be}\right)}{(m+1)\left(af-be\right)^2\left(cf-de\right)^2}-\frac{f\left(a+bx\right)^{m+1}}{(e+fx)\left(af-be\right)\left(cf-de\right)}$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m/(d*x+c)/(f*x+e)**2,x)
```

```
[Out] -d**2*(a + b*x)**(m + 1)*hyper((1, m + 1), (m + 2,), d*(a + b*x)/
(a*d - b*c))/((m + 1)*(a*d - b*c)*(c*f - d*e)**2) + f*(a + b*x)**
(m + 1)*(a*d*f - b*c*f*m + b*d*e*m - b*d*e)*hyper((1, m + 1), (m
```

```
+ 2,), f*(a + b*x)/(a*f - b*e))/((m + 1)*(a*f - b*e)**2*(c*f - d*
e)**2) - f*(a + b*x)**(m + 1)/((e + f*x)*(a*f - b*e)*(c*f - d*e))
```

Mathematica [A] time = 0.0927666, size = 0, normalized size = 0.

$$\int \frac{(a+bx)^m}{(c+dx)(e+fx)^2}\,dx$$

Verification is Not applicable to the result.

```
[In]  Integrate[(a + b*x)^m/((c + d*x)*(e + f*x)^2),x]

[Out] Integrate[(a + b*x)^m/((c + d*x)*(e + f*x)^2), x]
```

Maple [F] time = 0.131, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m}{(dx+c)\,(fx+e)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m/(d*x+c)/(f*x+e)^2,x)

[Out] int((b*x+a)^m/(d*x+c)/(f*x+e)^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m}{(dx+c)(fx+e)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m/((d*x + c)*(f*x + e)^2),x, algorithm="maxima")

[Out] integrate((b*x + a)^m/((d*x + c)*(f*x + e)^2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\mathrm{integral}\left(\frac{(bx+a)^m}{df^2x^3+ce^2+(2\,def+cf^2)x^2+(de^2+2\,cef)x},x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m/((d*x + c)*(f*x + e)^2),x, algorithm="fricas")

[Out] integral((b*x + a)^m/(d*f^2*x^3 + c*e^2 + (2*d*e*f + c*f^2)*x^2 +
 (d*e^2 + 2*c*e*f)*x), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m/(d*x+c)/(f*x+e)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m}{(dx+c)(fx+e)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m/((d*x + c)*(f*x + e)^2),x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m/((d*x + c)*(f*x + e)^2), x)
```

3.3173 $\int \frac{(a+bx)^m}{(c+dx)^2(e+fx)^2}\,dx$

Optimal. Leaf size=281

$$\frac{d^2(a+bx)^{m+1}(2adf-b(cf(2-m)+dem))\,{}_2F_1\left(1,m+1;m+2;-\frac{d(a+bx)}{bc-ad}\right)}{(m+1)(bc-ad)^2(de-cf)^3} - \frac{f^2(a+bx)^{m+1}(2adf-b(cfm+de(2-m)))\,{}_2F_1\left(1,m+1;m+2;-\frac{f(a+bx)}{be-af}\right)}{(m+1)(be-af)^2(de-cf)^3} + \frac{f(a+bx)^{m+1}(-2adf+bcf+bde)}{(e+fx)(bc-ad)(be-af)(de-cf)^2} + \frac{d(a+bx)^{m+1}}{(c+dx)(e+fx)(bc-ad)(de-cf)}$$

```
[Out] (f*(b*d*e + b*c*f - 2*a*d*f)*(a + b*x)^(1 + m))/((b*c - a*d)*(b*e
 - a*f)*(d*e - c*f)^2*(e + f*x)) + (d*(a + b*x)^(1 + m))/((b*c -
a*d)*(d*e - c*f)*(c + d*x)*(e + f*x)) + (d^2*(2*a*d*f - b*(c*f*(2
 - m) + d*e*m))*(a + b*x)^(1 + m)*Hypergeometric2F1[1, 1 + m, 2 +
 m, -((d*(a + b*x))/(b*c - a*d))])/((b*c - a*d)^2*(d*e - c*f)^3*(
1 + m)) - (f^2*(2*a*d*f - b*(d*e*(2 - m) + c*f*m))*(a + b*x)^(1 +
 m)*Hypergeometric2F1[1, 1 + m, 2 + m, -((f*(a + b*x))/(b*e - a*f
))])/((b*e - a*f)^2*(d*e - c*f)^3*(1 + m))
```

Rubi [A] time = 1.2358, antiderivative size = 281, normalized size of antiderivative = 1., number of steps used = 5, number of rules used = 4, integrand size = 22, $\frac{\text{number of rules}}{\text{integrand size}} = 0.182$

$$\frac{d^2(a+bx)^{m+1}(2adf-bcf(2-m)-bdem)\,{}_2F_1\left(1,m+1;m+2;-\frac{d(a+bx)}{bc-ad}\right)}{(m+1)(bc-ad)^2(de-cf)^3} - \frac{f^2(a+bx)^{m+1}(2adf-bcfm-bde(2-m))\,{}_2F_1\left(1,m+1;m+2;-\frac{f(a+bx)}{be-af}\right)}{(m+1)(be-af)^2(de-cf)^3} + \frac{f(a+bx)^{m+1}(-2adf+bcf+bde)}{(e+fx)(bc-ad)(be-af)(de-cf)^2} + \frac{d(a+bx)^{m+1}}{(c+dx)(e+fx)(bc-ad)(de-cf)}$$

Antiderivative was successfully verified.

```
[In]  Int[(a + b*x)^m/((c + d*x)^2*(e + f*x)^2),x]
```

```
[Out] (f*(b*d*e + b*c*f - 2*a*d*f)*(a + b*x)^(1 + m))/((b*c - a*d)*(b*e
 - a*f)*(d*e - c*f)^2*(e + f*x)) + (d*(a + b*x)^(1 + m))/((b*c -
a*d)*(d*e - c*f)*(c + d*x)*(e + f*x)) + (d^2*(2*a*d*f - b*c*f*(2
- m) - b*d*e*m)*(a + b*x)^(1 + m)*Hypergeometric2F1[1, 1 + m, 2 +
 m, -((d*(a + b*x))/(b*c - a*d))])/((b*c - a*d)^2*(d*e - c*f)^3*(
1 + m)) - (f^2*(2*a*d*f - b*d*e*(2 - m) - b*c*f*m)*(a + b*x)^(1 +
 m)*Hypergeometric2F1[1, 1 + m, 2 + m, -((f*(a + b*x))/(b*e - a*f
))])/((b*e - a*f)^2*(d*e - c*f)^3*(1 + m))
```

Rubi in Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  rubi_integrate((b*x+a)**m/(d*x+c)**2/(f*x+e)**2,x)
```

```
[Out] Timed out
```

Mathematica [A] time = 0.134376, size = 0, normalized size = 0.

$$\int \frac{(a+bx)^m}{(c+dx)^2(e+fx)^2}\,dx$$

Verification is Not applicable to the result.

```
[In]  Integrate[(a + b*x)^m/((c + d*x)^2*(e + f*x)^2),x]
```

```
[Out] Integrate[(a + b*x)^m/((c + d*x)^2*(e + f*x)^2), x]
```

Maple [F] time = 0.125, size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m}{(dx+c)^2 (fx+e)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  int((b*x+a)^m/(d*x+c)^2/(f*x+e)^2,x)
```

```
[Out] int((b*x+a)^m/(d*x+c)^2/(f*x+e)^2,x)
```

Maxima [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m}{(dx+c)^2(fx+e)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m/((d*x + c)^2*(f*x + e)^2),x, algorithm="maxima")
```

```
[Out] integrate((b*x + a)^m/((d*x + c)^2*(f*x + e)^2), x)
```

Fricas [F] time = 0., size = 0, normalized size = 0.

$$\text{integral}\left(\frac{(bx+a)^m}{d^2f^2x^4 + c^2e^2 + 2\,(d^2ef + cdf^2)x^3 + (d^2e^2 + 4\,cdef + c^2f^2)x^2 + 2\,(cde^2 + c^2ef)x}, x\right)$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m/((d*x + c)^2*(f*x + e)^2),x, algorithm="fricas")
```

```
[Out] integral((b*x + a)^m/(d^2*f^2*x^4 + c^2*e^2 + 2*(d^2*e*f + c*d*f^
2)*x^3 + (d^2*e^2 + 4*c*d*e*f + c^2*f^2)*x^2 + 2*(c*d*e^2 + c^2*e
*f)*x), x)
```

Sympy [F(-1)] time = 0., size = 0, normalized size = 0.

Timed out

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x+a)**m/(d*x+c)**2/(f*x+e)**2,x)
```

```
[Out] Timed out
```

GIAC/XCAS [F] time = 0., size = 0, normalized size = 0.

$$\int \frac{(bx+a)^m}{(dx+c)^2(fx+e)^2}\,dx$$

Verification of antiderivative is not currently implemented for this CAS.

```
[In]  integrate((b*x + a)^m/((d*x + c)^2*(f*x + e)^2),x, algorithm="giac")
```

```
[Out] integrate((b*x + a)^m/((d*x + c)^2*(f*x + e)^2), x)
```

4 Listing of Grading functions

The following are the current version of the grading functions used for grading the quality of the antiderivative with reference to the optimal antiderivative included in the test suite.

There is a version for Mathematica/Rubi followed by one for Maple. The following are links to the source code.

The following are the listing of the above functions.

```
(* Original version thanks to Albert Rich emailed on 03/21/2017 *)
(* ::Package:: *)
(* ::Subsection:: *)
(*GradeAntiderivative[result,optimal]*)

(* ::Text:: *)
(*If result and optimal are mathematical expressions, *)
(*          GradeAntiderivative[result,optimal] returns*)
(*  "F" if the result fails to integrate an expression that*)
(*      is integrable*)
(*  "C" if result involves higher level functions than necessary*)
(*  "B" if result is more than twice the size of the optimal*)
(*      antiderivative*)
(*  "A" if result can be considered optimal*)

GradeAntiderivative[result_,optimal_] :=
  If[ExpnType[result]<=ExpnType[optimal],
    If[FreeQ[result,Complex] || Not[FreeQ[optimal,Complex]],
      If[LeafCount[result]<=2*LeafCount[optimal],
        "A",
      "B"],
    "C"],
  If[FreeQ[result,Integrate] && FreeQ[result,Int],
    "C",
  "F"]]

(* ::Text:: *)
(*The following summarizes the type number assigned an *)
(*expression based on the functions it involves*)
(*1 = rational function*)
(*2 = algebraic function*)
(*3 = elementary function*)
(*4 = special function*)
(*5 = hyperpergeometric function*)
(*6 = appell function*)
(*7 = rootsum function*)
(*8 = integrate function*)
(*9 = unknown function*)
```

```
ExpnType[expn_] :=
  If[AtomQ[expn], 1,
  If[ListQ[expn],
    Max[Map[ExpnType,expn]],
  If[Head[expn]===Power,
    If[IntegerQ[expn[[2]]],
      ExpnType[expn[[1]]],
    If[Head[expn[[2]]]===Rational,
      If[IntegerQ[expn[[1]]] || Head[expn[[1]]]===Rational,1,
      Max[ExpnType[expn[[1]]],2]],
    Max[ExpnType[expn[[1]]],ExpnType[expn[[2]]],3]]],
  If[Head[expn]===Plus || Head[expn]===Times,
    Max[ExpnType[First[expn]],ExpnType[Rest[expn]]],
  If[ElementaryFunctionQ[Head[expn]],
    Max[3,ExpnType[expn[[1]]]]],
  If[SpecialFunctionQ[Head[expn]],
    Apply[Max,Append[Map[ExpnType,Apply[List,expn]],4]],
  If[HypergeometricFunctionQ[Head[expn]],
    Apply[Max,Append[Map[ExpnType,Apply[List,expn]],5]],
  If[AppellFunctionQ[Head[expn]],
    Apply[Max,Append[Map[ExpnType,Apply[List,expn]],6]],
  If[Head[expn]===RootSum,
    Apply[Max,Append[Map[ExpnType,Apply[List,expn]],7]],
  If[Head[expn]===Integrate || Head[expn]===Int,
    Apply[Max,Append[Map[ExpnType,Apply[List,expn]],8]],
  9]]]]]]]]]]
```

```
ElementaryFunctionQ[func_] :=
  MemberQ[{
        Exp,Log,
        Sin,Cos,Tan,Cot,Sec,Csc,
        ArcSin,ArcCos,ArcTan,ArcCot,ArcSec,ArcCsc,
        Sinh,Cosh,Tanh,Coth,Sech,Csch,
        ArcSinh,ArcCosh,ArcTanh,ArcCoth,ArcSech,ArcCsch
},func]

SpecialFunctionQ[func_] :=
  MemberQ[{
        Erf, Erfc, Erfi,
        FresnelS, FresnelC,
        ExpIntegralE, ExpIntegralEi, LogIntegral,
        SinIntegral, CosIntegral, SinhIntegral, CoshIntegral,
        Gamma, LogGamma, PolyGamma,
        Zeta, PolyLog, ProductLog,
        EllipticF, EllipticE, EllipticPi
},func]
HypergeometricFunctionQ[func_] := MemberQ[{Hypergeometric1F1,Hypergeometric2F1,HypergeometricPFQ},func]
AppellFunctionQ[func_] := MemberQ[{AppellF1},func]
```

```
# File: GradeAntiderivative.mpl Original version thanks to Albert Rich emailed on 03/21/2017
#Nasser 03/22/2017  Use Maple leaf count instead since buildin
#Nasser 03/23/2017  missing 'ln' for ElementaryFunctionQ added
#Nasser 03/24/2017  corrected the check for complex result
#Nasser 10/27/2017  check for leafsize and do not call ExpnType()
#                   if leaf size is "too large". Set at 500,000
GradeAntiderivative := proc(result,optimal)
local leaf_count_result, leaf_count_optimal,ExpnType_result,ExpnType_optimal;

      leaf_count_result:=leafcount(result);
      #do NOT call ExpnType() if leaf size is too large. Recursion problem
      if leaf_count_result > 500000 then
          return "B";
      fi;

      leaf_count_optimal:=leafcount(optimal);

      ExpnType_result:=ExpnType(result);
      ExpnType_optimal:=ExpnType(optimal);
  #This check below actually is not needed, since I only call this grading only for
  #passed integrals. i.e. I check for "F" before calling this.

  if not type(result,freeof('int')) then
     return "F";
  end if;

  if ExpnType_result<=ExpnType_optimal then
      if is_contains_complex(result) then
         if is_contains_complex(optimal) then
            #both result and optimal complex
            if leaf_count_result<=2*leaf_count_optimal then
               return "A";
            else
               return "B";
            end if
         else #result contains complex but optimal is not
            return "C";
         end if
      else # result do not contain complex
           # this assumes optimal do not as well
         if leaf_count_result<=2*leaf_count_optimal then
            return "A";
         else
            return "B";
         end if
      end if
  else #ExpnType(result) > ExpnType(optimal)
      return "C";
  end if
end proc:
```

```
# is_contains_complex(result) takes expressions and returns true if it contains "I"
#Nasser 032417
is_contains_complex:= proc(expression)
  return (has(expression,I));
end proc:

ExpnType := proc(expn)
  if type(expn,'atomic') then
    1
  elif type(expn,'list') then
    apply(max,map(ExpnType,expn))
  elif type(expn,'sqrt') then
    if type(op(1,expn),'rational') then
      1 else
    max(2,ExpnType(op(1,expn)))
    end if
  elif type(expn,'`^`') then
    if type(op(2,expn),'integer') then
      ExpnType(op(1,expn))
    elif type(op(2,expn),'rational') then
      if type(op(1,expn),'rational') then
        1 else
      max(2,ExpnType(op(1,expn))) end if else
    max(3,ExpnType(op(1,expn)),ExpnType(op(2,expn)))
    end if
  elif type(expn,'`+`') or type(expn,'`*`') then
    max(ExpnType(op(1,expn)),max(ExpnType(rest(expn))))
  elif ElementaryFunctionQ(op(0,expn)) then
    max(3,ExpnType(op(1,expn)))
  elif SpecialFunctionQ(op(0,expn)) then
    max(4,apply(max,map(ExpnType,[op(expn)])))
  elif HypergeometricFunctionQ(op(0,expn)) then
    max(5,apply(max,map(ExpnType,[op(expn)])))
  elif AppellFunctionQ(op(0,expn)) then
    max(6,apply(max,map(ExpnType,[op(expn)])))
  elif op(0,expn)='int' or op(0,expn)='integrate' then
    max(8,apply(max,map(ExpnType,[op(expn)]))) else
  9
  end if
end proc:
```

```
ElementaryFunctionQ := proc(func)
  member(func,[exp,log,ln, sin,cos,tan,cot,sec,csc,
        arcsin,arccos,arctan,arccot,arcsec,arccsc,
        sinh,cosh,tanh,coth,sech,csch,
        arcsinh,arccosh,arctanh,arccoth,arcsech,arccsch])
end proc:

SpecialFunctionQ := proc(func)
  member(func,[erf,erfc,erfi,FresnelS,FresnelC,Ei,Ei,Li,Si,Ci,Shi,Chi,
        GAMMA,lnGAMMA,Psi,Zeta,polylog,LambertW,
        EllipticF,EllipticE,EllipticPi])
end proc:

HypergeometricFunctionQ := proc(func)
  member(func,[Hypergeometric1F1,hypergeom,HypergeometricPFQ])
end proc:
AppellFunctionQ := proc(func)
  member(func,[AppellF1])
end proc:

# u is a sum or product.  rest(u) returns all but the first term or factor of u.
rest := proc(u) local v;
  if nops(u)=2 then
    op(2,u) else
  apply(op(0,u),op(2..nops(u),u))
  end if
end proc:
#leafcount(u) returns the number of nodes in u.
#Nasser 3/23/17  Replaced by build-in leafCount from package in Maple
leafcount := proc(u)
   MmaTranslator[Mma][LeafCount](u);
end proc:
```